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NAVFAC
Naval Facilities Engineering Command

Groundwater Sample Results, Level 4 Laboratory Report, Electronic Data Deliverable, Data Validation Report, and the Sample Location Report, SDG 1803626

Marine Corps Air Station Yuma
Yuma, Arizona

November 2019

APPROVED FOR PUBLIC RELEASE: DISTRIBUTION UNLIMITED

November 30, 2018

Vista Work Order No. 1803626

Ms. Sabina Sudoko
Tetra Tech EC, Inc.
17885 Von Karman Avenue, Suite 500
Irvine, CA 92614

Dear Ms. Sudoko,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on November 14, 2018 under your Project Name '4663.3803'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Martha Maier
Laboratory Director

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAP for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Work Order No. 1803626
Case Narrative

Sample Condition on Receipt:

Nine water samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology.

Analytical Notes:

PFAS Isotope Dilution Method

The samples were extracted and analyzed for a selected list of PFAS using the PFAS Isotope Dilution Method (Modified EPA Method 537). The results for PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Results for all other analytes include the linear isomers only.

Holding Times

The samples were extracted and analyzed within the method hold times.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Laboratory Control Sample (LCS)/Laboratory Control Sample Duplicate (LCSD) were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above 1/2 of the LOQ concentrations. The LCS/LCSD recoveries were within the acceptance criteria.

The extract of "B8K0097-BSD1" was re-injected because one or more Injection Internal Standard Analyte response areas were outside of criteria. The results were similar in the second injection. The results from the original injection has been reported.

The extract of sample "16-MW-06-SA2" was re-injected because it followed an extract with an analyte with a concentration greater than the highest point in the calibration curve. The results from the re-injection have been reported.

The labeled standard recoveries for all QC and field samples were within the acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1803626-01	16-HS-03-SA2	13-Nov-18 12:00	14-Nov-18 09:07	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1803626-02	16-MW-06-SA2	13-Nov-18 09:38	14-Nov-18 09:07	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1803626-03	16-MW-08-SA2	13-Nov-18 13:00	14-Nov-18 09:07	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1803626-04	16-MW-09-SA2	13-Nov-18 13:44	14-Nov-18 09:07	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1803626-05	A1-MW-18-SA2	13-Nov-18 10:31	14-Nov-18 09:07	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1803626-06	A1-MW-19-SA2	13-Nov-18 11:15	14-Nov-18 09:07	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1803626-07	FRB-20181113	13-Nov-18 15:20	14-Nov-18 09:07	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1803626-08	A1-MW-53-SA2	13-Nov-18 14:54	14-Nov-18 09:07	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1803626-09	16-HS-03-SA2D	13-Nov-18 12:10	14-Nov-18 09:07	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL

ANALYTICAL RESULTS

Sample ID: Method Blank

PFAS Isotope Dilution Method

Client Data

Name: Tetra Tech EC, Inc.
Project: 4663.3803
Matrix: Aqueous

Laboratory Data

Lab Sample: B8K0097-BLK1
Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.00274	0.00400	0.00800	U	B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
PFHxA	307-24-4	ND	0.00274	0.00400	0.00800	U	B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
PFHpA	375-85-9	ND	0.00274	0.00400	0.00800	U	B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
PFHxS	355-46-4	ND	0.00274	0.00400	0.00800	U	B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
PFOA	335-67-1	ND	0.00274	0.00400	0.00800	U	B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
PFNA	375-95-1	ND	0.00274	0.00400	0.00800	U	B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
PFOS	1763-23-1	ND	0.00274	0.00400	0.00800	U	B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
PFDA	335-76-2	ND	0.00274	0.00400	0.00800	U	B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
MeFOSAA	2355-31-9	ND	0.00274	0.00400	0.00800	U	B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
EtFOSAA	2991-50-6	ND	0.00274	0.00400	0.00800	U	B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
PFUnA	2058-94-8	ND	0.00274	0.00400	0.00800	U	B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
PFDoA	307-55-1	ND	0.00274	0.00400	0.00800	U	B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
PFTrDA	72629-94-8	ND	0.00274	0.00400	0.00800	U	B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
PFTeDA	376-06-7	ND	0.00274	0.00400	0.00800	U	B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	93.6	50 - 150		B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
13C2-PFHxA	IS	99.0	50 - 150		B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
13C4-PFHpA	IS	95.7	50 - 150		B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
18O2-PFHxS	IS	95.8	50 - 150		B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
13C2-PFOA	IS	87.1	50 - 150		B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
13C5-PFNA	IS	79.6	50 - 150		B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
13C8-PFOS	IS	94.2	50 - 150		B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
13C2-PFDA	IS	71.4	50 - 150		B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
d3-MeFOSAA	IS	70.2	50 - 150		B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
d5-EtFOSAA	IS	72.3	50 - 150		B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
13C2-PFUnA	IS	60.4	50 - 150		B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
13C2-PFDoA	IS	69.2	50 - 150		B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1
13C2-PFTeDA	IS	67.3	50 - 150		B8K0097	20-Nov-18	0.125 L	21-Nov-18 16:29	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: LCSD **PFAS Isotope Dilution Method**

Name:	Tetra Tech EC, Inc.	Lab Sample:	B8K0097-BS1/B8K0097-BSD1		
Project:	4663.3803	QC Batch:	B8K0097	Date Extracted:	20-Nov-18
Matrix:	Aqueous	Samp Size:	0.125/0.125 L	Column:	BEH C18

Analyte	CAS Number	LCS (ug/L)	LCS Spike Amt	LCS % Rec	LCS Quals	LCSD (ug/L)	LCSD Spike Amt	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBS	375-73-5	0.0822	0.0800	103		0.0777	0.0800	97.1	5.58		70-130	30	21-Nov-18 16:08	1	21-Nov-18 16:19	1
PFHxA	307-24-4	0.0815	0.0800	102		0.0809	0.0800	101	0.759		70-130	30	21-Nov-18 16:08	1	21-Nov-18 16:19	1
PFHpA	375-85-9	0.0810	0.0800	101		0.0797	0.0800	99.7	1.56		70-130	30	21-Nov-18 16:08	1	21-Nov-18 16:19	1
PFHxS	355-46-4	0.0768	0.0800	95.9		0.0724	0.0800	90.6	5.78		70-130	30	21-Nov-18 16:08	1	21-Nov-18 16:19	1
PFOA	335-67-1	0.0844	0.0800	106		0.0846	0.0800	106	0.185		70-130	30	21-Nov-18 16:08	1	21-Nov-18 16:19	1
PFNA	375-95-1	0.0731	0.0800	91.3		0.0797	0.0800	99.6	8.64		70-130	30	21-Nov-18 16:08	1	21-Nov-18 16:19	1
PFOS	1763-23-1	0.0817	0.0800	102		0.0792	0.0800	99.0	3.05		70-130	30	21-Nov-18 16:08	1	21-Nov-18 16:19	1
PFDA	335-76-2	0.0805	0.0800	101		0.0790	0.0800	98.7	1.95		70-130	30	21-Nov-18 16:08	1	21-Nov-18 16:19	1
MeFOSAA	2355-31-9	0.0721	0.0800	90.1		0.0682	0.0800	85.2	5.63		70-130	30	21-Nov-18 16:08	1	21-Nov-18 16:19	1
EtFOSAA	2991-50-6	0.0669	0.0800	83.6		0.0695	0.0800	86.9	3.76		70-130	30	21-Nov-18 16:08	1	21-Nov-18 16:19	1
PFUnA	2058-94-8	0.0769	0.0800	96.1		0.0826	0.0800	103	7.18		70-130	30	21-Nov-18 16:08	1	21-Nov-18 16:19	1
PFDoA	307-55-1	0.0793	0.0800	99.1		0.0829	0.0800	104	4.47		70-130	30	21-Nov-18 16:08	1	21-Nov-18 16:19	1
PFTrDA	72629-94-8	0.0829	0.0800	104		0.0820	0.0800	102	1.17		70-130	30	21-Nov-18 16:08	1	21-Nov-18 16:19	1
PFTeDA	376-06-7	0.0819	0.0800	102		0.0816	0.0800	102	0.300		70-130	30	21-Nov-18 16:08	1	21-Nov-18 16:19	1

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C3-PFBS	IS	96.7		93.9		50-150	21-Nov-18 16:08	1	21-Nov-18 16:19	1
13C2-PFHxA	IS	94.6		92.7		50-150	21-Nov-18 16:08	1	21-Nov-18 16:19	1
13C4-PFHpA	IS	86.4		91.7		50-150	21-Nov-18 16:08	1	21-Nov-18 16:19	1
18O2-PFHxS	IS	98.2		89.1		50-150	21-Nov-18 16:08	1	21-Nov-18 16:19	1
13C2-PFOA	IS	88.9		82.9		50-150	21-Nov-18 16:08	1	21-Nov-18 16:19	1
13C5-PFNA	IS	84.6		78.9		50-150	21-Nov-18 16:08	1	21-Nov-18 16:19	1
13C8-PFOS	IS	94.9		89.5		50-150	21-Nov-18 16:08	1	21-Nov-18 16:19	1
13C2-PFDA	IS	79.0		77.7		50-150	21-Nov-18 16:08	1	21-Nov-18 16:19	1
d3-MeFOSAA	IS	83.7		77.5		50-150	21-Nov-18 16:08	1	21-Nov-18 16:19	1
d5-EtFOSAA	IS	87.9		76.5		50-150	21-Nov-18 16:08	1	21-Nov-18 16:19	1
13C2-PFUnA	IS	71.1		67.8		50-150	21-Nov-18 16:08	1	21-Nov-18 16:19	1
13C2-PFDoA	IS	83.6		71.2		50-150	21-Nov-18 16:08	1	21-Nov-18 16:19	1
13C2-PFTeDA	IS	82.2		73.7		50-150	21-Nov-18 16:08	1	21-Nov-18 16:19	1

Sample ID: 16-HS-03-SA2

PFAS Isotope Dilution Method

Client Data

Name: Tetra Tech EC, Inc.
Project: 4663.3803
Location: YUMA, AZ

Matrix: Water
Date Collected: 13-Nov-18 12:00

Laboratory Data

Lab Sample: 1803626-01
Date Received: 14-Nov-18 09:07

Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	1.34	0.00290	0.00424	0.00848		B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
PFHxA	307-24-4	10.3	0.0145	0.0212	0.0424	D	B8K0097	20-Nov-18	0.118 L	27-Nov-18 04:56	5
PFHpA	375-85-9	0.405	0.00290	0.00424	0.00848		B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
PFHxS	355-46-4	0.324	0.00290	0.00424	0.00848		B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
PFOA	335-67-1	0.0206	0.00290	0.00424	0.00848		B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
PFNA	375-95-1	ND	0.00290	0.00424	0.00848	U	B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
PFOS	1763-23-1	ND	0.00290	0.00424	0.00848	U	B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
PFDA	335-76-2	ND	0.00290	0.00424	0.00848	U	B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
MeFOSAA	2355-31-9	ND	0.00290	0.00424	0.00848	U	B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
EtFOSAA	2991-50-6	ND	0.00290	0.00424	0.00848	U	B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
PFUnA	2058-94-8	ND	0.00290	0.00424	0.00848	U	B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
PFDoA	307-55-1	ND	0.00290	0.00424	0.00848	U	B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
PFTrDA	72629-94-8	ND	0.00290	0.00424	0.00848	U	B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
PFTeDA	376-06-7	ND	0.00290	0.00424	0.00848	U	B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	86.1	50 - 150		B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
13C2-PFHxA	IS	108	50 - 150	D	B8K0097	20-Nov-18	0.118 L	27-Nov-18 04:56	5
13C4-PFHpA	IS	135	50 - 150		B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
18O2-PFHxS	IS	92.3	50 - 150		B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
13C2-PFOA	IS	86.8	50 - 150		B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
13C5-PFNA	IS	82.7	50 - 150		B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
13C8-PFOS	IS	93.7	50 - 150		B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
13C2-PFDA	IS	75.0	50 - 150		B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
d3-MeFOSAA	IS	94.5	50 - 150		B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
d5-EtFOSAA	IS	96.3	50 - 150		B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
13C2-PFUnA	IS	72.7	50 - 150		B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
13C2-PFDoA	IS	75.2	50 - 150		B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1
13C2-PFTeDA	IS	77.0	50 - 150		B8K0097	20-Nov-18	0.118 L	21-Nov-18 16:40	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: 16-MW-06-SA2

PFAS Isotope Dilution Method

Client Data

Name: Tetra Tech EC, Inc.
Project: 4663.3803
Location: YUMA, AZ

Matrix: Water
Date Collected: 13-Nov-18 09:38

Laboratory Data

Lab Sample: 1803626-02
Date Received: 14-Nov-18 09:07

Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.0432	0.00286	0.00417	0.00835		B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
PFHxA	307-24-4	0.0962	0.00286	0.00417	0.00835		B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
PFHpA	375-85-9	0.0780	0.00286	0.00417	0.00835		B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
PFHxS	355-46-4	0.404	0.00286	0.00417	0.00835		B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
PFOA	335-67-1	0.153	0.00286	0.00417	0.00835		B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
PFNA	375-95-1	ND	0.00286	0.00417	0.00835	U	B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
PFOS	1763-23-1	0.00582	0.00286	0.00417	0.00835	J	B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
PFDA	335-76-2	ND	0.00286	0.00417	0.00835	U	B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
MeFOSAA	2355-31-9	ND	0.00286	0.00417	0.00835	U	B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
EtFOSAA	2991-50-6	ND	0.00286	0.00417	0.00835	U	B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
PFUnA	2058-94-8	ND	0.00286	0.00417	0.00835	U	B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
PFDoA	307-55-1	ND	0.00286	0.00417	0.00835	U	B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
PFTrDA	72629-94-8	ND	0.00286	0.00417	0.00835	U	B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
PFTeDA	376-06-7	ND	0.00286	0.00417	0.00835	U	B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	96.9	50 - 150		B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
13C2-PFHxA	IS	88.4	50 - 150		B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
13C4-PFHpA	IS	84.3	50 - 150		B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
18O2-PFHxS	IS	103	50 - 150		B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
13C2-PFOA	IS	90.3	50 - 150		B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
13C5-PFNA	IS	81.1	50 - 150		B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
13C8-PFOS	IS	86.1	50 - 150		B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
13C2-PFDA	IS	73.2	50 - 150		B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
d3-MeFOSAA	IS	78.0	50 - 150		B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
d5-EtFOSAA	IS	88.9	50 - 150		B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
13C2-PFUnA	IS	69.0	50 - 150		B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
13C2-PFDoA	IS	66.4	50 - 150		B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1
13C2-PFTeDA	IS	75.9	50 - 150		B8K0097	20-Nov-18	0.120 L	27-Nov-18 04:45	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: 16-MW-08-SA2

PFAS Isotope Dilution Method

Client Data

Name: Tetra Tech EC, Inc.
Project: 4663.3803
Location: YUMA, AZ

Matrix: Water
Date Collected: 13-Nov-18 13:00

Laboratory Data

Lab Sample: 1803626-03
Date Received: 14-Nov-18 09:07

Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.109	0.00286	0.00417	0.00836		B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
PFHxA	307-24-4	0.314	0.00286	0.00417	0.00836		B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
PFHpA	375-85-9	0.0651	0.00286	0.00417	0.00836		B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
PFHxS	355-46-4	0.261	0.00286	0.00417	0.00836		B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
PFOA	335-67-1	0.0562	0.00286	0.00417	0.00836		B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
PFNA	375-95-1	ND	0.00286	0.00417	0.00836	U	B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
PFOS	1763-23-1	0.0358	0.00286	0.00417	0.00836		B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
PFDA	335-76-2	ND	0.00286	0.00417	0.00836	U	B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
MeFOSAA	2355-31-9	ND	0.00286	0.00417	0.00836	U	B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
EtFOSAA	2991-50-6	ND	0.00286	0.00417	0.00836	U	B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
PFUnA	2058-94-8	ND	0.00286	0.00417	0.00836	U	B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
PFDoA	307-55-1	ND	0.00286	0.00417	0.00836	U	B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
PFTrDA	72629-94-8	ND	0.00286	0.00417	0.00836	U	B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
PFTeDA	376-06-7	ND	0.00286	0.00417	0.00836	U	B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	98.2	50 - 150		B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
13C2-PFHxA	IS	93.1	50 - 150		B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
13C4-PFHpA	IS	97.3	50 - 150		B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
18O2-PFHxS	IS	96.5	50 - 150		B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
13C2-PFOA	IS	83.6	50 - 150		B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
13C5-PFNA	IS	80.4	50 - 150		B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
13C8-PFOS	IS	100	50 - 150		B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
13C2-PFDA	IS	76.2	50 - 150		B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
d3-MeFOSAA	IS	81.4	50 - 150		B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
d5-EtFOSAA	IS	89.8	50 - 150		B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
13C2-PFUnA	IS	73.9	50 - 150		B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
13C2-PFDoA	IS	70.3	50 - 150		B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1
13C2-PFTeDA	IS	72.9	50 - 150		B8K0097	20-Nov-18	0.120 L	21-Nov-18 17:22	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: 16-MW-09-SA2

PFAS Isotope Dilution Method

Client Data

Name: Tetra Tech EC, Inc.
Project: 4663.3803
Location: YUMA, AZ

Matrix: Water
Date Collected: 13-Nov-18 13:44

Laboratory Data

Lab Sample: 1803626-04
Date Received: 14-Nov-18 09:07

Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.0818	0.00292	0.00427	0.00852		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
PFHxA	307-24-4	0.139	0.00292	0.00427	0.00852		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
PFHpA	375-85-9	0.0107	0.00292	0.00427	0.00852		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
PFHxS	355-46-4	0.0143	0.00292	0.00427	0.00852		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
PFOA	335-67-1	0.00449	0.00292	0.00427	0.00852	J	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
PFNA	375-95-1	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
PFOS	1763-23-1	0.00503	0.00292	0.00427	0.00852	J	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
PFDA	335-76-2	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
MeFOSAA	2355-31-9	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
EtFOSAA	2991-50-6	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
PFUnA	2058-94-8	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
PFDoA	307-55-1	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
PFTrDA	72629-94-8	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
PFTeDA	376-06-7	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	97.5	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
13C2-PFHxA	IS	97.1	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
13C4-PFHpA	IS	101	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
18O2-PFHxS	IS	92.1	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
13C2-PFOA	IS	88.2	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
13C5-PFNA	IS	82.7	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
13C8-PFOS	IS	94.5	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
13C2-PFDA	IS	85.9	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
d3-MeFOSAA	IS	86.8	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
d5-EtFOSAA	IS	94.8	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
13C2-PFUnA	IS	70.4	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
13C2-PFDoA	IS	78.1	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1
13C2-PFTeDA	IS	75.2	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:33	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: A1-MW-18-SA2

PFAS Isotope Dilution Method

Client Data

Name: Tetra Tech EC, Inc.
Project: 4663.3803
Location: YUMA, AZ

Matrix: Water
Date Collected: 13-Nov-18 10:31

Laboratory Data

Lab Sample: 1803626-05
Date Received: 14-Nov-18 09:07

Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.0284	0.00293	0.00427	0.00856		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
PFHxA	307-24-4	0.0586	0.00293	0.00427	0.00856		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
PFHpA	375-85-9	0.0108	0.00293	0.00427	0.00856		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
PFHxS	355-46-4	0.0433	0.00293	0.00427	0.00856		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
PFOA	335-67-1	0.00309	0.00293	0.00427	0.00856	J	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
PFNA	375-95-1	ND	0.00293	0.00427	0.00856	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
PFOS	1763-23-1	ND	0.00293	0.00427	0.00856	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
PFDA	335-76-2	ND	0.00293	0.00427	0.00856	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
MeFOSAA	2355-31-9	ND	0.00293	0.00427	0.00856	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
EtFOSAA	2991-50-6	ND	0.00293	0.00427	0.00856	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
PFUnA	2058-94-8	ND	0.00293	0.00427	0.00856	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
PFDoA	307-55-1	ND	0.00293	0.00427	0.00856	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
PFTrDA	72629-94-8	ND	0.00293	0.00427	0.00856	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
PFTeDA	376-06-7	ND	0.00293	0.00427	0.00856	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	97.9	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
13C2-PFHxA	IS	90.8	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
13C4-PFHpA	IS	92.3	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
18O2-PFHxS	IS	96.4	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
13C2-PFOA	IS	84.4	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
13C5-PFNA	IS	78.9	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
13C8-PFOS	IS	85.1	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
13C2-PFDA	IS	74.5	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
d3-MeFOSAA	IS	84.0	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
d5-EtFOSAA	IS	87.5	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
13C2-PFUnA	IS	68.7	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
13C2-PFDoA	IS	75.9	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1
13C2-PFTeDA	IS	69.6	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 17:44	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: A1-MW-19-SA2

PFAS Isotope Dilution Method

Client Data

Name: Tetra Tech EC, Inc.
Project: 4663.3803
Location: YUMA, AZ
Matrix: Water
Date Collected: 13-Nov-18 11:15

Laboratory Data

Lab Sample: 1803626-06
Date Received: 14-Nov-18 09:07
Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.0311	0.00295	0.00431	0.00861		B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
PFHxA	307-24-4	0.0605	0.00295	0.00431	0.00861		B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
PFHpA	375-85-9	0.0161	0.00295	0.00431	0.00861		B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
PFHxS	355-46-4	0.0934	0.00295	0.00431	0.00861		B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
PFOA	335-67-1	0.0358	0.00295	0.00431	0.00861		B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
PFNA	375-95-1	0.00398	0.00295	0.00431	0.00861	J	B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
PFOS	1763-23-1	0.0580	0.00295	0.00431	0.00861		B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
PFDA	335-76-2	0.00721	0.00295	0.00431	0.00861	J	B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
MeFOSAA	2355-31-9	ND	0.00295	0.00431	0.00861	U	B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
EtFOSAA	2991-50-6	ND	0.00295	0.00431	0.00861	U	B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
PFUnA	2058-94-8	ND	0.00295	0.00431	0.00861	U	B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
PFDoA	307-55-1	ND	0.00295	0.00431	0.00861	U	B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
PFTrDA	72629-94-8	ND	0.00295	0.00431	0.00861	U	B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
PFTeDA	376-06-7	ND	0.00295	0.00431	0.00861	U	B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	104	50 - 150		B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
13C2-PFHxA	IS	101	50 - 150		B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
13C4-PFHpA	IS	96.5	50 - 150		B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
18O2-PFHxS	IS	95.6	50 - 150		B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
13C2-PFOA	IS	95.5	50 - 150		B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
13C5-PFNA	IS	86.7	50 - 150		B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
13C8-PFOS	IS	97.8	50 - 150		B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
13C2-PFDA	IS	77.3	50 - 150		B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
d3-MeFOSAA	IS	91.4	50 - 150		B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
d5-EtFOSAA	IS	95.7	50 - 150		B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
13C2-PFUnA	IS	74.2	50 - 150		B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
13C2-PFDoA	IS	74.2	50 - 150		B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1
13C2-PFTeDA	IS	74.3	50 - 150		B8K0097	20-Nov-18	0.116 L	21-Nov-18 17:54	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: FRB-20181113

PFAS Isotope Dilution Method

Client Data

Name: Tetra Tech EC, Inc.
Project: 4663.3803
Location: YUMA, AZ

Matrix: Water
Date Collected: 13-Nov-18 15:20

Laboratory Data

Lab Sample: 1803626-07
Date Received: 14-Nov-18 09:07

Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
PFHxA	307-24-4	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
PFHpA	375-85-9	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
PFHxS	355-46-4	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
PFOA	335-67-1	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
PFNA	375-95-1	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
PFOS	1763-23-1	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
PFDA	335-76-2	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
MeFOSAA	2355-31-9	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
EtFOSAA	2991-50-6	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
PFUnA	2058-94-8	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
PFDoA	307-55-1	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
PFTrDA	72629-94-8	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
PFTeDA	376-06-7	ND	0.00292	0.00427	0.00852	U	B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	98.3	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
13C2-PFHxA	IS	94.0	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
13C4-PFHpA	IS	89.2	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
18O2-PFHxS	IS	98.2	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
13C2-PFOA	IS	82.2	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
13C5-PFNA	IS	75.7	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
13C8-PFOS	IS	104	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
13C2-PFDA	IS	71.9	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
d3-MeFOSAA	IS	80.5	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
d5-EtFOSAA	IS	76.9	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
13C2-PFUnA	IS	65.7	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
13C2-PFDoA	IS	68.8	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1
13C2-PFTeDA	IS	66.0	50 - 150		B8K0097	20-Nov-18	0.117 L	21-Nov-18 18:05	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: A1-MW-53-SA2

PFAS Isotope Dilution Method

Client Data

Name: Tetra Tech EC, Inc.
Project: 4663.3803
Location: YUMA, AZ

Matrix: Water
Date Collected: 13-Nov-18 14:54

Laboratory Data

Lab Sample: 1803626-08
Date Received: 14-Nov-18 09:07

Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.505	0.00288	0.00420	0.00841		B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
PFHxA	307-24-4	1.43	0.00288	0.00420	0.00841		B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
PFHpA	375-85-9	0.0564	0.00288	0.00420	0.00841		B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
PFHxS	355-46-4	0.464	0.00288	0.00420	0.00841		B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
PFOA	335-67-1	0.0607	0.00288	0.00420	0.00841		B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
PFNA	375-95-1	ND	0.00288	0.00420	0.00841	U	B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
PFOS	1763-23-1	0.00400	0.00288	0.00420	0.00841	J, Q	B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
PFDA	335-76-2	ND	0.00288	0.00420	0.00841	U	B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
MeFOSAA	2355-31-9	ND	0.00288	0.00420	0.00841	U	B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
EtFOSAA	2991-50-6	ND	0.00288	0.00420	0.00841	U	B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
PFUnA	2058-94-8	ND	0.00288	0.00420	0.00841	U	B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
PFDoA	307-55-1	ND	0.00288	0.00420	0.00841	U	B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
PFTrDA	72629-94-8	ND	0.00288	0.00420	0.00841	U	B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
PFTeDA	376-06-7	ND	0.00288	0.00420	0.00841	U	B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	92.0	50 - 150		B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
13C2-PFHxA	IS	93.4	50 - 150		B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
13C4-PFHpA	IS	99.8	50 - 150		B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
18O2-PFHxS	IS	93.4	50 - 150		B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
13C2-PFOA	IS	86.0	50 - 150		B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
13C5-PFNA	IS	81.1	50 - 150		B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
13C8-PFOS	IS	91.0	50 - 150		B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
13C2-PFDA	IS	80.8	50 - 150		B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
d3-MeFOSAA	IS	79.3	50 - 150		B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
d5-EtFOSAA	IS	84.3	50 - 150		B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
13C2-PFUnA	IS	70.3	50 - 150		B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
13C2-PFDoA	IS	68.6	50 - 150		B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1
13C2-PFTeDA	IS	68.7	50 - 150		B8K0097	20-Nov-18	0.119 L	21-Nov-18 18:15	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

Sample ID: 16-HS-03-SA2D

PFAS Isotope Dilution Method

Client Data

Name: Tetra Tech EC, Inc.
Project: 4663.3803
Location: YUMA, AZ

Matrix: Water
Date Collected: 13-Nov-18 12:10

Laboratory Data

Lab Sample: 1803626-09
Date Received: 14-Nov-18 09:07

Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	1.39	0.00301	0.00439	0.00880		B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
PFHxA	307-24-4	11.7	0.0301	0.0439	0.0880	D	B8K0097	20-Nov-18	0.114 L	28-Nov-18 19:42	10
PFHpA	375-85-9	0.412	0.00301	0.00439	0.00880		B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
PFHxS	355-46-4	0.312	0.00301	0.00439	0.00880		B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
PFOA	335-67-1	0.0200	0.00301	0.00439	0.00880		B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
PFNA	375-95-1	ND	0.00301	0.00439	0.00880	U	B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
PFOS	1763-23-1	ND	0.00301	0.00439	0.00880	U	B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
PFDA	335-76-2	ND	0.00301	0.00439	0.00880	U	B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
MeFOSAA	2355-31-9	ND	0.00301	0.00439	0.00880	U	B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
EtFOSAA	2991-50-6	ND	0.00301	0.00439	0.00880	U	B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
PFUnA	2058-94-8	ND	0.00301	0.00439	0.00880	U	B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
PFDoA	307-55-1	ND	0.00301	0.00439	0.00880	U	B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
PFTrDA	72629-94-8	ND	0.00301	0.00439	0.00880	U	B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
PFTeDA	376-06-7	ND	0.00301	0.00439	0.00880	U	B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	86.4	50 - 150		B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
13C2-PFHxA	IS	105	50 - 150	D	B8K0097	20-Nov-18	0.114 L	28-Nov-18 19:42	10
13C4-PFHpA	IS	133	50 - 150		B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
18O2-PFHxS	IS	102	50 - 150		B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
13C2-PFOA	IS	86.5	50 - 150		B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
13C5-PFNA	IS	84.7	50 - 150		B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
13C8-PFOS	IS	98.6	50 - 150		B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
13C2-PFDA	IS	80.7	50 - 150		B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
d3-MeFOSAA	IS	86.6	50 - 150		B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
d5-EtFOSAA	IS	86.6	50 - 150		B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
13C2-PFUnA	IS	68.4	50 - 150		B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
13C2-PFDoA	IS	70.7	50 - 150		B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1
13C2-PFTeDA	IS	60.9	50 - 150		B8K0097	20-Nov-18	0.114 L	21-Nov-18 18:26	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

Results reported to the DL.

When reported, PFHxS, PFOA, PFOS, MeFOSAA and EtFOSAA include both linear and branched isomers. Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

B	**This compound was also detected in the method blank**
Conc.	**Concentration**
D	**Dilution**
DL	**Detection limit**
E	**The associated compound concentration exceeded the calibration range of the instrument**
H	**Recovery and/or RPD was outside laboratory acceptance limits**
I	**Chemical Interference**
J	**The amount detected is below the Reporting Limit/LOQ**
LOD	**Limits of Detection**
LOQ	**Limits of Quantitation**
M	**Estimated Maximum Possible Concentration (CA Region 2 projects only)**
NA	**Not applicable**
ND	**Not Detected**
Q	**Ion ratio outside of 70-130% of Standard Ratio. (DOD PFAS projects only)**
TEQ	**Toxic Equivalency**
U	**Not Detected (specific projects only)**
*****	**See Cover Letter**

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	17-013
Arkansas Department of Environmental Quality	18-008-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2018017
Minnesota Department of Health	1322288
New Hampshire Environmental Accreditation Program	207717
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-009
Pennsylvania Department of Environmental Protection	014
Texas Commission on Environmental Quality	T104704189-18-8
Virginia Department of General Services	9077
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.

NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	**Method**
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23

MATRIX: Biological Tissue	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	**Method**
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

MATRIX: Non-Potable Water	
Description of Test	**Method**
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1803626 Temp: 0.9 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

Project ID: 4663.3803 PO#: 1152405 Sampler: Spencer Doolittle (name)

TAT (check one): Standard: ☐ 21 days Rush (surcharge may apply): ☐ 14 days ☐ 7 days Specify: 10 BD

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Accts Payable	Tetra Tech EC, Inc.	1230 Columbia St. Suite 750	San Diego	CA	619-234-8696	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
O'HARE	11-13-18	1630	FED EX	11-13-18	1630
FED EX			KIM ERICC	11/14/18	0907

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 * Fax (916) 673-0106

ATTN: SAMPLE RECEIVING

Method of Shipment: ~~FED EX~~

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	Mod. EPA Method 537: PFOA/ PFOS	UCMR3 PFAS List:6	537 List: 14	Full List of 26	Other: Please List Below	EPA Method 537(DW only): PFOA/ PFOS	UCMR3 PFAS List:6	PFAS List: 14	Comments
16-HS-03-SA2	11/13/18	1200	YUMA, AZ	2	P	W			X						
16-MW-06-SA2	11/13/18	0938	YUMA, AZ	2	P	W			X						
16-MW-08-SA2	11/13/18	1300	YUMA, AZ	2	P	W			X						
16-MW-09-SA2	11/13/18	1344	YUMA, AZ	2	P	W			X						
A1-MW-18-SA2	11/13/18	1031	YUMA, AZ	2	P	W			X						
A1-MW-19-SA2	11/13/18	1115	YUMA, AZ	2	P	W			X						
FRB-20181113	11/13/18	1520	YUMA, AZ	2	P	W			X						
~~EB-20181113~~ A1-MW-53-SA2	11/13/18	1454	YUMA, AZ	2	P	W			X						
16-HS-03-SA2D	11/13/18	1210	YUMA, AZ	2	P	W			X						

MSV 11-13-18

Special Instructions/Comments:

SEND DOCUMENTATION AND RESULTS TO:

Name: Sabina Sudoko
Company: Tetra Tech EC, Inc.
Address: 17885 Von Karman Avenue, Suite 500
City: Irvine State: CA Zip: 92614
Phone: 949-809-5022 Fax:
Email: sabina.sudoko@tetratech.com

Container Types: P= HDPE, PJ= HDPE Jar, O = Other:

Bottle Preservation Type: T = Thiosulfate, TZ = Trizma:

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: W - WATER

Vista Analytical Laboratory

Sample Log-In Checklist

Page # 1 of 1

Vista Work Order #: 1803626 TAT 14

Samples Arrival:	**Date/Time** 11/14/18 0907	**Initials:** KE	**Location:** WR-2 **Shelf/Rack:** NA
Logged In:	**Date/Time** 11/14/18 1023	**Initials:** KE	**Location:** WR-2 **Shelf/Rack:** A3/F3

Delivered By:	(FedEx)	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:		(Ice)	Blue Ice		Dry Ice		None

Temp °C: 1.0 (uncorrected)	**Probe used: Y / (N)**	**Thermometer ID:** IR-4
Temp °C: 0.9 (corrected)		

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill Trk # 7837 6084 4332	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓

If Chlorinated or Drinking Water Samples, Acceptable Preservation?						✓
Preservation Documented:	$Na_2S_2O_3$ Trizma (None) Other				Yes	No	NA
Shipping Container	(Vista)	Client	(Retain)	Return		Dispose	

Comments:

ORIGIN ID:YUMA (619) 252-0460
TETRA TECH
MICHAEL O'HARE
1230 COLUMBIA ST STE 750
SAN DIEGO, CA 92101
UNITED STATES US
SHIP DATE: 13NOV18
ACTWGT: 38.60 LB
CAD: 006995180/SSFE1922
DIMS: 24x14x13 IN
BILL THIRD PARTY
TO VISTA ANALYTICAL
1104 WINDFIELD WAY
EL DORADO HILLS CA 95762
(916) 673-1620
INV:
PO:
REF:
DEPT:
FedEx
Express
WED - 14 NOV 10:30A
TRK# 0201 7837 6084 4332
PRIORITY OVERNIGHT
WD MHRA
95762
CA-US SMF

EXTRACTION INFORMATION

Process Sheet

Workorder: 1803626

Prep Expiration: 2018-Nov-27
Client: Tetra Tech EC, Inc.

Workorder Due: 30-Nov-18 00:00

TAT: 16

Method: **537M PFAS DOD (LOQ as mRL)**
Matrix: **Aqueous**

Prep Batch: B8K0027

Prep Data Entered: HR 11/21/18
Date and Initials

Version: 537 (14 Analyte)
DoD: DoD QSM 5.1

Initial Sequence: S8K0062

LabSampID	A/B	Prep Rec	Spike Rec	ClientSampleID	Comments	Location	Container
1803626-01	"A"	☑	☑	16-HS-03-SA2		WR-2 A-3	HDPE Bottle, 125 mL
1803626-02		☑	☑	16-MW-06-SA2		WR-2 A-3	HDPE Bottle, 125 mL
1803626-03		☑	☑	16-MW-08-SA2		WR-2 A-3	HDPE Bottle, 125 mL
1803626-04		☑	☑	16-MW-09-SA2		WR-2 A-3	HDPE Bottle, 125 mL
1803626-05		☑	☑	A1-MW-18-SA2		WR-2 A-3	HDPE Bottle, 125 mL
1803626-06		☑	☑	A1-MW-19-SA2		WR-2 A-3	HDPE Bottle, 125 mL
1803626-07		☑	☑	FRB-20181113		WR-2 A-3	HDPE Bottle, 125 mL
1803626-08		☑	☑	A1-MW-53-SA2		WR-2 A-3	HDPE Bottle, 125 mL
1803626-09		☑	☑	16-HS-03-SA2D		WR-2 A-3	HDPE Bottle, 125 mL

WO Comments: **Internal COC**

Pre-Prep Check Out: HR 11/15/18
Pre-Prep Check In: HR 11/15/18

Prep Check Out: MAC 11/20/18
Prep Check In: N/A

Prep Reconciled Initals/Date: HR 11/15/18
Spike Reconciled Initals/Date: MJ 11/20/18
VialBoxID: Old School

Internal Chain of Custody
1803626

Vista Analytical Laboratory

Client: Tetra Tech EC, Inc. | Project Number: 4663.3803 | Received: 14-Nov-18 09:07 | Received By: Kim Elric

		Sample				Extract	
Vista Sample ID	Bottle	Initials Date/Time New Location	Initials Date/Time New Location	Initials Date/Time New Location	Initials Date/Time New Location	Initials Date/Time New Location	Initials Date/Time New Location
1803626-01	A/B	KG 11/14/18 1023 WR2 A)A3 B)F3	HR 11/15/18 1538 1528 PL2 A	HR 11/15/18 1634 WR2 A	MAL 11/20/18 0500 PL2		
1803626-02	A/B	KG 11/14/18 1023 WR2 A)A3 B)F3	HR 11/15/18 1528 Prep lab 2 A	HR 11/15/18 1634 WR2 A			
1803626-03	A/B	KG 11/14/18 1023 WR2 A)A3 B)F3	HR 11/15/18 1528 Prep lab 2 A	HR 11/15/18 1634 WR2 A			
1803626-04	A/B	KG 11/14/18 1023 WR2 A)A3 B)F3	HR 11/15/18 1528 Prep lab 2 A	HR 11/15/18 1634 WR2 A			
1803626-05	A/B	KG 11/14/18 1023 WR2 A)A-3 B)F3	HR 11/15/18 1528 Prep lab 2 A	HR 11/15/18 1634 WR2 A			
1803626-06	A/B	KG 11/14/18 1023 WR2 A)A-3 B)F3	HR 11/15/18 1528 Prep lab 2 A	HR 11/15/18 1634 WR2 A			
1803626-07	A/B	KG 11/14/18 1023 WR2 A)A-3 B)F3	HR 11/15/18 1528 prep lab 2 A	HR 11/15/18 1634 WR2 A			
1803626-08	A/B	KG 11/14/18 1023 WR2 A:A3 B)F3	HR 11/15/18 1628 prep lab 2 A	HR 11/15/18 1634 WR2 A			
1803626-09	A/B	KG 11/14/18 1023 WR2 A:A3 B:F3	HR 11/15/18 1528 prep lab 2 A	HR 11/15/18 1634 WR2 A			

N/A QMM 11/21/18

Note in grid if sample or extract are depleted. See Login Checlist for initial location.

Internal Chain of Custody
1803626

Vista Analytical Laboratory

Client: Tetra Tech EC, Inc. | Project Number: 4663.3803 | Received: 14-Nov-18 09:07 | Received By: Kim Elric

		Sample				Extract	
Vista Sample ID	Bottle	Initials Date/Time New Location	Initials Date/Time New Location	Initials Date/Time New Location	Initials Date/Time New Location	Initials Date/Time New Location	Initials Date/Time New Location
1803626-01	A	ig 11/20/18 1730 R-7 (fridge)				Gm 11/21/18 1444 Instrument M	
1803626-02	A						
1803626-03	A						
1803626-04	A						
1803626-05	A						
1803626-06	A						
1803626-07	A						
1803626-08	A						
1803626-09	A						

Note in grid if sample or extract are depleted. See Login Checklist for initial location.

Matrix: Aqueous

Method: 537M PFAS DOD (LOQ as mRL)

PREPARATION BENCH SHEET

B8K0097

Chemist: Wy

Prep Date: 11/20/18

Prep Time: 08:45

Prepared using: ☐ Sonication ☐ Shaker ☑ SPE Extraction ☐ Centrifuge ID: _____

Date/Initals: HR 11/15/18 | BalanceID: HRMS-9

Cen	VISTA Sample ID	pH Before	pH After	Chlorine (Cl)	Drops HCl Added	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	IS/NS CHEM/WIT DATE	SPE	ENVI-Carb	RS CHEM/WIT DATE
☐	B8K0097-BLK1 (10)	7	2	0	3	N/A	N/A	(0.125)	Wy QE 11/20/18	Wy 11/20/18	Wy 11/20/18	Wy mac 11/20/18
☐	B8K0097-BS1	7	2	0	3	↓	↓	(0.125)	↓	↓	↓	↓
☐	B8K0097-BSD1	7	2	0	3	↓	↓	(0.125)	↓	↓	↓	↓
☐	1803626-01	6	2	0	4	144.93	27.01	0.11792	↓	↓	↓	↓
☐	1803626-02	6	2	0	5	146.73	27.03	0.11970	↓	↓	↓	↓
☐	1803626-03	6	2	0	5	146.48	26.93	0.11955	↓	↓	↓	↓
☐	1803626-04	6	2	0	4	144.15	26.80	0.11735	↓	↓	↓	↓
☐	1803626-05	6	2	0	4	143.83	27.01	0.11682	↓	↓	↓	↓
☐	1803626-06	6	2	0	4	143.13	26.97	0.11616	↓	↓	↓	↓
☐	1803626-07	5	2	0	2	144.27	26.87	0.11740	↓	↓	↓	↓
☐	1803626-08	6	2	0	4	145.90	26.94	0.11896	↓	↓	↓	↓
☐	1803626-09	6	2	0	4	140.73	27.06	0.11367	↓	↓	↓	↓
☐	1803629-01	7	2	0	6	144.66	27.08	0.11758	↓	↓	↓	↓
☐	1803629-02	7	2	0	5	144.58	26.82	0.11776	↓	↓	↓	↓
☐	1803629-03	7	2	0	5	141.71	26.67	0.11504	↓	↓	↓	↓

IS: 18J1502, 10mL (V4)

IS SUP: NA

NS: 18J1505, 10mL (V2)

NS SUP: NA

RS: 18J1503, 10mL (V4)

SPE Chem: Strata-X-AW 33µm 200mg 6mL

SPE Lot#: S18-0004499

ENVI-Carb Lot#: 10262101

Ele SOLV: MeOH/0.5%NH4OH in MeOH

Final Volume(s) 1 mL

Notes: (10) HR 11/15/18

Comments: Assume 1 g = 1 mL

Cen = Centrifuged

1 = Sample centrifuged twice
2 = Sample deeply colored after centrifuge
3 = Cartridge sorbent discolored after SPE
4 = Sample clogged cartridge, additioanl cartridge(s) used
5 = Sample recombined at final volume
6 = Sample took longer to SPE, required stronger vacuum
7 = Required Nitrogen line to finish SPE
8 = Required Nitrogen line to finish elution
9 = Sample arrived with low volume
10 = Trizma added to QC (5g/L)

Matrix: Aqueous

Method: 537M PFAS DOD (LOQ as mRL)

PREPARATION BENCH SHEET

B8K0097

Chemist: MJ

Prep Date: 11/20/18

Prep Time: 08:45

Prepared using: ☐ Sonication ☐ Shaker ☐ SPE Extraction ☐ Centrifuge ID: _____

Date/Initals: HR 11/15/18 | BalanceID: HRMS-9

Cen	VISTA Sample ID	pH Before	pH After	Chlorine (Cl)	Drops HCl Added	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	IS/NS CHEM/WIT DATE	SPE	ENVI-Carb	RS CHEM/WIT DATE
☐	1803629-04	7	2	0	5	140.53	26.68	0.11385	MJ ae 11/20/18	MJ 11/20/18	MJ 11/20/18	MJ mac 11/20/18
☐	1803629-05	7	2	0	5	141.33	26.73	0.11460	↓	↓	↓	↓
☐	1803629-06	7	2	0	5	141.42	26.71	0.11471	↓	↓	↓	↓
☐	1803629-07	7	2	0	5	142.67	26.94	0.11573	↓	↓	↓	↓

IS: 18J1502, 40mL (V4)

IS SUP: NA

NS: 18J1505, 10mL (V3)

NS SUP: NA

RS: 18J1503, 10mL (V4)

SPE Chem: Strata-X-AW 33µm 200mg 6mL

SPE Lot#: S18-004499

ENVI-Carb Lot#: 10262101

Ele SOLV: MeOH/0.5%NH4OH in MeOH

Final Volume(s) 1 mL

Notes:

Comments: Assume 1 g = 1 mL

Cen = Centrifuged

1 = Sample centrifuged twice
2 = Sample deeply colored after centrifuge
3 = Cartridge sorbent discolored after SPE
4 = Sample clogged cartridge, additioanl cartridge(s) used
5 = Sample recombined at final volume
6 = Sample took longer to SPE, required stronger vacuum
7 = Required Nitrogen line to finish SPE
8 = Required Nitrogen line to finish elution
9 = Sample arrived with low volume
10 = Trizma added to QC (5g/L)

Batch: B8K0097

Matrix: Aqueous

LabNumber	WetWeight (Initial)	% Solids (Extraction Solids)	DryWeight	Final	Extracted	Ext By	Spike	SpikeAmount	ClientMatrix	Analysis
1803626-01	0.11792 ✓	N/A	N/A	1000	20-Nov-18 08:45	NY			Water	537M PFAS DOD (LOQ as
1803626-02	0.1197 ✓			1000	20-Nov-18 08:45	NY			Water	537M PFAS DOD (LOQ as
1803626-03	0.11955 ✓			1000	20-Nov-18 08:45	NY			Water	537M PFAS DOD (LOQ as
1803626-04	0.11735 ✓			1000	20-Nov-18 08:45	NY			Water	537M PFAS DOD (LOQ as
1803626-05	0.11682 ✓			1000	20-Nov-18 08:45	NY			Water	537M PFAS DOD (LOQ as
1803626-06	0.11616 ✓			1000	20-Nov-18 08:45	NY			Water	537M PFAS DOD (LOQ as
1803626-07	0.1174 ✓			1000	20-Nov-18 08:45	NY			Water	537M PFAS DOD (LOQ as
1803626-08	0.11896 ✓			1000	20-Nov-18 08:45	NY			Water	537M PFAS DOD (LOQ as
1803626-09	0.11367 ✓			1000	20-Nov-18 08:45	NY			Water	537M PFAS DOD (LOQ as
1803629-01	0.11758 ✓			1000	20-Nov-18 08:45	NY			Potable Water	537M PFAS DOD (LOQ as
1803629-02	0.11776 ✓			1000	20-Nov-18 08:45	NY			Potable Water	537M PFAS DOD (LOQ as
1803629-03	0.11504 ✓			1000	20-Nov-18 08:45	NY			Potable Water	537M PFAS DOD (LOQ as
1803629-04	0.11385 ✓			1000	20-Nov-18 08:45	NY			Potable Water	537M PFAS DOD (LOQ as
1803629-05	0.1146 ✓			1000	20-Nov-18 08:45	NY			Potable Water	537M PFAS DOD (LOQ as
1803629-06	0.11471 ✓			1000	20-Nov-18 08:45	NY			Potable Water	537M PFAS DOD (LOQ as
1803629-07	0.11573 ✓			1000	20-Nov-18 08:45	NY			Potable Water	537M PFAS DOD (LOQ as
B8K0097-BLK1	0.125			1000	20-Nov-18 08:45	NY				QC
B8K0097-BS1	0.125			1000	20-Nov-18 08:45	NY	18J1505 ✓	10 ✓		QC
B8K0097-BSD1	0.125			1000	20-Nov-18 08:45	NY	18J1505 ✓	10 ✓		QC

HR 11/21/18

Sample Data – PFAS Isotope Dilution Method

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-14.qld

Last Altered: Monday, November 26, 2018 14:58:20 Pacific Standard Time
Printed: Monday, November 26, 2018 14:59:15 Pacific Standard Time

Name: 181121M1_14, Date: 21-Nov-2018, Time: 16:29:52, ID: B8K0097-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	RT	Respo...	Conc.	%Rec	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	4.20e1	1.00e4	0.125		1.14	0.0523				
2	2	PFPeA	263.1 > 218.9		1.28e4	0.125							
3	3	PFBS	299.0 > 79.7		1.61e3	0.125							
4	4	4:2 FTS	327.2>307.2		3.95e3	0.125							
5	5	PFHxA	313 > 269	6.04e1	9.33e3	0.125		3.35	0.0324			14.6	NO
6	36	13C3-PFBA	216.1 > 171.8	1.00e4	1.37e4	0.125	0.780	1.17	9.18	94.1340	94.1		
7	37	13C3-PFPeA	266. > 221.8	1.28e4	2.44e4	0.125	0.523	2.44	6.54	99.9388	99.9		
8	38	13C3-PFBS	302. > 98.8	1.61e3	3.19e3	0.125	0.539	2.78	6.30	93.6274	93.6		
9	39	13C2-4:2 FTS	329.2>308.9	3.95e3	3.19e3	0.125	1.534	3.27	15.5	80.7417	80.7		
10	40	13C2-PFHxA	315 > 270	9.33e3	2.44e4	0.125	0.964	3.35	4.77	39.5802	99.0		
11	-1												
12	6	PFPeS	349.1>80.1		1.61e3	0.125							
13	7	PFHpA	363.0 > 318.9		1.13e4	0.125							
14	8	L-PFHxS	398.9 > 79.6	6.67e0	1.46e3	0.125		4.15	0.0569	0.1841		0.982	NO
15	68	Total PFHxS	398.9 > 79.6	6.67e0	1.46e3	0.125			0.0569	0.1841			
16	10	6:2 FTS	427.1 > 407	1.73e1	4.09e3	0.125		4.45	0.0527	0.0058		6.66	YES
17	38	13C3-PFBS	302. > 98.8	1.61e3	3.19e3	0.125	0.539	2.78	6.30	93.6274	93.6		
18	41	13C4-PFHpA	367.2 > 321.8	1.13e4	2.44e4	0.125	0.482	4.01	5.77	95.7041	95.7		
19	42	18O2-PFHxS	403.0 > 102.6	1.46e3	3.19e3	0.125	0.480	4.16	5.75	95.7784	95.8		
20	42	18O2-PFHxS	403.0 > 102.6	1.46e3	3.19e3	0.125	0.480	4.16	5.75	95.7784	95.8		
21	43	13C2-6:2 FTS	429.1 > 408.9	4.09e3	3.16e3	0.125	1.536	4.45	16.2	84.3230	84.3		
22	-1												
23	11	L-PFOA	412.8 > 368.9	6.50e1	1.89e4	0.125		4.50	0.0429			2.03	NO
24	69	Total PFOA	412.8 > 368.9	6.50e1	1.89e4	0.125			0.000				
25	13	PFHpS	449 > 80.0		3.08e3	0.125							
26	16	L-PFOS	498.9 > 79.9	9.30e0	3.08e3	0.125		4.92	0.0378	0.3715		5.29	YES
27	70	Total PFOS	498.9 > 79.9	9.30e0	3.08e3	0.125			0.0378	0.3715			
28	44	13C2-PFOA	414.9 > 369.7	1.89e4	2.88e4	0.125	0.755	4.50	8.22	87.1442	87.1		
29	44	13C2-PFOA	414.9 > 369.7	1.89e4	2.88e4	0.125	0.755	4.50	8.22	87.1442	87.1		
30	47	13C8-PFOS	507.0 > 79.9	3.08e3	3.16e3	0.125	1.034	5.02	12.2	94.1617	94.2		
31	47	13C8-PFOS	507.0 > 79.9	3.08e3	3.16e3	0.125	1.034	5.02	12.2	94.1617	94.2		
32	47	13C8-PFOS	507.0 > 79.9	3.08e3	3.16e3	0.125	1.034	5.02	12.2	94.1617	94.2		
33	-1												
34	14	PFNA	463.0 > 418.8		1.67e4	0.125							
35	15	PFOSA	497.9 > 77.9		1.00e3	0.125							
36	18	PFDA	513 > 468.8		1.46e4	0.125							

CGH 11/26/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-14.qld

Last Altered: Monday, November 26, 2018 14:58:20 Pacific Standard Time
Printed: Monday, November 26, 2018 14:59:15 Pacific Standard Time

Name: 181121M1_14, Date: 21-Nov-2018, Time: 16:29:52, ID: B8K0097-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	RT	Respo...	Conc.	%Rec	Ion Ratio	Ratio Out?
37	19	8:2 FTS	527 > 506.9		3.27e3	0.125							
38	20	PFNS	549.1 > 80.1		3.08e3	0.125							
39	45	13C5-PFNA	468.2 > 422.9	1.67e4	2.12e4	0.125	0.992	4.93	9.87	79.5683	79.6		
40	46	13C8-PFOSA	506.1 > 77.7	1.00e3	2.99e4	0.125	0.112	4.97	0.419	29.8559	29.9		
41	48	13C2-PFDA	515.1 > 469.9	1.46e4	2.46e4	0.125	0.832	5.31	7.43	71.4444	71.4		
42	49	13C2-8:2 FTS	529.1 > 508.7	3.27e3	3.16e3	0.125	1.268	5.28	12.9	81.5055	81.5		
43	47	13C8-PFOS	507.0 > 79.9	3.08e3	3.16e3	0.125	1.034	5.02	12.2	94.1617	94.2		
44	-1												
45	21	L-MeFOSAA	570 > 419		2.84e3	0.125							
46	71	Total N-MeFOSAA	570. > 419	0.00e0	2.84e3	0.125			0.000				
47	23	L-EtFOSAA	584.1 > 419		4.29e3	0.125							
48	72	Total N-EtFOSAA	584.1 > 419	0.00e0	4.29e3	0.125			0.000				
49	25	PFUdA	563.0 > 518.9	3.71e1	1.68e4	0.125		5.65	0.0276			4.04	YES
50	50	d3-N-MeFOSAA	573.3 > 419	2.84e3	2.99e4	0.125	0.135	5.46	1.19	70.2365	70.2		
51	50	d3-N-MeFOSAA	573.3 > 419	2.84e3	2.99e4	0.125	0.135	5.46	1.19	70.2365	70.2		
52	52	d5-N-EtFOSAA	589.3 > 419	4.29e3	2.99e4	0.125	0.198	5.62	1.79	72.3351	72.3		
53	52	d5-N-EtFOSAA	589.3 > 419	4.29e3	2.99e4	0.125	0.198	5.62	1.79	72.3351	72.3		
54	51	13C2-PFUdA	565 > 519.8	1.68e4	2.99e4	0.125	0.928	5.64	7.00	60.3792	60.4		
55	-1												
56	26	PFDS	598.8 > 79.9		3.08e3	0.125							
57	27	PFDoA	612.9 > 569.0		1.67e4	0.125							
58	29	PFTrDA	662.9 > 618.9		1.67e4	0.125							
59	30	PFTeDA	713.0 > 669.0	2.73e1	1.22e4	0.125		6.41	0.0279			15.4	NO
60	28	N-MeFOSA	512.1 > 168.9			0.125							
61	47	13C8-PFOS	507.0 > 79.9	3.08e3	3.16e3	0.125	1.034	5.02	12.2	94.1617	94.2		
62	53	13C2-PFDoA	615.0 > 569.7	1.67e4	2.46e4	0.125	0.980	5.93	8.48	69.2355	69.2		
63	53	13C2-PFDoA	615.0 > 569.7	1.67e4	2.46e4	0.125	0.980	5.93	8.48	69.2355	69.2		
64	55	13C2-PFTeDA	715.1 > 669.7	1.22e4	2.99e4	0.125	0.607	6.40	5.11	67.3147	67.3		
65	54	d3-N-MeFOSA	515.2 > 168.9		2.99e4	0.125	0.035						
66	-1												
67	31	N-EtFOSA	526.1 > 168.9			0.125							
68	32	PFHxDA	813.1 > 768.6	7.45e1	5.49e3	0.125		6.74	0.0678			165	YES
69	33	PFODA	913.1 > 868.8		5.49e3	0.125							
70	34	N-MeFOSE	616.1 > 58.9			0.125							
71	35	N-EtFOSE	630.1 > 58.9			0.125							
72	56	d5-N-ETFOSA	531.1 > 168.9		2.99e4	0.125	0.060						

CGH 11/26/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-14.qld

Last Altered: Monday, November 26, 2018 14:58:20 Pacific Standard Time
Printed: Monday, November 26, 2018 14:59:15 Pacific Standard Time

Name: 181121M1_14, Date: 21-Nov-2018, Time: 16:29:52, ID: B8K0097-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	RT	Respo...	Conc.	%Rec	Ion Ratio	Ratio Out?
73	57	13C2-PFHxDA	815 > 769.7	5.49e3	2.99e4	0.125	0.805	6.74	2.29	22.7786	56.9		
74	57	13C2-PFHxDA	815 > 769.7	5.49e3	2.99e4	0.125	0.805	6.74	2.29	22.7786	56.9		
75	58	d7-N-MeFOSE	623.1 > 58.9		2.99e4	0.125	0.033						
76	59	d9-N-EtFOSE	639.2 > 58.8		2.99e4	0.125	0.032						
77	-1												
78	73	TCDA	498.3>106.9			0.125							
79	61	13C5-PFHxA	318 > 272.9	2.44e4	2.44e4	0.125	1.000	3.35	12.5	100.0000	100.0		
80	60	13C4-PFBA	217. > 172	1.37e4	1.37e4	0.125	1.000	1.17	12.5	100.0000	100.0		
81	62	13C3-PFHxS	401.8 > 79.9	3.19e3	3.19e3	0.125	1.000	4.16	12.5	100.0000	100.0		
82	63	13C8-PFOA	420.9 > 376	2.88e4	2.88e4	0.125	1.000	4.50	12.5	100.0000	100.0		
83	47	13C8-PFOS	507.0 > 79.9	3.08e3	3.16e3	0.125	1.034	5.02	12.2	94.1617	94.2		
84	64	13C9-PFNA	472.2 > 426.9	2.12e4	2.12e4	0.125	1.000	4.93	12.5	100.0000	100.0		
85	65	13C4-PFOS	503 > 79.9	3.16e3	3.16e3	0.125	1.000	5.02	12.5	100.0000	100.0		
86	66	13C6-PFDA	519.1 > 473.7	2.46e4	2.46e4	0.125	1.000	5.32	12.5	100.0000	100.0		
87	67	13C7-PFUdA	570.1 > 524.8	2.99e4	2.99e4	0.125	1.000	5.64	12.5	100.0000	100.0		

CGH 11/26/2018

Vista Analytical Laboratory L30

Rev: ANP 11/27/2018

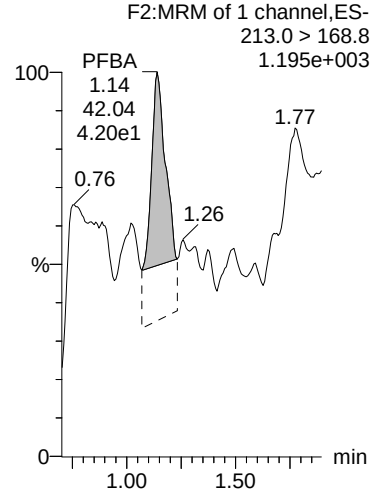
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-14.qld

Last Altered: Monday, November 26, 2018 14:58:20 Pacific Standard Time
Printed: Monday, November 26, 2018 14:59:15 Pacific Standard Time

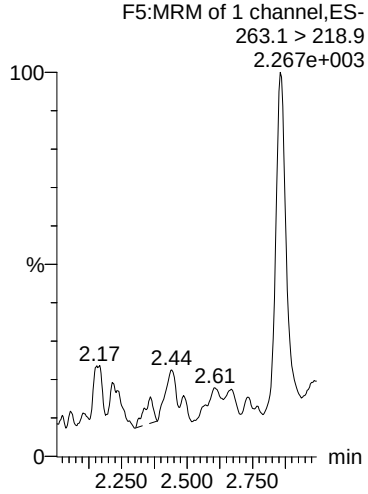
Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112118.mdb 26 Nov 2018 09:17:42
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Name: 181121M1_14, Date: 21-Nov-2018, Time: 16:29:52, ID: B8K0097-BLK1 Method Blank 0.125, Description: Method Blank

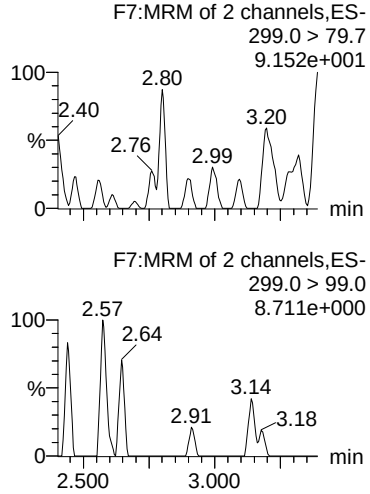
PFBA



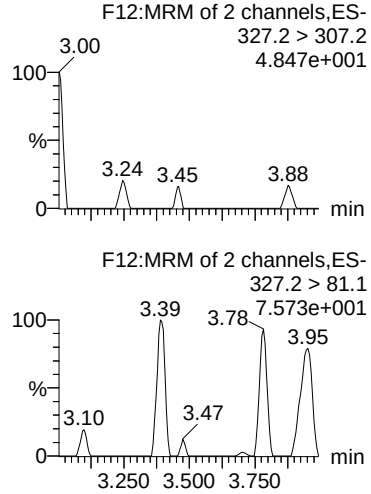
PFPeA



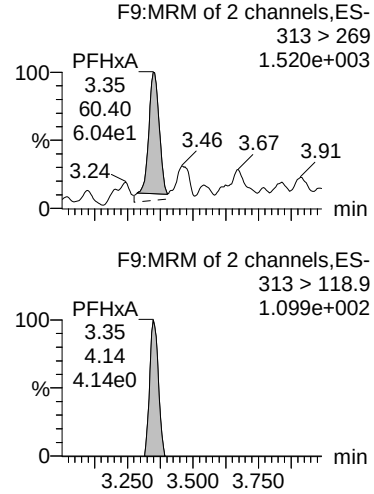
PFBS



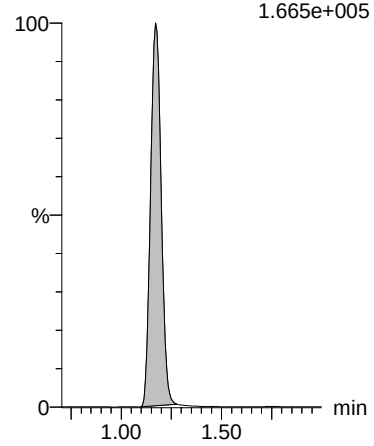
4:2 FTS



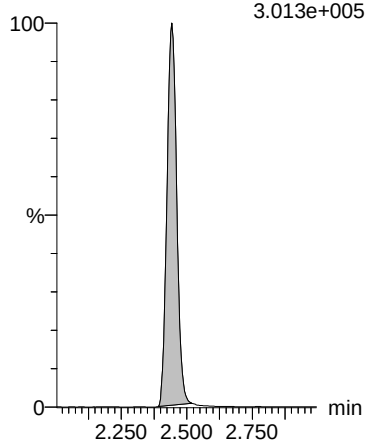
PFHxA



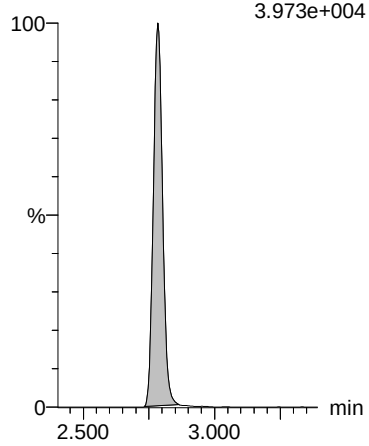
13C3-PFBA



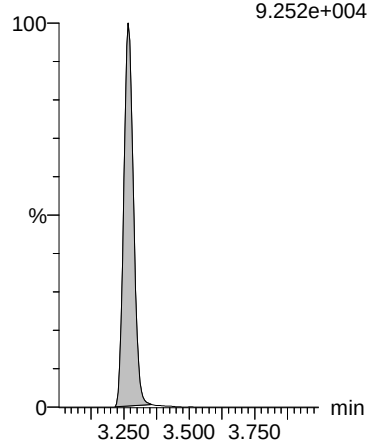
13C3-PFPeA



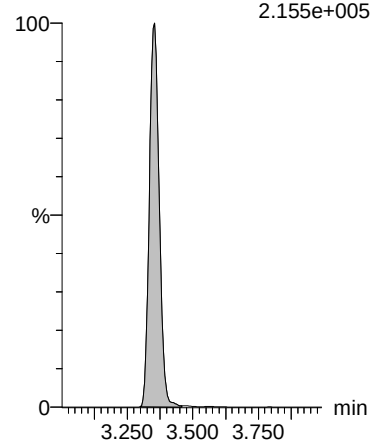
13C3-PFBS



13C2-4:2 FTS



13C2-PFHxA



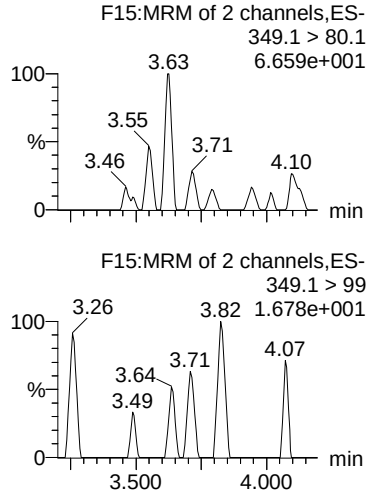
CGH 11/26/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-14.qld

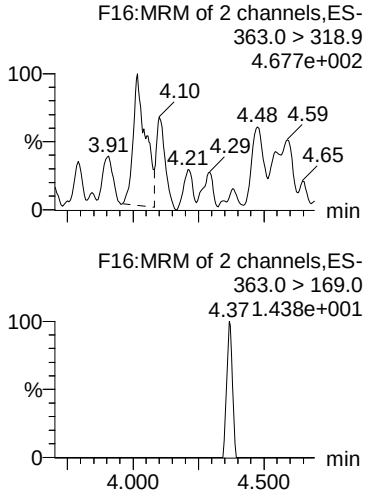
Last Altered: Monday, November 26, 2018 14:58:20 Pacific Standard Time
Printed: Monday, November 26, 2018 14:59:15 Pacific Standard Time

Name: 181121M1_14, Date: 21-Nov-2018, Time: 16:29:52, ID: B8K0097-BLK1 Method Blank 0.125, Description: Method Blank

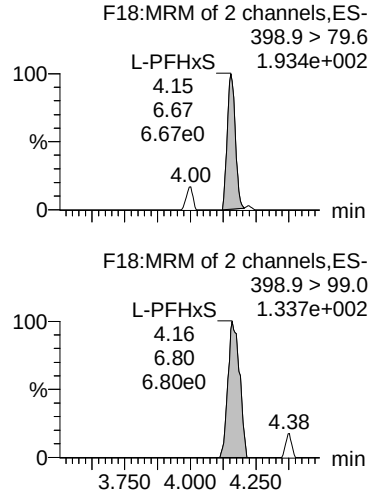
PFPeS



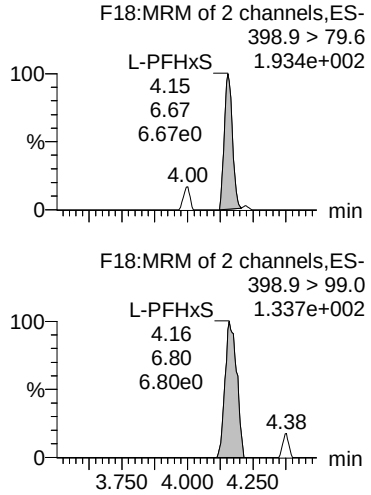
PFHpA



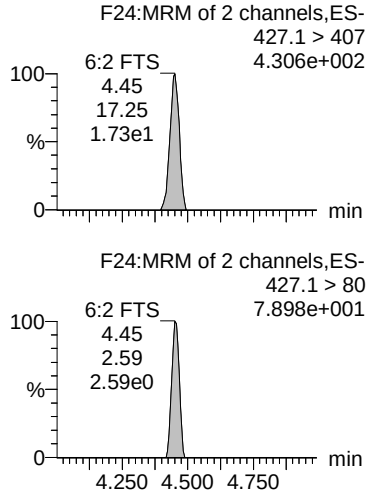
L-PFHxS



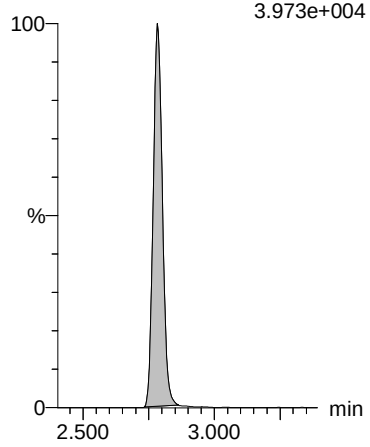
Total PFHxS



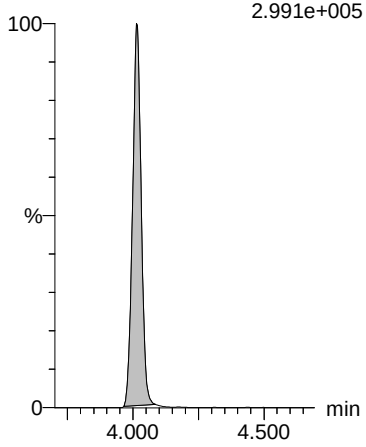
6:2 FTS



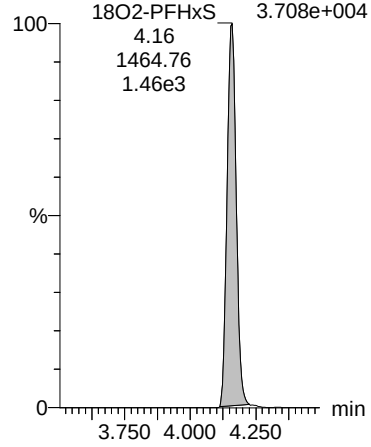
13C3-PFBS



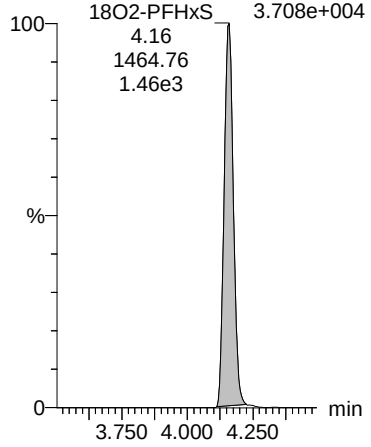
13C4-PFHpA



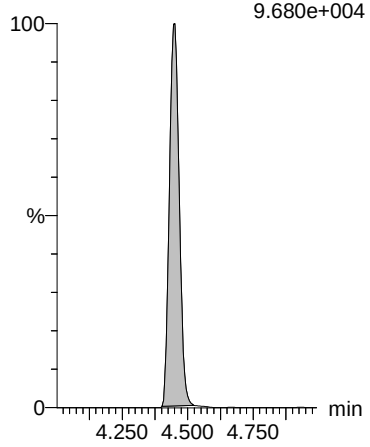
18O2-PFHxS



18O2-PFHxS



13C2-6:2 FTS



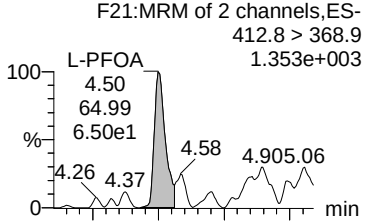
CGH 11/26/2018

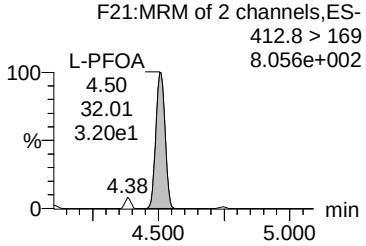
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-14.qld

Last Altered: Monday, November 26, 2018 14:58:20 Pacific Standard Time
Printed: Monday, November 26, 2018 14:59:15 Pacific Standard Time

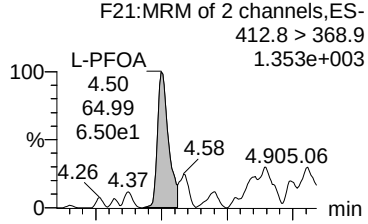
Name: 181121M1_14, Date: 21-Nov-2018, Time: 16:29:52, ID: B8K0097-BLK1 Method Blank 0.125, Description: Method Blank

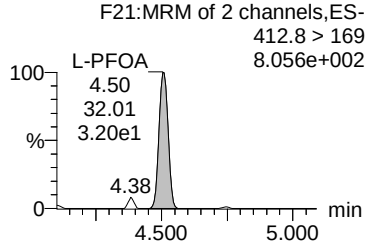
L-PFOA



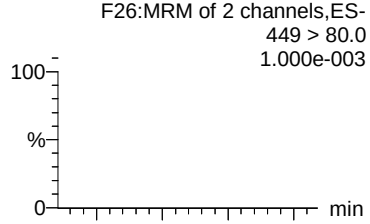


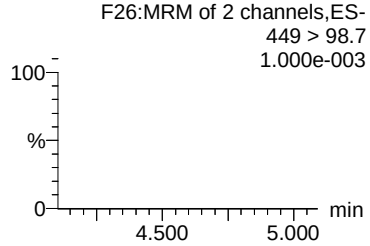
Total PFOA



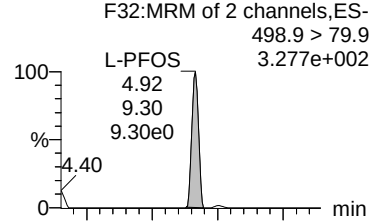


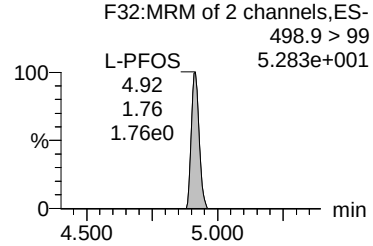
PFHpS



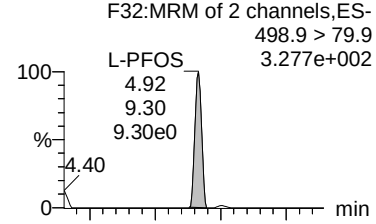


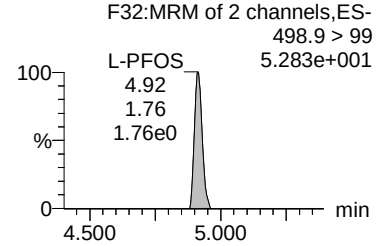
L-PFOS



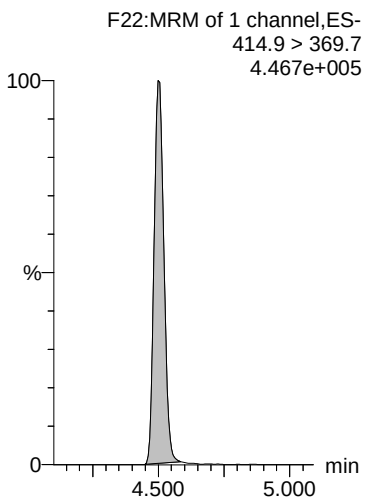


Total PFOS

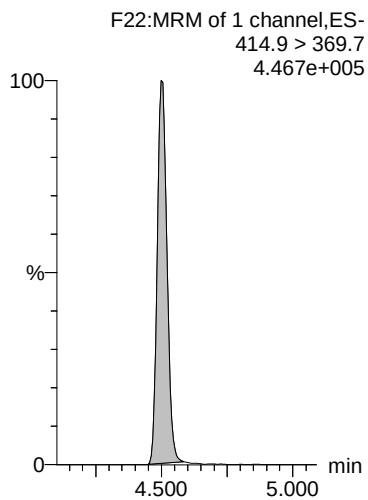




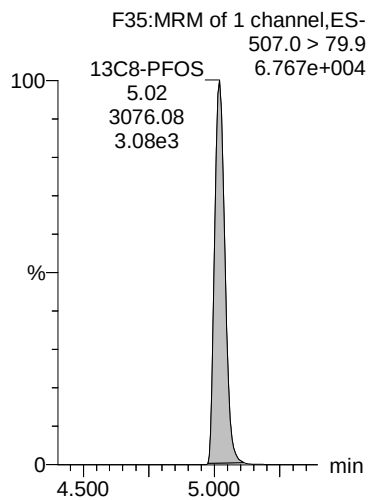
13C2-PFOA



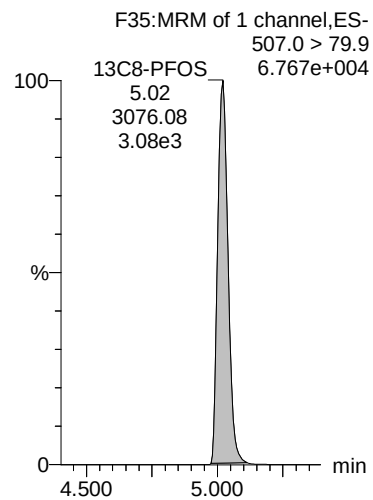
13C2-PFOA



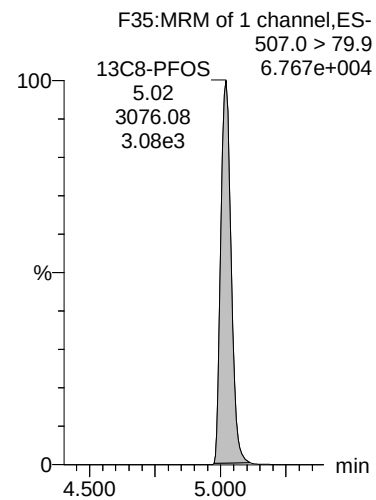
13C8-PFOS



13C8-PFOS



13C8-PFOS



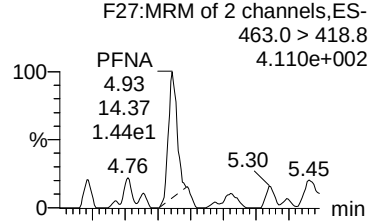
CGH 11/26/2018

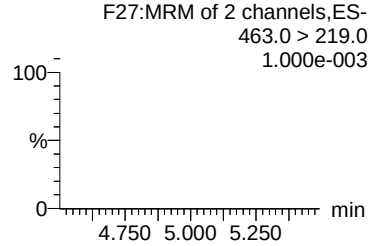
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-14.qld

Last Altered: Monday, November 26, 2018 14:58:20 Pacific Standard Time
Printed: Monday, November 26, 2018 14:59:15 Pacific Standard Time

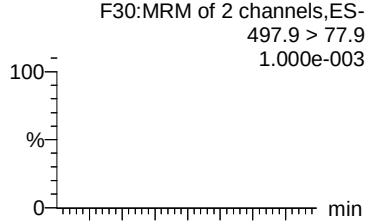
Name: 181121M1_14, Date: 21-Nov-2018, Time: 16:29:52, ID: B8K0097-BLK1 Method Blank 0.125, Description: Method Blank

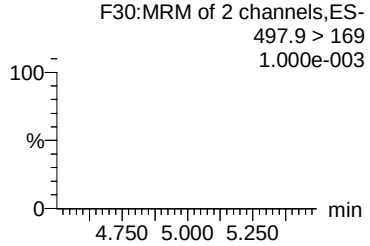
PFNA



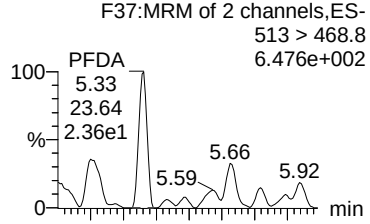


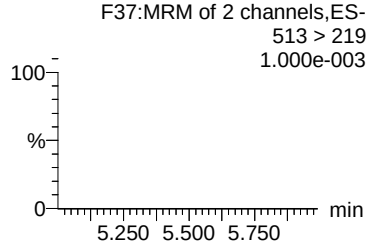
PFOSA



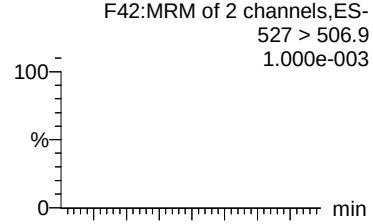


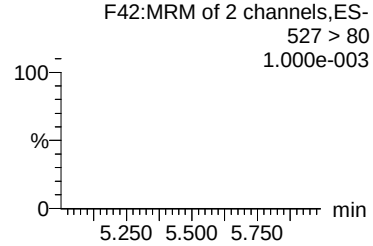
PFDA



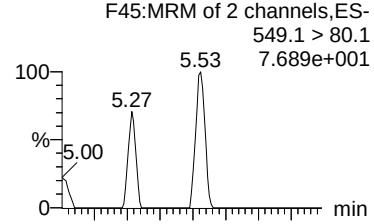


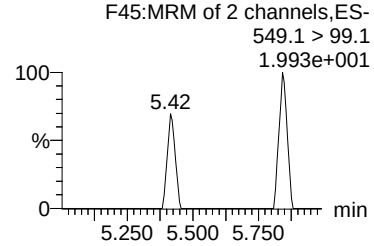
8:2 FTS



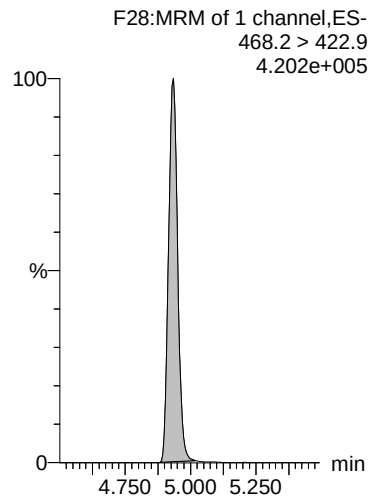


PFNS

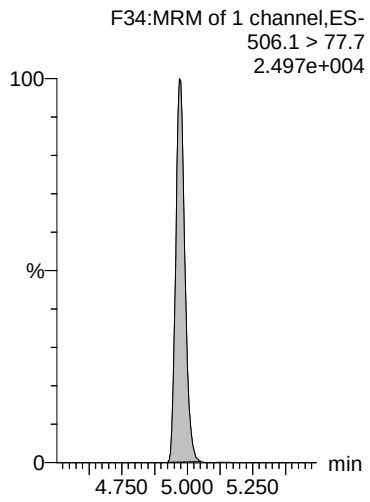




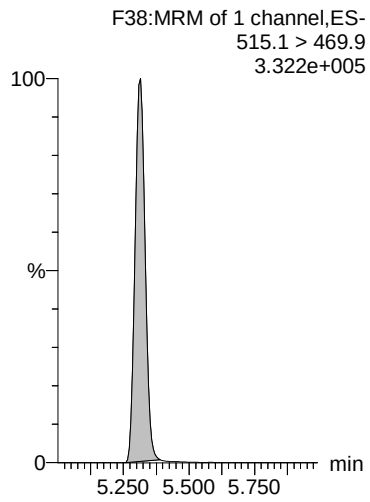
13C5-PFNA



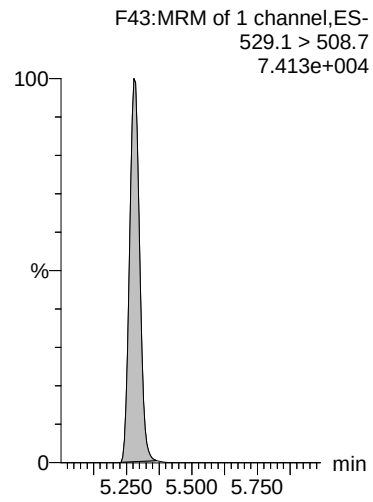
13C8-PFOSA



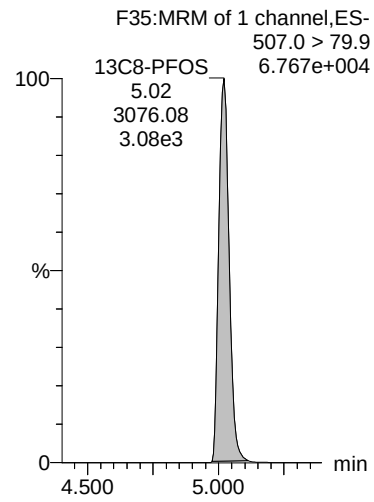
13C2-PFDA



13C2-8:2 FTS



13C8-PFOS



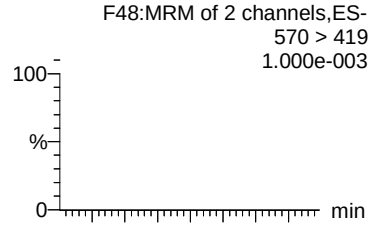
CGH 11/26/2018

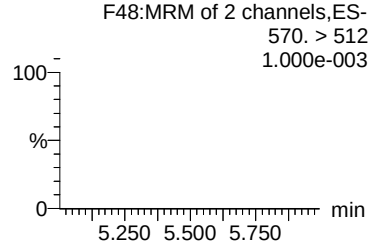
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-14.qld

Last Altered: Monday, November 26, 2018 14:58:20 Pacific Standard Time
Printed: Monday, November 26, 2018 14:59:15 Pacific Standard Time

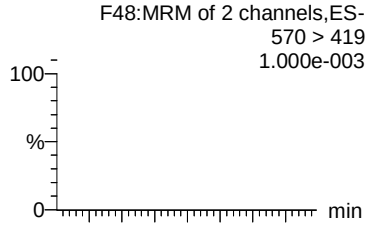
Name: 181121M1_14, Date: 21-Nov-2018, Time: 16:29:52, ID: B8K0097-BLK1 Method Blank 0.125, Description: Method Blank

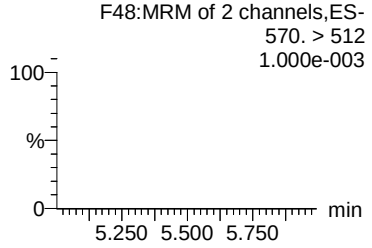
L-MeFOSAA



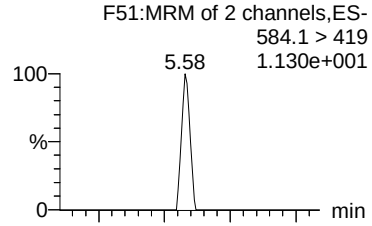


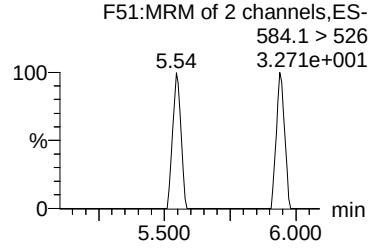
Total N-MeFOSAA





L-EtFOSAA





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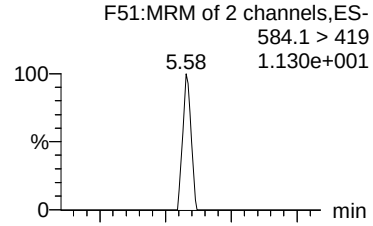
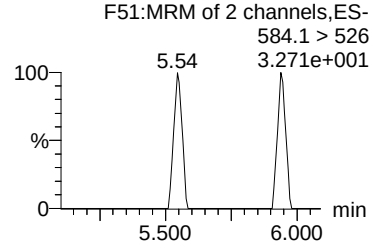
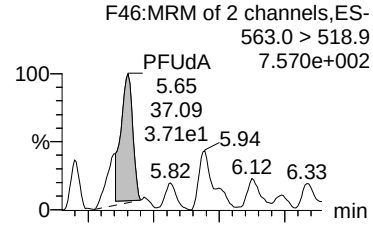
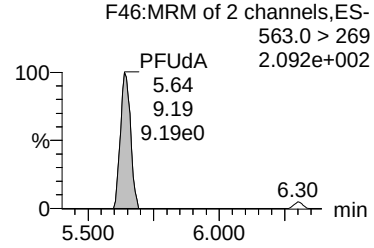


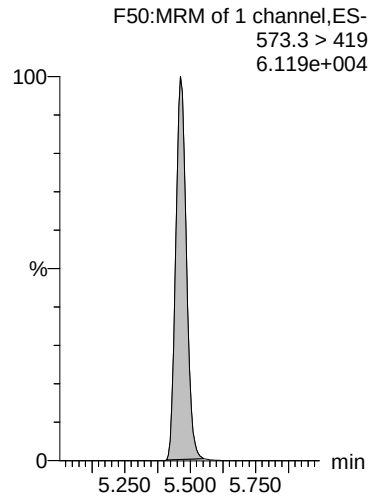


PFUdA

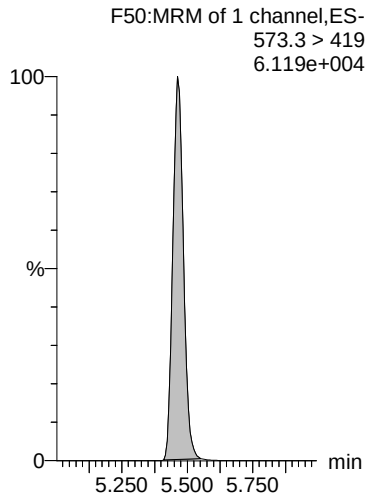




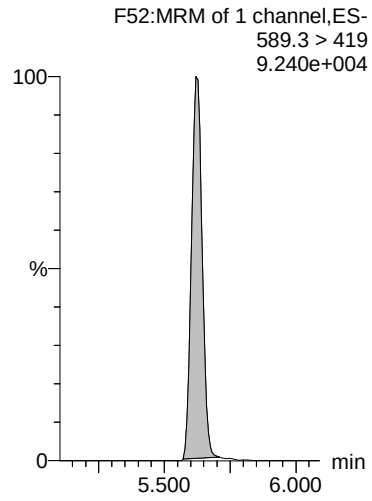
d3-N-MeFOSAA



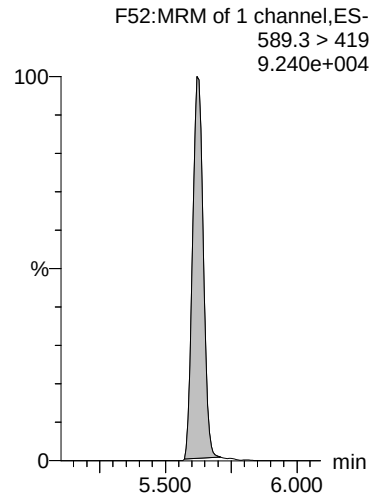
d3-N-MeFOSAA



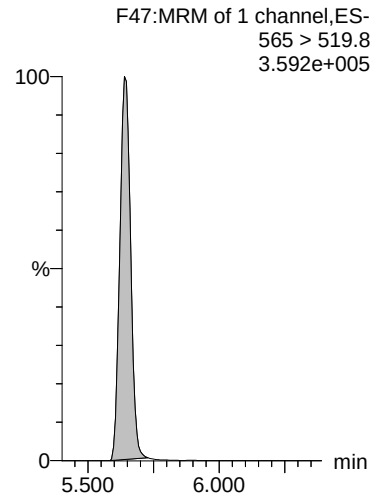
d5-N-EtFOSAA



d5-N-EtFOSAA



13C2-PFUdA



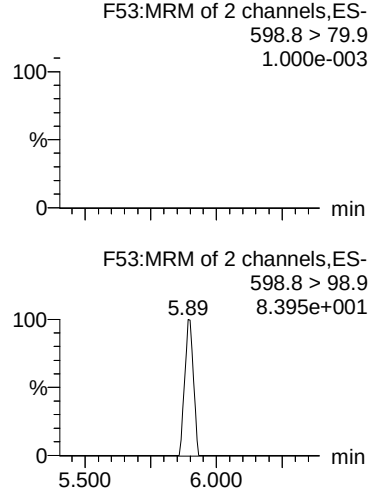
CGH 11/26/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-14.qld

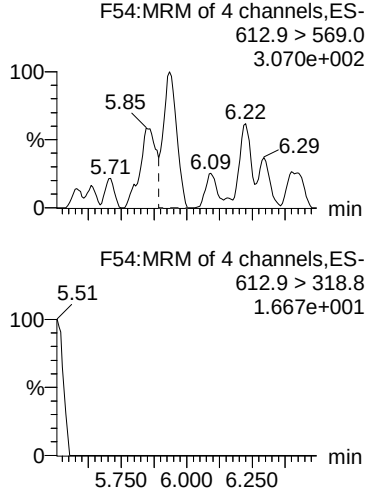
Last Altered: Monday, November 26, 2018 14:58:20 Pacific Standard Time
Printed: Monday, November 26, 2018 14:59:15 Pacific Standard Time

Name: 181121M1_14, Date: 21-Nov-2018, Time: 16:29:52, ID: B8K0097-BLK1 Method Blank 0.125, Description: Method Blank

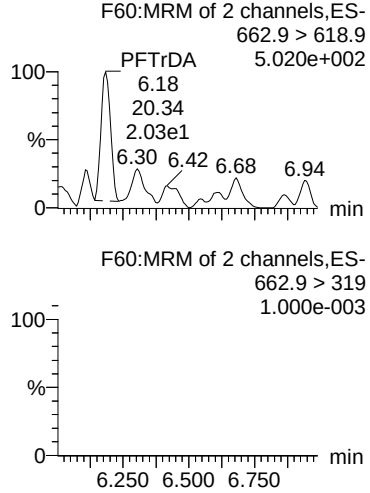
PFDS



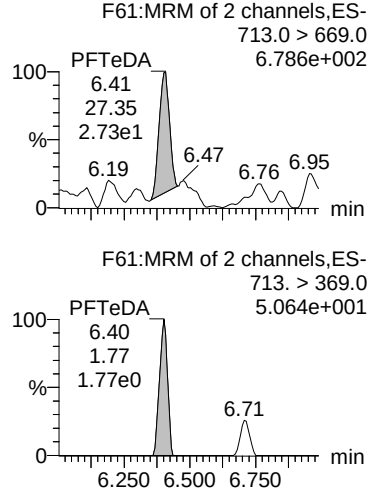
PFDoA



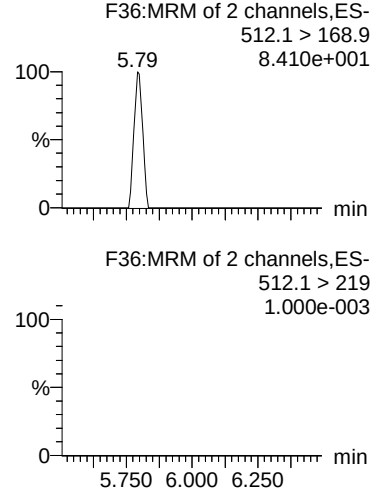
PFTrDA



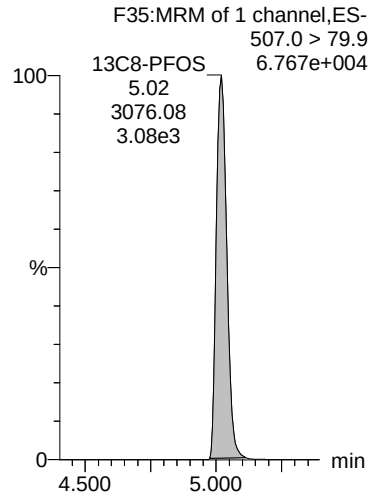
PFTeDA



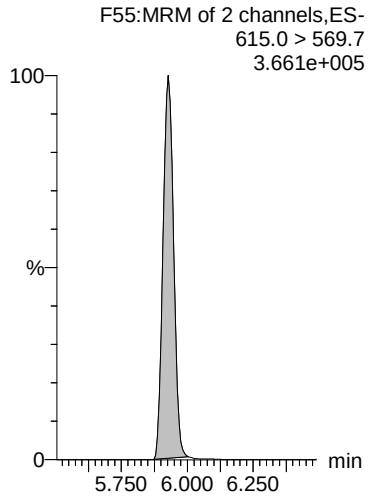
N-MeFOSA



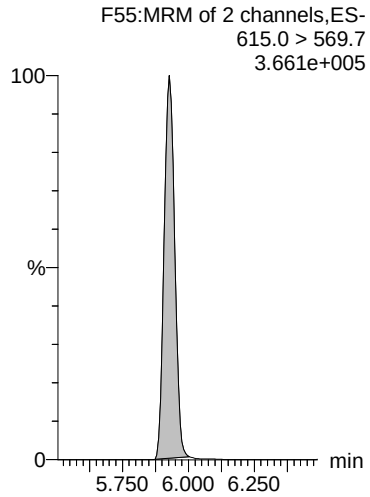
13C8-PFOS



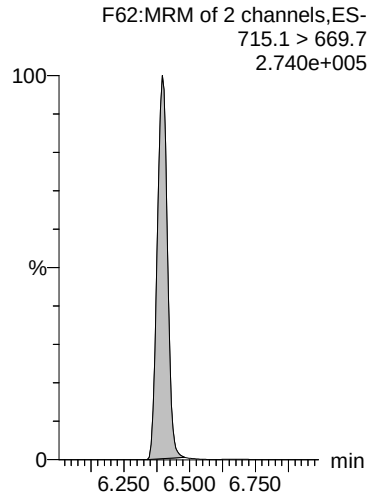
13C2-PFDoA



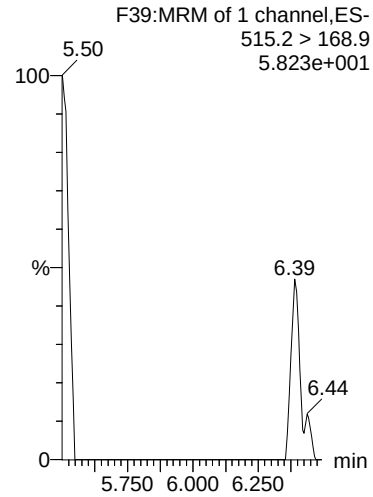
13C2-PFDoA



13C2-PFTeDA



d3-N-MeFOSA



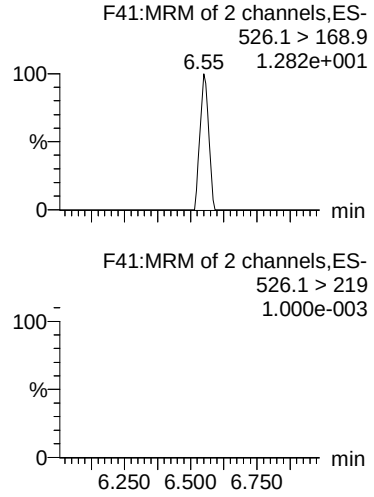
CGH 11/26/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-14.qld

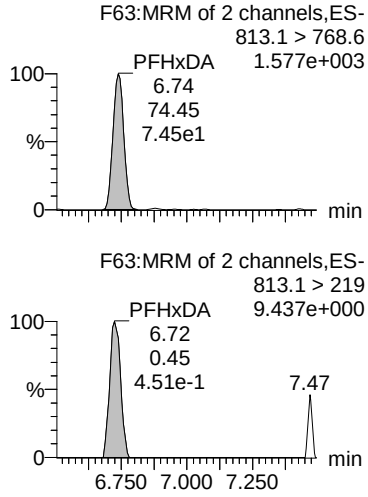
Last Altered: Monday, November 26, 2018 14:58:20 Pacific Standard Time
Printed: Monday, November 26, 2018 14:59:15 Pacific Standard Time

Name: 181121M1_14, Date: 21-Nov-2018, Time: 16:29:52, ID: B8K0097-BLK1 Method Blank 0.125, Description: Method Blank

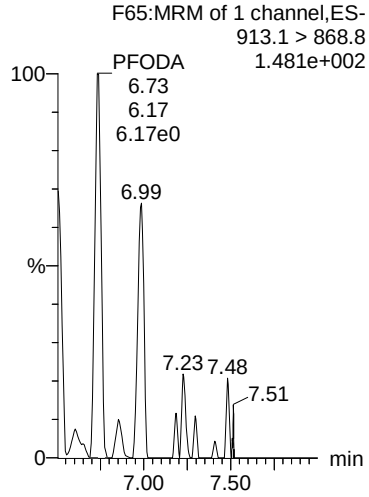
N-EtFOSA



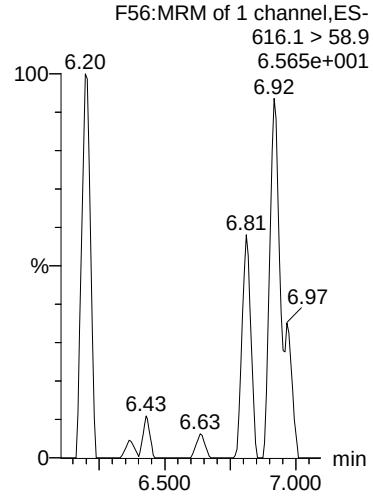
PFHxDA



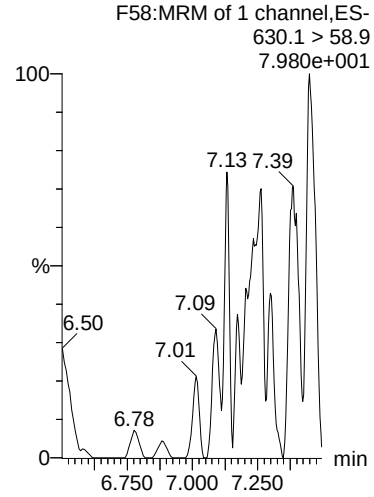
PFODA



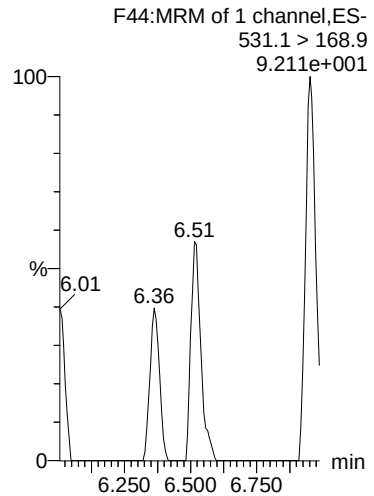
N-MeFOSE



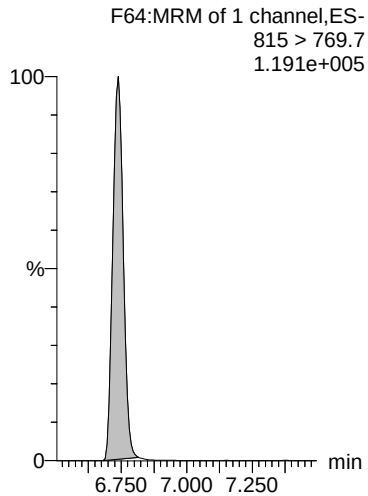
N-EtFOSE



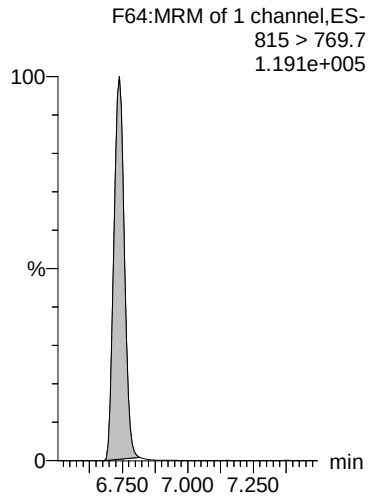
d5-N-ETFOSA



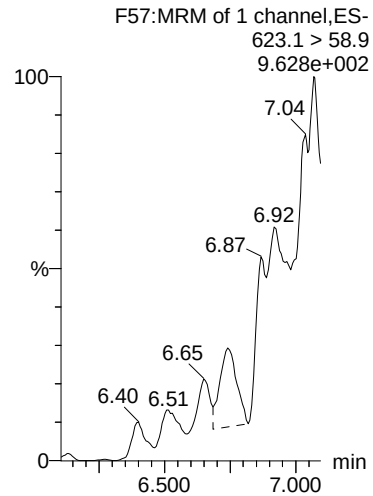
13C2-PFHxDA



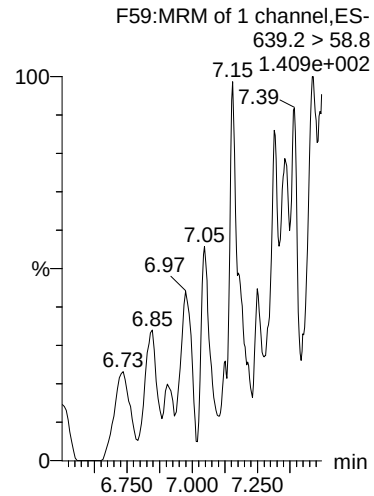
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE



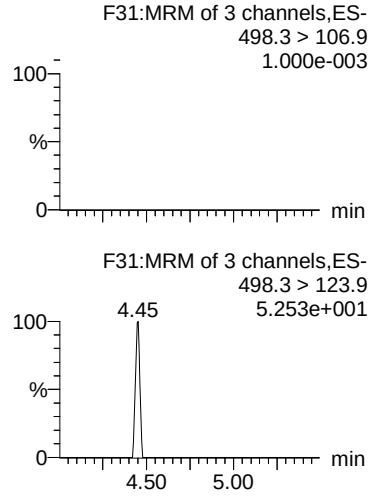
CGH 11/26/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-14.qld

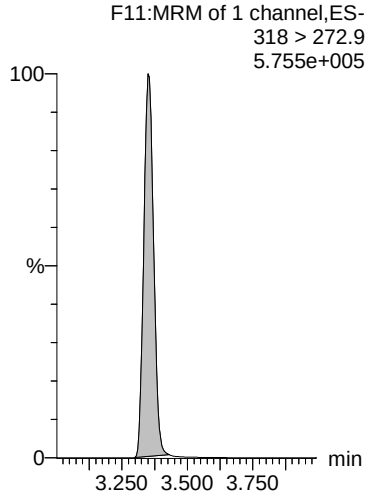
Last Altered: Monday, November 26, 2018 14:58:20 Pacific Standard Time
Printed: Monday, November 26, 2018 14:59:15 Pacific Standard Time

Name: 181121M1_14, Date: 21-Nov-2018, Time: 16:29:52, ID: B8K0097-BLK1 Method Blank 0.125, Description: Method Blank

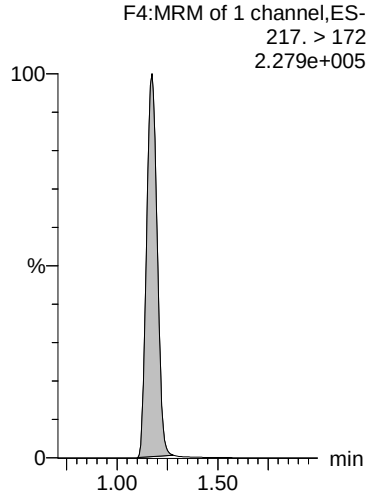
TCDA



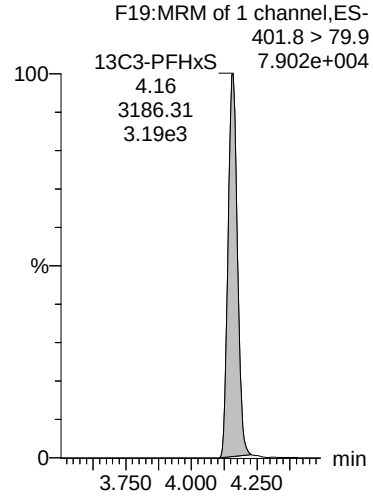
13C5-PFHxA



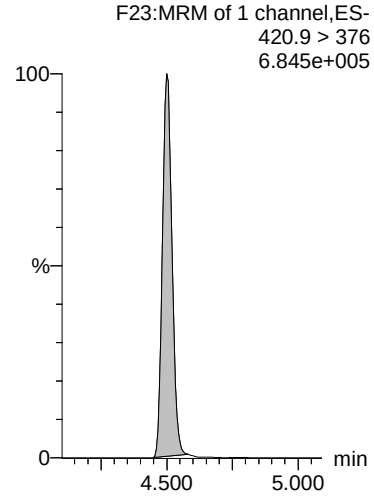
13C4-PFBA



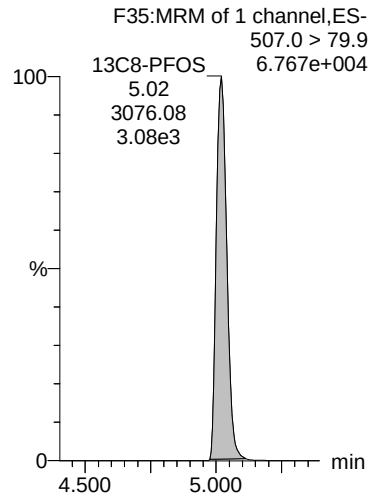
13C3-PFHxS



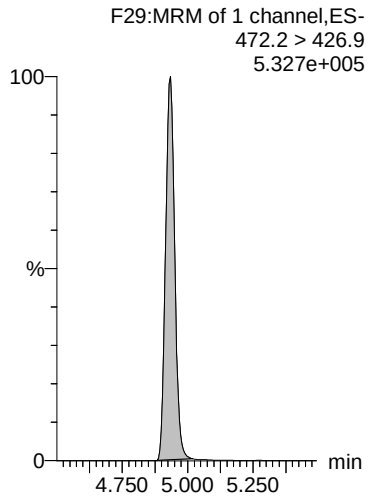
13C8-PFOA



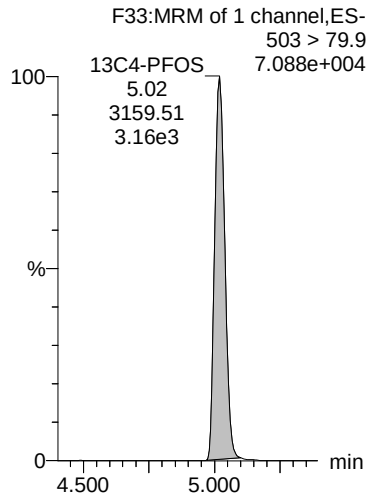
13C8-PFOS



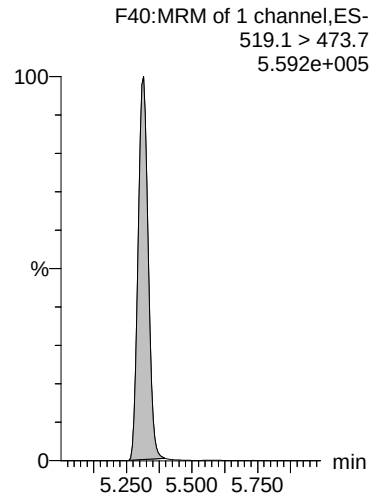
13C9-PFNA



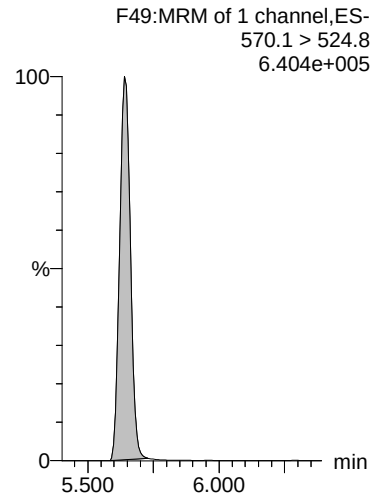
13C4-PFOS



13C6-PFDA



13C7-PFUdA



CGH 11/26/2018

Vista Analytical Laboratory L30

Rev: ANP 11/27/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-12.qld

Last Altered: Monday, November 26, 2018 14:44:19 Pacific Standard Time
Printed: Monday, November 26, 2018 14:46:59 Pacific Standard Time

Name: 181121M1_12, Date: 21-Nov-2018, Time: 16:08:39, ID: B8K0097-BS1 OPR 0.125, Description: OPR

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	RT	Respo...	Conc.	%Rec	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	9.83e3	1.06e4	0.125		1.21	11.6	79.8822	99.9		
2	2	PFPeA	263.1 > 218.9	9.86e3	1.31e4	0.125		2.48	9.39	79.8295	99.8		
3	3	PFBS	299.0 > 79.7	2.61e3	1.63e3	0.125		2.81	20.0	82.1719	102.7	2.66	NO
4	4	4:2 FTS	327.2>307.2	3.69e3	3.97e3	0.125		3.29	11.6	89.2036	111.5	1.74	NO
5	5	PFHxA	313 > 269	1.77e4	9.16e3	0.125		3.38	9.64	81.5497	101.9	16.1	NO
6	36	13C3-PFBA	216.1 > 171.8	1.06e4	1.40e4	0.125	0.780	1.21	9.46	97.0494	97.0		
7	37	13C3-PFPeA	266. > 221.8	1.31e4	2.51e4	0.125	0.523	2.47	6.54	100.0252	100.0		
8	38	13C3-PFBS	302. > 98.8	1.63e3	3.13e3	0.125	0.539	2.81	6.51	96.7303	96.7		
9	39	13C2-4:2 FTS	329.2>308.9	3.97e3	3.13e3	0.125	1.534	3.29	15.8	82.5499	82.5		
10	40	13C2-PFHxA	315 > 270	9.16e3	2.51e4	0.125	0.964	3.37	4.56	37.8556	94.6		
11	-1												
12	6	PFPeS	349.1>80.1	2.22e3	1.63e3	0.125		3.58	17.0	88.4874	110.6	1.45	NO
13	7	PFHpA	363.0 > 318.9	1.12e4	1.05e4	0.125		4.00	13.4	80.9956	101.2	13.0	NO
14	8	L-PFHxS	398.9 > 79.6	2.15e3	1.48e3	0.125		4.14	18.2	76.7565	95.9	1.81	NO
15	68	Total PFHxS	398.9 > 79.6	2.15e3	1.48e3	0.125			18.2	76.7565			
16	10	6:2 FTS	427.1 > 407	4.72e3	4.61e3	0.125		4.44	12.8	85.1714	106.5	3.08	NO
17	38	13C3-PFBS	302. > 98.8	1.63e3	3.13e3	0.125	0.539	2.81	6.51	96.7303	96.7		
18	41	13C4-PFHpA	367.2 > 321.8	1.05e4	2.51e4	0.125	0.482	4.00	5.21	86.4408	86.4		
19	42	18O2-PFHxS	403.0 > 102.6	1.48e3	3.13e3	0.125	0.480	4.14	5.89	98.1812	98.2		
20	42	18O2-PFHxS	403.0 > 102.6	1.48e3	3.13e3	0.125	0.480	4.14	5.89	98.1812	98.2		
21	43	13C2-6:2 FTS	429.1 > 408.9	4.61e3	3.28e3	0.125	1.536	4.44	17.6	91.5433	91.5		
22	-1												
23	11	L-PFOA	412.8 > 368.9	2.02e4	1.85e4	0.125		4.49	13.7	84.4193	105.5	3.43	NO
24	69	Total PFOA	412.8 > 368.9	2.02e4	1.85e4	0.125			13.7	84.4193			
25	13	PFHpS	449 > 80.0	2.58e3	3.22e3	0.125		4.60	10.0	89.7720	112.2	1.99	NO
26	16	L-PFOS	498.9 > 79.9	2.81e3	3.22e3	0.125		5.01	10.9	81.6692	102.1	1.84	NO
27	70	Total PFOS	498.9 > 79.9	2.81e3	3.22e3	0.125			10.9	81.6692			
28	44	13C2-PFOA	414.9 > 369.7	1.85e4	2.75e4	0.125	0.755	4.49	8.39	88.9394	88.9		
29	44	13C2-PFOA	414.9 > 369.7	1.85e4	2.75e4	0.125	0.755	4.49	8.39	88.9394	88.9		
30	47	13C8-PFOS	507.0 > 79.9	3.22e3	3.28e3	0.125	1.034	5.01	12.3	94.9429	94.9		
31	47	13C8-PFOS	507.0 > 79.9	3.22e3	3.28e3	0.125	1.034	5.01	12.3	94.9429	94.9		
32	47	13C8-PFOS	507.0 > 79.9	3.22e3	3.28e3	0.125	1.034	5.01	12.3	94.9429	94.9		
33	-1												
34	14	PFNA	463.0 > 418.8	1.46e4	1.59e4	0.125		4.93	11.5	73.0583	91.3	4.18	NO
35	15	PFOSA	497.9 > 77.9	6.75e2	7.88e2	0.125		4.97	10.7	80.6636	100.8	34.6	NO
36	18	PFDA	513 > 468.8	1.54e4	1.48e4	0.125		5.31	13.0	80.5244	100.7	5.29	NO

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Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-12.qld

Last Altered: Monday, November 26, 2018 14:44:19 Pacific Standard Time
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Name: 181121M1_12, Date: 21-Nov-2018, Time: 16:08:39, ID: B8K0097-BS1 OPR 0.125, Description: OPR

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	RT	Respo...	Conc.	%Rec	Ion Ratio	Ratio Out?
37	19	8:2 FTS	527 > 506.9	4.20e3	3.66e3	0.125		5.28	14.3	79.5274	99.4	2.36	NO
38	20	PFNS	549.1 > 80.1	1.97e3	3.22e3	0.125		5.38	7.64	81.0948	101.4	1.65	NO
39	45	13C5-PFNA	468.2 > 422.9	1.59e4	1.89e4	0.125	0.992	4.93	10.5	84.5683	84.6		
40	46	13C8-PFOSA	506.1 > 77.7	7.88e2	2.82e4	0.125	0.112	4.97	0.350	24.9229	24.9		
41	48	13C2-PFDA	515.1 > 469.9	1.48e4	2.26e4	0.125	0.832	5.31	8.22	78.9588	79.0		
42	49	13C2-8:2 FTS	529.1 > 508.7	3.66e3	3.28e3	0.125	1.268	5.28	14.0	88.0550	88.1		
43	47	13C8-PFOS	507.0 > 79.9	3.22e3	3.28e3	0.125	1.034	5.01	12.3	94.9429	94.9		
44	-1												
45	21	L-MeFOSAA	570 > 419	5.81e3	3.18e3	0.125		5.46	22.8	72.0967	90.1	2.58	NO
46	71	Total N-MeFOSAA	570. > 419	5.81e3	3.18e3	0.125			22.8	72.0967			
47	23	L-EtFOSAA	584.1 > 419	4.81e3	4.90e3	0.125		5.63	12.3	66.9173	83.6	1.48	NO
48	72	Total N-EtFOSAA	584.1 > 419	4.81e3	4.90e3	0.125			12.3	66.9173			
49	25	PFUdA	563.0 > 518.9	1.33e4	1.86e4	0.125		5.64	8.96	76.8624	96.1	8.36	NO
50	50	d3-N-MeFOSAA	573.3 > 419	3.18e3	2.82e4	0.125	0.135	5.46	1.41	83.6607	83.7		
51	50	d3-N-MeFOSAA	573.3 > 419	3.18e3	2.82e4	0.125	0.135	5.46	1.41	83.6607	83.7		
52	52	d5-N-EtFOSAA	589.3 > 419	4.90e3	2.82e4	0.125	0.198	5.62	2.18	87.8797	87.9		
53	52	d5-N-EtFOSAA	589.3 > 419	4.90e3	2.82e4	0.125	0.198	5.62	2.18	87.8797	87.9		
54	51	13C2-PFUdA	565 > 519.8	1.86e4	2.82e4	0.125	0.928	5.64	8.25	71.0994	71.1		
55	-1												
56	26	PFDS	598.8 > 79.9	2.41e3	3.22e3	0.125		5.69	9.35	75.4456	94.3	1.66	NO
57	27	PFDoA	612.9 > 569.0	1.65e4	1.85e4	0.125		5.93	11.1	79.2594	99.1	8.64	NO
58	29	PFTrDA	662.9 > 618.9	1.75e4	1.85e4	0.125		6.18	11.8	82.9344	103.7	23.1	NO
59	30	PFTeDA	713.0 > 669.0	1.67e4	1.40e4	0.125		6.40	14.9	81.8687	102.3	12.9	NO
60	28	N-MeFOSA	512.1 > 168.9	1.60e2		0.125		5.88				1.45	NO
61	47	13C8-PFOS	507.0 > 79.9	3.22e3	3.28e3	0.125	1.034	5.01	12.3	94.9429	94.9		
62	53	13C2-PFDoA	615.0 > 569.7	1.85e4	2.26e4	0.125	0.980	5.93	10.2	83.6211	83.6		
63	53	13C2-PFDoA	615.0 > 569.7	1.85e4	2.26e4	0.125	0.980	5.93	10.2	83.6211	83.6		
64	55	13C2-PFTeDA	715.1 > 669.7	1.40e4	2.82e4	0.125	0.607	6.40	6.24	82.2060	82.2		
65	54	d3-N-MeFOSA	515.2 > 168.9		2.82e4	0.125	0.035						
66	-1												
67	31	N-EtFOSA	526.1 > 168.9	1.99e2		0.125		6.40				1.64	NO
68	32	PFHxDA	813.1 > 768.6	8.43e3	7.09e3	0.125		6.74	5.95	92.5040	115.6	23.1	NO
69	33	PFODA	913.1 > 868.8	6.64e1	7.09e3	0.125		6.98	0.0469	0.0733	0.1		
70	34	N-MeFOSE	616.1 > 58.9	9.19e2		0.125		6.70					
71	35	N-EtFOSE	630.1 > 58.9	1.15e3		0.125		6.85					
72	56	d5-N-ETFOSA	531.1 > 168.9		2.82e4	0.125	0.060						

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Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-12.qld

Last Altered: Monday, November 26, 2018 14:44:19 Pacific Standard Time
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Name: 181121M1_12, Date: 21-Nov-2018, Time: 16:08:39, ID: B8K0097-BS1 OPR 0.125, Description: OPR

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	RT	Respo...	Conc.	%Rec	Ion Ratio	Ratio Out?
73	57	13C2-PFHxDA	815 > 769.7	7.09e3	2.82e4	0.125	0.805	6.74	3.15	31.2714	78.2		
74	57	13C2-PFHxDA	815 > 769.7	7.09e3	2.82e4	0.125	0.805	6.74	3.15	31.2714	78.2		
75	58	d7-N-MeFOSE	623.1 > 58.9		2.82e4	0.125	0.033						
76	59	d9-N-EtFOSE	639.2 > 58.8		2.82e4	0.125	0.032						
77	-1												
78	73	TCDA	498.3>106.9			0.125							
79	61	13C5-PFHxA	318 > 272.9	2.51e4	2.51e4	0.125	1.000	3.37	12.5	100.0000	100.0		
80	60	13C4-PFBA	217. > 172	1.40e4	1.40e4	0.125	1.000	1.22	12.5	100.0000	100.0		
81	62	13C3-PFHxS	401.8 > 79.9	3.13e3	3.13e3	0.125	1.000	4.14	12.5	100.0000	100.0		
82	63	13C8-PFOA	420.9 > 376	2.75e4	2.75e4	0.125	1.000	4.49	12.5	100.0000	100.0		
83	47	13C8-PFOS	507.0 > 79.9	3.22e3	3.28e3	0.125	1.034	5.01	12.3	94.9429	94.9		
84	64	13C9-PFNA	472.2 > 426.9	1.89e4	1.89e4	0.125	1.000	4.93	12.5	100.0000	100.0		
85	65	13C4-PFOS	503 > 79.9	3.28e3	3.28e3	0.125	1.000	5.01	12.5	100.0000	100.0		
86	66	13C6-PFDA	519.1 > 473.7	2.26e4	2.26e4	0.125	1.000	5.31	12.5	100.0000	100.0		
87	67	13C7-PFUdA	570.1 > 524.8	2.82e4	2.82e4	0.125	1.000	5.64	12.5	100.0000	100.0		

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Rev: ANP 11/27/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-12.qld

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Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Name: 181121M1_12, Date: 21-Nov-2018, Time: 16:08:39, ID: B8K0097-BS1 OPR 0.125, Description: OPR

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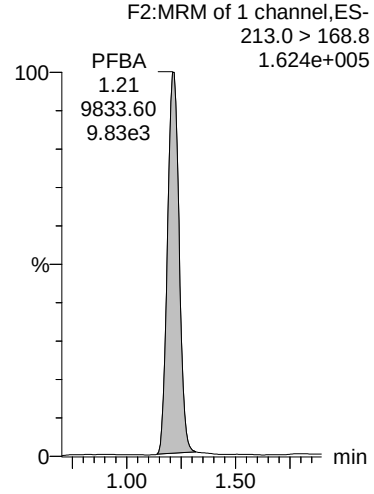

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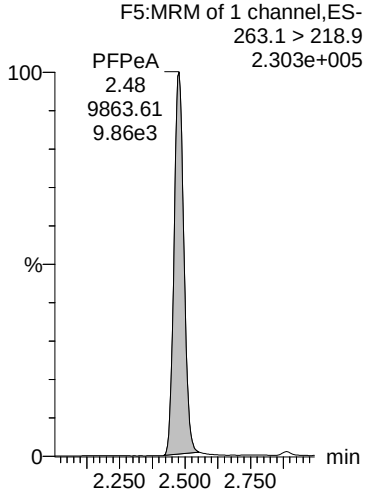

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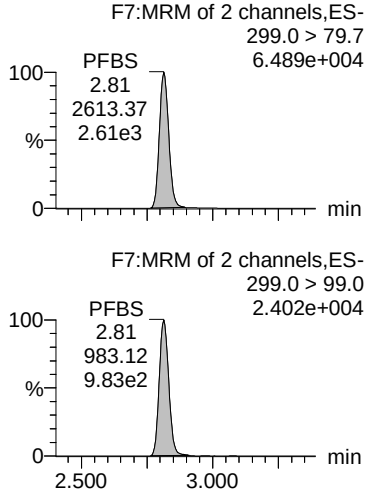

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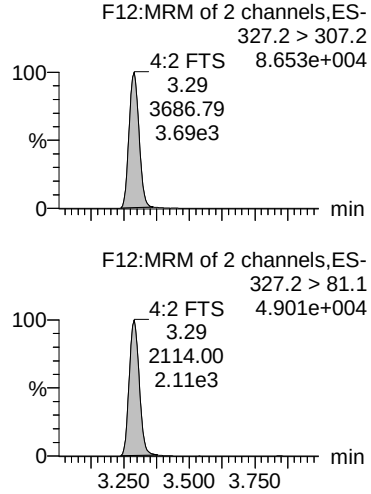

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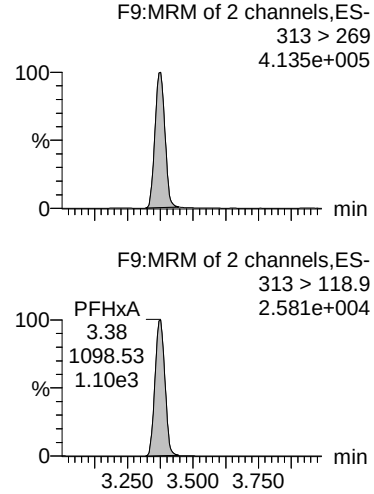

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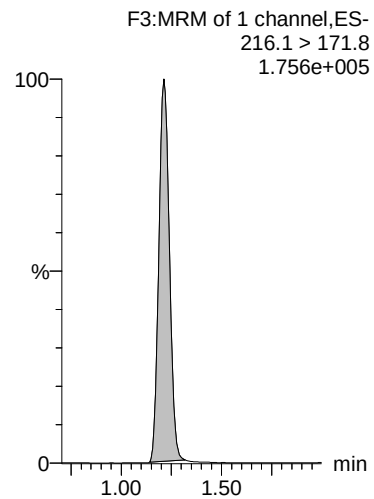

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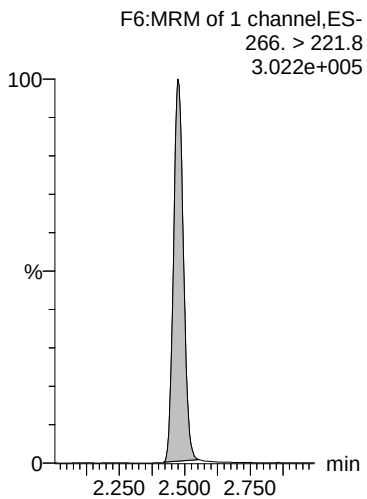

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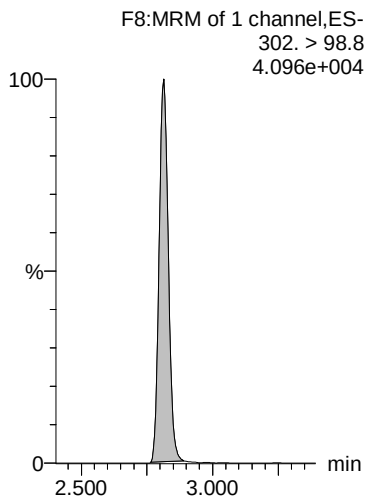

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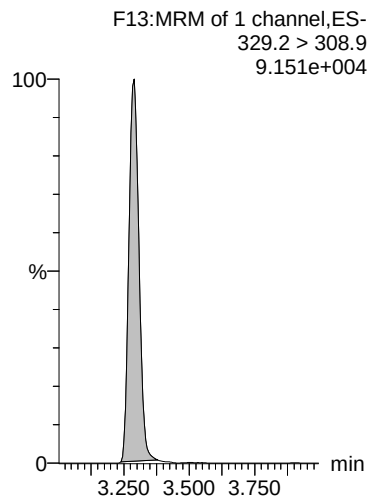

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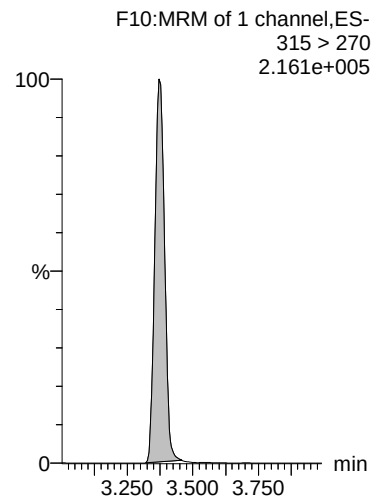

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Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-12.qld

Last Altered: Monday, November 26, 2018 14:44:19 Pacific Standard Time
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Name: 181121M1_12, Date: 21-Nov-2018, Time: 16:08:39, ID: B8K0097-BS1 OPR 0.125, Description: OPR

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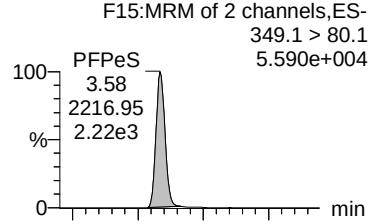

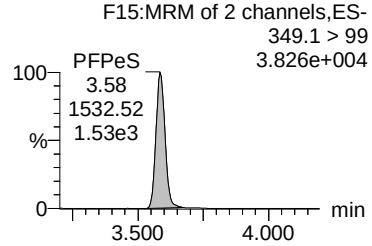

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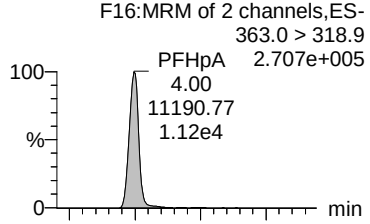
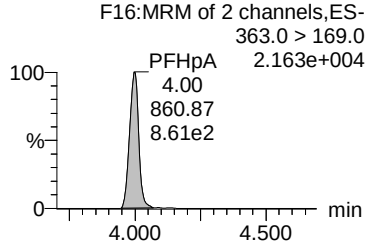
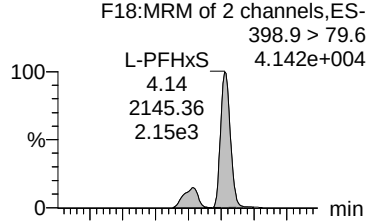
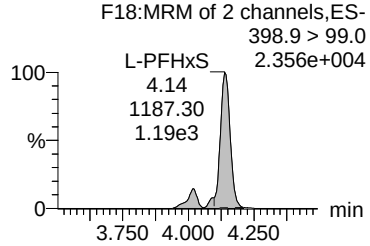


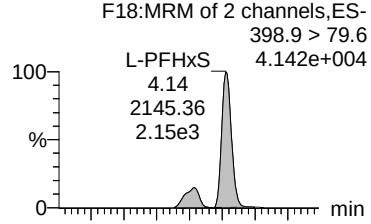


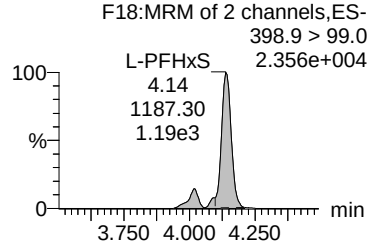
L-PFHxS



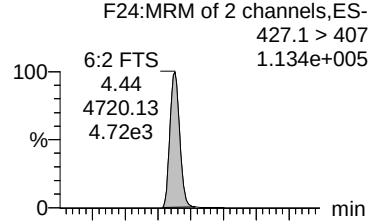


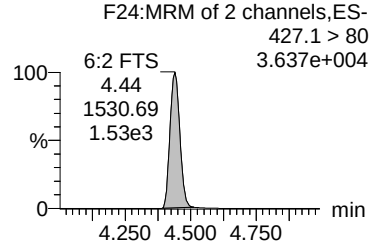
Total PFHxS





6:2 FTS





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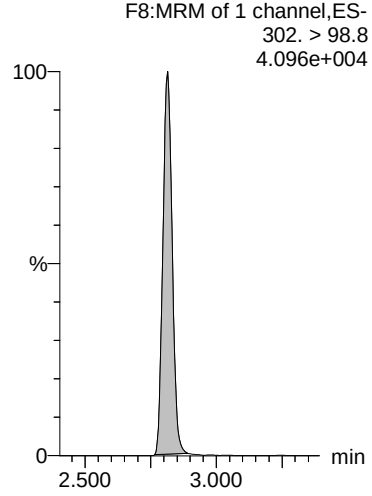

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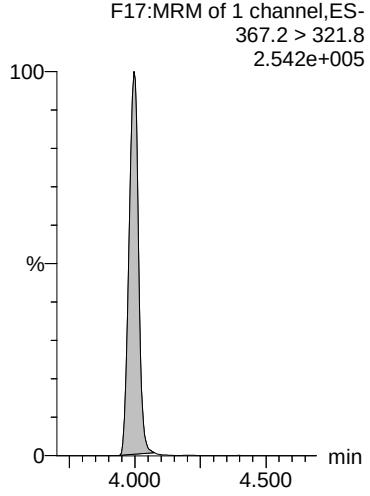

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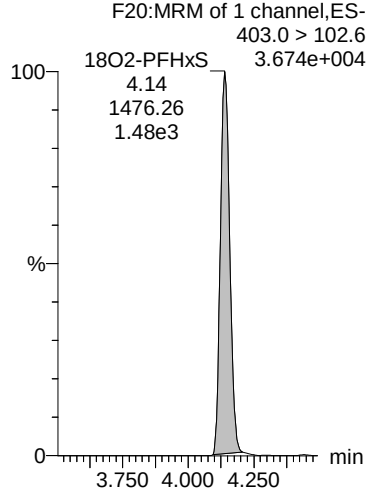

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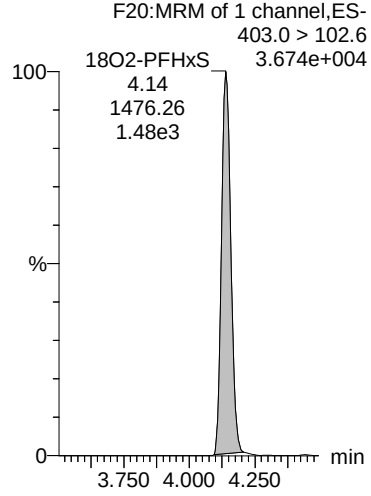

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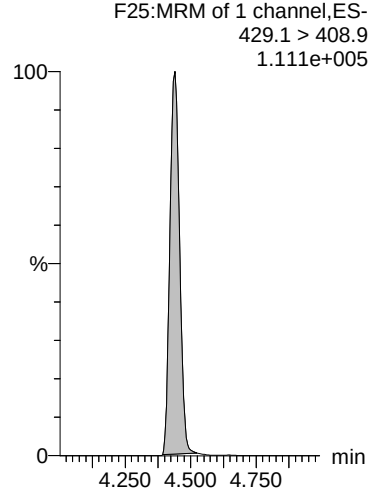

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Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-12.qld

Last Altered: Monday, November 26, 2018 14:44:19 Pacific Standard Time
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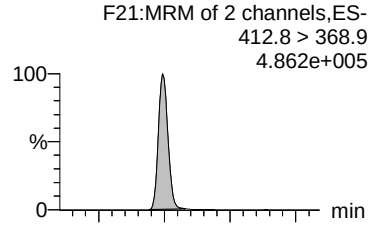
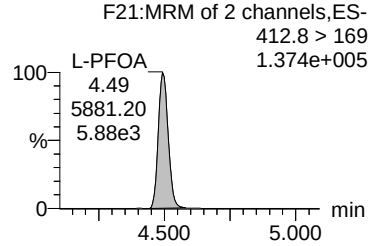
Name: 181121M1_12, Date: 21-Nov-2018, Time: 16:08:39, ID: B8K0097-BS1 OPR 0.125, Description: OPR

L-PFOA





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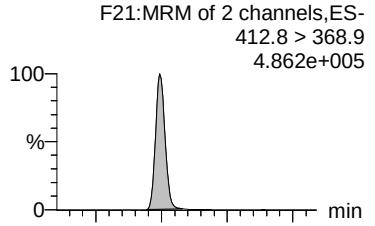
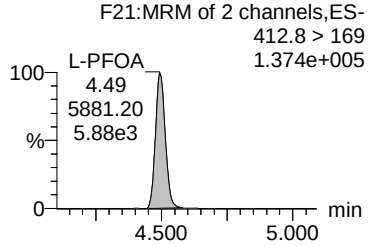
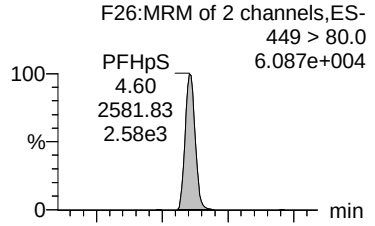
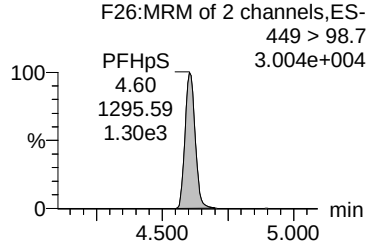


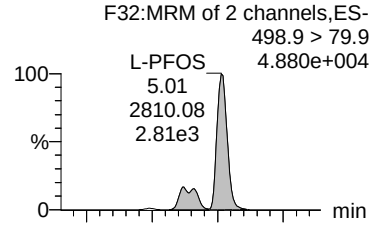


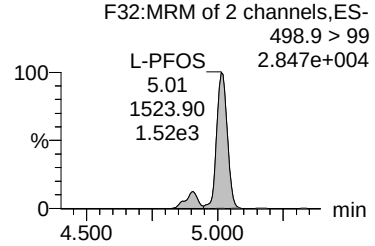
PFHpS



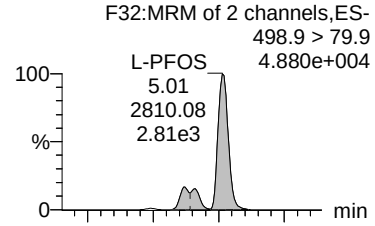


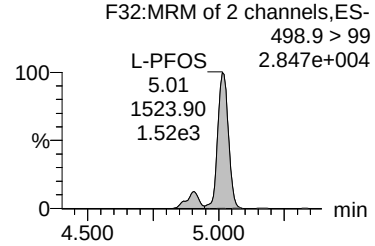
L-PFOS





Total PFOS





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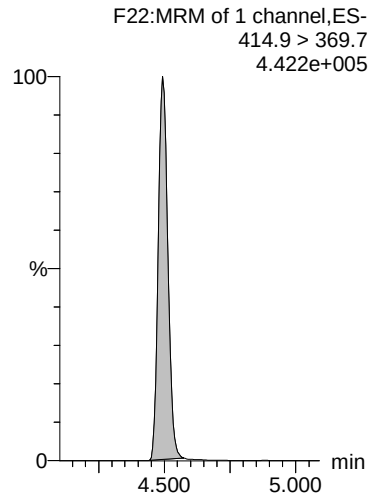

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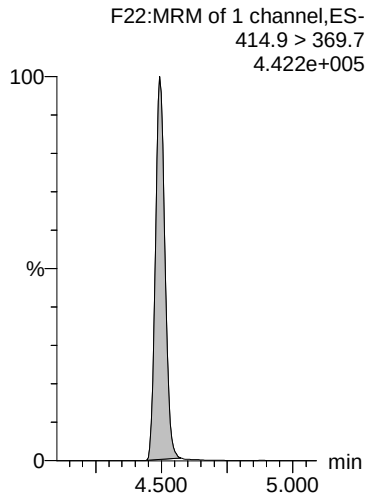

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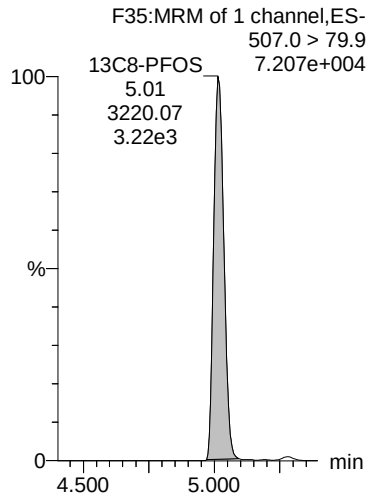

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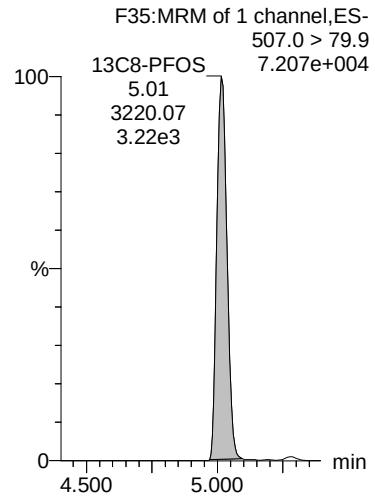

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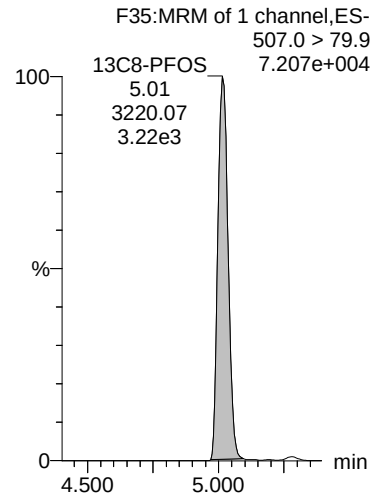

CGH 11/26/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-12.qld

Last Altered: Monday, November 26, 2018 14:44:19 Pacific Standard Time
Printed: Monday, November 26, 2018 14:46:59 Pacific Standard Time

Name: 181121M1_12, Date: 21-Nov-2018, Time: 16:08:39, ID: B8K0097-BS1 OPR 0.125, Description: OPR

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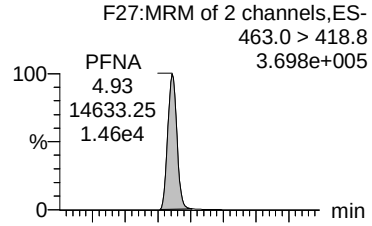

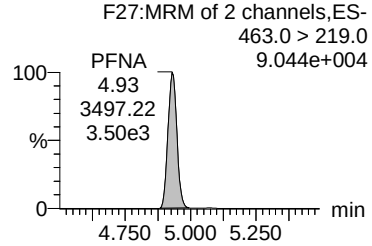

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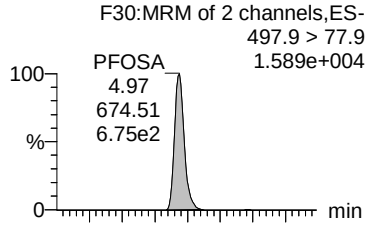

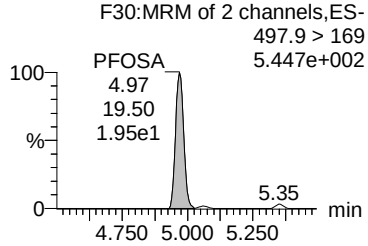

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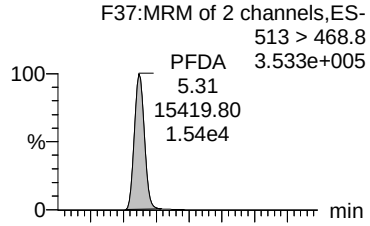
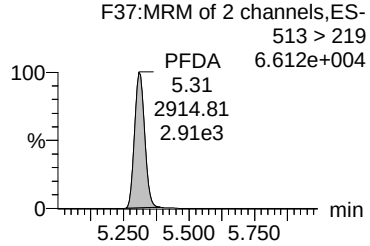
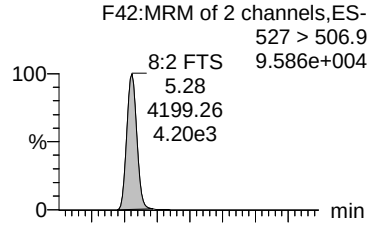
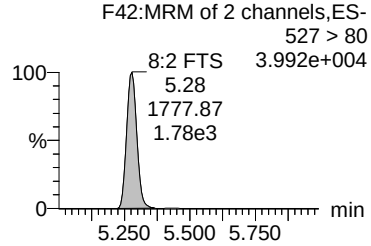


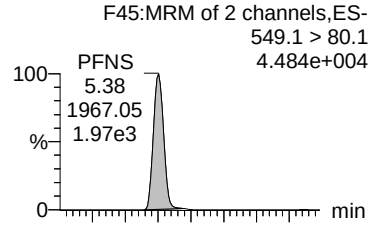


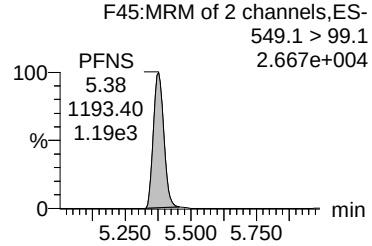
8:2 FTS



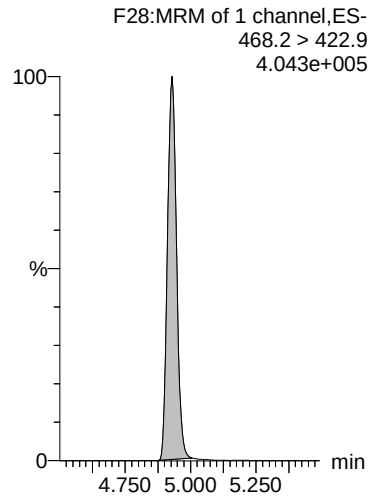


PFNS

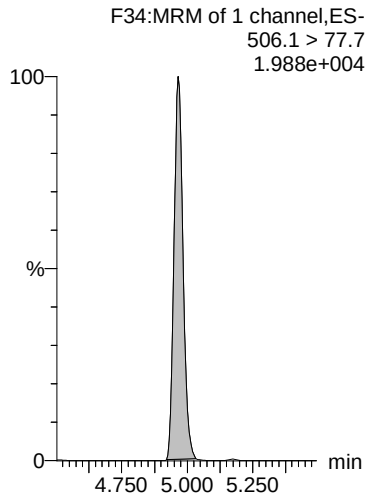




13C5-PFNA



13C8-PFOSA



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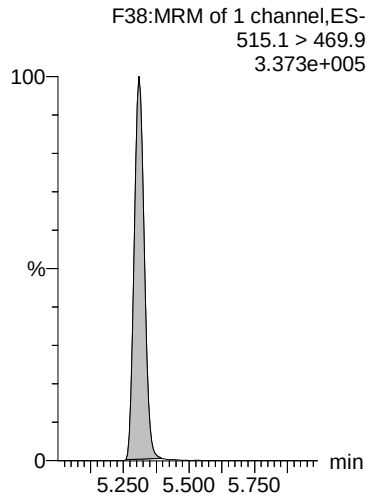
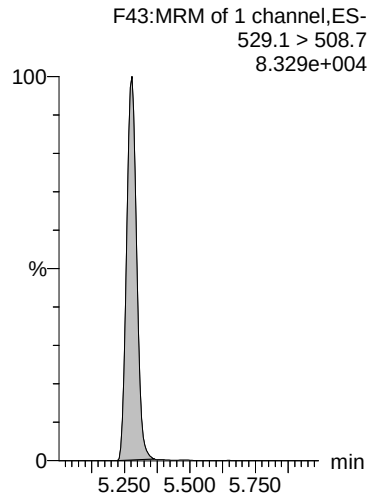


13C2-8:2 FTS



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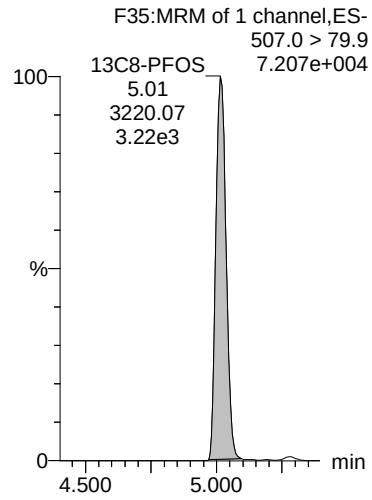

CGH 11/26/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-12.qld

Last Altered: Monday, November 26, 2018 14:44:19 Pacific Standard Time
Printed: Monday, November 26, 2018 14:46:59 Pacific Standard Time

Name: 181121M1_12, Date: 21-Nov-2018, Time: 16:08:39, ID: B8K0097-BS1 OPR 0.125, Description: OPR

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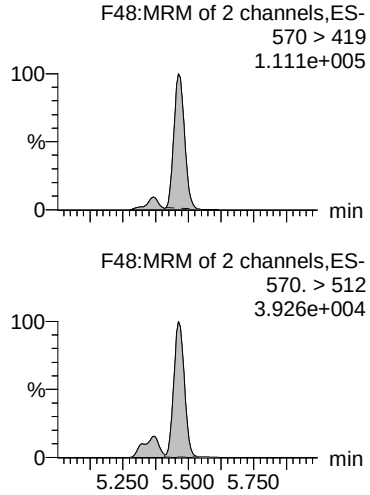

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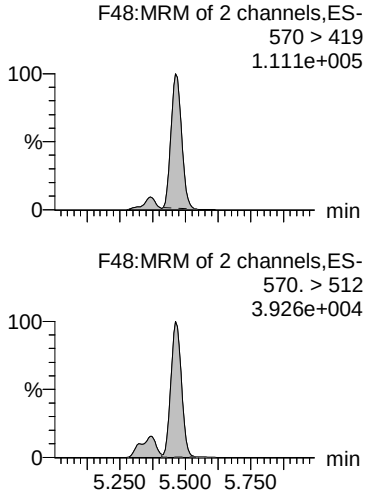
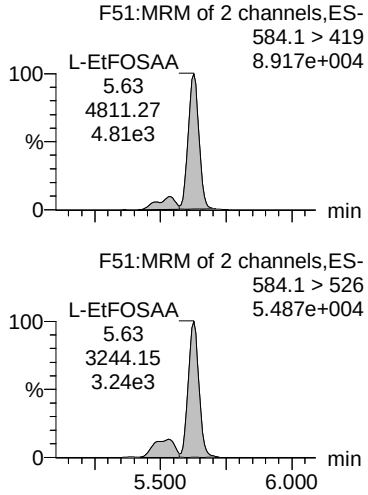


L-EtFOSAA



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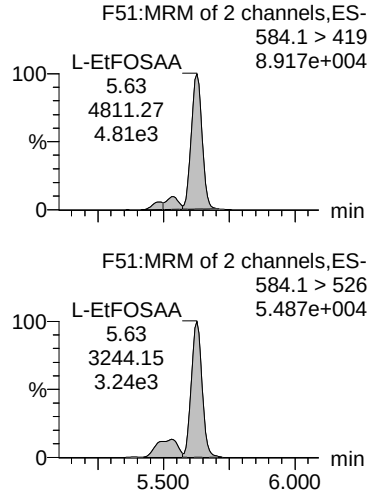
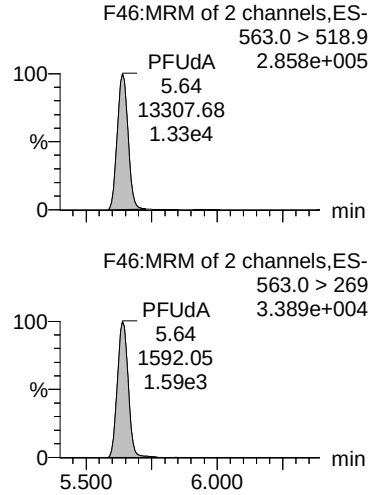
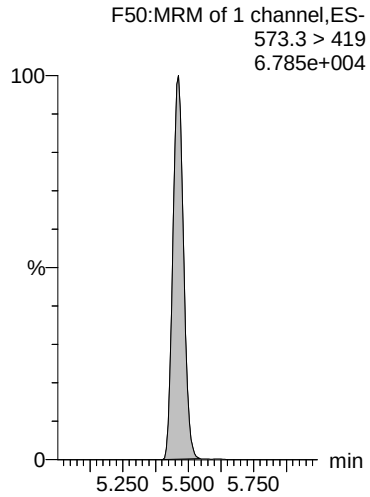


PFUdA



d3-N-MeFOSAA



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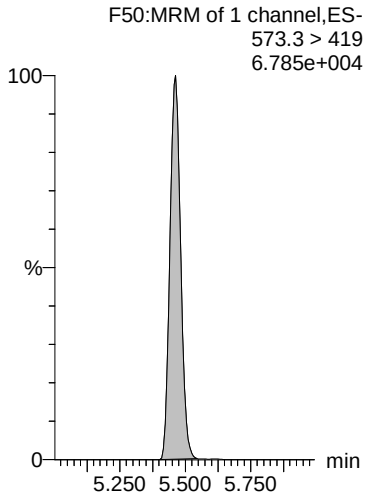

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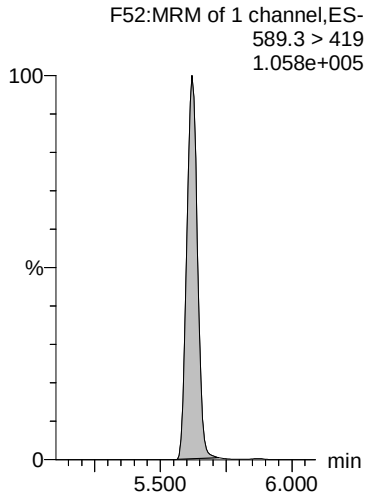

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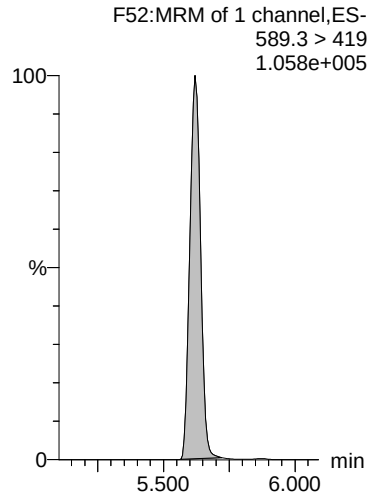
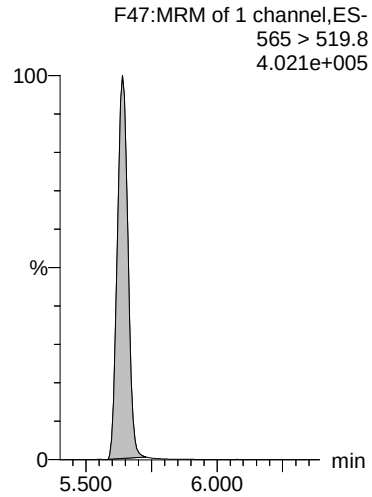


13C2-PFUdA



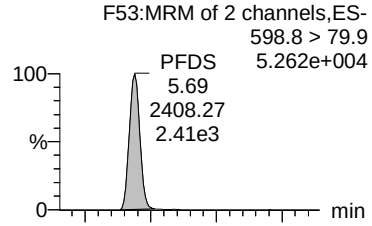
CGH 11/26/2018

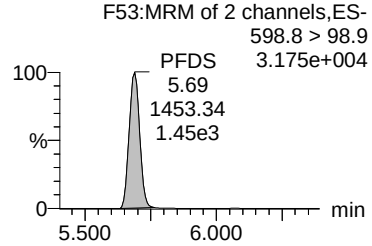
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-12.qld

Last Altered: Monday, November 26, 2018 14:44:19 Pacific Standard Time
Printed: Monday, November 26, 2018 14:46:59 Pacific Standard Time

Name: 181121M1_12, Date: 21-Nov-2018, Time: 16:08:39, ID: B8K0097-BS1 OPR 0.125, Description: OPR

PFDS





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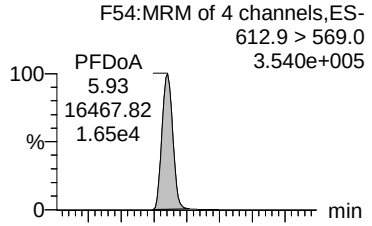

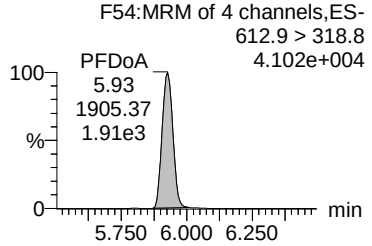

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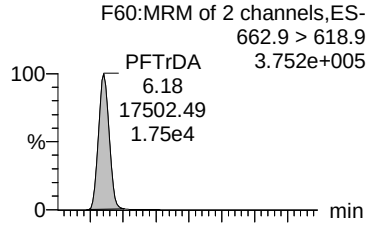

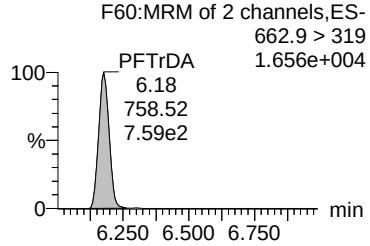

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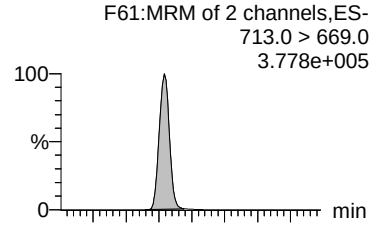
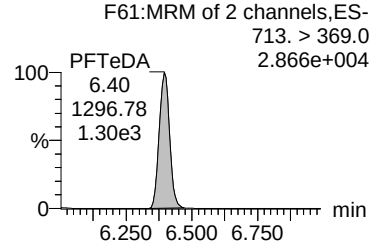
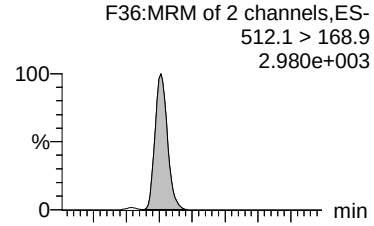
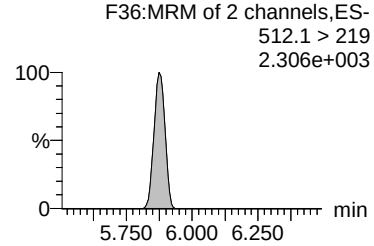


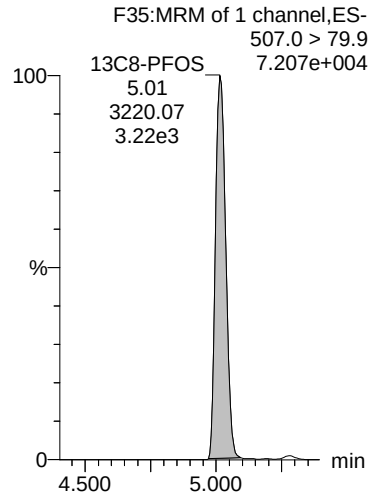


N-MeFOSA





13C8-PFOS



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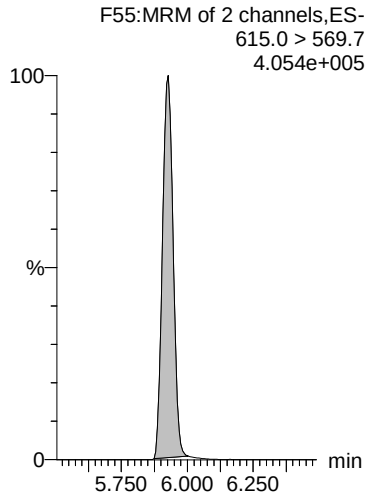

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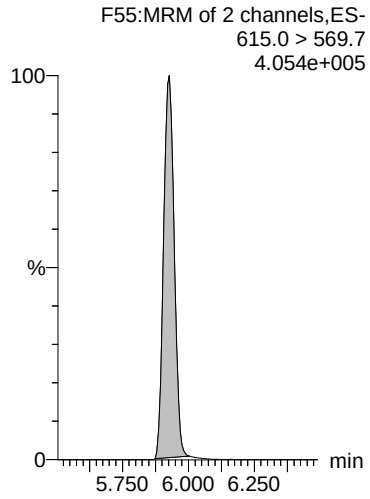

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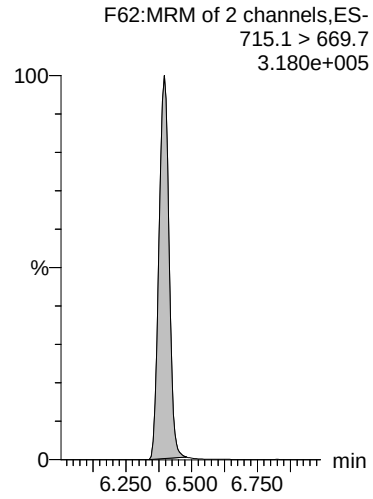
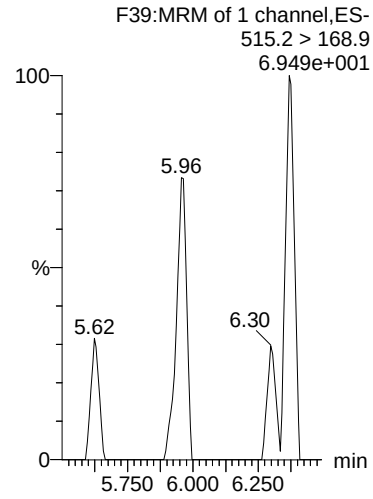


d3-N-MeFOSA



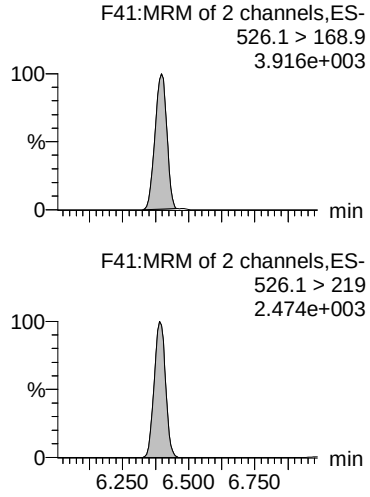
CGH 11/26/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-12.qld

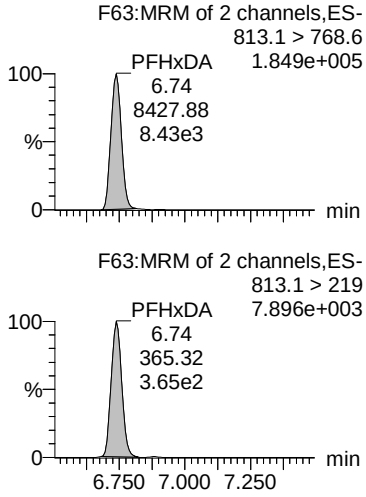
Last Altered: Monday, November 26, 2018 14:44:19 Pacific Standard Time
Printed: Monday, November 26, 2018 14:46:59 Pacific Standard Time

Name: 181121M1_12, Date: 21-Nov-2018, Time: 16:08:39, ID: B8K0097-BS1 OPR 0.125, Description: OPR

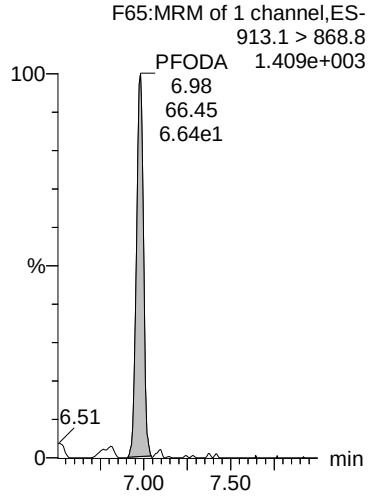
N-EtFOSA



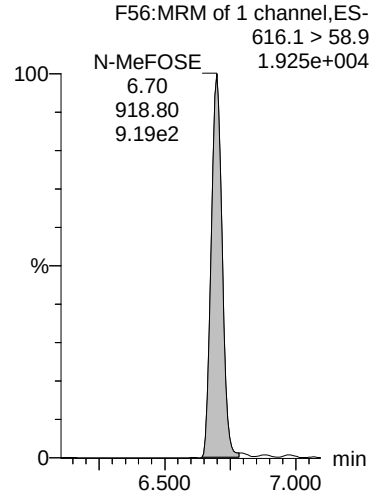
PFHxDA



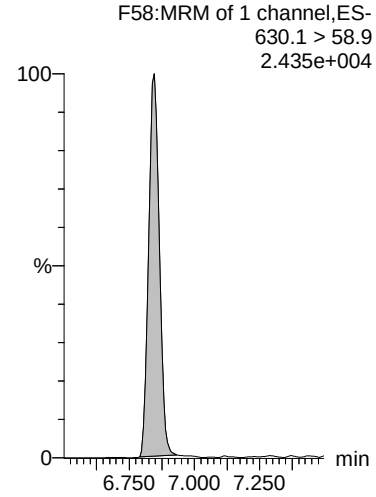
PFODA



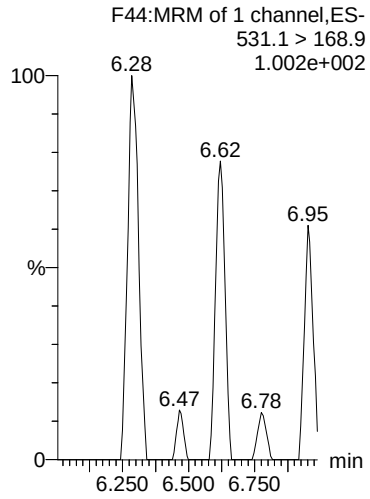
N-MeFOSE



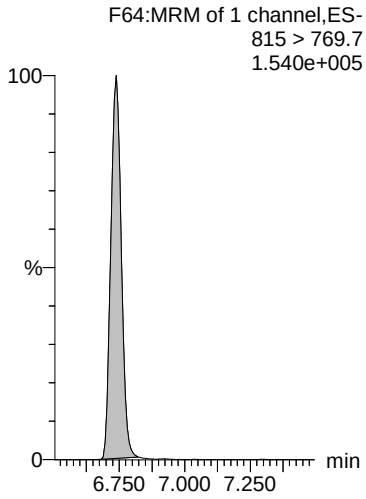
N-EtFOSE



d5-N-ETFOSA



13C2-PFHxDA



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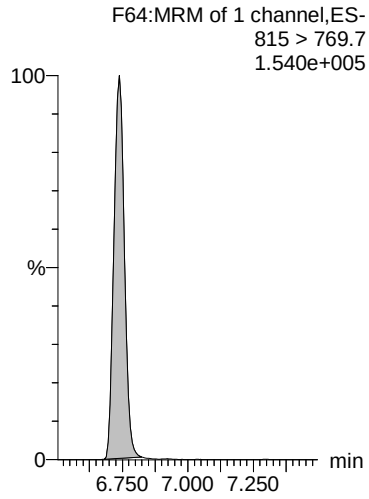
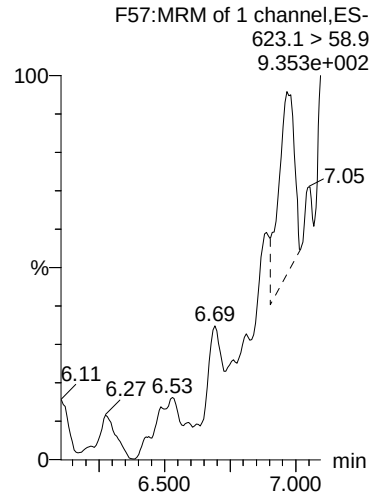
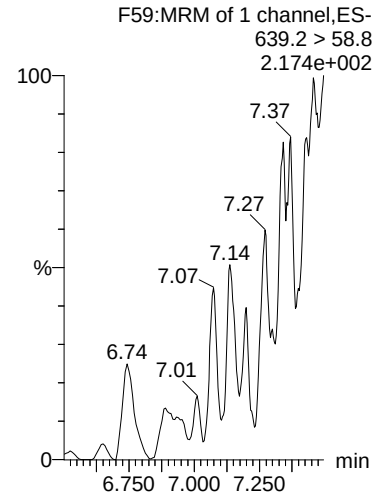


d7-N-MeFOSE



d9-N-EtFOSE



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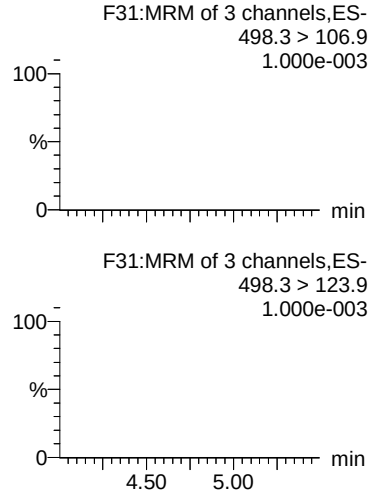
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-12.qld

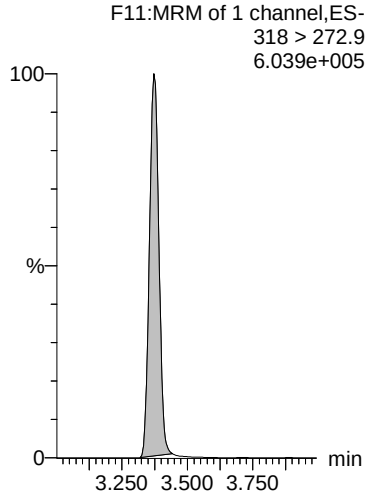
Last Altered: Monday, November 26, 2018 14:44:19 Pacific Standard Time
Printed: Monday, November 26, 2018 14:46:59 Pacific Standard Time

Name: 181121M1_12, Date: 21-Nov-2018, Time: 16:08:39, ID: B8K0097-BS1 OPR 0.125, Description: OPR

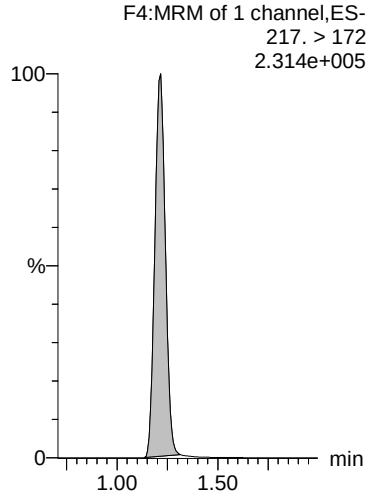
TCDA



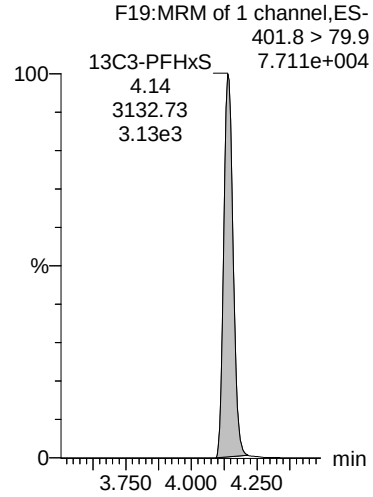
13C5-PFHxA



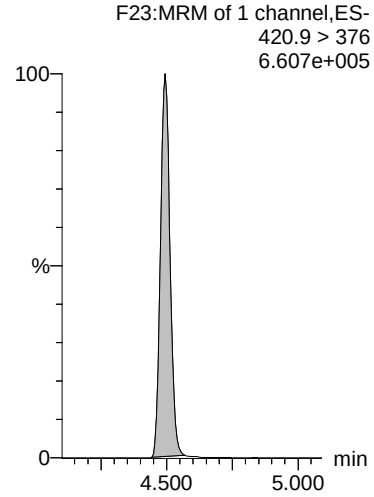
13C4-PFBA



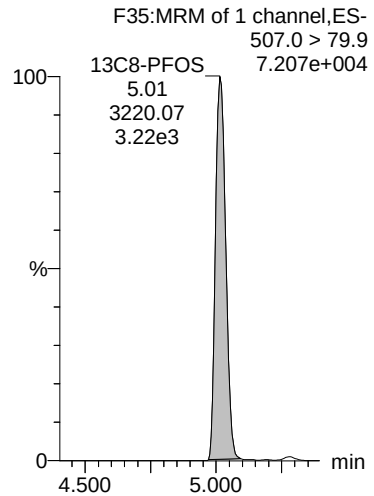
13C3-PFHxS



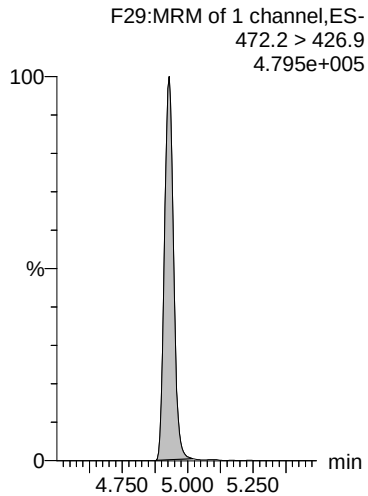
13C8-PFOA



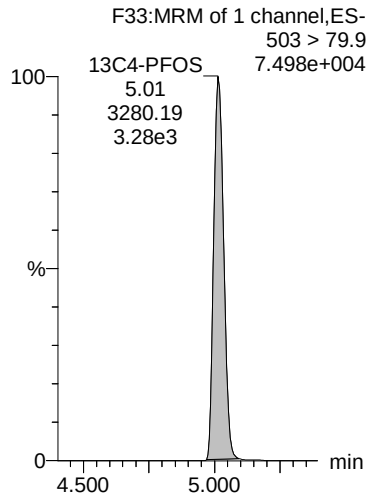
13C8-PFOS



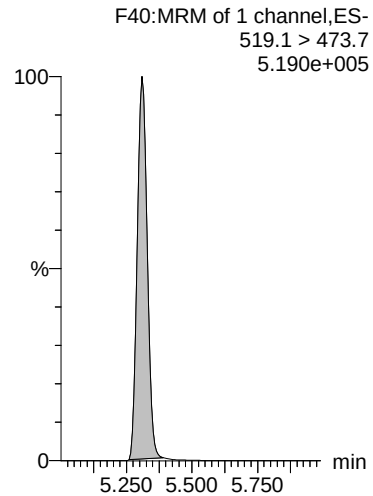
13C9-PFNA



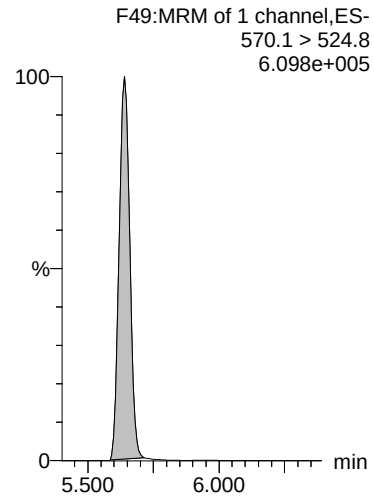
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-13.qld

Last Altered: Monday, November 26, 2018 14:50:40 Pacific Standard Time
Printed: Monday, November 26, 2018 14:51:18 Pacific Standard Time

Name: 181121M1_13, Date: 21-Nov-2018, Time: 16:19:13, ID: B8K0097-BSD1 LCSD 0.125, Description: LCSD

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	RT	Respo...	Conc.	%Rec	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	9.86e3	1.05e4	0.125		1.18	11.8	80.7507	100.9		
2	2	PFPeA	263.1 > 218.9	9.81e3	1.31e4	0.125		2.44	9.36	79.5713	99.5		
3	3	PFBS	299.0 > 79.7	2.57e3	1.70e3	0.125		2.79	18.9	77.7150	97.1	2.73	NO
4	4	4:2 FTS	327.2>307.2	3.84e3	4.10e3	0.125		3.27	11.7	89.9552	112.4	1.85	NO
5	5	PFHxA	313 > 269	1.82e4	9.51e3	0.125		3.35	9.57	80.9332	101.2	16.4	NO
6	36	13C3-PFBA	216.1 > 171.8	1.05e4	1.45e4	0.125	0.780	1.17	9.01	92.3809	92.4		
7	37	13C3-PFPeA	266. > 221.8	1.31e4	2.66e4	0.125	0.523	2.44	6.16	94.1784	94.2		
8	38	13C3-PFBS	302. > 98.8	1.70e3	3.36e3	0.125	0.539	2.78	6.32	93.9034	93.9		
9	39	13C2-4:2 FTS	329.2>308.9	4.10e3	3.36e3	0.125	1.534	3.27	15.2	79.4852	79.5		
10	40	13C2-PFHxA	315 > 270	9.51e3	2.66e4	0.125	0.964	3.35	4.47	37.0782	92.7		
11	-1												
12	6	PFPeS	349.1>80.1	2.21e3	1.70e3	0.125		3.57	16.3	84.6699	105.8	1.59	NO
13	7	PFHpA	363.0 > 318.9	1.24e4	1.17e4	0.125		4.02	13.2	79.7456	99.7	12.4	NO
14	8	L-PFHxS	398.9 > 79.6	1.97e3	1.44e3	0.125		4.16	17.1	72.4439	90.6	1.67	NO
15	68	Total PFHxS	398.9 > 79.6	1.97e3	1.44e3	0.125			17.1	72.4439			
16	10	6:2 FTS	427.1 > 407	4.54e3	4.24e3	0.125		4.45	13.4	89.1673	111.5	3.09	NO
17	38	13C3-PFBS	302. > 98.8	1.70e3	3.36e3	0.125	0.539	2.78	6.32	93.9034	93.9		
18	41	13C4-PFHpA	367.2 > 321.8	1.17e4	2.66e4	0.125	0.482	4.01	5.52	91.6886	91.7		
19	42	18O2-PFHxS	403.0 > 102.6	1.44e3	3.36e3	0.125	0.480	4.16	5.34	89.0720	89.1		
20	42	18O2-PFHxS	403.0 > 102.6	1.44e3	3.36e3	0.125	0.480	4.16	5.34	89.0720	89.1		
21	43	13C2-6:2 FTS	429.1 > 408.9	4.24e3	3.50e3	0.125	1.536	4.45	15.1	78.8274	78.8		
22	-1												
23	11	L-PFOA	412.8 > 368.9	2.17e4	1.98e4	0.125		4.50	13.7	84.5754	105.7	3.37	NO
24	69	Total PFOA	412.8 > 368.9	2.17e4	1.98e4	0.125			13.7	84.5754			
25	13	PFHpS	449 > 80.0	2.30e3	3.24e3	0.125		4.61	8.85	79.2860	99.1	1.81	NO
26	16	L-PFOS	498.9 > 79.9	2.74e3	3.24e3	0.125		5.02	10.6	79.2147	99.0	1.95	NO
27	70	Total PFOS	498.9 > 79.9	2.74e3	3.24e3	0.125			10.6	79.2147			
28	44	13C2-PFOA	414.9 > 369.7	1.98e4	3.16e4	0.125	0.755	4.50	7.82	82.9010	82.9		
29	44	13C2-PFOA	414.9 > 369.7	1.98e4	3.16e4	0.125	0.755	4.50	7.82	82.9010	82.9		
30	47	13C8-PFOS	507.0 > 79.9	3.24e3	3.50e3	0.125	1.034	5.02	11.6	89.5157	89.5		
31	47	13C8-PFOS	507.0 > 79.9	3.24e3	3.50e3	0.125	1.034	5.02	11.6	89.5157	89.5		
32	47	13C8-PFOS	507.0 > 79.9	3.24e3	3.50e3	0.125	1.034	5.02	11.6	89.5157	89.5		
33	-1												
34	14	PFNA	463.0 > 418.8	1.78e4	1.77e4	0.125		4.93	12.5	79.6580	99.6	4.41	NO
35	15	PFOSA	497.9 > 77.9	1.57e3	1.94e3	0.125		4.97	10.1	76.2462	95.3	43.8	NO
36	18	PFDA	513 > 468.8	1.79e4	1.76e4	0.125		5.31	12.7	78.9678	98.7	5.41	NO

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Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-13.qld

Last Altered: Monday, November 26, 2018 14:50:40 Pacific Standard Time
Printed: Monday, November 26, 2018 14:51:18 Pacific Standard Time

Name: 181121M1_13, Date: 21-Nov-2018, Time: 16:19:13, ID: B8K0097-BSD1 LCSD 0.125, Description: LCSD

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	RT	Respo...	Conc.	%Rec	Ion Ratio	Ratio Out?
37	19	8:2 FTS	527 > 506.9	4.25e3	3.21e3	0.125		5.28	16.5	92.2151	115.3	2.50	NO
38	20	PFNS	549.1 > 80.1	2.14e3	3.24e3	0.125		5.38	8.27	87.8044	109.8	1.75	NO
39	45	13C5-PFNA	468.2 > 422.9	1.77e4	2.26e4	0.125	0.992	4.93	9.78	78.8972	78.9		
40	46	13C8-PFOSA	506.1 > 77.7	1.94e3	3.20e4	0.125	0.112	4.97	0.757	53.9056	53.9		
41	48	13C2-PFDA	515.1 > 469.9	1.76e4	2.72e4	0.125	0.832	5.31	8.08	77.6591	77.7		
42	49	13C2-8:2 FTS	529.1 > 508.7	3.21e3	3.50e3	0.125	1.268	5.28	11.5	72.3385	72.3		
43	47	13C8-PFOS	507.0 > 79.9	3.24e3	3.50e3	0.125	1.034	5.02	11.6	89.5157	89.5		
44	-1												
45	21	L-MeFOSAA	570 > 419	5.78e3	3.35e3	0.125		5.47	21.6	68.1508	85.2	2.46	NO
46	71	Total N-MeFOSAA	570. > 419	5.78e3	3.35e3	0.125			21.6	68.1508			
47	23	L-EtFOSAA	584.1 > 419	4.94e3	4.85e3	0.125		5.63	12.7	69.4803	86.9	1.45	NO
48	72	Total N-EtFOSAA	584.1 > 419	4.94e3	4.85e3	0.125			12.7	69.4803			
49	25	PFUdA	563.0 > 518.9	1.55e4	2.01e4	0.125		5.64	9.61	82.5891	103.2	9.31	NO
50	50	d3-N-MeFOSAA	573.3 > 419	3.35e3	3.20e4	0.125	0.135	5.46	1.31	77.4932	77.5		
51	50	d3-N-MeFOSAA	573.3 > 419	3.35e3	3.20e4	0.125	0.135	5.46	1.31	77.4932	77.5		
52	52	d5-N-EtFOSAA	589.3 > 419	4.85e3	3.20e4	0.125	0.198	5.62	1.90	76.5122	76.5		
53	52	d5-N-EtFOSAA	589.3 > 419	4.85e3	3.20e4	0.125	0.198	5.62	1.90	76.5122	76.5		
54	51	13C2-PFUdA	565 > 519.8	2.01e4	3.20e4	0.125	0.928	5.64	7.87	67.8301	67.8		
55	-1												
56	26	PFDS	598.8 > 79.9	2.42e3	3.24e3	0.125		5.69	9.34	75.4057	94.3	1.70	NO
57	27	PFDoA	612.9 > 569.0	1.76e4	1.90e4	0.125		5.93	11.6	82.8854	103.6	8.58	NO
58	29	PFTrDA	662.9 > 618.9	1.77e4	1.90e4	0.125		6.18	11.7	81.9672	102.5	23.4	NO
59	30	PFTeDA	713.0 > 669.0	1.70e4	1.43e4	0.125		6.40	14.9	81.6238	102.0	14.0	NO
60	28	N-MeFOSA	512.1 > 168.9	6.16e2		0.125		5.90				1.61	NO
61	47	13C8-PFOS	507.0 > 79.9	3.24e3	3.50e3	0.125	1.034	5.02	11.6	89.5157	89.5		
62	53	13C2-PFDoA	615.0 > 569.7	1.90e4	2.72e4	0.125	0.980	5.93	8.73	71.2205	71.2		
63	53	13C2-PFDoA	615.0 > 569.7	1.90e4	2.72e4	0.125	0.980	5.93	8.73	71.2205	71.2		
64	55	13C2-PFTeDA	715.1 > 669.7	1.43e4	3.20e4	0.125	0.607	6.40	5.59	73.7054	73.7		
65	54	d3-N-MeFOSA	515.2 > 168.9		3.20e4	0.125	0.035						
66	-1												
67	31	N-EtFOSA	526.1 > 168.9	7.20e2		0.125		6.40				1.42	NO
68	32	PFHxDA	813.1 > 768.6	8.70e3	7.45e3	0.125		6.74	5.84	90.7869	113.5	21.2	NO
69	33	PFODA	913.1 > 868.8	1.41e1	7.45e3	0.125		6.98	0.00947				
70	34	N-MeFOSE	616.1 > 58.9	1.72e3		0.125		6.70					
71	35	N-EtFOSE	630.1 > 58.9	2.09e3		0.125		6.85					
72	56	d5-N-ETFOSA	531.1 > 168.9		3.20e4	0.125	0.060						

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Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-13.qld

Last Altered: Monday, November 26, 2018 14:50:40 Pacific Standard Time
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Name: 181121M1_13, Date: 21-Nov-2018, Time: 16:19:13, ID: B8K0097-BSD1 LCSD 0.125, Description: LCSD

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	RT	Respo...	Conc.	%Rec	Ion Ratio	Ratio Out?
73	57	13C2-PFHxDA	815 > 769.7	7.45e3	3.20e4	0.125	0.805	6.74	2.91	28.9627	72.4		
74	57	13C2-PFHxDA	815 > 769.7	7.45e3	3.20e4	0.125	0.805	6.74	2.91	28.9627	72.4		
75	58	d7-N-MeFOSE	623.1 > 58.9		3.20e4	0.125	0.033						
76	59	d9-N-EtFOSE	639.2 > 58.8		3.20e4	0.125	0.032						
77	-1												
78	73	TCDA	498.3>106.9			0.125							
79	61	13C5-PFHxA	318 > 272.9	2.66e4	2.66e4	0.125	1.000	3.35	12.5	100.0000	100.0		
80	60	13C4-PFBA	217. > 172	1.45e4	1.45e4	0.125	1.000	1.17	12.5	100.0000	100.0		
81	62	13C3-PFHxS	401.8 > 79.9	3.36e3	3.36e3	0.125	1.000	4.16	12.5	100.0000	100.0		
82	63	13C8-PFOA	420.9 > 376	3.16e4	3.16e4	0.125	1.000	4.50	12.5	100.0000	100.0		
83	47	13C8-PFOS	507.0 > 79.9	3.24e3	3.50e3	0.125	1.034	5.02	11.6	89.5157	89.5		
84	64	13C9-PFNA	472.2 > 426.9	2.26e4	2.26e4	0.125	1.000	4.93	12.5	100.0000	100.0		
85	65	13C4-PFOS	503 > 79.9	3.50e3	3.50e3	0.125	1.000	5.02	12.5	100.0000	100.0		
86	66	13C6-PFDA	519.1 > 473.7	2.72e4	2.72e4	0.125	1.000	5.32	12.5	100.0000	100.0		
87	67	13C7-PFUdA	570.1 > 524.8	3.20e4	3.20e4	0.125	1.000	5.64	12.5	100.0000	100.0		

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Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-13.qld

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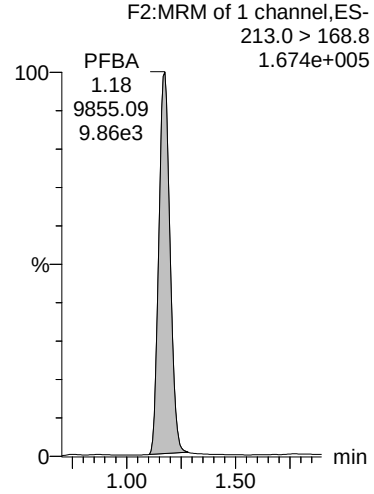
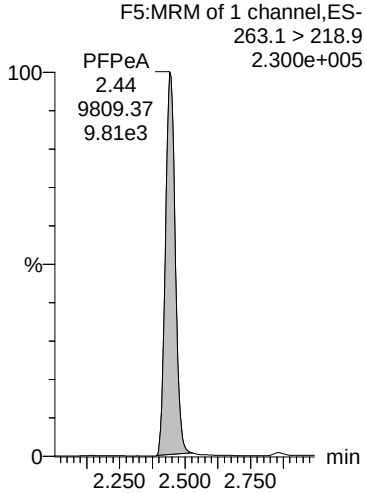
Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112118.mdb 26 Nov 2018 09:17:42
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Name: 181121M1_13, Date: 21-Nov-2018, Time: 16:19:13, ID: B8K0097-BSD1 LCSD 0.125, Description: LCSD

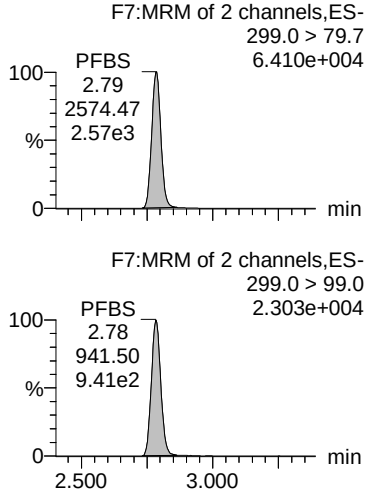
PFBA



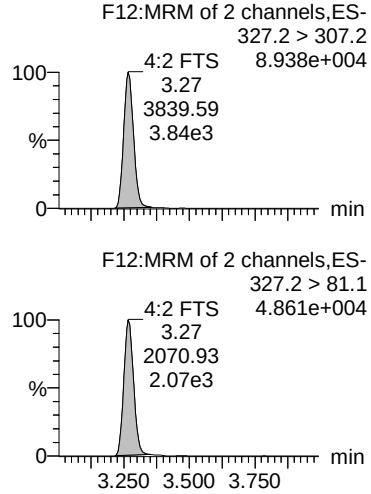
PFPeA



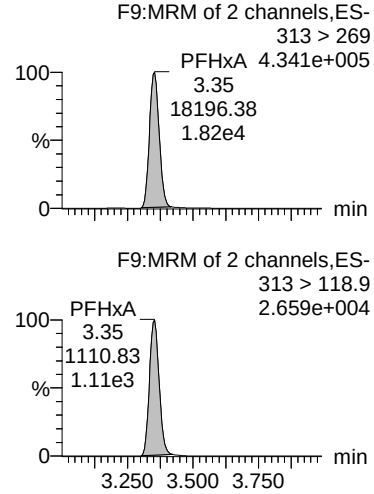
PFBS



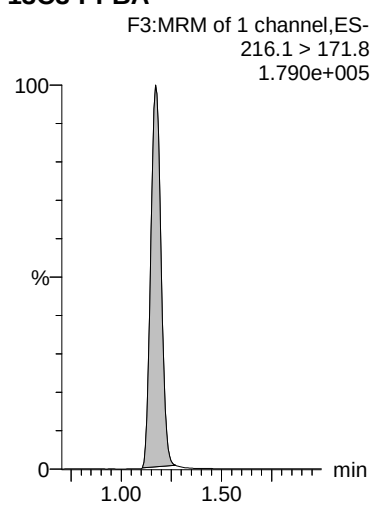
4:2 FTS



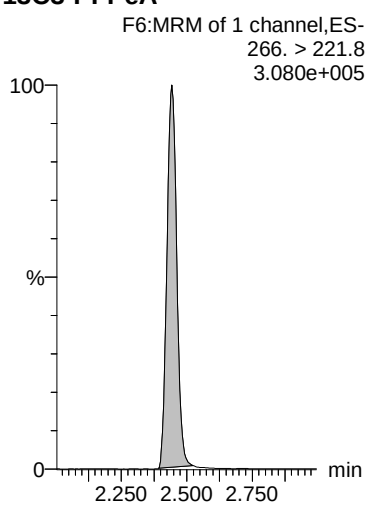
PFHxA



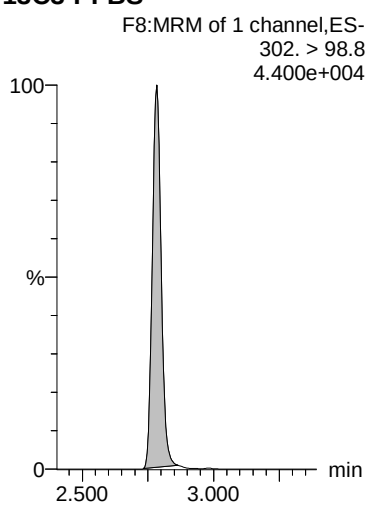
13C3-PFBA



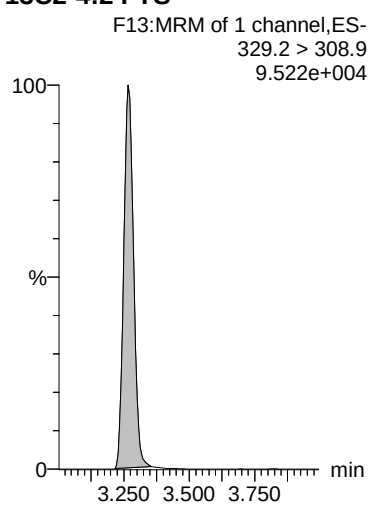
13C3-PFPeA



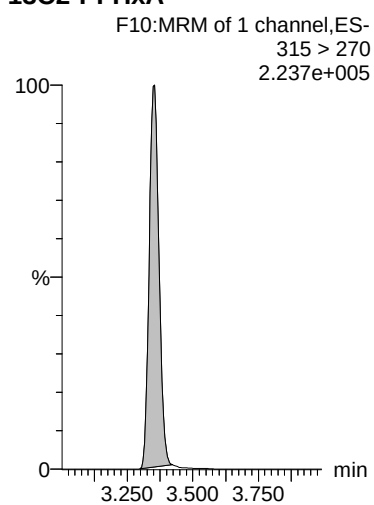
13C3-PFBS



13C2-4:2 FTS



13C2-PFHxA



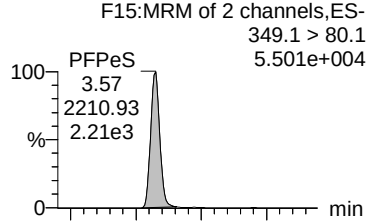
CGH 11/26/2018

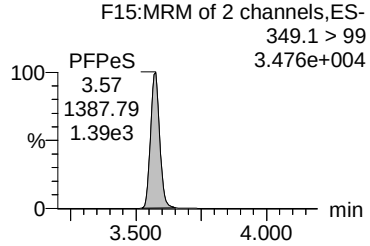
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-13.qld

Last Altered: Monday, November 26, 2018 14:50:40 Pacific Standard Time
Printed: Monday, November 26, 2018 14:51:18 Pacific Standard Time

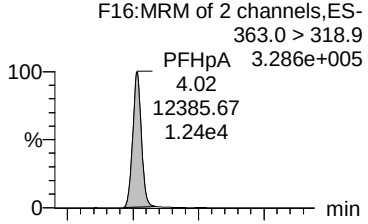
Name: 181121M1_13, Date: 21-Nov-2018, Time: 16:19:13, ID: B8K0097-BSD1 LCSD 0.125, Description: LCSD

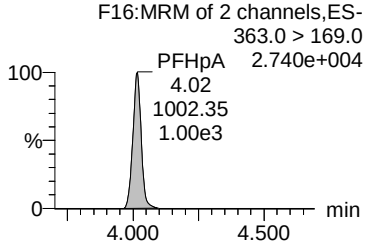
PFPeS



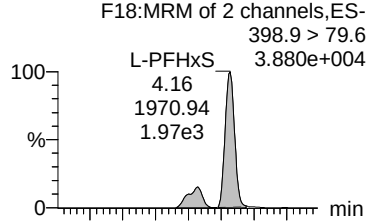


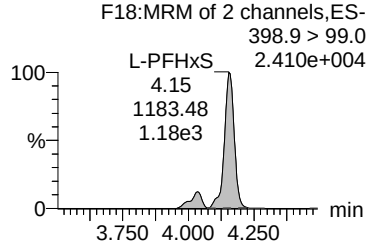
PFHpA



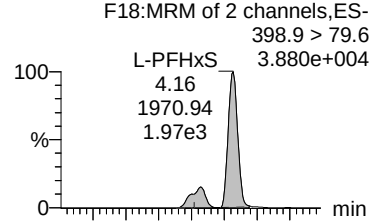


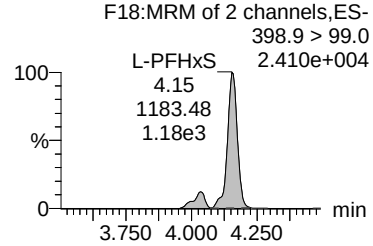
L-PFHxS



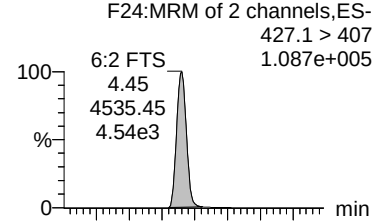


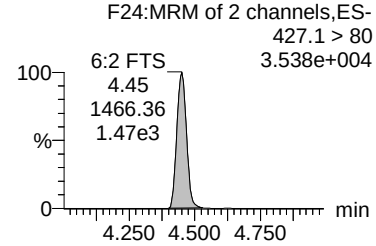
Total PFHxS



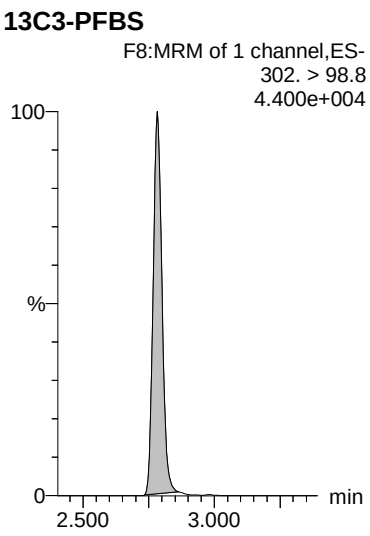


6:2 FTS

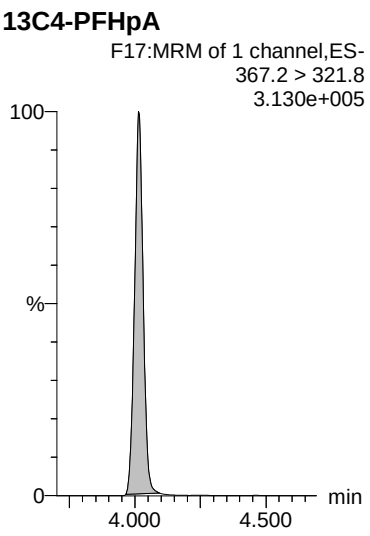




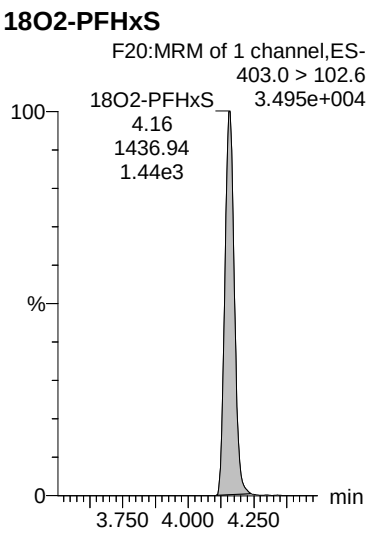
13C3-PFBS



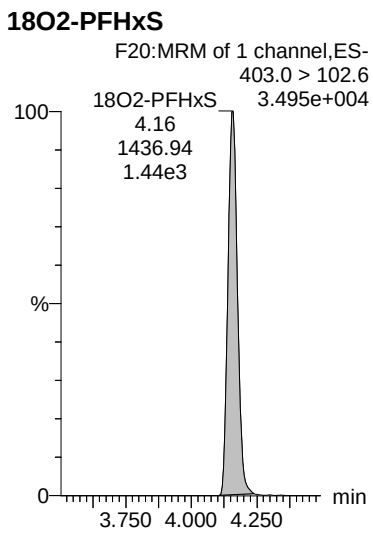
13C4-PFHpA



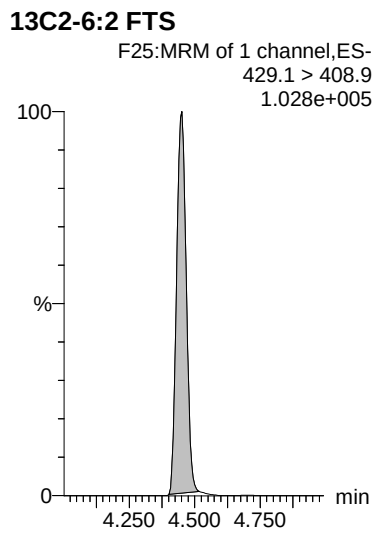
18O2-PFHxS



18O2-PFHxS



13C2-6:2 FTS



CGH 11/26/2018

Vista Analytical Laboratory L30

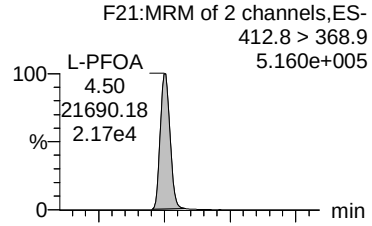
Rev: ANP 11/27/2018

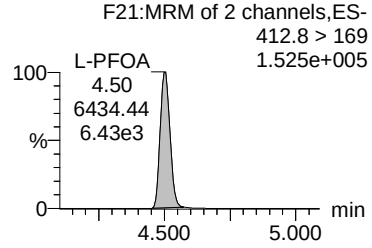
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-13.qld

Last Altered: Monday, November 26, 2018 14:50:40 Pacific Standard Time
Printed: Monday, November 26, 2018 14:51:18 Pacific Standard Time

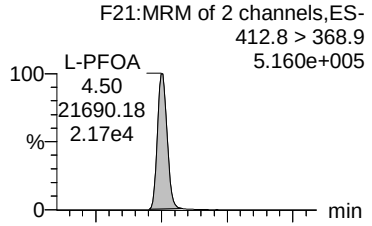
Name: 181121M1_13, Date: 21-Nov-2018, Time: 16:19:13, ID: B8K0097-BSD1 LCSD 0.125, Description: LCSD

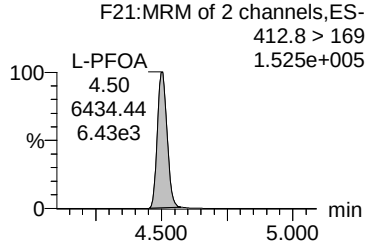
L-PFOA



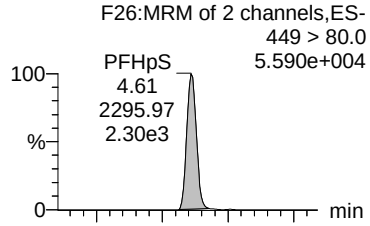


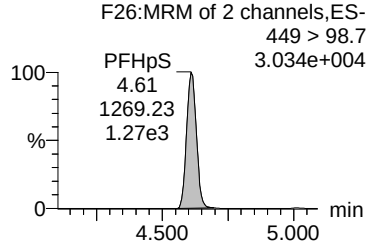
Total PFOA



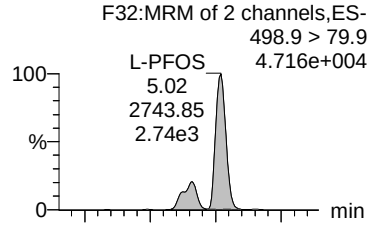


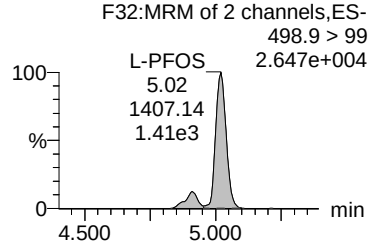
PFHpS



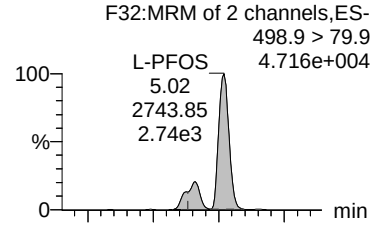


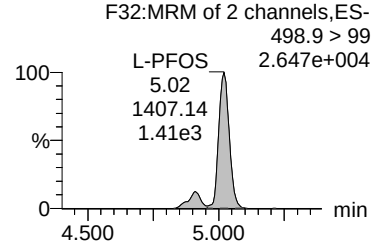
L-PFOS



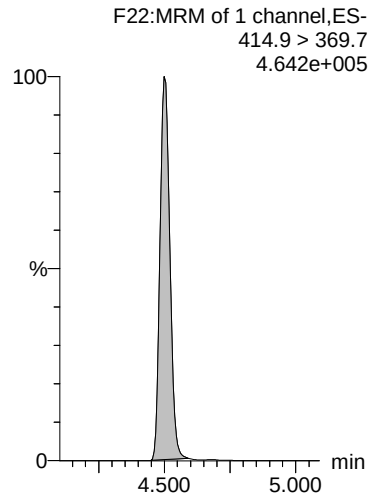


Total PFOS

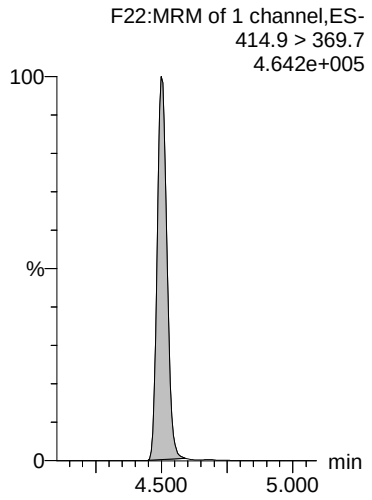




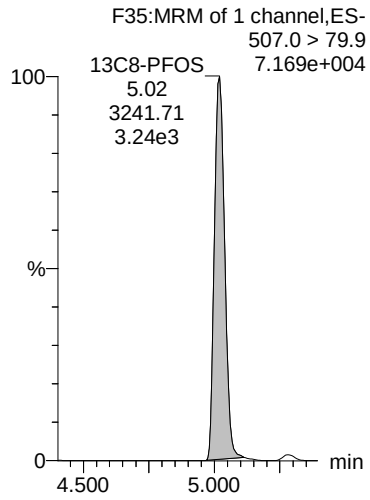
13C2-PFOA



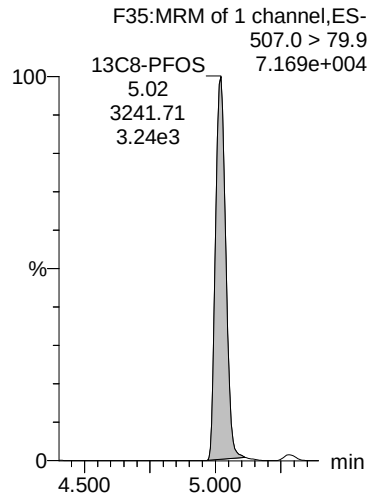
13C2-PFOA



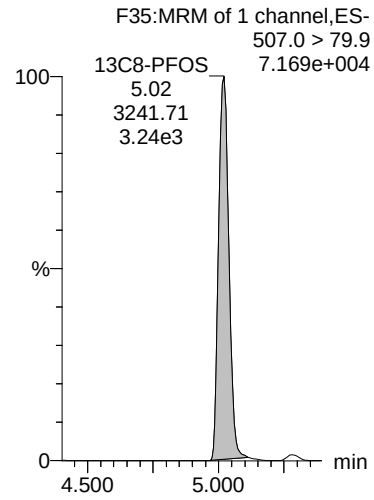
13C8-PFOS



13C8-PFOS



13C8-PFOS



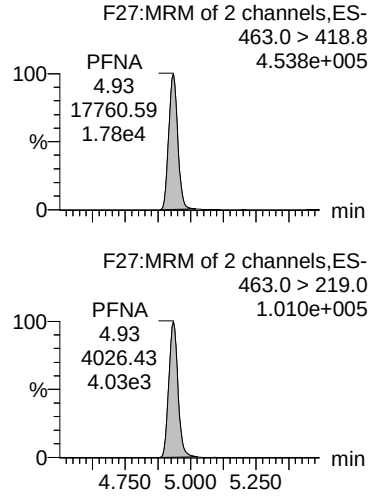
CGH 11/26/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-13.qld

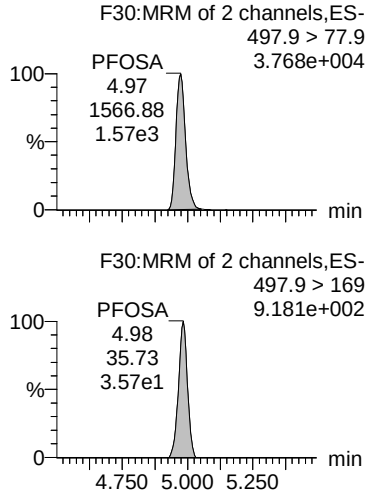
Last Altered: Monday, November 26, 2018 14:50:40 Pacific Standard Time
Printed: Monday, November 26, 2018 14:51:18 Pacific Standard Time

Name: 181121M1_13, Date: 21-Nov-2018, Time: 16:19:13, ID: B8K0097-BSD1 LCSD 0.125, Description: LCSD

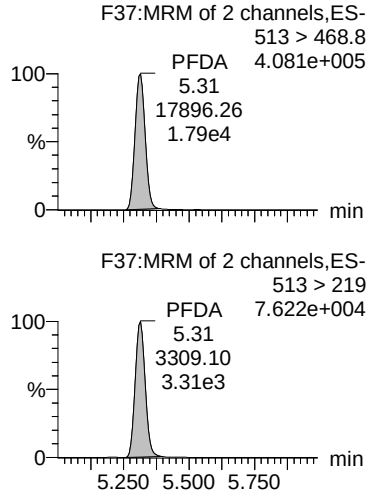
PFNA



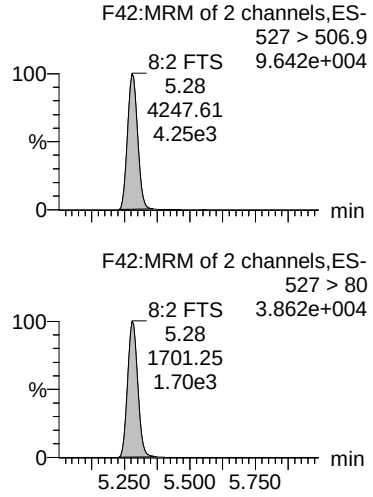
PFOSA



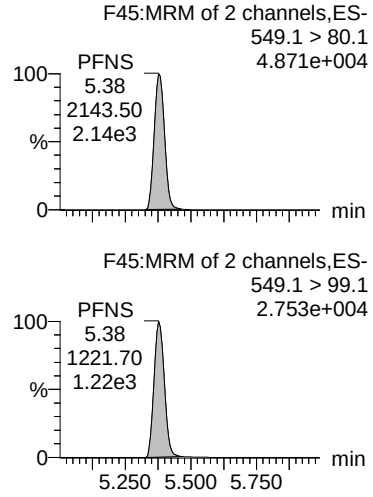
PFDA



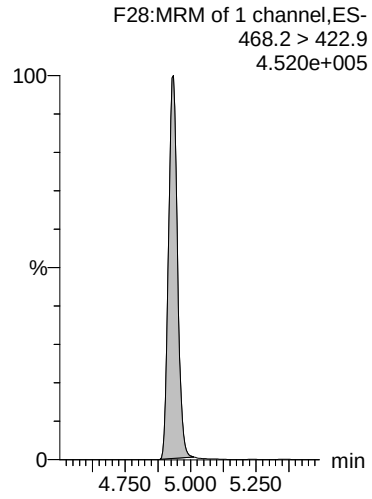
8:2 FTS



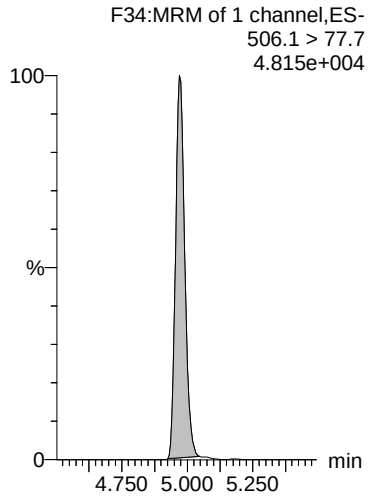
PFNS



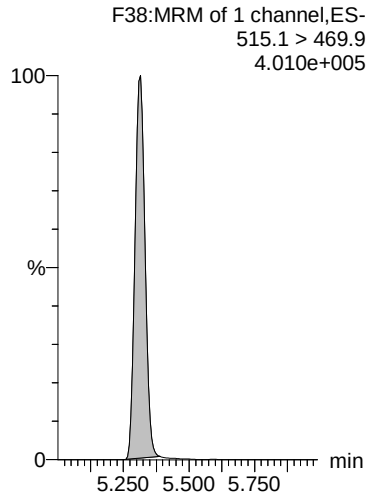
13C5-PFNA



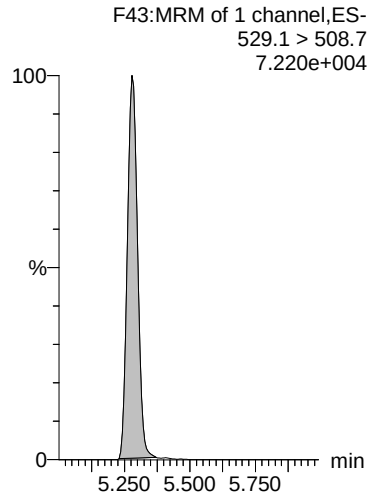
13C8-PFOSA



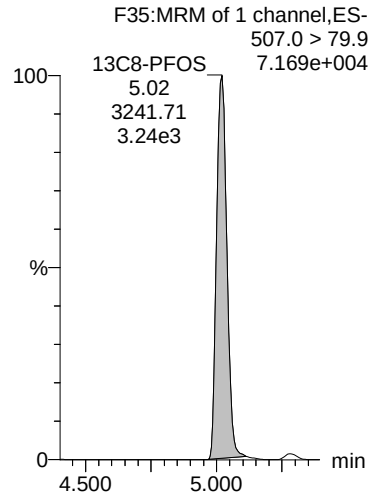
13C2-PFDA



13C2-8:2 FTS



13C8-PFOS



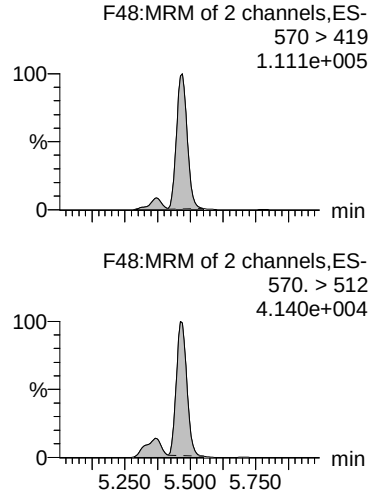
CGH 11/26/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-13.qld

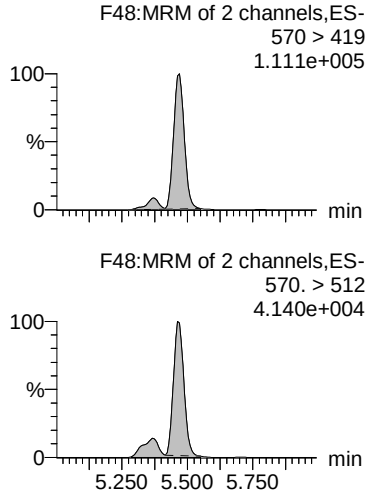
Last Altered: Monday, November 26, 2018 14:50:40 Pacific Standard Time
Printed: Monday, November 26, 2018 14:51:18 Pacific Standard Time

Name: 181121M1_13, Date: 21-Nov-2018, Time: 16:19:13, ID: B8K0097-BSD1 LCSD 0.125, Description: LCSD

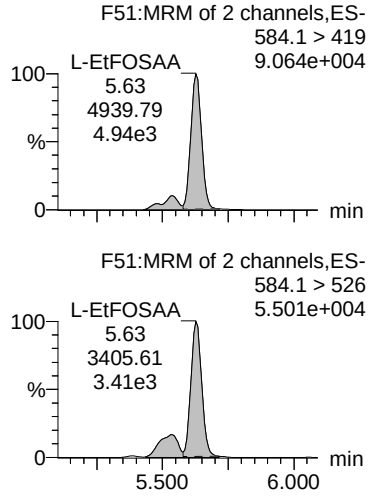
L-MeFOSAA



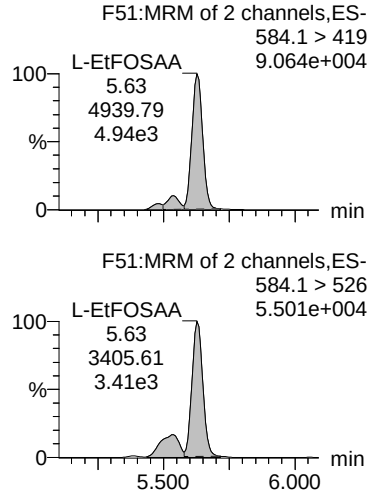
Total N-MeFOSAA



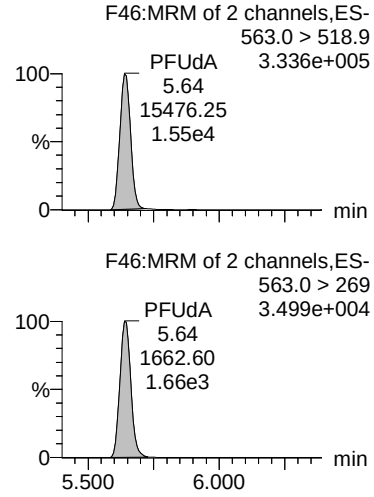
L-EtFOSAA



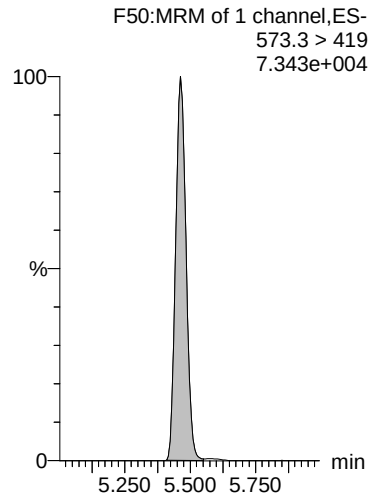
Total N-EtFOSAA



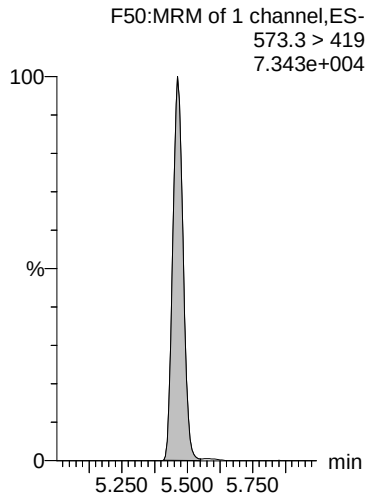
PFUdA



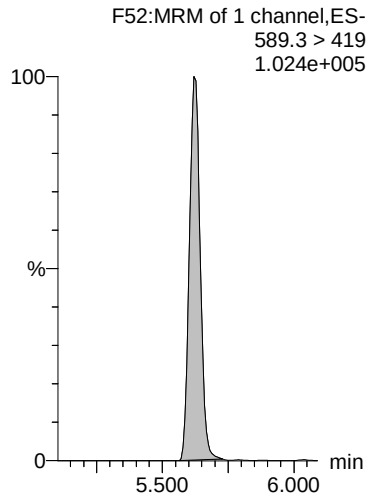
d3-N-MeFOSAA



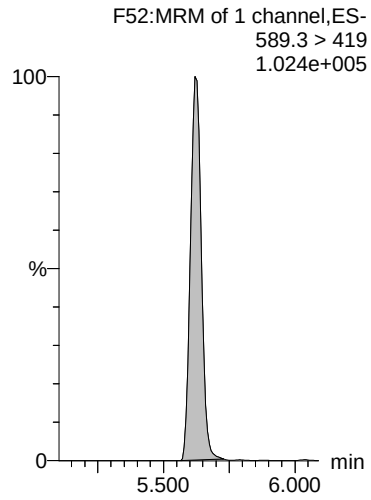
d3-N-MeFOSAA



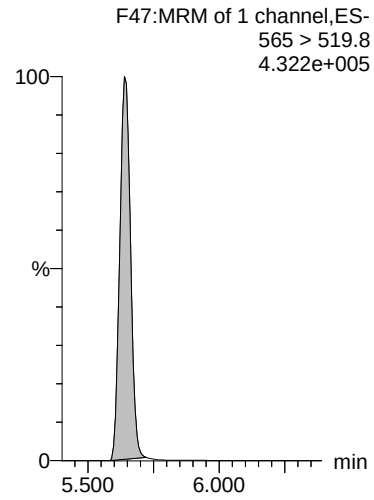
d5-N-EtFOSAA



d5-N-EtFOSAA



13C2-PFUdA



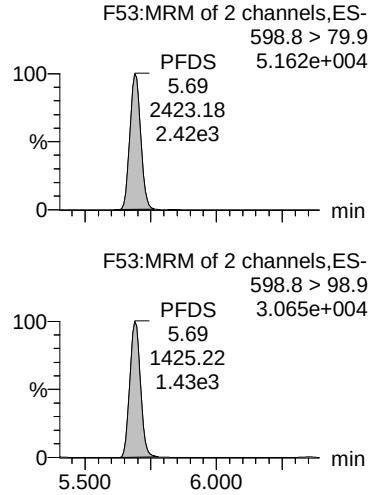
CGH 11/26/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-13.qld

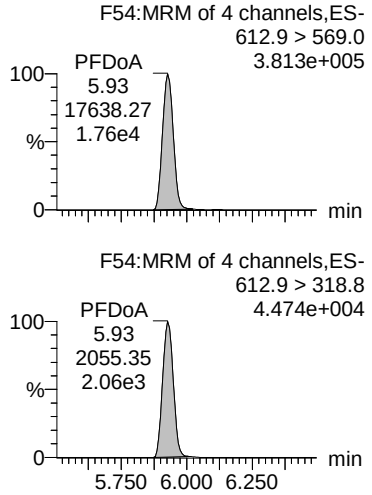
Last Altered: Monday, November 26, 2018 14:50:40 Pacific Standard Time
Printed: Monday, November 26, 2018 14:51:18 Pacific Standard Time

Name: 181121M1_13, Date: 21-Nov-2018, Time: 16:19:13, ID: B8K0097-BSD1 LCSD 0.125, Description: LCSD

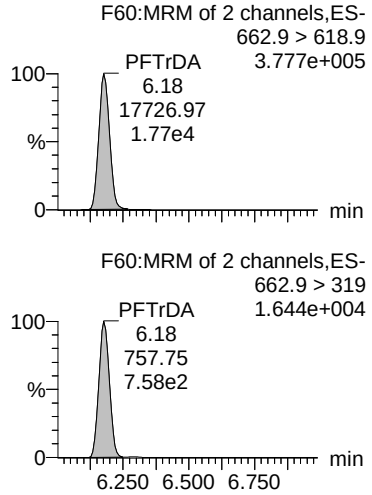
PFDS



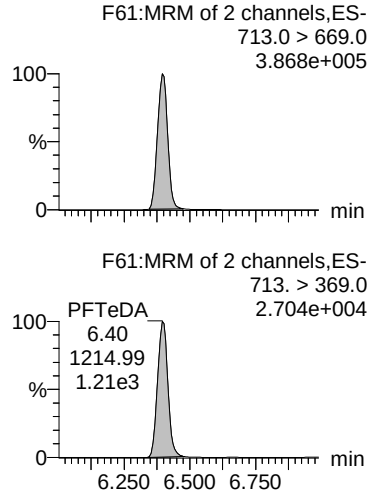
PFDoA



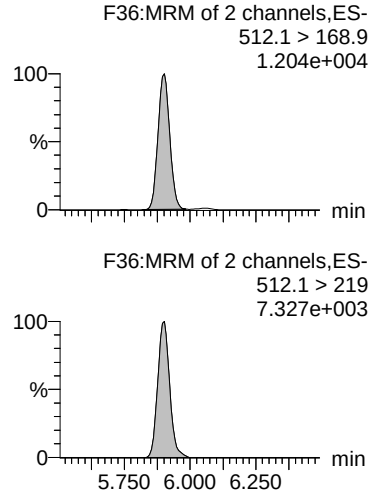
PFTrDA



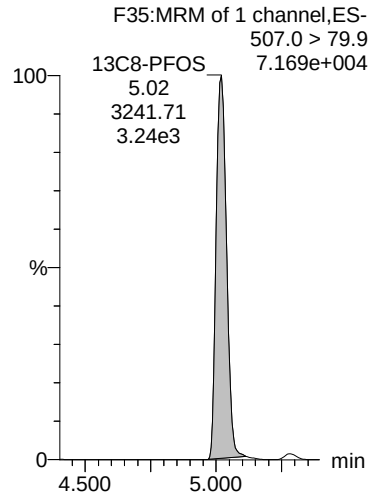
PFTeDA



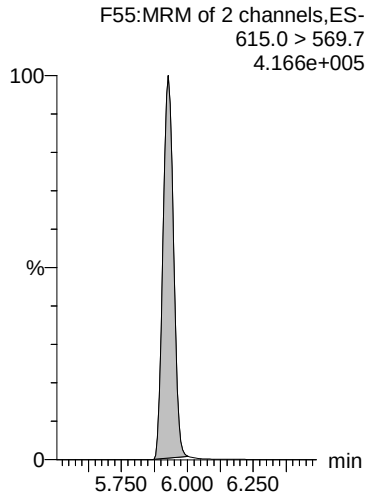
N-MeFOSA



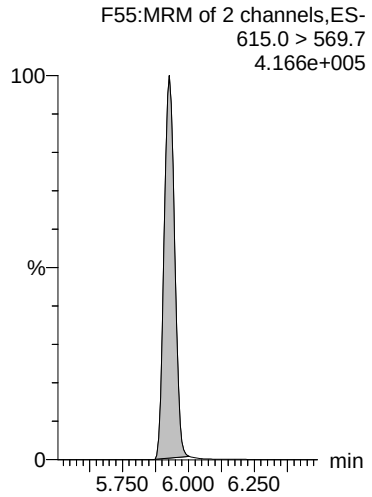
13C8-PFOS



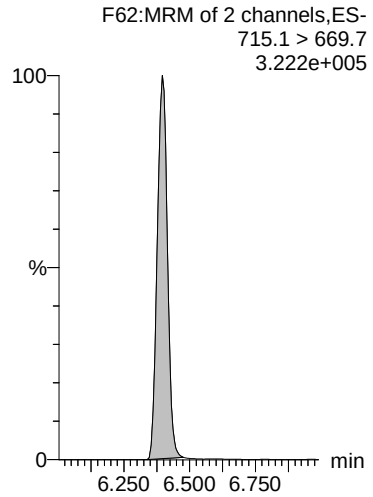
13C2-PFDoA



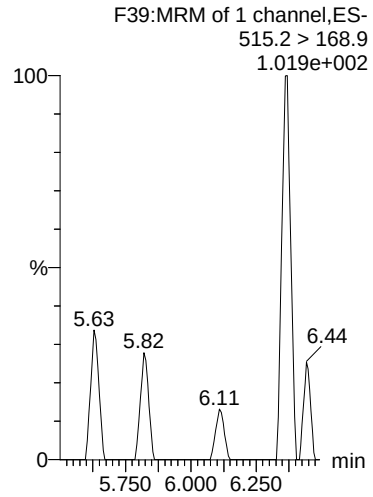
13C2-PFDoA



13C2-PFTeDA



d3-N-MeFOSA



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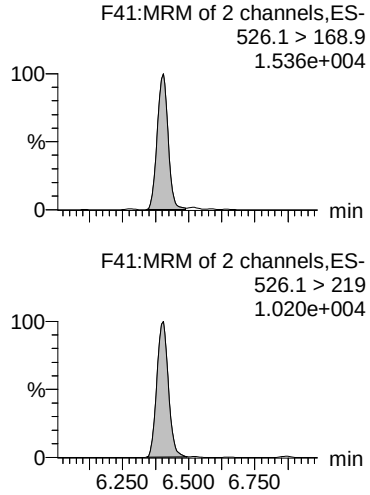
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-13.qld

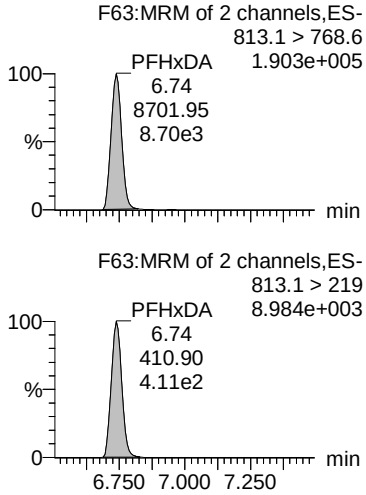
Last Altered: Monday, November 26, 2018 14:50:40 Pacific Standard Time
Printed: Monday, November 26, 2018 14:51:18 Pacific Standard Time

Name: 181121M1_13, Date: 21-Nov-2018, Time: 16:19:13, ID: B8K0097-BSD1 LCSD 0.125, Description: LCSD

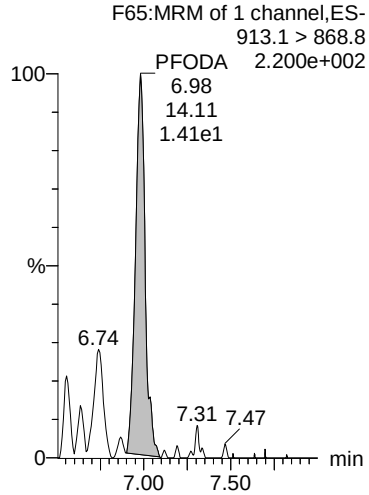
N-EtFOSA



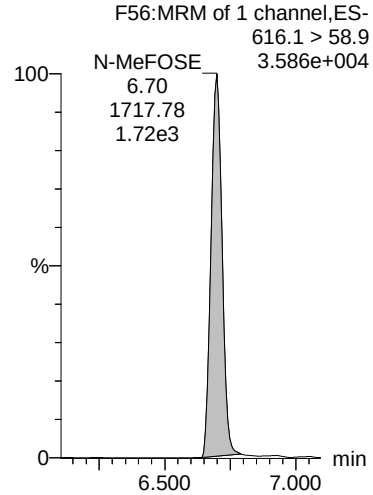
PFHxDA



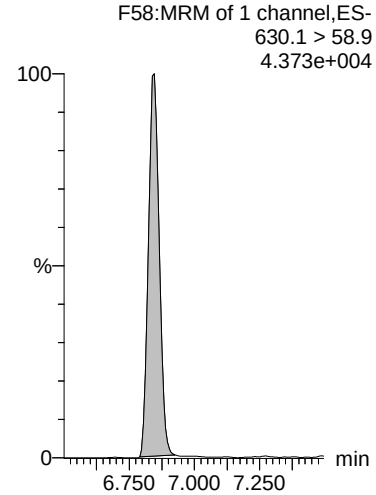
PFODA



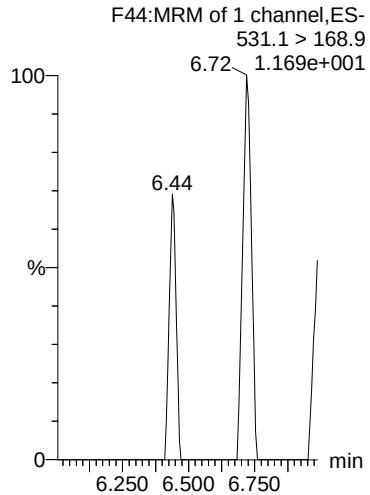
N-MeFOSE



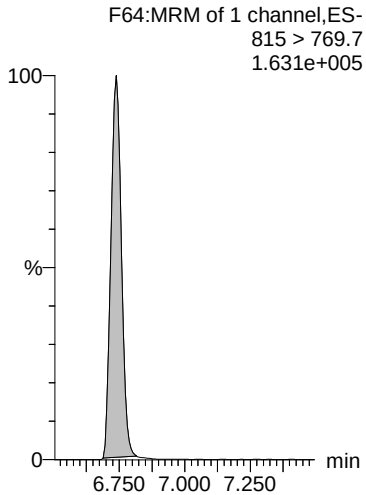
N-EtFOSE



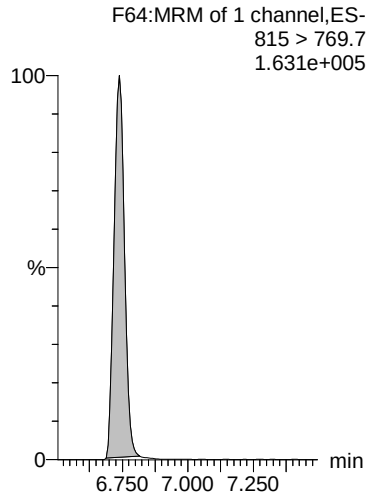
d5-N-ETFOSA



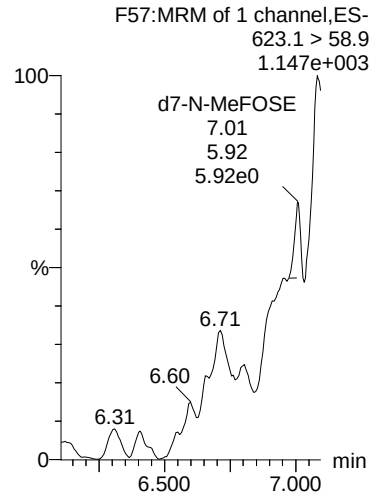
13C2-PFHxDA



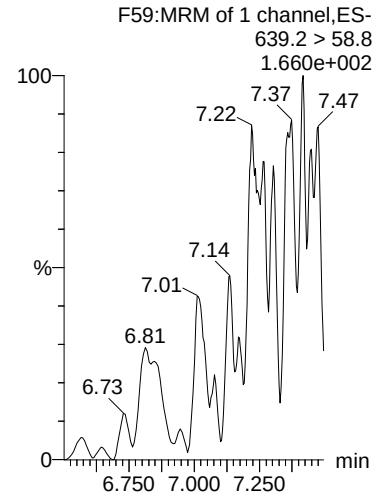
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE



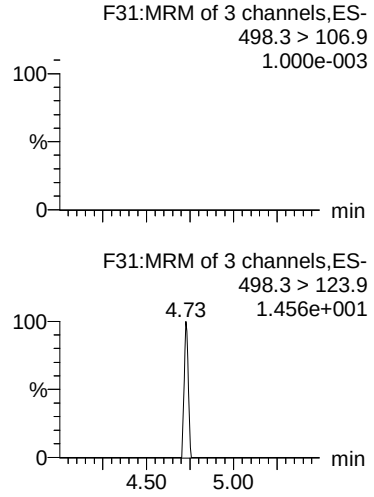
CGH 11/26/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-13.qld

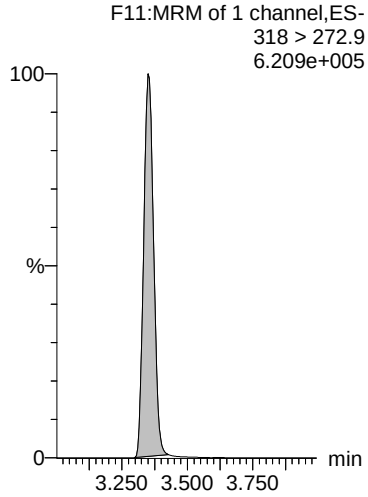
Last Altered: Monday, November 26, 2018 14:50:40 Pacific Standard Time
Printed: Monday, November 26, 2018 14:51:18 Pacific Standard Time

Name: 181121M1_13, Date: 21-Nov-2018, Time: 16:19:13, ID: B8K0097-BSD1 LCSD 0.125, Description: LCSD

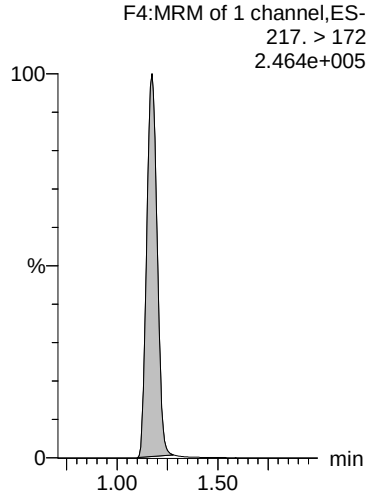
TCDA



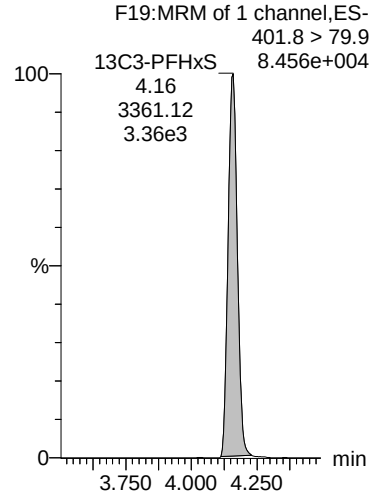
13C5-PFHxA



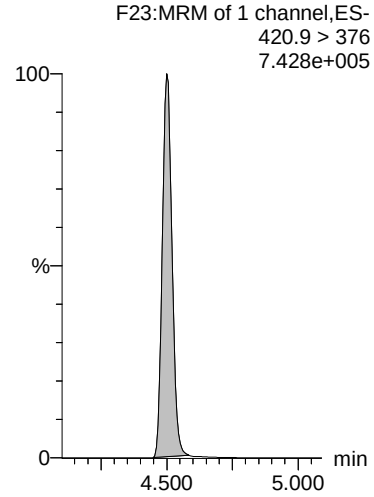
13C4-PFBA



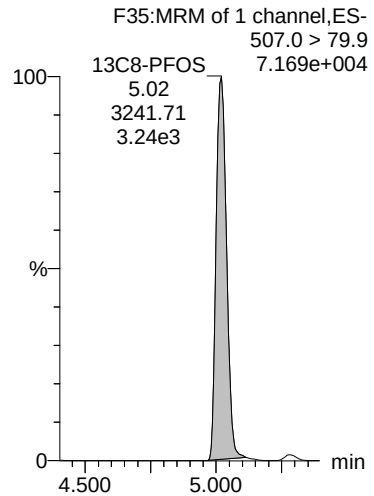
13C3-PFHxS



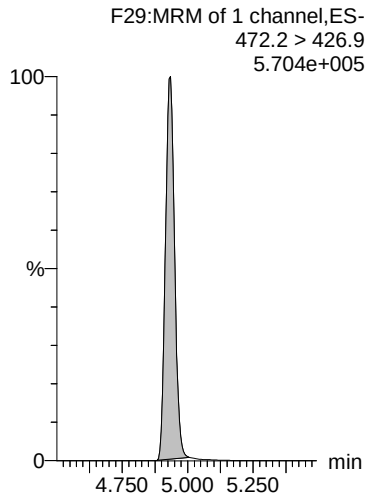
13C8-PFOA



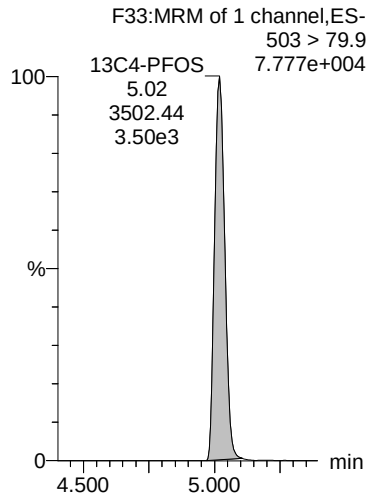
13C8-PFOS



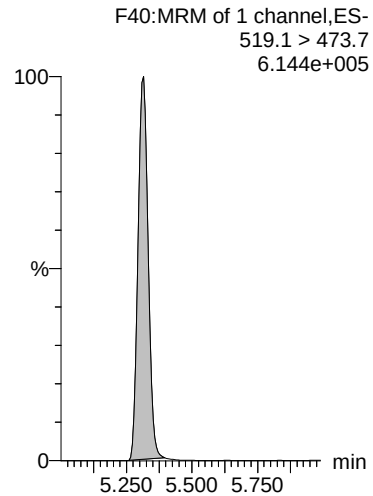
13C9-PFNA



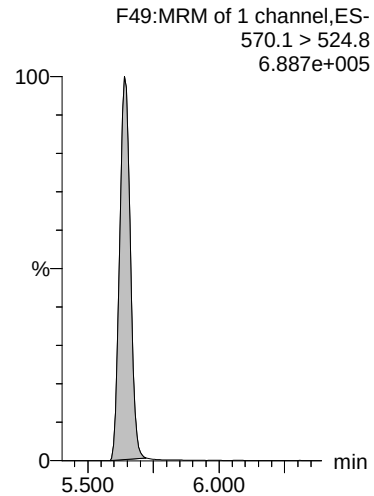
13C4-PFOS



13C6-PFDA



13C7-PFUdA



CGH 11/26/2018

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Rev: ANP 11/27/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-15.qld

Last Altered: Tuesday, November 27, 2018 14:22:28 Pacific Standard Time
Printed: Tuesday, November 27, 2018 14:23:04 Pacific Standard Time

Name: 181121M1_15, Date: 21-Nov-2018, Time: 16:40:30, ID: 1803626-01 16-HS-03-SA2 0.11792, Description: 16-HS-03-SA2

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7	3.71e4	1.51e3	0.118		2.78	2.79	306	1341.8066		2.733	NO
2	5	PFHxA	313 > 269	1.40e6	6.68e3	0.118		3.35	3.35	1050	10899.1971		15.112	NO
3	7	PFHpA	363.0 > 318.9	5.28e4	1.05e4	0.118		4.01	4.02	62.7	404.6264		11.354	NO
4	8	L-PFHxS	398.9 > 79.6	8.36e3	1.44e3	0.118		4.16	4.16	72.3	323.7438		2.028	NO
5	68	Total PFHxS	398.9 > 79.6	8.36e3	1.44e3	0.118		4.28		72.3	323.7438			
6	11	L-PFOA	412.8 > 368.9	4.43e3	1.70e4	0.118		4.47	4.50	3.25	20.5989		2.742	NO
7	69	Total PFOA	412.8 > 368.9	4.43e3	1.70e4	0.118		4.62		3.25	20.5989			
8	38	13C3-PFBS	302. > 98.8	1.51e3	3.26e3	0.118	0.539	2.72	2.78	5.80	91.2770	86.1		
9	40	13C2-PFHxA	315 > 270	6.68e3	1.62e4	0.118	0.964	3.30	3.35	5.17	45.4954	107.3		
10	41	13C4-PFHpA	367.2 > 321.8	1.05e4	1.62e4	0.118	0.482	3.97	4.01	8.15	143.4007	135.3		
11	42	18O2-PFHxS	403.0 > 102.6	1.44e3	3.26e3	0.118	0.480	4.11	4.16	5.54	97.8767	92.3		
12	42	18O2-PFHxS	403.0 > 102.6	1.44e3	3.26e3	0.118	0.480	4.11	4.16	5.54	97.8767	92.3		
13	44	13C2-PFOA	414.9 > 369.7	1.70e4	2.60e4	0.118	0.755	4.46	4.50	8.19	91.9715	86.8		
14	44	13C2-PFOA	414.9 > 369.7	1.70e4	2.60e4	0.118	0.755	4.46	4.50	8.19	91.9715	86.8		
15	-1													
16	14	PFNA	463.0 > 418.8	5.18e1	1.50e4	0.118		4.90	4.93	0.0433			20.765	YES
17	16	L-PFOS	498.9 > 79.9	5.74e1	3.47e3	0.118		5.02	5.03	0.207	1.7320		2.316	NO
18	70	Total PFOS	498.9 > 79.9	5.74e1	3.47e3	0.118		5.13		0.207	1.7320			
19	18	PFDA	513 > 468.8		1.39e4	0.118		5.28						
20	21	L-MeFOSAA	570 > 419		3.32e3	0.118		5.43						
21	71	Total N-MeFOSAA	570. > 419	0.00e0	3.32e3	0.118		5.57		0.000				
22	25	PFUdA	563.0 > 518.9	3.34e1	1.75e4	0.118		5.61	5.65	0.0238			48.023	YES
23	45	13C5-PFNA	468.2 > 422.9	1.50e4	1.82e4	0.118	0.992	4.90	4.93	10.3	87.6865	82.7		
24	47	13C8-PFOS	507.0 > 79.9	3.47e3	3.58e3	0.118	1.034	4.98	5.02	12.1	99.3723	93.7		
25	47	13C8-PFOS	507.0 > 79.9	3.47e3	3.58e3	0.118	1.034	4.98	5.02	12.1	99.3723	93.7		
26	48	13C2-PFDA	515.1 > 469.9	1.39e4	2.22e4	0.118	0.832	5.28	5.31	7.81	79.5468	75.0		
27	50	d3-N-MeFOSAA	573.3 > 419	3.32e3	2.60e4	0.118	0.135	5.43	5.46	1.60	100.1465	94.5		
28	50	d3-N-MeFOSAA	573.3 > 419	3.32e3	2.60e4	0.118	0.135	5.43	5.46	1.60	100.1465	94.5		
29	51	13C2-PFUdA	565 > 519.8	1.75e4	2.60e4	0.118	0.928	5.61	5.64	8.43	77.0306	72.7		
30	-1													
31	23	L-EtFOSAA	584.1 > 419		4.96e3	0.118		5.51						
32	72	Total N-EtFOSAA	584.1 > 419	0.00e0	4.96e3	0.118		5.72		0.000				
33	29	PFTrDA	662.9 > 618.9		1.64e4	0.118		6.15						
34	27	PFDoA	612.9 > 569.0	1.54e1	1.64e4	0.118		5.90	5.93	0.0118			4.638	NO
35	30	PFTeDA	713.0 > 669.0	4.20e1	1.22e4	0.118		6.37	6.40	0.0432			58.080	YES
36	73	TCDA	498.3>106.9			0.118		5.15						

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Rev: ANP 11/27/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-15.qld

Last Altered: Tuesday, November 27, 2018 14:22:28 Pacific Standard Time
Printed: Tuesday, November 27, 2018 14:23:04 Pacific Standard Time

Name: 181121M1_15, Date: 21-Nov-2018, Time: 16:40:30, ID: 1803626-01 16-HS-03-SA2 0.11792, Description: 16-HS-03-SA2

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
37	61	13C5-PFHxA	318 > 272.9	1.62e4	1.62e4	0.118	1.000	3.30	3.35	12.5	106.0041	100.0		
38	52	d5-N-EtFOSAA	589.3 > 419	4.96e3	2.60e4	0.118	0.198	5.59	5.62	2.39	102.1033	96.3		
39	52	d5-N-EtFOSAA	589.3 > 419	4.96e3	2.60e4	0.118	0.198	5.59	5.62	2.39	102.1033	96.3		
40	53	13C2-PFDoA	615.0 > 569.7	1.64e4	2.22e4	0.118	0.980	5.90	5.93	9.21	79.7098	75.2		
41	53	13C2-PFDoA	615.0 > 569.7	1.64e4	2.22e4	0.118	0.980	5.90	5.93	9.21	79.7098	75.2		
42	55	13C2-PFTeDA	715.1 > 669.7	1.22e4	2.60e4	0.118	0.607	6.37	6.40	5.85	81.6695	77.0		
43	47	13C8-PFOS	507.0 > 79.9	3.47e3	3.58e3	0.118	1.034	4.98	5.02	12.1	99.3723	93.7		
44	63	13C8-PFOA	420.9 > 376	2.60e4	2.60e4	0.118	1.000	4.46	4.50	12.5	106.0041	100.0		
45	-1													
46	62	13C3-PFHxS	401.8 > 79.9	3.26e3	3.26e3	0.118	1.000	4.11	4.16	12.5	106.0041	100.0		
47	64	13C9-PFNA	472.2 > 426.9	1.82e4	1.82e4	0.118	1.000	4.90	4.93	12.5	106.0041	100.0		
48	65	13C4-PFOS	503 > 79.9	3.58e3	3.58e3	0.118	1.000	4.98	5.02	12.5	106.0041	100.0		
49	66	13C6-PFDA	519.1 > 473.7	2.22e4	2.22e4	0.118	1.000	5.28	5.32	12.5	106.0041	100.0		
50	67	13C7-PFUdA	570.1 > 524.8	2.60e4	2.60e4	0.118	1.000	5.61	5.64	12.5	106.0041	100.0		

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Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-15.qld

Last Altered: Tuesday, November 27, 2018 14:22:28 Pacific Standard Time
Printed: Tuesday, November 27, 2018 14:23:04 Pacific Standard Time

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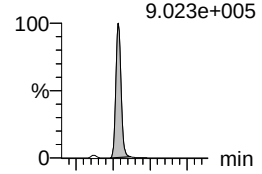
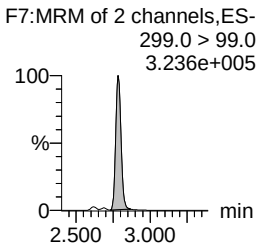
Calibration: Z:\Projects\PFAS.pro\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Name: 181121M1_15, Date: 21-Nov-2018, Time: 16:40:30, ID: 1803626-01 16-HS-03-SA2 0.11792, Description: 16-HS-03-SA2

PFBS





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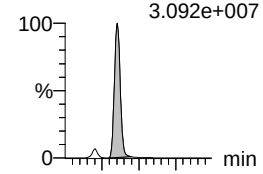

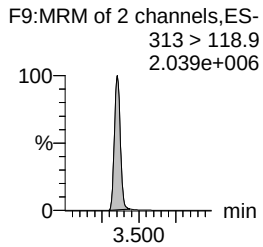

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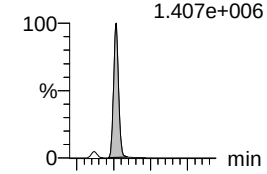

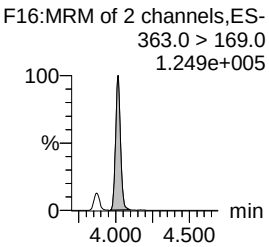

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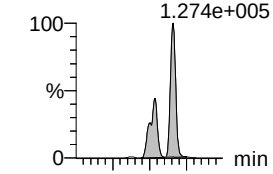

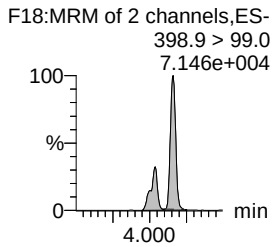

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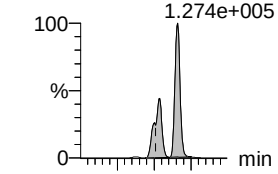

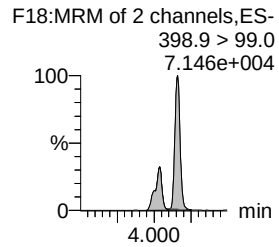

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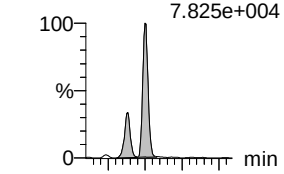

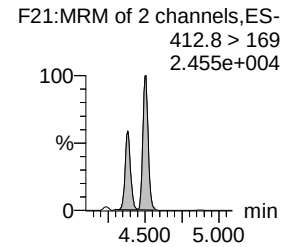

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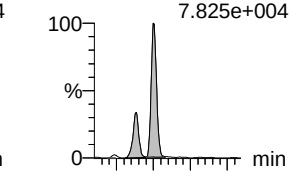

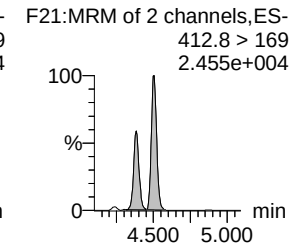

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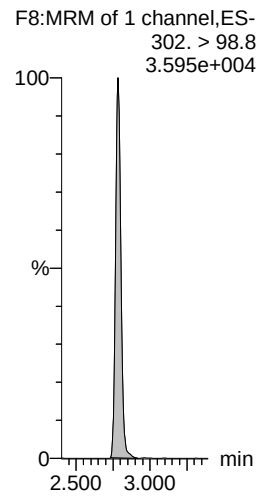

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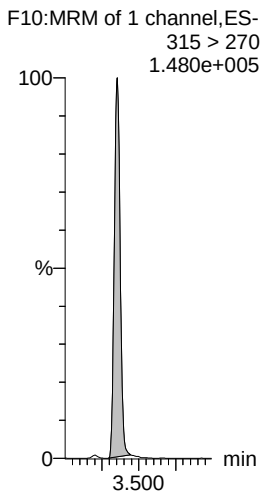

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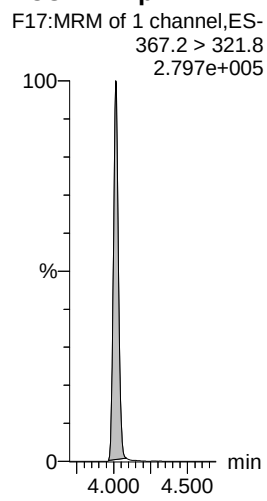

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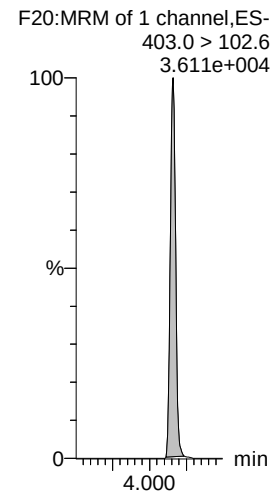

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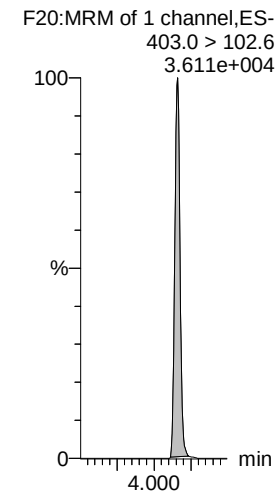

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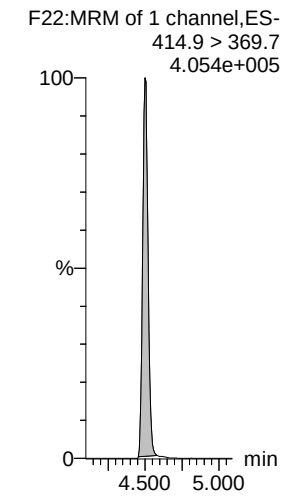

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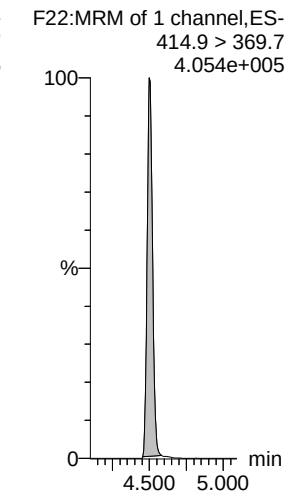

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Last Altered: Tuesday, November 27, 2018 14:22:28 Pacific Standard Time
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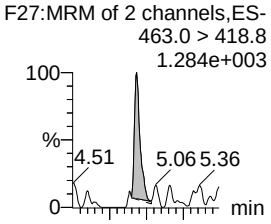
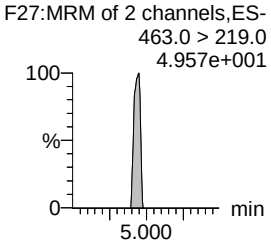
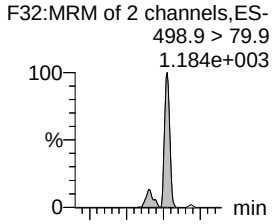
Name: 181121M1_15, Date: 21-Nov-2018, Time: 16:40:30, ID: 1803626-01 16-HS-03-SA2 0.11792, Description: 16-HS-03-SA2

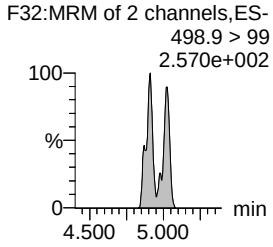
PFNA





L-PFOS





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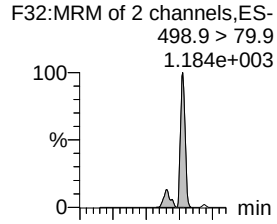

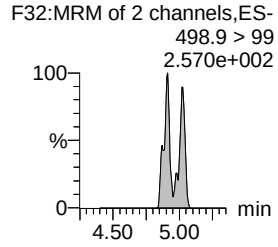

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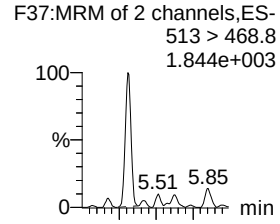

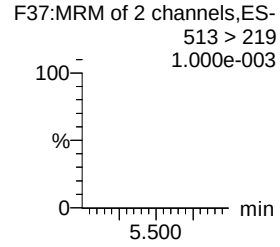

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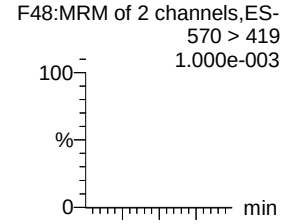

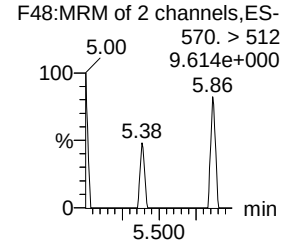

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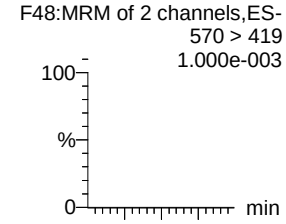

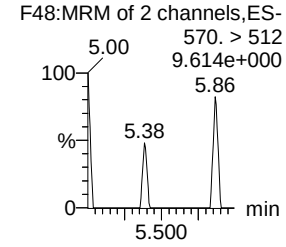

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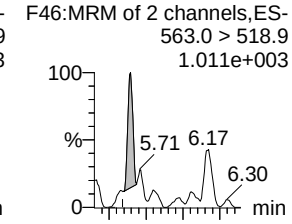

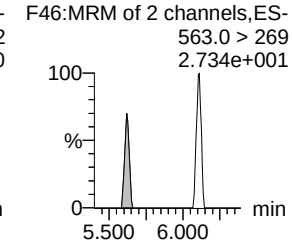

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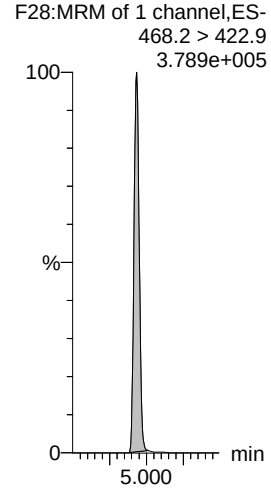

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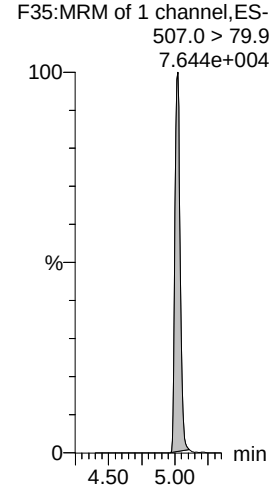

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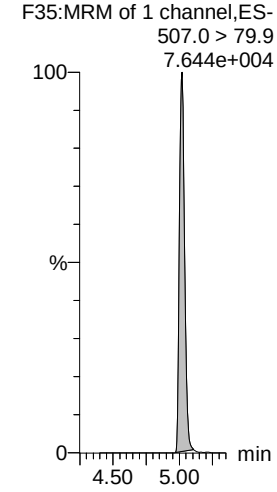

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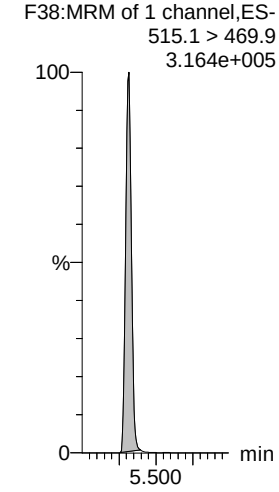

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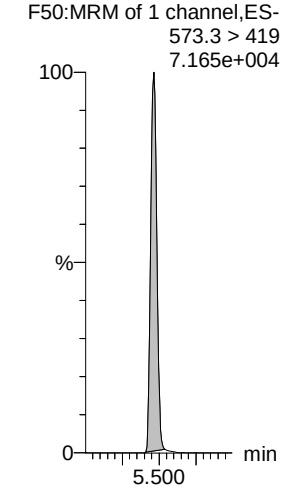

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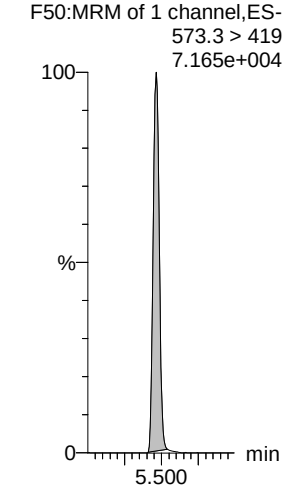

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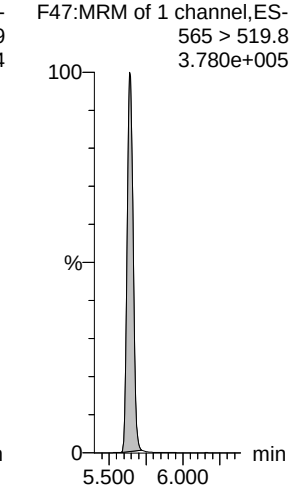

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Rev: ANP 11/27/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-15.qld

Last Altered: Tuesday, November 27, 2018 14:22:28 Pacific Standard Time
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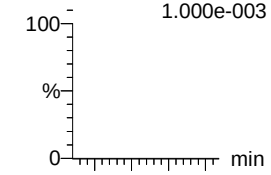
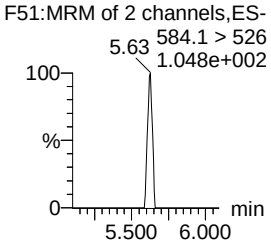
Name: 181121M1_15, Date: 21-Nov-2018, Time: 16:40:30, ID: 1803626-01 16-HS-03-SA2 0.11792, Description: 16-HS-03-SA2

L-EtFOSAA





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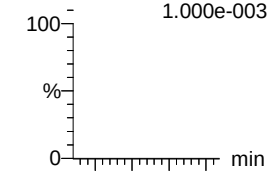
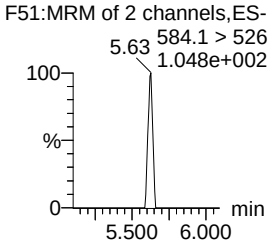
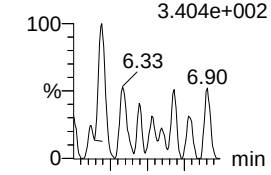
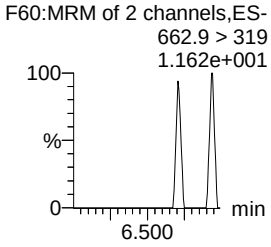


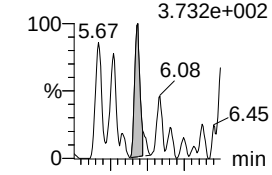


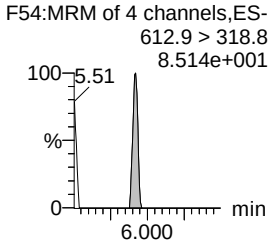
PFTrDA



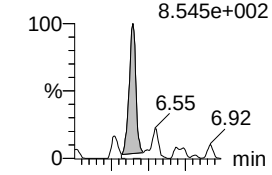


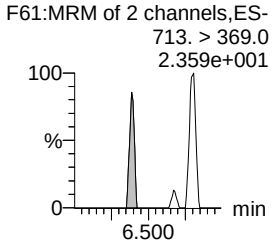
PFDoA



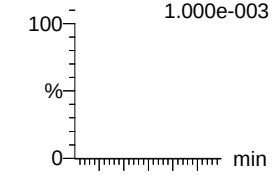


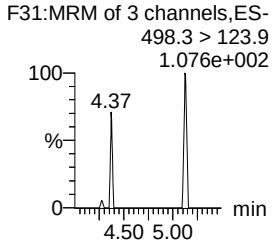
PFTeDA



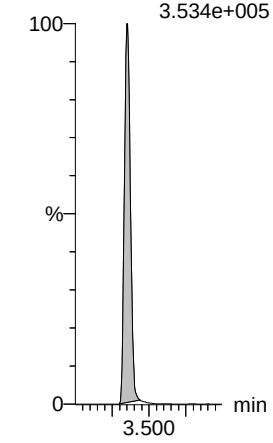


TCDA

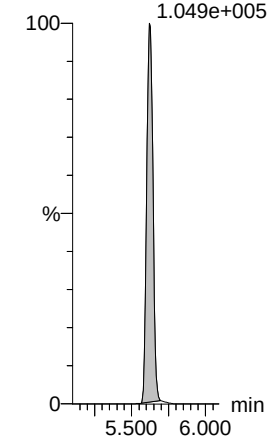




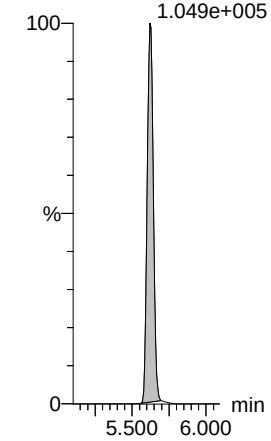
13C5-PFHxA



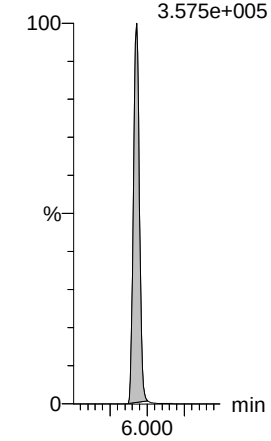
d5-N-EtFOSAA



d5-N-EtFOSAA



13C2-PFDoA



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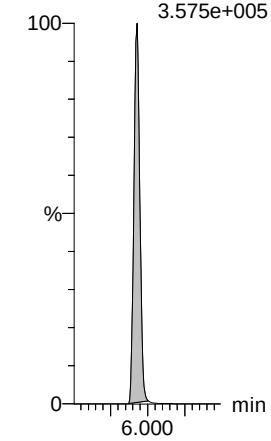
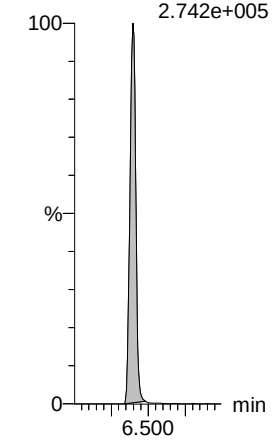
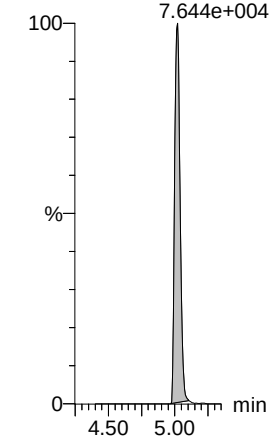


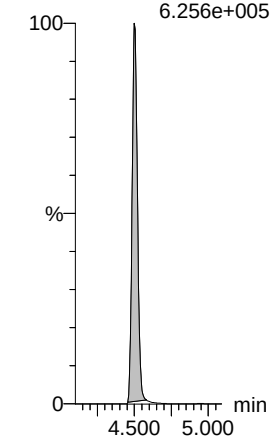
13C2-PFTeDA



13C8-PFOS



13C8-PFOA

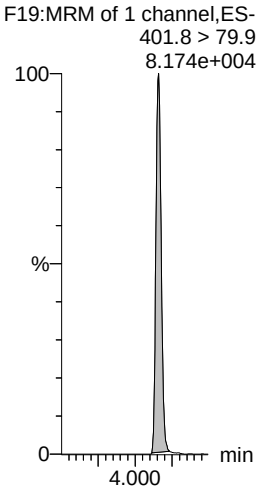


Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-15.qld

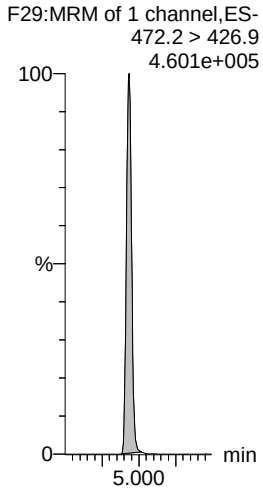
Last Altered: Tuesday, November 27, 2018 14:22:28 Pacific Standard Time
Printed: Tuesday, November 27, 2018 14:23:04 Pacific Standard Time

Name: 181121M1_15, Date: 21-Nov-2018, Time: 16:40:30, ID: 1803626-01 16-HS-03-SA2 0.11792, Description: 16-HS-03-SA2

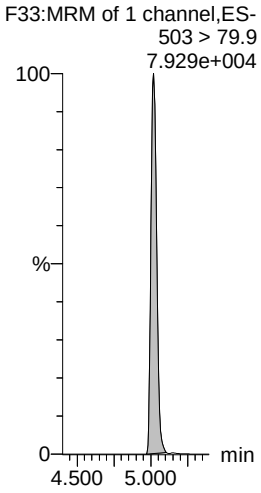
13C3-PFHxS



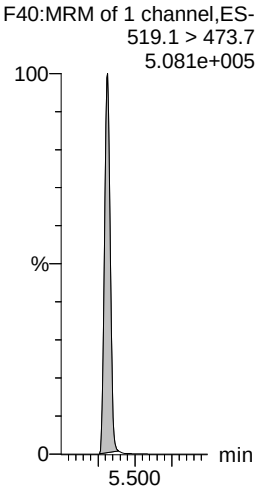
13C9-PFNA



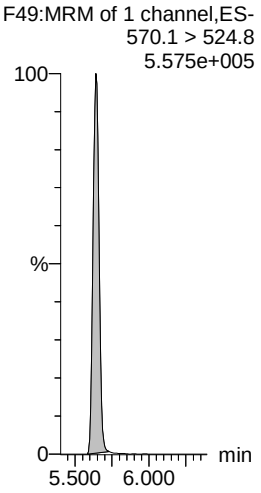
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Dataset: Z:\Projects\PFAS.PRO\Results\181126M1\181126M1-99.qld

Last Altered: Tuesday, November 27, 2018 13:46:42 Pacific Standard Time
Printed: Tuesday, November 27, 2018 13:51:18 Pacific Standard Time

Name: 181126M1_99, Date: 27-Nov-2018, Time: 04:56:15, ID: 1803626-01@5X 16-HS-03-SA2 0.11792, Description: 16-HS-03-SA2

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	5	PFHxA	313 > 269	353850.750	1791.735	0.118		3.34	987.453	10254.3		NO	14.404	NO
2	40	13C2-PFHxA	315 > 270	1791.735	4185.700	0.118	0.988	3.34	5.351	45.9	108.3	NO		
3	61	13C5-PFHxA	318 > 272.9	4185.700	4185.700	0.118	1.000	3.34	12.500	106.0	100.0	NO		
4	-1													

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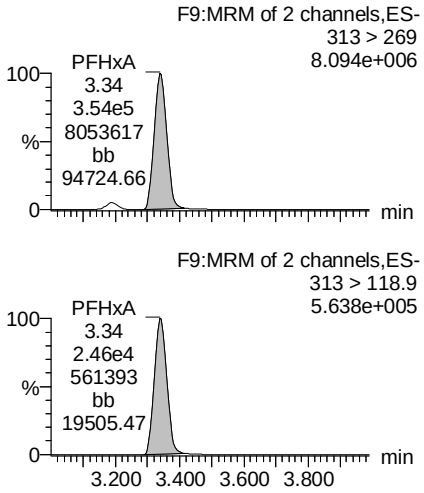
Dataset: Z:\Projects\PFAS.PRO\Results\181126M1\181126M1-99.qld

Last Altered: Tuesday, November 27, 2018 13:46:42 Pacific Standard Time
Printed: Tuesday, November 27, 2018 13:51:18 Pacific Standard Time

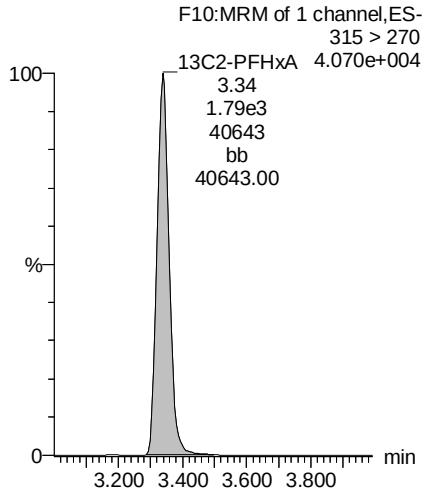
Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112618.mdb 26 Nov 2018 13:53:04
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Name: 181126M1_99, Date: 27-Nov-2018, Time: 04:56:15, ID: 1803626-01@5X 16-HS-03-SA2 0.11792, Description: 16-HS-03-SA2

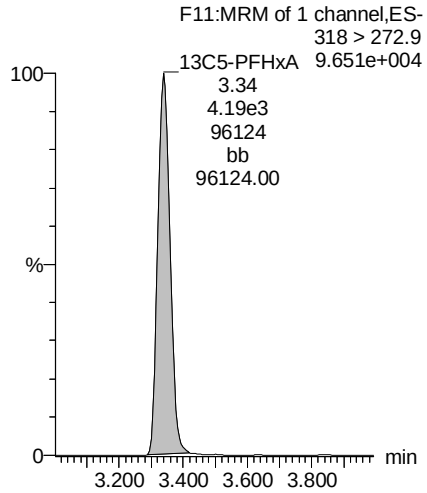
PFHxA



13C2-PFHxA



13C5-PFHxA



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Rev: ANP 11/27/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181126M1\181126M1-98.qld

Last Altered: Tuesday, November 27, 2018 13:19:22 Pacific Standard Time
Printed: Tuesday, November 27, 2018 13:19:54 Pacific Standard Time

Name: 181126M1_98, Date: 27-Nov-2018, Time: 04:45:37, ID: 1803626-02 16-MW-06-SA2 0.1197, Description: 16-MW-06-SA2

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7	1.50e3	1.75e3	0.120		2.77	2.77	10.7	43.1842		2.685	NO
2	5	PFHxA	313 > 269	1.99e4	9.12e3	0.120		3.34	3.34	10.9	96.1577		14.613	NO
3	7	PFHpA	363.0 > 318.9	1.16e4	1.18e4	0.120		4.01	4.00	12.3	77.9964		13.381	NO
4	8	L-PFHxS	398.9 > 79.6	1.17e4	1.55e3	0.120		4.14	4.14	94.2	404.0076		1.891	NO
5	68	Total PFHxS	398.9 > 79.6	1.17e4	1.55e3	0.120		4.28		94.2	404.0076			
6	11	L-PFOA	412.8 > 368.9	3.83e4	1.91e4	0.120		4.47	4.49	25.1	153.3193		2.989	NO
7	69	Total PFOA	412.8 > 368.9	3.83e4	1.91e4	0.120		4.62		25.1	153.3193			
8	38	13C3-PFBS	302. > 98.8	1.75e3	3.36e3	0.120	0.537	2.72	2.77	6.51	101.2111	96.9		
9	40	13C2-PFHxA	315 > 270	9.12e3	2.61e4	0.120	0.988	3.30	3.34	4.37	36.9194	88.4		
10	41	13C4-PFHpA	367.2 > 321.8	1.18e4	2.61e4	0.120	0.537	3.97	4.01	5.65	88.0274	84.3		
11	42	18O2-PFHxS	403.0 > 102.6	1.55e3	3.36e3	0.120	0.448	4.11	4.14	5.78	107.7222	103.2		
12	42	18O2-PFHxS	403.0 > 102.6	1.55e3	3.36e3	0.120	0.448	4.11	4.14	5.78	107.7222	103.2		
13	44	13C2-PFOA	414.9 > 369.7	1.91e4	2.80e4	0.120	0.755	4.46	4.49	8.52	94.2577	90.3		
14	44	13C2-PFOA	414.9 > 369.7	1.91e4	2.80e4	0.120	0.755	4.46	4.49	8.52	94.2577	90.3		
15	-1													
16	14	PFNA	463.0 > 418.8		1.62e4	0.120		4.90						
17	16	L-PFOS	498.9 > 79.9	2.19e2	3.38e3	0.120		5.02	4.87	0.809	5.8192		2.332	NO
18	70	Total PFOS	498.9 > 79.9	2.19e2	3.38e3	0.120		5.13		0.809	5.8192			
19	18	PFDA	513 > 468.8	2.39e1	1.44e4	0.120		5.28	5.30	0.0207			10.057	YES
20	21	L-MeFOSAA	570 > 419		2.61e3	0.120		5.43						
21	71	Total N-MeFOSAA	570. > 419	0.00e0	2.61e3	0.120		5.57		0.000				
22	25	PFUdA	563.0 > 518.9	5.07e1	1.64e4	0.120		5.61	5.62	0.0386			11.101	NO
23	45	13C5-PFNA	468.2 > 422.9	1.62e4	2.01e4	0.120	0.991	4.90	4.92	10.0	84.7402	81.1		
24	47	13C8-PFOS	507.0 > 79.9	3.38e3	3.78e3	0.120	1.042	4.98	5.01	11.2	89.8729	86.1		
25	47	13C8-PFOS	507.0 > 79.9	3.38e3	3.78e3	0.120	1.042	4.98	5.01	11.2	89.8729	86.1		
26	48	13C2-PFDA	515.1 > 469.9	1.44e4	2.19e4	0.120	0.902	5.28	5.30	8.26	76.4363	73.2		
27	50	d3-N-MeFOSAA	573.3 > 419	2.61e3	2.49e4	0.120	0.135	5.43	5.45	1.31	81.4873	78.0		
28	50	d3-N-MeFOSAA	573.3 > 419	2.61e3	2.49e4	0.120	0.135	5.43	5.45	1.31	81.4873	78.0		
29	51	13C2-PFUdA	565 > 519.8	1.64e4	2.49e4	0.120	0.957	5.61	5.63	8.26	72.0907	69.0		
30	-1													
31	23	L-EtFOSAA	584.1 > 419		4.09e3	0.120		5.51						
32	72	Total N-EtFOSAA	584.1 > 419	0.00e0	4.09e3	0.120		5.72		0.000				
33	29	PFTrDA	662.9 > 618.9		1.52e4	0.120		6.15						
34	27	PFDoA	612.9 > 569.0		1.52e4	0.120		5.90						
35	30	PFTeDA	713.0 > 669.0	3.76e1	1.07e4	0.120		6.37	6.39	0.0439			10.095	NO
36	73	TCDA	498.3>106.9			0.120		5.15						

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Dataset: Z:\Projects\PFAS.PRO\Results\181126M1\181126M1-98.qld

Last Altered: Tuesday, November 27, 2018 13:19:22 Pacific Standard Time
Printed: Tuesday, November 27, 2018 13:19:54 Pacific Standard Time

Name: 181126M1_98, Date: 27-Nov-2018, Time: 04:45:37, ID: 1803626-02 16-MW-06-SA2 0.1197, Description: 16-MW-06-SA2

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
37	61	13C5-PFHxA	318 > 272.9	2.61e4	2.61e4	0.120	1.000	3.30	3.34	12.5	104.4277	100.0		
38	52	d5-N-EtFOSAA	589.3 > 419	4.09e3	2.49e4	0.120	0.185	5.59	5.61	2.06	92.8257	88.9		
39	52	d5-N-EtFOSAA	589.3 > 419	4.09e3	2.49e4	0.120	0.185	5.59	5.61	2.06	92.8257	88.9		
40	53	13C2-PFDoA	615.0 > 569.7	1.52e4	2.19e4	0.120	1.047	5.90	5.91	8.69	69.3689	66.4		
41	53	13C2-PFDoA	615.0 > 569.7	1.52e4	2.19e4	0.120	1.047	5.90	5.91	8.69	69.3689	66.4		
42	55	13C2-PFTeDA	715.1 > 669.7	1.07e4	2.49e4	0.120	0.567	6.37	6.39	5.38	79.2719	75.9		
43	47	13C8-PFOS	507.0 > 79.9	3.38e3	3.78e3	0.120	1.042	4.98	5.01	11.2	89.8729	86.1		
44	63	13C8-PFOA	420.9 > 376	2.80e4	2.80e4	0.120	1.000	4.46	4.49	12.5	104.4277	100.0		
45	-1													
46	62	13C3-PFHxS	401.8 > 79.9	3.36e3	3.36e3	0.120	1.000	4.11	4.14	12.5	104.4277	100.0		
47	64	13C9-PFNA	472.2 > 426.9	2.01e4	2.01e4	0.120	1.000	4.90	4.92	12.5	104.4277	100.0		
48	65	13C4-PFOS	503 > 79.9	3.78e3	3.78e3	0.120	1.000	4.98	5.01	12.5	104.4277	100.0		
49	66	13C6-PFDA	519.1 > 473.7	2.19e4	2.19e4	0.120	1.000	5.28	5.30	12.5	104.4277	100.0		
50	67	13C7-PFUdA	570.1 > 524.8	2.49e4	2.49e4	0.120	1.000	5.61	5.63	12.5	104.4277	100.0		

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Rev: ANP 11/27/2018

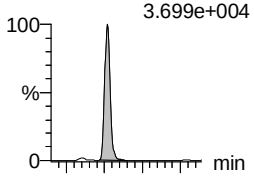
Dataset: Z:\Projects\PFAS.PRO\Results\181126M1\181126M1-98.qld

Last Altered: Tuesday, November 27, 2018 13:19:22 Pacific Standard Time
Printed: Tuesday, November 27, 2018 13:19:54 Pacific Standard Time

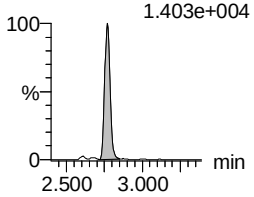
Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112618.mdb 26 Nov 2018 13:53:04
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Name: 181126M1_98, Date: 27-Nov-2018, Time: 04:45:37, ID: 1803626-02 16-MW-06-SA2 0.1197, Description: 16-MW-06-SA2

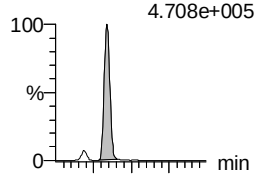
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
3.699e+004



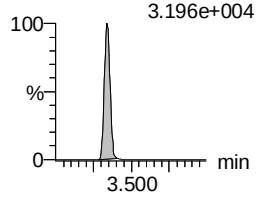
F7:MRM of 2 channels,ES-
299.0 > 99.0
1.403e+004



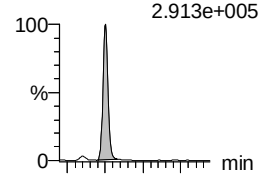
PFHxA
F9:MRM of 2 channels,ES-
313 > 269
4.708e+005



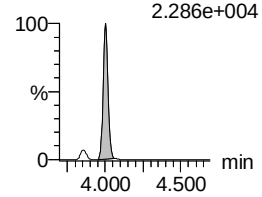
F9:MRM of 2 channels,ES-
313 > 118.9
3.196e+004



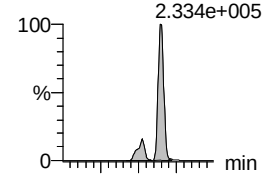
PFHpA
F16:MRM of 2 channels,ES-
363.0 > 318.9
2.913e+005



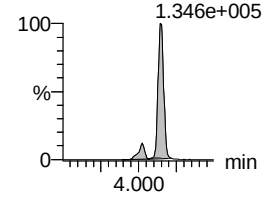
F16:MRM of 2 channels,ES-
363.0 > 169.0
2.286e+004



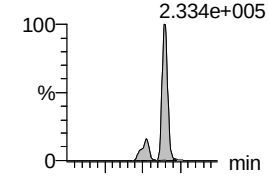
L-PFHxS
F18:MRM of 2 channels,ES-
398.9 > 79.6
2.334e+005



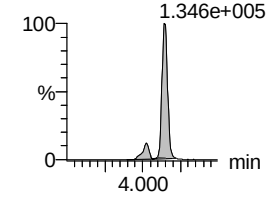
F18:MRM of 2 channels,ES-
398.9 > 99.0
1.346e+005



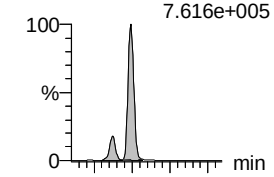
Total PFHxS
F18:MRM of 2 channels,ES-
398.9 > 79.6
2.334e+005



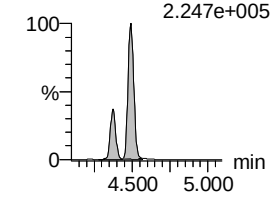
F18:MRM of 2 channels,ES-
398.9 > 99.0
1.346e+005



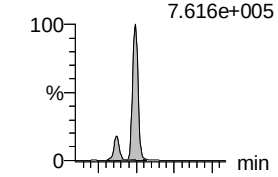
L-PFOA
F21:MRM of 2 channels,ES-
412.8 > 368.9
7.616e+005



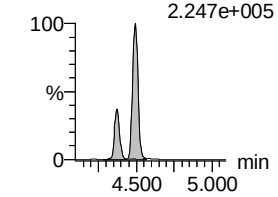
F21:MRM of 2 channels,ES-
412.8 > 169
2.247e+005



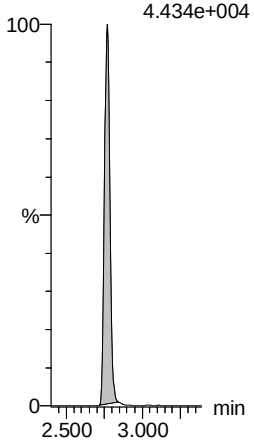
Total PFOA
F21:MRM of 2 channels,ES-
412.8 > 368.9
7.616e+005



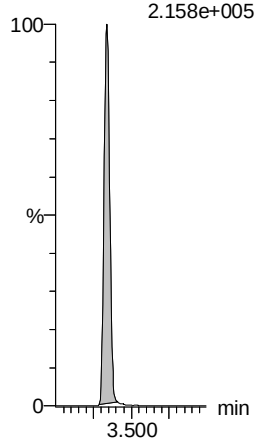
F21:MRM of 2 channels,ES-
412.8 > 169
2.247e+005



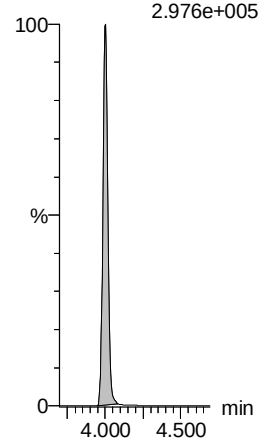
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
4.434e+004



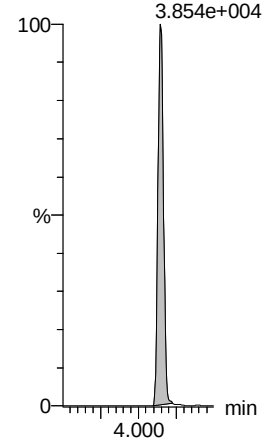
13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 270
2.158e+005



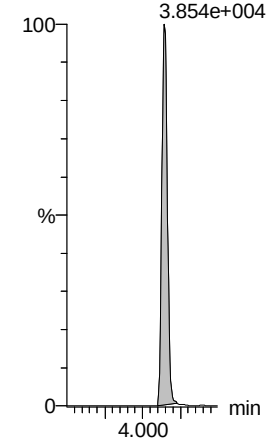
13C4-PFHpA
F17:MRM of 1 channel,ES-
367.2 > 321.8
2.976e+005



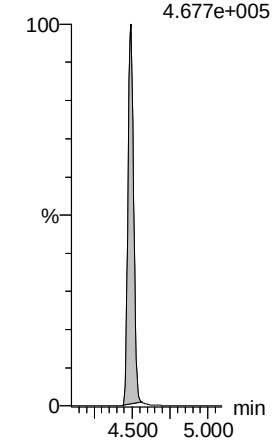
18O2-PFHxS
F20:MRM of 1 channel,ES-
403.0 > 102.6
3.854e+004



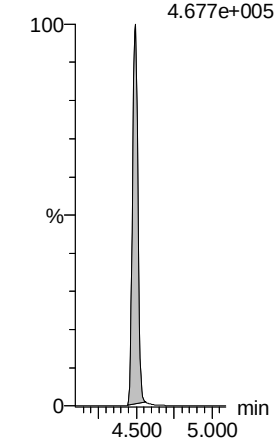
18O2-PFHxS
F20:MRM of 1 channel,ES-
403.0 > 102.6
3.854e+004



13C2-PFOA
F22:MRM of 1 channel,ES-
414.9 > 369.7
4.677e+005



13C2-PFOA
F22:MRM of 1 channel,ES-
414.9 > 369.7
4.677e+005



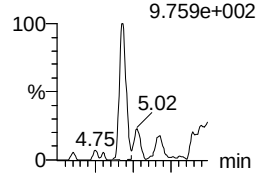
AD 11/27/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181126M1\181126M1-98.qld

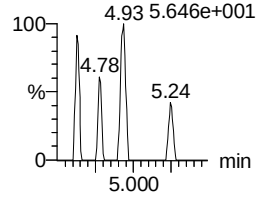
Last Altered: Tuesday, November 27, 2018 13:19:22 Pacific Standard Time
Printed: Tuesday, November 27, 2018 13:19:54 Pacific Standard Time

Name: 181126M1_98, Date: 27-Nov-2018, Time: 04:45:37, ID: 1803626-02 16-MW-06-SA2 0.1197, Description: 16-MW-06-SA2

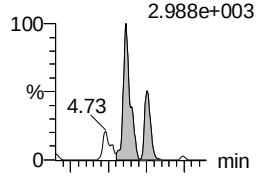
PFNA
F27:MRM of 2 channels,ES-
463.0 > 418.8
9.759e+002



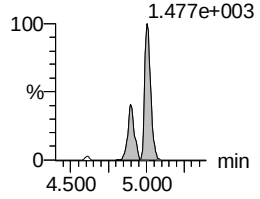
F27:MRM of 2 channels,ES-
463.0 > 219.0
5.646e+001



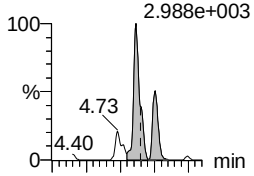
L-PFOS
F32:MRM of 2 channels,ES-
498.9 > 79.9
2.988e+003



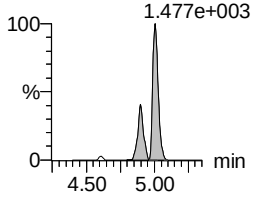
F32:MRM of 2 channels,ES-
498.9 > 99
1.477e+003



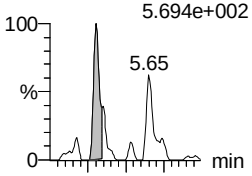
Total PFOS
F32:MRM of 2 channels,ES-
498.9 > 79.9
2.988e+003



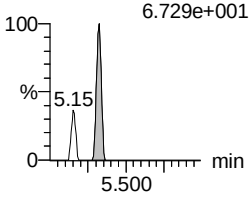
F32:MRM of 2 channels,ES-
498.9 > 99
1.477e+003



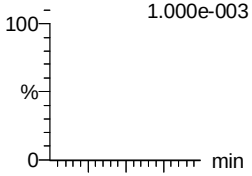
PFDA
F37:MRM of 2 channels,ES-
513 > 468.8
5.694e+002



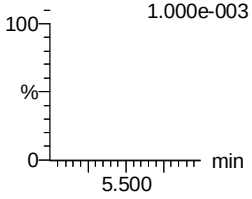
F37:MRM of 2 channels,ES-
513 > 219
6.729e+001



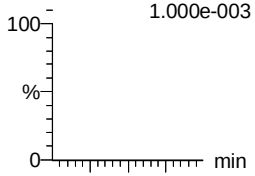
L-MeFOSAA
F48:MRM of 2 channels,ES-
570 > 419
1.000e-003



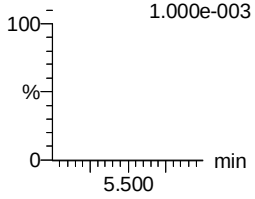
F48:MRM of 2 channels,ES-
570. > 512
1.000e-003



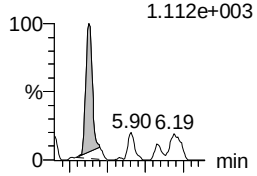
Total N-MeFOSAA
F48:MRM of 2 channels,ES-
570 > 419
1.000e-003



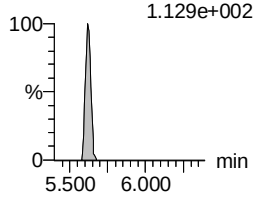
F48:MRM of 2 channels,ES-
570. > 512
1.000e-003



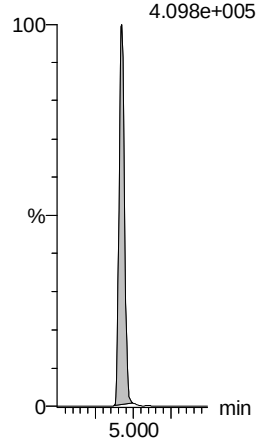
PFUdA
F46:MRM of 2 channels,ES-
563.0 > 518.9
1.112e+003



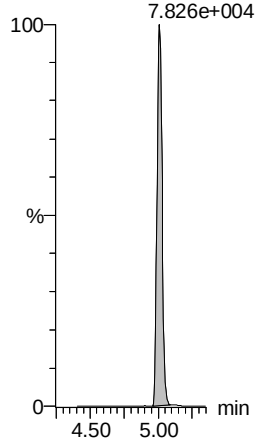
F46:MRM of 2 channels,ES-
563.0 > 269
1.129e+002



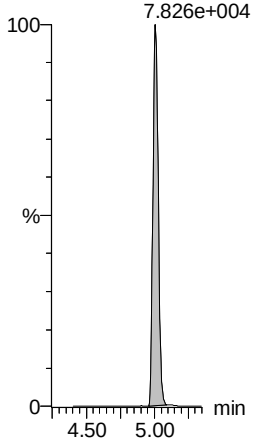
13C5-PFNA
F28:MRM of 1 channel,ES-
468.2 > 422.9
4.098e+005



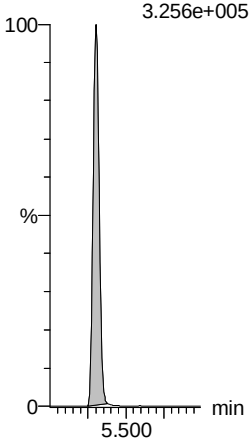
13C8-PFOS
F35:MRM of 1 channel,ES-
507.0 > 79.9
7.826e+004



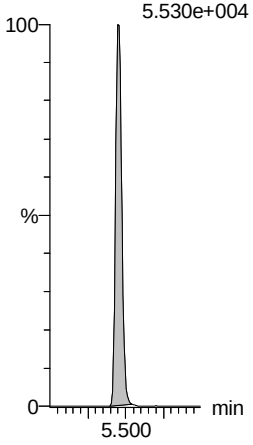
13C8-PFOS
F35:MRM of 1 channel,ES-
507.0 > 79.9
7.826e+004



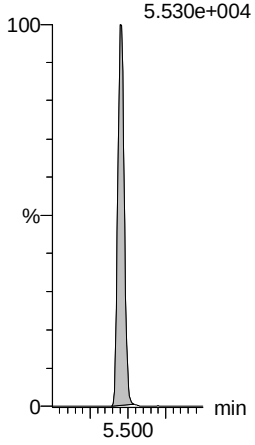
13C2-PFDA
F38:MRM of 1 channel,ES-
515.1 > 469.9
3.256e+005



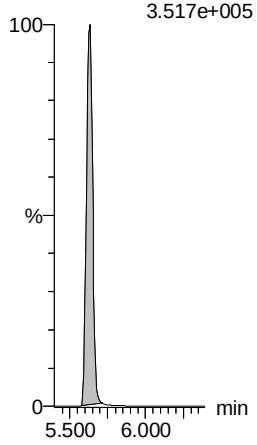
d3-N-MeFOSAA
F50:MRM of 1 channel,ES-
573.3 > 419
5.530e+004



d3-N-MeFOSAA
F50:MRM of 1 channel,ES-
573.3 > 419
5.530e+004



13C2-PFUdA
F47:MRM of 1 channel,ES-
565 > 519.8
3.517e+005



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Vista Analytical Laboratory L14

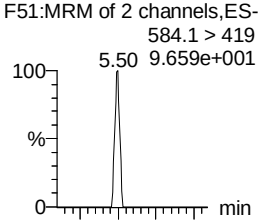
Rev: ANP 11/27/2018

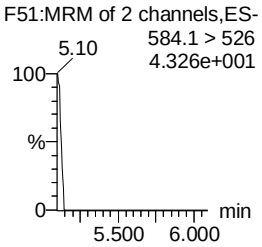
Dataset: Z:\Projects\PFAS.PRO\Results\181126M1\181126M1-98.qld

Last Altered: Tuesday, November 27, 2018 13:19:22 Pacific Standard Time
Printed: Tuesday, November 27, 2018 13:19:54 Pacific Standard Time

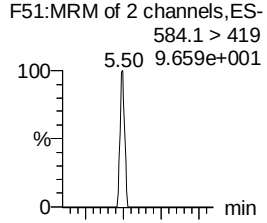
Name: 181126M1_98, Date: 27-Nov-2018, Time: 04:45:37, ID: 1803626-02 16-MW-06-SA2 0.1197, Description: 16-MW-06-SA2

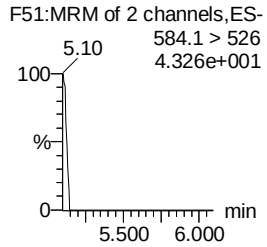
L-EtFOSAA



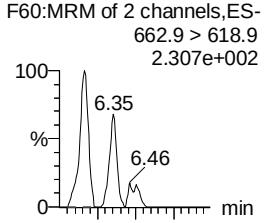


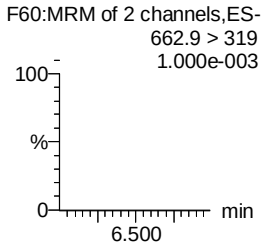
Total N-EtFOSAA



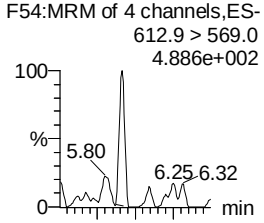


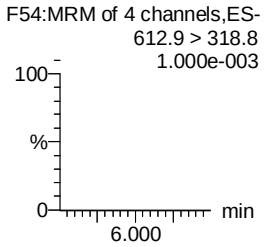
PFTrDA



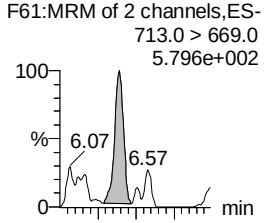


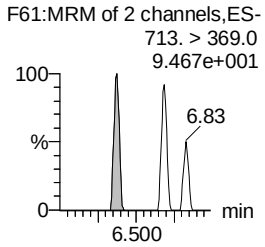
PFDoA



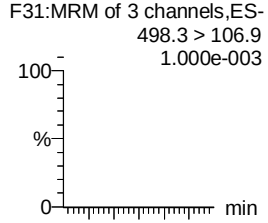


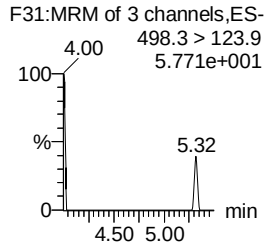
PFTeDA



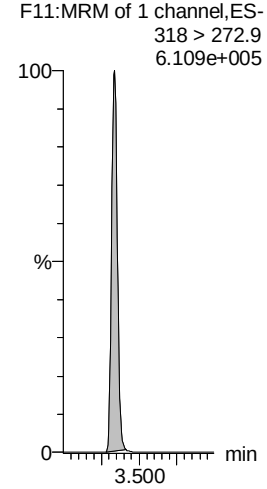


TCDA

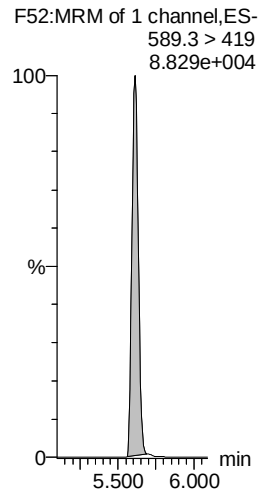




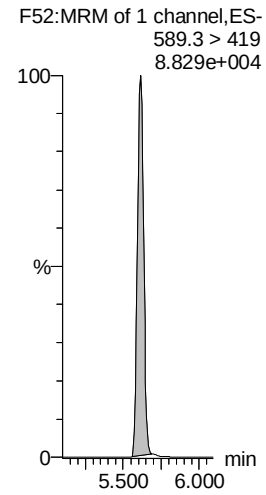
13C5-PFHxA



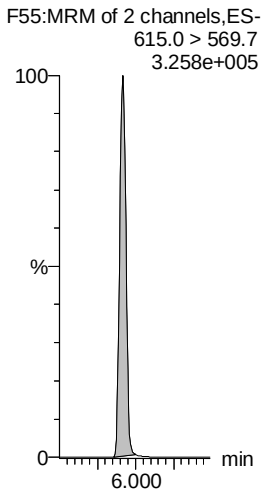
d5-N-EtFOSAA



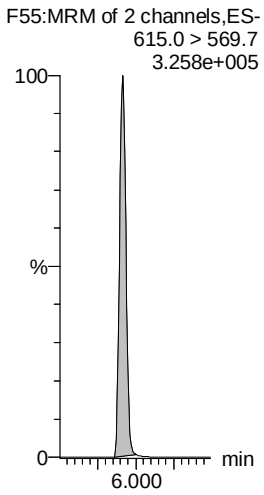
d5-N-EtFOSAA



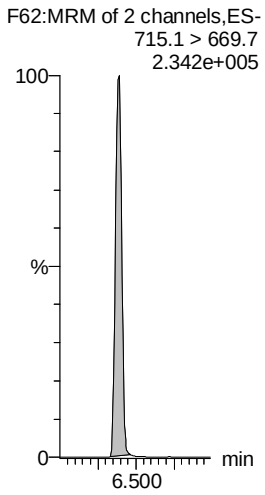
13C2-PFDoA



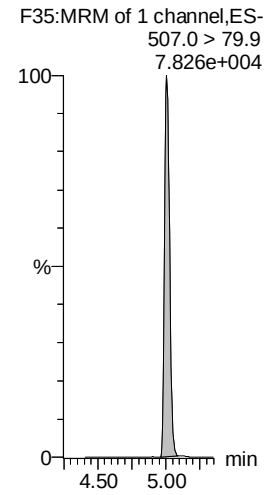
13C2-PFDoA



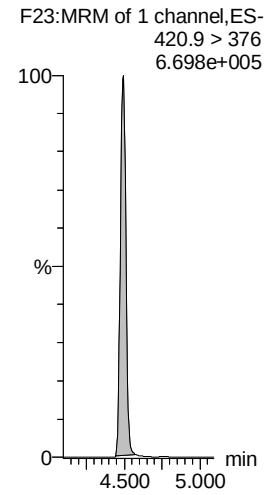
13C2-PFTeDA



13C8-PFOS



13C8-PFOA



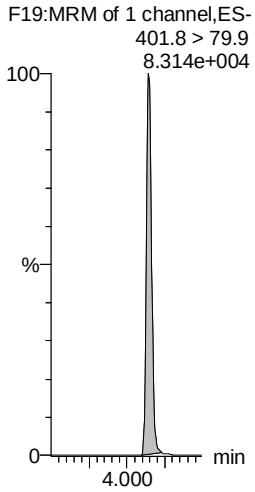
AD 11/27/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181126M1\181126M1-98.qld

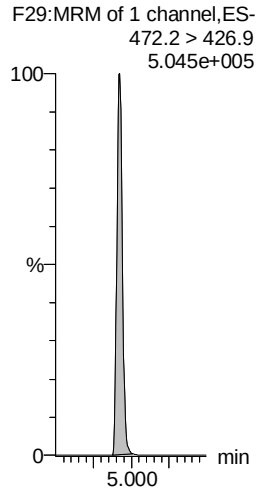
Last Altered: Tuesday, November 27, 2018 13:19:22 Pacific Standard Time
Printed: Tuesday, November 27, 2018 13:19:54 Pacific Standard Time

Name: 181126M1_98, Date: 27-Nov-2018, Time: 04:45:37, ID: 1803626-02 16-MW-06-SA2 0.1197, Description: 16-MW-06-SA2

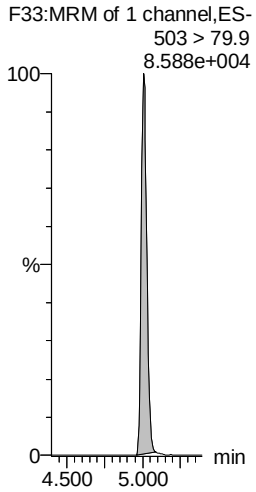
13C3-PFHxS



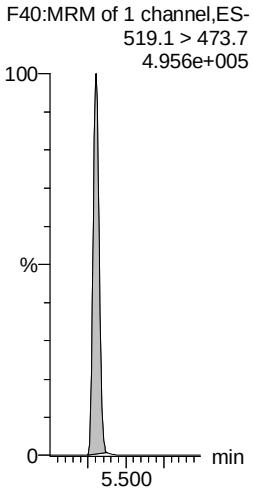
13C9-PFNA



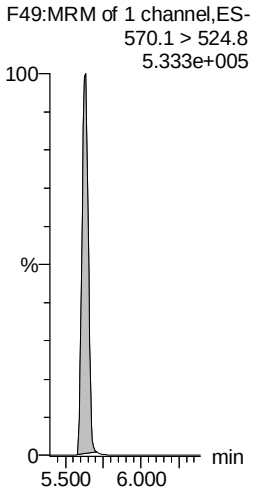
13C4-PFOS



13C6-PFDA



13C7-PFUdA



AD 11/27/2018

Vista Analytical Laboratory L14

Rev: ANP 11/27/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-19.qld

Last Altered: Monday, November 26, 2018 14:55:05 Pacific Standard Time
Printed: Monday, November 26, 2018 14:55:23 Pacific Standard Time

Name: 181121M1_19, Date: 21-Nov-2018, Time: 17:22:53, ID: 1803626-03 16-MW-08-SA2 0.11955, Description: 16-MW-08-SA2

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7	3.43e3	1.69e3	0.120		2.79	2.79	25.3	108.7036		2.711	NO
2	5	PFHxA	313 > 269	6.69e4	9.47e3	0.120		3.35	3.35	35.3	314.4043		15.042	NO
3	7	PFHpA	363.0 > 318.9	1.02e4	1.24e4	0.120		4.02	4.02	10.3	65.1058		11.674	NO
4	8	L-PFHxS	398.9 > 79.6	7.00e3	1.48e3	0.120		4.16	4.16	59.1	260.9426		1.763	NO
5	68	Total PFHxS	398.9 > 79.6	7.00e3	1.48e3	0.120		4.28		59.1	260.9426			
6	11	L-PFOA	412.8 > 368.9	1.43e4	2.04e4	0.120		4.47	4.50	8.75	56.2182		3.121	NO
7	69	Total PFOA	412.8 > 368.9	1.43e4	2.04e4	0.120		4.62		8.75	56.2182			
8	38	13C3-PFBS	302. > 98.8	1.69e3	3.20e3	0.120	0.539	2.72	2.79	6.61	102.6420	98.2		
9	40	13C2-PFHxA	315 > 270	9.47e3	2.64e4	0.120	0.964	3.30	3.35	4.49	38.9454	93.1		
10	41	13C4-PFHpA	367.2 > 321.8	1.24e4	2.64e4	0.120	0.482	3.97	4.02	5.86	101.7459	97.3		
11	42	18O2-PFHxS	403.0 > 102.6	1.48e3	3.20e3	0.120	0.480	4.11	4.16	5.79	100.9031	96.5		
12	42	18O2-PFHxS	403.0 > 102.6	1.48e3	3.20e3	0.120	0.480	4.11	4.16	5.79	100.9031	96.5		
13	44	13C2-PFOA	414.9 > 369.7	2.04e4	3.23e4	0.120	0.755	4.46	4.50	7.89	87.3954	83.6		
14	44	13C2-PFOA	414.9 > 369.7	2.04e4	3.23e4	0.120	0.755	4.46	4.50	7.89	87.3954	83.6		
15	-1													
16	14	PFNA	463.0 > 418.8	1.27e2	1.89e4	0.120		4.90	4.94	0.0840	0.1078		2.299	NO
17	16	L-PFOS	498.9 > 79.9	1.28e3	3.49e3	0.120		5.02	5.02	4.57	35.8357		2.178	NO
18	70	Total PFOS	498.9 > 79.9	1.28e3	3.49e3	0.120		5.13		4.57	35.8357			
19	18	PFDA	513 > 468.8		1.75e4	0.120		5.28						
20	21	L-MeFOSAA	570 > 419		3.35e3	0.120		5.43						
21	71	Total N-MeFOSAA	570. > 419	0.00e0	3.35e3	0.120		5.57		0.000				
22	25	PFUdA	563.0 > 518.9	6.12e1	2.08e4	0.120		5.61	5.65	0.0367			19.990	YES
23	45	13C5-PFNA	468.2 > 422.9	1.89e4	2.37e4	0.120	0.992	4.90	4.93	9.97	84.0803	80.4		
24	47	13C8-PFOS	507.0 > 79.9	3.49e3	3.37e3	0.120	1.034	4.98	5.02	13.0	104.8149	100.2		
25	47	13C8-PFOS	507.0 > 79.9	3.49e3	3.37e3	0.120	1.034	4.98	5.02	13.0	104.8149	100.2		
26	48	13C2-PFDA	515.1 > 469.9	1.75e4	2.75e4	0.120	0.832	5.28	5.31	7.93	79.7177	76.2		
27	50	d3-N-MeFOSAA	573.3 > 419	3.35e3	3.04e4	0.120	0.135	5.43	5.47	1.38	85.1537	81.4		
28	50	d3-N-MeFOSAA	573.3 > 419	3.35e3	3.04e4	0.120	0.135	5.43	5.47	1.38	85.1537	81.4		
29	51	13C2-PFUdA	565 > 519.8	2.08e4	3.04e4	0.120	0.928	5.61	5.65	8.57	77.2405	73.9		
30	-1													
31	23	L-EtFOSAA	584.1 > 419		5.41e3	0.120		5.51						
32	72	Total N-EtFOSAA	584.1 > 419	0.00e0	5.41e3	0.120		5.72		0.000				
33	29	PFTrDA	662.9 > 618.9		1.90e4	0.120		6.15						
34	27	PFDoA	612.9 > 569.0		1.90e4	0.120		5.90						
35	30	PFTeDA	713.0 > 669.0		1.35e4	0.120		6.37						
36	73	TCDA	498.3>106.9			0.120		5.15						

GM 11/26/2018

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Rev: ANP 11/27/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-19.qld

Last Altered: Monday, November 26, 2018 14:55:05 Pacific Standard Time
Printed: Monday, November 26, 2018 14:55:23 Pacific Standard Time

Name: 181121M1_19, Date: 21-Nov-2018, Time: 17:22:53, ID: 1803626-03 16-MW-08-SA2 0.11955, Description: 16-MW-08-SA2

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
37	61	13C5-PFHxA	318 > 272.9	2.64e4	2.64e4	0.120	1.000	3.30	3.35	12.5	104.5588	100.0		
38	52	d5-N-EtFOSAA	589.3 > 419	5.41e3	3.04e4	0.120	0.198	5.59	5.63	2.23	93.9286	89.8		
39	52	d5-N-EtFOSAA	589.3 > 419	5.41e3	3.04e4	0.120	0.198	5.59	5.63	2.23	93.9286	89.8		
40	53	13C2-PFDoA	615.0 > 569.7	1.90e4	2.75e4	0.120	0.980	5.90	5.93	8.61	73.4761	70.3		
41	53	13C2-PFDoA	615.0 > 569.7	1.90e4	2.75e4	0.120	0.980	5.90	5.93	8.61	73.4761	70.3		
42	55	13C2-PFTeDA	715.1 > 669.7	1.35e4	3.04e4	0.120	0.607	6.37	6.40	5.53	76.2550	72.9		
43	47	13C8-PFOS	507.0 > 79.9	3.49e3	3.37e3	0.120	1.034	4.98	5.02	13.0	104.8149	100.2		
44	63	13C8-PFOA	420.9 > 376	3.23e4	3.23e4	0.120	1.000	4.46	4.50	12.5	104.5588	100.0		
45	-1													
46	62	13C3-PFHxS	401.8 > 79.9	3.20e3	3.20e3	0.120	1.000	4.11	4.16	12.5	104.5588	100.0		
47	64	13C9-PFNA	472.2 > 426.9	2.37e4	2.37e4	0.120	1.000	4.90	4.93	12.5	104.5588	100.0		
48	65	13C4-PFOS	503 > 79.9	3.37e3	3.37e3	0.120	1.000	4.98	5.02	12.5	104.5588	100.0		
49	66	13C6-PFDA	519.1 > 473.7	2.75e4	2.75e4	0.120	1.000	5.28	5.32	12.5	104.5588	100.0		
50	67	13C7-PFUdA	570.1 > 524.8	3.04e4	3.04e4	0.120	1.000	5.61	5.65	12.5	104.5588	100.0		

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Rev: ANP 11/27/2018

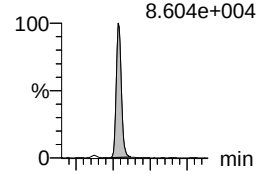
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-19.qld

Last Altered: Monday, November 26, 2018 14:55:05 Pacific Standard Time
Printed: Monday, November 26, 2018 14:55:23 Pacific Standard Time

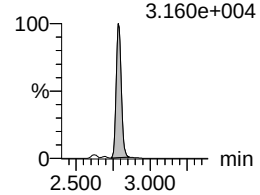
Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112118.mdb 26 Nov 2018 09:17:42
Calibration: Z:\Projects\PFAS.pro\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Name: 181121M1_19, Date: 21-Nov-2018, Time: 17:22:53, ID: 1803626-03 16-MW-08-SA2 0.11955, Description: 16-MW-08-SA2

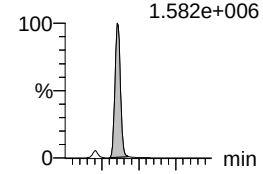
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
8.604e+004



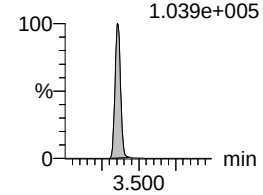
F7:MRM of 2 channels,ES-
299.0 > 99.0
3.160e+004



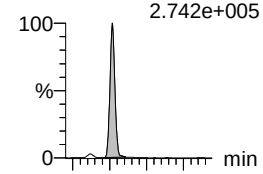
PFHxA
F9:MRM of 2 channels,ES-
313 > 269
1.582e+006



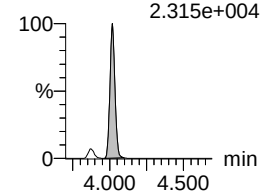
F9:MRM of 2 channels,ES-
313 > 118.9
1.039e+005



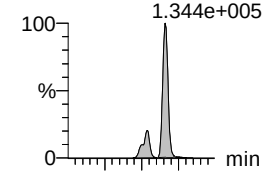
PFHpA
F16:MRM of 2 channels,ES-
363.0 > 318.9
2.742e+005



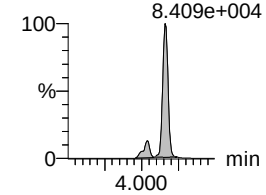
F16:MRM of 2 channels,ES-
363.0 > 169.0
2.315e+004



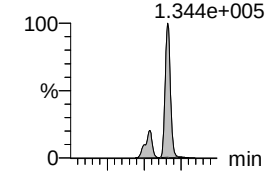
L-PFHxS
F18:MRM of 2 channels,ES-
398.9 > 79.6
1.344e+005



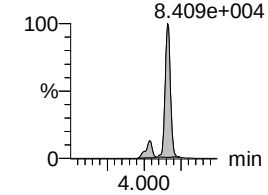
F18:MRM of 2 channels,ES-
398.9 > 99.0
8.409e+004



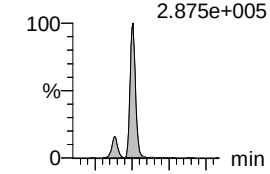
Total PFHxS
F18:MRM of 2 channels,ES-
398.9 > 79.6
1.344e+005



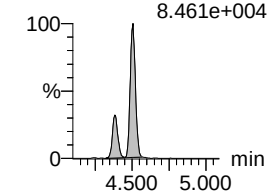
F18:MRM of 2 channels,ES-
398.9 > 99.0
8.409e+004



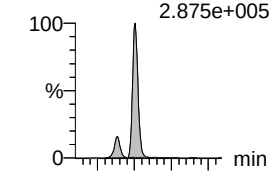
L-PFOA
F21:MRM of 2 channels,ES-
412.8 > 368.9
2.875e+005



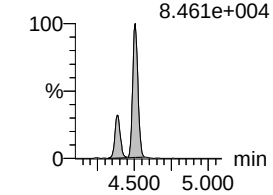
F21:MRM of 2 channels,ES-
412.8 > 169
8.461e+004



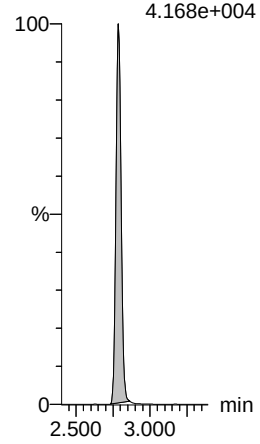
Total PFOA
F21:MRM of 2 channels,ES-
412.8 > 368.9
2.875e+005



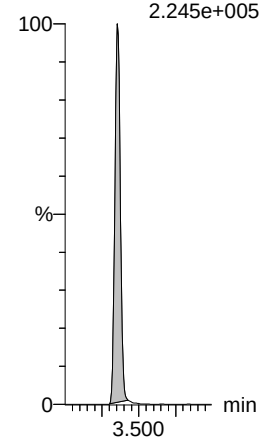
F21:MRM of 2 channels,ES-
412.8 > 169
8.461e+004



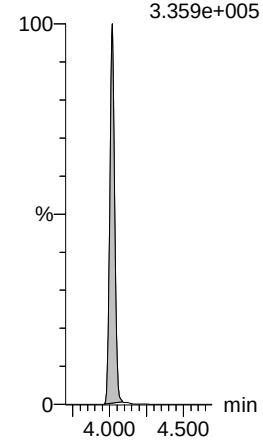
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
4.168e+004



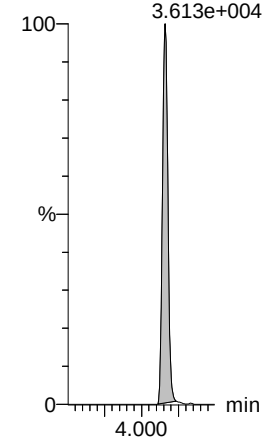
13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 270
2.245e+005



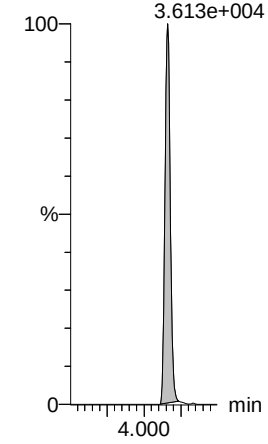
13C4-PFHpA
F17:MRM of 1 channel,ES-
367.2 > 321.8
3.359e+005



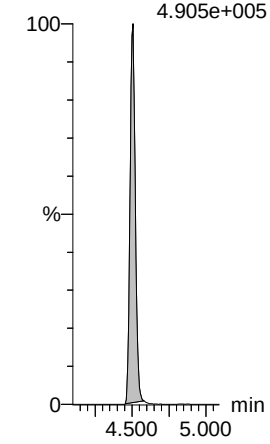
18O2-PFHxS
F20:MRM of 1 channel,ES-
403.0 > 102.6
3.613e+004



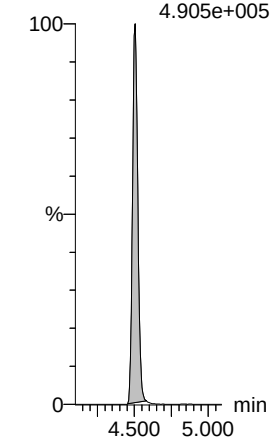
18O2-PFHxS
F20:MRM of 1 channel,ES-
403.0 > 102.6
3.613e+004



13C2-PFOA
F22:MRM of 1 channel,ES-
414.9 > 369.7
4.905e+005



13C2-PFOA
F22:MRM of 1 channel,ES-
414.9 > 369.7
4.905e+005



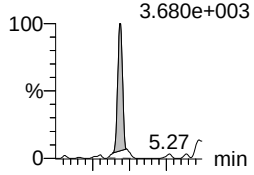
GM 11/26/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-19.qld

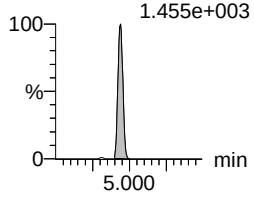
Last Altered: Monday, November 26, 2018 14:55:05 Pacific Standard Time
Printed: Monday, November 26, 2018 14:55:23 Pacific Standard Time

Name: 181121M1_19, Date: 21-Nov-2018, Time: 17:22:53, ID: 1803626-03 16-MW-08-SA2 0.11955, Description: 16-MW-08-SA2

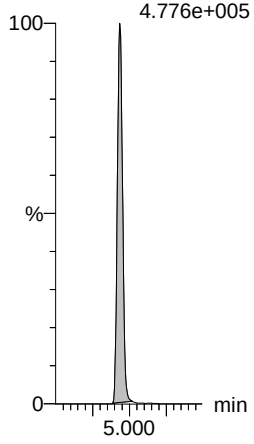
PFNA
F27:MRM of 2 channels,ES-
463.0 > 418.8
3.680e+003



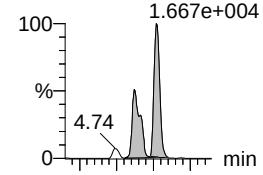
F27:MRM of 2 channels,ES-
463.0 > 219.0
1.455e+003



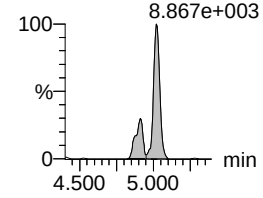
13C5-PFNA
F28:MRM of 1 channel,ES-
468.2 > 422.9
4.776e+005



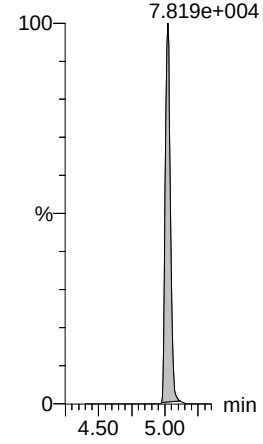
L-PFOS
F32:MRM of 2 channels,ES-
498.9 > 79.9
1.667e+004



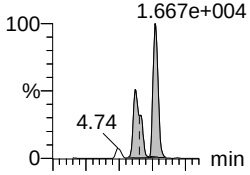
F32:MRM of 2 channels,ES-
498.9 > 99
8.867e+003



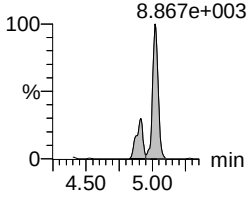
13C8-PFOS
F35:MRM of 1 channel,ES-
507.0 > 79.9
7.819e+004



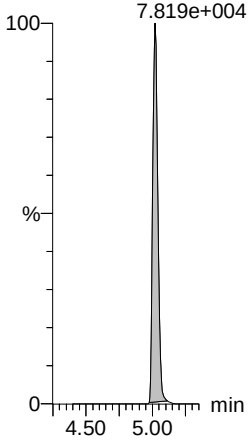
Total PFOS
F32:MRM of 2 channels,ES-
498.9 > 79.9
1.667e+004



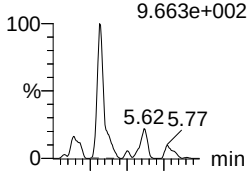
F32:MRM of 2 channels,ES-
498.9 > 99
8.867e+003



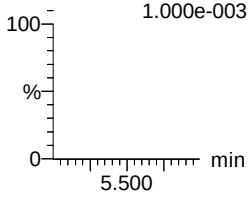
13C8-PFOS
F35:MRM of 1 channel,ES-
507.0 > 79.9
7.819e+004



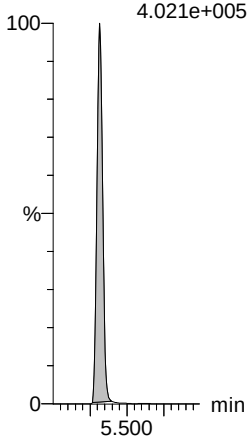
PFDA
F37:MRM of 2 channels,ES-
513 > 468.8
9.663e+002



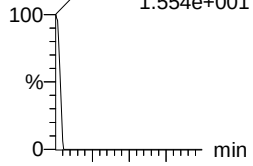
F37:MRM of 2 channels,ES-
513 > 219
1.000e-003



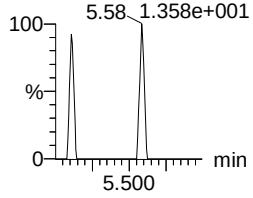
13C2-PFDA
F38:MRM of 1 channel,ES-
515.1 > 469.9
4.021e+005



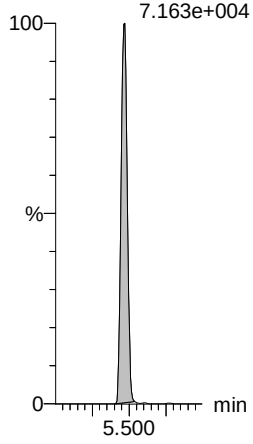
L-MeFOSAA
F48:MRM of 2 channels,ES-
570 > 419
1.554e+001



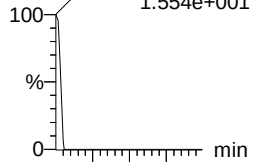
F48:MRM of 2 channels,ES-
570. > 512
1.358e+001



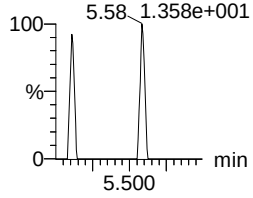
d3-N-MeFOSAA
F50:MRM of 1 channel,ES-
573.3 > 419
7.163e+004



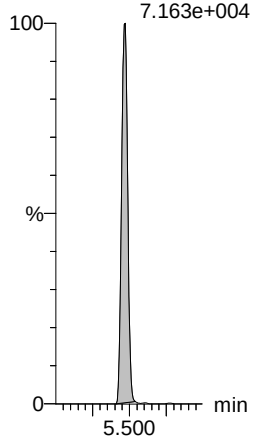
Total N-MeFOSAA
F48:MRM of 2 channels,ES-
570 > 419
1.554e+001



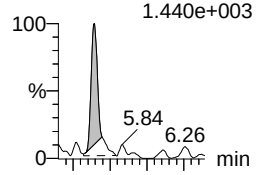
F48:MRM of 2 channels,ES-
570. > 512
1.358e+001



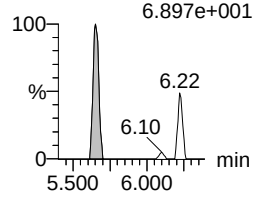
d3-N-MeFOSAA
F50:MRM of 1 channel,ES-
573.3 > 419
7.163e+004



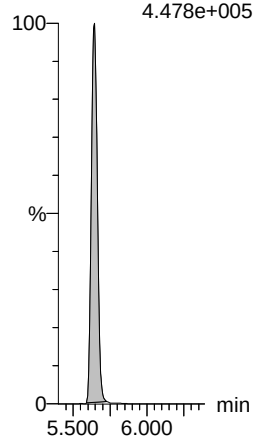
PFUdA
F46:MRM of 2 channels,ES-
563.0 > 518.9
1.440e+003



F46:MRM of 2 channels,ES-
563.0 > 269
6.897e+001



13C2-PFUdA
F47:MRM of 1 channel,ES-
565 > 519.8
4.478e+005



Vista Analytical Laboratory L14

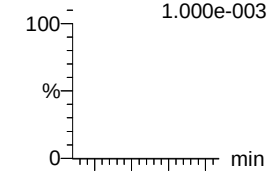
Rev: ANP 11/27/2018

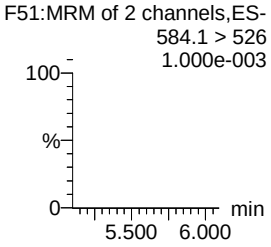
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-19.qld

Last Altered: Monday, November 26, 2018 14:55:05 Pacific Standard Time
Printed: Monday, November 26, 2018 14:55:23 Pacific Standard Time

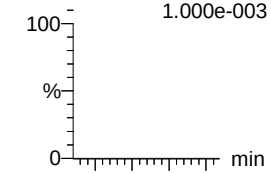
Name: 181121M1_19, Date: 21-Nov-2018, Time: 17:22:53, ID: 1803626-03 16-MW-08-SA2 0.11955, Description: 16-MW-08-SA2

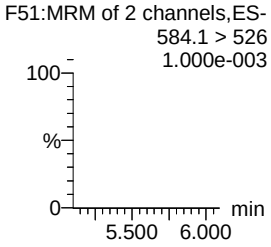
L-EtFOSAA



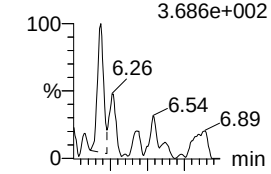


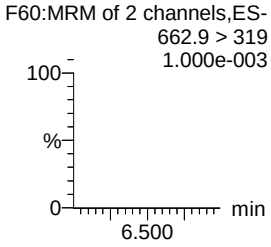
Total N-EtFOSAA



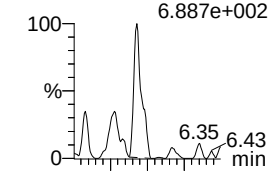


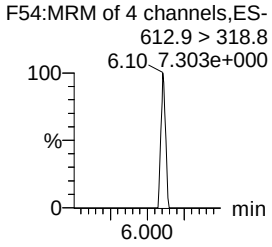
PFTrDA



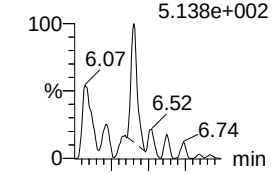


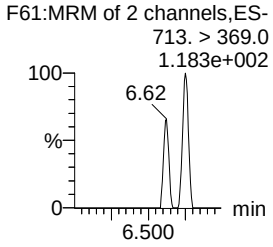
PFDoA



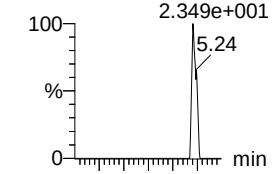


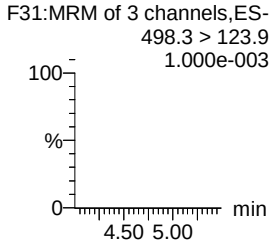
PFTeDA



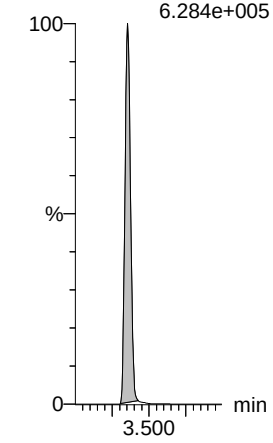


TCDA

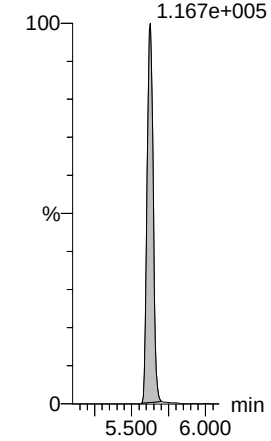




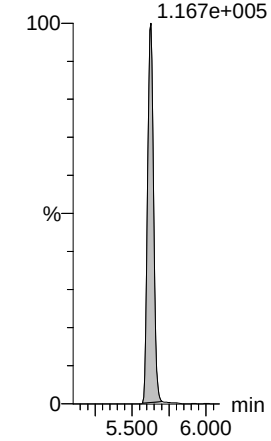
13C5-PFHxA



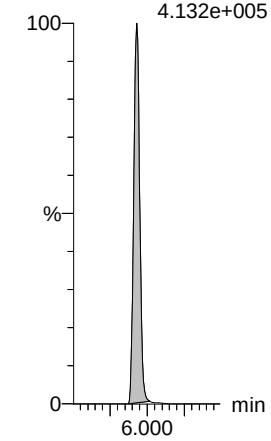
d5-N-EtFOSAA



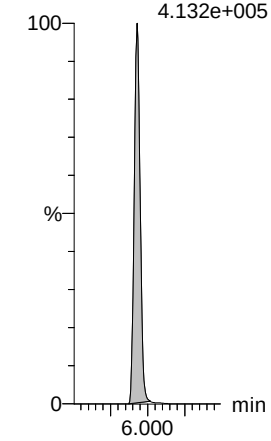
d5-N-EtFOSAA



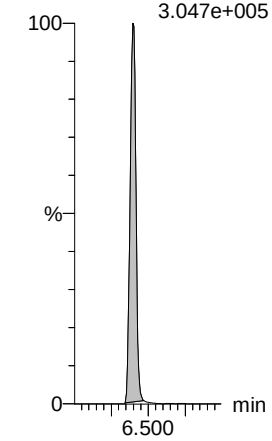
13C2-PFDoA



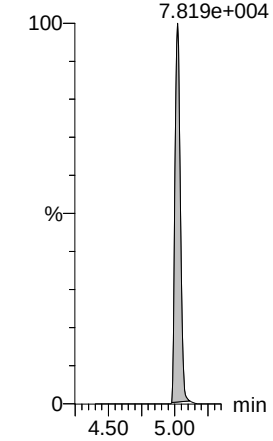
13C2-PFDoA



13C2-PFTeDA



13C8-PFOS



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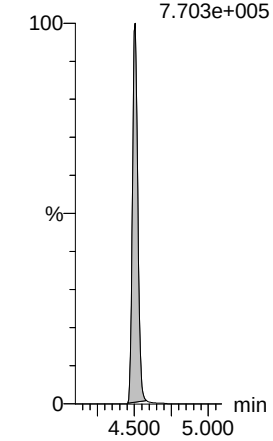


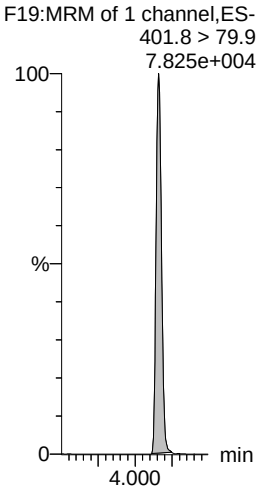
GM 11/26/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-19.qld

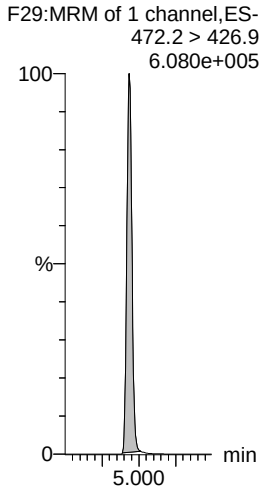
Last Altered: Monday, November 26, 2018 14:55:05 Pacific Standard Time
Printed: Monday, November 26, 2018 14:55:23 Pacific Standard Time

Name: 181121M1_19, Date: 21-Nov-2018, Time: 17:22:53, ID: 1803626-03 16-MW-08-SA2 0.11955, Description: 16-MW-08-SA2

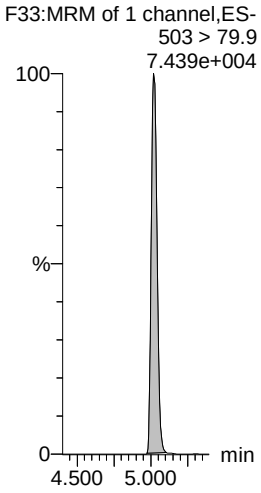
13C3-PFHxS



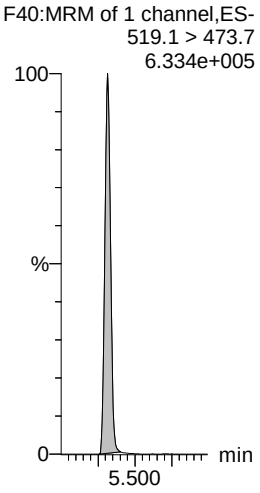
13C9-PFNA



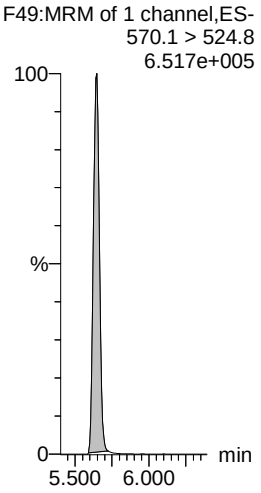
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Vista Analytical Laboratory L14

Rev: ANP 11/27/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-20.qld

Last Altered: Monday, November 26, 2018 14:58:41 Pacific Standard Time
Printed: Monday, November 26, 2018 14:58:56 Pacific Standard Time

Name: 181121M1_20, Date: 21-Nov-2018, Time: 17:33:26, ID: 1803626-04 16-MW-09-SA2 0.11735, Description: 16-MW-09-SA2

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7	2.63e3	1.76e3	0.117		2.79	2.79	18.7	81.8159		2.727	NO
2	5	PFHxA	313 > 269	2.77e4	9.02e3	0.117		3.35	3.35	15.4	138.7623		15.968	NO
3	7	PFHpA	363.0 > 318.9	1.64e3	1.17e4	0.117		4.02	4.02	1.75	10.6670		10.676	NO
4	8	L-PFHxS	398.9 > 79.6	3.78e2	1.48e3	0.117		4.16	4.16	3.20	14.3433		1.663	NO
5	68	Total PFHxS	398.9 > 79.6	3.78e2	1.48e3	0.117		4.28		3.20	14.3433			
6	11	L-PFOA	412.8 > 368.9	1.17e3	1.79e4	0.117		4.47	4.50	0.815	4.4875		3.010	NO
7	69	Total PFOA	412.8 > 368.9	1.17e3	1.79e4	0.117		4.62		0.815	4.4875			
8	38	13C3-PFBS	302. > 98.8	1.76e3	3.35e3	0.117	0.539	2.72	2.79	6.57	103.8542	97.5		
9	40	13C2-PFHxA	315 > 270	9.02e3	2.41e4	0.117	0.964	3.30	3.35	4.68	41.3775	97.1		
10	41	13C4-PFHpA	367.2 > 321.8	1.17e4	2.41e4	0.117	0.482	3.97	4.02	6.08	107.4868	100.9		
11	42	18O2-PFHxS	403.0 > 102.6	1.48e3	3.35e3	0.117	0.480	4.11	4.16	5.53	98.1457	92.1		
12	42	18O2-PFHxS	403.0 > 102.6	1.48e3	3.35e3	0.117	0.480	4.11	4.16	5.53	98.1457	92.1		
13	44	13C2-PFOA	414.9 > 369.7	1.79e4	2.69e4	0.117	0.755	4.46	4.50	8.32	93.9270	88.2		
14	44	13C2-PFOA	414.9 > 369.7	1.79e4	2.69e4	0.117	0.755	4.46	4.50	8.32	93.9270	88.2		
15	-1													
16	14	PFNA	463.0 > 418.8	2.59e2	1.65e4	0.117		4.90	4.93	0.196	0.8702		5.322	NO
17	16	L-PFOS	498.9 > 79.9	1.76e2	3.55e3	0.117		5.02	5.02	0.619	5.0252		1.899	NO
18	70	Total PFOS	498.9 > 79.9	1.76e2	3.55e3	0.117		5.13		0.619	5.0252			
19	18	PFDA	513 > 468.8	1.42e2	1.65e4	0.117		5.28	5.31	0.108			7.331	NO
20	21	L-MeFOSAA	570 > 419	5.38e-1	3.45e3	0.117		5.43	5.40	0.00195			1.269	NO
21	71	Total N-MeFOSAA	570. > 419	5.38e-1	3.45e3	0.117		5.57		0.000				
22	25	PFUdA	563.0 > 518.9	3.73e1	1.92e4	0.117		5.61	5.65	0.0243			10.287	NO
23	45	13C5-PFNA	468.2 > 422.9	1.65e4	2.02e4	0.117	0.992	4.90	4.93	10.3	88.1197	82.7		
24	47	13C8-PFOS	507.0 > 79.9	3.55e3	3.63e3	0.117	1.034	4.98	5.02	12.2	100.6833	94.5		
25	47	13C8-PFOS	507.0 > 79.9	3.55e3	3.63e3	0.117	1.034	4.98	5.02	12.2	100.6833	94.5		
26	48	13C2-PFDA	515.1 > 469.9	1.65e4	2.31e4	0.117	0.832	5.28	5.31	8.94	91.4951	85.9		
27	50	d3-N-MeFOSAA	573.3 > 419	3.45e3	2.94e4	0.117	0.135	5.43	5.47	1.47	92.4448	86.8		
28	50	d3-N-MeFOSAA	573.3 > 419	3.45e3	2.94e4	0.117	0.135	5.43	5.47	1.47	92.4448	86.8		
29	51	13C2-PFUdA	565 > 519.8	1.92e4	2.94e4	0.117	0.928	5.61	5.65	8.17	75.0387	70.4		
30	-1													
31	23	L-EtFOSAA	584.1 > 419		5.52e3	0.117		5.51						
32	72	Total N-EtFOSAA	584.1 > 419	0.00e0	5.52e3	0.117		5.72		0.000				
33	29	PFTrDA	662.9 > 618.9		1.76e4	0.117		6.15						
34	27	PFDoA	612.9 > 569.0		1.76e4	0.117		5.90						
35	30	PFTeDA	713.0 > 669.0		1.34e4	0.117		6.37						
36	73	TCDA	498.3>106.9			0.117		5.15						

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Rev: ANP 11/27/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-20.qld

Last Altered: Monday, November 26, 2018 14:58:41 Pacific Standard Time
Printed: Monday, November 26, 2018 14:58:56 Pacific Standard Time

Name: 181121M1_20, Date: 21-Nov-2018, Time: 17:33:26, ID: 1803626-04 16-MW-09-SA2 0.11735, Description: 16-MW-09-SA2

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
37	61	13C5-PFHxA	318 > 272.9	2.41e4	2.41e4	0.117	1.000	3.30	3.35	12.5	106.5190	100.0		
38	52	d5-N-EtFOSAA	589.3 > 419	5.52e3	2.94e4	0.117	0.198	5.59	5.63	2.35	100.9334	94.8		
39	52	d5-N-EtFOSAA	589.3 > 419	5.52e3	2.94e4	0.117	0.198	5.59	5.63	2.35	100.9334	94.8		
40	53	13C2-PFDoA	615.0 > 569.7	1.76e4	2.31e4	0.117	0.980	5.90	5.93	9.57	83.1692	78.1		
41	53	13C2-PFDoA	615.0 > 569.7	1.76e4	2.31e4	0.117	0.980	5.90	5.93	9.57	83.1692	78.1		
42	55	13C2-PFTeDA	715.1 > 669.7	1.34e4	2.94e4	0.117	0.607	6.37	6.40	5.70	80.0832	75.2		
43	47	13C8-PFOS	507.0 > 79.9	3.55e3	3.63e3	0.117	1.034	4.98	5.02	12.2	100.6833	94.5		
44	63	13C8-PFOA	420.9 > 376	2.69e4	2.69e4	0.117	1.000	4.46	4.50	12.5	106.5190	100.0		
45	-1													
46	62	13C3-PFHxS	401.8 > 79.9	3.35e3	3.35e3	0.117	1.000	4.11	4.16	12.5	106.5190	100.0		
47	64	13C9-PFNA	472.2 > 426.9	2.02e4	2.02e4	0.117	1.000	4.90	4.93	12.5	106.5190	100.0		
48	65	13C4-PFOS	503 > 79.9	3.63e3	3.63e3	0.117	1.000	4.98	5.02	12.5	106.5190	100.0		
49	66	13C6-PFDA	519.1 > 473.7	2.31e4	2.31e4	0.117	1.000	5.28	5.32	12.5	106.5190	100.0		
50	67	13C7-PFUdA	570.1 > 524.8	2.94e4	2.94e4	0.117	1.000	5.61	5.65	12.5	106.5190	100.0		

GM 11/26/2018

Vista Analytical Laboratory L14

Rev: ANP 11/27/2018

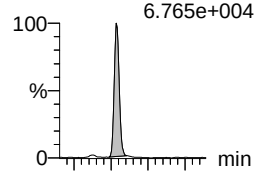
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-20.qld

Last Altered: Monday, November 26, 2018 14:58:41 Pacific Standard Time
Printed: Monday, November 26, 2018 14:58:56 Pacific Standard Time

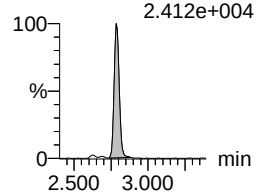
Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112118.mdb 26 Nov 2018 09:17:42
Calibration: Z:\Projects\PFAS.pro\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Name: 181121M1_20, Date: 21-Nov-2018, Time: 17:33:26, ID: 1803626-04 16-MW-09-SA2 0.11735, Description: 16-MW-09-SA2

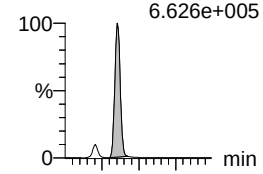
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
6.765e+004



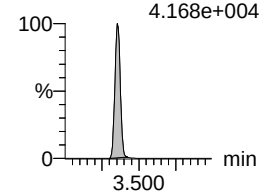
F7:MRM of 2 channels,ES-
299.0 > 99.0
2.412e+004



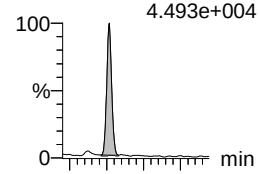
PFHxA
F9:MRM of 2 channels,ES-
313 > 269
6.626e+005



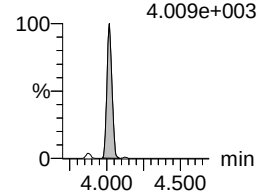
F9:MRM of 2 channels,ES-
313 > 118.9
4.168e+004



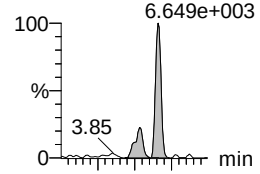
PFHpA
F16:MRM of 2 channels,ES-
363.0 > 318.9
4.493e+004



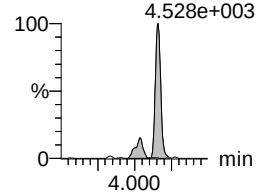
F16:MRM of 2 channels,ES-
363.0 > 169.0
4.009e+003



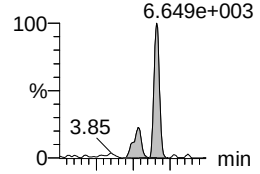
L-PFHxS
F18:MRM of 2 channels,ES-
398.9 > 79.6
6.649e+003



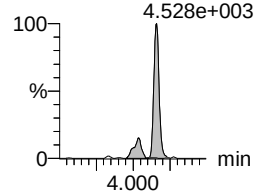
F18:MRM of 2 channels,ES-
398.9 > 99.0
4.528e+003



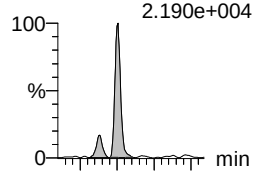
Total PFHxS
F18:MRM of 2 channels,ES-
398.9 > 79.6
6.649e+003



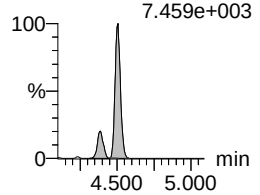
F18:MRM of 2 channels,ES-
398.9 > 99.0
4.528e+003



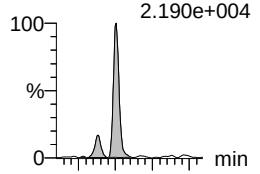
L-PFOA
F21:MRM of 2 channels,ES-
412.8 > 368.9
2.190e+004



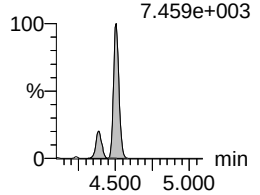
F21:MRM of 2 channels,ES-
412.8 > 169
7.459e+003



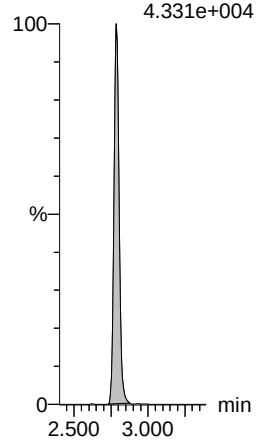
Total PFOA
F21:MRM of 2 channels,ES-
412.8 > 368.9
2.190e+004



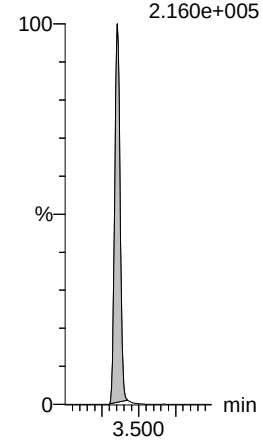
F21:MRM of 2 channels,ES-
412.8 > 169
7.459e+003



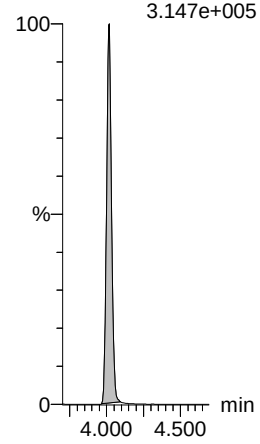
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
4.331e+004



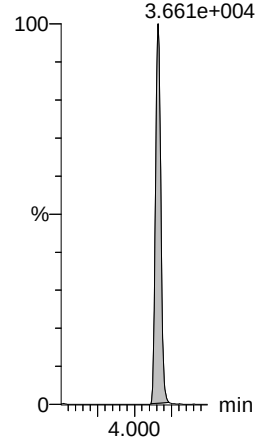
13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 270
2.160e+005



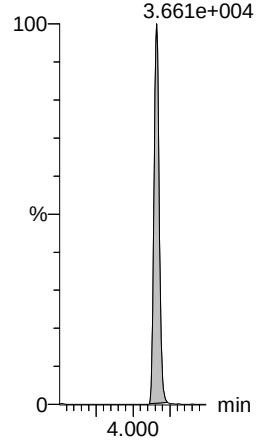
13C4-PFHpA
F17:MRM of 1 channel,ES-
367.2 > 321.8
3.147e+005



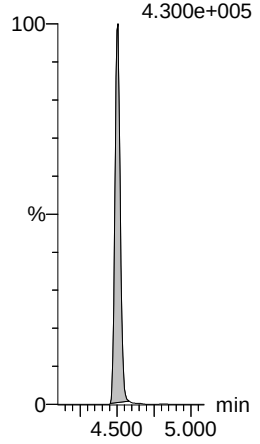
18O2-PFHxS
F20:MRM of 1 channel,ES-
403.0 > 102.6
3.661e+004



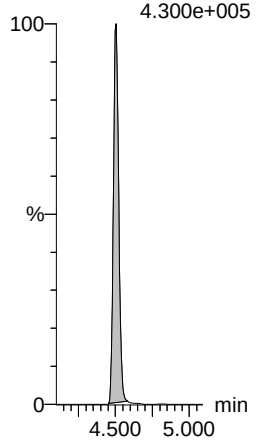
18O2-PFHxS
F20:MRM of 1 channel,ES-
403.0 > 102.6
3.661e+004



13C2-PFOA
F22:MRM of 1 channel,ES-
414.9 > 369.7
4.300e+005



13C2-PFOA
F22:MRM of 1 channel,ES-
414.9 > 369.7
4.300e+005

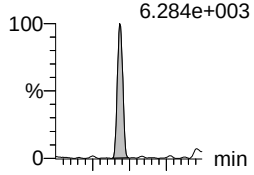


Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-20.qld

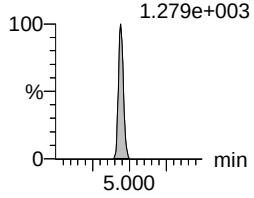
Last Altered: Monday, November 26, 2018 14:58:41 Pacific Standard Time
Printed: Monday, November 26, 2018 14:58:56 Pacific Standard Time

Name: 181121M1_20, Date: 21-Nov-2018, Time: 17:33:26, ID: 1803626-04 16-MW-09-SA2 0.11735, Description: 16-MW-09-SA2

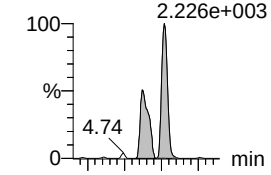
PFNA
F27:MRM of 2 channels,ES-
463.0 > 418.8
6.284e+003



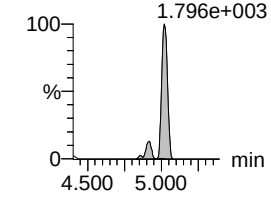
F27:MRM of 2 channels,ES-
463.0 > 219.0
1.279e+003



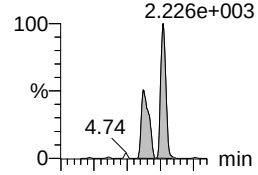
L-PFOS
F32:MRM of 2 channels,ES-
498.9 > 79.9
2.226e+003



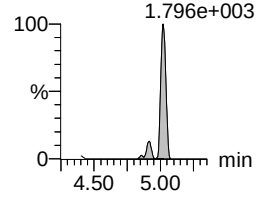
F32:MRM of 2 channels,ES-
498.9 > 99
1.796e+003



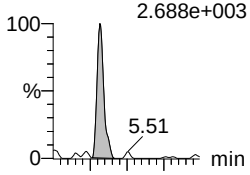
Total PFOS
F32:MRM of 2 channels,ES-
498.9 > 79.9
2.226e+003



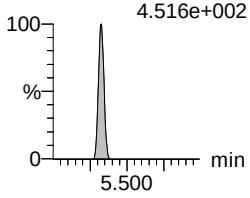
F32:MRM of 2 channels,ES-
498.9 > 99
1.796e+003



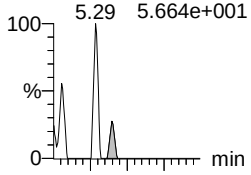
PFDA
F37:MRM of 2 channels,ES-
513 > 468.8
2.688e+003



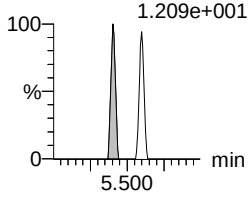
F37:MRM of 2 channels,ES-
513 > 219
4.516e+002



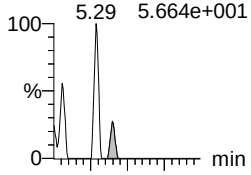
L-MeFOSAA
F48:MRM of 2 channels,ES-
570 > 419
5.664e+001



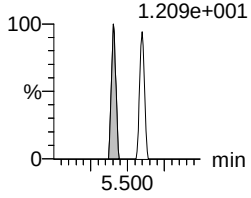
F48:MRM of 2 channels,ES-
570. > 512
1.209e+001



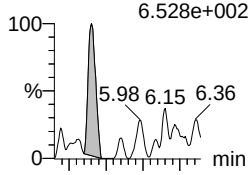
Total N-MeFOSAA
F48:MRM of 2 channels,ES-
570 > 419
5.664e+001



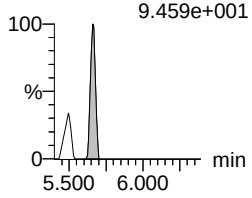
F48:MRM of 2 channels,ES-
570. > 512
1.209e+001



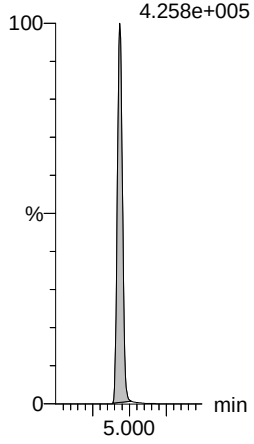
PFUdA
F46:MRM of 2 channels,ES-
563.0 > 518.9
6.528e+002



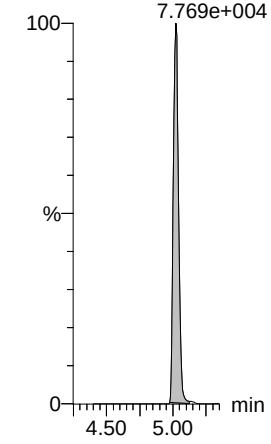
F46:MRM of 2 channels,ES-
563.0 > 269
9.459e+001



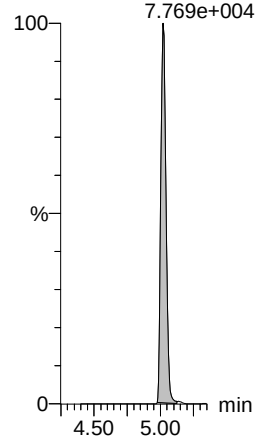
13C5-PFNA
F28:MRM of 1 channel,ES-
468.2 > 422.9
4.258e+005



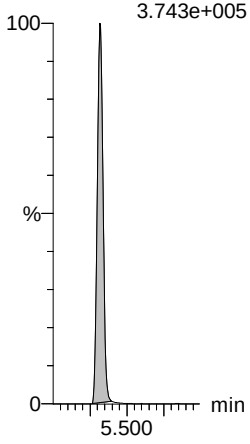
13C8-PFOS
F35:MRM of 1 channel,ES-
507.0 > 79.9
7.769e+004



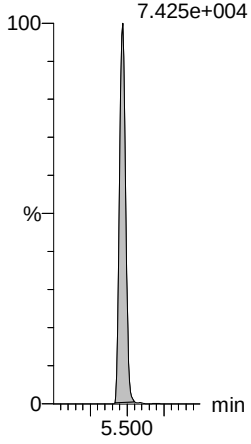
13C8-PFOS
F35:MRM of 1 channel,ES-
507.0 > 79.9
7.769e+004



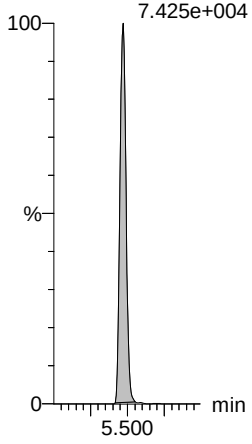
13C2-PFDA
F38:MRM of 1 channel,ES-
515.1 > 469.9
3.743e+005



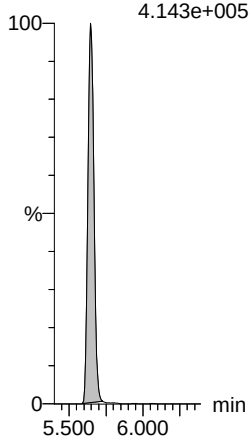
d3-N-MeFOSAA
F50:MRM of 1 channel,ES-
573.3 > 419
7.425e+004



d3-N-MeFOSAA
F50:MRM of 1 channel,ES-
573.3 > 419
7.425e+004



13C2-PFUdA
F47:MRM of 1 channel,ES-
565 > 519.8
4.143e+005



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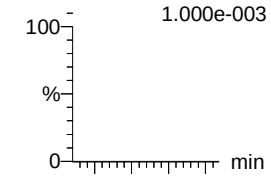
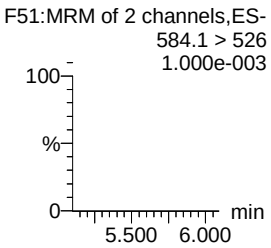
Last Altered: Monday, November 26, 2018 14:58:41 Pacific Standard Time
Printed: Monday, November 26, 2018 14:58:56 Pacific Standard Time

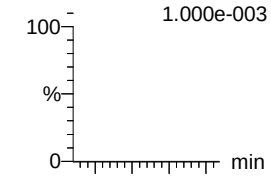
Name: 181121M1_20, Date: 21-Nov-2018, Time: 17:33:26, ID: 1803626-04 16-MW-09-SA2 0.11735, Description: 16-MW-09-SA2

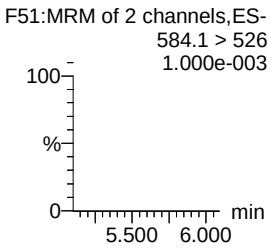
L-EtFOSAA



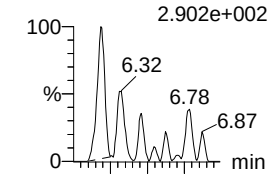


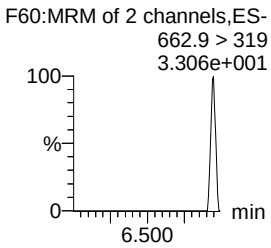
Total N-EtFOSAA



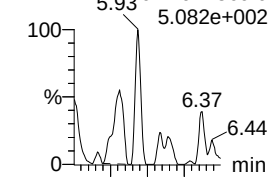


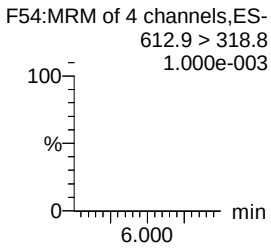
PFTrDA



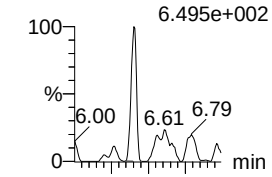


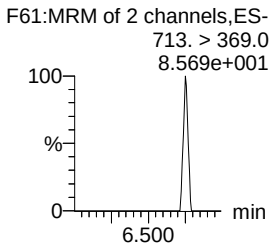
PFDoA



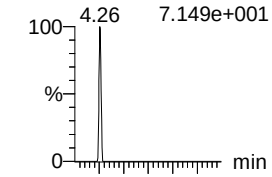


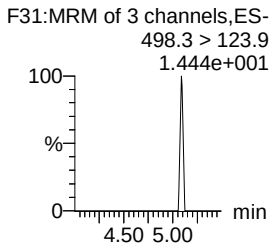
PFTeDA



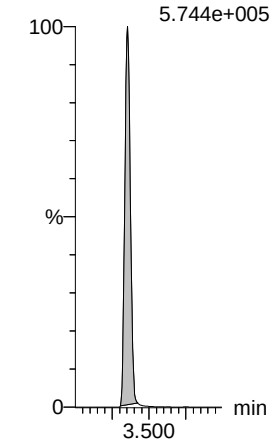


TCDA

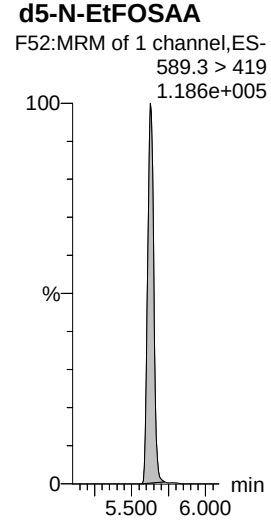




13C5-PFHxA



d5-N-EtFOSAA



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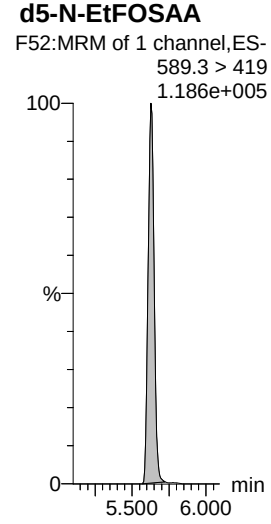
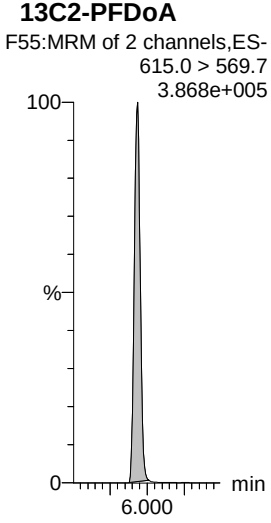
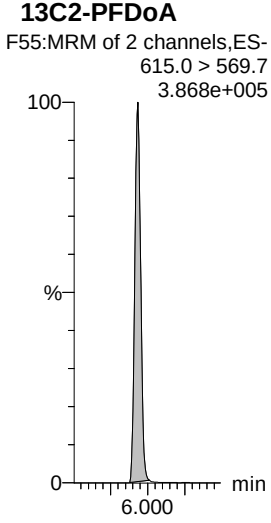


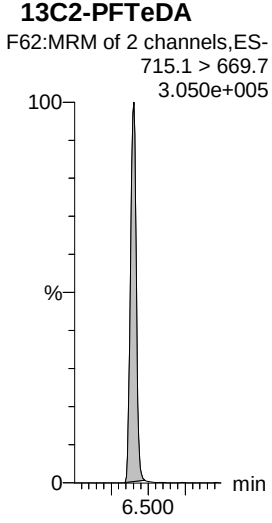
13C2-PFDoA



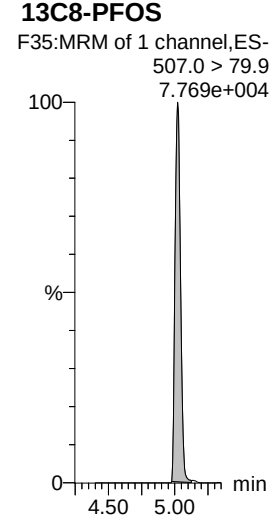
13C2-PFDoA



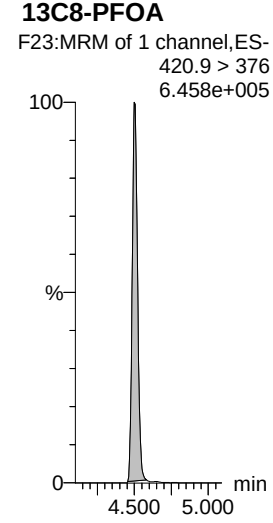
13C2-PFTeDA



13C8-PFOS



13C8-PFOA



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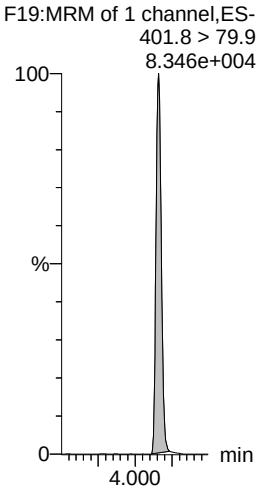
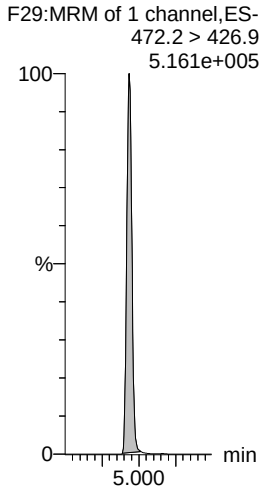
Last Altered: Monday, November 26, 2018 14:58:41 Pacific Standard Time
Printed: Monday, November 26, 2018 14:58:56 Pacific Standard Time

Name: 181121M1_20, Date: 21-Nov-2018, Time: 17:33:26, ID: 1803626-04 16-MW-09-SA2 0.11735, Description: 16-MW-09-SA2

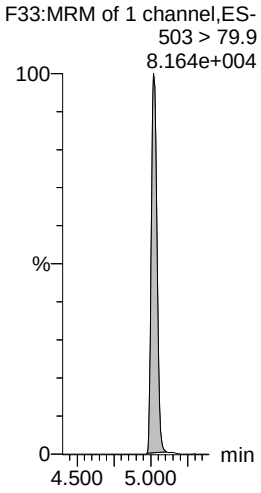
13C3-PFHxS



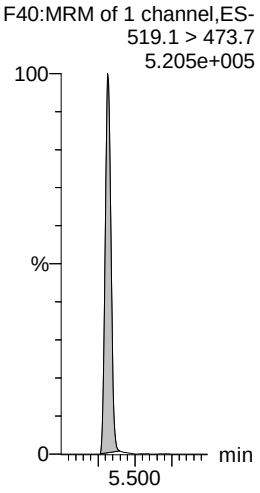
13C9-PFNA



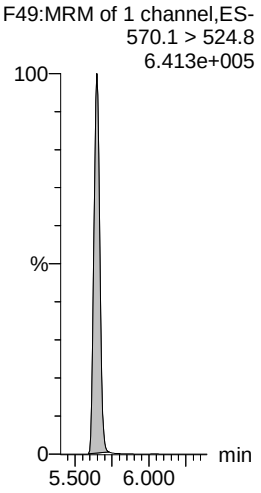
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Vista Analytical Laboratory L14

Rev: ANP 11/27/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-21.qld

Last Altered: Monday, November 26, 2018 15:01:52 Pacific Standard Time
Printed: Monday, November 26, 2018 15:02:06 Pacific Standard Time

Name: 181121M1_21, Date: 21-Nov-2018, Time: 17:44:04, ID: 1803626-05 A1-MW-18-SA2 0.11682, Description: A1-MW-18-SA2

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7	9.57e2	1.85e3	0.117		2.78	2.79	6.47	28.3712		3.026	NO
2	5	PFHxA	313 > 269	1.33e4	1.02e4	0.117		3.35	3.35	6.49	58.5758		15.217	NO
3	7	PFHpA	363.0 > 318.9	1.84e3	1.30e4	0.117		4.01	4.01	1.76	10.8305		13.165	NO
4	8	L-PFHxS	398.9 > 79.6	1.24e3	1.62e3	0.117		4.15	4.15	9.58	43.2946		1.722	NO
5	68	Total PFHxS	398.9 > 79.6	1.24e3	1.62e3	0.117		4.28		9.58	43.2946			
6	11	L-PFOA	412.8 > 368.9	1.04e3	2.16e4	0.117		4.47	4.50	0.603	3.0921		2.273	NO
7	69	Total PFOA	412.8 > 368.9	1.04e3	2.16e4	0.117		4.62		0.603	3.0921			
8	38	13C3-PFBS	302. > 98.8	1.85e3	3.51e3	0.117	0.539	2.72	2.78	6.59	104.7900	97.9		
9	40	13C2-PFHxA	315 > 270	1.02e4	2.92e4	0.117	0.964	3.30	3.35	4.38	38.8616	90.8		
10	41	13C4-PFHpA	367.2 > 321.8	1.30e4	2.92e4	0.117	0.482	3.97	4.01	5.56	98.8162	92.3		
11	42	18O2-PFHxS	403.0 > 102.6	1.62e3	3.51e3	0.117	0.480	4.11	4.15	5.78	103.1394	96.4		
12	42	18O2-PFHxS	403.0 > 102.6	1.62e3	3.51e3	0.117	0.480	4.11	4.15	5.78	103.1394	96.4		
13	44	13C2-PFOA	414.9 > 369.7	2.16e4	3.40e4	0.117	0.755	4.46	4.50	7.96	90.3110	84.4		
14	44	13C2-PFOA	414.9 > 369.7	2.16e4	3.40e4	0.117	0.755	4.46	4.50	7.96	90.3110	84.4		
15	-1													
16	14	PFNA	463.0 > 418.8	7.97e1	2.02e4	0.117		4.90	4.93	0.0493			4.457	NO
17	16	L-PFOS	498.9 > 79.9	1.95e1	3.48e3	0.117		5.02	5.02	0.0702	0.6571		0.795	YES
18	70	Total PFOS	498.9 > 79.9	1.95e1	3.48e3	0.117		5.13		0.0702	0.6571			
19	18	PFDA	513 > 468.8	6.26e1	1.82e4	0.117		5.28	5.31	0.0429			17.133	YES
20	21	L-MeFOSAA	570 > 419		4.01e3	0.117		5.43						
21	71	Total N-MeFOSAA	570. > 419	0.00e0	4.01e3	0.117		5.57		0.000				
22	25	PFUdA	563.0 > 518.9	5.06e1	2.25e4	0.117		5.61	5.64	0.0281			6.456	NO
23	45	13C5-PFNA	468.2 > 422.9	2.02e4	2.58e4	0.117	0.992	4.90	4.93	9.78	84.3903	78.9		
24	47	13C8-PFOS	507.0 > 79.9	3.48e3	3.95e3	0.117	1.034	4.98	5.02	11.0	91.0508	85.1		
25	47	13C8-PFOS	507.0 > 79.9	3.48e3	3.95e3	0.117	1.034	4.98	5.02	11.0	91.0508	85.1		
26	48	13C2-PFDA	515.1 > 469.9	1.82e4	2.94e4	0.117	0.832	5.28	5.31	7.75	79.7220	74.5		
27	50	d3-N-MeFOSAA	573.3 > 419	4.01e3	3.53e4	0.117	0.135	5.43	5.46	1.42	89.8383	84.0		
28	50	d3-N-MeFOSAA	573.3 > 419	4.01e3	3.53e4	0.117	0.135	5.43	5.46	1.42	89.8383	84.0		
29	51	13C2-PFUdA	565 > 519.8	2.25e4	3.53e4	0.117	0.928	5.61	5.64	7.97	73.5264	68.7		
30	-1													
31	23	L-EtFOSAA	584.1 > 419		6.12e3	0.117		5.51						
32	72	Total N-EtFOSAA	584.1 > 419	0.00e0	6.12e3	0.117		5.72		0.000				
33	29	PFTrDA	662.9 > 618.9		2.19e4	0.117		6.15						
34	27	PFDoA	612.9 > 569.0		2.19e4	0.117		5.90						
35	30	PFTeDA	713.0 > 669.0		1.49e4	0.117		6.37						
36	73	TCDA	498.3>106.9			0.117		5.15						

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Vista Analytical Laboratory L14

Rev: ANP 11/27/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-21.qld

Last Altered: Monday, November 26, 2018 15:01:52 Pacific Standard Time
Printed: Monday, November 26, 2018 15:02:06 Pacific Standard Time

Name: 181121M1_21, Date: 21-Nov-2018, Time: 17:44:04, ID: 1803626-05 A1-MW-18-SA2 0.11682, Description: A1-MW-18-SA2

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
37	61	13C5-PFHxA	318 > 272.9	2.92e4	2.92e4	0.117	1.000	3.30	3.35	12.5	107.0022	100.0		
38	52	d5-N-EtFOSAA	589.3 > 419	6.12e3	3.53e4	0.117	0.198	5.59	5.62	2.17	93.6696	87.5		
39	52	d5-N-EtFOSAA	589.3 > 419	6.12e3	3.53e4	0.117	0.198	5.59	5.62	2.17	93.6696	87.5		
40	53	13C2-PFDoA	615.0 > 569.7	2.19e4	2.94e4	0.117	0.980	5.90	5.93	9.30	81.1905	75.9		
41	53	13C2-PFDoA	615.0 > 569.7	2.19e4	2.94e4	0.117	0.980	5.90	5.93	9.30	81.1905	75.9		
42	55	13C2-PFTeDA	715.1 > 669.7	1.49e4	3.53e4	0.117	0.607	6.37	6.40	5.28	74.4318	69.6		
43	47	13C8-PFOS	507.0 > 79.9	3.48e3	3.95e3	0.117	1.034	4.98	5.02	11.0	91.0508	85.1		
44	63	13C8-PFOA	420.9 > 376	3.40e4	3.40e4	0.117	1.000	4.46	4.50	12.5	107.0022	100.0		
45	-1													
46	62	13C3-PFHxS	401.8 > 79.9	3.51e3	3.51e3	0.117	1.000	4.11	4.15	12.5	107.0022	100.0		
47	64	13C9-PFNA	472.2 > 426.9	2.58e4	2.58e4	0.117	1.000	4.90	4.93	12.5	107.0022	100.0		
48	65	13C4-PFOS	503 > 79.9	3.95e3	3.95e3	0.117	1.000	4.98	5.02	12.5	107.0022	100.0		
49	66	13C6-PFDA	519.1 > 473.7	2.94e4	2.94e4	0.117	1.000	5.28	5.31	12.5	107.0022	100.0		
50	67	13C7-PFUdA	570.1 > 524.8	3.53e4	3.53e4	0.117	1.000	5.61	5.64	12.5	107.0022	100.0		

Vista Analytical Laboratory L14

Rev: ANP 11/27/2018

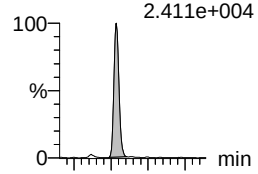
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-21.qld

Last Altered: Monday, November 26, 2018 15:01:52 Pacific Standard Time
Printed: Monday, November 26, 2018 15:02:06 Pacific Standard Time

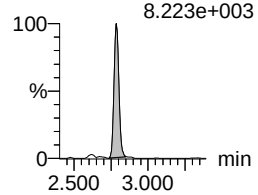
Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112118.mdb 26 Nov 2018 09:17:42
Calibration: Z:\Projects\PFAS.pro\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Name: 181121M1_21, Date: 21-Nov-2018, Time: 17:44:04, ID: 1803626-05 A1-MW-18-SA2 0.11682, Description: A1-MW-18-SA2

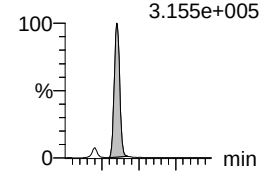
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
2.411e+004



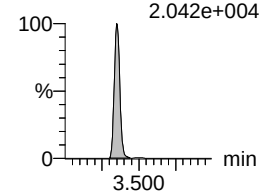
F7:MRM of 2 channels,ES-
299.0 > 99.0
8.223e+003



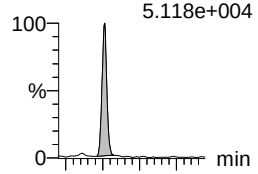
PFHxA
F9:MRM of 2 channels,ES-
313 > 269
3.155e+005



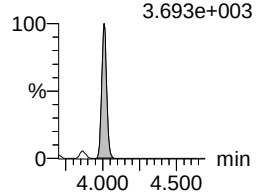
F9:MRM of 2 channels,ES-
313 > 118.9
2.042e+004



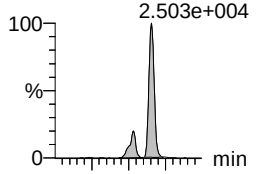
PFHpA
F16:MRM of 2 channels,ES-
363.0 > 318.9
5.118e+004



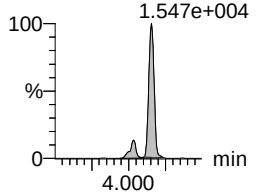
F16:MRM of 2 channels,ES-
363.0 > 169.0
3.693e+003



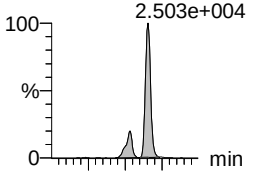
L-PFHxS
F18:MRM of 2 channels,ES-
398.9 > 79.6
2.503e+004



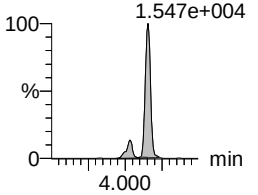
F18:MRM of 2 channels,ES-
398.9 > 99.0
1.547e+004



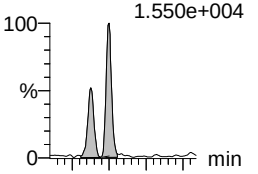
Total PFHxS
F18:MRM of 2 channels,ES-
398.9 > 79.6
2.503e+004



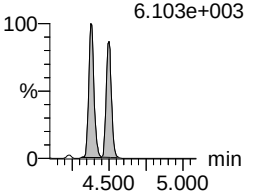
F18:MRM of 2 channels,ES-
398.9 > 99.0
1.547e+004



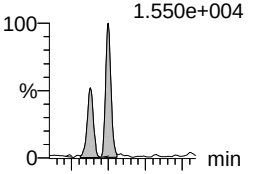
L-PFOA
F21:MRM of 2 channels,ES-
412.8 > 368.9
1.550e+004



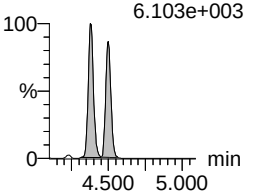
F21:MRM of 2 channels,ES-
412.8 > 169
6.103e+003



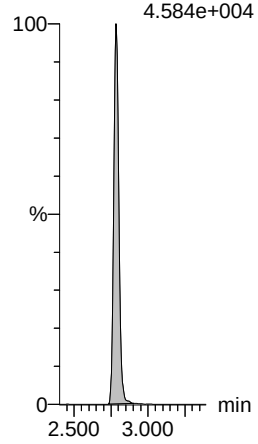
Total PFOA
F21:MRM of 2 channels,ES-
412.8 > 368.9
1.550e+004



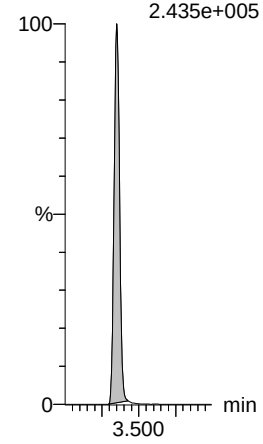
F21:MRM of 2 channels,ES-
412.8 > 169
6.103e+003



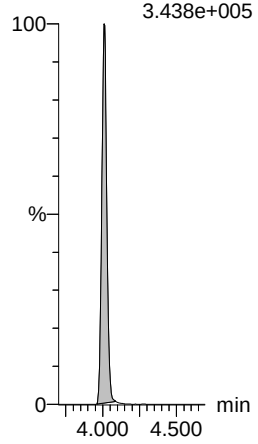
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
4.584e+004



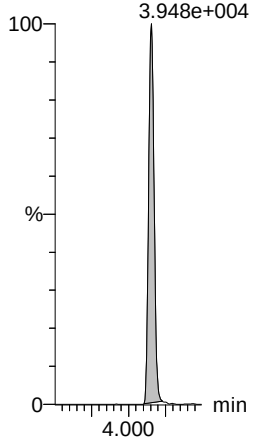
13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 270
2.435e+005



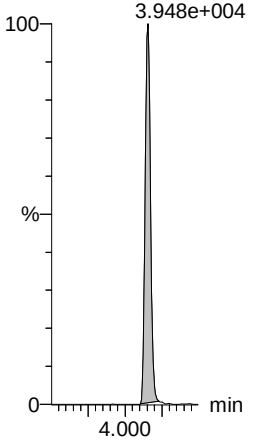
13C4-PFHpA
F17:MRM of 1 channel,ES-
367.2 > 321.8
3.438e+005



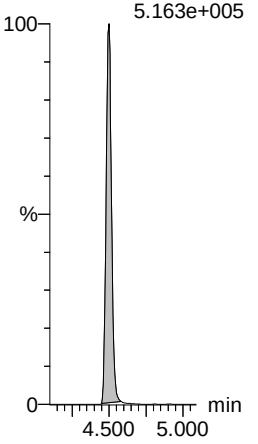
18O2-PFHxS
F20:MRM of 1 channel,ES-
403.0 > 102.6
3.948e+004



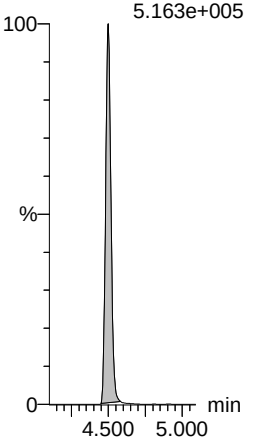
18O2-PFHxS
F20:MRM of 1 channel,ES-
403.0 > 102.6
3.948e+004



13C2-PFOA
F22:MRM of 1 channel,ES-
414.9 > 369.7
5.163e+005



13C2-PFOA
F22:MRM of 1 channel,ES-
414.9 > 369.7
5.163e+005



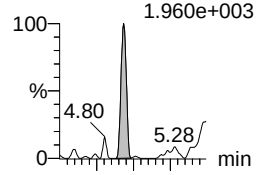
GM 11/26/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-21.qld

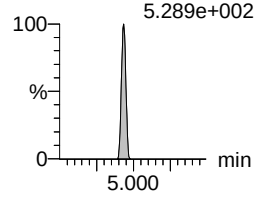
Last Altered: Monday, November 26, 2018 15:01:52 Pacific Standard Time
Printed: Monday, November 26, 2018 15:02:06 Pacific Standard Time

Name: 181121M1_21, Date: 21-Nov-2018, Time: 17:44:04, ID: 1803626-05 A1-MW-18-SA2 0.11682, Description: A1-MW-18-SA2

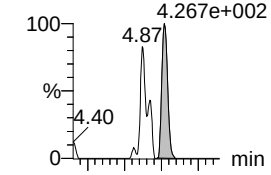
PFNA
F27:MRM of 2 channels,ES-
463.0 > 418.8
1.960e+003



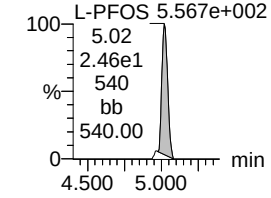
F27:MRM of 2 channels,ES-
463.0 > 219.0
5.289e+002



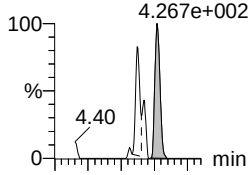
L-PFOS
F32:MRM of 2 channels,ES-
498.9 > 79.9
4.267e+002



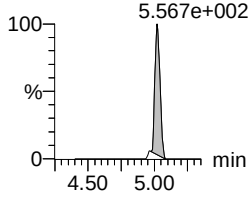
F32:MRM of 2 channels,ES-
498.9 > 99
5.567e+002



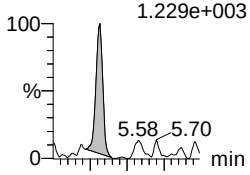
Total PFOS
F32:MRM of 2 channels,ES-
498.9 > 79.9
4.267e+002



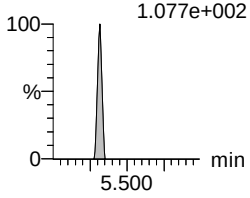
F32:MRM of 2 channels,ES-
498.9 > 99
5.567e+002



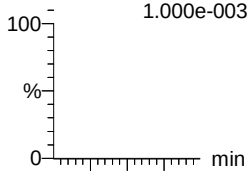
PFDA
F37:MRM of 2 channels,ES-
513 > 468.8
1.229e+003



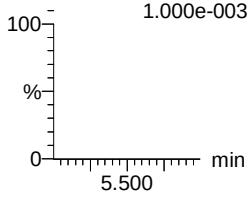
F37:MRM of 2 channels,ES-
513 > 219
1.077e+002



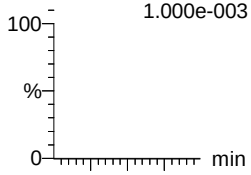
L-MeFOSAA
F48:MRM of 2 channels,ES-
570 > 419
1.000e-003



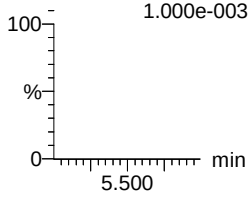
F48:MRM of 2 channels,ES-
570. > 512
1.000e-003



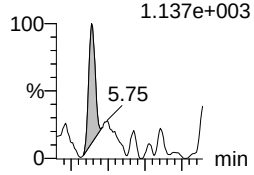
Total N-MeFOSAA
F48:MRM of 2 channels,ES-
570 > 419
1.000e-003



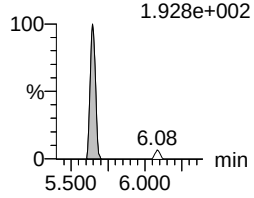
F48:MRM of 2 channels,ES-
570. > 512
1.000e-003



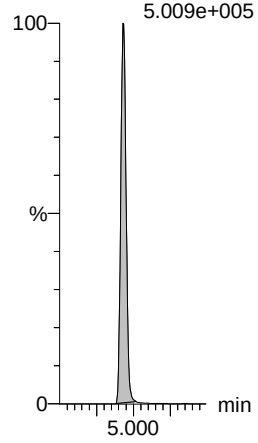
PFUdA
F46:MRM of 2 channels,ES-
563.0 > 518.9
1.137e+003



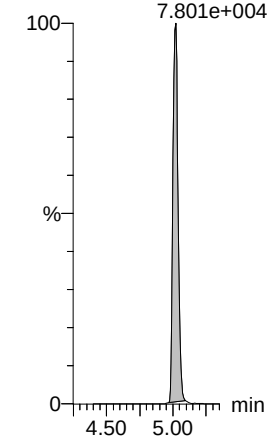
F46:MRM of 2 channels,ES-
563.0 > 269
1.928e+002



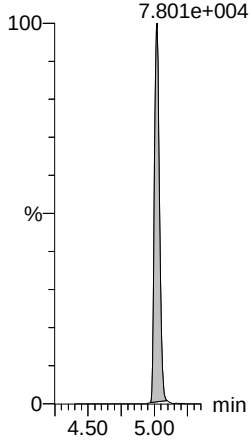
13C5-PFNA
F28:MRM of 1 channel,ES-
468.2 > 422.9
5.009e+005



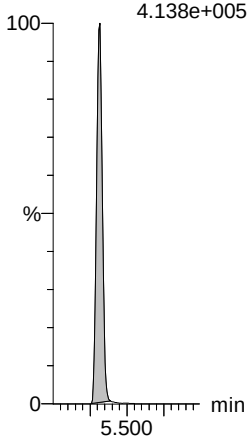
13C8-PFOS
F35:MRM of 1 channel,ES-
507.0 > 79.9
7.801e+004



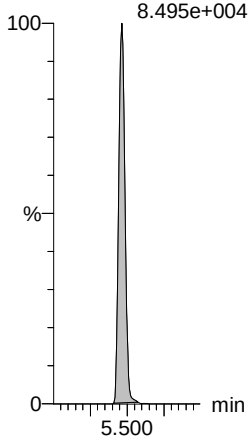
13C8-PFOS
F35:MRM of 1 channel,ES-
507.0 > 79.9
7.801e+004



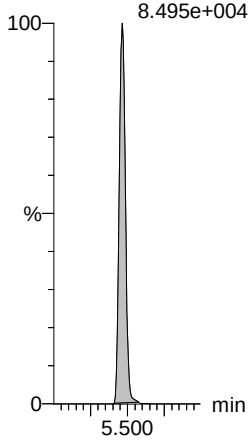
13C2-PFDA
F38:MRM of 1 channel,ES-
515.1 > 469.9
4.138e+005



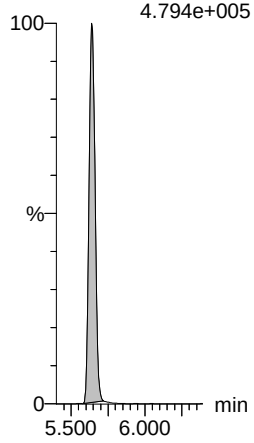
d3-N-MeFOSAA
F50:MRM of 1 channel,ES-
573.3 > 419
8.495e+004



d3-N-MeFOSAA
F50:MRM of 1 channel,ES-
573.3 > 419
8.495e+004



13C2-PFUdA
F47:MRM of 1 channel,ES-
565 > 519.8
4.794e+005

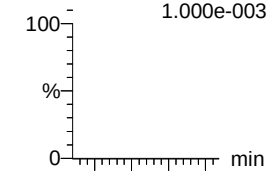


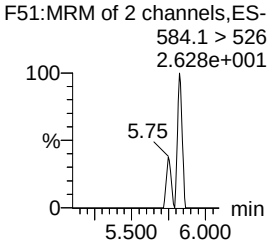
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-21.qld

Last Altered: Monday, November 26, 2018 15:01:52 Pacific Standard Time
Printed: Monday, November 26, 2018 15:02:06 Pacific Standard Time

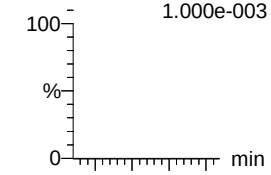
Name: 181121M1_21, Date: 21-Nov-2018, Time: 17:44:04, ID: 1803626-05 A1-MW-18-SA2 0.11682, Description: A1-MW-18-SA2

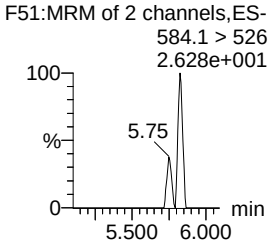
L-EtFOSAA



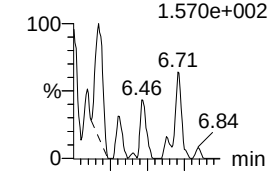


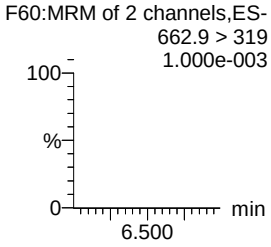
Total N-EtFOSAA



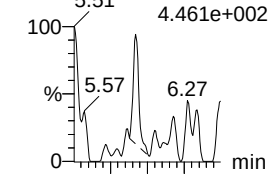


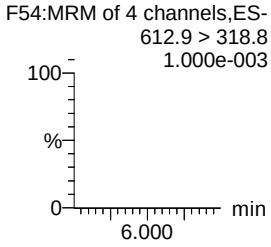
PFTrDA



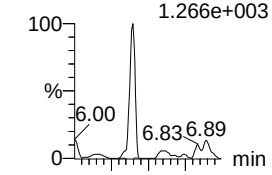


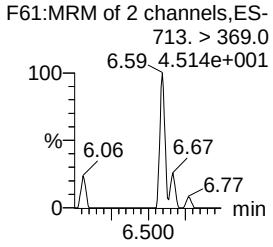
PFDoA



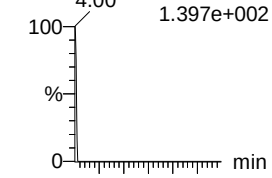


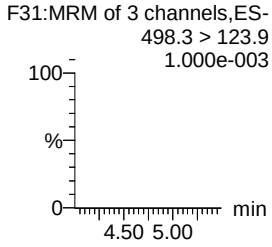
PFTeDA



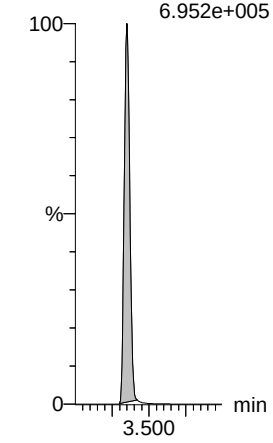


TCDA

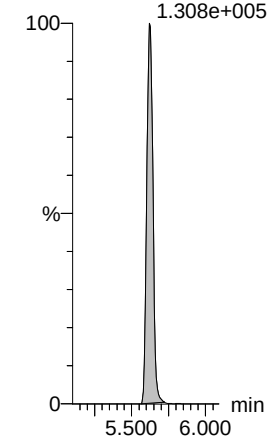




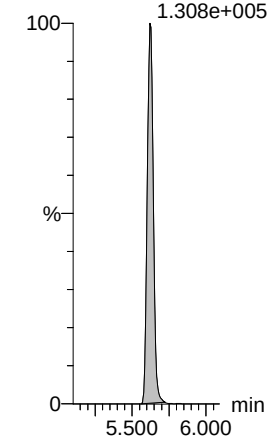
13C5-PFHxA



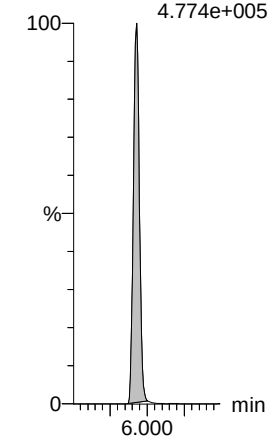
d5-N-EtFOSAA



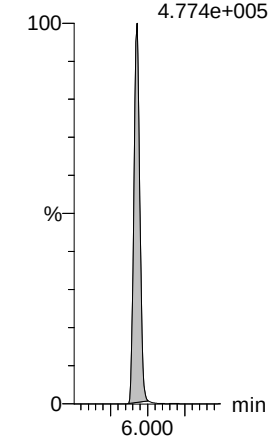
d5-N-EtFOSAA



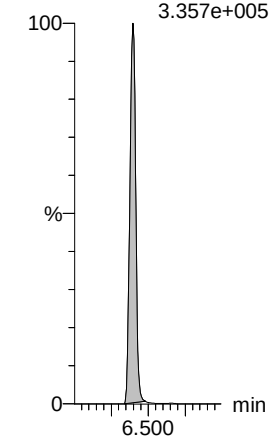
13C2-PFDoA



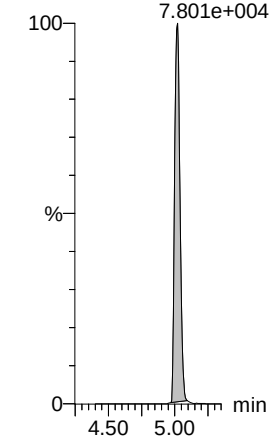
13C2-PFDoA



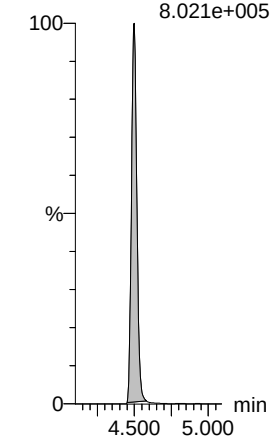
13C2-PFTeDA



13C8-PFOS



13C8-PFOA

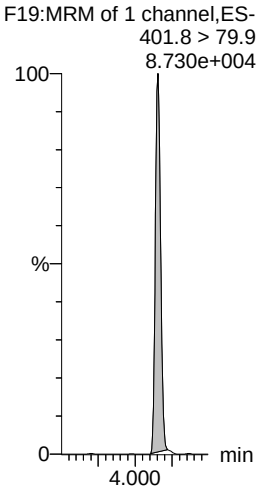


Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-21.qld

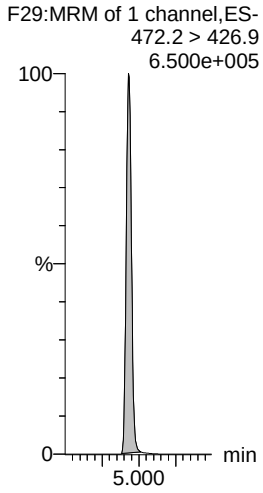
Last Altered: Monday, November 26, 2018 15:01:52 Pacific Standard Time
Printed: Monday, November 26, 2018 15:02:06 Pacific Standard Time

Name: 181121M1_21, Date: 21-Nov-2018, Time: 17:44:04, ID: 1803626-05 A1-MW-18-SA2 0.11682, Description: A1-MW-18-SA2

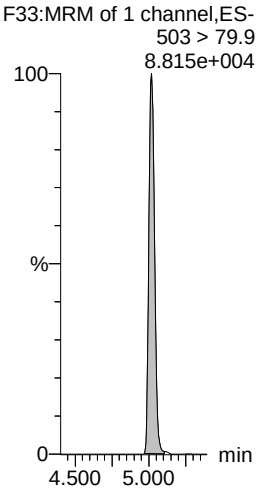
13C3-PFHxS



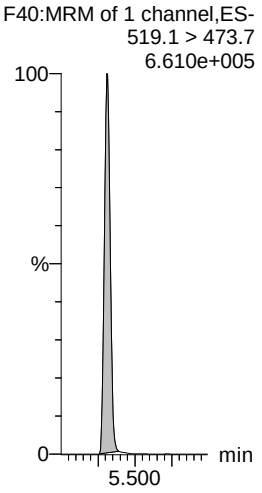
13C9-PFNA



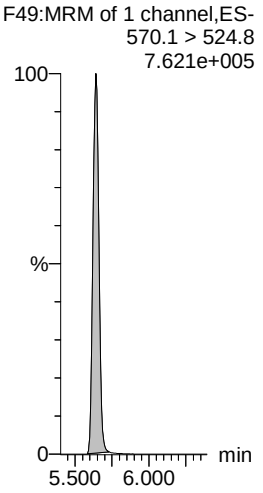
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-22.qld

Last Altered: Monday, November 26, 2018 15:04:44 Pacific Standard Time
Printed: Monday, November 26, 2018 15:05:11 Pacific Standard Time

Name: 181121M1_22, Date: 21-Nov-2018, Time: 17:54:42, ID: 1803626-06 A1-MW-19-SA2 0.11616, Description: A1-MW-19-SA2

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7	1.06e3	1.89e3	0.116		2.76	2.76	7.05	31.0996		2.649	NO
2	5	PFHxA	313 > 269	1.41e4	1.06e4	0.116		3.33	3.33	6.66	60.4524		14.481	NO
3	7	PFHpA	363.0 > 318.9	2.57e3	1.26e4	0.116		4.00	4.00	2.55	16.0643		12.311	NO
4	8	L-PFHxS	398.9 > 79.6	2.55e3	1.55e3	0.116		4.14	4.14	20.5	93.4074		1.900	NO
5	68	Total PFHxS	398.9 > 79.6	2.55e3	1.55e3	0.116		4.28		20.5	93.4074			
6	11	L-PFOA	412.8 > 368.9	9.77e3	2.23e4	0.116		4.47	4.49	5.48	35.8381		3.063	NO
7	69	Total PFOA	412.8 > 368.9	9.77e3	2.23e4	0.116		4.62		5.48	35.8381			
8	38	13C3-PFBS	302. > 98.8	1.89e3	3.38e3	0.116	0.539	2.72	2.76	6.99	111.6806	103.8		
9	40	13C2-PFHxA	315 > 270	1.06e4	2.71e4	0.116	0.964	3.30	3.33	4.89	43.6456	101.4		
10	41	13C4-PFHpA	367.2 > 321.8	1.26e4	2.71e4	0.116	0.482	3.97	4.00	5.81	103.8789	96.5		
11	42	18O2-PFHxS	403.0 > 102.6	1.55e3	3.38e3	0.116	0.480	4.11	4.14	5.73	102.8561	95.6		
12	42	18O2-PFHxS	403.0 > 102.6	1.55e3	3.38e3	0.116	0.480	4.11	4.14	5.73	102.8561	95.6		
13	44	13C2-PFOA	414.9 > 369.7	2.23e4	3.09e4	0.116	0.755	4.46	4.49	9.01	102.7739	95.5		
14	44	13C2-PFOA	414.9 > 369.7	2.23e4	3.09e4	0.116	0.755	4.46	4.49	9.01	102.7739	95.5		
15	-1													
16	14	PFNA	463.0 > 418.8	1.06e3	2.04e4	0.116		4.90	4.92	0.648	3.9822		4.810	NO
17	16	L-PFOS	498.9 > 79.9	2.06e3	3.57e3	0.116		5.02	5.01	7.20	58.0456		1.877	NO
18	70	Total PFOS	498.9 > 79.9	2.06e3	3.57e3	0.116		5.13		7.20	58.0456			
19	18	PFDA	513 > 468.8	1.67e3	1.75e4	0.116		5.28	5.30	1.19	7.2083		5.396	NO
20	21	L-MeFOSAA	570 > 419		3.93e3	0.116		5.43						
21	71	Total N-MeFOSAA	570. > 419	0.00e0	3.93e3	0.116		5.57		0.000				
22	25	PFUdA	563.0 > 518.9	2.82e2	2.19e4	0.116		5.61	5.64	0.161	0.3589		12.552	NO
23	45	13C5-PFNA	468.2 > 422.9	2.04e4	2.37e4	0.116	0.992	4.90	4.92	10.8	93.3088	86.7		
24	47	13C8-PFOS	507.0 > 79.9	3.57e3	3.53e3	0.116	1.034	4.98	5.01	12.6	105.2924	97.8		
25	47	13C8-PFOS	507.0 > 79.9	3.57e3	3.53e3	0.116	1.034	4.98	5.01	12.6	105.2924	97.8		
26	48	13C2-PFDA	515.1 > 469.9	1.75e4	2.72e4	0.116	0.832	5.28	5.30	8.05	83.2253	77.3		
27	50	d3-N-MeFOSAA	573.3 > 419	3.93e3	3.18e4	0.116	0.135	5.43	5.46	1.54	98.3202	91.4		
28	50	d3-N-MeFOSAA	573.3 > 419	3.93e3	3.18e4	0.116	0.135	5.43	5.46	1.54	98.3202	91.4		
29	51	13C2-PFUdA	565 > 519.8	2.19e4	3.18e4	0.116	0.928	5.61	5.63	8.61	79.8790	74.2		
30	-1													
31	23	L-EtFOSAA	584.1 > 419		6.03e3	0.116		5.51						
32	72	Total N-EtFOSAA	584.1 > 419	0.00e0	6.03e3	0.116		5.72		0.000				
33	29	PFTrDA	662.9 > 618.9	5.92e1	1.98e4	0.116		6.15	6.17	0.0373			12.248	NO
34	27	PFDoA	612.9 > 569.0	6.14e1	1.98e4	0.116		5.90	5.91	0.0388			28.327	YES
35	30	PFTeDA	713.0 > 669.0	6.93e1	1.43e4	0.116		6.37	6.39	0.0604			17.638	NO
36	73	TCDA	498.3>106.9			0.116		5.15						

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Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-22.qld

Last Altered: Monday, November 26, 2018 15:04:44 Pacific Standard Time
Printed: Monday, November 26, 2018 15:05:11 Pacific Standard Time

Name: 181121M1_22, Date: 21-Nov-2018, Time: 17:54:42, ID: 1803626-06 A1-MW-19-SA2 0.11616, Description: A1-MW-19-SA2

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
37	61	13C5-PFHxA	318 > 272.9	2.71e4	2.71e4	0.116	1.000	3.30	3.33	12.5	107.6102	100.0		
38	52	d5-N-EtFOSAA	589.3 > 419	6.03e3	3.18e4	0.116	0.198	5.59	5.61	2.37	102.9969	95.7		
39	52	d5-N-EtFOSAA	589.3 > 419	6.03e3	3.18e4	0.116	0.198	5.59	5.61	2.37	102.9969	95.7		
40	53	13C2-PFDoA	615.0 > 569.7	1.98e4	2.72e4	0.116	0.980	5.90	5.92	9.09	79.8454	74.2		
41	53	13C2-PFDoA	615.0 > 569.7	1.98e4	2.72e4	0.116	0.980	5.90	5.92	9.09	79.8454	74.2		
42	55	13C2-PFTeDA	715.1 > 669.7	1.43e4	3.18e4	0.116	0.607	6.37	6.39	5.63	79.9101	74.3		
43	47	13C8-PFOS	507.0 > 79.9	3.57e3	3.53e3	0.116	1.034	4.98	5.01	12.6	105.2924	97.8		
44	63	13C8-PFOA	420.9 > 376	3.09e4	3.09e4	0.116	1.000	4.46	4.49	12.5	107.6102	100.0		
45	-1													
46	62	13C3-PFHxS	401.8 > 79.9	3.38e3	3.38e3	0.116	1.000	4.11	4.14	12.5	107.6102	100.0		
47	64	13C9-PFNA	472.2 > 426.9	2.37e4	2.37e4	0.116	1.000	4.90	4.92	12.5	107.6102	100.0		
48	65	13C4-PFOS	503 > 79.9	3.53e3	3.53e3	0.116	1.000	4.98	5.01	12.5	107.6102	100.0		
49	66	13C6-PFDA	519.1 > 473.7	2.72e4	2.72e4	0.116	1.000	5.28	5.30	12.5	107.6102	100.0		
50	67	13C7-PFUdA	570.1 > 524.8	3.18e4	3.18e4	0.116	1.000	5.61	5.63	12.5	107.6102	100.0		

Vista Analytical Laboratory L14

Rev: ANP 11/27/2018

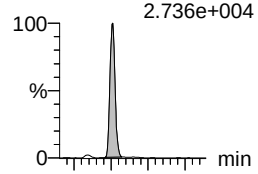
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-22.qld

Last Altered: Monday, November 26, 2018 15:04:44 Pacific Standard Time
Printed: Monday, November 26, 2018 15:05:11 Pacific Standard Time

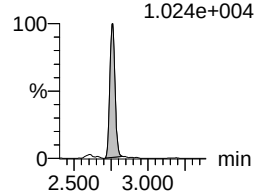
Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112118.mdb 26 Nov 2018 09:17:42
Calibration: Z:\Projects\PFAS.pro\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Name: 181121M1_22, Date: 21-Nov-2018, Time: 17:54:42, ID: 1803626-06 A1-MW-19-SA2 0.11616, Description: A1-MW-19-SA2

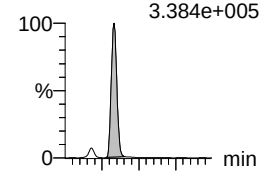
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
2.736e+004



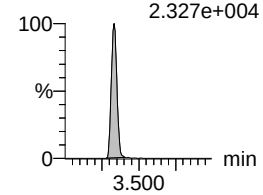
F7:MRM of 2 channels,ES-
299.0 > 99.0
1.024e+004



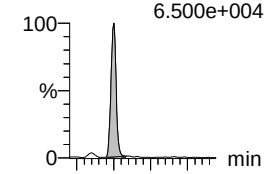
PFHxA
F9:MRM of 2 channels,ES-
313 > 269
3.384e+005



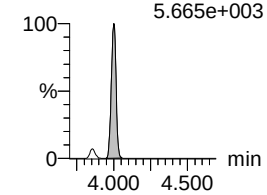
F9:MRM of 2 channels,ES-
313 > 118.9
2.327e+004



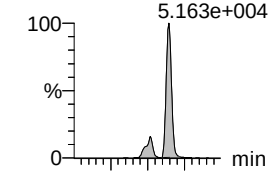
PFHpA
F16:MRM of 2 channels,ES-
363.0 > 318.9
6.500e+004



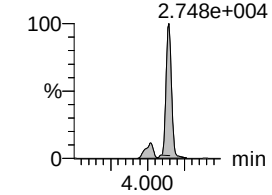
F16:MRM of 2 channels,ES-
363.0 > 169.0
5.665e+003



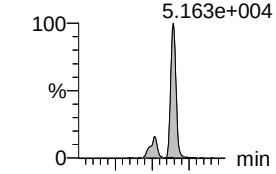
L-PFHxS
F18:MRM of 2 channels,ES-
398.9 > 79.6
5.163e+004



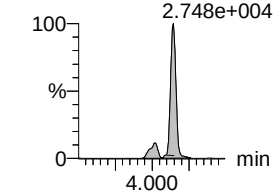
F18:MRM of 2 channels,ES-
398.9 > 99.0
2.748e+004



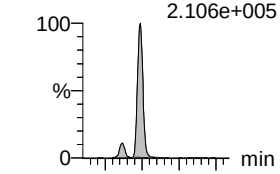
Total PFHxS
F18:MRM of 2 channels,ES-
398.9 > 79.6
5.163e+004



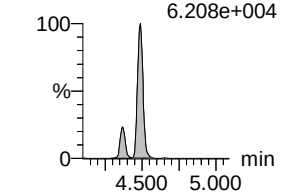
F18:MRM of 2 channels,ES-
398.9 > 99.0
2.748e+004



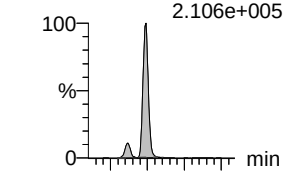
L-PFOA
F21:MRM of 2 channels,ES-
412.8 > 368.9
2.106e+005



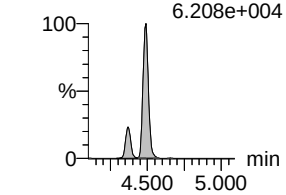
F21:MRM of 2 channels,ES-
412.8 > 169
6.208e+004



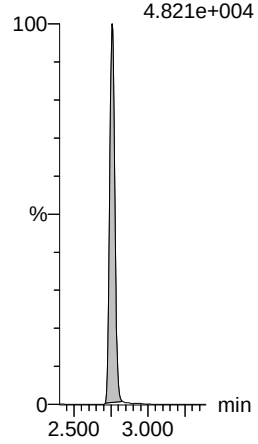
Total PFOA
F21:MRM of 2 channels,ES-
412.8 > 368.9
2.106e+005



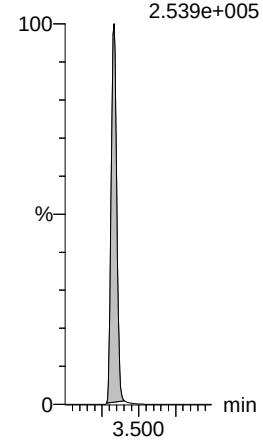
F21:MRM of 2 channels,ES-
412.8 > 169
6.208e+004



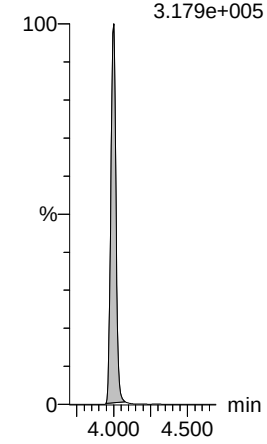
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
4.821e+004



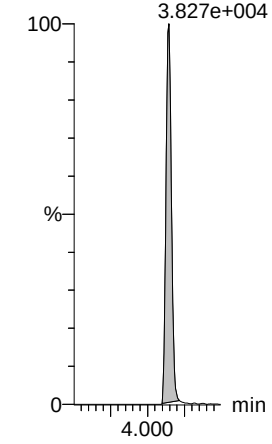
13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 270
2.539e+005



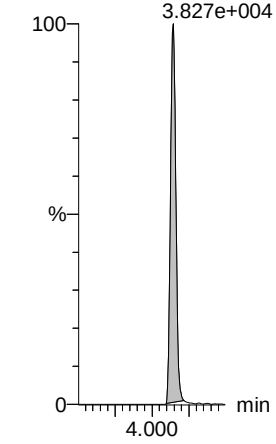
13C4-PFHpA
F17:MRM of 1 channel,ES-
367.2 > 321.8
3.179e+005



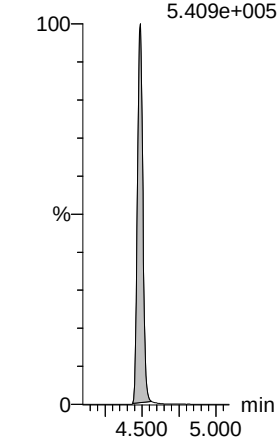
18O2-PFHxS
F20:MRM of 1 channel,ES-
403.0 > 102.6
3.827e+004



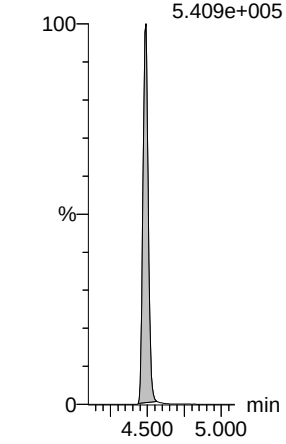
18O2-PFHxS
F20:MRM of 1 channel,ES-
403.0 > 102.6
3.827e+004



13C2-PFOA
F22:MRM of 1 channel,ES-
414.9 > 369.7
5.409e+005



13C2-PFOA
F22:MRM of 1 channel,ES-
414.9 > 369.7
5.409e+005

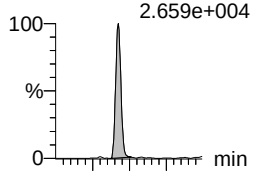


Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-22.qld

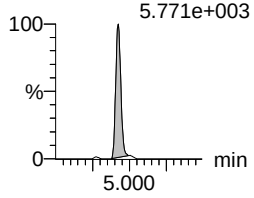
Last Altered: Monday, November 26, 2018 15:04:44 Pacific Standard Time
Printed: Monday, November 26, 2018 15:05:11 Pacific Standard Time

Name: 181121M1_22, Date: 21-Nov-2018, Time: 17:54:42, ID: 1803626-06 A1-MW-19-SA2 0.11616, Description: A1-MW-19-SA2

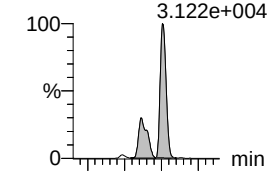
PFNA
F27:MRM of 2 channels,ES-
463.0 > 418.8
2.659e+004



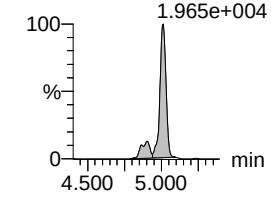
F27:MRM of 2 channels,ES-
463.0 > 219.0
5.771e+003



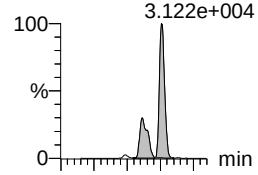
L-PFOS
F32:MRM of 2 channels,ES-
498.9 > 79.9
3.122e+004



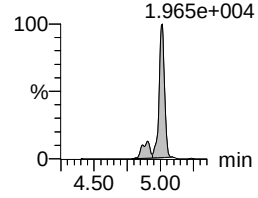
F32:MRM of 2 channels,ES-
498.9 > 99
1.965e+004



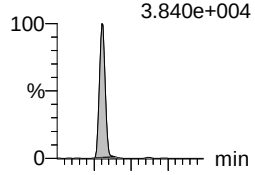
Total PFOS
F32:MRM of 2 channels,ES-
498.9 > 79.9
3.122e+004



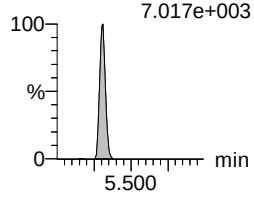
F32:MRM of 2 channels,ES-
498.9 > 99
1.965e+004



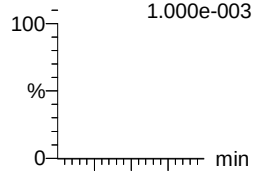
PFDA
F37:MRM of 2 channels,ES-
513 > 468.8
3.840e+004



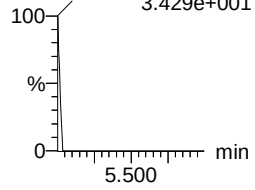
F37:MRM of 2 channels,ES-
513 > 219
7.017e+003



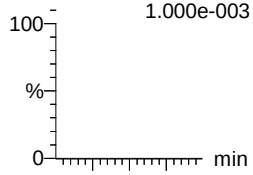
L-MeFOSAA
F48:MRM of 2 channels,ES-
570 > 419
1.000e-003



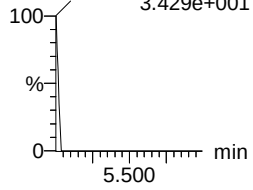
F48:MRM of 2 channels,ES-
570. > 512
3.429e+001



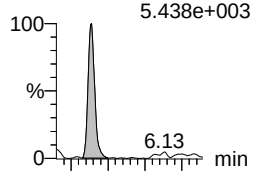
Total N-MeFOSAA
F48:MRM of 2 channels,ES-
570 > 419
1.000e-003



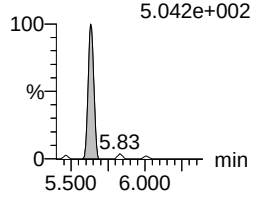
F48:MRM of 2 channels,ES-
570. > 512
3.429e+001



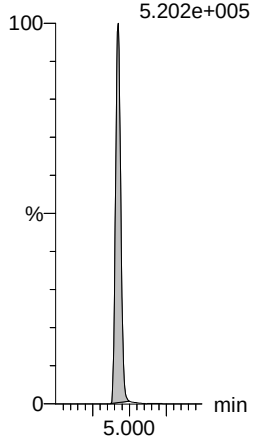
PFUdA
F46:MRM of 2 channels,ES-
563.0 > 518.9
5.438e+003



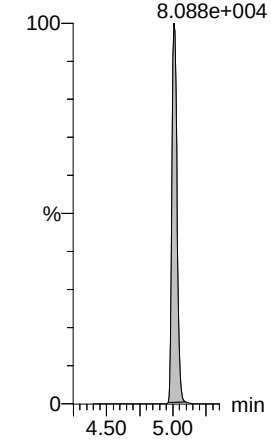
F46:MRM of 2 channels,ES-
563.0 > 269
5.042e+002



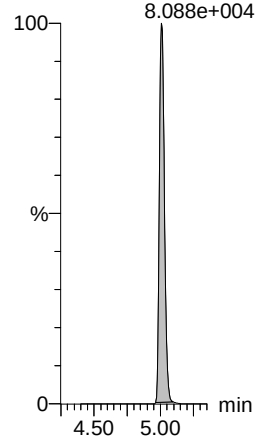
13C5-PFNA
F28:MRM of 1 channel,ES-
468.2 > 422.9
5.202e+005



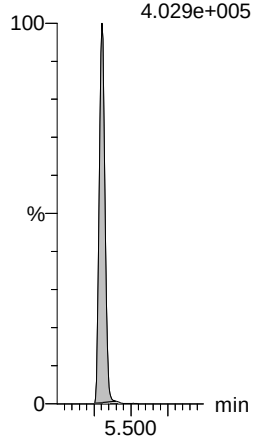
13C8-PFOS
F35:MRM of 1 channel,ES-
507.0 > 79.9
8.088e+004



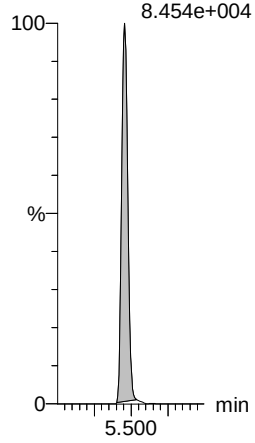
13C8-PFOS
F35:MRM of 1 channel,ES-
507.0 > 79.9
8.088e+004



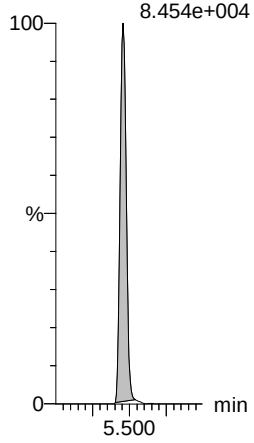
13C2-PFDA
F38:MRM of 1 channel,ES-
515.1 > 469.9
4.029e+005



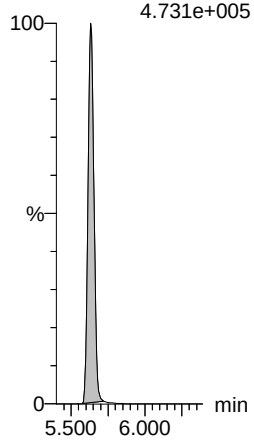
d3-N-MeFOSAA
F50:MRM of 1 channel,ES-
573.3 > 419
8.454e+004



d3-N-MeFOSAA
F50:MRM of 1 channel,ES-
573.3 > 419
8.454e+004



13C2-PFUdA
F47:MRM of 1 channel,ES-
565 > 519.8
4.731e+005

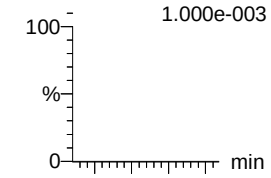


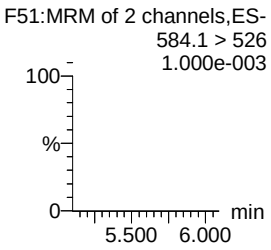
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-22.qld

Last Altered: Monday, November 26, 2018 15:04:44 Pacific Standard Time
Printed: Monday, November 26, 2018 15:05:11 Pacific Standard Time

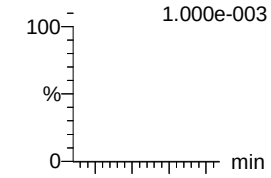
Name: 181121M1_22, Date: 21-Nov-2018, Time: 17:54:42, ID: 1803626-06 A1-MW-19-SA2 0.11616, Description: A1-MW-19-SA2

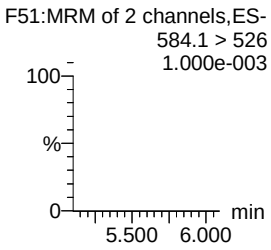
L-EtFOSAA



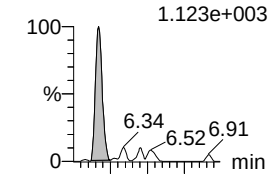


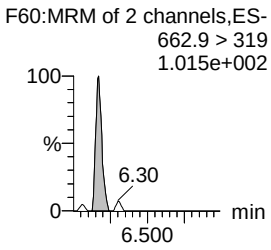
Total N-EtFOSAA



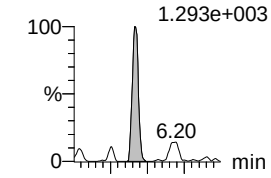


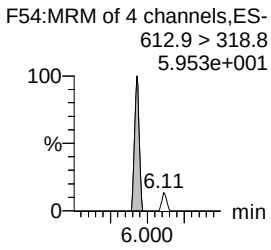
PFTrDA



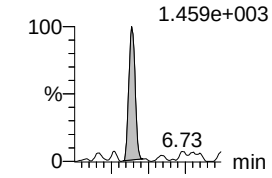


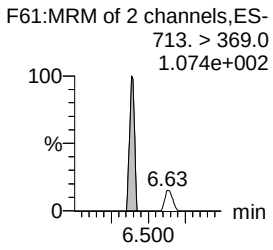
PFDoA



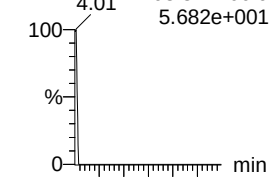


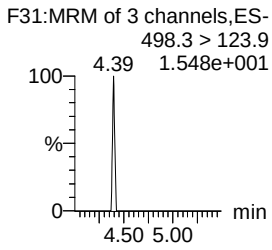
PFTeDA





TCDA





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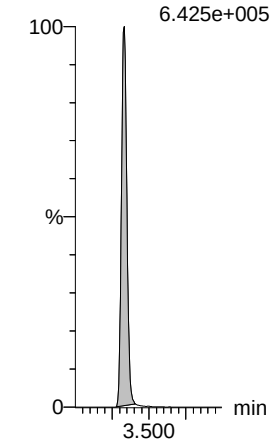
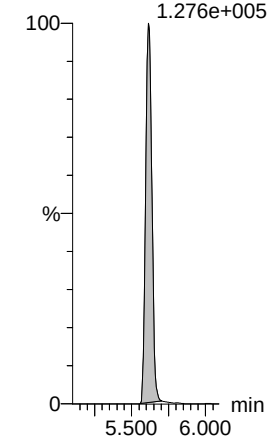


d5-N-EtFOSAA



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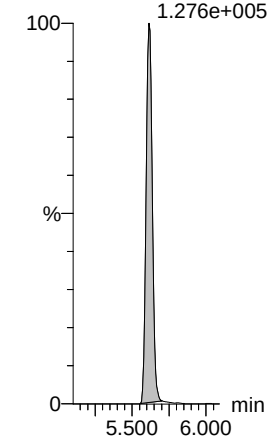
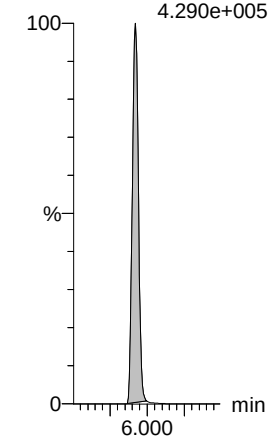


13C2-PFDoA



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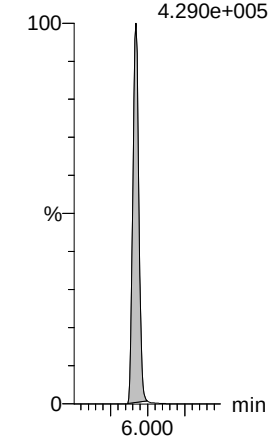

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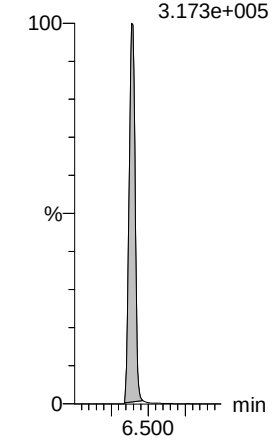

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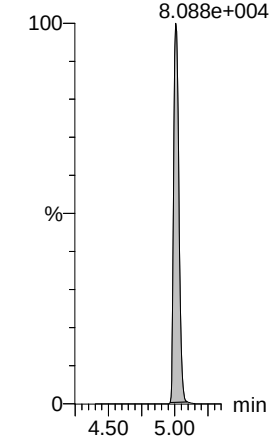

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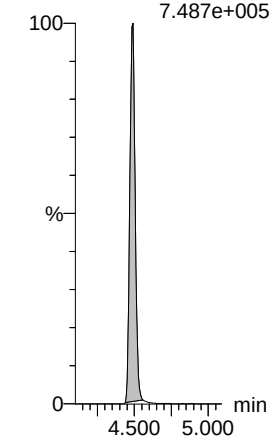
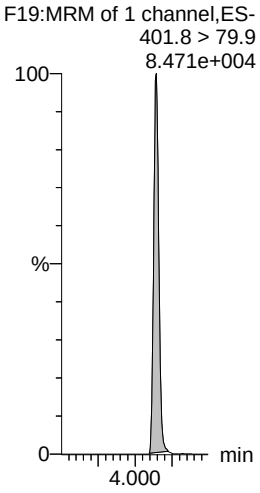


Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-22.qld

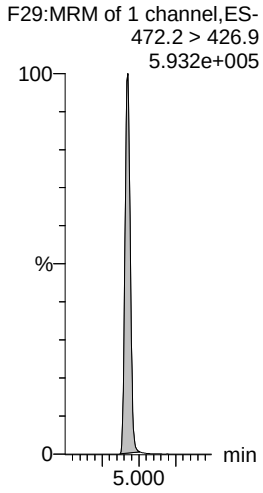
Last Altered: Monday, November 26, 2018 15:04:44 Pacific Standard Time
Printed: Monday, November 26, 2018 15:05:11 Pacific Standard Time

Name: 181121M1_22, Date: 21-Nov-2018, Time: 17:54:42, ID: 1803626-06 A1-MW-19-SA2 0.11616, Description: A1-MW-19-SA2

13C3-PFHxS



13C9-PFNA



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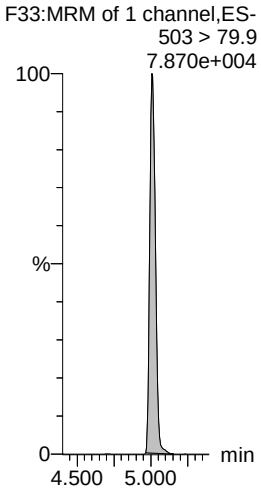

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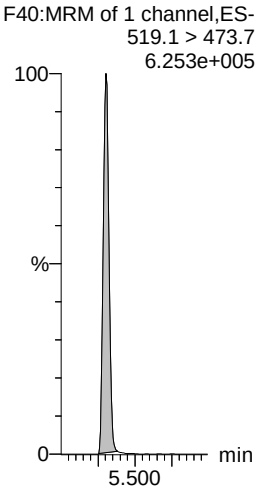

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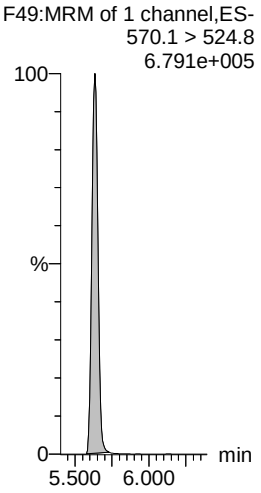

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Rev: ANP 11/27/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-23.qld

Last Altered: Monday, November 26, 2018 15:06:47 Pacific Standard Time
Printed: Monday, November 26, 2018 15:07:01 Pacific Standard Time

Name: 181121M1_23, Date: 21-Nov-2018, Time: 18:05:16, ID: 1803626-07 FRB-20181113 0.1174, Description: FRB-20181113

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7		1.71e3	0.117		2.76						
2	5	PFHxA	313 > 269	1.33e2	9.76e3	0.117		3.33	3.33	0.0680	0.2379		24.796	YES
3	7	PFHpA	363.0 > 318.9		1.16e4	0.117		4.00						
4	8	L-PFHxS	398.9 > 79.6	5.40e0	1.52e3	0.117		4.14	4.14	0.0444	0.1397		2.210	NO
5	68	Total PFHxS	398.9 > 79.6	5.40e0	1.52e3	0.117		4.28		0.0444	0.1397			
6	11	L-PFOA	412.8 > 368.9	7.05e1	1.92e4	0.117		4.47	4.49	0.0459			5.530	YES
7	69	Total PFOA	412.8 > 368.9	7.05e1	1.92e4	0.117		4.62		0.000				
8	38	13C3-PFBS	302. > 98.8	1.71e3	3.23e3	0.117	0.539	2.72	2.76	6.62	104.6218	98.3		
9	40	13C2-PFHxA	315 > 270	9.76e3	2.69e4	0.117	0.964	3.30	3.33	4.53	40.0374	94.0		
10	41	13C4-PFHpA	367.2 > 321.8	1.16e4	2.69e4	0.117	0.482	3.97	4.00	5.37	94.9475	89.2		
11	42	18O2-PFHxS	403.0 > 102.6	1.52e3	3.23e3	0.117	0.480	4.11	4.14	5.89	104.5839	98.2		
12	42	18O2-PFHxS	403.0 > 102.6	1.52e3	3.23e3	0.117	0.480	4.11	4.14	5.89	104.5839	98.2		
13	44	13C2-PFOA	414.9 > 369.7	1.92e4	3.09e4	0.117	0.755	4.46	4.49	7.76	87.5597	82.2		
14	44	13C2-PFOA	414.9 > 369.7	1.92e4	3.09e4	0.117	0.755	4.46	4.49	7.76	87.5597	82.2		
15	-1													
16	14	PFNA	463.0 > 418.8	1.56e1	1.78e4	0.117		4.90	4.93	0.0110			26.666	YES
17	16	L-PFOS	498.9 > 79.9	7.75e0	3.48e3	0.117		5.02	4.88	0.0278	0.3162		3.694	YES
18	70	Total PFOS	498.9 > 79.9	7.75e0	3.48e3	0.117		5.13		0.0278	0.3162			
19	18	PFDA	513 > 468.8		1.59e4	0.117		5.28						
20	21	L-MeFOSAA	570 > 419		3.38e3	0.117		5.43						
21	71	Total N-MeFOSAA	570. > 419	0.00e0	3.38e3	0.117		5.57		0.000				
22	25	PFUdA	563.0 > 518.9		1.89e4	0.117		5.61						
23	45	13C5-PFNA	468.2 > 422.9	1.78e4	2.37e4	0.117	0.992	4.90	4.92	9.38	80.5630	75.7		
24	47	13C8-PFOS	507.0 > 79.9	3.48e3	3.23e3	0.117	1.034	4.98	5.01	13.5	110.8175	104.1		
25	47	13C8-PFOS	507.0 > 79.9	3.48e3	3.23e3	0.117	1.034	4.98	5.01	13.5	110.8175	104.1		
26	48	13C2-PFDA	515.1 > 469.9	1.59e4	2.66e4	0.117	0.832	5.28	5.30	7.48	76.5557	71.9		
27	50	d3-N-MeFOSAA	573.3 > 419	3.38e3	3.10e4	0.117	0.135	5.43	5.46	1.36	85.7349	80.5		
28	50	d3-N-MeFOSAA	573.3 > 419	3.38e3	3.10e4	0.117	0.135	5.43	5.46	1.36	85.7349	80.5		
29	51	13C2-PFUdA	565 > 519.8	1.89e4	3.10e4	0.117	0.928	5.61	5.64	7.62	69.9134	65.7		
30	-1													
31	23	L-EtFOSAA	584.1 > 419		4.73e3	0.117		5.51						
32	72	Total N-EtFOSAA	584.1 > 419	0.00e0	4.73e3	0.117		5.72		0.000				
33	29	PFTrDA	662.9 > 618.9		1.80e4	0.117		6.15						
34	27	PFDoA	612.9 > 569.0		1.80e4	0.117		5.90						
35	30	PFTeDA	713.0 > 669.0		1.24e4	0.117		6.37						
36	73	TCDA	498.3>106.9			0.117		5.15						

GM 11/26/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-23.qld

Last Altered: Monday, November 26, 2018 15:06:47 Pacific Standard Time
Printed: Monday, November 26, 2018 15:07:01 Pacific Standard Time

Name: 181121M1_23, Date: 21-Nov-2018, Time: 18:05:16, ID: 1803626-07 FRB-20181113 0.1174, Description: FRB-20181113

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
37	61	13C5-PFHxA	318 > 272.9	2.69e4	2.69e4	0.117	1.000	3.30	3.33	12.5	106.4736	100.0		
38	52	d5-N-EtFOSAA	589.3 > 419	4.73e3	3.10e4	0.117	0.198	5.59	5.62	1.91	81.9295	76.9		
39	52	d5-N-EtFOSAA	589.3 > 419	4.73e3	3.10e4	0.117	0.198	5.59	5.62	1.91	81.9295	76.9		
40	53	13C2-PFDoA	615.0 > 569.7	1.80e4	2.66e4	0.117	0.980	5.90	5.92	8.43	73.2196	68.8		
41	53	13C2-PFDoA	615.0 > 569.7	1.80e4	2.66e4	0.117	0.980	5.90	5.92	8.43	73.2196	68.8		
42	55	13C2-PFTeDA	715.1 > 669.7	1.24e4	3.10e4	0.117	0.607	6.37	6.40	5.01	70.2705	66.0		
43	47	13C8-PFOS	507.0 > 79.9	3.48e3	3.23e3	0.117	1.034	4.98	5.01	13.5	110.8175	104.1		
44	63	13C8-PFOA	420.9 > 376	3.09e4	3.09e4	0.117	1.000	4.46	4.49	12.5	106.4736	100.0		
45	-1													
46	62	13C3-PFHxS	401.8 > 79.9	3.23e3	3.23e3	0.117	1.000	4.11	4.14	12.5	106.4736	100.0		
47	64	13C9-PFNA	472.2 > 426.9	2.37e4	2.37e4	0.117	1.000	4.90	4.92	12.5	106.4736	100.0		
48	65	13C4-PFOS	503 > 79.9	3.23e3	3.23e3	0.117	1.000	4.98	5.01	12.5	106.4736	100.0		
49	66	13C6-PFDA	519.1 > 473.7	2.66e4	2.66e4	0.117	1.000	5.28	5.30	12.5	106.4736	100.0		
50	67	13C7-PFUdA	570.1 > 524.8	3.10e4	3.10e4	0.117	1.000	5.61	5.63	12.5	106.4736	100.0		

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Rev: ANP 11/27/2018

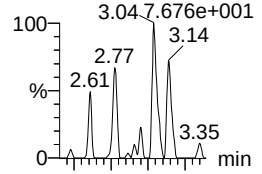
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-23.qld

Last Altered: Monday, November 26, 2018 15:06:47 Pacific Standard Time
Printed: Monday, November 26, 2018 15:07:01 Pacific Standard Time

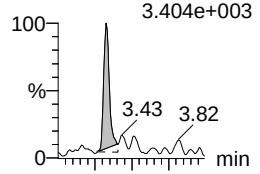
Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112118.mdb 26 Nov 2018 09:17:42
Calibration: Z:\Projects\PFAS.pro\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Name: 181121M1_23, Date: 21-Nov-2018, Time: 18:05:16, ID: 1803626-07 FRB-20181113 0.1174, Description: FRB-20181113

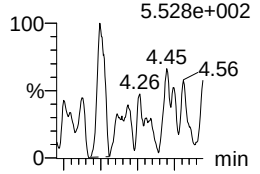
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
7.676e+001



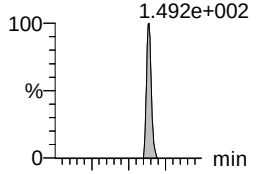
PFHxA
F9:MRM of 2 channels,ES-
313 > 269
3.404e+003



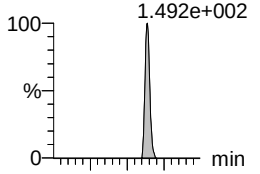
PFHpA
F16:MRM of 2 channels,ES-
363.0 > 318.9
5.528e+002



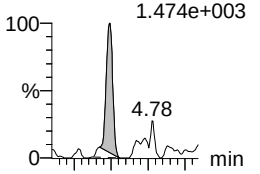
L-PFHxS
F18:MRM of 2 channels,ES-
398.9 > 79.6
1.492e+002



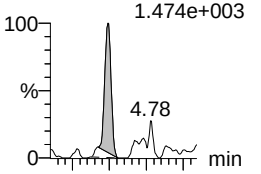
Total PFHxS
F18:MRM of 2 channels,ES-
398.9 > 79.6
1.492e+002



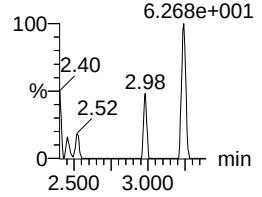
L-PFOA
F21:MRM of 2 channels,ES-
412.8 > 368.9
1.474e+003



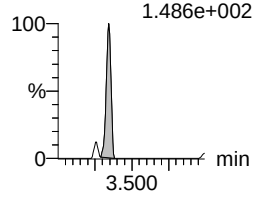
Total PFOA
F21:MRM of 2 channels,ES-
412.8 > 368.9
1.474e+003



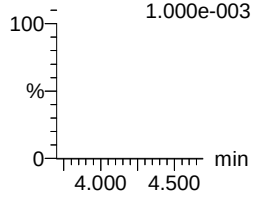
F7:MRM of 2 channels,ES-
299.0 > 99.0
6.268e+001



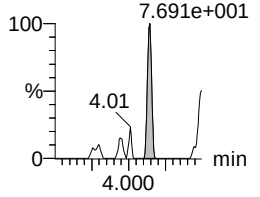
F9:MRM of 2 channels,ES-
313 > 118.9
1.486e+002



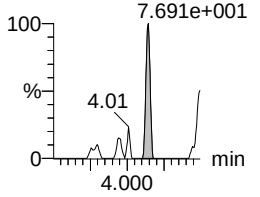
F16:MRM of 2 channels,ES-
363.0 > 169.0
1.000e-003



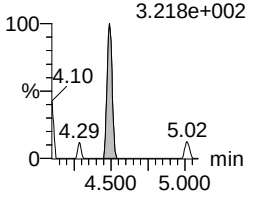
F18:MRM of 2 channels,ES-
398.9 > 99.0
7.691e+001



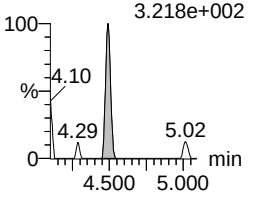
F18:MRM of 2 channels,ES-
398.9 > 99.0
7.691e+001



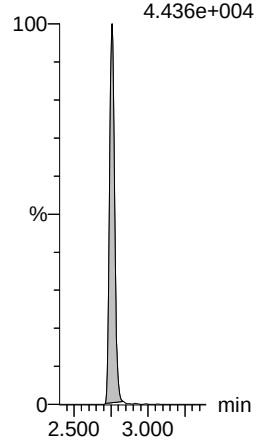
F21:MRM of 2 channels,ES-
412.8 > 169
3.218e+002



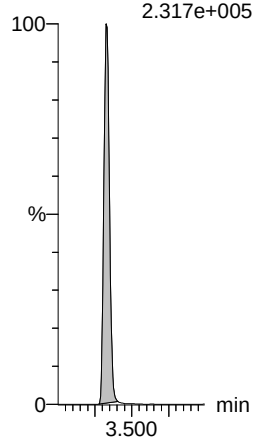
F21:MRM of 2 channels,ES-
412.8 > 169
3.218e+002



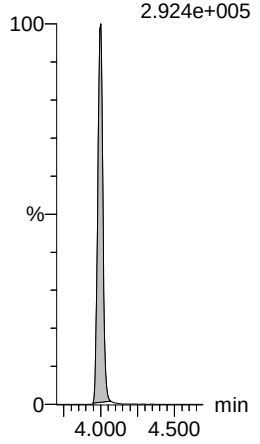
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
4.436e+004



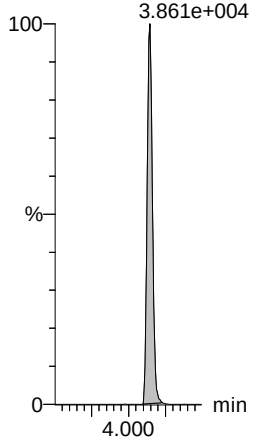
13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 270
2.317e+005



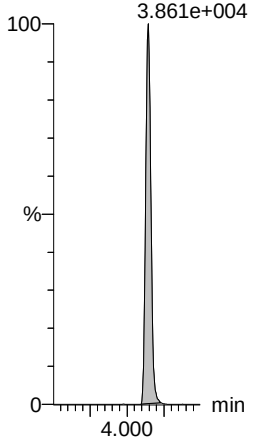
13C4-PFHpA
F17:MRM of 1 channel,ES-
367.2 > 321.8
2.924e+005



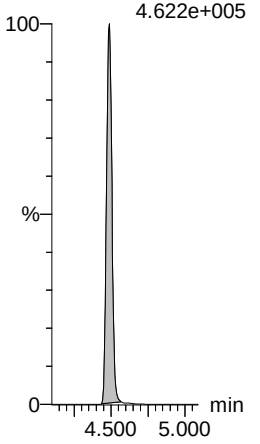
18O2-PFHxS
F20:MRM of 1 channel,ES-
403.0 > 102.6
3.861e+004



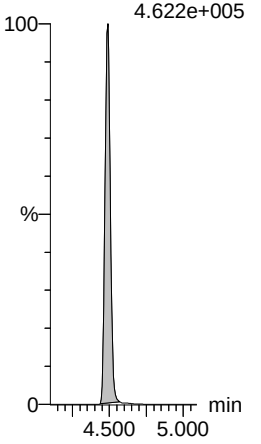
18O2-PFHxS
F20:MRM of 1 channel,ES-
403.0 > 102.6
3.861e+004



13C2-PFOA
F22:MRM of 1 channel,ES-
414.9 > 369.7
4.622e+005



13C2-PFOA
F22:MRM of 1 channel,ES-
414.9 > 369.7
4.622e+005

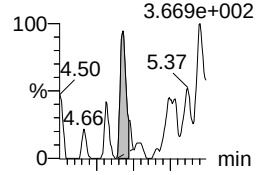


Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-23.qld

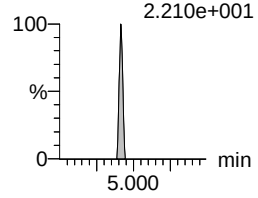
Last Altered: Monday, November 26, 2018 15:06:47 Pacific Standard Time
Printed: Monday, November 26, 2018 15:07:01 Pacific Standard Time

Name: 181121M1_23, Date: 21-Nov-2018, Time: 18:05:16, ID: 1803626-07 FRB-20181113 0.1174, Description: FRB-20181113

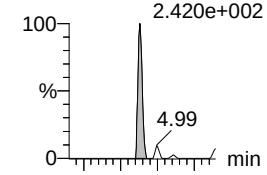
PFNA
F27:MRM of 2 channels,ES-
463.0 > 418.8
3.669e+002



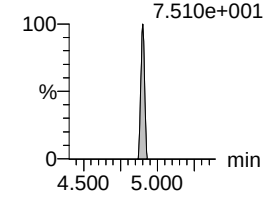
F27:MRM of 2 channels,ES-
463.0 > 219.0
2.210e+001



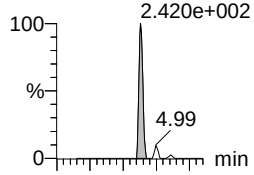
L-PFOS
F32:MRM of 2 channels,ES-
498.9 > 79.9
2.420e+002



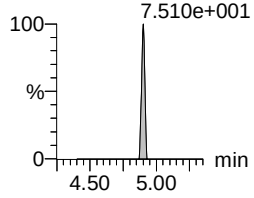
F32:MRM of 2 channels,ES-
498.9 > 99
7.510e+001



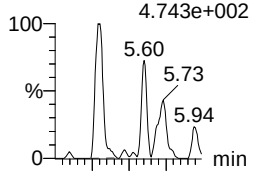
Total PFOS
F32:MRM of 2 channels,ES-
498.9 > 79.9
2.420e+002



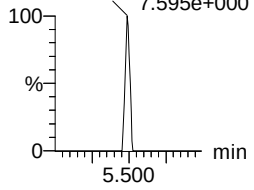
F32:MRM of 2 channels,ES-
498.9 > 99
7.510e+001



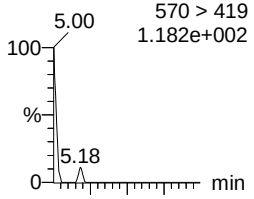
PFDA
F37:MRM of 2 channels,ES-
513 > 468.8
4.743e+002



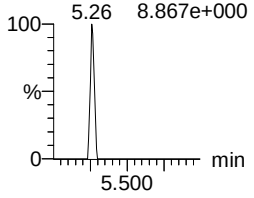
F37:MRM of 2 channels,ES-
513 > 219
7.595e+000



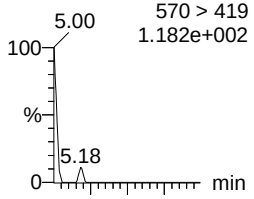
L-MeFOSAA
F48:MRM of 2 channels,ES-
570 > 419
1.182e+002



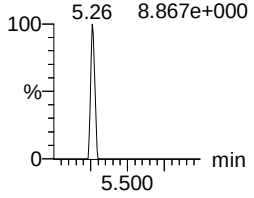
F48:MRM of 2 channels,ES-
570. > 512
8.867e+000



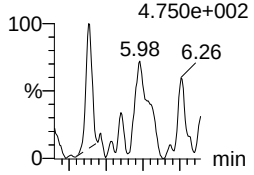
Total N-MeFOSAA
F48:MRM of 2 channels,ES-
570 > 419
1.182e+002



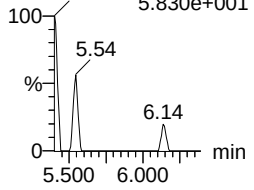
F48:MRM of 2 channels,ES-
570. > 512
8.867e+000



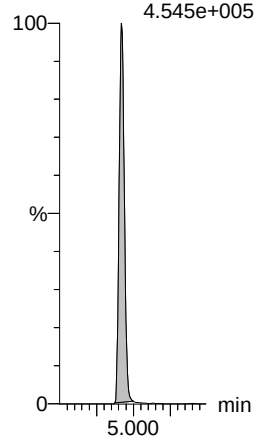
PFUdA
F46:MRM of 2 channels,ES-
563.0 > 518.9
4.750e+002



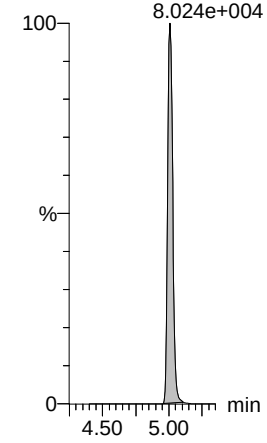
F46:MRM of 2 channels,ES-
563.0 > 269
5.830e+001



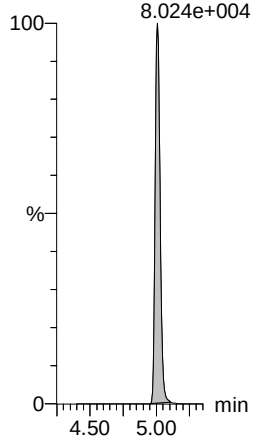
13C5-PFNA
F28:MRM of 1 channel,ES-
468.2 > 422.9
4.545e+005



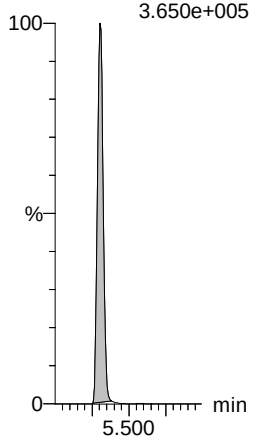
13C8-PFOS
F35:MRM of 1 channel,ES-
507.0 > 79.9
8.024e+004



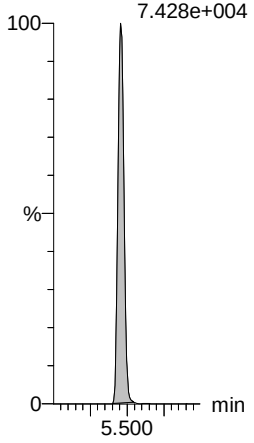
13C8-PFOS
F35:MRM of 1 channel,ES-
507.0 > 79.9
8.024e+004



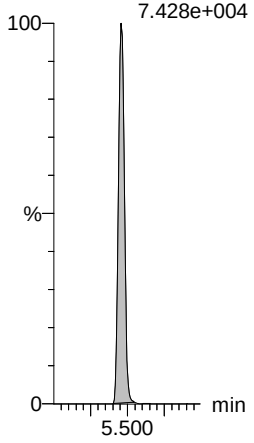
13C2-PFDA
F38:MRM of 1 channel,ES-
515.1 > 469.9
3.650e+005



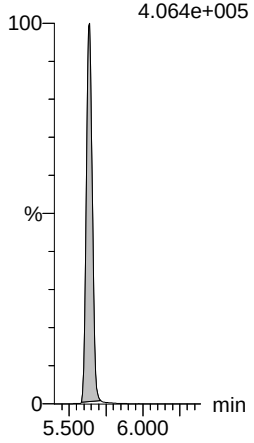
d3-N-MeFOSAA
F50:MRM of 1 channel,ES-
573.3 > 419
7.428e+004



d3-N-MeFOSAA
F50:MRM of 1 channel,ES-
573.3 > 419
7.428e+004



13C2-PFUdA
F47:MRM of 1 channel,ES-
565 > 519.8
4.064e+005



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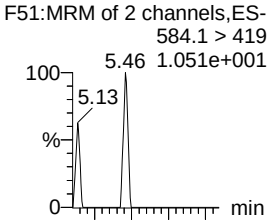
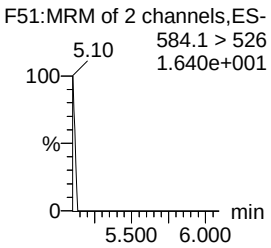
Last Altered: Monday, November 26, 2018 15:06:47 Pacific Standard Time
Printed: Monday, November 26, 2018 15:07:01 Pacific Standard Time

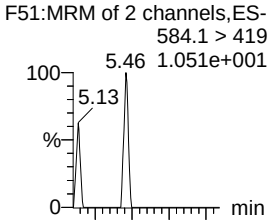
Name: 181121M1_23, Date: 21-Nov-2018, Time: 18:05:16, ID: 1803626-07 FRB-20181113 0.1174, Description: FRB-20181113

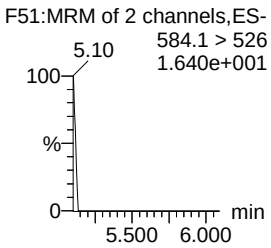
L-EtFOSAA



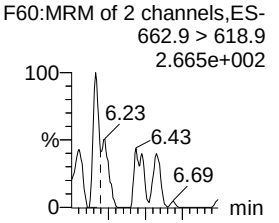


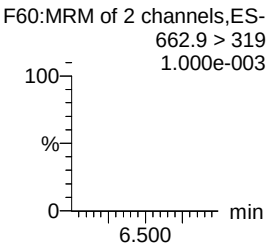
Total N-EtFOSAA



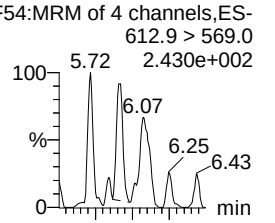


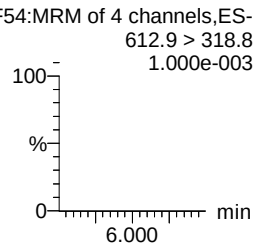
PFTrDA



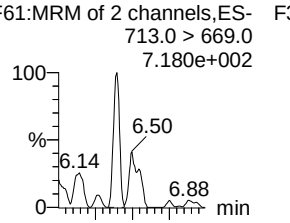


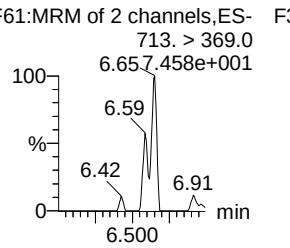
PFDoA



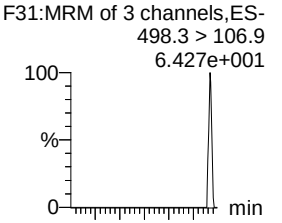


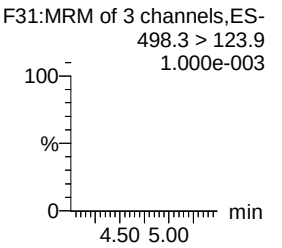
PFTeDA



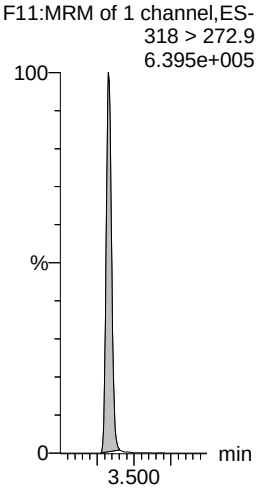


TCDA

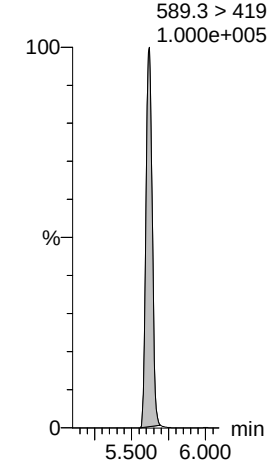




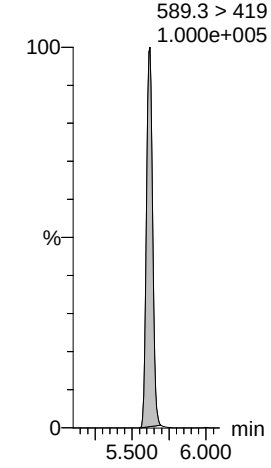
13C5-PFHxA



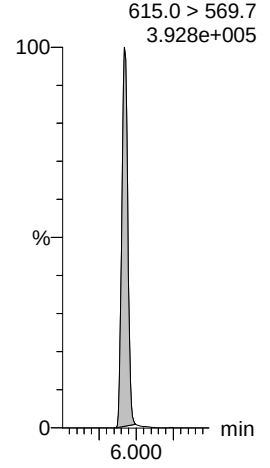
d5-N-EtFOSAA



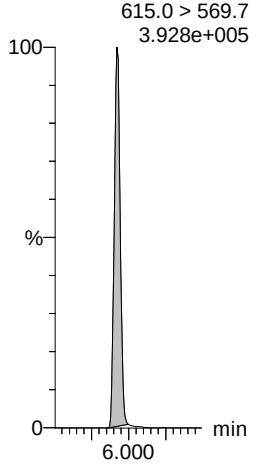
d5-N-EtFOSAA



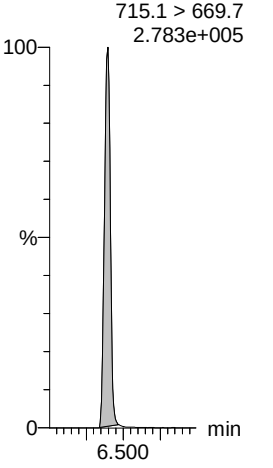
13C2-PFDoA



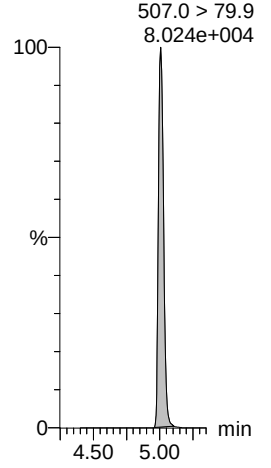
13C2-PFDoA



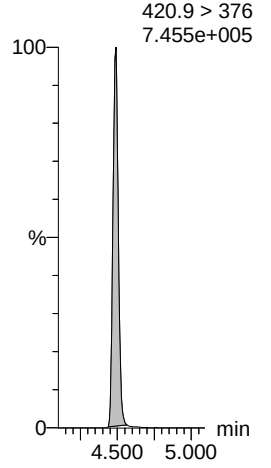
13C2-PFTeDA



13C8-PFOS



13C8-PFOA

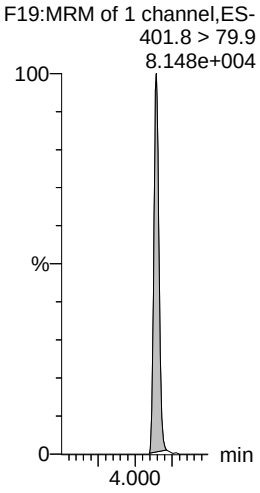


Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-23.qld

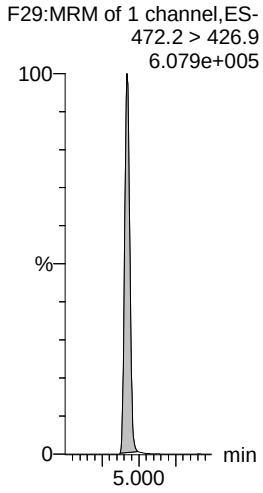
Last Altered: Monday, November 26, 2018 15:06:47 Pacific Standard Time
Printed: Monday, November 26, 2018 15:07:01 Pacific Standard Time

Name: 181121M1_23, Date: 21-Nov-2018, Time: 18:05:16, ID: 1803626-07 FRB-20181113 0.1174, Description: FRB-20181113

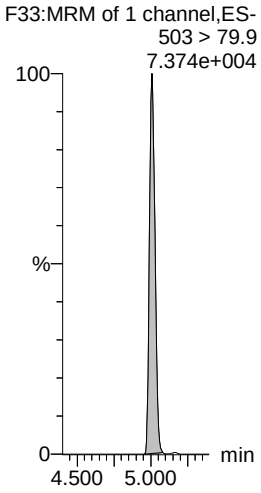
13C3-PFHxS



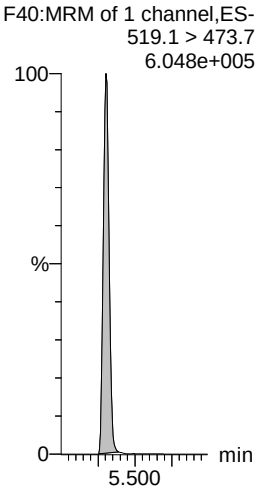
13C9-PFNA



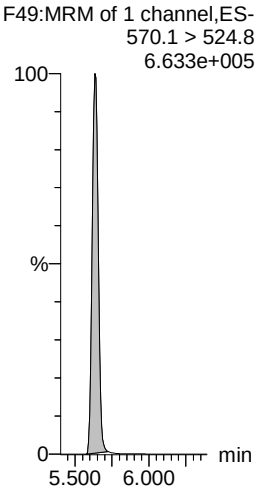
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Rev: ANP 11/27/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-24.qld

Last Altered: Monday, November 26, 2018 15:10:42 Pacific Standard Time
Printed: Monday, November 26, 2018 15:12:25 Pacific Standard Time

Name: 181121M1_24, Date: 21-Nov-2018, Time: 18:15:55, ID: 1803626-08 A1-MW-53-SA2 0.11896, Description: A1-MW-53-SA2

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7	1.26e4	1.35e3	0.119		2.76	2.76	117	504.8418		2.603	NO
2	5	PFHxA	313 > 269	2.36e5	7.47e3	0.119		3.33	3.33	158	1433.2048		15.633	NO
3	7	PFHpA	363.0 > 318.9	7.10e3	9.96e3	0.119		4.00	4.00	8.91	56.4108		11.164	NO
4	8	L-PFHxS	398.9 > 79.6	1.02e4	1.22e3	0.119		4.14	4.14	105	464.0778		1.864	NO
5	68	Total PFHxS	398.9 > 79.6	1.02e4	1.22e3	0.119		4.28		105	464.0778			
6	11	L-PFOA	412.8 > 368.9	1.32e4	1.75e4	0.119		4.47	4.49	9.40	60.7331		2.826	NO
7	69	Total PFOA	412.8 > 368.9	1.32e4	1.75e4	0.119		4.62		9.40	60.7331			
8	38	13C3-PFBS	302. > 98.8	1.35e3	2.73e3	0.119	0.539	2.72	2.76	6.20	96.7190	92.0		
9	40	13C2-PFHxA	315 > 270	7.47e3	2.07e4	0.119	0.964	3.30	3.33	4.50	39.2667	93.4		
10	41	13C4-PFHpA	367.2 > 321.8	9.96e3	2.07e4	0.119	0.482	3.97	4.00	6.01	104.8308	99.8		
11	42	18O2-PFHxS	403.0 > 102.6	1.22e3	2.73e3	0.119	0.480	4.11	4.14	5.60	98.1451	93.4		
12	42	18O2-PFHxS	403.0 > 102.6	1.22e3	2.73e3	0.119	0.480	4.11	4.14	5.60	98.1451	93.4		
13	44	13C2-PFOA	414.9 > 369.7	1.75e4	2.69e4	0.119	0.755	4.46	4.49	8.12	90.4009	86.0		
14	44	13C2-PFOA	414.9 > 369.7	1.75e4	2.69e4	0.119	0.755	4.46	4.49	8.12	90.4009	86.0		
15	-1													
16	14	PFNA	463.0 > 418.8		1.57e4	0.119		4.90						
17	16	L-PFOS	498.9 > 79.9	1.11e2	2.79e3	0.119		5.02	4.86	0.497	3.9959		2.801	YES
18	70	Total PFOS	498.9 > 79.9	1.11e2	2.79e3	0.119		5.13		0.497	3.9959			
19	18	PFDA	513 > 468.8	1.49e1	1.53e4	0.119		5.28	5.29	0.0122			15.681	YES
20	21	L-MeFOSAA	570 > 419		2.85e3	0.119		5.43						
21	71	Total N-MeFOSAA	570. > 419	0.00e0	2.85e3	0.119		5.57		0.000				
22	25	PFUdA	563.0 > 518.9		1.73e4	0.119		5.61						
23	45	13C5-PFNA	468.2 > 422.9	1.57e4	1.95e4	0.119	0.992	4.90	4.92	10.1	85.1879	81.1		
24	47	13C8-PFOS	507.0 > 79.9	2.79e3	2.96e3	0.119	1.034	4.98	5.01	11.8	95.6077	91.0		
25	47	13C8-PFOS	507.0 > 79.9	2.79e3	2.96e3	0.119	1.034	4.98	5.01	11.8	95.6077	91.0		
26	48	13C2-PFDA	515.1 > 469.9	1.53e4	2.28e4	0.119	0.832	5.28	5.30	8.41	84.9546	80.8		
27	50	d3-N-MeFOSAA	573.3 > 419	2.85e3	2.66e4	0.119	0.135	5.43	5.46	1.34	83.2838	79.3		
28	50	d3-N-MeFOSAA	573.3 > 419	2.85e3	2.66e4	0.119	0.135	5.43	5.46	1.34	83.2838	79.3		
29	51	13C2-PFUdA	565 > 519.8	1.73e4	2.66e4	0.119	0.928	5.61	5.63	8.16	73.8808	70.3		
30	-1													
31	23	L-EtFOSAA	584.1 > 419		4.44e3	0.119		5.51						
32	72	Total N-EtFOSAA	584.1 > 419	0.00e0	4.44e3	0.119		5.72		0.000				
33	29	PFTrDA	662.9 > 618.9		1.53e4	0.119		6.15						
34	27	PFDoA	612.9 > 569.0		1.53e4	0.119		5.90						
35	30	PFTeDA	713.0 > 669.0	1.84e1	1.11e4	0.119		6.37	6.40	0.0207			22.521	YES
36	73	TCDA	498.3>106.9			0.119		5.15						

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Rev: ANP 11/27/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-24.qld

Last Altered: Monday, November 26, 2018 15:10:42 Pacific Standard Time
Printed: Monday, November 26, 2018 15:12:25 Pacific Standard Time

Name: 181121M1_24, Date: 21-Nov-2018, Time: 18:15:55, ID: 1803626-08 A1-MW-53-SA2 0.11896, Description: A1-MW-53-SA2

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
37	61	13C5-PFHxA	318 > 272.9	2.07e4	2.07e4	0.119	1.000	3.30	3.33	12.5	105.0773	100.0		
38	52	d5-N-EtFOSAA	589.3 > 419	4.44e3	2.66e4	0.119	0.198	5.59	5.61	2.09	88.5807	84.3		
39	52	d5-N-EtFOSAA	589.3 > 419	4.44e3	2.66e4	0.119	0.198	5.59	5.61	2.09	88.5807	84.3		
40	53	13C2-PFDoA	615.0 > 569.7	1.53e4	2.28e4	0.119	0.980	5.90	5.92	8.41	72.1166	68.6		
41	53	13C2-PFDoA	615.0 > 569.7	1.53e4	2.28e4	0.119	0.980	5.90	5.92	8.41	72.1166	68.6		
42	55	13C2-PFTeDA	715.1 > 669.7	1.11e4	2.66e4	0.119	0.607	6.37	6.40	5.21	72.1943	68.7		
43	47	13C8-PFOS	507.0 > 79.9	2.79e3	2.96e3	0.119	1.034	4.98	5.01	11.8	95.6077	91.0		
44	63	13C8-PFOA	420.9 > 376	2.69e4	2.69e4	0.119	1.000	4.46	4.49	12.5	105.0773	100.0		
45	-1													
46	62	13C3-PFHxS	401.8 > 79.9	2.73e3	2.73e3	0.119	1.000	4.11	4.14	12.5	105.0773	100.0		
47	64	13C9-PFNA	472.2 > 426.9	1.95e4	1.95e4	0.119	1.000	4.90	4.92	12.5	105.0773	100.0		
48	65	13C4-PFOS	503 > 79.9	2.96e3	2.96e3	0.119	1.000	4.98	5.01	12.5	105.0773	100.0		
49	66	13C6-PFDA	519.1 > 473.7	2.28e4	2.28e4	0.119	1.000	5.28	5.30	12.5	105.0773	100.0		
50	67	13C7-PFUdA	570.1 > 524.8	2.66e4	2.66e4	0.119	1.000	5.61	5.63	12.5	105.0773	100.0		

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Rev: ANP 11/27/2018

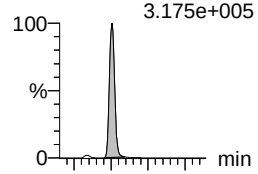
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-24.qld

Last Altered: Monday, November 26, 2018 15:10:42 Pacific Standard Time
Printed: Monday, November 26, 2018 15:12:25 Pacific Standard Time

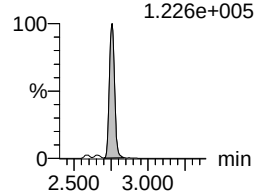
Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112118.mdb 26 Nov 2018 09:17:42
Calibration: Z:\Projects\PFAS.pro\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Name: 181121M1_24, Date: 21-Nov-2018, Time: 18:15:55, ID: 1803626-08 A1-MW-53-SA2 0.11896, Description: A1-MW-53-SA2

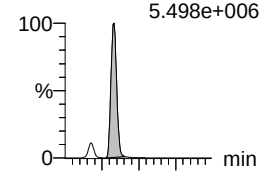
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
3.175e+005



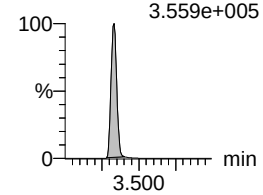
F7:MRM of 2 channels,ES-
299.0 > 99.0
1.226e+005



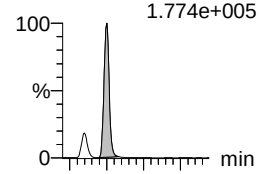
PFHxA
F9:MRM of 2 channels,ES-
313 > 269
5.498e+006



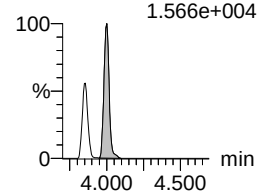
F9:MRM of 2 channels,ES-
313 > 118.9
3.559e+005



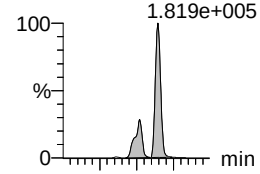
PFHpA
F16:MRM of 2 channels,ES-
363.0 > 318.9
1.774e+005



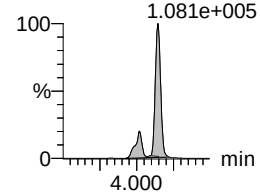
F16:MRM of 2 channels,ES-
363.0 > 169.0
1.566e+004



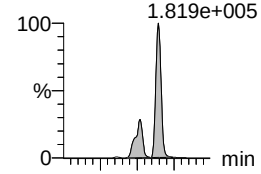
L-PFHxS
F18:MRM of 2 channels,ES-
398.9 > 79.6
1.819e+005



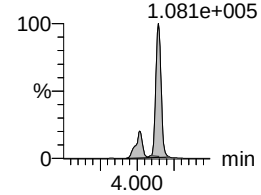
F18:MRM of 2 channels,ES-
398.9 > 99.0
1.081e+005



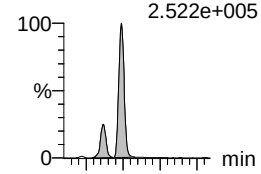
Total PFHxS
F18:MRM of 2 channels,ES-
398.9 > 79.6
1.819e+005



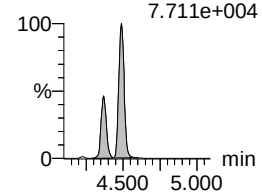
F18:MRM of 2 channels,ES-
398.9 > 99.0
1.081e+005



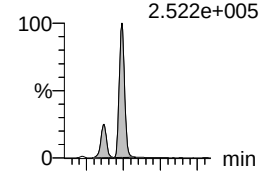
L-PFOA
F21:MRM of 2 channels,ES-
412.8 > 368.9
2.522e+005



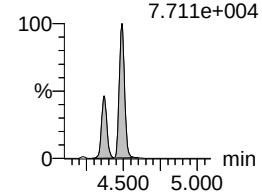
F21:MRM of 2 channels,ES-
412.8 > 169
7.711e+004



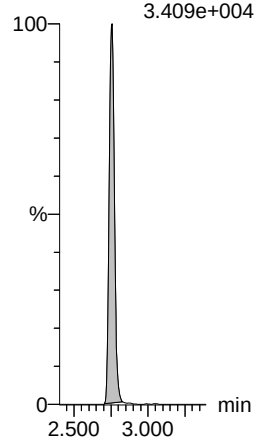
Total PFOA
F21:MRM of 2 channels,ES-
412.8 > 368.9
2.522e+005



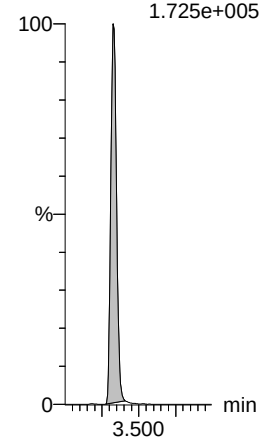
F21:MRM of 2 channels,ES-
412.8 > 169
7.711e+004



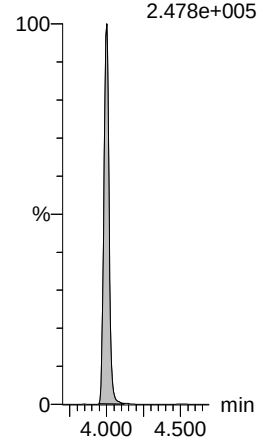
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
3.409e+004



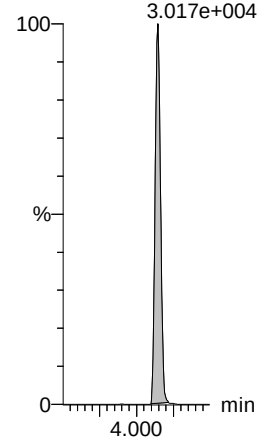
13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 270
1.725e+005



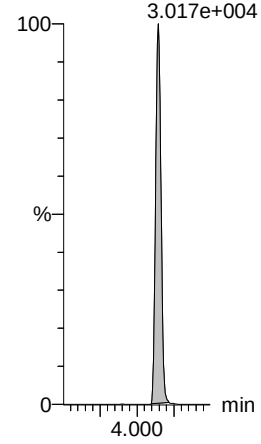
13C4-PFHpA
F17:MRM of 1 channel,ES-
367.2 > 321.8
2.478e+005



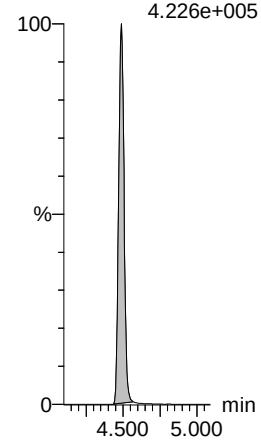
18O2-PFHxS
F20:MRM of 1 channel,ES-
403.0 > 102.6
3.017e+004



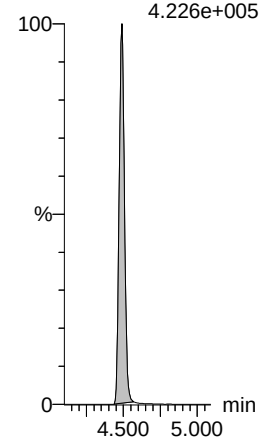
18O2-PFHxS
F20:MRM of 1 channel,ES-
403.0 > 102.6
3.017e+004



13C2-PFOA
F22:MRM of 1 channel,ES-
414.9 > 369.7
4.226e+005



13C2-PFOA
F22:MRM of 1 channel,ES-
414.9 > 369.7
4.226e+005



Vista Analytical Laboratory L14

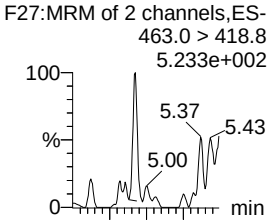
Rev: ANP 11/27/2018

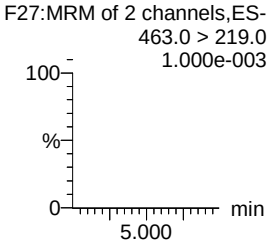
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-24.qld

Last Altered: Monday, November 26, 2018 15:10:42 Pacific Standard Time
Printed: Monday, November 26, 2018 15:12:25 Pacific Standard Time

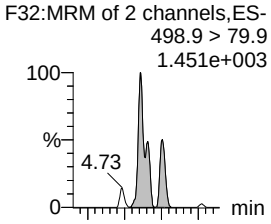
Name: 181121M1_24, Date: 21-Nov-2018, Time: 18:15:55, ID: 1803626-08 A1-MW-53-SA2 0.11896, Description: A1-MW-53-SA2

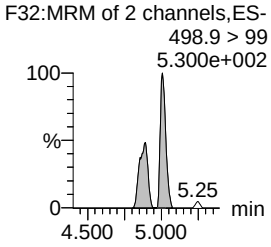
PFNA



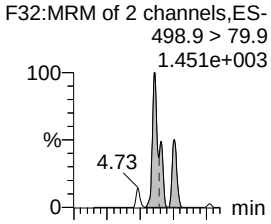


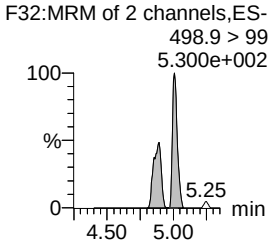
L-PFOS





Total PFOS





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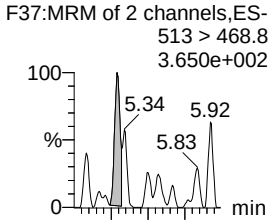
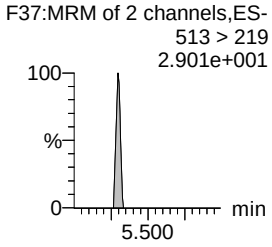
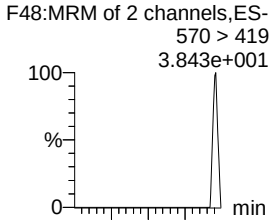
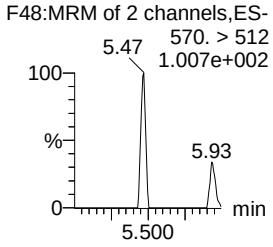


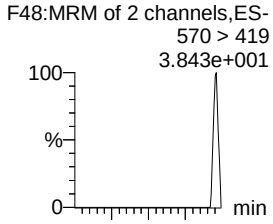


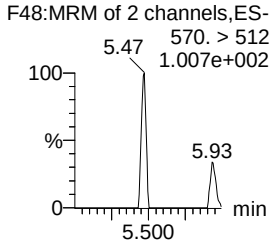
L-MeFOSAA



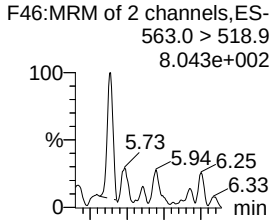


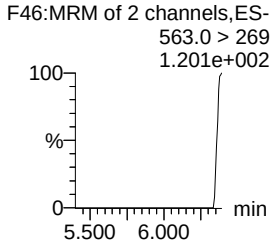
Total N-MeFOSAA



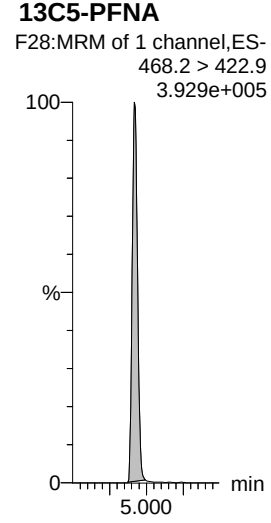


PFUdA

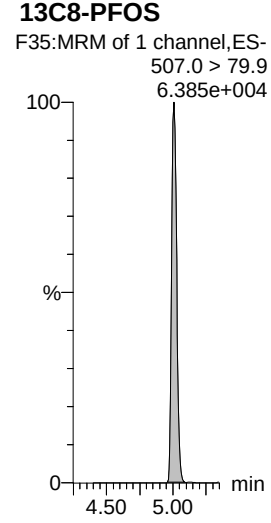




13C5-PFNA



13C8-PFOS



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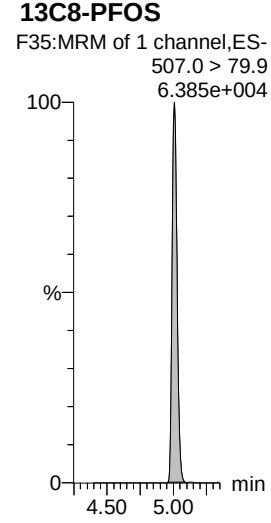
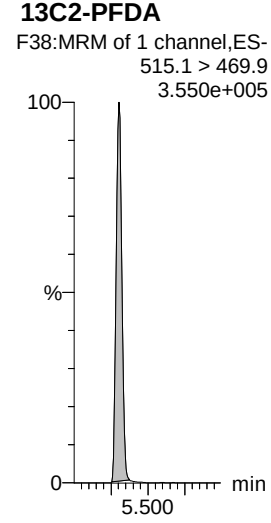
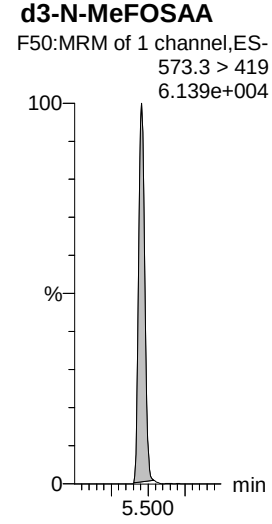


13C2-PFDA



d3-N-MeFOSAA



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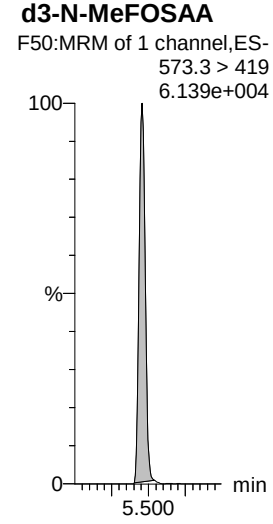

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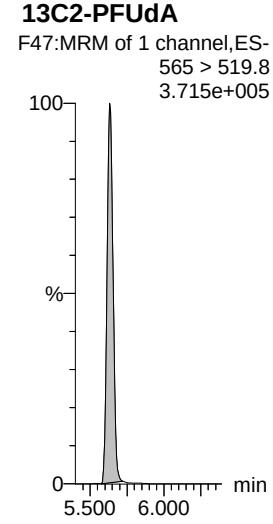


Vista Analytical Laboratory L14

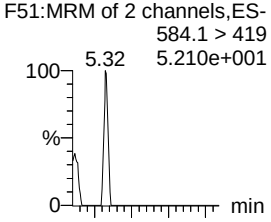
Rev: ANP 11/27/2018

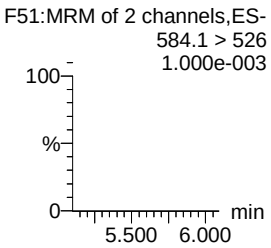
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-24.qld

Last Altered: Monday, November 26, 2018 15:10:42 Pacific Standard Time
Printed: Monday, November 26, 2018 15:12:25 Pacific Standard Time

Name: 181121M1_24, Date: 21-Nov-2018, Time: 18:15:55, ID: 1803626-08 A1-MW-53-SA2 0.11896, Description: A1-MW-53-SA2

L-EtFOSAA





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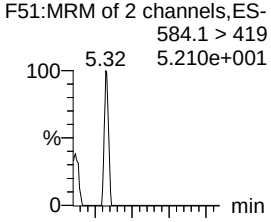
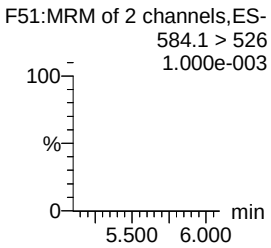
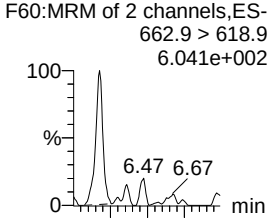
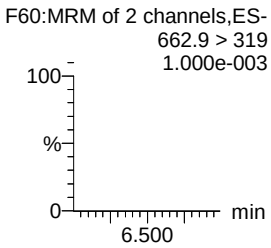


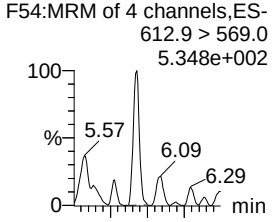


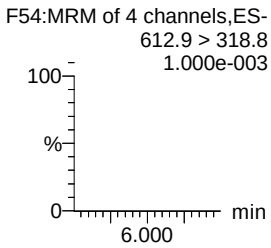
PFTrDA





PFDoA





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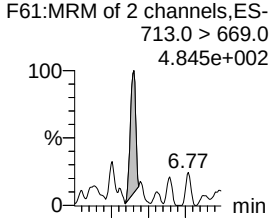

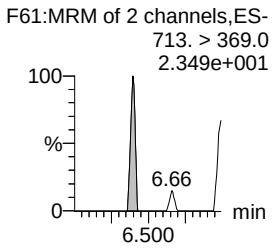

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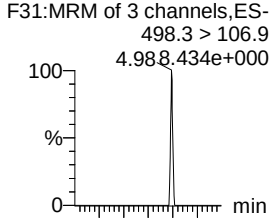

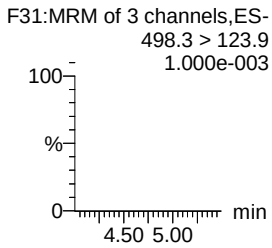

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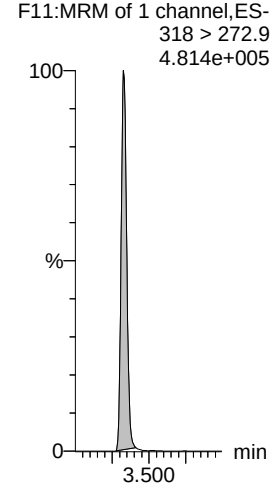
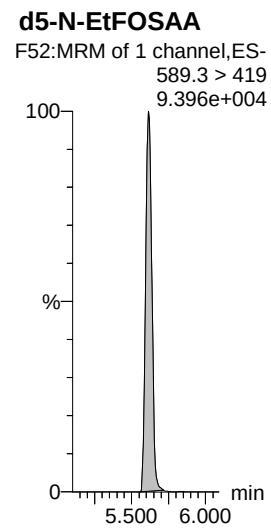


d5-N-EtFOSAA



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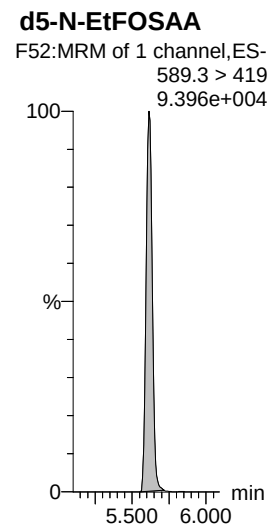

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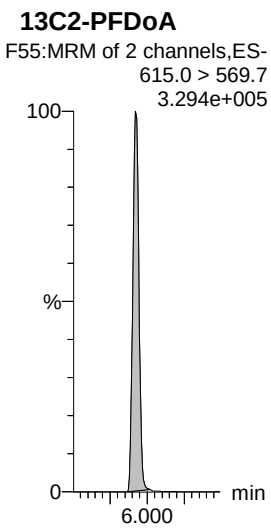

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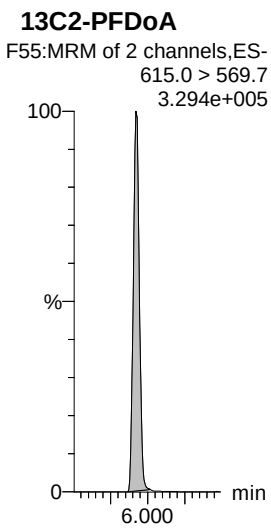

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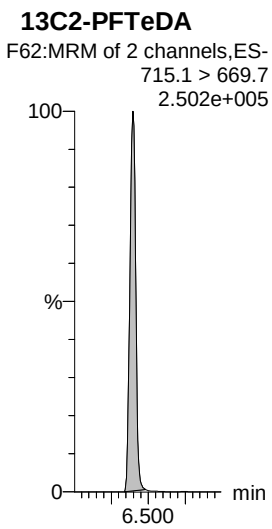

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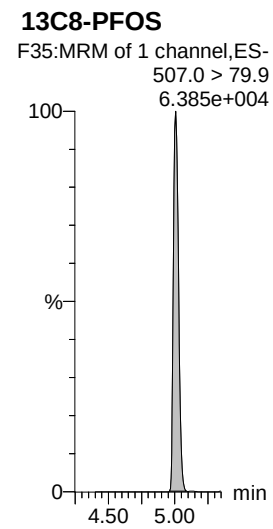

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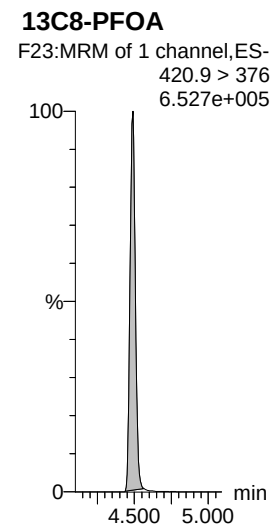


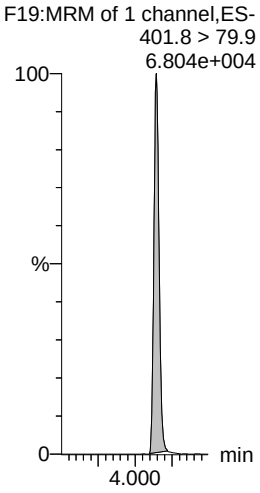
GM 11/26/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-24.qld

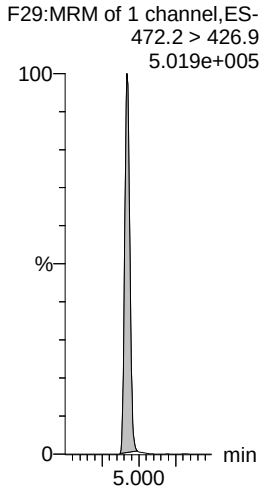
Last Altered: Monday, November 26, 2018 15:10:42 Pacific Standard Time
Printed: Monday, November 26, 2018 15:12:25 Pacific Standard Time

Name: 181121M1_24, Date: 21-Nov-2018, Time: 18:15:55, ID: 1803626-08 A1-MW-53-SA2 0.11896, Description: A1-MW-53-SA2

13C3-PFHxS



13C9-PFNA



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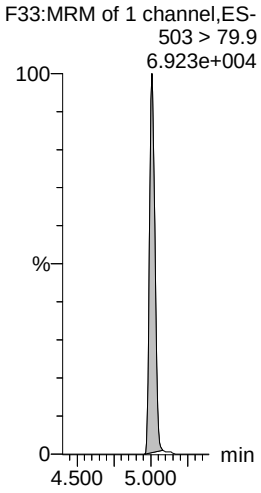

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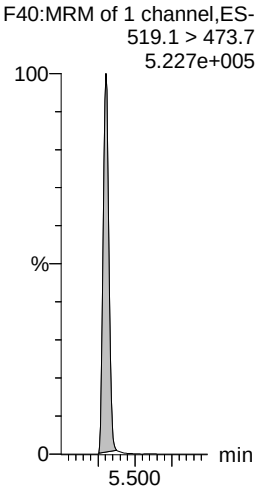

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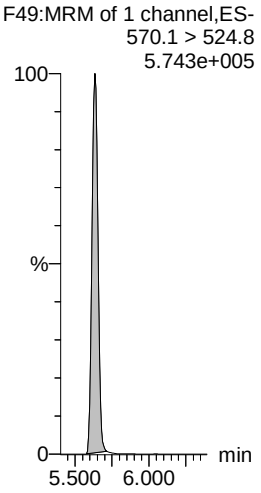


Vista Analytical Laboratory L14

Rev: ANP 11/27/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-25.qld

Last Altered: Monday, November 26, 2018 15:20:02 Pacific Standard Time
Printed: Monday, November 26, 2018 15:20:06 Pacific Standard Time

Name: 181121M1_25, Date: 21-Nov-2018, Time: 18:26:33, ID: 1803626-09 16-HS-03-SA2D 0.11367, Description: 16-HS-03-SA2D

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.		%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7	2.90e4	1.19e3	0.114		2.76	2.76	305	1386.7990			2.673	NO
2	5	PFHxA	313 > 269	1.23e6	5.98e3	0.114		3.33	3.33	1030	11056.2588	E		15.581	NO
3	7	PFHpA	363.0 > 318.9	4.58e4	9.29e3	0.114		4.00	4.00	61.6	412.3984			10.873	NO
4	8	L-PFHxS	398.9 > 79.6	6.69e3	1.24e3	0.114		4.14	4.14	67.2	312.3491			2.112	NO
5	68	Total PFHxS	398.9 > 79.6	6.69e3	1.24e3	0.114		4.28		67.2	312.3491				
6	11	L-PFOA	412.8 > 368.9	3.95e3	1.62e4	0.114		4.47	4.49	3.06	20.0357			2.722	NO
7	69	Total PFOA	412.8 > 368.9	3.95e3	1.62e4	0.114		4.62		3.06	20.0357				
8	38	13C3-PFBS	302. > 98.8	1.19e3	2.55e3	0.114	0.539	2.72	2.76	5.82	95.0554		86.4		
9	40	13C2-PFHxA	315 > 270	5.98e3	1.45e4	0.114	0.964	3.30	3.33	5.15	46.9904		106.8		
10	41	13C4-PFHpA	367.2 > 321.8	9.29e3	1.45e4	0.114	0.482	3.97	4.00	7.99	145.9330		132.7		
11	42	18O2-PFHxS	403.0 > 102.6	1.24e3	2.55e3	0.114	0.480	4.11	4.14	6.11	111.9474		101.8		
12	42	18O2-PFHxS	403.0 > 102.6	1.24e3	2.55e3	0.114	0.480	4.11	4.14	6.11	111.9474		101.8		
13	44	13C2-PFOA	414.9 > 369.7	1.62e4	2.47e4	0.114	0.755	4.46	4.49	8.16	95.0924		86.5		
14	44	13C2-PFOA	414.9 > 369.7	1.62e4	2.47e4	0.114	0.755	4.46	4.49	8.16	95.0924		86.5		
15	-1														
16	14	PFNA	463.0 > 418.8	6.86e1	1.55e4	0.114		4.90	4.92	0.0553				18.538	YES
17	16	L-PFOS	498.9 > 79.9	2.38e1	2.72e3	0.114		5.02	5.01	0.109	0.9954			1.569	NO
18	70	Total PFOS	498.9 > 79.9	2.38e1	2.72e3	0.114		5.13		0.109	0.9954				
19	18	PFDA	513 > 468.8	2.76e1	1.40e4	0.114		5.28	5.30	0.0247				2.579	YES
20	21	L-MeFOSAA	570 > 419		2.97e3	0.114		5.43							
21	71	Total N-MeFOSAA	570. > 419	0.00e0	2.97e3	0.114		5.57		0.000					
22	25	PFUdA	563.0 > 518.9		1.61e4	0.114		5.61							
23	45	13C5-PFNA	468.2 > 422.9	1.55e4	1.84e4	0.114	0.992	4.90	4.92	10.5	93.1548		84.7		
24	47	13C8-PFOS	507.0 > 79.9	2.72e3	2.67e3	0.114	1.034	4.98	5.01	12.7	108.4266		98.6		
25	47	13C8-PFOS	507.0 > 79.9	2.72e3	2.67e3	0.114	1.034	4.98	5.01	12.7	108.4266		98.6		
26	48	13C2-PFDA	515.1 > 469.9	1.40e4	2.08e4	0.114	0.832	5.28	5.30	8.40	88.7498		80.7		
27	50	d3-N-MeFOSAA	573.3 > 419	2.97e3	2.53e4	0.114	0.135	5.43	5.46	1.46	95.2698		86.6		
28	50	d3-N-MeFOSAA	573.3 > 419	2.97e3	2.53e4	0.114	0.135	5.43	5.46	1.46	95.2698		86.6		
29	51	13C2-PFUdA	565 > 519.8	1.61e4	2.53e4	0.114	0.928	5.61	5.63	7.93	75.2221		68.4		
30	-1														
31	23	L-EtFOSAA	584.1 > 419		4.35e3	0.114		5.51							
32	72	Total N-EtFOSAA	584.1 > 419	0.00e0	4.35e3	0.114		5.72		0.000					
33	29	PFTrDA	662.9 > 618.9		1.44e4	0.114		6.15							
34	27	PFDoA	612.9 > 569.0		1.44e4	0.114		5.90							
35	30	PFTeDA	713.0 > 669.0	3.03e1	9.36e3	0.114		6.37	6.40	0.0404				21.881	YES
36	73	TCDA	498.3>106.9			0.114		5.15							

GM 11/26/2018

Vista Analytical Laboratory L14

Rev: ANP 11/27/2018

Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-25.qld

Last Altered: Monday, November 26, 2018 15:20:02 Pacific Standard Time
Printed: Monday, November 26, 2018 15:20:06 Pacific Standard Time

Name: 181121M1_25, Date: 21-Nov-2018, Time: 18:26:33, ID: 1803626-09 16-HS-03-SA2D 0.11367, Description: 16-HS-03-SA2D

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	Pred.RT	RT	Response	Conc.	%Rec	Ion Ratio	Ratio Out?
37	61	13C5-PFHxA	318 > 272.9	1.45e4	1.45e4	0.114	1.000	3.30	3.33	12.5	109.9674	100.0		
38	52	d5-N-EtFOSAA	589.3 > 419	4.35e3	2.53e4	0.114	0.198	5.59	5.61	2.15	95.2509	86.6		
39	52	d5-N-EtFOSAA	589.3 > 419	4.35e3	2.53e4	0.114	0.198	5.59	5.61	2.15	95.2509	86.6		
40	53	13C2-PFDoA	615.0 > 569.7	1.44e4	2.08e4	0.114	0.980	5.90	5.92	8.66	77.7001	70.7		
41	53	13C2-PFDoA	615.0 > 569.7	1.44e4	2.08e4	0.114	0.980	5.90	5.92	8.66	77.7001	70.7		
42	55	13C2-PFTeDA	715.1 > 669.7	9.36e3	2.53e4	0.114	0.607	6.37	6.40	4.62	66.9433	60.9		
43	47	13C8-PFOS	507.0 > 79.9	2.72e3	2.67e3	0.114	1.034	4.98	5.01	12.7	108.4266	98.6		
44	63	13C8-PFOA	420.9 > 376	2.47e4	2.47e4	0.114	1.000	4.46	4.49	12.5	109.9674	100.0		
45	-1													
46	62	13C3-PFHxS	401.8 > 79.9	2.55e3	2.55e3	0.114	1.000	4.11	4.14	12.5	109.9674	100.0		
47	64	13C9-PFNA	472.2 > 426.9	1.84e4	1.84e4	0.114	1.000	4.90	4.92	12.5	109.9674	100.0		
48	65	13C4-PFOS	503 > 79.9	2.67e3	2.67e3	0.114	1.000	4.98	5.01	12.5	109.9674	100.0		
49	66	13C6-PFDA	519.1 > 473.7	2.08e4	2.08e4	0.114	1.000	5.28	5.30	12.5	109.9674	100.0		
50	67	13C7-PFUdA	570.1 > 524.8	2.53e4	2.53e4	0.114	1.000	5.61	5.63	12.5	109.9674	100.0		

Vista Analytical Laboratory L14

Rev: ANP 11/27/2018

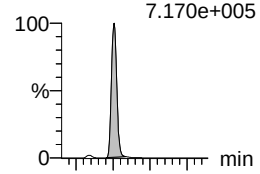
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-25.qld

Last Altered: Monday, November 26, 2018 15:20:02 Pacific Standard Time
Printed: Monday, November 26, 2018 15:20:06 Pacific Standard Time

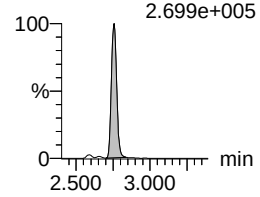
Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112118.mdb 26 Nov 2018 09:17:42
Calibration: Z:\Projects\PFAS.pro\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Name: 181121M1_25, Date: 21-Nov-2018, Time: 18:26:33, ID: 1803626-09 16-HS-03-SA2D 0.11367, Description: 16-HS-03-SA2D

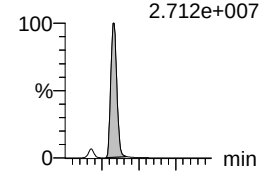
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
7.170e+005



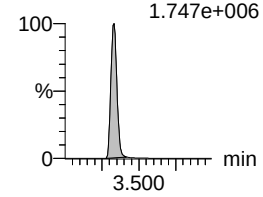
F7:MRM of 2 channels,ES-
299.0 > 99.0
2.699e+005



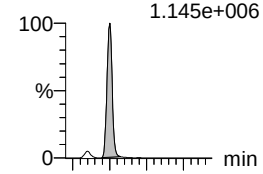
PFHxA
F9:MRM of 2 channels,ES-
313 > 269
2.712e+007



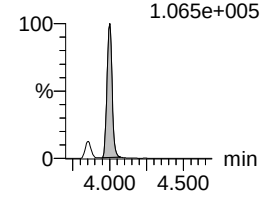
F9:MRM of 2 channels,ES-
313 > 118.9
1.747e+006



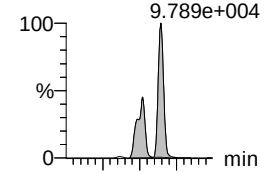
PFHpA
F16:MRM of 2 channels,ES-
363.0 > 318.9
1.145e+006



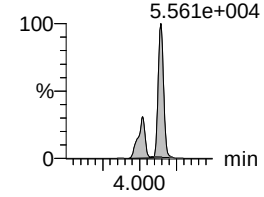
F16:MRM of 2 channels,ES-
363.0 > 169.0
1.065e+005



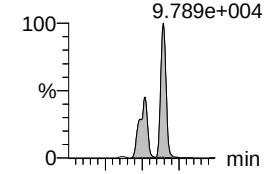
L-PFHxS
F18:MRM of 2 channels,ES-
398.9 > 79.6
9.789e+004



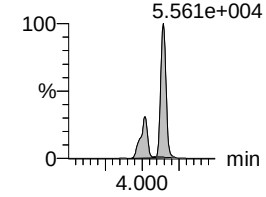
F18:MRM of 2 channels,ES-
398.9 > 99.0
5.561e+004



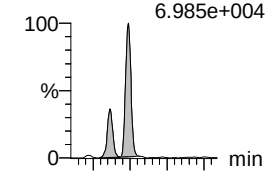
Total PFHxS
F18:MRM of 2 channels,ES-
398.9 > 79.6
9.789e+004



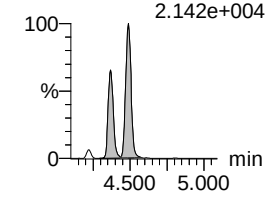
F18:MRM of 2 channels,ES-
398.9 > 99.0
5.561e+004



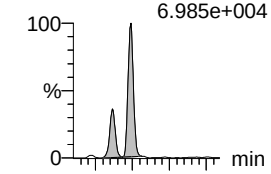
L-PFOA
F21:MRM of 2 channels,ES-
412.8 > 368.9
6.985e+004



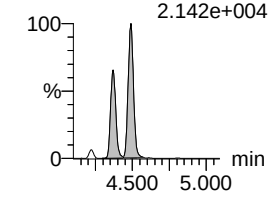
F21:MRM of 2 channels,ES-
412.8 > 169
2.142e+004



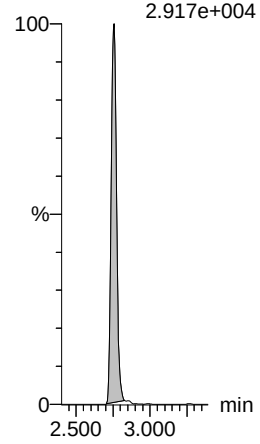
Total PFOA
F21:MRM of 2 channels,ES-
412.8 > 368.9
6.985e+004



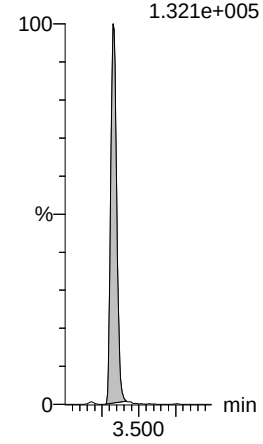
F21:MRM of 2 channels,ES-
412.8 > 169
2.142e+004



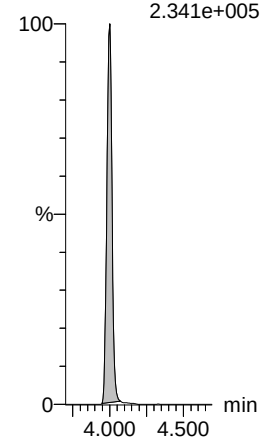
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.917e+004



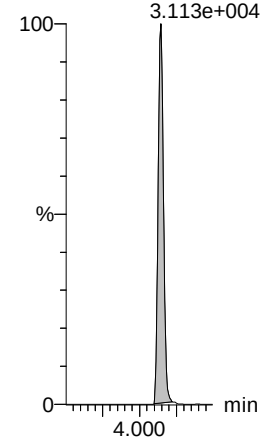
13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 270
1.321e+005



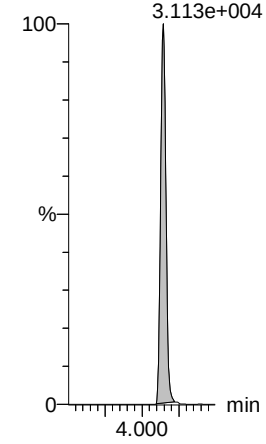
13C4-PFHpA
F17:MRM of 1 channel,ES-
367.2 > 321.8
2.341e+005



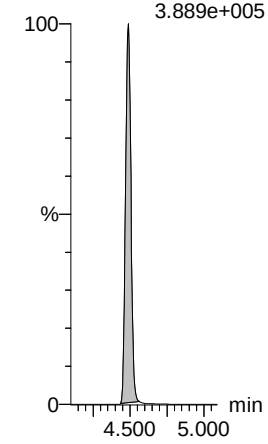
18O2-PFHxS
F20:MRM of 1 channel,ES-
403.0 > 102.6
3.113e+004



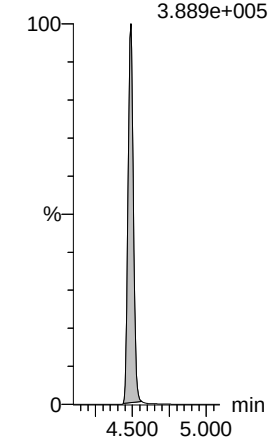
18O2-PFHxS
F20:MRM of 1 channel,ES-
403.0 > 102.6
3.113e+004



13C2-PFOA
F22:MRM of 1 channel,ES-
414.9 > 369.7
3.889e+005



13C2-PFOA
F22:MRM of 1 channel,ES-
414.9 > 369.7
3.889e+005

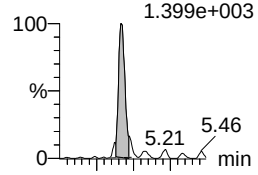


Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-25.qld

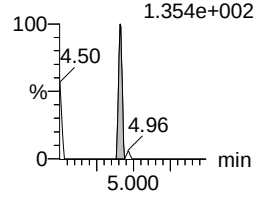
Last Altered: Monday, November 26, 2018 15:20:02 Pacific Standard Time
Printed: Monday, November 26, 2018 15:20:06 Pacific Standard Time

Name: 181121M1_25, Date: 21-Nov-2018, Time: 18:26:33, ID: 1803626-09 16-HS-03-SA2D 0.11367, Description: 16-HS-03-SA2D

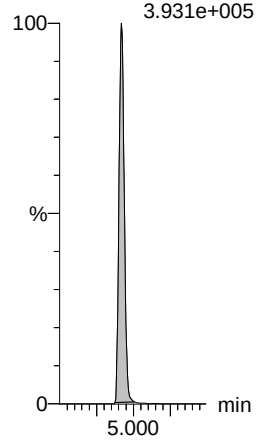
PFNA
F27:MRM of 2 channels,ES-
463.0 > 418.8
1.399e+003



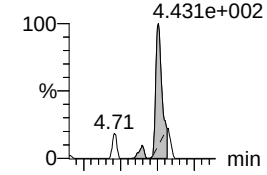
F27:MRM of 2 channels,ES-
463.0 > 219.0
1.354e+002



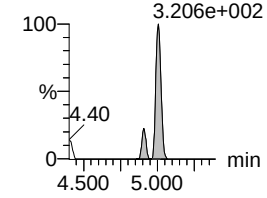
13C5-PFNA
F28:MRM of 1 channel,ES-
468.2 > 422.9
3.931e+005



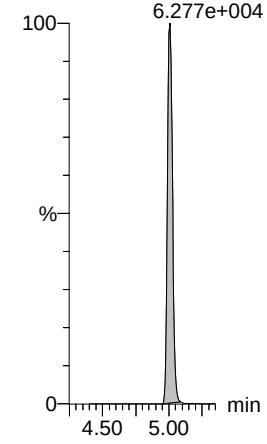
L-PFOS
F32:MRM of 2 channels,ES-
498.9 > 79.9
4.431e+002



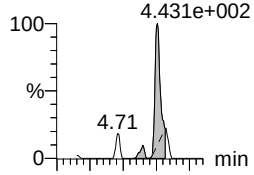
F32:MRM of 2 channels,ES-
498.9 > 99
3.206e+002



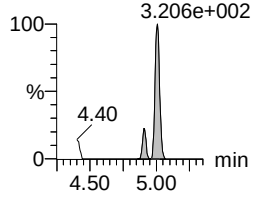
13C8-PFOS
F35:MRM of 1 channel,ES-
507.0 > 79.9
6.277e+004



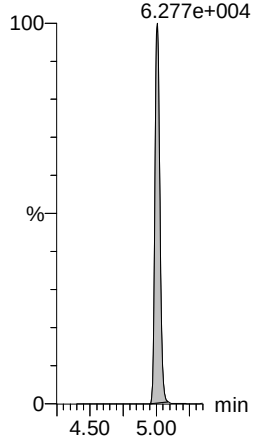
Total PFOS
F32:MRM of 2 channels,ES-
498.9 > 79.9
4.431e+002



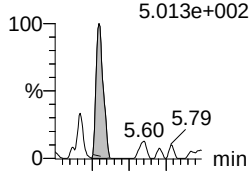
F32:MRM of 2 channels,ES-
498.9 > 99
3.206e+002



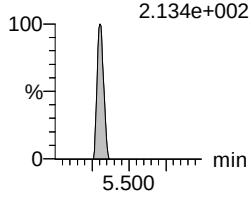
13C8-PFOS
F35:MRM of 1 channel,ES-
507.0 > 79.9
6.277e+004



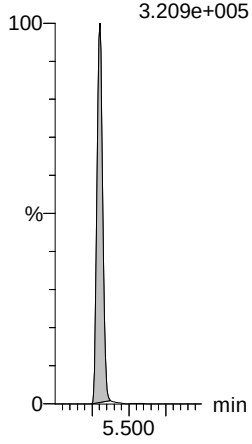
PFDA
F37:MRM of 2 channels,ES-
513 > 468.8
5.013e+002



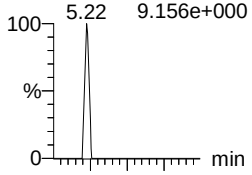
F37:MRM of 2 channels,ES-
513 > 219
2.134e+002



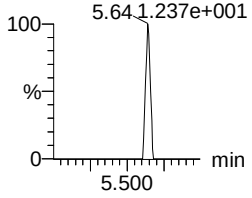
13C2-PFDA
F38:MRM of 1 channel,ES-
515.1 > 469.9
3.209e+005



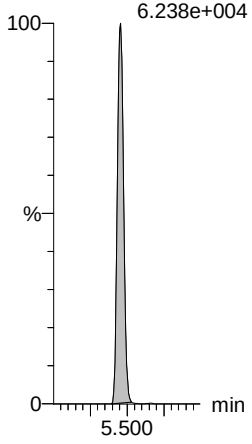
L-MeFOSAA
F48:MRM of 2 channels,ES-
570 > 419
9.156e+000



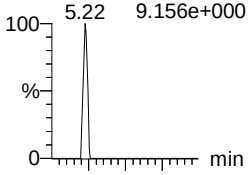
F48:MRM of 2 channels,ES-
570. > 512
1.237e+001



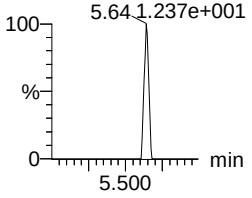
d3-N-MeFOSAA
F50:MRM of 1 channel,ES-
573.3 > 419
6.238e+004



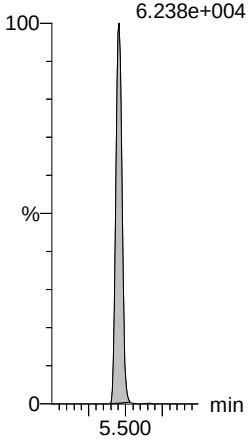
Total N-MeFOSAA
F48:MRM of 2 channels,ES-
570 > 419
9.156e+000



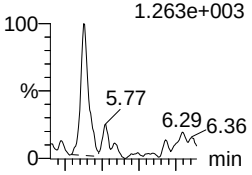
F48:MRM of 2 channels,ES-
570. > 512
1.237e+001



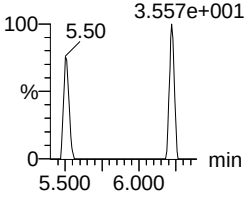
d3-N-MeFOSAA
F50:MRM of 1 channel,ES-
573.3 > 419
6.238e+004



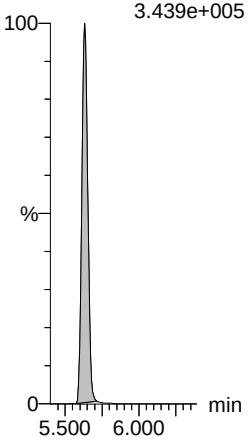
PFUdA
F46:MRM of 2 channels,ES-
563.0 > 518.9
1.263e+003



F46:MRM of 2 channels,ES-
563.0 > 269
3.557e+001



13C2-PFUdA
F47:MRM of 1 channel,ES-
565 > 519.8
3.439e+005

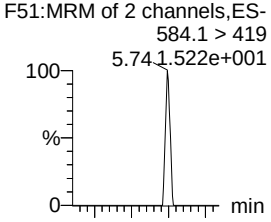


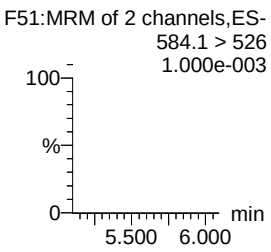
Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-25.qld

Last Altered: Monday, November 26, 2018 15:20:02 Pacific Standard Time
Printed: Monday, November 26, 2018 15:20:06 Pacific Standard Time

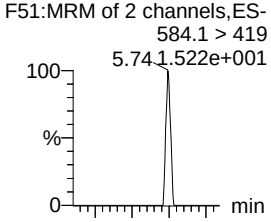
Name: 181121M1_25, Date: 21-Nov-2018, Time: 18:26:33, ID: 1803626-09 16-HS-03-SA2D 0.11367, Description: 16-HS-03-SA2D

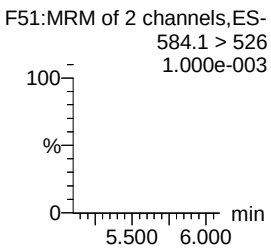
L-EtFOSAA



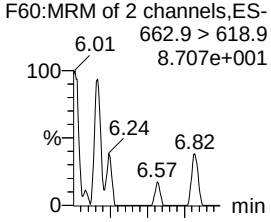


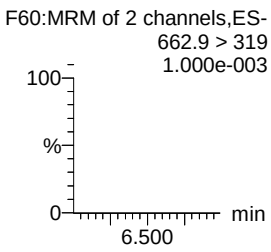
Total N-EtFOSAA



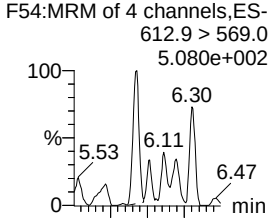


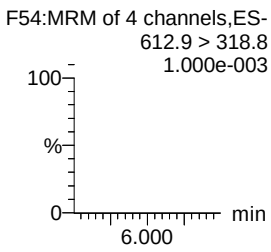
PFTrDA



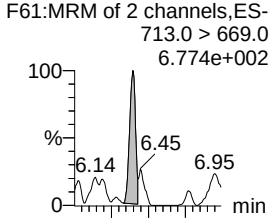


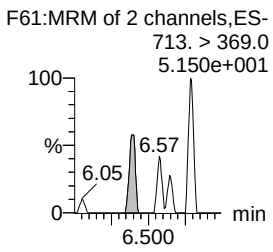
PFDoA



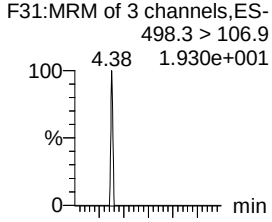


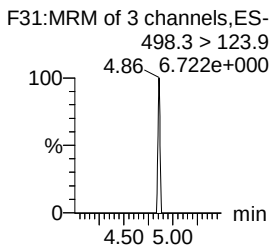
PFTeDA



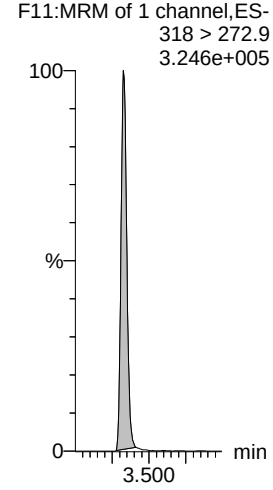


TCDA

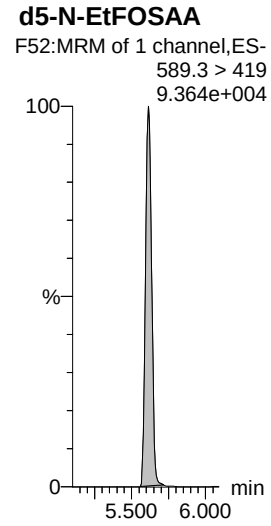




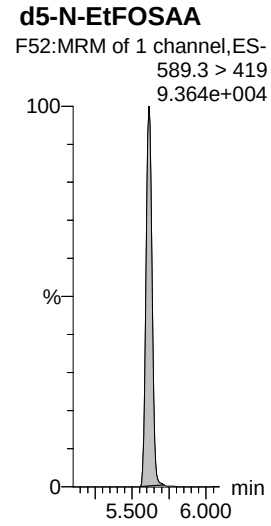
13C5-PFHxA



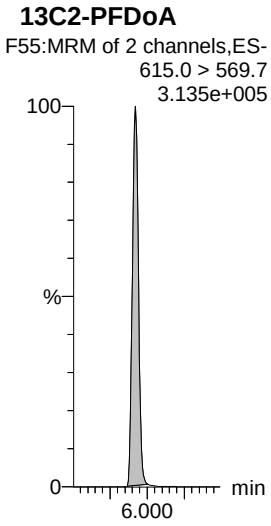
d5-N-EtFOSAA



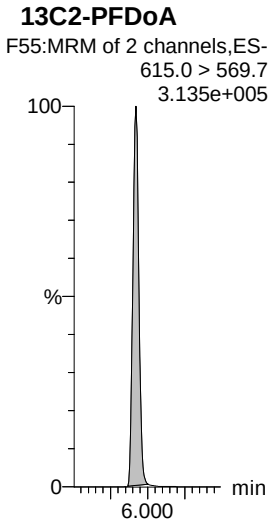
d5-N-EtFOSAA



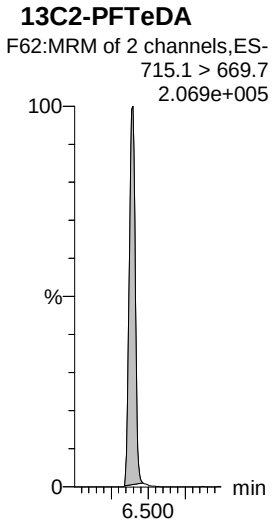
13C2-PFDoA



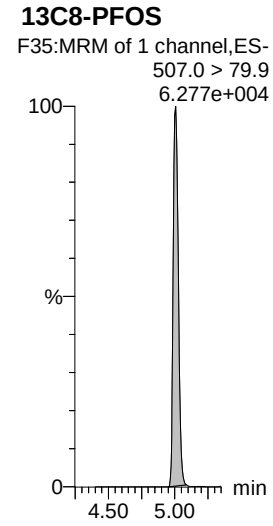
13C2-PFDoA



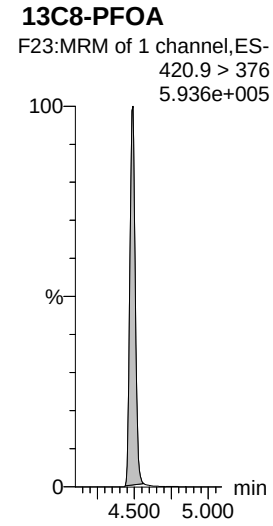
13C2-PFTeDA



13C8-PFOS



13C8-PFOA

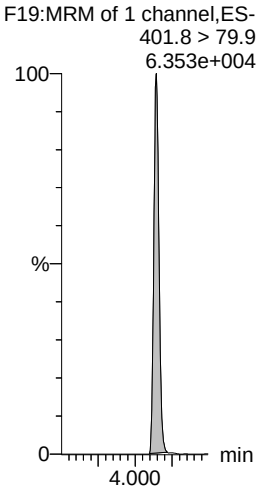


Dataset: Z:\Projects\PFAS.PRO\Results\181121M1\181121M1-25.qld

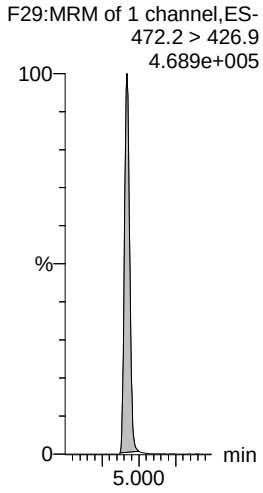
Last Altered: Monday, November 26, 2018 15:20:02 Pacific Standard Time
Printed: Monday, November 26, 2018 15:20:06 Pacific Standard Time

Name: 181121M1_25, Date: 21-Nov-2018, Time: 18:26:33, ID: 1803626-09 16-HS-03-SA2D 0.11367, Description: 16-HS-03-SA2D

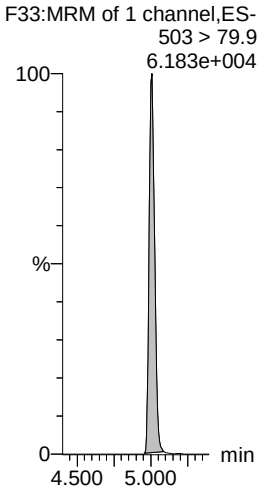
13C3-PFHxS



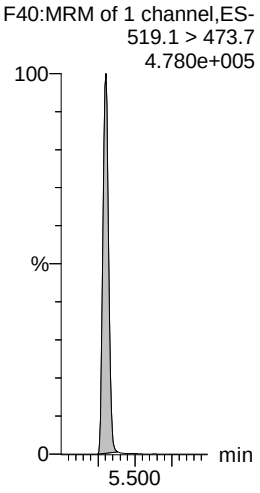
13C9-PFNA



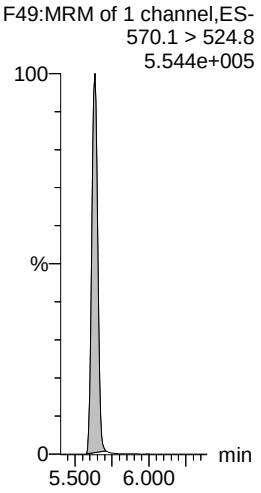
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-42.qld

Last Altered: Thursday, November 29, 2018 10:50:46 Pacific Standard Time
Printed: Thursday, November 29, 2018 10:54:54 Pacific Standard Time

Name: 181128M1_42, Date: 28-Nov-2018, Time: 19:42:56, ID: 1803626-09@10X 16-HS-03-SA2D 0.11367, Description: 16-HS-03-SA2D

	#	Name	Trace	Area	IS Area	wt/vol	RRF Mean	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	5	PFHxA	313 > 269	176205.516	821.185	0.114		3.30	1072.873	11748.5		NO	15.821	NO
2	40	13C2-PFHxA	315 > 270	821.185	1978.986	0.114	0.988	3.30	5.187	46.2	105.0	NO		
3	61	13C5-PFHxA	318 > 272.9	1978.986	1978.986	0.114	1.000	3.30	12.500	110.0	100.0	NO		
4	-1													

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Vista Analytical Laboratory

Rev: ANP 11/30/2018

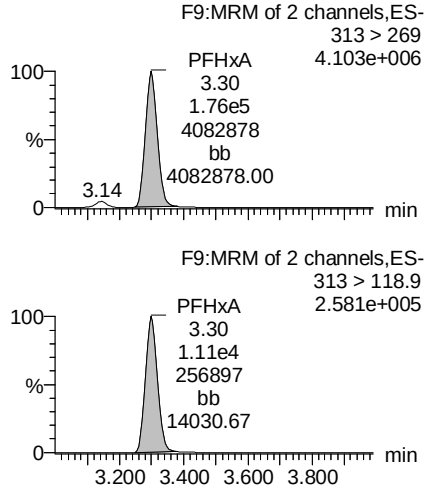
Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-42.qld

Last Altered: Thursday, November 29, 2018 10:50:46 Pacific Standard Time
Printed: Thursday, November 29, 2018 10:54:54 Pacific Standard Time

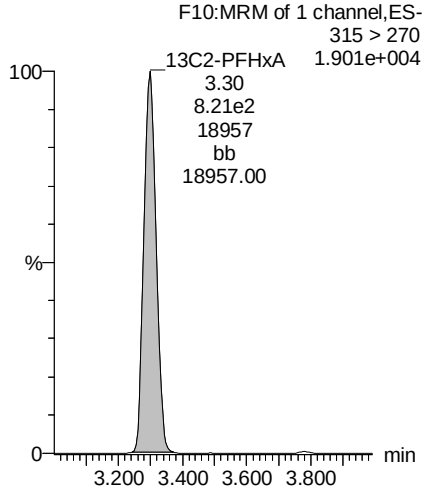
Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112818.mdb 29 Nov 2018 10:10:57
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Name: 181128M1_42, Date: 28-Nov-2018, Time: 19:42:56, ID: 1803626-09@10X 16-HS-03-SA2D 0.11367, Description: 16-HS-03-SA2D

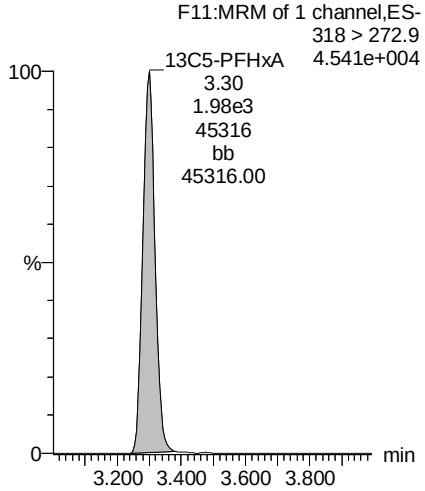
PFHxA



13C2-PFHxA



13C5-PFHxA



AD 11/29/2018

INJECTION INTERNAL STANDARD (IIS) AREAS,

INSTRUMENT BLANKS (IB)

AND

CONTINUTING CALIBRATION VERIFICATIONS CCV)

Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-IIS AREAS.qld

Last Altered: Monday, November 26, 2018 09:50:51 Pacific Standard Time
Printed: Monday, November 26, 2018 09:52:40 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_RS-11-14-18.mdb 14 Nov 2018 11:37:25
Calibration: 26 Nov 2018 09:50:51

Name: 181121M1_2, Date: 21-Nov-2018, Time: 13:58:50, ID: ST181121M1-1 PFC CS0 18K0903, Description: PFC CS0 18K0903

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181121M1-1 PFC CS0 18K0903	9.58e3	100.0	NO
2	2	13C5-PFHxA	ST181121M1-1 PFC CS0 18K0903	2.54e4	100.0	NO
3	3	13C3-PFHxS	ST181121M1-1 PFC CS0 18K0903	2.88e3	100.0	NO
4	4	13C8-PFOA	ST181121M1-1 PFC CS0 18K0903	3.05e4	100.0	NO
5	5	13C9-PFNA	ST181121M1-1 PFC CS0 18K0903	2.23e4	100.0	NO
6	6	13C4-PFOS	ST181121M1-1 PFC CS0 18K0903	3.08e3	100.0	NO
7	7	13C6-PFDA	ST181121M1-1 PFC CS0 18K0903	2.63e4	100.0	NO
8	8	13C7-PFUdA	ST181121M1-1 PFC CS0 18K0903	2.88e4	100.0	NO

Name: 181121M1_3, Date: 21-Nov-2018, Time: 14:09:28, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

Name: 181121M1_4, Date: 21-Nov-2018, Time: 14:41:33, ID: 1803552-02 WW1810291045GC 0.24014, Description: WW1810291045GC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803552-02 WW1810291045GC 0.24014	1.01e4	105.9	NO
2	2	13C5-PFHxA	1803552-02 WW1810291045GC 0.24014	1.63e4	64.3	NO
3	3	13C3-PFHxS	1803552-02 WW1810291045GC 0.24014	2.46e3	85.3	NO
4	4	13C8-PFOA	1803552-02 WW1810291045GC 0.24014	2.25e4	73.9	NO
5	5	13C9-PFNA	1803552-02 WW1810291045GC 0.24014	1.41e4	63.3	NO
6	6	13C4-PFOS	1803552-02 WW1810291045GC 0.24014	2.74e3	88.9	NO
7	7	13C6-PFDA	1803552-02 WW1810291045GC 0.24014	1.75e4	66.7	NO
8	8	13C7-PFUdA	1803552-02 WW1810291045GC 0.24014	1.83e4	63.6	NO

Name: 181121M1_5, Date: 21-Nov-2018, Time: 14:52:08, ID: B8K0091-MSD1 Matrix Spike Dup 0.11594, Description: Matrix Spike Dup

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0091-MSD1 Matrix Spike Dup 0.115...	5.06e3	52.8	NO
2	2	13C5-PFHxA	B8K0091-MSD1 Matrix Spike Dup 0.115...	1.15e4	45.3	YES
3	3	13C3-PFHxS	B8K0091-MSD1 Matrix Spike Dup 0.115...	2.69e3	93.2	NO
4	4	13C8-PFOA	B8K0091-MSD1 Matrix Spike Dup 0.115...	1.86e4	61.1	NO
5	5	13C9-PFNA	B8K0091-MSD1 Matrix Spike Dup 0.115...	1.46e4	65.6	NO
6	6	13C4-PFOS	B8K0091-MSD1 Matrix Spike Dup 0.115...	2.76e3	89.5	NO
7	7	13C6-PFDA	B8K0091-MSD1 Matrix Spike Dup 0.115...	1.74e4	66.3	NO

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Name: 181121M1_5, Date: 21-Nov-2018, Time: 14:52:08, ID: B8K0091-MSD1 Matrix Spike Dup 0.11594, Description: Matrix Spike Dup

	#	Name	ID	Area	%Rec	Area Out
8	8	13C7-PFUdA	B8K0091-MSD1 Matrix Spike Dup 0.115...	2.20e4	76.6	NO

Name: 181121M1_6, Date: 21-Nov-2018, Time: 15:02:46, ID: 1803615-01 A1-MW-04-SA2 0.11345, Description: A1-MW-04-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803615-01 A1-MW-04-SA2 0.11345	4.35e3	45.4	YES
2	2	13C5-PFHxA	1803615-01 A1-MW-04-SA2 0.11345	8.21e3	32.4	YES
3	3	13C3-PFHxS	1803615-01 A1-MW-04-SA2 0.11345	2.57e3	89.2	NO
4	4	13C8-PFOA	1803615-01 A1-MW-04-SA2 0.11345	1.30e4	42.7	YES
5	5	13C9-PFNA	1803615-01 A1-MW-04-SA2 0.11345	1.06e4	47.6	YES
6	6	13C4-PFOS	1803615-01 A1-MW-04-SA2 0.11345	2.70e3	87.5	NO
7	7	13C6-PFDA	1803615-01 A1-MW-04-SA2 0.11345	1.44e4	54.9	NO
8	8	13C7-PFUdA	1803615-01 A1-MW-04-SA2 0.11345	1.81e4	63.0	NO

Name: 181121M1_7, Date: 21-Nov-2018, Time: 15:13:20, ID: 1803615-02 A1-MW-05-SA2 0.11579, Description: A1-MW-05-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803615-02 A1-MW-05-SA2 0.11579	5.56e3	58.1	NO
2	2	13C5-PFHxA	1803615-02 A1-MW-05-SA2 0.11579	9.05e3	35.7	YES
3	3	13C3-PFHxS	1803615-02 A1-MW-05-SA2 0.11579	2.76e3	95.7	NO
4	4	13C8-PFOA	1803615-02 A1-MW-05-SA2 0.11579	1.24e4	40.8	YES
5	5	13C9-PFNA	1803615-02 A1-MW-05-SA2 0.11579	1.00e4	44.9	YES
6	6	13C4-PFOS	1803615-02 A1-MW-05-SA2 0.11579	2.77e3	89.9	NO
7	7	13C6-PFDA	1803615-02 A1-MW-05-SA2 0.11579	1.37e4	52.0	NO
8	8	13C7-PFUdA	1803615-02 A1-MW-05-SA2 0.11579	1.78e4	62.0	NO

Name: 181121M1_8, Date: 21-Nov-2018, Time: 15:23:58, ID: 1803615-04 A1-MW-50-SA2 0.11184, Description: A1-MW-50-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803615-04 A1-MW-50-SA2 0.11184	5.49e3	57.3	NO
2	2	13C5-PFHxA	1803615-04 A1-MW-50-SA2 0.11184	8.51e3	33.5	YES
3	3	13C3-PFHxS	1803615-04 A1-MW-50-SA2 0.11184	2.73e3	94.6	NO
4	4	13C8-PFOA	1803615-04 A1-MW-50-SA2 0.11184	1.12e4	36.8	YES
5	5	13C9-PFNA	1803615-04 A1-MW-50-SA2 0.11184	9.22e3	41.4	YES
6	6	13C4-PFOS	1803615-04 A1-MW-50-SA2 0.11184	2.74e3	88.9	NO
7	7	13C6-PFDA	1803615-04 A1-MW-50-SA2 0.11184	1.14e4	43.2	YES
8	8	13C7-PFUdA	1803615-04 A1-MW-50-SA2 0.11184	1.58e4	54.9	NO

Name: 181121M1_9, Date: 21-Nov-2018, Time: 15:34:36, ID: 1803615-05 A1-MW-50-SA2D 0.11445, Description: A1-MW-50-SA2D

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803615-05 A1-MW-50-SA2D 0.11445	5.50e3	57.4	NO
2	2	13C5-PFHxA	1803615-05 A1-MW-50-SA2D 0.11445	9.03e3	35.6	YES
3	3	13C3-PFHxS	1803615-05 A1-MW-50-SA2D 0.11445	2.77e3	96.2	NO
4	4	13C8-PFOA	1803615-05 A1-MW-50-SA2D 0.11445	1.30e4	42.7	YES
5	5	13C9-PFNA	1803615-05 A1-MW-50-SA2D 0.11445	1.06e4	47.5	YES
6	6	13C4-PFOS	1803615-05 A1-MW-50-SA2D 0.11445	2.80e3	90.8	NO

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Name: 181121M1_9, Date: 21-Nov-2018, Time: 15:34:36, ID: 1803615-05 A1-MW-50-SA2D 0.11445, Description: A1-MW-50-SA2D

	#	Name	ID	Area	%Rec	Area Out
7	7	13C6-PFDA	1803615-05 A1-MW-50-SA2D 0.11445	1.42e4	54.1	NO
8	8	13C7-PFUdA	1803615-05 A1-MW-50-SA2D 0.11445	1.79e4	62.4	NO

Name: 181121M1_10, Date: 21-Nov-2018, Time: 15:45:09, ID: 1803615-06 A1-MW-51-SA2 0.11681, Description: A1-MW-51-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803615-06 A1-MW-51-SA2 0.11681	6.05e3	63.1	NO
2	2	13C5-PFHxA	1803615-06 A1-MW-51-SA2 0.11681	9.45e3	37.3	YES
3	3	13C3-PFHxS	1803615-06 A1-MW-51-SA2 0.11681	2.58e3	89.7	NO
4	4	13C8-PFOA	1803615-06 A1-MW-51-SA2 0.11681	1.19e4	39.2	YES
5	5	13C9-PFNA	1803615-06 A1-MW-51-SA2 0.11681	9.00e3	40.4	YES
6	6	13C4-PFOS	1803615-06 A1-MW-51-SA2 0.11681	2.88e3	93.4	NO
7	7	13C6-PFDA	1803615-06 A1-MW-51-SA2 0.11681	1.17e4	44.6	YES
8	8	13C7-PFUdA	1803615-06 A1-MW-51-SA2 0.11681	1.50e4	52.1	NO

Name: 181121M1_11, Date: 21-Nov-2018, Time: 15:55:48, ID: 1803615-07 A1-MW-52-SA2 0.11468, Description: A1-MW-52-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803615-07 A1-MW-52-SA2 0.11468	4.73e3	49.4	YES
2	2	13C5-PFHxA	1803615-07 A1-MW-52-SA2 0.11468	7.07e3	27.9	YES
3	3	13C3-PFHxS	1803615-07 A1-MW-52-SA2 0.11468	2.60e3	90.1	NO
4	4	13C8-PFOA	1803615-07 A1-MW-52-SA2 0.11468	1.21e4	39.7	YES
5	5	13C9-PFNA	1803615-07 A1-MW-52-SA2 0.11468	9.43e3	42.3	YES
6	6	13C4-PFOS	1803615-07 A1-MW-52-SA2 0.11468	2.87e3	93.1	NO
7	7	13C6-PFDA	1803615-07 A1-MW-52-SA2 0.11468	1.24e4	47.2	YES
8	8	13C7-PFUdA	1803615-07 A1-MW-52-SA2 0.11468	1.68e4	58.3	NO

Name: 181121M1_12, Date: 21-Nov-2018, Time: 16:08:39, ID: B8K0097-BS1 OPR 0.125, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0097-BS1 OPR 0.125	1.40e4	145.6	NO
2	2	13C5-PFHxA	B8K0097-BS1 OPR 0.125	2.51e4	98.9	NO
3	3	13C3-PFHxS	B8K0097-BS1 OPR 0.125	3.13e3	108.8	NO
4	4	13C8-PFOA	B8K0097-BS1 OPR 0.125	2.75e4	90.2	NO
5	5	13C9-PFNA	B8K0097-BS1 OPR 0.125	1.89e4	85.0	NO
6	6	13C4-PFOS	B8K0097-BS1 OPR 0.125	3.28e3	106.4	NO
7	7	13C6-PFDA	B8K0097-BS1 OPR 0.125	2.26e4	85.8	NO
8	8	13C7-PFUdA	B8K0097-BS1 OPR 0.125	2.82e4	97.9	NO

Name: 181121M1_13, Date: 21-Nov-2018, Time: 16:19:13, ID: B8K0097-BSD1 LCSD 0.125, Description: LCSD

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0097-BSD1 LCSD 0.125	1.45e4	151.7	YES
2	2	13C5-PFHxA	B8K0097-BSD1 LCSD 0.125	2.66e4	104.8	NO
3	3	13C3-PFHxS	B8K0097-BSD1 LCSD 0.125	3.36e3	116.7	NO
4	4	13C8-PFOA	B8K0097-BSD1 LCSD 0.125	3.16e4	103.8	NO
5	5	13C9-PFNA	B8K0097-BSD1 LCSD 0.125	2.26e4	101.4	NO
6	6	13C4-PFOS	B8K0097-BSD1 LCSD 0.125	3.50e3	113.6	NO

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Name: 181121M1_13, Date: 21-Nov-2018, Time: 16:19:13, ID: B8K0097-BSD1 LCSD 0.125, Description: LCSD

	#	Name	ID	Area	%Rec	Area Out
7	7	13C6-PFDA	B8K0097-BSD1 LCSD 0.125	2.72e4	103.2	NO
8	8	13C7-PFUdA	B8K0097-BSD1 LCSD 0.125	3.20e4	111.2	NO

Name: 181121M1_14, Date: 21-Nov-2018, Time: 16:29:52, ID: B8K0097-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0097-BLK1 Method Blank 0.125	1.37e4	142.7	NO
2	2	13C5-PFHxA	B8K0097-BLK1 Method Blank 0.125	2.44e4	96.3	NO
3	3	13C3-PFHxS	B8K0097-BLK1 Method Blank 0.125	3.19e3	110.6	NO
4	4	13C8-PFOA	B8K0097-BLK1 Method Blank 0.125	2.88e4	94.4	NO
5	5	13C9-PFNA	B8K0097-BLK1 Method Blank 0.125	2.12e4	95.1	NO
6	6	13C4-PFOS	B8K0097-BLK1 Method Blank 0.125	3.16e3	102.5	NO
7	7	13C6-PFDA	B8K0097-BLK1 Method Blank 0.125	2.46e4	93.4	NO
8	8	13C7-PFUdA	B8K0097-BLK1 Method Blank 0.125	2.99e4	104.1	NO

Name: 181121M1_15, Date: 21-Nov-2018, Time: 16:40:30, ID: 1803626-01 16-HS-03-SA2 0.11792, Description: 16-HS-03-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803626-01 16-HS-03-SA2 0.11792	1.24e4	129.5	NO
2	2	13C5-PFHxA	1803626-01 16-HS-03-SA2 0.11792	1.62e4	63.7	NO
3	3	13C3-PFHxS	1803626-01 16-HS-03-SA2 0.11792	3.26e3	113.2	NO
4	4	13C8-PFOA	1803626-01 16-HS-03-SA2 0.11792	2.60e4	85.2	NO
5	5	13C9-PFNA	1803626-01 16-HS-03-SA2 0.11792	1.82e4	81.8	NO
6	6	13C4-PFOS	1803626-01 16-HS-03-SA2 0.11792	3.58e3	116.2	NO
7	7	13C6-PFDA	1803626-01 16-HS-03-SA2 0.11792	2.22e4	84.3	NO
8	8	13C7-PFUdA	1803626-01 16-HS-03-SA2 0.11792	2.60e4	90.4	NO

Name: 181121M1_16, Date: 21-Nov-2018, Time: 16:51:04, ID: 1803626-02 16-MW-06-SA2 0.1197, Description: 16-MW-06-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803626-02 16-MW-06-SA2 0.1197	1.54e4	160.8	YES
2	2	13C5-PFHxA	1803626-02 16-MW-06-SA2 0.1197	2.75e4	108.5	NO
3	3	13C3-PFHxS	1803626-02 16-MW-06-SA2 0.1197	3.64e3	126.3	NO
4	4	13C8-PFOA	1803626-02 16-MW-06-SA2 0.1197	3.06e4	100.4	NO
5	5	13C9-PFNA	1803626-02 16-MW-06-SA2 0.1197	2.24e4	100.4	NO
6	6	13C4-PFOS	1803626-02 16-MW-06-SA2 0.1197	3.87e3	125.7	NO
7	7	13C6-PFDA	1803626-02 16-MW-06-SA2 0.1197	2.66e4	100.9	NO
8	8	13C7-PFUdA	1803626-02 16-MW-06-SA2 0.1197	3.13e4	108.8	NO

Name: 181121M1_17, Date: 21-Nov-2018, Time: 17:01:42, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO

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Name: 181121M1_17, Date: 21-Nov-2018, Time: 17:01:42, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

Name: 181121M1_18, Date: 21-Nov-2018, Time: 17:12:15, ID: ST181121M1-2 PFC CS3 18K0906, Description: PFC CS3 18K0906

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181121M1-2 PFC CS3 18K0906	1.00e4	104.7	NO
2	2	13C5-PFHxA	ST181121M1-2 PFC CS3 18K0906	2.89e4	114.0	NO
3	3	13C3-PFHxS	ST181121M1-2 PFC CS3 18K0906	3.32e3	115.2	NO
4	4	13C8-PFOA	ST181121M1-2 PFC CS3 18K0906	3.37e4	110.5	NO
5	5	13C9-PFNA	ST181121M1-2 PFC CS3 18K0906	2.39e4	107.1	NO
6	6	13C4-PFOS	ST181121M1-2 PFC CS3 18K0906	3.63e3	117.7	NO
7	7	13C6-PFDA	ST181121M1-2 PFC CS3 18K0906	2.84e4	108.0	NO
8	8	13C7-PFUdA	ST181121M1-2 PFC CS3 18K0906	3.33e4	115.8	NO

Name: 181121M1_19, Date: 21-Nov-2018, Time: 17:22:53, ID: 1803626-03 16-MW-08-SA2 0.11955, Description: 16-MW-08-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803626-03 16-MW-08-SA2 0.11955	1.43e4	149.4	NO
2	2	13C5-PFHxA	1803626-03 16-MW-08-SA2 0.11955	2.64e4	103.9	NO
3	3	13C3-PFHxS	1803626-03 16-MW-08-SA2 0.11955	3.20e3	111.1	NO
4	4	13C8-PFOA	1803626-03 16-MW-08-SA2 0.11955	3.23e4	105.9	NO
5	5	13C9-PFNA	1803626-03 16-MW-08-SA2 0.11955	2.37e4	106.2	NO
6	6	13C4-PFOS	1803626-03 16-MW-08-SA2 0.11955	3.37e3	109.2	NO
7	7	13C6-PFDA	1803626-03 16-MW-08-SA2 0.11955	2.75e4	104.6	NO
8	8	13C7-PFUdA	1803626-03 16-MW-08-SA2 0.11955	3.04e4	105.7	NO

Name: 181121M1_20, Date: 21-Nov-2018, Time: 17:33:26, ID: 1803626-04 16-MW-09-SA2 0.11735, Description: 16-MW-09-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803626-04 16-MW-09-SA2 0.11735	1.37e4	142.8	NO
2	2	13C5-PFHxA	1803626-04 16-MW-09-SA2 0.11735	2.41e4	95.0	NO
3	3	13C3-PFHxS	1803626-04 16-MW-09-SA2 0.11735	3.35e3	116.1	NO
4	4	13C8-PFOA	1803626-04 16-MW-09-SA2 0.11735	2.69e4	88.2	NO
5	5	13C9-PFNA	1803626-04 16-MW-09-SA2 0.11735	2.02e4	90.5	NO
6	6	13C4-PFOS	1803626-04 16-MW-09-SA2 0.11735	3.63e3	117.7	NO
7	7	13C6-PFDA	1803626-04 16-MW-09-SA2 0.11735	2.31e4	87.6	NO
8	8	13C7-PFUdA	1803626-04 16-MW-09-SA2 0.11735	2.94e4	102.3	NO

Name: 181121M1_21, Date: 21-Nov-2018, Time: 17:44:04, ID: 1803626-05 A1-MW-18-SA2 0.11682, Description: A1-MW-18-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803626-05 A1-MW-18-SA2 0.11682	1.54e4	161.0	YES
2	2	13C5-PFHxA	1803626-05 A1-MW-18-SA2 0.11682	2.92e4	115.3	NO
3	3	13C3-PFHxS	1803626-05 A1-MW-18-SA2 0.11682	3.51e3	121.7	NO
4	4	13C8-PFOA	1803626-05 A1-MW-18-SA2 0.11682	3.40e4	111.4	NO
5	5	13C9-PFNA	1803626-05 A1-MW-18-SA2 0.11682	2.58e4	115.8	NO
6	6	13C4-PFOS	1803626-05 A1-MW-18-SA2 0.11682	3.95e3	128.2	NO

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Name: 181121M1_21, Date: 21-Nov-2018, Time: 17:44:04, ID: 1803626-05 A1-MW-18-SA2 0.11682, Description: A1-MW-18-SA2

	#	Name	ID	Area	%Rec	Area Out
7	7	13C6-PFDA	1803626-05 A1-MW-18-SA2 0.11682	2.94e4	111.6	NO
8	8	13C7-PFUdA	1803626-05 A1-MW-18-SA2 0.11682	3.53e4	122.7	NO

Name: 181121M1_22, Date: 21-Nov-2018, Time: 17:54:42, ID: 1803626-06 A1-MW-19-SA2 0.11616, Description: A1-MW-19-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803626-06 A1-MW-19-SA2 0.11616	1.44e4	150.5	YES
2	2	13C5-PFHxA	1803626-06 A1-MW-19-SA2 0.11616	2.71e4	106.8	NO
3	3	13C3-PFHxS	1803626-06 A1-MW-19-SA2 0.11616	3.38e3	117.2	NO
4	4	13C8-PFOA	1803626-06 A1-MW-19-SA2 0.11616	3.09e4	101.5	NO
5	5	13C9-PFNA	1803626-06 A1-MW-19-SA2 0.11616	2.37e4	106.5	NO
6	6	13C4-PFOS	1803626-06 A1-MW-19-SA2 0.11616	3.50e3	113.5	NO
7	7	13C6-PFDA	1803626-06 A1-MW-19-SA2 0.11616	2.72e4	103.5	NO
8	8	13C7-PFUdA	1803626-06 A1-MW-19-SA2 0.11616	3.18e4	110.6	NO

Name: 181121M1_23, Date: 21-Nov-2018, Time: 18:05:16, ID: 1803626-07 FRB-20181113 0.1174, Description: FRB-20181113

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803626-07 FRB-20181113 0.1174	1.44e4	150.3	YES
2	2	13C5-PFHxA	1803626-07 FRB-20181113 0.1174	2.69e4	106.1	NO
3	3	13C3-PFHxS	1803626-07 FRB-20181113 0.1174	3.23e3	112.0	NO
4	4	13C8-PFOA	1803626-07 FRB-20181113 0.1174	3.09e4	101.5	NO
5	5	13C9-PFNA	1803626-07 FRB-20181113 0.1174	2.37e4	106.4	NO
6	6	13C4-PFOS	1803626-07 FRB-20181113 0.1174	3.23e3	104.9	NO
7	7	13C6-PFDA	1803626-07 FRB-20181113 0.1174	2.66e4	101.2	NO
8	8	13C7-PFUdA	1803626-07 FRB-20181113 0.1174	3.10e4	107.9	NO

Name: 181121M1_24, Date: 21-Nov-2018, Time: 18:15:55, ID: 1803626-08 A1-MW-53-SA2 0.11896, Description: A1-MW-53-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803626-08 A1-MW-53-SA2 0.11896	1.23e4	127.9	NO
2	2	13C5-PFHxA	1803626-08 A1-MW-53-SA2 0.11896	2.07e4	81.7	NO
3	3	13C3-PFHxS	1803626-08 A1-MW-53-SA2 0.11896	2.73e3	94.7	NO
4	4	13C8-PFOA	1803626-08 A1-MW-53-SA2 0.11896	2.69e4	88.4	NO
5	5	13C9-PFNA	1803626-08 A1-MW-53-SA2 0.11896	1.95e4	87.4	NO
6	6	13C4-PFOS	1803626-08 A1-MW-53-SA2 0.11896	2.96e3	96.1	NO
7	7	13C6-PFDA	1803626-08 A1-MW-53-SA2 0.11896	2.28e4	86.5	NO
8	8	13C7-PFUdA	1803626-08 A1-MW-53-SA2 0.11896	2.66e4	92.5	NO

Name: 181121M1_25, Date: 21-Nov-2018, Time: 18:26:33, ID: 1803626-09 16-HS-03-SA2D 0.11367, Description: 16-HS-03-SA2D

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803626-09 16-HS-03-SA2D 0.11367	1.06e4	110.3	NO
2	2	13C5-PFHxA	1803626-09 16-HS-03-SA2D 0.11367	1.45e4	57.3	NO
3	3	13C3-PFHxS	1803626-09 16-HS-03-SA2D 0.11367	2.55e3	88.4	NO
4	4	13C8-PFOA	1803626-09 16-HS-03-SA2D 0.11367	2.47e4	81.2	NO
5	5	13C9-PFNA	1803626-09 16-HS-03-SA2D 0.11367	1.84e4	82.8	NO
6	6	13C4-PFOS	1803626-09 16-HS-03-SA2D 0.11367	2.67e3	86.6	NO

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Name: 181121M1_25, Date: 21-Nov-2018, Time: 18:26:33, ID: 1803626-09 16-HS-03-SA2D 0.11367, Description: 16-HS-03-SA2D

	#	Name	ID	Area	%Rec	Area Out
7	7	13C6-PFDA	1803626-09 16-HS-03-SA2D 0.11367	2.08e4	79.2	NO
8	8	13C7-PFUdA	1803626-09 16-HS-03-SA2D 0.11367	2.53e4	88.1	NO

Name: 181121M1_26, Date: 21-Nov-2018, Time: 18:37:06, ID: 1803629-01 REEPDW1366 0.11758, Description: REEPDW1366

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803629-01 REEPDW1366 0.11758	1.19e4	124.2	NO
2	2	13C5-PFHxA	1803629-01 REEPDW1366 0.11758	2.26e4	89.2	NO
3	3	13C3-PFHxS	1803629-01 REEPDW1366 0.11758	2.66e3	92.2	NO
4	4	13C8-PFOA	1803629-01 REEPDW1366 0.11758	2.52e4	82.8	NO
5	5	13C9-PFNA	1803629-01 REEPDW1366 0.11758	1.89e4	84.9	NO
6	6	13C4-PFOS	1803629-01 REEPDW1366 0.11758	2.87e3	93.0	NO
7	7	13C6-PFDA	1803629-01 REEPDW1366 0.11758	2.09e4	79.2	NO
8	8	13C7-PFUdA	1803629-01 REEPDW1366 0.11758	2.49e4	86.7	NO

Name: 181121M1_27, Date: 21-Nov-2018, Time: 18:47:45, ID: 1803629-02 REEPDW1367 0.11776, Description: REEPDW1367

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803629-02 REEPDW1367 0.11776	1.37e4	142.5	NO
2	2	13C5-PFHxA	1803629-02 REEPDW1367 0.11776	2.54e4	100.1	NO
3	3	13C3-PFHxS	1803629-02 REEPDW1367 0.11776	3.08e3	107.1	NO
4	4	13C8-PFOA	1803629-02 REEPDW1367 0.11776	2.86e4	94.0	NO
5	5	13C9-PFNA	1803629-02 REEPDW1367 0.11776	2.04e4	91.6	NO
6	6	13C4-PFOS	1803629-02 REEPDW1367 0.11776	3.26e3	105.9	NO
7	7	13C6-PFDA	1803629-02 REEPDW1367 0.11776	2.53e4	96.2	NO
8	8	13C7-PFUdA	1803629-02 REEPDW1367 0.11776	2.86e4	99.3	NO

Name: 181121M1_28, Date: 21-Nov-2018, Time: 18:58:18, ID: 1803629-03 REEPDW1369 0.11504, Description: REEPDW1369

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803629-03 REEPDW1369 0.11504	1.34e4	140.4	NO
2	2	13C5-PFHxA	1803629-03 REEPDW1369 0.11504	2.47e4	97.4	NO
3	3	13C3-PFHxS	1803629-03 REEPDW1369 0.11504	2.99e3	104.0	NO
4	4	13C8-PFOA	1803629-03 REEPDW1369 0.11504	2.74e4	89.7	NO
5	5	13C9-PFNA	1803629-03 REEPDW1369 0.11504	1.98e4	88.6	NO
6	6	13C4-PFOS	1803629-03 REEPDW1369 0.11504	3.18e3	103.1	NO
7	7	13C6-PFDA	1803629-03 REEPDW1369 0.11504	2.47e4	93.8	NO
8	8	13C7-PFUdA	1803629-03 REEPDW1369 0.11504	2.85e4	99.2	NO

Name: 181121M1_29, Date: 21-Nov-2018, Time: 19:08:56, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO

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Name: 181121M1_29, Date: 21-Nov-2018, Time: 19:08:56, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

Name: 181121M1_30, Date: 21-Nov-2018, Time: 19:19:29, ID: ST181121M1-3 PFC CS3 18K0906, Description: PFC CS3 18K0906

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181121M1-3 PFC CS3 18K0906	1.04e4	109.0	NO
2	2	13C5-PFHxA	ST181121M1-3 PFC CS3 18K0906	2.58e4	101.5	NO
3	3	13C3-PFHxS	ST181121M1-3 PFC CS3 18K0906	3.15e3	109.3	NO
4	4	13C8-PFOA	ST181121M1-3 PFC CS3 18K0906	3.03e4	99.5	NO
5	5	13C9-PFNA	ST181121M1-3 PFC CS3 18K0906	2.26e4	101.3	NO
6	6	13C4-PFOS	ST181121M1-3 PFC CS3 18K0906	3.34e3	108.4	NO
7	7	13C6-PFDA	ST181121M1-3 PFC CS3 18K0906	2.52e4	95.9	NO
8	8	13C7-PFUdA	ST181121M1-3 PFC CS3 18K0906	2.97e4	103.4	NO

Name: 181121M1_31, Date: 21-Nov-2018, Time: 19:30:07, ID: 1803629-04 REEPDW1368 0.11385, Description: REEPDW1368

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803629-04 REEPDW1368 0.11385	1.42e4	148.0	NO
2	2	13C5-PFHxA	1803629-04 REEPDW1368 0.11385	2.59e4	102.1	NO
3	3	13C3-PFHxS	1803629-04 REEPDW1368 0.11385	3.16e3	109.7	NO
4	4	13C8-PFOA	1803629-04 REEPDW1368 0.11385	3.00e4	98.4	NO
5	5	13C9-PFNA	1803629-04 REEPDW1368 0.11385	2.30e4	103.1	NO
6	6	13C4-PFOS	1803629-04 REEPDW1368 0.11385	3.38e3	109.5	NO
7	7	13C6-PFDA	1803629-04 REEPDW1368 0.11385	2.51e4	95.2	NO
8	8	13C7-PFUdA	1803629-04 REEPDW1368 0.11385	2.98e4	103.5	NO

Name: 181121M1_32, Date: 21-Nov-2018, Time: 19:40:41, ID: 1803629-05 REEPDW1370 0.1146, Description: REEPDW1370

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803629-05 REEPDW1370 0.1146	1.32e4	137.9	NO
2	2	13C5-PFHxA	1803629-05 REEPDW1370 0.1146	2.42e4	95.6	NO
3	3	13C3-PFHxS	1803629-05 REEPDW1370 0.1146	2.91e3	100.9	NO
4	4	13C8-PFOA	1803629-05 REEPDW1370 0.1146	2.84e4	93.2	NO
5	5	13C9-PFNA	1803629-05 REEPDW1370 0.1146	2.05e4	92.1	NO
6	6	13C4-PFOS	1803629-05 REEPDW1370 0.1146	3.16e3	102.4	NO
7	7	13C6-PFDA	1803629-05 REEPDW1370 0.1146	2.38e4	90.4	NO
8	8	13C7-PFUdA	1803629-05 REEPDW1370 0.1146	2.82e4	98.0	NO

Name: 181121M1_33, Date: 21-Nov-2018, Time: 19:51:19, ID: 1803629-06 REEPDW585 0.11471, Description: REEPDW585

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803629-06 REEPDW585 0.11471	1.49e4	155.1	YES
2	2	13C5-PFHxA	1803629-06 REEPDW585 0.11471	2.73e4	107.5	NO
3	3	13C3-PFHxS	1803629-06 REEPDW585 0.11471	3.36e3	116.5	NO
4	4	13C8-PFOA	1803629-06 REEPDW585 0.11471	3.23e4	105.8	NO
5	5	13C9-PFNA	1803629-06 REEPDW585 0.11471	2.27e4	102.0	NO
6	6	13C4-PFOS	1803629-06 REEPDW585 0.11471	3.53e3	114.5	NO

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Name: 181121M1_33, Date: 21-Nov-2018, Time: 19:51:19, ID: 1803629-06 REEPDW585 0.11471, Description: REEPDW585

	#	Name	ID	Area	%Rec	Area Out
7	7	13C6-PFDA	1803629-06 REEPDW585 0.11471	2.66e4	101.2	NO
8	8	13C7-PFUdA	1803629-06 REEPDW585 0.11471	3.03e4	105.3	NO

Name: 181121M1_34, Date: 21-Nov-2018, Time: 20:01:52, ID: 1803629-07 REEPDW1371 0.11573, Description: REEPDW1371

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803629-07 REEPDW1371 0.11573	1.42e4	148.2	NO
2	2	13C5-PFHxA	1803629-07 REEPDW1371 0.11573	2.59e4	102.0	NO
3	3	13C3-PFHxS	1803629-07 REEPDW1371 0.11573	3.28e3	113.8	NO
4	4	13C8-PFOA	1803629-07 REEPDW1371 0.11573	2.89e4	94.8	NO
5	5	13C9-PFNA	1803629-07 REEPDW1371 0.11573	2.07e4	93.0	NO
6	6	13C4-PFOS	1803629-07 REEPDW1371 0.11573	3.57e3	115.9	NO
7	7	13C6-PFDA	1803629-07 REEPDW1371 0.11573	2.08e4	79.2	NO
8	8	13C7-PFUdA	1803629-07 REEPDW1371 0.11573	2.55e4	88.8	NO

Name: 181121M1_35, Date: 21-Nov-2018, Time: 20:12:30, ID: B8K0119-BS1 OPR 0.125, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0119-BS1 OPR 0.125	1.15e4	119.6	NO
2	2	13C5-PFHxA	B8K0119-BS1 OPR 0.125	2.19e4	86.2	NO
3	3	13C3-PFHxS	B8K0119-BS1 OPR 0.125	2.95e3	102.3	NO
4	4	13C8-PFOA	B8K0119-BS1 OPR 0.125	2.67e4	87.7	NO
5	5	13C9-PFNA	B8K0119-BS1 OPR 0.125	1.63e4	72.9	NO
6	6	13C4-PFOS	B8K0119-BS1 OPR 0.125	1.55e3	50.2	NO
7	7	13C6-PFDA	B8K0119-BS1 OPR 0.125	9.48e3	36.0	YES
8	8	13C7-PFUdA	B8K0119-BS1 OPR 0.125	4.41e3	15.4	YES

Name: 181121M1_36, Date: 21-Nov-2018, Time: 20:23:04, ID: B8K0119-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0119-BLK1 Method Blank 0.125	1.42e4	147.8	NO
2	2	13C5-PFHxA	B8K0119-BLK1 Method Blank 0.125	2.73e4	107.6	NO
3	3	13C3-PFHxS	B8K0119-BLK1 Method Blank 0.125	3.63e3	126.0	NO
4	4	13C8-PFOA	B8K0119-BLK1 Method Blank 0.125	3.30e4	108.3	NO
5	5	13C9-PFNA	B8K0119-BLK1 Method Blank 0.125	2.13e4	95.6	NO
6	6	13C4-PFOS	B8K0119-BLK1 Method Blank 0.125	2.23e3	72.3	NO
7	7	13C6-PFDA	B8K0119-BLK1 Method Blank 0.125	1.31e4	49.6	YES
8	8	13C7-PFUdA	B8K0119-BLK1 Method Blank 0.125	4.52e3	15.7	YES

Name: 181121M1_37, Date: 21-Nov-2018, Time: 20:33:42, ID: 1803644-01 MW-2 0.11289, Description: MW-2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803644-01 MW-2 0.11289	1.02e4	106.2	NO
2	2	13C5-PFHxA	1803644-01 MW-2 0.11289	1.91e4	75.4	NO
3	3	13C3-PFHxS	1803644-01 MW-2 0.11289	2.77e3	96.2	NO
4	4	13C8-PFOA	1803644-01 MW-2 0.11289	2.07e4	68.0	NO
5	5	13C9-PFNA	1803644-01 MW-2 0.11289	1.04e4	46.6	YES
6	6	13C4-PFOS	1803644-01 MW-2 0.11289	1.58e3	51.2	NO

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Name: 181121M1_37, Date: 21-Nov-2018, Time: 20:33:42, ID: 1803644-01 MW-2 0.11289, Description: MW-2

	#	Name	ID	Area	%Rec	Area Out
7	7	13C6-PFDA	1803644-01 MW-2 0.11289	6.09e3	23.1	YES
8	8	13C7-PFUdA	1803644-01 MW-2 0.11289	3.94e3	13.7	YES

Name: 181121M1_38, Date: 21-Nov-2018, Time: 20:44:15, ID: 1803644-02 MW-3 0.11758, Description: MW-3

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803644-02 MW-3 0.11758	1.17e4	122.1	NO
2	2	13C5-PFHxA	1803644-02 MW-3 0.11758	2.22e4	87.4	NO
3	3	13C3-PFHxS	1803644-02 MW-3 0.11758	2.97e3	102.9	NO
4	4	13C8-PFOA	1803644-02 MW-3 0.11758	2.45e4	80.4	NO
5	5	13C9-PFNA	1803644-02 MW-3 0.11758	1.48e4	66.4	NO
6	6	13C4-PFOS	1803644-02 MW-3 0.11758	2.07e3	67.2	NO
7	7	13C6-PFDA	1803644-02 MW-3 0.11758	8.70e3	33.0	YES
8	8	13C7-PFUdA	1803644-02 MW-3 0.11758	3.57e3	12.4	YES

Name: 181121M1_39, Date: 21-Nov-2018, Time: 20:54:53, ID: 1803644-03 MW-5A 0.11473, Description: MW-5A

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803644-03 MW-5A 0.11473	9.31e3	97.1	NO
2	2	13C5-PFHxA	1803644-03 MW-5A 0.11473	1.72e4	67.8	NO
3	3	13C3-PFHxS	1803644-03 MW-5A 0.11473	2.29e3	79.5	NO
4	4	13C8-PFOA	1803644-03 MW-5A 0.11473	1.89e4	62.1	NO
5	5	13C9-PFNA	1803644-03 MW-5A 0.11473	1.29e4	57.9	NO
6	6	13C4-PFOS	1803644-03 MW-5A 0.11473	1.88e3	61.1	NO
7	7	13C6-PFDA	1803644-03 MW-5A 0.11473	1.04e4	39.7	YES
8	8	13C7-PFUdA	1803644-03 MW-5A 0.11473	6.32e3	22.0	YES

Name: 181121M1_40, Date: 21-Nov-2018, Time: 21:05:32, ID: 1803644-04 WD-6 0.11082, Description: WD-6

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803644-04 WD-6 0.11082	1.17e4	122.3	NO
2	2	13C5-PFHxA	1803644-04 WD-6 0.11082	2.22e4	87.5	NO
3	3	13C3-PFHxS	1803644-04 WD-6 0.11082	2.87e3	99.5	NO
4	4	13C8-PFOA	1803644-04 WD-6 0.11082	2.32e4	76.0	NO
5	5	13C9-PFNA	1803644-04 WD-6 0.11082	1.18e4	53.1	NO
6	6	13C4-PFOS	1803644-04 WD-6 0.11082	1.41e3	45.7	YES
7	7	13C6-PFDA	1803644-04 WD-6 0.11082	5.30e3	20.1	YES
8	8	13C7-PFUdA	1803644-04 WD-6 0.11082	3.89e3	13.5	YES

Name: 181121M1_41, Date: 21-Nov-2018, Time: 21:16:05, ID: 1803644-05 B-102D 0.11429, Description: B-102D

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803644-05 B-102D 0.11429	1.16e4	121.0	NO
2	2	13C5-PFHxA	1803644-05 B-102D 0.11429	2.19e4	86.5	NO
3	3	13C3-PFHxS	1803644-05 B-102D 0.11429	2.79e3	96.9	NO
4	4	13C8-PFOA	1803644-05 B-102D 0.11429	2.48e4	81.4	NO
5	5	13C9-PFNA	1803644-05 B-102D 0.11429	1.61e4	72.1	NO
6	6	13C4-PFOS	1803644-05 B-102D 0.11429	1.98e3	64.2	NO

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Name: 181121M1_41, Date: 21-Nov-2018, Time: 21:16:05, ID: 1803644-05 B-102D 0.11429, Description: B-102D

	#	Name	ID	Area	%Rec	Area Out
7	7	13C6-PFDA	1803644-05 B-102D 0.11429	9.80e3	37.2	YES
8	8	13C7-PFUdA	1803644-05 B-102D 0.11429	3.60e3	12.5	YES

Name: 181121M1_42, Date: 21-Nov-2018, Time: 21:26:43, ID: 1803644-06 B-105A 0.11234, Description: B-105A

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803644-06 B-105A 0.11234	9.01e3	94.1	NO
2	2	13C5-PFHxA	1803644-06 B-105A 0.11234	1.90e4	75.0	NO
3	3	13C3-PFHxS	1803644-06 B-105A 0.11234	2.89e3	100.2	NO
4	4	13C8-PFOA	1803644-06 B-105A 0.11234	2.17e4	71.1	NO
5	5	13C9-PFNA	1803644-06 B-105A 0.11234	1.38e4	61.9	NO
6	6	13C4-PFOS	1803644-06 B-105A 0.11234	2.22e3	72.0	NO
7	7	13C6-PFDA	1803644-06 B-105A 0.11234	1.01e4	38.4	YES
8	8	13C7-PFUdA	1803644-06 B-105A 0.11234	7.88e3	27.4	YES

Name: 181121M1_43, Date: 21-Nov-2018, Time: 21:37:15, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA	5.32e0	0.0	YES
8	8	13C7-PFUdA	IPA			NO

Name: 181121M1_44, Date: 21-Nov-2018, Time: 21:47:53, ID: ST181121M1-4 PFC CS3 18K0906, Description: PFC CS3 18K0906

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181121M1-4 PFC CS3 18K0906	1.07e4	111.3	NO
2	2	13C5-PFHxA	ST181121M1-4 PFC CS3 18K0906	2.92e4	115.3	NO
3	3	13C3-PFHxS	ST181121M1-4 PFC CS3 18K0906	3.61e3	125.5	NO
4	4	13C8-PFOA	ST181121M1-4 PFC CS3 18K0906	3.39e4	111.1	NO
5	5	13C9-PFNA	ST181121M1-4 PFC CS3 18K0906	2.54e4	113.9	NO
6	6	13C4-PFOS	ST181121M1-4 PFC CS3 18K0906	3.77e3	122.1	NO
7	7	13C6-PFDA	ST181121M1-4 PFC CS3 18K0906	2.80e4	106.5	NO
8	8	13C7-PFUdA	ST181121M1-4 PFC CS3 18K0906	3.33e4	115.9	NO

Name: 181121M1_45, Date: 21-Nov-2018, Time: 21:58:27, ID: 1803644-07 B-110D 0.11244, Description: B-110D

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803644-07 B-110D 0.11244	1.13e4	117.5	NO
2	2	13C5-PFHxA	1803644-07 B-110D 0.11244	2.21e4	87.0	NO
3	3	13C3-PFHxS	1803644-07 B-110D 0.11244	2.91e3	100.9	NO
4	4	13C8-PFOA	1803644-07 B-110D 0.11244	2.58e4	84.7	NO
5	5	13C9-PFNA	1803644-07 B-110D 0.11244	1.84e4	82.5	NO
6	6	13C4-PFOS	1803644-07 B-110D 0.11244	2.61e3	84.6	NO

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Name: 181121M1_45, Date: 21-Nov-2018, Time: 21:58:27, ID: 1803644-07 B-110D 0.11244, Description: B-110D

	#	Name	ID	Area	%Rec	Area Out
7	7	13C6-PFDA	1803644-07 B-110D 0.11244	1.61e4	61.3	NO
8	8	13C7-PFUdA	1803644-07 B-110D 0.11244	9.06e3	31.5	YES

Name: 181121M1_46, Date: 21-Nov-2018, Time: 22:09:05, ID: 1803644-08 B-202S 0.11215, Description: B-202S

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803644-08 B-202S 0.11215	1.37e4	142.8	NO
2	2	13C5-PFHxA	1803644-08 B-202S 0.11215	2.55e4	100.5	NO
3	3	13C3-PFHxS	1803644-08 B-202S 0.11215	3.35e3	116.2	NO
4	4	13C8-PFOA	1803644-08 B-202S 0.11215	2.93e4	96.1	NO
5	5	13C9-PFNA	1803644-08 B-202S 0.11215	1.94e4	87.0	NO
6	6	13C4-PFOS	1803644-08 B-202S 0.11215	2.24e3	72.7	NO
7	7	13C6-PFDA	1803644-08 B-202S 0.11215	1.24e4	47.1	YES
8	8	13C7-PFUdA	1803644-08 B-202S 0.11215	5.57e3	19.4	YES

Name: 181121M1_47, Date: 21-Nov-2018, Time: 22:19:38, ID: 1803644-09 B-202D 0.11743, Description: B-202D

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803644-09 B-202D 0.11743	1.88e4	195.9	YES
2	2	13C5-PFHxA	1803644-09 B-202D 0.11743	3.49e4	137.4	NO
3	3	13C3-PFHxS	1803644-09 B-202D 0.11743	4.67e3	162.0	YES
4	4	13C8-PFOA	1803644-09 B-202D 0.11743	3.91e4	128.4	NO
5	5	13C9-PFNA	1803644-09 B-202D 0.11743	2.72e4	121.9	NO
6	6	13C4-PFOS	1803644-09 B-202D 0.11743	4.02e3	130.3	NO
7	7	13C6-PFDA	1803644-09 B-202D 0.11743	2.35e4	89.4	NO
8	8	13C7-PFUdA	1803644-09 B-202D 0.11743	1.64e4	56.9	NO

Name: 181121M1_48, Date: 21-Nov-2018, Time: 22:30:17, ID: 1803644-10 SG-1 0.11503, Description: SG-1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803644-10 SG-1 0.11503	1.25e4	131.0	NO
2	2	13C5-PFHxA	1803644-10 SG-1 0.11503	2.32e4	91.5	NO
3	3	13C3-PFHxS	1803644-10 SG-1 0.11503	3.17e3	110.1	NO
4	4	13C8-PFOA	1803644-10 SG-1 0.11503	2.69e4	88.3	NO
5	5	13C9-PFNA	1803644-10 SG-1 0.11503	1.87e4	83.9	NO
6	6	13C4-PFOS	1803644-10 SG-1 0.11503	2.59e3	84.1	NO
7	7	13C6-PFDA	1803644-10 SG-1 0.11503	1.47e4	55.7	NO
8	8	13C7-PFUdA	1803644-10 SG-1 0.11503	9.55e3	33.2	YES

Name: 181121M1_49, Date: 21-Nov-2018, Time: 22:40:49, ID: 1803644-11 SG-2 0.11322, Description: SG-2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803644-11 SG-2 0.11322	1.21e4	126.4	NO
2	2	13C5-PFHxA	1803644-11 SG-2 0.11322	2.25e4	88.6	NO
3	3	13C3-PFHxS	1803644-11 SG-2 0.11322	2.99e3	103.7	NO
4	4	13C8-PFOA	1803644-11 SG-2 0.11322	2.50e4	81.9	NO
5	5	13C9-PFNA	1803644-11 SG-2 0.11322	1.79e4	80.4	NO
6	6	13C4-PFOS	1803644-11 SG-2 0.11322	2.54e3	82.5	NO

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Name: 181121M1_49, Date: 21-Nov-2018, Time: 22:40:49, ID: 1803644-11 SG-2 0.11322, Description: SG-2

	#	Name	ID	Area	%Rec	Area Out
7	7	13C6-PFDA	1803644-11 SG-2 0.11322	1.57e4	59.5	NO
8	8	13C7-PFUdA	1803644-11 SG-2 0.11322	1.21e4	41.9	YES

Name: 181121M1_50, Date: 21-Nov-2018, Time: 22:51:28, ID: 1803644-12 SG-3 0.1129, Description: SG-3

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803644-12 SG-3 0.1129	1.09e4	114.3	NO
2	2	13C5-PFHxA	1803644-12 SG-3 0.1129	2.04e4	80.3	NO
3	3	13C3-PFHxS	1803644-12 SG-3 0.1129	2.72e3	94.3	NO
4	4	13C8-PFOA	1803644-12 SG-3 0.1129	2.36e4	77.3	NO
5	5	13C9-PFNA	1803644-12 SG-3 0.1129	1.70e4	76.2	NO
6	6	13C4-PFOS	1803644-12 SG-3 0.1129	2.33e3	75.6	NO
7	7	13C6-PFDA	1803644-12 SG-3 0.1129	1.57e4	59.6	NO
8	8	13C7-PFUdA	1803644-12 SG-3 0.1129	1.22e4	42.3	YES

Name: 181121M1_51, Date: 21-Nov-2018, Time: 23:02:00, ID: 1803644-13 SG-5 0.11239, Description: SG-5

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803644-13 SG-5 0.11239	1.25e4	130.0	NO
2	2	13C5-PFHxA	1803644-13 SG-5 0.11239	2.30e4	90.5	NO
3	3	13C3-PFHxS	1803644-13 SG-5 0.11239	3.19e3	110.6	NO
4	4	13C8-PFOA	1803644-13 SG-5 0.11239	2.71e4	88.8	NO
5	5	13C9-PFNA	1803644-13 SG-5 0.11239	1.92e4	86.0	NO
6	6	13C4-PFOS	1803644-13 SG-5 0.11239	2.78e3	90.1	NO
7	7	13C6-PFDA	1803644-13 SG-5 0.11239	1.71e4	65.1	NO
8	8	13C7-PFUdA	1803644-13 SG-5 0.11239	1.08e4	37.7	YES

Name: 181121M1_52, Date: 21-Nov-2018, Time: 23:12:39, ID: 1803644-14 DW-01 (7B/15 Well 1-Transfer Station) 0, Description: DW-01 (7B/15 Well 1-Transfer Station)

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803644-14 DW-01 (7B/15 Well 1-Trans...	1.12e4	116.7	NO
2	2	13C5-PFHxA	1803644-14 DW-01 (7B/15 Well 1-Trans...	2.17e4	85.4	NO
3	3	13C3-PFHxS	1803644-14 DW-01 (7B/15 Well 1-Trans...	3.19e3	110.9	NO
4	4	13C8-PFOA	1803644-14 DW-01 (7B/15 Well 1-Trans...	2.63e4	86.2	NO
5	5	13C9-PFNA	1803644-14 DW-01 (7B/15 Well 1-Trans...	1.85e4	82.9	NO
6	6	13C4-PFOS	1803644-14 DW-01 (7B/15 Well 1-Trans...	3.16e3	102.4	NO
7	7	13C6-PFDA	1803644-14 DW-01 (7B/15 Well 1-Trans...	1.85e4	70.1	NO
8	8	13C7-PFUdA	1803644-14 DW-01 (7B/15 Well 1-Trans...	1.62e4	56.4	NO

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Name: 181121M1_53, Date: 21-Nov-2018, Time: 23:23:17, ID: 1803644-15 DW-02 (7B/15 Well 2-Recycling) 0.11288, Description: DW-02 (7B/15 Well 2-Recycling)

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803644-15 DW-02 (7B/15 Well 2-Recy...	1.20e4	124.8	NO
2	2	13C5-PFHxA	1803644-15 DW-02 (7B/15 Well 2-Recy...	2.29e4	90.1	NO
3	3	13C3-PFHxS	1803644-15 DW-02 (7B/15 Well 2-Recy...	3.19e3	110.7	NO
4	4	13C8-PFOA	1803644-15 DW-02 (7B/15 Well 2-Recy...	2.52e4	82.8	NO
5	5	13C9-PFNA	1803644-15 DW-02 (7B/15 Well 2-Recy...	1.70e4	76.3	NO
6	6	13C4-PFOS	1803644-15 DW-02 (7B/15 Well 2-Recy...	2.40e3	77.9	NO
7	7	13C6-PFDA	1803644-15 DW-02 (7B/15 Well 2-Recy...	1.32e4	50.2	NO
8	8	13C7-PFUdA	1803644-15 DW-02 (7B/15 Well 2-Recy...	6.77e3	23.6	YES

Name: 181121M1_54, Date: 21-Nov-2018, Time: 23:33:50, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

Name: 181121M1_55, Date: 21-Nov-2018, Time: 23:44:29, ID: ST181121M1-5 PFC CS3 18K0906, Description: PFC CS3 18K0906

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181121M1-5 PFC CS3 18K0906	1.12e4	116.7	NO
2	2	13C5-PFHxA	ST181121M1-5 PFC CS3 18K0906	2.89e4	113.9	NO
3	3	13C3-PFHxS	ST181121M1-5 PFC CS3 18K0906	3.61e3	125.2	NO
4	4	13C8-PFOA	ST181121M1-5 PFC CS3 18K0906	3.35e4	109.9	NO
5	5	13C9-PFNA	ST181121M1-5 PFC CS3 18K0906	2.54e4	114.1	NO
6	6	13C4-PFOS	ST181121M1-5 PFC CS3 18K0906	3.62e3	117.4	NO
7	7	13C6-PFDA	ST181121M1-5 PFC CS3 18K0906	2.68e4	101.9	NO
8	8	13C7-PFUdA	ST181121M1-5 PFC CS3 18K0906	3.19e4	110.9	NO

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Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

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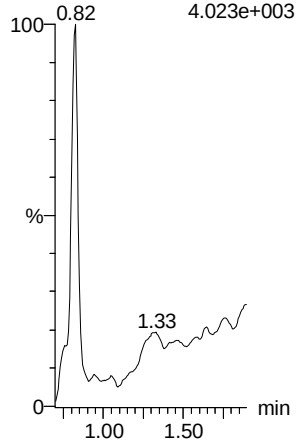

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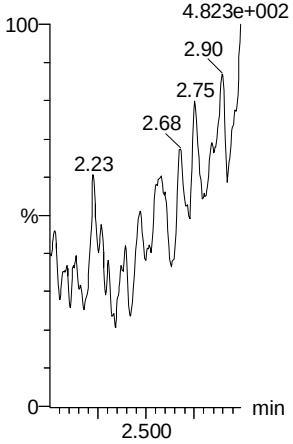

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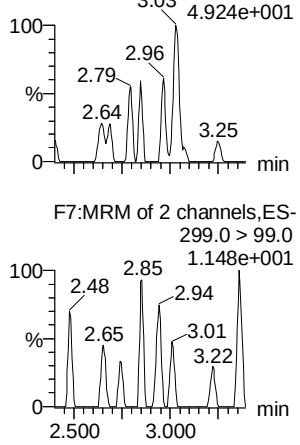

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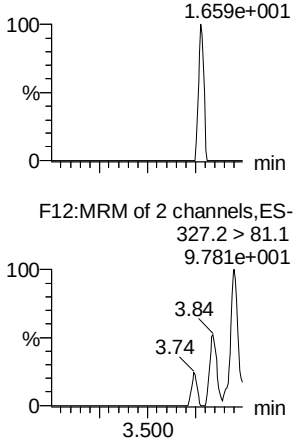

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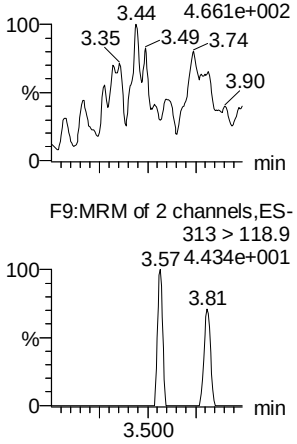

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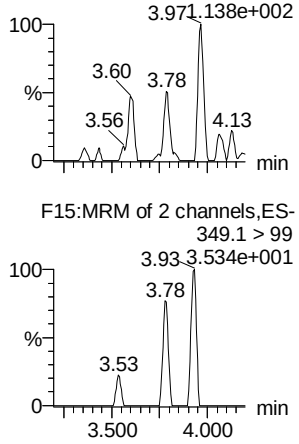

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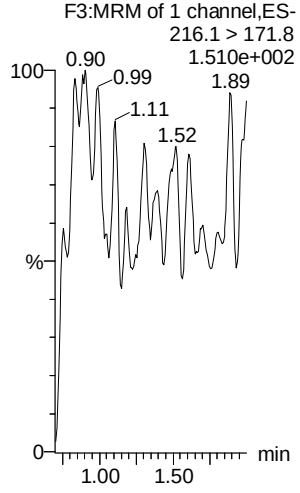

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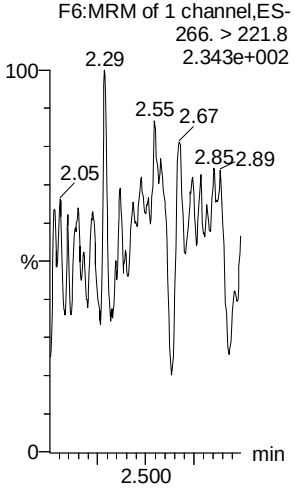

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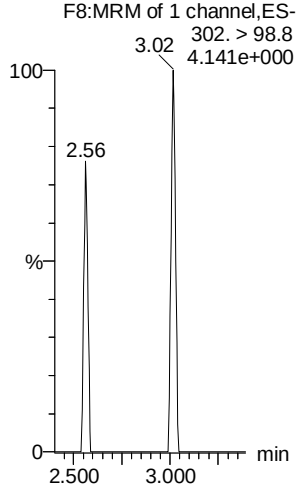

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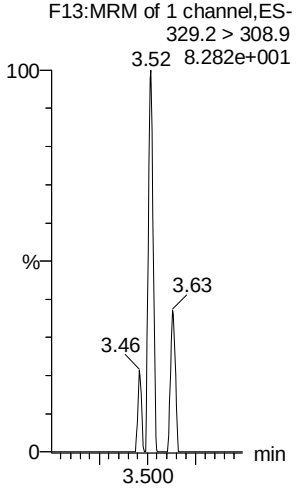

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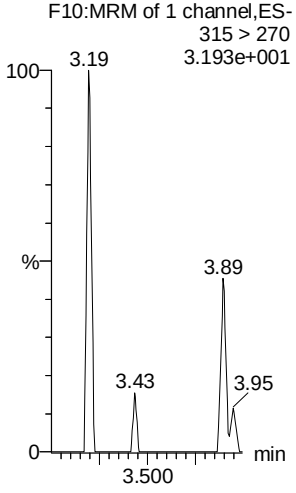

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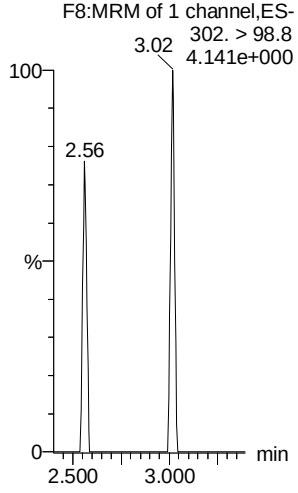

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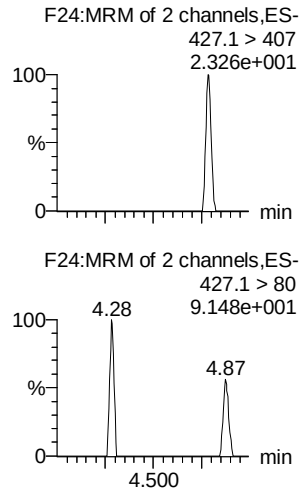
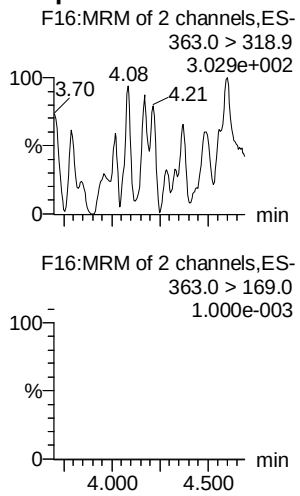
6:2 FTS



PFHpA



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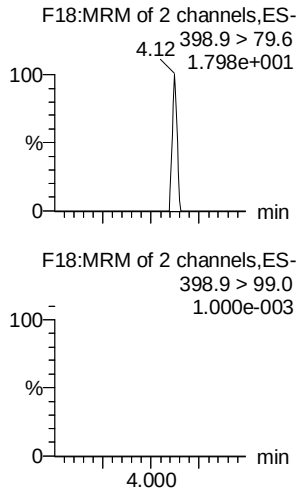

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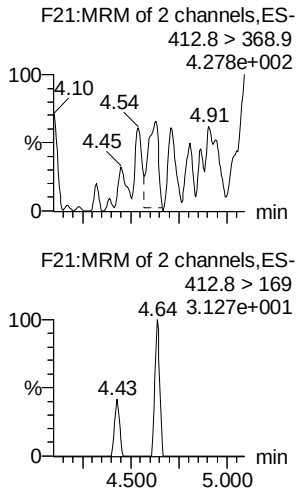
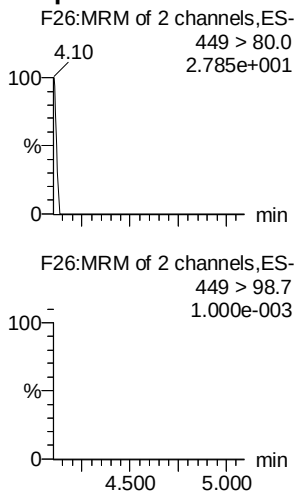


PFHpS



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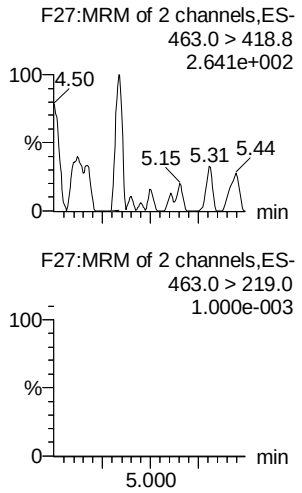
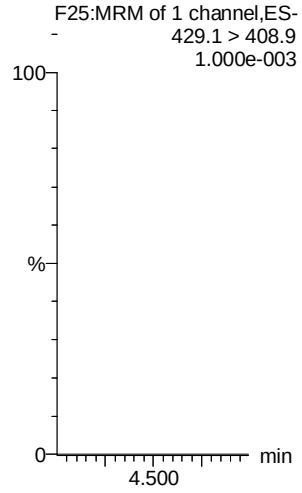


13C2-6:2 FTS



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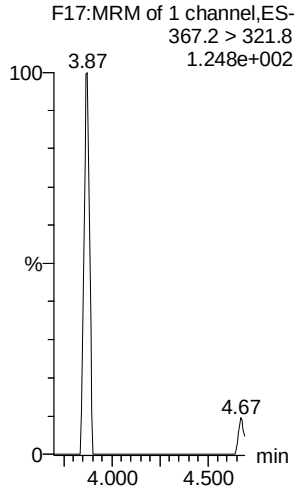
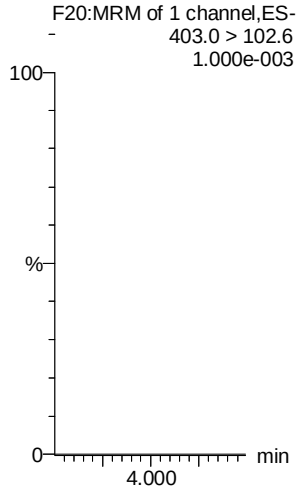


18O2-PFHxS



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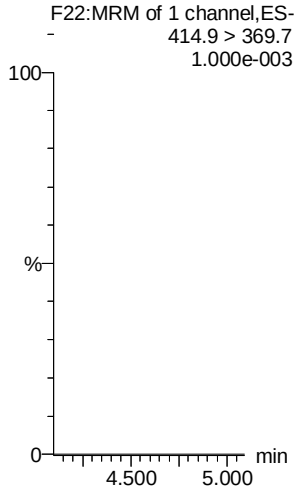

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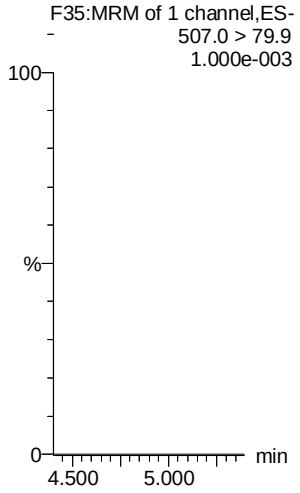

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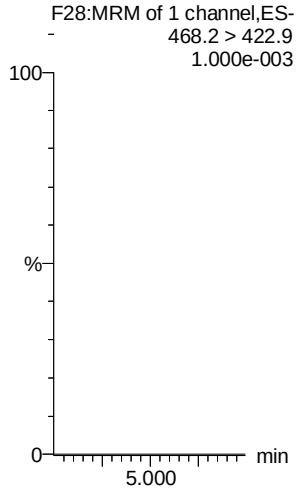

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Printed: Monday, November 26, 2018 09:48:22 Pacific Standard Time

Name: 181121M1_3, Date: 21-Nov-2018, Time: 14:09:28, ID: IPA, Description: IPA

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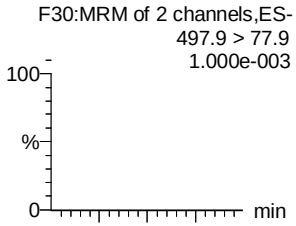

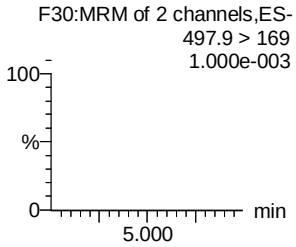

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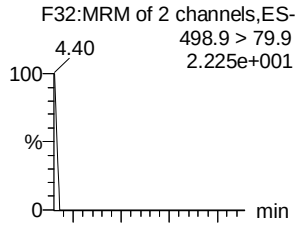

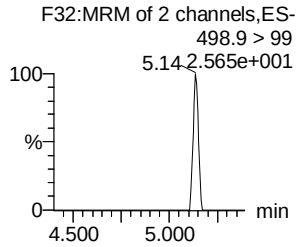

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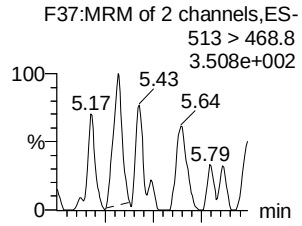
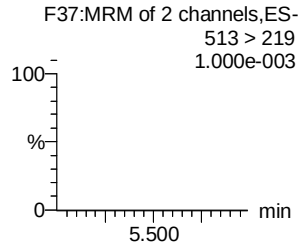
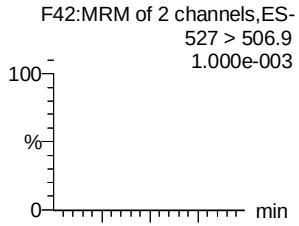
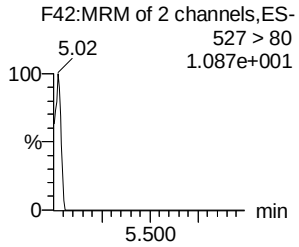




8:2 FTS





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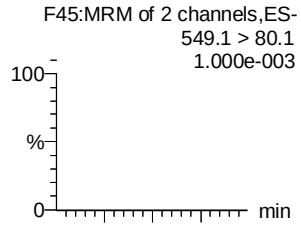

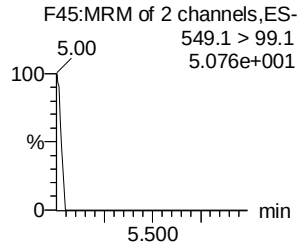

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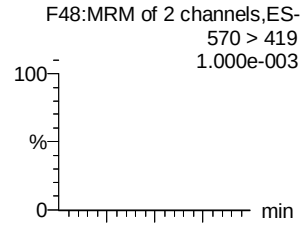

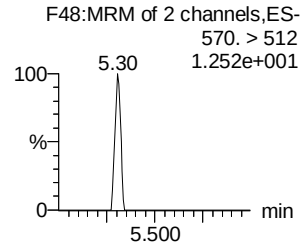

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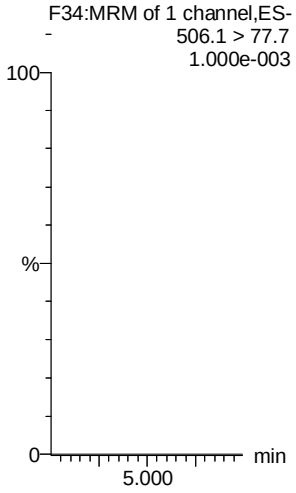

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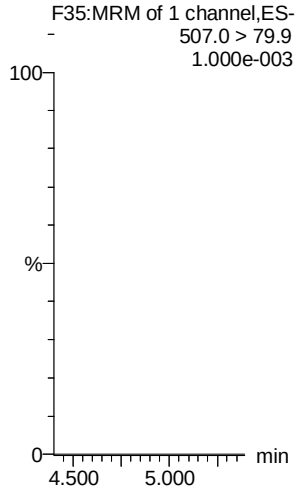

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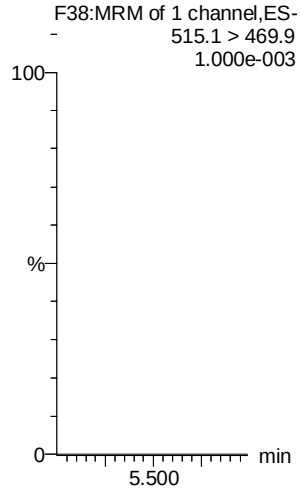
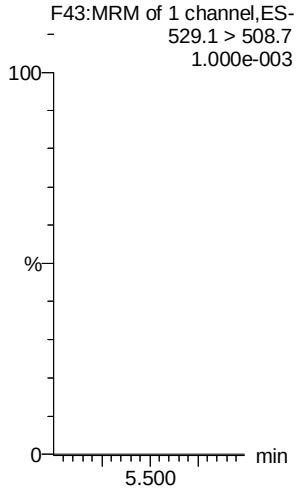


13C2-8:2 FTS



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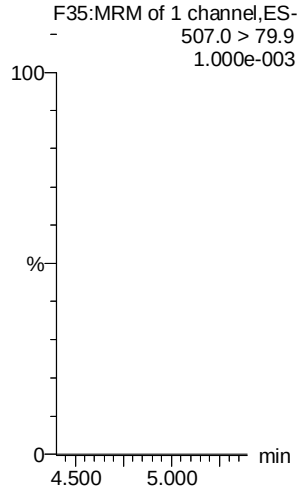

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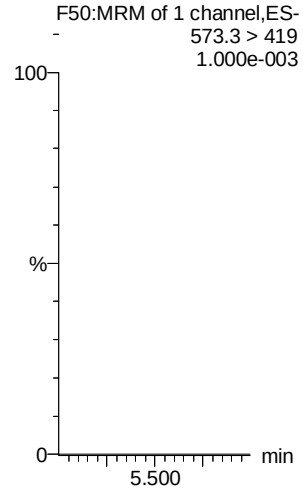

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Name: 181121M1_3, Date: 21-Nov-2018, Time: 14:09:28, ID: IPA, Description: IPA

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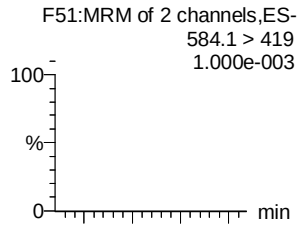

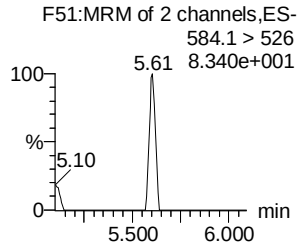

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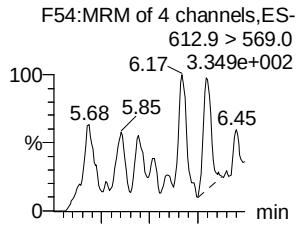

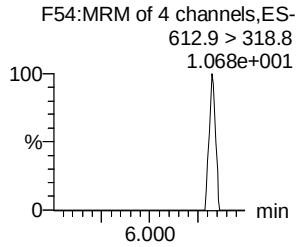

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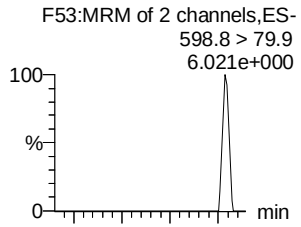

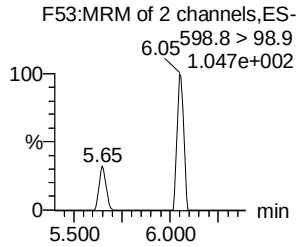

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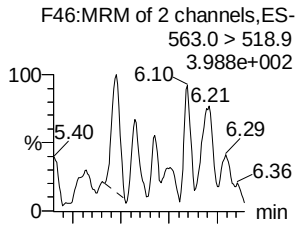

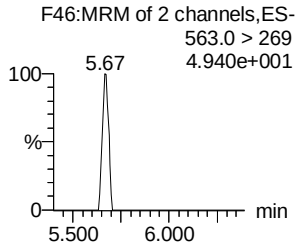

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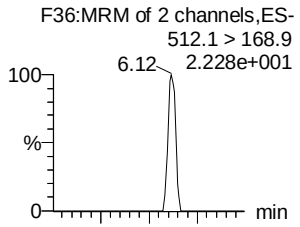

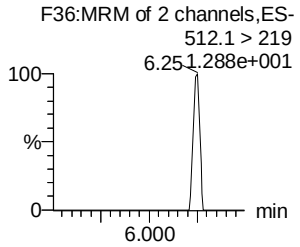

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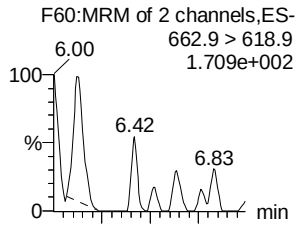
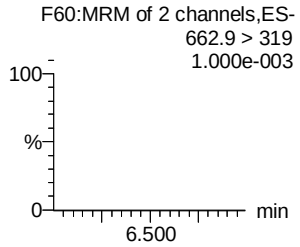
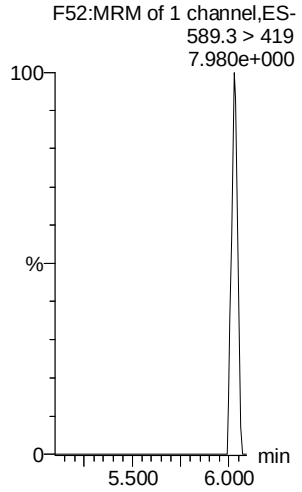




d5-N-EtFOSAA



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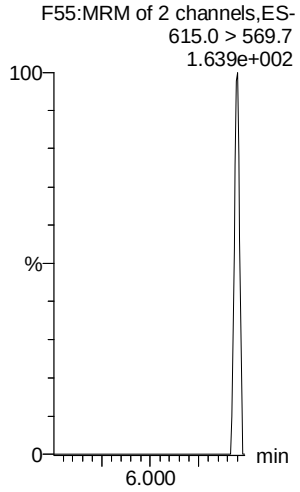

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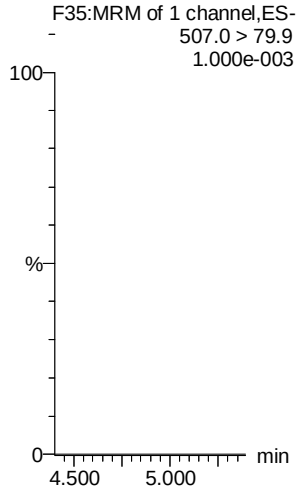

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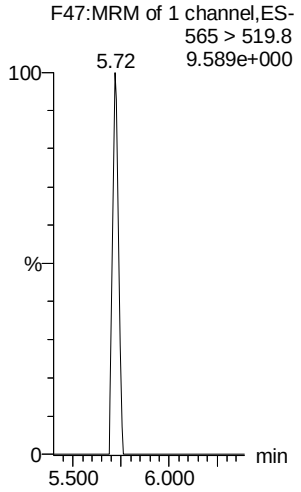

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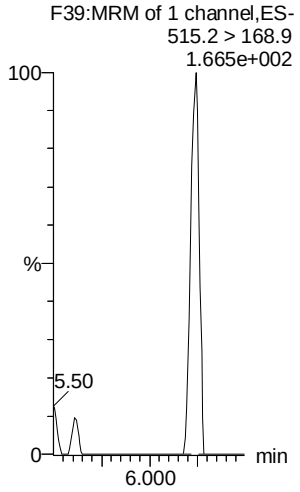

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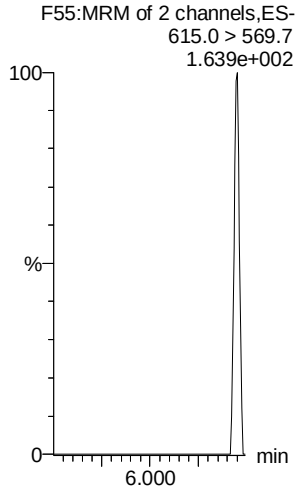

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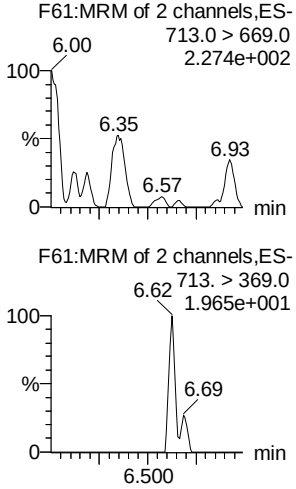

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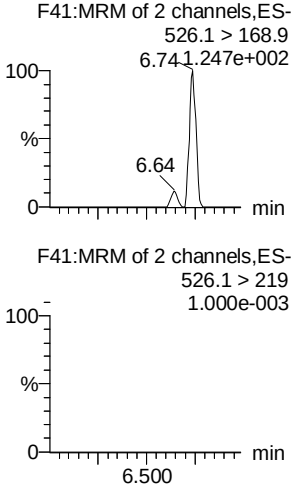

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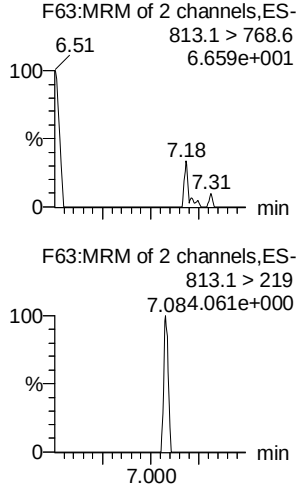
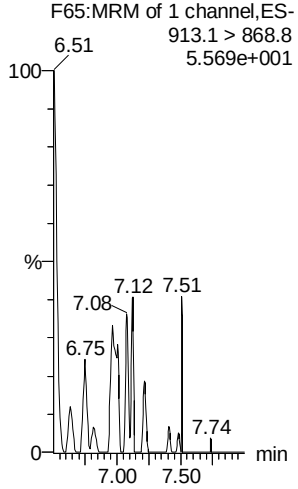
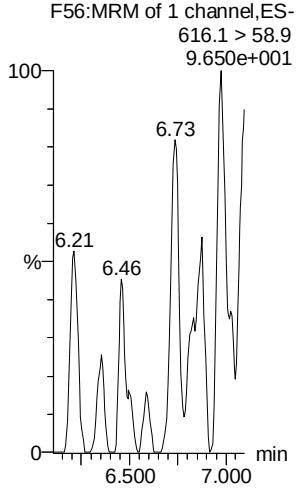


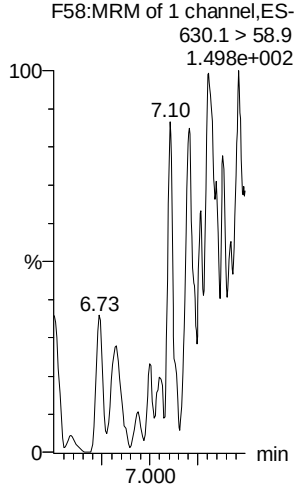
PFODA



N-MeFOSE



N-EtFOSE



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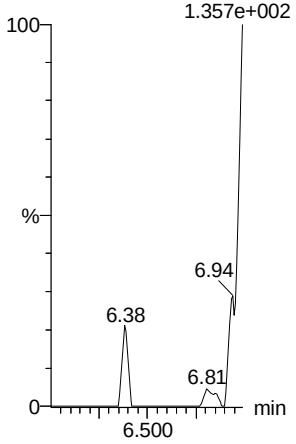
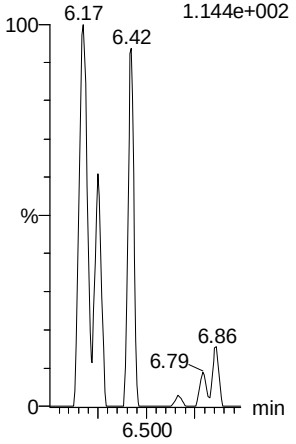


d5-N-ETFOSA



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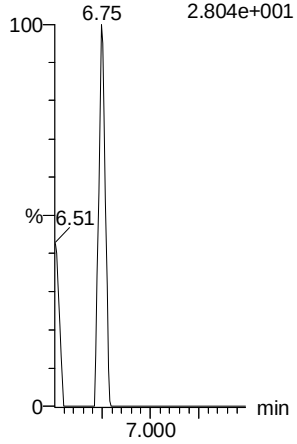
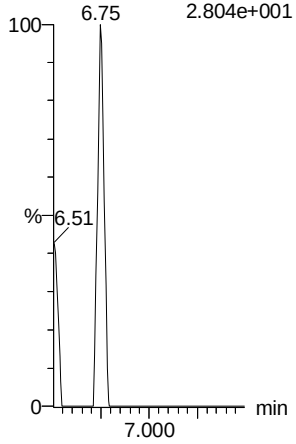
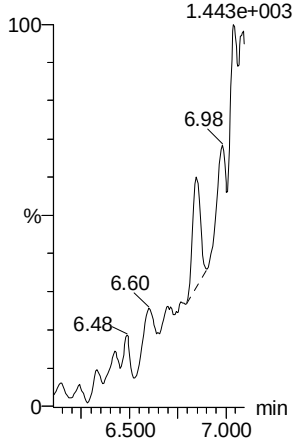


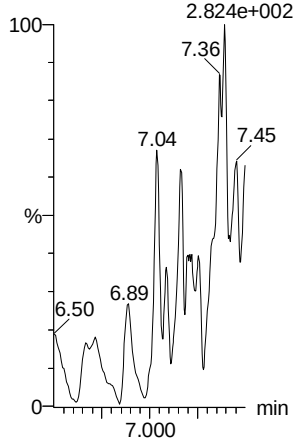
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE

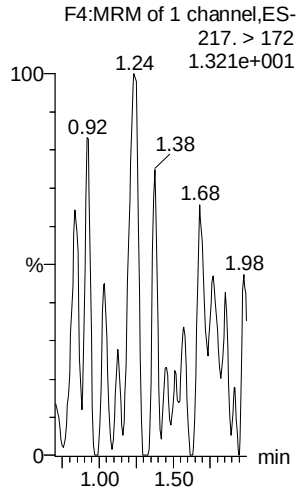


Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-IB.qld

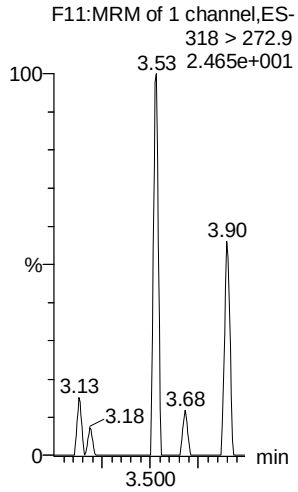
Last Altered: Monday, November 26, 2018 09:48:09 Pacific Standard Time
Printed: Monday, November 26, 2018 09:48:22 Pacific Standard Time

Name: 181121M1_3, Date: 21-Nov-2018, Time: 14:09:28, ID: IPA, Description: IPA

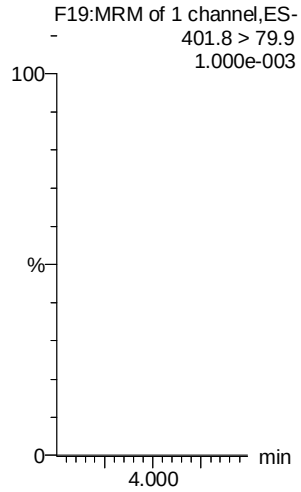
13C4-PFBA



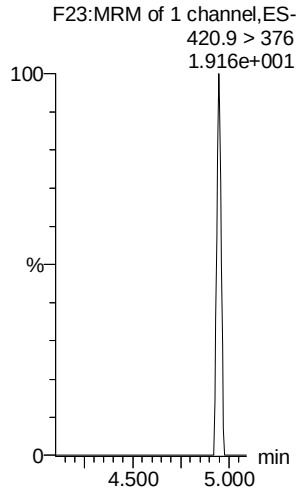
13C5-PFHxA



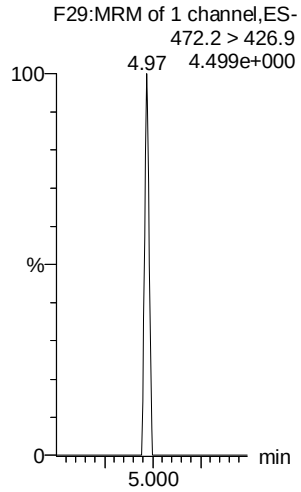
13C3-PFHxS



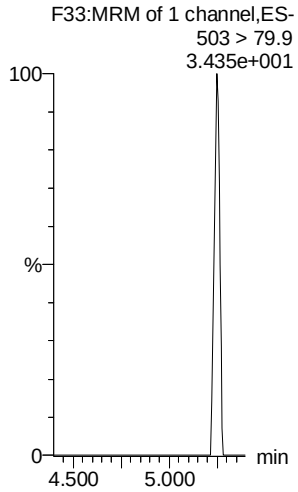
13C8-PFOA



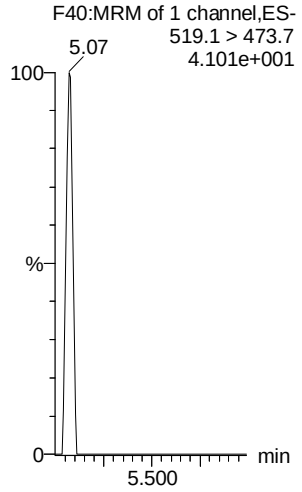
13C9-PFNA



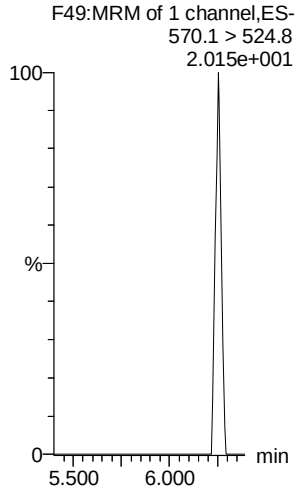
13C4-PFOS



13C6-PFDA



13C7-PFUdA



LC Calibration Standards Review Checklist Q4

		ION Ratio	Concentration	C-Cals Name	Sign Date	Correct I-Cal	Manual Integrations	N/A
Calibration ID: ST181121M1-1	L M H	☑	☑	☑	☑	☑	☑	☐
Calibration ID: -2	L (M) H	☑	☑	☑	☑	☑	☑	☐
Calibration ID: -3	L (M) H	☑	☑	☑	☑	☑	☑	☐
Calibration ID: -4	L (M) H	☑	☑	☑	☑	☑	☑	☐
Calibration ID: -5	L (M) H	☑	☑	☑	☑	☑	☑	☑
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐

Full Mass Cal. Date: 11/20/18

Run Log Present: ☑

# of Samples per Sequence Checked: ☑

Instrument Blank Saved ☑

IIS Area Saved ☑

Reviewed By: CLH 11/26/18
Initials/Date

Comments:

Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-2.qld

Last Altered: Monday, November 26, 2018 09:21:13 Pacific Standard Time
Printed: Monday, November 26, 2018 09:22:06 Pacific Standard Time

Name: 181121M1_2, Date: 21-Nov-2018, Time: 13:58:50, ID: ST181121M1-1 PFC CS0 18K0903, Description: PFC CS0 18K0903

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	773.197	7629.089	1.00	1.20	1.267	1.0	103.6	NO		
2	2	PFPeA	263.1 > 218.9	1119.818	13596.585	1.00	2.43	1.030	1.1	105.9	NO		
3	3	PFBS	299.0 > 79.7	289.921	1670.760	1.00	2.77	2.169	1.1	110.7	NO	2.921	NO
4	4	4:2 FTS	327.2>307.2	462.361	4207.217	1.00	3.25	1.374	1.2	122.1	NO	1.888	NO
5	5	PFHxA	313 > 269	2122.610	9673.042	1.00	3.34	1.097	1.1	111.9	NO	17.477	NO
6	6	PFPeS	349.1>80.1	241.175	1670.760	1.00	3.56	1.804	1.0	105.0	NO	1.690	NO
7	36	13C3-PFBA	216.1 > 171.8	7629.089	9581.395	1.00	1.20	9.953	12.8	102.1	NO		
8	37	13C3-PFPeA	266. > 221.8	13596.585	25367.174	1.00	2.43	6.700	12.8	102.4	NO		
9	38	13C3-PFBS	302. > 98.8	1670.760	2880.418	1.00	2.77	7.251	13.5	107.7	NO		
10	39	13C2-4:2 FTS	329.2>308.9	4207.217	2880.418	1.00	3.25	18.258	11.9	95.2	NO		
11	40	13C2-PFHxA	315 > 270	9673.042	25367.174	1.00	3.34	4.767	4.9	98.9	NO		
12	38	13C3-PFBS	302. > 98.8	1670.760	2880.418	1.00	2.77	7.251	13.5	107.7	NO		
13	-1												
14	10	6:2 FTS	427.1 > 407	521.575	4409.081	1.00	4.44	1.479	1.2	115.7	NO	3.498	NO
15	7	PFHpA	363.0 > 318.9	1465.505	11976.426	1.00	4.00	1.530	1.1	108.7	NO	13.807	NO
16	8	L-PFHxS	398.9 > 79.6	213.251	1375.924	1.00	4.14	1.937	1.0	101.7	NO	1.977	NO
17	11	L-PFOA	412.8 > 368.9	2763.919	21371.109	1.00	4.49	1.617	1.2	115.2	NO	3.580	NO
18	13	PFHpS	449 > 80.0	204.161	3141.562	1.00	4.60	0.812	0.9	90.2	NO	1.579	NO
19	14	PFNA	463.0 > 418.8	2094.811	21423.674	1.00	4.92	1.222	0.9	92.1	NO	4.607	NO
20	43	13C2-6:2 FTS	429.1 > 408.9	4409.081	3083.034	1.00	4.44	17.876	11.6	93.1	NO		
21	41	13C4-PFHpA	367.2 > 321.8	11976.426	25367.174	1.00	4.01	5.902	12.2	98.0	NO		
22	42	18O2-PFHxS	403.0 > 102.6	1375.924	2880.418	1.00	4.14	5.971	12.4	99.5	NO		
23	44	13C2-PFOA	414.9 > 369.7	21371.109	30479.547	1.00	4.49	8.765	11.6	92.9	NO		
24	47	13C8-PFOS	507.0 > 79.9	3141.562	3083.034	1.00	5.01	12.737	12.3	98.6	NO		
25	45	13C5-PFNA	468.2 > 422.9	21423.674	22287.064	1.00	4.92	12.016	12.1	96.9	NO		
26	-1												
27	15	PFOSA	497.9 > 77.9	251.237	2828.436	1.00	4.96	1.110	1.0	95.2	NO	56.649	YES
28	16	L-PFOS	498.9 > 79.9	257.882	3141.562	1.00	5.01	1.026	1.0	97.0	NO	1.640	NO
29	18	PFDA	513 > 468.8	2542.793	21250.223	1.00	5.30	1.496	1.1	107.8	NO	5.901	NO
30	19	8:2 FTS	527 > 506.9	497.315	3991.219	1.00	5.27	1.558	1.0	104.6	NO	2.159	NO
31	20	PFNS	549.1 > 80.1	178.980	3141.562	1.00	5.37	0.712	0.9	92.2	NO	1.411	NO
32	21	L-MeFOSAA	570 > 419	784.618	4110.168	1.00	5.46	2.386	0.9	91.3	NO	2.338	NO
33	46	13C8-PFOSA	506.1 > 77.7	2828.436	28753.973	1.00	4.96	1.230	11.0	87.6	NO		
34	47	13C8-PFOS	507.0 > 79.9	3141.562	3083.034	1.00	5.01	12.737	12.3	98.6	NO		
35	48	13C2-PFDA	515.1 > 469.9	21250.223	26324.521	1.00	5.30	10.091	12.1	97.0	NO		
36	49	13C2-8:2 FTS	529.1 > 508.7	3991.219	3083.034	1.00	5.27	16.182	12.8	102.1	NO		

JCC 11/26/18

AP 11/26/18

Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-2.qld

Last Altered: Monday, November 26, 2018 09:21:13 Pacific Standard Time
Printed: Monday, November 26, 2018 09:22:06 Pacific Standard Time

Name: 181121M1_2, Date: 21-Nov-2018, Time: 13:58:50, ID: ST181121M1-1 PFC CS0 18K0903, Description: PFC CS0 18K0903

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
37	47	13C8-PFOS	507.0 > 79.9	3141.562	3083.034	1.00	5.01	12.737	12.3	98.6	NO		
38	50	d3-N-MeFOSAA	573.3 > 419	4110.168	28753.973	1.00	5.46	1.787	13.2	105.7	NO		
39	-1												
40	23	L-EtFOSAA	584.1 > 419	604.039	5761.646	1.00	5.62	1.310	0.9	92.6	NO	1.337	NO
41	27	PFDoA	612.9 > 569.0	2501.846	25735.936	1.00	5.92	1.215	1.0	100.8	NO	9.838	NO
42	26	PFDS	598.8 > 79.9	226.541	3141.562	1.00	5.68	0.901	0.9	87.3	NO	1.650	NO
43	25	PFUdA	563.0 > 518.9	2269.498	25276.762	1.00	5.63	1.122	1.1	108.7	NO	7.695	NO
44	28	N-MeFOSA	512.1 > 168.9	435.130	10980.081	1.00	5.89	5.944	5.2	103.4	NO	1.774	NO
45	29	PFTrDA	662.9 > 618.9	2624.650	25735.936	1.00	6.17	1.275	1.0	103.0	NO	21.077	NO
46	52	d5-N-EtFOSAA	589.3 > 419	5761.646	28753.973	1.00	5.61	2.505	12.6	101.1	NO		
47	53	13C2-PFDoA	615.0 > 569.7	25735.936	26324.521	1.00	5.91	12.221	12.5	99.7	NO		
48	47	13C8-PFOS	507.0 > 79.9	3141.562	3083.034	1.00	5.01	12.737	12.3	98.6	NO		
49	51	13C2-PFUdA	565 > 519.8	25276.762	28753.973	1.00	5.63	10.988	11.8	94.7	NO		
50	54	d3-N-MeFOSA	515.2 > 168.9	10980.081	28753.973	1.00	5.92	4.773	137.6	91.7	NO		
51	53	13C2-PFDoA	615.0 > 569.7	25735.936	26324.521	1.00	5.91	12.221	12.5	99.7	NO		
52	-1												
53	30	PFTeDA	713.0 > 669.0	2143.483	16863.619	1.00	6.39	1.589	1.0	98.5	NO	12.297	NO
54	31	N-EtFOSA	526.1 > 168.9	555.214	18206.105	1.00	6.40	4.574	5.1	102.8	NO	1.425	NO
55	32	PFHxDA	813.1 > 768.6	1191.030	8256.348	1.00	6.73	0.721	1.3	127.1	NO	22.165	NO
56	33	PFODA	913.1 > 868.8	1294.802	8256.348	1.00	6.97	0.784	1.0	99.5	NO		
57	34	N-MeFOSE	616.1 > 58.9	330.650	10245.097	1.00	6.69	4.841	5.2	104.0	NO		
58	35	N-EtFOSE	630.1 > 58.9	363.905	9996.741	1.00	6.83	5.460	4.8	95.7	NO		
59	55	13C2-PFTeDA	715.1 > 669.7	16863.619	28753.973	1.00	6.39	7.331	12.1	96.6	NO		
60	56	d5-N-ETFOSA	531.1 > 168.9	18206.105	28753.973	1.00	6.42	7.915	131.7	87.8	NO		
61	57	13C2-PFHxDA	815 > 769.7	8256.348	28753.973	1.00	6.73	3.589	4.5	89.2	NO		
62	57	13C2-PFHxDA	815 > 769.7	8256.348	28753.973	1.00	6.73	3.589	4.5	89.2	NO		
63	58	d7-N-MeFOSE	623.1 > 58.9	10245.097	28753.973	1.00	6.68	4.454	136.9	91.3	NO		
64	59	d9-N-EtFOSE	639.2 > 58.8	9996.741	28753.973	1.00	6.83	4.346	135.9	90.6	NO		
65	-1												
66	60	13C4-PFBA	217. > 172	9581.395	9581.395	1.00	1.20	12.500	12.5	100.0	NO		
67	61	13C5-PFHxA	318 > 272.9	25367.174	25367.174	1.00	3.34	12.500	12.5	100.0	NO		
68	62	13C3-PFHxS	401.8 > 79.9	2880.418	2880.418	1.00	4.14	12.500	12.5	100.0	NO		
69	63	13C8-PFOA	420.9 > 376	30479.547	30479.547	1.00	4.49	12.500	12.5	100.0	NO		
70	64	13C9-PFNA	472.2 > 426.9	22287.064	22287.064	1.00	4.92	12.500	12.5	100.0	NO		
71	65	13C4-PFOS	503 > 79.9	3083.034	3083.034	1.00	5.01	12.500	12.5	100.0	NO		
72	66	13C6-PFDA	519.1 > 473.7	26324.521	26324.521	1.00	5.30	12.500	12.5	100.0	NO		

Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-2.qld

Last Altered: Monday, November 26, 2018 09:21:13 Pacific Standard Time
Printed: Monday, November 26, 2018 09:22:06 Pacific Standard Time

Name: 181121M1_2, Date: 21-Nov-2018, Time: 13:58:50, ID: ST181121M1-1 PFC CS0 18K0903, Description: PFC CS0 18K0903

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
73	67	13C7-PFUdA	570.1 > 524.8	28753.973	28753.973	1.00	5.63	12.500	12.5	100.0	NO		

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Dataset: Untitled

Last Altered: Monday, November 26, 2018 09:41:04 Pacific Standard Time
Printed: Monday, November 26, 2018 09:41:12 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112118.mdb 26 Nov 2018 09:17:42
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	181121M1_1	IPA	21-Nov-18	13:48:07
2	2	181121M1_2	ST181121M1-1 PFC CS0 18K0903	21-Nov-18	13:58:50
3	3	181121M1_3	IPA	21-Nov-18	14:09:28
4	4	181121M1_4	1803552-02 WW1810291045GC 0.24014	21-Nov-18	14:41:33
5	5	181121M1_5	B8K0091-MSD1 Matrix Spike Dup 0.11594	21-Nov-18	14:52:08
6	6	181121M1_6	1803615-01 A1-MW-04-SA2 0.11345	21-Nov-18	15:02:46
7	7	181121M1_7	1803615-02 A1-MW-05-SA2 0.11579	21-Nov-18	15:13:20
8	8	181121M1_8	1803615-04 A1-MW-50-SA2 0.11184	21-Nov-18	15:23:58
9	9	181121M1_9	1803615-05 A1-MW-50-SA2D 0.11445	21-Nov-18	15:34:36
10	10	181121M1_10	1803615-06 A1-MW-51-SA2 0.11681	21-Nov-18	15:45:09
11	11	181121M1_11	1803615-07 A1-MW-52-SA2 0.11468	21-Nov-18	15:55:48
12	12	181121M1_12	B8K0097-BS1 OPR 0.125	21-Nov-18	16:08:39
13	13	181121M1_13	B8K0097-BSD1 LCSD 0.125	21-Nov-18	16:19:13
14	14	181121M1_14	B8K0097-BLK1 Method Blank 0.125	21-Nov-18	16:29:52
15	15	181121M1_15	1803626-01 16-HS-03-SA2 0.11792	21-Nov-18	16:40:30
16	16	181121M1_16	1803626-02 16-MW-06-SA2 0.1197	21-Nov-18	16:51:04
17	17	181121M1_17	IPA	21-Nov-18	17:01:42
18	18	181121M1_18	ST181121M1-2 PFC CS3 18K0906	21-Nov-18	17:12:15
19	19	181121M1_19	1803626-03 16-MW-08-SA2 0.11955	21-Nov-18	17:22:53
20	20	181121M1_20	1803626-04 16-MW-09-SA2 0.11735	21-Nov-18	17:33:26
21	21	181121M1_21	1803626-05 A1-MW-18-SA2 0.11682	21-Nov-18	17:44:04
22	22	181121M1_22	1803626-06 A1-MW-19-SA2 0.11616	21-Nov-18	17:54:42
23	23	181121M1_23	1803626-07 FRB-20181113 0.1174	21-Nov-18	18:05:16
24	24	181121M1_24	1803626-08 A1-MW-53-SA2 0.11896	21-Nov-18	18:15:55
25	25	181121M1_25	1803626-09 16-HS-03-SA2D 0.11367	21-Nov-18	18:26:33
26	26	181121M1_26	1803629-01 REEPDW1366 0.11758	21-Nov-18	18:37:06
27	27	181121M1_27	1803629-02 REEPDW1367 0.11776	21-Nov-18	18:47:45
28	28	181121M1_28	1803629-03 REEPDW1369 0.11504	21-Nov-18	18:58:18
29	29	181121M1_29	IPA	21-Nov-18	19:08:56
30	30	181121M1_30	ST181121M1-3 PFC CS3 18K0906	21-Nov-18	19:19:29
31	31	181121M1_31	1803629-04 REEPDW1368 0.11385	21-Nov-18	19:30:07
32	32	181121M1_32	1803629-05 REEPDW1370 0.1146	21-Nov-18	19:40:41

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Dataset: Untitled

Last Altered: Monday, November 26, 2018 09:41:04 Pacific Standard Time
Printed: Monday, November 26, 2018 09:41:12 Pacific Standard Time

Compound name: PFBA

	# Name	ID	Acq.Date	Acq.Time
33	33 181121M1_33	1803629-06 REEPDW585 0.11471	21-Nov-18	19:51:19
34	34 181121M1_34	1803629-07 REEPDW1371 0.11573	21-Nov-18	20:01:52
35	35 181121M1_35	B8K0119-BS1 OPR 0.125	21-Nov-18	20:12:30
36	36 181121M1_36	B8K0119-BLK1 Method Blank 0.125	21-Nov-18	20:23:04
37	37 181121M1_37	1803644-01 MW-2 0.11289	21-Nov-18	20:33:42
38	38 181121M1_38	1803644-02 MW-3 0.11758	21-Nov-18	20:44:15
39	39 181121M1_39	1803644-03 MW-5A 0.11473	21-Nov-18	20:54:53
40	40 181121M1_40	1803644-04 WD-6 0.11082	21-Nov-18	21:05:32
41	41 181121M1_41	1803644-05 B-102D 0.11429	21-Nov-18	21:16:05
42	42 181121M1_42	1803644-06 B-105A 0.11234	21-Nov-18	21:26:43
43	43 181121M1_43	IPA	21-Nov-18	21:37:15
44	44 181121M1_44	ST181121M1-4 PFC CS3 18K0906	21-Nov-18	21:47:53
45	45 181121M1_45	1803644-07 B-110D 0.11244	21-Nov-18	21:58:27
46	46 181121M1_46	1803644-08 B-202S 0.11215	21-Nov-18	22:09:05
47	47 181121M1_47	1803644-09 B-202D 0.11743	21-Nov-18	22:19:38
48	48 181121M1_48	1803644-10 SG-1 0.11503	21-Nov-18	22:30:17
49	49 181121M1_49	1803644-11 SG-2 0.11322	21-Nov-18	22:40:49
50	50 181121M1_50	1803644-12 SG-3 0.1129	21-Nov-18	22:51:28
51	51 181121M1_51	1803644-13 SG-5 0.11239	21-Nov-18	23:02:00
52	52 181121M1_52	1803644-14 DW-01 (7B/15 Well 1-Transfer Station) 0	21-Nov-18	23:12:39
53	53 181121M1_53	1803644-15 DW-02 (7B/15 Well 2-Recycling) 0.11288	21-Nov-18	23:23:17
54	54 181121M1_54	IPA	21-Nov-18	23:33:50
55	55 181121M1_55	ST181121M1-5 PFC CS3 18K0906	21-Nov-18	23:44:29

Vista Analytical Laboratory

Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-2.qld

Last Altered: Monday, November 26, 2018 09:21:13 Pacific Standard Time
Printed: Monday, November 26, 2018 09:22:06 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112118.mdb 26 Nov 2018 09:17:42
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Name: 181121M1_2, Date: 21-Nov-2018, Time: 13:58:50, ID: ST181121M1-1 PFC CS0 18K0903, Description: PFC CS0 18K0903

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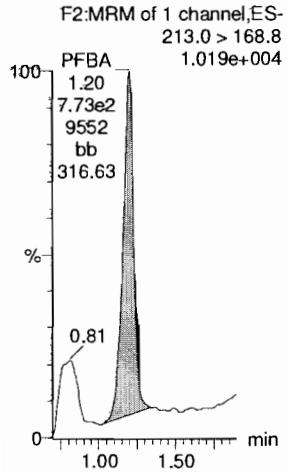

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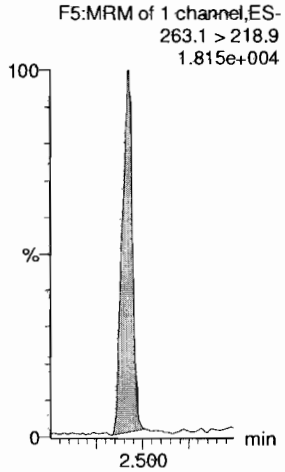

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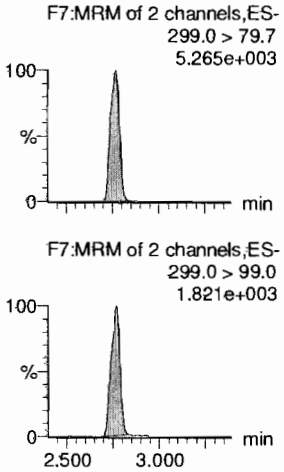

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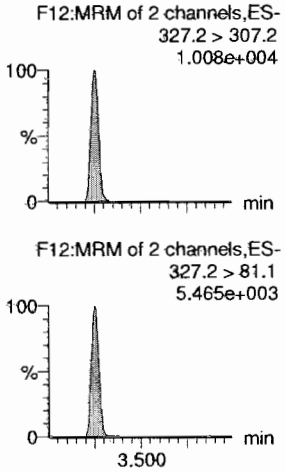

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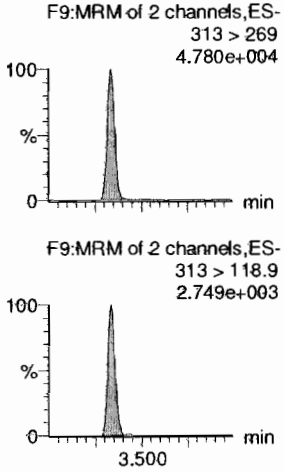

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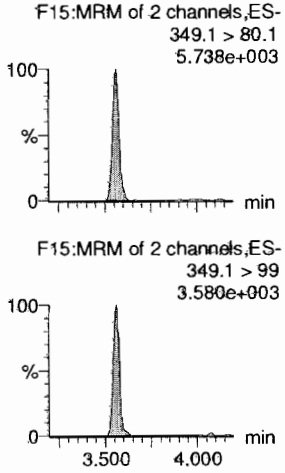

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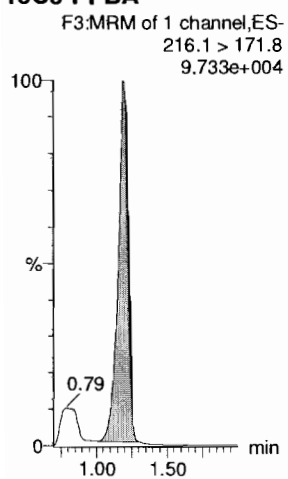

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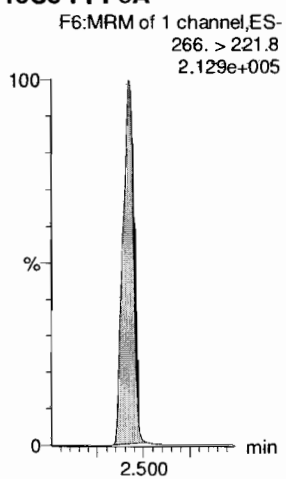

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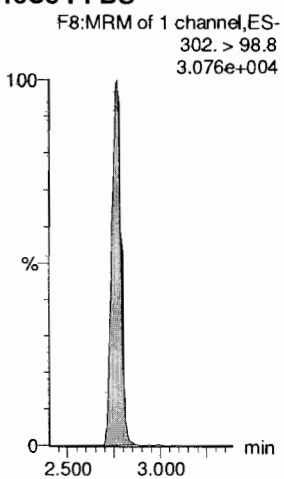

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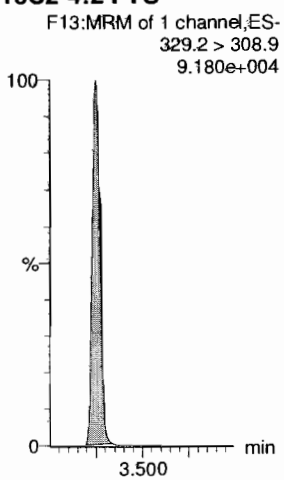

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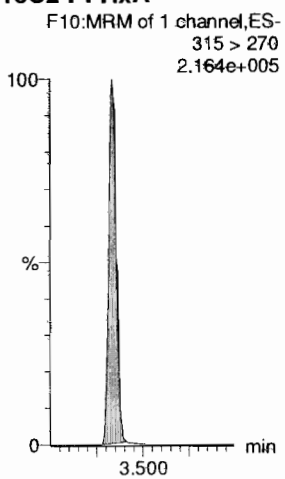

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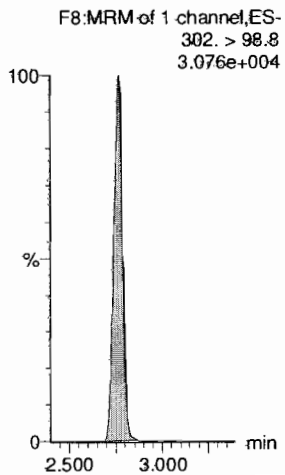

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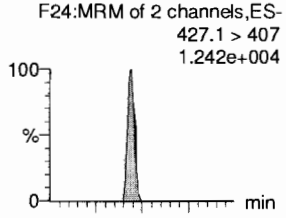
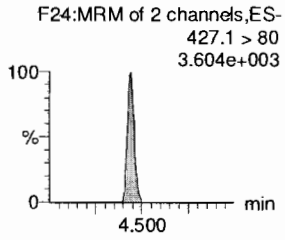
Last Altered: Monday, November 26, 2018 09:21:13 Pacific Standard Time
Printed: Monday, November 26, 2018 09:22:06 Pacific Standard Time

Name: 181121M1_2, Date: 21-Nov-2018, Time: 13:58:50, ID: ST181121M1-1 PFC CS0 18K0903, Description: PFC CS0 18K0903

6:2 FTS





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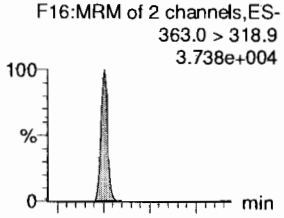

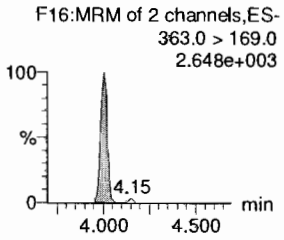

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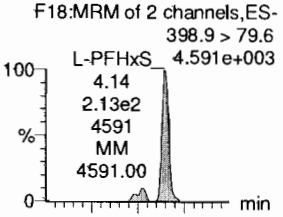

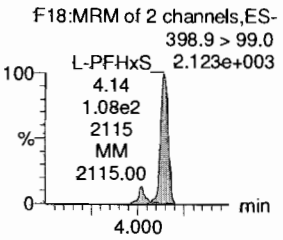

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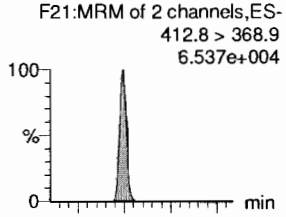

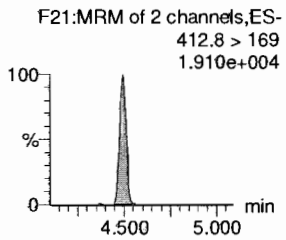

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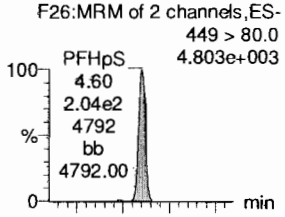

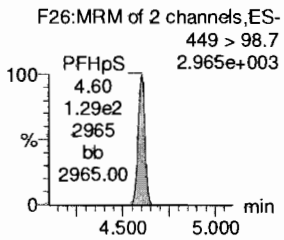

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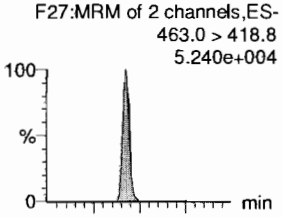

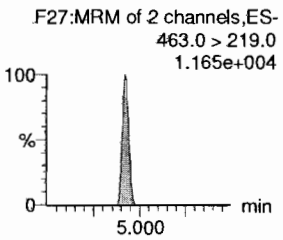

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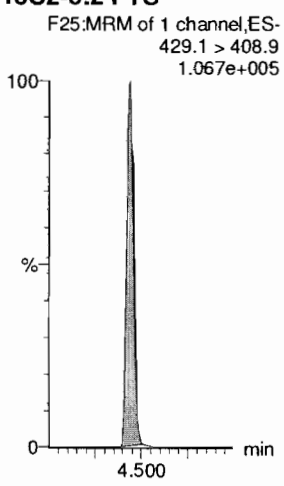

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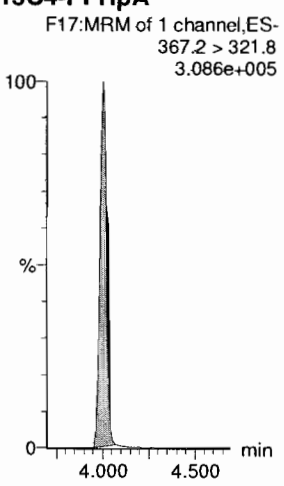

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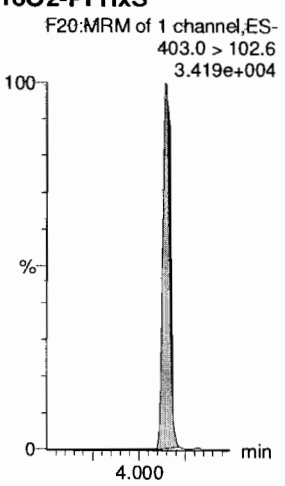

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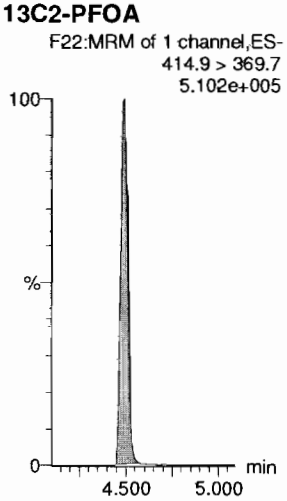

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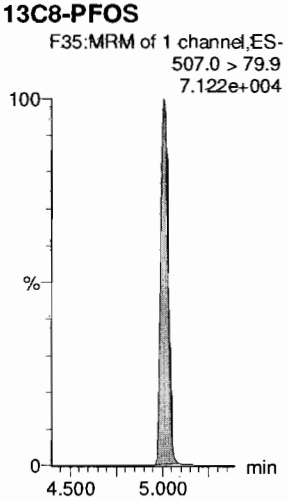

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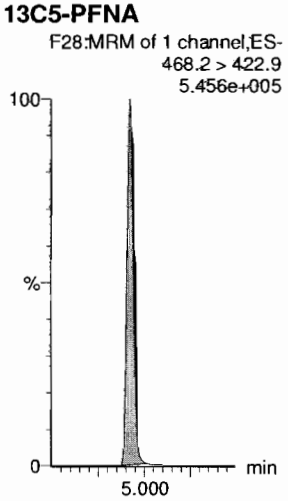
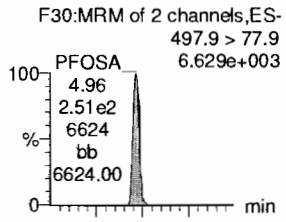


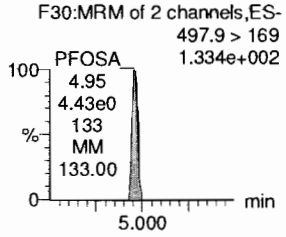
Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-2.qld

Last Altered: Monday, November 26, 2018 09:21:13 Pacific Standard Time
Printed: Monday, November 26, 2018 09:22:06 Pacific Standard Time

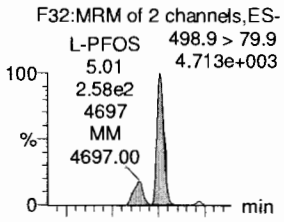
Name: 181121M1_2, Date: 21-Nov-2018, Time: 13:58:50, ID: ST181121M1-1 PFC CS0 18K0903, Description: PFC CS0 18K0903

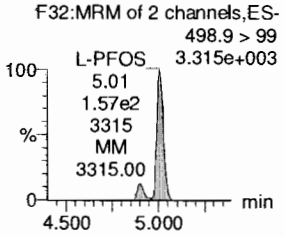
PFOSA





L-PFOS





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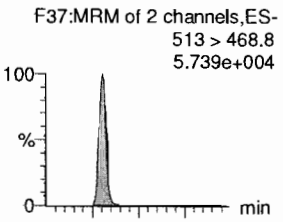

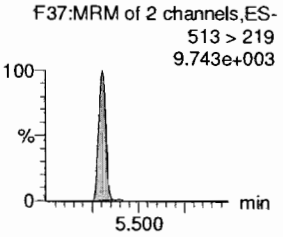

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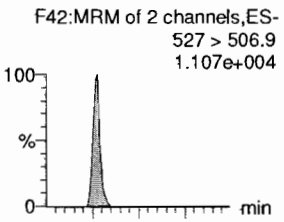

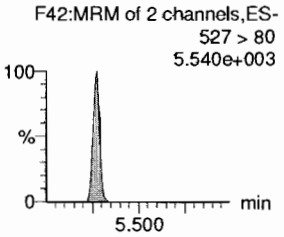

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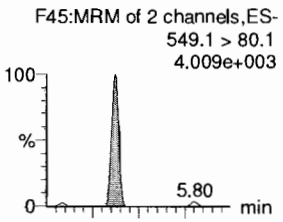

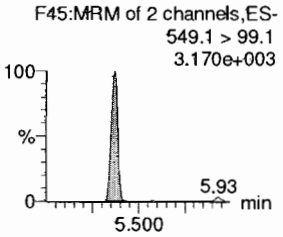

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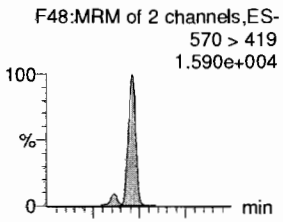

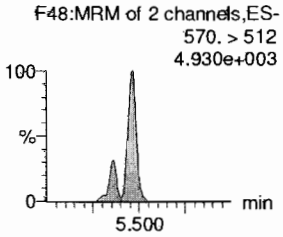

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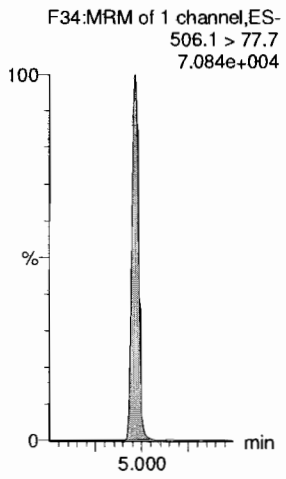

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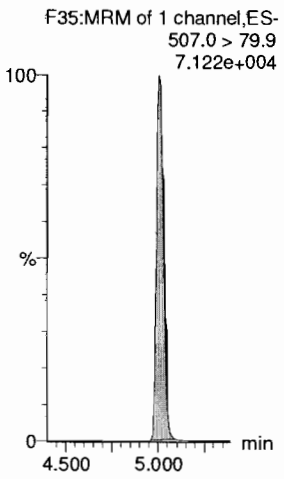

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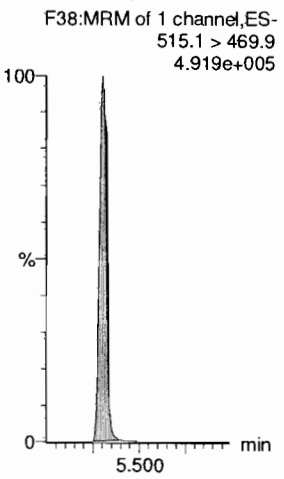

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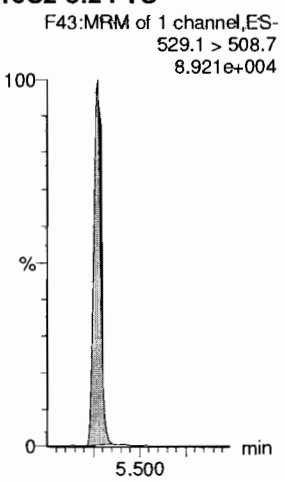

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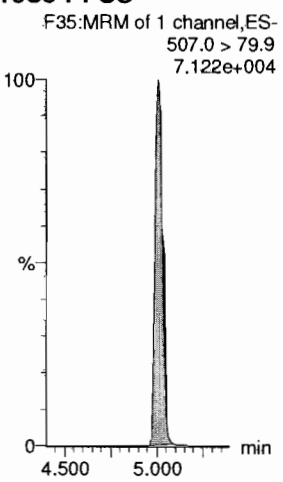
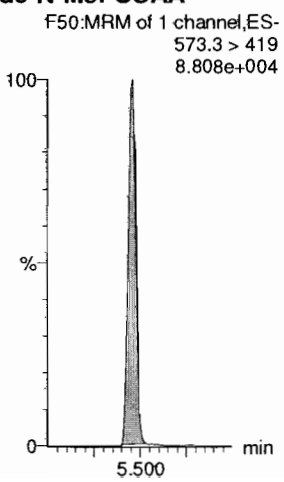


d3-N-MeFOSAA

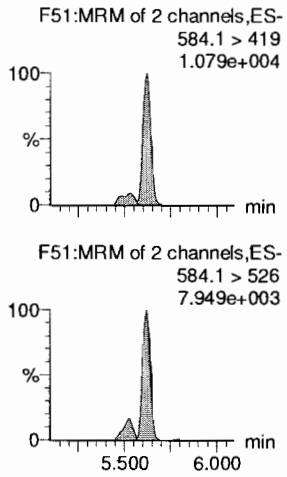


Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-2.qld

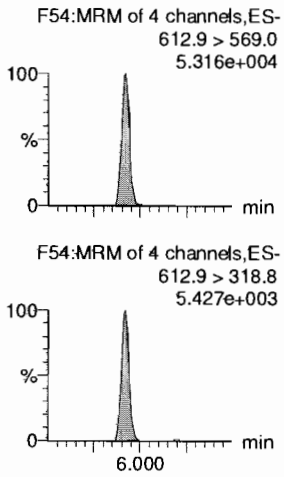
Last Altered: Monday, November 26, 2018 09:21:13 Pacific Standard Time
Printed: Monday, November 26, 2018 09:22:06 Pacific Standard Time

Name: 181121M1_2, Date: 21-Nov-2018, Time: 13:58:50, ID: ST181121M1-1 PFC CS0 18K0903, Description: PFC CS0 18K0903

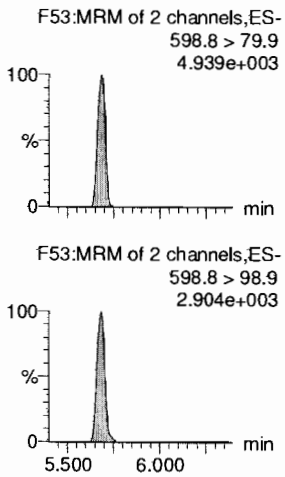
L-EtFOSAA



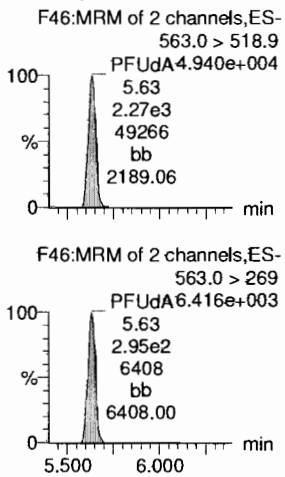
PFDoA



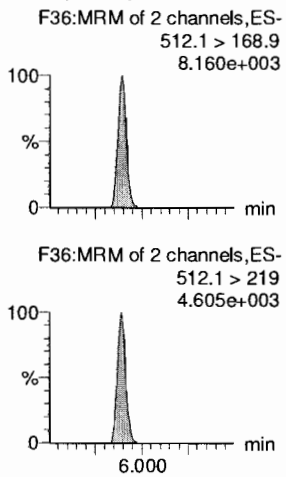
PFDS



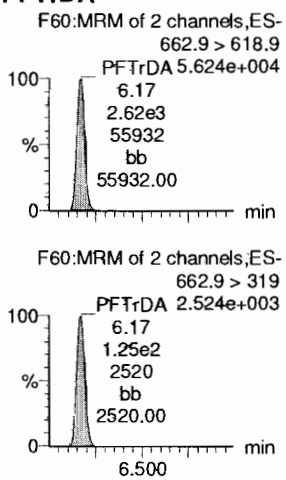
PFUdA



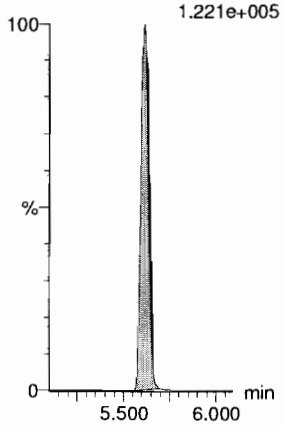
N-MeFOSA



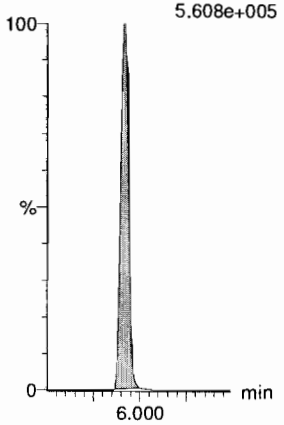
PFTrDA



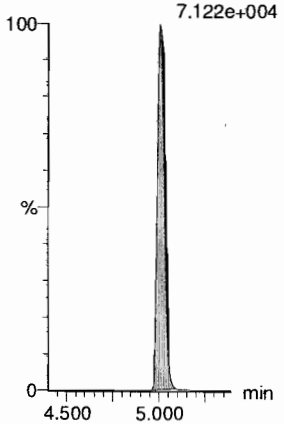
d5-N-EtFOSAA



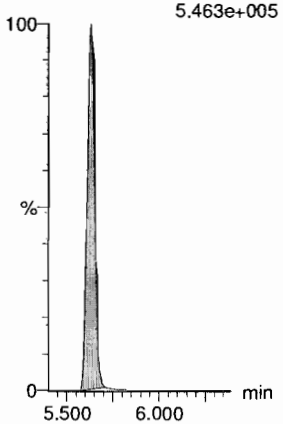
13C2-PFDoA



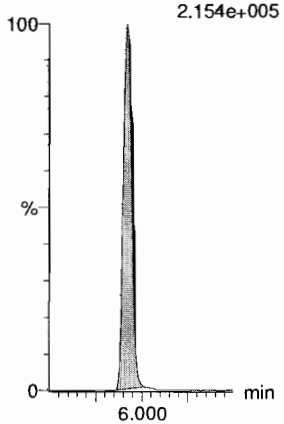
13C8-PFOS



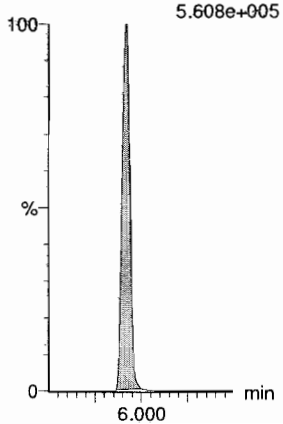
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA

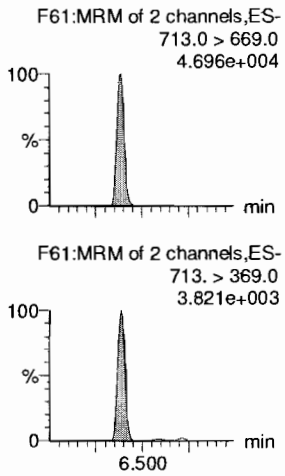


Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-2.qld

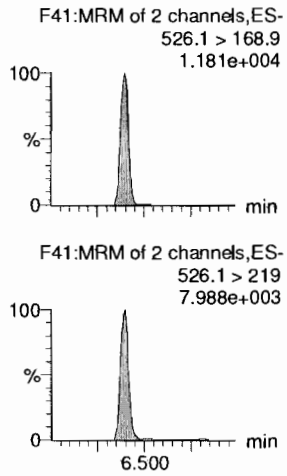
Last Altered: Monday, November 26, 2018 09:21:13 Pacific Standard Time
Printed: Monday, November 26, 2018 09:22:06 Pacific Standard Time

Name: 181121M1_2, Date: 21-Nov-2018, Time: 13:58:50, ID: ST181121M1-1 PFC CS0 18K0903, Description: PFC CS0 18K0903

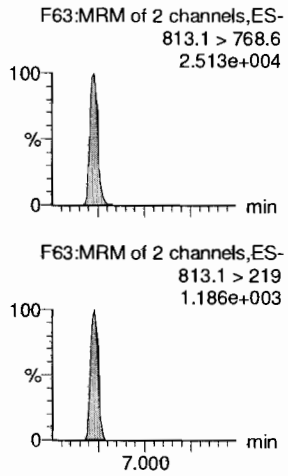
PFTeDA



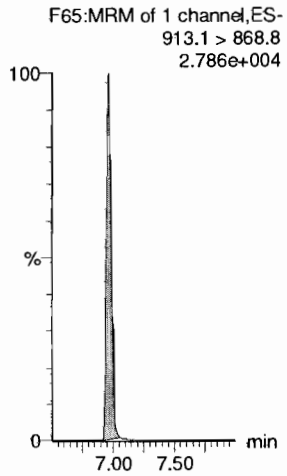
N-EtFOSA



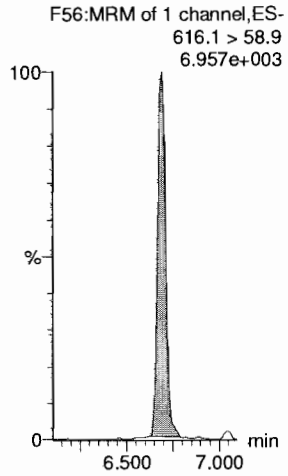
PFHxDA



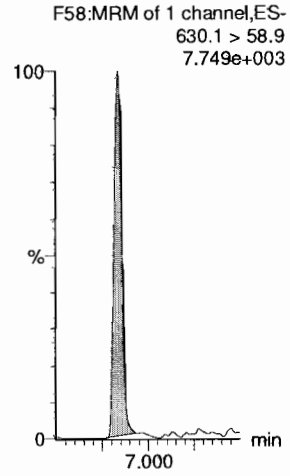
PFODA



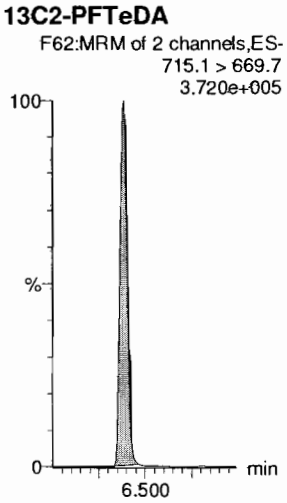
N-MeFOSE



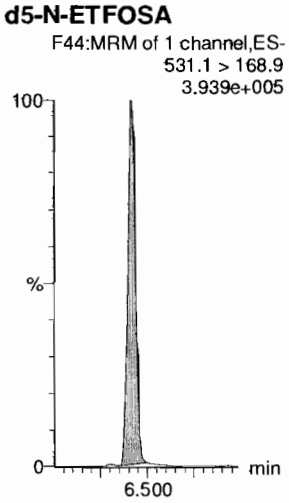
N-EtFOSE



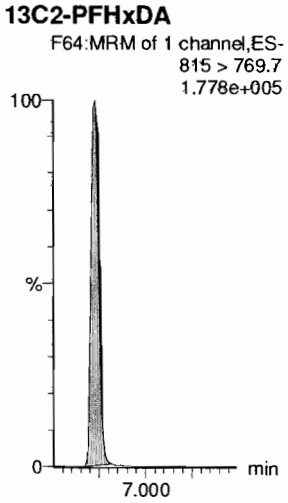
13C2-PFTeDA



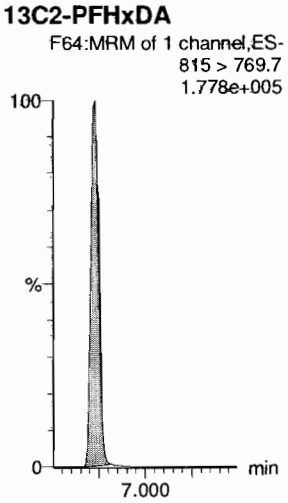
d5-N-ETFOSA



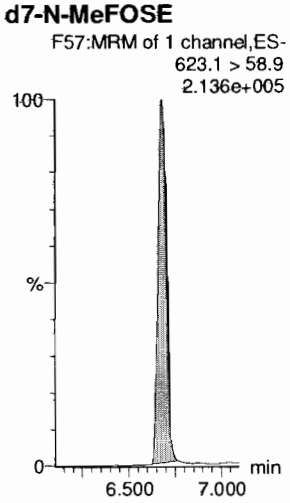
13C2-PFHxDA



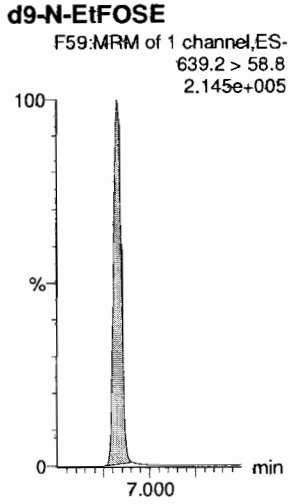
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE

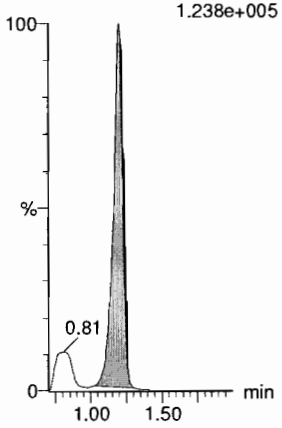


Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-2.qld

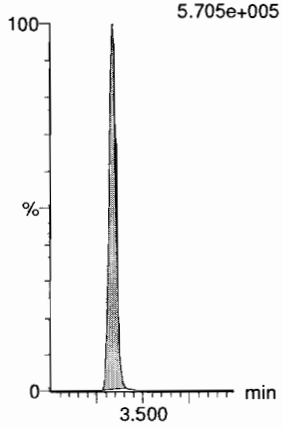
Last Altered: Monday, November 26, 2018 09:21:13 Pacific Standard Time
Printed: Monday, November 26, 2018 09:22:06 Pacific Standard Time

Name: 181121M1_2, Date: 21-Nov-2018, Time: 13:58:50, ID: ST181121M1-1 PFC CS0 18K0903, Description: PFC CS0 18K0903

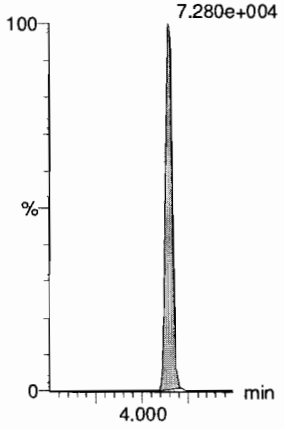
13C4-PFBA



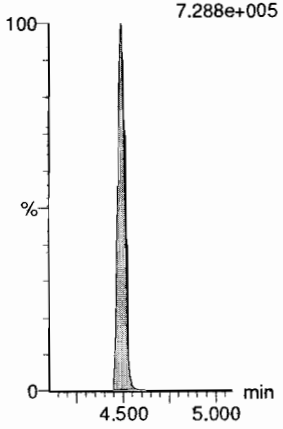
13C5-PFHxA



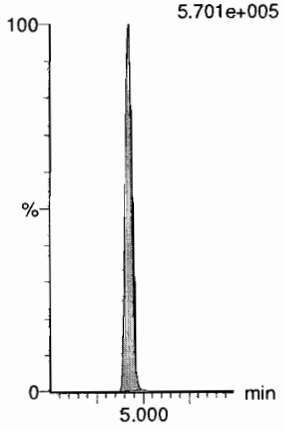
13C3-PFHxS



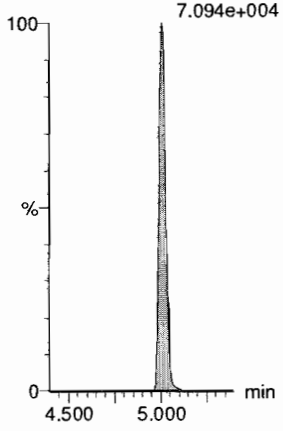
13C8-PFOA



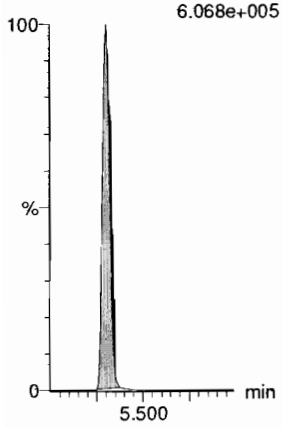
13C9-PFNA



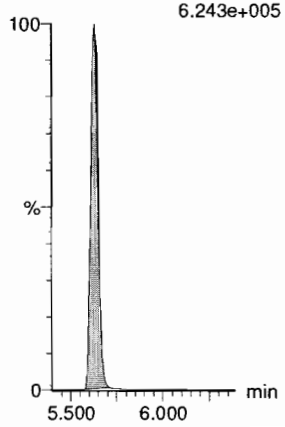
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-18.qld

Last Altered: Monday, November 26, 2018 09:17:44 Pacific Standard Time
Printed: Monday, November 26, 2018 09:18:18 Pacific Standard Time

Name: 181121M1_18, Date: 21-Nov-2018, Time: 17:12:15, ID: ST181121M1-2 PFC CS3 18K0906, Description: PFC CS3 18K0906

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	7244.755	7661.878	1.00	1.22	11.819	10.1	101.4	NO		
2	2	PFPeA	263.1 > 218.9	11228.603	15152.483	1.00	2.44	9.263	9.8	98.5	NO		
3	3	PFBS	299.0 > 79.7	2946.272	1899.972	1.00	2.78	19.384	9.9	99.5	NO	2.691	NO
4	4	4:2 FTS	327.2>307.2	4280.549	4845.207	1.00	3.27	11.043	10.6	105.8	NO	1.697	NO
5	5	PFHxA	313 > 269	20762.742	10867.760	1.00	3.35	9.552	10.1	101.0	NO	15.873	NO
6	6	PFPeS	349.1>80.1	2559.132	1899.972	1.00	3.57	16.837	11.0	109.7	NO	1.563	NO
7	36	13C3-PFBA	216.1 > 171.8	7661.878	10035.010	1.00	1.21	9.544	12.2	97.9	NO		
8	37	13C3-PFPeA	266. > 221.8	15152.483	28908.910	1.00	2.44	6.552	12.5	100.1	NO		
9	38	13C3-PFBS	302. > 98.8	1899.972	3327.915	1.00	2.78	7.136	13.2	106.0	NO		
10	39	13C2-4:2 FTS	329.2>308.9	4845.207	3327.915	1.00	3.26	18.199	11.9	94.9	NO		
11	40	13C2-PFHxA	315 > 270	10867.760	28908.910	1.00	3.35	4.699	4.9	97.5	NO		
12	38	13C3-PFBS	302. > 98.8	1899.972	3327.915	1.00	2.78	7.136	13.2	106.0	NO		
13	-1												
14	10	6:2 FTS	427.1 > 407	5338.075	4857.750	1.00	4.45	13.736	11.5	114.6	NO	2.987	NO
15	7	PFHpA	363.0 > 318.9	14098.311	13875.485	1.00	4.01	12.701	9.6	96.0	NO	11.657	NO
16	8	L-PFHxS	398.9 > 79.6	2302.787	1653.020	1.00	4.16	17.413	9.2	92.0	NO	1.761	NO
17	11	L-PFOA	412.8 > 368.9	25925.928	23358.695	1.00	4.50	13.874	10.7	107.1	NO	3.278	NO
18	13	PFHpS	449 > 80.0	2726.441	3781.255	1.00	4.61	9.013	10.1	100.9	NO	1.819	NO
19	14	PFNA	463.0 > 418.8	23072.631	23558.186	1.00	4.93	12.242	9.7	97.1	NO	4.387	NO
20	43	13C2-6:2 FTS	429.1 > 408.9	4857.750	3627.731	1.00	4.45	16.738	10.9	87.2	NO		
21	41	13C4-PFHpA	367.2 > 321.8	13875.485	28908.910	1.00	4.01	6.000	12.4	99.6	NO		
22	42	18O2-PFHxS	403.0 > 102.6	1653.020	3327.915	1.00	4.16	6.209	12.9	103.5	NO		
23	44	13C2-PFOA	414.9 > 369.7	23358.695	33677.484	1.00	4.50	8.670	11.5	91.9	NO		
24	47	13C8-PFOS	507.0 > 79.9	3781.255	3627.731	1.00	5.02	13.029	12.6	100.8	NO		
25	45	13C5-PFNA	468.2 > 422.9	23558.186	23880.580	1.00	4.93	12.331	12.4	99.5	NO		
26	-1												
27	15	PFOSA	497.9 > 77.9	2676.432	3212.581	1.00	4.97	10.414	9.8	98.1	NO	30.173	NO
28	16	L-PFOS	498.9 > 79.9	3023.207	3781.255	1.00	5.02	9.994	9.4	93.5	NO	1.805	NO
29	18	PFDA	513 > 468.8	24750.785	23665.230	1.00	5.31	13.073	10.1	101.4	NO	5.371	NO
30	19	8:2 FTS	527 > 506.9	4817.590	4021.988	1.00	5.28	14.973	10.4	104.0	NO	2.522	NO
31	20	PFNS	549.1 > 80.1	2336.942	3781.255	1.00	5.38	7.725	10.3	102.6	NO	1.745	NO
32	21	L-MeFOSAA	570 > 419	8589.459	5105.616	1.00	5.47	21.029	8.3	83.0	NO	2.446	NO
33	46	13C8-PFOSA	506.1 > 77.7	3212.581	33302.480	1.00	4.98	1.206	10.7	85.9	NO		
34	47	13C8-PFOS	507.0 > 79.9	3781.255	3627.731	1.00	5.02	13.029	12.6	100.8	NO		
35	48	13C2-PFDA	515.1 > 469.9	23665.230	28418.834	1.00	5.31	10.409	12.5	100.0	NO		
36	49	13C2-8:2 FTS	529.1 > 508.7	4021.988	3627.731	1.00	5.28	13.858	10.9	87.4	NO		

11/26/18

AD 11/26/18

Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-18.qld

Last Altered: Monday, November 26, 2018 09:17:44 Pacific Standard Time
Printed: Monday, November 26, 2018 09:18:18 Pacific Standard Time

Name: 181121M1_18, Date: 21-Nov-2018, Time: 17:12:15, ID: ST181121M1-2 PFC CS3 18K0906, Description: PFC CS3 18K0906

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
37	47	13C8-PFOS	507.0 > 79.9	3781.255	3627.731	1.00	5.02	13.029	12.6	100.8	NO		
38	50	d3-N-MeFOSAA	573.3 > 419	5105.616	33302.480	1.00	5.46	1.916	14.2	113.4	NO		
39	-1												
40	23	L-EtFOSAA	584.1 > 419	7442.350	7346.440	1.00	5.63	12.663	8.6	86.4	NO	1.427	NO
41	27	PFDoA	612.9 > 569.0	25001.949	27666.096	1.00	5.93	11.296	10.1	100.7	NO	8.363	NO
42	26	PFDS	598.8 > 79.9	2779.223	3781.255	1.00	5.70	9.188	9.3	92.7	NO	1.727	NO
43	25	PFUdA	563.0 > 518.9	21772.748	28975.580	1.00	5.65	9.393	10.1	100.8	NO	8.637	NO
44	28	N-MeFOSA	512.1 > 168.9	4234.292	11892.951	1.00	5.90	53.405	48.2	96.3	NO	1.546	NO
45	29	PFTrDA	662.9 > 618.9	26032.842	27666.096	1.00	6.18	11.762	10.3	103.2	NO	23.358	NO
46	52	d5-N-EtFOSAA	589.3 > 419	7346.440	33302.480	1.00	5.63	2.757	13.9	111.3	NO		
47	53	13C2-PFDoA	615.0 > 569.7	27666.096	28418.834	1.00	5.93	12.169	12.4	99.3	NO		
48	47	13C8-PFOS	507.0 > 79.9	3781.255	3627.731	1.00	5.02	13.029	12.6	100.8	NO		
49	51	13C2-PFUdA	565 > 519.8	28975.580	33302.480	1.00	5.65	10.876	11.7	93.8	NO		
50	54	d3-N-MeFOSA	515.2 > 168.9	11892.951	33302.480	1.00	5.94	4.464	128.7	85.8	NO		
51	53	13C2-PFDoA	615.0 > 569.7	27666.096	28418.834	1.00	5.93	12.169	12.4	99.3	NO		
52	-1												
53	30	PFTeDA	713.0 > 669.0	23774.004	18941.090	1.00	6.40	15.689	10.8	107.8	NO	14.537	NO
54	31	N-EtFOSA	526.1 > 168.9	5790.467	21234.639	1.00	6.41	40.903	49.6	99.2	NO	1.576	NO
55	32	PFHxDA	813.1 > 768.6	10754.515	9250.479	1.00	6.74	5.813	11.3	113.0	NO	21.796	NO
56	33	PFODA	913.1 > 868.8	14298.883	9250.479	1.00	6.98	7.729	10.3	103.0	NO		
57	34	N-MeFOSE	616.1 > 58.9	3461.576	11587.467	1.00	6.70	44.810	49.7	99.4	NO		
58	35	N-EtFOSE	630.1 > 58.9	4221.041	11827.025	1.00	6.85	53.535	48.3	96.6	NO		
59	55	13C2-PFTeDA	715.1 > 669.7	18941.090	33302.480	1.00	6.40	7.109	11.7	93.7	NO		
60	56	d5-N-ETFOSA	531.1 > 168.9	21234.639	33302.480	1.00	6.43	7.970	132.7	88.4	NO		
61	57	13C2-PFHxDA	815 > 769.7	9250.479	33302.480	1.00	6.74	3.472	4.3	86.3	NO		
62	57	13C2-PFHxDA	815 > 769.7	9250.479	33302.480	1.00	6.74	3.472	4.3	86.3	NO		
63	58	d7-N-MeFOSE	623.1 > 58.9	11587.467	33302.480	1.00	6.69	4.349	133.7	89.1	NO		
64	59	d9-N-EtFOSE	639.2 > 58.8	11827.025	33302.480	1.00	6.83	4.439	138.9	92.6	NO		
65	-1												
66	60	13C4-PFBA	217. > 172	10035.010	10035.010	1.00	1.22	12.500	12.5	100.0	NO		
67	61	13C5-PFHxA	318 > 272.9	28908.910	28908.910	1.00	3.35	12.500	12.5	100.0	NO		
68	62	13C3-PFHxS	401.8 > 79.9	3327.915	3327.915	1.00	4.16	12.500	12.5	100.0	NO		
69	63	13C8-PFOA	420.9 > 376	33677.484	33677.484	1.00	4.50	12.500	12.5	100.0	NO		
70	64	13C9-PFNA	472.2 > 426.9	23880.580	23880.580	1.00	4.93	12.500	12.5	100.0	NO		
71	65	13C4-PFOS	503 > 79.9	3627.731	3627.731	1.00	5.02	12.500	12.5	100.0	NO		
72	66	13C6-PFDA	519.1 > 473.7	28418.834	28418.834	1.00	5.32	12.500	12.5	100.0	NO		

Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-18.qld

Last Altered: Monday, November 26, 2018 09:17:44 Pacific Standard Time
Printed: Monday, November 26, 2018 09:18:18 Pacific Standard Time

Name: 181121M1_18, Date: 21-Nov-2018, Time: 17:12:15, ID: ST181121M1-2 PFC CS3 18K0906, Description: PFC CS3 18K0906

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
73	67	13C7-PFUdA	570.1 > 524.8	33302.480	33302.480	1.00	5.65	12.500	12.5	100.0	NO		

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Monday, November 26, 2018 09:41:04 Pacific Standard Time
Printed: Monday, November 26, 2018 09:41:12 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112118.mdb 26 Nov 2018 09:17:42
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	181121M1_1	IPA	21-Nov-18	13:48:07
2	2	181121M1_2	ST181121M1-1 PFC CS0 18K0903	21-Nov-18	13:58:50
3	3	181121M1_3	IPA	21-Nov-18	14:09:28
4	4	181121M1_4	1803552-02 WW1810291045GC 0.24014	21-Nov-18	14:41:33
5	5	181121M1_5	B8K0091-MSD1 Matrix Spike Dup 0.11594	21-Nov-18	14:52:08
6	6	181121M1_6	1803615-01 A1-MW-04-SA2 0.11345	21-Nov-18	15:02:46
7	7	181121M1_7	1803615-02 A1-MW-05-SA2 0.11579	21-Nov-18	15:13:20
8	8	181121M1_8	1803615-04 A1-MW-50-SA2 0.11184	21-Nov-18	15:23:58
9	9	181121M1_9	1803615-05 A1-MW-50-SA2D 0.11445	21-Nov-18	15:34:36
10	10	181121M1_10	1803615-06 A1-MW-51-SA2 0.11681	21-Nov-18	15:45:09
11	11	181121M1_11	1803615-07 A1-MW-52-SA2 0.11468	21-Nov-18	15:55:48
12	12	181121M1_12	B8K0097-BS1 OPR 0.125	21-Nov-18	16:08:39
13	13	181121M1_13	B8K0097-BSD1 LCSD 0.125	21-Nov-18	16:19:13
14	14	181121M1_14	B8K0097-BLK1 Method Blank 0.125	21-Nov-18	16:29:52
15	15	181121M1_15	1803626-01 16-HS-03-SA2 0.11792	21-Nov-18	16:40:30
16	16	181121M1_16	1803626-02 16-MW-06-SA2 0.1197	21-Nov-18	16:51:04
17	17	181121M1_17	IPA	21-Nov-18	17:01:42
18	18	181121M1_18	ST181121M1-2 PFC CS3 18K0906	21-Nov-18	17:12:15
19	19	181121M1_19	1803626-03 16-MW-08-SA2 0.11955	21-Nov-18	17:22:53
20	20	181121M1_20	1803626-04 16-MW-09-SA2 0.11735	21-Nov-18	17:33:26
21	21	181121M1_21	1803626-05 A1-MW-18-SA2 0.11682	21-Nov-18	17:44:04
22	22	181121M1_22	1803626-06 A1-MW-19-SA2 0.11616	21-Nov-18	17:54:42
23	23	181121M1_23	1803626-07 FRB-20181113 0.1174	21-Nov-18	18:05:16
24	24	181121M1_24	1803626-08 A1-MW-53-SA2 0.11896	21-Nov-18	18:15:55
25	25	181121M1_25	1803626-09 16-HS-03-SA2D 0.11367	21-Nov-18	18:26:33
26	26	181121M1_26	1803629-01 REEPDW1366 0.11758	21-Nov-18	18:37:06
27	27	181121M1_27	1803629-02 REEPDW1367 0.11776	21-Nov-18	18:47:45
28	28	181121M1_28	1803629-03 REEPDW1369 0.11504	21-Nov-18	18:58:18
29	29	181121M1_29	IPA	21-Nov-18	19:08:56
30	30	181121M1_30	ST181121M1-3 PFC CS3 18K0906	21-Nov-18	19:19:29
31	31	181121M1_31	1803629-04 REEPDW1368 0.11385	21-Nov-18	19:30:07
32	32	181121M1_32	1803629-05 REEPDW1370 0.1146	21-Nov-18	19:40:41

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Monday, November 26, 2018 09:41:04 Pacific Standard Time
Printed: Monday, November 26, 2018 09:41:12 Pacific Standard Time

Compound name: PFBA

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33	33	181121M1_33	1803629-06 REEPDW585 0.11471	21-Nov-18	19:51:19
34	34	181121M1_34	1803629-07 REEPDW1371 0.11573	21-Nov-18	20:01:52
35	35	181121M1_35	B8K0119-BS1 OPR 0.125	21-Nov-18	20:12:30
36	36	181121M1_36	B8K0119-BLK1 Method Blank 0.125	21-Nov-18	20:23:04
37	37	181121M1_37	1803644-01 MW-2 0.11289	21-Nov-18	20:33:42
38	38	181121M1_38	1803644-02 MW-3 0.11758	21-Nov-18	20:44:15
39	39	181121M1_39	1803644-03 MW-5A 0.11473	21-Nov-18	20:54:53
40	40	181121M1_40	1803644-04 WD-6 0.11082	21-Nov-18	21:05:32
41	41	181121M1_41	1803644-05 B-102D 0.11429	21-Nov-18	21:16:05
42	42	181121M1_42	1803644-06 B-105A 0.11234	21-Nov-18	21:26:43
43	43	181121M1_43	IPA	21-Nov-18	21:37:15
44	44	181121M1_44	ST181121M1-4 PFC CS3 18K0906	21-Nov-18	21:47:53
45	45	181121M1_45	1803644-07 B-110D 0.11244	21-Nov-18	21:58:27
46	46	181121M1_46	1803644-08 B-202S 0.11215	21-Nov-18	22:09:05
47	47	181121M1_47	1803644-09 B-202D 0.11743	21-Nov-18	22:19:38
48	48	181121M1_48	1803644-10 SG-1 0.11503	21-Nov-18	22:30:17
49	49	181121M1_49	1803644-11 SG-2 0.11322	21-Nov-18	22:40:49
50	50	181121M1_50	1803644-12 SG-3 0.1129	21-Nov-18	22:51:28
51	51	181121M1_51	1803644-13 SG-5 0.11239	21-Nov-18	23:02:00
52	52	181121M1_52	1803644-14 DW-01 (7B/15 Well 1-Transfer Station) 0	21-Nov-18	23:12:39
53	53	181121M1_53	1803644-15 DW-02 (7B/15 Well 2-Recycling) 0.11288	21-Nov-18	23:23:17
54	54	181121M1_54	IPA	21-Nov-18	23:33:50
55	55	181121M1_55	ST181121M1-5 PFC CS3 18K0906	21-Nov-18	23:44:29

Vista Analytical Laboratory

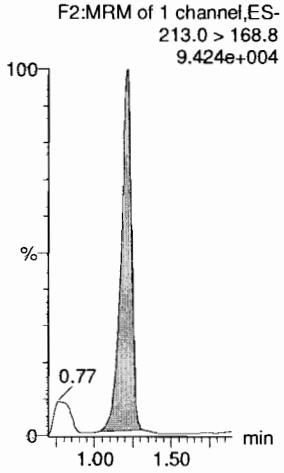
Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-18.qld

Last Altered: Monday, November 26, 2018 09:17:44 Pacific Standard Time
Printed: Monday, November 26, 2018 09:18:18 Pacific Standard Time

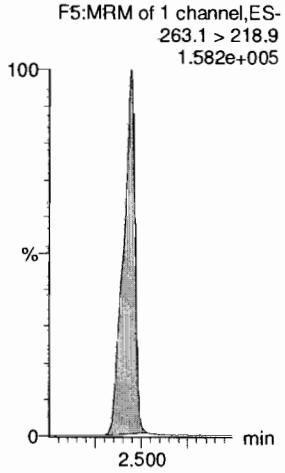
Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112118.mdb 26 Nov 2018 09:17:42
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Name: 181121M1_18, Date: 21-Nov-2018, Time: 17:12:15, ID: ST181121M1-2 PFC CS3 18K0906, Description: PFC CS3 18K0906

PFBA



PFPeA



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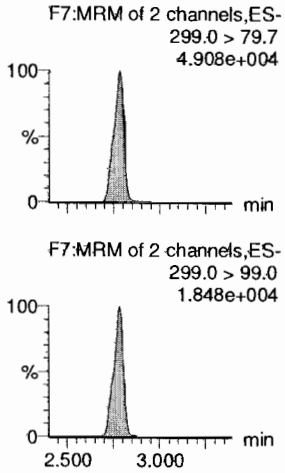
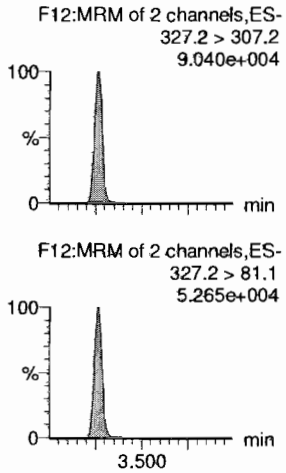
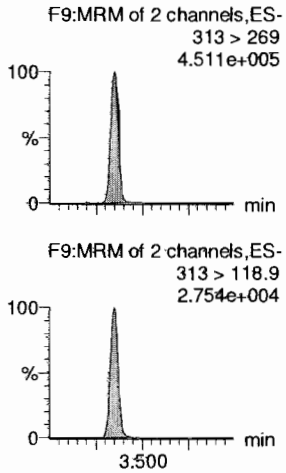


4:2 FTS



PFHxA



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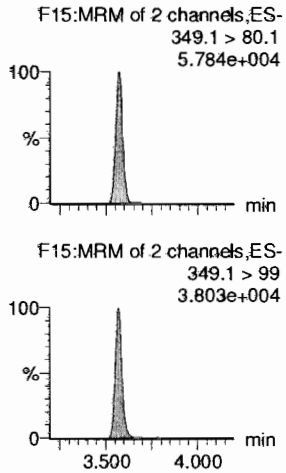

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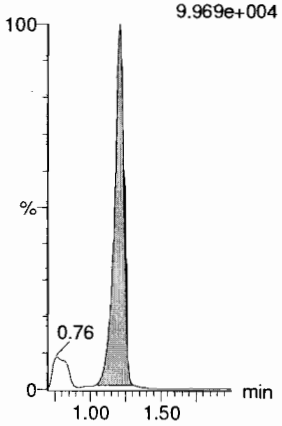

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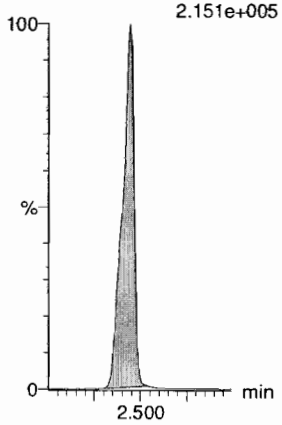

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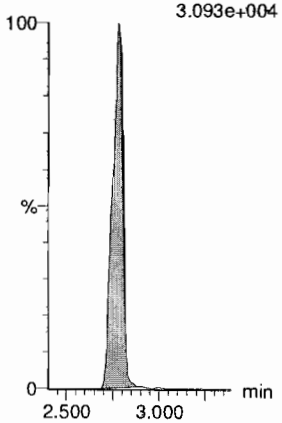
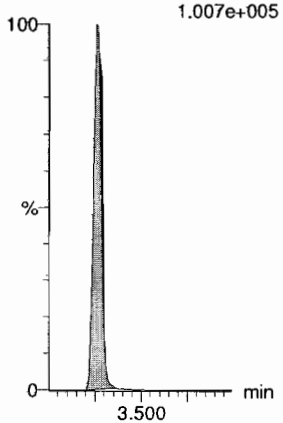


13C2-4:2 FTS



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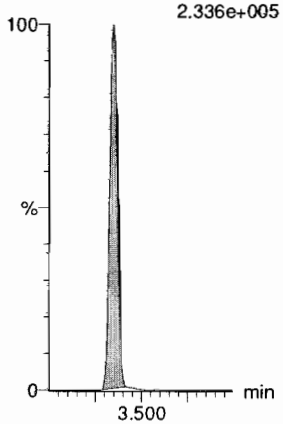

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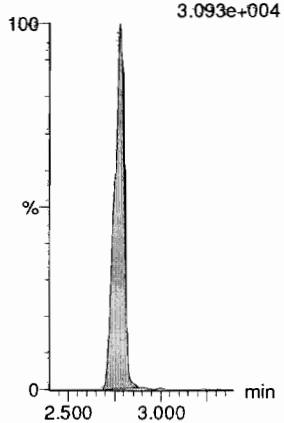
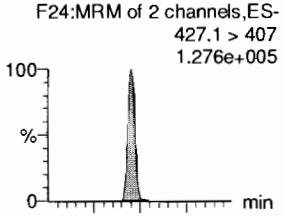


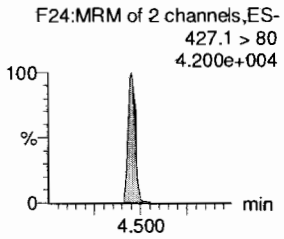
Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-18.qld

Last Altered: Monday, November 26, 2018 09:17:44 Pacific Standard Time
Printed: Monday, November 26, 2018 09:18:18 Pacific Standard Time

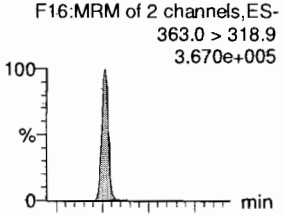
Name: 181121M1_18, Date: 21-Nov-2018, Time: 17:12:15, ID: ST181121M1-2 PFC CS3 18K0906, Description: PFC CS3 18K0906

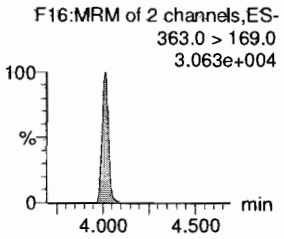
6:2 FTS



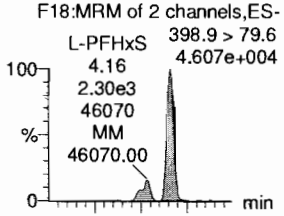


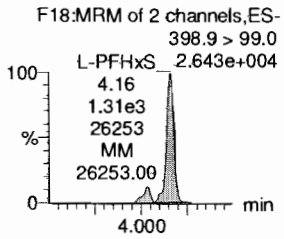
PFHpA



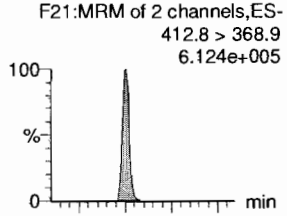


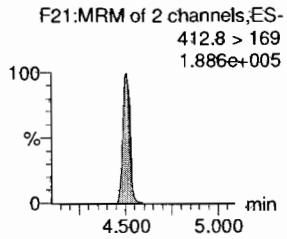
L-PFHxS





L-PFOA





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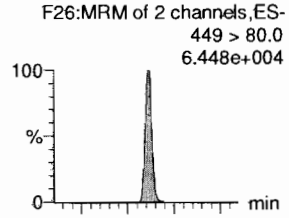
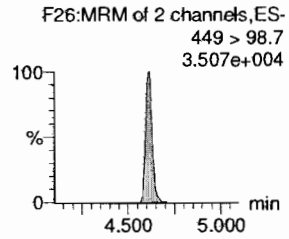
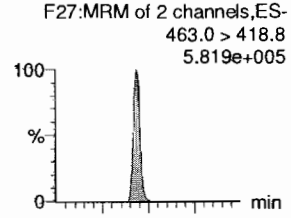
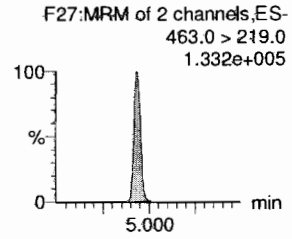


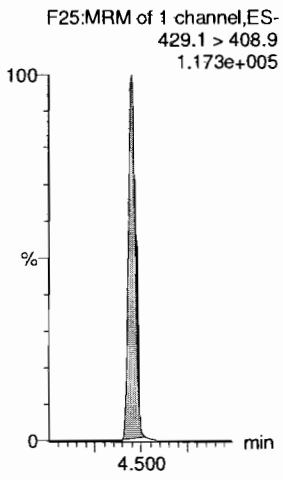


PFNA





13C2-6:2 FTS



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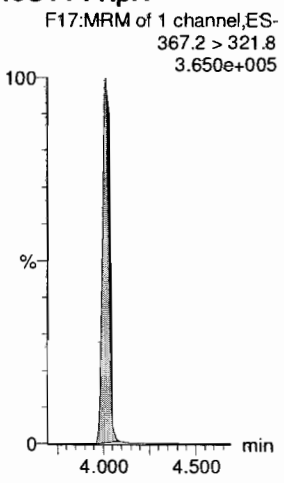
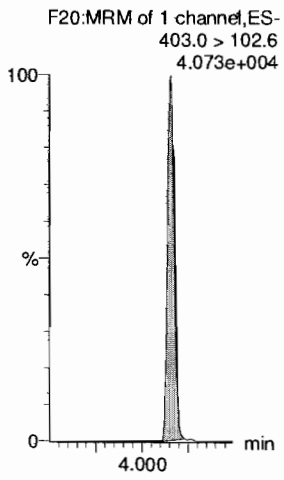
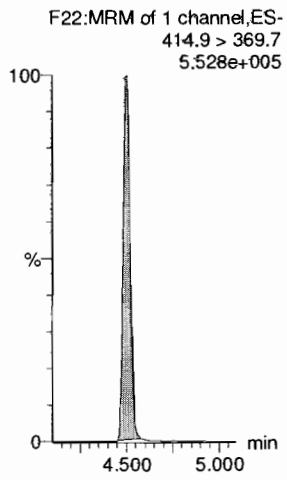


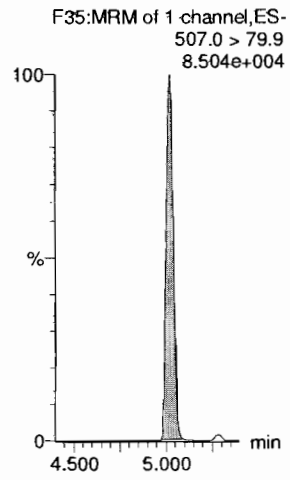
18O2-PFHxS



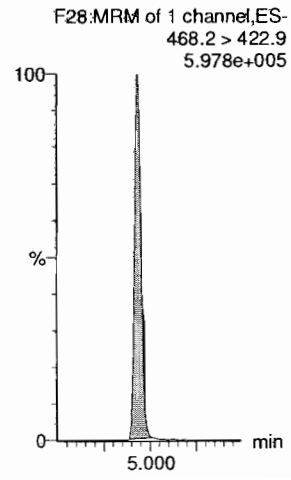
13C2-PFOA



13C8-PFOS



13C5-PFNA

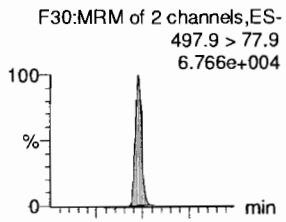


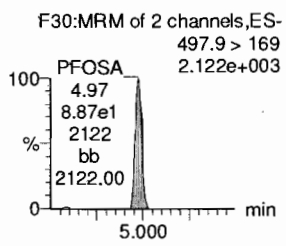
Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-18.qld

Last Altered: Monday, November 26, 2018 09:17:44 Pacific Standard Time
Printed: Monday, November 26, 2018 09:18:18 Pacific Standard Time

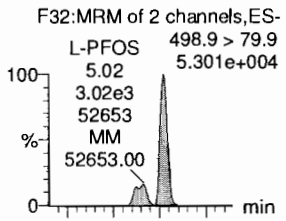
Name: 181121M1_18, Date: 21-Nov-2018, Time: 17:12:15, ID: ST181121M1-2 PFC CS3 18K0906, Description: PFC CS3 18K0906

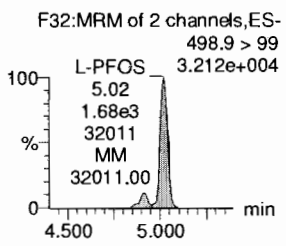
PFOSA



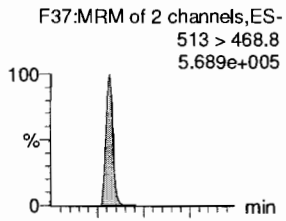


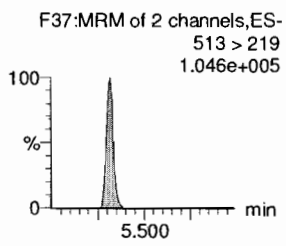
L-PFOS



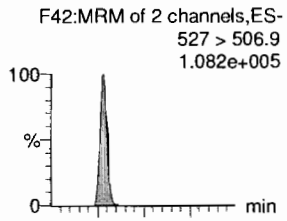


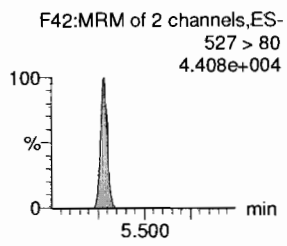
PFDA



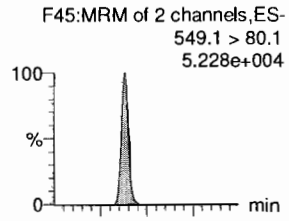


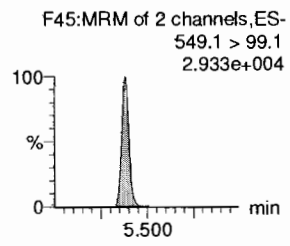
8:2 FTS



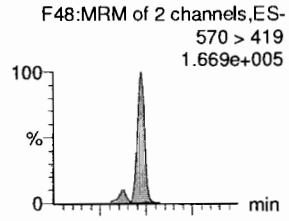


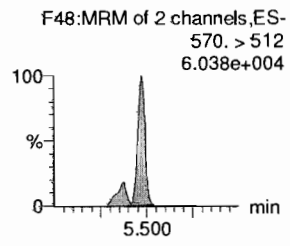
PFNS



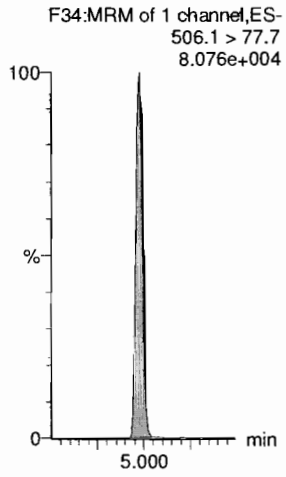


L-MeFOSAA

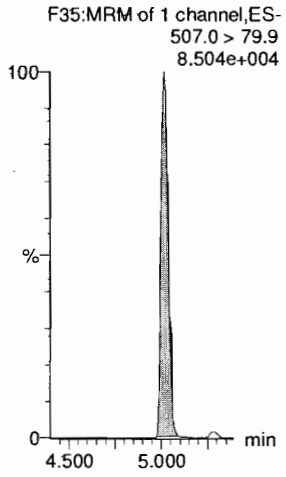




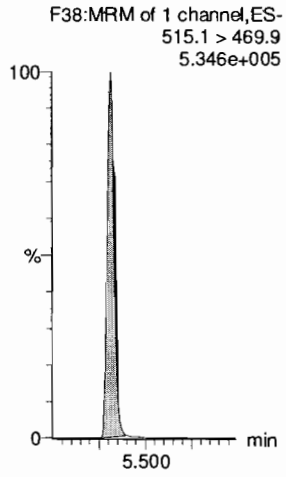
13C8-PFOSA



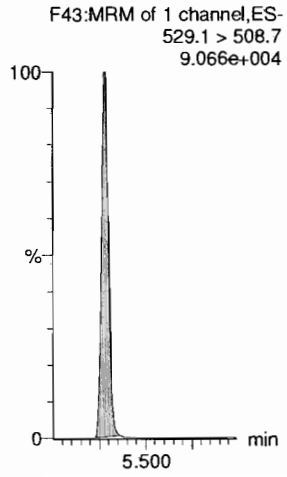
13C8-PFOS



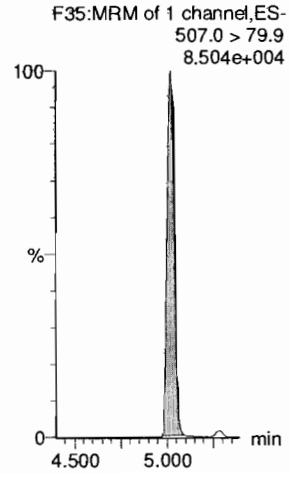
13C2-PFDA



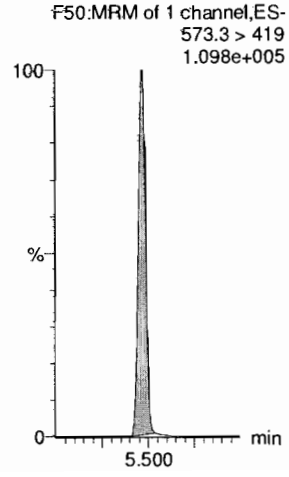
13C2-8:2 FTS



13C8-PFOS



d3-N-MeFOSAA

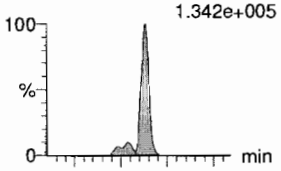


Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-18.qld

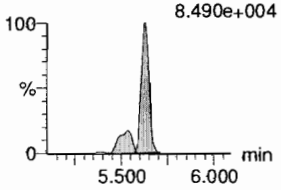
Last Altered: Monday, November 26, 2018 09:17:44 Pacific Standard Time
Printed: Monday, November 26, 2018 09:18:18 Pacific Standard Time

Name: 181121M1_18, Date: 21-Nov-2018, Time: 17:12:15, ID: ST181121M1-2 PFC CS3 18K0906, Description: PFC CS3 18K0906

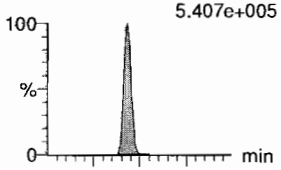
L-EtFOSAA
F51:MRM of 2 channels,ES-
584.1 > 419
1.342e+005



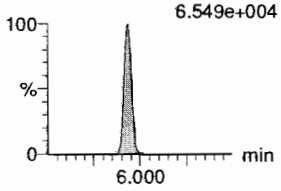
F51:MRM of 2 channels,ES-
584.1 > 526
8.490e+004



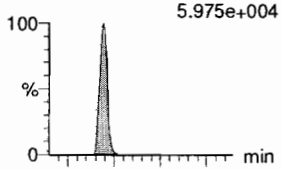
PFDoA
F54:MRM of 4 channels,ES-
612.9 > 569.0
5.407e+005



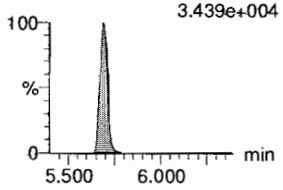
F54:MRM of 4 channels,ES-
612.9 > 318.8
6.549e+004



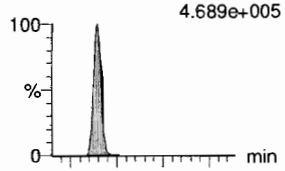
PFDS
F53:MRM of 2 channels,ES-
598.8 > 79.9
5.975e+004



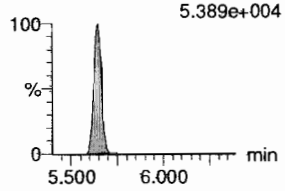
F53:MRM of 2 channels,ES-
598.8 > 98.9
3.439e+004



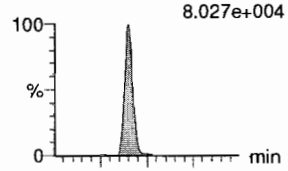
PFUdA
F46:MRM of 2 channels,ES-
563.0 > 518.9
4.689e+005



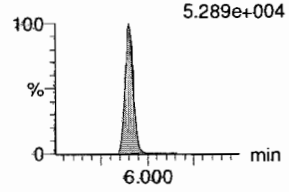
F46:MRM of 2 channels,ES-
563.0 > 269
5.389e+004



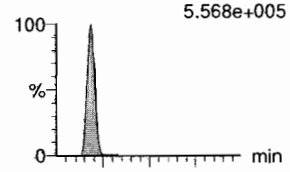
N-MeFOSA
F36:MRM of 2 channels,ES-
512.1 > 168.9
8.027e+004



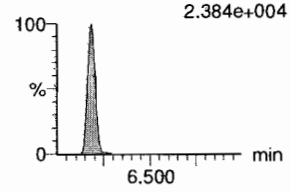
F36:MRM of 2 channels,ES-
512.1 > 219
5.289e+004



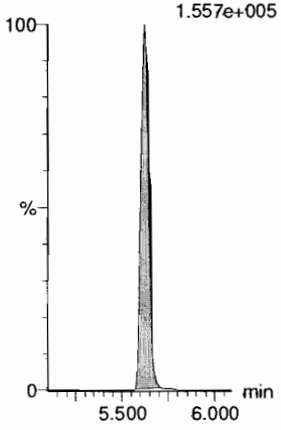
PFTrDA
F60:MRM of 2 channels,ES-
662.9 > 618.9
5.568e+005



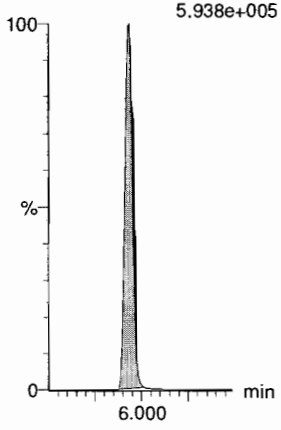
F60:MRM of 2 channels,ES-
662.9 > 319
2.384e+004



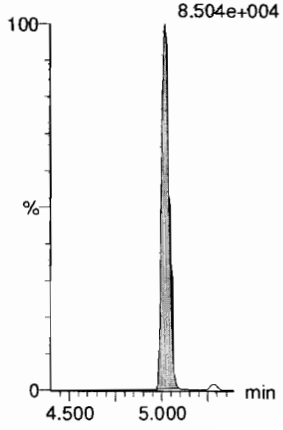
d5-N-EtFOSAA
F52:MRM of 1 channel,ES-
589.3 > 419
1.557e+005



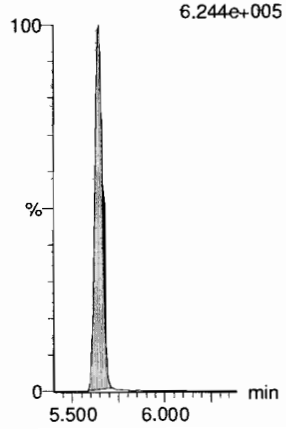
13C2-PFDoA
F55:MRM of 2 channels,ES-
615.0 > 569.7
5.938e+005



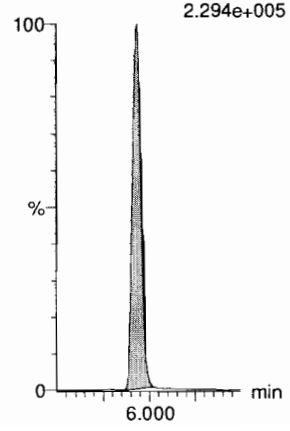
13C8-PFOS
F35:MRM of 1 channel,ES-
507.0 > 79.9
8.504e+004



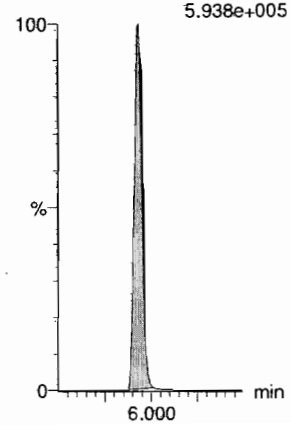
13C2-PFUdA
F47:MRM of 1 channel,ES-
565 > 519.8
6.244e+005



d3-N-MeFOSA
F39:MRM of 1 channel,ES-
515.2 > 168.9
2.294e+005



13C2-PFDoA
F55:MRM of 2 channels,ES-
615.0 > 569.7
5.938e+005

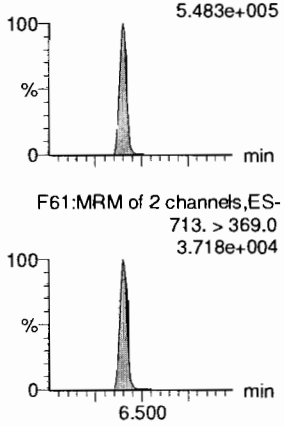


Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-18.qld

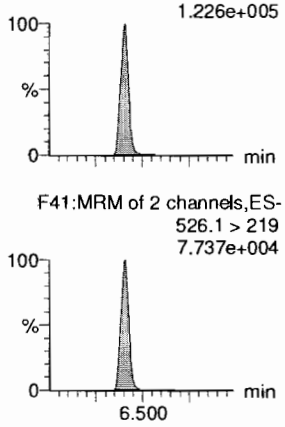
Last Altered: Monday, November 26, 2018 09:17:44 Pacific Standard Time
Printed: Monday, November 26, 2018 09:18:18 Pacific Standard Time

Name: 181121M1_18, Date: 21-Nov-2018, Time: 17:12:15, ID: ST181121M1-2 PFC CS3 18K0906, Description: PFC CS3 18K0906

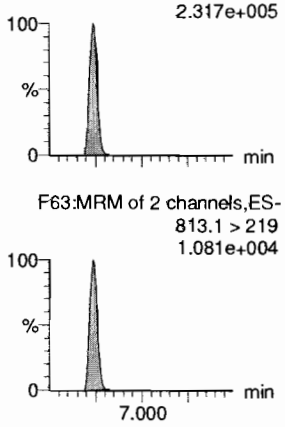
PFTeDA



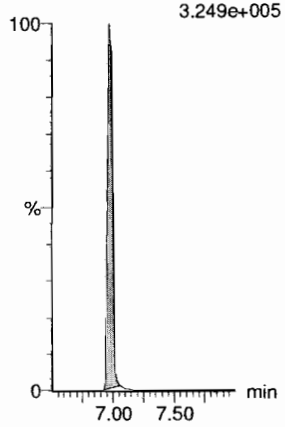
N-EtFOSA



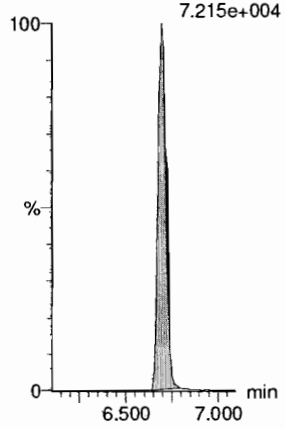
PFHxDA



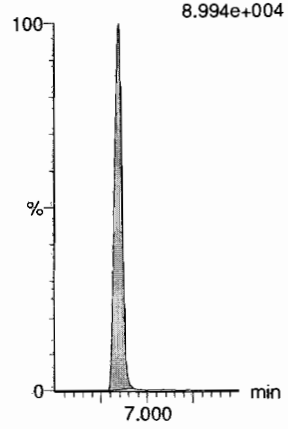
PFODA



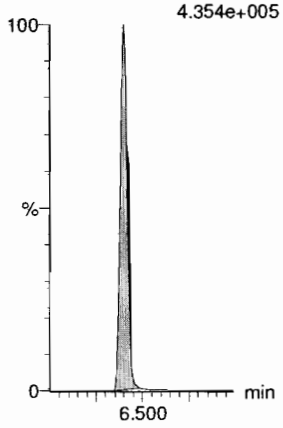
N-MeFOSE



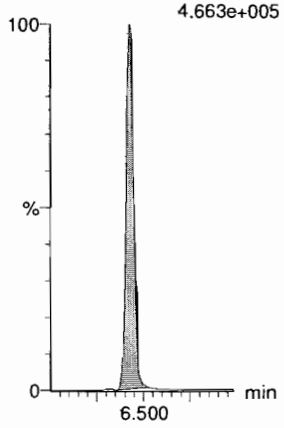
N-EtFOSE



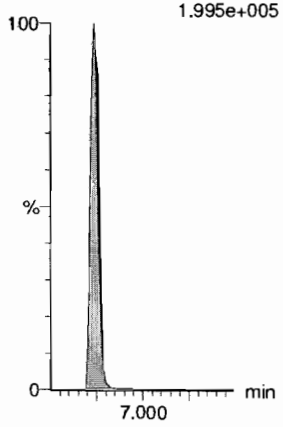
13C2-PFTeDA



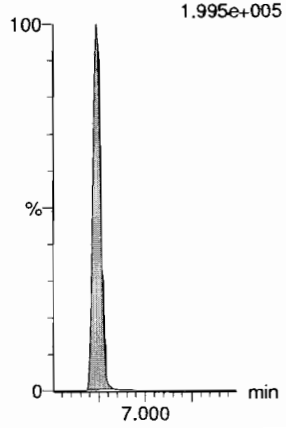
d5-N-ETFOSA



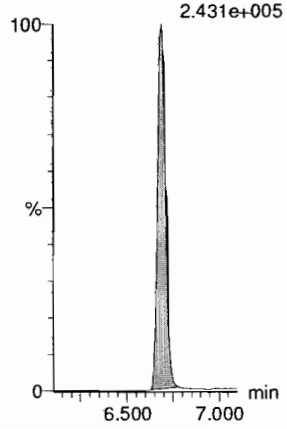
13C2-PFHxDA



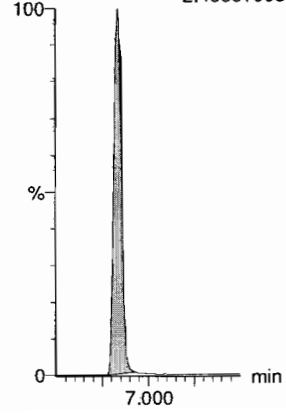
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE

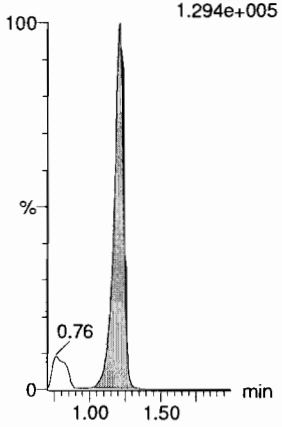


Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-18.qld

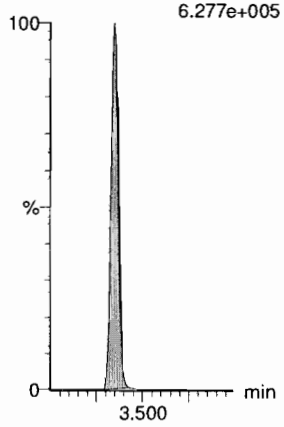
Last Altered: Monday, November 26, 2018 09:17:44 Pacific Standard Time
Printed: Monday, November 26, 2018 09:18:18 Pacific Standard Time

Name: 181121M1_18, Date: 21-Nov-2018, Time: 17:12:15, ID: ST181121M1-2 PFC CS3 18K0906, Description: PFC CS3 18K0906

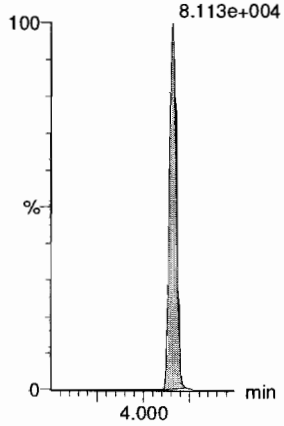
13C4-PFBA



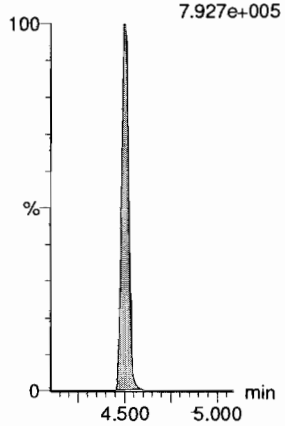
13C5-PFHxA



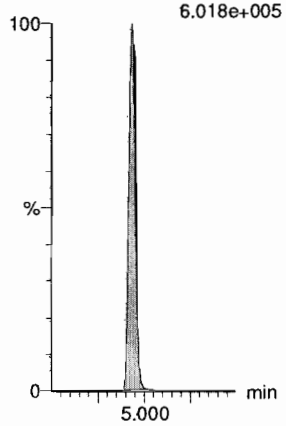
13C3-PFHxS



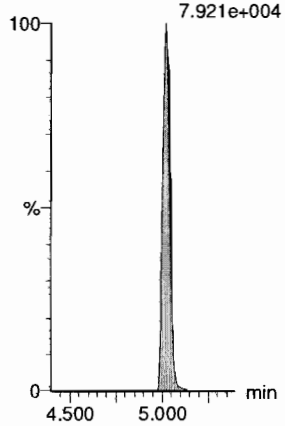
13C8-PFOA



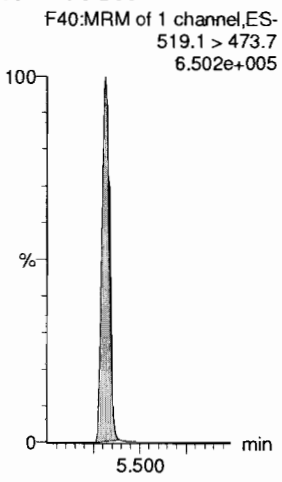
13C9-PFNA



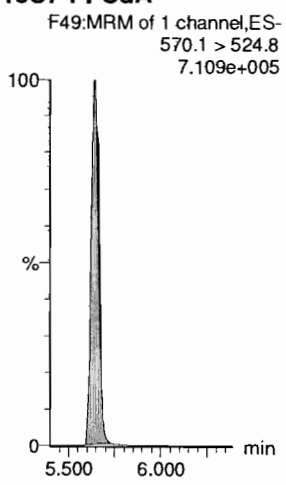
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-30.qld

Last Altered: Monday, November 26, 2018 09:26:07 Pacific Standard Time
Printed: Monday, November 26, 2018 09:26:41 Pacific Standard Time

Name: 181121M1_30, Date: 21-Nov-2018, Time: 19:19:29, ID: ST181121M1-3 PFC CS3 18K0906, Description: PFC CS3 18K0906

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	7557.179	8173.486	1.00	1.18	11.557	9.9	99.2	NO		
2	2	PFPeA	263.1 > 218.9	10688.394	14390.454	1.00	2.41	9.284	9.9	98.7	NO		
3	3	PFBS	299.0 > 79.7	2753.819	1785.605	1.00	2.75	19.278	9.9	98.9	NO	2.680	NO
4	4	4:2 FTS	327.2>307.2	4124.745	4577.708	1.00	3.24	11.263	10.8	108.0	NO	1.684	NO
5	5	PFHxA	313 > 269	19465.797	9968.930	1.00	3.33	9.763	10.3	103.2	NO	16.100	NO
6	6	PFPeS	349.1>80.1	2287.529	1785.605	1.00	3.55	16.014	10.4	104.2	NO	1.469	NO
7	36	13C3-PFBA	216.1 > 171.8	8173.486	10446.675	1.00	1.18	9.780	12.5	100.3	NO		
8	37	13C3-PFPeA	266. > 221.8	14390.454	25756.992	1.00	2.40	6.984	13.3	106.7	NO		
9	38	13C3-PFBS	302. > 98.8	1785.605	3149.174	1.00	2.75	7.088	13.2	105.3	NO		
10	39	13C2-4:2 FTS	329.2>308.9	4577.708	3149.174	1.00	3.24	18.170	11.8	94.8	NO		
11	40	13C2-PFHxA	315 > 270	9968.930	25756.992	1.00	3.33	4.838	5.0	100.3	NO		
12	38	13C3-PFBS	302. > 98.8	1785.605	3149.174	1.00	2.75	7.088	13.2	105.3	NO		
13	-1												
14	10	6:2 FTS	427.1 > 407	4914.050	4336.055	1.00	4.43	14.166	11.8	118.4	NO	2.858	NO
15	7	PFHpA	363.0 > 318.9	12839.585	12291.798	1.00	4.00	13.057	9.9	98.7	NO	10.963	NO
16	8	L-PFHxS	398.9 > 79.6	2153.564	1573.367	1.00	4.14	17.110	9.0	90.4	NO	1.881	NO
17	11	L-PFOA	412.8 > 368.9	23456.291	20802.527	1.00	4.49	14.095	10.9	108.9	NO	3.329	NO
18	13	PFHpS	449 > 80.0	2556.577	3564.972	1.00	4.60	8.964	10.0	100.4	NO	1.865	NO
19	14	PFNA	463.0 > 418.8	20241.076	21352.424	1.00	4.92	11.849	9.4	94.0	NO	4.466	NO
20	43	13C2-6:2 FTS	429.1 > 408.9	4336.055	3340.637	1.00	4.43	16.225	10.6	84.5	NO		
21	41	13C4-PFHpA	367.2 > 321.8	12291.798	25756.992	1.00	4.00	5.965	12.4	99.0	NO		
22	42	18O2-PFHxS	403.0 > 102.6	1573.367	3149.174	1.00	4.14	6.245	13.0	104.1	NO		
23	44	13C2-PFOA	414.9 > 369.7	20802.527	30330.195	1.00	4.49	8.573	11.4	90.9	NO		
24	47	13C8-PFOS	507.0 > 79.9	3564.972	3340.637	1.00	5.01	13.339	12.9	103.2	NO		
25	45	13C5-PFNA	468.2 > 422.9	21352.424	22577.543	1.00	4.92	11.822	11.9	95.3	NO		
26	-1												
27	15	PFOSA	497.9 > 77.9	2785.612	3326.667	1.00	4.96	10.467	9.9	98.6	NO	25.330	NO
28	16	L-PFOS	498.9 > 79.9	2778.383	3564.972	1.00	5.01	9.742	9.1	91.2	NO	1.906	NO
29	18	PFDA	513 > 468.8	21951.129	22053.277	1.00	5.30	12.442	9.6	96.4	NO	5.268	NO
30	19	8:2 FTS	527 > 506.9	4199.491	3308.219	1.00	5.27	15.868	11.0	110.5	NO	2.413	NO
31	20	PFNS	549.1 > 80.1	2188.928	3564.972	1.00	5.36	7.675	10.2	101.9	NO	1.620	NO
32	21	L-MeFOSAA	570 > 419	7977.289	5098.881	1.00	5.46	19.556	7.7	77.2	NO	2.694	NO
33	46	13C8-PFOSA	506.1 > 77.7	3326.667	29744.590	1.00	4.96	1.398	12.5	99.6	NO		
34	47	13C8-PFOS	507.0 > 79.9	3564.972	3340.637	1.00	5.01	13.339	12.9	103.2	NO		
35	48	13C2-PFDA	515.1 > 469.9	22053.277	25249.197	1.00	5.30	10.918	13.1	104.9	NO		
36	49	13C2-8:2 FTS	529.1 > 508.7	3308.219	3340.637	1.00	5.27	12.379	9.8	78.1	NO		

JCC 11/26/18

AD 11/26/18

Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-30.qld

Last Altered: Monday, November 26, 2018 09:26:07 Pacific Standard Time
Printed: Monday, November 26, 2018 09:26:41 Pacific Standard Time

Name: 181121M1_30, Date: 21-Nov-2018, Time: 19:19:29, ID: ST181121M1-3 PFC CS3 18K0906, Description: PFC CS3 18K0906

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
37	47	13C8-PFOS	507.0 > 79.9	3564.972	3340.637	1.00	5.01	13.339	12.9	103.2	NO		
38	50	d3-N-MeFOSAA	573.3 > 419	5098.881	29744.590	1.00	5.45	2.143	15.9	126.8	NO		
39	-1												
40	23	L-EtFOSAA	584.1 > 419	6765.751	7240.164	1.00	5.62	11.681	8.0	79.7	NO	1.411	NO
41	27	PFDoA	612.9 > 569.0	23005.979	24459.047	1.00	5.92	11.757	10.5	104.8	NO	8.370	NO
42	26	PFDS	598.8 > 79.9	2748.112	3564.972	1.00	5.68	9.636	9.7	97.2	NO	1.726	NO
43	25	PFUdA	563.0 > 518.9	19667.488	27083.512	1.00	5.63	9.077	9.7	97.4	NO	8.492	NO
44	28	N-MeFOSA	512.1 > 168.9	4178.963	12249.146	1.00	5.87	51.175	46.1	92.3	NO	1.511	NO
45	29	PFTrDA	662.9 > 618.9	23478.107	24459.047	1.00	6.17	11.999	10.5	105.3	NO	23.552	NO
46	52	d5-N-EtFOSAA	589.3 > 419	7240.164	29744.590	1.00	5.61	3.043	15.4	122.8	NO		
47	53	13C2-PFDoA	615.0 > 569.7	24459.047	25249.197	1.00	5.92	12.109	12.4	98.8	NO		
48	47	13C8-PFOS	507.0 > 79.9	3564.972	3340.637	1.00	5.01	13.339	12.9	103.2	NO		
49	51	13C2-PFUdA	565 > 519.8	27083.512	29744.590	1.00	5.63	11.382	12.3	98.1	NO		
50	54	d3-N-MeFOSA	515.2 > 168.9	12249.146	29744.590	1.00	5.90	5.148	148.4	98.9	NO		
51	53	13C2-PFDoA	615.0 > 569.7	24459.047	25249.197	1.00	5.92	12.109	12.4	98.8	NO		
52	-1												
53	30	PFTeDA	713.0 > 669.0	21761.285	16915.727	1.00	6.40	16.081	11.1	110.5	NO	14.041	NO
54	31	N-EtFOSA	526.1 > 168.9	5629.422	20017.402	1.00	6.39	42.184	51.2	102.4	NO	1.546	NO
55	32	PFHxDA	813.1 > 768.6	8704.084	8093.438	1.00	6.74	5.377	10.4	104.4	NO	19.053	NO
56	33	PFODA	913.1 > 868.8	12942.063	8093.438	1.00	6.98	7.995	10.7	106.6	NO		
57	34	N-MeFOSE	616.1 > 58.9	3326.849	10836.169	1.00	6.70	46.052	51.1	102.2	NO		
58	35	N-EtFOSE	630.1 > 58.9	3942.134	10897.660	1.00	6.84	54.261	48.9	97.9	NO		
59	55	13C2-PFTeDA	715.1 > 669.7	16915.727	29744.590	1.00	6.40	7.109	11.7	93.7	NO		
60	56	d5-N-ETFOSA	531.1 > 168.9	20017.402	29744.590	1.00	6.41	8.412	140.0	93.3	NO		
61	57	13C2-PFHxDA	815 > 769.7	8093.438	29744.590	1.00	6.74	3.401	4.2	84.5	NO		
62	57	13C2-PFHxDA	815 > 769.7	8093.438	29744.590	1.00	6.74	3.401	4.2	84.5	NO		
63	58	d7-N-MeFOSE	623.1 > 58.9	10836.169	29744.590	1.00	6.68	4.554	140.0	93.3	NO		
64	59	d9-N-EtFOSE	639.2 > 58.8	10897.660	29744.590	1.00	6.83	4.580	143.2	95.5	NO		
65	-1												
66	60	13C4-PFBA	217. > 172	10446.675	10446.675	1.00	1.19	12.500	12.5	100.0	NO		
67	61	13C5-PFHxA	318 > 272.9	25756.992	25756.992	1.00	3.33	12.500	12.5	100.0	NO		
68	62	13C3-PFHxS	401.8 > 79.9	3149.174	3149.174	1.00	4.14	12.500	12.5	100.0	NO		
69	63	13C8-PFOA	420.9 > 376	30330.195	30330.195	1.00	4.48	12.500	12.5	100.0	NO		
70	64	13C9-PFNA	472.2 > 426.9	22577.543	22577.543	1.00	4.92	12.500	12.5	100.0	NO		
71	65	13C4-PFOS	503 > 79.9	3340.637	3340.637	1.00	5.01	12.500	12.5	100.0	NO		
72	66	13C6-PFDA	519.1 > 473.7	25249.197	25249.197	1.00	5.30	12.500	12.5	100.0	NO		

Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-30.qld

Last Altered: Monday, November 26, 2018 09:26:07 Pacific Standard Time
Printed: Monday, November 26, 2018 09:26:41 Pacific Standard Time

Name: 181121M1_30, Date: 21-Nov-2018, Time: 19:19:29, ID: ST181121M1-3 PFC CS3 18K0906, Description: PFC CS3 18K0906

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
73	67	13C7-PFUdA	570.1 > 524.8	29744.590	29744.590	1.00	5.63	12.500	12.5	100.0	NO		

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Dataset: Untitled

Last Altered: Monday, November 26, 2018 09:41:04 Pacific Standard Time
Printed: Monday, November 26, 2018 09:41:12 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112118.mdb 26 Nov 2018 09:17:42
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	181121M1_1	IPA	21-Nov-18	13:48:07
2	2	181121M1_2	ST181121M1-1 PFC CS0 18K0903	21-Nov-18	13:58:50
3	3	181121M1_3	IPA	21-Nov-18	14:09:28
4	4	181121M1_4	1803552-02 WW1810291045GC 0.24014	21-Nov-18	14:41:33
5	5	181121M1_5	B8K0091-MSD1 Matrix Spike Dup 0.11594	21-Nov-18	14:52:08
6	6	181121M1_6	1803615-01 A1-MW-04-SA2 0.11345	21-Nov-18	15:02:46
7	7	181121M1_7	1803615-02 A1-MW-05-SA2 0.11579	21-Nov-18	15:13:20
8	8	181121M1_8	1803615-04 A1-MW-50-SA2 0.11184	21-Nov-18	15:23:58
9	9	181121M1_9	1803615-05 A1-MW-50-SA2D 0.11445	21-Nov-18	15:34:36
10	10	181121M1_10	1803615-06 A1-MW-51-SA2 0.11681	21-Nov-18	15:45:09
11	11	181121M1_11	1803615-07 A1-MW-52-SA2 0.11468	21-Nov-18	15:55:48
12	12	181121M1_12	B8K0097-BS1 OPR 0.125	21-Nov-18	16:08:39
13	13	181121M1_13	B8K0097-BSD1 LCSD 0.125	21-Nov-18	16:19:13
14	14	181121M1_14	B8K0097-BLK1 Method Blank 0.125	21-Nov-18	16:29:52
15	15	181121M1_15	1803626-01 16-HS-03-SA2 0.11792	21-Nov-18	16:40:30
16	16	181121M1_16	1803626-02 16-MW-06-SA2 0.1197	21-Nov-18	16:51:04
17	17	181121M1_17	IPA	21-Nov-18	17:01:42
18	18	181121M1_18	ST181121M1-2 PFC CS3 18K0906	21-Nov-18	17:12:15
19	19	181121M1_19	1803626-03 16-MW-08-SA2 0.11955	21-Nov-18	17:22:53
20	20	181121M1_20	1803626-04 16-MW-09-SA2 0.11735	21-Nov-18	17:33:26
21	21	181121M1_21	1803626-05 A1-MW-18-SA2 0.11682	21-Nov-18	17:44:04
22	22	181121M1_22	1803626-06 A1-MW-19-SA2 0.11616	21-Nov-18	17:54:42
23	23	181121M1_23	1803626-07 FRB-20181113 0.1174	21-Nov-18	18:05:16
24	24	181121M1_24	1803626-08 A1-MW-53-SA2 0.11896	21-Nov-18	18:15:55
25	25	181121M1_25	1803626-09 16-HS-03-SA2D 0.11367	21-Nov-18	18:26:33
26	26	181121M1_26	1803629-01 REEPDW1366 0.11758	21-Nov-18	18:37:06
27	27	181121M1_27	1803629-02 REEPDW1367 0.11776	21-Nov-18	18:47:45
28	28	181121M1_28	1803629-03 REEPDW1369 0.11504	21-Nov-18	18:58:18
29	29	181121M1_29	IPA	21-Nov-18	19:08:56
30	30	181121M1_30	ST181121M1-3 PFC CS3 18K0906	21-Nov-18	19:19:29
31	31	181121M1_31	1803629-04 REEPDW1368 0.11385	21-Nov-18	19:30:07
32	32	181121M1_32	1803629-05 REEPDW1370 0.1146	21-Nov-18	19:40:41

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Dataset: Untitled

Last Altered: Monday, November 26, 2018 09:41:04 Pacific Standard Time
Printed: Monday, November 26, 2018 09:41:12 Pacific Standard Time

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
33	33	181121M1_33	1803629-06 REEPDW585 0.11471	21-Nov-18	19:51:19
34	34	181121M1_34	1803629-07 REEPDW1371 0.11573	21-Nov-18	20:01:52
35	35	181121M1_35	B8K0119-BS1 OPR 0.125	21-Nov-18	20:12:30
36	36	181121M1_36	B8K0119-BLK1 Method Blank 0.125	21-Nov-18	20:23:04
37	37	181121M1_37	1803644-01 MW-2 0.11289	21-Nov-18	20:33:42
38	38	181121M1_38	1803644-02 MW-3 0.11758	21-Nov-18	20:44:15
39	39	181121M1_39	1803644-03 MW-5A 0.11473	21-Nov-18	20:54:53
40	40	181121M1_40	1803644-04 WD-6 0.11082	21-Nov-18	21:05:32
41	41	181121M1_41	1803644-05 B-102D 0.11429	21-Nov-18	21:16:05
42	42	181121M1_42	1803644-06 B-105A 0.11234	21-Nov-18	21:26:43
43	43	181121M1_43	IPA	21-Nov-18	21:37:15
44	44	181121M1_44	ST181121M1-4 PFC CS3 18K0906	21-Nov-18	21:47:53
45	45	181121M1_45	1803644-07 B-110D 0.11244	21-Nov-18	21:58:27
46	46	181121M1_46	1803644-08 B-202S 0.11215	21-Nov-18	22:09:05
47	47	181121M1_47	1803644-09 B-202D 0.11743	21-Nov-18	22:19:38
48	48	181121M1_48	1803644-10 SG-1 0.11503	21-Nov-18	22:30:17
49	49	181121M1_49	1803644-11 SG-2 0.11322	21-Nov-18	22:40:49
50	50	181121M1_50	1803644-12 SG-3 0.1129	21-Nov-18	22:51:28
51	51	181121M1_51	1803644-13 SG-5 0.11239	21-Nov-18	23:02:00
52	52	181121M1_52	1803644-14 DW-01 (7B/15 Well 1-Transfer Station) 0	21-Nov-18	23:12:39
53	53	181121M1_53	1803644-15 DW-02 (7B/15 Well 2-Recycling) 0.11288	21-Nov-18	23:23:17
54	54	181121M1_54	IPA	21-Nov-18	23:33:50
55	55	181121M1_55	ST181121M1-5 PFC CS3 18K0906	21-Nov-18	23:44:29

Vista Analytical Laboratory

Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-30.qld

Last Altered: Monday, November 26, 2018 09:26:07 Pacific Standard Time
Printed: Monday, November 26, 2018 09:26:41 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112118.mdb 26 Nov 2018 09:17:42
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Name: 181121M1_30, Date: 21-Nov-2018, Time: 19:19:29, ID: ST181121M1-3 PFC CS3 18K0906, Description: PFC CS3 18K0906

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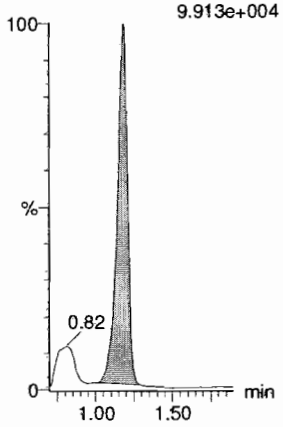

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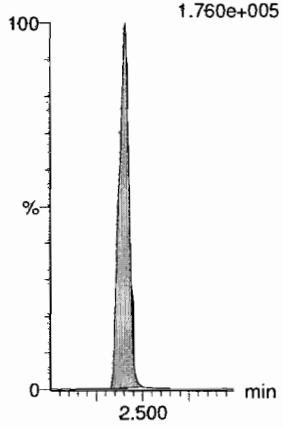

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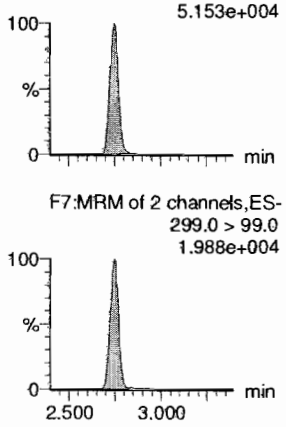

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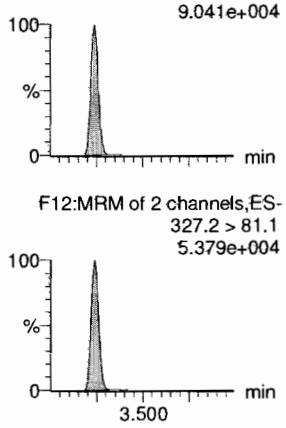

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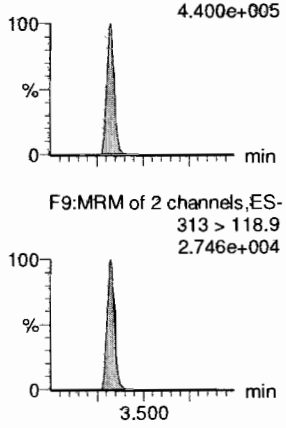

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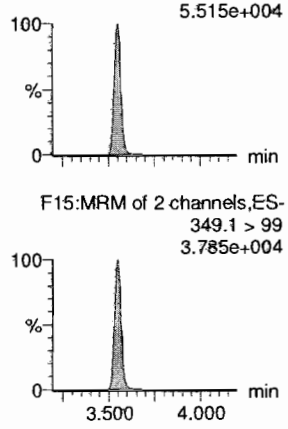
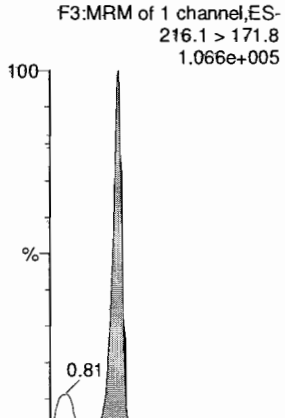


13C3-PFBA



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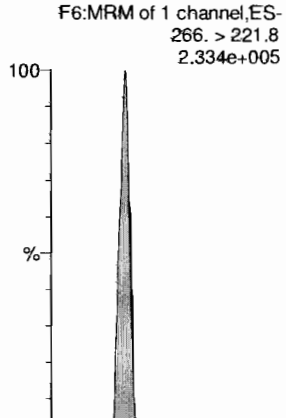

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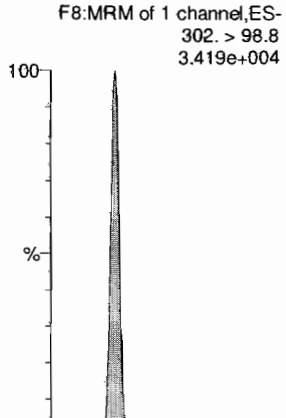
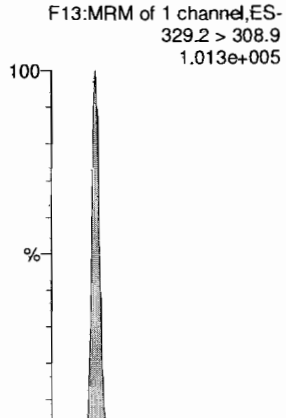


13C2-4:2 FTS



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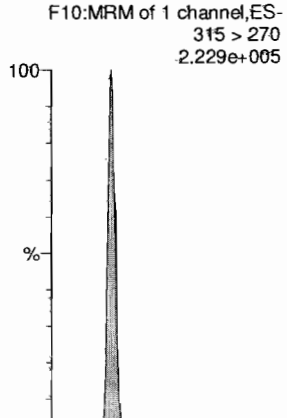

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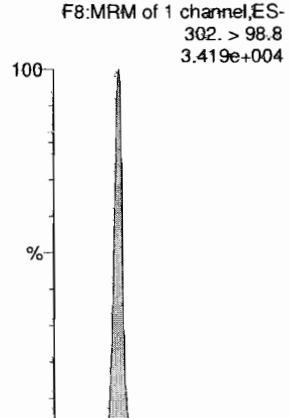

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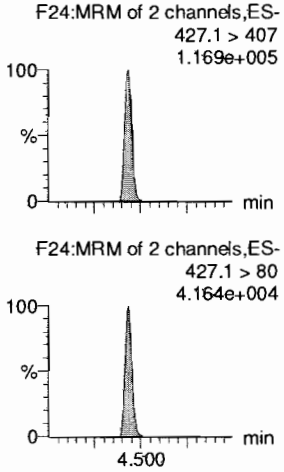
Last Altered: Monday, November 26, 2018 09:26:07 Pacific Standard Time
Printed: Monday, November 26, 2018 09:26:41 Pacific Standard Time

Name: 181121M1_30, Date: 21-Nov-2018, Time: 19:19:29, ID: ST181121M1-3 PFC CS3 18K0906, Description: PFC CS3 18K0906

6:2 FTS



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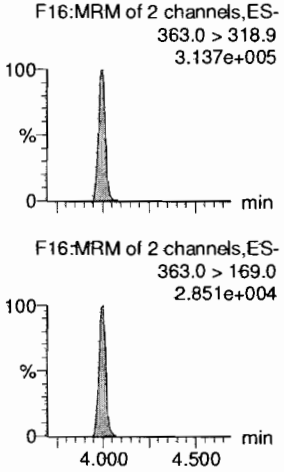

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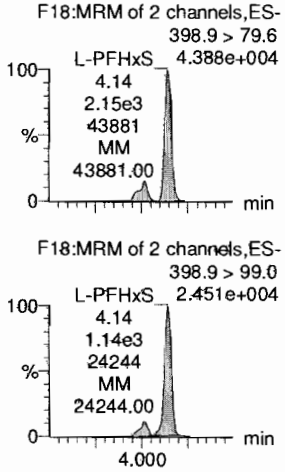

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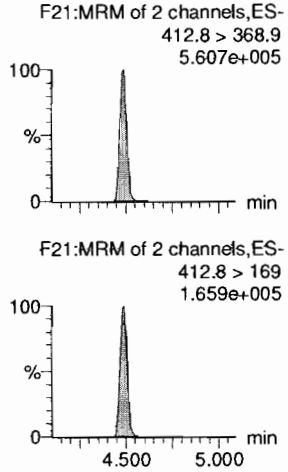

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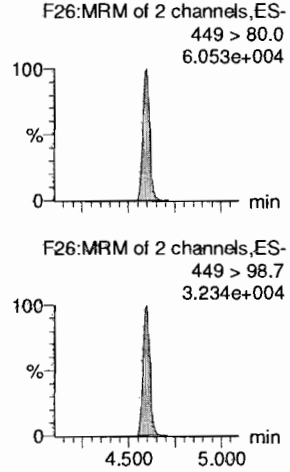

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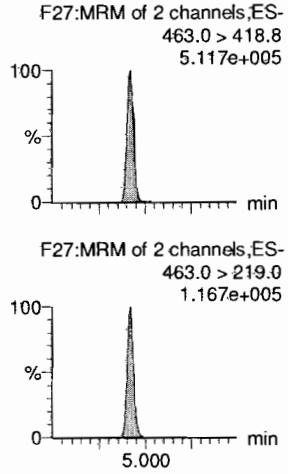
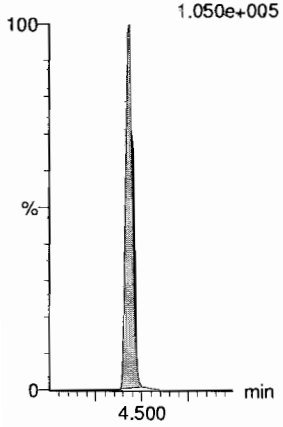
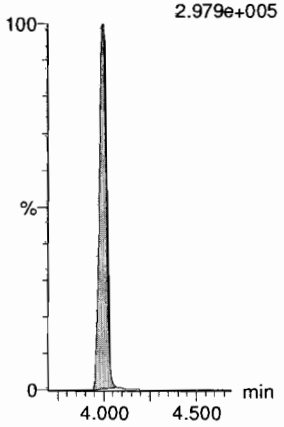


13C2-6:2 FTS



13C4-PFHpA



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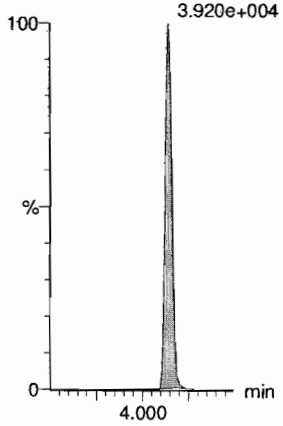

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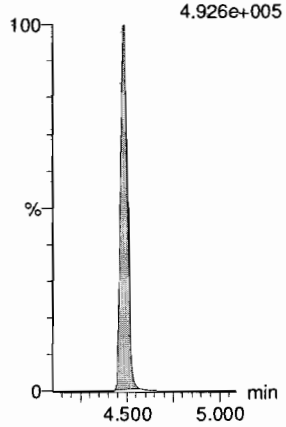
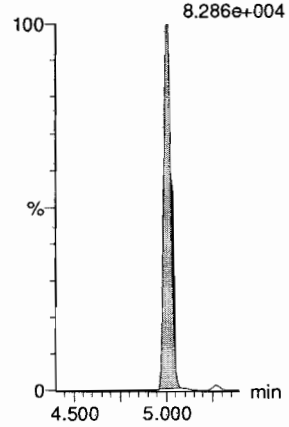


13C8-PFOS



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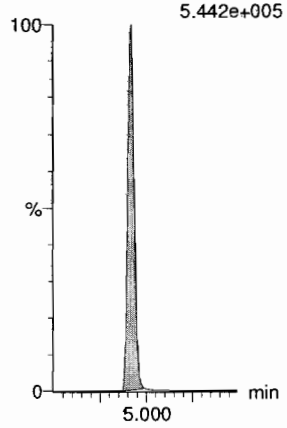

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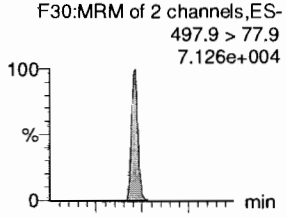
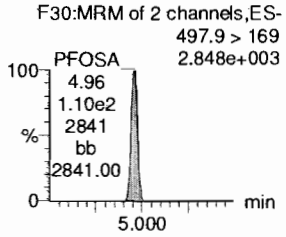
Last Altered: Monday, November 26, 2018 09:26:07 Pacific Standard Time
Printed: Monday, November 26, 2018 09:26:41 Pacific Standard Time

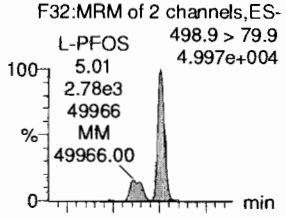
Name: 181121M1_30, Date: 21-Nov-2018, Time: 19:19:29, ID: ST181121M1-3 PFC CS3 18K0906, Description: PFC CS3 18K0906

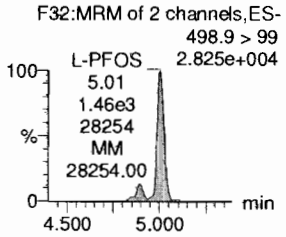
PFOSA





L-PFOS





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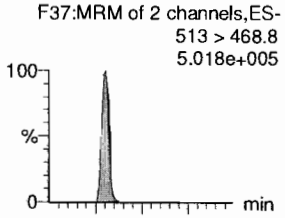
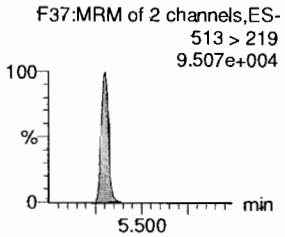
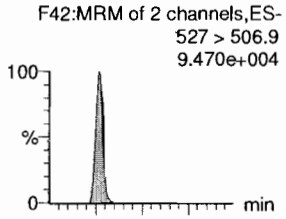
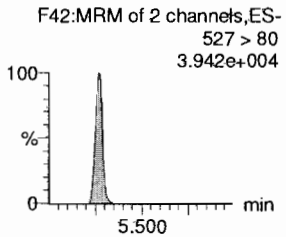




8:2 FTS





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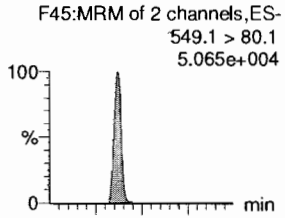

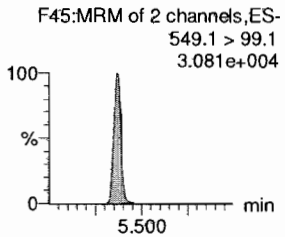

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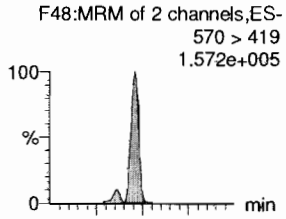

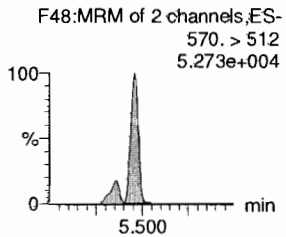

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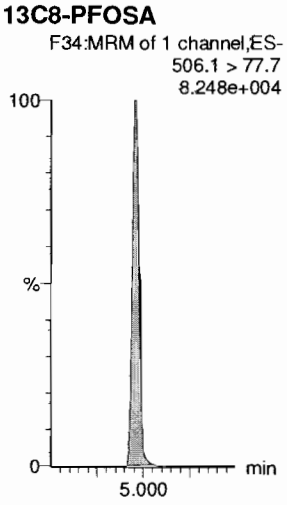

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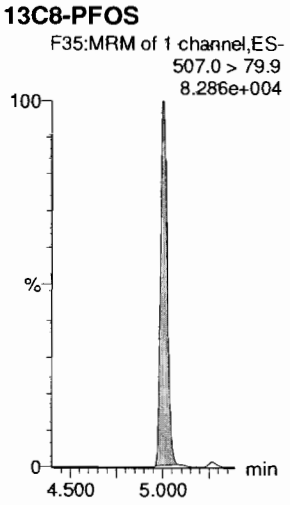

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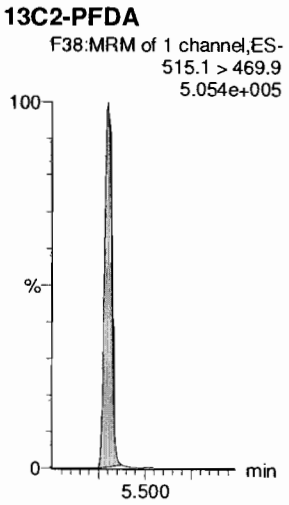
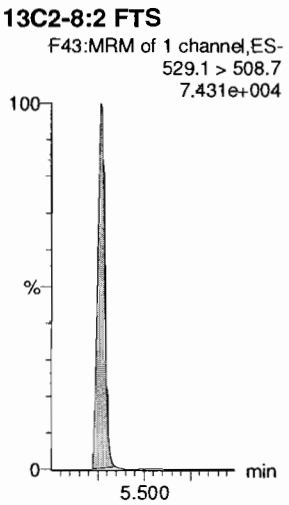


13C2-8:2 FTS



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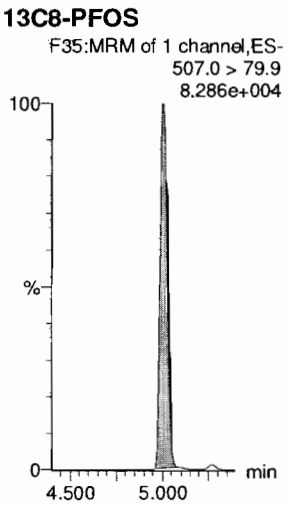
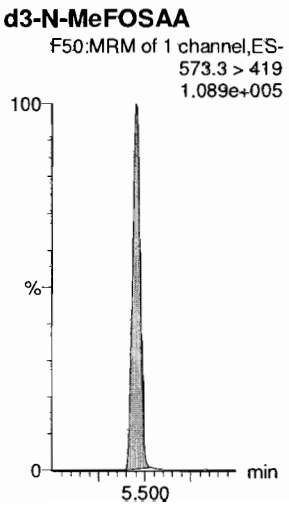


d3-N-MeFOSAA



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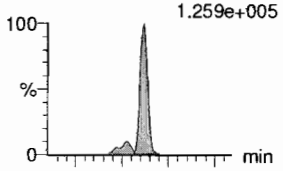
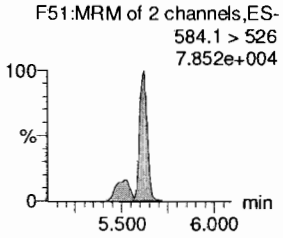
Printed: Monday, November 26, 2018 09:26:41 Pacific Standard Time

Name: 181121M1_30, Date: 21-Nov-2018, Time: 19:19:29, ID: ST181121M1-3 PFC CS3 18K0906, Description: PFC CS3 18K0906

L-EtFOSAA





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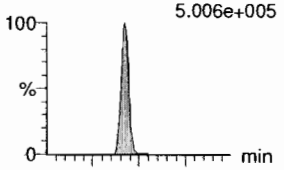

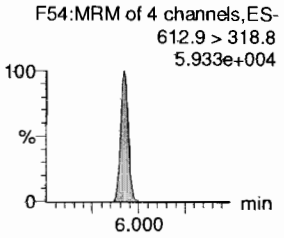

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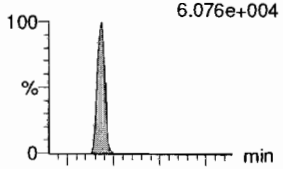

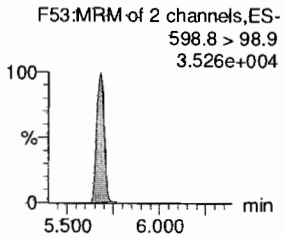

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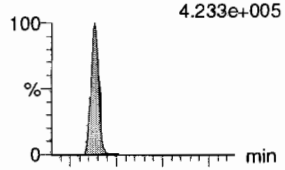
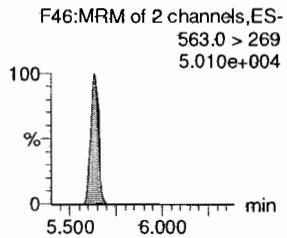
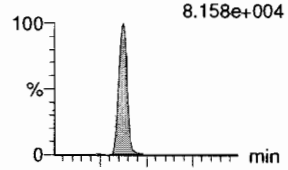
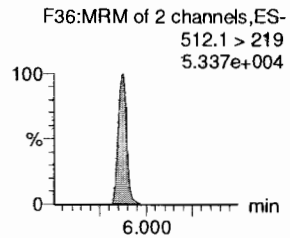


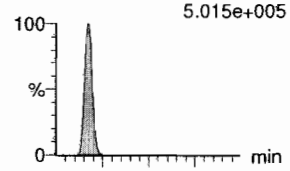


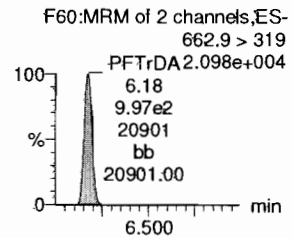
N-MeFOSA



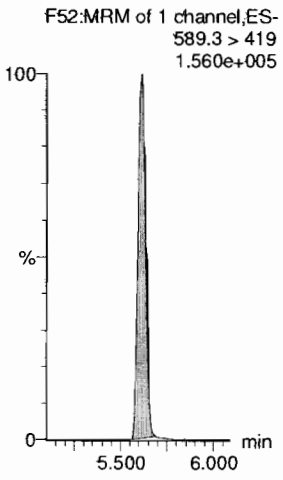


PFTrDA

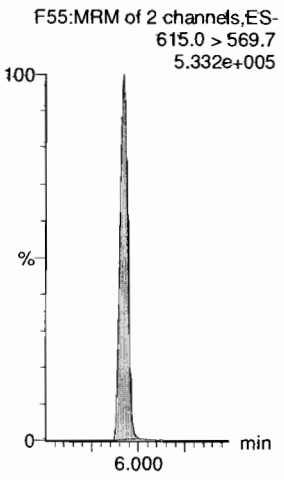




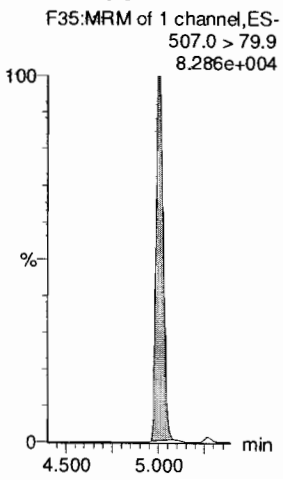
d5-N-EtFOSAA



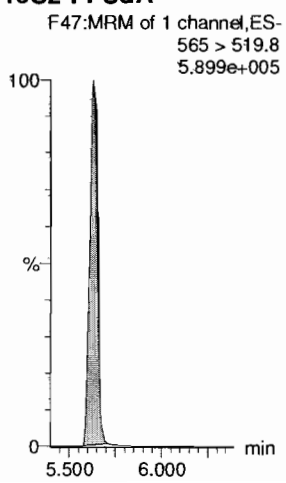
13C2-PFDoA



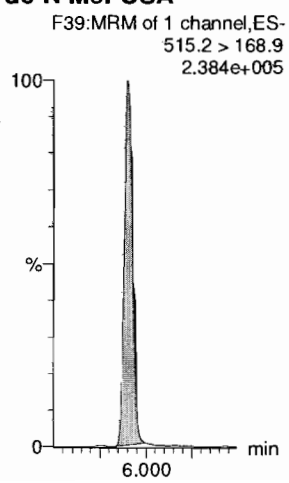
13C8-PFOS



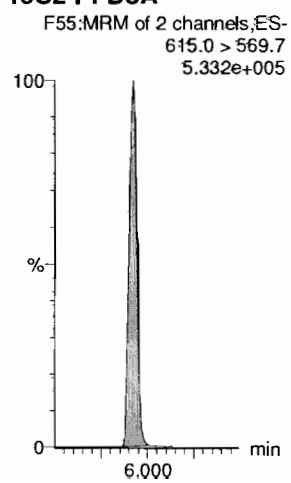
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA



Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-30.qld

Last Altered: Monday, November 26, 2018 09:26:07 Pacific Standard Time
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Name: 181121M1_30, Date: 21-Nov-2018, Time: 19:19:29, ID: ST181121M1-3 PFC CS3 18K0906, Description: PFC CS3 18K0906

PFTeDA
F61:MRM of 2 channels,ES-
713.0 > 669.0
4.894e+005
F61:MRM of 2 channels,ES-
713. > 369.0
3.474e+004

N-EtFOSA
F41:MRM of 2 channels,ES-
526.1 > 168.9
1.146e+005
F41:MRM of 2 channels,ES-
526.1 > 219
7.378e+004

PFHxDA
F63:MRM of 2 channels,ES-
813.1 > 768.6
1.894e+005
F63:MRM of 2 channels,ES-
813.1 > 219
1.002e+004

PFODA
F65:MRM of 1 channel,ES-
913.1 > 868.8
2.937e+005

N-MeFOSE
F56:MRM of 1 channel,ES-
616.1 > 58.9
7.006e+004

N-EtFOSE
F58:MRM of 1 channel,ES-
630.1 > 58.9
8.272e+004

13C2-PFTeDA
F62:MRM of 2 channels,ES-
715.1 > 669.7
3.789e+005

d5-N-ETFOSA
F44:MRM of 1 channel,ES-
531.1 > 168.9
4.225e+005

13C2-PFHxDA
F64:MRM of 1 channel,ES-
815 > 769.7
1.753e+005

13C2-PFHxDA
F64:MRM of 1 channel,ES-
815 > 769.7
1.753e+005

d7-N-MeFOSE
F57:MRM of 1 channel,ES-
623.1 > 58.9
2.262e+005

d9-N-EtFOSE
F59:MRM of 1 channel,ES-
639.2 > 58.8
2.331e+005

Dataset: F:\Projects\PFAS.PRO\Results\181121M1\181121M1-30.qld

Last Altered: Monday, November 26, 2018 09:26:07 Pacific Standard Time
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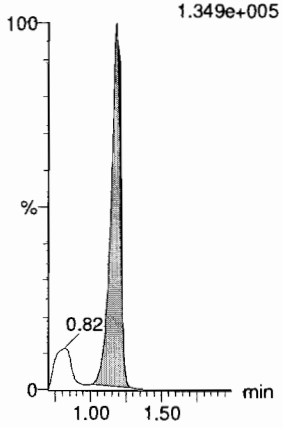
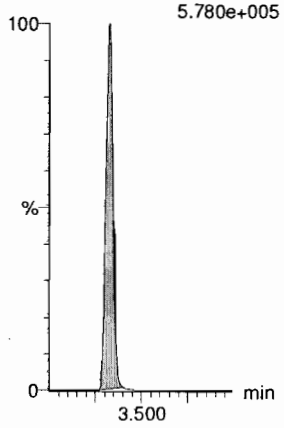
Name: 181121M1_30, Date: 21-Nov-2018, Time: 19:19:29, ID: ST181121M1-3 PFC CS3 18K0906, Description: PFC CS3 18K0906

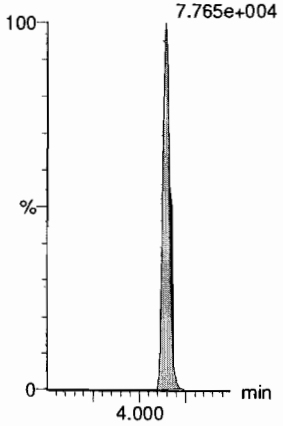
13C4-PFBA



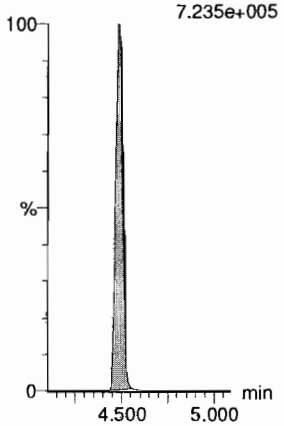
13C5-PFHxA



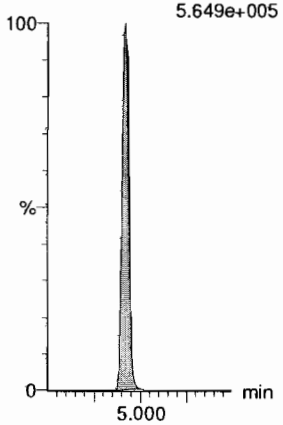
13C3-PFHxS



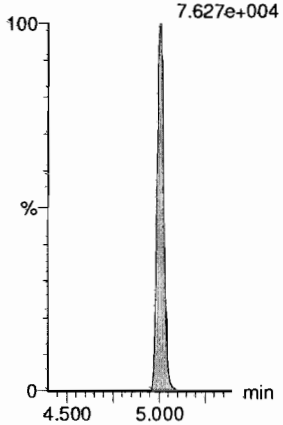
13C8-PFOA



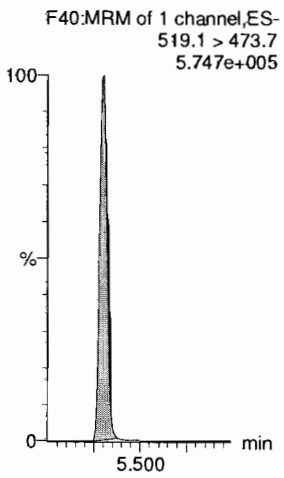
13C9-PFNA



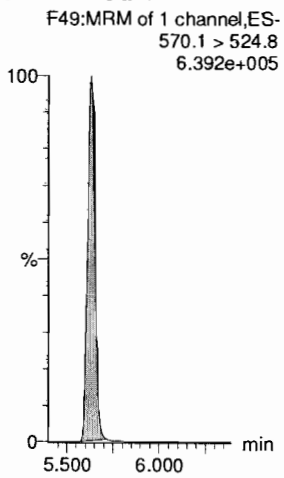
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-IIS AREA.qld

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Method: F:\Projects\PFAS.PRO\MethDB\PFAS_RS-11-14-18.mdb 14 Nov 2018 11:37:25
Calibration: 27 Nov 2018 08:53:34

Name: 181126M1_7, Date: 26-Nov-2018, Time: 12:38:59, ID: ST181126M2-6 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181126M2-6 PFC CS3 18K1906	8.41e3	98.4	NO
2	2	13C5-PFHxA	ST181126M2-6 PFC CS3 18K1906	2.53e4	100.0	NO
3	3	13C3-PFHxS	ST181126M2-6 PFC CS3 18K1906	3.33e3	100.0	NO
4	4	13C8-PFOA	ST181126M2-6 PFC CS3 18K1906	3.06e4	100.5	NO
5	5	13C9-PFNA	ST181126M2-6 PFC CS3 18K1906	2.16e4	99.0	NO
6	6	13C4-PFOS	ST181126M2-6 PFC CS3 18K1906	3.39e3	100.6	NO
7	7	13C6-PFDA	ST181126M2-6 PFC CS3 18K1906	2.38e4	101.3	NO
8	8	13C7-PFUdA	ST181126M2-6 PFC CS3 18K1906	2.72e4	101.8	NO

Name: 181126M1_8, Date: 26-Nov-2018, Time: 12:49:38, ID: ST181126M2-7 PFC CS4 1810907, Description: PFC CS4 18K1907

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181126M2-7 PFC CS4 1810907	8.78e3	102.7	NO
2	2	13C5-PFHxA	ST181126M2-7 PFC CS4 1810907	2.65e4	104.7	NO
3	3	13C3-PFHxS	ST181126M2-7 PFC CS4 1810907	3.60e3	108.3	NO
4	4	13C8-PFOA	ST181126M2-7 PFC CS4 1810907	3.30e4	108.4	NO
5	5	13C9-PFNA	ST181126M2-7 PFC CS4 1810907	2.27e4	104.2	NO
6	6	13C4-PFOS	ST181126M2-7 PFC CS4 1810907	3.54e3	104.8	NO
7	7	13C6-PFDA	ST181126M2-7 PFC CS4 1810907	2.48e4	105.4	NO
8	8	13C7-PFUdA	ST181126M2-7 PFC CS4 1810907	2.83e4	106.1	NO

Name: 181126M1_9, Date: 26-Nov-2018, Time: 13:00:11, ID: ST181126M2-8 PFC CS5 18K1908, Description: PFC CS5 18K1908

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181126M2-8 PFC CS5 18K1908	8.53e3	99.8	NO
2	2	13C5-PFHxA	ST181126M2-8 PFC CS5 18K1908	2.56e4	100.9	NO
3	3	13C3-PFHxS	ST181126M2-8 PFC CS5 18K1908	3.32e3	99.7	NO
4	4	13C8-PFOA	ST181126M2-8 PFC CS5 18K1908	3.00e4	98.5	NO
5	5	13C9-PFNA	ST181126M2-8 PFC CS5 18K1908	2.25e4	103.3	NO
6	6	13C4-PFOS	ST181126M2-8 PFC CS5 18K1908	3.35e3	99.2	NO
7	7	13C6-PFDA	ST181126M2-8 PFC CS5 18K1908	2.36e4	100.3	NO
8	8	13C7-PFUdA	ST181126M2-8 PFC CS5 18K1908	2.67e4	99.9	NO

Name: 181126M1_10, Date: 26-Nov-2018, Time: 13:10:49, ID: ST181126M2-9 PFC CS6 18K1909, Description: PFC CS6 18K1909

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181126M2-9 PFC CS6 18K1909	8.47e3	99.1	NO
2	2	13C5-PFHxA	ST181126M2-9 PFC CS6 18K1909	2.39e4	94.4	NO
3	3	13C3-PFHxS	ST181126M2-9 PFC CS6 18K1909	3.06e3	92.1	NO
4	4	13C8-PFOA	ST181126M2-9 PFC CS6 18K1909	2.82e4	92.6	NO
5	5	13C9-PFNA	ST181126M2-9 PFC CS6 18K1909	2.04e4	93.4	NO
6	6	13C4-PFOS	ST181126M2-9 PFC CS6 18K1909	3.22e3	95.4	NO
7	7	13C6-PFDA	ST181126M2-9 PFC CS6 18K1909	2.19e4	93.0	NO
8	8	13C7-PFUdA	ST181126M2-9 PFC CS6 18K1909	2.46e4	92.2	NO

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-IIS AREA.qld

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Name: 181126M1_11, Date: 26-Nov-2018, Time: 13:21:23, ID: ST181126M2-10 PFC CS7 18K1910, Description: PFC CS7 18K1910

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181126M2-10 PFC CS7 18K1910	9.09e3	106.3	NO
2	2	13C5-PFHxA	ST181126M2-10 PFC CS7 18K1910	2.23e4	88.1	NO
3	3	13C3-PFHxS	ST181126M2-10 PFC CS7 18K1910	2.56e3	76.9	NO
4	4	13C8-PFOA	ST181126M2-10 PFC CS7 18K1910	2.57e4	84.5	NO
5	5	13C9-PFNA	ST181126M2-10 PFC CS7 18K1910	1.85e4	85.0	NO
6	6	13C4-PFOS	ST181126M2-10 PFC CS7 18K1910	2.86e3	84.7	NO
7	7	13C6-PFDA	ST181126M2-10 PFC CS7 18K1910	1.89e4	80.4	NO
8	8	13C7-PFUdA	ST181126M2-10 PFC CS7 18K1910	2.13e4	79.8	NO

Name: 181126M1_12, Date: 26-Nov-2018, Time: 13:32:01, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

Name: 181126M1_13, Date: 26-Nov-2018, Time: 13:42:34, ID: ICV181126M2-1 PFC ICV 18K1911, Description: PFC ICV 18K1911

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ICV181126M2-1 PFC ICV 18K1911	9.00e3	105.3	NO
2	2	13C5-PFHxA	ICV181126M2-1 PFC ICV 18K1911	2.51e4	98.9	NO
3	3	13C3-PFHxS	ICV181126M2-1 PFC ICV 18K1911	3.19e3	95.9	NO
4	4	13C8-PFOA	ICV181126M2-1 PFC ICV 18K1911	2.94e4	96.5	NO
5	5	13C9-PFNA	ICV181126M2-1 PFC ICV 18K1911	2.13e4	97.6	NO
6	6	13C4-PFOS	ICV181126M2-1 PFC ICV 18K1911	3.20e3	94.9	NO
7	7	13C6-PFDA	ICV181126M2-1 PFC ICV 18K1911	2.29e4	97.2	NO
8	8	13C7-PFUdA	ICV181126M2-1 PFC ICV 18K1911	2.72e4	102.0	NO

Name: 181126M1_14, Date: 26-Nov-2018, Time: 13:53:12, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-IIS AREA.qld

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Name: 181126M1_15, Date: 26-Nov-2018, Time: 14:03:48, ID: B8K0097-BSD1 LCSD 0.125, Description: LCSD

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0097-BSD1 LCSD 0.125	1.44e4	168.3	YES
2	2	13C5-PFHxA	B8K0097-BSD1 LCSD 0.125	2.64e4	104.2	NO
3	3	13C3-PFHxS	B8K0097-BSD1 LCSD 0.125	3.49e3	104.8	NO
4	4	13C8-PFOA	B8K0097-BSD1 LCSD 0.125	3.11e4	102.2	NO
5	5	13C9-PFNA	B8K0097-BSD1 LCSD 0.125	2.25e4	103.1	NO
6	6	13C4-PFOS	B8K0097-BSD1 LCSD 0.125	3.46e3	102.6	NO
7	7	13C6-PFDA	B8K0097-BSD1 LCSD 0.125	2.43e4	103.1	NO
8	8	13C7-PFUdA	B8K0097-BSD1 LCSD 0.125	2.82e4	105.6	NO

Name: 181126M1_16, Date: 26-Nov-2018, Time: 14:14:24, ID: 1803629-06 REEPDW585 0.11471, Description: REEPDW585

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803629-06 REEPDW585 0.11471	1.39e4	163.0	YES
2	2	13C5-PFHxA	1803629-06 REEPDW585 0.11471	2.58e4	101.7	NO
3	3	13C3-PFHxS	1803629-06 REEPDW585 0.11471	3.33e3	100.0	NO
4	4	13C8-PFOA	1803629-06 REEPDW585 0.11471	3.10e4	101.9	NO
5	5	13C9-PFNA	1803629-06 REEPDW585 0.11471	2.05e4	94.2	NO
6	6	13C4-PFOS	1803629-06 REEPDW585 0.11471	3.51e3	104.0	NO
7	7	13C6-PFDA	1803629-06 REEPDW585 0.11471	2.22e4	94.5	NO
8	8	13C7-PFUdA	1803629-06 REEPDW585 0.11471	2.70e4	101.1	NO

Name: 181126M1_17, Date: 26-Nov-2018, Time: 14:25:02, ID: B8K0152-BS1 OPR 0.25, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0152-BS1 OPR 0.25	7.60e3	88.8	NO
2	2	13C5-PFHxA	B8K0152-BS1 OPR 0.25	1.74e4	68.8	NO
3	3	13C3-PFHxS	B8K0152-BS1 OPR 0.25	2.84e3	85.4	NO
4	4	13C8-PFOA	B8K0152-BS1 OPR 0.25	2.46e4	80.8	NO
5	5	13C9-PFNA	B8K0152-BS1 OPR 0.25	1.81e4	83.0	NO
6	6	13C4-PFOS	B8K0152-BS1 OPR 0.25	2.95e3	87.3	NO
7	7	13C6-PFDA	B8K0152-BS1 OPR 0.25	2.02e4	85.7	NO
8	8	13C7-PFUdA	B8K0152-BS1 OPR 0.25	2.39e4	89.6	NO

Name: 181126M1_18, Date: 26-Nov-2018, Time: 14:35:34, ID: B8K0152-BLK1 Method Blank 0.25, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0152-BLK1 Method Blank 0.25	6.96e3	81.4	NO
2	2	13C5-PFHxA	B8K0152-BLK1 Method Blank 0.25	1.74e4	68.5	NO
3	3	13C3-PFHxS	B8K0152-BLK1 Method Blank 0.25	2.94e3	88.4	NO
4	4	13C8-PFOA	B8K0152-BLK1 Method Blank 0.25	2.42e4	79.5	NO
5	5	13C9-PFNA	B8K0152-BLK1 Method Blank 0.25	1.76e4	80.7	NO
6	6	13C4-PFOS	B8K0152-BLK1 Method Blank 0.25	3.05e3	90.4	NO
7	7	13C6-PFDA	B8K0152-BLK1 Method Blank 0.25	2.07e4	88.0	NO
8	8	13C7-PFUdA	B8K0152-BLK1 Method Blank 0.25	2.37e4	89.0	NO

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Name: 181126M1_19, Date: 26-Nov-2018, Time: 14:46:12, ID: 1803729-01 WMP1811191026JSJ 0.23788, Description: WMP1811191026JSJ

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803729-01 WMP1811191026JSJ 0.23...	6.48e3	75.7	NO
2	2	13C5-PFHxA	1803729-01 WMP1811191026JSJ 0.23...	1.38e4	54.4	NO
3	3	13C3-PFHxS	1803729-01 WMP1811191026JSJ 0.23...	2.81e3	84.4	NO
4	4	13C8-PFOA	1803729-01 WMP1811191026JSJ 0.23...	1.64e4	54.0	NO
5	5	13C9-PFNA	1803729-01 WMP1811191026JSJ 0.23...	1.44e4	66.2	NO
6	6	13C4-PFOS	1803729-01 WMP1811191026JSJ 0.23...	2.70e3	80.1	NO
7	7	13C6-PFDA	1803729-01 WMP1811191026JSJ 0.23...	1.71e4	72.7	NO
8	8	13C7-PFUdA	1803729-01 WMP1811191026JSJ 0.23...	2.06e4	77.1	NO

Name: 181126M1_20, Date: 26-Nov-2018, Time: 14:56:45, ID: 1803729-02 WMP1811191035JSJ 0.23637, Description: WMP1811191035JSJ

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803729-02 WMP1811191035JSJ 0.23...	6.72e3	78.6	NO
2	2	13C5-PFHxA	1803729-02 WMP1811191035JSJ 0.23...	1.44e4	56.8	NO
3	3	13C3-PFHxS	1803729-02 WMP1811191035JSJ 0.23...	2.70e3	81.2	NO
4	4	13C8-PFOA	1803729-02 WMP1811191035JSJ 0.23...	1.95e4	64.3	NO
5	5	13C9-PFNA	1803729-02 WMP1811191035JSJ 0.23...	1.49e4	68.5	NO
6	6	13C4-PFOS	1803729-02 WMP1811191035JSJ 0.23...	2.70e3	80.0	NO
7	7	13C6-PFDA	1803729-02 WMP1811191035JSJ 0.23...	1.68e4	71.2	NO
8	8	13C7-PFUdA	1803729-02 WMP1811191035JSJ 0.23...	1.97e4	73.9	NO

Name: 181126M1_21, Date: 26-Nov-2018, Time: 15:07:48, ID: 1803729-03 WMP1811191043JSJ 0.23365, Description: WMP1811191043JSJ

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803729-03 WMP1811191043JSJ 0.23...	5.91e3	69.1	NO
2	2	13C5-PFHxA	1803729-03 WMP1811191043JSJ 0.23...	1.21e4	47.8	YES
3	3	13C3-PFHxS	1803729-03 WMP1811191043JSJ 0.23...	2.82e3	84.7	NO
4	4	13C8-PFOA	1803729-03 WMP1811191043JSJ 0.23...	1.91e4	62.7	NO
5	5	13C9-PFNA	1803729-03 WMP1811191043JSJ 0.23...	1.46e4	67.1	NO
6	6	13C4-PFOS	1803729-03 WMP1811191043JSJ 0.23...	2.87e3	85.2	NO
7	7	13C6-PFDA	1803729-03 WMP1811191043JSJ 0.23...	1.65e4	70.2	NO
8	8	13C7-PFUdA	1803729-03 WMP1811191043JSJ 0.23...	1.98e4	74.1	NO

Name: 181126M1_22, Date: 26-Nov-2018, Time: 15:18:26, ID: 1803730-01 WEF1811191106JSJ 0.24116, Description: WEF1811191106JSJ

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803730-01 WEF1811191106JSJ 0.241...	7.64e3	89.4	NO
2	2	13C5-PFHxA	1803730-01 WEF1811191106JSJ 0.241...	1.62e4	63.8	NO
3	3	13C3-PFHxS	1803730-01 WEF1811191106JSJ 0.241...	2.71e3	81.6	NO
4	4	13C8-PFOA	1803730-01 WEF1811191106JSJ 0.241...	2.17e4	71.5	NO
5	5	13C9-PFNA	1803730-01 WEF1811191106JSJ 0.241...	1.53e4	70.0	NO
6	6	13C4-PFOS	1803730-01 WEF1811191106JSJ 0.241...	2.85e3	84.5	NO
7	7	13C6-PFDA	1803730-01 WEF1811191106JSJ 0.241...	1.84e4	78.0	NO
8	8	13C7-PFUdA	1803730-01 WEF1811191106JSJ 0.241...	2.10e4	78.7	NO

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Name: 181126M1_23, Date: 26-Nov-2018, Time: 15:29:49, ID: B8K0144-BS1 OPR 0.125, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0144-BS1 OPR 0.125	9.68e3	113.2	NO
2	2	13C5-PFHxA	B8K0144-BS1 OPR 0.125	1.87e4	73.8	NO
3	3	13C3-PFHxS	B8K0144-BS1 OPR 0.125	2.61e3	78.4	NO
4	4	13C8-PFOA	B8K0144-BS1 OPR 0.125	2.23e4	73.3	NO
5	5	13C9-PFNA	B8K0144-BS1 OPR 0.125	1.56e4	71.4	NO
6	6	13C4-PFOS	B8K0144-BS1 OPR 0.125	2.63e3	78.0	NO
7	7	13C6-PFDA	B8K0144-BS1 OPR 0.125	1.80e4	76.6	NO
8	8	13C7-PFUdA	B8K0144-BS1 OPR 0.125	2.03e4	76.0	NO

Name: 181126M1_24, Date: 26-Nov-2018, Time: 15:41:20, ID: B8K0144-BSD1 LCSD 0.125, Description: LCSD

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0144-BSD1 LCSD 0.125	8.02e3	93.8	NO
2	2	13C5-PFHxA	B8K0144-BSD1 LCSD 0.125	1.66e4	65.7	NO
3	3	13C3-PFHxS	B8K0144-BSD1 LCSD 0.125	2.39e3	71.8	NO
4	4	13C8-PFOA	B8K0144-BSD1 LCSD 0.125	1.88e4	61.8	NO
5	5	13C9-PFNA	B8K0144-BSD1 LCSD 0.125	1.33e4	60.8	NO
6	6	13C4-PFOS	B8K0144-BSD1 LCSD 0.125	2.43e3	72.0	NO
7	7	13C6-PFDA	B8K0144-BSD1 LCSD 0.125	1.50e4	63.6	NO
8	8	13C7-PFUdA	B8K0144-BSD1 LCSD 0.125	1.84e4	69.0	NO

Name: 181126M1_25, Date: 26-Nov-2018, Time: 15:51:53, ID: B8K0144-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0144-BLK1 Method Blank 0.125	8.24e3	96.4	NO
2	2	13C5-PFHxA	B8K0144-BLK1 Method Blank 0.125	1.71e4	67.4	NO
3	3	13C3-PFHxS	B8K0144-BLK1 Method Blank 0.125	2.56e3	77.0	NO
4	4	13C8-PFOA	B8K0144-BLK1 Method Blank 0.125	2.10e4	69.1	NO
5	5	13C9-PFNA	B8K0144-BLK1 Method Blank 0.125	1.55e4	70.8	NO
6	6	13C4-PFOS	B8K0144-BLK1 Method Blank 0.125	2.45e3	72.6	NO
7	7	13C6-PFDA	B8K0144-BLK1 Method Blank 0.125	1.70e4	72.1	NO
8	8	13C7-PFUdA	B8K0144-BLK1 Method Blank 0.125	2.00e4	74.9	NO

Name: 181126M1_26, Date: 26-Nov-2018, Time: 16:02:31, ID: 1803659-01 A1-MW-07-SA2 0.11704, Description: A1-MW-07-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803659-01 A1-MW-07-SA2 0.11704	6.88e3	80.5	NO
2	2	13C5-PFHxA	1803659-01 A1-MW-07-SA2 0.11704	1.29e4	50.8	NO
3	3	13C3-PFHxS	1803659-01 A1-MW-07-SA2 0.11704	2.40e3	72.2	NO
4	4	13C8-PFOA	1803659-01 A1-MW-07-SA2 0.11704	1.46e4	48.1	YES
5	5	13C9-PFNA	1803659-01 A1-MW-07-SA2 0.11704	9.17e3	42.0	YES
6	6	13C4-PFOS	1803659-01 A1-MW-07-SA2 0.11704	2.29e3	67.8	NO
7	7	13C6-PFDA	1803659-01 A1-MW-07-SA2 0.11704	9.90e3	42.1	YES
8	8	13C7-PFUdA	1803659-01 A1-MW-07-SA2 0.11704	1.27e4	47.7	YES

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Name: 181126M1_27, Date: 26-Nov-2018, Time: 16:13:04, ID: 1803659-02 A1-MW-23-SA2 0.1178, Description: A1-MW-23-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803659-02 A1-MW-23-SA2 0.1178	7.36e3	86.1	NO
2	2	13C5-PFHxA	1803659-02 A1-MW-23-SA2 0.1178	1.45e4	57.3	NO
3	3	13C3-PFHxS	1803659-02 A1-MW-23-SA2 0.1178	2.39e3	71.9	NO
4	4	13C8-PFOA	1803659-02 A1-MW-23-SA2 0.1178	1.68e4	55.1	NO
5	5	13C9-PFNA	1803659-02 A1-MW-23-SA2 0.1178	1.07e4	49.2	YES
6	6	13C4-PFOS	1803659-02 A1-MW-23-SA2 0.1178	2.46e3	72.8	NO
7	7	13C6-PFDA	1803659-02 A1-MW-23-SA2 0.1178	1.17e4	49.9	YES
8	8	13C7-PFUdA	1803659-02 A1-MW-23-SA2 0.1178	1.48e4	55.4	NO

Name: 181126M1_28, Date: 26-Nov-2018, Time: 16:23:43, ID: 1803659-03 A1-MW-25-SA2 0.11426, Description: A1-MW-25-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803659-03 A1-MW-25-SA2 0.11426	7.16e3	83.7	NO
2	2	13C5-PFHxA	1803659-03 A1-MW-25-SA2 0.11426	1.20e4	47.2	YES
3	3	13C3-PFHxS	1803659-03 A1-MW-25-SA2 0.11426	2.53e3	76.0	NO
4	4	13C8-PFOA	1803659-03 A1-MW-25-SA2 0.11426	1.29e4	42.4	YES
5	5	13C9-PFNA	1803659-03 A1-MW-25-SA2 0.11426	8.45e3	38.8	YES
6	6	13C4-PFOS	1803659-03 A1-MW-25-SA2 0.11426	2.50e3	74.1	NO
7	7	13C6-PFDA	1803659-03 A1-MW-25-SA2 0.11426	1.08e4	46.0	YES
8	8	13C7-PFUdA	1803659-03 A1-MW-25-SA2 0.11426	1.41e4	52.7	NO

Name: 181126M1_29, Date: 26-Nov-2018, Time: 16:34:21, ID: 1803659-04 A1-MW-27-SA2 0.11731, Description: A1-MW-27-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803659-04 A1-MW-27-SA2 0.11731	7.98e3	93.3	NO
2	2	13C5-PFHxA	1803659-04 A1-MW-27-SA2 0.11731	1.35e4	53.3	NO
3	3	13C3-PFHxS	1803659-04 A1-MW-27-SA2 0.11731	2.51e3	75.6	NO
4	4	13C8-PFOA	1803659-04 A1-MW-27-SA2 0.11731	1.65e4	54.2	NO
5	5	13C9-PFNA	1803659-04 A1-MW-27-SA2 0.11731	1.09e4	50.1	NO
6	6	13C4-PFOS	1803659-04 A1-MW-27-SA2 0.11731	2.35e3	69.7	NO
7	7	13C6-PFDA	1803659-04 A1-MW-27-SA2 0.11731	1.33e4	56.5	NO
8	8	13C7-PFUdA	1803659-04 A1-MW-27-SA2 0.11731	1.67e4	62.4	NO

Name: 181126M1_30, Date: 26-Nov-2018, Time: 16:44:53, ID: 1803659-05 A1-MW-55-SA2 0.11846, Description: A1-MW-55-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803659-05 A1-MW-55-SA2 0.11846	9.35e3	109.3	NO
2	2	13C5-PFHxA	1803659-05 A1-MW-55-SA2 0.11846	1.71e4	67.3	NO
3	3	13C3-PFHxS	1803659-05 A1-MW-55-SA2 0.11846	2.36e3	71.1	NO
4	4	13C8-PFOA	1803659-05 A1-MW-55-SA2 0.11846	2.08e4	68.3	NO
5	5	13C9-PFNA	1803659-05 A1-MW-55-SA2 0.11846	1.39e4	63.8	NO
6	6	13C4-PFOS	1803659-05 A1-MW-55-SA2 0.11846	2.49e3	73.9	NO
7	7	13C6-PFDA	1803659-05 A1-MW-55-SA2 0.11846	1.58e4	67.3	NO
8	8	13C7-PFUdA	1803659-05 A1-MW-55-SA2 0.11846	1.80e4	67.6	NO

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Name: 181126M1_31, Date: 26-Nov-2018, Time: 16:55:32, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

Name: 181126M1_32, Date: 26-Nov-2018, Time: 17:06:06, ID: ST181126M1-11 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181126M1-11 PFC CS3 18K1906	8.81e3	103.0	NO
2	2	13C5-PFHxA	ST181126M1-11 PFC CS3 18K1906	2.71e4	107.1	NO
3	3	13C3-PFHxS	ST181126M1-11 PFC CS3 18K1906	3.64e3	109.5	NO
4	4	13C8-PFOA	ST181126M1-11 PFC CS3 18K1906	3.26e4	107.2	NO
5	5	13C9-PFNA	ST181126M1-11 PFC CS3 18K1906	2.24e4	102.6	NO
6	6	13C4-PFOS	ST181126M1-11 PFC CS3 18K1906	3.51e3	103.9	NO
7	7	13C6-PFDA	ST181126M1-11 PFC CS3 18K1906	2.53e4	107.4	NO
8	8	13C7-PFUdA	ST181126M1-11 PFC CS3 18K1906	2.86e4	107.0	NO

Name: 181126M1_33, Date: 26-Nov-2018, Time: 17:16:44, ID: 1803659-06 A1-MW-54-SA2 0.11683, Description: A1-MW-54-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803659-06 A1-MW-54-SA2 0.11683	8.84e3	103.4	NO
2	2	13C5-PFHxA	1803659-06 A1-MW-54-SA2 0.11683	1.54e4	60.7	NO
3	3	13C3-PFHxS	1803659-06 A1-MW-54-SA2 0.11683	2.16e3	64.9	NO
4	4	13C8-PFOA	1803659-06 A1-MW-54-SA2 0.11683	1.90e4	62.3	NO
5	5	13C9-PFNA	1803659-06 A1-MW-54-SA2 0.11683	1.33e4	60.8	NO
6	6	13C4-PFOS	1803659-06 A1-MW-54-SA2 0.11683	2.45e3	72.7	NO
7	7	13C6-PFDA	1803659-06 A1-MW-54-SA2 0.11683	1.46e4	62.0	NO
8	8	13C7-PFUdA	1803659-06 A1-MW-54-SA2 0.11683	1.66e4	62.2	NO

Name: 181126M1_34, Date: 26-Nov-2018, Time: 17:27:17, ID: 1803659-07 FRB-20181114 0.11549, Description: FRB-20181114

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803659-07 FRB-20181114 0.11549	1.03e4	119.9	NO
2	2	13C5-PFHxA	1803659-07 FRB-20181114 0.11549	1.93e4	76.3	NO
3	3	13C3-PFHxS	1803659-07 FRB-20181114 0.11549	2.52e3	75.8	NO
4	4	13C8-PFOA	1803659-07 FRB-20181114 0.11549	2.16e4	70.8	NO
5	5	13C9-PFNA	1803659-07 FRB-20181114 0.11549	1.46e4	67.0	NO
6	6	13C4-PFOS	1803659-07 FRB-20181114 0.11549	2.53e3	74.9	NO
7	7	13C6-PFDA	1803659-07 FRB-20181114 0.11549	1.66e4	70.5	NO
8	8	13C7-PFUdA	1803659-07 FRB-20181114 0.11549	1.95e4	73.0	NO

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Name: 181126M1_35, Date: 26-Nov-2018, Time: 17:37:55, ID: B8K0135-BS1 OPR 1, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0135-BS1 OPR 1	1.02e4	119.0	NO
2	2	13C5-PFHxA	B8K0135-BS1 OPR 1	1.85e4	72.9	NO
3	3	13C3-PFHxS	B8K0135-BS1 OPR 1	2.47e3	74.2	NO
4	4	13C8-PFOA	B8K0135-BS1 OPR 1	2.32e4	76.2	NO
5	5	13C9-PFNA	B8K0135-BS1 OPR 1	1.57e4	72.0	NO
6	6	13C4-PFOS	B8K0135-BS1 OPR 1	2.59e3	76.9	NO
7	7	13C6-PFDA	B8K0135-BS1 OPR 1	1.80e4	76.4	NO
8	8	13C7-PFUdA	B8K0135-BS1 OPR 1	2.04e4	76.4	NO

Name: 181126M1_36, Date: 26-Nov-2018, Time: 17:48:34, ID: B8K0135-BLK1 Method Blank 1, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0135-BLK1 Method Blank 1	1.04e4	121.9	NO
2	2	13C5-PFHxA	B8K0135-BLK1 Method Blank 1	1.90e4	75.1	NO
3	3	13C3-PFHxS	B8K0135-BLK1 Method Blank 1	2.41e3	72.5	NO
4	4	13C8-PFOA	B8K0135-BLK1 Method Blank 1	2.24e4	73.6	NO
5	5	13C9-PFNA	B8K0135-BLK1 Method Blank 1	1.61e4	73.6	NO
6	6	13C4-PFOS	B8K0135-BLK1 Method Blank 1	2.56e3	75.8	NO
7	7	13C6-PFDA	B8K0135-BLK1 Method Blank 1	1.80e4	76.5	NO
8	8	13C7-PFUdA	B8K0135-BLK1 Method Blank 1	1.99e4	74.6	NO

Name: 181126M1_37, Date: 26-Nov-2018, Time: 17:59:07, ID: 1803551-03 BS1810290940GC 5, Description: BS1810290940GC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803551-03 BS1810290940GC 5	9.63e3	112.6	NO
2	2	13C5-PFHxA	1803551-03 BS1810290940GC 5	1.76e4	69.5	NO
3	3	13C3-PFHxS	1803551-03 BS1810290940GC 5	2.36e3	70.9	NO
4	4	13C8-PFOA	1803551-03 BS1810290940GC 5	2.16e4	71.0	NO
5	5	13C9-PFNA	1803551-03 BS1810290940GC 5	1.48e4	68.0	NO
6	6	13C4-PFOS	1803551-03 BS1810290940GC 5	2.39e3	70.8	NO
7	7	13C6-PFDA	1803551-03 BS1810290940GC 5	1.65e4	69.9	NO
8	8	13C7-PFUdA	1803551-03 BS1810290940GC 5	1.88e4	70.3	NO

Name: 181126M1_38, Date: 26-Nov-2018, Time: 18:09:45, ID: 1803581-03 BS1810311220GC 5.1, Description: BS1810311220GC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803581-03 BS1810311220GC 5.1	1.06e4	123.4	NO
2	2	13C5-PFHxA	1803581-03 BS1810311220GC 5.1	1.42e4	56.1	NO
3	3	13C3-PFHxS	1803581-03 BS1810311220GC 5.1	2.39e3	71.8	NO
4	4	13C8-PFOA	1803581-03 BS1810311220GC 5.1	2.36e4	77.6	NO
5	5	13C9-PFNA	1803581-03 BS1810311220GC 5.1	1.58e4	72.5	NO
6	6	13C4-PFOS	1803581-03 BS1810311220GC 5.1	2.85e3	84.3	NO
7	7	13C6-PFDA	1803581-03 BS1810311220GC 5.1	1.68e4	71.4	NO
8	8	13C7-PFUdA	1803581-03 BS1810311220GC 5.1	1.61e4	60.2	NO

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Name: 181126M1_39, Date: 26-Nov-2018, Time: 18:20:24, ID: 1803581-04 BS1810311230GC 5.08, Description: BS1810311230GC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803581-04 BS1810311230GC 5.08	1.07e4	125.0	NO
2	2	13C5-PFHxA	1803581-04 BS1810311230GC 5.08	1.92e4	75.6	NO
3	3	13C3-PFHxS	1803581-04 BS1810311230GC 5.08	2.59e3	77.9	NO
4	4	13C8-PFOA	1803581-04 BS1810311230GC 5.08	2.27e4	74.6	NO
5	5	13C9-PFNA	1803581-04 BS1810311230GC 5.08	1.52e4	69.7	NO
6	6	13C4-PFOS	1803581-04 BS1810311230GC 5.08	2.76e3	81.8	NO
7	7	13C6-PFDA	1803581-04 BS1810311230GC 5.08	1.67e4	71.0	NO
8	8	13C7-PFUdA	1803581-04 BS1810311230GC 5.08	1.71e4	63.9	NO

Name: 181126M1_40, Date: 26-Nov-2018, Time: 18:30:57, ID: B8K0049-BS1 OPR 1, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0049-BS1 OPR 1	1.27e4	148.0	NO
2	2	13C5-PFHxA	B8K0049-BS1 OPR 1	2.29e4	90.3	NO
3	3	13C3-PFHxS	B8K0049-BS1 OPR 1	3.27e3	98.1	NO
4	4	13C8-PFOA	B8K0049-BS1 OPR 1	2.76e4	90.7	NO
5	5	13C9-PFNA	B8K0049-BS1 OPR 1	2.00e4	91.7	NO
6	6	13C4-PFOS	B8K0049-BS1 OPR 1	3.50e3	103.8	NO
7	7	13C6-PFDA	B8K0049-BS1 OPR 1	2.17e4	92.3	NO
8	8	13C7-PFUdA	B8K0049-BS1 OPR 1	2.61e4	97.7	NO

Name: 181126M1_41, Date: 26-Nov-2018, Time: 18:41:36, ID: B8K0049-BLK1 Method Blank 1, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0049-BLK1 Method Blank 1	1.18e4	137.7	NO
2	2	13C5-PFHxA	B8K0049-BLK1 Method Blank 1	2.18e4	86.1	NO
3	3	13C3-PFHxS	B8K0049-BLK1 Method Blank 1	3.10e3	93.1	NO
4	4	13C8-PFOA	B8K0049-BLK1 Method Blank 1	2.61e4	85.9	NO
5	5	13C9-PFNA	B8K0049-BLK1 Method Blank 1	1.78e4	81.6	NO
6	6	13C4-PFOS	B8K0049-BLK1 Method Blank 1	2.98e3	88.2	NO
7	7	13C6-PFDA	B8K0049-BLK1 Method Blank 1	1.98e4	84.2	NO
8	8	13C7-PFUdA	B8K0049-BLK1 Method Blank 1	2.13e4	79.8	NO

Name: 181126M1_42, Date: 26-Nov-2018, Time: 18:52:09, ID: 1803520-01 HS-SB-939 (3-5)-EPA 1.51, Description: HS-SB-939 (3-5)-EPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803520-01 HS-SB-939 (3-5)-EPA 1.51	1.46e4	170.8	YES
2	2	13C5-PFHxA	1803520-01 HS-SB-939 (3-5)-EPA 1.51	2.30e4	91.0	NO
3	3	13C3-PFHxS	1803520-01 HS-SB-939 (3-5)-EPA 1.51	2.62e3	78.8	NO
4	4	13C8-PFOA	1803520-01 HS-SB-939 (3-5)-EPA 1.51	1.58e4	51.9	NO
5	5	13C9-PFNA	1803520-01 HS-SB-939 (3-5)-EPA 1.51	5.13e3	23.5	YES
6	6	13C4-PFOS	1803520-01 HS-SB-939 (3-5)-EPA 1.51	4.18e2	12.4	YES
7	7	13C6-PFDA	1803520-01 HS-SB-939 (3-5)-EPA 1.51	3.57e3	15.2	YES
8	8	13C7-PFUdA	1803520-01 HS-SB-939 (3-5)-EPA 1.51	1.60e3	6.0	YES

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Name: 181126M1_43, Date: 26-Nov-2018, Time: 19:02:47, ID: 1803553-04 BS1810291445GC 3.51, Description: BS1810291445GC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803553-04 BS1810291445GC 3.51	1.27e4	148.6	NO
2	2	13C5-PFHxA	1803553-04 BS1810291445GC 3.51	3.04e4	120.2	NO
3	3	13C3-PFHxS	1803553-04 BS1810291445GC 3.51	4.25e3	127.7	NO
4	4	13C8-PFOA	1803553-04 BS1810291445GC 3.51	3.61e4	118.8	NO
5	5	13C9-PFNA	1803553-04 BS1810291445GC 3.51	2.37e4	108.4	NO
6	6	13C4-PFOS	1803553-04 BS1810291445GC 3.51	7.80e3	231.3	YES
7	7	13C6-PFDA	1803553-04 BS1810291445GC 3.51	2.45e4	104.0	NO
8	8	13C7-PFUdA	1803553-04 BS1810291445GC 3.51	1.76e4	66.1	NO

Name: 181126M1_44, Date: 26-Nov-2018, Time: 19:13:20, ID: 1803575-06 BS1810301040GC 1.48, Description: BS1810301040GC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803575-06 BS1810301040GC 1.48	9.65e3	112.8	NO
2	2	13C5-PFHxA	1803575-06 BS1810301040GC 1.48	1.74e4	68.6	NO
3	3	13C3-PFHxS	1803575-06 BS1810301040GC 1.48	2.23e3	67.0	NO
4	4	13C8-PFOA	1803575-06 BS1810301040GC 1.48	2.01e4	66.1	NO
5	5	13C9-PFNA	1803575-06 BS1810301040GC 1.48	1.33e4	61.1	NO
6	6	13C4-PFOS	1803575-06 BS1810301040GC 1.48	2.13e3	63.1	NO
7	7	13C6-PFDA	1803575-06 BS1810301040GC 1.48	1.41e4	60.1	NO
8	8	13C7-PFUdA	1803575-06 BS1810301040GC 1.48	1.46e4	54.8	NO

Name: 181126M1_45, Date: 26-Nov-2018, Time: 19:23:58, ID: 1803577-05 BS1810301620GC 5.94, Description: BS1810301620GC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803577-05 BS1810301620GC 5.94	9.16e3	107.1	NO
2	2	13C5-PFHxA	1803577-05 BS1810301620GC 5.94	1.60e4	63.2	NO
3	3	13C3-PFHxS	1803577-05 BS1810301620GC 5.94	2.11e3	63.3	NO
4	4	13C8-PFOA	1803577-05 BS1810301620GC 5.94	1.79e4	58.9	NO
5	5	13C9-PFNA	1803577-05 BS1810301620GC 5.94	1.25e4	57.1	NO
6	6	13C4-PFOS	1803577-05 BS1810301620GC 5.94	2.07e3	61.3	NO
7	7	13C6-PFDA	1803577-05 BS1810301620GC 5.94	1.25e4	53.0	NO
8	8	13C7-PFUdA	1803577-05 BS1810301620GC 5.94	1.35e4	50.6	NO

Name: 181126M1_46, Date: 26-Nov-2018, Time: 19:34:37, ID: B8K0118-BS1 OPR 0.125, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0118-BS1 OPR 0.125	1.52e4	177.9	YES
2	2	13C5-PFHxA	B8K0118-BS1 OPR 0.125	2.78e4	109.7	NO
3	3	13C3-PFHxS	B8K0118-BS1 OPR 0.125	3.32e3	99.7	NO
4	4	13C8-PFOA	B8K0118-BS1 OPR 0.125	2.97e4	97.7	NO
5	5	13C9-PFNA	B8K0118-BS1 OPR 0.125	1.61e4	74.0	NO
6	6	13C4-PFOS	B8K0118-BS1 OPR 0.125	1.10e3	32.7	YES
7	7	13C6-PFDA	B8K0118-BS1 OPR 0.125	6.67e3	28.4	YES
8	8	13C7-PFUdA	B8K0118-BS1 OPR 0.125	2.14e3	8.0	YES

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Name: 181126M1_47, Date: 26-Nov-2018, Time: 19:45:09, ID: B8K0118-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0118-BLK1 Method Blank 0.125	1.50e4	175.7	YES
2	2	13C5-PFHxA	B8K0118-BLK1 Method Blank 0.125	2.76e4	109.0	NO
3	3	13C3-PFHxS	B8K0118-BLK1 Method Blank 0.125	3.42e3	102.8	NO
4	4	13C8-PFOA	B8K0118-BLK1 Method Blank 0.125	3.08e4	101.2	NO
5	5	13C9-PFNA	B8K0118-BLK1 Method Blank 0.125	1.84e4	84.4	NO
6	6	13C4-PFOS	B8K0118-BLK1 Method Blank 0.125	1.82e3	53.9	NO
7	7	13C6-PFDA	B8K0118-BLK1 Method Blank 0.125	1.09e4	46.3	YES
8	8	13C7-PFUdA	B8K0118-BLK1 Method Blank 0.125	3.61e3	13.5	YES

Name: 181126M1_48, Date: 26-Nov-2018, Time: 19:55:48, ID: 1803640-01 MW-2A 0.11056, Description: MW-2A

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803640-01 MW-2A 0.11056	1.29e4	150.4	YES
2	2	13C5-PFHxA	1803640-01 MW-2A 0.11056	2.44e4	96.2	NO
3	3	13C3-PFHxS	1803640-01 MW-2A 0.11056	3.02e3	90.9	NO
4	4	13C8-PFOA	1803640-01 MW-2A 0.11056	2.69e4	88.3	NO
5	5	13C9-PFNA	1803640-01 MW-2A 0.11056	1.59e4	73.0	NO
6	6	13C4-PFOS	1803640-01 MW-2A 0.11056	1.82e3	53.9	NO
7	7	13C6-PFDA	1803640-01 MW-2A 0.11056	1.01e4	42.9	YES
8	8	13C7-PFUdA	1803640-01 MW-2A 0.11056	2.50e3	9.4	YES

Name: 181126M1_49, Date: 26-Nov-2018, Time: 20:06:21, ID: 1803640-02 MW-3 0.1163, Description: MW-3

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803640-02 MW-3 0.1163	1.35e4	157.4	YES
2	2	13C5-PFHxA	1803640-02 MW-3 0.1163	2.43e4	95.8	NO
3	3	13C3-PFHxS	1803640-02 MW-3 0.1163	3.02e3	90.8	NO
4	4	13C8-PFOA	1803640-02 MW-3 0.1163	2.70e4	88.6	NO
5	5	13C9-PFNA	1803640-02 MW-3 0.1163	1.67e4	76.5	NO
6	6	13C4-PFOS	1803640-02 MW-3 0.1163	2.05e3	60.9	NO
7	7	13C6-PFDA	1803640-02 MW-3 0.1163	1.06e4	45.2	YES
8	8	13C7-PFUdA	1803640-02 MW-3 0.1163	6.35e3	23.8	YES

Name: 181126M1_50, Date: 26-Nov-2018, Time: 20:16:59, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA	5.11e0	0.0	YES
8	8	13C7-PFUdA	IPA	6.16e0	0.0	YES

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Name: 181126M1_51, Date: 26-Nov-2018, Time: 20:27:33, ID: ST181126M1-12 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181126M1-12 PFC CS3 18K1906	9.00e3	105.3	NO
2	2	13C5-PFHxA	ST181126M1-12 PFC CS3 18K1906	2.77e4	109.2	NO
3	3	13C3-PFHxS	ST181126M1-12 PFC CS3 18K1906	3.48e3	104.4	NO
4	4	13C8-PFOA	ST181126M1-12 PFC CS3 18K1906	3.29e4	108.2	NO
5	5	13C9-PFNA	ST181126M1-12 PFC CS3 18K1906	2.27e4	104.2	NO
6	6	13C4-PFOS	ST181126M1-12 PFC CS3 18K1906	3.59e3	106.5	NO
7	7	13C6-PFDA	ST181126M1-12 PFC CS3 18K1906	2.50e4	106.2	NO
8	8	13C7-PFUdA	ST181126M1-12 PFC CS3 18K1906	2.93e4	109.7	NO

Name: 181126M1_52, Date: 26-Nov-2018, Time: 20:38:11, ID: 1803640-03 MW-4 0.11182, Description: MW-4

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803640-03 MW-4 0.11182	1.30e4	152.1	YES
2	2	13C5-PFHxA	1803640-03 MW-4 0.11182	2.39e4	94.2	NO
3	3	13C3-PFHxS	1803640-03 MW-4 0.11182	3.37e3	101.3	NO
4	4	13C8-PFOA	1803640-03 MW-4 0.11182	2.66e4	87.6	NO
5	5	13C9-PFNA	1803640-03 MW-4 0.11182	1.77e4	81.0	NO
6	6	13C4-PFOS	1803640-03 MW-4 0.11182	2.69e3	79.8	NO
7	7	13C6-PFDA	1803640-03 MW-4 0.11182	1.49e4	63.5	NO
8	8	13C7-PFUdA	1803640-03 MW-4 0.11182	7.77e3	29.1	YES

Name: 181126M1_53, Date: 26-Nov-2018, Time: 20:48:44, ID: 1803640-04 TS Well 0.11479, Description: TS Well

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803640-04 TS Well 0.11479	1.33e4	155.8	YES
2	2	13C5-PFHxA	1803640-04 TS Well 0.11479	2.52e4	99.3	NO
3	3	13C3-PFHxS	1803640-04 TS Well 0.11479	3.40e3	102.2	NO
4	4	13C8-PFOA	1803640-04 TS Well 0.11479	3.02e4	99.2	NO
5	5	13C9-PFNA	1803640-04 TS Well 0.11479	1.97e4	90.2	NO
6	6	13C4-PFOS	1803640-04 TS Well 0.11479	2.90e3	86.1	NO
7	7	13C6-PFDA	1803640-04 TS Well 0.11479	1.55e4	65.8	NO
8	8	13C7-PFUdA	1803640-04 TS Well 0.11479	9.09e3	34.1	YES

Name: 181126M1_54, Date: 26-Nov-2018, Time: 20:59:22, ID: 1803641-01 MW3S 0.11429, Description: MW3S

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803641-01 MW3S 0.11429	1.42e4	166.3	YES
2	2	13C5-PFHxA	1803641-01 MW3S 0.11429	2.49e4	98.2	NO
3	3	13C3-PFHxS	1803641-01 MW3S 0.11429	3.52e3	105.7	NO
4	4	13C8-PFOA	1803641-01 MW3S 0.11429	2.60e4	85.3	NO
5	5	13C9-PFNA	1803641-01 MW3S 0.11429	1.64e4	75.3	NO
6	6	13C4-PFOS	1803641-01 MW3S 0.11429	2.86e3	84.8	NO
7	7	13C6-PFDA	1803641-01 MW3S 0.11429	1.39e4	59.0	NO
8	8	13C7-PFUdA	1803641-01 MW3S 0.11429	8.46e3	31.7	YES

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Name: 181126M1_55, Date: 26-Nov-2018, Time: 21:09:56, ID: 1803641-02 MW6 0.11494, Description: MW6

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803641-02 MW6 0.11494	1.40e4	163.4	YES
2	2	13C5-PFHxA	1803641-02 MW6 0.11494	2.45e4	96.9	NO
3	3	13C3-PFHxS	1803641-02 MW6 0.11494	3.50e3	105.3	NO
4	4	13C8-PFOA	1803641-02 MW6 0.11494	2.66e4	87.5	NO
5	5	13C9-PFNA	1803641-02 MW6 0.11494	1.71e4	78.2	NO
6	6	13C4-PFOS	1803641-02 MW6 0.11494	3.07e3	91.1	NO
7	7	13C6-PFDA	1803641-02 MW6 0.11494	1.58e4	67.2	NO
8	8	13C7-PFUdA	1803641-02 MW6 0.11494	1.20e4	44.9	YES

Name: 181126M1_56, Date: 26-Nov-2018, Time: 21:20:34, ID: 1803641-03 MW7 0.11164, Description: MW7

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803641-03 MW7 0.11164	1.37e4	160.7	YES
2	2	13C5-PFHxA	1803641-03 MW7 0.11164	2.42e4	95.5	NO
3	3	13C3-PFHxS	1803641-03 MW7 0.11164	3.48e3	104.5	NO
4	4	13C8-PFOA	1803641-03 MW7 0.11164	2.67e4	87.6	NO
5	5	13C9-PFNA	1803641-03 MW7 0.11164	1.82e4	83.5	NO
6	6	13C4-PFOS	1803641-03 MW7 0.11164	3.24e3	96.1	NO
7	7	13C6-PFDA	1803641-03 MW7 0.11164	1.69e4	71.8	NO
8	8	13C7-PFUdA	1803641-03 MW7 0.11164	1.46e4	54.7	NO

Name: 181126M1_57, Date: 26-Nov-2018, Time: 21:31:07, ID: 1803641-04 SW2 0.11314, Description: SW2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803641-04 SW2 0.11314	1.37e4	160.7	YES
2	2	13C5-PFHxA	1803641-04 SW2 0.11314	2.56e4	101.1	NO
3	3	13C3-PFHxS	1803641-04 SW2 0.11314	3.26e3	97.9	NO
4	4	13C8-PFOA	1803641-04 SW2 0.11314	2.80e4	91.9	NO
5	5	13C9-PFNA	1803641-04 SW2 0.11314	1.83e4	84.0	NO
6	6	13C4-PFOS	1803641-04 SW2 0.11314	2.81e3	83.3	NO
7	7	13C6-PFDA	1803641-04 SW2 0.11314	1.61e4	68.4	NO
8	8	13C7-PFUdA	1803641-04 SW2 0.11314	1.19e4	44.8	YES

Name: 181126M1_58, Date: 26-Nov-2018, Time: 21:41:46, ID: 1803646-01 MW-1 0.11872, Description: MW-1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803646-01 MW-1 0.11872	1.31e4	153.0	YES
2	2	13C5-PFHxA	1803646-01 MW-1 0.11872	2.37e4	93.7	NO
3	3	13C3-PFHxS	1803646-01 MW-1 0.11872	3.06e3	92.0	NO
4	4	13C8-PFOA	1803646-01 MW-1 0.11872	2.74e4	90.2	NO
5	5	13C9-PFNA	1803646-01 MW-1 0.11872	1.75e4	80.3	NO
6	6	13C4-PFOS	1803646-01 MW-1 0.11872	2.31e3	68.5	NO
7	7	13C6-PFDA	1803646-01 MW-1 0.11872	1.53e4	65.0	NO
8	8	13C7-PFUdA	1803646-01 MW-1 0.11872	8.64e3	32.4	YES

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Name: 181126M1_59, Date: 26-Nov-2018, Time: 21:52:19, ID: 1803646-02 MW-4S 0.11549, Description: MW-4S

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803646-02 MW-4S 0.11549	1.34e4	156.6	YES
2	2	13C5-PFHxA	1803646-02 MW-4S 0.11549	2.50e4	98.5	NO
3	3	13C3-PFHxS	1803646-02 MW-4S 0.11549	3.08e3	92.6	NO
4	4	13C8-PFOA	1803646-02 MW-4S 0.11549	2.81e4	92.5	NO
5	5	13C9-PFNA	1803646-02 MW-4S 0.11549	1.77e4	81.4	NO
6	6	13C4-PFOS	1803646-02 MW-4S 0.11549	2.05e3	60.8	NO
7	7	13C6-PFDA	1803646-02 MW-4S 0.11549	1.11e4	47.2	YES
8	8	13C7-PFUdA	1803646-02 MW-4S 0.11549	2.97e3	11.1	YES

Name: 181126M1_60, Date: 26-Nov-2018, Time: 22:02:57, ID: 1803646-03 Thorne 0.11815, Description: Thorne

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803646-03 Thorne 0.11815	1.37e4	160.2	YES
2	2	13C5-PFHxA	1803646-03 Thorne 0.11815	2.36e4	93.3	NO
3	3	13C3-PFHxS	1803646-03 Thorne 0.11815	3.25e3	97.8	NO
4	4	13C8-PFOA	1803646-03 Thorne 0.11815	2.71e4	89.2	NO
5	5	13C9-PFNA	1803646-03 Thorne 0.11815	1.71e4	78.5	NO
6	6	13C4-PFOS	1803646-03 Thorne 0.11815	2.48e3	73.6	NO
7	7	13C6-PFDA	1803646-03 Thorne 0.11815	1.40e4	59.6	NO
8	8	13C7-PFUdA	1803646-03 Thorne 0.11815	7.77e3	29.1	YES

Name: 181126M1_61, Date: 26-Nov-2018, Time: 22:13:30, ID: 1803647-01 MW-1 0.11071, Description: MW-1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803647-01 MW-1 0.11071	1.20e4	140.5	NO
2	2	13C5-PFHxA	1803647-01 MW-1 0.11071	2.13e4	84.0	NO
3	3	13C3-PFHxS	1803647-01 MW-1 0.11071	2.99e3	89.9	NO
4	4	13C8-PFOA	1803647-01 MW-1 0.11071	2.30e4	75.6	NO
5	5	13C9-PFNA	1803647-01 MW-1 0.11071	1.52e4	69.5	NO
6	6	13C4-PFOS	1803647-01 MW-1 0.11071	2.54e3	75.2	NO
7	7	13C6-PFDA	1803647-01 MW-1 0.11071	1.36e4	57.9	NO
8	8	13C7-PFUdA	1803647-01 MW-1 0.11071	1.22e4	45.7	YES

Name: 181126M1_62, Date: 26-Nov-2018, Time: 22:24:08, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

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Name: 181126M1_63, Date: 26-Nov-2018, Time: 22:34:41, ID: ST181126M1-13 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181126M1-13 PFC CS3 18K1906	9.26e3	108.3	NO
2	2	13C5-PFHxA	ST181126M1-13 PFC CS3 18K1906	2.79e4	110.3	NO
3	3	13C3-PFHxS	ST181126M1-13 PFC CS3 18K1906	3.55e3	106.7	NO
4	4	13C8-PFOA	ST181126M1-13 PFC CS3 18K1906	3.20e4	105.3	NO
5	5	13C9-PFNA	ST181126M1-13 PFC CS3 18K1906	2.22e4	101.9	NO
6	6	13C4-PFOS	ST181126M1-13 PFC CS3 18K1906	3.76e3	111.4	NO
7	7	13C6-PFDA	ST181126M1-13 PFC CS3 18K1906	2.56e4	108.9	NO
8	8	13C7-PFUdA	ST181126M1-13 PFC CS3 18K1906	2.86e4	107.0	NO

Name: 181126M1_64, Date: 26-Nov-2018, Time: 22:45:19, ID: 1803647-02 MW-3 0.11209, Description: MW-3

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803647-02 MW-3 0.11209	1.25e4	145.8	NO
2	2	13C5-PFHxA	1803647-02 MW-3 0.11209	2.29e4	90.2	NO
3	3	13C3-PFHxS	1803647-02 MW-3 0.11209	3.09e3	92.8	NO
4	4	13C8-PFOA	1803647-02 MW-3 0.11209	2.64e4	86.8	NO
5	5	13C9-PFNA	1803647-02 MW-3 0.11209	1.71e4	78.2	NO
6	6	13C4-PFOS	1803647-02 MW-3 0.11209	2.50e3	74.2	NO
7	7	13C6-PFDA	1803647-02 MW-3 0.11209	1.54e4	65.6	NO
8	8	13C7-PFUdA	1803647-02 MW-3 0.11209	1.28e4	48.0	YES

Name: 181126M1_65, Date: 26-Nov-2018, Time: 22:55:52, ID: 1803651-01 MW-1 0.11903, Description: MW-1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803651-01 MW-1 0.11903	1.40e4	163.9	YES
2	2	13C5-PFHxA	1803651-01 MW-1 0.11903	2.57e4	101.6	NO
3	3	13C3-PFHxS	1803651-01 MW-1 0.11903	3.30e3	99.1	NO
4	4	13C8-PFOA	1803651-01 MW-1 0.11903	2.80e4	92.2	NO
5	5	13C9-PFNA	1803651-01 MW-1 0.11903	1.72e4	78.7	NO
6	6	13C4-PFOS	1803651-01 MW-1 0.11903	2.21e3	65.5	NO
7	7	13C6-PFDA	1803651-01 MW-1 0.11903	1.17e4	49.6	YES
8	8	13C7-PFUdA	1803651-01 MW-1 0.11903	4.73e3	17.7	YES

Name: 181126M1_66, Date: 26-Nov-2018, Time: 23:06:31, ID: 1803651-02 MW-4 0.11498, Description: MW-4

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803651-02 MW-4 0.11498	1.08e4	126.2	NO
2	2	13C5-PFHxA	1803651-02 MW-4 0.11498	1.95e4	76.9	NO
3	3	13C3-PFHxS	1803651-02 MW-4 0.11498	2.61e3	78.5	NO
4	4	13C8-PFOA	1803651-02 MW-4 0.11498	2.18e4	71.8	NO
5	5	13C9-PFNA	1803651-02 MW-4 0.11498	1.47e4	67.2	NO
6	6	13C4-PFOS	1803651-02 MW-4 0.11498	1.91e3	56.7	NO
7	7	13C6-PFDA	1803651-02 MW-4 0.11498	1.15e4	49.0	YES
8	8	13C7-PFUdA	1803651-02 MW-4 0.11498	6.20e3	23.2	YES

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Name: 181126M1_67, Date: 26-Nov-2018, Time: 23:17:03, ID: 1803651-03 MW-3 0.11883, Description: MW-3

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803651-03 MW-3 0.11883	1.36e4	158.8	YES
2	2	13C5-PFHxA	1803651-03 MW-3 0.11883	2.37e4	93.4	NO
3	3	13C3-PFHxS	1803651-03 MW-3 0.11883	3.42e3	102.6	NO
4	4	13C8-PFOA	1803651-03 MW-3 0.11883	2.56e4	84.0	NO
5	5	13C9-PFNA	1803651-03 MW-3 0.11883	1.75e4	80.0	NO
6	6	13C4-PFOS	1803651-03 MW-3 0.11883	3.14e3	92.9	NO
7	7	13C6-PFDA	1803651-03 MW-3 0.11883	1.89e4	80.4	NO
8	8	13C7-PFUdA	1803651-03 MW-3 0.11883	1.90e4	71.4	NO

Name: 181126M1_68, Date: 26-Nov-2018, Time: 23:27:42, ID: 1803652-01 MW-1 0.11504, Description: MW-1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803652-01 MW-1 0.11504	1.41e4	164.7	YES
2	2	13C5-PFHxA	1803652-01 MW-1 0.11504	2.61e4	103.2	NO
3	3	13C3-PFHxS	1803652-01 MW-1 0.11504	3.40e3	102.1	NO
4	4	13C8-PFOA	1803652-01 MW-1 0.11504	2.90e4	95.2	NO
5	5	13C9-PFNA	1803652-01 MW-1 0.11504	1.97e4	90.3	NO
6	6	13C4-PFOS	1803652-01 MW-1 0.11504	2.96e3	87.6	NO
7	7	13C6-PFDA	1803652-01 MW-1 0.11504	1.86e4	79.0	NO
8	8	13C7-PFUdA	1803652-01 MW-1 0.11504	1.30e4	48.7	YES

Name: 181126M1_69, Date: 26-Nov-2018, Time: 23:38:20, ID: 1803652-02 MW-2 0.11316, Description: MW-2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803652-02 MW-2 0.11316	1.46e4	170.7	YES
2	2	13C5-PFHxA	1803652-02 MW-2 0.11316	2.73e4	107.9	NO
3	3	13C3-PFHxS	1803652-02 MW-2 0.11316	3.51e3	105.4	NO
4	4	13C8-PFOA	1803652-02 MW-2 0.11316	3.03e4	99.7	NO
5	5	13C9-PFNA	1803652-02 MW-2 0.11316	2.04e4	93.4	NO
6	6	13C4-PFOS	1803652-02 MW-2 0.11316	2.95e3	87.5	NO
7	7	13C6-PFDA	1803652-02 MW-2 0.11316	1.94e4	82.5	NO
8	8	13C7-PFUdA	1803652-02 MW-2 0.11316	1.45e4	54.3	NO

Name: 181126M1_70, Date: 26-Nov-2018, Time: 23:48:53, ID: B8K0134-BS1 OPR 1, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0134-BS1 OPR 1	1.24e4	144.6	NO
2	2	13C5-PFHxA	B8K0134-BS1 OPR 1	2.20e4	87.0	NO
3	3	13C3-PFHxS	B8K0134-BS1 OPR 1	2.49e3	74.8	NO
4	4	13C8-PFOA	B8K0134-BS1 OPR 1	2.07e4	68.1	NO
5	5	13C9-PFNA	B8K0134-BS1 OPR 1	9.25e3	42.4	YES
6	6	13C4-PFOS	B8K0134-BS1 OPR 1	8.77e2	26.0	YES
7	7	13C6-PFDA	B8K0134-BS1 OPR 1	3.49e3	14.8	YES
8	8	13C7-PFUdA	B8K0134-BS1 OPR 1	9.60e2	3.6	YES

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Name: 181126M1_71, Date: 26-Nov-2018, Time: 23:59:32, ID: B8K0134-BLK1 Method Blank 1, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0134-BLK1 Method Blank 1	1.27e4	148.1	NO
2	2	13C5-PFHxA	B8K0134-BLK1 Method Blank 1	2.34e4	92.5	NO
3	3	13C3-PFHxS	B8K0134-BLK1 Method Blank 1	3.14e3	94.3	NO
4	4	13C8-PFOA	B8K0134-BLK1 Method Blank 1	2.76e4	90.6	NO
5	5	13C9-PFNA	B8K0134-BLK1 Method Blank 1	1.94e4	89.1	NO
6	6	13C4-PFOS	B8K0134-BLK1 Method Blank 1	3.13e3	92.7	NO
7	7	13C6-PFDA	B8K0134-BLK1 Method Blank 1	2.18e4	92.6	NO
8	8	13C7-PFUdA	B8K0134-BLK1 Method Blank 1	2.47e4	92.7	NO

Name: 181126M1_72, Date: 27-Nov-2018, Time: 00:10:06, ID: 1803552-01 BS1810291030GC 19.2, Description: BS1810291030GC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803552-01 BS1810291030GC 19.2	1.14e4	133.3	NO
2	2	13C5-PFHxA	1803552-01 BS1810291030GC 19.2	1.71e4	67.6	NO
3	3	13C3-PFHxS	1803552-01 BS1810291030GC 19.2	2.64e3	79.4	NO
4	4	13C8-PFOA	1803552-01 BS1810291030GC 19.2	2.48e4	81.5	NO
5	5	13C9-PFNA	1803552-01 BS1810291030GC 19.2	1.49e4	68.4	NO
6	6	13C4-PFOS	1803552-01 BS1810291030GC 19.2	3.30e3	97.9	NO
7	7	13C6-PFDA	1803552-01 BS1810291030GC 19.2	1.84e4	78.4	NO
8	8	13C7-PFUdA	1803552-01 BS1810291030GC 19.2	1.80e4	67.5	NO

Name: 181126M1_73, Date: 27-Nov-2018, Time: 00:20:44, ID: 1803553-05 BS1810291600GC 21.65, Description: BS1810291600GC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803553-05 BS1810291600GC 21.65	1.19e4	139.5	NO
2	2	13C5-PFHxA	1803553-05 BS1810291600GC 21.65	2.19e4	86.5	NO
3	3	13C3-PFHxS	1803553-05 BS1810291600GC 21.65	3.00e3	90.1	NO
4	4	13C8-PFOA	1803553-05 BS1810291600GC 21.65	2.70e4	88.8	NO
5	5	13C9-PFNA	1803553-05 BS1810291600GC 21.65	1.92e4	88.0	NO
6	6	13C4-PFOS	1803553-05 BS1810291600GC 21.65	3.22e3	95.5	NO
7	7	13C6-PFDA	1803553-05 BS1810291600GC 21.65	2.06e4	87.7	NO
8	8	13C7-PFUdA	1803553-05 BS1810291600GC 21.65	2.44e4	91.4	NO

Name: 181126M1_74, Date: 27-Nov-2018, Time: 00:31:22, ID: 1803553-06 SL1810291530GC 44.03, Description: SL1810291530GC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803553-06 SL1810291530GC 44.03	1.31e4	153.5	YES
2	2	13C5-PFHxA	1803553-06 SL1810291530GC 44.03	2.31e4	91.2	NO
3	3	13C3-PFHxS	1803553-06 SL1810291530GC 44.03	3.22e3	96.8	NO
4	4	13C8-PFOA	1803553-06 SL1810291530GC 44.03	2.90e4	95.3	NO
5	5	13C9-PFNA	1803553-06 SL1810291530GC 44.03	1.88e4	86.1	NO
6	6	13C4-PFOS	1803553-06 SL1810291530GC 44.03	3.33e3	98.7	NO
7	7	13C6-PFDA	1803553-06 SL1810291530GC 44.03	2.07e4	87.9	NO
8	8	13C7-PFUdA	1803553-06 SL1810291530GC 44.03	1.99e4	74.5	NO

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Name: 181126M1_75, Date: 27-Nov-2018, Time: 00:41:55, ID: 1803576-03 BS1810311445GC 30.23, Description: BS1810311445GC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803576-03 BS1810311445GC 30.23	1.23e4	143.3	NO
2	2	13C5-PFHxA	1803576-03 BS1810311445GC 30.23	2.13e4	83.9	NO
3	3	13C3-PFHxS	1803576-03 BS1810311445GC 30.23	2.89e3	86.8	NO
4	4	13C8-PFOA	1803576-03 BS1810311445GC 30.23	2.64e4	86.7	NO
5	5	13C9-PFNA	1803576-03 BS1810311445GC 30.23	1.89e4	86.8	NO
6	6	13C4-PFOS	1803576-03 BS1810311445GC 30.23	2.18e3	64.7	NO
7	7	13C6-PFDA	1803576-03 BS1810311445GC 30.23	2.07e4	88.2	NO
8	8	13C7-PFUdA	1803576-03 BS1810311445GC 30.23	2.32e4	87.0	NO

Name: 181126M1_76, Date: 27-Nov-2018, Time: 00:52:33, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

Name: 181126M1_77, Date: 27-Nov-2018, Time: 01:03:06, ID: ST181126M1-14 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181126M1-14 PFC CS3 18K1906	9.46e3	110.7	NO
2	2	13C5-PFHxA	ST181126M1-14 PFC CS3 18K1906	2.77e4	109.2	NO
3	3	13C3-PFHxS	ST181126M1-14 PFC CS3 18K1906	3.62e3	108.8	NO
4	4	13C8-PFOA	ST181126M1-14 PFC CS3 18K1906	3.35e4	110.1	NO
5	5	13C9-PFNA	ST181126M1-14 PFC CS3 18K1906	2.35e4	107.8	NO
6	6	13C4-PFOS	ST181126M1-14 PFC CS3 18K1906	3.60e3	106.6	NO
7	7	13C6-PFDA	ST181126M1-14 PFC CS3 18K1906	2.47e4	105.1	NO
8	8	13C7-PFUdA	ST181126M1-14 PFC CS3 18K1906	2.94e4	110.3	NO

Name: 181126M1_78, Date: 27-Nov-2018, Time: 01:13:44, ID: 1803577-03 WW1810301640GC 29, Description: WW1810301640GC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803577-03 WW1810301640GC 29	1.25e4	146.7	NO
2	2	13C5-PFHxA	1803577-03 WW1810301640GC 29	2.11e4	83.3	NO
3	3	13C3-PFHxS	1803577-03 WW1810301640GC 29	3.06e3	91.9	NO
4	4	13C8-PFOA	1803577-03 WW1810301640GC 29	2.50e4	82.2	NO
5	5	13C9-PFNA	1803577-03 WW1810301640GC 29	1.73e4	79.3	NO
6	6	13C4-PFOS	1803577-03 WW1810301640GC 29	2.81e3	83.3	NO
7	7	13C6-PFDA	1803577-03 WW1810301640GC 29	1.82e4	77.4	NO
8	8	13C7-PFUdA	1803577-03 WW1810301640GC 29	1.46e4	54.8	NO

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Name: 181126M1_79, Date: 27-Nov-2018, Time: 01:24:18, ID: 1803577-04 WW1810301650GC 27.95, Description: WW1810301650GC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803577-04 WW1810301650GC 27.95	1.20e4	139.9	NO
2	2	13C5-PFHxA	1803577-04 WW1810301650GC 27.95	2.20e4	86.9	NO
3	3	13C3-PFHxS	1803577-04 WW1810301650GC 27.95	2.84e3	85.2	NO
4	4	13C8-PFOA	1803577-04 WW1810301650GC 27.95	2.70e4	88.7	NO
5	5	13C9-PFNA	1803577-04 WW1810301650GC 27.95	1.91e4	87.5	NO
6	6	13C4-PFOS	1803577-04 WW1810301650GC 27.95	3.12e3	92.4	NO
7	7	13C6-PFDA	1803577-04 WW1810301650GC 27.95	2.06e4	87.6	NO
8	8	13C7-PFUdA	1803577-04 WW1810301650GC 27.95	2.32e4	87.0	NO

Name: 181126M1_80, Date: 27-Nov-2018, Time: 01:34:57, ID: 1803578-04 BS1810301350GC 20.67, Description: BS1810301350GC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803578-04 BS1810301350GC 20.67	1.28e4	149.6	NO
2	2	13C5-PFHxA	1803578-04 BS1810301350GC 20.67	2.13e4	84.0	NO
3	3	13C3-PFHxS	1803578-04 BS1810301350GC 20.67	3.03e3	90.9	NO
4	4	13C8-PFOA	1803578-04 BS1810301350GC 20.67	2.70e4	88.6	NO
5	5	13C9-PFNA	1803578-04 BS1810301350GC 20.67	1.74e4	79.6	NO
6	6	13C4-PFOS	1803578-04 BS1810301350GC 20.67	3.02e3	89.4	NO
7	7	13C6-PFDA	1803578-04 BS1810301350GC 20.67	2.00e4	85.2	NO
8	8	13C7-PFUdA	1803578-04 BS1810301350GC 20.67	2.18e4	81.8	NO

Name: 181126M1_81, Date: 27-Nov-2018, Time: 01:45:35, ID: B8K0120-BS1 OPR 0.25, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0120-BS1 OPR 0.25	1.17e4	137.1	NO
2	2	13C5-PFHxA	B8K0120-BS1 OPR 0.25	2.16e4	85.3	NO
3	3	13C3-PFHxS	B8K0120-BS1 OPR 0.25	2.98e3	89.7	NO
4	4	13C8-PFOA	B8K0120-BS1 OPR 0.25	2.60e4	85.4	NO
5	5	13C9-PFNA	B8K0120-BS1 OPR 0.25	1.87e4	85.5	NO
6	6	13C4-PFOS	B8K0120-BS1 OPR 0.25	3.04e3	90.2	NO
7	7	13C6-PFDA	B8K0120-BS1 OPR 0.25	1.97e4	83.9	NO
8	8	13C7-PFUdA	B8K0120-BS1 OPR 0.25	2.38e4	89.1	NO

Name: 181126M1_82, Date: 27-Nov-2018, Time: 01:56:08, ID: B8K0120-BLK1 Method Blank 0.25, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0120-BLK1 Method Blank 0.25	3.57e2	4.2	YES
2	2	13C5-PFHxA	B8K0120-BLK1 Method Blank 0.25	1.89e3	7.4	YES
3	3	13C3-PFHxS	B8K0120-BLK1 Method Blank 0.25	2.57e3	77.2	NO
4	4	13C8-PFOA	B8K0120-BLK1 Method Blank 0.25	4.01e3	13.2	YES
5	5	13C9-PFNA	B8K0120-BLK1 Method Blank 0.25	3.85e3	17.7	YES
6	6	13C4-PFOS	B8K0120-BLK1 Method Blank 0.25	2.82e3	83.5	NO
7	7	13C6-PFDA	B8K0120-BLK1 Method Blank 0.25	6.15e3	26.1	YES
8	8	13C7-PFUdA	B8K0120-BLK1 Method Blank 0.25	1.03e4	38.8	YES

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Name: 181126M1_83, Date: 27-Nov-2018, Time: 02:06:46, ID: 1803616-01 1811351-01A 0.24367, Description: 1811351-01A

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803616-01 1811351-01A 0.24367	8.97e3	104.9	NO
2	2	13C5-PFHxA	1803616-01 1811351-01A 0.24367	1.73e4	68.4	NO
3	3	13C3-PFHxS	1803616-01 1811351-01A 0.24367	2.91e3	87.5	NO
4	4	13C8-PFOA	1803616-01 1811351-01A 0.24367	2.25e4	74.1	NO
5	5	13C9-PFNA	1803616-01 1811351-01A 0.24367	1.68e4	76.9	NO
6	6	13C4-PFOS	1803616-01 1811351-01A 0.24367	2.98e3	88.3	NO
7	7	13C6-PFDA	1803616-01 1811351-01A 0.24367	1.81e4	76.9	NO
8	8	13C7-PFUdA	1803616-01 1811351-01A 0.24367	2.19e4	82.2	NO

Name: 181126M1_84, Date: 27-Nov-2018, Time: 02:17:19, ID: 1803616-02 1811351-02A 0.24367, Description: 1811351-02A

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803616-02 1811351-02A 0.24367	1.12e4	130.5	NO
2	2	13C5-PFHxA	1803616-02 1811351-02A 0.24367	2.03e4	80.0	NO
3	3	13C3-PFHxS	1803616-02 1811351-02A 0.24367	2.74e3	82.4	NO
4	4	13C8-PFOA	1803616-02 1811351-02A 0.24367	2.45e4	80.7	NO
5	5	13C9-PFNA	1803616-02 1811351-02A 0.24367	1.74e4	79.6	NO
6	6	13C4-PFOS	1803616-02 1811351-02A 0.24367	2.77e3	82.2	NO
7	7	13C6-PFDA	1803616-02 1811351-02A 0.24367	1.80e4	76.4	NO
8	8	13C7-PFUdA	1803616-02 1811351-02A 0.24367	2.25e4	84.3	NO

Name: 181126M1_85, Date: 27-Nov-2018, Time: 02:27:57, ID: 1803616-03 1811351-03A 0.23891, Description: 1811351-03A

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803616-03 1811351-03A 0.23891	1.30e4	152.1	YES
2	2	13C5-PFHxA	1803616-03 1811351-03A 0.23891	2.29e4	90.4	NO
3	3	13C3-PFHxS	1803616-03 1811351-03A 0.23891	2.90e3	87.3	NO
4	4	13C8-PFOA	1803616-03 1811351-03A 0.23891	1.05e4	34.6	YES
5	5	13C9-PFNA	1803616-03 1811351-03A 0.23891	1.39e4	63.7	NO
6	6	13C4-PFOS	1803616-03 1811351-03A 0.23891	2.77e3	82.1	NO
7	7	13C6-PFDA	1803616-03 1811351-03A 0.23891	2.16e4	91.6	NO
8	8	13C7-PFUdA	1803616-03 1811351-03A 0.23891	2.36e4	88.3	NO

Name: 181126M1_86, Date: 27-Nov-2018, Time: 02:38:29, ID: 1803616-04 1811351-04A 0.23803, Description: 1811351-04A

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803616-04 1811351-04A 0.23803	1.07e4	124.8	NO
2	2	13C5-PFHxA	1803616-04 1811351-04A 0.23803	1.71e4	67.7	NO
3	3	13C3-PFHxS	1803616-04 1811351-04A 0.23803	3.05e3	91.7	NO
4	4	13C8-PFOA	1803616-04 1811351-04A 0.23803	2.42e4	79.4	NO
5	5	13C9-PFNA	1803616-04 1811351-04A 0.23803	1.45e4	66.5	NO
6	6	13C4-PFOS	1803616-04 1811351-04A 0.23803	2.77e3	82.1	NO
7	7	13C6-PFDA	1803616-04 1811351-04A 0.23803	1.69e4	71.7	NO
8	8	13C7-PFUdA	1803616-04 1811351-04A 0.23803	1.57e4	58.9	NO

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Name: 181126M1_87, Date: 27-Nov-2018, Time: 02:49:08, ID: 1803616-05 1811351-05A 0.2442, Description: 1811351-05A

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803616-05 1811351-05A 0.2442	1.17e4	137.1	NO
2	2	13C5-PFHxA	1803616-05 1811351-05A 0.2442	2.13e4	84.1	NO
3	3	13C3-PFHxS	1803616-05 1811351-05A 0.2442	2.86e3	86.0	NO
4	4	13C8-PFOA	1803616-05 1811351-05A 0.2442	2.53e4	83.0	NO
5	5	13C9-PFNA	1803616-05 1811351-05A 0.2442	1.84e4	84.2	NO
6	6	13C4-PFOS	1803616-05 1811351-05A 0.2442	2.95e3	87.6	NO
7	7	13C6-PFDA	1803616-05 1811351-05A 0.2442	1.95e4	82.9	NO
8	8	13C7-PFUdA	1803616-05 1811351-05A 0.2442	2.28e4	85.3	NO

Name: 181126M1_88, Date: 27-Nov-2018, Time: 02:59:40, ID: 1803617-01 1811352-01A 0.23776, Description: 1811352-01A

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803617-01 1811352-01A 0.23776	7.66e2	9.0	YES
2	2	13C5-PFHxA	1803617-01 1811352-01A 0.23776	1.51e3	6.0	YES
3	3	13C3-PFHxS	1803617-01 1811352-01A 0.23776	1.82e2	5.5	YES
4	4	13C8-PFOA	1803617-01 1811352-01A 0.23776	1.68e3	5.5	YES
5	5	13C9-PFNA	1803617-01 1811352-01A 0.23776	1.34e3	6.1	YES
6	6	13C4-PFOS	1803617-01 1811352-01A 0.23776	1.76e2	5.2	YES
7	7	13C6-PFDA	1803617-01 1811352-01A 0.23776	1.39e3	5.9	YES
8	8	13C7-PFUdA	1803617-01 1811352-01A 0.23776	1.57e3	5.9	YES

Name: 181126M1_89, Date: 27-Nov-2018, Time: 03:10:19, ID: 1803617-02 1811352-02A 0.24714, Description: 1811352-02A

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803617-02 1811352-02A 0.24714	1.23e4	144.2	NO
2	2	13C5-PFHxA	1803617-02 1811352-02A 0.24714	2.30e4	90.6	NO
3	3	13C3-PFHxS	1803617-02 1811352-02A 0.24714	3.01e3	90.4	NO
4	4	13C8-PFOA	1803617-02 1811352-02A 0.24714	2.53e4	83.2	NO
5	5	13C9-PFNA	1803617-02 1811352-02A 0.24714	1.92e4	88.0	NO
6	6	13C4-PFOS	1803617-02 1811352-02A 0.24714	3.10e3	92.0	NO
7	7	13C6-PFDA	1803617-02 1811352-02A 0.24714	2.04e4	86.6	NO
8	8	13C7-PFUdA	1803617-02 1811352-02A 0.24714	2.24e4	83.8	NO

Name: 181126M1_90, Date: 27-Nov-2018, Time: 03:20:52, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

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Name: 181126M1_91, Date: 27-Nov-2018, Time: 03:31:30, ID: ST181126M1-15 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181126M1-15 PFC CS3 18K1906	8.57e3	100.2	NO
2	2	13C5-PFHxA	ST181126M1-15 PFC CS3 18K1906	3.06e4	120.6	NO
3	3	13C3-PFHxS	ST181126M1-15 PFC CS3 18K1906	3.89e3	116.9	NO
4	4	13C8-PFOA	ST181126M1-15 PFC CS3 18K1906	3.59e4	118.0	NO
5	5	13C9-PFNA	ST181126M1-15 PFC CS3 18K1906	2.49e4	114.3	NO
6	6	13C4-PFOS	ST181126M1-15 PFC CS3 18K1906	4.12e3	122.0	NO
7	7	13C6-PFDA	ST181126M1-15 PFC CS3 18K1906	2.66e4	113.0	NO
8	8	13C7-PFUdA	ST181126M1-15 PFC CS3 18K1906	3.10e4	116.2	NO

Name: 181126M1_92, Date: 27-Nov-2018, Time: 03:42:04, ID: 1803618-01 1811353-01A 0.23448, Description: 1811353-01A

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803618-01 1811353-01A 0.23448	3.42e3	39.9	YES
2	2	13C5-PFHxA	1803618-01 1811353-01A 0.23448	1.37e4	54.2	NO
3	3	13C3-PFHxS	1803618-01 1811353-01A 0.23448	2.71e3	81.5	NO
4	4	13C8-PFOA	1803618-01 1811353-01A 0.23448	2.15e4	70.7	NO
5	5	13C9-PFNA	1803618-01 1811353-01A 0.23448	1.79e4	81.8	NO
6	6	13C4-PFOS	1803618-01 1811353-01A 0.23448	3.00e3	88.9	NO
7	7	13C6-PFDA	1803618-01 1811353-01A 0.23448	1.93e4	82.0	NO
8	8	13C7-PFUdA	1803618-01 1811353-01A 0.23448	2.28e4	85.6	NO

Name: 181126M1_93, Date: 27-Nov-2018, Time: 03:52:42, ID: 1803618-02 1811353-02A 0.2386, Description: 1811353-02A

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803618-02 1811353-02A 0.2386	1.02e4	119.5	NO
2	2	13C5-PFHxA	1803618-02 1811353-02A 0.2386	2.00e4	79.1	NO
3	3	13C3-PFHxS	1803618-02 1811353-02A 0.2386	2.75e3	82.7	NO
4	4	13C8-PFOA	1803618-02 1811353-02A 0.2386	2.42e4	79.6	NO
5	5	13C9-PFNA	1803618-02 1811353-02A 0.2386	1.66e4	76.0	NO
6	6	13C4-PFOS	1803618-02 1811353-02A 0.2386	2.98e3	88.4	NO
7	7	13C6-PFDA	1803618-02 1811353-02A 0.2386	1.85e4	78.7	NO
8	8	13C7-PFUdA	1803618-02 1811353-02A 0.2386	2.08e4	78.0	NO

Name: 181126M1_94, Date: 27-Nov-2018, Time: 04:03:16, ID: 1803618-03 1811353-03A 0.23967, Description: 1811353-03A

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803618-03 1811353-03A 0.23967	7.23e3	84.6	NO
2	2	13C5-PFHxA	1803618-03 1811353-03A 0.23967	1.51e4	59.4	NO
3	3	13C3-PFHxS	1803618-03 1811353-03A 0.23967	2.26e3	67.9	NO
4	4	13C8-PFOA	1803618-03 1811353-03A 0.23967	1.93e4	63.3	NO
5	5	13C9-PFNA	1803618-03 1811353-03A 0.23967	1.41e4	64.8	NO
6	6	13C4-PFOS	1803618-03 1811353-03A 0.23967	2.39e3	70.7	NO
7	7	13C6-PFDA	1803618-03 1811353-03A 0.23967	1.54e4	65.4	NO
8	8	13C7-PFUdA	1803618-03 1811353-03A 0.23967	1.82e4	68.2	NO

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Name: 181126M1_95, Date: 27-Nov-2018, Time: 04:13:54, ID: 1803618-04 1811353-04A 0.24522, Description: 1811353-04A

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803618-04 1811353-04A 0.24522	1.20e4	140.0	NO
2	2	13C5-PFHxA	1803618-04 1811353-04A 0.24522	2.21e4	87.3	NO
3	3	13C3-PFHxS	1803618-04 1811353-04A 0.24522	2.92e3	87.7	NO
4	4	13C8-PFOA	1803618-04 1811353-04A 0.24522	2.61e4	85.7	NO
5	5	13C9-PFNA	1803618-04 1811353-04A 0.24522	1.71e4	78.4	NO
6	6	13C4-PFOS	1803618-04 1811353-04A 0.24522	2.99e3	88.5	NO
7	7	13C6-PFDA	1803618-04 1811353-04A 0.24522	1.92e4	81.7	NO
8	8	13C7-PFUdA	1803618-04 1811353-04A 0.24522	2.33e4	87.5	NO

Name: 181126M1_96, Date: 27-Nov-2018, Time: 04:24:26, ID: 1803620-01 1811354-01A 0.23589, Description: 1811354-01A

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803620-01 1811354-01A 0.23589	7.15e3	83.6	NO
2	2	13C5-PFHxA	1803620-01 1811354-01A 0.23589	1.26e4	49.7	YES
3	3	13C3-PFHxS	1803620-01 1811354-01A 0.23589	2.30e3	69.0	NO
4	4	13C8-PFOA	1803620-01 1811354-01A 0.23589	1.46e4	47.9	YES
5	5	13C9-PFNA	1803620-01 1811354-01A 0.23589	1.05e4	48.0	YES
6	6	13C4-PFOS	1803620-01 1811354-01A 0.23589	2.26e3	66.9	NO
7	7	13C6-PFDA	1803620-01 1811354-01A 0.23589	1.17e4	49.7	YES
8	8	13C7-PFUdA	1803620-01 1811354-01A 0.23589	1.42e4	53.3	NO

Name: 181126M1_97, Date: 27-Nov-2018, Time: 04:35:05, ID: 1803620-02 1811354-02A 0.22278, Description: 1811354-02A

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803620-02 1811354-02A 0.22278	8.53e3	99.8	NO
2	2	13C5-PFHxA	1803620-02 1811354-02A 0.22278	1.61e4	63.4	NO
3	3	13C3-PFHxS	1803620-02 1811354-02A 0.22278	2.10e3	63.2	NO
4	4	13C8-PFOA	1803620-02 1811354-02A 0.22278	1.87e4	61.5	NO
5	5	13C9-PFNA	1803620-02 1811354-02A 0.22278	1.32e4	60.7	NO
6	6	13C4-PFOS	1803620-02 1811354-02A 0.22278	2.16e3	64.2	NO
7	7	13C6-PFDA	1803620-02 1811354-02A 0.22278	1.44e4	61.2	NO
8	8	13C7-PFUdA	1803620-02 1811354-02A 0.22278	1.53e4	57.4	NO

Name: 181126M1_98, Date: 27-Nov-2018, Time: 04:45:37, ID: 1803626-02 16-MW-06-SA2 0.1197, Description: 16-MW-06-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803626-02 16-MW-06-SA2 0.1197	1.45e4	169.9	YES
2	2	13C5-PFHxA	1803626-02 16-MW-06-SA2 0.1197	2.61e4	103.0	NO
3	3	13C3-PFHxS	1803626-02 16-MW-06-SA2 0.1197	3.36e3	101.1	NO
4	4	13C8-PFOA	1803626-02 16-MW-06-SA2 0.1197	2.80e4	92.0	NO
5	5	13C9-PFNA	1803626-02 16-MW-06-SA2 0.1197	2.01e4	92.3	NO
6	6	13C4-PFOS	1803626-02 16-MW-06-SA2 0.1197	3.78e3	111.9	NO
7	7	13C6-PFDA	1803626-02 16-MW-06-SA2 0.1197	2.19e4	92.9	NO
8	8	13C7-PFUdA	1803626-02 16-MW-06-SA2 0.1197	2.49e4	93.1	NO

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Name: 181126M1_99, Date: 27-Nov-2018, Time: 04:56:15, ID: 1803626-01@5X 16-HS-03-SA2 0.11792, Description: 16-HS-03-SA2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803626-01@5X 16-HS-03-SA2 0.11792	2.60e3	30.4	YES
2	2	13C5-PFHxA	1803626-01@5X 16-HS-03-SA2 0.11792	4.19e3	16.5	YES
3	3	13C3-PFHxS	1803626-01@5X 16-HS-03-SA2 0.11792	6.78e2	20.4	YES
4	4	13C8-PFOA	1803626-01@5X 16-HS-03-SA2 0.11792	5.01e3	16.5	YES
5	5	13C9-PFNA	1803626-01@5X 16-HS-03-SA2 0.11792	3.39e3	15.5	YES
6	6	13C4-PFOS	1803626-01@5X 16-HS-03-SA2 0.11792	7.05e2	20.9	YES
7	7	13C6-PFDA	1803626-01@5X 16-HS-03-SA2 0.11792	3.73e3	15.9	YES
8	8	13C7-PFUdA	1803626-01@5X 16-HS-03-SA2 0.11792	4.35e3	16.3	YES

Name: 181126M1_100, Date: 27-Nov-2018, Time: 05:06:54, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

Name: 181126M1_101, Date: 27-Nov-2018, Time: 05:17:27, ID: ST181126M1-16 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181126M1-16 PFC CS3 18K1906	7.87e3	92.1	NO
2	2	13C5-PFHxA	ST181126M1-16 PFC CS3 18K1906	2.37e4	93.6	NO
3	3	13C3-PFHxS	ST181126M1-16 PFC CS3 18K1906	2.89e3	87.0	NO
4	4	13C8-PFOA	ST181126M1-16 PFC CS3 18K1906	2.67e4	87.8	NO
5	5	13C9-PFNA	ST181126M1-16 PFC CS3 18K1906	1.99e4	91.2	NO
6	6	13C4-PFOS	ST181126M1-16 PFC CS3 18K1906	3.11e3	92.1	NO
7	7	13C6-PFDA	ST181126M1-16 PFC CS3 18K1906	2.15e4	91.2	NO
8	8	13C7-PFUdA	ST181126M1-16 PFC CS3 18K1906	2.56e4	96.1	NO

Vista Analytical Laboratory

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-IB.qld

Last Altered: Monday, November 26, 2018 14:38:52 Pacific Standard Time
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Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112618.mdb 26 Nov 2018 13:53:04
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Name: 181126M1_12, Date: 26-Nov-2018, Time: 13:32:01, ID: IPA, Description: IPA

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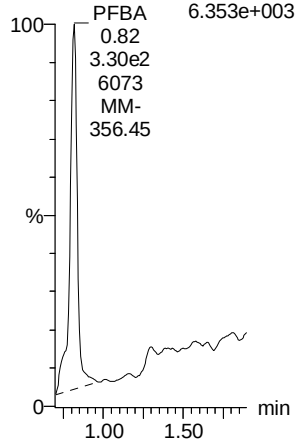

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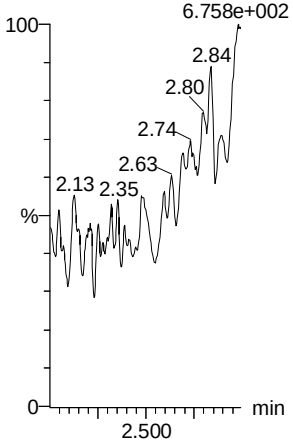

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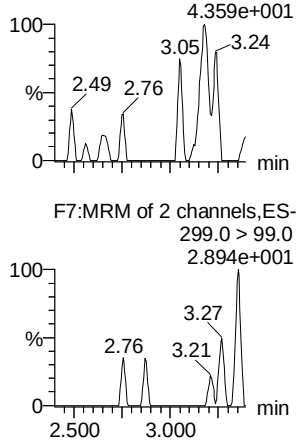

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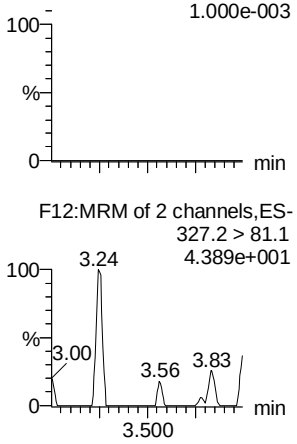

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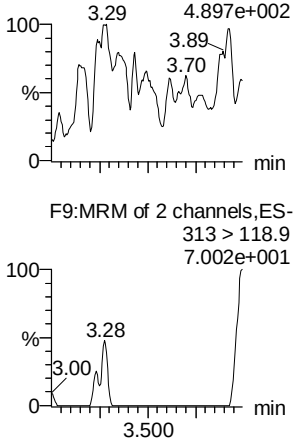

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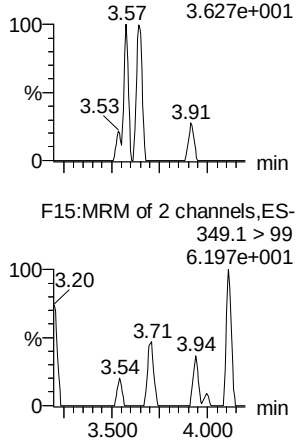

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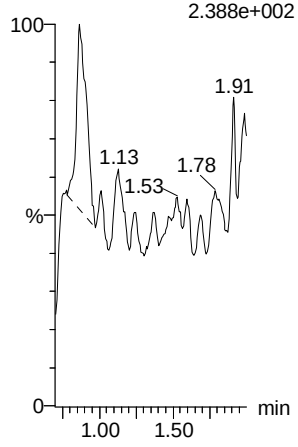

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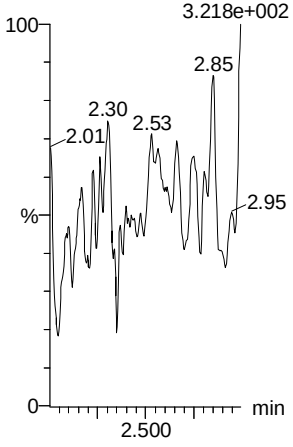

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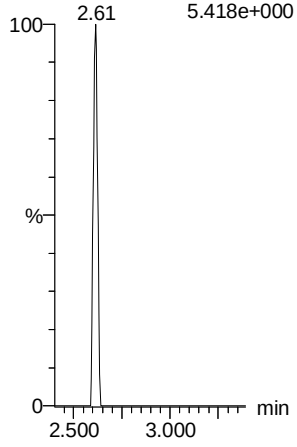

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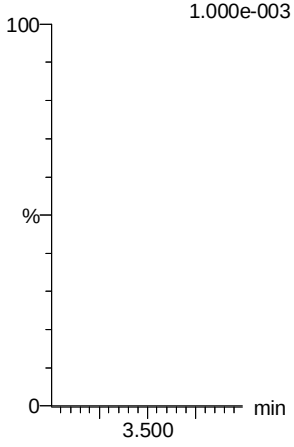

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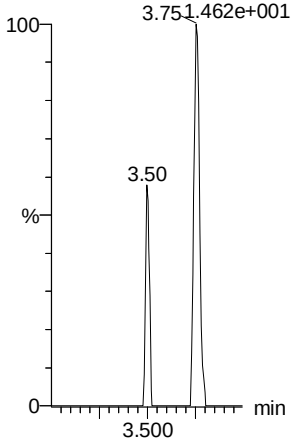

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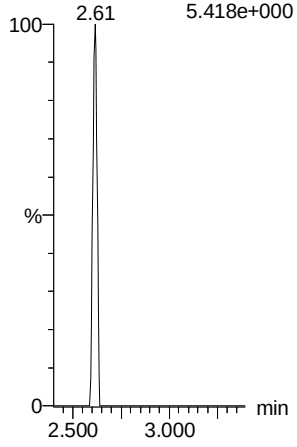

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Last Altered: Monday, November 26, 2018 14:38:52 Pacific Standard Time
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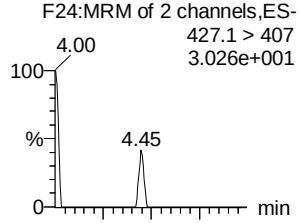
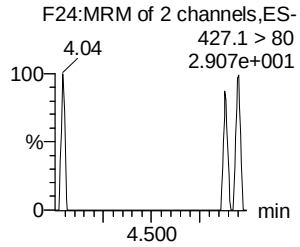
Name: 181126M1_12, Date: 26-Nov-2018, Time: 13:32:01, ID: IPA, Description: IPA

6:2 FTS





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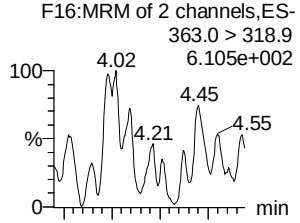

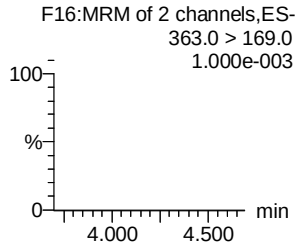

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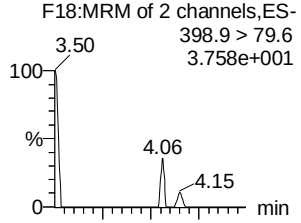

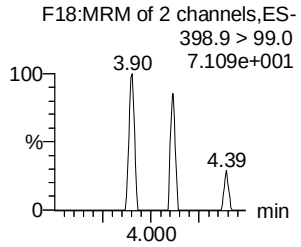

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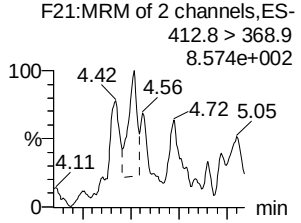

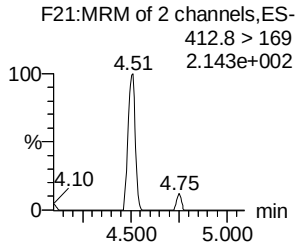

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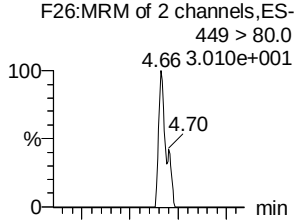

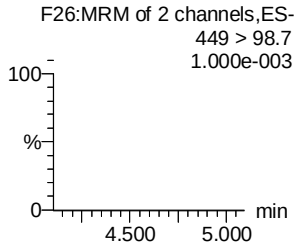

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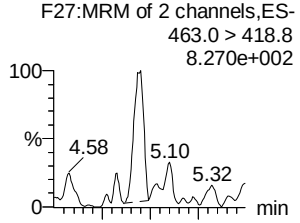
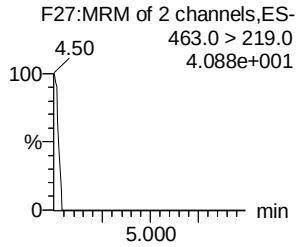
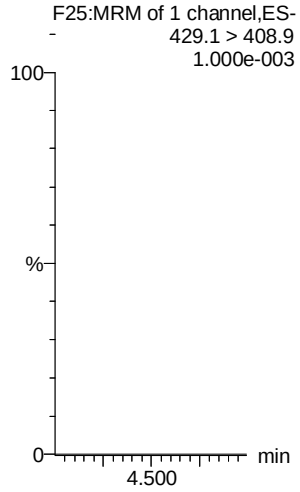




13C2-6:2 FTS



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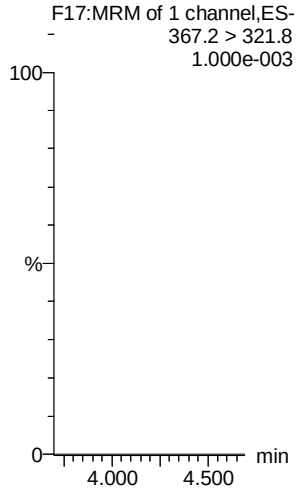

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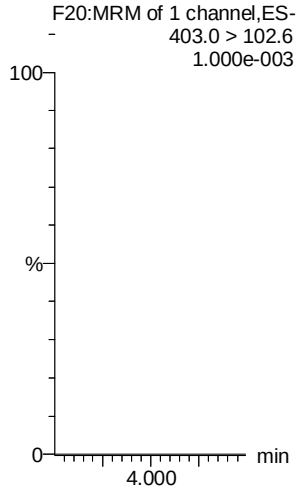

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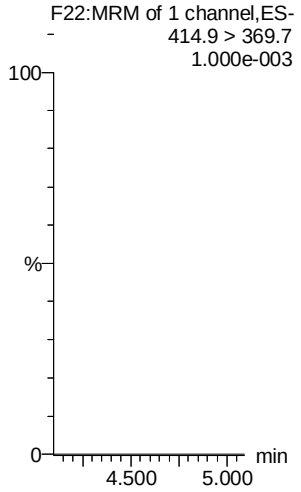

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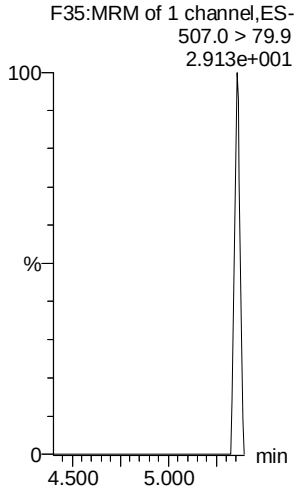
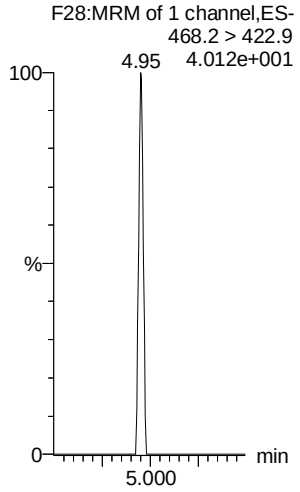


13C5-PFNA



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Last Altered: Monday, November 26, 2018 14:38:52 Pacific Standard Time
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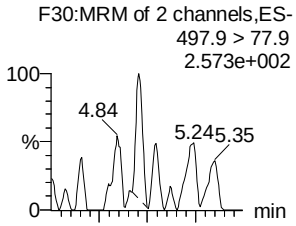
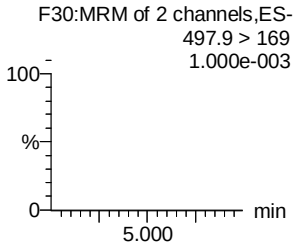
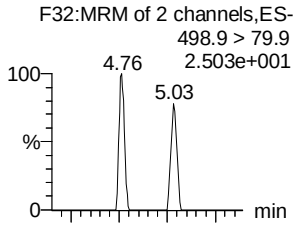
Name: 181126M1_12, Date: 26-Nov-2018, Time: 13:32:01, ID: IPA, Description: IPA

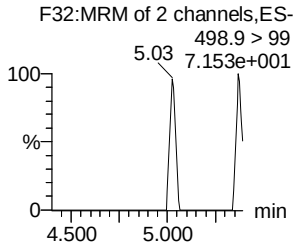
PFOSA





L-PFOS





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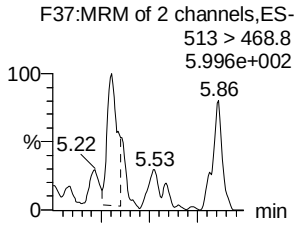
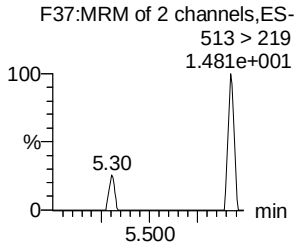
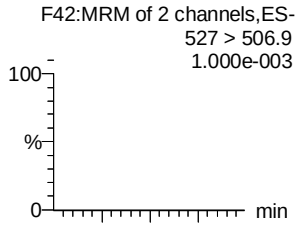
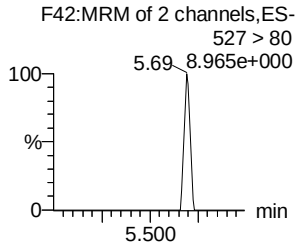




8:2 FTS





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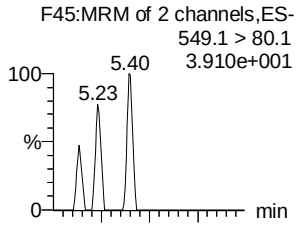

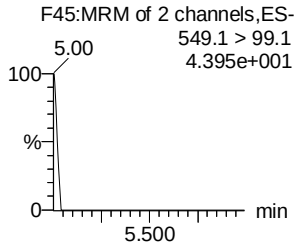

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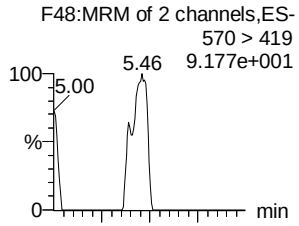

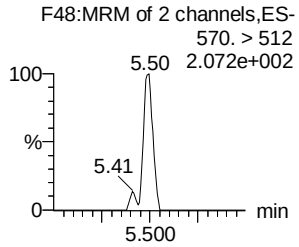

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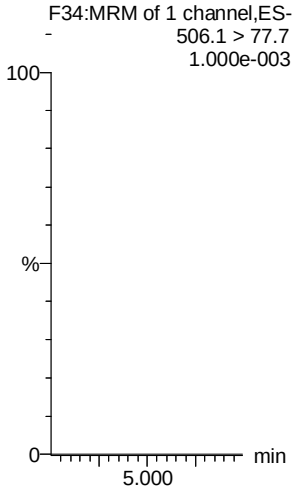

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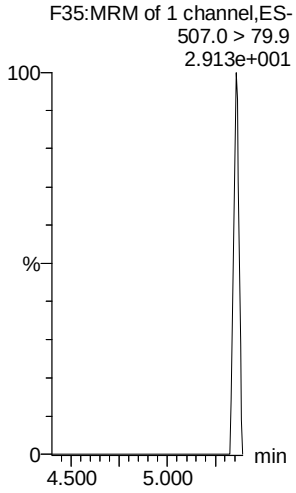

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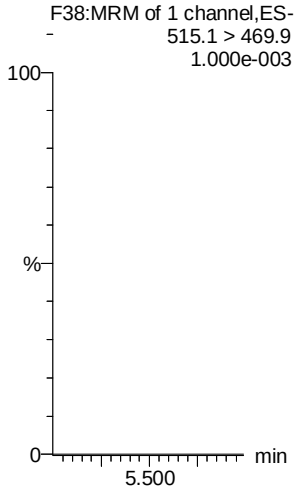

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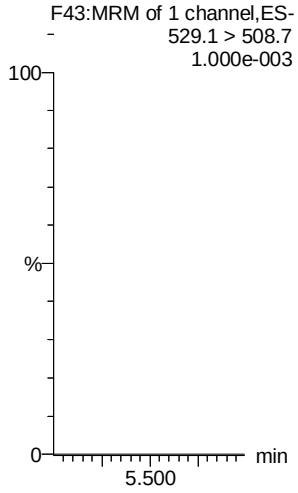

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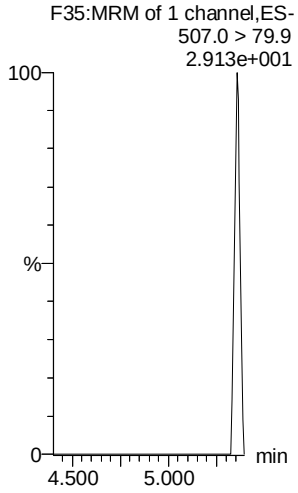

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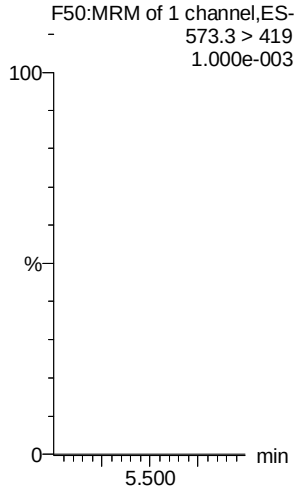

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Last Altered: Monday, November 26, 2018 14:38:52 Pacific Standard Time
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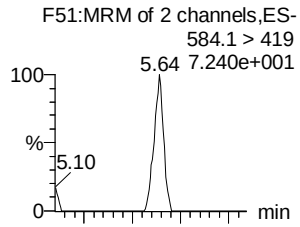
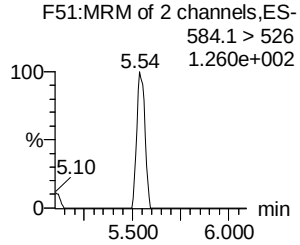
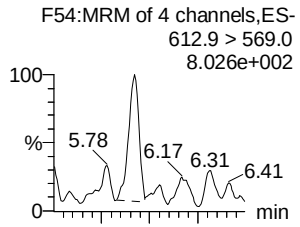
Name: 181126M1_12, Date: 26-Nov-2018, Time: 13:32:01, ID: IPA, Description: IPA

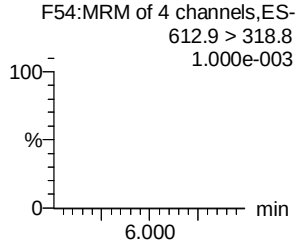
L-EtFOSAA



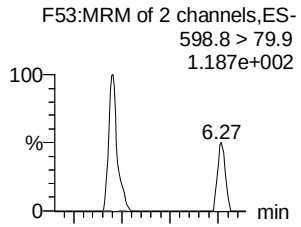


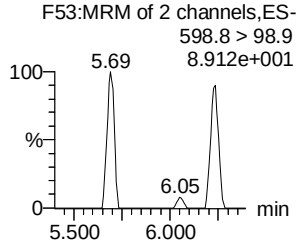
PFDoA



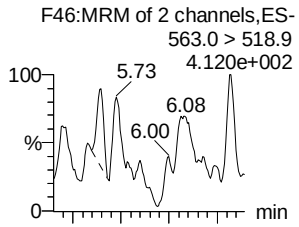


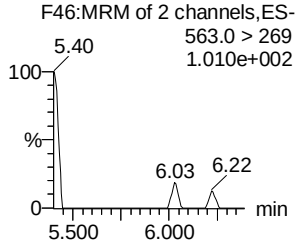
PFDS



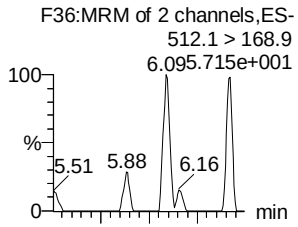


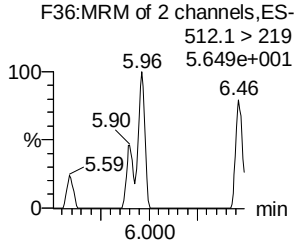
PFUdA



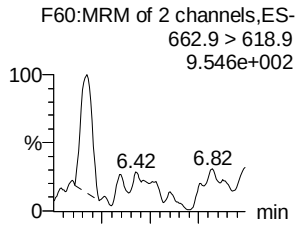


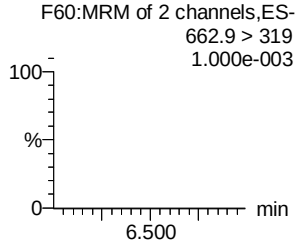
N-MeFOSA



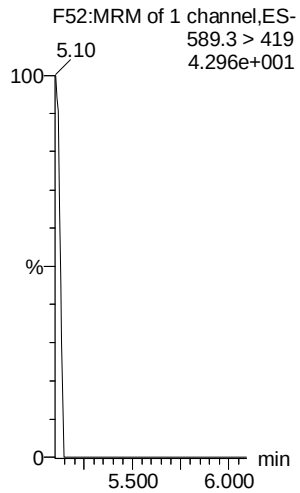


PFTrDA

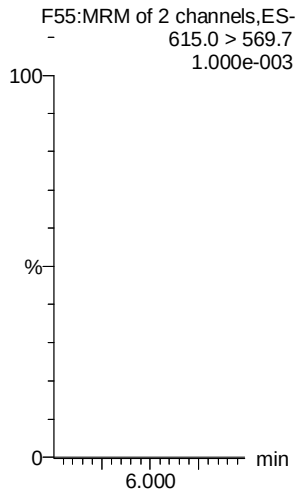




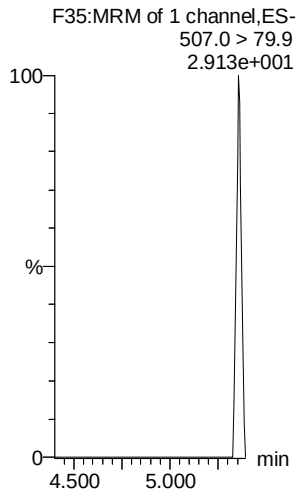
d5-N-EtFOSAA



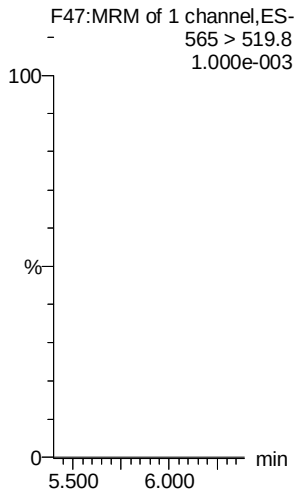
13C2-PFDoA



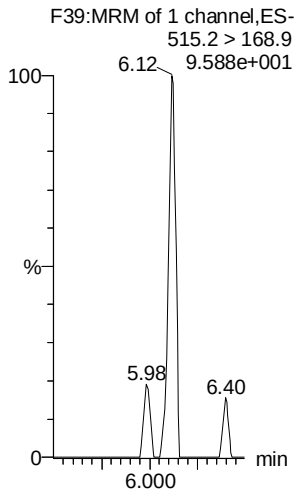
13C8-PFOS



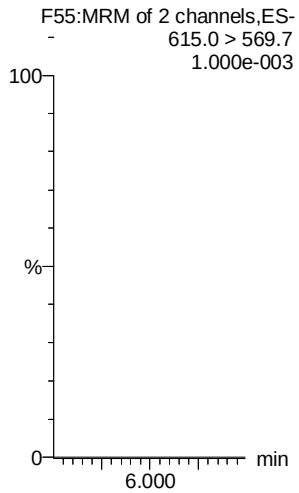
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA



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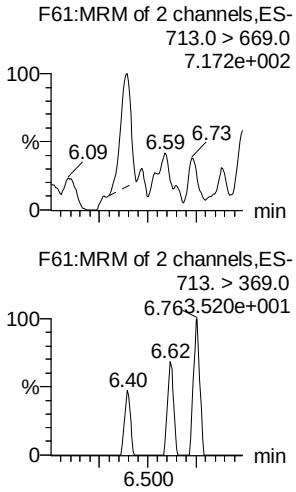
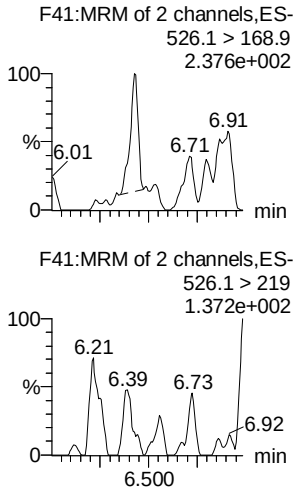
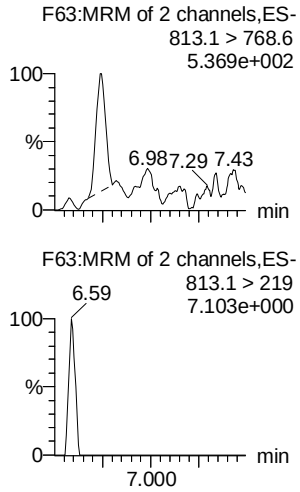
PFTeDA



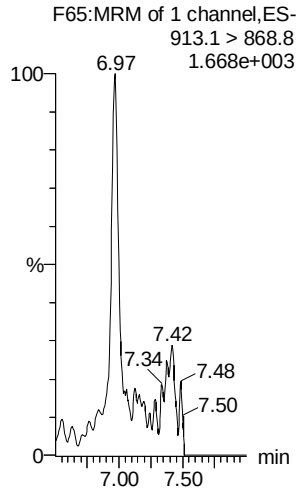
N-EtFOSA



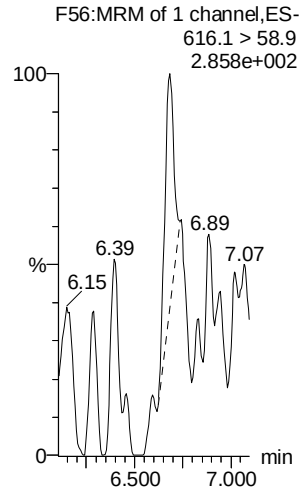
PFHxDA



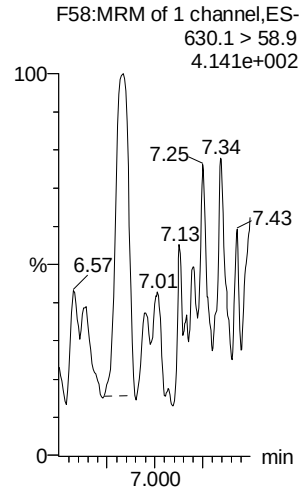
PFODA



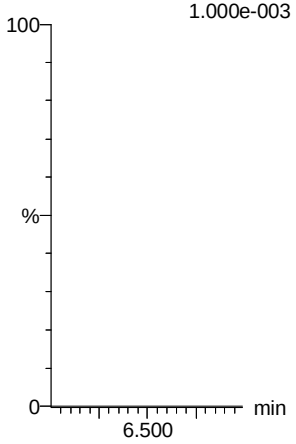
N-MeFOSE



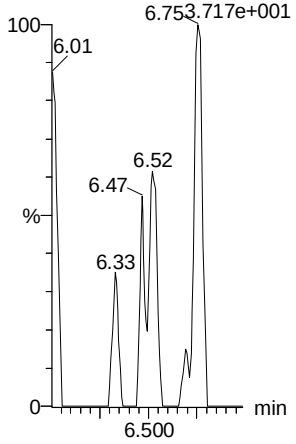
N-EtFOSE



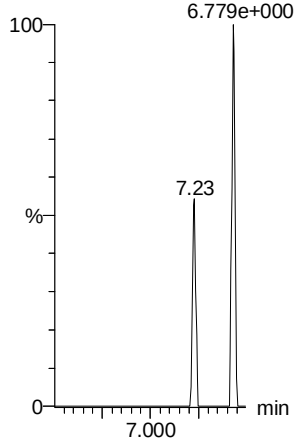
13C2-PFTeDA



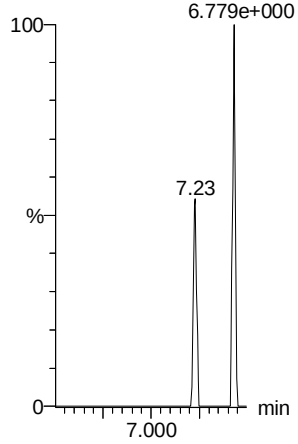
d5-N-ETFOSA



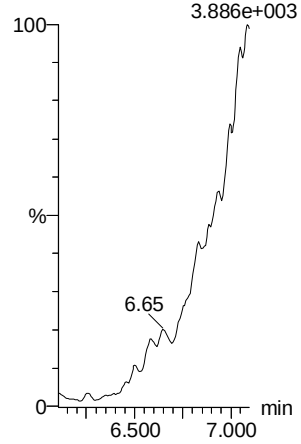
13C2-PFHxDA



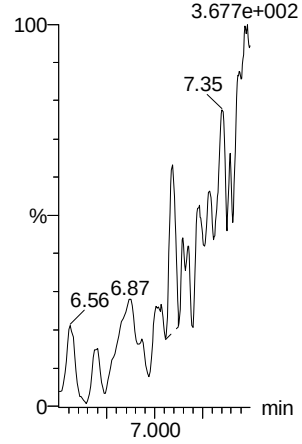
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE



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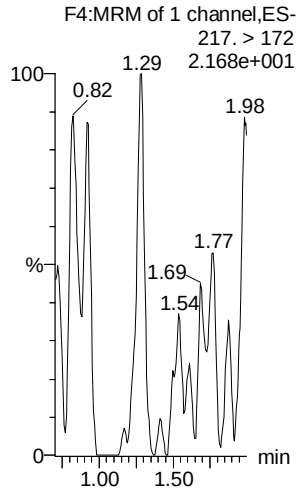
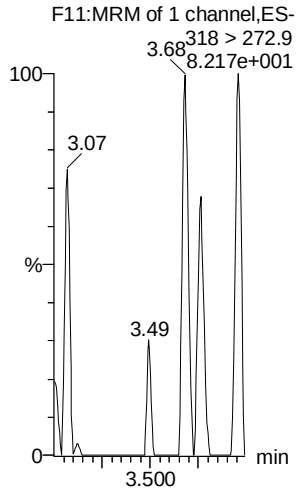
Name: 181126M1_12, Date: 26-Nov-2018, Time: 13:32:01, ID: IPA, Description: IPA

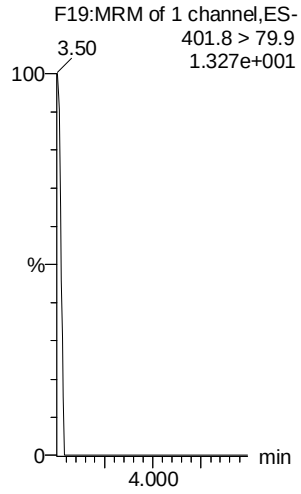
13C4-PFBA



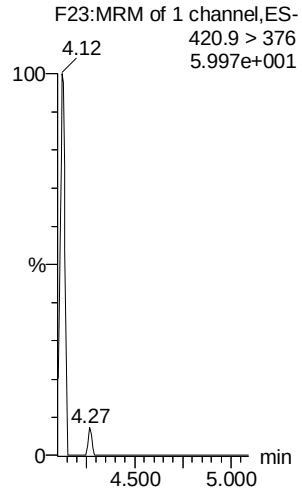
13C5-PFHxA



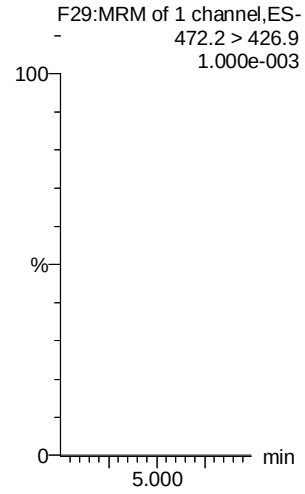
13C3-PFHxS



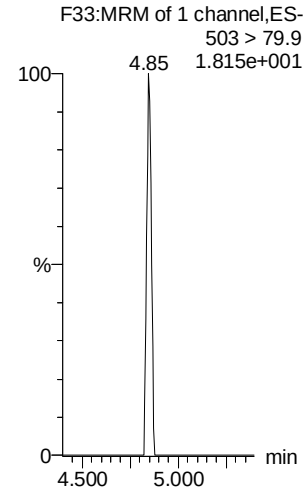
13C8-PFOA



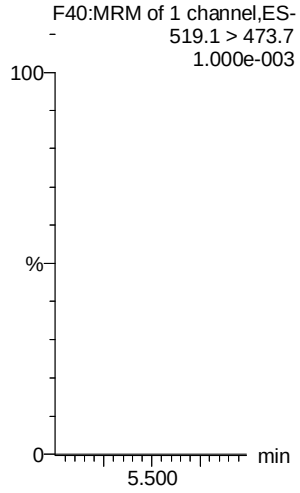
13C9-PFNA



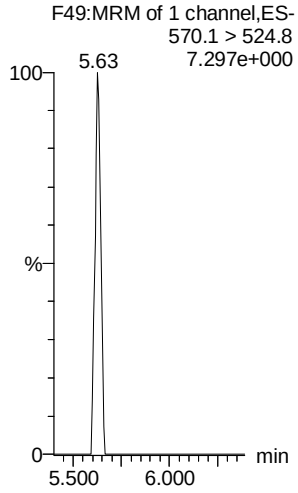
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Dataset: Z:\Projects\PFAS.PRO\Results\181126M1\181126M1-91.qld

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Name: 181126M1_91, Date: 27-Nov-2018, Time: 03:31:30, ID: ST181126M1-15 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	6169.973	6800.574	1.00	1.20	11.341	9.7	96.8	NO		
2	2	PFPeA	263.1 > 218.9	10334.149	13790.093	1.00	2.43	9.367	9.8	98.3	NO		
3	3	PFBS	299.0 > 79.7	3003.818	1827.487	1.00	2.77	20.546	10.0	99.6	NO	2.796	NO
4	4	4:2 FTS	327.2>307.2	4629.165	5476.633	1.00	3.25	10.566	10.1	101.2	NO	1.692	NO
5	5	PFHxA	313 > 269	22177.900	11965.929	1.00	3.33	9.267	9.8	97.8	NO	14.960	NO
6	6	PFPeS	349.1>80.1	2747.468	1827.487	1.00	3.55	18.793	11.3	112.6	NO	1.546	NO
7	36	13C3-PFBA	216.1 > 171.8	6800.574	8568.312	1.00	1.21	9.921	12.6	100.8	NO		
8	37	13C3-PFPeA	266. > 221.8	13790.093	30552.445	1.00	2.43	5.642	10.1	81.2	NO		
9	38	13C3-PFBS	302. > 98.8	1827.487	3889.658	1.00	2.77	5.873	10.9	87.5	NO		
10	39	13C2-4:2 FTS	329.2>308.9	5476.633	3889.658	1.00	3.25	17.600	11.9	95.3	NO		
11	40	13C2-PFHxA	315 > 270	11965.929	30552.445	1.00	3.33	4.896	5.0	99.1	NO		
12	38	13C3-PFBS	302. > 98.8	1827.487	3889.658	1.00	2.77	5.873	10.9	87.5	NO		
13	-1												
14	10	6:2 FTS	427.1 > 407	5452.438	5691.975	1.00	4.43	11.974	9.6	96.1	NO	2.900	NO
15	7	PFHpA	363.0 > 318.9	15883.951	14976.601	1.00	4.00	13.257	10.1	100.6	NO	14.772	NO
16	8	L-PFHxS	398.9 > 79.6	2587.514	1795.016	1.00	4.14	18.019	9.3	92.6	NO	1.626	NO
17	11	L-PFOA	412.8 > 368.9	29016.121	26510.617	1.00	4.49	13.681	10.0	99.6	NO	3.339	NO
18	13	PFHpS	449 > 80.0	3228.497	4172.227	1.00	4.60	9.673	10.3	103.2	NO	1.971	NO
19	14	PFNA	463.0 > 418.8	24869.850	24928.471	1.00	4.92	12.471	9.9	99.5	NO	4.555	NO
20	43	13C2-6:2 FTS	429.1 > 408.9	5691.975	4115.953	1.00	4.43	17.286	11.1	88.5	NO		
21	41	13C4-PFHpA	367.2 > 321.8	14976.601	30552.445	1.00	4.00	6.127	11.4	91.4	NO		
22	42	18O2-PFHxS	403.0 > 102.6	1795.016	3889.658	1.00	4.14	5.769	12.9	103.0	NO		
23	44	13C2-PFOA	414.9 > 369.7	26510.617	35887.938	1.00	4.49	9.234	12.2	97.9	NO		
24	47	13C8-PFOS	507.0 > 79.9	4172.227	4115.953	1.00	5.01	12.671	12.2	97.3	NO		
25	45	13C5-PFNA	468.2 > 422.9	24928.471	24925.561	1.00	4.92	12.501	12.6	101.0	NO		
26	-1												
27	15	PFOSA	497.9 > 77.9	3076.208	3557.312	1.00	4.96	10.809	9.5	95.0	NO	29.366	NO
28	16	L-PFOS	498.9 > 79.9	3255.422	4172.227	1.00	5.01	9.753	8.9	88.6	NO	1.744	NO
29	18	PFDA	513 > 468.8	25307.688	24383.746	1.00	5.30	12.974	9.9	98.7	NO	5.360	NO
30	19	8:2 FTS	527 > 506.9	4752.558	3939.462	1.00	5.27	15.080	10.0	99.7	NO	2.316	NO
31	20	PFNS	549.1 > 80.1	2438.047	4172.227	1.00	5.36	7.304	9.5	95.2	NO	1.662	NO
32	21	L-MeFOSAA	570 > 419	9682.374	4199.309	1.00	5.46	28.821	9.9	99.1	NO	2.688	NO
33	46	13C8-PFOSA	506.1 > 77.7	3557.312	30995.656	1.00	4.96	1.435	14.8	118.2	NO		
34	47	13C8-PFOS	507.0 > 79.9	4172.227	4115.953	1.00	5.01	12.671	12.2	97.3	NO		
35	48	13C2-PFDA	515.1 > 469.9	24383.746	26588.324	1.00	5.30	11.464	12.7	101.6	NO		
36	49	13C2-8:2 FTS	529.1 > 508.7	3939.462	4115.953	1.00	5.27	11.964	10.2	81.3	NO		

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Name: 181126M1_91, Date: 27-Nov-2018, Time: 03:31:30, ID: ST181126M1-15 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
37	47	13C8-PFOS	507.0 > 79.9	4172.227	4115.953	1.00	5.01	12.671	12.2	97.3	NO		
38	50	d3-N-MeFOSAA	573.3 > 419	4199.309	30995.656	1.00	5.45	1.694	12.6	100.7	NO		
39	-1												
40	23	L-EtFOSAA	584.1 > 419	8160.160	6480.551	1.00	5.61	15.740	9.7	97.1	NO	1.409	NO
41	27	PFDoA	612.9 > 569.0	25061.932	25982.092	1.00	5.91	12.057	10.3	103.3	NO	8.492	NO
42	26	PFDS	598.8 > 79.9	3122.915	4172.227	1.00	5.67	9.356	8.9	89.2	NO	1.652	NO
43	25	PFUdA	563.0 > 518.9	21812.430	28762.129	1.00	5.62	9.480	9.7	97.2	NO	9.588	NO
44	28	N-MeFOSA	512.1 > 168.9	4634.172	13477.869	1.00	5.89	51.575	53.7	107.4	NO	1.446	NO
45	29	PFTrDA	662.9 > 618.9	24879.637	25982.092	1.00	6.16	11.970	10.3	103.0	NO	24.862	NO
46	52	d5-N-EtFOSAA	589.3 > 419	6480.551	30995.656	1.00	5.61	2.613	14.1	112.9	NO		
47	53	13C2-PFDoA	615.0 > 569.7	25982.092	26588.324	1.00	5.91	12.215	11.7	93.4	NO		
48	47	13C8-PFOS	507.0 > 79.9	4172.227	4115.953	1.00	5.01	12.671	12.2	97.3	NO		
49	51	13C2-PFUdA	565 > 519.8	28762.129	30995.656	1.00	5.63	11.599	12.1	96.9	NO		
50	54	d3-N-MeFOSA	515.2 > 168.9	13477.869	30995.656	1.00	5.92	5.435	148.1	98.7	NO		
51	53	13C2-PFDoA	615.0 > 569.7	25982.092	26588.324	1.00	5.91	12.215	11.7	93.4	NO		
52	-1												
53	30	PFTeDA	713.0 > 669.0	22642.529	16280.648	1.00	6.38	17.385	10.6	106.4	NO	12.527	NO
54	31	N-EtFOSA	526.1 > 168.9	6497.419	23992.197	1.00	6.39	40.622	46.2	92.5	NO	1.543	NO
55	32	PFHxDA	813.1 > 768.6	5166.453	7891.711	1.00	6.72	3.273	8.1	81.2	NO	10.117	NO
56	33	PFODA	913.1 > 868.8	13268.049	7891.711	1.00	6.96	8.406	11.9	119.2	NO		
57	34	N-MeFOSE	616.1 > 58.9	3665.378	11802.788	1.00	6.68	46.583	51.4	102.8	NO		
58	35	N-EtFOSE	630.1 > 58.9	4139.881	11232.451	1.00	6.83	55.285	48.1	96.2	NO		
59	55	13C2-PFTeDA	715.1 > 669.7	16280.648	30995.656	1.00	6.38	6.566	11.6	92.6	NO		
60	56	d5-N-ETFOSA	531.1 > 168.9	23992.197	30995.656	1.00	6.42	9.676	165.9	110.6	NO		
61	57	13C2-PFHxDA	815 > 769.7	7891.711	30995.656	1.00	6.72	3.183	4.3	85.4	NO		
62	57	13C2-PFHxDA	815 > 769.7	7891.711	30995.656	1.00	6.72	3.183	4.3	85.4	NO		
63	58	d7-N-MeFOSE	623.1 > 58.9	11802.788	30995.656	1.00	6.68	4.760	150.4	100.3	NO		
64	59	d9-N-EtFOSE	639.2 > 58.8	11232.451	30995.656	1.00	6.83	4.530	151.9	101.2	NO		
65	-1												
66	60	13C4-PFBA	217. > 172	8568.312	8568.312	1.00	1.21	12.500	12.5	100.0	NO		
67	61	13C5-PFHxA	318 > 272.9	30552.445	30552.445	1.00	3.33	12.500	12.5	100.0	NO		
68	62	13C3-PFHxS	401.8 > 79.9	3889.658	3889.658	1.00	4.14	12.500	12.5	100.0	NO		
69	63	13C8-PFOA	420.9 > 376	35887.938	35887.938	1.00	4.49	12.500	12.5	100.0	NO		
70	64	13C9-PFNA	472.2 > 426.9	24925.561	24925.561	1.00	4.92	12.500	12.5	100.0	NO		
71	65	13C4-PFOS	503 > 79.9	4115.953	4115.953	1.00	5.01	12.500	12.5	100.0	NO		
72	66	13C6-PFDA	519.1 > 473.7	26588.324	26588.324	1.00	5.30	12.500	12.5	100.0	NO		

Dataset: Z:\Projects\PFAS.PRO\Results\181126M1\181126M1-91.qld

Last Altered: Tuesday, November 27, 2018 10:07:32 Pacific Standard Time
Printed: Tuesday, November 27, 2018 10:08:22 Pacific Standard Time

Name: 181126M1_91, Date: 27-Nov-2018, Time: 03:31:30, ID: ST181126M1-15 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
73	67	13C7-PFUdA	570.1 > 524.8	30995.656	30995.656	1.00	5.63	12.500	12.5	100.0	NO		

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Dataset: Untitled

Last Altered: Tuesday, November 27, 2018 08:29:26 Pacific Standard Time
Printed: Tuesday, November 27, 2018 08:29:38 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112618.mdb 26 Nov 2018 13:53:04
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	181126M1_1	IPA	26-Nov-18	11:35:18
2	2	181126M1_2	ST181126M2-1 PFC CS-2 18K1901	26-Nov-18	11:45:59
3	3	181126M1_3	ST181126M2-2 PFC CS-1 18K1902	26-Nov-18	11:56:32
4	4	181126M1_4	ST181126M2-3 PFC CS0 18K1903	26-Nov-18	12:07:10
5	5	181126M1_5	ST181126M2-4 PFC CS1 18K1904	26-Nov-18	12:17:48
6	6	181126M1_6	ST181126M2-5 PFC CS2 18K1905	26-Nov-18	12:28:21
7	7	181126M1_7	ST181126M2-6 PFC CS3 18K1906	26-Nov-18	12:38:59
8	8	181126M1_8	ST181126M2-7 PFC CS4 1810907	26-Nov-18	12:49:38
9	9	181126M1_9	ST181126M2-8 PFC CS5 18K1908	26-Nov-18	13:00:11
10	10	181126M1_10	ST181126M2-9 PFC CS6 18K1909	26-Nov-18	13:10:49
11	11	181126M1_11	ST181126M2-10 PFC CS7 18K1910	26-Nov-18	13:21:23
12	12	181126M1_12	IPA	26-Nov-18	13:32:01
13	13	181126M1_13	ICV181126M2-1 PFC ICV 18K1911	26-Nov-18	13:42:34
14	14	181126M1_14	IPA	26-Nov-18	13:53:12
15	15	181126M1_15	B8K0097-BSD1 LCSD 0.125	26-Nov-18	14:03:48
16	16	181126M1_16	1803629-06 REEPDW585 0.11471	26-Nov-18	14:14:24
17	17	181126M1_17	B8K0152-BS1 OPR 0.25	26-Nov-18	14:25:02
18	18	181126M1_18	B8K0152-BLK1 Method Blank 0.25	26-Nov-18	14:35:34
19	19	181126M1_19	1803729-01 WMP1811191026JSJ 0.23788	26-Nov-18	14:46:12
20	20	181126M1_20	1803729-02 WMP1811191035JSJ 0.23637	26-Nov-18	14:56:45
21	21	181126M1_21	1803729-03 WMP1811191043JSJ 0.23365	26-Nov-18	15:07:48
22	22	181126M1_22	1803730-01 WEF1811191106JSJ 0.24116	26-Nov-18	15:18:26
23	23	181126M1_23	B8K0144-BS1 OPR 0.125	26-Nov-18	15:29:49
24	24	181126M1_24	B8K0144-BSD1 LCSD 0.125	26-Nov-18	15:41:20
25	25	181126M1_25	B8K0144-BLK1 Method Blank 0.125	26-Nov-18	15:51:53
26	26	181126M1_26	1803659-01 A1-MW-07-SA2 0.11704	26-Nov-18	16:02:31
27	27	181126M1_27	1803659-02 A1-MW-23-SA2 0.1178	26-Nov-18	16:13:04
28	28	181126M1_28	1803659-03 A1-MW-25-SA2 0.11426	26-Nov-18	16:23:43
29	29	181126M1_29	1803659-04 A1-MW-27-SA2 0.11731	26-Nov-18	16:34:21
30	30	181126M1_30	1803659-05 A1-MW-55-SA2 0.11846	26-Nov-18	16:44:53
31	31	181126M1_31	IPA	26-Nov-18	16:55:32
32	32	181126M1_32	ST181126M1-11 PFC CS3 18K1906	26-Nov-18	17:06:06

(A) dm 11/27/18

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Dataset: Untitled

Last Altered: Tuesday, November 27, 2018 08:29:26 Pacific Standard Time
Printed: Tuesday, November 27, 2018 08:29:38 Pacific Standard Time

Compound name: PFBA

	#Name	ID	Acq.Date	Acq.Time
33	33 181126M1_33	1803659-06 A1-MW-54-SA2 0.11683	26-Nov-18	17:16:44
34	34 181126M1_34	1803659-07 FRB-20181114 0.11549	26-Nov-18	17:27:17
35	35 181126M1_35	B8K0135-BS1 OPR 1	26-Nov-18	17:37:55
36	36 181126M1_36	B8K0135-BLK1 Method Blank 1	26-Nov-18	17:48:34
37	37 181126M1_37	1803551-03 BS1810290940GC 5	26-Nov-18	17:59:07
38	38 181126M1_38	1803581-03 BS1810311220GC 5.1	26-Nov-18	18:09:45
39	39 181126M1_39	1803581-04 BS1810311230GC 5.08	26-Nov-18	18:20:24
40	40 181126M1_40	B8K0049-BS1 OPR 1	26-Nov-18	18:30:57
41	41 181126M1_41	B8K0049-BLK1 Method Blank 1	26-Nov-18	18:41:36
42	42 181126M1_42	1803520-01 HS-SB-939 (3-5)-EPA 1.51	26-Nov-18	18:52:09
43	43 181126M1_43	1803553-04 BS1810291445GC 3.51	26-Nov-18	19:02:47
44	44 181126M1_44	1803575-06 BS1810301040GC 1.48	26-Nov-18	19:13:20
45	45 181126M1_45	1803577-05 BS1810301620GC 5.94	26-Nov-18	19:23:58
46	46 181126M1_46	B8K0118-BS1 OPR 0.125	26-Nov-18	19:34:37
47	47 181126M1_47	B8K0118-BLK1 Method Blank 0.125	26-Nov-18	19:45:09
48	48 181126M1_48	1803640-01 MW-2A 0.11056	26-Nov-18	19:55:48
49	49 181126M1_49	1803640-02 MW-3 0.1163	26-Nov-18	20:06:21
50	50 181126M1_50	IPA	26-Nov-18	20:16:59
51	51 181126M1_51	ST181126M1-12 PFC CS3 18K1906	26-Nov-18	20:27:33
52	52 181126M1_52	1803640-03 MW-4 0.11182	26-Nov-18	20:38:11
53	53 181126M1_53	1803640-04 TS Well 0.11479	26-Nov-18	20:48:44
54	54 181126M1_54	1803641-01 MW3S 0.11429	26-Nov-18	20:59:22
55	55 181126M1_55	1803641-02 MW6 0.11494	26-Nov-18	21:09:56
56	56 181126M1_56	1803641-03 MW7 0.11164	26-Nov-18	21:20:34
57	57 181126M1_57	1803641-04 SW2 0.11314	26-Nov-18	21:31:07
58	58 181126M1_58	1803646-01 MW-1 0.11872	26-Nov-18	21:41:46
59	59 181126M1_59	1803646-02 MW-4S 0.11549	26-Nov-18	21:52:19
60	60 181126M1_60	1803646-03 Thorne 0.11815	26-Nov-18	22:02:57
61	61 181126M1_61	1803647-01 MW-1 0.11071	26-Nov-18	22:13:30
62	62 181126M1_62	IPA	26-Nov-18	22:24:08
63	63 181126M1_63	ST181126M1-13 PFC CS3 18K1906	26-Nov-18	22:34:41
64	64 181126M1_64	1803647-02 MW-3 0.11209	26-Nov-18	22:45:19
65	65 181126M1_65	1803651-01 MW-1 0.11903	26-Nov-18	22:55:52
66	66 181126M1_66	1803651-02 MW-4 0.11498	26-Nov-18	23:06:31
67	67 181126M1_67	1803651-03 MW-3 0.11883	26-Nov-18	23:17:03
68	68 181126M1_68	1803652-01 MW-1 0.11504	26-Nov-18	23:27:42

Quantify Compound Summary Report **MassLynx MassLynx V4.1 SCN945 SCN960**
Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Tuesday, November 27, 2018 08:29:26 Pacific Standard Time
Printed: Tuesday, November 27, 2018 08:29:38 Pacific Standard Time

Compound name: PFBA

	# Name	ID	Acq.Date	Acq.Time
69	69 181126M1_69	1803652-02 MW-2 0.11316	26-Nov-18	23:38:20
70	70 181126M1_70	B8K0134-BS1 OPR 1	26-Nov-18	23:48:53
71	71 181126M1_71	B8K0134-BLK1 Method Blank 1	26-Nov-18	23:59:32
72	72 181126M1_72	1803552-01 BS1810291030GC 19.2	27-Nov-18	00:10:06
73	73 181126M1_73	1803553-05 BS1810291600GC 21.65	27-Nov-18	00:20:44
74	74 181126M1_74	1803553-06 SL1810291530GC 44.03	27-Nov-18	00:31:22
75	75 181126M1_75	1803576-03 BS1810311445GC 30.23	27-Nov-18	00:41:55
76	76 181126M1_76	IPA	27-Nov-18	00:52:33
77	77 181126M1_77	ST181126M1-14 PFC CS3 18K1906	27-Nov-18	01:03:06
78	78 181126M1_78	1803577-03 WW1810301640GC 29	27-Nov-18	01:13:44
79	79 181126M1_79	1803577-04 WW1810301650GC 27.95	27-Nov-18	01:24:18
80	80 181126M1_80	1803578-04 BS1810301350GC 20.67	27-Nov-18	01:34:57
81	81 181126M1_81	B8K0120-BS1 OPR 0.25	27-Nov-18	01:45:35
82	82 181126M1_82	B8K0120-BLK1 Method Blank 0.25	27-Nov-18	01:56:08
83	83 181126M1_83	1803616-01 1811351-01A 0.24367	27-Nov-18	02:06:46
84	84 181126M1_84	1803616-02 1811351-02A 0.24367	27-Nov-18	02:17:19
85	85 181126M1_85	1803616-03 1811351-03A 0.23891	27-Nov-18	02:27:57
86	86 181126M1_86	1803616-04 1811351-04A 0.23803	27-Nov-18	02:38:29
87	87 181126M1_87	1803616-05 1811351-05A 0.2442	27-Nov-18	02:49:08
88	88 181126M1_88	1803617-01 1811352-01A 0.23776	27-Nov-18	02:59:40
89	89 181126M1_89	1803617-02 1811352-02A 0.24714	27-Nov-18	03:10:19
90	90 181126M1_90	IPA	27-Nov-18	03:20:52
91	91 181126M1_91	ST181126M1-15 PFC CS3 18K1906	27-Nov-18	03:31:30
92	92 181126M1_92	1803618-01 1811353-01A 0.23448	27-Nov-18	03:42:04
93	93 181126M1_93	1803618-02 1811353-02A 0.2386	27-Nov-18	03:52:42
94	94 181126M1_94	1803618-03 1811353-03A 0.23967	27-Nov-18	04:03:16
95	95 181126M1_95	1803618-04 1811353-04A 0.24522	27-Nov-18	04:13:54
96	96 181126M1_96	1803620-01 1811354-01A 0.23589	27-Nov-18	04:24:26
97	97 181126M1_97	1803620-02 1811354-02A 0.22278	27-Nov-18	04:35:05
98	98 181126M1_98	1803626-02 16-MW-06-SA2 0.1197	27-Nov-18	04:45:37
99	99 181126M1_99	1803626-01@5X 16-HS-03-SA2 0.11792	27-Nov-18	04:56:15
100	1... 181126M1_100	IPA	27-Nov-18	05:06:54
101	1... 181126M1_101	ST181126M1-16 PFC CS3 18K1906	27-Nov-18	05:17:27

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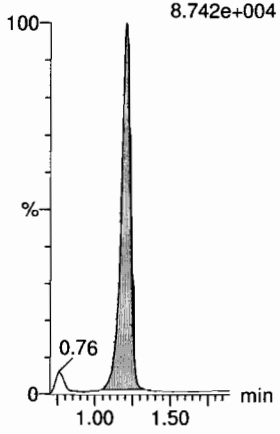
Dataset: Z:\Projects\PFAS.PRO\Results\181126M1\181126M1-91.qld

Last Altered: Tuesday, November 27, 2018 10:07:32 Pacific Standard Time
Printed: Tuesday, November 27, 2018 10:08:22 Pacific Standard Time

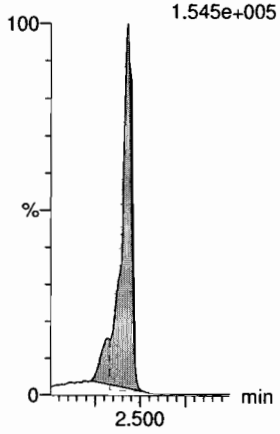
Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112618.mdb 26 Nov 2018 13:53:04
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Name: 181126M1_91, Date: 27-Nov-2018, Time: 03:31:30, ID: ST181126M1-15 PFC CS3 18K1906, Description: PFC CS3 18K1906

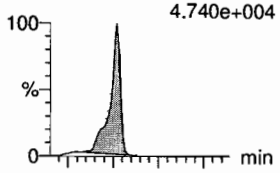
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
8.742e+004



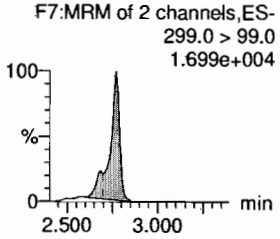
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
1.545e+005



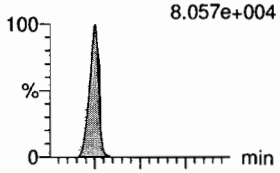
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
4.740e+004



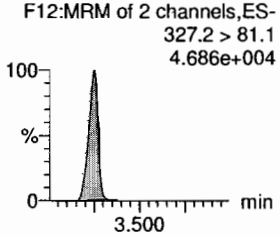
F7:MRM of 2 channels,ES-
299.0 > 99.0
1.699e+004



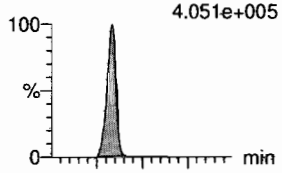
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
8.057e+004



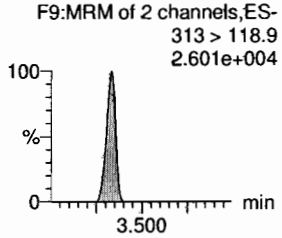
F12:MRM of 2 channels,ES-
327.2 > 81.1
4.686e+004



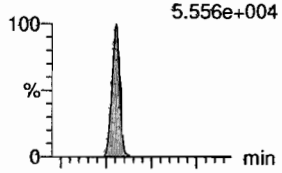
PFHxA
F9:MRM of 2 channels,ES-
313 > 269
4.051e+005



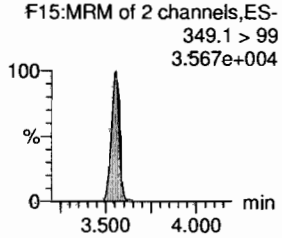
F9:MRM of 2 channels,ES-
313 > 118.9
2.601e+004



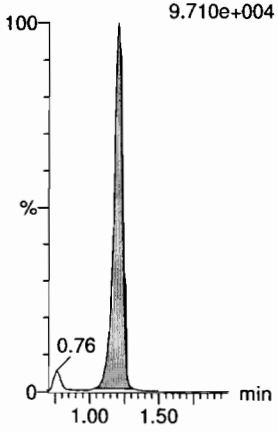
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
5.556e+004



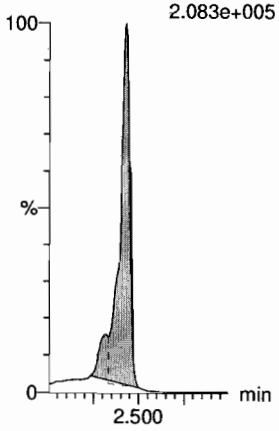
F15:MRM of 2 channels,ES-
349.1 > 99
3.567e+004



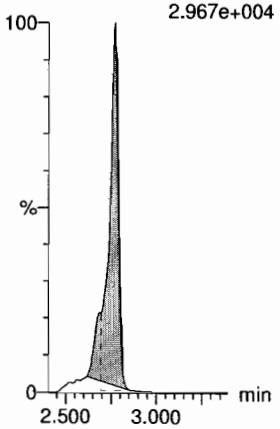
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
9.710e+004



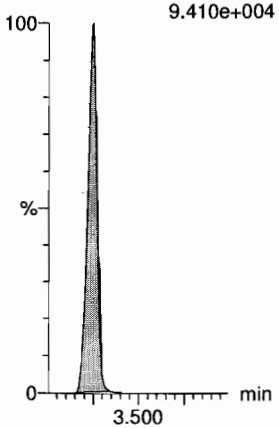
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
2.083e+005



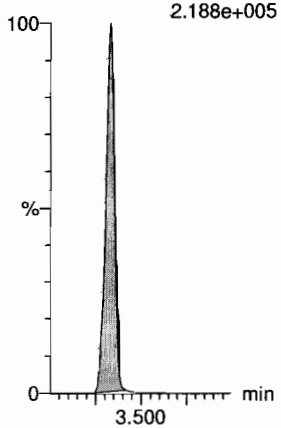
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.967e+004



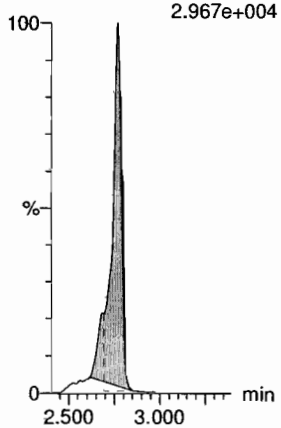
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
9.410e+004



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 270
2.188e+005



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.967e+004



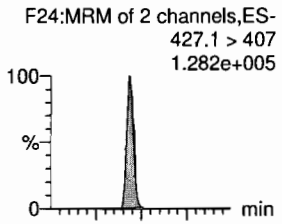
Vista Analytical Laboratory

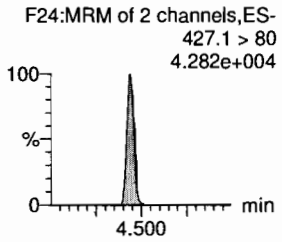
Dataset: Z:\Projects\PFAS.PRO\Results\181126M1\181126M1-91.qld

Last Altered: Tuesday, November 27, 2018 10:07:32 Pacific Standard Time
Printed: Tuesday, November 27, 2018 10:08:22 Pacific Standard Time

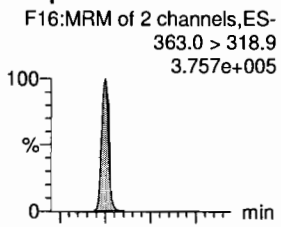
Name: 181126M1_91, Date: 27-Nov-2018, Time: 03:31:30, ID: ST181126M1-15 PFC CS3 18K1906, Description: PFC CS3 18K1906

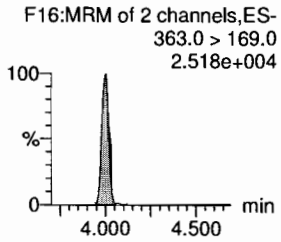
6:2 FTS



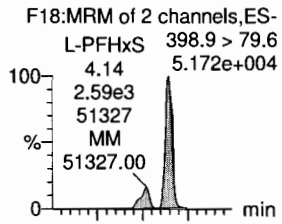


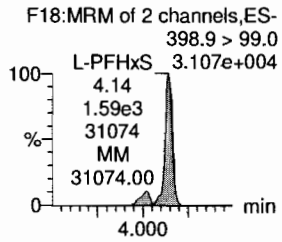
PFHpA



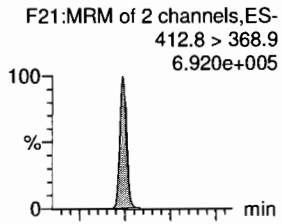


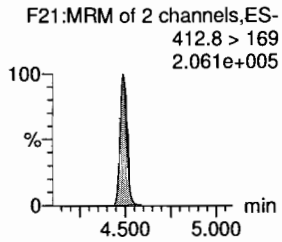
L-PFHxS



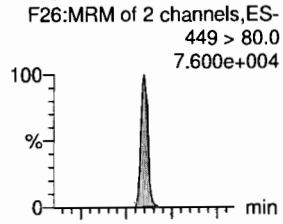


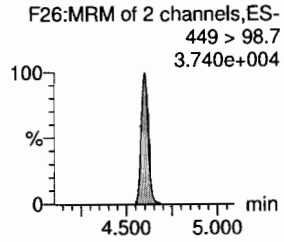
L-PFOA





PFHpS





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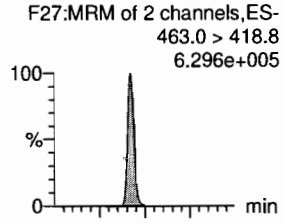
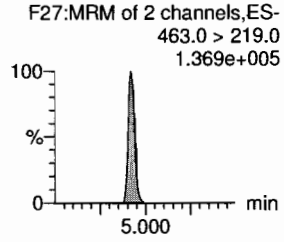
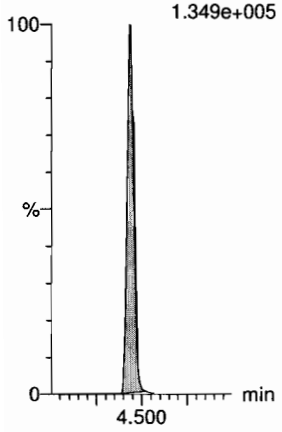
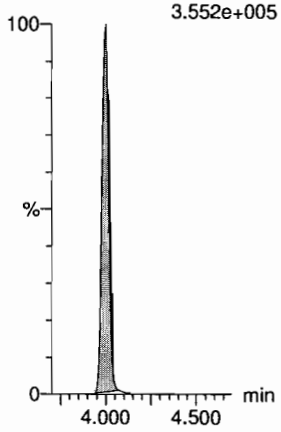




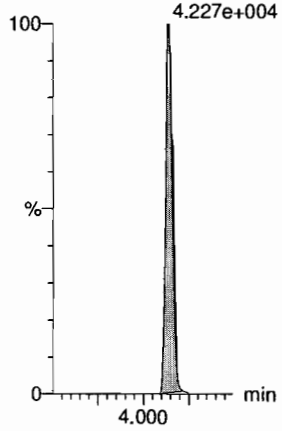
13C2-6:2 FTS



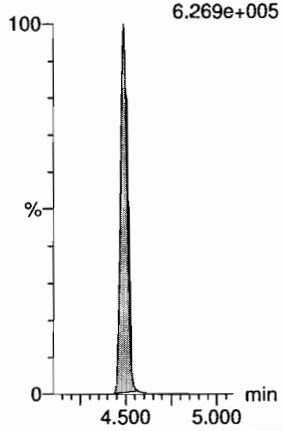
13C4-PFHpA



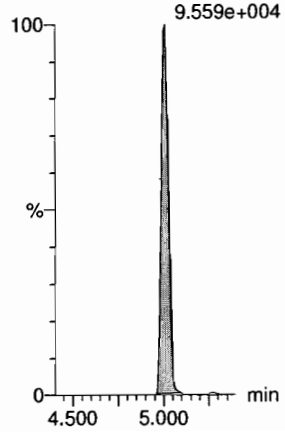
18O2-PFHxS



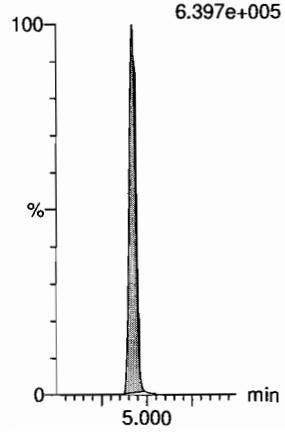
13C2-PFOA



13C8-PFOS



13C5-PFNA



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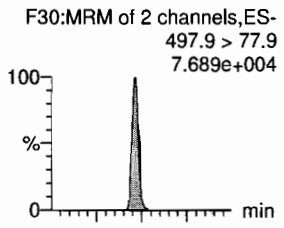
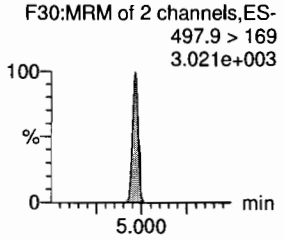
Last Altered: Tuesday, November 27, 2018 10:07:32 Pacific Standard Time
Printed: Tuesday, November 27, 2018 10:08:22 Pacific Standard Time

Name: 181126M1_91, Date: 27-Nov-2018, Time: 03:31:30, ID: ST181126M1-15 PFC CS3 18K1906, Description: PFC CS3 18K1906

PFOSA





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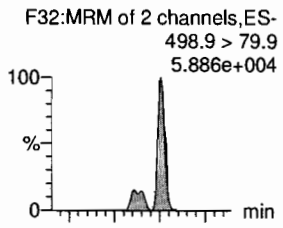

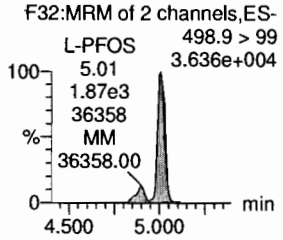

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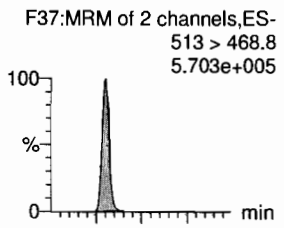
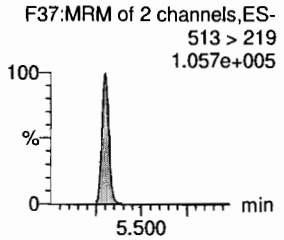
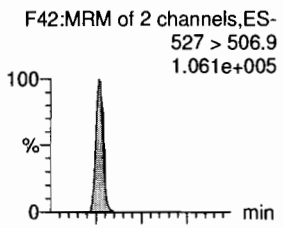
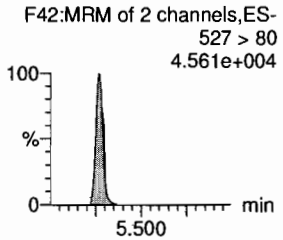




8:2 FTS





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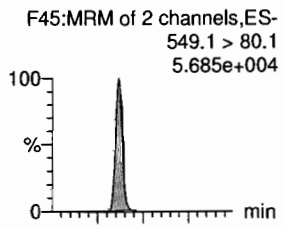

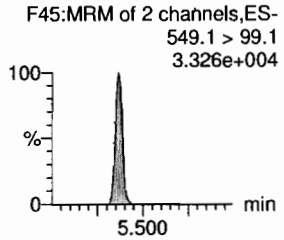

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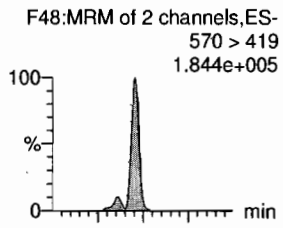
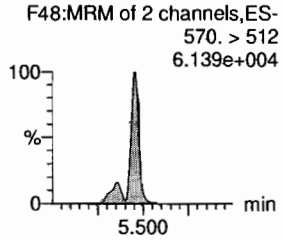
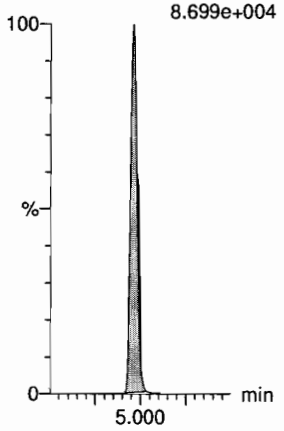




13C8-PFOSA



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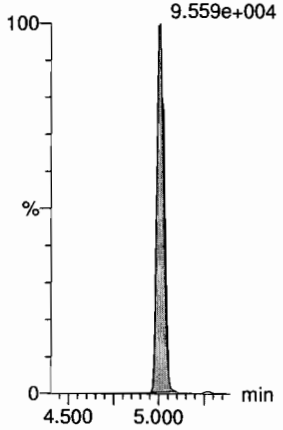

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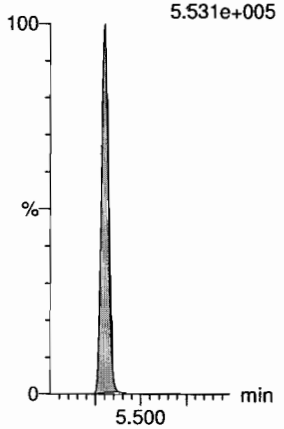
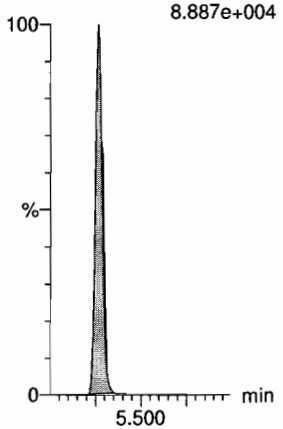


13C2-8:2 FTS



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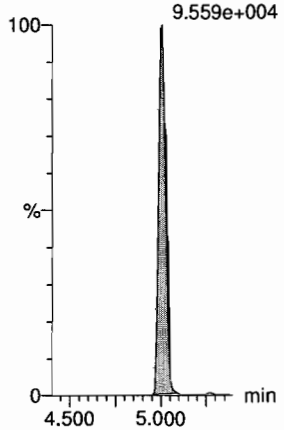
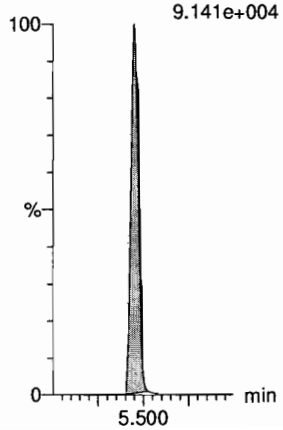


d3-N-MeFOSAA



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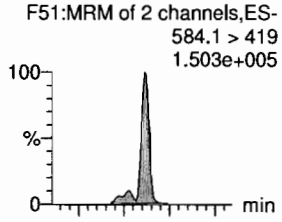
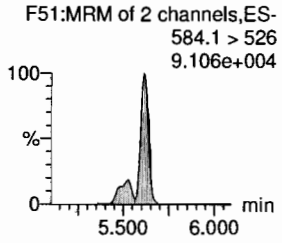
Last Altered: Tuesday, November 27, 2018 10:07:32 Pacific Standard Time
Printed: Tuesday, November 27, 2018 10:08:22 Pacific Standard Time

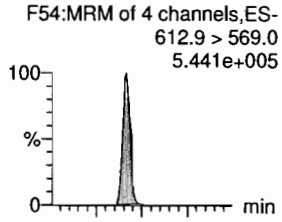
Name: 181126M1_91, Date: 27-Nov-2018, Time: 03:31:30, ID: ST181126M1-15 PFC CS3 18K1906, Description: PFC CS3 18K1906

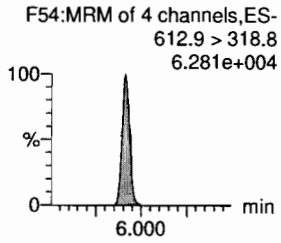
L-EtFOSAA





PFDoA





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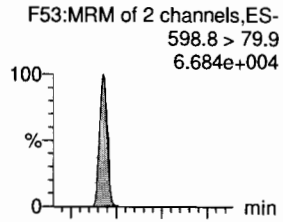

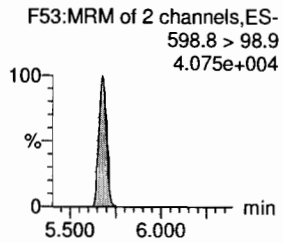

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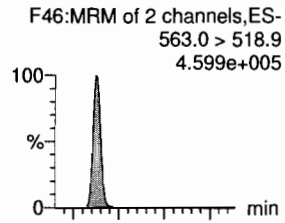
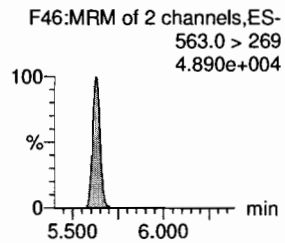
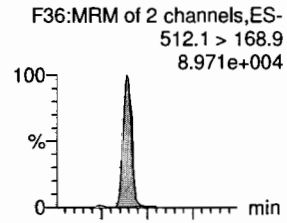
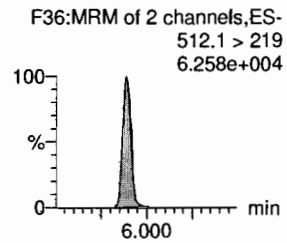




N-MeFOSA





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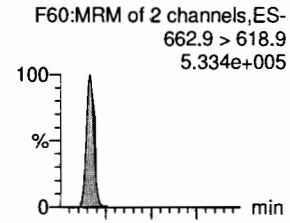

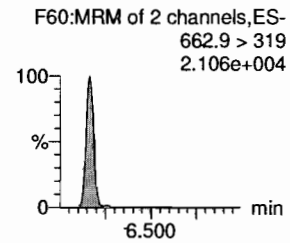

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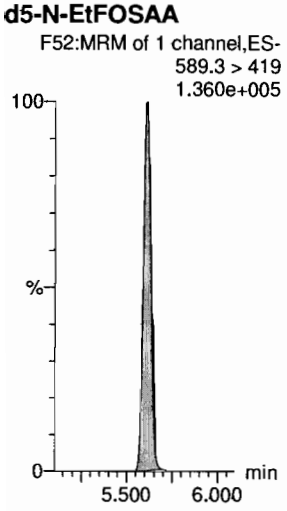
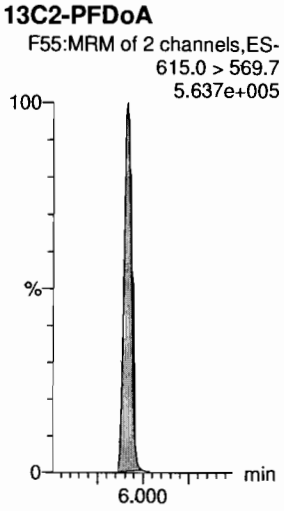
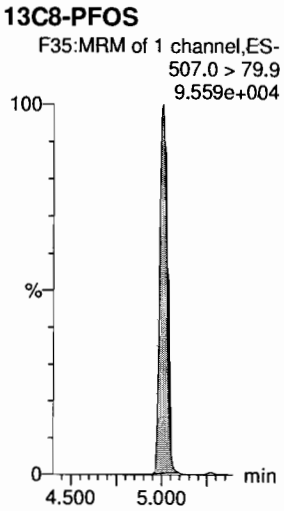


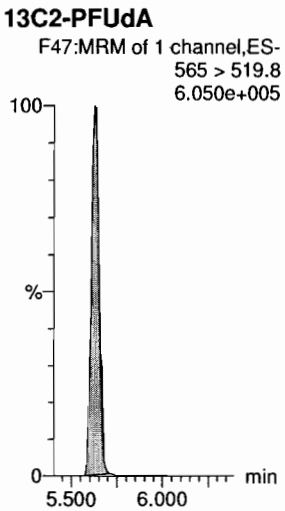
13C2-PFDoA



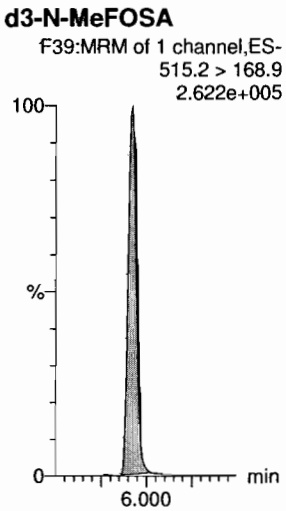
13C8-PFOS



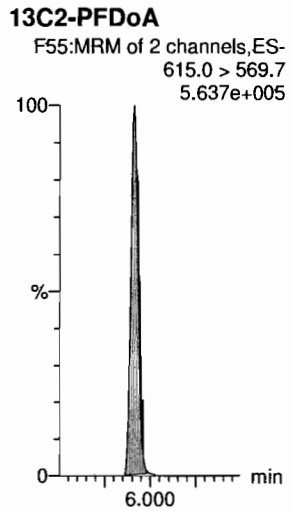
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA



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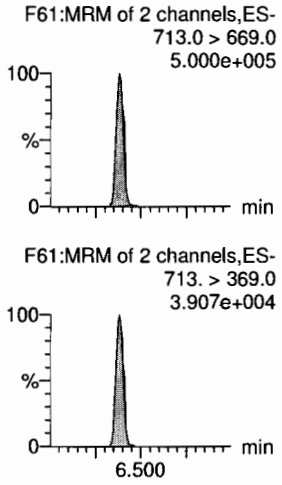
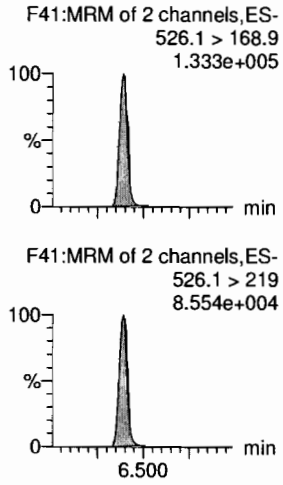
Name: 181126M1_91, Date: 27-Nov-2018, Time: 03:31:30, ID: ST181126M1-15 PFC CS3 18K1906, Description: PFC CS3 18K1906

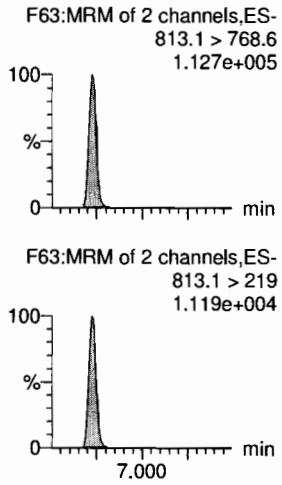
PFTeDA



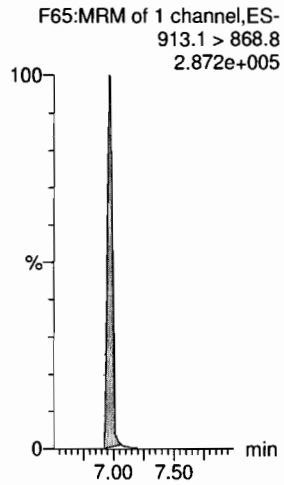
N-EtFOSA



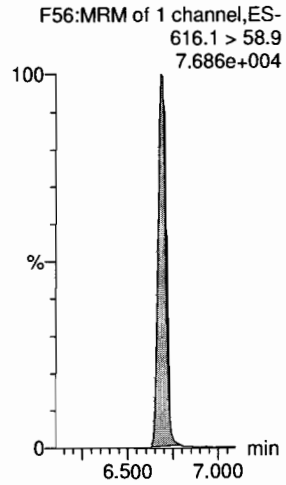
PFHxDA



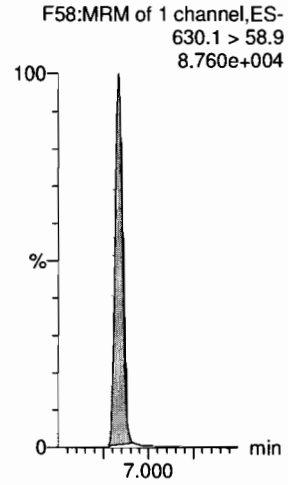
PFODA



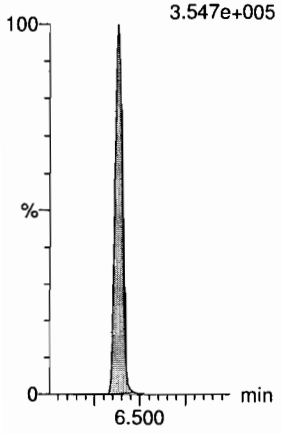
N-MeFOSE



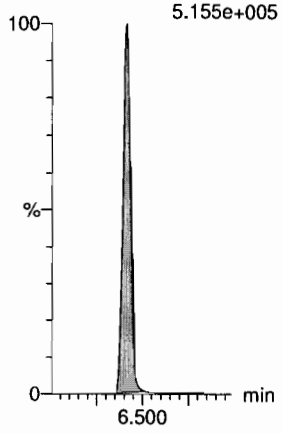
N-EtFOSE



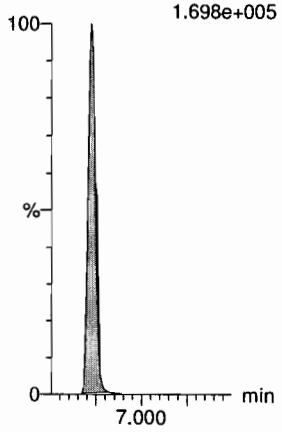
13C2-PFTeDA



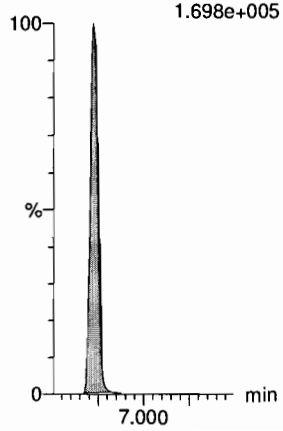
d5-N-ETFOSA



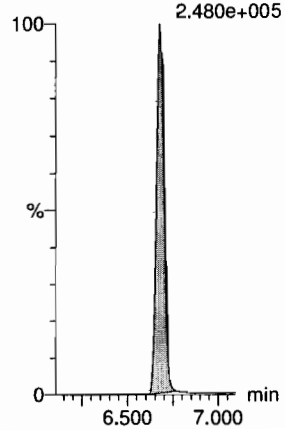
13C2-PFHxDA



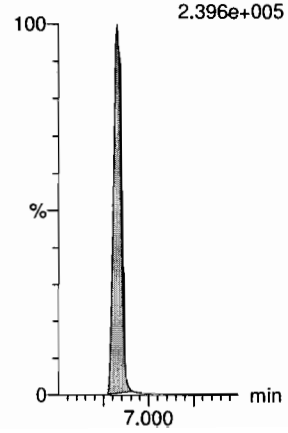
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE



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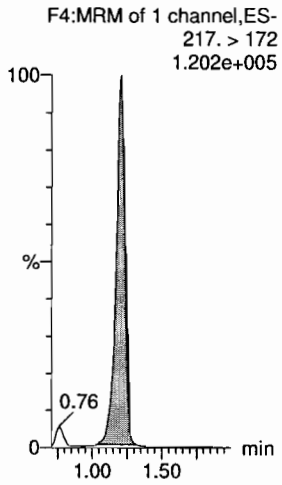
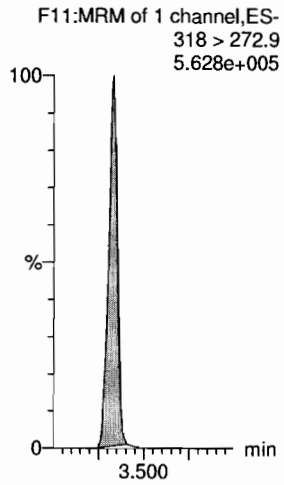
Name: 181126M1_91, Date: 27-Nov-2018, Time: 03:31:30, ID: ST181126M1-15 PFC CS3 18K1906, Description: PFC CS3 18K1906

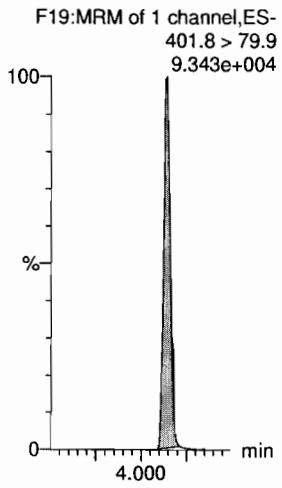
13C4-PFBA



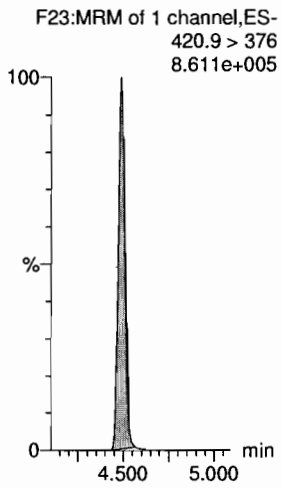
13C5-PFHxA



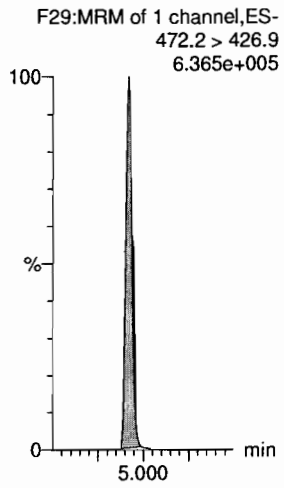
13C3-PFHxS



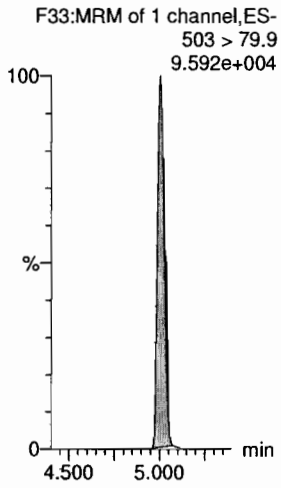
13C8-PFOA



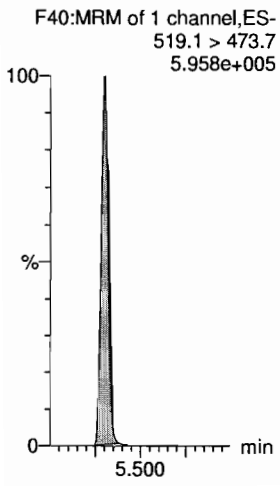
13C9-PFNA



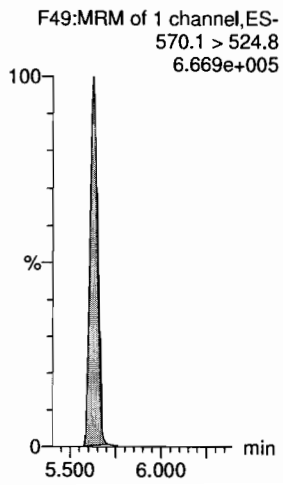
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Dataset: Z:\Projects\PFAS.PRO\Results\181126M1\181126M1-101.qld

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Name: 181126M1_101, Date: 27-Nov-2018, Time: 05:17:27, ID: ST181126M1-16 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	5757.037	6300.071	1.00	1.21	11.423	9.7	97.5	NO		
2	2	PFPeA	263.1 > 218.9	9601.862	13121.963	1.00	2.43	9.147	9.6	96.0	NO		
3	3	PFBS	299.0 > 79.7	2529.935	1626.594	1.00	2.77	19.442	9.4	94.2	NO	2.706	NO
4	4	4:2 FTS	327.2>307.2	3539.334	4223.083	1.00	3.25	10.476	10.0	100.3	NO	1.648	NO
5	5	PFHxA	313 > 269	17442.322	9247.386	1.00	3.33	9.431	10.0	99.6	NO	16.062	NO
6	6	PFPeS	349.1>80.1	2188.983	1626.594	1.00	3.55	16.822	10.1	100.7	NO	1.645	NO
7	36	13C3-PFBA	216.1 > 171.8	6300.071	7873.356	1.00	1.21	10.002	12.7	101.6	NO		
8	37	13C3-PFPeA	266. > 221.8	13121.963	23704.768	1.00	2.43	6.919	12.4	99.6	NO		
9	38	13C3-PFBS	302. > 98.8	1626.594	2894.928	1.00	2.77	7.023	13.1	104.6	NO		
10	39	13C2-4:2 FTS	329.2>308.9	4223.083	2894.928	1.00	3.25	18.235	12.3	98.7	NO		
11	40	13C2-PFHxA	315 > 270	9247.386	23704.768	1.00	3.33	4.876	4.9	98.7	NO		
12	38	13C3-PFBS	302. > 98.8	1626.594	2894.928	1.00	2.77	7.023	13.1	104.6	NO		
13	-1												
14	10	6:2 FTS	427.1 > 407	4501.878	4267.401	1.00	4.44	13.187	10.6	106.2	NO	3.027	NO
15	7	PFHpA	363.0 > 318.9	12673.069	12048.396	1.00	4.01	13.148	10.0	99.8	NO	13.129	NO
16	8	L-PFHxS	398.9 > 79.6	2055.443	1402.377	1.00	4.14	18.321	9.4	94.2	NO	1.786	NO
17	11	L-PFOA	412.8 > 368.9	22052.791	21099.781	1.00	4.49	13.065	9.5	95.1	NO	3.322	NO
18	13	PFHpS	449 > 80.0	2495.757	3202.291	1.00	4.60	9.742	10.4	103.9	NO	1.810	NO
19	14	PFNA	463.0 > 418.8	18993.195	19821.793	1.00	4.92	11.977	9.6	95.5	NO	4.448	NO
20	43	13C2-6:2 FTS	429.1 > 408.9	4267.401	3106.938	1.00	4.44	17.169	11.0	87.9	NO		
21	41	13C4-PFHpA	367.2 > 321.8	12048.396	23704.768	1.00	4.01	6.353	11.8	94.7	NO		
22	42	18O2-PFHxS	403.0 > 102.6	1402.377	2894.928	1.00	4.14	6.055	13.5	108.1	NO		
23	44	13C2-PFOA	414.9 > 369.7	21099.781	26714.053	1.00	4.49	9.873	13.1	104.6	NO		
24	47	13C8-PFOS	507.0 > 79.9	3202.291	3106.938	1.00	5.01	12.884	12.4	98.9	NO		
25	45	13C5-PFNA	468.2 > 422.9	19821.793	19899.266	1.00	4.92	12.451	12.6	100.6	NO		
26	-1												
27	15	PFOSA	497.9 > 77.9	2427.041	2830.268	1.00	4.96	10.719	9.4	94.2	NO	20.156	NO
28	16	L-PFOS	498.9 > 79.9	2686.321	3202.291	1.00	5.01	10.486	9.5	95.3	NO	1.850	NO
29	18	PFDA	513 > 468.8	20665.217	19463.416	1.00	5.30	13.272	10.1	100.9	NO	5.768	NO
30	19	8:2 FTS	527 > 506.9	3834.475	2969.175	1.00	5.27	16.143	10.7	107.0	NO	2.330	NO
31	20	PFNS	549.1 > 80.1	2049.872	3202.291	1.00	5.37	8.002	10.4	104.4	NO	1.821	NO
32	21	L-MeFOSAA	570 > 419	7729.088	3415.832	1.00	5.46	28.284	9.7	97.2	NO	2.474	NO
33	46	13C8-PFOSA	506.1 > 77.7	2830.268	25641.664	1.00	4.96	1.380	14.2	113.6	NO		
34	47	13C8-PFOS	507.0 > 79.9	3202.291	3106.938	1.00	5.01	12.884	12.4	98.9	NO		
35	48	13C2-PFDA	515.1 > 469.9	19463.416	21462.414	1.00	5.30	11.336	12.6	100.5	NO		
36	49	13C2-8:2 FTS	529.1 > 508.7	2969.175	3106.938	1.00	5.27	11.946	10.1	81.2	NO		

C&H 11/27/18

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Name: 181126M1_101, Date: 27-Nov-2018, Time: 05:17:27, ID: ST181126M1-16 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
37	47	13C8-PFOS	507.0 > 79.9	3202.291	3106.938	1.00	5.01	12.884	12.4	98.9	NO		
38	50	d3-N-MeFOSAA	573.3 > 419	3415.832	25641.664	1.00	5.45	1.665	12.4	99.0	NO		
39	-1												
40	23	L-EtFOSAA	584.1 > 419	6670.213	5170.707	1.00	5.61	16.125	9.9	99.5	NO	1.511	NO
41	27	PFDoA	612.9 > 569.0	19163.410	21078.160	1.00	5.91	11.364	9.7	97.4	NO	7.611	NO
42	26	PFDS	598.8 > 79.9	2394.927	3202.291	1.00	5.67	9.348	8.9	89.1	NO	1.588	NO
43	25	PFUdA	563.0 > 518.9	18050.484	23912.721	1.00	5.62	9.436	9.7	96.8	NO	9.421	NO
44	28	N-MeFOSA	512.1 > 168.9	3623.733	11239.175	1.00	5.89	48.363	50.3	100.7	NO	1.461	NO
45	29	PFTrDA	662.9 > 618.9	19376.311	21078.160	1.00	6.16	11.491	9.9	98.9	NO	23.129	NO
46	52	d5-N-EtFOSAA	589.3 > 419	5170.707	25641.664	1.00	5.61	2.521	13.6	108.8	NO		
47	53	13C2-PFDoA	615.0 > 569.7	21078.160	21462.414	1.00	5.91	12.276	11.7	93.8	NO		
48	47	13C8-PFOS	507.0 > 79.9	3202.291	3106.938	1.00	5.01	12.884	12.4	98.9	NO		
49	51	13C2-PFUdA	565 > 519.8	23912.721	25641.664	1.00	5.63	11.657	12.2	97.4	NO		
50	54	d3-N-MeFOSA	515.2 > 168.9	11239.175	25641.664	1.00	5.92	5.479	149.3	99.5	NO		
51	53	13C2-PFDoA	615.0 > 569.7	21078.160	21462.414	1.00	5.91	12.276	11.7	93.8	NO		
52	-1												
53	30	PFTeDA	713.0 > 669.0	17604.559	12744.167	1.00	6.38	17.267	10.6	105.7	NO	12.074	NO
54	31	N-EtFOSA	526.1 > 168.9	4961.432	19024.797	1.00	6.39	39.118	44.5	89.0	NO	1.489	NO
55	32	PFHxDA	813.1 > 768.6	4367.440	6514.155	1.00	6.72	3.352	8.3	83.2	NO	10.305	NO
56	33	PFODA	913.1 > 868.8	10273.428	6514.155	1.00	6.97	7.885	11.2	111.8	NO		
57	34	N-MeFOSE	616.1 > 58.9	2691.367	9135.197	1.00	6.69	44.192	48.8	97.5	NO		
58	35	N-EtFOSE	630.1 > 58.9	3292.526	8922.231	1.00	6.83	55.354	48.2	96.3	NO		
59	55	13C2-PFTeDA	715.1 > 669.7	12744.167	25641.664	1.00	6.38	6.213	11.0	87.7	NO		
60	56	d5-N-ETFOSA	531.1 > 168.9	19024.797	25641.664	1.00	6.42	9.274	159.0	106.0	NO		
61	57	13C2-PFHxDA	815 > 769.7	6514.155	25641.664	1.00	6.72	3.176	4.3	85.2	NO		
62	57	13C2-PFHxDA	815 > 769.7	6514.155	25641.664	1.00	6.72	3.176	4.3	85.2	NO		
63	58	d7-N-MeFOSE	623.1 > 58.9	9135.197	25641.664	1.00	6.68	4.453	140.8	93.8	NO		
64	59	d9-N-EtFOSE	639.2 > 58.8	8922.231	25641.664	1.00	6.83	4.349	145.8	97.2	NO		
65	-1												
66	60	13C4-PFBA	217. > 172	7873.356	7873.356	1.00	1.21	12.500	12.5	100.0	NO		
67	61	13C5-PFHxA	318 > 272.9	23704.768	23704.768	1.00	3.33	12.500	12.5	100.0	NO		
68	62	13C3-PFHxS	401.8 > 79.9	2894.928	2894.928	1.00	4.14	12.500	12.5	100.0	NO		
69	63	13C8-PFOA	420.9 > 376	26714.053	26714.053	1.00	4.49	12.500	12.5	100.0	NO		
70	64	13C9-PFNA	472.2 > 426.9	19899.266	19899.266	1.00	4.92	12.500	12.5	100.0	NO		
71	65	13C4-PFOS	503 > 79.9	3106.938	3106.938	1.00	5.01	12.500	12.5	100.0	NO		
72	66	13C6-PFDA	519.1 > 473.7	21462.414	21462.414	1.00	5.30	12.500	12.5	100.0	NO		

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Last Altered: Tuesday, November 27, 2018 08:26:08 Pacific Standard Time
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Name: 181126M1_101, Date: 27-Nov-2018, Time: 05:17:27, ID: ST181126M1-16 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
73	67	13C7-PFUdA	570.1 > 524.8	25641.664	25641.664	1.00	5.63	12.500	12.5	100.0	NO		

Dataset: Untitled

Last Altered: Tuesday, November 27, 2018 08:29:26 Pacific Standard Time
Printed: Tuesday, November 27, 2018 08:29:38 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112618.mdb 26 Nov 2018 13:53:04
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	181126M1_1	IPA	26-Nov-18	11:35:18
2	2	181126M1_2	ST181126M1-1 PFC CS-2 18K1901	26-Nov-18	11:45:59
3	3	181126M1_3	ST181126M1-2 PFC CS-1 18K1902	26-Nov-18	11:56:32
4	4	181126M1_4	ST181126M1-3 PFC CS0 18K1903	26-Nov-18	12:07:10
5	5	181126M1_5	ST181126M1-4 PFC CS1 18K1904	26-Nov-18	12:17:48
6	6	181126M1_6	ST181126M1-5 PFC CS2 18K1905	26-Nov-18	12:28:21
7	7	181126M1_7	ST181126M1-6 PFC CS3 18K1906	26-Nov-18	12:38:59
8	8	181126M1_8	ST181126M1-7 PFC CS4 1810907	26-Nov-18	12:49:38
9	9	181126M1_9	ST181126M1-8 PFC CS5 18K1908	26-Nov-18	13:00:11
10	10	181126M1_10	ST181126M1-9 PFC CS6 18K1909	26-Nov-18	13:10:49
11	11	181126M1_11	ST181126M1-10 PFC CS7 18K1910	26-Nov-18	13:21:23
12	12	181126M1_12	IPA	26-Nov-18	13:32:01
13	13	181126M1_13	ICV181126M1-1 PFC ICV 18K1911	26-Nov-18	13:42:34
14	14	181126M1_14	IPA	26-Nov-18	13:53:12
15	15	181126M1_15	B8K0097-BSD1 LCSD 0.125	26-Nov-18	14:03:48
16	16	181126M1_16	1803629-06 REEPDW585 0.11471	26-Nov-18	14:14:24
17	17	181126M1_17	B8K0152-BS1 OPR 0.25	26-Nov-18	14:25:02
18	18	181126M1_18	B8K0152-BLK1 Method Blank 0.25	26-Nov-18	14:35:34
19	19	181126M1_19	1803729-01 WMP1811191026JSJ 0.23788	26-Nov-18	14:46:12
20	20	181126M1_20	1803729-02 WMP1811191035JSJ 0.23637	26-Nov-18	14:56:45
21	21	181126M1_21	1803729-03 WMP1811191043JSJ 0.23365	26-Nov-18	15:07:48
22	22	181126M1_22	1803730-01 WEF1811191106JSJ 0.24116	26-Nov-18	15:18:26
23	23	181126M1_23	B8K0144-BS1 OPR 0.125	26-Nov-18	15:29:49
24	24	181126M1_24	B8K0144-BSD1 LCSD 0.125	26-Nov-18	15:41:20
25	25	181126M1_25	B8K0144-BLK1 Method Blank 0.125	26-Nov-18	15:51:53
26	26	181126M1_26	1803659-01 A1-MW-07-SA2 0.11704	26-Nov-18	16:02:31
27	27	181126M1_27	1803659-02 A1-MW-23-SA2 0.1178	26-Nov-18	16:13:04
28	28	181126M1_28	1803659-03 A1-MW-25-SA2 0.11426	26-Nov-18	16:23:43
29	29	181126M1_29	1803659-04 A1-MW-27-SA2 0.11731	26-Nov-18	16:34:21
30	30	181126M1_30	1803659-05 A1-MW-55-SA2 0.11846	26-Nov-18	16:44:53
31	31	181126M1_31	IPA	26-Nov-18	16:55:32
32	32	181126M1_32	ST181126M1-11 PFC CS3 18K1906	26-Nov-18	17:06:06

(A) DM 11/27/18

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Dataset: Untitled

Last Altered: Tuesday, November 27, 2018 08:29:26 Pacific Standard Time
Printed: Tuesday, November 27, 2018 08:29:38 Pacific Standard Time

Compound name: PFBA

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33	33	181126M1_33	1803659-06 A1-MW-54-SA2 0.11683	26-Nov-18	17:16:44
34	34	181126M1_34	1803659-07 FRB-20181114 0.11549	26-Nov-18	17:27:17
35	35	181126M1_35	B8K0135-BS1 OPR 1	26-Nov-18	17:37:55
36	36	181126M1_36	B8K0135-BLK1 Method Blank 1	26-Nov-18	17:48:34
37	37	181126M1_37	1803551-03 BS1810290940GC 5	26-Nov-18	17:59:07
38	38	181126M1_38	1803581-03 BS1810311220GC 5.1	26-Nov-18	18:09:45
39	39	181126M1_39	1803581-04 BS1810311230GC 5.08	26-Nov-18	18:20:24
40	40	181126M1_40	B8K0049-BS1 OPR 1	26-Nov-18	18:30:57
41	41	181126M1_41	B8K0049-BLK1 Method Blank 1	26-Nov-18	18:41:36
42	42	181126M1_42	1803520-01 HS-SB-939 (3-5)-EPA 1.51	26-Nov-18	18:52:09
43	43	181126M1_43	1803553-04 BS1810291445GC 3.51	26-Nov-18	19:02:47
44	44	181126M1_44	1803575-06 BS1810301040GC 1.48	26-Nov-18	19:13:20
45	45	181126M1_45	1803577-05 BS1810301620GC 5.94	26-Nov-18	19:23:58
46	46	181126M1_46	B8K0118-BS1 OPR 0.125	26-Nov-18	19:34:37
47	47	181126M1_47	B8K0118-BLK1 Method Blank 0.125	26-Nov-18	19:45:09
48	48	181126M1_48	1803640-01 MW-2A 0.11056	26-Nov-18	19:55:48
49	49	181126M1_49	1803640-02 MW-3 0.1163	26-Nov-18	20:06:21
50	50	181126M1_50	IPA	26-Nov-18	20:16:59
51	51	181126M1_51	ST181126M1-12 PFC CS3 18K1906	26-Nov-18	20:27:33
52	52	181126M1_52	1803640-03 MW-4 0.11182	26-Nov-18	20:38:11
53	53	181126M1_53	1803640-04 TS Well 0.11479	26-Nov-18	20:48:44
54	54	181126M1_54	1803641-01 MW3S 0.11429	26-Nov-18	20:59:22
55	55	181126M1_55	1803641-02 MW6 0.11494	26-Nov-18	21:09:56
56	56	181126M1_56	1803641-03 MW7 0.11164	26-Nov-18	21:20:34
57	57	181126M1_57	1803641-04 SW2 0.11314	26-Nov-18	21:31:07
58	58	181126M1_58	1803646-01 MW-1 0.11872	26-Nov-18	21:41:46
59	59	181126M1_59	1803646-02 MW-4S 0.11549	26-Nov-18	21:52:19
60	60	181126M1_60	1803646-03 Thorne 0.11815	26-Nov-18	22:02:57
61	61	181126M1_61	1803647-01 MW-1 0.11071	26-Nov-18	22:13:30
62	62	181126M1_62	IPA	26-Nov-18	22:24:08
63	63	181126M1_63	ST181126M1-13 PFC CS3 18K1906	26-Nov-18	22:34:41
64	64	181126M1_64	1803647-02 MW-3 0.11209	26-Nov-18	22:45:19
65	65	181126M1_65	1803651-01 MW-1 0.11903	26-Nov-18	22:55:52
66	66	181126M1_66	1803651-02 MW-4 0.11498	26-Nov-18	23:06:31
67	67	181126M1_67	1803651-03 MW-3 0.11883	26-Nov-18	23:17:03
68	68	181126M1_68	1803652-01 MW-1 0.11504	26-Nov-18	23:27:42

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Dataset: Untitled

Last Altered: Tuesday, November 27, 2018 08:29:26 Pacific Standard Time
Printed: Tuesday, November 27, 2018 08:29:38 Pacific Standard Time

Compound name: PFBA

	# Name	ID	Acq.Date	Acq.Time
69	69 181126M1_69	1803652-02 MW-2 0.11316	26-Nov-18	23:38:20
70	70 181126M1_70	B8K0134-BS1 OPR 1	26-Nov-18	23:48:53
71	71 181126M1_71	B8K0134-BLK1 Method Blank 1	26-Nov-18	23:59:32
72	72 181126M1_72	1803552-01 BS1810291030GC 19.2	27-Nov-18	00:10:06
73	73 181126M1_73	1803553-05 BS1810291600GC 21.65	27-Nov-18	00:20:44
74	74 181126M1_74	1803553-06 SL1810291530GC 44.03	27-Nov-18	00:31:22
75	75 181126M1_75	1803576-03 BS1810311445GC 30.23	27-Nov-18	00:41:55
76	76 181126M1_76	IPA	27-Nov-18	00:52:33
77	77 181126M1_77	ST181126M1-14 PFC CS3 18K1906	27-Nov-18	01:03:06
78	78 181126M1_78	1803577-03 WW1810301640GC 29	27-Nov-18	01:13:44
79	79 181126M1_79	1803577-04 WW1810301650GC 27.95	27-Nov-18	01:24:18
80	80 181126M1_80	1803578-04 BS1810301350GC 20.67	27-Nov-18	01:34:57
81	81 181126M1_81	B8K0120-BS1 OPR 0.25	27-Nov-18	01:45:35
82	82 181126M1_82	B8K0120-BLK1 Method Blank 0.25	27-Nov-18	01:56:08
83	83 181126M1_83	1803616-01 1811351-01A 0.24367	27-Nov-18	02:06:46
84	84 181126M1_84	1803616-02 1811351-02A 0.24367	27-Nov-18	02:17:19
85	85 181126M1_85	1803616-03 1811351-03A 0.23891	27-Nov-18	02:27:57
86	86 181126M1_86	1803616-04 1811351-04A 0.23803	27-Nov-18	02:38:29
87	87 181126M1_87	1803616-05 1811351-05A 0.2442	27-Nov-18	02:49:08
88	88 181126M1_88	1803617-01 1811352-01A 0.23776	27-Nov-18	02:59:40
89	89 181126M1_89	1803617-02 1811352-02A 0.24714	27-Nov-18	03:10:19
90	90 181126M1_90	IPA	27-Nov-18	03:20:52
91	91 181126M1_91	ST181126M1-15 PFC CS3 18K1906	27-Nov-18	03:31:30
92	92 181126M1_92	1803618-01 1811353-01A 0.23448	27-Nov-18	03:42:04
93	93 181126M1_93	1803618-02 1811353-02A 0.2386	27-Nov-18	03:52:42
94	94 181126M1_94	1803618-03 1811353-03A 0.23967	27-Nov-18	04:03:16
95	95 181126M1_95	1803618-04 1811353-04A 0.24522	27-Nov-18	04:13:54
96	96 181126M1_96	1803620-01 1811354-01A 0.23589	27-Nov-18	04:24:26
97	97 181126M1_97	1803620-02 1811354-02A 0.22278	27-Nov-18	04:35:05
98	98 181126M1_98	1803626-02 16-MW-06-SA2 0.1197	27-Nov-18	04:45:37
99	99 181126M1_99	1803626-01@5X 16-HS-03-SA2 0.11792	27-Nov-18	04:56:15
100	1... 181126M1_100	IPA	27-Nov-18	05:06:54
101	1... 181126M1_101	ST181126M1-16 PFC CS3 18K1906	27-Nov-18	05:17:27

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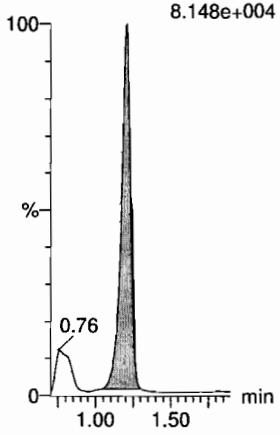
Dataset: Z:\Projects\PFAS.PRO\Results\181126M1\181126M1-101.qld

Last Altered: Tuesday, November 27, 2018 08:26:08 Pacific Standard Time
Printed: Tuesday, November 27, 2018 08:26:38 Pacific Standard Time

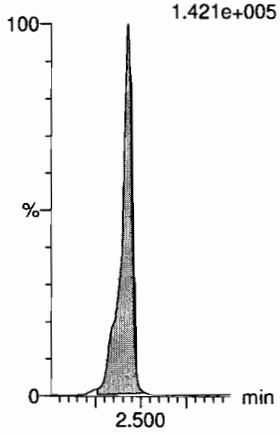
Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112618.mdb 26 Nov 2018 13:53:04
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Name: 181126M1_101, Date: 27-Nov-2018, Time: 05:17:27, ID: ST181126M1-16 PFC CS3 18K1906, Description: PFC CS3 18K1906

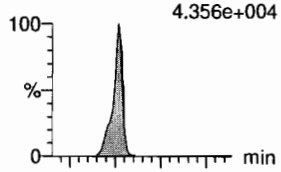
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
8.148e+004



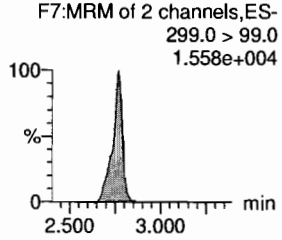
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
1.421e+005



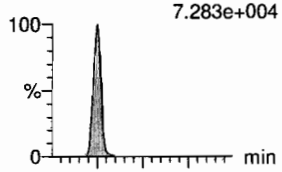
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
4.356e+004



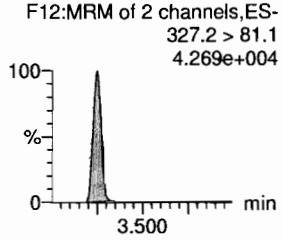
F7:MRM of 2 channels,ES-
299.0 > 99.0
1.558e+004



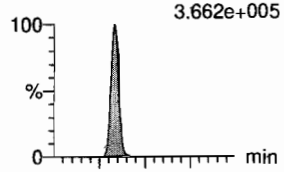
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
7.283e+004



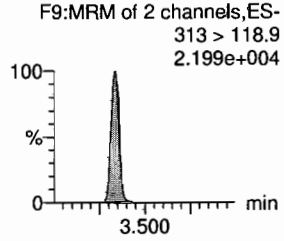
F12:MRM of 2 channels,ES-
327.2 > 81.1
4.269e+004



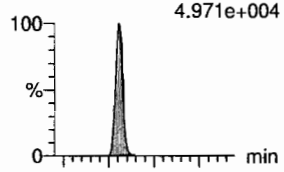
PFHxA
F9:MRM of 2 channels,ES-
313 > 269
3.662e+005



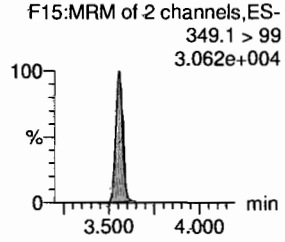
F9:MRM of 2 channels,ES-
313 > 118.9
2.199e+004



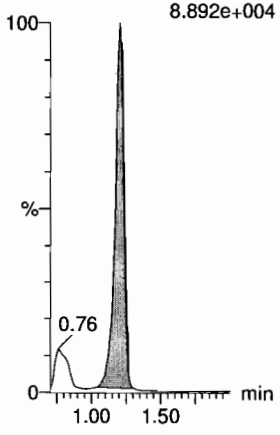
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
4.971e+004



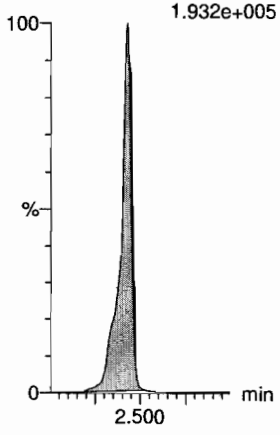
F15:MRM of 2 channels,ES-
349.1 > 99
3.062e+004



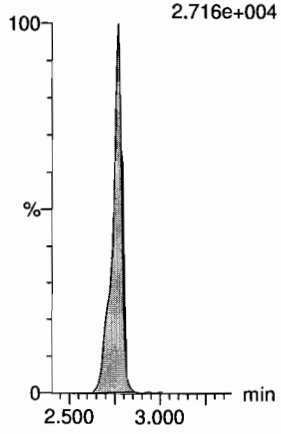
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
8.892e+004



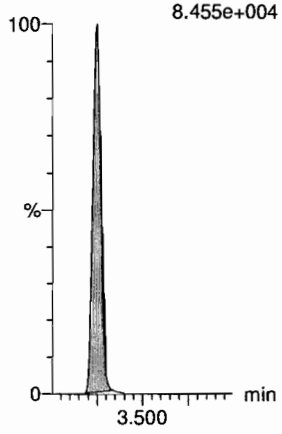
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
1.932e+005



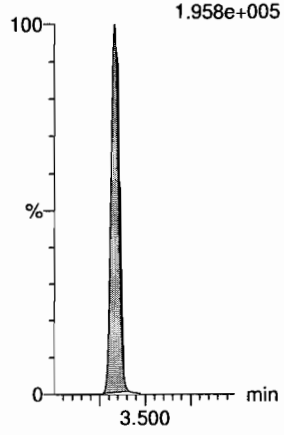
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.716e+004



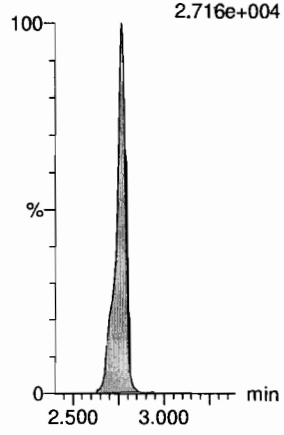
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
8.455e+004



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 270
1.958e+005



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.716e+004



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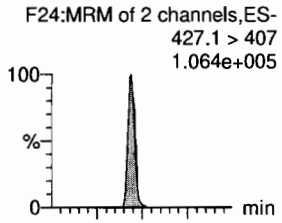
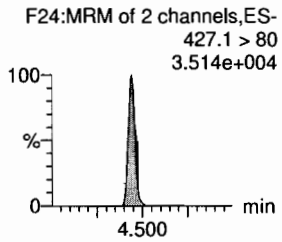
Dataset: Z:\Projects\PFAS.PRO\Results\181126M1\181126M1-101.qld

Last Altered: Tuesday, November 27, 2018 08:26:08 Pacific Standard Time
Printed: Tuesday, November 27, 2018 08:26:38 Pacific Standard Time

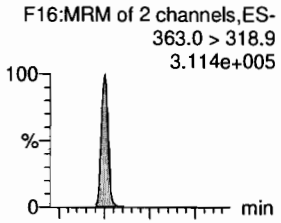
Name: 181126M1_101, Date: 27-Nov-2018, Time: 05:17:27, ID: ST181126M1-16 PFC CS3 18K1906, Description: PFC CS3 18K1906

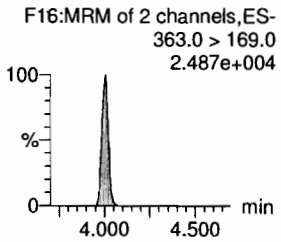
6:2 FTS



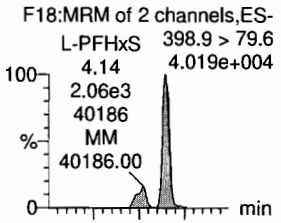


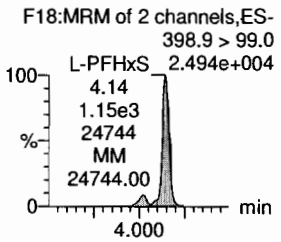
PFHpA





L-PFHxS





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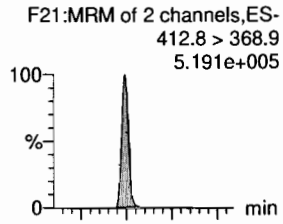

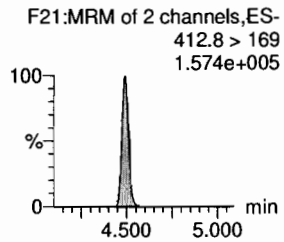

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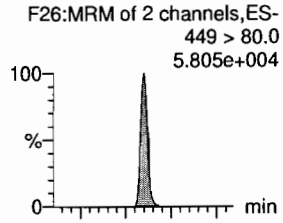

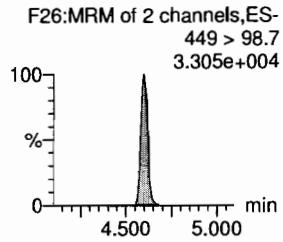

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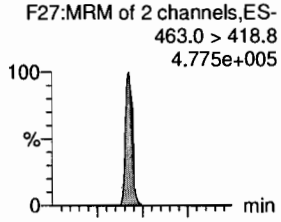
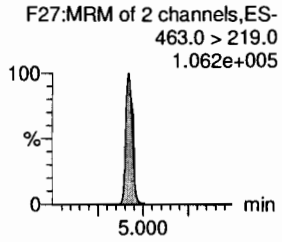
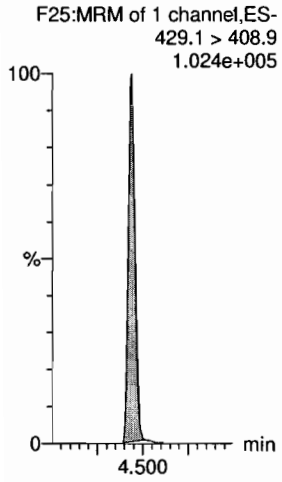
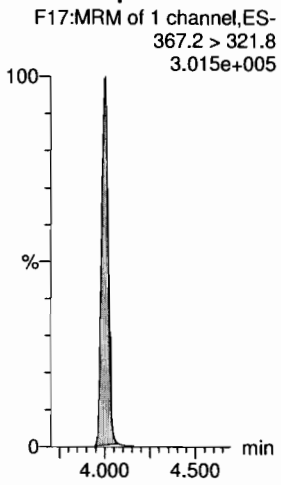




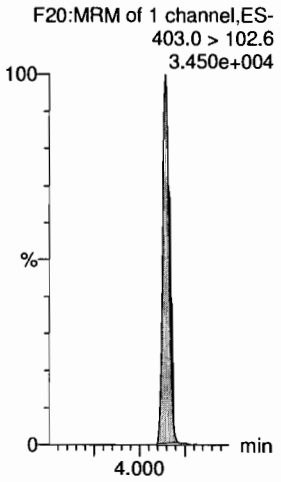
13C2-6:2 FTS



13C4-PFHpA



18O2-PFHxS



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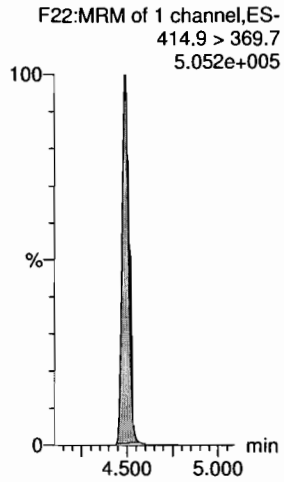
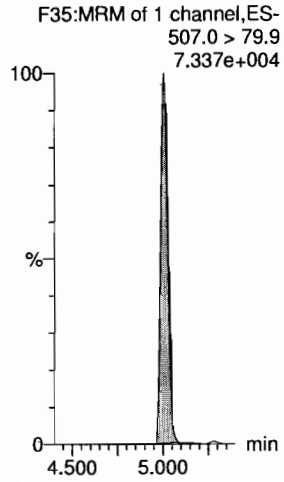


13C8-PFOS



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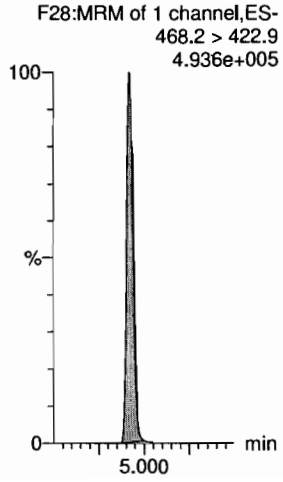

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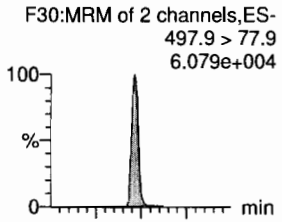
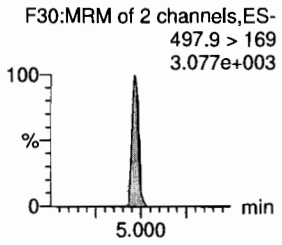
Printed: Tuesday, November 27, 2018 08:26:38 Pacific Standard Time

Name: 181126M1_101, Date: 27-Nov-2018, Time: 05:17:27, ID: ST181126M1-16 PFC CS3 18K1906, Description: PFC CS3 18K1906

PFOSA





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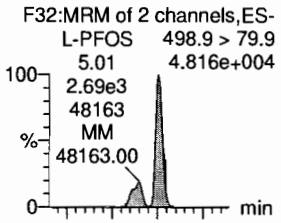

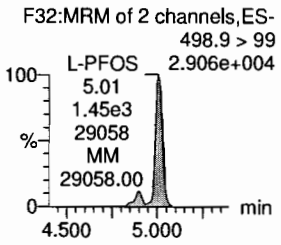

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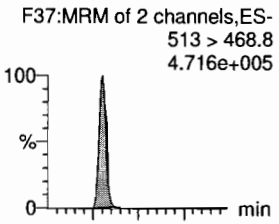
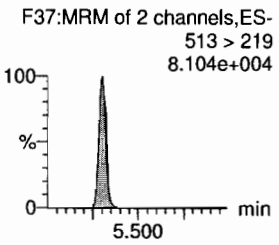
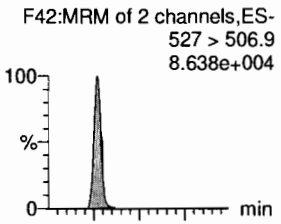
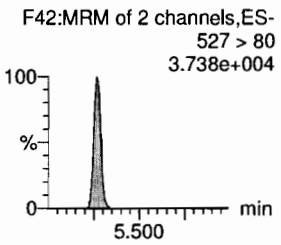




8:2 FTS





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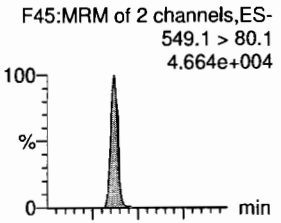
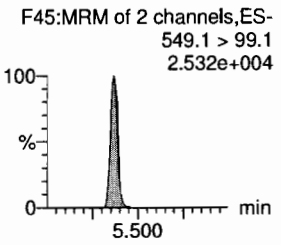
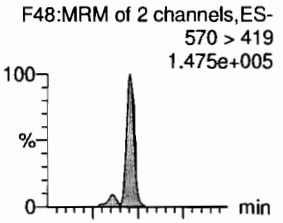
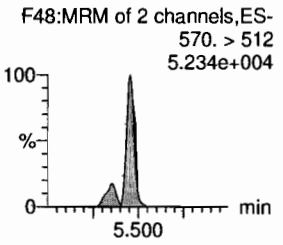


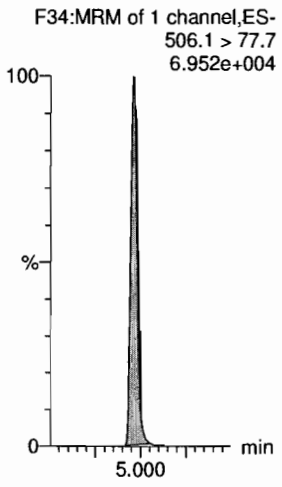


L-MeFOSAA

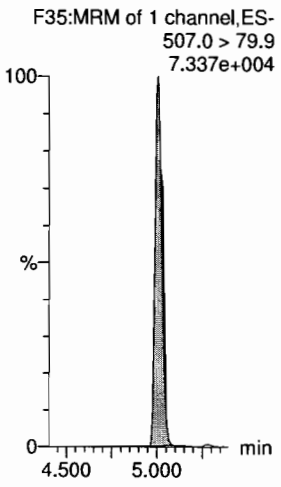




13C8-PFOSA



13C8-PFOS



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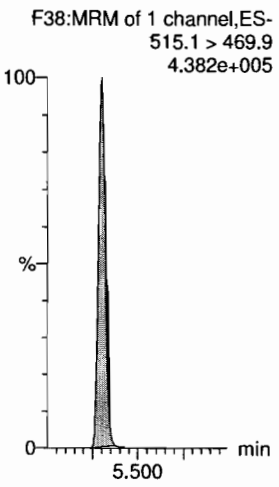
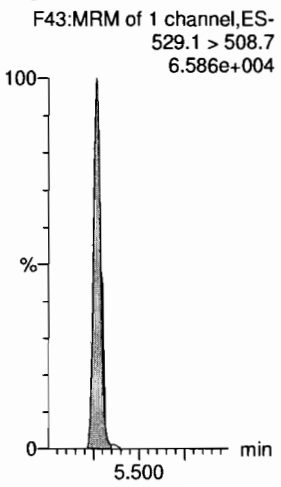


13C2-8:2 FTS



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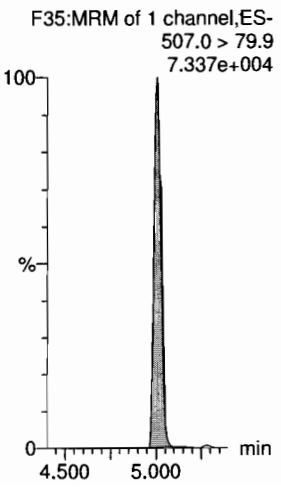
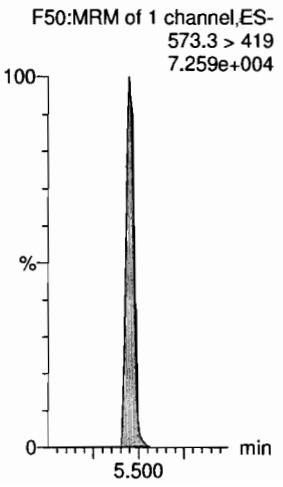


d3-N-MeFOSAA



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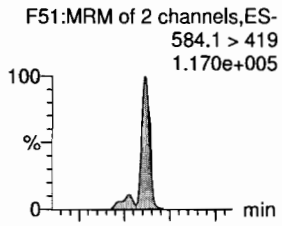
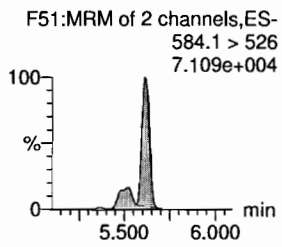
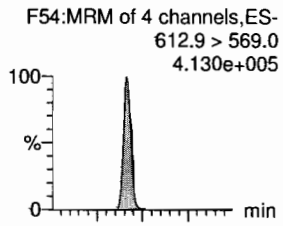
Name: 181126M1_101, Date: 27-Nov-2018, Time: 05:17:27, ID: ST181126M1-16 PFC CS3 18K1906, Description: PFC CS3 18K1906

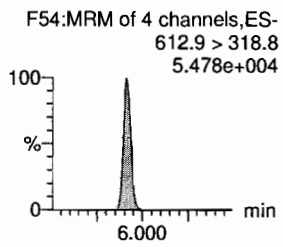
L-EtFOSAA





PFDoA





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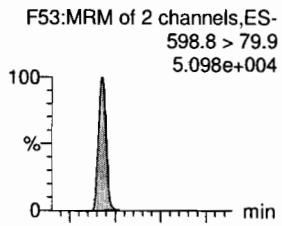

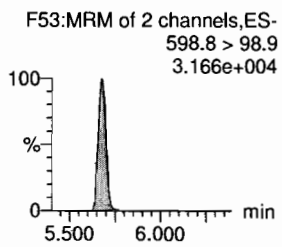

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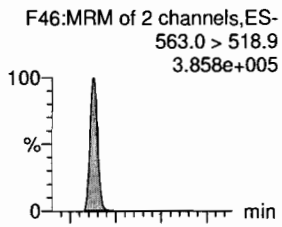
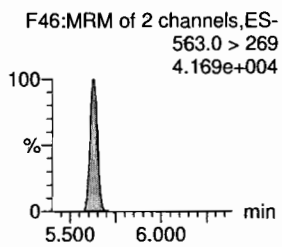
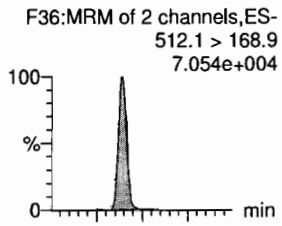
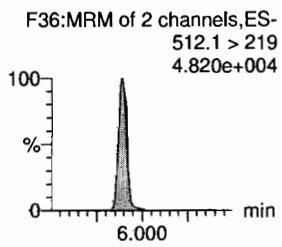




N-MeFOSA





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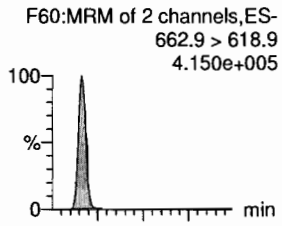
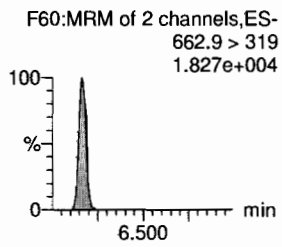
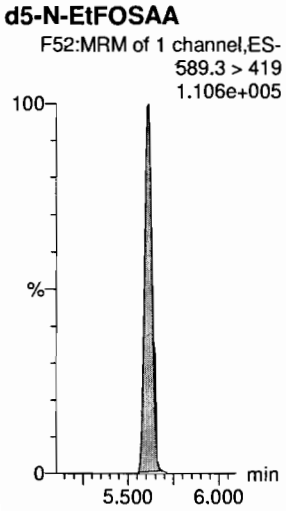
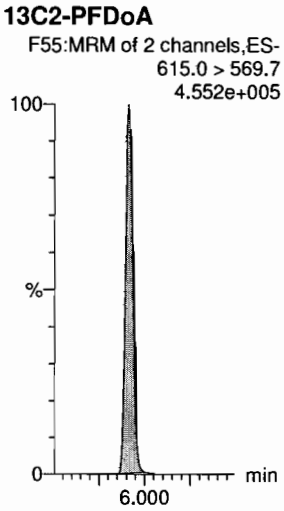




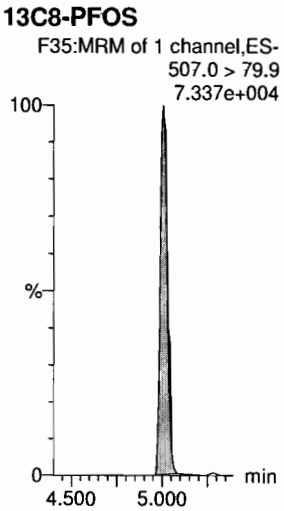
d5-N-EtFOSAA



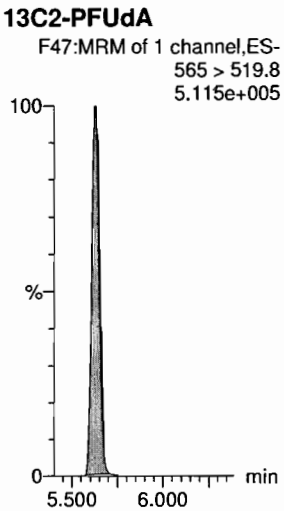
13C2-PFDoA



13C8-PFOS



13C2-PFUdA



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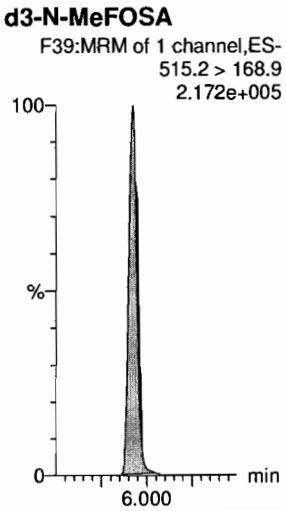

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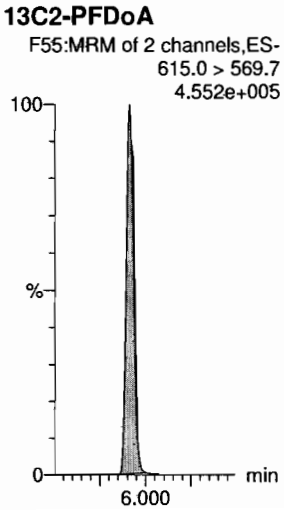

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Name: 181126M1_101, Date: 27-Nov-2018, Time: 05:17:27, ID: ST181126M1-16 PFC CS3 18K1906, Description: PFC CS3 18K1906

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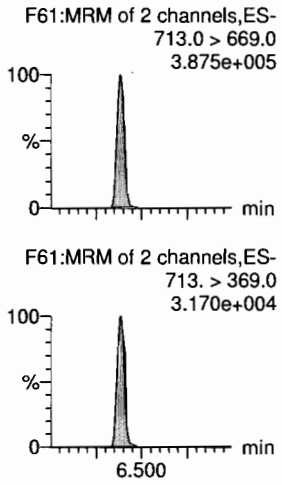

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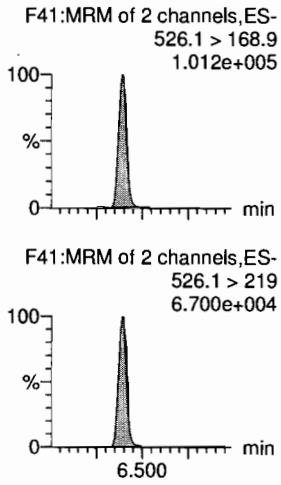

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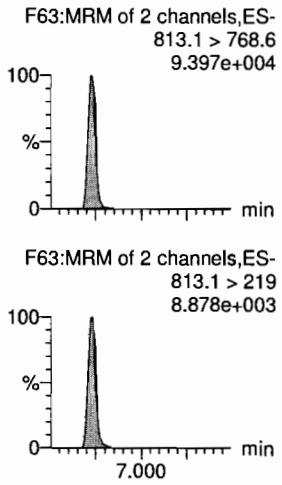
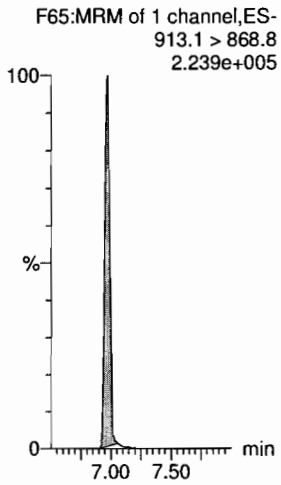
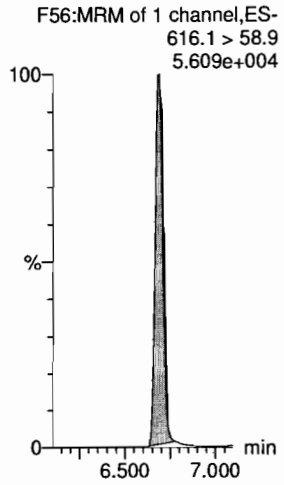


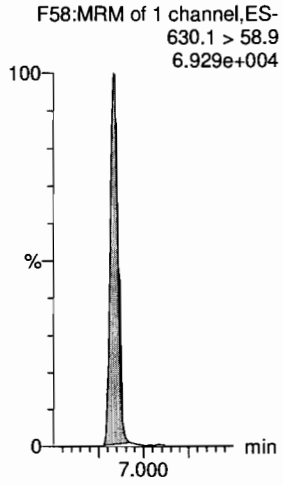
PFODA



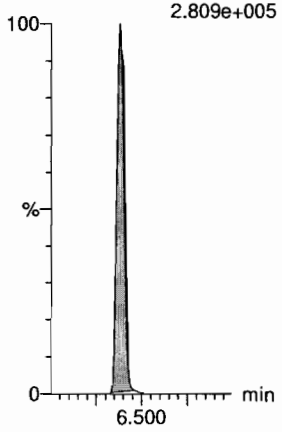
N-MeFOSE



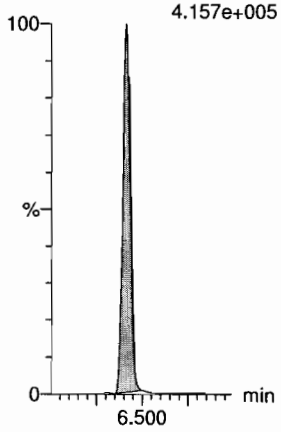
N-EtFOSE



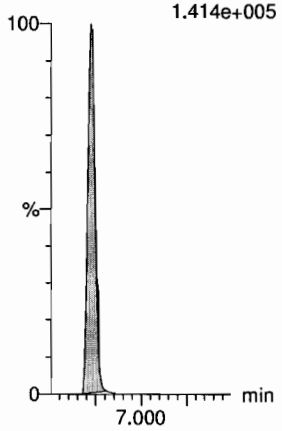
13C2-PFTeDA



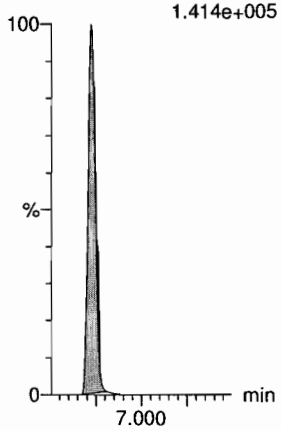
d5-N-ETFOSA



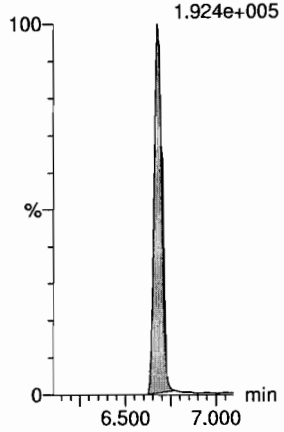
13C2-PFHxDA



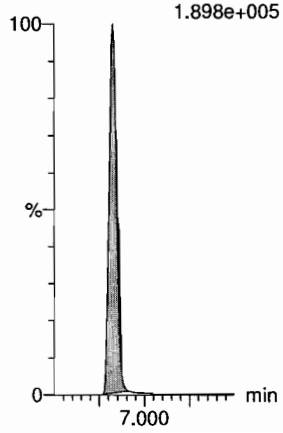
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE



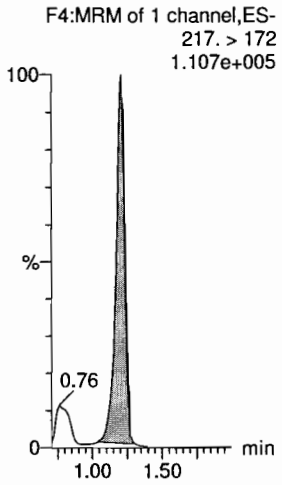
Vista Analytical Laboratory

Dataset: Z:\Projects\PFAS.PRO\Results\181126M1\181126M1-101.qld

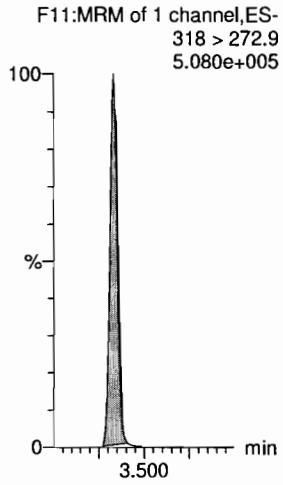
Last Altered: Tuesday, November 27, 2018 08:26:08 Pacific Standard Time
Printed: Tuesday, November 27, 2018 08:26:38 Pacific Standard Time

Name: 181126M1_101, Date: 27-Nov-2018, Time: 05:17:27, ID: ST181126M1-16 PFC CS3 18K1906, Description: PFC CS3 18K1906

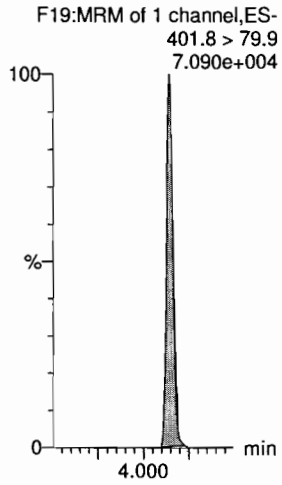
13C4-PFBA



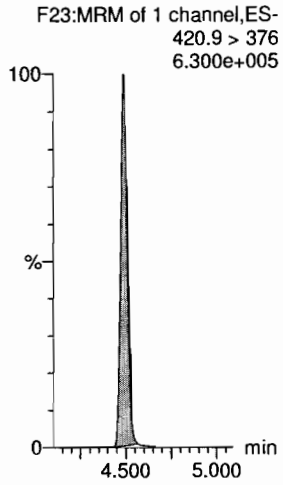
13C5-PFHxA



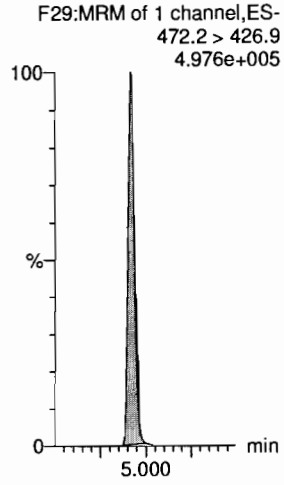
13C3-PFHxS



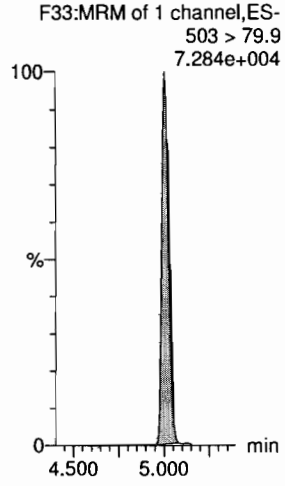
13C8-PFOA



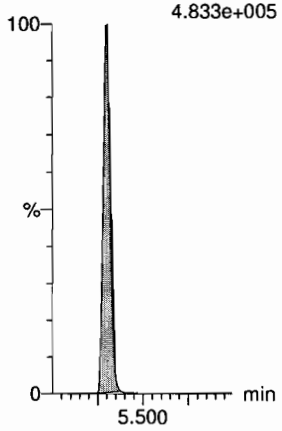
13C9-PFNA



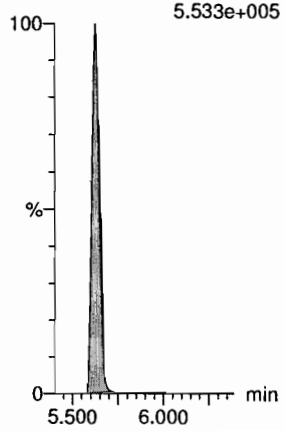
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Vista Analytical Laboratory

Dataset: F:\Projects\PFAS.PRO\Results\181128M1\181128M1-IIS AREAS.qld

Last Altered: Thursday, November 29, 2018 09:13:30 Pacific Standard Time
Printed: Thursday, November 29, 2018 09:19:11 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_RS-11-14-18.mdb 14 Nov 2018 11:37:25
Calibration: 29 Nov 2018 09:13:30

Name: 181128M1_2, Date: 28-Nov-2018, Time: 11:49:27, ID: ST181128M1-1 PFC CS0 18K1903, Description: PFC CS0 18K1903

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181128M1-1 PFC CS0 18K1903	8.10e3	100.0	NO
2	2	13C5-PFHxA	ST181128M1-1 PFC CS0 18K1903	2.57e4	100.0	NO
3	3	13C3-PFHxS	ST181128M1-1 PFC CS0 18K1903	3.01e3	100.0	NO
4	4	13C8-PFOA	ST181128M1-1 PFC CS0 18K1903	2.95e4	100.0	NO
5	5	13C9-PFNA	ST181128M1-1 PFC CS0 18K1903	2.14e4	100.0	NO
6	6	13C4-PFOS	ST181128M1-1 PFC CS0 18K1903	3.25e3	100.0	NO
7	7	13C6-PFDA	ST181128M1-1 PFC CS0 18K1903	2.48e4	100.0	NO
8	8	13C7-PFUdA	ST181128M1-1 PFC CS0 18K1903	2.74e4	100.0	NO

Name: 181128M1_3, Date: 28-Nov-2018, Time: 12:46:26, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA	1.34e1	0.1	YES
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

Name: 181128M1_4, Date: 28-Nov-2018, Time: 12:57:03, ID: B8K0098-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0098-BLK1 Method Blank 0.125	9.89e3	122.2	NO
2	2	13C5-PFHxA	B8K0098-BLK1 Method Blank 0.125	1.93e4	75.1	NO
3	3	13C3-PFHxS	B8K0098-BLK1 Method Blank 0.125	2.44e3	80.9	NO
4	4	13C8-PFOA	B8K0098-BLK1 Method Blank 0.125	2.34e4	79.3	NO
5	5	13C9-PFNA	B8K0098-BLK1 Method Blank 0.125	1.62e4	76.0	NO
6	6	13C4-PFOS	B8K0098-BLK1 Method Blank 0.125	2.49e3	76.5	NO
7	7	13C6-PFDA	B8K0098-BLK1 Method Blank 0.125	1.91e4	77.0	NO
8	8	13C7-PFUdA	B8K0098-BLK1 Method Blank 0.125	2.14e4	78.1	NO

Name: 181128M1_5, Date: 28-Nov-2018, Time: 13:07:41, ID: B8K0142-BSD1 LCSD 0.125, Description: LCSD

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0142-BSD1 LCSD 0.125	1.03e4	126.6	NO
2	2	13C5-PFHxA	B8K0142-BSD1 LCSD 0.125	1.93e4	75.0	NO
3	3	13C3-PFHxS	B8K0142-BSD1 LCSD 0.125	2.41e3	80.1	NO
4	4	13C8-PFOA	B8K0142-BSD1 LCSD 0.125	2.21e4	75.1	NO
5	5	13C9-PFNA	B8K0142-BSD1 LCSD 0.125	1.58e4	73.8	NO
6	6	13C4-PFOS	B8K0142-BSD1 LCSD 0.125	2.62e3	80.7	NO
7	7	13C6-PFDA	B8K0142-BSD1 LCSD 0.125	1.77e4	71.2	NO
8	8	13C7-PFUdA	B8K0142-BSD1 LCSD 0.125	2.06e4	75.1	NO

Dataset: F:\Projects\PFAS.PRO\Results\181128M1\181128M1-IIS AREAS.qld

Last Altered: Thursday, November 29, 2018 09:13:30 Pacific Standard Time
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Name: 181128M1_6, Date: 28-Nov-2018, Time: 13:18:14, ID: B8K0142-BS1 OPR 0.125, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0142-BS1 OPR 0.125	1.01e4	124.5	NO
2	2	13C5-PFHxA	B8K0142-BS1 OPR 0.125	1.94e4	75.3	NO
3	3	13C3-PFHxS	B8K0142-BS1 OPR 0.125	2.46e3	81.7	NO
4	4	13C8-PFOA	B8K0142-BS1 OPR 0.125	2.28e4	77.5	NO
5	5	13C9-PFNA	B8K0142-BS1 OPR 0.125	1.61e4	75.3	NO
6	6	13C4-PFOS	B8K0142-BS1 OPR 0.125	2.53e3	77.8	NO
7	7	13C6-PFDA	B8K0142-BS1 OPR 0.125	1.85e4	74.4	NO
8	8	13C7-PFUdA	B8K0142-BS1 OPR 0.125	2.08e4	75.9	NO

Name: 181128M1_7, Date: 28-Nov-2018, Time: 13:28:52, ID: B8K0142-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0142-BLK1 Method Blank 0.125	1.01e4	125.1	NO
2	2	13C5-PFHxA	B8K0142-BLK1 Method Blank 0.125	1.96e4	76.1	NO
3	3	13C3-PFHxS	B8K0142-BLK1 Method Blank 0.125	2.48e3	82.3	NO
4	4	13C8-PFOA	B8K0142-BLK1 Method Blank 0.125	2.25e4	76.5	NO
5	5	13C9-PFNA	B8K0142-BLK1 Method Blank 0.125	1.50e4	70.5	NO
6	6	13C4-PFOS	B8K0142-BLK1 Method Blank 0.125	2.45e3	75.4	NO
7	7	13C6-PFDA	B8K0142-BLK1 Method Blank 0.125	1.80e4	72.3	NO
8	8	13C7-PFUdA	B8K0142-BLK1 Method Blank 0.125	1.98e4	72.2	NO

Name: 181128M1_8, Date: 28-Nov-2018, Time: 13:39:25, ID: 1803631-01 REEPDW1366FRB 0.1199, Description: REEPDW1366FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803631-01 REEPDW1366FRB 0.1199	9.60e3	118.6	NO
2	2	13C5-PFHxA	1803631-01 REEPDW1366FRB 0.1199	1.82e4	70.7	NO
3	3	13C3-PFHxS	1803631-01 REEPDW1366FRB 0.1199	2.42e3	80.3	NO
4	4	13C8-PFOA	1803631-01 REEPDW1366FRB 0.1199	2.20e4	74.6	NO
5	5	13C9-PFNA	1803631-01 REEPDW1366FRB 0.1199	1.53e4	71.8	NO
6	6	13C4-PFOS	1803631-01 REEPDW1366FRB 0.1199	2.45e3	75.3	NO
7	7	13C6-PFDA	1803631-01 REEPDW1366FRB 0.1199	1.82e4	73.5	NO
8	8	13C7-PFUdA	1803631-01 REEPDW1366FRB 0.1199	2.08e4	75.8	NO

Name: 181128M1_9, Date: 28-Nov-2018, Time: 13:50:03, ID: 1803631-02 REEPDW1367FRB 0.12161, Description: REEPDW1367FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803631-02 REEPDW1367FRB 0.12161	9.96e3	123.0	NO
2	2	13C5-PFHxA	1803631-02 REEPDW1367FRB 0.12161	1.90e4	73.7	NO
3	3	13C3-PFHxS	1803631-02 REEPDW1367FRB 0.12161	2.40e3	79.7	NO
4	4	13C8-PFOA	1803631-02 REEPDW1367FRB 0.12161	2.25e4	76.4	NO
5	5	13C9-PFNA	1803631-02 REEPDW1367FRB 0.12161	1.43e4	67.0	NO
6	6	13C4-PFOS	1803631-02 REEPDW1367FRB 0.12161	2.39e3	73.6	NO
7	7	13C6-PFDA	1803631-02 REEPDW1367FRB 0.12161	1.76e4	70.9	NO
8	8	13C7-PFUdA	1803631-02 REEPDW1367FRB 0.12161	2.05e4	74.9	NO

Dataset: F:\Projects\PFAS.PRO\Results\181128M1\181128M1-IIS AREAS.qld

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Name: 181128M1_10, Date: 28-Nov-2018, Time: 14:00:36, ID: 1803631-03 REEPDW1369FRB 0.1176, Description: REEPDW1369FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803631-03 REEPDW1369FRB 0.1176	1.01e4	124.8	NO
2	2	13C5-PFHxA	1803631-03 REEPDW1369FRB 0.1176	1.98e4	77.1	NO
3	3	13C3-PFHxS	1803631-03 REEPDW1369FRB 0.1176	2.46e3	81.5	NO
4	4	13C8-PFOA	1803631-03 REEPDW1369FRB 0.1176	2.25e4	76.3	NO
5	5	13C9-PFNA	1803631-03 REEPDW1369FRB 0.1176	1.52e4	71.4	NO
6	6	13C4-PFOS	1803631-03 REEPDW1369FRB 0.1176	2.55e3	78.4	NO
7	7	13C6-PFDA	1803631-03 REEPDW1369FRB 0.1176	1.84e4	74.3	NO
8	8	13C7-PFUdA	1803631-03 REEPDW1369FRB 0.1176	2.17e4	79.4	NO

Name: 181128M1_11, Date: 28-Nov-2018, Time: 14:11:14, ID: 1803631-04 REEPDW1368FRB 0.11836, Description: REEPDW1368FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803631-04 REEPDW1368FRB 0.11836	1.01e4	125.3	NO
2	2	13C5-PFHxA	1803631-04 REEPDW1368FRB 0.11836	1.93e4	75.2	NO
3	3	13C3-PFHxS	1803631-04 REEPDW1368FRB 0.11836	2.41e3	80.1	NO
4	4	13C8-PFOA	1803631-04 REEPDW1368FRB 0.11836	2.11e4	71.7	NO
5	5	13C9-PFNA	1803631-04 REEPDW1368FRB 0.11836	1.34e4	62.8	NO
6	6	13C4-PFOS	1803631-04 REEPDW1368FRB 0.11836	2.57e3	79.2	NO
7	7	13C6-PFDA	1803631-04 REEPDW1368FRB 0.11836	1.71e4	68.8	NO
8	8	13C7-PFUdA	1803631-04 REEPDW1368FRB 0.11836	1.95e4	71.1	NO

Name: 181128M1_12, Date: 28-Nov-2018, Time: 14:21:48, ID: 1803631-05 REEPDW1370FRB 0.1188, Description: REEPDW1370FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803631-05 REEPDW1370FRB 0.1188	9.45e3	116.7	NO
2	2	13C5-PFHxA	1803631-05 REEPDW1370FRB 0.1188	1.86e4	72.2	NO
3	3	13C3-PFHxS	1803631-05 REEPDW1370FRB 0.1188	2.31e3	76.5	NO
4	4	13C8-PFOA	1803631-05 REEPDW1370FRB 0.1188	2.06e4	69.8	NO
5	5	13C9-PFNA	1803631-05 REEPDW1370FRB 0.1188	1.38e4	64.7	NO
6	6	13C4-PFOS	1803631-05 REEPDW1370FRB 0.1188	2.43e3	74.8	NO
7	7	13C6-PFDA	1803631-05 REEPDW1370FRB 0.1188	1.68e4	67.6	NO
8	8	13C7-PFUdA	1803631-05 REEPDW1370FRB 0.1188	2.06e4	75.2	NO

Name: 181128M1_13, Date: 28-Nov-2018, Time: 14:32:26, ID: 1803631-06 REEPDW1371FRB 0.12004, Description: REEPDW1371FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803631-06 REEPDW1371FRB 0.12004	9.53e3	117.7	NO
2	2	13C5-PFHxA	1803631-06 REEPDW1371FRB 0.12004	1.79e4	69.6	NO
3	3	13C3-PFHxS	1803631-06 REEPDW1371FRB 0.12004	2.25e3	74.6	NO
4	4	13C8-PFOA	1803631-06 REEPDW1371FRB 0.12004	1.92e4	65.1	NO
5	5	13C9-PFNA	1803631-06 REEPDW1371FRB 0.12004	1.28e4	60.0	NO
6	6	13C4-PFOS	1803631-06 REEPDW1371FRB 0.12004	2.38e3	73.1	NO
7	7	13C6-PFDA	1803631-06 REEPDW1371FRB 0.12004	1.52e4	61.3	NO
8	8	13C7-PFUdA	1803631-06 REEPDW1371FRB 0.12004	1.86e4	67.9	NO

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Name: 181128M1_14, Date: 28-Nov-2018, Time: 14:44:10, ID: 1803656-01 REEPDW1372FRB 0.12021, Description: REEPDW1372FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803656-01 REEPDW1372FRB 0.12021	9.41e3	116.3	NO
2	2	13C5-PFHxA	1803656-01 REEPDW1372FRB 0.12021	1.78e4	69.0	NO
3	3	13C3-PFHxS	1803656-01 REEPDW1372FRB 0.12021	2.22e3	73.7	NO
4	4	13C8-PFOA	1803656-01 REEPDW1372FRB 0.12021	2.10e4	71.4	NO
5	5	13C9-PFNA	1803656-01 REEPDW1372FRB 0.12021	1.42e4	66.3	NO
6	6	13C4-PFOS	1803656-01 REEPDW1372FRB 0.12021	2.27e3	70.0	NO
7	7	13C6-PFDA	1803656-01 REEPDW1372FRB 0.12021	1.75e4	70.6	NO
8	8	13C7-PFUdA	1803656-01 REEPDW1372FRB 0.12021	1.98e4	72.3	NO

Name: 181128M1_15, Date: 28-Nov-2018, Time: 14:54:43, ID: 1803656-02 REEPDW1373FRB 0.11861, Description: REEPDW1373FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803656-02 REEPDW1373FRB 0.11861	9.58e3	118.3	NO
2	2	13C5-PFHxA	1803656-02 REEPDW1373FRB 0.11861	1.83e4	71.3	NO
3	3	13C3-PFHxS	1803656-02 REEPDW1373FRB 0.11861	2.22e3	73.6	NO
4	4	13C8-PFOA	1803656-02 REEPDW1373FRB 0.11861	2.07e4	70.1	NO
5	5	13C9-PFNA	1803656-02 REEPDW1373FRB 0.11861	1.40e4	65.4	NO
6	6	13C4-PFOS	1803656-02 REEPDW1373FRB 0.11861	2.42e3	74.4	NO
7	7	13C6-PFDA	1803656-02 REEPDW1373FRB 0.11861	1.61e4	65.0	NO
8	8	13C7-PFUdA	1803656-02 REEPDW1373FRB 0.11861	1.92e4	70.2	NO

Name: 181128M1_16, Date: 28-Nov-2018, Time: 15:05:23, ID: B8K0141-BS1 OPR 0.25, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0141-BS1 OPR 0.25	1.08e4	133.6	NO
2	2	13C5-PFHxA	B8K0141-BS1 OPR 0.25	2.08e4	80.7	NO
3	3	13C3-PFHxS	B8K0141-BS1 OPR 0.25	2.95e3	98.0	NO
4	4	13C8-PFOA	B8K0141-BS1 OPR 0.25	2.64e4	89.5	NO
5	5	13C9-PFNA	B8K0141-BS1 OPR 0.25	1.82e4	85.1	NO
6	6	13C4-PFOS	B8K0141-BS1 OPR 0.25	3.07e3	94.4	NO
7	7	13C6-PFDA	B8K0141-BS1 OPR 0.25	2.19e4	88.4	NO
8	8	13C7-PFUdA	B8K0141-BS1 OPR 0.25	2.70e4	98.8	NO

Name: 181128M1_17, Date: 28-Nov-2018, Time: 15:16:00, ID: B8K0141-BLK1 Method Blank 0.25, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0141-BLK1 Method Blank 0.25	1.12e4	138.2	NO
2	2	13C5-PFHxA	B8K0141-BLK1 Method Blank 0.25	2.24e4	86.9	NO
3	3	13C3-PFHxS	B8K0141-BLK1 Method Blank 0.25	3.08e3	102.2	NO
4	4	13C8-PFOA	B8K0141-BLK1 Method Blank 0.25	2.72e4	92.4	NO
5	5	13C9-PFNA	B8K0141-BLK1 Method Blank 0.25	2.00e4	93.8	NO
6	6	13C4-PFOS	B8K0141-BLK1 Method Blank 0.25	3.24e3	99.8	NO
7	7	13C6-PFDA	B8K0141-BLK1 Method Blank 0.25	2.36e4	95.2	NO
8	8	13C7-PFUdA	B8K0141-BLK1 Method Blank 0.25	2.72e4	99.3	NO

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Name: 181128M1_18, Date: 28-Nov-2018, Time: 15:28:26, ID: B8K0126-BS1 OPR 0.125, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0126-BS1 OPR 0.125	1.66e4	205.1	YES
2	2	13C5-PFHxA	B8K0126-BS1 OPR 0.125	2.81e4	109.2	NO
3	3	13C3-PFHxS	B8K0126-BS1 OPR 0.125	3.85e3	127.7	NO
4	4	13C8-PFOA	B8K0126-BS1 OPR 0.125	2.92e4	99.0	NO
5	5	13C9-PFNA	B8K0126-BS1 OPR 0.125	1.91e4	89.4	NO
6	6	13C4-PFOS	B8K0126-BS1 OPR 0.125	4.06e3	124.9	NO
7	7	13C6-PFDA	B8K0126-BS1 OPR 0.125	2.20e4	88.6	NO
8	8	13C7-PFUdA	B8K0126-BS1 OPR 0.125	2.51e4	91.5	NO

Name: 181128M1_19, Date: 28-Nov-2018, Time: 15:39:02, ID: B8K0126-BSD1 LCSD 0.125, Description: LCSD

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0126-BSD1 LCSD 0.125	1.56e4	192.3	YES
2	2	13C5-PFHxA	B8K0126-BSD1 LCSD 0.125	2.67e4	103.7	NO
3	3	13C3-PFHxS	B8K0126-BSD1 LCSD 0.125	3.76e3	124.7	NO
4	4	13C8-PFOA	B8K0126-BSD1 LCSD 0.125	2.65e4	90.1	NO
5	5	13C9-PFNA	B8K0126-BSD1 LCSD 0.125	1.76e4	82.2	NO
6	6	13C4-PFOS	B8K0126-BSD1 LCSD 0.125	3.86e3	118.9	NO
7	7	13C6-PFDA	B8K0126-BSD1 LCSD 0.125	2.01e4	80.9	NO
8	8	13C7-PFUdA	B8K0126-BSD1 LCSD 0.125	2.48e4	90.5	NO

Name: 181128M1_20, Date: 28-Nov-2018, Time: 15:49:40, ID: B8K0126-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0126-BLK1 Method Blank 0.125	1.70e4	210.0	YES
2	2	13C5-PFHxA	B8K0126-BLK1 Method Blank 0.125	2.98e4	115.8	NO
3	3	13C3-PFHxS	B8K0126-BLK1 Method Blank 0.125	4.11e3	136.4	NO
4	4	13C8-PFOA	B8K0126-BLK1 Method Blank 0.125	2.83e4	96.0	NO
5	5	13C9-PFNA	B8K0126-BLK1 Method Blank 0.125	1.82e4	85.1	NO
6	6	13C4-PFOS	B8K0126-BLK1 Method Blank 0.125	4.22e3	129.9	NO
7	7	13C6-PFDA	B8K0126-BLK1 Method Blank 0.125	2.10e4	84.4	NO
8	8	13C7-PFUdA	B8K0126-BLK1 Method Blank 0.125	2.53e4	92.5	NO

Name: 181128M1_21, Date: 28-Nov-2018, Time: 16:00:19, ID: 1803654-01 REEPDW1372 0.1169, Description: REEPDW1372

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803654-01 REEPDW1372 0.1169	1.31e4	161.4	YES
2	2	13C5-PFHxA	1803654-01 REEPDW1372 0.1169	1.94e4	75.3	NO
3	3	13C3-PFHxS	1803654-01 REEPDW1372 0.1169	3.79e3	125.7	NO
4	4	13C8-PFOA	1803654-01 REEPDW1372 0.1169	2.12e4	71.9	NO
5	5	13C9-PFNA	1803654-01 REEPDW1372 0.1169	1.44e4	67.5	NO
6	6	13C4-PFOS	1803654-01 REEPDW1372 0.1169	4.02e3	123.7	NO
7	7	13C6-PFDA	1803654-01 REEPDW1372 0.1169	1.81e4	72.8	NO
8	8	13C7-PFUdA	1803654-01 REEPDW1372 0.1169	2.23e4	81.4	NO

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Name: 181128M1_22, Date: 28-Nov-2018, Time: 16:10:52, ID: 1803654-02 REEPDW1373 0.11774, Description: REEPDW1373

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803654-02 REEPDW1373 0.11774	1.49e4	183.7	YES
2	2	13C5-PFHxA	1803654-02 REEPDW1373 0.11774	2.80e4	108.8	NO
3	3	13C3-PFHxS	1803654-02 REEPDW1373 0.11774	3.44e3	114.2	NO
4	4	13C8-PFOA	1803654-02 REEPDW1373 0.11774	3.26e4	110.5	NO
5	5	13C9-PFNA	1803654-02 REEPDW1373 0.11774	2.23e4	104.4	NO
6	6	13C4-PFOS	1803654-02 REEPDW1373 0.11774	3.67e3	113.0	NO
7	7	13C6-PFDA	1803654-02 REEPDW1373 0.11774	2.60e4	104.9	NO
8	8	13C7-PFUdA	1803654-02 REEPDW1373 0.11774	2.93e4	107.0	NO

Name: 181128M1_23, Date: 28-Nov-2018, Time: 16:21:30, ID: 1803657-01 REEPEF1088 0.11595, Description: REEPEF1088

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803657-01 REEPEF1088 0.11595	1.57e4	193.6	YES
2	2	13C5-PFHxA	1803657-01 REEPEF1088 0.11595	2.78e4	108.2	NO
3	3	13C3-PFHxS	1803657-01 REEPEF1088 0.11595	3.49e3	115.9	NO
4	4	13C8-PFOA	1803657-01 REEPEF1088 0.11595	2.80e4	94.9	NO
5	5	13C9-PFNA	1803657-01 REEPEF1088 0.11595	1.82e4	85.2	NO
6	6	13C4-PFOS	1803657-01 REEPEF1088 0.11595	3.77e3	116.1	NO
7	7	13C6-PFDA	1803657-01 REEPEF1088 0.11595	2.05e4	82.4	NO
8	8	13C7-PFUdA	1803657-01 REEPEF1088 0.11595	2.38e4	86.8	NO

Name: 181128M1_24, Date: 28-Nov-2018, Time: 16:32:03, ID: 1803657-02 REEPAR1088 0.11979, Description: REEPAR1088

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803657-02 REEPAR1088 0.11979	1.57e4	194.3	YES
2	2	13C5-PFHxA	1803657-02 REEPAR1088 0.11979	2.75e4	107.0	NO
3	3	13C3-PFHxS	1803657-02 REEPAR1088 0.11979	3.73e3	123.9	NO
4	4	13C8-PFOA	1803657-02 REEPAR1088 0.11979	2.83e4	95.9	NO
5	5	13C9-PFNA	1803657-02 REEPAR1088 0.11979	1.91e4	89.5	NO
6	6	13C4-PFOS	1803657-02 REEPAR1088 0.11979	4.07e3	125.3	NO
7	7	13C6-PFDA	1803657-02 REEPAR1088 0.11979	2.29e4	92.1	NO
8	8	13C7-PFUdA	1803657-02 REEPAR1088 0.11979	2.83e4	103.5	NO

Name: 181128M1_25, Date: 28-Nov-2018, Time: 16:42:42, ID: 1803657-03 REEPAC1088 0.11772, Description: REEPAC1088

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803657-03 REEPAC1088 0.11772	1.23e4	151.9	YES
2	2	13C5-PFHxA	1803657-03 REEPAC1088 0.11772	1.63e4	63.6	NO
3	3	13C3-PFHxS	1803657-03 REEPAC1088 0.11772	3.81e3	126.5	NO
4	4	13C8-PFOA	1803657-03 REEPAC1088 0.11772	1.93e4	65.5	NO
5	5	13C9-PFNA	1803657-03 REEPAC1088 0.11772	1.42e4	66.3	NO
6	6	13C4-PFOS	1803657-03 REEPAC1088 0.11772	4.12e3	126.7	NO
7	7	13C6-PFDA	1803657-03 REEPAC1088 0.11772	1.79e4	72.3	NO
8	8	13C7-PFUdA	1803657-03 REEPAC1088 0.11772	2.42e4	88.5	NO

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Name: 181128M1_26, Date: 28-Nov-2018, Time: 16:53:15, ID: 1803657-04 REEPIN1088 0.11717, Description: REEPIN1088

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803657-04 REEPIN1088 0.11717	1.14e4	141.3	NO
2	2	13C5-PFHxA	1803657-04 REEPIN1088 0.11717	1.49e4	57.8	NO
3	3	13C3-PFHxS	1803657-04 REEPIN1088 0.11717	3.35e3	111.3	NO
4	4	13C8-PFOA	1803657-04 REEPIN1088 0.11717	1.63e4	55.2	NO
5	5	13C9-PFNA	1803657-04 REEPIN1088 0.11717	1.15e4	54.0	NO
6	6	13C4-PFOS	1803657-04 REEPIN1088 0.11717	3.66e3	112.7	NO
7	7	13C6-PFDA	1803657-04 REEPIN1088 0.11717	1.39e4	56.0	NO
8	8	13C7-PFUdA	1803657-04 REEPIN1088 0.11717	1.69e4	61.7	NO

Name: 181128M1_27, Date: 28-Nov-2018, Time: 17:03:53, ID: 1803657-05 REEPEF1089 0.11674, Description: REEPEF1089

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803657-05 REEPEF1089 0.11674	1.49e4	184.6	YES
2	2	13C5-PFHxA	1803657-05 REEPEF1089 0.11674	2.84e4	110.3	NO
3	3	13C3-PFHxS	1803657-05 REEPEF1089 0.11674	3.65e3	121.0	NO
4	4	13C8-PFOA	1803657-05 REEPEF1089 0.11674	3.16e4	107.2	NO
5	5	13C9-PFNA	1803657-05 REEPEF1089 0.11674	2.06e4	96.5	NO
6	6	13C4-PFOS	1803657-05 REEPEF1089 0.11674	3.85e3	118.4	NO
7	7	13C6-PFDA	1803657-05 REEPEF1089 0.11674	2.38e4	95.9	NO
8	8	13C7-PFUdA	1803657-05 REEPEF1089 0.11674	2.73e4	99.7	NO

Name: 181128M1_28, Date: 28-Nov-2018, Time: 17:14:26, ID: 1803657-06 REEPEF5039 0.1185, Description: REEPEF5039

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803657-06 REEPEF5039 0.1185	1.44e4	177.4	YES
2	2	13C5-PFHxA	1803657-06 REEPEF5039 0.1185	2.23e4	86.7	NO
3	3	13C3-PFHxS	1803657-06 REEPEF5039 0.1185	3.46e3	114.6	NO
4	4	13C8-PFOA	1803657-06 REEPEF5039 0.1185	1.92e4	65.0	NO
5	5	13C9-PFNA	1803657-06 REEPEF5039 0.1185	1.29e4	60.4	NO
6	6	13C4-PFOS	1803657-06 REEPEF5039 0.1185	3.63e3	111.6	NO
7	7	13C6-PFDA	1803657-06 REEPEF5039 0.1185	1.53e4	61.6	NO
8	8	13C7-PFUdA	1803657-06 REEPEF5039 0.1185	1.85e4	67.6	NO

Name: 181128M1_29, Date: 28-Nov-2018, Time: 17:25:04, ID: 1803657-07 REEPAR1089 0.11405, Description: REEPAR1089

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803657-07 REEPAR1089 0.11405	1.44e4	178.0	YES
2	2	13C5-PFHxA	1803657-07 REEPAR1089 0.11405	2.53e4	98.5	NO
3	3	13C3-PFHxS	1803657-07 REEPAR1089 0.11405	3.19e3	105.9	NO
4	4	13C8-PFOA	1803657-07 REEPAR1089 0.11405	2.34e4	79.3	NO
5	5	13C9-PFNA	1803657-07 REEPAR1089 0.11405	1.59e4	74.6	NO
6	6	13C4-PFOS	1803657-07 REEPAR1089 0.11405	3.66e3	112.8	NO
7	7	13C6-PFDA	1803657-07 REEPAR1089 0.11405	1.83e4	73.8	NO
8	8	13C7-PFUdA	1803657-07 REEPAR1089 0.11405	2.01e4	73.3	NO

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Name: 181128M1_30, Date: 28-Nov-2018, Time: 17:35:43, ID: 1803657-08 REEPAC1089 0.1182, Description: REEPAC1089

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803657-08 REEPAC1089 0.1182	1.20e4	148.8	NO
2	2	13C5-PFHxA	1803657-08 REEPAC1089 0.1182	1.65e4	64.3	NO
3	3	13C3-PFHxS	1803657-08 REEPAC1089 0.1182	3.32e3	110.1	NO
4	4	13C8-PFOA	1803657-08 REEPAC1089 0.1182	1.87e4	63.4	NO
5	5	13C9-PFNA	1803657-08 REEPAC1089 0.1182	1.25e4	58.5	NO
6	6	13C4-PFOS	1803657-08 REEPAC1089 0.1182	3.54e3	108.8	NO
7	7	13C6-PFDA	1803657-08 REEPAC1089 0.1182	1.52e4	61.4	NO
8	8	13C7-PFUdA	1803657-08 REEPAC1089 0.1182	1.96e4	71.5	NO

Name: 181128M1_31, Date: 28-Nov-2018, Time: 17:46:15, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

Name: 181128M1_32, Date: 28-Nov-2018, Time: 17:56:54, ID: ST181128M1-2 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181128M1-2 PFC CS3 18K1906	7.92e3	97.9	NO
2	2	13C5-PFHxA	ST181128M1-2 PFC CS3 18K1906	2.67e4	103.7	NO
3	3	13C3-PFHxS	ST181128M1-2 PFC CS3 18K1906	3.30e3	109.5	NO
4	4	13C8-PFOA	ST181128M1-2 PFC CS3 18K1906	3.19e4	108.1	NO
5	5	13C9-PFNA	ST181128M1-2 PFC CS3 18K1906	2.28e4	106.7	NO
6	6	13C4-PFOS	ST181128M1-2 PFC CS3 18K1906	3.67e3	113.1	NO
7	7	13C6-PFDA	ST181128M1-2 PFC CS3 18K1906	2.69e4	108.6	NO
8	8	13C7-PFUdA	ST181128M1-2 PFC CS3 18K1906	3.05e4	111.2	NO

Name: 181128M1_33, Date: 28-Nov-2018, Time: 18:07:27, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

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Name: 181128M1_34, Date: 28-Nov-2018, Time: 18:18:05, ID: 1803657-09 REEPIN1089 0.1204, Description: REEPIN1089

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803657-09 REEPIN1089 0.1204	1.33e4	164.3	YES
2	2	13C5-PFHxA	1803657-09 REEPIN1089 0.1204	1.71e4	66.6	NO
3	3	13C3-PFHxS	1803657-09 REEPIN1089 0.1204	3.50e3	116.1	NO
4	4	13C8-PFOA	1803657-09 REEPIN1089 0.1204	1.77e4	60.0	NO
5	5	13C9-PFNA	1803657-09 REEPIN1089 0.1204	1.17e4	54.7	NO
6	6	13C4-PFOS	1803657-09 REEPIN1089 0.1204	3.55e3	109.3	NO
7	7	13C6-PFDA	1803657-09 REEPIN1089 0.1204	1.37e4	55.1	NO
8	8	13C7-PFUdA	1803657-09 REEPIN1089 0.1204	1.73e4	63.1	NO

Name: 181128M1_35, Date: 28-Nov-2018, Time: 18:28:43, ID: 1803657-10 REEPEF1090 0.12036, Description: REEPEF1090

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803657-10 REEPEF1090 0.12036	1.26e4	155.9	YES
2	2	13C5-PFHxA	1803657-10 REEPEF1090 0.12036	1.66e4	64.7	NO
3	3	13C3-PFHxS	1803657-10 REEPEF1090 0.12036	3.31e3	109.7	NO
4	4	13C8-PFOA	1803657-10 REEPEF1090 0.12036	1.65e4	55.9	NO
5	5	13C9-PFNA	1803657-10 REEPEF1090 0.12036	1.18e4	55.0	NO
6	6	13C4-PFOS	1803657-10 REEPEF1090 0.12036	3.67e3	112.9	NO
7	7	13C6-PFDA	1803657-10 REEPEF1090 0.12036	1.46e4	58.7	NO
8	8	13C7-PFUdA	1803657-10 REEPEF1090 0.12036	1.85e4	67.6	NO

Name: 181128M1_36, Date: 28-Nov-2018, Time: 18:39:16, ID: 1803657-11 REEPAR1090 0.11858, Description: REEPAR1090

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803657-11 REEPAR1090 0.11858	1.28e4	157.6	YES
2	2	13C5-PFHxA	1803657-11 REEPAR1090 0.11858	1.74e4	67.8	NO
3	3	13C3-PFHxS	1803657-11 REEPAR1090 0.11858	3.29e3	109.1	NO
4	4	13C8-PFOA	1803657-11 REEPAR1090 0.11858	1.95e4	66.0	NO
5	5	13C9-PFNA	1803657-11 REEPAR1090 0.11858	1.34e4	62.7	NO
6	6	13C4-PFOS	1803657-11 REEPAR1090 0.11858	3.74e3	115.0	NO
7	7	13C6-PFDA	1803657-11 REEPAR1090 0.11858	1.69e4	68.1	NO
8	8	13C7-PFUdA	1803657-11 REEPAR1090 0.11858	2.06e4	75.3	NO

Name: 181128M1_37, Date: 28-Nov-2018, Time: 18:49:55, ID: 1803657-12 REEPAC1090 0.11236, Description: REEPAC1090

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803657-12 REEPAC1090 0.11236	1.26e4	156.0	YES
2	2	13C5-PFHxA	1803657-12 REEPAC1090 0.11236	1.31e4	51.1	NO
3	3	13C3-PFHxS	1803657-12 REEPAC1090 0.11236	3.52e3	116.8	NO
4	4	13C8-PFOA	1803657-12 REEPAC1090 0.11236	1.47e4	49.7	YES
5	5	13C9-PFNA	1803657-12 REEPAC1090 0.11236	9.95e3	46.6	YES
6	6	13C4-PFOS	1803657-12 REEPAC1090 0.11236	3.74e3	115.1	NO
7	7	13C6-PFDA	1803657-12 REEPAC1090 0.11236	1.16e4	46.7	YES
8	8	13C7-PFUdA	1803657-12 REEPAC1090 0.11236	1.47e4	53.7	NO

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Name: 181128M1_38, Date: 28-Nov-2018, Time: 19:00:29, ID: 1803657-13 REEPIN1090 0.11996, Description: REEPIN1090

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803657-13 REEPIN1090 0.11996	9.86e3	121.8	NO
2	2	13C5-PFHxA	1803657-13 REEPIN1090 0.11996	1.10e4	42.6	YES
3	3	13C3-PFHxS	1803657-13 REEPIN1090 0.11996	3.08e3	102.3	NO
4	4	13C8-PFOA	1803657-13 REEPIN1090 0.11996	1.35e4	45.9	YES
5	5	13C9-PFNA	1803657-13 REEPIN1090 0.11996	1.00e4	47.0	YES
6	6	13C4-PFOS	1803657-13 REEPIN1090 0.11996	3.41e3	105.1	NO
7	7	13C6-PFDA	1803657-13 REEPIN1090 0.11996	1.23e4	49.6	YES
8	8	13C7-PFUdA	1803657-13 REEPIN1090 0.11996	1.64e4	60.0	NO

Name: 181128M1_39, Date: 28-Nov-2018, Time: 19:11:07, ID: 1803657-14 REEPEF1091 0.11533, Description: REEPEF1091

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803657-14 REEPEF1091 0.11533	1.01e4	124.9	NO
2	2	13C5-PFHxA	1803657-14 REEPEF1091 0.11533	1.55e4	60.1	NO
3	3	13C3-PFHxS	1803657-14 REEPEF1091 0.11533	3.31e3	109.8	NO
4	4	13C8-PFOA	1803657-14 REEPEF1091 0.11533	1.82e4	61.8	NO
5	5	13C9-PFNA	1803657-14 REEPEF1091 0.11533	1.32e4	61.9	NO
6	6	13C4-PFOS	1803657-14 REEPEF1091 0.11533	3.39e3	104.3	NO
7	7	13C6-PFDA	1803657-14 REEPEF1091 0.11533	1.57e4	63.4	NO
8	8	13C7-PFUdA	1803657-14 REEPEF1091 0.11533	1.89e4	69.1	NO

Name: 181128M1_40, Date: 28-Nov-2018, Time: 19:21:39, ID: 1803657-15 REEPAR1091 0.11892, Description: REEPAR1091

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803657-15 REEPAR1091 0.11892	1.11e4	136.7	NO
2	2	13C5-PFHxA	1803657-15 REEPAR1091 0.11892	1.28e4	49.8	YES
3	3	13C3-PFHxS	1803657-15 REEPAR1091 0.11892	3.24e3	107.6	NO
4	4	13C8-PFOA	1803657-15 REEPAR1091 0.11892	1.55e4	52.7	NO
5	5	13C9-PFNA	1803657-15 REEPAR1091 0.11892	1.14e4	53.2	NO
6	6	13C4-PFOS	1803657-15 REEPAR1091 0.11892	3.55e3	109.2	NO
7	7	13C6-PFDA	1803657-15 REEPAR1091 0.11892	1.42e4	57.0	NO
8	8	13C7-PFUdA	1803657-15 REEPAR1091 0.11892	1.67e4	61.0	NO

Name: 181128M1_41, Date: 28-Nov-2018, Time: 19:32:18, ID: 1803657-16 REEPAC1091 0.11796, Description: REEPAC1091

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803657-16 REEPAC1091 0.11796	1.09e4	134.6	NO
2	2	13C5-PFHxA	1803657-16 REEPAC1091 0.11796	1.55e4	60.1	NO
3	3	13C3-PFHxS	1803657-16 REEPAC1091 0.11796	2.96e3	98.3	NO
4	4	13C8-PFOA	1803657-16 REEPAC1091 0.11796	1.79e4	60.7	NO
5	5	13C9-PFNA	1803657-16 REEPAC1091 0.11796	1.20e4	56.3	NO
6	6	13C4-PFOS	1803657-16 REEPAC1091 0.11796	3.13e3	96.2	NO
7	7	13C6-PFDA	1803657-16 REEPAC1091 0.11796	1.46e4	58.7	NO
8	8	13C7-PFUdA	1803657-16 REEPAC1091 0.11796	1.72e4	62.8	NO

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Name: 181128M1_42, Date: 28-Nov-2018, Time: 19:42:56, ID: 1803626-09@10X 16-HS-03-SA2D 0.11367, Description: 16-HS-03-SA2D

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803626-09@10X 16-HS-03-SA2D 0.11...	1.15e3	14.2	YES
2	2	13C5-PFHxA	1803626-09@10X 16-HS-03-SA2D 0.11...	1.98e3	7.7	YES
3	3	13C3-PFHxS	1803626-09@10X 16-HS-03-SA2D 0.11...	2.61e2	8.7	YES
4	4	13C8-PFOA	1803626-09@10X 16-HS-03-SA2D 0.11...	2.44e3	8.3	YES
5	5	13C9-PFNA	1803626-09@10X 16-HS-03-SA2D 0.11...	1.78e3	8.3	YES
6	6	13C4-PFOS	1803626-09@10X 16-HS-03-SA2D 0.11...	2.92e2	9.0	YES
7	7	13C6-PFDA	1803626-09@10X 16-HS-03-SA2D 0.11...	1.97e3	7.9	YES
8	8	13C7-PFUdA	1803626-09@10X 16-HS-03-SA2D 0.11...	2.54e3	9.3	YES

Name: 181128M1_43, Date: 28-Nov-2018, Time: 19:53:29, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

Name: 181128M1_44, Date: 28-Nov-2018, Time: 20:04:07, ID: ST181128M1-3 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181128M1-3 PFC CS3 18K1906	8.01e3	98.9	NO
2	2	13C5-PFHxA	ST181128M1-3 PFC CS3 18K1906	2.72e4	105.8	NO
3	3	13C3-PFHxS	ST181128M1-3 PFC CS3 18K1906	3.26e3	108.0	NO
4	4	13C8-PFOA	ST181128M1-3 PFC CS3 18K1906	3.22e4	109.3	NO
5	5	13C9-PFNA	ST181128M1-3 PFC CS3 18K1906	2.26e4	105.7	NO
6	6	13C4-PFOS	ST181128M1-3 PFC CS3 18K1906	3.64e3	112.0	NO
7	7	13C6-PFDA	ST181128M1-3 PFC CS3 18K1906	2.62e4	105.8	NO
8	8	13C7-PFUdA	ST181128M1-3 PFC CS3 18K1906	2.93e4	106.9	NO

Name: 181128M1_45, Date: 28-Nov-2018, Time: 20:14:46, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

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Name: 181128M1_46, Date: 28-Nov-2018, Time: 20:25:19, ID: 1803681-02 SWEF1811131015KME 0.2522, Description: SWEF1811131015KME

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803681-02 SWEF1811131015KME 0.2..	1.35e4	167.3	YES
2	2	13C5-PFHxA	1803681-02 SWEF1811131015KME 0.2..	2.56e4	99.4	NO
3	3	13C3-PFHxS	1803681-02 SWEF1811131015KME 0.2..	3.09e3	102.5	NO
4	4	13C8-PFOA	1803681-02 SWEF1811131015KME 0.2..	3.01e4	102.3	NO
5	5	13C9-PFNA	1803681-02 SWEF1811131015KME 0.2..	2.04e4	95.4	NO
6	6	13C4-PFOS	1803681-02 SWEF1811131015KME 0.2..	3.40e3	104.7	NO
7	7	13C6-PFDA	1803681-02 SWEF1811131015KME 0.2..	2.41e4	97.2	NO
8	8	13C7-PFUdA	1803681-02 SWEF1811131015KME 0.2..	2.75e4	100.4	NO

Name: 181128M1_47, Date: 28-Nov-2018, Time: 20:35:57, ID: 1803681-01 SWNT1811131005KME 0.25021, Description: SWNT1811131005KME

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803681-01 SWNT1811131005KME 0....	1.32e4	163.0	YES
2	2	13C5-PFHxA	1803681-01 SWNT1811131005KME 0....	2.51e4	97.5	NO
3	3	13C3-PFHxS	1803681-01 SWNT1811131005KME 0....	3.08e3	102.1	NO
4	4	13C8-PFOA	1803681-01 SWNT1811131005KME 0....	2.83e4	95.9	NO
5	5	13C9-PFNA	1803681-01 SWNT1811131005KME 0....	2.01e4	94.0	NO
6	6	13C4-PFOS	1803681-01 SWNT1811131005KME 0....	3.26e3	100.4	NO
7	7	13C6-PFDA	1803681-01 SWNT1811131005KME 0....	2.38e4	95.8	NO
8	8	13C7-PFUdA	1803681-01 SWNT1811131005KME 0....	2.72e4	99.3	NO

Name: 181128M1_48, Date: 28-Nov-2018, Time: 20:46:30, ID: 1803679-01 SWNT1811121330KME 0.24544, Description: SWNT1811121330KME

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803679-01 SWNT1811121330KME 0....	1.35e4	166.3	YES
2	2	13C5-PFHxA	1803679-01 SWNT1811121330KME 0....	2.56e4	99.6	NO
3	3	13C3-PFHxS	1803679-01 SWNT1811121330KME 0....	3.32e3	110.1	NO
4	4	13C8-PFOA	1803679-01 SWNT1811121330KME 0....	2.90e4	98.3	NO
5	5	13C9-PFNA	1803679-01 SWNT1811121330KME 0....	2.00e4	93.5	NO
6	6	13C4-PFOS	1803679-01 SWNT1811121330KME 0....	3.65e3	112.4	NO
7	7	13C6-PFDA	1803679-01 SWNT1811121330KME 0....	2.26e4	91.1	NO
8	8	13C7-PFUdA	1803679-01 SWNT1811121330KME 0....	2.70e4	98.6	NO

Name: 181128M1_49, Date: 28-Nov-2018, Time: 20:57:09, ID: 1803679-02 SWEF1811121340KME 0.25126, Description: SWEF1811121340KME

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803679-02 SWEF1811121340KME 0.2..	1.30e4	160.7	YES
2	2	13C5-PFHxA	1803679-02 SWEF1811121340KME 0.2..	2.43e4	94.4	NO
3	3	13C3-PFHxS	1803679-02 SWEF1811121340KME 0.2..	3.04e3	100.8	NO
4	4	13C8-PFOA	1803679-02 SWEF1811121340KME 0.2..	2.88e4	97.9	NO
5	5	13C9-PFNA	1803679-02 SWEF1811121340KME 0.2..	1.98e4	92.7	NO
6	6	13C4-PFOS	1803679-02 SWEF1811121340KME 0.2..	3.36e3	103.4	NO
7	7	13C6-PFDA	1803679-02 SWEF1811121340KME 0.2..	2.27e4	91.6	NO
8	8	13C7-PFUdA	1803679-02 SWEF1811121340KME 0.2..	2.72e4	99.3	NO

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Name: 181128M1_50, Date: 28-Nov-2018, Time: 21:07:47, ID: 1803624-01 WMP1811121017JSJ 0.24458, Description: WMP1811121017JSJ

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803624-01 WMP1811121017JSJ 0.24...	1.16e4	142.7	NO
2	2	13C5-PFHxA	1803624-01 WMP1811121017JSJ 0.24...	2.16e4	83.8	NO
3	3	13C3-PFHxS	1803624-01 WMP1811121017JSJ 0.24...	2.96e3	98.3	NO
4	4	13C8-PFOA	1803624-01 WMP1811121017JSJ 0.24...	2.30e4	78.1	NO
5	5	13C9-PFNA	1803624-01 WMP1811121017JSJ 0.24...	1.80e4	84.4	NO
6	6	13C4-PFOS	1803624-01 WMP1811121017JSJ 0.24...	3.26e3	100.3	NO
7	7	13C6-PFDA	1803624-01 WMP1811121017JSJ 0.24...	2.12e4	85.3	NO
8	8	13C7-PFUdA	1803624-01 WMP1811121017JSJ 0.24...	2.47e4	90.2	NO

Name: 181128M1_51, Date: 28-Nov-2018, Time: 21:18:20, ID: 1803624-02 WEF1811121026JSJ 0.24945, Description: WEF1811121026JSJ

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803624-02 WEF1811121026JSJ 0.249...	8.45e3	104.4	NO
2	2	13C5-PFHxA	1803624-02 WEF1811121026JSJ 0.249...	1.69e4	65.9	NO
3	3	13C3-PFHxS	1803624-02 WEF1811121026JSJ 0.249...	3.15e3	104.7	NO
4	4	13C8-PFOA	1803624-02 WEF1811121026JSJ 0.249...	2.10e4	71.4	NO
5	5	13C9-PFNA	1803624-02 WEF1811121026JSJ 0.249...	1.52e4	71.3	NO
6	6	13C4-PFOS	1803624-02 WEF1811121026JSJ 0.249...	3.50e3	107.6	NO
7	7	13C6-PFDA	1803624-02 WEF1811121026JSJ 0.249...	1.94e4	78.3	NO
8	8	13C7-PFUdA	1803624-02 WEF1811121026JSJ 0.249...	2.40e4	87.6	NO

Name: 181128M1_52, Date: 28-Nov-2018, Time: 21:28:59, ID: 1803624-03 WEF1811121036JSJ 0.25294, Description: WEF1811121036JSJ

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803624-03 WEF1811121036JSJ 0.252...	1.37e4	169.3	YES
2	2	13C5-PFHxA	1803624-03 WEF1811121036JSJ 0.252...	2.55e4	99.3	NO
3	3	13C3-PFHxS	1803624-03 WEF1811121036JSJ 0.252...	3.20e3	106.2	NO
4	4	13C8-PFOA	1803624-03 WEF1811121036JSJ 0.252...	3.00e4	101.9	NO
5	5	13C9-PFNA	1803624-03 WEF1811121036JSJ 0.252...	2.14e4	100.2	NO
6	6	13C4-PFOS	1803624-03 WEF1811121036JSJ 0.252...	3.69e3	113.5	NO
7	7	13C6-PFDA	1803624-03 WEF1811121036JSJ 0.252...	2.47e4	99.6	NO
8	8	13C7-PFUdA	1803624-03 WEF1811121036JSJ 0.252...	2.85e4	104.0	NO

Name: 181128M1_53, Date: 28-Nov-2018, Time: 21:39:31, ID: B8K0151-BS1 OPR 0.25, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0151-BS1 OPR 0.25	1.24e4	152.6	YES
2	2	13C5-PFHxA	B8K0151-BS1 OPR 0.25	2.45e4	95.2	NO
3	3	13C3-PFHxS	B8K0151-BS1 OPR 0.25	2.92e3	96.9	NO
4	4	13C8-PFOA	B8K0151-BS1 OPR 0.25	2.79e4	94.8	NO
5	5	13C9-PFNA	B8K0151-BS1 OPR 0.25	1.93e4	90.6	NO
6	6	13C4-PFOS	B8K0151-BS1 OPR 0.25	3.31e3	102.0	NO
7	7	13C6-PFDA	B8K0151-BS1 OPR 0.25	2.26e4	91.1	NO
8	8	13C7-PFUdA	B8K0151-BS1 OPR 0.25	2.68e4	97.8	NO

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Name: 181128M1_54, Date: 28-Nov-2018, Time: 21:50:10, ID: B8K0151-BLK1 Method Blank 0.25, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0151-BLK1 Method Blank 0.25	1.23e4	152.4	YES
2	2	13C5-PFHxA	B8K0151-BLK1 Method Blank 0.25	2.34e4	91.0	NO
3	3	13C3-PFHxS	B8K0151-BLK1 Method Blank 0.25	2.83e3	94.0	NO
4	4	13C8-PFOA	B8K0151-BLK1 Method Blank 0.25	2.80e4	95.0	NO
5	5	13C9-PFNA	B8K0151-BLK1 Method Blank 0.25	1.87e4	87.7	NO
6	6	13C4-PFOS	B8K0151-BLK1 Method Blank 0.25	3.13e3	96.3	NO
7	7	13C6-PFDA	B8K0151-BLK1 Method Blank 0.25	2.23e4	89.9	NO
8	8	13C7-PFUdA	B8K0151-BLK1 Method Blank 0.25	2.62e4	95.8	NO

Name: 181128M1_55, Date: 28-Nov-2018, Time: 22:00:48, ID: 1803697-01 WW1811050800GSC 0.21921, Description: WW1811050800GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803697-01 WW1811050800GSC 0.21...	9.52e3	117.6	NO
2	2	13C5-PFHxA	1803697-01 WW1811050800GSC 0.21...	1.96e4	76.2	NO
3	3	13C3-PFHxS	1803697-01 WW1811050800GSC 0.21...	2.87e3	95.2	NO
4	4	13C8-PFOA	1803697-01 WW1811050800GSC 0.21...	2.54e4	86.3	NO
5	5	13C9-PFNA	1803697-01 WW1811050800GSC 0.21...	1.84e4	86.2	NO
6	6	13C4-PFOS	1803697-01 WW1811050800GSC 0.21...	3.03e3	93.3	NO
7	7	13C6-PFDA	1803697-01 WW1811050800GSC 0.21...	2.20e4	88.5	NO
8	8	13C7-PFUdA	1803697-01 WW1811050800GSC 0.21...	2.46e4	89.9	NO

Name: 181128M1_56, Date: 28-Nov-2018, Time: 22:11:22, ID: 1803697-02 WW1811050830GSC 0.24745, Description: WW1811050830GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803697-02 WW1811050830GSC 0.24...	1.03e4	127.3	NO
2	2	13C5-PFHxA	1803697-02 WW1811050830GSC 0.24...	2.07e4	80.5	NO
3	3	13C3-PFHxS	1803697-02 WW1811050830GSC 0.24...	2.80e3	93.0	NO
4	4	13C8-PFOA	1803697-02 WW1811050830GSC 0.24...	2.60e4	88.4	NO
5	5	13C9-PFNA	1803697-02 WW1811050830GSC 0.24...	1.75e4	82.1	NO
6	6	13C4-PFOS	1803697-02 WW1811050830GSC 0.24...	3.14e3	96.6	NO
7	7	13C6-PFDA	1803697-02 WW1811050830GSC 0.24...	2.13e4	85.9	NO
8	8	13C7-PFUdA	1803697-02 WW1811050830GSC 0.24...	2.47e4	90.1	NO

Name: 181128M1_57, Date: 28-Nov-2018, Time: 22:22:00, ID: 1803698-03 WW1811051215GSC 0.24831, Description: WW1811051215GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803698-03 WW1811051215GSC 0.24...	1.05e4	129.6	NO
2	2	13C5-PFHxA	1803698-03 WW1811051215GSC 0.24...	2.08e4	81.0	NO
3	3	13C3-PFHxS	1803698-03 WW1811051215GSC 0.24...	2.80e3	93.0	NO
4	4	13C8-PFOA	1803698-03 WW1811051215GSC 0.24...	2.54e4	86.1	NO
5	5	13C9-PFNA	1803698-03 WW1811051215GSC 0.24...	1.75e4	82.1	NO
6	6	13C4-PFOS	1803698-03 WW1811051215GSC 0.24...	3.14e3	96.5	NO
7	7	13C6-PFDA	1803698-03 WW1811051215GSC 0.24...	2.13e4	86.0	NO
8	8	13C7-PFUdA	1803698-03 WW1811051215GSC 0.24...	2.49e4	90.8	NO

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Name: 181128M1_58, Date: 28-Nov-2018, Time: 22:32:33, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

Name: 181128M1_59, Date: 28-Nov-2018, Time: 22:43:12, ID: ST181128M1-4 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181128M1-4 PFC CS3 18K1906	8.05e3	99.4	NO
2	2	13C5-PFHxA	ST181128M1-4 PFC CS3 18K1906	2.84e4	110.3	NO
3	3	13C3-PFHxS	ST181128M1-4 PFC CS3 18K1906	3.38e3	112.2	NO
4	4	13C8-PFOA	ST181128M1-4 PFC CS3 18K1906	3.21e4	108.8	NO
5	5	13C9-PFNA	ST181128M1-4 PFC CS3 18K1906	2.25e4	105.6	NO
6	6	13C4-PFOS	ST181128M1-4 PFC CS3 18K1906	3.76e3	115.8	NO
7	7	13C6-PFDA	ST181128M1-4 PFC CS3 18K1906	2.59e4	104.6	NO
8	8	13C7-PFUdA	ST181128M1-4 PFC CS3 18K1906	2.98e4	108.9	NO

Name: 181128M1_60, Date: 28-Nov-2018, Time: 22:53:45, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

Name: 181128M1_61, Date: 28-Nov-2018, Time: 23:04:23, ID: 1803698-04 WW1811051230GSC 0.24182, Description: WW1811051230GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803698-04 WW1811051230GSC 0.24...	1.11e4	137.2	NO
2	2	13C5-PFHxA	1803698-04 WW1811051230GSC 0.24...	2.22e4	86.3	NO
3	3	13C3-PFHxS	1803698-04 WW1811051230GSC 0.24...	2.89e3	95.9	NO
4	4	13C8-PFOA	1803698-04 WW1811051230GSC 0.24...	2.65e4	89.9	NO
5	5	13C9-PFNA	1803698-04 WW1811051230GSC 0.24...	1.82e4	85.1	NO
6	6	13C4-PFOS	1803698-04 WW1811051230GSC 0.24...	3.32e3	102.2	NO
7	7	13C6-PFDA	1803698-04 WW1811051230GSC 0.24...	2.14e4	86.2	NO
8	8	13C7-PFUdA	1803698-04 WW1811051230GSC 0.24...	2.56e4	93.6	NO

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Name: 181128M1_62, Date: 28-Nov-2018, Time: 23:14:55, ID: 1803698-05 WW1811051245GSC 0.22793, Description: WW1811051245GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803698-05 WW1811051245GSC 0.22...	1.06e4	130.4	NO
2	2	13C5-PFHxA	1803698-05 WW1811051245GSC 0.22...	2.10e4	81.8	NO
3	3	13C3-PFHxS	1803698-05 WW1811051245GSC 0.22...	2.85e3	94.7	NO
4	4	13C8-PFOA	1803698-05 WW1811051245GSC 0.22...	2.63e4	89.4	NO
5	5	13C9-PFNA	1803698-05 WW1811051245GSC 0.22...	1.86e4	87.1	NO
6	6	13C4-PFOS	1803698-05 WW1811051245GSC 0.22...	3.25e3	99.9	NO
7	7	13C6-PFDA	1803698-05 WW1811051245GSC 0.22...	2.17e4	87.6	NO
8	8	13C7-PFUdA	1803698-05 WW1811051245GSC 0.22...	2.50e4	91.5	NO

Name: 181128M1_63, Date: 28-Nov-2018, Time: 23:25:34, ID: 1803698-06 WW1811051315GSC 0.249, Description: WW1811051315GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803698-06 WW1811051315GSC 0.249	1.05e4	129.8	NO
2	2	13C5-PFHxA	1803698-06 WW1811051315GSC 0.249	2.09e4	81.4	NO
3	3	13C3-PFHxS	1803698-06 WW1811051315GSC 0.249	3.04e3	100.7	NO
4	4	13C8-PFOA	1803698-06 WW1811051315GSC 0.249	2.75e4	93.2	NO
5	5	13C9-PFNA	1803698-06 WW1811051315GSC 0.249	1.93e4	90.2	NO
6	6	13C4-PFOS	1803698-06 WW1811051315GSC 0.249	3.17e3	97.7	NO
7	7	13C6-PFDA	1803698-06 WW1811051315GSC 0.249	2.19e4	88.3	NO
8	8	13C7-PFUdA	1803698-06 WW1811051315GSC 0.249	2.52e4	92.2	NO

Name: 181128M1_64, Date: 28-Nov-2018, Time: 23:36:13, ID: 1803699-02 WW1811051500GSC 0.22221, Description: WW1811051500GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803699-02 WW1811051500GSC 0.22...	9.97e3	123.1	NO
2	2	13C5-PFHxA	1803699-02 WW1811051500GSC 0.22...	1.90e4	74.0	NO
3	3	13C3-PFHxS	1803699-02 WW1811051500GSC 0.22...	2.64e3	87.6	NO
4	4	13C8-PFOA	1803699-02 WW1811051500GSC 0.22...	2.36e4	79.9	NO
5	5	13C9-PFNA	1803699-02 WW1811051500GSC 0.22...	1.65e4	77.3	NO
6	6	13C4-PFOS	1803699-02 WW1811051500GSC 0.22...	2.81e3	86.6	NO
7	7	13C6-PFDA	1803699-02 WW1811051500GSC 0.22...	2.02e4	81.5	NO
8	8	13C7-PFUdA	1803699-02 WW1811051500GSC 0.22...	2.36e4	86.1	NO

Name: 181128M1_65, Date: 28-Nov-2018, Time: 23:46:46, ID: 1803699-03 WW1811051515GSC 0.23035, Description: WW1811051515GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803699-03 WW1811051515GSC 0.23...	1.08e4	133.9	NO
2	2	13C5-PFHxA	1803699-03 WW1811051515GSC 0.23...	2.10e4	81.5	NO
3	3	13C3-PFHxS	1803699-03 WW1811051515GSC 0.23...	2.70e3	89.5	NO
4	4	13C8-PFOA	1803699-03 WW1811051515GSC 0.23...	2.52e4	85.6	NO
5	5	13C9-PFNA	1803699-03 WW1811051515GSC 0.23...	1.80e4	84.4	NO
6	6	13C4-PFOS	1803699-03 WW1811051515GSC 0.23...	2.93e3	90.3	NO
7	7	13C6-PFDA	1803699-03 WW1811051515GSC 0.23...	1.95e4	78.4	NO
8	8	13C7-PFUdA	1803699-03 WW1811051515GSC 0.23...	2.17e4	79.4	NO

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Name: 181128M1_66, Date: 28-Nov-2018, Time: 23:57:24, ID: 1803700-01 WW1811070915GSC 0.25314, Description: WW1811070915GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803700-01 WW1811070915GSC 0.25...	9.95e3	122.9	NO
2	2	13C5-PFHxA	1803700-01 WW1811070915GSC 0.25...	1.92e4	74.5	NO
3	3	13C3-PFHxS	1803700-01 WW1811070915GSC 0.25...	2.72e3	90.4	NO
4	4	13C8-PFOA	1803700-01 WW1811070915GSC 0.25...	2.38e4	80.7	NO
5	5	13C9-PFNA	1803700-01 WW1811070915GSC 0.25...	1.69e4	79.0	NO
6	6	13C4-PFOS	1803700-01 WW1811070915GSC 0.25...	2.91e3	89.6	NO
7	7	13C6-PFDA	1803700-01 WW1811070915GSC 0.25...	2.07e4	83.3	NO
8	8	13C7-PFUdA	1803700-01 WW1811070915GSC 0.25...	2.38e4	86.8	NO

Name: 181128M1_67, Date: 29-Nov-2018, Time: 00:07:57, ID: 1803700-02 WW1811070930GSC 0.23777, Description: WW1811070930GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803700-02 WW1811070930GSC 0.23...	1.13e4	140.0	NO
2	2	13C5-PFHxA	1803700-02 WW1811070930GSC 0.23...	2.24e4	87.0	NO
3	3	13C3-PFHxS	1803700-02 WW1811070930GSC 0.23...	3.02e3	100.1	NO
4	4	13C8-PFOA	1803700-02 WW1811070930GSC 0.23...	2.71e4	91.9	NO
5	5	13C9-PFNA	1803700-02 WW1811070930GSC 0.23...	1.88e4	88.3	NO
6	6	13C4-PFOS	1803700-02 WW1811070930GSC 0.23...	3.14e3	96.7	NO
7	7	13C6-PFDA	1803700-02 WW1811070930GSC 0.23...	2.24e4	90.4	NO
8	8	13C7-PFUdA	1803700-02 WW1811070930GSC 0.23...	2.48e4	90.6	NO

Name: 181128M1_68, Date: 29-Nov-2018, Time: 00:18:36, ID: 1803701-01 WW1811071045GSC 0.25105, Description: WW1811071045GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803701-01 WW1811071045GSC 0.25...	9.32e3	115.1	NO
2	2	13C5-PFHxA	1803701-01 WW1811071045GSC 0.25...	1.86e4	72.2	NO
3	3	13C3-PFHxS	1803701-01 WW1811071045GSC 0.25...	2.69e3	89.4	NO
4	4	13C8-PFOA	1803701-01 WW1811071045GSC 0.25...	2.36e4	80.0	NO
5	5	13C9-PFNA	1803701-01 WW1811071045GSC 0.25...	1.68e4	78.9	NO
6	6	13C4-PFOS	1803701-01 WW1811071045GSC 0.25...	3.02e3	92.9	NO
7	7	13C6-PFDA	1803701-01 WW1811071045GSC 0.25...	1.98e4	80.0	NO
8	8	13C7-PFUdA	1803701-01 WW1811071045GSC 0.25...	2.33e4	85.1	NO

Name: 181128M1_69, Date: 29-Nov-2018, Time: 00:29:09, ID: 1803701-03 WW1811071150GSC 0.24483, Description: WW1811071150GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803701-03 WW1811071150GSC 0.24...	8.38e3	103.5	NO
2	2	13C5-PFHxA	1803701-03 WW1811071150GSC 0.24...	1.63e4	63.3	NO
3	3	13C3-PFHxS	1803701-03 WW1811071150GSC 0.24...	2.22e3	73.8	NO
4	4	13C8-PFOA	1803701-03 WW1811071150GSC 0.24...	2.03e4	68.7	NO
5	5	13C9-PFNA	1803701-03 WW1811071150GSC 0.24...	1.09e4	51.2	NO
6	6	13C4-PFOS	1803701-03 WW1811071150GSC 0.24...	2.46e3	75.6	NO
7	7	13C6-PFDA	1803701-03 WW1811071150GSC 0.24...	1.48e4	59.6	NO
8	8	13C7-PFUdA	1803701-03 WW1811071150GSC 0.24...	1.50e4	54.7	NO

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Name: 181128M1_70, Date: 29-Nov-2018, Time: 00:39:47, ID: 1803701-04 WW1811071215GSC 0.23943, Description: WW1811071215GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803701-04 WW1811071215GSC 0.23...	1.13e4	139.6	NO
2	2	13C5-PFHxA	1803701-04 WW1811071215GSC 0.23...	2.18e4	84.6	NO
3	3	13C3-PFHxS	1803701-04 WW1811071215GSC 0.23...	2.87e3	95.3	NO
4	4	13C8-PFOA	1803701-04 WW1811071215GSC 0.23...	2.69e4	91.1	NO
5	5	13C9-PFNA	1803701-04 WW1811071215GSC 0.23...	1.86e4	87.0	NO
6	6	13C4-PFOS	1803701-04 WW1811071215GSC 0.23...	2.99e3	91.9	NO
7	7	13C6-PFDA	1803701-04 WW1811071215GSC 0.23...	2.09e4	84.2	NO
8	8	13C7-PFUdA	1803701-04 WW1811071215GSC 0.23...	2.39e4	87.4	NO

Name: 181128M1_71, Date: 29-Nov-2018, Time: 00:50:21, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

Name: 181128M1_72, Date: 29-Nov-2018, Time: 01:01:00, ID: ST181128M1-5 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181128M1-5 PFC CS3 18K1906	8.21e3	101.4	NO
2	2	13C5-PFHxA	ST181128M1-5 PFC CS3 18K1906	2.84e4	110.3	NO
3	3	13C3-PFHxS	ST181128M1-5 PFC CS3 18K1906	3.36e3	111.6	NO
4	4	13C8-PFOA	ST181128M1-5 PFC CS3 18K1906	3.32e4	112.6	NO
5	5	13C9-PFNA	ST181128M1-5 PFC CS3 18K1906	2.27e4	106.1	NO
6	6	13C4-PFOS	ST181128M1-5 PFC CS3 18K1906	3.70e3	113.8	NO
7	7	13C6-PFDA	ST181128M1-5 PFC CS3 18K1906	2.74e4	110.3	NO
8	8	13C7-PFUdA	ST181128M1-5 PFC CS3 18K1906	3.04e4	111.0	NO

Name: 181128M1_73, Date: 29-Nov-2018, Time: 01:11:33, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

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Name: 181128M1_74, Date: 29-Nov-2018, Time: 01:22:11, ID: 1803702-01 WW1811080900GSC 0.24705, Description: WW1811080900GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803702-01 WW1811080900GSC 0.24...	1.10e4	136.3	NO
2	2	13C5-PFHxA	1803702-01 WW1811080900GSC 0.24...	2.08e4	81.0	NO
3	3	13C3-PFHxS	1803702-01 WW1811080900GSC 0.24...	2.82e3	93.6	NO
4	4	13C8-PFOA	1803702-01 WW1811080900GSC 0.24...	2.49e4	84.5	NO
5	5	13C9-PFNA	1803702-01 WW1811080900GSC 0.24...	1.55e4	72.8	NO
6	6	13C4-PFOS	1803702-01 WW1811080900GSC 0.24...	3.05e3	93.9	NO
7	7	13C6-PFDA	1803702-01 WW1811080900GSC 0.24...	1.98e4	80.0	NO
8	8	13C7-PFUdA	1803702-01 WW1811080900GSC 0.24...	1.85e4	67.7	NO

Name: 181128M1_75, Date: 29-Nov-2018, Time: 01:32:49, ID: 1803702-02 WW1811080915GSC 0.25519, Description: WW1811080915GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803702-02 WW1811080915GSC 0.25...	1.23e4	152.1	YES
2	2	13C5-PFHxA	1803702-02 WW1811080915GSC 0.25...	2.38e4	92.7	NO
3	3	13C3-PFHxS	1803702-02 WW1811080915GSC 0.25...	3.07e3	102.0	NO
4	4	13C8-PFOA	1803702-02 WW1811080915GSC 0.25...	2.93e4	99.5	NO
5	5	13C9-PFNA	1803702-02 WW1811080915GSC 0.25...	2.05e4	95.9	NO
6	6	13C4-PFOS	1803702-02 WW1811080915GSC 0.25...	3.31e3	102.0	NO
7	7	13C6-PFDA	1803702-02 WW1811080915GSC 0.25...	2.41e4	97.1	NO
8	8	13C7-PFUdA	1803702-02 WW1811080915GSC 0.25...	2.79e4	102.0	NO

Name: 181128M1_76, Date: 29-Nov-2018, Time: 01:43:23, ID: 1803703-01 WW1811081300GSC 0.24704, Description: WW1811081300GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803703-01 WW1811081300GSC 0.24...	1.14e4	141.4	NO
2	2	13C5-PFHxA	1803703-01 WW1811081300GSC 0.24...	2.15e4	83.5	NO
3	3	13C3-PFHxS	1803703-01 WW1811081300GSC 0.24...	2.95e3	97.9	NO
4	4	13C8-PFOA	1803703-01 WW1811081300GSC 0.24...	2.75e4	93.3	NO
5	5	13C9-PFNA	1803703-01 WW1811081300GSC 0.24...	1.88e4	88.1	NO
6	6	13C4-PFOS	1803703-01 WW1811081300GSC 0.24...	3.13e3	96.3	NO
7	7	13C6-PFDA	1803703-01 WW1811081300GSC 0.24...	2.15e4	86.7	NO
8	8	13C7-PFUdA	1803703-01 WW1811081300GSC 0.24...	2.50e4	91.4	NO

Name: 181128M1_77, Date: 29-Nov-2018, Time: 01:54:01, ID: 1803703-03 WW1811081350GSC 0.24171, Description: WW1811081350GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803703-03 WW1811081350GSC 0.24...	1.30e4	160.2	YES
2	2	13C5-PFHxA	1803703-03 WW1811081350GSC 0.24...	2.45e4	95.1	NO
3	3	13C3-PFHxS	1803703-03 WW1811081350GSC 0.24...	3.33e3	110.3	NO
4	4	13C8-PFOA	1803703-03 WW1811081350GSC 0.24...	2.98e4	101.0	NO
5	5	13C9-PFNA	1803703-03 WW1811081350GSC 0.24...	1.94e4	90.9	NO
6	6	13C4-PFOS	1803703-03 WW1811081350GSC 0.24...	3.51e3	107.9	NO
7	7	13C6-PFDA	1803703-03 WW1811081350GSC 0.24...	2.46e4	99.1	NO
8	8	13C7-PFUdA	1803703-03 WW1811081350GSC 0.24...	2.39e4	87.3	NO

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Name: 181128M1_78, Date: 29-Nov-2018, Time: 02:04:34, ID: 1803704-01 WW1811090810GSC 0.25817, Description: WW1811090810GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803704-01 WW1811090810GSC 0.25...	1.20e4	148.4	NO
2	2	13C5-PFHxA	1803704-01 WW1811090810GSC 0.25...	2.32e4	90.3	NO
3	3	13C3-PFHxS	1803704-01 WW1811090810GSC 0.25...	3.10e3	102.7	NO
4	4	13C8-PFOA	1803704-01 WW1811090810GSC 0.25...	2.45e4	83.3	NO
5	5	13C9-PFNA	1803704-01 WW1811090810GSC 0.25...	1.73e4	81.1	NO
6	6	13C4-PFOS	1803704-01 WW1811090810GSC 0.25...	3.37e3	103.7	NO
7	7	13C6-PFDA	1803704-01 WW1811090810GSC 0.25...	2.07e4	83.3	NO
8	8	13C7-PFUdA	1803704-01 WW1811090810GSC 0.25...	2.52e4	92.1	NO

Name: 181128M1_79, Date: 29-Nov-2018, Time: 02:15:12, ID: 1803704-03 WW1811090835GSC 0.25067, Description: WW1811090835GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803704-03 WW1811090835GSC 0.25...	1.14e4	141.1	NO
2	2	13C5-PFHxA	1803704-03 WW1811090835GSC 0.25...	2.26e4	87.9	NO
3	3	13C3-PFHxS	1803704-03 WW1811090835GSC 0.25...	3.08e3	102.1	NO
4	4	13C8-PFOA	1803704-03 WW1811090835GSC 0.25...	2.64e4	89.7	NO
5	5	13C9-PFNA	1803704-03 WW1811090835GSC 0.25...	1.88e4	88.2	NO
6	6	13C4-PFOS	1803704-03 WW1811090835GSC 0.25...	3.37e3	103.6	NO
7	7	13C6-PFDA	1803704-03 WW1811090835GSC 0.25...	2.24e4	90.4	NO
8	8	13C7-PFUdA	1803704-03 WW1811090835GSC 0.25...	2.47e4	90.2	NO

Name: 181128M1_80, Date: 29-Nov-2018, Time: 02:25:45, ID: 1803705-01 WW1811091200GSC 0.2381, Description: WW1811091200GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803705-01 WW1811091200GSC 0.2381	1.25e4	154.1	YES
2	2	13C5-PFHxA	1803705-01 WW1811091200GSC 0.2381	2.36e4	91.6	NO
3	3	13C3-PFHxS	1803705-01 WW1811091200GSC 0.2381	3.14e3	104.2	NO
4	4	13C8-PFOA	1803705-01 WW1811091200GSC 0.2381	2.82e4	95.7	NO
5	5	13C9-PFNA	1803705-01 WW1811091200GSC 0.2381	1.93e4	90.2	NO
6	6	13C4-PFOS	1803705-01 WW1811091200GSC 0.2381	3.38e3	103.9	NO
7	7	13C6-PFDA	1803705-01 WW1811091200GSC 0.2381	2.28e4	92.0	NO
8	8	13C7-PFUdA	1803705-01 WW1811091200GSC 0.2381	2.41e4	88.2	NO

Name: 181128M1_81, Date: 29-Nov-2018, Time: 02:36:23, ID: 1803705-02 WW1811091215GSC 0.25512, Description: WW1811091215GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803705-02 WW1811091215GSC 0.25...	1.17e4	144.8	NO
2	2	13C5-PFHxA	1803705-02 WW1811091215GSC 0.25...	2.23e4	86.6	NO
3	3	13C3-PFHxS	1803705-02 WW1811091215GSC 0.25...	3.08e3	102.1	NO
4	4	13C8-PFOA	1803705-02 WW1811091215GSC 0.25...	2.75e4	93.2	NO
5	5	13C9-PFNA	1803705-02 WW1811091215GSC 0.25...	1.95e4	91.3	NO
6	6	13C4-PFOS	1803705-02 WW1811091215GSC 0.25...	3.33e3	102.5	NO
7	7	13C6-PFDA	1803705-02 WW1811091215GSC 0.25...	2.31e4	93.1	NO
8	8	13C7-PFUdA	1803705-02 WW1811091215GSC 0.25...	2.70e4	98.6	NO

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Name: 181128M1_82, Date: 29-Nov-2018, Time: 02:46:56, ID: 1803705-03 WW1811091230GSC 0.24277, Description: WW1811091230GSC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803705-03 WW1811091230GSC 0.24...	1.24e4	153.5	YES
2	2	13C5-PFHxA	1803705-03 WW1811091230GSC 0.24...	2.45e4	95.4	NO
3	3	13C3-PFHxS	1803705-03 WW1811091230GSC 0.24...	3.07e3	101.8	NO
4	4	13C8-PFOA	1803705-03 WW1811091230GSC 0.24...	2.70e4	91.7	NO
5	5	13C9-PFNA	1803705-03 WW1811091230GSC 0.24...	1.90e4	89.0	NO
6	6	13C4-PFOS	1803705-03 WW1811091230GSC 0.24...	3.44e3	105.8	NO
7	7	13C6-PFDA	1803705-03 WW1811091230GSC 0.24...	2.15e4	86.7	NO
8	8	13C7-PFUdA	1803705-03 WW1811091230GSC 0.24...	2.54e4	92.9	NO

Name: 181128M1_83, Date: 29-Nov-2018, Time: 02:57:34, ID: B8K0155-BS1 OPR 1, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0155-BS1 OPR 1	1.50e4	184.8	YES
2	2	13C5-PFHxA	B8K0155-BS1 OPR 1	2.81e4	109.2	NO
3	3	13C3-PFHxS	B8K0155-BS1 OPR 1	3.35e3	111.0	NO
4	4	13C8-PFOA	B8K0155-BS1 OPR 1	3.24e4	110.1	NO
5	5	13C9-PFNA	B8K0155-BS1 OPR 1	2.27e4	106.1	NO
6	6	13C4-PFOS	B8K0155-BS1 OPR 1	3.68e3	113.1	NO
7	7	13C6-PFDA	B8K0155-BS1 OPR 1	2.67e4	107.5	NO
8	8	13C7-PFUdA	B8K0155-BS1 OPR 1	3.11e4	113.4	NO

Name: 181128M1_84, Date: 29-Nov-2018, Time: 03:08:12, ID: B8K0155-BLK1 Method Blank 1, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0155-BLK1 Method Blank 1	1.60e4	197.9	YES
2	2	13C5-PFHxA	B8K0155-BLK1 Method Blank 1	3.01e4	117.2	NO
3	3	13C3-PFHxS	B8K0155-BLK1 Method Blank 1	3.68e3	122.2	NO
4	4	13C8-PFOA	B8K0155-BLK1 Method Blank 1	3.44e4	116.8	NO
5	5	13C9-PFNA	B8K0155-BLK1 Method Blank 1	2.49e4	116.6	NO
6	6	13C4-PFOS	B8K0155-BLK1 Method Blank 1	3.91e3	120.2	NO
7	7	13C6-PFDA	B8K0155-BLK1 Method Blank 1	2.85e4	115.0	NO
8	8	13C7-PFUdA	B8K0155-BLK1 Method Blank 1	3.32e4	121.2	NO

Name: 181128M1_85, Date: 29-Nov-2018, Time: 03:18:45, ID: 1803583-03 BS1810310830GC 127.16, Description: BS1810310830GC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803583-03 BS1810310830GC 127.16	1.56e4	193.2	YES
2	2	13C5-PFHxA	1803583-03 BS1810310830GC 127.16	2.70e4	104.9	NO
3	3	13C3-PFHxS	1803583-03 BS1810310830GC 127.16	3.54e3	117.5	NO
4	4	13C8-PFOA	1803583-03 BS1810310830GC 127.16	3.08e4	104.5	NO
5	5	13C9-PFNA	1803583-03 BS1810310830GC 127.16	2.28e4	106.9	NO
6	6	13C4-PFOS	1803583-03 BS1810310830GC 127.16	2.36e3	72.7	NO
7	7	13C6-PFDA	1803583-03 BS1810310830GC 127.16	2.53e4	101.9	NO
8	8	13C7-PFUdA	1803583-03 BS1810310830GC 127.16	2.26e4	82.6	NO

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Name: 181128M1_86, Date: 29-Nov-2018, Time: 03:29:24, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

Name: 181128M1_87, Date: 29-Nov-2018, Time: 03:39:57, ID: ST181128M1-6 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181128M1-6 PFC CS3 18K1906	8.32e3	102.8	NO
2	2	13C5-PFHxA	ST181128M1-6 PFC CS3 18K1906	2.86e4	111.3	NO
3	3	13C3-PFHxS	ST181128M1-6 PFC CS3 18K1906	3.37e3	111.7	NO
4	4	13C8-PFOA	ST181128M1-6 PFC CS3 18K1906	3.37e4	114.5	NO
5	5	13C9-PFNA	ST181128M1-6 PFC CS3 18K1906	2.31e4	108.2	NO
6	6	13C4-PFOS	ST181128M1-6 PFC CS3 18K1906	3.70e3	113.8	NO
7	7	13C6-PFDA	ST181128M1-6 PFC CS3 18K1906	2.71e4	109.1	NO
8	8	13C7-PFUdA	ST181128M1-6 PFC CS3 18K1906	3.15e4	115.0	NO

Name: 181128M1_88, Date: 29-Nov-2018, Time: 03:50:35, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

Name: 181128M1_89, Date: 29-Nov-2018, Time: 04:01:08, ID: B8K0164-BS1 OPR 0.005, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0164-BS1 OPR 0.005	1.44e4	177.4	YES
2	2	13C5-PFHxA	B8K0164-BS1 OPR 0.005	2.64e4	102.8	NO
3	3	13C3-PFHxS	B8K0164-BS1 OPR 0.005	2.98e3	98.9	NO
4	4	13C8-PFOA	B8K0164-BS1 OPR 0.005	2.68e4	90.9	NO
5	5	13C9-PFNA	B8K0164-BS1 OPR 0.005	1.37e4	64.1	NO
6	6	13C4-PFOS	B8K0164-BS1 OPR 0.005	1.46e3	44.8	YES
7	7	13C6-PFDA	B8K0164-BS1 OPR 0.005	6.80e3	27.4	YES
8	8	13C7-PFUdA	B8K0164-BS1 OPR 0.005	2.21e3	8.1	YES

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Name: 181128M1_90, Date: 29-Nov-2018, Time: 04:11:47, ID: B8K0164-BLK1 Method Blank 0.005, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0164-BLK1 Method Blank 0.005	1.26e4	155.0	YES
2	2	13C5-PFHxA	B8K0164-BLK1 Method Blank 0.005	2.26e4	88.1	NO
3	3	13C3-PFHxS	B8K0164-BLK1 Method Blank 0.005	2.49e3	82.7	NO
4	4	13C8-PFOA	B8K0164-BLK1 Method Blank 0.005	2.17e4	73.6	NO
5	5	13C9-PFNA	B8K0164-BLK1 Method Blank 0.005	9.69e3	45.4	YES
6	6	13C4-PFOS	B8K0164-BLK1 Method Blank 0.005	9.25e2	28.5	YES
7	7	13C6-PFDA	B8K0164-BLK1 Method Blank 0.005	4.71e3	19.0	YES
8	8	13C7-PFUdA	B8K0164-BLK1 Method Blank 0.005	1.22e3	4.5	YES

Name: 181128M1_91, Date: 29-Nov-2018, Time: 04:22:20, ID: 1803637-01 Milk 0.005, Description: Milk

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803637-01 Milk 0.005	1.16e4	143.3	NO
2	2	13C5-PFHxA	1803637-01 Milk 0.005	2.19e4	85.0	NO
3	3	13C3-PFHxS	1803637-01 Milk 0.005	2.80e3	92.9	NO
4	4	13C8-PFOA	1803637-01 Milk 0.005	2.51e4	85.1	NO
5	5	13C9-PFNA	1803637-01 Milk 0.005	1.66e4	78.0	NO
6	6	13C4-PFOS	1803637-01 Milk 0.005	2.86e3	87.9	NO
7	7	13C6-PFDA	1803637-01 Milk 0.005	1.67e4	67.1	NO
8	8	13C7-PFUdA	1803637-01 Milk 0.005	1.25e4	45.8	YES

Name: 181128M1_92, Date: 29-Nov-2018, Time: 04:32:58, ID: B8K0187-BS1 OPR 0.125, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0187-BS1 OPR 0.125	1.50e4	185.3	YES
2	2	13C5-PFHxA	B8K0187-BS1 OPR 0.125	2.80e4	108.8	NO
3	3	13C3-PFHxS	B8K0187-BS1 OPR 0.125	3.24e3	107.6	NO
4	4	13C8-PFOA	B8K0187-BS1 OPR 0.125	2.71e4	92.0	NO
5	5	13C9-PFNA	B8K0187-BS1 OPR 0.125	1.46e4	68.5	NO
6	6	13C4-PFOS	B8K0187-BS1 OPR 0.125	1.01e3	31.1	YES
7	7	13C6-PFDA	B8K0187-BS1 OPR 0.125	6.90e3	27.8	YES
8	8	13C7-PFUdA	B8K0187-BS1 OPR 0.125	3.21e3	11.7	YES

Name: 181128M1_93, Date: 29-Nov-2018, Time: 04:43:32, ID: B8K0187-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8K0187-BLK1 Method Blank 0.125	1.45e4	178.6	YES
2	2	13C5-PFHxA	B8K0187-BLK1 Method Blank 0.125	2.63e4	102.2	NO
3	3	13C3-PFHxS	B8K0187-BLK1 Method Blank 0.125	2.95e3	97.8	NO
4	4	13C8-PFOA	B8K0187-BLK1 Method Blank 0.125	2.51e4	85.2	NO
5	5	13C9-PFNA	B8K0187-BLK1 Method Blank 0.125	1.15e4	53.8	NO
6	6	13C4-PFOS	B8K0187-BLK1 Method Blank 0.125	7.62e2	23.5	YES
7	7	13C6-PFDA	B8K0187-BLK1 Method Blank 0.125	4.82e3	19.4	YES
8	8	13C7-PFUdA	B8K0187-BLK1 Method Blank 0.125	2.16e3	7.9	YES

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Name: 181128M1_94, Date: 29-Nov-2018, Time: 04:54:10, ID: 1803640-01RE1 MW-2A 0.11197, Description: MW-2A

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803640-01RE1 MW-2A 0.11197	1.50e4	185.8	YES
2	2	13C5-PFHxA	1803640-01RE1 MW-2A 0.11197	2.93e4	113.9	NO
3	3	13C3-PFHxS	1803640-01RE1 MW-2A 0.11197	3.72e3	123.5	NO
4	4	13C8-PFOA	1803640-01RE1 MW-2A 0.11197	3.16e4	107.1	NO
5	5	13C9-PFNA	1803640-01RE1 MW-2A 0.11197	1.93e4	90.6	NO
6	6	13C4-PFOS	1803640-01RE1 MW-2A 0.11197	2.86e3	87.9	NO
7	7	13C6-PFDA	1803640-01RE1 MW-2A 0.11197	1.54e4	61.9	NO
8	8	13C7-PFUdA	1803640-01RE1 MW-2A 0.11197	6.09e3	22.3	YES

Name: 181128M1_95, Date: 29-Nov-2018, Time: 05:04:43, ID: 1803640-02RE1 MW-3 0.11517, Description: MW-3

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803640-02RE1 MW-3 0.11517	1.48e4	182.6	YES
2	2	13C5-PFHxA	1803640-02RE1 MW-3 0.11517	2.72e4	105.7	NO
3	3	13C3-PFHxS	1803640-02RE1 MW-3 0.11517	3.45e3	114.5	NO
4	4	13C8-PFOA	1803640-02RE1 MW-3 0.11517	2.90e4	98.3	NO
5	5	13C9-PFNA	1803640-02RE1 MW-3 0.11517	1.68e4	78.5	NO
6	6	13C4-PFOS	1803640-02RE1 MW-3 0.11517	2.28e3	70.1	NO
7	7	13C6-PFDA	1803640-02RE1 MW-3 0.11517	1.10e4	44.2	YES
8	8	13C7-PFUdA	1803640-02RE1 MW-3 0.11517	3.69e3	13.5	YES

Name: 181128M1_96, Date: 29-Nov-2018, Time: 05:15:21, ID: 1803640-03RE1 MW-4 0.11048, Description: MW-4

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803640-03RE1 MW-4 0.11048	1.42e4	175.9	YES
2	2	13C5-PFHxA	1803640-03RE1 MW-4 0.11048	2.61e4	101.5	NO
3	3	13C3-PFHxS	1803640-03RE1 MW-4 0.11048	3.39e3	112.6	NO
4	4	13C8-PFOA	1803640-03RE1 MW-4 0.11048	2.99e4	101.6	NO
5	5	13C9-PFNA	1803640-03RE1 MW-4 0.11048	1.88e4	88.0	NO
6	6	13C4-PFOS	1803640-03RE1 MW-4 0.11048	2.39e3	73.6	NO
7	7	13C6-PFDA	1803640-03RE1 MW-4 0.11048	1.41e4	56.7	NO
8	8	13C7-PFUdA	1803640-03RE1 MW-4 0.11048	6.50e3	23.7	YES

Name: 181128M1_97, Date: 29-Nov-2018, Time: 05:25:54, ID: 1803640-04RE1 TS Well 0.1132, Description: TS Well

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803640-04RE1 TS Well 0.1132	1.30e4	160.0	YES
2	2	13C5-PFHxA	1803640-04RE1 TS Well 0.1132	2.51e4	97.5	NO
3	3	13C3-PFHxS	1803640-04RE1 TS Well 0.1132	3.05e3	101.0	NO
4	4	13C8-PFOA	1803640-04RE1 TS Well 0.1132	2.63e4	89.3	NO
5	5	13C9-PFNA	1803640-04RE1 TS Well 0.1132	1.47e4	68.7	NO
6	6	13C4-PFOS	1803640-04RE1 TS Well 0.1132	2.17e3	66.6	NO
7	7	13C6-PFDA	1803640-04RE1 TS Well 0.1132	1.07e4	43.0	YES
8	8	13C7-PFUdA	1803640-04RE1 TS Well 0.1132	4.58e3	16.7	YES

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Name: 181128M1_98, Date: 29-Nov-2018, Time: 05:36:33, ID: 1803641-01RE1 MW3S 0.11376, Description: MW3S

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803641-01RE1 MW3S 0.11376	1.48e4	183.2	YES
2	2	13C5-PFHxA	1803641-01RE1 MW3S 0.11376	2.79e4	108.5	NO
3	3	13C3-PFHxS	1803641-01RE1 MW3S 0.11376	3.50e3	116.1	NO
4	4	13C8-PFOA	1803641-01RE1 MW3S 0.11376	3.12e4	105.7	NO
5	5	13C9-PFNA	1803641-01RE1 MW3S 0.11376	1.91e4	89.4	NO
6	6	13C4-PFOS	1803641-01RE1 MW3S 0.11376	3.62e3	111.4	NO
7	7	13C6-PFDA	1803641-01RE1 MW3S 0.11376	1.80e4	72.7	NO
8	8	13C7-PFUdA	1803641-01RE1 MW3S 0.11376	1.24e4	45.1	YES

Name: 181128M1_99, Date: 29-Nov-2018, Time: 05:47:11, ID: 1803641-02RE1 MW6 0.11516, Description: MW6

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803641-02RE1 MW6 0.11516	1.31e4	161.5	YES
2	2	13C5-PFHxA	1803641-02RE1 MW6 0.11516	2.56e4	99.4	NO
3	3	13C3-PFHxS	1803641-02RE1 MW6 0.11516	3.11e3	103.2	NO
4	4	13C8-PFOA	1803641-02RE1 MW6 0.11516	2.66e4	90.4	NO
5	5	13C9-PFNA	1803641-02RE1 MW6 0.11516	1.62e4	76.0	NO
6	6	13C4-PFOS	1803641-02RE1 MW6 0.11516	2.31e3	71.1	NO
7	7	13C6-PFDA	1803641-02RE1 MW6 0.11516	1.27e4	51.3	NO
8	8	13C7-PFUdA	1803641-02RE1 MW6 0.11516	7.33e3	26.8	YES

Name: 181128M1_100, Date: 29-Nov-2018, Time: 05:57:44, ID: 1803641-03RE1 MW7 0.10821, Description: MW7

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803641-03RE1 MW7 0.10821	1.39e4	171.2	YES
2	2	13C5-PFHxA	1803641-03RE1 MW7 0.10821	2.59e4	100.7	NO
3	3	13C3-PFHxS	1803641-03RE1 MW7 0.10821	3.17e3	105.3	NO
4	4	13C8-PFOA	1803641-03RE1 MW7 0.10821	2.71e4	92.1	NO
5	5	13C9-PFNA	1803641-03RE1 MW7 0.10821	1.69e4	78.9	NO
6	6	13C4-PFOS	1803641-03RE1 MW7 0.10821	2.73e3	84.1	NO
7	7	13C6-PFDA	1803641-03RE1 MW7 0.10821	1.48e4	59.7	NO
8	8	13C7-PFUdA	1803641-03RE1 MW7 0.10821	1.04e4	37.9	YES

Name: 181128M1_101, Date: 29-Nov-2018, Time: 06:08:22, ID: 1803641-04RE1 SW2 0.11028, Description: SW2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803641-04RE1 SW2 0.11028	1.45e4	178.7	YES
2	2	13C5-PFHxA	1803641-04RE1 SW2 0.11028	2.72e4	105.9	NO
3	3	13C3-PFHxS	1803641-04RE1 SW2 0.11028	3.16e3	104.8	NO
4	4	13C8-PFOA	1803641-04RE1 SW2 0.11028	2.88e4	97.7	NO
5	5	13C9-PFNA	1803641-04RE1 SW2 0.11028	1.77e4	82.7	NO
6	6	13C4-PFOS	1803641-04RE1 SW2 0.11028	2.54e3	78.1	NO
7	7	13C6-PFDA	1803641-04RE1 SW2 0.11028	1.49e4	60.0	NO
8	8	13C7-PFUdA	1803641-04RE1 SW2 0.11028	9.12e3	33.3	YES

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Name: 181128M1_102, Date: 29-Nov-2018, Time: 06:19:00, ID: 1803646-01RE1 MW-1 0.11807, Description: MW-1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803646-01RE1 MW-1 0.11807	7.13e3	88.0	NO
2	2	13C5-PFHxA	1803646-01RE1 MW-1 0.11807	1.57e4	60.9	NO
3	3	13C3-PFHxS	1803646-01RE1 MW-1 0.11807	3.11e3	103.3	NO
4	4	13C8-PFOA	1803646-01RE1 MW-1 0.11807	1.55e4	52.7	NO
5	5	13C9-PFNA	1803646-01RE1 MW-1 0.11807	9.61e3	45.0	YES
6	6	13C4-PFOS	1803646-01RE1 MW-1 0.11807	2.60e3	79.9	NO
7	7	13C6-PFDA	1803646-01RE1 MW-1 0.11807	1.06e4	42.7	YES
8	8	13C7-PFUdA	1803646-01RE1 MW-1 0.11807	8.04e3	29.4	YES

Name: 181128M1_103, Date: 29-Nov-2018, Time: 06:29:33, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA	9.58e0	0.0	YES

Name: 181128M1_104, Date: 29-Nov-2018, Time: 06:40:11, ID: ST181128M1-7 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181128M1-7 PFC CS3 18K1906	8.25e3	101.8	NO
2	2	13C5-PFHxA	ST181128M1-7 PFC CS3 18K1906	2.97e4	115.4	NO
3	3	13C3-PFHxS	ST181128M1-7 PFC CS3 18K1906	3.39e3	112.4	NO
4	4	13C8-PFOA	ST181128M1-7 PFC CS3 18K1906	3.27e4	110.9	NO
5	5	13C9-PFNA	ST181128M1-7 PFC CS3 18K1906	2.29e4	107.2	NO
6	6	13C4-PFOS	ST181128M1-7 PFC CS3 18K1906	3.76e3	115.8	NO
7	7	13C6-PFDA	ST181128M1-7 PFC CS3 18K1906	2.77e4	111.8	NO
8	8	13C7-PFUdA	ST181128M1-7 PFC CS3 18K1906	3.17e4	115.9	NO

Name: 181128M1_105, Date: 29-Nov-2018, Time: 06:50:50, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

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Name: 181128M1_106, Date: 29-Nov-2018, Time: 07:01:23, ID: 1803646-02RE1 MW-4S 0.11283, Description: MW-4S

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803646-02RE1 MW-4S 0.11283	1.14e4	141.0	NO
2	2	13C5-PFHxA	1803646-02RE1 MW-4S 0.11283	2.29e4	89.2	NO
3	3	13C3-PFHxS	1803646-02RE1 MW-4S 0.11283	3.25e3	107.8	NO
4	4	13C8-PFOA	1803646-02RE1 MW-4S 0.11283	2.53e4	85.7	NO
5	5	13C9-PFNA	1803646-02RE1 MW-4S 0.11283	1.55e4	72.7	NO
6	6	13C4-PFOS	1803646-02RE1 MW-4S 0.11283	2.85e3	87.8	NO
7	7	13C6-PFDA	1803646-02RE1 MW-4S 0.11283	1.43e4	57.7	NO
8	8	13C7-PFUdA	1803646-02RE1 MW-4S 0.11283	8.46e3	30.9	YES

Name: 181128M1_107, Date: 29-Nov-2018, Time: 07:12:01, ID: 1803646-03RE1 Thorne 0.11213, Description: Thorne

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803646-03RE1 Thorne 0.11213	1.36e4	168.4	YES
2	2	13C5-PFHxA	1803646-03RE1 Thorne 0.11213	2.41e4	93.7	NO
3	3	13C3-PFHxS	1803646-03RE1 Thorne 0.11213	3.11e3	103.1	NO
4	4	13C8-PFOA	1803646-03RE1 Thorne 0.11213	2.61e4	88.6	NO
5	5	13C9-PFNA	1803646-03RE1 Thorne 0.11213	1.50e4	70.0	NO
6	6	13C4-PFOS	1803646-03RE1 Thorne 0.11213	1.78e3	54.8	NO
7	7	13C6-PFDA	1803646-03RE1 Thorne 0.11213	9.69e3	39.1	YES
8	8	13C7-PFUdA	1803646-03RE1 Thorne 0.11213	4.85e3	17.7	YES

Name: 181128M1_108, Date: 29-Nov-2018, Time: 07:22:34, ID: 1803647-01RE1 MW-1 0.1127, Description: MW-1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803647-01RE1 MW-1 0.1127	1.59e4	197.0	YES
2	2	13C5-PFHxA	1803647-01RE1 MW-1 0.1127	2.91e4	113.0	NO
3	3	13C3-PFHxS	1803647-01RE1 MW-1 0.1127	3.64e3	120.7	NO
4	4	13C8-PFOA	1803647-01RE1 MW-1 0.1127	3.15e4	106.9	NO
5	5	13C9-PFNA	1803647-01RE1 MW-1 0.1127	2.04e4	95.6	NO
6	6	13C4-PFOS	1803647-01RE1 MW-1 0.1127	3.05e3	93.9	NO
7	7	13C6-PFDA	1803647-01RE1 MW-1 0.1127	1.83e4	73.8	NO
8	8	13C7-PFUdA	1803647-01RE1 MW-1 0.1127	1.25e4	45.5	YES

Name: 181128M1_109, Date: 29-Nov-2018, Time: 07:33:13, ID: 1803647-02RE1 MW-3 0.11483, Description: MW-3

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803647-02RE1 MW-3 0.11483	1.40e4	172.5	YES
2	2	13C5-PFHxA	1803647-02RE1 MW-3 0.11483	2.64e4	102.7	NO
3	3	13C3-PFHxS	1803647-02RE1 MW-3 0.11483	3.49e3	115.8	NO
4	4	13C8-PFOA	1803647-02RE1 MW-3 0.11483	2.82e4	95.6	NO
5	5	13C9-PFNA	1803647-02RE1 MW-3 0.11483	1.68e4	78.8	NO
6	6	13C4-PFOS	1803647-02RE1 MW-3 0.11483	1.93e3	59.3	NO
7	7	13C6-PFDA	1803647-02RE1 MW-3 0.11483	1.16e4	46.8	YES
8	8	13C7-PFUdA	1803647-02RE1 MW-3 0.11483	4.46e3	16.3	YES

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Name: 181128M1_110, Date: 29-Nov-2018, Time: 07:43:54, ID: 1803651-01RE1 MW-1 0.11697, Description: MW-1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803651-01RE1 MW-1 0.11697	1.38e4	170.3	YES
2	2	13C5-PFHxA	1803651-01RE1 MW-1 0.11697	2.48e4	96.5	NO
3	3	13C3-PFHxS	1803651-01RE1 MW-1 0.11697	3.43e3	113.8	NO
4	4	13C8-PFOA	1803651-01RE1 MW-1 0.11697	2.75e4	93.5	NO
5	5	13C9-PFNA	1803651-01RE1 MW-1 0.11697	1.62e4	75.8	NO
6	6	13C4-PFOS	1803651-01RE1 MW-1 0.11697	2.61e3	80.5	NO
7	7	13C6-PFDA	1803651-01RE1 MW-1 0.11697	1.35e4	54.3	NO
8	8	13C7-PFUdA	1803651-01RE1 MW-1 0.11697	6.73e3	24.6	YES

Name: 181128M1_111, Date: 29-Nov-2018, Time: 07:54:27, ID: 1803651-02RE1 MW-4 0.11592, Description: MW-4

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803651-02RE1 MW-4 0.11592	1.40e4	173.2	YES
2	2	13C5-PFHxA	1803651-02RE1 MW-4 0.11592	2.58e4	100.2	NO
3	3	13C3-PFHxS	1803651-02RE1 MW-4 0.11592	3.21e3	106.6	NO
4	4	13C8-PFOA	1803651-02RE1 MW-4 0.11592	2.70e4	91.7	NO
5	5	13C9-PFNA	1803651-02RE1 MW-4 0.11592	1.69e4	79.2	NO
6	6	13C4-PFOS	1803651-02RE1 MW-4 0.11592	2.50e3	77.0	NO
7	7	13C6-PFDA	1803651-02RE1 MW-4 0.11592	1.43e4	57.7	NO
8	8	13C7-PFUdA	1803651-02RE1 MW-4 0.11592	7.33e3	26.8	YES

Name: 181128M1_112, Date: 29-Nov-2018, Time: 08:05:06, ID: 1803651-03RE1 MW-3 0.11768, Description: MW-3

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803651-03RE1 MW-3 0.11768	1.34e4	165.1	YES
2	2	13C5-PFHxA	1803651-03RE1 MW-3 0.11768	2.42e4	94.1	NO
3	3	13C3-PFHxS	1803651-03RE1 MW-3 0.11768	3.19e3	105.7	NO
4	4	13C8-PFOA	1803651-03RE1 MW-3 0.11768	2.79e4	94.5	NO
5	5	13C9-PFNA	1803651-03RE1 MW-3 0.11768	1.76e4	82.3	NO
6	6	13C4-PFOS	1803651-03RE1 MW-3 0.11768	2.68e3	82.4	NO
7	7	13C6-PFDA	1803651-03RE1 MW-3 0.11768	1.76e4	70.7	NO
8	8	13C7-PFUdA	1803651-03RE1 MW-3 0.11768	1.39e4	50.8	NO

Name: 181128M1_113, Date: 29-Nov-2018, Time: 08:15:38, ID: 1803652-01RE1 MW-1 0.10744, Description: MW-1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803652-01RE1 MW-1 0.10744	1.27e4	156.9	YES
2	2	13C5-PFHxA	1803652-01RE1 MW-1 0.10744	2.35e4	91.4	NO
3	3	13C3-PFHxS	1803652-01RE1 MW-1 0.10744	3.17e3	105.2	NO
4	4	13C8-PFOA	1803652-01RE1 MW-1 0.10744	2.48e4	84.3	NO
5	5	13C9-PFNA	1803652-01RE1 MW-1 0.10744	1.55e4	72.4	NO
6	6	13C4-PFOS	1803652-01RE1 MW-1 0.10744	2.88e3	88.8	NO
7	7	13C6-PFDA	1803652-01RE1 MW-1 0.10744	1.63e4	65.7	NO
8	8	13C7-PFUdA	1803652-01RE1 MW-1 0.10744	1.30e4	47.5	YES

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Name: 181128M1_114, Date: 29-Nov-2018, Time: 08:26:17, ID: 1803652-02RE1 MW-2 0.11424, Description: MW-2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1803652-02RE1 MW-2 0.11424	1.48e4	183.2	YES
2	2	13C5-PFHxA	1803652-02RE1 MW-2 0.11424	2.81e4	109.3	NO
3	3	13C3-PFHxS	1803652-02RE1 MW-2 0.11424	3.27e3	108.5	NO
4	4	13C8-PFOA	1803652-02RE1 MW-2 0.11424	3.04e4	103.2	NO
5	5	13C9-PFNA	1803652-02RE1 MW-2 0.11424	1.97e4	92.3	NO
6	6	13C4-PFOS	1803652-02RE1 MW-2 0.11424	2.79e3	85.8	NO
7	7	13C6-PFDA	1803652-02RE1 MW-2 0.11424	1.73e4	69.6	NO
8	8	13C7-PFUdA	1803652-02RE1 MW-2 0.11424	1.02e4	37.1	YES

Name: 181128M1_115, Date: 29-Nov-2018, Time: 08:36:50, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA			NO
3	3	13C3-PFHxS	IPA			NO
4	4	13C8-PFOA	IPA			NO
5	5	13C9-PFNA	IPA			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

Name: 181128M1_116, Date: 29-Nov-2018, Time: 08:47:28, ID: ST181128M1-8 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST181128M1-8 PFC CS3 18K1906	8.26e3	102.0	NO
2	2	13C5-PFHxA	ST181128M1-8 PFC CS3 18K1906	2.92e4	113.4	NO
3	3	13C3-PFHxS	ST181128M1-8 PFC CS3 18K1906	3.30e3	109.6	NO
4	4	13C8-PFOA	ST181128M1-8 PFC CS3 18K1906	3.40e4	115.4	NO
5	5	13C9-PFNA	ST181128M1-8 PFC CS3 18K1906	2.22e4	103.8	NO
6	6	13C4-PFOS	ST181128M1-8 PFC CS3 18K1906	3.53e3	108.7	NO
7	7	13C6-PFDA	ST181128M1-8 PFC CS3 18K1906	2.77e4	111.5	NO
8	8	13C7-PFUdA	ST181128M1-8 PFC CS3 18K1906	3.02e4	110.1	NO

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Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112818.mdb 29 Nov 2018 07:48:36
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Name: 181128M1_3, Date: 28-Nov-2018, Time: 12:46:26, ID: IPA, Description: IPA

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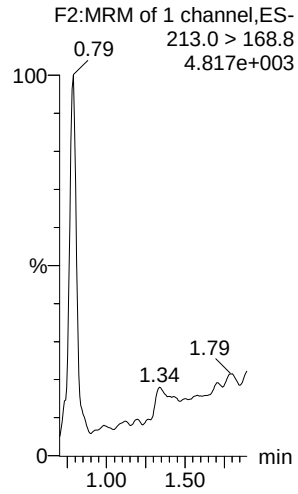

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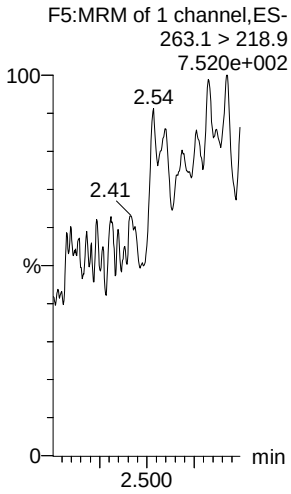

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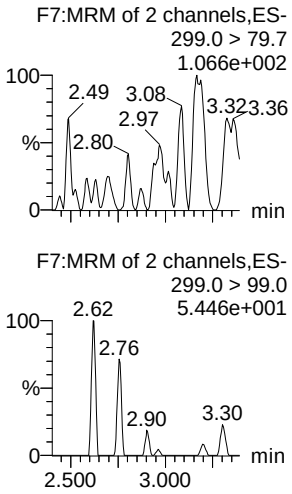

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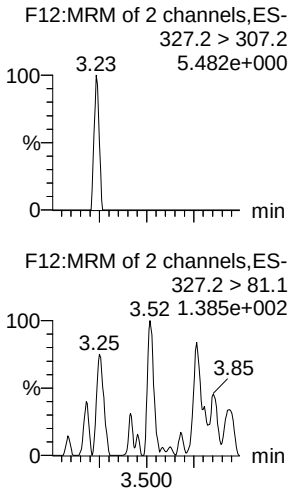

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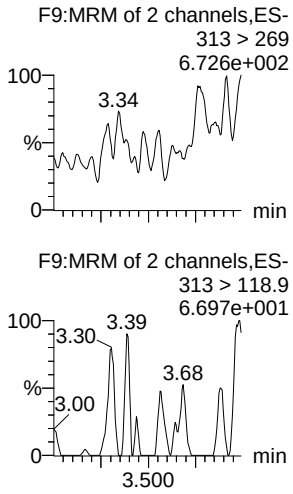

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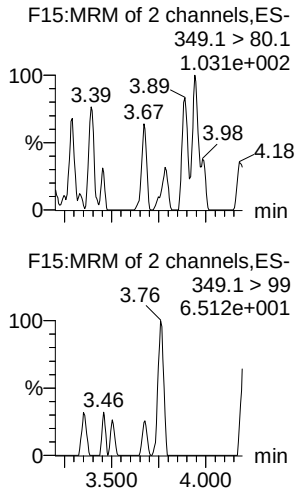
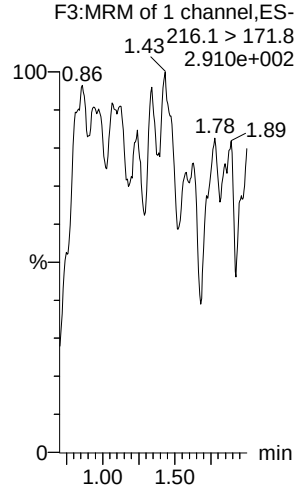


13C3-PFBA



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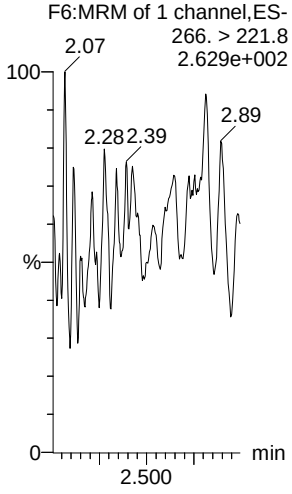

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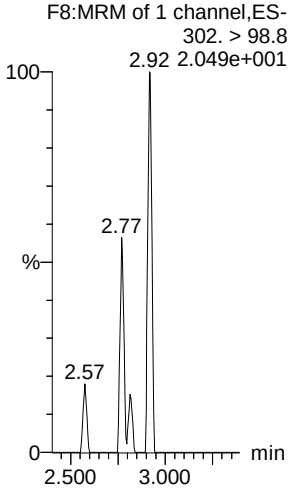
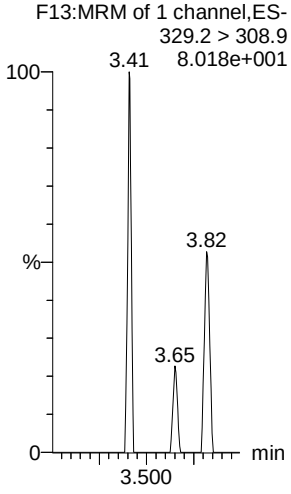


13C2-4:2 FTS



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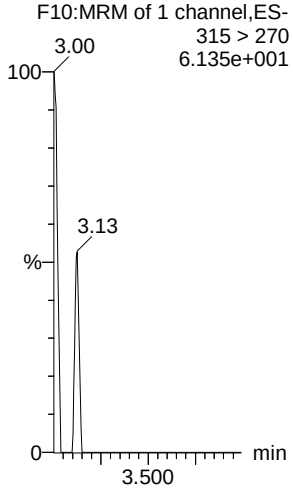

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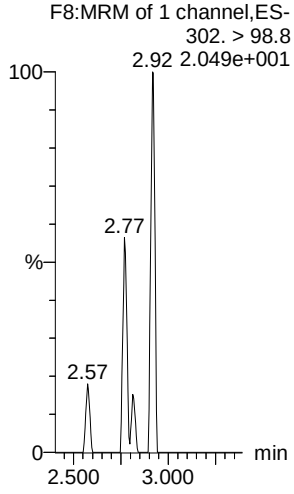

Vista Analytical Laboratory

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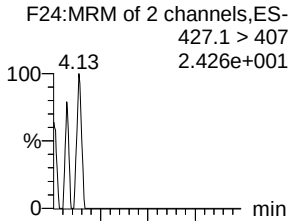
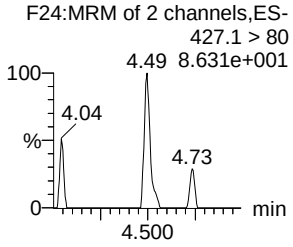
Name: 181128M1_3, Date: 28-Nov-2018, Time: 12:46:26, ID: IPA, Description: IPA

6:2 FTS





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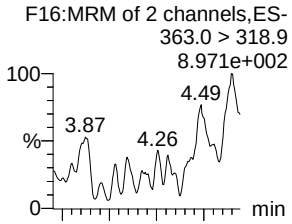

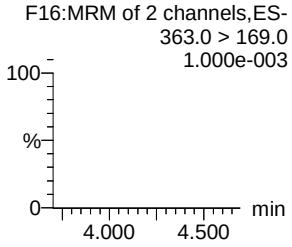

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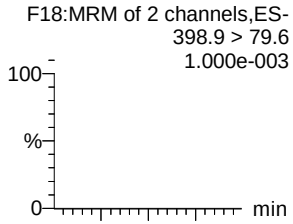

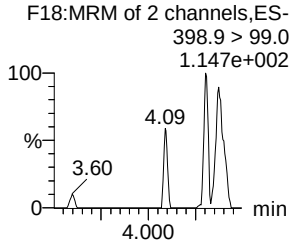

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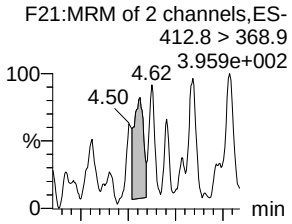

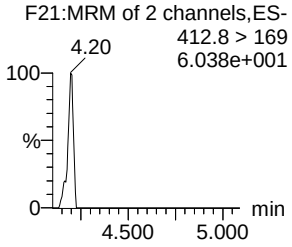

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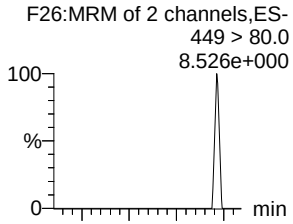

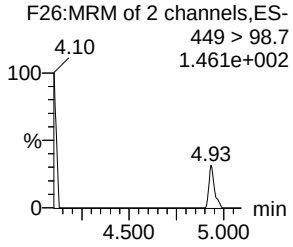

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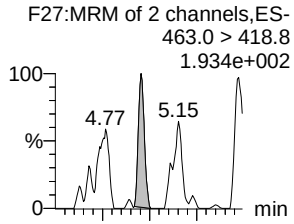

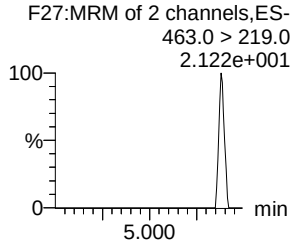

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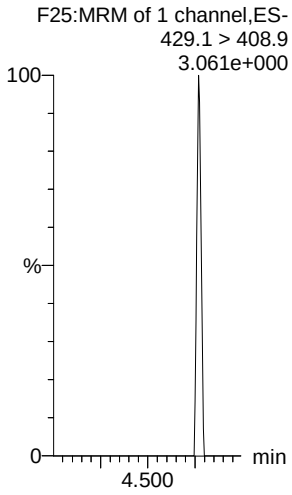

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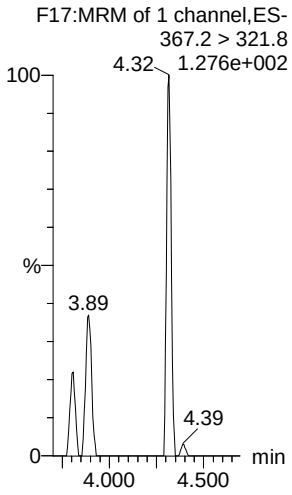

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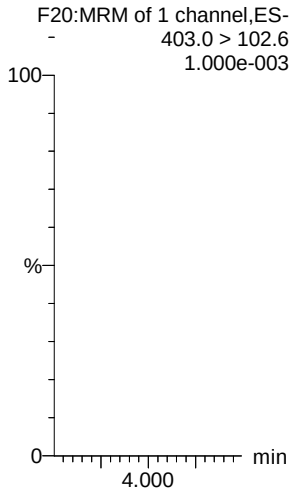

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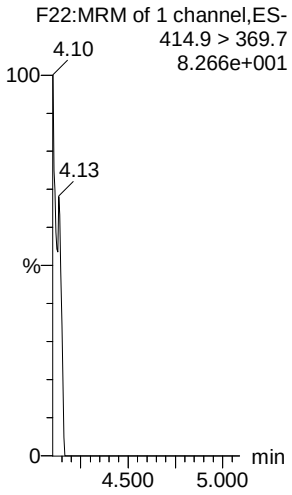

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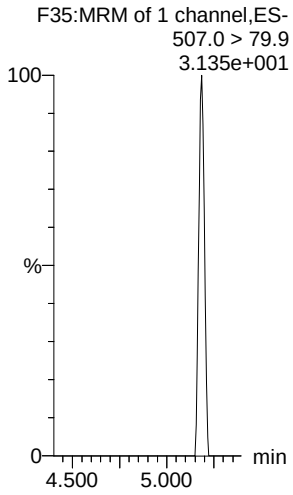

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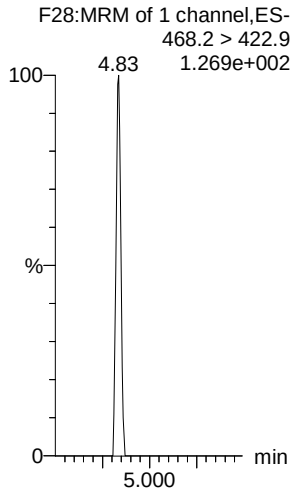

Vista Analytical Laboratory

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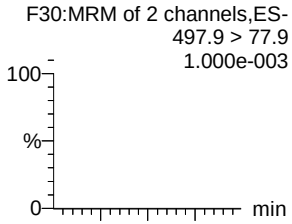

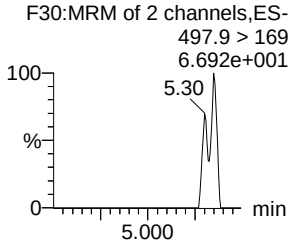

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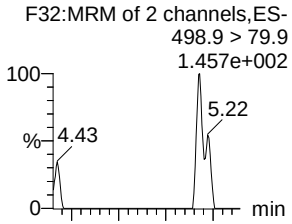

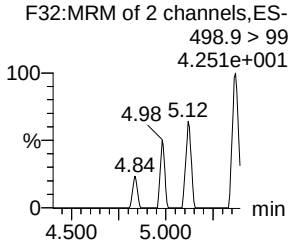

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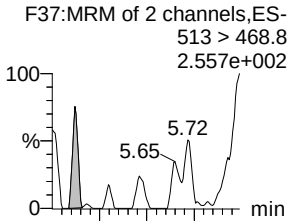
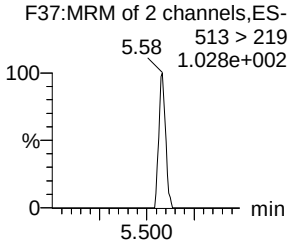
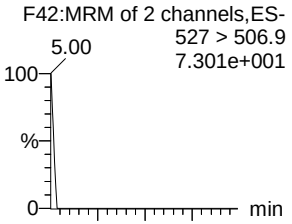
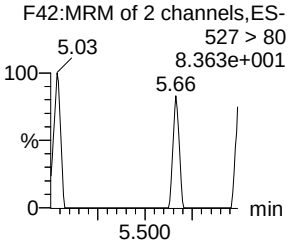




8:2 FTS





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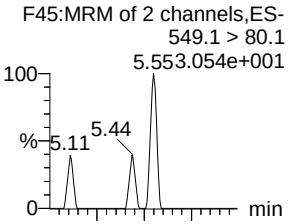

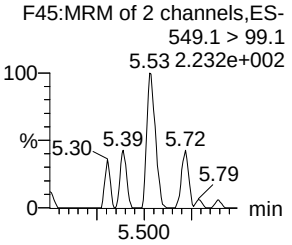

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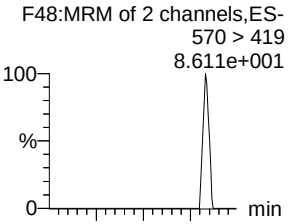

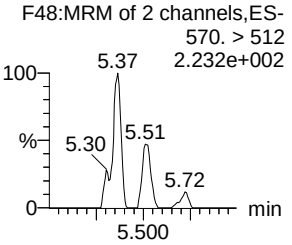

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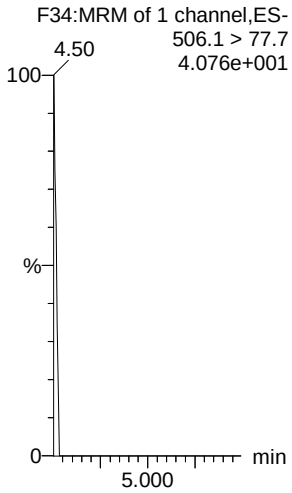

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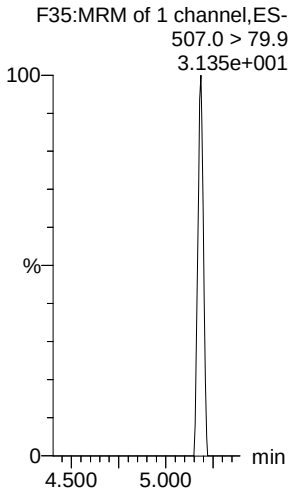

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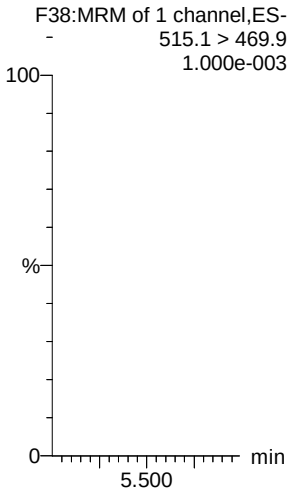
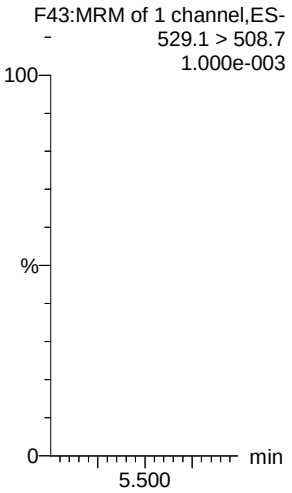


13C2-8:2 FTS



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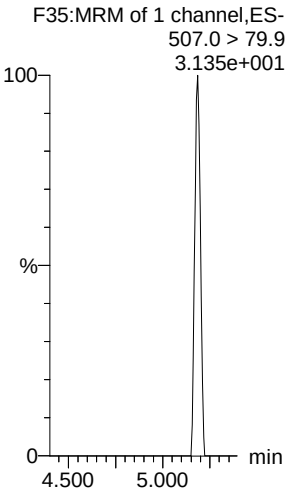

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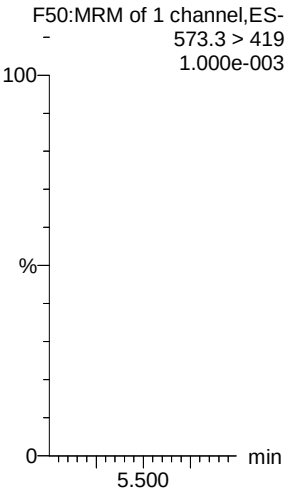

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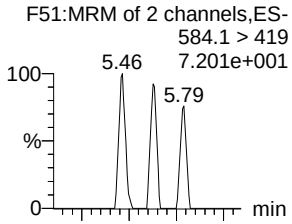

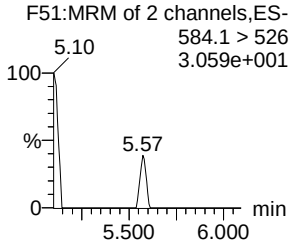

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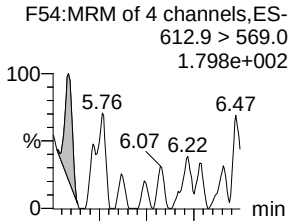

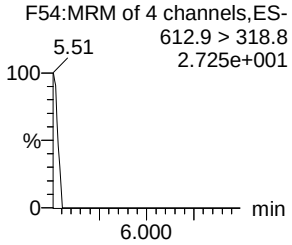

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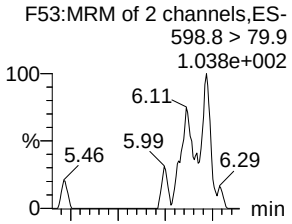

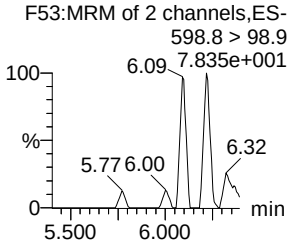

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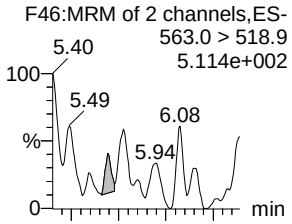

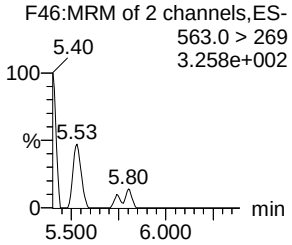

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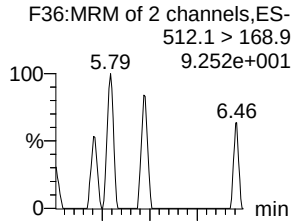

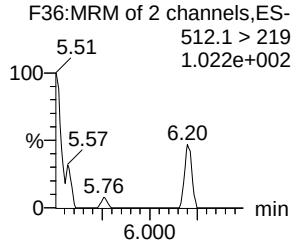

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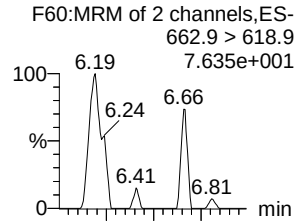
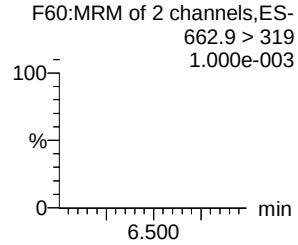
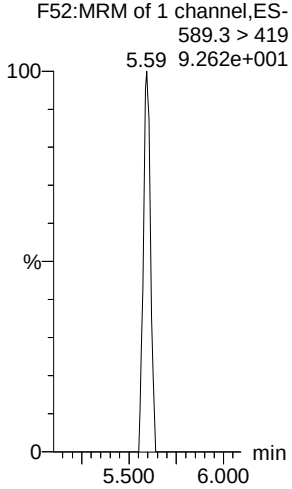
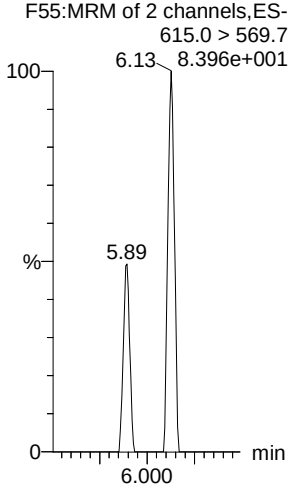




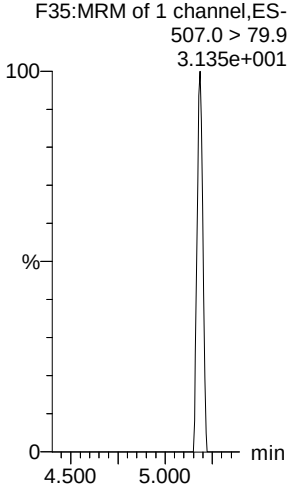
d5-N-EtFOSAA



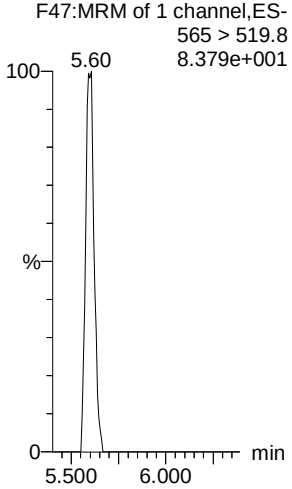
13C2-PFDoA



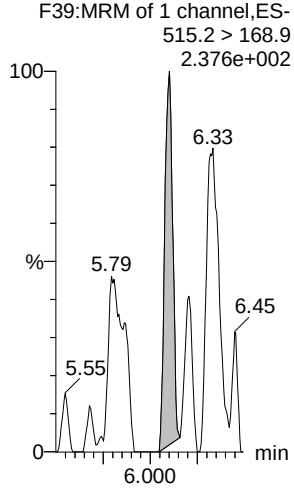
13C8-PFOS



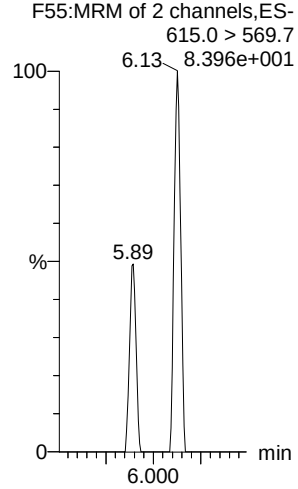
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA



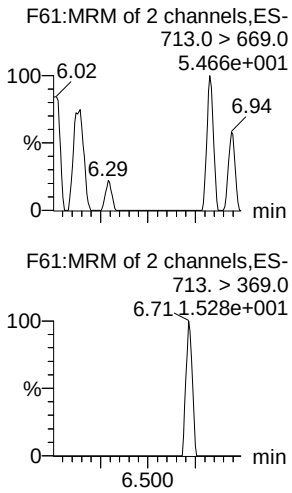
Vista Analytical Laboratory

Dataset: Untitled

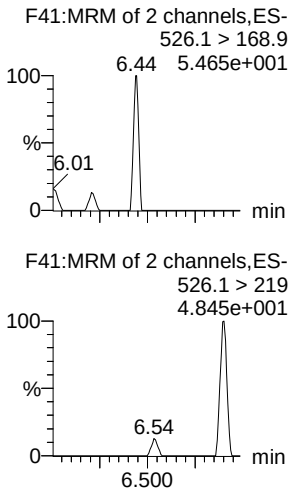
Last Altered: Thursday, November 29, 2018 10:03:11 Pacific Standard Time
Printed: Thursday, November 29, 2018 10:03:36 Pacific Standard Time

Name: 181128M1_3, Date: 28-Nov-2018, Time: 12:46:26, ID: IPA, Description: IPA

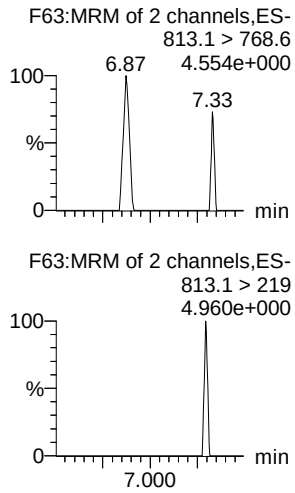
PFTeDA



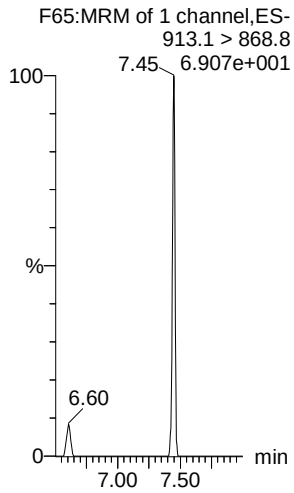
N-EtFOSA



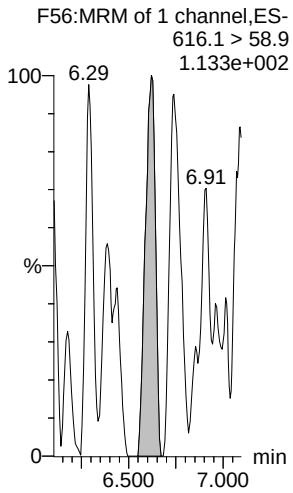
PFHxDA



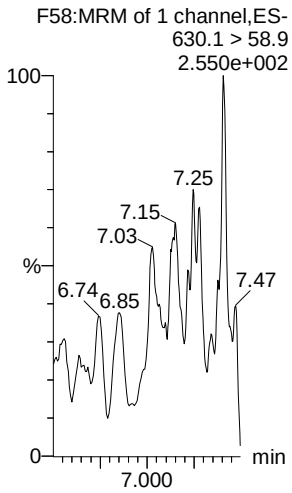
PFODA



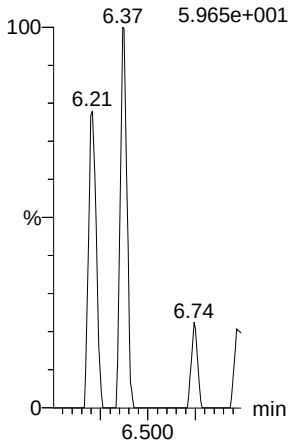
N-MeFOSE



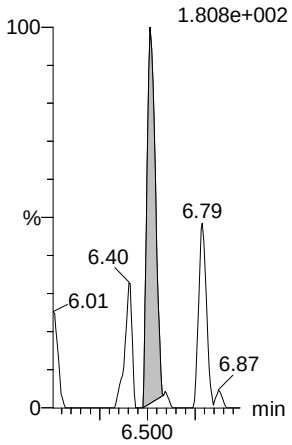
N-EtFOSE



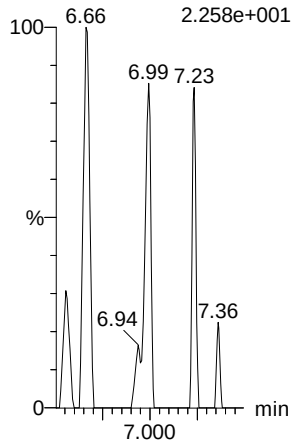
13C2-PFTeDA



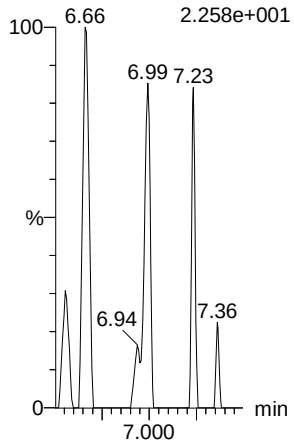
d5-N-ETFOSA



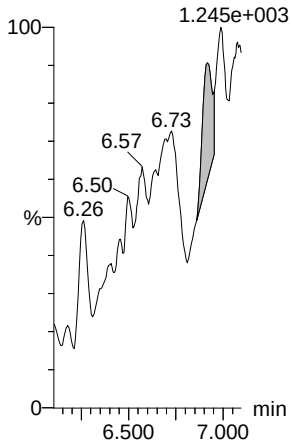
13C2-PFHxDA



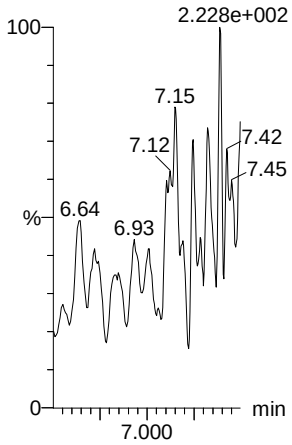
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE



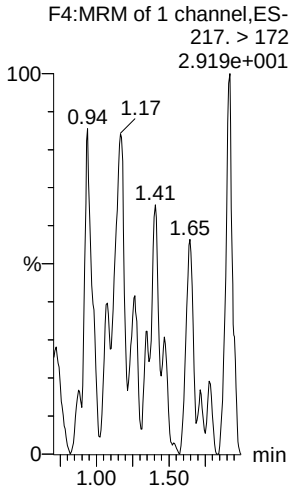
Vista Analytical Laboratory

Dataset: Untitled

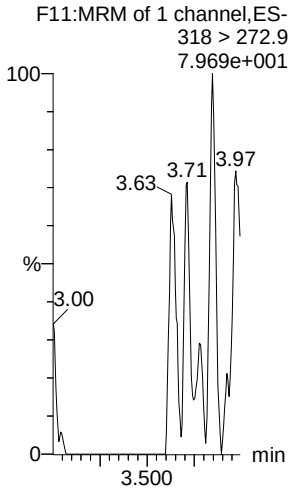
Last Altered: Thursday, November 29, 2018 10:03:11 Pacific Standard Time
Printed: Thursday, November 29, 2018 10:03:36 Pacific Standard Time

Name: 181128M1_3, Date: 28-Nov-2018, Time: 12:46:26, ID: IPA, Description: IPA

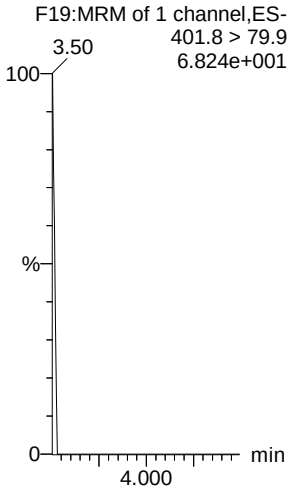
13C4-PFBA



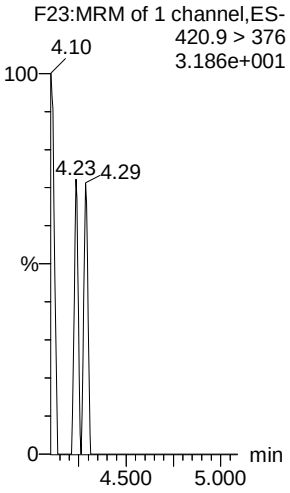
13C5-PFHxA



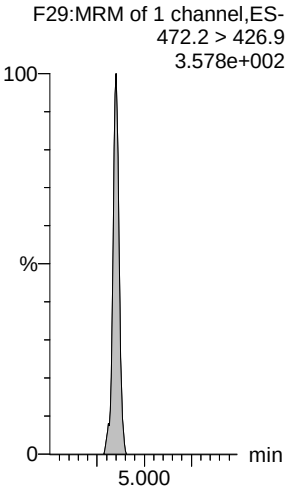
13C3-PFHxS



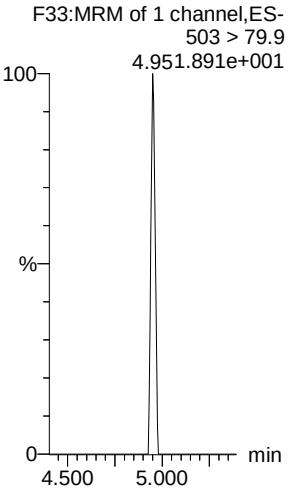
13C8-PFOA



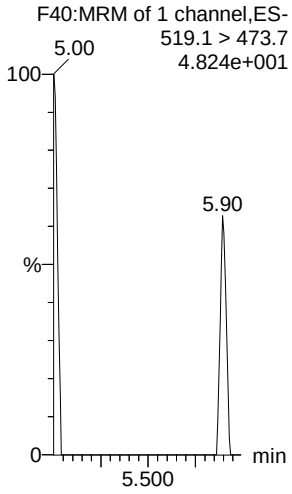
13C9-PFNA



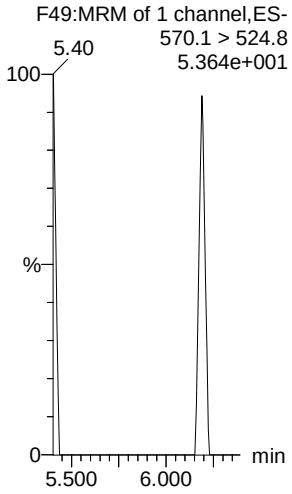
13C4-PFOS



13C6-PFDA



13C7-PFUdA



LC Calibration Standards Review Checklist Q4

		ION Ratio	Concentration	C-Cals Name	Sign Date	Correct I-Cal	Manual Integrations	N/A
Calibration ID:	ST181128M1-1 (L) M H	☑	☐	☐	☐	☐	☑	☐
Calibration ID:	-2 L (M) H	☑	☐	☐	☐	☑	☑	☐
Calibration ID:	-3 L (M) H	☐	☐	☐	☐	☐	☑	☐
Calibration ID:	-4 L (M) H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	-5 L (M) H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	-6 L (M) H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	-7 L (M) H	☐	☐	☐	☒	☐	☐	☐
Calibration ID:	-8 L (M) H	☐	☐	☐	☐	☐	☐	☑
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐

Full Mass Cal. Date: 11/26/18

Run Log Present: ☑

# of Samples per Sequence Checked: ☑

Instrument Blank Saved ☑

IIS Area Saved ☑

Reviewed By: DM 11/29/18
Initials/Date

Comments:

Vista Analytical Laboratory

Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-32.qld

Last Altered: Thursday, November 29, 2018 09:59:37 Pacific Standard Time
Printed: Thursday, November 29, 2018 10:00:37 Pacific Standard Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112818.mdb 29 Nov 2018 09:59:29
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Name: 181128M1_32, Date: 28-Nov-2018, Time: 17:56:54, ID: ST181128M1-2 PFC CS3 18K1906, Description: PFC CS3 18K1906

	Name	Ion Ratio	Ratio out?
1	PFBA		
2	PFPeA		
3	PFBS	2.626	NO
4	4:2 FTS	1.612	NO
5	PFHxA	15.239	NO
6	PFPeS	1.493	NO
7	PFHpA	12.965	NO
8	L-PFHxS	1.586	NO
9	6:2 FTS	3.100	NO
10	L-PFOA	3.285	NO
11	PFHpS	1.895	NO
12	PFNA	4.447	NO
13	PFOSA	32.812	NO
14	L-PFOS	1.907	NO
15	PFDA	6.128	NO
16	8:2 FTS	2.347	NO
17	PFNS	1.650	NO
18	L-MeFOSAA	2.585	NO
19	L-EtFOSAA	1.547	NO

Vista Analytical Laboratory

Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-32.qld

Last Altered: Thursday, November 29, 2018 09:59:37 Pacific Standard Time
Printed: Thursday, November 29, 2018 10:02:01 Pacific Standard Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112818.mdb 29 Nov 2018 09:59:29
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Name: 181128M1_32, Date: 28-Nov-2018, Time: 17:56:54, ID: ST181128M1-2 PFC CS3 18K1906, Description: PFC CS3 18K1906

	Name	Ion Ratio	Ratio out?
1	PFUdA	9.984	NO
2	PFDS	1.679	NO
3	PFDoA	8.038	NO
4	N-MeFOSA	1.460	NO
5	PFTrDA	24.187	NO
6	PFTeDA	12.415	NO
7	N-EtFOSA	1.605	NO
8	PFHxDA	23.642	NO
9	PFODA		
10	N-MeFOSE		
11	N-EtFOSE		

Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-2.qld

Last Altered: Thursday, November 29, 2018 07:51:04 Pacific Standard Time
Printed: Thursday, November 29, 2018 07:52:25 Pacific Standard Time

✓ dlm 11/29/18

Name: 181128M1_2, Date: 28-Nov-2018, Time: 11:49:27, ID: ST181128M1-1 PFC CS0 18K1903, Description: PFC CS0 18K1903

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	681.802	6561.720	1.00	1.22	1.299	1.1	105.6	NO		
2	2	PFPeA	263.1 > 218.9	1095.796	13673.240	1.00	2.44	1.002	1.0	99.1	NO		
3	3	PFBS	299.0 > 79.7	278.935	1759.931	1.00	2.77	1.981	0.9	94.7	NO	2.430	NO
4	4	4:2 FTS	327.2>307.2	423.574	4666.615	1.00	3.25	1.135	1.0	103.1	NO	1.779	NO
5	5	PFHxA	313 > 269	1968.472	9704.226	1.00	3.34	1.014	1.0	102.3	NO	13.184	NO
6	6	PFPeS	349.1>80.1	217.859	1759.931	1.00	3.56	1.547	0.9	90.7	NO	1.558	NO
7	36	13C3-PFBA	216.1 > 171.8	6561.720	8384.688	1.00	1.22	9.782	12.4	99.4	NO		
8	37	13C3-PFPeA	266. > 221.8	13673.240	25717.379	1.00	2.44	6.646	12.0	95.6	NO		
9	38	13C3-PFBS	302. > 98.8	1759.931	3013.925	1.00	2.77	7.299	13.6	108.7	NO		
10	39	13C2-4:2 FTS	329.2>308.9	4666.615	3013.925	1.00	3.25	19.354	13.1	104.7	NO		
11	40	13C2-PFHxA	315 > 270	9704.226	25717.379	1.00	3.34	4.717	4.8	95.4	NO		
12	38	13C3-PFBS	302. > 98.8	1759.931	3013.925	1.00	2.77	7.299	13.6	108.7	NO		
13	-1												
14	10	6:2 FTS	427.1 > 407	447.234	4494.150	1.00	4.44	1.244	0.9	94.3	NO	2.604	NO
15	7	PFHpA	363.0 > 318.9	1517.914	13310.812	1.00	4.00	1.425	1.0	102.1	NO	15.146	NO
16	8	L-PFHxS	398.9 > 79.6	217.934	1283.865	1.00	4.15	2.122	1.1	109.2	NO	1.878	NO
17	11	L-PFOA	412.8 > 368.9	2653.596	22903.654	1.00	4.49	1.448	1.0	95.1	NO	3.335	NO
18	13	PFHpS	449 > 80.0	268.795	3087.572	1.00	4.60	1.088	1.1	110.4	NO	1.804	NO
19	14	PFNA	463.0 > 418.8	2287.428	21362.402	1.00	4.92	1.338	1.0	103.6	NO	4.683	NO
20	43	13C2-6:2 FTS	429.1 > 408.9	4494.150	3249.669	1.00	4.44	17.287	11.1	88.5	NO		
21	41	13C4-PFHpA	367.2 > 321.8	13310.812	25717.379	1.00	4.01	6.470	12.1	96.5	NO		
22	42	18O2-PFHxS	403.0 > 102.6	1283.865	3013.925	1.00	4.14	5.325	11.9	95.1	NO		
23	44	13C2-PFOA	414.9 > 369.7	22903.654	29465.986	1.00	4.49	9.716	12.9	103.0	NO		
24	47	13C8-PFOS	507.0 > 79.9	3087.572	3249.669	1.00	5.01	11.876	11.4	91.2	NO		
25	45	13C5-PFNA	468.2 > 422.9	21362.402	21354.412	1.00	4.92	12.505	12.6	101.0	NO		
26	-1												
27	15	PFOSA	497.9 > 77.9	246.209	2363.957	1.00	4.96	1.302	1.2	116.4	NO	114.729	YES
28	16	L-PFOS	498.9 > 79.9	264.370	3087.572	1.00	5.01	1.070	0.9	93.5	NO	2.304	NO
29	18	PFDA	513 > 468.8	2441.855	20519.031	1.00	5.30	1.488	1.1	111.2	NO	6.378	NO
30	19	8:2 FTS	527 > 506.9	493.398	3869.961	1.00	5.27	1.594	1.0	98.7	NO	2.475	NO
31	20	PFNS	549.1 > 80.1	231.807	3087.572	1.00	5.36	0.938	1.2	116.2	NO	1.661	NO
32	21	L-MeFOSAA	570 > 419	904.899	3484.417	1.00	5.46	3.246	1.1	108.7	NO	3.099	NO
33	46	13C8-PFOSA	506.1 > 77.7	2363.957	27381.666	1.00	4.97	1.079	11.1	88.9	NO		
34	47	13C8-PFOS	507.0 > 79.9	3087.572	3249.669	1.00	5.01	11.876	11.4	91.2	NO		
35	48	13C2-PFDA	515.1 > 469.9	20519.031	24815.594	1.00	5.30	10.336	11.5	91.6	NO		
36	49	13C2-8:2 FTS	529.1 > 508.7	3869.961	3249.669	1.00	5.27	14.886	12.6	101.1	NO		

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Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-2.qld

Last Altered: Thursday, November 29, 2018 07:51:04 Pacific Standard Time
Printed: Thursday, November 29, 2018 07:52:25 Pacific Standard Time

Name: 181128M1_2, Date: 28-Nov-2018, Time: 11:49:27, ID: ST181128M1-1 PFC CS0 18K1903, Description: PFC CS0 18K1903

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
37	47	13C8-PFOS	507.0 > 79.9	3087.572	3249.669	1.00	5.01	11.876	11.4	91.2	NO		
38	50	d3-N-MeFOSAA	573.3 > 419	3484.417	27381.666	1.00	5.45	1.591	11.8	94.5	NO		
39	-1												
40	23	L-EtFOSAA	584.1 > 419	710.037	4470.938	1.00	5.61	1.985	1.2	119.5	NO	1.651	NO
41	27	PFDoA	612.9 > 569.0	2370.724	25700.330	1.00	5.91	1.153	0.9	93.5	NO	9.308	NO
42	26	PFDS	598.8 > 79.9	258.188	3087.572	1.00	5.67	1.045	1.0	98.5	NO	2.026	NO
43	25	PFUdA	563.0 > 518.9	2230.492	27239.520	1.00	5.62	1.024	1.0	98.2	NO	9.690	NO
44	28	N-MeFOSA	512.1 > 168.9	377.031	11383.648	1.00	5.92	4.968	4.7	94.4	NO	1.252	NO
45	29	PFTrDA	662.9 > 618.9	2540.495	25700.330	1.00	6.16	1.236	1.0	101.0	NO	19.728	NO
46	52	d5-N-EtFOSAA	589.3 > 419	4470.938	27381.666	1.00	5.61	2.041	11.0	88.1	NO		
47	53	13C2-PFDoA	615.0 > 569.7	25700.330	24815.594	1.00	5.91	12.946	12.4	98.9	NO		
48	47	13C8-PFOS	507.0 > 79.9	3087.572	3249.669	1.00	5.01	11.876	11.4	91.2	NO		
49	51	13C2-PFUdA	565 > 519.8	27239.520	27381.666	1.00	5.63	12.435	13.0	103.9	NO		
50	54	d3-N-MeFOSA	515.2 > 168.9	11383.648	27381.666	1.00	5.96	5.197	141.6	94.4	NO		
51	53	13C2-PFDoA	615.0 > 569.7	25700.330	24815.594	1.00	5.91	12.946	12.4	98.9	NO		
52	-1												
53	30	PFTeDA	713.0 > 669.0	1997.332	17068.588	1.00	6.37	1.463	0.8	84.3	NO	13.646	NO
54	31	N-EtFOSA	526.1 > 168.9	559.726	18320.227	1.00	6.42	4.583	4.9	98.7	NO	1.715	NO
55	32	PFHxDA	813.1 > 768.6	934.574	8429.961	1.00	6.72	0.554	1.2	123.1	NO	16.683	NO
56	33	PFODA	913.1 > 868.8	1321.801	8429.961	1.00	6.96	0.784	1.1	107.5	NO		
57	34	N-MeFOSE	616.1 > 58.9	288.937	9525.465	1.00	6.69	4.550	4.5	90.9	NO		
58	35	N-EtFOSE	630.1 > 58.9	355.539	8686.847	1.00	6.84	6.139	5.1	101.3	NO		
59	55	13C2-PFTeDA	715.1 > 669.7	17068.588	27381.666	1.00	6.37	7.792	13.7	109.9	NO		
60	56	d5-N-ETFOSA	531.1 > 168.9	18320.227	27381.666	1.00	6.44	8.363	143.4	95.6	NO		
61	57	13C2-PFHxDA	815 > 769.7	8429.961	27381.666	1.00	6.72	3.848	5.2	103.2	NO		
62	57	13C2-PFHxDA	815 > 769.7	8429.961	27381.666	1.00	6.72	3.848	5.2	103.2	NO		
63	58	d7-N-MeFOSE	623.1 > 58.9	9525.465	27381.666	1.00	6.68	4.348	137.4	91.6	NO		
64	59	d9-N-EtFOSE	639.2 > 58.8	8686.847	27381.666	1.00	6.83	3.966	132.9	88.6	NO		
65	-1												
66	60	13C4-PFBA	217. > 172	8384.688	8384.688	1.00	1.22	12.500	12.5	100.0	NO		
67	61	13C5-PFHxA	318 > 272.9	25717.379	25717.379	1.00	3.34	12.500	12.5	100.0	NO		
68	62	13C3-PFHxS	401.8 > 79.9	3013.925	3013.925	1.00	4.14	12.500	12.5	100.0	NO		
69	63	13C8-PFOA	420.9 > 376	29465.986	29465.986	1.00	4.49	12.500	12.5	100.0	NO		
70	64	13C9-PFNA	472.2 > 426.9	21354.412	21354.412	1.00	4.92	12.500	12.5	100.0	NO		
71	65	13C4-PFOS	503 > 79.9	3249.669	3249.669	1.00	5.01	12.500	12.5	100.0	NO		
72	66	13C6-PFDA	519.1 > 473.7	24815.594	24815.594	1.00	5.30	12.500	12.5	100.0	NO		

Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-2.qld

Last Altered: Thursday, November 29, 2018 07:51:04 Pacific Standard Time
Printed: Thursday, November 29, 2018 07:52:25 Pacific Standard Time

Name: 181128M1_2, Date: 28-Nov-2018, Time: 11:49:27, ID: ST181128M1-1 PFC CS0 18K1903, Description: PFC CS0 18K1903

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
73	67	13C7-PFUdA	570.1 > 524.8	27381.666	27381.666	1.00	5.63	12.500	12.5	100.0	NO		

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Dataset: Untitled

Last Altered: Thursday, November 29, 2018 09:42:33 Pacific Standard Time
Printed: Thursday, November 29, 2018 09:43:09 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112818.mdb 29 Nov 2018 07:48:36
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	181128M1_1	IPA	28-Nov-18	11:38:53
2	2	181128M1_2	ST181128M1-1 PFC CS0 18K1903	28-Nov-18	11:49:27
3	3	181128M1_3	IPA	28-Nov-18	12:46:26
4	4	181128M1_4	B8K0098-BLK1 Method Blank 0.125	28-Nov-18	12:57:03
5	5	181128M1_5	B8K0142-BSD1 LCSD 0.125	28-Nov-18	13:07:41
6	6	181128M1_6	B8K0142-BS1 OPR 0.125	28-Nov-18	13:18:14
7	7	181128M1_7	B8K0142-BLK1 Method Blank 0.125	28-Nov-18	13:28:52
8	8	181128M1_8	1803631-01 REEPDW1366FRB 0.1199	28-Nov-18	13:39:25
9	9	181128M1_9	1803631-02 REEPDW1367FRB 0.12161	28-Nov-18	13:50:03
10	10	181128M1_10	1803631-03 REEPDW1369FRB 0.1176	28-Nov-18	14:00:36
11	11	181128M1_11	1803631-04 REEPDW1368FRB 0.11836	28-Nov-18	14:11:14
12	12	181128M1_12	1803631-05 REEPDW1370FRB 0.1188	28-Nov-18	14:21:48
13	13	181128M1_13	1803631-06 REEPDW1371FRB 0.12004	28-Nov-18	14:32:26
14	14	181128M1_14	1803656-01 REEPDW1372FRB 0.12021	28-Nov-18	14:44:10
15	15	181128M1_15	1803656-02 REEPDW1373FRB 0.11861	28-Nov-18	14:54:43
16	16	181128M1_16	B8K0141-BS1 OPR 0.25	28-Nov-18	15:05:23
17	17	181128M1_17	B8K0141-BLK1 Method Blank 0.25	28-Nov-18	15:16:00
18	18	181128M1_18	B8K0126-BS1 OPR 0.125	28-Nov-18	15:28:26
19	19	181128M1_19	B8K0126-BSD1 LCSD 0.125	28-Nov-18	15:39:02
20	20	181128M1_20	B8K0126-BLK1 Method Blank 0.125	28-Nov-18	15:49:40
21	21	181128M1_21	1803654-01 REEPDW1372 0.1169	28-Nov-18	16:00:19
22	22	181128M1_22	1803654-02 REEPDW1373 0.11774	28-Nov-18	16:10:52
23	23	181128M1_23	1803657-01 REEPEF1088 0.11595	28-Nov-18	16:21:30
24	24	181128M1_24	1803657-02 REEPAR1088 0.11979	28-Nov-18	16:32:03
25	25	181128M1_25	1803657-03 REEPAC1088 0.11772	28-Nov-18	16:42:42
26	26	181128M1_26	1803657-04 REEPIN1088 0.11717	28-Nov-18	16:53:15
27	27	181128M1_27	1803657-05 REEPEF1089 0.11674	28-Nov-18	17:03:53
28	28	181128M1_28	1803657-06 REEPEF5039 0.1185	28-Nov-18	17:14:26
29	29	181128M1_29	1803657-07 REEPAR1089 0.11405	28-Nov-18	17:25:04
30	30	181128M1_30	1803657-08 REEPAC1089 0.1182	28-Nov-18	17:35:43
31	31	181128M1_31	IPA	28-Nov-18	17:46:15
32	32	181128M1_32	ST181128M1-2 PFC CS3 18K1906	28-Nov-18	17:56:54

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Dataset: Untitled

Last Altered: Thursday, November 29, 2018 09:42:33 Pacific Standard Time
Printed: Thursday, November 29, 2018 09:43:09 Pacific Standard Time

Compound name: PFBA

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33	33	181128M1_33	IPA	28-Nov-18	18:07:27
34	34	181128M1_34	1803657-09 REEPIN1089 0.1204	28-Nov-18	18:18:05
35	35	181128M1_35	1803657-10 REEPEF1090 0.12036	28-Nov-18	18:28:43
36	36	181128M1_36	1803657-11 REEPAR1090 0.11858	28-Nov-18	18:39:16
37	37	181128M1_37	1803657-12 REEPAC1090 0.11236	28-Nov-18	18:49:55
38	38	181128M1_38	1803657-13 REEPIN1090 0.11996	28-Nov-18	19:00:29
39	39	181128M1_39	1803657-14 REEPEF1091 0.11533	28-Nov-18	19:11:07
40	40	181128M1_40	1803657-15 REEPAR1091 0.11892	28-Nov-18	19:21:39
41	41	181128M1_41	1803657-16 REEPAC1091 0.11796	28-Nov-18	19:32:18
42	42	181128M1_42	1803626-09@10X 16-HS-03-SA2D 0.11367	28-Nov-18	19:42:56
43	43	181128M1_43	IPA	28-Nov-18	19:53:29
44	44	181128M1_44	ST181128M1-3 PFC CS3 18K1906	28-Nov-18	20:04:07
45	45	181128M1_45	IPA	28-Nov-18	20:14:46
46	46	181128M1_46	1803681-02 SWEF1811131015KME 0.2522	28-Nov-18	20:25:19
47	47	181128M1_47	1803681-01 SWNT1811131005KME 0.25021	28-Nov-18	20:35:57
48	48	181128M1_48	1803679-01 SWNT1811121330KME 0.24544	28-Nov-18	20:46:30
49	49	181128M1_49	1803679-02 SWEF1811121340KME 0.25126	28-Nov-18	20:57:09
50	50	181128M1_50	1803624-01 WMP1811121017JSJ 0.24458	28-Nov-18	21:07:47
51	51	181128M1_51	1803624-02 WEF1811121026JSJ 0.24945	28-Nov-18	21:18:20
52	52	181128M1_52	1803624-03 WEF1811121036JSJ 0.25294	28-Nov-18	21:28:59
53	53	181128M1_53	B8K0151-BS1 OPR 0.25	28-Nov-18	21:39:31
54	54	181128M1_54	B8K0151-BLK1 Method Blank 0.25	28-Nov-18	21:50:10
55	55	181128M1_55	1803697-01 WW1811050800GSC 0.21921	28-Nov-18	22:00:48
56	56	181128M1_56	1803697-02 WW1811050830GSC 0.24745	28-Nov-18	22:11:22
57	57	181128M1_57	1803698-03 WW1811051215GSC 0.24831	28-Nov-18	22:22:00
58	58	181128M1_58	IPA	28-Nov-18	22:32:33
59	59	181128M1_59	ST181128M1-4 PFC CS3 18K1906	28-Nov-18	22:43:12
60	60	181128M1_60	IPA	28-Nov-18	22:53:45
61	61	181128M1_61	1803698-04 WW1811051230GSC 0.24182	28-Nov-18	23:04:23
62	62	181128M1_62	1803698-05 WW1811051245GSC 0.22793	28-Nov-18	23:14:55
63	63	181128M1_63	1803698-06 WW1811051315GSC 0.249	28-Nov-18	23:25:34
64	64	181128M1_64	1803699-02 WW1811051500GSC 0.22221	28-Nov-18	23:36:13
65	65	181128M1_65	1803699-03 WW1811051515GSC 0.23035	28-Nov-18	23:46:46
66	66	181128M1_66	1803700-01 WW1811070915GSC 0.25314	28-Nov-18	23:57:24
67	67	181128M1_67	1803700-02 WW1811070930GSC 0.23777	29-Nov-18	00:07:57
68	68	181128M1_68	1803701-01 WW1811071045GSC 0.25105	29-Nov-18	00:18:36

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Last Altered: Thursday, November 29, 2018 09:42:33 Pacific Standard Time
Printed: Thursday, November 29, 2018 09:43:09 Pacific Standard Time

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
69	69	181128M1_69	1803701-03 WW1811071150GSC 0.24483	29-Nov-18	00:29:09
70	70	181128M1_70	1803701-04 WW1811071215GSC 0.23943	29-Nov-18	00:39:47
71	71	181128M1_71	IPA	29-Nov-18	00:50:21
72	72	181128M1_72	ST181128M1-5 PFC CS3 18K1906	29-Nov-18	01:01:00
73	73	181128M1_73	IPA	29-Nov-18	01:11:33
74	74	181128M1_74	1803702-01 WW1811080900GSC 0.24705	29-Nov-18	01:22:11
75	75	181128M1_75	1803702-02 WW1811080915GSC 0.25519	29-Nov-18	01:32:49
76	76	181128M1_76	1803703-01 WW1811081300GSC 0.24704	29-Nov-18	01:43:23
77	77	181128M1_77	1803703-03 WW1811081350GSC 0.24171	29-Nov-18	01:54:01
78	78	181128M1_78	1803704-01 WW1811090810GSC 0.25817	29-Nov-18	02:04:34
79	79	181128M1_79	1803704-03 WW1811090835GSC 0.25067	29-Nov-18	02:15:12
80	80	181128M1_80	1803705-01 WW1811091200GSC 0.2381	29-Nov-18	02:25:45
81	81	181128M1_81	1803705-02 WW1811091215GSC 0.25512	29-Nov-18	02:36:23
82	82	181128M1_82	1803705-03 WW1811091230GSC 0.24277	29-Nov-18	02:46:56
83	83	181128M1_83	B8K0155-BS1 OPR 1	29-Nov-18	02:57:34
84	84	181128M1_84	B8K0155-BLK1 Method Blank 1	29-Nov-18	03:08:12
85	85	181128M1_85	1803583-03 BS1810310830GC 127.16	29-Nov-18	03:18:45
86	86	181128M1_86	IPA	29-Nov-18	03:29:24
87	87	181128M1_87	ST181128M1-6 PFC CS3 18K1906	29-Nov-18	03:39:57
88	88	181128M1_88	IPA	29-Nov-18	03:50:35
89	89	181128M1_89	B8K0164-BS1 OPR 0.005	29-Nov-18	04:01:08
90	90	181128M1_90	B8K0164-BLK1 Method Blank 0.005	29-Nov-18	04:11:47
91	91	181128M1_91	1803637-01 Milk 0.005	29-Nov-18	04:22:20
92	92	181128M1_92	B8K0187-BS1 OPR 0.125	29-Nov-18	04:32:58
93	93	181128M1_93	B8K0187-BLK1 Method Blank 0.125	29-Nov-18	04:43:32
94	94	181128M1_94	1803640-01RE1 MW-2A 0.11197	29-Nov-18	04:54:10
95	95	181128M1_95	1803640-02RE1 MW-3 0.11517	29-Nov-18	05:04:43
96	96	181128M1_96	1803640-03RE1 MW-4 0.11048	29-Nov-18	05:15:21
97	97	181128M1_97	1803640-04RE1 TS Well 0.1132	29-Nov-18	05:25:54
98	98	181128M1_98	1803641-01RE1 MW3S 0.11376	29-Nov-18	05:36:33
99	99	181128M1_99	1803641-02RE1 MW6 0.11516	29-Nov-18	05:47:11
100	1...	181128M1_100	1803641-03RE1 MW7 0.10821	29-Nov-18	05:57:44
101	1...	181128M1_101	1803641-04RE1 SW2 0.11028	29-Nov-18	06:08:22
102	1...	181128M1_102	1803646-01RE1 MW-1 0.11807	29-Nov-18	06:19:00
103	1...	181128M1_103	IPA	29-Nov-18	06:29:33
104	1...	181128M1_104	ST181128M1-7 PFC CS3 18K1906	29-Nov-18	06:40:11

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Dataset: Untitled

Last Altered: Thursday, November 29, 2018 09:42:33 Pacific Standard Time
Printed: Thursday, November 29, 2018 09:43:09 Pacific Standard Time

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
105	1...	181128M1_105	IPA	29-Nov-18	06:50:50
106	1...	181128M1_106	1803646-02RE1 MW-4S 0.11283	29-Nov-18	07:01:23
107	1...	181128M1_107	1803646-03RE1 Thorne 0.11213	29-Nov-18	07:12:01
108	1...	181128M1_108	1803647-01RE1 MW-1 0.1127	29-Nov-18	07:22:34
109	1...	181128M1_109	1803647-02RE1 MW-3 0.11483	29-Nov-18	07:33:13
110	1...	181128M1_110	1803651-01RE1 MW-1 0.11697	29-Nov-18	07:43:54
111	1...	181128M1_111	1803651-02RE1 MW-4 0.11592	29-Nov-18	07:54:27
112	1...	181128M1_112	1803651-03RE1 MW-3 0.11768	29-Nov-18	08:05:06
113	1...	181128M1_113	1803652-01RE1 MW-1 0.10744	29-Nov-18	08:15:38
114	1...	181128M1_114	1803652-02RE1 MW-2 0.11424	29-Nov-18	08:26:17
115	1...	181128M1_115	IPA	29-Nov-18	08:36:50
116	1...	181128M1_116	ST181128M1-8 PFC CS3 18K1906	29-Nov-18	08:47:28

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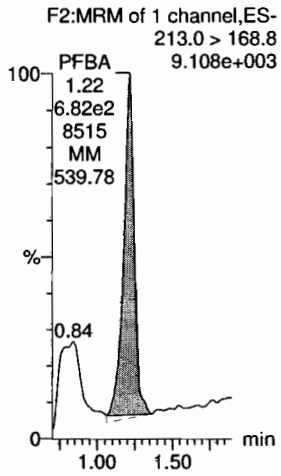
Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-2.qld

Last Altered: Thursday, November 29, 2018 07:51:04 Pacific Standard Time
Printed: Thursday, November 29, 2018 07:52:25 Pacific Standard Time

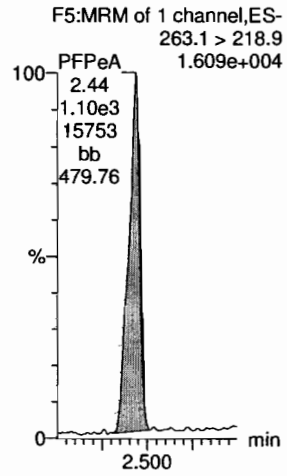
Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112818.mdb 29 Nov 2018 07:40:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Name: 181128M1_2, Date: 28-Nov-2018, Time: 11:49:27, ID: ST181128M1-1 PFC CS0 18K1903, Description: PFC CS0 18K1903

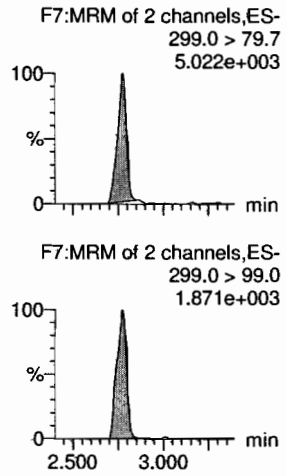
PFBA



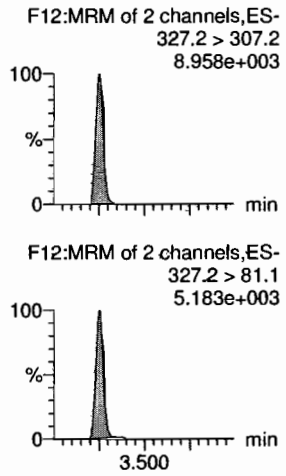
PFPeA



PFBS



4:2 FTS



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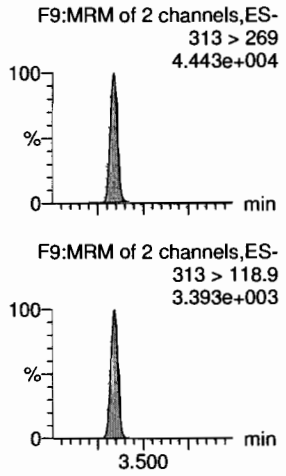

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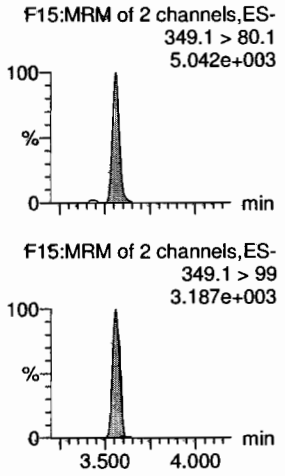

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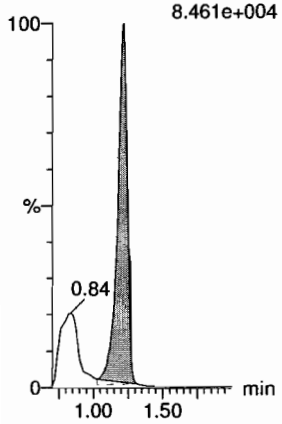

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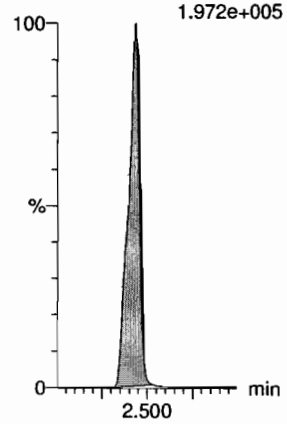

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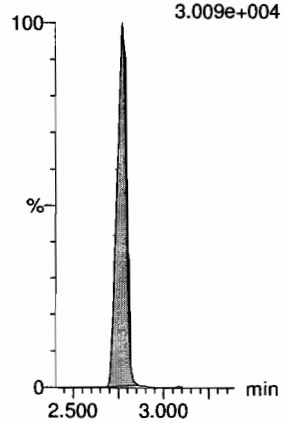
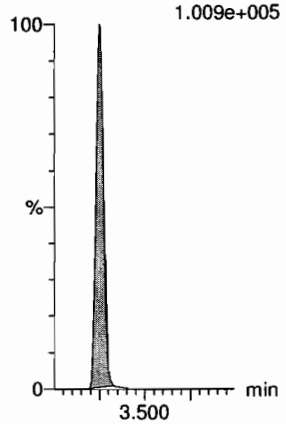
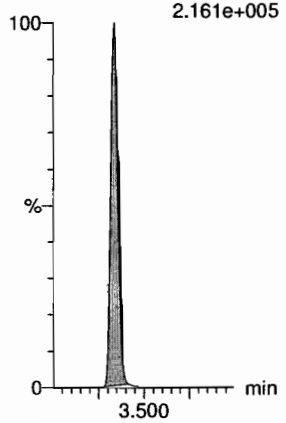


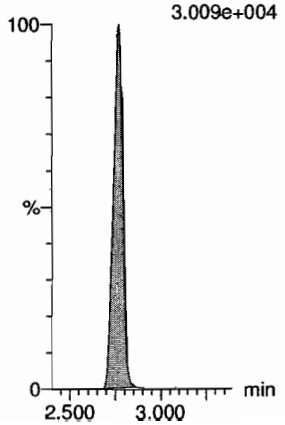
13C2-4:2 FTS



13C2-PFHxA



13C3-PFBS



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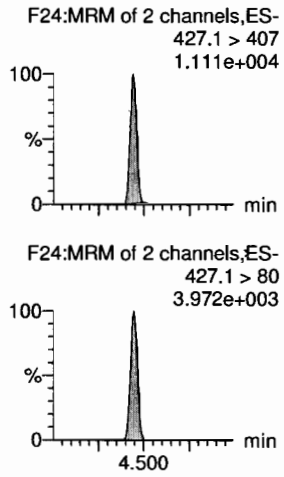
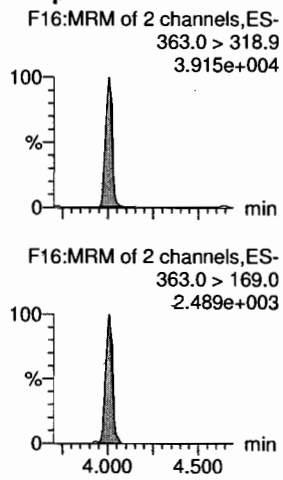
Name: 181128M1_2, Date: 28-Nov-2018, Time: 11:49:27, ID: ST181128M1-1 PFC CS0 18K1903, Description: PFC CS0 18K1903

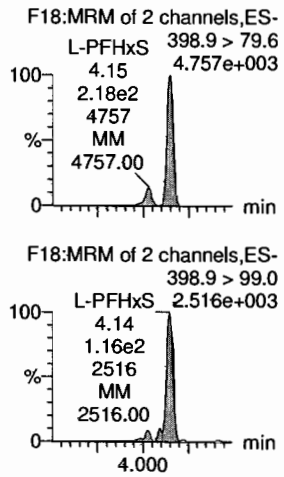
6:2 FTS



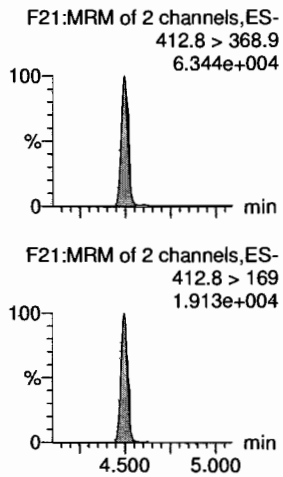
PFHpA



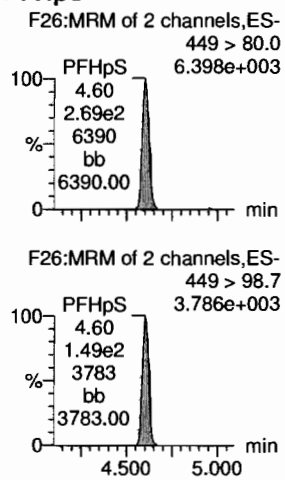
L-PFHxS



L-PFOA



PFHpS



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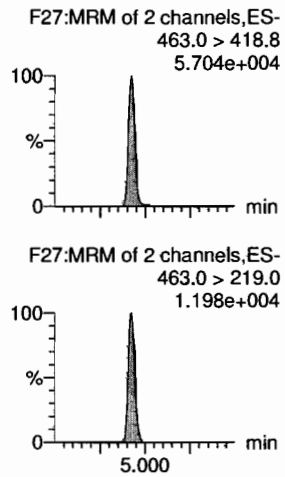
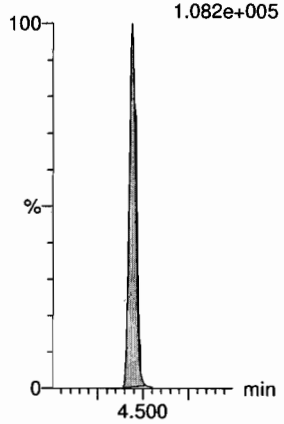
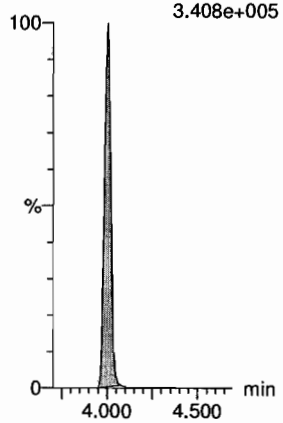


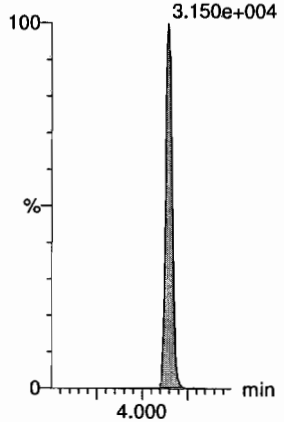
13C2-6:2 FTS



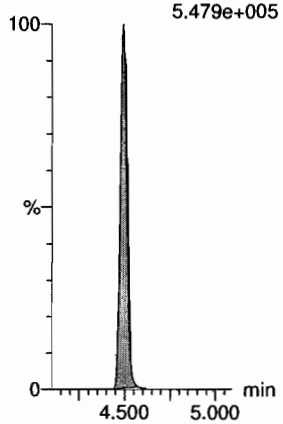
13C4-PFHpA



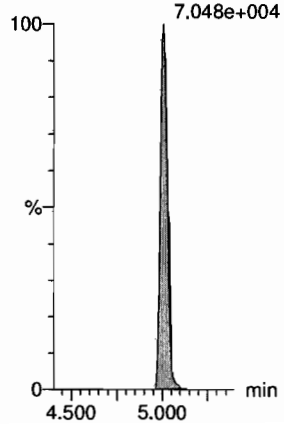
18O2-PFHxS



13C2-PFOA



13C8-PFOS



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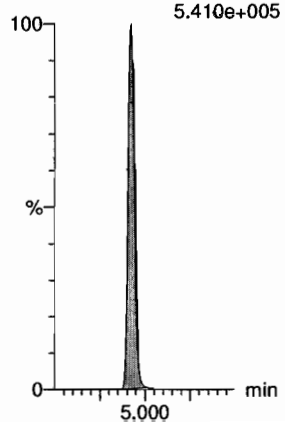

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Last Altered: Thursday, November 29, 2018 07:51:04 Pacific Standard Time
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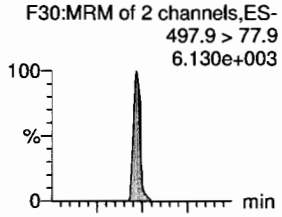
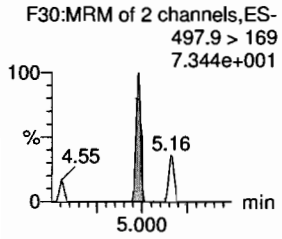
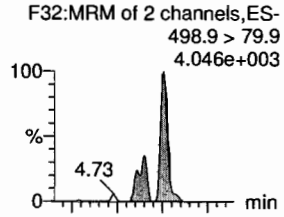
Name: 181128M1_2, Date: 28-Nov-2018, Time: 11:49:27, ID: ST181128M1-1 PFC CS0 18K1903, Description: PFC CS0 18K1903

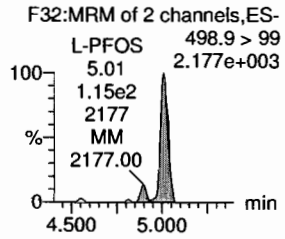
PFOSA





L-PFOS





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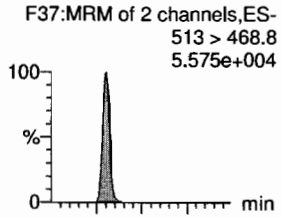
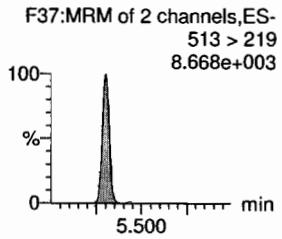
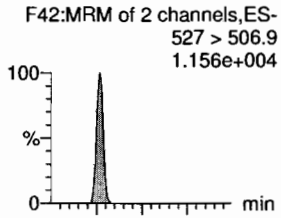
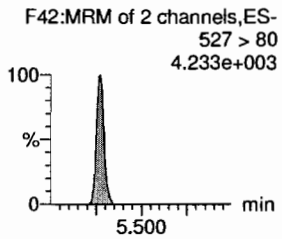


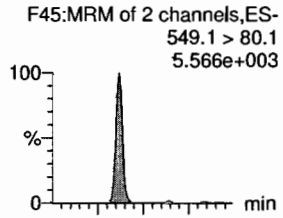


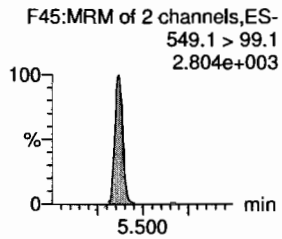
8:2 FTS



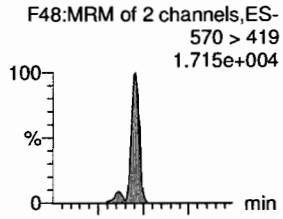


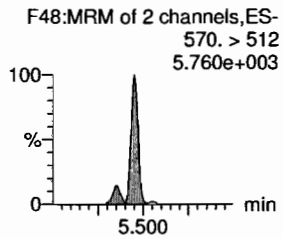
PFNS



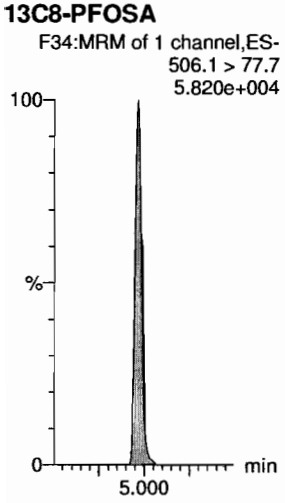


L-MeFOSAA

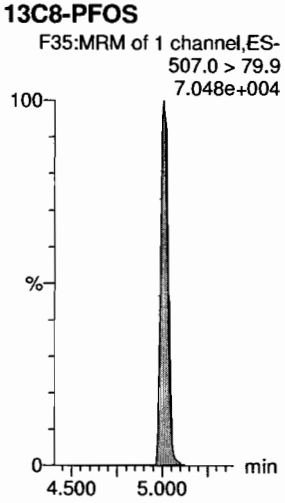




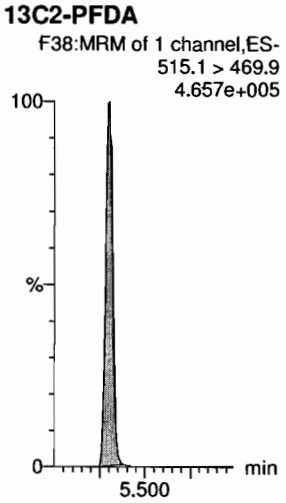
13C8-PFOSA



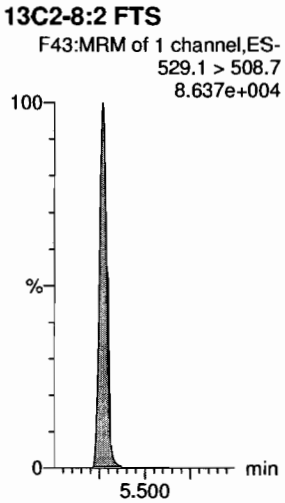
13C8-PFOS



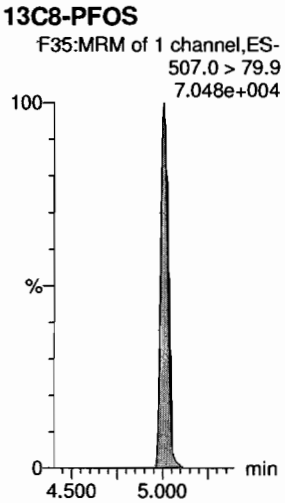
13C2-PFDA



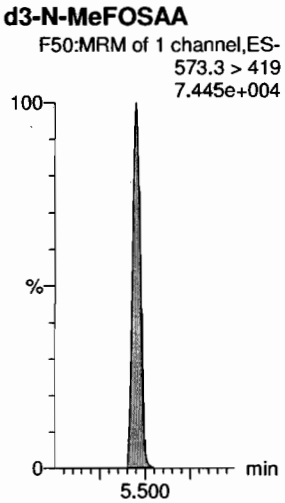
13C2-8:2 FTS



13C8-PFOS



d3-N-MeFOSAA



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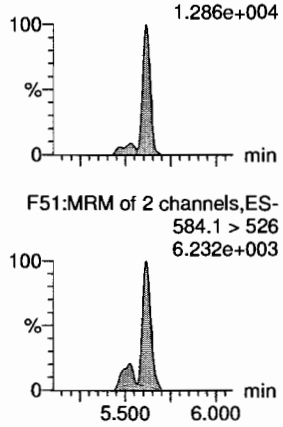
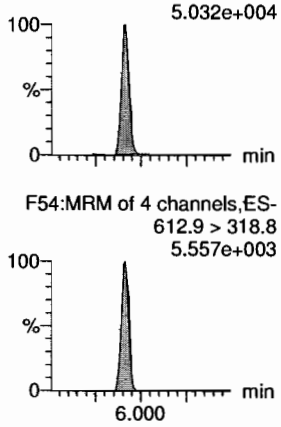
Name: 181128M1_2, Date: 28-Nov-2018, Time: 11:49:27, ID: ST181128M1-1 PFC CS0 18K1903, Description: PFC CS0 18K1903

L-EtFOSAA



PFDoA



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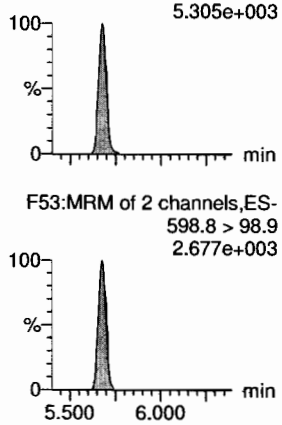

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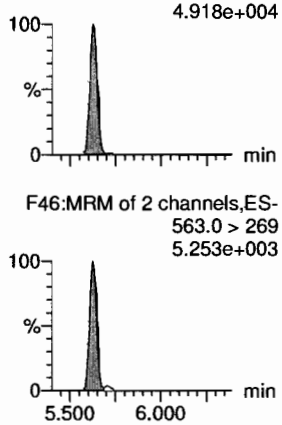
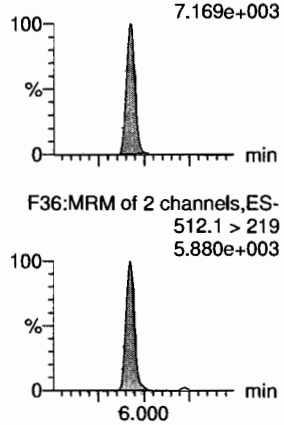


N-MeFOSA



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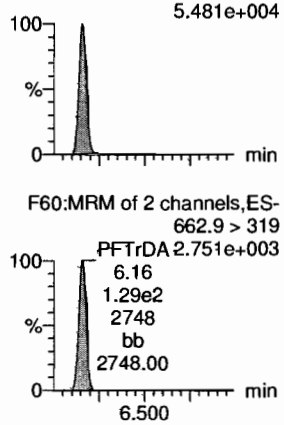
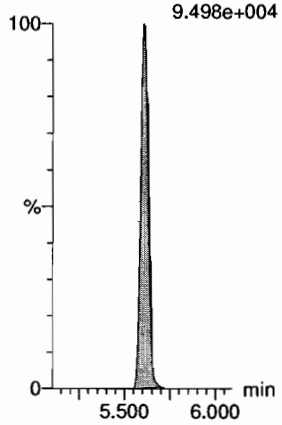
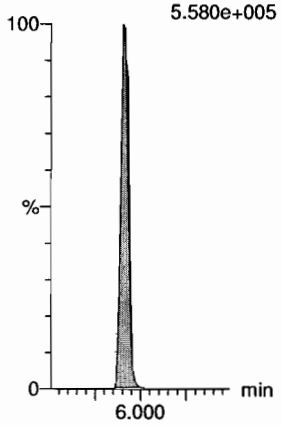


d5-N-EtFOSAA



13C2-PFDoA



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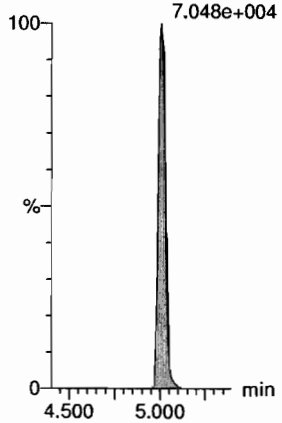
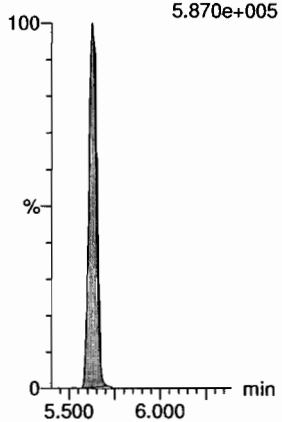


13C2-PFUdA



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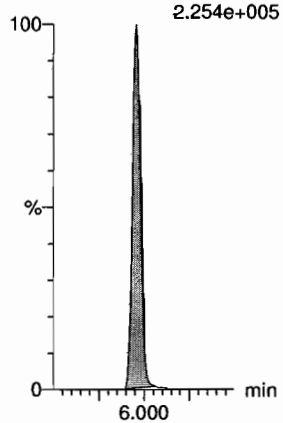

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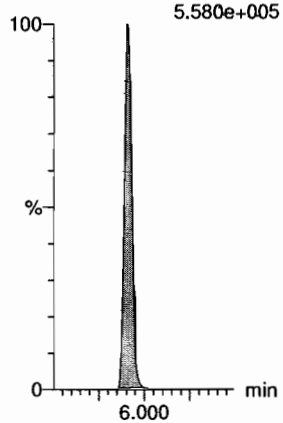

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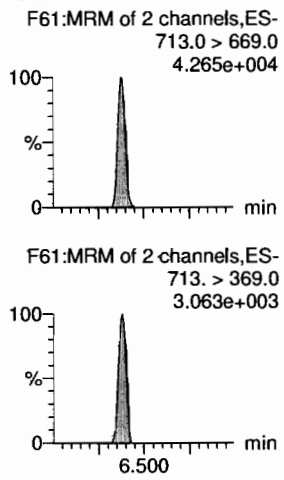
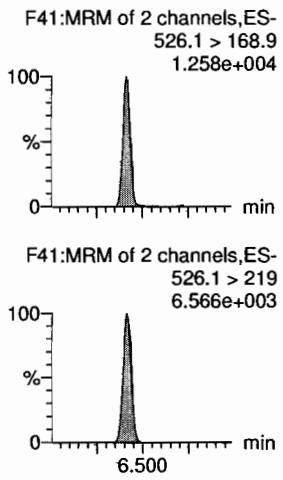
Name: 181128M1_2, Date: 28-Nov-2018, Time: 11:49:27, ID: ST181128M1-1 PFC CS0 18K1903, Description: PFC CS0 18K1903

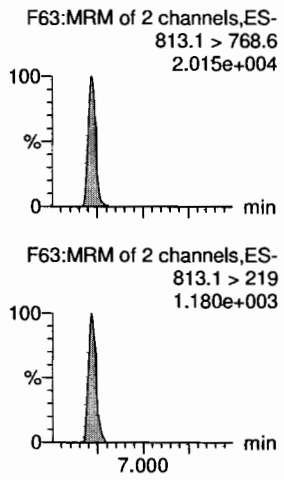
PFTeDA



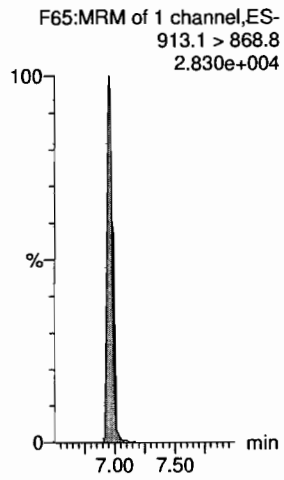
N-EtFOSA



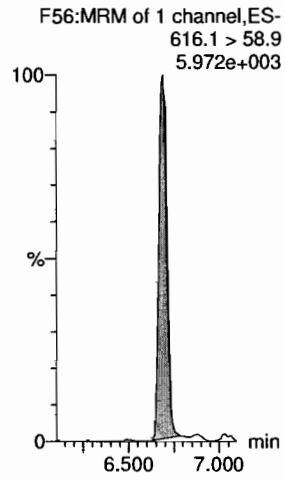
PFHxDA



PFODA



N-MeFOSE



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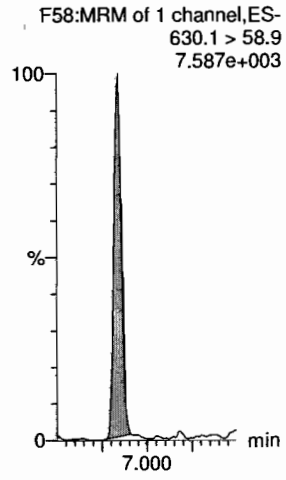

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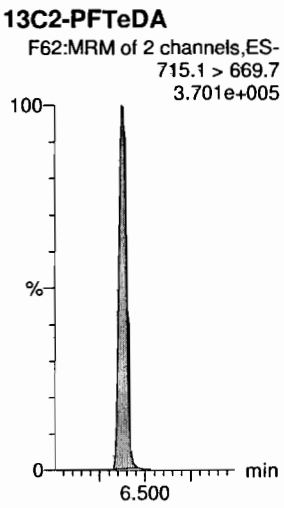

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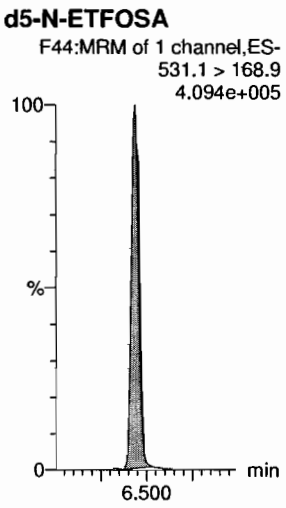
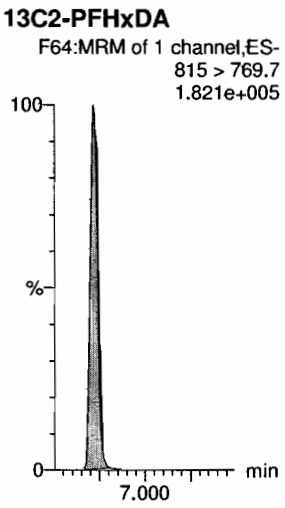
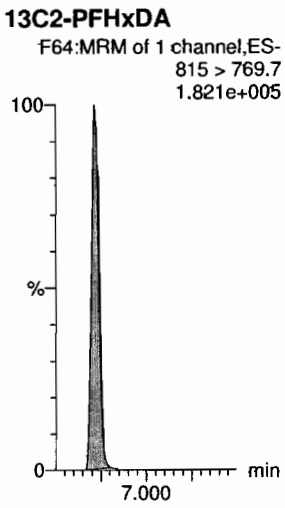


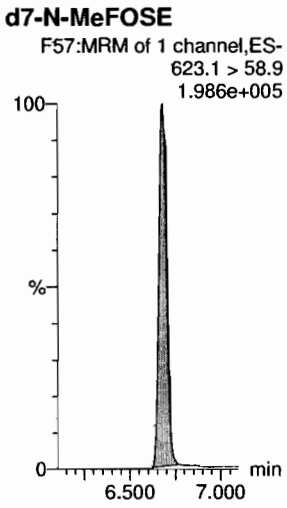
13C2-PFHxDA



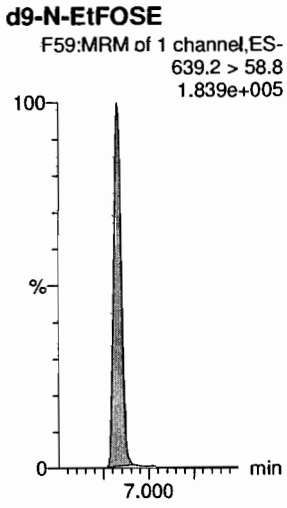
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE

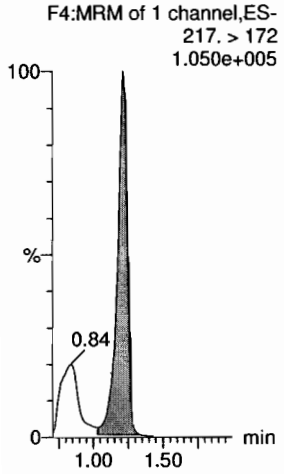


Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-2.qld

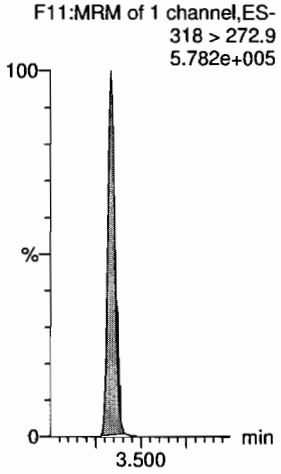
Last Altered: Thursday, November 29, 2018 07:51:04 Pacific Standard Time
Printed: Thursday, November 29, 2018 07:52:25 Pacific Standard Time

Name: 181128M1_2, Date: 28-Nov-2018, Time: 11:49:27, ID: ST181128M1-1 PFC CS0 18K1903, Description: PFC CS0 18K1903

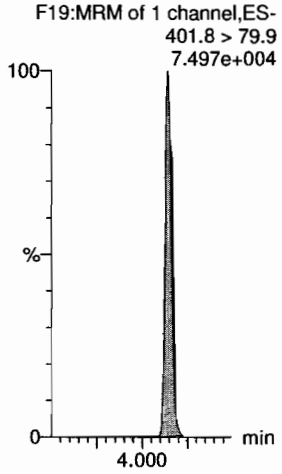
13C4-PFBA



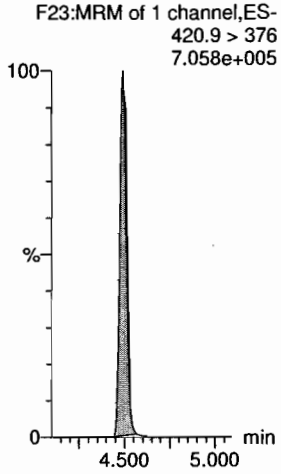
13C5-PFHxA



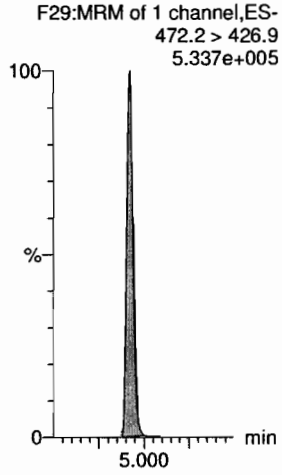
13C3-PFHxS



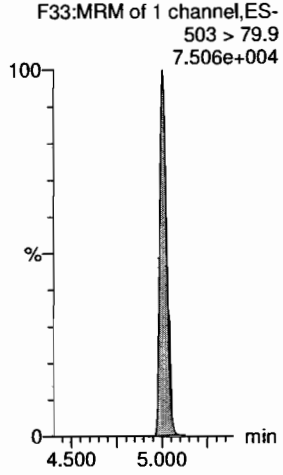
13C8-PFOA



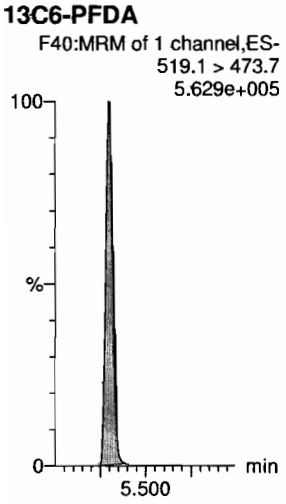
13C9-PFNA



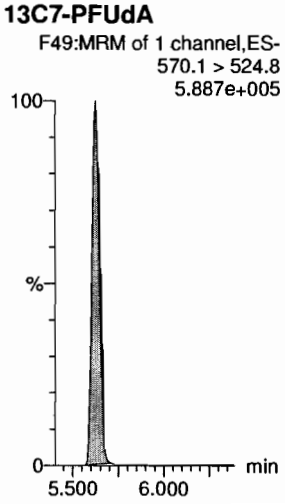
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-32.qld

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Printed: Thursday, November 29, 2018 09:59:49 Pacific Standard Time

JAM 11/29/18

Name: 181128M1_32, Date: 28-Nov-2018, Time: 17:56:54, ID: ST181128M1-2 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	5760.221	6309.833	1.00	1.17	11.411	9.7	97.4	NO		
2	2	PFPeA	263.1 > 218.9	10735.711	14474.762	1.00	2.37	9.271	9.7	97.3	NO		
3	3	PFBS	299.0 > 79.7	2742.948	1796.648	1.00	2.72	19.084	9.2	92.5	NO	2.626	NO
4	4	4:2 FTS	327.2>307.2	3952.010	4715.602	1.00	3.21	10.476	10.0	100.3	NO	1.612	NO
5	5	PFHxA	313 > 269	20085.021	10407.586	1.00	3.29	9.649	10.2	101.9	NO	15.239	NO
6	6	PFPeS	349.1>80.1	2258.576	1796.648	1.00	3.52	15.714	9.4	94.1	NO	1.493	NO
7	36	13C3-PFBA	216.1 > 171.8	6309.833	7922.431	1.00	1.16	9.956	12.6	101.1	NO		
8	37	13C3-PFPeA	266. > 221.8	14474.762	26656.568	1.00	2.37	6.788	12.2	97.7	NO		
9	38	13C3-PFBS	302. > 98.8	1796.648	3299.568	1.00	2.71	6.806	12.7	101.4	NO		
10	39	13C2-4:2 FTS	329.2>308.9	4715.602	3299.568	1.00	3.21	17.864	12.1	96.7	NO		
11	40	13C2-PFHxA	315 > 270	10407.586	26656.568	1.00	3.29	4.880	4.9	98.8	NO		
12	38	13C3-PFBS	302. > 98.8	1796.648	3299.568	1.00	2.71	6.806	12.7	101.4	NO		
13	-1												
14	10	6:2 FTS	427.1 > 407	4757.182	4812.567	1.00	4.41	12.356	9.9	99.3	NO	3.100	NO
15	7	PFHpA	363.0 > 318.9	13892.215	12884.766	1.00	3.97	13.477	10.2	102.3	NO	12.965	NO
16	8	L-PFHxS	398.9 > 79.6	2049.532	1364.682	1.00	4.11	18.773	9.7	96.5	NO	1.586	NO
17	11	L-PFOA	412.8 > 368.9	25119.424	24012.424	1.00	4.47	13.076	9.5	95.2	NO	3.285	NO
18	13	PFHpS	449 > 80.0	2694.318	3706.446	1.00	4.58	9.087	9.7	96.9	NO	1.895	NO
19	14	PFNA	463.0 > 418.8	22356.035	22637.730	1.00	4.90	12.344	9.8	98.5	NO	4.447	NO
20	43	13C2-6:2 FTS	429.1 > 408.9	4812.567	3673.994	1.00	4.41	16.374	10.5	83.8	NO		
21	41	13C4-PFHpA	367.2 > 321.8	12884.766	26656.568	1.00	3.97	6.042	11.3	90.1	NO		
22	42	18O2-PFHxS	403.0 > 102.6	1364.682	3299.568	1.00	4.11	5.170	11.5	92.3	NO		
23	44	13C2-PFOA	414.9 > 369.7	24012.424	31862.723	1.00	4.47	9.420	12.5	99.8	NO		
24	47	13C8-PFOS	507.0 > 79.9	3706.446	3673.994	1.00	4.99	12.610	12.1	96.9	NO		
25	45	13C5-PFNA	468.2 > 422.9	22637.730	22790.033	1.00	4.90	12.416	12.5	100.3	NO		
26	-1												
27	15	PFOSA	497.9 > 77.9	2794.727	3086.542	1.00	4.94	11.318	9.9	99.4	NO	32.812	NO
28	16	L-PFOS	498.9 > 79.9	3183.699	3706.446	1.00	4.99	10.737	9.8	97.6	NO	1.907	NO
29	18	PFDA	513 > 468.8	24830.670	21889.580	1.00	5.28	14.180	10.8	107.9	NO	6.128	NO
30	19	8:2 FTS	527 > 506.9	4261.632	3681.612	1.00	5.25	14.469	9.5	95.5	NO	2.347	NO
31	20	PFNS	549.1 > 80.1	2089.671	3706.446	1.00	5.35	7.047	9.2	91.8	NO	1.650	NO
32	21	L-MeFOSAA	570 > 419	8371.940	3409.711	1.00	5.44	30.692	10.6	105.5	NO	2.585	NO
33	46	13C8-PFOSA	506.1 > 77.7	3086.542	30455.303	1.00	4.95	1.267	13.0	104.3	NO		
34	47	13C8-PFOS	507.0 > 79.9	3706.446	3673.994	1.00	4.99	12.610	12.1	96.9	NO		
35	48	13C2-PFDA	515.1 > 469.9	21889.580	26948.311	1.00	5.28	10.154	11.3	90.0	NO		
36	49	13C2-8:2 FTS	529.1 > 508.7	3681.612	3673.994	1.00	5.25	12.526	10.6	85.1	NO		

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Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-32.qld

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Name: 181128M1_32, Date: 28-Nov-2018, Time: 17:56:54, ID: ST181128M1-2 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
37	47	13C8-PFOS	507.0 > 79.9	3706.446	3673.994	1.00	4.99	12.610	12.1	96.9	NO		
38	50	d3-N-MeFOSAA	573.3 > 419	3409.711	30455.303	1.00	5.44	1.399	10.4	83.2	NO		
39	-1												
40	23	L-EtFOSAA	584.1 > 419	7102.967	4887.037	1.00	5.61	18.168	11.2	112.1	NO	1.547	NO
41	27	PFDoA	612.9 > 569.0	23815.707	27075.576	1.00	5.91	10.995	9.4	94.2	NO	8.038	NO
42	26	PFDS	598.8 > 79.9	2831.584	3706.446	1.00	5.67	9.550	9.1	91.0	NO	1.679	NO
43	25	PFUdA	563.0 > 518.9	21382.072	27917.670	1.00	5.62	9.574	9.8	98.2	NO	9.984	NO
44	28	N-MeFOSA	512.1 > 168.9	4214.052	11956.109	1.00	5.88	52.869	55.1	110.2	NO	1.460	NO
45	29	PFTrDA	662.9 > 618.9	25454.225	27075.576	1.00	6.16	11.751	10.1	101.1	NO	24.187	NO
46	52	d5-N-EtFOSAA	589.3 > 419	4887.037	30455.303	1.00	5.60	2.006	10.8	86.6	NO		
47	53	13C2-PFDoA	615.0 > 569.7	27075.576	26948.311	1.00	5.90	12.559	12.0	96.0	NO		
48	47	13C8-PFOS	507.0 > 79.9	3706.446	3673.994	1.00	4.99	12.610	12.1	96.9	NO		
49	51	13C2-PFUdA	565 > 519.8	27917.670	30455.303	1.00	5.62	11.458	12.0	95.8	NO		
50	54	d3-N-MeFOSA	515.2 > 168.9	11956.109	30455.303	1.00	5.92	4.907	133.7	89.1	NO		
51	53	13C2-PFDoA	615.0 > 569.7	27075.576	26948.311	1.00	5.90	12.559	12.0	96.0	NO		
52	-1												
53	30	PFTeDA	713.0 > 669.0	20715.781	17525.918	1.00	6.37	14.775	9.0	90.3	NO	12.415	NO
54	31	N-EtFOSA	526.1 > 168.9	5942.069	22291.463	1.00	6.39	39.984	45.5	91.0	NO	1.605	NO
55	32	PFHxDA	813.1 > 768.6	9811.463	9522.748	1.00	6.72	5.152	12.9	128.9	NO	23.642	NO
56	33	PFODA	913.1 > 868.8	13994.800	9522.748	1.00	6.96	7.348	10.4	104.1	NO		
57	34	N-MeFOSE	616.1 > 58.9	3359.091	11220.555	1.00	6.68	44.905	49.6	99.1	NO		
58	35	N-EtFOSE	630.1 > 58.9	4121.347	10549.729	1.00	6.83	58.599	51.0	102.0	NO		
59	55	13C2-PFTeDA	715.1 > 669.7	17525.918	30455.303	1.00	6.37	7.193	12.7	101.5	NO		
60	56	d5-N-ETFOSA	531.1 > 168.9	22291.463	30455.303	1.00	6.41	9.149	156.9	104.6	NO		
61	57	13C2-PFHxDA	815 > 769.7	9522.748	30455.303	1.00	6.72	3.908	5.2	104.8	NO		
62	57	13C2-PFHxDA	815 > 769.7	9522.748	30455.303	1.00	6.72	3.908	5.2	104.8	NO		
63	58	d7-N-MeFOSE	623.1 > 58.9	11220.555	30455.303	1.00	6.68	4.605	145.6	97.0	NO		
64	59	d9-N-EtFOSE	639.2 > 58.8	10549.729	30455.303	1.00	6.82	4.330	145.2	96.8	NO		
65	-1												
66	60	13C4-PFBA	217. > 172	7922.431	7922.431	1.00	1.17	12.500	12.5	100.0	NO		
67	61	13C5-PFHxA	318 > 272.9	26656.568	26656.568	1.00	3.29	12.500	12.5	100.0	NO		
68	62	13C3-PFHxS	401.8 > 79.9	3299.568	3299.568	1.00	4.11	12.500	12.5	100.0	NO		
69	63	13C8-PFOA	420.9 > 376	31862.723	31862.723	1.00	4.47	12.500	12.5	100.0	NO		
70	64	13C9-PFNA	472.2 > 426.9	22790.033	22790.033	1.00	4.90	12.500	12.5	100.0	NO		
71	65	13C4-PFOS	503 > 79.9	3673.994	3673.994	1.00	4.99	12.500	12.5	100.0	NO		
72	66	13C6-PFDA	519.1 > 473.7	26948.311	26948.311	1.00	5.28	12.500	12.5	100.0	NO		

Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-32.qld

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Name: 181128M1_32, Date: 28-Nov-2018, Time: 17:56:54, ID: ST181128M1-2 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
73	67	13C7-PFUdA	570.1 > 524.8	30455.303	30455.303	1.00	5.62	12.500	12.5	100.0	NO		

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Dataset: Untitled

Last Altered: Thursday, November 29, 2018 09:42:33 Pacific Standard Time
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Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112818.mdb 29 Nov 2018 07:48:36
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	181128M1_1	IPA	28-Nov-18	11:38:53
2	2	181128M1_2	ST181128M1-1 PFC CS0 18K1903	28-Nov-18	11:49:27
3	3	181128M1_3	IPA	28-Nov-18	12:46:26
4	4	181128M1_4	B8K0098-BLK1 Method Blank 0.125	28-Nov-18	12:57:03
5	5	181128M1_5	B8K0142-BSD1 LCSD 0.125	28-Nov-18	13:07:41
6	6	181128M1_6	B8K0142-BS1 OPR 0.125	28-Nov-18	13:18:14
7	7	181128M1_7	B8K0142-BLK1 Method Blank 0.125	28-Nov-18	13:28:52
8	8	181128M1_8	1803631-01 REEPDW1366FRB 0.1199	28-Nov-18	13:39:25
9	9	181128M1_9	1803631-02 REEPDW1367FRB 0.12161	28-Nov-18	13:50:03
10	10	181128M1_10	1803631-03 REEPDW1369FRB 0.1176	28-Nov-18	14:00:36
11	11	181128M1_11	1803631-04 REEPDW1368FRB 0.11836	28-Nov-18	14:11:14
12	12	181128M1_12	1803631-05 REEPDW1370FRB 0.1188	28-Nov-18	14:21:48
13	13	181128M1_13	1803631-06 REEPDW1371FRB 0.12004	28-Nov-18	14:32:26
14	14	181128M1_14	1803656-01 REEPDW1372FRB 0.12021	28-Nov-18	14:44:10
15	15	181128M1_15	1803656-02 REEPDW1373FRB 0.11861	28-Nov-18	14:54:43
16	16	181128M1_16	B8K0141-BS1 OPR 0.25	28-Nov-18	15:05:23
17	17	181128M1_17	B8K0141-BLK1 Method Blank 0.25	28-Nov-18	15:16:00
18	18	181128M1_18	B8K0126-BS1 OPR 0.125	28-Nov-18	15:28:26
19	19	181128M1_19	B8K0126-BSD1 LCSD 0.125	28-Nov-18	15:39:02
20	20	181128M1_20	B8K0126-BLK1 Method Blank 0.125	28-Nov-18	15:49:40
21	21	181128M1_21	1803654-01 REEPDW1372 0.1169	28-Nov-18	16:00:19
22	22	181128M1_22	1803654-02 REEPDW1373 0.11774	28-Nov-18	16:10:52
23	23	181128M1_23	1803657-01 REEPEF1088 0.11595	28-Nov-18	16:21:30
24	24	181128M1_24	1803657-02 REEPAR1088 0.11979	28-Nov-18	16:32:03
25	25	181128M1_25	1803657-03 REEPAC1088 0.11772	28-Nov-18	16:42:42
26	26	181128M1_26	1803657-04 REEPIN1088 0.11717	28-Nov-18	16:53:15
27	27	181128M1_27	1803657-05 REEPEF1089 0.11674	28-Nov-18	17:03:53
28	28	181128M1_28	1803657-06 REEPEF5039 0.1185	28-Nov-18	17:14:26
29	29	181128M1_29	1803657-07 REEPAR1089 0.11405	28-Nov-18	17:25:04
30	30	181128M1_30	1803657-08 REEPAC1089 0.1182	28-Nov-18	17:35:43
31	31	181128M1_31	IPA	28-Nov-18	17:46:15
32	32	181128M1_32	ST181128M1-2 PFC CS3 18K1906	28-Nov-18	17:56:54

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Dataset: Untitled

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Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
33	33	181128M1_33	IPA	28-Nov-18	18:07:27
34	34	181128M1_34	1803657-09 REEPIN1089 0.1204	28-Nov-18	18:18:05
35	35	181128M1_35	1803657-10 REEPEF1090 0.12036	28-Nov-18	18:28:43
36	36	181128M1_36	1803657-11 REEPAR1090 0.11858	28-Nov-18	18:39:16
37	37	181128M1_37	1803657-12 REEPAC1090 0.11236	28-Nov-18	18:49:55
38	38	181128M1_38	1803657-13 REEPIN1090 0.11996	28-Nov-18	19:00:29
39	39	181128M1_39	1803657-14 REEPEF1091 0.11533	28-Nov-18	19:11:07
40	40	181128M1_40	1803657-15 REEPAR1091 0.11892	28-Nov-18	19:21:39
41	41	181128M1_41	1803657-16 REEPAC1091 0.11796	28-Nov-18	19:32:18
42	42	181128M1_42	1803626-09@10X 16-HS-03-SA2D 0.11367	28-Nov-18	19:42:56
43	43	181128M1_43	IPA	28-Nov-18	19:53:29
44	44	181128M1_44	ST181128M1-3 PFC CS3 18K1906	28-Nov-18	20:04:07
45	45	181128M1_45	IPA	28-Nov-18	20:14:46
46	46	181128M1_46	1803681-02 SWEF1811131015KME 0.2522	28-Nov-18	20:25:19
47	47	181128M1_47	1803681-01 SWNT1811131005KME 0.25021	28-Nov-18	20:35:57
48	48	181128M1_48	1803679-01 SWNT1811121330KME 0.24544	28-Nov-18	20:46:30
49	49	181128M1_49	1803679-02 SWEF1811121340KME 0.25126	28-Nov-18	20:57:09
50	50	181128M1_50	1803624-01 WMP1811121017JSJ 0.24458	28-Nov-18	21:07:47
51	51	181128M1_51	1803624-02 WEF1811121026JSJ 0.24945	28-Nov-18	21:18:20
52	52	181128M1_52	1803624-03 WEF1811121036JSJ 0.25294	28-Nov-18	21:28:59
53	53	181128M1_53	B8K0151-BS1 OPR 0.25	28-Nov-18	21:39:31
54	54	181128M1_54	B8K0151-BLK1 Method Blank 0.25	28-Nov-18	21:50:10
55	55	181128M1_55	1803697-01 WW1811050800GSC 0.21921	28-Nov-18	22:00:48
56	56	181128M1_56	1803697-02 WW1811050830GSC 0.24745	28-Nov-18	22:11:22
57	57	181128M1_57	1803698-03 WW1811051215GSC 0.24831	28-Nov-18	22:22:00
58	58	181128M1_58	IPA	28-Nov-18	22:32:33
59	59	181128M1_59	ST181128M1-4 PFC CS3 18K1906	28-Nov-18	22:43:12
60	60	181128M1_60	IPA	28-Nov-18	22:53:45
61	61	181128M1_61	1803698-04 WW1811051230GSC 0.24182	28-Nov-18	23:04:23
62	62	181128M1_62	1803698-05 WW1811051245GSC 0.22793	28-Nov-18	23:14:55
63	63	181128M1_63	1803698-06 WW1811051315GSC 0.249	28-Nov-18	23:25:34
64	64	181128M1_64	1803699-02 WW1811051500GSC 0.22221	28-Nov-18	23:36:13
65	65	181128M1_65	1803699-03 WW1811051515GSC 0.23035	28-Nov-18	23:46:46
66	66	181128M1_66	1803700-01 WW1811070915GSC 0.25314	28-Nov-18	23:57:24
67	67	181128M1_67	1803700-02 WW1811070930GSC 0.23777	29-Nov-18	00:07:57
68	68	181128M1_68	1803701-01 WW1811071045GSC 0.25105	29-Nov-18	00:18:36

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Dataset: Untitled

Last Altered: Thursday, November 29, 2018 09:42:33 Pacific Standard Time
Printed: Thursday, November 29, 2018 09:43:09 Pacific Standard Time

Compound name: PFBA

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69	69	181128M1_69	1803701-03 WW1811071150GSC 0.24483	29-Nov-18	00:29:09
70	70	181128M1_70	1803701-04 WW1811071215GSC 0.23943	29-Nov-18	00:39:47
71	71	181128M1_71	IPA	29-Nov-18	00:50:21
72	72	181128M1_72	ST181128M1-5 PFC CS3 18K1906	29-Nov-18	01:01:00
73	73	181128M1_73	IPA	29-Nov-18	01:11:33
74	74	181128M1_74	1803702-01 WW1811080900GSC 0.24705	29-Nov-18	01:22:11
75	75	181128M1_75	1803702-02 WW1811080915GSC 0.25519	29-Nov-18	01:32:49
76	76	181128M1_76	1803703-01 WW1811081300GSC 0.24704	29-Nov-18	01:43:23
77	77	181128M1_77	1803703-03 WW1811081350GSC 0.24171	29-Nov-18	01:54:01
78	78	181128M1_78	1803704-01 WW1811090810GSC 0.25817	29-Nov-18	02:04:34
79	79	181128M1_79	1803704-03 WW1811090835GSC 0.25067	29-Nov-18	02:15:12
80	80	181128M1_80	1803705-01 WW1811091200GSC 0.2381	29-Nov-18	02:25:45
81	81	181128M1_81	1803705-02 WW1811091215GSC 0.25512	29-Nov-18	02:36:23
82	82	181128M1_82	1803705-03 WW1811091230GSC 0.24277	29-Nov-18	02:46:56
83	83	181128M1_83	B8K0155-BS1 OPR 1	29-Nov-18	02:57:34
84	84	181128M1_84	B8K0155-BLK1 Method Blank 1	29-Nov-18	03:08:12
85	85	181128M1_85	1803583-03 BS1810310830GC 127.16	29-Nov-18	03:18:45
86	86	181128M1_86	IPA	29-Nov-18	03:29:24
87	87	181128M1_87	ST181128M1-6 PFC CS3 18K1906	29-Nov-18	03:39:57
88	88	181128M1_88	IPA	29-Nov-18	03:50:35
89	89	181128M1_89	B8K0164-BS1 OPR 0.005	29-Nov-18	04:01:08
90	90	181128M1_90	B8K0164-BLK1 Method Blank 0.005	29-Nov-18	04:11:47
91	91	181128M1_91	1803637-01 Milk 0.005	29-Nov-18	04:22:20
92	92	181128M1_92	B8K0187-BS1 OPR 0.125	29-Nov-18	04:32:58
93	93	181128M1_93	B8K0187-BLK1 Method Blank 0.125	29-Nov-18	04:43:32
94	94	181128M1_94	1803640-01RE1 MW-2A 0.11197	29-Nov-18	04:54:10
95	95	181128M1_95	1803640-02RE1 MW-3 0.11517	29-Nov-18	05:04:43
96	96	181128M1_96	1803640-03RE1 MW-4 0.11048	29-Nov-18	05:15:21
97	97	181128M1_97	1803640-04RE1 TS Well 0.1132	29-Nov-18	05:25:54
98	98	181128M1_98	1803641-01RE1 MW3S 0.11376	29-Nov-18	05:36:33
99	99	181128M1_99	1803641-02RE1 MW6 0.11516	29-Nov-18	05:47:11
100	1...	181128M1_100	1803641-03RE1 MW7 0.10821	29-Nov-18	05:57:44
101	1...	181128M1_101	1803641-04RE1 SW2 0.11028	29-Nov-18	06:08:22
102	1...	181128M1_102	1803646-01RE1 MW-1 0.11807	29-Nov-18	06:19:00
103	1...	181128M1_103	IPA	29-Nov-18	06:29:33
104	1...	181128M1_104	ST181128M1-7 PFC CS3 18K1906	29-Nov-18	06:40:11

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Dataset: Untitled

Last Altered: Thursday, November 29, 2018 09:42:33 Pacific Standard Time
Printed: Thursday, November 29, 2018 09:43:09 Pacific Standard Time

Compound name: PFBA

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105	1...	181128M1_105	IPA	29-Nov-18	06:50:50
106	1...	181128M1_106	1803646-02RE1 MW-4S 0.11283	29-Nov-18	07:01:23
107	1...	181128M1_107	1803646-03RE1 Thorne 0.11213	29-Nov-18	07:12:01
108	1...	181128M1_108	1803647-01RE1 MW-1 0.1127	29-Nov-18	07:22:34
109	1...	181128M1_109	1803647-02RE1 MW-3 0.11483	29-Nov-18	07:33:13
110	1...	181128M1_110	1803651-01RE1 MW-1 0.11697	29-Nov-18	07:43:54
111	1...	181128M1_111	1803651-02RE1 MW-4 0.11592	29-Nov-18	07:54:27
112	1...	181128M1_112	1803651-03RE1 MW-3 0.11768	29-Nov-18	08:05:06
113	1...	181128M1_113	1803652-01RE1 MW-1 0.10744	29-Nov-18	08:15:38
114	1...	181128M1_114	1803652-02RE1 MW-2 0.11424	29-Nov-18	08:26:17
115	1...	181128M1_115	IPA	29-Nov-18	08:36:50
116	1...	181128M1_116	ST181128M1-8 PFC CS3 18K1906	29-Nov-18	08:47:28

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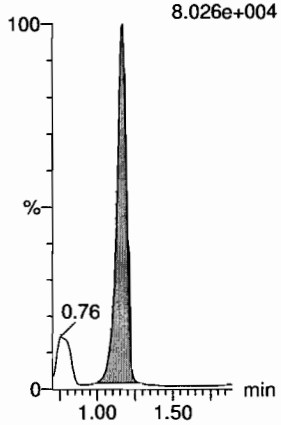
Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-32.qld

Last Altered: Thursday, November 29, 2018 09:59:37 Pacific Standard Time
Printed: Thursday, November 29, 2018 09:59:49 Pacific Standard Time

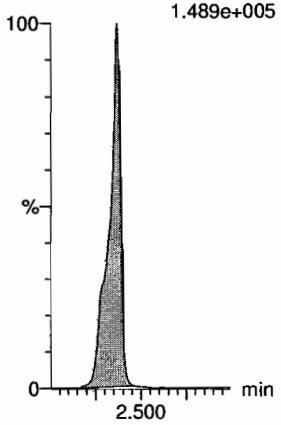
Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112818.mdb 29 Nov 2018 09:59:29
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Name: 181128M1_32, Date: 28-Nov-2018, Time: 17:56:54, ID: ST181128M1-2 PFC CS3 18K1906, Description: PFC CS3 18K1906

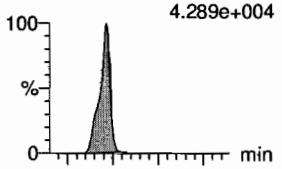
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
8.026e+004



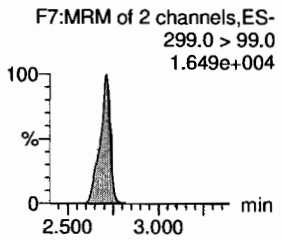
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
1.489e+005



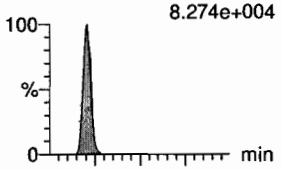
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
4.289e+004



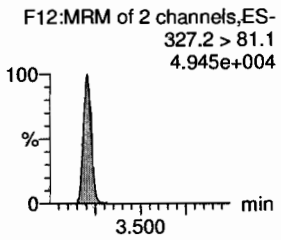
F7:MRM of 2 channels,ES-
299.0 > 99.0
1.649e+004



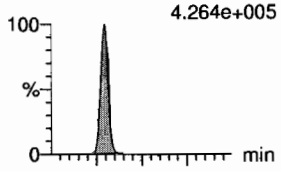
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
8.274e+004



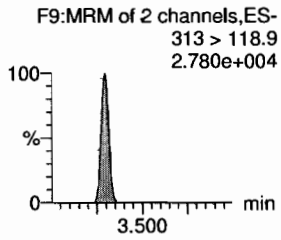
F12:MRM of 2 channels,ES-
327.2 > 81.1
4.945e+004



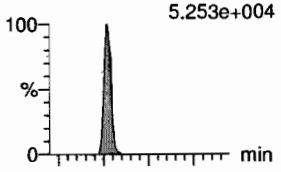
PFHxA
F9:MRM of 2 channels,ES-
313 > 269
4.264e+005



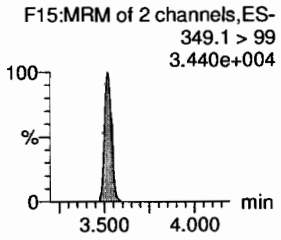
F9:MRM of 2 channels,ES-
313 > 118.9
2.780e+004



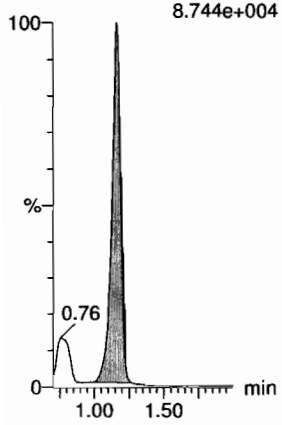
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
5.253e+004



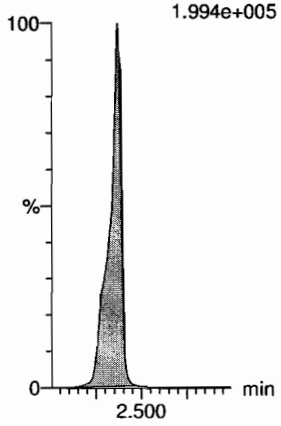
F15:MRM of 2 channels,ES-
349.1 > 99
3.440e+004



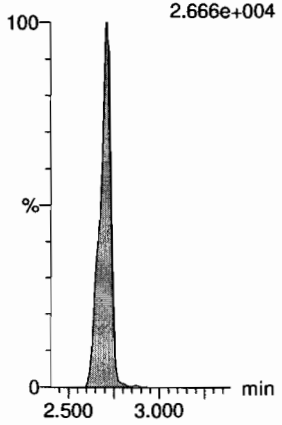
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
8.744e+004



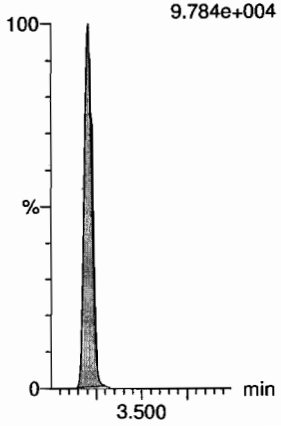
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
1.994e+005



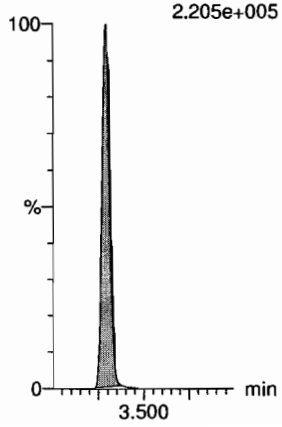
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.666e+004



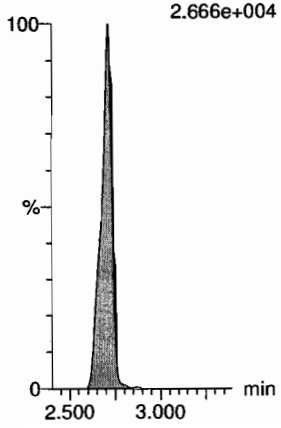
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
9.784e+004



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 270
2.205e+005



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.666e+004

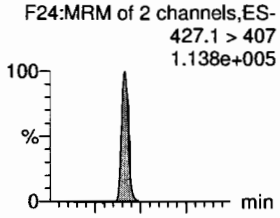


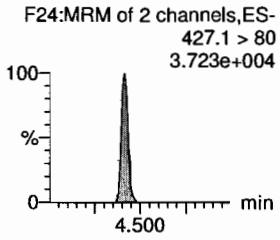
Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-32.qld

Last Altered: Thursday, November 29, 2018 09:59:37 Pacific Standard Time
Printed: Thursday, November 29, 2018 09:59:49 Pacific Standard Time

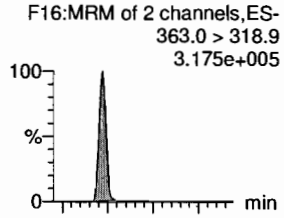
Name: 181128M1_32, Date: 28-Nov-2018, Time: 17:56:54, ID: ST181128M1-2 PFC CS3 18K1906, Description: PFC CS3 18K1906

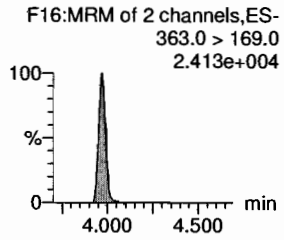
6:2 FTS



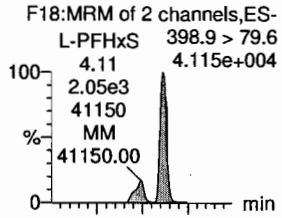


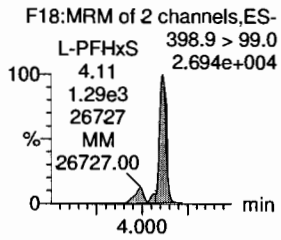
PFHpA



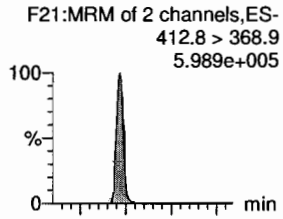


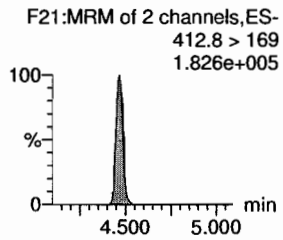
L-PFHxS



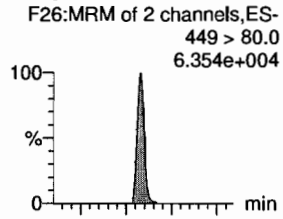


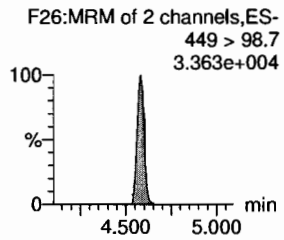
L-PFOA



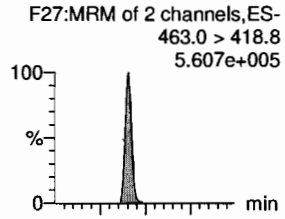


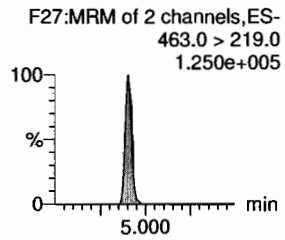
PFHpS



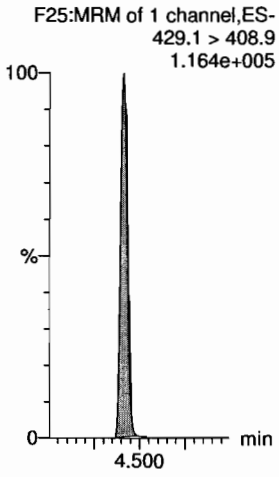


PFNA

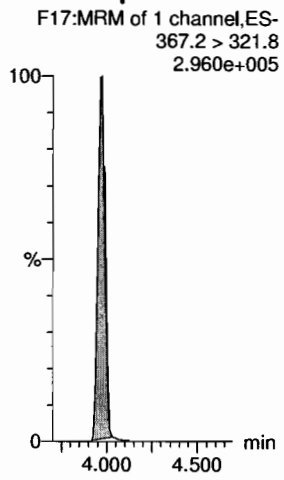




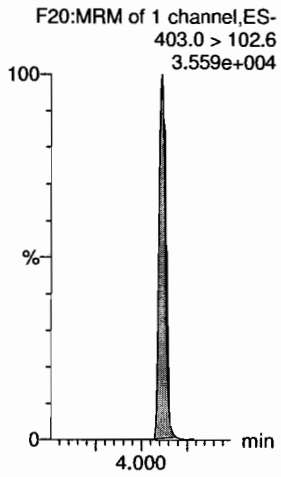
13C2-6:2 FTS



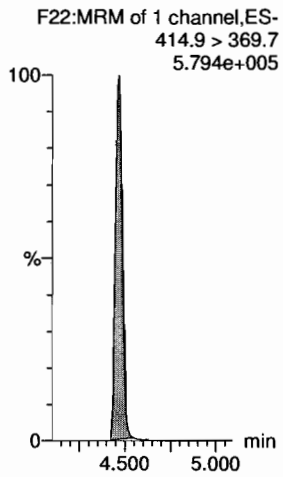
13C4-PFHpA



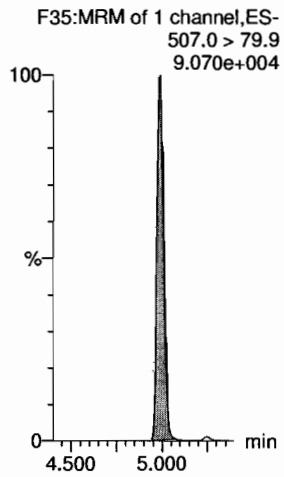
18O2-PFHxS



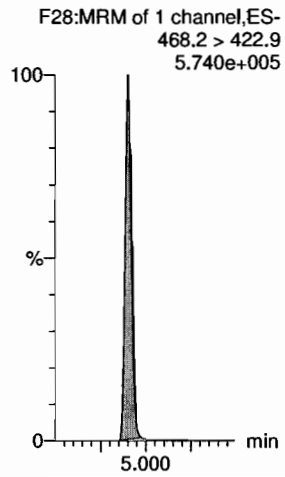
13C2-PFOA



13C8-PFOS



13C5-PFNA



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Last Altered: Thursday, November 29, 2018 09:59:37 Pacific Standard Time
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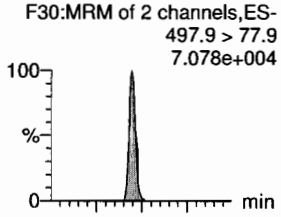
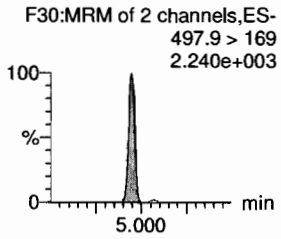
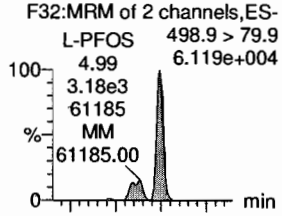
Name: 181128M1_32, Date: 28-Nov-2018, Time: 17:56:54, ID: ST181128M1-2 PFC CS3 18K1906, Description: PFC CS3 18K1906

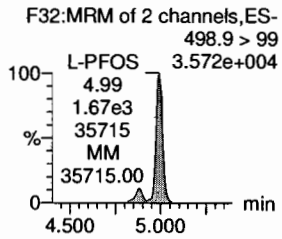
PFOSA



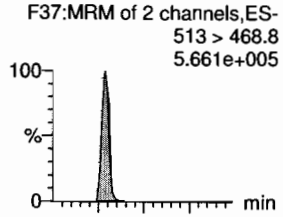


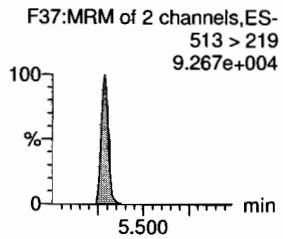
L-PFOS



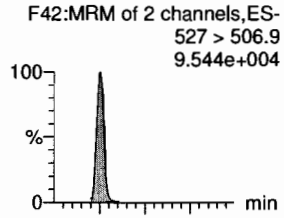


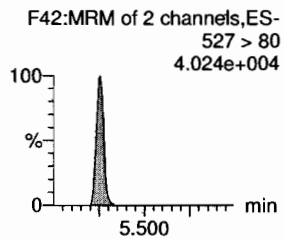
PFDA



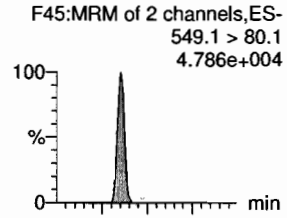


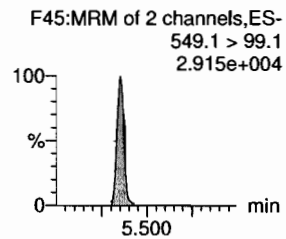
8:2 FTS



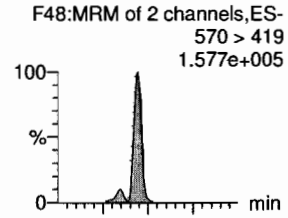


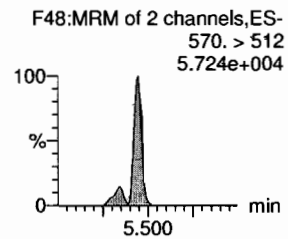
PFNS



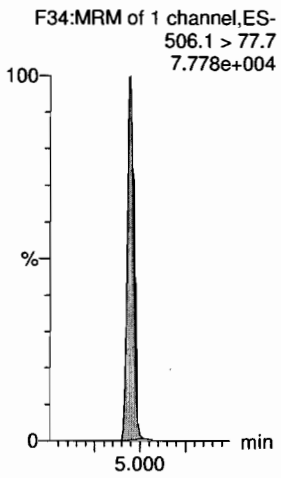


L-MeFOSAA

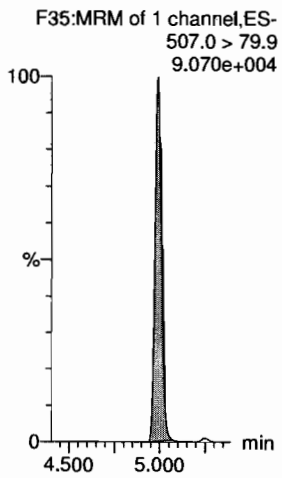




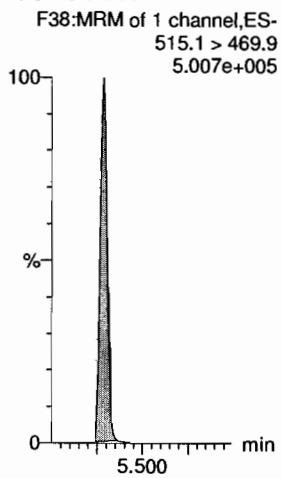
13C8-PFOSA



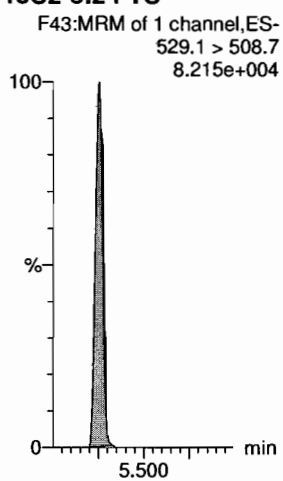
13C8-PFOS



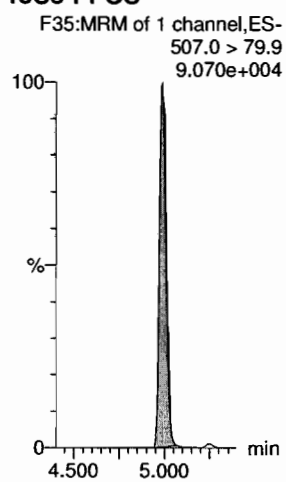
13C2-PFDA



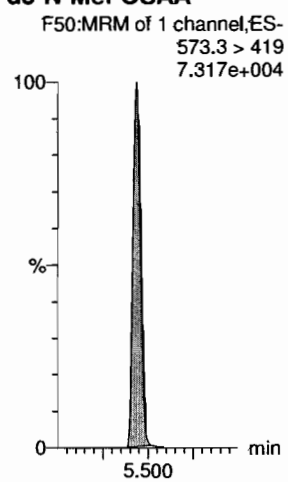
13C2-8:2 FTS



13C8-PFOS



d3-N-MeFOSAA



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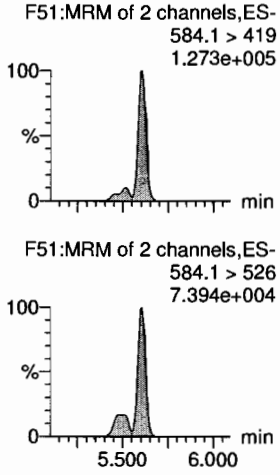
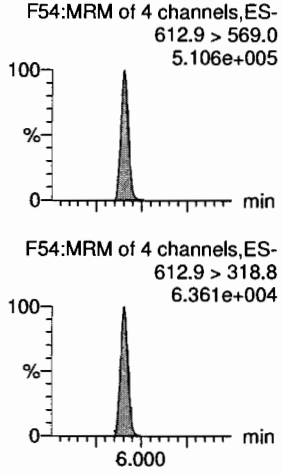
Name: 181128M1_32, Date: 28-Nov-2018, Time: 17:56:54, ID: ST181128M1-2 PFC CS3 18K1906, Description: PFC CS3 18K1906

L-EtFOSAA



PFDoA



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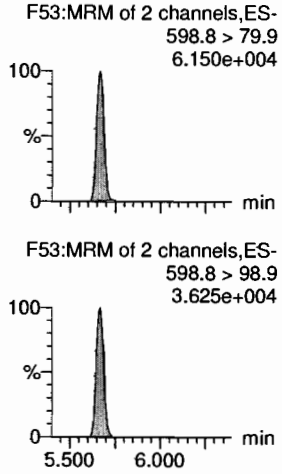

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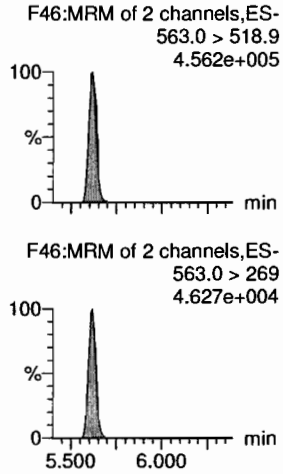
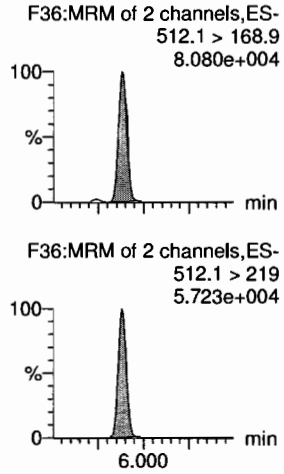


N-MeFOSA



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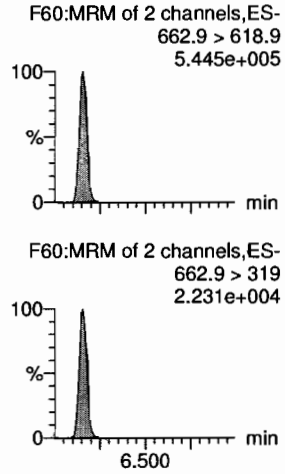
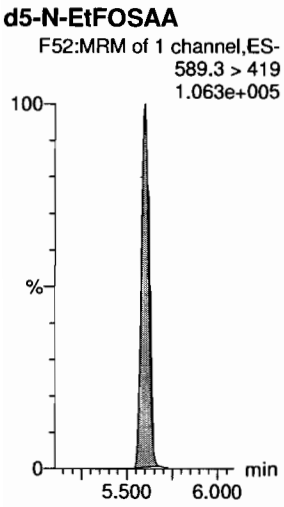
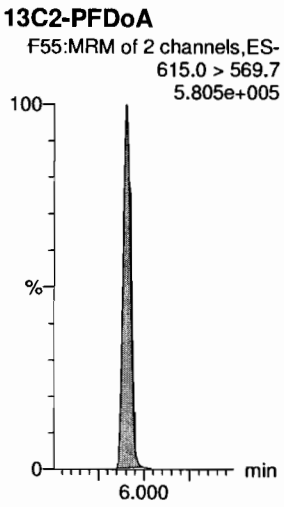


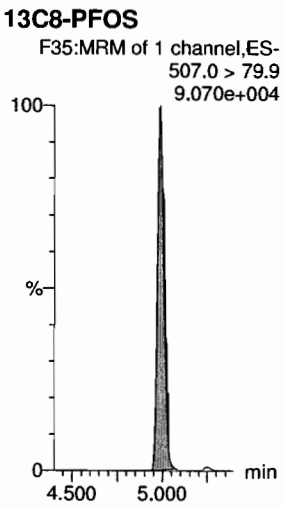
d5-N-EtFOSAA



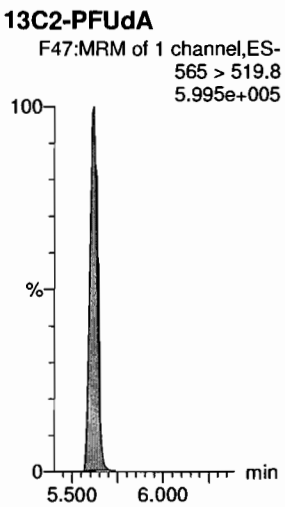
13C2-PFDoA



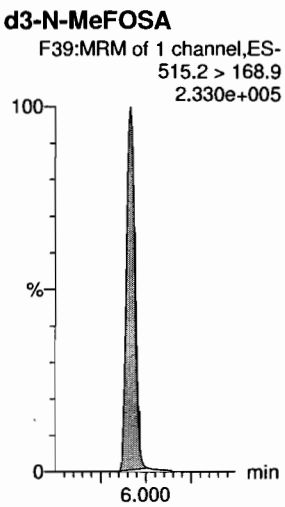
13C8-PFOS



13C2-PFUdA



d3-N-MeFOSA



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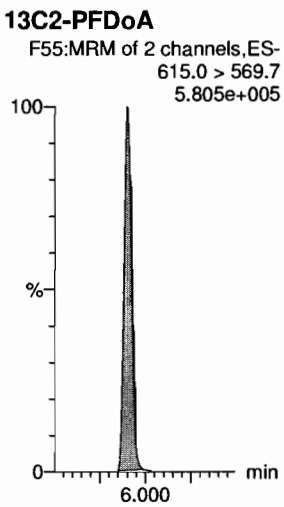

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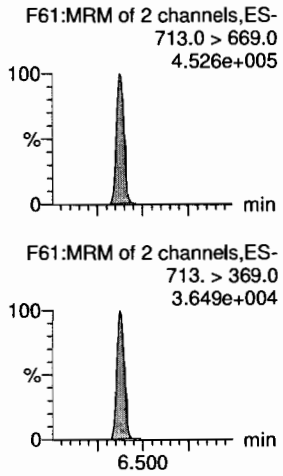
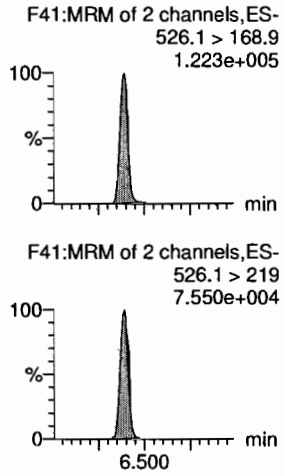
Name: 181128M1_32, Date: 28-Nov-2018, Time: 17:56:54, ID: ST181128M1-2 PFC CS3 18K1906, Description: PFC CS3 18K1906

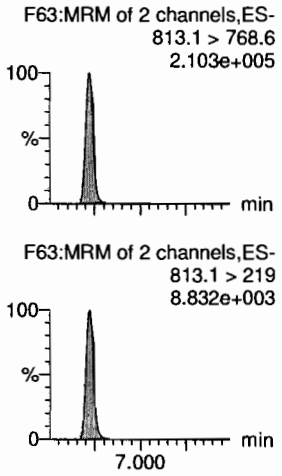
PFTeDA



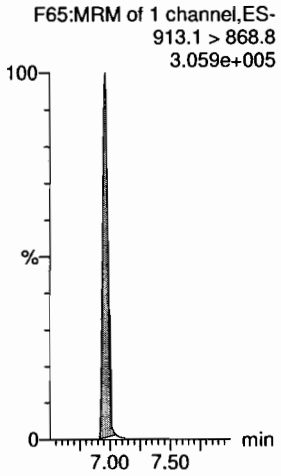
N-EtFOSA



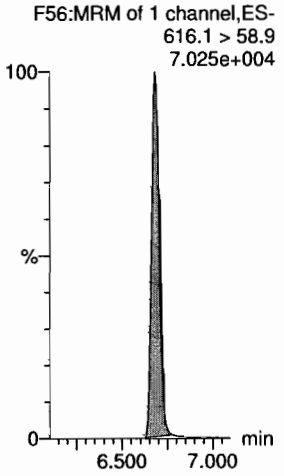
PFHxDA



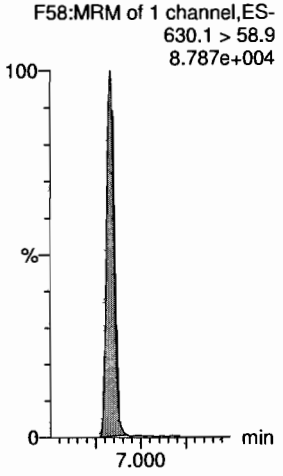
PFODA



N-MeFOSE



N-EtFOSE



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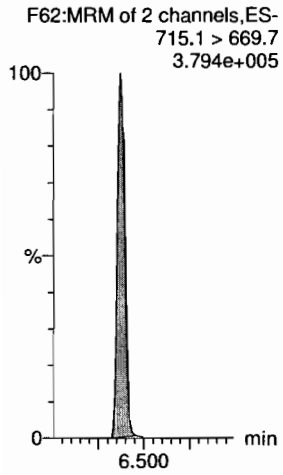
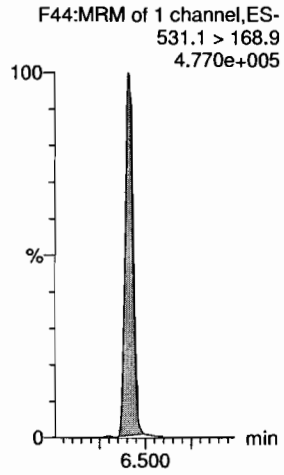
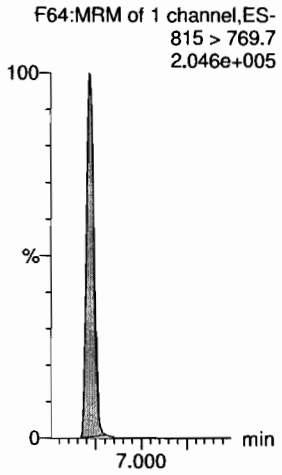


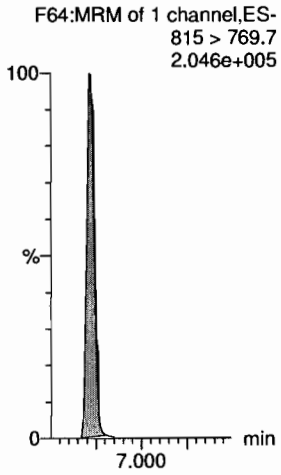
d5-N-ETFOSA



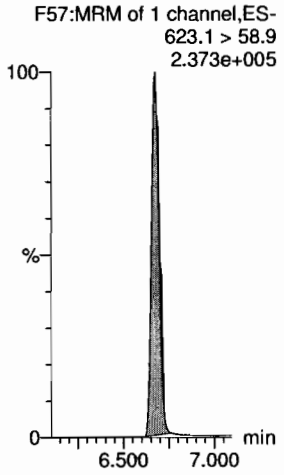
13C2-PFHxDA



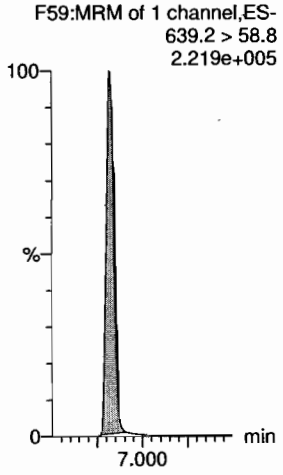
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE



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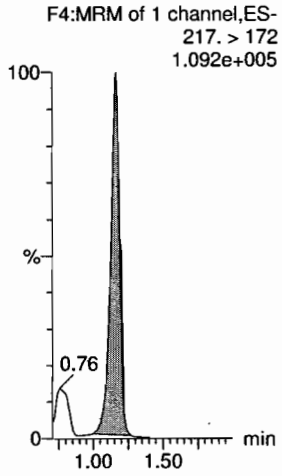
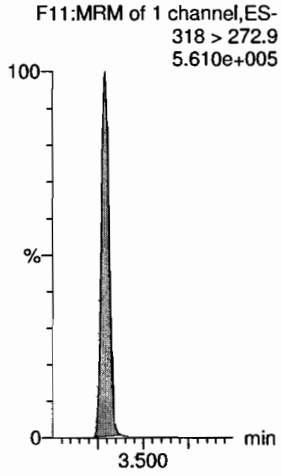
Name: 181128M1_32, Date: 28-Nov-2018, Time: 17:56:54, ID: ST181128M1-2 PFC CS3 18K1906, Description: PFC CS3 18K1906

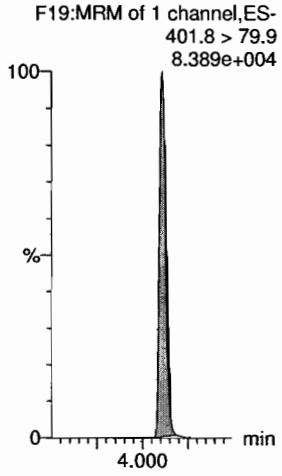
13C4-PFBA



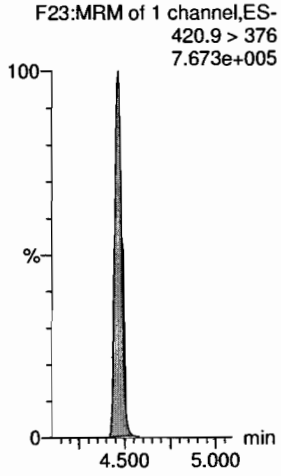
13C5-PFHxA



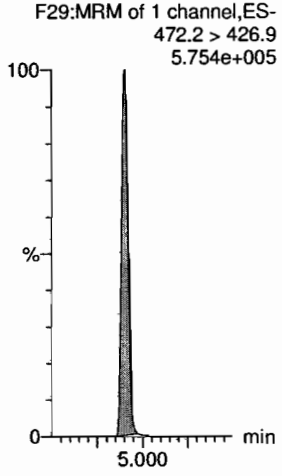
13C3-PFHxS



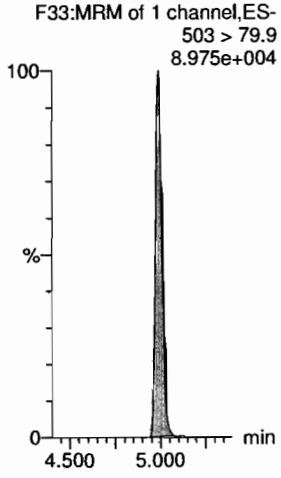
13C8-PFOA



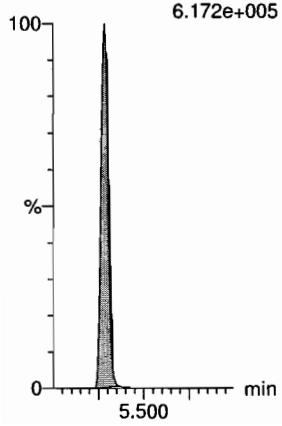
13C9-PFNA



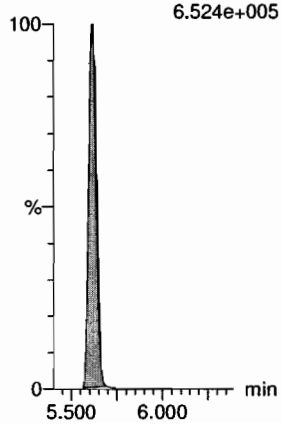
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-44.qld

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Name: 181128M1_44, Date: 28-Nov-2018, Time: 20:04:07, ID: ST181128M1-3 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	5812.856	6323.662	1.00	1.17	11.490	9.8	98.1	NO		
2	2	PFPeA	263.1 > 218.9	10795.798	14257.492	1.00	2.37	9.465	9.9	99.4	NO		
3	3	PFBS	299.0 > 79.7	2822.563	1839.967	1.00	2.72	19.175	9.3	92.9	NO	2.664	NO
4	4	4:2 FTS	327.2>307.2	4017.714	4776.925	1.00	3.21	10.513	10.1	100.7	NO	1.628	NO
5	5	PFHxA	313 > 269	20198.564	10684.109	1.00	3.29	9.453	10.0	99.8	NO	15.234	NO
6	6	PFPeS	349.1>80.1	2392.891	1839.967	1.00	3.52	16.256	9.7	97.3	NO	1.566	NO
7	36	13C3-PFBA	216.1 > 171.8	6323.662	8010.336	1.00	1.17	9.868	12.5	100.2	NO		
8	37	13C3-PFPeA	266. > 221.8	14257.492	27206.816	1.00	2.37	6.551	11.8	94.3	NO		
9	38	13C3-PFBS	302. > 98.8	1839.967	3255.088	1.00	2.72	7.066	13.2	105.3	NO		
10	39	13C2-4:2 FTS	329.2>308.9	4776.925	3255.088	1.00	3.21	18.344	12.4	99.3	NO		
11	40	13C2-PFHxA	315 > 270	10684.109	27206.816	1.00	3.29	4.909	5.0	99.3	NO		
12	38	13C3-PFBS	302. > 98.8	1839.967	3255.088	1.00	2.72	7.066	13.2	105.3	NO		
13	-1												
14	10	6:2 FTS	427.1 > 407	4681.032	5034.258	1.00	4.41	11.623	9.3	93.2	NO	2.903	NO
15	7	PFHpA	363.0 > 318.9	14116.313	13689.021	1.00	3.97	12.890	9.8	97.8	NO	13.922	NO
16	8	L-PFHxS	398.9 > 79.6	2214.837	1532.123	1.00	4.11	18.070	9.3	92.9	NO	1.726	NO
17	11	L-PFOA	412.8 > 368.9	26106.281	24692.234	1.00	4.47	13.216	9.6	96.2	NO	3.547	NO
18	13	PFHpS	449 > 80.0	2711.362	3763.621	1.00	4.58	9.005	9.6	96.0	NO	1.839	NO
19	14	PFNA	463.0 > 418.8	22024.709	22220.713	1.00	4.90	12.390	9.9	98.8	NO	4.488	NO
20	43	13C2-6:2 FTS	429.1 > 408.9	5034.258	3639.176	1.00	4.41	17.292	11.1	88.5	NO		
21	41	13C4-PFHpA	367.2 > 321.8	13689.021	27206.816	1.00	3.97	6.289	11.7	93.8	NO		
22	42	18O2-PFHxS	403.0 > 102.6	1532.123	3255.088	1.00	4.11	5.884	13.1	105.0	NO		
23	44	13C2-PFOA	414.9 > 369.7	24692.234	32216.930	1.00	4.47	9.580	12.7	101.5	NO		
24	47	13C8-PFOS	507.0 > 79.9	3763.621	3639.176	1.00	4.99	12.927	12.4	99.3	NO		
25	45	13C5-PFNA	468.2 > 422.9	22220.713	22575.641	1.00	4.90	12.303	12.4	99.4	NO		
26	-1												
27	15	PFOSA	497.9 > 77.9	2982.432	3101.215	1.00	4.95	12.021	10.6	105.6	NO	26.807	NO
28	16	L-PFOS	498.9 > 79.9	2960.656	3763.621	1.00	4.99	9.833	8.9	89.4	NO	1.813	NO
29	18	PFDA	513 > 468.8	24662.926	22037.508	1.00	5.29	13.989	10.6	106.4	NO	6.073	NO
30	19	8:2 FTS	527 > 506.9	4379.807	3718.194	1.00	5.25	14.724	9.7	97.2	NO	2.449	NO
31	20	PFNS	549.1 > 80.1	2162.526	3763.621	1.00	5.35	7.182	9.4	93.6	NO	1.796	NO
32	21	L-MeFOSAA	570 > 419	8267.536	3536.203	1.00	5.44	29.225	10.0	100.5	NO	2.481	NO
33	46	13C8-PFOSA	506.1 > 77.7	3101.215	29280.965	1.00	4.95	1.324	13.6	109.0	NO		
34	47	13C8-PFOS	507.0 > 79.9	3763.621	3639.176	1.00	4.99	12.927	12.4	99.3	NO		
35	48	13C2-PFDA	515.1 > 469.9	22037.508	26245.814	1.00	5.29	10.496	11.6	93.1	NO		
36	49	13C2-8:2 FTS	529.1 > 508.7	3718.194	3639.176	1.00	5.25	12.771	10.8	86.8	NO		

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Name: 181128M1_44, Date: 28-Nov-2018, Time: 20:04:07, ID: ST181128M1-3 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
37	47	13C8-PFOS	507.0 > 79.9	3763.621	3639.176	1.00	4.99	12.927	12.4	99.3	NO		
38	50	d3-N-MeFOSAA	573.3 > 419	3536.203	29280.965	1.00	5.44	1.510	11.2	89.7	NO		
39	-1												
40	23	L-EtFOSAA	584.1 > 419	7188.410	4902.407	1.00	5.61	18.329	11.3	113.1	NO	1.469	NO
41	27	PFDoA	612.9 > 569.0	24390.951	26675.584	1.00	5.91	11.429	9.8	97.9	NO	8.013	NO
42	26	PFDS	598.8 > 79.9	2962.788	3763.621	1.00	5.67	9.840	9.4	93.8	NO	1.731	NO
43	25	PFUdA	563.0 > 518.9	21320.326	29235.430	1.00	5.62	9.116	9.3	93.4	NO	9.715	NO
44	28	N-MeFOSA	512.1 > 168.9	4373.959	12949.140	1.00	5.89	50.667	52.8	105.5	NO	1.581	NO
45	29	PFTrDA	662.9 > 618.9	25169.051	26675.584	1.00	6.16	11.794	10.2	101.5	NO	24.573	NO
46	52	d5-N-EtFOSAA	589.3 > 419	4902.407	29280.965	1.00	5.60	2.093	11.3	90.4	NO		
47	53	13C2-PFDoA	615.0 > 569.7	26675.584	26245.814	1.00	5.91	12.705	12.1	97.1	NO		
48	47	13C8-PFOS	507.0 > 79.9	3763.621	3639.176	1.00	4.99	12.927	12.4	99.3	NO		
49	51	13C2-PFUdA	565 > 519.8	29235.430	29280.965	1.00	5.62	12.481	13.0	104.3	NO		
50	54	d3-N-MeFOSA	515.2 > 168.9	12949.140	29280.965	1.00	5.92	5.528	150.6	100.4	NO		
51	53	13C2-PFDoA	615.0 > 569.7	26675.584	26245.814	1.00	5.91	12.705	12.1	97.1	NO		
52	-1												
53	30	PFTeDA	713.0 > 669.0	21037.537	17437.727	1.00	6.37	15.080	9.2	92.2	NO	13.464	NO
54	31	N-EtFOSA	526.1 > 168.9	6218.653	22622.432	1.00	6.39	41.233	46.9	93.9	NO	1.602	NO
55	32	PFHxDA	813.1 > 768.6	9074.643	9356.146	1.00	6.72	4.850	12.1	121.2	NO	20.999	NO
56	33	PFODA	913.1 > 868.8	13651.701	9356.146	1.00	6.96	7.296	10.3	103.4	NO		
57	34	N-MeFOSE	616.1 > 58.9	3335.306	11278.841	1.00	6.68	44.357	48.9	97.9	NO		
58	35	N-EtFOSE	630.1 > 58.9	4086.122	10896.280	1.00	6.83	56.250	48.9	97.9	NO		
59	55	13C2-PFTeDA	715.1 > 669.7	17437.727	29280.965	1.00	6.37	7.444	13.1	105.0	NO		
60	56	d5-N-ETFOSA	531.1 > 168.9	22622.432	29280.965	1.00	6.42	9.657	165.6	110.4	NO		
61	57	13C2-PFHxDA	815 > 769.7	9356.146	29280.965	1.00	6.72	3.994	5.4	107.1	NO		
62	57	13C2-PFHxDA	815 > 769.7	9356.146	29280.965	1.00	6.72	3.994	5.4	107.1	NO		
63	58	d7-N-MeFOSE	623.1 > 58.9	11278.841	29280.965	1.00	6.68	4.815	152.2	101.5	NO		
64	59	d9-N-EtFOSE	639.2 > 58.8	10896.280	29280.965	1.00	6.82	4.652	155.9	104.0	NO		
65	-1												
66	60	13C4-PFBA	217. > 172	8010.336	8010.336	1.00	1.17	12.500	12.5	100.0	NO		
67	61	13C5-PFHxA	318 > 272.9	27206.816	27206.816	1.00	3.29	12.500	12.5	100.0	NO		
68	62	13C3-PFHxS	401.8 > 79.9	3255.088	3255.088	1.00	4.11	12.500	12.5	100.0	NO		
69	63	13C8-PFOA	420.9 > 376	32216.930	32216.930	1.00	4.47	12.500	12.5	100.0	NO		
70	64	13C9-PFNA	472.2 > 426.9	22575.641	22575.641	1.00	4.90	12.500	12.5	100.0	NO		
71	65	13C4-PFOS	503 > 79.9	3639.176	3639.176	1.00	4.99	12.500	12.5	100.0	NO		
72	66	13C6-PFDA	519.1 > 473.7	26245.814	26245.814	1.00	5.28	12.500	12.5	100.0	NO		

Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-44.qld

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Name: 181128M1_44, Date: 28-Nov-2018, Time: 20:04:07, ID: ST181128M1-3 PFC CS3 18K1906, Description: PFC CS3 18K1906

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
73	67	13C7-PFUdA	570.1 > 524.8	29280.965	29280.965	1.00	5.62	12.500	12.5	100.0	NO		

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Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112818.mdb 29 Nov 2018 07:48:36
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	181128M1_1	IPA	28-Nov-18	11:38:53
2	2	181128M1_2	ST181128M1-1 PFC CS0 18K1903	28-Nov-18	11:49:27
3	3	181128M1_3	IPA	28-Nov-18	12:46:26
4	4	181128M1_4	B8K0098-BLK1 Method Blank 0.125	28-Nov-18	12:57:03
5	5	181128M1_5	B8K0142-BSD1 LCSD 0.125	28-Nov-18	13:07:41
6	6	181128M1_6	B8K0142-BS1 OPR 0.125	28-Nov-18	13:18:14
7	7	181128M1_7	B8K0142-BLK1 Method Blank 0.125	28-Nov-18	13:28:52
8	8	181128M1_8	1803631-01 REEPDW1366FRB 0.1199	28-Nov-18	13:39:25
9	9	181128M1_9	1803631-02 REEPDW1367FRB 0.12161	28-Nov-18	13:50:03
10	10	181128M1_10	1803631-03 REEPDW1369FRB 0.1176	28-Nov-18	14:00:36
11	11	181128M1_11	1803631-04 REEPDW1368FRB 0.11836	28-Nov-18	14:11:14
12	12	181128M1_12	1803631-05 REEPDW1370FRB 0.1188	28-Nov-18	14:21:48
13	13	181128M1_13	1803631-06 REEPDW1371FRB 0.12004	28-Nov-18	14:32:26
14	14	181128M1_14	1803656-01 REEPDW1372FRB 0.12021	28-Nov-18	14:44:10
15	15	181128M1_15	1803656-02 REEPDW1373FRB 0.11861	28-Nov-18	14:54:43
16	16	181128M1_16	B8K0141-BS1 OPR 0.25	28-Nov-18	15:05:23
17	17	181128M1_17	B8K0141-BLK1 Method Blank 0.25	28-Nov-18	15:16:00
18	18	181128M1_18	B8K0126-BS1 OPR 0.125	28-Nov-18	15:28:26
19	19	181128M1_19	B8K0126-BSD1 LCSD 0.125	28-Nov-18	15:39:02
20	20	181128M1_20	B8K0126-BLK1 Method Blank 0.125	28-Nov-18	15:49:40
21	21	181128M1_21	1803654-01 REEPDW1372 0.1169	28-Nov-18	16:00:19
22	22	181128M1_22	1803654-02 REEPDW1373 0.11774	28-Nov-18	16:10:52
23	23	181128M1_23	1803657-01 REEPEF1088 0.11595	28-Nov-18	16:21:30
24	24	181128M1_24	1803657-02 REEPAR1088 0.11979	28-Nov-18	16:32:03
25	25	181128M1_25	1803657-03 REEPAC1088 0.11772	28-Nov-18	16:42:42
26	26	181128M1_26	1803657-04 REEPIN1088 0.11717	28-Nov-18	16:53:15
27	27	181128M1_27	1803657-05 REEPEF1089 0.11674	28-Nov-18	17:03:53
28	28	181128M1_28	1803657-06 REEPEF5039 0.1185	28-Nov-18	17:14:26
29	29	181128M1_29	1803657-07 REEPAR1089 0.11405	28-Nov-18	17:25:04
30	30	181128M1_30	1803657-08 REEPAC1089 0.1182	28-Nov-18	17:35:43
31	31	181128M1_31	IPA	28-Nov-18	17:46:15
32	32	181128M1_32	ST181128M1-2 PFC CS3 18K1906	28-Nov-18	17:56:54

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Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
33	33	181128M1_33	IPA	28-Nov-18	18:07:27
34	34	181128M1_34	1803657-09 REEPIN1089 0.1204	28-Nov-18	18:18:05
35	35	181128M1_35	1803657-10 REEPEF1090 0.12036	28-Nov-18	18:28:43
36	36	181128M1_36	1803657-11 REEPAR1090 0.11858	28-Nov-18	18:39:16
37	37	181128M1_37	1803657-12 REEPAC1090 0.11236	28-Nov-18	18:49:55
38	38	181128M1_38	1803657-13 REEPIN1090 0.11996	28-Nov-18	19:00:29
39	39	181128M1_39	1803657-14 REEPEF1091 0.11533	28-Nov-18	19:11:07
40	40	181128M1_40	1803657-15 REEPAR1091 0.11892	28-Nov-18	19:21:39
41	41	181128M1_41	1803657-16 REEPAC1091 0.11796	28-Nov-18	19:32:18
42	42	181128M1_42	1803626-09@10X 16-HS-03-SA2D 0.11367	28-Nov-18	19:42:56
43	43	181128M1_43	IPA	28-Nov-18	19:53:29
44	44	181128M1_44	ST181128M1-3 PFC CS3 18K1906	28-Nov-18	20:04:07
45	45	181128M1_45	IPA	28-Nov-18	20:14:46
46	46	181128M1_46	1803681-02 SWEF1811131015KME 0.2522	28-Nov-18	20:25:19
47	47	181128M1_47	1803681-01 SWNT1811131005KME 0.25021	28-Nov-18	20:35:57
48	48	181128M1_48	1803679-01 SWNT1811121330KME 0.24544	28-Nov-18	20:46:30
49	49	181128M1_49	1803679-02 SWEF1811121340KME 0.25126	28-Nov-18	20:57:09
50	50	181128M1_50	1803624-01 WMP1811121017JSJ 0.24458	28-Nov-18	21:07:47
51	51	181128M1_51	1803624-02 WEF1811121026JSJ 0.24945	28-Nov-18	21:18:20
52	52	181128M1_52	1803624-03 WEF1811121036JSJ 0.25294	28-Nov-18	21:28:59
53	53	181128M1_53	B8K0151-BS1 OPR 0.25	28-Nov-18	21:39:31
54	54	181128M1_54	B8K0151-BLK1 Method Blank 0.25	28-Nov-18	21:50:10
55	55	181128M1_55	1803697-01 WW1811050800GSC 0.21921	28-Nov-18	22:00:48
56	56	181128M1_56	1803697-02 WW1811050830GSC 0.24745	28-Nov-18	22:11:22
57	57	181128M1_57	1803698-03 WW1811051215GSC 0.24831	28-Nov-18	22:22:00
58	58	181128M1_58	IPA	28-Nov-18	22:32:33
59	59	181128M1_59	ST181128M1-4 PFC CS3 18K1906	28-Nov-18	22:43:12
60	60	181128M1_60	IPA	28-Nov-18	22:53:45
61	61	181128M1_61	1803698-04 WW1811051230GSC 0.24182	28-Nov-18	23:04:23
62	62	181128M1_62	1803698-05 WW1811051245GSC 0.22793	28-Nov-18	23:14:55
63	63	181128M1_63	1803698-06 WW1811051315GSC 0.249	28-Nov-18	23:25:34
64	64	181128M1_64	1803699-02 WW1811051500GSC 0.22221	28-Nov-18	23:36:13
65	65	181128M1_65	1803699-03 WW1811051515GSC 0.23035	28-Nov-18	23:46:46
66	66	181128M1_66	1803700-01 WW1811070915GSC 0.25314	28-Nov-18	23:57:24
67	67	181128M1_67	1803700-02 WW1811070930GSC 0.23777	29-Nov-18	00:07:57
68	68	181128M1_68	1803701-01 WW1811071045GSC 0.25105	29-Nov-18	00:18:36

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Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
69	69	181128M1_69	1803701-03 WW1811071150GSC 0.24483	29-Nov-18	00:29:09
70	70	181128M1_70	1803701-04 WW1811071215GSC 0.23943	29-Nov-18	00:39:47
71	71	181128M1_71	IPA	29-Nov-18	00:50:21
72	72	181128M1_72	ST181128M1-5 PFC CS3 18K1906	29-Nov-18	01:01:00
73	73	181128M1_73	IPA	29-Nov-18	01:11:33
74	74	181128M1_74	1803702-01 WW1811080900GSC 0.24705	29-Nov-18	01:22:11
75	75	181128M1_75	1803702-02 WW1811080915GSC 0.25519	29-Nov-18	01:32:49
76	76	181128M1_76	1803703-01 WW1811081300GSC 0.24704	29-Nov-18	01:43:23
77	77	181128M1_77	1803703-03 WW1811081350GSC 0.24171	29-Nov-18	01:54:01
78	78	181128M1_78	1803704-01 WW1811090810GSC 0.25817	29-Nov-18	02:04:34
79	79	181128M1_79	1803704-03 WW1811090835GSC 0.25067	29-Nov-18	02:15:12
80	80	181128M1_80	1803705-01 WW1811091200GSC 0.2381	29-Nov-18	02:25:45
81	81	181128M1_81	1803705-02 WW1811091215GSC 0.25512	29-Nov-18	02:36:23
82	82	181128M1_82	1803705-03 WW1811091230GSC 0.24277	29-Nov-18	02:46:56
83	83	181128M1_83	B8K0155-BS1 OPR 1	29-Nov-18	02:57:34
84	84	181128M1_84	B8K0155-BLK1 Method Blank 1	29-Nov-18	03:08:12
85	85	181128M1_85	1803583-03 BS1810310830GC 127.16	29-Nov-18	03:18:45
86	86	181128M1_86	IPA	29-Nov-18	03:29:24
87	87	181128M1_87	ST181128M1-6 PFC CS3 18K1906	29-Nov-18	03:39:57
88	88	181128M1_88	IPA	29-Nov-18	03:50:35
89	89	181128M1_89	B8K0164-BS1 OPR 0.005	29-Nov-18	04:01:08
90	90	181128M1_90	B8K0164-BLK1 Method Blank 0.005	29-Nov-18	04:11:47
91	91	181128M1_91	1803637-01 Milk 0.005	29-Nov-18	04:22:20
92	92	181128M1_92	B8K0187-BS1 OPR 0.125	29-Nov-18	04:32:58
93	93	181128M1_93	B8K0187-BLK1 Method Blank 0.125	29-Nov-18	04:43:32
94	94	181128M1_94	1803640-01RE1 MW-2A 0.11197	29-Nov-18	04:54:10
95	95	181128M1_95	1803640-02RE1 MW-3 0.11517	29-Nov-18	05:04:43
96	96	181128M1_96	1803640-03RE1 MW-4 0.11048	29-Nov-18	05:15:21
97	97	181128M1_97	1803640-04RE1 TS Well 0.1132	29-Nov-18	05:25:54
98	98	181128M1_98	1803641-01RE1 MW3S 0.11376	29-Nov-18	05:36:33
99	99	181128M1_99	1803641-02RE1 MW6 0.11516	29-Nov-18	05:47:11
100	1...	181128M1_100	1803641-03RE1 MW7 0.10821	29-Nov-18	05:57:44
101	1...	181128M1_101	1803641-04RE1 SW2 0.11028	29-Nov-18	06:08:22
102	1...	181128M1_102	1803646-01RE1 MW-1 0.11807	29-Nov-18	06:19:00
103	1...	181128M1_103	IPA	29-Nov-18	06:29:33
104	1...	181128M1_104	ST181128M1-7 PFC CS3 18K1906	29-Nov-18	06:40:11

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Thursday, November 29, 2018 09:42:33 Pacific Standard Time
Printed: Thursday, November 29, 2018 09:43:09 Pacific Standard Time

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
105	1...	181128M1_105	IPA	29-Nov-18	06:50:50
106	1...	181128M1_106	1803646-02RE1 MW-4S 0.11283	29-Nov-18	07:01:23
107	1...	181128M1_107	1803646-03RE1 Thorne 0.11213	29-Nov-18	07:12:01
108	1...	181128M1_108	1803647-01RE1 MW-1 0.1127	29-Nov-18	07:22:34
109	1...	181128M1_109	1803647-02RE1 MW-3 0.11483	29-Nov-18	07:33:13
110	1...	181128M1_110	1803651-01RE1 MW-1 0.11697	29-Nov-18	07:43:54
111	1...	181128M1_111	1803651-02RE1 MW-4 0.11592	29-Nov-18	07:54:27
112	1...	181128M1_112	1803651-03RE1 MW-3 0.11768	29-Nov-18	08:05:06
113	1...	181128M1_113	1803652-01RE1 MW-1 0.10744	29-Nov-18	08:15:38
114	1...	181128M1_114	1803652-02RE1 MW-2 0.11424	29-Nov-18	08:26:17
115	1...	181128M1_115	IPA	29-Nov-18	08:36:50
116	1...	181128M1_116	ST181128M1-8 PFC CS3 18K1906	29-Nov-18	08:47:28

Vista Analytical Laboratory

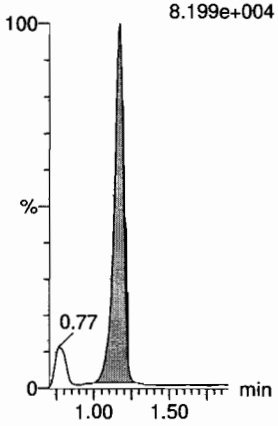
Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-44.qld

Last Altered: Thursday, November 29, 2018 07:55:55 Pacific Standard Time
Printed: Thursday, November 29, 2018 07:56:40 Pacific Standard Time

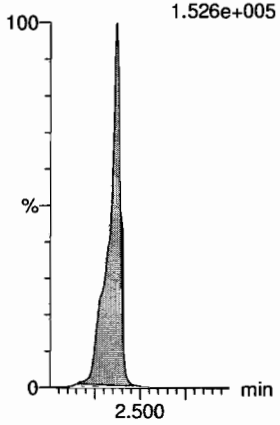
Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112818.mdb 29 Nov 2018 07:48:36
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Name: 181128M1_44, Date: 28-Nov-2018, Time: 20:04:07, ID: ST181128M1-3 PFC CS3 18K1906, Description: PFC CS3 18K1906

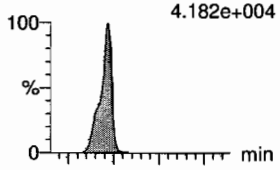
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
8.199e+004



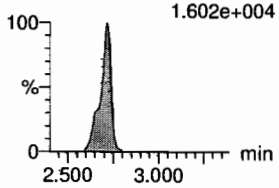
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
1.526e+005



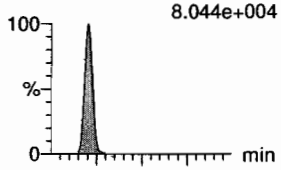
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
4.182e+004



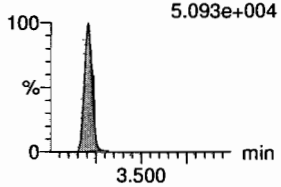
F7:MRM of 2 channels,ES-
299.0 > 99.0
1.602e+004



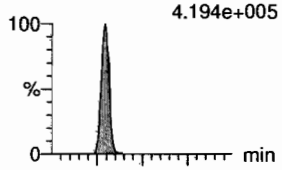
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
8.044e+004



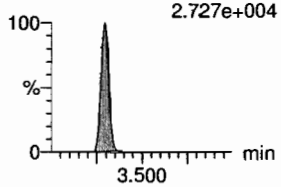
F12:MRM of 2 channels,ES-
327.2 > 81.1
5.093e+004



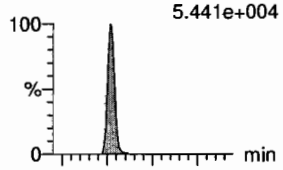
PFHxA
F9:MRM of 2 channels,ES-
313 > 269
4.194e+005



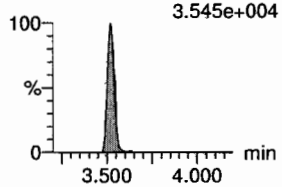
F9:MRM of 2 channels,ES-
313 > 118.9
2.727e+004



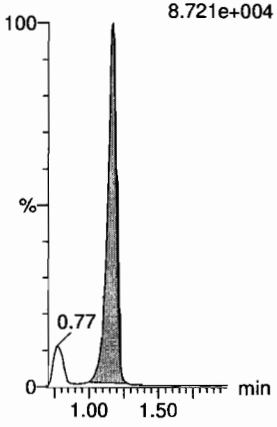
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
5.441e+004



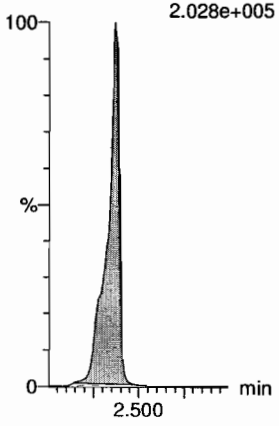
F15:MRM of 2 channels,ES-
349.1 > 99
3.545e+004



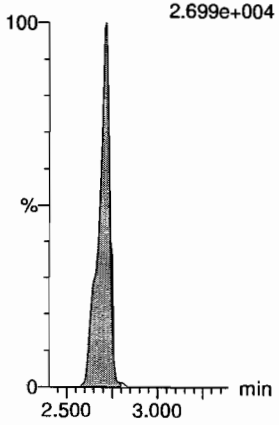
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
8.721e+004



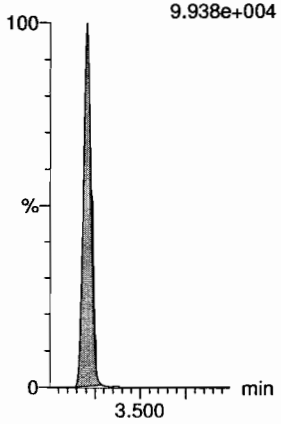
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
2.028e+005



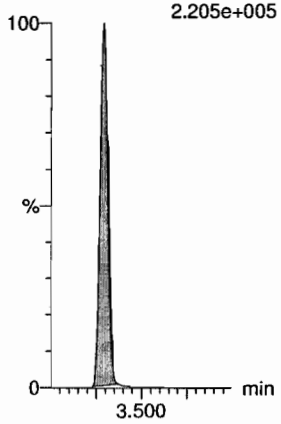
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.699e+004



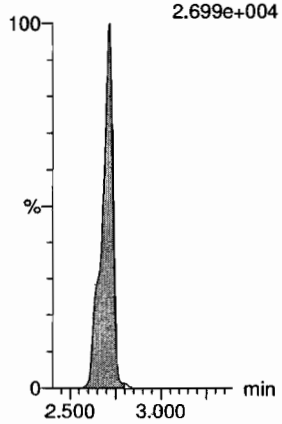
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
9.938e+004



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 270
2.205e+005



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.699e+004

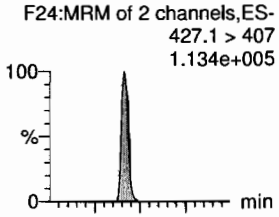


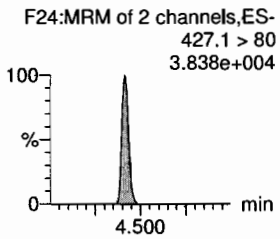
Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-44.qld

Last Altered: Thursday, November 29, 2018 07:55:55 Pacific Standard Time
Printed: Thursday, November 29, 2018 07:56:40 Pacific Standard Time

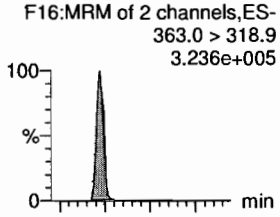
Name: 181128M1_44, Date: 28-Nov-2018, Time: 20:04:07, ID: ST181128M1-3 PFC CS3 18K1906, Description: PFC CS3 18K1906

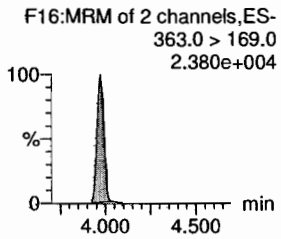
6:2 FTS



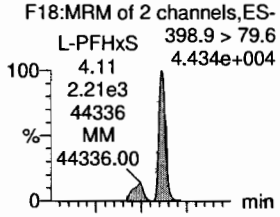


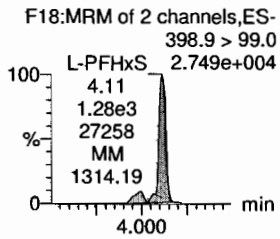
PFHpA



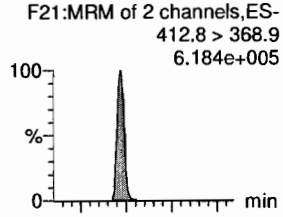


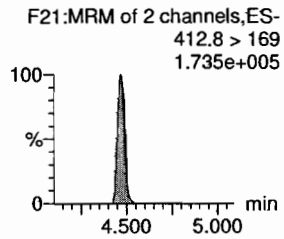
L-PFHxS



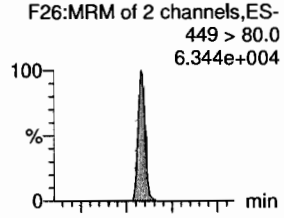


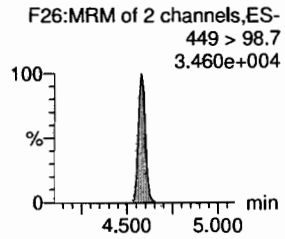
L-PFOA



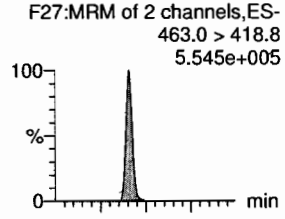


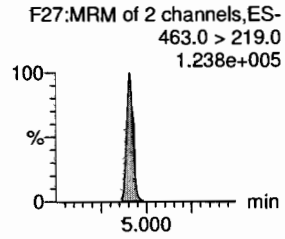
PFHpS



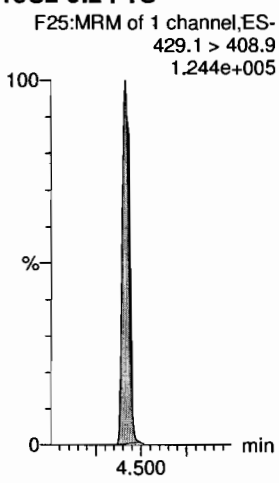


PFNA

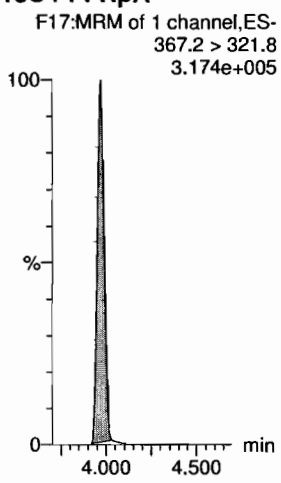




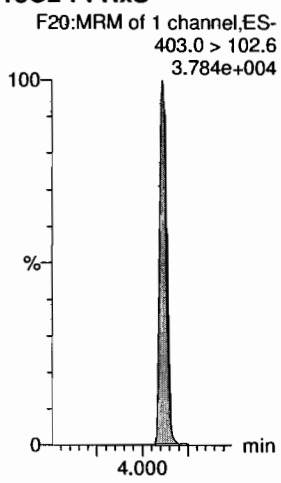
13C2-6:2 FTS



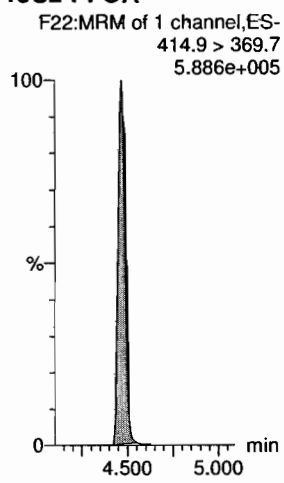
13C4-PFHpA



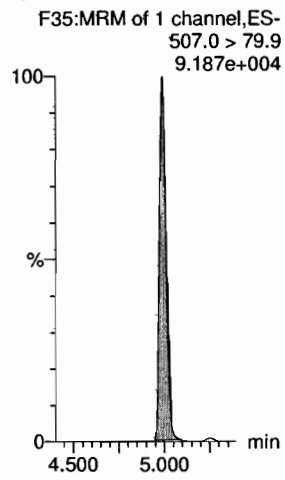
18O2-PFHxS



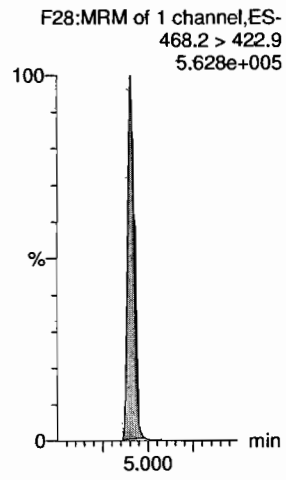
13C2-PFOA



13C8-PFOS



13C5-PFNA



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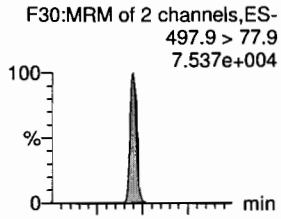
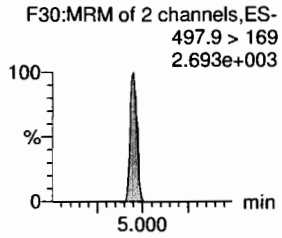
Last Altered: Thursday, November 29, 2018 07:55:55 Pacific Standard Time
Printed: Thursday, November 29, 2018 07:56:40 Pacific Standard Time

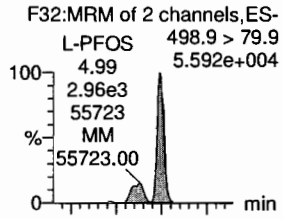
Name: 181128M1_44, Date: 28-Nov-2018, Time: 20:04:07, ID: ST181128M1-3 PFC CS3 18K1906, Description: PFC CS3 18K1906

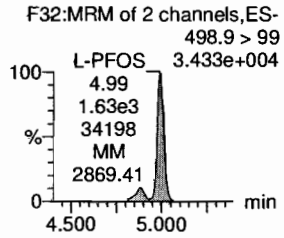
PFOSA



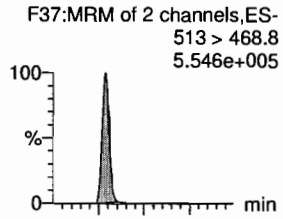


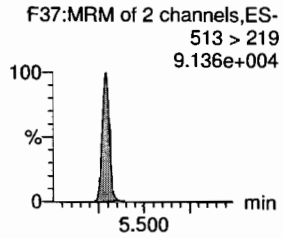
L-PFOS



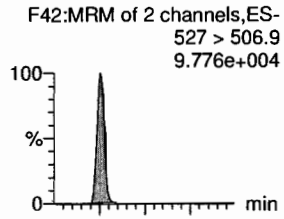


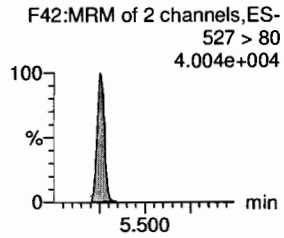
PFDA



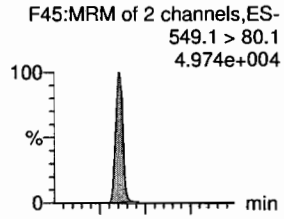


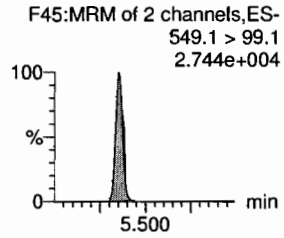
8:2 FTS



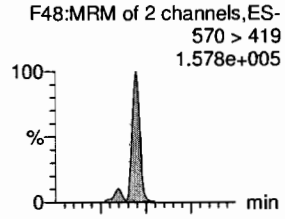


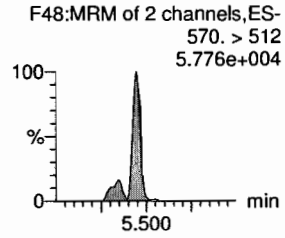
PFNS



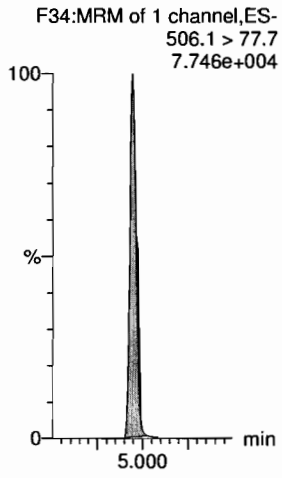


L-MeFOSAA

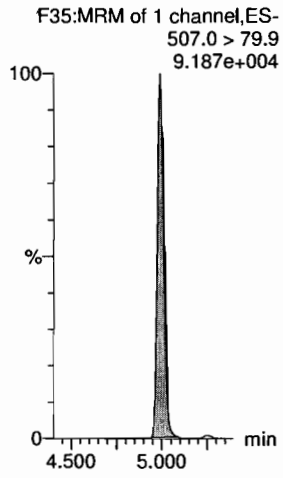




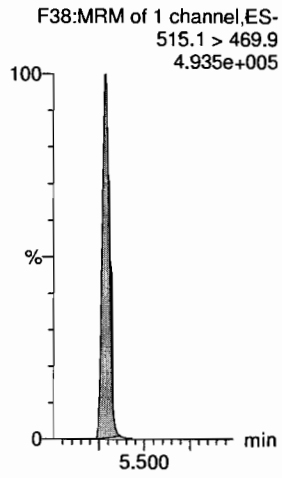
13C8-PFOSA



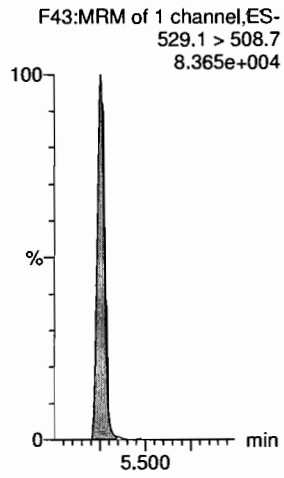
13C8-PFOS



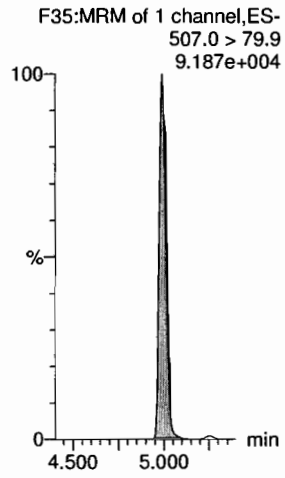
13C2-PFDA



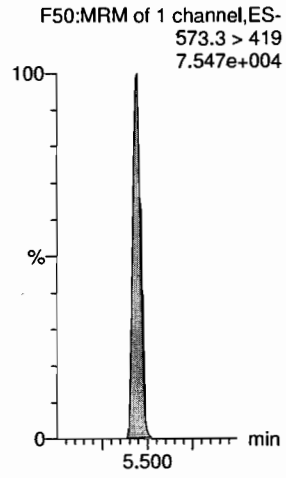
13C2-8:2 FTS



13C8-PFOS



d3-N-MeFOSAA

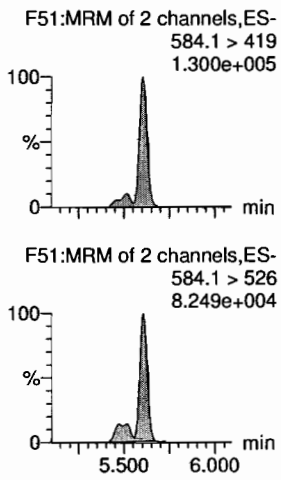


Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-44.qld

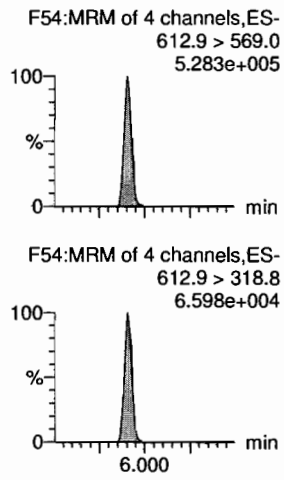
Last Altered: Thursday, November 29, 2018 07:55:55 Pacific Standard Time
Printed: Thursday, November 29, 2018 07:56:40 Pacific Standard Time

Name: 181128M1_44, Date: 28-Nov-2018, Time: 20:04:07, ID: ST181128M1-3 PFC CS3 18K1906, Description: PFC CS3 18K1906

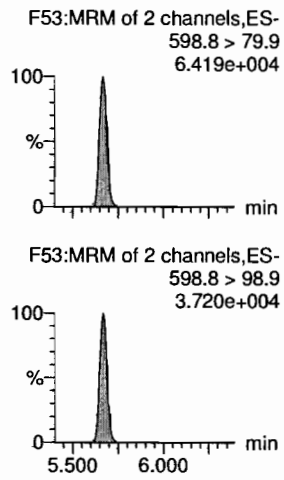
L-EtFOSAA



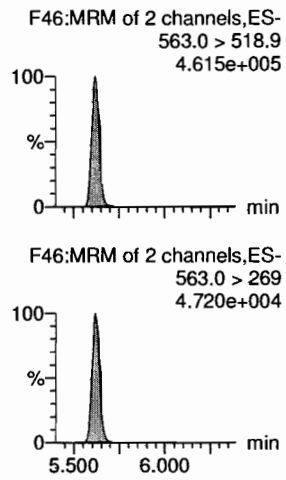
PFDoA



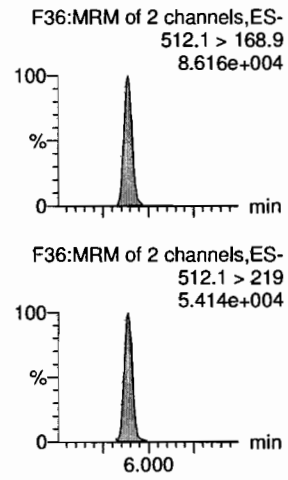
PFDS



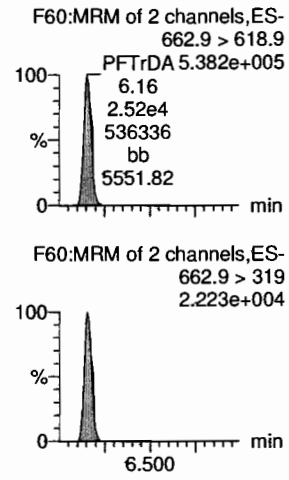
PFUdA



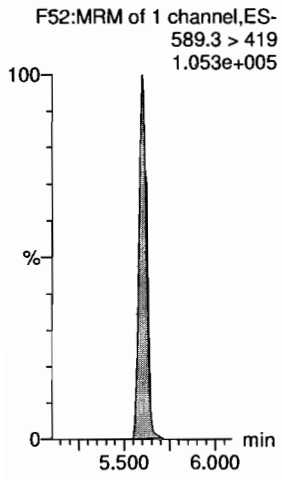
N-MeFOSA



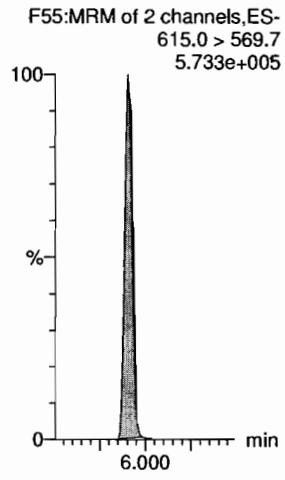
PFTrDA



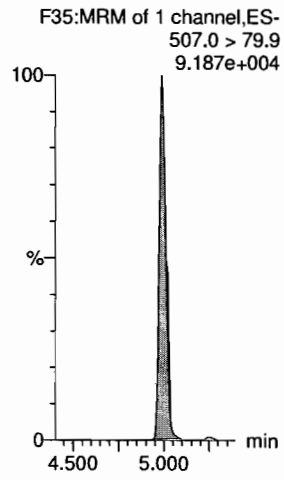
d5-N-EtFOSAA



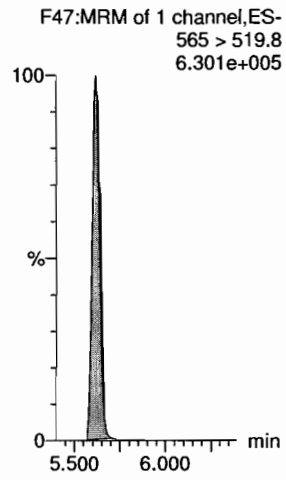
13C2-PFDoA



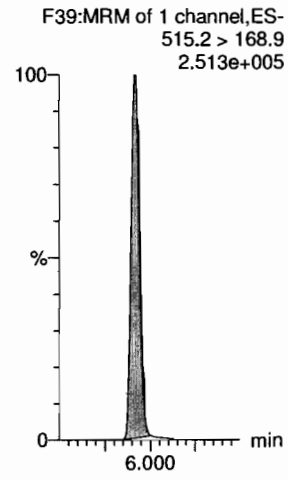
13C8-PFOS



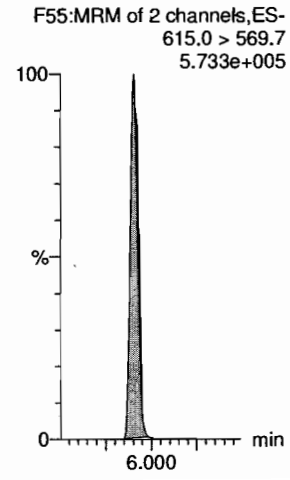
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA

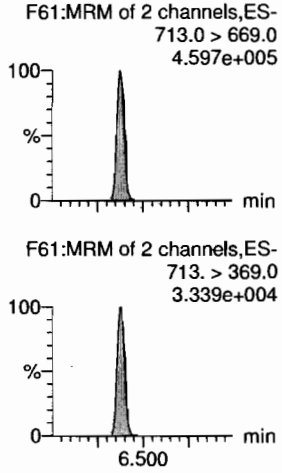


Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-44.qld

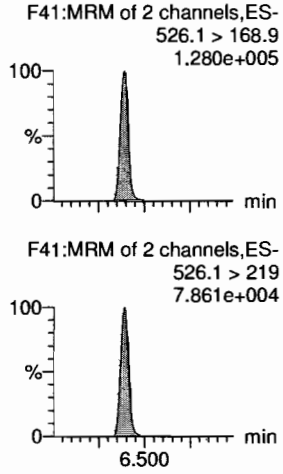
Last Altered: Thursday, November 29, 2018 07:55:55 Pacific Standard Time
Printed: Thursday, November 29, 2018 07:56:40 Pacific Standard Time

Name: 181128M1_44, Date: 28-Nov-2018, Time: 20:04:07, ID: ST181128M1-3 PFC CS3 18K1906, Description: PFC CS3 18K1906

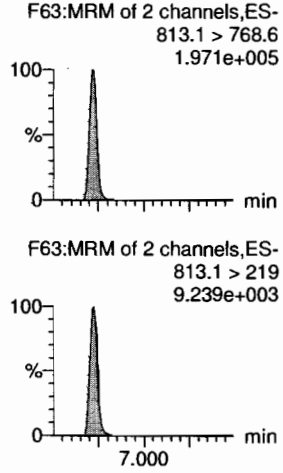
PFTeDA



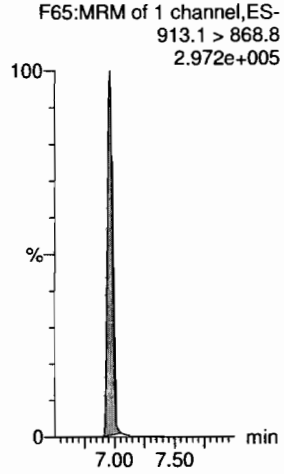
N-EtFOSA



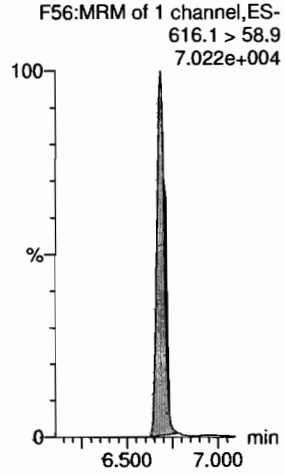
PFHxDA



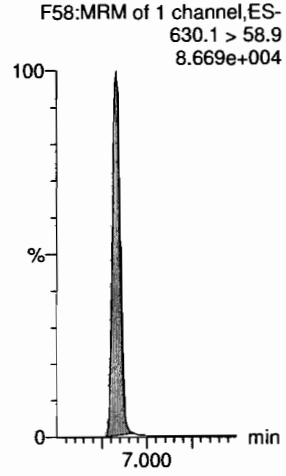
PFODA



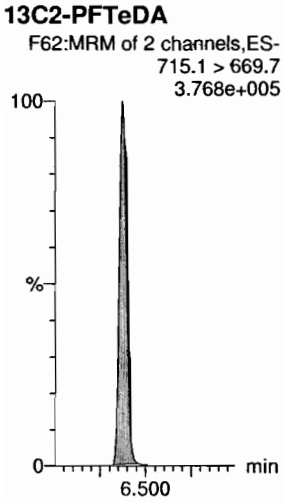
N-MeFOSE



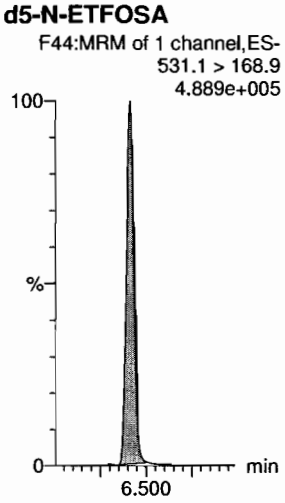
N-EtFOSE



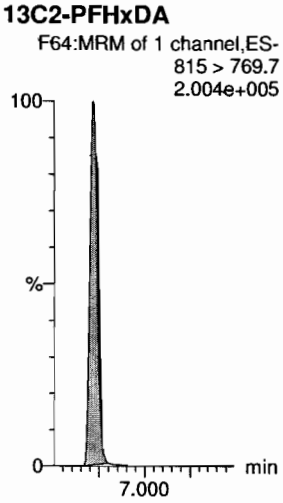
13C2-PFTeDA



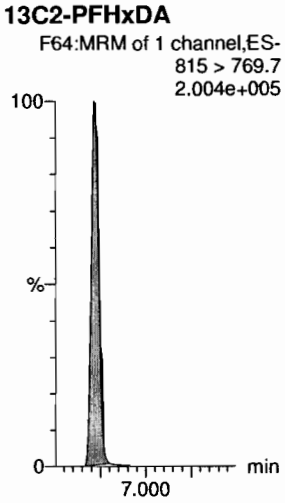
d5-N-ETFOSA



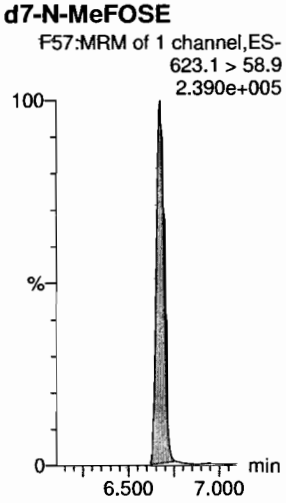
13C2-PFHxDA



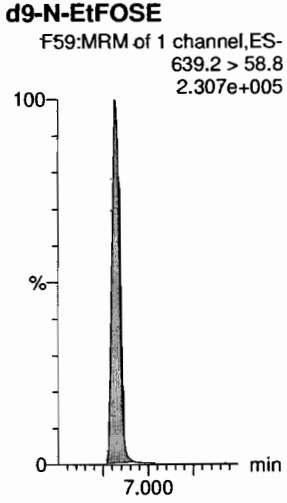
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE

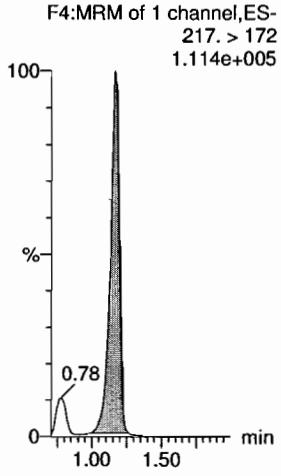


Dataset: Z:\Projects\PFAS.PRO\Results\181128M1\181128M1-44.qld

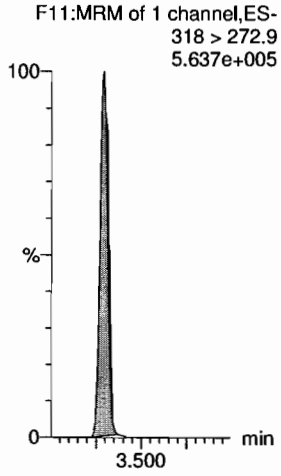
Last Altered: Thursday, November 29, 2018 07:55:55 Pacific Standard Time
Printed: Thursday, November 29, 2018 07:56:40 Pacific Standard Time

Name: 181128M1_44, Date: 28-Nov-2018, Time: 20:04:07, ID: ST181128M1-3 PFC CS3 18K1906, Description: PFC CS3 18K1906

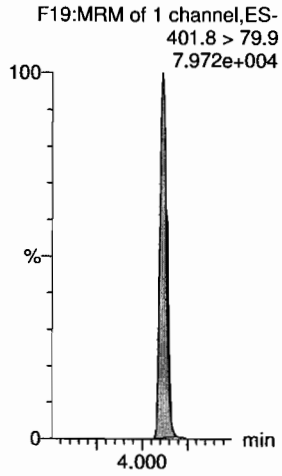
13C4-PFBA



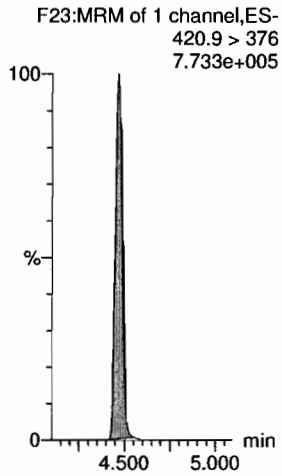
13C5-PFHxA



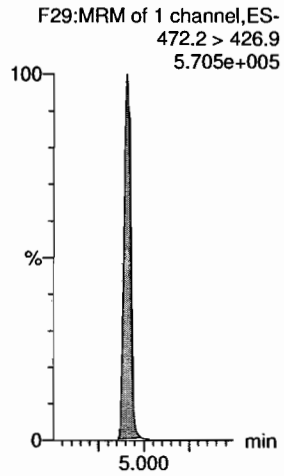
13C3-PFHxS



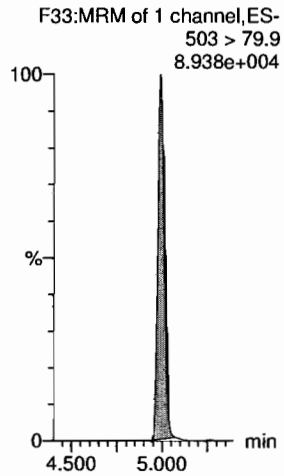
13C8-PFOA



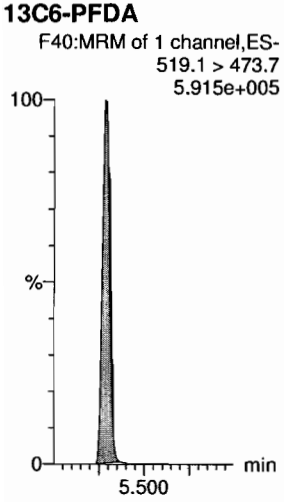
13C9-PFNA



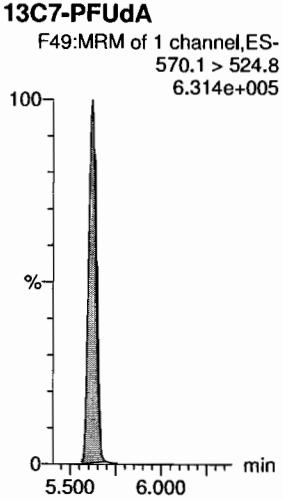
13C4-PFOS



13C6-PFDA



13C7-PFUdA



INITIAL CALIBRATION (ICAL)

INCLUDING ASSOCIATED

INITIAL CALIBRATION VERIFICATION (ICV) AND INSTRUMENT BLANK (IB)

Quantify Compound Summary Report **MassLynx MassLynx V4.1 SCN945 SCN960**
Vista Analytical Laboratory

no low pts dropped

high pt
4:2 FTS = 100
6:2 FTS
8:2 FTS

Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:18:27 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_111918.mdb 20 Nov 2018 11:07:39
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

11/20/18

11/20/18

Compound name: PFBA
Correlation coefficient: r = 0.999936, r^2 = 0.999871
Calibration curve: 1.15877 * x + 0.0665496
Response type: Internal Std (Ref 36), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	1.18	190.471	7922.372	0.301	0.2	-19.2	NO	1.000	NO	bb
2	2	181119M2_3	Standard	0.500	1.18	382.975	7014.210	0.682	0.5	6.3	NO	1.000	NO	MM
3	3	181119M2_4	Standard	1.000	1.18	777.744	7707.828	1.261	1.0	3.1	NO	1.000	NO	bb
4	4	181119M2_5	Standard	2.000	1.18	1617.640	7705.931	2.624	2.2	10.4	NO	1.000	NO	bb
5	5	181119M2_6	Standard	5.000	1.18	3785.407	7763.416	6.095	5.2	4.0	NO	1.000	NO	MM
6	6	181119M2_7	Standard	10.000	1.18	6927.673	7566.665	11.444	9.8	-1.8	NO	1.000	NO	bb
7	7	181119M2_8	Standard	50.000	1.18	36154.707	7999.171	56.498	48.7	-2.6	NO	1.000	NO	bb
8	8	181119M2_9	Standard	100.000	1.18	90826.258	9901.624	114.661	98.9	-1.1	NO	1.000	NO	bb
9	9	181119M2_10	Standard	250.000	1.18	180607.188	7713.829	292.668	252.5	1.0	NO	1.000	NO	bb
10	10	181119M2_11	Standard	500.000	1.18	350145.438	7558.623	579.050	499.7	-0.1	NO	1.000	NO	MM

Compound name: PFPeA
Coefficient of Determination: R^2 = 0.999855
Calibration curve: -4.00459e-005 * x^2 + 0.937455 * x + 0.0365266
Response type: Internal Std (Ref 37), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	2.40	317.239	15865.156	0.250	0.2	-8.9	NO	1.000	NO	MM
2	2	181119M2_3	Standard	0.500	2.40	536.036	13568.036	0.494	0.5	-2.4	NO	1.000	NO	MM
3	3	181119M2_4	Standard	1.000	2.40	1226.402	15828.560	0.969	1.0	-0.6	NO	1.000	NO	MM
4	4	181119M2_5	Standard	2.000	2.40	2541.349	15342.569	2.071	2.2	8.5	NO	1.000	NO	bb
5	5	181119M2_6	Standard	5.000	2.40	6308.639	15479.487	5.094	5.4	7.9	NO	1.000	NO	bb
6	6	181119M2_7	Standard	10.000	2.40	11331.536	15429.634	9.180	9.8	-2.4	NO	1.000	NO	MM
7	7	181119M2_8	Standard	50.000	2.40	57161.555	15535.887	45.992	49.1	-1.8	NO	1.000	NO	bb
8	8	181119M2_9	Standard	100.000	2.40	142840.969	19373.652	92.162	98.7	-1.3	NO	1.000	NO	MM
9	9	181119M2_10	Standard	250.000	2.40	284179.781	15129.592	234.788	253.2	1.3	NO	1.000	NO	bb
10	10	181119M2_11	Standard	500.000	2.40	523638.000	14302.896	457.633	498.8	-0.2	NO	1.000	NO	bb

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Compound name: PFBS
Coefficient of Determination: R^2 = 0.999692
Calibration curve: -6.70313e-005 * x^2 + 1.94752 * x + 0.0138443
Response type: Internal Std (Ref 38), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	2.76	73.145	1980.035	0.462	0.2	-8.0	NO	1.000	NO	MM
2	2	181119M2_3	Standard	0.500	2.75	133.278	1777.388	0.937	0.5	-5.2	NO	1.000	NO	MM
3	3	181119M2_4	Standard	1.000	2.75	352.526	1967.175	2.240	1.1	14.3	NO	1.000	NO	bb
4	4	181119M2_5	Standard	2.000	2.75	601.302	1950.016	3.854	2.0	-1.4	NO	1.000	NO	MM
5	5	181119M2_6	Standard	5.000	2.75	1557.153	1881.051	10.348	5.3	6.1	NO	1.000	NO	bb
6	6	181119M2_7	Standard	10.000	2.75	2917.642	1935.022	18.848	9.7	-3.3	NO	1.000	NO	MM
7	7	181119M2_8	Standard	50.000	2.75	14341.416	1880.698	95.320	49.0	-2.0	NO	1.000	NO	bb
8	8	181119M2_9	Standard	100.000	2.75	35601.457	2351.786	189.226	97.5	-2.5	NO	1.000	NO	bb
9	9	181119M2_10	Standard	250.000	2.75	67249.664	1702.650	493.713	255.8	2.3	NO	1.000	NO	bb
10	10	181119M2_11	Standard	500.000	2.75	119945.047	1573.776	952.685	497.7	-0.5	NO	1.000	NO	bb

Compound name: 4:2 FTS
Coefficient of Determination: R^2 = 0.998555
Calibration curve: -0.00296353 * x^2 + 1.06839 * x + 0.0733065
Response type: Internal Std (Ref 39), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	3.23	133.634	5344.524	0.313	0.2	-10.4	NO	0.999	NO	bb
2	2	181119M2_3	Standard	0.500	3.24	240.957	5264.625	0.572	0.5	-6.5	NO	0.999	NO	bb
3	3	181119M2_4	Standard	1.000	3.23	478.672	5620.198	1.065	0.9	-7.0	NO	0.999	NO	bb
4	4	181119M2_5	Standard	2.000	3.23	1084.560	5300.505	2.558	2.3	17.0	NO	0.999	NO	bb
5	5	181119M2_6	Standard	5.000	3.23	2407.287	5276.321	5.703	5.3	7.0	NO	0.999	NO	bb
6	6	181119M2_7	Standard	10.000	3.23	4642.297	5410.559	10.725	10.3	2.6	NO	0.999	NO	bb
7	7	181119M2_8	Standard	50.000	3.23	19518.979	5484.480	44.487	47.9	-4.1	NO	0.999	NO	bb
8	8	181119M2_9	Standard	100.000	3.23	46120.105	7388.735	78.024	101.6	1.6	NO	0.999	NO	bb
9	9	181119M2_10	Standard	250.000	3.23	78687.313	6923.139	142.073			NO	0.999	NO	bbXI
10	10	181119M2_11	Standard	500.000	3.24	124743.273	8616.051	180.975			NO	0.999	NO	bbXI

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Compound name: PFHxA
Coefficient of Determination: R^2 = 0.999895
Calibration curve: -9.80484e-005 * x^2 + 0.942971 * x + 0.041646
Response type: Internal Std (Ref 40), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	3.32	644.801	11966.714	0.269	0.2	-3.4	NO	1.000	NO	bb
2	2	181119M2_3	Standard	0.500	3.32	1149.189	11083.603	0.518	0.5	1.1	NO	1.000	NO	dd
3	3	181119M2_4	Standard	1.000	3.32	2603.592	12586.650	1.034	1.1	5.3	NO	1.000	NO	bb
4	4	181119M2_5	Standard	2.000	3.32	4906.760	11859.864	2.069	2.2	7.5	NO	1.000	NO	bb
5	5	181119M2_6	Standard	5.000	3.32	11494.797	11046.164	5.203	5.5	9.5	NO	1.000	NO	bb
6	6	181119M2_7	Standard	10.000	3.32	21631.896	11606.128	9.319	9.8	-1.5	NO	1.000	NO	bb
7	7	181119M2_8	Standard	50.000	3.32	99345.484	10716.891	46.350	49.4	-1.3	NO	1.000	NO	bb
8	8	181119M2_9	Standard	100.000	3.32	258843.766	13760.684	94.052	100.8	0.8	NO	1.000	NO	bb
9	9	181119M2_10	Standard	250.000	3.32	492386.875	10768.104	228.632	248.9	-0.5	NO	1.000	NO	bb
10	10	181119M2_11	Standard	500.000	3.32	875126.938	9779.139	447.446	500.5	0.1	NO	1.000	NO	bb

Compound name: PFPeS
Coefficient of Determination: R^2 = 0.999587
Calibration curve: -0.000364679 * x^2 + 1.51981 * x + 0.209357
Response type: Internal Std (Ref 38), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	3.54	77.095	1980.035	0.487	0.2	-27.0	NO	1.000	NO	bb
2	2	181119M2_3	Standard	0.500	3.54	131.347	1777.388	0.924	0.5	-6.0	NO	1.000	NO	bb
3	3	181119M2_4	Standard	1.000	3.54	302.785	1967.175	1.924	1.1	12.8	NO	1.000	NO	bb
4	4	181119M2_5	Standard	2.000	3.54	547.757	1950.016	3.511	2.2	8.7	NO	1.000	NO	bb
5	5	181119M2_6	Standard	5.000	3.54	1295.337	1881.051	8.608	5.5	10.7	NO	1.000	NO	bb
6	6	181119M2_7	Standard	10.000	3.54	2500.891	1935.022	16.155	10.5	5.2	NO	1.000	NO	bd
7	7	181119M2_8	Standard	50.000	3.54	10913.900	1880.698	72.539	48.1	-3.7	NO	1.000	NO	bb
8	8	181119M2_9	Standard	100.000	3.54	27358.090	2351.786	145.411	97.8	-2.2	NO	1.000	NO	bb
9	9	181119M2_10	Standard	250.000	3.54	49523.266	1702.650	363.575	254.6	1.9	NO	1.000	NO	bb
10	10	181119M2_11	Standard	500.000	3.54	83941.578	1573.776	666.721	498.1	-0.4	NO	1.000	NO	bb

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Compound name: PFHpA
Correlation coefficient: r = 0.999748, r^2 = 0.999495
Calibration curve: 1.31181 * x + 0.10388
Response type: Internal Std (Ref 41), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	4.00	516.538	15212.078	0.424	0.2	-2.3	NO	0.999	NO	bb
2	2	181119M2_3	Standard	0.500	3.99	832.492	14174.076	0.734	0.5	-3.9	NO	0.999	NO	bb
3	3	181119M2_4	Standard	1.000	3.99	1842.993	16138.139	1.428	1.0	0.9	NO	0.999	NO	MM
4	4	181119M2_5	Standard	2.000	3.99	3462.800	14762.115	2.932	2.2	7.8	NO	0.999	NO	MM
5	5	181119M2_6	Standard	5.000	4.00	7960.893	14129.451	7.043	5.3	5.8	NO	0.999	NO	bb
6	6	181119M2_7	Standard	10.000	4.00	15062.813	14815.835	12.708	9.6	-3.9	NO	0.999	NO	bb
7	7	181119M2_8	Standard	50.000	4.00	69581.234	13622.270	63.849	48.6	-2.8	NO	0.999	NO	bb
8	8	181119M2_9	Standard	100.000	3.99	173599.094	17237.354	125.889	95.9	-4.1	NO	0.999	NO	bb
9	9	181119M2_10	Standard	250.000	4.00	343442.031	12727.545	337.302	257.0	2.8	NO	0.999	NO	bb
10	10	181119M2_11	Standard	500.000	4.00	595512.125	11382.896	653.955	498.4	-0.3	NO	0.999	NO	bb

Compound name: L-PFHxS
Coefficient of Determination: R^2 = 0.999706
Calibration curve: 5.96666e-005 * x^2 + 1.89134 * x + 0.0133884
Response type: Internal Std (Ref 42), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	4.14	73.470	1792.613	0.512	0.3	5.5	NO	1.000	NO	MM
2	2	181119M2_3	Standard	0.500	4.13	99.019	1646.265	0.752	0.4	-21.9	NO	1.000	NO	MM
3	3	181119M2_4	Standard	1.000	4.14	314.149	1933.117	2.031	1.1	6.7	NO	1.000	NO	MM
4	4	181119M2_5	Standard	2.000	4.14	577.442	1833.109	3.938	2.1	3.7	NO	1.000	NO	MM
5	5	181119M2_6	Standard	5.000	4.14	1418.372	1607.918	11.026	5.8	16.4	NO	1.000	NO	MM
6	6	181119M2_7	Standard	10.000	4.14	2588.263	1798.872	17.985	9.5	-5.0	NO	1.000	NO	MM
7	7	181119M2_8	Standard	50.000	4.14	11925.030	1631.419	91.370	48.2	-3.5	NO	1.000	NO	MM
8	8	181119M2_9	Standard	100.000	4.14	29631.146	1946.060	190.328	100.3	0.3	NO	1.000	NO	MM
9	9	181119M2_10	Standard	250.000	4.14	56313.809	1465.594	480.299	251.9	0.8	NO	1.000	NO	MM
10	10	181119M2_11	Standard	500.000	4.14	100537.367	1310.495	958.964	499.2	-0.2	NO	1.000	NO	MM

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Compound name: 6:2 FTS
Coefficient of Determination: R^2 = 0.998047
Calibration curve: -0.00381892 * x^2 + 1.23743 * x + 0.0518006
Response type: Internal Std (Ref 43), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	4.43	164.737	5623.550	0.366	0.3	1.7	NO	0.998	NO	bb
2	2	181119M2_3	Standard	0.500	4.43	263.189	5526.397	0.595	0.4	-12.0	NO	0.998	NO	bb
3	3	181119M2_4	Standard	1.000	4.43	683.353	6134.386	1.392	1.1	8.7	NO	0.998	NO	bb
4	4	181119M2_5	Standard	2.000	4.43	1193.714	5566.914	2.680	2.1	6.9	NO	0.998	NO	bb
5	5	181119M2_6	Standard	5.000	4.43	2996.952	5399.997	6.937	5.7	13.3	NO	0.998	NO	bb
6	6	181119M2_7	Standard	10.000	4.43	5690.258	5814.821	12.232	10.2	1.6	NO	0.998	NO	bb
7	7	181119M2_8	Standard	50.000	4.43	23512.561	5863.651	50.124	47.4	-5.2	NO	0.998	NO	bb
8	8	181119M2_9	Standard	100.000	4.43	56294.121	8119.057	86.670	102.3	2.3	NO	0.998	NO	bb
9	9	181119M2_10	Standard	250.000	4.43	97923.398	7875.905	155.416			NO	0.998	NO	bbXI
10	10	181119M2_11	Standard	500.000	4.43	162323.875	9615.668	211.015			NO	0.998	NO	bbXI

Compound name: L-PFOA
Coefficient of Determination: R^2 = 0.999903
Calibration curve: 3.24421e-005 * x^2 + 1.28147 * x + 0.139843
Response type: Internal Std (Ref 44), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	4.48	923.472	28231.434	0.409	0.2	-16.0	NO	1.000	NO	MM
2	2	181119M2_3	Standard	0.500	4.48	1567.729	26452.445	0.741	0.5	-6.2	NO	1.000	NO	bb
3	3	181119M2_4	Standard	1.000	4.48	3448.797	28819.477	1.496	1.1	5.8	NO	1.000	NO	MM
4	4	181119M2_5	Standard	2.000	4.48	6460.337	27397.867	2.947	2.2	9.5	NO	1.000	NO	bb
5	5	181119M2_6	Standard	5.000	4.48	15221.923	26708.523	7.124	5.4	9.0	NO	1.000	NO	bb
6	6	181119M2_7	Standard	10.000	4.48	28726.775	28259.658	12.707	9.8	-2.0	NO	1.000	NO	bb
7	7	181119M2_8	Standard	50.000	4.48	129551.688	25255.820	64.120	49.9	-0.3	NO	1.000	NO	bb
8	8	181119M2_9	Standard	100.000	4.48	331936.594	32066.238	129.395	100.6	0.6	NO	1.000	NO	bb
9	9	181119M2_10	Standard	250.000	4.48	619136.813	24147.814	320.493	248.4	-0.6	NO	1.000	NO	bb
10	10	181119M2_11	Standard	500.000	4.48	1121107.375	21564.240	649.865	500.7	0.1	NO	1.000	NO	bb

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Compound name: PFHpS
Coefficient of Determination: R^2 = 0.999858
Calibration curve: -5.37984e-005 * x^2 + 0.893106 * x + 0.00719861
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	4.60	63.441	4108.609	0.193	0.2	-16.8	NO	1.000	NO	bb
2	2	181119M2_3	Standard	0.500	4.60	122.033	3827.049	0.399	0.4	-12.4	NO	1.000	NO	bb
3	3	181119M2_4	Standard	1.000	4.59	346.636	4244.481	1.021	1.1	13.5	NO	1.000	NO	bb
4	4	181119M2_5	Standard	2.000	4.59	601.696	4097.844	1.835	2.0	2.4	NO	1.000	NO	bb
5	5	181119M2_6	Standard	5.000	4.59	1564.263	3940.625	4.962	5.5	11.0	NO	1.000	NO	bb
6	6	181119M2_7	Standard	10.000	4.59	2947.437	3978.693	9.260	10.4	3.7	NO	1.000	NO	bb
7	7	181119M2_8	Standard	50.000	4.59	12618.229	3552.762	44.396	49.9	-0.3	NO	1.000	NO	bb
8	8	181119M2_9	Standard	100.000	4.59	32027.629	4565.238	87.694	98.8	-1.2	NO	1.000	NO	bb
9	9	181119M2_10	Standard	250.000	4.60	60000.969	3406.921	220.144	250.3	0.1	NO	1.000	NO	bb
10	10	181119M2_11	Standard	500.000	4.59	103417.281	2983.985	433.218	500.1	0.0	NO	1.000	NO	bb

Compound name: PFNA
Coefficient of Determination: R^2 = 0.999697
Calibration curve: -2.33201e-005 * x^2 + 1.25361 * x + 0.0678484
Response type: Internal Std (Ref 45), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	4.92	778.514	26171.613	0.372	0.2	-3.0	NO	1.000	NO	bb
2	2	181119M2_3	Standard	0.500	4.91	1374.048	25323.861	0.678	0.5	-2.6	NO	1.000	NO	bb
3	3	181119M2_4	Standard	1.000	4.92	2910.551	28203.666	1.290	1.0	-2.5	NO	1.000	NO	db
4	4	181119M2_5	Standard	2.000	4.91	5679.014	25886.408	2.742	2.1	6.7	NO	1.000	NO	bb
5	5	181119M2_6	Standard	5.000	4.91	13372.558	24726.096	6.760	5.3	6.8	NO	1.000	NO	bb
6	6	181119M2_7	Standard	10.000	4.92	25387.781	26153.418	12.134	9.6	-3.7	NO	1.000	NO	bb
7	7	181119M2_8	Standard	50.000	4.91	116764.438	23268.891	62.726	50.0	0.1	NO	1.000	NO	bb
8	8	181119M2_9	Standard	100.000	4.91	293864.031	30350.779	121.028	96.7	-3.3	NO	1.000	NO	bb
9	9	181119M2_10	Standard	250.000	4.92	549408.438	21564.033	318.475	255.2	2.1	NO	1.000	NO	bb
10	10	181119M2_11	Standard	500.000	4.92	961486.125	19427.135	618.649	498.1	-0.4	NO	1.000	NO	bb

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Compound name: PFOSA
Coefficient of Determination: R^2 = 0.999774
Calibration curve: 7.6527e-005 * x^2 + 1.04958 * x + 0.111382
Response type: Internal Std (Ref 46), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	4.95	100.605	4036.926	0.312	0.2	-23.7	NO	1.000	NO	bb
2	2	181119M2_3	Standard	0.500	4.95	186.581	3630.737	0.642	0.5	1.2	NO	1.000	NO	bb
3	3	181119M2_4	Standard	1.000	4.95	412.094	4128.867	1.248	1.1	8.2	NO	1.000	NO	bb
4	4	181119M2_5	Standard	2.000	4.95	764.492	3812.550	2.506	2.3	14.1	NO	1.000	NO	bb
5	5	181119M2_6	Standard	5.000	4.95	1658.937	3633.620	5.707	5.3	6.6	NO	1.000	NO	bb
6	6	181119M2_7	Standard	10.000	4.95	3140.152	3919.324	10.015	9.4	-5.7	NO	1.000	NO	bb
7	7	181119M2_8	Standard	50.000	4.95	15106.321	3666.471	51.502	48.8	-2.4	NO	1.000	NO	bb
8	8	181119M2_9	Standard	100.000	4.95	38967.730	4495.724	108.347	102.4	2.4	NO	1.000	NO	bb
9	9	181119M2_10	Standard	250.000	4.95	72876.633	3432.199	265.415	248.3	-0.7	NO	1.000	NO	bb
10	10	181119M2_11	Standard	500.000	4.96	136178.484	3125.642	544.602	500.5	0.1	NO	1.000	NO	bb

Compound name: L-PFOS
Correlation coefficient: r = 0.999888, r^2 = 0.999775
Calibration curve: 1.06971 * x + -0.0118865
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	5.01	98.798	4108.609	0.301	0.3	16.8	NO	1.000	NO	MM
2	2	181119M2_3	Standard	0.500	5.00	154.144	3827.049	0.503	0.5	-3.6	NO	1.000	NO	MM
3	3	181119M2_4	Standard	1.000	5.00	351.132	4244.481	1.034	1.0	-2.2	NO	1.000	NO	MM
4	4	181119M2_5	Standard	2.000	5.00	617.678	4097.844	1.884	1.8	-11.4	NO	1.000	NO	MM
5	5	181119M2_6	Standard	5.000	5.00	1673.782	3940.625	5.309	5.0	-0.5	NO	1.000	NO	MM
6	6	181119M2_7	Standard	10.000	5.00	3361.532	3978.693	10.561	9.9	-1.2	NO	1.000	NO	MM
7	7	181119M2_8	Standard	50.000	5.00	15116.554	3552.762	53.186	49.7	-0.5	NO	1.000	NO	MM
8	8	181119M2_9	Standard	100.000	5.00	38513.621	4565.238	105.453	98.6	-1.4	NO	1.000	NO	MM
9	9	181119M2_10	Standard	250.000	5.00	71667.461	3406.921	262.948	245.8	-1.7	NO	1.000	NO	MM
10	10	181119M2_11	Standard	500.000	5.00	129266.523	2983.985	541.501	506.2	1.2	NO	1.000	NO	MM

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Compound name: PFDA
Coefficient of Determination: R^2 = 0.999698
Calibration curve: -2.71042e-005 * x^2 + 1.27845 * x + 0.117549
Response type: Internal Std (Ref 48), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	5.30	843.658	27290.563	0.386	0.2	-15.9	NO	1.000	NO	bb
2	2	181119M2_3	Standard	0.500	5.30	1456.008	25857.824	0.704	0.5	-8.3	NO	1.000	NO	bb
3	3	181119M2_4	Standard	1.000	5.30	3318.442	28627.584	1.449	1.0	4.1	NO	1.000	NO	bb
4	4	181119M2_5	Standard	2.000	5.30	6076.232	26005.883	2.921	2.2	9.6	NO	1.000	NO	bb
5	5	181119M2_6	Standard	5.000	5.30	14443.004	25225.010	7.157	5.5	10.1	NO	1.000	NO	bb
6	6	181119M2_7	Standard	10.000	5.30	27237.396	26758.283	12.724	9.9	-1.4	NO	1.000	NO	bb
7	7	181119M2_8	Standard	50.000	5.30	124178.961	23960.344	64.784	50.6	1.3	NO	1.000	NO	bb
8	8	181119M2_9	Standard	100.000	5.30	318462.281	30530.443	130.387	102.1	2.1	NO	1.000	NO	bb
9	9	181119M2_10	Standard	250.000	5.30	584892.563	23513.342	310.937	244.4	-2.2	NO	1.000	NO	bb
10	10	181119M2_11	Standard	500.000	5.30	1010866.000	19883.453	635.494	502.3	0.5	NO	1.000	NO	bb

Compound name: 8:2 FTS
Coefficient of Determination: R^2 = 0.998680
Calibration curve: -0.00498611 * x^2 + 1.49085 * x + 0.00285394
Response type: Internal Std (Ref 49), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	5.27	112.896	4859.266	0.290	0.2	-22.8	NO	0.999	NO	bb
2	2	181119M2_3	Standard	0.500	5.27	297.895	4520.942	0.824	0.6	10.3	NO	0.999	NO	bb
3	3	181119M2_4	Standard	1.000	5.27	654.499	5013.195	1.632	1.1	9.7	NO	0.999	NO	bb
4	4	181119M2_5	Standard	2.000	5.27	1081.621	4858.129	2.783	1.9	-6.2	NO	0.999	NO	bb
5	5	181119M2_6	Standard	5.000	5.26	2833.497	4526.918	7.824	5.3	6.8	NO	0.999	NO	bb
6	6	181119M2_7	Standard	10.000	5.27	5559.701	4607.528	15.083	10.5	4.8	NO	0.999	NO	bb
7	7	181119M2_8	Standard	50.000	5.27	22980.473	4785.341	60.028	48.0	-4.1	NO	0.999	NO	bb
8	8	181119M2_9	Standard	100.000	5.27	51903.652	6477.405	100.163	101.9	1.9	NO	0.999	NO	bb
9	9	181119M2_10	Standard	250.000	5.27	92867.539	7040.150	164.889			NO	0.999	NO	bbXI
10	10	181119M2_11	Standard	500.000	5.27	148515.125	8575.246	216.488			NO	0.999	NO	bbXI

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Compound name: PFNS
Coefficient of Determination: R^2 = 0.999636
Calibration curve: -8.93498e-005 * x^2 + 0.752372 * x + 0.018373
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	0.250	5.36	53.205	4108.609	0.162	0.2	-23.7	NO	1.000	NO	bb
2	2 181119M2_3	Standard	0.500	5.36	140.341	3827.049	0.458	0.6	17.0	NO	1.000	NO	bb
3	3 181119M2_4	Standard	1.000	5.36	314.901	4244.481	0.927	1.2	20.8	NO	1.000	NO	bb
4	4 181119M2_5	Standard	2.000	5.36	468.478	4097.844	1.429	1.9	-6.2	NO	1.000	NO	bb
5	5 181119M2_6	Standard	5.000	5.36	1166.102	3940.625	3.699	4.9	-2.1	NO	1.000	NO	bb
6	6 181119M2_7	Standard	10.000	5.36	2226.909	3978.693	6.996	9.3	-7.2	NO	1.000	NO	bb
7	7 181119M2_8	Standard	50.000	5.36	10975.434	3552.762	38.616	51.6	3.2	NO	1.000	NO	bb
8	8 181119M2_9	Standard	100.000	5.36	26383.539	4565.238	72.240	97.1	-2.9	NO	1.000	NO	bb
9	9 181119M2_10	Standard	250.000	5.36	50368.477	3406.921	184.802	253.2	1.3	NO	1.000	NO	bb
10	10 181119M2_11	Standard	500.000	5.36	84278.570	2983.985	353.045	498.8	-0.2	NO	1.000	NO	bb

Compound name: L-MeFOSAA
Coefficient of Determination: R^2 = 0.999924
Calibration curve: -0.000386461 * x^2 + 2.52617 * x + 0.080661
Response type: Internal Std (Ref 50), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	0.250	5.46	251.995	4628.490	0.681	0.2	-5.0	NO	1.000	NO	MM
2	2 181119M2_3	Standard	0.500	5.45	522.025	4309.020	1.514	0.6	13.5	NO	1.000	NO	MM
3	3 181119M2_4	Standard	1.000	5.46	1056.300	5236.305	2.522	1.0	-3.4	NO	1.000	NO	MM
4	4 181119M2_5	Standard	2.000	5.45	2028.296	4817.466	5.263	2.1	2.6	NO	1.000	NO	MM
5	5 181119M2_6	Standard	5.000	5.45	4627.607	4290.914	13.481	5.3	6.2	NO	1.000	NO	MM
6	6 181119M2_7	Standard	10.000	5.46	9467.222	4749.372	24.917	9.8	-1.5	NO	1.000	NO	MM
7	7 181119M2_8	Standard	50.000	5.45	44396.082	4417.319	125.631	50.1	0.2	NO	1.000	NO	MM
8	8 181119M2_9	Standard	100.000	5.45	107883.500	5373.311	250.971	100.9	0.9	NO	1.000	NO	MM
9	9 181119M2_10	Standard	250.000	5.46	198339.422	4114.792	602.520	247.9	-0.8	NO	1.000	NO	MM
10	10 181119M2_11	Standard	500.000	5.46	347308.156	3715.081	1168.575	500.9	0.2	NO	1.000	NO	MM

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Compound name: L-EtFOSAA
Coefficient of Determination: R^2 = 0.999736
Calibration curve: -0.000106299 * x^2 + 1.4734 * x + -0.0536291
Response type: Internal Std (Ref 52), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	5.61	166.752	7213.673	0.289	0.2	-7.0	NO	1.000	NO	MM
2	2	181119M2_3	Standard	0.500	5.61	364.042	7189.671	0.633	0.5	-6.8	NO	1.000	NO	MM
3	3	181119M2_4	Standard	1.000	5.61	889.373	8072.732	1.377	1.0	-2.9	NO	1.000	NO	MM
4	4	181119M2_5	Standard	2.000	5.61	1828.602	7141.138	3.201	2.2	10.5	NO	1.000	NO	MM
5	5	181119M2_6	Standard	5.000	5.61	4232.383	6697.716	7.899	5.4	8.0	NO	1.000	NO	MM
6	6	181119M2_7	Standard	10.000	5.61	8322.130	7169.415	14.510	9.9	-1.1	NO	1.000	NO	MM
7	7	181119M2_8	Standard	50.000	5.61	37253.289	6243.492	74.584	50.8	1.7	NO	1.000	NO	MM
8	8	181119M2_9	Standard	100.000	5.61	87414.055	7736.290	141.240	96.6	-3.4	NO	1.000	NO	MM
9	9	181119M2_10	Standard	250.000	5.61	158263.875	5402.566	366.178	253.2	1.3	NO	1.000	NO	MM
10	10	181119M2_11	Standard	500.000	5.61	259588.375	4578.734	708.679	499.0	-0.2	NO	1.000	NO	MM

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Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_111918.mdb 20 Nov 2018 11:07:39
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Compound name: PFUdA
Coefficient of Determination: R^2 = 0.999904
Calibration curve: -3.81142e-005 * x^2 + 0.91974 * x + 0.12239
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	5.63	857.003	33161.066	0.323	0.2	-12.7	NO	1.000	NO	bb
2	2	181119M2_3	Standard	0.500	5.62	1367.793	30967.859	0.552	0.5	-6.6	NO	1.000	NO	MM
3	3	181119M2_4	Standard	1.000	5.63	2801.699	34600.328	1.012	1.0	-3.3	NO	1.000	NO	bb
4	4	181119M2_5	Standard	2.000	5.63	5655.261	32182.045	2.197	2.3	12.8	NO	1.000	NO	bb
5	5	181119M2_6	Standard	5.000	5.62	12636.367	31226.184	5.058	5.4	7.4	NO	1.000	NO	bb
6	6	181119M2_7	Standard	10.000	5.62	25010.512	32447.098	9.635	10.3	3.5	NO	1.000	NO	bb
7	7	181119M2_8	Standard	50.000	5.62	111131.367	30282.404	45.873	49.8	-0.3	NO	1.000	NO	bb
8	8	181119M2_9	Standard	100.000	5.62	276373.875	37913.652	91.120	99.3	-0.7	NO	1.000	NO	bb
9	9	181119M2_10	Standard	250.000	5.62	494759.781	27208.760	227.298	249.6	-0.2	NO	1.000	NO	bb
10	10	181119M2_11	Standard	500.000	5.63	869452.938	24109.936	450.775	500.4	0.1	NO	1.000	NO	bb

Compound name: PFDS
Coefficient of Determination: R^2 = 0.999675
Calibration curve: -8.18889e-005 * x^2 + 0.987988 * x + 0.0385595
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	5.68	84.529	4108.609	0.257	0.2	-11.5	NO	1.000	NO	bb
2	2	181119M2_3	Standard	0.500	5.67	165.738	3827.049	0.541	0.5	1.8	NO	1.000	NO	bb
3	3	181119M2_4	Standard	1.000	5.67	357.844	4244.481	1.054	1.0	2.8	NO	1.000	NO	bb
4	4	181119M2_5	Standard	2.000	5.67	723.934	4097.844	2.208	2.2	9.8	NO	1.000	NO	bb
5	5	181119M2_6	Standard	5.000	5.67	1528.886	3940.625	4.850	4.9	-2.6	NO	1.000	NO	bb
6	6	181119M2_7	Standard	10.000	5.67	3015.166	3978.693	9.473	9.6	-4.4	NO	1.000	NO	bb
7	7	181119M2_8	Standard	50.000	5.67	14680.209	3552.762	51.651	52.5	4.9	NO	1.000	NO	bb
8	8	181119M2_9	Standard	100.000	5.67	36073.879	4565.238	98.773	100.8	0.8	NO	1.000	NO	bb
9	9	181119M2_10	Standard	250.000	5.67	64612.719	3406.921	237.064	244.9	-2.0	NO	1.000	NO	bb
10	10	181119M2_11	Standard	500.000	5.68	113535.414	2983.985	475.603	502.3	0.5	NO	1.000	NO	bb

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Compound name: PFDoA
Coefficient of Determination: R^2 = 0.999950
Calibration curve: -0.000162641 * x^2 + 1.1143 * x + 0.0921152
Response type: Internal Std (Ref 53), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	5.92	854.313	31624.697	0.338	0.2	-11.8	NO	1.000	NO	MM
2	2	181119M2_3	Standard	0.500	5.91	1547.885	30269.807	0.639	0.5	-1.8	NO	1.000	NO	bb
3	3	181119M2_4	Standard	1.000	5.91	3270.123	33972.863	1.203	1.0	-0.3	NO	1.000	NO	bb
4	4	181119M2_5	Standard	2.000	5.91	6167.689	30843.951	2.500	2.2	8.1	NO	1.000	NO	bb
5	5	181119M2_6	Standard	5.000	5.91	14275.714	29876.510	5.973	5.3	5.6	NO	1.000	NO	bb
6	6	181119M2_7	Standard	10.000	5.91	27532.816	30415.438	11.315	10.1	0.9	NO	1.000	NO	bb
7	7	181119M2_8	Standard	50.000	5.91	126460.516	28500.293	55.465	50.1	0.1	NO	1.000	NO	bb
8	8	181119M2_9	Standard	100.000	5.91	312687.813	35880.168	108.935	99.1	-0.9	NO	1.000	NO	bb
9	9	181119M2_10	Standard	250.000	5.91	588431.875	27358.664	268.851	250.3	0.1	NO	1.000	NO	bb
10	10	181119M2_11	Standard	500.000	5.91	1009472.375	24426.381	516.589	500.0	0.0	NO	1.000	NO	bb

Compound name: N-MeFOSA
Coefficient of Determination: R^2 = 0.999829
Calibration curve: -3.45213e-005 * x^2 + 1.10576 * x + 0.229354
Response type: Internal Std (Ref 54), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	1.250	5.87	187.147	14716.533	1.908	1.5	21.4	NO	1.000	NO	bb
2	2	181119M2_3	Standard	2.500	5.87	254.778	14225.475	2.686	2.2	-11.1	NO	1.000	NO	bb
3	3	181119M2_4	Standard	5.000	5.87	571.906	14721.434	5.827	5.1	1.3	NO	1.000	NO	bb
4	4	181119M2_5	Standard	10.000	5.87	1079.215	14069.096	11.506	10.2	2.0	NO	1.000	NO	MM
5	5	181119M2_6	Standard	25.000	5.86	2685.258	13369.688	30.127	27.1	8.2	NO	1.000	NO	bb
6	6	181119M2_7	Standard	50.000	5.87	5015.957	13992.553	53.771	48.5	-3.0	NO	1.000	NO	bb
7	7	181119M2_8	Standard	250.000	5.87	23541.771	13301.676	265.475	241.7	-3.3	NO	1.000	NO	bb
8	8	181119M2_9	Standard	500.000	5.87	59920.633	16427.805	547.127	502.5	0.5	NO	1.000	NO	bb
9	9	181119M2_10	Standard	1250.000	5.87	114438.148	12822.527	1338.716	1260.0	0.8	NO	1.000	NO	bb
10	10	181119M2_11	Standard	2500.000	5.87	209546.000	12354.559	2544.154	2494.9	-0.2	NO	1.000	NO	bb

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Compound name: PFTrDA
Coefficient of Determination: R^2 = 0.999868
Calibration curve: -5.63679e-005 * x^2 + 1.12947 * x + 0.111462
Response type: Internal Std (Ref 53), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	6.17	872.553	31624.697	0.345	0.2	-17.3	NO	1.000	NO	MM
2	2	181119M2_3	Standard	0.500	6.16	1608.678	30269.807	0.664	0.5	-2.1	NO	1.000	NO	bb
3	3	181119M2_4	Standard	1.000	6.16	3399.574	33972.863	1.251	1.0	0.9	NO	1.000	NO	bb
4	4	181119M2_5	Standard	2.000	6.17	6293.828	30843.951	2.551	2.2	8.0	NO	1.000	NO	bb
5	5	181119M2_6	Standard	5.000	6.16	14945.619	29876.510	6.253	5.4	8.8	NO	1.000	NO	bb
6	6	181119M2_7	Standard	10.000	6.16	27968.576	30415.438	11.494	10.1	0.8	NO	1.000	NO	bb
7	7	181119M2_8	Standard	50.000	6.16	131051.219	28500.293	57.478	50.9	1.8	NO	1.000	NO	bb
8	8	181119M2_9	Standard	100.000	6.16	323020.906	35880.168	112.535	100.0	0.0	NO	1.000	NO	bb
9	9	181119M2_10	Standard	250.000	6.16	603225.063	27358.664	275.610	247.0	-1.2	NO	1.000	NO	bb
10	10	181119M2_11	Standard	500.000	6.17	1079276.875	24426.381	552.311	501.4	0.3	NO	1.000	NO	bb

Compound name: PFTeDA
Coefficient of Determination: R^2 = 0.999748
Calibration curve: -0.000104949 * x^2 + 1.44062 * x + 0.169939
Response type: Internal Std (Ref 55), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	6.39	768.410	21172.174	0.454	0.2	-21.2	NO	1.000	NO	db
2	2	181119M2_3	Standard	0.500	6.38	1384.319	20377.557	0.849	0.5	-5.7	NO	1.000	NO	bb
3	3	181119M2_4	Standard	1.000	6.38	2873.409	21736.246	1.652	1.0	2.9	NO	1.000	NO	bb
4	4	181119M2_5	Standard	2.000	6.39	5694.235	20898.445	3.406	2.2	12.3	NO	1.000	NO	bb
5	5	181119M2_6	Standard	5.000	6.38	13211.146	20290.688	8.139	5.5	10.7	NO	1.000	NO	bb
6	6	181119M2_7	Standard	10.000	6.38	24907.279	21540.184	14.454	9.9	-0.8	NO	1.000	NO	bb
7	7	181119M2_8	Standard	50.000	6.39	116218.648	19586.178	74.171	51.6	3.1	NO	1.000	NO	bb
8	8	181119M2_9	Standard	100.000	6.39	281550.844	24609.129	143.011	99.9	-0.1	NO	1.000	NO	bb
9	9	181119M2_10	Standard	250.000	6.39	514074.813	18456.822	348.160	246.0	-1.6	NO	1.000	NO	bb
10	10	181119M2_11	Standard	500.000	6.39	910216.750	16327.394	696.848	502.0	0.4	NO	1.000	NO	bb

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Compound name: N-EtFOSA
Coefficient of Determination: R^2 = 0.999708
Calibration curve: -2.13466e-005 * x^2 + 0.817824 * x + 0.372192
Response type: Internal Std (Ref 56), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	1.250	6.38	216.996	26349.342	1.235	1.1	-15.6	NO	1.000	NO	bb
2	2	181119M2_3	Standard	2.500	6.38	372.795	24629.291	2.270	2.3	-7.2	NO	1.000	NO	bb
3	3	181119M2_4	Standard	5.000	6.38	795.194	25927.586	4.600	5.2	3.4	NO	1.000	NO	bb
4	4	181119M2_5	Standard	10.000	6.38	1601.034	25053.615	9.586	11.3	12.7	NO	1.000	NO	bb
5	5	181119M2_6	Standard	25.000	6.38	3603.912	23526.484	22.978	27.7	10.6	NO	1.000	NO	bb
6	6	181119M2_7	Standard	50.000	6.38	6503.048	24278.818	40.177	48.7	-2.5	NO	1.000	NO	bb
7	7	181119M2_8	Standard	250.000	6.38	31493.928	23146.490	204.095	250.7	0.3	NO	1.000	NO	bb
8	8	181119M2_9	Standard	500.000	6.38	77208.961	29545.973	391.977	485.0	-3.0	NO	1.000	NO	bb
9	9	181119M2_10	Standard	1250.000	6.38	143253.984	21416.256	1003.355	1268.4	1.5	NO	1.000	NO	bb
10	10	181119M2_11	Standard	2500.000	6.38	250437.047	19700.666	1906.817	2493.4	-0.3	NO	1.000	NO	bb

Compound name: PFHxDA
Coefficient of Determination: R^2 = 0.999829
Calibration curve: -0.000101772 * x^2 + 0.509003 * x + 0.0746932
Response type: Internal Std (Ref 57), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	0.250	6.73	411.382	11001.170	0.187	0.2	-11.8	NO	1.000	NO	bb
2	2	181119M2_3	Standard	0.500	6.73	627.530	10395.756	0.302	0.4	-10.7	NO	1.000	NO	bb
3	3	181119M2_4	Standard	1.000	6.73	1421.451	11990.450	0.593	1.0	1.8	NO	1.000	NO	bb
4	4	181119M2_5	Standard	2.000	6.73	2596.922	10921.020	1.189	2.2	9.5	NO	1.000	NO	bb
5	5	181119M2_6	Standard	5.000	6.73	5953.040	10474.562	2.842	5.4	8.8	NO	1.000	NO	bb
6	6	181119M2_7	Standard	10.000	6.73	11451.127	10691.082	5.355	10.4	4.0	NO	1.000	NO	bb
7	7	181119M2_8	Standard	50.000	6.73	52150.473	10315.671	25.277	50.0	0.0	NO	1.000	NO	bb
8	8	181119M2_9	Standard	100.000	6.73	126997.086	12986.853	48.894	97.8	-2.2	NO	1.000	NO	bb
9	9	181119M2_10	Standard	250.000	6.73	245571.938	10090.199	121.688	251.6	0.6	NO	1.000	NO	bb
10	10	181119M2_11	Standard	500.000	6.73	434986.156	9498.477	228.977	499.6	-0.1	NO	1.000	NO	bb

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Compound name: PFODA
Coefficient of Determination: R^2 = 0.999792
Calibration curve: -0.000188326 * x^2 + 0.748104 * x + 0.0400274
Response type: Internal Std (Ref 57), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	0.250	6.97	502.109	11001.170	0.228	0.3	0.6	NO	1.000	NO	bb
2	2 181119M2_3	Standard	0.500	6.97	894.711	10395.756	0.430	0.5	4.4	NO	1.000	NO	bb
3	3 181119M2_4	Standard	1.000	6.97	1880.738	11990.450	0.784	1.0	-0.5	NO	1.000	NO	bb
4	4 181119M2_5	Standard	2.000	6.97	3735.649	10921.020	1.710	2.2	11.7	NO	1.000	NO	bb
5	5 181119M2_6	Standard	5.000	6.97	8443.270	10474.562	4.030	5.3	6.8	NO	1.000	NO	bb
6	6 181119M2_7	Standard	10.000	6.97	15968.652	10691.082	7.468	10.0	-0.5	NO	1.000	NO	bb
7	7 181119M2_8	Standard	50.000	6.97	76760.453	10315.671	37.206	50.3	0.6	NO	1.000	NO	bb
8	8 181119M2_9	Standard	100.000	6.97	184513.625	12986.853	71.039	97.3	-2.7	NO	1.000	NO	bb
9	9 181119M2_10	Standard	250.000	6.97	357499.906	10090.199	177.152	252.8	1.1	NO	1.000	NO	bb
10	10 181119M2_11	Standard	500.000	6.97	620141.375	9498.477	326.443	499.0	-0.2	NO	1.000	NO	bb

Compound name: N-MeFOSE
Coefficient of Determination: R^2 = 0.999680
Calibration curve: 1.98083e-006 * x^2 + 0.89799 * x + 0.169793
Response type: Internal Std (Ref 58), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	1.250	6.69	103.039	13267.294	1.165	1.1	-11.3	NO	1.000	NO	MM
2	2 181119M2_3	Standard	2.500	6.69	193.571	12809.141	2.267	2.3	-6.6	NO	1.000	NO	bb
3	3 181119M2_4	Standard	5.000	6.69	468.017	13210.400	5.314	5.7	14.6	NO	1.000	NO	MM
4	4 181119M2_5	Standard	10.000	6.69	847.691	13064.595	9.733	10.6	6.5	NO	1.000	NO	bb
5	5 181119M2_6	Standard	25.000	6.69	1931.868	12425.742	23.321	25.8	3.1	NO	1.000	NO	bb
6	6 181119M2_7	Standard	50.000	6.69	3757.965	12816.330	43.983	48.8	-2.4	NO	1.000	NO	MM
7	7 181119M2_8	Standard	250.000	6.69	17819.732	12440.439	214.861	239.0	-4.4	NO	1.000	NO	bb
8	8 181119M2_9	Standard	500.000	6.69	47787.469	16127.344	444.470	494.2	-1.2	NO	1.000	NO	bb
9	9 181119M2_10	Standard	1250.000	6.69	94955.633	12377.250	1150.768	1277.7	2.2	NO	1.000	NO	bb
10	10 181119M2_11	Standard	2500.000	6.69	185390.609	12375.545	2247.060	2488.5	-0.5	NO	1.000	NO	bb

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Compound name: N-EtFOSE
Coefficient of Determination: R^2 = 0.999917
Calibration curve: -8.62216e-006 * x^2 + 1.10568 * x + 0.172062
Response type: Internal Std (Ref 59), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	1.250	6.84	130.487	13020.559	1.503	1.2	-3.7	NO	1.000	NO	bb
2	2	181119M2_3	Standard	2.500	6.83	240.638	12684.013	2.846	2.4	-3.3	NO	1.000	NO	bb
3	3	181119M2_4	Standard	5.000	6.83	556.560	13616.445	6.131	5.4	7.8	NO	1.000	NO	bb
4	4	181119M2_5	Standard	10.000	6.84	969.538	13198.563	11.019	9.8	-1.9	NO	1.000	NO	bb
5	5	181119M2_6	Standard	25.000	6.83	2336.107	12083.847	28.999	26.1	4.3	NO	1.000	NO	MM
6	6	181119M2_7	Standard	50.000	6.83	4607.524	12633.202	54.707	49.3	-1.3	NO	1.000	NO	bb
7	7	181119M2_8	Standard	250.000	6.84	21125.365	11788.857	268.797	243.4	-2.6	NO	1.000	NO	bb
8	8	181119M2_9	Standard	500.000	6.84	57284.172	15594.405	551.007	500.1	0.0	NO	1.000	NO	bb
9	9	181119M2_10	Standard	1250.000	6.83	113198.852	12299.542	1380.525	1260.8	0.9	NO	1.000	NO	bb
10	10	181119M2_11	Standard	2500.000	6.84	214771.906	11908.335	2705.314	2495.1	-0.2	NO	1.000	NO	bb

Compound name: 13C3-PFBA
Response Factor: 0.780139
RRF SD: 0.0108022, Relative SD: 1.38465
Response type: Internal Std (Ref 60), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	12.500	1.18	7922.372	10214.163	9.695	12.4	-0.6	NO		NO	bb
2	2	181119M2_3	Standard	12.500	1.18	7014.210	8904.677	9.846	12.6	1.0	NO		NO	bb
3	3	181119M2_4	Standard	12.500	1.18	7707.828	9973.924	9.660	12.4	-0.9	NO		NO	MM
4	4	181119M2_5	Standard	12.500	1.18	7705.931	10174.105	9.468	12.1	-2.9	NO		NO	bb
5	5	181119M2_6	Standard	12.500	1.18	7763.416	10032.227	9.673	12.4	-0.8	NO		NO	bb
6	6	181119M2_7	Standard	12.500	1.18	7566.665	9720.454	9.730	12.5	-0.2	NO		NO	bb
7	7	181119M2_8	Standard	12.500	1.18	7999.171	10085.070	9.915	12.7	1.7	NO		NO	bb
8	8	181119M2_9	Standard	12.500	1.18	9901.624	12610.282	9.815	12.6	0.6	NO		NO	bb
9	9	181119M2_10	Standard	12.500	1.17	7713.829	9821.668	9.817	12.6	0.7	NO		NO	bb
10	10	181119M2_11	Standard	12.500	1.18	7558.623	9545.869	9.898	12.7	1.5	NO		NO	MM

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Compound name: 13C3-PFPeA
Response Factor: 0.523408
RRF SD: 0.0422452, Relative SD: 8.07118
Response type: Internal Std (Ref 61), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	12.500	2.40	15865.156	31577.043	6.280	12.0	-4.0	NO		NO	MM
2	2	181119M2_3	Standard	12.500	2.40	13568.036	29049.188	5.838	11.2	-10.8	NO		NO	MM
3	3	181119M2_4	Standard	12.500	2.40	15828.560	32754.859	6.041	11.5	-7.7	NO		NO	MM
4	4	181119M2_5	Standard	12.500	2.40	15342.569	31986.332	5.996	11.5	-8.4	NO		NO	MM
5	5	181119M2_6	Standard	12.500	2.40	15479.487	29222.686	6.621	12.7	1.2	NO		NO	bb
6	6	181119M2_7	Standard	12.500	2.40	15429.634	30117.441	6.404	12.2	-2.1	NO		NO	MM
7	7	181119M2_8	Standard	12.500	2.40	15535.887	27874.125	6.967	13.3	6.5	NO		NO	bb
8	8	181119M2_9	Standard	12.500	2.40	19373.652	35903.074	6.745	12.9	3.1	NO		NO	MM
9	9	181119M2_10	Standard	12.500	2.40	15129.592	26844.322	7.045	13.5	7.7	NO		NO	bb
10	10	181119M2_11	Standard	12.500	2.40	14302.896	23874.543	7.489	14.3	14.5	NO		NO	bb

Compound name: 13C3-PFBS
Response Factor: 0.538719
RRF SD: 0.0224353, Relative SD: 4.16457
Response type: Internal Std (Ref 62), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	12.500	2.75	1980.035	3630.358	6.818	12.7	1.2	NO		NO	MM
2	2	181119M2_3	Standard	12.500	2.75	1777.388	3431.369	6.475	12.0	-3.8	NO		NO	MM
3	3	181119M2_4	Standard	12.500	2.75	1967.175	3870.605	6.353	11.8	-5.7	NO		NO	bb
4	4	181119M2_5	Standard	12.500	2.75	1950.016	3801.275	6.412	11.9	-4.8	NO		NO	MM
5	5	181119M2_6	Standard	12.500	2.75	1881.051	3470.908	6.774	12.6	0.6	NO		NO	bb
6	6	181119M2_7	Standard	12.500	2.75	1935.022	3672.713	6.586	12.2	-2.2	NO		NO	bb
7	7	181119M2_8	Standard	12.500	2.75	1880.698	3410.166	6.894	12.8	2.4	NO		NO	bb
8	8	181119M2_9	Standard	12.500	2.75	2351.786	4067.239	7.228	13.4	7.3	NO		NO	bb
9	9	181119M2_10	Standard	12.500	2.75	1702.650	3146.183	6.765	12.6	0.5	NO		NO	bb
10	10	181119M2_11	Standard	12.500	2.75	1573.776	2796.026	7.036	13.1	4.5	NO		NO	bb

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Compound name: 13C2-4:2 FTS
Response Factor: 1.53389
RRF SD: 0.130563, Relative SD: 8.5119
Response type: Internal Std (Ref 62), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	12.500	3.23	5344.524	3630.358	18.402	12.0	-4.0	NO		NO	bb
2	2 181119M2_3	Standard	12.500	3.23	5264.625	3431.369	19.178	12.5	0.0	NO		NO	bb
3	3 181119M2_4	Standard	12.500	3.23	5620.198	3870.605	18.150	11.8	-5.3	NO		NO	bb
4	4 181119M2_5	Standard	12.500	3.23	5300.505	3801.275	17.430	11.4	-9.1	NO		NO	bb
5	5 181119M2_6	Standard	12.500	3.23	5276.321	3470.908	19.002	12.4	-0.9	NO		NO	bb
6	6 181119M2_7	Standard	12.500	3.23	5410.559	3672.713	18.415	12.0	-4.0	NO		NO	bb
7	7 181119M2_8	Standard	12.500	3.23	5484.480	3410.166	20.103	13.1	4.8	NO		NO	bb
8	8 181119M2_9	Standard	12.500	3.23	7388.735	4067.239	22.708	14.8	18.4	NO		NO	bb
9	9 181119M2_10	Standard	12.500	3.23	6923.139	3146.183	27.506	17.9	43.5	NO		NO	bbX
10	10 181119M2_11	Standard	12.500	3.23	8616.051	2796.026	38.519	25.1	100.9	NO		NO	bbX

Compound name: 13C2-PFHxA
Response Factor: 0.964352
RRF SD: 0.0284266, Relative SD: 2.94775
Response type: Internal Std (Ref 61), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	5.000	3.32	11966.714	31577.043	4.737	4.9	-1.8	NO		NO	bb
2	2 181119M2_3	Standard	5.000	3.32	11083.603	29049.188	4.769	4.9	-1.1	NO		NO	bb
3	3 181119M2_4	Standard	5.000	3.32	12586.650	32754.859	4.803	5.0	-0.4	NO		NO	bb
4	4 181119M2_5	Standard	5.000	3.32	11859.864	31986.332	4.635	4.8	-3.9	NO		NO	bb
5	5 181119M2_6	Standard	5.000	3.32	11046.164	29222.686	4.725	4.9	-2.0	NO		NO	bb
6	6 181119M2_7	Standard	5.000	3.32	11606.128	30117.441	4.817	5.0	-0.1	NO		NO	bb
7	7 181119M2_8	Standard	5.000	3.32	10716.891	27874.125	4.806	5.0	-0.3	NO		NO	bb
8	8 181119M2_9	Standard	5.000	3.32	13760.684	35903.074	4.791	5.0	-0.6	NO		NO	bb
9	9 181119M2_10	Standard	5.000	3.32	10768.104	26844.322	5.014	5.2	4.0	NO		NO	bb
10	10 181119M2_11	Standard	5.000	3.32	9779.139	23874.543	5.120	5.3	6.2	NO		NO	bb

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Compound name: 13C4-PFHpA
Response Factor: 0.481905
RRF SD: 0.00947565, Relative SD: 1.96629
Response type: Internal Std (Ref 61), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	12.500	3.99	15212.078	31577.043	6.022	12.5	-0.0	NO		NO	bb
2	2 181119M2_3	Standard	12.500	3.99	14174.076	29049.188	6.099	12.7	1.3	NO		NO	bb
3	3 181119M2_4	Standard	12.500	3.99	16138.139	32754.859	6.159	12.8	2.2	NO		NO	bb
4	4 181119M2_5	Standard	12.500	3.99	14762.115	31986.332	5.769	12.0	-4.2	NO		NO	bb
5	5 181119M2_6	Standard	12.500	4.00	14129.451	29222.686	6.044	12.5	0.3	NO		NO	bb
6	6 181119M2_7	Standard	12.500	4.00	14815.835	30117.441	6.149	12.8	2.1	NO		NO	bb
7	7 181119M2_8	Standard	12.500	3.99	13622.270	27874.125	6.109	12.7	1.4	NO		NO	bb
8	8 181119M2_9	Standard	12.500	3.99	17237.354	35903.074	6.001	12.5	-0.4	NO		NO	bb
9	9 181119M2_10	Standard	12.500	4.00	12727.545	26844.322	5.927	12.3	-1.6	NO		NO	bb
10	10 181119M2_11	Standard	12.500	4.00	11382.896	23874.543	5.960	12.4	-1.1	NO		NO	bb

Compound name: 18O2-PFHxS
Response Factor: 0.479968
RRF SD: 0.0119368, Relative SD: 2.48701
Response type: Internal Std (Ref 62), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	12.500	4.14	1792.613	3630.358	6.172	12.9	2.9	NO		NO	bb
2	2 181119M2_3	Standard	12.500	4.13	1646.265	3431.369	5.997	12.5	-0.0	NO		NO	bb
3	3 181119M2_4	Standard	12.500	4.14	1933.117	3870.605	6.243	13.0	4.1	NO		NO	bb
4	4 181119M2_5	Standard	12.500	4.14	1833.109	3801.275	6.028	12.6	0.5	NO		NO	bb
5	5 181119M2_6	Standard	12.500	4.14	1607.918	3470.908	5.791	12.1	-3.5	NO		NO	bb
6	6 181119M2_7	Standard	12.500	4.14	1798.872	3672.713	6.122	12.8	2.0	NO		NO	bb
7	7 181119M2_8	Standard	12.500	4.14	1631.419	3410.166	5.980	12.5	-0.3	NO		NO	bb
8	8 181119M2_9	Standard	12.500	4.14	1946.060	4067.239	5.981	12.5	-0.3	NO		NO	bb
9	9 181119M2_10	Standard	12.500	4.14	1465.594	3146.183	5.823	12.1	-2.9	NO		NO	bb
10	10 181119M2_11	Standard	12.500	4.14	1310.495	2796.026	5.859	12.2	-2.3	NO		NO	bb

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Compound name: 13C2-6:2 FTS
Response Factor: 1.53589
RRF SD: 0.164823, Relative SD: 10.7314
Response type: Internal Std (Ref 65), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	12.500	4.43	5623.550	3843.607	18.289	11.9	-4.7	NO		NO	bb
2	2 181119M2_3	Standard	12.500	4.43	5526.397	3744.634	18.448	12.0	-3.9	NO		NO	bb
3	3 181119M2_4	Standard	12.500	4.43	6134.386	4035.006	19.004	12.4	-1.0	NO		NO	bb
4	4 181119M2_5	Standard	12.500	4.43	5566.914	3884.763	17.913	11.7	-6.7	NO		NO	bb
5	5 181119M2_6	Standard	12.500	4.43	5399.997	3863.451	17.471	11.4	-9.0	NO		NO	bb
6	6 181119M2_7	Standard	12.500	4.43	5814.821	3992.555	18.205	11.9	-5.2	NO		NO	bb
7	7 181119M2_8	Standard	12.500	4.43	5863.651	3579.661	20.476	13.3	6.7	NO		NO	bb
8	8 181119M2_9	Standard	12.500	4.43	8119.057	4267.014	23.784	15.5	23.9	NO		NO	bb
9	9 181119M2_10	Standard	12.500	4.43	7875.905	3212.936	30.641	20.0	59.6	NO		NO	bbX
10	10 181119M2_11	Standard	12.500	4.43	9615.668	2976.162	40.386	26.3	110.4	NO		NO	bbX

Compound name: 13C2-PFOA
Response Factor: 0.754837
RRF SD: 0.0160286, Relative SD: 2.12346
Response type: Internal Std (Ref 63), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	12.500	4.48	28231.434	36963.355	9.547	12.6	1.2	NO		NO	bb
2	2 181119M2_3	Standard	12.500	4.48	26452.445	35655.656	9.274	12.3	-1.7	NO		NO	bb
3	3 181119M2_4	Standard	12.500	4.48	28819.477	38708.566	9.307	12.3	-1.4	NO		NO	bb
4	4 181119M2_5	Standard	12.500	4.48	27397.867	36743.945	9.321	12.3	-1.2	NO		NO	bb
5	5 181119M2_6	Standard	12.500	4.48	26708.523	34087.332	9.794	13.0	3.8	NO		NO	bb
6	6 181119M2_7	Standard	12.500	4.48	28259.658	37075.613	9.528	12.6	1.0	NO		NO	bb
7	7 181119M2_8	Standard	12.500	4.48	25255.820	34641.109	9.113	12.1	-3.4	NO		NO	bb
8	8 181119M2_9	Standard	12.500	4.48	32066.238	42997.430	9.322	12.3	-1.2	NO		NO	bb
9	9 181119M2_10	Standard	12.500	4.48	24147.814	31563.273	9.563	12.7	1.4	NO		NO	bb
10	10 181119M2_11	Standard	12.500	4.48	21564.240	28118.881	9.586	12.7	1.6	NO		NO	bb

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Compound name: 13C5-PFNA
Response Factor: 0.991938
RRF SD: 0.0193176, Relative SD: 1.94746
Response type: Internal Std (Ref 64), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	12.500	4.92	26171.613	26543.949	12.325	12.4	-0.6	NO		NO	bb
2	2 181119M2_3	Standard	12.500	4.91	25323.861	25402.279	12.461	12.6	0.5	NO		NO	bb
3	3 181119M2_4	Standard	12.500	4.91	28203.666	27779.146	12.691	12.8	2.4	NO		NO	bb
4	4 181119M2_5	Standard	12.500	4.91	25886.408	26523.551	12.200	12.3	-1.6	NO		NO	bb
5	5 181119M2_6	Standard	12.500	4.91	24726.096	24571.891	12.578	12.7	1.4	NO		NO	bb
6	6 181119M2_7	Standard	12.500	4.92	26153.418	26232.998	12.462	12.6	0.5	NO		NO	bb
7	7 181119M2_8	Standard	12.500	4.91	23268.891	23664.459	12.291	12.4	-0.9	NO		NO	bb
8	8 181119M2_9	Standard	12.500	4.91	30350.779	29651.377	12.795	12.9	3.2	NO		NO	bb
9	9 181119M2_10	Standard	12.500	4.92	21564.033	22311.814	12.081	12.2	-2.6	NO		NO	bb
10	10 181119M2_11	Standard	12.500	4.91	19427.135	20056.293	12.108	12.2	-2.3	NO		NO	bb

Compound name: 13C8-PFOSA
Response Factor: 0.112275
RRF SD: 0.00628235, Relative SD: 5.59548
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	12.500	4.96	4036.926	36370.602	1.387	12.4	-1.1	NO		NO	bb
2	2 181119M2_3	Standard	12.500	4.95	3630.737	33962.305	1.336	11.9	-4.8	NO		NO	bb
3	3 181119M2_4	Standard	12.500	4.96	4128.867	38463.867	1.342	12.0	-4.4	NO		NO	bb
4	4 181119M2_5	Standard	12.500	4.96	3812.550	35754.637	1.333	11.9	-5.0	NO		NO	bb
5	5 181119M2_6	Standard	12.500	4.95	3633.620	33911.098	1.339	11.9	-4.6	NO		NO	bb
6	6 181119M2_7	Standard	12.500	4.96	3919.324	34904.867	1.404	12.5	0.0	NO		NO	bb
7	7 181119M2_8	Standard	12.500	4.96	3666.471	32655.039	1.403	12.5	0.0	NO		NO	bb
8	8 181119M2_9	Standard	12.500	4.96	4495.724	39339.617	1.428	12.7	1.8	NO		NO	bb
9	9 181119M2_10	Standard	12.500	4.96	3432.199	28971.465	1.481	13.2	5.5	NO		NO	bb
10	10 181119M2_11	Standard	12.500	4.96	3125.642	24725.277	1.580	14.1	12.6	NO		NO	bb

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Compound name: 13C8-PFOS
Response Factor: 1.03396
RRF SD: 0.0305741, Relative SD: 2.95699
Response type: Internal Std (Ref 65), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	12.500	5.00	4108.609	3843.607	13.362	12.9	3.4	NO		NO	bb
2	2 181119M2_3	Standard	12.500	5.00	3827.049	3744.634	12.775	12.4	-1.2	NO		NO	bb
3	3 181119M2_4	Standard	12.500	5.00	4244.481	4035.006	13.149	12.7	1.7	NO		NO	bb
4	4 181119M2_5	Standard	12.500	5.00	4097.844	3884.763	13.186	12.8	2.0	NO		NO	bb
5	5 181119M2_6	Standard	12.500	5.00	3940.625	3863.451	12.750	12.3	-1.4	NO		NO	bb
6	6 181119M2_7	Standard	12.500	5.00	3978.693	3992.555	12.457	12.0	-3.6	NO		NO	bb
7	7 181119M2_8	Standard	12.500	5.00	3552.762	3579.661	12.406	12.0	-4.0	NO		NO	bb
8	8 181119M2_9	Standard	12.500	5.00	4565.238	4267.014	13.374	12.9	3.5	NO		NO	bb
9	9 181119M2_10	Standard	12.500	5.00	3406.921	3212.936	13.255	12.8	2.6	NO		NO	bb
10	10 181119M2_11	Standard	12.500	5.00	2983.985	2976.162	12.533	12.1	-3.0	NO		NO	bb

Compound name: 13C2-PFDA
Response Factor: 0.832354
RRF SD: 0.0225955, Relative SD: 2.71466
Response type: Internal Std (Ref 66), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	12.500	5.30	27290.563	32499.664	10.496	12.6	0.9	NO		NO	bb
2	2 181119M2_3	Standard	12.500	5.30	25857.824	30424.650	10.624	12.8	2.1	NO		NO	bb
3	3 181119M2_4	Standard	12.500	5.30	28627.584	34728.922	10.304	12.4	-1.0	NO		NO	bb
4	4 181119M2_5	Standard	12.500	5.30	26005.883	33468.051	9.713	11.7	-6.6	NO		NO	bb
5	5 181119M2_6	Standard	12.500	5.30	25225.010	30300.555	10.406	12.5	0.0	NO		NO	bb
6	6 181119M2_7	Standard	12.500	5.30	26758.283	31155.236	10.736	12.9	3.2	NO		NO	bb
7	7 181119M2_8	Standard	12.500	5.30	23960.344	29050.506	10.310	12.4	-0.9	NO		NO	bb
8	8 181119M2_9	Standard	12.500	5.30	30530.443	36924.023	10.336	12.4	-0.7	NO		NO	bb
9	9 181119M2_10	Standard	12.500	5.30	23513.342	27767.018	10.585	12.7	1.7	NO		NO	bb
10	10 181119M2_11	Standard	12.500	5.30	19883.453	23592.779	10.535	12.7	1.3	NO		NO	bb

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Compound name: 13C2-8:2 FTS
Response Factor: 1.26814
RRF SD: 0.115978, Relative SD: 9.14554
Response type: Internal Std (Ref 65), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	12.500	5.27	4859.266	3843.607	15.803	12.5	-0.3	NO		NO	bb
2	2 181119M2_3	Standard	12.500	5.26	4520.942	3744.634	15.091	11.9	-4.8	NO		NO	bb
3	3 181119M2_4	Standard	12.500	5.27	5013.195	4035.006	15.530	12.2	-2.0	NO		NO	bb
4	4 181119M2_5	Standard	12.500	5.27	4858.129	3884.763	15.632	12.3	-1.4	NO		NO	bb
5	5 181119M2_6	Standard	12.500	5.26	4526.918	3863.451	14.647	11.5	-7.6	NO		NO	bb
6	6 181119M2_7	Standard	12.500	5.27	4607.528	3992.555	14.425	11.4	-9.0	NO		NO	bb
7	7 181119M2_8	Standard	12.500	5.27	4785.341	3579.661	16.710	13.2	5.4	NO		NO	bb
8	8 181119M2_9	Standard	12.500	5.26	6477.405	4267.014	18.975	15.0	19.7	NO		NO	bb
9	9 181119M2_10	Standard	12.500	5.27	7040.150	3212.936	27.390	21.6	72.8	NO		NO	bbX
10	10 181119M2_11	Standard	12.500	5.27	8575.246	2976.162	36.016	28.4	127.2	NO		NO	bbX

Compound name: d3-N-MeFOSAA
Response Factor: 0.135175
RRF SD: 0.00733689, Relative SD: 5.42769
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	12.500	5.45	4628.490	36370.602	1.591	11.8	-5.9	NO		NO	bb
2	2 181119M2_3	Standard	12.500	5.45	4309.020	33962.305	1.586	11.7	-6.1	NO		NO	bb
3	3 181119M2_4	Standard	12.500	5.45	5236.305	38463.867	1.702	12.6	0.7	NO		NO	bb
4	4 181119M2_5	Standard	12.500	5.45	4817.466	35754.637	1.684	12.5	-0.3	NO		NO	bb
5	5 181119M2_6	Standard	12.500	5.45	4290.914	33911.098	1.582	11.7	-6.4	NO		NO	bb
6	6 181119M2_7	Standard	12.500	5.45	4749.372	34904.867	1.701	12.6	0.7	NO		NO	bb
7	7 181119M2_8	Standard	12.500	5.45	4417.319	32655.039	1.691	12.5	0.1	NO		NO	bb
8	8 181119M2_9	Standard	12.500	5.45	5373.311	39339.617	1.707	12.6	1.0	NO		NO	bb
9	9 181119M2_10	Standard	12.500	5.45	4114.792	28971.465	1.775	13.1	5.1	NO		NO	bb
10	10 181119M2_11	Standard	12.500	5.45	3715.081	24725.277	1.878	13.9	11.2	NO		NO	bb

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Compound name: 13C2-PFUdA
Response Factor: 0.9279
RRF SD: 0.0253656, Relative SD: 2.73366
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	12.500	5.63	33161.066	36370.602	11.397	12.3	-1.7	NO		NO	bb
2	2 181119M2_3	Standard	12.500	5.63	30967.859	33962.305	11.398	12.3	-1.7	NO		NO	bb
3	3 181119M2_4	Standard	12.500	5.63	34600.328	38463.867	11.244	12.1	-3.1	NO		NO	bb
4	4 181119M2_5	Standard	12.500	5.63	32182.045	35754.637	11.251	12.1	-3.0	NO		NO	bb
5	5 181119M2_6	Standard	12.500	5.63	31226.184	33911.098	11.510	12.4	-0.8	NO		NO	bb
6	6 181119M2_7	Standard	12.500	5.63	32447.098	34904.867	11.620	12.5	0.2	NO		NO	bb
7	7 181119M2_8	Standard	12.500	5.63	30282.404	32655.039	11.592	12.5	-0.1	NO		NO	bb
8	8 181119M2_9	Standard	12.500	5.63	37913.652	39339.617	12.047	13.0	3.9	NO		NO	bb
9	9 181119M2_10	Standard	12.500	5.63	27208.760	28971.465	11.739	12.7	1.2	NO		NO	bb
10	10 181119M2_11	Standard	12.500	5.63	24109.936	24725.277	12.189	13.1	5.1	NO		NO	bb

Compound name: d5-N-EtFOSAA
Response Factor: 0.198206
RRF SD: 0.00901487, Relative SD: 4.54824
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	12.500	5.61	7213.673	36370.602	2.479	12.5	0.1	NO		NO	bb
2	2 181119M2_3	Standard	12.500	5.61	7189.671	33962.305	2.646	13.4	6.8	NO		NO	bb
3	3 181119M2_4	Standard	12.500	5.61	8072.732	38463.867	2.623	13.2	5.9	NO		NO	bb
4	4 181119M2_5	Standard	12.500	5.61	7141.138	35754.637	2.497	12.6	0.8	NO		NO	bb
5	5 181119M2_6	Standard	12.500	5.61	6697.716	33911.098	2.469	12.5	-0.4	NO		NO	bb
6	6 181119M2_7	Standard	12.500	5.61	7169.415	34904.867	2.567	13.0	3.6	NO		NO	bb
7	7 181119M2_8	Standard	12.500	5.61	6243.492	32655.039	2.390	12.1	-3.5	NO		NO	MM
8	8 181119M2_9	Standard	12.500	5.61	7736.290	39339.617	2.458	12.4	-0.8	NO		NO	bb
9	9 181119M2_10	Standard	12.500	5.61	5402.566	28971.465	2.331	11.8	-5.9	NO		NO	bb
10	10 181119M2_11	Standard	12.500	5.61	4578.734	24725.277	2.315	11.7	-6.6	NO		NO	bb

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Compound name: 13C2-PFDoA
Response Factor: 0.980349
RRF SD: 0.0276743, Relative SD: 2.8229
Response type: Internal Std (Ref 66), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	12.500	5.92	31624.697	32499.664	12.163	12.4	-0.7	NO		NO	bb
2	2	181119M2_3	Standard	12.500	5.91	30269.807	30424.650	12.436	12.7	1.5	NO		NO	bb
3	3	181119M2_4	Standard	12.500	5.91	33972.863	34728.922	12.228	12.5	-0.2	NO		NO	bb
4	4	181119M2_5	Standard	12.500	5.91	30843.951	33468.051	11.520	11.8	-6.0	NO		NO	bb
5	5	181119M2_6	Standard	12.500	5.91	29876.510	30300.555	12.325	12.6	0.6	NO		NO	bb
6	6	181119M2_7	Standard	12.500	5.91	30415.438	31155.236	12.203	12.4	-0.4	NO		NO	bb
7	7	181119M2_8	Standard	12.500	5.91	28500.293	29050.506	12.263	12.5	0.1	NO		NO	bb
8	8	181119M2_9	Standard	12.500	5.91	35880.168	36924.023	12.147	12.4	-0.9	NO		NO	bb
9	9	181119M2_10	Standard	12.500	5.91	27358.664	27767.018	12.316	12.6	0.5	NO		NO	bb
10	10	181119M2_11	Standard	12.500	5.91	24426.381	23592.779	12.942	13.2	5.6	NO		NO	bb

Compound name: d3-N-MeFOSA
Response Factor: 0.0346837
RRF SD: 0.0028106, Relative SD: 8.10354
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	150.000	5.90	14716.533	36370.602	5.058	145.8	-2.8	NO		NO	bb
2	2	181119M2_3	Standard	150.000	5.90	14225.475	33962.305	5.236	151.0	0.6	NO		NO	MM
3	3	181119M2_4	Standard	150.000	5.90	14721.434	38463.867	4.784	137.9	-8.0	NO		NO	bb
4	4	181119M2_5	Standard	150.000	5.90	14069.096	35754.637	4.919	141.8	-5.5	NO		NO	bb
5	5	181119M2_6	Standard	150.000	5.90	13369.688	33911.098	4.928	142.1	-5.3	NO		NO	bb
6	6	181119M2_7	Standard	150.000	5.90	13992.553	34904.867	5.011	144.5	-3.7	NO		NO	bb
7	7	181119M2_8	Standard	150.000	5.90	13301.676	32655.039	5.092	146.8	-2.1	NO		NO	bb
8	8	181119M2_9	Standard	150.000	5.90	16427.805	39339.617	5.220	150.5	0.3	NO		NO	bb
9	9	181119M2_10	Standard	150.000	5.90	12822.527	28971.465	5.532	159.5	6.3	NO		NO	MM
10	10	181119M2_11	Standard	150.000	5.90	12354.559	24725.277	6.246	180.1	20.1	NO		NO	bb

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Compound name: 13C2-PFTeDA
Response Factor: 0.606996
RRF SD: 0.0283884, Relative SD: 4.67687
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	12.500	6.39	21172.174	36370.602	7.277	12.0	-4.1	NO		NO	bb
2	2	181119M2_3	Standard	12.500	6.38	20377.557	33962.305	7.500	12.4	-1.2	NO		NO	bb
3	3	181119M2_4	Standard	12.500	6.38	21736.246	38463.867	7.064	11.6	-6.9	NO		NO	bb
4	4	181119M2_5	Standard	12.500	6.39	20898.445	35754.637	7.306	12.0	-3.7	NO		NO	bb
5	5	181119M2_6	Standard	12.500	6.38	20290.688	33911.098	7.479	12.3	-1.4	NO		NO	bb
6	6	181119M2_7	Standard	12.500	6.38	21540.184	34904.867	7.714	12.7	1.7	NO		NO	bb
7	7	181119M2_8	Standard	12.500	6.39	19586.178	32655.039	7.497	12.4	-1.2	NO		NO	bb
8	8	181119M2_9	Standard	12.500	6.39	24609.129	39339.617	7.819	12.9	3.1	NO		NO	bb
9	9	181119M2_10	Standard	12.500	6.38	18456.822	28971.465	7.963	13.1	5.0	NO		NO	bb
10	10	181119M2_11	Standard	12.500	6.39	16327.394	24725.277	8.254	13.6	8.8	NO		NO	bb

Compound name: d5-N-ETFOSA
Response Factor: 0.0600805
RRF SD: 0.00293414, Relative SD: 4.88368
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	150.000	6.41	26349.342	36370.602	9.056	150.7	0.5	NO		NO	bb
2	2	181119M2_3	Standard	150.000	6.40	24629.291	33962.305	9.065	150.9	0.6	NO		NO	bb
3	3	181119M2_4	Standard	150.000	6.40	25927.586	38463.867	8.426	140.2	-6.5	NO		NO	bb
4	4	181119M2_5	Standard	150.000	6.40	25053.615	35754.637	8.759	145.8	-2.8	NO		NO	bb
5	5	181119M2_6	Standard	150.000	6.40	23526.484	33911.098	8.672	144.3	-3.8	NO		NO	bb
6	6	181119M2_7	Standard	150.000	6.40	24278.818	34904.867	8.695	144.7	-3.5	NO		NO	bb
7	7	181119M2_8	Standard	150.000	6.40	23146.490	32655.039	8.860	147.5	-1.7	NO		NO	bb
8	8	181119M2_9	Standard	150.000	6.40	29545.973	39339.617	9.388	156.3	4.2	NO		NO	bb
9	9	181119M2_10	Standard	150.000	6.40	21416.256	28971.465	9.240	153.8	2.5	NO		NO	bb
10	10	181119M2_11	Standard	150.000	6.40	19700.666	24725.277	9.960	165.8	10.5	NO		NO	bb

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Compound name: 13C2-PFHxDA
Response Factor: 0.804846
RRF SD: 0.0650334, Relative SD: 8.08023
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	5.000	6.73	11001.170	36370.602	3.781	4.7	-6.0	NO		NO	bb
2	2 181119M2_3	Standard	5.000	6.73	10395.756	33962.305	3.826	4.8	-4.9	NO		NO	bb
3	3 181119M2_4	Standard	5.000	6.72	11990.450	38463.867	3.897	4.8	-3.2	NO		NO	bb
4	4 181119M2_5	Standard	5.000	6.73	10921.020	35754.637	3.818	4.7	-5.1	NO		NO	bb
5	5 181119M2_6	Standard	5.000	6.72	10474.562	33911.098	3.861	4.8	-4.1	NO		NO	bb
6	6 181119M2_7	Standard	5.000	6.72	10691.082	34904.867	3.829	4.8	-4.9	NO		NO	bb
7	7 181119M2_8	Standard	5.000	6.73	10315.671	32655.039	3.949	4.9	-1.9	NO		NO	bb
8	8 181119M2_9	Standard	5.000	6.73	12986.853	39339.617	4.127	5.1	2.5	NO		NO	bb
9	9 181119M2_10	Standard	5.000	6.73	10090.199	28971.465	4.354	5.4	8.2	NO		NO	bb
10	10 181119M2_11	Standard	5.000	6.73	9498.477	24725.277	4.802	6.0	19.3	NO		NO	bb

Compound name: d7-N-MeFOSE
Response Factor: 0.0325254
RRF SD: 0.00380154, Relative SD: 11.6879
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	150.000	6.68	13267.294	36370.602	4.560	140.2	-6.5	NO		NO	bb
2	2 181119M2_3	Standard	150.000	6.68	12809.141	33962.305	4.714	144.9	-3.4	NO		NO	bb
3	3 181119M2_4	Standard	150.000	6.68	13210.400	38463.867	4.293	132.0	-12.0	NO		NO	bb
4	4 181119M2_5	Standard	150.000	6.68	13064.595	35754.637	4.567	140.4	-6.4	NO		NO	bb
5	5 181119M2_6	Standard	150.000	6.68	12425.742	33911.098	4.580	140.8	-6.1	NO		NO	bb
6	6 181119M2_7	Standard	150.000	6.68	12816.330	34904.867	4.590	141.1	-5.9	NO		NO	bb
7	7 181119M2_8	Standard	150.000	6.68	12440.439	32655.039	4.762	146.4	-2.4	NO		NO	bb
8	8 181119M2_9	Standard	150.000	6.68	16127.344	39339.617	5.124	157.6	5.0	NO		NO	bb
9	9 181119M2_10	Standard	150.000	6.68	12377.250	28971.465	5.340	164.2	9.5	NO		NO	bb
10	10 181119M2_11	Standard	150.000	6.68	12375.545	24725.277	6.257	192.4	28.2	NO		NO	bb

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Compound name: d9-N-EtFOSE
Response Factor: 0.0319706
RRF SD: 0.00340375, Relative SD: 10.6465
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	150.000	6.83	13020.559	36370.602	4.475	140.0	-6.7	NO		NO	bb
2	2 181119M2_3	Standard	150.000	6.83	12684.013	33962.305	4.668	146.0	-2.7	NO		NO	bb
3	3 181119M2_4	Standard	150.000	6.83	13616.445	38463.867	4.425	138.4	-7.7	NO		NO	bb
4	4 181119M2_5	Standard	150.000	6.83	13198.563	35754.637	4.614	144.3	-3.8	NO		NO	bb
5	5 181119M2_6	Standard	150.000	6.83	12083.847	33911.098	4.454	139.3	-7.1	NO		NO	bb
6	6 181119M2_7	Standard	150.000	6.83	12633.202	34904.867	4.524	141.5	-5.7	NO		NO	bb
7	7 181119M2_8	Standard	150.000	6.83	11788.857	32655.039	4.513	141.1	-5.9	NO		NO	bb
8	8 181119M2_9	Standard	150.000	6.83	15594.405	39339.617	4.955	155.0	3.3	NO		NO	bb
9	9 181119M2_10	Standard	150.000	6.83	12299.542	28971.465	5.307	166.0	10.7	NO		NO	bb
10	10 181119M2_11	Standard	150.000	6.83	11908.335	24725.277	6.020	188.3	25.5	NO		NO	bb

Compound name: 13C4-PFBA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 60), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	12.500	1.18	10214.163	10214.163	12.500	12.5	0.0	NO		NO	bb
2	2 181119M2_3	Standard	12.500	1.18	8904.677	8904.677	12.500	12.5	0.0	NO		NO	bb
3	3 181119M2_4	Standard	12.500	1.17	9973.924	9973.924	12.500	12.5	0.0	NO		NO	bb
4	4 181119M2_5	Standard	12.500	1.17	10174.105	10174.105	12.500	12.5	0.0	NO		NO	MM
5	5 181119M2_6	Standard	12.500	1.17	10032.227	10032.227	12.500	12.5	0.0	NO		NO	bb
6	6 181119M2_7	Standard	12.500	1.17	9720.454	9720.454	12.500	12.5	0.0	NO		NO	bb
7	7 181119M2_8	Standard	12.500	1.18	10085.070	10085.070	12.500	12.5	0.0	NO		NO	bb
8	8 181119M2_9	Standard	12.500	1.17	12610.282	12610.282	12.500	12.5	0.0	NO		NO	bb
9	9 181119M2_10	Standard	12.500	1.17	9821.668	9821.668	12.500	12.5	0.0	NO		NO	bb
10	10 181119M2_11	Standard	12.500	1.18	9545.869	9545.869	12.500	12.5	0.0	NO		NO	MM

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Compound name: 13C5-PFHxA
Response Factor: 1
RRF SD: 7.40149e-017, Relative SD: 7.40149e-015
Response type: Internal Std (Ref 61), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	12.500	3.32	31577.043	31577.043	12.500	12.5	0.0	NO		NO	bb
2	2 181119M2_3	Standard	12.500	3.32	29049.188	29049.188	12.500	12.5	0.0	NO		NO	bb
3	3 181119M2_4	Standard	12.500	3.32	32754.859	32754.859	12.500	12.5	0.0	NO		NO	bb
4	4 181119M2_5	Standard	12.500	3.32	31986.332	31986.332	12.500	12.5	0.0	NO		NO	bb
5	5 181119M2_6	Standard	12.500	3.32	29222.686	29222.686	12.500	12.5	0.0	NO		NO	bb
6	6 181119M2_7	Standard	12.500	3.32	30117.441	30117.441	12.500	12.5	0.0	NO		NO	bb
7	7 181119M2_8	Standard	12.500	3.32	27874.125	27874.125	12.500	12.5	0.0	NO		NO	bb
8	8 181119M2_9	Standard	12.500	3.32	35903.074	35903.074	12.500	12.5	0.0	NO		NO	bb
9	9 181119M2_10	Standard	12.500	3.32	26844.322	26844.322	12.500	12.5	0.0	NO		NO	bb
10	10 181119M2_11	Standard	12.500	3.32	23874.543	23874.543	12.500	12.5	0.0	NO		NO	bb

Compound name: 13C3-PFHxS
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 62), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	12.500	4.14	3630.358	3630.358	12.500	12.5	0.0	NO		NO	bb
2	2 181119M2_3	Standard	12.500	4.13	3431.369	3431.369	12.500	12.5	0.0	NO		NO	bb
3	3 181119M2_4	Standard	12.500	4.14	3870.605	3870.605	12.500	12.5	0.0	NO		NO	bb
4	4 181119M2_5	Standard	12.500	4.14	3801.275	3801.275	12.500	12.5	0.0	NO		NO	MM
5	5 181119M2_6	Standard	12.500	4.14	3470.908	3470.908	12.500	12.5	0.0	NO		NO	bb
6	6 181119M2_7	Standard	12.500	4.14	3672.713	3672.713	12.500	12.5	0.0	NO		NO	bb
7	7 181119M2_8	Standard	12.500	4.14	3410.166	3410.166	12.500	12.5	0.0	NO		NO	bb
8	8 181119M2_9	Standard	12.500	4.14	4067.239	4067.239	12.500	12.5	0.0	NO		NO	bb
9	9 181119M2_10	Standard	12.500	4.14	3146.183	3146.183	12.500	12.5	0.0	NO		NO	bb
10	10 181119M2_11	Standard	12.500	4.14	2796.026	2796.026	12.500	12.5	0.0	NO		NO	bb

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Compound name: 13C8-PFOA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 63), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	12.500	4.48	36963.355	36963.355	12.500	12.5	0.0	NO		NO	bb
2	2 181119M2_3	Standard	12.500	4.48	35655.656	35655.656	12.500	12.5	0.0	NO		NO	bb
3	3 181119M2_4	Standard	12.500	4.48	38708.566	38708.566	12.500	12.5	0.0	NO		NO	bb
4	4 181119M2_5	Standard	12.500	4.48	36743.945	36743.945	12.500	12.5	0.0	NO		NO	bb
5	5 181119M2_6	Standard	12.500	4.48	34087.332	34087.332	12.500	12.5	0.0	NO		NO	bb
6	6 181119M2_7	Standard	12.500	4.48	37075.613	37075.613	12.500	12.5	0.0	NO		NO	bb
7	7 181119M2_8	Standard	12.500	4.48	34641.109	34641.109	12.500	12.5	0.0	NO		NO	bb
8	8 181119M2_9	Standard	12.500	4.48	42997.430	42997.430	12.500	12.5	0.0	NO		NO	bb
9	9 181119M2_10	Standard	12.500	4.48	31563.273	31563.273	12.500	12.5	0.0	NO		NO	bb
10	10 181119M2_11	Standard	12.500	4.48	28118.881	28118.881	12.500	12.5	0.0	NO		NO	bb

Compound name: 13C9-PFNA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 64), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181119M2_2	Standard	12.500	4.92	26543.949	26543.949	12.500	12.5	0.0	NO		NO	bb
2	2 181119M2_3	Standard	12.500	4.91	25402.279	25402.279	12.500	12.5	0.0	NO		NO	bb
3	3 181119M2_4	Standard	12.500	4.91	27779.146	27779.146	12.500	12.5	0.0	NO		NO	bb
4	4 181119M2_5	Standard	12.500	4.91	26523.551	26523.551	12.500	12.5	0.0	NO		NO	bb
5	5 181119M2_6	Standard	12.500	4.91	24571.891	24571.891	12.500	12.5	0.0	NO		NO	bb
6	6 181119M2_7	Standard	12.500	4.91	26232.998	26232.998	12.500	12.5	0.0	NO		NO	bb
7	7 181119M2_8	Standard	12.500	4.91	23664.459	23664.459	12.500	12.5	0.0	NO		NO	bb
8	8 181119M2_9	Standard	12.500	4.91	29651.377	29651.377	12.500	12.5	0.0	NO		NO	bb
9	9 181119M2_10	Standard	12.500	4.91	22311.814	22311.814	12.500	12.5	0.0	NO		NO	bb
10	10 181119M2_11	Standard	12.500	4.91	20056.293	20056.293	12.500	12.5	0.0	NO		NO	bb

Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
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Compound name: 13C4-PFOS
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 65), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	12.500	5.01	3843.607	3843.607	12.500	12.5	0.0	NO		NO	bb
2	2	181119M2_3	Standard	12.500	5.00	3744.634	3744.634	12.500	12.5	0.0	NO		NO	bb
3	3	181119M2_4	Standard	12.500	5.00	4035.006	4035.006	12.500	12.5	0.0	NO		NO	bb
4	4	181119M2_5	Standard	12.500	5.00	3884.763	3884.763	12.500	12.5	0.0	NO		NO	bb
5	5	181119M2_6	Standard	12.500	5.00	3863.451	3863.451	12.500	12.5	0.0	NO		NO	bb
6	6	181119M2_7	Standard	12.500	5.00	3992.555	3992.555	12.500	12.5	0.0	NO		NO	bb
7	7	181119M2_8	Standard	12.500	5.00	3579.661	3579.661	12.500	12.5	0.0	NO		NO	bb
8	8	181119M2_9	Standard	12.500	5.00	4267.014	4267.014	12.500	12.5	0.0	NO		NO	bb
9	9	181119M2_10	Standard	12.500	5.00	3212.936	3212.936	12.500	12.5	0.0	NO		NO	bb
10	10	181119M2_11	Standard	12.500	5.00	2976.162	2976.162	12.500	12.5	0.0	NO		NO	bb

Compound name: 13C6-PFDA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 66), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	12.500	5.30	32499.664	32499.664	12.500	12.5	0.0	NO		NO	bb
2	2	181119M2_3	Standard	12.500	5.30	30424.650	30424.650	12.500	12.5	0.0	NO		NO	bb
3	3	181119M2_4	Standard	12.500	5.30	34728.922	34728.922	12.500	12.5	0.0	NO		NO	bb
4	4	181119M2_5	Standard	12.500	5.30	33468.051	33468.051	12.500	12.5	0.0	NO		NO	bb
5	5	181119M2_6	Standard	12.500	5.30	30300.555	30300.555	12.500	12.5	0.0	NO		NO	bb
6	6	181119M2_7	Standard	12.500	5.30	31155.236	31155.236	12.500	12.5	0.0	NO		NO	bb
7	7	181119M2_8	Standard	12.500	5.30	29050.506	29050.506	12.500	12.5	0.0	NO		NO	bb
8	8	181119M2_9	Standard	12.500	5.30	36924.023	36924.023	12.500	12.5	0.0	NO		NO	bb
9	9	181119M2_10	Standard	12.500	5.30	27767.018	27767.018	12.500	12.5	0.0	NO		NO	bb
10	10	181119M2_11	Standard	12.500	5.30	23592.779	23592.779	12.500	12.5	0.0	NO		NO	bb

Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:18:57 Pacific Standard Time

Compound name: 13C7-PFUdA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181119M2_2	Standard	12.500	5.63	36370.602	36370.602	12.500	12.5	0.0	NO		NO	bb
2	2	181119M2_3	Standard	12.500	5.63	33962.305	33962.305	12.500	12.5	0.0	NO		NO	bb
3	3	181119M2_4	Standard	12.500	5.63	38463.867	38463.867	12.500	12.5	0.0	NO		NO	bb
4	4	181119M2_5	Standard	12.500	5.63	35754.637	35754.637	12.500	12.5	0.0	NO		NO	bb
5	5	181119M2_6	Standard	12.500	5.63	33911.098	33911.098	12.500	12.5	0.0	NO		NO	bb
6	6	181119M2_7	Standard	12.500	5.63	34904.867	34904.867	12.500	12.5	0.0	NO		NO	bb
7	7	181119M2_8	Standard	12.500	5.63	32655.039	32655.039	12.500	12.5	0.0	NO		NO	bb
8	8	181119M2_9	Standard	12.500	5.63	39339.617	39339.617	12.500	12.5	0.0	NO		NO	bb
9	9	181119M2_10	Standard	12.500	5.63	28971.465	28971.465	12.500	12.5	0.0	NO		NO	bb
10	10	181119M2_11	Standard	12.500	5.63	24725.277	24725.277	12.500	12.5	0.0	NO		NO	bb

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Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
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Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_111918.mdb 20 Nov 2018 11:07:39
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Name: 181119M2_2, Date: 19-Nov-2018, Time: 20:17:43, ID: ST181119M2-1 PFC CS-2 18K0901, Description: PFC CS-2 18K0901

	#	Name	IS#	CoD	CoD Flag	%RSD
1	1	PFBA	36	0.9999	NO	
2	2	PFPeA	37	0.9999	NO	
3	3	PFBS	38	0.9997	NO	
4	4	4:2 FTS	39	0.9986	NO	
5	5	PFHxA	40	0.9999	NO	
6	6	PFPeS	38	0.9996	NO	
7	7	PFHpA	41	0.9995	NO	
8	8	L-PFHxS	42	0.9997	NO	
9	10	6:2 FTS	43	0.9980	NO	
10	11	L-PFOA	44	0.9999	NO	
11	13	PFHpS	47	0.9999	NO	
12	14	PFNA	45	0.9997	NO	
13	15	PFOSA	46	0.9998	NO	
14	16	L-PFOS	47	0.9998	NO	
15	18	PFDA	48	0.9997	NO	
16	19	8:2 FTS	49	0.9987	NO	
17	20	PFNS	47	0.9996	NO	
18	21	L-MeFOSAA	50	0.9999	NO	
19	23	L-EtFOSAA	52	0.9997	NO	

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Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:19:55 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_111918.mdb 20 Nov 2018 11:07:39
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Name: 181119M2_2, Date: 19-Nov-2018, Time: 20:17:43, ID: ST181119M2-1 PFC CS-2 18K0901, Description: PFC CS-2 18K0901

	#	Name	IS#	CoD	CoD Flag	%RSD
1	25	PFUdA	51	0.9999	NO	
2	26	PFDS	47	0.9997	NO	
3	27	PFDoA	53	0.9999	NO	
4	28	N-MeFOSA	54	0.9998	NO	
5	29	PFTrDA	53	0.9999	NO	
6	30	PFTeDA	55	0.9997	NO	
7	31	N-EtFOSA	56	0.9997	NO	
8	32	PFHxDA	57	0.9998	NO	
9	33	PFODA	57	0.9998	NO	
10	34	N-MeFOSE	58	0.9997	NO	
11	35	N-EtFOSE	59	0.9999	NO	
12	36	13C3-PFBA	60		NO	1.385
13	37	13C3-PFPeA	61		NO	8.071
14	38	13C3-PFBS	62		NO	4.165
15	39	13C2-4:2 FTS	62		NO	8.512
16	40	13C2-PFHxA	61		NO	2.948
17	41	13C4-PFHpA	61		NO	1.966
18	42	18O2-PFHxS	62		NO	2.487
19	43	13C2-6:2 FTS	65		NO	10.731
20	44	13C2-PFOA	63		NO	2.123
21	45	13C5-PFNA	64		NO	1.947
22	46	13C8-PFOSA	67		NO	5.595
23	47	13C8-PFOS	65		NO	2.957
24	48	13C2-PFDA	66		NO	2.715
25	49	13C2-8:2 FTS	65		NO	9.146
26	50	d3-N-MeFOSAA	67		NO	5.428
27	51	13C2-PFUdA	67		NO	2.734
28	52	d5-N-EtFOSAA	67		NO	4.548
29	53	13C2-PFDoA	66		NO	2.823
30	54	d3-N-MeFOSA	67		NO	8.104
31	55	13C2-PFTeDA	67		NO	4.677
32	56	d5-N-ETFOSA	67		NO	4.884

Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:19:55 Pacific Standard Time

Name: 181119M2_2, Date: 19-Nov-2018, Time: 20:17:43, ID: ST181119M2-1 PFC CS-2 18K0901, Description: PFC CS-2 18K0901

	#	Name	IS#	CoD	CoD Flag	%RSD
33	57	13C2-PFHxDA	67		NO	8.080
34	58	d7-N-MeFOSE	67		NO	11.688
35	59	d9-N-EtFOSE	67		NO	10.647
36	60	13C4-PFBA	60		NO	0.000
37	61	13C5-PFHxA	61		NO	0.000
38	62	13C3-PFHxS	62		NO	0.000
39	63	13C8-PFOA	63		NO	0.000
40	64	13C9-PFNA	64		NO	0.000
41	65	13C4-PFOS	65		NO	0.000
42	66	13C6-PFDA	66		NO	0.000
43	67	13C7-PFUdA	67		NO	0.000

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Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:20:34 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_111918.mdb 20 Nov 2018 11:07:39
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Name: 181119M2_7, Date: 19-Nov-2018, Time: 21:10:50, ID: ST181119M2-6 PFC CS3 18K0906, Description: PFC CS3 18K0906

	Name	Ion Ratio	Ratio out?
1	PFBA		
2	PFPeA		
3	PFBS	2.698	NO
4	4:2 FTS	1.761	NO
5	PFHxA	15.481	NO
6	PFPeS	1.617	NO
7	PFHpA	13.636	NO
8	L-PFHxS	1.751	NO
9	6:2 FTS	3.201	NO
10	L-PFOA	3.490	NO
11	PFHpS	1.989	NO
12	PFNA	4.681	NO
13	PFOSA	28.479	NO
14	L-PFOS	1.878	NO
15	PFDA	5.731	NO
16	8:2 FTS	2.604	NO
17	PFNS	1.583	NO
18	L-MeFOSAA	2.381	NO
19	L-EtFOSAA	1.414	NO

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Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:20:47 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_111918.mdb 20 Nov 2018 11:07:39
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Name: 181119M2_7, Date: 19-Nov-2018, Time: 21:10:50, ID: ST181119M2-6 PFC CS3 18K0906, Description: PFC CS3 18K0906

	Name	Ion Ratio	Ratio out?
1	PFUdA	9.858	NO
2	PFDS	1.719	NO
3	PFDoA	8.199	NO
4	N-MeFOSA	1.446	NO
5	PFTrDA	26.257	NO
6	PFTeDA	13.519	NO
7	N-EtFOSA	1.454	NO
8	PFHxDA	24.080	NO
9	PFODA		
10	N-MeFOSE		
11	N-EtFOSE		

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Tuesday, November 20, 2018 11:23:49 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:24:00 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_111918.mdb 20 Nov 2018 10:57:12
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	181119M2_1	IPA	19-Nov-18	20:07:07
2	2	181119M2_2	ST181119M2-1 PFC CS-2 18K0901	19-Nov-18	20:17:43
3	3	181119M2_3	ST181119M2-2 PFC CS-1 18K0902	19-Nov-18	20:28:22
4	4	181119M2_4	ST181119M2-3 PFC CS0 18K0903	19-Nov-18	20:39:00
5	5	181119M2_5	ST181119M2-4 PFC CS1 18K0904	19-Nov-18	20:49:33
6	6	181119M2_6	ST181119M2-5 PFC CS2 18K0905	19-Nov-18	21:00:12
7	7	181119M2_7	ST181119M2-6 PFC CS3 18K0906	19-Nov-18	21:10:50
8	8	181119M2_8	ST181119M2-7 PFC CS4 18K0907	19-Nov-18	21:21:23
9	9	181119M2_9	ST181119M2-8 PFC CS5 18K0908	19-Nov-18	21:32:01
10	10	181119M2_10	ST181119M2-9 PFC CS6 18K0909	19-Nov-18	21:42:34
11	11	181119M2_11	ST181119M2-10 PFC CS7 18K0910	19-Nov-18	21:53:12
12	12	181119M2_12	IPA	19-Nov-18	22:03:46
13	13	181119M2_13	ICV181119M2-1 PFC ICV 18K0911	19-Nov-18	22:14:24
14	14	181119M2_14	IPA	19-Nov-18	22:24:57

11/20/18

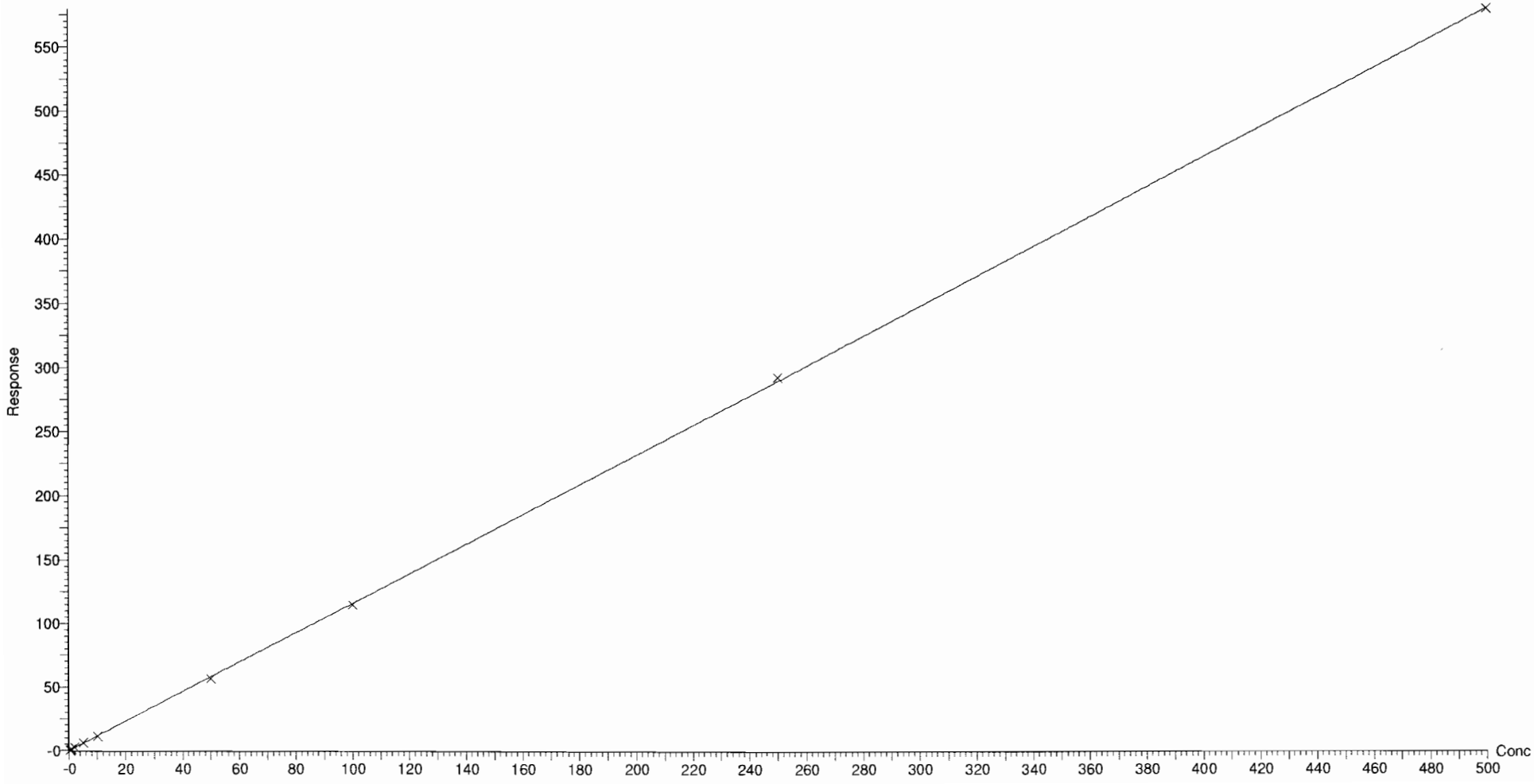
Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:14 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_111918.mdb 20 Nov 2018 11:07:39
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

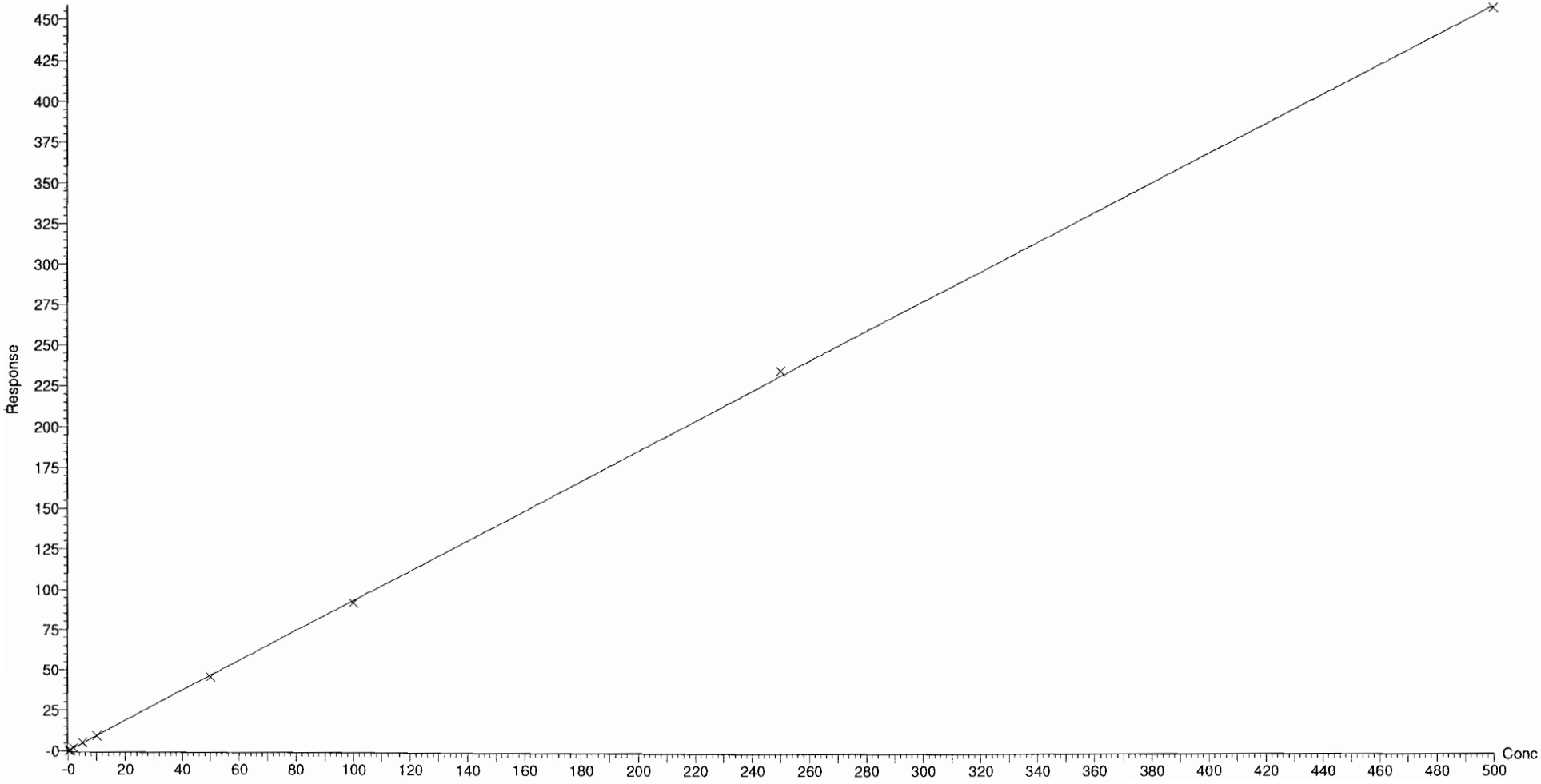
Compound name: PFBA
Correlation coefficient: r = 0.999936, r^2 = 0.999871
Calibration curve: 1.15877 * x + 0.0665496
Response type: Internal Std (Ref 36), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:14 Pacific Standard Time

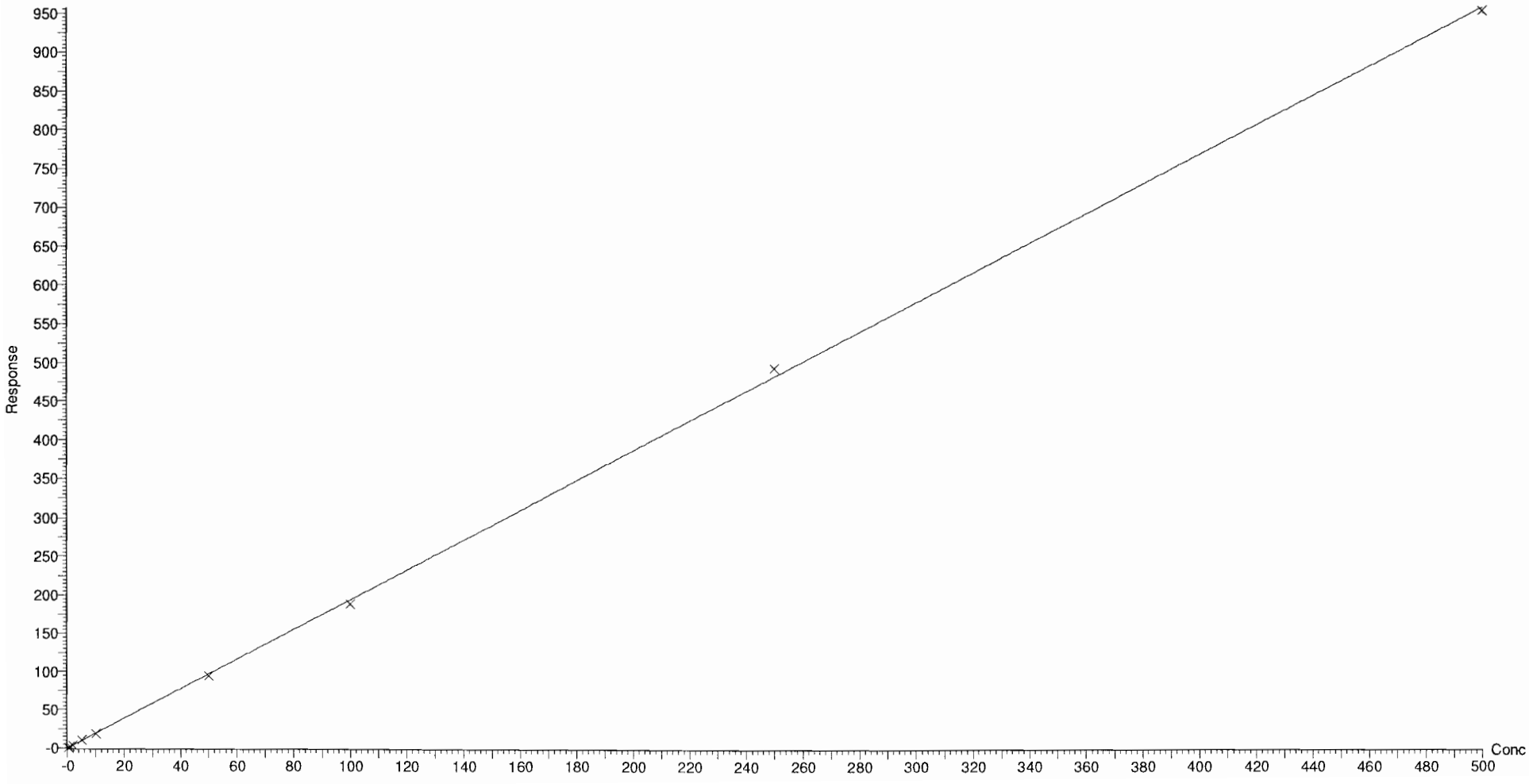
Compound name: PFPeA
Coefficient of Determination: R^2 = 0.999855
Calibration curve: -4.00459e-005 * x^2 + 0.937455 * x + 0.0365266
Response type: Internal Std (Ref 37), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:14 Pacific Standard Time

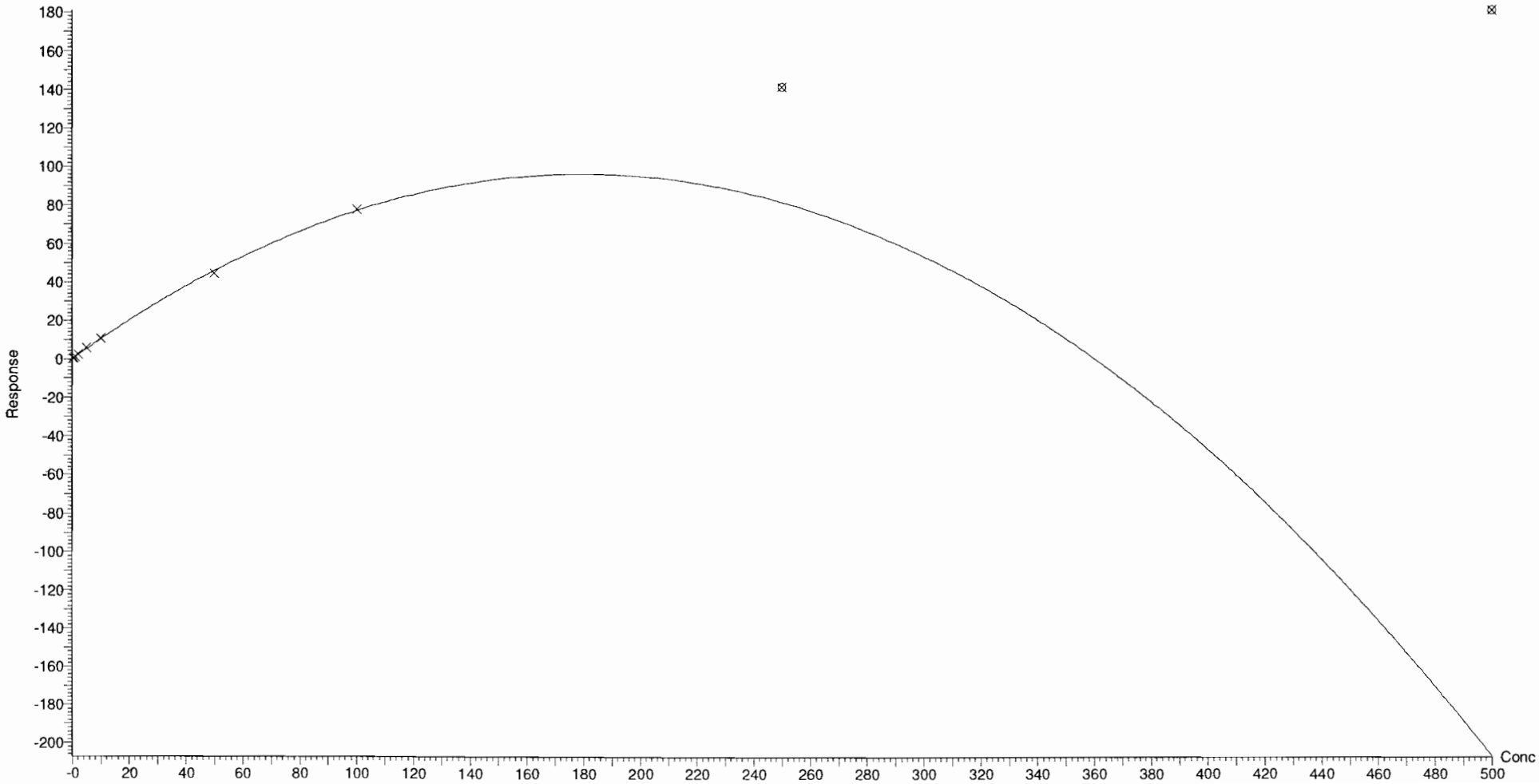
Compound name: PFBS
Coefficient of Determination: R^2 = 0.999692
Calibration curve: -6.70313e-005 * x^2 + 1.94752 * x + 0.0138443
Response type: Internal Std (Ref 38), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:14 Pacific Standard Time

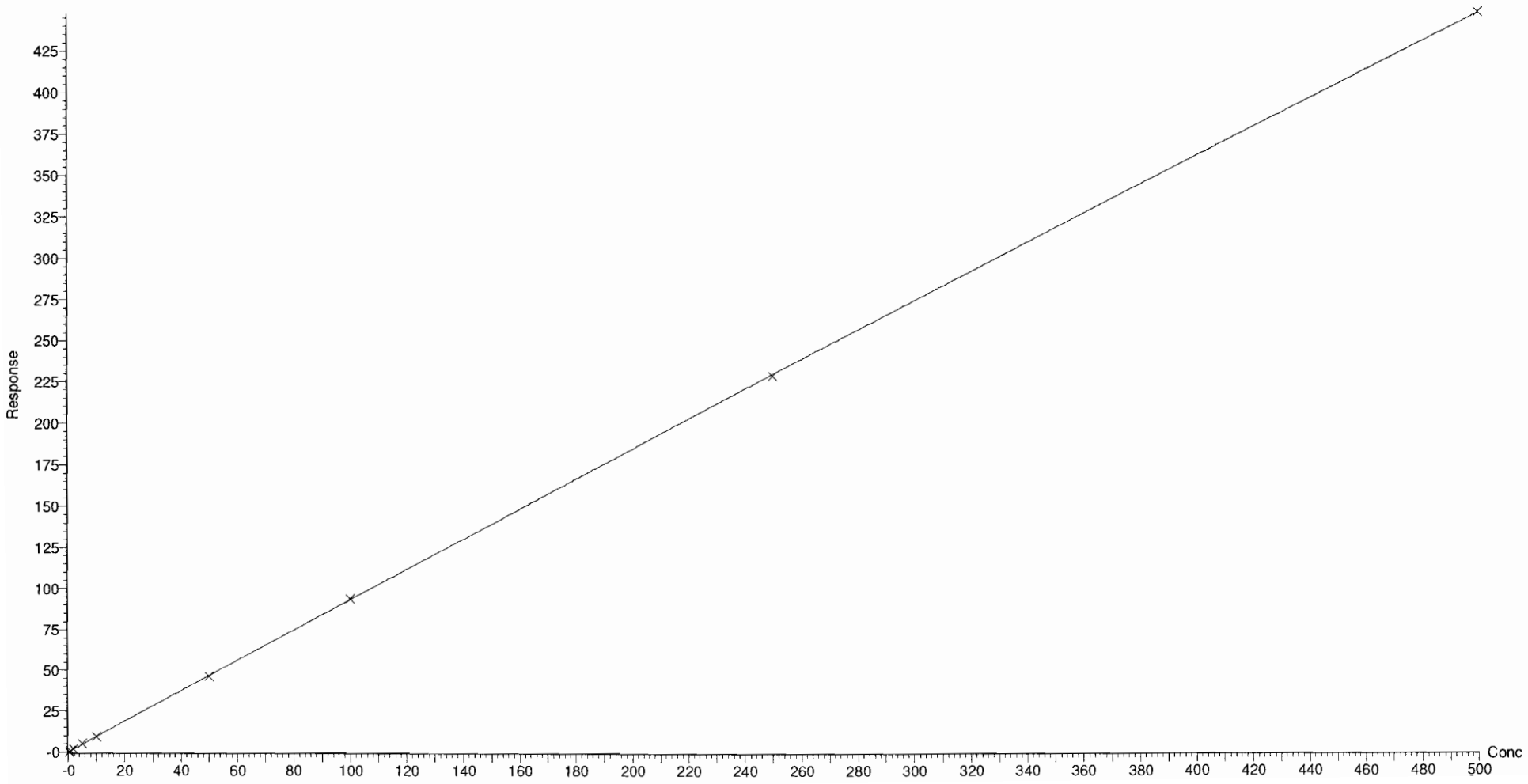
Compound name: 4:2 FTS
Coefficient of Determination: R^2 = 0.998555
Calibration curve: -0.00296353 * x^2 + 1.06839 * x + 0.0733065
Response type: Internal Std (Ref 39), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:14 Pacific Standard Time

Compound name: PFHxA
Coefficient of Determination: R^2 = 0.999895
Calibration curve: -9.80484e-005 * x^2 + 0.942971 * x + 0.041646
Response type: Internal Std (Ref 40), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

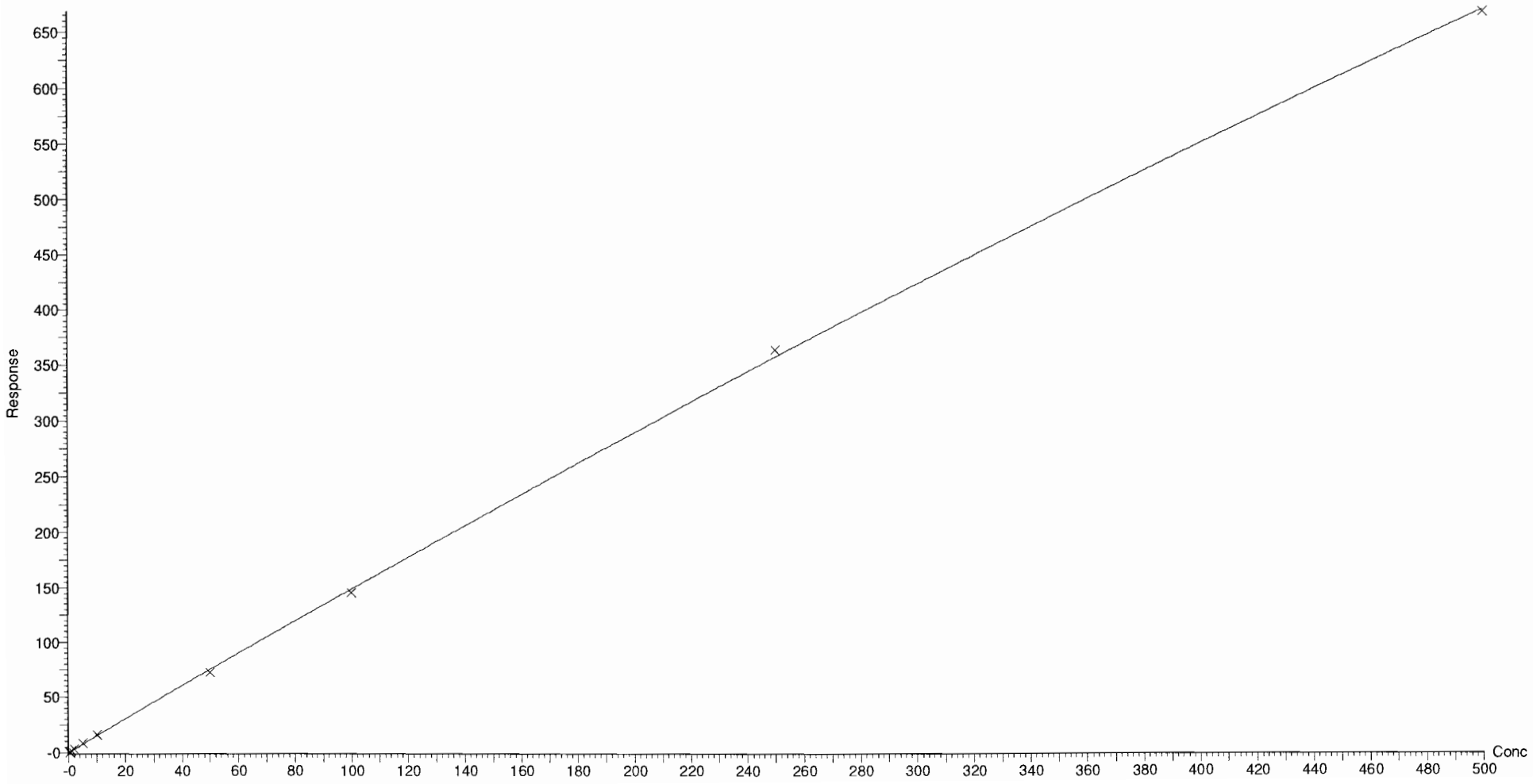


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:14 Pacific Standard Time

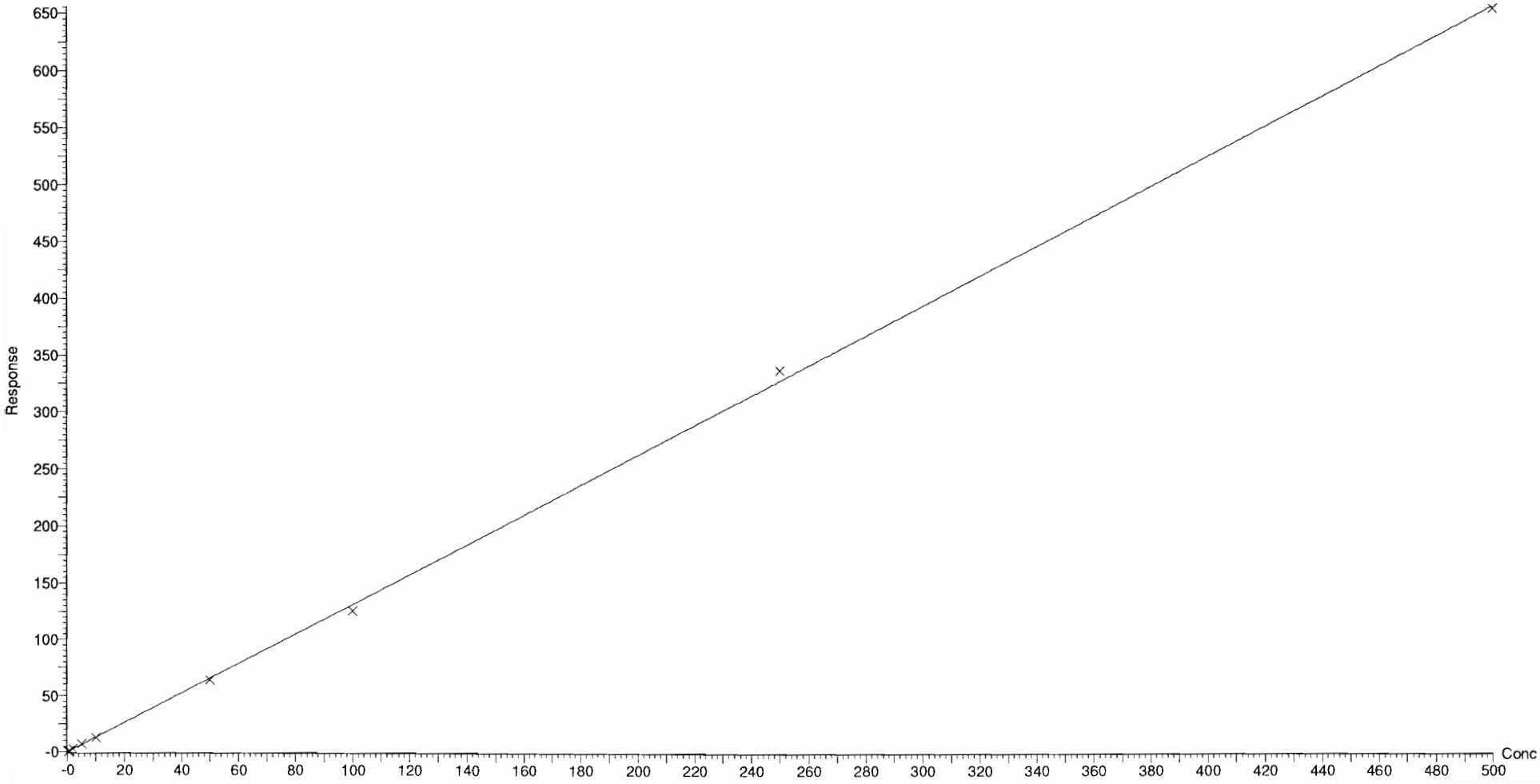
Compound name: PFPeS
Coefficient of Determination: R^2 = 0.999587
Calibration curve: -0.000364679 * x^2 + 1.51981 * x + 0.209357
Response type: Internal Std (Ref 38), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:14 Pacific Standard Time

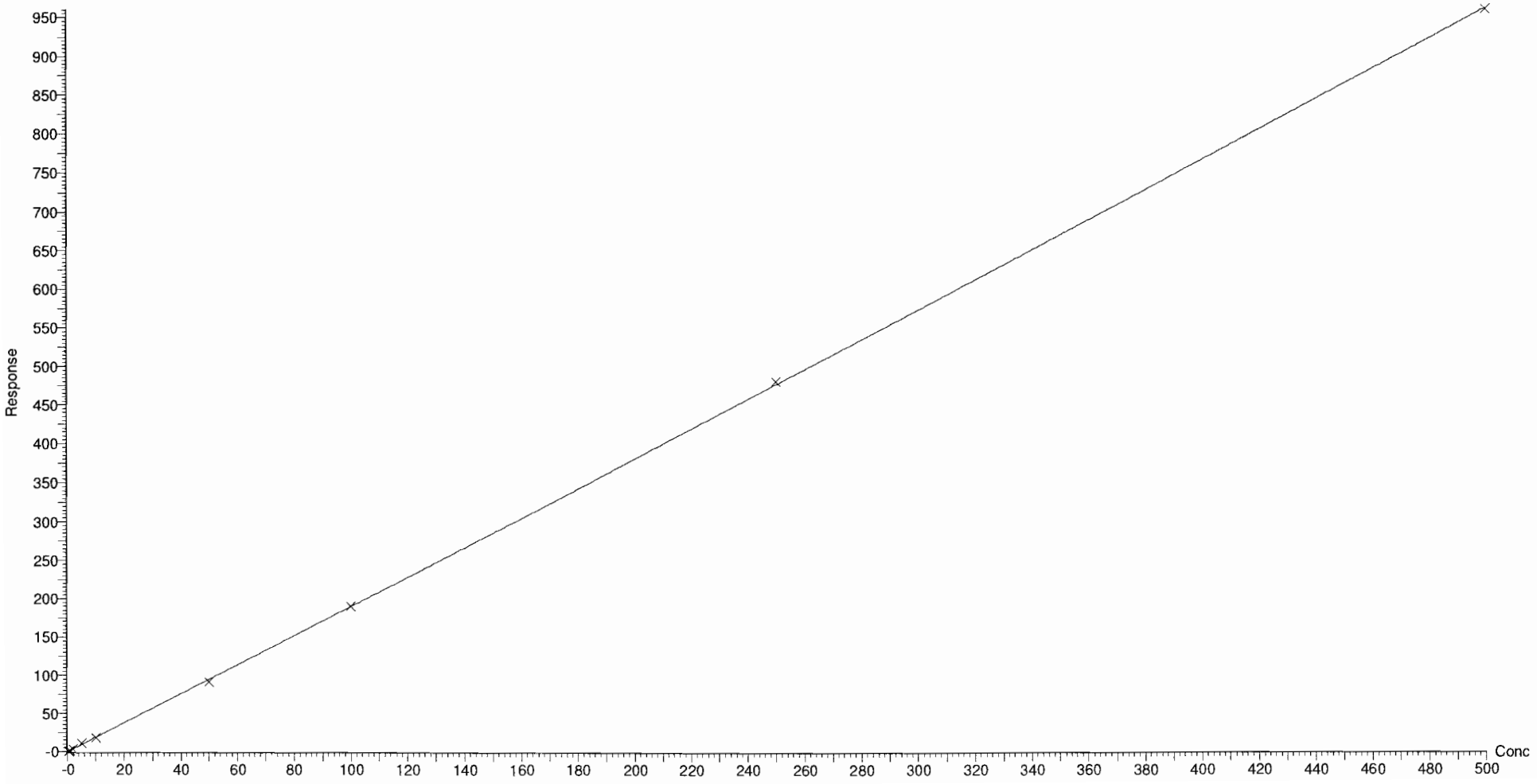
Compound name: PFHpA
Correlation coefficient: r = 0.999748, r^2 = 0.999495
Calibration curve: 1.31181 * x + 0.10388
Response type: Internal Std (Ref 41), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:14 Pacific Standard Time

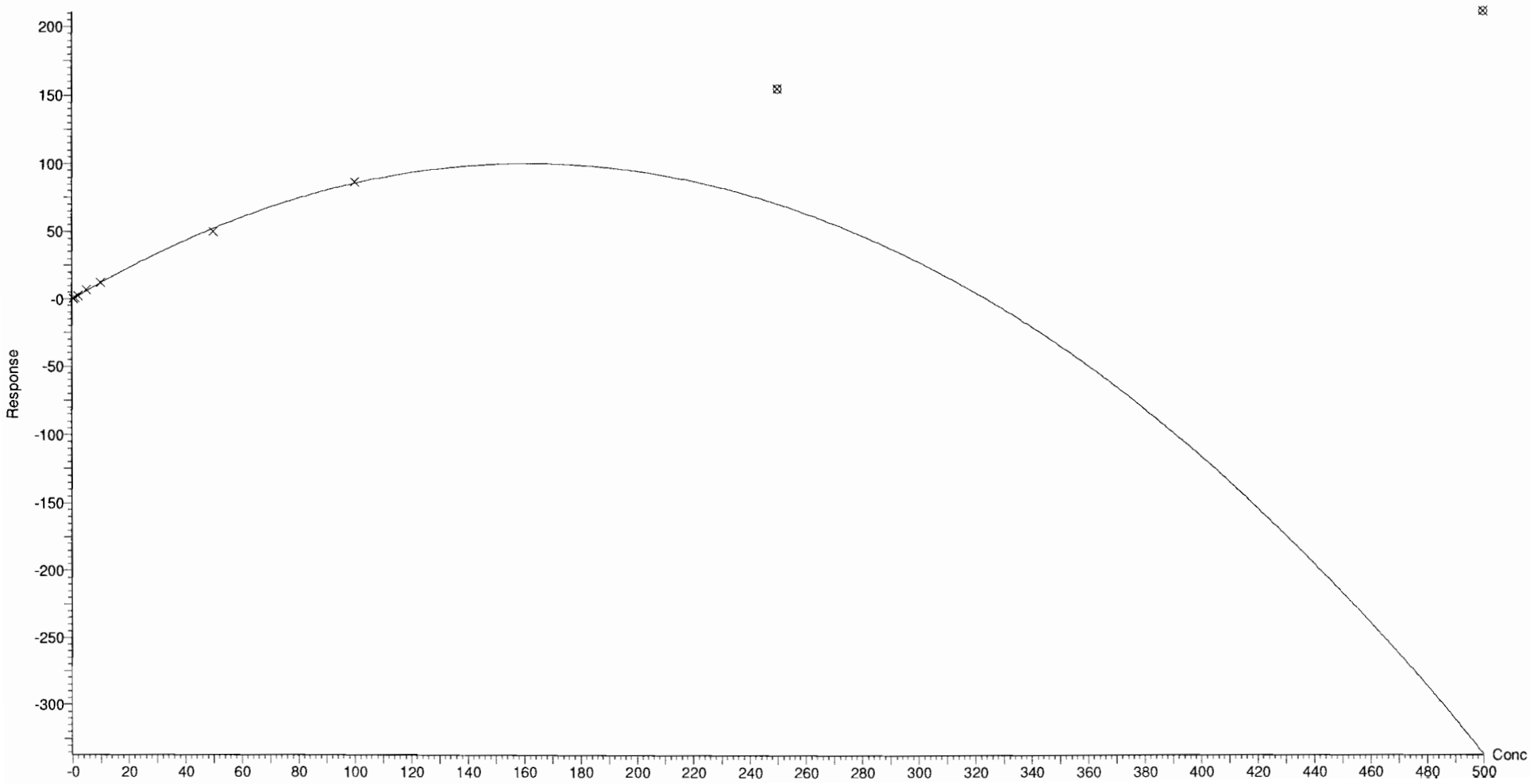
Compound name: L-PFHxS
Coefficient of Determination: R^2 = 0.999706
Calibration curve: 5.96666e-005 * x^2 + 1.89134 * x + 0.0133884
Response type: Internal Std (Ref 42), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:14 Pacific Standard Time

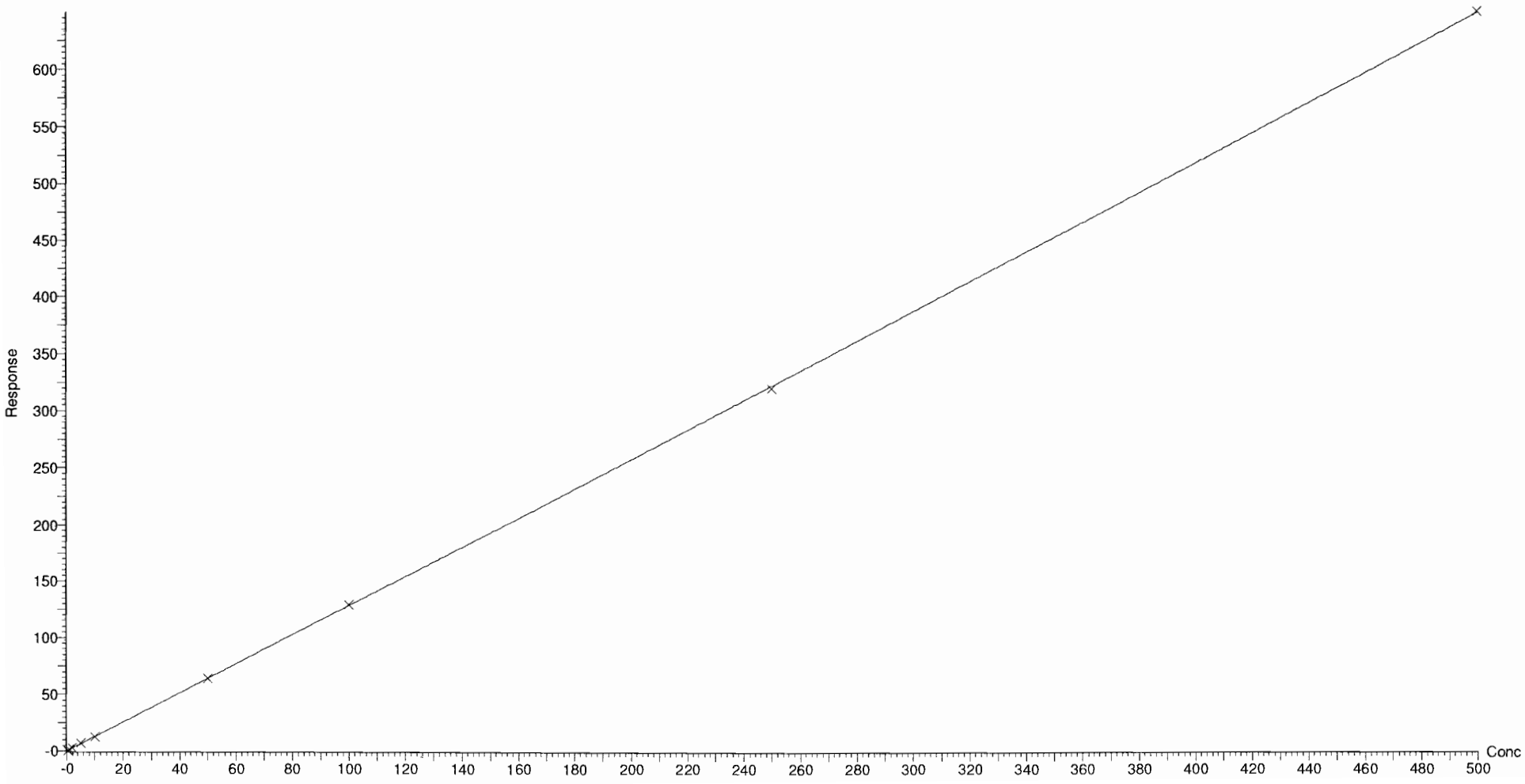
Compound name: 6:2 FTS
Coefficient of Determination: R^2 = 0.998047
Calibration curve: -0.00381892 * x^2 + 1.23743 * x + 0.0518006
Response type: Internal Std (Ref 43), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:14 Pacific Standard Time

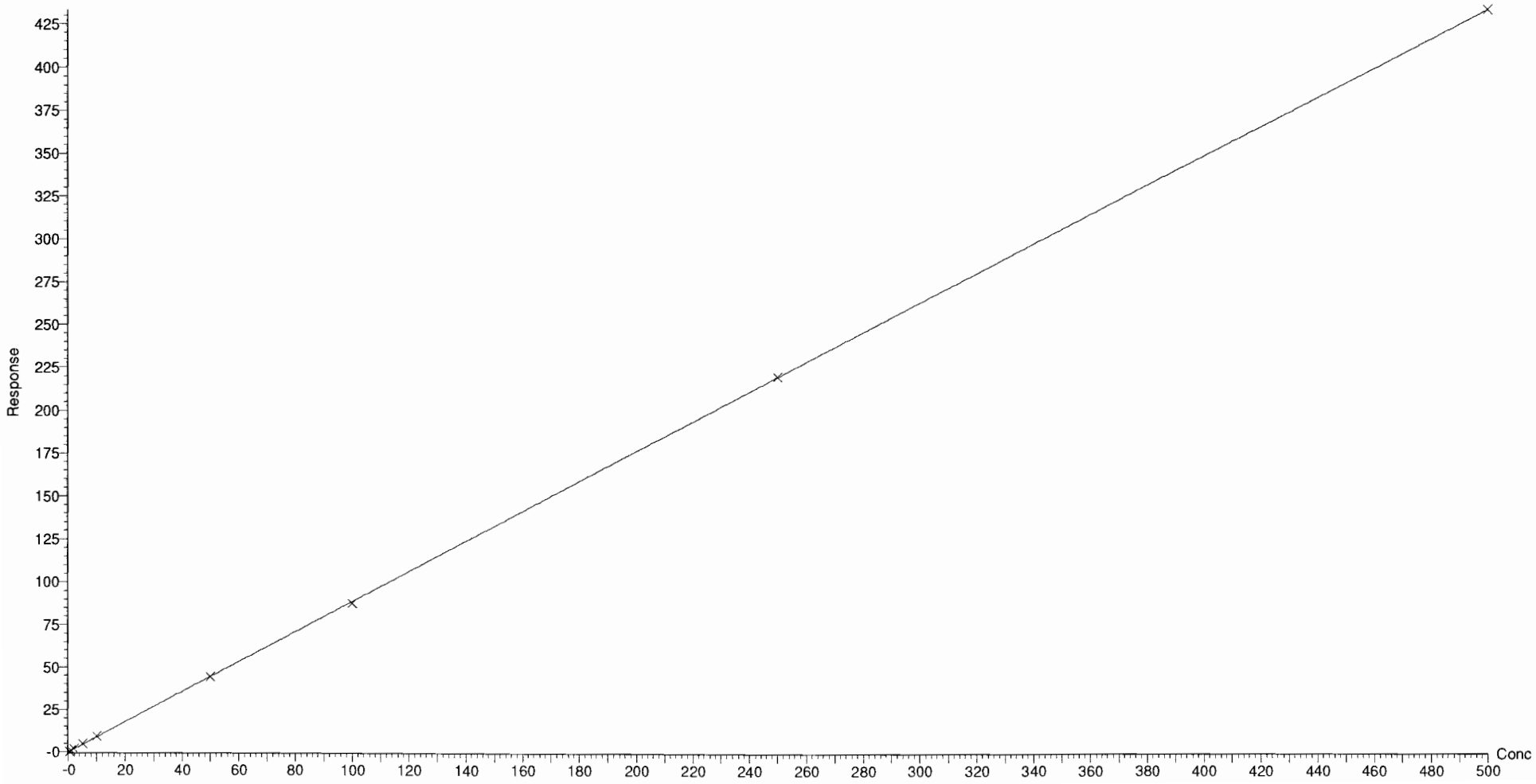
Compound name: L-PFOA
Coefficient of Determination: R^2 = 0.999903
Calibration curve: 3.24421e-005 * x^2 + 1.28147 * x + 0.139843
Response type: Internal Std (Ref 44), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:14 Pacific Standard Time

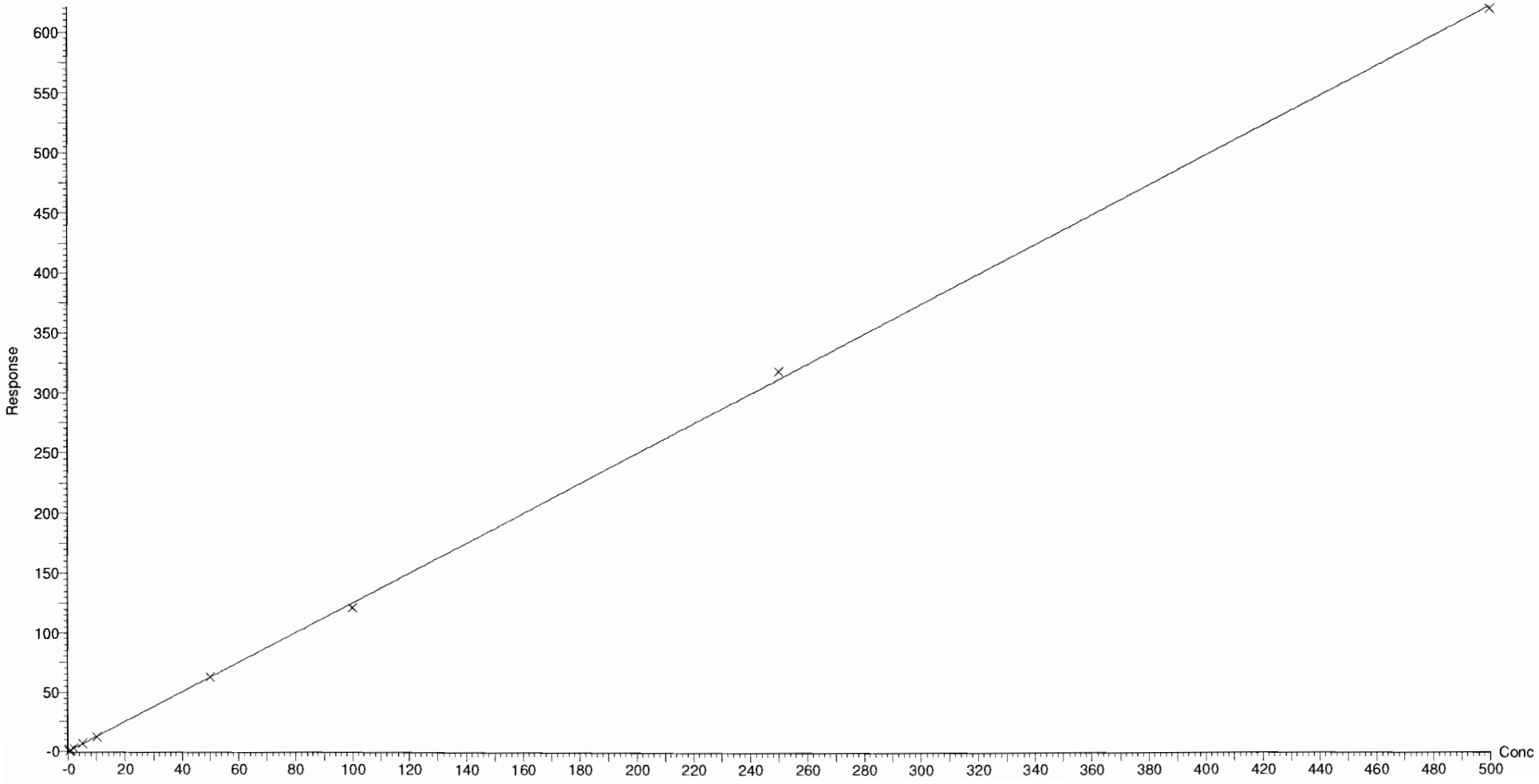
Compound name: PFHpS
Coefficient of Determination: R^2 = 0.999858
Calibration curve: -5.37984e-005 * x^2 + 0.893106 * x + 0.00719861
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:14 Pacific Standard Time

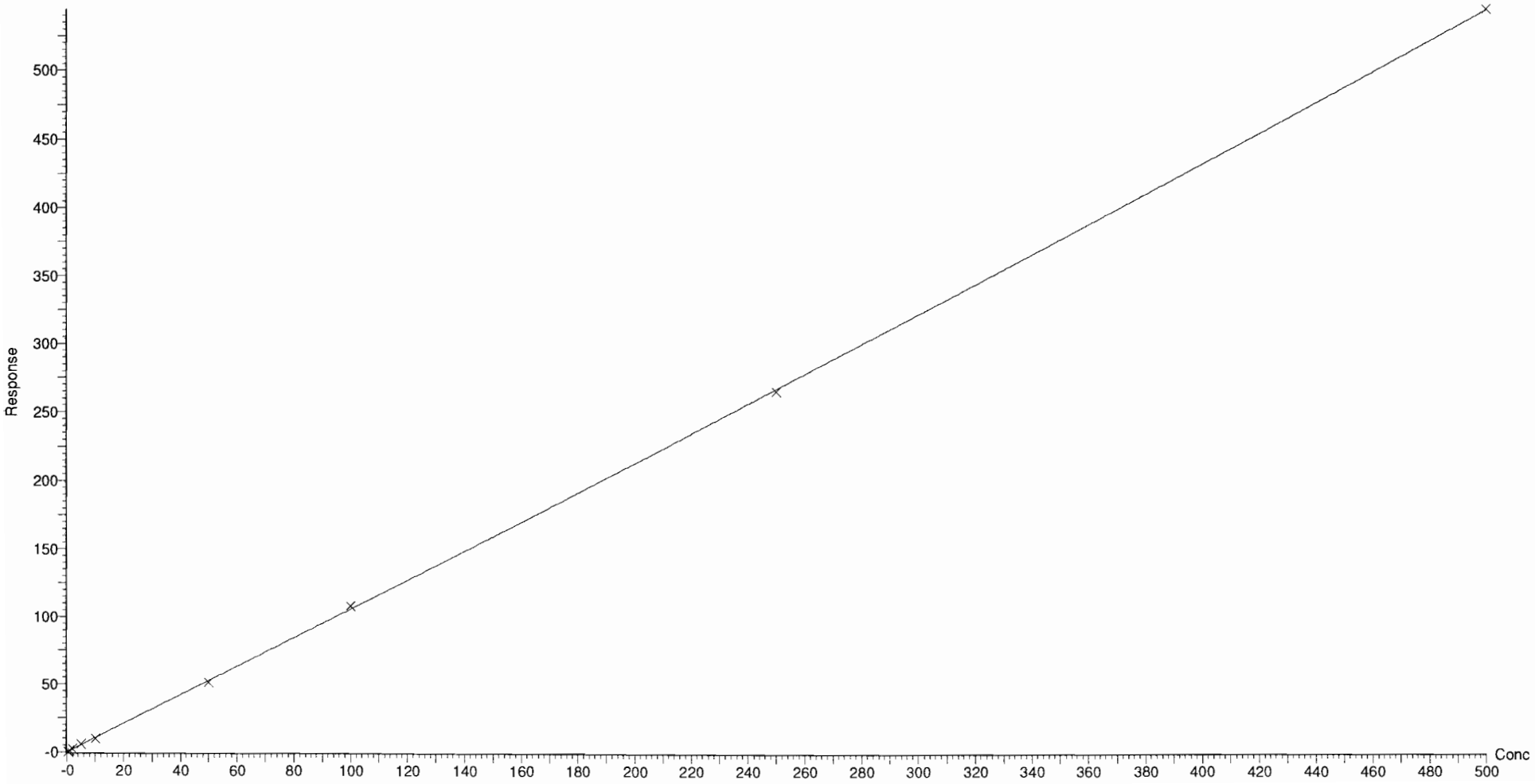
Compound name: PFNA
Coefficient of Determination: R^2 = 0.999697
Calibration curve: -2.33201e-005 * x^2 + 1.25361 * x + 0.0678484
Response type: Internal Std (Ref 45), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:14 Pacific Standard Time

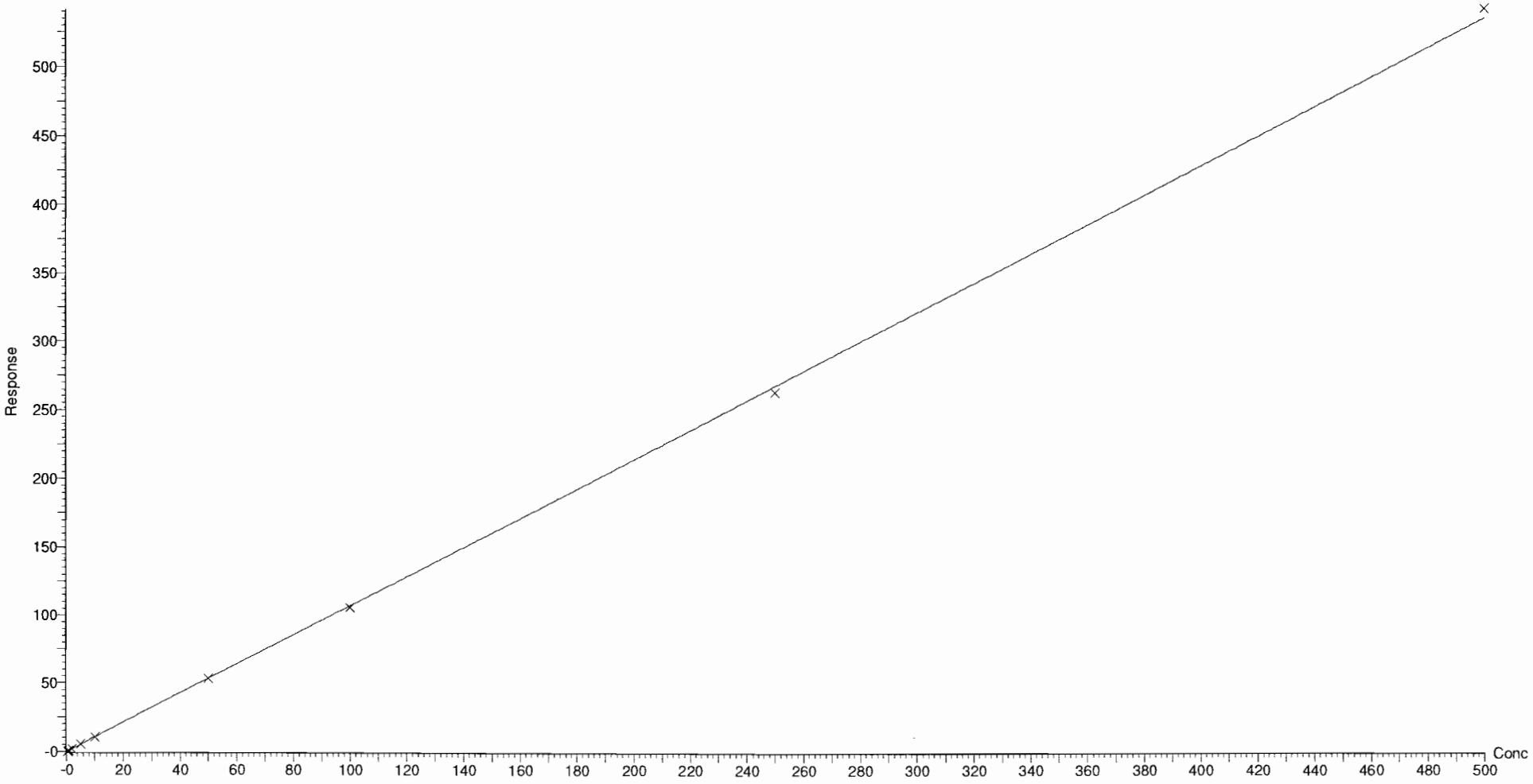
Compound name: PFOSA
Coefficient of Determination: R^2 = 0.999774
Calibration curve: 7.6527e-005 * x^2 + 1.04958 * x + 0.111382
Response type: Internal Std (Ref 46), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:14 Pacific Standard Time

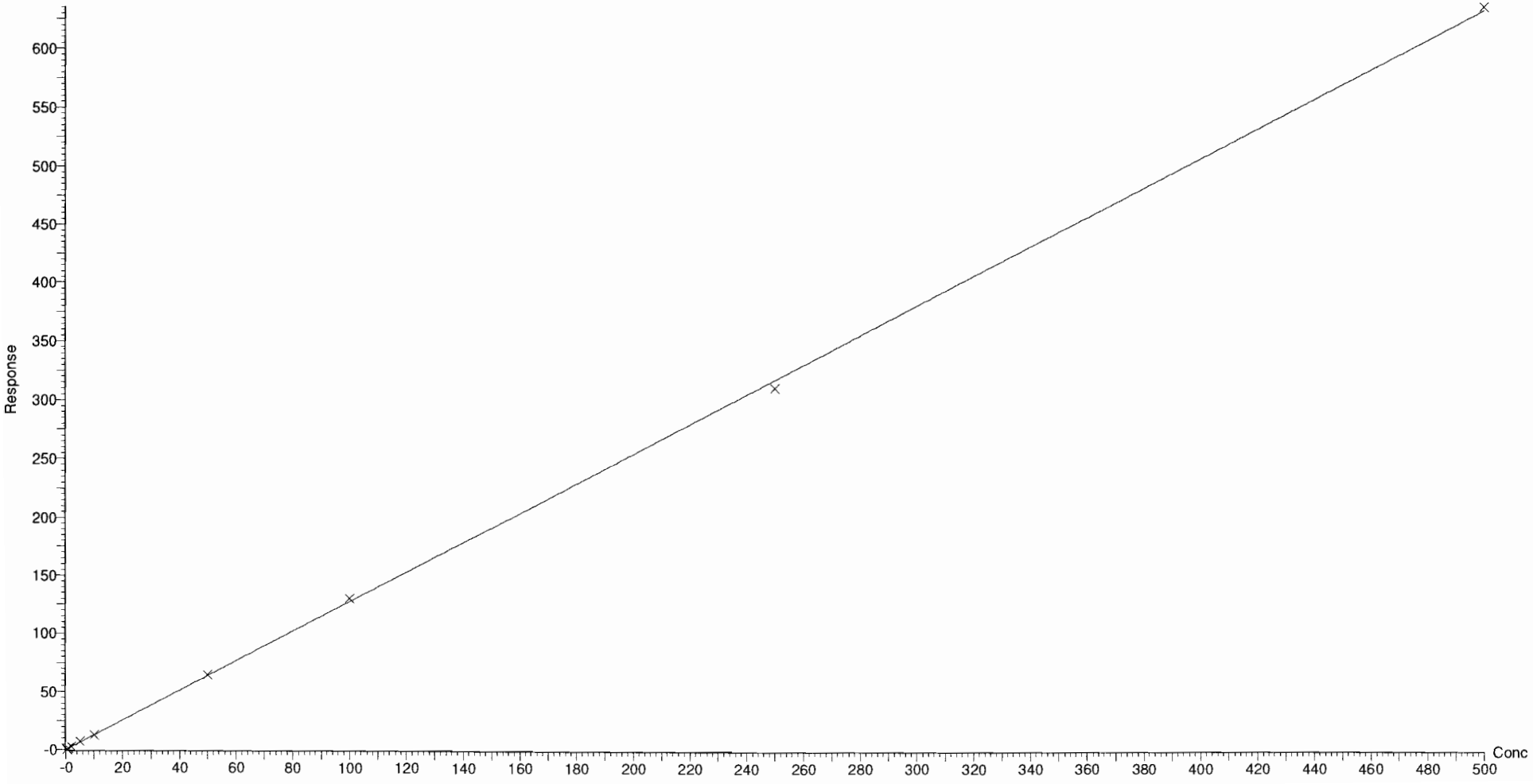
Compound name: L-PFOS
Correlation coefficient: r = 0.999888, r^2 = 0.999775
Calibration curve: 1.06971 * x + -0.0118865
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:14 Pacific Standard Time

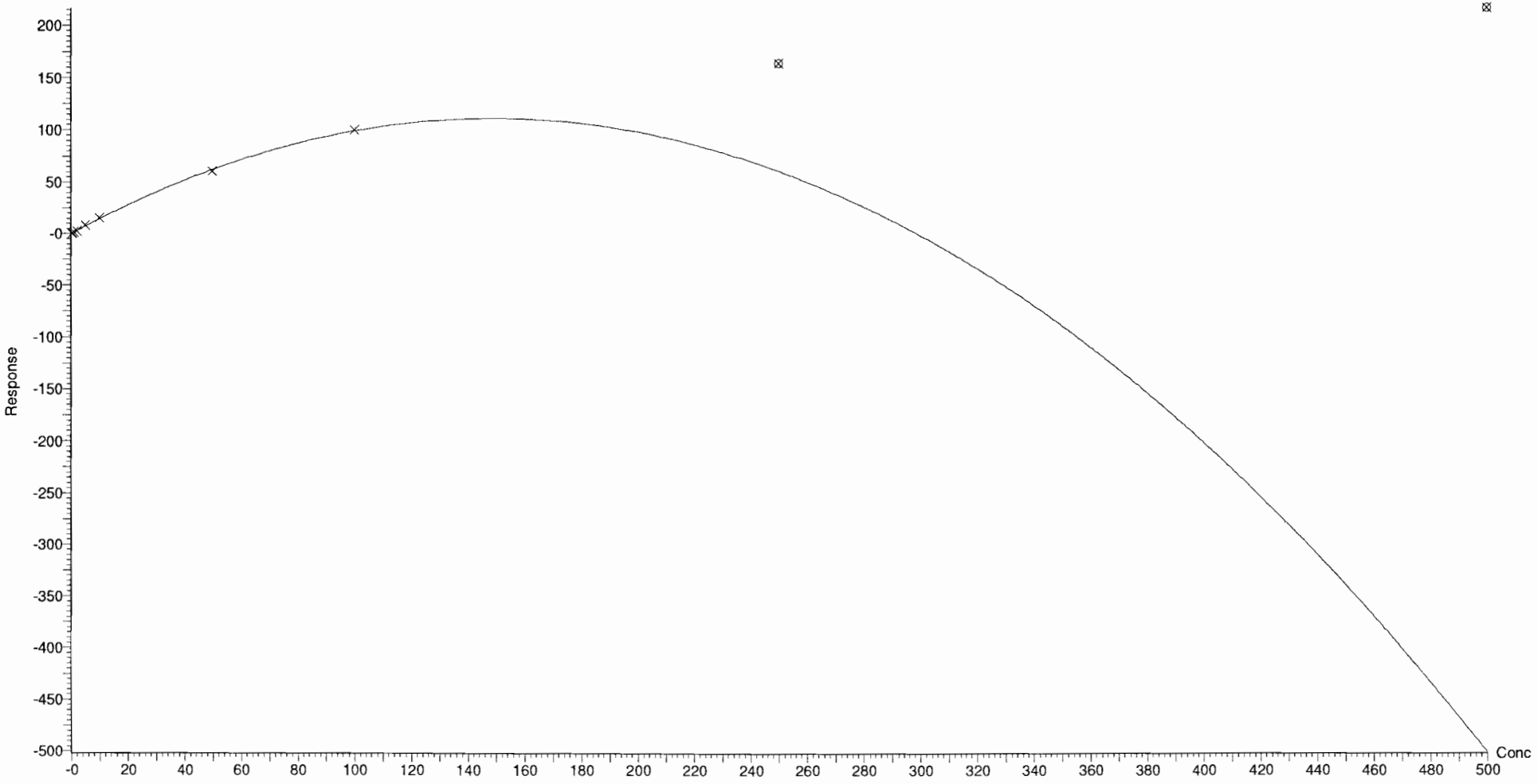
Compound name: PFDA
Coefficient of Determination: R^2 = 0.999698
Calibration curve: -2.71042e-005 * x^2 + 1.27845 * x + 0.117549
Response type: Internal Std (Ref 48), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:14 Pacific Standard Time

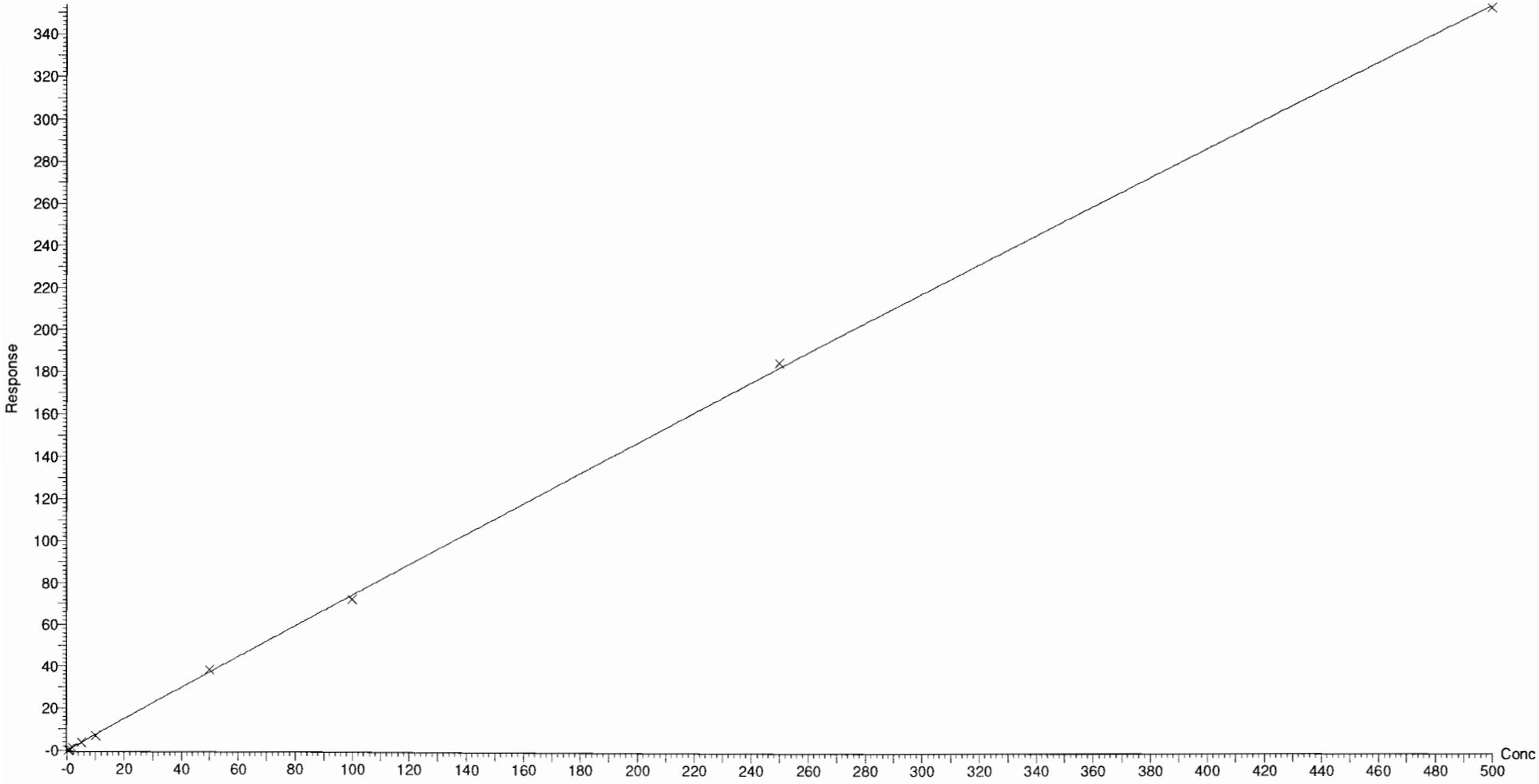
Compound name: 8:2 FTS
Coefficient of Determination: R^2 = 0.998680
Calibration curve: -0.00498611 * x^2 + 1.49085 * x + 0.00285394
Response type: Internal Std (Ref 49), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:14 Pacific Standard Time

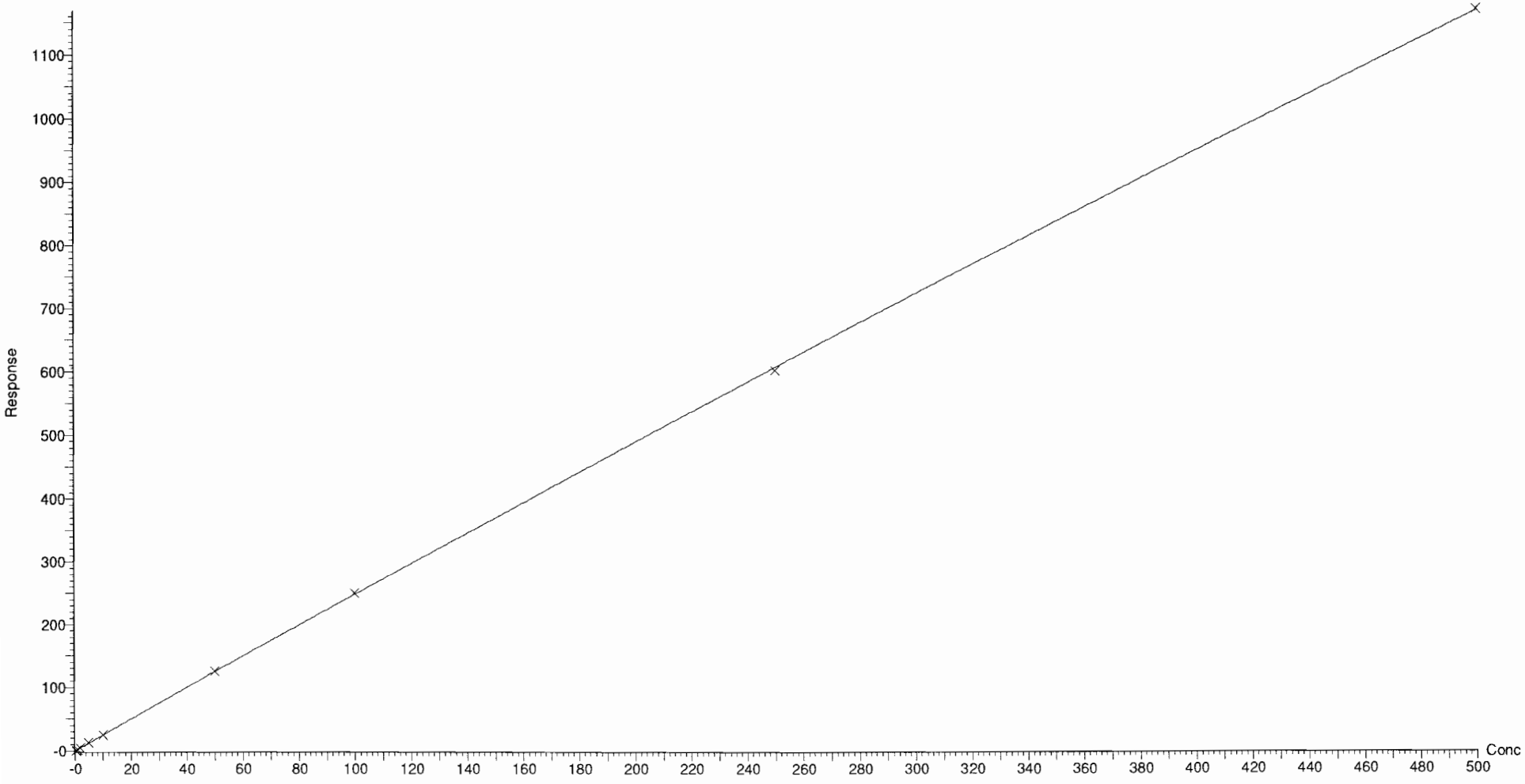
Compound name: PFNS
Coefficient of Determination: R^2 = 0.999636
Calibration curve: -8.93498e-005 * x^2 + 0.752372 * x + 0.018373
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:14 Pacific Standard Time

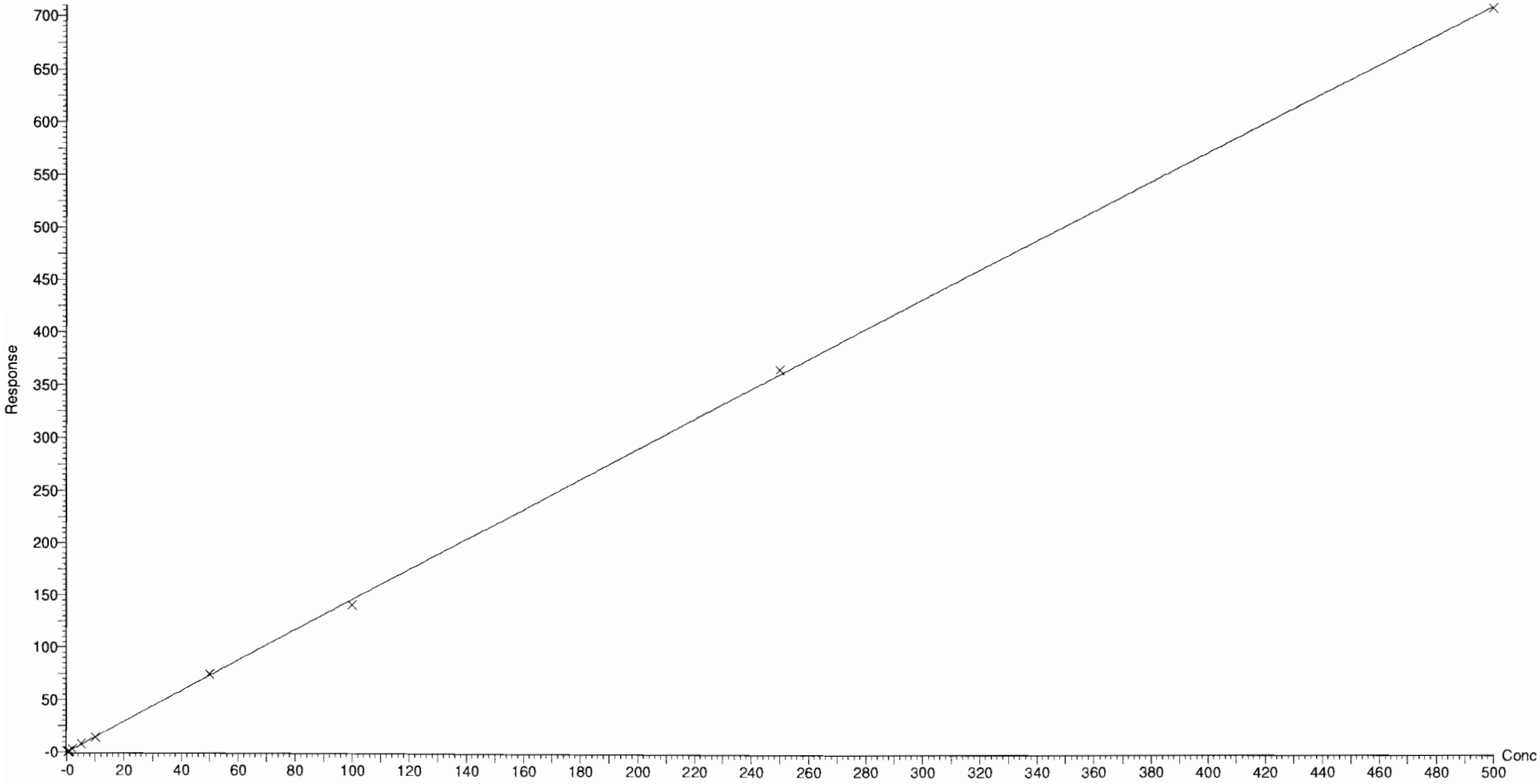
Compound name: L-MeFOSAA
Coefficient of Determination: R^2 = 0.999924
Calibration curve: -0.000386461 * x^2 + 2.52617 * x + 0.080661
Response type: Internal Std (Ref 50), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:14 Pacific Standard Time

Compound name: L-EtFOSAA
Coefficient of Determination: R^2 = 0.999736
Calibration curve: -0.000106299 * x^2 + 1.4734 * x + -0.0536291
Response type: Internal Std (Ref 52), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



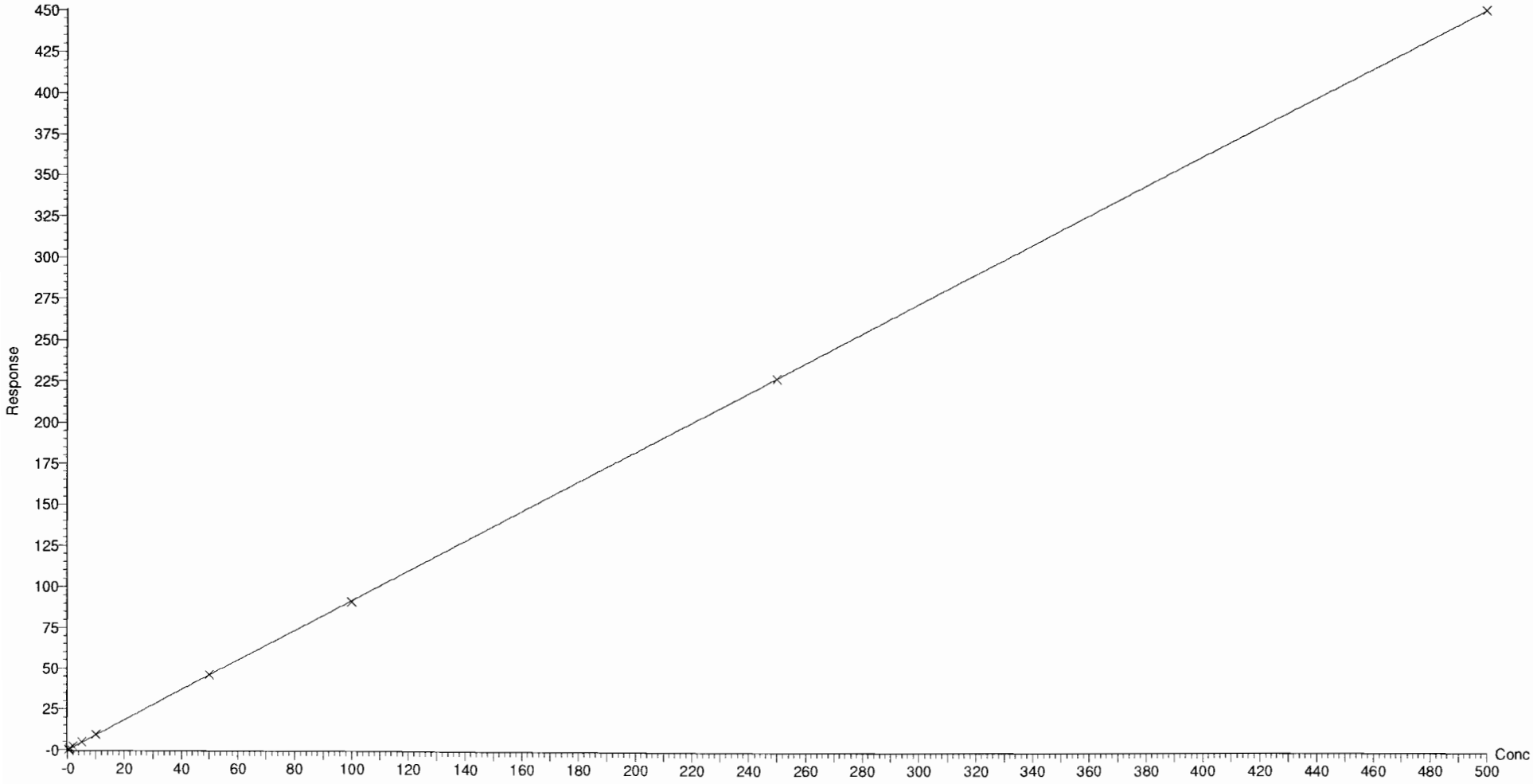
Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:23 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_111918.mdb 20 Nov 2018 11:07:39
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

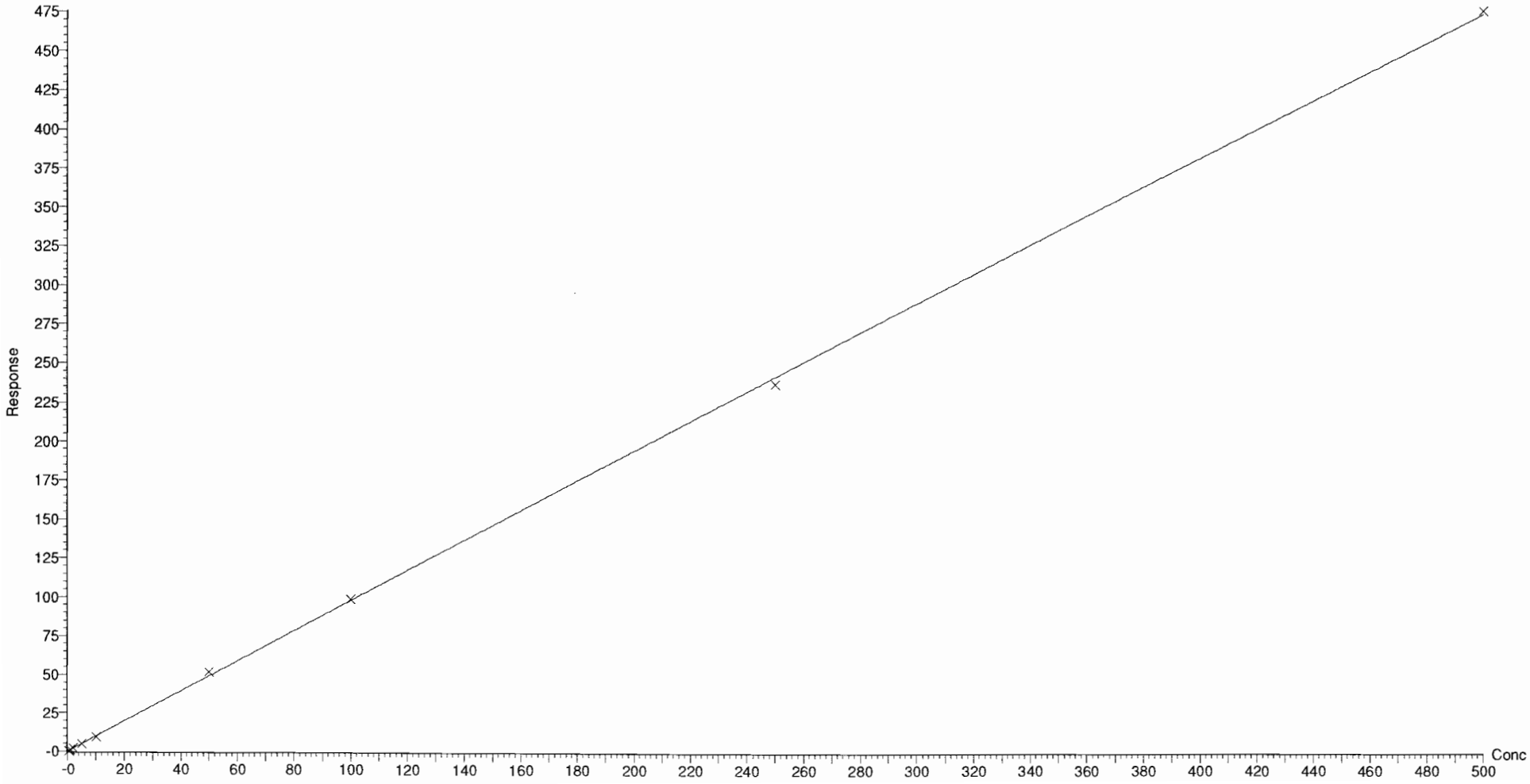
Compound name: PFUdA
Coefficient of Determination: R^2 = 0.999904
Calibration curve: -3.81142e-005 * x^2 + 0.91974 * x + 0.12239
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:23 Pacific Standard Time

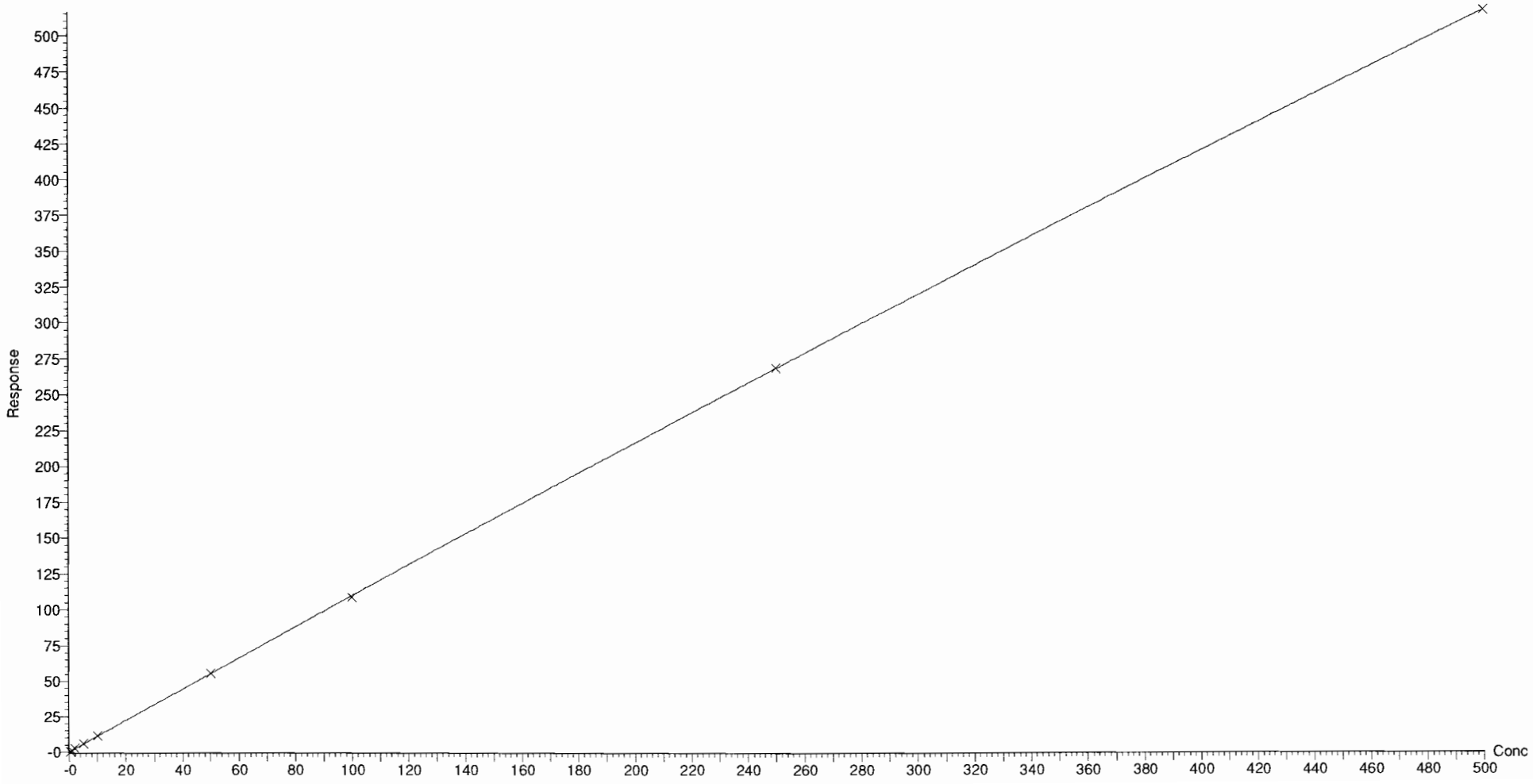
Compound name: PFDS
Coefficient of Determination: R^2 = 0.999675
Calibration curve: -8.18889e-005 * x^2 + 0.987988 * x + 0.0385595
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:23 Pacific Standard Time

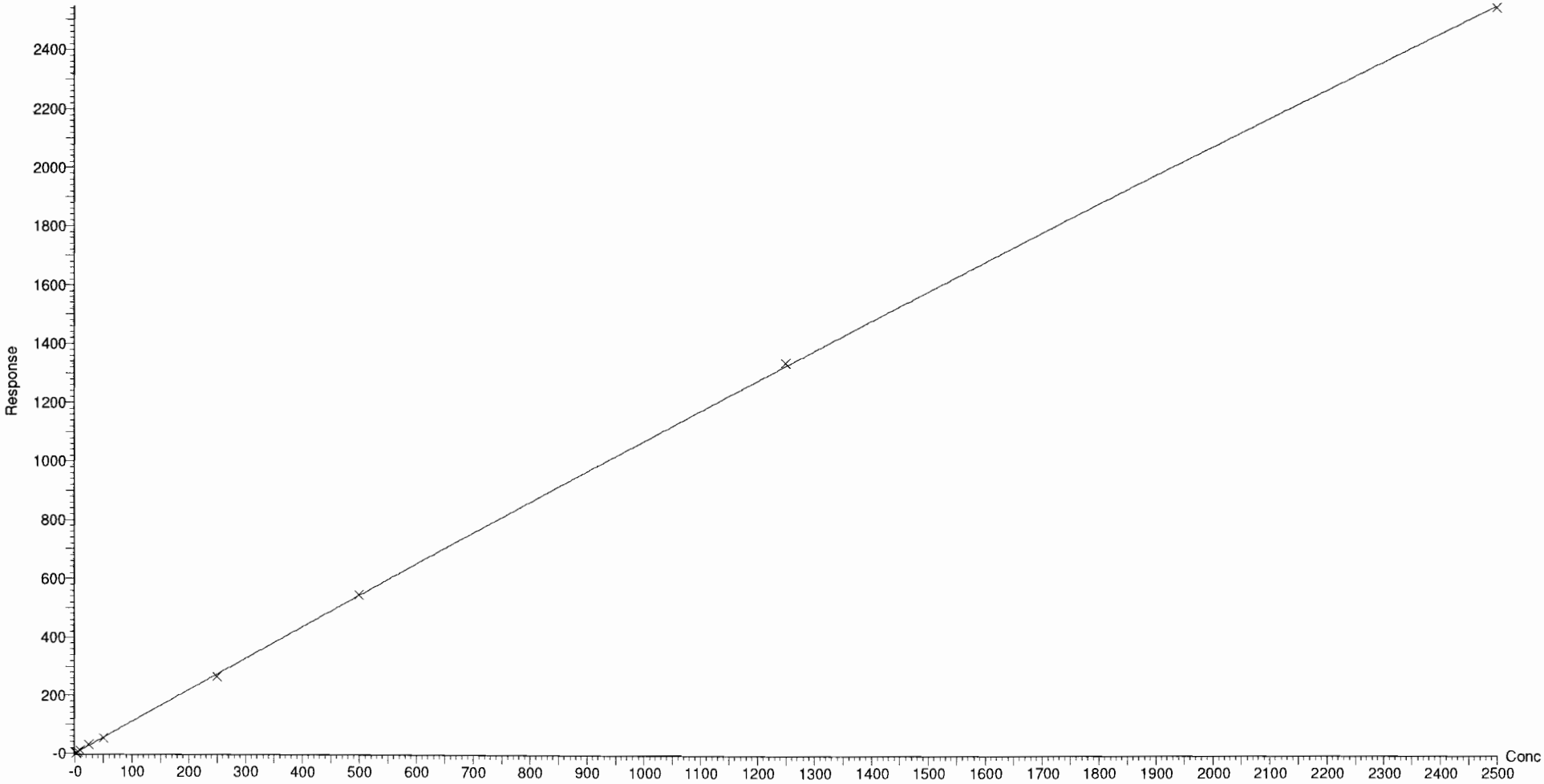
Compound name: PFDoA
Coefficient of Determination: R^2 = 0.999950
Calibration curve: -0.000162641 * x^2 + 1.1143 * x + 0.0921152
Response type: Internal Std (Ref 53), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:23 Pacific Standard Time

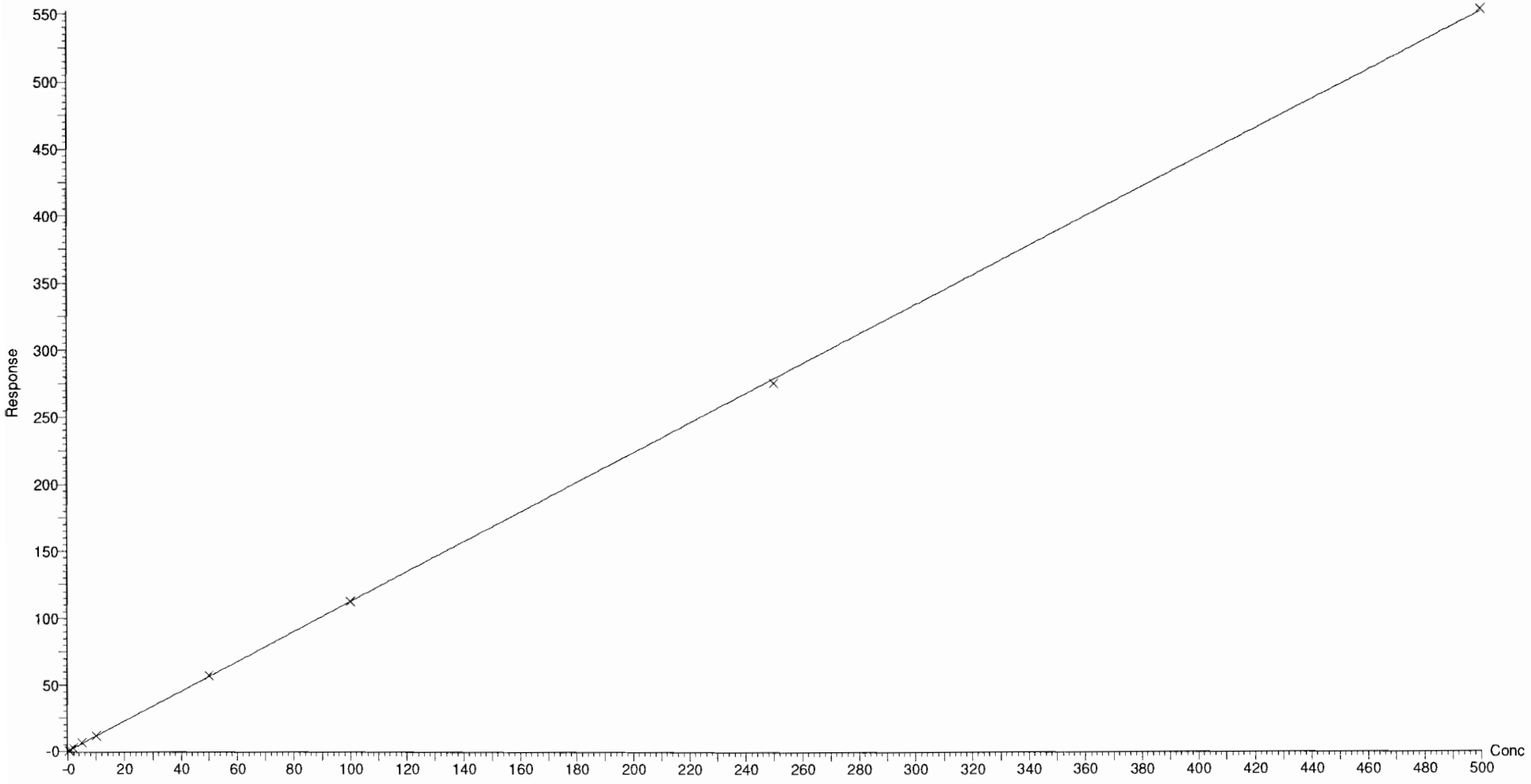
Compound name: N-MeFOSA
Coefficient of Determination: R^2 = 0.999829
Calibration curve: -3.45213e-005 * x^2 + 1.10576 * x + 0.229354
Response type: Internal Std (Ref 54), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:23 Pacific Standard Time

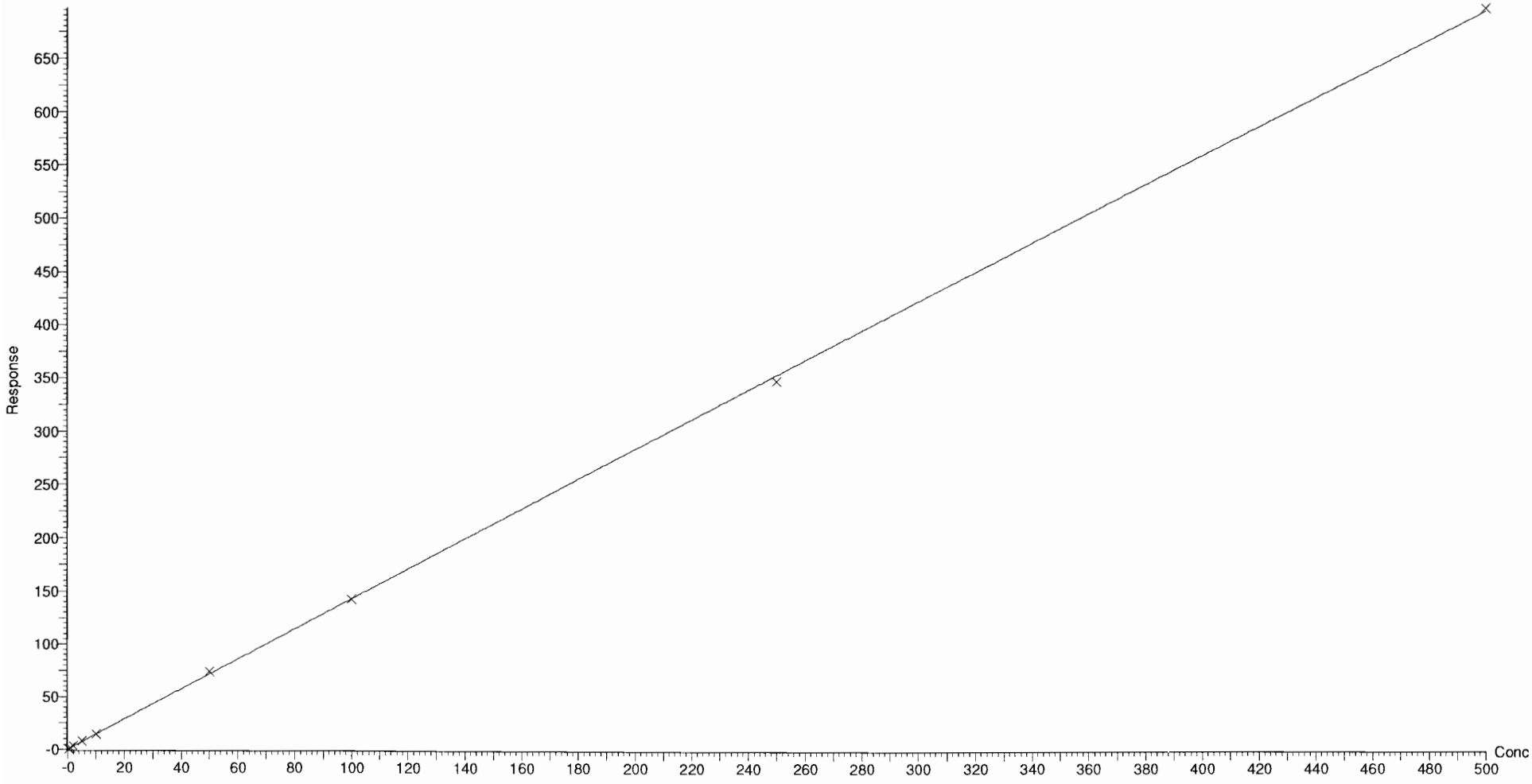
Compound name: PFTrDA
Coefficient of Determination: R^2 = 0.999868
Calibration curve: -5.63679e-005 * x^2 + 1.12947 * x + 0.111462
Response type: Internal Std (Ref 53), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:23 Pacific Standard Time

Compound name: PFTeDA
Coefficient of Determination: R^2 = 0.999748
Calibration curve: -0.000104949 * x^2 + 1.44062 * x + 0.169939
Response type: Internal Std (Ref 55), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

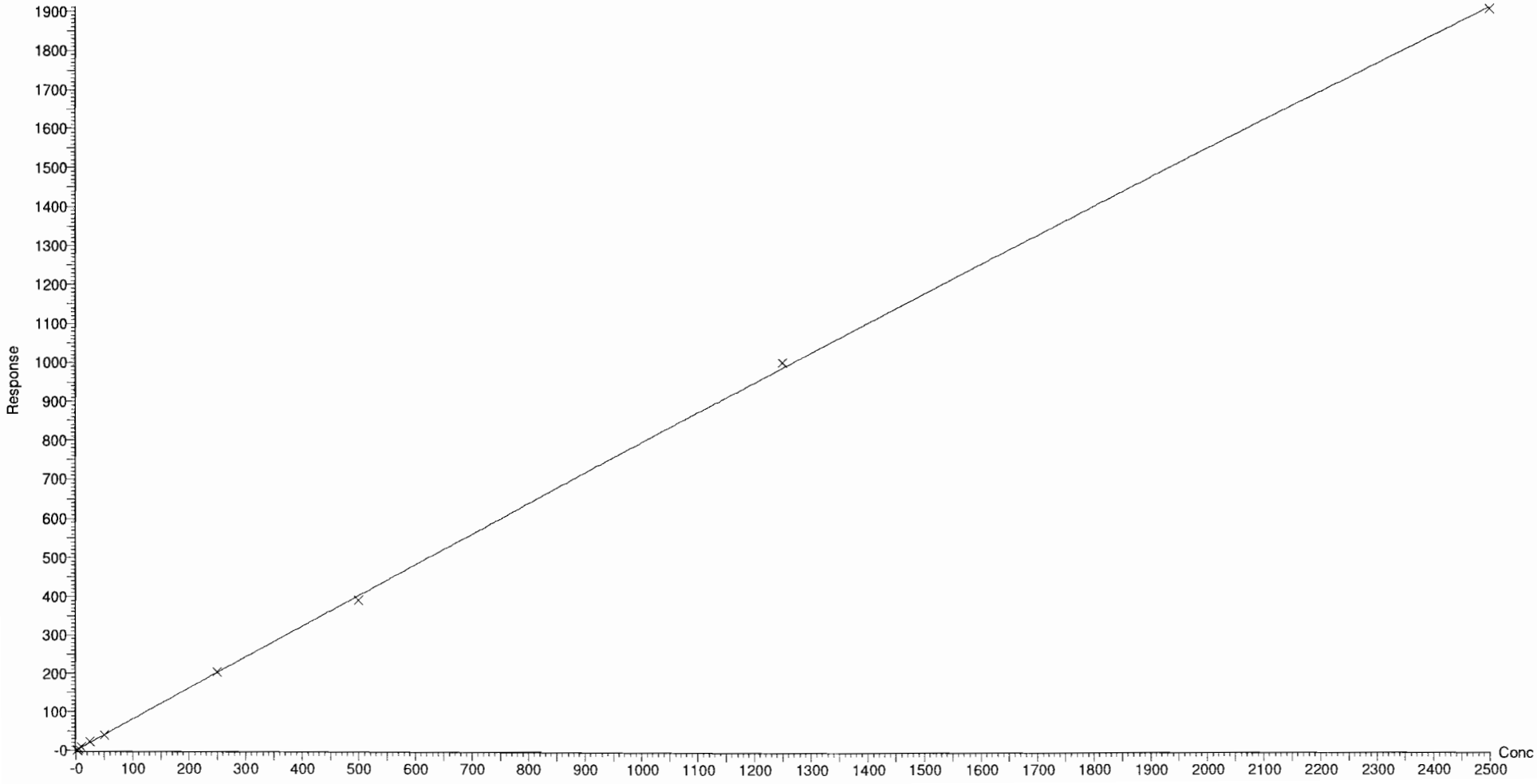


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:23 Pacific Standard Time

Compound name: N-EtFOSA
Coefficient of Determination: R^2 = 0.999708
Calibration curve: -2.13466e-005 * x^2 + 0.817824 * x + 0.372192
Response type: Internal Std (Ref 56), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

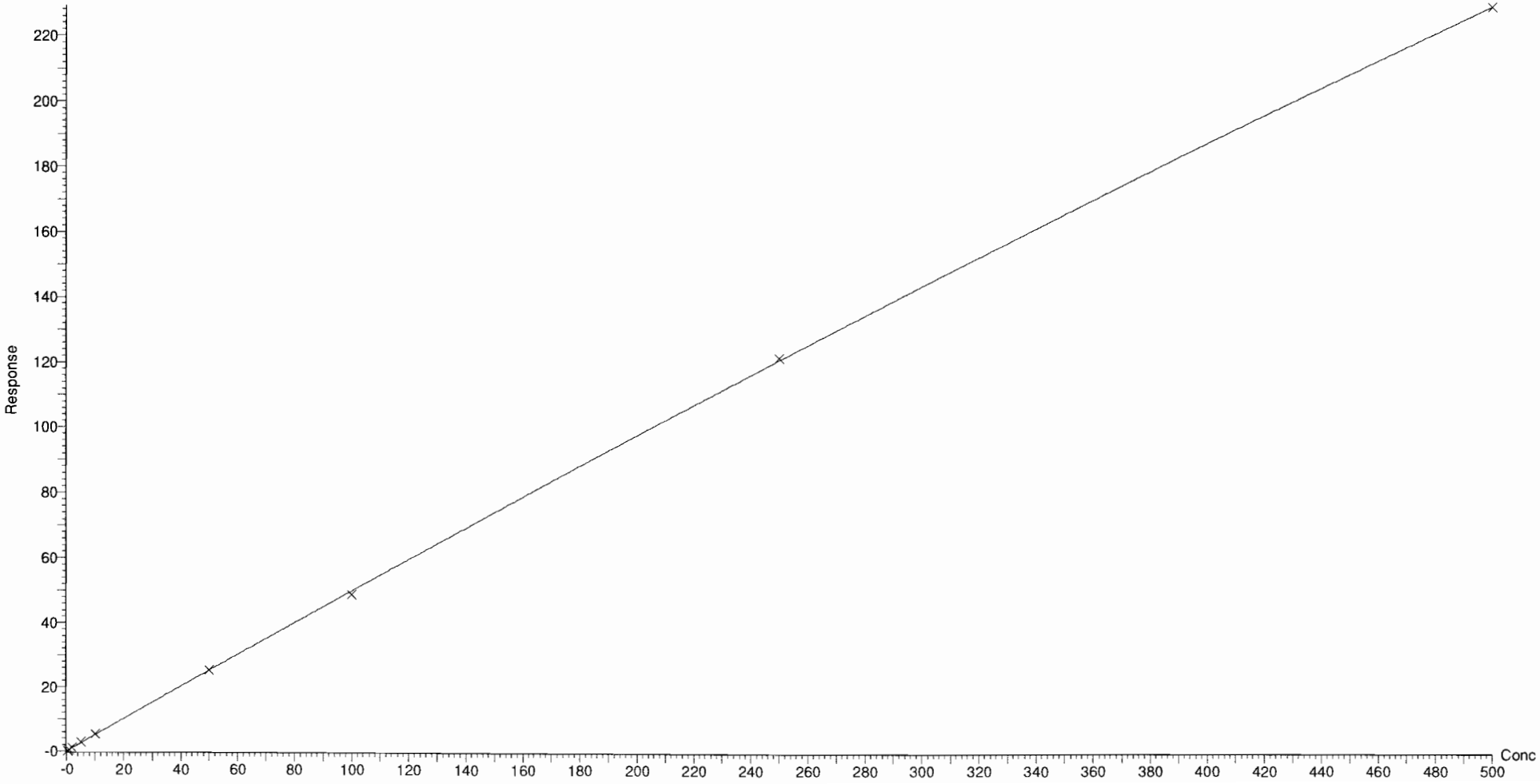


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:23 Pacific Standard Time

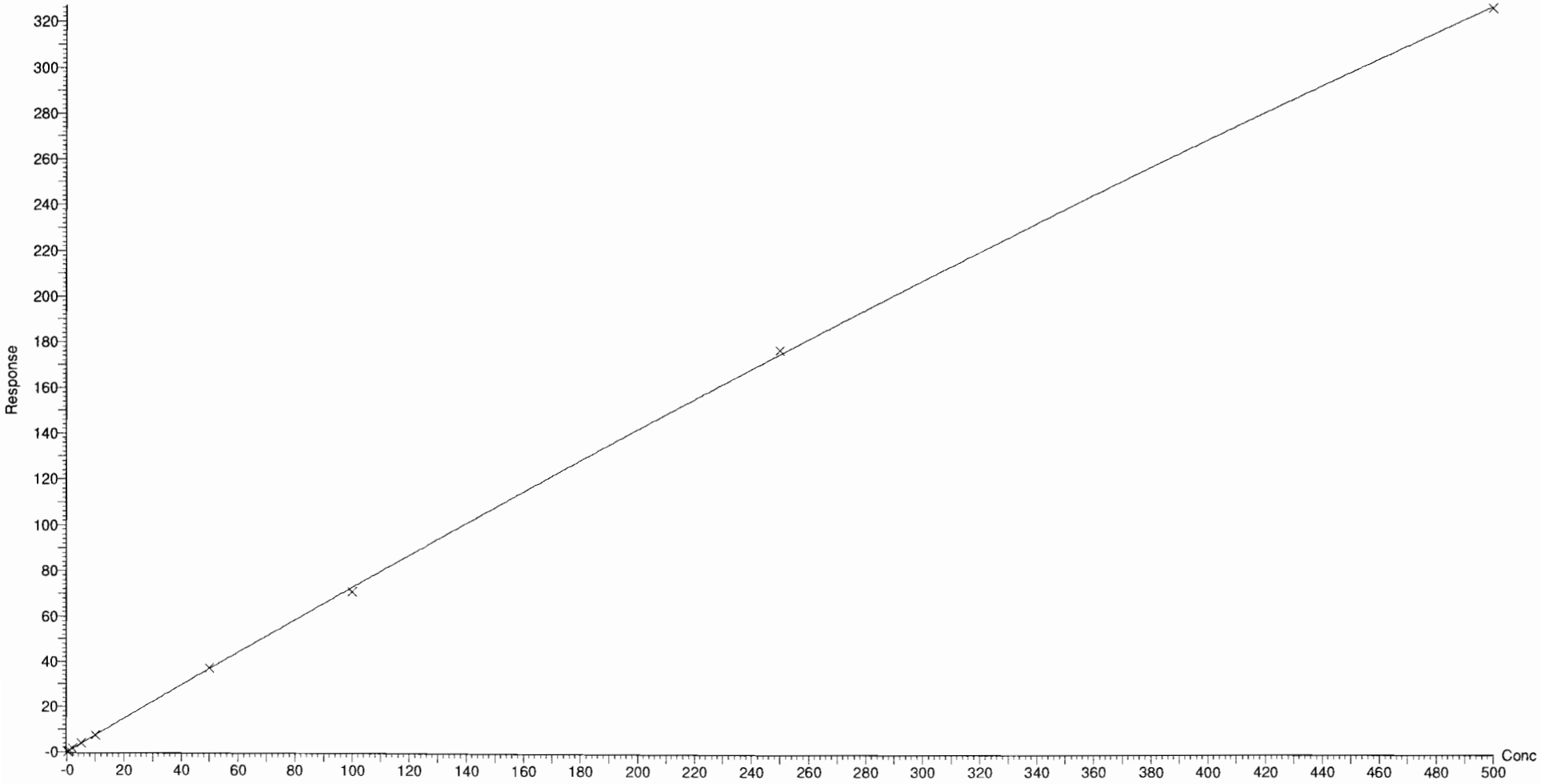
Compound name: PFHxDA
Coefficient of Determination: R^2 = 0.999829
Calibration curve: -0.000101772 * x^2 + 0.509003 * x + 0.0746932
Response type: Internal Std (Ref 57), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:23 Pacific Standard Time

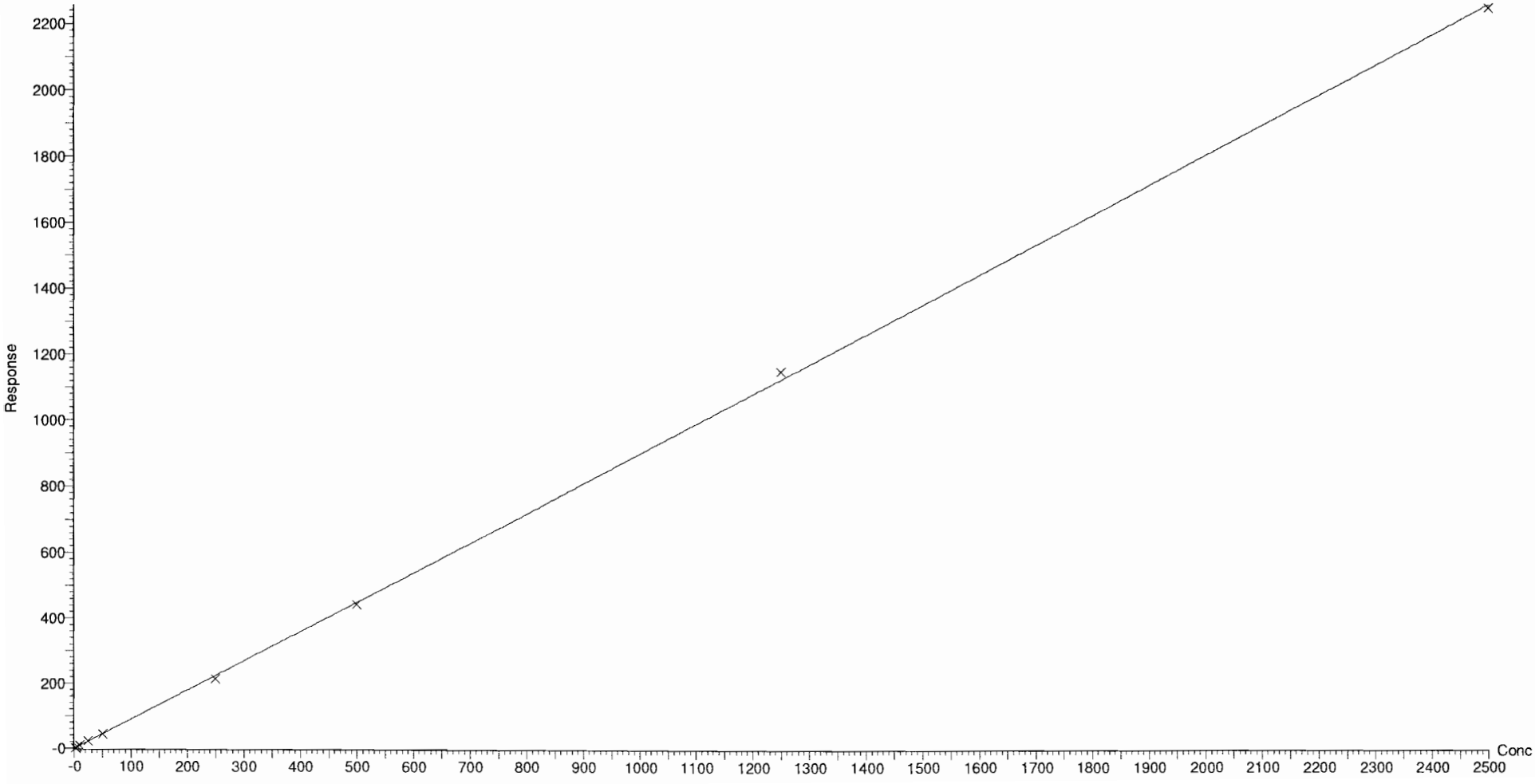
Compound name: PFODA
Coefficient of Determination: R^2 = 0.999792
Calibration curve: -0.000188326 * x^2 + 0.748104 * x + 0.0400274
Response type: Internal Std (Ref 57), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:23 Pacific Standard Time

Compound name: N-MeFOSE
Coefficient of Determination: R^2 = 0.999680
Calibration curve: 1.98083e-006 * x^2 + 0.89799 * x + 0.169793
Response type: Internal Std (Ref 58), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

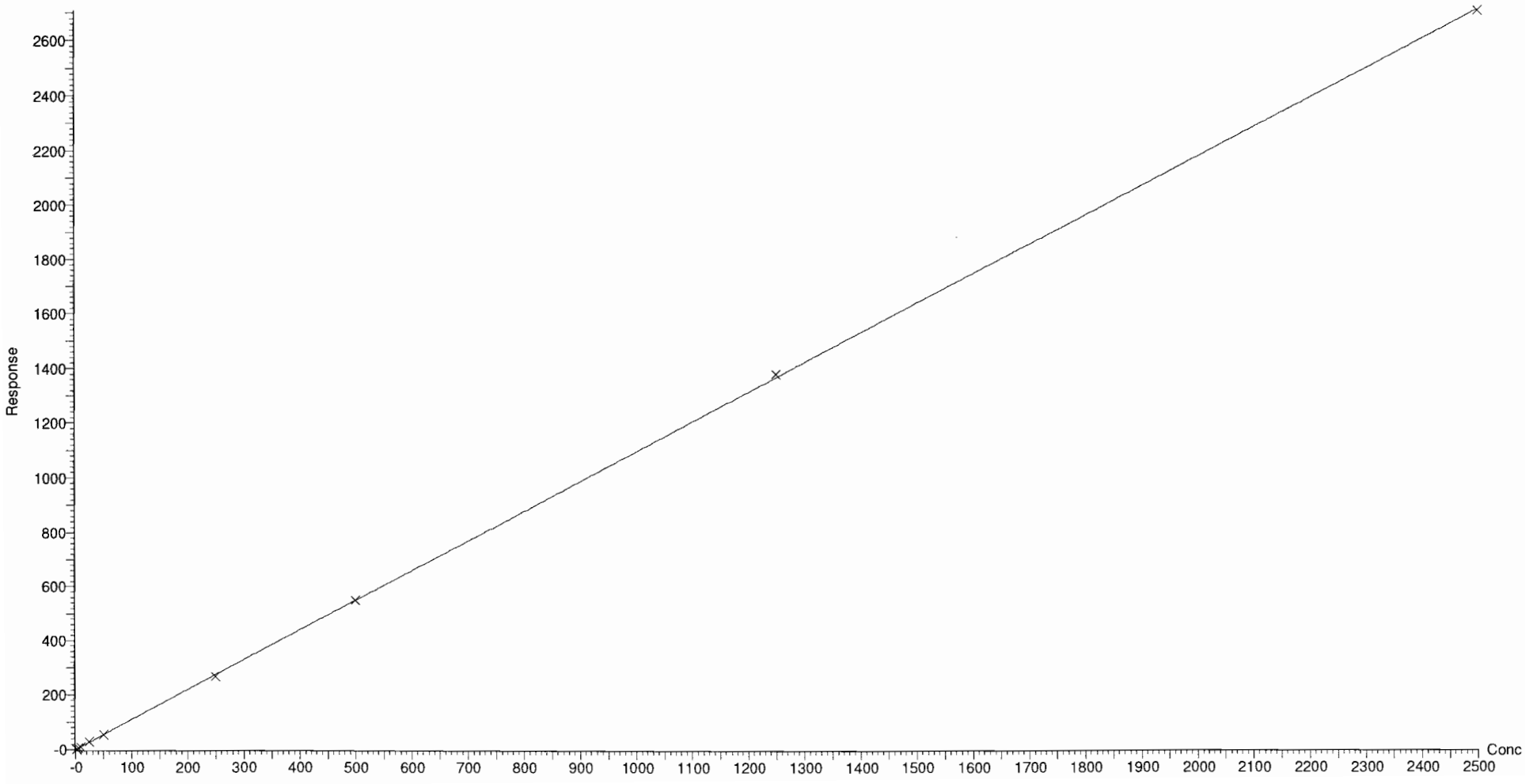


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:21:23 Pacific Standard Time

Compound name: N-EtFOSE
Coefficient of Determination: R^2 = 0.999917
Calibration curve: -8.62216e-006 * x^2 + 1.10568 * x + 0.172062
Response type: Internal Std (Ref 59), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



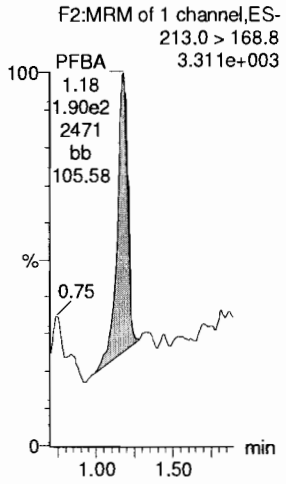
Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:16:07 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:16:51 Pacific Standard Time

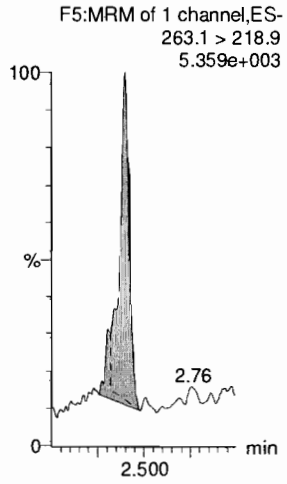
Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_111918.mdb 20 Nov 2018 11:07:39
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Name: 181119M2_2, Date: 19-Nov-2018, Time: 20:17:43, ID: ST181119M2-1 PFC CS-2 18K0901, Description: PFC CS-2 18K0901

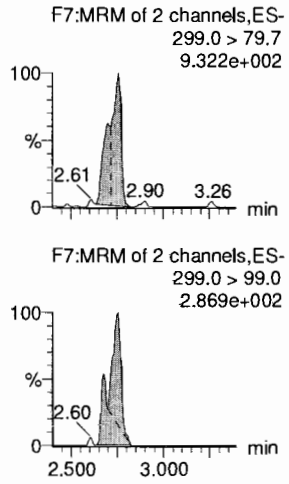
PFBA



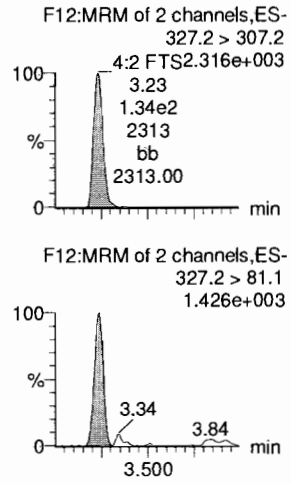
PFPeA



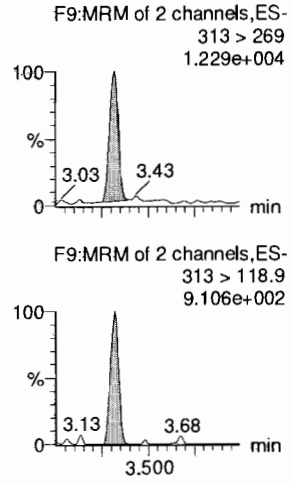
PFBS



4:2 FTS



PFHxA



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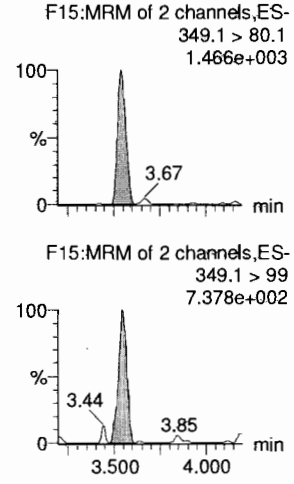
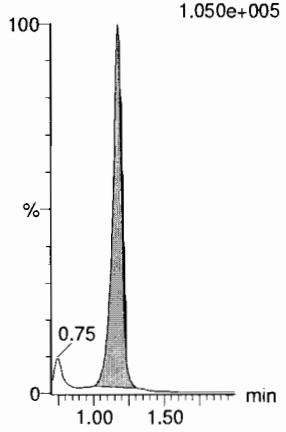


13C3-PFBA



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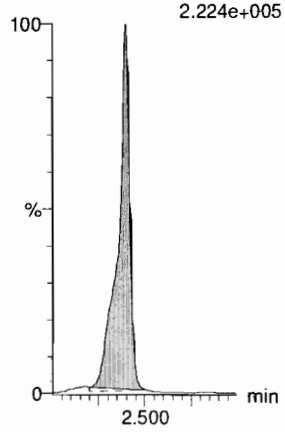

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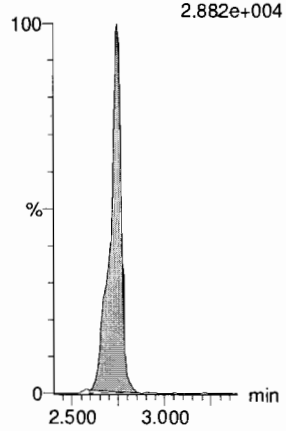
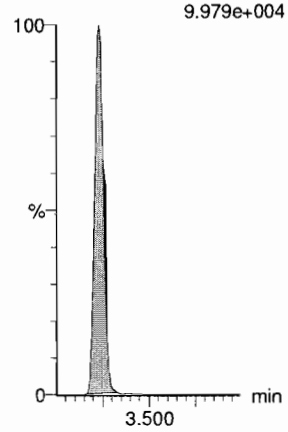


13C2-4:2 FTS



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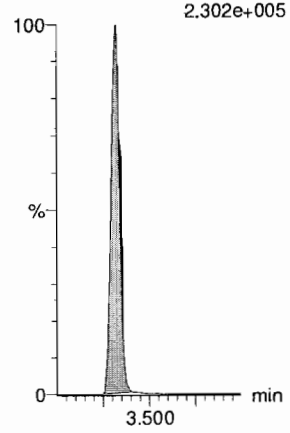
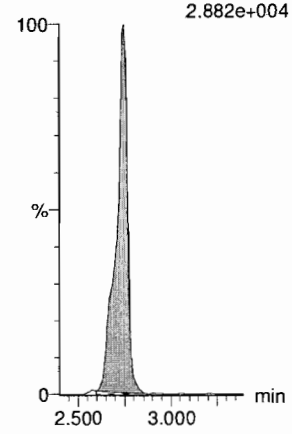


13C3-PFBS

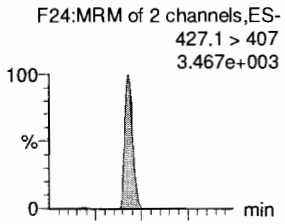


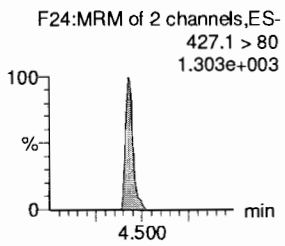
Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

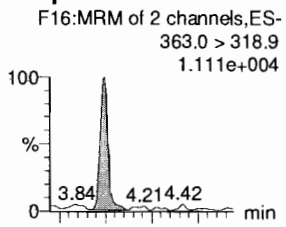
Name: 181119M2_2, Date: 19-Nov-2018, Time: 20:17:43, ID: ST181119M2-1 PFC CS-2 18K0901, Description: PFC CS-2 18K0901

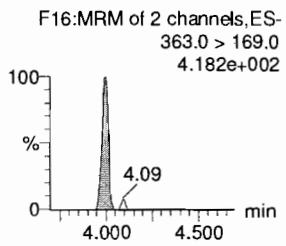
6:2 FTS



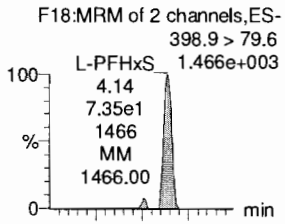


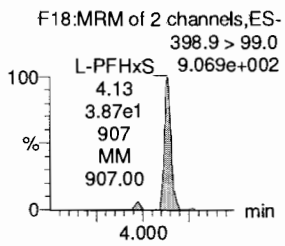
PFHpA



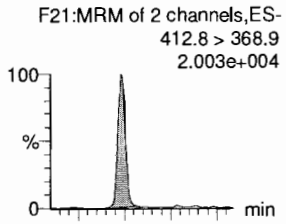


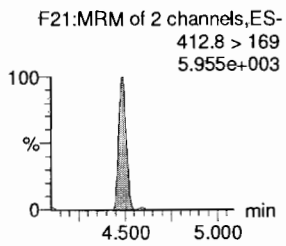
L-PFHxS





L-PFOA





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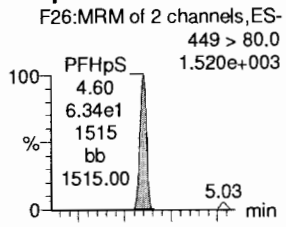

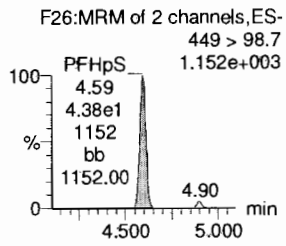

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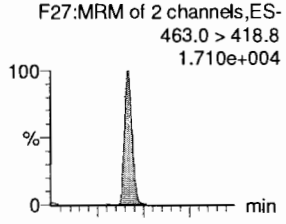
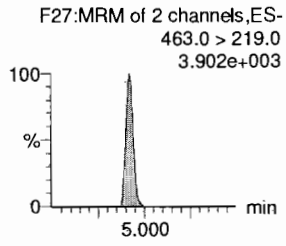
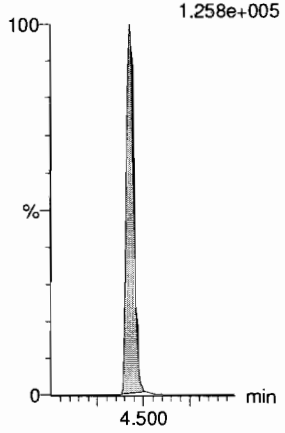
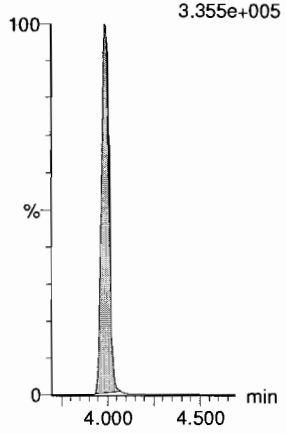




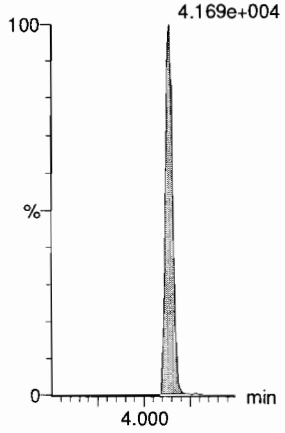
13C2-6:2 FTS



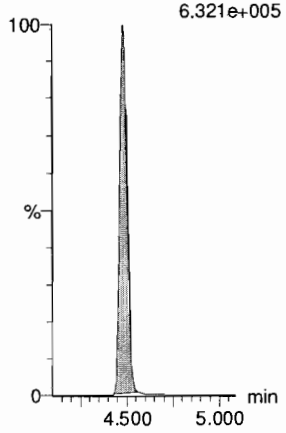
13C4-PFHpA



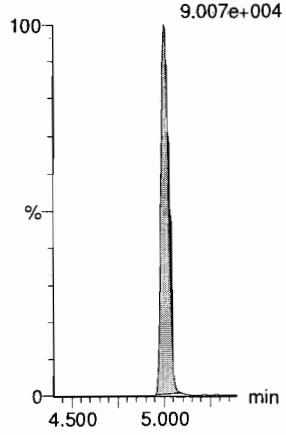
18O2-PFHxS



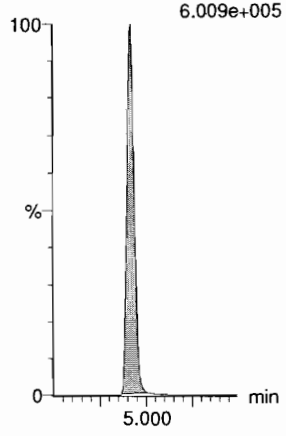
13C2-PFOA



13C8-PFOS



13C5-PFNA

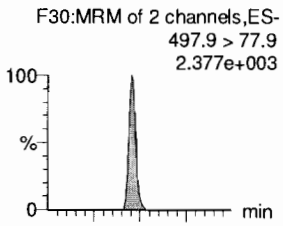


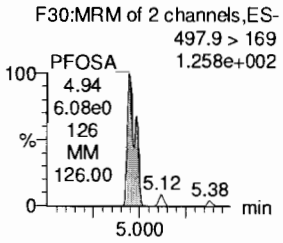
Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

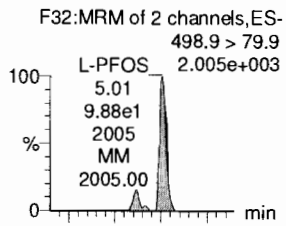
Name: 181119M2_2, Date: 19-Nov-2018, Time: 20:17:43, ID: ST181119M2-1 PFC CS-2 18K0901, Description: PFC CS-2 18K0901

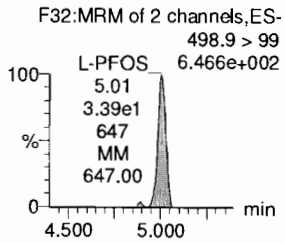
PFOSA



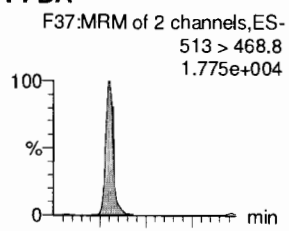


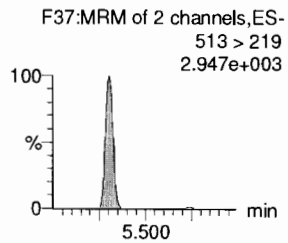
L-PFOS



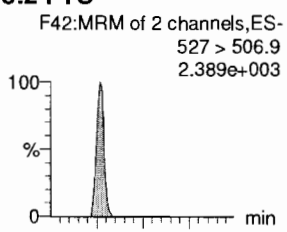


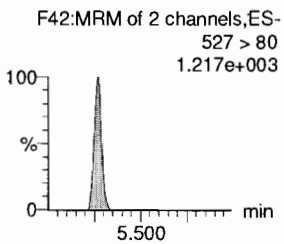
PFDA





8:2 FTS





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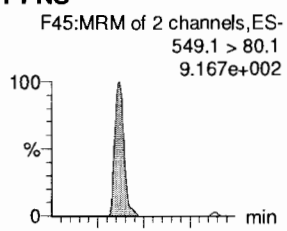
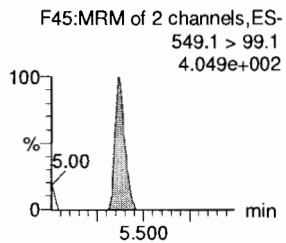
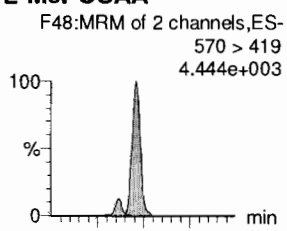
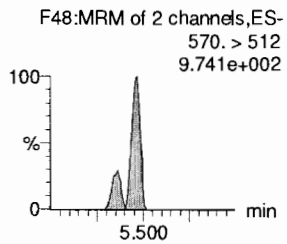


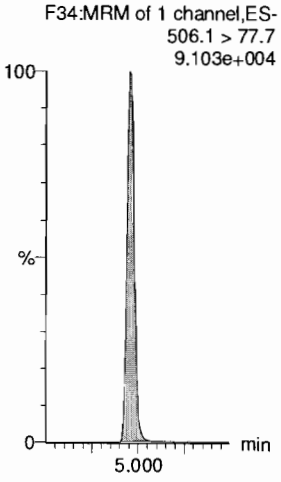


L-MeFOSAA

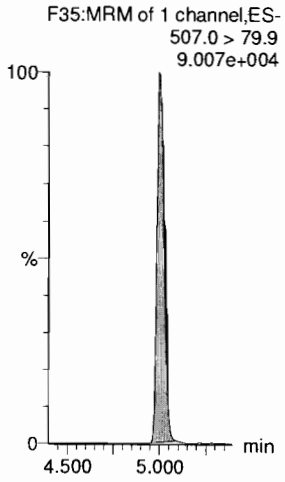




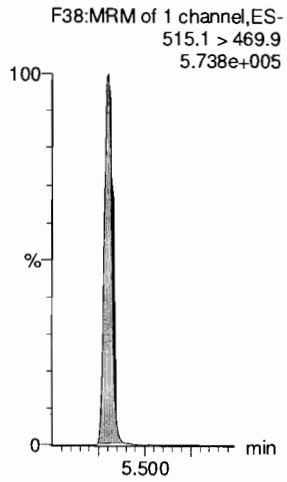
13C8-PFOSA



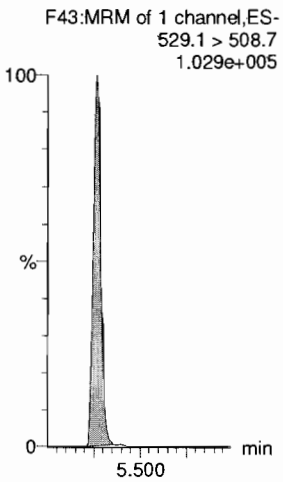
13C8-PFOS



13C2-PFDA



13C2-8:2 FTS



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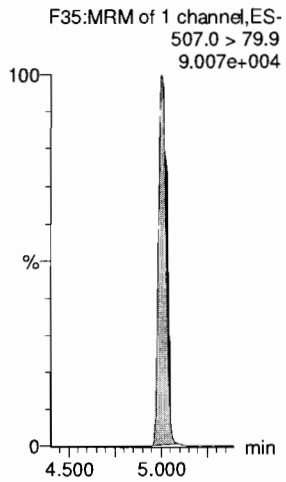
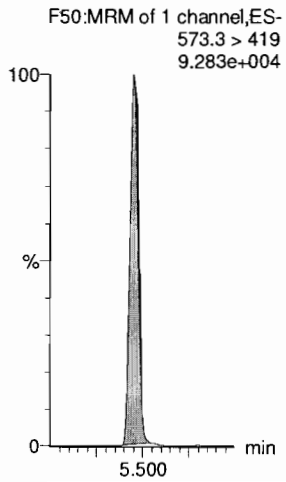


d3-N-MeFOSAA

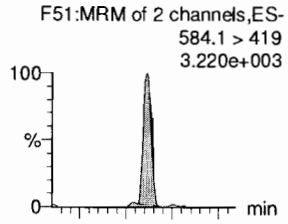


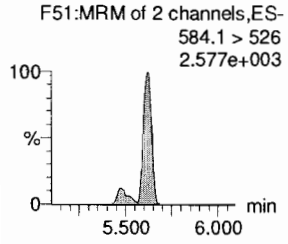
Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

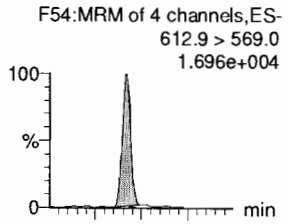
Name: 181119M2_2, Date: 19-Nov-2018, Time: 20:17:43, ID: ST181119M2-1 PFC CS-2 18K0901, Description: PFC CS-2 18K0901

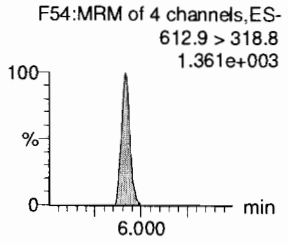
L-EtFOSAA



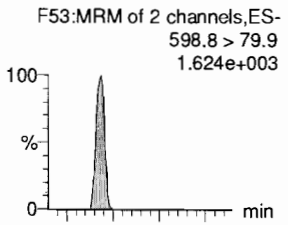


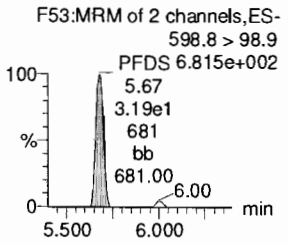
PFDoA



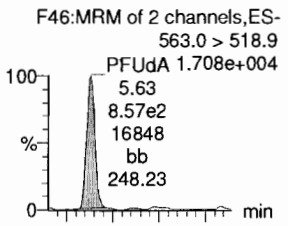


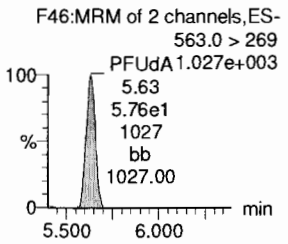
PFDS



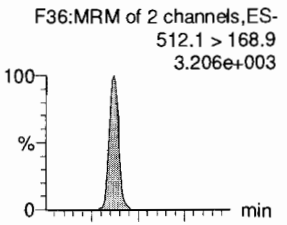


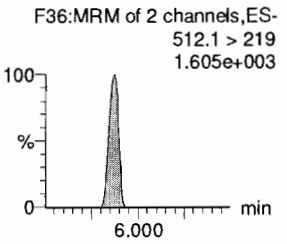
PFUdA



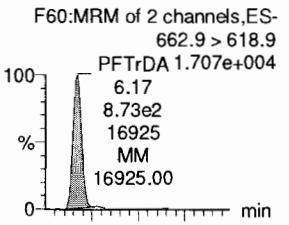


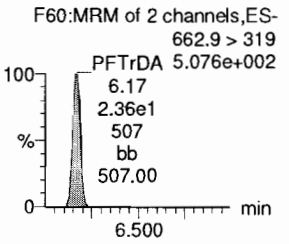
N-MeFOSA



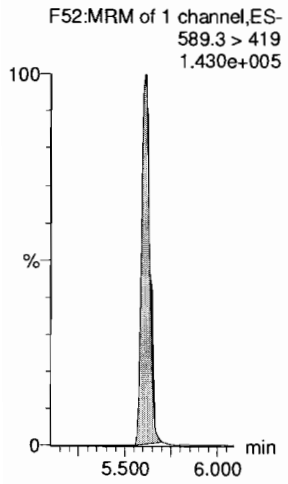


PFTrDA

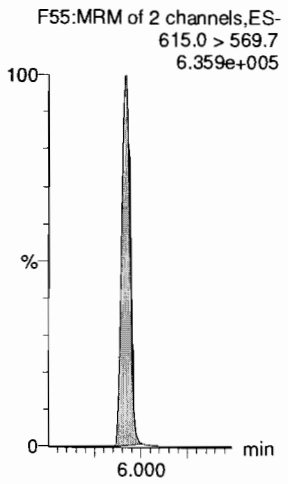




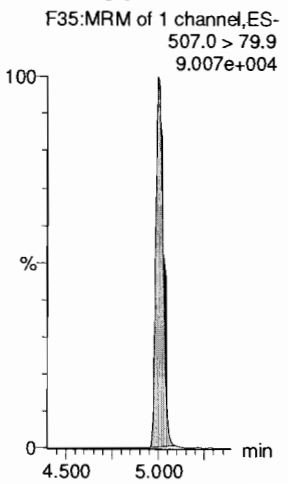
d5-N-EtFOSAA



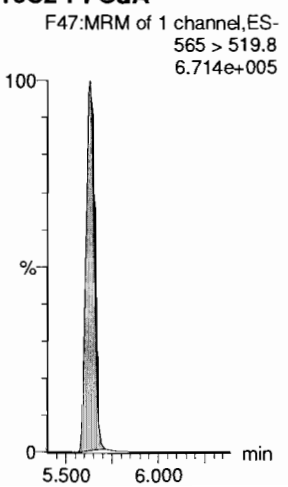
13C2-PFDoA



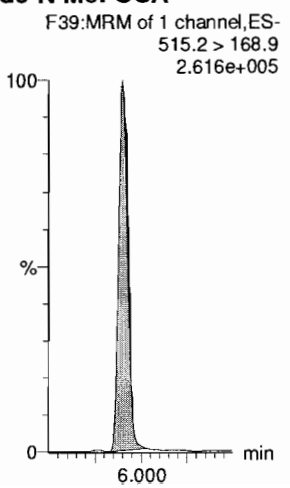
13C8-PFOS



13C2-PFUdA



d3-N-MeFOSA



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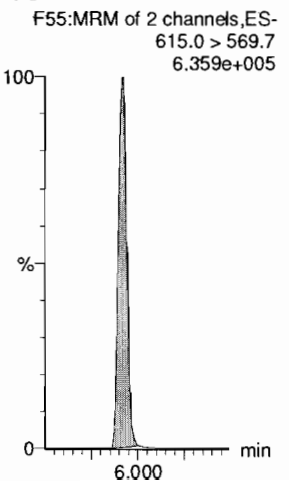
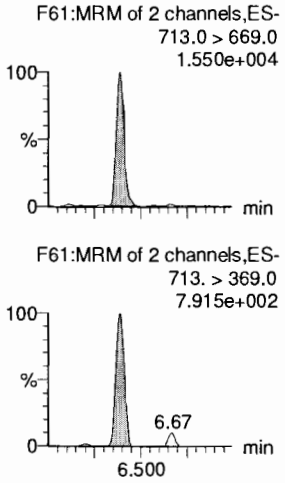


Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_2, Date: 19-Nov-2018, Time: 20:17:43, ID: ST181119M2-1 PFC CS-2 18K0901, Description: PFC CS-2 18K0901

PFTeDA



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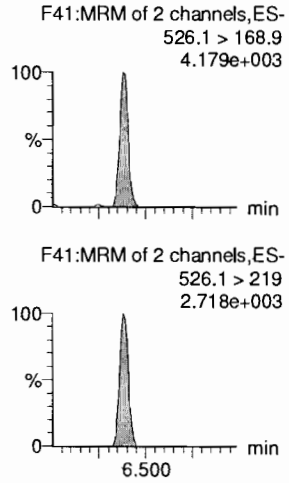
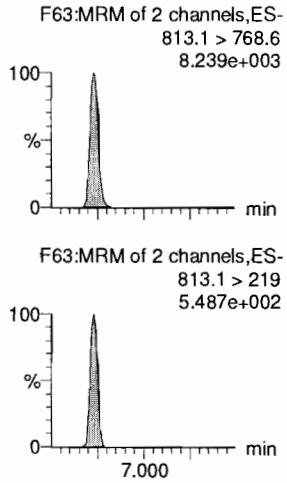
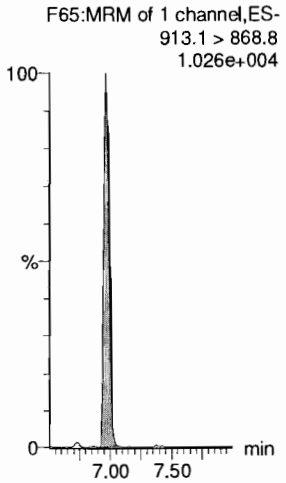


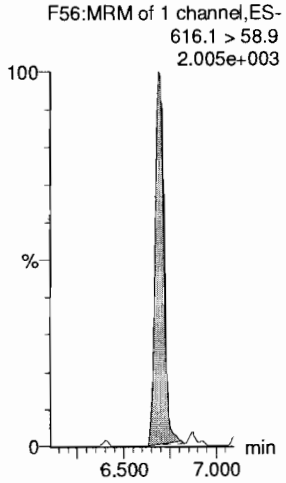
PFHxDA



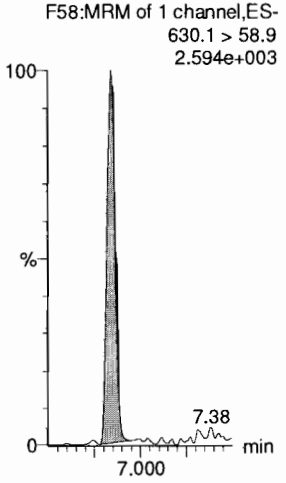
PFODA



N-MeFOSE



N-EtFOSE



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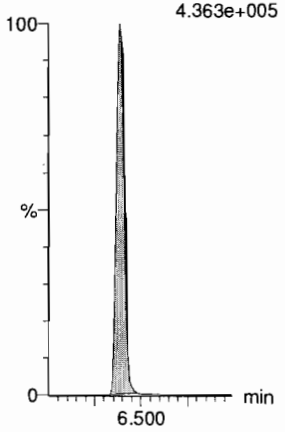
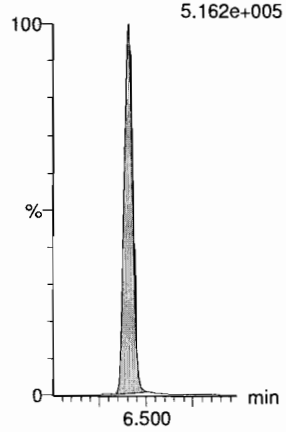


d5-N-ETFOSA



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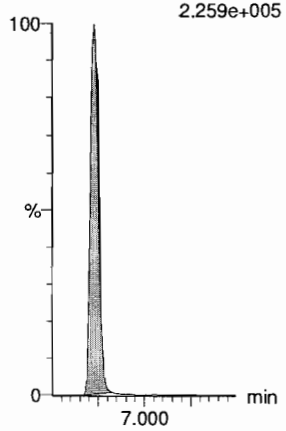

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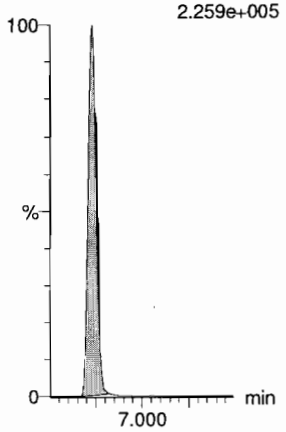
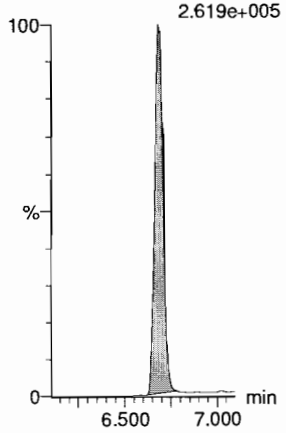
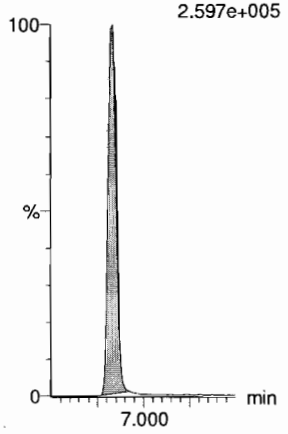


d7-N-MeFOSE



d9-N-EtFOSE



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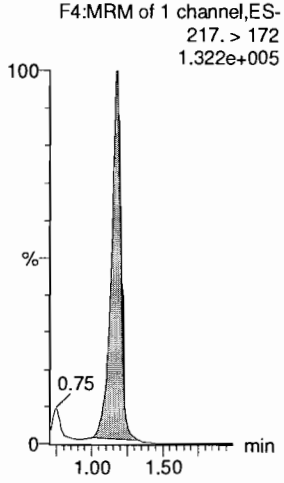
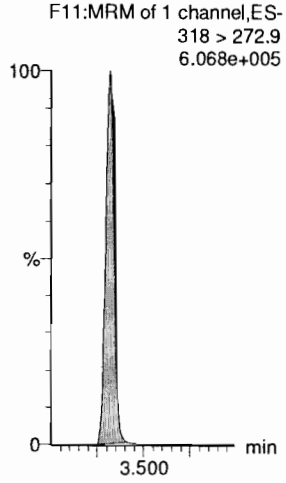
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_2, Date: 19-Nov-2018, Time: 20:17:43, ID: ST181119M2-1 PFC CS-2 18K0901, Description: PFC CS-2 18K0901

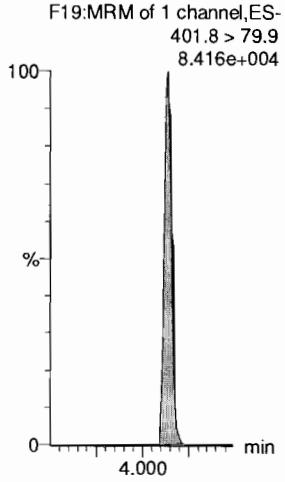
13C4-PFBA



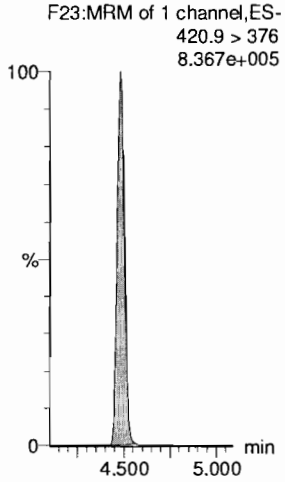
13C5-PFHxA



13C3-PFHxS



13C8-PFOA



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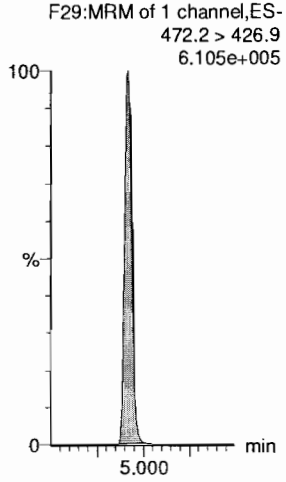
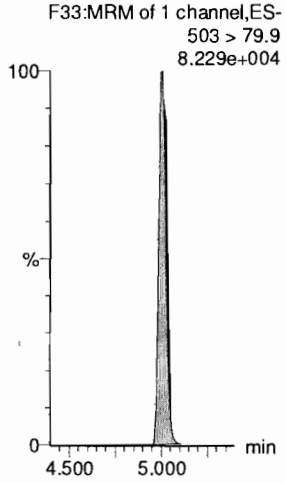


13C4-PFOS



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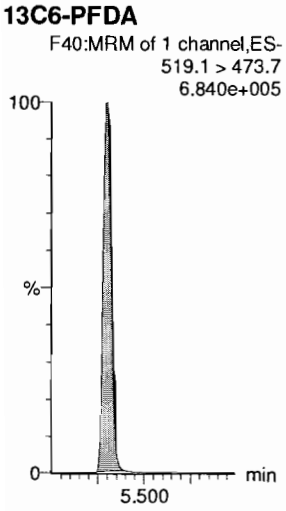
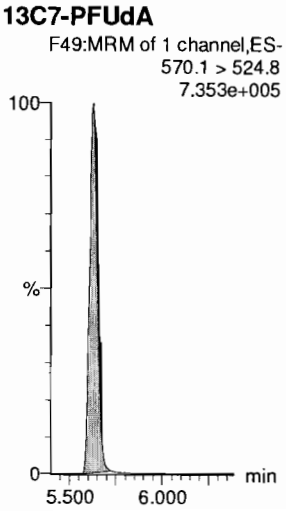


13C7-PFUdA



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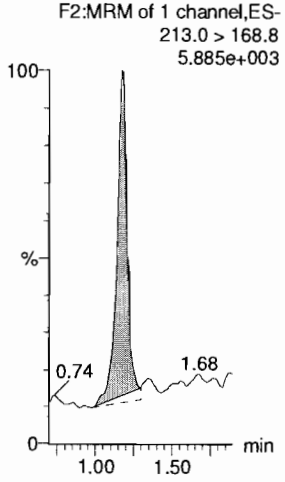
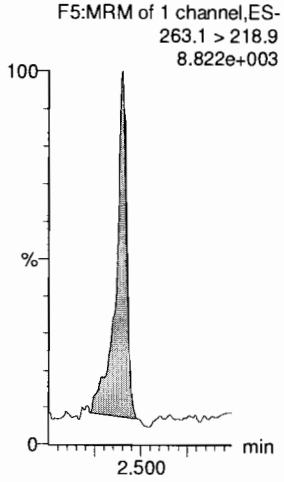
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_3, Date: 19-Nov-2018, Time: 20:28:22, ID: ST181119M2-2 PFC CS-1 18K0902, Description: PFC CS-1 18K0902

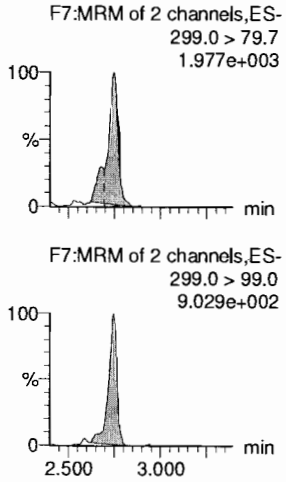
PFBA



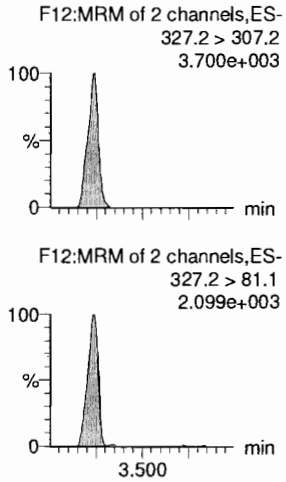
PFPeA



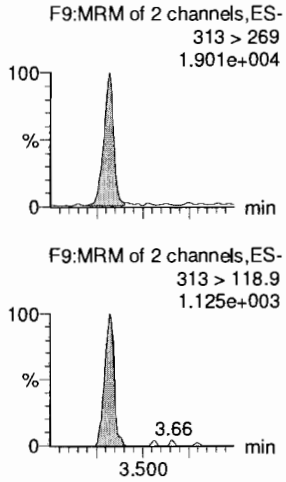
PFBS



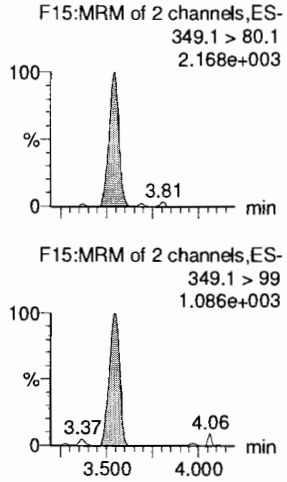
4:2 FTS



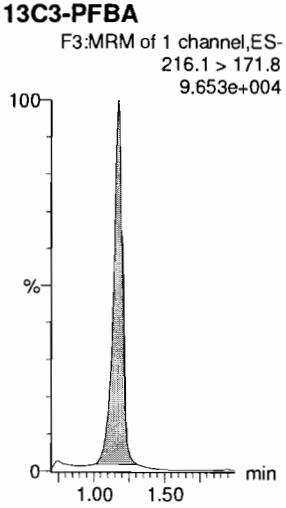
PFHxA



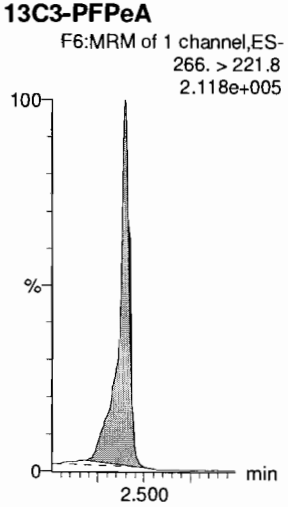
PFPeS



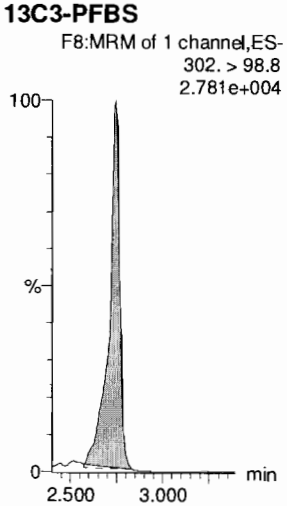
13C3-PFBA



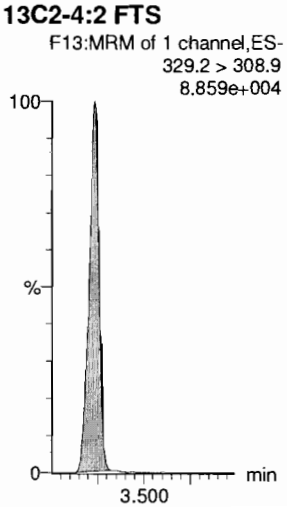
13C3-PFPeA



13C3-PFBS



13C2-4:2 FTS



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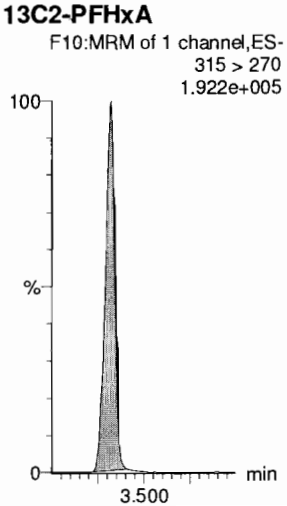

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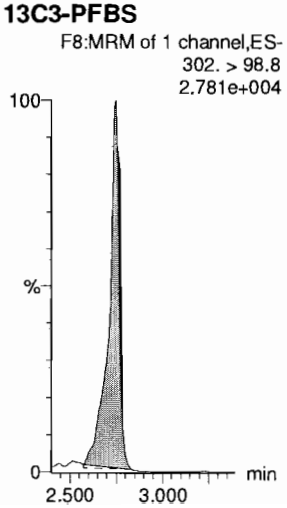

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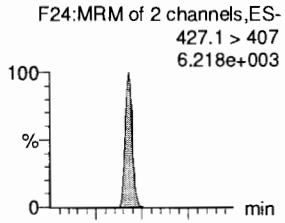
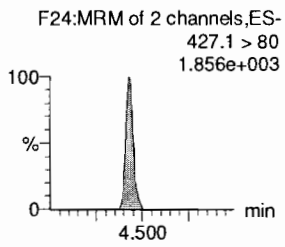
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

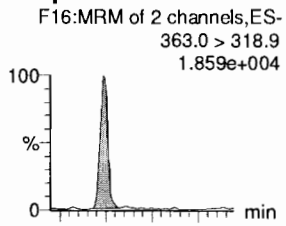
Name: 181119M2_3, Date: 19-Nov-2018, Time: 20:28:22, ID: ST181119M2-2 PFC CS-1 18K0902, Description: PFC CS-1 18K0902

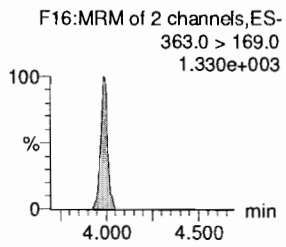
6:2 FTS



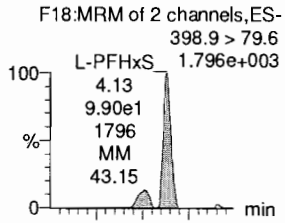


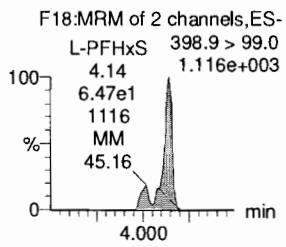
PFHpA





L-PFHxS





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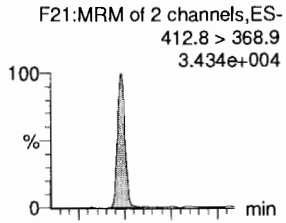

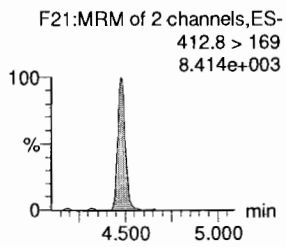

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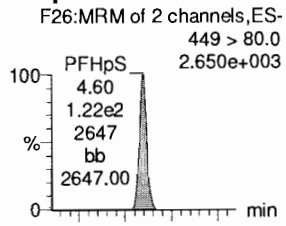
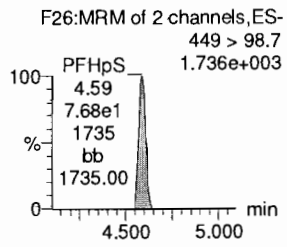
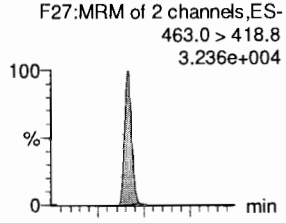
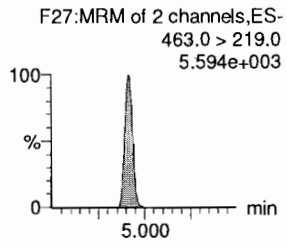


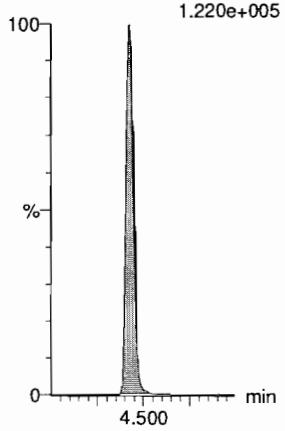


PFNA

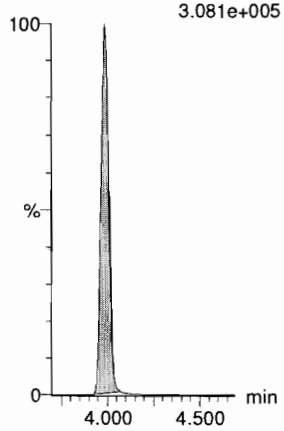




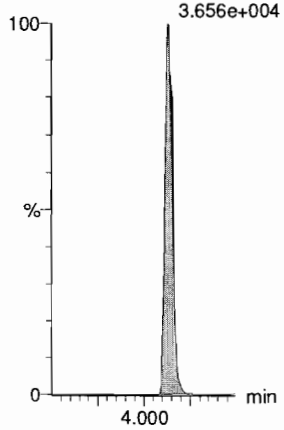
13C2-6:2 FTS



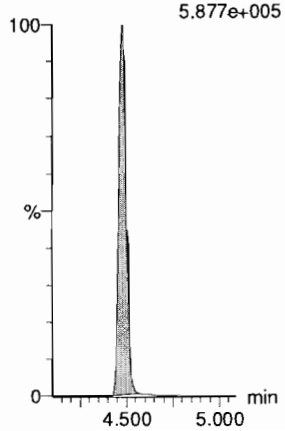
13C4-PFHpA



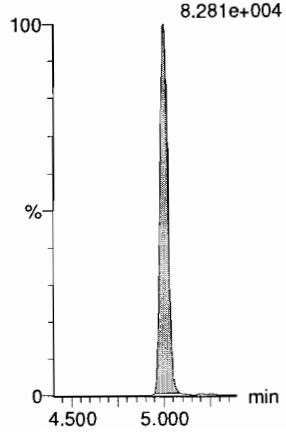
18O2-PFHxS



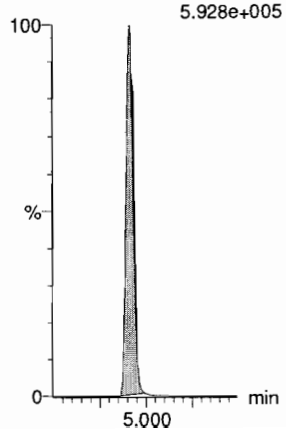
13C2-PFOA



13C8-PFOS



13C5-PFNA



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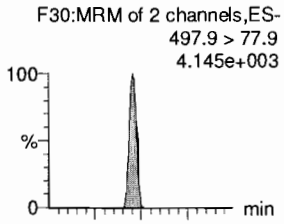
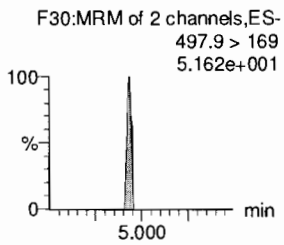
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

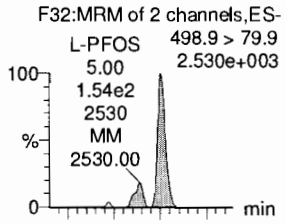
Name: 181119M2_3, Date: 19-Nov-2018, Time: 20:28:22, ID: ST181119M2-2 PFC CS-1 18K0902, Description: PFC CS-1 18K0902

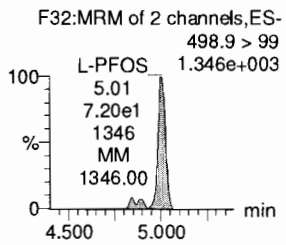
PFOSA



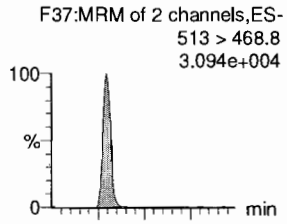


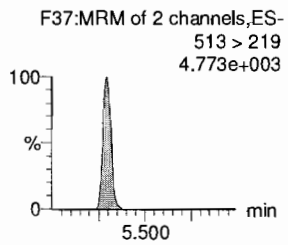
L-PFOS



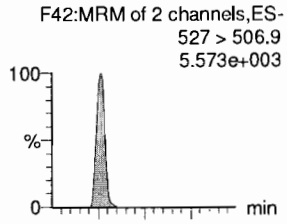


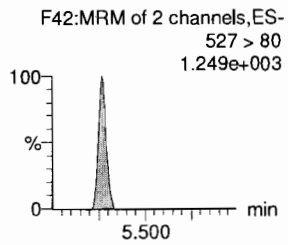
PFDA



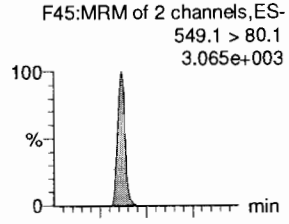


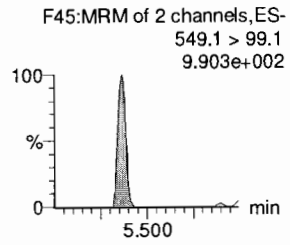
8:2 FTS



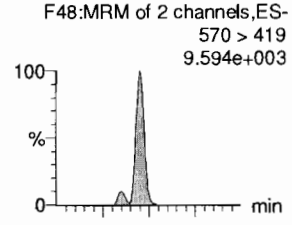


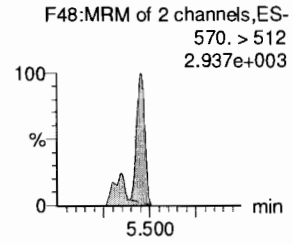
PFNS



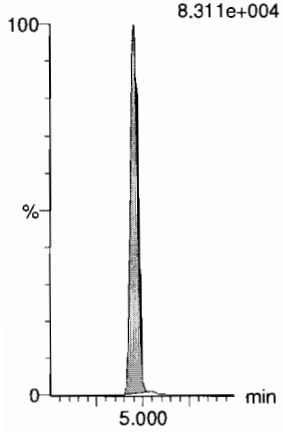


L-MeFOSAA

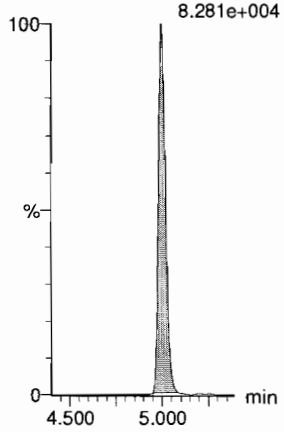




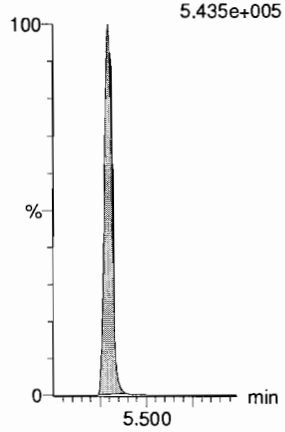
13C8-PFOSA



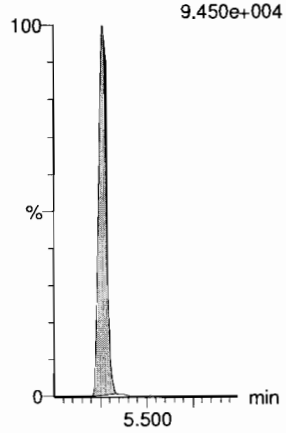
13C8-PFOS



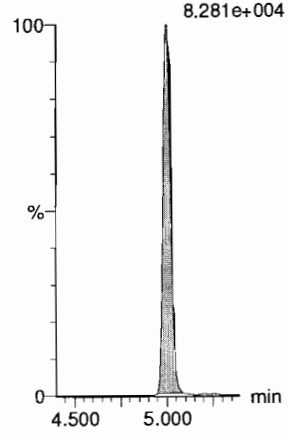
13C2-PFDA



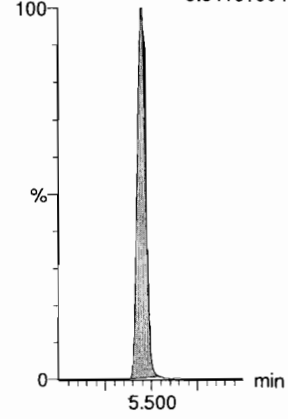
13C2-8:2 FTS



13C8-PFOS



d3-N-MeFOSAA

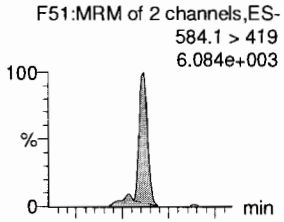


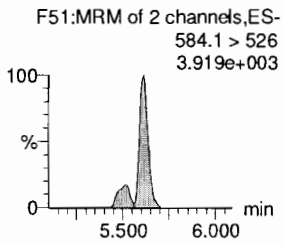
Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

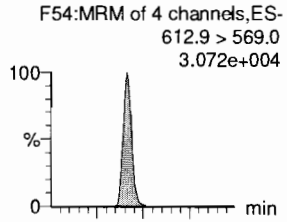
Name: 181119M2_3, Date: 19-Nov-2018, Time: 20:28:22, ID: ST181119M2-2 PFC CS-1 18K0902, Description: PFC CS-1 18K0902

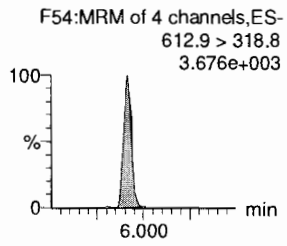
L-EtFOSAA



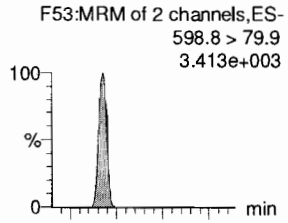


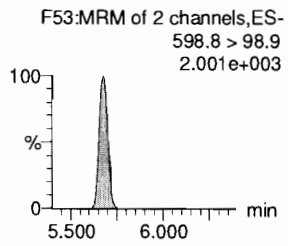
PFDoA



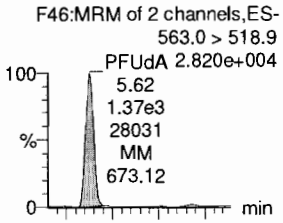


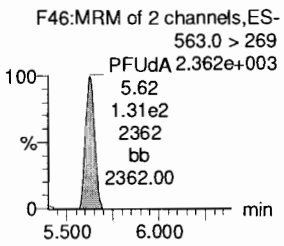
PFDS



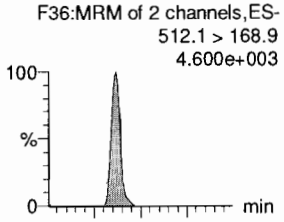


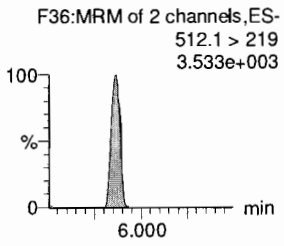
PFUdA



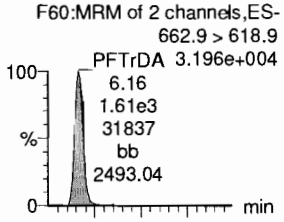


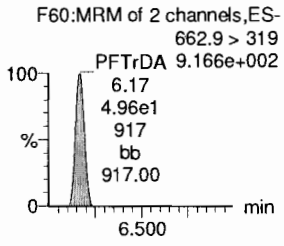
N-MeFOSA



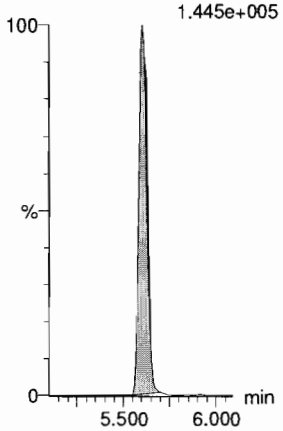


PFTrDA

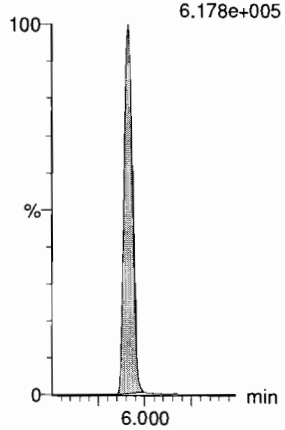




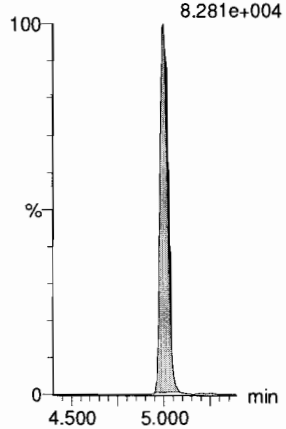
d5-N-EtFOSAA



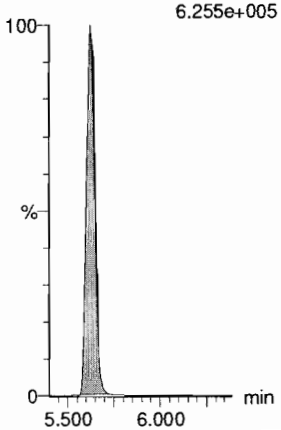
13C2-PFDoA



13C8-PFOS



13C2-PFUdA



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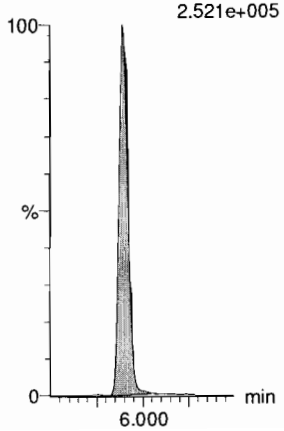

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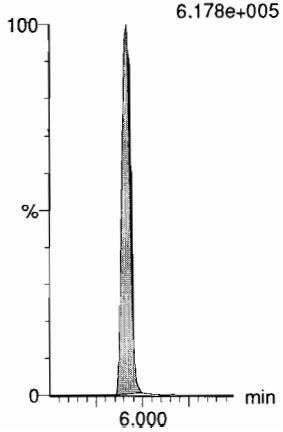
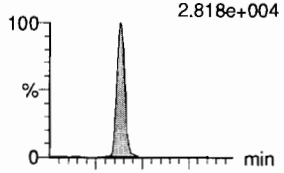


Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

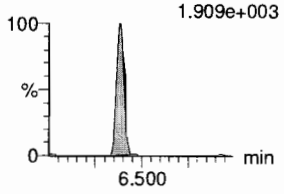
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_3, Date: 19-Nov-2018, Time: 20:28:22, ID: ST181119M2-2 PFC CS-1 18K0902, Description: PFC CS-1 18K0902

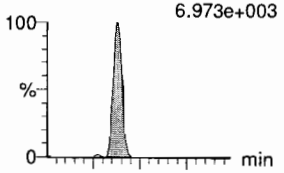
PFTeDA
F61:MRM of 2 channels,ES-
713.0 > 669.0
2.818e+004



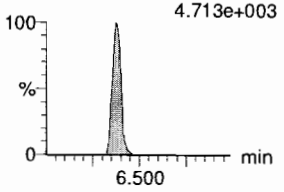
F61:MRM of 2 channels,ES-
713. > 369.0
1.909e+003



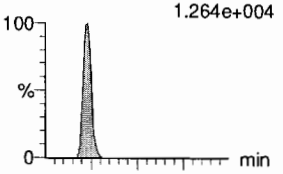
N-EtFOSA
F41:MRM of 2 channels,ES-
526.1 > 168.9
6.973e+003



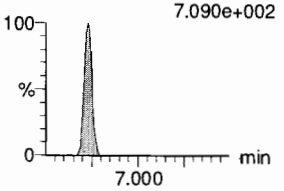
F41:MRM of 2 channels,ES-
526.1 > 219
4.713e+003



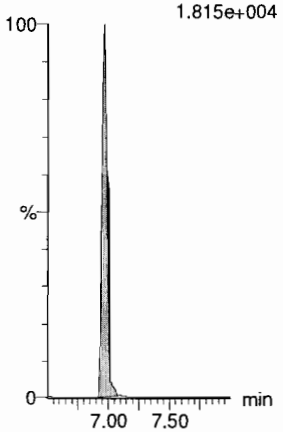
PFHxDA
F63:MRM of 2 channels,ES-
813.1 > 768.6
1.264e+004



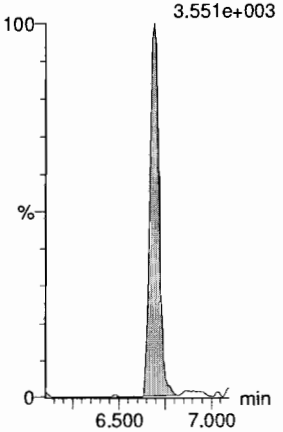
F63:MRM of 2 channels,ES-
813.1 > 219
7.090e+002



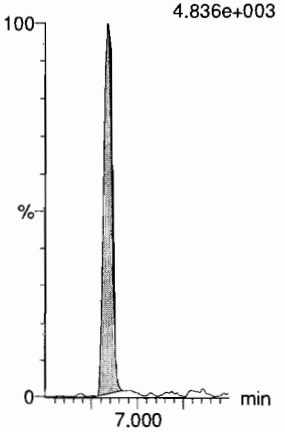
PFODA
F65:MRM of 1 channel,ES-
913.1 > 868.8
1.815e+004



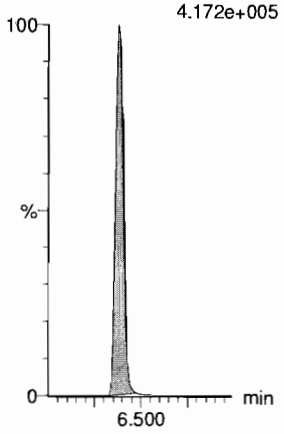
N-MeFOSE
F56:MRM of 1 channel,ES-
616.1 > 58.9
3.551e+003



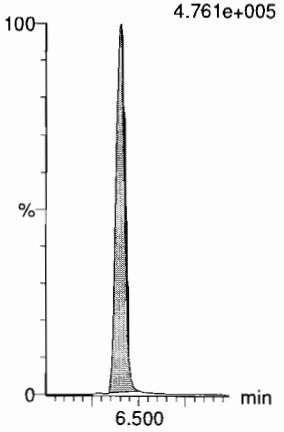
N-EtFOSE
F58:MRM of 1 channel,ES-
630.1 > 58.9
4.836e+003



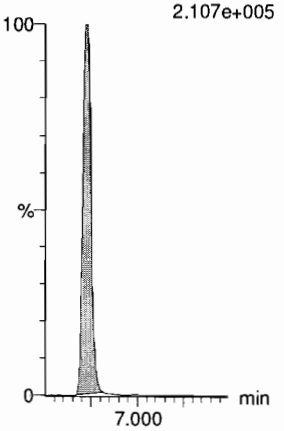
13C2-PFTeDA
F62:MRM of 2 channels,ES-
715.1 > 669.7
4.172e+005



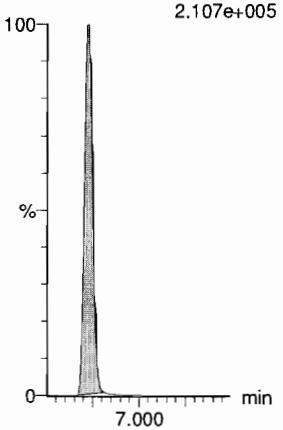
d5-N-ETFOSA
F44:MRM of 1 channel,ES-
531.1 > 168.9
4.761e+005



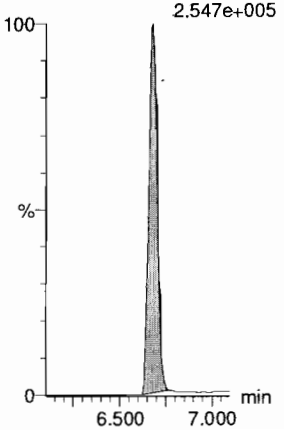
13C2-PFHxDA
F64:MRM of 1 channel,ES-
815 > 769.7
2.107e+005



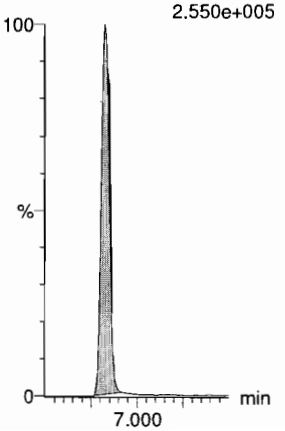
13C2-PFHxDA
F64:MRM of 1 channel,ES-
815 > 769.7
2.107e+005



d7-N-MeFOSE
F57:MRM of 1 channel,ES-
623.1 > 58.9
2.547e+005



d9-N-EtFOSE
F59:MRM of 1 channel,ES-
639.2 > 58.8
2.550e+005

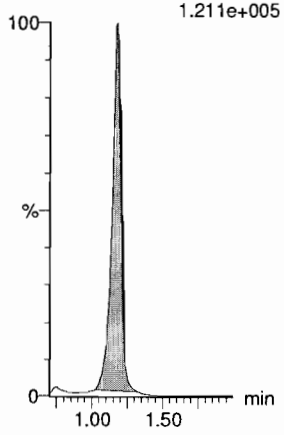


Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

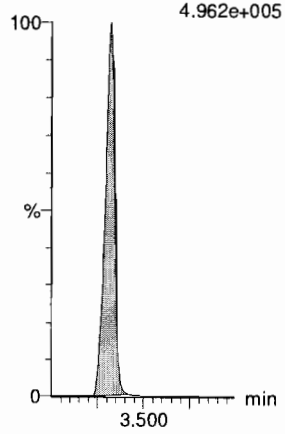
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_3, Date: 19-Nov-2018, Time: 20:28:22, ID: ST181119M2-2 PFC CS-1 18K0902, Description: PFC CS-1 18K0902

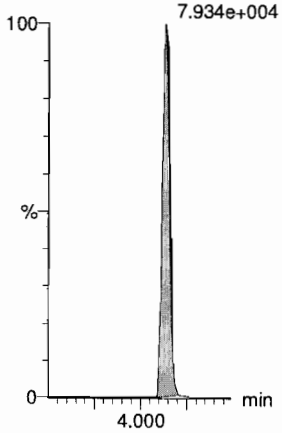
13C4-PFBA



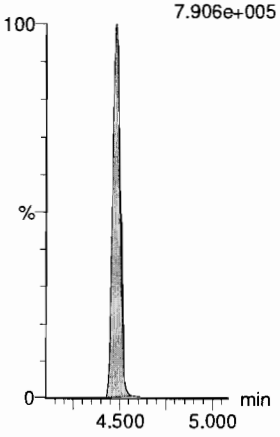
13C5-PFHxA



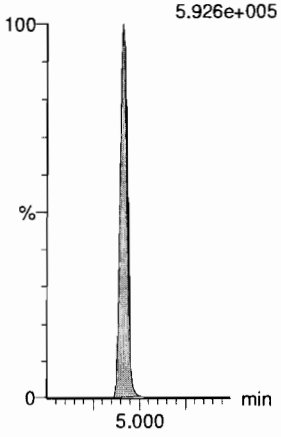
13C3-PFHxS



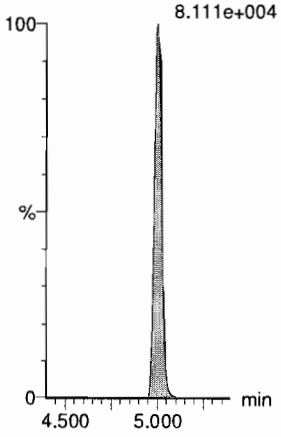
13C8-PFOA



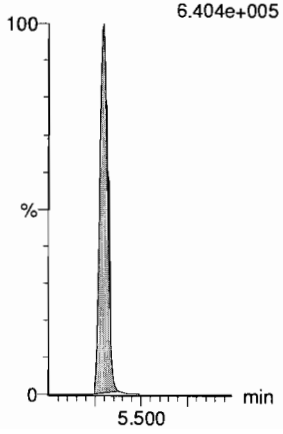
13C9-PFNA



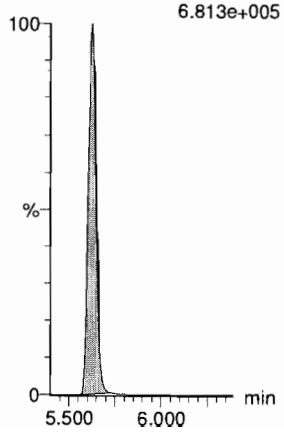
13C4-PFOS



13C6-PFDA



13C7-PFUdA

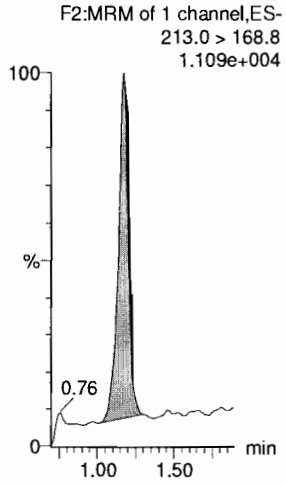


Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

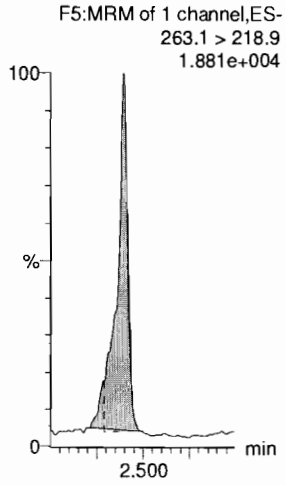
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_4, Date: 19-Nov-2018, Time: 20:39:00, ID: ST181119M2-3 PFC CS0 18K0903, Description: PFC CS0 18K0903

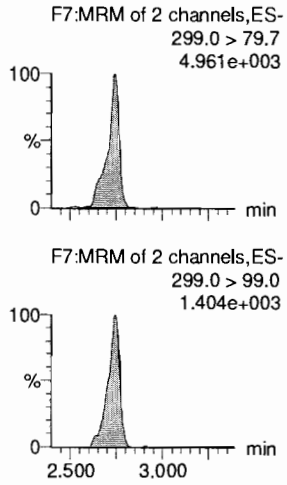
PFBA



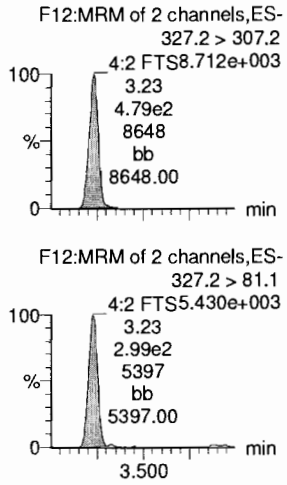
PFPeA



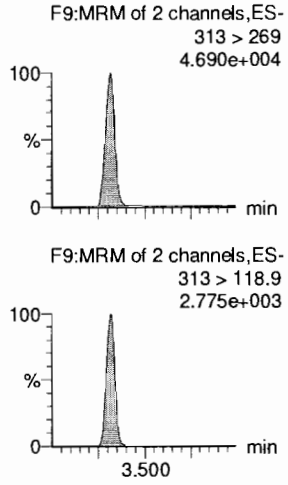
PFBS



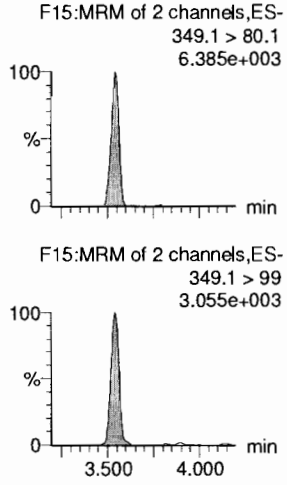
4:2 FTS



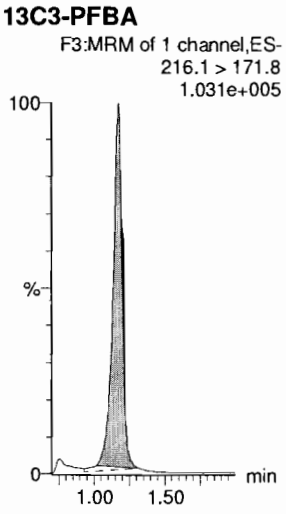
PFHxA



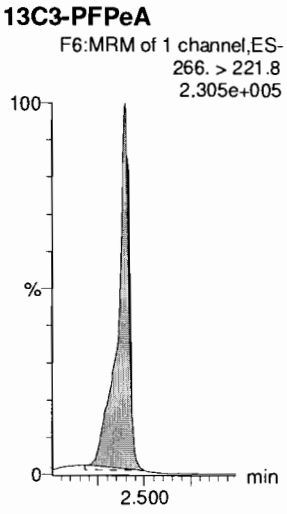
PFPeS



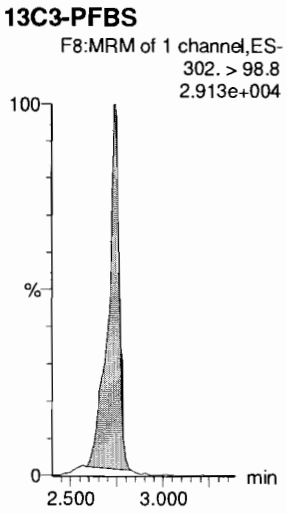
13C3-PFBA



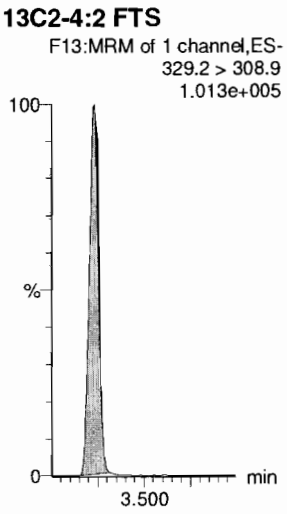
13C3-PFPeA



13C3-PFBS



13C2-4:2 FTS



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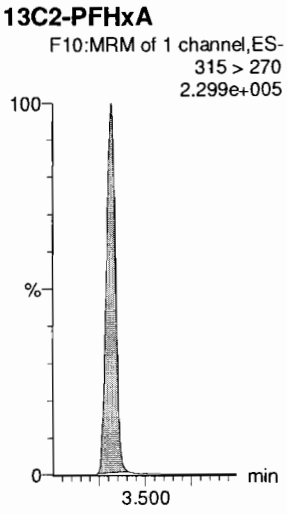
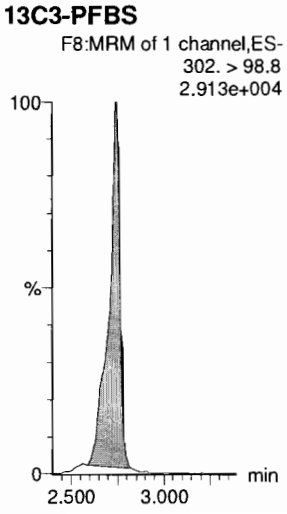


13C3-PFBS

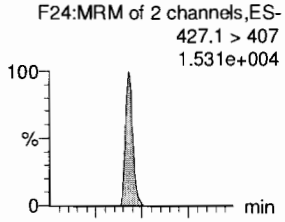


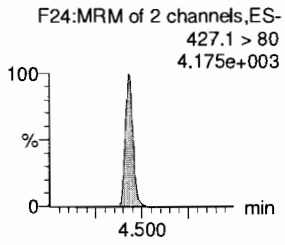
Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

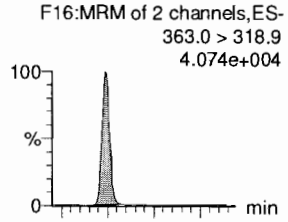
Name: 181119M2_4, Date: 19-Nov-2018, Time: 20:39:00, ID: ST181119M2-3 PFC CS0 18K0903, Description: PFC CS0 18K0903

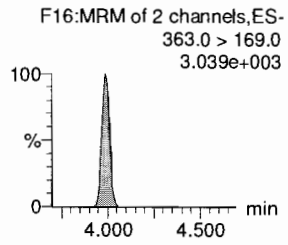
6:2 FTS



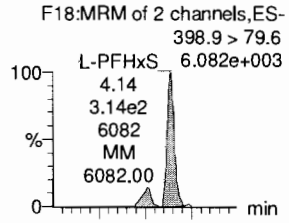


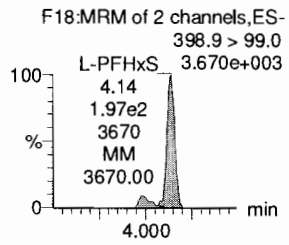
PFHpA



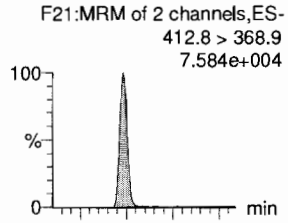


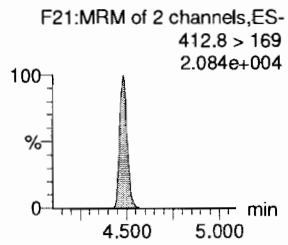
L-PFHxS



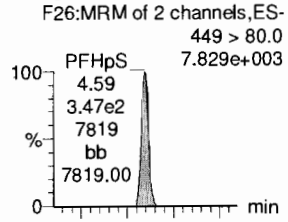


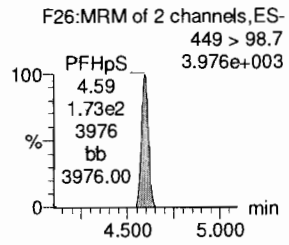
L-PFOA



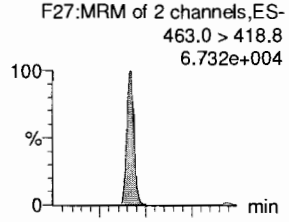


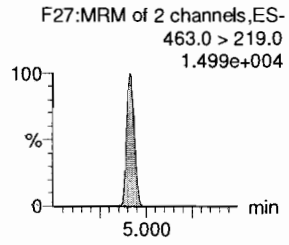
PFHpS



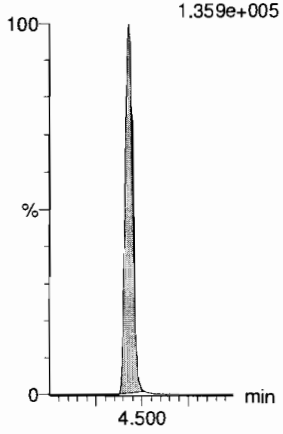


PFNA

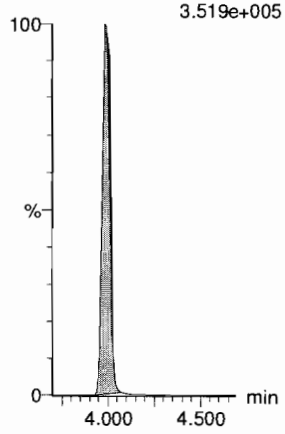




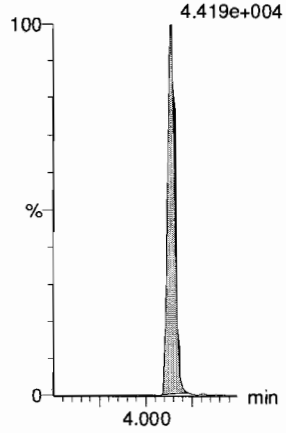
13C2-6:2 FTS



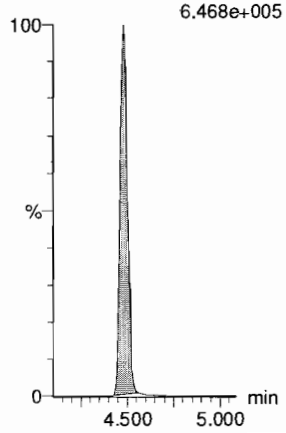
13C4-PFHpA



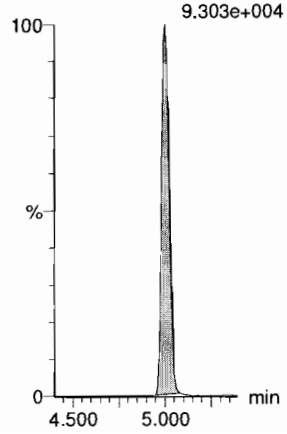
18O2-PFHxS



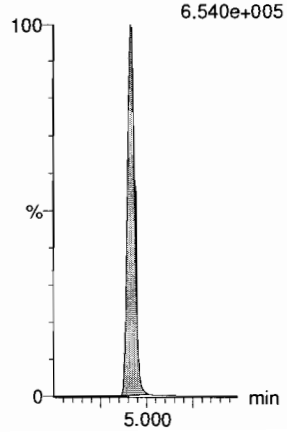
13C2-PFOA



13C8-PFOS



13C5-PFNA

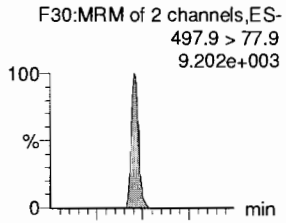


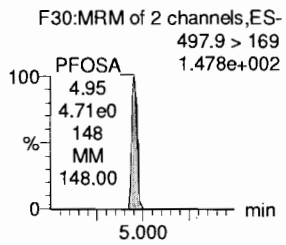
Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

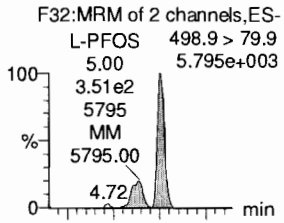
Name: 181119M2_4, Date: 19-Nov-2018, Time: 20:39:00, ID: ST181119M2-3 PFC CS0 18K0903, Description: PFC CS0 18K0903

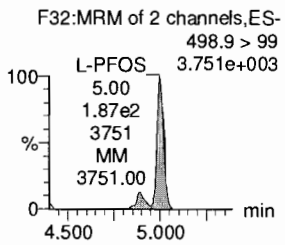
PFOSA



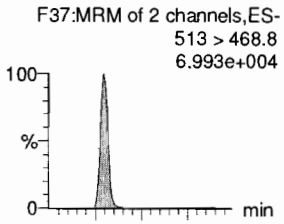


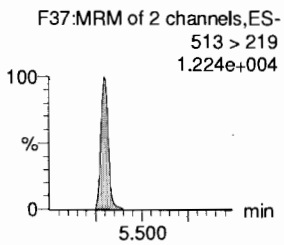
L-PFOS



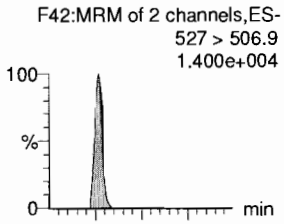


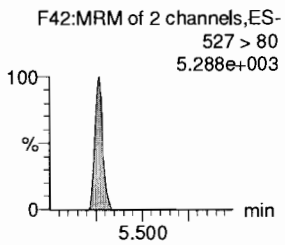
PFDA



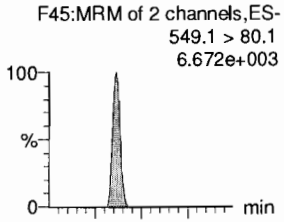


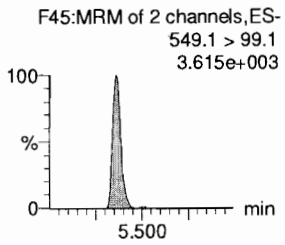
8:2 FTS



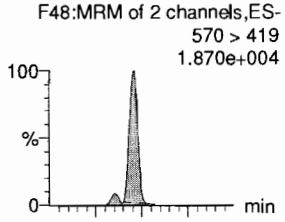


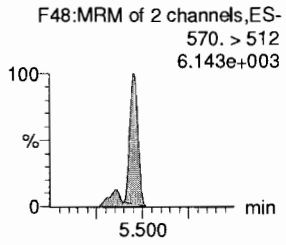
PFNS



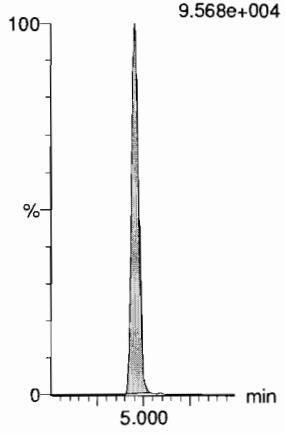


L-MeFOSAA



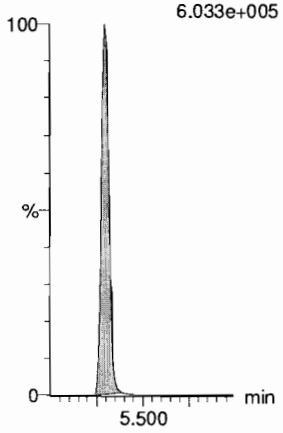


13C8-PFOSA

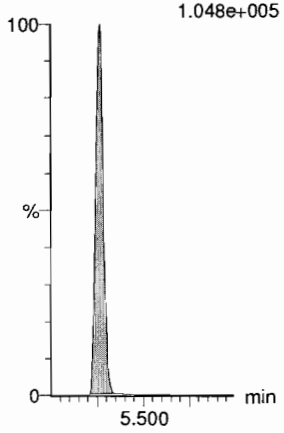


13C8-PFOS

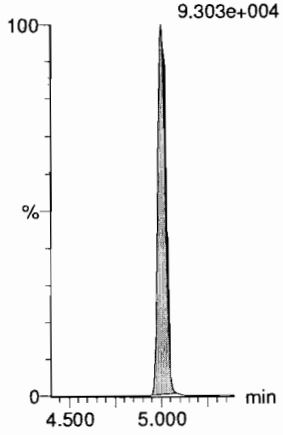
13C2-PFDA



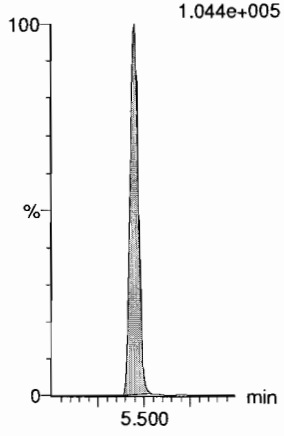
13C2-8:2 FTS



13C8-PFOS



d3-N-MeFOSAA

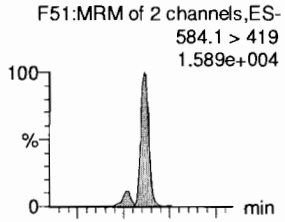


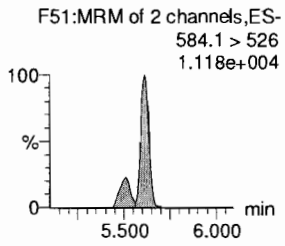
Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

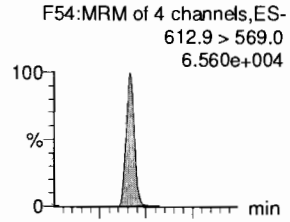
Name: 181119M2_4, Date: 19-Nov-2018, Time: 20:39:00, ID: ST181119M2-3 PFC CS0 18K0903, Description: PFC CS0 18K0903

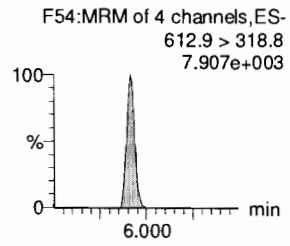
L-EtFOSAA



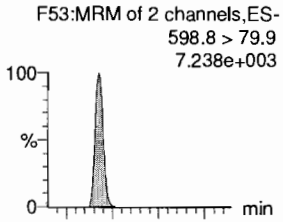


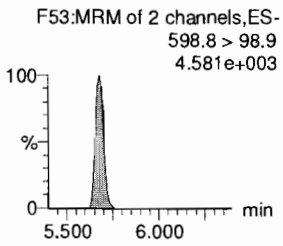
PFDoA



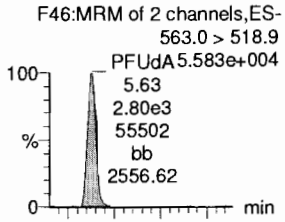


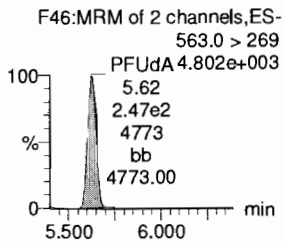
PFDS



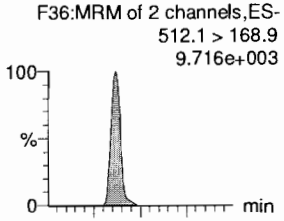


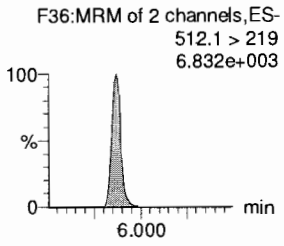
PFUdA



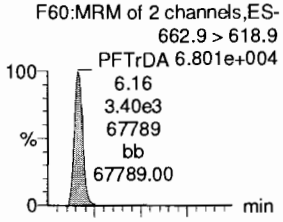


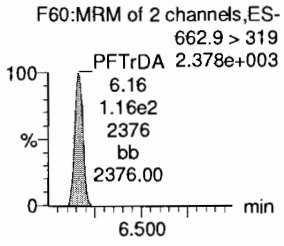
N-MeFOSA



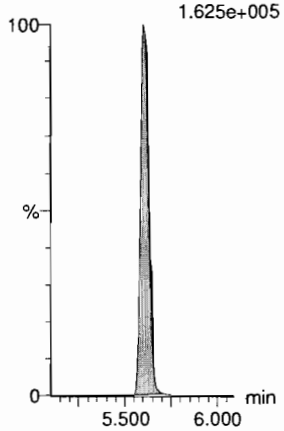


PFTrDA

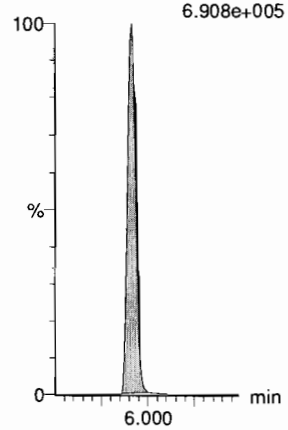




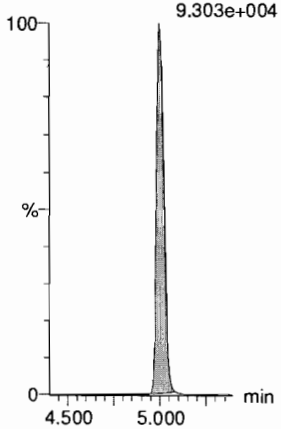
d5-N-EtFOSAA



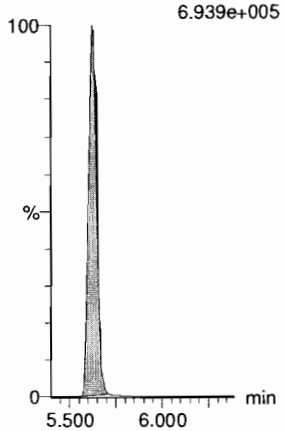
13C2-PFDoA



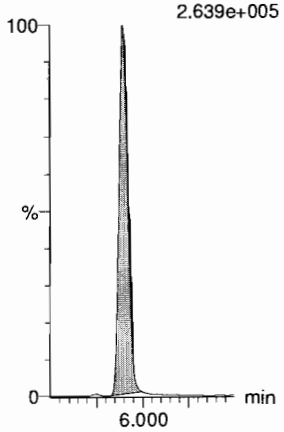
13C8-PFOS



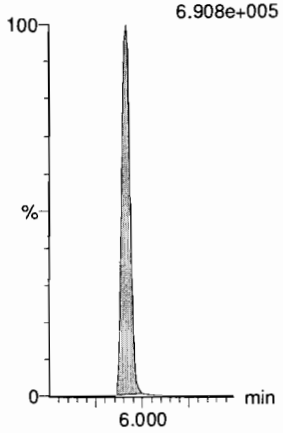
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA

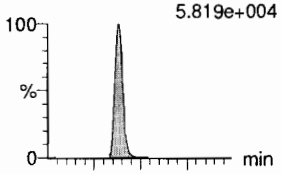


Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

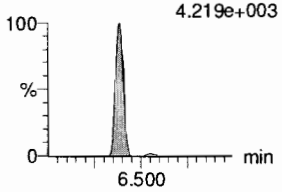
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_4, Date: 19-Nov-2018, Time: 20:39:00, ID: ST181119M2-3 PFC CS0 18K0903, Description: PFC CS0 18K0903

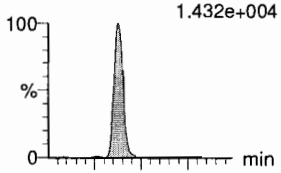
PFTeDA
F61:MRM of 2 channels,ES-
713.0 > 669.0
5.819e+004



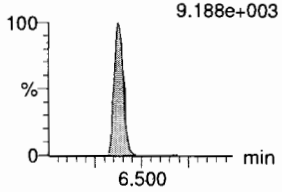
F61:MRM of 2 channels,ES-
713. > 369.0
4.219e+003



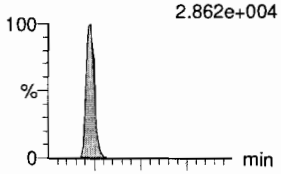
N-EtFOSA
F41:MRM of 2 channels,ES-
526.1 > 168.9
1.432e+004



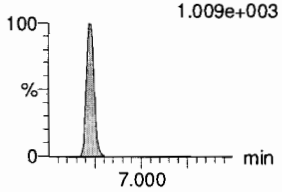
F41:MRM of 2 channels,ES-
526.1 > 219
9.188e+003



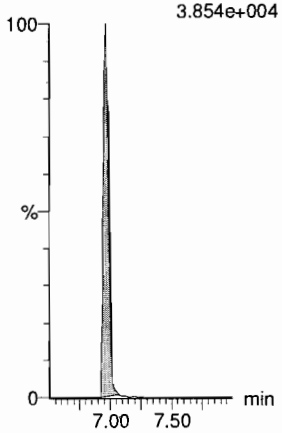
PFHxDA
F63:MRM of 2 channels,ES-
813.1 > 768.6
2.862e+004



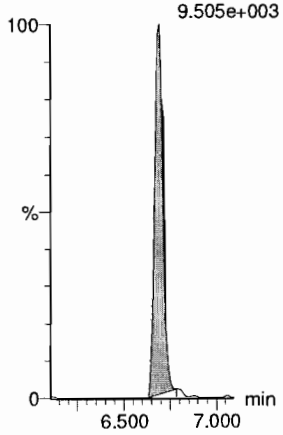
F63:MRM of 2 channels,ES-
813.1 > 219
1.009e+003



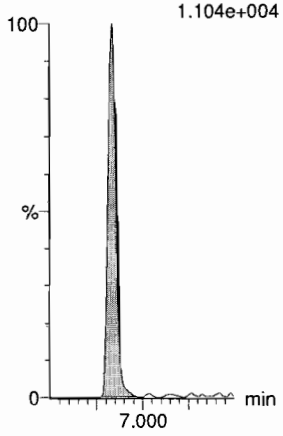
PFODA
F65:MRM of 1 channel,ES-
913.1 > 868.8
3.854e+004



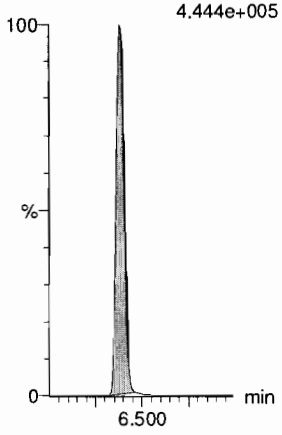
N-MeFOSE
F56:MRM of 1 channel,ES-
616.1 > 58.9
9.505e+003



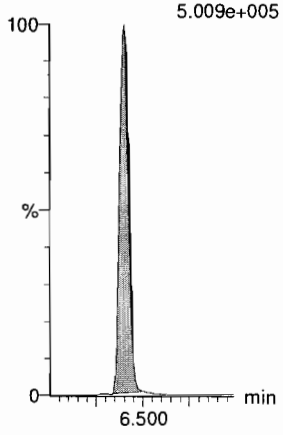
N-EtFOSE
F58:MRM of 1 channel,ES-
630.1 > 58.9
1.104e+004



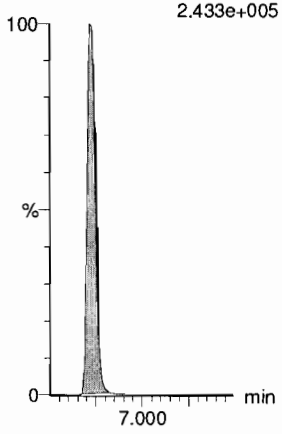
13C2-PFTeDA
F62:MRM of 2 channels,ES-
715.1 > 669.7
4.444e+005



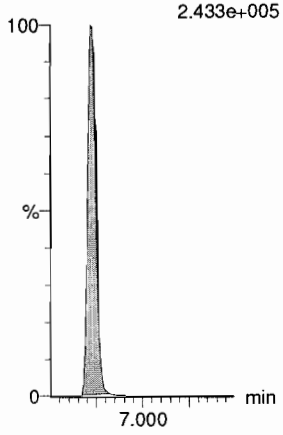
d5-N-ETFOSA
F44:MRM of 1 channel,ES-
531.1 > 168.9
5.009e+005



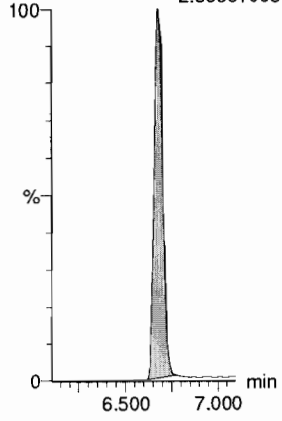
13C2-PFHxDA
F64:MRM of 1 channel,ES-
815 > 769.7
2.433e+005



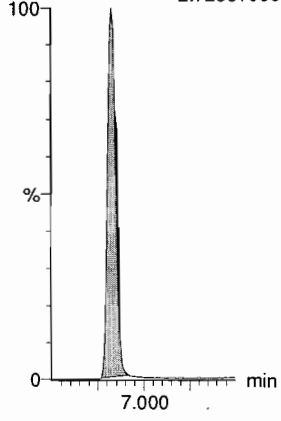
13C2-PFHxDA
F64:MRM of 1 channel,ES-
815 > 769.7
2.433e+005



d7-N-MeFOSE
F57:MRM of 1 channel,ES-
623.1 > 58.9
2.599e+005



d9-N-EtFOSE
F59:MRM of 1 channel,ES-
639.2 > 58.8
2.725e+005

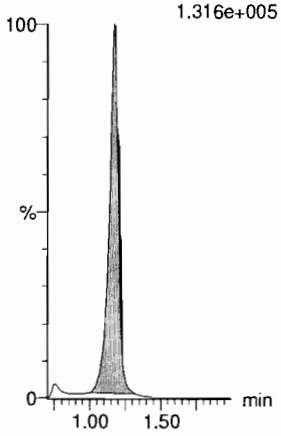


Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

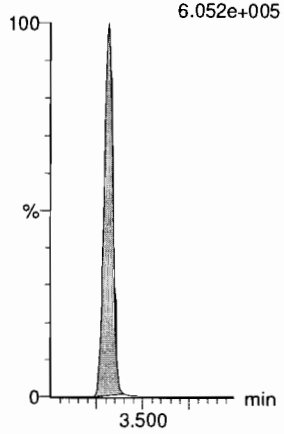
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_4, Date: 19-Nov-2018, Time: 20:39:00, ID: ST181119M2-3 PFC CS0 18K0903, Description: PFC CS0 18K0903

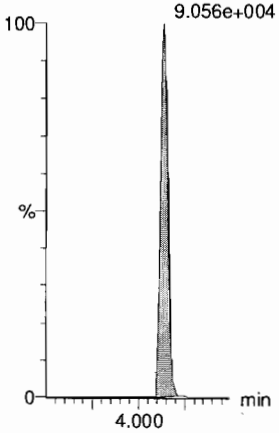
13C4-PFBA



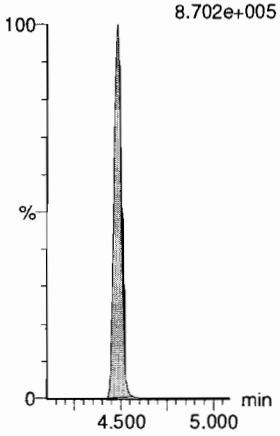
13C5-PFHxA



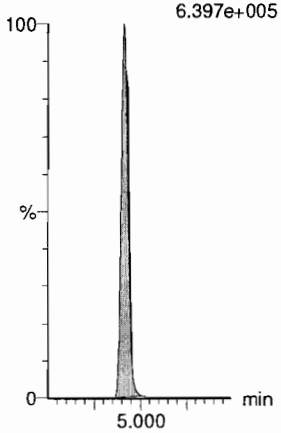
13C3-PFHxS



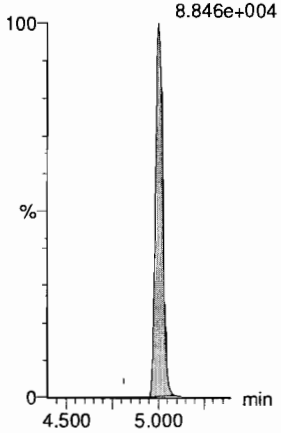
13C8-PFOA



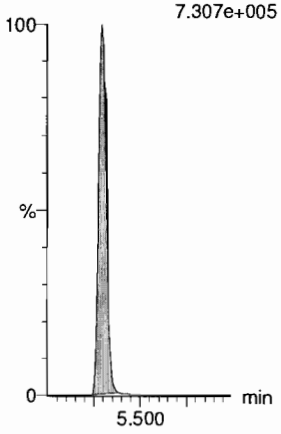
13C9-PFNA



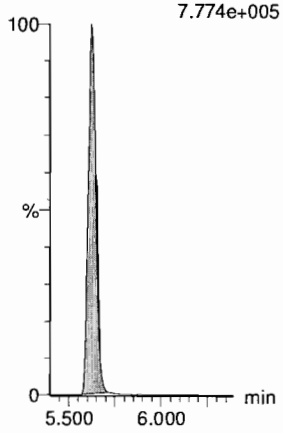
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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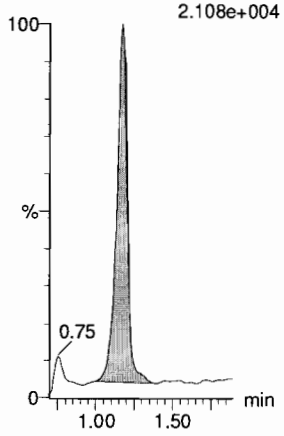
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_5, Date: 19-Nov-2018, Time: 20:49:33, ID: ST181119M2-4 PFC CS1 18K0904, Description: PFC CS1 18K0904

PFBA



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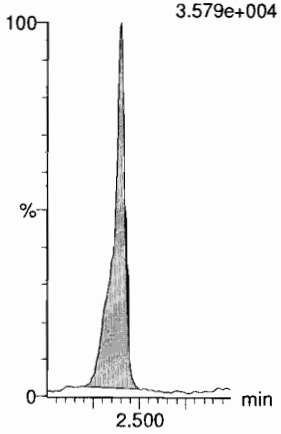

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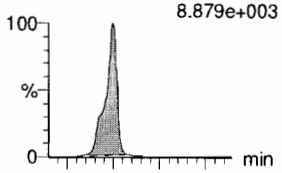
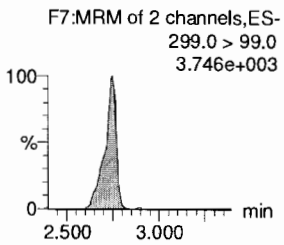
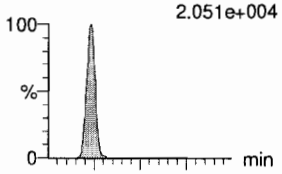
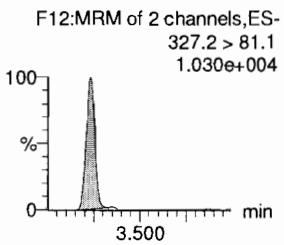




4:2 FTS





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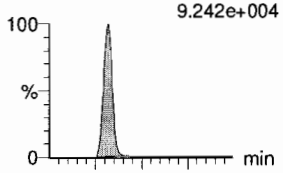

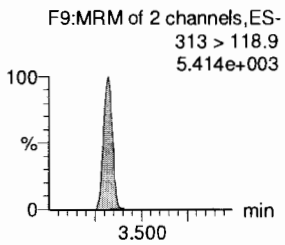

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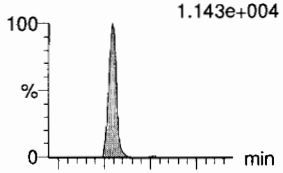
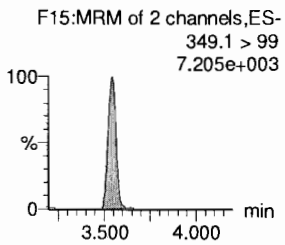
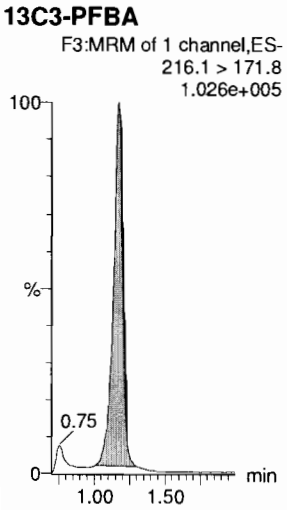




13C3-PFBA



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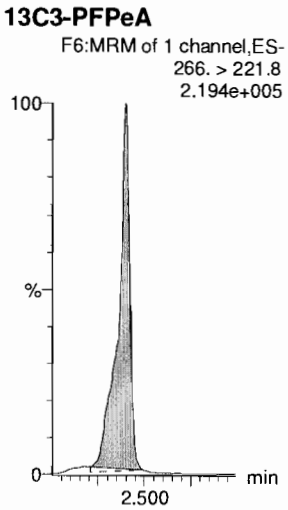

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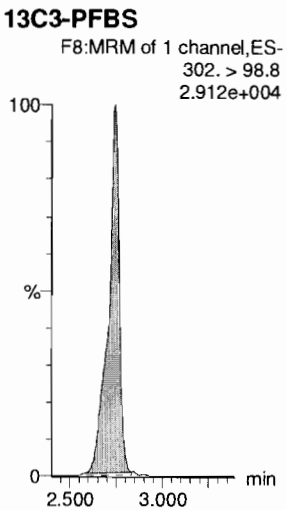
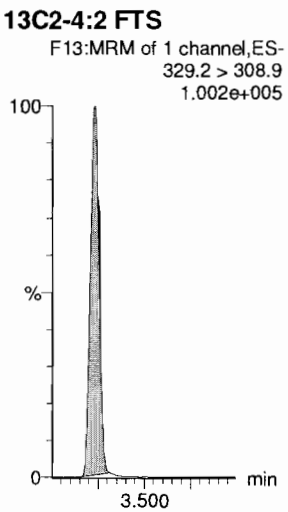


13C2-4:2 FTS



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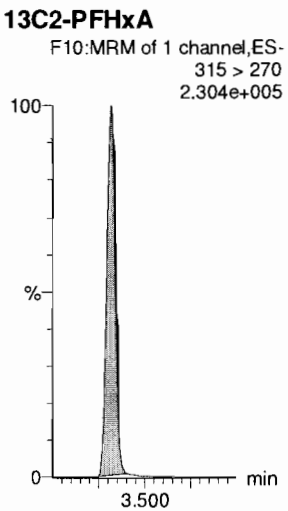

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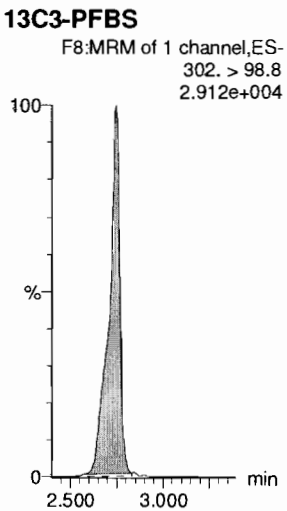

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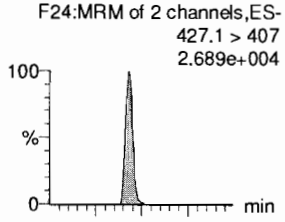
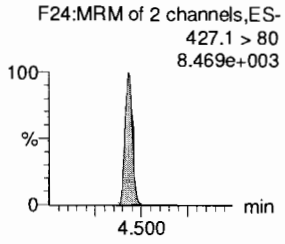
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_5, Date: 19-Nov-2018, Time: 20:49:33, ID: ST181119M2-4 PFC CS1 18K0904, Description: PFC CS1 18K0904

6:2 FTS





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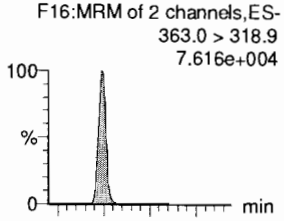

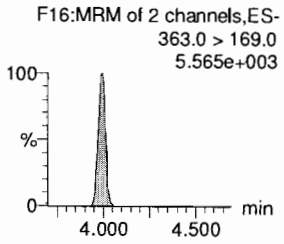

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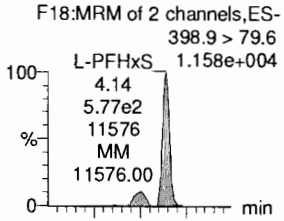
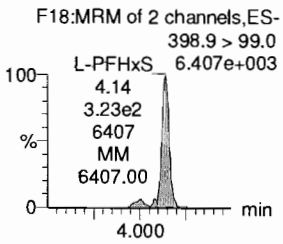
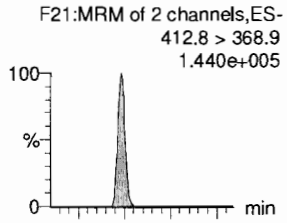
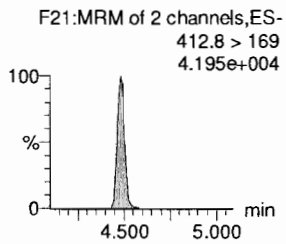




L-PFOA





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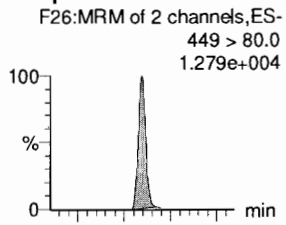

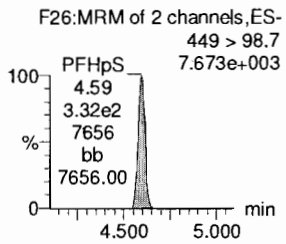

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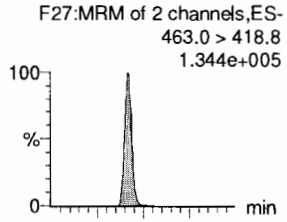
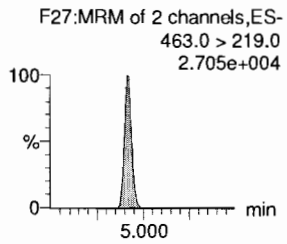
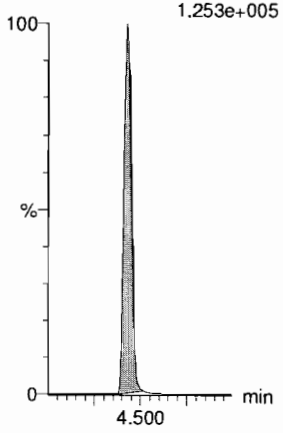




13C2-6:2 FTS



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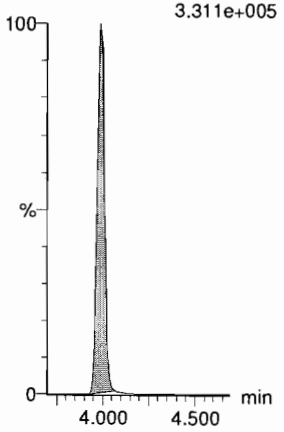
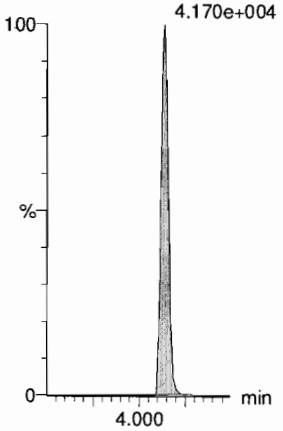
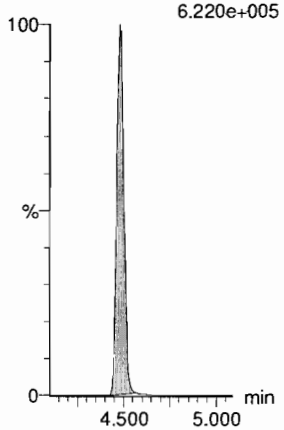


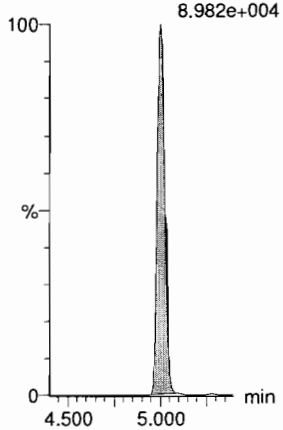
18O2-PFHxS



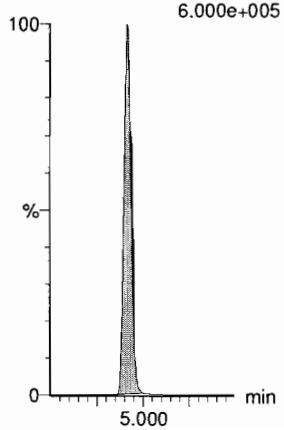
13C2-PFOA



13C8-PFOS



13C5-PFNA



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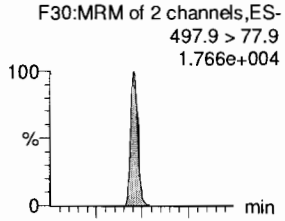
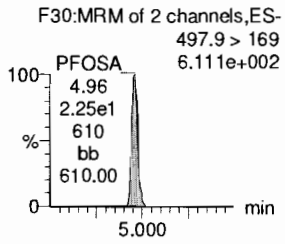
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

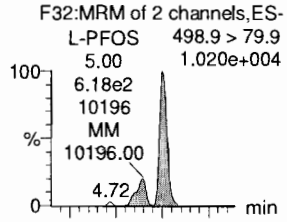
Name: 181119M2_5, Date: 19-Nov-2018, Time: 20:49:33, ID: ST181119M2-4 PFC CS1 18K0904, Description: PFC CS1 18K0904

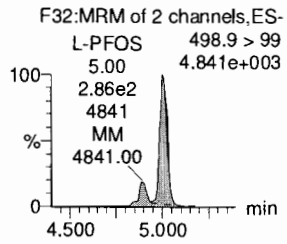
PFOSA





L-PFOS





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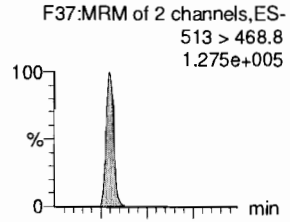
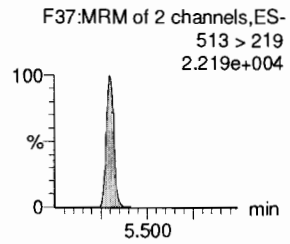
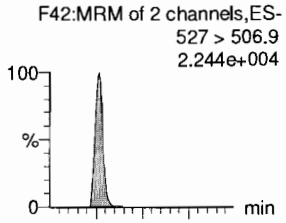
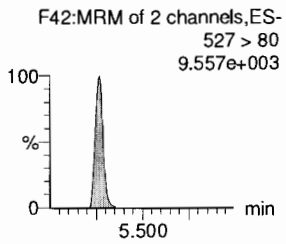




8:2 FTS





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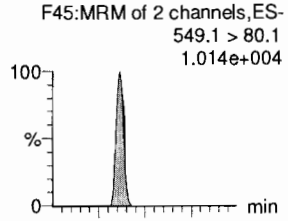
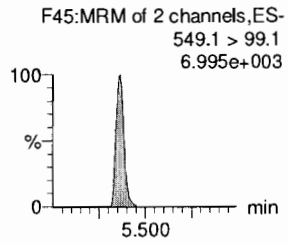
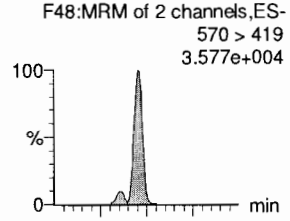
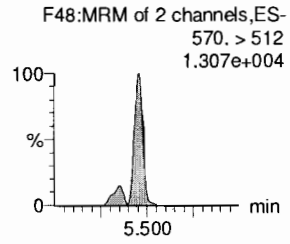


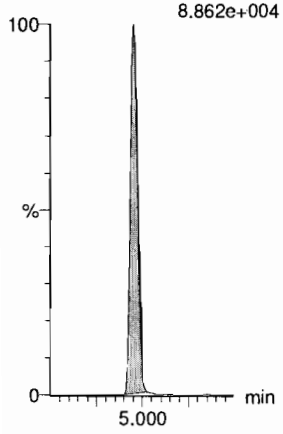


L-MeFOSAA





13C8-PFOSA



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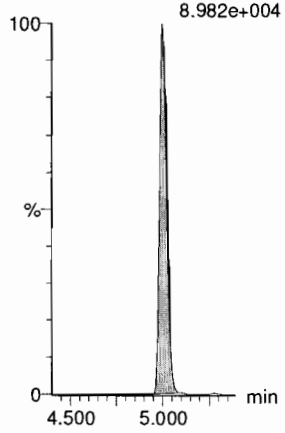

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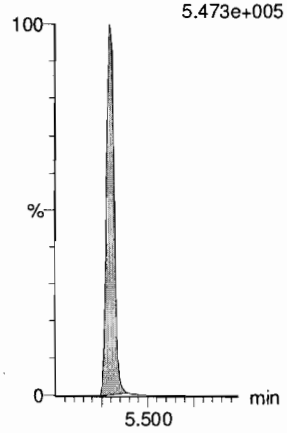
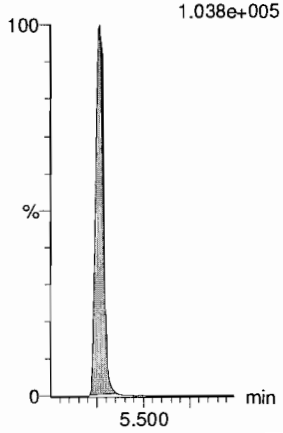
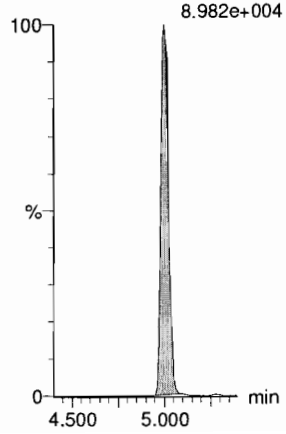


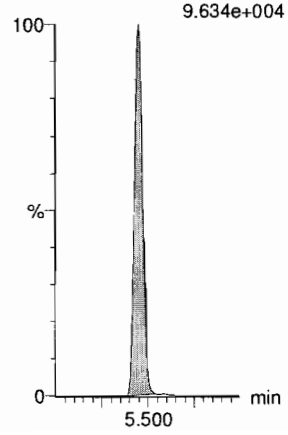
13C2-8:2 FTS



13C8-PFOS



d3-N-MeFOSAA

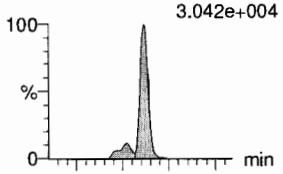


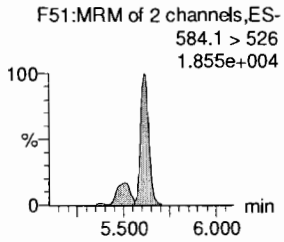
Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

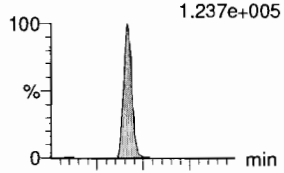
Name: 181119M2_5, Date: 19-Nov-2018, Time: 20:49:33, ID: ST181119M2-4 PFC CS1 18K0904, Description: PFC CS1 18K0904

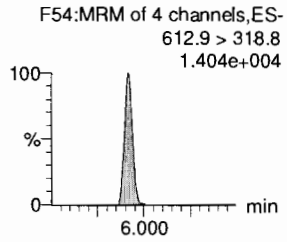
L-EtFOSAA



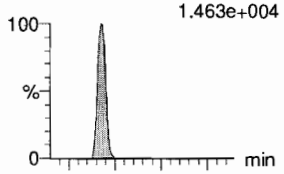


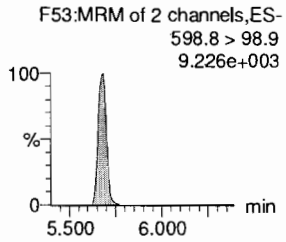
PFDoA



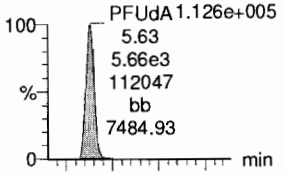


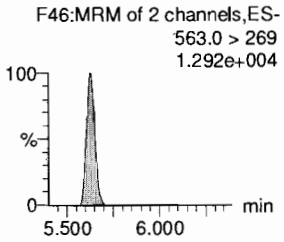
PFDS



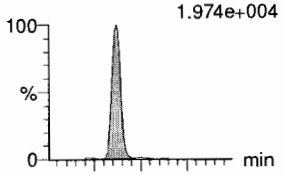


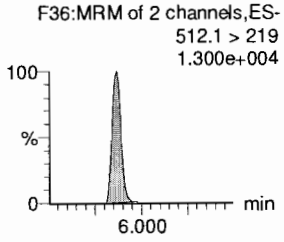
PFUdA



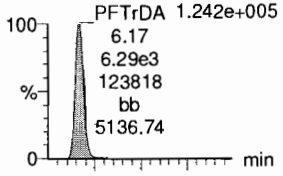


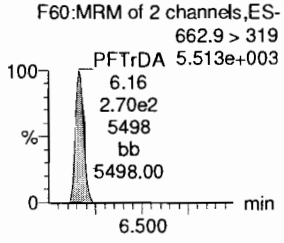
N-MeFOSA



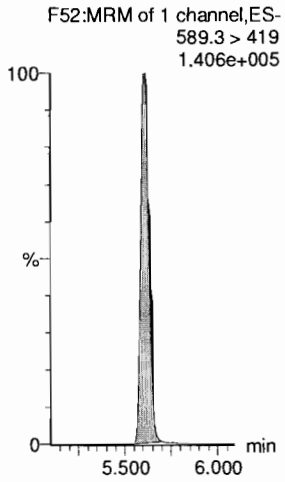


PFTrDA

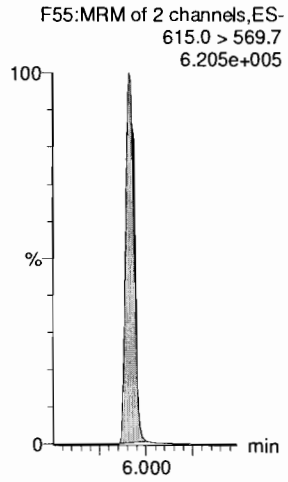




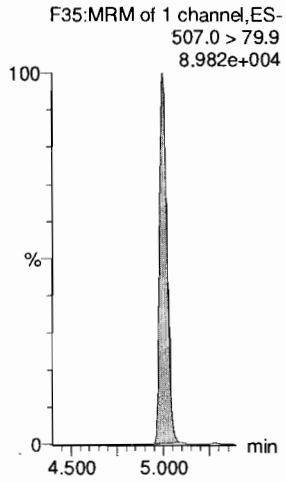
d5-N-EtFOSAA



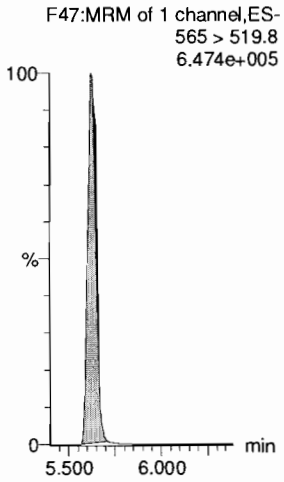
13C2-PFDoA



13C8-PFOS



13C2-PFUdA



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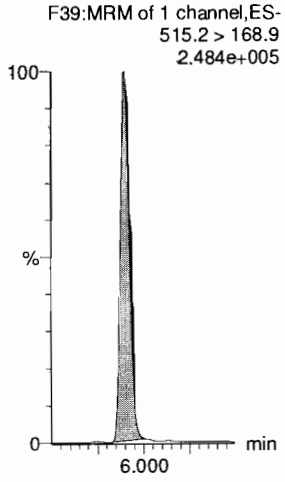
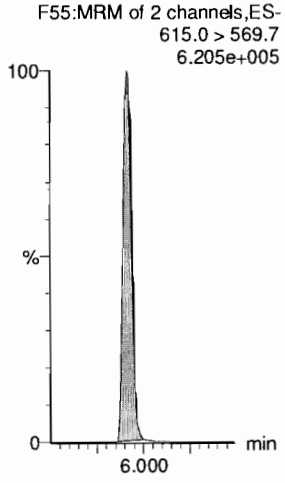


13C2-PFDoA



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
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Name: 181119M2_5, Date: 19-Nov-2018, Time: 20:49:33, ID: ST181119M2-4 PFC CS1 18K0904, Description: PFC CS1 18K0904

PFTeDA
F61:MRM of 2 channels,ES-
713.0 > 669.0
1.167e+005
F61:MRM of 2 channels,ES-
713. > 369.0
7.928e+003

N-EtFOSA
F41:MRM of 2 channels,ES-
526.1 > 168.9
2.941e+004
F41:MRM of 2 channels,ES-
526.1 > 219
1.936e+004

PFHxDA
F63:MRM of 2 channels,ES-
813.1 > 768.6
5.293e+004
F63:MRM of 2 channels,ES-
813.1 > 219
2.498e+003

PFODA
F65:MRM of 1 channel,ES-
913.1 > 868.8
7.837e+004

N-MeFOSE
F56:MRM of 1 channel,ES-
616.1 > 58.9
1.700e+004

N-EtFOSE
F58:MRM of 1 channel,ES-
630.1 > 58.9
1.938e+004

13C2-PFTeDA
F62:MRM of 2 channels,ES-
715.1 > 669.7
4.315e+005

d5-N-ETFOSA
F44:MRM of 1 channel,ES-
531.1 > 168.9
4.854e+005

13C2-PFHxDA
F64:MRM of 1 channel,ES-
815 > 769.7
2.236e+005

13C2-PFHxDA
F64:MRM of 1 channel,ES-
815 > 769.7
2.236e+005

d7-N-MeFOSE
F57:MRM of 1 channel,ES-
623.1 > 58.9
2.606e+005

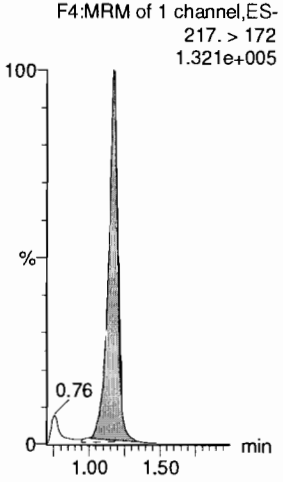
d9-N-EtFOSE
F59:MRM of 1 channel,ES-
639.2 > 58.8
2.595e+005

Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

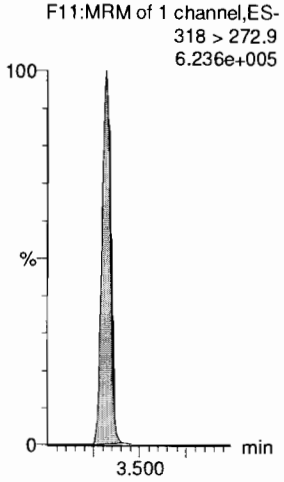
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_5, Date: 19-Nov-2018, Time: 20:49:33, ID: ST181119M2-4 PFC CS1 18K0904, Description: PFC CS1 18K0904

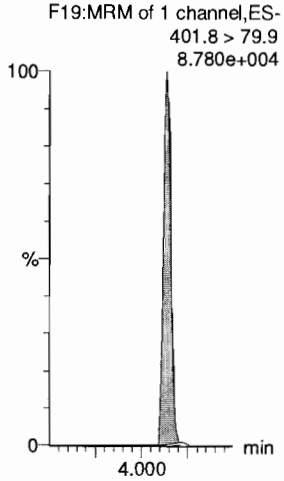
13C4-PFBA



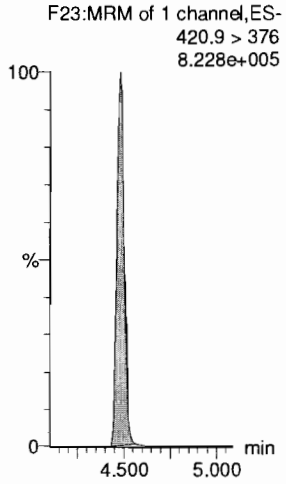
13C5-PFHxA



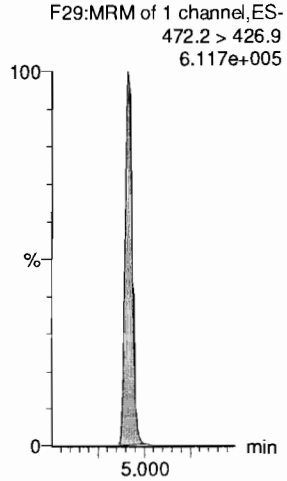
13C3-PFHxS



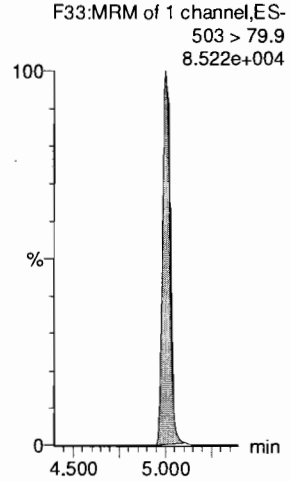
13C8-PFOA



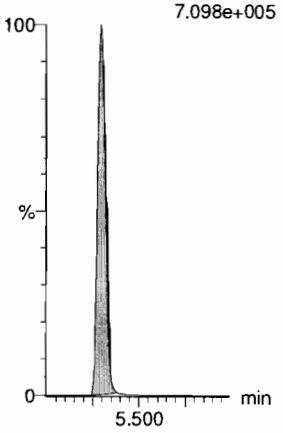
13C9-PFNA



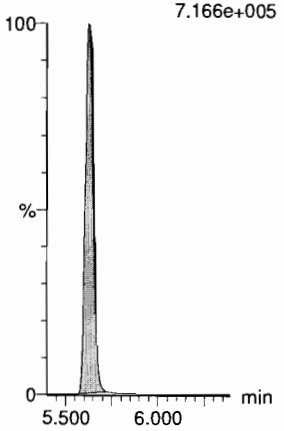
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
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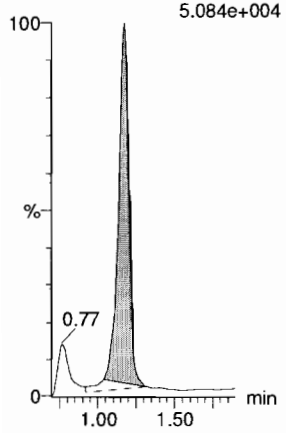
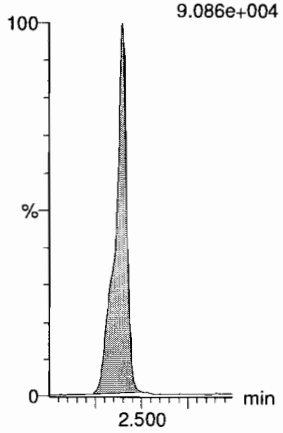
Name: 181119M2_6, Date: 19-Nov-2018, Time: 21:00:12, ID: ST181119M2-5 PFC CS2 18K0905, Description: PFC CS2 18K0905

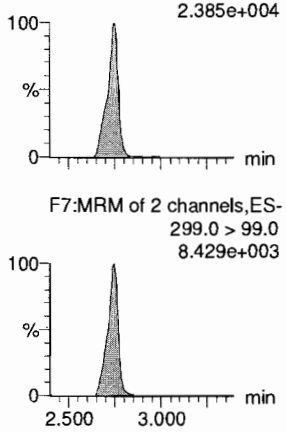
PFBA



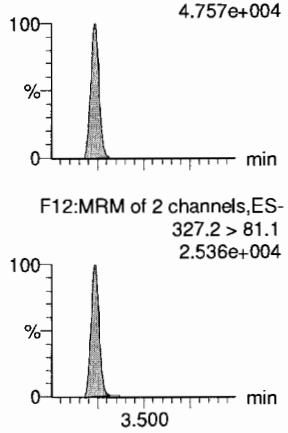
PFPeA



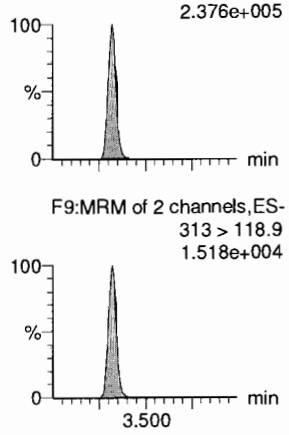
PFBS



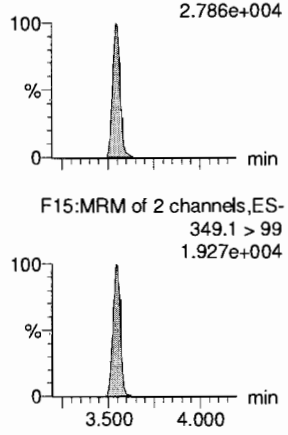
4:2 FTS



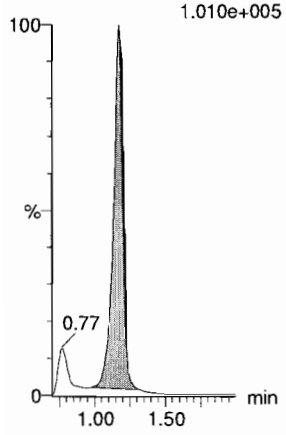
PFHxA



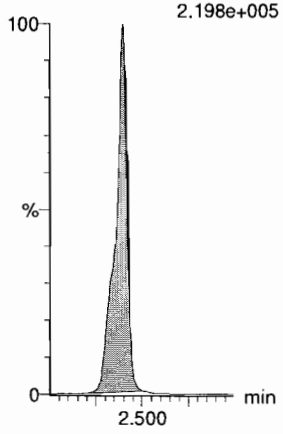
PFPeS



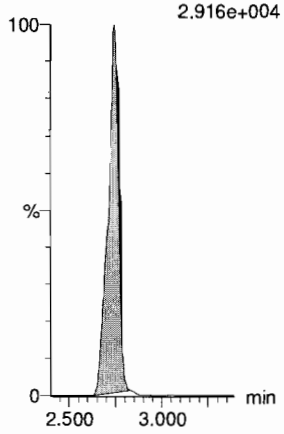
13C3-PFBA



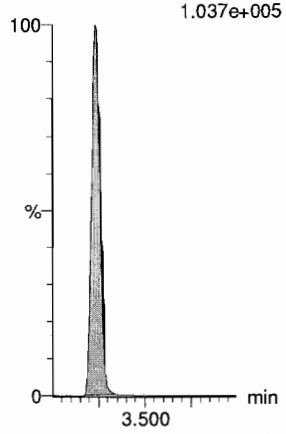
13C3-PFPeA



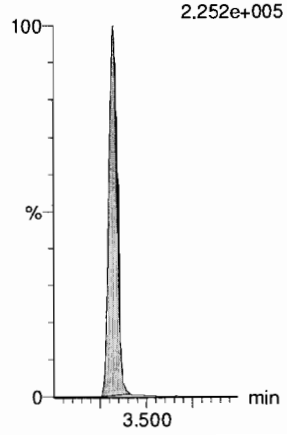
13C3-PFBS



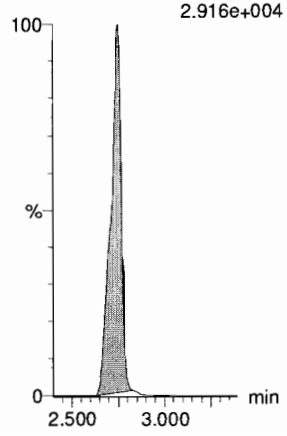
13C2-4:2 FTS



13C2-PFHxA



13C3-PFBS

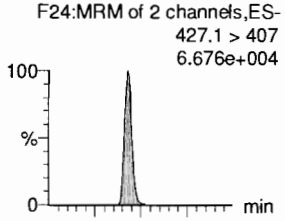


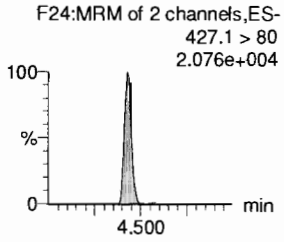
Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

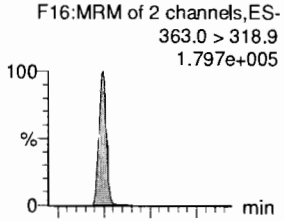
Name: 181119M2_6, Date: 19-Nov-2018, Time: 21:00:12, ID: ST181119M2-5 PFC CS2 18K0905, Description: PFC CS2 18K0905

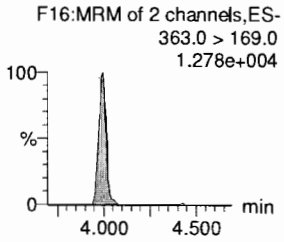
6:2 FTS



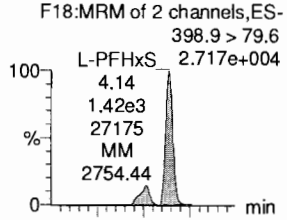


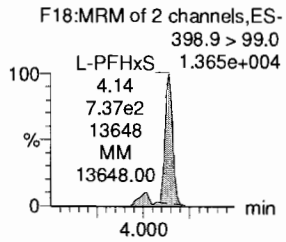
PFHpA



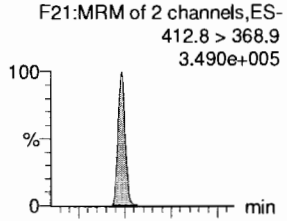


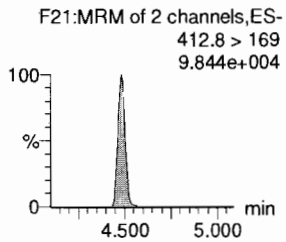
L-PFHxS



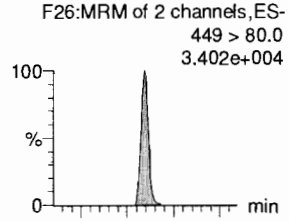


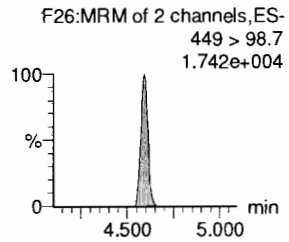
L-PFOA





PFHpS





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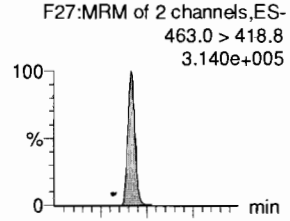
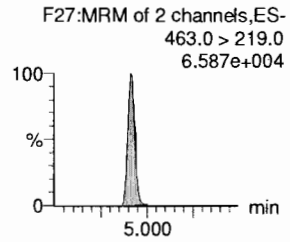
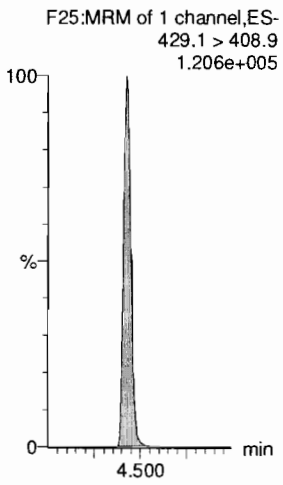
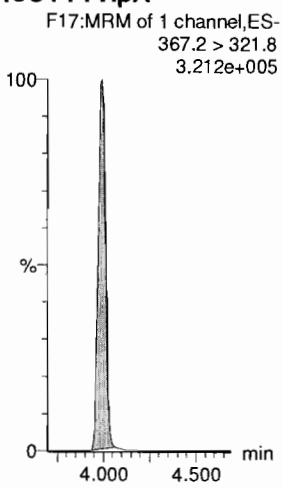




13C2-6:2 FTS



13C4-PFHpA



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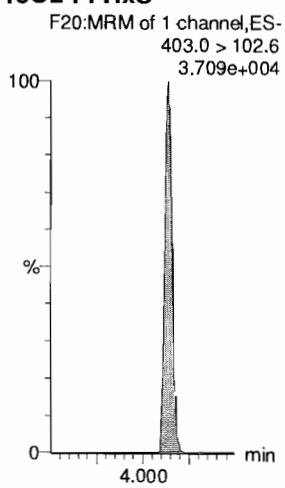

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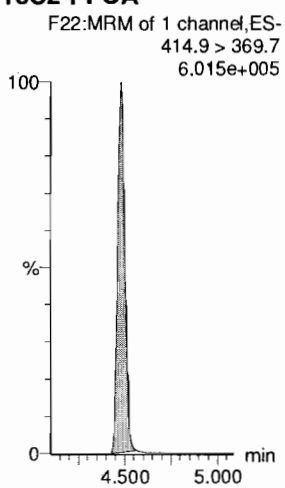
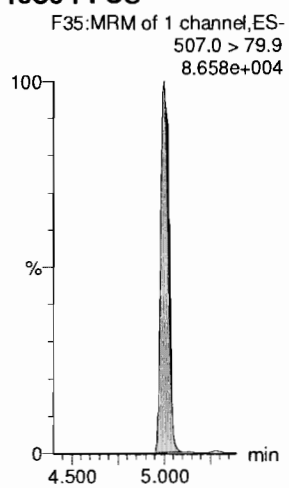


13C8-PFOS



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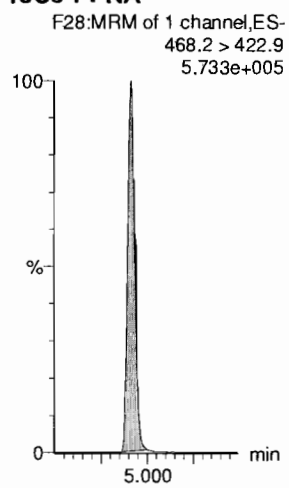

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Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_6, Date: 19-Nov-2018, Time: 21:00:12, ID: ST181119M2-5 PFC CS2 18K0905, Description: PFC CS2 18K0905

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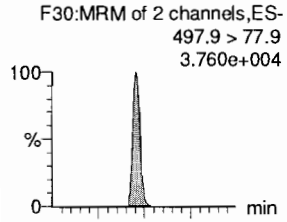

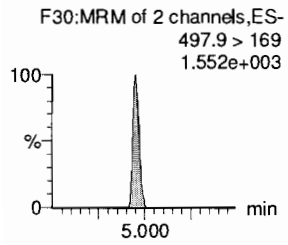

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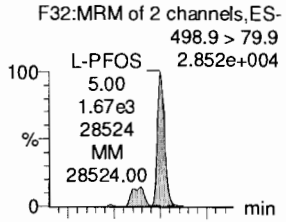

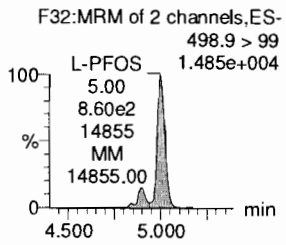

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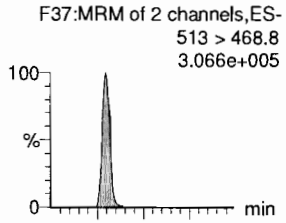
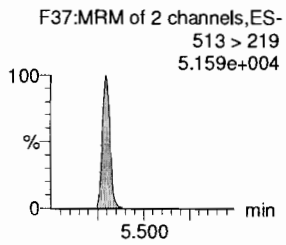
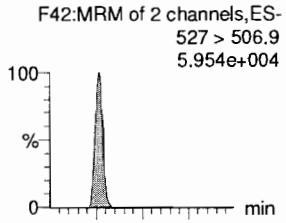
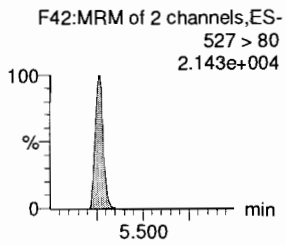




8:2 FTS





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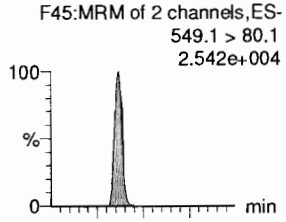

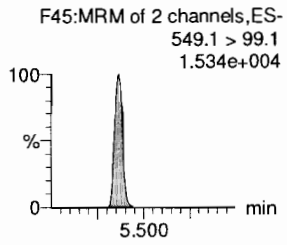

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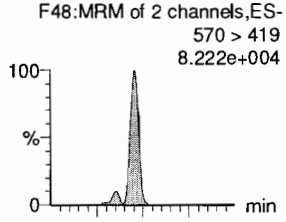
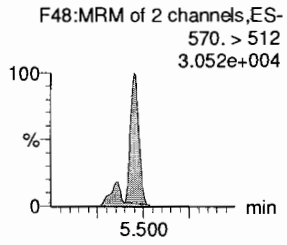
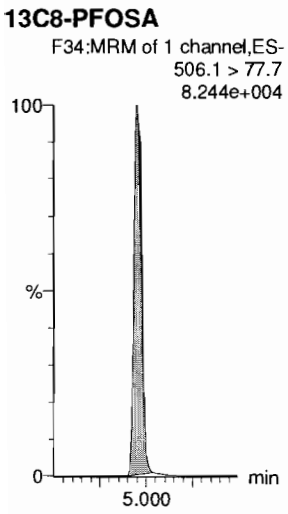




13C8-PFOSA



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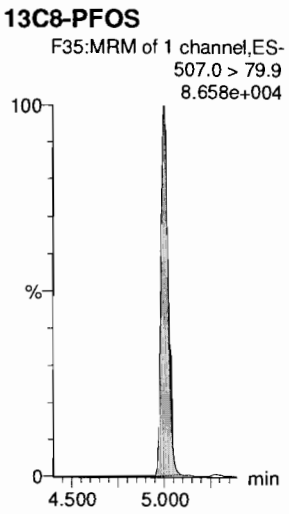

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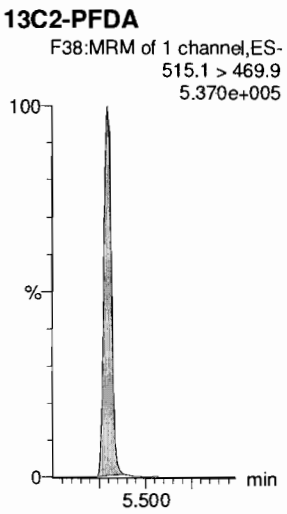
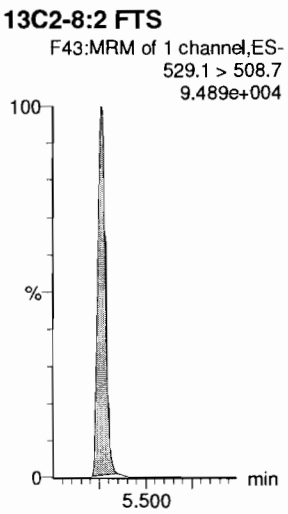


13C2-8:2 FTS



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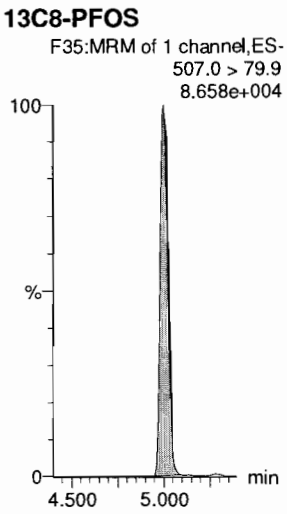
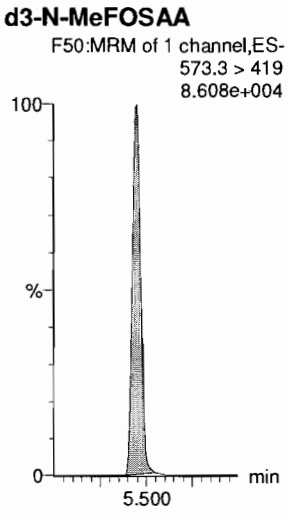


d3-N-MeFOSAA



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Name: 181119M2_6, Date: 19-Nov-2018, Time: 21:00:12, ID: ST181119M2-5 PFC CS2 18K0905, Description: PFC CS2 18K0905

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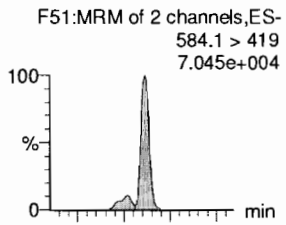
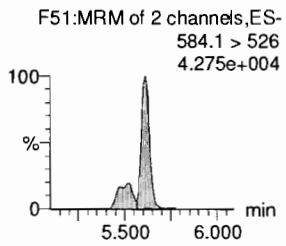
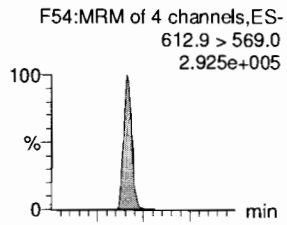
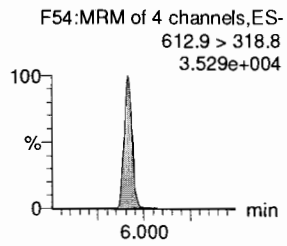




PFDoA





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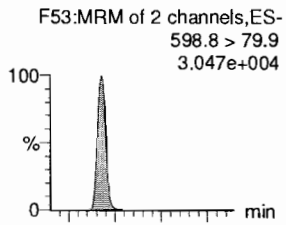

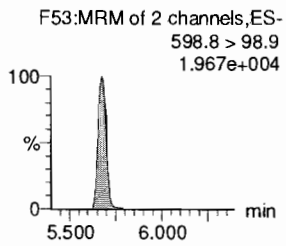

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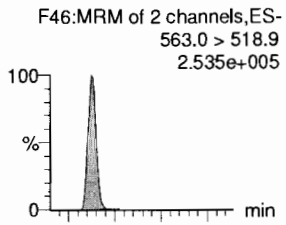

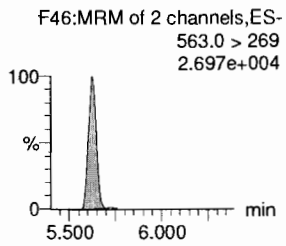

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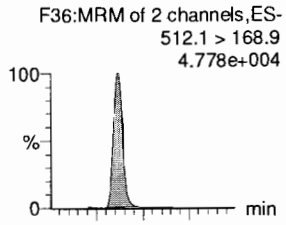

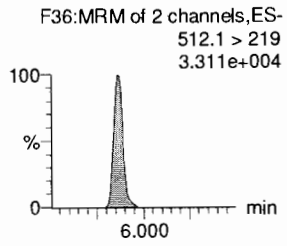

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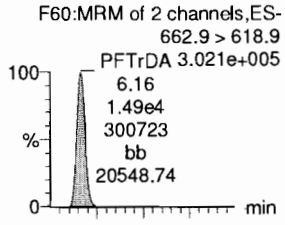
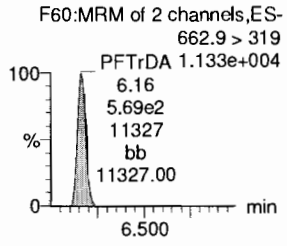
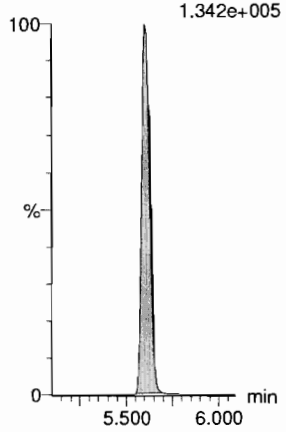
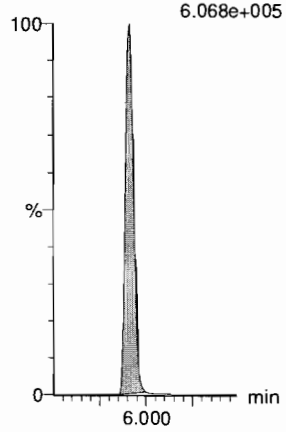




d5-N-EtFOSAA



13C2-PFDoA



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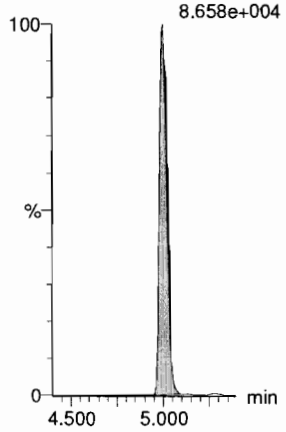

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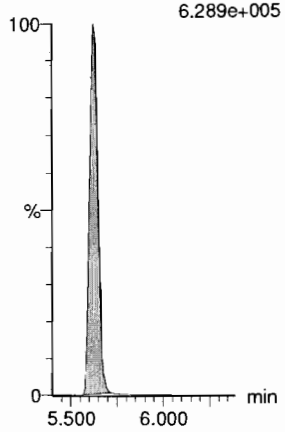

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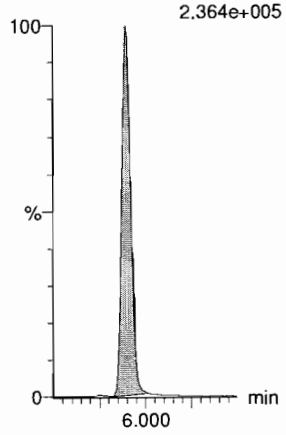

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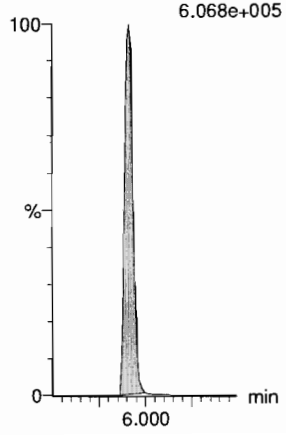

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Name: 181119M2_6, Date: 19-Nov-2018, Time: 21:00:12, ID: ST181119M2-5 PFC CS2 18K0905, Description: PFC CS2 18K0905

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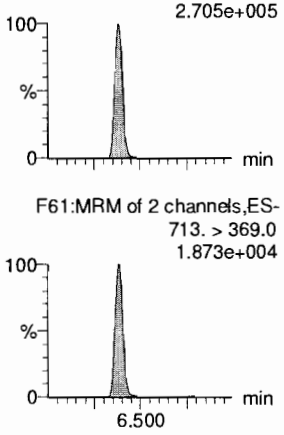
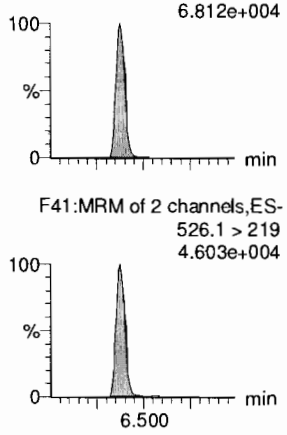


N-EtFOSA



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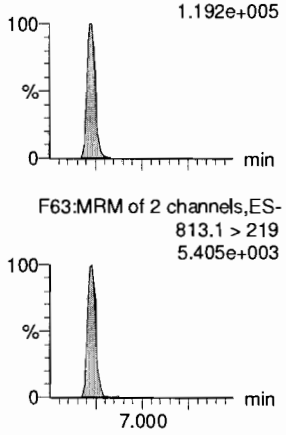

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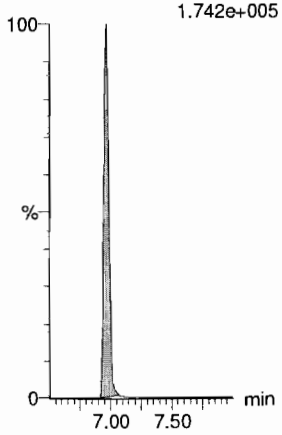
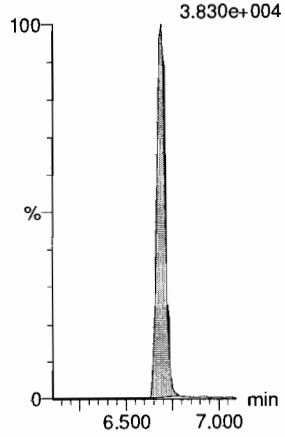
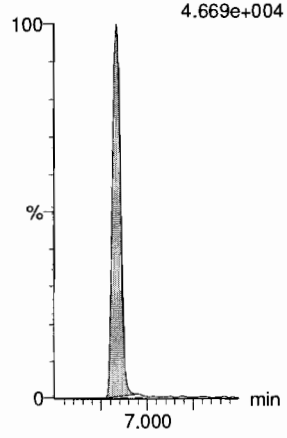


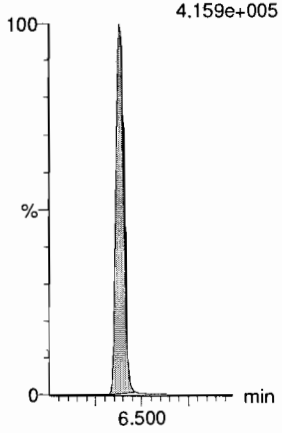
N-MeFOSE



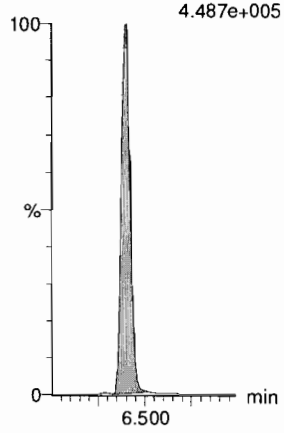
N-EtFOSE



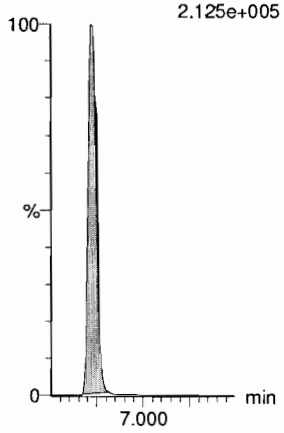
13C2-PFTeDA



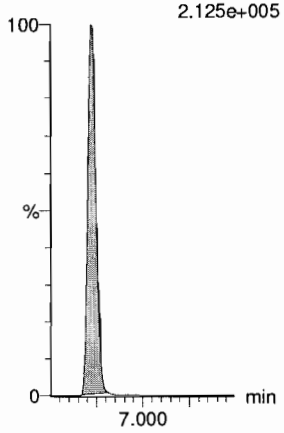
d5-N-ETFOSA



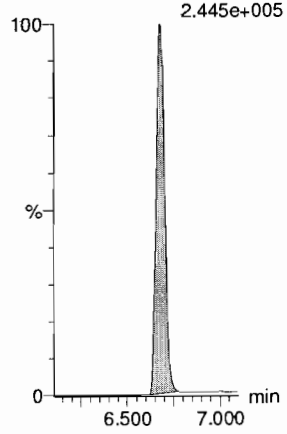
13C2-PFHxDA



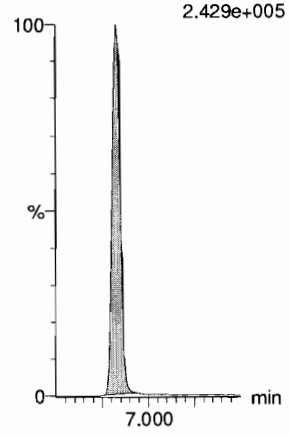
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE



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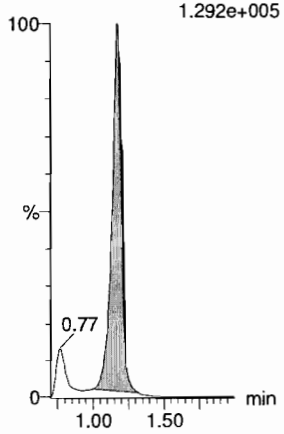
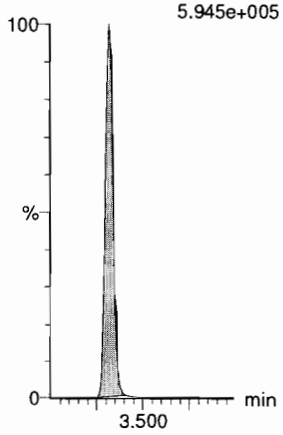
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_6, Date: 19-Nov-2018, Time: 21:00:12, ID: ST181119M2-5 PFC CS2 18K0905, Description: PFC CS2 18K0905

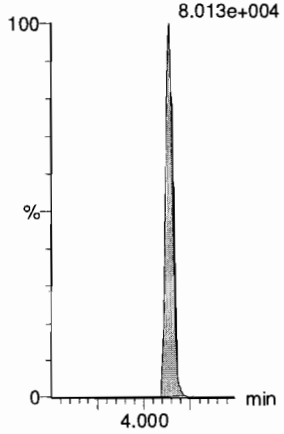
13C4-PFBA



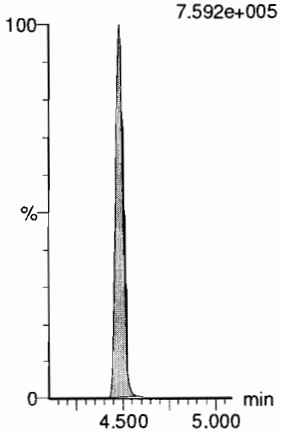
13C5-PFHxA



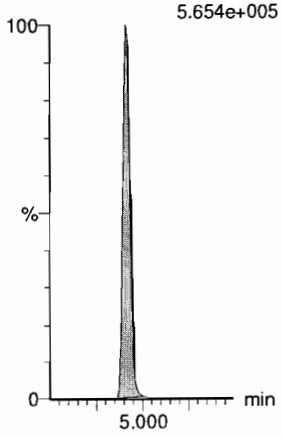
13C3-PFHxS



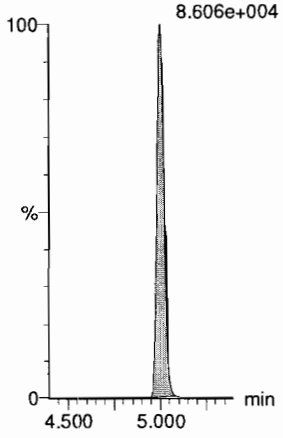
13C8-PFOA



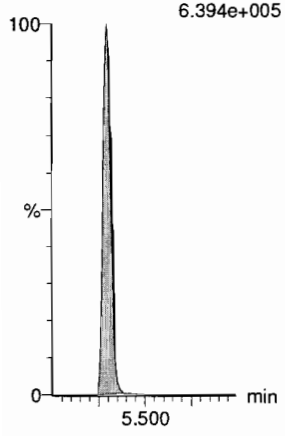
13C9-PFNA



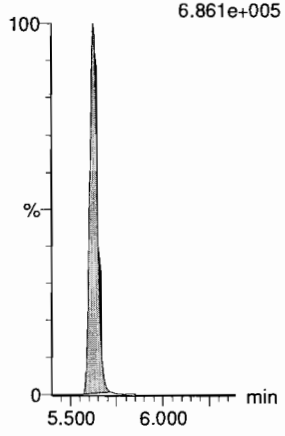
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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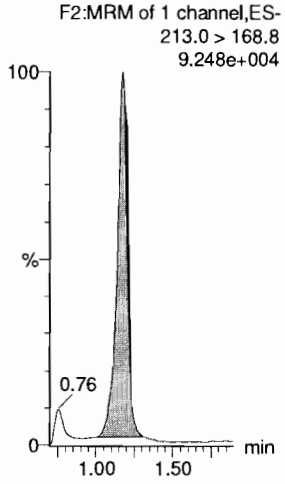
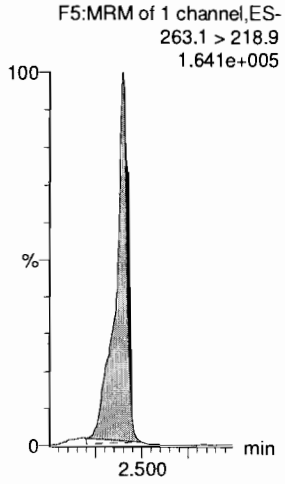
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_7, Date: 19-Nov-2018, Time: 21:10:50, ID: ST181119M2-6 PFC CS3 18K0906, Description: PFC CS3 18K0906

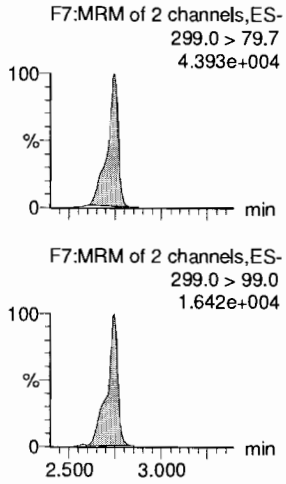
PFBA



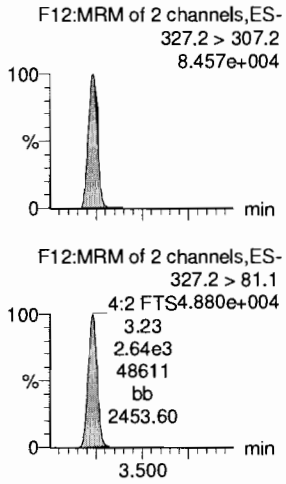
PFPeA



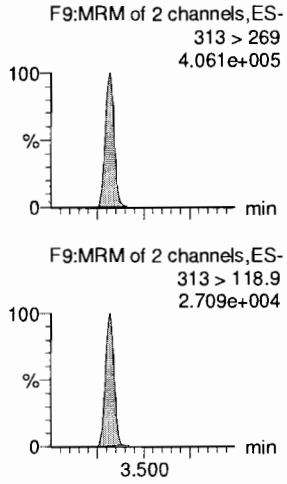
PFBS



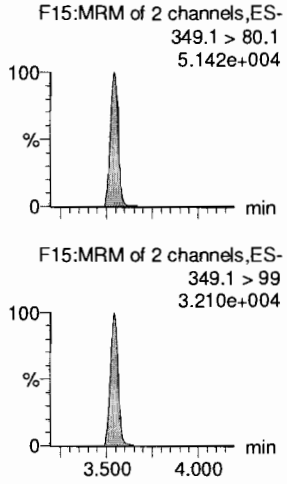
4:2 FTS



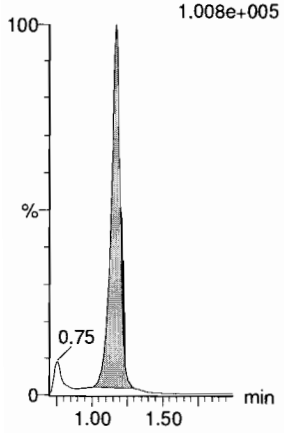
PFHxA



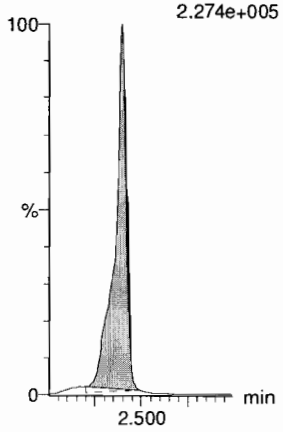
PFPeS



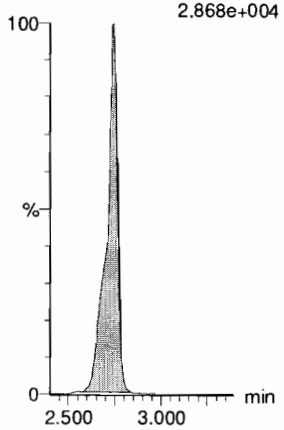
13C3-PFBA



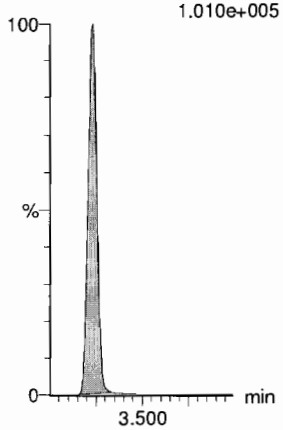
13C3-PFPeA



13C3-PFBS



13C2-4:2 FTS



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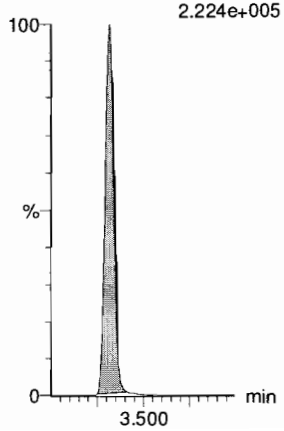
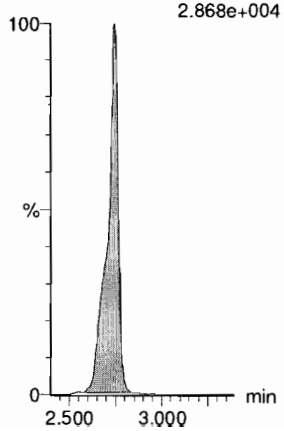


13C3-PFBS



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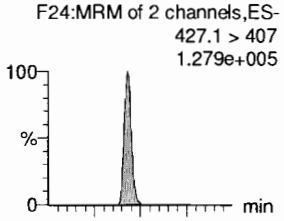
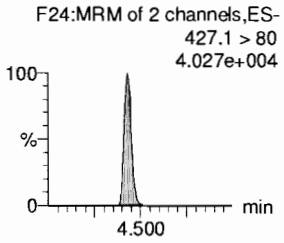
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

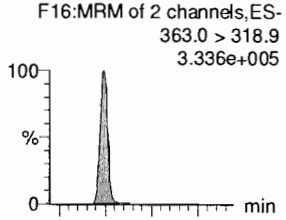
Name: 181119M2_7, Date: 19-Nov-2018, Time: 21:10:50, ID: ST181119M2-6 PFC CS3 18K0906, Description: PFC CS3 18K0906

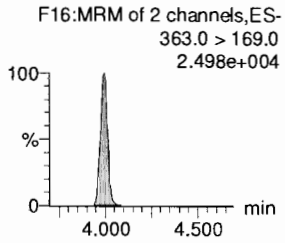
6:2 FTS



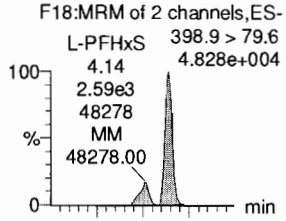


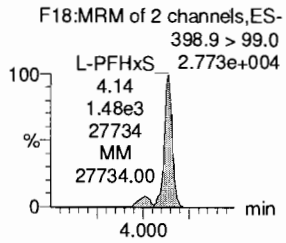
PFHpA



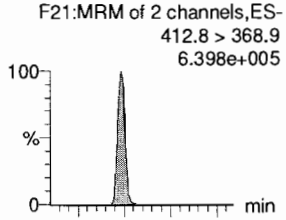


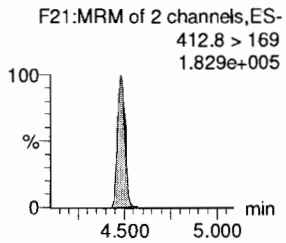
L-PFHxS





L-PFOA





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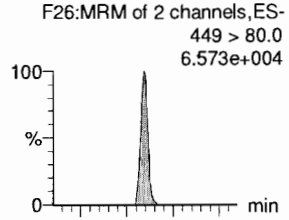

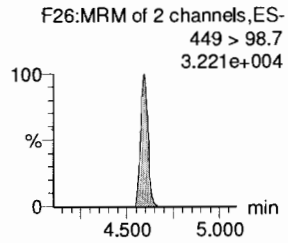

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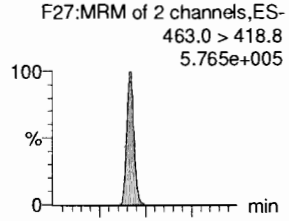
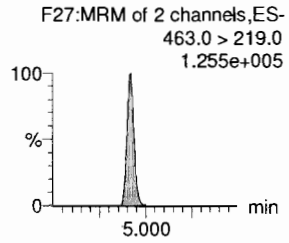
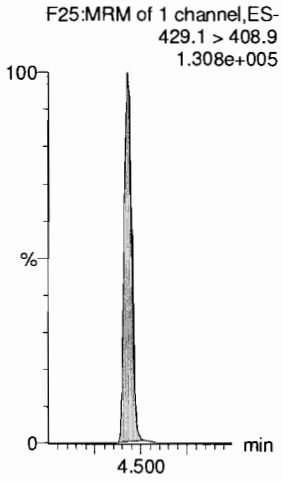
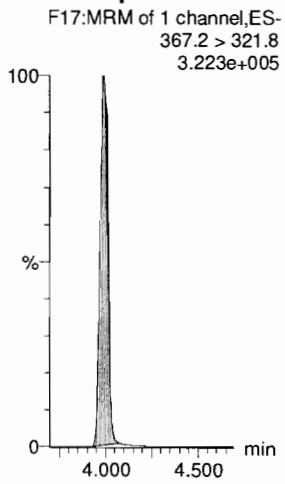




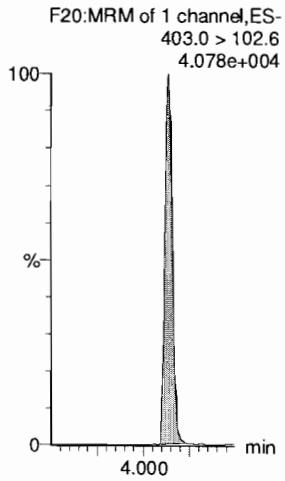
13C2-6:2 FTS



13C4-PFHpA



18O2-PFHxS



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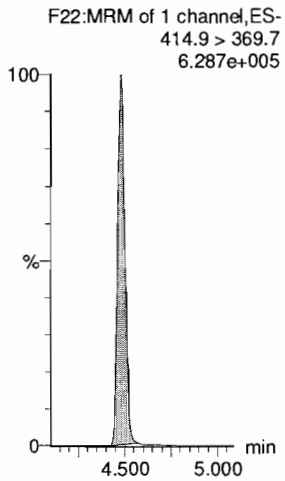
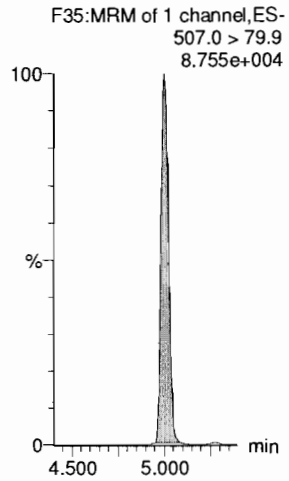
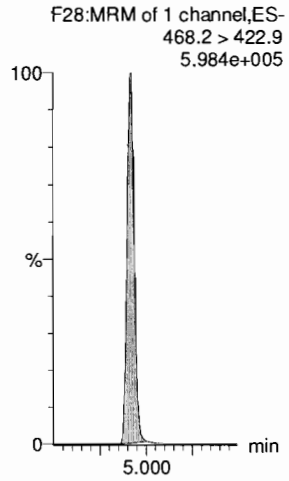


13C8-PFOS



13C5-PFNA



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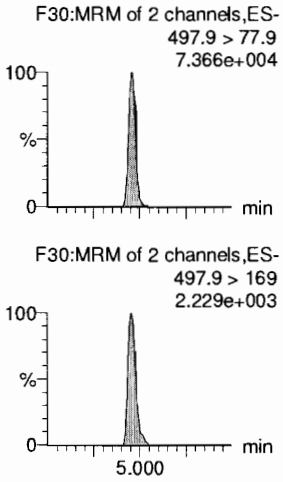
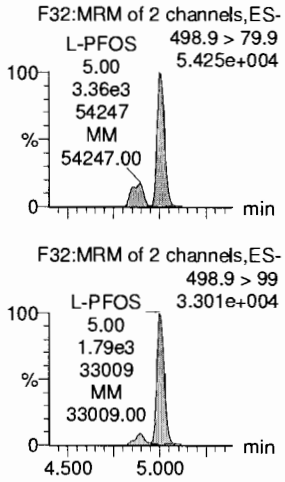
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_7, Date: 19-Nov-2018, Time: 21:10:50, ID: ST181119M2-6 PFC CS3 18K0906, Description: PFC CS3 18K0906

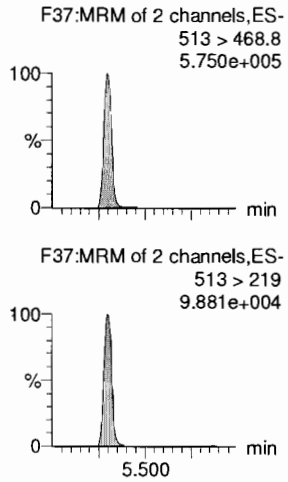
PFOSA



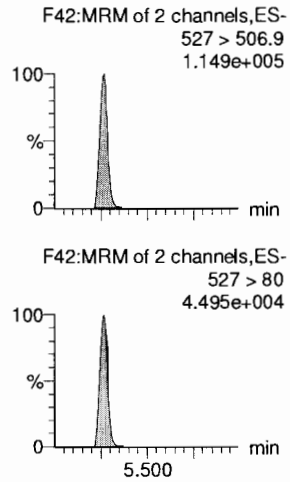
L-PFOS



PFDA



8:2 FTS



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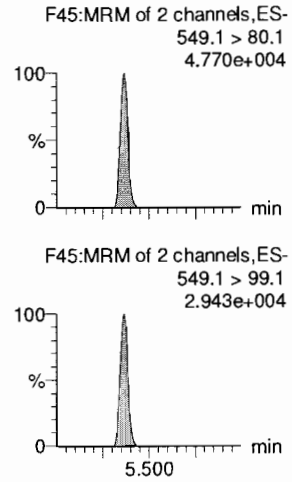
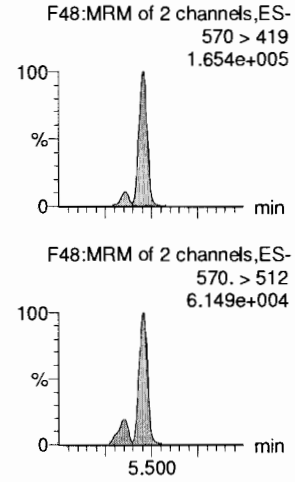


L-MeFOSAA



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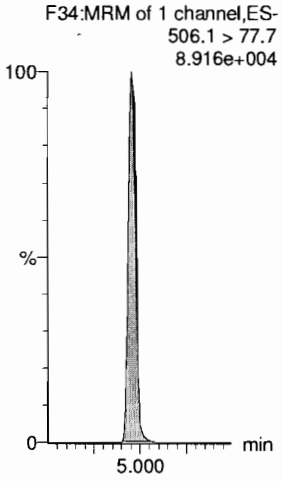

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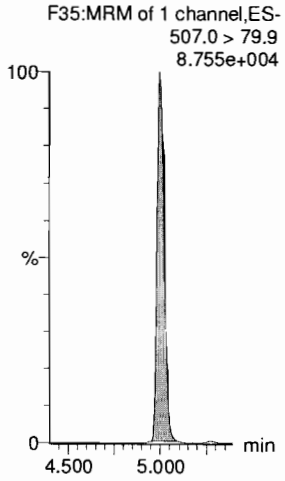
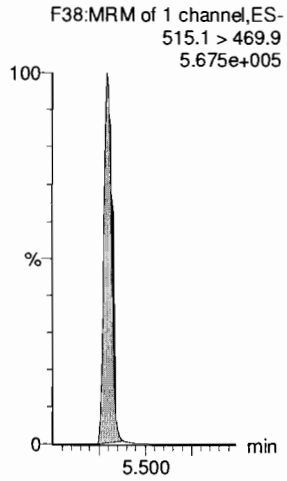
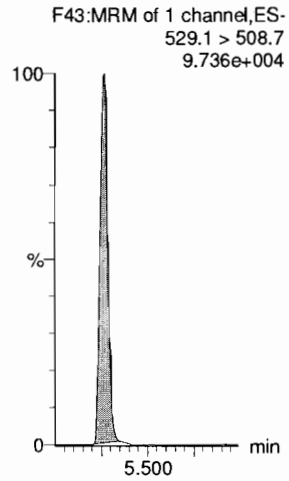


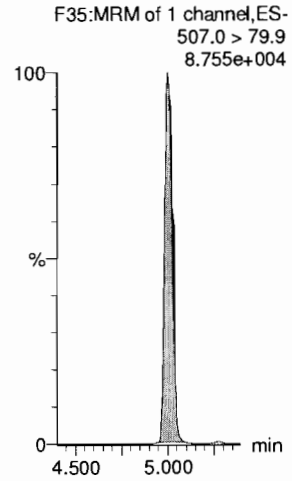
13C2-PFDA



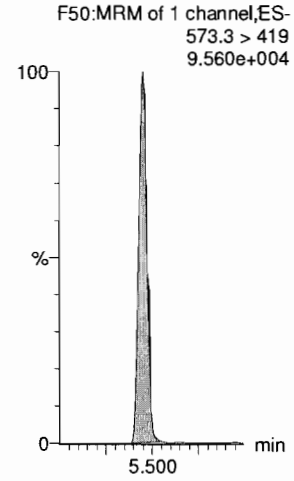
13C2-8:2 FTS



13C8-PFOS



d3-N-MeFOSAA

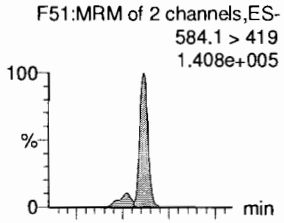


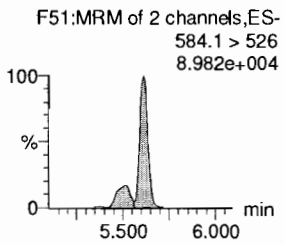
Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

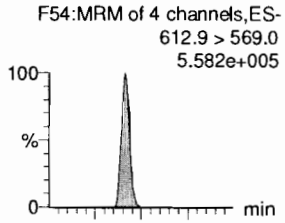
Name: 181119M2_7, Date: 19-Nov-2018, Time: 21:10:50, ID: ST181119M2-6 PFC CS3 18K0906, Description: PFC CS3 18K0906

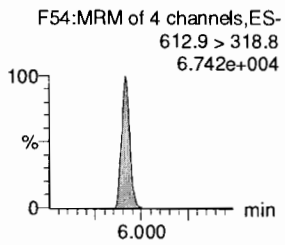
L-EtFOSAA



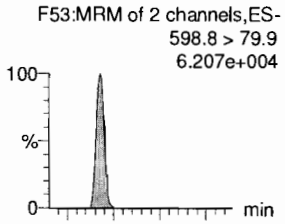


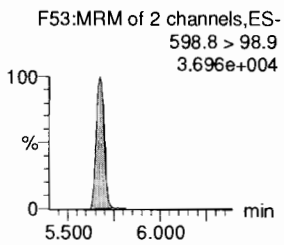
PFDoA



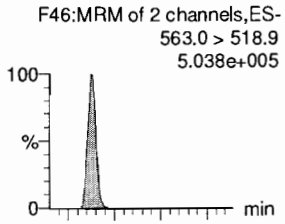


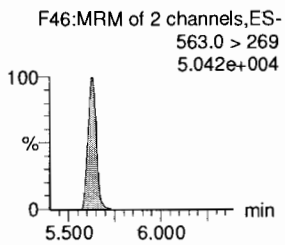
PFDS



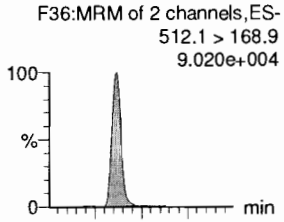


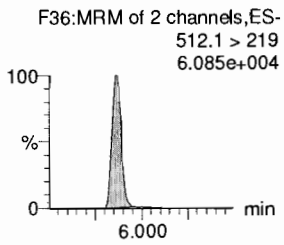
PFUdA



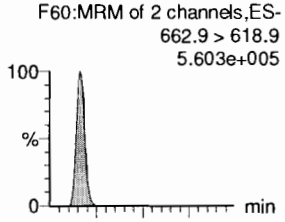


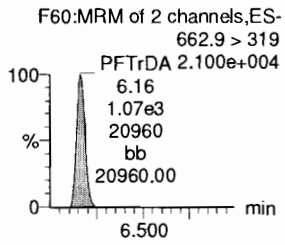
N-MeFOSA



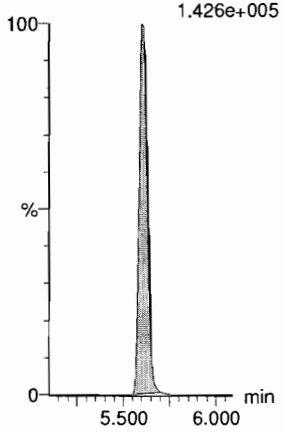


PFTrDA

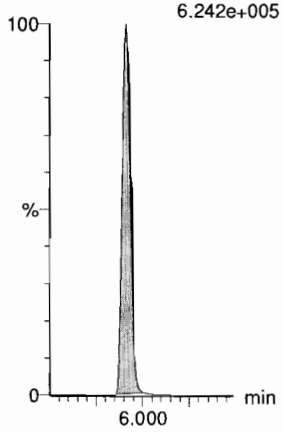




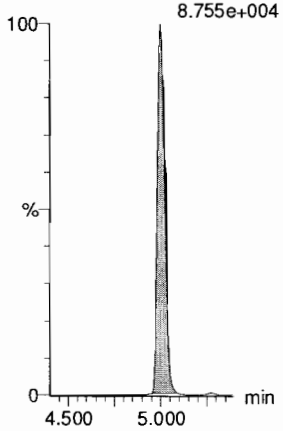
d5-N-EtFOSAA



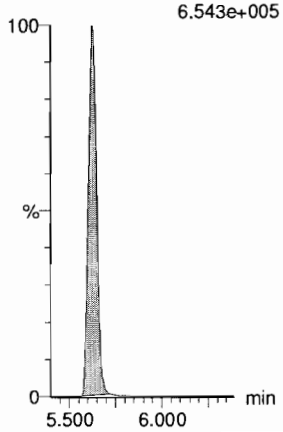
13C2-PFDoA



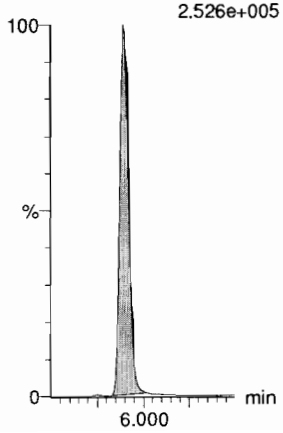
13C8-PFOS



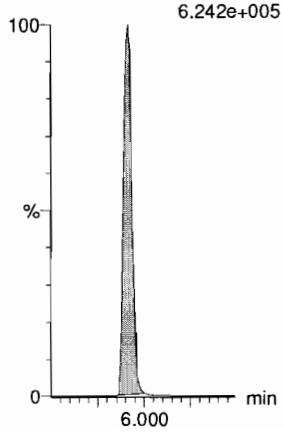
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA

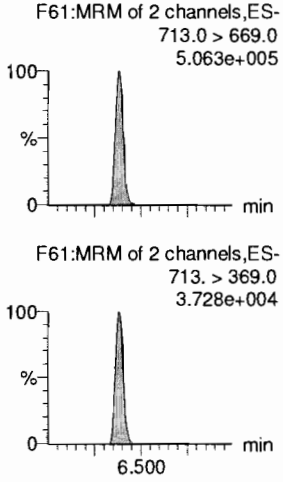


Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

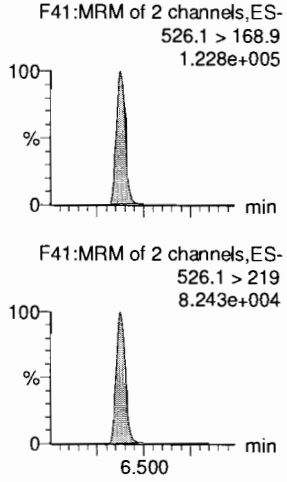
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_7, Date: 19-Nov-2018, Time: 21:10:50, ID: ST181119M2-6 PFC CS3 18K0906, Description: PFC CS3 18K0906

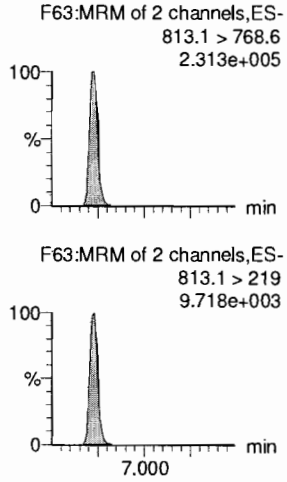
PFTeDA



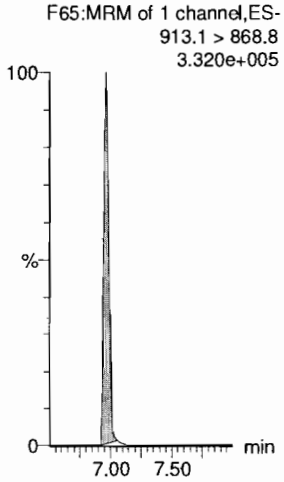
N-EtFOSA



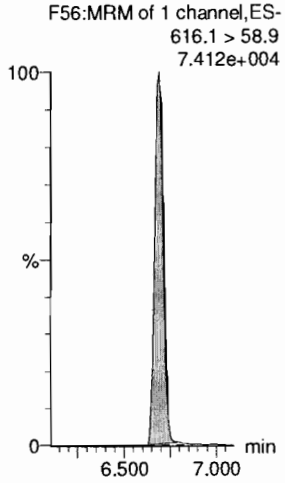
PFHxDA



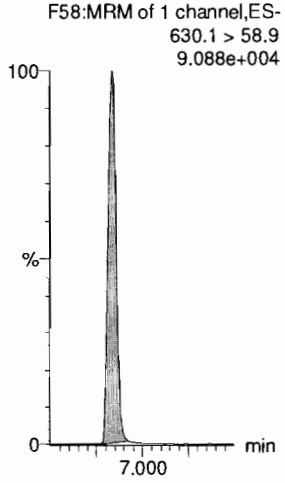
PFODA



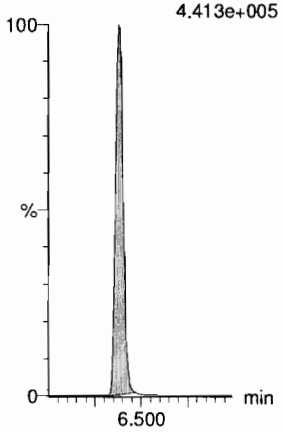
N-MeFOSE



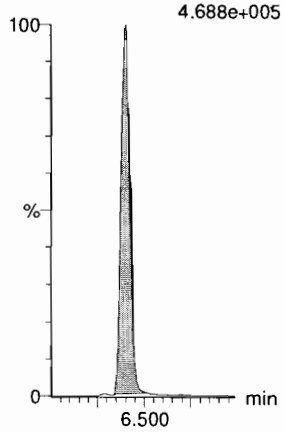
N-EtFOSE



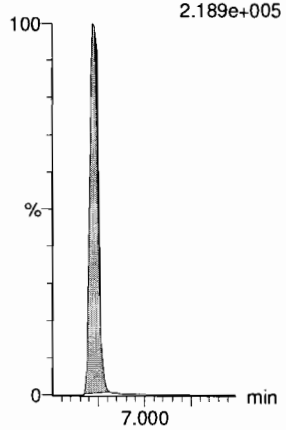
13C2-PFTeDA



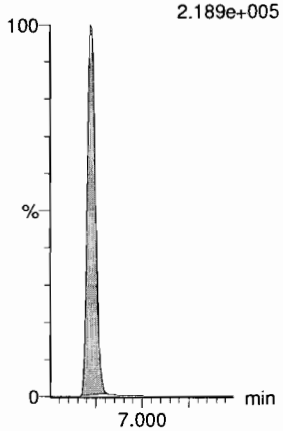
d5-N-ETFOSA



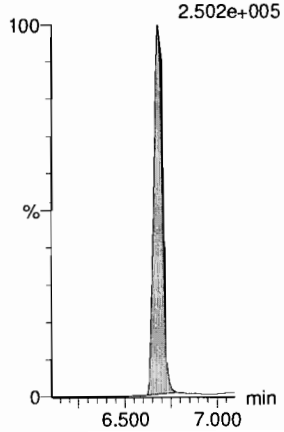
13C2-PFHxDA



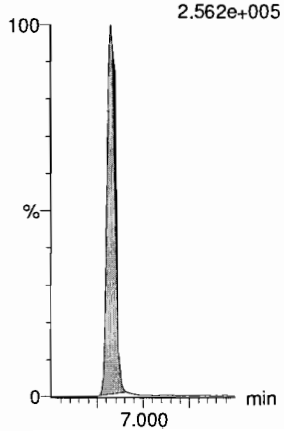
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE

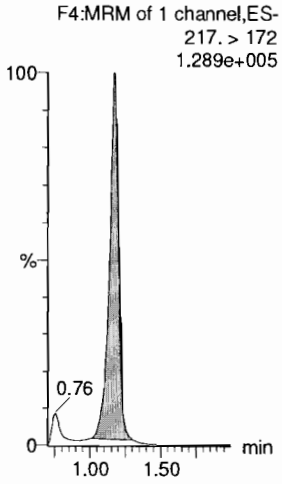


Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

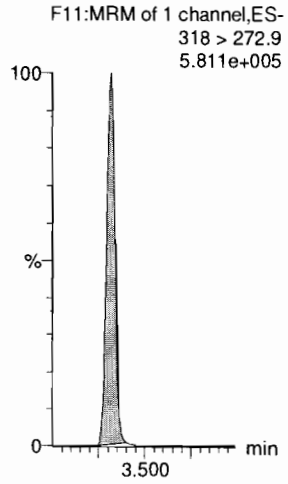
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_7, Date: 19-Nov-2018, Time: 21:10:50, ID: ST181119M2-6 PFC CS3 18K0906, Description: PFC CS3 18K0906

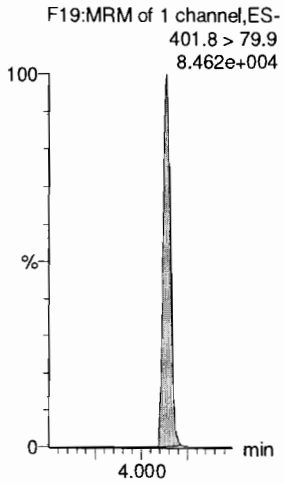
13C4-PFBA



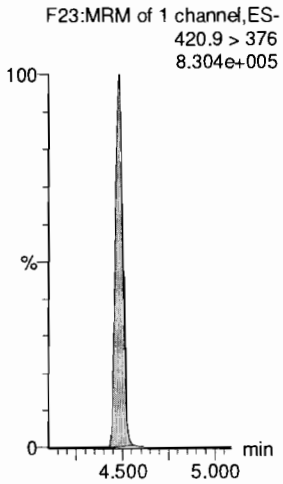
13C5-PFHxA



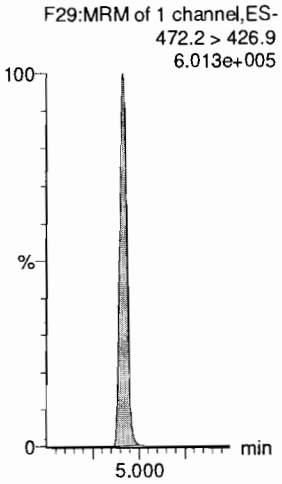
13C3-PFHxS



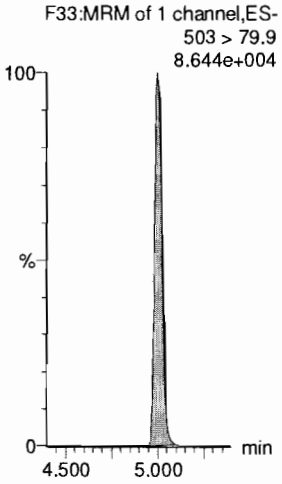
13C8-PFOA



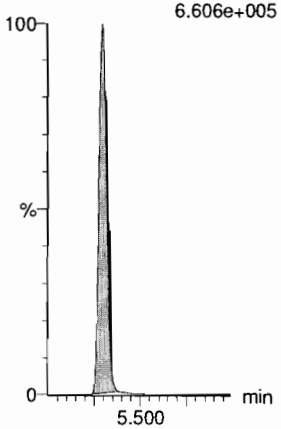
13C9-PFNA



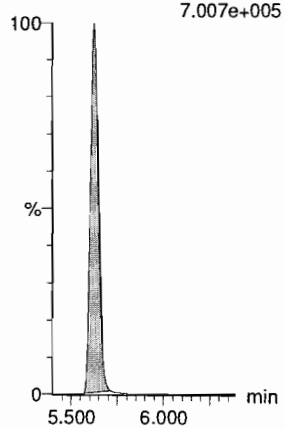
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

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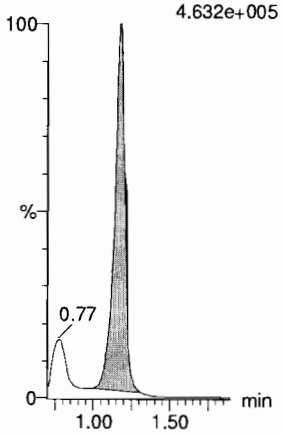
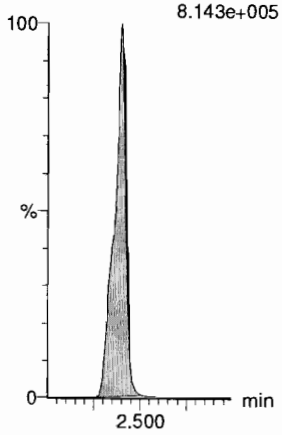
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_8, Date: 19-Nov-2018, Time: 21:21:23, ID: ST181119M2-7 PFC CS4 18K0907, Description: PFC CS4 18K0907

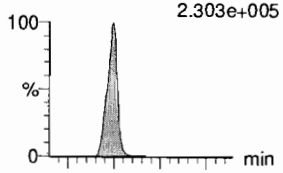
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
4.632e+005



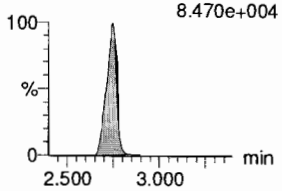
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
8.143e+005



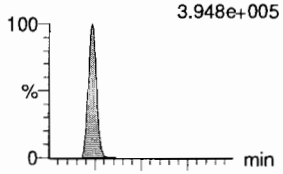
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
2.303e+005



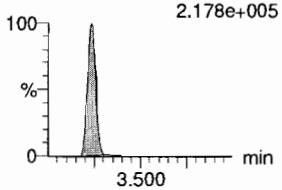
F7:MRM of 2 channels,ES-
299.0 > 99.0
8.470e+004



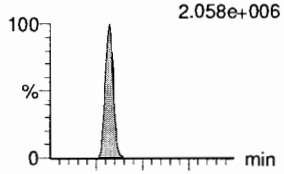
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
3.948e+005



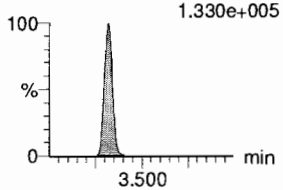
F12:MRM of 2 channels,ES-
327.2 > 81.1
2.178e+005



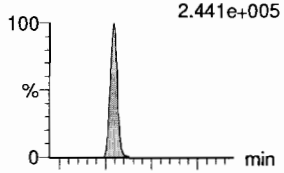
PFHxA
F9:MRM of 2 channels,ES-
313 > 269
2.058e+006



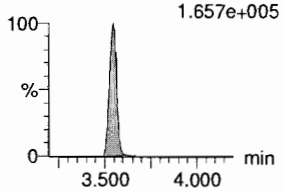
F9:MRM of 2 channels,ES-
313 > 118.9
1.330e+005



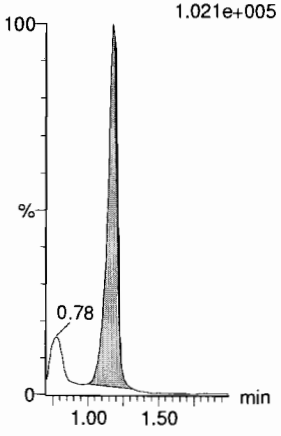
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
2.441e+005



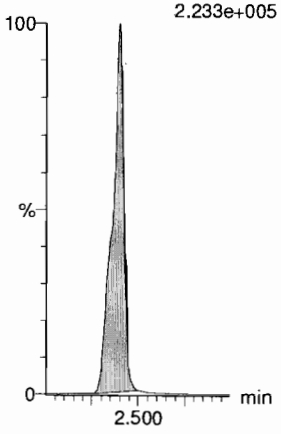
F15:MRM of 2 channels,ES-
349.1 > 99
1.657e+005



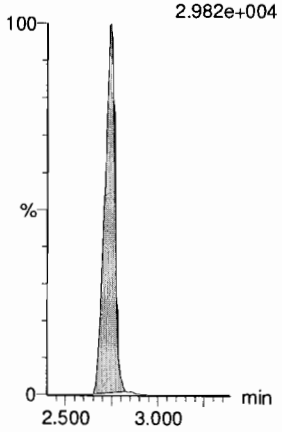
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
1.021e+005



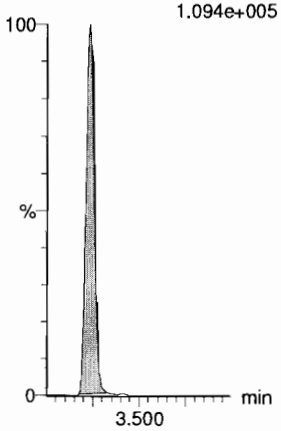
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
2.233e+005



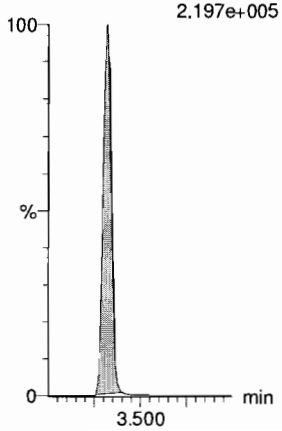
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.982e+004



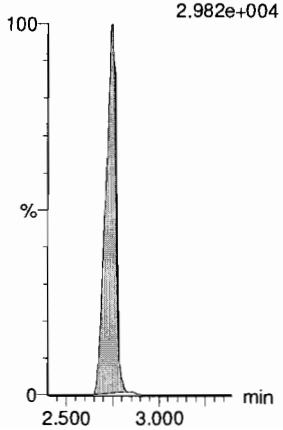
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
1.094e+005



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 270
2.197e+005



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.982e+004



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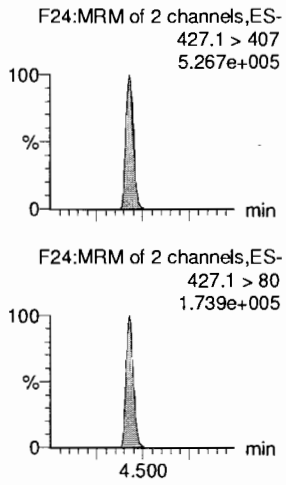
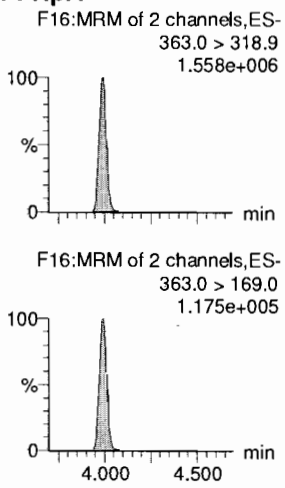
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_8, Date: 19-Nov-2018, Time: 21:21:23, ID: ST181119M2-7 PFC CS4 18K0907, Description: PFC CS4 18K0907

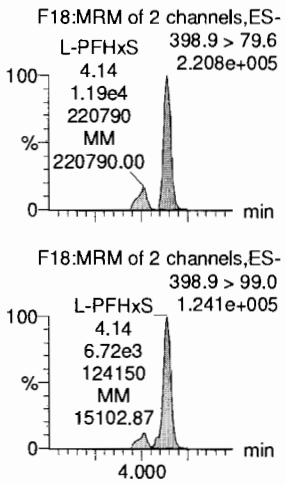
6:2 FTS



PFHpA



L-PFHxS



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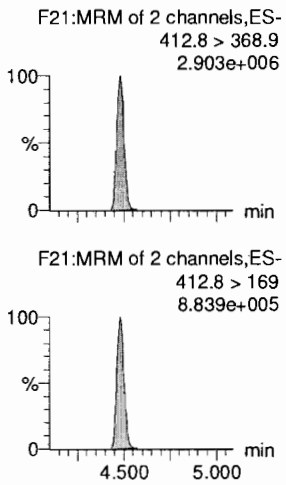
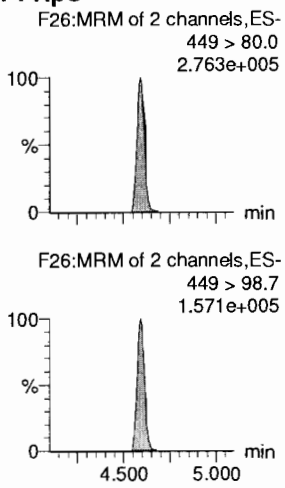
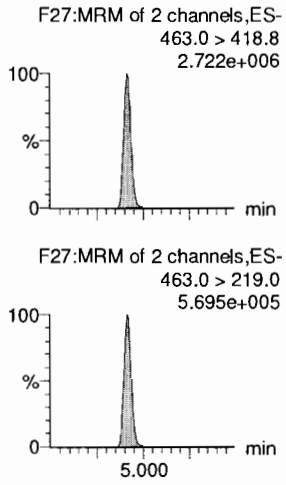


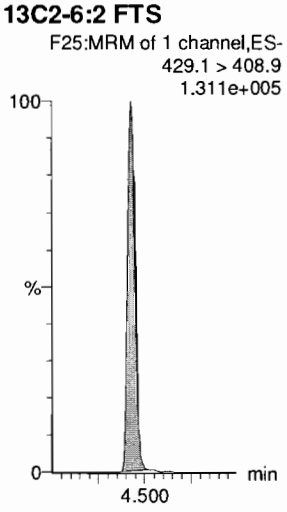
PFHpS



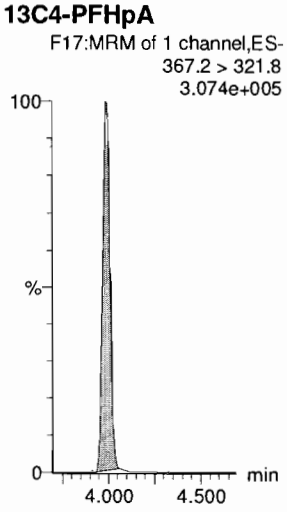
PFNA



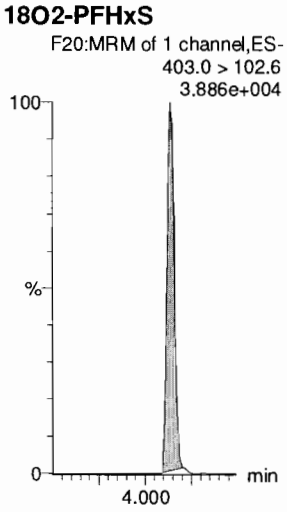
13C2-6:2 FTS



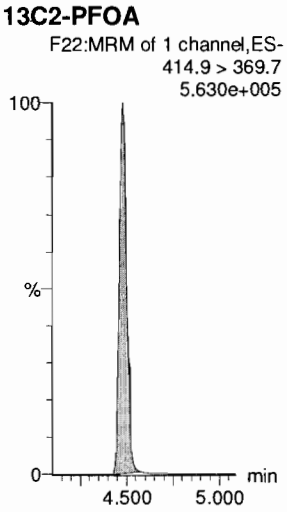
13C4-PFHpA



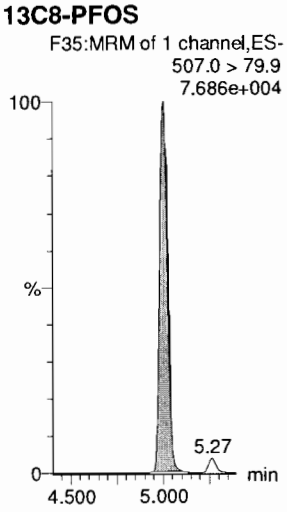
18O2-PFHxS



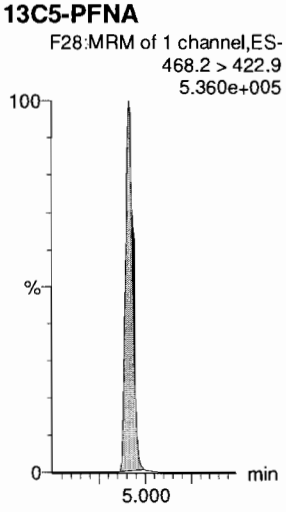
13C2-PFOA



13C8-PFOS



13C5-PFNA



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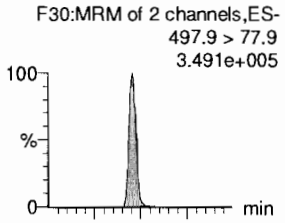
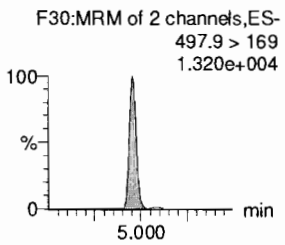
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

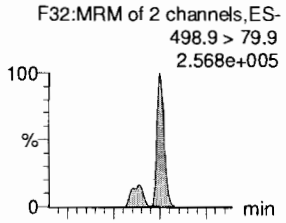
Name: 181119M2_8, Date: 19-Nov-2018, Time: 21:21:23, ID: ST181119M2-7 PFC CS4 18K0907, Description: PFC CS4 18K0907

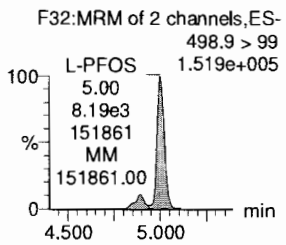
PFOSA





L-PFOS





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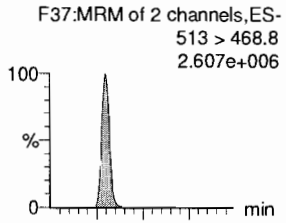
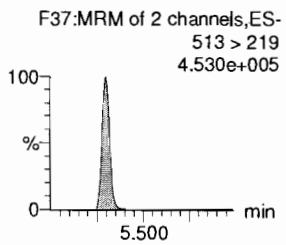
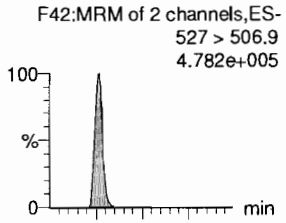
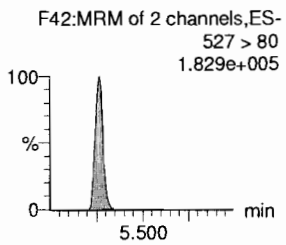




8:2 FTS





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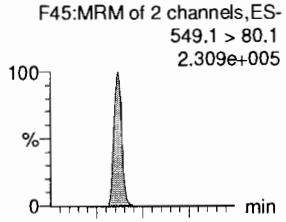
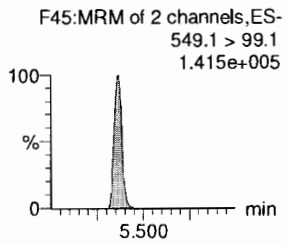
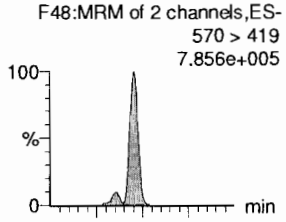
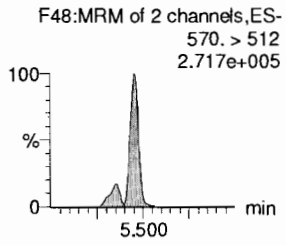


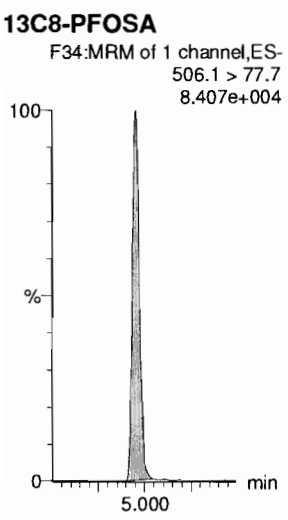


L-MeFOSAA

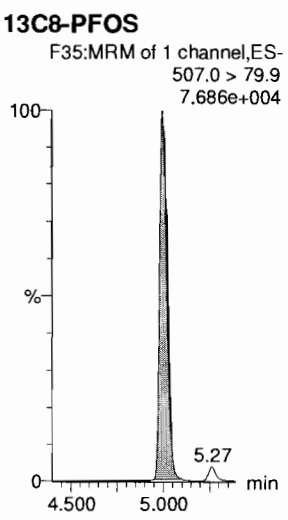




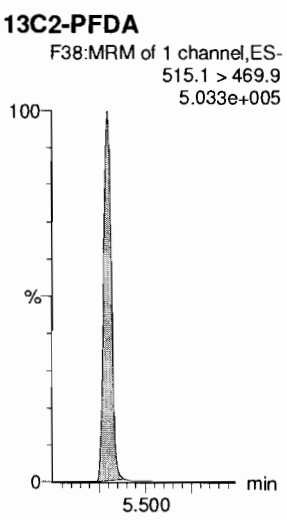
13C8-PFOSA



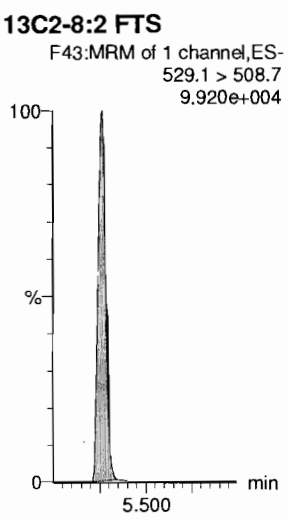
13C8-PFOS



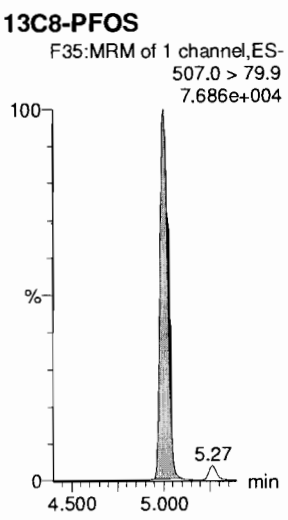
13C2-PFDA



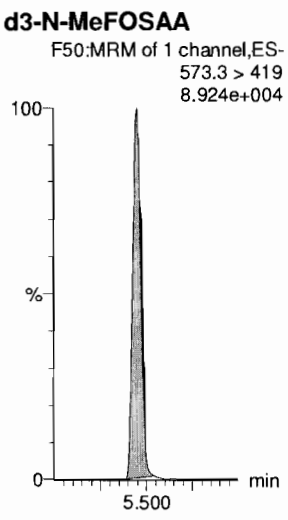
13C2-8:2 FTS



13C8-PFOS



d3-N-MeFOSAA



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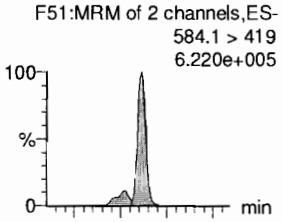
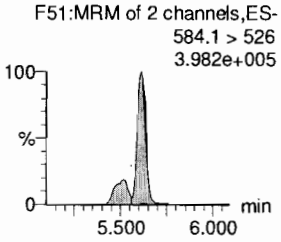
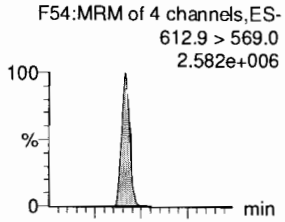
Name: 181119M2_8, Date: 19-Nov-2018, Time: 21:21:23, ID: ST181119M2-7 PFC CS4 18K0907, Description: PFC CS4 18K0907

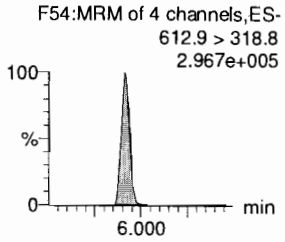
L-EtFOSAA



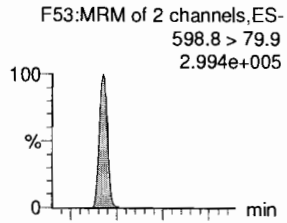


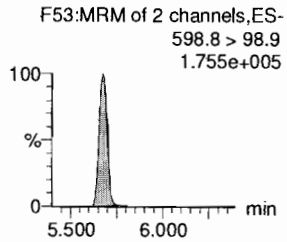
PFDoA





PFDS





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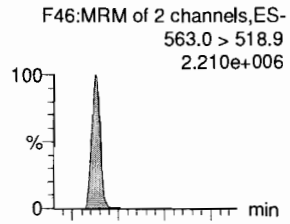
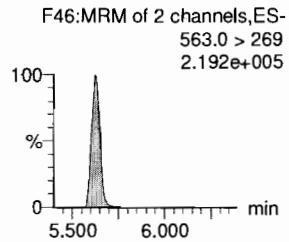
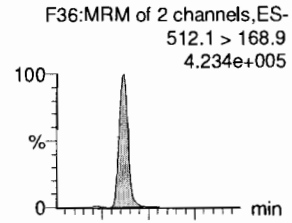
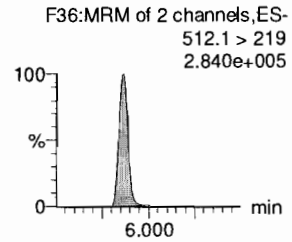




N-MeFOSA





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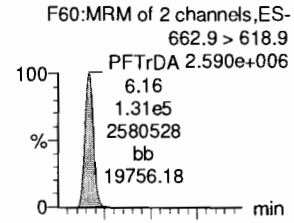
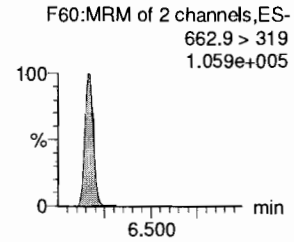
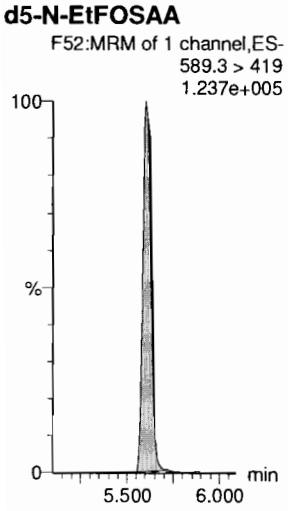
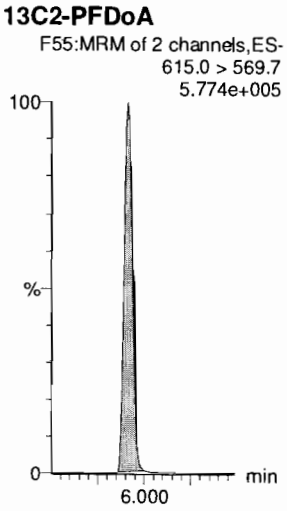




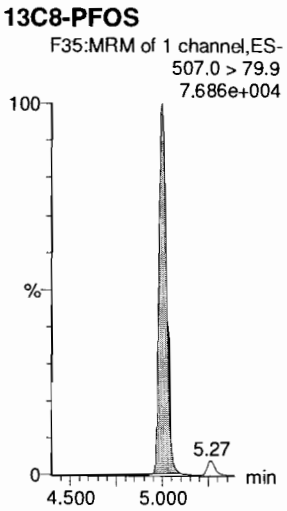
d5-N-EtFOSAA



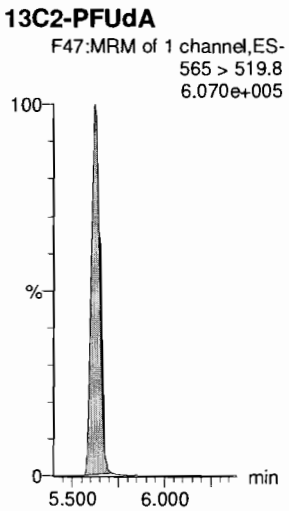
13C2-PFDoA



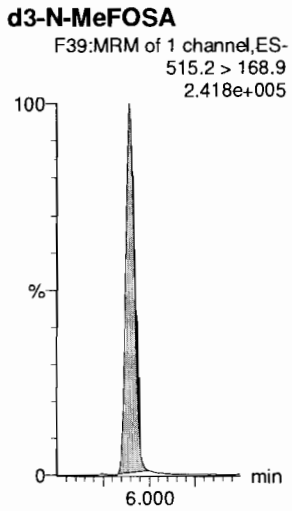
13C8-PFOS



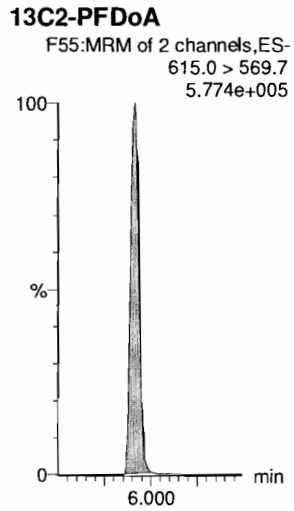
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA

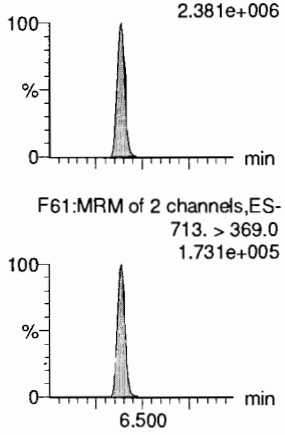


Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

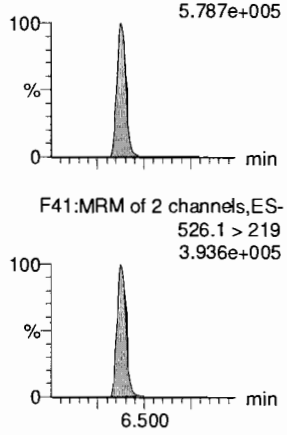
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_8, Date: 19-Nov-2018, Time: 21:21:23, ID: ST181119M2-7 PFC CS4 18K0907, Description: PFC CS4 18K0907

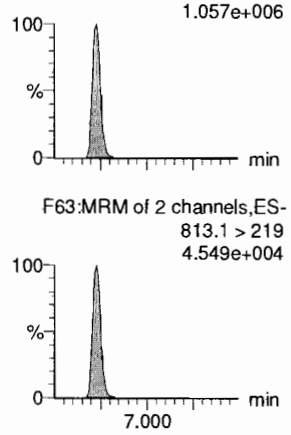
PFTeDA



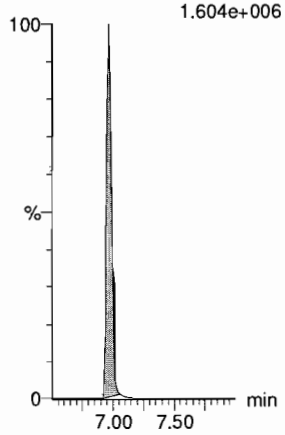
N-EtFOSA



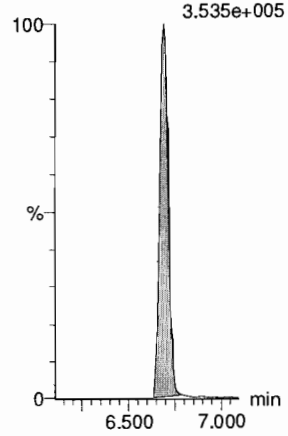
PFHxDA



PFODA



N-MeFOSE



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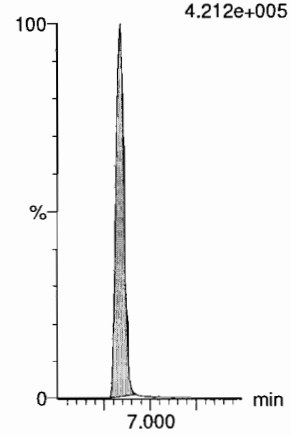
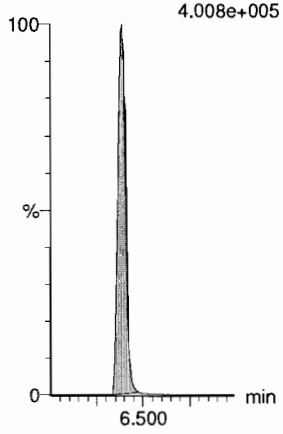
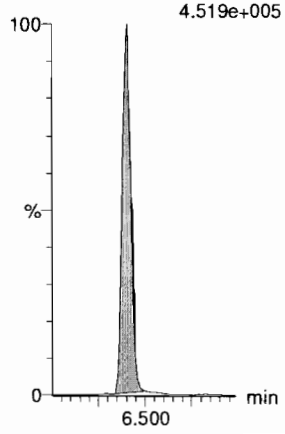


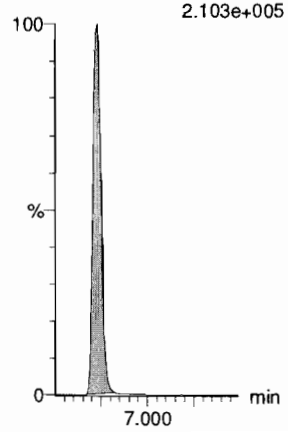
13C2-PFTeDA



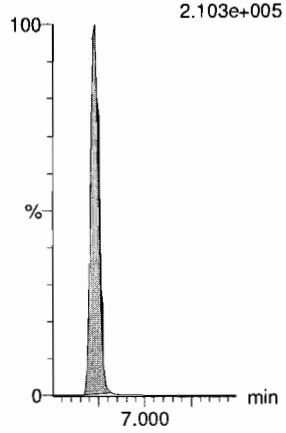
d5-N-ETFOSA



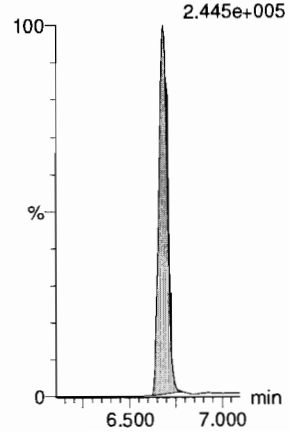
13C2-PFHxDA



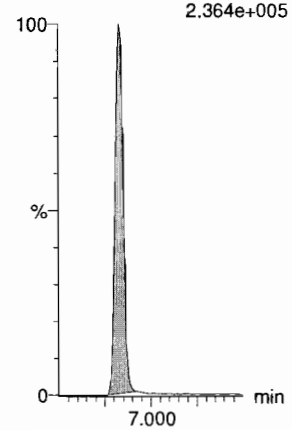
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE



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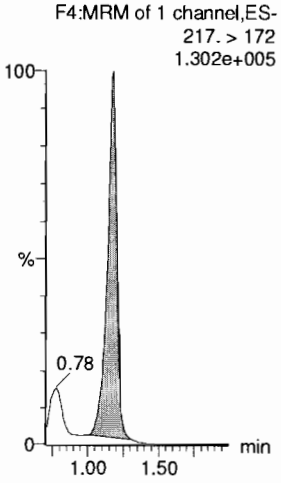
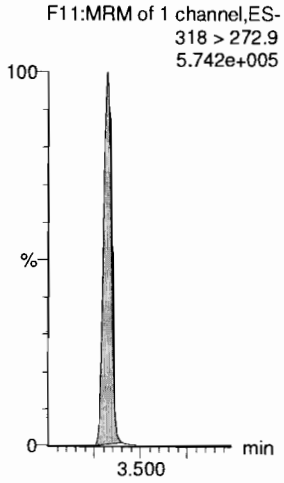
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_8, Date: 19-Nov-2018, Time: 21:21:23, ID: ST181119M2-7 PFC CS4 18K0907, Description: PFC CS4 18K0907

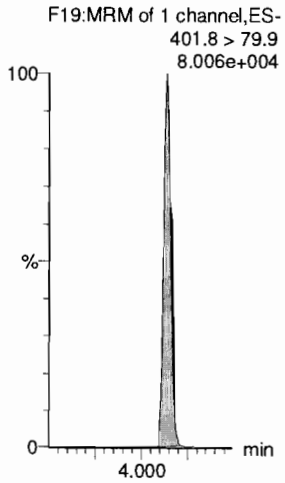
13C4-PFBA



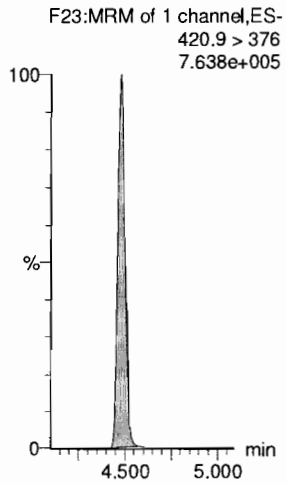
13C5-PFHxA



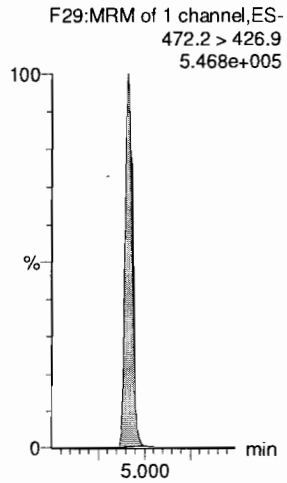
13C3-PFHxS



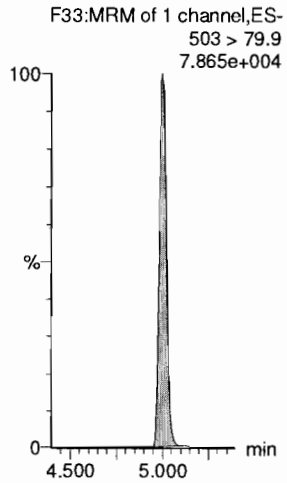
13C8-PFOA



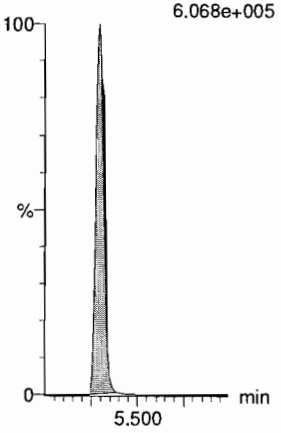
13C9-PFNA



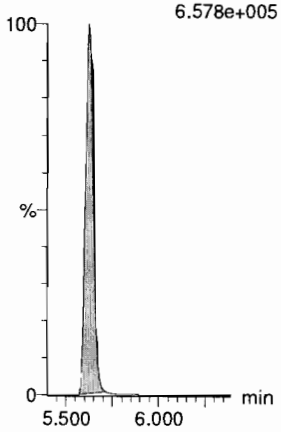
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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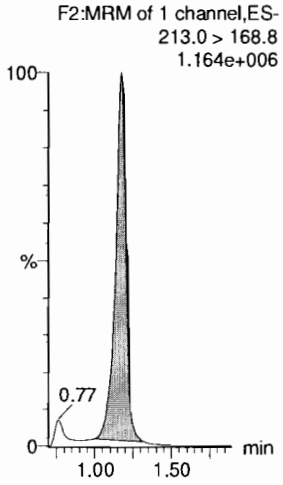
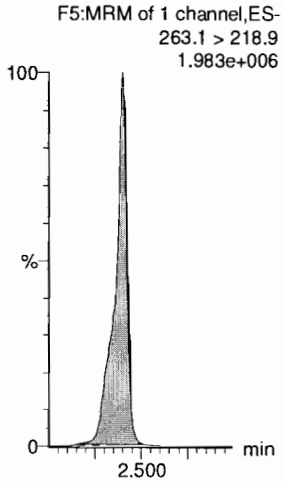
Name: 181119M2_9, Date: 19-Nov-2018, Time: 21:32:01, ID: ST181119M2-8 PFC CS5 18K0908, Description: PFC CS5 18K0908

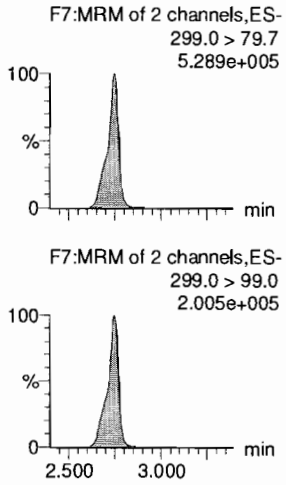
PFBA



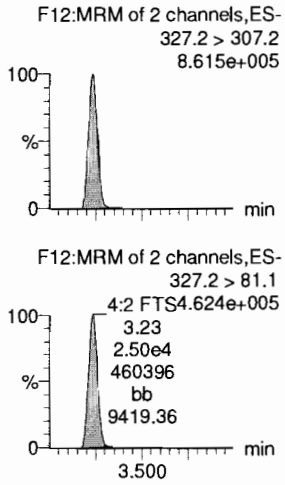
PFPeA



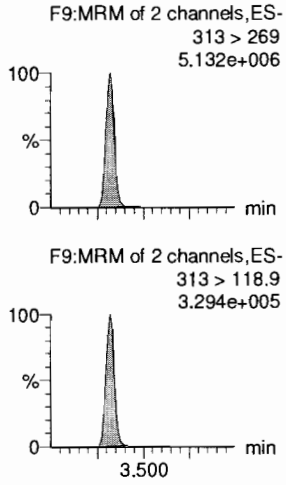
PFBS



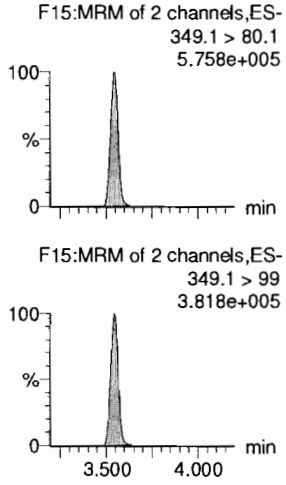
4:2 FTS



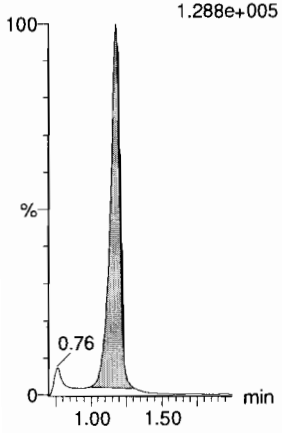
PFHxA



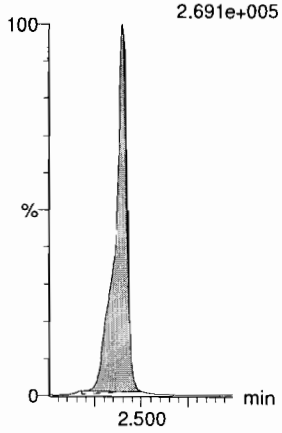
PFPeS



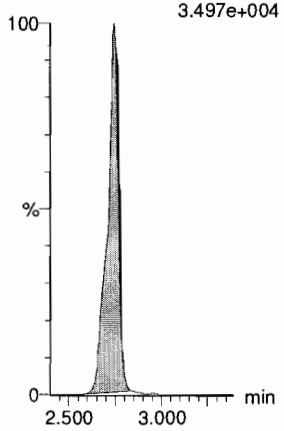
13C3-PFBA



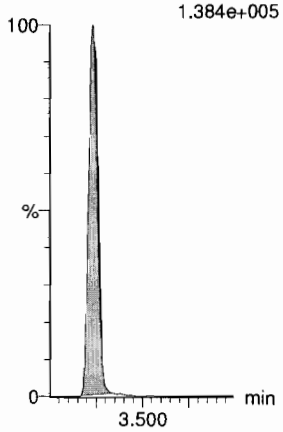
13C3-PFPeA



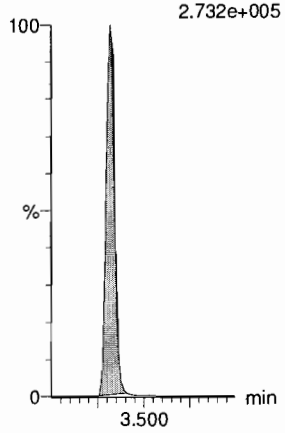
13C3-PFBS



13C2-4:2 FTS



13C2-PFHxA



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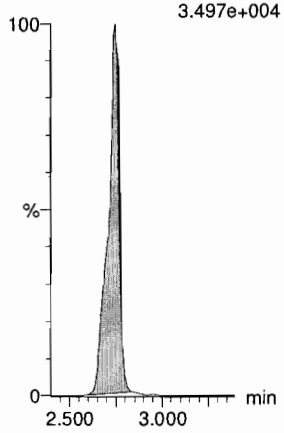

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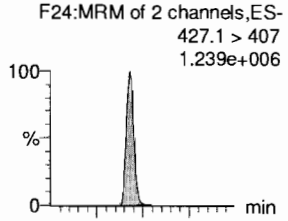
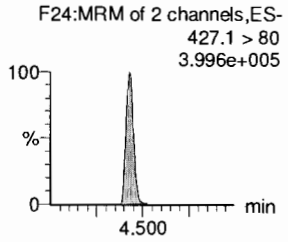
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

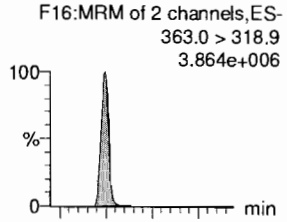
Name: 181119M2_9, Date: 19-Nov-2018, Time: 21:32:01, ID: ST181119M2-8 PFC CS5 18K0908, Description: PFC CS5 18K0908

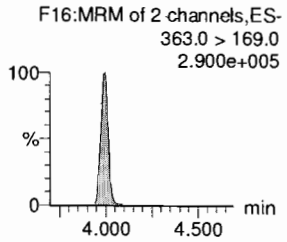
6:2 FTS



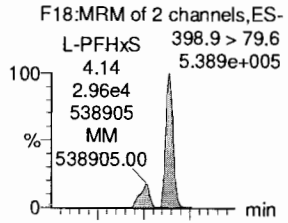


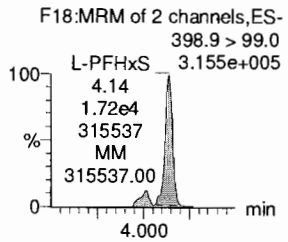
PFHpA



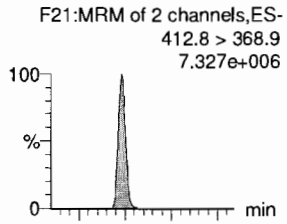


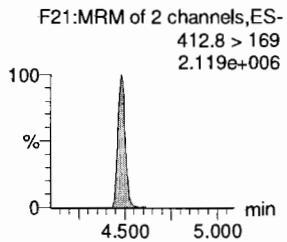
L-PFHxS



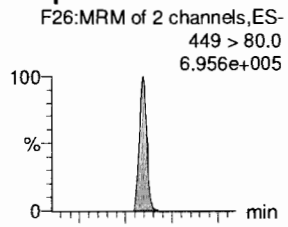


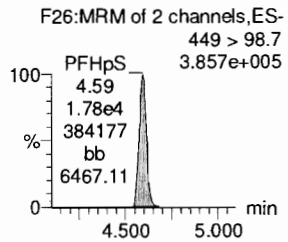
L-PFOA





PFHpS





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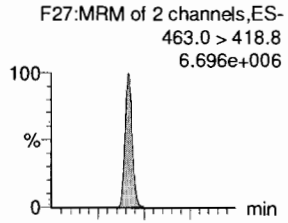
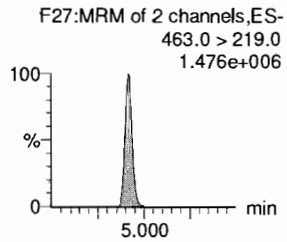
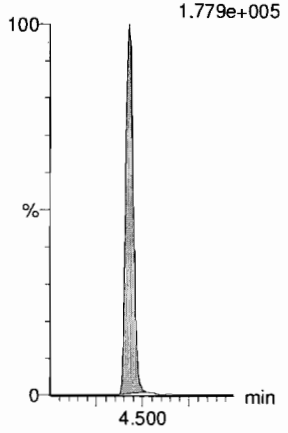
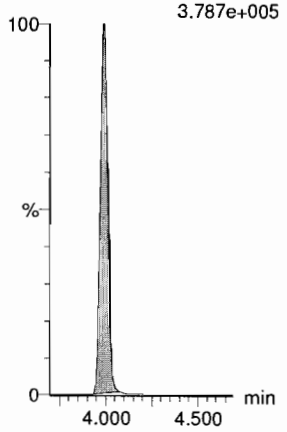




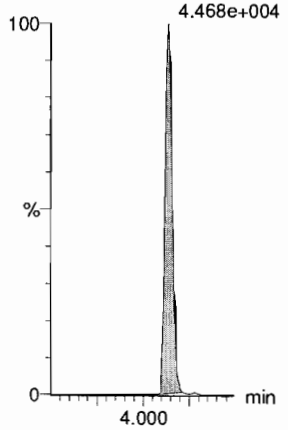
13C2-6:2 FTS



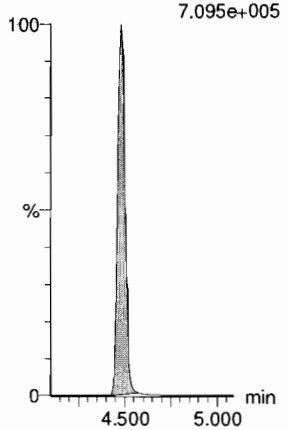
13C4-PFHpA



18O2-PFHxS



13C2-PFOA



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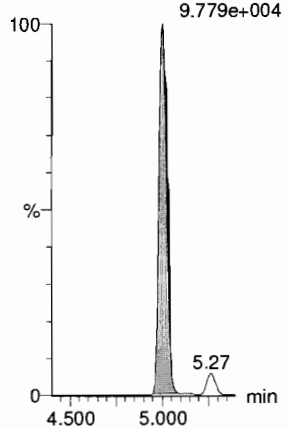
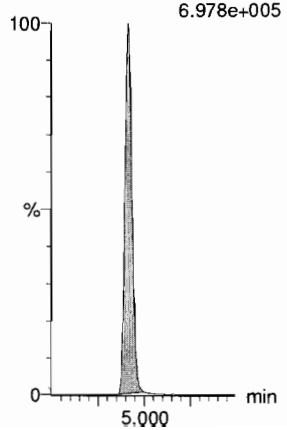


13C5-PFNA



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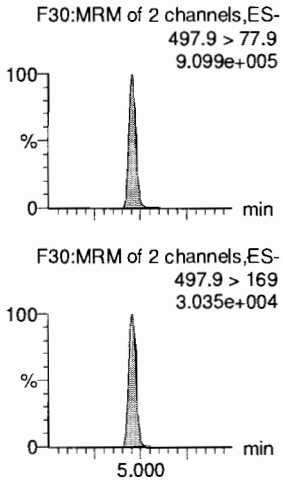
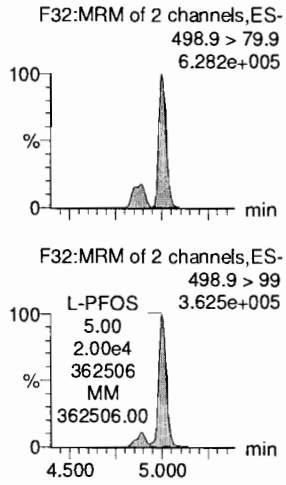
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_9, Date: 19-Nov-2018, Time: 21:32:01, ID: ST181119M2-8 PFC CS5 18K0908, Description: PFC CS5 18K0908

PFOSA



L-PFOS



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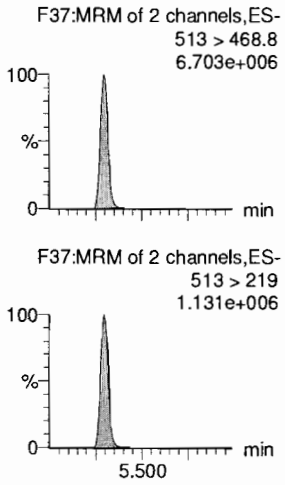
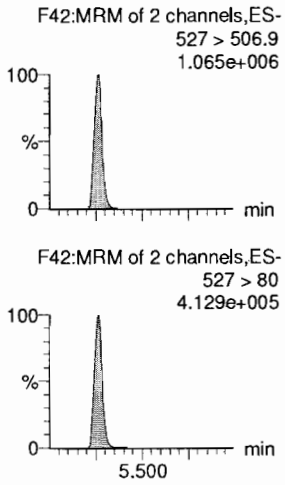
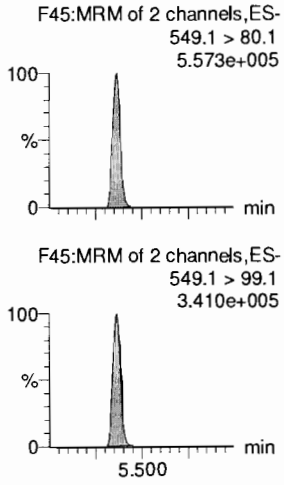


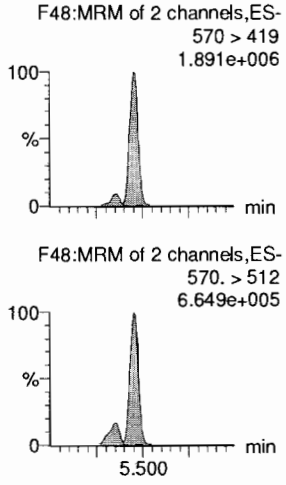
8:2 FTS



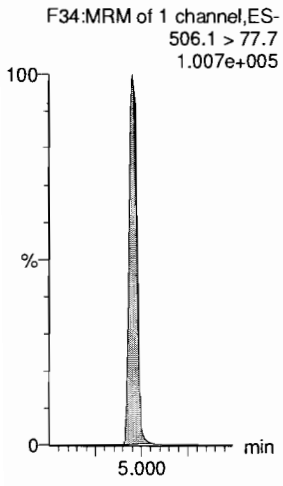
PFNS



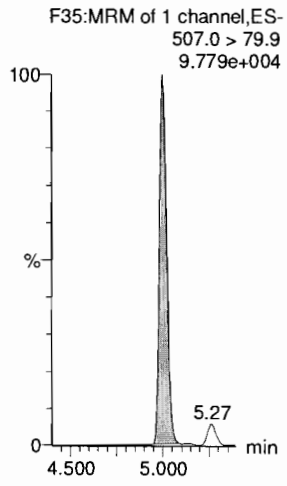
L-MeFOSAA



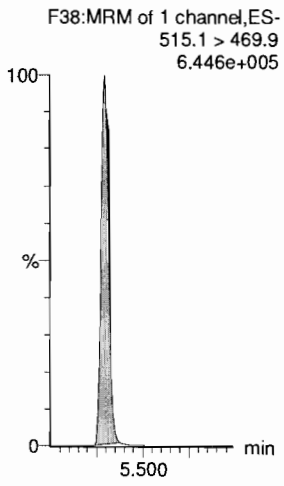
13C8-PFOSA



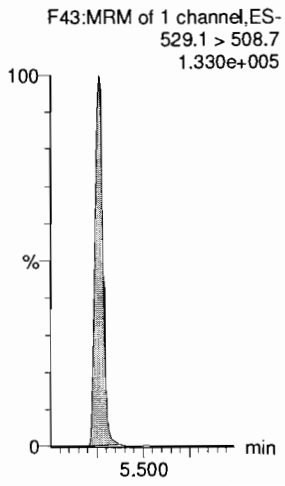
13C8-PFOS



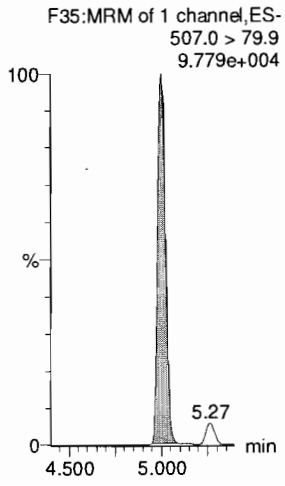
13C2-PFDA



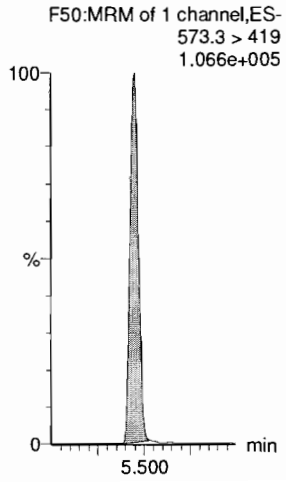
13C2-8:2 FTS



13C8-PFOS



d3-N-MeFOSAA

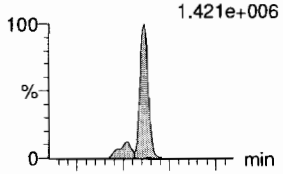


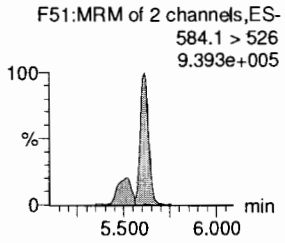
Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

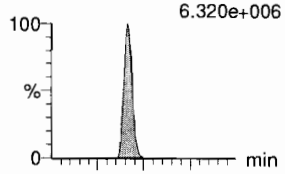
Name: 181119M2_9, Date: 19-Nov-2018, Time: 21:32:01, ID: ST181119M2-8 PFC CS5 18K0908, Description: PFC CS5 18K0908

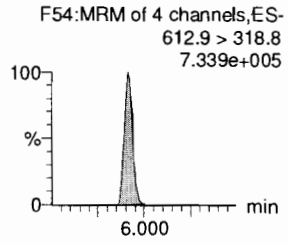
L-EtFOSAA



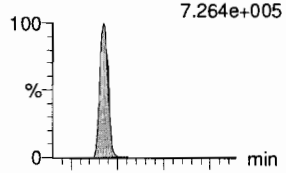


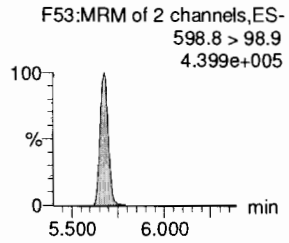
PFDoA



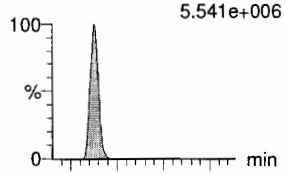


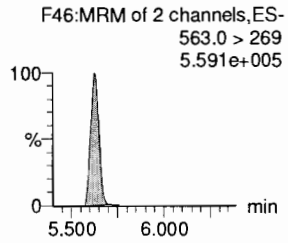
PFDS



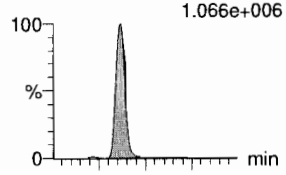


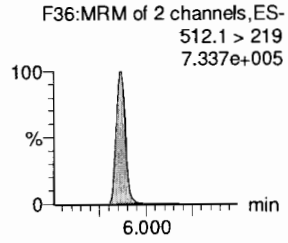
PFUdA



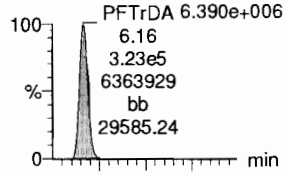


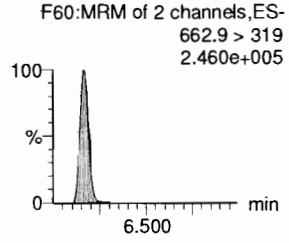
N-MeFOSA



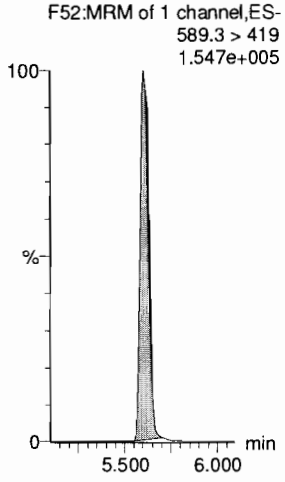


PFTrDA

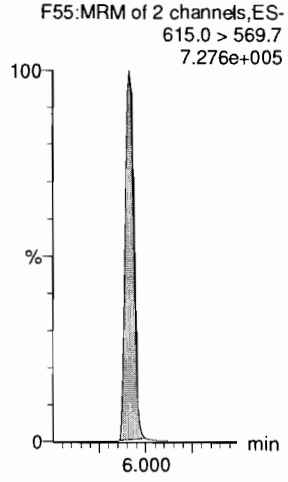




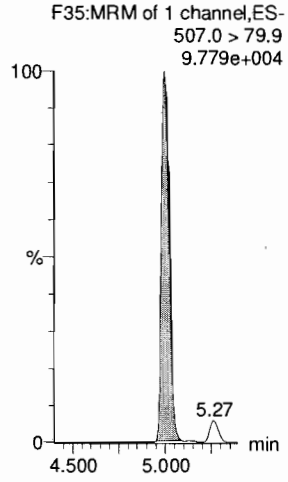
d5-N-EtFOSAA



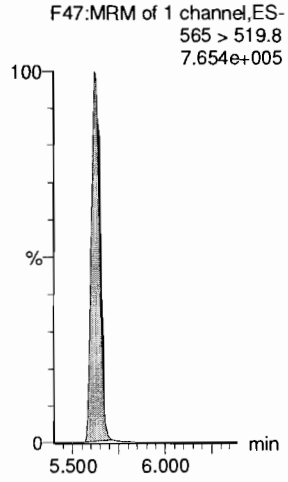
13C2-PFDoA



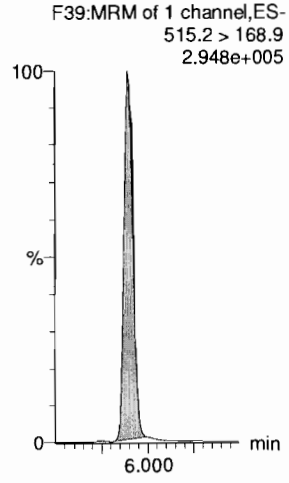
13C8-PFOS



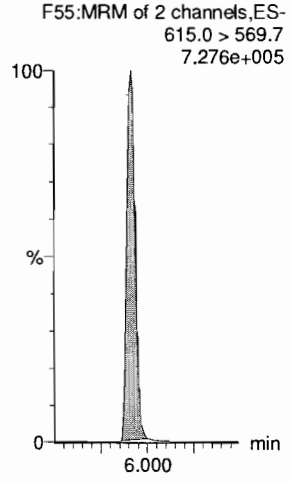
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA

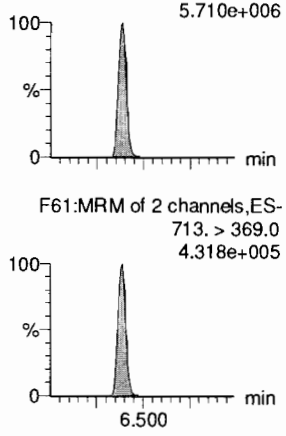


Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

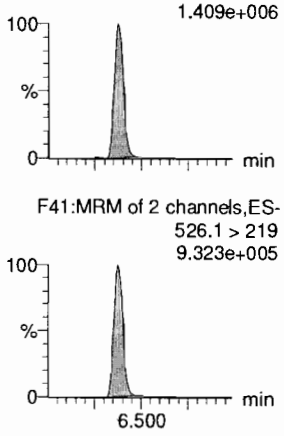
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_9, Date: 19-Nov-2018, Time: 21:32:01, ID: ST181119M2-8 PFC CS5 18K0908, Description: PFC CS5 18K0908

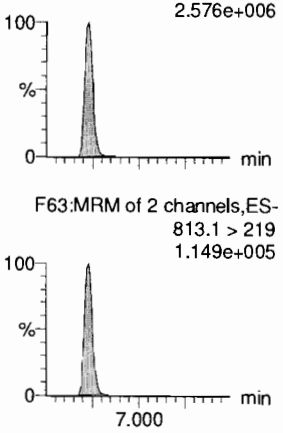
PFTeDA
F61:MRM of 2 channels,ES-
713.0 > 669.0
5.710e+006
F61:MRM of 2 channels,ES-
713. > 369.0
4.318e+005



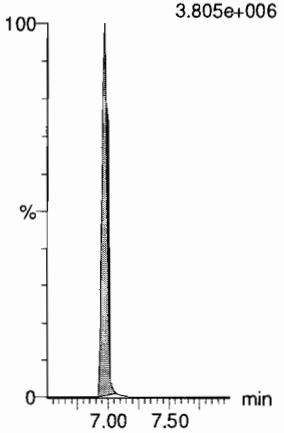
N-EtFOSA
F41:MRM of 2 channels,ES-
526.1 > 168.9
1.409e+006
F41:MRM of 2 channels,ES-
526.1 > 219
9.323e+005



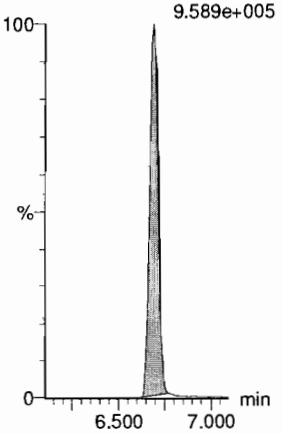
PFHxDA
F63:MRM of 2 channels,ES-
813.1 > 768.6
2.576e+006
F63:MRM of 2 channels,ES-
813.1 > 219
1.149e+005



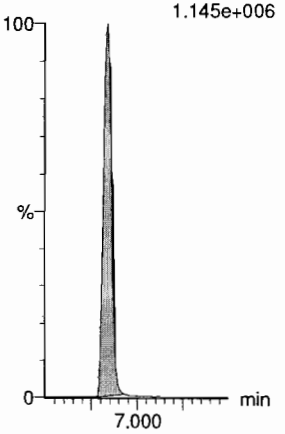
PFODA
F65:MRM of 1 channel,ES-
913.1 > 868.8
3.805e+006



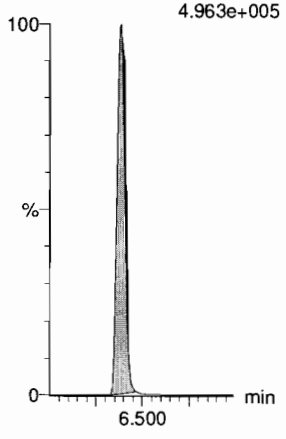
N-MeFOSE
F56:MRM of 1 channel,ES-
616.1 > 58.9
9.589e+005



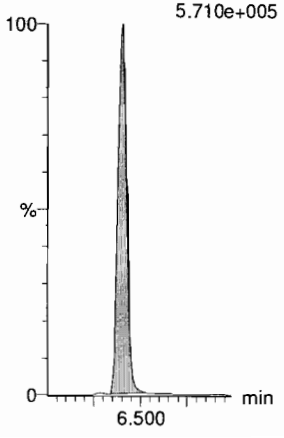
N-EtFOSE
F58:MRM of 1 channel,ES-
630.1 > 58.9
1.145e+006



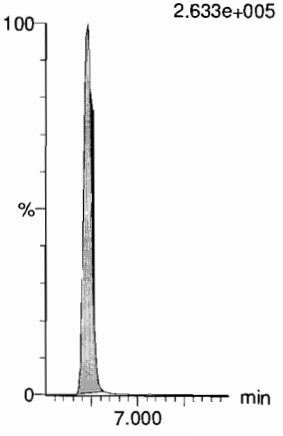
13C2-PFTeDA
F62:MRM of 2 channels,ES-
715.1 > 669.7
4.963e+005



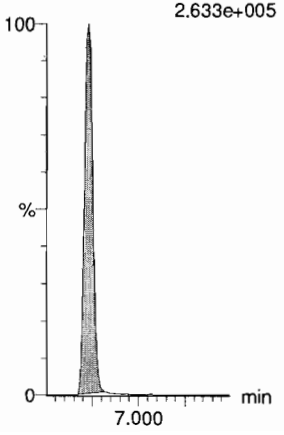
d5-N-ETFOSA
F44:MRM of 1 channel,ES-
531.1 > 168.9
5.710e+005



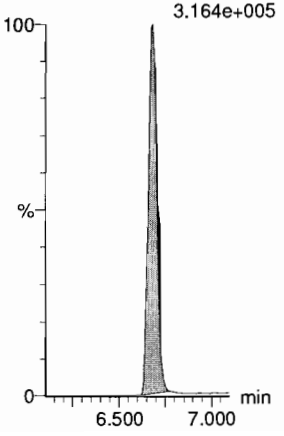
13C2-PFHxDA
F64:MRM of 1 channel,ES-
815 > 769.7
2.633e+005



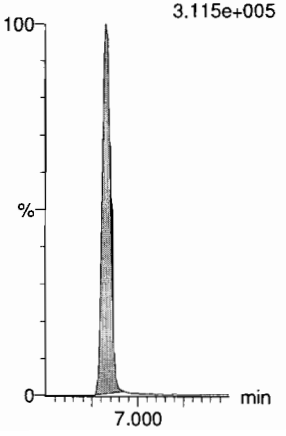
13C2-PFHxDA
F64:MRM of 1 channel,ES-
815 > 769.7
2.633e+005



d7-N-MeFOSE
F57:MRM of 1 channel,ES-
623.1 > 58.9
3.164e+005



d9-N-EtFOSE
F59:MRM of 1 channel,ES-
639.2 > 58.8
3.115e+005



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
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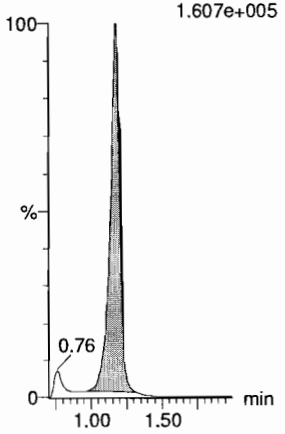
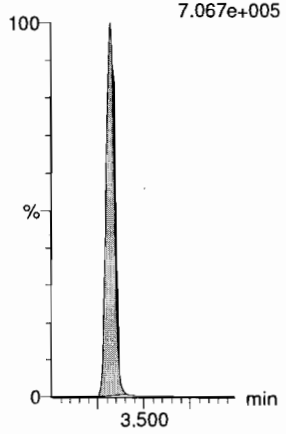
Name: 181119M2_9, Date: 19-Nov-2018, Time: 21:32:01, ID: ST181119M2-8 PFC CS5 18K0908, Description: PFC CS5 18K0908

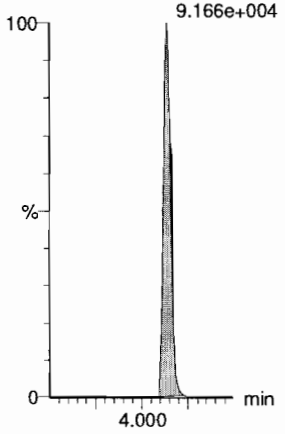
13C4-PFBA



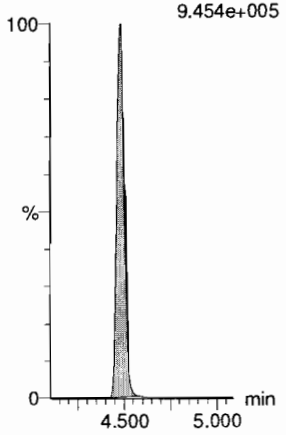
13C5-PFHxA



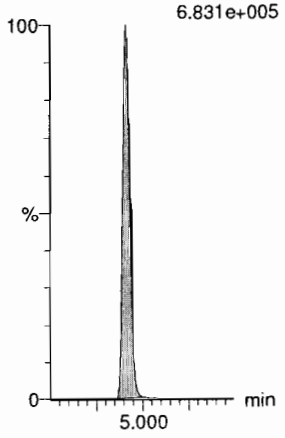
13C3-PFHxS



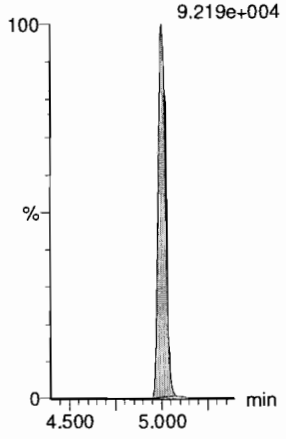
13C8-PFOA



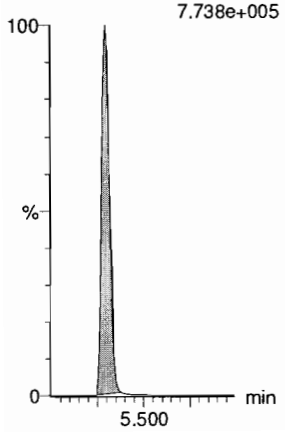
13C9-PFNA



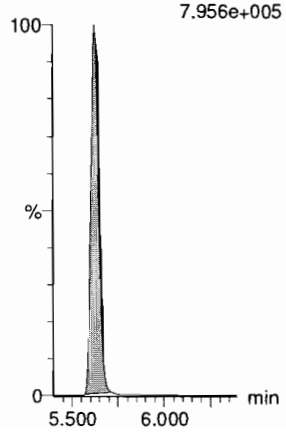
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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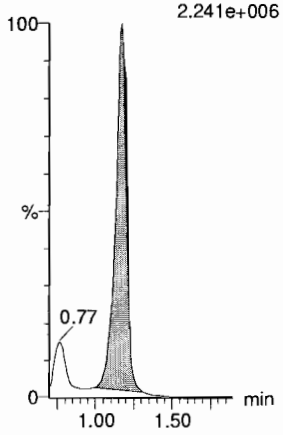
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_10, Date: 19-Nov-2018, Time: 21:42:34, ID: ST181119M2-9 PFC CS6 18K0909, Description: PFC CS6 18K0909

PFBA



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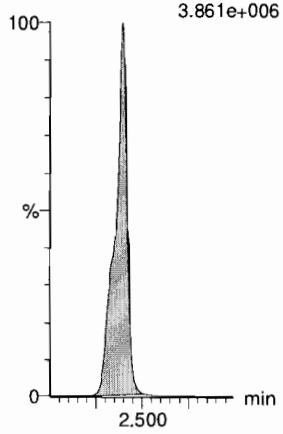
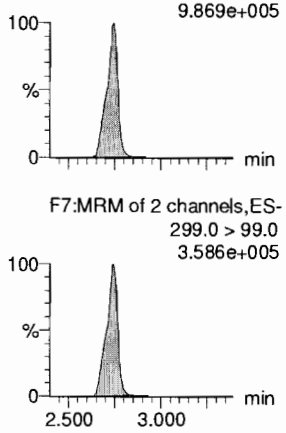
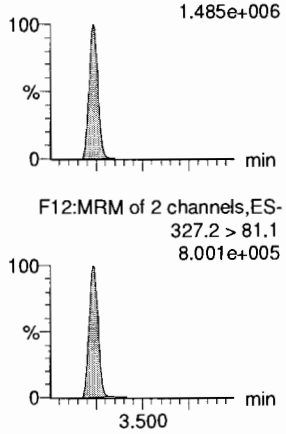


PFBS



4:2 FTS



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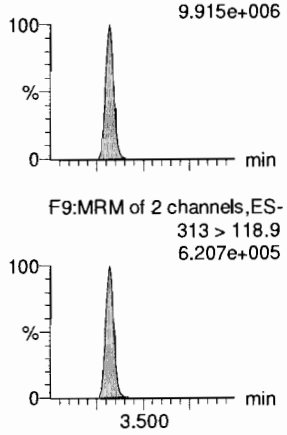

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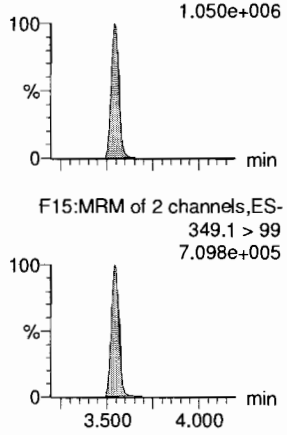
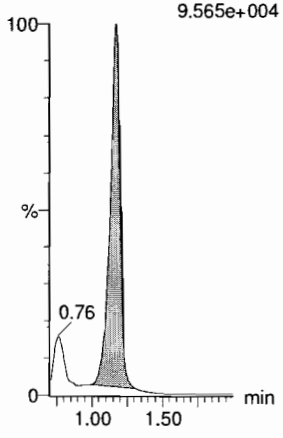


13C3-PFBA



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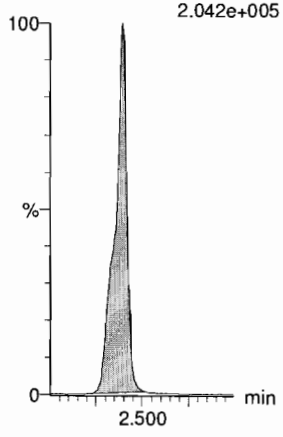

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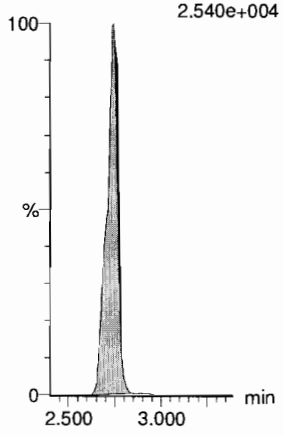
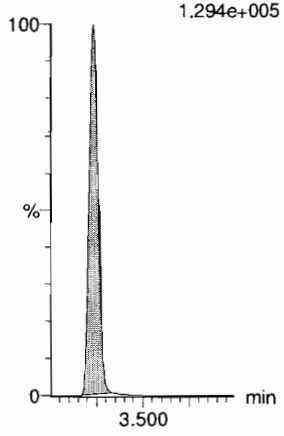


13C2-4:2 FTS



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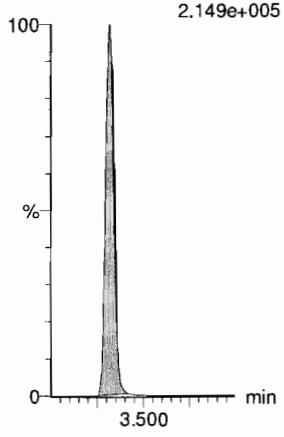

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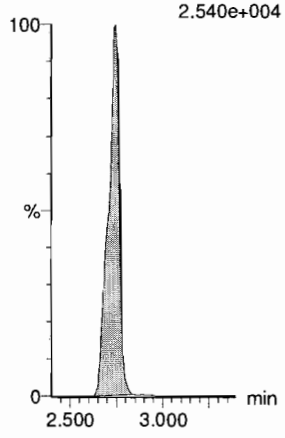

Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
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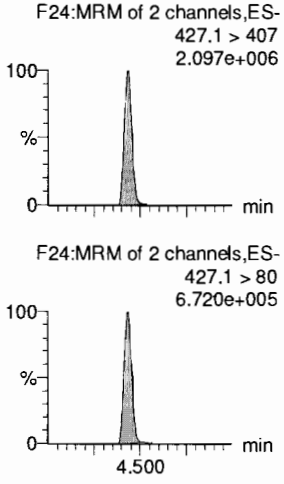
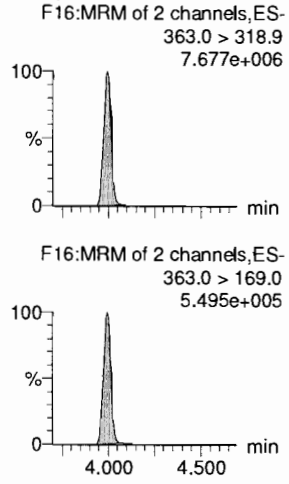
Name: 181119M2_10, Date: 19-Nov-2018, Time: 21:42:34, ID: ST181119M2-9 PFC CS6 18K0909, Description: PFC CS6 18K0909

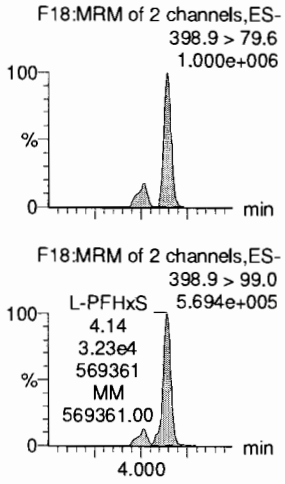
6:2 FTS



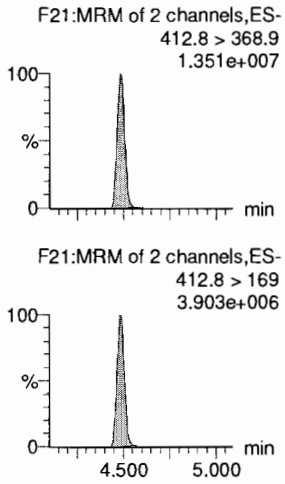
PFHpA



L-PFHxS



L-PFOA



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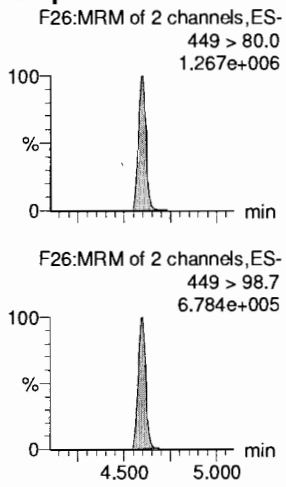

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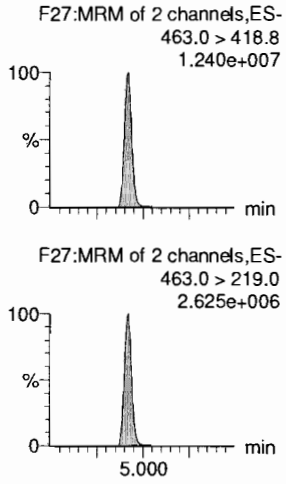
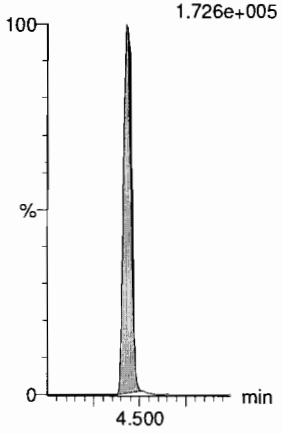
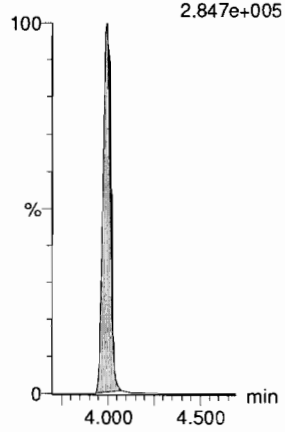


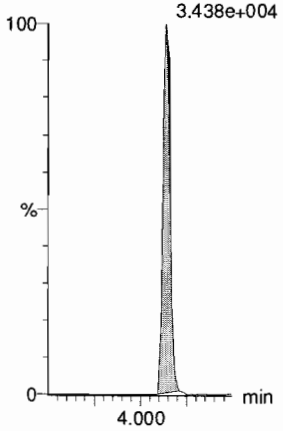
13C2-6:2 FTS



13C4-PFHpA



18O2-PFHxS



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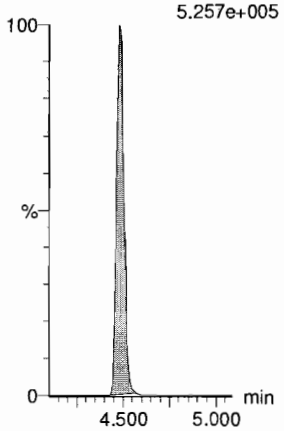
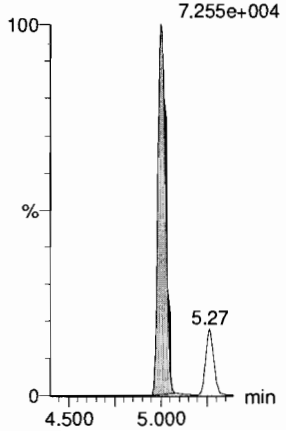


13C8-PFOS



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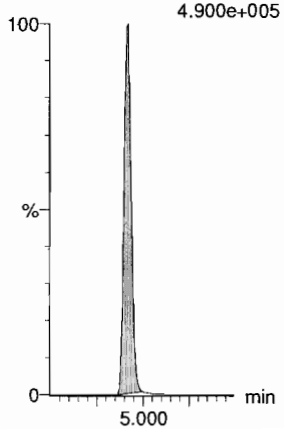

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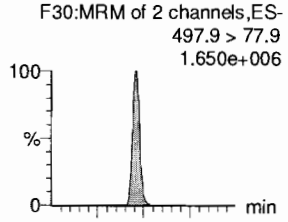
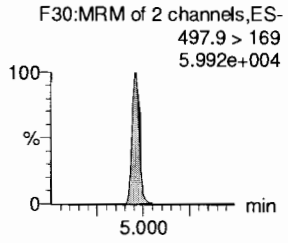
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

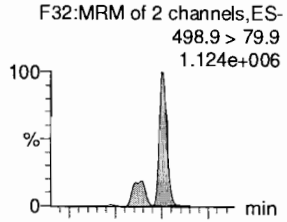
Name: 181119M2_10, Date: 19-Nov-2018, Time: 21:42:34, ID: ST181119M2-9 PFC CS6 18K0909, Description: PFC CS6 18K0909

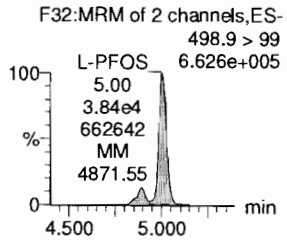
PFOSA



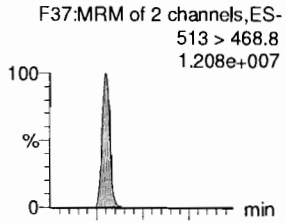


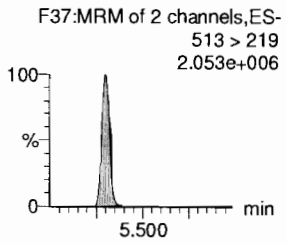
L-PFOS



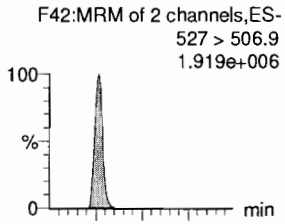


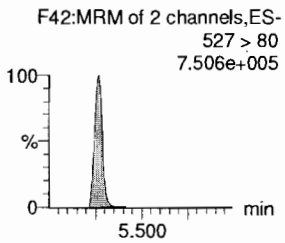
PFDA



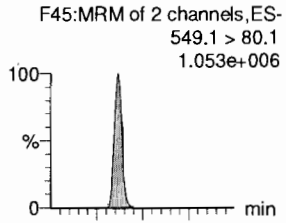


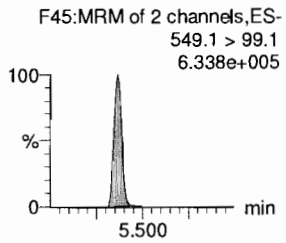
8:2 FTS



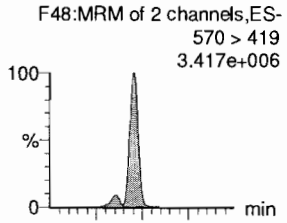


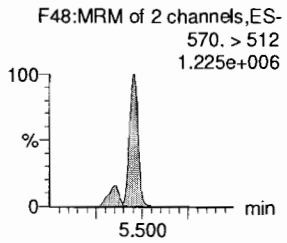
PFNS



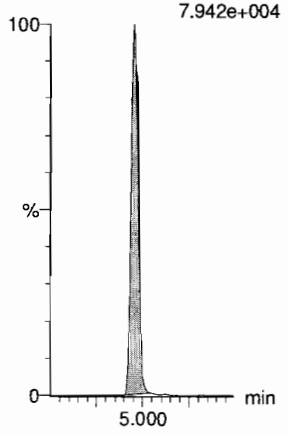


L-MeFOSAA





13C8-PFOSA



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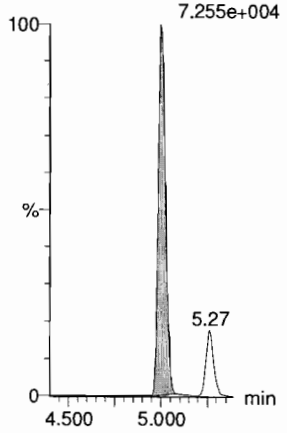

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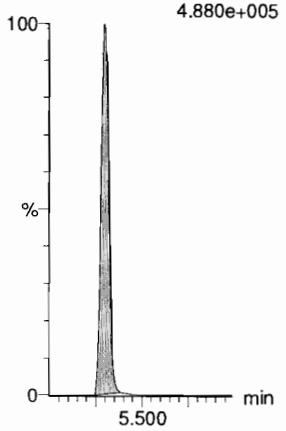
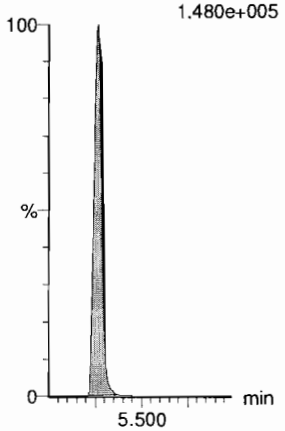


13C2-8:2 FTS



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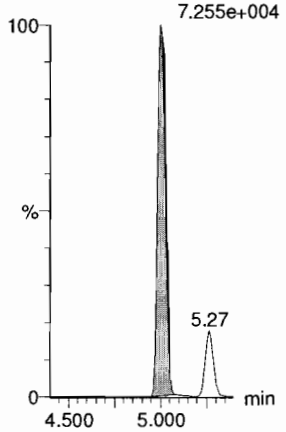
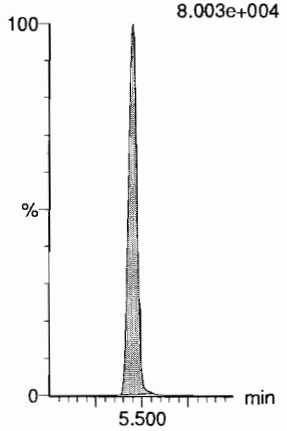


d3-N-MeFOSAA



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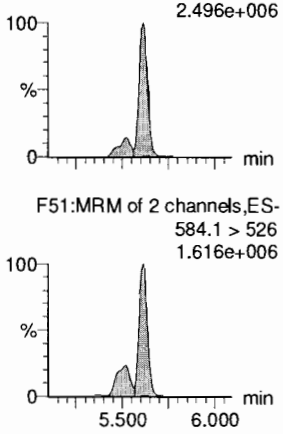
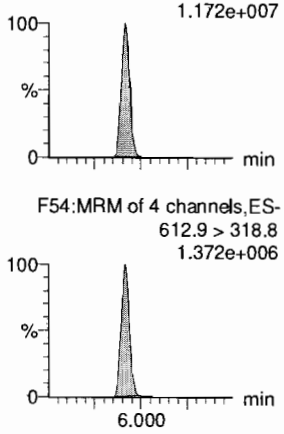
Name: 181119M2_10, Date: 19-Nov-2018, Time: 21:42:34, ID: ST181119M2-9 PFC CS6 18K0909, Description: PFC CS6 18K0909

L-EtFOSAA



PFDoA



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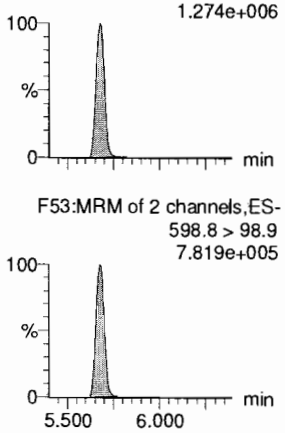
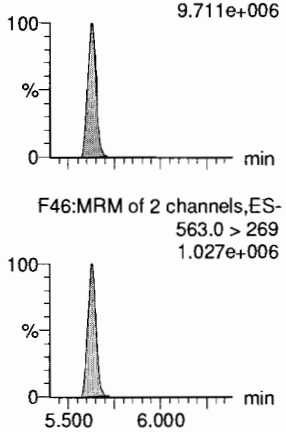
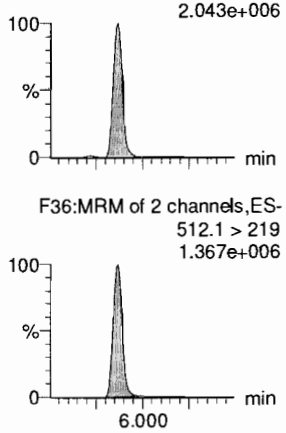


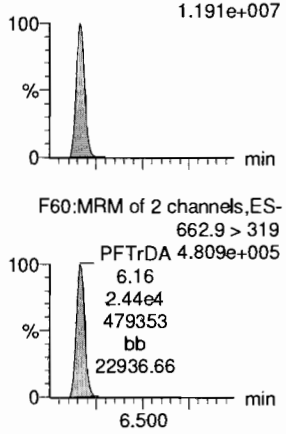
PFUdA



N-MeFOSA



PFTrDA



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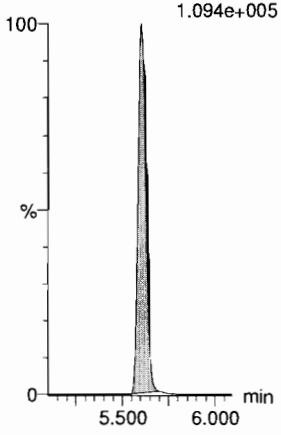

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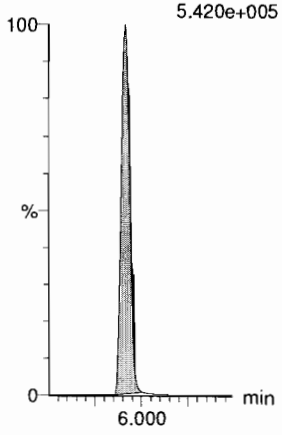
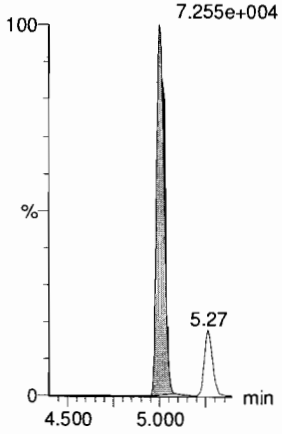
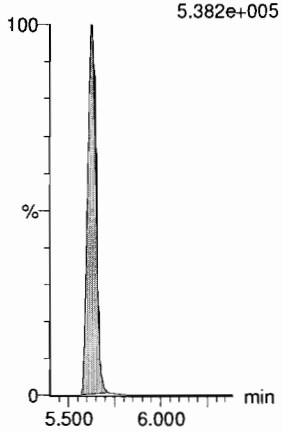


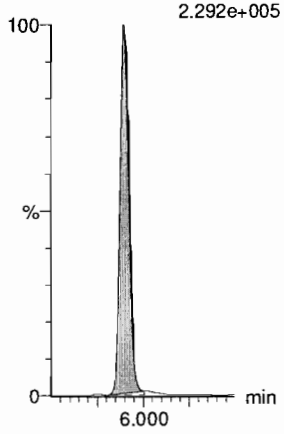
13C8-PFOS



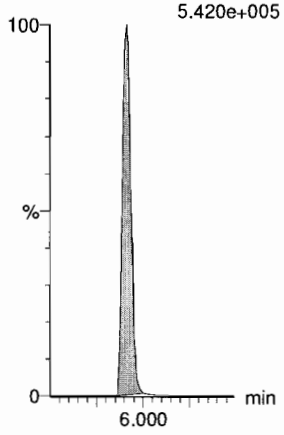
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA

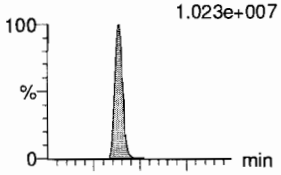


Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

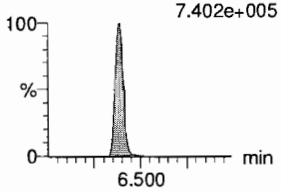
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_10, Date: 19-Nov-2018, Time: 21:42:34, ID: ST181119M2-9 PFC CS6 18K0909, Description: PFC CS6 18K0909

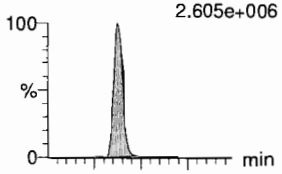
PFTeDA
F61:MRM of 2 channels,ES-
713.0 > 669.0
1.023e+007



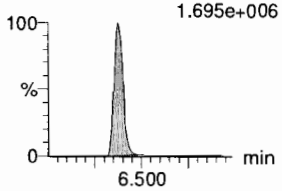
F61:MRM of 2 channels,ES-
713. > 369.0
7.402e+005



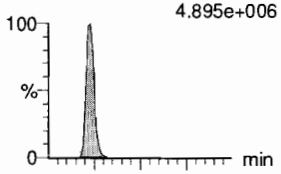
N-EtFOSA
F41:MRM of 2 channels,ES-
526.1 > 168.9
2.605e+006



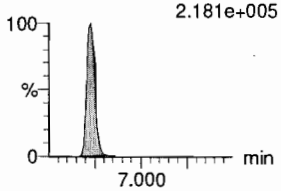
F41:MRM of 2 channels,ES-
526.1 > 219
1.695e+006



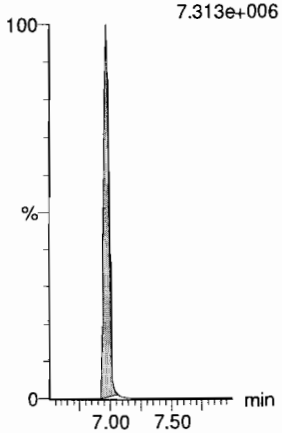
PFHxDA
F63:MRM of 2 channels,ES-
813.1 > 768.6
4.895e+006



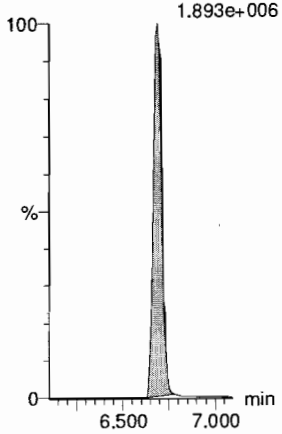
F63:MRM of 2 channels,ES-
813.1 > 219
2.181e+005



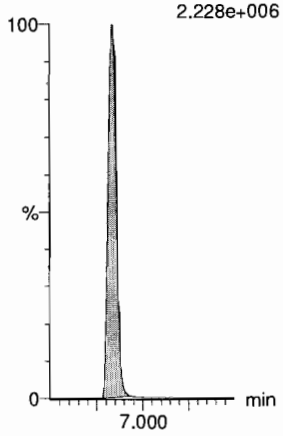
PFODA
F65:MRM of 1 channel,ES-
913.1 > 868.8
7.313e+006



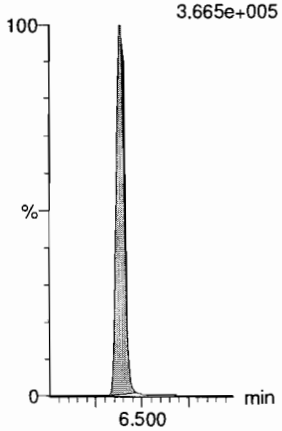
N-MeFOSE
F56:MRM of 1 channel,ES-
616.1 > 58.9
1.893e+006



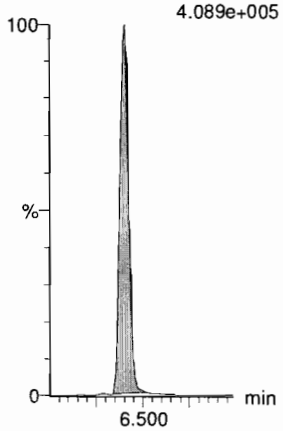
N-EtFOSE
F58:MRM of 1 channel,ES-
630.1 > 58.9
2.228e+006



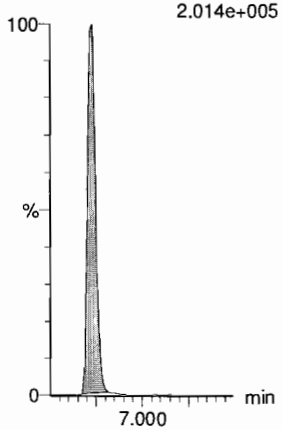
13C2-PFTeDA
F62:MRM of 2 channels,ES-
715.1 > 669.7
3.665e+005



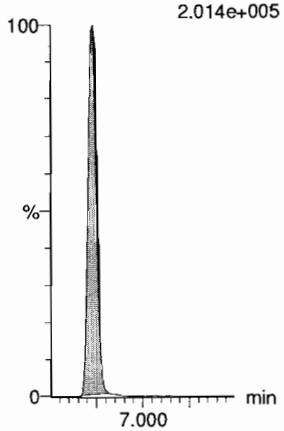
d5-N-ETFOSA
F44:MRM of 1 channel,ES-
531.1 > 168.9
4.089e+005



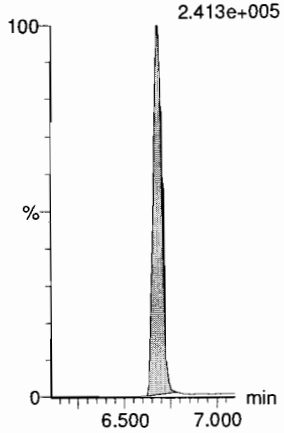
13C2-PFHxDA
F64:MRM of 1 channel,ES-
815 > 769.7
2.014e+005



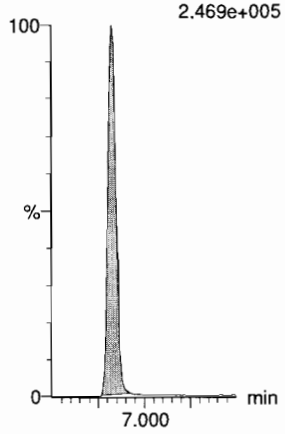
13C2-PFHxDA
F64:MRM of 1 channel,ES-
815 > 769.7
2.014e+005



d7-N-MeFOSE
F57:MRM of 1 channel,ES-
623.1 > 58.9
2.413e+005



d9-N-EtFOSE
F59:MRM of 1 channel,ES-
639.2 > 58.8
2.469e+005

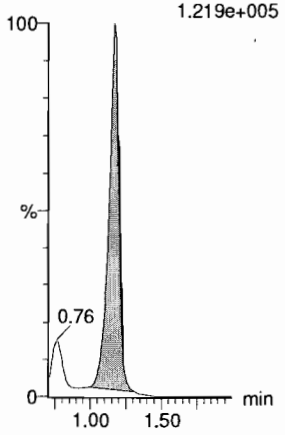


Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

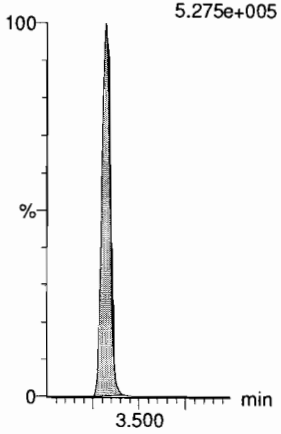
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_10, Date: 19-Nov-2018, Time: 21:42:34, ID: ST181119M2-9 PFC CS6 18K0909, Description: PFC CS6 18K0909

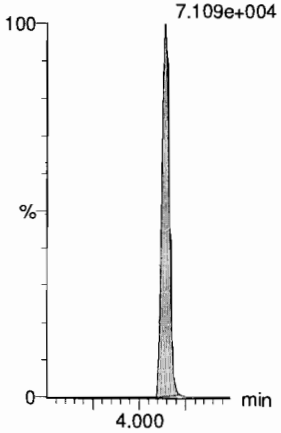
13C4-PFBA



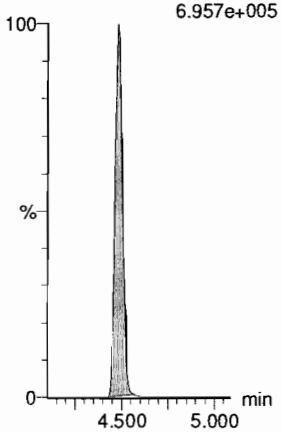
13C5-PFHxA



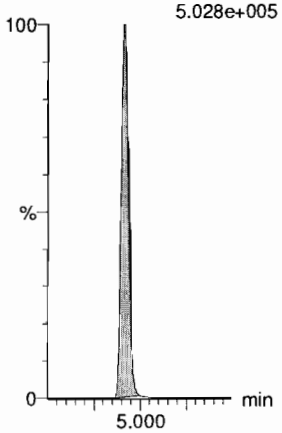
13C3-PFHxS



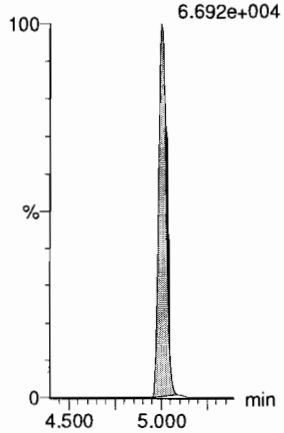
13C8-PFOA



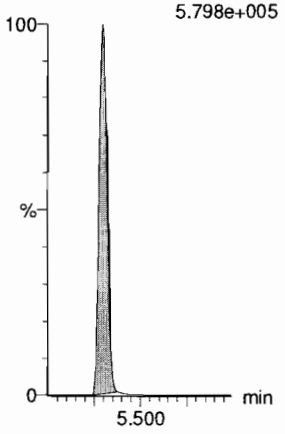
13C9-PFNA



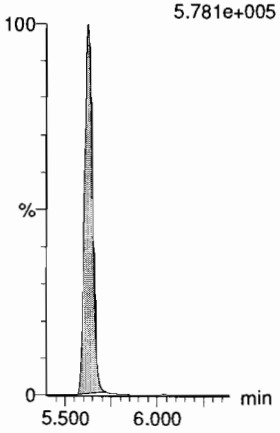
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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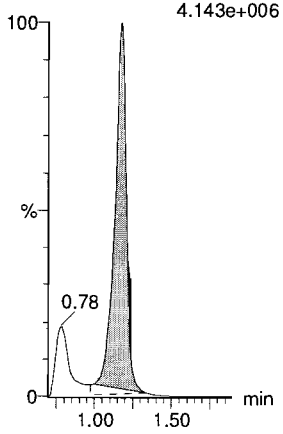
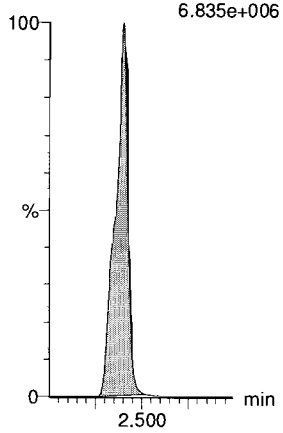
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_11, Date: 19-Nov-2018, Time: 21:53:12, ID: ST181119M2-10 PFC CS7 18K0910, Description: PFC CS7 18K0910

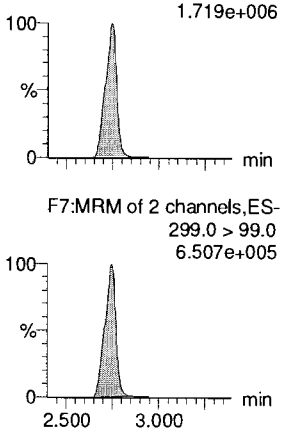
PFBA



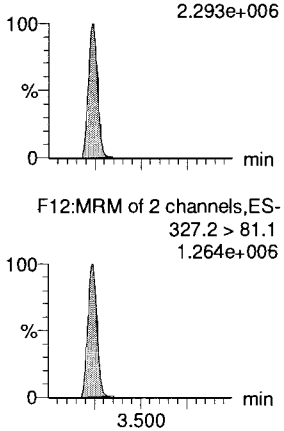
PFPeA



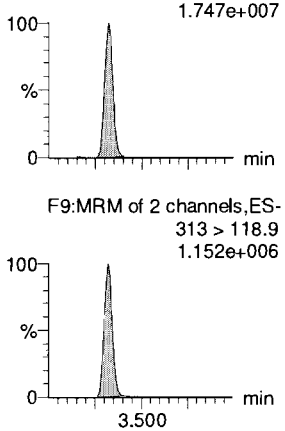
PFBS



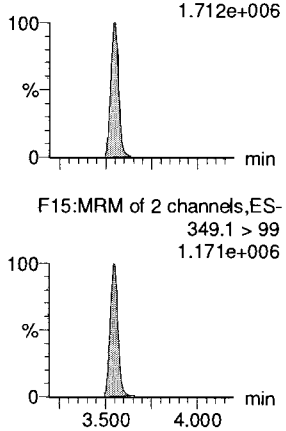
4:2 FTS



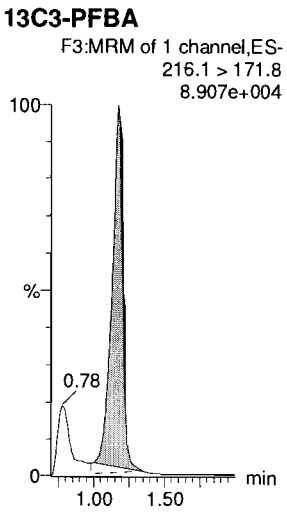
PFHxA



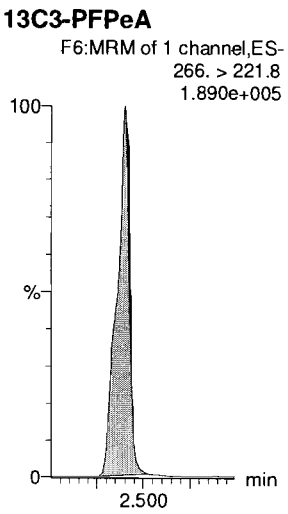
PFPeS



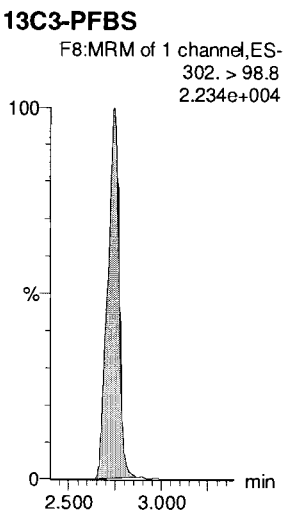
13C3-PFBA



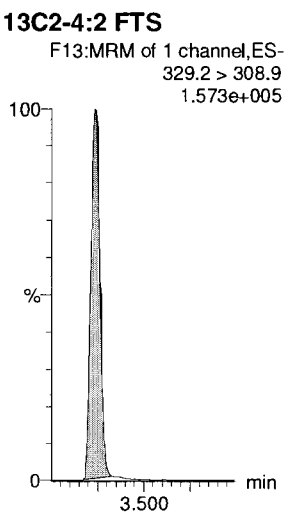
13C3-PFPeA



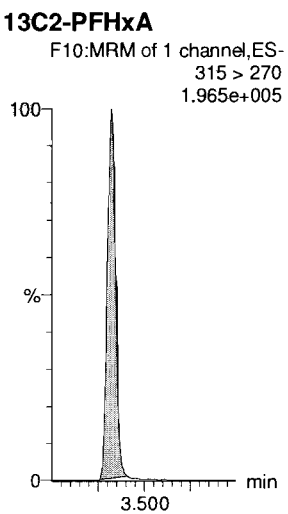
13C3-PFBS



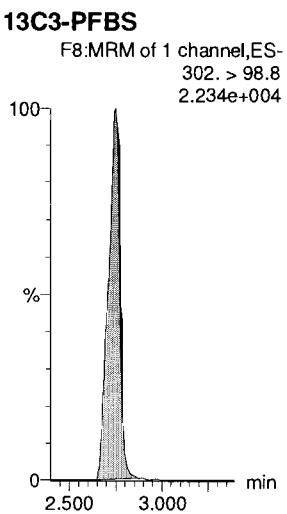
13C2-4:2 FTS



13C2-PFHxA



13C3-PFBS



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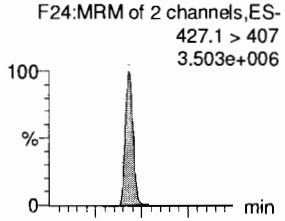
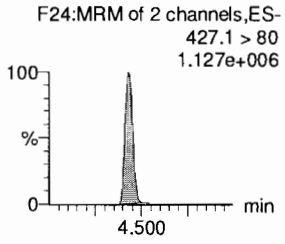
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

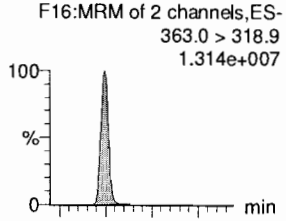
Name: 181119M2_11, Date: 19-Nov-2018, Time: 21:53:12, ID: ST181119M2-10 PFC CS7 18K0910, Description: PFC CS7 18K0910

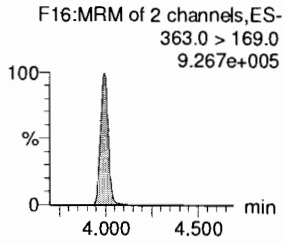
6:2 FTS



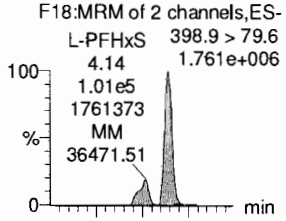


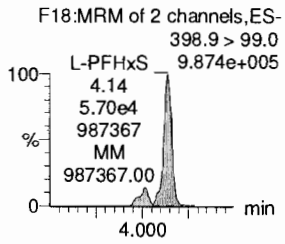
PFHpA



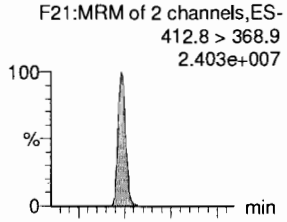


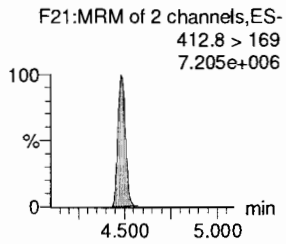
L-PFHxS



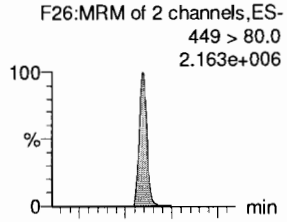


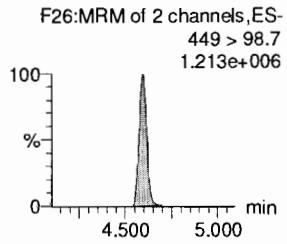
L-PFOA



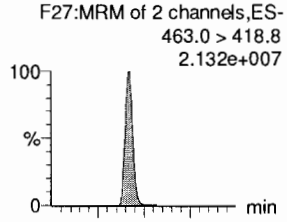


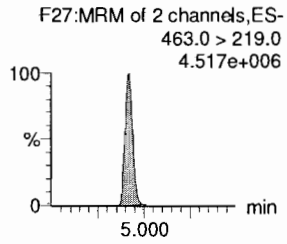
PFHpS



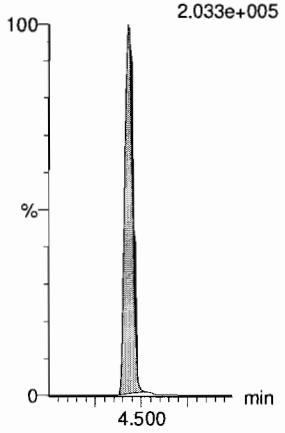


PFNA

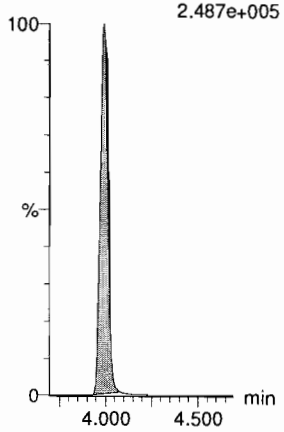




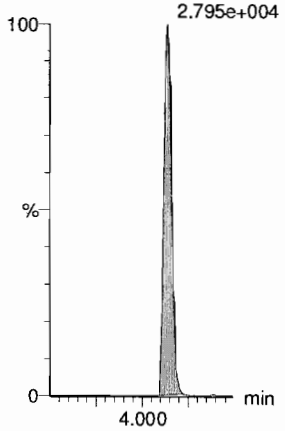
13C2-6:2 FTS



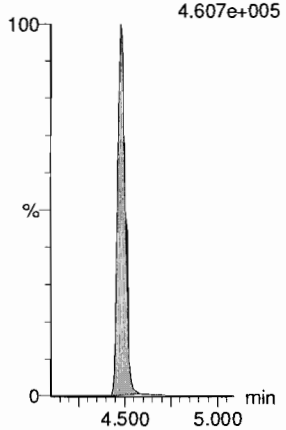
13C4-PFHpA



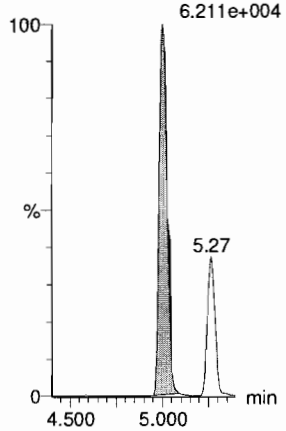
18O2-PFHxS



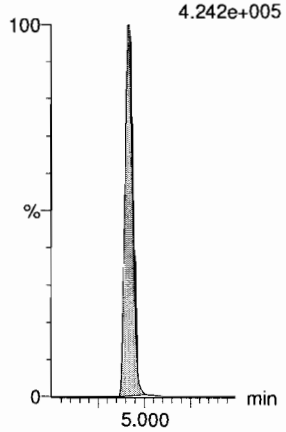
13C2-PFOA



13C8-PFOS



13C5-PFNA

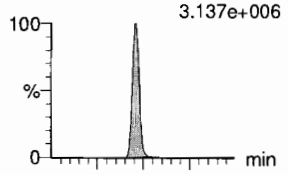


Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

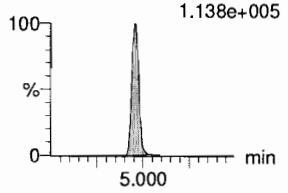
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_11, Date: 19-Nov-2018, Time: 21:53:12, ID: ST181119M2-10 PFC CS7 18K0910, Description: PFC CS7 18K0910

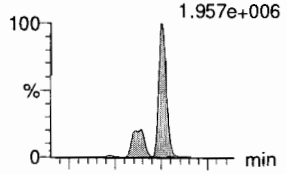
PFOSA
F30:MRM of 2 channels,ES-
497.9 > 77.9
3.137e+006



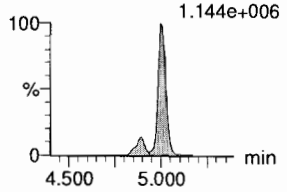
F30:MRM of 2 channels,ES-
497.9 > 169
1.138e+005



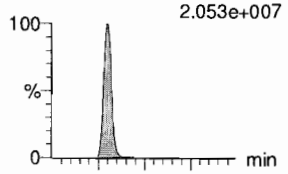
L-PFOS
F32:MRM of 2 channels,ES-
498.9 > 79.9
1.957e+006



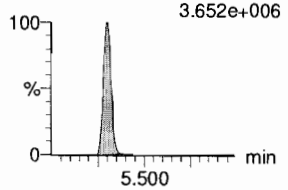
F32:MRM of 2 channels,ES-
498.9 > 99
1.144e+006



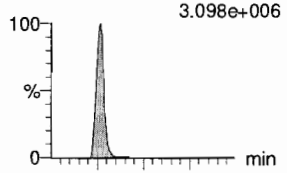
PFDA
F37:MRM of 2 channels,ES-
513 > 468.8
2.053e+007



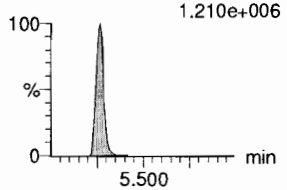
F37:MRM of 2 channels,ES-
513 > 219
3.652e+006



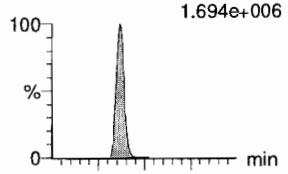
8:2 FTS
F42:MRM of 2 channels,ES-
527 > 506.9
3.098e+006



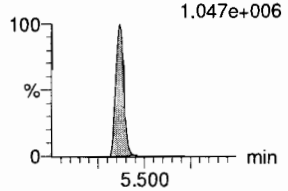
F42:MRM of 2 channels,ES-
527 > 80
1.210e+006



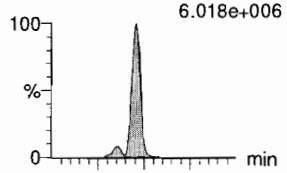
PFNS
F45:MRM of 2 channels,ES-
549.1 > 80.1
1.694e+006



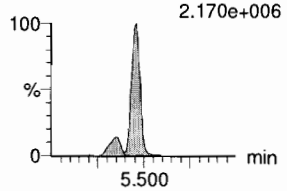
F45:MRM of 2 channels,ES-
549.1 > 99.1
1.047e+006



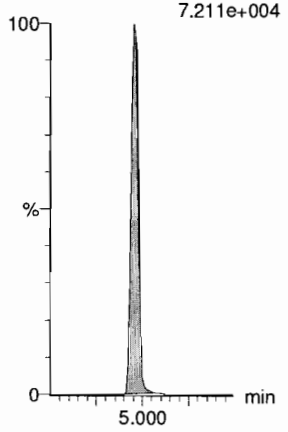
L-MeFOSAA
F48:MRM of 2 channels,ES-
570 > 419
6.018e+006



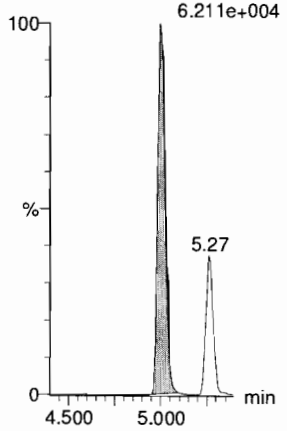
F48:MRM of 2 channels,ES-
570. > 512
2.170e+006



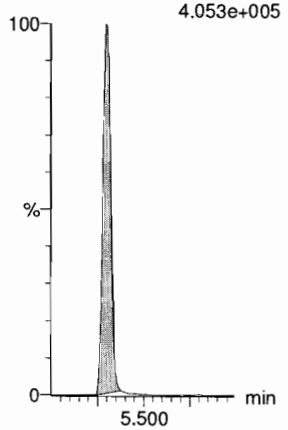
13C8-PFOSA
F34:MRM of 1 channel,ES-
506.1 > 77.7
7.211e+004



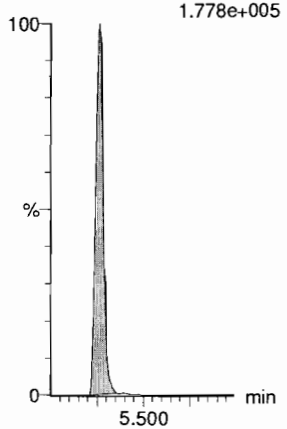
13C8-PFOS
F35:MRM of 1 channel,ES-
507.0 > 79.9
6.211e+004



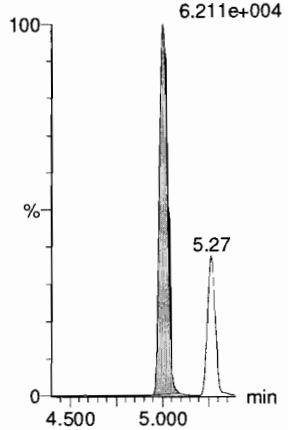
13C2-PFDA
F38:MRM of 1 channel,ES-
515.1 > 469.9
4.053e+005



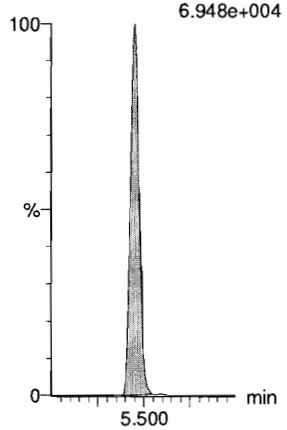
13C2-8:2 FTS
F43:MRM of 1 channel,ES-
529.1 > 508.7
1.778e+005



13C8-PFOS
F35:MRM of 1 channel,ES-
507.0 > 79.9
6.211e+004



d3-N-MeFOSAA
F50:MRM of 1 channel,ES-
573.3 > 419
6.948e+004

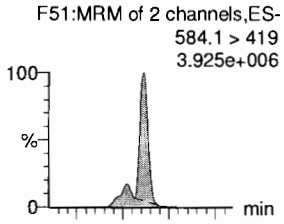


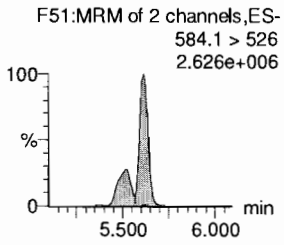
Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

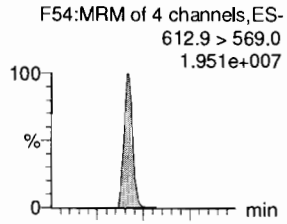
Name: 181119M2_11, Date: 19-Nov-2018, Time: 21:53:12, ID: ST181119M2-10 PFC CS7 18K0910, Description: PFC CS7 18K0910

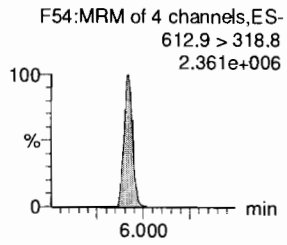
L-EtFOSAA



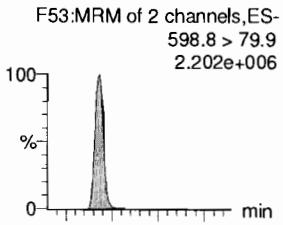


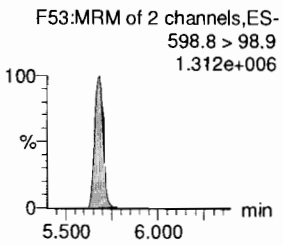
PFDoA



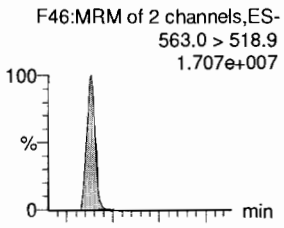


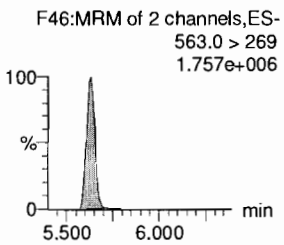
PFDS



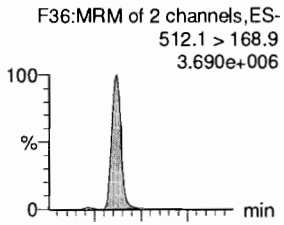


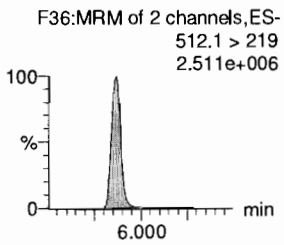
PFUdA



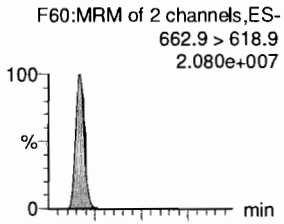


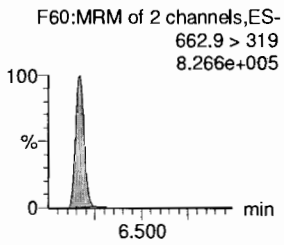
N-MeFOSA



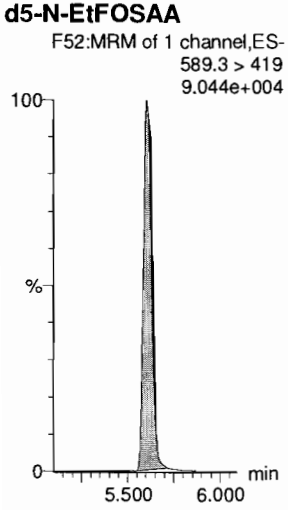


PFTrDA

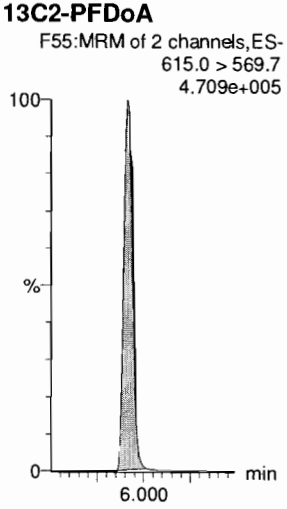




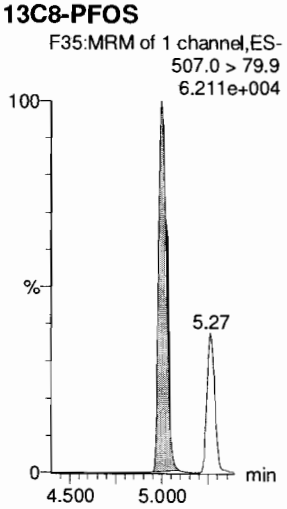
d5-N-EtFOSAA



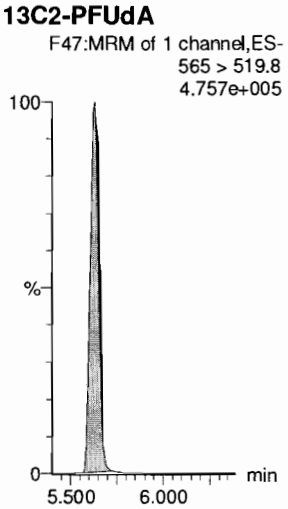
13C2-PFDoA



13C8-PFOS



13C2-PFUdA



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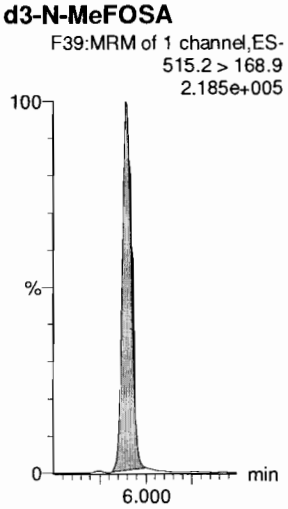

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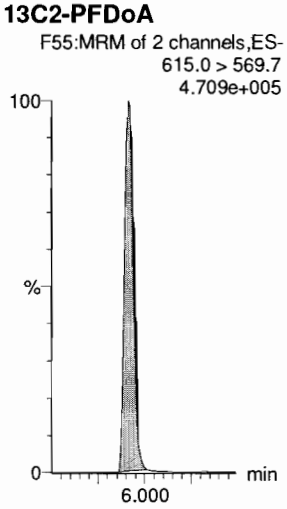
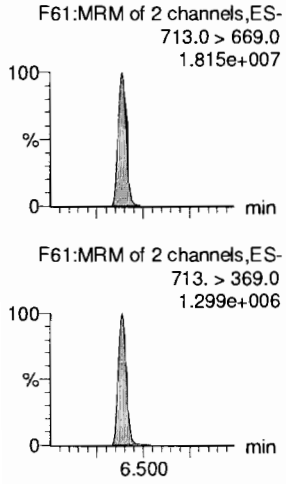


Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

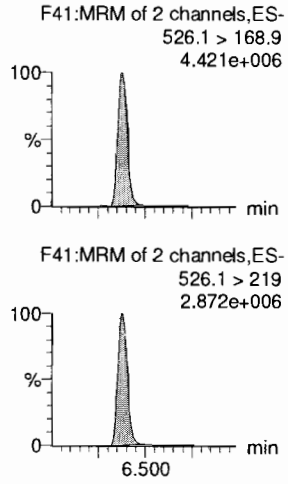
Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:11:39 Pacific Standard Time

Name: 181119M2_11, Date: 19-Nov-2018, Time: 21:53:12, ID: ST181119M2-10 PFC CS7 18K0910, Description: PFC CS7 18K0910

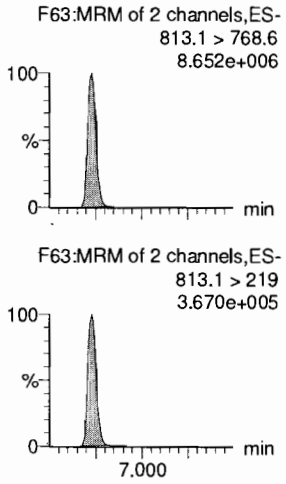
PFTeDA



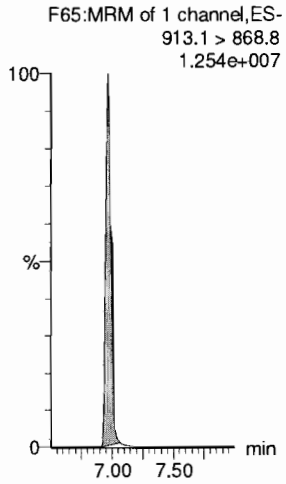
N-EtFOSA



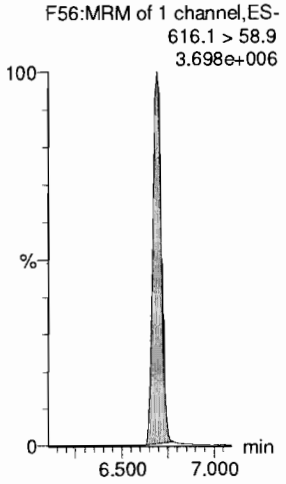
PFHxDA



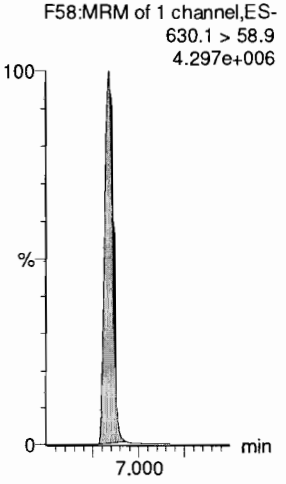
PFODA



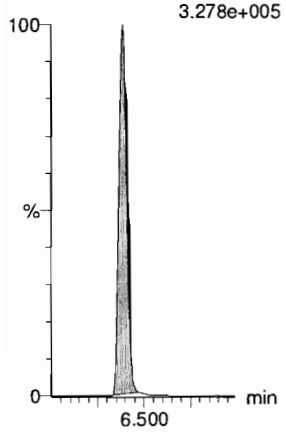
N-MeFOSE



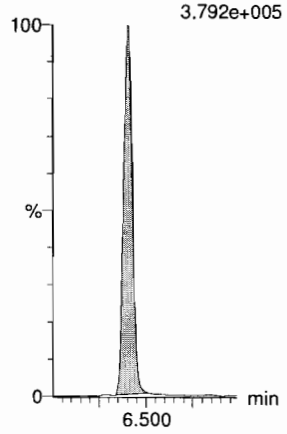
N-EtFOSE



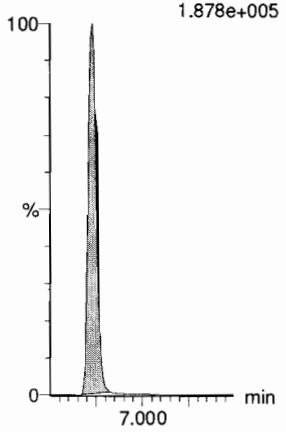
13C2-PFTeDA



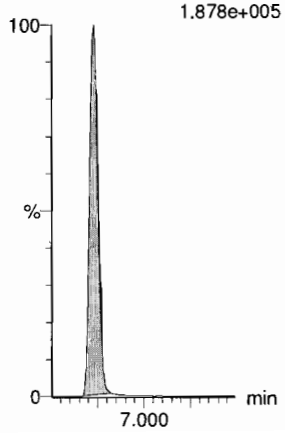
d5-N-ETFOSA



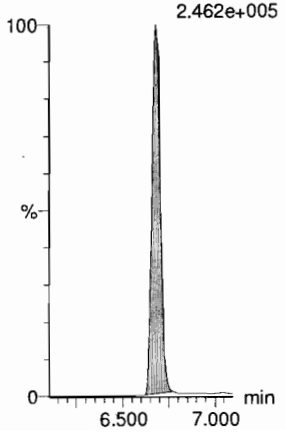
13C2-PFHxDA



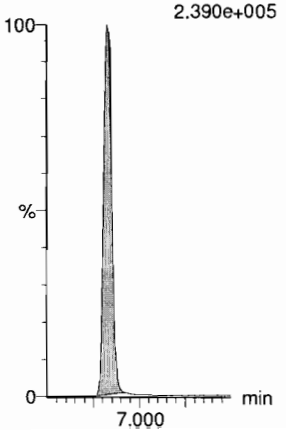
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-CRV.qld

Last Altered: Tuesday, November 20, 2018 11:07:41 Pacific Standard Time
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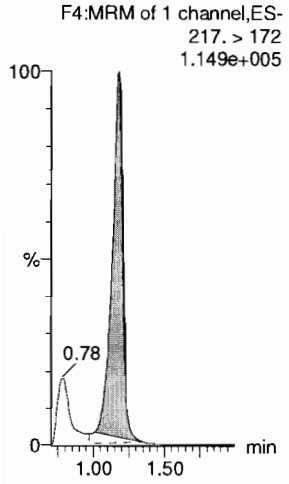
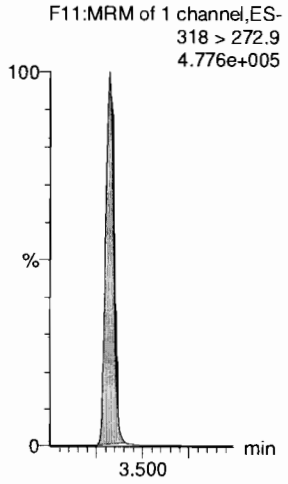
Name: 181119M2_11, Date: 19-Nov-2018, Time: 21:53:12, ID: ST181119M2-10 PFC CS7 18K0910, Description: PFC CS7 18K0910

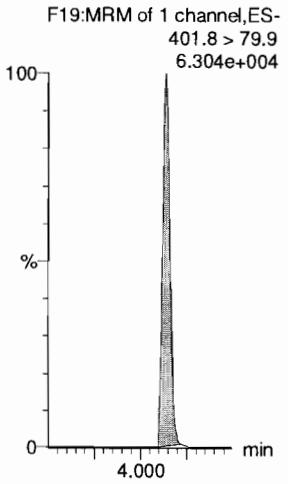
13C4-PFBA



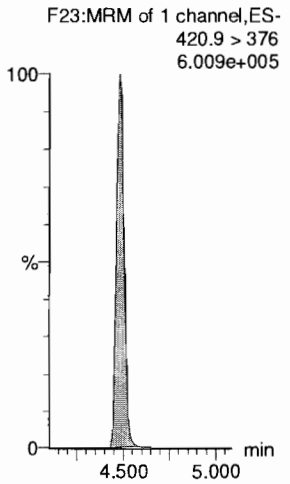
13C5-PFHxA



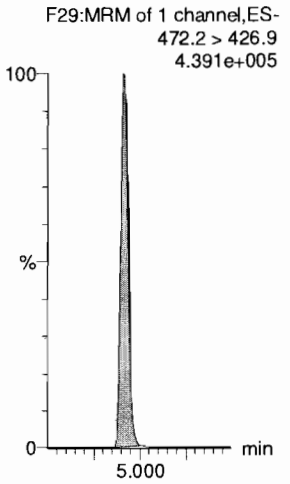
13C3-PFHxS



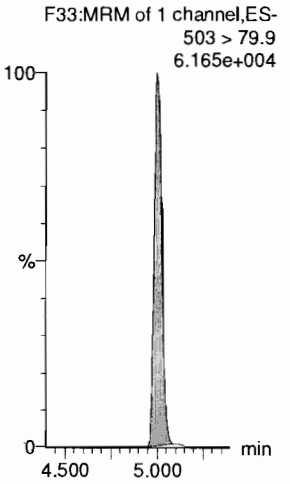
13C8-PFOA



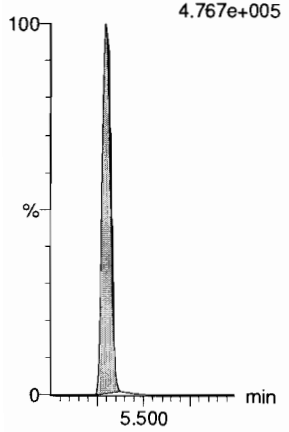
13C9-PFNA



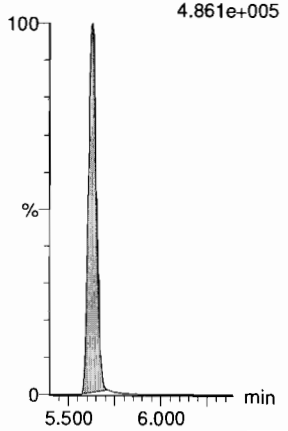
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-ICV.qld

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Printed: Tuesday, November 20, 2018 11:27:16 Pacific Standard Time

9 CM 11/20/18

JAM 11/20/18

Name: 181119M2_13, Date: 19-Nov-2018, Time: 22:14:24, ID: ICV181119M2-1 PFC ICV 18K0911, Description: PFC ICV 18K0911

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	7320.918	7489.974	1.00	1.18	12.218	10.5	104.9	NO		
2	2	PFPeA	263.1 > 218.9	11536.013	14934.320	1.00	2.40	9.656	10.3	102.7	NO		
3	3	PFBS	299.0 > 79.7	2664.607	1906.749	1.00	2.75	17.468	9.0	89.7	NO	2.647	NO
4	4	4:2 FTS	327.2>307.2	4323.806	5214.280	1.00	3.24	10.365	9.9	99.1	NO	1.860	NO
5	5	PFHxA	313 > 269	22547.980	11371.153	1.00	3.32	9.915	10.5	104.8	NO	15.573	NO
6	6	PFPeS	349.1>80.1	2320.249	1906.749	1.00	3.55	15.211	9.9	98.9	NO	1.470	NO
7	36	13C3-PFBA	216.1 > 171.8	7489.974	9816.729	1.00	1.18	9.537	12.2	97.8	NO		
8	37	13C3-PFPeA	266. > 221.8	14934.320	29586.725	1.00	2.40	6.310	12.1	96.4	NO		
9	38	13C3-PFBS	302. > 98.8	1906.749	3418.845	1.00	2.75	6.971	12.9	103.5	NO		
10	39	13C2-4:2 FTS	329.2>308.9	5214.280	3418.845	1.00	3.23	19.064	12.4	99.4	NO		
11	40	13C2-PFHxA	315 > 270	11371.153	29586.725	1.00	3.32	4.804	5.0	99.6	NO		
12	38	13C3-PFBS	302. > 98.8	1906.749	3418.845	1.00	2.75	6.971	12.9	103.5	NO		
13	-1												
14	10	6:2 FTS	427.1 > 407	5185.851	5484.800	1.00	4.43	11.819	9.8	98.1	NO	2.938	NO
15	7	PFHpA	363.0 > 318.9	15061.697	13645.869	1.00	4.00	13.797	10.4	104.4	NO	13.449	NO
16	8	L-PFHxS	398.9 > 79.6	2387.107	1727.766	1.00	4.14	17.270	9.1	91.2	NO	1.835	NO
17	11	L-PFOA	412.8 > 368.9	28774.910	26428.029	1.00	4.48	13.610	10.5	105.1	NO	3.456	NO
18	13	PFHpS	449 > 80.0	2706.169	3847.219	1.00	4.59	8.793	9.8	98.4	NO	1.670	NO
19	14	PFNA	463.0 > 418.8	24620.701	24239.035	1.00	4.91	12.697	10.1	100.8	NO	4.611	NO
20	43	13C2-6:2 FTS	429.1 > 408.9	5484.800	3826.634	1.00	4.43	17.917	11.7	93.3	NO		
21	41	13C4-PFHpA	367.2 > 321.8	13645.869	29586.725	1.00	4.00	5.765	12.0	95.7	NO		
22	42	18O2-PFHxS	403.0 > 102.6	1727.766	3418.845	1.00	4.14	6.317	13.2	105.3	NO		
23	44	13C2-PFOA	414.9 > 369.7	26428.029	35196.535	1.00	4.48	9.386	12.4	99.5	NO		
24	47	13C8-PFOS	507.0 > 79.9	3847.219	3826.634	1.00	5.00	12.567	12.2	97.2	NO		
25	45	13C5-PFNA	468.2 > 422.9	24239.035	24899.225	1.00	4.91	12.169	12.3	98.1	NO		
26	-1												
27	15	PFOSA	497.9 > 77.9	3300.930	3608.922	1.00	4.95	11.433	10.8	107.8	NO	30.070	NO
28	16	L-PFOS	498.9 > 79.9	2965.779	3847.219	1.00	5.00	9.636	9.0	90.2	NO	1.950	NO
29	18	PFDA	513 > 468.8	27949.389	24299.342	1.00	5.30	14.378	11.2	111.6	NO	5.981	NO
30	19	8:2 FTS	527 > 506.9	5189.924	4668.879	1.00	5.27	13.895	9.6	96.3	NO	2.644	NO
31	20	PFNS	549.1 > 80.1	2277.250	3847.219	1.00	5.36	7.399	9.8	98.2	NO	1.752	NO
32	21	L-MeFOSAA	570 > 419	10796.397	4448.059	1.00	5.46	30.340	12.0	120.0	NO	2.894	NO
33	46	13C8-PFOSA	506.1 > 77.7	3608.922	33847.918	1.00	4.96	1.333	11.9	95.0	NO		
34	47	13C8-PFOS	507.0 > 79.9	3847.219	3826.634	1.00	5.00	12.567	12.2	97.2	NO		
35	48	13C2-PFDA	515.1 > 469.9	24299.342	31301.344	1.00	5.30	9.704	11.7	93.3	NO		
36	49	13C2-8:2 FTS	529.1 > 508.7	4668.879	3826.634	1.00	5.27	15.251	12.0	96.2	NO		

KBF 11/20/18

Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-ICV.qld

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(A) Compounds not present in ICV

Name: 181119M2_13, Date: 19-Nov-2018, Time: 22:14:24, ID: ICV181116M2-1 PFC ICV 18K0911, Description: PFC ICV 18K0911

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
37	47	13C8-PFOS	507.0 > 79.9	3847.219	3826.634	1.00	5.00	12.567	12.2	97.2	NO		
38	50	d3-N-MeFOSAA	573.3 > 419	4448.059	33847.918	1.00	5.45	1.643	12.2	97.2	NO		
39	-1												
40	23	L-EtFOSAA	584.1 > 419	9455.935	6950.324	1.00	5.61	17.006	11.6	115.9	NO	1.558	NO
41	27	PFDoA	612.9 > 569.0	26861.494	28502.166	1.00	5.91	11.780	10.5	105.1	NO	8.493	NO
42	26	PFDS	598.8 > 79.9	3066.749	3847.219	1.00	5.67	9.964	10.1	100.5	NO	1.741	NO
43	25	PFUdA	563.0 > 518.9	23931.572	30121.023	1.00	5.62	9.931	10.7	106.7	NO	9.634	NO
44	28	N-MeFOSA	512.1 > 168.9		13294.935	1.00				(A)	NO		
45	29	PFTrDA	662.9 > 618.9	28274.656	28502.166	1.00	6.16	12.400	10.9	108.9	NO	24.580	NO
46	52	d5-N-EtFOSAA	589.3 > 419	6950.324	33847.918	1.00	5.61	2.567	12.9	103.6	NO		
47	53	13C2-PFDoA	615.0 > 569.7	28502.166	31301.344	1.00	5.91	11.382	11.6	92.9	NO		
48	47	13C8-PFOS	507.0 > 79.9	3847.219	3826.634	1.00	5.00	12.567	12.2	97.2	NO		
49	51	13C2-PFUdA	565 > 519.8	30121.023	33847.918	1.00	5.63	11.124	12.0	95.9	NO		
50	54	d3-N-MeFOSA	515.2 > 168.9	13294.935	33847.918	1.00	5.90	4.910	141.6	94.4	NO		
51	53	13C2-PFDoA	615.0 > 569.7	28502.166	31301.344	1.00	5.91	11.382	11.6	92.9	NO		
52	-1												
53	30	PFTeDA	713.0 > 669.0	25885.361	20016.150	1.00	6.39	16.165	11.1	111.1	NO	13.516	NO
54	31	N-EtFOSA	526.1 > 168.9		23904.494	1.00				(A)	NO		
55	32	PFHxDA	813.1 > 768.6		10454.291	1.00					NO		
56	33	PFODA	913.1 > 868.8		10454.291	1.00					NO		
57	34	N-MeFOSE	616.1 > 58.9		12606.055	1.00					NO		
58	35	N-EtFOSE	630.1 > 58.9		12032.839	1.00					NO		
59	55	13C2-PFTeDA	715.1 > 669.7	20016.150	33847.918	1.00	6.38	7.392	12.2	97.4	NO		
60	56	d5-N-ETFOSA	531.1 > 168.9	23904.494	33847.918	1.00	6.40	8.828	146.9	98.0	NO		
61	57	13C2-PFHxDA	815 > 769.7	10454.291	33847.918	1.00	6.73	3.861	4.8	95.9	NO		
62	57	13C2-PFHxDA	815 > 769.7	10454.291	33847.918	1.00	6.73	3.861	4.8	95.9	NO		
63	58	d7-N-MeFOSE	623.1 > 58.9	12606.055	33847.918	1.00	6.68	4.655	143.1	95.4	NO		
64	59	d9-N-EtFOSE	639.2 > 58.8	12032.839	33847.918	1.00	6.83	4.444	139.0	92.7	NO		
65	-1												
66	60	13C4-PFBA	217. > 172	9816.729	9816.729	1.00	1.18	12.500	12.5	100.0	NO		
67	61	13C5-PFHxA	318 > 272.9	29586.725	29586.725	1.00	3.32	12.500	12.5	100.0	NO		
68	62	13C3-PFHxS	401.8 > 79.9	3418.845	3418.845	1.00	4.14	12.500	12.5	100.0	NO		
69	63	13C8-PFOA	420.9 > 376	35196.535	35196.535	1.00	4.48	12.500	12.5	100.0	NO		
70	64	13C9-PFNA	472.2 > 426.9	24899.225	24899.225	1.00	4.91	12.500	12.5	100.0	NO		
71	65	13C4-PFOS	503 > 79.9	3826.634	3826.634	1.00	5.00	12.500	12.5	100.0	NO		
72	66	13C6-PFDA	519.1 > 473.7	31301.344	31301.344	1.00	5.30	12.500	12.5	100.0	NO		

Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-ICV.qld

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Printed: Tuesday, November 20, 2018 11:27:16 Pacific Standard Time

Name: 181119M2_13, Date: 19-Nov-2018, Time: 22:14:24, ID: ICV181116M2-1 PFC ICV 18K0911, Description: PFC ICV 18K0911

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
73	67	13C7-PFUdA	570.1 > 524.8	33847.918	33847.918	1.00	5.63	12.500	12.5	100.0	NO		

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Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-ICV.qld

Last Altered: Tuesday, November 20, 2018 11:26:54 Pacific Standard Time
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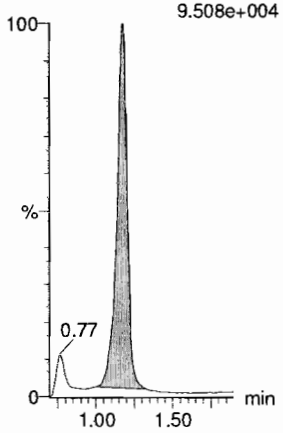
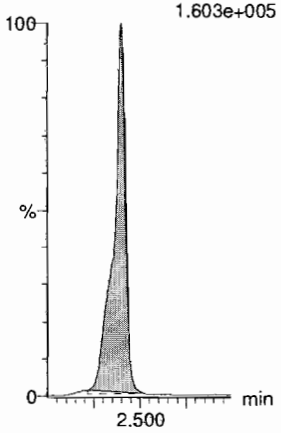
Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_111918.mdb 20 Nov 2018 10:57:12
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Name: 181119M2_13, Date: 19-Nov-2018, Time: 22:14:24, ID: ICV181116M2-1 PFC ICV 18K0911, Description: PFC ICV 18K0911

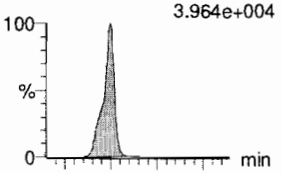
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
9.508e+004



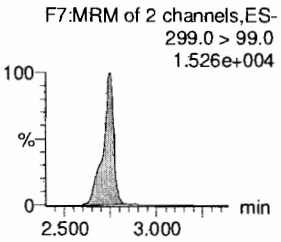
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
1.603e+005



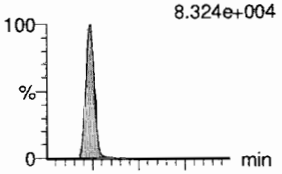
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
3.964e+004



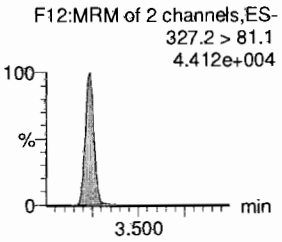
F7:MRM of 2 channels,ES-
299.0 > 99.0
1.526e+004



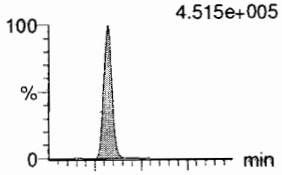
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
8.324e+004



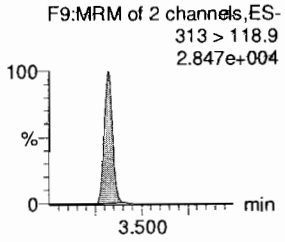
F12:MRM of 2 channels,ES-
327.2 > 81.1
4.412e+004



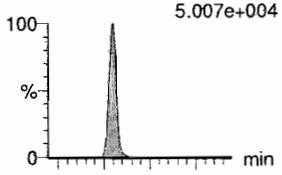
PFHxA
F9:MRM of 2 channels,ES-
313 > 269
4.515e+005



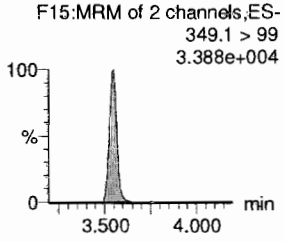
F9:MRM of 2 channels,ES-
313 > 118.9
2.847e+004



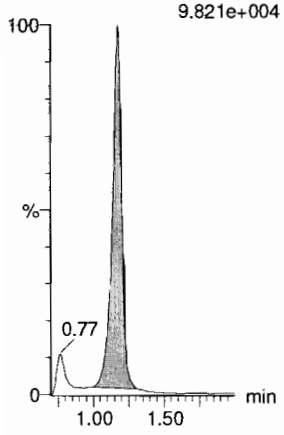
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
5.007e+004



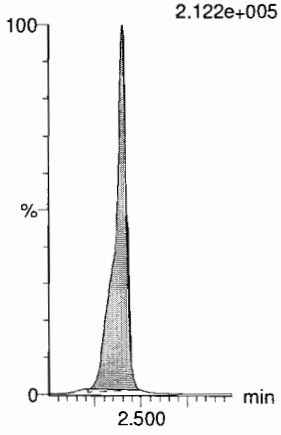
F15:MRM of 2 channels,ES-
349.1 > 99
3.388e+004



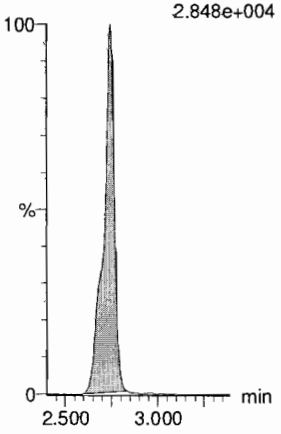
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
9.821e+004



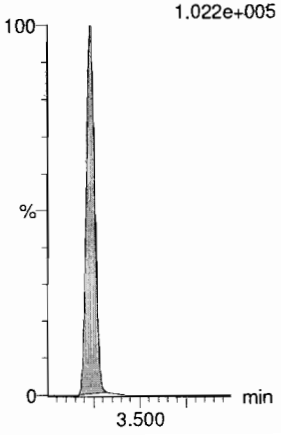
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
2.122e+005



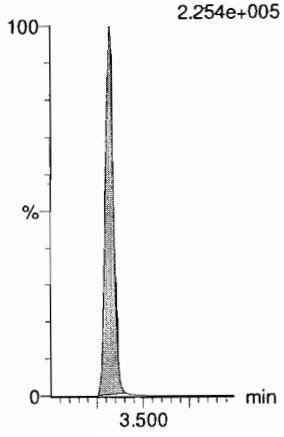
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.848e+004



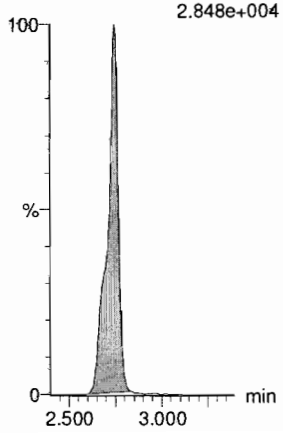
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
1.022e+005



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 270
2.254e+005



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.848e+004



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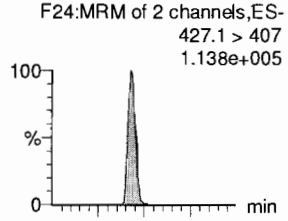
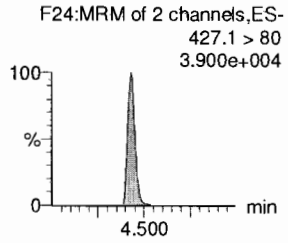
Last Altered: Tuesday, November 20, 2018 11:26:54 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:27:16 Pacific Standard Time

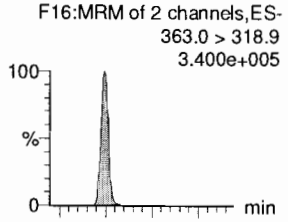
Name: 181119M2_13, Date: 19-Nov-2018, Time: 22:14:24, ID: ICV181116M2-1 PFC ICV 18K0911, Description: PFC ICV 18K0911

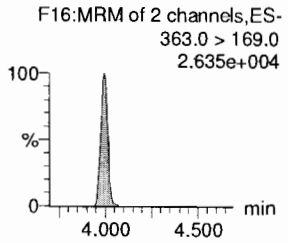
6:2 FTS



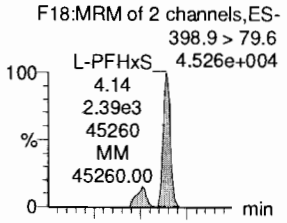


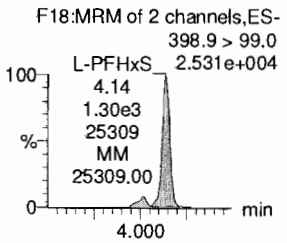
PFHpA



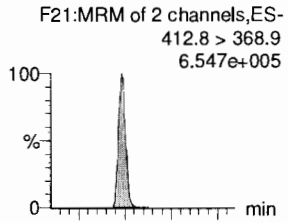


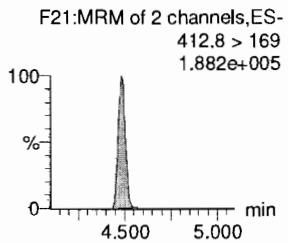
L-PFHxS



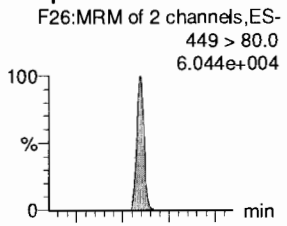


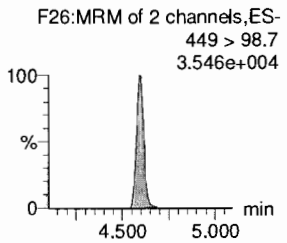
L-PFOA





PFHpS





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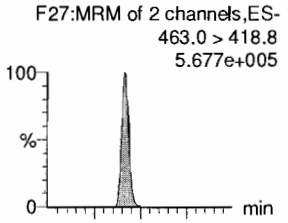
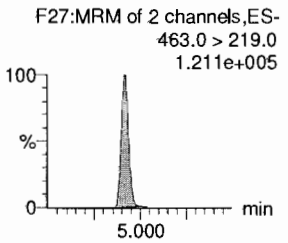
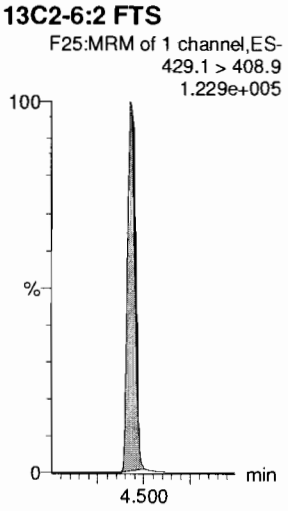
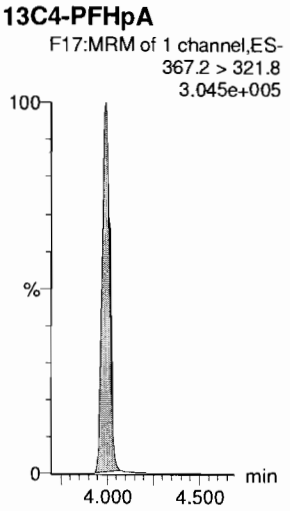




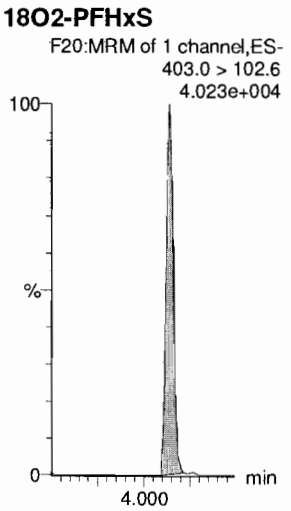
13C2-6:2 FTS



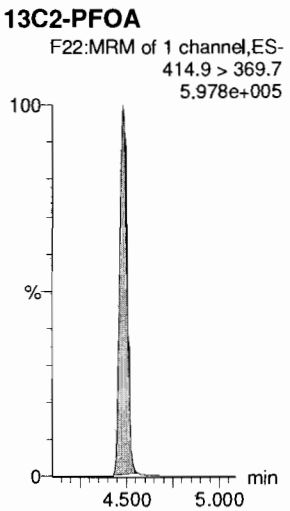
13C4-PFHpA



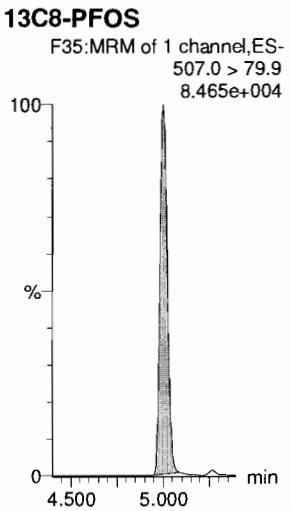
18O2-PFHxS



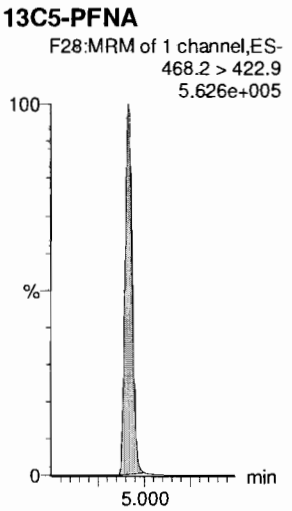
13C2-PFOA



13C8-PFOS



13C5-PFNA



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-ICV.qld

Last Altered: Tuesday, November 20, 2018 11:26:54 Pacific Standard Time
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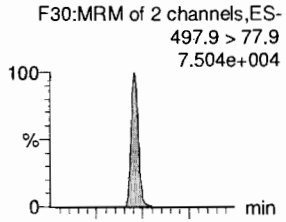
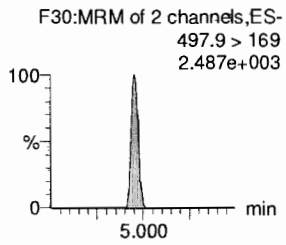
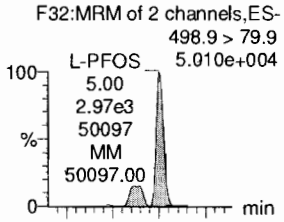
Name: 181119M2_13, Date: 19-Nov-2018, Time: 22:14:24, ID: ICV181116M2-1 PFC ICV 18K0911, Description: PFC ICV 18K0911

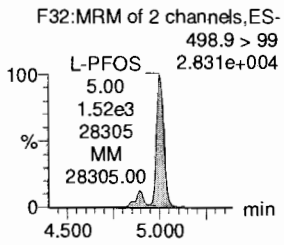
PFOSA



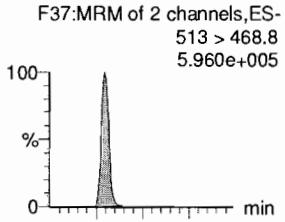


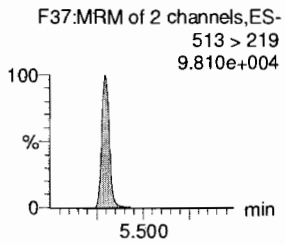
L-PFOS



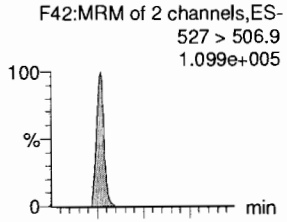


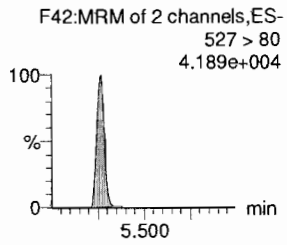
PFDA



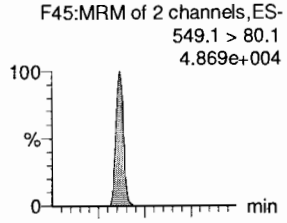


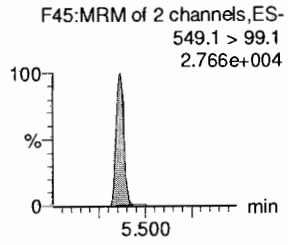
8:2 FTS



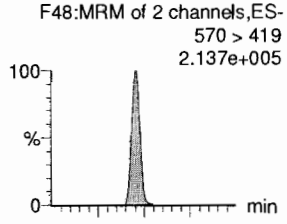


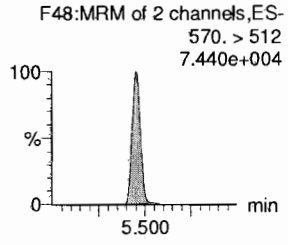
PFNS



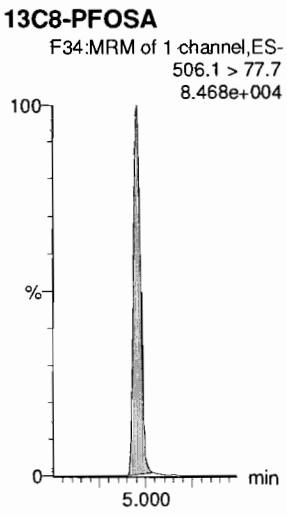


L-MeFOSAA

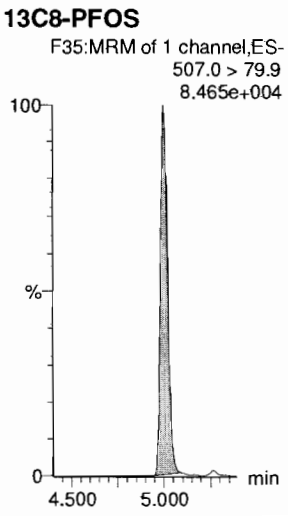




13C8-PFOSA



13C8-PFOS



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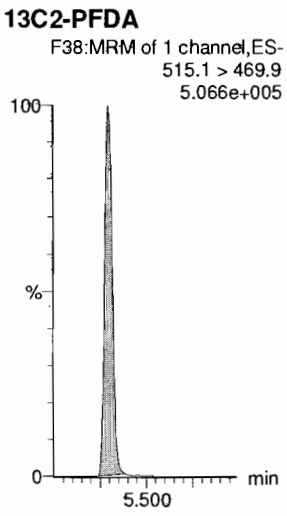
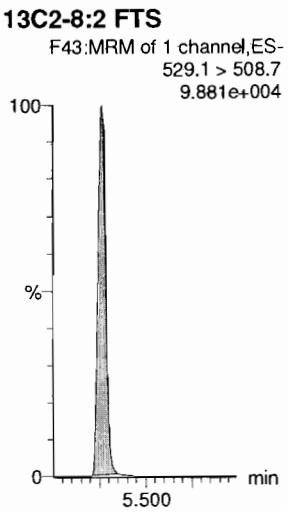
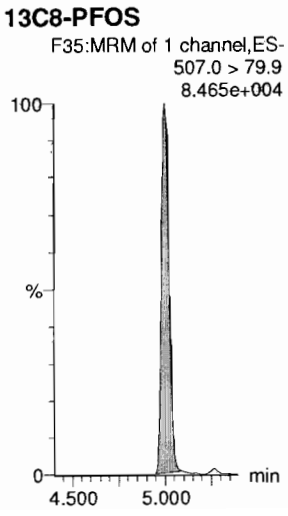


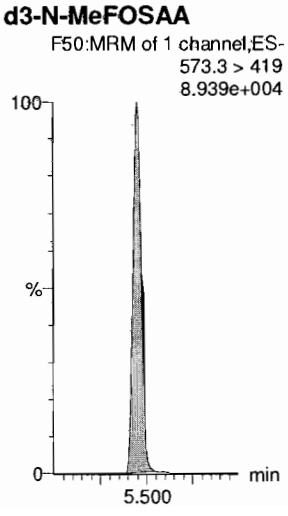
13C2-8:2 FTS



13C8-PFOS



d3-N-MeFOSAA



Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-ICV.qld

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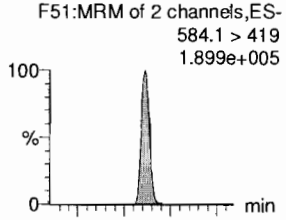
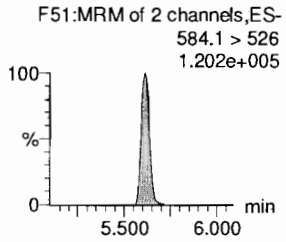
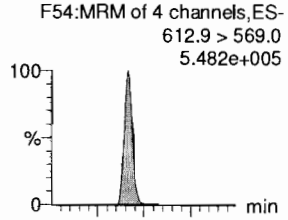
Name: 181119M2_13, Date: 19-Nov-2018, Time: 22:14:24, ID: ICV181116M2-1 PFC ICV 18K0911, Description: PFC ICV 18K0911

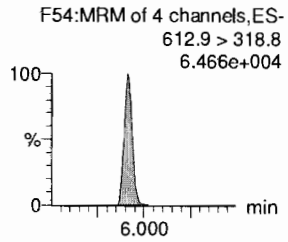
L-EtFOSAA



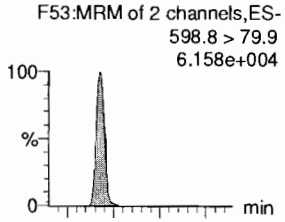


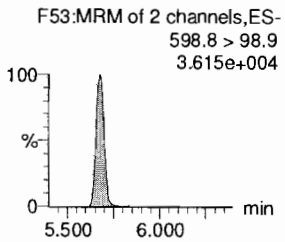
PFDoA



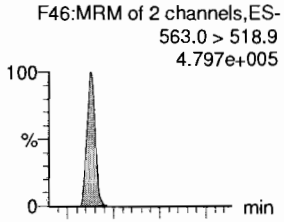


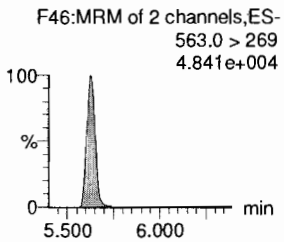
PFDS



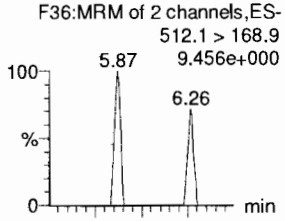


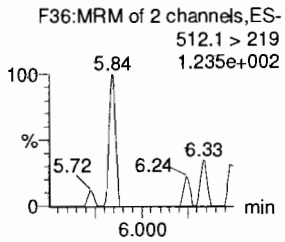
PFUdA



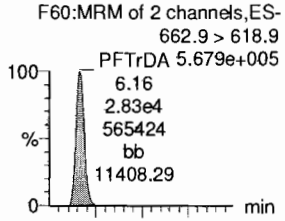


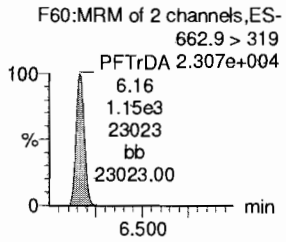
N-MeFOSA



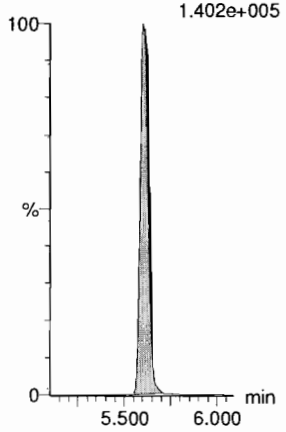


PFTrDA

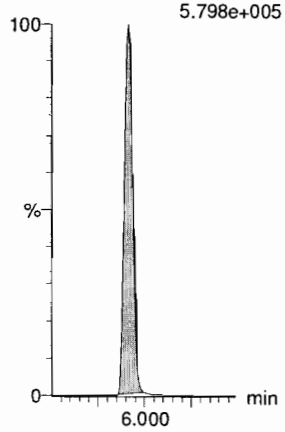




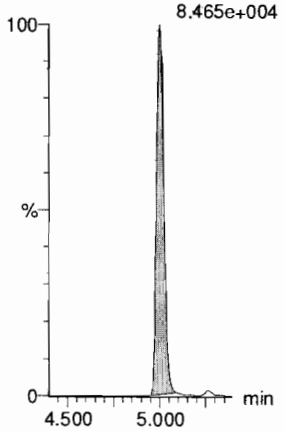
d5-N-EtFOSAA



13C2-PFDoA



13C8-PFOS



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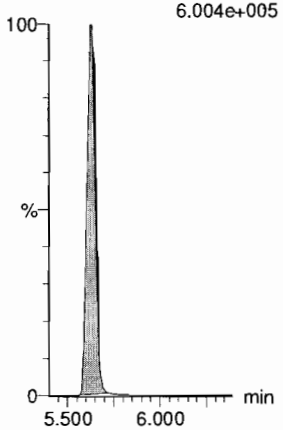

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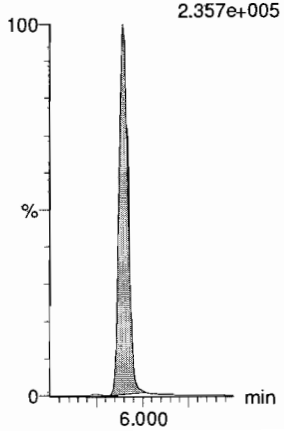

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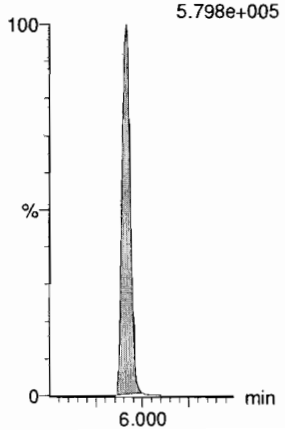

Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-ICV.qld

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Printed: Tuesday, November 20, 2018 11:27:16 Pacific Standard Time

Name: 181119M2_13, Date: 19-Nov-2018, Time: 22:14:24, ID: ICV181116M2-1 PFC ICV 18K0911, Description: PFC ICV 18K0911

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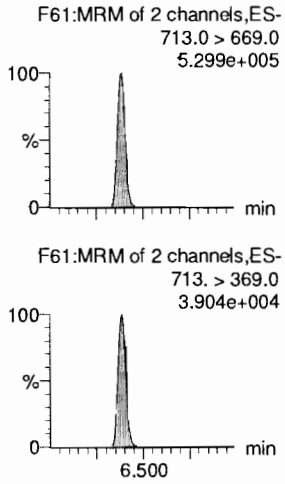

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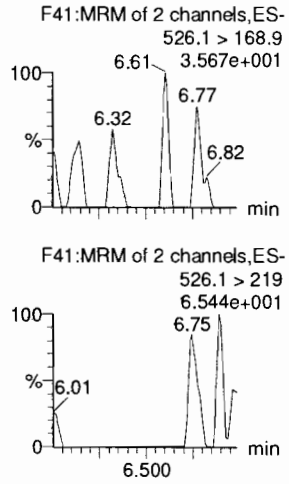
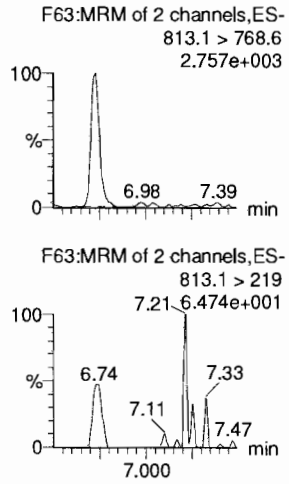
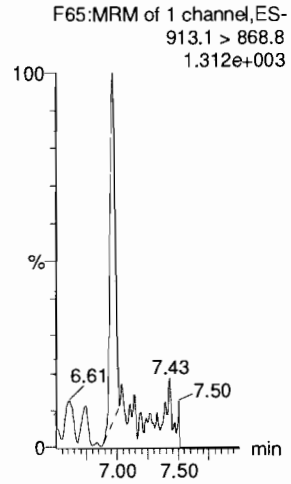


PFHxDA



PFODA



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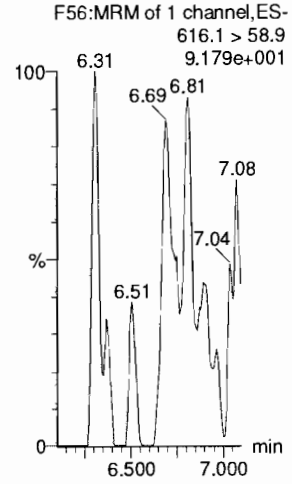

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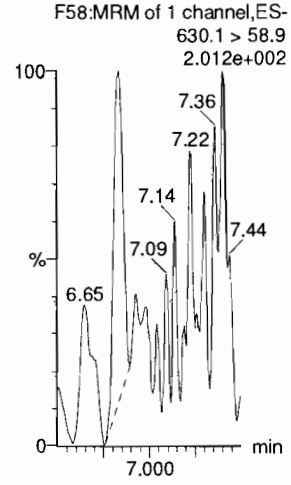

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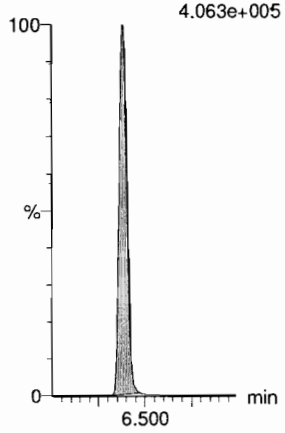
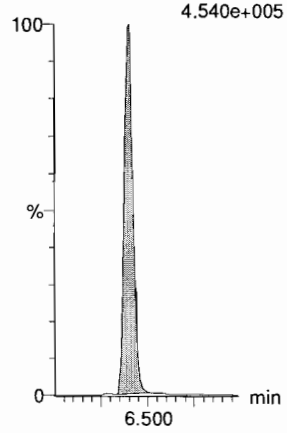


d5-N-ETFOSA



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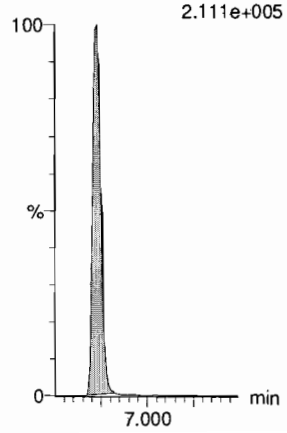

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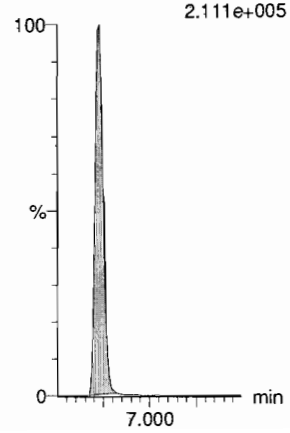
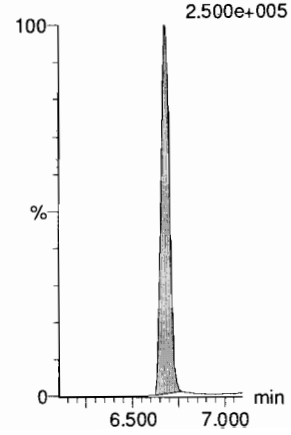


d7-N-MeFOSE



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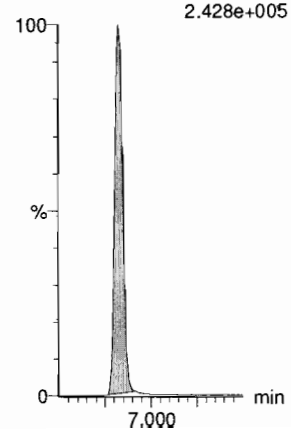
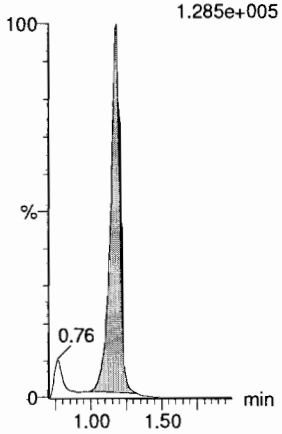


Dataset: F:\Projects\PFAS.PRO\Results\181119M2\181119M2-ICV.qld

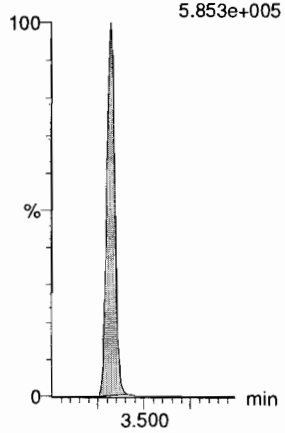
Last Altered: Tuesday, November 20, 2018 11:26:54 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:27:16 Pacific Standard Time

Name: 181119M2_13, Date: 19-Nov-2018, Time: 22:14:24, ID: ICV181116M2-1 PFC ICV 18K0911, Description: PFC ICV 18K0911

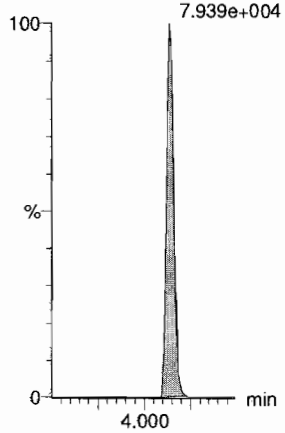
13C4-PFBA



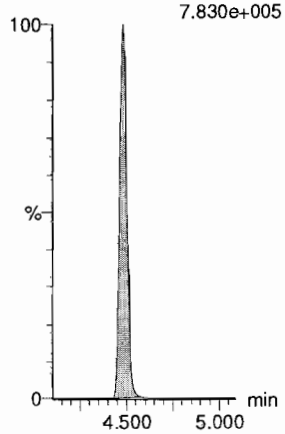
13C5-PFHxA



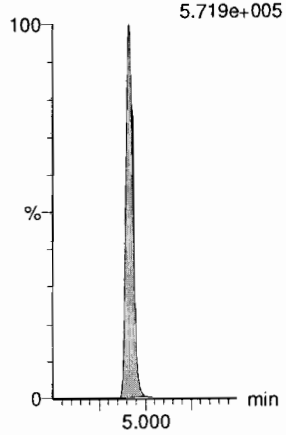
13C3-PFHxS



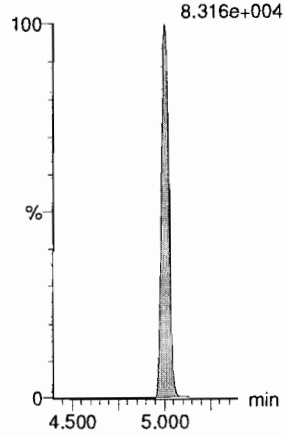
13C8-PFOA



13C9-PFNA



13C4-PFOS



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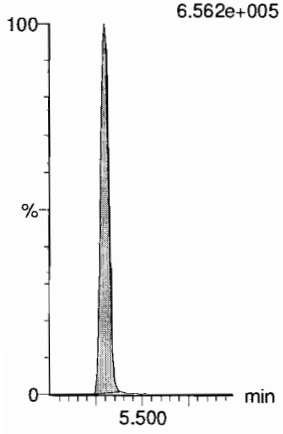

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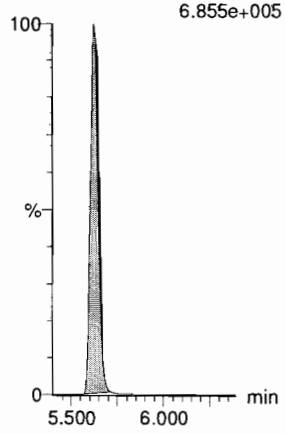


Vista Analytical Laboratory

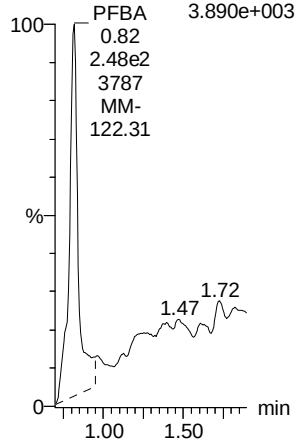
Dataset: Untitled

Last Altered: Tuesday, November 20, 2018 11:31:30 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:31:47 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_111918.mdb 20 Nov 2018 10:57:12
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-19-18.cdb 20 Nov 2018 11:16:07

Name: 181119M2_12, Date: 19-Nov-2018, Time: 22:03:46, ID: IPA, Description: IPA

PFBA



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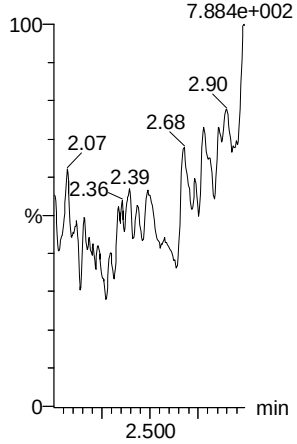
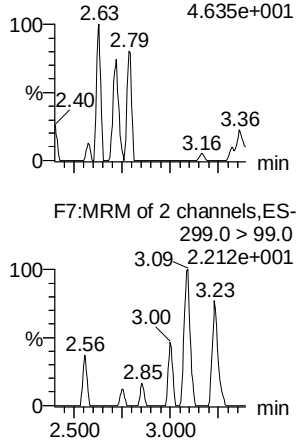
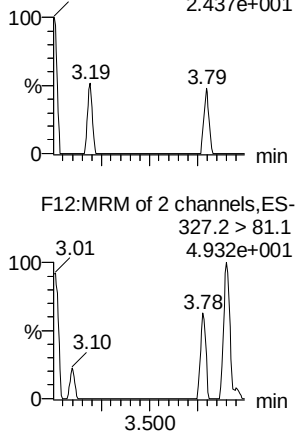


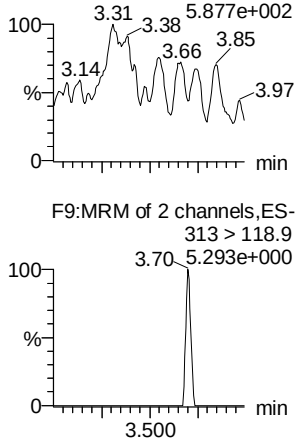
PFBS



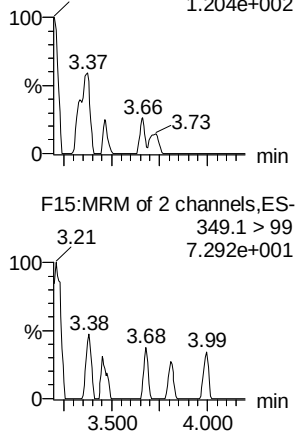
4:2 FTS



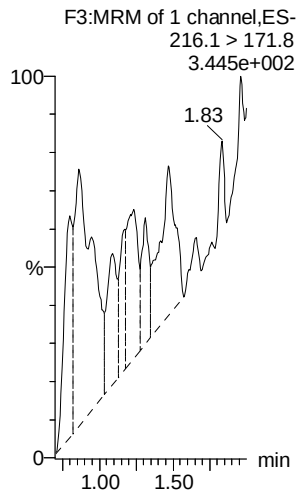
PFHxA



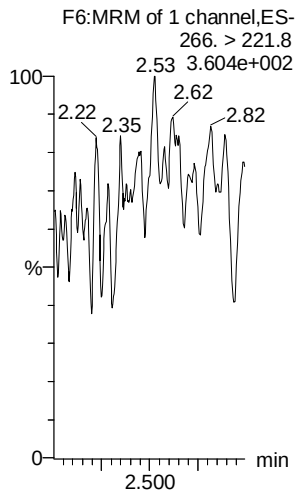
PFPeS



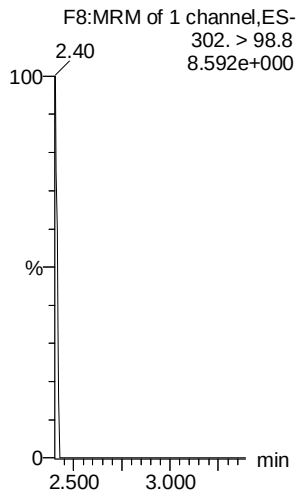
13C3-PFBA



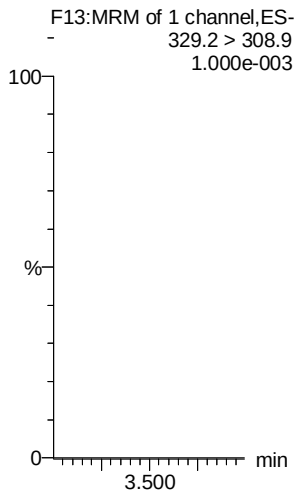
13C3-PFPeA



13C3-PFBS



13C2-4:2 FTS



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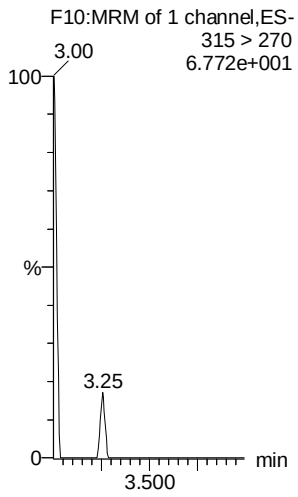

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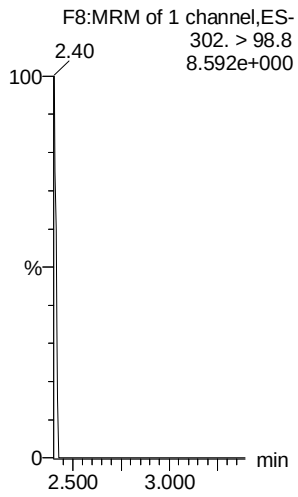


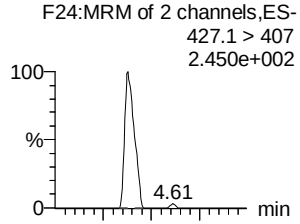
Vista Analytical Laboratory

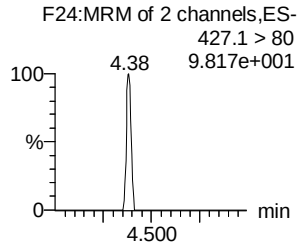
Dataset: Untitled

Last Altered: Tuesday, November 20, 2018 11:31:30 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:31:47 Pacific Standard Time

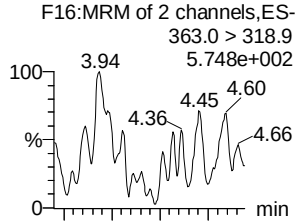
Name: 181119M2_12, Date: 19-Nov-2018, Time: 22:03:46, ID: IPA, Description: IPA

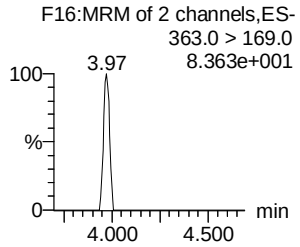
6:2 FTS



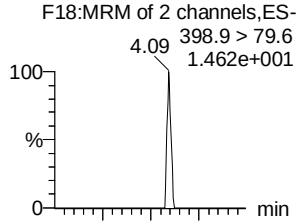


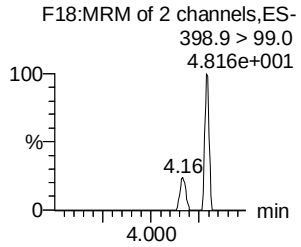
PFHpA



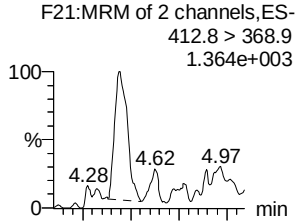


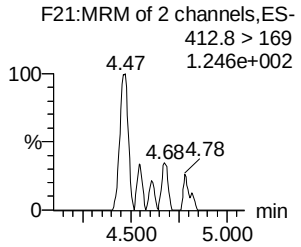
L-PFHxS





L-PFOA





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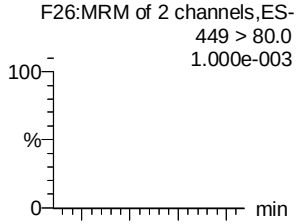

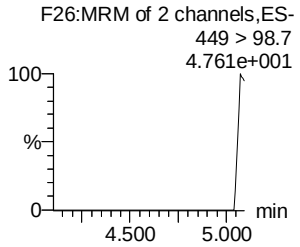

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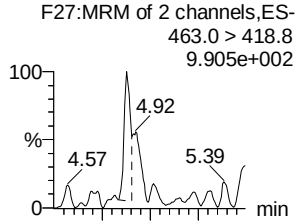
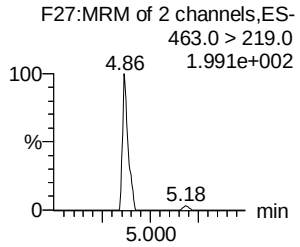
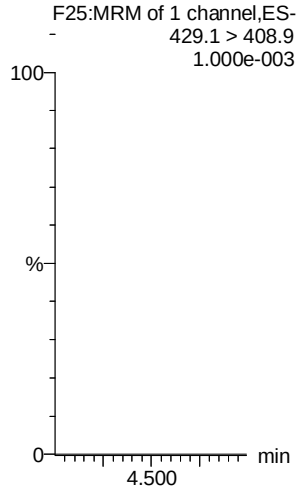




13C2-6:2 FTS



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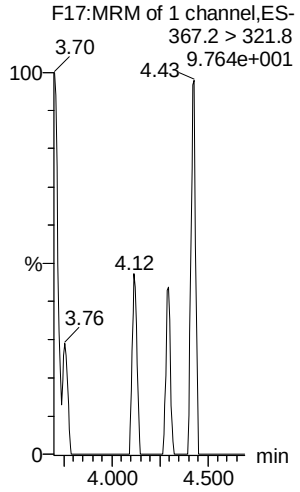

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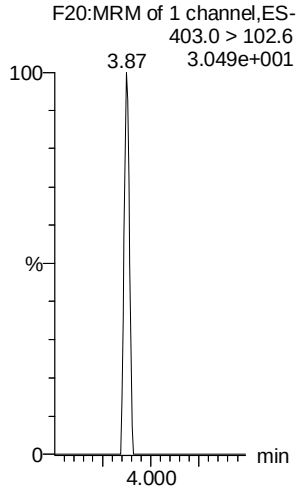

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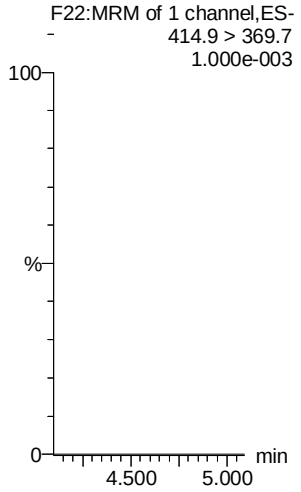

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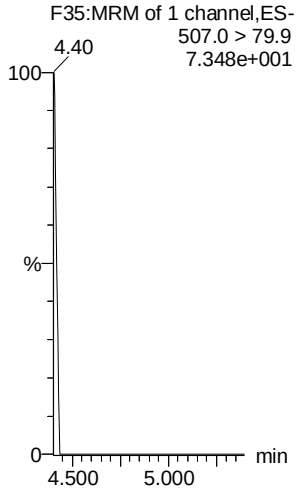

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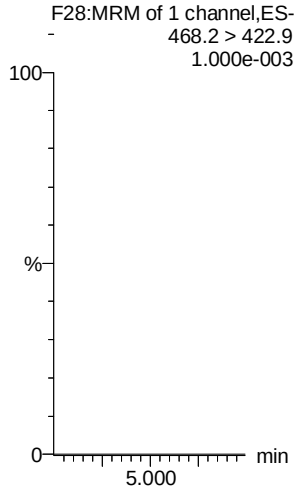

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Printed: Tuesday, November 20, 2018 11:31:47 Pacific Standard Time

Name: 181119M2_12, Date: 19-Nov-2018, Time: 22:03:46, ID: IPA, Description: IPA

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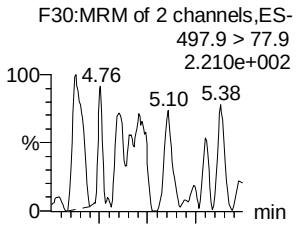

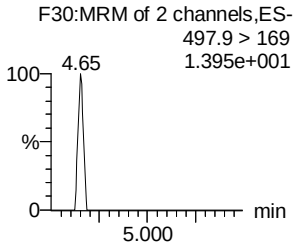

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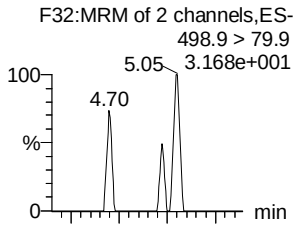

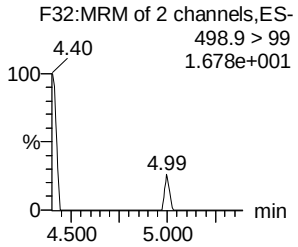

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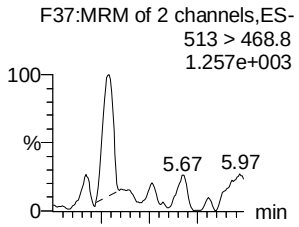

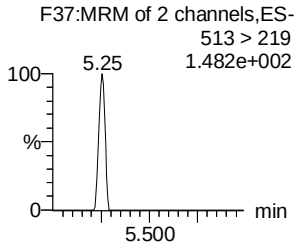

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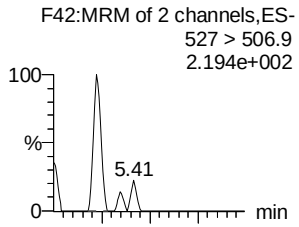

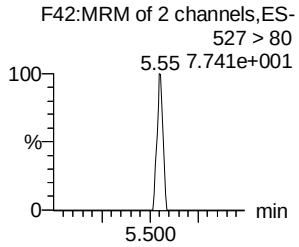

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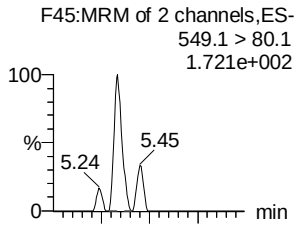

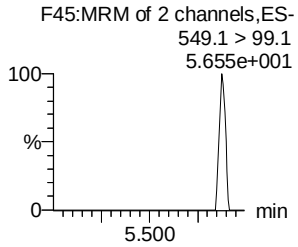

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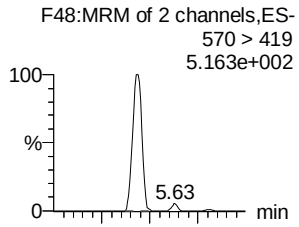

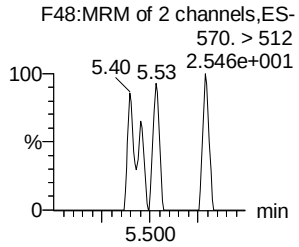

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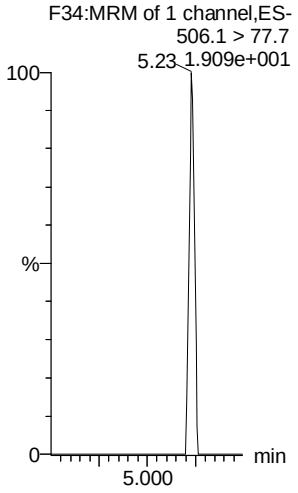

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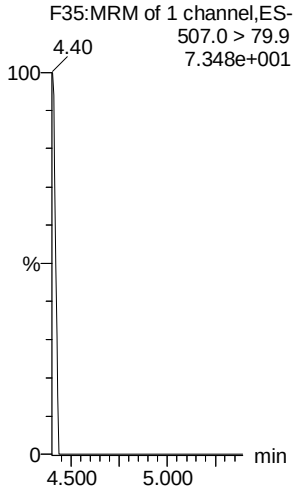

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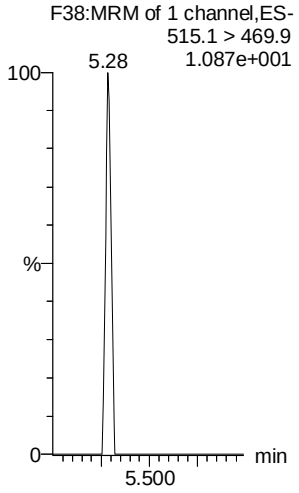
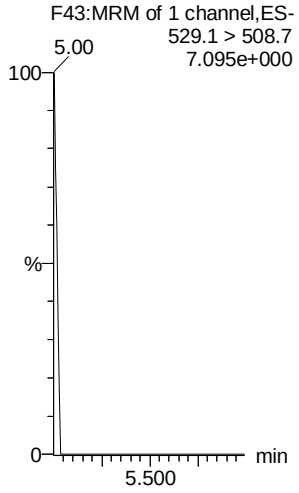


13C2-8:2 FTS



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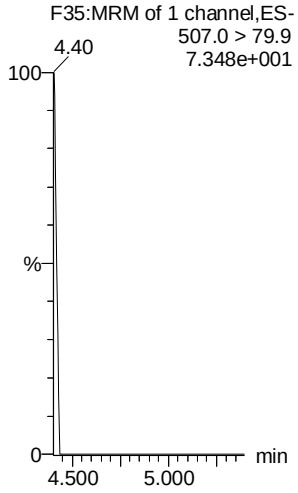

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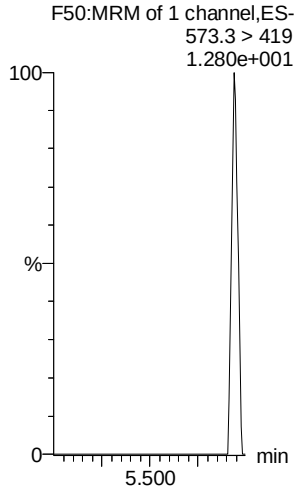

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Name: 181119M2_12, Date: 19-Nov-2018, Time: 22:03:46, ID: IPA, Description: IPA

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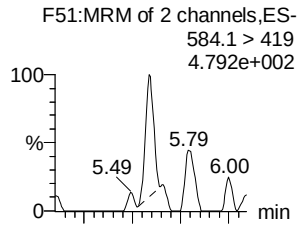

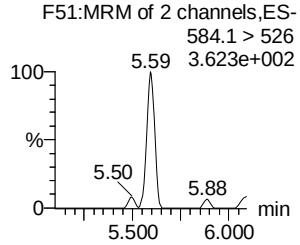

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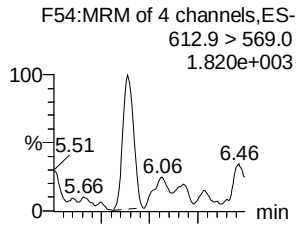

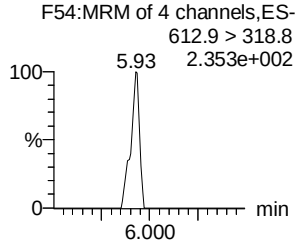

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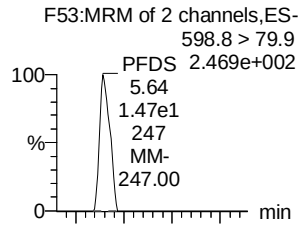

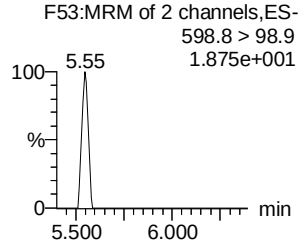

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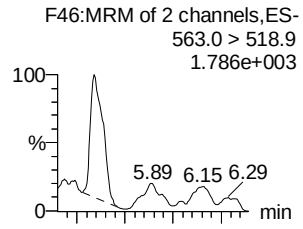

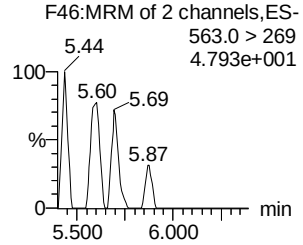

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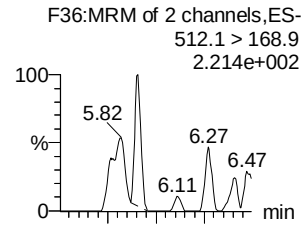

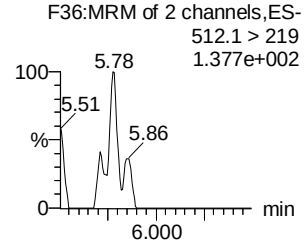

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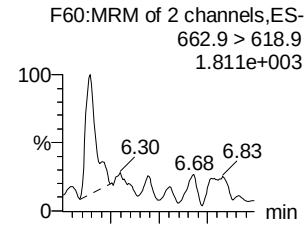

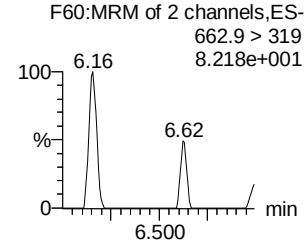

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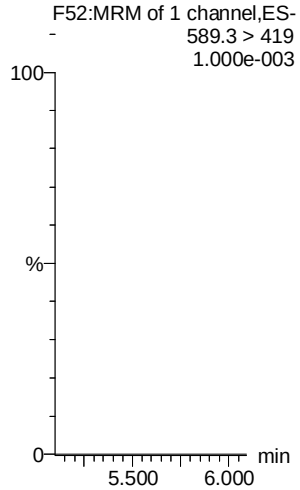

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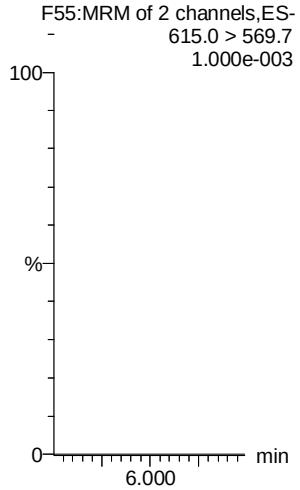

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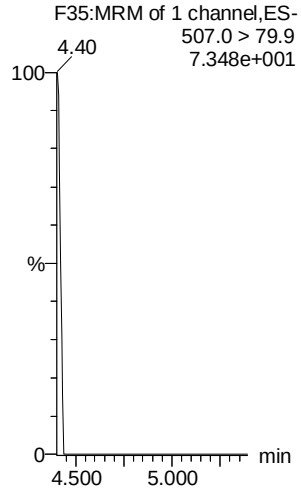

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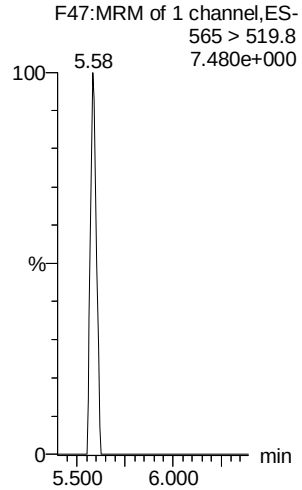

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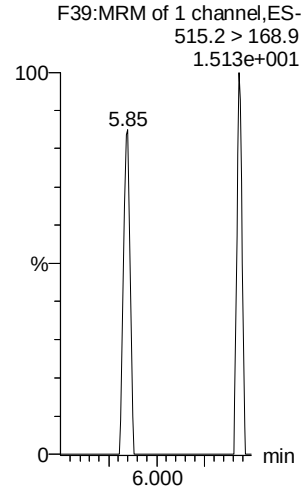

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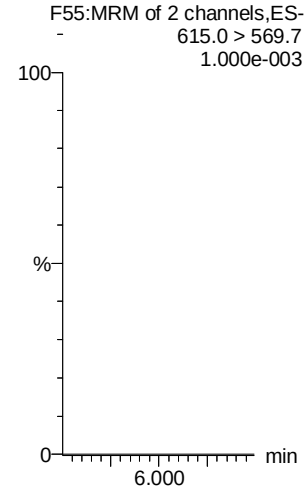

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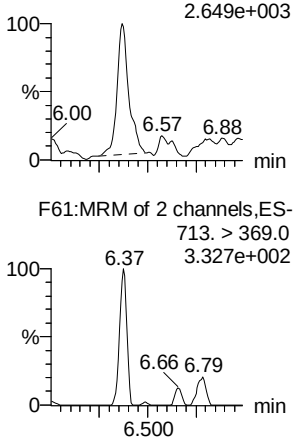

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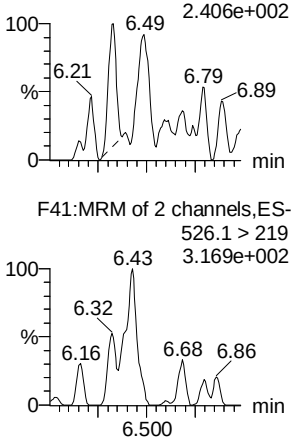

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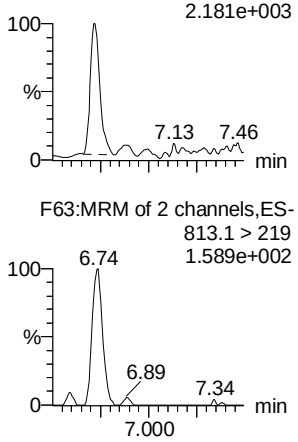

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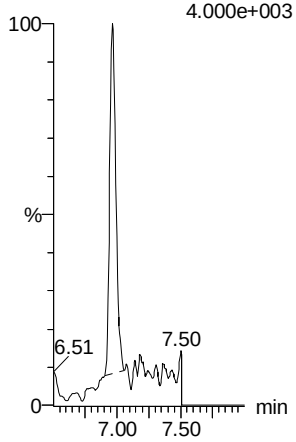

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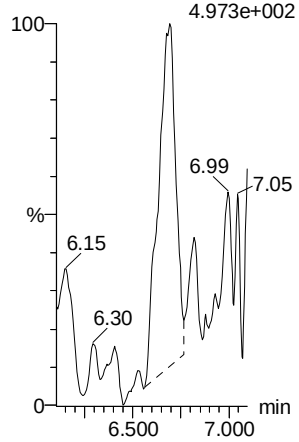

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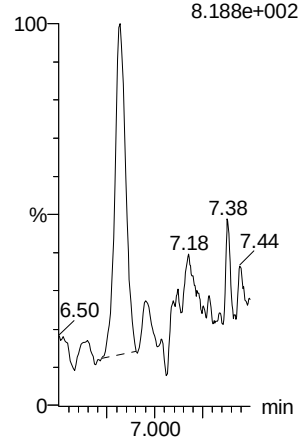

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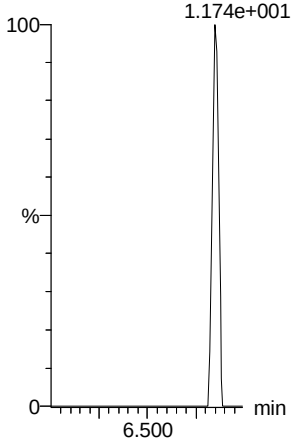

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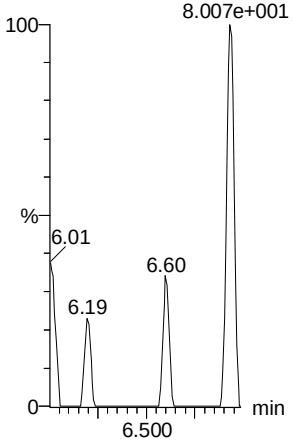

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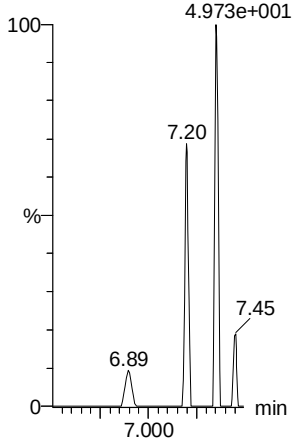

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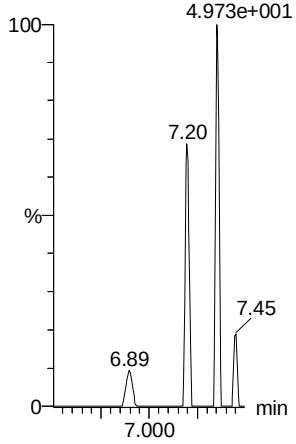

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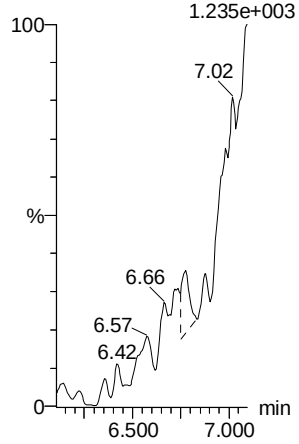
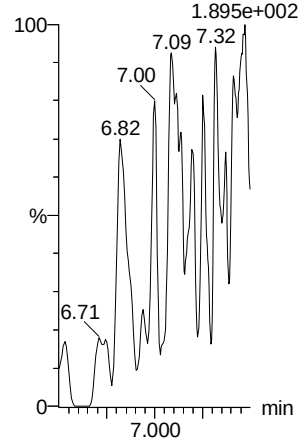


d9-N-EtFOSE



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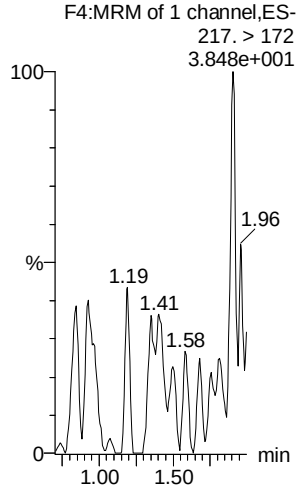
Dataset: Untitled

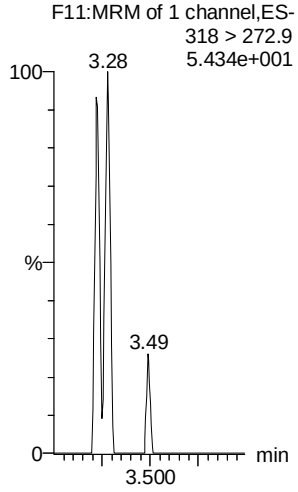
Last Altered: Tuesday, November 20, 2018 11:31:30 Pacific Standard Time
Printed: Tuesday, November 20, 2018 11:31:47 Pacific Standard Time

Name: 181119M2_12, Date: 19-Nov-2018, Time: 22:03:46, ID: IPA, Description: IPA

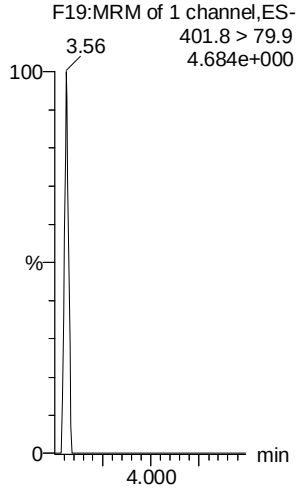
13C4-PFBA



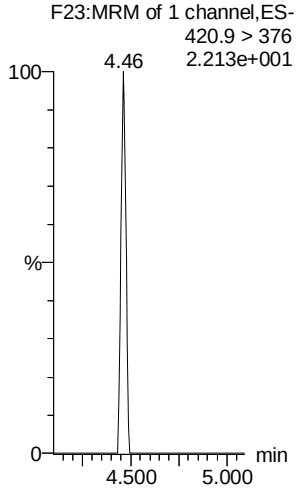
13C5-PFHxA



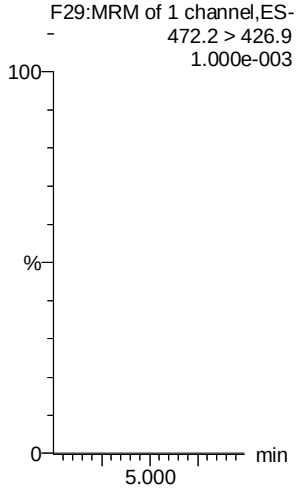
13C3-PFHxS



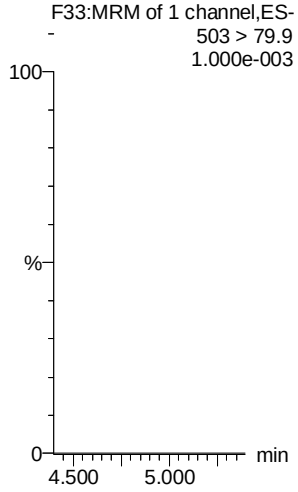
13C8-PFOA



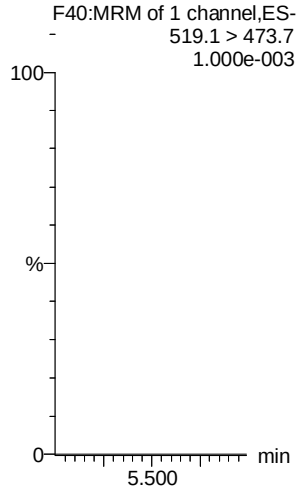
13C9-PFNA



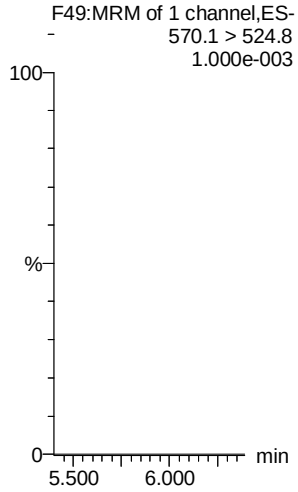
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Vista Analytical Laboratory

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:39:52 Pacific Standard Time

Low Points:
PFHpS = 0.5
L-MeFOSAA = ↓

AD 11/26/18

High Points:
4:2 FTS = 100.0
6:2 FTS = ↓
8:2 FTS = ↓

SCANNED
LE 11-27-18

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112618.mdb 26 Nov 2018 13:53:04
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Compound name: PFBA
Correlation coefficient: r = 0.999908, r^2 = 0.999815
Calibration curve: 1.16478 * x + 0.0685845
Response type: Internal Std (Ref 36), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	0.250	1.24	183.738	6270.790	0.366	0.3	2.2	NO	1.000	NO	bb
2	2	181126M1_3	Standard	0.500	1.25	340.934	6633.369	0.642	0.5	-1.5	NO	1.000	NO	bb
3	3	181126M1_4	Standard	1.000	1.24	642.564	6764.591	1.187	1.0	-3.9	NO	1.000	NO	MM
4	4	181126M1_5	Standard	2.000	1.24	1322.368	7071.333	2.338	1.9	-2.6	NO	1.000	NO	bb
5	5	181126M1_6	Standard	5.000	1.25	3643.227	6957.322	6.546	5.6	11.2	NO	1.000	NO	bb
6	6	181126M1_7	Standard	10.000	1.24	6138.045	6644.186	11.548	9.9	-1.4	NO	1.000	NO	bb
7	7	181126M1_8	Standard	50.000	1.25	31426.422	6904.515	56.895	48.8	-2.4	NO	1.000	NO	bb
8	8	181126M1_9	Standard	100.000	1.25	61698.742	6776.515	113.810	97.7	-2.3	NO	1.000	NO	bb
9	9	181126M1_10	Standard	250.000	1.25	159628.000	6830.738	292.113	250.7	0.3	NO	1.000	NO	bb
10	10	181126M1_11	Standard	500.000	1.25	313498.281	6694.321	585.381	502.5	0.5	NO	1.000	NO	MM

Compound name: PFPeA
Coefficient of Determination: R^2 = 0.999820
Calibration curve: 4.72356e-006 * x^2 + 0.945965 * x + 0.0647094
Response type: Internal Std (Ref 37), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	0.250	2.46	296.702	13715.434	0.270	0.2	-13.0	NO	1.000	NO	bb
2	2	181126M1_3	Standard	0.500	2.46	576.677	13723.302	0.525	0.5	-2.6	NO	1.000	NO	bb
3	3	181126M1_4	Standard	1.000	2.47	1163.755	14561.754	0.999	1.0	-1.2	NO	1.000	NO	bb
4	4	181126M1_5	Standard	2.000	2.47	2351.481	14296.794	2.056	2.1	5.2	NO	1.000	NO	bb
5	5	181126M1_6	Standard	5.000	2.47	6422.912	14592.260	5.502	5.7	15.0	NO	1.000	NO	bb
6	6	181126M1_7	Standard	10.000	2.47	10510.064	13932.524	9.429	9.9	-1.0	NO	1.000	NO	bb
7	7	181126M1_8	Standard	50.000	2.47	54578.820	14718.107	46.353	48.9	-2.2	NO	1.000	NO	bb
8	8	181126M1_9	Standard	100.000	2.47	106488.234	14155.756	94.033	99.3	-0.7	NO	1.000	NO	bb
9	9	181126M1_10	Standard	250.000	2.47	265132.813	13897.646	238.469	251.7	0.7	NO	1.000	NO	bb
10	10	181126M1_11	Standard	500.000	2.47	488747.781	12898.420	473.651	499.4	-0.1	NO	1.000	NO	bb

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11/26/18

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

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Compound name: PFBS
Coefficient of Determination: R^2 = 0.997695
Calibration curve: -0.000161679 * x^2 + 2.06224 * x + 0.0291321
Response type: Internal Std (Ref 38), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	0.250	2.80	73.448	1786.299	0.514	0.2	-6.0	NO	0.998	NO	bb
2	2 181126M1_3	Standard	0.500	2.80	177.174	1802.877	1.228	0.6	16.3	NO	0.998	NO	bb
3	3 181126M1_4	Standard	1.000	2.80	282.362	1800.875	1.960	0.9	-6.4	NO	0.998	NO	bb
4	4 181126M1_5	Standard	2.000	2.80	575.266	1859.173	3.868	1.9	-6.9	NO	0.998	NO	bb
5	5 181126M1_6	Standard	5.000	2.80	1728.002	1822.236	11.854	5.7	14.7	NO	0.998	NO	bb
6	6 181126M1_7	Standard	10.000	2.80	2914.542	1802.554	20.211	9.8	-2.1	NO	0.998	NO	bd
7	7 181126M1_8	Standard	50.000	2.80	14242.043	1924.595	92.500	45.0	-10.0	NO	0.998	NO	bb
8	8 181126M1_9	Standard	100.000	2.80	27722.197	1781.169	194.551	95.0	-5.0	NO	0.998	NO	bb
9	9 181126M1_10	Standard	250.000	2.80	67245.094	1561.142	538.429	266.6	6.7	NO	0.998	NO	bb
10	10 181126M1_11	Standard	500.000	2.81	116742.313	1493.188	977.291	492.9	-1.4	NO	0.998	NO	bb

Compound name: 4:2 FTS
Coefficient of Determination: R^2 = 0.997744
Calibration curve: -0.00329241 * x^2 + 1.0746 * x + 0.0302455
Response type: Internal Std (Ref 39), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	0.250	3.27	90.849	4949.353	0.229	0.2	-25.8	NO	0.998	NO	bb
2	2 181126M1_3	Standard	0.500	3.27	222.315	4658.786	0.596	0.5	5.6	NO	0.998	NO	bb
3	3 181126M1_4	Standard	1.000	3.28	473.364	5081.407	1.164	1.1	5.9	NO	0.998	NO	bb
4	4 181126M1_5	Standard	2.000	3.28	868.578	4976.478	2.182	2.0	0.7	NO	0.998	NO	bb
5	5 181126M1_6	Standard	5.000	3.28	2461.108	4945.298	6.221	5.9	17.3	NO	0.998	NO	bb
6	6 181126M1_7	Standard	10.000	3.28	3902.045	4705.861	10.365	9.9	-0.8	NO	0.998	NO	bb
7	7 181126M1_8	Standard	50.000	3.28	18622.355	5303.523	43.891	47.8	-4.4	NO	0.998	NO	bb
8	8 181126M1_9	Standard	100.000	3.28	34287.551	5688.242	75.347	101.9	1.9	NO	0.998	NO	bb
9	9 181126M1_10	Standard	250.000	3.28	74749.492	6866.882	136.069			NO	0.998	NO	bbXl
10	10 181126M1_11	Standard	500.000	3.28	117960.859	8003.897	184.224			NO	0.998	NO	bbXl

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

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Compound name: PFHxA
Coefficient of Determination: R^2 = 0.999832
Calibration curve: -0.000104875 * x^2 + 0.943399 * x + 0.0492708
Response type: Internal Std (Ref 40), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	0.250	3.36	543.690	9787.215	0.278	0.2	-3.1	NO	1.000	NO	MM
2	2 181126M1_3	Standard	0.500	3.36	1002.725	9629.179	0.521	0.5	-0.1	NO	1.000	NO	bb
3	3 181126M1_4	Standard	1.000	3.37	2160.279	10373.639	1.041	1.1	5.2	NO	1.000	NO	bb
4	4 181126M1_5	Standard	2.000	3.36	4246.874	10091.624	2.104	2.2	8.9	NO	1.000	NO	bb
5	5 181126M1_6	Standard	5.000	3.36	11085.394	10427.667	5.315	5.6	11.7	NO	1.000	NO	bb
6	6 181126M1_7	Standard	10.000	3.36	19080.154	10138.645	9.410	9.9	-0.7	NO	1.000	NO	bb
7	7 181126M1_8	Standard	50.000	3.36	95866.445	10164.805	47.156	50.2	0.4	NO	1.000	NO	bb
8	8 181126M1_9	Standard	100.000	3.36	187440.484	10236.929	91.551	98.1	-1.9	NO	1.000	NO	bb
9	9 181126M1_10	Standard	250.000	3.36	452512.406	9817.484	230.463	251.3	0.5	NO	1.000	NO	bb
10	10 181126M1_11	Standard	500.000	3.36	822435.563	9234.549	445.304	499.7	-0.1	NO	1.000	NO	bb

Compound name: PFPeS
Coefficient of Determination: R^2 = 0.998416
Calibration curve: -0.00034984 * x^2 + 1.67039 * x + 0.0318278
Response type: Internal Std (Ref 38), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	0.250	3.58	51.237	1786.299	0.359	0.2	-21.8	NO	0.998	NO	bb
2	2 181126M1_3	Standard	0.500	3.58	133.691	1802.877	0.927	0.5	7.2	NO	0.998	NO	bb
3	3 181126M1_4	Standard	1.000	3.58	238.063	1800.875	1.652	1.0	-3.0	NO	0.998	NO	bd
4	4 181126M1_5	Standard	2.000	3.58	574.238	1859.173	3.861	2.3	14.7	NO	0.998	NO	bb
5	5 181126M1_6	Standard	5.000	3.58	1401.943	1822.236	9.617	5.7	14.9	NO	0.998	NO	bb
6	6 181126M1_7	Standard	10.000	3.58	2301.248	1802.554	15.958	9.6	-4.5	NO	0.998	NO	bb
7	7 181126M1_8	Standard	50.000	3.58	11780.987	1924.595	76.516	46.2	-7.5	NO	0.998	NO	bb
8	8 181126M1_9	Standard	100.000	3.58	22362.012	1781.169	156.934	95.9	-4.1	NO	0.998	NO	bb
9	9 181126M1_10	Standard	250.000	3.58	51911.930	1561.142	415.657	263.3	5.3	NO	0.998	NO	bb
10	10 181126M1_11	Standard	500.000	3.58	88368.578	1493.188	739.764	494.0	-1.2	NO	0.998	NO	bb

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

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Compound name: PFHpA
Correlation coefficient: r = 0.999783, r^2 = 0.999567
Calibration curve: 1.30873 * x + 0.0886199
Response type: Internal Std (Ref 41), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	0.250	4.02	391.774	14063.499	0.348	0.2	-20.7	NO	1.000	NO	bb
2	2	181126M1_3	Standard	0.500	4.02	821.452	14566.622	0.705	0.5	-5.8	NO	1.000	NO	bb
3	3	181126M1_4	Standard	1.000	4.02	1646.863	14599.738	1.410	1.0	1.0	NO	1.000	NO	bb
4	4	181126M1_5	Standard	2.000	4.02	3230.693	13961.896	2.892	2.1	7.1	NO	1.000	NO	bb
5	5	181126M1_6	Standard	5.000	4.02	8943.927	14034.775	7.966	6.0	20.4	NO	1.000	NO	bb
6	6	181126M1_7	Standard	10.000	4.02	14191.912	13678.921	12.969	9.8	-1.6	NO	1.000	NO	bb
7	7	181126M1_8	Standard	50.000	4.02	73303.828	14249.999	64.302	49.1	-1.9	NO	1.000	NO	bb
8	8	181126M1_9	Standard	100.000	4.02	137761.203	13058.787	131.866	100.7	0.7	NO	1.000	NO	bb
9	9	181126M1_10	Standard	250.000	4.02	333762.781	12520.175	333.225	254.5	1.8	NO	1.000	NO	bb
10	10	181126M1_11	Standard	500.000	4.02	576309.688	11123.910	647.602	494.8	-1.0	NO	1.000	NO	bb

Compound name: L-PFHxS
Coefficient of Determination: R^2 = 0.998700
Calibration curve: 7.11978e-005 * x^2 + 1.94438 * x + -0.00102564
Response type: Internal Std (Ref 42), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	0.250	4.15	63.089	1490.698	0.529	0.3	9.0	NO	0.999	NO	MM
2	2	181126M1_3	Standard	0.500	4.16	102.182	1447.785	0.882	0.5	-9.1	NO	0.999	NO	MM
3	3	181126M1_4	Standard	1.000	4.16	242.957	1581.371	1.920	1.0	-1.2	NO	0.999	NO	MM
4	4	181126M1_5	Standard	2.000	4.16	471.273	1558.457	3.780	1.9	-2.8	NO	0.999	NO	MM
5	5	181126M1_6	Standard	5.000	4.16	1417.070	1526.846	11.601	6.0	19.3	NO	0.999	NO	MM
6	6	181126M1_7	Standard	10.000	4.16	2169.523	1542.694	17.579	9.0	-9.6	NO	0.999	NO	MM
7	7	181126M1_8	Standard	50.000	4.16	11650.288	1579.074	92.224	47.3	-5.3	NO	0.999	NO	MM
8	8	181126M1_9	Standard	100.000	4.16	22089.543	1478.125	186.804	95.7	-4.3	NO	0.999	NO	MM
9	9	181126M1_10	Standard	250.000	4.16	53430.172	1300.621	513.506	261.6	4.6	NO	0.999	NO	MM
10	10	181126M1_11	Standard	500.000	4.16	95683.875	1219.567	980.716	495.4	-0.9	NO	0.999	NO	MM

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Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

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Compound name: 6:2 FTS
Coefficient of Determination: R^2 = 0.997882
Calibration curve: -0.0044139 * x^2 + 1.28489 * x + 0.0365766
Response type: Internal Std (Ref 43), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	0.250	4.46	147.008	5225.320	0.352	0.2	-1.8	NO	0.998	NO	bb
2	2 181126M1_3	Standard	0.500	4.46	259.646	5165.596	0.628	0.5	-7.7	NO	0.998	NO	bb
3	3 181126M1_4	Standard	1.000	4.46	573.600	5387.143	1.331	1.0	1.1	NO	0.998	NO	bb
4	4 181126M1_5	Standard	2.000	4.46	1126.191	5074.225	2.774	2.1	7.3	NO	0.998	NO	bb
5	5 181126M1_6	Standard	5.000	4.46	3033.546	5181.676	7.318	5.8	15.6	NO	0.998	NO	bb
6	6 181126M1_7	Standard	10.000	4.46	4878.658	4894.738	12.459	10.0	0.1	NO	0.998	NO	bb
7	7 181126M1_8	Standard	50.000	4.46	22742.309	5563.122	51.101	47.5	-5.0	NO	0.998	NO	bb
8	8 181126M1_9	Standard	100.000	4.46	41145.855	6022.125	85.406	102.6	2.6	NO	0.998	NO	bb
9	9 181126M1_10	Standard	250.000	4.46	92251.859	7202.659	160.100			NO	0.998	NO	bbXl
10	10 181126M1_11	Standard	500.000	4.46	150251.734	9468.253	198.363			NO	0.998	NO	bbXl

Compound name: L-PFOA
Coefficient of Determination: R^2 = 0.999794
Calibration curve: 3.30794e-005 * x^2 + 1.35692 * x + 0.157598
Response type: Internal Std (Ref 44), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	0.250	4.50	859.697	24359.602	0.441	0.2	-16.4	NO	1.000	NO	bb
2	2 181126M1_3	Standard	0.500	4.51	1402.470	24354.520	0.720	0.4	-17.1	NO	1.000	NO	bb
3	3 181126M1_4	Standard	1.000	4.51	3123.076	24178.301	1.615	1.1	7.4	NO	1.000	NO	bb
4	4 181126M1_5	Standard	2.000	4.51	5800.527	23443.150	3.093	2.2	8.2	NO	1.000	NO	bb
5	5 181126M1_6	Standard	5.000	4.51	15085.033	23552.342	8.006	5.8	15.7	NO	1.000	NO	bb
6	6 181126M1_7	Standard	10.000	4.51	25699.873	22507.277	14.273	10.4	4.0	NO	1.000	NO	bb
7	7 181126M1_8	Standard	50.000	4.51	129049.719	23848.943	67.639	49.7	-0.7	NO	1.000	NO	bb
8	8 181126M1_9	Standard	100.000	4.52	241531.141	22357.822	135.037	99.2	-0.8	NO	1.000	NO	bb
9	9 181126M1_10	Standard	250.000	4.52	588288.500	21588.547	340.625	249.4	-0.2	NO	1.000	NO	bb
10	10 181126M1_11	Standard	500.000	4.52	1097817.125	19958.678	687.556	500.5	0.1	NO	1.000	NO	bb

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Compound name: PFHpS
Coefficient of Determination: R^2 = 0.999257
Calibration curve: -2.62046e-005 * x^2 + 0.932171 * x + 0.0595585
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	0.250	4.61	37.734	3276.263	0.144	0.1	-63.8	YES	0.999	NO	bbX
2	2 181126M1_3	Standard	0.500	4.62	124.551	3416.156	0.456	0.4	-15.0	NO	0.999	NO	bb
3	3 181126M1_4	Standard	1.000	4.62	296.909	3743.129	0.992	1.0	-0.0	NO	0.999	NO	bb
4	4 181126M1_5	Standard	2.000	4.62	580.380	3748.331	1.935	2.0	0.6	NO	0.999	NO	bb
5	5 181126M1_6	Standard	5.000	4.62	1591.427	3674.965	5.413	5.7	14.9	NO	0.999	NO	bb
6	6 181126M1_7	Standard	10.000	4.62	2597.803	3393.818	9.568	10.2	2.0	NO	0.999	NO	bb
7	7 181126M1_8	Standard	50.000	4.62	13942.404	3698.358	47.124	50.6	1.1	NO	0.999	NO	bb
8	8 181126M1_9	Standard	100.000	4.63	25496.764	3638.886	87.584	94.1	-5.9	NO	0.999	NO	bb
9	9 181126M1_10	Standard	250.000	4.63	60578.254	3187.154	237.588	256.7	2.7	NO	0.999	NO	bb
10	10 181126M1_11	Standard	500.000	4.63	106407.352	2906.952	457.556	497.8	-0.4	NO	0.999	NO	bb

Compound name: PFNA
Coefficient of Determination: R^2 = 0.999758
Calibration curve: -0.000123392 * x^2 + 1.25051 * x + 0.0436441
Response type: Internal Std (Ref 45), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	0.250	4.93	537.912	22295.369	0.302	0.2	-17.5	NO	1.000	NO	bd
2	2 181126M1_3	Standard	0.500	4.94	1200.616	21931.633	0.684	0.5	2.5	NO	1.000	NO	bd
3	3 181126M1_4	Standard	1.000	4.94	2409.214	23014.137	1.309	1.0	1.2	NO	1.000	NO	bb
4	4 181126M1_5	Standard	2.000	4.94	4898.088	22367.645	2.737	2.2	7.7	NO	1.000	NO	bb
5	5 181126M1_6	Standard	5.000	4.94	13174.647	23199.723	7.098	5.6	12.9	NO	1.000	NO	bb
6	6 181126M1_7	Standard	10.000	4.94	21293.529	22312.191	11.929	9.5	-4.9	NO	1.000	NO	bb
7	7 181126M1_8	Standard	50.000	4.94	111154.172	22610.824	61.450	49.3	-1.3	NO	1.000	NO	bb
8	8 181126M1_9	Standard	100.000	4.94	210237.266	21568.918	121.840	98.4	-1.6	NO	1.000	NO	bb
9	9 181126M1_10	Standard	250.000	4.94	500506.188	20252.943	308.910	253.3	1.3	NO	1.000	NO	bb
10	10 181126M1_11	Standard	500.000	4.94	857858.188	18084.188	592.962	498.7	-0.3	NO	1.000	NO	bb

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Compound name: PFOSA
Coefficient of Determination: R^2 = 0.999684
Calibration curve: 0.000109224 * x^2 + 1.13948 * x + -0.0243111
Response type: Internal Std (Ref 46), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	0.250	4.98	37.764	2329.393	0.203	0.2	-20.3	NO	1.000	NO	bb
2	2	181126M1_3	Standard	0.500	4.98	110.152	2448.447	0.562	0.5	3.0	NO	1.000	NO	bb
3	3	181126M1_4	Standard	1.000	4.98	237.631	2561.796	1.159	1.0	3.9	NO	1.000	NO	bb
4	4	181126M1_5	Standard	2.000	4.98	493.075	2603.493	2.367	2.1	4.9	NO	1.000	NO	bb
5	5	181126M1_6	Standard	5.000	4.98	1413.673	2769.347	6.381	5.6	12.4	NO	1.000	NO	bb
6	6	181126M1_7	Standard	10.000	4.98	2401.244	2637.660	11.380	10.0	-0.0	NO	1.000	NO	bb
7	7	181126M1_8	Standard	50.000	4.98	12441.413	2806.031	55.423	48.4	-3.1	NO	1.000	NO	bb
8	8	181126M1_9	Standard	100.000	4.99	23978.666	2666.454	112.409	97.8	-2.2	NO	1.000	NO	bb
9	9	181126M1_10	Standard	250.000	4.99	61185.637	2571.153	297.462	254.8	1.9	NO	1.000	NO	bb
10	10	181126M1_11	Standard	500.000	4.99	114742.234	2411.273	594.822	498.2	-0.4	NO	1.000	NO	bb

Compound name: L-PFOS
Correlation coefficient: r = 0.999291, r^2 = 0.998583
Calibration curve: 1.09502 * x + 0.0459904
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	0.250	5.03	84.610	3276.263	0.323	0.3	1.1	NO	0.999	NO	MM
2	2	181126M1_3	Standard	0.500	5.02	184.315	3416.156	0.674	0.6	14.8	NO	0.999	NO	MM
3	3	181126M1_4	Standard	1.000	5.03	353.854	3743.129	1.182	1.0	3.7	NO	0.999	NO	MM
4	4	181126M1_5	Standard	2.000	5.03	653.485	3748.331	2.179	1.9	-2.6	NO	0.999	NO	MM
5	5	181126M1_6	Standard	5.000	5.03	1798.805	3674.965	6.118	5.5	10.9	NO	0.999	NO	MM
6	6	181126M1_7	Standard	10.000	5.03	2942.006	3393.818	10.836	9.9	-1.5	NO	0.999	NO	MM
7	7	181126M1_8	Standard	50.000	5.03	15189.169	3698.358	51.338	46.8	-6.3	NO	0.999	NO	MM
8	8	181126M1_9	Standard	100.000	5.03	29498.684	3638.886	101.331	92.5	-7.5	NO	0.999	NO	MM
9	9	181126M1_10	Standard	250.000	5.03	72760.766	3187.154	285.367	260.6	4.2	NO	0.999	NO	MM
10	10	181126M1_11	Standard	500.000	5.03	127245.672	2906.952	547.161	499.6	-0.1	NO	0.999	NO	MM

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Compound name: PFDA
Coefficient of Determination: R^2 = 0.999437
Calibration curve: -0.000121158 * x^2 + 1.3134 * x + 0.026774
Response type: Internal Std (Ref 48), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	0.250	5.31	493.215	21127.947	0.292	0.2	-19.3	NO	0.999	NO	bb
2	2	181126M1_3	Standard	0.500	5.31	1055.351	20915.982	0.631	0.5	-8.0	NO	0.999	NO	bb
3	3	181126M1_4	Standard	1.000	5.31	2556.062	22735.521	1.405	1.0	5.0	NO	0.999	NO	bb
4	4	181126M1_5	Standard	2.000	5.32	4856.033	22345.748	2.716	2.0	2.4	NO	0.999	NO	bb
5	5	181126M1_6	Standard	5.000	5.31	14504.808	21456.660	8.450	6.4	28.3	NO	0.999	NO	bb
6	6	181126M1_7	Standard	10.000	5.32	21679.984	22033.270	12.300	9.4	-6.5	NO	0.999	NO	bb
7	7	181126M1_8	Standard	50.000	5.32	113078.391	22018.436	64.195	49.1	-1.8	NO	0.999	NO	bb
8	8	181126M1_9	Standard	100.000	5.32	219513.250	21141.234	129.790	99.7	-0.3	NO	0.999	NO	bb
9	9	181126M1_10	Standard	250.000	5.32	513148.719	19950.951	321.506	250.6	0.2	NO	0.999	NO	bb
10	10	181126M1_11	Standard	500.000	5.33	913019.563	18223.094	626.279	499.9	-0.0	NO	0.999	NO	bb

Compound name: 8:2 FTS
Coefficient of Determination: R^2 = 0.998754
Calibration curve: -0.0045567 * x^2 + 1.55189 * x + 0.0660151
Response type: Internal Std (Ref 49), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	0.250	5.28	148.253	4148.165	0.447	0.2	-1.8	NO	0.999	NO	bb
2	2	181126M1_3	Standard	0.500	5.28	290.829	4224.977	0.860	0.5	2.5	NO	0.999	NO	bb
3	3	181126M1_4	Standard	1.000	5.28	463.741	4109.911	1.410	0.9	-13.1	NO	0.999	NO	bb
4	4	181126M1_5	Standard	2.000	5.28	953.692	3657.264	3.260	2.1	3.5	NO	0.999	NO	bb
5	5	181126M1_6	Standard	5.000	5.28	2650.359	3800.459	8.717	5.7	13.4	NO	0.999	NO	bb
6	6	181126M1_7	Standard	10.000	5.29	4293.809	3672.164	14.616	9.6	-3.5	NO	0.999	NO	bb
7	7	181126M1_8	Standard	50.000	5.28	21138.963	4037.449	65.447	49.3	-1.5	NO	0.999	NO	bb
8	8	181126M1_9	Standard	100.000	5.29	38432.820	4363.402	110.100	100.6	0.6	NO	0.999	NO	bb
9	9	181126M1_10	Standard	250.000	5.29	81069.391	5899.837	171.762			NO	0.999	NO	bbXI
10	10	181126M1_11	Standard	500.000	5.29	131198.281	7314.130	224.221			NO	0.999	YES	bbXI

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Compound name: PFNS
Coefficient of Determination: R^2 = 0.998671
Calibration curve: -6.14234e-005 * x^2 + 0.762317 * x + 0.0530889
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	0.250	5.38	71.132	3276.263	0.271	0.3	14.5	NO	0.999	NO	bb
2	2	181126M1_3	Standard	0.500	5.38	88.689	3416.156	0.325	0.4	-28.8	NO	0.999	NO	bb
3	3	181126M1_4	Standard	1.000	5.38	264.160	3743.129	0.882	1.1	8.8	NO	0.999	NO	bb
4	4	181126M1_5	Standard	2.000	5.38	447.030	3748.331	1.491	1.9	-5.7	NO	0.999	NO	bb
5	5	181126M1_6	Standard	5.000	5.38	1279.236	3674.965	4.351	5.6	12.8	NO	0.999	NO	bb
6	6	181126M1_7	Standard	10.000	5.38	2185.486	3393.818	8.050	10.5	5.0	NO	0.999	NO	bb
7	7	181126M1_8	Standard	50.000	5.38	10731.038	3698.358	36.270	47.7	-4.6	NO	0.999	NO	bb
8	8	181126M1_9	Standard	100.000	5.39	20767.127	3638.886	71.338	94.2	-5.8	NO	0.999	NO	bb
9	9	181126M1_10	Standard	250.000	5.38	49811.875	3187.154	195.362	261.7	4.7	NO	0.999	NO	bb
10	10	181126M1_11	Standard	500.000	5.39	84324.992	2906.952	362.601	495.4	-0.9	NO	0.999	NO	bb

Compound name: L-MeFOSAA
Coefficient of Determination: R^2 = 0.998550
Calibration curve: -0.00052965 * x^2 + 2.90523 * x + 0.0881852
Response type: Internal Std (Ref 50), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	0.250	5.47	110.370	3699.583	0.373	0.1	-60.8	YES	0.999	NO	MMX
2	2	181126M1_3	Standard	0.500	5.47	405.738	3511.724	1.444	0.5	-6.6	NO	0.999	NO	MM
3	3	181126M1_4	Standard	1.000	5.47	973.701	3825.910	3.181	1.1	6.5	NO	0.999	NO	MM
4	4	181126M1_5	Standard	2.000	5.48	1860.614	3744.315	6.211	2.1	5.4	NO	0.999	NO	MM
5	5	181126M1_6	Standard	5.000	5.47	4599.163	3621.836	15.873	5.4	8.8	NO	0.999	NO	MM
6	6	181126M1_7	Standard	10.000	5.48	8016.689	3678.562	27.241	9.4	-6.4	NO	0.999	NO	MM
7	7	181126M1_8	Standard	50.000	5.48	42003.703	3541.941	148.237	51.5	3.0	NO	0.999	NO	MM
8	8	181126M1_9	Standard	100.000	5.48	79657.992	3788.505	262.828	92.0	-8.0	NO	0.999	NO	MM
9	9	181126M1_10	Standard	250.000	5.48	188039.656	3255.628	721.979	260.9	4.4	NO	0.999	NO	MM
10	10	181126M1_11	Standard	500.000	5.48	330967.375	3157.978	1310.045	495.7	-0.9	NO	0.999	NO	MM

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Compound name: L-EtFOSAA
Coefficient of Determination: R^2 = 0.999862
Calibration curve: 0.000386736 * x^2 + 1.61077 * x + 0.0602011
Response type: Internal Std (Ref 52), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	0.250	5.63	146.384	4528.725	0.404	0.2	-14.6	NO	1.000	NO	MM
2	2	181126M1_3	Standard	0.500	5.63	332.970	5076.554	0.820	0.5	-5.7	NO	1.000	NO	MM
3	3	181126M1_4	Standard	1.000	5.63	779.600	5526.345	1.763	1.1	5.7	NO	1.000	NO	MM
4	4	181126M1_5	Standard	2.000	5.63	1485.310	5456.494	3.403	2.1	3.7	NO	1.000	NO	MM
5	5	181126M1_6	Standard	5.000	5.63	4041.750	5491.763	9.200	5.7	13.3	NO	1.000	NO	MM
6	6	181126M1_7	Standard	10.000	5.63	6876.887	5467.541	15.722	9.7	-3.0	NO	1.000	NO	MM
7	7	181126M1_8	Standard	50.000	5.63	34404.953	5239.788	82.076	50.3	0.6	NO	1.000	NO	MM
8	8	181126M1_9	Standard	100.000	5.63	64816.547	4876.164	166.157	100.7	0.7	NO	1.000	NO	MM
9	9	181126M1_10	Standard	250.000	5.63	148925.406	4403.293	422.767	247.7	-0.9	NO	1.000	NO	MM
10	10	181126M1_11	Standard	500.000	5.63	256751.625	3550.520	903.923	500.9	0.2	NO	1.000	NO	MM

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Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112618.mdb 26 Nov 2018 13:53:04
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Compound name: PFUdA
Coefficient of Determination: R^2 = 0.999703
Calibration curve: -0.000152898 * x^2 + 0.969236 * x + 0.0723136
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	0.250	5.64	595.664	25976.096	0.287	0.2	-11.5	NO	1.000	NO	bd
2	2	181126M1_3	Standard	0.500	5.65	1120.343	25586.691	0.547	0.5	-2.0	NO	1.000	NO	bb
3	3	181126M1_4	Standard	1.000	5.65	2211.564	27670.049	0.999	1.0	-4.4	NO	1.000	NO	db
4	4	181126M1_5	Standard	2.000	5.65	4563.838	26258.051	2.173	2.2	8.4	NO	1.000	NO	bb
5	5	181126M1_6	Standard	5.000	5.65	12366.179	27247.850	5.673	5.8	15.7	NO	1.000	NO	bb
6	6	181126M1_7	Standard	10.000	5.65	19330.379	25918.631	9.323	9.6	-4.4	NO	1.000	NO	bb
7	7	181126M1_8	Standard	50.000	5.65	100258.570	26225.896	47.786	49.6	-0.8	NO	1.000	NO	bb
8	8	181126M1_9	Standard	100.000	5.65	191519.938	25584.975	93.571	98.0	-2.0	NO	1.000	NO	bb
9	9	181126M1_10	Standard	250.000	5.65	441344.219	23407.137	235.689	253.2	1.3	NO	1.000	NO	bb
10	10	181126M1_11	Standard	500.000	5.65	761098.375	21357.555	445.450	498.8	-0.2	NO	1.000	NO	bb

Compound name: PFDS
Coefficient of Determination: R^2 = 0.998317
Calibration curve: -0.000138966 * x^2 + 1.04937 * x + 0.0115389
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	0.250	5.69	61.728	3276.263	0.236	0.2	-14.6	NO	0.998	NO	bb
2	2	181126M1_3	Standard	0.500	5.69	164.466	3416.156	0.602	0.6	12.5	NO	0.998	NO	bb
3	3	181126M1_4	Standard	1.000	5.69	281.841	3743.129	0.941	0.9	-11.4	NO	0.998	NO	bb
4	4	181126M1_5	Standard	2.000	5.70	697.649	3748.331	2.327	2.2	10.3	NO	0.998	NO	bb
5	5	181126M1_6	Standard	5.000	5.69	1721.918	3674.965	5.857	5.6	11.5	NO	0.998	NO	bb
6	6	181126M1_7	Standard	10.000	5.70	2829.394	3393.818	10.421	9.9	-0.7	NO	0.998	NO	bb
7	7	181126M1_8	Standard	50.000	5.70	14431.456	3698.358	48.777	46.8	-6.5	NO	0.998	NO	bb
8	8	181126M1_9	Standard	100.000	5.70	28465.041	3638.886	97.781	94.3	-5.7	NO	0.998	NO	bb
9	9	181126M1_10	Standard	250.000	5.70	68244.000	3187.154	267.653	264.3	5.7	NO	0.998	NO	bb
10	10	181126M1_11	Standard	500.000	5.70	112661.602	2906.952	484.449	494.0	-1.2	NO	0.998	NO	bb

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Compound name: PFDoA
Coefficient of Determination: R^2 = 0.999868
Calibration curve: -0.000134587 * x^2 + 1.16156 * x + 0.0671424
Response type: Internal Std (Ref 53), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	0.250	5.93	645.754	25354.904	0.318	0.2	-13.5	NO	1.000	NO	bb
2	2	181126M1_3	Standard	0.500	5.93	1238.638	25224.803	0.614	0.5	-5.9	NO	1.000	NO	bd
3	3	181126M1_4	Standard	1.000	5.93	2640.428	26488.537	1.246	1.0	1.5	NO	1.000	NO	bb
4	4	181126M1_5	Standard	2.000	5.93	5064.328	25356.541	2.497	2.1	4.6	NO	1.000	NO	bb
5	5	181126M1_6	Standard	5.000	5.93	13815.301	27050.830	6.384	5.4	8.8	NO	1.000	NO	bb
6	6	181126M1_7	Standard	10.000	5.93	23006.129	23270.566	12.358	10.6	5.9	NO	1.000	NO	bb
7	7	181126M1_8	Standard	50.000	5.93	115967.875	25114.900	57.719	49.9	-0.2	NO	1.000	NO	bb
8	8	181126M1_9	Standard	100.000	5.93	220463.922	24371.867	113.073	98.4	-1.6	NO	1.000	NO	bb
9	9	181126M1_10	Standard	250.000	5.93	523928.125	23172.217	282.627	250.5	0.2	NO	1.000	NO	bb
10	10	181126M1_11	Standard	500.000	5.93	906910.813	20714.875	547.258	500.1	0.0	NO	1.000	NO	bb

Compound name: N-MeFOSA
Coefficient of Determination: R^2 = 0.999421
Calibration curve: -3.87935e-005 * x^2 + 0.953523 * x + 0.468324
Response type: Internal Std (Ref 54), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	1.250	5.93	119.766	11953.504	1.503	1.1	-13.2	NO	0.999	NO	bb
2	2	181126M1_3	Standard	2.500	5.94	247.098	11746.337	3.155	2.8	12.7	NO	0.999	NO	bb
3	3	181126M1_4	Standard	5.000	5.94	443.889	11694.007	5.694	5.5	9.6	NO	0.999	NO	bb
4	4	181126M1_5	Standard	10.000	5.94	851.844	11465.957	11.144	11.2	12.0	NO	0.999	NO	bb
5	5	181126M1_6	Standard	25.000	5.94	2224.112	11840.089	28.177	29.1	16.4	NO	0.999	NO	bb
6	6	181126M1_7	Standard	50.000	5.94	3701.474	11131.010	49.881	51.9	3.9	NO	0.999	NO	bb
7	7	181126M1_8	Standard	250.000	5.94	18637.240	12241.498	228.370	241.4	-3.4	NO	0.999	NO	bb
8	8	181126M1_9	Standard	500.000	5.95	37200.367	11611.420	480.566	514.3	2.9	NO	0.999	NO	bb
9	9	181126M1_10	Standard	1250.000	5.95	87847.688	11864.808	1110.608	1225.3	-2.0	NO	0.999	NO	bb
10	10	181126M1_11	Standard	2500.000	5.95	161531.891	11267.006	2150.508	2511.4	0.5	NO	0.999	NO	bb

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Compound name: PFTrDA
Coefficient of Determination: R^2 = 0.999827
Calibration curve: -4.24277e-005 * x^2 + 1.15539 * x + 0.0691663
Response type: Internal Std (Ref 53), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	0.250	6.17	650.821	25354.904	0.321	0.2	-12.9	NO	1.000	NO	bd
2	2	181126M1_3	Standard	0.500	6.18	1256.560	25224.803	0.623	0.5	-4.2	NO	1.000	NO	bb
3	3	181126M1_4	Standard	1.000	6.18	2471.074	26488.537	1.166	0.9	-5.1	NO	1.000	NO	bb
4	4	181126M1_5	Standard	2.000	6.18	5185.712	25356.541	2.556	2.2	7.6	NO	1.000	NO	bb
5	5	181126M1_6	Standard	5.000	6.18	14089.136	27050.830	6.510	5.6	11.5	NO	1.000	NO	bb
6	6	181126M1_7	Standard	10.000	6.18	22218.727	23270.566	11.935	10.3	2.7	NO	1.000	NO	bb
7	7	181126M1_8	Standard	50.000	6.18	118548.289	25114.900	59.003	51.1	2.2	NO	1.000	NO	bb
8	8	181126M1_9	Standard	100.000	6.18	220604.203	24371.867	113.145	98.2	-1.8	NO	1.000	NO	bb
9	9	181126M1_10	Standard	250.000	6.18	528676.313	23172.217	285.189	249.1	-0.4	NO	1.000	NO	bb
10	10	181126M1_11	Standard	500.000	6.18	941217.875	20714.875	567.960	500.7	0.1	NO	1.000	NO	bb

Compound name: PFTeDA
Coefficient of Determination: R^2 = 0.999640
Calibration curve: -0.000300636 * x^2 + 1.62832 * x + 0.0899878
Response type: Internal Std (Ref 55), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	0.250	6.39	539.250	14333.310	0.470	0.2	-6.6	NO	1.000	NO	bb
2	2	181126M1_3	Standard	0.500	6.40	1051.210	14532.341	0.904	0.5	0.0	NO	1.000	NO	bb
3	3	181126M1_4	Standard	1.000	6.40	2050.983	15629.965	1.640	1.0	-4.8	NO	1.000	NO	bb
4	4	181126M1_5	Standard	2.000	6.39	4309.994	15493.746	3.477	2.1	4.0	NO	1.000	NO	bb
5	5	181126M1_6	Standard	5.000	6.40	11641.705	15853.647	9.179	5.6	11.8	NO	1.000	NO	bb
6	6	181126M1_7	Standard	10.000	6.40	19449.658	14923.140	16.292	10.0	-0.3	NO	1.000	NO	bb
7	7	181126M1_8	Standard	50.000	6.40	100572.320	16310.112	77.078	47.7	-4.6	NO	1.000	NO	bb
8	8	181126M1_9	Standard	100.000	6.40	196100.344	15502.673	158.118	98.9	-1.1	NO	1.000	NO	bb
9	9	181126M1_10	Standard	250.000	6.39	469956.969	14833.304	396.032	255.2	2.1	NO	1.000	NO	bb
10	10	181126M1_11	Standard	500.000	6.40	791250.375	13438.607	735.986	497.7	-0.5	NO	1.000	NO	bb

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Compound name: N-EtFOSA
Coefficient of Determination: R^2 = 0.999752
Calibration curve: -4.89024e-005 * x^2 + 0.875046 * x + 0.265554
Response type: Internal Std (Ref 56), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	1.250	6.43	140.858	15262.959	1.384	1.3	2.3	NO	1.000	NO	bb
2	2 181126M1_3	Standard	2.500	6.43	232.454	16027.104	2.176	2.2	-12.7	NO	1.000	NO	bb
3	3 181126M1_4	Standard	5.000	6.43	585.605	18601.041	4.722	5.1	1.9	NO	1.000	NO	bb
4	4 181126M1_5	Standard	10.000	6.43	1230.676	19918.102	9.268	10.3	2.9	NO	1.000	NO	bb
5	5 181126M1_6	Standard	25.000	6.43	3266.325	20324.578	24.106	27.3	9.1	NO	1.000	NO	bb
6	6 181126M1_7	Standard	50.000	6.43	5529.787	19247.895	43.094	49.1	-1.8	NO	1.000	NO	bb
7	7 181126M1_8	Standard	250.000	6.43	28386.855	19814.482	214.895	248.7	-0.5	NO	1.000	NO	bb
8	8 181126M1_9	Standard	500.000	6.43	53878.910	19491.674	414.630	486.8	-2.6	NO	1.000	NO	bb
9	9 181126M1_10	Standard	1250.000	6.43	132572.609	19221.986	1034.539	1272.5	1.8	NO	1.000	NO	bb
10	10 181126M1_11	Standard	2500.000	6.43	224072.266	17915.363	1876.090	2490.3	-0.4	NO	1.000	NO	bb

Compound name: PFHxDA
Coefficient of Determination: R^2 = 0.998670
Calibration curve: -9.94628e-005 * x^2 + 0.395894 * x + 0.0669369
Response type: Internal Std (Ref 57), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	0.250	6.73	225.952	6889.798	0.164	0.2	-1.9	NO	0.999	NO	bb
2	2 181126M1_3	Standard	0.500	6.73	376.403	7098.292	0.265	0.5	0.1	NO	0.999	NO	bb
3	3 181126M1_4	Standard	1.000	6.73	727.130	8009.421	0.454	1.0	-2.2	NO	0.999	NO	bb
4	4 181126M1_5	Standard	2.000	6.73	1397.181	8091.949	0.863	2.0	0.6	NO	0.999	NO	bb
5	5 181126M1_6	Standard	5.000	6.73	4085.416	8466.808	2.413	5.9	18.7	NO	0.999	NO	MM
6	6 181126M1_7	Standard	10.000	6.73	5486.094	7582.587	3.618	9.0	-10.1	NO	0.999	NO	MM
7	7 181126M1_8	Standard	50.000	6.73	32428.545	8679.925	18.680	47.6	-4.8	NO	0.999	NO	bb
8	8 181126M1_9	Standard	100.000	6.74	63093.250	8488.328	37.165	96.0	-4.0	NO	0.999	NO	bb
9	9 181126M1_10	Standard	250.000	6.74	156318.594	8060.974	96.960	262.0	4.8	NO	0.999	NO	bb
10	10 181126M1_11	Standard	500.000	6.74	266713.313	7776.927	171.477	494.4	-1.1	NO	0.999	NO	bb

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Compound name: PFODA
Coefficient of Determination: R^2 = 0.999437
Calibration curve: -0.000110262 * x^2 + 0.704083 * x + 0.0275186
Response type: Internal Std (Ref 57), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	0.250	6.97	264.722	6889.798	0.192	0.2	-6.5	NO	0.999	NO	bb
2	2	181126M1_3	Standard	0.500	6.97	535.462	7098.292	0.377	0.5	-0.7	NO	0.999	NO	bb
3	3	181126M1_4	Standard	1.000	6.97	1192.476	8009.421	0.744	1.0	1.8	NO	0.999	NO	bb
4	4	181126M1_5	Standard	2.000	6.97	2386.819	8091.949	1.475	2.1	2.8	NO	0.999	NO	bb
5	5	181126M1_6	Standard	5.000	6.97	7024.528	8466.808	4.148	5.9	17.2	NO	0.999	NO	bb
6	6	181126M1_7	Standard	10.000	6.97	11199.354	7582.587	7.385	10.5	4.7	NO	0.999	NO	bb
7	7	181126M1_8	Standard	50.000	6.97	59971.836	8679.925	34.546	49.4	-1.2	NO	0.999	NO	bb
8	8	181126M1_9	Standard	100.000	6.97	112768.000	8488.328	66.425	95.7	-4.3	NO	0.999	NO	bb
9	9	181126M1_10	Standard	250.000	6.97	278318.969	8060.974	172.634	255.4	2.1	NO	0.999	NO	bb
10	10	181126M1_11	Standard	500.000	6.97	502972.500	7776.927	323.375	498.1	-0.4	NO	0.999	NO	bb

Compound name: N-MeFOSE
Coefficient of Determination: R^2 = 0.999885
Calibration curve: 1.26969e-005 * x^2 + 0.895945 * x + 0.479162
Response type: Internal Std (Ref 58), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	1.250	6.70	102.481	9613.644	1.599	1.2	-0.0	NO	1.000	NO	MM
2	2	181126M1_3	Standard	2.500	6.70	175.783	9970.688	2.644	2.4	-3.3	NO	1.000	NO	bb
3	3	181126M1_4	Standard	5.000	6.70	320.276	10409.790	4.615	4.6	-7.7	NO	1.000	NO	bb
4	4	181126M1_5	Standard	10.000	6.70	685.982	10378.408	9.915	10.5	5.3	NO	1.000	NO	bb
5	5	181126M1_6	Standard	25.000	6.69	1741.865	10389.321	25.149	27.5	10.1	NO	1.000	NO	bb
6	6	181126M1_7	Standard	50.000	6.70	2858.348	9705.995	44.174	48.7	-2.5	NO	1.000	NO	bb
7	7	181126M1_8	Standard	250.000	6.69	15229.308	10357.785	220.549	244.8	-2.1	NO	1.000	NO	bb
8	8	181126M1_9	Standard	500.000	6.70	30430.609	10143.168	450.016	498.2	-0.4	NO	1.000	NO	bb
9	9	181126M1_10	Standard	1250.000	6.70	78307.102	10223.422	1148.937	1259.4	0.7	NO	1.000	NO	bb
10	10	181126M1_11	Standard	2500.000	6.70	148090.328	9590.735	2316.147	2496.3	-0.1	NO	1.000	NO	bb

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Compound name: N-EtFOSE
Coefficient of Determination: R^2 = 0.999668
Calibration curve: 1.15732e-006 * x^2 + 1.14211 * x + 0.352591
Response type: Internal Std (Ref 59), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	1.250	6.84	93.317	8485.106	1.650	1.1	-9.1	NO	1.000	NO	bb
2	2 181126M1_3	Standard	2.500	6.84	177.386	8904.628	2.988	2.3	-7.7	NO	1.000	NO	bb
3	3 181126M1_4	Standard	5.000	6.84	435.865	9999.587	6.538	5.4	8.3	NO	1.000	NO	bb
4	4 181126M1_5	Standard	10.000	6.84	813.770	9705.979	12.576	10.7	7.0	NO	1.000	NO	bb
5	5 181126M1_6	Standard	25.000	6.84	2093.998	9902.425	31.719	27.5	9.9	NO	1.000	NO	bb
6	6 181126M1_7	Standard	50.000	6.84	3449.748	9565.112	54.099	47.1	-5.9	NO	1.000	NO	bb
7	7 181126M1_8	Standard	250.000	6.84	18169.016	9699.960	280.965	245.6	-1.7	NO	1.000	NO	bb
8	8 181126M1_9	Standard	500.000	6.85	36455.391	9803.931	557.767	487.8	-2.4	NO	1.000	NO	bb
9	9 181126M1_10	Standard	1250.000	6.84	93862.227	9641.881	1460.227	1276.6	2.1	NO	1.000	NO	bb
10	10 181126M1_11	Standard	2500.000	6.84	176096.641	9265.136	2850.956	2489.6	-0.4	NO	1.000	NO	bb

Compound name: 13C3-PFBA
Response Factor: 0.787485
RRF SD: 0.0228362, Relative SD: 2.89989
Response type: Internal Std (Ref 60), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	12.500	1.23	6270.790	7908.070	9.912	12.6	0.7	NO		NO	bb
2	2 181126M1_3	Standard	12.500	1.24	6633.369	8749.445	9.477	12.0	-3.7	NO		NO	MM
3	3 181126M1_4	Standard	12.500	1.24	6764.591	8407.808	10.057	12.8	2.2	NO		NO	bb
4	4 181126M1_5	Standard	12.500	1.24	7071.333	8750.237	10.102	12.8	2.6	NO		NO	MM
5	5 181126M1_6	Standard	12.500	1.24	6957.322	8717.376	9.976	12.7	1.3	NO		NO	bb
6	6 181126M1_7	Standard	12.500	1.24	6644.186	8412.910	9.872	12.5	0.3	NO		NO	bb
7	7 181126M1_8	Standard	12.500	1.24	6904.515	8782.584	9.827	12.5	-0.2	NO		NO	bb
8	8 181126M1_9	Standard	12.500	1.24	6776.515	8534.894	9.925	12.6	0.8	NO		NO	bb
9	9 181126M1_10	Standard	12.500	1.25	6830.738	8472.024	10.078	12.8	2.4	NO		NO	bb
10	10 181126M1_11	Standard	12.500	1.24	6694.321	9085.835	9.210	11.7	-6.4	NO		NO	MM

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Compound name: 13C3-PFPeA
Response Factor: 0.555876
RRF SD: 0.0136707, Relative SD: 2.45931
Response type: Internal Std (Ref 61), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	12.500	2.46	13715.434	25192.414	6.805	12.2	-2.1	NO		NO	bb
2	2 181126M1_3	Standard	12.500	2.47	13723.302	25514.697	6.723	12.1	-3.2	NO		NO	bb
3	3 181126M1_4	Standard	12.500	2.47	14561.754	26136.416	6.964	12.5	0.2	NO		NO	bb
4	4 181126M1_5	Standard	12.500	2.47	14296.794	26095.398	6.848	12.3	-1.4	NO		NO	bb
5	5 181126M1_6	Standard	12.500	2.47	14592.260	26363.371	6.919	12.4	-0.4	NO		NO	bb
6	6 181126M1_7	Standard	12.500	2.47	13932.524	25322.297	6.878	12.4	-1.0	NO		NO	bb
7	7 181126M1_8	Standard	12.500	2.47	14718.107	26522.105	6.937	12.5	-0.2	NO		NO	bb
8	8 181126M1_9	Standard	12.500	2.47	14155.756	25558.145	6.923	12.5	-0.4	NO		NO	bb
9	9 181126M1_10	Standard	12.500	2.47	13897.646	23924.270	7.261	13.1	4.5	NO		NO	bb
10	10 181126M1_11	Standard	12.500	2.47	12898.420	22313.770	7.226	13.0	4.0	NO		NO	bb

Compound name: 13C3-PFBS
Response Factor: 0.536974
RRF SD: 0.0212494, Relative SD: 3.95724
Response type: Internal Std (Ref 62), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	12.500	2.80	1786.299	3368.764	6.628	12.3	-1.3	NO		NO	bb
2	2 181126M1_3	Standard	12.500	2.80	1802.877	3301.831	6.825	12.7	1.7	NO		NO	bb
3	3 181126M1_4	Standard	12.500	2.80	1800.875	3474.822	6.478	12.1	-3.5	NO		NO	bb
4	4 181126M1_5	Standard	12.500	2.80	1859.173	3365.570	6.905	12.9	2.9	NO		NO	bd
5	5 181126M1_6	Standard	12.500	2.81	1822.236	3524.441	6.463	12.0	-3.7	NO		NO	bb
6	6 181126M1_7	Standard	12.500	2.80	1802.554	3327.563	6.771	12.6	0.9	NO		NO	bb
7	7 181126M1_8	Standard	12.500	2.81	1924.595	3604.044	6.675	12.4	-0.6	NO		NO	bb
8	8 181126M1_9	Standard	12.500	2.81	1781.169	3316.433	6.713	12.5	0.0	NO		NO	bb
9	9 181126M1_10	Standard	12.500	2.81	1561.142	3064.151	6.369	11.9	-5.1	NO		NO	bb
10	10 181126M1_11	Standard	12.500	2.81	1493.188	2559.058	7.294	13.6	8.7	NO		NO	bb

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Compound name: 13C2-4:2 FTS
Response Factor: 1.47815
RRF SD: 0.100555, Relative SD: 6.80276
Response type: Internal Std (Ref 62), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	12.500	3.27	4949.353	3368.764	18.365	12.4	-0.6	NO		NO	bb
2	2 181126M1_3	Standard	12.500	3.28	4658.786	3301.831	17.637	11.9	-4.5	NO		NO	bb
3	3 181126M1_4	Standard	12.500	3.28	5081.407	3474.822	18.279	12.4	-1.1	NO		NO	bb
4	4 181126M1_5	Standard	12.500	3.28	4976.478	3365.570	18.483	12.5	0.0	NO		NO	bb
5	5 181126M1_6	Standard	12.500	3.28	4945.298	3524.441	17.539	11.9	-5.1	NO		NO	bb
6	6 181126M1_7	Standard	12.500	3.28	4705.861	3327.563	17.678	12.0	-4.3	NO		NO	bb
7	7 181126M1_8	Standard	12.500	3.28	5303.523	3604.044	18.394	12.4	-0.4	NO		NO	bd
8	8 181126M1_9	Standard	12.500	3.28	5688.242	3316.433	21.440	14.5	16.0	NO		NO	bb
9	9 181126M1_10	Standard	12.500	3.28	6866.882	3064.151	28.013	19.0	51.6	NO		NO	bbX
10	10 181126M1_11	Standard	12.500	3.28	8003.897	2559.058	39.096	26.4	111.6	NO		NO	bbX

Compound name: 13C2-PFHxA
Response Factor: 0.98836
RRF SD: 0.029012, Relative SD: 2.93537
Response type: Internal Std (Ref 61), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	5.000	3.36	9787.215	25192.414	4.856	4.9	-1.7	NO		NO	bb
2	2 181126M1_3	Standard	5.000	3.36	9629.179	25514.697	4.717	4.8	-4.5	NO		NO	bb
3	3 181126M1_4	Standard	5.000	3.36	10373.639	26136.416	4.961	5.0	0.4	NO		NO	bb
4	4 181126M1_5	Standard	5.000	3.36	10091.624	26095.398	4.834	4.9	-2.2	NO		NO	bb
5	5 181126M1_6	Standard	5.000	3.37	10427.667	26363.371	4.944	5.0	0.0	NO		NO	bb
6	6 181126M1_7	Standard	5.000	3.37	10138.645	25322.297	5.005	5.1	1.3	NO		NO	bb
7	7 181126M1_8	Standard	5.000	3.37	10164.805	26522.105	4.791	4.8	-3.1	NO		NO	bb
8	8 181126M1_9	Standard	5.000	3.37	10236.929	25558.145	5.007	5.1	1.3	NO		NO	bb
9	9 181126M1_10	Standard	5.000	3.37	9817.484	23924.270	5.129	5.2	3.8	NO		NO	bb
10	10 181126M1_11	Standard	5.000	3.37	9234.549	22313.770	5.173	5.2	4.7	NO		NO	bb

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Compound name: 13C4-PFHpA
Response Factor: 0.536542
RRF SD: 0.0222304, Relative SD: 4.14328
Response type: Internal Std (Ref 61), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	12.500	4.02	14063.499	25192.414	6.978	13.0	4.0	NO		NO	bb
2	2 181126M1_3	Standard	12.500	4.02	14566.622	25514.697	7.136	13.3	6.4	NO		NO	bb
3	3 181126M1_4	Standard	12.500	4.02	14599.738	26136.416	6.982	13.0	4.1	NO		NO	bb
4	4 181126M1_5	Standard	12.500	4.02	13961.896	26095.398	6.688	12.5	-0.3	NO		NO	bb
5	5 181126M1_6	Standard	12.500	4.02	14034.775	26363.371	6.654	12.4	-0.8	NO		NO	bb
6	6 181126M1_7	Standard	12.500	4.02	13678.921	25322.297	6.752	12.6	0.7	NO		NO	bb
7	7 181126M1_8	Standard	12.500	4.02	14249.999	26522.105	6.716	12.5	0.1	NO		NO	bb
8	8 181126M1_9	Standard	12.500	4.03	13058.787	25558.145	6.387	11.9	-4.8	NO		NO	bb
9	9 181126M1_10	Standard	12.500	4.03	12520.175	23924.270	6.542	12.2	-2.5	NO		NO	bb
10	10 181126M1_11	Standard	12.500	4.03	11123.910	22313.770	6.232	11.6	-7.1	NO		NO	bb

Compound name: 18O2-PFHxS
Response Factor: 0.448083
RRF SD: 0.0160995, Relative SD: 3.59298
Response type: Internal Std (Ref 62), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	12.500	4.16	1490.698	3368.764	5.531	12.3	-1.2	NO		NO	bb
2	2 181126M1_3	Standard	12.500	4.16	1447.785	3301.831	5.481	12.2	-2.1	NO		NO	bb
3	3 181126M1_4	Standard	12.500	4.16	1581.371	3474.822	5.689	12.7	1.6	NO		NO	bb
4	4 181126M1_5	Standard	12.500	4.16	1558.457	3365.570	5.788	12.9	3.3	NO		NO	bb
5	5 181126M1_6	Standard	12.500	4.16	1526.846	3524.441	5.415	12.1	-3.3	NO		NO	bb
6	6 181126M1_7	Standard	12.500	4.16	1542.694	3327.563	5.795	12.9	3.5	NO		NO	bb
7	7 181126M1_8	Standard	12.500	4.16	1579.074	3604.044	5.477	12.2	-2.2	NO		NO	bb
8	8 181126M1_9	Standard	12.500	4.16	1478.125	3316.433	5.571	12.4	-0.5	NO		NO	bb
9	9 181126M1_10	Standard	12.500	4.16	1300.621	3064.151	5.306	11.8	-5.3	NO		NO	bb
10	10 181126M1_11	Standard	12.500	4.16	1219.567	2559.058	5.957	13.3	6.4	NO		NO	bb

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Compound name: 13C2-6:2 FTS
Response Factor: 1.56299
RRF SD: 0.106642, Relative SD: 6.82298
Response type: Internal Std (Ref 65), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	12.500	4.46	5225.320	3462.963	18.861	12.1	-3.5	NO		NO	bb
2	2 181126M1_3	Standard	12.500	4.46	5165.596	3224.760	20.023	12.8	2.5	NO		NO	bb
3	3 181126M1_4	Standard	12.500	4.46	5387.143	3512.134	19.173	12.3	-1.9	NO		NO	bb
4	4 181126M1_5	Standard	12.500	4.46	5074.225	3358.832	18.884	12.1	-3.3	NO		NO	bb
5	5 181126M1_6	Standard	12.500	4.46	5181.676	3378.300	19.173	12.3	-1.9	NO		NO	bb
6	6 181126M1_7	Standard	12.500	4.46	4894.738	3393.990	18.027	11.5	-7.7	NO		NO	bb
7	7 181126M1_8	Standard	12.500	4.46	5563.122	3536.995	19.660	12.6	0.6	NO		NO	bb
8	8 181126M1_9	Standard	12.500	4.46	6022.125	3346.116	22.497	14.4	15.1	NO		NO	bb
9	9 181126M1_10	Standard	12.500	4.46	7202.659	3217.784	27.980	17.9	43.2	NO		NO	bbX
10	10 181126M1_11	Standard	12.500	4.46	9468.253	2856.125	41.438	26.5	112.1	NO		NO	bbX

Compound name: 13C2-PFOA
Response Factor: 0.754885
RRF SD: 0.0195047, Relative SD: 2.5838
Response type: Internal Std (Ref 63), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	12.500	4.50	24359.602	30823.398	9.879	13.1	4.7	NO		NO	bb
2	2 181126M1_3	Standard	12.500	4.51	24354.520	31989.600	9.517	12.6	0.9	NO		NO	bb
3	3 181126M1_4	Standard	12.500	4.51	24178.301	32072.896	9.423	12.5	-0.1	NO		NO	bb
4	4 181126M1_5	Standard	12.500	4.51	23443.150	31406.428	9.331	12.4	-1.1	NO		NO	bb
5	5 181126M1_6	Standard	12.500	4.51	23552.342	31457.979	9.359	12.4	-0.8	NO		NO	bb
6	6 181126M1_7	Standard	12.500	4.51	22507.277	30564.838	9.205	12.2	-2.5	NO		NO	bb
7	7 181126M1_8	Standard	12.500	4.51	23848.943	32979.738	9.039	12.0	-4.2	NO		NO	bb
8	8 181126M1_9	Standard	12.500	4.52	22357.822	29964.543	9.327	12.4	-1.2	NO		NO	bb
9	9 181126M1_10	Standard	12.500	4.52	21588.547	28178.553	9.577	12.7	1.5	NO		NO	bb
10	10 181126M1_11	Standard	12.500	4.52	19958.678	25705.412	9.705	12.9	2.9	NO		NO	bb

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Compound name: 13C5-PFNA
Response Factor: 0.990648
RRF SD: 0.0224267, Relative SD: 2.26384
Response type: Internal Std (Ref 64), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	12.500	4.93	22295.369	22519.746	12.375	12.5	-0.1	NO		NO	bb
2	2 181126M1_3	Standard	12.500	4.94	21931.633	22448.209	12.212	12.3	-1.4	NO		NO	bb
3	3 181126M1_4	Standard	12.500	4.94	23014.137	22991.566	12.512	12.6	1.0	NO		NO	bb
4	4 181126M1_5	Standard	12.500	4.94	22367.645	23074.576	12.117	12.2	-2.1	NO		NO	bb
5	5 181126M1_6	Standard	12.500	4.94	23199.723	22849.063	12.692	12.8	2.5	NO		NO	bb
6	6 181126M1_7	Standard	12.500	4.94	22312.191	21600.799	12.912	13.0	4.3	NO		NO	bb
7	7 181126M1_8	Standard	12.500	4.94	22610.824	22741.340	12.428	12.5	0.4	NO		NO	bb
8	8 181126M1_9	Standard	12.500	4.94	21568.918	22540.299	11.961	12.1	-3.4	NO		NO	bb
9	9 181126M1_10	Standard	12.500	4.94	20252.943	20378.484	12.423	12.5	0.3	NO		NO	bb
10	10 181126M1_11	Standard	12.500	4.94	18084.188	18532.297	12.198	12.3	-1.5	NO		NO	bb

Compound name: 13C8-PFOSA
Response Factor: 0.0971265
RRF SD: 0.0077469, Relative SD: 7.9761
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	12.500	4.98	2329.393	26672.982	1.092	11.2	-10.1	NO		NO	bb
2	2 181126M1_3	Standard	12.500	4.99	2448.447	26794.484	1.142	11.8	-5.9	NO		NO	bb
3	3 181126M1_4	Standard	12.500	4.98	2561.796	28575.072	1.121	11.5	-7.7	NO		NO	bb
4	4 181126M1_5	Standard	12.500	4.99	2603.493	28337.990	1.148	11.8	-5.4	NO		NO	bb
5	5 181126M1_6	Standard	12.500	4.99	2769.347	28551.758	1.212	12.5	-0.1	NO		NO	bb
6	6 181126M1_7	Standard	12.500	4.99	2637.660	27162.783	1.214	12.5	-0.0	NO		NO	bb
7	7 181126M1_8	Standard	12.500	4.99	2806.031	28301.350	1.239	12.8	2.1	NO		NO	bb
8	8 181126M1_9	Standard	12.500	4.99	2666.454	26656.619	1.250	12.9	3.0	NO		NO	bb
9	9 181126M1_10	Standard	12.500	4.99	2571.153	24614.043	1.306	13.4	7.5	NO		NO	bb
10	10 181126M1_11	Standard	12.500	4.99	2411.273	21283.375	1.416	14.6	16.6	NO		NO	bb

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Compound name: 13C8-PFOS
Response Factor: 1.04163
RRF SD: 0.0524138, Relative SD: 5.03189
Response type: Internal Std (Ref 65), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	12.500	5.02	3276.263	3462.963	11.826	11.4	-9.2	NO		NO	bb
2	2 181126M1_3	Standard	12.500	5.02	3416.156	3224.760	13.242	12.7	1.7	NO		NO	bb
3	3 181126M1_4	Standard	12.500	5.03	3743.129	3512.134	13.322	12.8	2.3	NO		NO	bb
4	4 181126M1_5	Standard	12.500	5.03	3748.331	3358.832	13.950	13.4	7.1	NO		NO	bb
5	5 181126M1_6	Standard	12.500	5.03	3674.965	3378.300	13.598	13.1	4.4	NO		NO	bb
6	6 181126M1_7	Standard	12.500	5.03	3393.818	3393.990	12.499	12.0	-4.0	NO		NO	bb
7	7 181126M1_8	Standard	12.500	5.03	3698.358	3536.995	13.070	12.5	0.4	NO		NO	bb
8	8 181126M1_9	Standard	12.500	5.03	3638.886	3346.116	13.594	13.1	4.4	NO		NO	bb
9	9 181126M1_10	Standard	12.500	5.03	3187.154	3217.784	12.381	11.9	-4.9	NO		NO	bb
10	10 181126M1_11	Standard	12.500	5.03	2906.952	2856.125	12.722	12.2	-2.3	NO		NO	bb

Compound name: 13C2-PFDA
Response Factor: 0.902341
RRF SD: 0.0371522, Relative SD: 4.11731
Response type: Internal Std (Ref 66), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	12.500	5.31	21127.947	23842.426	11.077	12.3	-1.8	NO		NO	bb
2	2 181126M1_3	Standard	12.500	5.31	20915.982	24662.998	10.601	11.7	-6.0	NO		NO	bb
3	3 181126M1_4	Standard	12.500	5.31	22735.521	24277.797	11.706	13.0	3.8	NO		NO	bb
4	4 181126M1_5	Standard	12.500	5.32	22345.748	24205.205	11.540	12.8	2.3	NO		NO	bb
5	5 181126M1_6	Standard	12.500	5.31	21456.660	25346.094	10.582	11.7	-6.2	NO		NO	bb
6	6 181126M1_7	Standard	12.500	5.32	22033.270	23846.875	11.549	12.8	2.4	NO		NO	bb
7	7 181126M1_8	Standard	12.500	5.32	22018.436	24795.838	11.100	12.3	-1.6	NO		NO	bb
8	8 181126M1_9	Standard	12.500	5.32	21141.234	23591.418	11.202	12.4	-0.7	NO		NO	bb
9	9 181126M1_10	Standard	12.500	5.32	19950.951	21882.871	11.396	12.6	1.0	NO		NO	bb
10	10 181126M1_11	Standard	12.500	5.32	18223.094	18919.330	12.040	13.3	6.7	NO		NO	bb

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Compound name: 13C2-8:2 FTS
Response Factor: 1.17744
RRF SD: 0.0887368, Relative SD: 7.53641
Response type: Internal Std (Ref 65), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	12.500	5.28	4148.165	3462.963	14.973	12.7	1.7	NO		NO	bb
2	2	181126M1_3	Standard	12.500	5.28	4224.977	3224.760	16.377	13.9	11.3	NO		NO	bb
3	3	181126M1_4	Standard	12.500	5.29	4109.911	3512.134	14.628	12.4	-0.6	NO		NO	bb
4	4	181126M1_5	Standard	12.500	5.28	3657.264	3358.832	13.611	11.6	-7.5	NO		NO	bb
5	5	181126M1_6	Standard	12.500	5.29	3800.459	3378.300	14.062	11.9	-4.5	NO		NO	bb
6	6	181126M1_7	Standard	12.500	5.29	3672.164	3393.990	13.525	11.5	-8.1	NO		NO	bb
7	7	181126M1_8	Standard	12.500	5.29	4037.449	3536.995	14.269	12.1	-3.1	NO		NO	bb
8	8	181126M1_9	Standard	12.500	5.29	4363.402	3346.116	16.300	13.8	10.8	NO		NO	bb
9	9	181126M1_10	Standard	12.500	5.29	5899.837	3217.784	22.919	19.5	55.7	NO		NO	bbX
10	10	181126M1_11	Standard	12.500	5.29	7314.130	2856.125	32.011	27.2	117.5	NO		NO	bbX

Compound name: d3-N-MeFOSAA
Response Factor: 0.134598
RRF SD: 0.00697461, Relative SD: 5.18181
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	12.500	5.46	3699.583	26672.982	1.734	12.9	3.0	NO		NO	bb
2	2	181126M1_3	Standard	12.500	5.47	3511.724	26794.484	1.638	12.2	-2.6	NO		NO	bb
3	3	181126M1_4	Standard	12.500	5.47	3825.910	28575.072	1.674	12.4	-0.5	NO		NO	bb
4	4	181126M1_5	Standard	12.500	5.47	3744.315	28337.990	1.652	12.3	-1.8	NO		NO	bb
5	5	181126M1_6	Standard	12.500	5.47	3621.836	28551.758	1.586	11.8	-5.8	NO		NO	bb
6	6	181126M1_7	Standard	12.500	5.47	3678.562	27162.783	1.693	12.6	0.6	NO		NO	bb
7	7	181126M1_8	Standard	12.500	5.47	3541.941	28301.350	1.564	11.6	-7.0	NO		NO	bb
8	8	181126M1_9	Standard	12.500	5.47	3788.505	26656.619	1.777	13.2	5.6	NO		NO	bb
9	9	181126M1_10	Standard	12.500	5.47	3255.628	24614.043	1.653	12.3	-1.7	NO		NO	bb
10	10	181126M1_11	Standard	12.500	5.47	3157.978	21283.375	1.855	13.8	10.2	NO		NO	bb

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Compound name: 13C2-PFUdA
Response Factor: 0.957317
RRF SD: 0.0223124, Relative SD: 2.33072
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	12.500	5.64	25976.096	26672.982	12.173	12.7	1.7	NO		NO	bb
2	2	181126M1_3	Standard	12.500	5.65	25586.691	26794.484	11.937	12.5	-0.3	NO		NO	bb
3	3	181126M1_4	Standard	12.500	5.65	27670.049	28575.072	12.104	12.6	1.2	NO		NO	bb
4	4	181126M1_5	Standard	12.500	5.65	26258.051	28337.990	11.583	12.1	-3.2	NO		NO	bb
5	5	181126M1_6	Standard	12.500	5.64	27247.850	28551.758	11.929	12.5	-0.3	NO		NO	bb
6	6	181126M1_7	Standard	12.500	5.65	25918.631	27162.783	11.927	12.5	-0.3	NO		NO	bb
7	7	181126M1_8	Standard	12.500	5.65	26225.896	28301.350	11.583	12.1	-3.2	NO		NO	bb
8	8	181126M1_9	Standard	12.500	5.65	25584.975	26656.619	11.997	12.5	0.3	NO		NO	bb
9	9	181126M1_10	Standard	12.500	5.65	23407.137	24614.043	11.887	12.4	-0.7	NO		NO	bb
10	10	181126M1_11	Standard	12.500	5.65	21357.555	21283.375	12.544	13.1	4.8	NO		NO	bb

Compound name: d5-N-EtFOSAA
Response Factor: 0.185261
RRF SD: 0.0109011, Relative SD: 5.88419
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	12.500	5.62	4528.725	26672.982	2.122	11.5	-8.4	NO		NO	bb
2	2	181126M1_3	Standard	12.500	5.63	5076.554	26794.484	2.368	12.8	2.3	NO		NO	bb
3	3	181126M1_4	Standard	12.500	5.63	5526.345	28575.072	2.417	13.0	4.4	NO		NO	bb
4	4	181126M1_5	Standard	12.500	5.63	5456.494	28337.990	2.407	13.0	3.9	NO		NO	bb
5	5	181126M1_6	Standard	12.500	5.63	5491.763	28551.758	2.404	13.0	3.8	NO		NO	bb
6	6	181126M1_7	Standard	12.500	5.63	5467.541	27162.783	2.516	13.6	8.7	NO		NO	bb
7	7	181126M1_8	Standard	12.500	5.63	5239.788	28301.350	2.314	12.5	-0.1	NO		NO	bb
8	8	181126M1_9	Standard	12.500	5.63	4876.164	26656.619	2.287	12.3	-1.3	NO		NO	bb
9	9	181126M1_10	Standard	12.500	5.63	4403.293	24614.043	2.236	12.1	-3.4	NO		NO	bb
10	10	181126M1_11	Standard	12.500	5.63	3550.520	21283.375	2.085	11.3	-10.0	NO		NO	bb

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Compound name: 13C2-PFDoA
Response Factor: 1.04677
RRF SD: 0.0366194, Relative SD: 3.49832
Response type: Internal Std (Ref 66), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	12.500	5.92	25354.904	23842.426	13.293	12.7	1.6	NO		NO	bb
2	2 181126M1_3	Standard	12.500	5.93	25224.803	24662.998	12.785	12.2	-2.3	NO		NO	bb
3	3 181126M1_4	Standard	12.500	5.93	26488.537	24277.797	13.638	13.0	4.2	NO		NO	bb
4	4 181126M1_5	Standard	12.500	5.93	25356.541	24205.205	13.095	12.5	0.1	NO		NO	bb
5	5 181126M1_6	Standard	12.500	5.93	27050.830	25346.094	13.341	12.7	2.0	NO		NO	bb
6	6 181126M1_7	Standard	12.500	5.93	23270.566	23846.875	12.198	11.7	-6.8	NO		NO	bb
7	7 181126M1_8	Standard	12.500	5.93	25114.900	24795.838	12.661	12.1	-3.2	NO		NO	bb
8	8 181126M1_9	Standard	12.500	5.93	24371.867	23591.418	12.914	12.3	-1.3	NO		NO	bb
9	9 181126M1_10	Standard	12.500	5.93	23172.217	21882.871	13.237	12.6	1.2	NO		NO	bb
10	10 181126M1_11	Standard	12.500	5.93	20714.875	18919.330	13.686	13.1	4.6	NO		NO	bb

Compound name: d3-N-MeFOSA
Response Factor: 0.0367035
RRF SD: 0.00324533, Relative SD: 8.84204
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	150.000	5.97	11953.504	26672.982	5.602	152.6	1.8	NO		NO	bd
2	2 181126M1_3	Standard	150.000	5.97	11746.337	26794.484	5.480	149.3	-0.5	NO		NO	bb
3	3 181126M1_4	Standard	150.000	5.97	11694.007	28575.072	5.115	139.4	-7.1	NO		NO	bb
4	4 181126M1_5	Standard	150.000	5.98	11465.957	28337.990	5.058	137.8	-8.1	NO		NO	bb
5	5 181126M1_6	Standard	150.000	5.97	11840.089	28551.758	5.184	141.2	-5.8	NO		NO	bb
6	6 181126M1_7	Standard	150.000	5.98	11131.010	27162.783	5.122	139.6	-7.0	NO		NO	bb
7	7 181126M1_8	Standard	150.000	5.98	12241.498	28301.350	5.407	147.3	-1.8	NO		NO	bb
8	8 181126M1_9	Standard	150.000	5.98	11611.420	26656.619	5.445	148.3	-1.1	NO		NO	bb
9	9 181126M1_10	Standard	150.000	5.98	11864.808	24614.043	6.025	164.2	9.4	NO		NO	bb
10	10 181126M1_11	Standard	150.000	5.98	11267.006	21283.375	6.617	180.3	20.2	NO		NO	bb

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Compound name: 13C2-PFTeDA
Response Factor: 0.567004
RRF SD: 0.0306617, Relative SD: 5.40767
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	12.500	6.39	14333.310	26672.982	6.717	11.8	-5.2	NO		NO	bb
2	2 181126M1_3	Standard	12.500	6.40	14532.341	26794.484	6.780	12.0	-4.3	NO		NO	bb
3	3 181126M1_4	Standard	12.500	6.40	15629.965	28575.072	6.837	12.1	-3.5	NO		NO	bb
4	4 181126M1_5	Standard	12.500	6.40	15493.746	28337.990	6.834	12.1	-3.6	NO		NO	bb
5	5 181126M1_6	Standard	12.500	6.40	15853.647	28551.758	6.941	12.2	-2.1	NO		NO	bb
6	6 181126M1_7	Standard	12.500	6.40	14923.140	27162.783	6.867	12.1	-3.1	NO		NO	bb
7	7 181126M1_8	Standard	12.500	6.40	16310.112	28301.350	7.204	12.7	1.6	NO		NO	bb
8	8 181126M1_9	Standard	12.500	6.40	15502.673	26656.619	7.270	12.8	2.6	NO		NO	bb
9	9 181126M1_10	Standard	12.500	6.40	14833.304	24614.043	7.533	13.3	6.3	NO		NO	bb
10	10 181126M1_11	Standard	12.500	6.40	13438.607	21283.375	7.893	13.9	11.4	NO		NO	bb

Compound name: d5-N-ETFOSA
Response Factor: 0.0583225
RRF SD: 0.00662878, Relative SD: 11.3657
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	150.000	6.44	15262.959	26672.982	7.153	122.6	-18.2	NO		NO	bb
2	2 181126M1_3	Standard	150.000	6.45	16027.104	26794.484	7.477	128.2	-14.5	NO		NO	bb
3	3 181126M1_4	Standard	150.000	6.45	18601.041	28575.072	8.137	139.5	-7.0	NO		NO	bb
4	4 181126M1_5	Standard	150.000	6.45	19918.102	28337.990	8.786	150.6	0.4	NO		NO	bb
5	5 181126M1_6	Standard	150.000	6.45	20324.578	28551.758	8.898	152.6	1.7	NO		NO	bb
6	6 181126M1_7	Standard	150.000	6.45	19247.895	27162.783	8.858	151.9	1.2	NO		NO	bb
7	7 181126M1_8	Standard	150.000	6.45	19814.482	28301.350	8.752	150.1	0.0	NO		NO	bb
8	8 181126M1_9	Standard	150.000	6.45	19491.674	26656.619	9.140	156.7	4.5	NO		NO	bb
9	9 181126M1_10	Standard	150.000	6.45	19221.986	24614.043	9.762	167.4	11.6	NO		NO	bb
10	10 181126M1_11	Standard	150.000	6.45	17915.363	21283.375	10.522	180.4	20.3	NO		NO	bb

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Compound name: 13C2-PFHxDA
Response Factor: 0.745697
RRF SD: 0.0807983, Relative SD: 10.8353
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	5.000	6.73	6889.798	26672.982	3.229	4.3	-13.4	NO		NO	bb
2	2	181126M1_3	Standard	5.000	6.73	7098.292	26794.484	3.311	4.4	-11.2	NO		NO	bb
3	3	181126M1_4	Standard	5.000	6.73	8009.421	28575.072	3.504	4.7	-6.0	NO		NO	bb
4	4	181126M1_5	Standard	5.000	6.73	8091.949	28337.990	3.569	4.8	-4.3	NO		NO	bb
5	5	181126M1_6	Standard	5.000	6.73	8466.808	28551.758	3.707	5.0	-0.6	NO		NO	bb
6	6	181126M1_7	Standard	5.000	6.73	7582.587	27162.783	3.489	4.7	-6.4	NO		NO	bb
7	7	181126M1_8	Standard	5.000	6.73	8679.925	28301.350	3.834	5.1	2.8	NO		NO	bb
8	8	181126M1_9	Standard	5.000	6.74	8488.328	26656.619	3.980	5.3	6.8	NO		NO	bb
9	9	181126M1_10	Standard	5.000	6.73	8060.974	24614.043	4.094	5.5	9.8	NO		NO	bb
10	10	181126M1_11	Standard	5.000	6.74	7776.927	21283.375	4.567	6.1	22.5	NO		NO	bb

Compound name: d7-N-MeFOSE
Response Factor: 0.0316395
RRF SD: 0.00249814, Relative SD: 7.89562
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	150.000	6.68	9613.644	26672.982	4.505	142.4	-5.1	NO		NO	bb
2	2	181126M1_3	Standard	150.000	6.68	9970.688	26794.484	4.651	147.0	-2.0	NO		NO	bb
3	3	181126M1_4	Standard	150.000	6.68	10409.790	28575.072	4.554	143.9	-4.1	NO		NO	bb
4	4	181126M1_5	Standard	150.000	6.68	10378.408	28337.990	4.578	144.7	-3.5	NO		NO	bb
5	5	181126M1_6	Standard	150.000	6.68	10389.321	28551.758	4.548	143.8	-4.2	NO		NO	bb
6	6	181126M1_7	Standard	150.000	6.68	9705.995	27162.783	4.467	141.2	-5.9	NO		NO	bb
7	7	181126M1_8	Standard	150.000	6.68	10357.785	28301.350	4.575	144.6	-3.6	NO		NO	bb
8	8	181126M1_9	Standard	150.000	6.68	10143.168	26656.619	4.756	150.3	0.2	NO		NO	bb
9	9	181126M1_10	Standard	150.000	6.68	10223.422	24614.043	5.192	164.1	9.4	NO		NO	MM
10	10	181126M1_11	Standard	150.000	6.68	9590.735	21283.375	5.633	178.0	18.7	NO		NO	bb

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Compound name: d9-N-EtFOSE
Response Factor: 0.0298286
RRF SD: 0.00279971, Relative SD: 9.38599
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	150.000	6.83	8485.106	26672.982	3.976	133.3	-11.1	NO		NO	bb
2	2 181126M1_3	Standard	150.000	6.83	8904.628	26794.484	4.154	139.3	-7.2	NO		NO	bb
3	3 181126M1_4	Standard	150.000	6.83	9999.587	28575.072	4.374	146.6	-2.2	NO		NO	bb
4	4 181126M1_5	Standard	150.000	6.83	9705.979	28337.990	4.281	143.5	-4.3	NO		NO	bb
5	5 181126M1_6	Standard	150.000	6.83	9902.425	28551.758	4.335	145.3	-3.1	NO		NO	bb
6	6 181126M1_7	Standard	150.000	6.83	9565.112	27162.783	4.402	147.6	-1.6	NO		NO	bb
7	7 181126M1_8	Standard	150.000	6.83	9699.960	28301.350	4.284	143.6	-4.2	NO		NO	bb
8	8 181126M1_9	Standard	150.000	6.83	9803.931	26656.619	4.597	154.1	2.7	NO		NO	bb
9	9 181126M1_10	Standard	150.000	6.83	9641.881	24614.043	4.897	164.2	9.4	NO		NO	bb
10	10 181126M1_11	Standard	150.000	6.83	9265.136	21283.375	5.442	182.4	21.6	NO		NO	bb

Compound name: 13C4-PFBA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 60), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	12.500	1.24	7908.070	7908.070	12.500	12.5	0.0	NO		NO	bb
2	2 181126M1_3	Standard	12.500	1.24	8749.445	8749.445	12.500	12.5	0.0	NO		NO	db
3	3 181126M1_4	Standard	12.500	1.24	8407.808	8407.808	12.500	12.5	0.0	NO		NO	bb
4	4 181126M1_5	Standard	12.500	1.24	8750.237	8750.237	12.500	12.5	0.0	NO		NO	bb
5	5 181126M1_6	Standard	12.500	1.24	8717.376	8717.376	12.500	12.5	0.0	NO		NO	bb
6	6 181126M1_7	Standard	12.500	1.24	8412.910	8412.910	12.500	12.5	0.0	NO		NO	bb
7	7 181126M1_8	Standard	12.500	1.24	8782.584	8782.584	12.500	12.5	0.0	NO		NO	bb
8	8 181126M1_9	Standard	12.500	1.24	8534.894	8534.894	12.500	12.5	0.0	NO		NO	bb
9	9 181126M1_10	Standard	12.500	1.24	8472.024	8472.024	12.500	12.5	0.0	NO		NO	bb
10	10 181126M1_11	Standard	12.500	1.24	9085.835	9085.835	12.500	12.5	0.0	NO		NO	db

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

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Compound name: 13C5-PFHxA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 61), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	12.500	3.35	25192.414	25192.414	12.500	12.5	0.0	NO		NO	bb
2	2 181126M1_3	Standard	12.500	3.36	25514.697	25514.697	12.500	12.5	0.0	NO		NO	bb
3	3 181126M1_4	Standard	12.500	3.36	26136.416	26136.416	12.500	12.5	0.0	NO		NO	bb
4	4 181126M1_5	Standard	12.500	3.36	26095.398	26095.398	12.500	12.5	0.0	NO		NO	bb
5	5 181126M1_6	Standard	12.500	3.37	26363.371	26363.371	12.500	12.5	0.0	NO		NO	bb
6	6 181126M1_7	Standard	12.500	3.36	25322.297	25322.297	12.500	12.5	0.0	NO		NO	bb
7	7 181126M1_8	Standard	12.500	3.37	26522.105	26522.105	12.500	12.5	0.0	NO		NO	bb
8	8 181126M1_9	Standard	12.500	3.37	25558.145	25558.145	12.500	12.5	0.0	NO		NO	bb
9	9 181126M1_10	Standard	12.500	3.37	23924.270	23924.270	12.500	12.5	0.0	NO		NO	bb
10	10 181126M1_11	Standard	12.500	3.37	22313.770	22313.770	12.500	12.5	0.0	NO		NO	bb

Compound name: 13C3-PFHxS
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 62), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	12.500	4.16	3368.764	3368.764	12.500	12.5	0.0	NO		NO	bb
2	2 181126M1_3	Standard	12.500	4.16	3301.831	3301.831	12.500	12.5	0.0	NO		NO	bb
3	3 181126M1_4	Standard	12.500	4.16	3474.822	3474.822	12.500	12.5	0.0	NO		NO	bb
4	4 181126M1_5	Standard	12.500	4.16	3365.570	3365.570	12.500	12.5	0.0	NO		NO	bb
5	5 181126M1_6	Standard	12.500	4.16	3524.441	3524.441	12.500	12.5	0.0	NO		NO	bb
6	6 181126M1_7	Standard	12.500	4.16	3327.563	3327.563	12.500	12.5	0.0	NO		NO	bb
7	7 181126M1_8	Standard	12.500	4.16	3604.044	3604.044	12.500	12.5	0.0	NO		NO	bb
8	8 181126M1_9	Standard	12.500	4.16	3316.433	3316.433	12.500	12.5	0.0	NO		NO	bb
9	9 181126M1_10	Standard	12.500	4.16	3064.151	3064.151	12.500	12.5	0.0	NO		NO	bb
10	10 181126M1_11	Standard	12.500	4.16	2559.058	2559.058	12.500	12.5	0.0	NO		NO	bb

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

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Compound name: 13C8-PFOA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 63), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	12.500	4.50	30823.398	30823.398	12.500	12.5	0.0	NO		NO	bb
2	2	181126M1_3	Standard	12.500	4.51	31989.600	31989.600	12.500	12.5	0.0	NO		NO	bb
3	3	181126M1_4	Standard	12.500	4.51	32072.896	32072.896	12.500	12.5	0.0	NO		NO	bb
4	4	181126M1_5	Standard	12.500	4.51	31406.428	31406.428	12.500	12.5	0.0	NO		NO	bb
5	5	181126M1_6	Standard	12.500	4.51	31457.979	31457.979	12.500	12.5	0.0	NO		NO	bb
6	6	181126M1_7	Standard	12.500	4.51	30564.838	30564.838	12.500	12.5	0.0	NO		NO	bb
7	7	181126M1_8	Standard	12.500	4.51	32979.738	32979.738	12.500	12.5	0.0	NO		NO	bb
8	8	181126M1_9	Standard	12.500	4.52	29964.543	29964.543	12.500	12.5	0.0	NO		NO	bb
9	9	181126M1_10	Standard	12.500	4.52	28178.553	28178.553	12.500	12.5	0.0	NO		NO	bb
10	10	181126M1_11	Standard	12.500	4.52	25705.412	25705.412	12.500	12.5	0.0	NO		NO	bb

Compound name: 13C9-PFNA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 64), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	12.500	4.93	22519.746	22519.746	12.500	12.5	0.0	NO		NO	bb
2	2	181126M1_3	Standard	12.500	4.94	22448.209	22448.209	12.500	12.5	0.0	NO		NO	bb
3	3	181126M1_4	Standard	12.500	4.94	22991.566	22991.566	12.500	12.5	0.0	NO		NO	bb
4	4	181126M1_5	Standard	12.500	4.94	23074.576	23074.576	12.500	12.5	0.0	NO		NO	bb
5	5	181126M1_6	Standard	12.500	4.94	22849.063	22849.063	12.500	12.5	0.0	NO		NO	bb
6	6	181126M1_7	Standard	12.500	4.94	21600.799	21600.799	12.500	12.5	0.0	NO		NO	bb
7	7	181126M1_8	Standard	12.500	4.94	22741.340	22741.340	12.500	12.5	0.0	NO		NO	bb
8	8	181126M1_9	Standard	12.500	4.94	22540.299	22540.299	12.500	12.5	0.0	NO		NO	bb
9	9	181126M1_10	Standard	12.500	4.94	20378.484	20378.484	12.500	12.5	0.0	NO		NO	bb
10	10	181126M1_11	Standard	12.500	4.94	18532.297	18532.297	12.500	12.5	0.0	NO		NO	bb

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

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Compound name: 13C4-PFOS
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 65), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	12.500	5.02	3462.963	3462.963	12.500	12.5	0.0	NO		NO	bb
2	2 181126M1_3	Standard	12.500	5.03	3224.760	3224.760	12.500	12.5	0.0	NO		NO	bb
3	3 181126M1_4	Standard	12.500	5.03	3512.134	3512.134	12.500	12.5	0.0	NO		NO	bb
4	4 181126M1_5	Standard	12.500	5.03	3358.832	3358.832	12.500	12.5	0.0	NO		NO	bb
5	5 181126M1_6	Standard	12.500	5.03	3378.300	3378.300	12.500	12.5	0.0	NO		NO	bb
6	6 181126M1_7	Standard	12.500	5.03	3393.990	3393.990	12.500	12.5	0.0	NO		NO	bb
7	7 181126M1_8	Standard	12.500	5.03	3536.995	3536.995	12.500	12.5	0.0	NO		NO	bb
8	8 181126M1_9	Standard	12.500	5.03	3346.116	3346.116	12.500	12.5	0.0	NO		NO	bb
9	9 181126M1_10	Standard	12.500	5.03	3217.784	3217.784	12.500	12.5	0.0	NO		NO	bb
10	10 181126M1_11	Standard	12.500	5.03	2856.125	2856.125	12.500	12.5	0.0	NO		NO	bb

Compound name: 13C6-PFDA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 66), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 181126M1_2	Standard	12.500	5.32	23842.426	23842.426	12.500	12.5	0.0	NO		NO	bb
2	2 181126M1_3	Standard	12.500	5.32	24662.998	24662.998	12.500	12.5	0.0	NO		NO	bb
3	3 181126M1_4	Standard	12.500	5.32	24277.797	24277.797	12.500	12.5	0.0	NO		NO	bb
4	4 181126M1_5	Standard	12.500	5.32	24205.205	24205.205	12.500	12.5	0.0	NO		NO	bb
5	5 181126M1_6	Standard	12.500	5.32	25346.094	25346.094	12.500	12.5	0.0	NO		NO	bb
6	6 181126M1_7	Standard	12.500	5.32	23846.875	23846.875	12.500	12.5	0.0	NO		NO	bb
7	7 181126M1_8	Standard	12.500	5.32	24795.838	24795.838	12.500	12.5	0.0	NO		NO	bb
8	8 181126M1_9	Standard	12.500	5.32	23591.418	23591.418	12.500	12.5	0.0	NO		NO	bb
9	9 181126M1_10	Standard	12.500	5.32	21882.871	21882.871	12.500	12.5	0.0	NO		NO	bb
10	10 181126M1_11	Standard	12.500	5.32	18919.330	18919.330	12.500	12.5	0.0	NO		NO	bb

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Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
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Compound name: 13C7-PFUdA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 67), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	181126M1_2	Standard	12.500	5.64	26672.982	26672.982	12.500	12.5	0.0	NO		NO	bb
2	2	181126M1_3	Standard	12.500	5.64	26794.484	26794.484	12.500	12.5	0.0	NO		NO	bb
3	3	181126M1_4	Standard	12.500	5.64	28575.072	28575.072	12.500	12.5	0.0	NO		NO	bb
4	4	181126M1_5	Standard	12.500	5.65	28337.990	28337.990	12.500	12.5	0.0	NO		NO	bb
5	5	181126M1_6	Standard	12.500	5.64	28551.758	28551.758	12.500	12.5	0.0	NO		NO	bb
6	6	181126M1_7	Standard	12.500	5.65	27162.783	27162.783	12.500	12.5	0.0	NO		NO	bb
7	7	181126M1_8	Standard	12.500	5.65	28301.350	28301.350	12.500	12.5	0.0	NO		NO	bb
8	8	181126M1_9	Standard	12.500	5.65	26656.619	26656.619	12.500	12.5	0.0	NO		NO	bb
9	9	181126M1_10	Standard	12.500	5.65	24614.043	24614.043	12.500	12.5	0.0	NO		NO	bb
10	10	181126M1_11	Standard	12.500	5.65	21283.375	21283.375	12.500	12.5	0.0	NO		NO	bb

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Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
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Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112618.mdb 26 Nov 2018 13:53:04
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

1 AD 11/27/18

Name: 181126M1_2, Date: 26-Nov-2018, Time: 11:45:59, ID: ST181126M2-1 PFC CS-2 18K1901, Description: PFC CS-2 18K1901

	#	Name	IS#	CoD	CoD Flag	%RSD
1	1	PFBA	36	0.9998	NO	
2	2	PFPeA	37	0.9998	NO	
3	3	PFBS	38	0.9977	NO	
4	4	4:2 FTS	39	0.9977	NO	
5	5	PFHxA	40	0.9998	NO	
6	6	PFPeS	38	0.9984	NO	
7	7	PFHpA	41	0.9996	NO	
8	8	L-PFHxS	42	0.9987	NO	
9	10	6:2 FTS	43	0.9979	NO	
10	11	L-PFOA	44	0.9998	NO	
11	13	PFHpS	47	0.9993	NO	
12	14	PFNA	45	0.9998	NO	
13	15	PFOSA	46	0.9997	NO	
14	16	L-PFOS	47	0.9986	NO	
15	18	PFDA	48	0.9994	NO	
16	19	8:2 FTS	49	0.9988	NO	
17	20	PFNS	47	0.9987	NO	
18	21	L-MeFOSAA	50	0.9986	NO	
19	23	L-EtFOSAA	52	0.9999	NO	

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:42:51 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112618.mdb 26 Nov 2018 13:53:04
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

/ -AD 11/27/18

Name: 181126M1_2, Date: 26-Nov-2018, Time: 11:45:59, ID: ST181126M1-1 PFC CS-2 18K1901, Description: PFC CS-2 18K1901

	#	Name	IS#	CoD	CoD Flag	%RSD
1	25	PFUdA	51	0.9997	NO	
2	26	PFDS	47	0.9983	NO	
3	27	PFDoA	53	0.9999	NO	
4	28	N-MeFOSA	54	0.9994	NO	
5	29	PFTrDA	53	0.9998	NO	
6	30	PFTeDA	55	0.9996	NO	
7	31	N-EtFOSA	56	0.9998	NO	
8	32	PFHxDA	57	0.9987	NO	
9	33	PFODA	57	0.9994	NO	
10	34	N-MeFOSE	58	0.9999	NO	
11	35	N-EtFOSE	59	0.9997	NO	
12	36	13C3-PFBA	60		NO	2.900
13	37	13C3-PFPeA	61		NO	2.459
14	38	13C3-PFBS	62		NO	3.957
15	39	13C2-4:2 FTS	62		NO	6.803
16	40	13C2-PFHxA	61		NO	2.935
17	41	13C4-PFHpA	61		NO	4.143
18	42	18O2-PFHxS	62		NO	3.593
19	43	13C2-6:2 FTS	65		NO	6.823
20	44	13C2-PFOA	63		NO	2.584
21	45	13C5-PFNA	64		NO	2.264
22	46	13C8-PFOSA	67		NO	7.976
23	47	13C8-PFOS	65		NO	5.032
24	48	13C2-PFDA	66		NO	4.117
25	49	13C2-8:2 FTS	65		NO	7.536
26	50	d3-N-MeFOSAA	67		NO	5.182
27	51	13C2-PFUdA	67		NO	2.331
28	52	d5-N-EtFOSAA	67		NO	5.884
29	53	13C2-PFDoA	66		NO	3.498
30	54	d3-N-MeFOSA	67		NO	8.842
31	55	13C2-PFTeDA	67		NO	5.408
32	56	d5-N-ETFOSA	67		NO	11.366

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Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
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Name: 181126M1_2, Date: 26-Nov-2018, Time: 11:45:59, ID: ST181126M2-1 PFC CS-2 18K1901, Description: PFC CS-2 18K1901

	#	Name	IS#	CoD	CoD Flag	%RSD
33	57	13C2-PFHxDA	67		NO	10.835
34	58	d7-N-MeFOSE	67		NO	7.896
35	59	d9-N-EtFOSE	67		NO	9.386
36	60	13C4-PFBA	60		NO	0.000
37	61	13C5-PFHxA	61		NO	0.000
38	62	13C3-PFHxS	62		NO	0.000
39	63	13C8-PFOA	63		NO	0.000
40	64	13C9-PFNA	64		NO	0.000
41	65	13C4-PFOS	65		NO	0.000
42	66	13C6-PFDA	66		NO	0.000
43	67	13C7-PFUdA	67		NO	0.000

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Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:51:30 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112618.mdb 26 Nov 2018 13:53:04
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

1 AD 11/27/18

Name: 181126M1_7, Date: 26-Nov-2018, Time: 12:38:59, ID: ST181126M2-6 PFC CS3 18K1906, Description: PFC CS3 18K1906

	Name	Ion Ratio	Ratio out?
1	PFBA		
2	PFPeA		
3	PFBS	2.741	NO
4	4:2 FTS	1.665	NO
5	PFHxA	15.286	NO
6	PFPeS	1.601	NO
7	PFHpA	13.863	NO
8	L-PFHxS	1.609	NO
9	6:2 FTS	2.822	NO
10	L-PFOA	3.429	NO
11	PFHpS	1.865	NO
12	PFNA	4.488	NO
13	PFOSA	22.987	NO
14	L-PFOS	1.888	NO
15	PFDA	5.551	NO
16	8:2 FTS	2.335	NO
17	PFNS	1.645	NO
18	L-MeFOSAA	2.554	NO
19	L-EtFOSAA	1.424	NO

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Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:51:46 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112618.mdb 26 Nov 2018 13:53:04
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

AD 11/27/18

Name: 181126M1_7, Date: 26-Nov-2018, Time: 12:38:59, ID: ST181126M2-6 PFC CS3 18K1906, Description: PFC CS3 18K1906

	Name	Ion Ratio	Ratio out?
1	PFUdA	9.527	NO
2	PFDS	1.667	NO
3	PFDoA	8.645	NO
4	N-MeFOSA	1.410	NO
5	PFTrDA	23.378	NO
6	PFTeDA	12.484	NO
7	N-EtFOSA	1.533	NO
8	PFHxDA	12.632	NO
9	PFODA		
10	N-MeFOSE		
11	N-EtFOSE		

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Dataset: Untitled

Last Altered: Tuesday, November 27, 2018 09:21:08 Pacific Standard Time
Printed: Tuesday, November 27, 2018 09:21:18 Pacific Standard Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112618.mdb 26 Nov 2018 13:53:04
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	181126M1_1	IPA	26-Nov-18	11:35:18
2	2	181126M1_2	ST181126M1-1 PFC CS-2 18K1901	26-Nov-18	11:45:59
3	3	181126M1_3	ST181126M1-2 PFC CS-1 18K1902	26-Nov-18	11:56:32
4	4	181126M1_4	ST181126M1-3 PFC CS0 18K1903	26-Nov-18	12:07:10
5	5	181126M1_5	ST181126M1-4 PFC CS1 18K1904	26-Nov-18	12:17:48
6	6	181126M1_6	ST181126M1-5 PFC CS2 18K1905	26-Nov-18	12:28:21
7	7	181126M1_7	ST181126M1-6 PFC CS3 18K1906	26-Nov-18	12:38:59
8	8	181126M1_8	ST181126M1-7 PFC CS4 1810907	26-Nov-18	12:49:38
9	9	181126M1_9	ST181126M1-8 PFC CS5 18K1908	26-Nov-18	13:00:11
10	10	181126M1_10	ST181126M1-9 PFC CS6 18K1909	26-Nov-18	13:10:49
11	11	181126M1_11	ST181126M1-10 PFC CS7 18K1910	26-Nov-18	13:21:23
12	12	181126M1_12	IPA	26-Nov-18	13:32:01
13	13	181126M1_13	ICV181126M1-1 PFC ICV 18K1911	26-Nov-18	13:42:34
14	14	181126M1_14	IPA	26-Nov-18	13:53:12

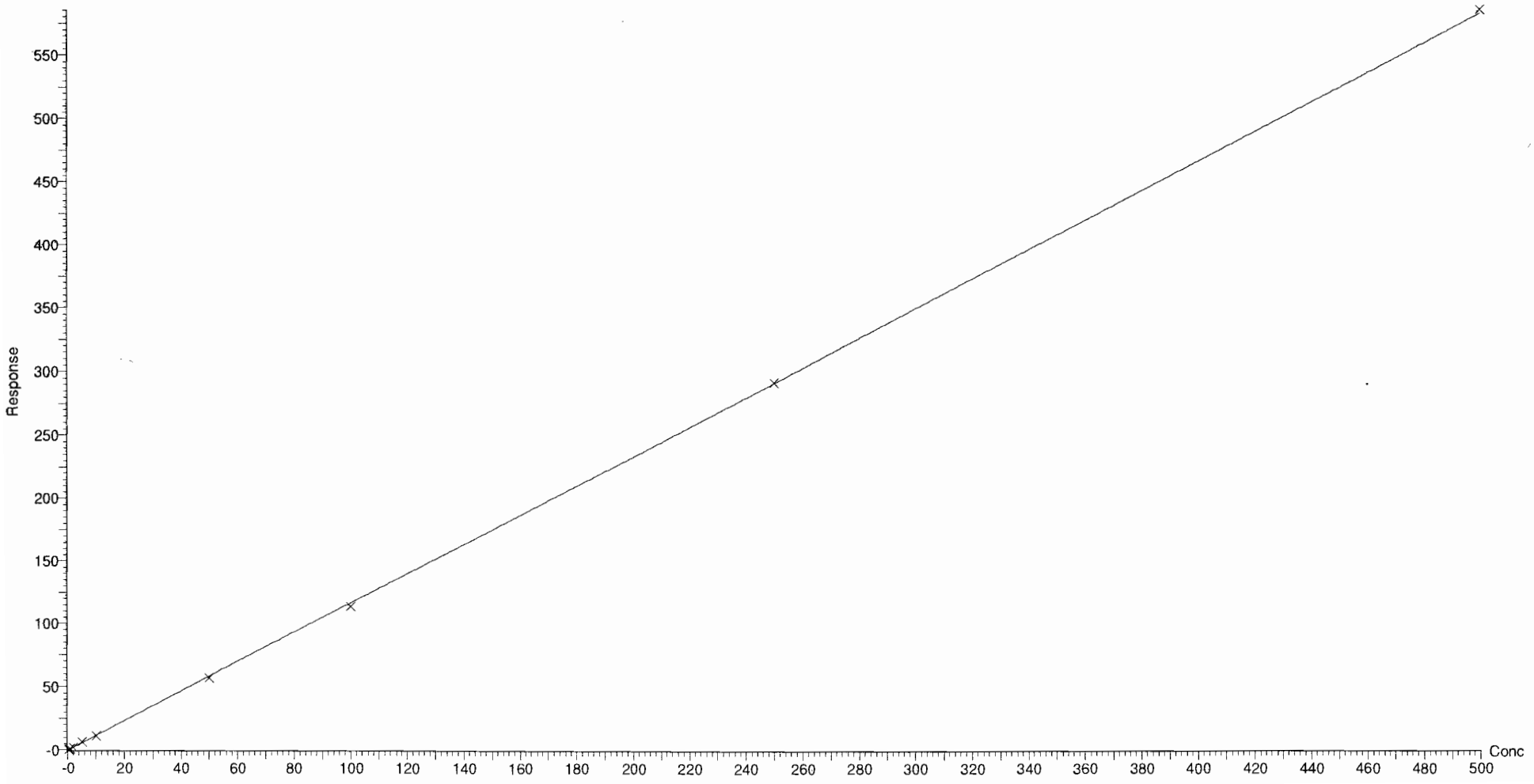
Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:13 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112618.mdb 26 Nov 2018 13:53:04
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

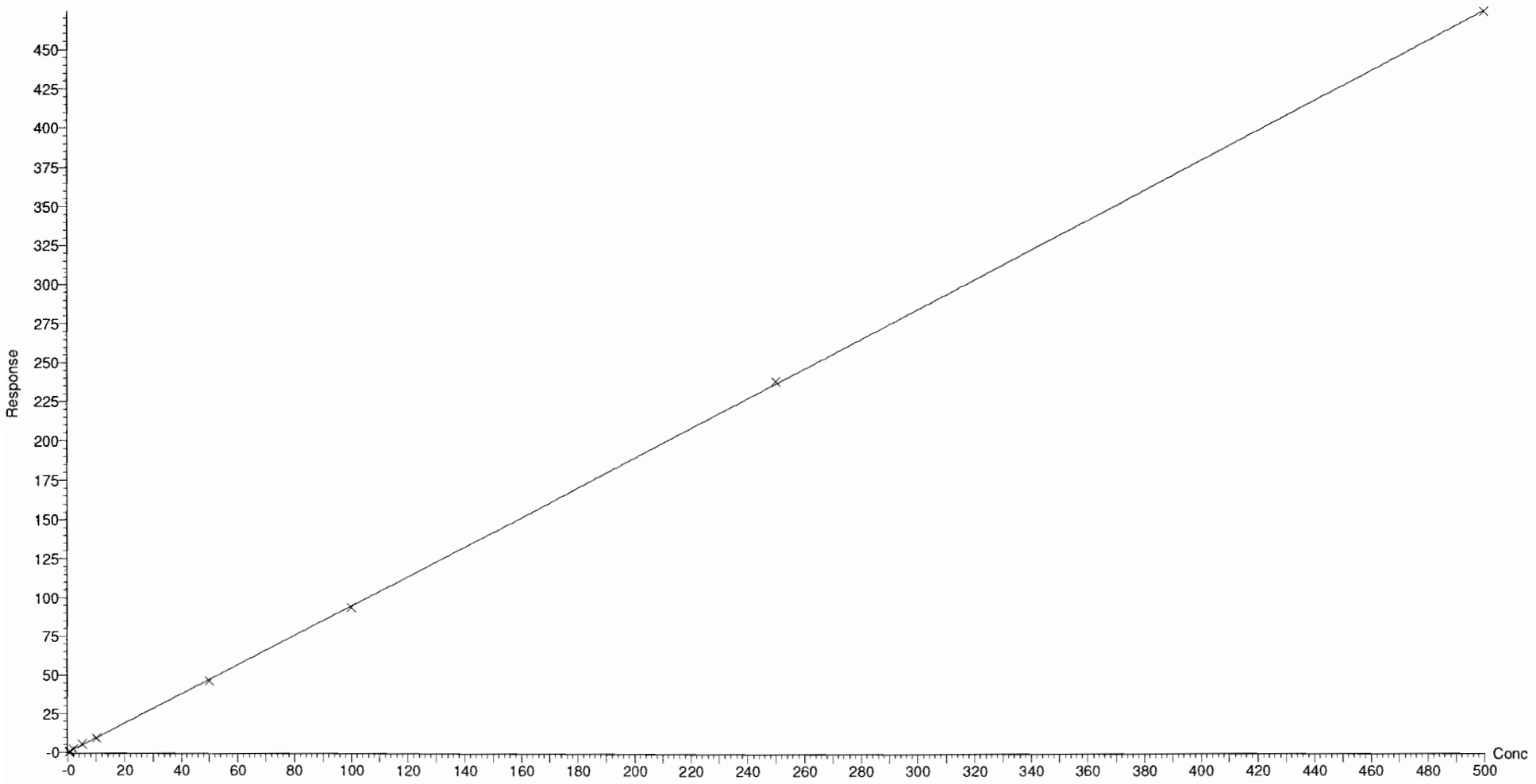
Compound name: PFBA
Correlation coefficient: r = 0.999908, r^2 = 0.999815
Calibration curve: 1.16478 * x + 0.0685845
Response type: Internal Std (Ref 36), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:13 Pacific Standard Time

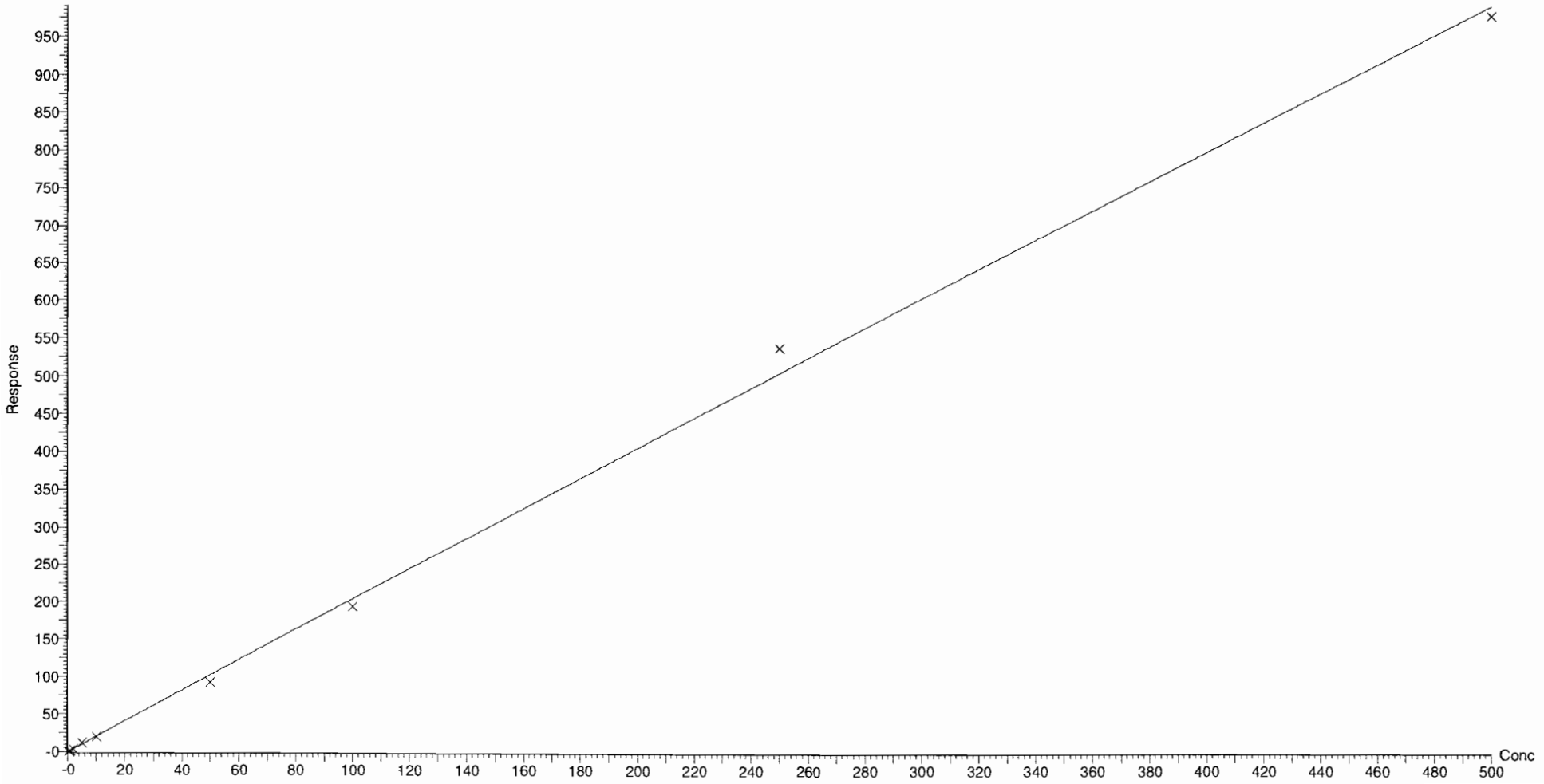
Compound name: PFPeA
Coefficient of Determination: R^2 = 0.999820
Calibration curve: 4.72356e-006 * x^2 + 0.945965 * x + 0.0647094
Response type: Internal Std (Ref 37), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:13 Pacific Standard Time

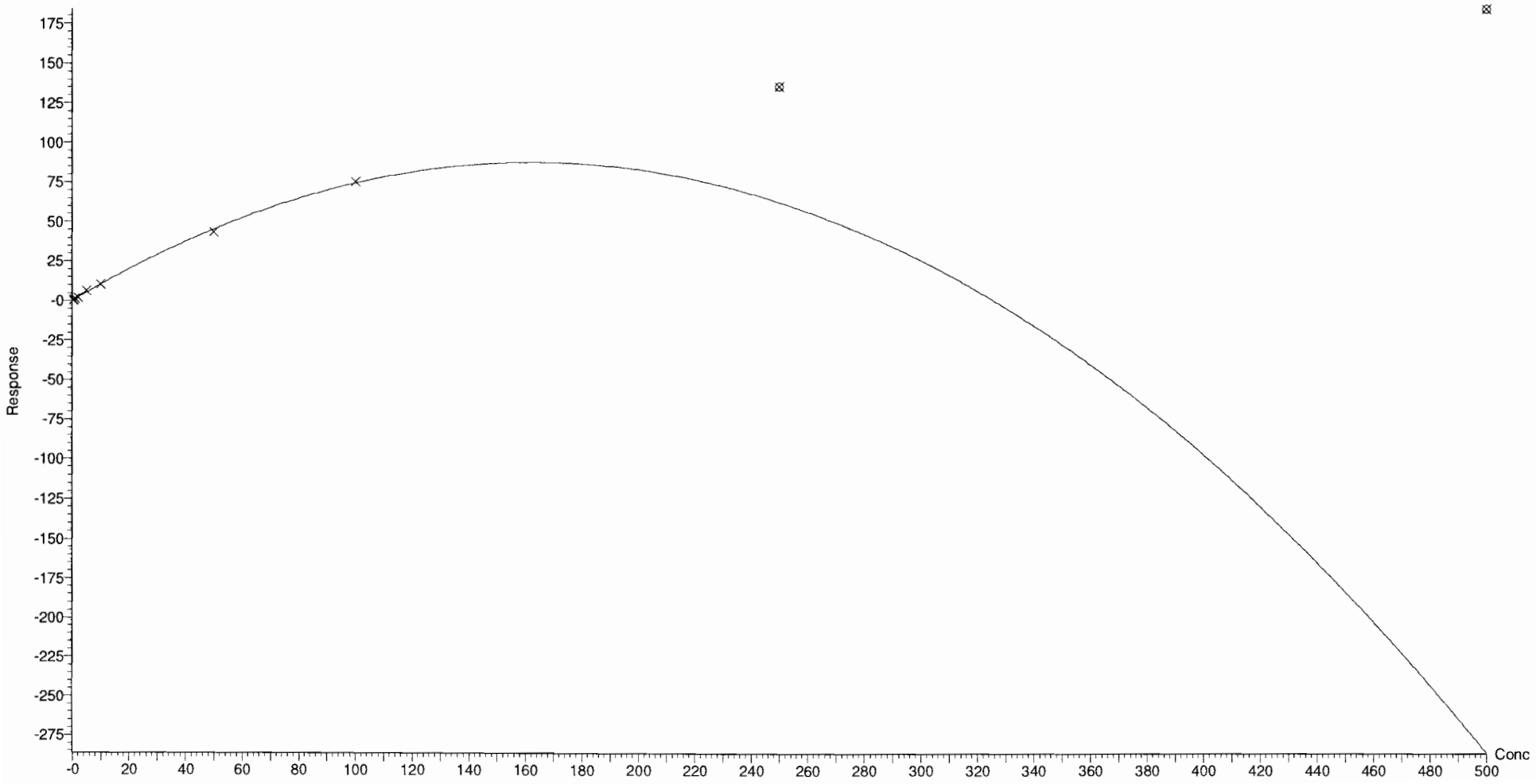
Compound name: PFBS
Coefficient of Determination: R^2 = 0.997695
Calibration curve: -0.000161679 * x^2 + 2.06224 * x + 0.0291321
Response type: Internal Std (Ref 38), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:13 Pacific Standard Time

Compound name: 4:2 FTS
Coefficient of Determination: R^2 = 0.997744
Calibration curve: -0.00329241 * x^2 + 1.0746 * x + 0.0302455
Response type: Internal Std (Ref 39), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

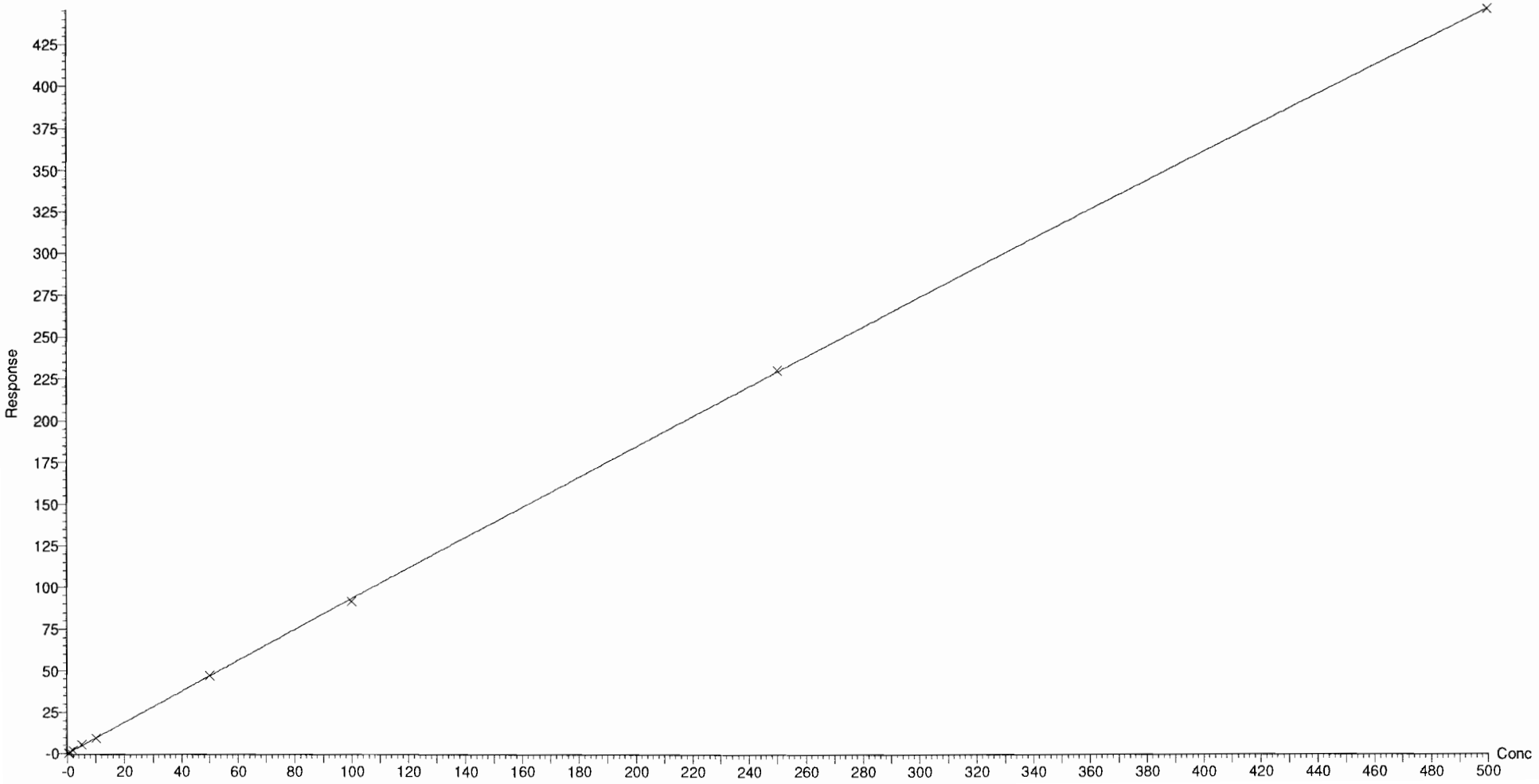


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:13 Pacific Standard Time

Compound name: PFHxA
Coefficient of Determination: R^2 = 0.999832
Calibration curve: -0.000104875 * x^2 + 0.943399 * x + 0.0492708
Response type: Internal Std (Ref 40), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

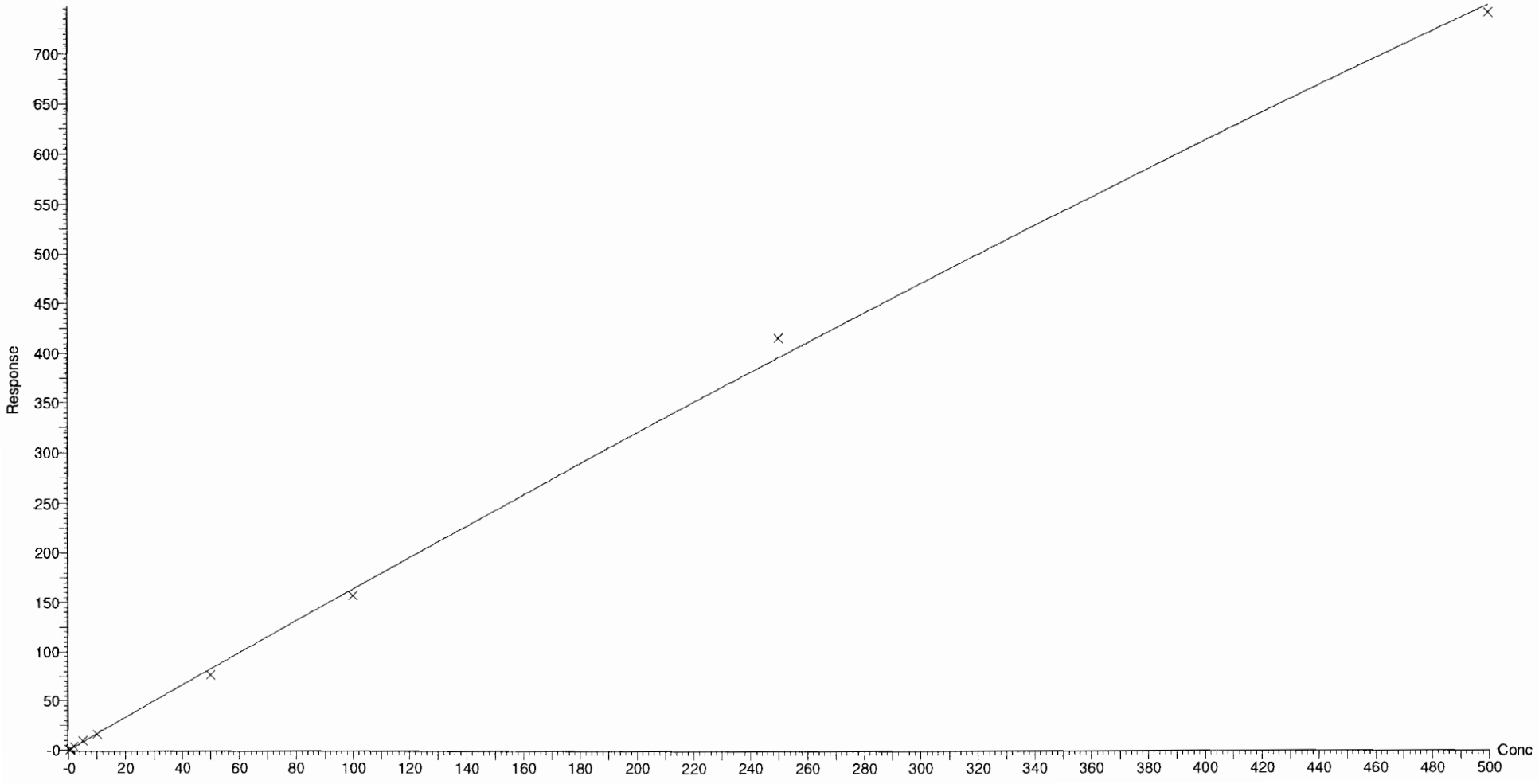


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:13 Pacific Standard Time

Compound name: PFPeS
Coefficient of Determination: R^2 = 0.998416
Calibration curve: -0.00034984 * x^2 + 1.67039 * x + 0.0318278
Response type: Internal Std (Ref 38), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

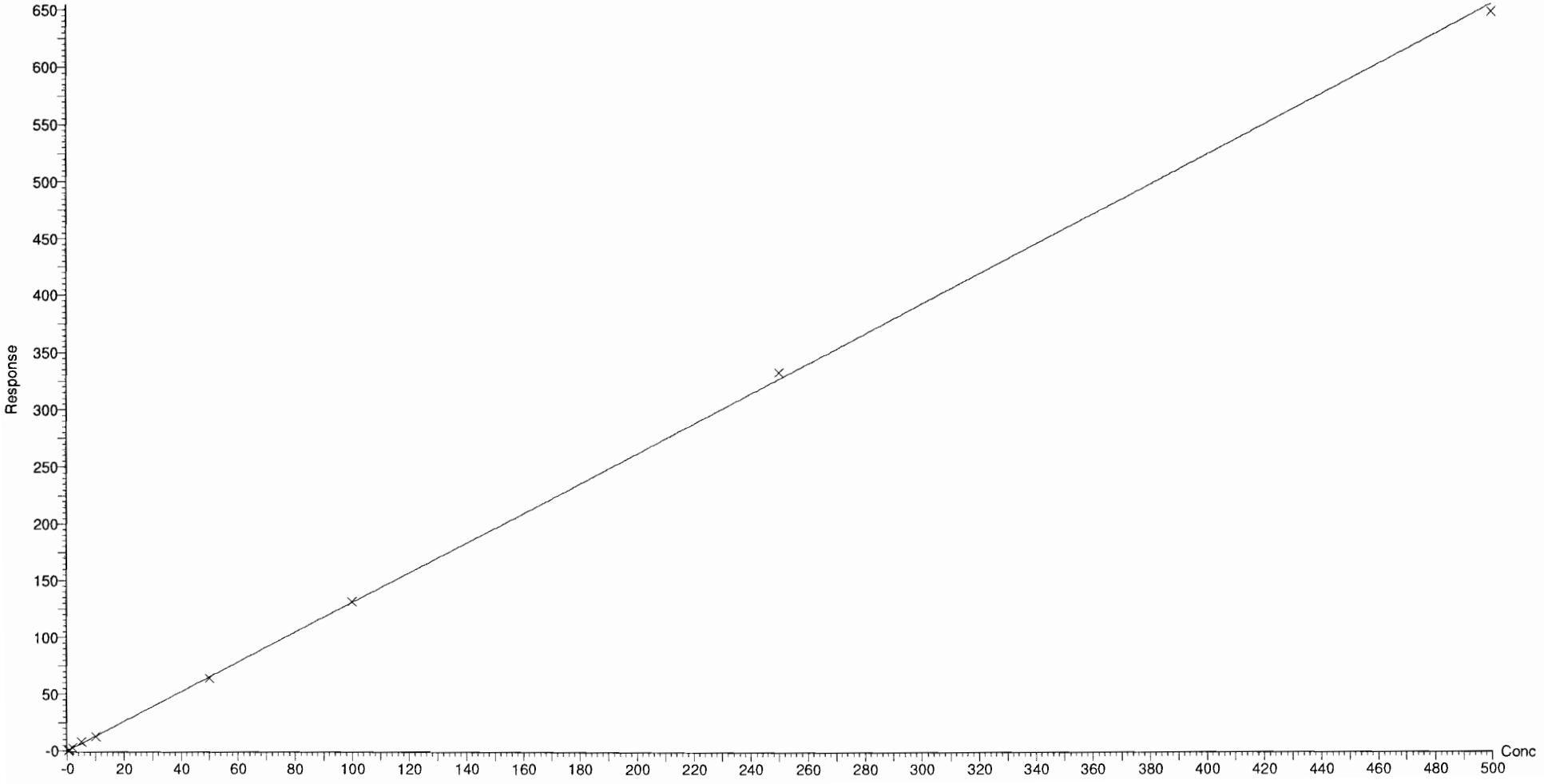


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:13 Pacific Standard Time

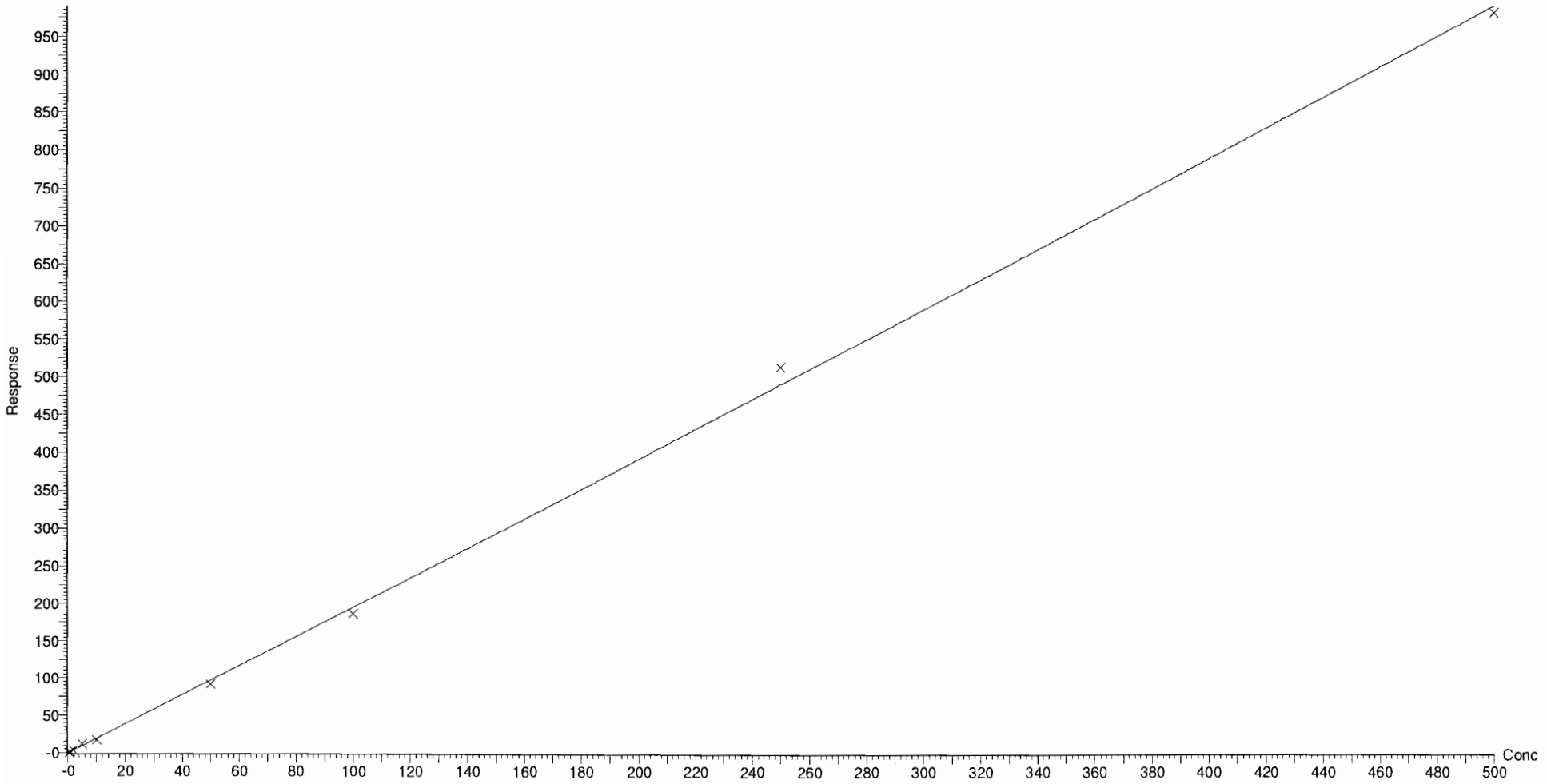
Compound name: PFHpA
Correlation coefficient: r = 0.999783, r^2 = 0.999567
Calibration curve: 1.30873 * x + 0.0886199
Response type: Internal Std (Ref 41), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:13 Pacific Standard Time

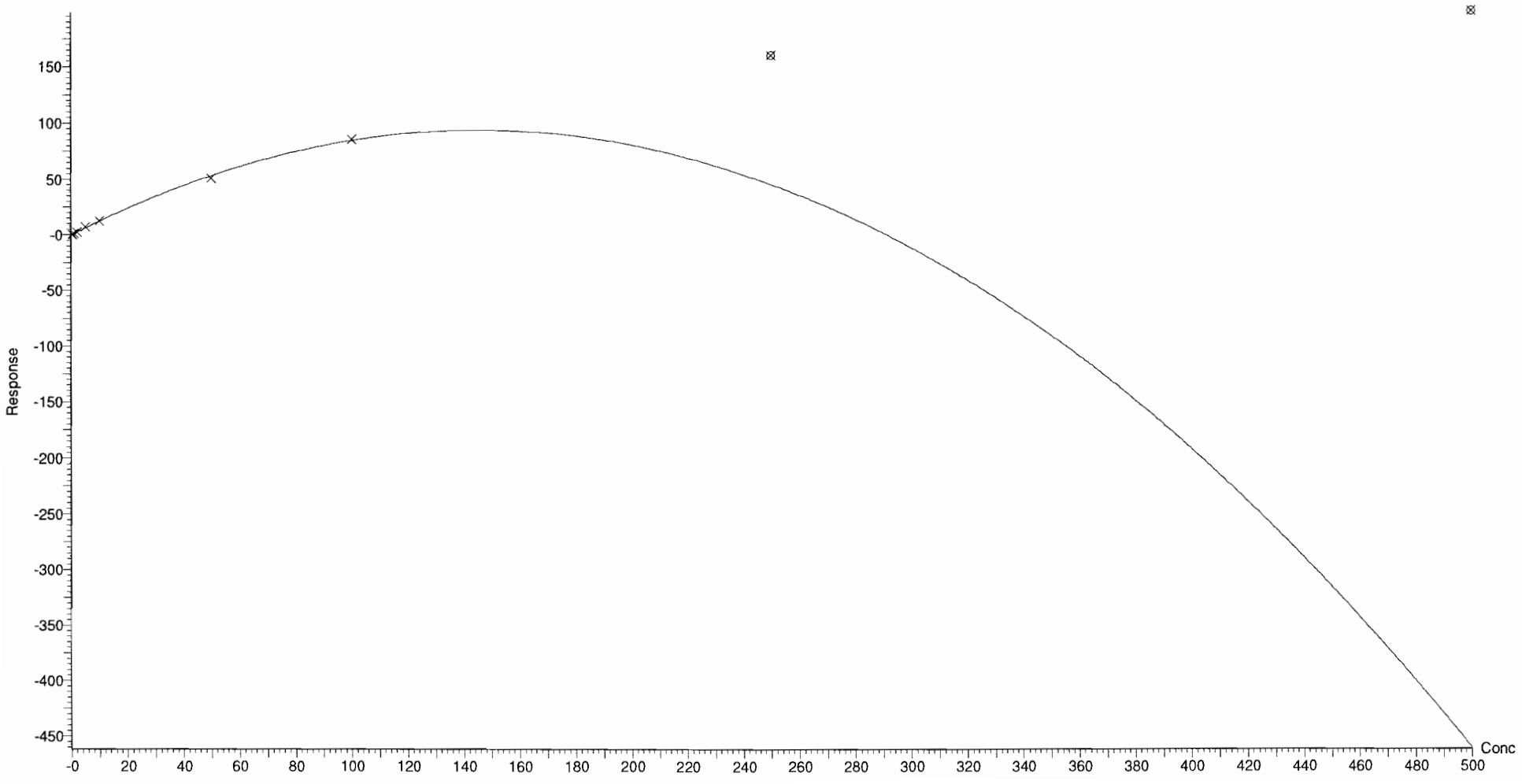
Compound name: L-PFHxS
Coefficient of Determination: R^2 = 0.998700
Calibration curve: 7.11978e-005 * x^2 + 1.94438 * x + -0.00102564
Response type: Internal Std (Ref 42), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:13 Pacific Standard Time

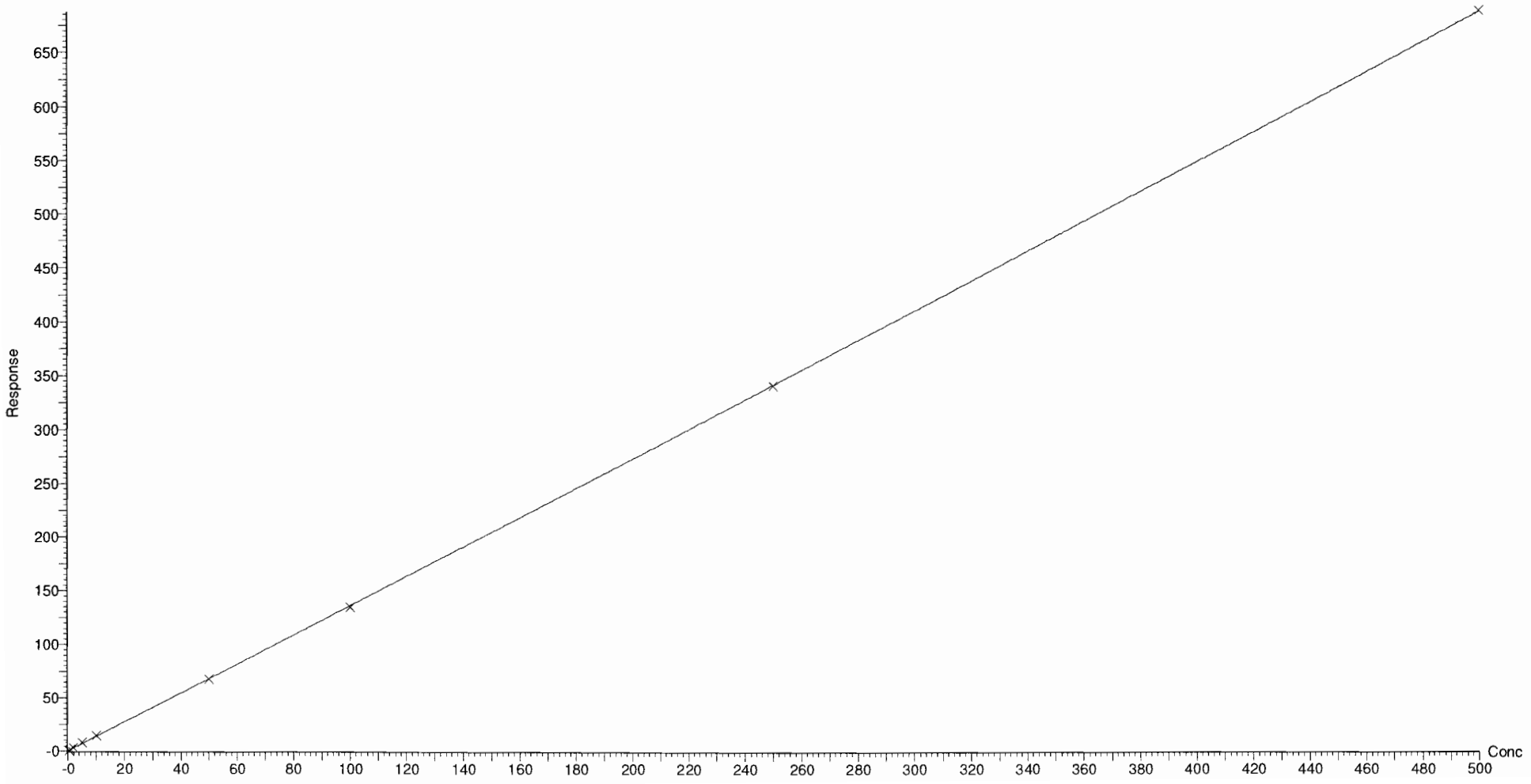
Compound name: 6:2 FTS
Coefficient of Determination: R^2 = 0.997882
Calibration curve: -0.0044139 * x^2 + 1.28489 * x + 0.0365766
Response type: Internal Std (Ref 43), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:13 Pacific Standard Time

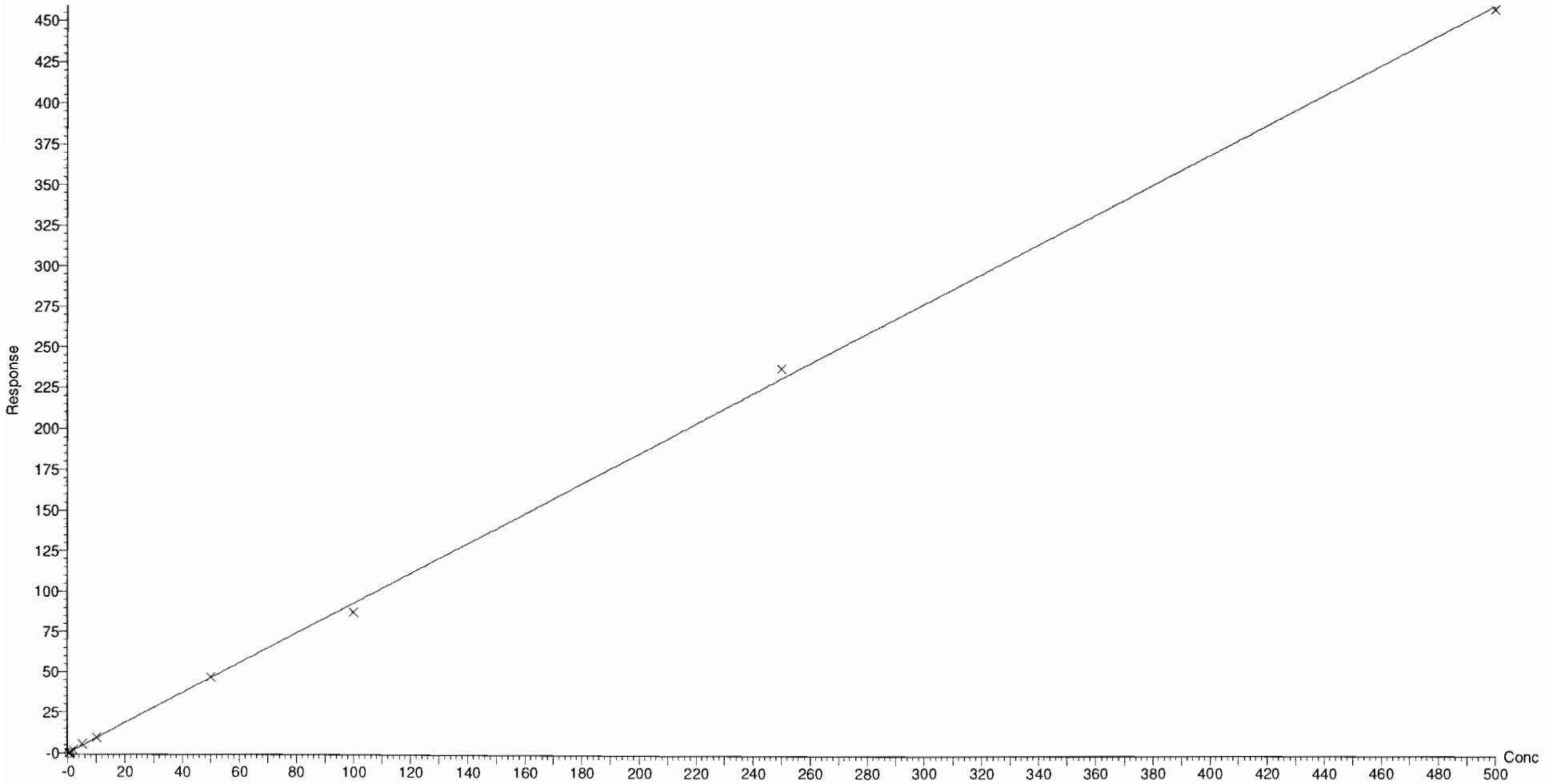
Compound name: L-PFOA
Coefficient of Determination: R^2 = 0.999794
Calibration curve: 3.30794e-005 * x^2 + 1.35692 * x + 0.157598
Response type: Internal Std (Ref 44), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:13 Pacific Standard Time

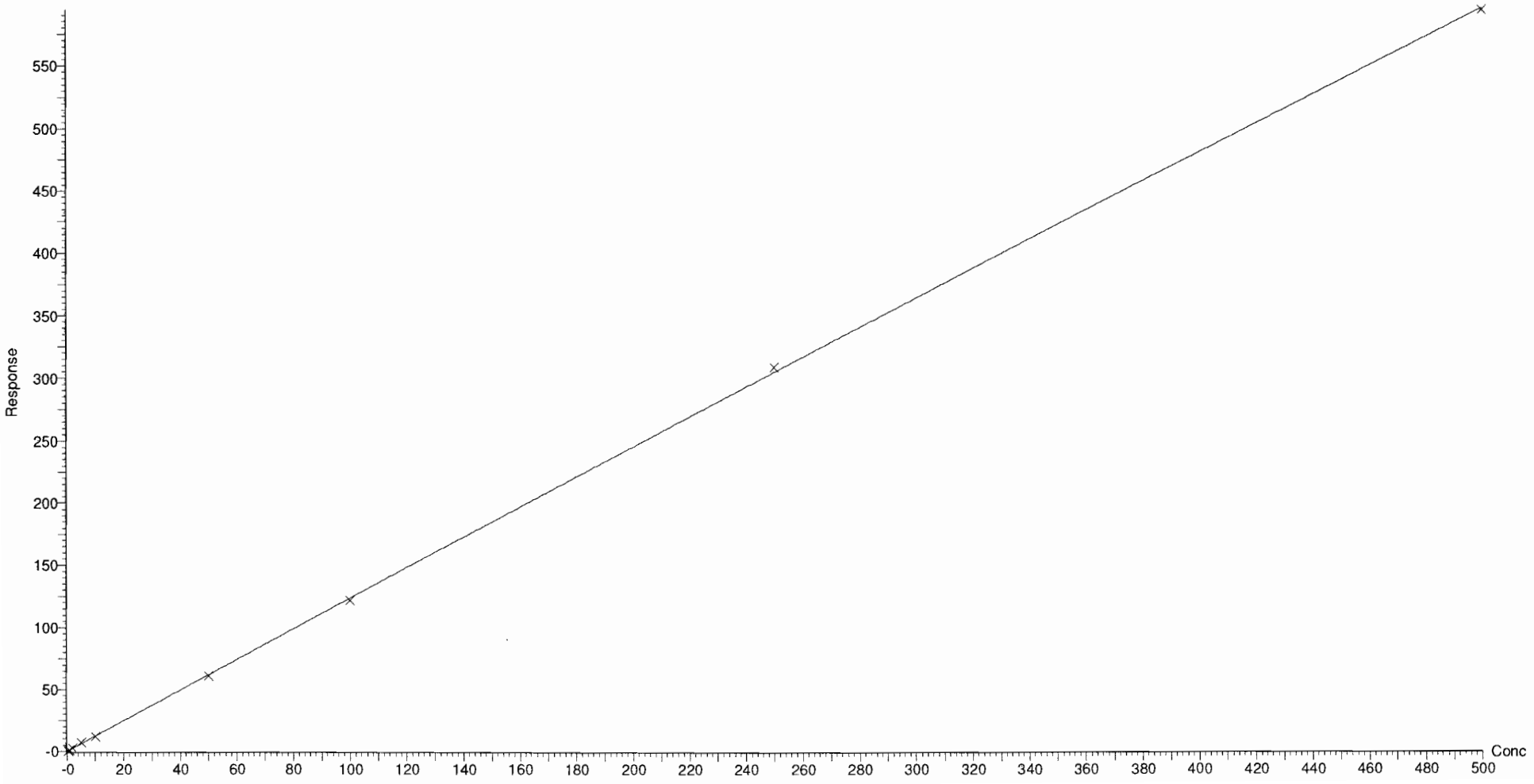
Compound name: PFHpS
Coefficient of Determination: R^2 = 0.999257
Calibration curve: -2.62046e-005 * x^2 + 0.932171 * x + 0.0595585
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:13 Pacific Standard Time

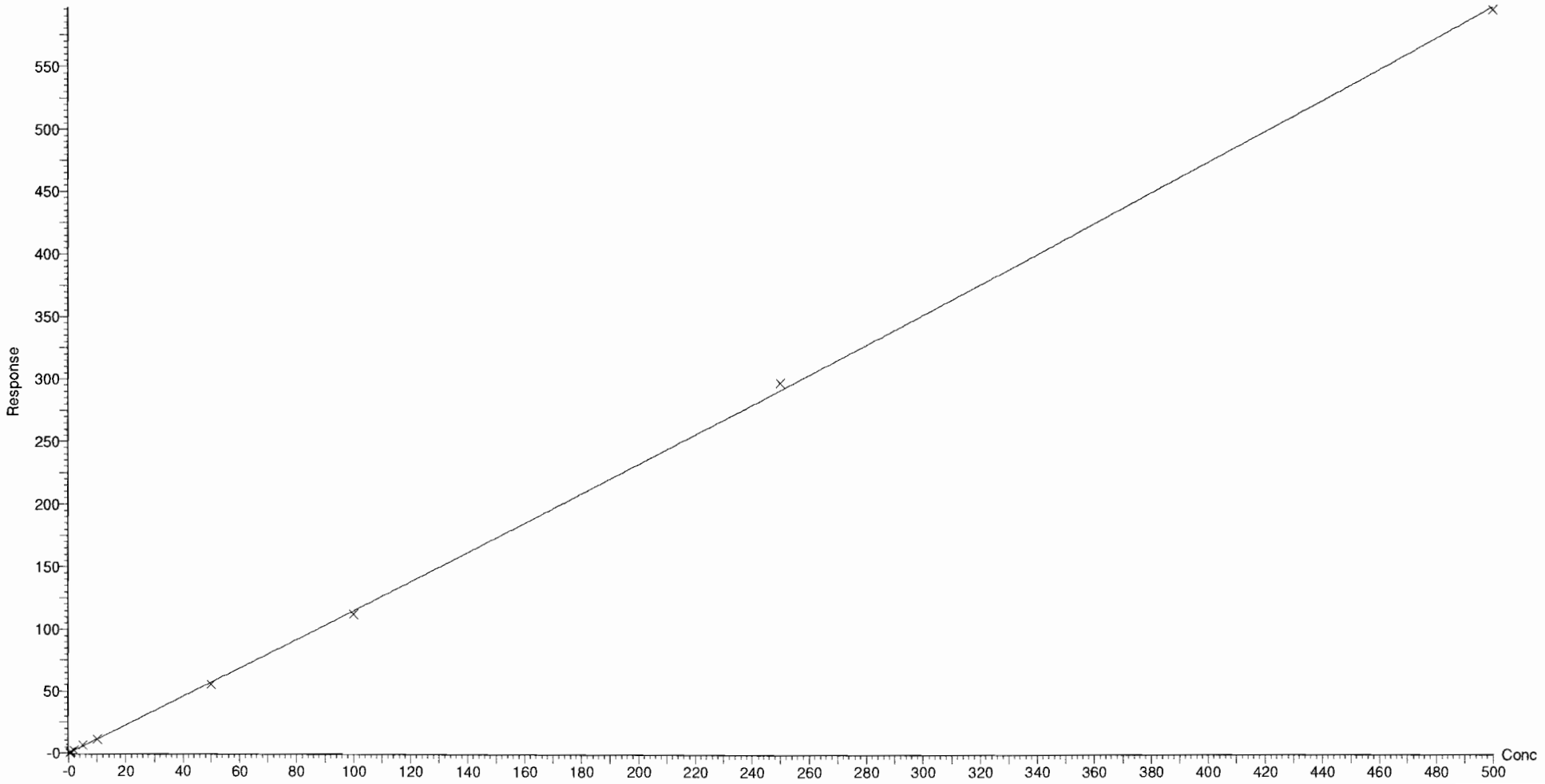
Compound name: PFNA
Coefficient of Determination: R^2 = 0.999758
Calibration curve: -0.000123392 * x^2 + 1.25051 * x + 0.0436441
Response type: Internal Std (Ref 45), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:13 Pacific Standard Time

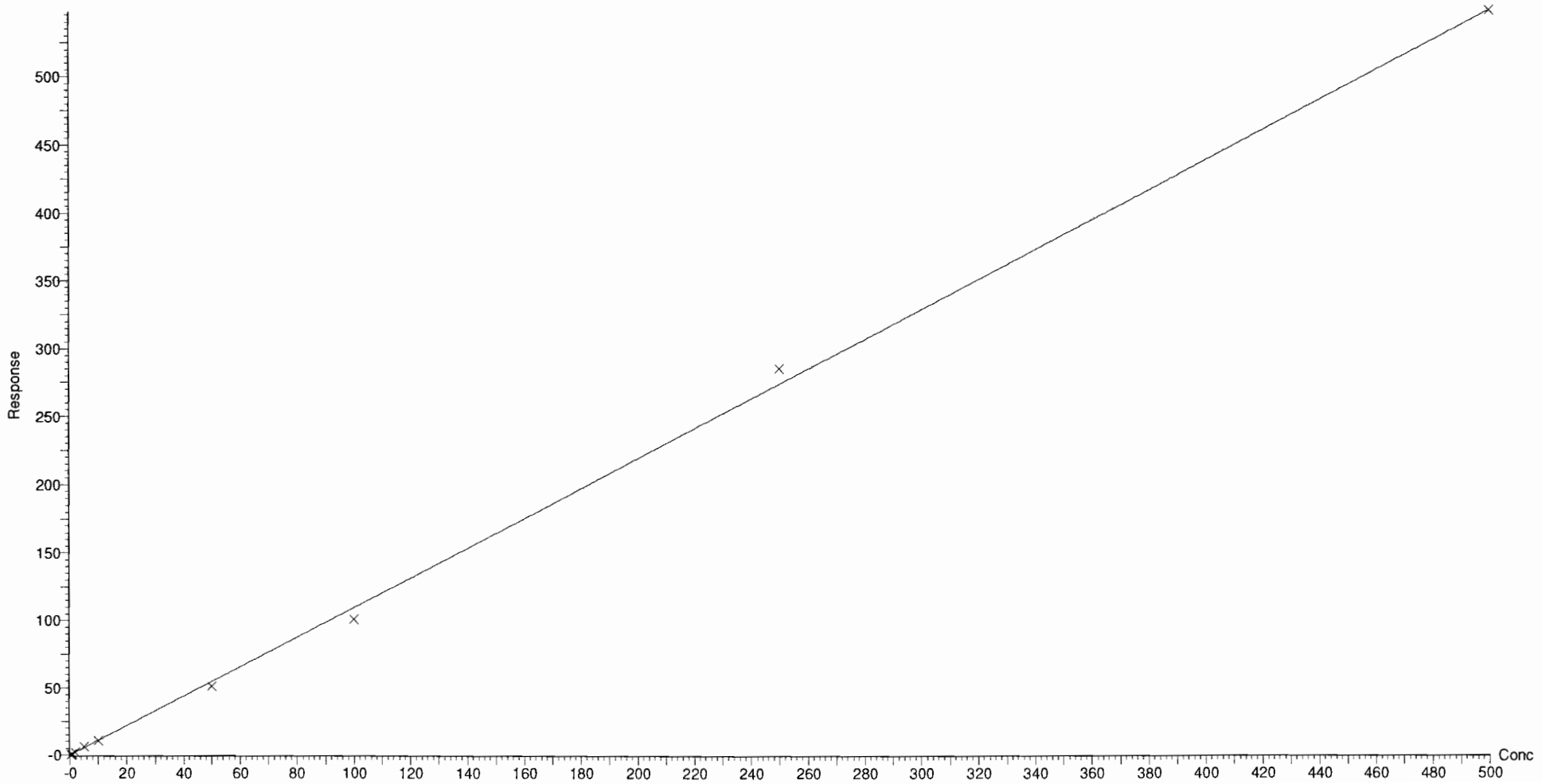
Compound name: PFOSA
Coefficient of Determination: R^2 = 0.999684
Calibration curve: 0.000109224 * x^2 + 1.13948 * x + -0.0243111
Response type: Internal Std (Ref 46), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:13 Pacific Standard Time

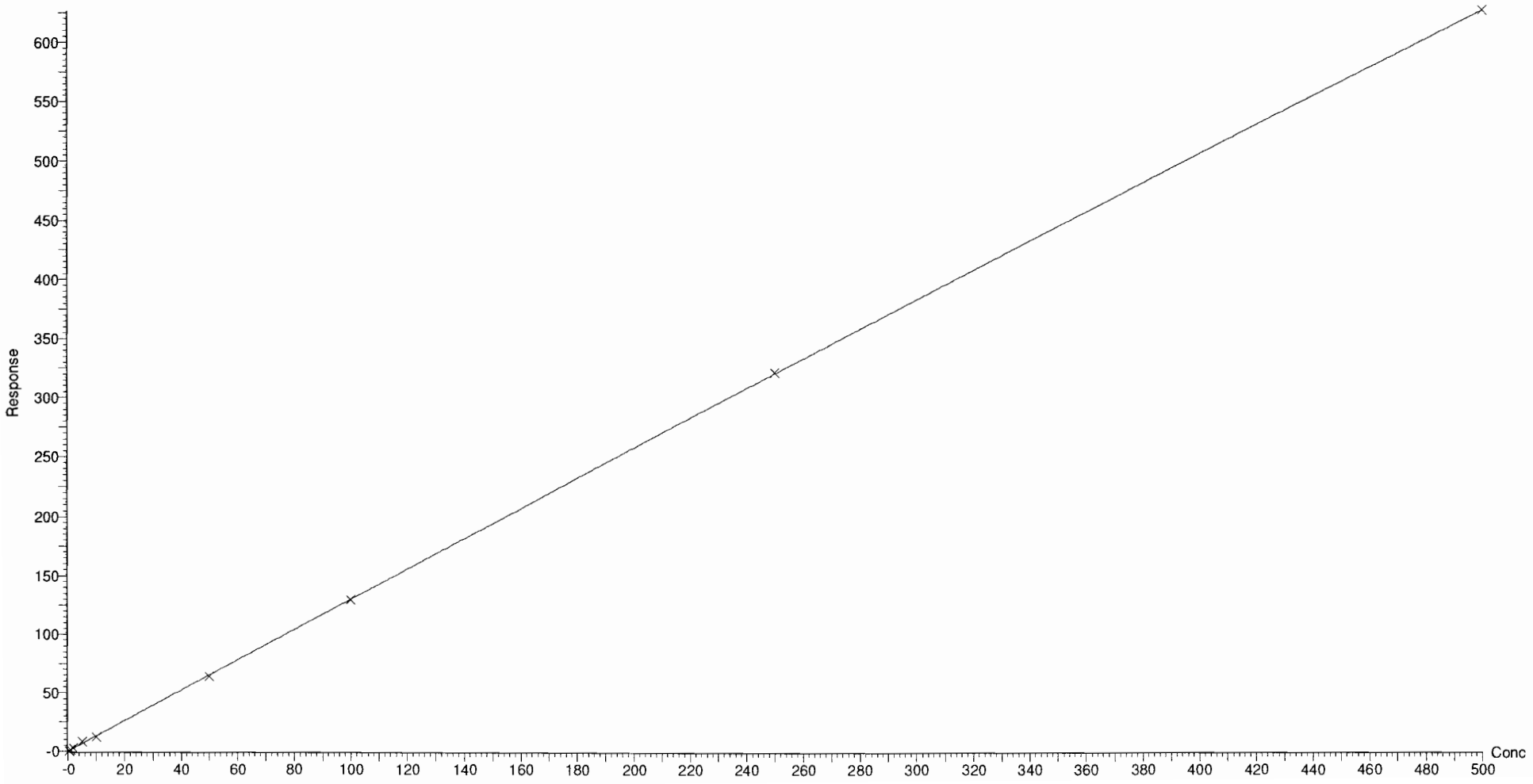
Compound name: L-PFOS
Correlation coefficient: r = 0.999291, r^2 = 0.998583
Calibration curve: 1.09502 * x + 0.0459904
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:13 Pacific Standard Time

Compound name: PFDA
Coefficient of Determination: R^2 = 0.999437
Calibration curve: -0.000121158 * x^2 + 1.3134 * x + 0.026774
Response type: Internal Std (Ref 48), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

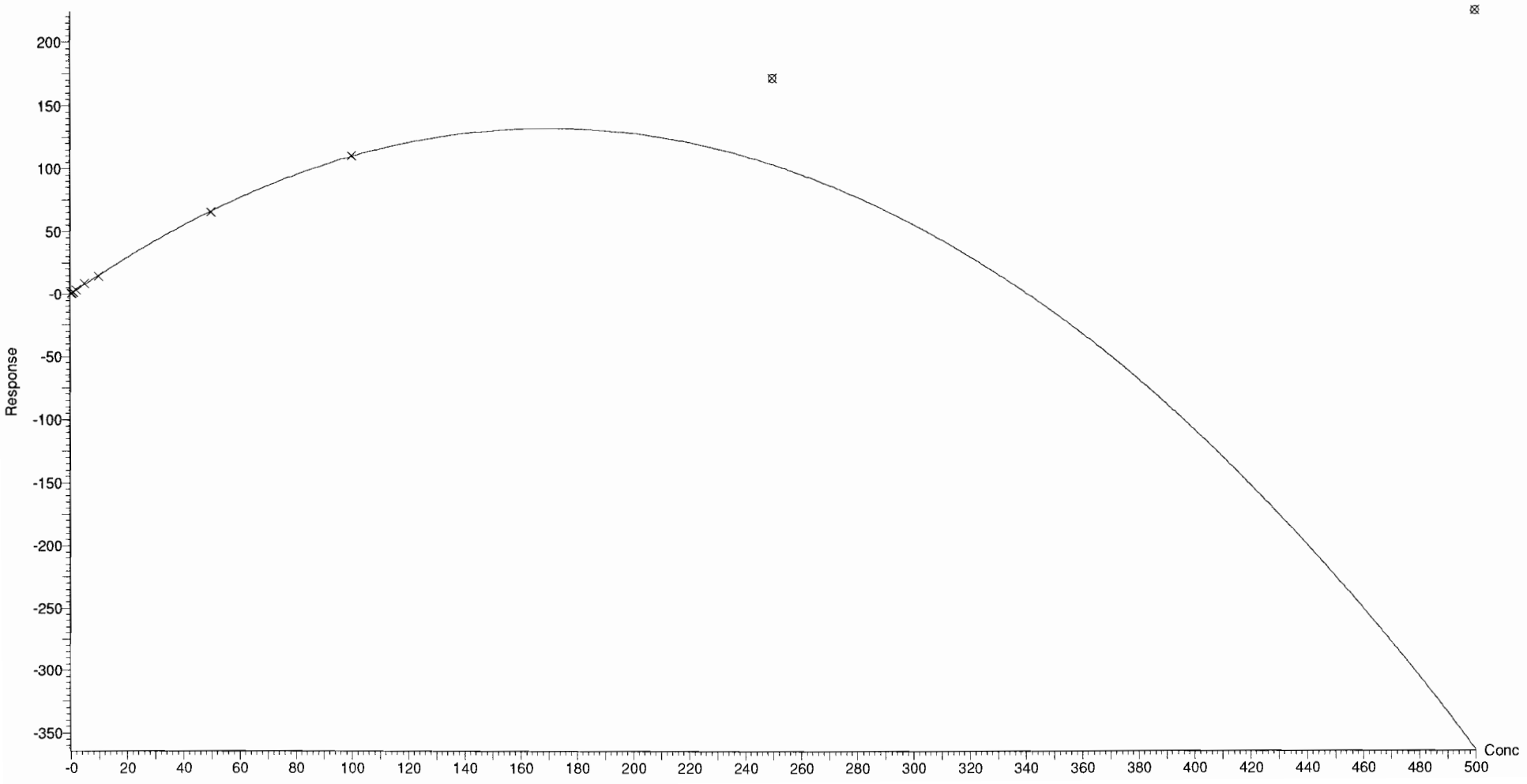


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:13 Pacific Standard Time

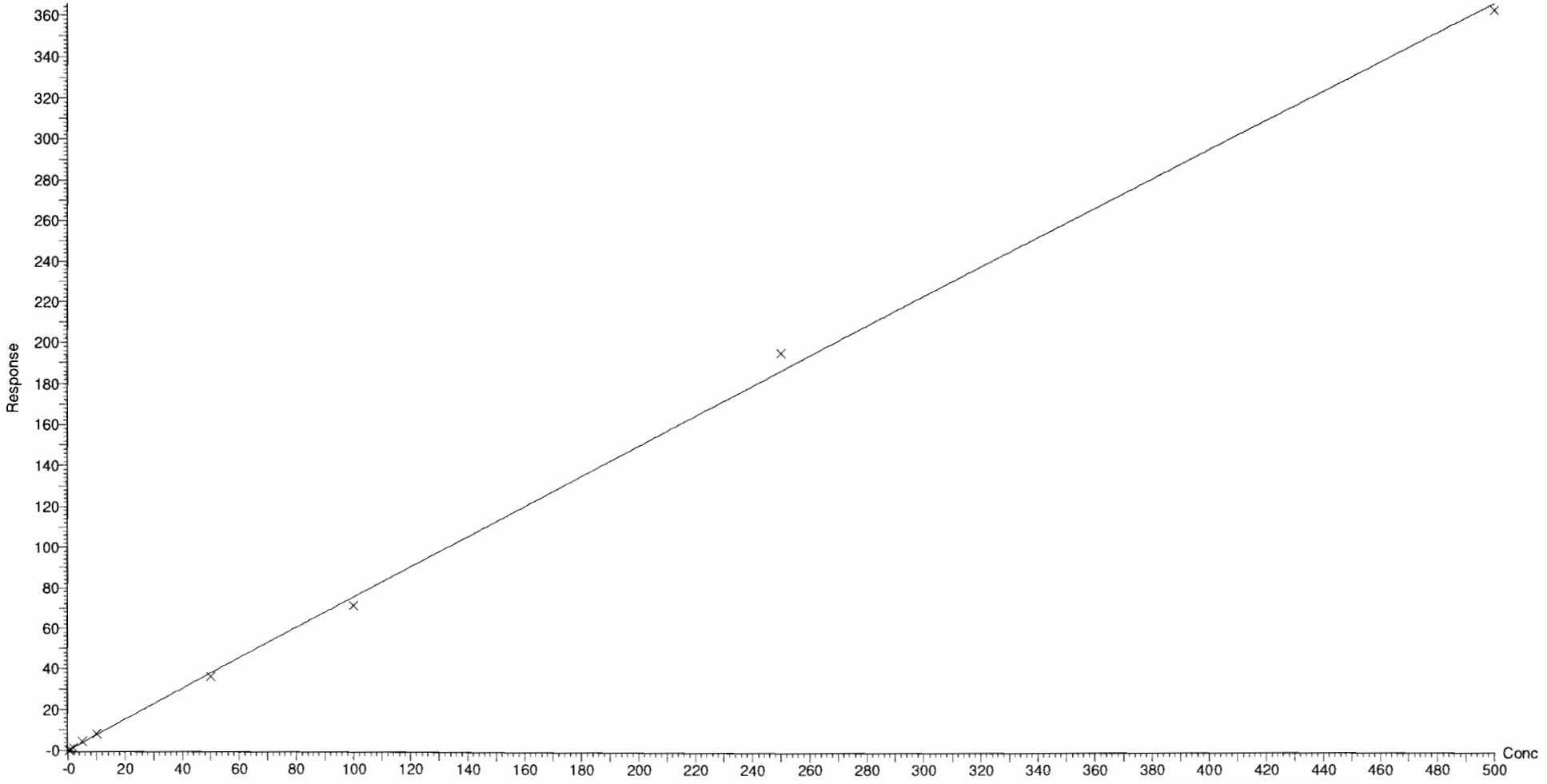
Compound name: 8:2 FTS
Coefficient of Determination: R^2 = 0.998754
Calibration curve: -0.0045567 * x^2 + 1.55189 * x + 0.0660151
Response type: Internal Std (Ref 49), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:13 Pacific Standard Time

Compound name: PFNS
Coefficient of Determination: R^2 = 0.998671
Calibration curve: -6.14234e-005 * x^2 + 0.762317 * x + 0.0530889
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:13 Pacific Standard Time

Compound name: L-MeFOSAA
Coefficient of Determination: R^2 = 0.998550
Calibration curve: -0.00052965 * x^2 + 2.90523 * x + 0.0881852
Response type: Internal Std (Ref 50), Area * (IS Conc. / IS Area)
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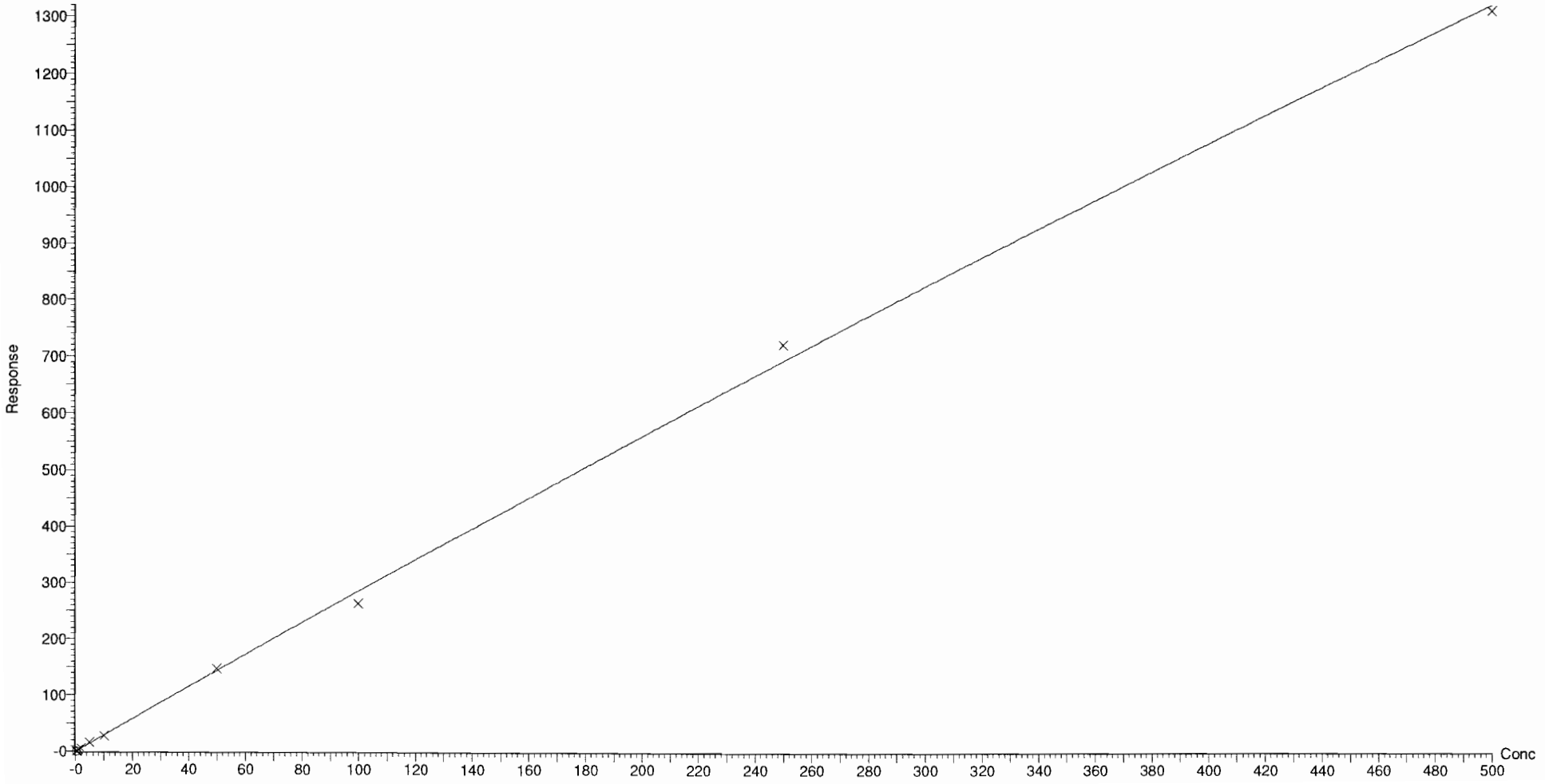

Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:13 Pacific Standard Time

Compound name: L-EtFOSAA
Coefficient of Determination: R^2 = 0.999862
Calibration curve: 0.000386736 * x^2 + 1.61077 * x + 0.0602011
Response type: Internal Std (Ref 52), Area * (IS Conc. / IS Area)
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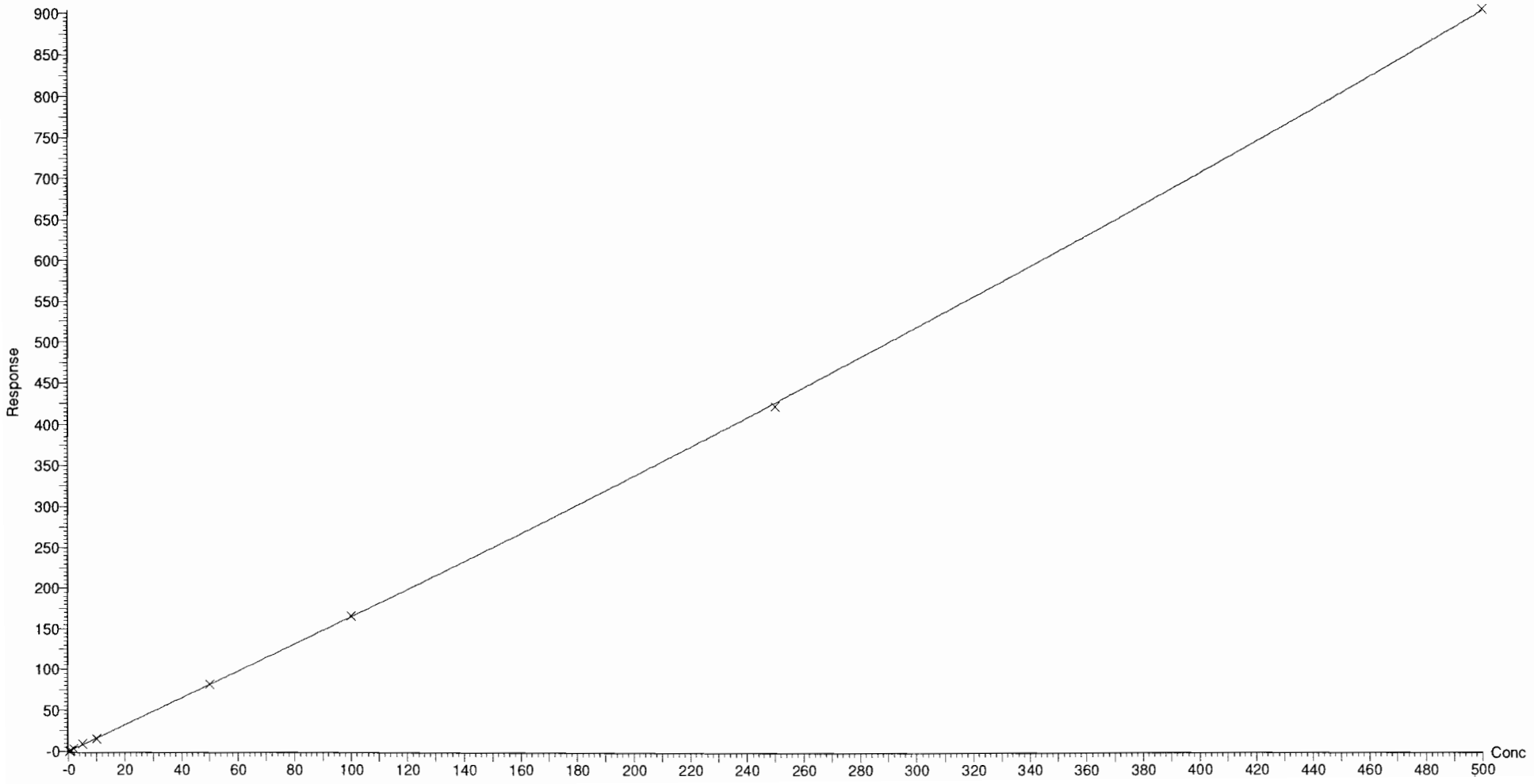


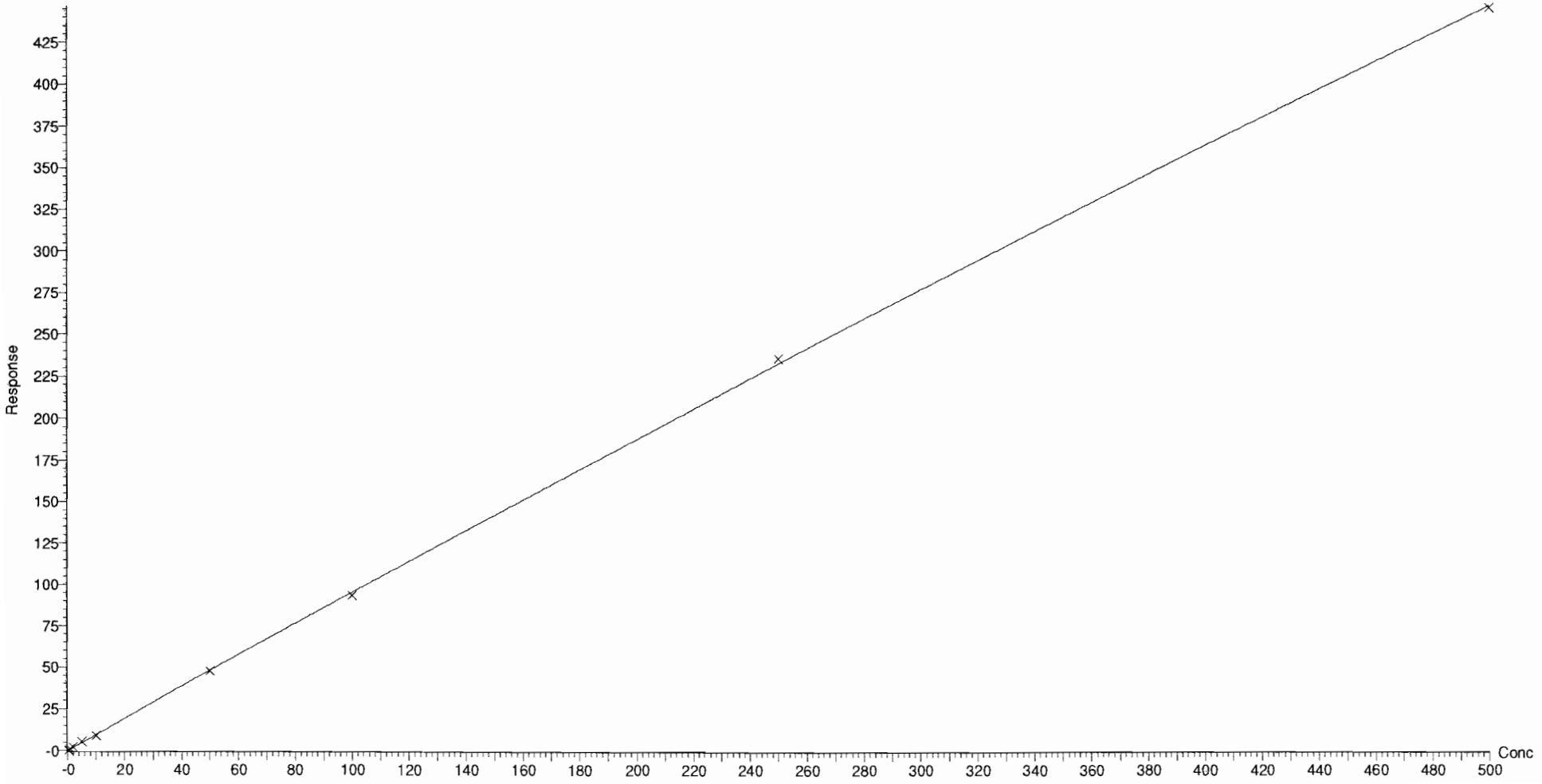
Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:30 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112618.mdb 26 Nov 2018 13:53:04
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Compound name: PFUdA
Coefficient of Determination: R^2 = 0.999703
Calibration curve: -0.000152898 * x^2 + 0.969236 * x + 0.0723136
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

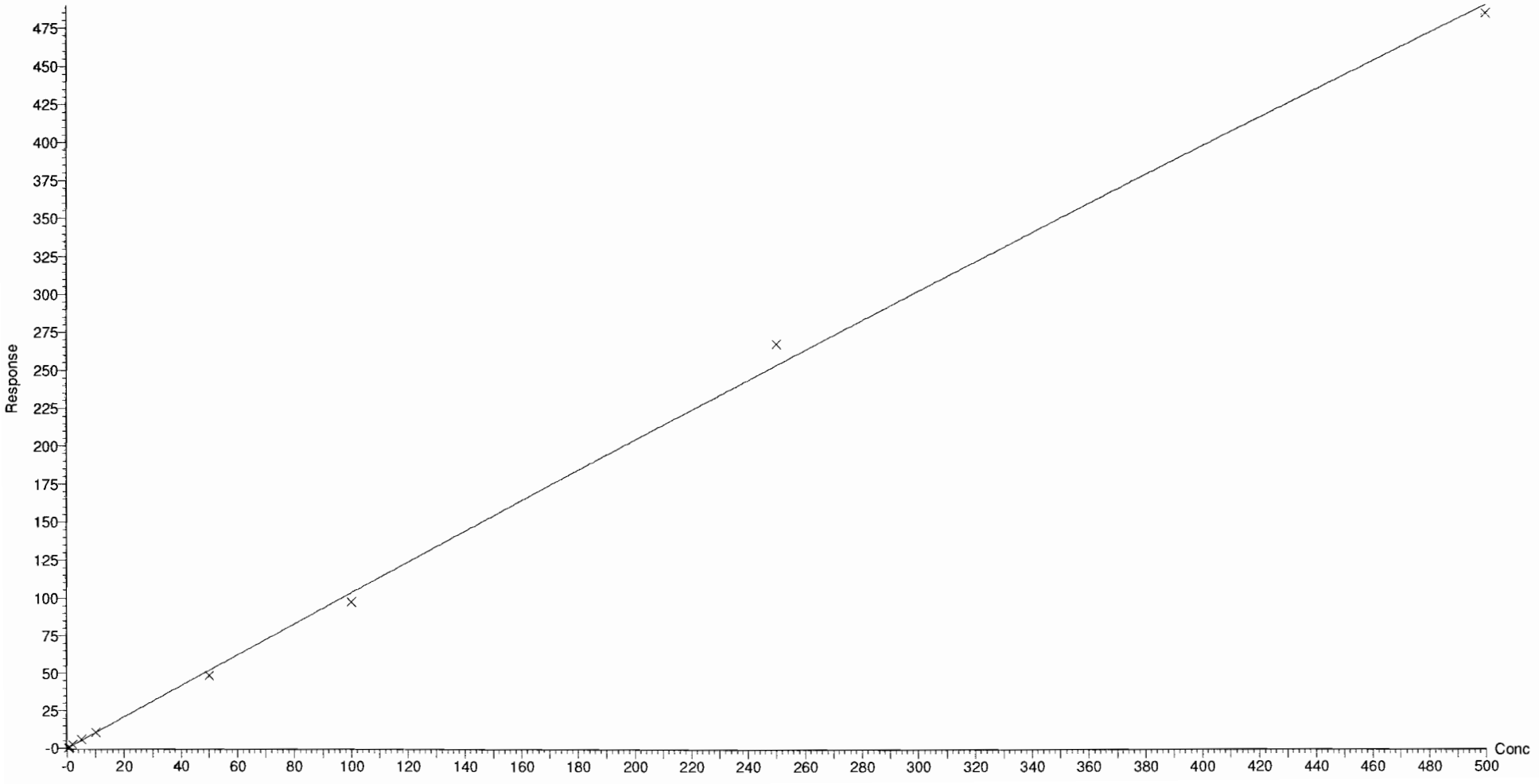


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:30 Pacific Standard Time

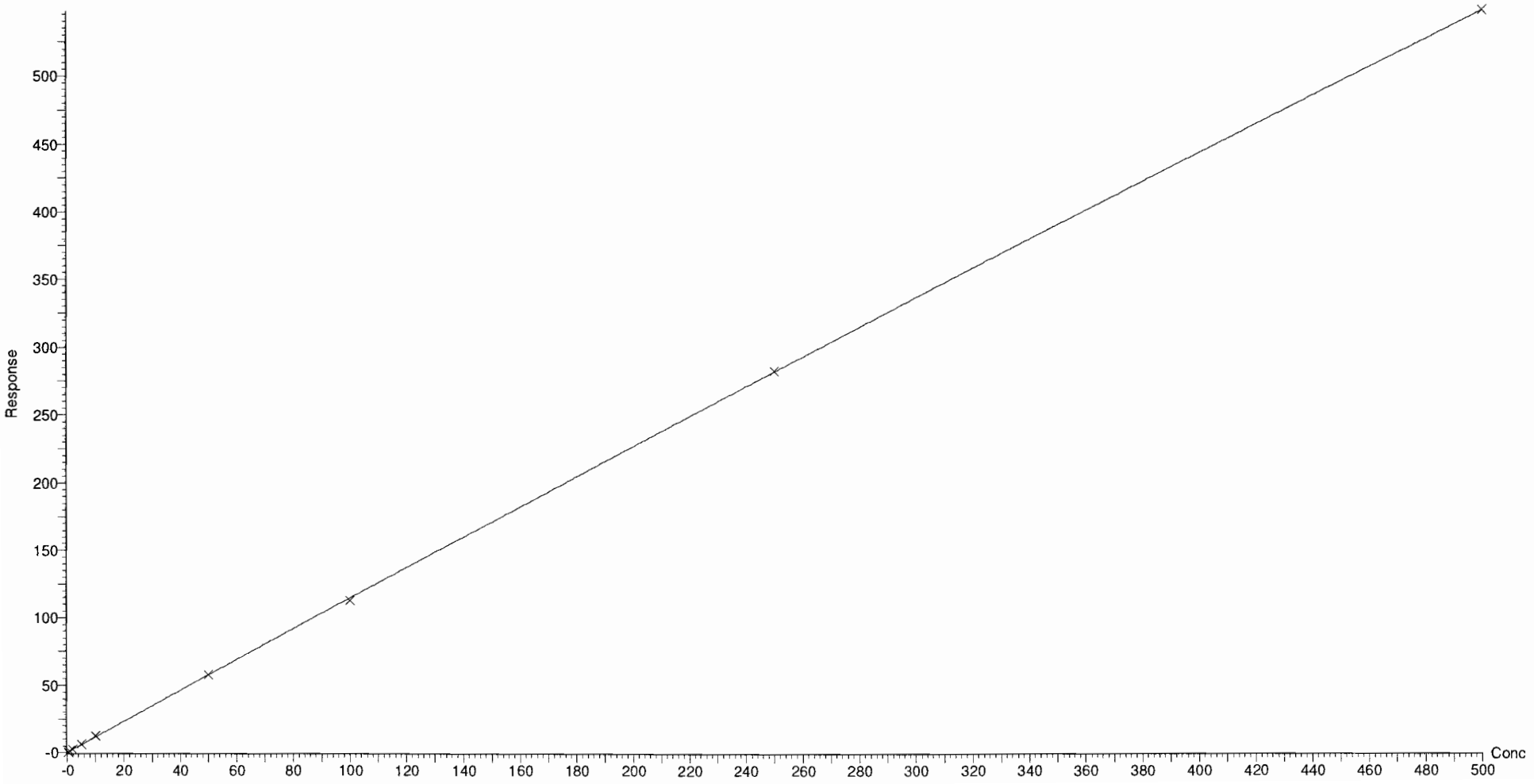
Compound name: PFDS
Coefficient of Determination: R^2 = 0.998317
Calibration curve: -0.000138966 * x^2 + 1.04937 * x + 0.0115389
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:30 Pacific Standard Time

Compound name: PFDoA
Coefficient of Determination: R^2 = 0.999868
Calibration curve: -0.000134587 * x^2 + 1.16156 * x + 0.0671424
Response type: Internal Std (Ref 53), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

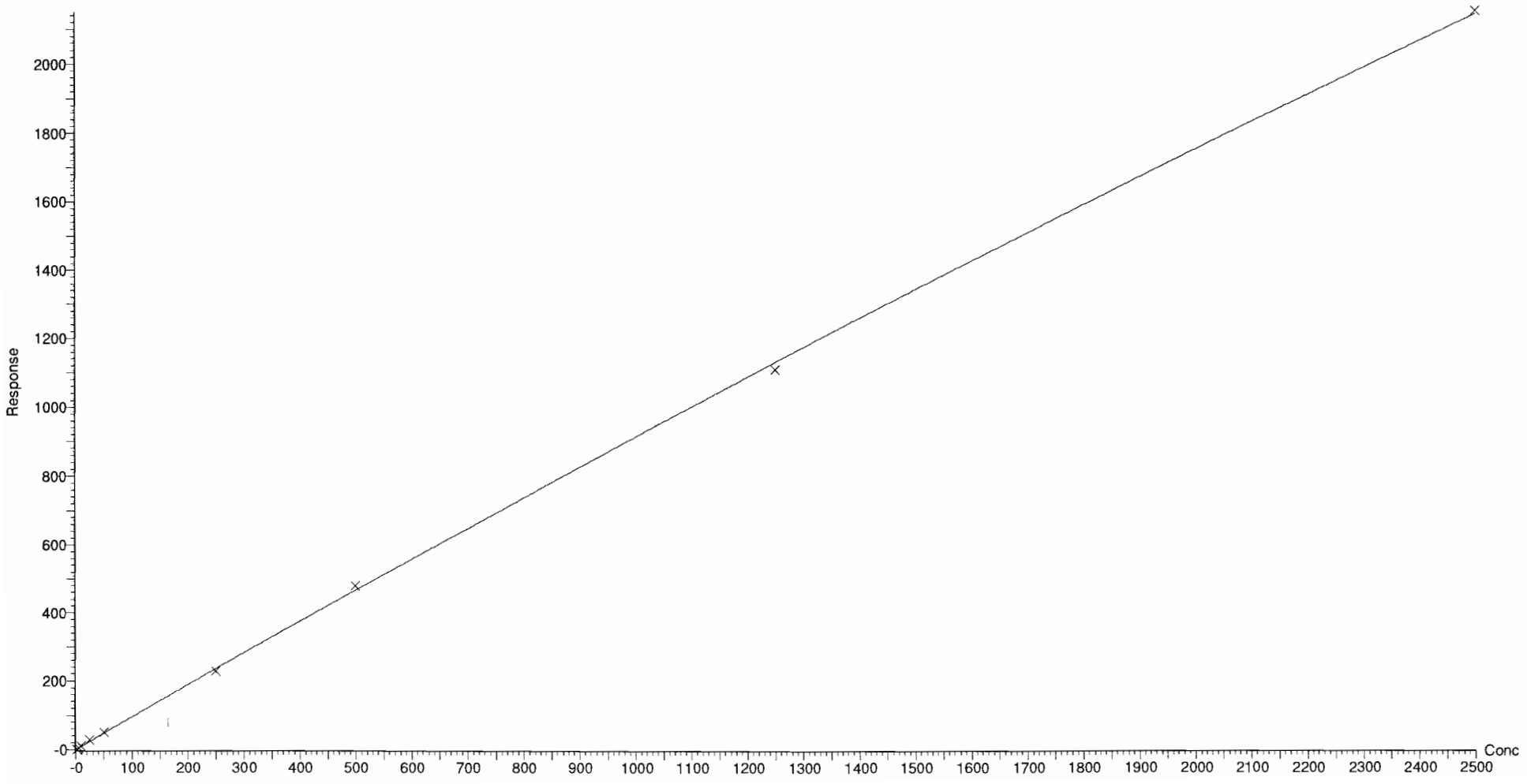


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:30 Pacific Standard Time

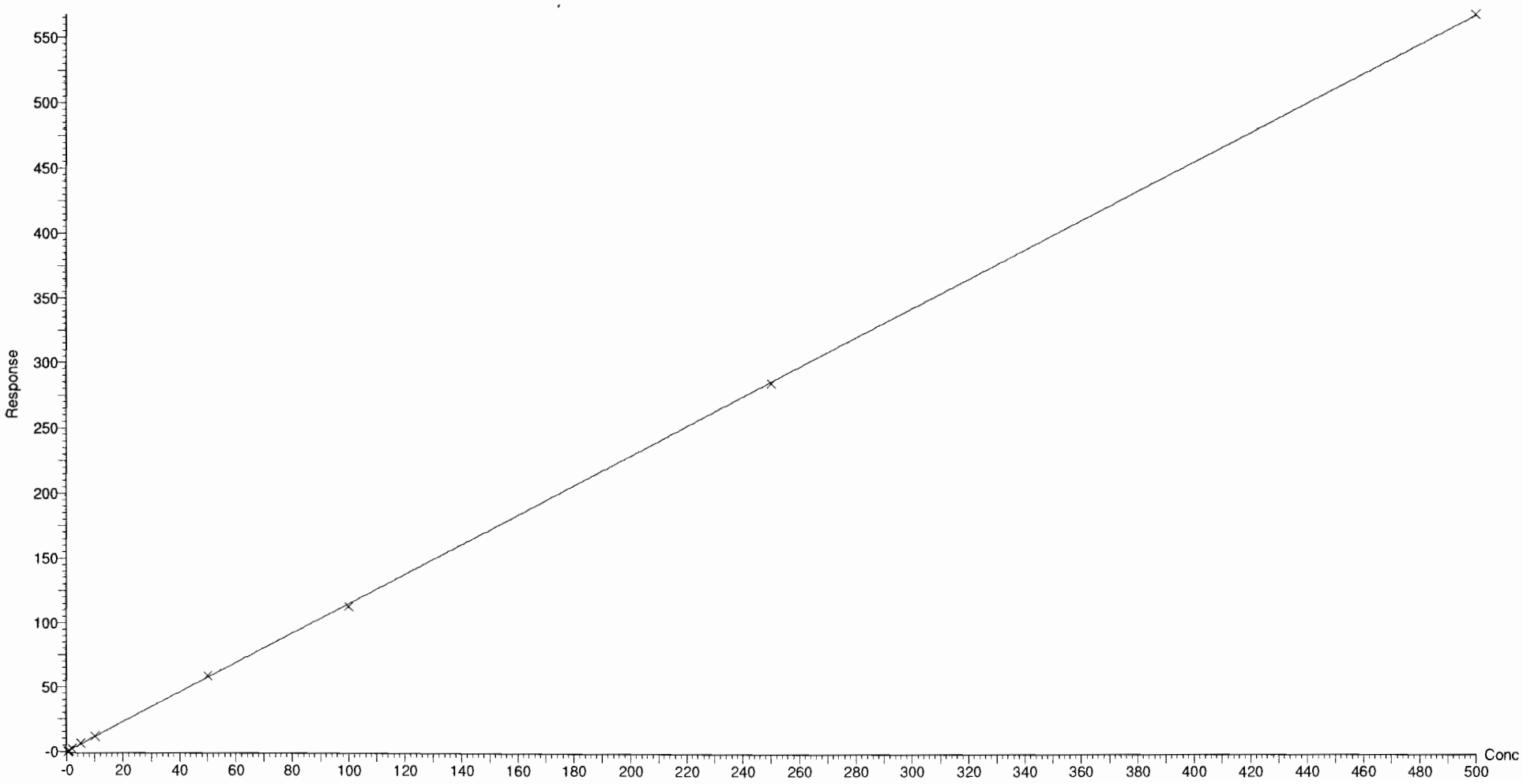
Compound name: N-MeFOSA
Coefficient of Determination: R^2 = 0.999421
Calibration curve: -3.87935e-005 * x^2 + 0.953523 * x + 0.468324
Response type: Internal Std (Ref 54), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:30 Pacific Standard Time

Compound name: PFTrDA
Coefficient of Determination: R^2 = 0.999827
Calibration curve: -4.24277e-005 * x^2 + 1.15539 * x + 0.0691663
Response type: Internal Std (Ref 53), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

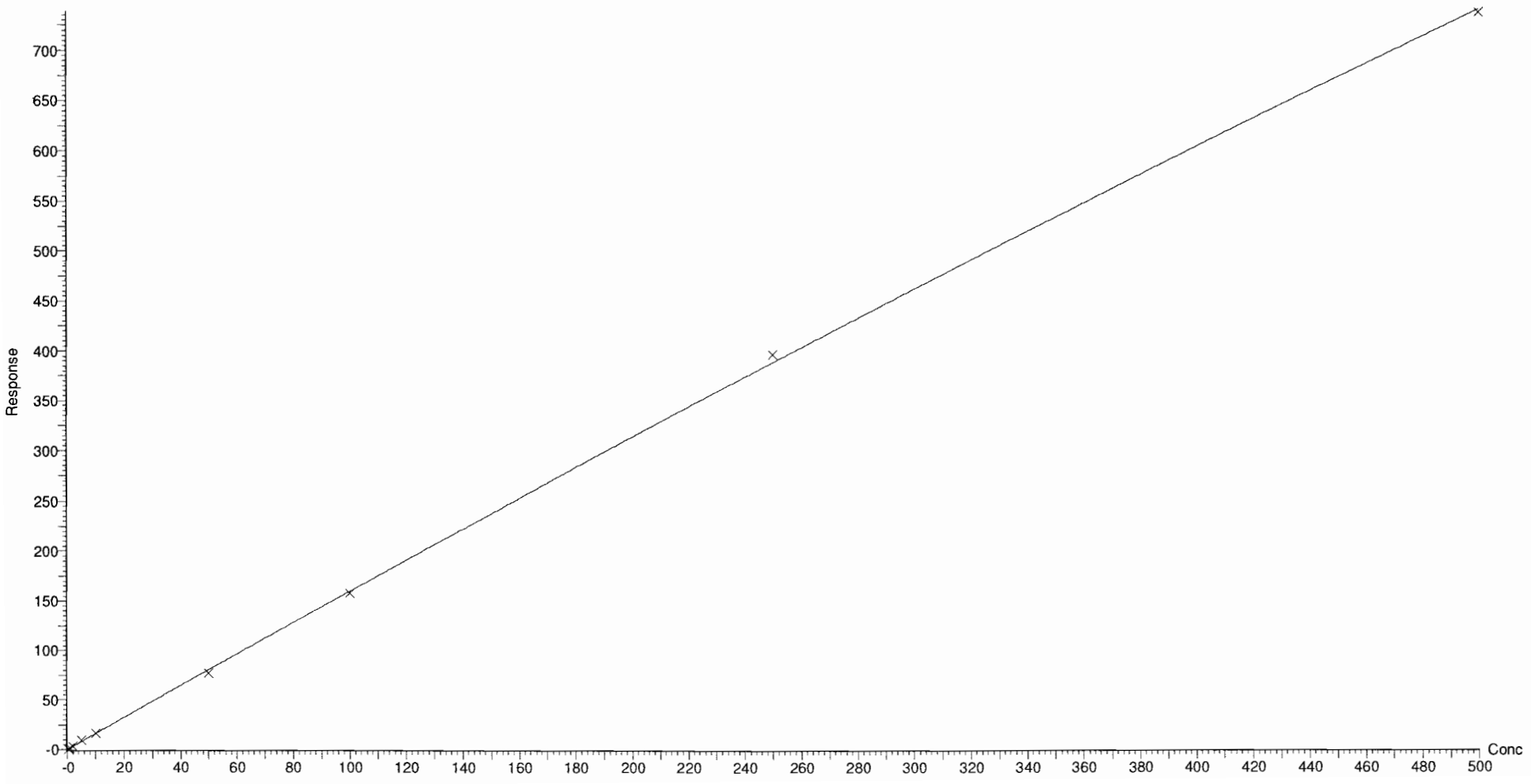


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:30 Pacific Standard Time

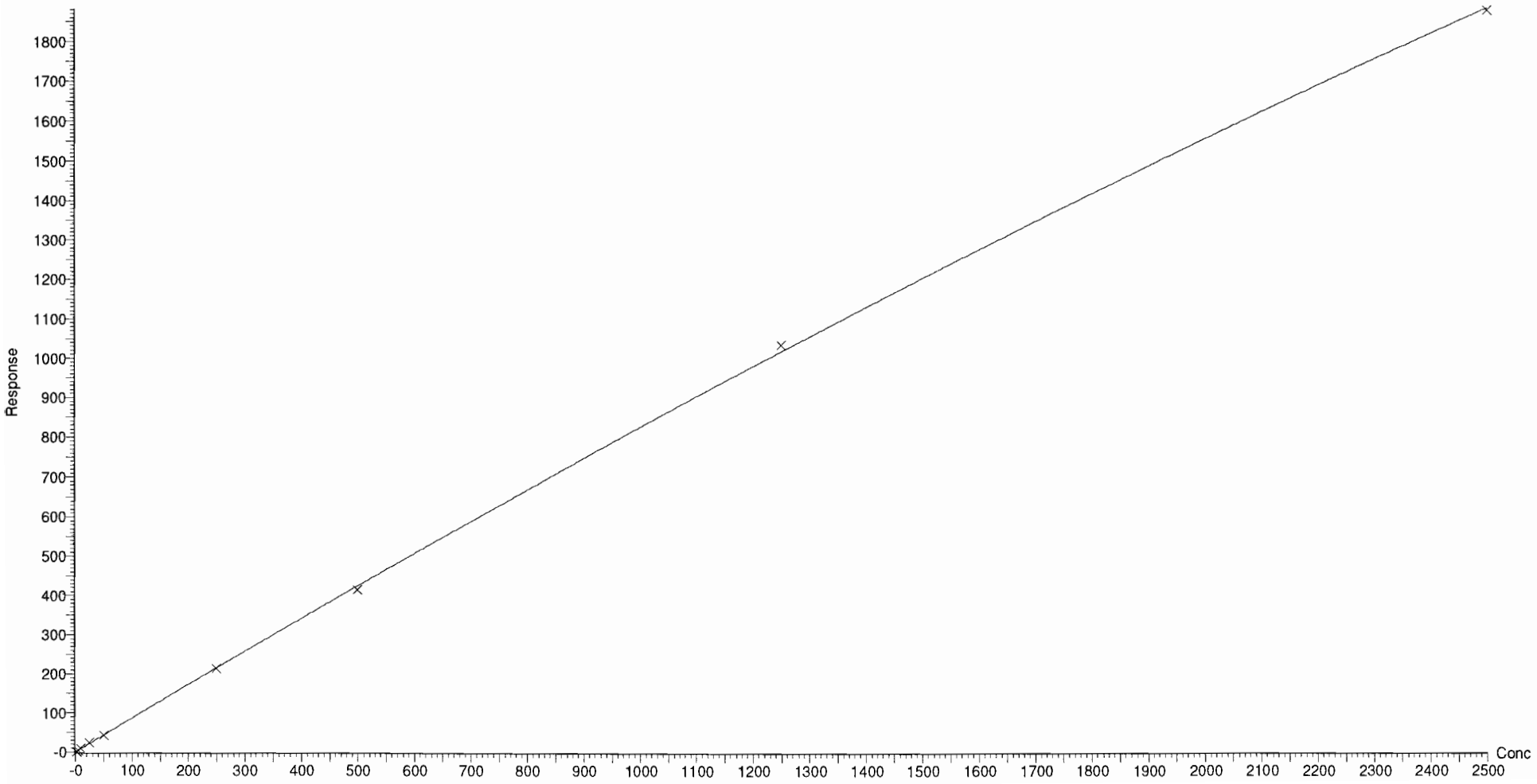
Compound name: PFTeDA
Coefficient of Determination: R^2 = 0.999640
Calibration curve: -0.000300636 * x^2 + 1.62832 * x + 0.0899878
Response type: Internal Std (Ref 55), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:30 Pacific Standard Time

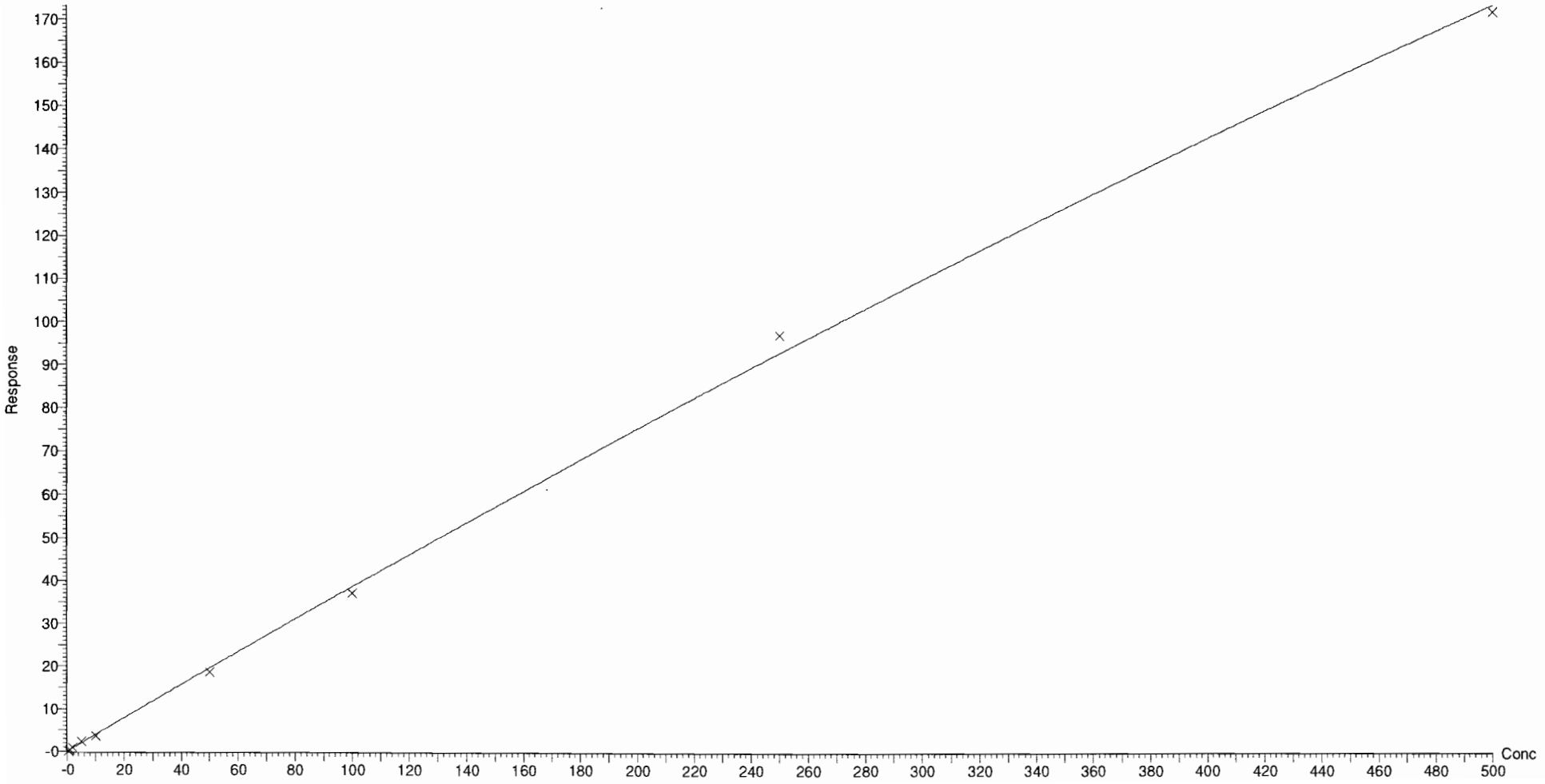
Compound name: N-EtFOSA
Coefficient of Determination: R^2 = 0.999752
Calibration curve: -4.89024e-005 * x^2 + 0.875046 * x + 0.265554
Response type: Internal Std (Ref 56), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:30 Pacific Standard Time

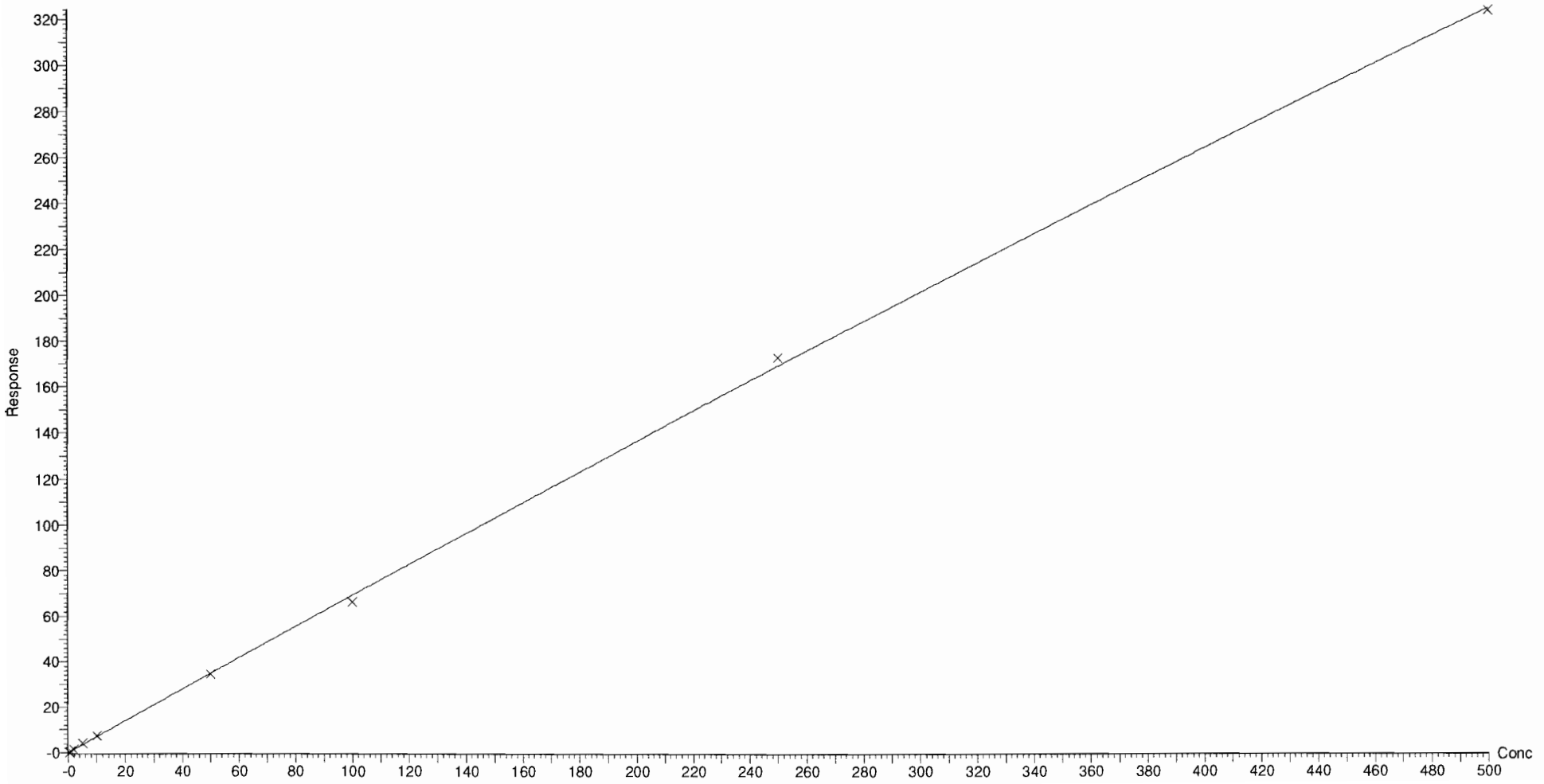
Compound name: PFHxDA
Coefficient of Determination: R^2 = 0.998670
Calibration curve: -9.94628e-005 * x^2 + 0.395894 * x + 0.0669369
Response type: Internal Std (Ref 57), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:30 Pacific Standard Time

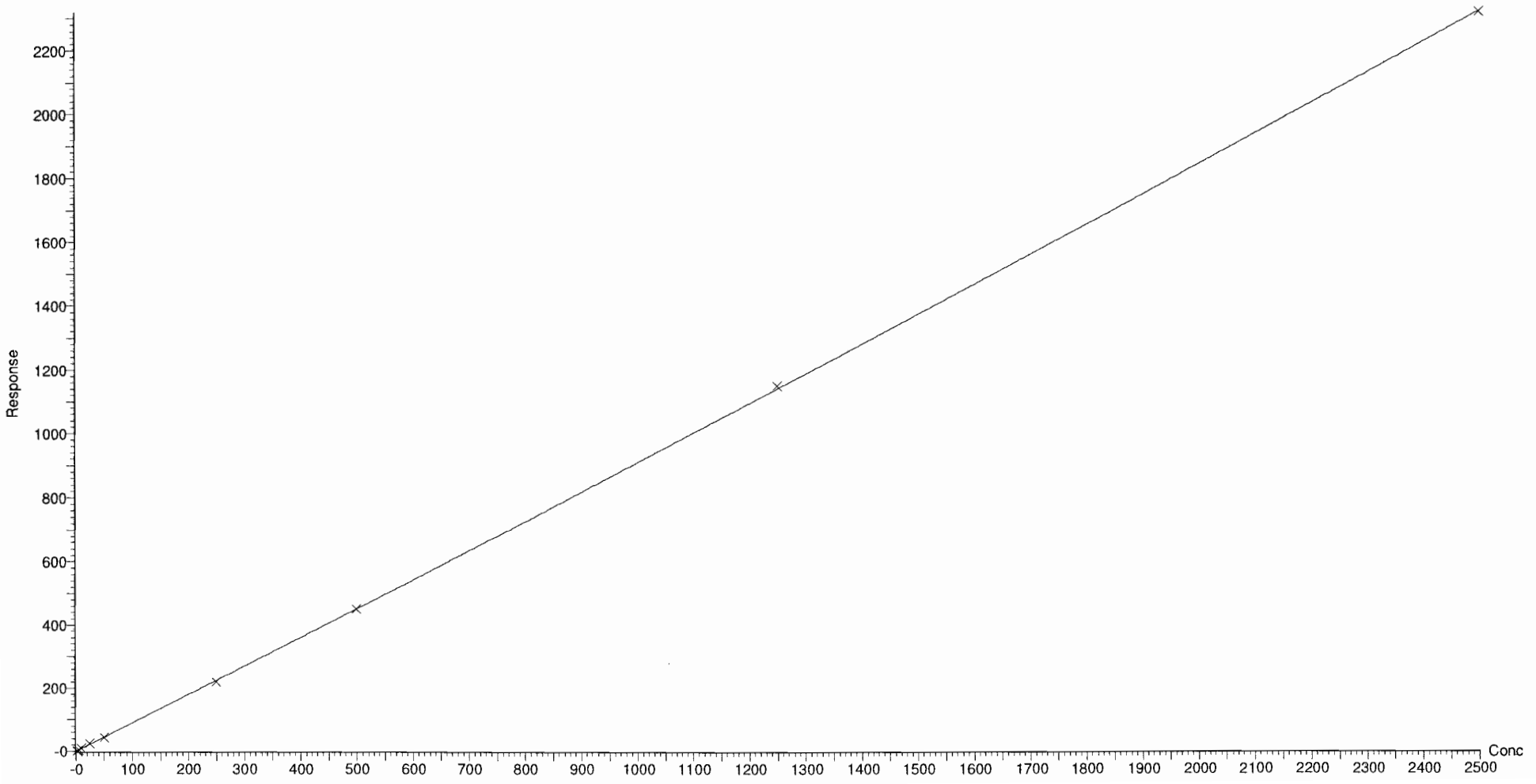
Compound name: PFODA
Coefficient of Determination: R^2 = 0.999437
Calibration curve: -0.000110262 * x^2 + 0.704083 * x + 0.0275186
Response type: Internal Std (Ref 57), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:30 Pacific Standard Time

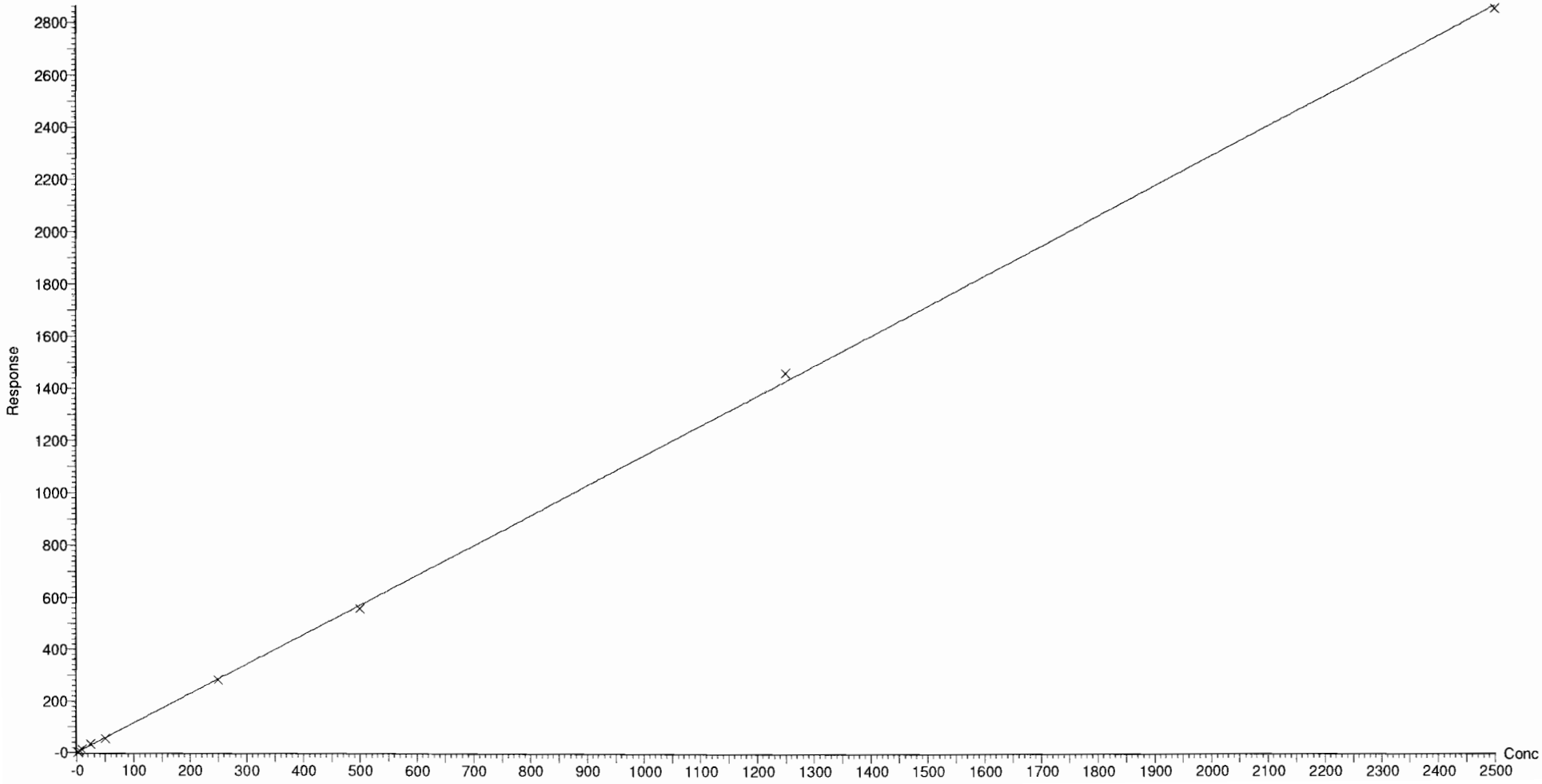
Compound name: N-MeFOSE
Coefficient of Determination: R^2 = 0.999885
Calibration curve: 1.26969e-005 * x^2 + 0.895945 * x + 0.479162
Response type: Internal Std (Ref 58), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:29:06 Pacific Standard Time
Printed: Monday, November 26, 2018 14:52:30 Pacific Standard Time

Compound name: N-EtFOSE
Coefficient of Determination: R^2 = 0.999668
Calibration curve: 1.15732e-006 * x^2 + 1.14211 * x + 0.352591
Response type: Internal Std (Ref 59), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Vista Analytical Laboratory

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

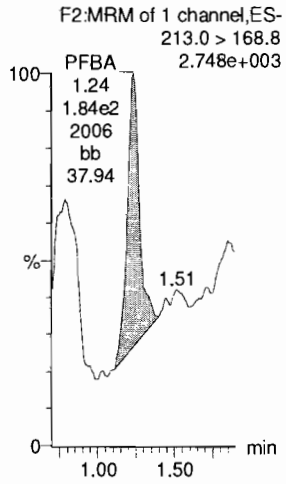
Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112618.mdb 26 Nov 2018 13:53:04
Calibration: 26 Nov 2018 14:09:42

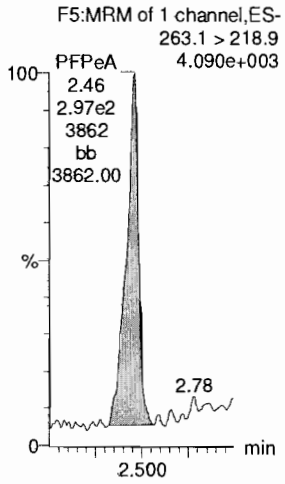
1 AD 11/27/18

Name: 181126M1_2, Date: 26-Nov-2018, Time: 11:45:59, ID: ST181126M2-1 PFC CS-2 18K1901, Description: PFC CS-2 18K1901

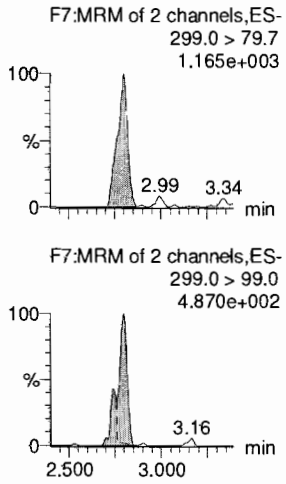
PFBA



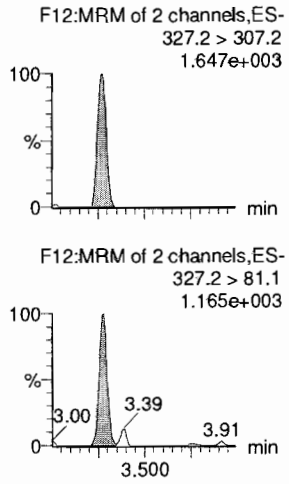
PFPeA



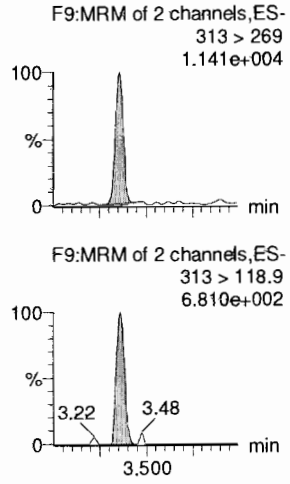
PFBS



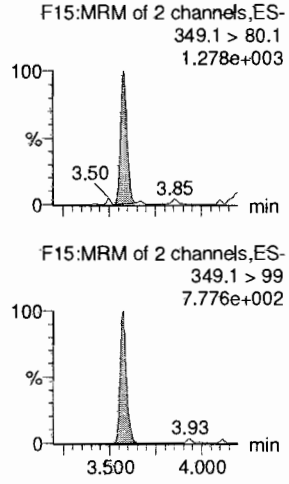
4:2 FTS



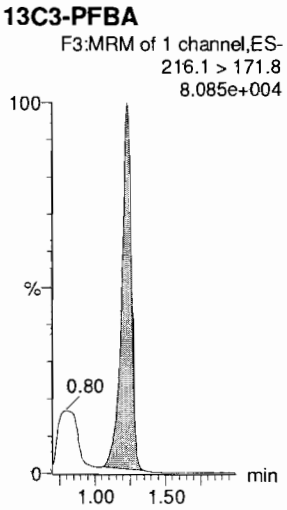
PFHxA



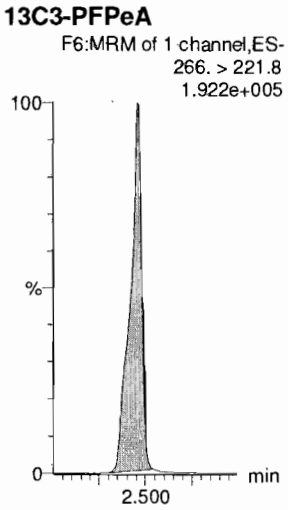
PFPeS



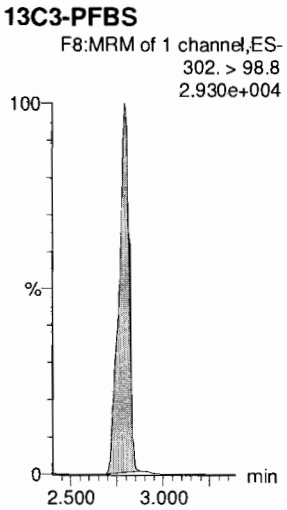
13C3-PFBA



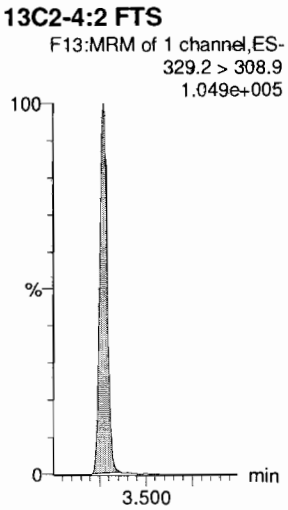
13C3-PFPeA



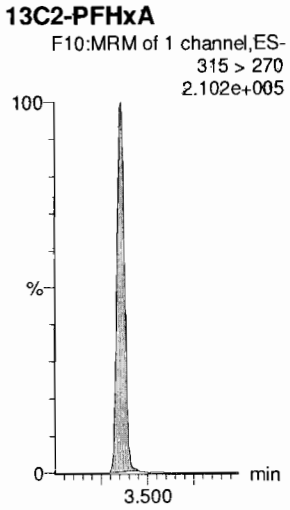
13C3-PFBS



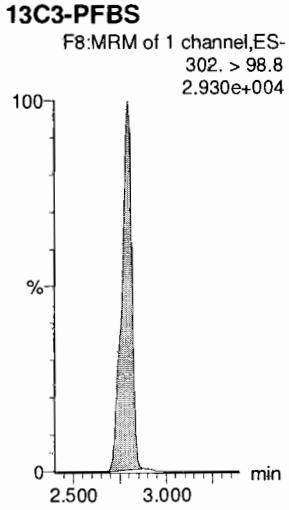
13C2-4:2 FTS



13C2-PFHxA



13C3-PFBS

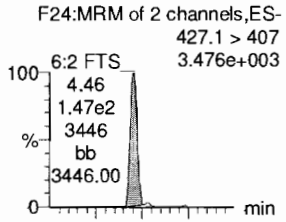


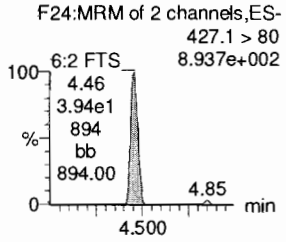
Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

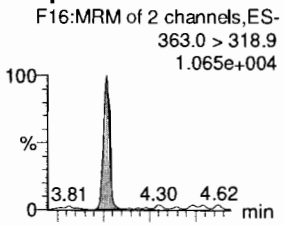
Name: 181126M1_2, Date: 26-Nov-2018, Time: 11:45:59, ID: ST181126M2-1 PFC CS-2 18K1901, Description: PFC CS-2 18K1901

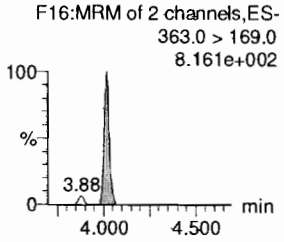
6:2 FTS



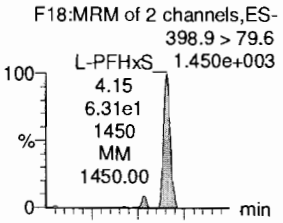


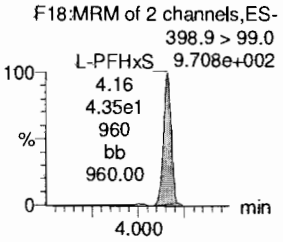
PFHpA



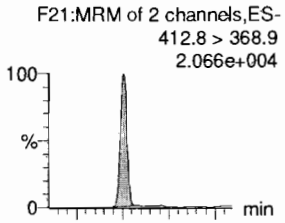


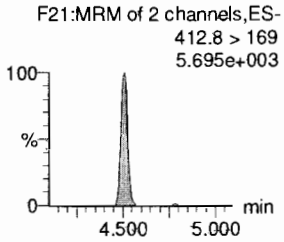
L-PFHxS



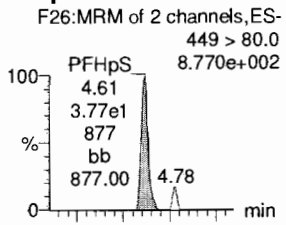


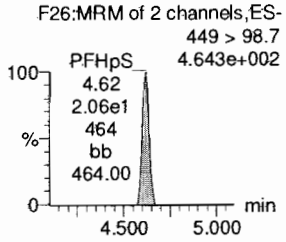
L-PFOA



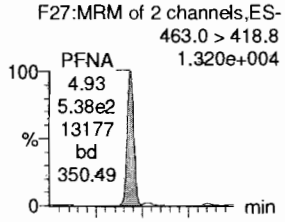


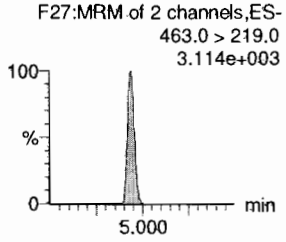
PFHpS



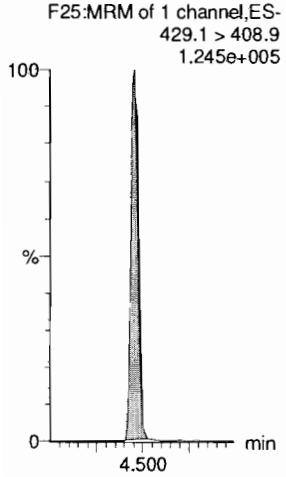


PFNA

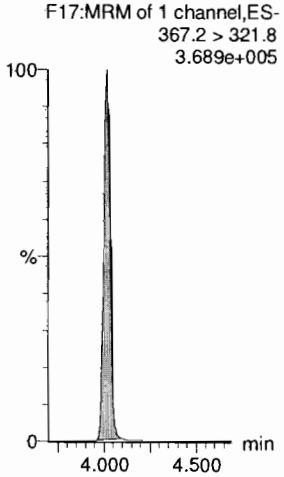




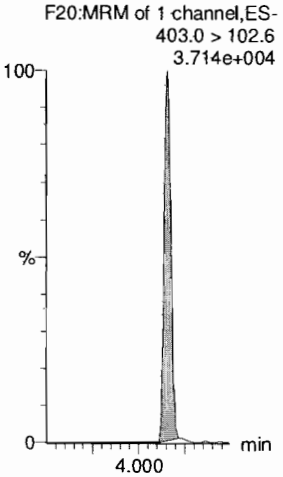
13C2-6:2 FTS



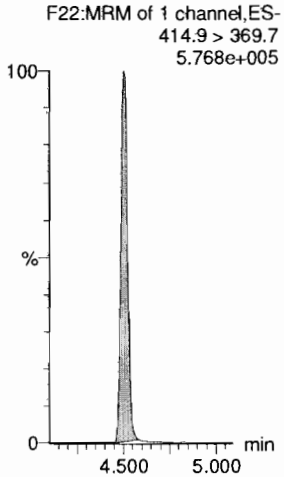
13C4-PFHpA



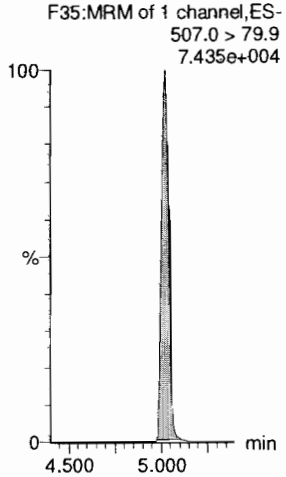
18O2-PFHxS



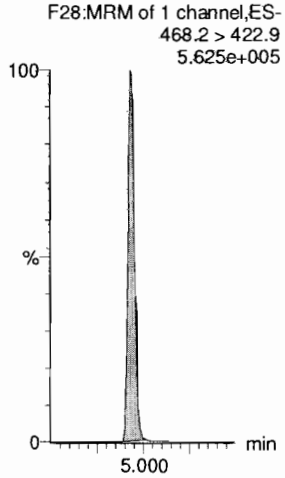
13C2-PFOA



13C8-PFOS



13C5-PFNA

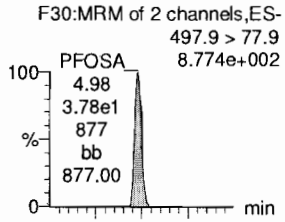


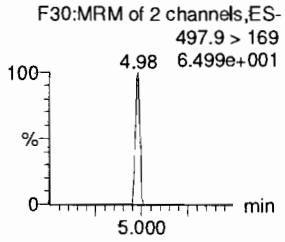
Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

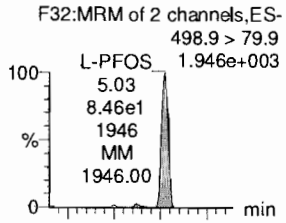
Name: 181126M1_2, Date: 26-Nov-2018, Time: 11:45:59, ID: ST181126M2-1 PFC CS-2 18K1901, Description: PFC CS-2 18K1901

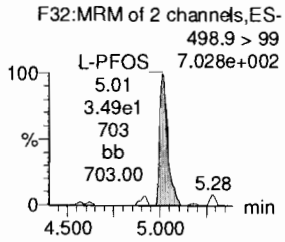
PFOSA



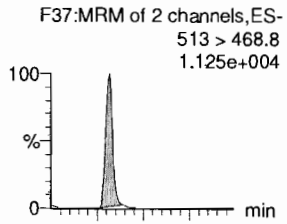


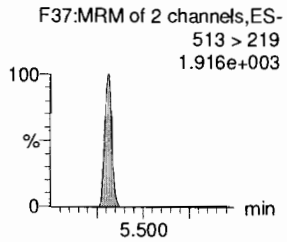
L-PFOS



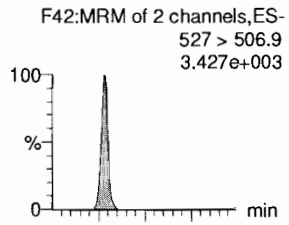


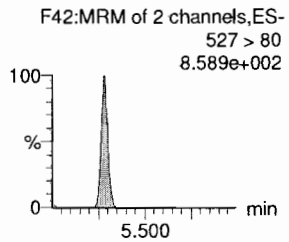
PFDA



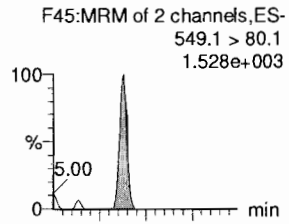


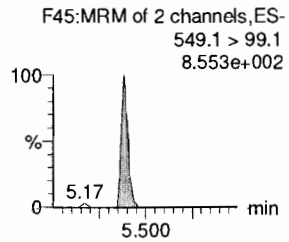
8:2 FTS



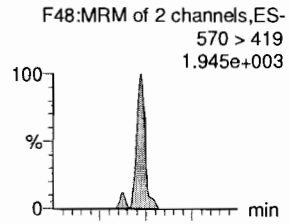


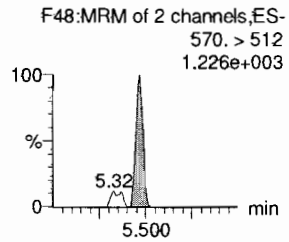
PFNS



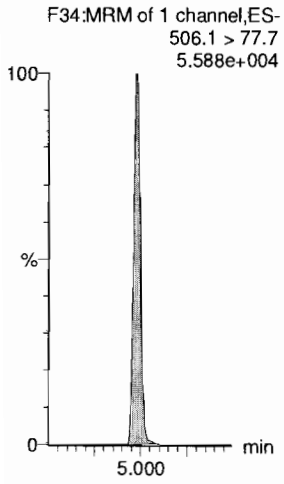


L-MeFOSAA

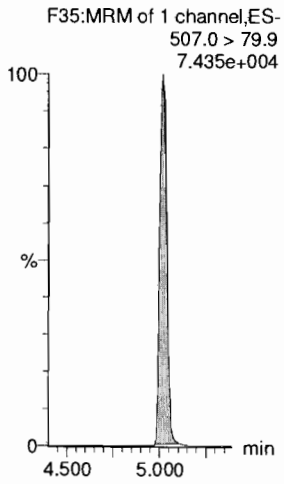




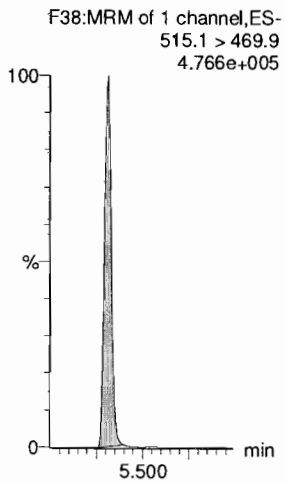
13C8-PFOSA



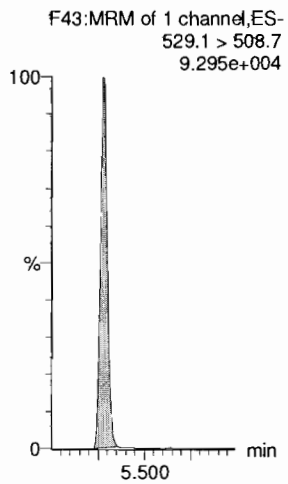
13C8-PFOS



13C2-PFDA



13C2-8:2 FTS



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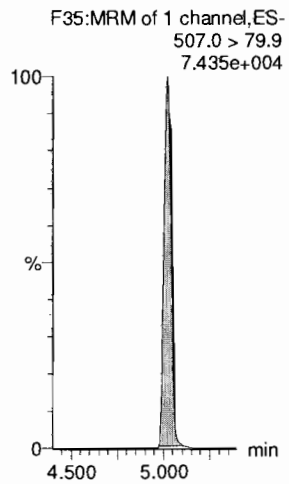
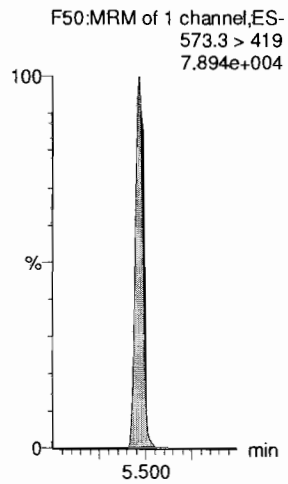


d3-N-MeFOSAA



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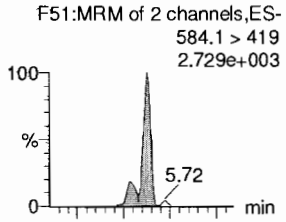
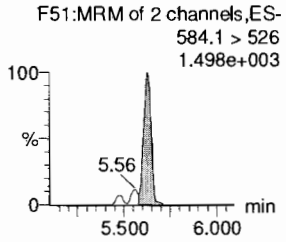
Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

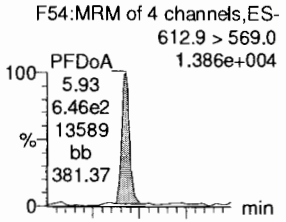
Name: 181126M1_2, Date: 26-Nov-2018, Time: 11:45:59, ID: ST181126M2-1 PFC CS-2 18K1901, Description: PFC CS-2 18K1901

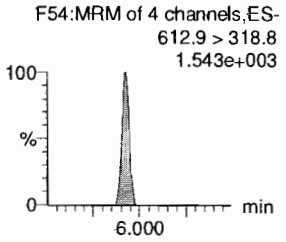
L-EtFOSAA



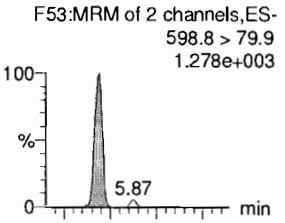


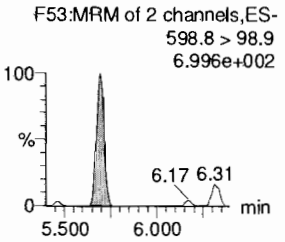
PFDoA



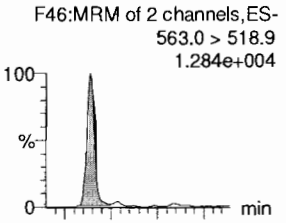


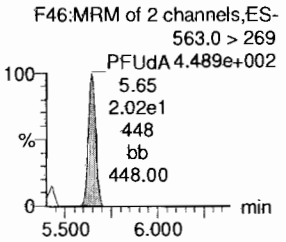
PFDS



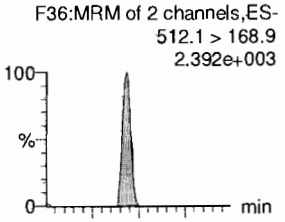


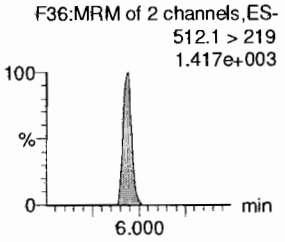
PFUdA



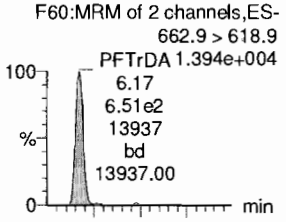


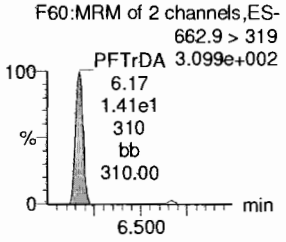
N-MeFOSA



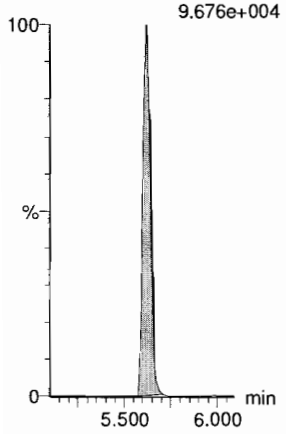


PFTrDA

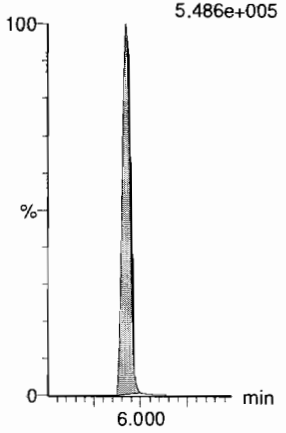




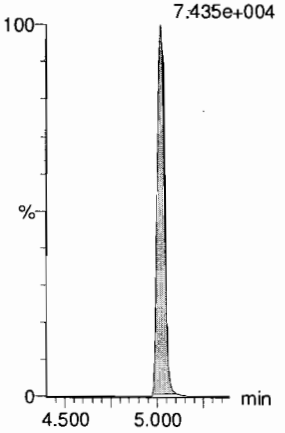
d5-N-EtFOSAA



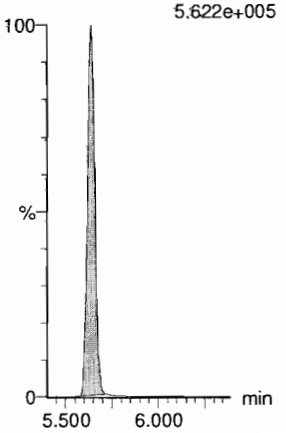
13C2-PFDoA



13C8-PFOS



13C2-PFUdA



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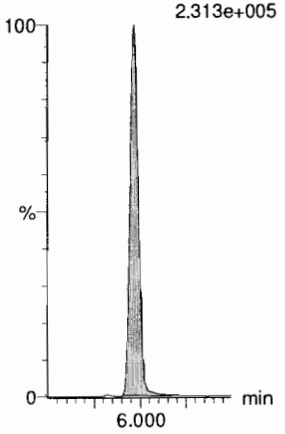
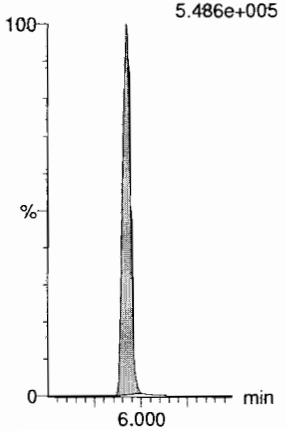


13C2-PFDoA



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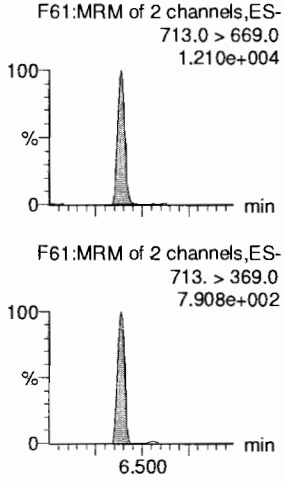
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

Name: 181126M1_2, Date: 26-Nov-2018, Time: 11:45:59, ID: ST181126M2-1 PFC CS-2 18K1901, Description: PFC CS-2 18K1901

PFTeDA



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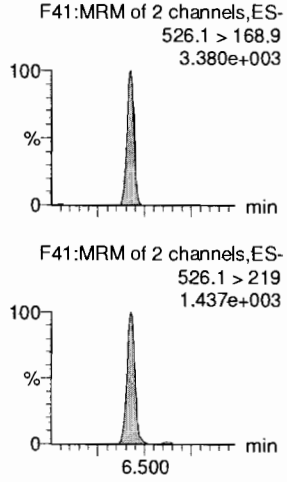
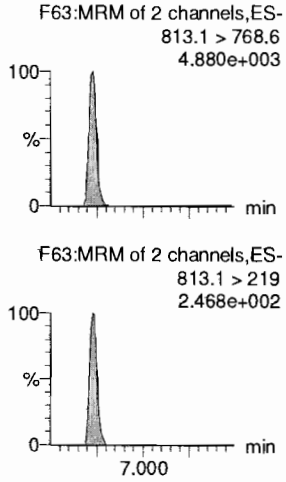
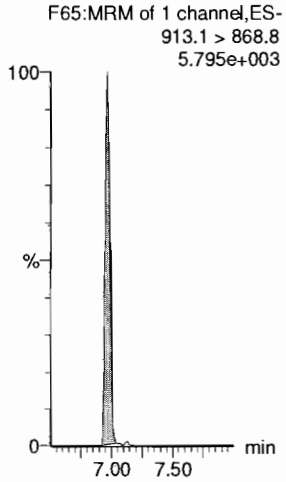


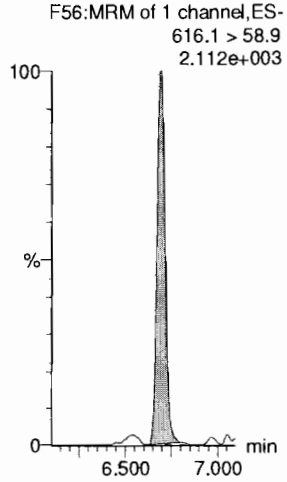
PFHxDA



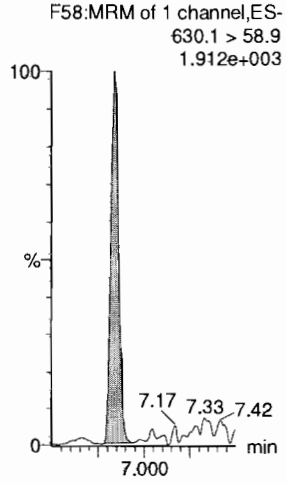
PFODA



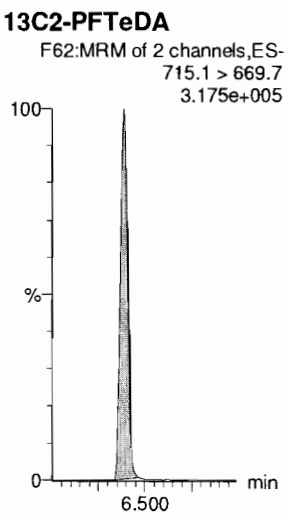
N-MeFOSE



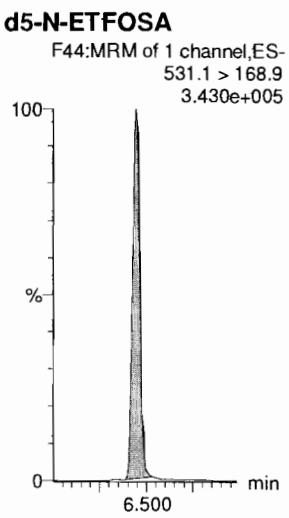
N-EtFOSE



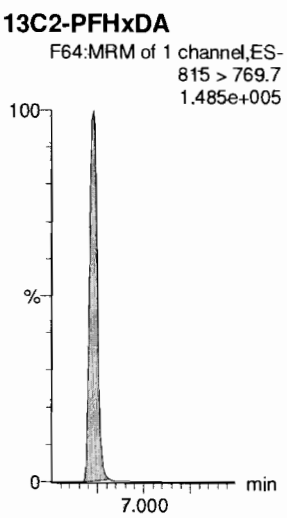
13C2-PFTeDA



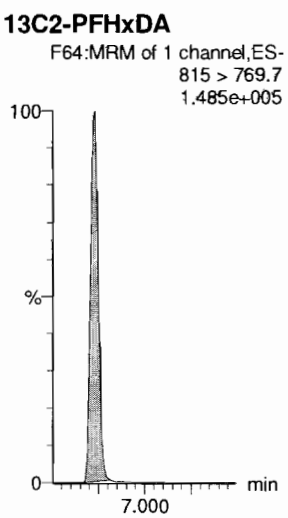
d5-N-ETFOSA



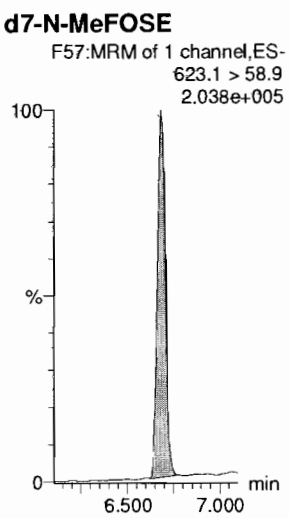
13C2-PFHxDA



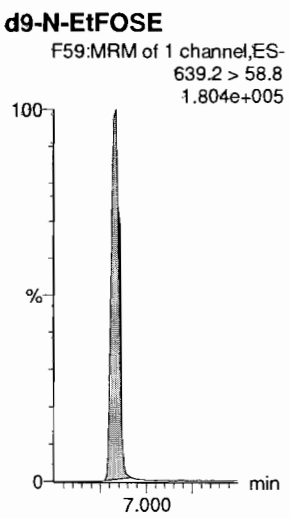
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

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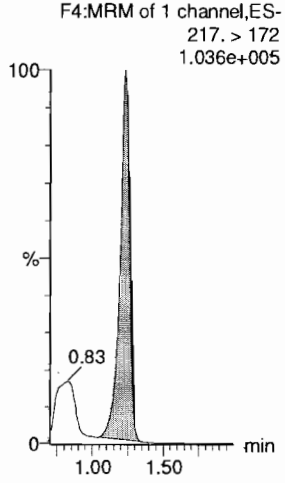
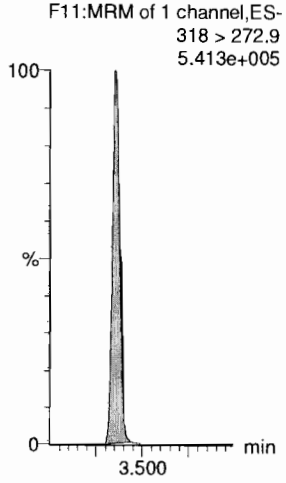
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

Name: 181126M1_2, Date: 26-Nov-2018, Time: 11:45:59, ID: ST181126M2-1 PFC CS-2 18K1901, Description: PFC CS-2 18K1901

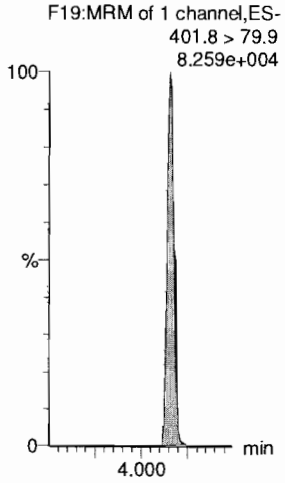
13C4-PFBA



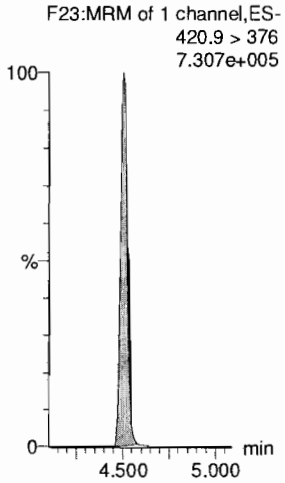
13C5-PFHxA



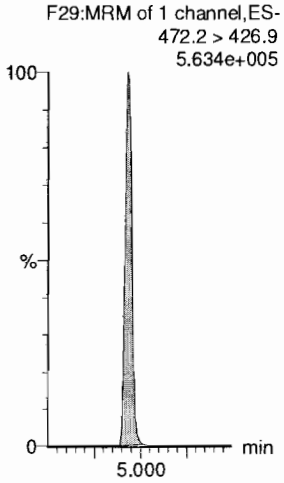
13C3-PFHxS



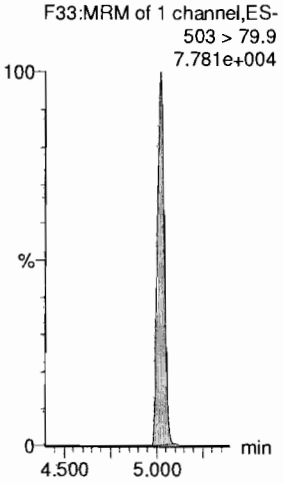
13C8-PFOA



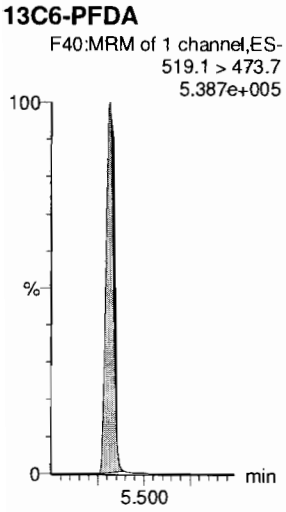
13C9-PFNA



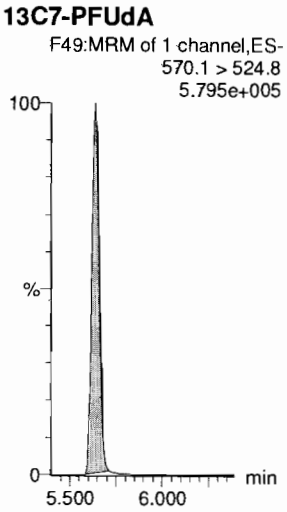
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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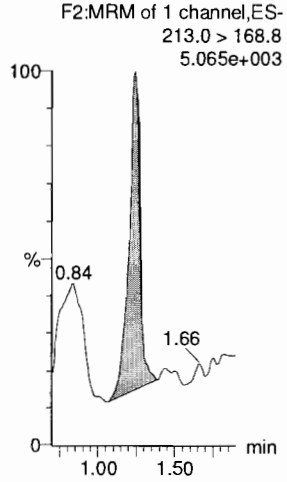
Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

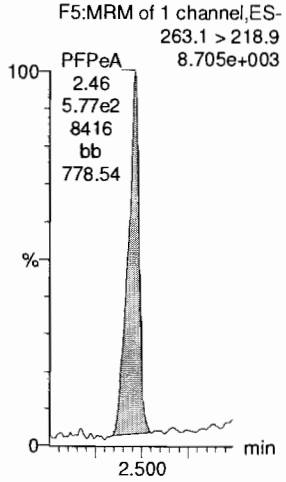
1 AD 11/27/18

Name: 181126M1_3, Date: 26-Nov-2018, Time: 11:56:32, ID: ST181126M1-2 PFC CS-1 18K1902, Description: PFC CS-1 18K1902

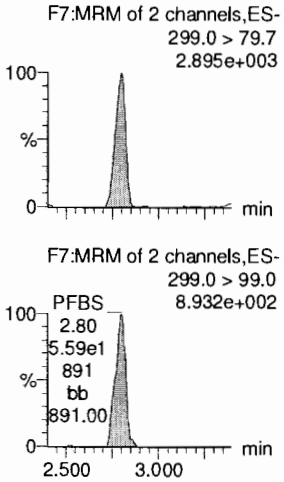
PFBA



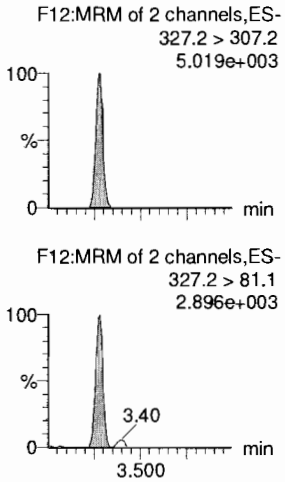
PFPeA



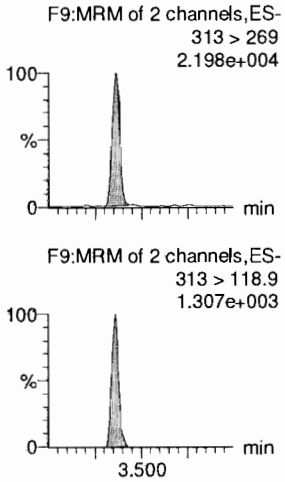
PFBS



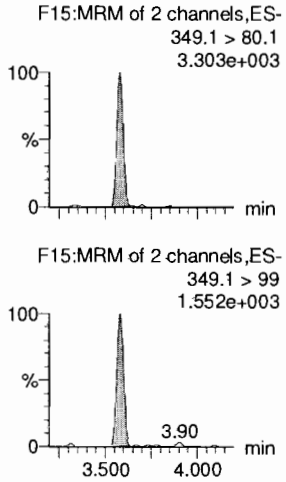
4:2 FTS



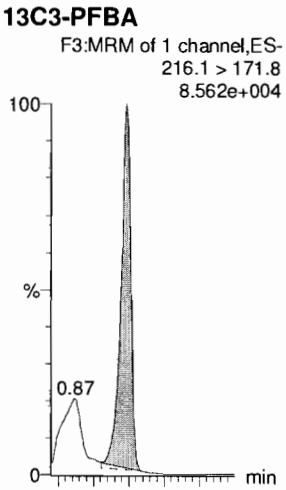
PFHxA



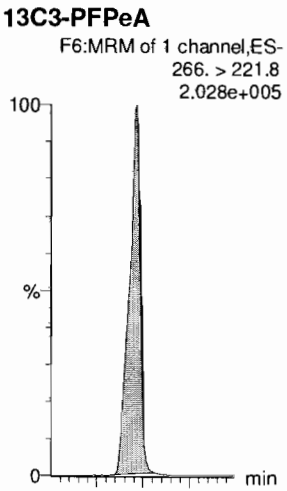
PFPeS



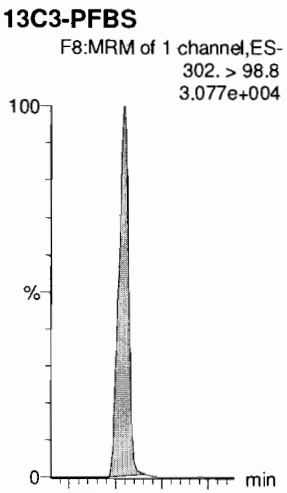
13C3-PFBA



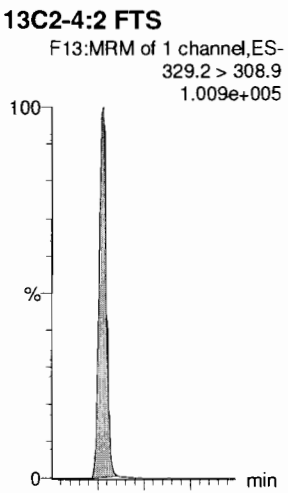
13C3-PFPeA



13C3-PFBS



13C2-4:2 FTS



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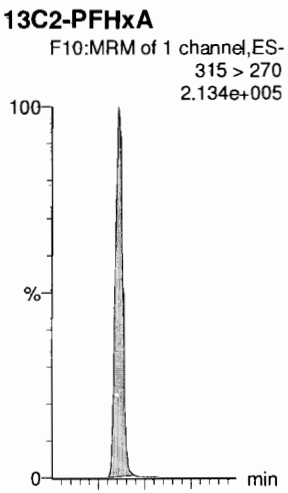

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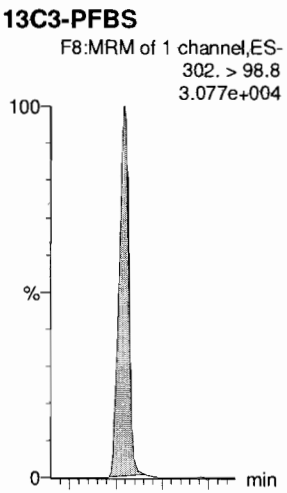
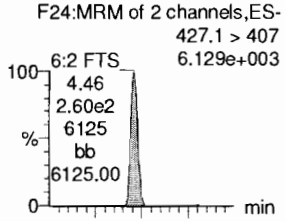


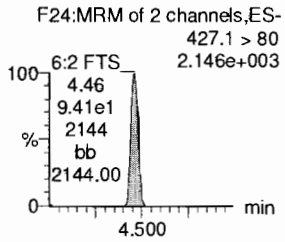
Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

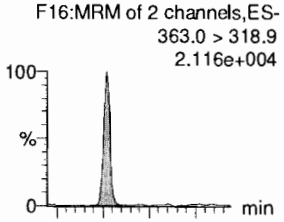
Name: 181126M1_3, Date: 26-Nov-2018, Time: 11:56:32, ID: ST181126M2-2 PFC CS-1 18K1902, Description: PFC CS-1 18K1902

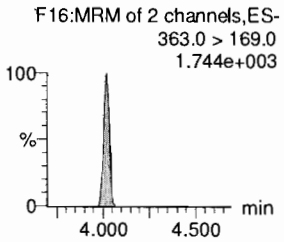
6:2 FTS



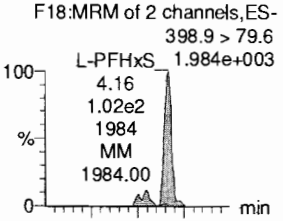


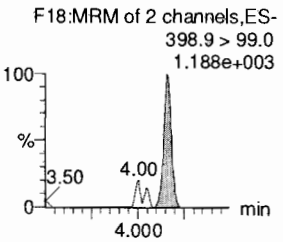
PFHpA



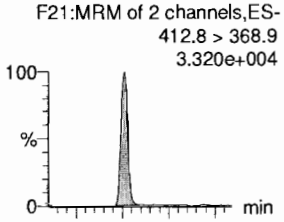


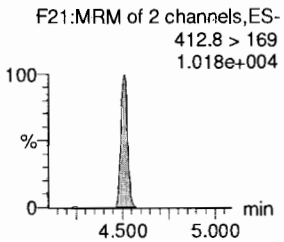
L-PFHxS





L-PFOA





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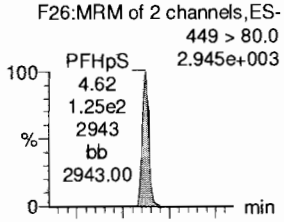

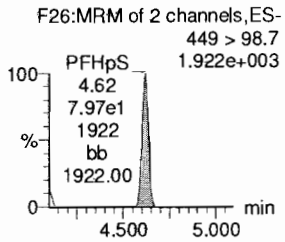

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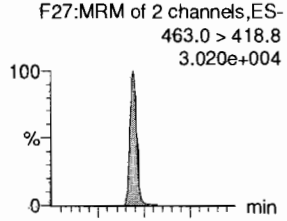
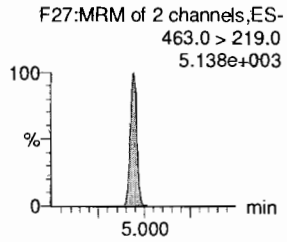
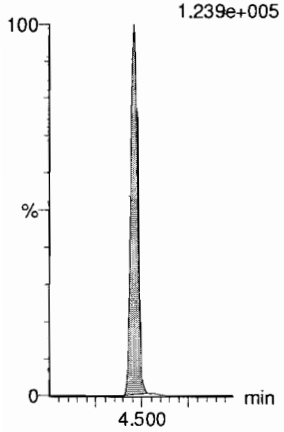
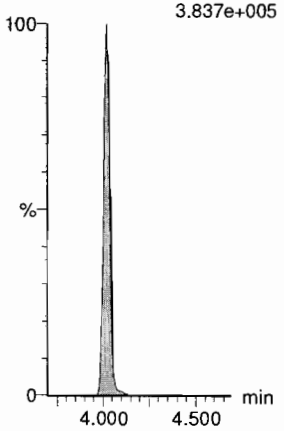




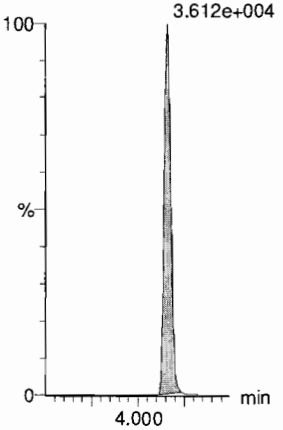
13C2-6:2 FTS



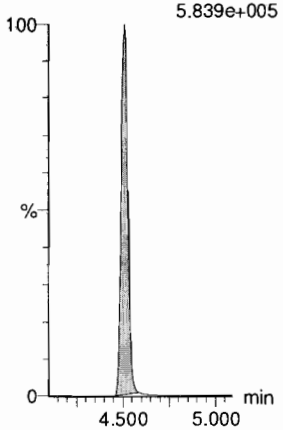
13C4-PFHpA



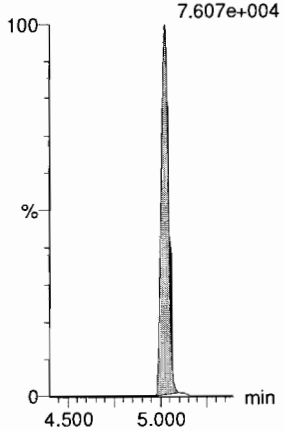
18O2-PFHxS



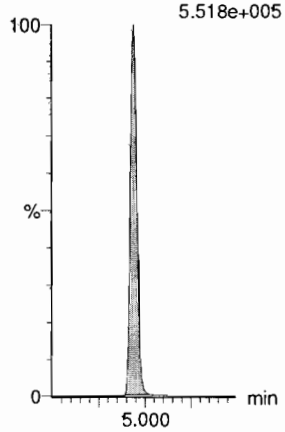
13C2-PFOA



13C8-PFOS



13C5-PFNA



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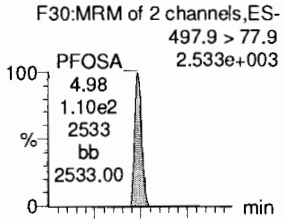
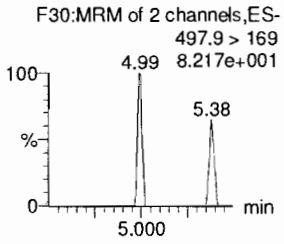
Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

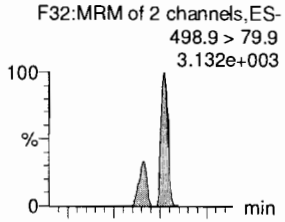
Name: 181126M1_3, Date: 26-Nov-2018, Time: 11:56:32, ID: ST181126M2-2 PFC CS-1 18K1902, Description: PFC CS-1 18K1902

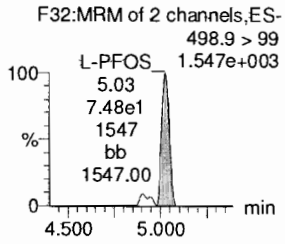
PFOSA



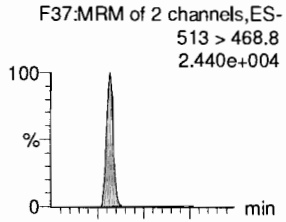


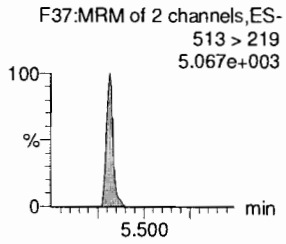
L-PFOS



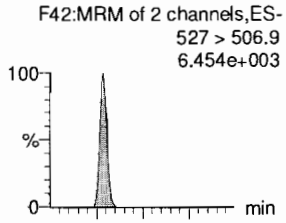


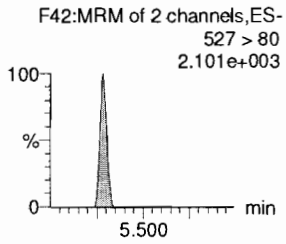
PFDA



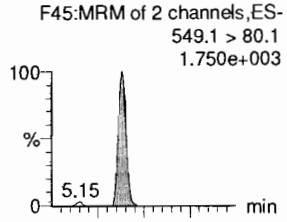


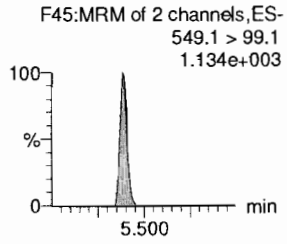
8:2 FTS



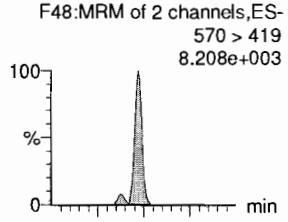


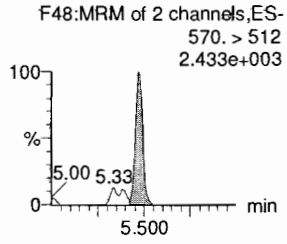
PFNS



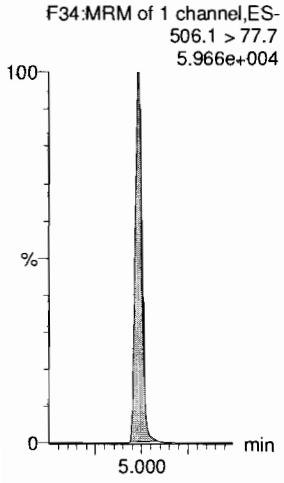


L-MeFOSAA





13C8-PFOSA



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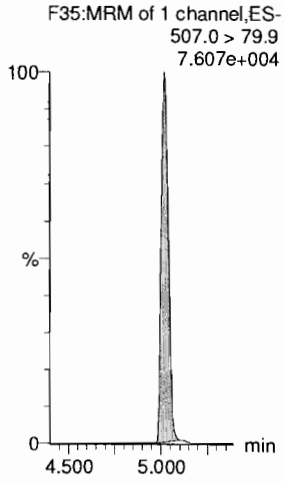
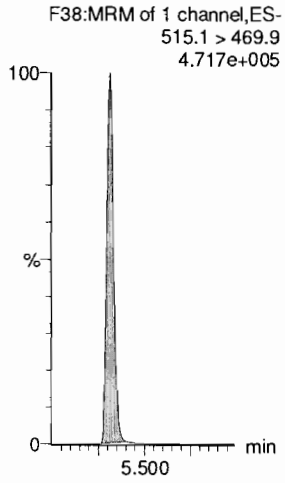
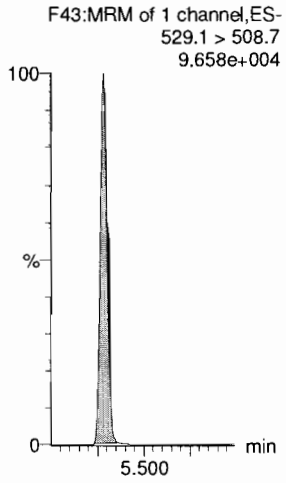


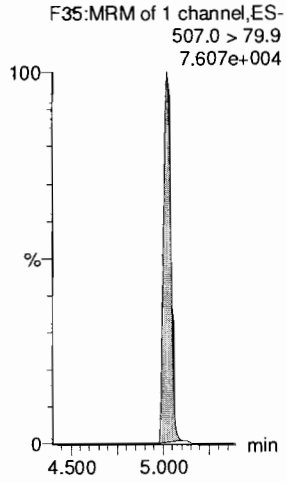
13C2-PFDA



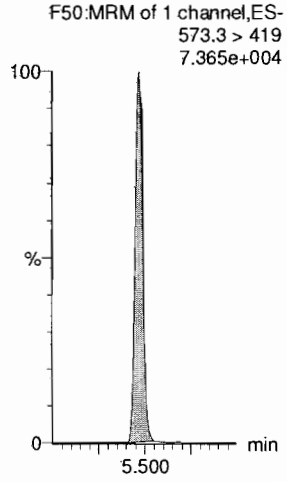
13C2-8:2 FTS



13C8-PFOS



d3-N-MeFOSAA



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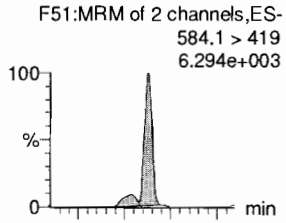
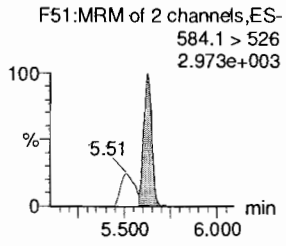
Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

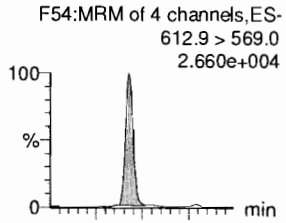
Name: 181126M1_3, Date: 26-Nov-2018, Time: 11:56:32, ID: ST181126M2-2 PFC CS-1 18K1902, Description: PFC CS-1 18K1902

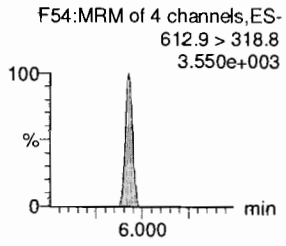
L-EtFOSAA



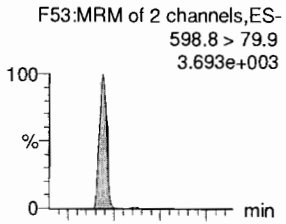


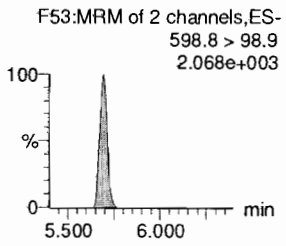
PFDoA



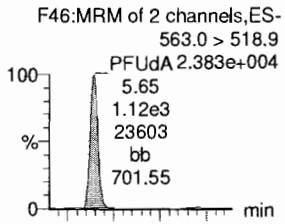


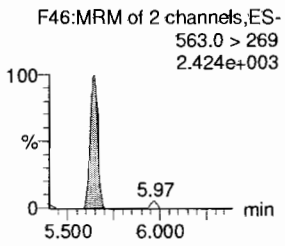
PFDS



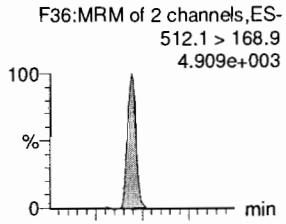


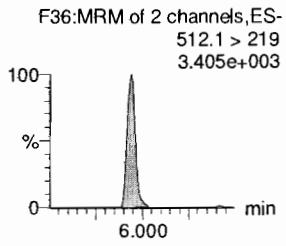
PFUdA



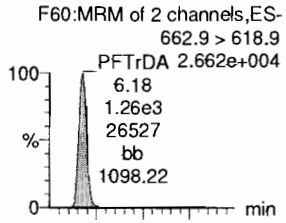


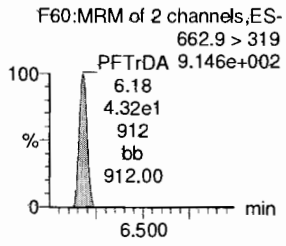
N-MeFOSA



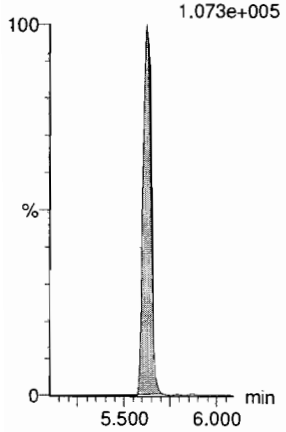


PFTrDA

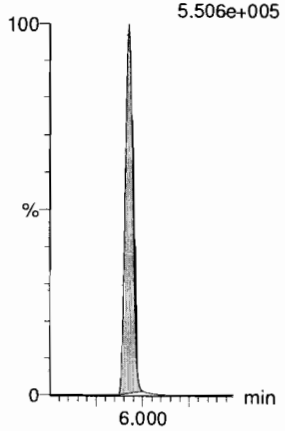




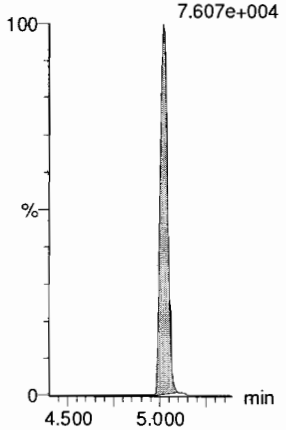
d5-N-EtFOSAA



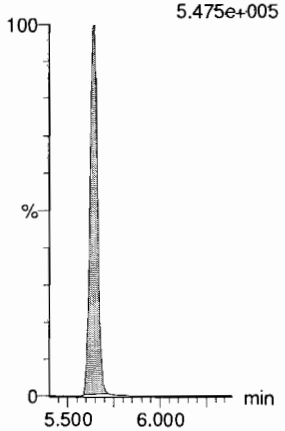
13C2-PFDoA



13C8-PFOS



13C2-PFUdA



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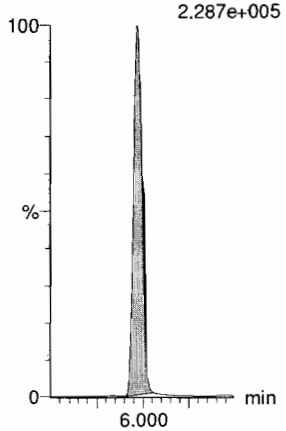

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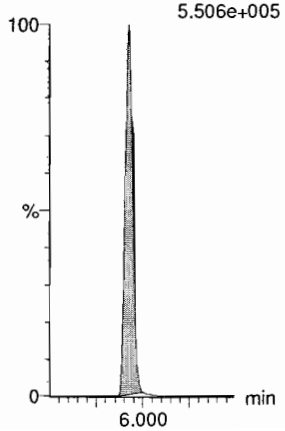

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

Name: 181126M1_3, Date: 26-Nov-2018, Time: 11:56:32, ID: ST181126M2-2 PFC CS-1 18K1902, Description: PFC CS-1 18K1902

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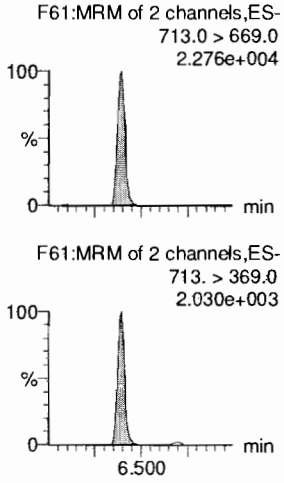

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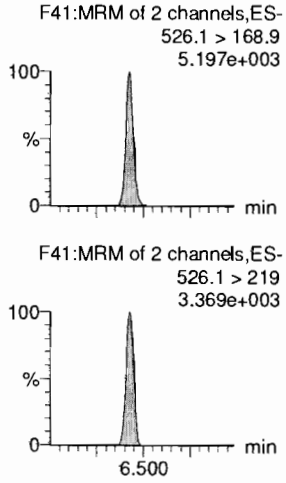
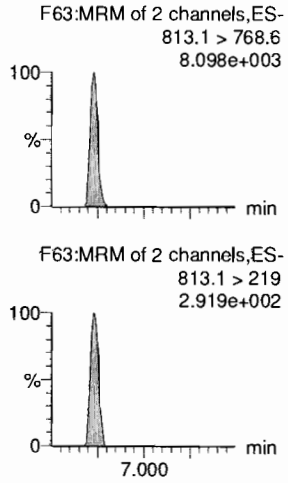
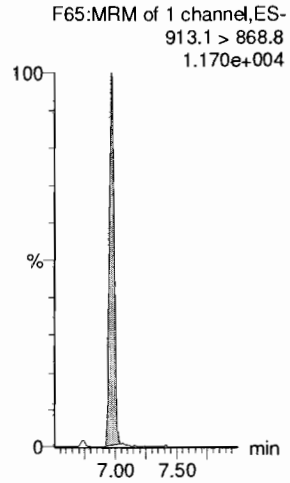


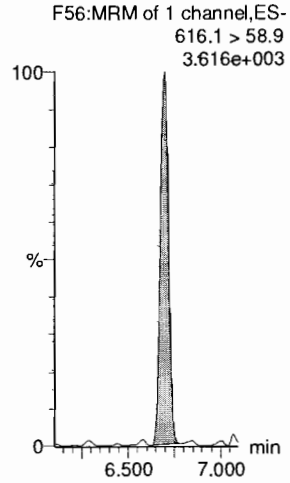
PFHxDA



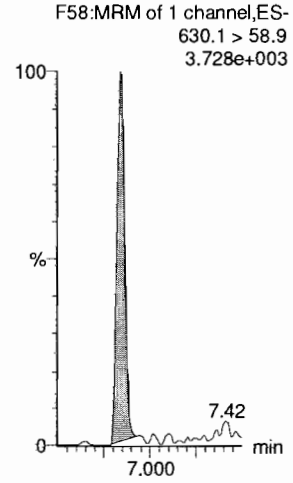
PFODA



N-MeFOSE



N-EtFOSE



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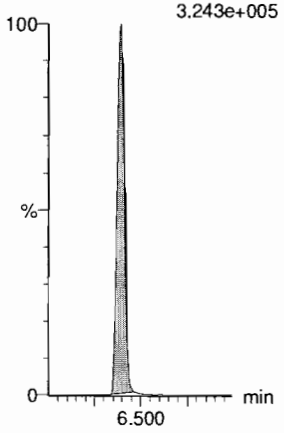
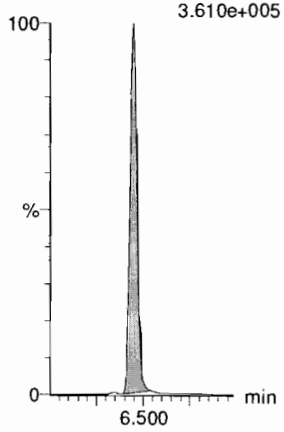


d5-N-ETFOSA



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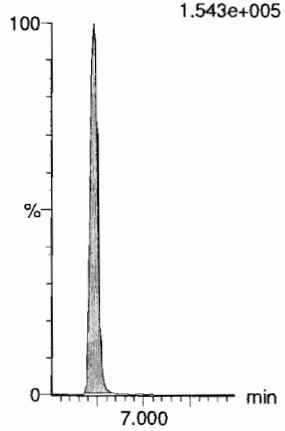

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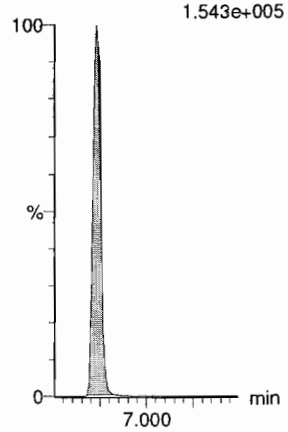
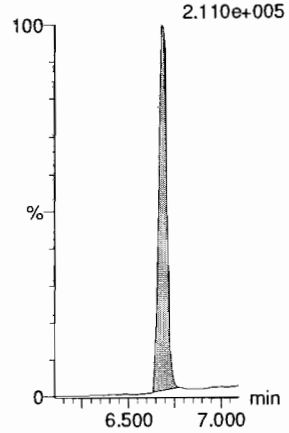
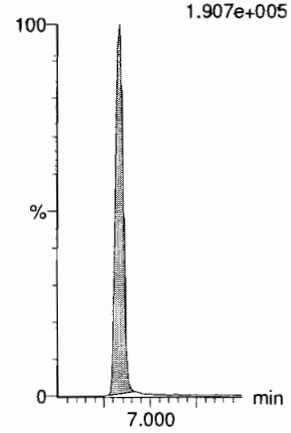


d7-N-MeFOSE



d9-N-EtFOSE



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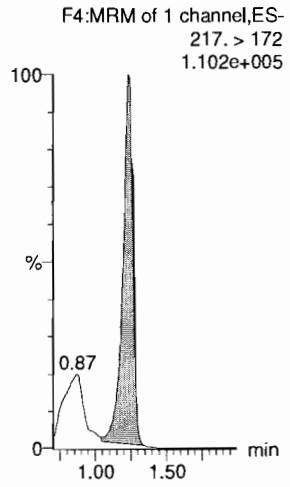
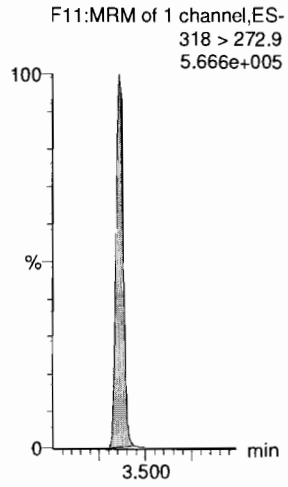
Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

Name: 181126M1_3, Date: 26-Nov-2018, Time: 11:56:32, ID: ST181126M2-2 PFC CS-1 18K1902, Description: PFC CS-1 18K1902

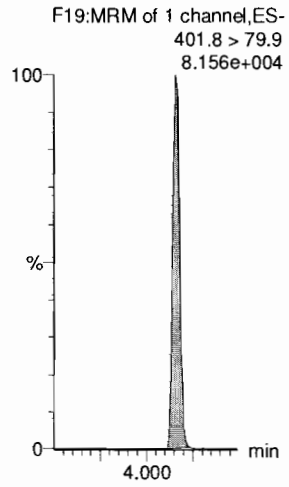
13C4-PFBA



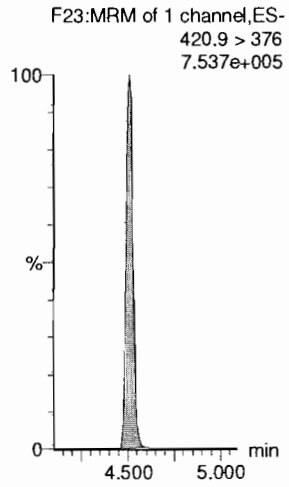
13C5-PFHxA



13C3-PFHxS



13C8-PFOA



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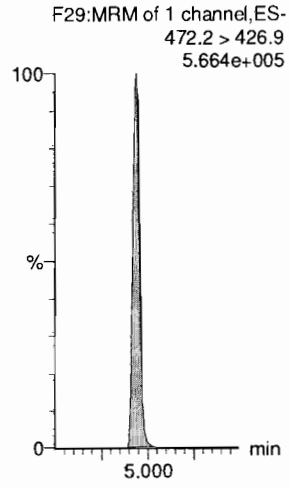
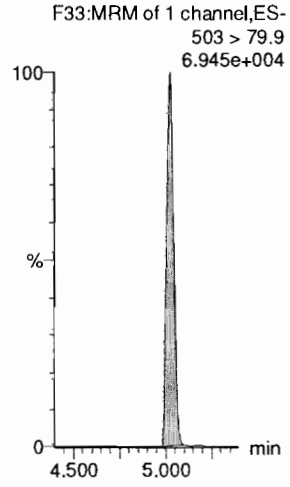
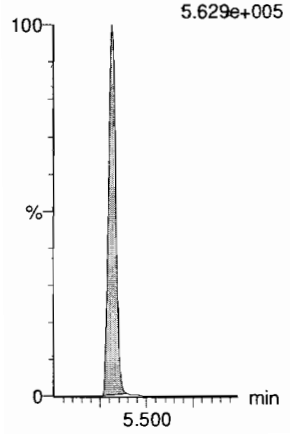


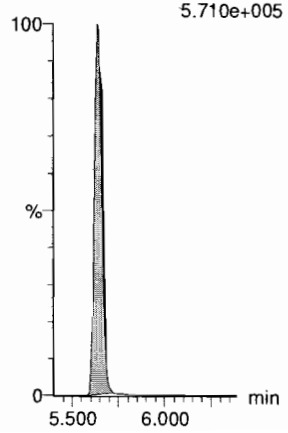
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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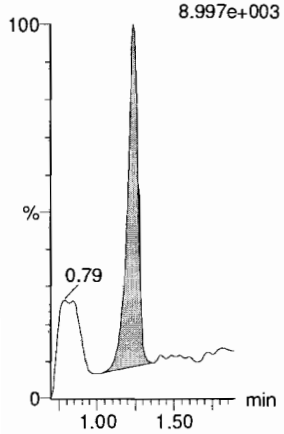
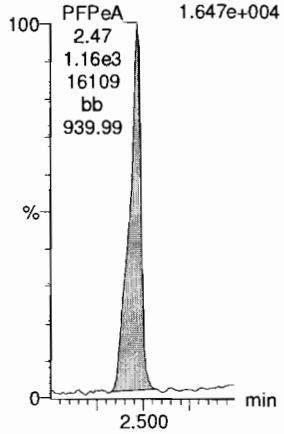
1 AD 11/27/18

Name: 181126M1_4, Date: 26-Nov-2018, Time: 12:07:10, ID: ST181126M2-3 PFC CS0 18K1903, Description: PFC CS0 18K1903

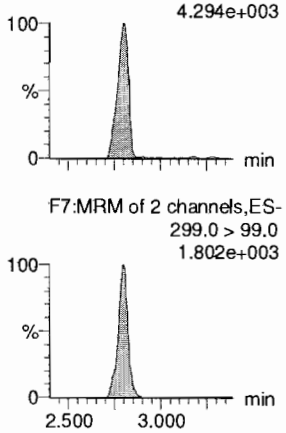
PFBA



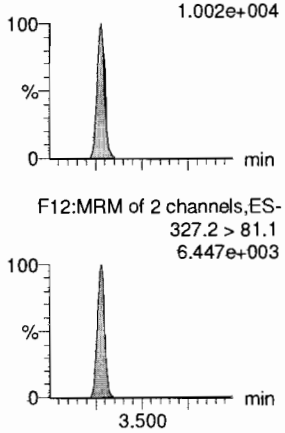
PFPeA



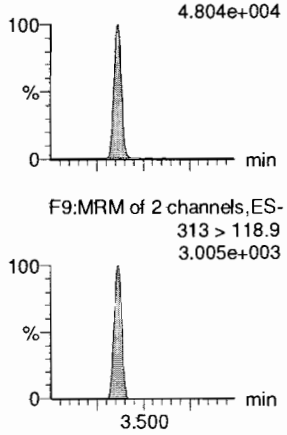
PFBS



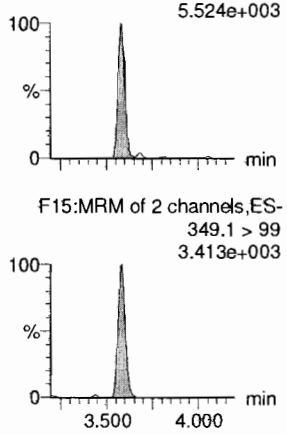
4:2 FTS



PFHxA



PFPeS



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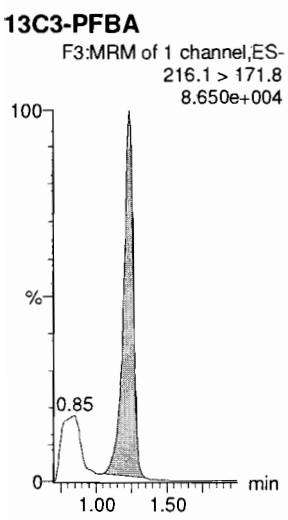
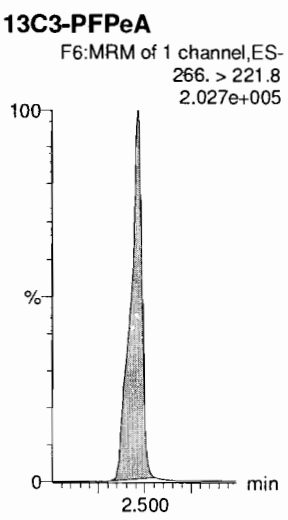


13C3-PFPeA



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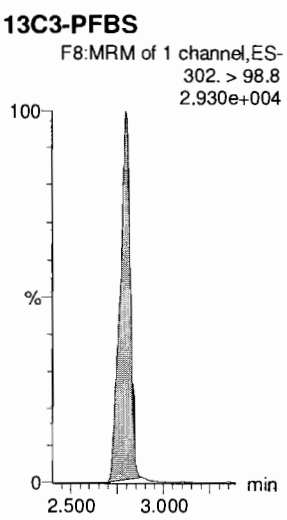
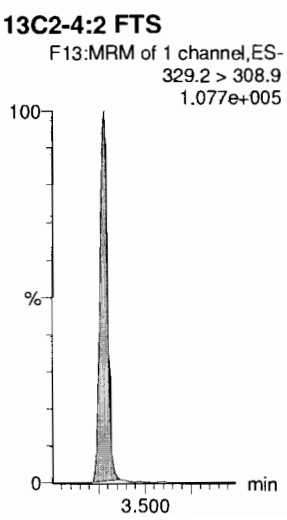


13C2-4:2 FTS



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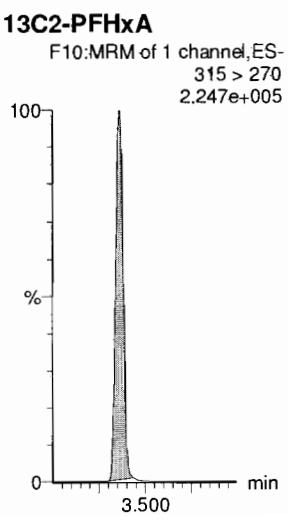

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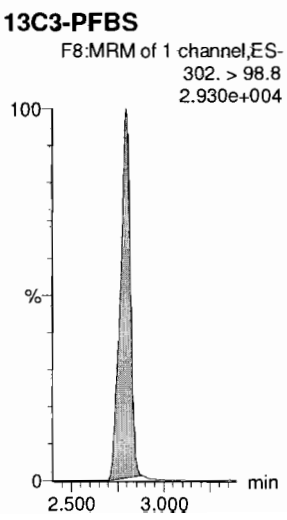

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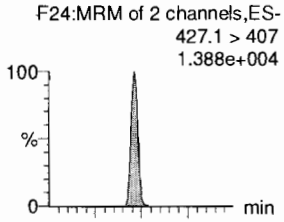
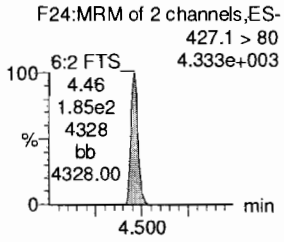
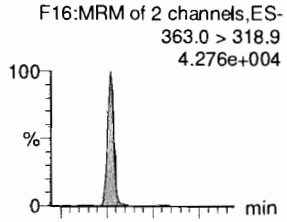
Name: 181126M1_4, Date: 26-Nov-2018, Time: 12:07:10, ID: ST181126M2-3 PFC CS0 18K1903, Description: PFC CS0 18K1903

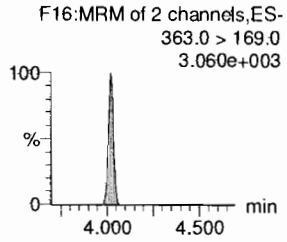
6:2 FTS



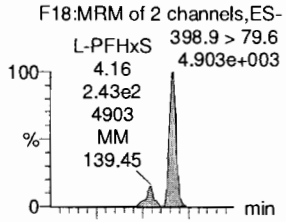


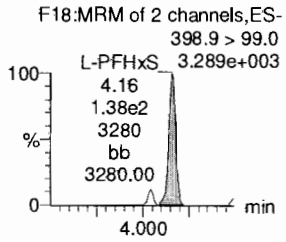
PFHpA



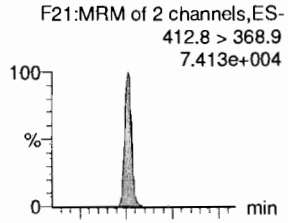


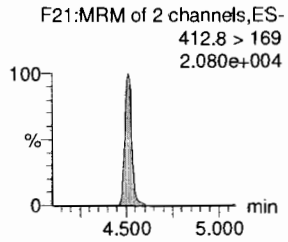
L-PFHxS





L-PFOA





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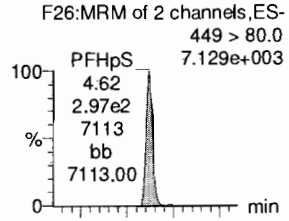
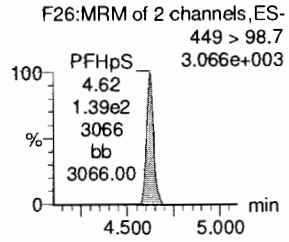
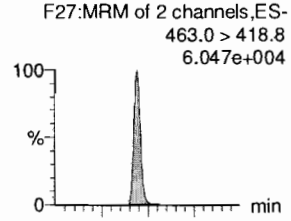
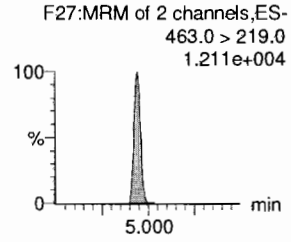


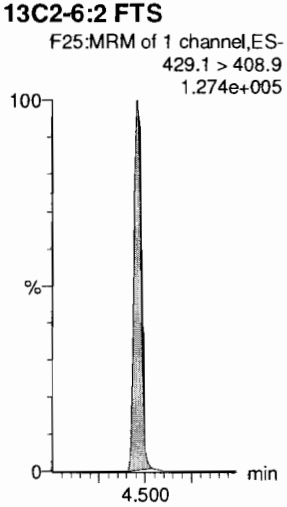


PFNA

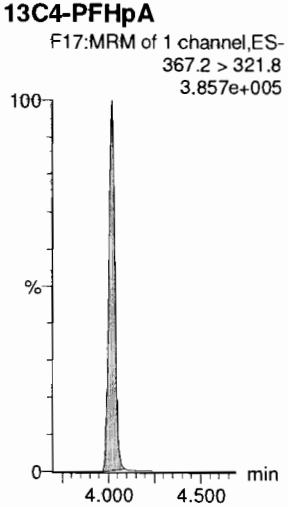




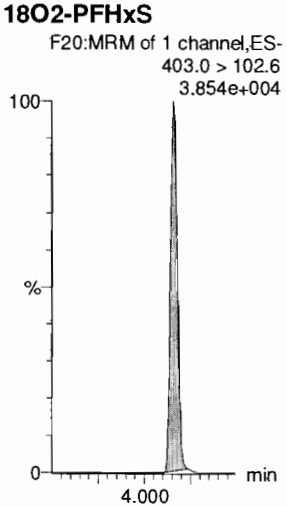
13C2-6:2 FTS



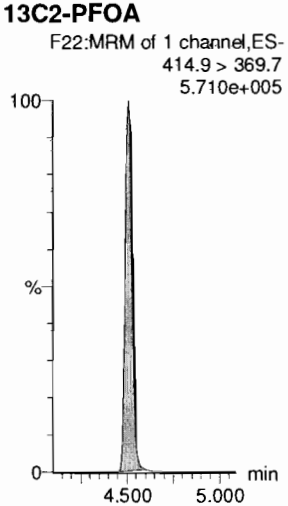
13C4-PFHpA



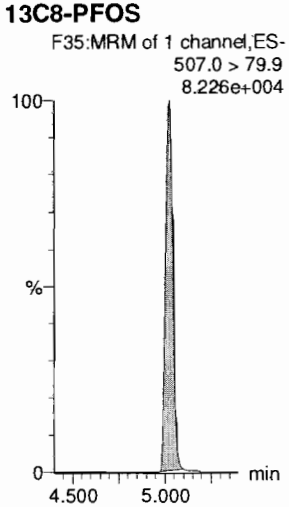
18O2-PFHxS



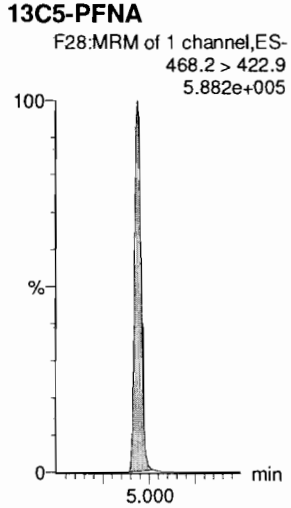
13C2-PFOA



13C8-PFOS



13C5-PFNA



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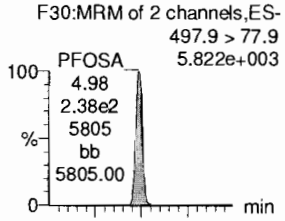
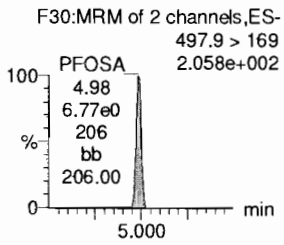
Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

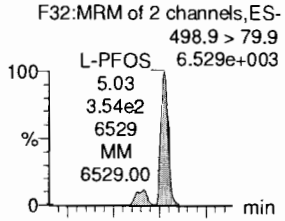
Name: 181126M1_4, Date: 26-Nov-2018, Time: 12:07:10, ID: ST181126M2-3 PFC CS0 18K1903, Description: PFC CS0 18K1903

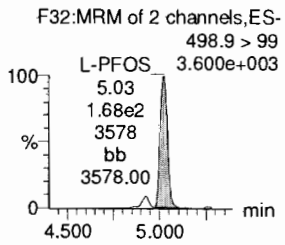
PFOSA



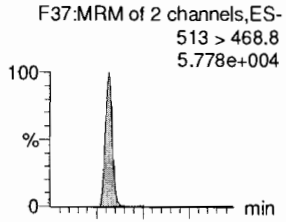


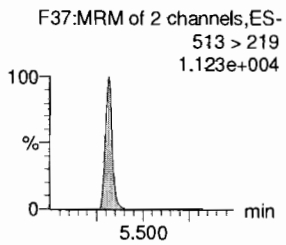
L-PFOS



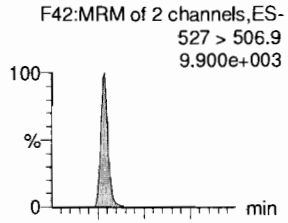


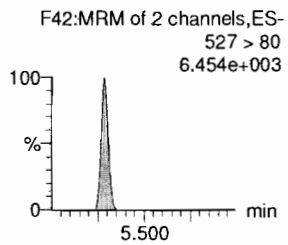
PFDA



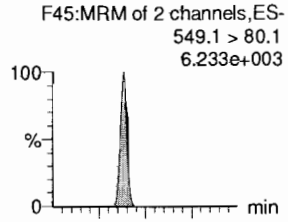


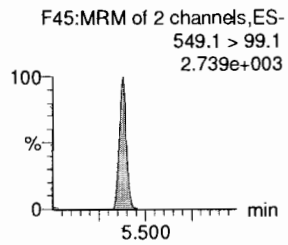
8:2 FTS



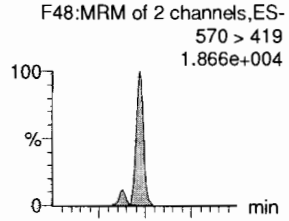


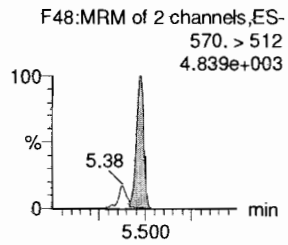
PFNS



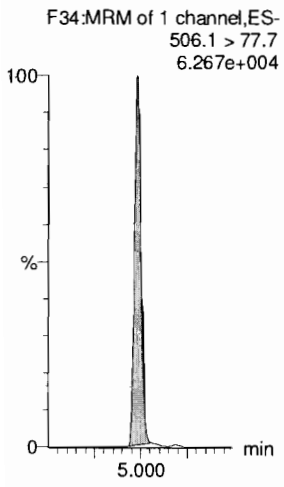


L-MeFOSAA

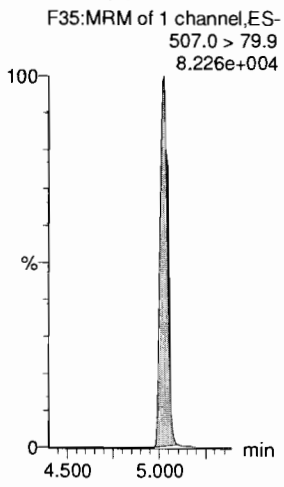




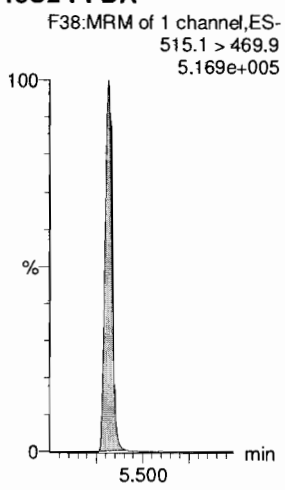
13C8-PFOSA



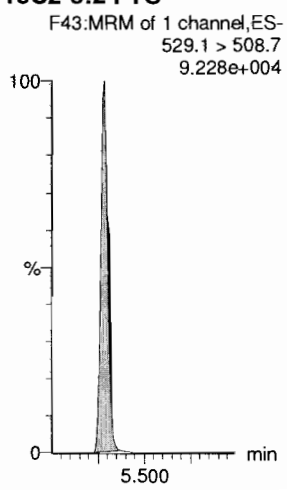
13C8-PFOS



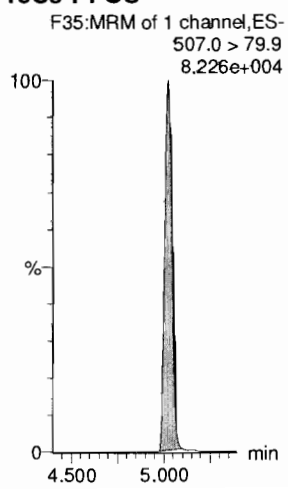
13C2-PFDA



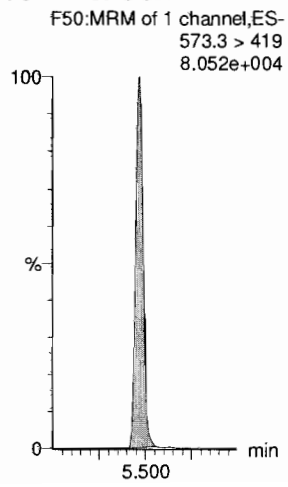
13C2-8:2 FTS



13C8-PFOS



d3-N-MeFOSAA



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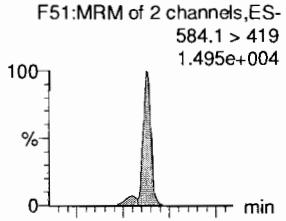
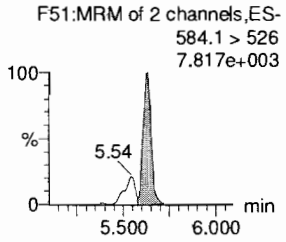
Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

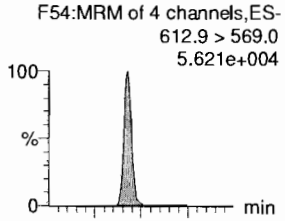
Name: 181126M1_4, Date: 26-Nov-2018, Time: 12:07:10, ID: ST181126M2-3 PFC CS0 18K1903, Description: PFC CS0 18K1903

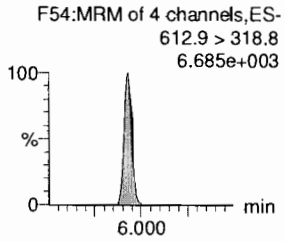
L-EtFOSAA



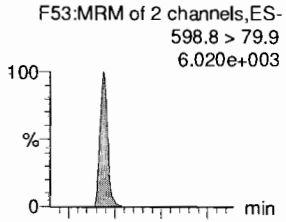


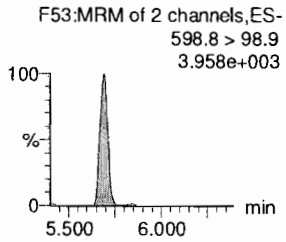
PFDoA



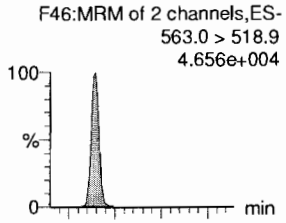


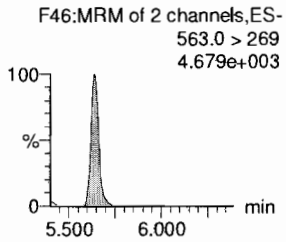
PFDS



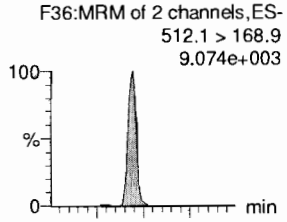


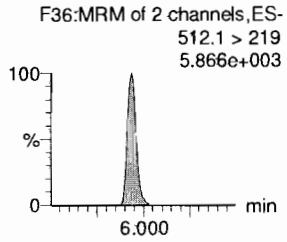
PFUdA





N-MeFOSA





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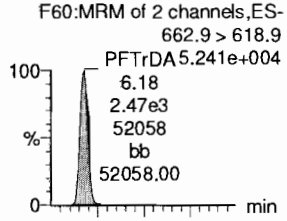
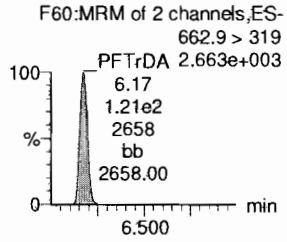
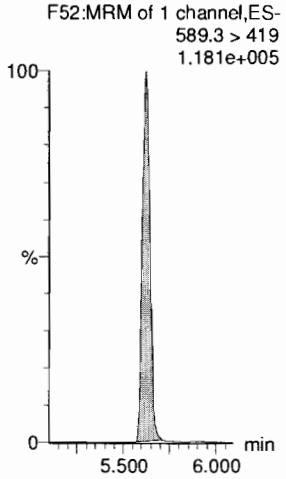
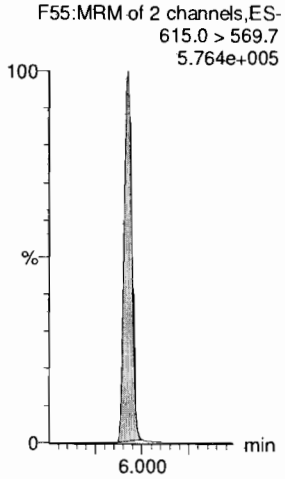




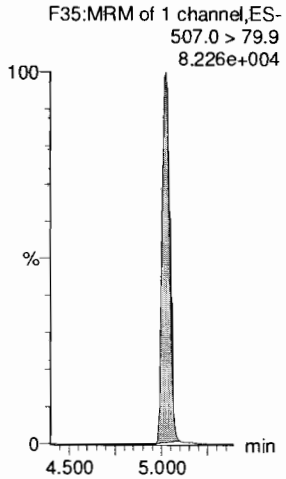
d5-N-EtFOSAA



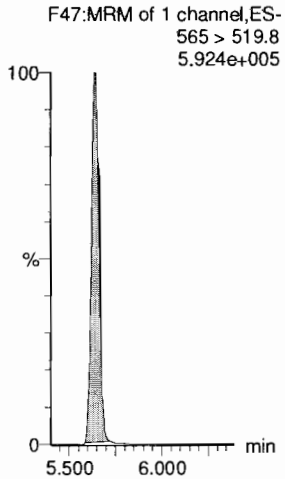
13C2-PFDoA



13C8-PFOS



13C2-PFUdA



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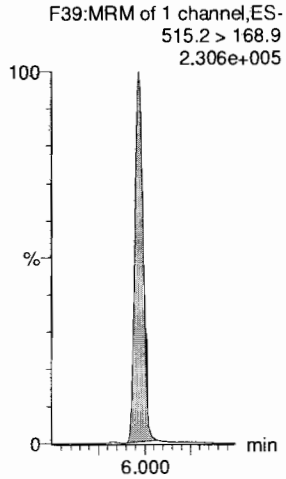

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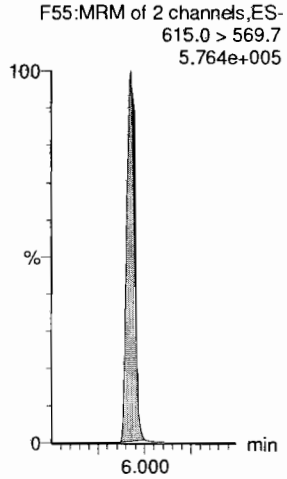

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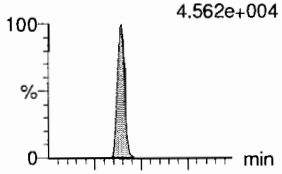
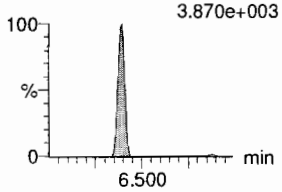
Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

Name: 181126M1_4, Date: 26-Nov-2018, Time: 12:07:10, ID: ST181126M2-3 PFC CS0 18K1903, Description: PFC CS0 18K1903

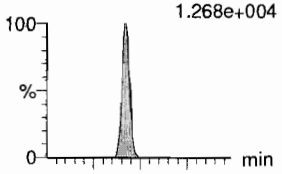
PFTeDA
F61:MRM of 2 channels,ES-
713.0 > 669.0
4.562e+004



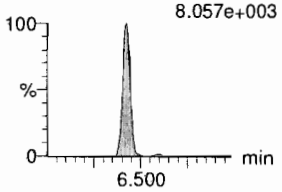
F61:MRM of 2 channels,ES-
713. > 369.0
3.870e+003



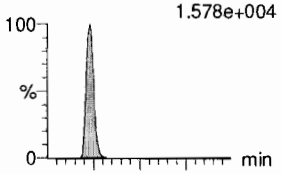
N-EtFOSA
F41:MRM of 2 channels,ES-
526.1 > 168.9
1.268e+004



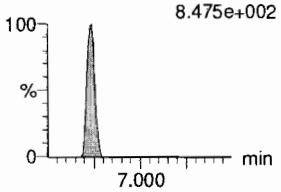
F41:MRM of 2 channels,ES-
526.1 > 219
8.057e+003



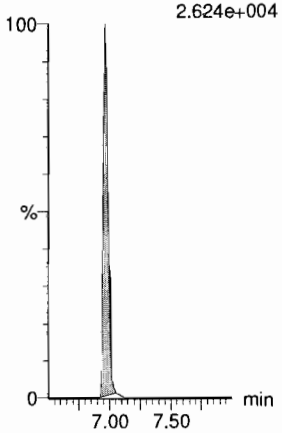
PFHxDA
F63:MRM of 2 channels,ES-
813.1 > 768.6
1.578e+004



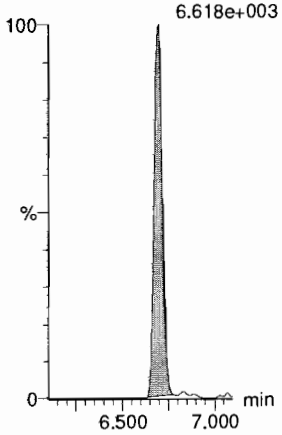
F63:MRM of 2 channels,ES-
813.1 > 219
8.475e+002



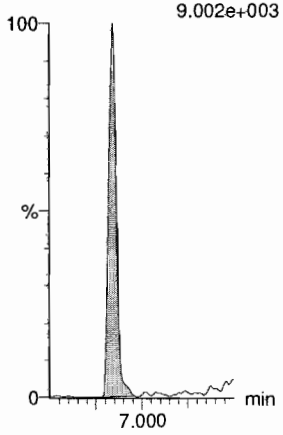
PFODA
F65:MRM of 1 channel,ES-
913.1 > 868.8
2.624e+004



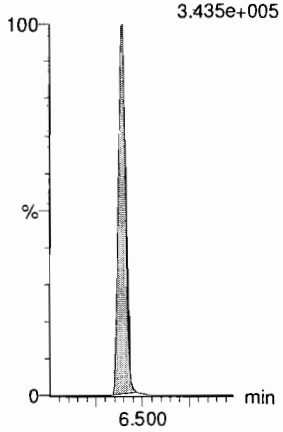
N-MeFOSE
F56:MRM of 1 channel,ES-
616.1 > 58.9
6.618e+003



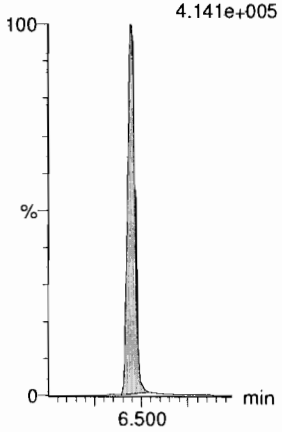
N-EtFOSE
F58:MRM of 1 channel,ES-
630.1 > 58.9
9.002e+003



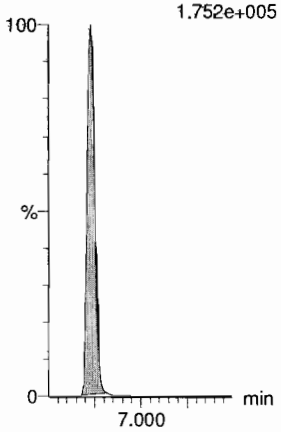
13C2-PFTeDA
F62:MRM of 2 channels,ES-
715.1 > 669.7
3.435e+005



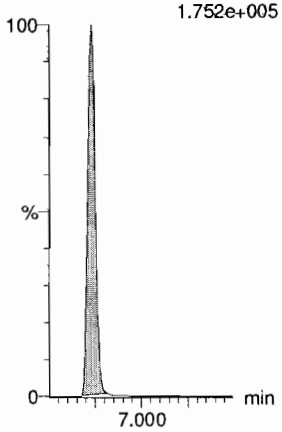
d5-N-ETFOSA
F44:MRM of 1 channel,ES-
531.1 > 168.9
4.141e+005



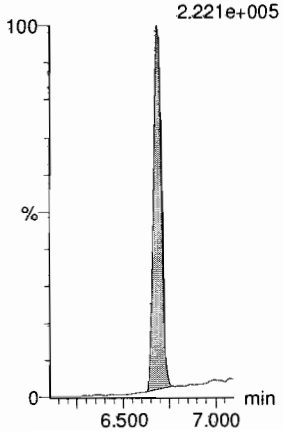
13C2-PFHxDA
F64:MRM of 1 channel,ES-
815 > 769.7
1.752e+005



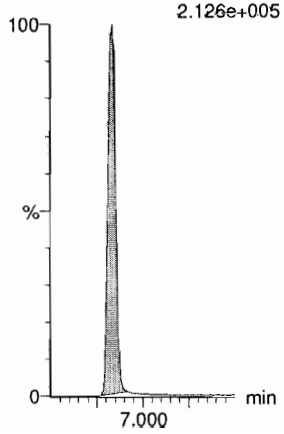
13C2-PFHxDA
F64:MRM of 1 channel,ES-
815 > 769.7
1.752e+005



d7-N-MeFOSE
F57:MRM of 1 channel,ES-
623.1 > 58.9
2.221e+005



d9-N-EtFOSE
F59:MRM of 1 channel,ES-
639.2 > 58.8
2.126e+005



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
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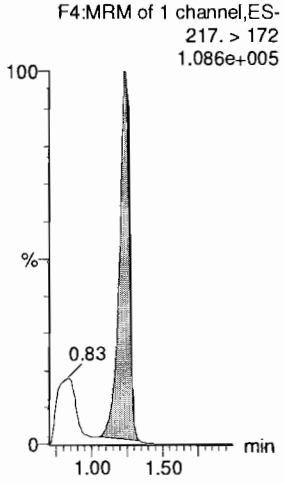
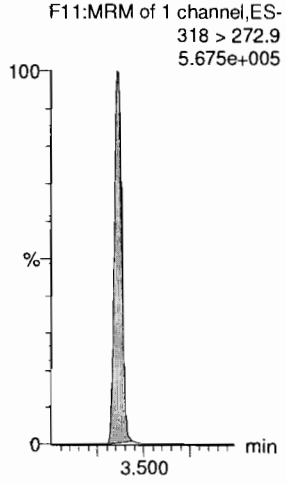
Name: 181126M1_4, Date: 26-Nov-2018, Time: 12:07:10, ID: ST181126M2-3 PFC CS0 18K1903, Description: PFC CS0 18K1903

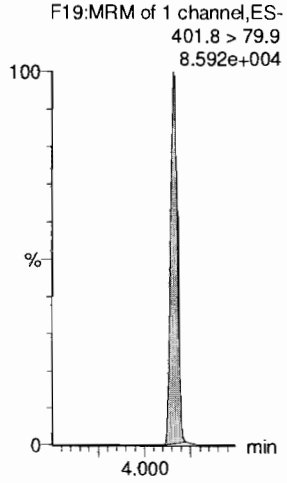
13C4-PFBA



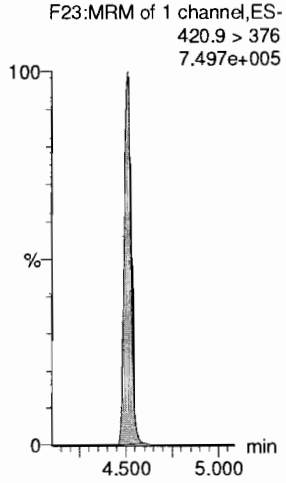
13C5-PFHxA



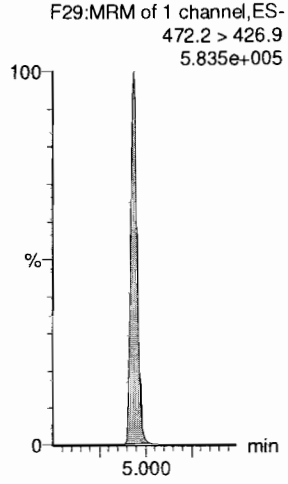
13C3-PFHxS



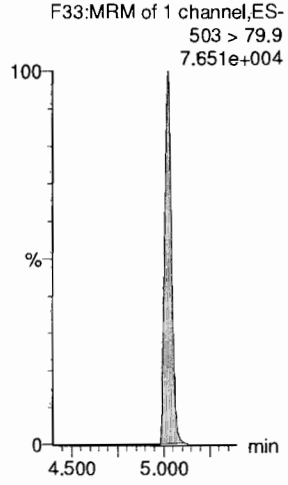
13C8-PFOA



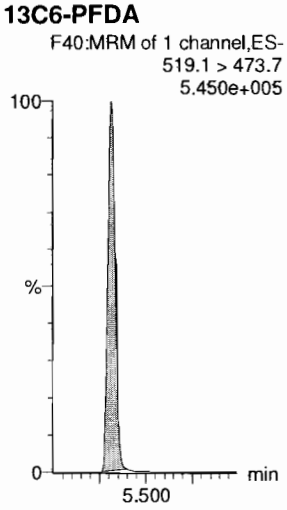
13C9-PFNA



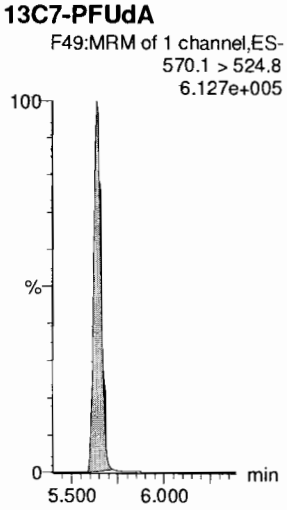
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
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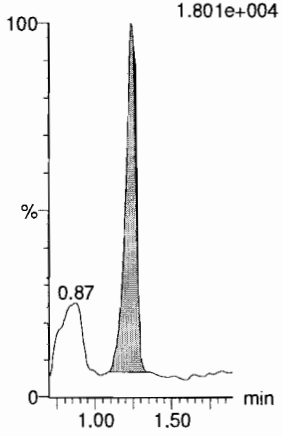
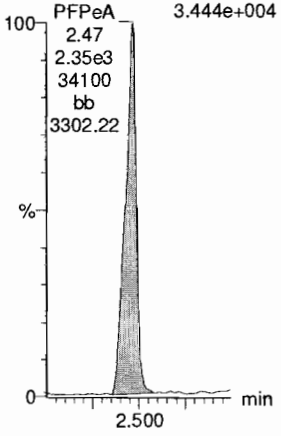
1 AD 11/27/18

Name: 181126M1_5, Date: 26-Nov-2018, Time: 12:17:48, ID: ST181126M2-4 PFC CS1 18K1904, Description: PFC CS1 18K1904

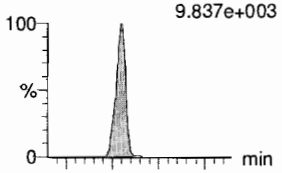
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
1.801e+004



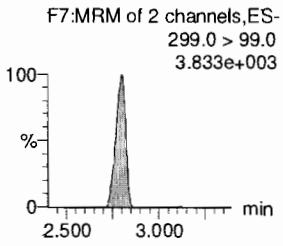
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
3.444e+004



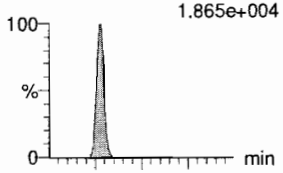
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
9.837e+003



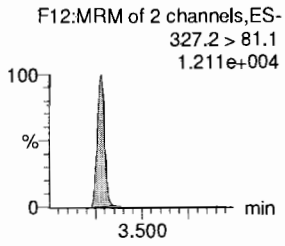
F7:MRM of 2 channels,ES-
299.0 > 99.0
3.833e+003



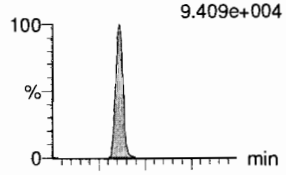
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
1.865e+004



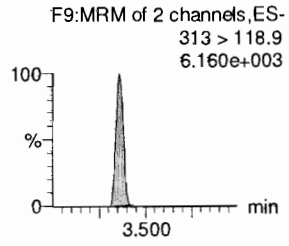
F12:MRM of 2 channels,ES-
327.2 > 81.1
1.211e+004



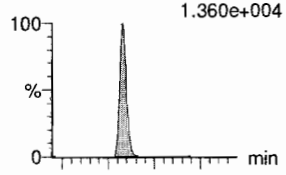
PFHxA
F9:MRM of 2 channels,ES-
313 > 269
9.409e+004



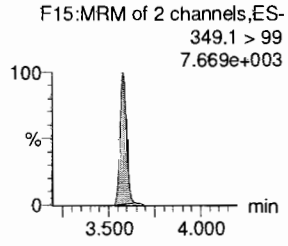
F9:MRM of 2 channels,ES-
313 > 118.9
6.160e+003



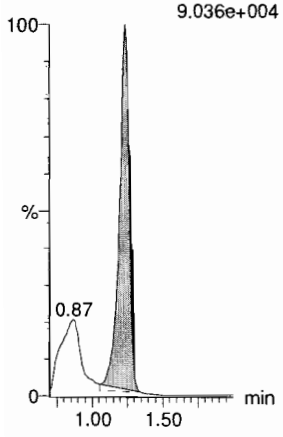
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
1.360e+004



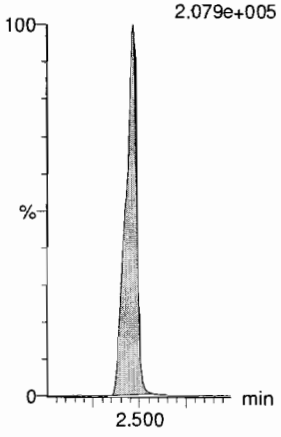
F15:MRM of 2 channels,ES-
349.1 > 99
7.669e+003



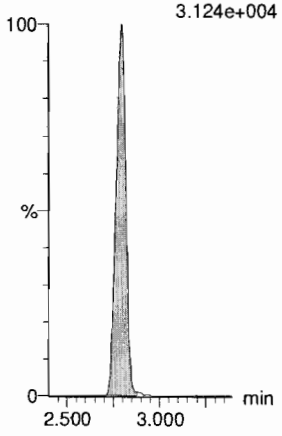
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
9.036e+004



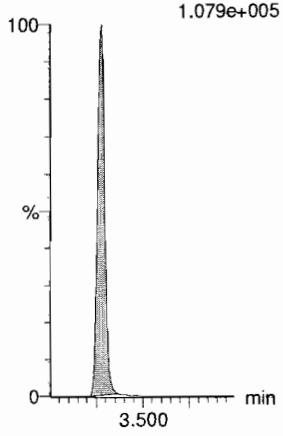
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
2.079e+005



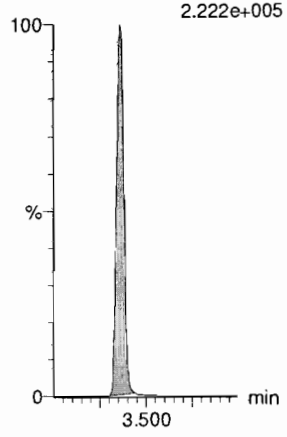
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
3.124e+004



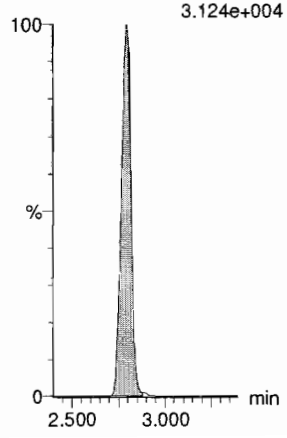
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
1.079e+005



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 270
2.222e+005



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
3.124e+004



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
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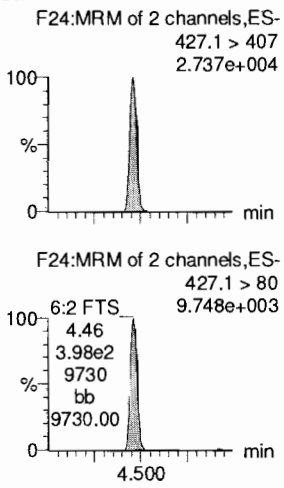
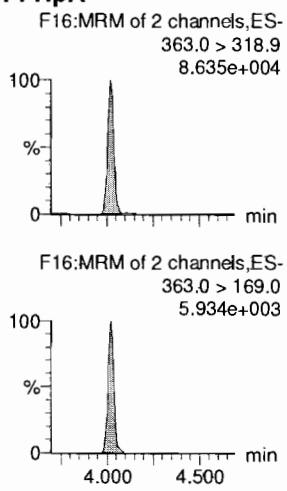
Name: 181126M1_5, Date: 26-Nov-2018, Time: 12:17:48, ID: ST181126M2-4 PFC CS1 18K1904, Description: PFC CS1 18K1904

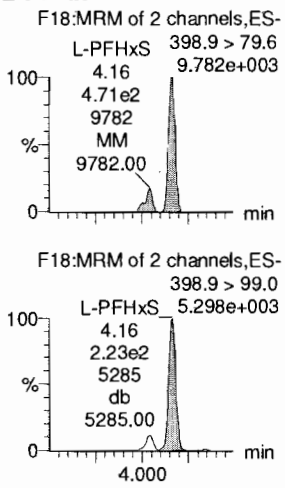
6:2 FTS



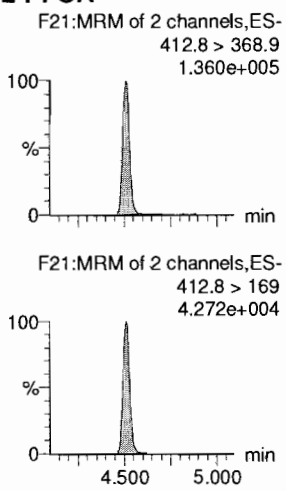
PFHpA



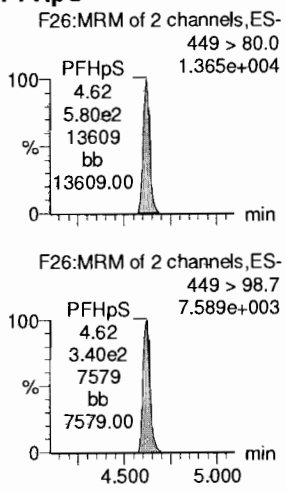
L-PFHxS



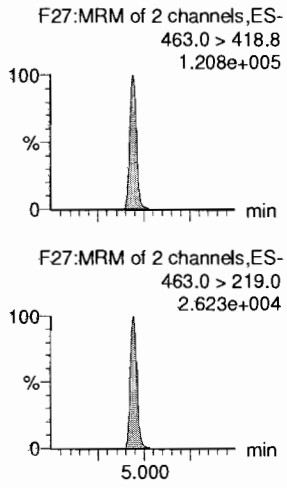
L-PFOA



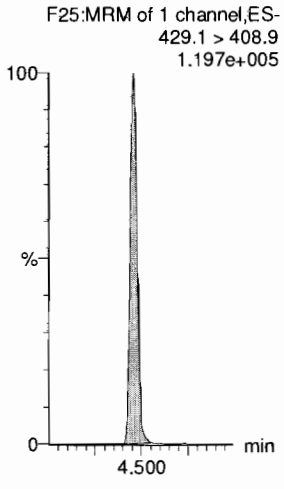
PFHpS



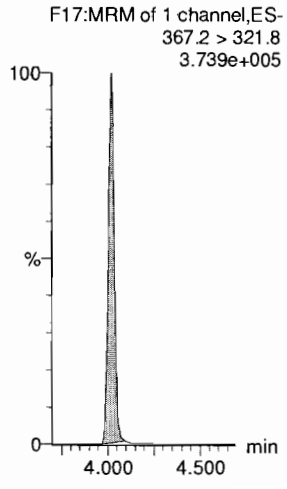
PFNA



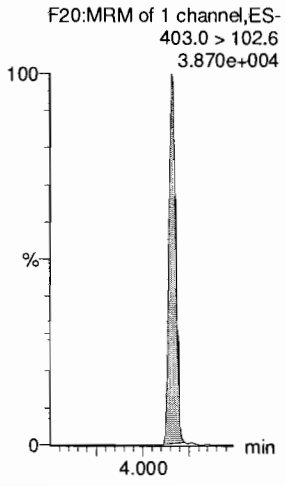
13C2-6:2 FTS



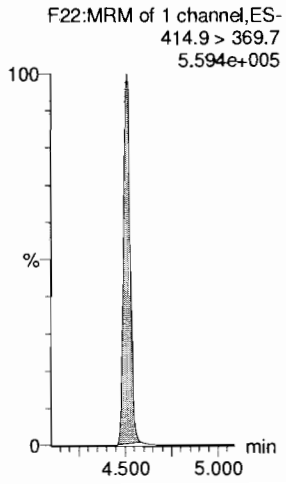
13C4-PFHpA



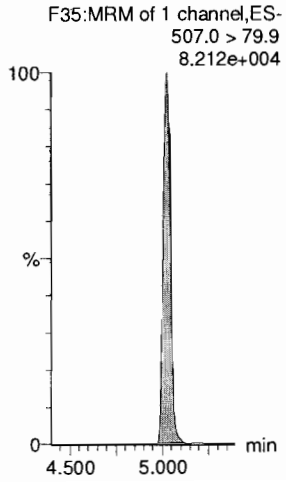
18O2-PFHxS



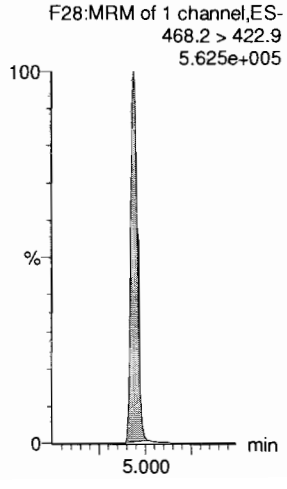
13C2-PFOA



13C8-PFOS



13C5-PFNA



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
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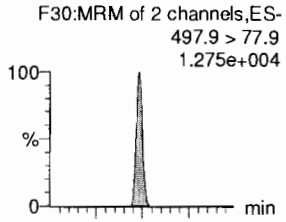
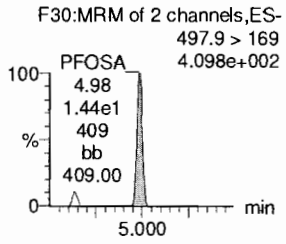
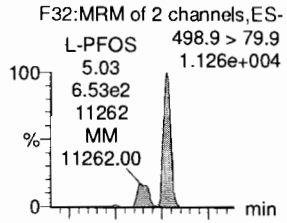
Name: 181126M1_5, Date: 26-Nov-2018, Time: 12:17:48, ID: ST181126M2-4 PFC CS1 18K1904, Description: PFC CS1 18K1904

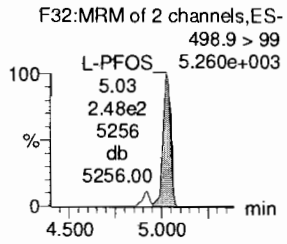
PFOSA



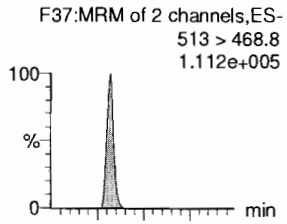


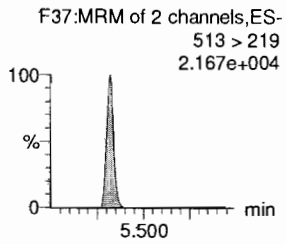
L-PFOS



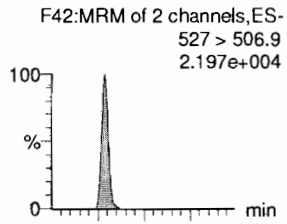


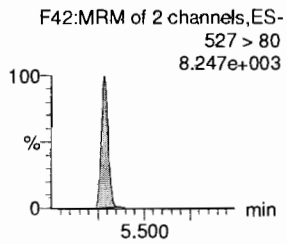
PFDA



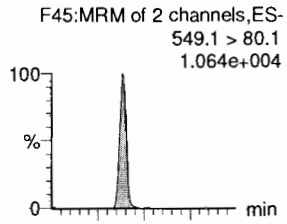


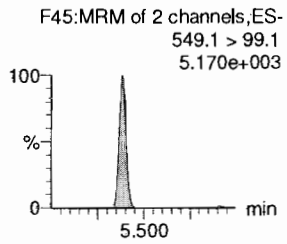
8:2 FTS



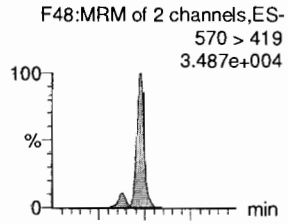


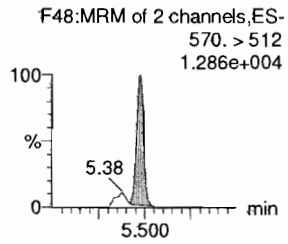
PFNS



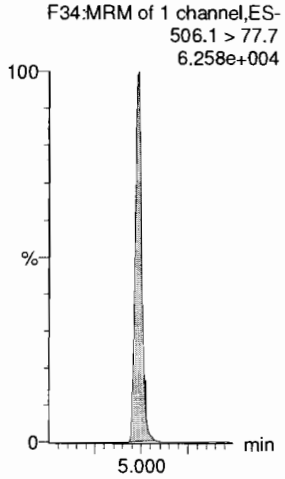


L-MeFOSAA

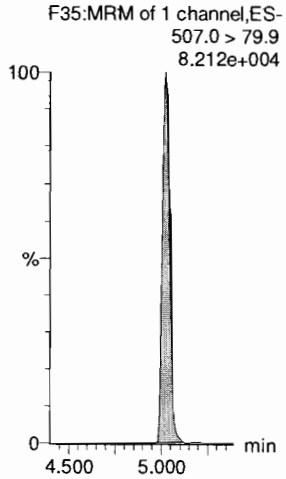




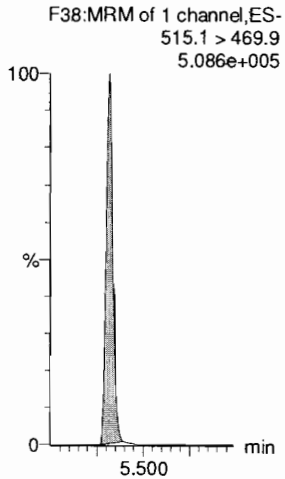
13C8-PFOSA



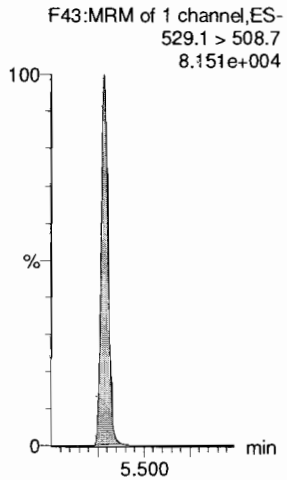
13C8-PFOS



13C2-PFDA



13C2-8:2 FTS



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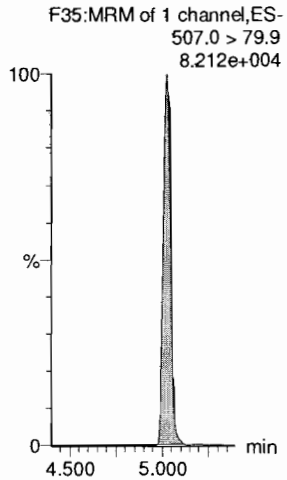
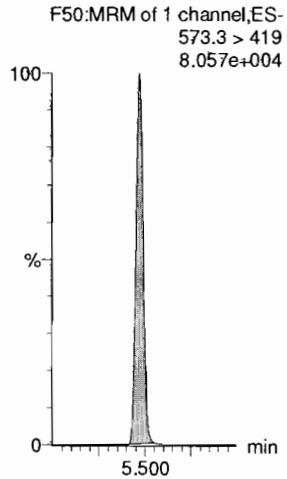


d3-N-MeFOSAA



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Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

Name: 181126M1_5, Date: 26-Nov-2018, Time: 12:17:48, ID: ST181126M2-4 PFC CS1 18K1904, Description: PFC CS1 18K1904

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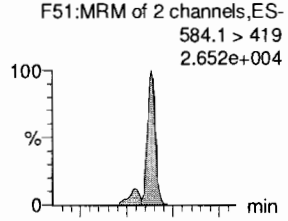
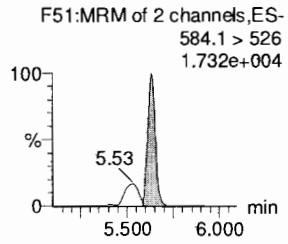
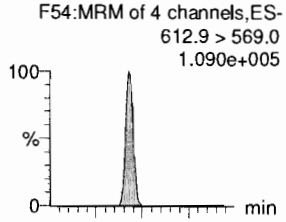
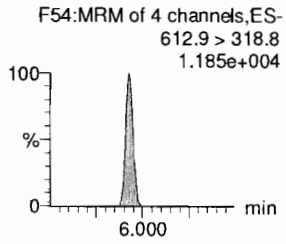




PFDoA





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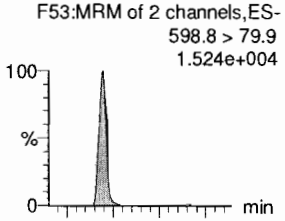

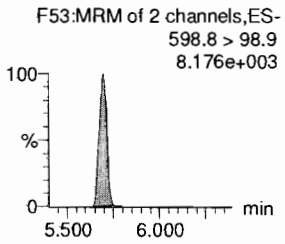

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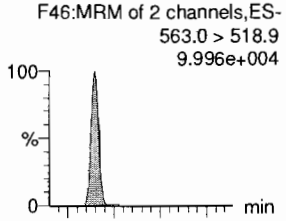
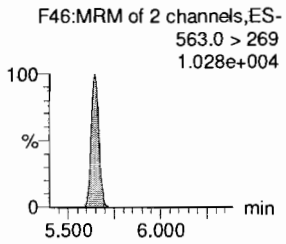
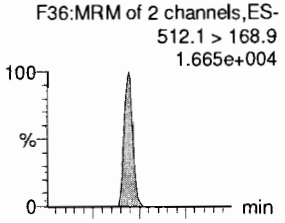
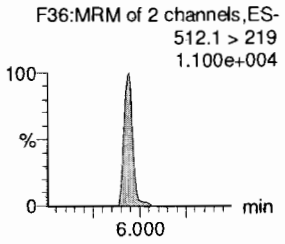




N-MeFOSA





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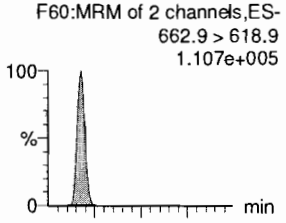
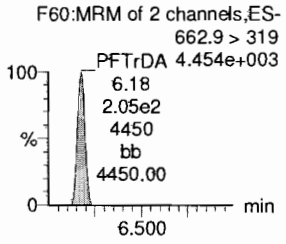
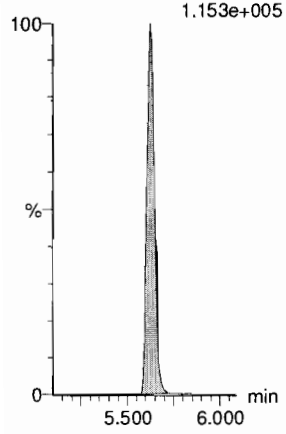
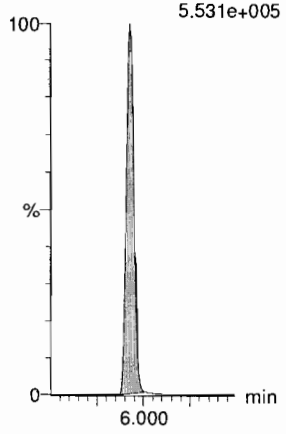




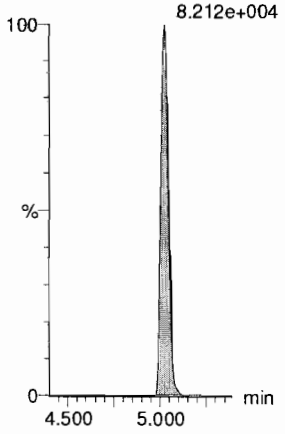
d5-N-EtFOSAA



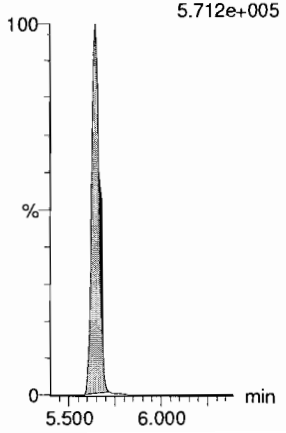
13C2-PFDoA



13C8-PFOS



13C2-PFUdA



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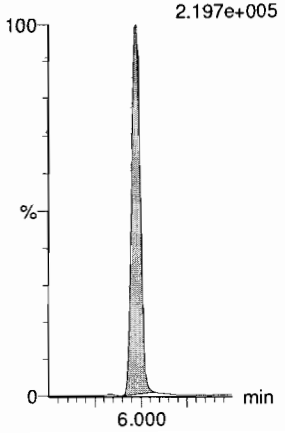

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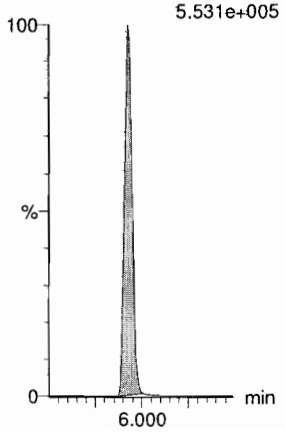

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Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

Name: 181126M1_5, Date: 26-Nov-2018, Time: 12:17:48, ID: ST181126M2-4 PFC CS1 18K1904, Description: PFC CS1 18K1904

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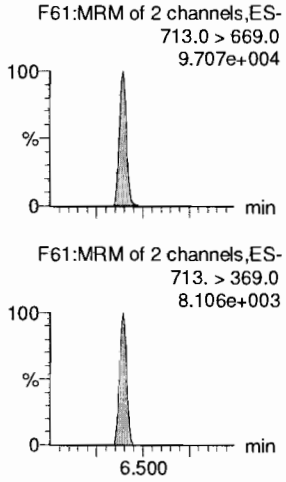

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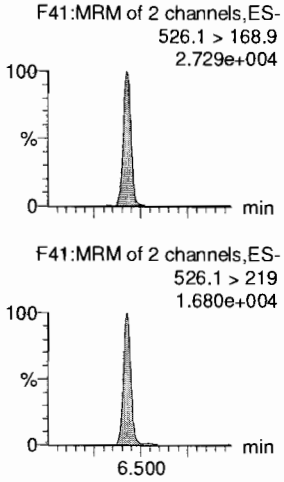
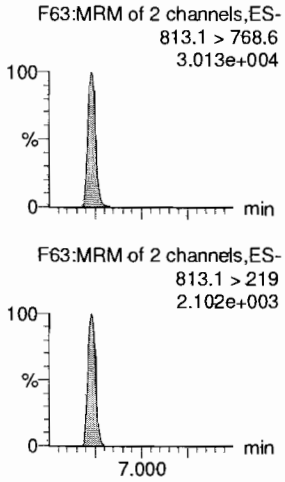
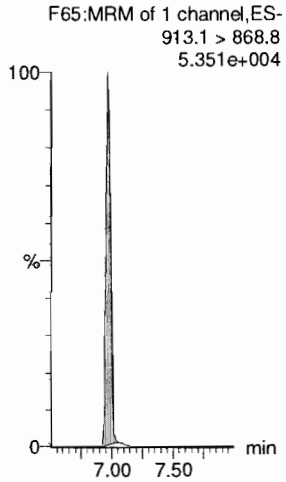


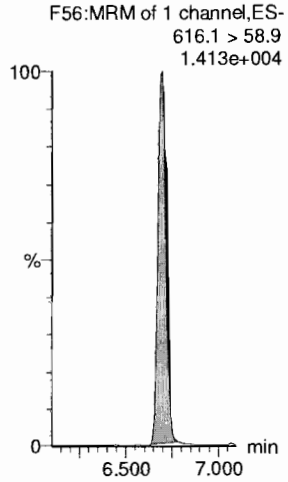
PFHxDA



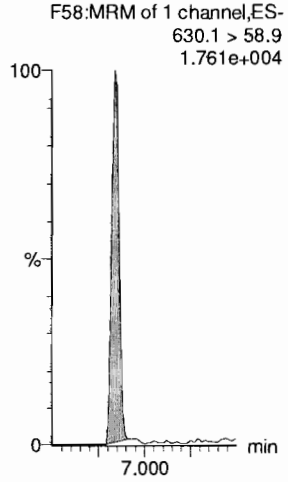
PFODA



N-MeFOSE



N-EtFOSE



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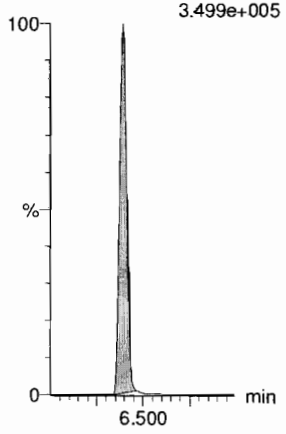
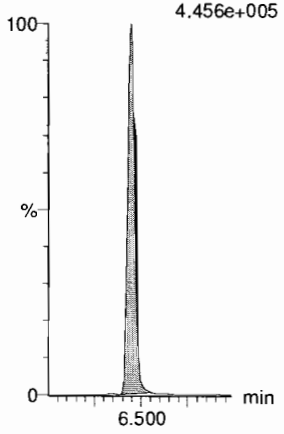


d5-N-ETFOSA



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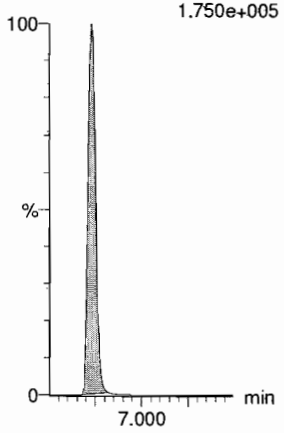

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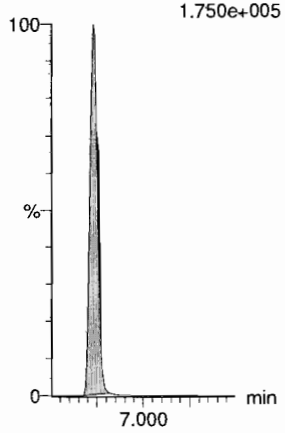

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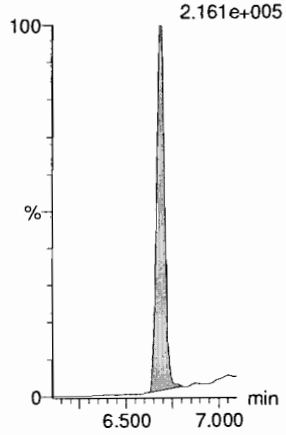
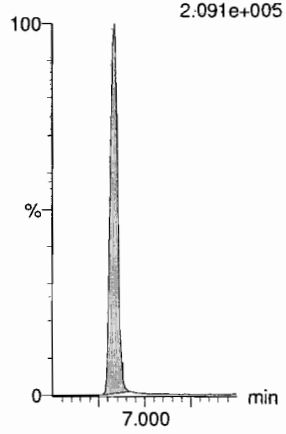


d9-N-EtFOSE



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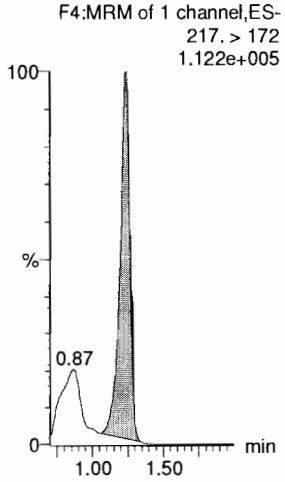
Name: 181126M1_5, Date: 26-Nov-2018, Time: 12:17:48, ID: ST181126M2-4 PFC CS1 18K1904, Description: PFC CS1 18K1904

13C4-PFBA



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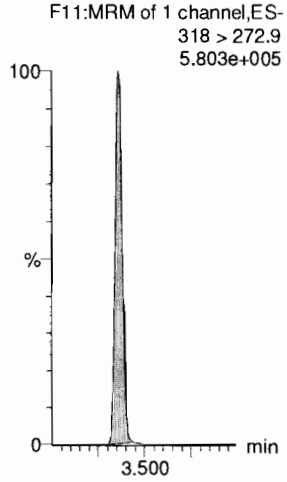
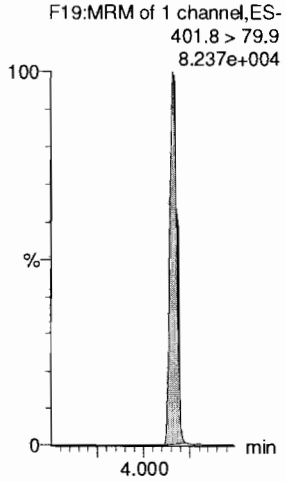
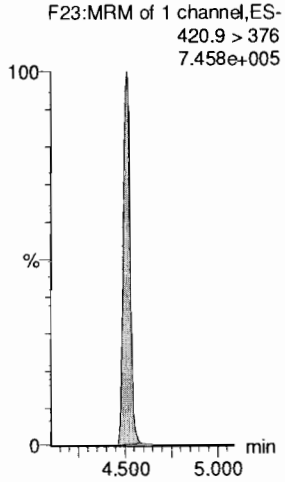


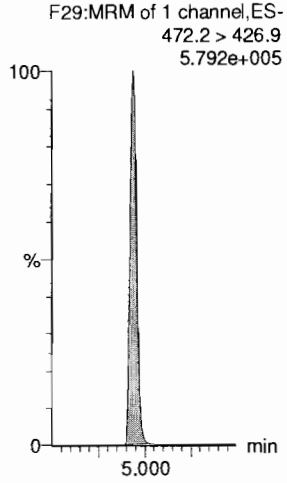
13C3-PFHxS



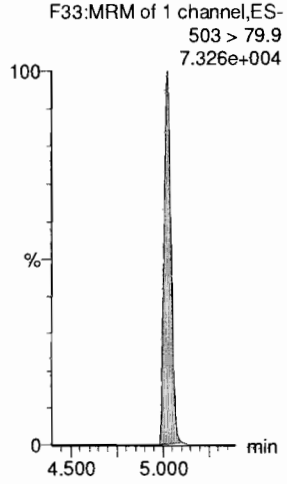
13C8-PFOA



13C9-PFNA



13C4-PFOS



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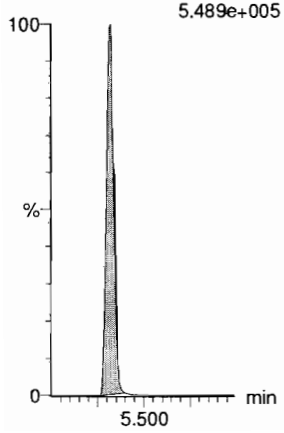
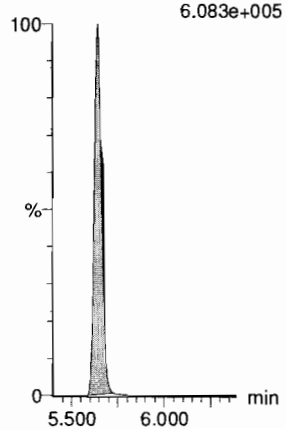


13C7-PFUdA



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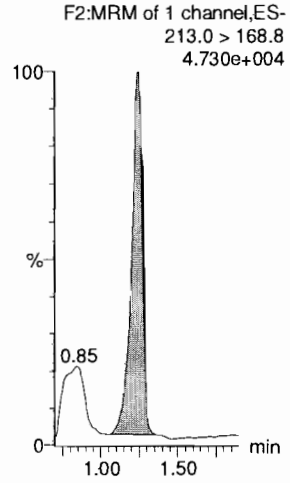
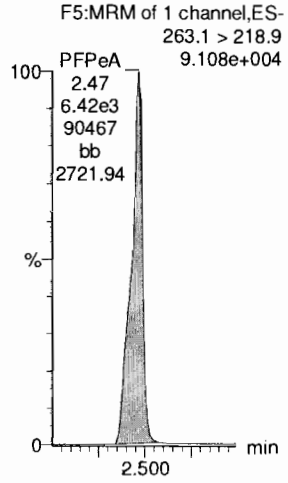
1 AD 11/27/18

Name: 181126M1_6, Date: 26-Nov-2018, Time: 12:28:21, ID: ST181126M1-5 PFC CS2 18K1905, Description: PFC CS2 18K1905

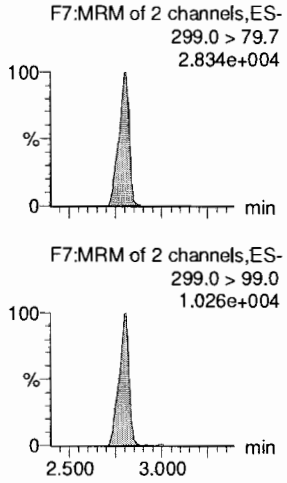
PFBA



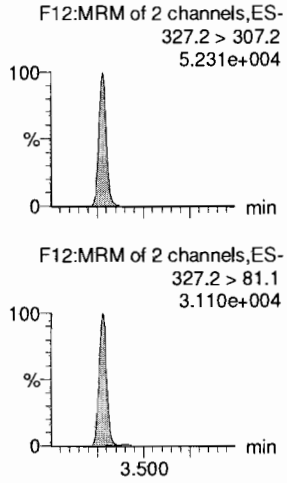
PFPeA



PFBS



4:2 FTS



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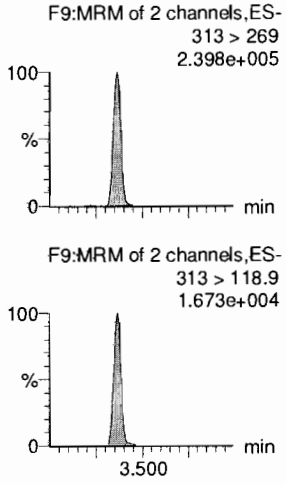

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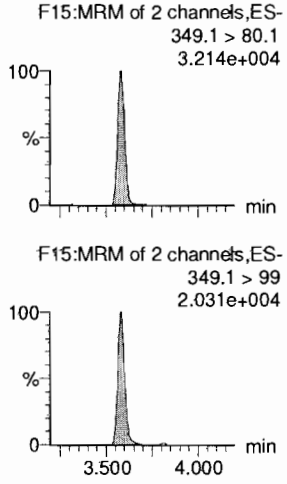
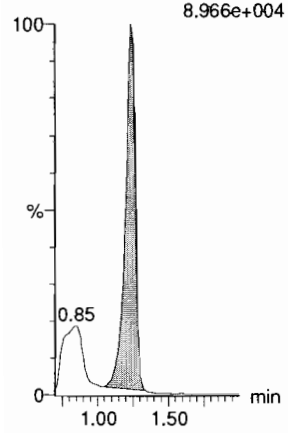


13C3-PFBA



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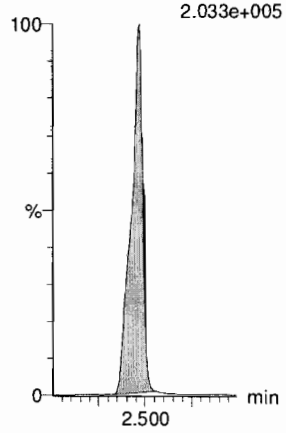

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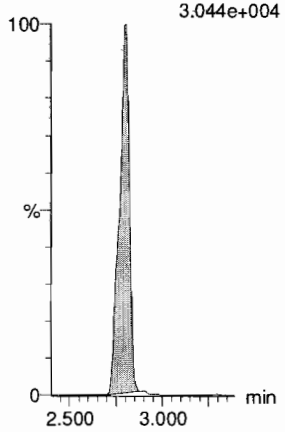
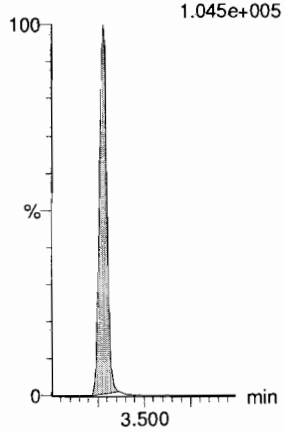


13C2-4:2 FTS



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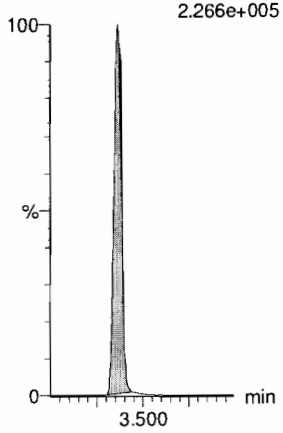

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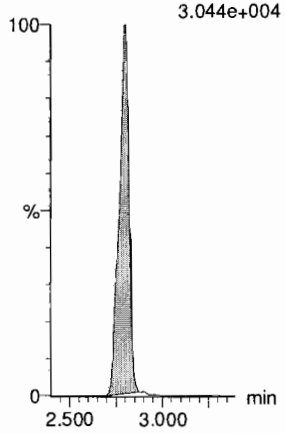
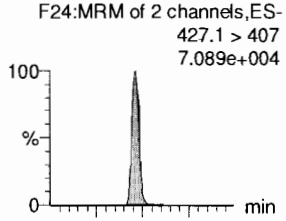


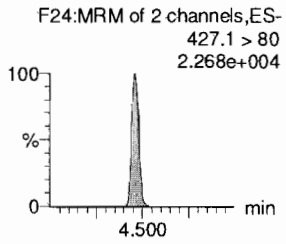
Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

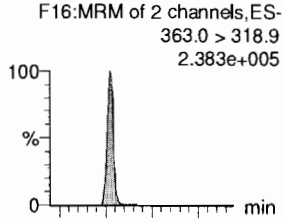
Name: 181126M1_6, Date: 26-Nov-2018, Time: 12:28:21, ID: ST181126M2-5 PFC CS2 18K1905, Description: PFC CS2 18K1905

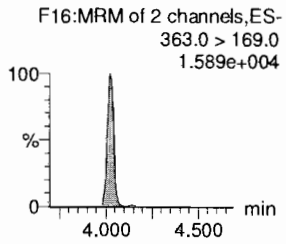
6:2 FTS



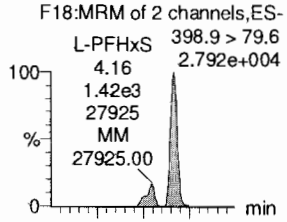


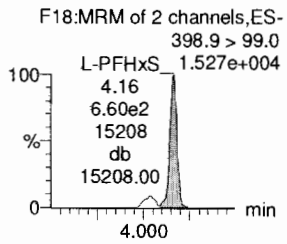
PFHpA



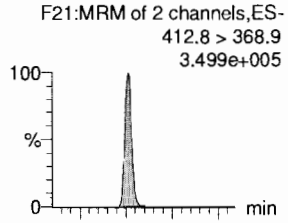


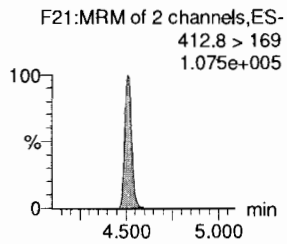
L-PFHxS





L-PFOA





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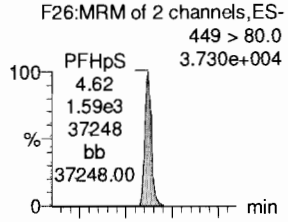

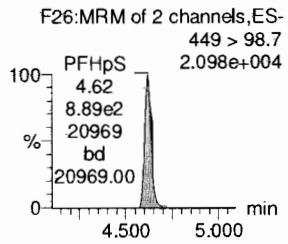

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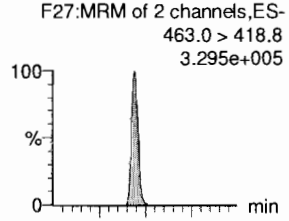
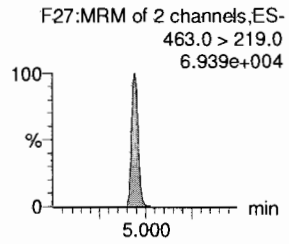
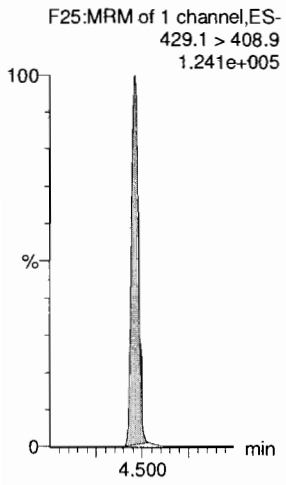
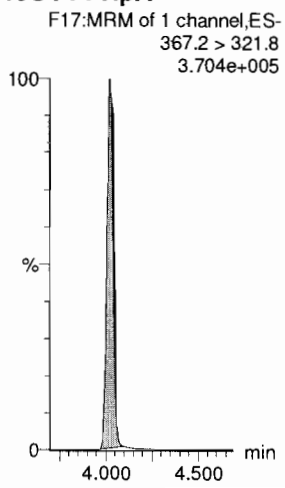




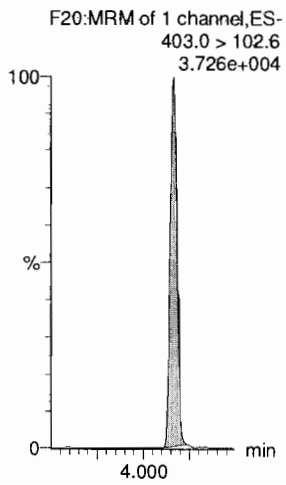
13C2-6:2 FTS



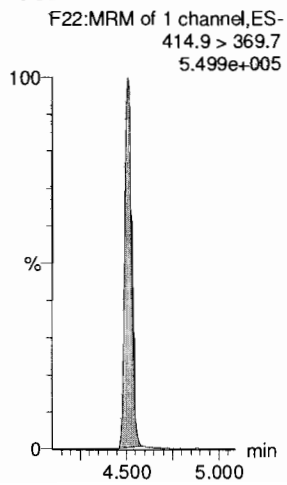
13C4-PFHpA



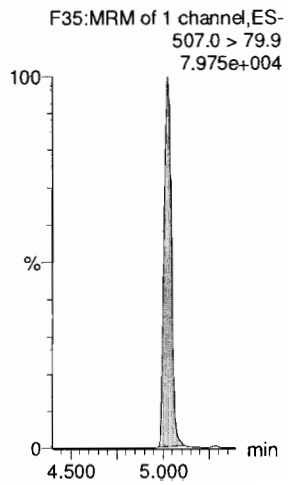
18O2-PFHxS



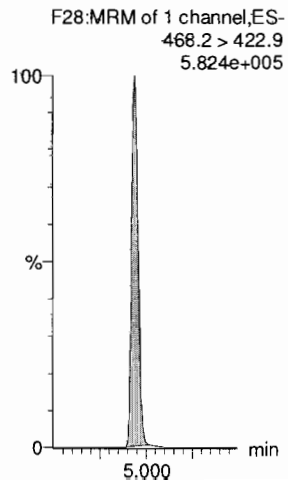
13C2-PFOA



13C8-PFOS



13C5-PFNA



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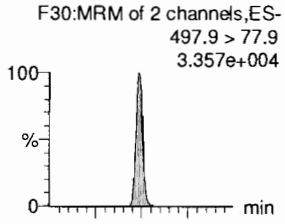
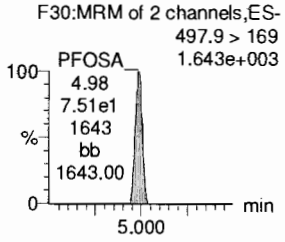
Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

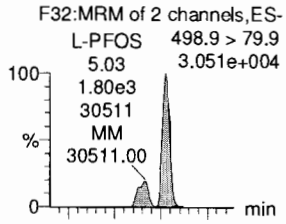
Name: 181126M1_6, Date: 26-Nov-2018, Time: 12:28:21, ID: ST181126M2-5 PFC CS2 18K1905, Description: PFC CS2 18K1905

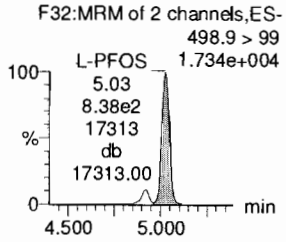
PFOSA



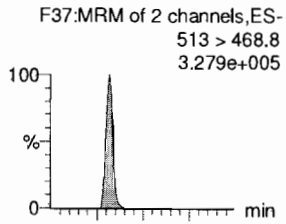


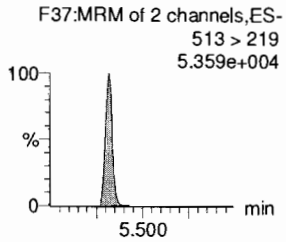
L-PFOS



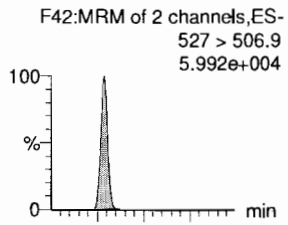


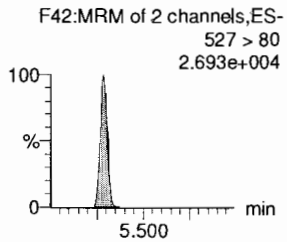
PFDA





8:2 FTS





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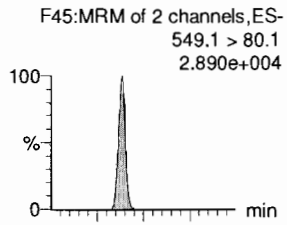
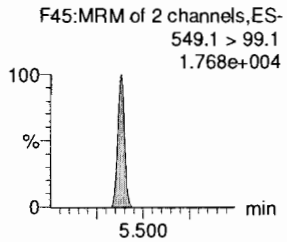
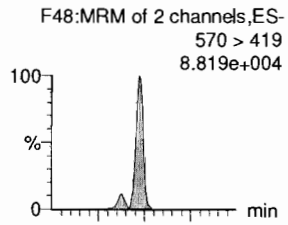
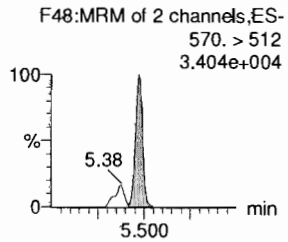


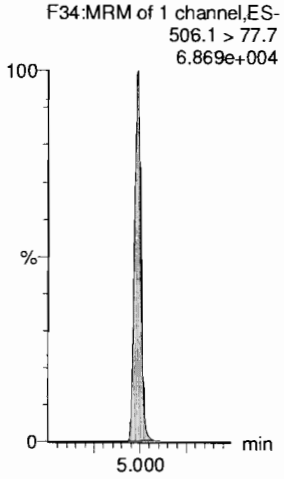


L-MeFOSAA

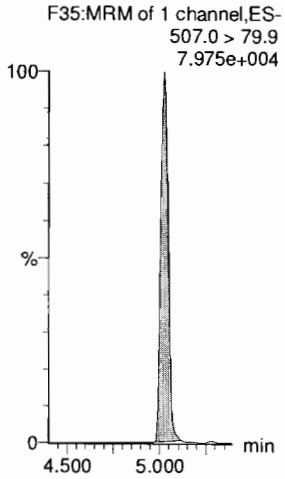




13C8-PFOSA



13C8-PFOS



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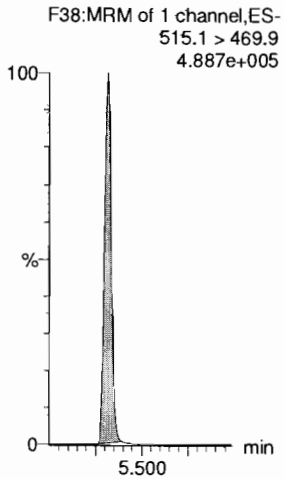
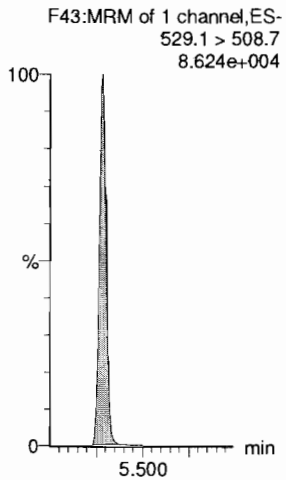
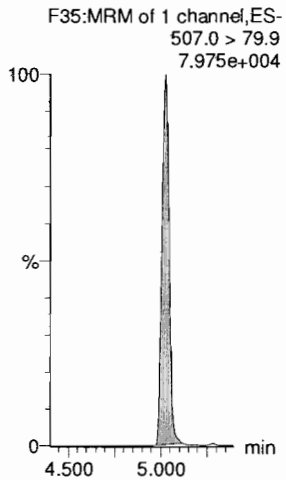


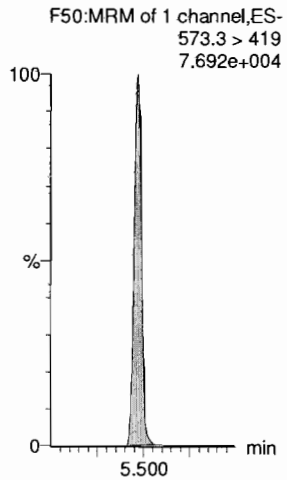
13C2-8:2 FTS



13C8-PFOS



d3-N-MeFOSAA



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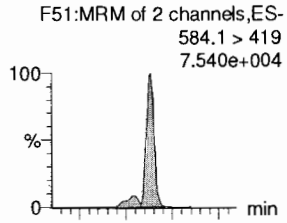
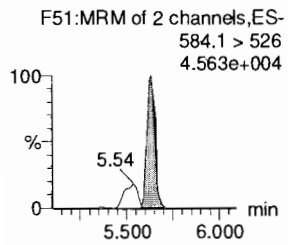
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

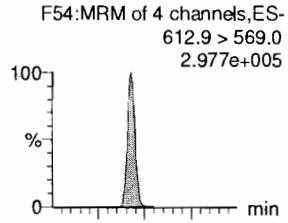
Name: 181126M1_6, Date: 26-Nov-2018, Time: 12:28:21, ID: ST181126M2-5 PFC CS2 18K1905, Description: PFC CS2 18K1905

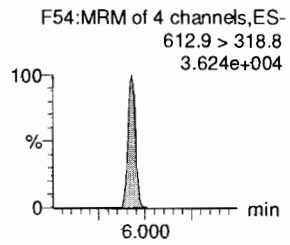
L-EtFOSAA





PFDoA





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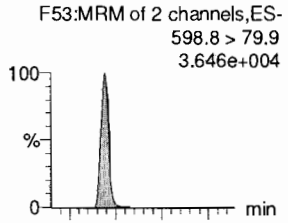

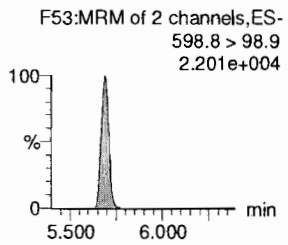

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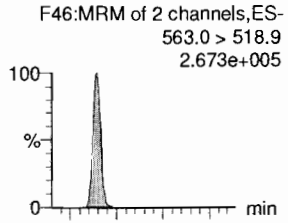
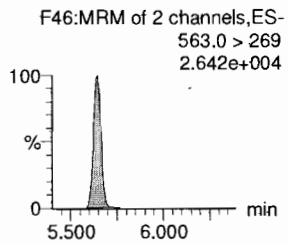
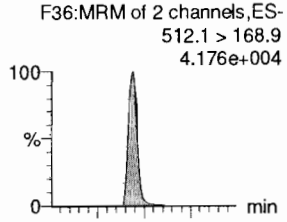
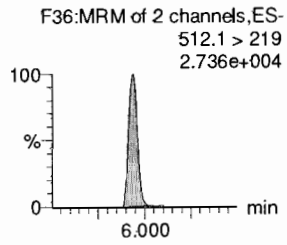


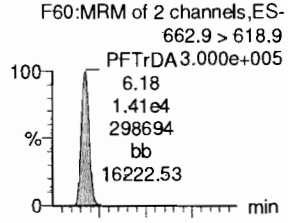


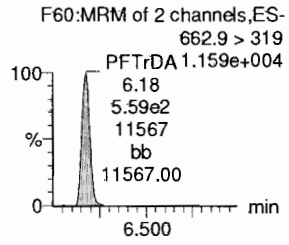
N-MeFOSA





PFTrDA





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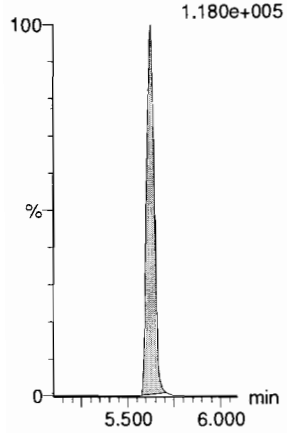
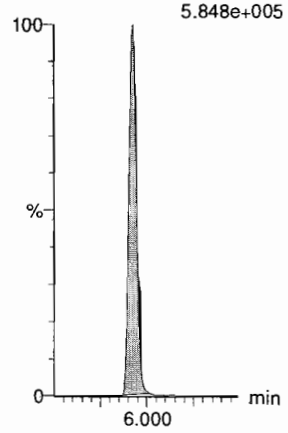
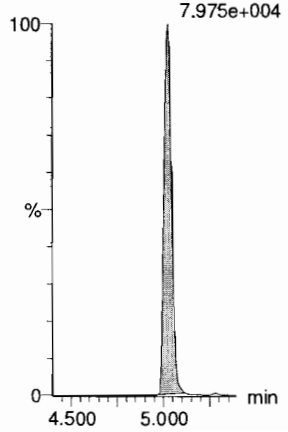


13C2-PFDoA



13C8-PFOS



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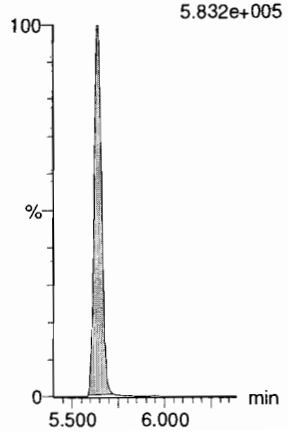

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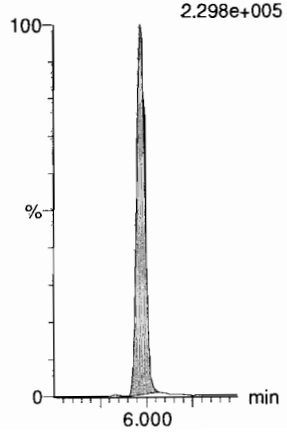

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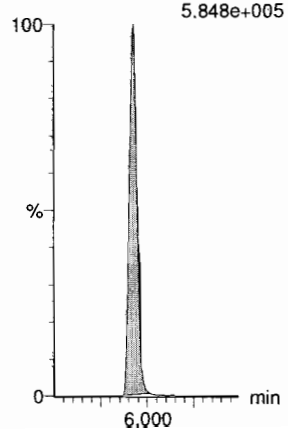

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Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

Name: 181126M1_6, Date: 26-Nov-2018, Time: 12:28:21, ID: ST181126M2-5 PFC CS2 18K1905, Description: PFC CS2 18K1905

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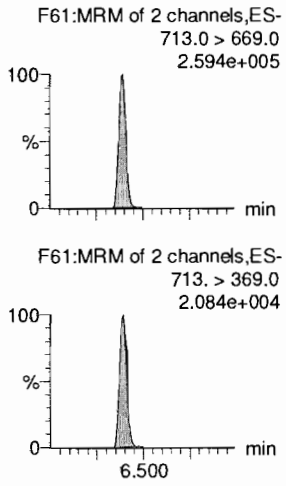

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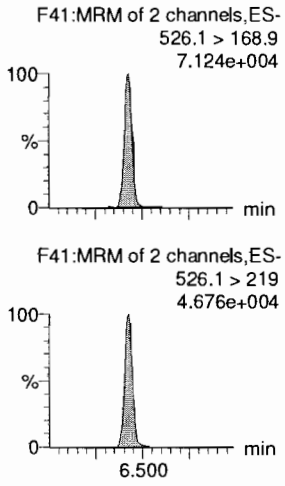
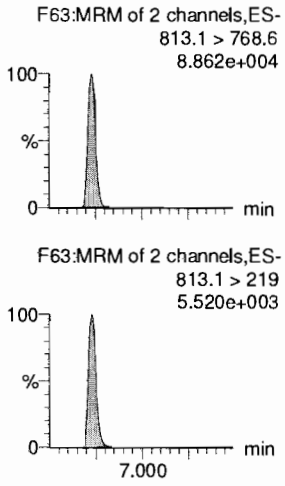


PFHxDA



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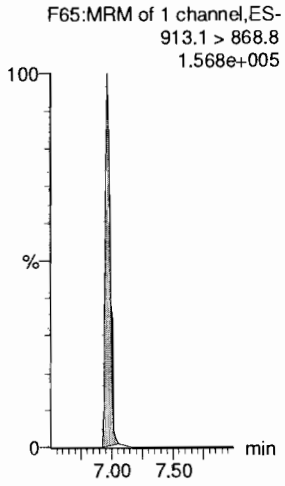
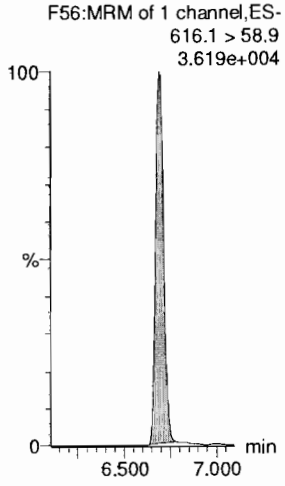


N-MeFOSE



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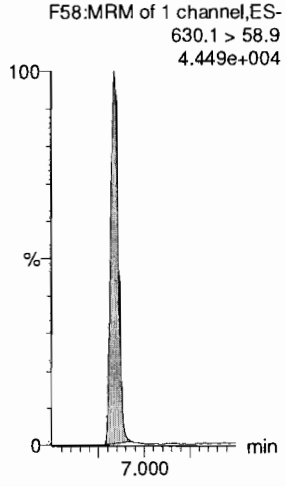

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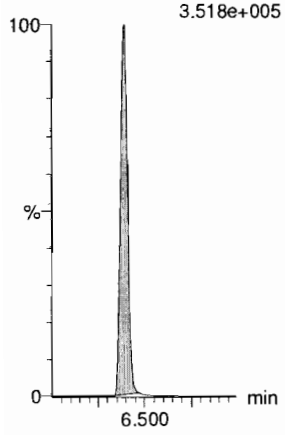

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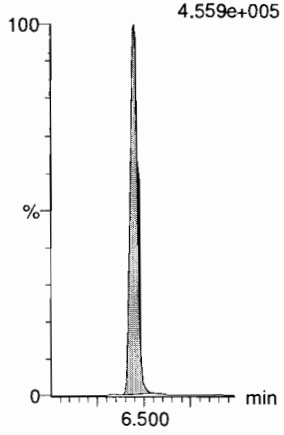

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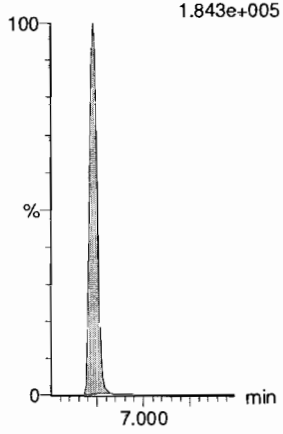

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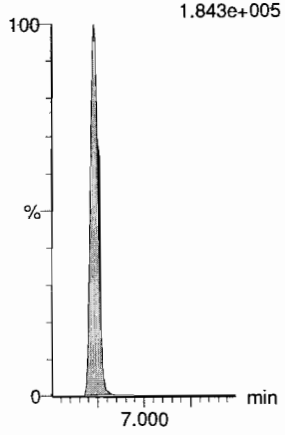
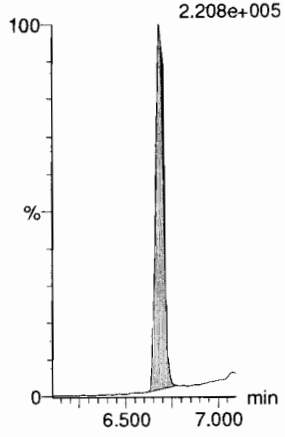


d7-N-MeFOSE



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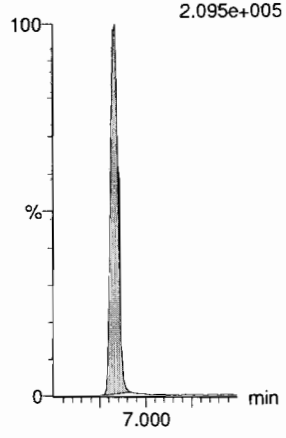

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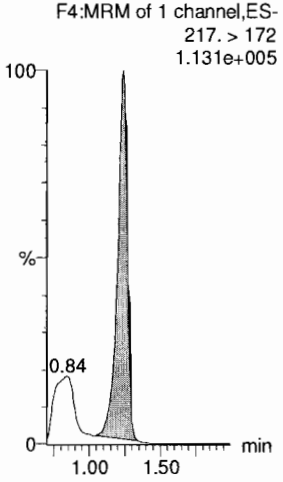
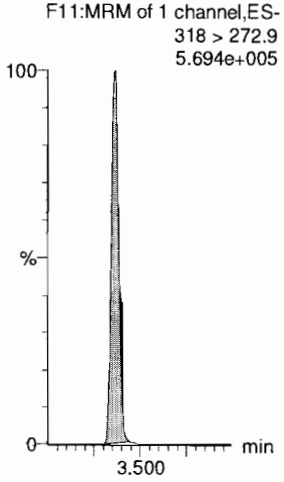
Name: 181126M1_6, Date: 26-Nov-2018, Time: 12:28:21, ID: ST181126M2-5 PFC CS2 18K1905, Description: PFC CS2 18K1905

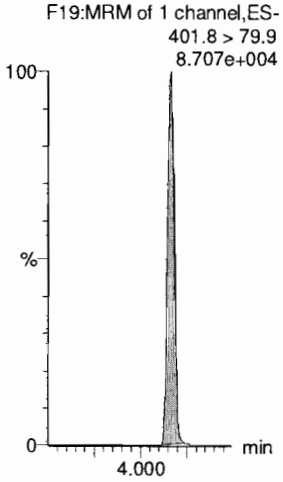
13C4-PFBA



13C5-PFHxA



13C3-PFHxS



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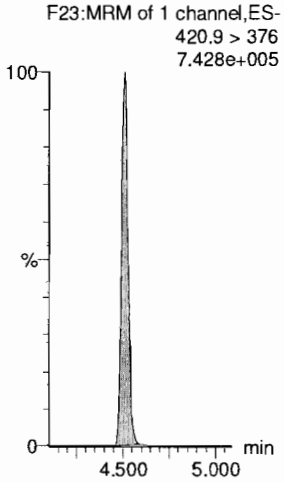

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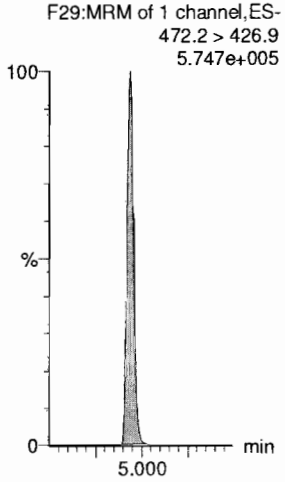

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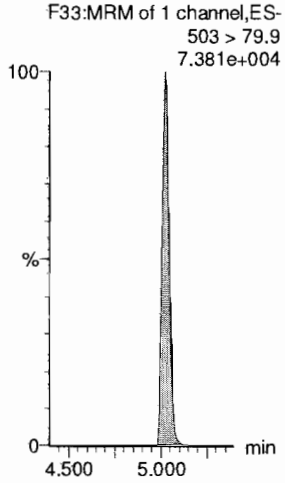

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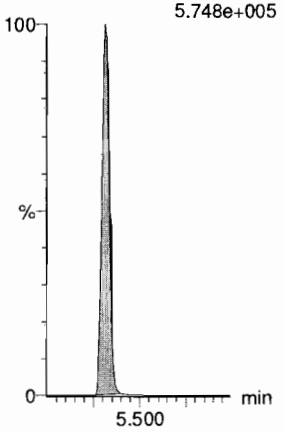
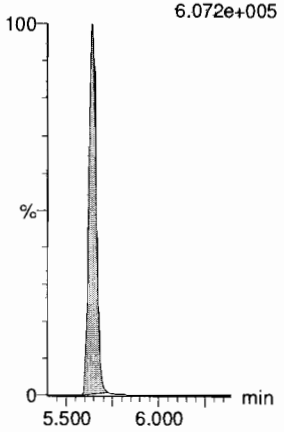


13C7-PFUdA



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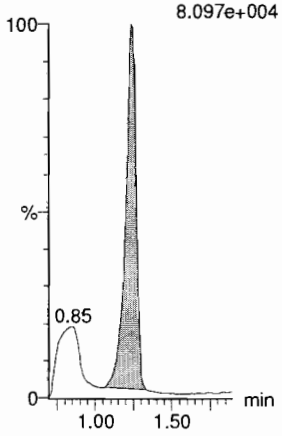
1 AD 11/27/18

Name: 181126M1_7, Date: 26-Nov-2018, Time: 12:38:59, ID: ST181126M1-6 PFC CS3 18K1906, Description: PFC CS3 18K1906

PFBA



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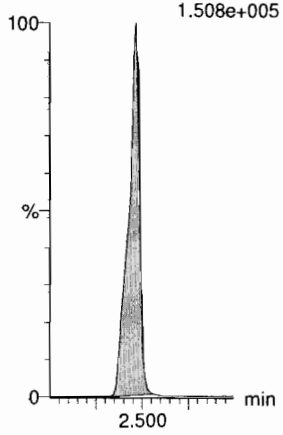

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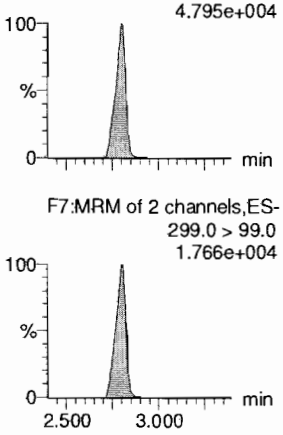
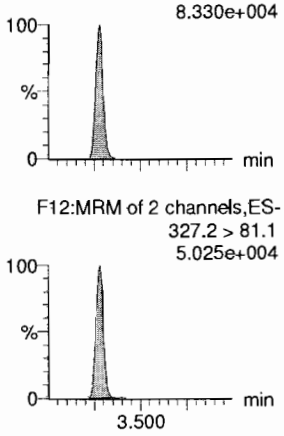
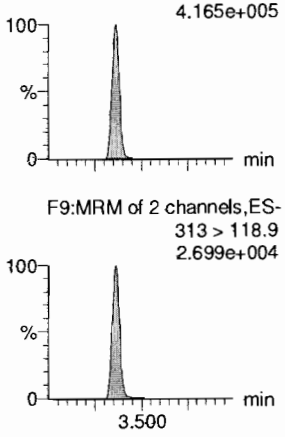


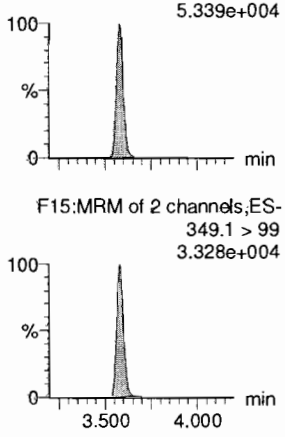
4:2 FTS



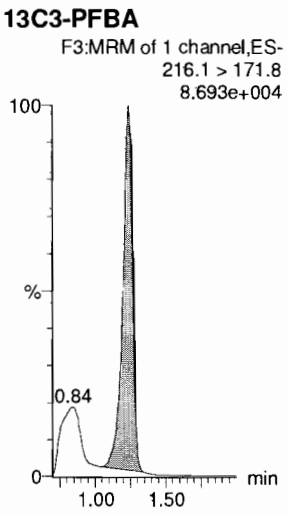
PFHxA



PFPeS



13C3-PFBA



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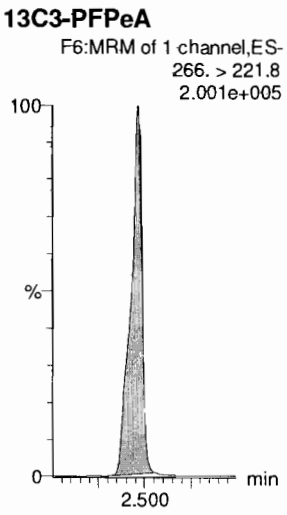

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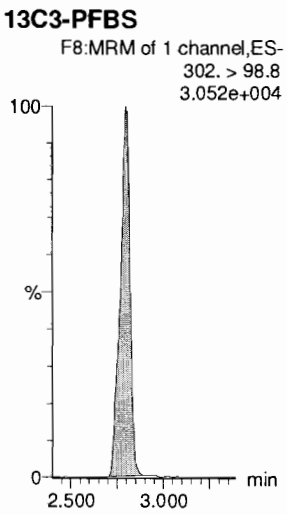
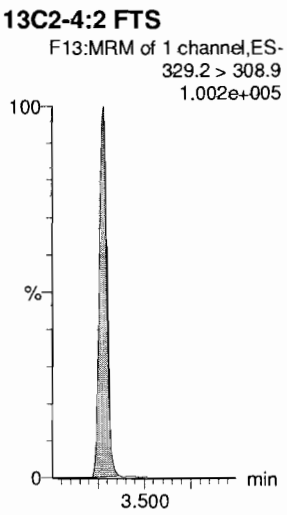


13C2-4:2 FTS



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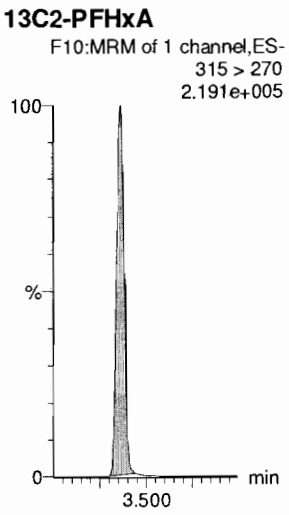

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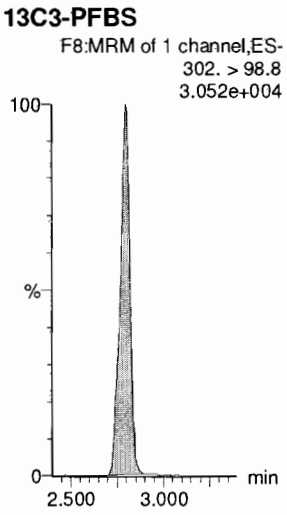

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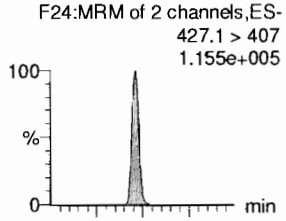
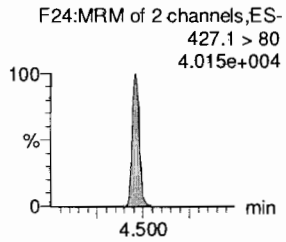
Name: 181126M1_7, Date: 26-Nov-2018, Time: 12:38:59, ID: ST181126M2-6 PFC CS3 18K1906, Description: PFC CS3 18K1906

6:2 FTS





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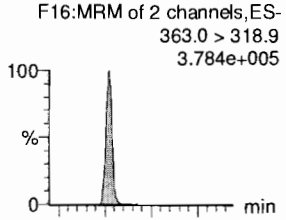
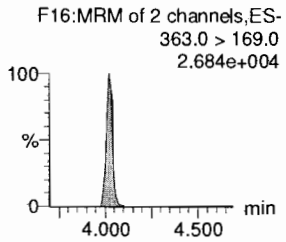
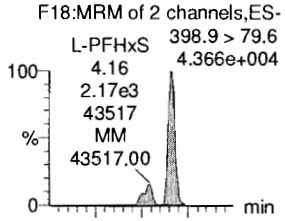
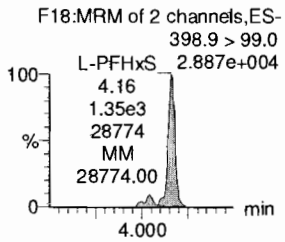




L-PFHxS





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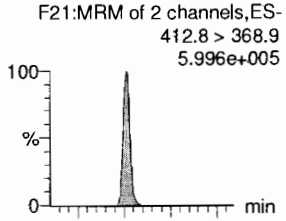

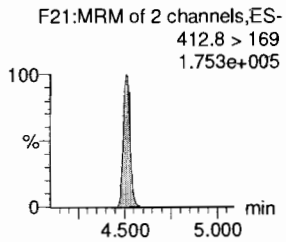

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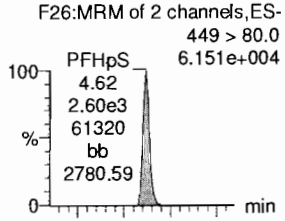

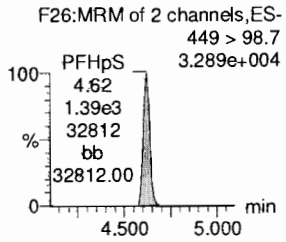

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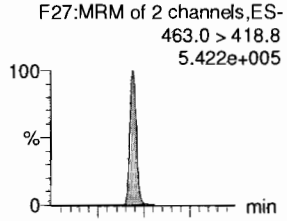
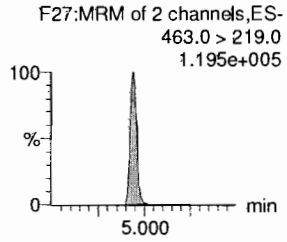
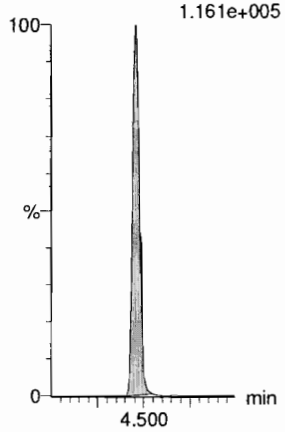
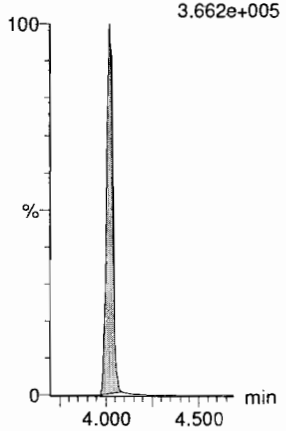




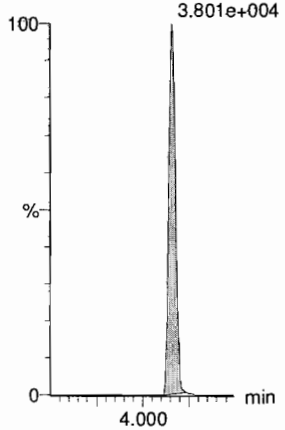
13C2-6:2 FTS



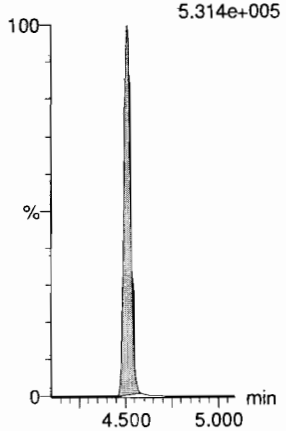
13C4-PFHpA



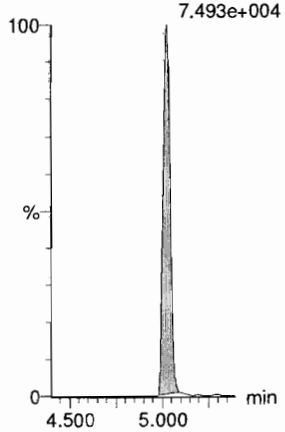
18O2-PFHxS



13C2-PFOA



13C8-PFOS



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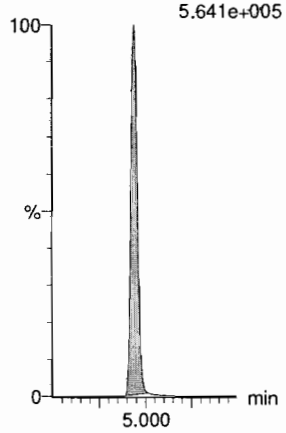

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Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

Name: 181126M1_7, Date: 26-Nov-2018, Time: 12:38:59, ID: ST181126M2-6 PFC CS3 18K1906, Description: PFC CS3 18K1906

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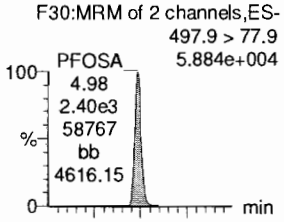

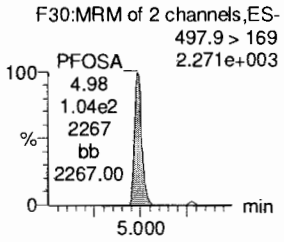

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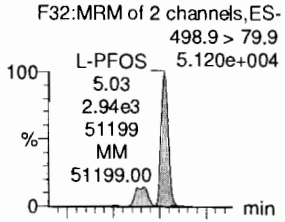

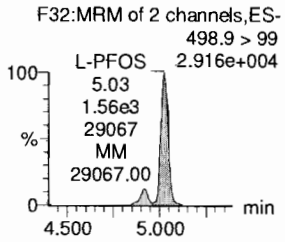

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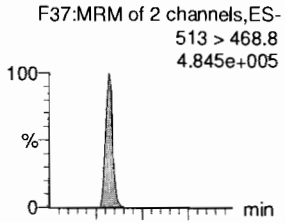
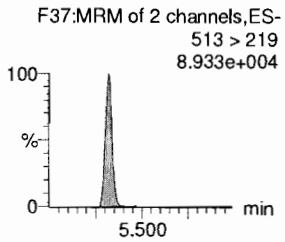
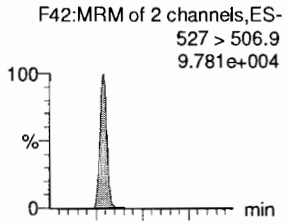
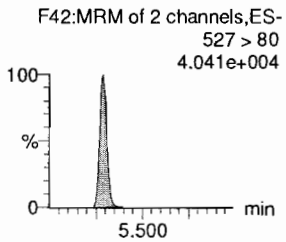


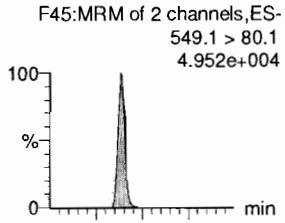


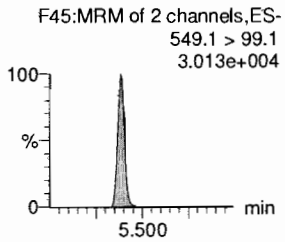
8:2 FTS





PFNS





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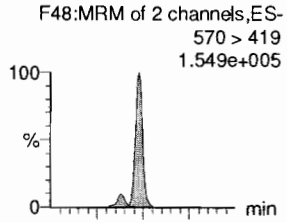

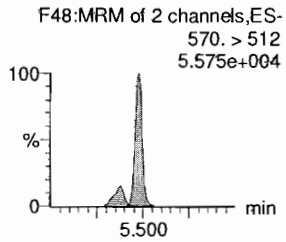

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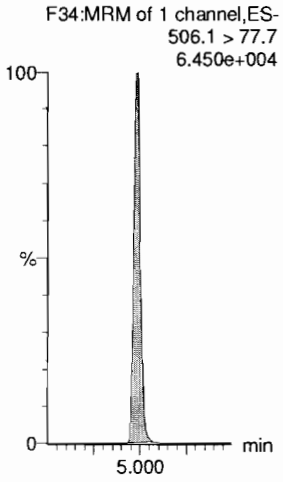
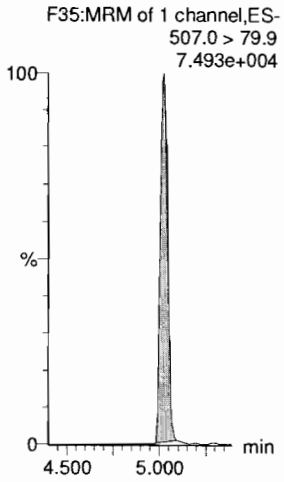


13C8-PFOS



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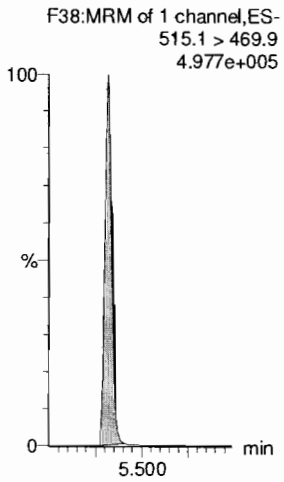
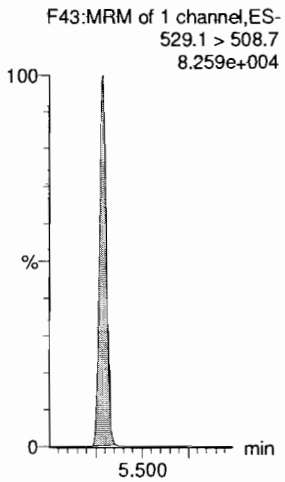
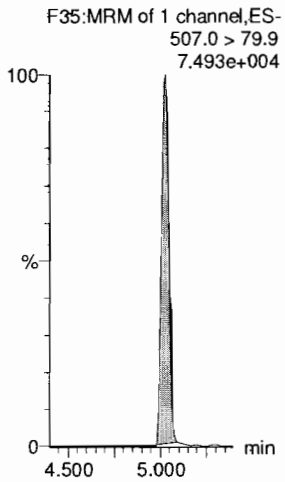


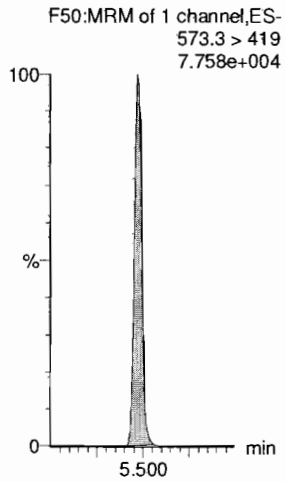
13C2-8:2 FTS



13C8-PFOS



d3-N-MeFOSAA



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Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

Name: 181126M1_7, Date: 26-Nov-2018, Time: 12:38:59, ID: ST181126M2-6 PFC CS3 18K1906, Description: PFC CS3 18K1906

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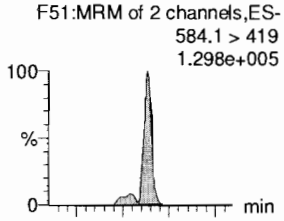
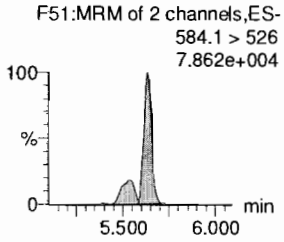
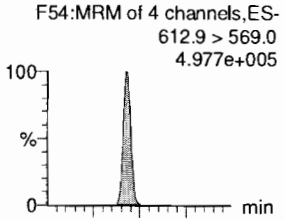
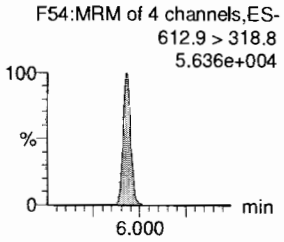




PFDoA





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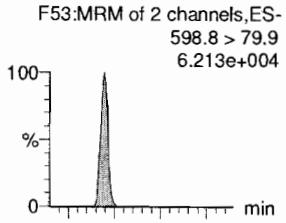

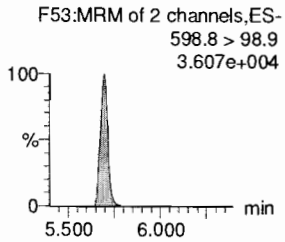

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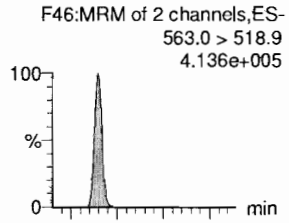
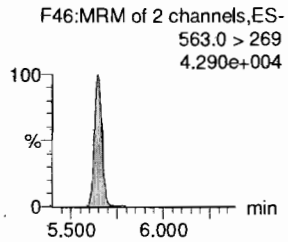
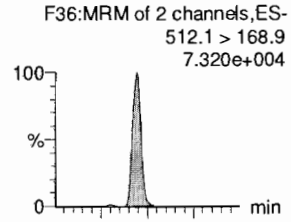
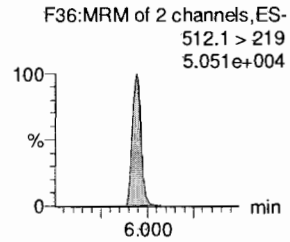




N-MeFOSA





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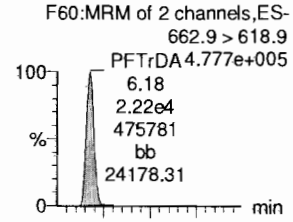
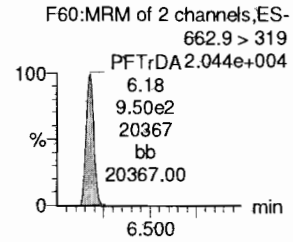
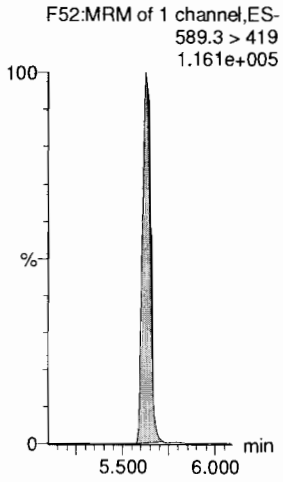
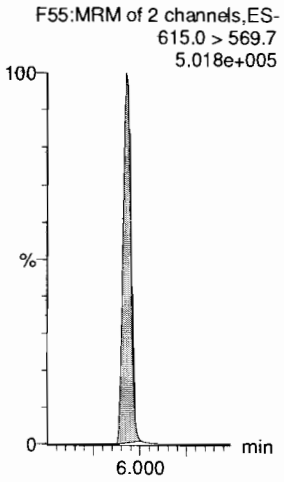




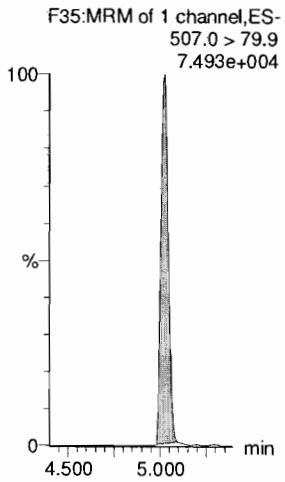
d5-N-EtFOSAA



13C2-PFDoA



13C8-PFOS



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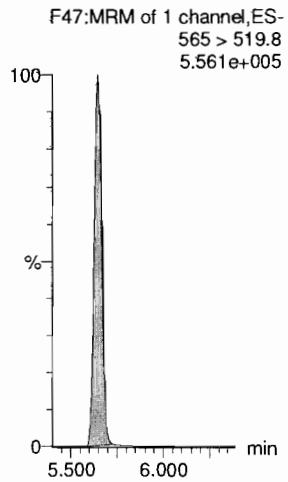

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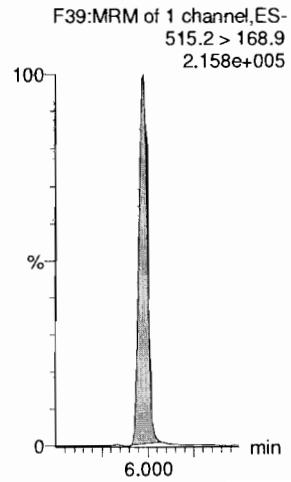

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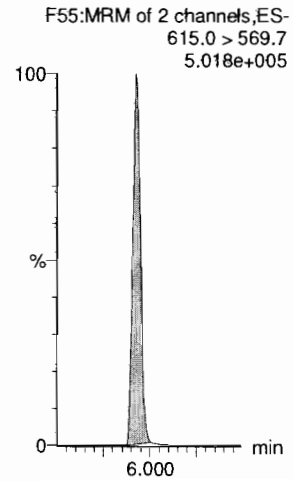

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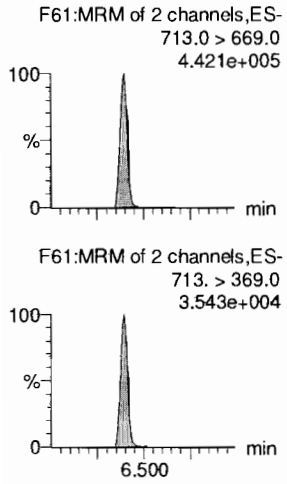
Name: 181126M1_7, Date: 26-Nov-2018, Time: 12:38:59, ID: ST181126M2-6 PFC CS3 18K1906, Description: PFC CS3 18K1906

PFTeDA



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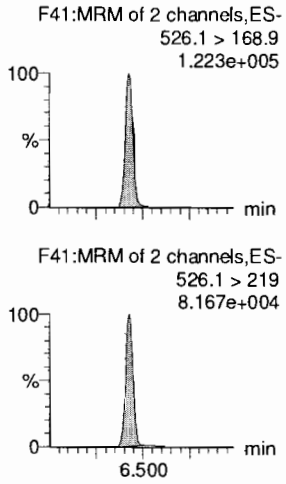

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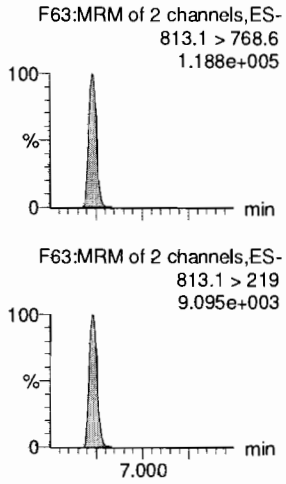
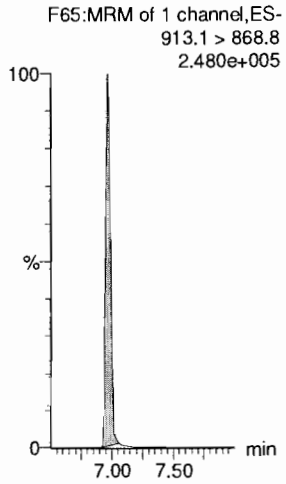


PFODA



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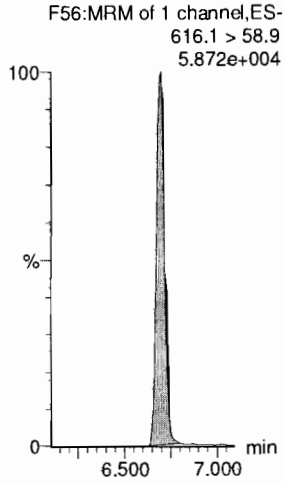
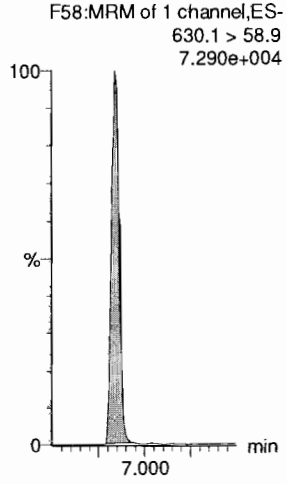


N-EtFOSE



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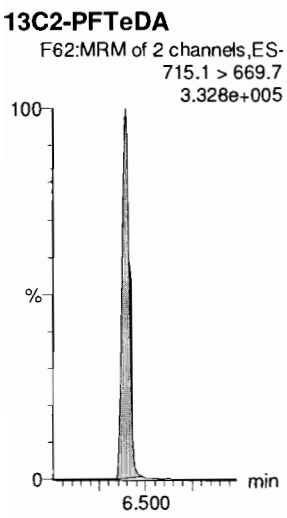
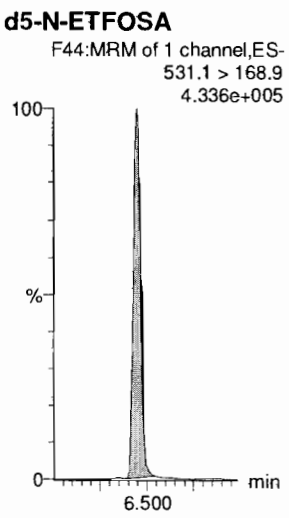
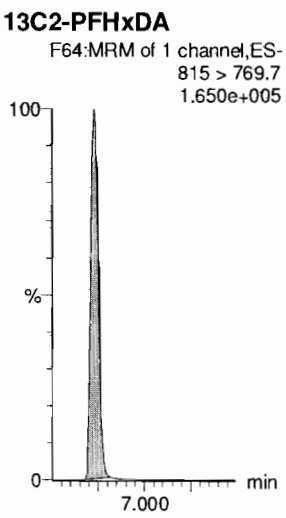


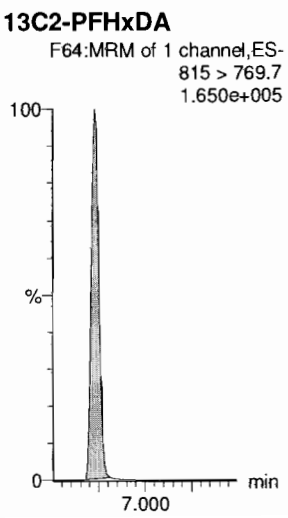
d5-N-ETFOSA



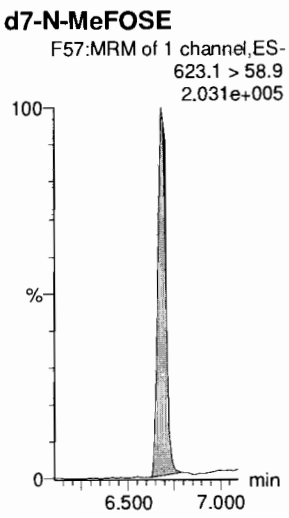
13C2-PFHxDA



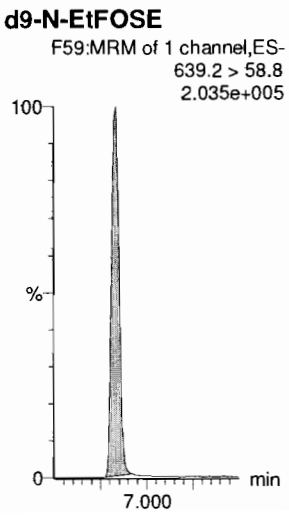
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
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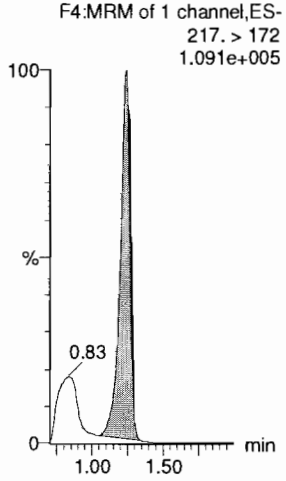
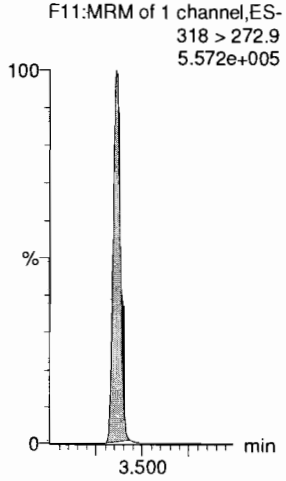
Name: 181126M1_7, Date: 26-Nov-2018, Time: 12:38:59, ID: ST181126M2-6 PFC CS3 18K1906, Description: PFC CS3 18K1906

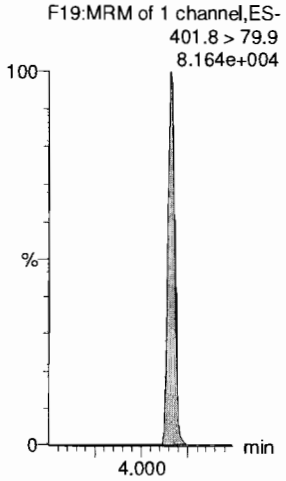
13C4-PFBA



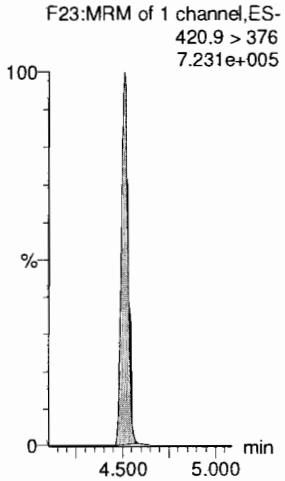
13C5-PFHxA



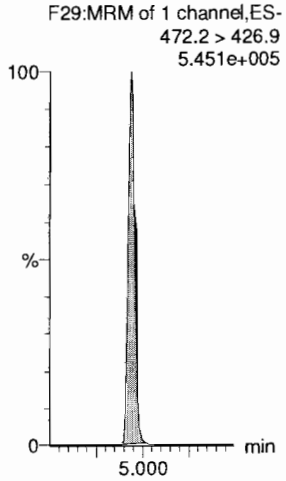
13C3-PFHxS



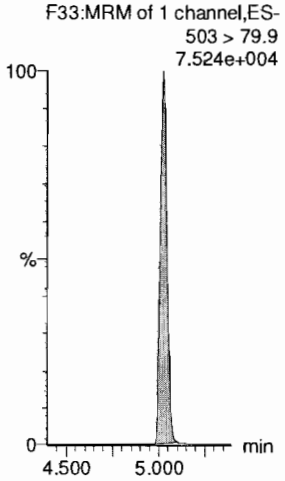
13C8-PFOA



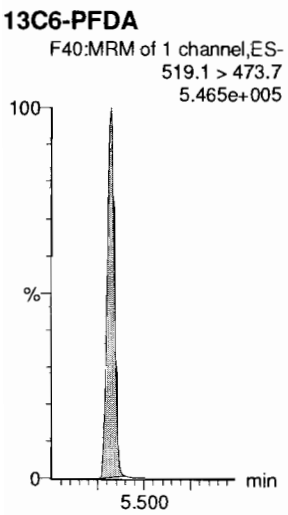
13C9-PFNA



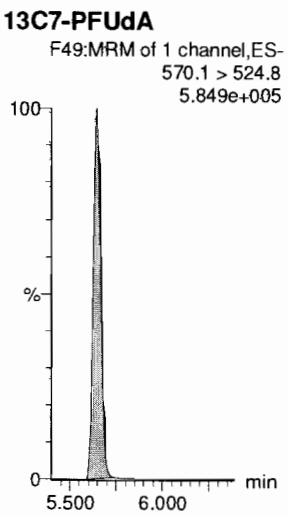
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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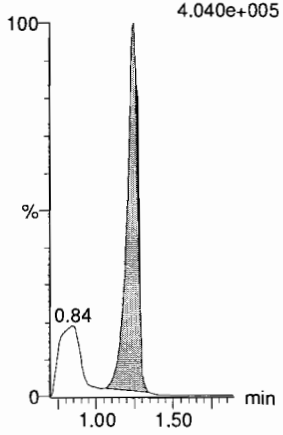
Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

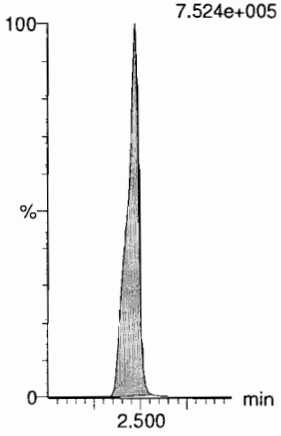
1 AD 11/27/18

Name: 181126M1_8, Date: 26-Nov-2018, Time: 12:49:38, ID: ST181126M7-7 PFC CS4 1810907, Description: PFC CS4 18K1907

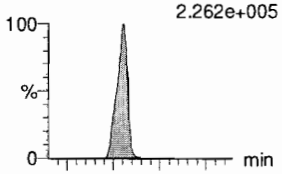
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
4.040e+005



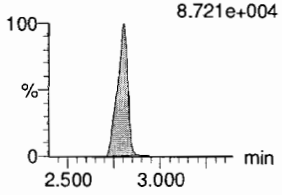
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
7.524e+005



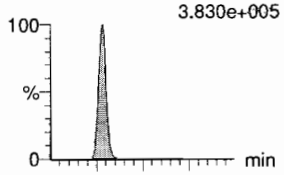
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
2.262e+005



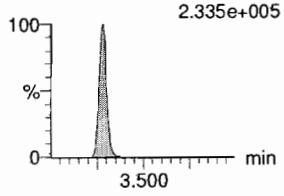
F7:MRM of 2 channels,ES-
299.0 > 99.0
8.721e+004



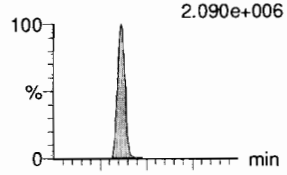
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
3.830e+005



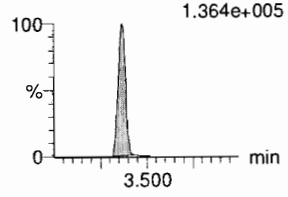
F12:MRM of 2 channels,ES-
327.2 > 81.1
2.335e+005



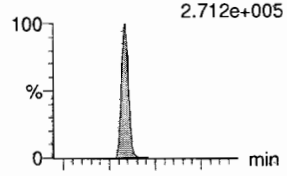
PFHxA
F9:MRM of 2 channels,ES-
313 > 269
2.090e+006



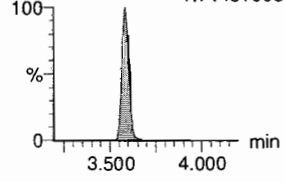
F9:MRM of 2 channels,ES-
313 > 118.9
1.364e+005



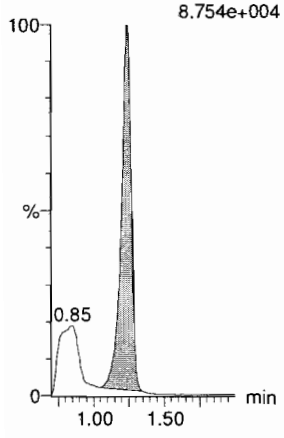
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
2.712e+005



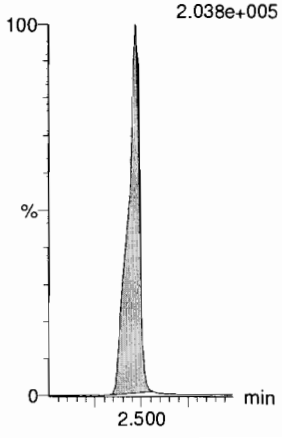
F15:MRM of 2 channels,ES-
349.1 > 99
1.744e+005



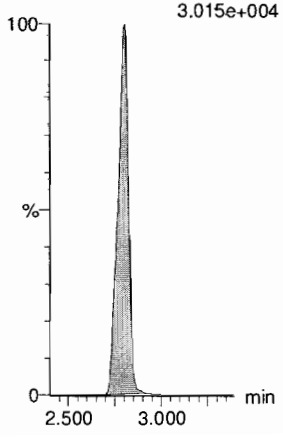
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
8.754e+004



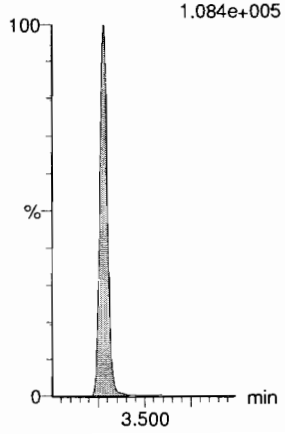
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
2.038e+005



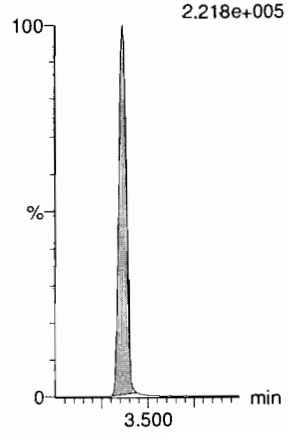
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
3.015e+004



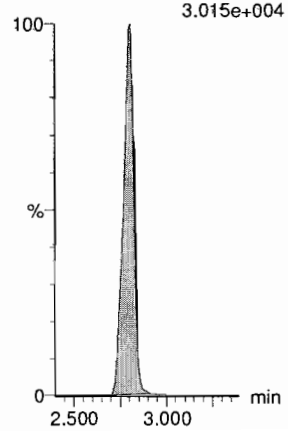
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
1.084e+005



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 270
2.218e+005



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
3.015e+004



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Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
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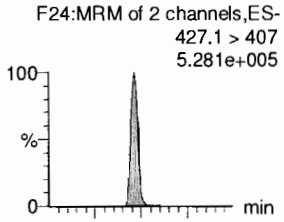
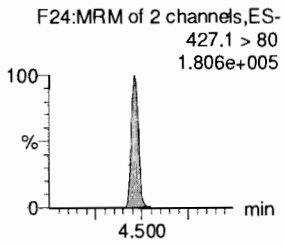
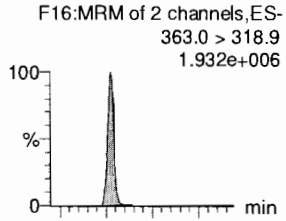
Name: 181126M1_8, Date: 26-Nov-2018, Time: 12:49:38, ID: ST181126M2-7 PFC CS4 1810907, Description: PFC CS4 18K1907

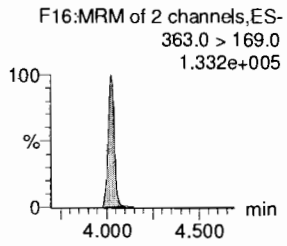
6:2 FTS



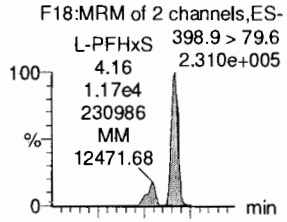


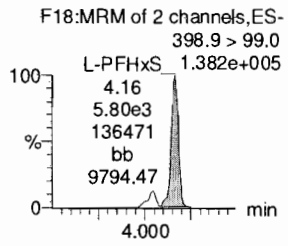
PFHpA



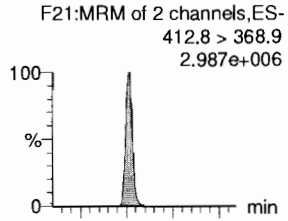


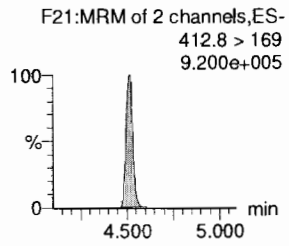
L-PFHxS



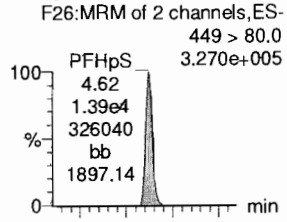


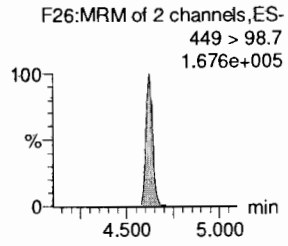
L-PFOA



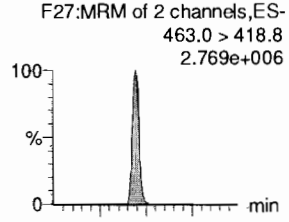


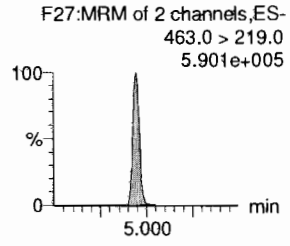
PFHpS



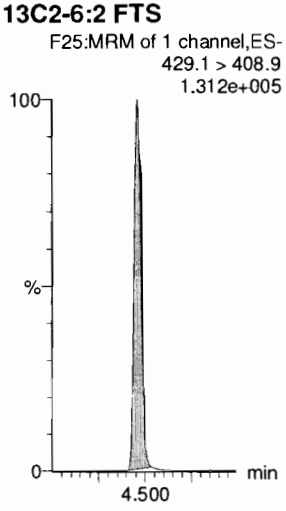


PFNA

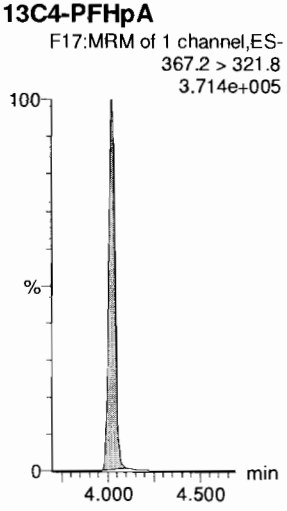




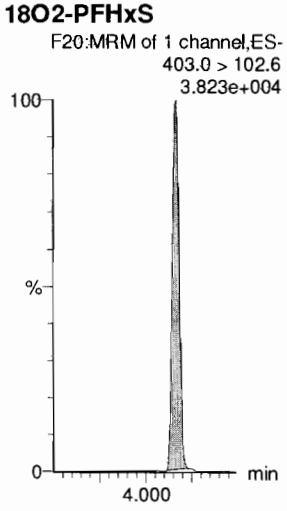
13C2-6:2 FTS



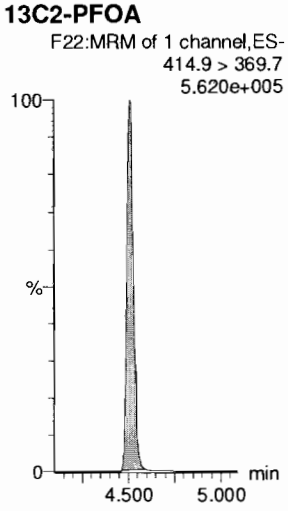
13C4-PFHpA



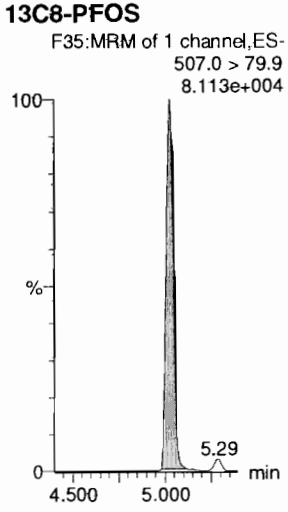
18O2-PFHxS



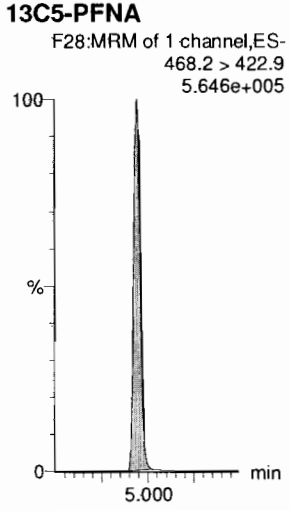
13C2-PFOA



13C8-PFOS



13C5-PFNA



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
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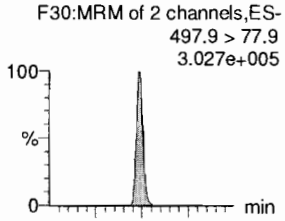
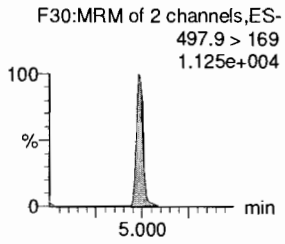
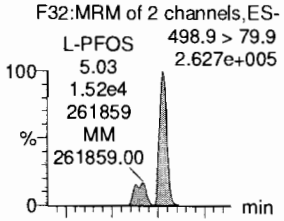
Name: 181126M1_8, Date: 26-Nov-2018, Time: 12:49:38, ID: ST181126M2-7 PFC CS4 1810907, Description: PFC CS4 18K1907

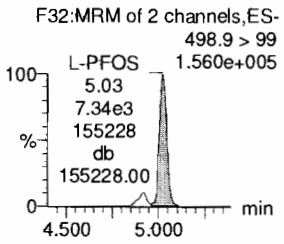
PFOSA





L-PFOS





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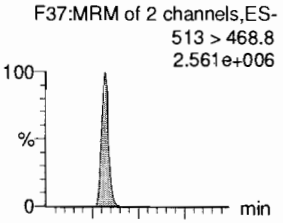
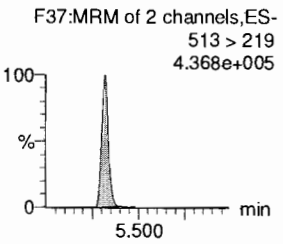
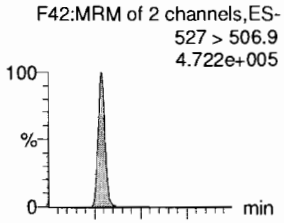
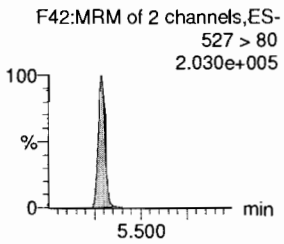




8:2 FTS





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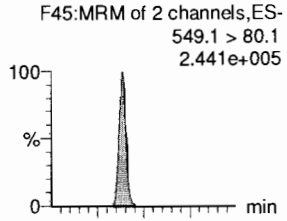
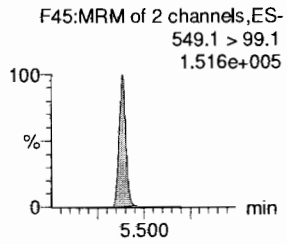
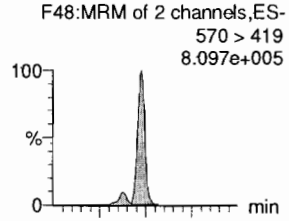
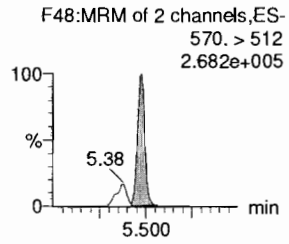


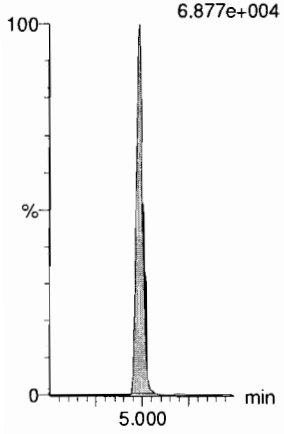


L-MeFOSAA

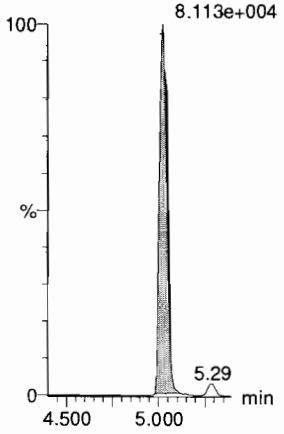




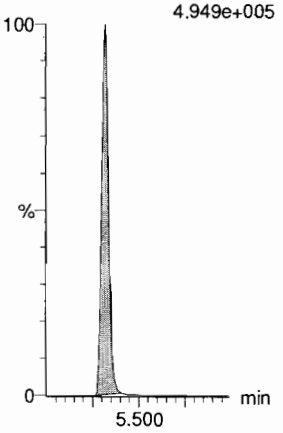
13C8-PFOSA



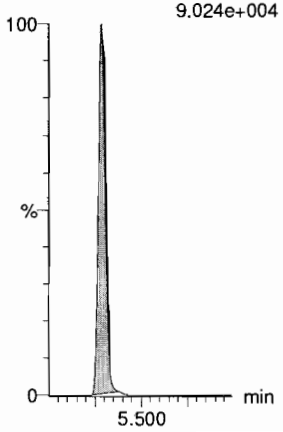
13C8-PFOS



13C2-PFDA



13C2-8:2 FTS



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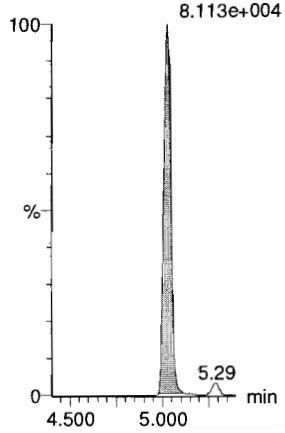
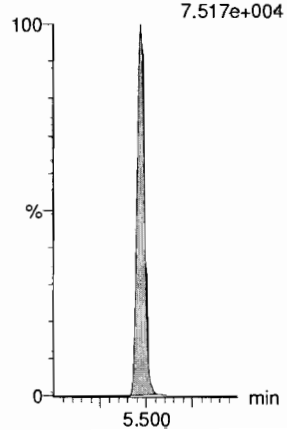


d3-N-MeFOSAA



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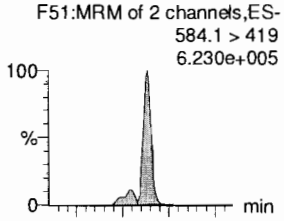
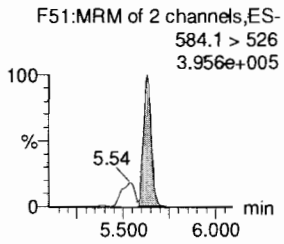
Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

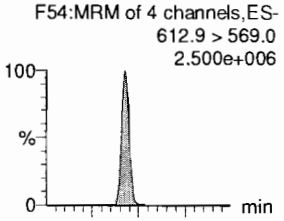
Name: 181126M1_8, Date: 26-Nov-2018, Time: 12:49:38, ID: ST181126M2-7 PFC CS4 1810907, Description: PFC CS4 18K1907

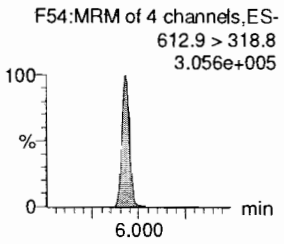
L-EtFOSAA





PFDoA





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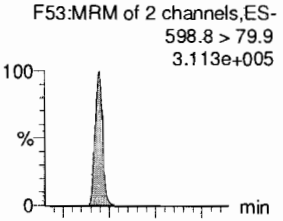

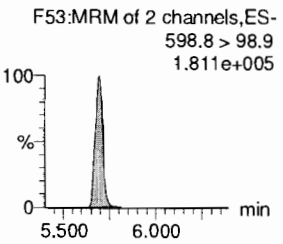

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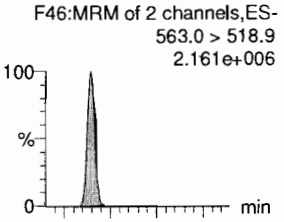
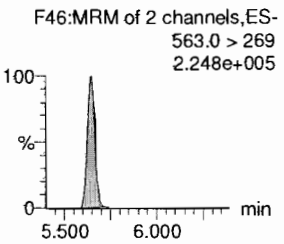
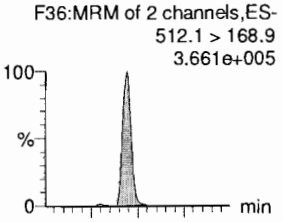
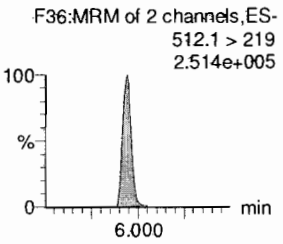




N-MeFOSA





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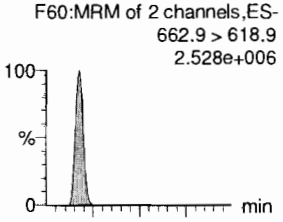

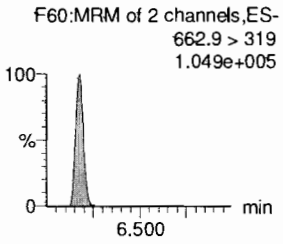

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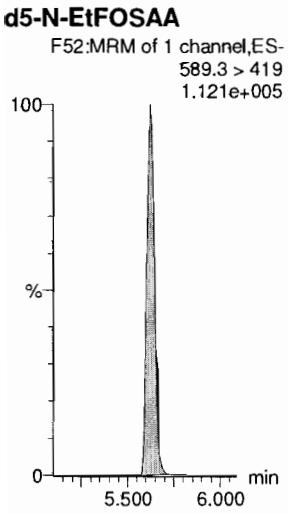
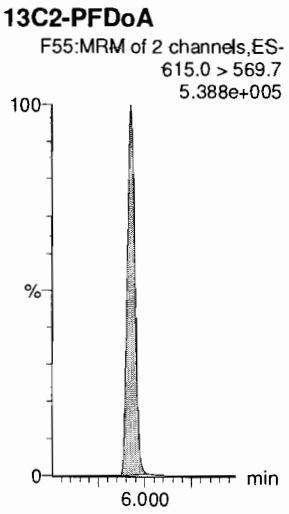


13C2-PFDoA



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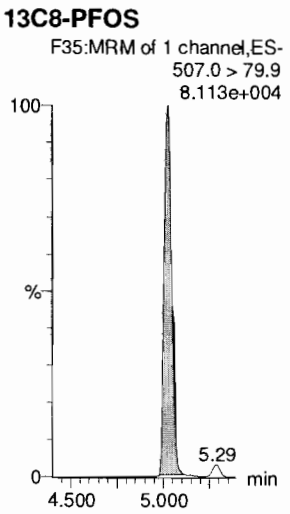
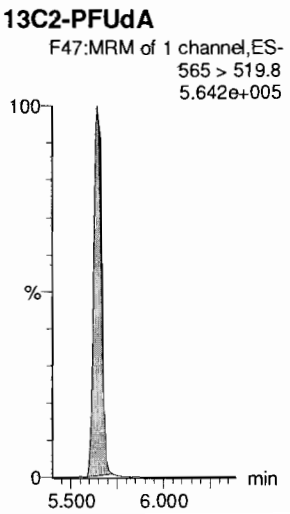


13C2-PFUdA



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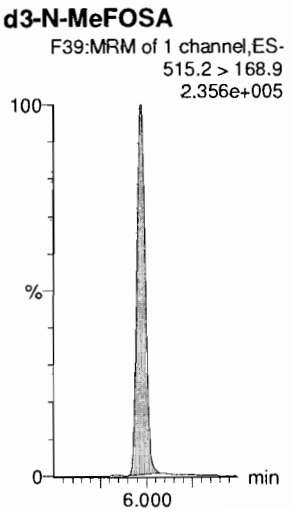

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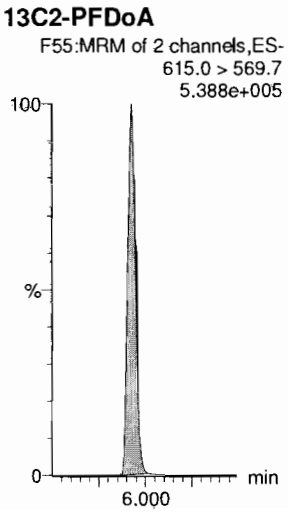

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Name: 181126M1_8, Date: 26-Nov-2018, Time: 12:49:38, ID: ST181126M2-7 PFC CS4 1810907, Description: PFC CS4 18K1907

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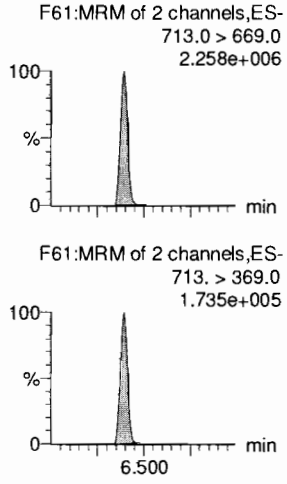

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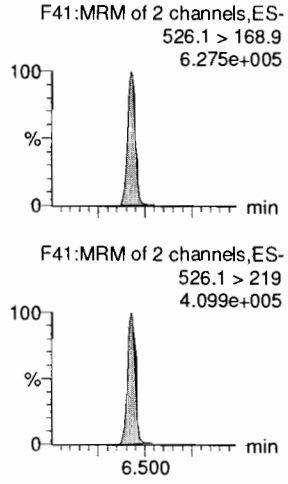
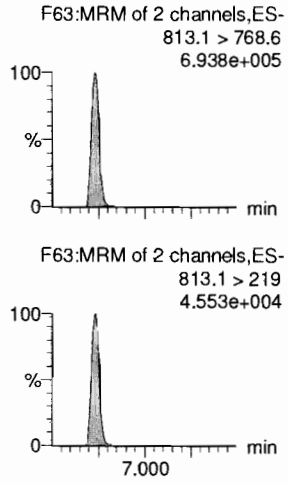
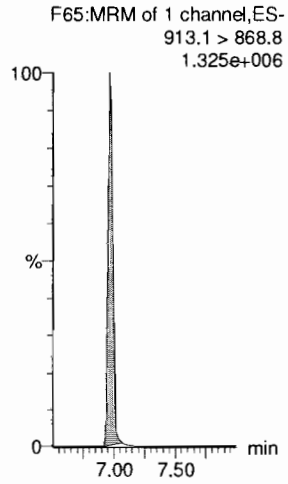


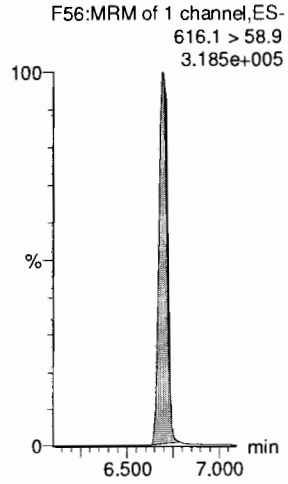
PFHxDA



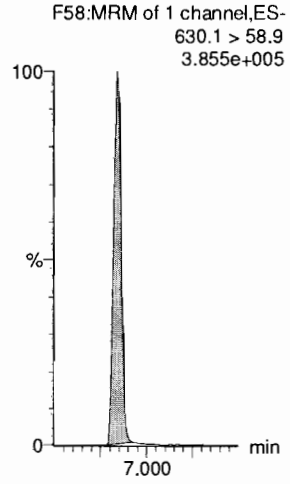
PFODA



N-MeFOSE



N-EtFOSE



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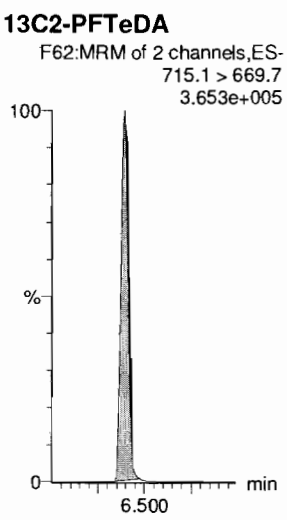
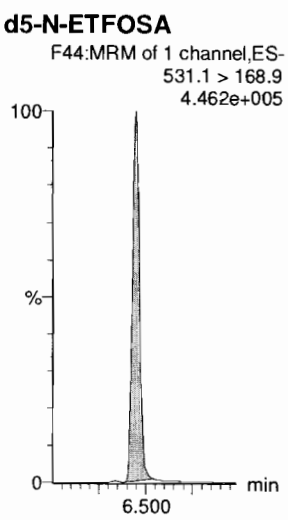


d5-N-ETFOSA



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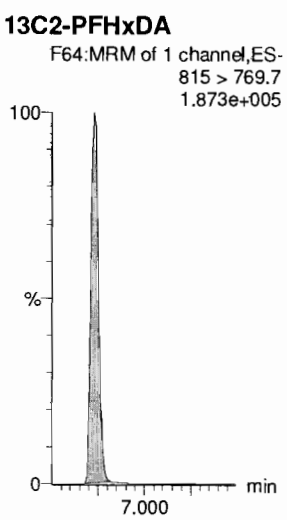

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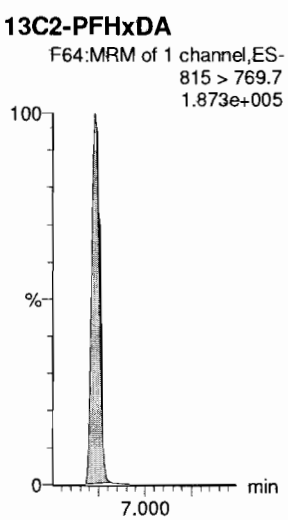

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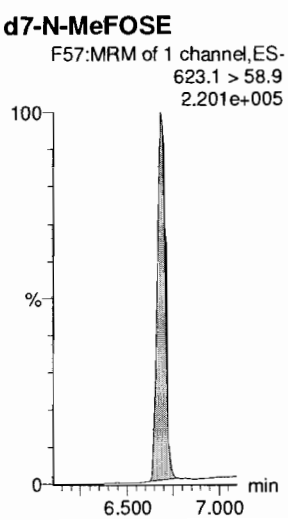
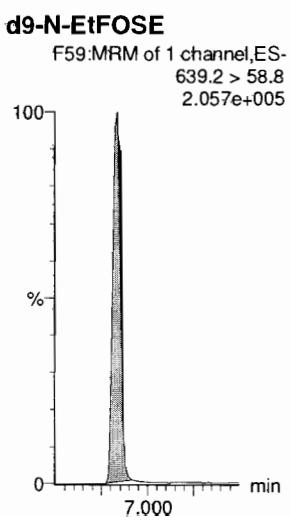


d9-N-EtFOSE



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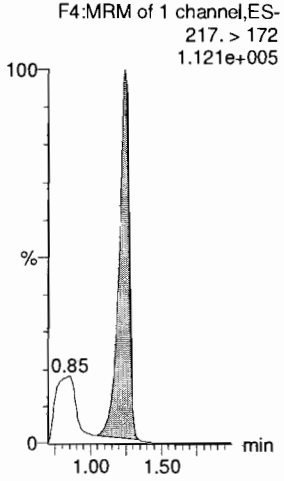
Name: 181126M1_8, Date: 26-Nov-2018, Time: 12:49:38, ID: ST181126M2-7 PFC CS4 1810907, Description: PFC CS4 18K1907

13C4-PFBA



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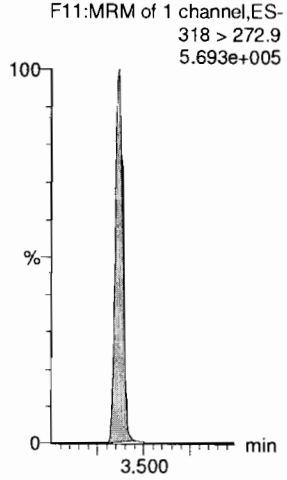

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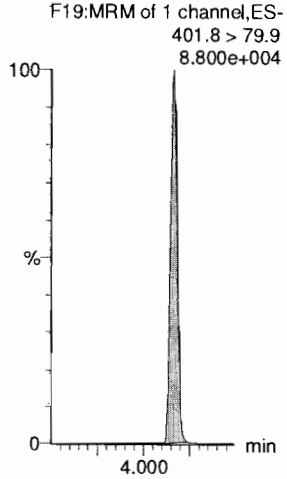
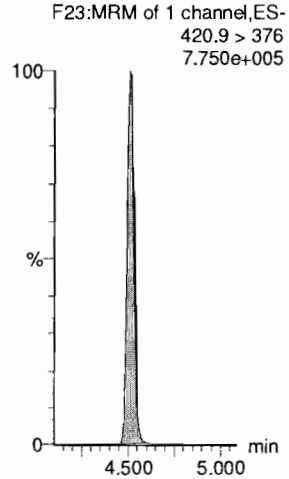


13C8-PFOA



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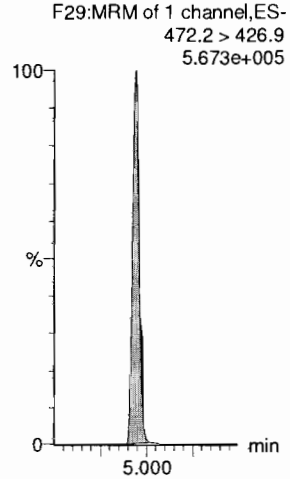
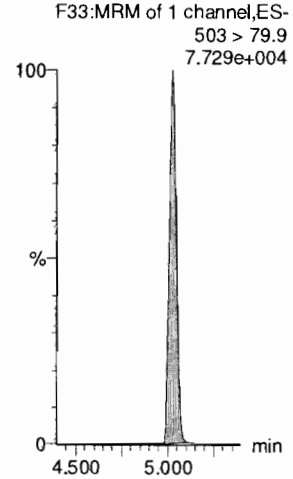


13C4-PFOS



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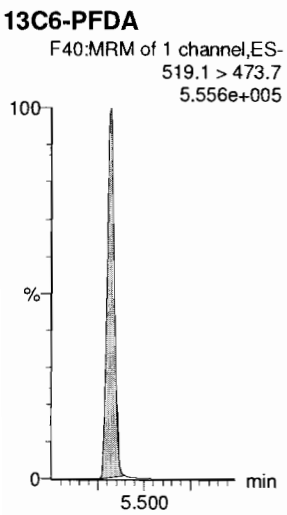
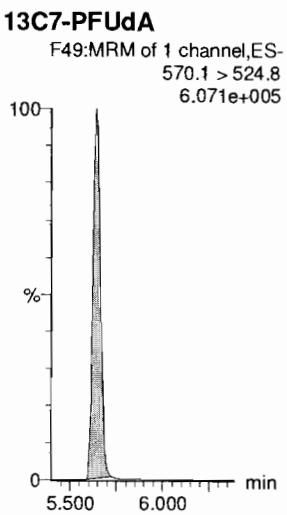


13C7-PFUdA



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Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
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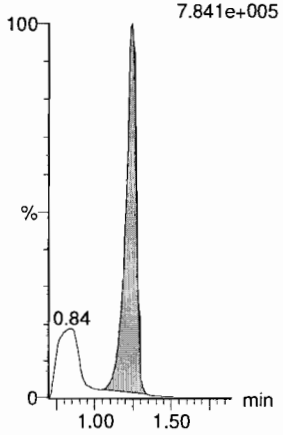
1 AD 11/27/18

Name: 181126M1_9, Date: 26-Nov-2018, Time: 13:00:11, ID: ST181126M1-8 PFC CS5 18K1908, Description: PFC CS5 18K1908

PFBA



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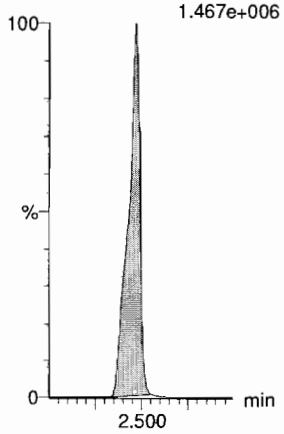

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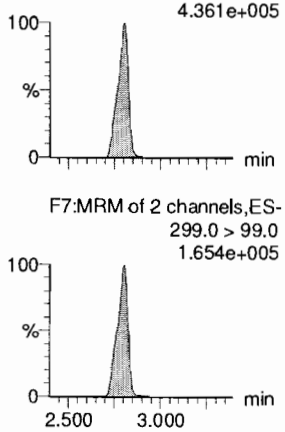

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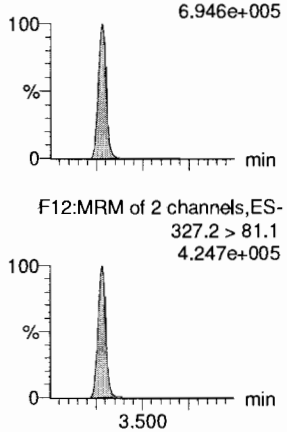

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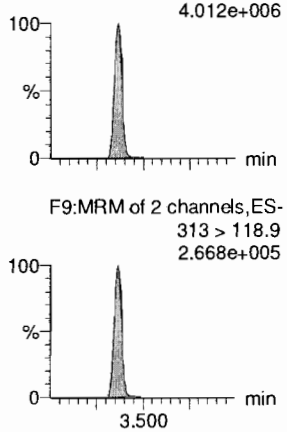

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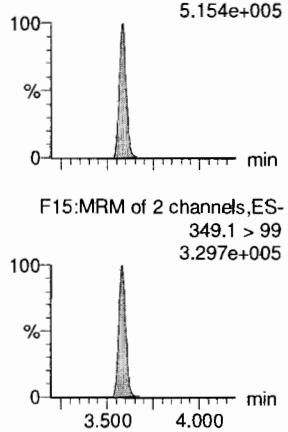

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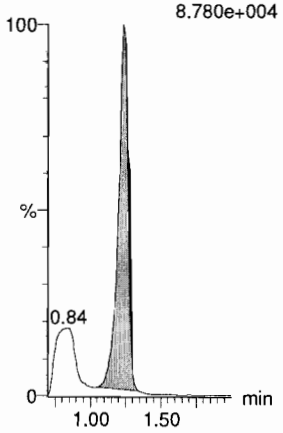

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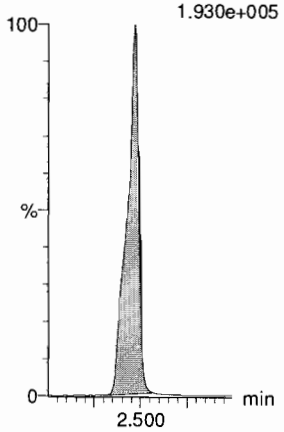

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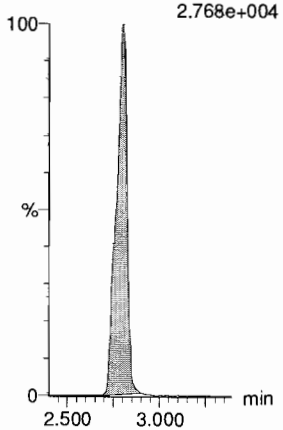

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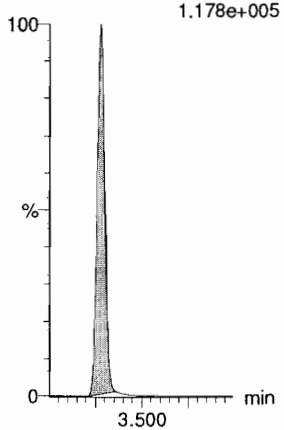

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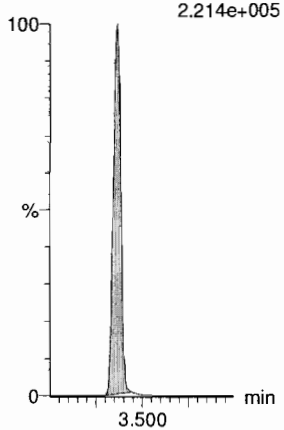

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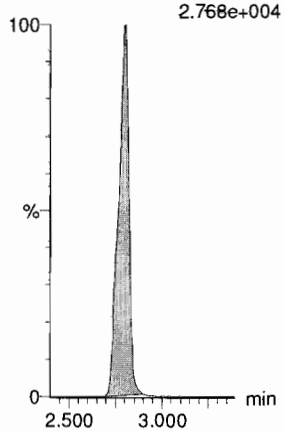

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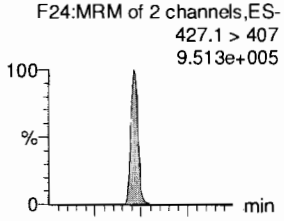
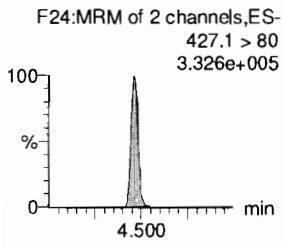
6:2 FTS





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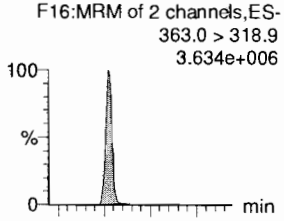

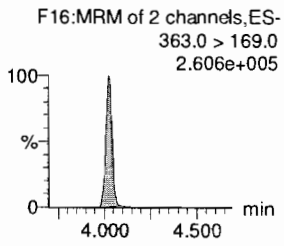

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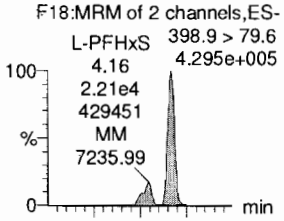

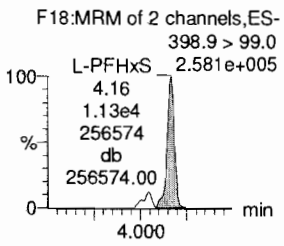

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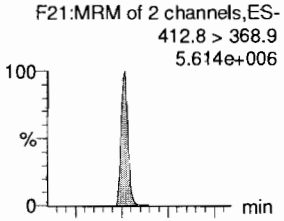

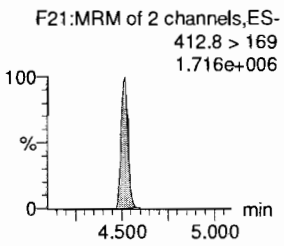

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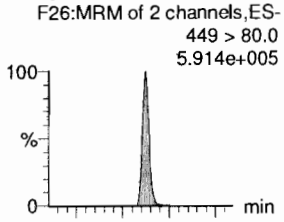

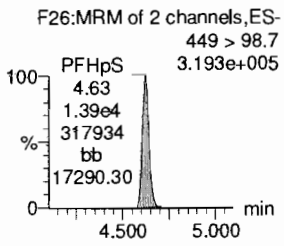

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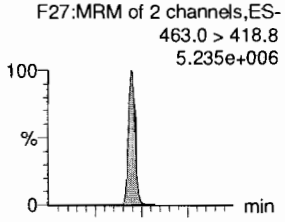

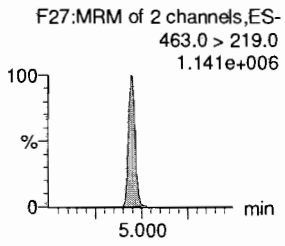

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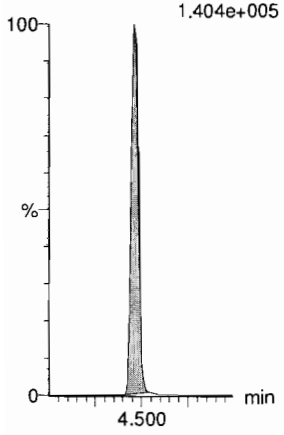

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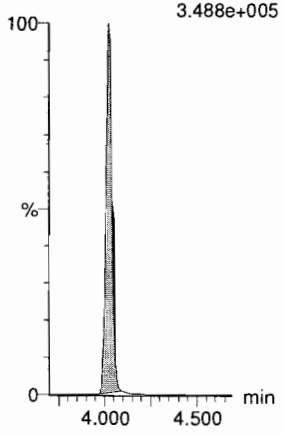

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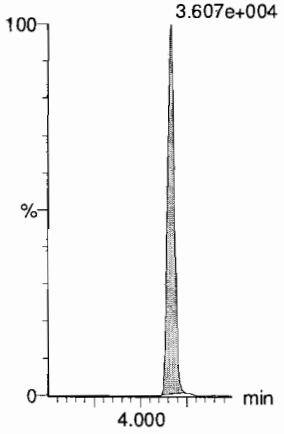

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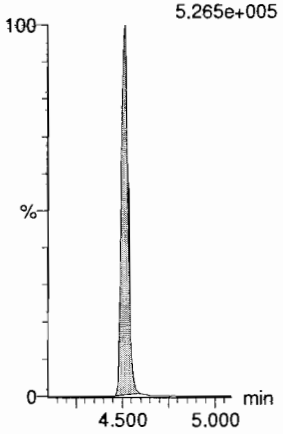

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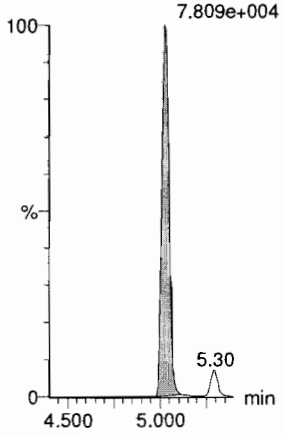

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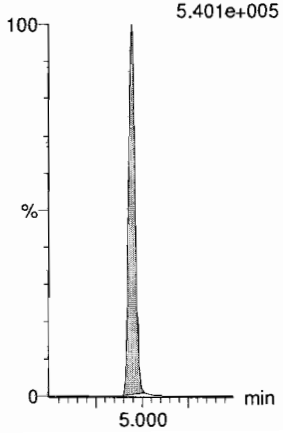

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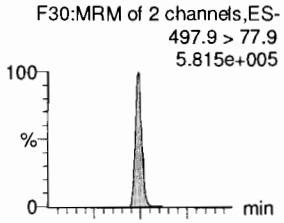
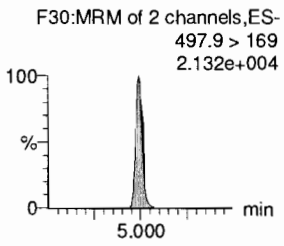
Name: 181126M1_9, Date: 26-Nov-2018, Time: 13:00:11, ID: ST181126M2-8 PFC CS5 18K1908, Description: PFC CS5 18K1908

PFOSA





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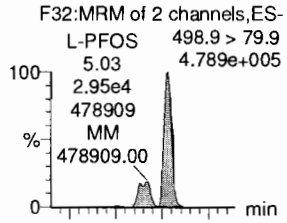

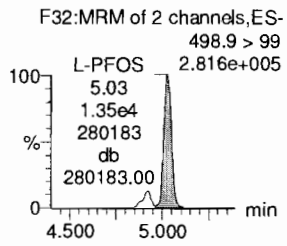

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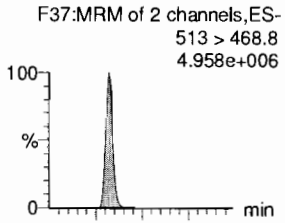

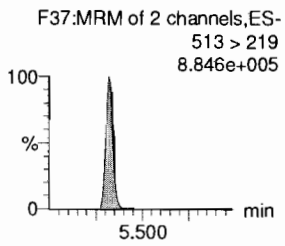

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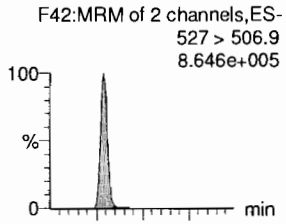

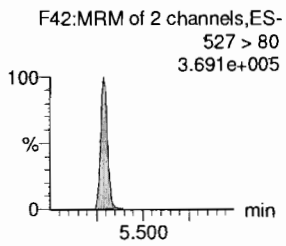

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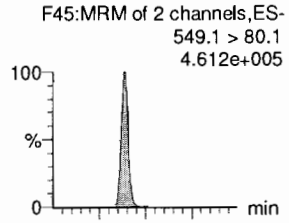

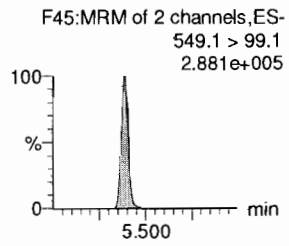

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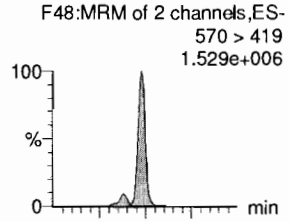
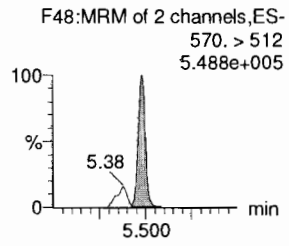
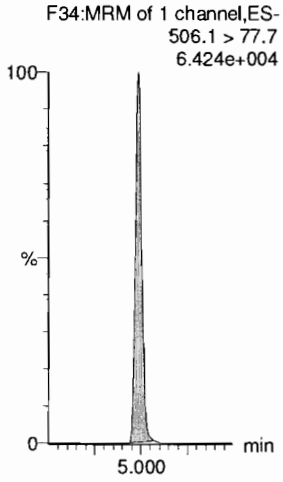




13C8-PFOSA



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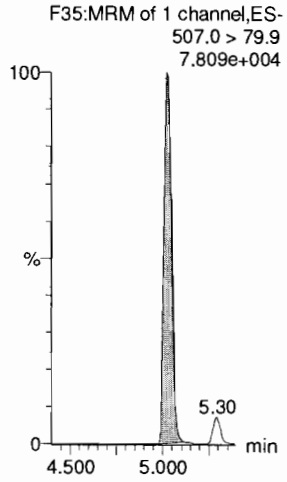

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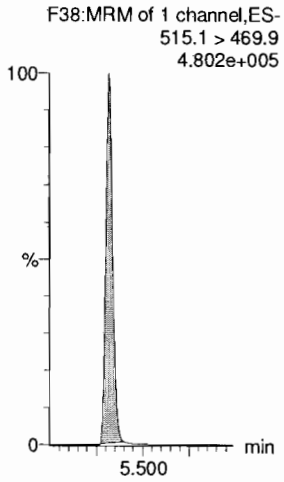

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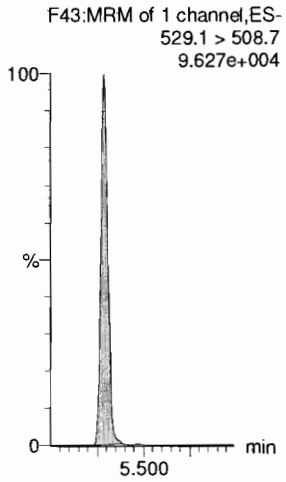

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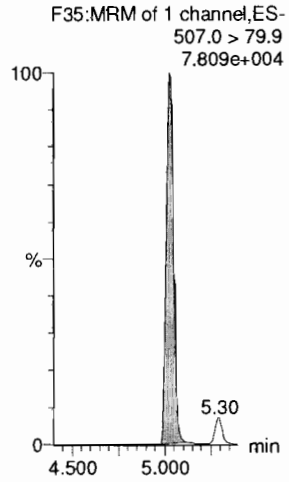

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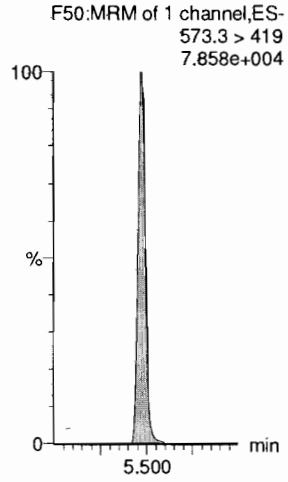

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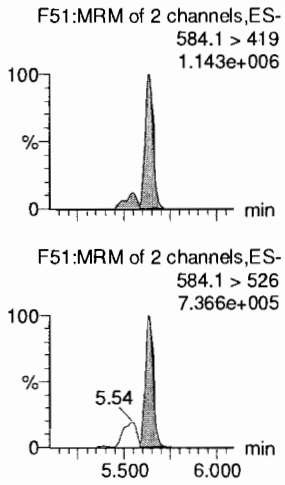

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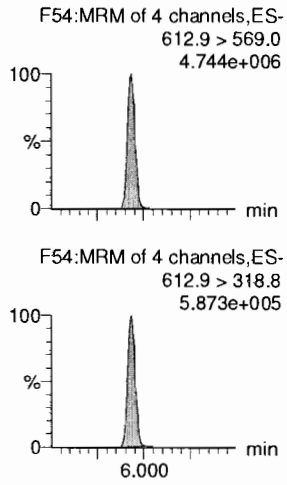

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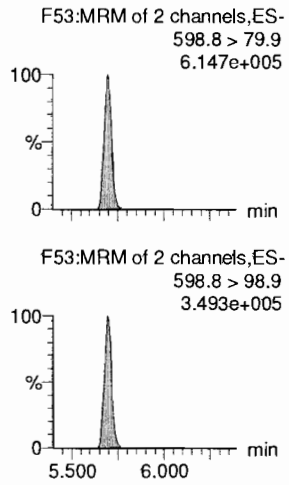

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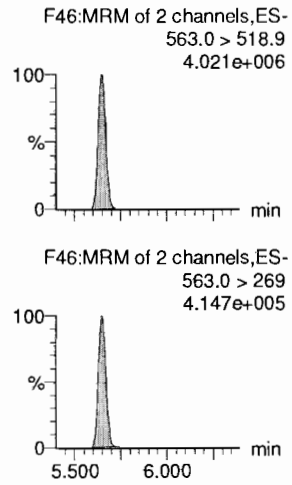

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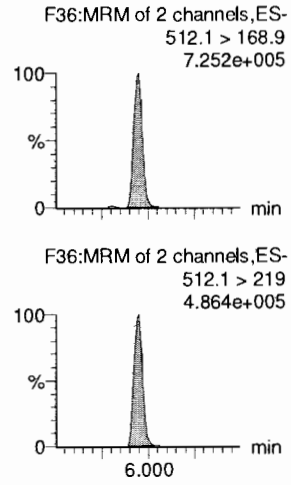
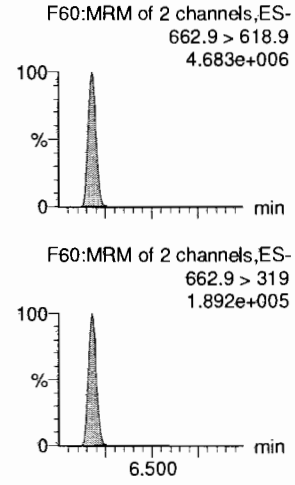
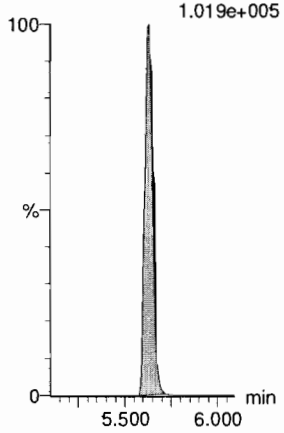


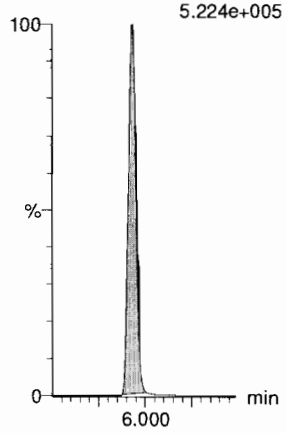
PFTrDA



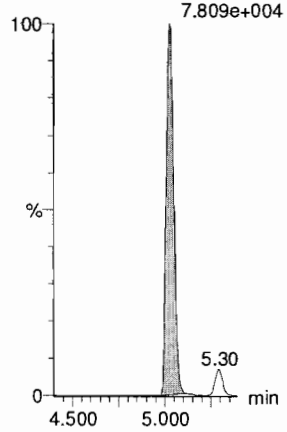
d5-N-EtFOSAA



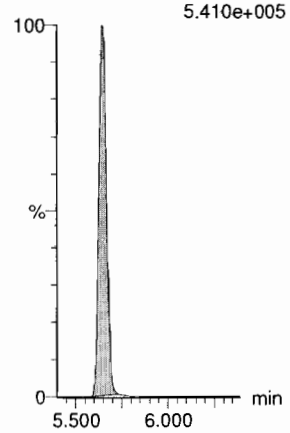
13C2-PFDoA



13C8-PFOS



13C2-PFUdA



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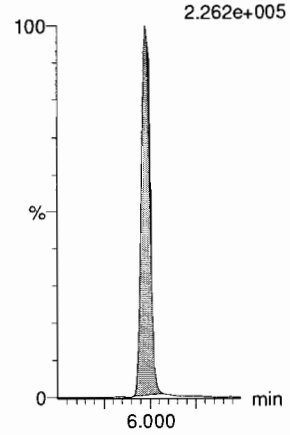
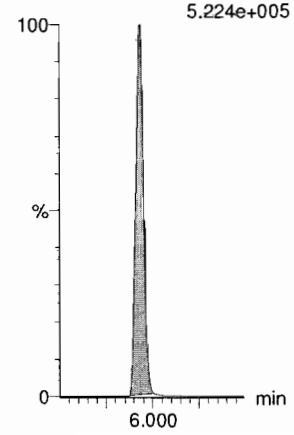


13C2-PFDoA



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Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
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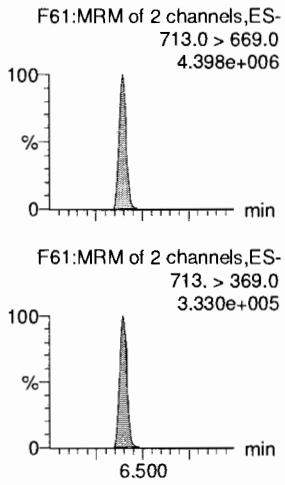
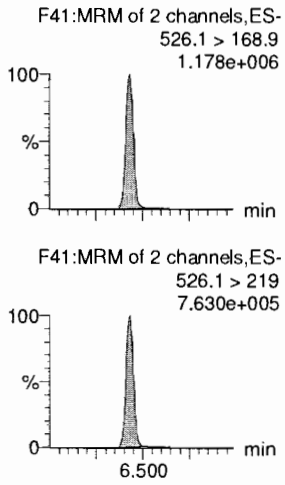
Name: 181126M1_9, Date: 26-Nov-2018, Time: 13:00:11, ID: ST181126M2-8 PFC CS5 18K1908, Description: PFC CS5 18K1908

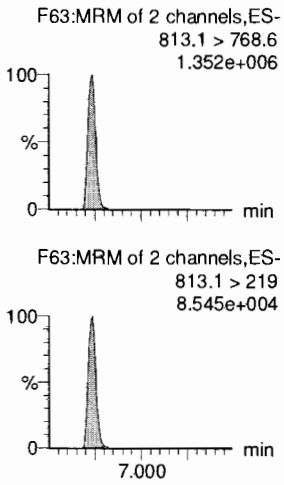
PFTeDA



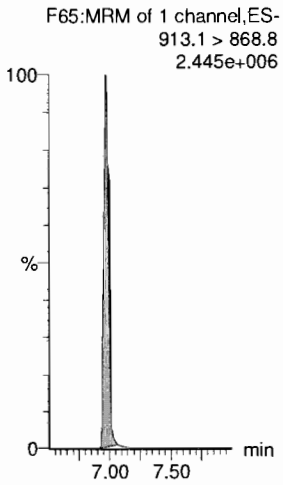
N-EtFOSA



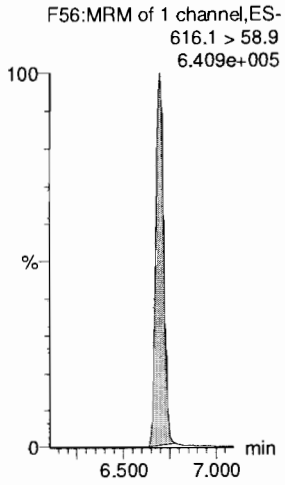
PFHxDA



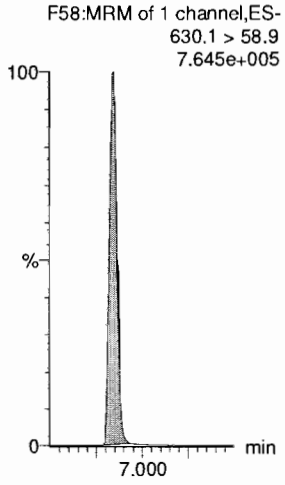
PFODA



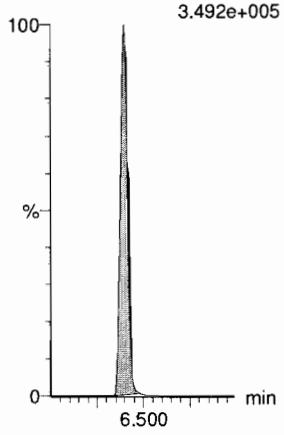
N-MeFOSE



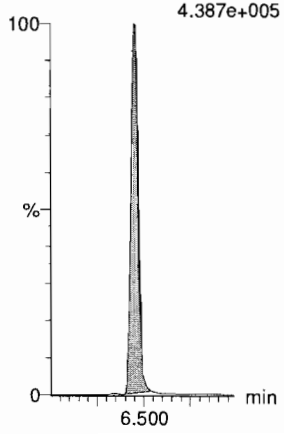
N-EtFOSE



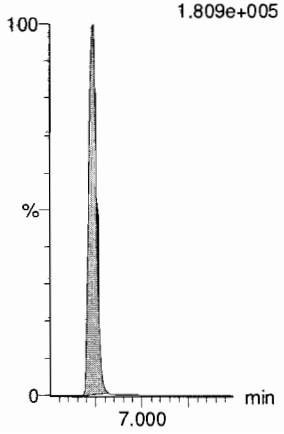
13C2-PFTeDA



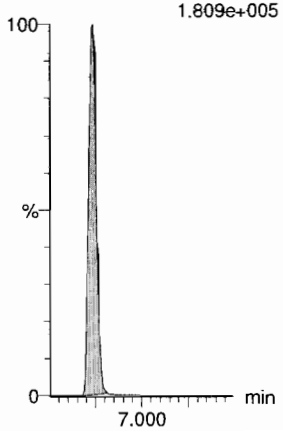
d5-N-ETFOSA



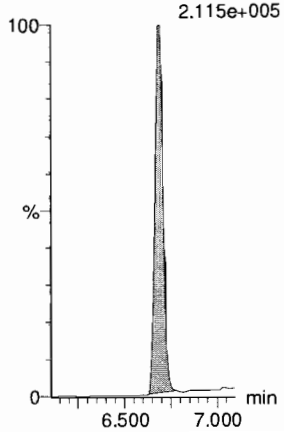
13C2-PFHxDA



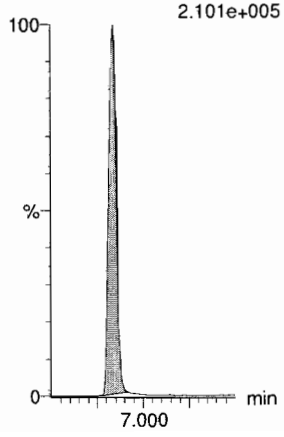
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE



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Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
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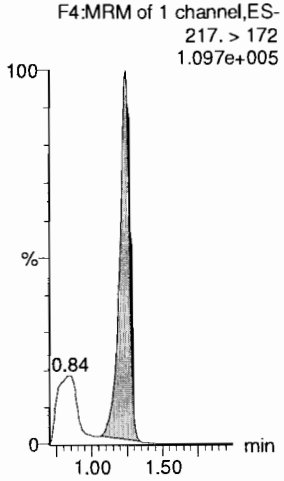
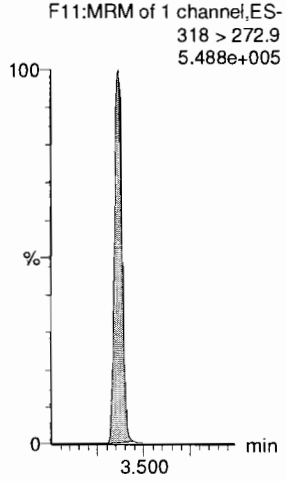
Name: 181126M1_9, Date: 26-Nov-2018, Time: 13:00:11, ID: ST181126M2-8 PFC CS5 18K1908, Description: PFC CS5 18K1908

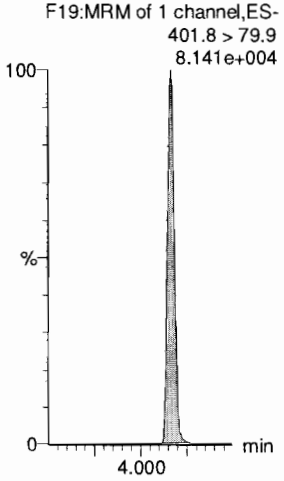
13C4-PFBA



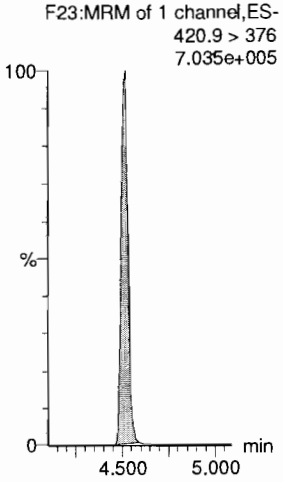
13C5-PFHxA



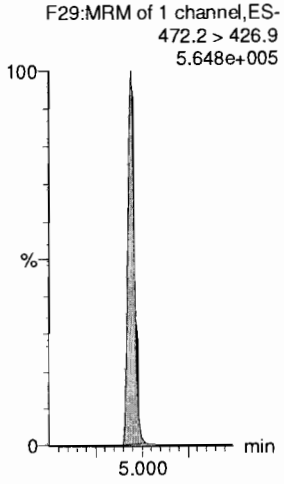
13C3-PFHxS



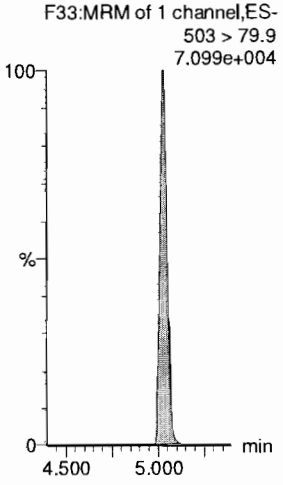
13C8-PFOA



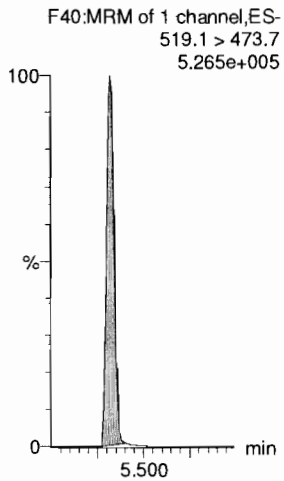
13C9-PFNA



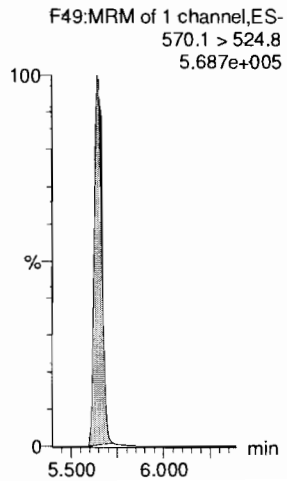
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
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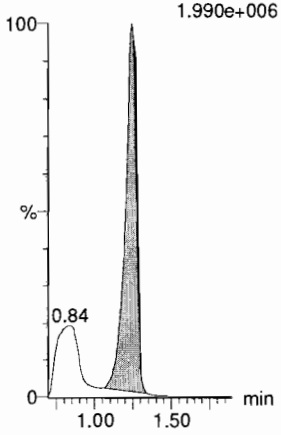
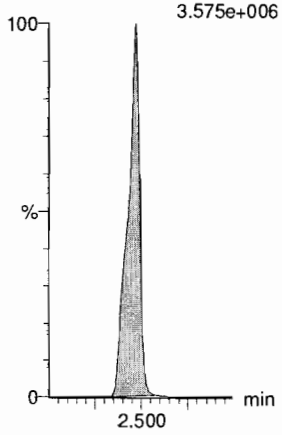
1 AD 11/27/18

Name: 181126M1_10, Date: 26-Nov-2018, Time: 13:10:49, ID: ST181126M2-9 PFC CS6 18K1909, Description: PFC CS6 18K1909

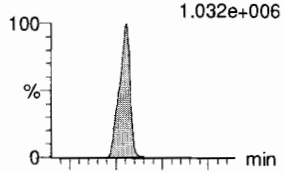
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
1.990e+006



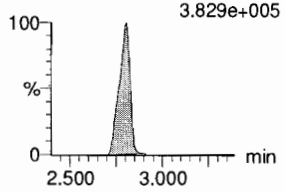
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
3.575e+006



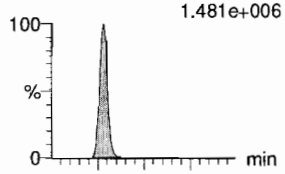
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
1.032e+006



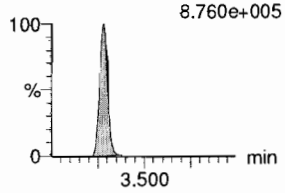
F7:MRM of 2 channels,ES-
299.0 > 99.0
3.829e+005



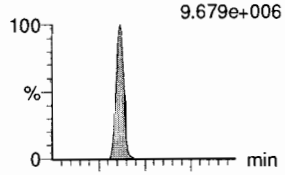
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
1.481e+006



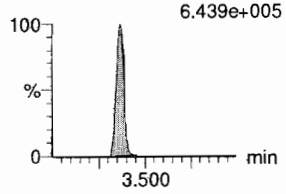
F12:MRM of 2 channels,ES-
327.2 > 81.1
8.760e+005



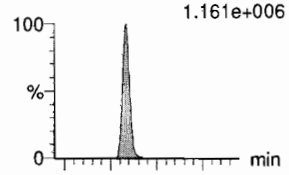
PFHxA
F9:MRM of 2 channels,ES-
313 > 269
9.679e+006



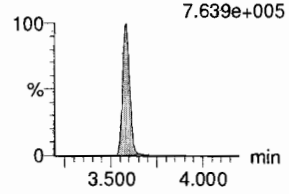
F9:MRM of 2 channels,ES-
313 > 118.9
6.439e+005



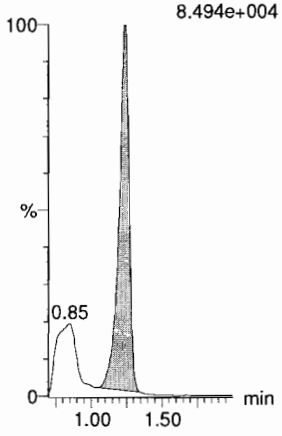
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
1.161e+006



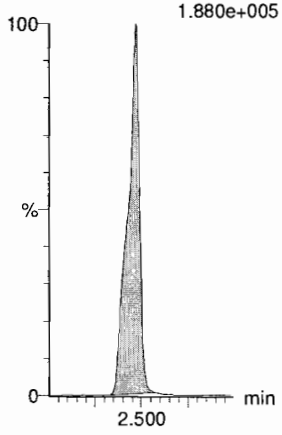
F15:MRM of 2 channels,ES-
349.1 > 99
7.639e+005



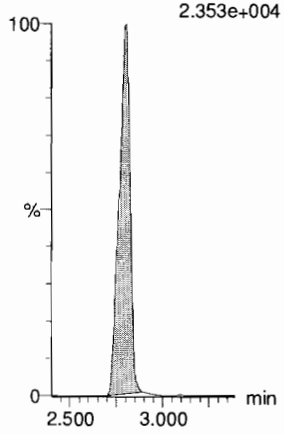
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
8.494e+004



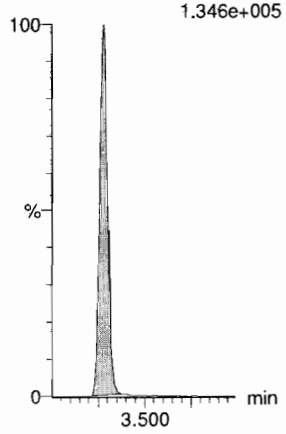
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
1.880e+005



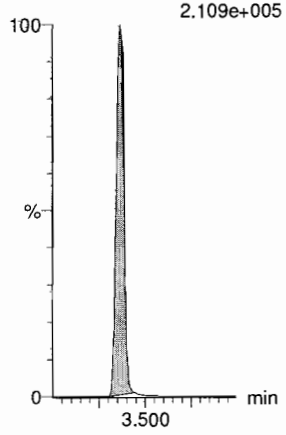
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.353e+004



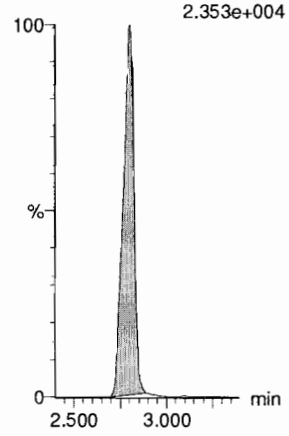
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
1.346e+005



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 270
2.109e+005



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.353e+004



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Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
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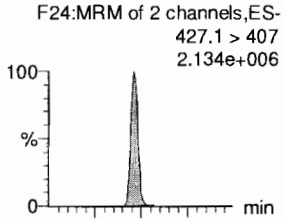
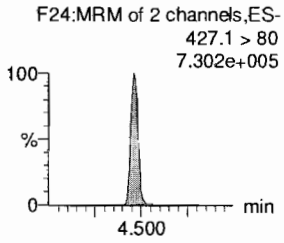
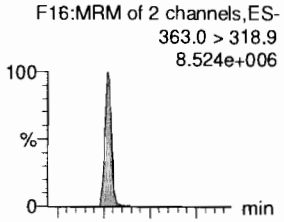
Name: 181126M1_10, Date: 26-Nov-2018, Time: 13:10:49, ID: ST181126M2-9 PFC CS6 18K1909, Description: PFC CS6 18K1909

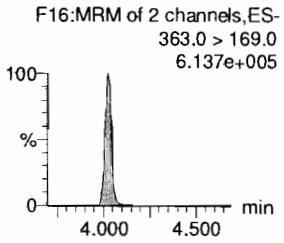
6:2 FTS



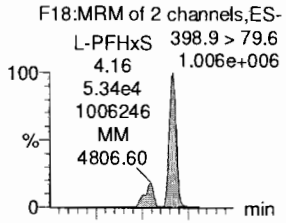


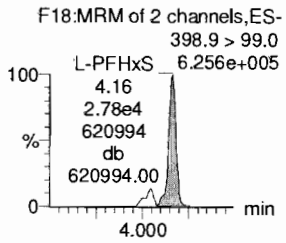
PFHpA



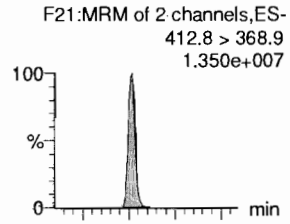


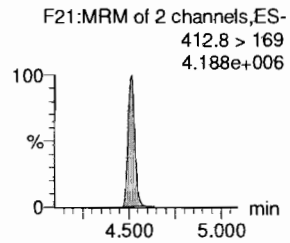
L-PFHxS





L-PFOA





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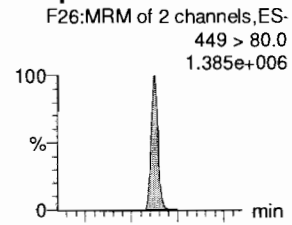

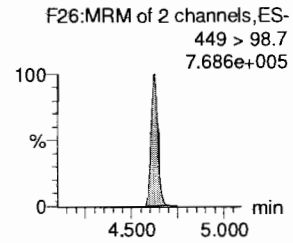

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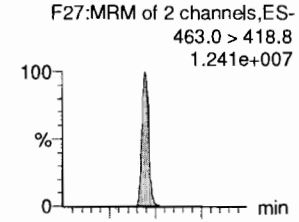
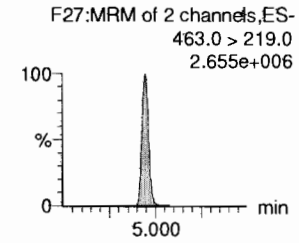
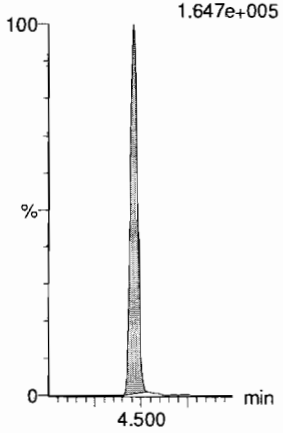
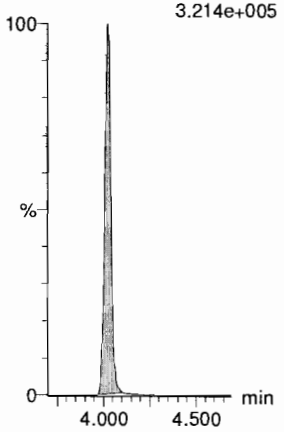




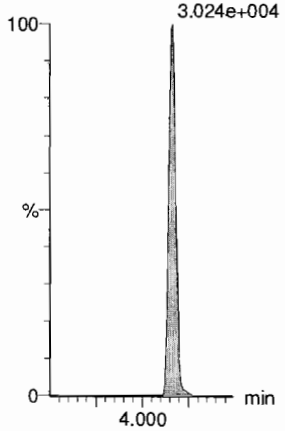
13C2-6:2 FTS



13C4-PFHpA



18O2-PFHxS



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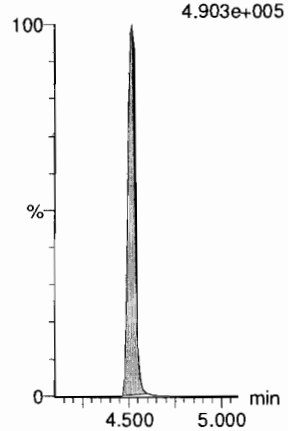
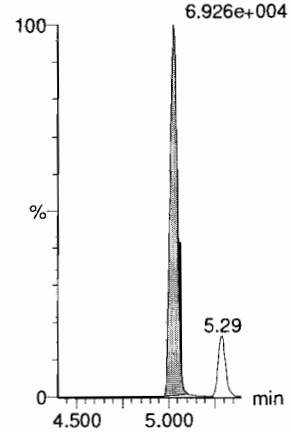
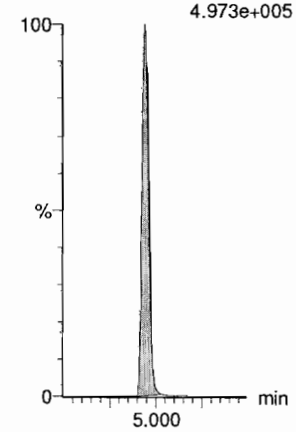


13C8-PFOS



13C5-PFNA



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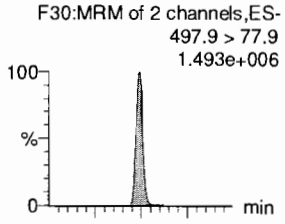
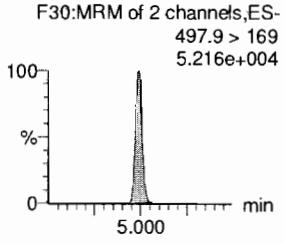
Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

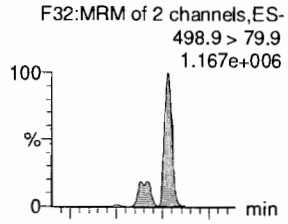
Name: 181126M1_10, Date: 26-Nov-2018, Time: 13:10:49, ID: ST181126M2-9 PFC CS6 18K1909, Description: PFC CS6 18K1909

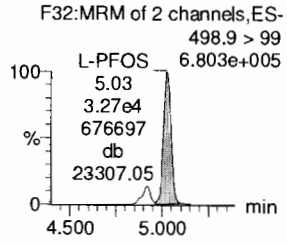
PFOSA



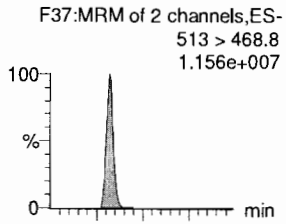


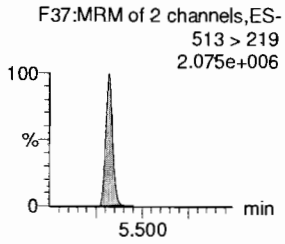
L-PFOS



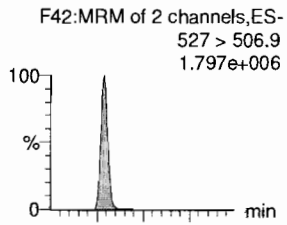


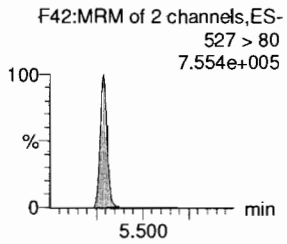
PFDA



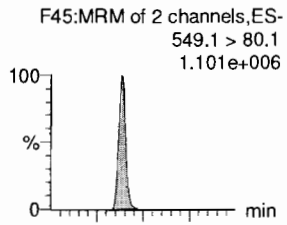


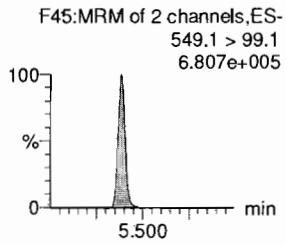
8:2 FTS



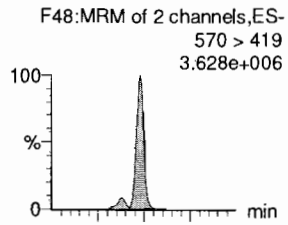


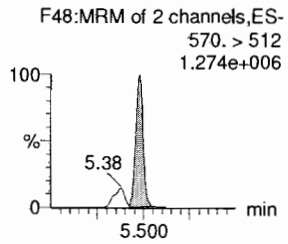
PFNS



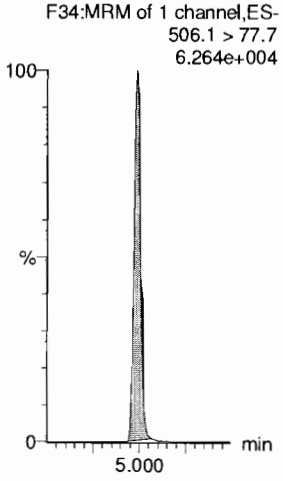


L-MeFOSAA

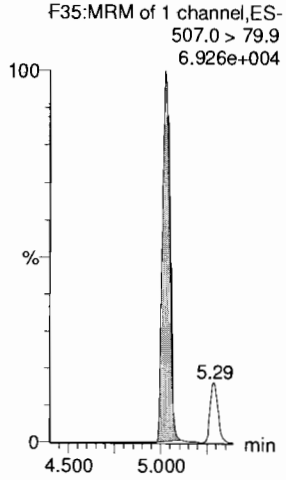




13C8-PFOSA



13C8-PFOS



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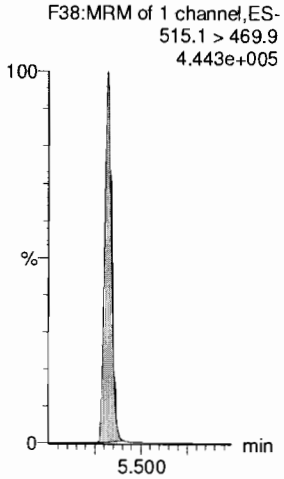
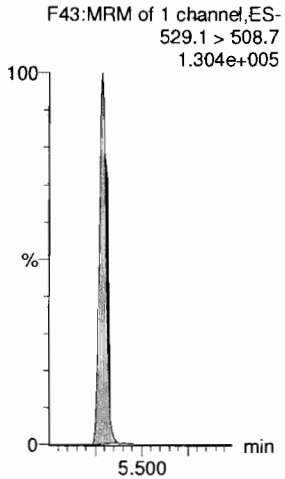
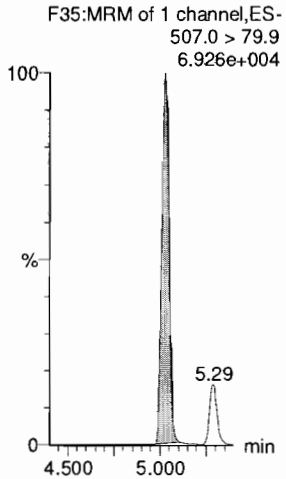


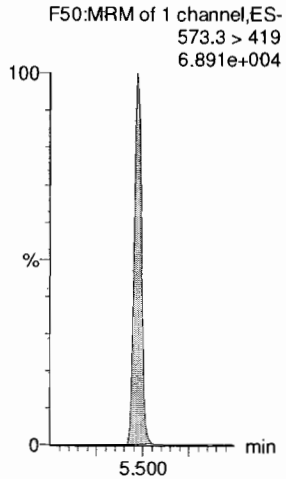
13C2-8:2 FTS



13C8-PFOS



d3-N-MeFOSAA



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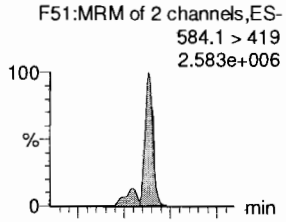
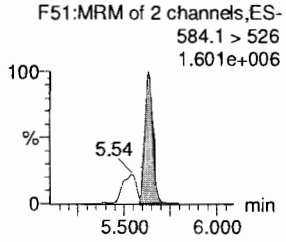
Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

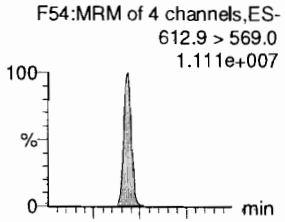
Name: 181126M1_10, Date: 26-Nov-2018, Time: 13:10:49, ID: ST181126M2-9 PFC CS6 18K1909, Description: PFC CS6 18K1909

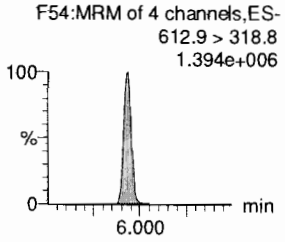
L-EtFOSAA



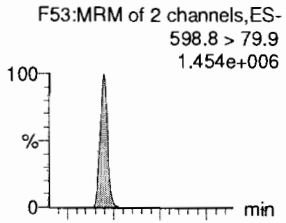


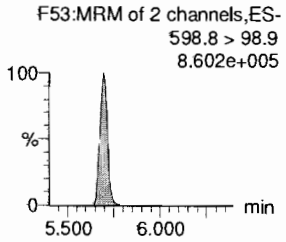
PFDoA





PFDS





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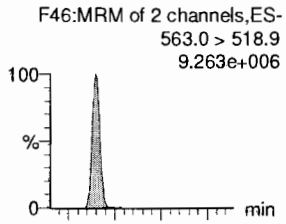
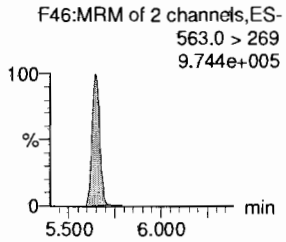
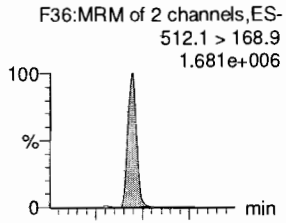
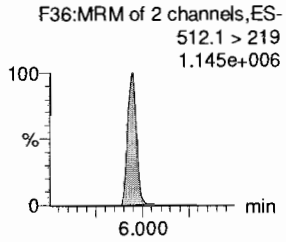


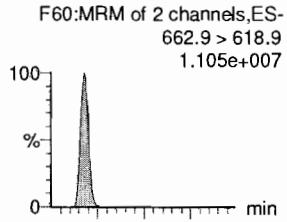


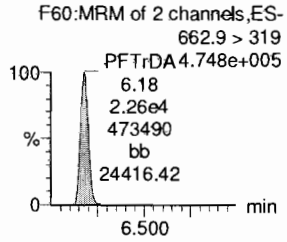
N-MeFOSA



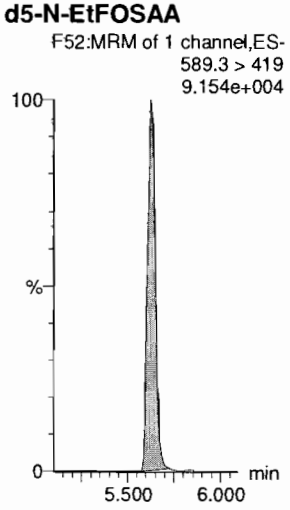


PFTrDA

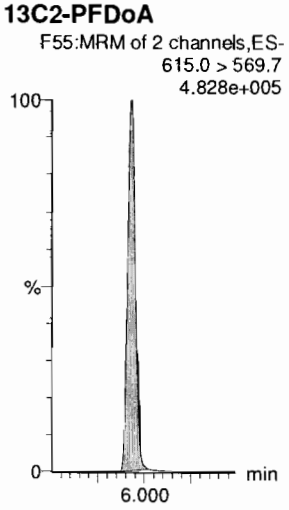




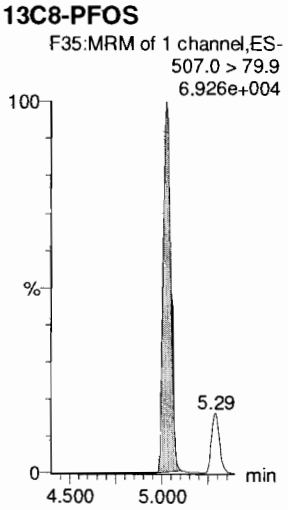
d5-N-EtFOSAA



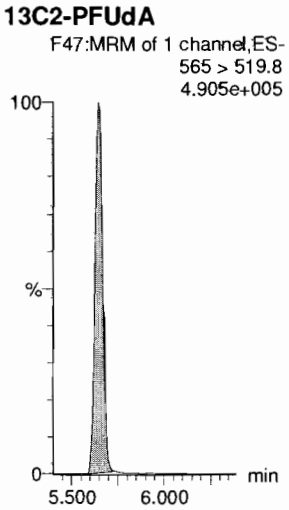
13C2-PFDoA



13C8-PFOS



13C2-PFUdA



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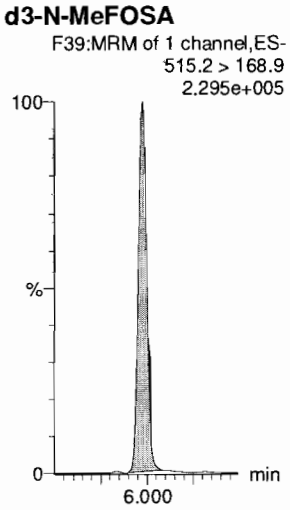

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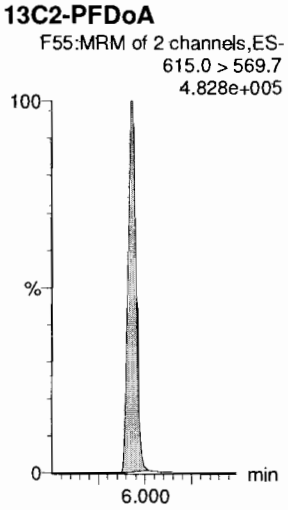

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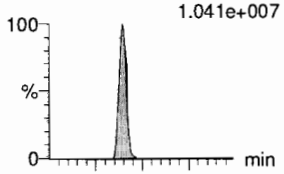
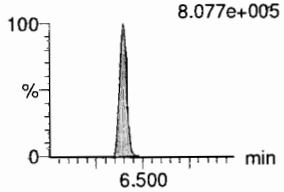
Printed: Monday, November 26, 2018 14:29:38 Pacific Standard Time

Name: 181126M1_10, Date: 26-Nov-2018, Time: 13:10:49, ID: ST181126M2-9 PFC CS6 18K1909, Description: PFC CS6 18K1909

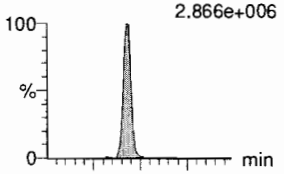
PFTeDA
F61:MRM of 2 channels,ES-
713.0 > 669.0
1.041e+007



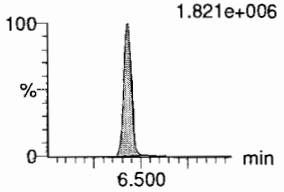
F61:MRM of 2 channels,ES-
713. > 369.0
8.077e+005



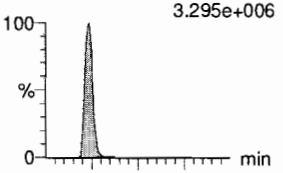
N-EtFOSA
F41:MRM of 2 channels,ES-
526.1 > 168.9
2.866e+006



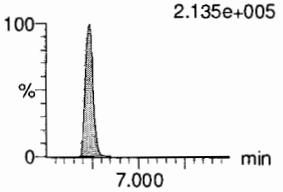
F41:MRM of 2 channels,ES-
526.1 > 219
1.821e+006



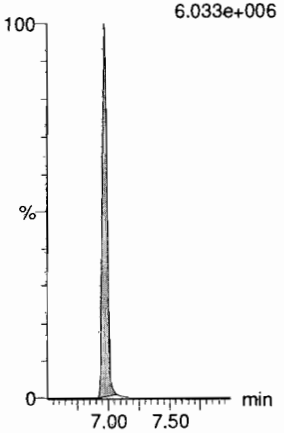
PFHxDA
F63:MRM of 2 channels,ES-
813.1 > 768.6
3.295e+006



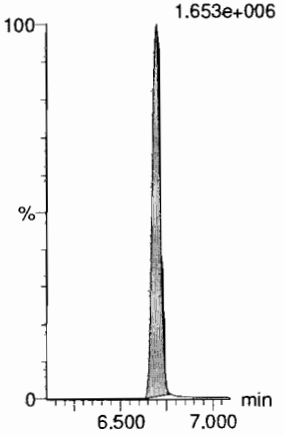
F63:MRM of 2 channels,ES-
813.1 > 219
2.135e+005



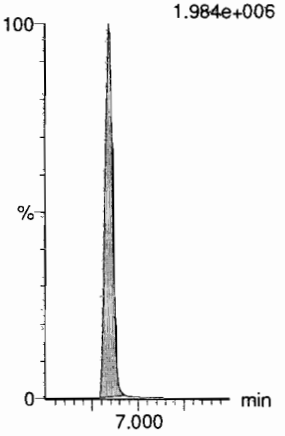
PFODA
F65:MRM of 1 channel,ES-
913.1 > 868.8
6.033e+006



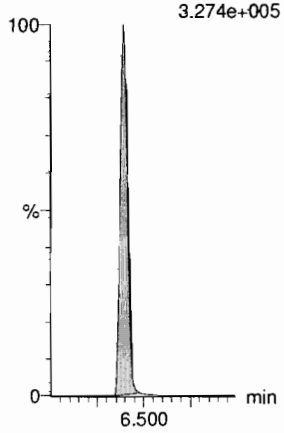
N-MeFOSE
F56:MRM of 1 channel,ES-
616.1 > 58.9
1.653e+006



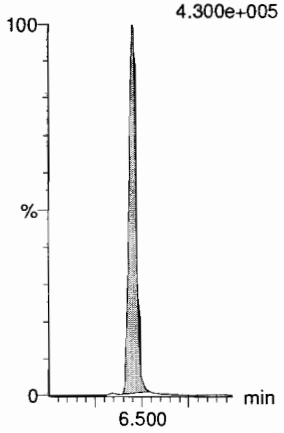
N-EtFOSE
F58:MRM of 1 channel,ES-
630.1 > 58.9
1.984e+006



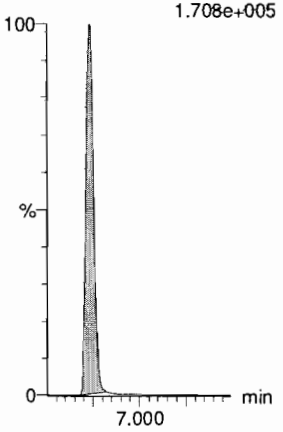
13C2-PFTeDA
F62:MRM of 2 channels,ES-
715.1 > 669.7
3.274e+005



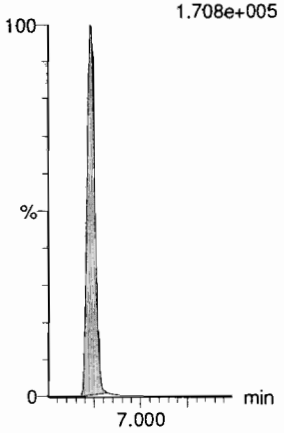
d5-N-ETFOSA
F44:MRM of 1 channel,ES-
531.1 > 168.9
4.300e+005



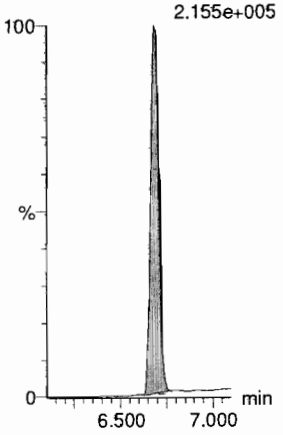
13C2-PFHxDA
F64:MRM of 1 channel,ES-
815 > 769.7
1.708e+005



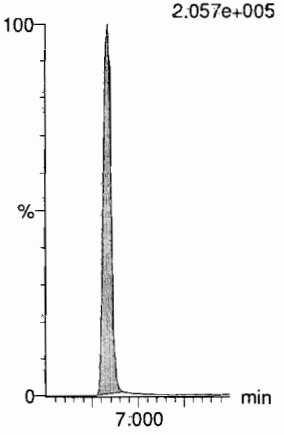
13C2-PFHxDA
F64:MRM of 1 channel,ES-
815 > 769.7
1.708e+005



d7-N-MeFOSE
F57:MRM of 1 channel,ES-
623.1 > 58.9
2.155e+005



d9-N-EtFOSE
F59:MRM of 1 channel,ES-
639.2 > 58.8
2.057e+005

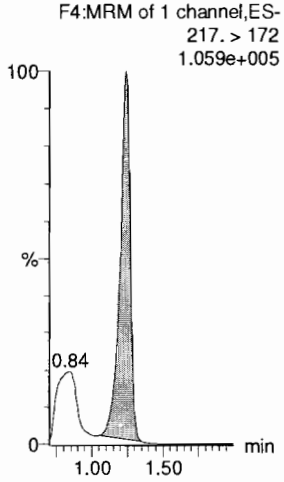


Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

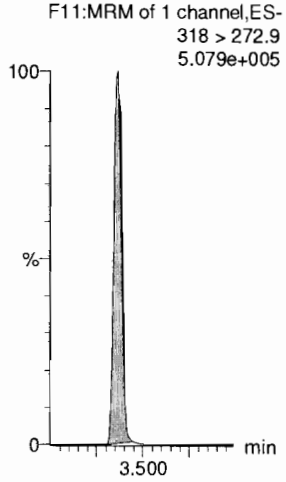
Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

Name: 181126M1_10, Date: 26-Nov-2018, Time: 13:10:49, ID: ST181126M2-9 PFC CS6 18K1909, Description: PFC CS6 18K1909

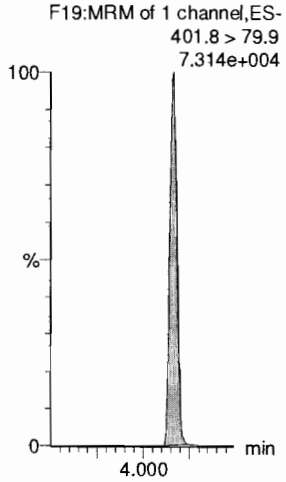
13C4-PFBA



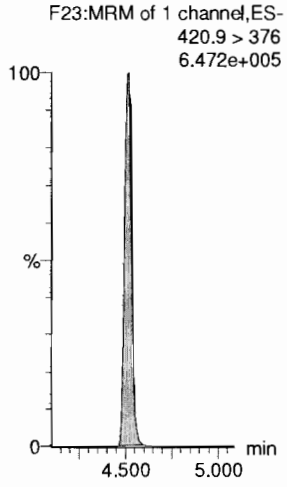
13C5-PFHxA



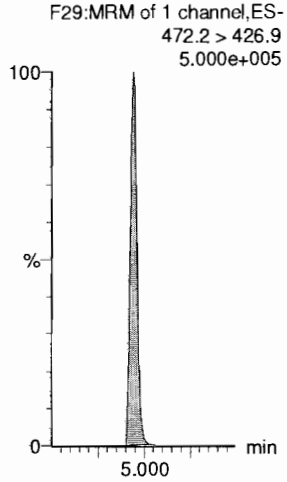
13C3-PFHxS



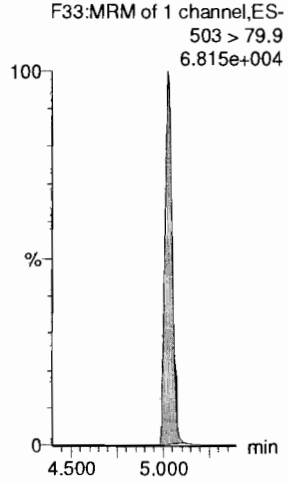
13C8-PFOA



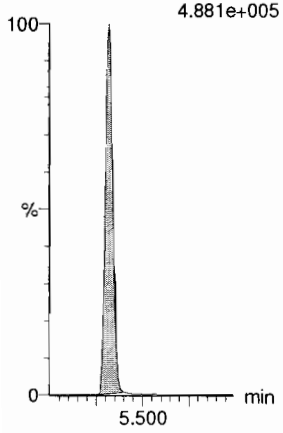
13C9-PFNA



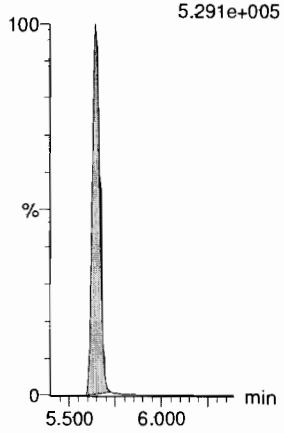
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Vista Analytical Laboratory

Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
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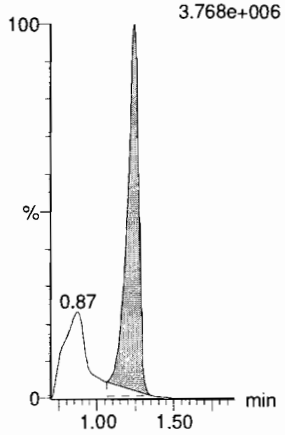
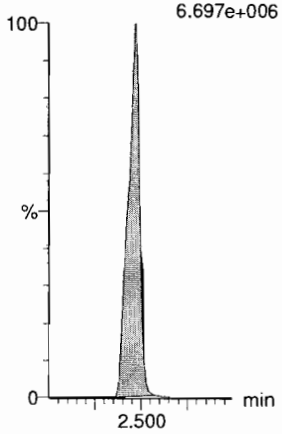
1 AD 11/27/18

Name: 181126M1_11, Date: 26-Nov-2018, Time: 13:21:23, ID: ST181126M1-10 PFC CS7 18K1910, Description: PFC CS7 18K1910

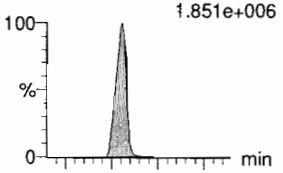
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
3.768e+006



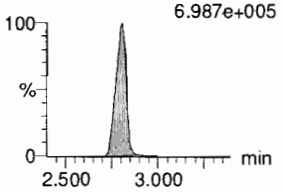
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
6.697e+006



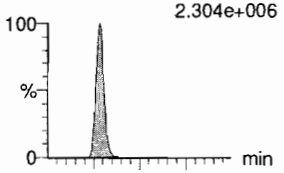
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
1.851e+006



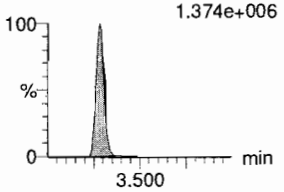
F7:MRM of 2 channels,ES-
299.0 > 99.0
6.987e+005



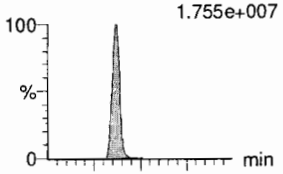
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
2.304e+006



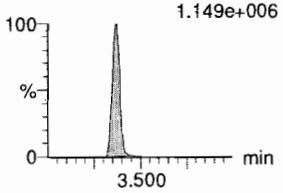
F12:MRM of 2 channels,ES-
327.2 > 81.1
1.374e+006



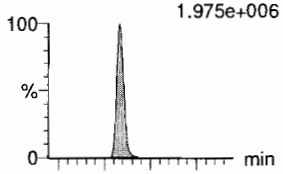
PFHxA
F9:MRM of 2 channels,ES-
313 > 269
1.755e+007



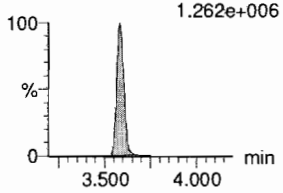
F9:MRM of 2 channels,ES-
313 > 118.9
1.149e+006



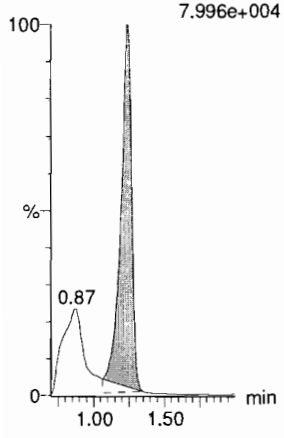
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
1.975e+006



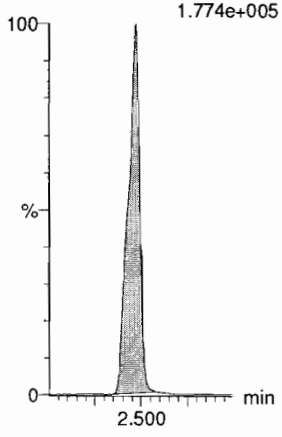
F15:MRM of 2 channels,ES-
349.1 > 99
1.262e+006



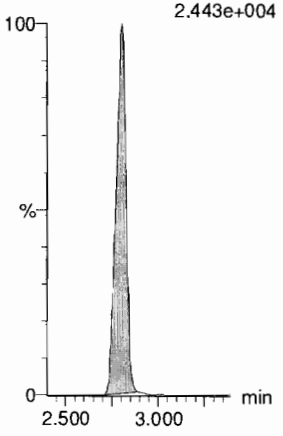
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
7.996e+004



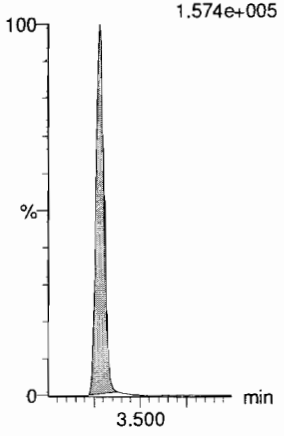
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
1.774e+005



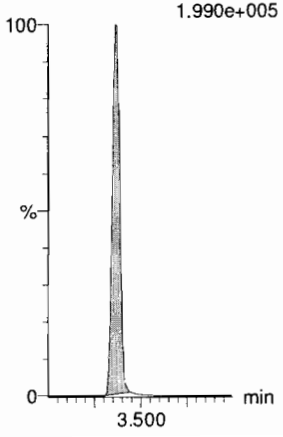
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.443e+004



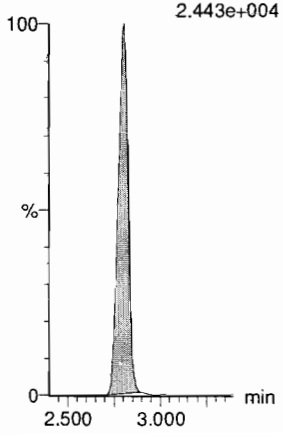
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
1.574e+005



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 270
1.990e+005



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.443e+004



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

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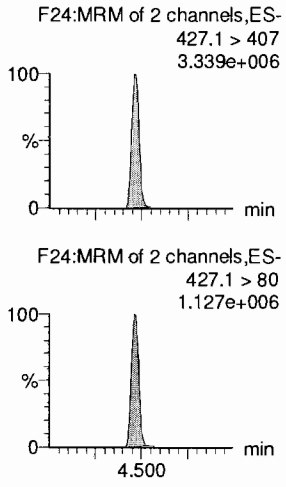
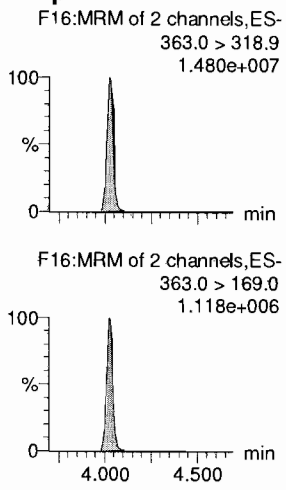
Name: 181126M1_11, Date: 26-Nov-2018, Time: 13:21:23, ID: ST181126M2-10 PFC CS7 18K1910, Description: PFC CS7 18K1910

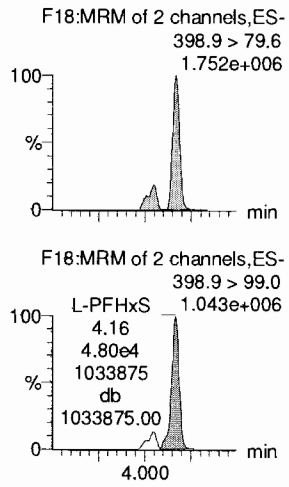
6:2 FTS



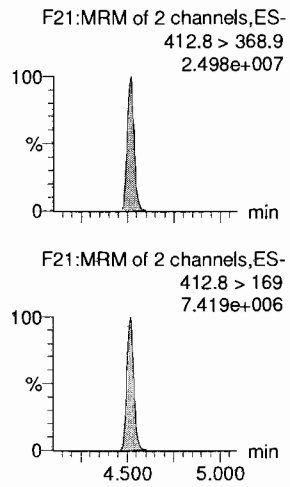
PFHpA



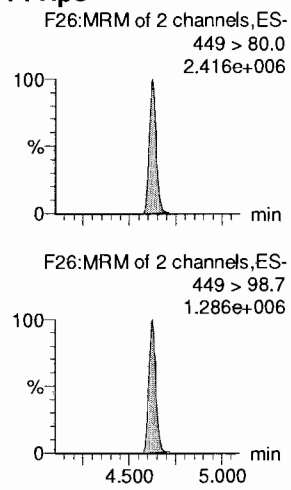
L-PFHxS



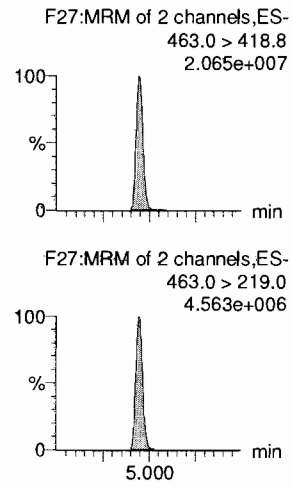
L-PFOA



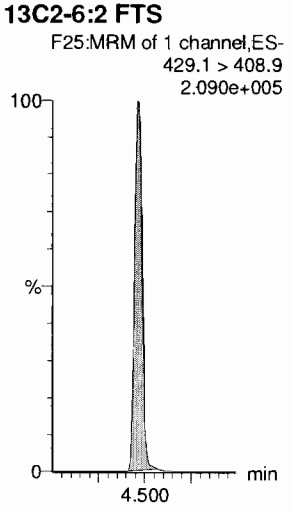
PFHpS



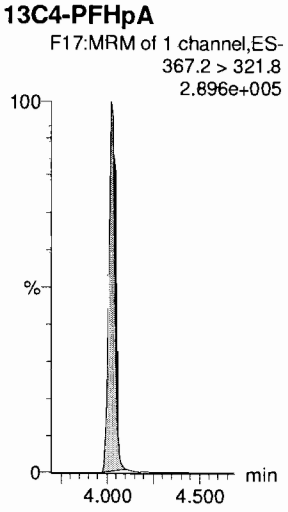
PFNA



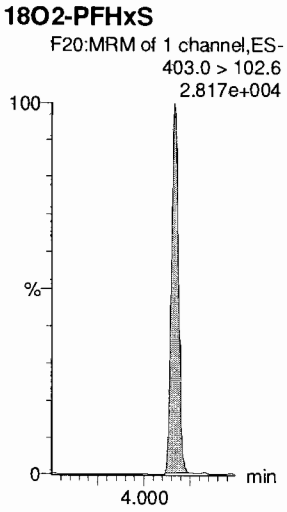
13C2-6:2 FTS



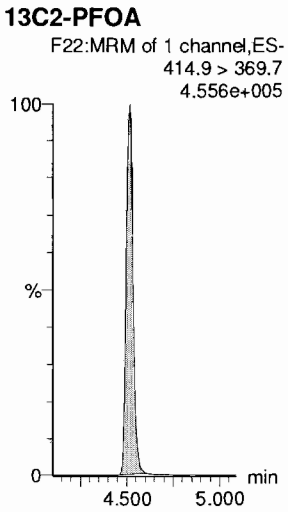
13C4-PFHpA



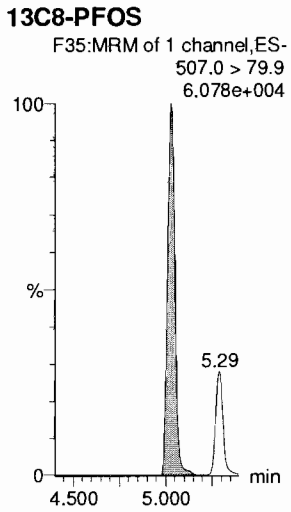
18O2-PFHxS



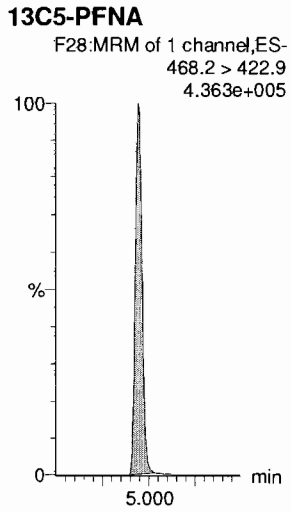
13C2-PFOA



13C8-PFOS



13C5-PFNA



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-CRV.qld

Last Altered: Monday, November 26, 2018 14:09:42 Pacific Standard Time
Printed: Monday, November 26, 2018 14:14:21 Pacific Standard Time

Name: 181126M1_11, Date: 26-Nov-2018, Time: 13:21:23, ID: ST181126M2-10 PFC CS7 18K1910, Description: PFC CS7 18K1910

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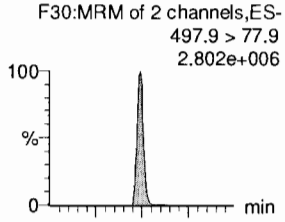
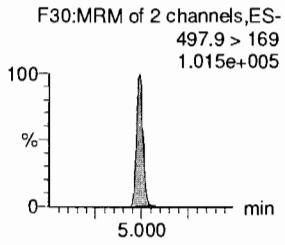
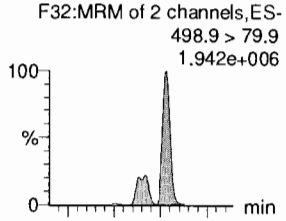
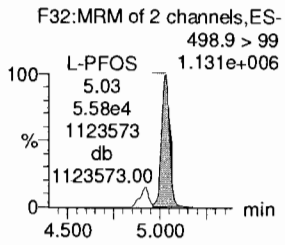




L-PFOS





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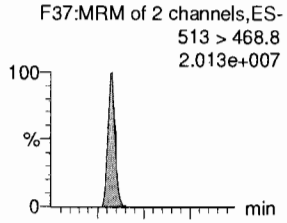
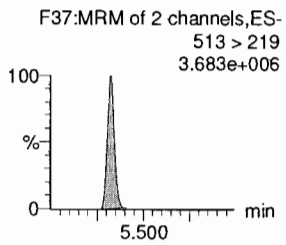
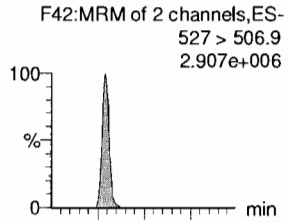
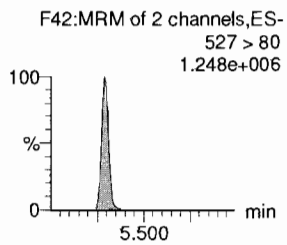




8:2 FTS





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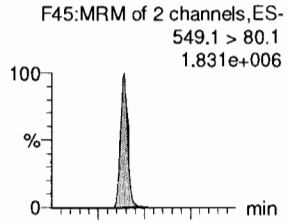

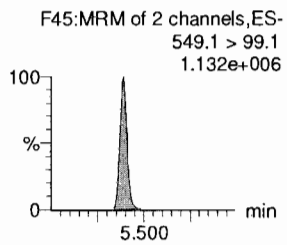

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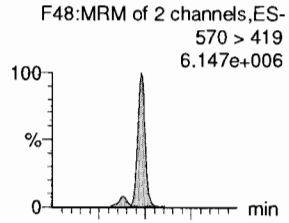
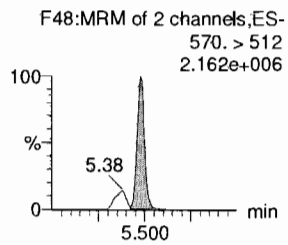
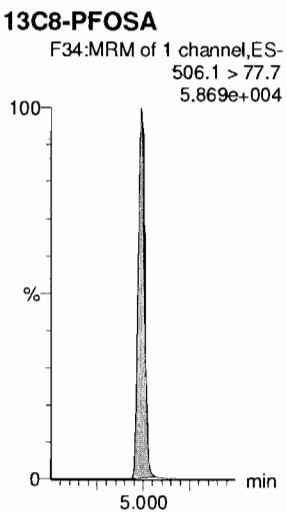




13C8-PFOSA



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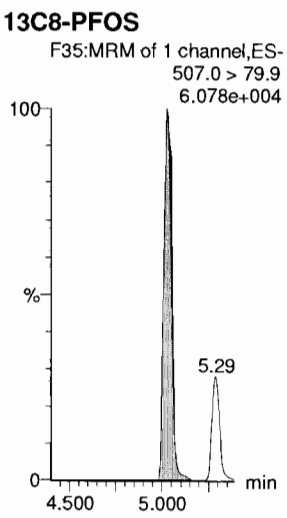

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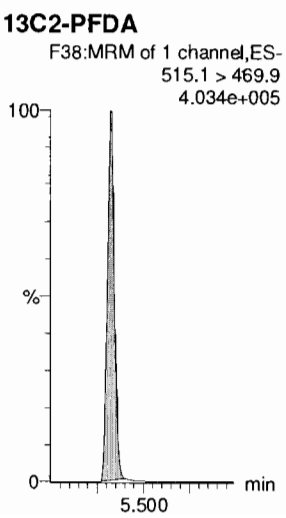

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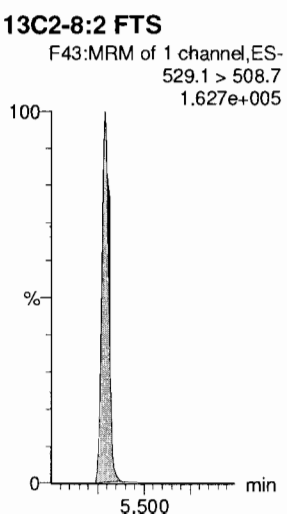

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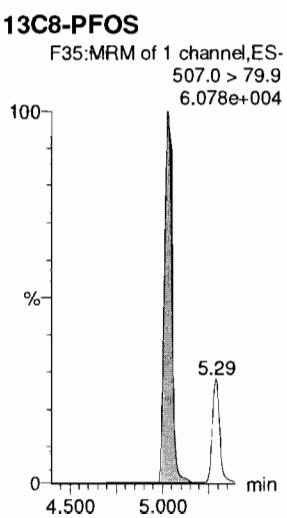

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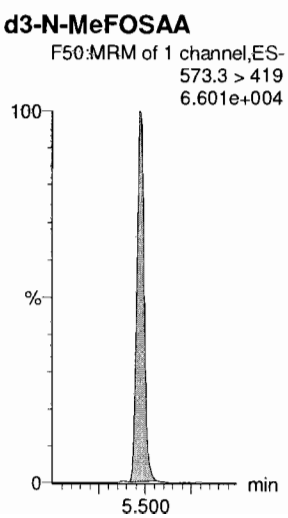

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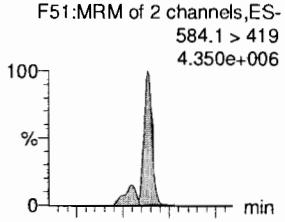
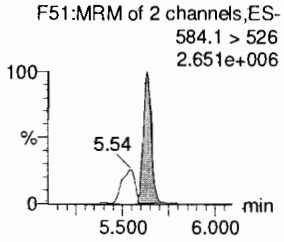
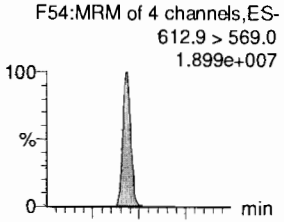
Name: 181126M1_11, Date: 26-Nov-2018, Time: 13:21:23, ID: ST181126M2-10 PFC CS7 18K1910, Description: PFC CS7 18K1910

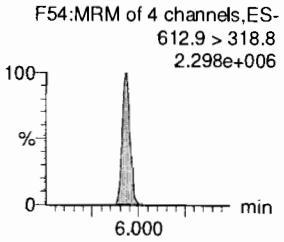
L-EtFOSAA





PFDoA





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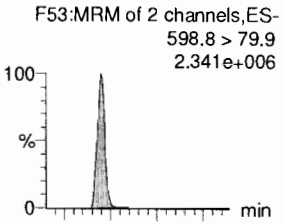

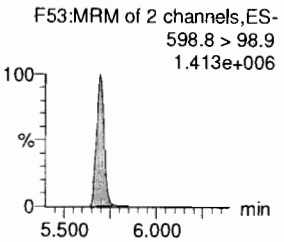

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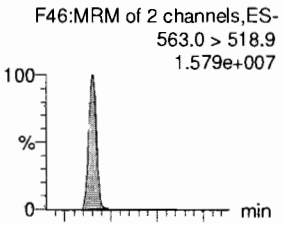

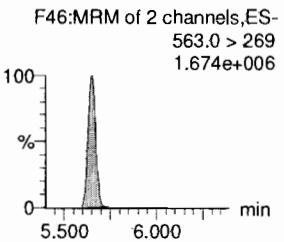

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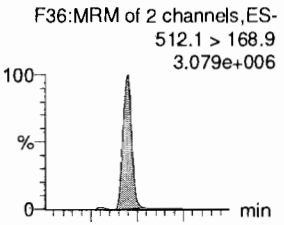

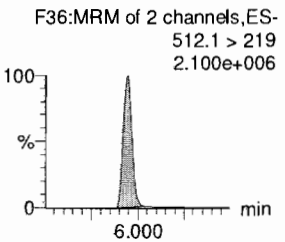

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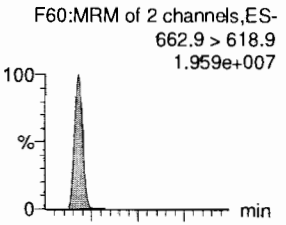

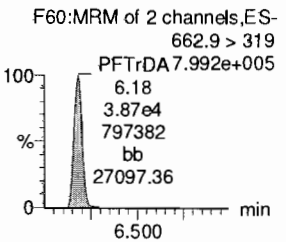

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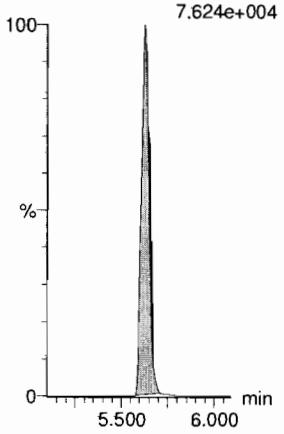

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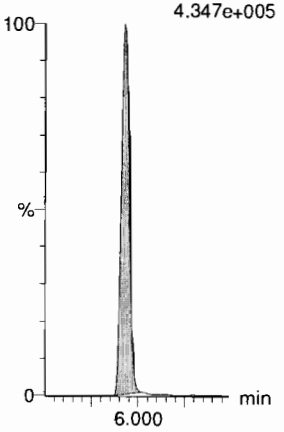

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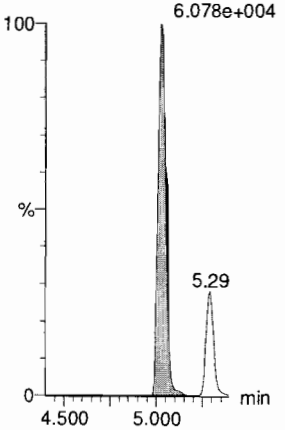

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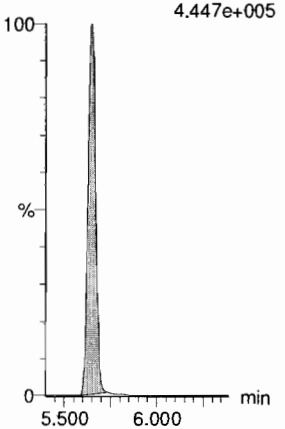

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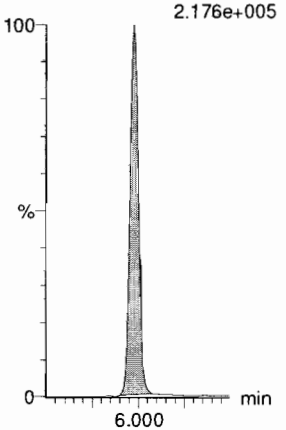

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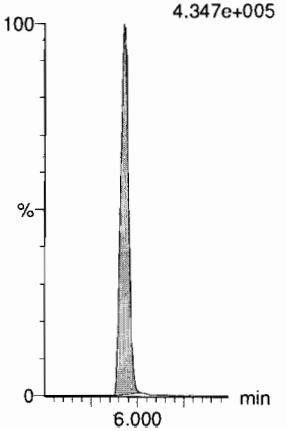

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Name: 181126M1_11, Date: 26-Nov-2018, Time: 13:21:23, ID: ST181126M2-10 PFC CS7 18K1910, Description: PFC CS7 18K1910

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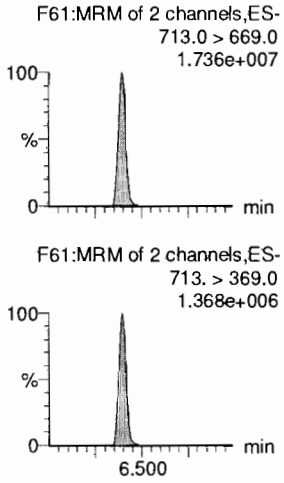

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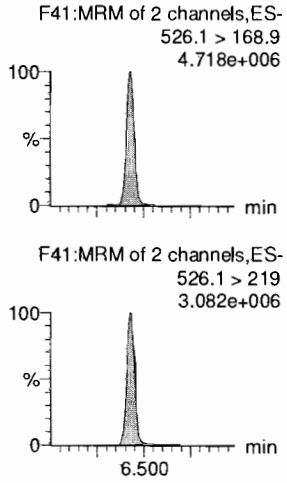

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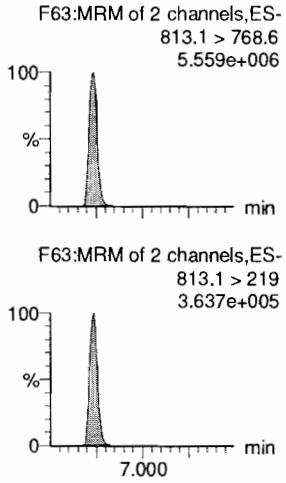

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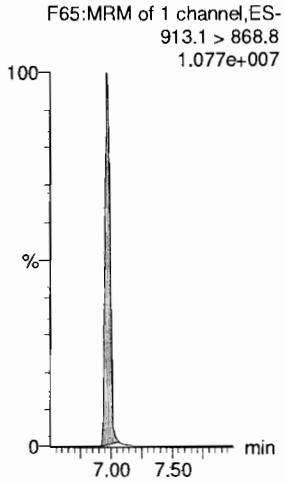

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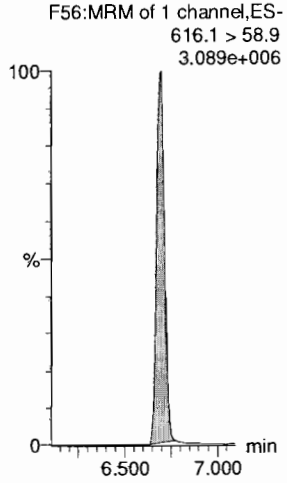

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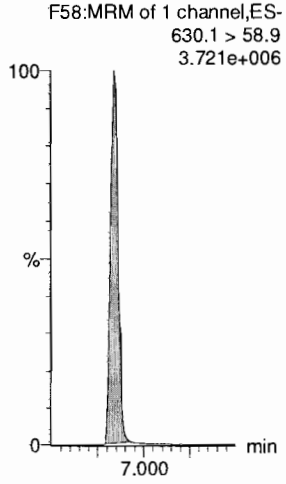

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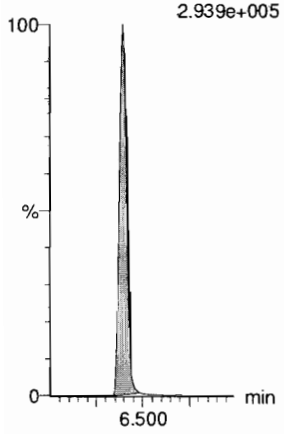
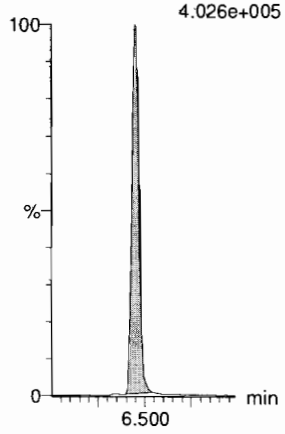


d5-N-ETFOSA



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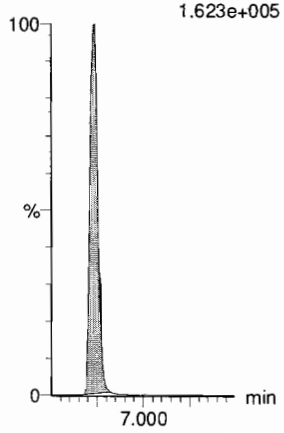

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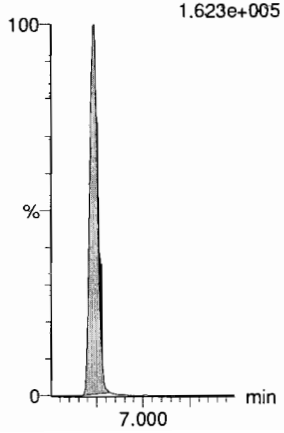

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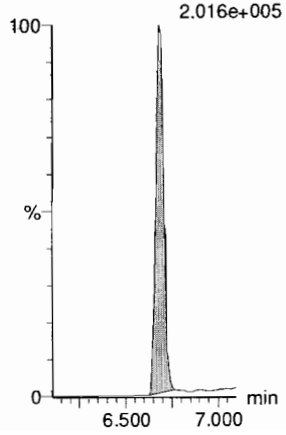

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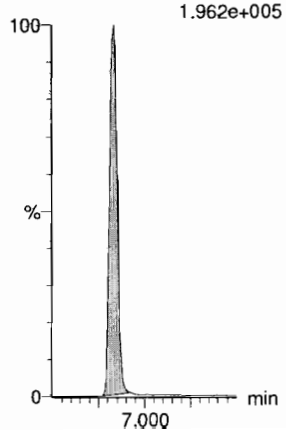

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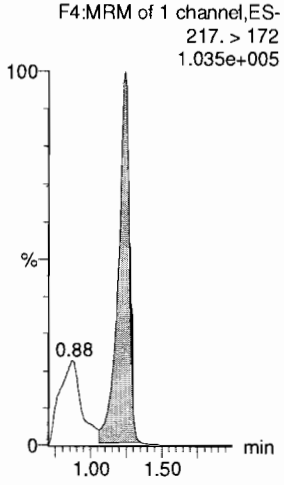
Name: 181126M1_11, Date: 26-Nov-2018, Time: 13:21:23, ID: ST181126M2-10 PFC CS7 18K1910, Description: PFC CS7 18K1910

13C4-PFBA



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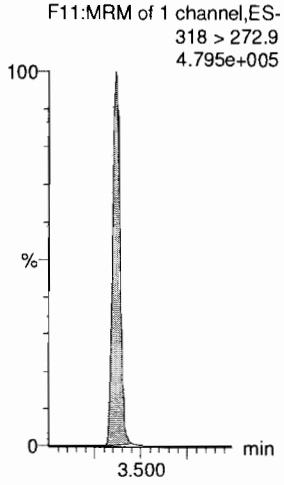

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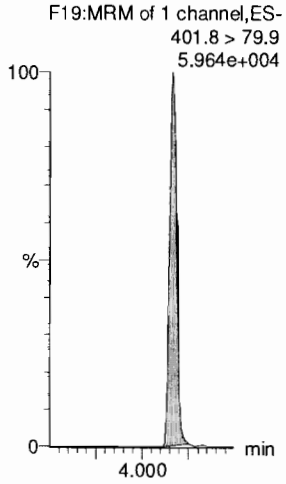

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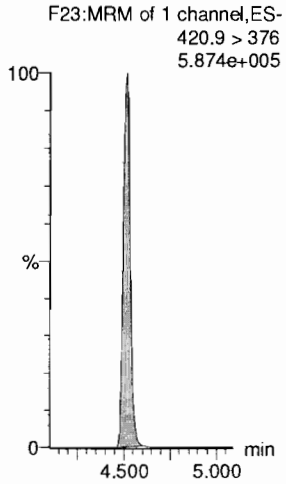

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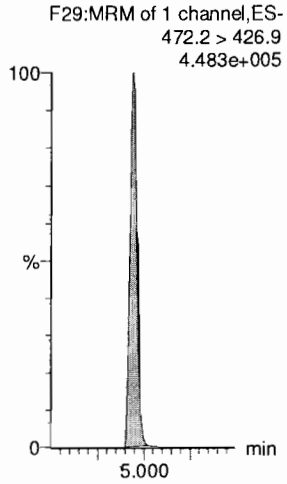
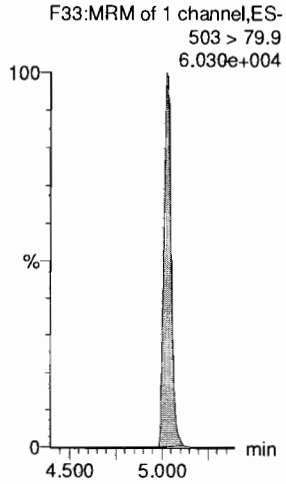
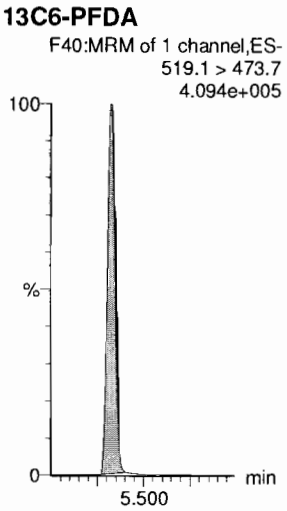


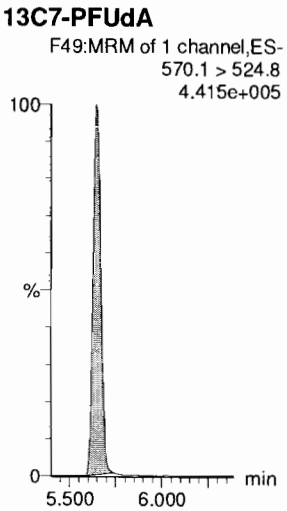
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-ICV.qld

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1 AD 11/27/18

Name: 181126M1_13, Date: 26-Nov-2018, Time: 13:42:34, ID: ICV181126M2-1 PFC ICV 18K1911, Description: PFC ICV 18K1911

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
1	1	PFBA	213.0 > 168.8	6577.573	6755.113	1.00	1.25	12.171	10.4	103.9	NO		
2	2	PFPeA	263.1 > 218.9	10646.053	13565.366	1.00	2.47	9.810	10.3	103.0	NO		
3	3	PFBS	299.0 > 79.7	2508.497	1757.272	1.00	2.81	17.844	8.6	86.4	NO	2.659	NO
4	4	4:2 FTS	327.2>307.2	3703.077	4459.432	1.00	3.28	10.380	9.9	99.3	NO	1.683	NO
5	5	PFHxA	313 > 269	19380.766	9400.432	1.00	3.37	10.308	10.9	108.9	NO	15.956	NO
6	6	PFPeS	349.1>80.1	2114.221	1757.272	1.00	3.59	15.039	9.0	90.0	NO	1.469	NO
7	36	13C3-PFBA	216.1 > 171.8	6755.113	8527.464	1.00	1.25	9.902	12.6	100.6	NO		
8	37	13C3-PFPeA	266. > 221.8	13565.366	25112.967	1.00	2.47	6.752	12.1	97.2	NO		
9	38	13C3-PFBS	302. > 98.8	1757.272	3191.469	1.00	2.81	6.883	12.8	102.5	NO		
10	39	13C2-4:2 FTS	329.2>308.9	4459.432	3191.469	1.00	3.28	17.466	11.8	94.5	NO		
11	40	13C2-PFHxA	315 > 270	9400.432	25112.967	1.00	3.37	4.679	4.7	94.7	NO		
12	38	13C3-PFBS	302. > 98.8	1757.272	3191.469	1.00	2.81	6.883	12.8	102.5	NO		
13	-1												
14	10	6:2 FTS	427.1 > 407	4605.992	4866.180	1.00	4.47	11.832	9.5	94.9	NO	2.889	NO
15	7	PFHpA	363.0 > 318.9	14161.893	13335.422	1.00	4.03	13.275	10.1	100.8	NO	13.955	NO
16	8	L-PFHxS	398.9 > 79.6	2162.868	1387.085	1.00	4.17	19.491	10.0	100.2	NO	1.736	NO
17	11	L-PFOA	412.8 > 368.9	26048.725	21999.895	1.00	4.52	14.800	10.8	107.9	NO	3.312	NO
18	13	PFHpS	449 > 80.0	2484.088	3481.192	1.00	4.63	8.920	9.5	95.1	NO	1.889	NO
19	14	PFNA	463.0 > 418.8	21775.484	21647.838	1.00	4.95	12.574	10.0	100.3	NO	4.687	NO
20	43	13C2-6:2 FTS	429.1 > 408.9	4866.180	3201.922	1.00	4.47	18.997	12.2	97.2	NO		
21	41	13C4-PFHpA	367.2 > 321.8	13335.422	25112.967	1.00	4.03	6.638	12.4	99.0	NO		
22	42	18O2-PFHxS	403.0 > 102.6	1387.085	3191.469	1.00	4.17	5.433	12.1	97.0	NO		
23	44	13C2-PFOA	414.9 > 369.7	21999.895	29368.645	1.00	4.52	9.364	12.4	99.2	NO		
24	47	13C8-PFOS	507.0 > 79.9	3481.192	3201.922	1.00	5.03	13.590	13.0	104.4	NO		
25	45	13C5-PFNA	468.2 > 422.9	21647.838	21297.207	1.00	4.95	12.706	12.8	102.6	NO		
26	-1												
27	15	PFOSA	497.9 > 77.9	2450.302	2482.326	1.00	4.99	12.339	10.8	108.4	NO	22.816	NO
28	16	L-PFOS	498.9 > 79.9	2884.358	3481.192	1.00	5.03	10.357	9.4	94.2	NO	1.878	NO
29	18	PFDA	513 > 468.8	22482.363	20471.270	1.00	5.33	13.728	10.4	104.4	NO	5.453	NO
30	19	8:2 FTS	527 > 506.9	4350.170	3537.528	1.00	5.29	15.372	10.2	101.7	NO	2.420	NO
31	20	PFNS	549.1 > 80.1	2061.916	3481.192	1.00	5.39	7.404	9.7	96.5	NO	1.686	NO
32	21	L-MeFOSAA	570 > 419	9799.923	3489.177	1.00	5.48	35.108	12.1	120.8	NO	2.899	NO
33	46	13C8-PFOSA	506.1 > 77.7	2482.326	27217.928	1.00	4.99	1.140	11.7	93.9	NO		
34	47	13C8-PFOS	507.0 > 79.9	3481.192	3201.922	1.00	5.03	13.590	13.0	104.4	NO		
35	48	13C2-PFDA	515.1 > 469.9	20471.270	22865.025	1.00	5.33	11.191	12.4	99.2	NO		
36	49	13C2-8:2 FTS	529.1 > 508.7	3537.528	3201.922	1.00	5.29	13.810	11.7	93.8	NO		

JCalf 11/26/18

AD 11/26/18

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(A) Not present in ICV -AD 11/26/18

Name: 181126M1_13, Date: 26-Nov-2018, Time: 13:42:34, ID: ICV181126M2-1 PFC ICV 18K1911, Description: PFC ICV 18K1911

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
37	47	13C8-PFOS	507.0 > 79.9	3481.192	3201.922	1.00	5.03	13.590	13.0	104.4	NO		
38	50	d3-N-MeFOSAA	573.3 > 419	3489.177	27217.928	1.00	5.48	1.602	11.9	95.2	NO		
39	-1												
40	23	L-EtFOSAA	584.1 > 419	8204.304	4919.687	1.00	5.64	20.846	12.9	128.6	NO	1.609	NO
41	27	PFDoA	612.9 > 569.0	22903.582	24200.867	1.00	5.93	11.830	10.1	101.4	NO	8.422	NO
42	26	PFDS	598.8 > 79.9	2813.984	3481.192	1.00	5.70	10.104	9.6	96.3	NO	1.635	NO
43	25	PFUdA	563.0 > 518.9	19763.930	25231.500	1.00	5.65	9.791	10.0	100.4	NO	9.299	NO
44	28	N-MeFOSA	512.1 > 168.9		10839.260	1.00				(A)	NO		
45	29	PFTrDA	662.9 > 618.9	22992.322	24200.867	1.00	6.18	11.876	10.2	102.2	NO	24.625	NO
46	52	d5-N-EtFOSAA	589.3 > 419	4919.687	27217.928	1.00	5.63	2.259	12.2	97.6	NO		
47	53	13C2-PFDoA	615.0 > 569.7	24200.867	22865.025	1.00	5.93	13.230	12.6	101.1	NO		
48	47	13C8-PFOS	507.0 > 79.9	3481.192	3201.922	1.00	5.03	13.590	13.0	104.4	NO		
49	51	13C2-PFUdA	565 > 519.8	25231.500	27217.928	1.00	5.65	11.588	12.1	96.8	NO		
50	54	d3-N-MeFOSA	515.2 > 168.9	10839.260	27217.928	1.00	5.98	4.978	135.6	90.4	NO		
51	53	13C2-PFDoA	615.0 > 569.7	24200.867	22865.025	1.00	5.93	13.230	12.6	101.1	NO		
52	-1												
53	30	PFTeDA	713.0 > 669.0	20084.904	14715.695	1.00	6.40	17.061	10.4	104.4	NO	13.106	NO
54	31	N-EtFOSA	526.1 > 168.9		18693.453	1.00				(A)	NO		
55	32	PFHxDA	813.1 > 768.6		7897.161	1.00					NO		
56	33	PFODA	913.1 > 868.8		7897.161	1.00					NO		
57	34	N-MeFOSE	616.1 > 58.9		9061.089	1.00					NO		
58	35	N-EtFOSE	630.1 > 58.9		8726.196	1.00					NO		
59	55	13C2-PFTeDA	715.1 > 669.7	14715.695	27217.928	1.00	6.40	6.758	11.9	95.4	NO		
60	56	d5-N-ETFOSA	531.1 > 168.9	18693.453	27217.928	1.00	6.45	8.585	147.2	98.1	NO		
61	57	13C2-PFHxDA	815 > 769.7	7897.161	27217.928	1.00	6.74	3.627	4.9	97.3	NO		
62	57	13C2-PFHxDA	815 > 769.7	7897.161	27217.928	1.00	6.74	3.627	4.9	97.3	NO		
63	58	d7-N-MeFOSE	623.1 > 58.9	9061.089	27217.928	1.00	6.68	4.161	131.5	87.7	NO		
64	59	d9-N-EtFOSE	639.2 > 58.8	8726.196	27217.928	1.00	6.83	4.008	134.4	89.6	NO		
65	-1												
66	60	13C4-PFBA	217. > 172	8527.464	8527.464	1.00	1.24	12.500	12.5	100.0	NO		
67	61	13C5-PFHxA	318 > 272.9	25112.967	25112.967	1.00	3.37	12.500	12.5	100.0	NO		
68	62	13C3-PFHxS	401.8 > 79.9	3191.469	3191.469	1.00	4.17	12.500	12.5	100.0	NO		
69	63	13C8-PFOA	420.9 > 376	29368.645	29368.645	1.00	4.52	12.500	12.5	100.0	NO		
70	64	13C9-PFNA	472.2 > 426.9	21297.207	21297.207	1.00	4.95	12.500	12.5	100.0	NO		
71	65	13C4-PFOS	503 > 79.9	3201.922	3201.922	1.00	5.03	12.500	12.5	100.0	NO		
72	66	13C6-PFDA	519.1 > 473.7	22865.025	22865.025	1.00	5.33	12.500	12.5	100.0	NO		

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Name: 181126M1_13, Date: 26-Nov-2018, Time: 13:42:34, ID: ICV181126M2-1 PFC ICV 18K1911, Description: PFC ICV 18K1911

	#	Name	Trace	Area	IS Area	wt/vol	RT	Response	Conc.	%Rec	Recovery ...	Ion Ratio	Ratio Out?
73	67	13C7-PFUdA	570.1 > 524.8	27217.928	27217.928	1.00	5.65	12.500	12.5	100.0	NO		

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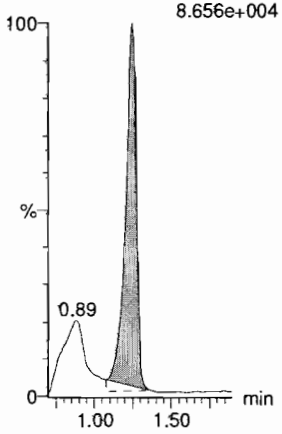
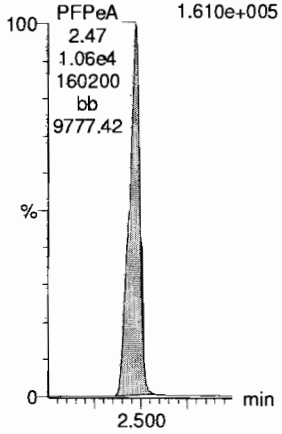
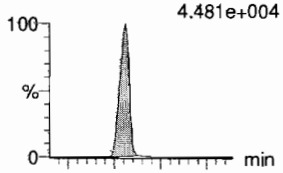
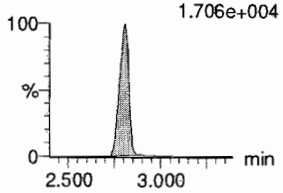
Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112618.mdb 26 Nov 2018 13:53:04
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

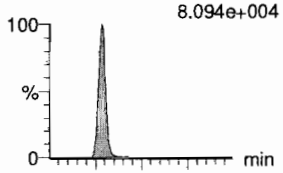
Name: 181126M1_13, Date: 26-Nov-2018, Time: 13:42:34, ID: ICV181126M2-1 PFC ICV 18K1911, Description: PFC ICV 18K1911

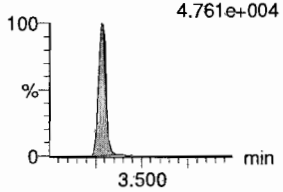
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
8.656e+004


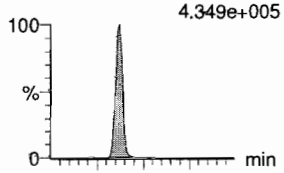
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
1.610e+005


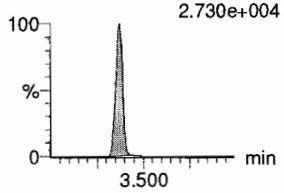
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
4.481e+004


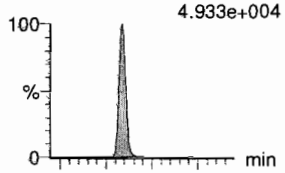
F7:MRM of 2 channels,ES-
299.0 > 99.0
1.706e+004


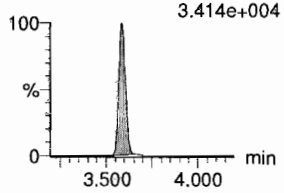
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
8.094e+004


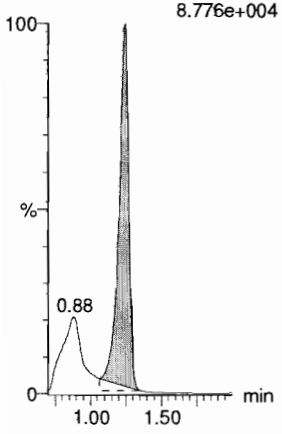
F12:MRM of 2 channels,ES-
327.2 > 81.1
4.761e+004


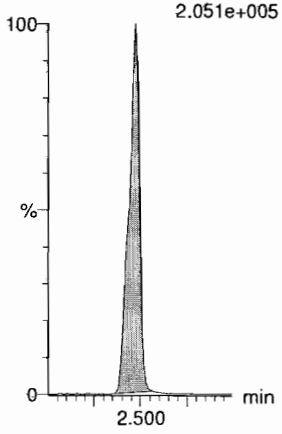
PFHxA
F9:MRM of 2 channels,ES-
313 > 269
4.349e+005


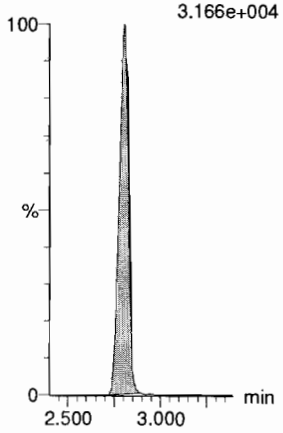
F9:MRM of 2 channels,ES-
313 > 118.9
2.730e+004


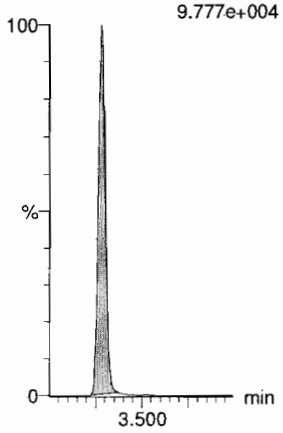
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
4.933e+004


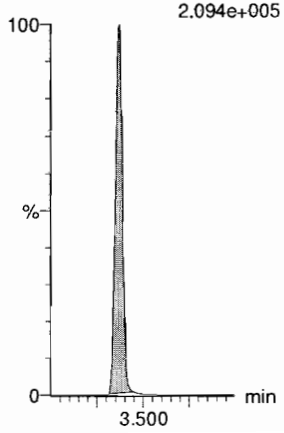
F15:MRM of 2 channels,ES-
349.1 > 99
3.414e+004


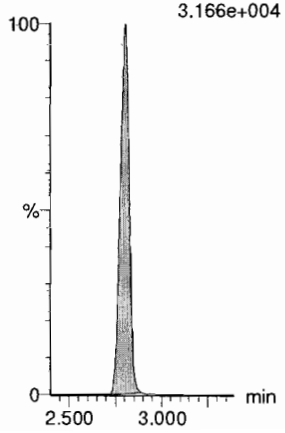
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
8.776e+004


13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
2.051e+005


13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
3.166e+004


13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
9.777e+004


13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 270
2.094e+005


13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
3.166e+004


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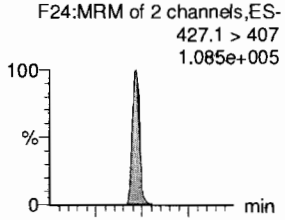
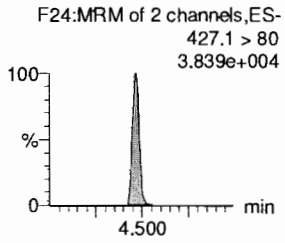
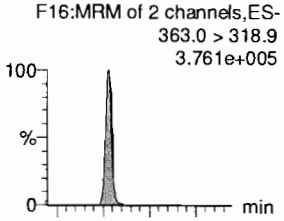
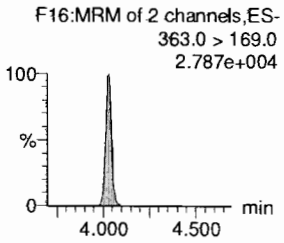
6:2 FTS





PFHpA





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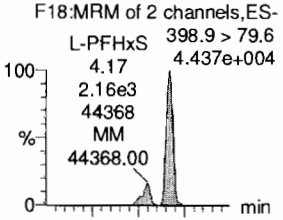

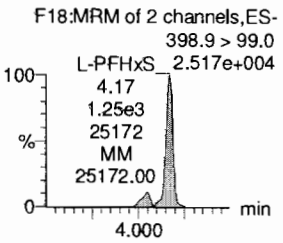

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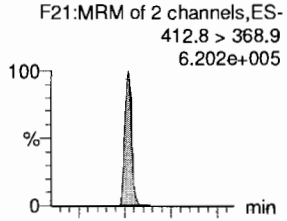

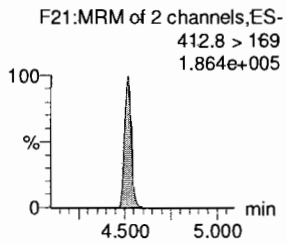

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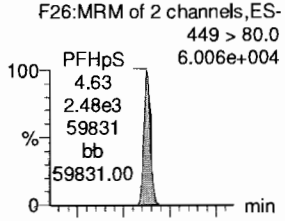

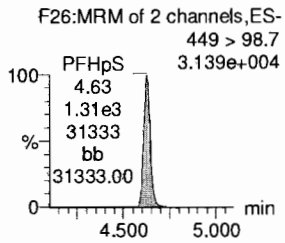

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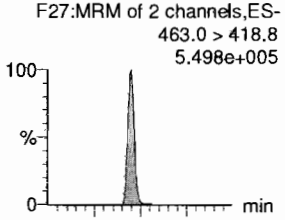
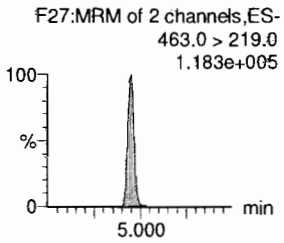
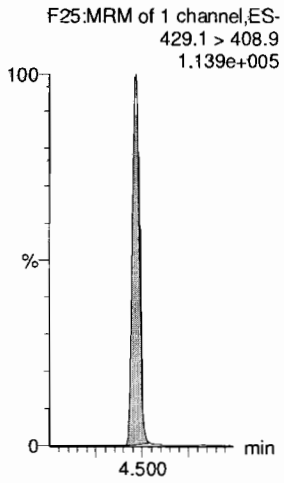




13C2-6:2 FTS



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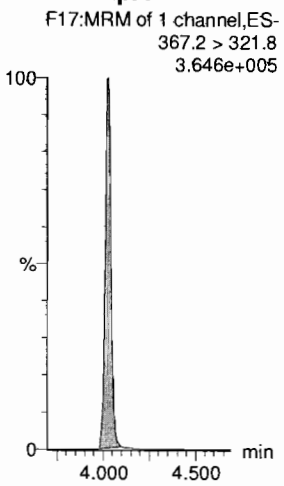

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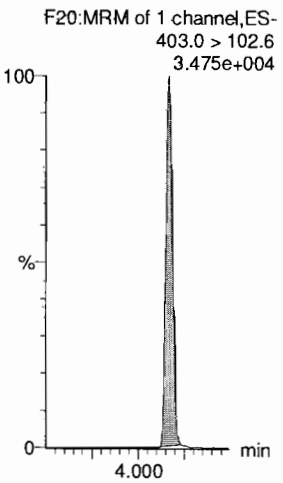

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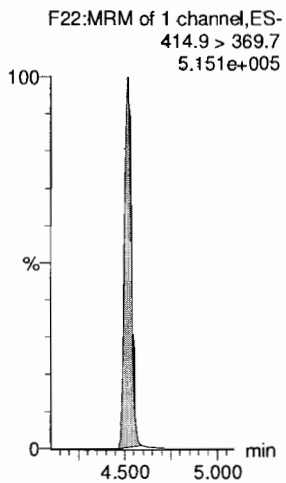

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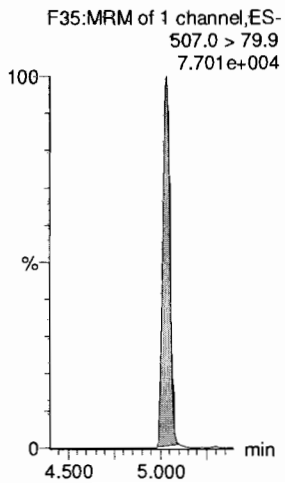

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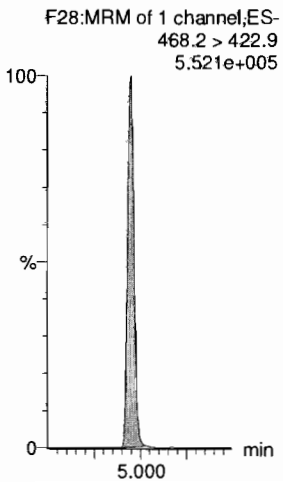

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Printed: Monday, November 26, 2018 14:56:11 Pacific Standard Time

Name: 181126M1_13, Date: 26-Nov-2018, Time: 13:42:34, ID: ICV181126M2-1 PFC ICV 18K1911, Description: PFC ICV 18K1911

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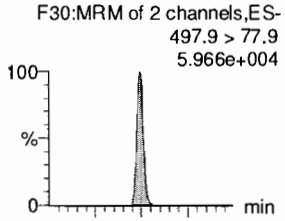

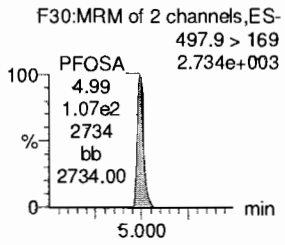

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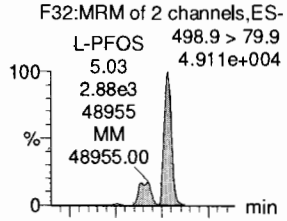

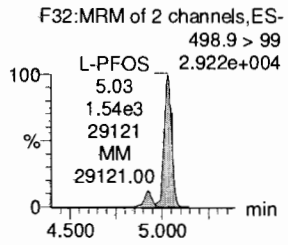

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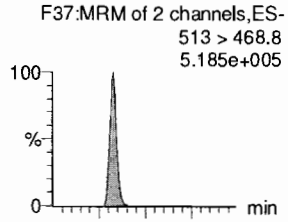
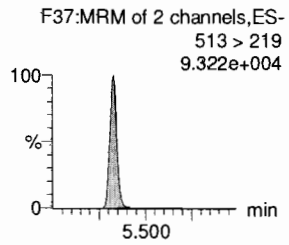
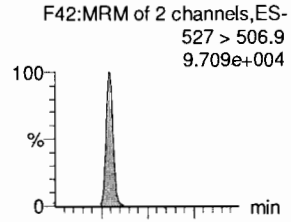
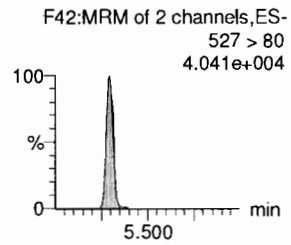




8:2 FTS





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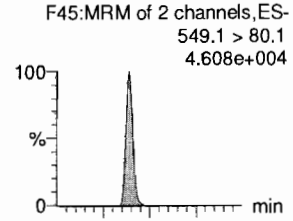

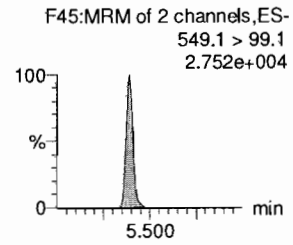

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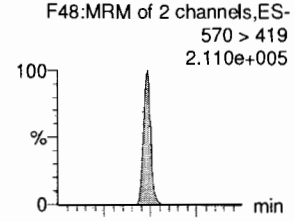
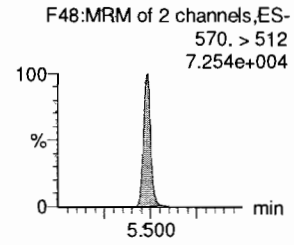
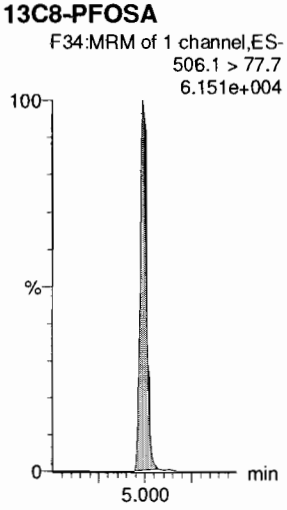




13C8-PFOSA



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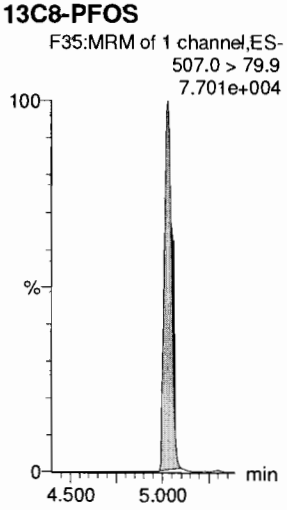

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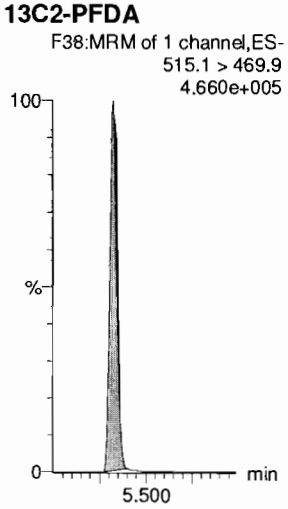
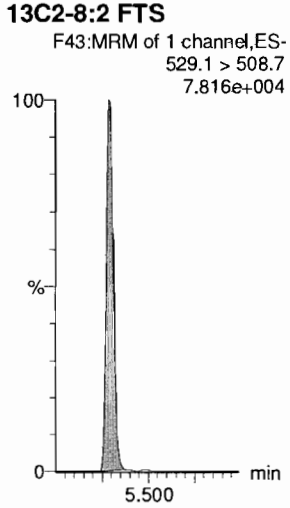


13C2-8:2 FTS



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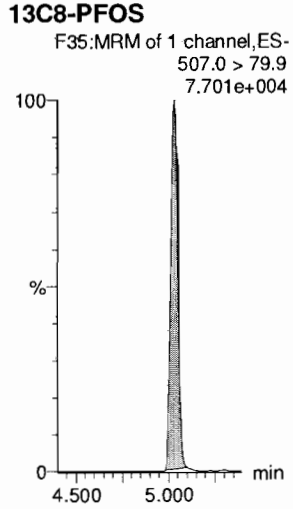

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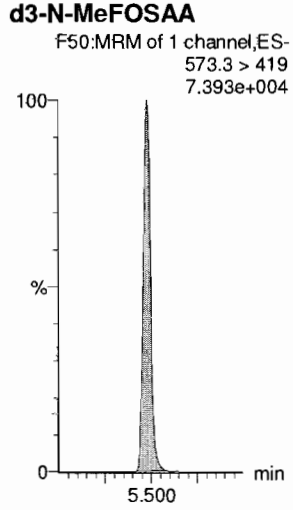

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Name: 181126M1_13, Date: 26-Nov-2018, Time: 13:42:34, ID: ICV181126M2-1 PFC ICV 18K1911, Description: PFC ICV 18K1911

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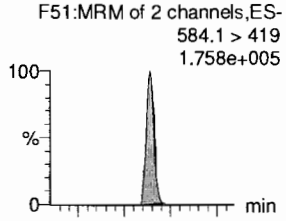
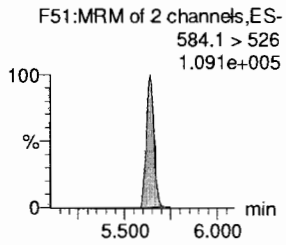
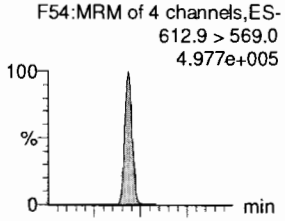
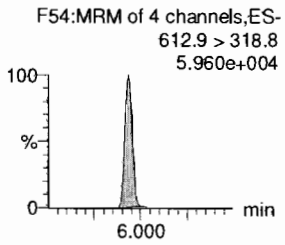




PFDoA





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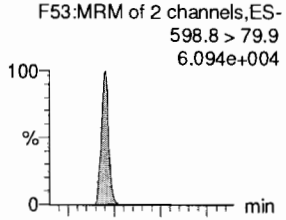

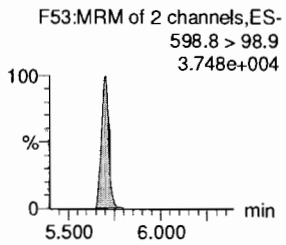

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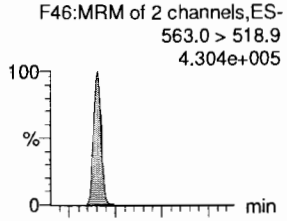
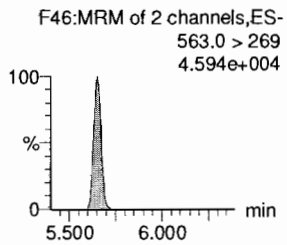
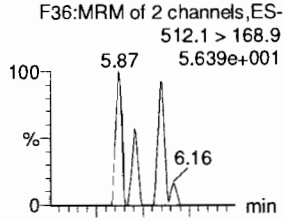
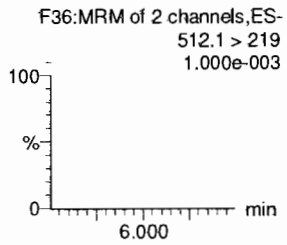




N-MeFOSA





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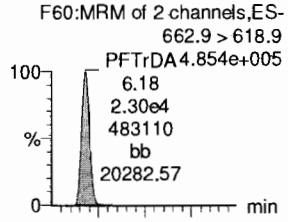

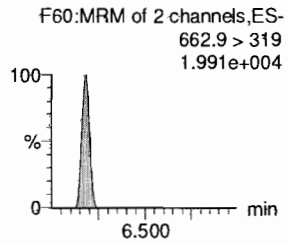

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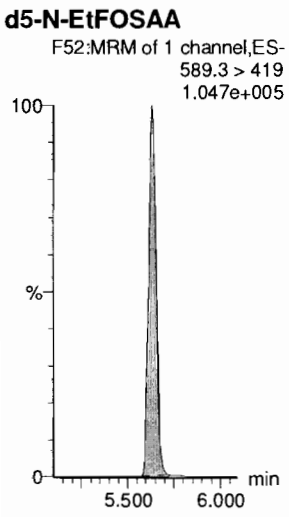

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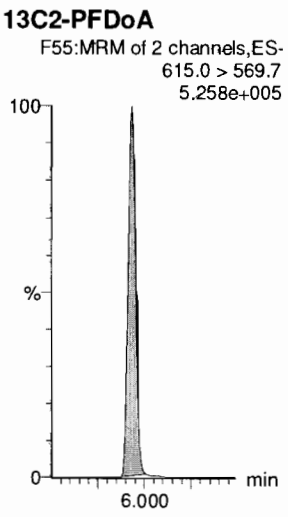

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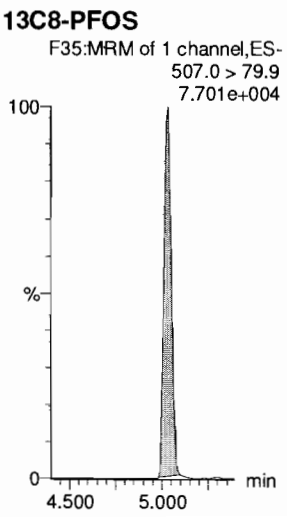

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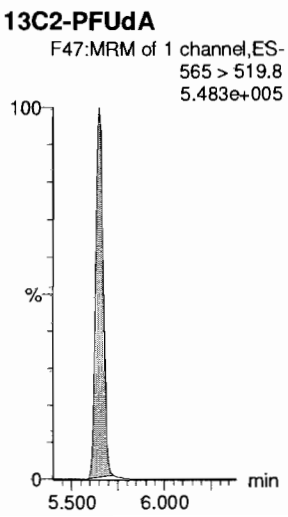

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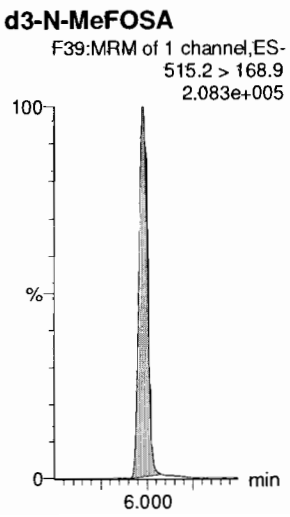

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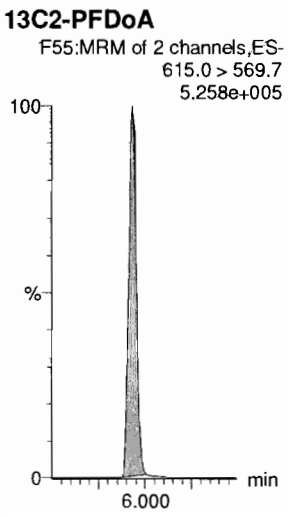

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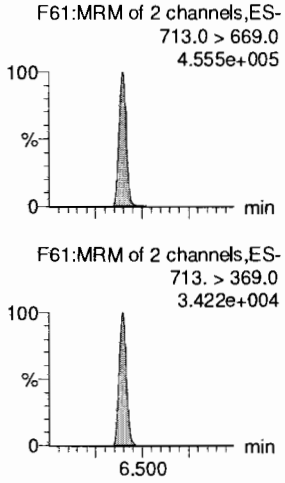
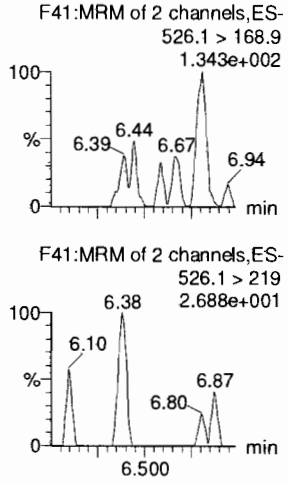
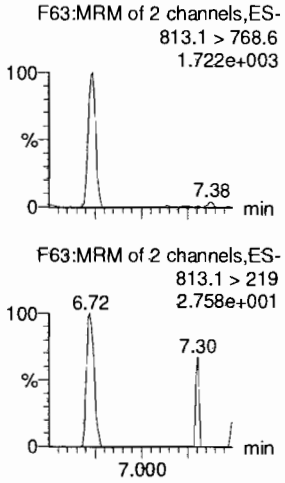


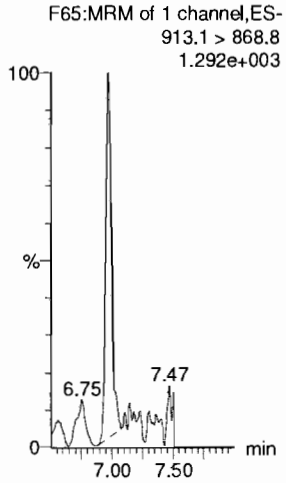
N-EtFOSA



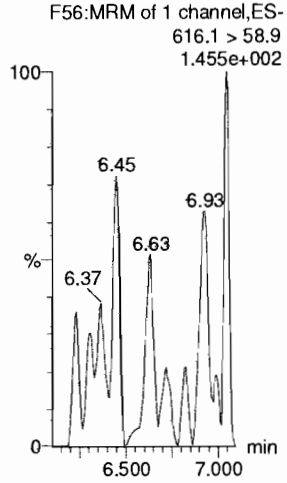
PFHxDA



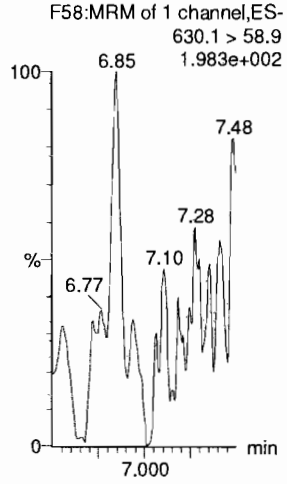
PFODA



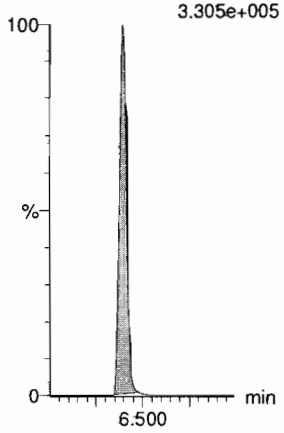
N-MeFOSE



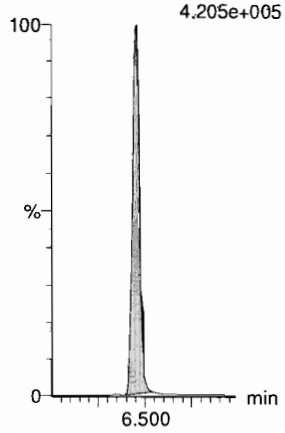
N-EtFOSE



13C2-PFTeDA



d5-N-ETFOSA



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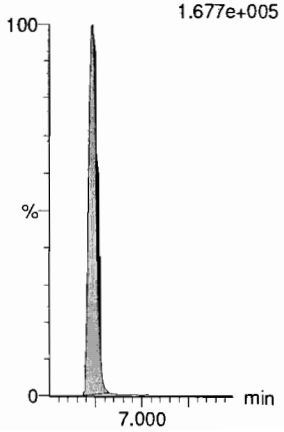

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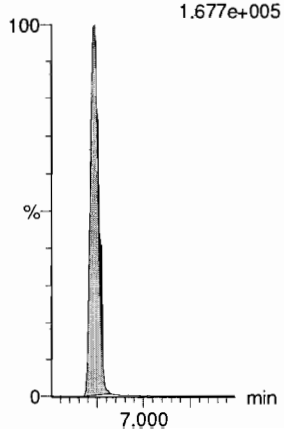

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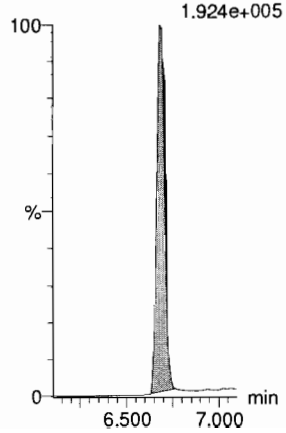
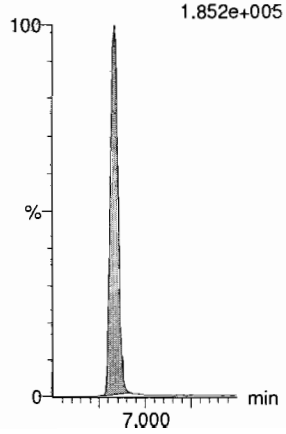


d9-N-EtFOSE

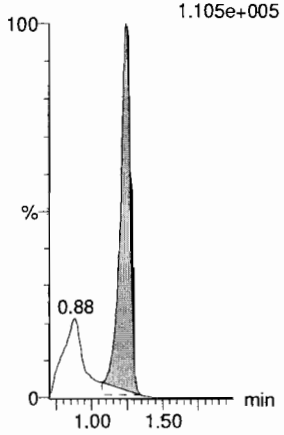


Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-ICV.qld

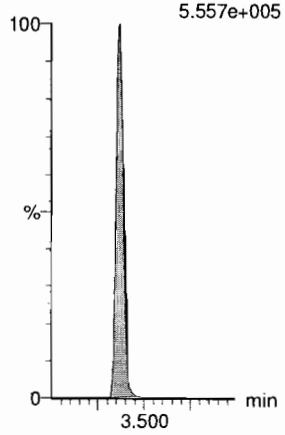
Last Altered: Monday, November 26, 2018 14:55:41 Pacific Standard Time
Printed: Monday, November 26, 2018 14:56:11 Pacific Standard Time

Name: 181126M1_13, Date: 26-Nov-2018, Time: 13:42:34, ID: ICV181126M2-1 PFC ICV 18K1911, Description: PFC ICV 18K1911

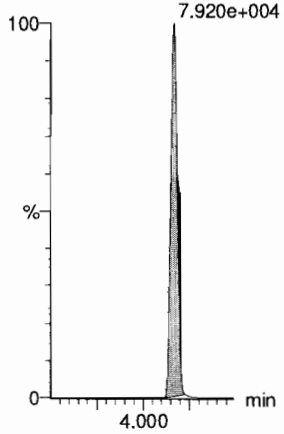
13C4-PFBA



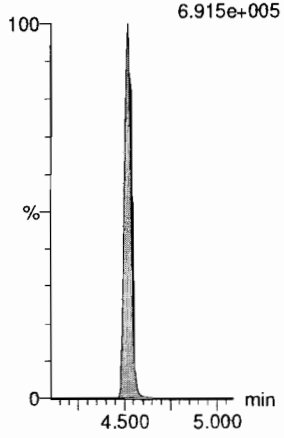
13C5-PFHxA



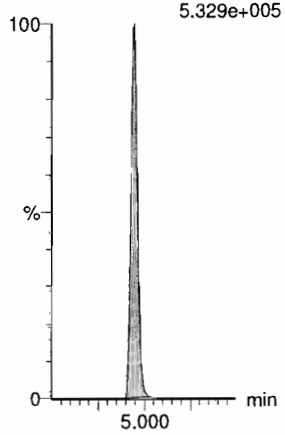
13C3-PFHxS



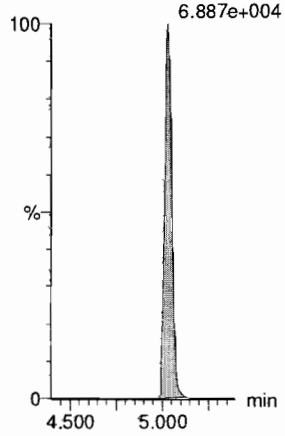
13C8-PFOA



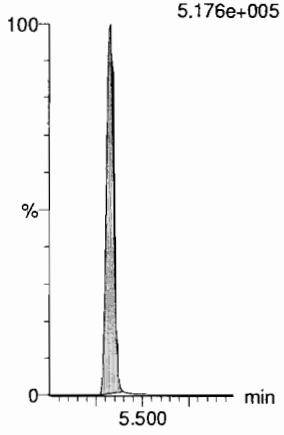
13C9-PFNA



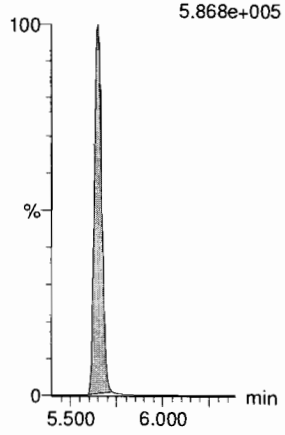
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Vista Analytical Laboratory

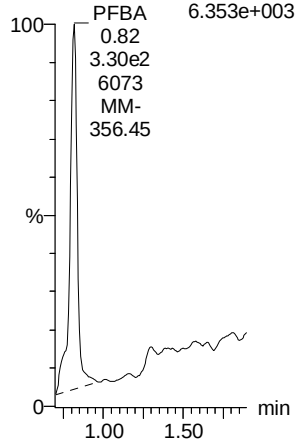
Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-IB.qld

Last Altered: Monday, November 26, 2018 14:38:52 Pacific Standard Time
Printed: Monday, November 26, 2018 14:39:16 Pacific Standard Time

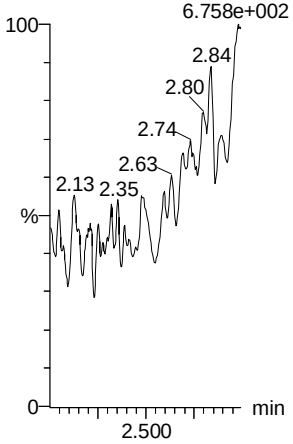
Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_112618.mdb 26 Nov 2018 13:53:04
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_11-26-18.cdb 26 Nov 2018 14:29:06

Name: 181126M1_12, Date: 26-Nov-2018, Time: 13:32:01, ID: IPA, Description: IPA

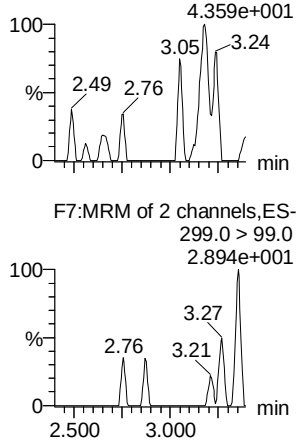
PFBA



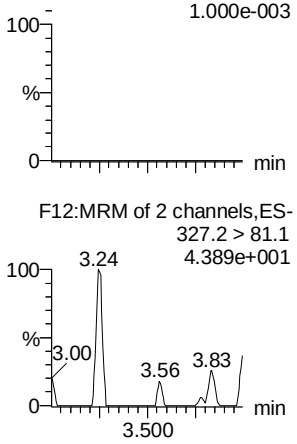
PFPeA



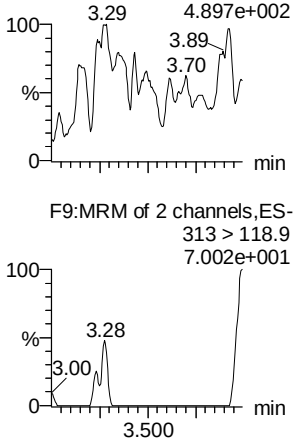
PFBS



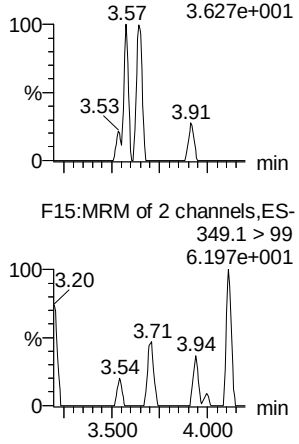
4:2 FTS



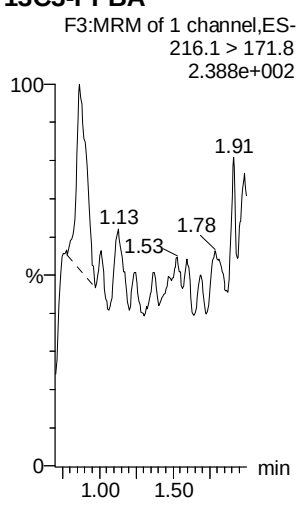
PFHxA



PFPeS



13C3-PFBA



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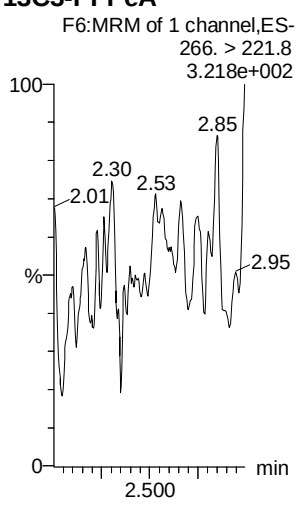

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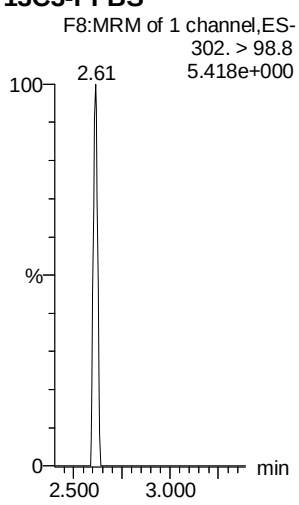
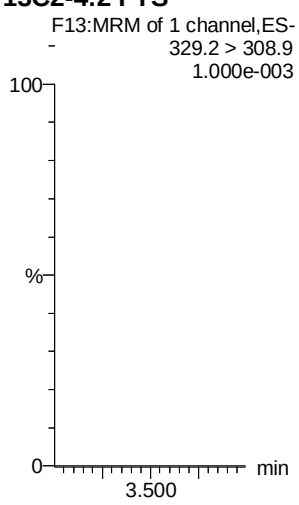
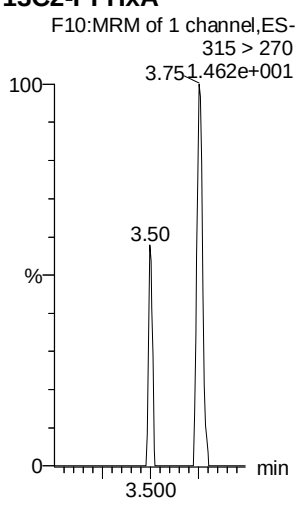


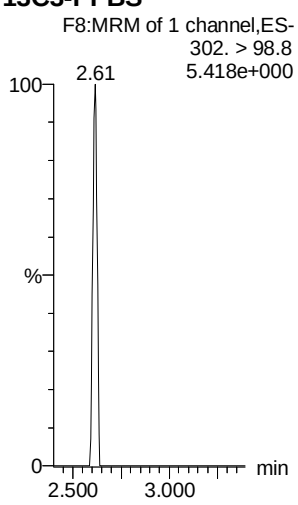
13C2-4:2 FTS



13C2-PFHxA



13C3-PFBS

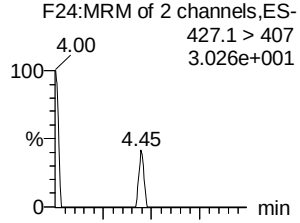


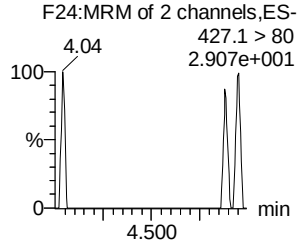
Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-IB.qld

Last Altered: Monday, November 26, 2018 14:38:52 Pacific Standard Time
Printed: Monday, November 26, 2018 14:39:16 Pacific Standard Time

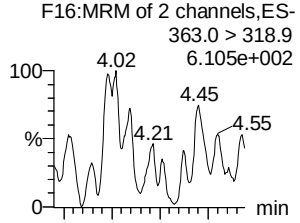
Name: 181126M1_12, Date: 26-Nov-2018, Time: 13:32:01, ID: IPA, Description: IPA

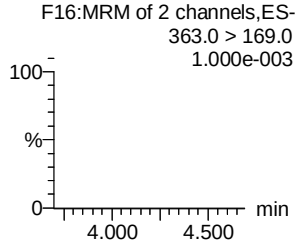
6:2 FTS



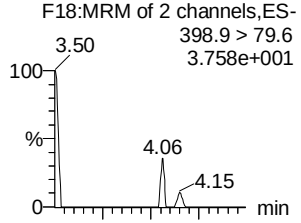


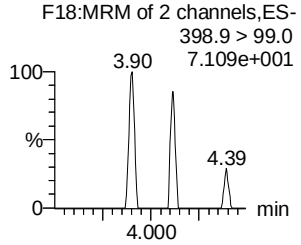
PFHpA



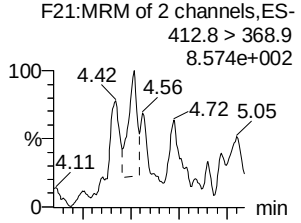


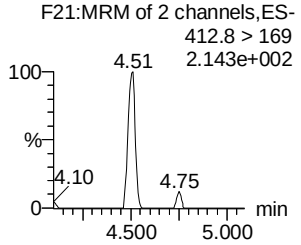
L-PFHxS



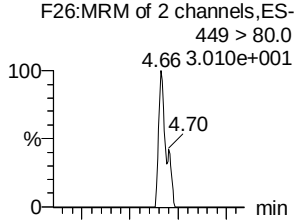


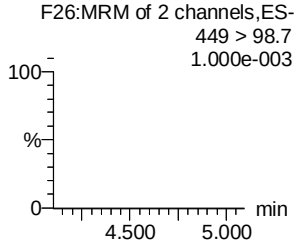
L-PFOA



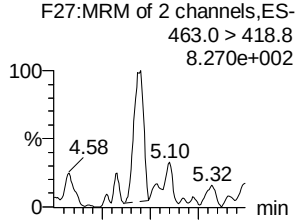


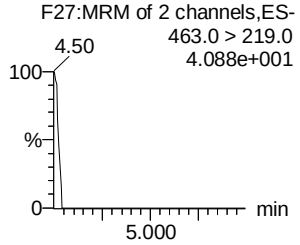
PFHpS



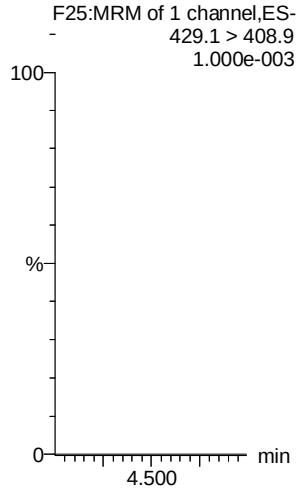


PFNA

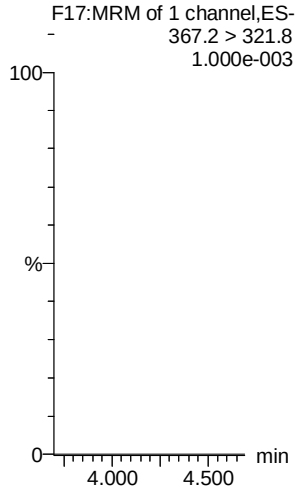




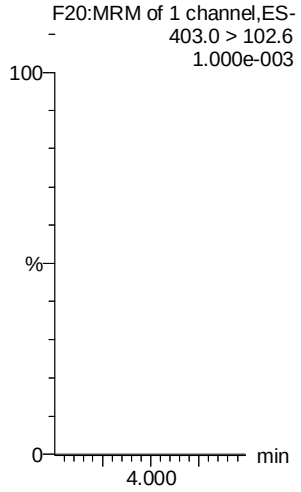
13C2-6:2 FTS



13C4-PFHpA



18O2-PFHxS



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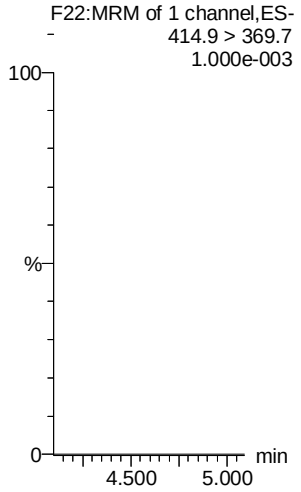
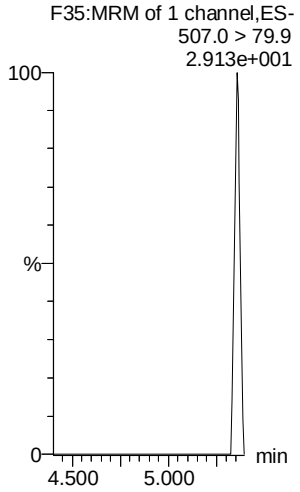
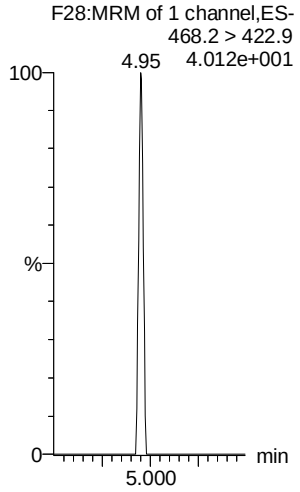


13C8-PFOS



13C5-PFNA

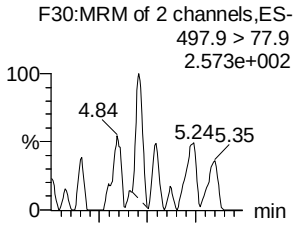


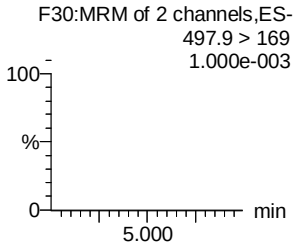
Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-IB.qld

Last Altered: Monday, November 26, 2018 14:38:52 Pacific Standard Time
Printed: Monday, November 26, 2018 14:39:16 Pacific Standard Time

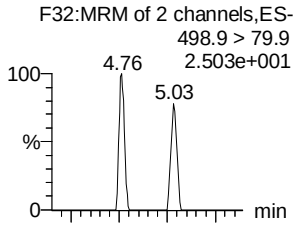
Name: 181126M1_12, Date: 26-Nov-2018, Time: 13:32:01, ID: IPA, Description: IPA

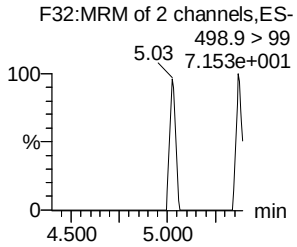
PFOSA





L-PFOS





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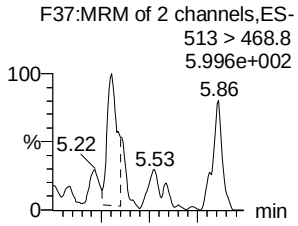
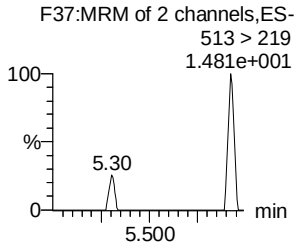
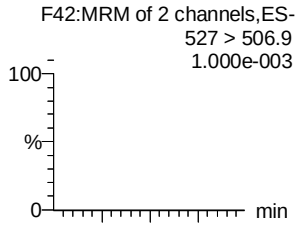
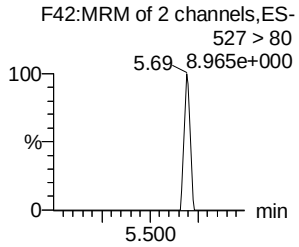




8:2 FTS





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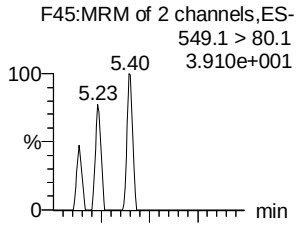

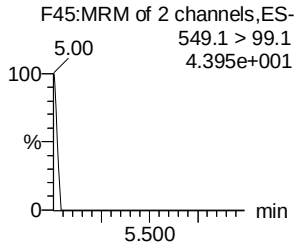

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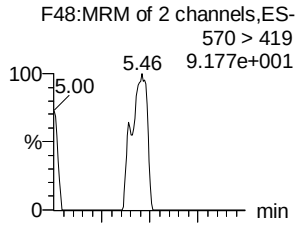

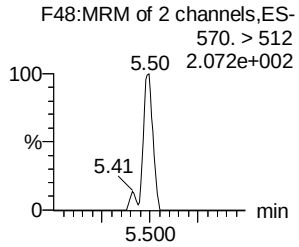

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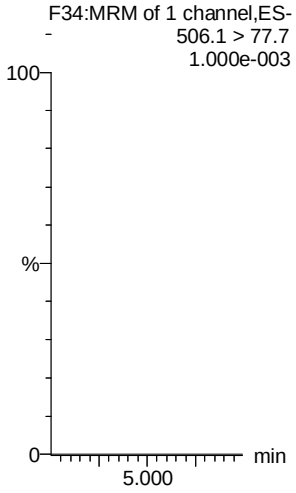

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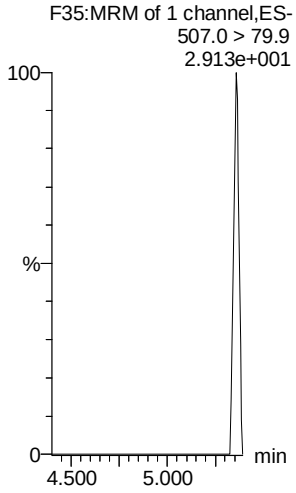

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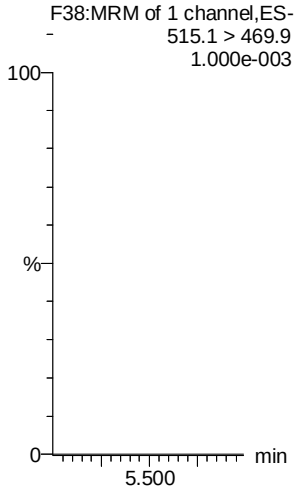

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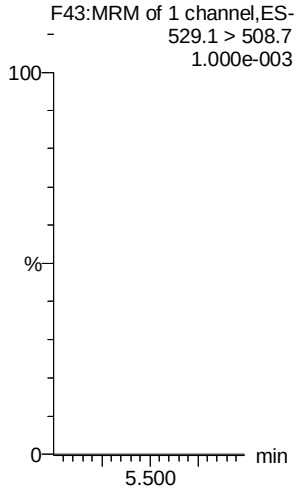

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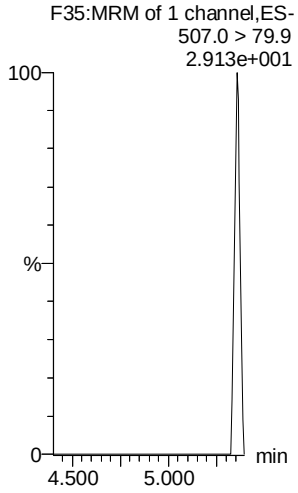

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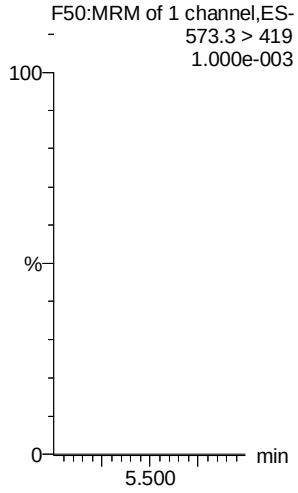
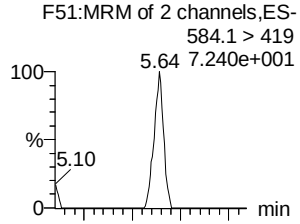


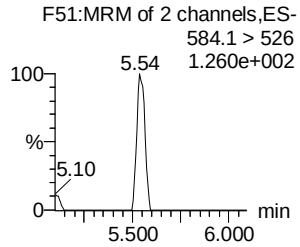
Dataset: F:\Projects\PFAS.PRO\Results\181126M1\181126M1-IB.qld

Last Altered: Monday, November 26, 2018 14:38:52 Pacific Standard Time
Printed: Monday, November 26, 2018 14:39:16 Pacific Standard Time

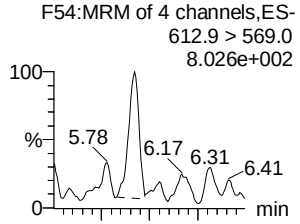
Name: 181126M1_12, Date: 26-Nov-2018, Time: 13:32:01, ID: IPA, Description: IPA

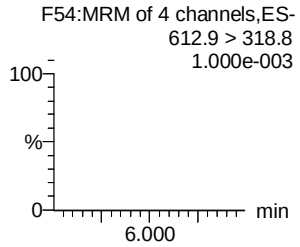
L-EtFOSAA





PFDoA





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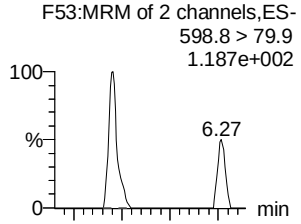

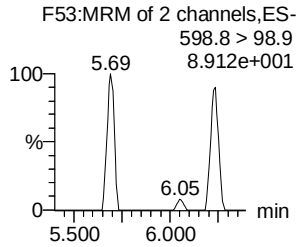

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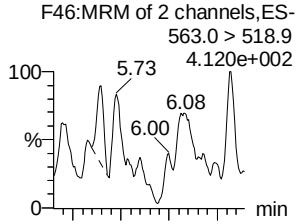

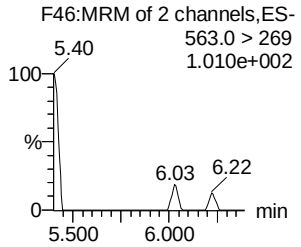

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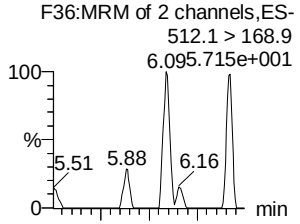

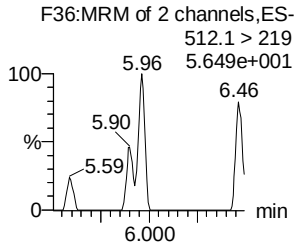

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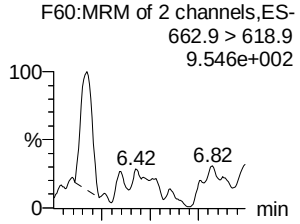

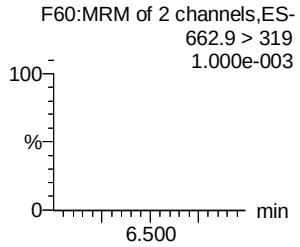

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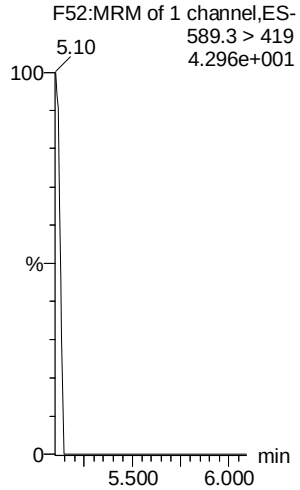

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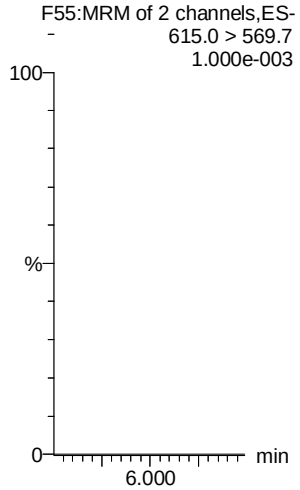

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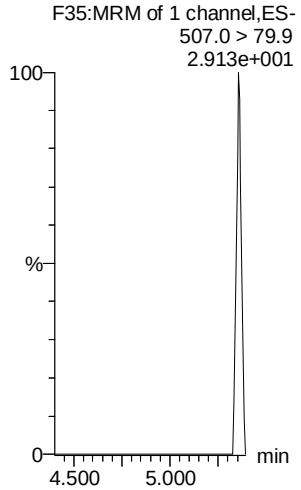

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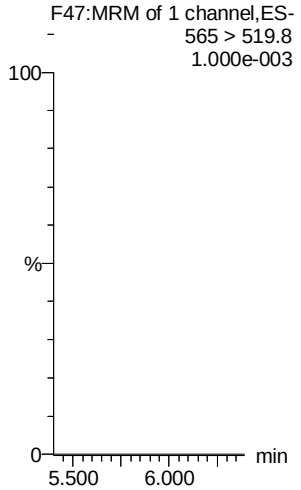

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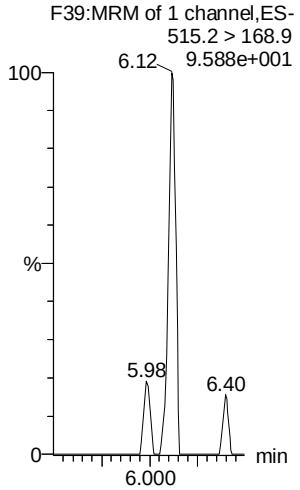

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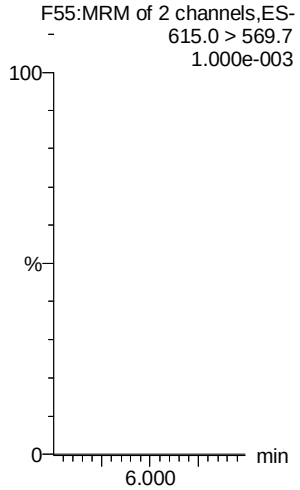

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Last Altered: Monday, November 26, 2018 14:38:52 Pacific Standard Time
Printed: Monday, November 26, 2018 14:39:16 Pacific Standard Time

Name: 181126M1_12, Date: 26-Nov-2018, Time: 13:32:01, ID: IPA, Description: IPA

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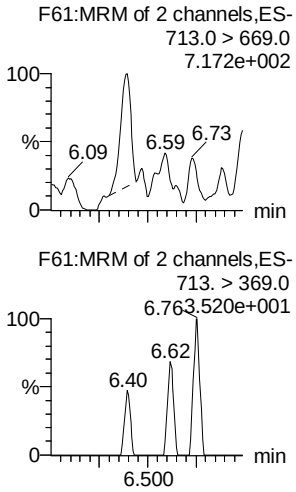

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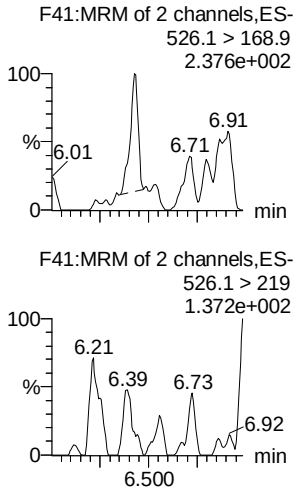

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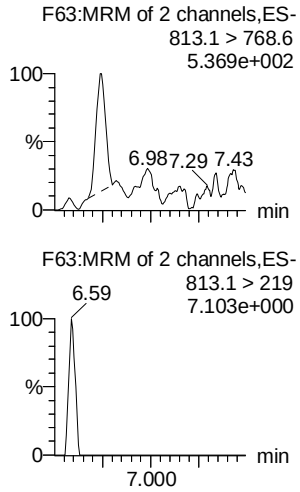

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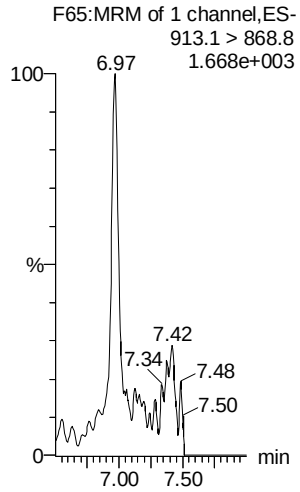
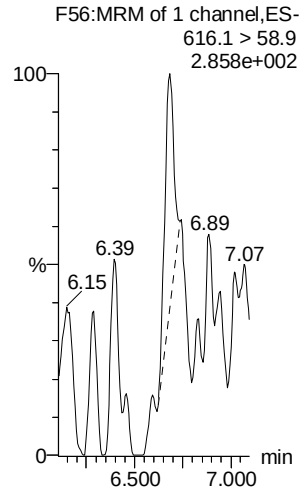


N-MeFOSE



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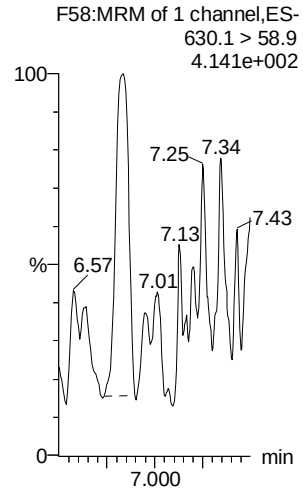

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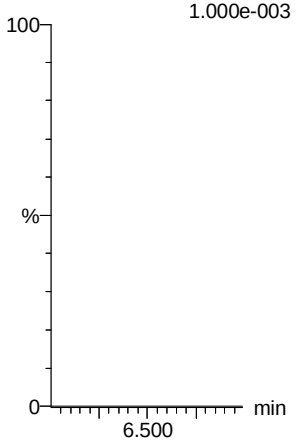

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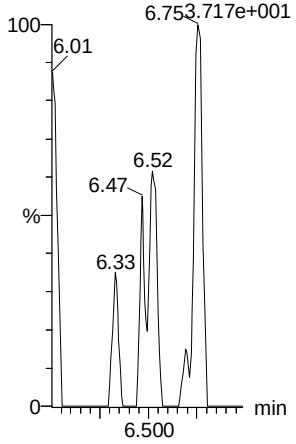

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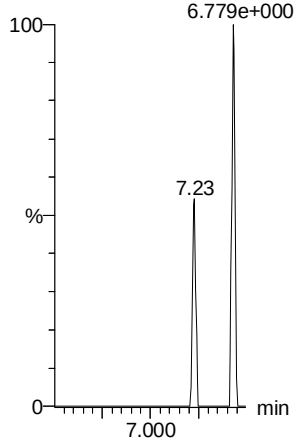

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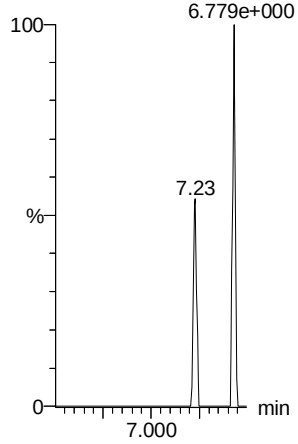

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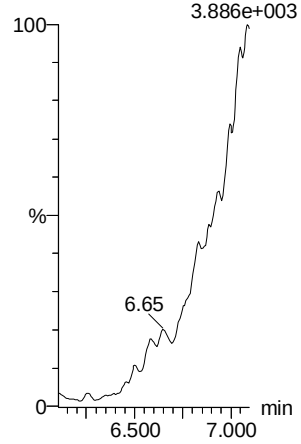

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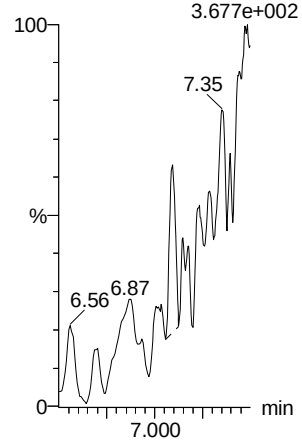

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Last Altered: Monday, November 26, 2018 14:38:52 Pacific Standard Time
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Name: 181126M1_12, Date: 26-Nov-2018, Time: 13:32:01, ID: IPA, Description: IPA

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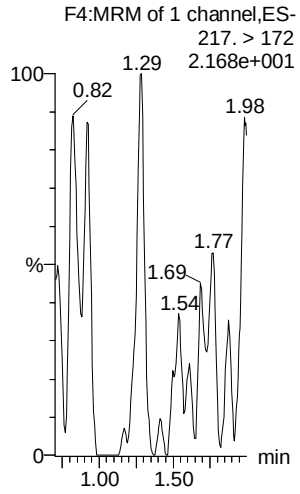

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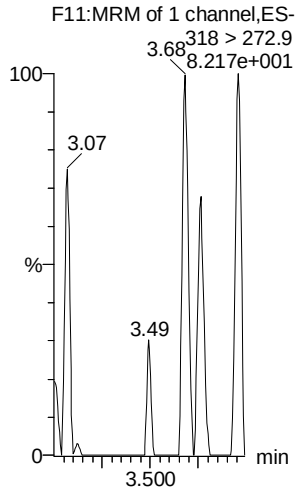

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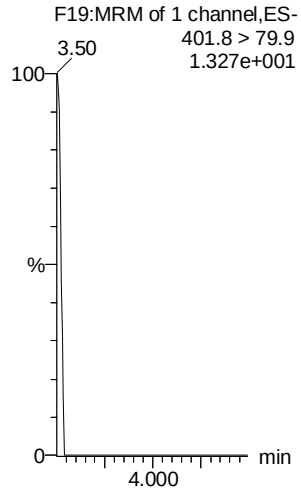

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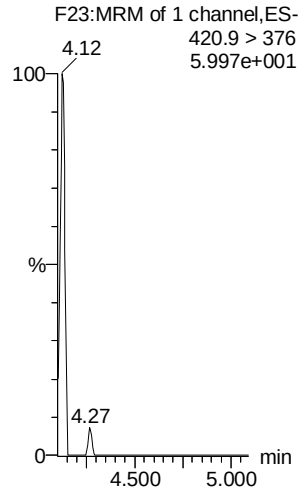

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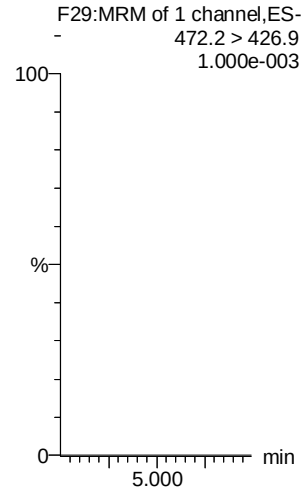

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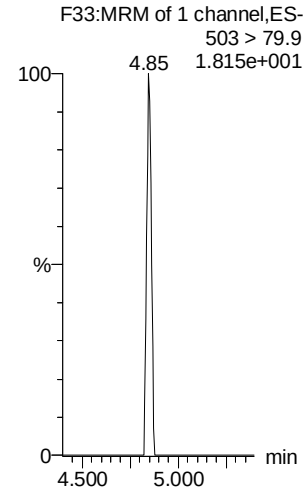

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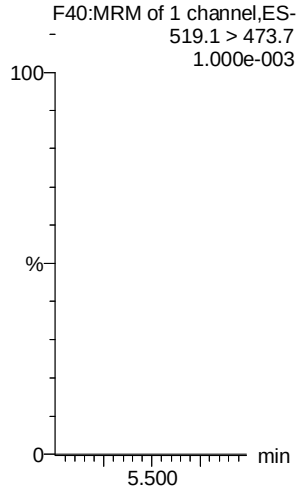

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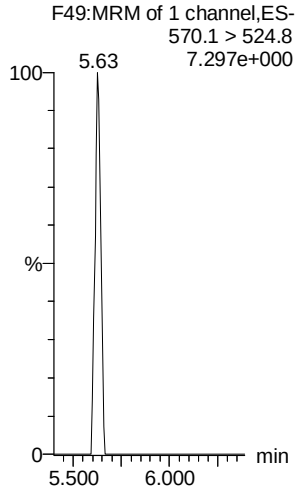


TUNE CHECKS

Q4 Tune check 11-21-18

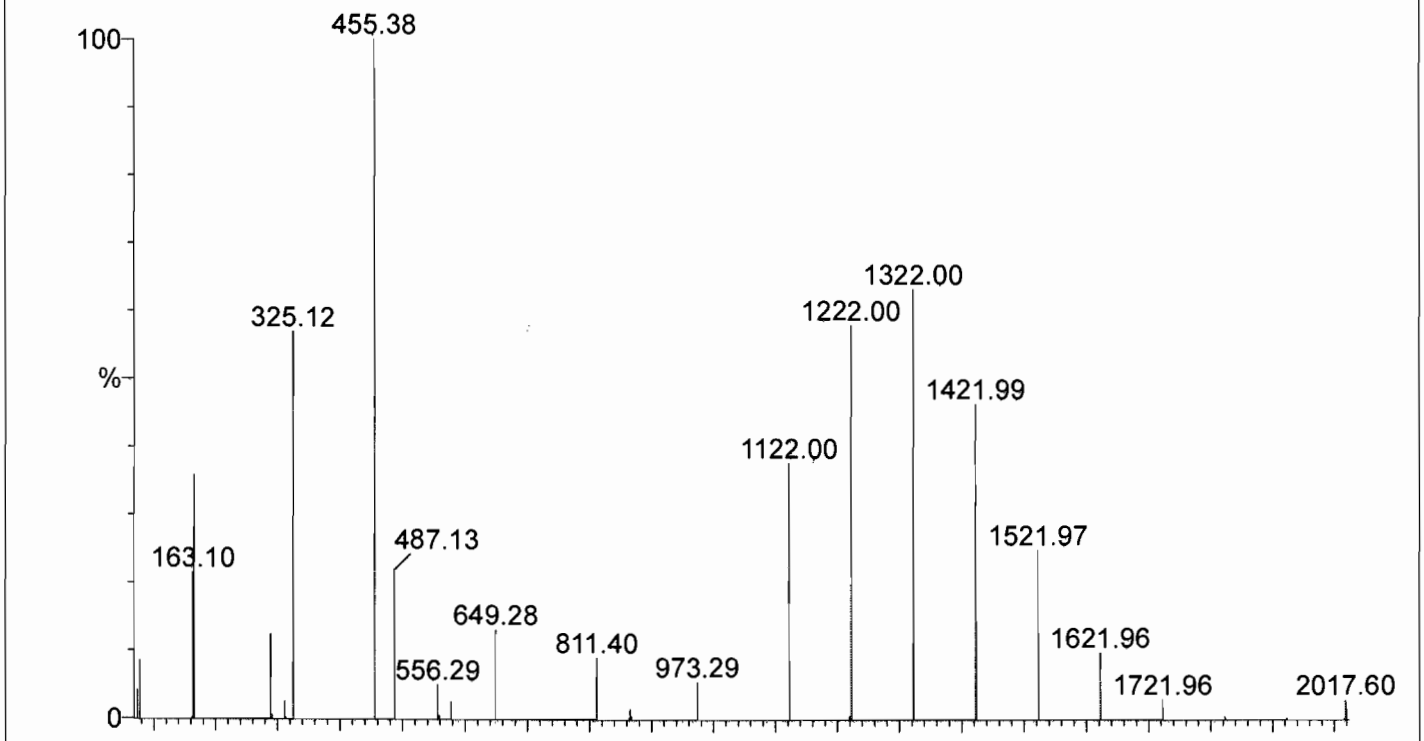
Calibration Verification Report - MS1 Static

20181121

Printed: **Wed Nov 21 13:36:53 2018**

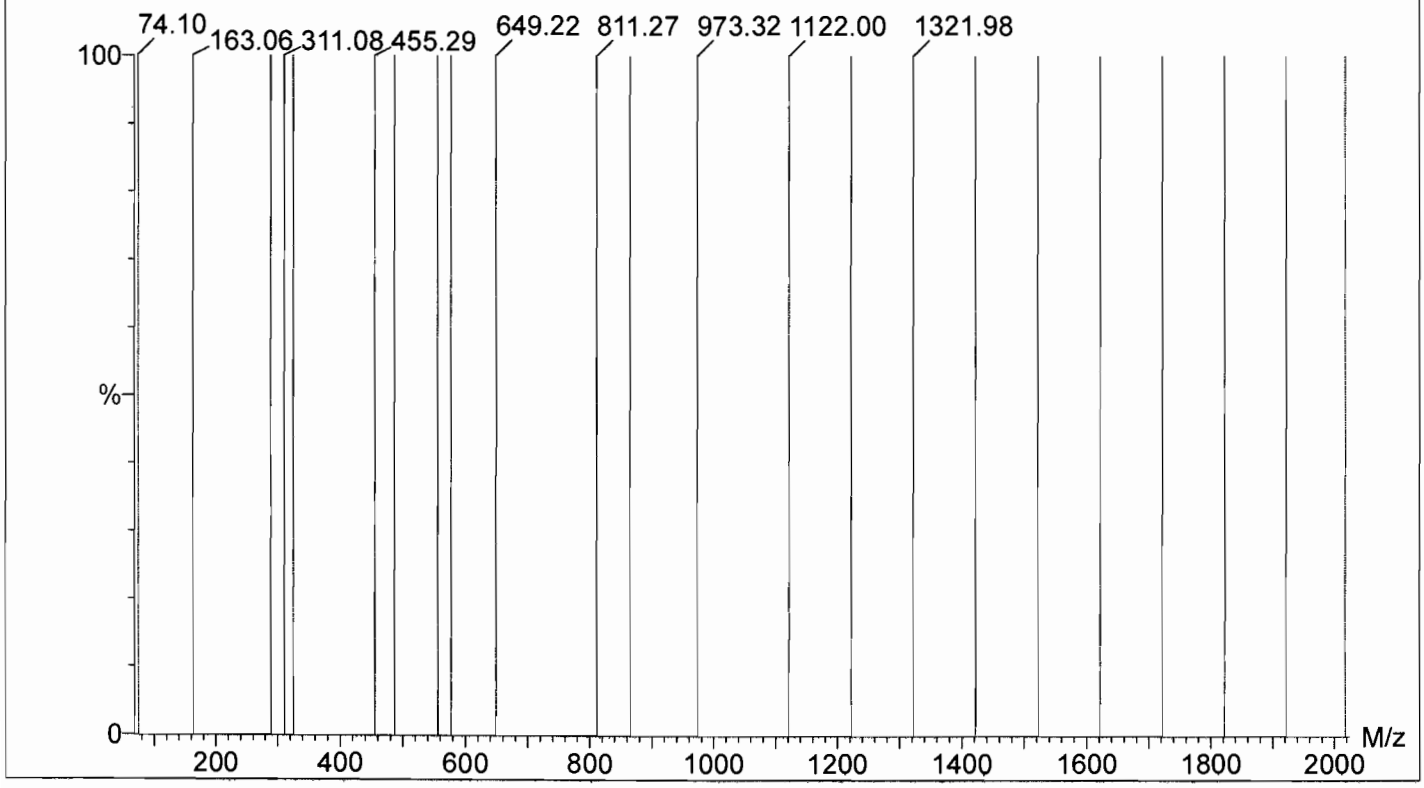
Data file: STATMS1V - Calibrated

22 matches of 23 tested references

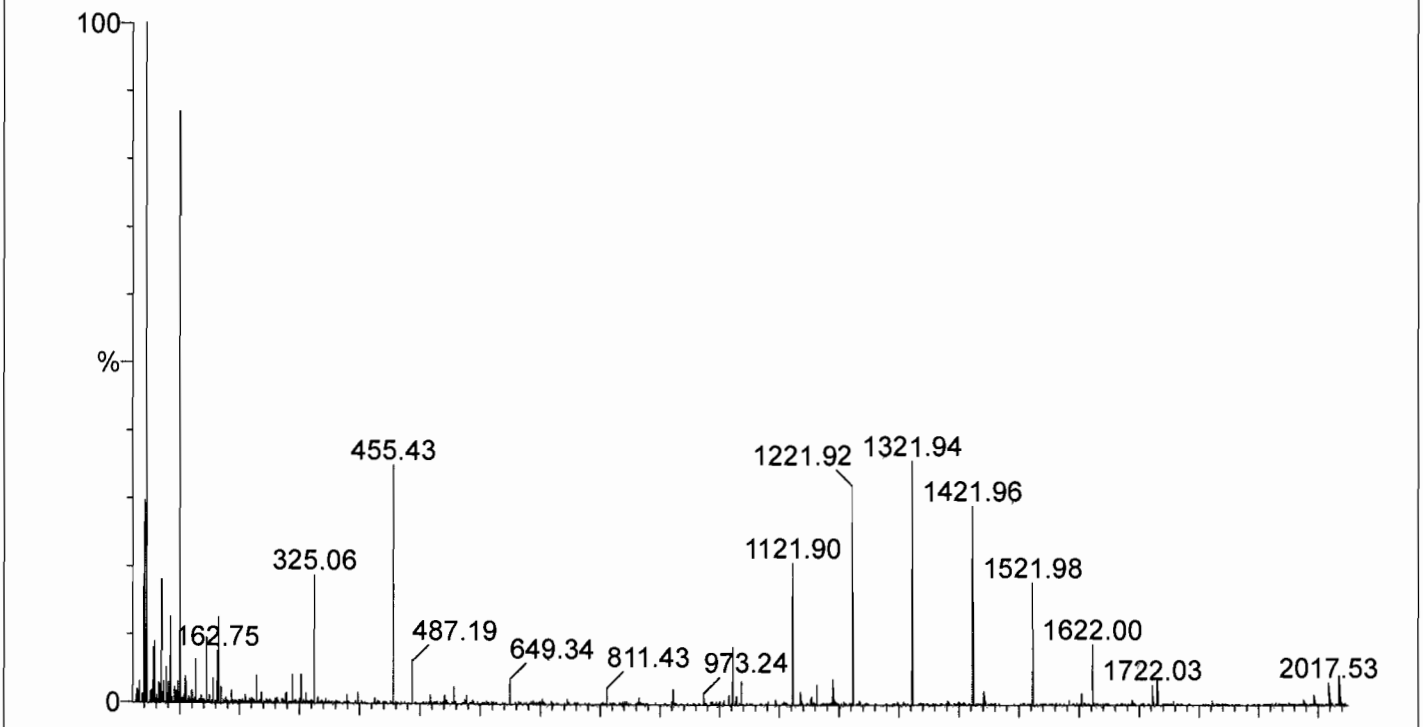


Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref

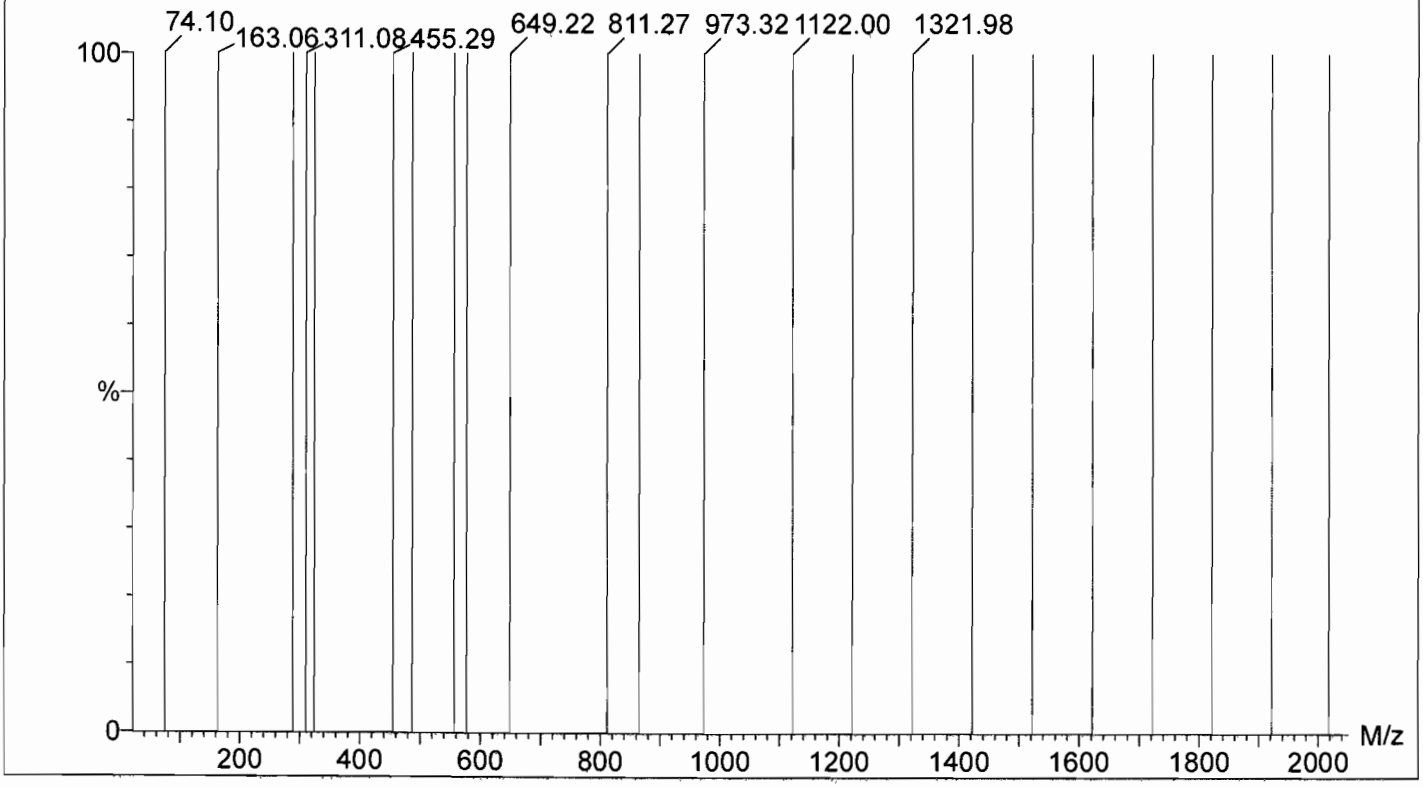
Mean residual = 0.0244 amu



Data file: SCNMS1V - Calibrated 23 matches of 23 tested references

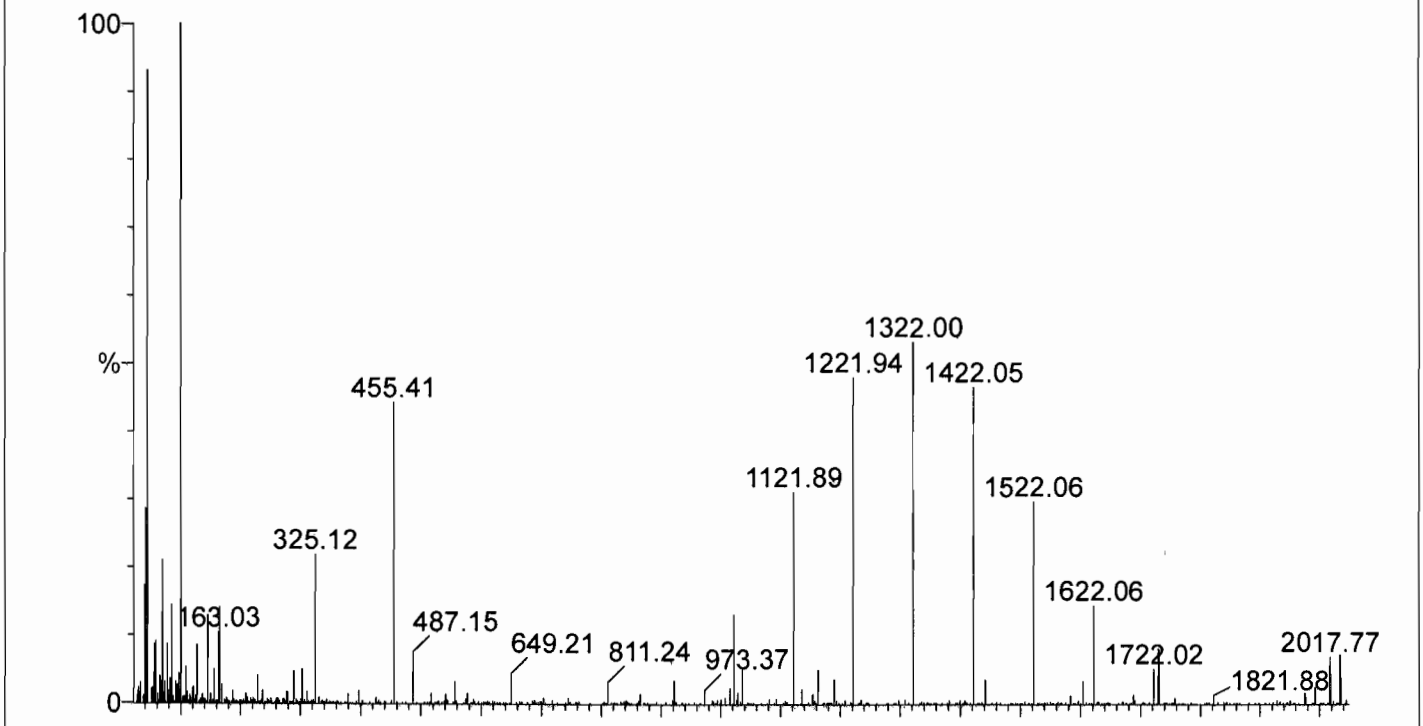


Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0899 amu



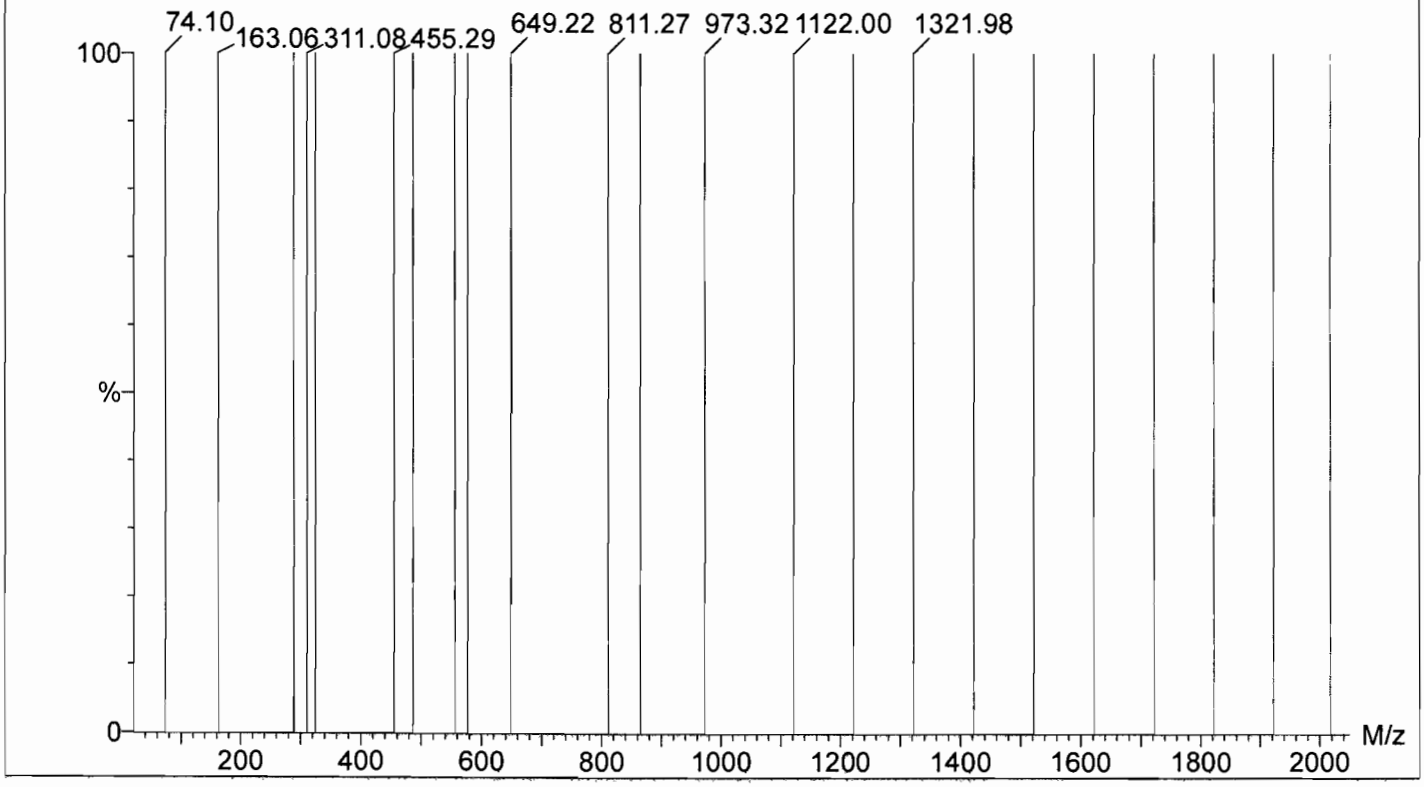
Data file: FASTMS1V - Calibrated

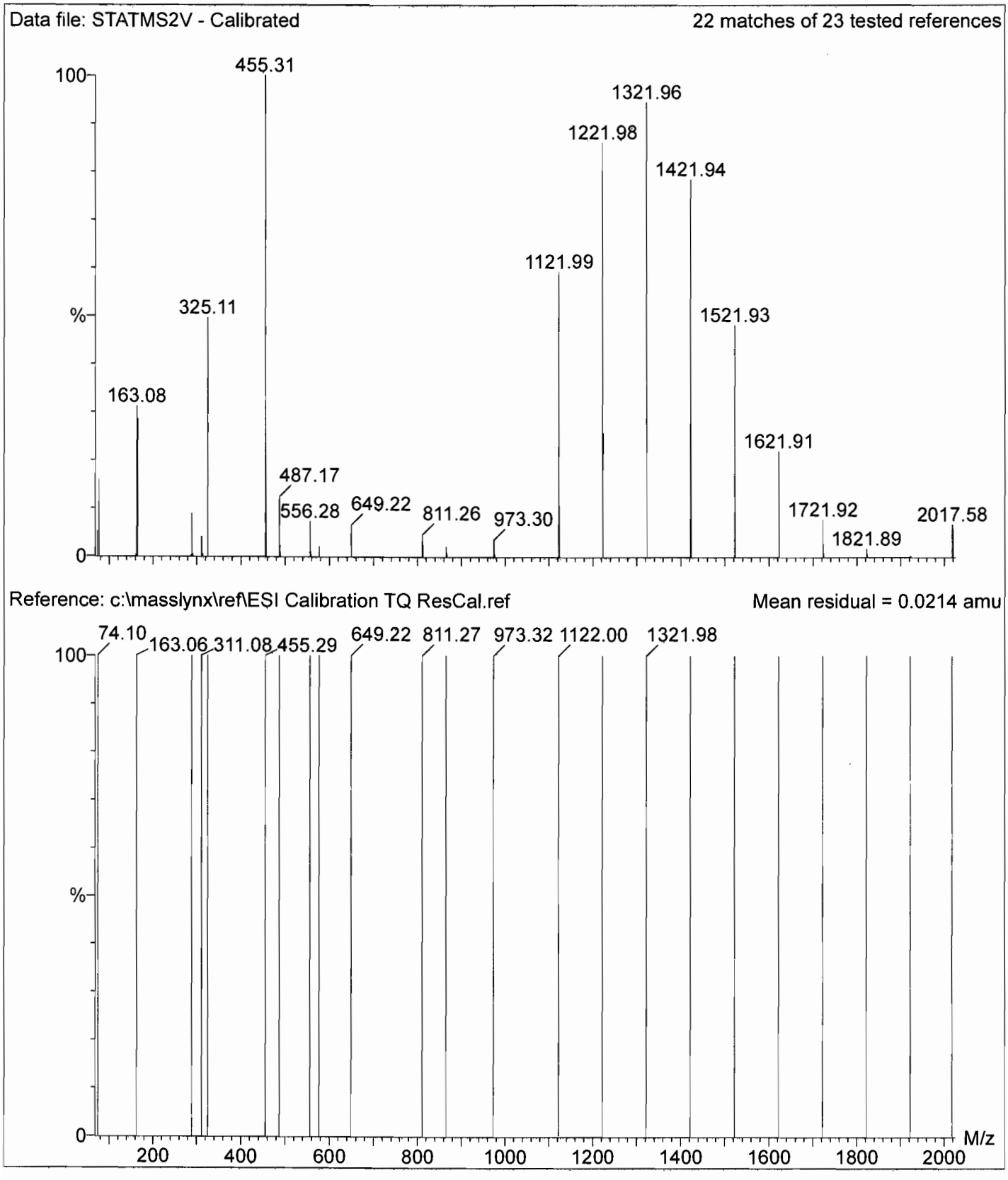
23 matches of 23 tested references



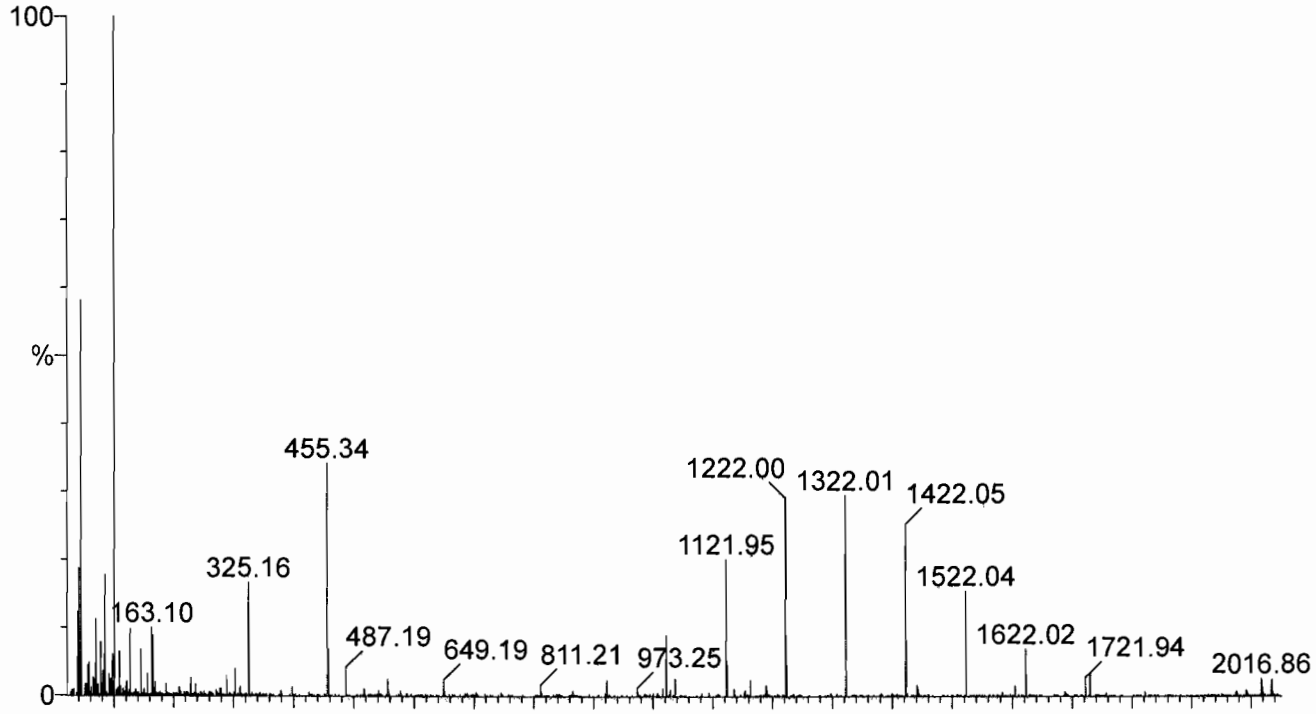
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref

Mean residual = 0.0848 amu

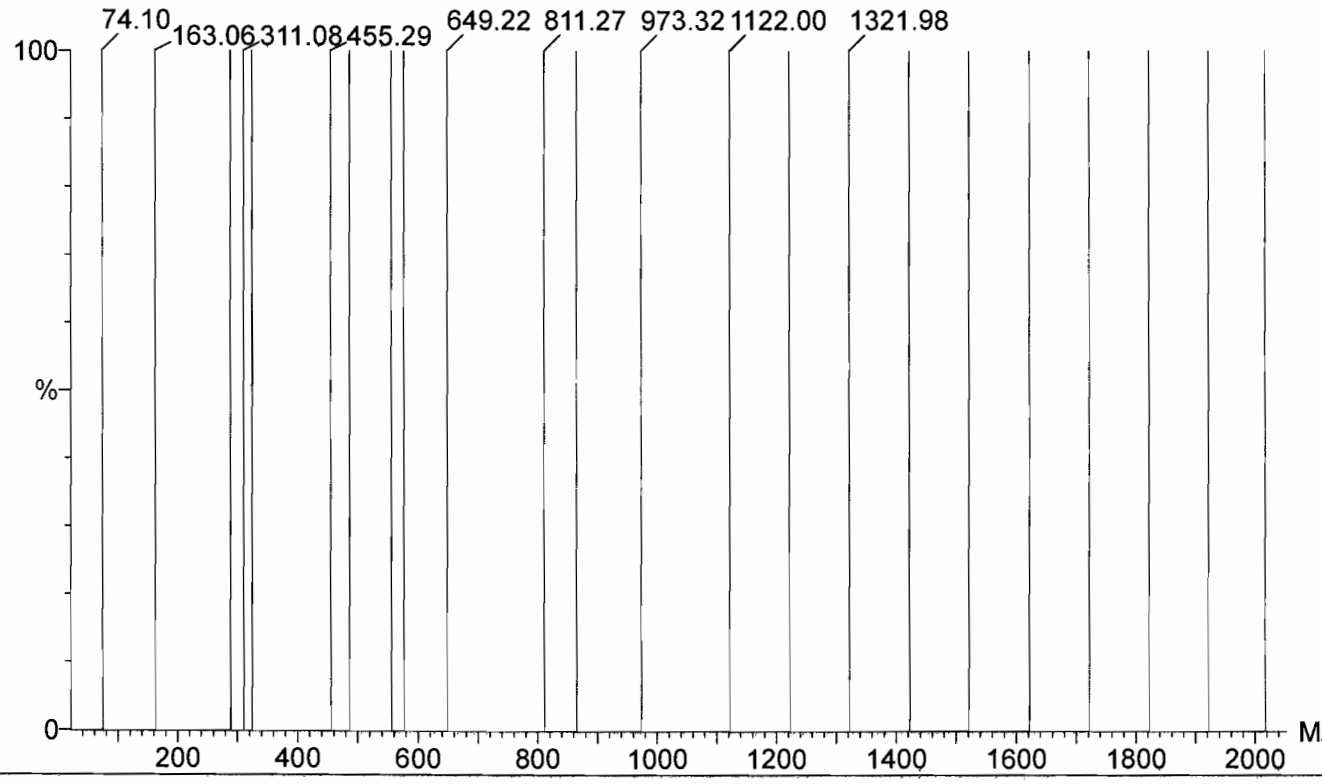



Data file: STATMS2V - Calibrated
22 matches of 23 tested references
100
%
0
455.31
1321.96
1221.98
1421.94
1121.99
325.11
1521.93
163.08
1621.91
487.17
556.28
649.22
811.26
973.30
1721.92
2017.58
1821.89
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref
Mean residual = 0.0214 amu
74.10
163.06
311.08
455.29
649.22
811.27
973.32
1122.00
1321.98
100
%
0
200
400
600
800
1000
1200
1400
1600
1800
2000
M/z

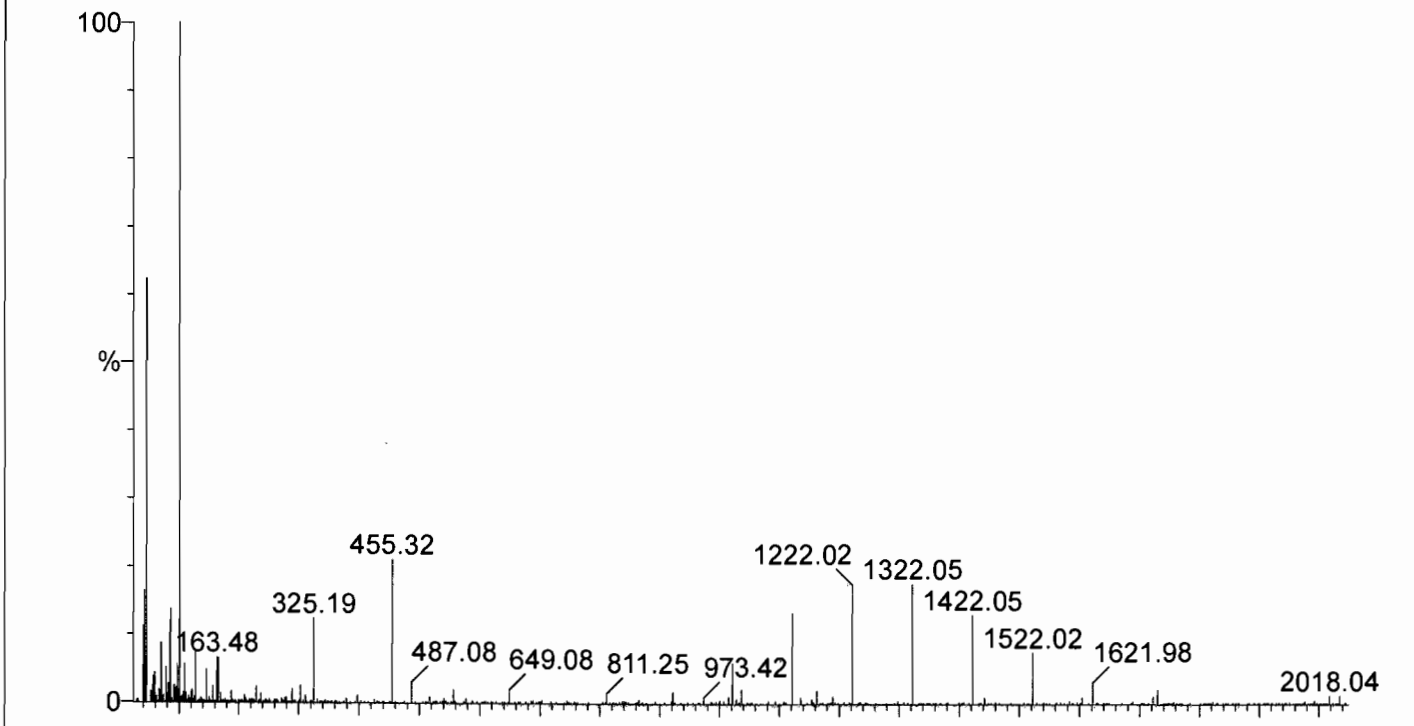
Data file: SCNMS2V - Calibrated 23 matches of 23 tested references



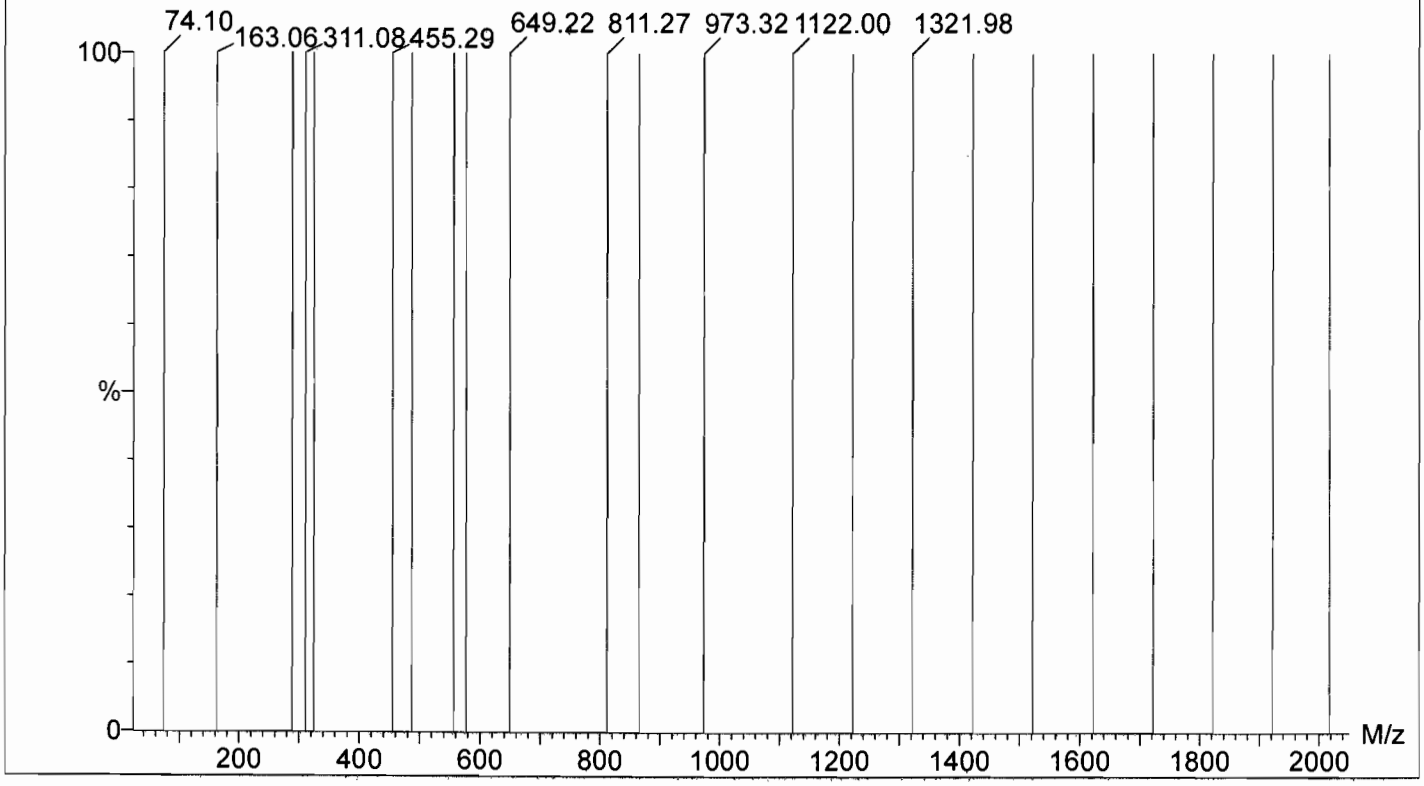
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.115 amu



Data file: FASTMS2V - Calibrated 23 matches of 23 tested references



Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.119 amu

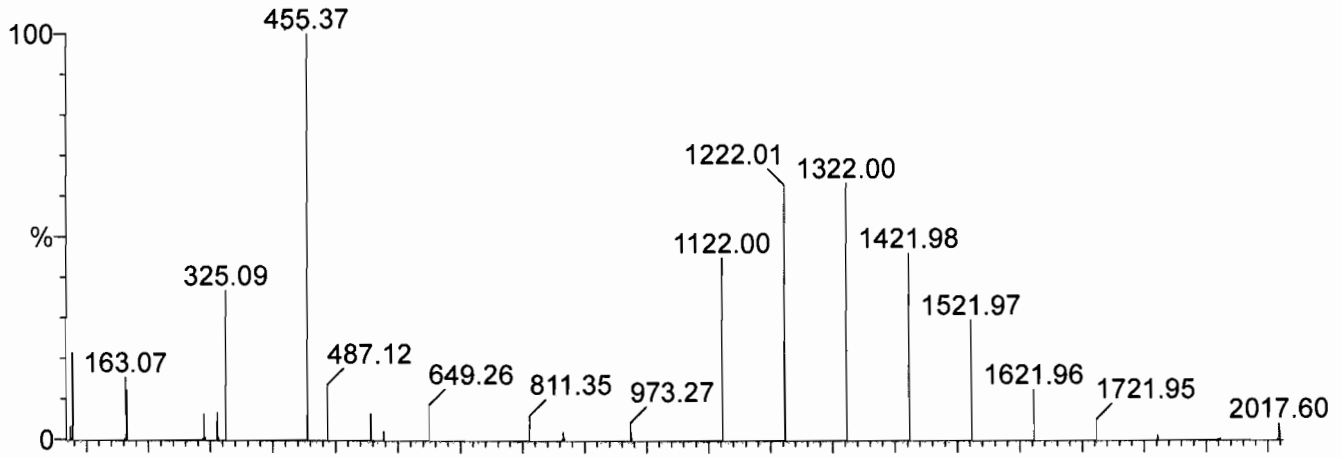


Tunecheck Q4 (M) 11-26-18

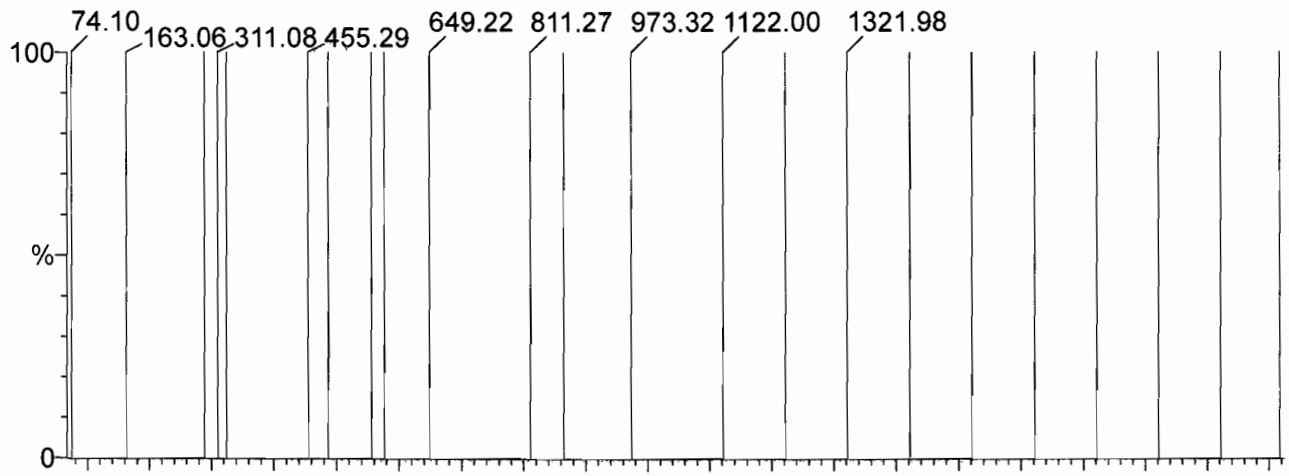
Calibration Report - MS1 Static 20181126-4

Printed: **Mon Nov 26 10:09:13 2018**

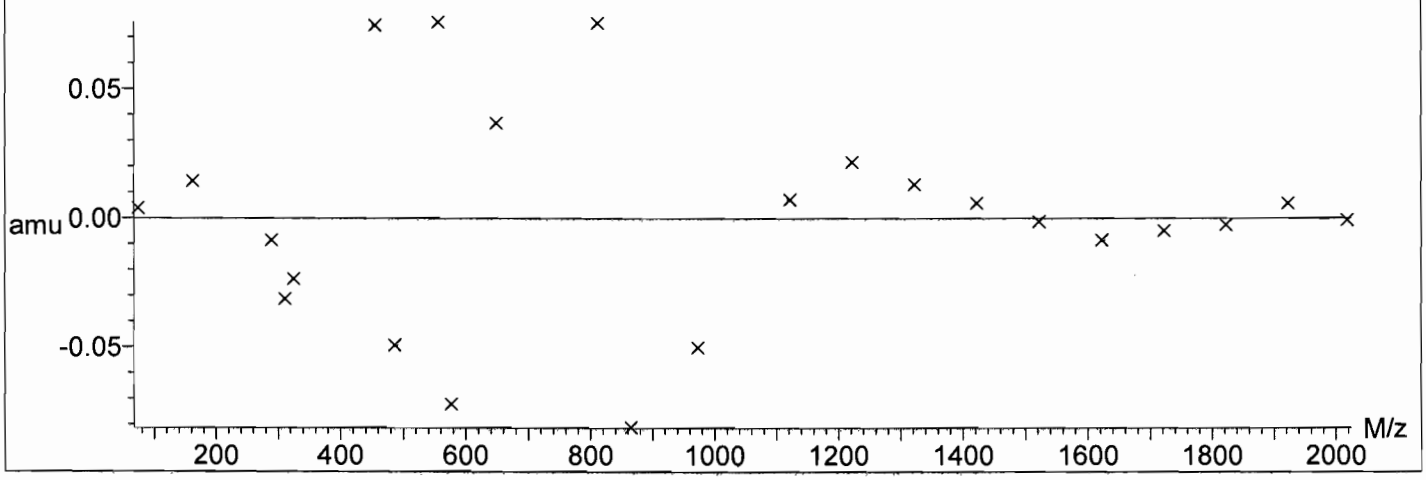
Data file: STATMS1 - Calibrated 23 matches of 23 tested references



Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0291 amu

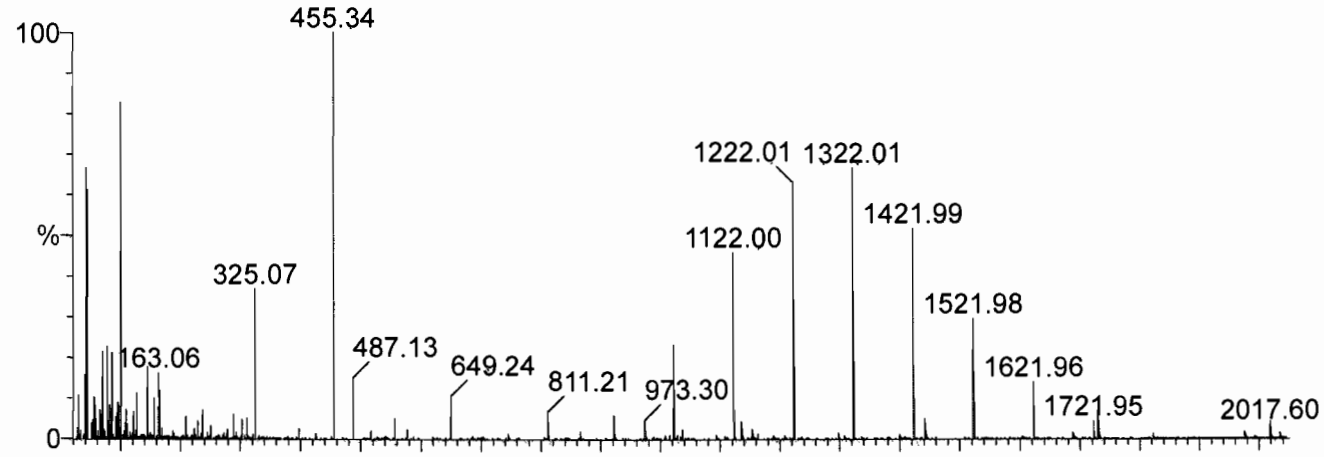


Residual Polynomial order = 4 RMS residual = 0.0405 amu

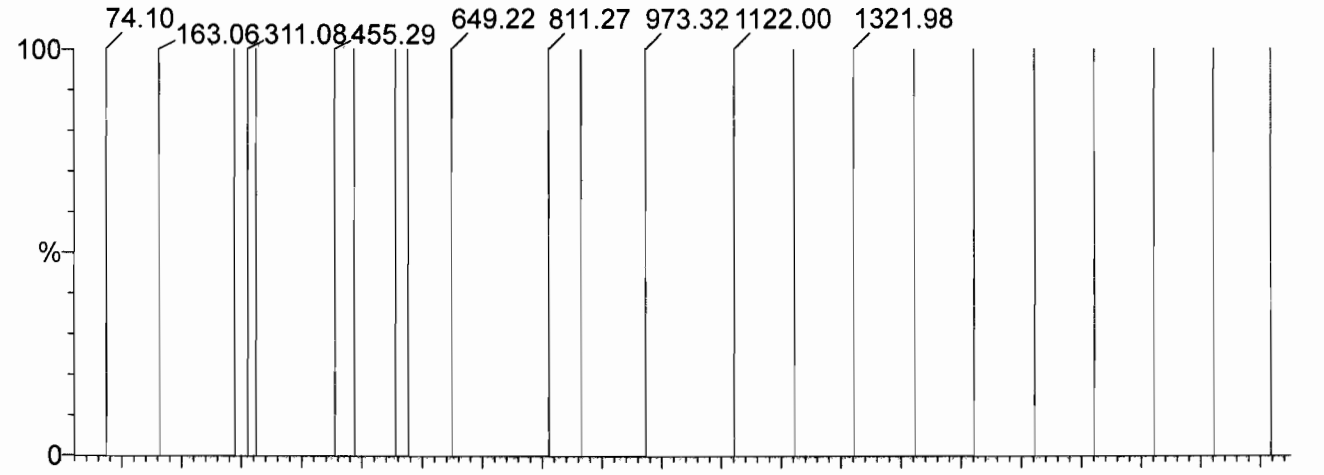


Printed: **Mon Nov 26 10:10:23 2018**

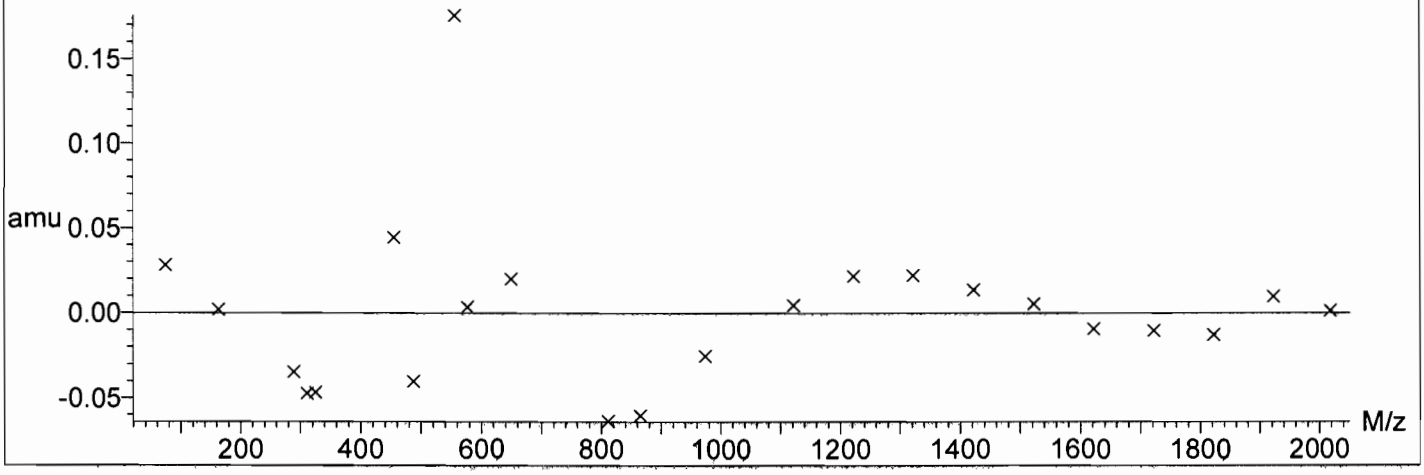
Data file: SCNMS1 - Calibrated 23 matches of 23 tested references



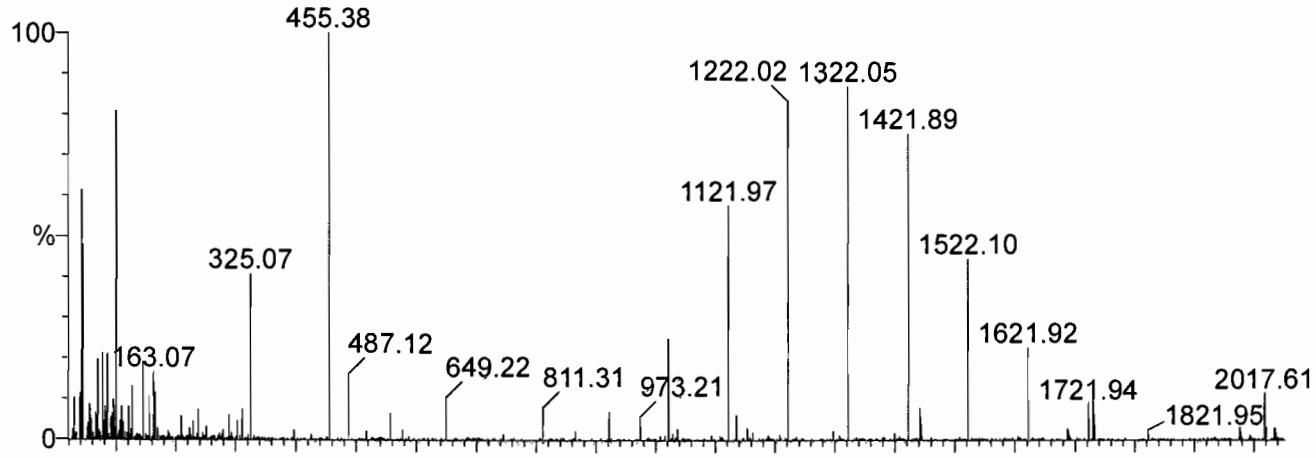
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0306 amu



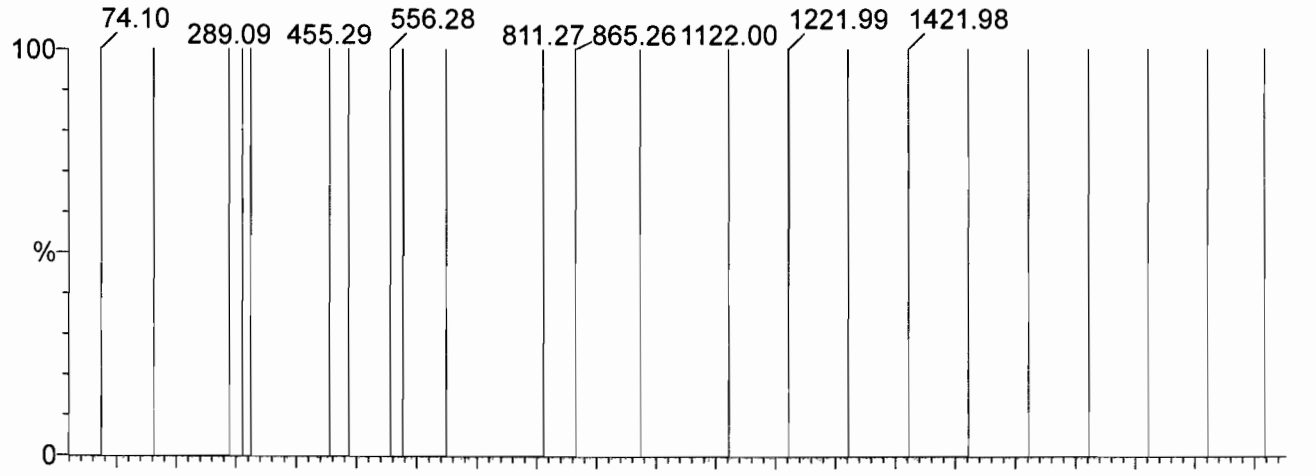
Residual Polynomial order = 4 RMS residual = 0.0472 amu



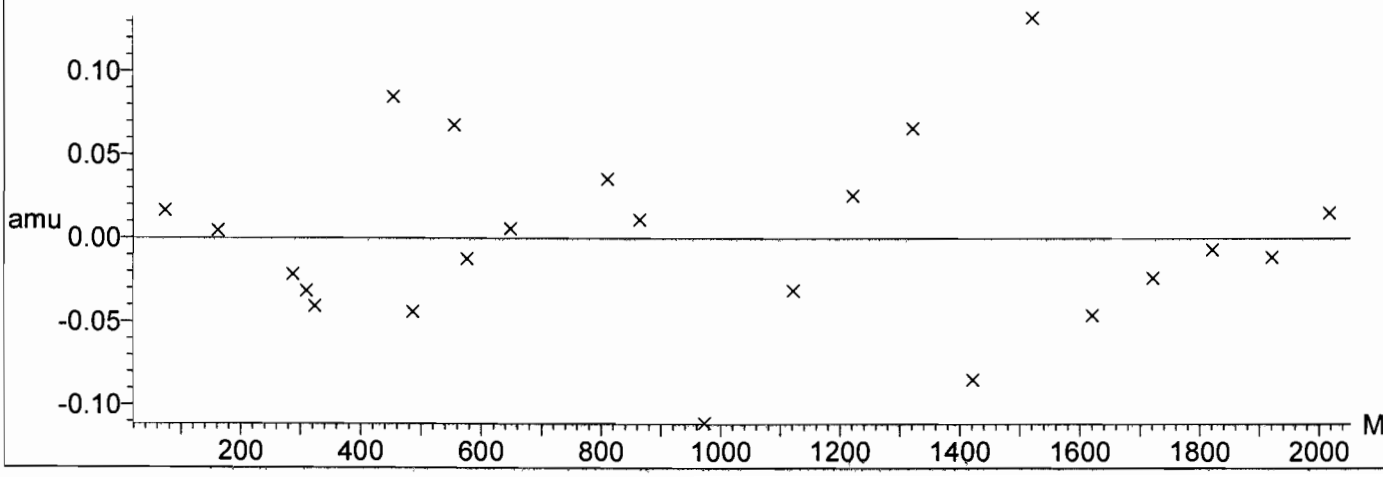
Data file: FASTMS1 - Calibrated 23 matches of 23 tested references



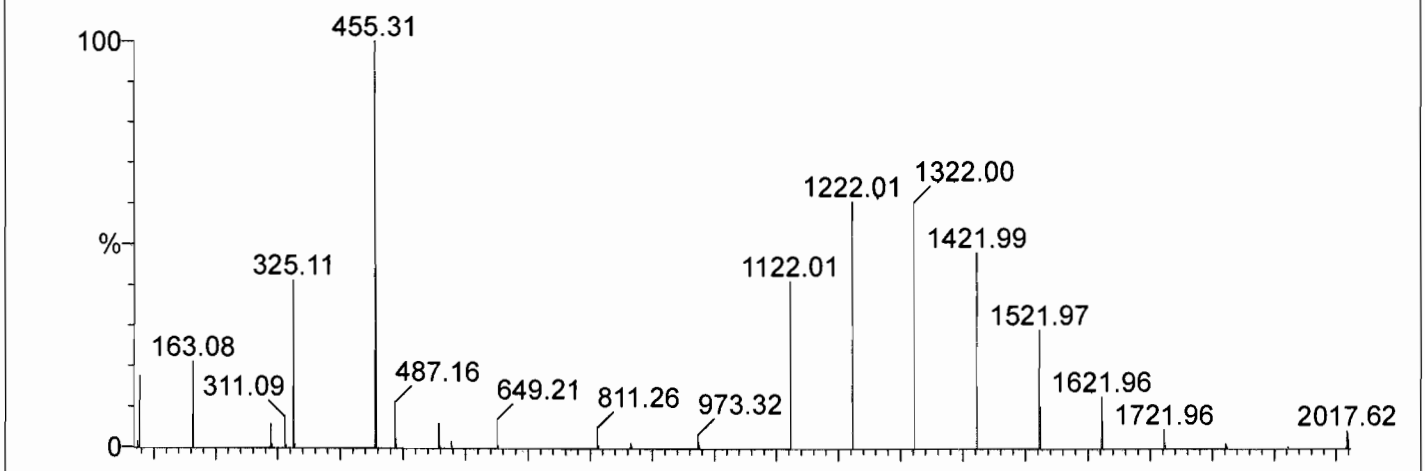
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0404 amu



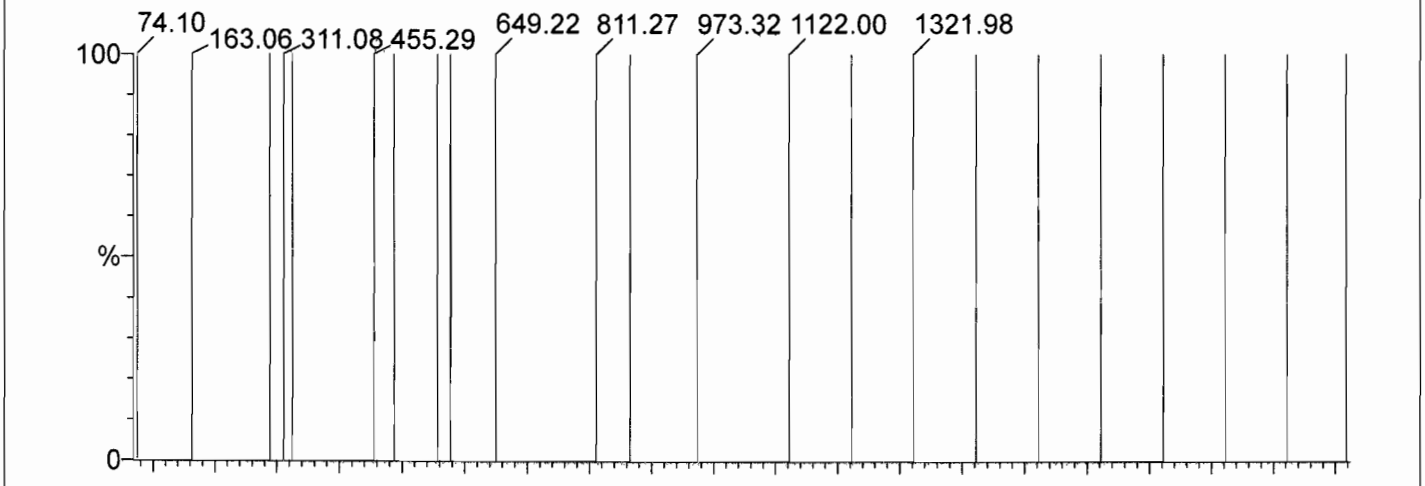
Residual Polynomial order = 4 RMS residual = 0.0531 amu



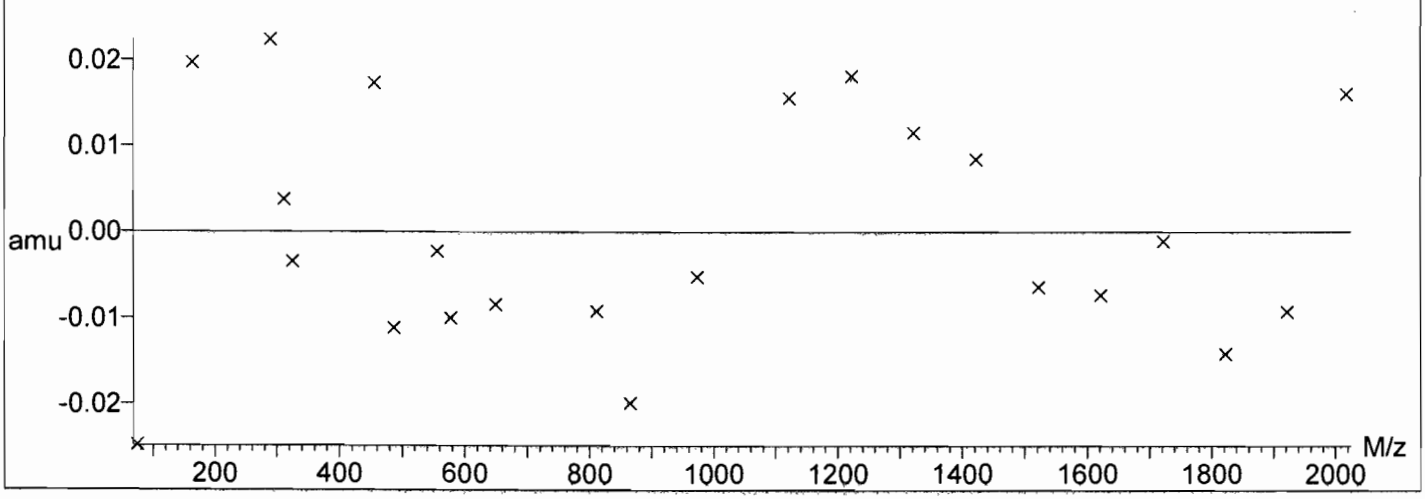
Data file: STATMS2 - Calibrated 23 matches of 23 tested references



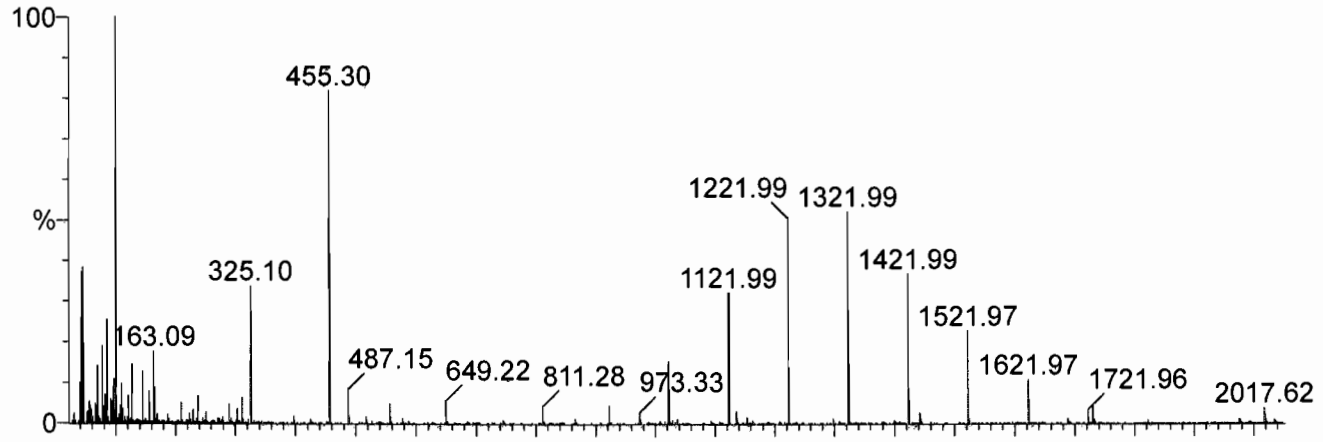
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0116 amu



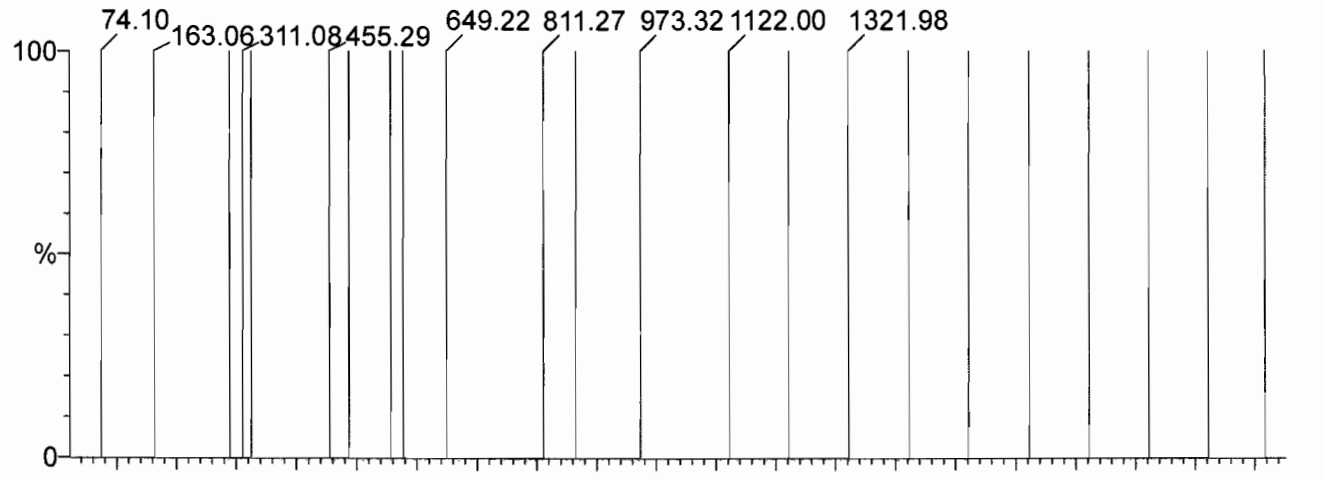
Residual Polynomial order = 4 RMS residual = 0.0133 amu



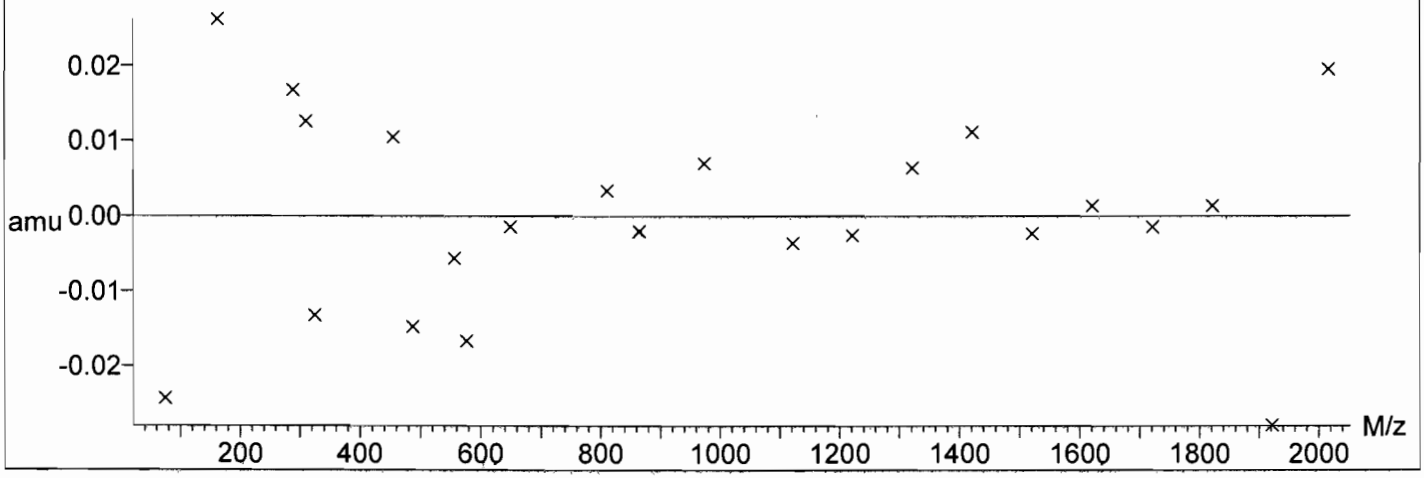
Data file: SCNMS2 - Calibrated 23 matches of 23 tested references



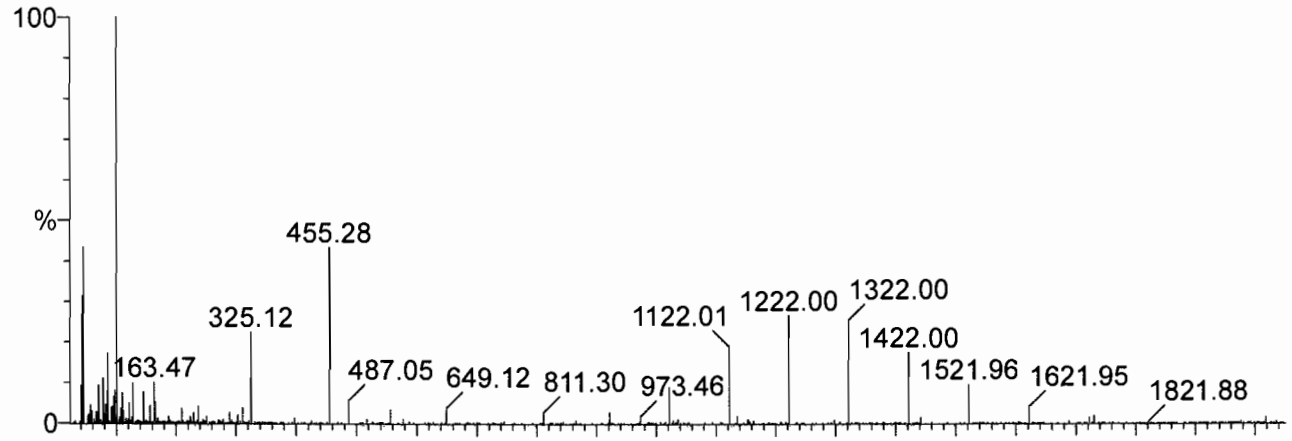
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0101 amu



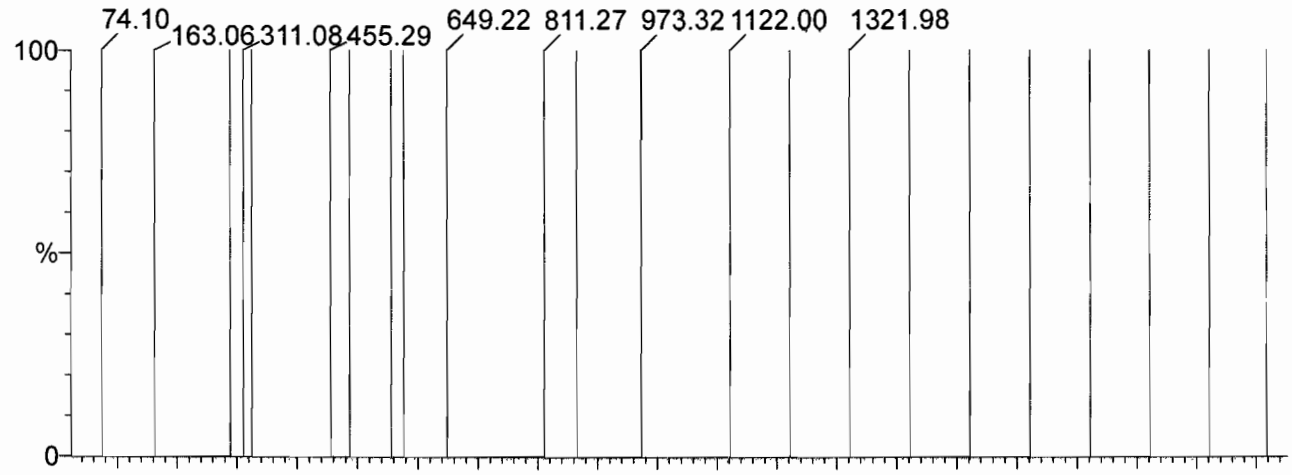
Residual Polynomial order = 4 RMS residual = 0.0131 amu



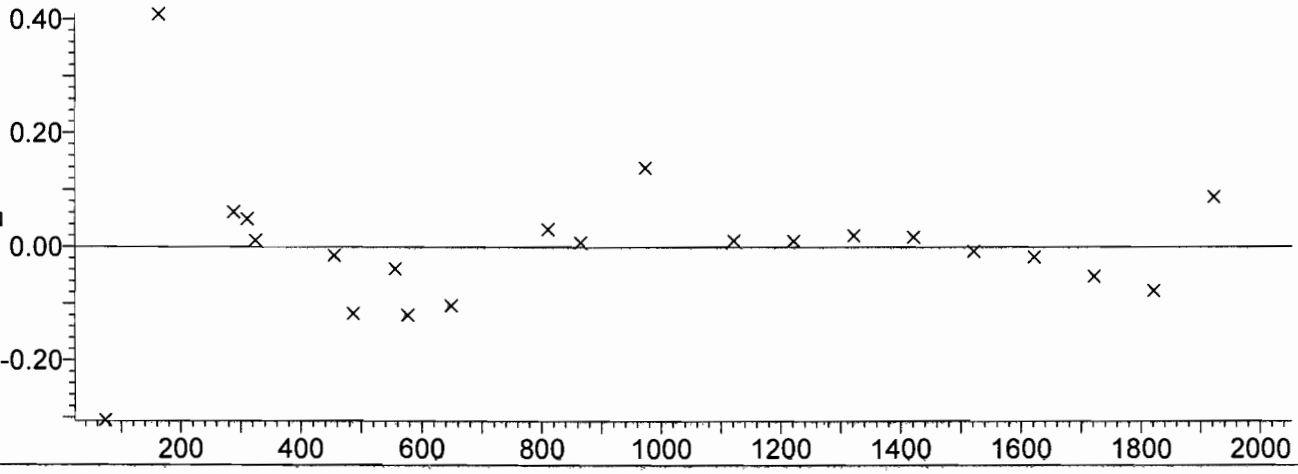
Data file: FASTMS2 - Calibrated 22 matches of 23 tested references



Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0777 amu



Residual Polynomial order = 4 RMS residual = 0.125 amu

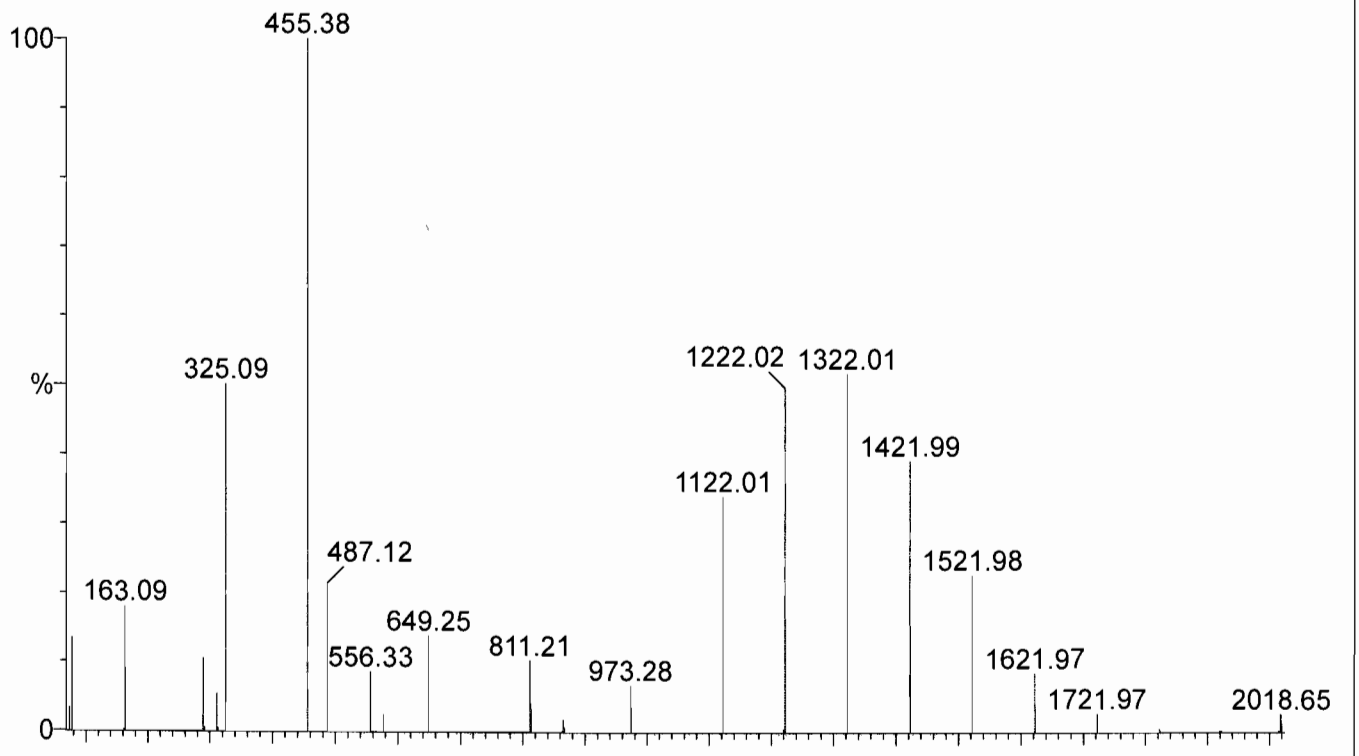


Tunecheck
Q4 (M)

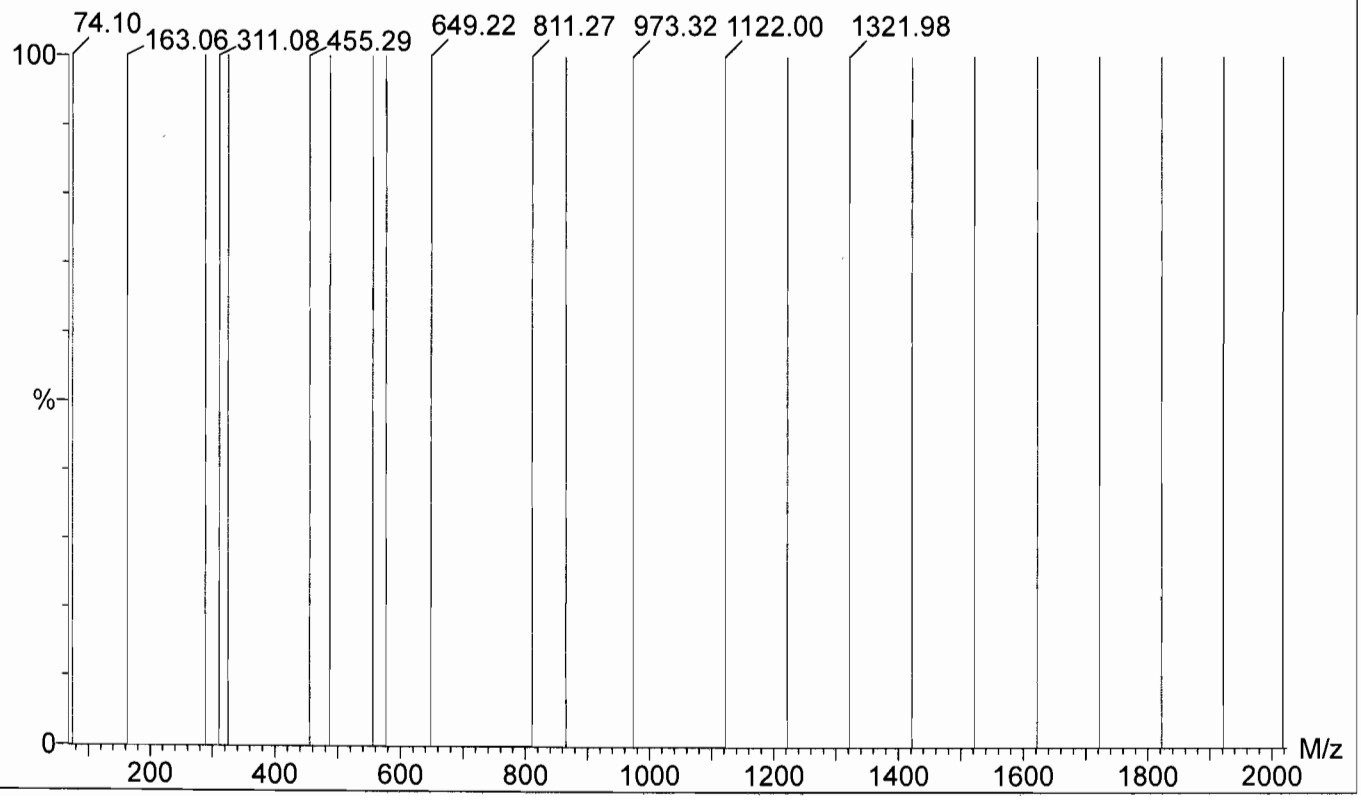
Calibration Verification Report - MS1 Static 11-28-18 **Page 1 of 6**

Printed: **Wed Nov 28 10:44:09 2018** 201826-4

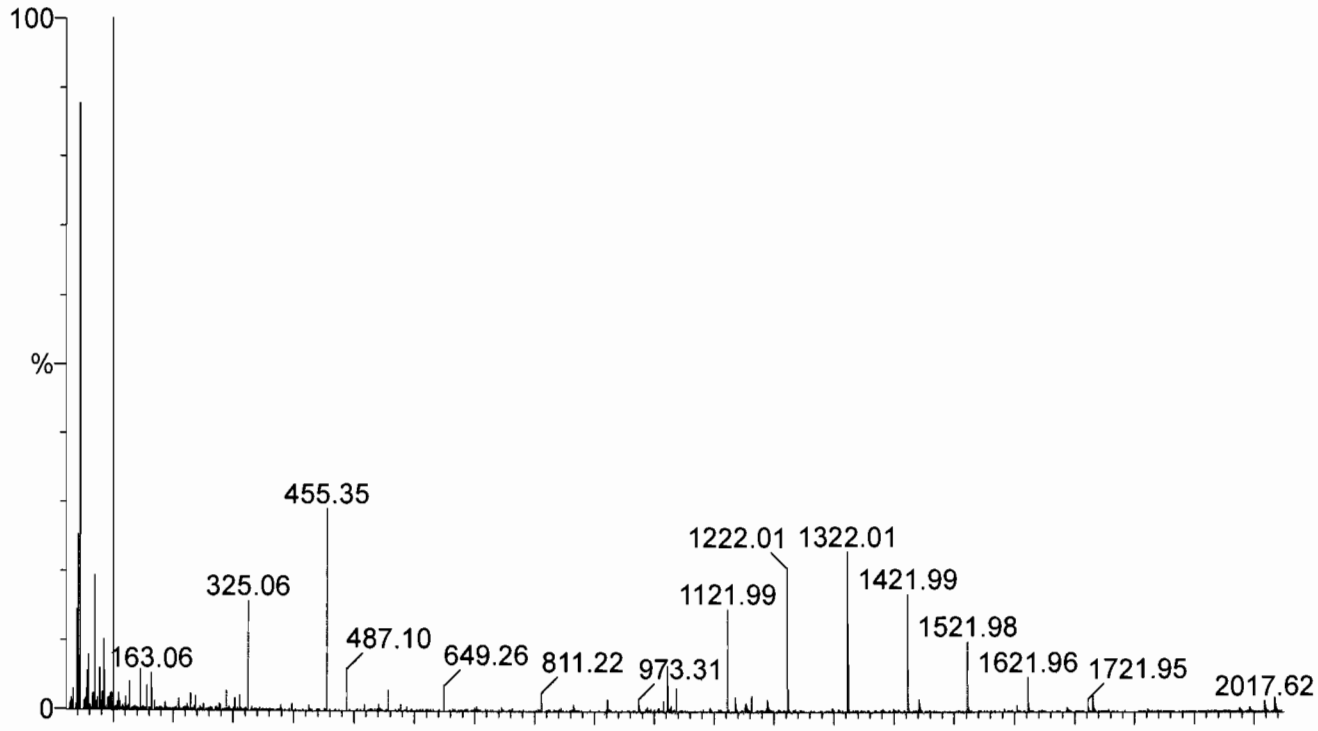
Data file: STATMS1V - Calibrated 22 matches of 23 tested references



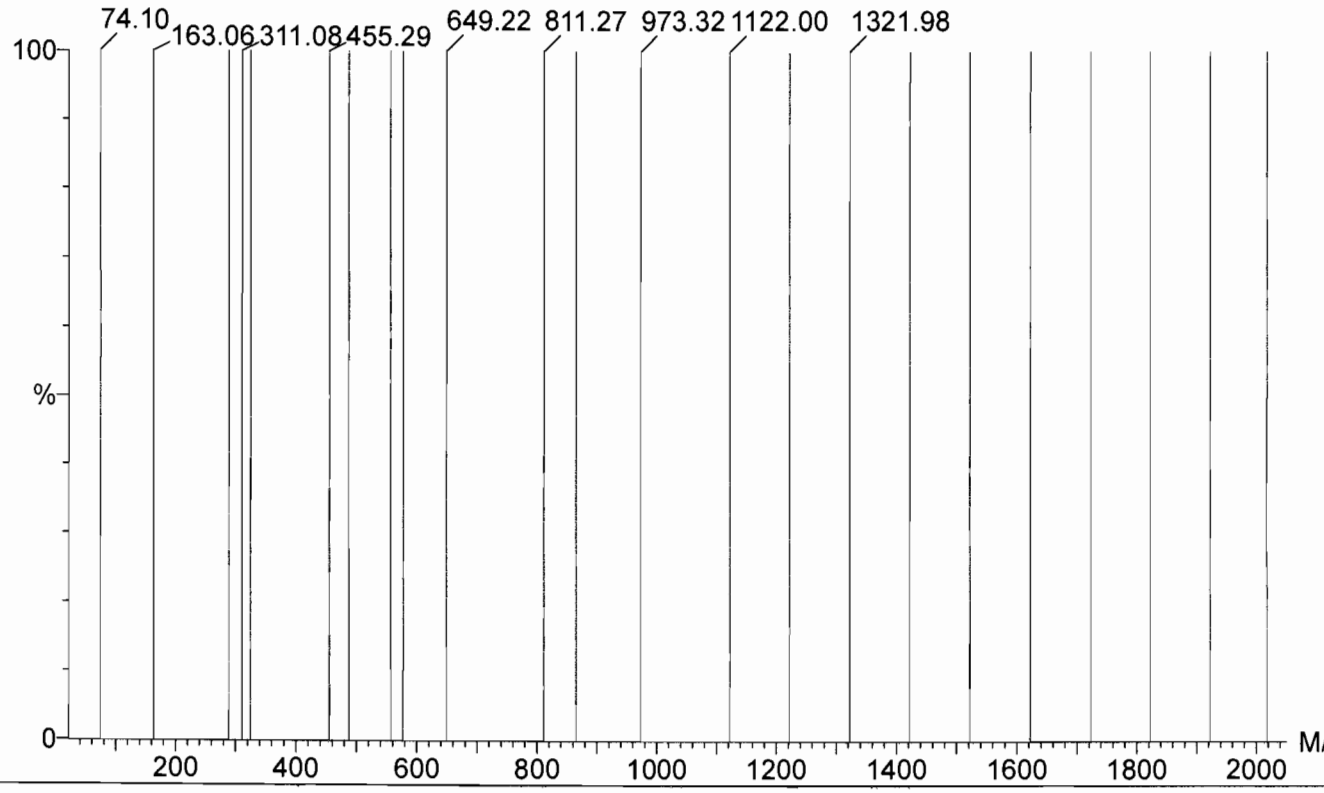
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0801 amu



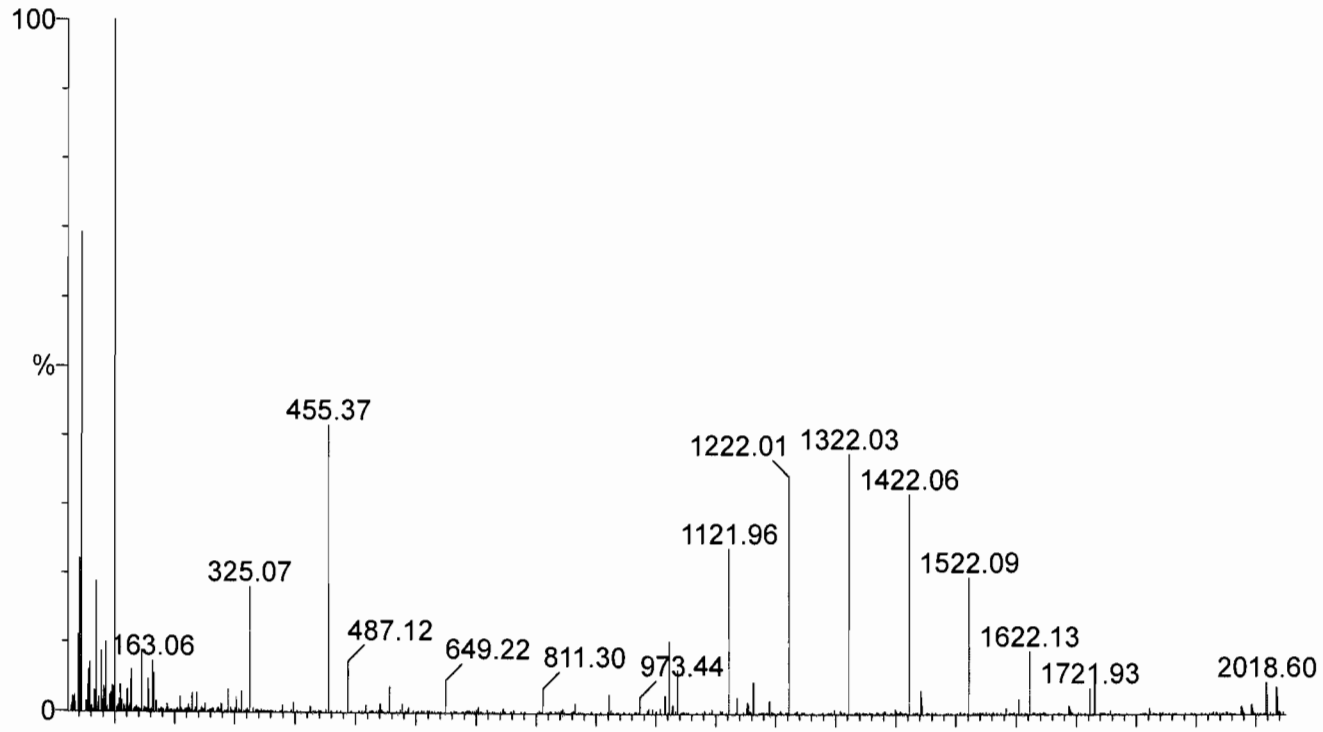
Data file: SCNMS1V - Calibrated 23 matches of 23 tested references



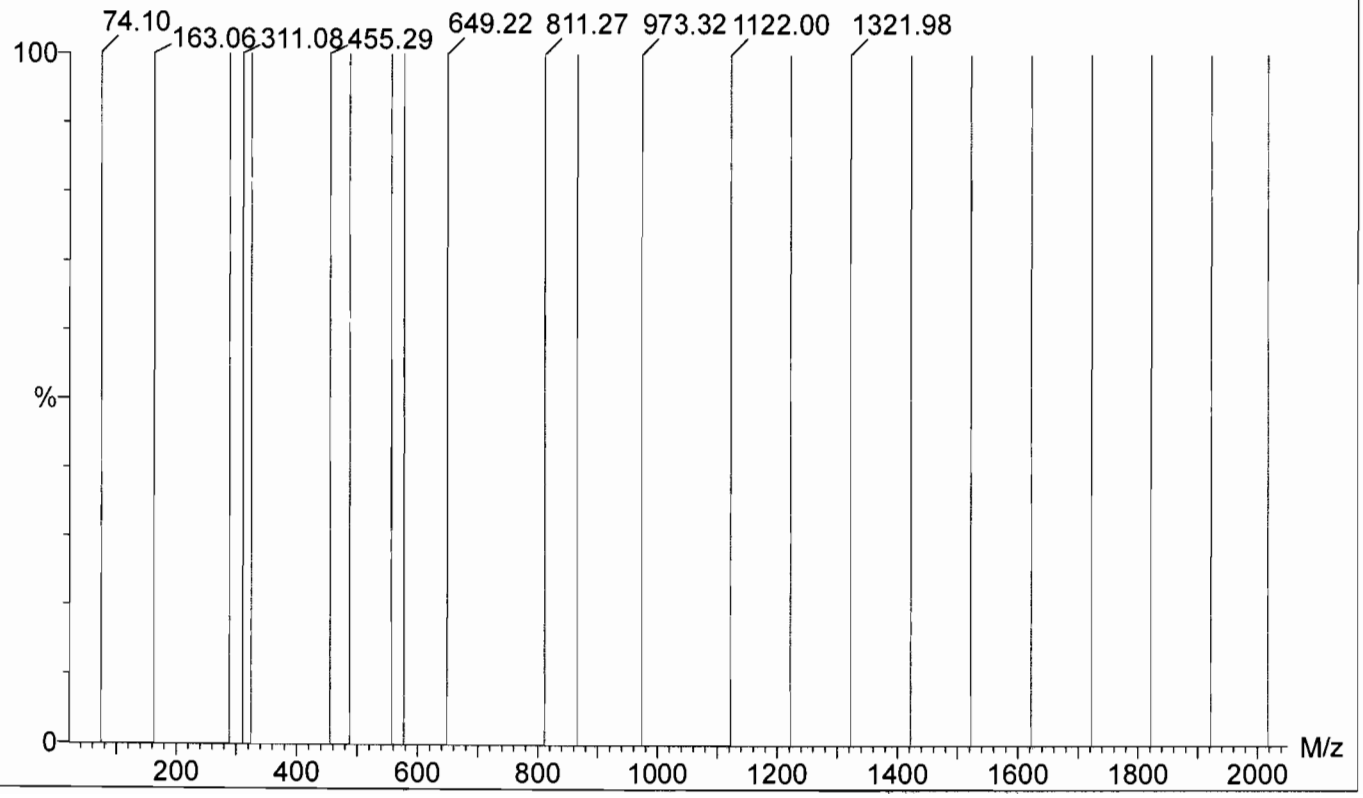
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0711 amu



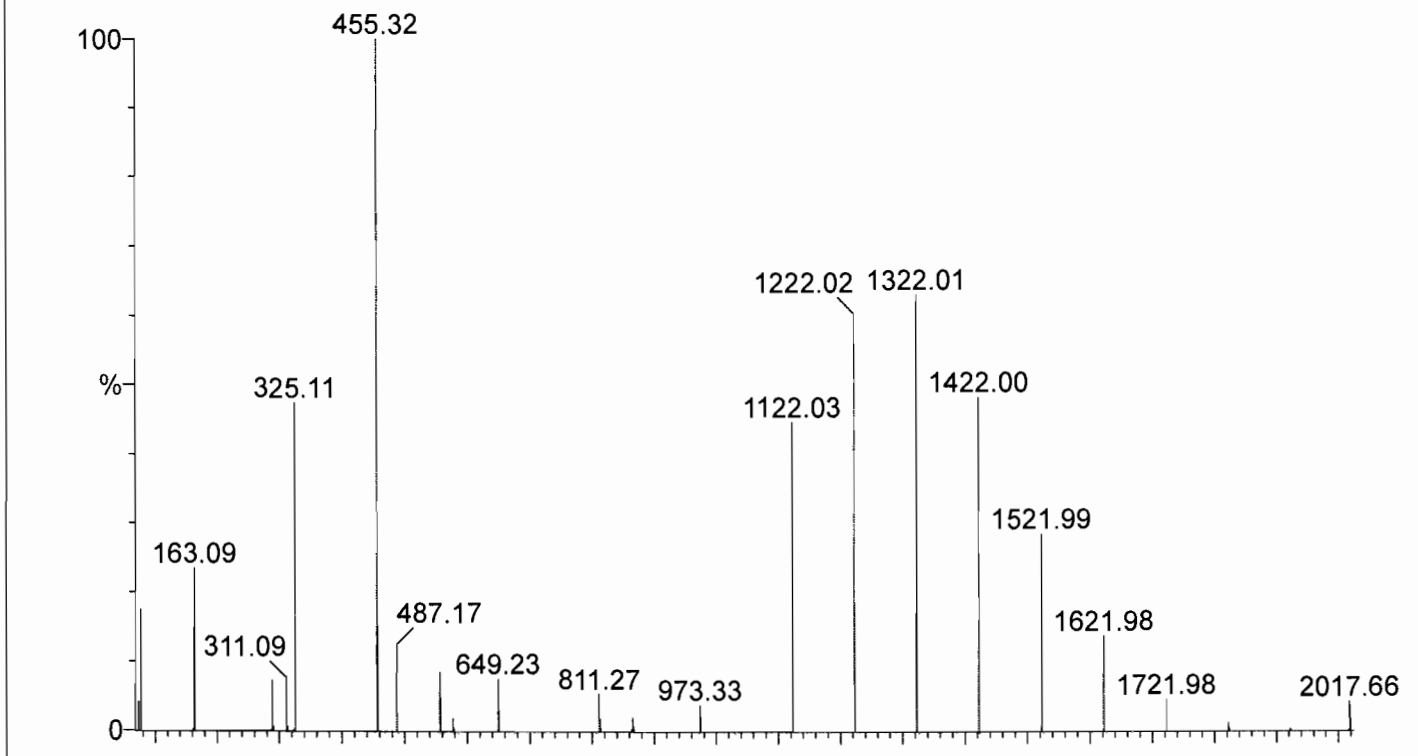
Data file: FASTMS1V - Calibrated 22 matches of 23 tested references



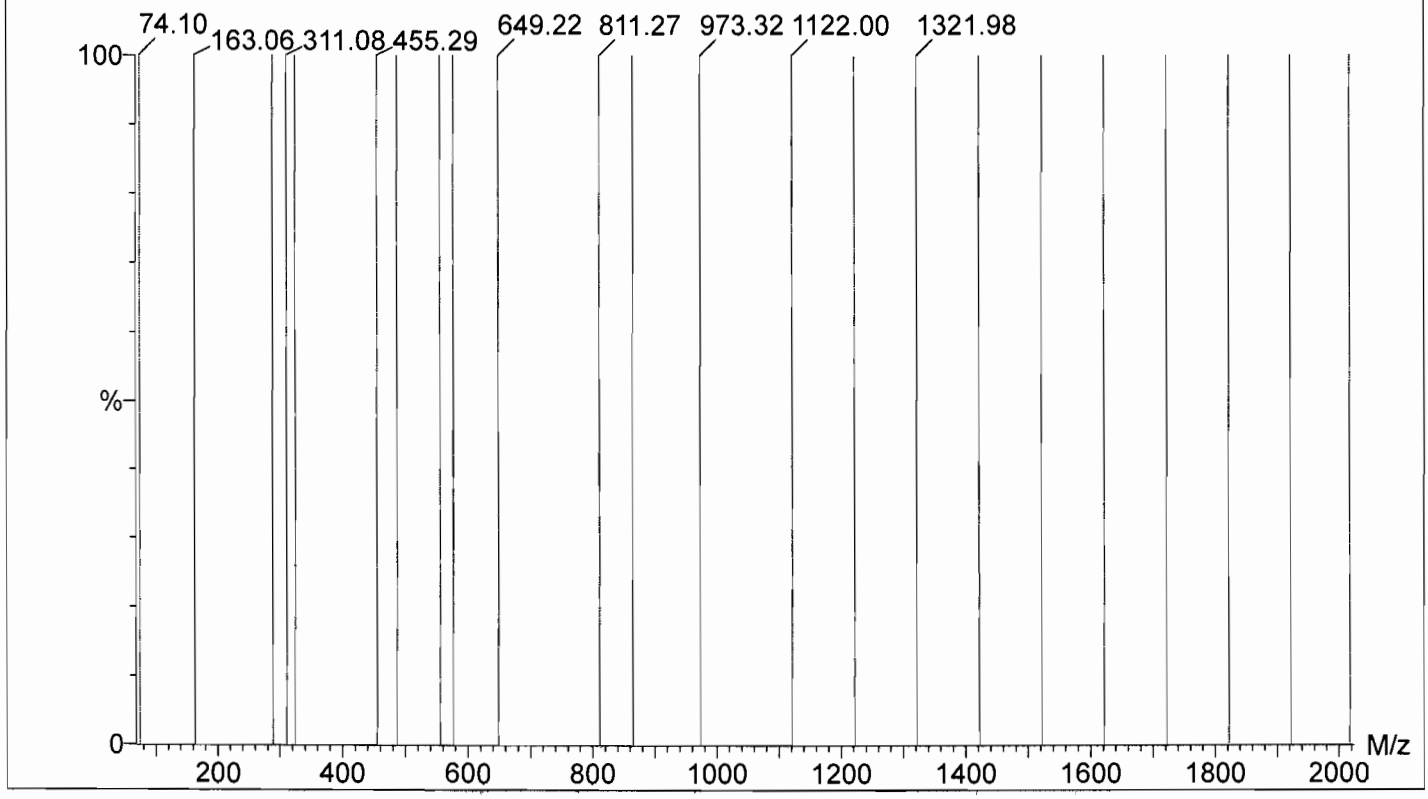
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.107 amu



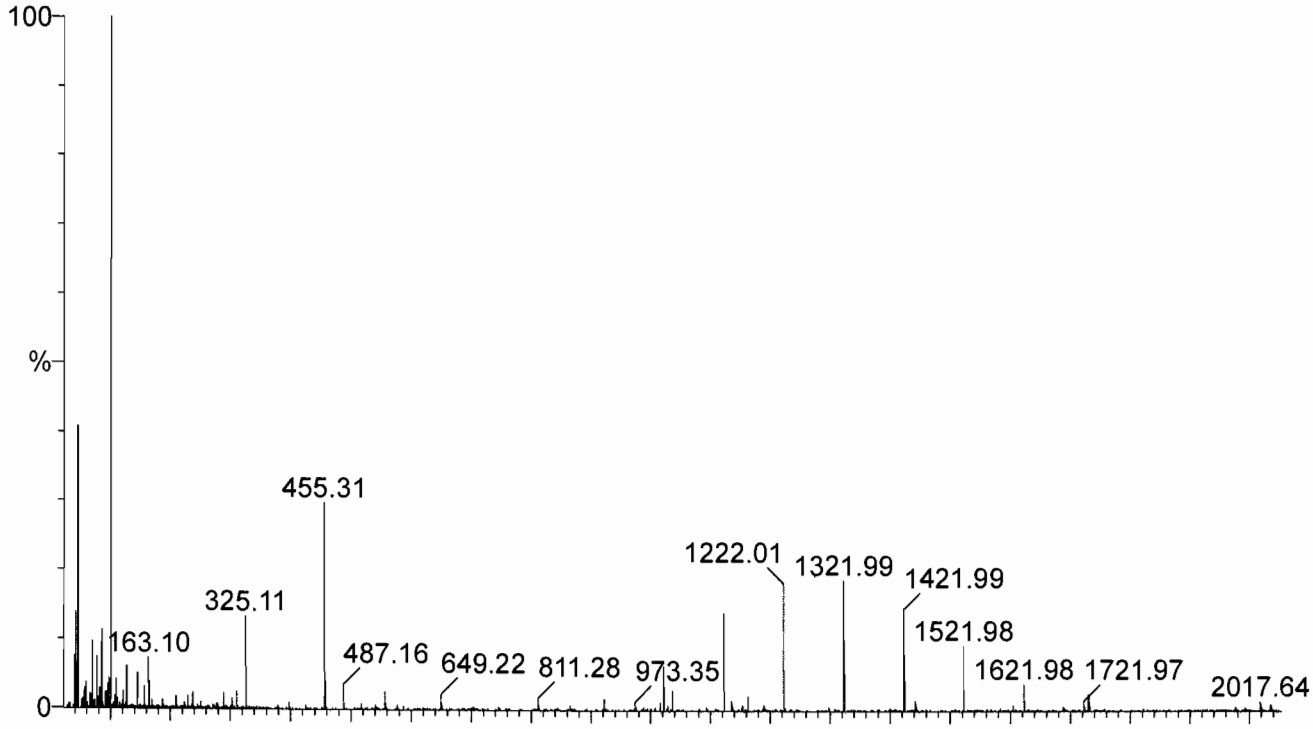
Data file: STATMS2V - Calibrated 22 matches of 23 tested references



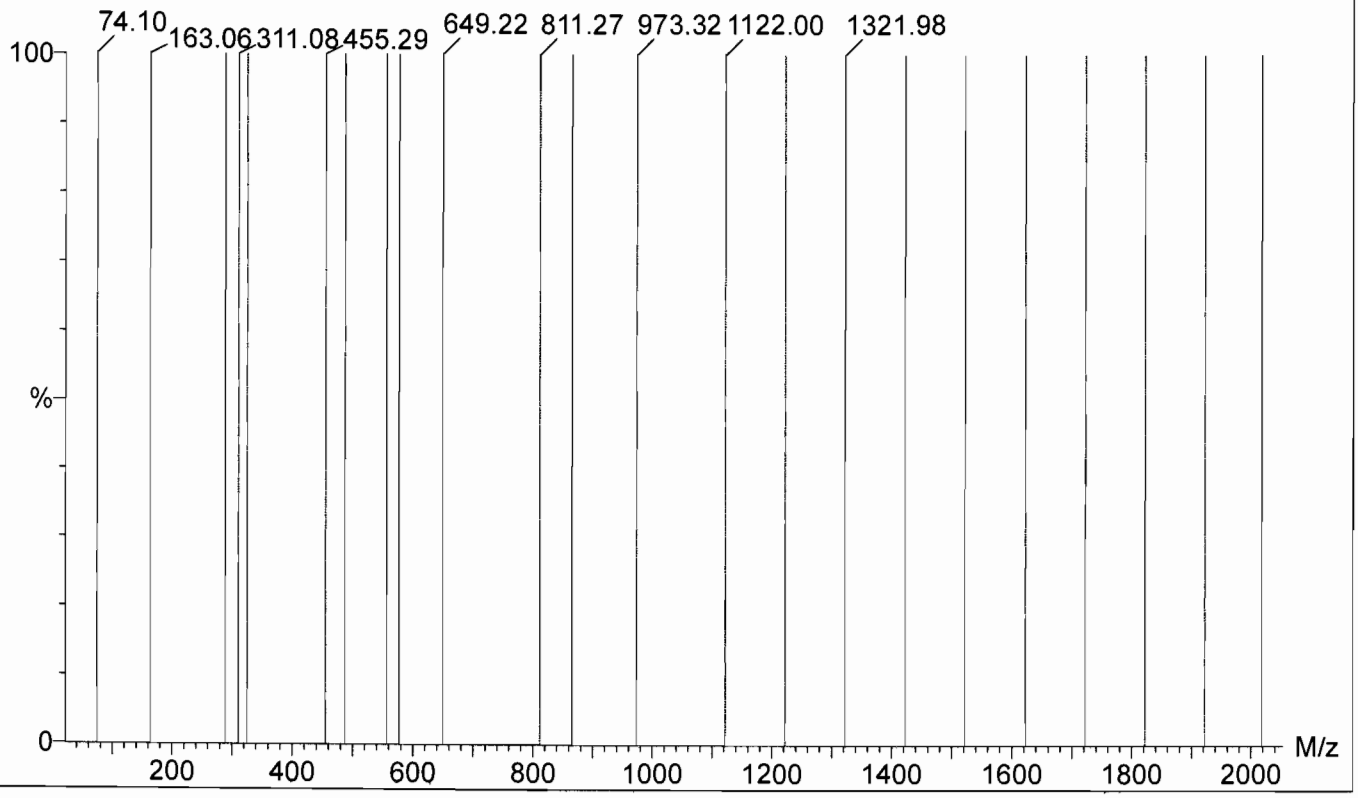
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0187 amu



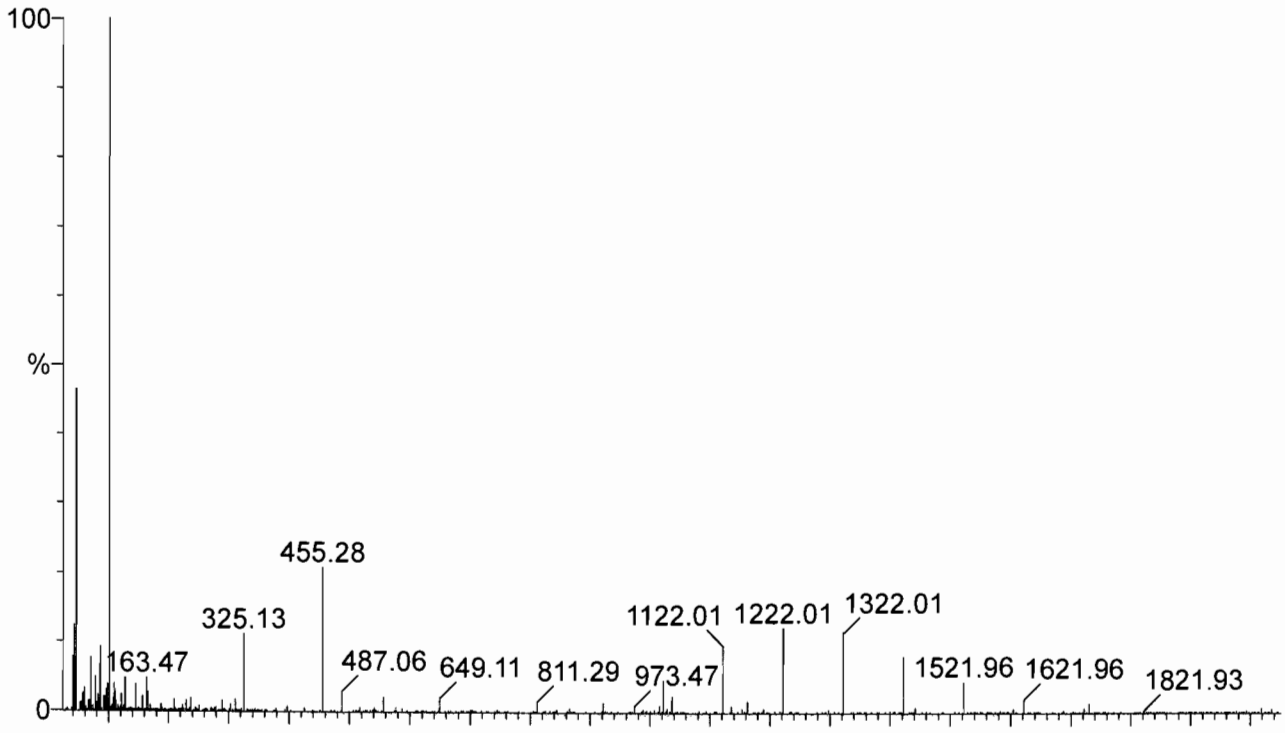
Data file: SCNMS2V - Calibrated 23 matches of 23 tested references



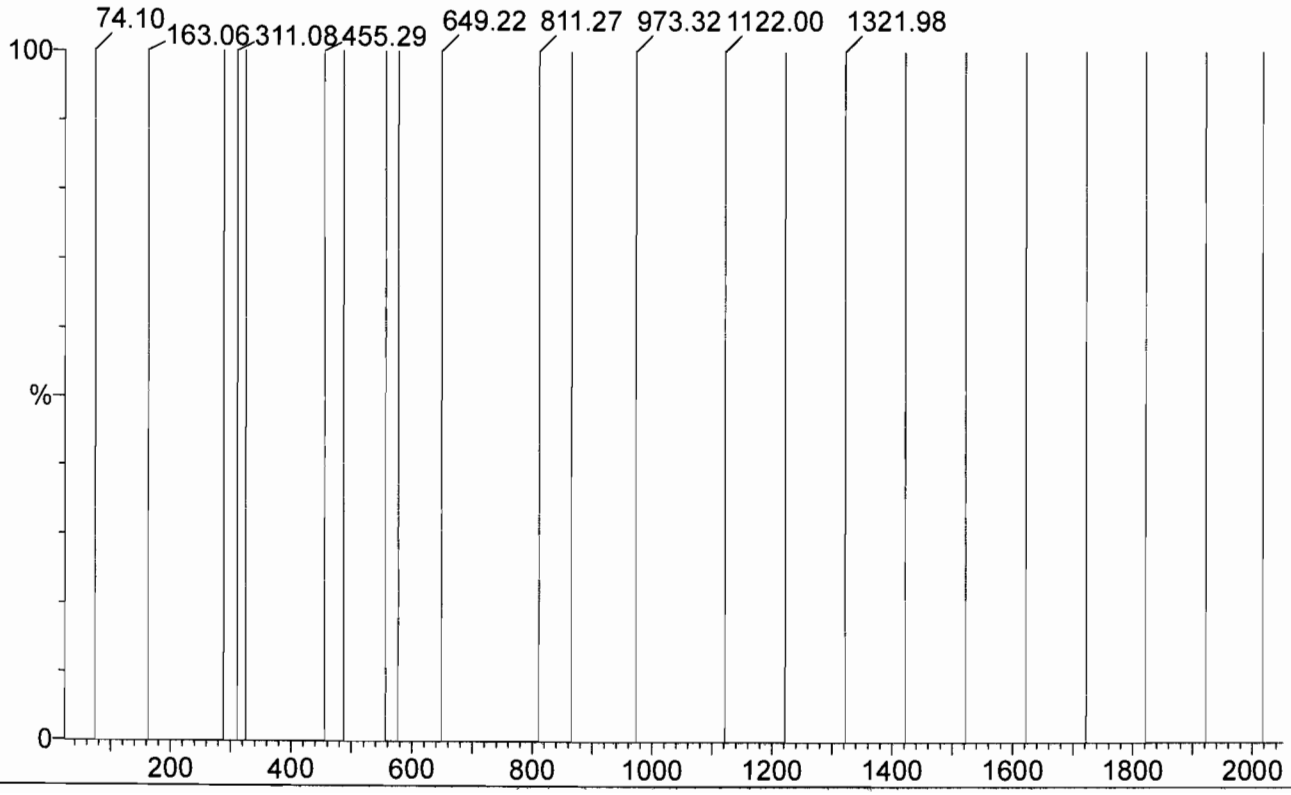
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0179 amu



Data file: FASTMS2V - Calibrated 22 matches of 23 tested references



Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0737 amu



STANDARDS

Analytical Standard Record

Vista Analytical Laboratory

18J1502

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	(mls)
18F2208	13C2-4:2 FTS	22-Jun-18	** Vendor **	01-Sep-22	1.07
18F2209	13C2-6:2 FTS	22-Jun-18	** Vendor **	16-Feb-23	1.05
18F2210	13C2-8:2 FTS	22-Jun-18	** Vendor **	24-Jan-23	1.04
18F2211	13C3-PFBA	22-Jun-18	** Vendor **	14-Dec-22	1
18F2212	13C2-PFDA	22-Jun-18	** Vendor **	16-Feb-23	1
18F2213	13C2-PFUdA	22-Jun-18	** Vendor **	22-Nov-21	1
18F2214	13C2-PFTeDA	22-Jun-18	** Vendor **	30-Nov-22	1
18F2215	13C5-PFNA	22-Jun-18	** Vendor **	14-Dec-22	1
18F2216	13C2-PFDoA	22-Jun-18	** Vendor **	16-Feb-23	1
18F2217	13C4-PFHpA	22-Jun-18	** Vendor **	03-May-22	1
18F2218	13C2-PFOA	22-Jun-18	** Vendor **	26-Oct-22	1
18F2219	13C3-PFPeA	22-Jun-18	** Vendor **	20-Mar-22	1
18F2220	13C8-FOSA-I	22-Jun-18	** Vendor **	11-Oct-22	1
18F2221	d3-N-Me-FOSAA	22-Jun-18	** Vendor **	08-Nov-22	1
18F2222	d5-N-EtFOSAA	22-Jun-18	** Vendor **	08-Nov-22	1
18F2223	13C3-PFBS	22-Jun-18	** Vendor **	15-Feb-23	1.076
18F2224	13C8-PFOS	22-Jun-18	** Vendor **	08-Nov-22	1.05
18F2225	18O2-PFHxS	22-Jun-18	** Vendor **	22-Mar-23	1.058
18F2226	13C2-PFHxDA	22-Jun-18	** Vendor **	13-Jul-22	0.4
18F2227	13C2-PFHxA	22-Jun-18	** Vendor **	27-Oct-22	0.4

Description:	PFC - IS	Expires:	15-Oct-20
Standard Type:	Reagent	Prepared:	15-Oct-18
Solvent:	MeOH	Prepared By:	Giana R. Bilotta
Final Volume (mls):	40	Department:	LCMS
Vials:	1	Last Edit:	15-Oct-18 08:57 by GRB

Analyte	CAS Number	Concentration	Units
13C3-PFBA		1.25	ug/mL
13C2-6:2 FTS		1.25	ug/mL
13C2-8:2 FTS		1.25	ug/mL
13C2-PFDA		1.25	ug/mL
13C2-PFDoA		1.25	ug/mL
13C2-PFHxA		0.5	ug/mL
13C2-PFHxDA		0.5	ug/mL
13C2-PFOA		1.25	ug/mL
13C2-4:2 FTS		1.25	ug/mL
13C2-PFUnA		1.25	ug/mL
d5-EtFOSAA		1.25	ug/mL
13C3-PFBS		1.25	ug/mL
13C3-PFPeA		1.25	ug/mL

Analytical Standard Record

Vista Analytical Laboratory

18J1502

Description:	PFC - IS	Expires:	15-Oct-20
Standard Type:	Reagent	Prepared:	15-Oct-18
Solvent:	MeOH	Prepared By:	Giana R. Bilotta
Final Volume (mls):	40	Department:	LCMS
Vials:	1	Last Edit:	15-Oct-18 08:57 by GRB

Analyte	CAS Number	Concentration	Units
13C4-PFHpA		1.25	ug/mL
13C5-PFNA		1.25	ug/mL
13C8-PFOS		1.25	ug/mL
13C8-PFOSA		1.25	ug/mL
18O2-PFHxS		1.25	ug/mL
d3-MeFOSAA		1.25	ug/mL
13C2-PFTeDA		1.25	ug/mL

~~18F2103~~ 18F2208

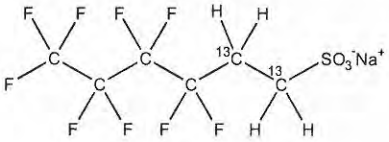
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2-4:2FTS **LOT NUMBER:** M242FTS0817

COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-$^{13}C_2$]hexane sulfonate

STRUCTURE:



CAS #: Not available

MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_4H_4F_9SO_3Na$	**MOLECULAR WEIGHT:**	352.12
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt)	**SOLVENT(S):**	Methanol
	46.7 ± 2.3 µg/ml (M2-4:2FTS anion)		
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	09/01/2017		
EXPIRY DATE: (mm/dd/yyyy)	09/01/2022		
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.
- The native 4:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 4:2FTS and M2-4:2FTS will produce signals in the m/z 329 to m/z 309 channel during SRM analysis. We recommend using the m/z 329 to m/z 81 transition to monitor for M2-4:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/29/2017 (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

18F2208

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.

HAZARDS:

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:

Where possible, all of our products are synthesized using single-product unambiguous routes. 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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. 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; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

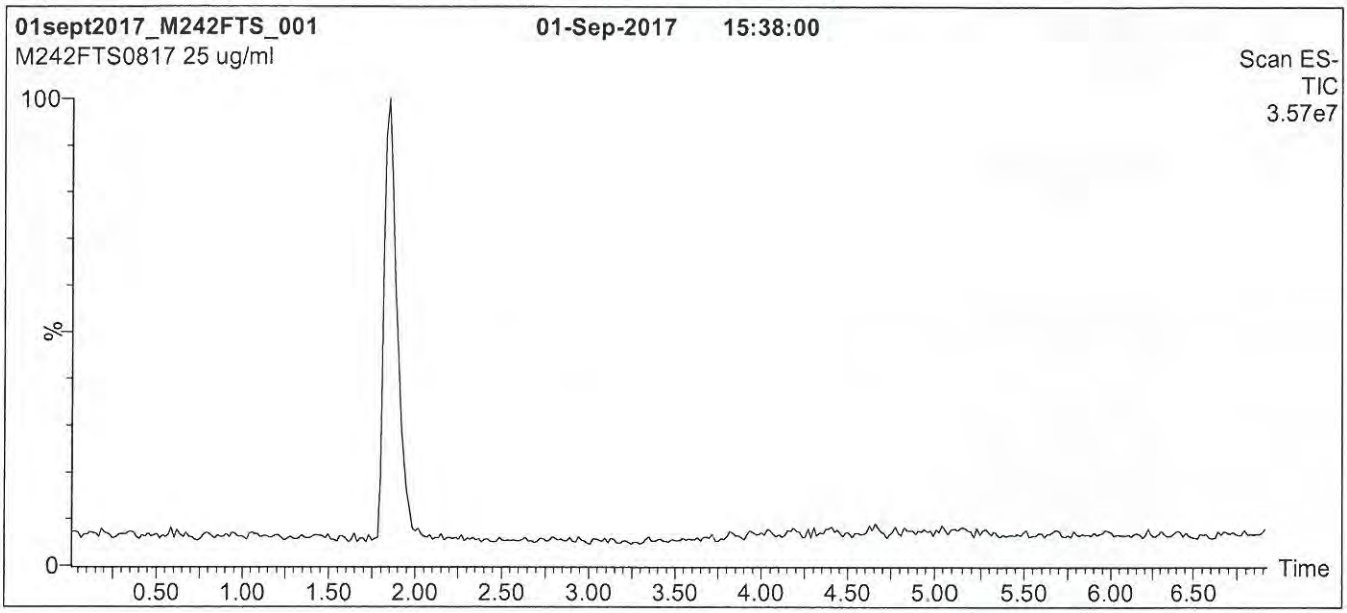
CALA

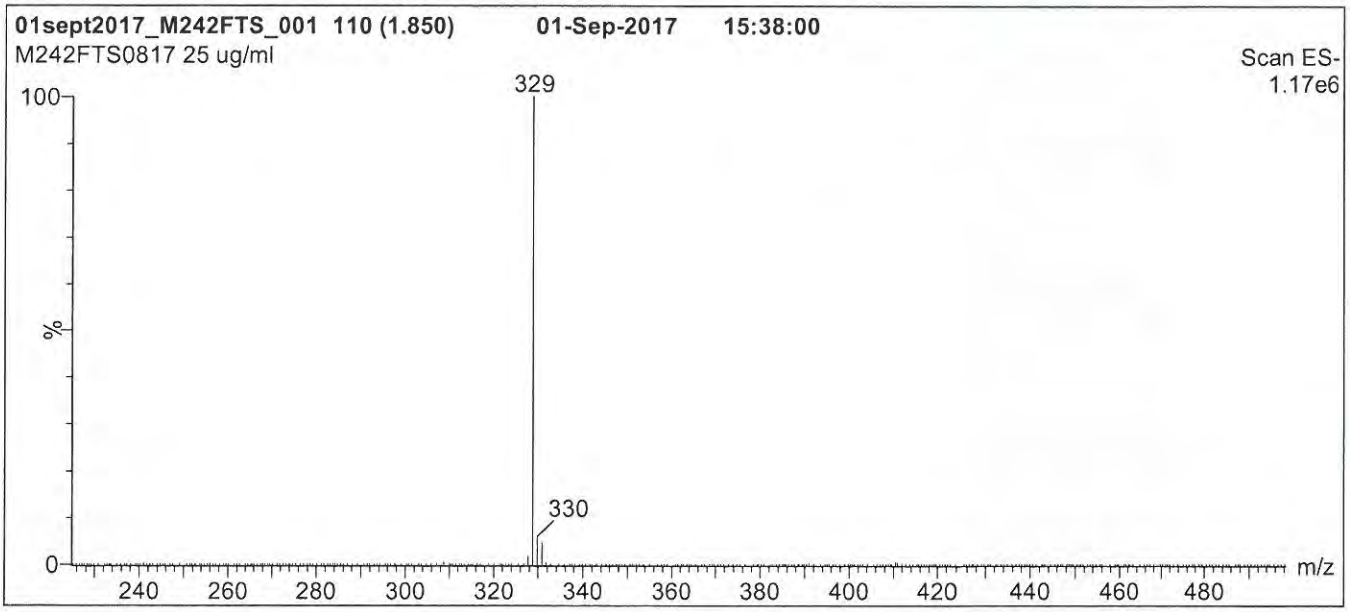
ANAB ACCREDITED

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

18F2208

Figure 1: **M2-4:2FTS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min
and hold for 1 min before returning
to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

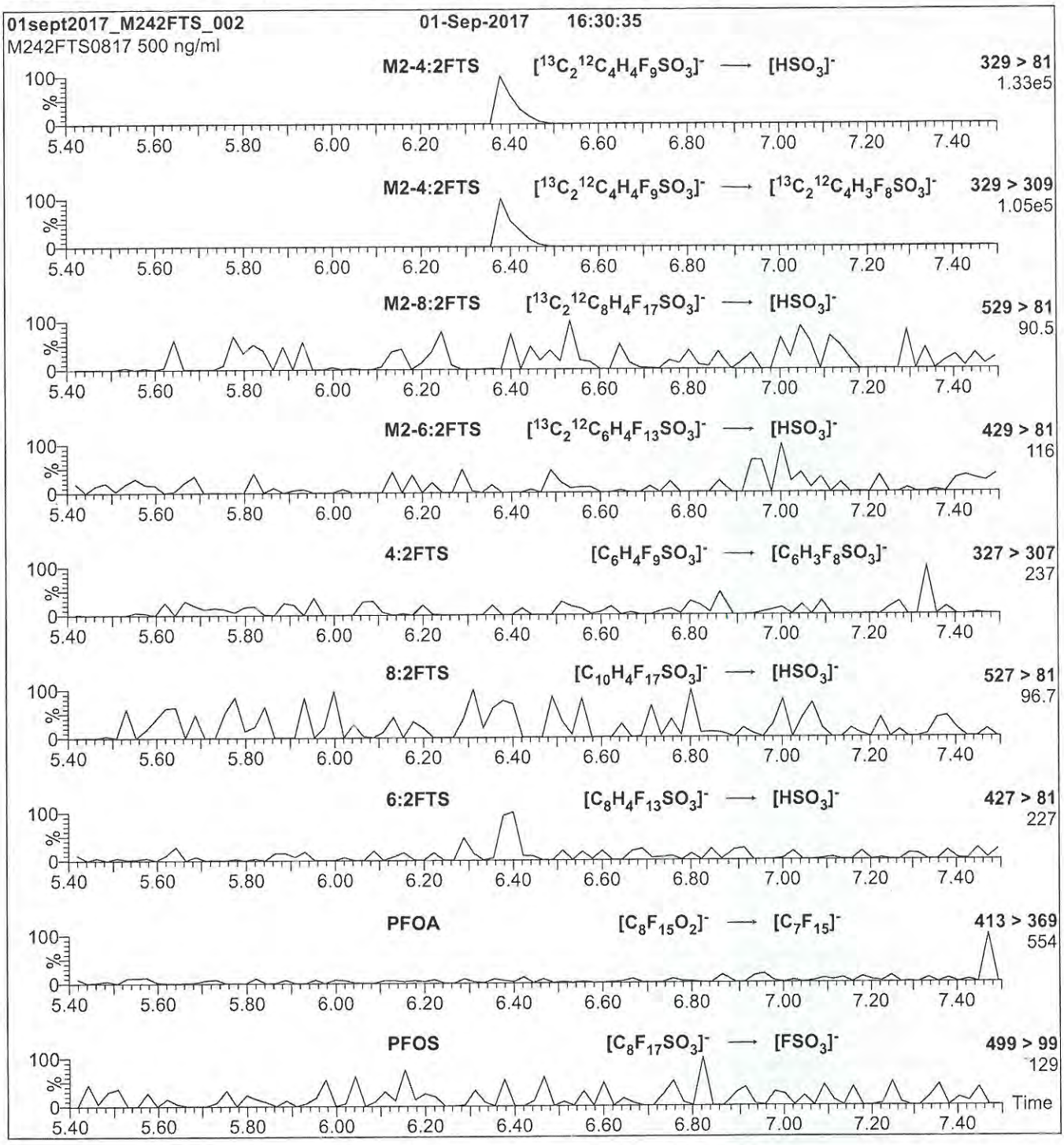
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

18F2208

Figure 2: **M2-4:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M2-4:2FTS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 25

~~18F2104~~ 18F2209

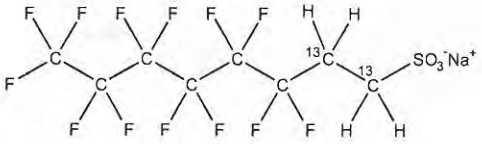
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2-6:2FTS **LOT NUMBER:** M262FTS0218

COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-$^{13}C_2$]octane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_6H_4F_{13}SO_3Na$	**MOLECULAR WEIGHT:**	452.13
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt)	**SOLVENT(S):**	Methanol
	47.5 ± 2.4 µg/ml (M2-6:2FTS anion)		
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	02/16/2018		
EXPIRY DATE: (mm/dd/yyyy)	02/16/2023		
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.
- The native 6:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 6:2FTS and M2-6:2FTS will produce signals in the m/z 429 to m/z 409 channel during SRM analysis. We recommend using the m/z 429 to m/z 81 transition to monitor for M2-6:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 03/07/2018 (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

18F2209

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

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ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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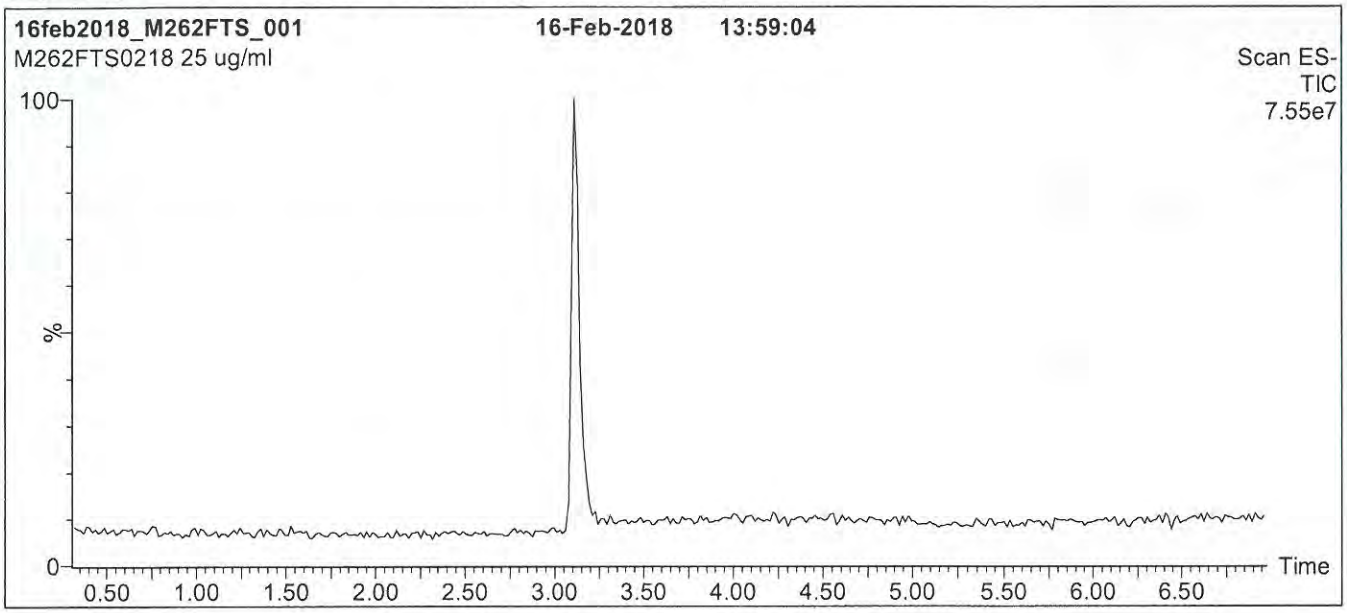
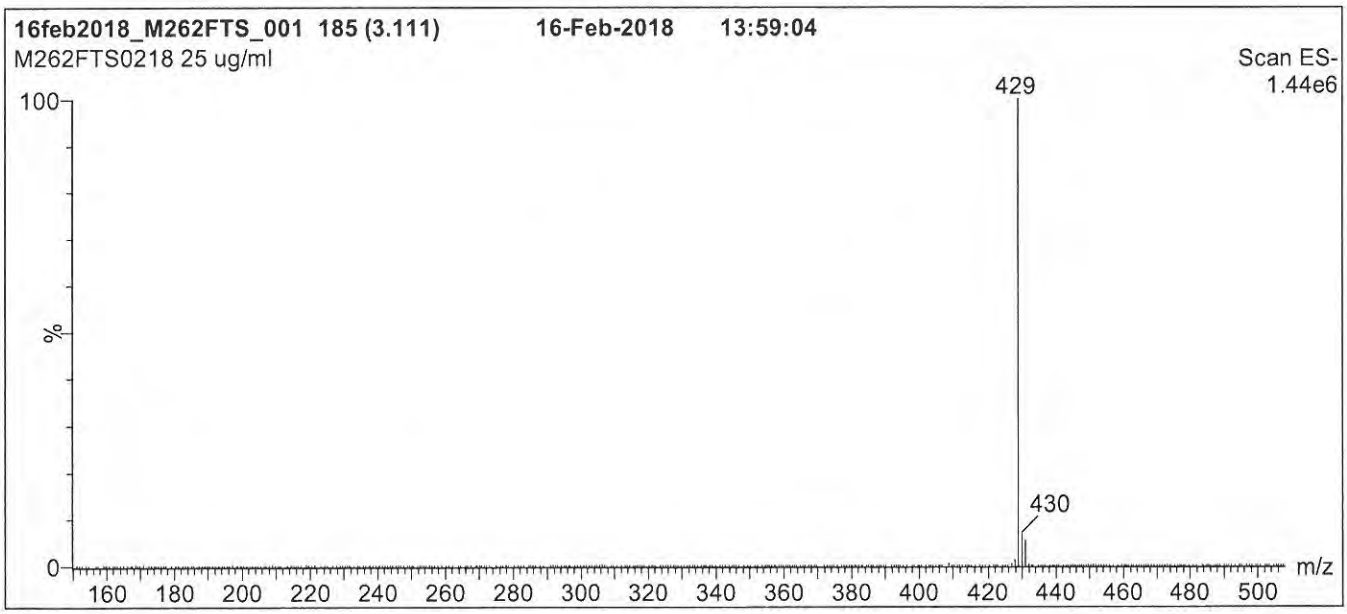
18F2209

Figure 1: **M2-6:2FTS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

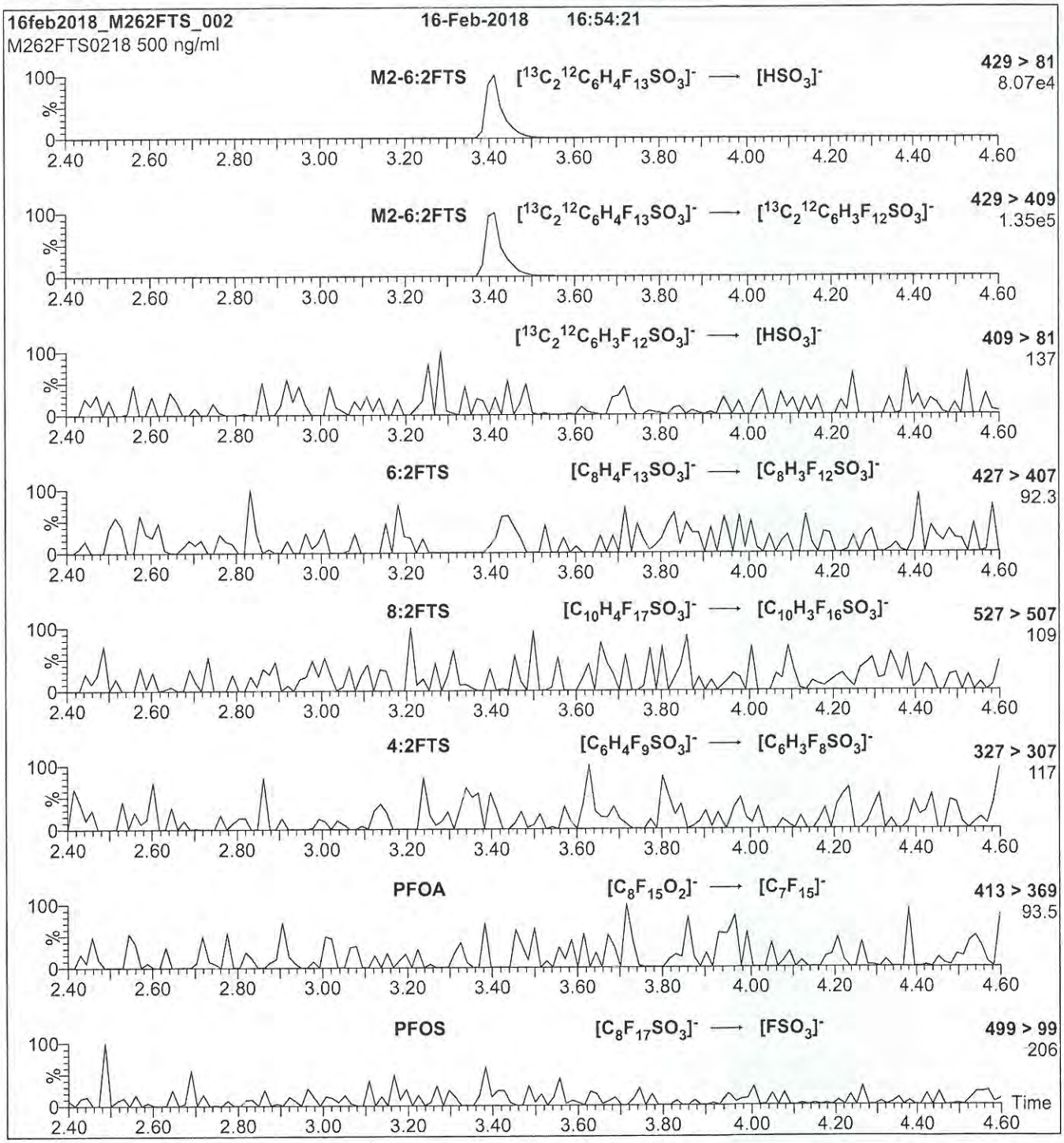
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source:Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 30.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18F2209

Figure 2: **M2-6:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M2-6:2FTS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 25

18F2210

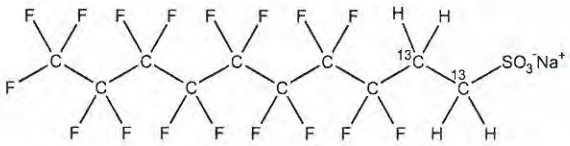
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2-8:2FTS **LOT NUMBER:** M282FTS0118

COMPOUND: Sodium 1H,1H,2H,2H-perfluoro-[1,2-$^{13}C_2$]decane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_8H_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	552.15
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt)	**SOLVENT(S):**	Methanol
	47.9 ± 2.4 µg/ml (M2-8:2FTS anion)		
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	01/24/2018		
EXPIRY DATE: (mm/dd/yyyy)	01/24/2023		
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.
- The native 8:2FTS contains 4.22% of ^{34}S (due to natural isotopic abundance) therefore both native 8:2FTS and M2-8:2FTS will produce signals in the m/z 529 to m/z 509 channel during SRM analysis. We recommend using the m/z 529 to m/z 81 transition to monitor for M2-8:2FTS during quantitative analysis as it will be free of any native contribution (see Figure 2).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 01/26/2018 (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

18F2210

INTENDED USE:

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HANDLING:

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HOMOGENEITY:

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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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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; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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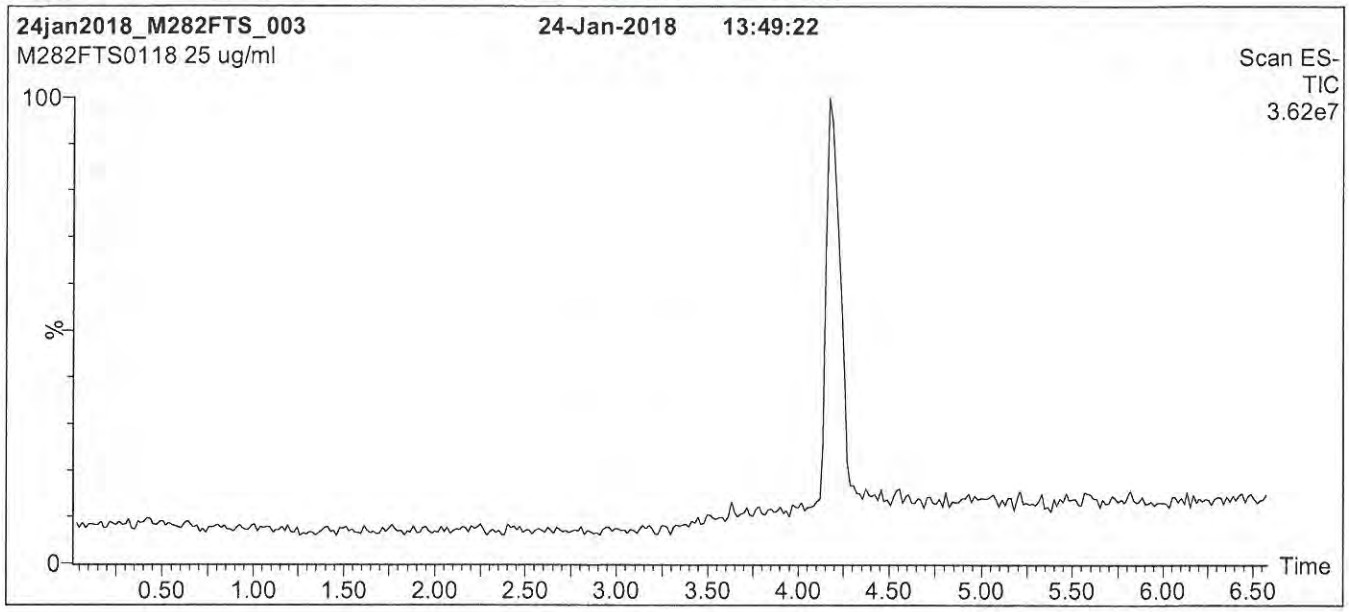
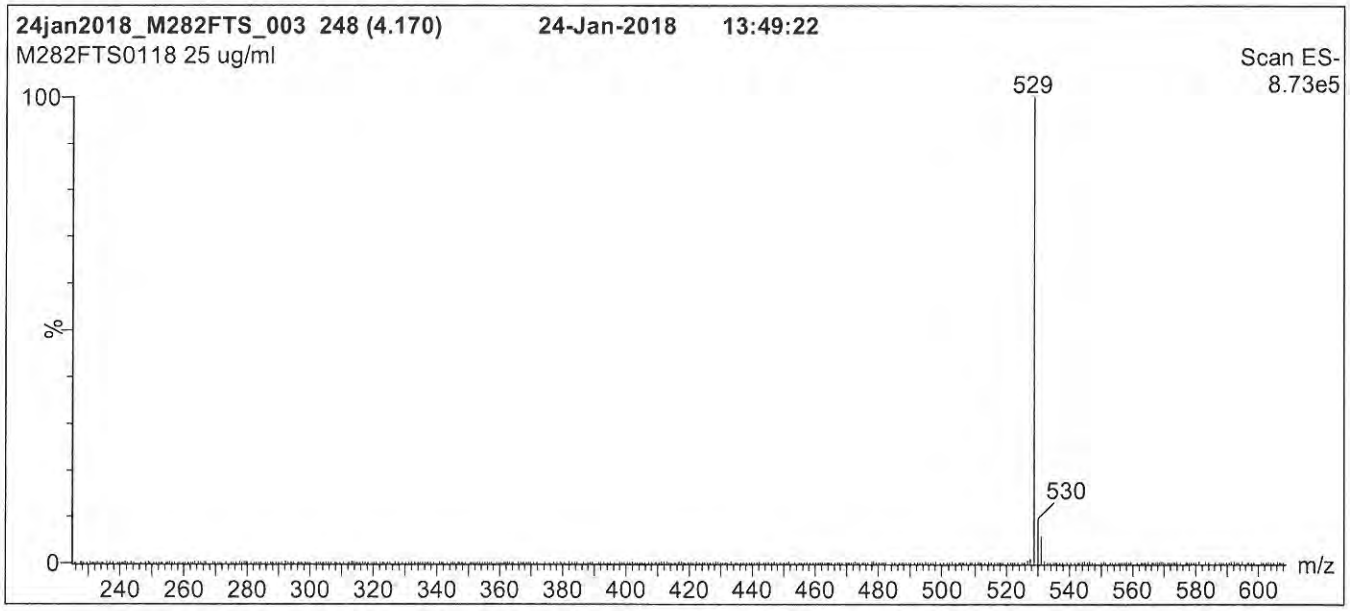
18F2210

Figure 1: **M2-8:2FTS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

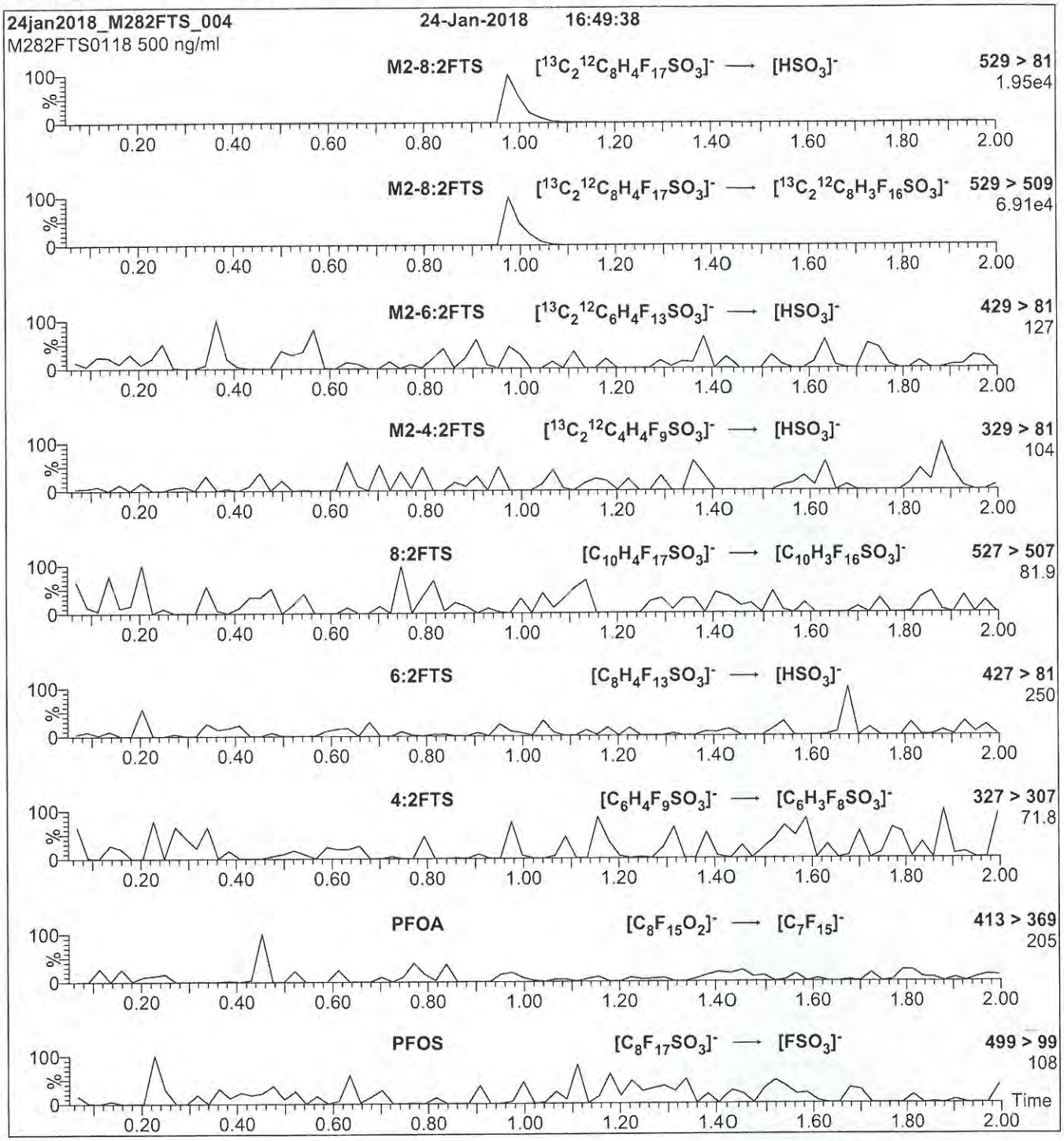
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source:Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 30.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

18F210

Figure 2: **M2-8:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M2-8:2FTS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 25

18F2211

WELLINGTON LABORATORIES

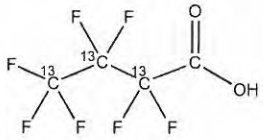
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M3PFBA
COMPOUND: Perfluoro-n-[2,3,4-$^{13}C_3$]butanoic acid

LOT NUMBER: M3PFBA1217

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}CHF_7O_2$	**MOLECULAR WEIGHT:**	217.02
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($2,3,4\text{-}^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	12/14/2017		
EXPIRY DATE: (mm/dd/yyyy)	12/14/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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 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:** 12/22/2017 (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

18F2211

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.

HAZARDS:

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:

Where possible, all of our products are synthesized using single-product unambiguous routes. 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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. 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; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

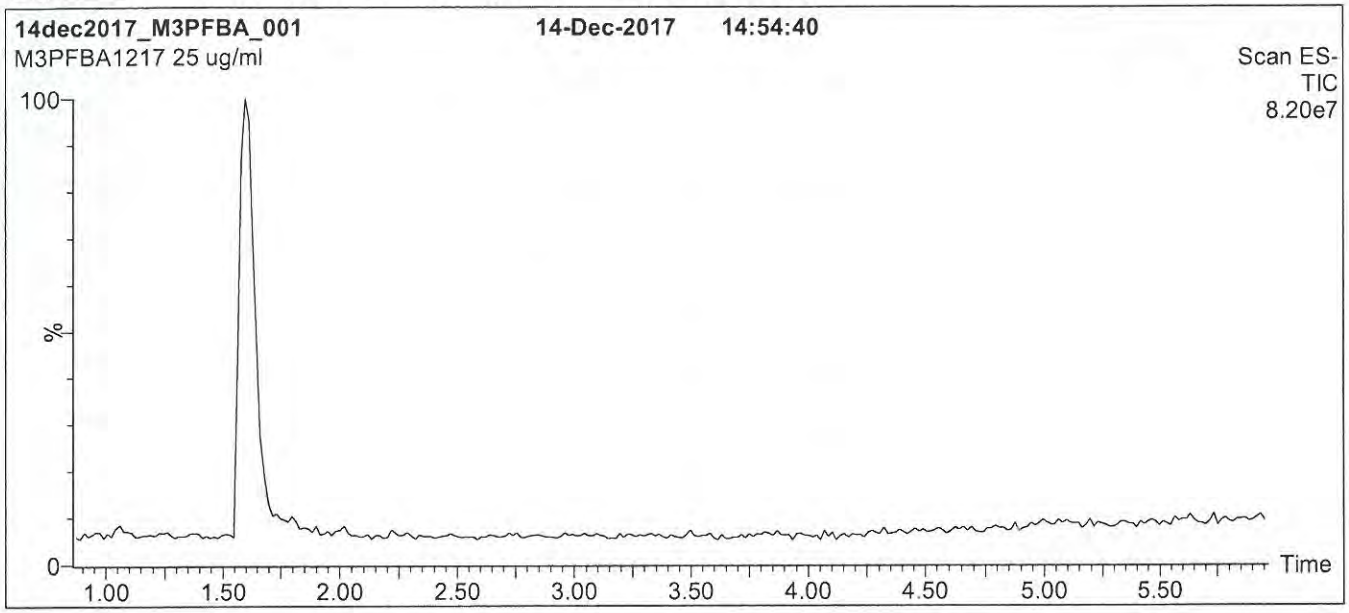
CALA

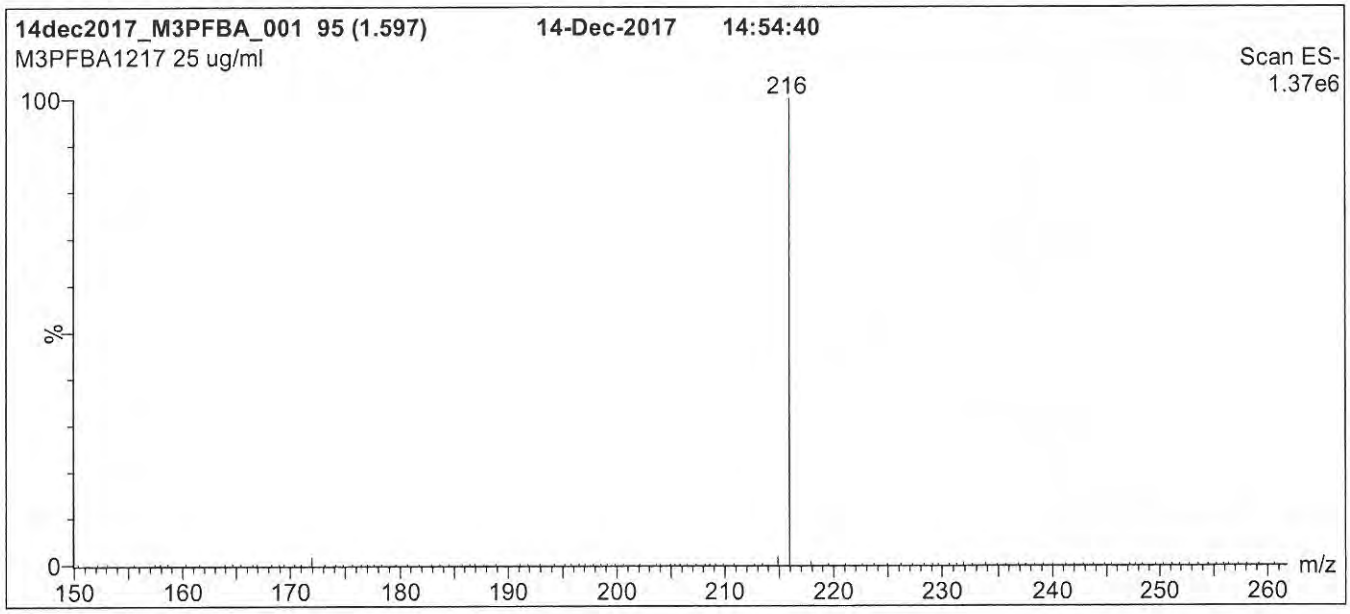
ANAB ACCREDITED

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

18F2211

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 30% (80:20 MeOH:ACN) / 70% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

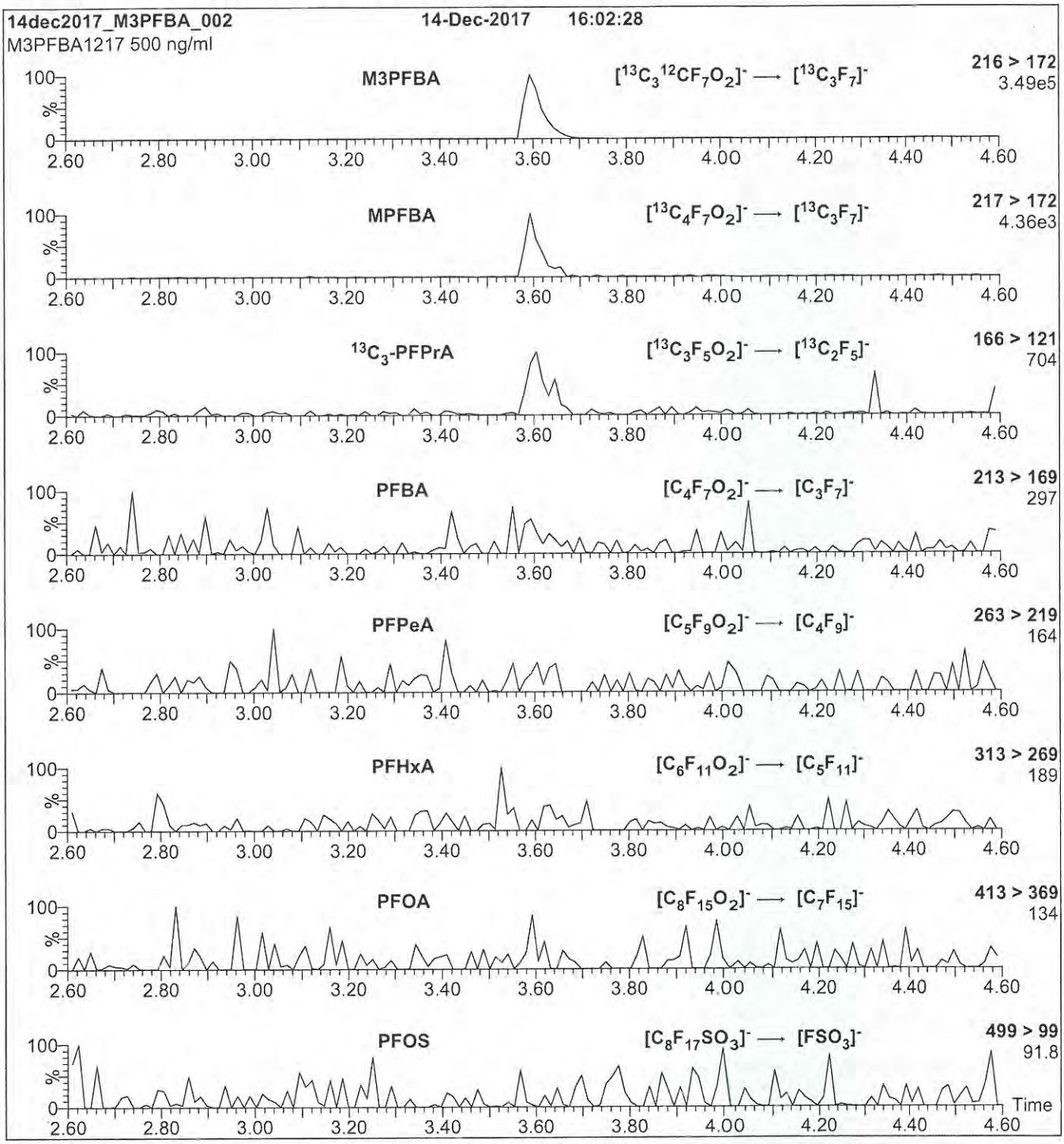
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 10.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

18F2211

Figure 2: **M3PFBA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M3PFBA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

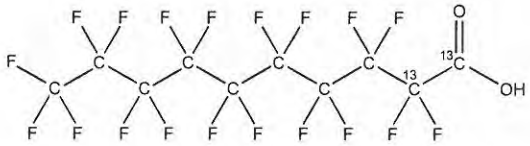
Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 10

18F2212

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFDA	**LOT NUMBER:**	MPFDA0218
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]decanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_8HF_{19}O_2$	**MOLECULAR WEIGHT:**	516.07
CONCENTRATION:	50 ± 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)	02/16/2018		
EXPIRY DATE: (mm/dd/yyyy)	02/16/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains < 0.1% of $^{13}C_1$-PFNA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 03/07/2018 (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

18F2212

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

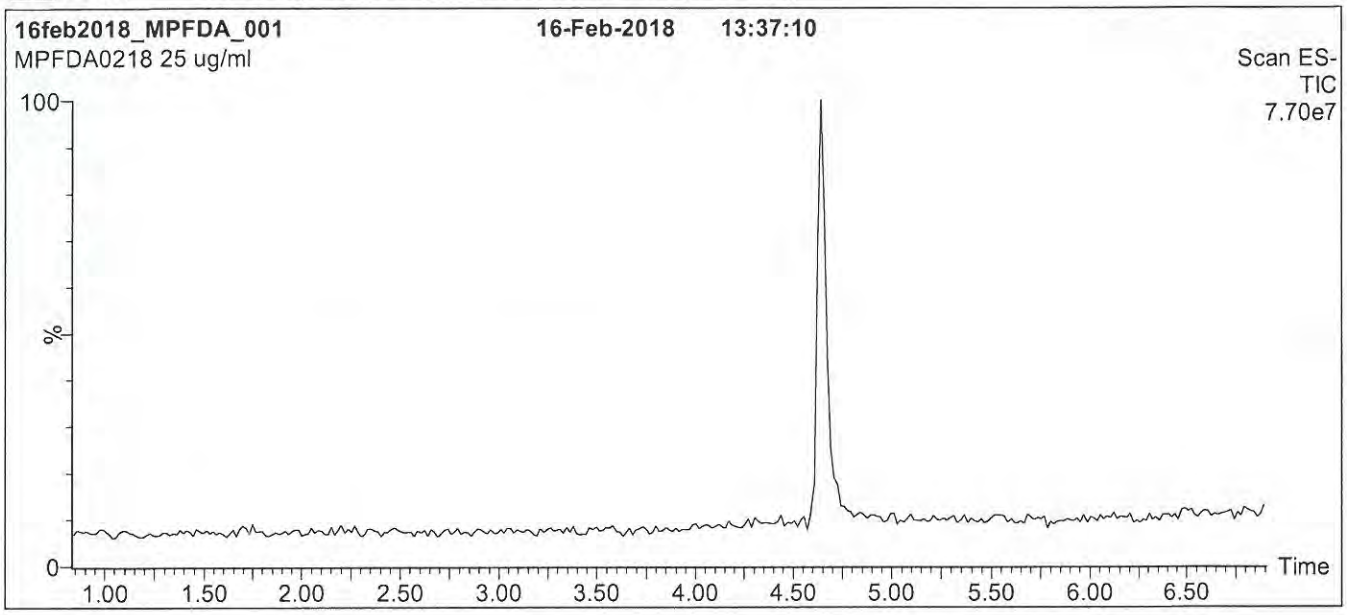
CALA

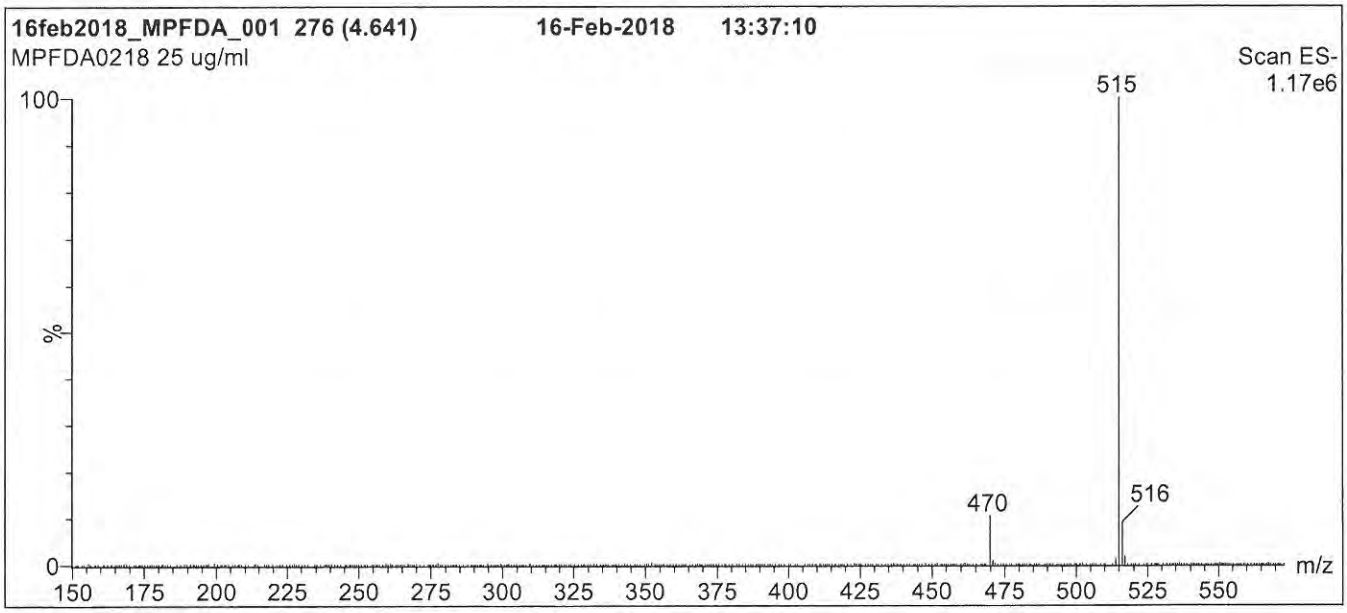
ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCERS

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

18F2212

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

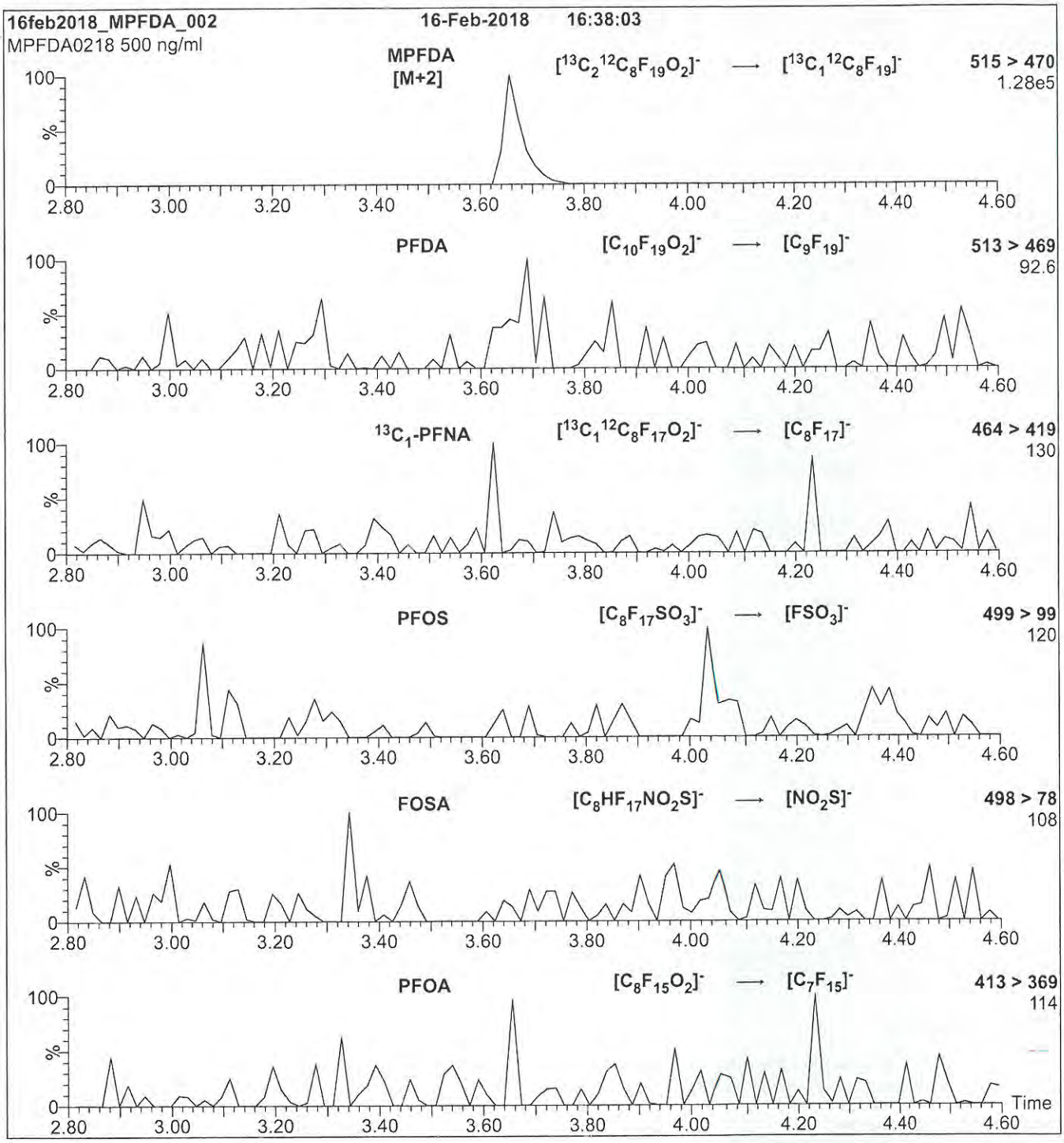
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18F2212

Figure 2: **MPFDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

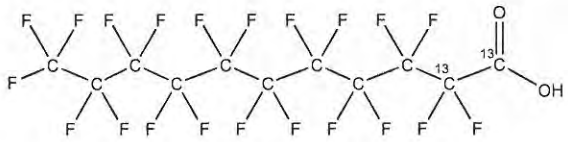
Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 13

18F2213

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFUdA	**LOT NUMBER:**	MPFUdA1116
COMPOUND:	Perfluoro-n-[1,2-$^{13}C_2$]undecanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_9HF_{21}O_2$	**MOLECULAR WEIGHT:**	566.08
CONCENTRATION:	50 ± 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)	11/22/2016		
EXPIRY DATE: (mm/dd/yyyy)	11/22/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Presence of 1-$^{13}C_1$-PFUdA (~1%; see Figure 2), 2-$^{13}C_1$-PFUdA (~1%), and PFUdA (~0.2%; see Figure 2) are due to the isotopic purity of the ^{13}C-precursor.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ B.G. Chittim **Date:** 12/07/2016 (mm/dd/yyyy)

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

18F2213

INTENDED USE:

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HAZARDS:

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.

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EXPIRY DATE / PERIOD OF VALIDITY:

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CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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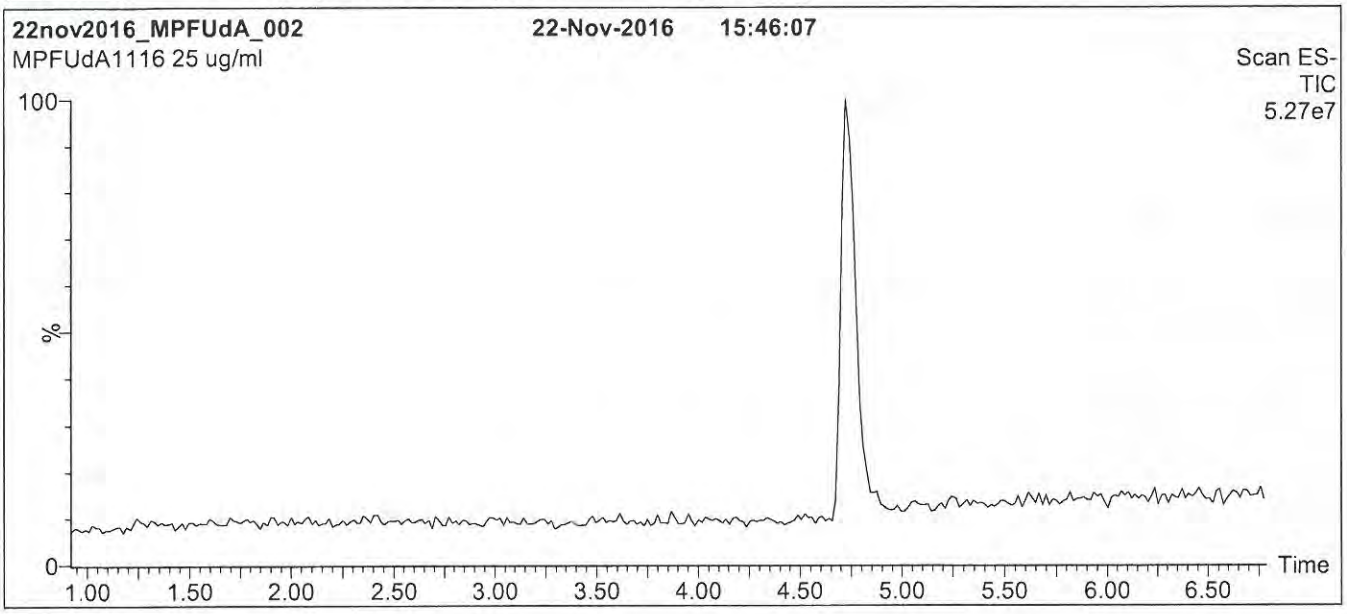
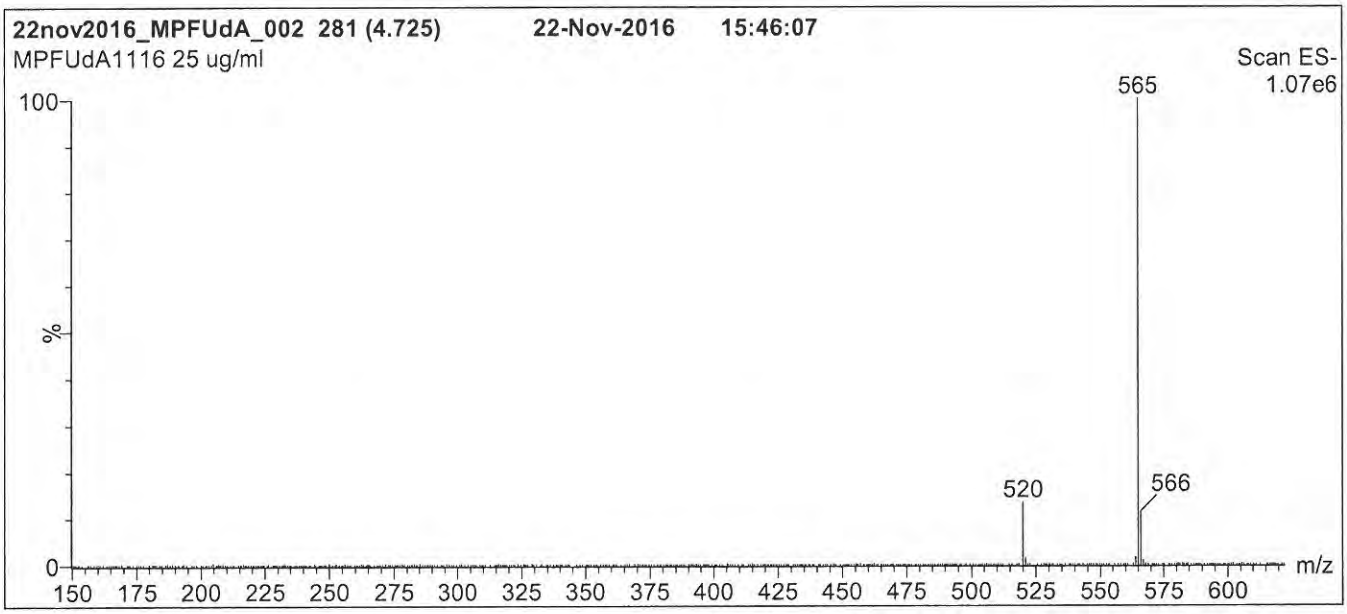
18F2213

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

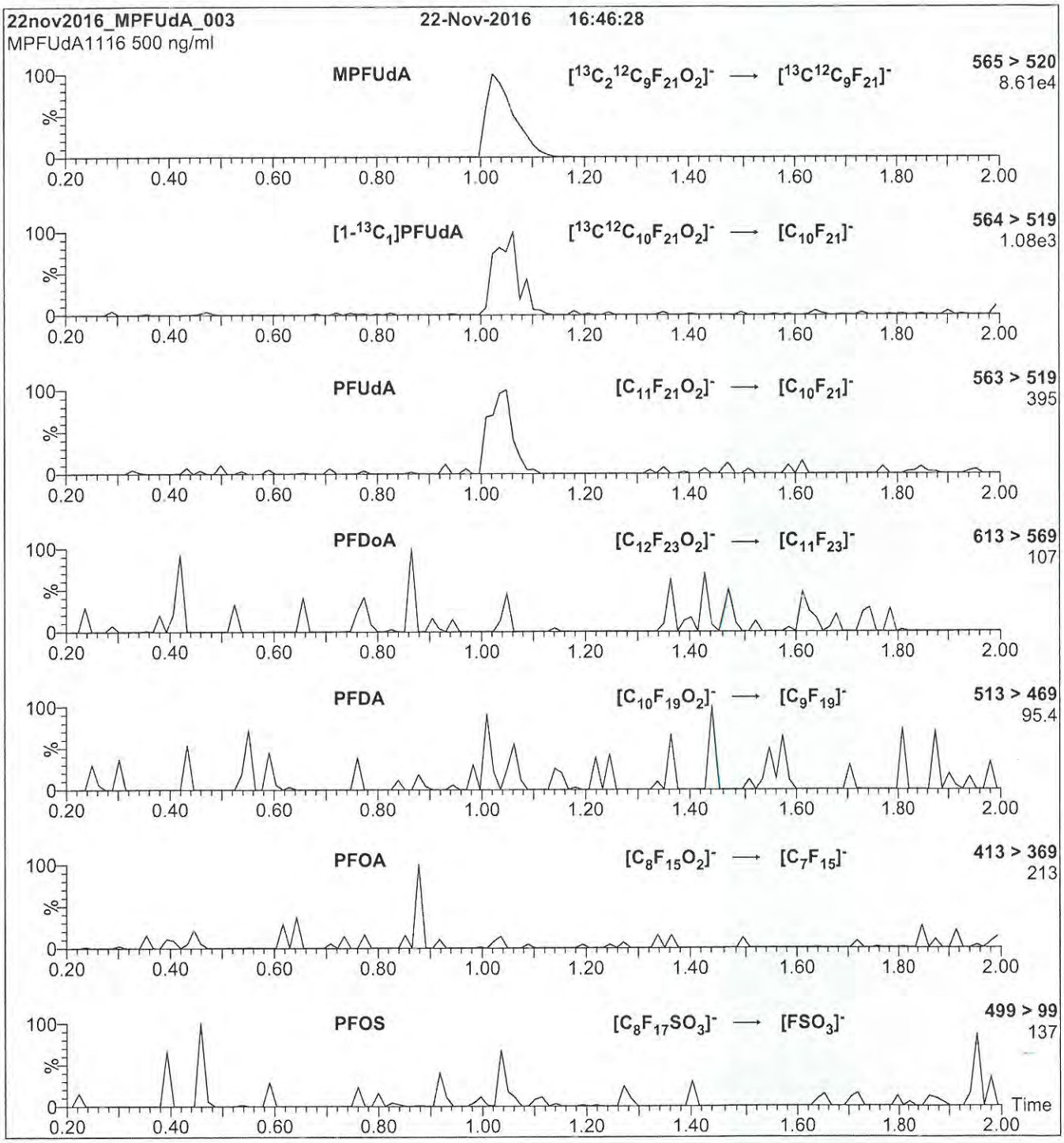
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 65
Desolvation Gas Flow (l/hr) = 750

18F2213

Figure 2: **MPFUdA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFUdA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

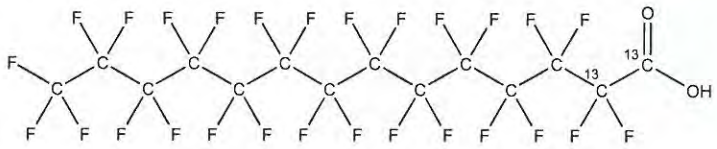
Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 11

18F2214

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2PFTeDA
LOT NUMBER: M2PFTeDA1117
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]tetradecanoic acid
STRUCTURE:
CAS #: Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_{12}HF_{27}O_2$	**MOLECULAR WEIGHT:**	716.10
CONCENTRATION:	50 ± 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)	11/30/2017		
EXPIRY DATE: (mm/dd/yyyy)	11/30/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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 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:** 12/01/2017 (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

18F2214

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.

HAZARDS:

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:

Where possible, all of our products are synthesized using single-product unambiguous routes. 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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. 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; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

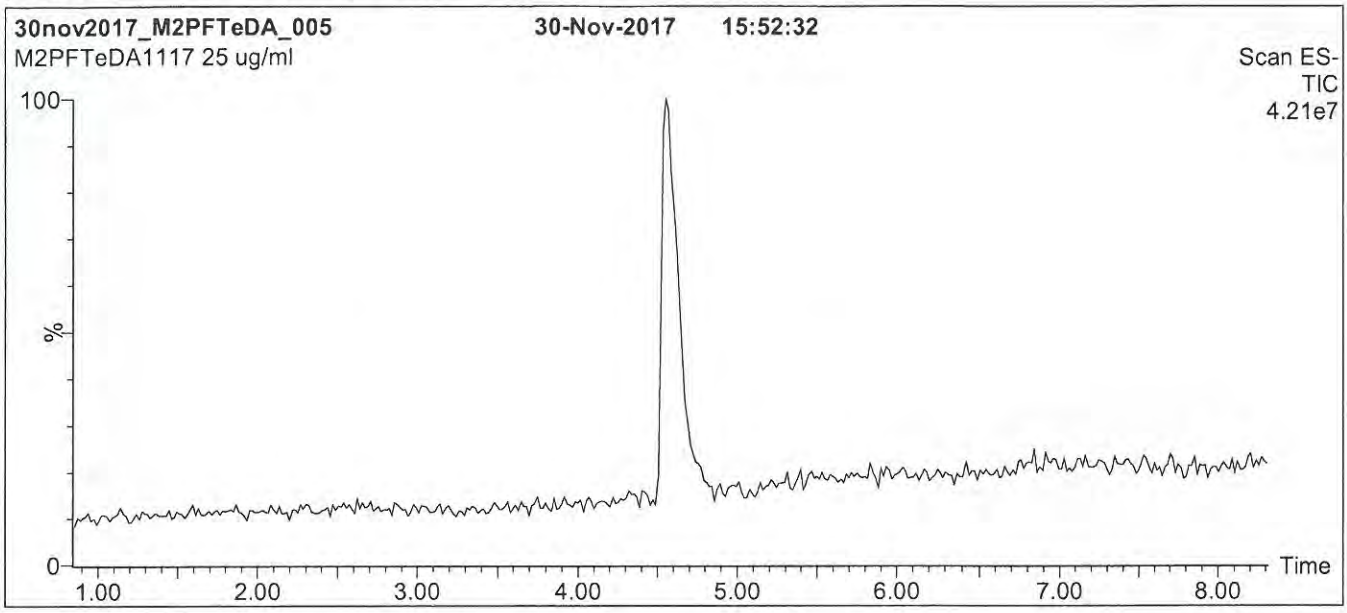
CALA

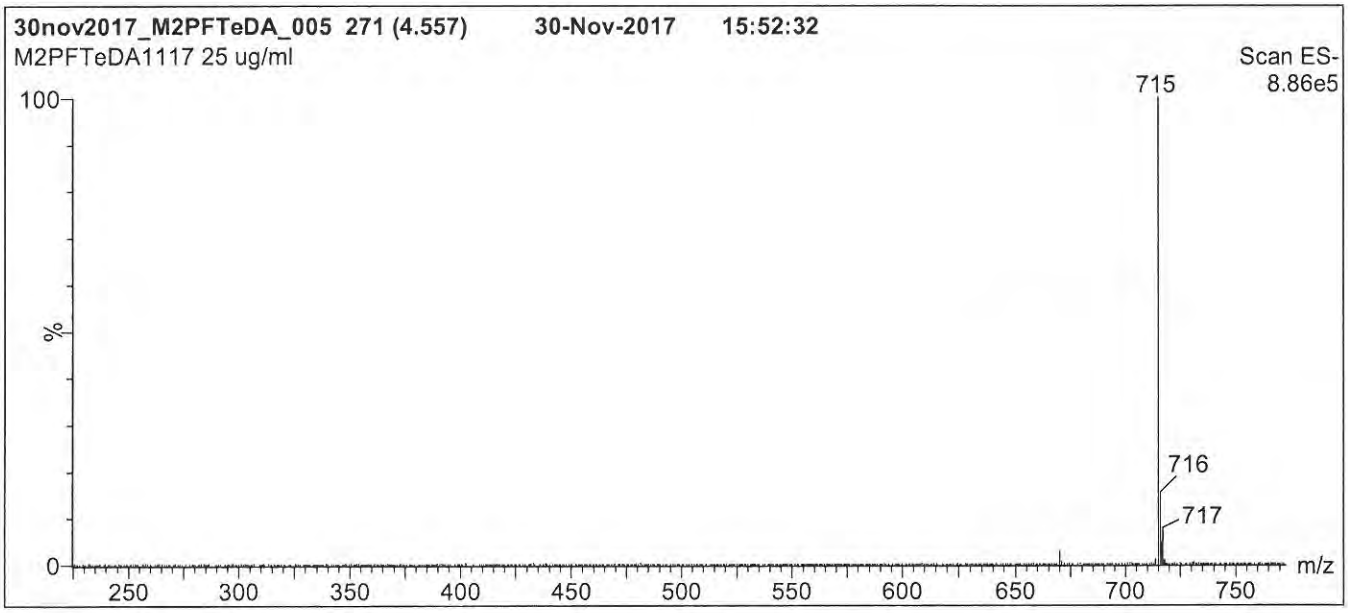
ANAB ACCREDITED

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

18F2214

Figure 1: **M2PFTeDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 65% (80:20 MeOH:ACN) / 35% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

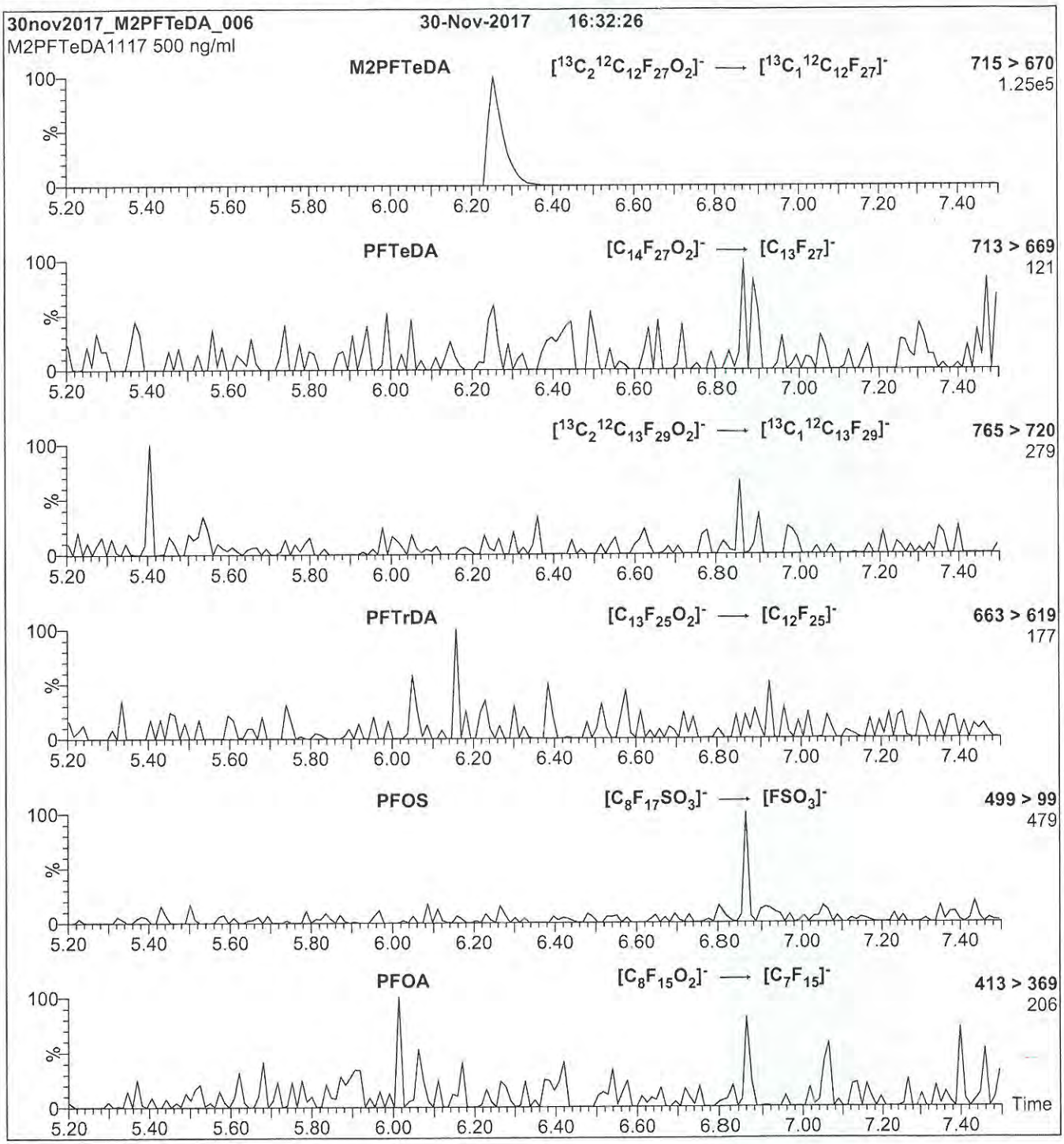
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

18F2214

Figure 2: **M2PFTeDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M2PFTeDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

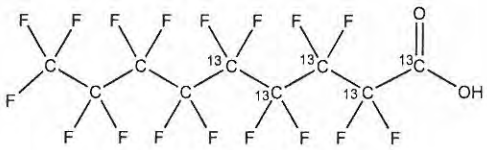
Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 14

18F2215

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFNA	**LOT NUMBER:**	MPFNA1217
COMPOUND:	Perfluoro-n-[1,2,3,4,5-$^{13}C_5$]nonanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_5{}^{12}C_4HF_{17}O_2$	**MOLECULAR WEIGHT:**	469.04
CONCENTRATION:	50 ± 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)	12/14/2017		
EXPIRY DATE: (mm/dd/yyyy)	12/14/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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 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:** 12/19/2017 (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

18F2215

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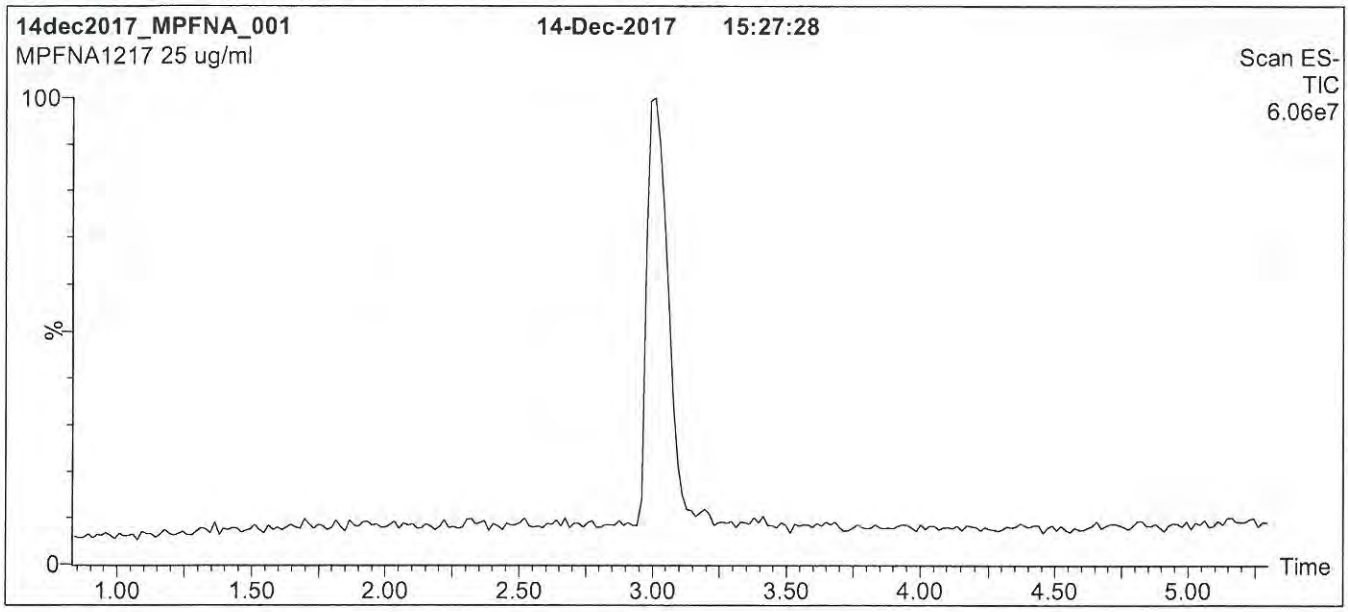
CALA

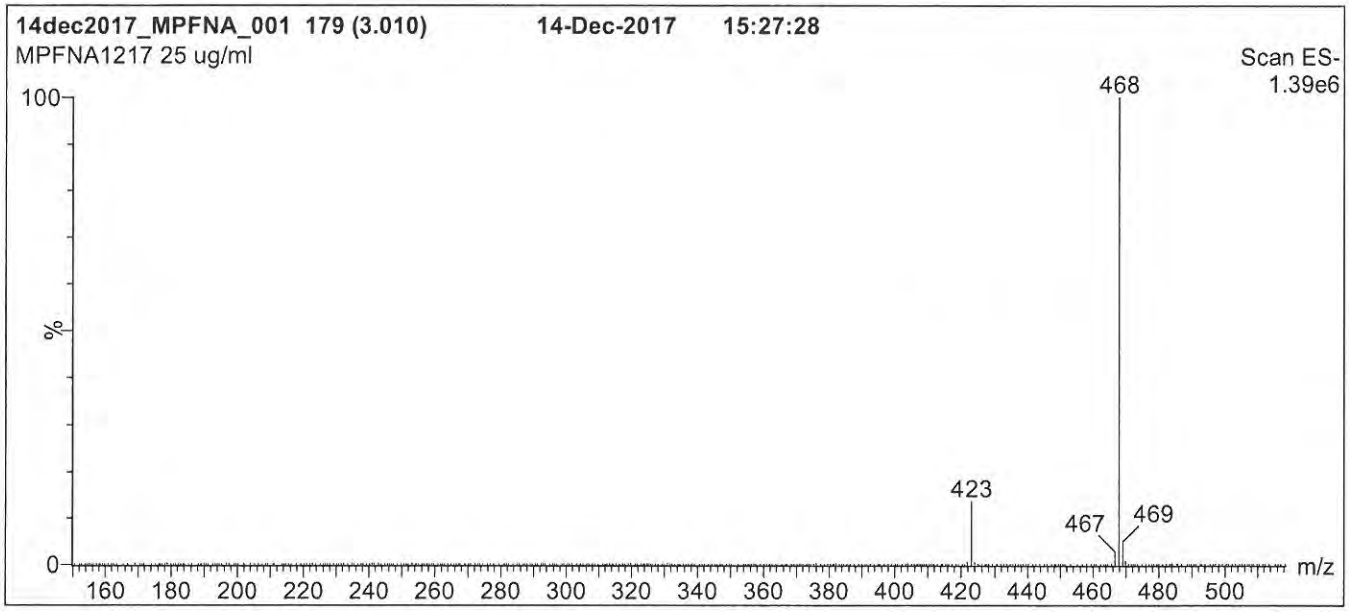
ANAB ACCREDITED

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

18F2215

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

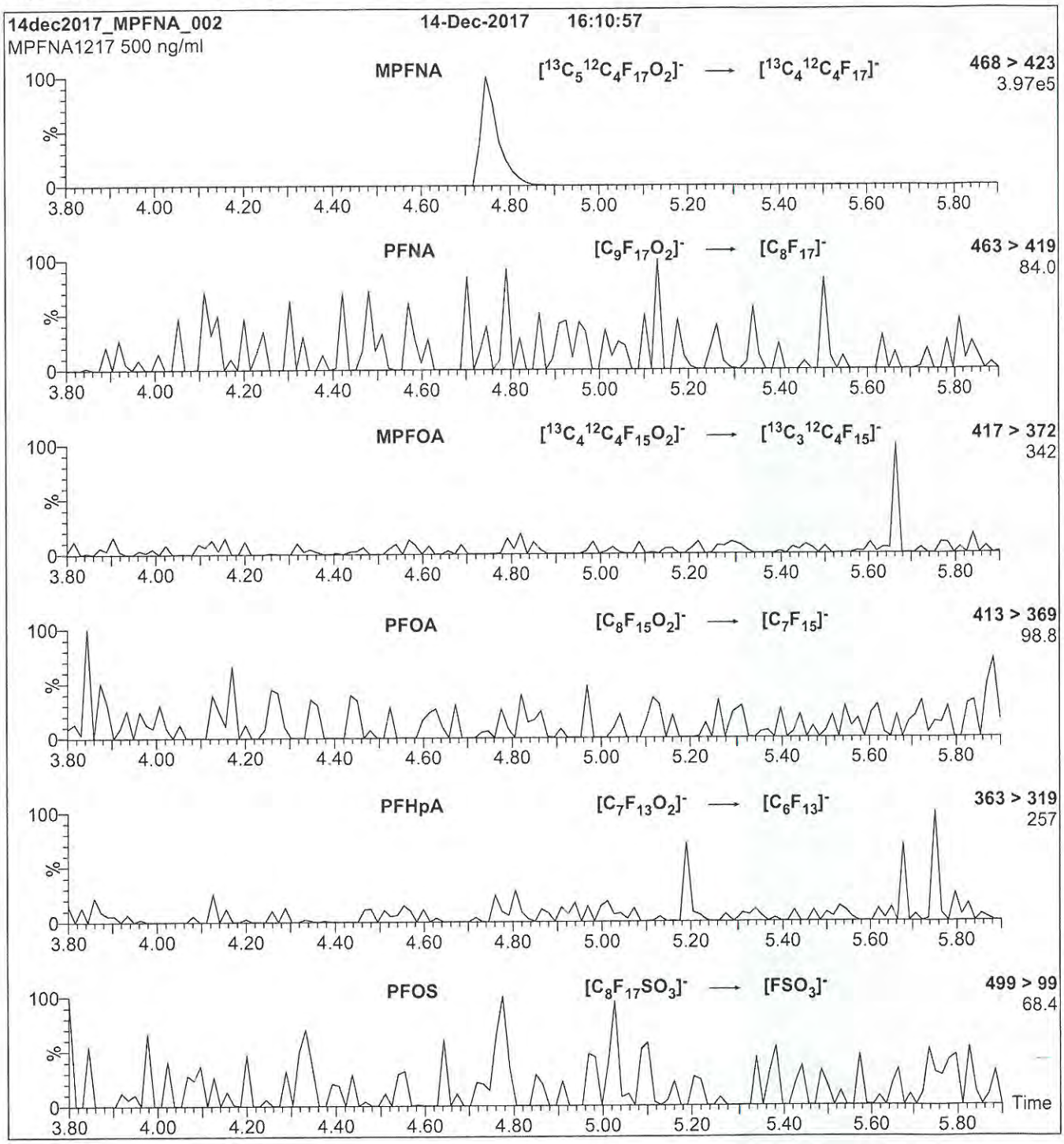
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18F2215

Figure 2: **MPFNA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFNA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 11

18F2216

WELLINGTON LABORATORIES

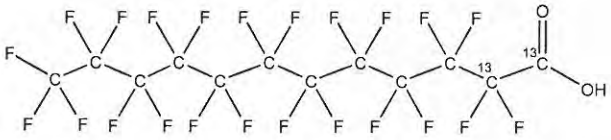
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFDoA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]dodecanoic acid

LOT NUMBER: MPFDoA0218

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_{10}HF_{23}O_2$	**MOLECULAR WEIGHT:**	616.08
CONCENTRATION:	50 ± 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)	02/16/2018		
EXPIRY DATE: (mm/dd/yyyy)	02/16/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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 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:** 02/23/2018 (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

18F2216

INTENDED USE:

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HANDLING:

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SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

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QUALITY MANAGEMENT:

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CALA

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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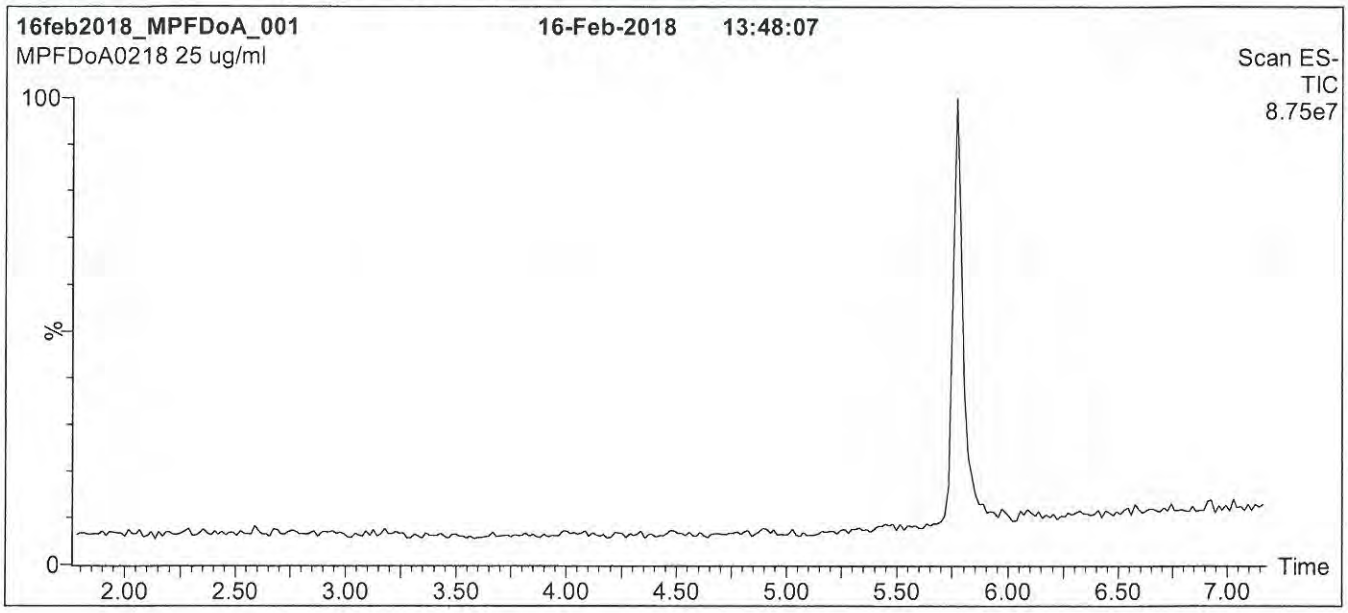
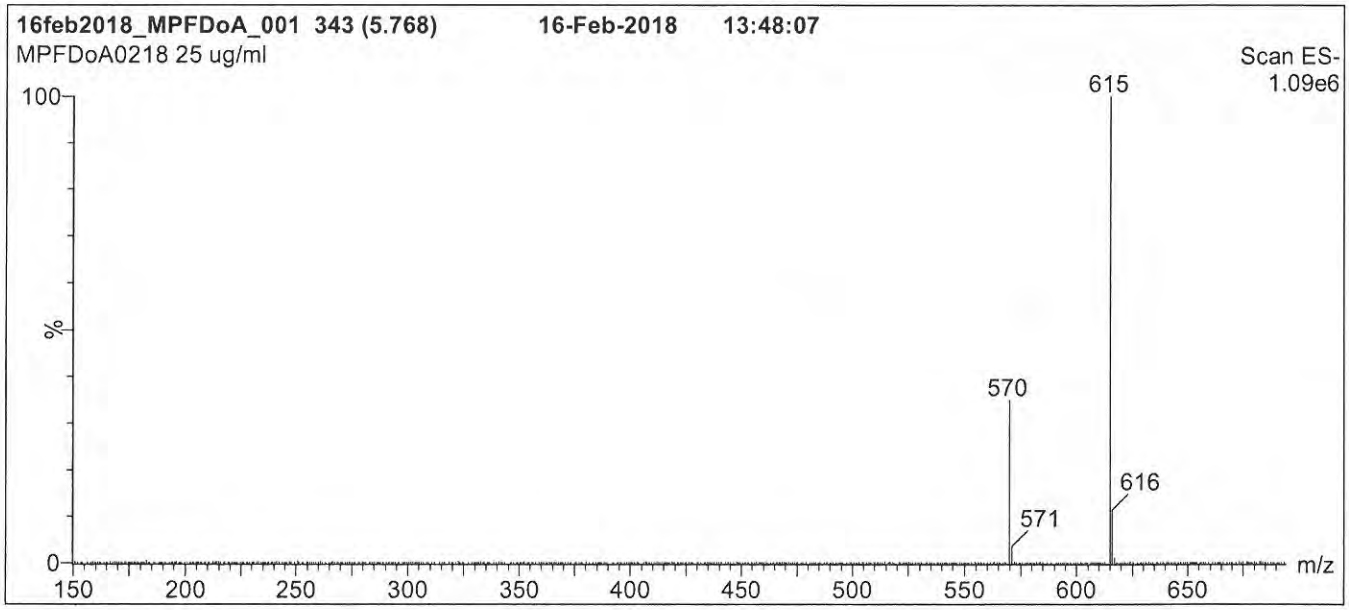
18F2216

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

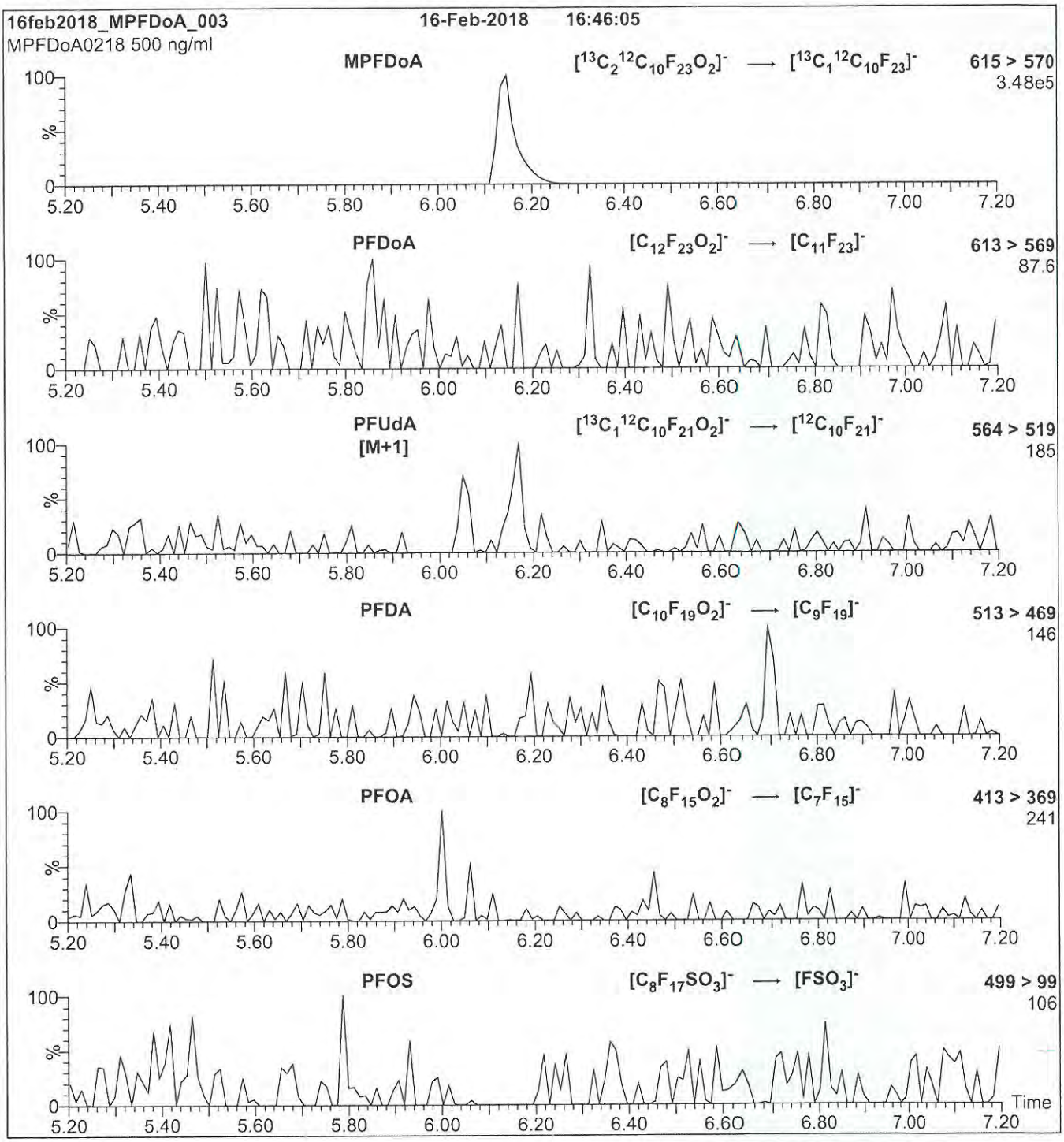
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 20.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18F2216

Figure 2: **MPFDoA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFDoA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

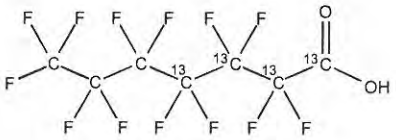
Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 13

18F2217

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M4PFHpA	**LOT NUMBER:**	M4PFHpA0517
COMPOUND:	Perfluoro-n-[1,2,3,4-$^{13}C_4$]heptanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_3HF_{13}O_2$	**MOLECULAR WEIGHT:**	368.03
CONCENTRATION:	50 ± 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)	05/03/2017		
EXPIRY DATE: (mm/dd/yyyy)	05/03/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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Certified By: _____ **Date:** 05/11/2017 (mm/dd/yyyy)
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Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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18F2217

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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; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

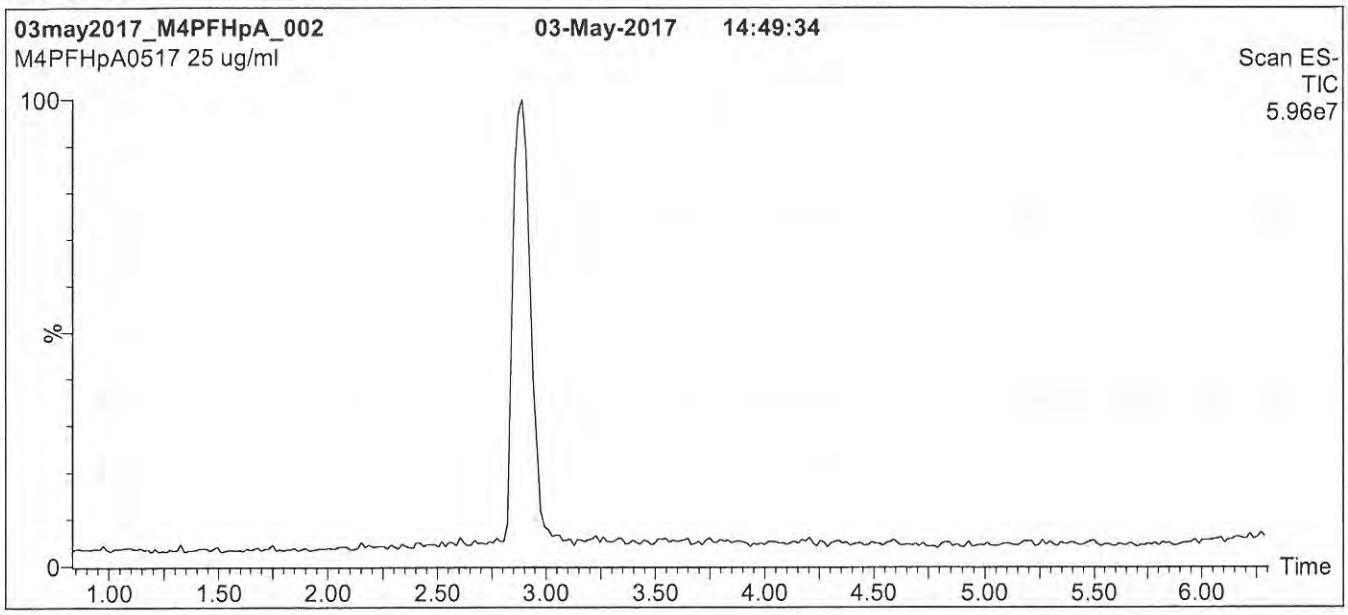
CALA Testing

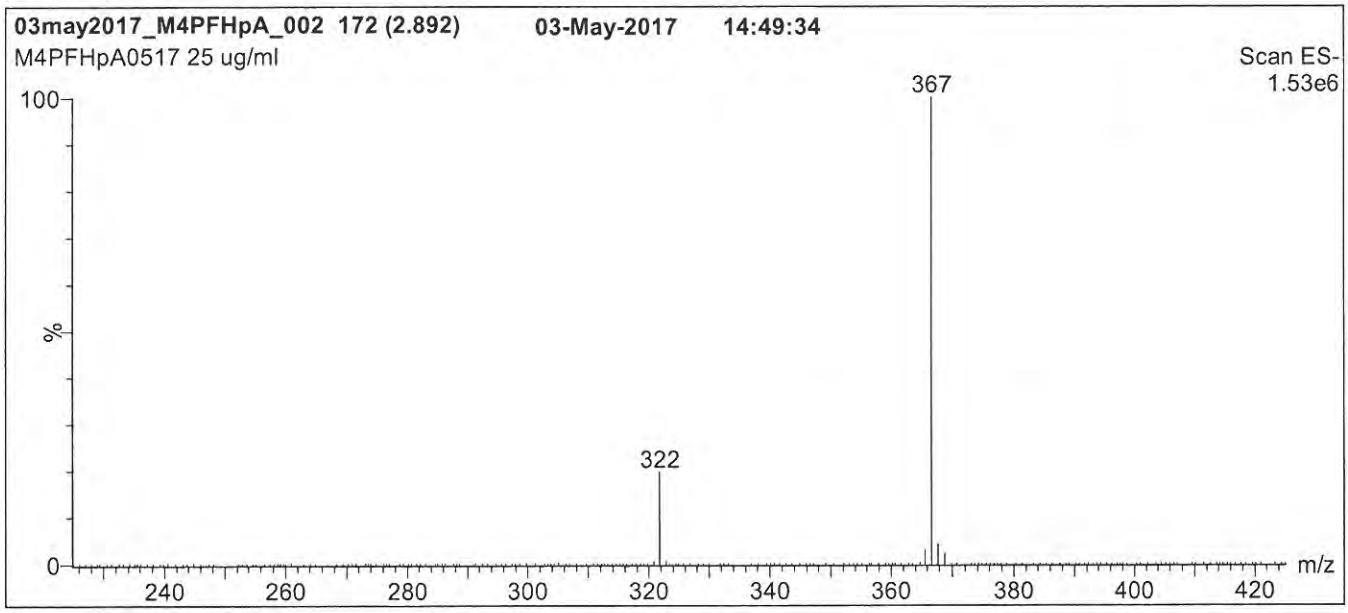
ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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

18F2217

Figure 1: **M4PFHpA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 1 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

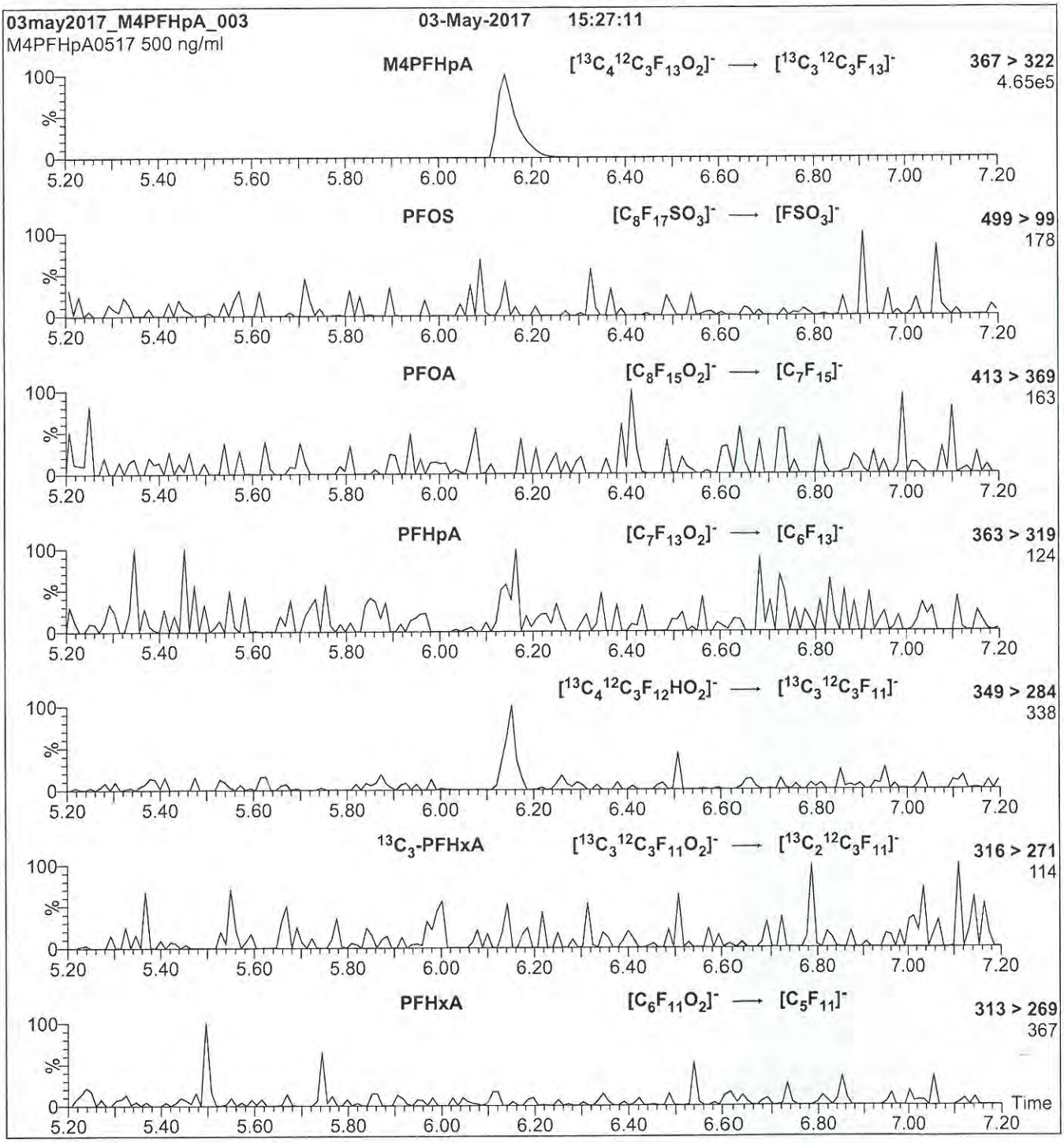
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

185217

Figure 2: **M4PFHpA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M4PFHpA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 9

18F2218

WELLINGTON LABORATORIES

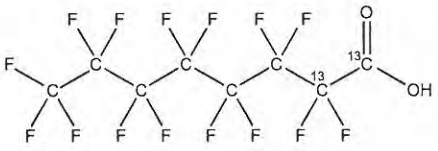
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2PFOA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]octanoic acid

LOT NUMBER: M2PFOA1017

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA: $^{13}C_2{}^{12}C_6HF_{15}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 10/26/2017
EXPIRY DATE: (mm/dd/yyyy) 10/26/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

MOLECULAR WEIGHT: 416.05
SOLVENT(S): Methanol
Water (<1%)
ISOTOPIC PURITY: ≥99% ^{13}C ($1,2\text{-}^{13}C_2$)

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 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/30/2017 (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

18F2218

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.

HAZARDS:

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:

Where possible, all of our products are synthesized using single-product unambiguous routes. 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.

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CALA

ANAB ACCREDITED

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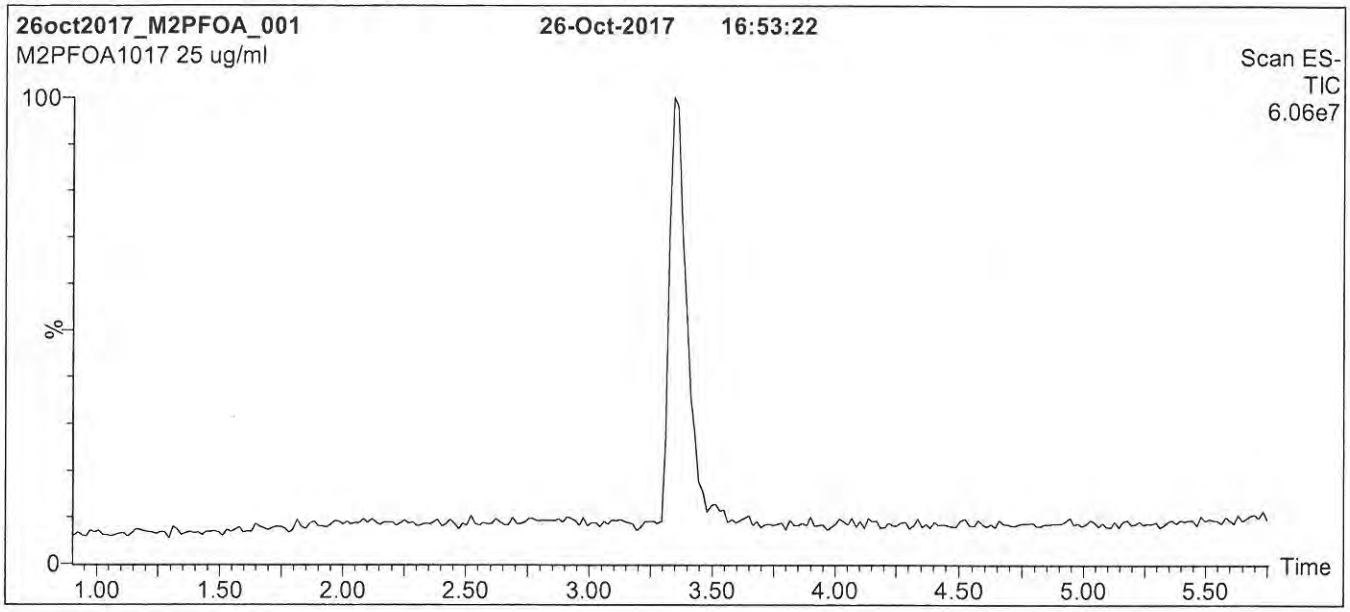
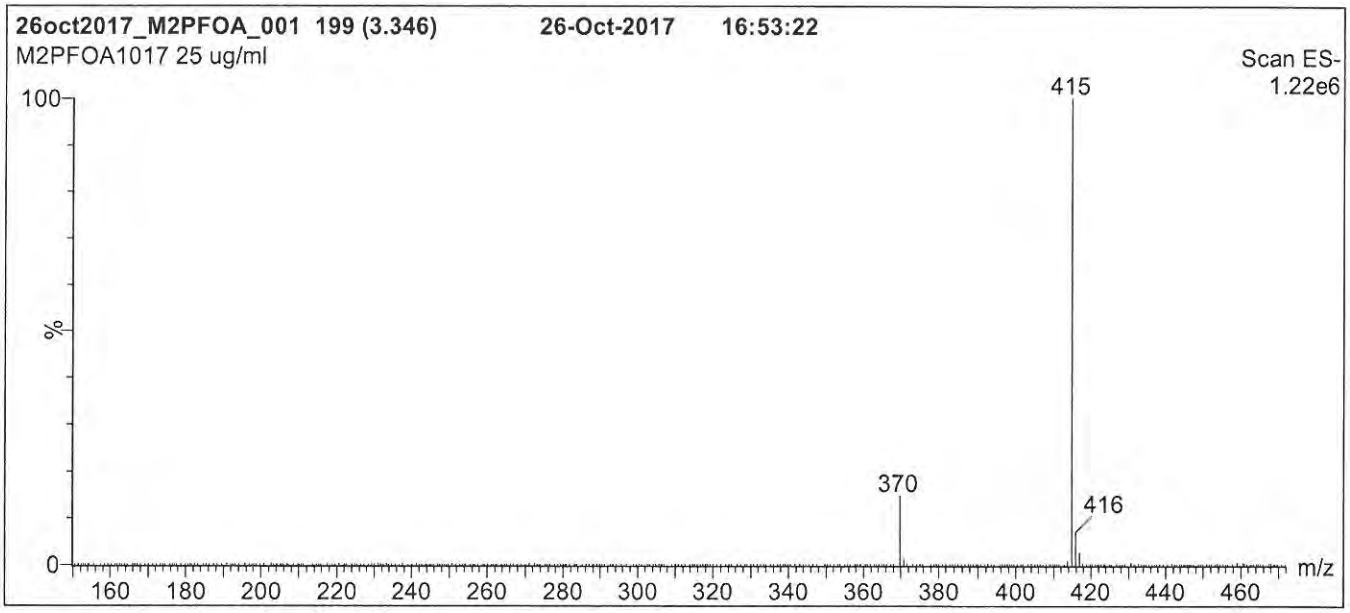
18F2218

Figure 1: **M2PFOA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

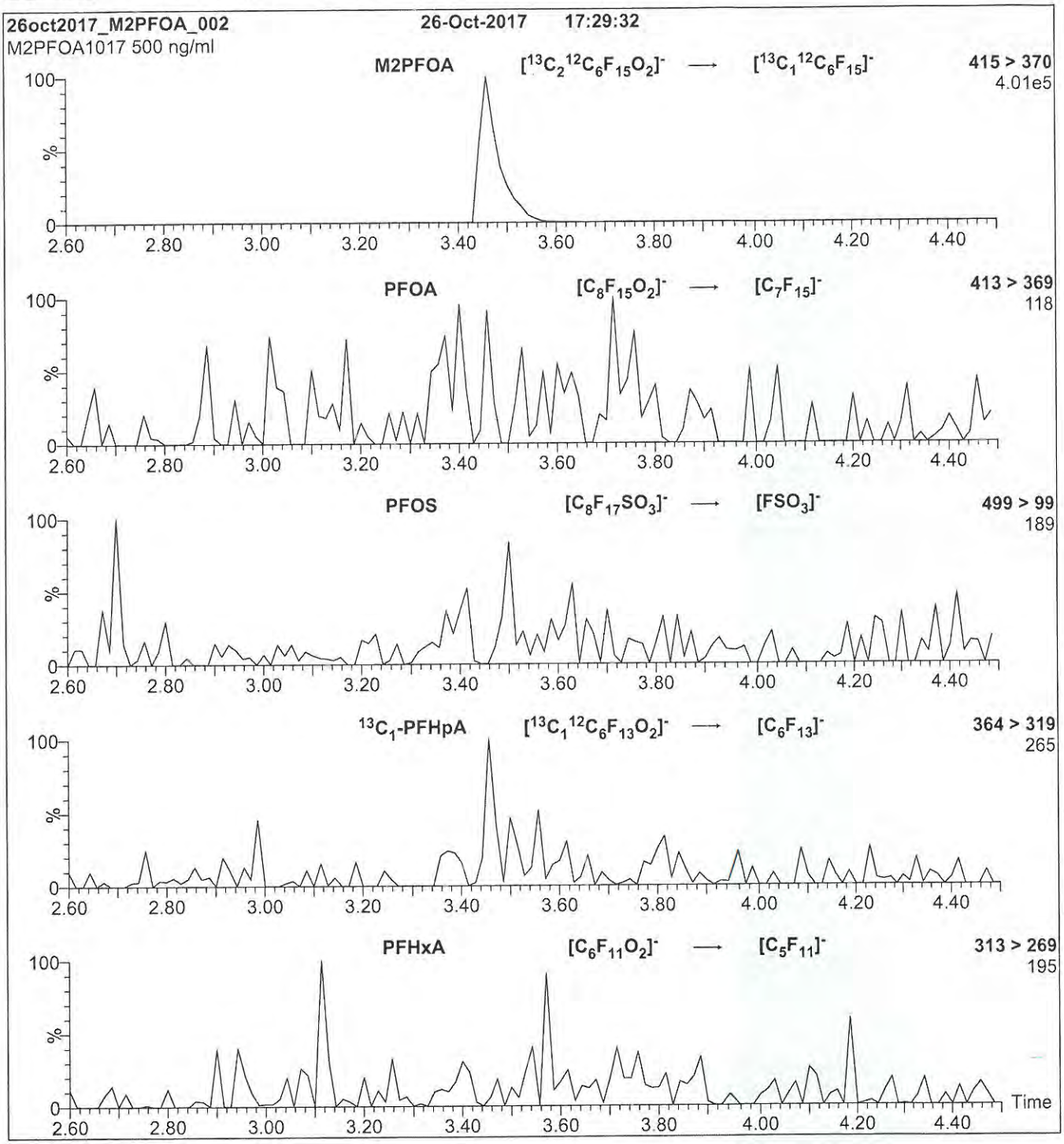
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

18F2218

Figure 2: **M2PFOA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M2PFOA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 10

18F2219

WELLINGTON LABORATORIES

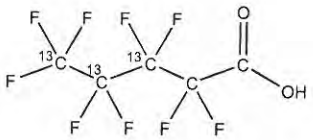
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M3PFPeA
COMPOUND: Perfluoro-n-[3,4,5-$^{13}C_3$]pentanoic acid

LOT NUMBER: M3PFPeA0417

CAS #: Not available

STRUCTURE:



MOLECULAR FORMULA: $^{13}C_3{}^{12}C_2HF_9O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 267.02
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
ISOTOPIC PURITY: ≥99% ^{13}C ($3,4,5$-$^{13}C_3$)

LAST TESTED: (mm/dd/yyyy) 04/20/2017
EXPIRY DATE: (mm/dd/yyyy) 04/20/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

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 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.95% of perfluoro-n-[$^{13}C_3$]butanoic acid and 0.05% of perfluoro-1-pentanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 04/24/2017 (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

18F2219

INTENDED USE:

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HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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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.

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CALA

ANAB ACCREDITED

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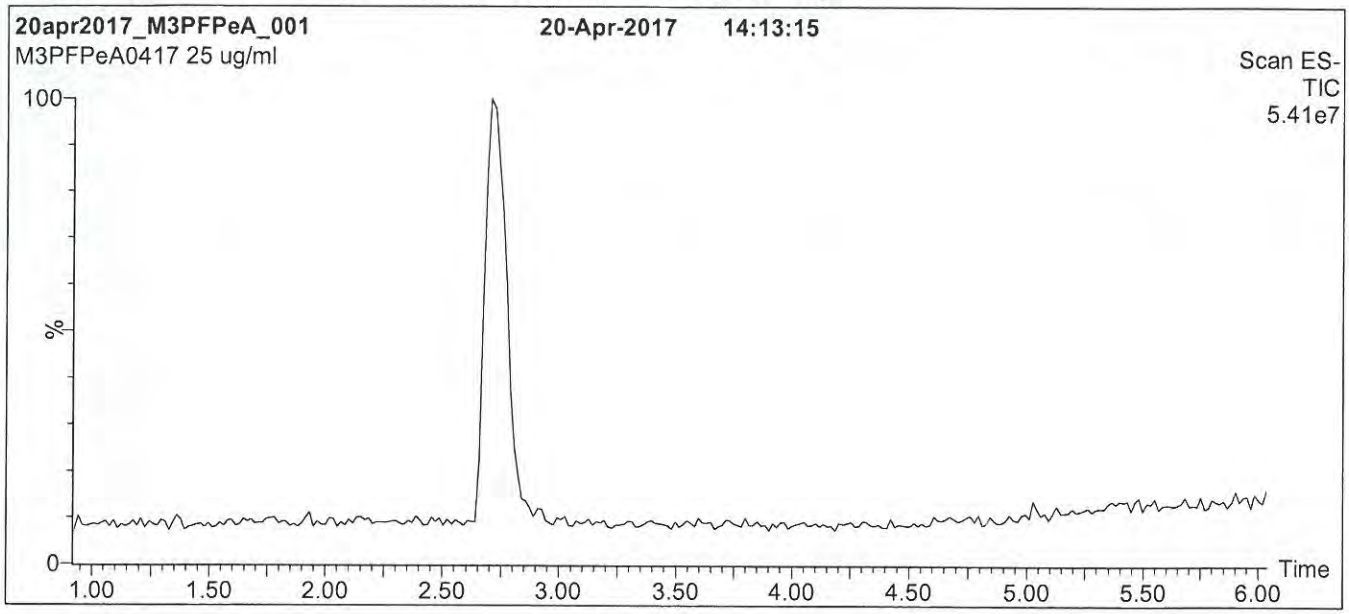
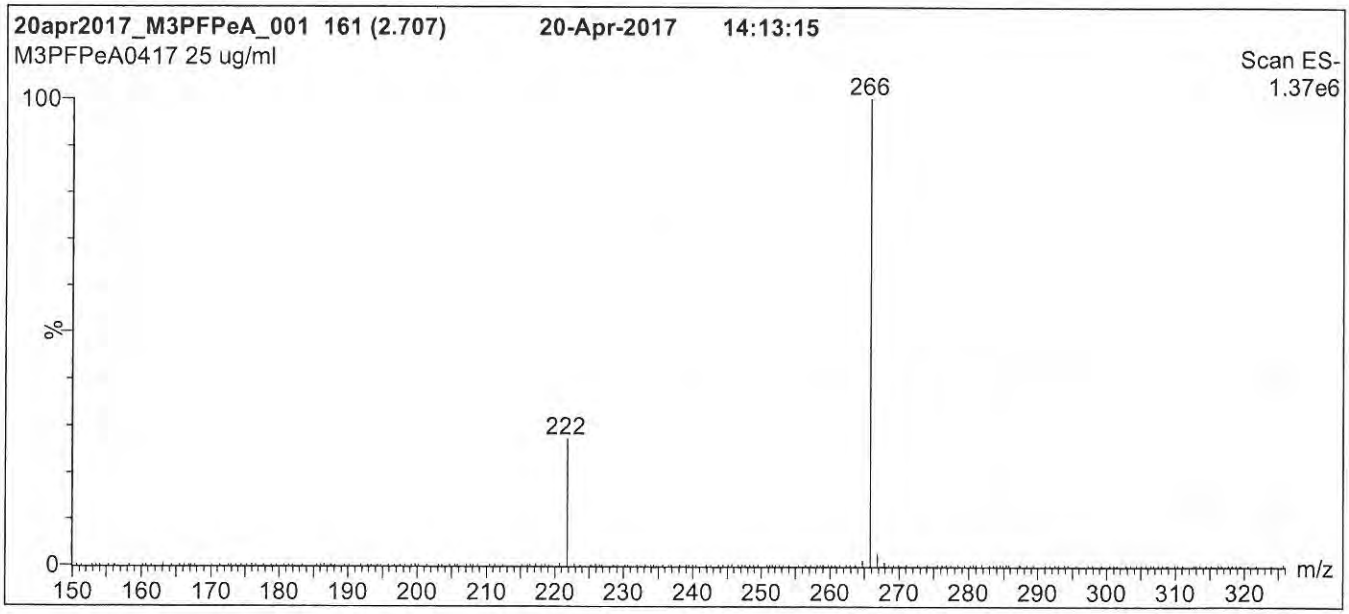
18F2219

Figure 1: **M3PFPeA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

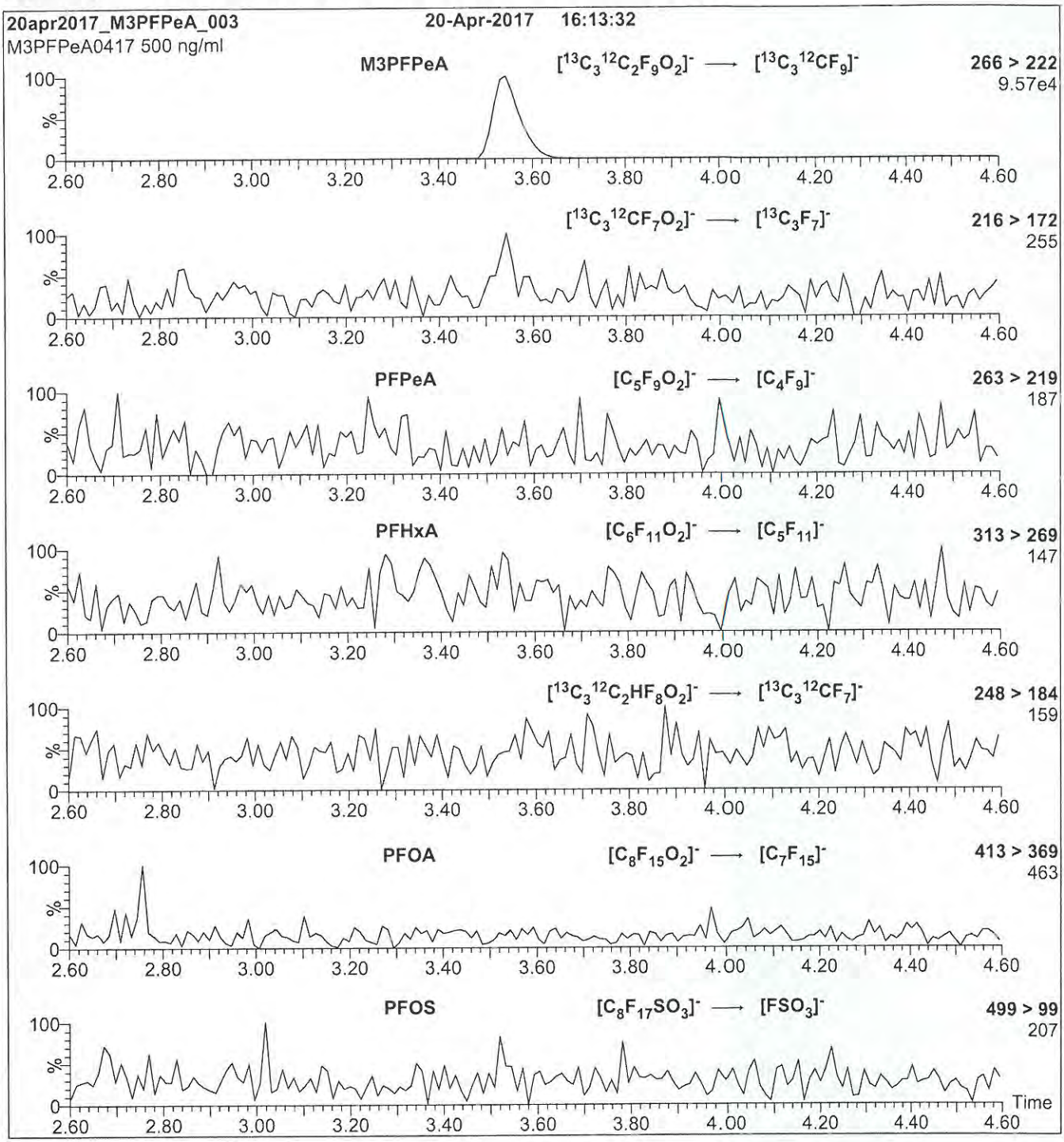
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

18F2219

Figure 2: **M3PFPeA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M3PFPeA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 9

18F2220

WELLINGTON LABORATORIES

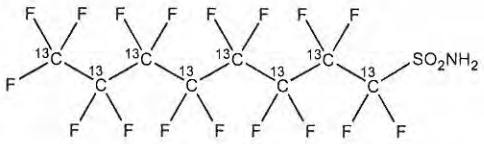
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M8FOSA-I
COMPOUND: Perfluoro-1-[$^{13}C_8$]octanesulfonamide

LOT NUMBER: M8FOSA1017I

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:	$^{13}C_8H_2F_{17}NO_2S$	**MOLECULAR WEIGHT:**	507.09
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Isopropanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_8$)
LAST TESTED: (mm/dd/yyyy)	10/11/2017		
EXPIRY DATE: (mm/dd/yyyy)	10/11/2022		
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 ~ 1.1% of perfluoro-1-[$^{13}C_4$]octanesulfonamide and ~ 0.01% of perfluoro-1-[$^{13}C_7$]heptanesulfonamide.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/20/2017 (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

18F2220

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CALA Testing Accreditation No. A 1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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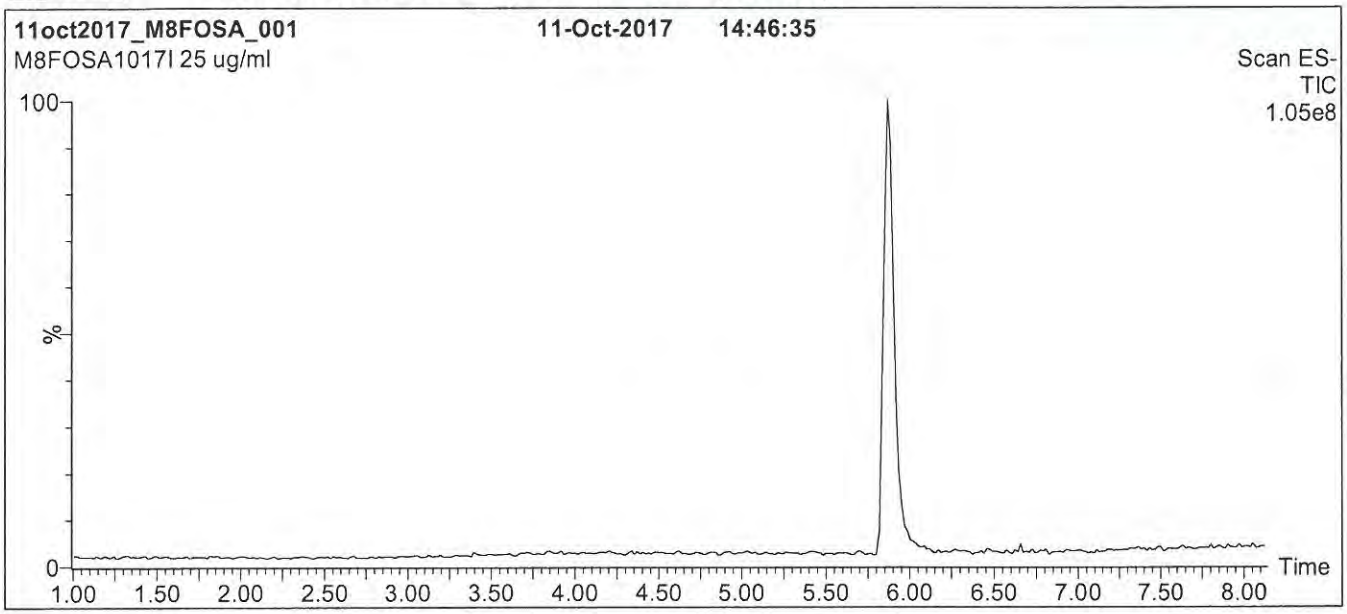
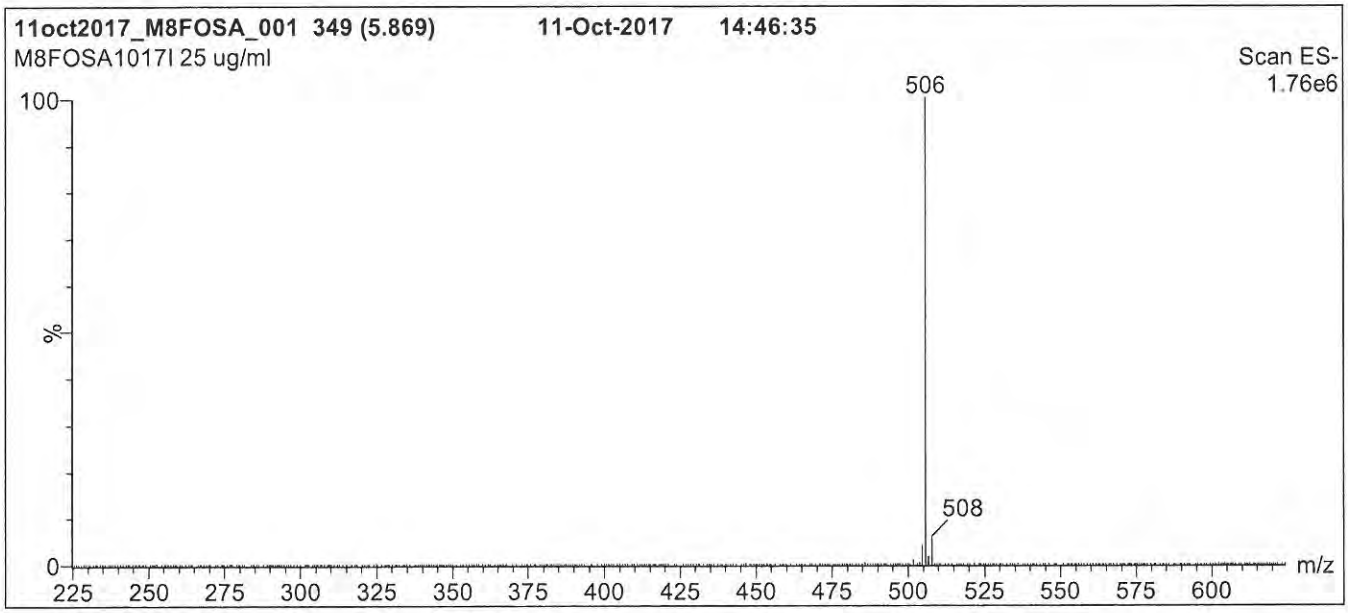
18F2220

Figure 1: **M8FOSA-I; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 85% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

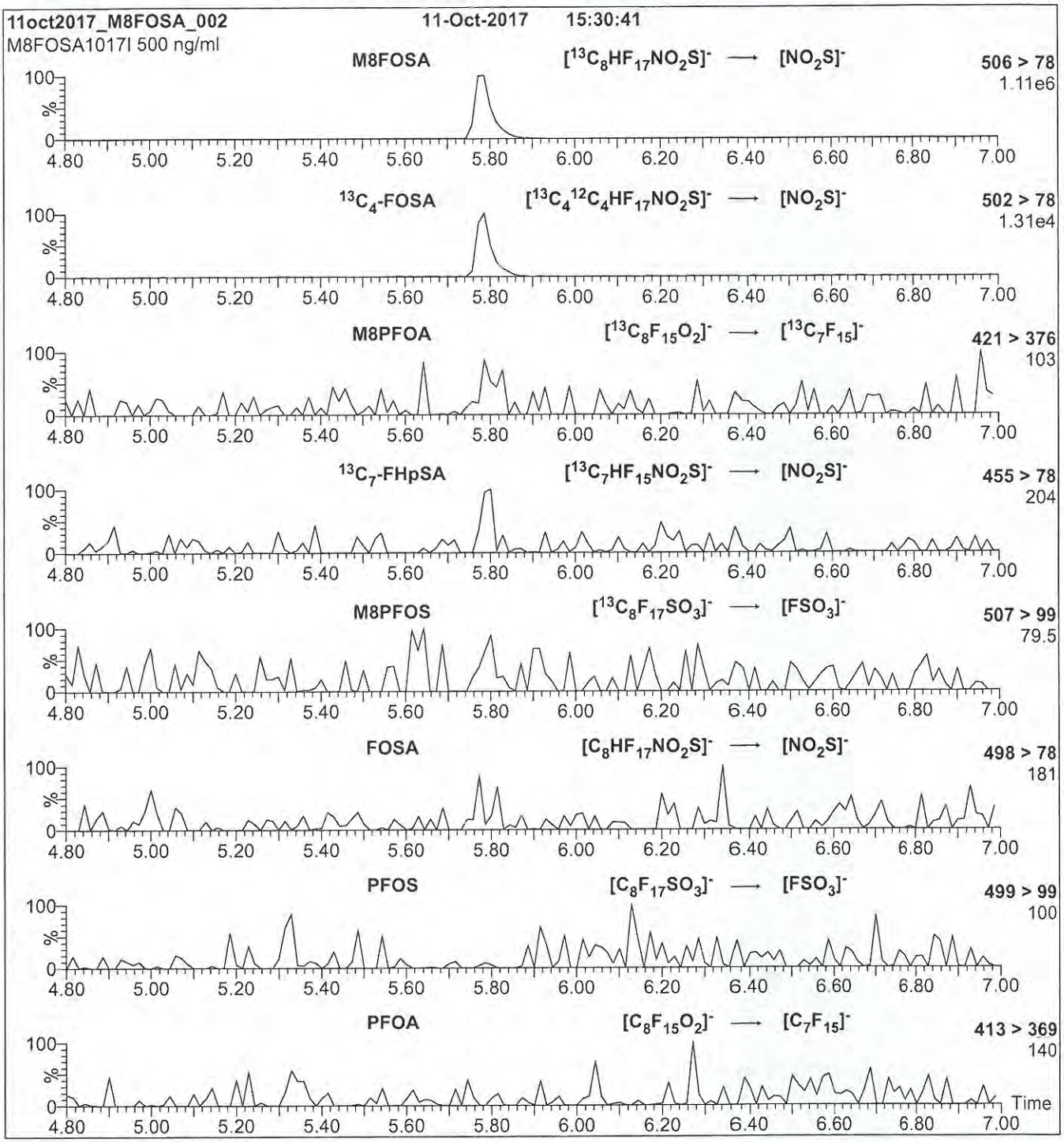
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18F2220

Figure 2: **M8FOSA-I; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M8FOSA-I)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 30

18F2221

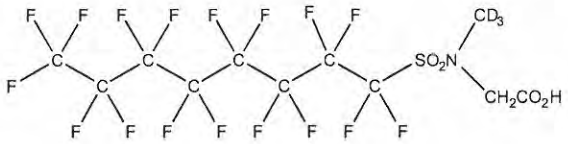
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: d3-N-MeFOSAA **LOT NUMBER:** d3NMeFOSAA1117

COMPOUND: N-methyl-d3-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$C_{11}D_3H_3F_{17}NO_4S$	**MOLECULAR WEIGHT:**	574.23
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_3$
LAST TESTED: (mm/dd/yyyy)	11/08/2017		
EXPIRY DATE: (mm/dd/yyyy)	11/08/2022		
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 4 mole eq. of NaOH to prevent the conversion of the acetic acid moiety to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/16/2017 (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

18F2221

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.

HAZARDS:

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.

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Where possible, all of our products are synthesized using single-product unambiguous routes. 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:

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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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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CALA Testing

ANAB ACCREDITED

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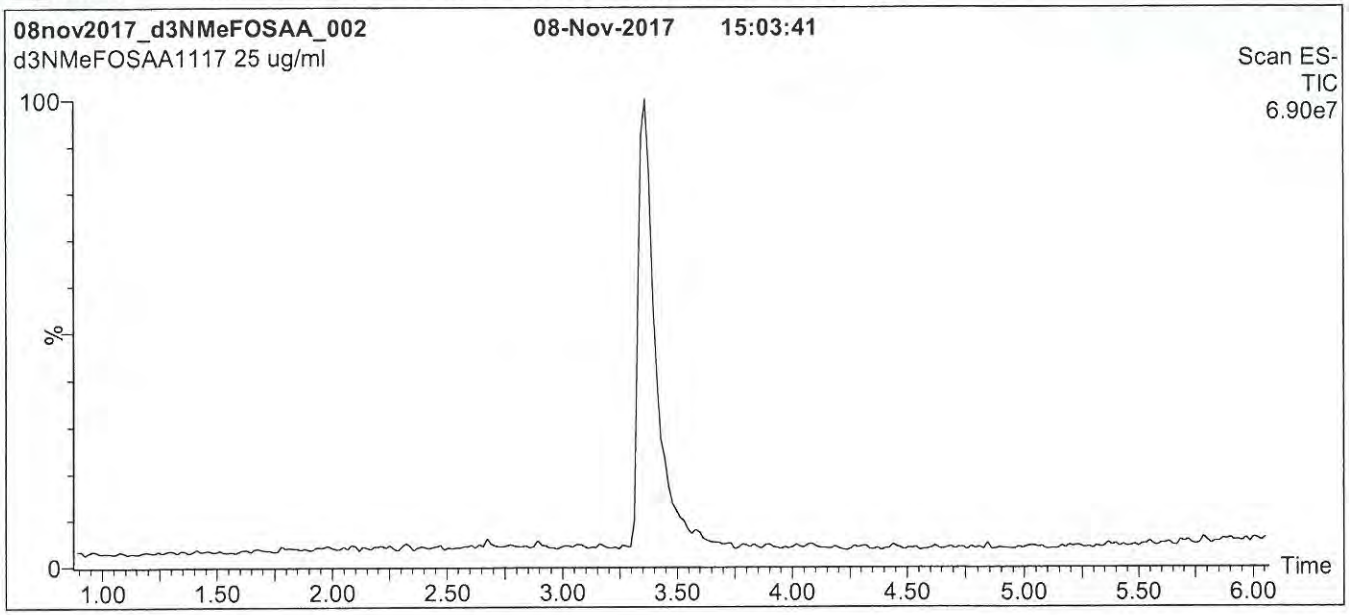
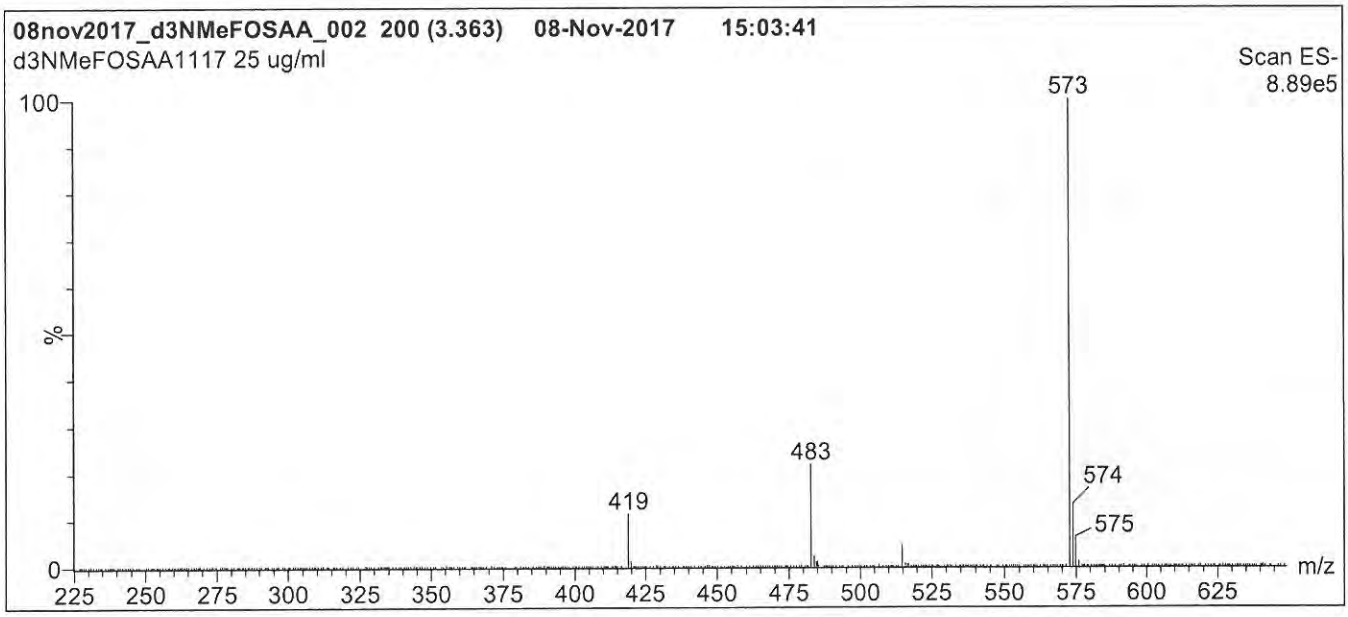
18F2221

Figure 1: **d3-N-MeFOSAA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

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Chromatographic Conditions

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

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

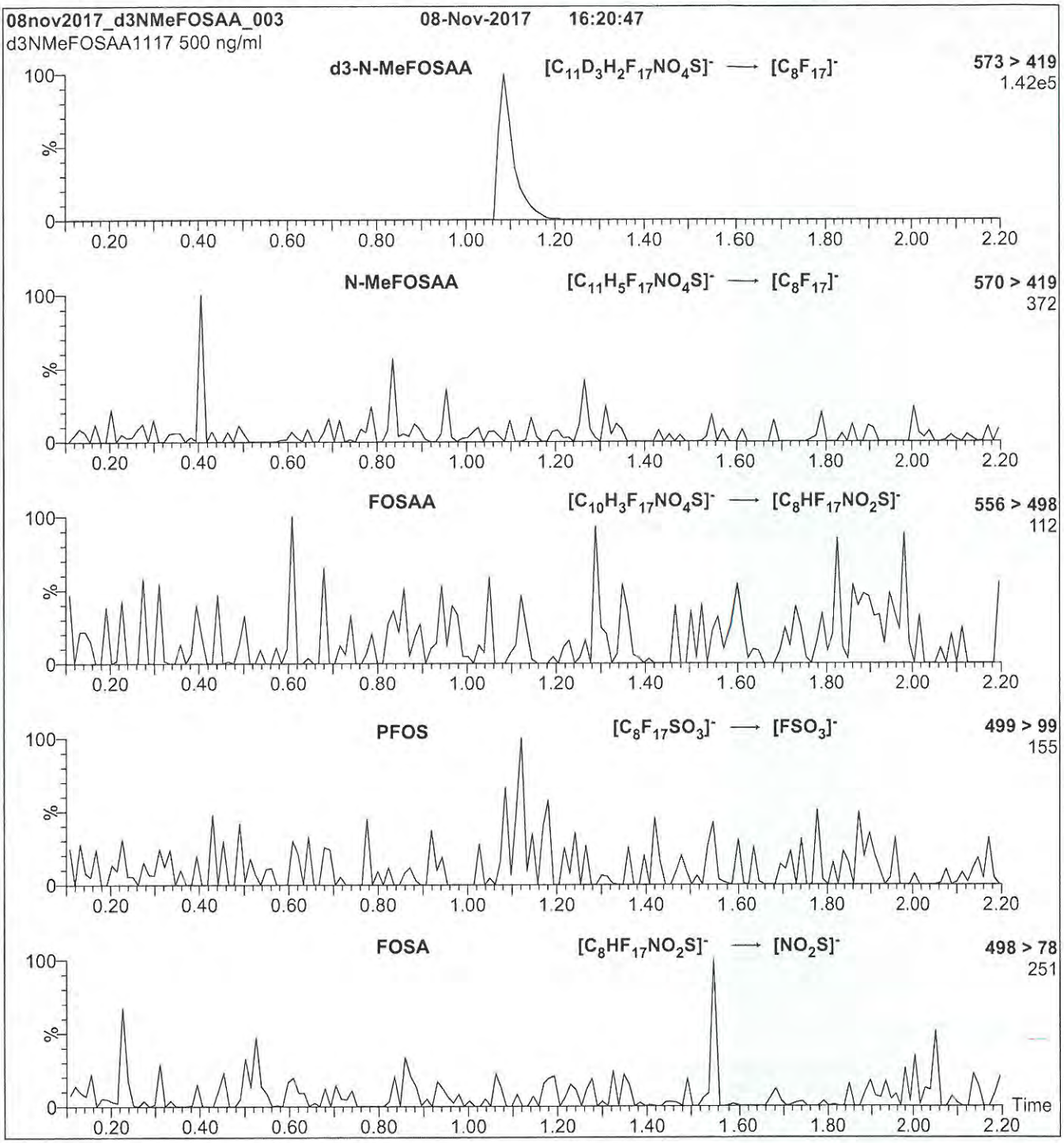
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 35.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18F2221

Figure 2: **d3-N-MeFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml d3-N-MeFOSAA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 20

18F2222

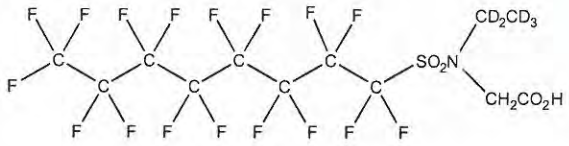
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: d5-N-EtFOSAA **LOT NUMBER:** d5NEtFOSAA1117

COMPOUND: N-ethyl-d5-perfluoro-1-octanesulfonamidoacetic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$C_{12}D_5H_3F_{17}NO_4S$	**MOLECULAR WEIGHT:**	590.26
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥98% $^2H_5$
LAST TESTED: (mm/dd/yyyy)	11/08/2017		
EXPIRY DATE: (mm/dd/yyyy)	11/08/2022		
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 4 mole eq. of NaOH to prevent the conversion of the acetic acid moiety to the methyl ester.

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Certified By: _____ **Date:** 11/16/2017 (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

18F2222

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CALA

ANAB ACCREDITED

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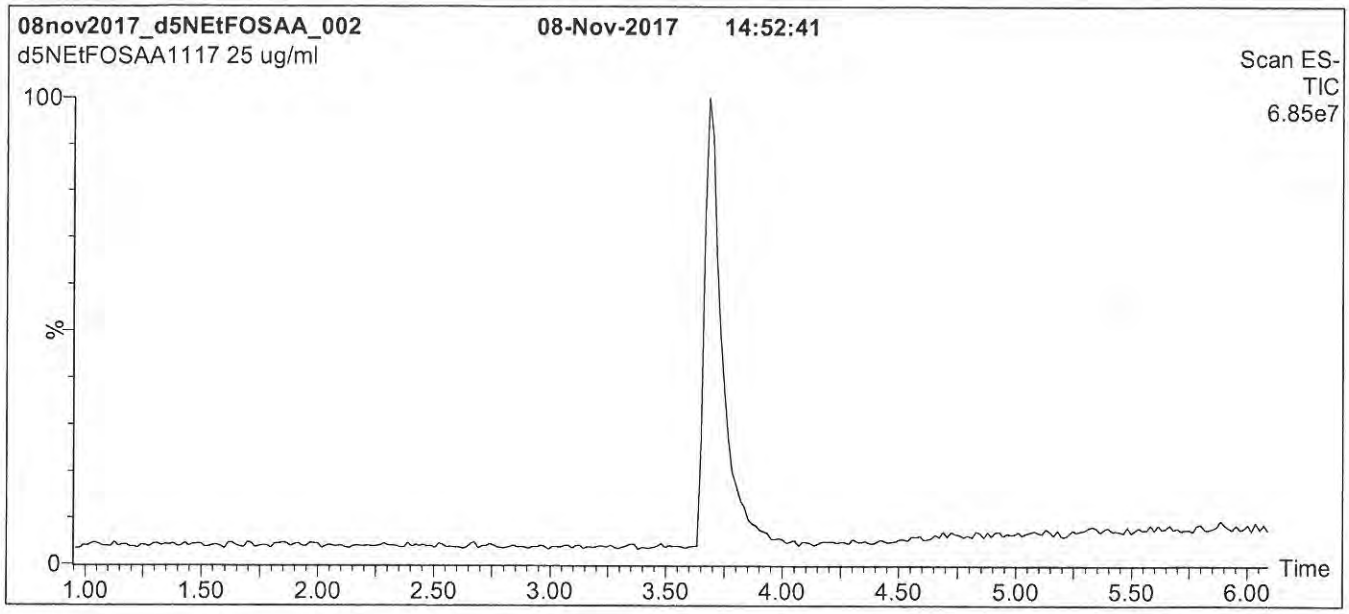
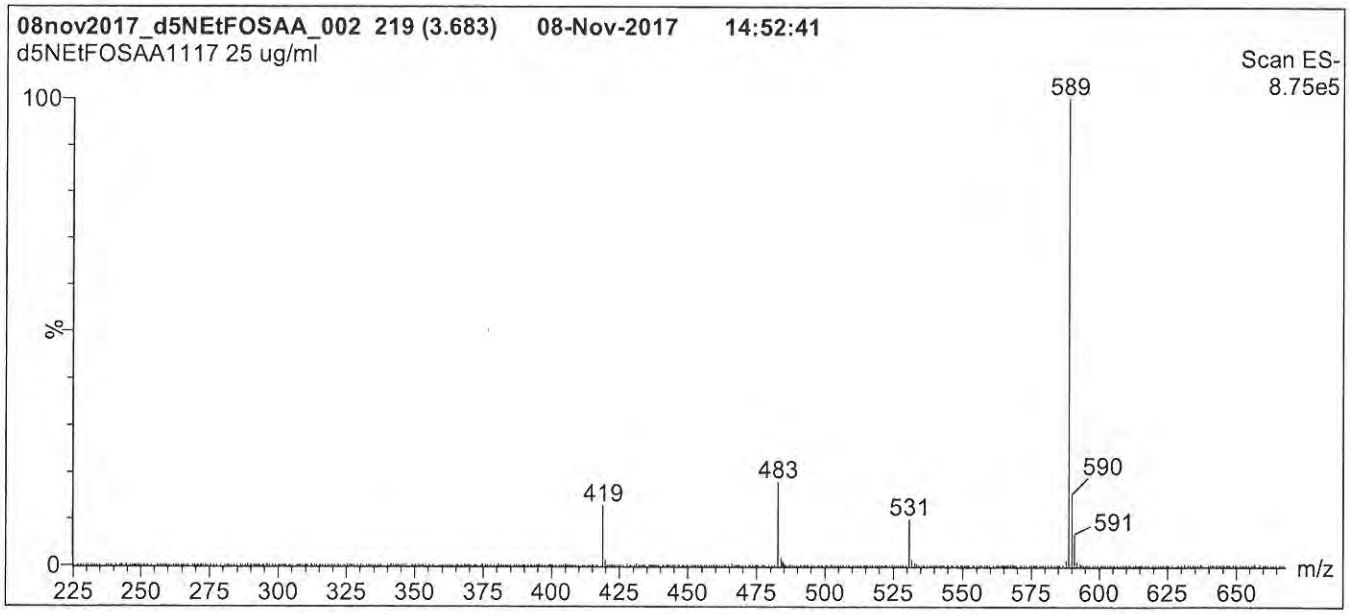
18F2222

Figure 1: **d5-N-EtFOSAA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

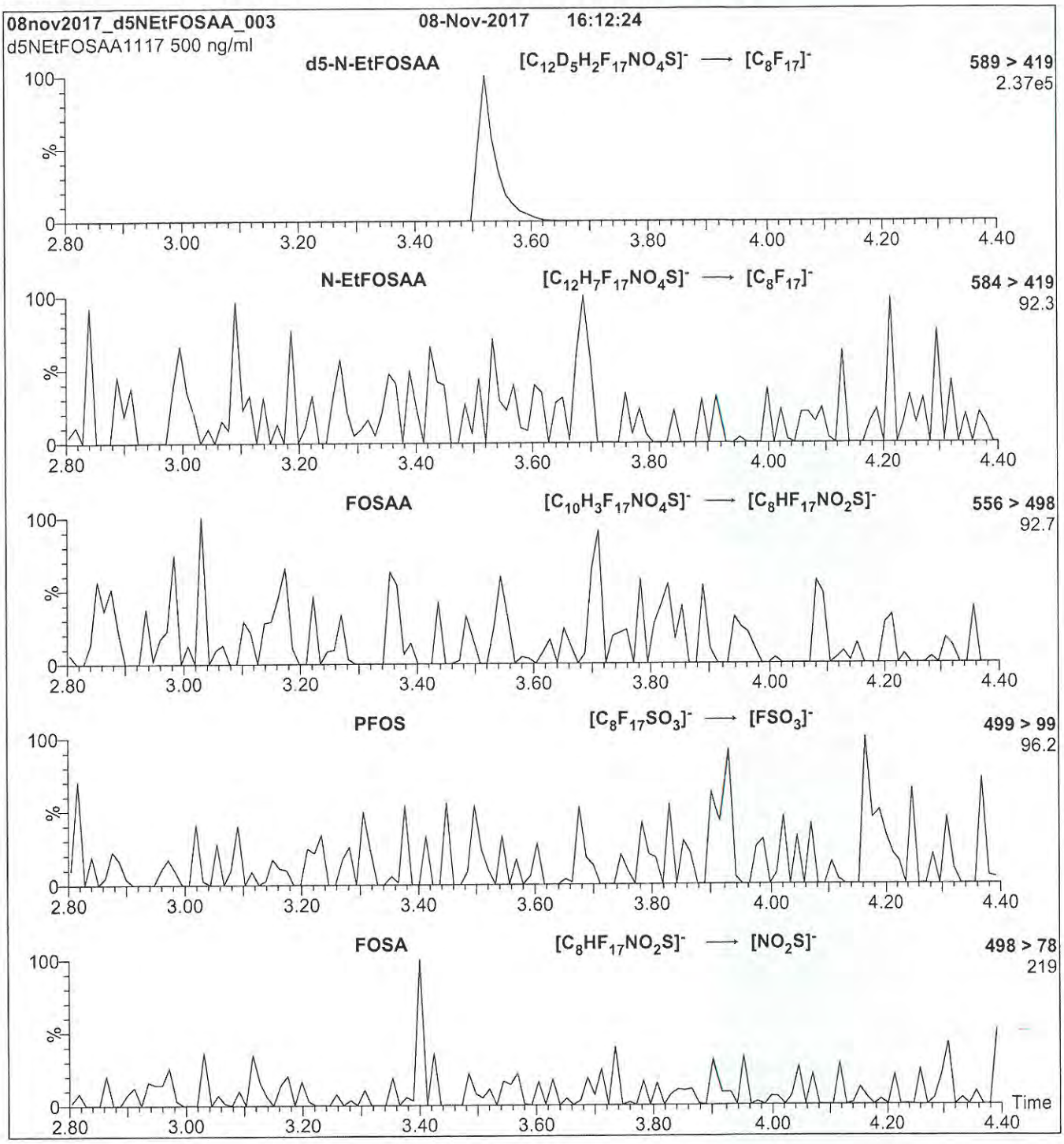
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 35.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18F2222

Figure 2: d5-N-EtFOSAA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml d5-N-EtFOSAA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.50e-3
Collision Energy (eV) = 20

18F2223

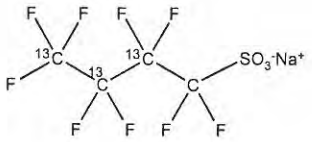
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M3PFBS **LOT NUMBER:** M3PFBS0218

COMPOUND: Sodium perfluoro-1-[2,3,4-$^{13}C_3$]butanesulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}CF_9SO_3Na$	**MOLECULAR WEIGHT:**	325.06
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 46.5 ± 2.3 µg/ml (M3PFBS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($2,3,4\text{-}^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	02/15/2018		
EXPIRY DATE: (mm/dd/yyyy)	02/15/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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:** 02/16/2018 (mm/dd/yyyy)
B.G. Chittim, General Manager

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18F2223

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CALA

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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18F2223

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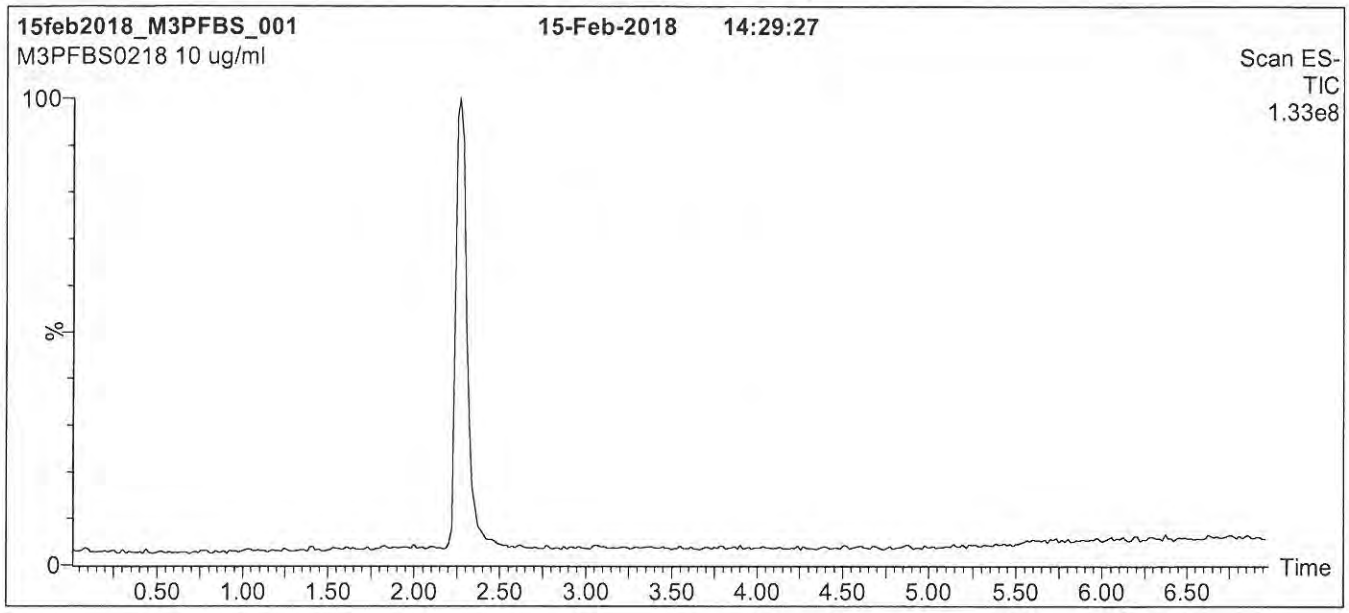

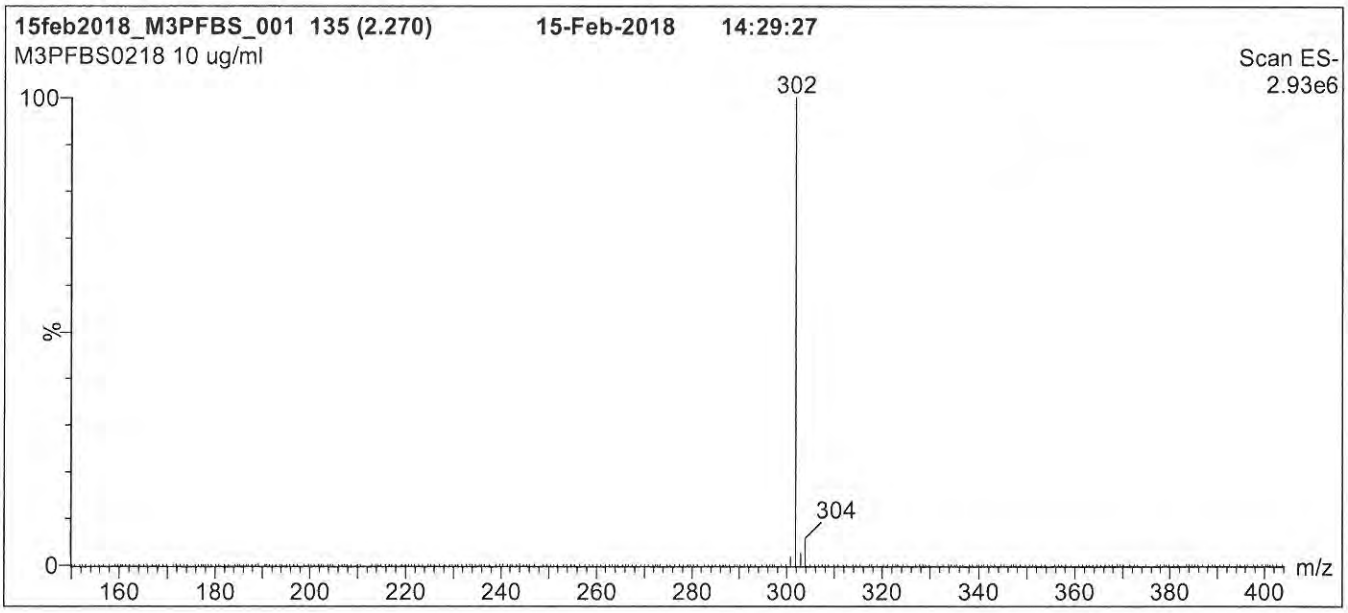

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1.7 µm, 2.1 x 100 mm

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Ramp to 90% organic over 7 min and hold for
2 min before returning to initial conditions in 0.5 min.
Time: 10 min

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Source: Electrospray (negative)
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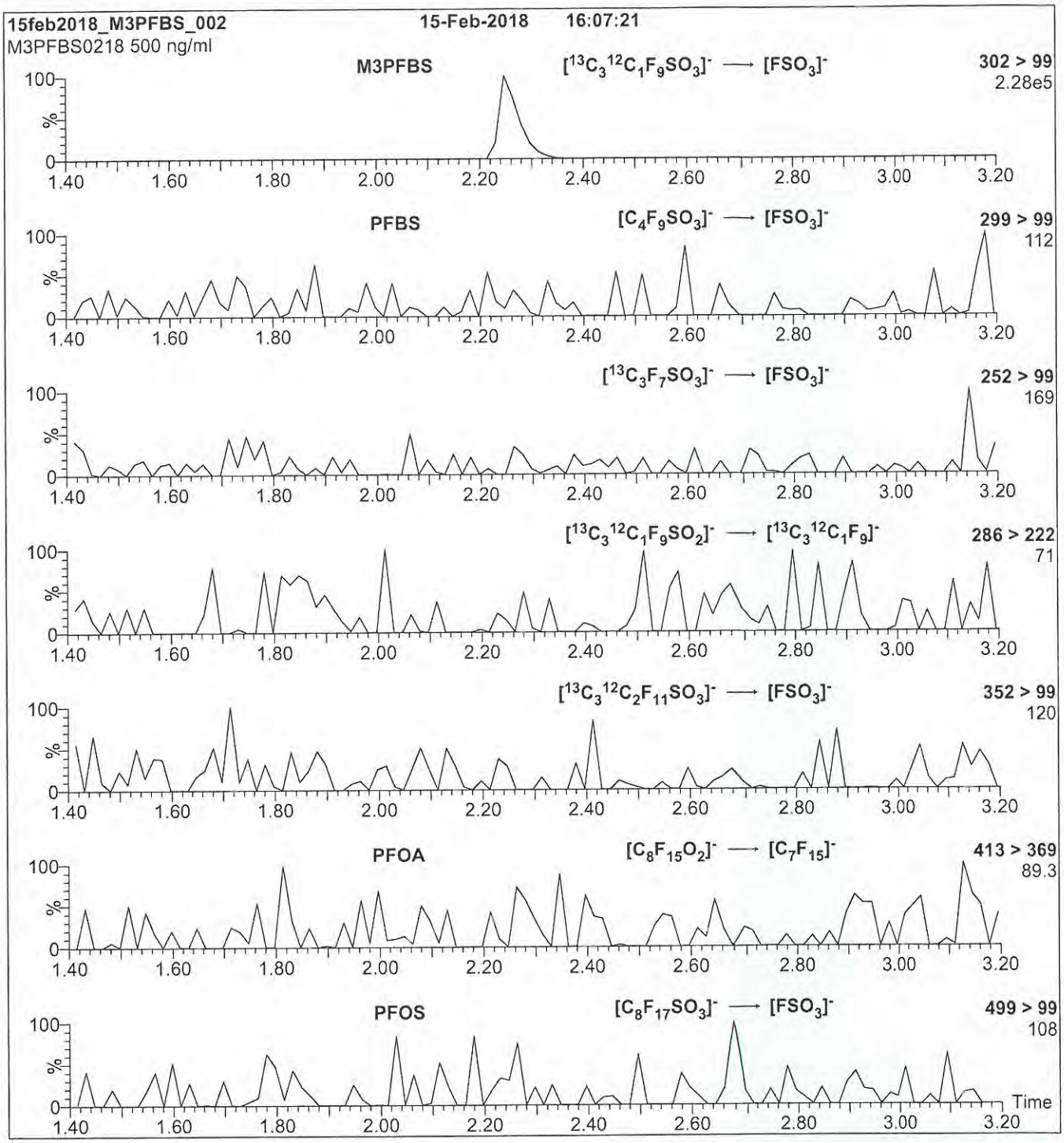
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18F2223

Figure 2: **M3PFBS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M3PFBS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.17e-3
Collision Energy (eV) = 25

18F2224

WELLINGTON LABORATORIES

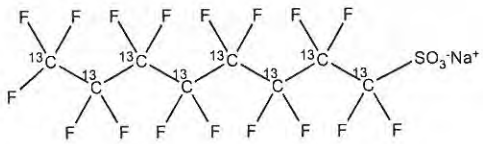
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M8PFOS
COMPOUND: Sodium perfluoro-1-[$^{13}C_8$]octanesulfonate

LOT NUMBER: M8PFOS1117

CAS #: Not available

STRUCTURE:



MOLECULAR FORMULA:	$^{13}C_8F_{17}SO_3Na$
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.8 ± 2.4 µg/ml (M8PFOS anion)
CHEMICAL PURITY:	>98%
LAST TESTED: (mm/dd/yyyy)	11/08/2017
EXPIRY DATE: (mm/dd/yyyy)	11/08/2022
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

MOLECULAR WEIGHT:	530.05
SOLVENT(S):	Methanol
ISOTOPIC PURITY:	>99% ^{13}C ($^{13}C_8$)

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 ~ 0.3% of sodium perfluoro-1-[$^{13}C_7$]heptanesulfonate ($^{13}C_7$-PFHpS) and ~ 0.8% of sodium perfluoro-1-[$^{13}C_4$]octanesulfonate (MPFOS).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/22/2017 (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

18F2224

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.

HAZARDS:

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:

Where possible, all of our products are synthesized using single-product unambiguous routes. 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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. 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; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

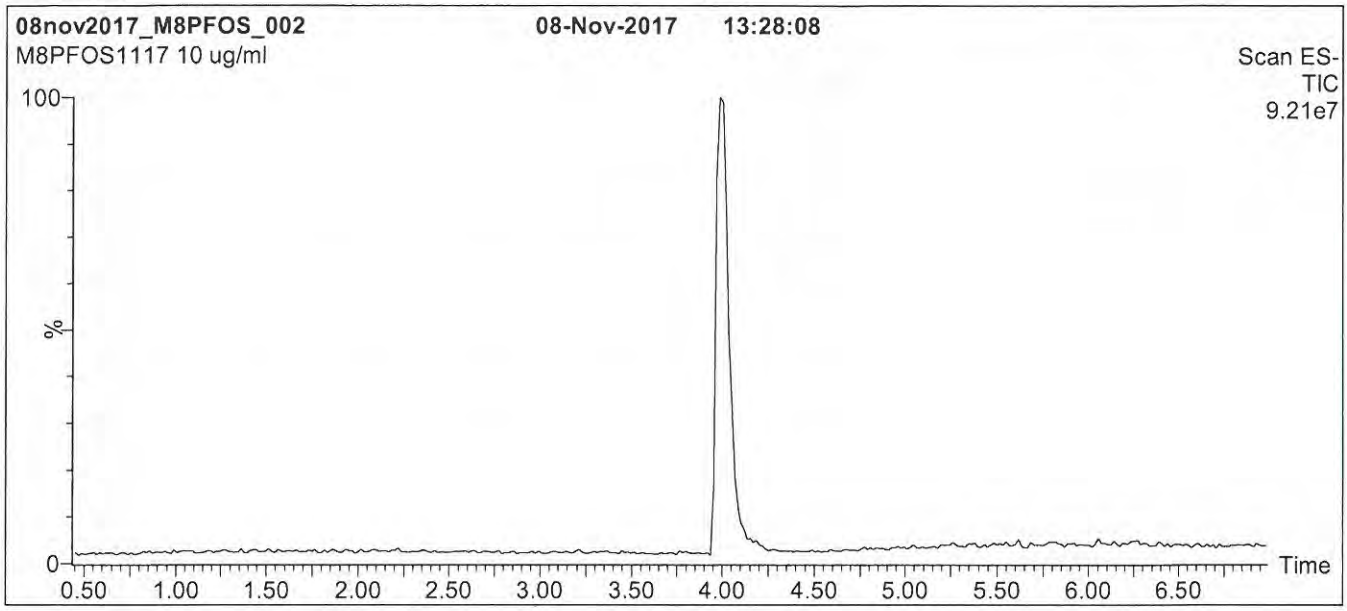
CALA

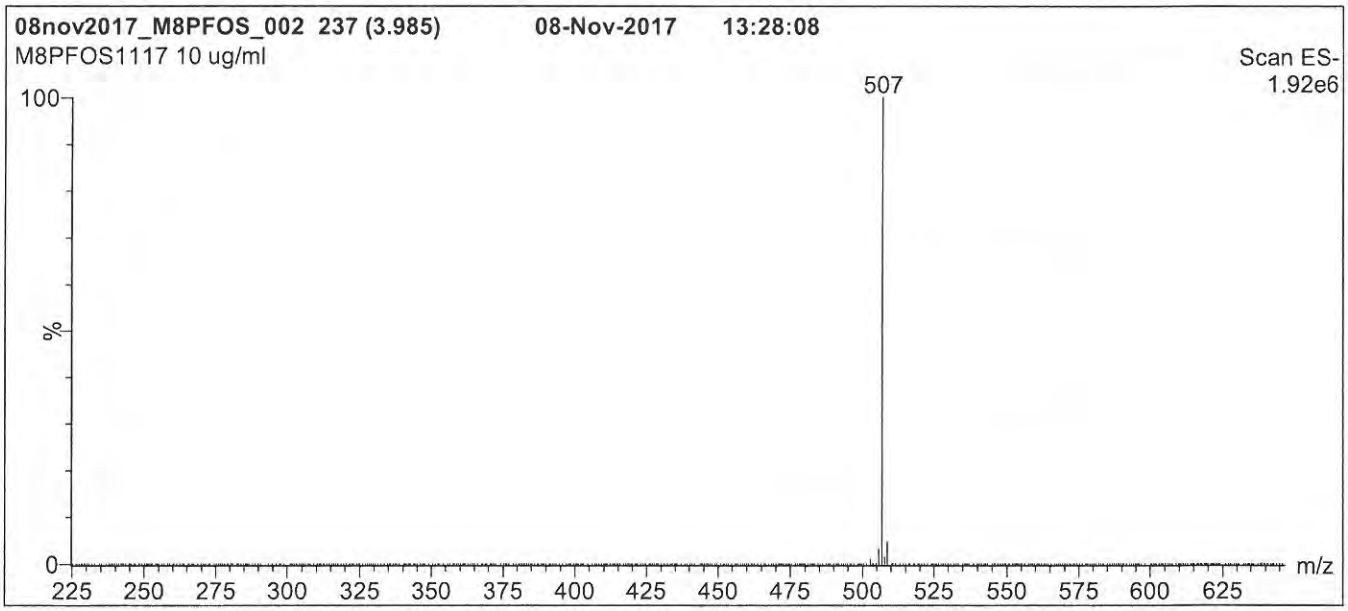
ANAB ACCREDITED

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

18F2224

Figure 1: **M8PFOS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

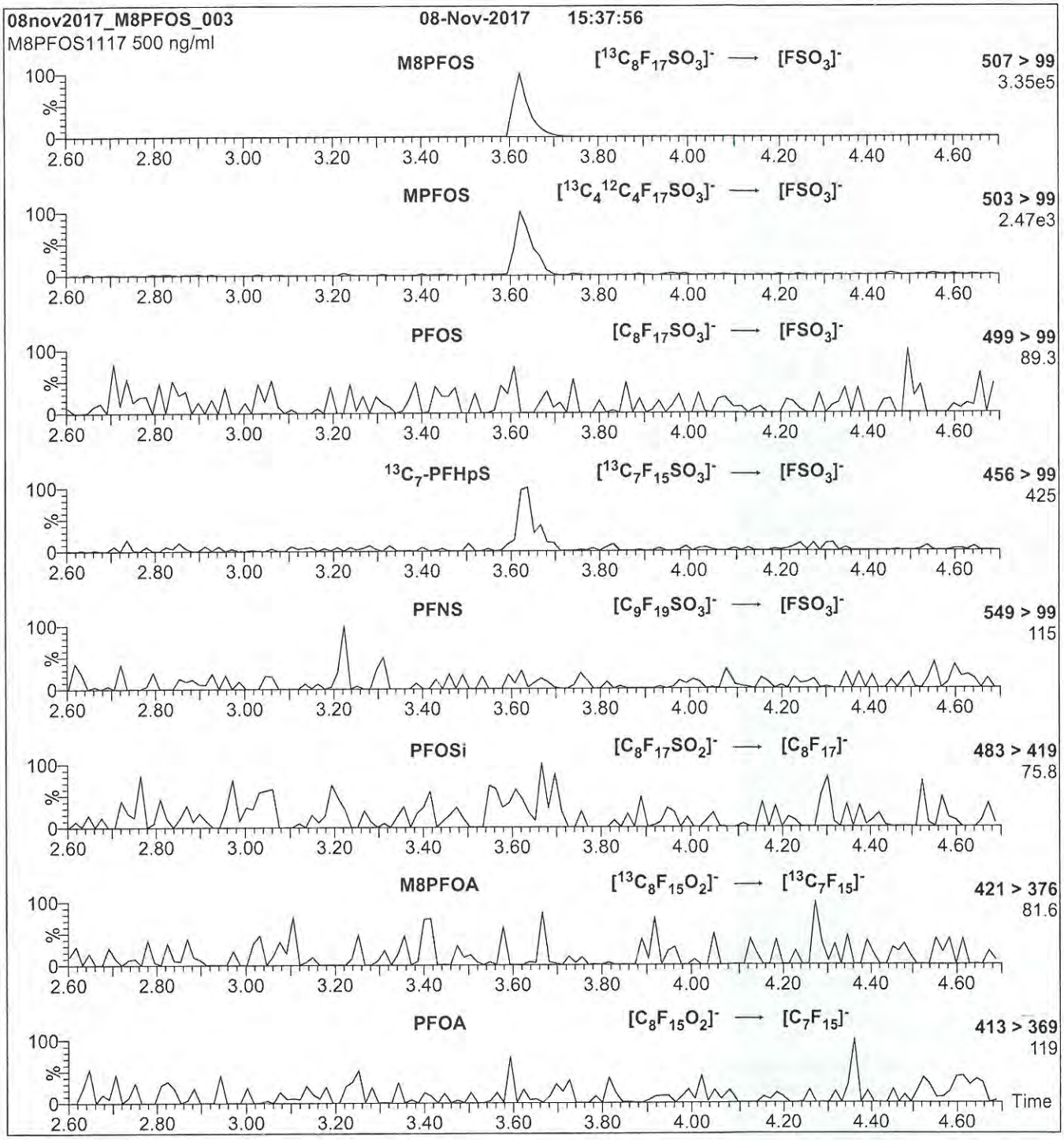
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 60.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18F2224

Figure 2: **M8PFOS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M8PFOS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 40

18F2225

WELLINGTON LABORATORIES

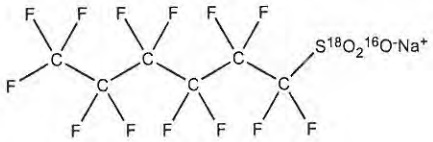
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFHxS
COMPOUND: Sodium perfluoro-1-hexane[$^{18}O_2$]sulfonate

LOT NUMBER: MPFHxS0318

STRUCTURE:

CAS #: 1585941-14-5



MOLECULAR FORMULA:	$C_6F_{13}S^{18}O_2{}^{16}ONa$
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt)
	47.3 ± 2.4 µg/ml (MPFHxS anion)
CHEMICAL PURITY:	>98%
LAST TESTED: (mm/dd/yyyy)	03/22/2018
EXPIRY DATE: (mm/dd/yyyy)	03/22/2023
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

MOLECULAR WEIGHT:	426.10
SOLVENT(S):	Methanol
ISOTOPIC PURITY:	>94% ($^{18}O_2$)

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.
- 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 ~ 1.0% 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:** 06/07/2018 (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

18F2225

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; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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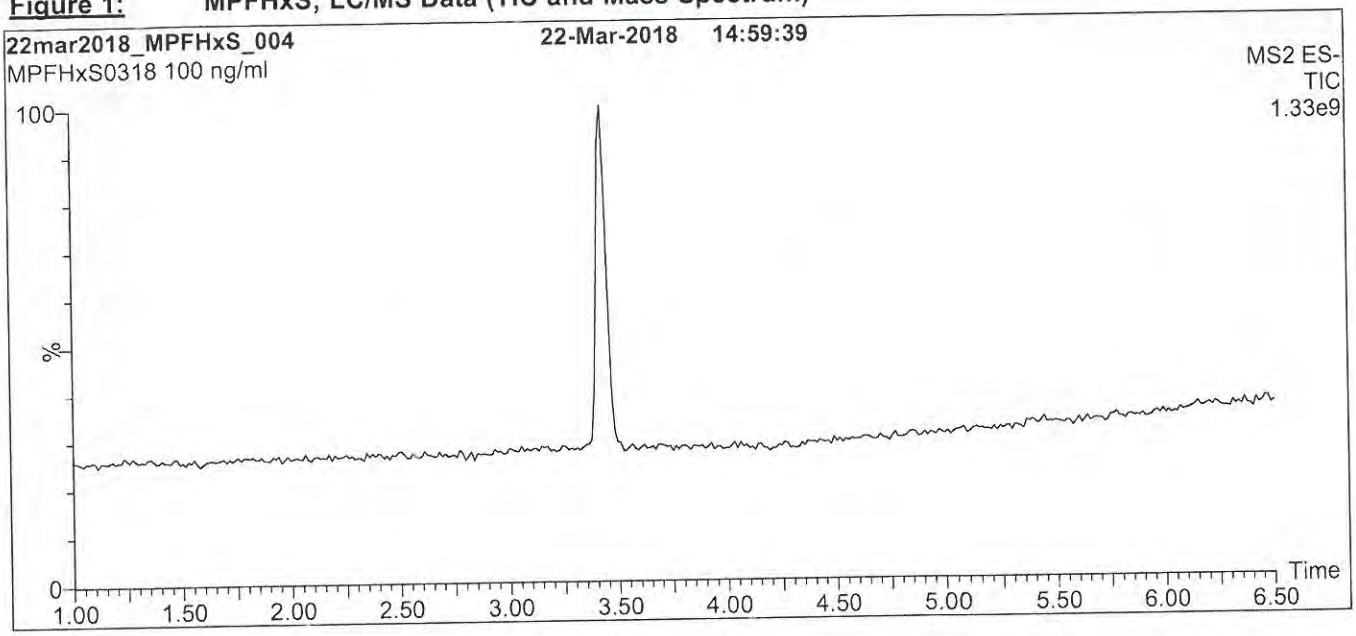
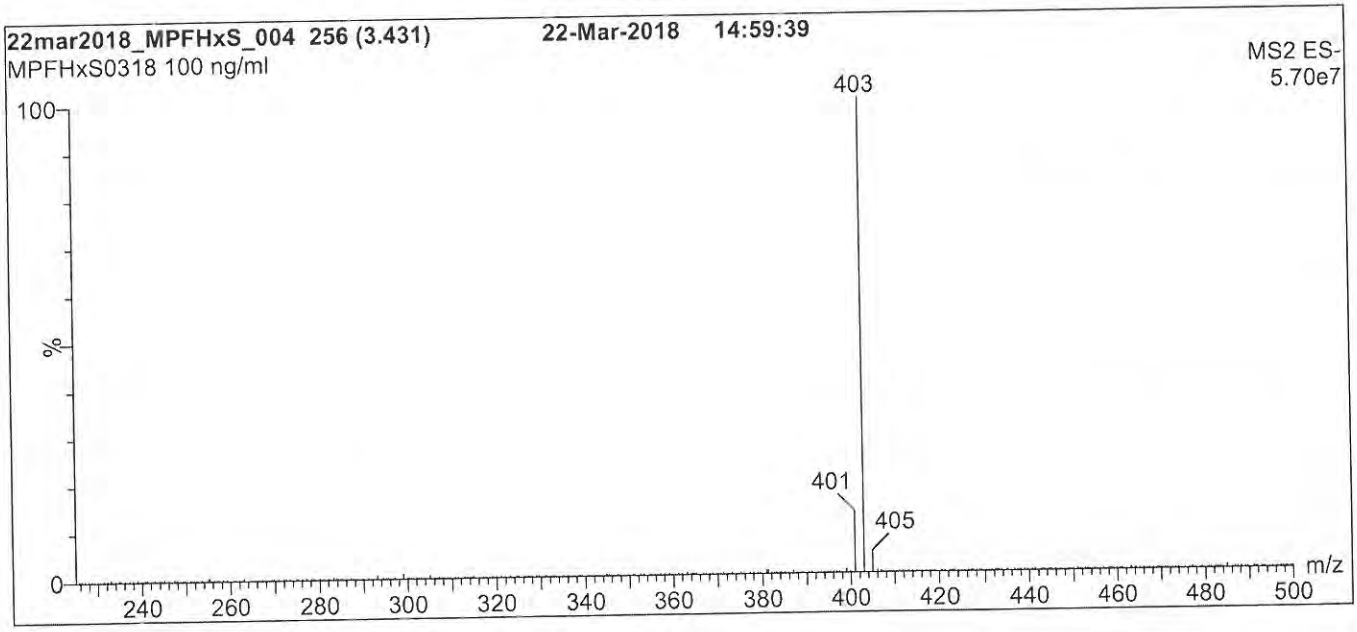
18F2225

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **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% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 80% 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

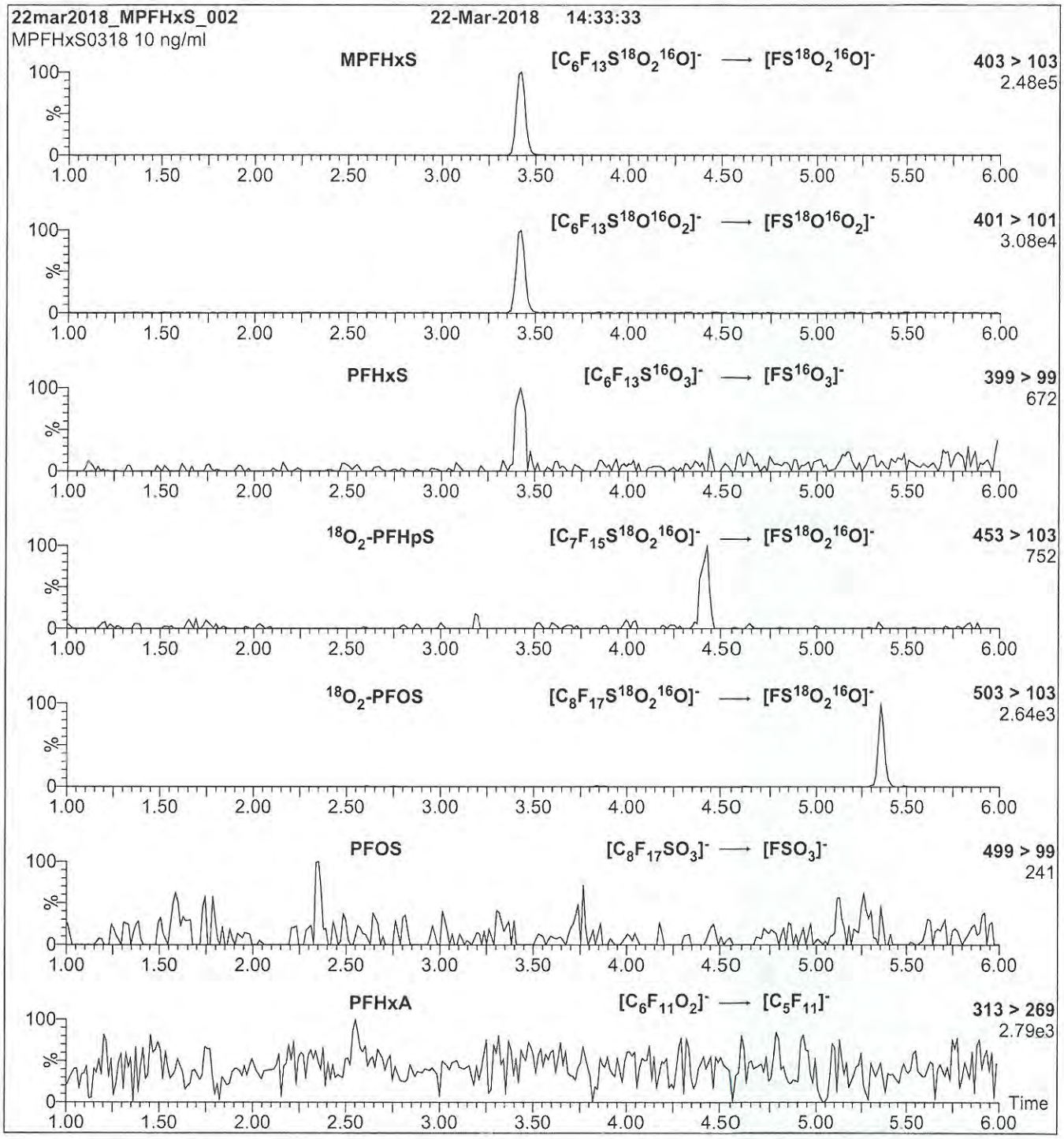
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 5.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 750

18F2225

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) = 3.64e-3

Collision Energy (eV) = 32

18F2226

WELLINGTON LABORATORIES

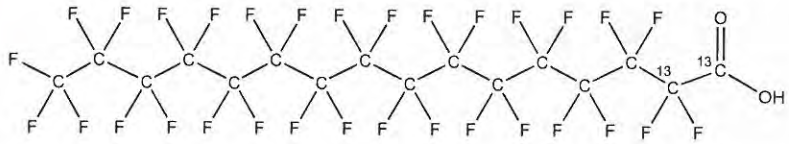
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2PFHxDA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]hexadecanoic acid

LOT NUMBER: M2PFHxDA0717

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_{14}HF_{31}O_2$	**MOLECULAR WEIGHT:**	816.11
CONCENTRATION:	50 ± 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)	07/13/2017		
EXPIRY DATE: (mm/dd/yyyy)	07/13/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.3% of native perfluoro-n-hexadecanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/14/2017 (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

18F2226

INTENDED USE:

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QUALITY MANAGEMENT:

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CALA Testing Accreditation No. A 1226

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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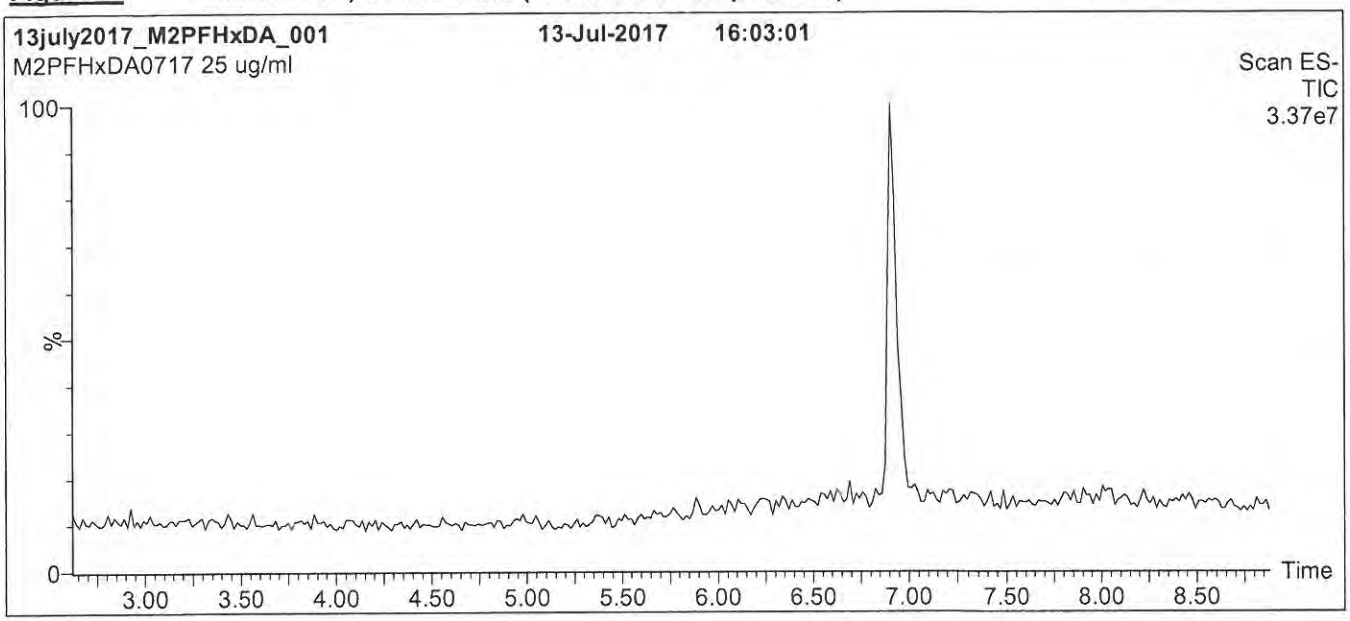
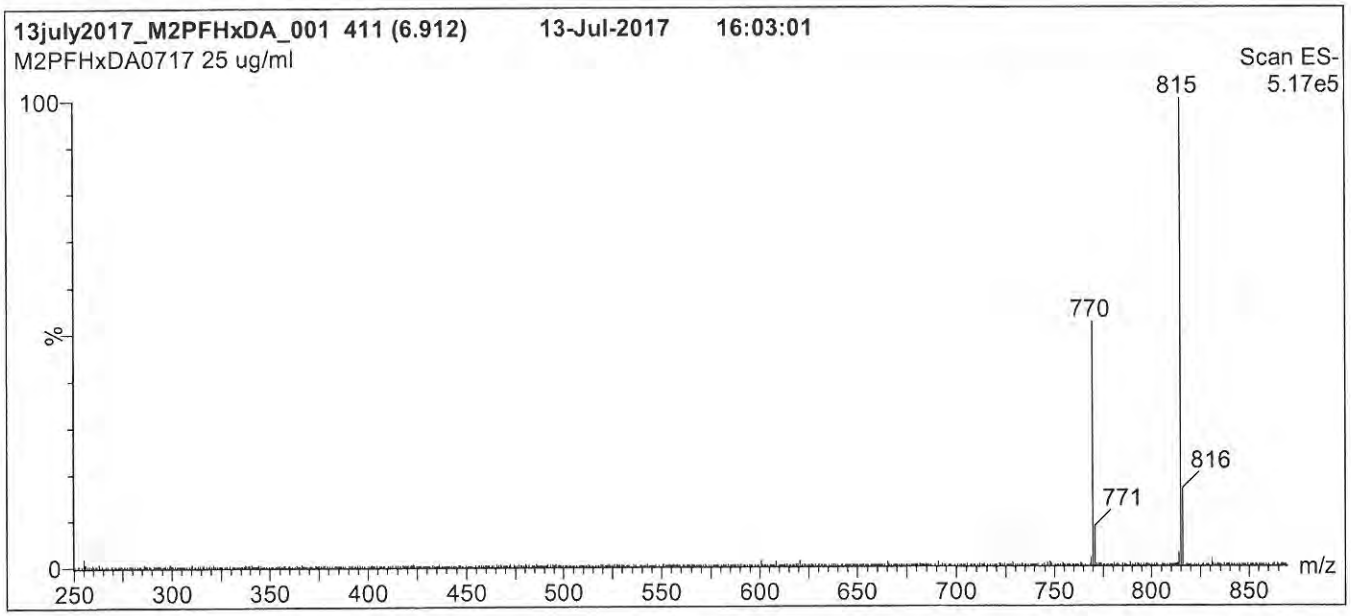
18F2226

Figure 1: **M2PFHxDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

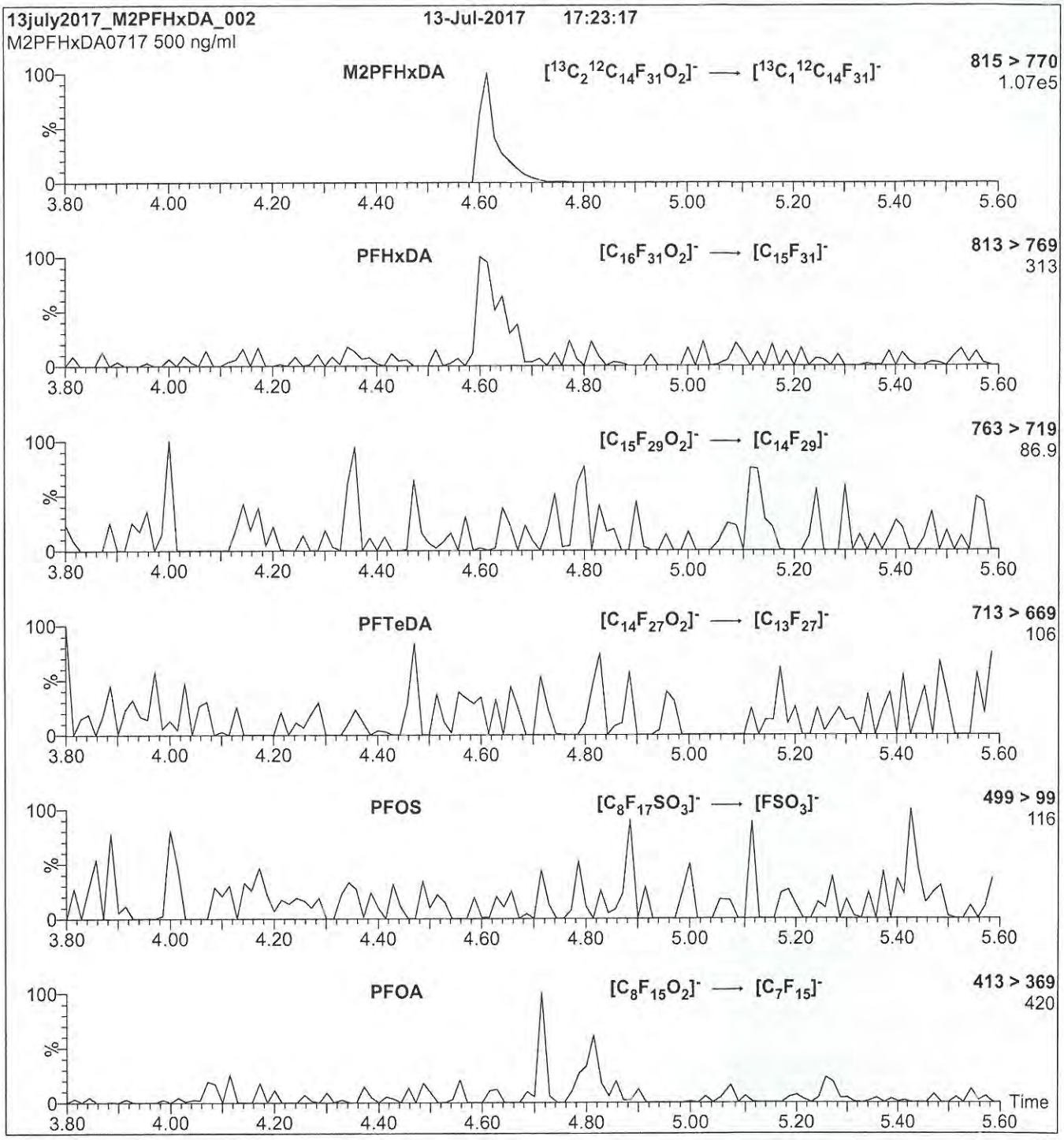
MS Parameters

Experiment: Full Scan (250 - 1250 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

18F2226

Figure 2: **M2PFHxDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M2PFHxDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 15

18F2227

WELLINGTON LABORATORIES

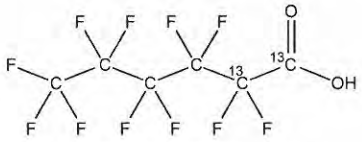
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFHxA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]hexanoic acid

LOT NUMBER: MPFHxA1017

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_4HF_{11}O_2$	**MOLECULAR WEIGHT:**	316.04
CONCENTRATION:	50 ± 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)	10/27/2017		
EXPIRY DATE: (mm/dd/yyyy)	10/27/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains < 0.1% of perfluoro-n-hexanoic acid and < 0.3% of perfluoro-n-octanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/30/2017 (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

18F2227

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.

HAZARDS:

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:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. 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; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

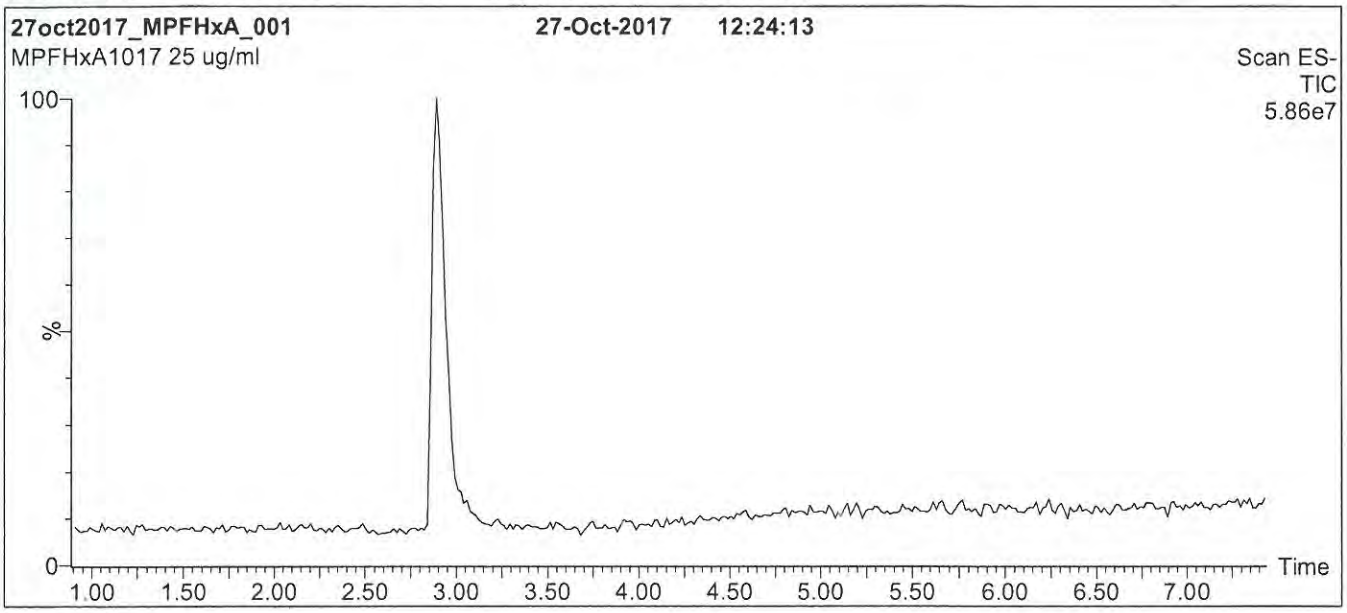
CALA

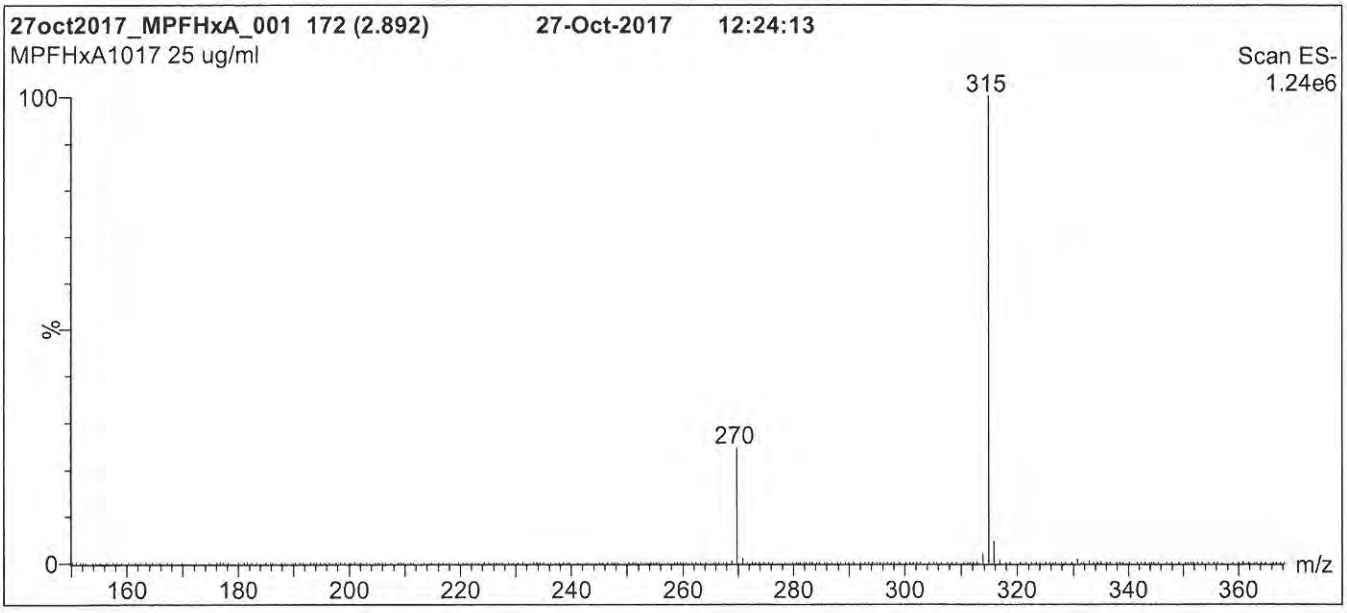
ANAB ACCREDITED

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

18F2227

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min before returning to initial conditions over 0.5 min.
Time: 10 min

Flow: 300 µl/min

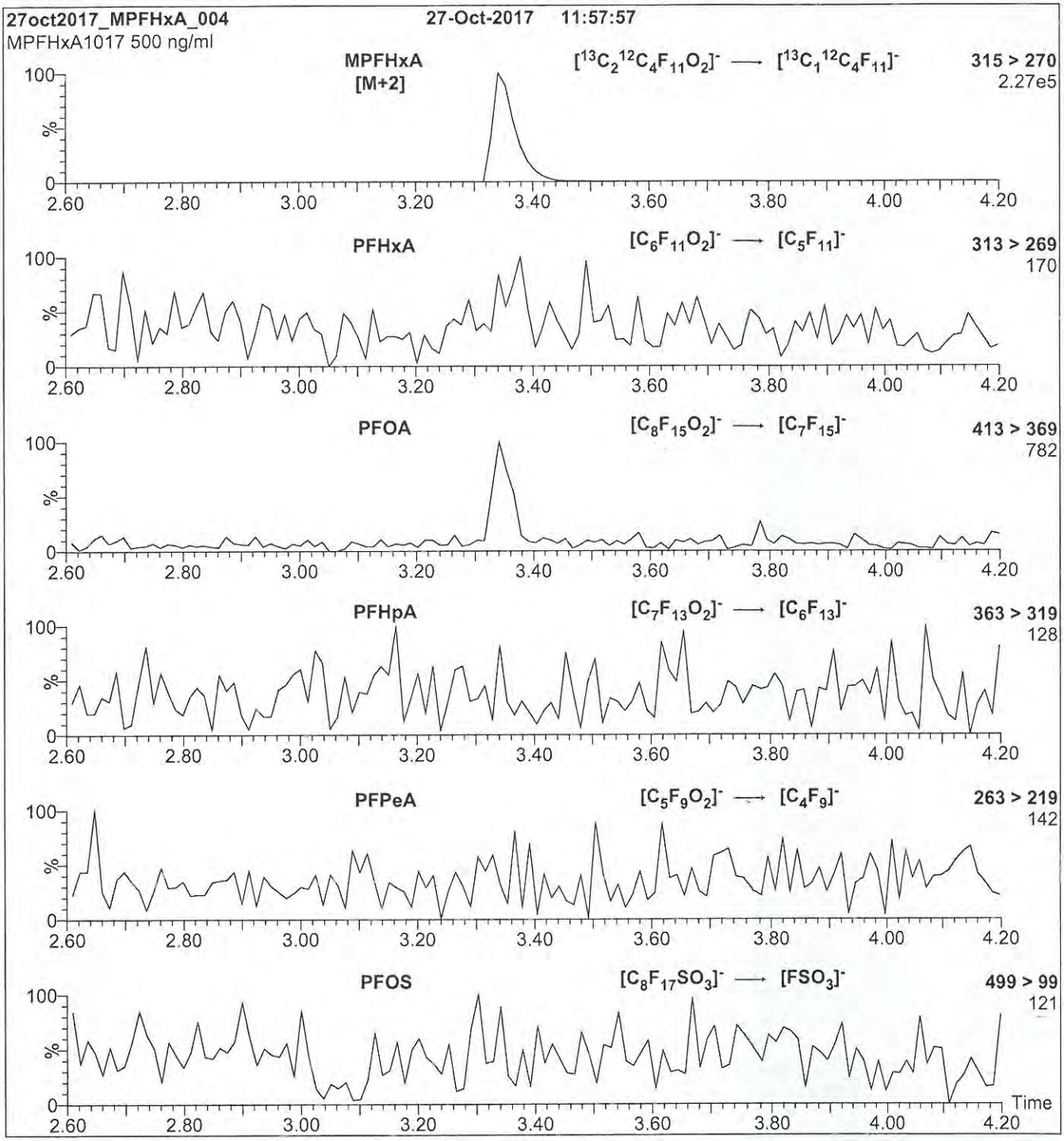
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

18F2227

Figure 2: **MPFHxA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFHxA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.58e-3
Collision Energy (eV) = 10

Analytical Standard Record

Vista Analytical Laboratory

18J1505

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	(mls)
18E0707	PFDoA	07-May-18	** Vendor **	18-Apr-23	0.4
18E0708	PFBA	07-May-18	** Vendor **	14-Dec-22	0.4
18E0709	PFPeA	07-May-18	** Vendor **	16-Feb-23	0.4
18E0710	PFHxA	07-May-18	** Vendor **	27-Sep-22	0.4
18E0711	PFDA	07-May-18	** Vendor **	14-Dec-22	0.4
18E0712	PFUdA	07-May-18	** Vendor **	21-Sep-22	0.4
18E0713	PFTrDA	07-May-18	** Vendor **	02-May-22	0.4
18E0714	PFHpA	07-May-18	** Vendor **	27-Sep-22	0.4
18E0715	PFOA	07-May-18	** Vendor **	16-Feb-23	0.4
18E0716	PFNA	07-May-18	** Vendor **	20-Jul-22	0.4
18E0717	PFTeDA	07-May-18	** Vendor **	21-Sep-22	0.4
18E0718	PFHxDA	07-May-18	** Vendor **	13-Jul-22	0.4
18E0719	PFODA	07-May-18	** Vendor **	13-Jul-22	0.4
18E0720	L-PFBS	07-May-18	** Vendor **	21-Sep-22	0.454
18E0721	L-PFPeS	07-May-18	** Vendor **	11-Jan-22	0.428
18E0722	L-PFHpS	07-May-18	** Vendor **	01-Sep-22	0.42
18E0723	L-PFNS	07-May-18	** Vendor **	27-Sep-22	0.418
18E0724	L-PFDS	07-May-18	** Vendor **	08-Nov-22	0.415
18E0725	br-PFHxSK	07-May-18	** Vendor **	04-Jan-22	0.44
18E0726	br-PFOSK anion	07-May-18	** Vendor **	12-Jan-22	0.431
18E0727	4:2 FTS	07-May-18	** Vendor **	12-Dec-21	0.43
18E0728	6:2FTS	07-May-18	** Vendor **	03-Apr-23	0.422
18E0729	8:2FTS	07-May-18	** Vendor **	24-Jan-23	0.418
18E0730	FOSA-I	07-May-18	** Vendor **	01-Sep-22	0.4
18E0731	br-NMeFOSAA	07-May-18	** Vendor **	17-Jan-23	0.4
18E0732	br-NEtFOSAA	07-May-18	** Vendor **	17-Jan-23	0.4
18I0762	N-MeFOSA-M	07-Sep-18	** Vendor **	07-May-23	2
18I0763	N-EtFOSA-M	07-Sep-18	** Vendor **	07-May-23	2
18I0764	N-MeFOSE-M	07-Sep-18	** Vendor **	04-Jun-23	2
18I0765	N-EtFOSE-M	07-Sep-18	** Vendor **	14-Dec-22	2

Description:	PFC NS Stock	Expires:	15-Oct-20
Standard Type:	Analyte Spike	Prepared:	15-Oct-18
Solvent:	MeOH	Prepared By:	Giana R. Bilotta
Final Volume (mls):	20	Department:	LCMS
Vials:	1	Last Edit:	15-Oct-18 14:52 by GRB

PFOS and PFHxS linear and branched components
As of 5/27/18, MeFOSAA and EtFOSAA include Linear and Branched.

Analyte	CAS Number	Concentration	Units
L-PFOA		1	ug/mL
L-PFTrDA		1	ug/mL
L-PFHpA		1	ug/mL
L-PFHpS		1	ug/mL

Analytical Standard Record

Vista Analytical Laboratory

18J1505

Description:	PFC NS Stock	Expires:	15-Oct-20
Standard Type:	Analyte Spike	Prepared:	15-Oct-18
Solvent:	MeOH	Prepared By:	Giana R. Bilotta
Final Volume (mls):	20	Department:	LCMS
Vials:	1	Last Edit:	15-Oct-18 14:52 by GRB

PFOS and PFHxS linear and branched components
As of 5/27/18, MeFOSAA and EtFOSAA include Linear and Branched.

Analyte	CAS Number	Concentration	Units
L-PFHxA		1	ug/mL
L-PFHxDA		1	ug/mL
L-PFHxS		0.812	ug/mL
L-PFDoA		1	ug/mL
L-PFNS	68259-12-1	1	ug/mL
L-PFDA		1	ug/mL
L-PFODA		1	ug/mL
L-PFOS		0.789	ug/mL
L-PFOSA		1	ug/mL
L-PFPeA		1	ug/mL
L-PFPeS	2706-91-4	1	ug/mL
4:2 FTS	757124-72-4	1	ug/mL
L-PFNA		1	ug/mL
L-4:2 FTS	75124-72-4	1	ug/mL
6:2 FTS	27619-97-2	1	ug/mL
8:2 FTS	39108-34-4	1	ug/mL
Br-EtFOSAA		0.224	ug/mL
Br-MeFOSAA		0.24	ug/mL
Br-PFHxS	3871-99-6	0.189	ug/mL
EtFOSA	4151-50-2	5	ug/mL
L-PFDS		1	ug/mL
EtFOSE	1691-99-2	5	ug/mL
L-PFUnA		1	ug/mL
L-6:2 FTS		1	ug/mL
L-8:2FTS		1	ug/mL
L-EtFOSAA	2991-50-6	0.776	ug/mL
L-MeFOSAA	2355-31-9	0.76	ug/mL
L-PFBA		1	ug/mL
L-PFBS		1	ug/mL
EtFOSAA	2991-50-6	1	ug/mL
Total EtFOSAA		1	ug/mL
L-PFTeDA		1	ug/mL
PFOSA	754-91-6	1	ug/mL
PFPeA	2706-90-3	1	ug/mL

Analytical Standard Record

Vista Analytical Laboratory

18J1505

Description:	PFC NS Stock	Expires:	15-Oct-20
Standard Type:	Analyte Spike	Prepared:	15-Oct-18
Solvent:	MeOH	Prepared By:	Giana R. Bilotta
Final Volume (mls):	20	Department:	LCMS
Vials:	1	Last Edit:	15-Oct-18 14:52 by GRB

PFOS and PFHxS linear and branched components
As of 5/27/18, MeFOSAA and EtFOSAA include Linear and Branched.

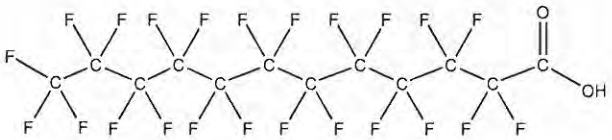
Analyte	CAS Number	Concentration	Units
PFPeS	2706-91-4	1	ug/mL
PFTeDA	376-06-7	1	ug/mL
PFTrDA	72629-94-8	1	ug/mL
PFODA	16517-11-6	1	ug/mL
Total 6:2 FTS		1	ug/mL
PFOA	335-67-1	1	ug/mL
Total MeFOSAA		1	ug/mL
Total PFDS		1	ug/mL
Total PFHpS		1	ug/mL
Total PFHxS		1	ug/mL
Total PFOA		1	ug/mL
Total PFOS		1	ug/mL
PFUnA	2058-94-8	1	ug/mL
PFHpA	375-85-9	1	ug/mL
MeFOSA	31506-32-8	5	ug/mL
MeFOSAA	2355-31-9	1	ug/mL
MeFOSE	24448-09-7	5	ug/mL
PFBA	375-22-4	1	ug/mL
PFBS	375-73-5	1	ug/mL
PFDA	335-76-2	1	ug/mL
PFOS	1763-23-1	1	ug/mL
PFDS	335-77-3	1	ug/mL
Total PFUnA		1	ug/mL
PFHpS	375-92-8	1	ug/mL
PFHxA	307-24-4	1	ug/mL
PFHxDA	67905-19-5	1	ug/mL
PFHxS	355-46-4	1	ug/mL
PFNA	375-95-1	1	ug/mL
PFNS	68259-12-1	1	ug/mL
PFDoA	307-55-1	1	ug/mL

18E0707

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	PFDoA	**LOT NUMBER:**	PFDoA0418
COMPOUND:	Perfluoro-n-dodecanoic acid		
STRUCTURE:		**CAS #:**	307-55-1



MOLECULAR FORMULA:	$C_{12}HF_{23}O_2$	**MOLECULAR WEIGHT:**	614.10
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	04/18/2018		
EXPIRY DATE: (mm/dd/yyyy)	04/18/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS Data (Mass Spectrum)
Figure 3: 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:** 04/24/2018 (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

18E0707

INTENDED USE:

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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; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA

ANAB 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

18E0707

Figure 1: **PFDoA; LC/MS Data (SIR)**

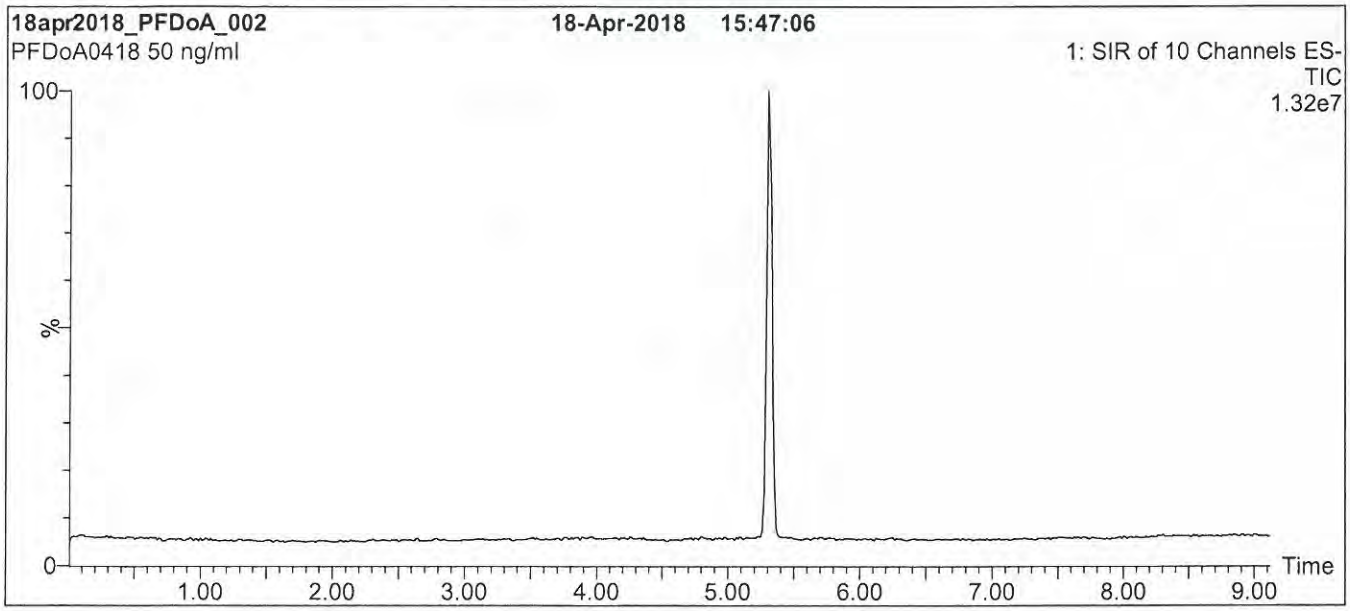
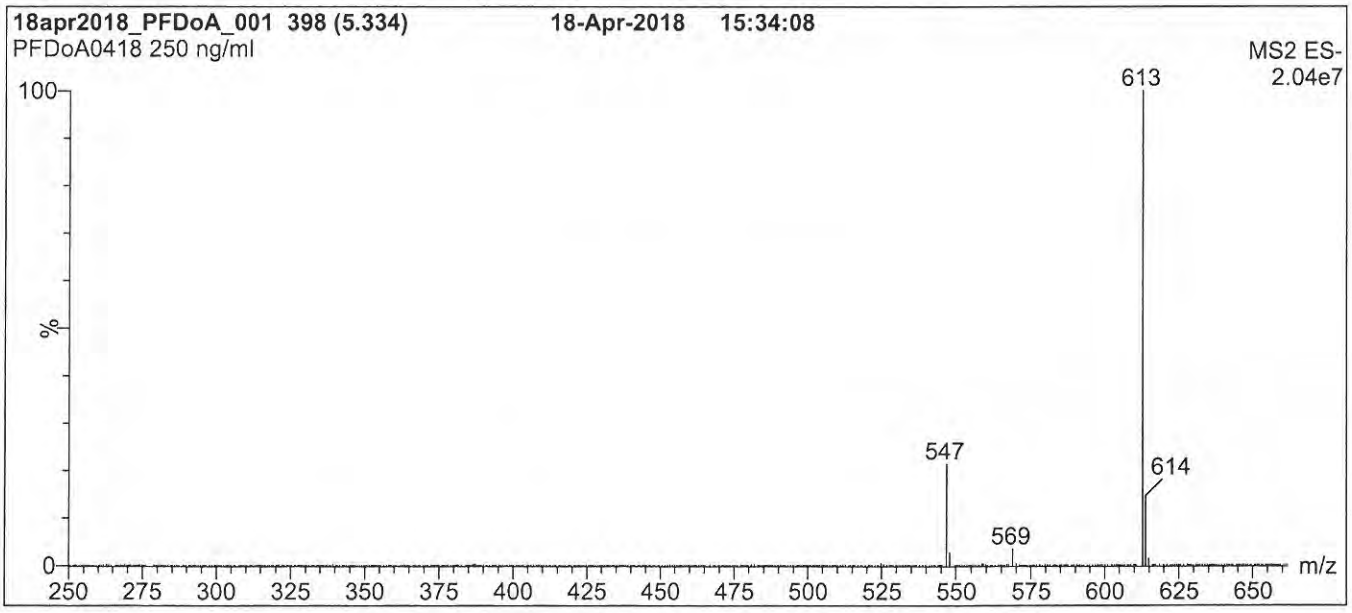


Figure 2: **PFDoA; LC/MS Data (Mass Spectrum)**



Conditions for Figures 1 & 2:

LC: **Waters Acquity Ultra Performance LC**
MS: **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% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 85% organic over 7 min and hold for
3 min before returning to initial conditions in 0.75 min.
Time: 12 min

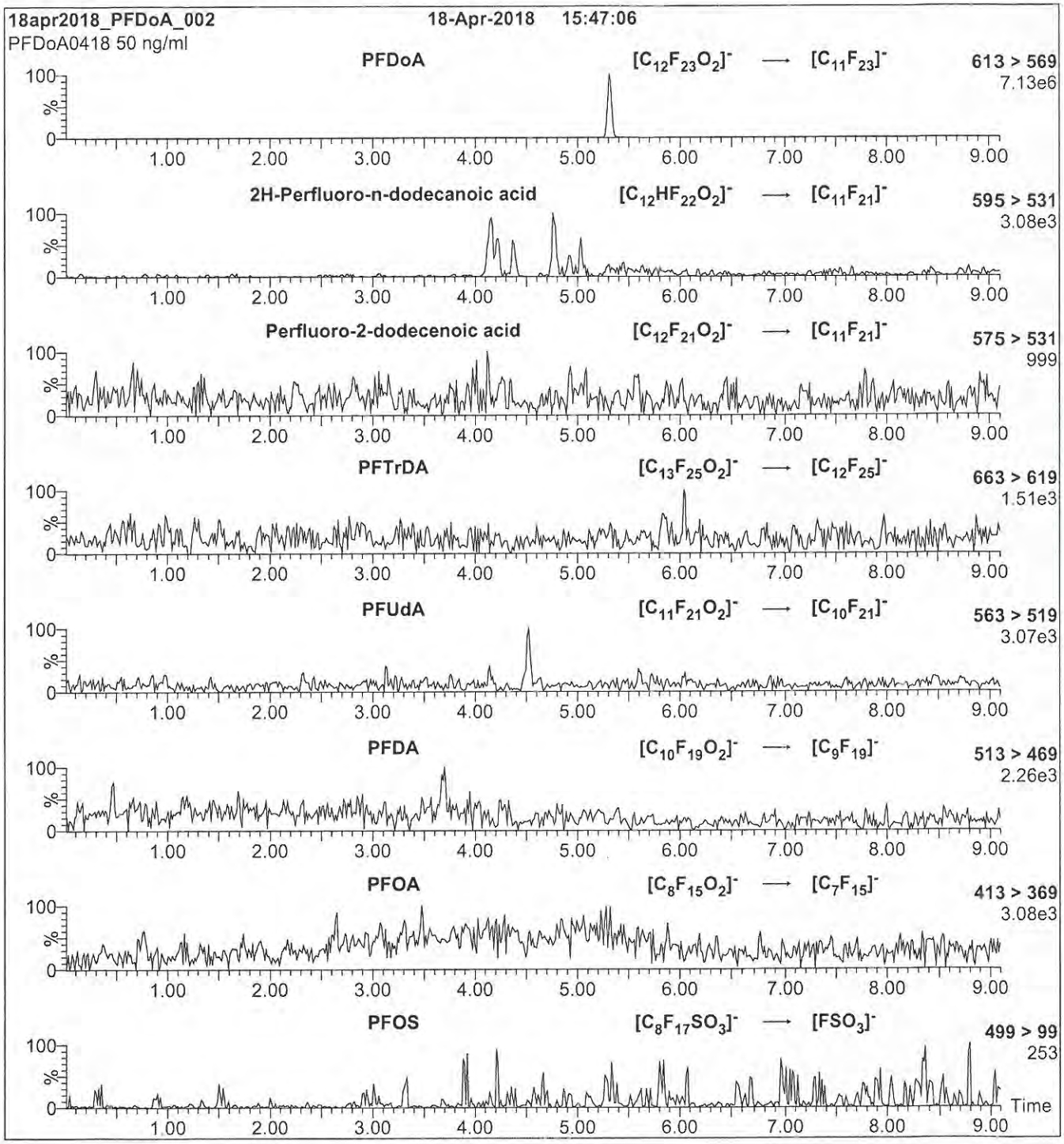
Flow: 300 µl/min

MS Parameters

Experiments: SIR of 10 channels
Full Scan (250 - 850 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 5 (variable for SIR (2-12))
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 750

18E0707

Figure 3: **PFDoA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: On-column (PFDoA)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.47e-3

Collision Energy (eV) = 12

18E0708

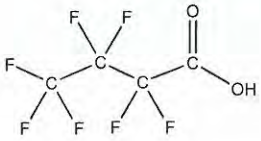
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFBA
COMPOUND: Perfluoro-n-butanoic acid
LOT NUMBER: PFBA1217

STRUCTURE:

CAS #: 375-22-4



MOLECULAR FORMULA: $C_4HF_7O_2$
MOLECULAR WEIGHT: 214.04
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 12/14/2017
EXPIRY DATE: (mm/dd/yyyy) 12/14/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

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 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:** 12/18/2017 (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

18E0708

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.

HAZARDS:

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:

Where possible, all of our products are synthesized using single-product unambiguous routes. 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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. 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; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

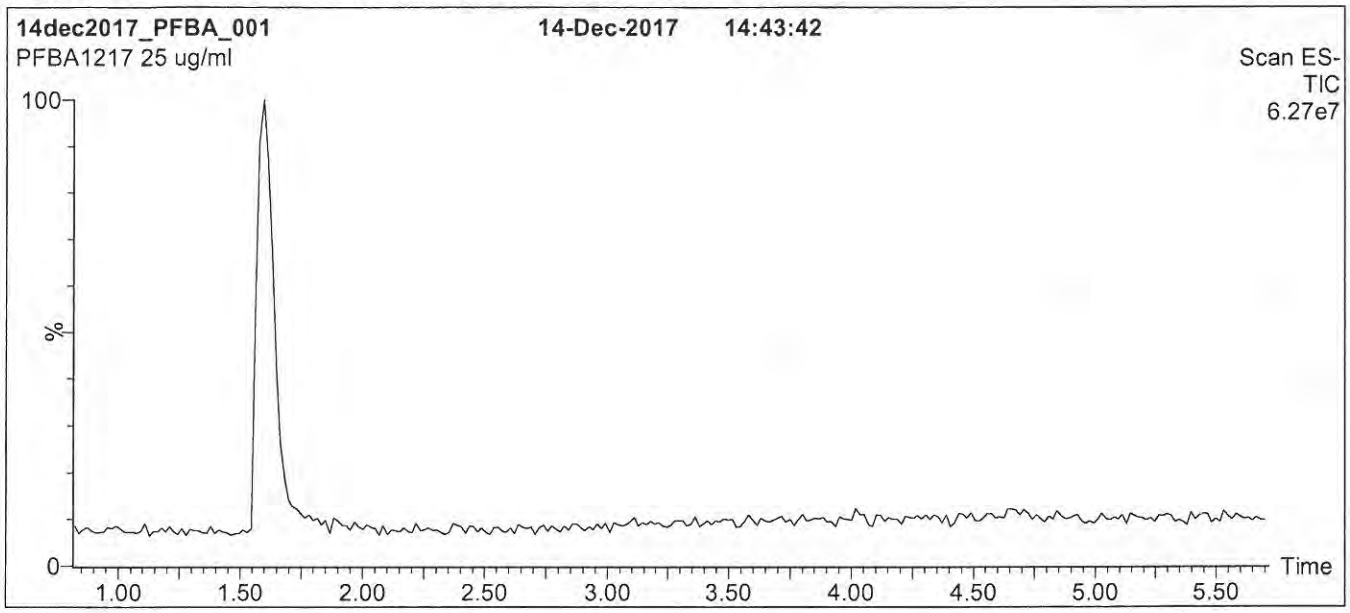
CALA

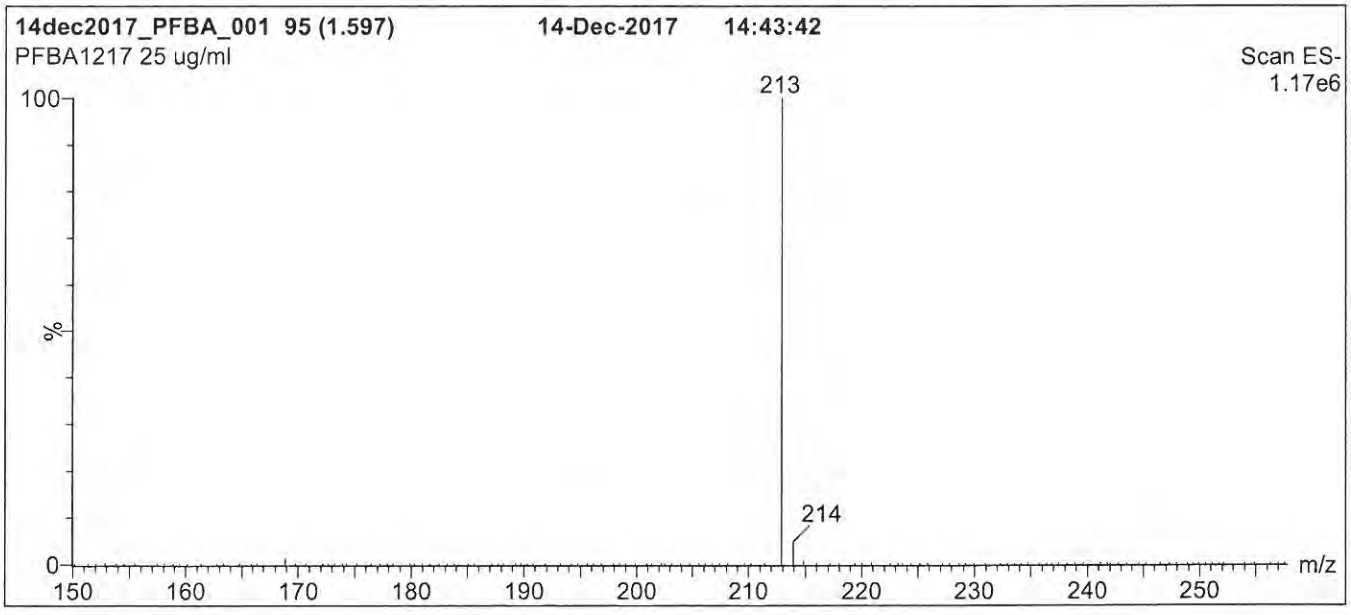
ANAB ACCREDITED

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

18E0708

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 30% (80:20 MeOH:ACN) / 70% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

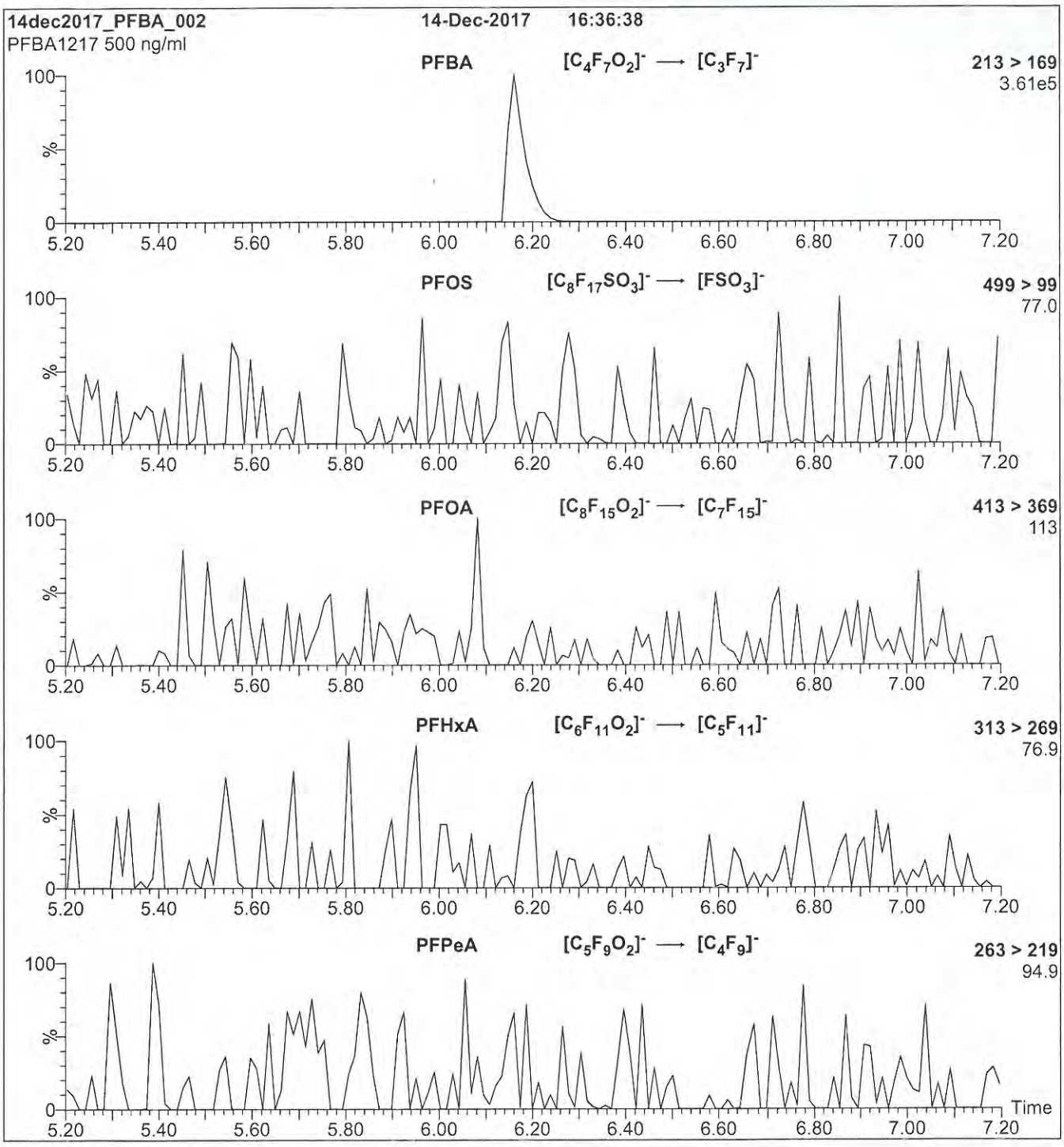
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 10.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

18E0708

Figure 2: **PFBA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFBA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 10

18E0709

WELLINGTON LABORATORIES

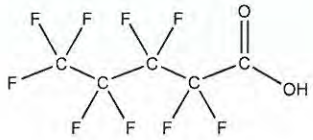
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFPeA
COMPOUND: Perfluoro-n-pentanoic acid

LOT NUMBER: PFPeA0218

STRUCTURE:

CAS #: 2706-90-3



MOLECULAR FORMULA: $C_5HF_9O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 264.05
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/16/2018
EXPIRY DATE: (mm/dd/yyyy) 02/16/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

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 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.3% of Perfluoro-n-heptanoic acid (PFHpA) and ~ 0.2% of $C_5H_2F_8O_2$ (hydrido - derivative) as measured by ^{19}F NMR.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 02/20/2018 (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

18E0709

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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HOMOGENEITY:

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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; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

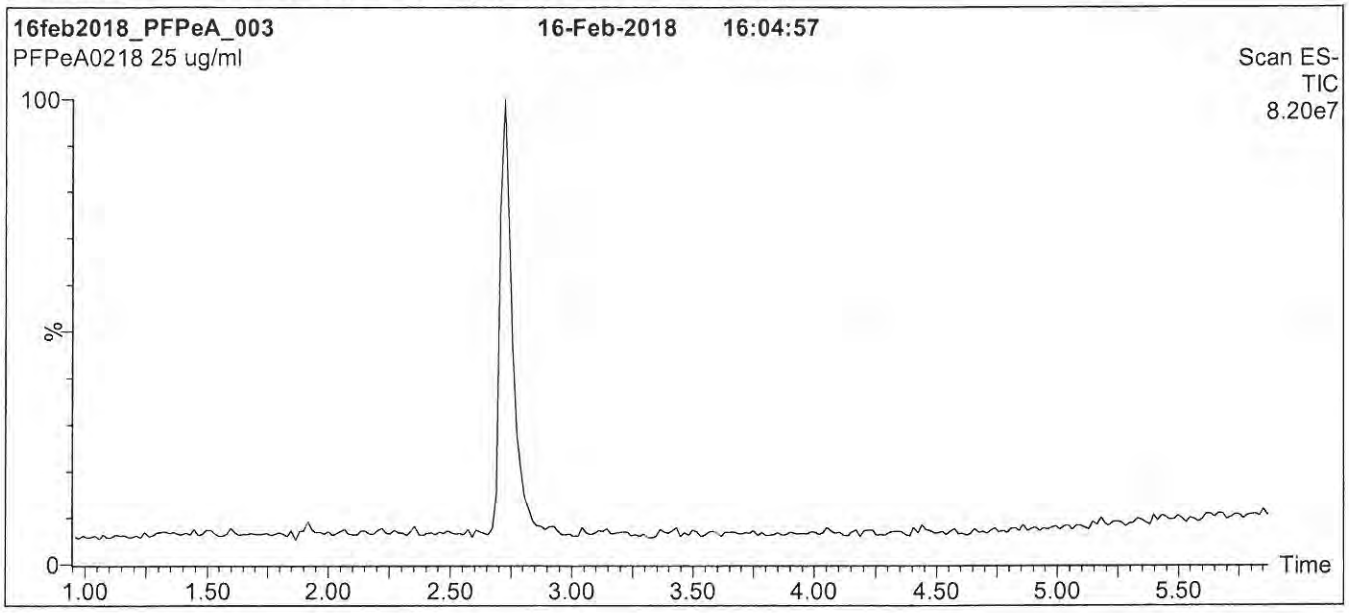
CALA Testing

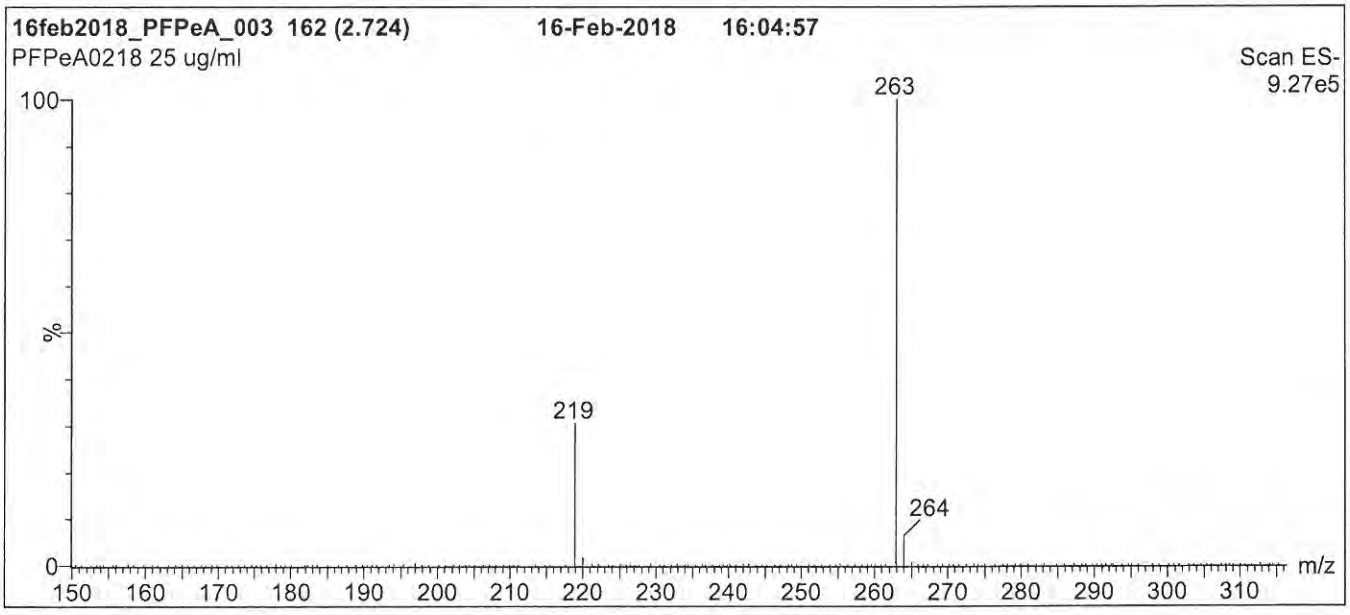
ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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

18E0709

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 30% (80:20 MeOH:ACN) / 70% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

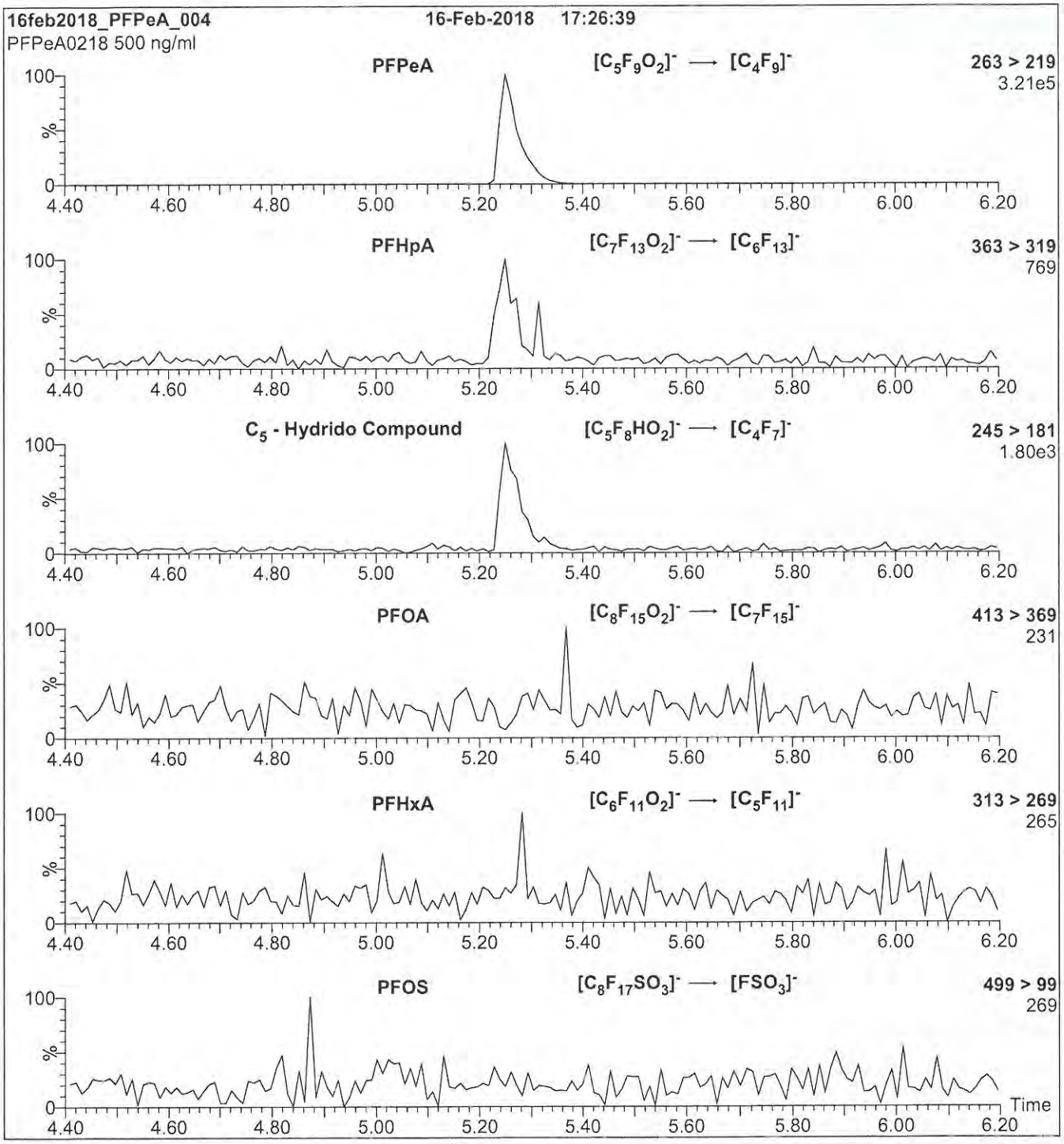
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

18E0709

Figure 2: **PFPeA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFPeA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 9

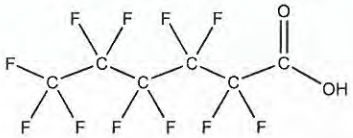
18E0710

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFHxA
COMPOUND: Perfluoro-n-hexanoic acid
LOT NUMBER: PFHxA0917

STRUCTURE:
CAS #: 307-24-4



MOLECULAR FORMULA: $C_6HF_{11}O_2$
MOLECULAR WEIGHT: 314.05
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 09/27/2017
EXPIRY DATE: (mm/dd/yyyy) 09/27/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

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 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 1.0% of branched isomers.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/01/2017 (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

18E0710

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.

HAZARDS:

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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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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. 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:

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QUALITY MANAGEMENT:

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CALA

ANAB ACCREDITED

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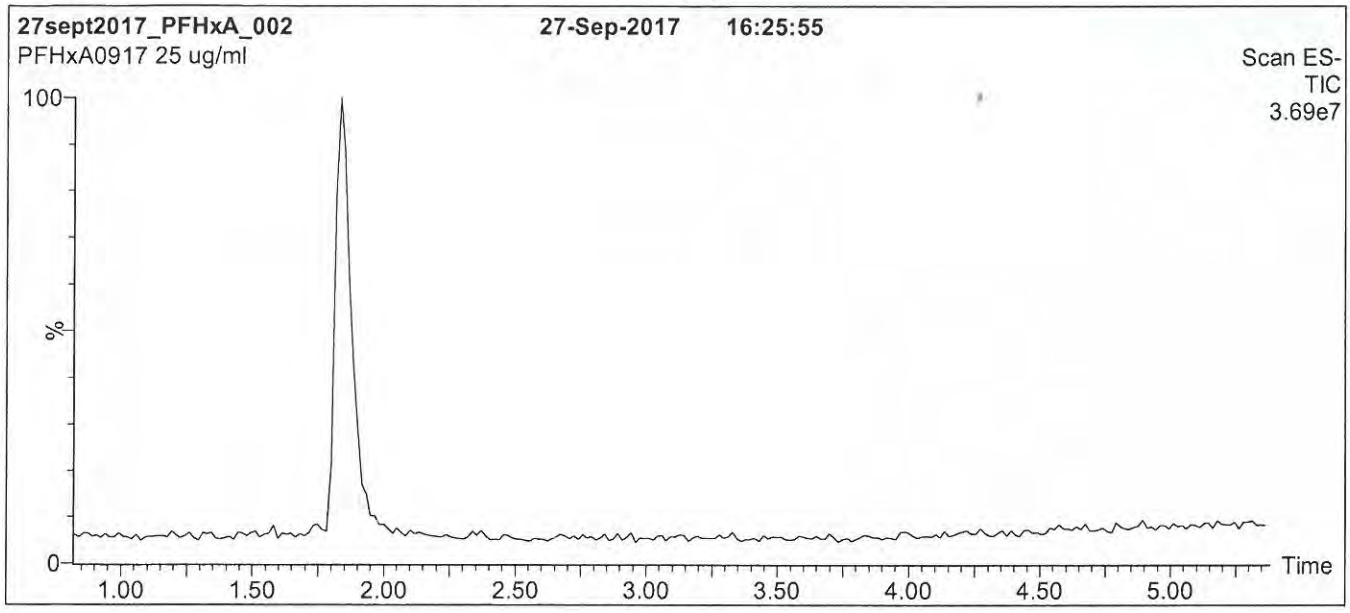
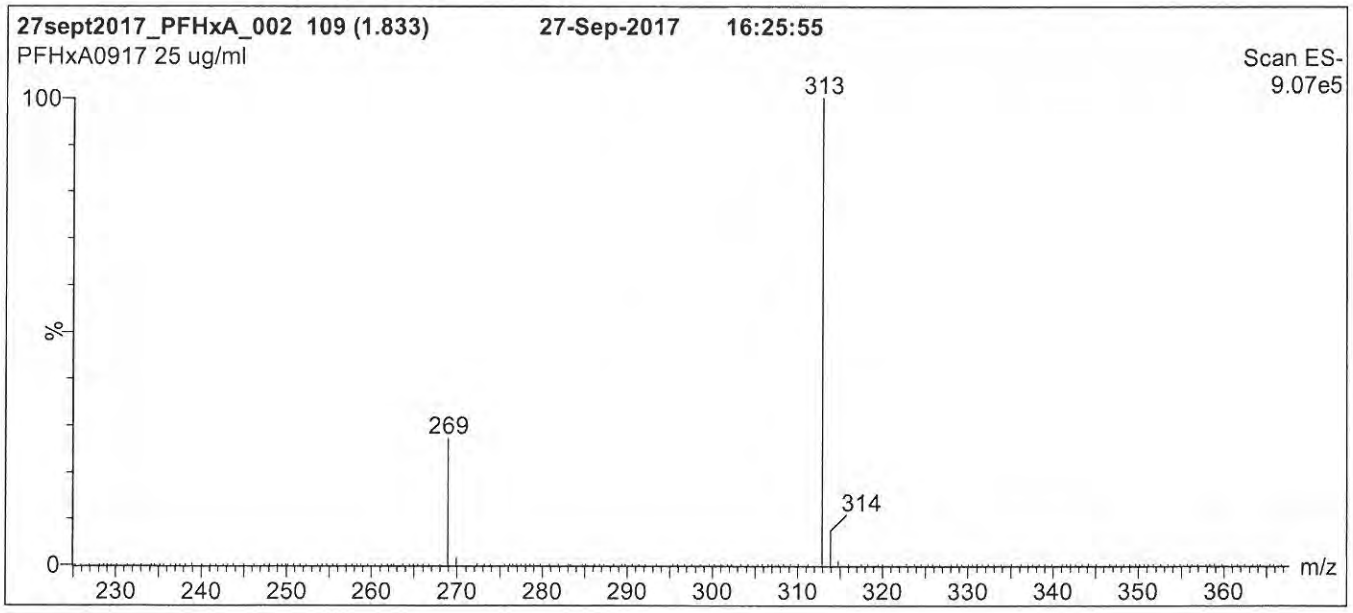
18E0710

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

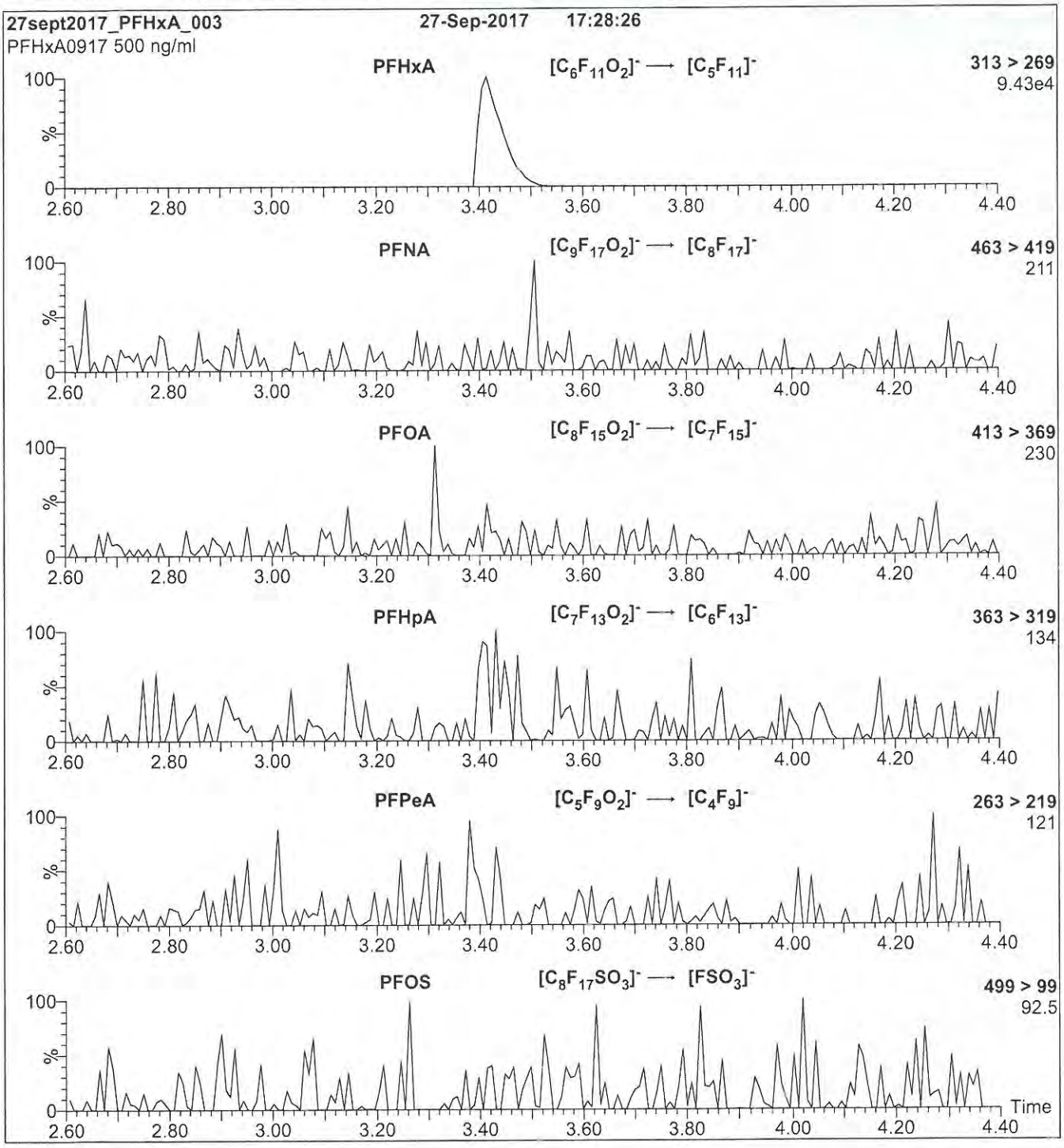
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

18E0710

Figure 2: **PFHxA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFHxA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 10

18E0711

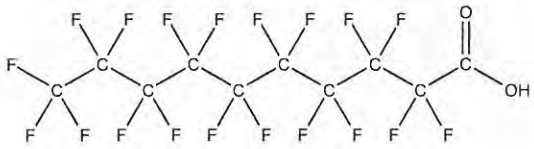
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFDA
COMPOUND: Perfluoro-n-decanoic acid
LOT NUMBER: PFDA1217

STRUCTURE:

CAS #: 335-76-2



MOLECULAR FORMULA: $C_{10}HF_{19}O_2$
MOLECULAR WEIGHT: 514.08
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 12/14/2017
EXPIRY DATE: (mm/dd/yyyy) 12/14/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

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 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of perfluoro-n-nonanoic acid (PFNA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 12/18/2017 (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

18E0711

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HOMOGENEITY:

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LIMITED WARRANTY:

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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; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA

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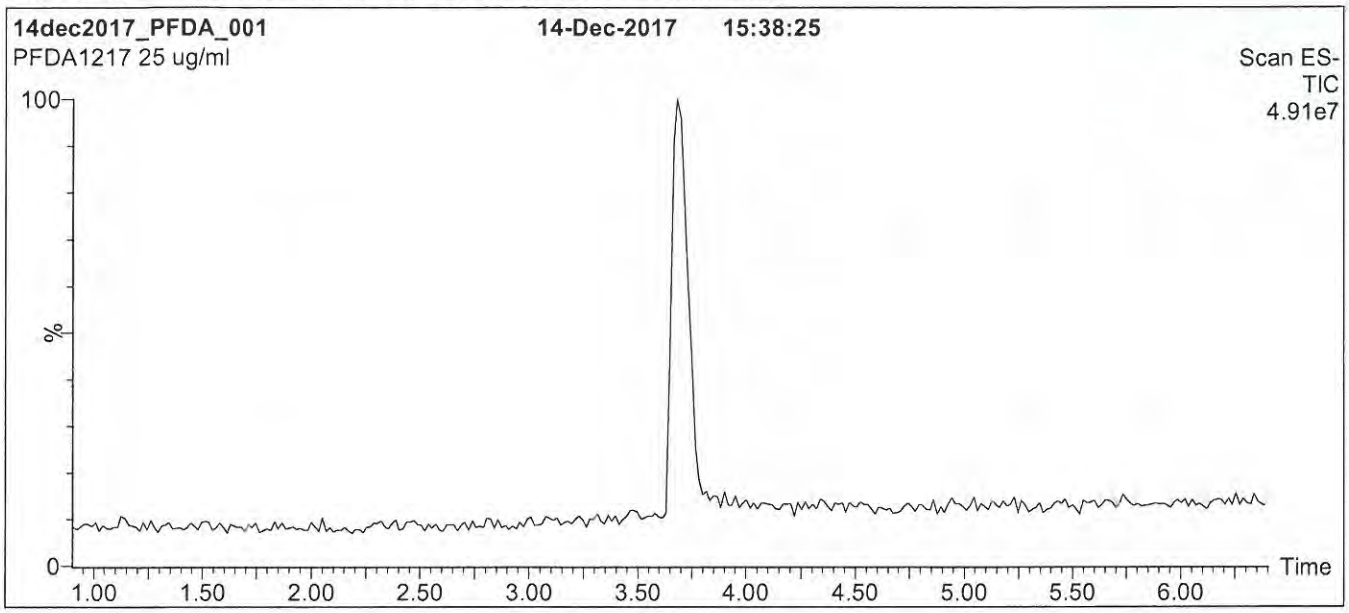
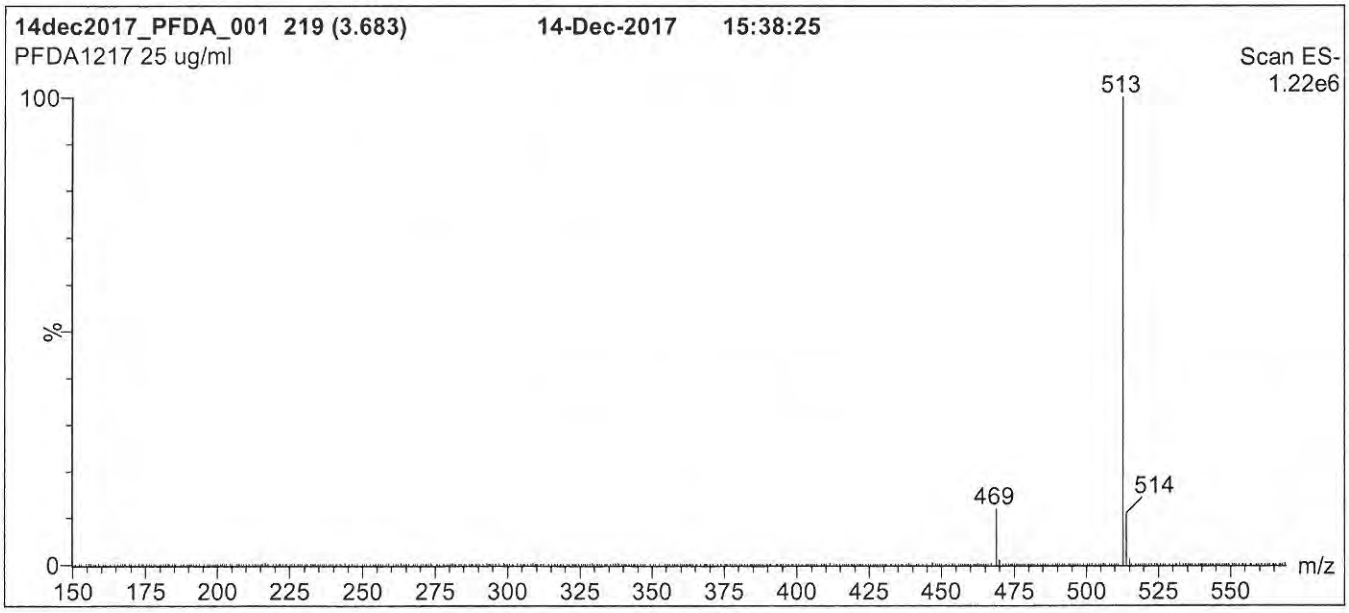
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

18E0711

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

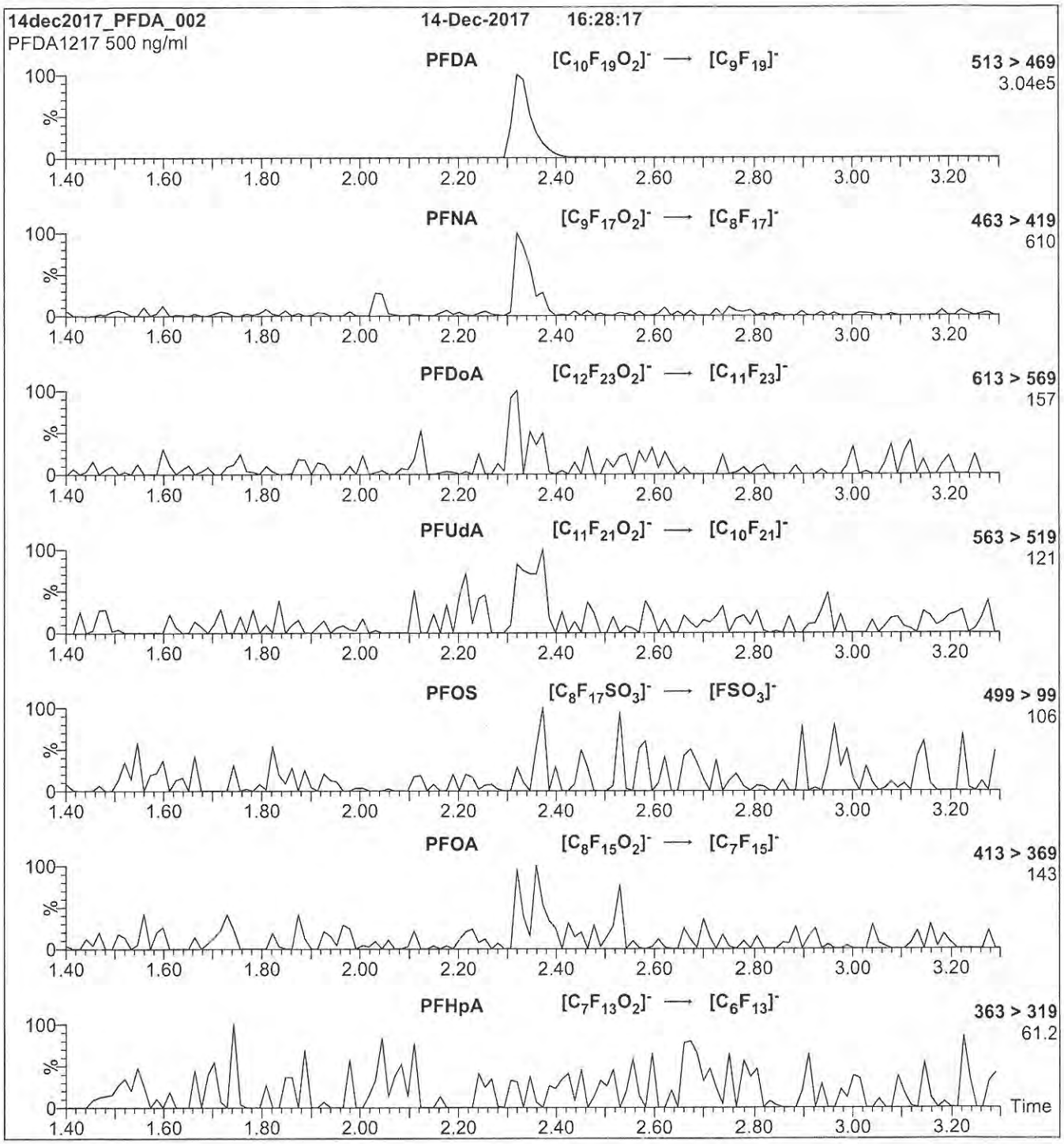
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

180711

Figure 2: **PFDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 13

18E0712

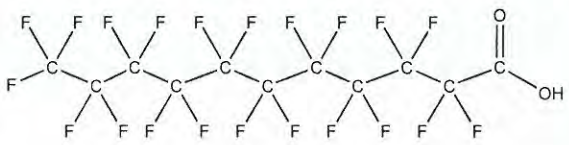
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFUdA
COMPOUND: Perfluoro-n-undecanoic acid
LOT NUMBER: PFUdA0917

STRUCTURE:

CAS #: 2058-94-8



MOLECULAR FORMULA: $C_{11}HF_{21}O_2$
MOLECULAR WEIGHT: 564.09
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 09/21/2017
EXPIRY DATE: (mm/dd/yyyy) 09/21/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

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 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:** 09/22/2017 (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

18E0712

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.

HAZARDS:

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:

Where possible, all of our products are synthesized using single-product unambiguous routes. 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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

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CALA

ANAB ACCREDITED

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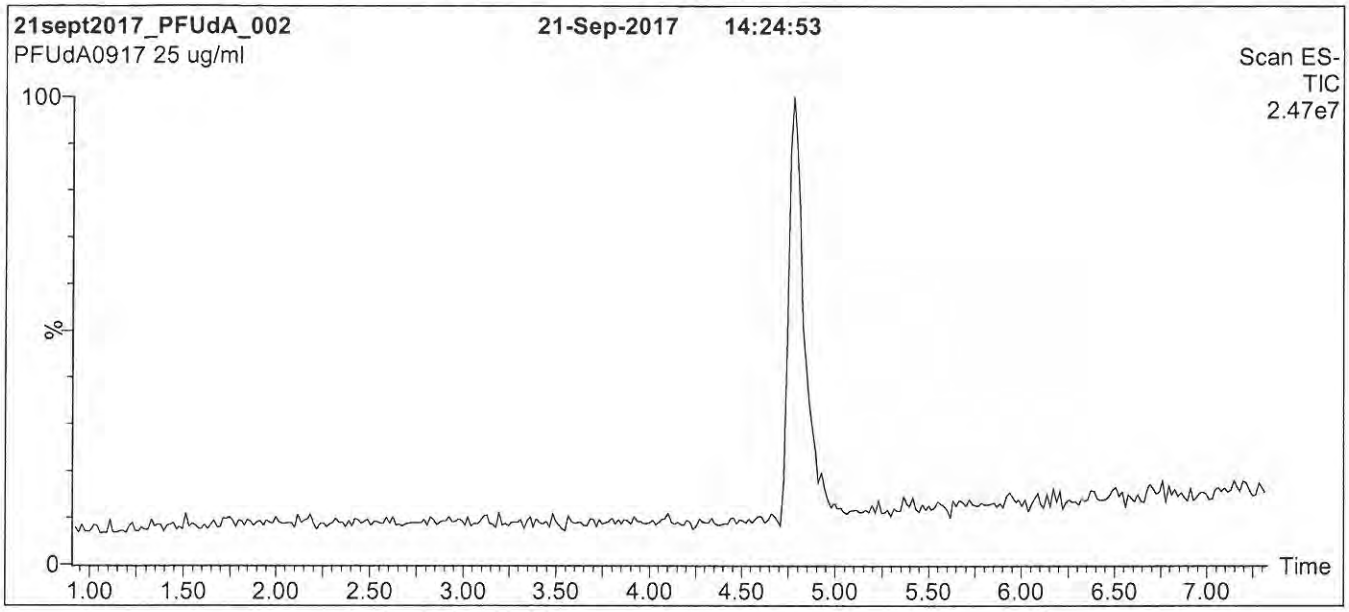
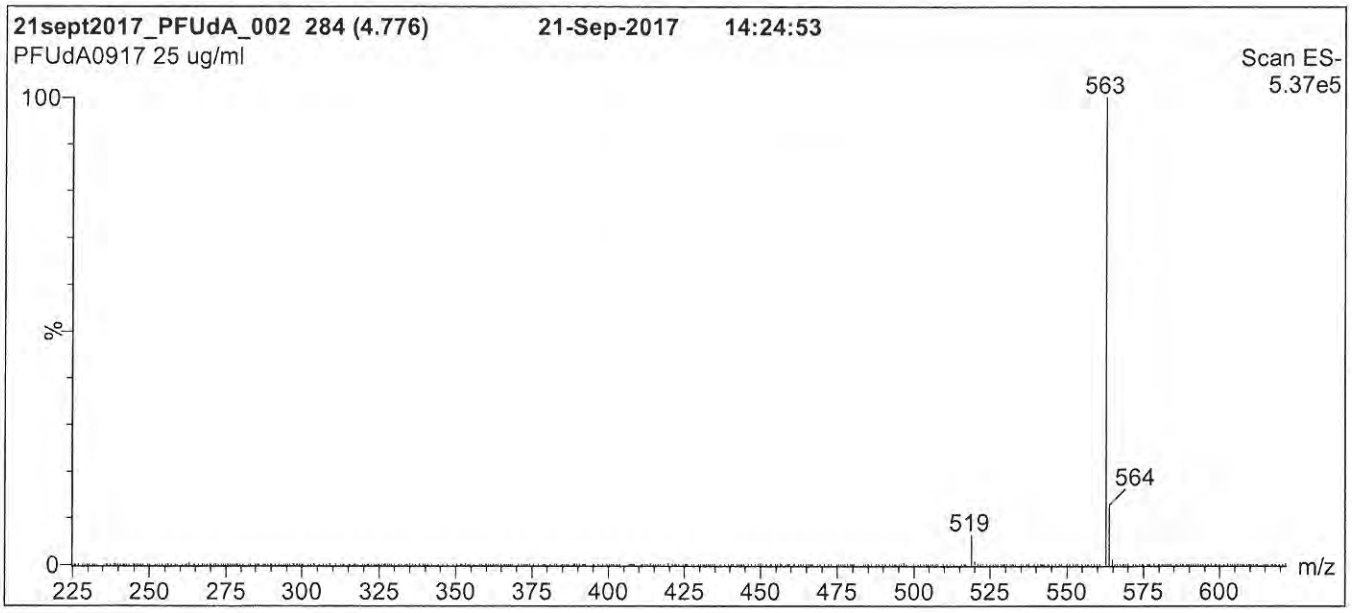
18E0712

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

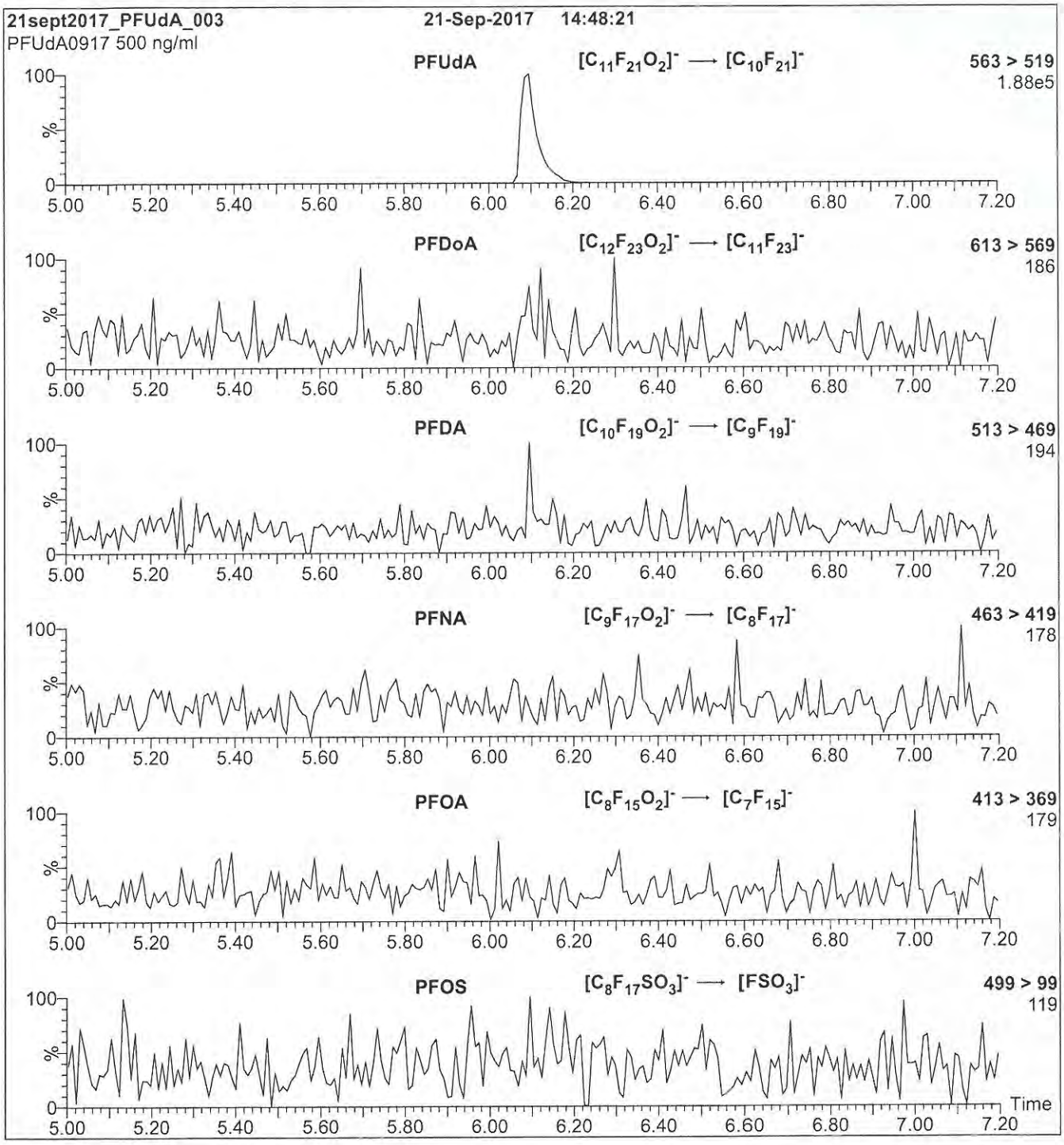
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 65
Desolvation Gas Flow (l/hr) = 750

18E0712

Figure 2: **PFUdA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFUdA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 11

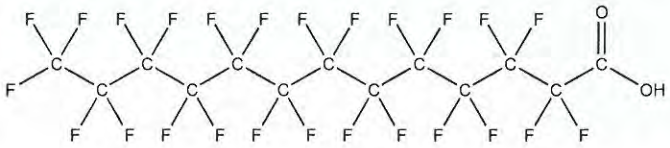
18E0713

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFTrDA
COMPOUND: Perfluoro-n-tridecanoic acid
LOT NUMBER: PFTrDA0517

STRUCTURE:
CAS #: 72629-94-8



MOLECULAR FORMULA: $C_{13}HF_{25}O_2$
MOLECULAR WEIGHT: 664.11
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 05/02/2017
EXPIRY DATE: (mm/dd/yyyy) 05/02/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

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 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.1% of PFUdA ($C_{11}HF_{21}O_2$), ~ 0.4% of PFDoA ($C_{12}HF_{23}O_2$), and ~ 0.1% of PFTeDA ($C_{14}HF_{27}O_2$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/04/2017 (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

180713

INTENDED USE:

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HAZARDS:

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HOMOGENEITY:

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ANAB ACCREDITED

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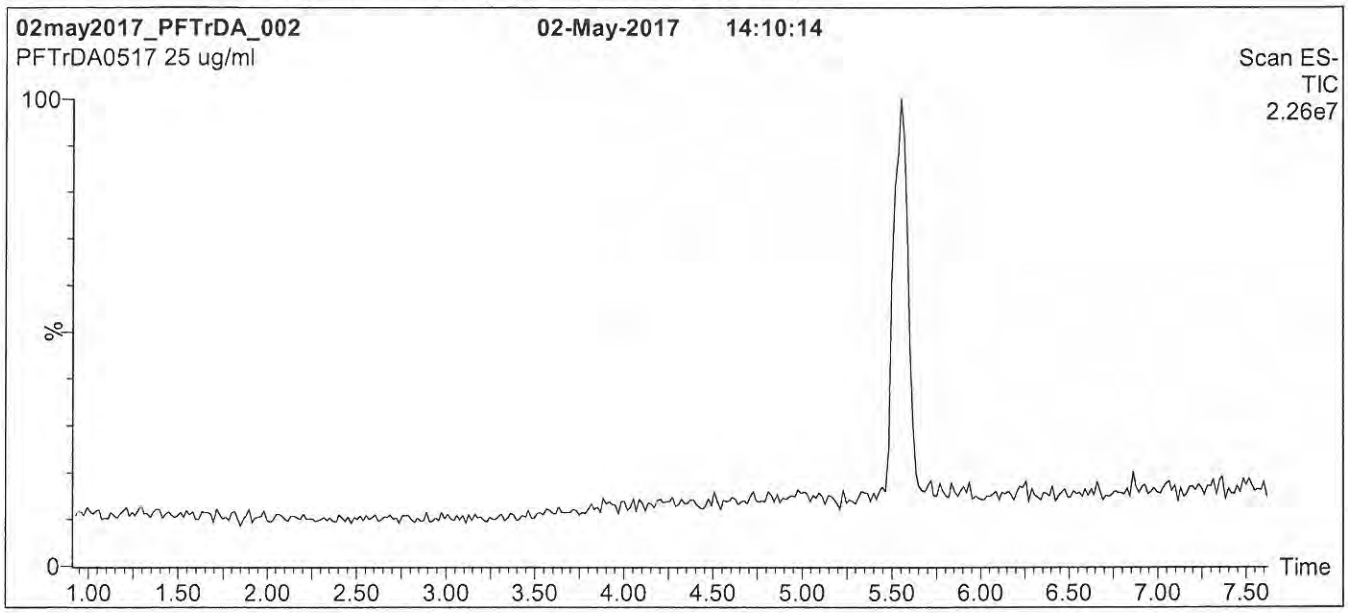
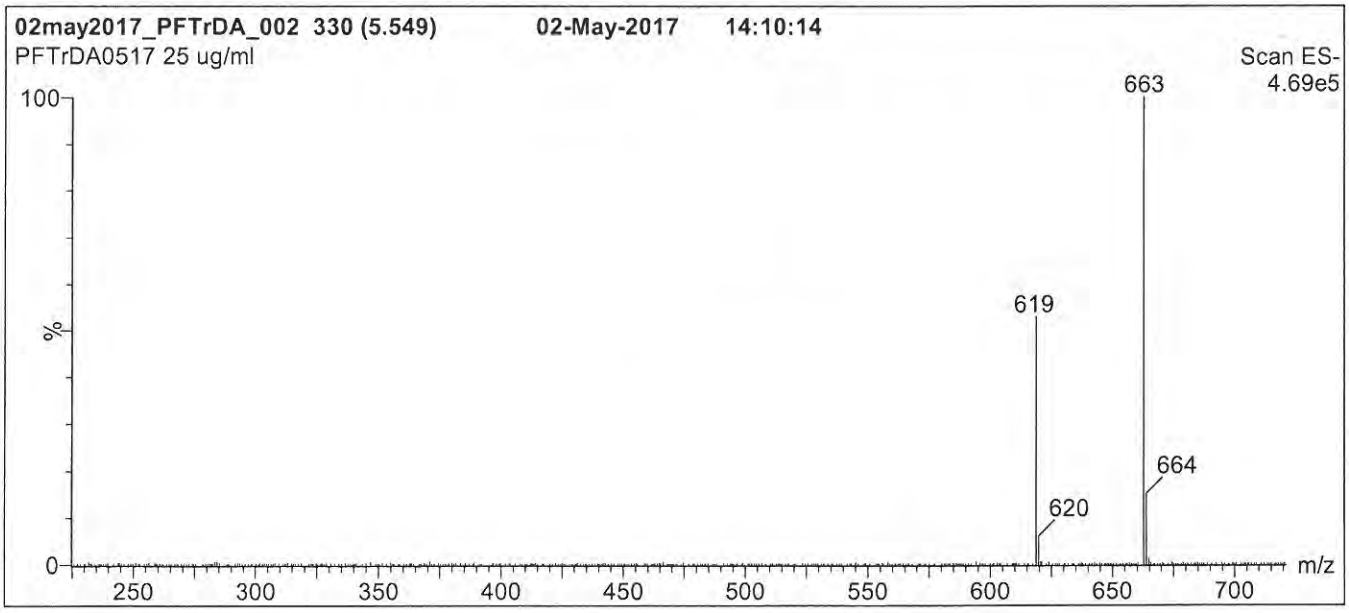
18E0713

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

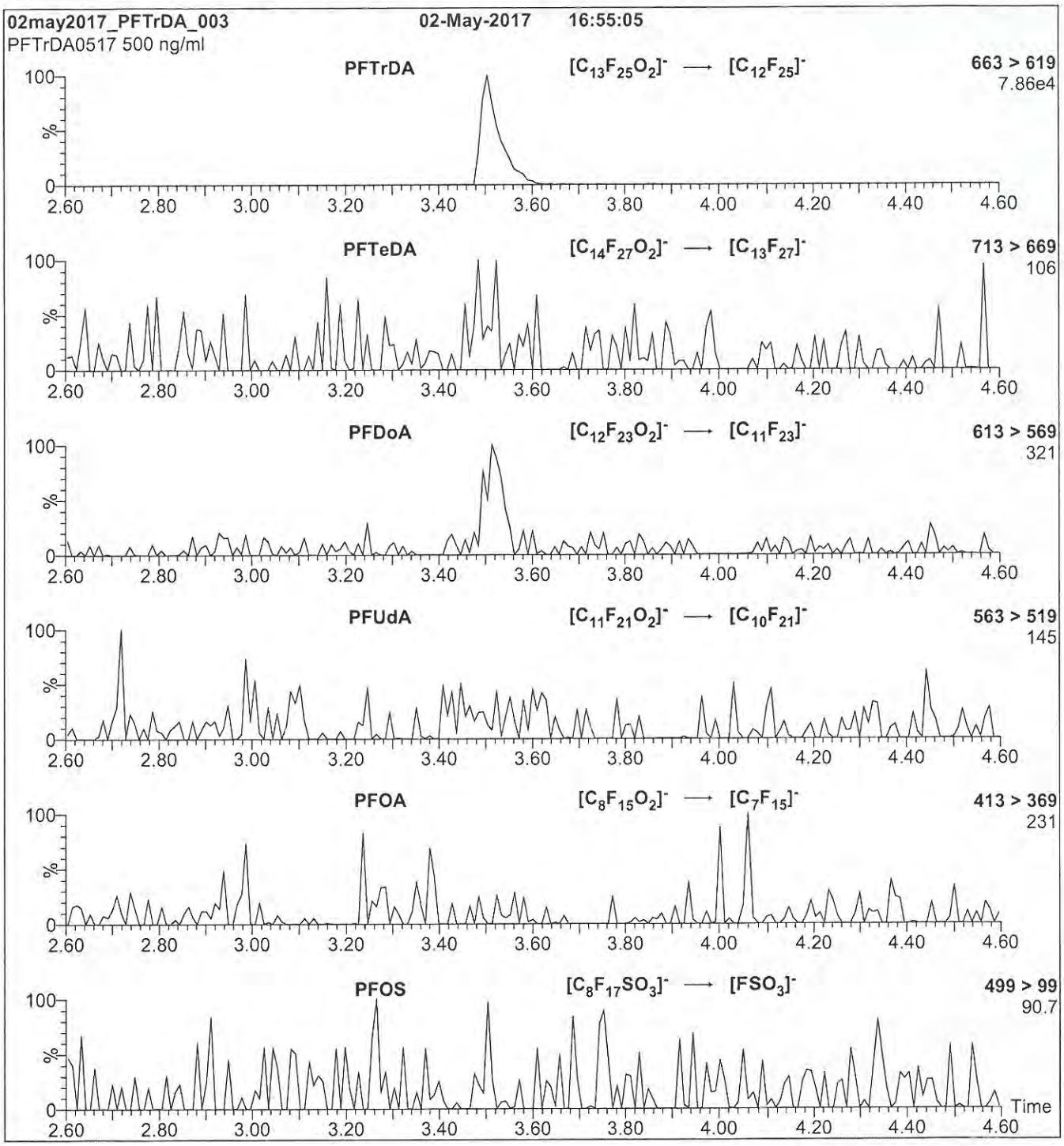
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 22.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 650

18E0713

Figure 2: **PFTrDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFTrDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.17e-3
Collision Energy (eV) = 15

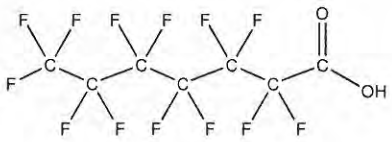
18E0714

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFHpA
COMPOUND: Perfluoro-n-heptanoic acid
LOT NUMBER: PFHpA0917

STRUCTURE:
CAS #: 375-85-9



MOLECULAR FORMULA: $C_7HF_{13}O_2$
MOLECULAR WEIGHT: 364.06
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 09/27/2017
EXPIRY DATE: (mm/dd/yyyy) 09/27/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

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 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:** 09/29/2017 (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

1803714

INTENDED USE:

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ANAB ACCREDITED

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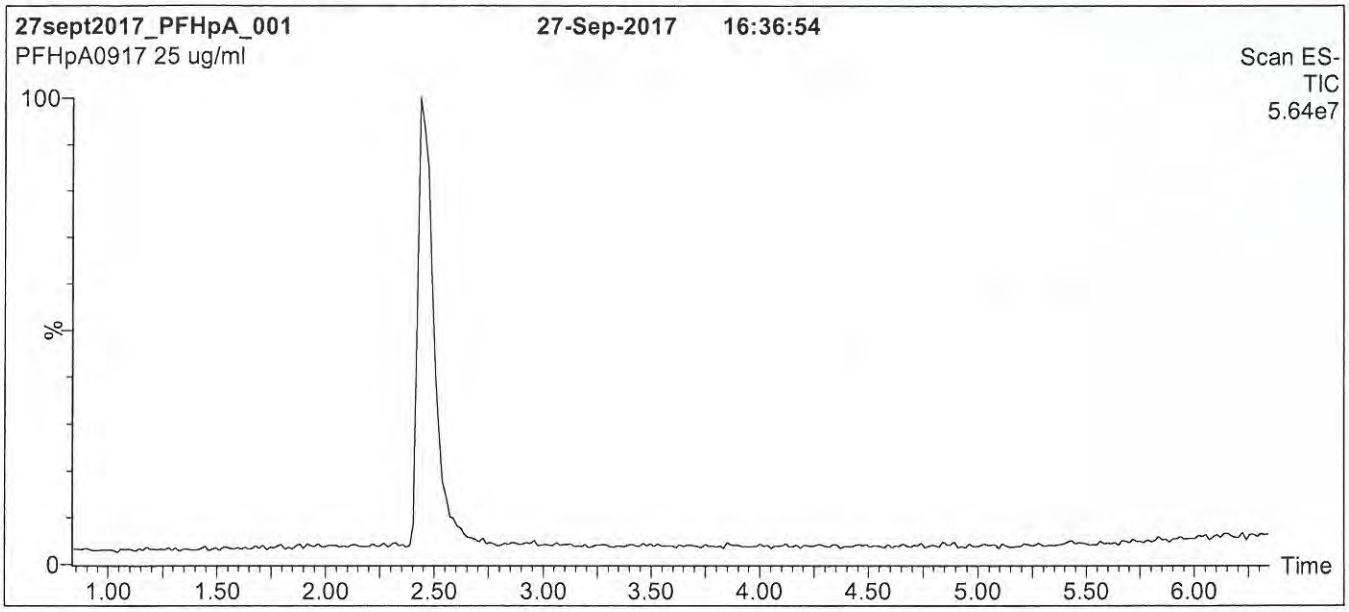
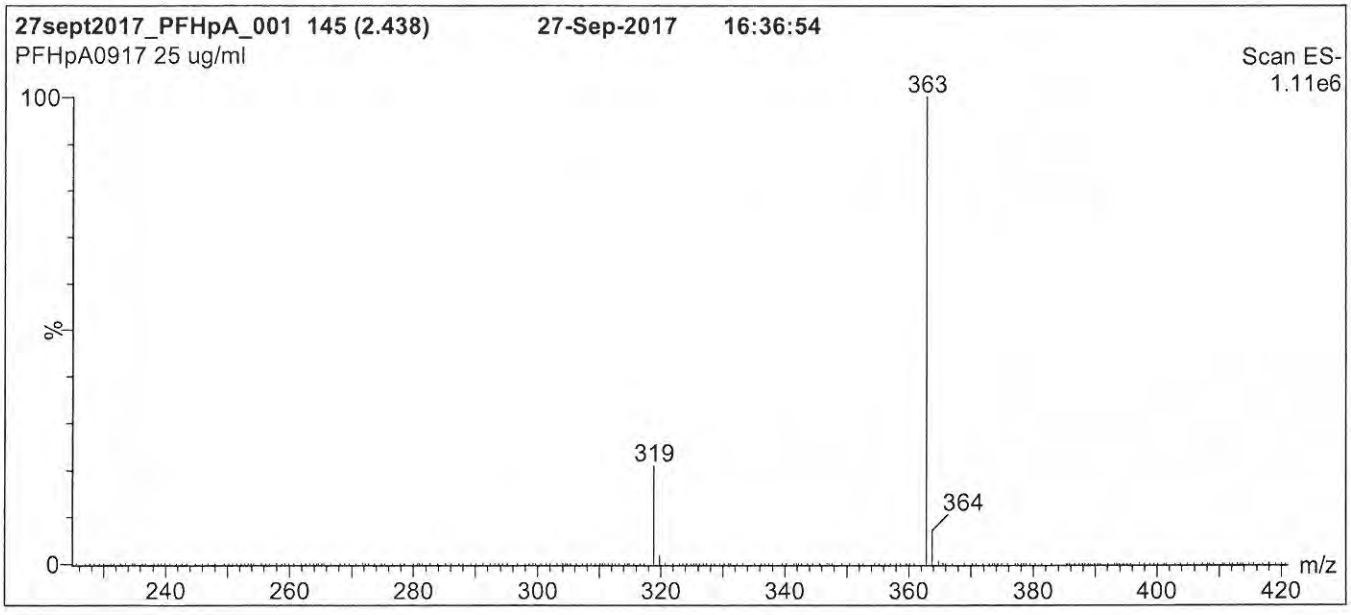
18E0714

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

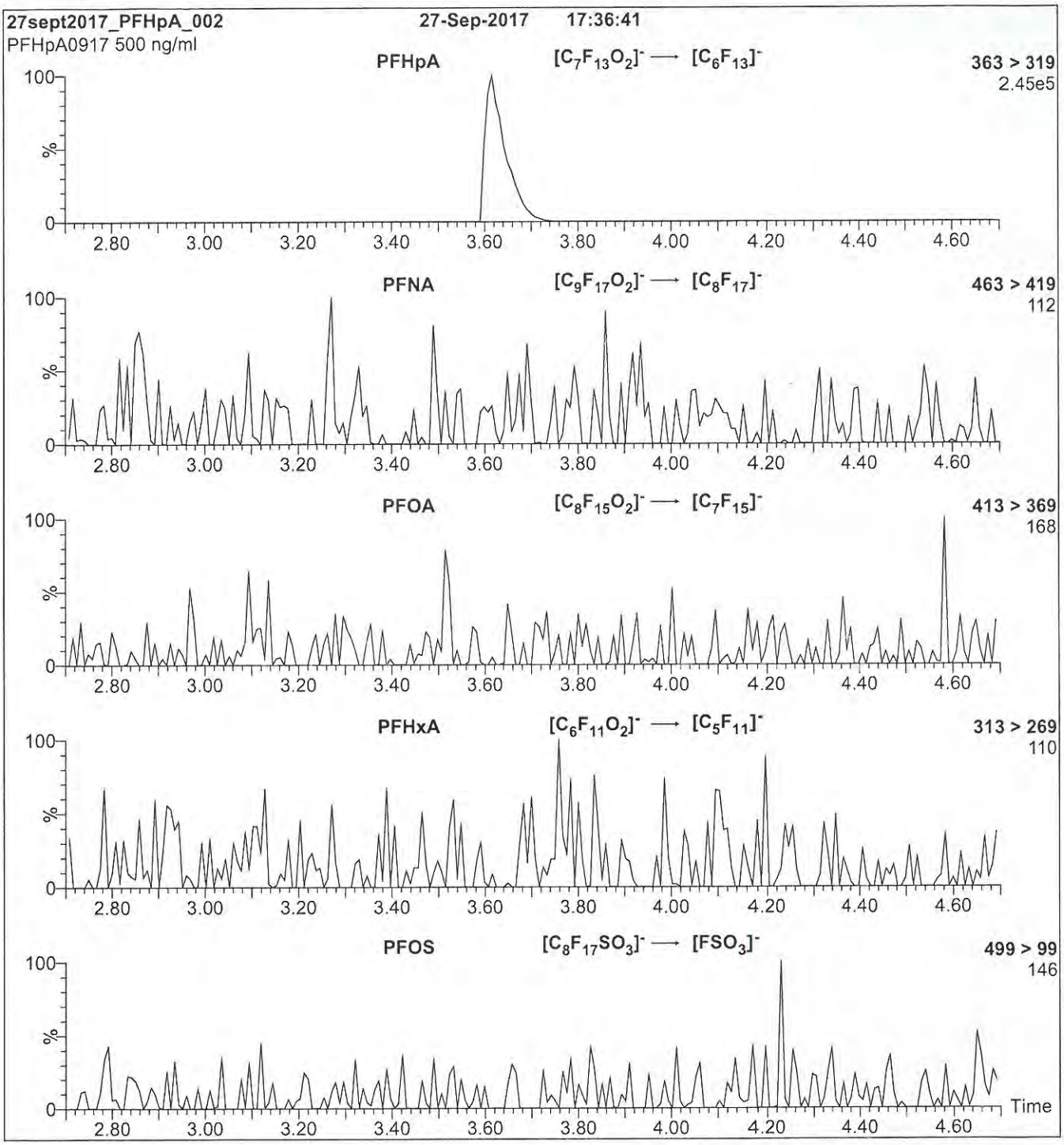
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18E0714

Figure 2: **PFHpA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFHpA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 11

18E0715

WELLINGTON LABORATORIES

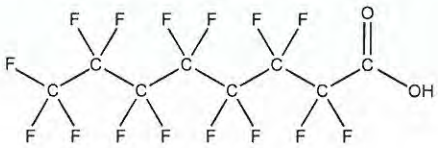
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFOA
COMPOUND: Perfluoro-n-octanoic acid

LOT NUMBER: PFOA0218

STRUCTURE:

CAS #: 335-67-1



MOLECULAR FORMULA: $C_8HF_{15}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 414.07
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/16/2018
EXPIRY DATE: (mm/dd/yyyy) 02/16/2023
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

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 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:** 02/20/2018 (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

18E0715

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; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

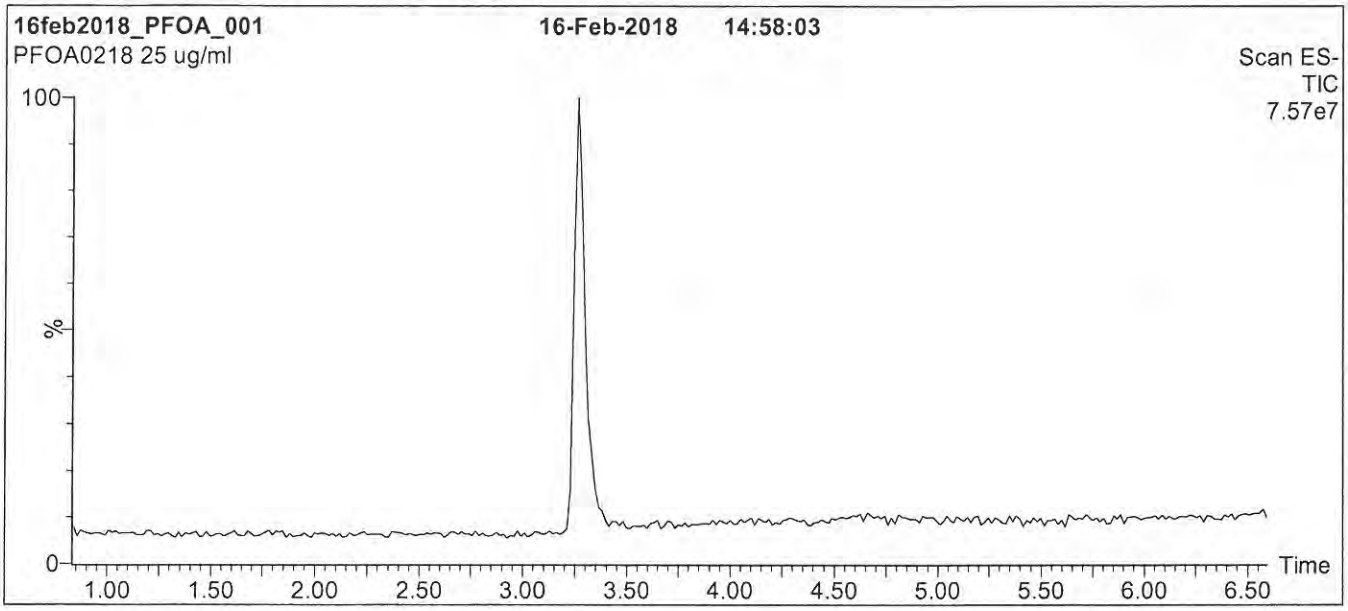
CALA

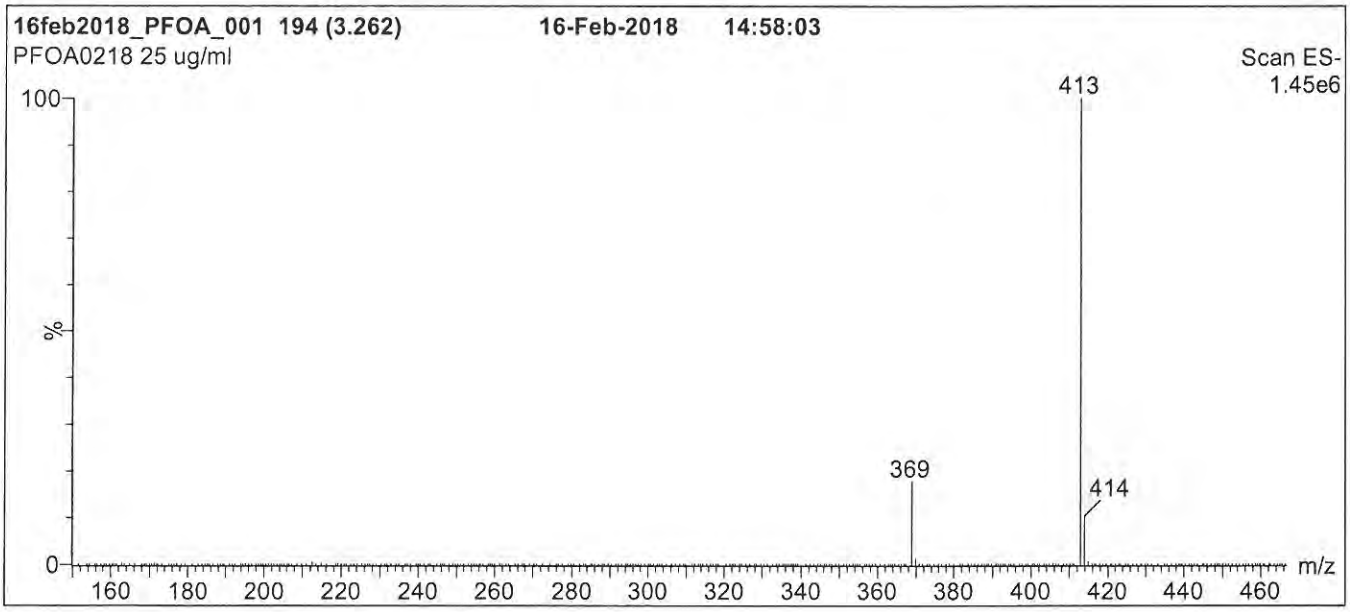
ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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

18E0715

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

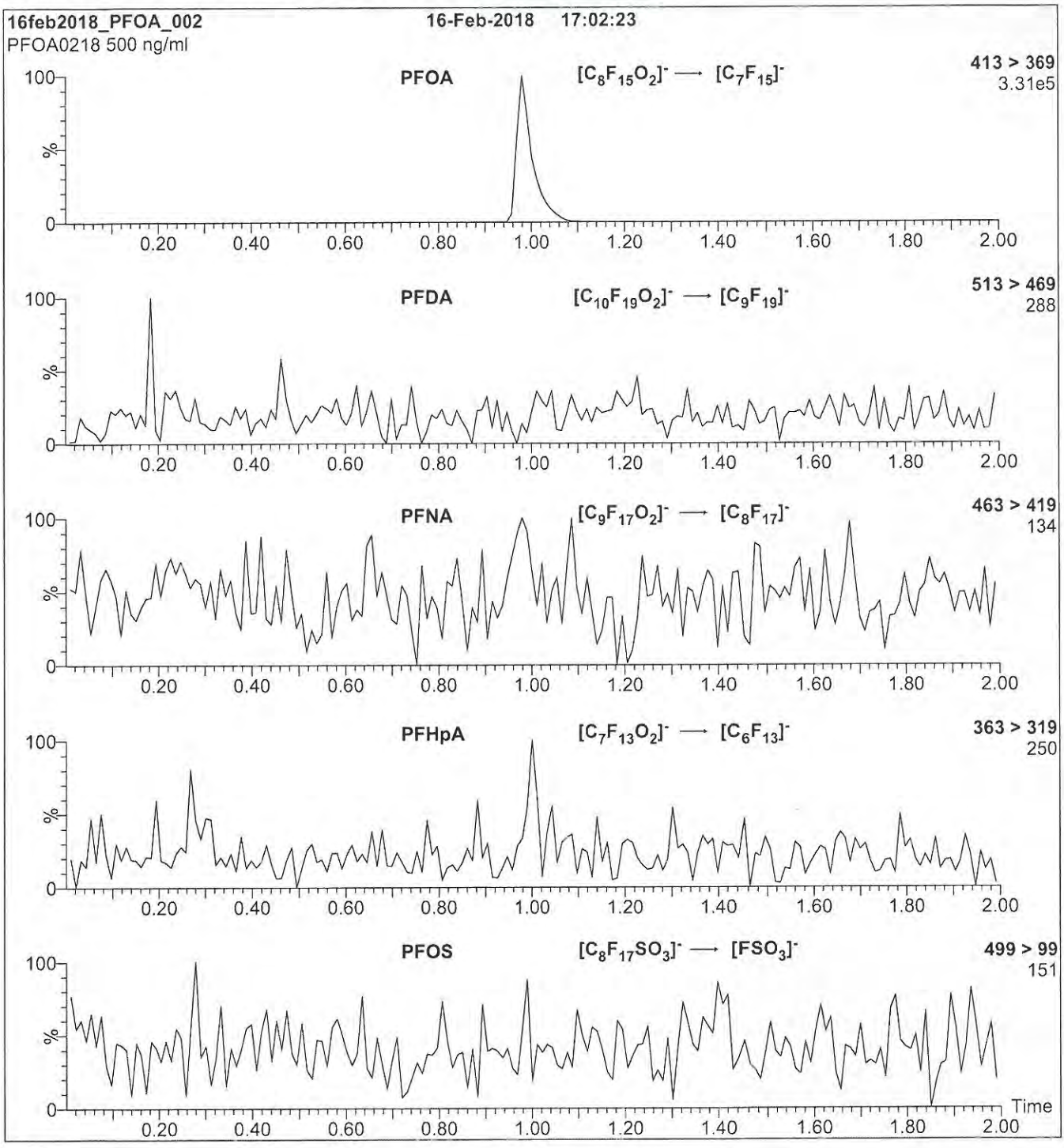
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

18E0715

Figure 2: **PFOA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFOA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 10

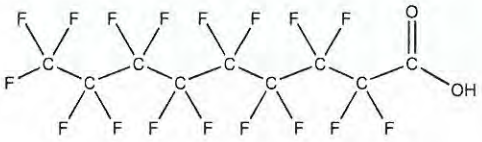
18E0716

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFNA
COMPOUND: Perfluoro-n-nonanoic acid
LOT NUMBER: PFNA0717

STRUCTURE:
CAS #: 375-95-1



MOLECULAR FORMULA: $C_9HF_{17}O_2$
MOLECULAR WEIGHT: 464.08
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/20/2017
EXPIRY DATE: (mm/dd/yyyy) 07/20/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

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 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.1% of perfluoro-n-octanoic acid (PFOA), < 0.1% of perfluoro-n-heptanoic acid (PFHpA), and < 0.1% of perfluoro-n-undecanoic acid (PFUdA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/24/2017 (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

18E0716

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.

HAZARDS:

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:

Where possible, all of our products are synthesized using single-product unambiguous routes. 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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. 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.

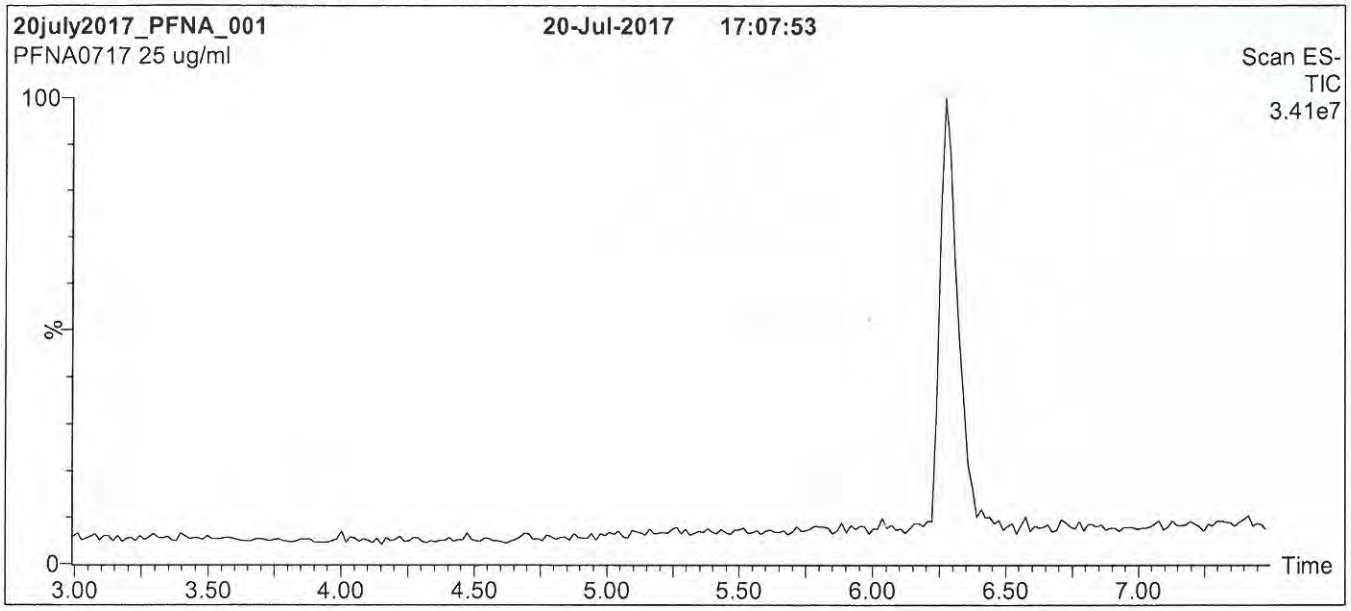
QUALITY MANAGEMENT:

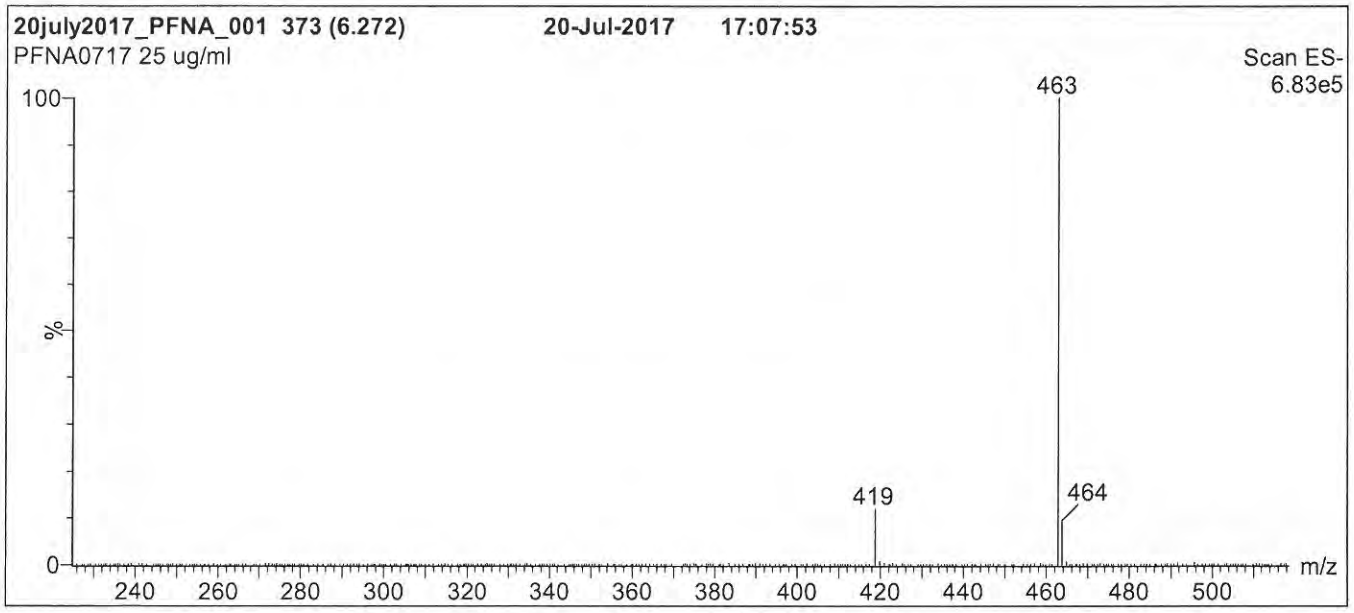
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

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

18E0716

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Hold for 1 min. Ramp to 90% organic over 7 min and hold for 1 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

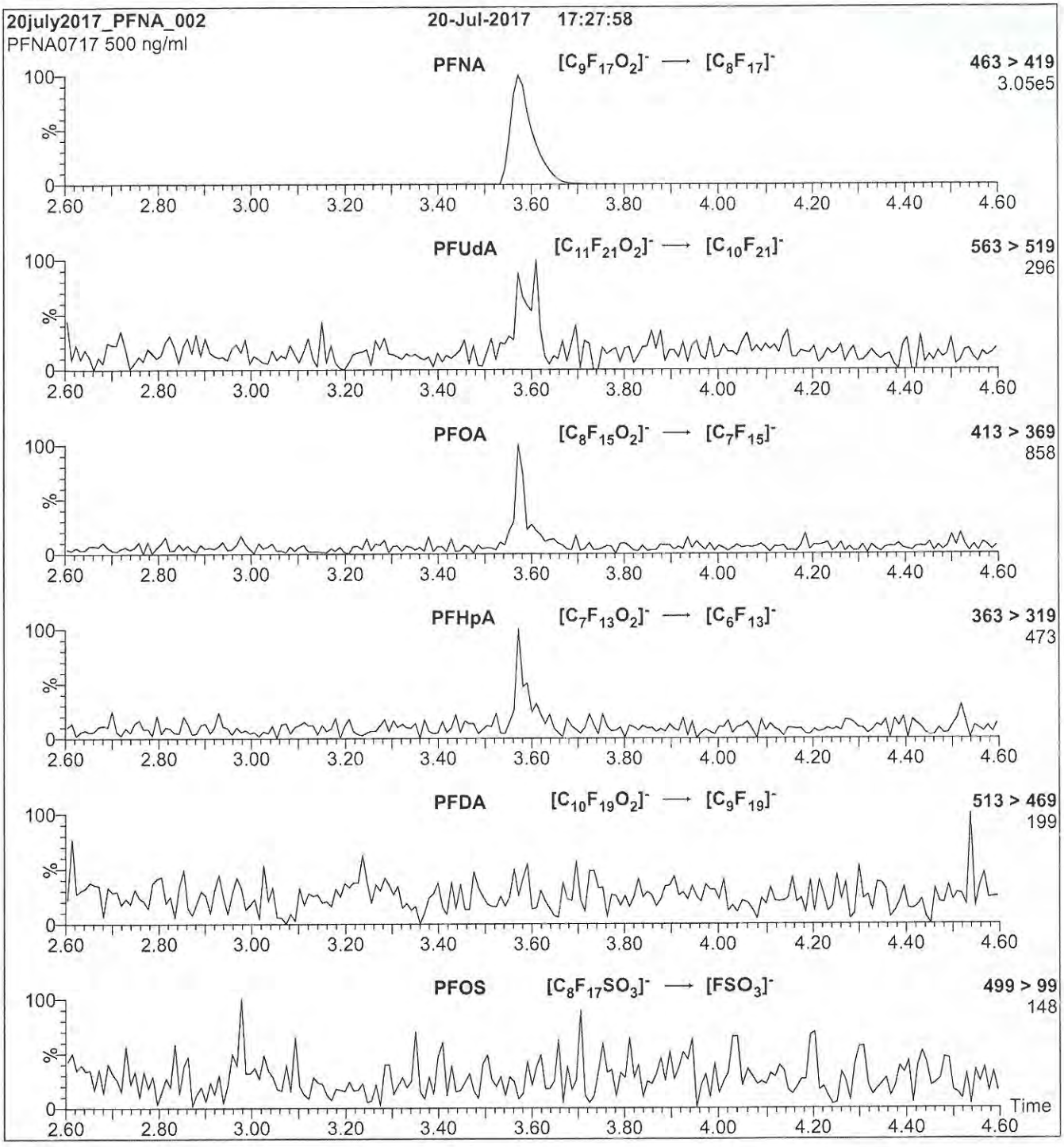
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

1803716

Figure 2: **PFNA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFNA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

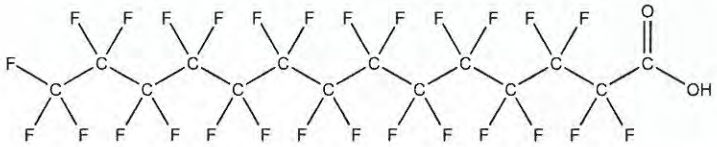
Collision Gas (mbar) = 3.50e-3
Collision Energy (eV) = 11

18E0717

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	PFTeDA	**LOT NUMBER:**	PFTeDA0917
COMPOUND:	Perfluoro-n-tetradecanoic acid		
STRUCTURE:		**CAS #:**	376-06-7



MOLECULAR FORMULA:	$C_{14}HF_{27}O_2$	**MOLECULAR WEIGHT:**	714.11
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	09/21/2017		
EXPIRY DATE: (mm/dd/yyyy)	09/21/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.2% of PFDoA ($C_{12}HF_{23}O_2$) and ~ 0.2% of PFPeDA ($C_{15}HF_{29}O_2$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/21/2017 (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

18E0717

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QUALITY MANAGEMENT:

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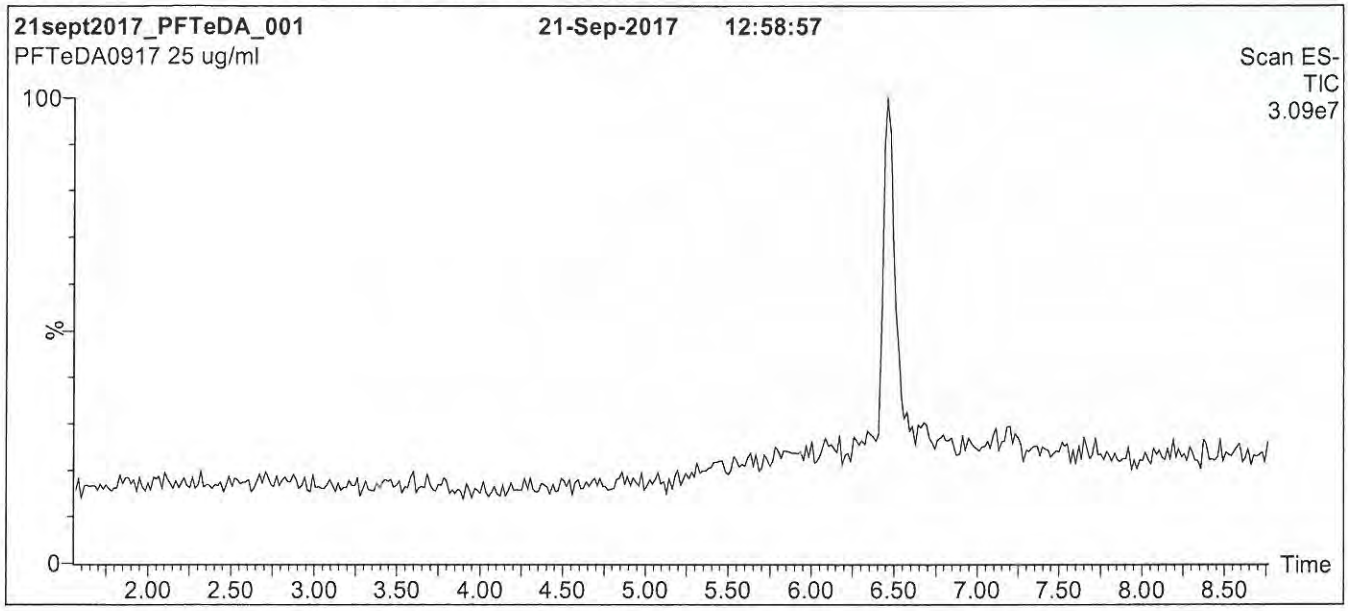
CALA

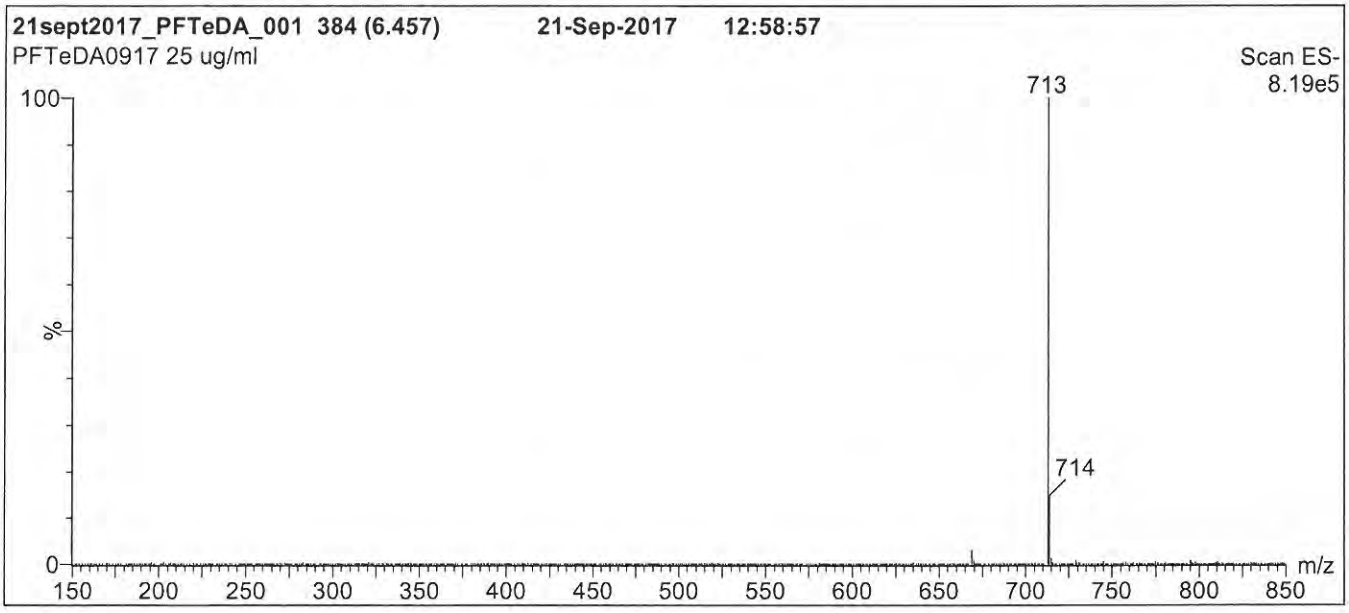
ANAB ACCREDITED

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

1803717

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

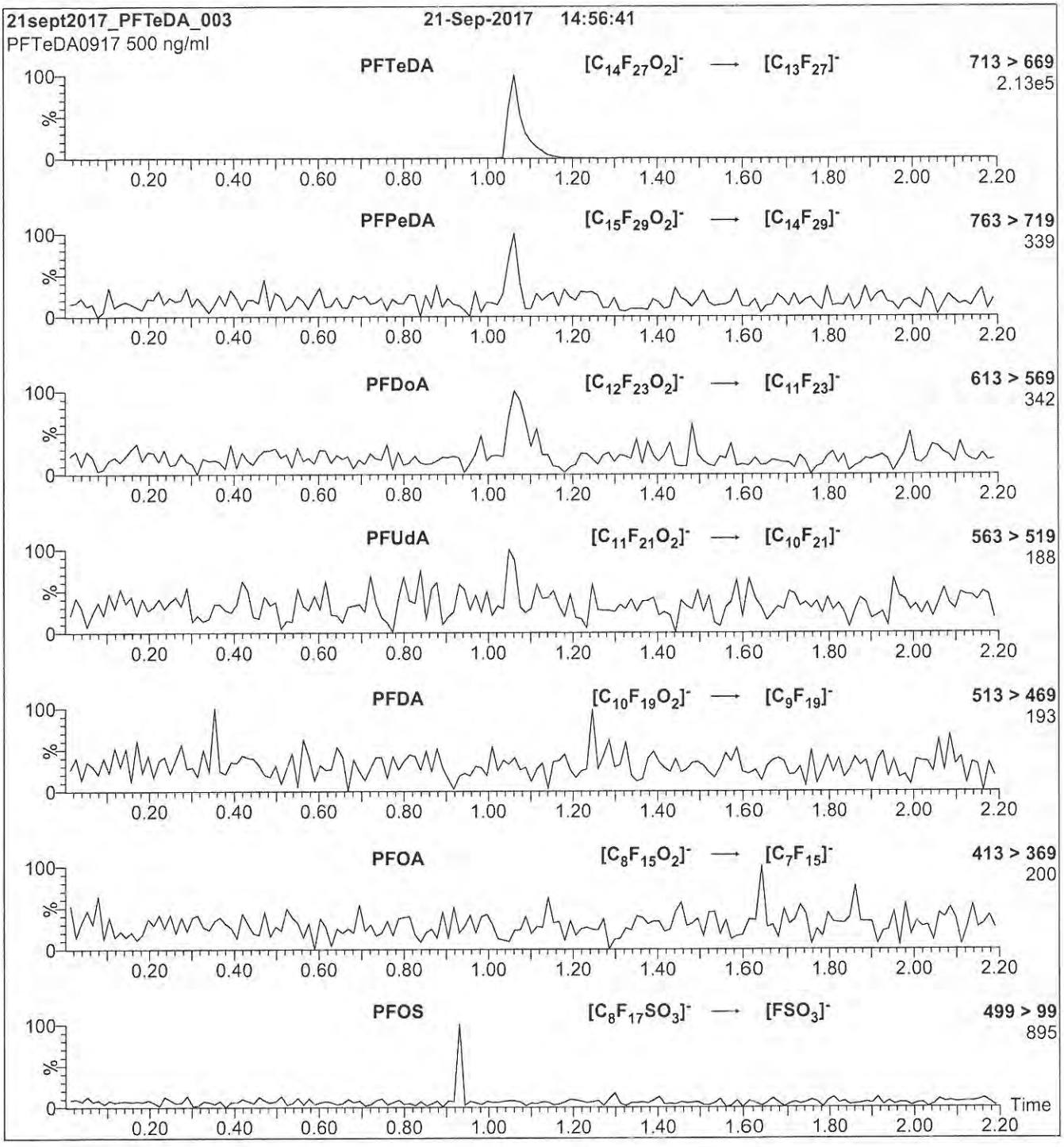
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFTeDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFTeDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 14

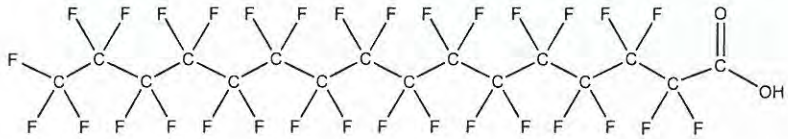
18E0718

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFHxDA
COMPOUND: Perfluoro-n-hexadecanoic acid
LOT NUMBER: PFHxDA0717

STRUCTURE:
CAS #: 67905-19-5



MOLECULAR FORMULA: $C_{16}HF_{31}O_2$
MOLECULAR WEIGHT: 814.13
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/13/2017
EXPIRY DATE: (mm/dd/yyyy) 07/13/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

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 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:** 08/04/2017 (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

18E0718

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.

HAZARDS:

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:

Where possible, all of our products are synthesized using single-product unambiguous routes. 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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. 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:

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QUALITY MANAGEMENT:

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CALA Testing

ANAB ACCREDITED

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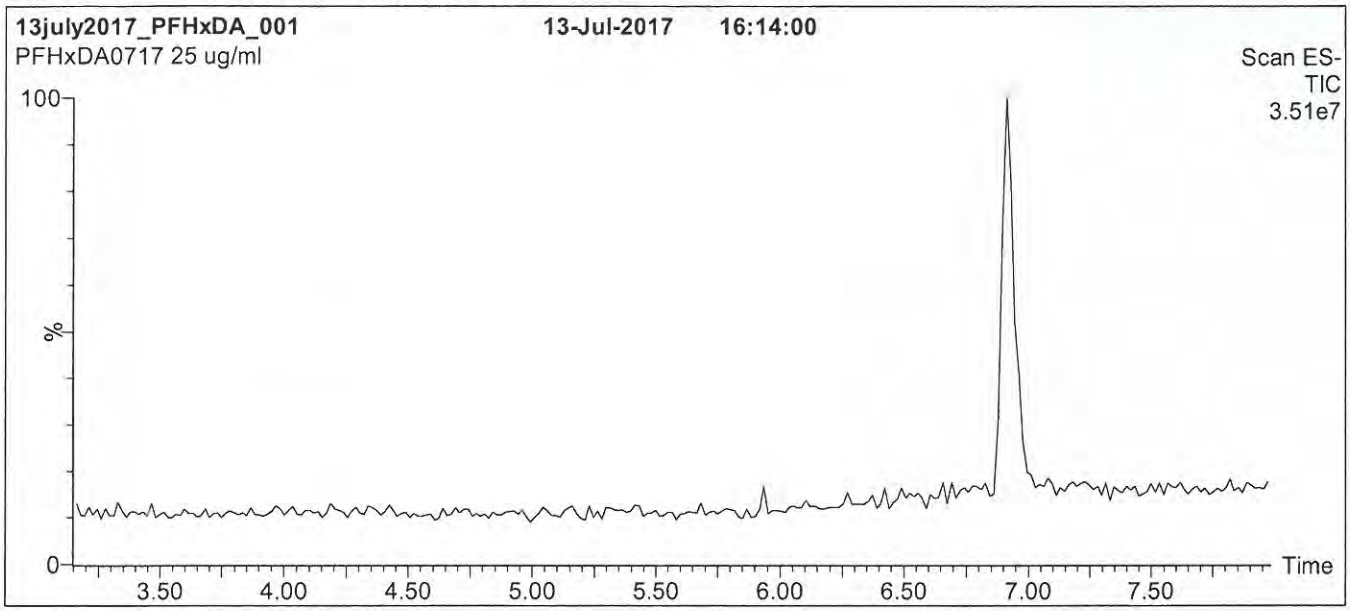
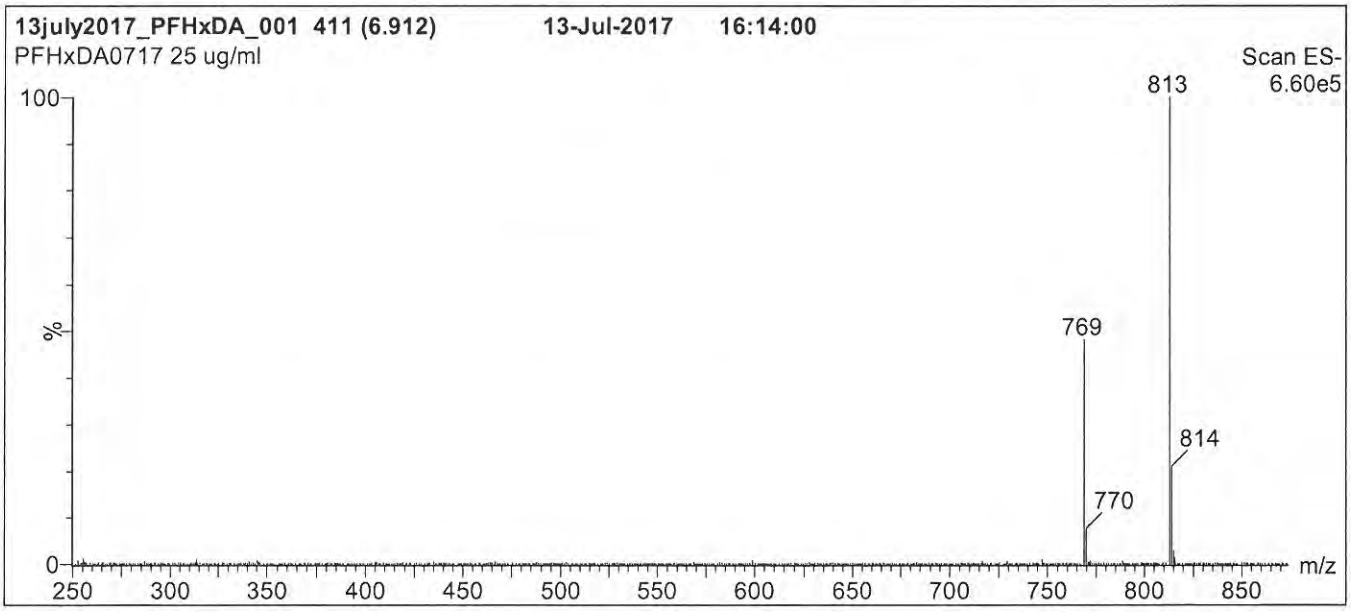
18E0718

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

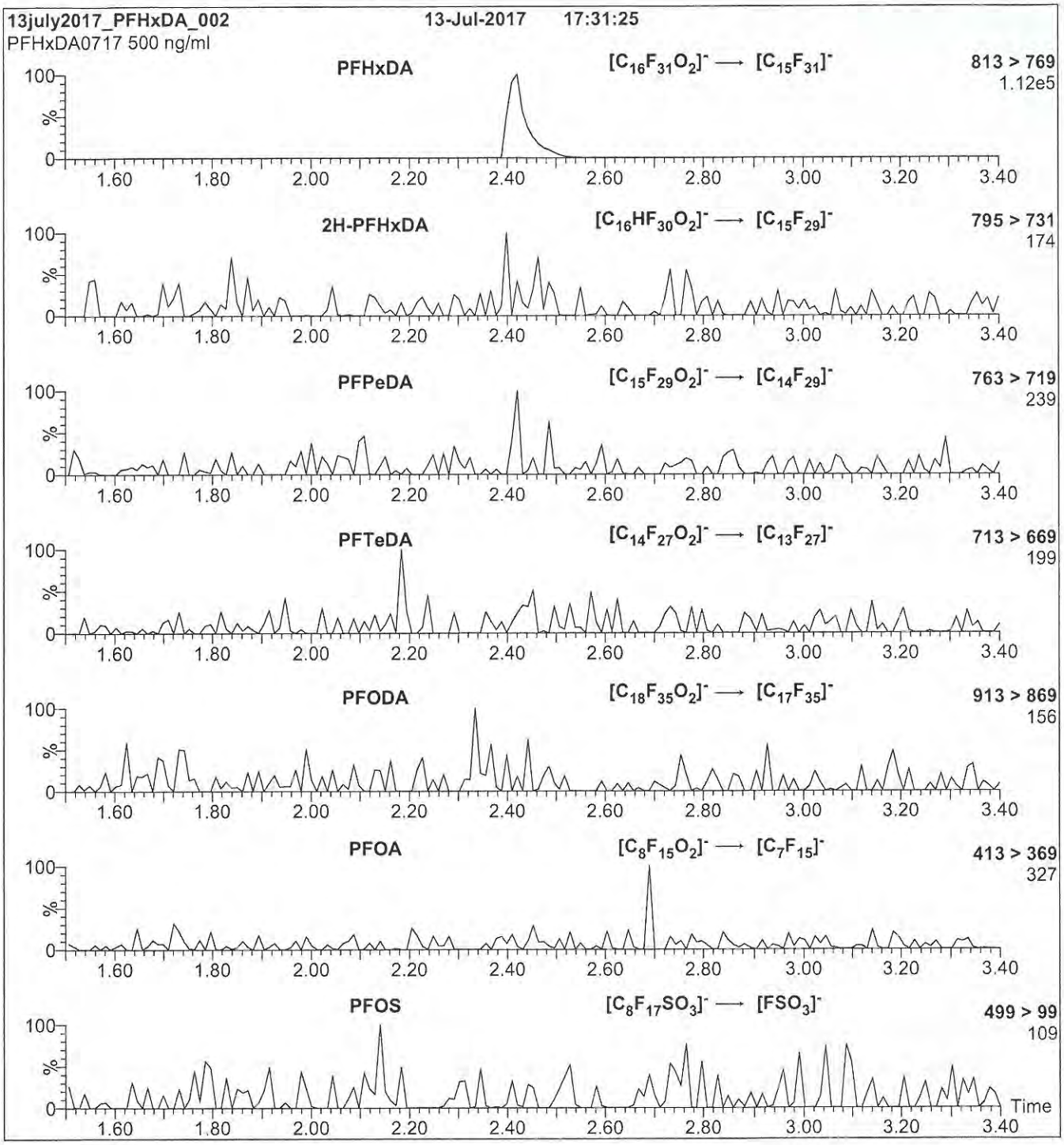
MS Parameters

Experiment: Full Scan (250 - 1250 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

18E0718

Figure 2: **PFHxDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFHxDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.13e-3
Collision Energy (eV) = 15

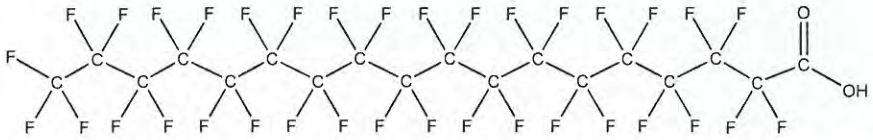
18E0719

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFODA
COMPOUND: Perfluoro-n-octadecanoic acid
LOT NUMBER: PFODA0717

STRUCTURE:
CAS #: 16517-11-6



MOLECULAR FORMULA: $C_{18}HF_{35}O_2$
MOLECULAR WEIGHT: 914.14
CONCENTRATION: 50 ± 2.5 µg/ml
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 07/13/2017
EXPIRY DATE: (mm/dd/yyyy) 07/13/2022
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

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 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

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Certified By: _____ **Date:** 07/14/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

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CALA

ANAB ACCREDITED

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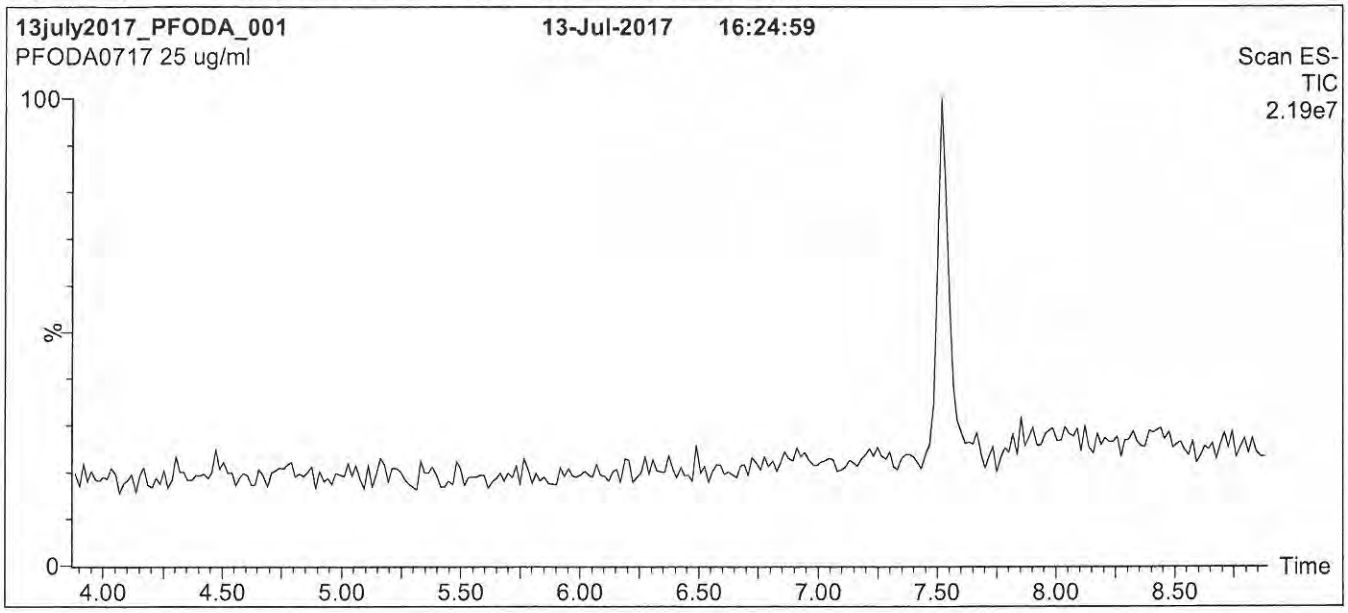
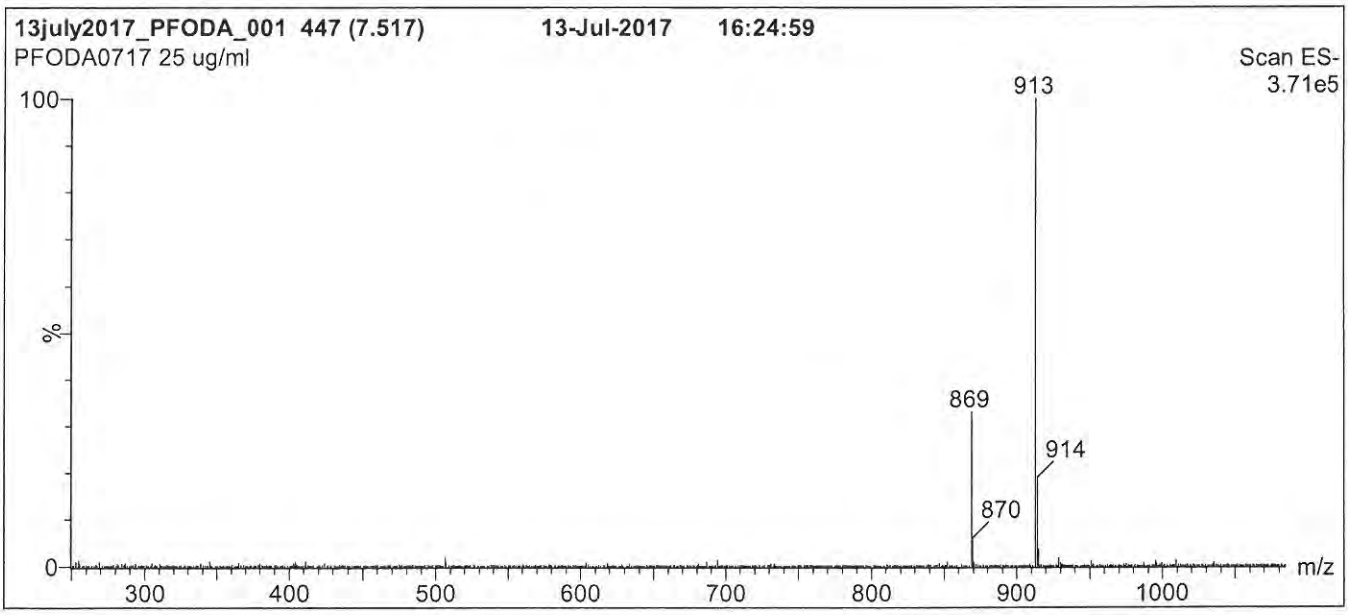
18E0719

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

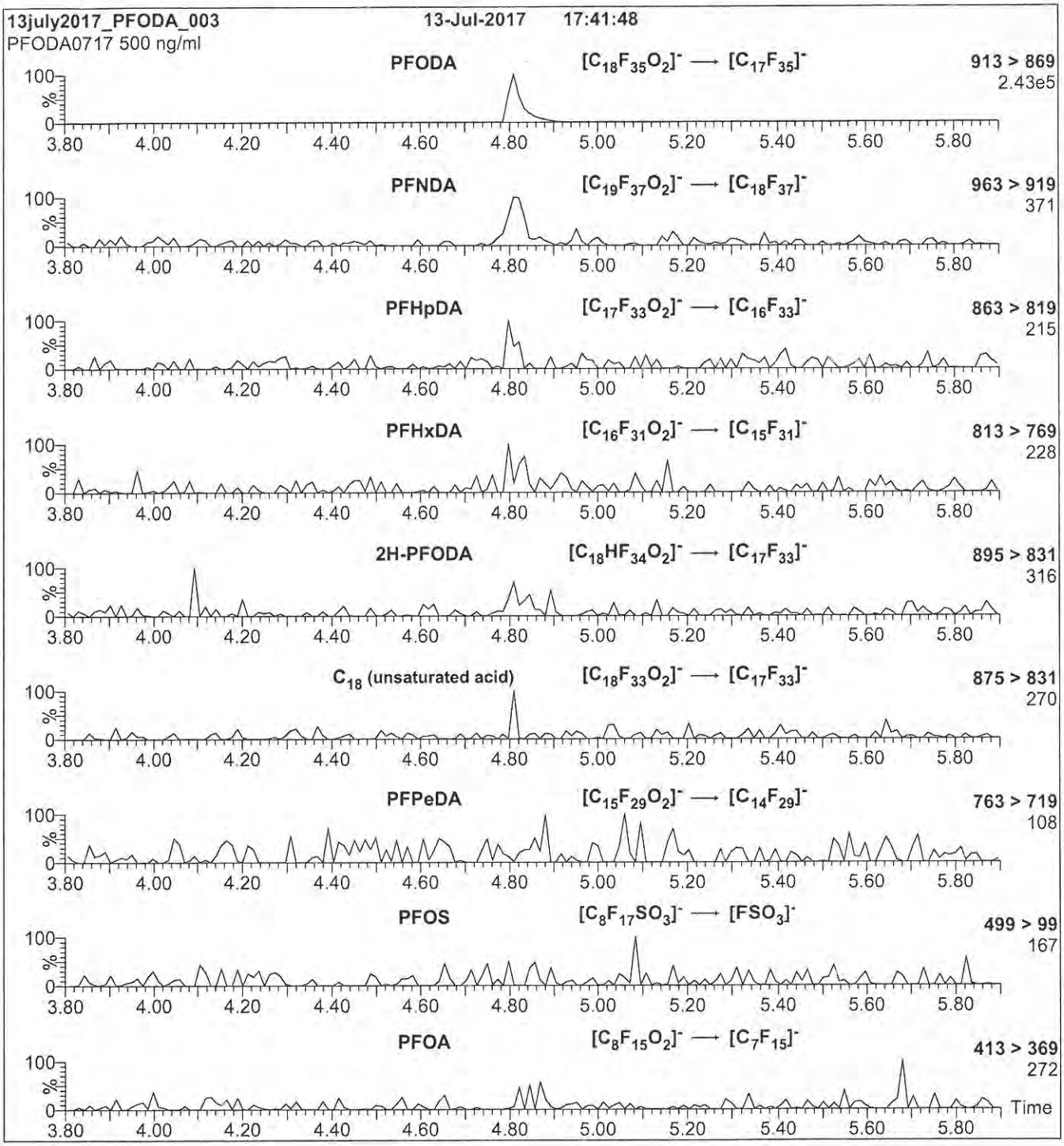
MS Parameters

Experiment: Full Scan (250 - 1250 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

18E0719

Figure 2: **PFODA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFODA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

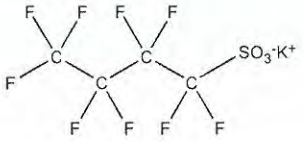
Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 15

18E0720

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	L-PFBS	**LOT NUMBER:**	LPFBS0917
COMPOUND:	Potassium perfluoro-1-butanesulfonate		
STRUCTURE:		**CAS #:**	29420-49-3



MOLECULAR FORMULA:	$C_4F_9SO_3K$	**MOLECULAR WEIGHT:**	338.19
CONCENTRATION:	50.0 ± 2.5 µg/ml (K salt) 44.2 ± 2.2 µg/ml (PFBS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	09/21/2017		
EXPIRY DATE: (mm/dd/yyyy)	09/21/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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:** 09/22/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

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1806720

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CALA

ANAB ACCREDITED

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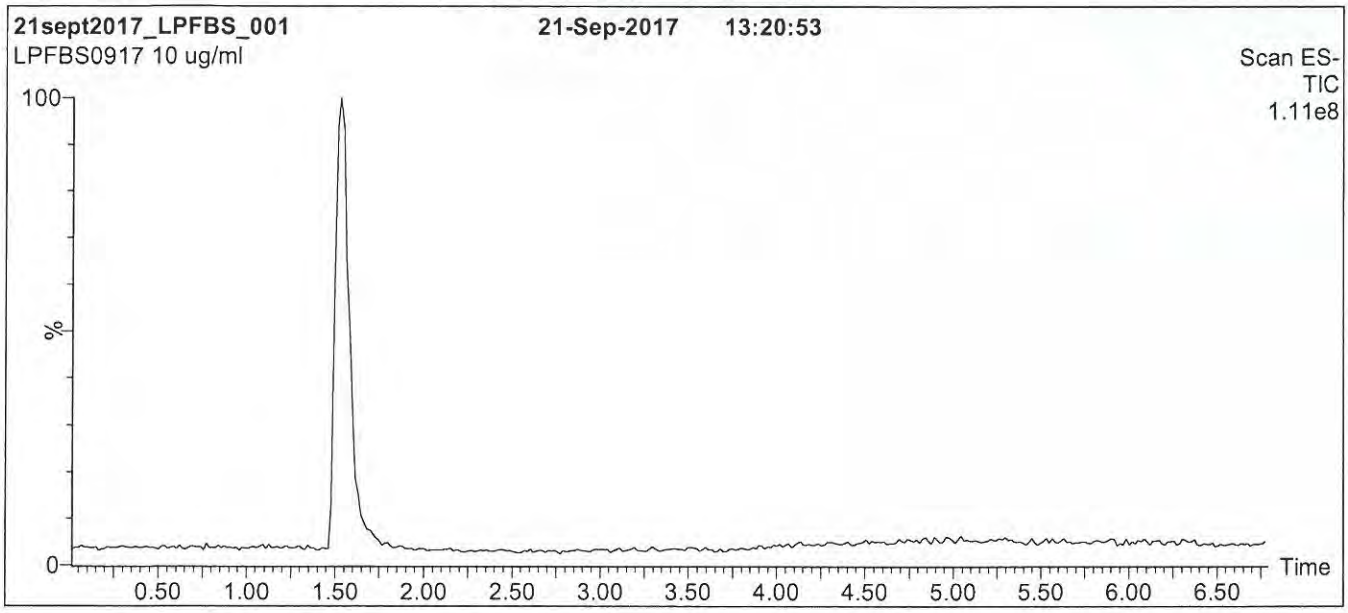
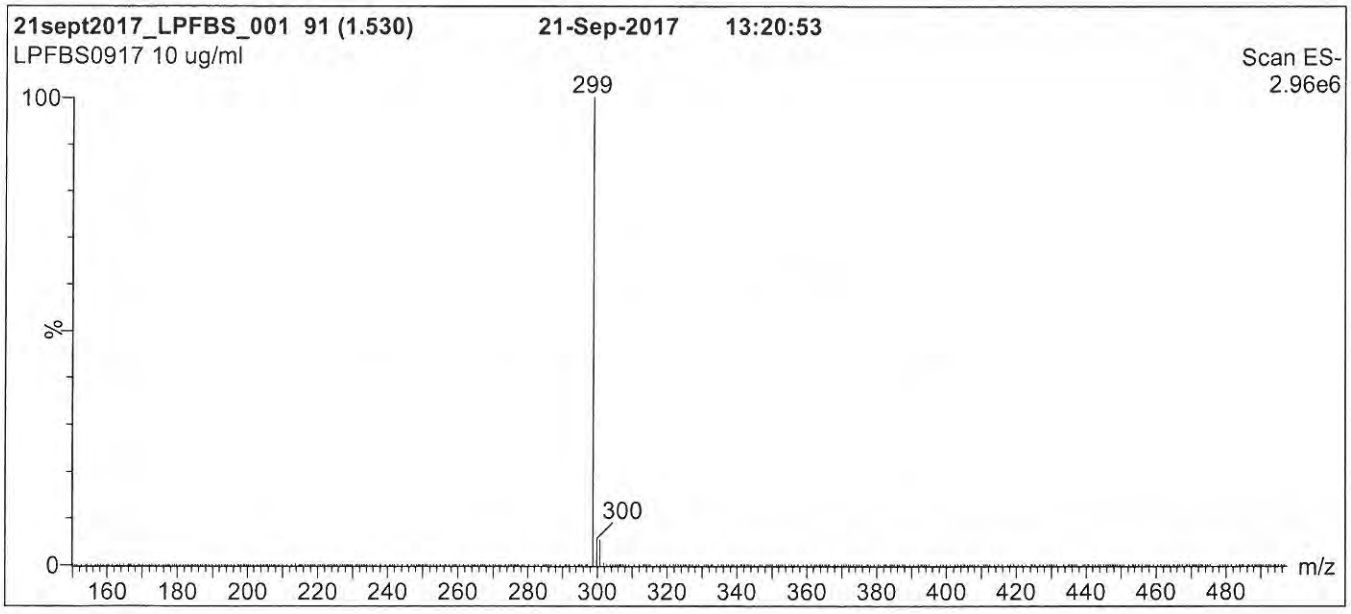
18E0720

Figure 1: **L-PFBS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

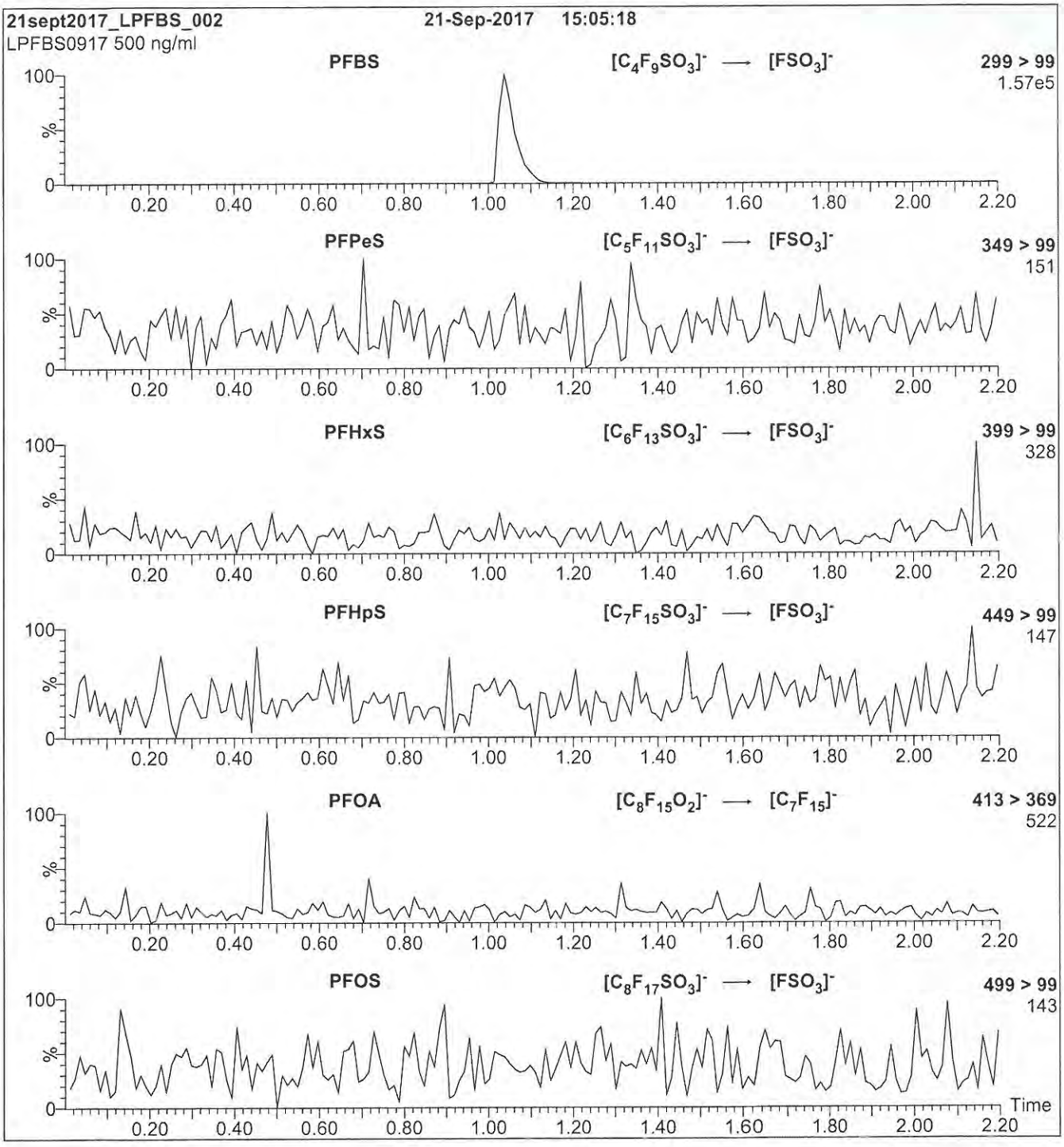
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18E0720

Figure 2: **L-PFBS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml L-PFBS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

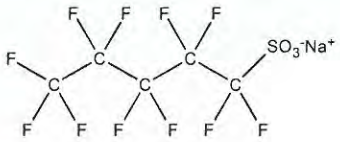
Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 25

18E0721

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	L-PFPeS	**LOT NUMBER:**	LPFPeS0117
COMPOUND:	Sodium perfluoro-1-pentanesulfonate		
STRUCTURE:		**CAS #:**	630402-22-1



MOLECULAR FORMULA:	$C_5F_{11}SO_3Na$	**MOLECULAR WEIGHT:**	372.09
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 46.9 ± 2.3 µg/ml (PFPeS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	01/11/2017		
EXPIRY DATE: (mm/dd/yyyy)	01/11/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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LIMITED WARRANTY:

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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; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA

ANAB ACCREDITED

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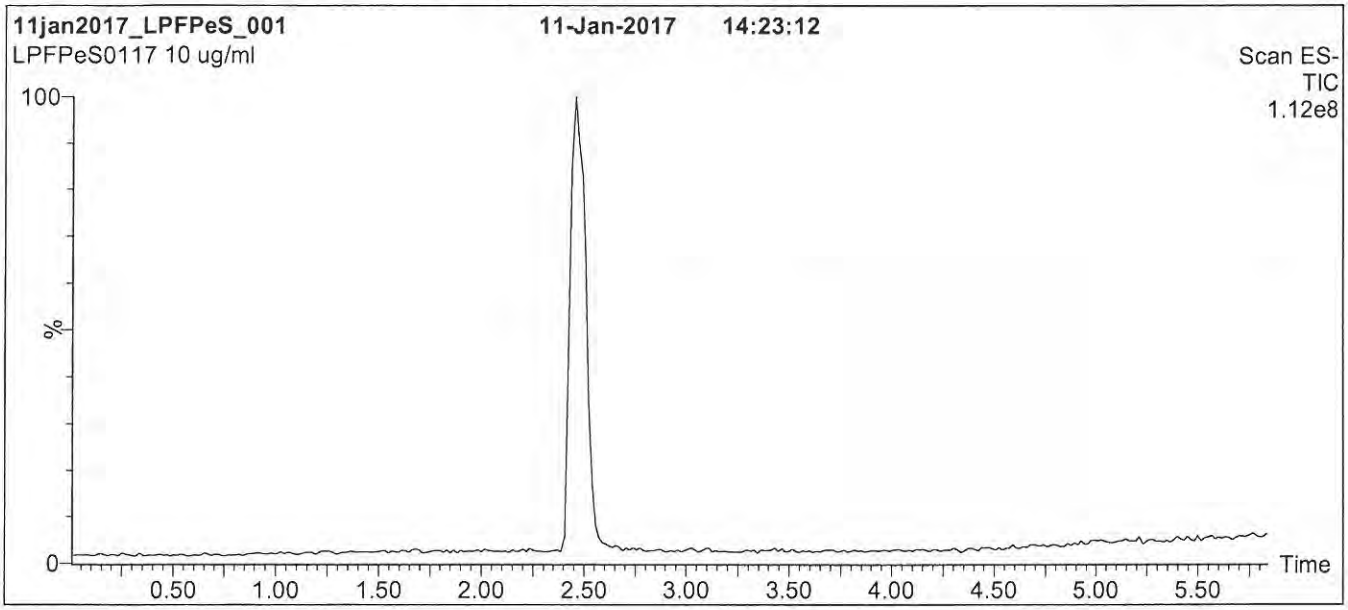
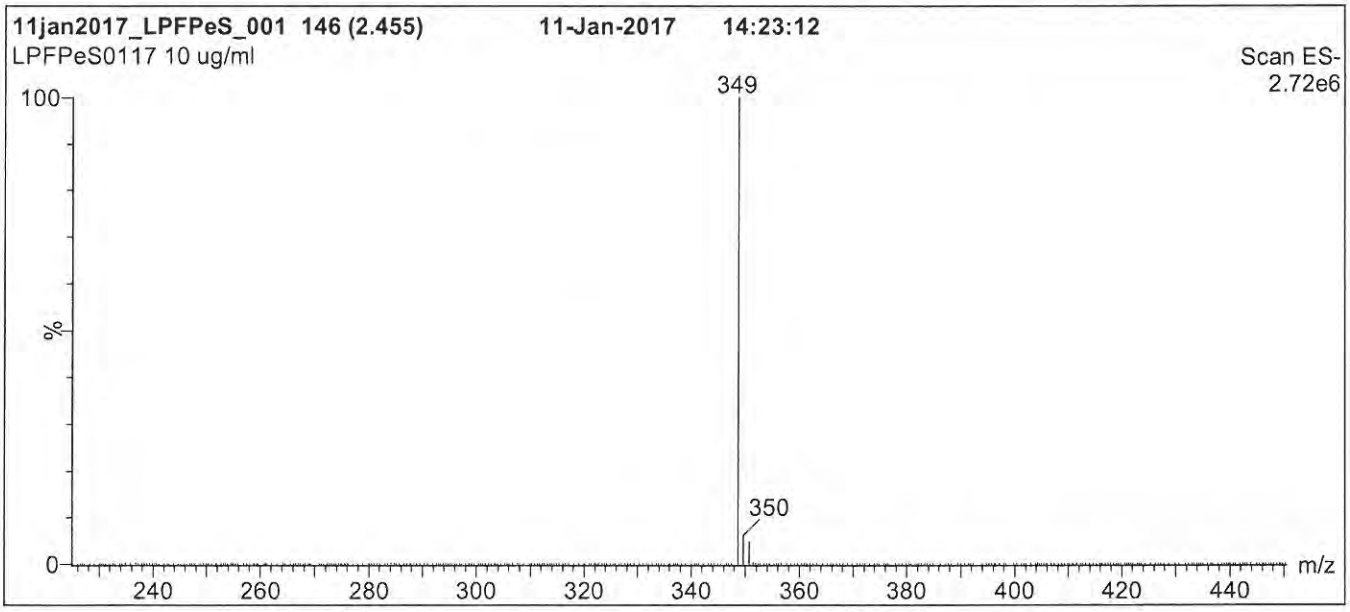
18E0721

Figure 1: **L-PFPeS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions over 0.5 min.
Time: 10 min

Flow: 300 µl/min

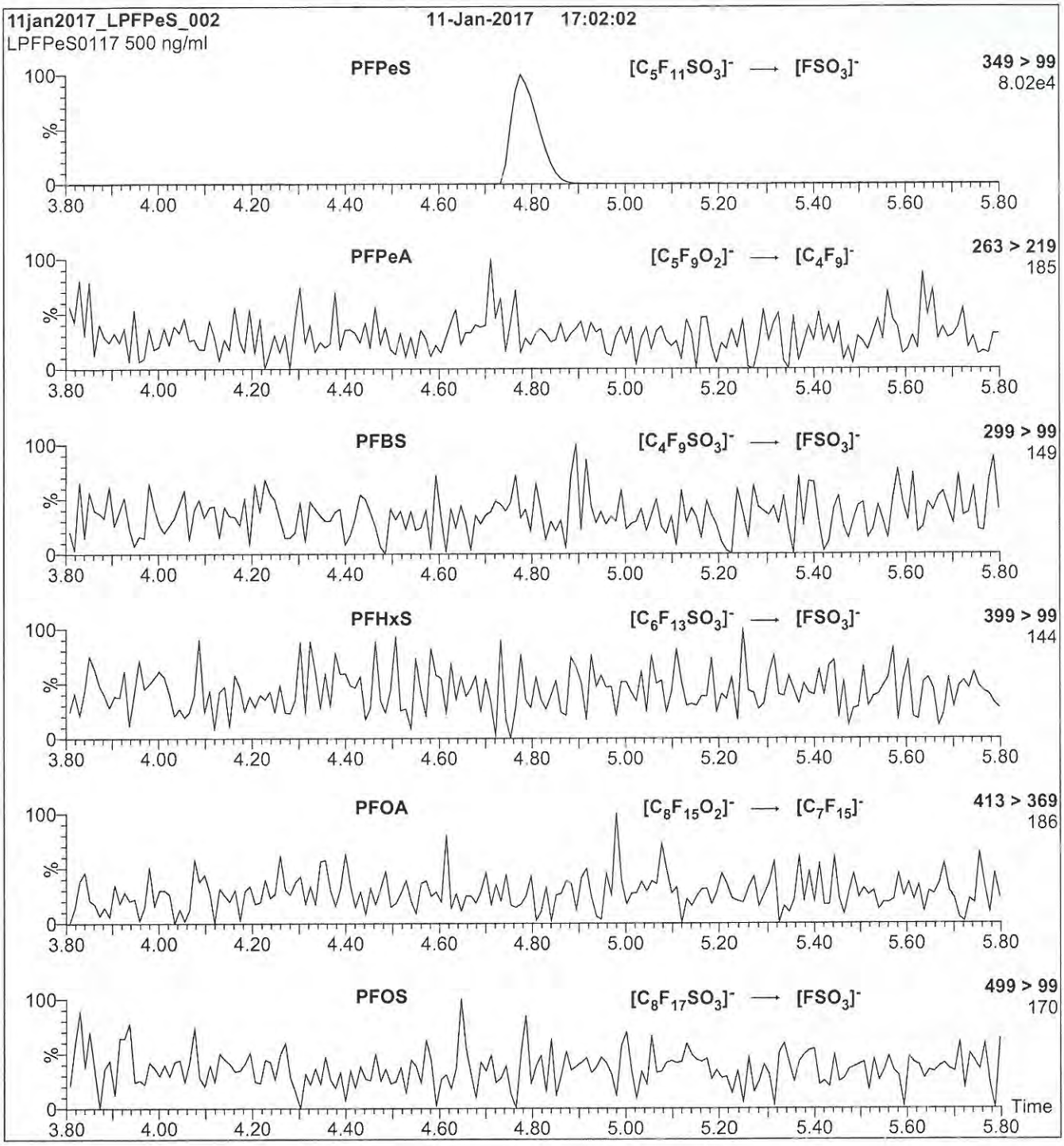
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 50.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

18E0721

Figure 2: **L-PFPeS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml L-PFPeS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 30

18E0722

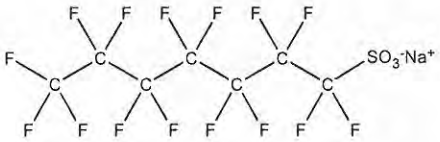
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFHpS
LOT NUMBER: LPFHpS0817
COMPOUND: Sodium perfluoro-1-heptanesulfonate

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:	$C_7F_{15}SO_3Na$	**MOLECULAR WEIGHT:**	472.10
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.6 ± 2.4 µg/ml (PFHpS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	09/01/2017		
EXPIRY DATE: (mm/dd/yyyy)	09/01/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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 ~ 0.2% of L-PFHxS ($C_6F_{13}SO_3Na$) and ~ 0.1% of L-PFOS ($C_8F_{17}SO_3Na$).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 09/07/2017 (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

18E0722

INTENDED USE:

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HAZARDS:

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HOMOGENEITY:

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UNCERTAINTY:

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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.

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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CALA

ANAB ACCREDITED

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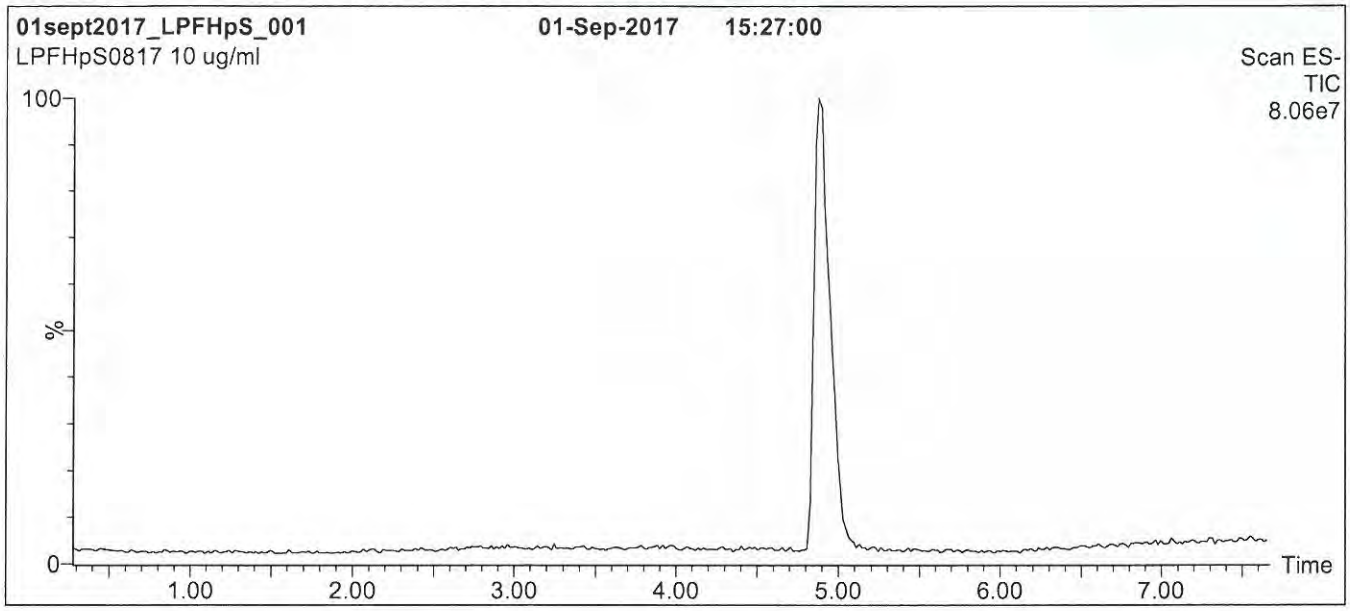
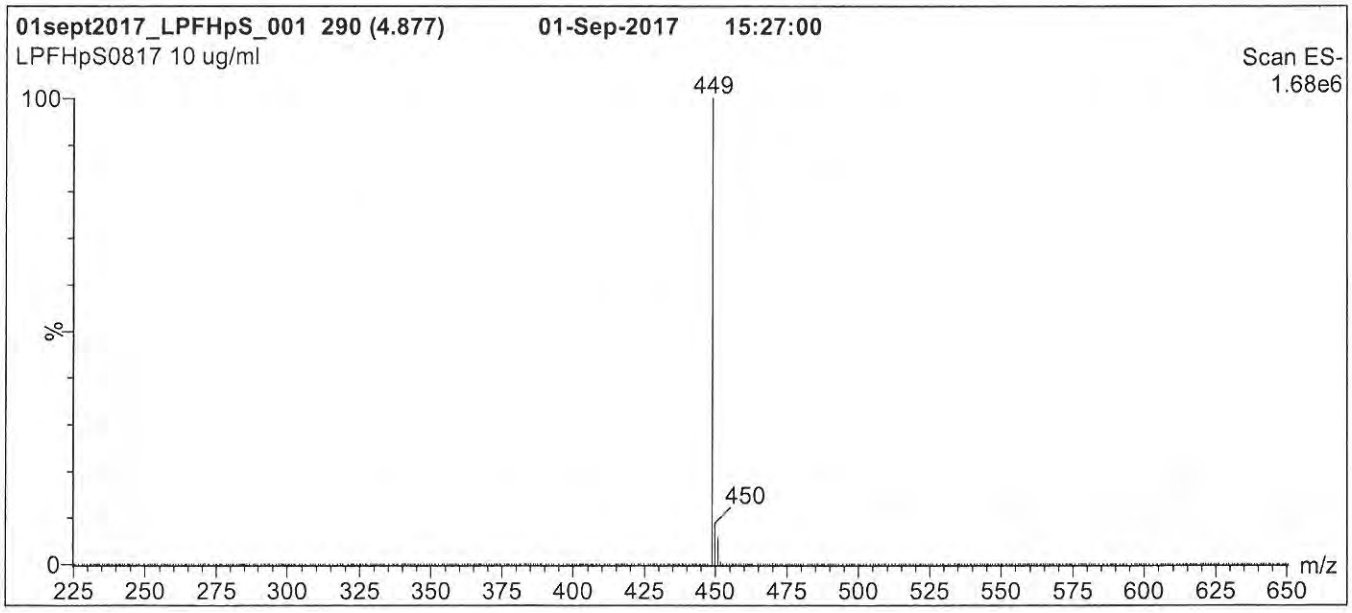
18E0722

Figure 1: **L-PFHpS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold
for 1 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 60.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

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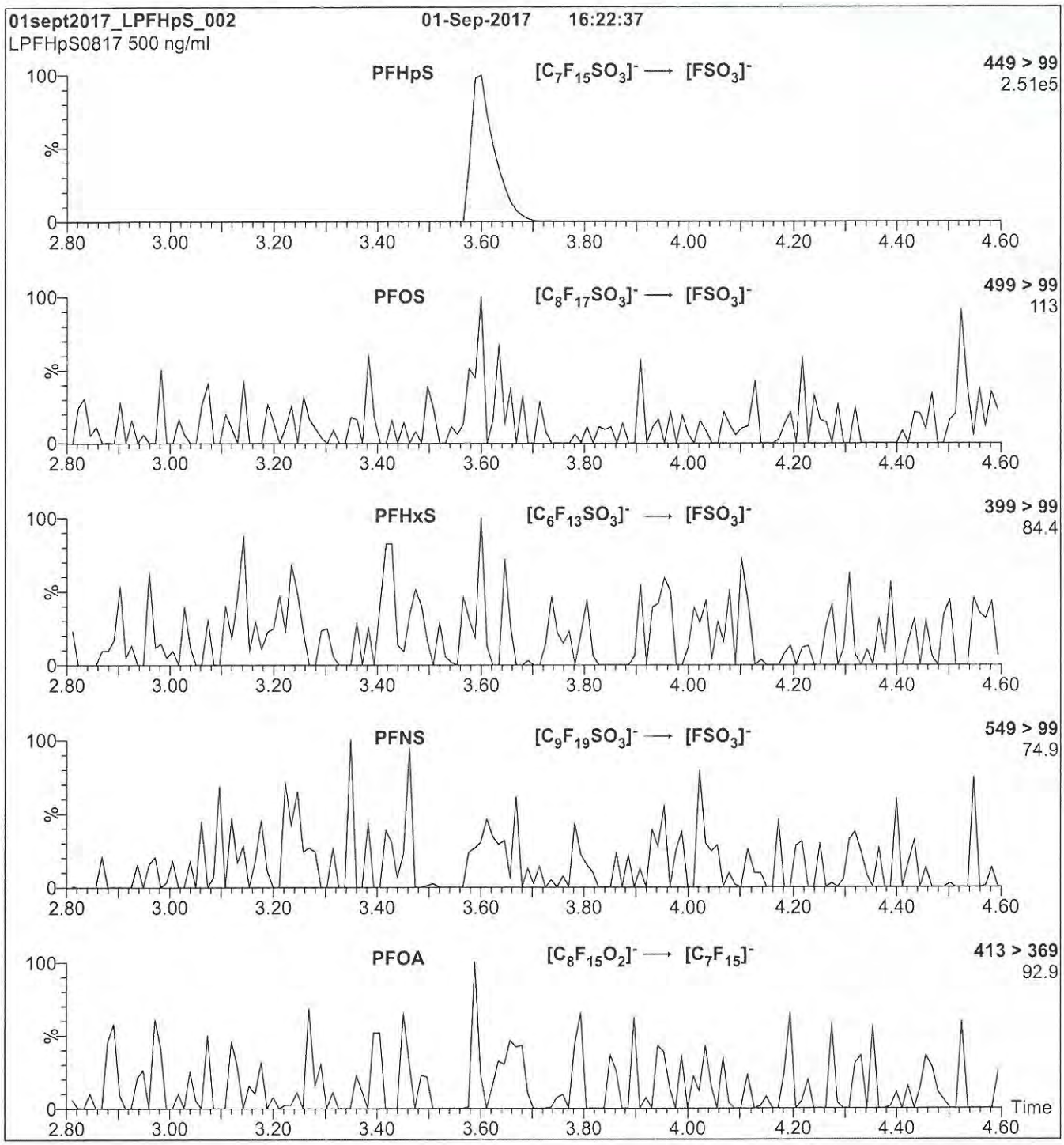
Figure 2: **L-PFHpS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml L-PFHpS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

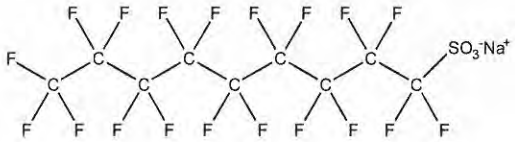
Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 35

18E0723

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	L-PFNS	**LOT NUMBER:**	LPFNS0917
COMPOUND:	Sodium perfluoro-1-nonanesulfonate		
STRUCTURE:		**CAS #:**	98789-57-2



MOLECULAR FORMULA:	$C_9F_{19}SO_3Na$	**MOLECULAR WEIGHT:**	572.12
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 48.0 ± 2.4 µg/ml (PFNS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	09/27/2017		
EXPIRY DATE: (mm/dd/yyyy)	09/27/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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:** 09/28/2017 (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

18E0723

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UNCERTAINTY:

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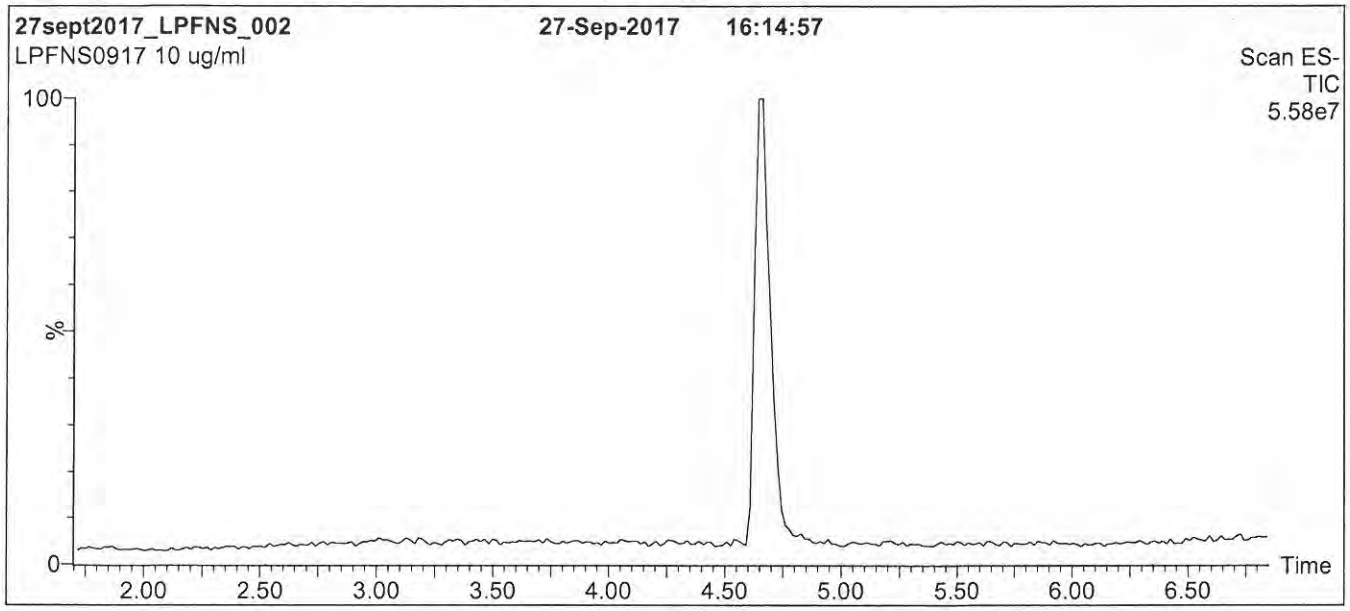
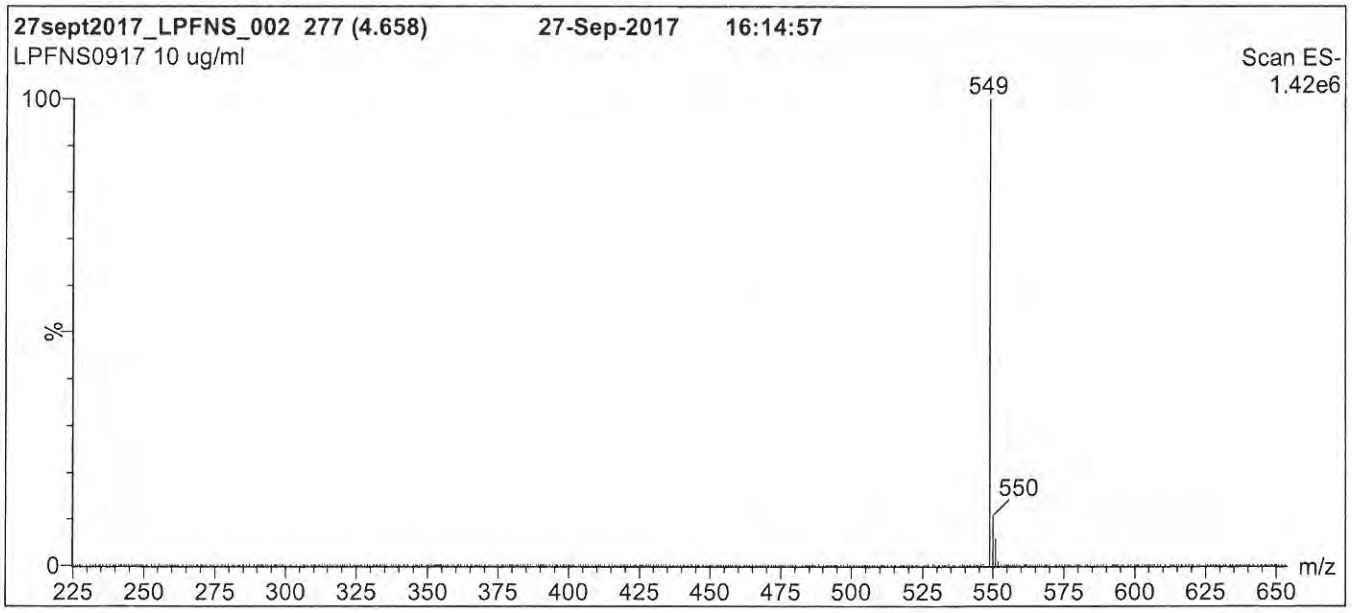
18E0723

Figure 1: **L-PFNS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

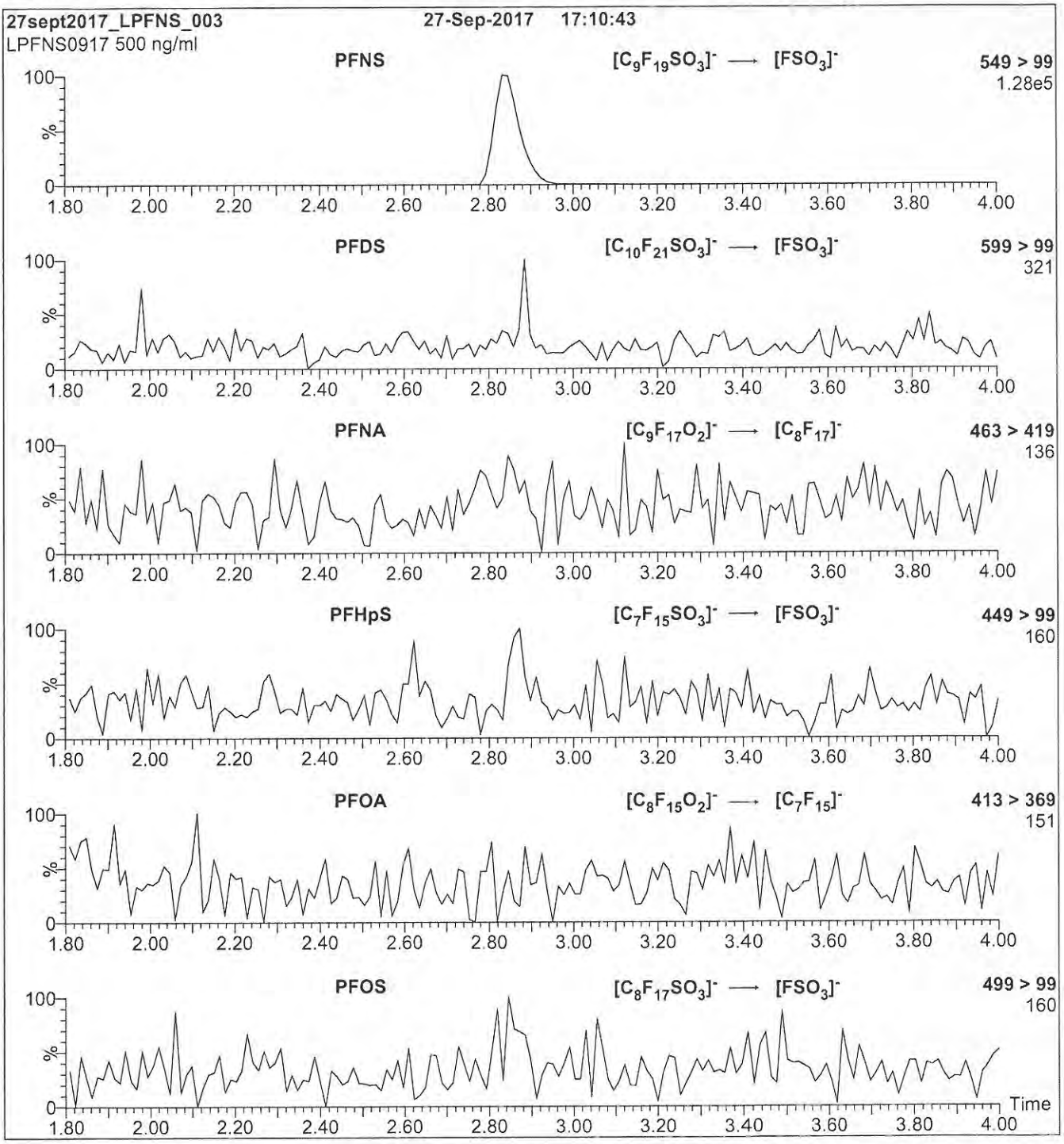
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 65.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18E0723

Figure 2: **L-PFNS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml L-PFNS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.50e-3
Collision Energy (eV) = 45

18E0724

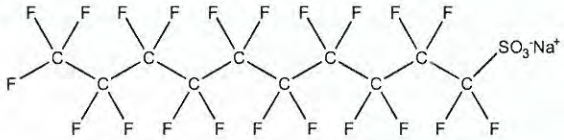
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFDS
LOT NUMBER: LPFDS1117
COMPOUND: Sodium perfluoro-1-decanesulfonate

STRUCTURE:

CAS #: 2806-15-7



MOLECULAR FORMULA:	$C_{10}F_{21}SO_3Na$	**MOLECULAR WEIGHT:**	622.13
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 48.2 ± 2.4 µg/ml (PFDS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	11/08/2017		
EXPIRY DATE: (mm/dd/yyyy)	11/08/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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 ~ 0.9% of sodium perfluoro-1-dodecanesulfonate (L-PFDoS).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/16/2017 (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

18E0724

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ANAB ACCREDITED

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18E0724

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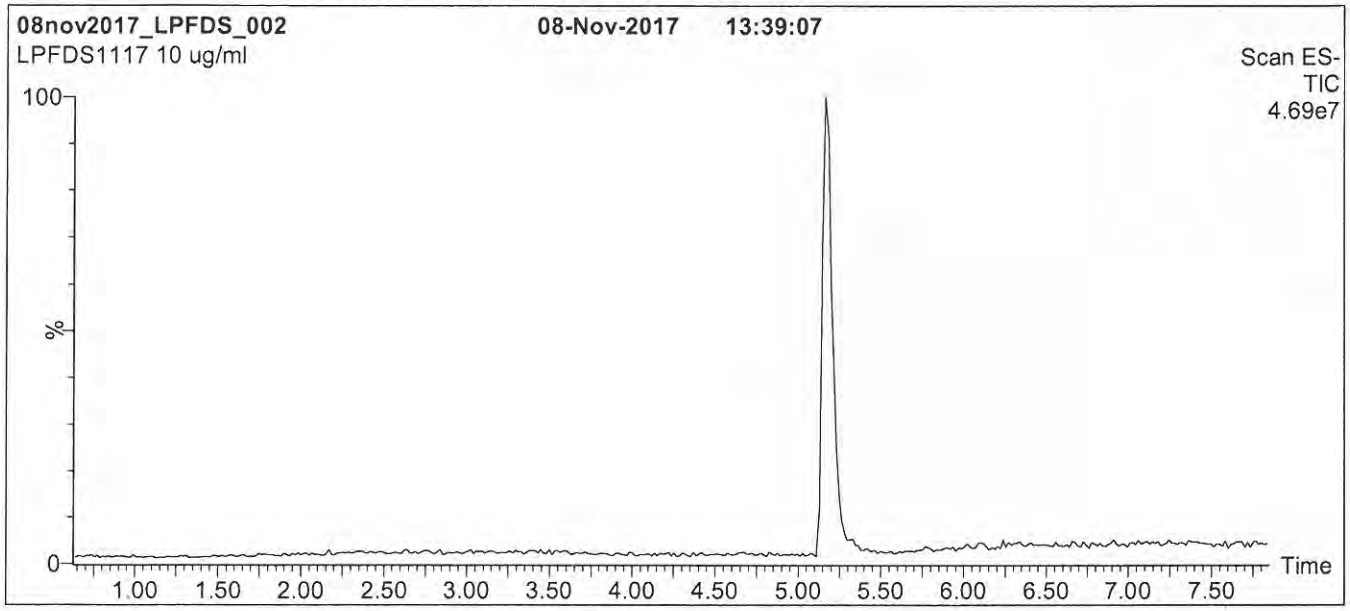

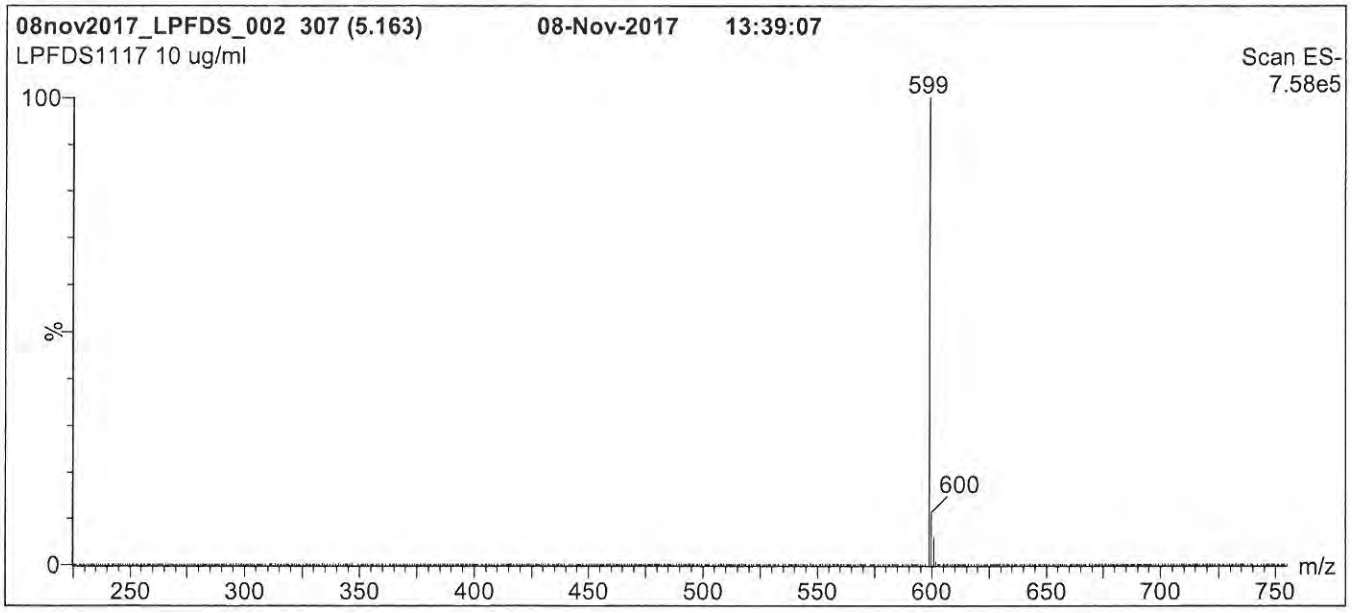

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MS: **Micromass Quattro *micro* API MS**

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1.7 µm, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

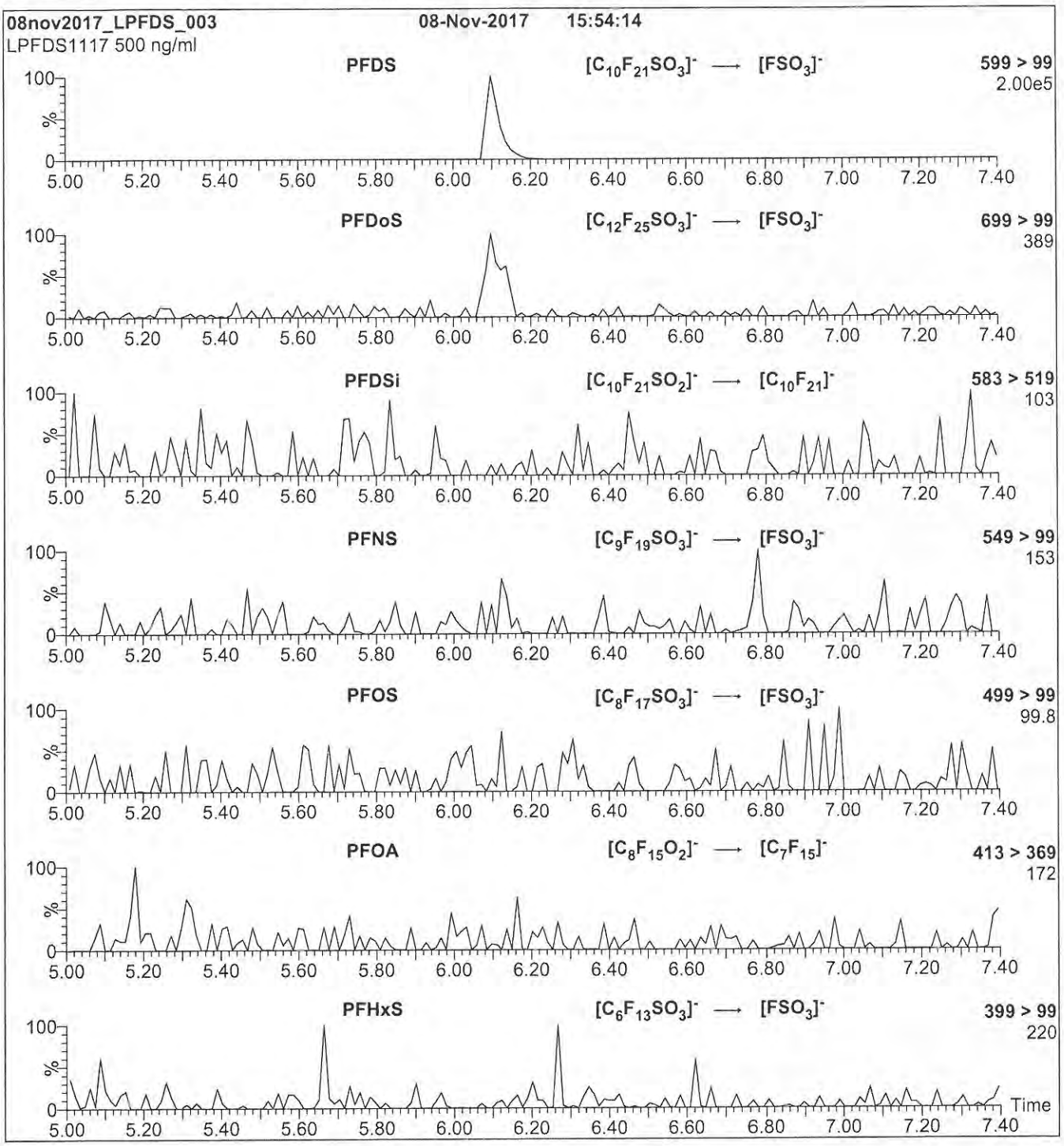
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 70.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18E0724

Figure 2: **L-PFDS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml L-PFDS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 50

18E0725

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-PFHxSK

Potassium Perfluorohexanesulfonate Solution/Mixture of Linear and Branched Isomers

PRODUCT CODE:	br-PFHxSK
LOT NUMBER:	brPFHxSK0117
CONCENTRATION:	50.0 ± 2.5 µg/ml (total potassium salt)
	45.5 ± 2.3 µg/ml (total PFHxS anion)
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	01/03/2017
LAST TESTED: (mm/dd/yyyy)	01/04/2017
EXPIRY DATE: (mm/dd/yyyy)	01/04/2022
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% perfluorohexanesulfonate linear and branched isomers. The full name, structure and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ^{19}F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.5% of perfluoro-1-pentanesulfonate and ~ 0.2% of perfluoro-1-octanesulfonate.
- CAS#: 3871-99-6 (for linear isomer; potassium salt).

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

18E0725

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.

HAZARDS:

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:

Where possible, all of our products are synthesized using single-product unambiguous routes. 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.

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. 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; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA

ANAB ACCREDITED

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

18E0725

Table A: **br-PFHxSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

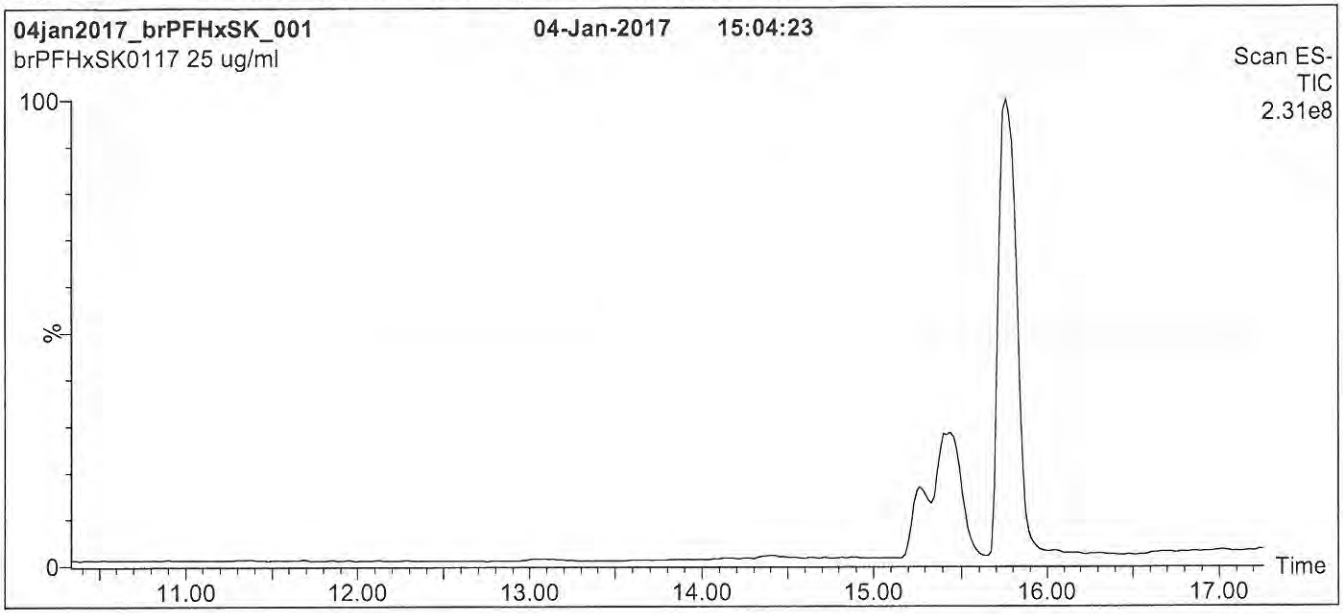
Isomer	Name	Structure	Percent Composition by ^{19}F-NMR
1	Potassium perfluoro-1-hexanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$CF_3CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	2.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	1.4
4	Potassium 3-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	5.0
5	Potassium 4-trifluoromethylperfluoropentanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	8.9
6	Potassium 3,3-di(trifluoromethyl)perfluorobutanesulfonate	$CF_3C(CF_3)_2CF_2CF_2SO_3^-K^+$	0.2
7	Other Unidentified Isomers		0.5

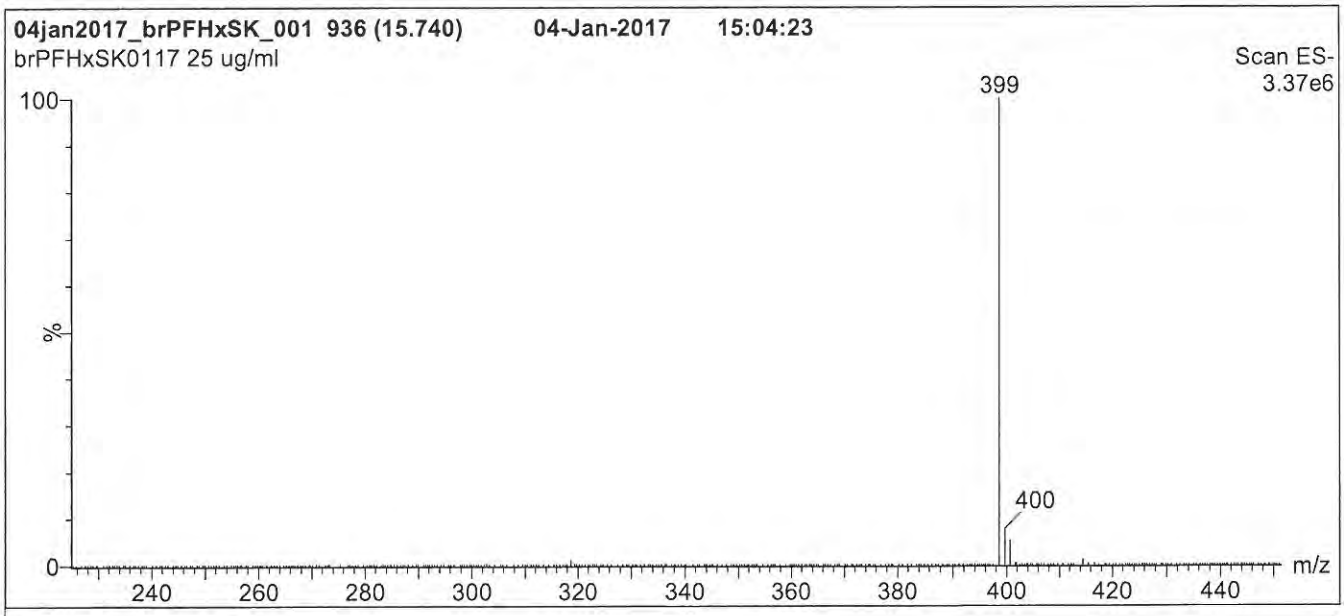
* Percent of total perfluorohexanesulfonate isomers only.
** Systematic Name: Potassium perfluorohexane-2-sulfonate.

Certified By: B.G. Chittim **Date:** 01/20/2017 (mm/dd/yyyy)

18E0725

Figure 1: **br-PFHxSK; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 20% (80:20 MeOH:ACN) / 80% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 50% organic over 14 min. Ramp to 90% organic over 3 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 20 min

Flow: 300 µl/min

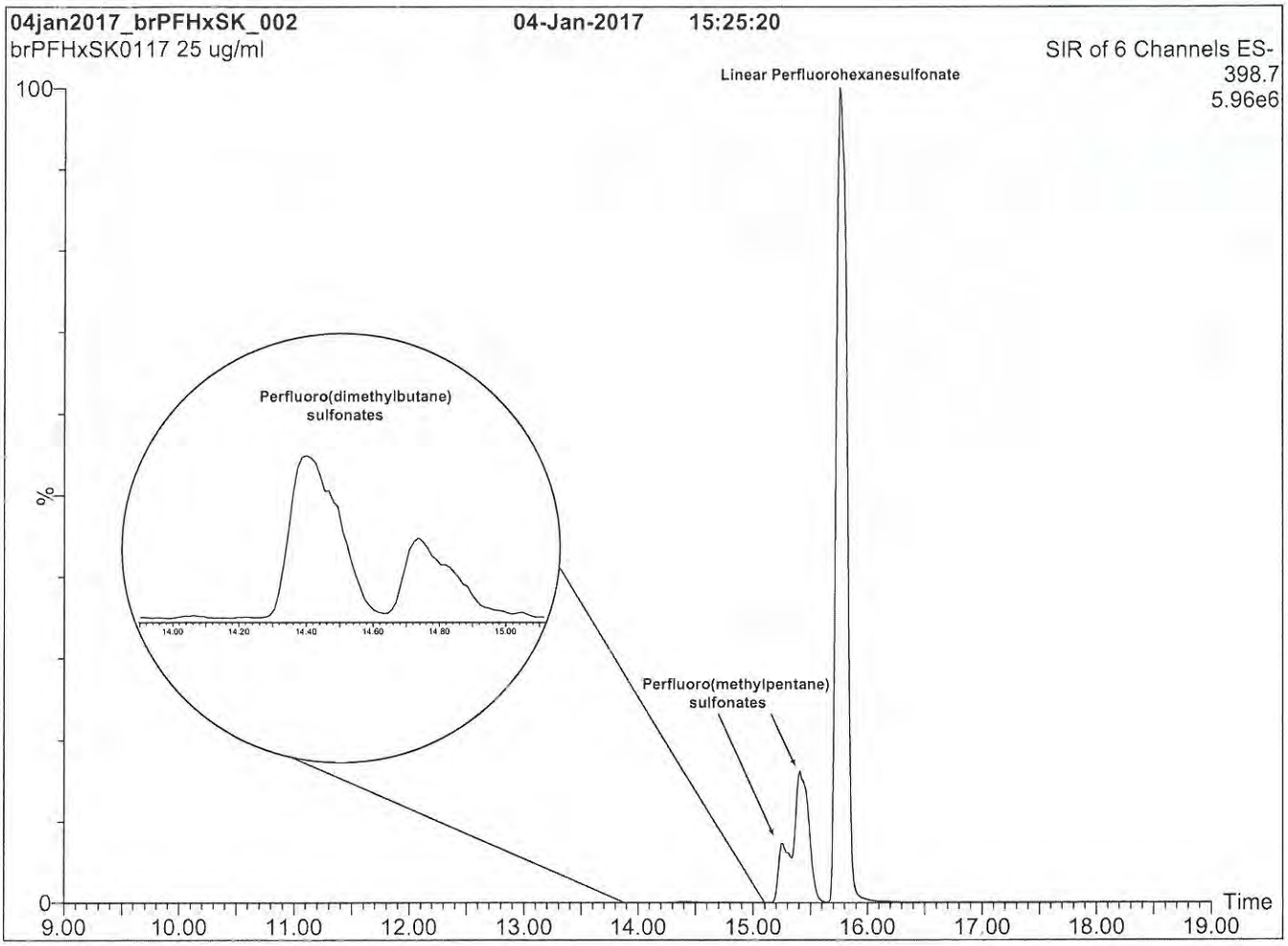
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 50.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

18E0725

Figure 2: **br-PFHxSK; LC/MS Data (SIR)**



Conditions for Figure 2:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 20% (80:20 MeOH:ACN) / 80% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 50% organic over 14 min. Ramp to 90% organic over 3 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 20 min

Flow: 300 µl/min

MS Parameters

Experiment: SIR (6 channels)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = variable (15-62)
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

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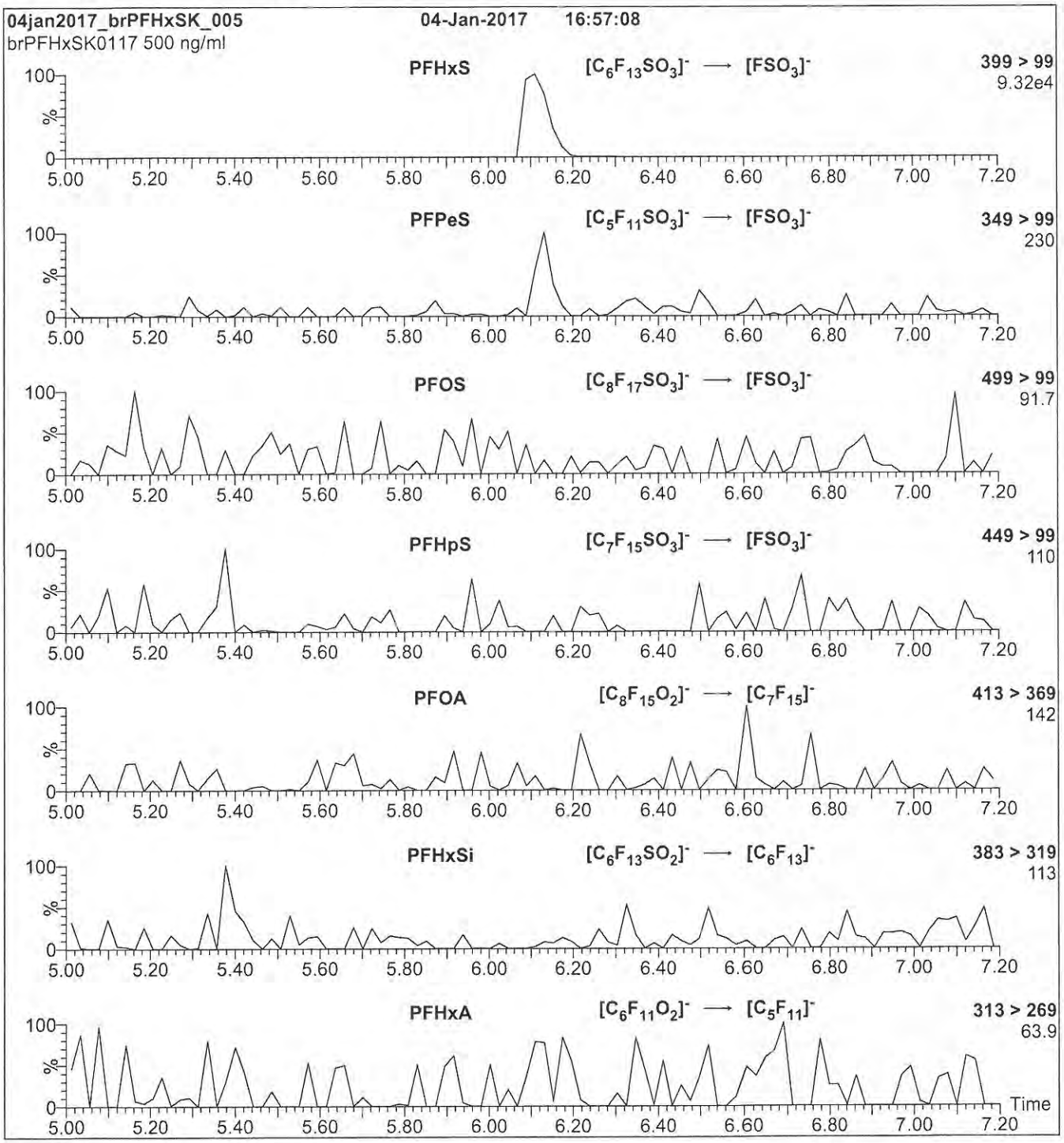
Figure 3: **br-PFHxSK; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: Direct loop injection
10 µl (500 ng/ml br-PFHxSK)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 30

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WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-PFOSK

Potassium Perfluorooctanesulfonate Solution/Mixture of Linear and Branched Isomers

PRODUCT CODE:	br-PFOSK
LOT NUMBER:	brPFOSK0117
CONCENTRATION:	50 ± 2.5 µg/ml (total potassium salt)
	46.4 ± 2.3 µg/ml (total PFOS anion)
SOLVENT(S):	Methanol
DATE PREPARED: (mm/dd/yyyy)	01/09/2017
LAST TESTED: (mm/dd/yyyy)	01/12/2017
EXPIRY DATE: (mm/dd/yyyy)	01/12/2022
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place

DESCRIPTION:

The chemical purity has been determined to be ≥98% perfluorooctanesulfonate linear and branched isomers. The full name, structure and percent composition for each of the isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ^{19}F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- A 5-point calibration curve was generated using linear PFOS (potassium salt) and mass-labelled PFOS as an internal standard to enable quantitation of br-PFOSK using isotopic dilution.
- CAS#: 2795-39-3 (for linear isomer; potassium salt).

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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.

HAZARDS:

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:

Where possible, all of our products are synthesized using single-product unambiguous routes. 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.

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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. 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; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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18E0726

Table A: **br-PFOSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

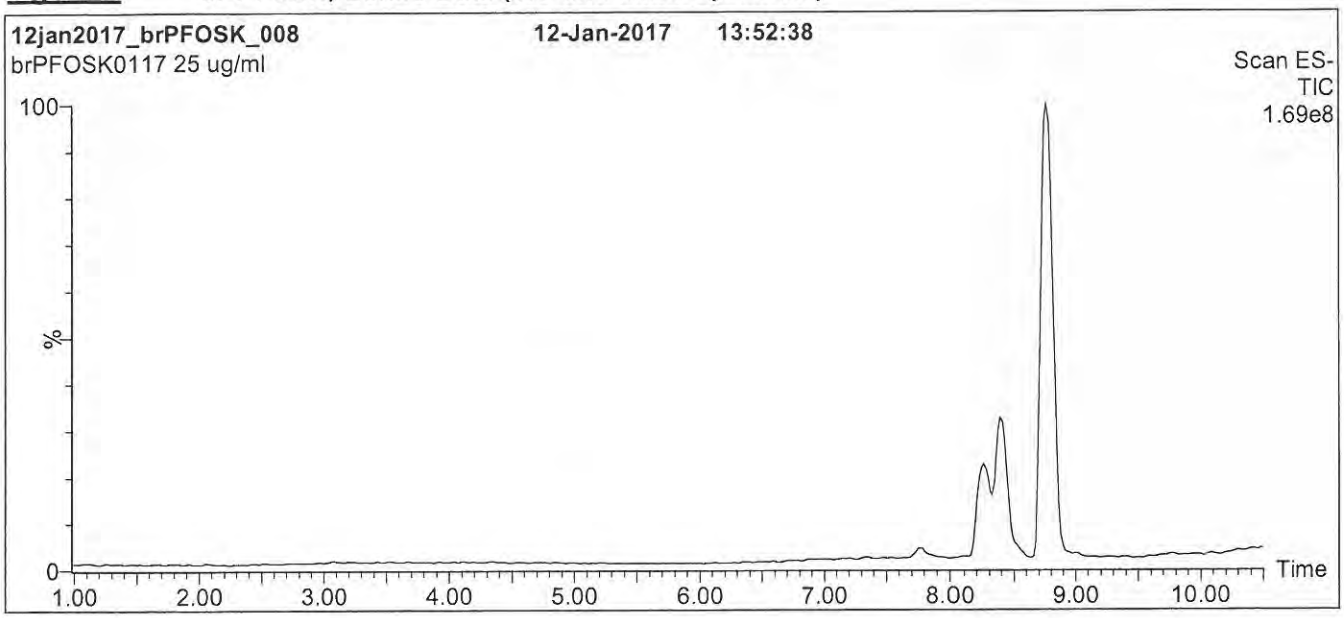
Isomer	Name	Structure	Percent Composition by ^{19}F-NMR
1	Potassium perfluoro-1-octanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$CF_3CF_2CF_2CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	1.2
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	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	$CF_3C(CF_3)_2CF_2CF_2CF_2SO_3^-K^+$	0.2
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF_2C(CF_3)_2CF_2CF_2SO_3^-K^+$	0.03
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF(CF_3)CF_2CF_2SO_3^-K^+$	0.4
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF_2CF(CF_3)CF_2SO_3^-K^+$	0.07

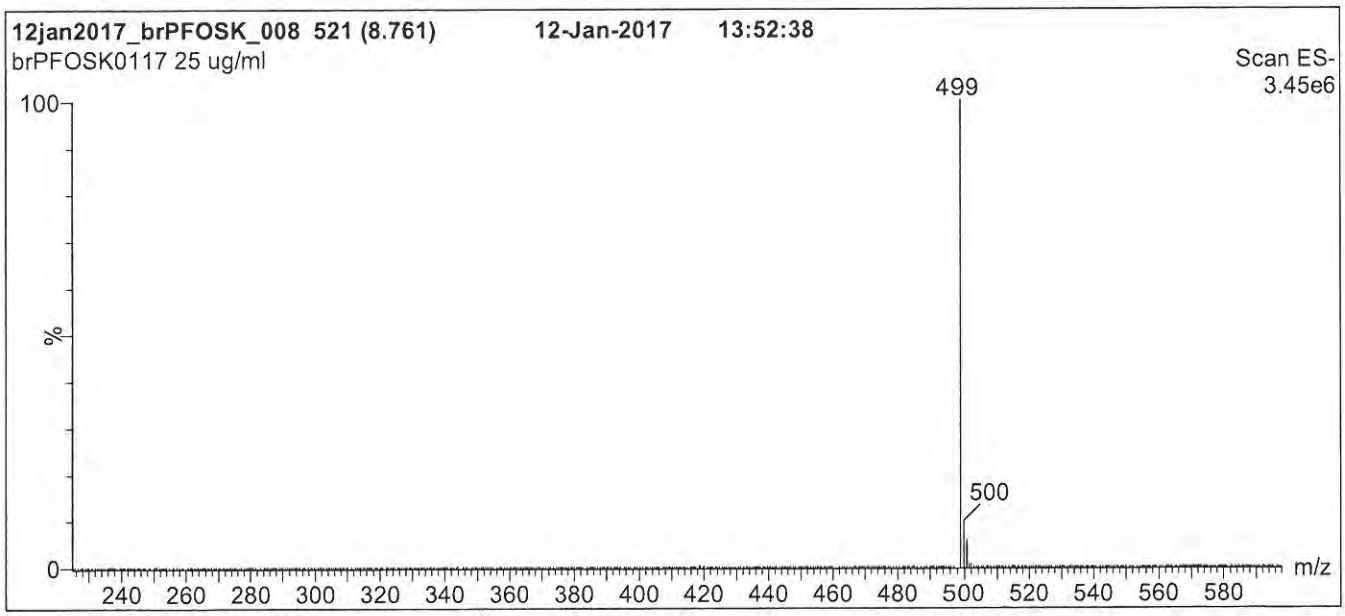
* Percent of total perfluorooctanesulfonate isomers only. Isomers are labelled in Figure 2.
** Systematic Name: Potassium perfluorooctane-2-sulfonate.

Certified By: B.G. Chittim **Date:** 01/20/2017 (mm/dd/yyyy)

18E0726

Figure 1: **br-PFOSK; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 45% (80:20 MeOH:ACN) / 55% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 12 min and hold for 2 min.
Return to initial conditions over 0.5 min.
Time: 16 min

Flow: 300 µl/min

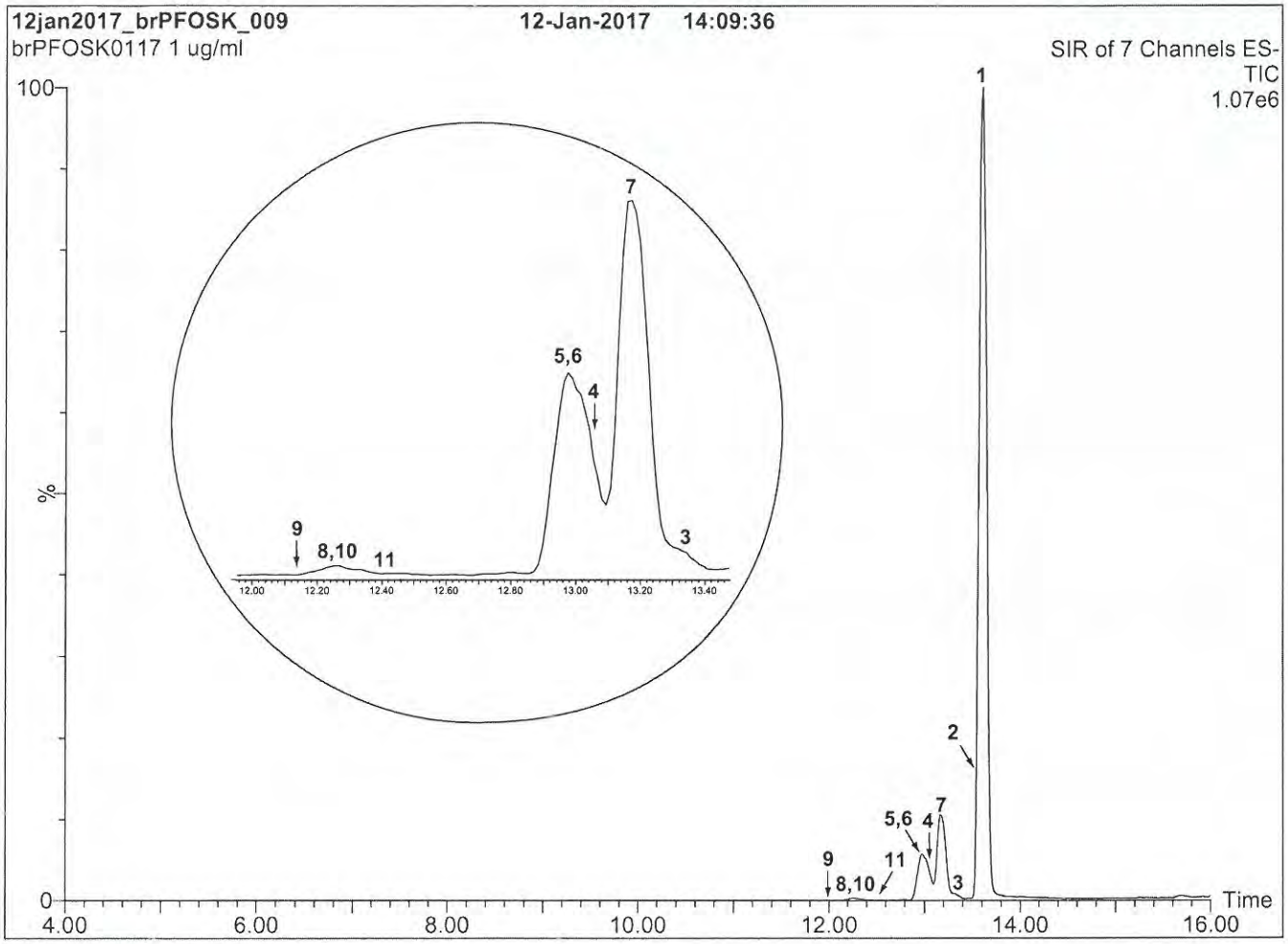
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 60.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18E0726

Figure 2: **br-PFOSK; LC/MS Data (SIR)**



Conditions for Figure 2:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions:

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

Injection: 1.0 µg/ml of br-PFOSK

Mobile Phase: Gradient
45% (80:20 MeOH:ACN) / 55% H_2O (both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 15 min and hold for 3 min.
Return to initial conditions over 1 min.
Time: 20 min

Flow: 300 µl/min

MS Conditions:

SIR (ES^-)
Source = 110 °C
Desolvation = 325 °C
Cone Voltage = 60V

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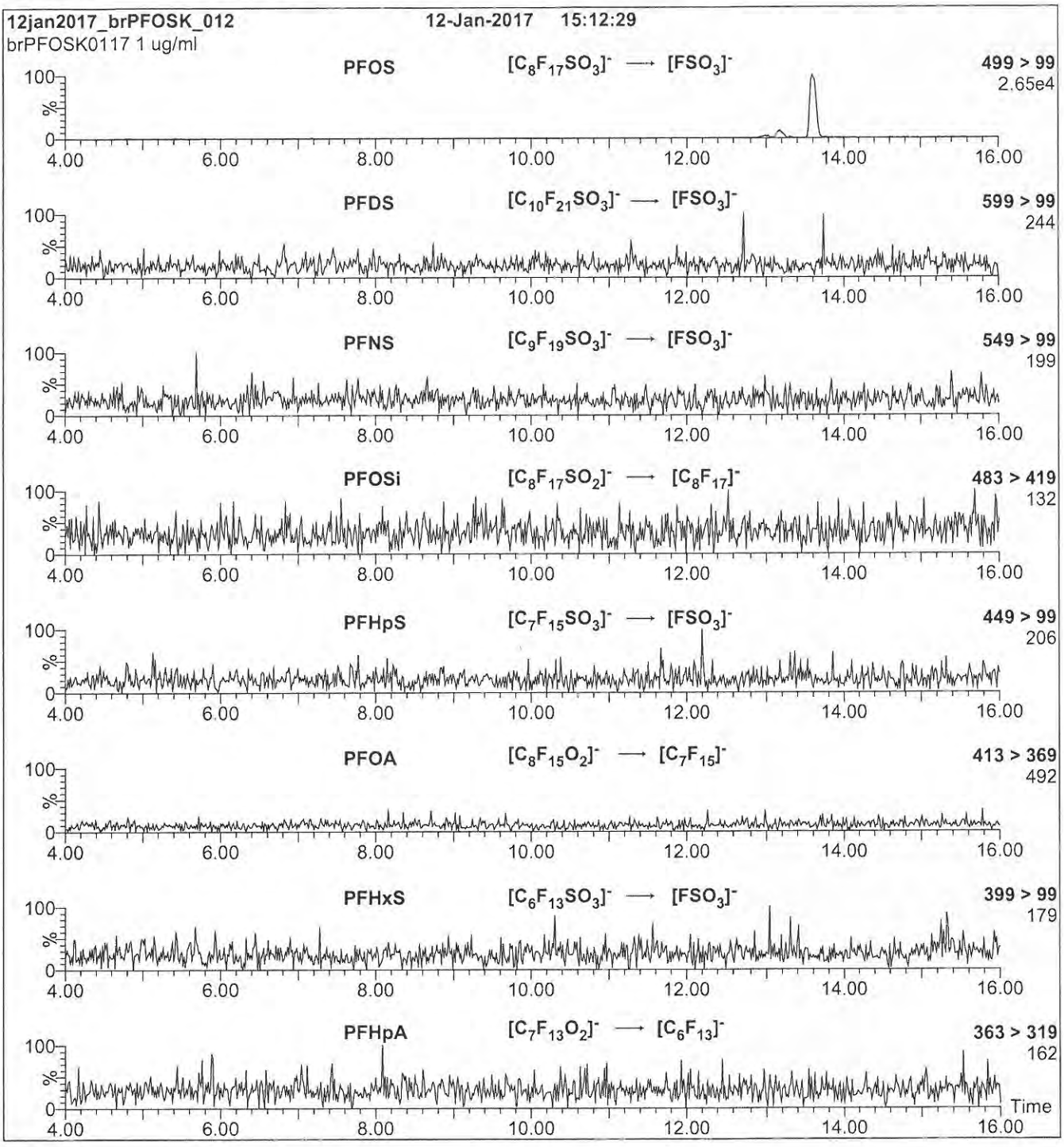
Figure 3: **br-PFOSK; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 3:

Injection: On-column

Mobile phase: Same as Figure 2

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 11-50 (variable)

18E0727

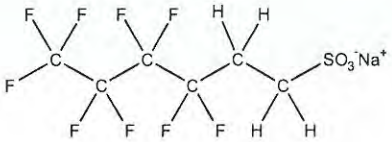
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: 4:2FTS **LOT NUMBER:** 42FTS1216

COMPOUND: Sodium 1H,1H,2H,2H-perfluorohexane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$C_6H_4F_9SO_3Na$		**MOLECULAR WEIGHT:**	350.13
CONCENTRATION:	50.0 ± 2.5 µg/ml	(Na salt)	**SOLVENT(S):**	Methanol
	46.7 ± 2.3 µg/ml	(4:2FTS anion)		
CHEMICAL PURITY:	>98%			
LAST TESTED: (mm/dd/yyyy)	12/12/2016			
EXPIRY DATE: (mm/dd/yyyy)	12/12/2021			
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: B.G. Chittim **Date:** 12/21/2016 (mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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1803727

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.

HAZARDS:

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:

Where possible, all of our products are synthesized using single-product unambiguous routes. 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.

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.

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All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. 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:

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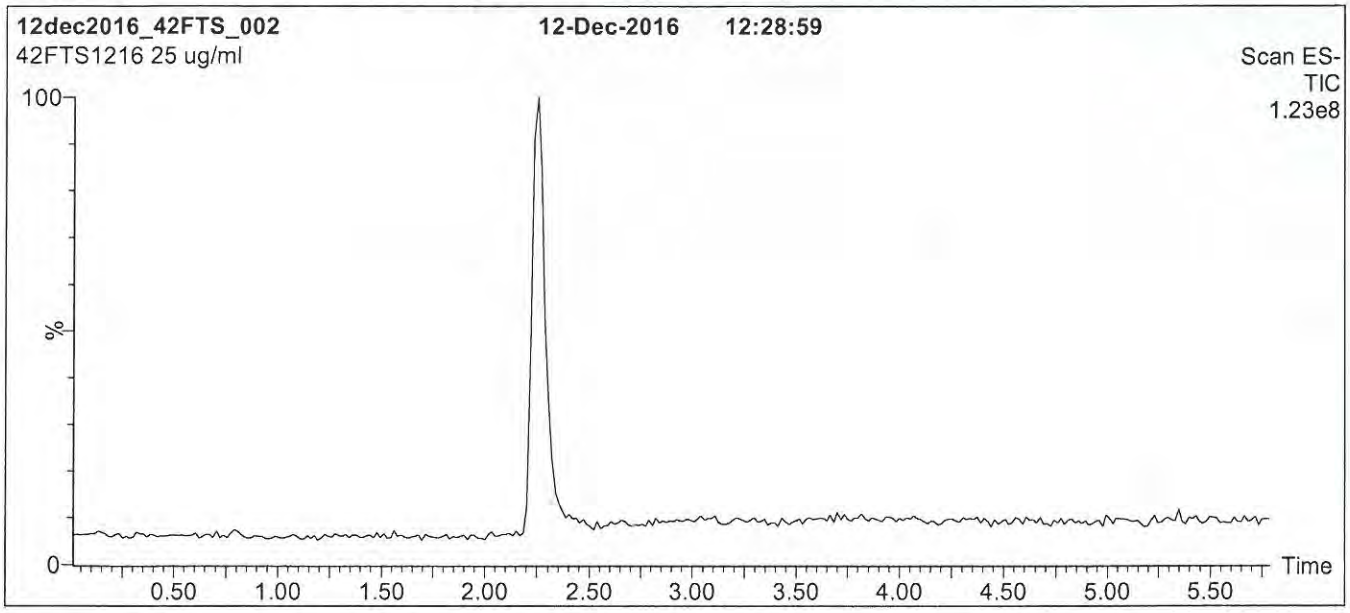
CALA

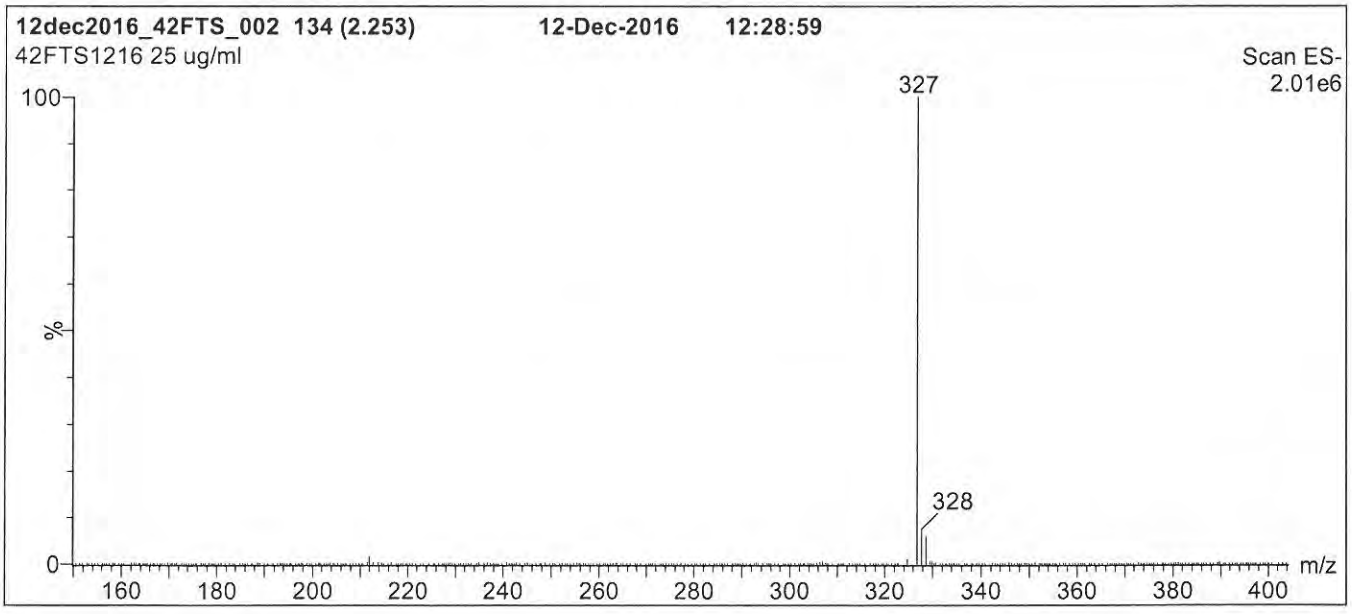
ANAB ACCREDITED

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

18E0727

Figure 1: **4:2FTS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

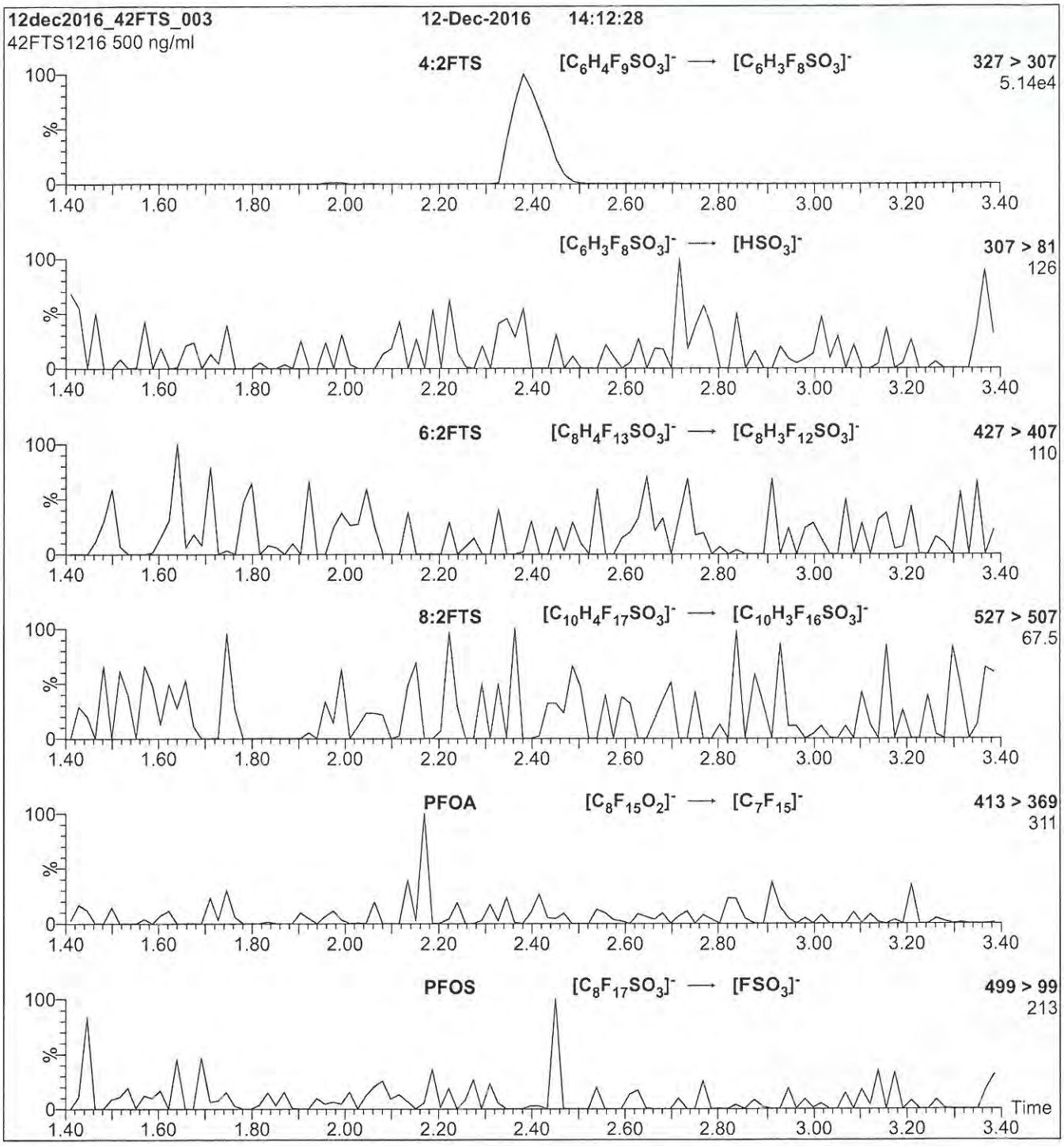
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

180727

Figure 2: **4:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml 4:2FTS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 25

18E0728

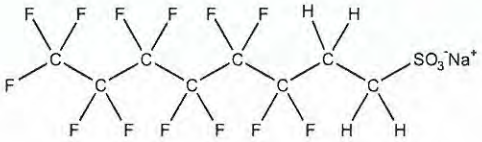
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 6:2FTS **LOT NUMBER:** 62FTS0418

COMPOUND: Sodium 1H,1H,2H,2H-perfluorooctane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$C_8H_4F_{13}SO_3Na$		**MOLECULAR WEIGHT:**	450.15
CONCENTRATION:	50.0 ± 2.5 µg/ml	(Na salt)	**SOLVENT(S):**	Methanol
	47.4 ± 2.4 µg/ml	(6:2FTS anion)		
CHEMICAL PURITY:	>98%			
LAST TESTED: (mm/dd/yyyy)	04/03/2018			
EXPIRY DATE: (mm/dd/yyyy)	04/03/2023			
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 ~ 0.3% of sodium 1H,1H,2H,2H-perfluorodecane sulfonate (8:2FTS).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 04/09/2018 (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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INTENDED USE:

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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:

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

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LIMITED WARRANTY:

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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; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

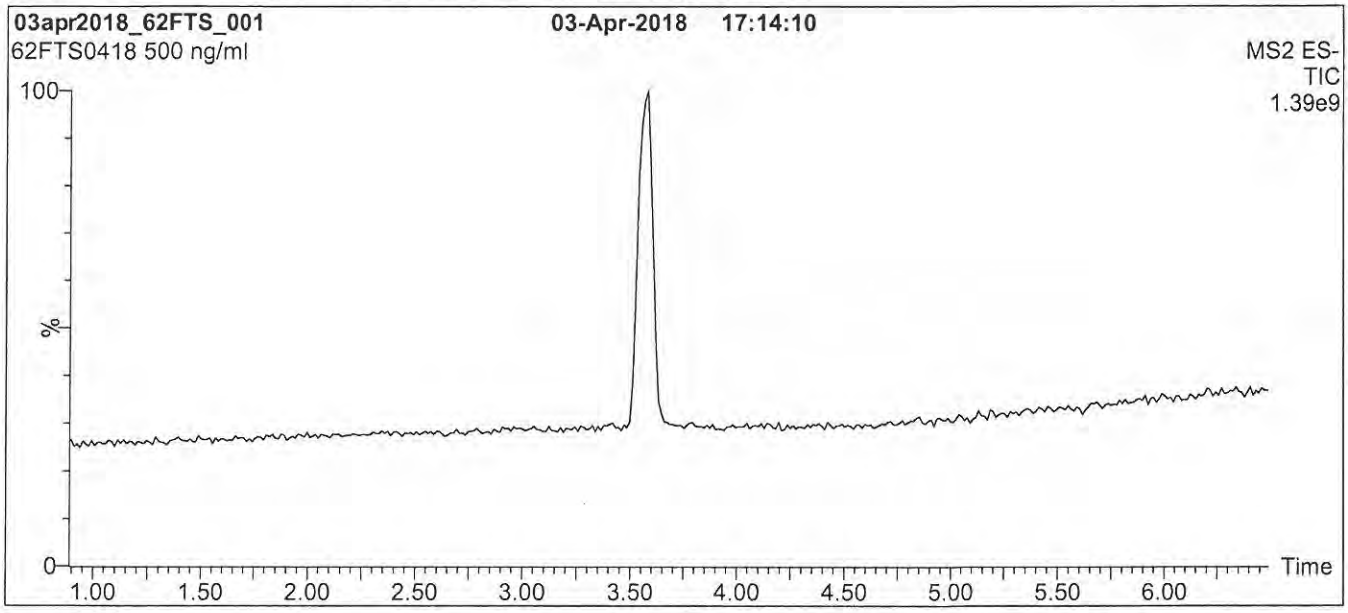
CALA Testing

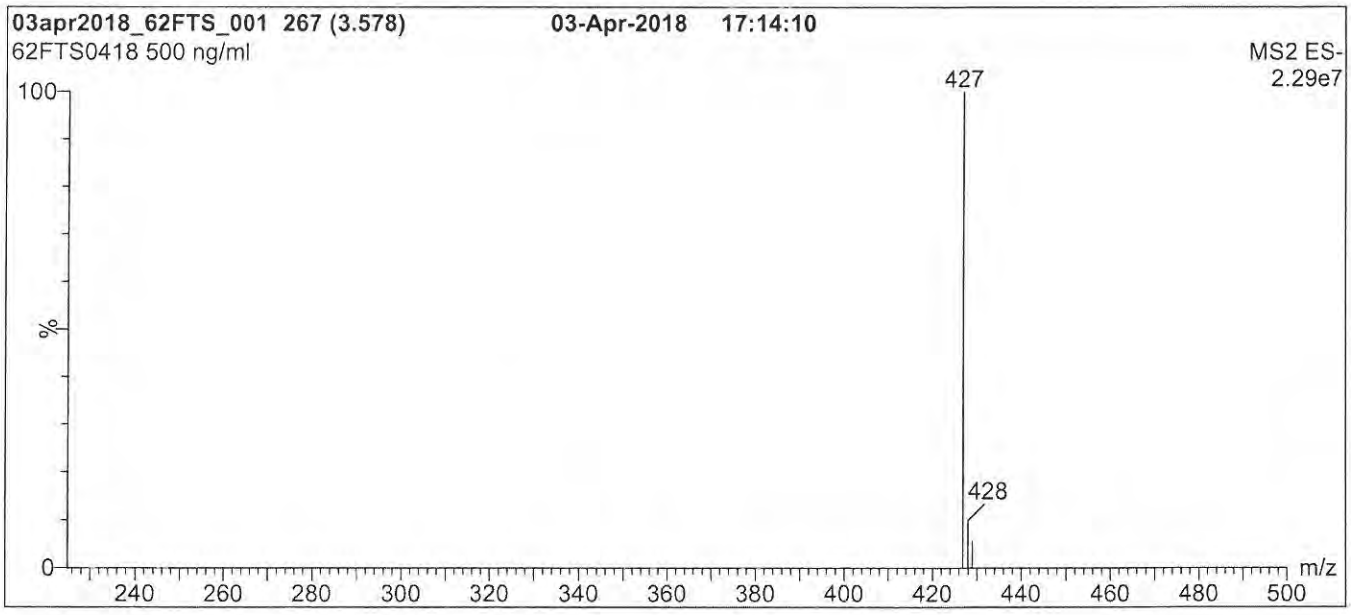
ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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

18E0728

Figure 1: **6:2FTS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **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% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 80% 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

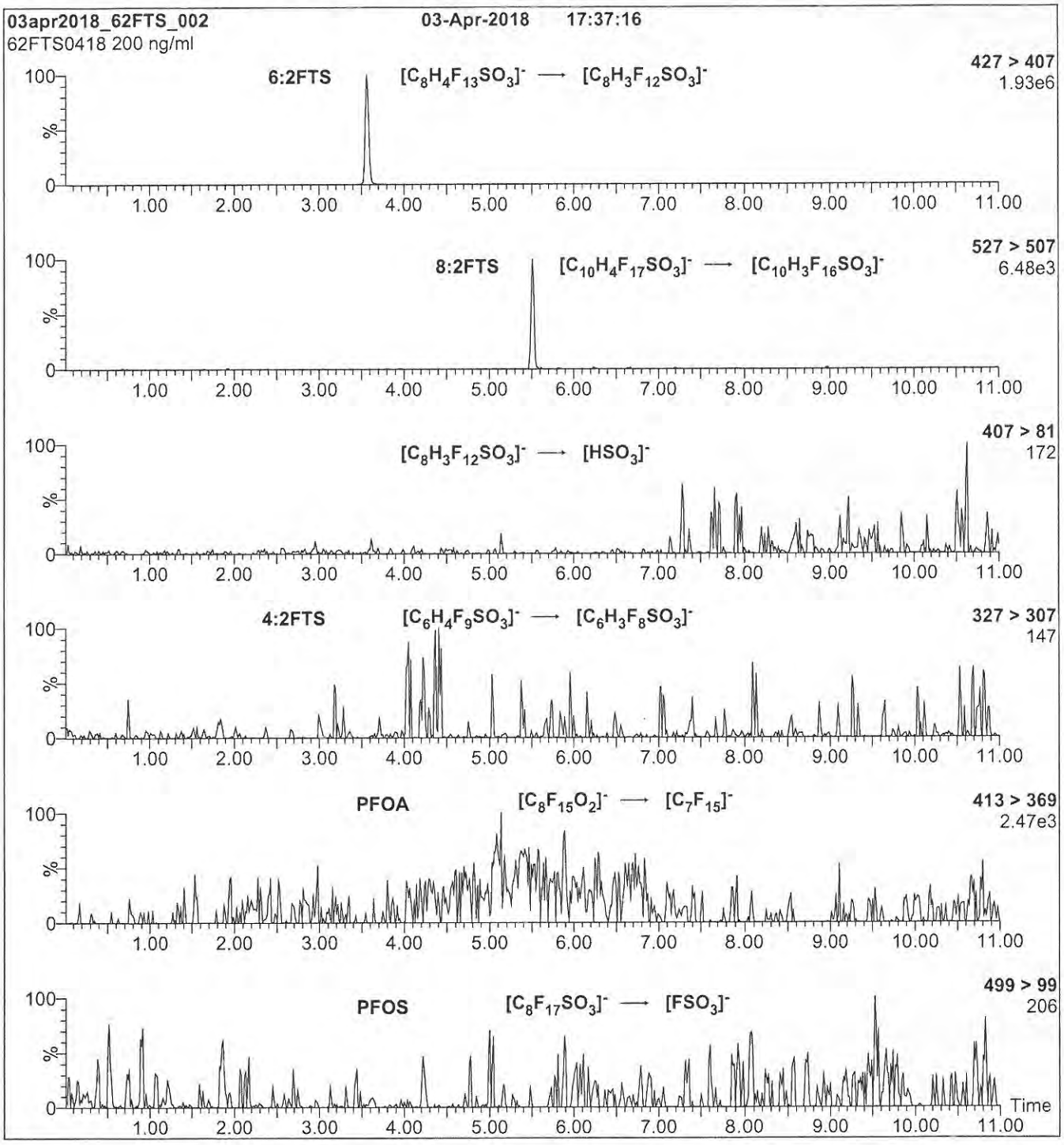
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 0.50
Cone Voltage (V) = 25.00
Desolvation Temperature (°C) = 500
Desolvation Gas Flow (l/hr) = 750

18E0728

Figure 2: **6:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (6:2FTS)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 20

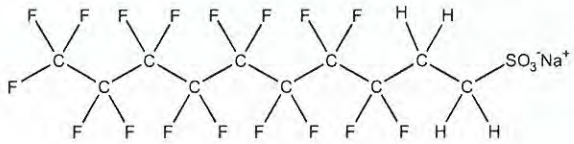
18E0729

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 8:2FTS **LOT NUMBER:** 82FTS0118
COMPOUND: Sodium 1H,1H,2H,2H-perfluorodecane sulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: $C_{10}H_4F_{17}SO_3Na$ **MOLECULAR WEIGHT:** 550.16
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt) **SOLVENT(S):** Methanol
47.9 ± 2.4 µg/ml (8:2FTS anion)
CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 01/24/2018
EXPIRY DATE: (mm/dd/yyyy) 01/24/2023
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:** 01/31/2018 (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

18E0729

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

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CALA

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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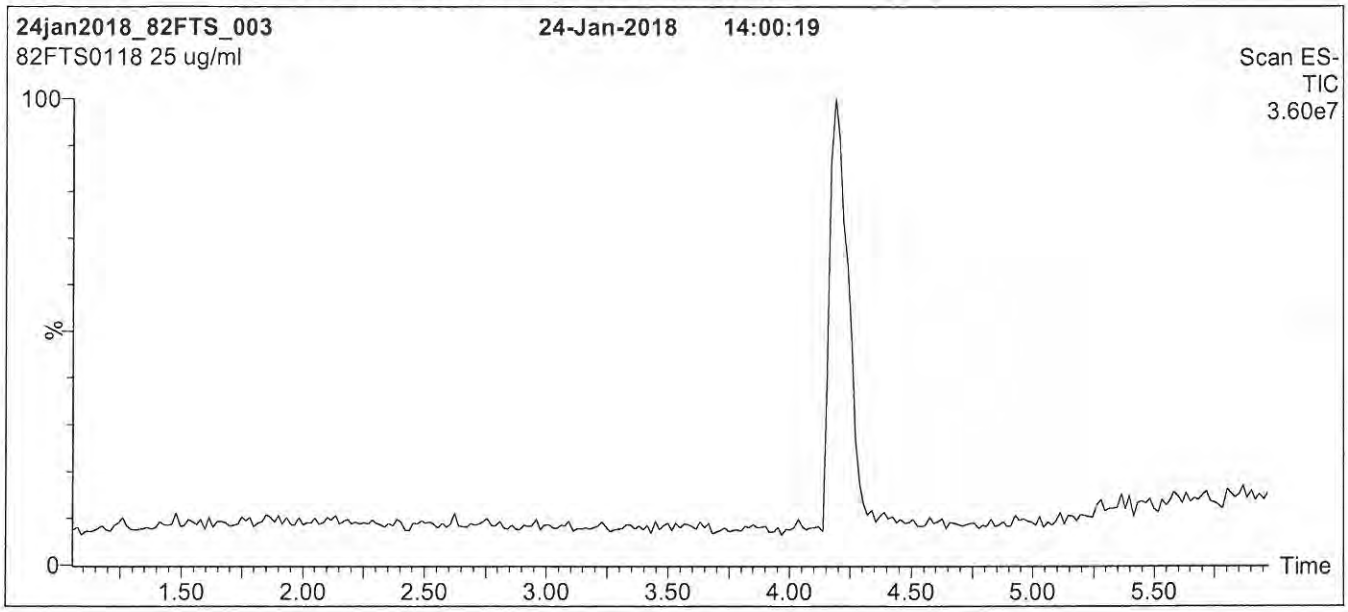
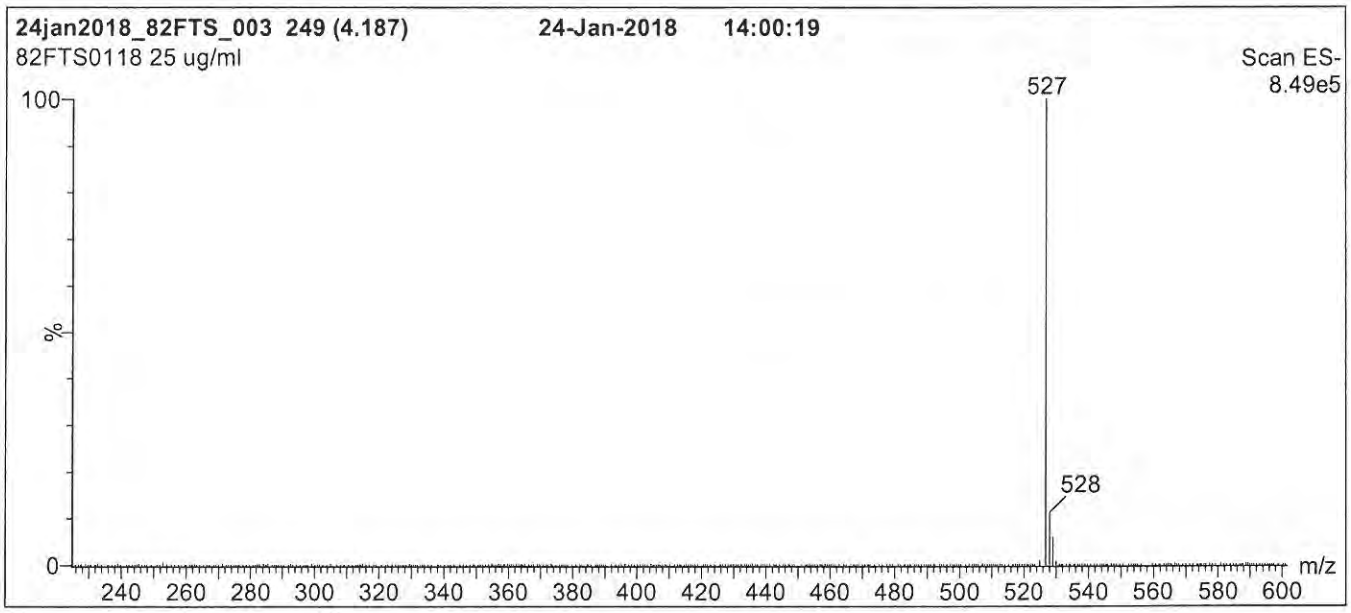
18E0729

Figure 1: **8:2FTS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

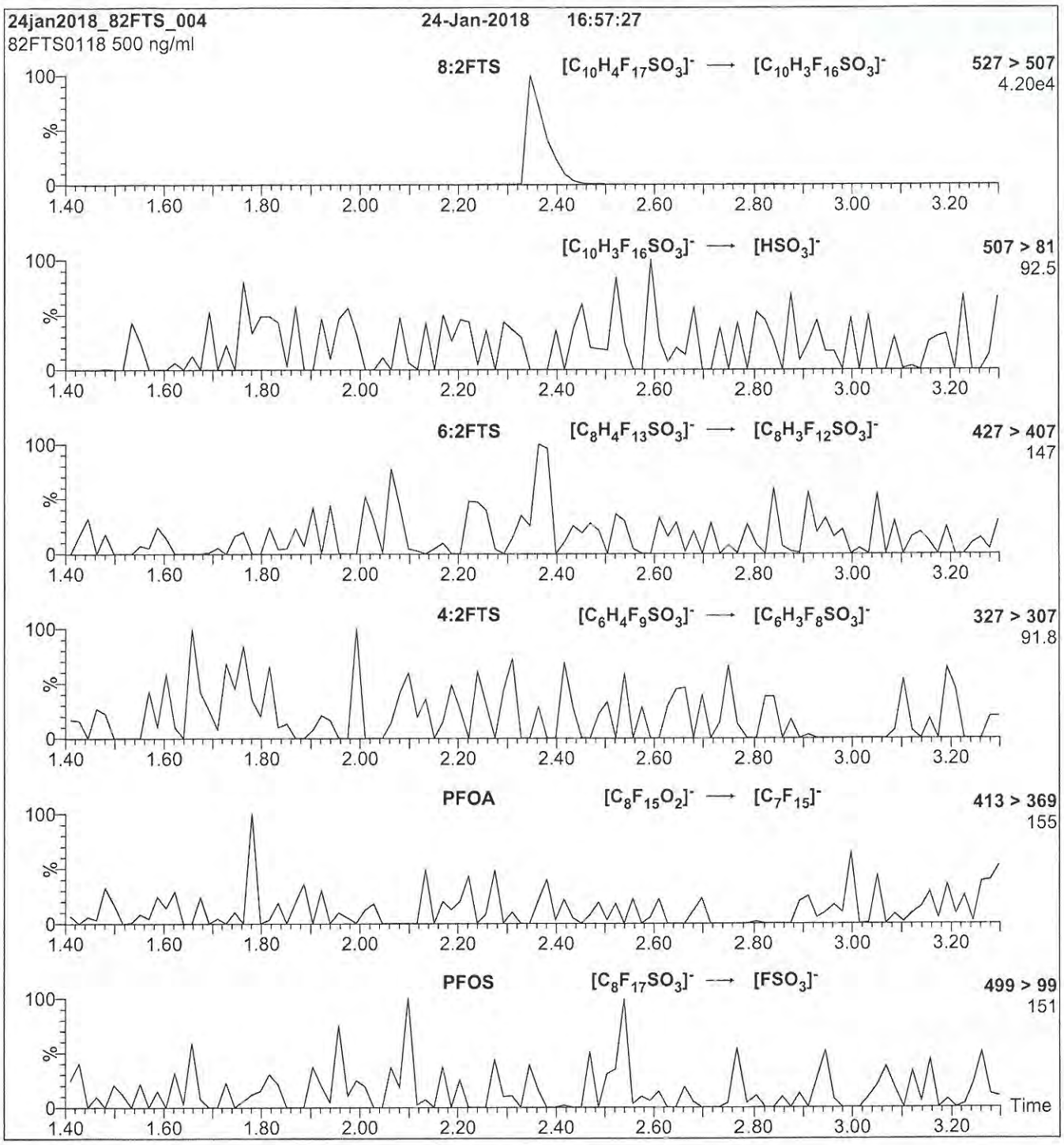
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 30.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

1803729

Figure 2: **8:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml 8:2FTS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

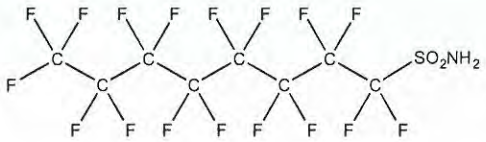
Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 25

18E0730

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	FOSA-I	**LOT NUMBER:**	FOSA0817I
COMPOUND:	Perfluoro-1-octanesulfonamide		
STRUCTURE:		**CAS #:**	754-91-6



MOLECULAR FORMULA:	$C_8H_2F_{17}NO_2S$	**MOLECULAR WEIGHT:**	499.14
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Isopropanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	09/01/2017		
EXPIRY DATE: (mm/dd/yyyy)	09/01/2022		
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:** 09/14/2017 (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

1803730

INTENDED USE:

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CALA

ANAB ACCREDITED

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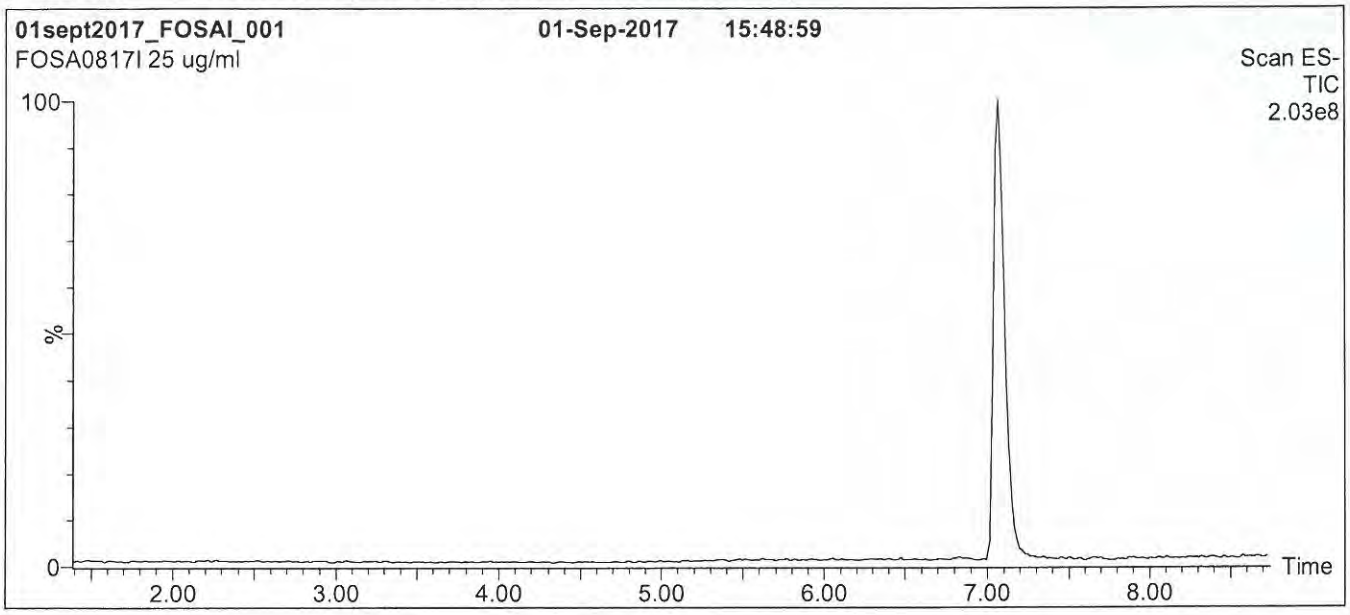
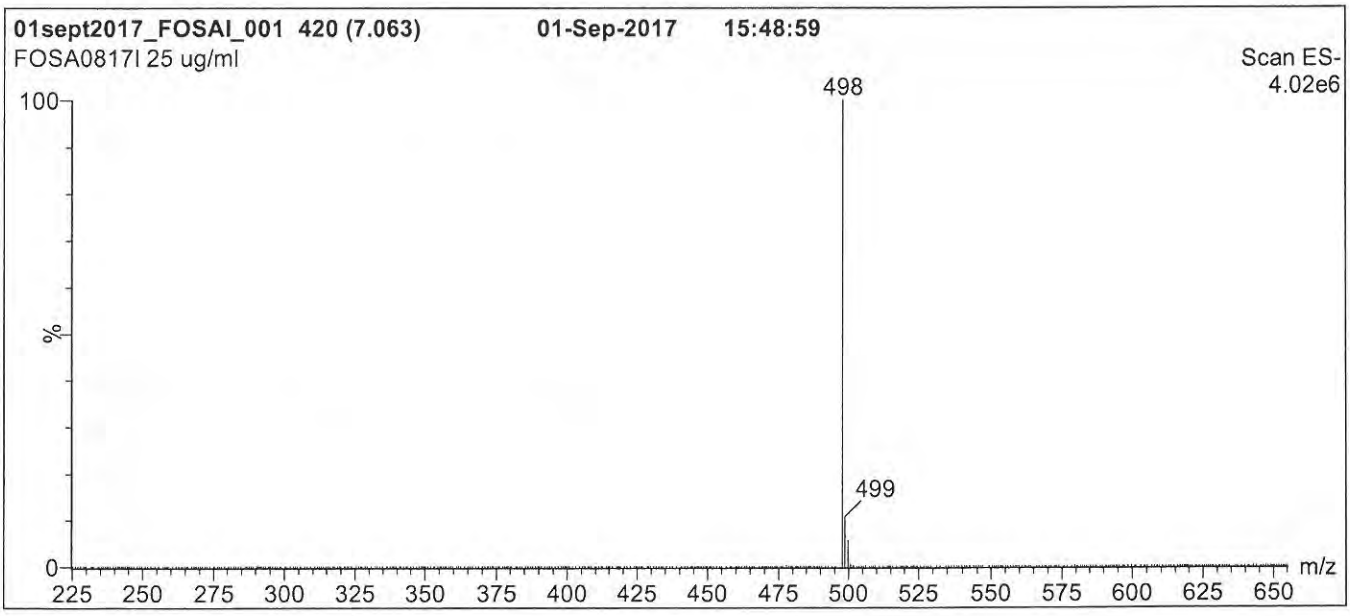
18E0730

Figure 1: **FOSA-I; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 8 min and hold for 1 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

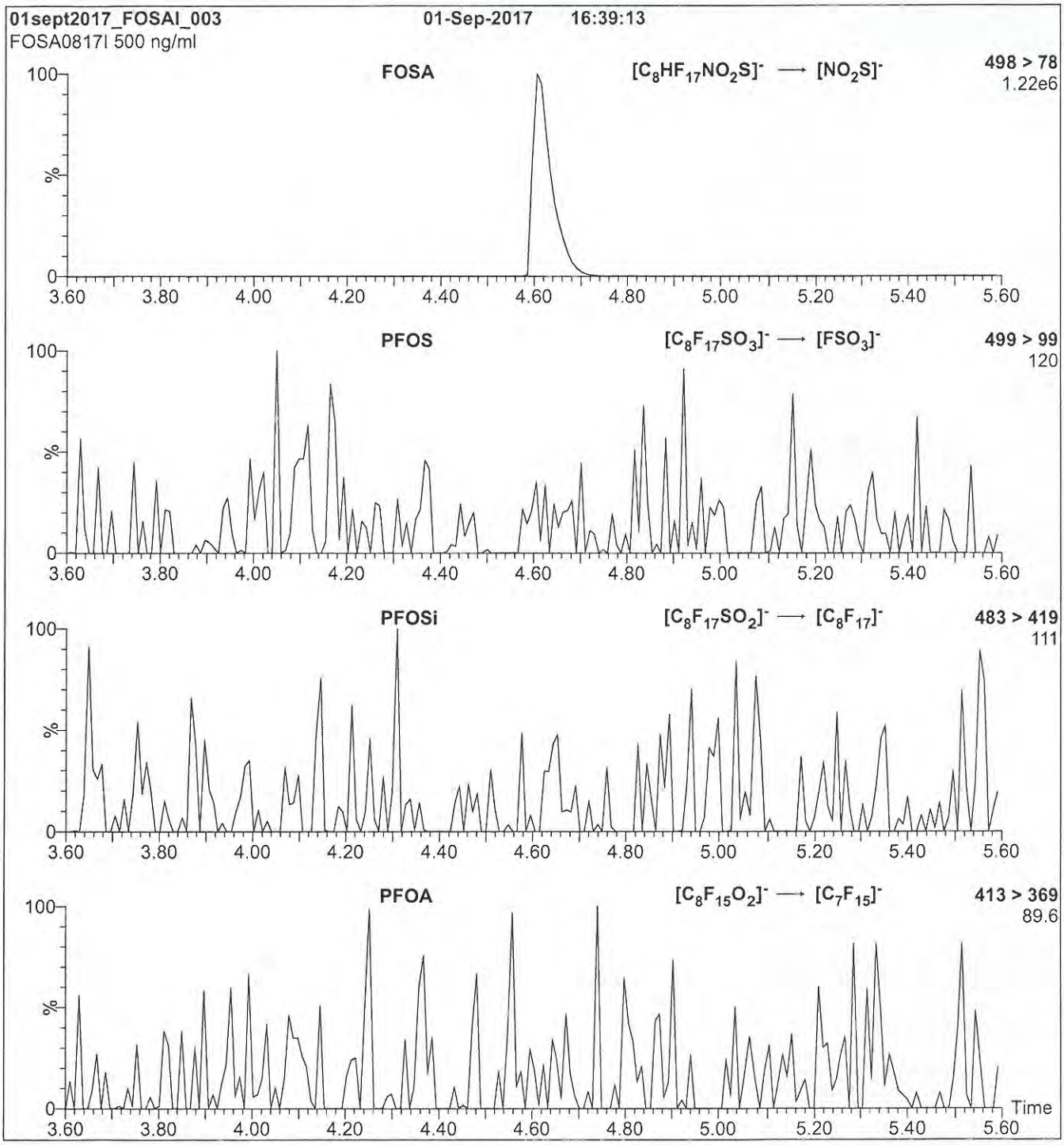
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18E0730

Figure 2: **FOSA-I; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml FOSA-I)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 30

18E0731

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NMeFOSAA

N-Methylperfluorooctanesulfonamidoacetic Acid Solution/Mixture of Linear and Branched Isomers

PRODUCT CODE:	br-NMeFOSAA
LOT NUMBER:	brNMeFOSAA0118
CONCENTRATION:	50.0 ± 2.5 µg/ml
SOLVENT(S):	Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	01/10/2018
LAST TESTED: (mm/dd/yyyy)	01/17/2018
EXPIRY DATE: (mm/dd/yyyy)	01/17/2023
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-methylperfluorooctanesulfonamidoacetic acid (linear and branched isomers). The full name, structure and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ^{19}F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the acetic acid moiety to its respective methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

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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; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing Accreditation for A1226

ANAB ACCREDITED ISO17034 REFERENCE MATERIAL PRODUCER

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

18E0731

Table A: **br-NMeFOSAA; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Name	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
2	N-methylperfluoro-3-methylheptanesulfonamidoacetic acid	$CF_3(CF_2)_3CF(CF_3)(CF_2)_2SO_2N(CH_3)CH_2CO_2H$	0.7
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

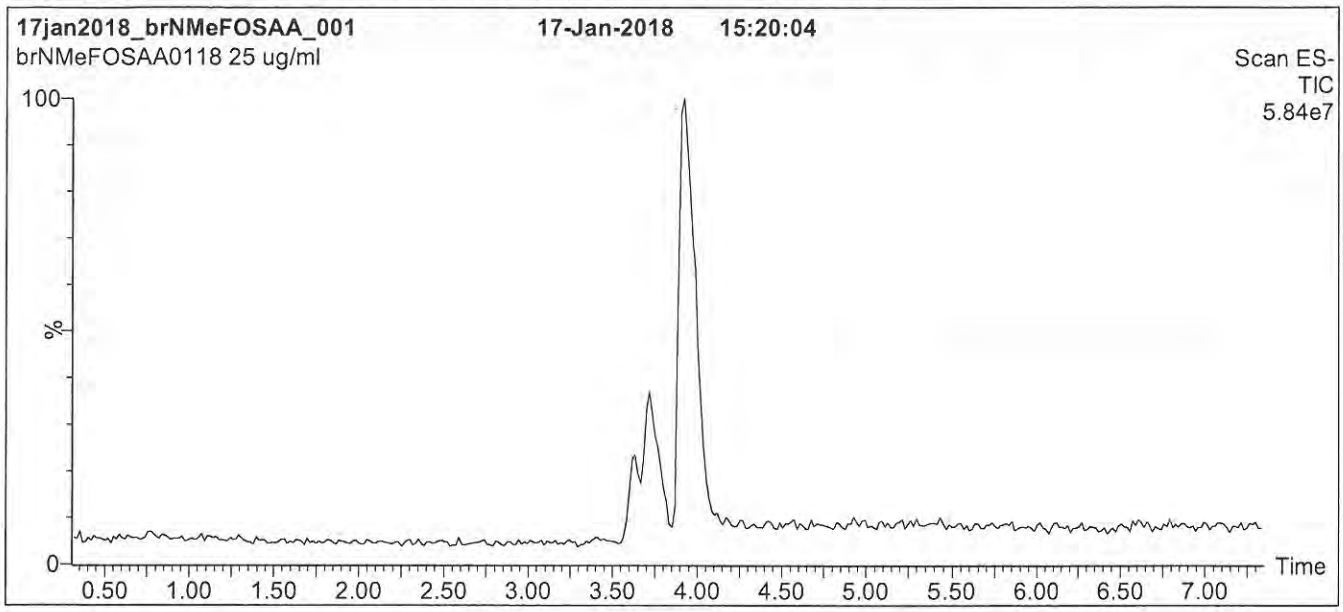
* Percent of total N-methylperfluorooctanesulfonamidoacetic acid isomers only.

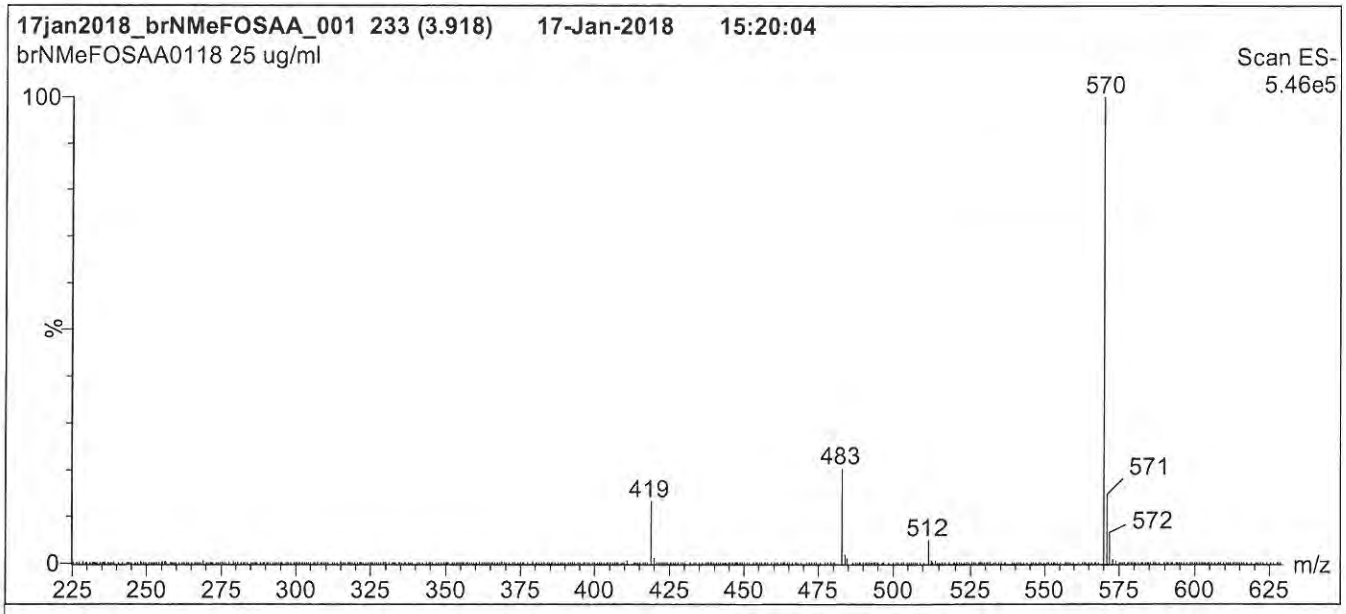
Certified By: _____ **Date:** 03/22/2018 (mm/dd/yyyy)

B.G. Chittim, General Manager

18E0731

Figure 1: **br-NMeFOSAA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(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 0.5 min.

Time: 10 min

Flow: 300 µl/min

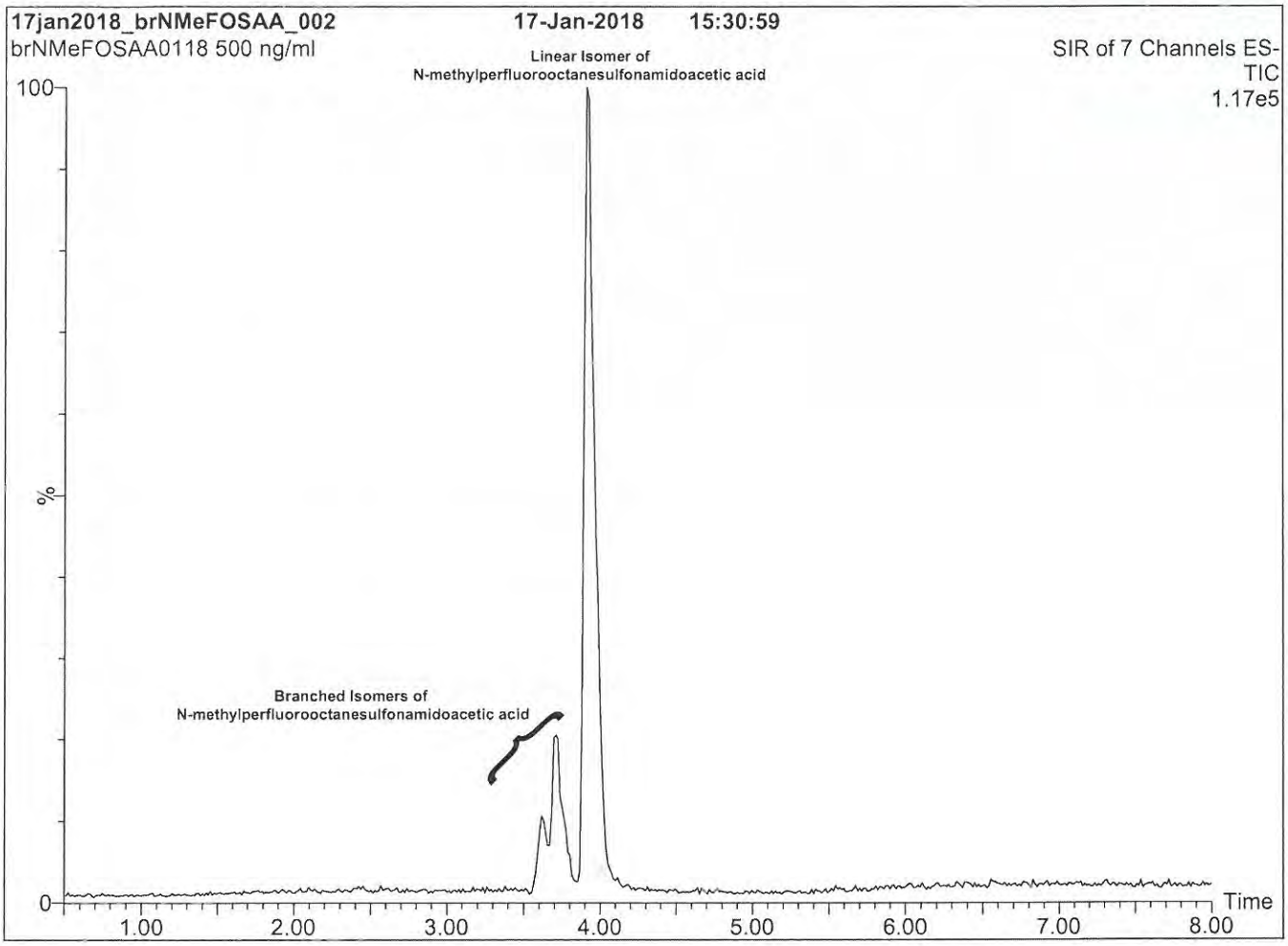
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 35.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18E0731

Figure 2: **br-NMeFOSAA; LC/MS Data (SIR)**



Conditions for Figure 2:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(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 0.5 min.

Time: 10 min

Flow: 300 µl/min

MS Parameters

Experiment: SIR (7 channels)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15-60
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

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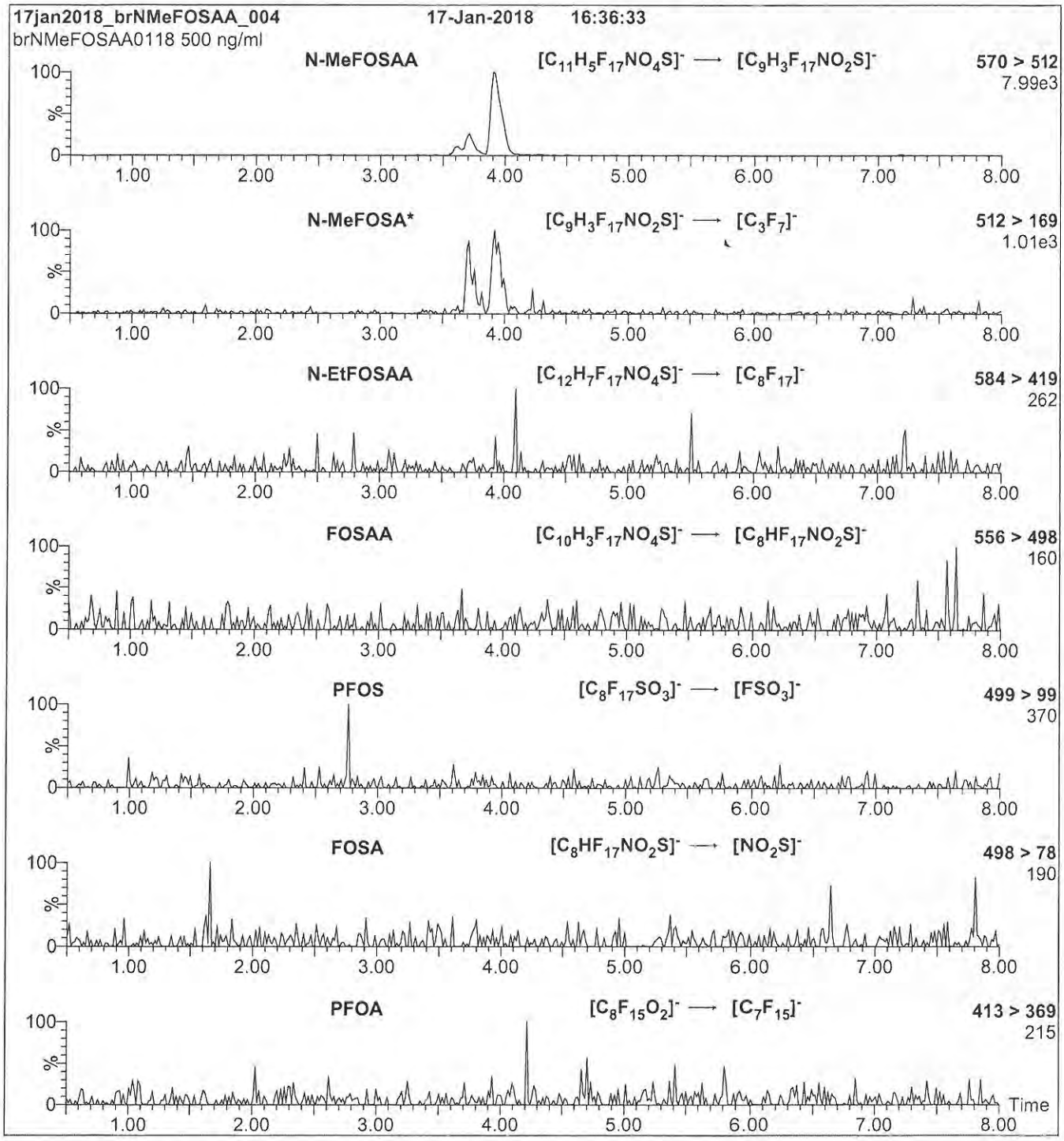
Figure 3: **br-NMeFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



***Note**: N-MeFOSA is formed by in-source fragmentation.

Conditions for Figure 3:

Injection: On-column

Mobile phase: Same as Figure 2

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 11-40 (variable)

18E0732

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

br-NEtFOSAA

N-Ethylperfluorooctanesulfonamidoacetic Acid Solution/Mixture of Linear and Branched Isomers

PRODUCT CODE:	br-NEtFOSAA
LOT NUMBER:	brNEtFOSAA0118
CONCENTRATION:	50.0 ± 2.5 µg/ml
SOLVENT(S):	Methanol/Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	01/10/2018
LAST TESTED: (mm/dd/yyyy)	01/17/2018
EXPIRY DATE: (mm/dd/yyyy)	01/17/2023
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

The chemical purity has been determined to be ≥98% N-ethylperfluorooctanesulfonamidoacetic acid (linear and branched isomers). The full name, structure and percent composition for each of the identified isomeric components are given in Table A.

DOCUMENTATION/ DATA ATTACHED:

Table A: Isomeric Components and Percent Composition by ^{19}F-NMR
Figure 1: LC/MS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (SIR)
Figure 3: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the acetic acid moiety to its respective methyl ester.

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1 8E0732

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:

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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; A 1226), and ISO 17034 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA

ANAB 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

1 8E0732

Table A: **br-NEtFOSAA; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

Isomer	Name	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
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
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

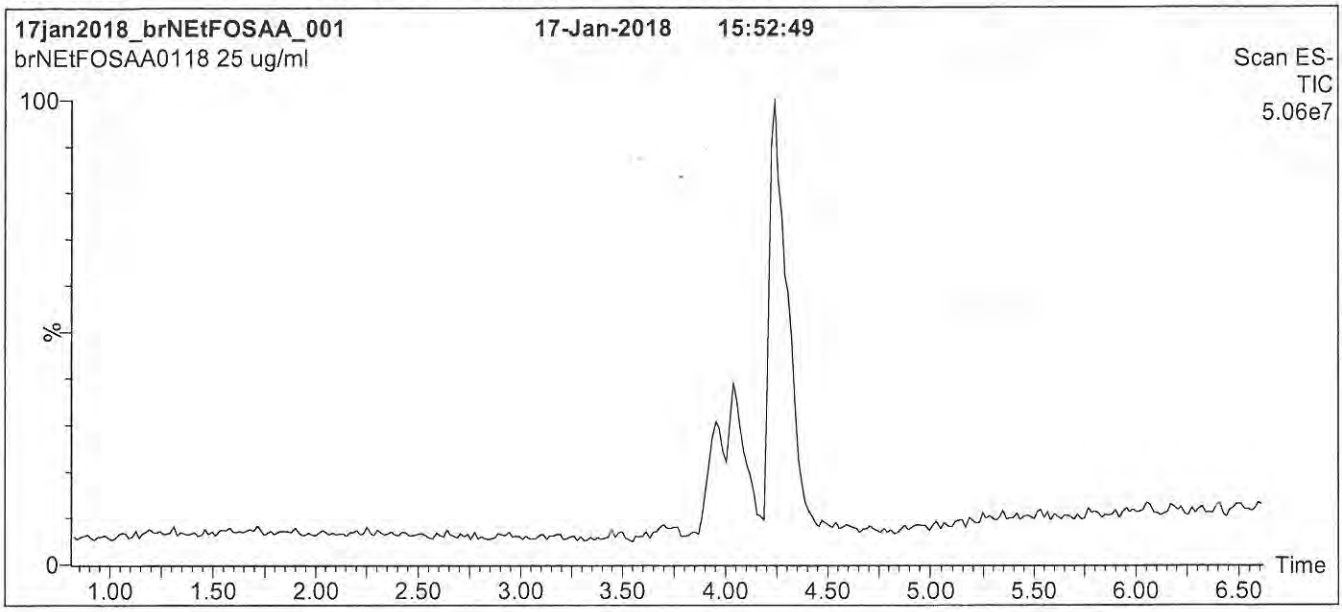
* Percent of total N-ethylperfluorooctanesulfonamidoacetic acid isomers only.

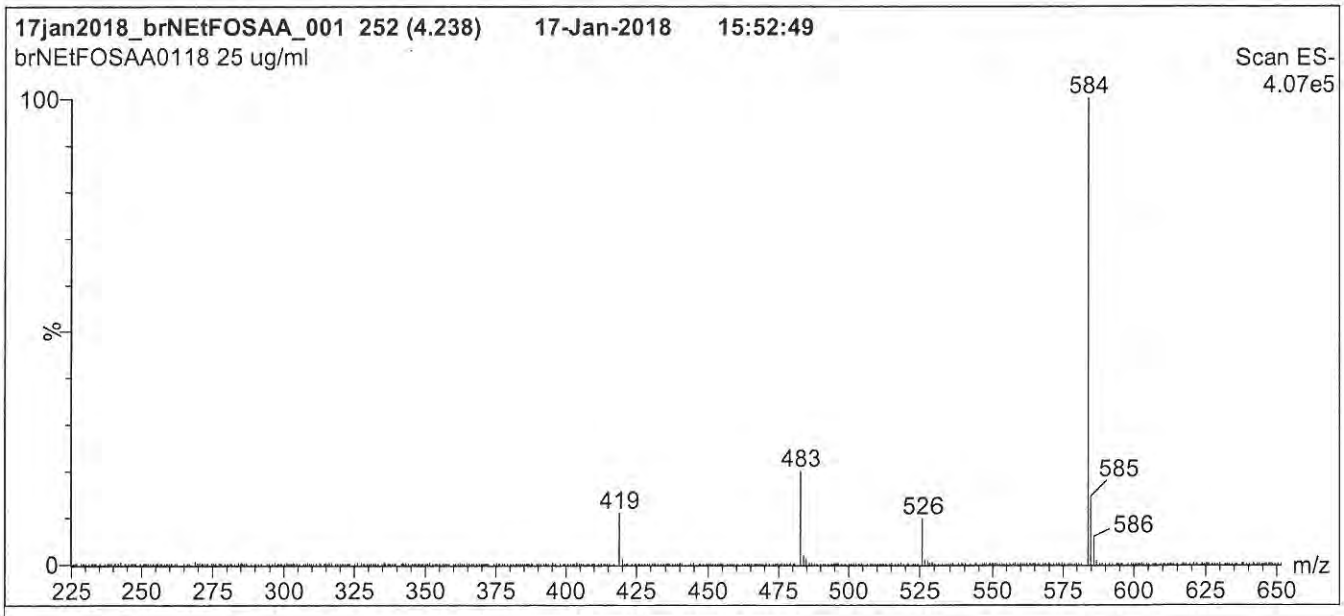
Certified By: _____ **Date:** 03/22/2018 (mm/dd/yyyy)

B.G. Chittim, General Manager

18E0732

Figure 1: **br-NEtFOSAA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(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 0.5 min.

Time: 10 min

Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 35.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

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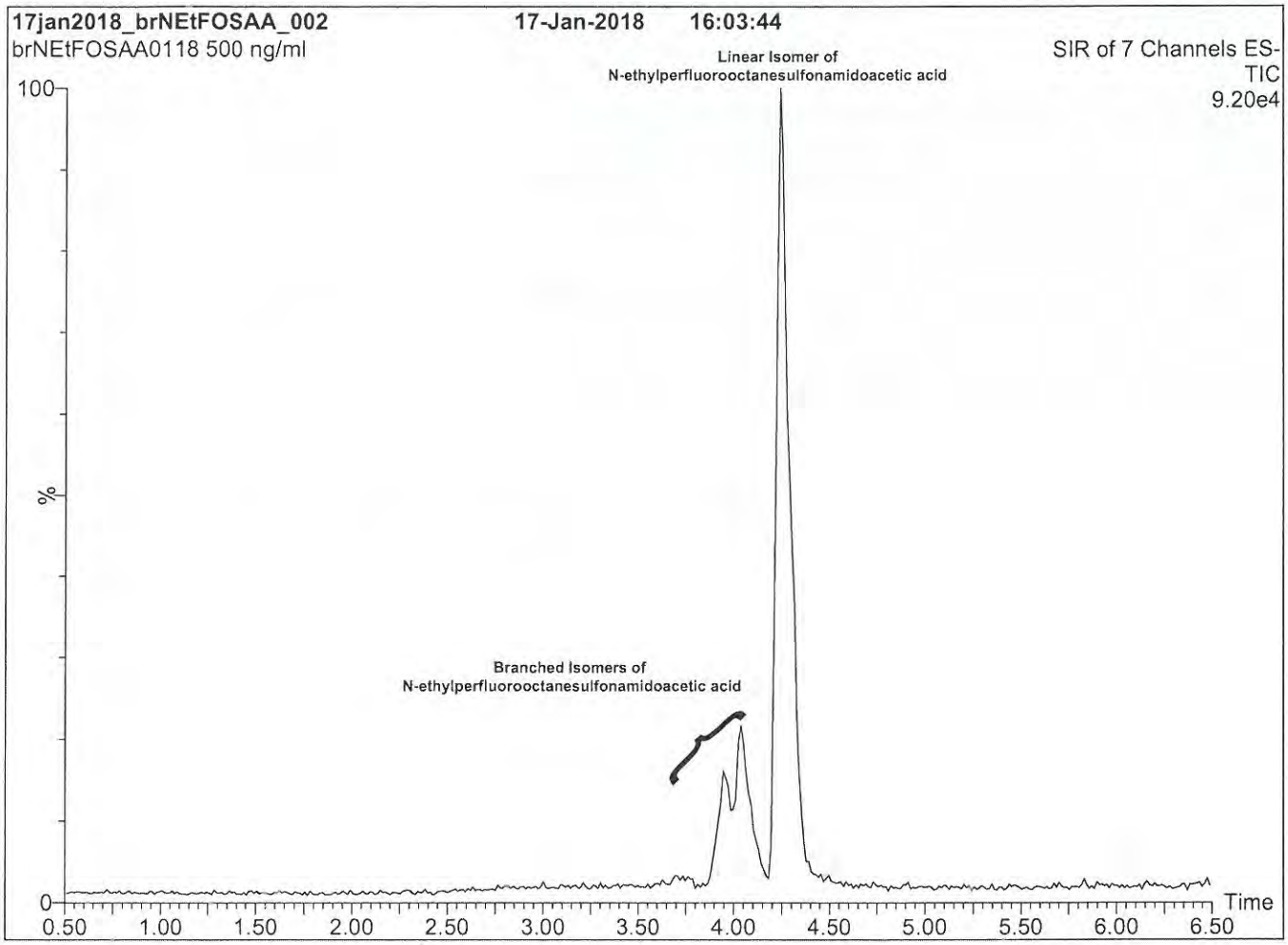
Figure 2: **br-NEtFOSAA; LC/MS Data (SIR)**



Conditions for Figure 2:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(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 0.5 min.

Time: 10 min

Flow: 300 µl/min

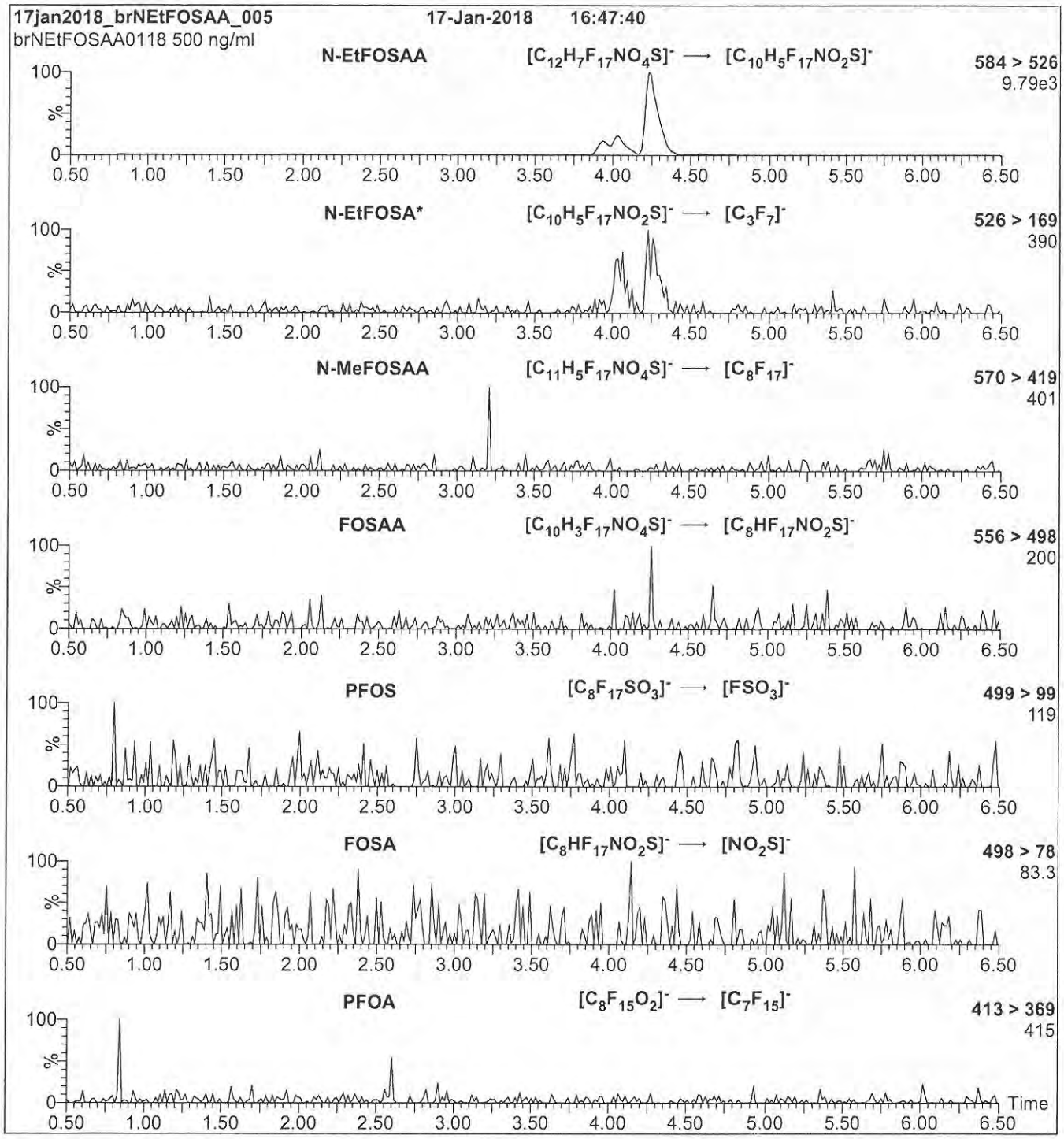
MS Parameters

Experiment: SIR (7 channels)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15-60
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18E0732

Figure 3: **br-NEtFOSAA; LC/MS/MS Data (Selected MRM Transitions)**



***Note**: N-EtFOSA is formed by in-source fragmentation.

Conditions for Figure 3:

Injection: On-column

Mobile phase: Same as Figure 2

Flow: 300 µl/min

MS Parameters

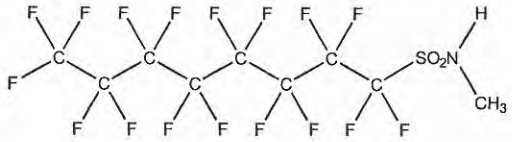
Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 11-40 (variable)

1810762

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	N-MeFOSA-M	**LOT NUMBER:**	NMeFOSA0518M
COMPOUND:	N-methylperfluoro-1-octanesulfonamide		
STRUCTURE:		**CAS #:**	31506-32-8



MOLECULAR FORMULA:	$C_9H_4F_{17}NO_2S$	**MOLECULAR WEIGHT:**	513.17
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/31/2018		
EXPIRY DATE: (mm/dd/yyyy)	05/31/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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:** 06/07/2018 (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

18I0762

INTENDED USE:

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

HANDLING:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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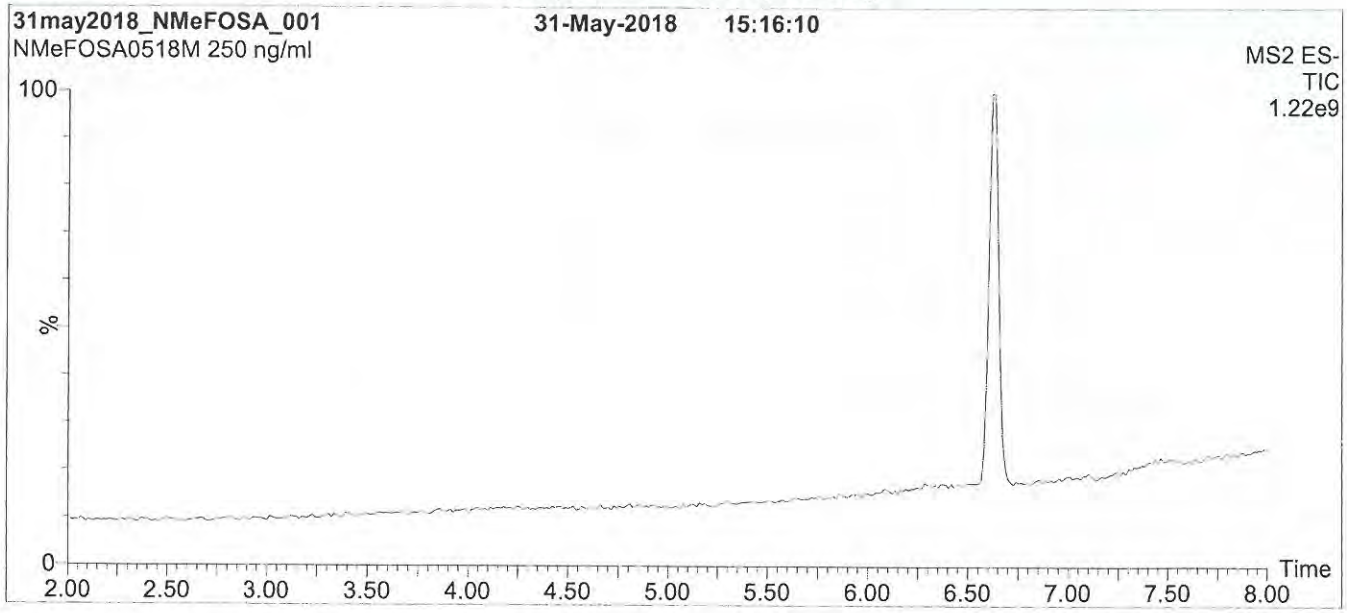
CALA Testing Accreditation No. A 1226

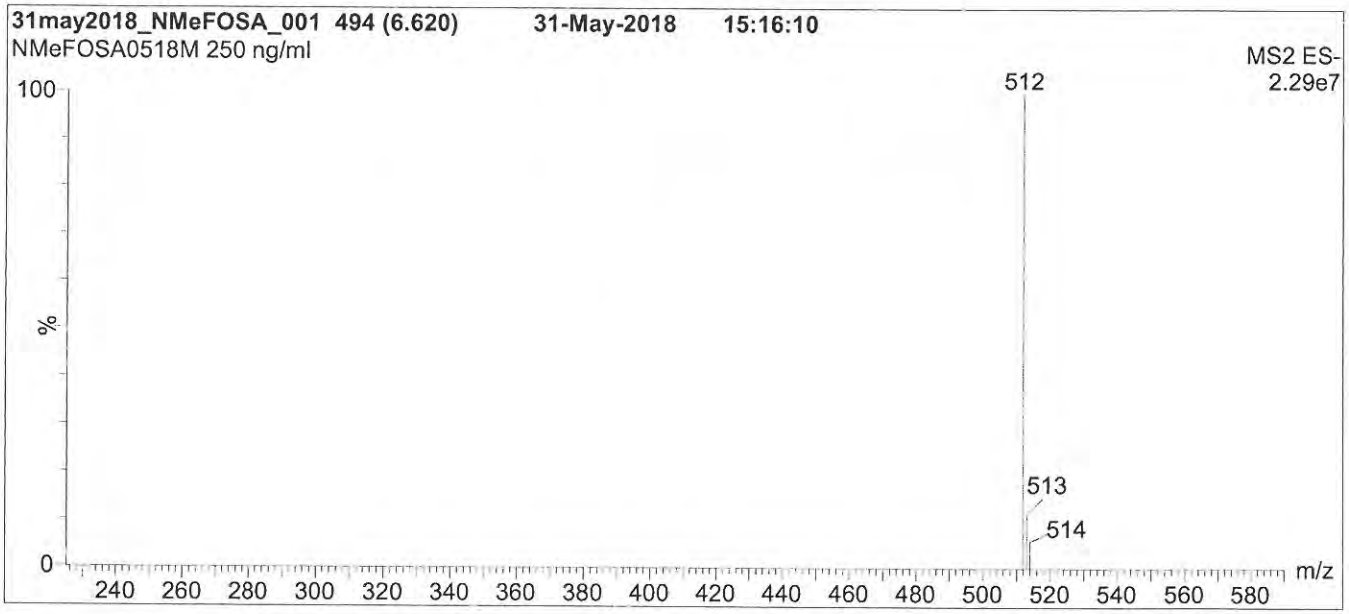
ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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

18I0762

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





Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 85% 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

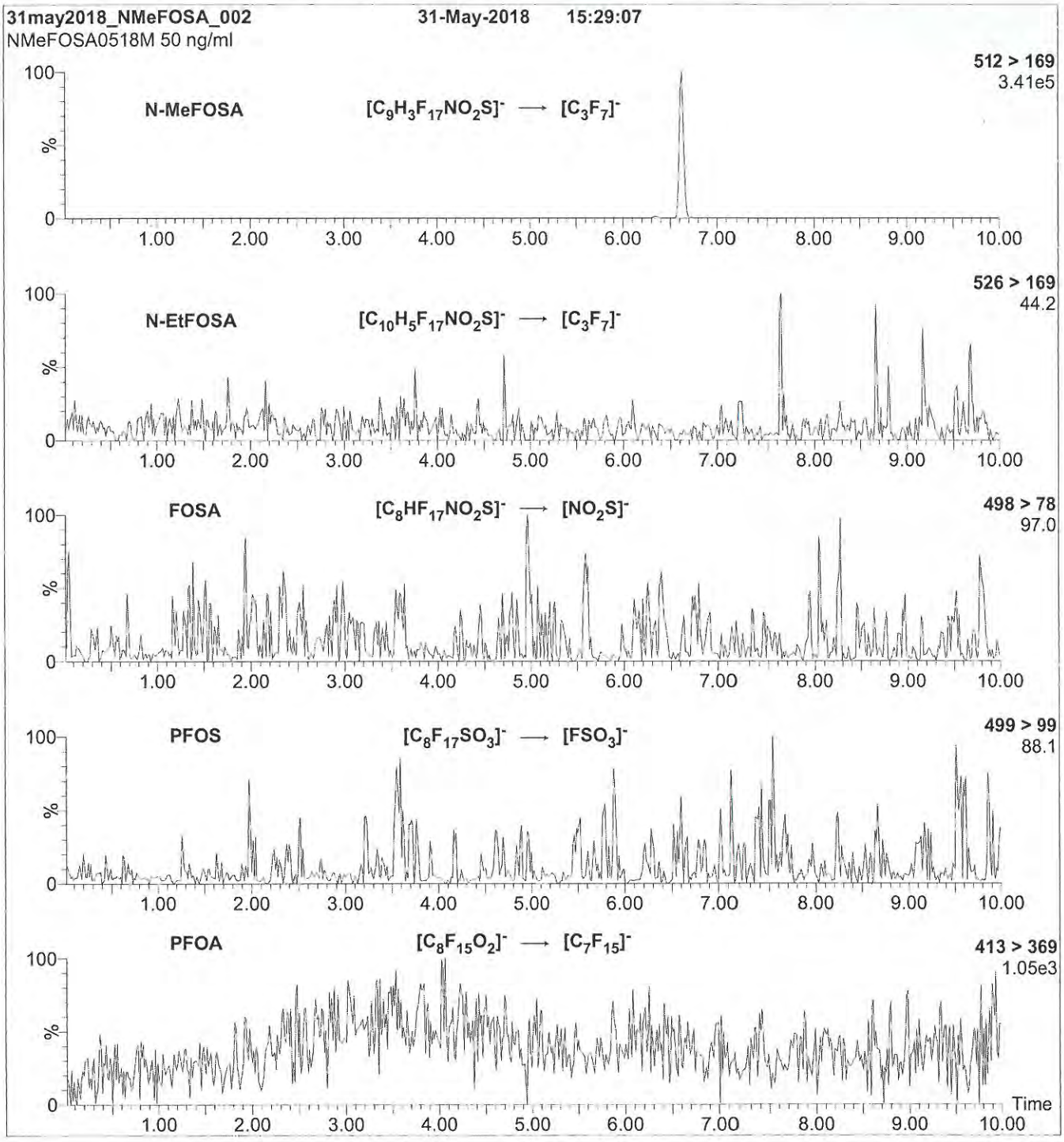
MS Parameters

Experiment: Full Scan (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) = 750

18I0762

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) = 3.37e-3
Collision Energy (eV) = 24

18I 0763

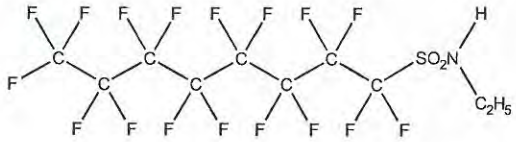
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-EtFOSA-M
COMPOUND: N-ethylperfluoro-1-octanesulfonamide
LOT NUMBER: NEtFOSA0518M

STRUCTURE:

CAS #: 4151-50-2



MOLECULAR FORMULA:	$C_{10}H_6F_{17}NO_2S$	**MOLECULAR WEIGHT:**	527.20
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/31/2018		
EXPIRY DATE: (mm/dd/yyyy)	05/31/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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 ~ 0.5% branched isomers of N-ethylperfluorooctanesulfonamide.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 06/12/2018 (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

18I0763

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HANDLING:

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SYNTHESIS / CHARACTERIZATION:

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CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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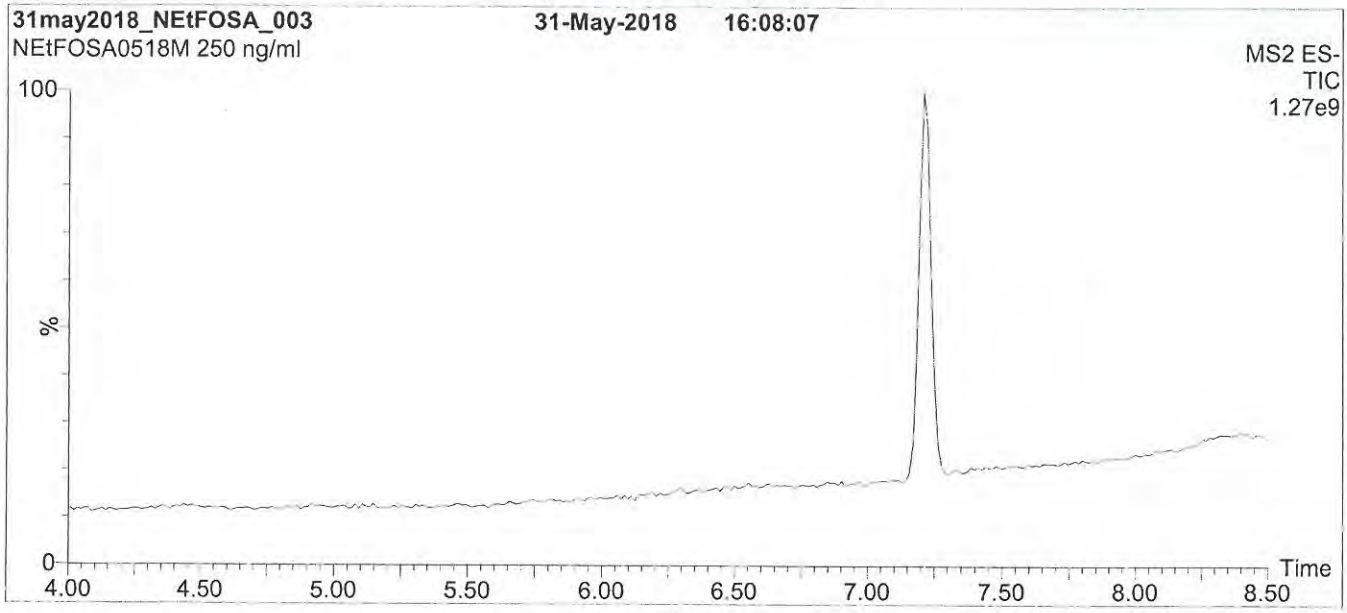
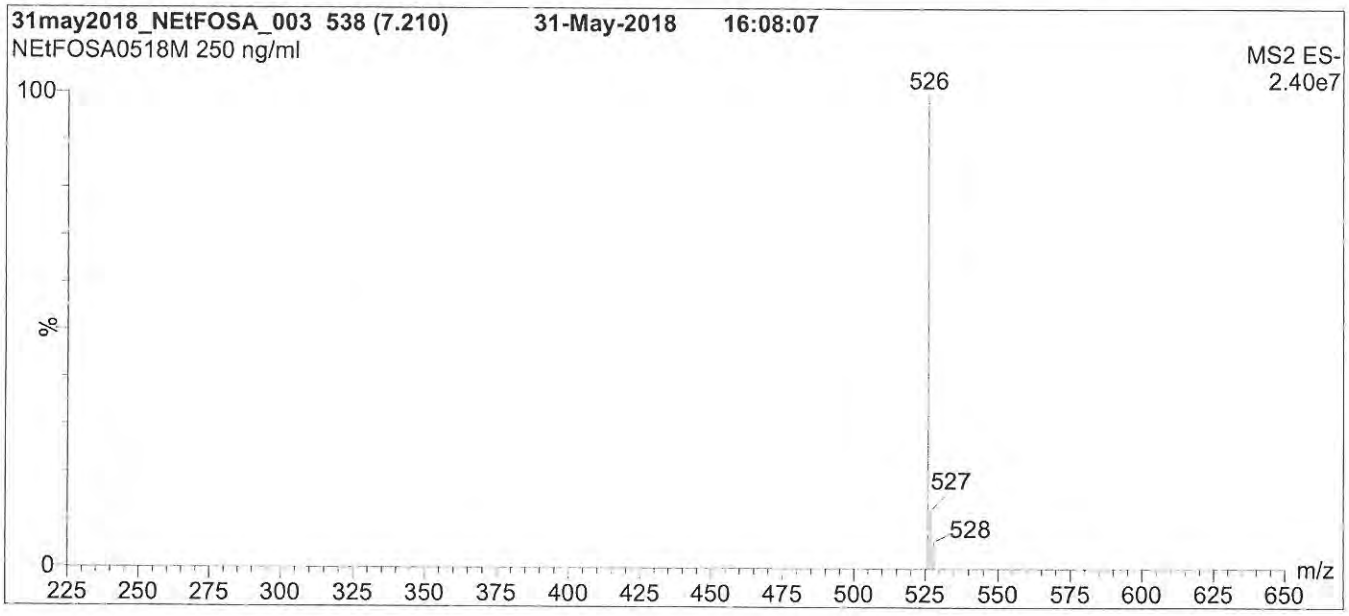
18I0763

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





Conditions for Figure 1:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 85% 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

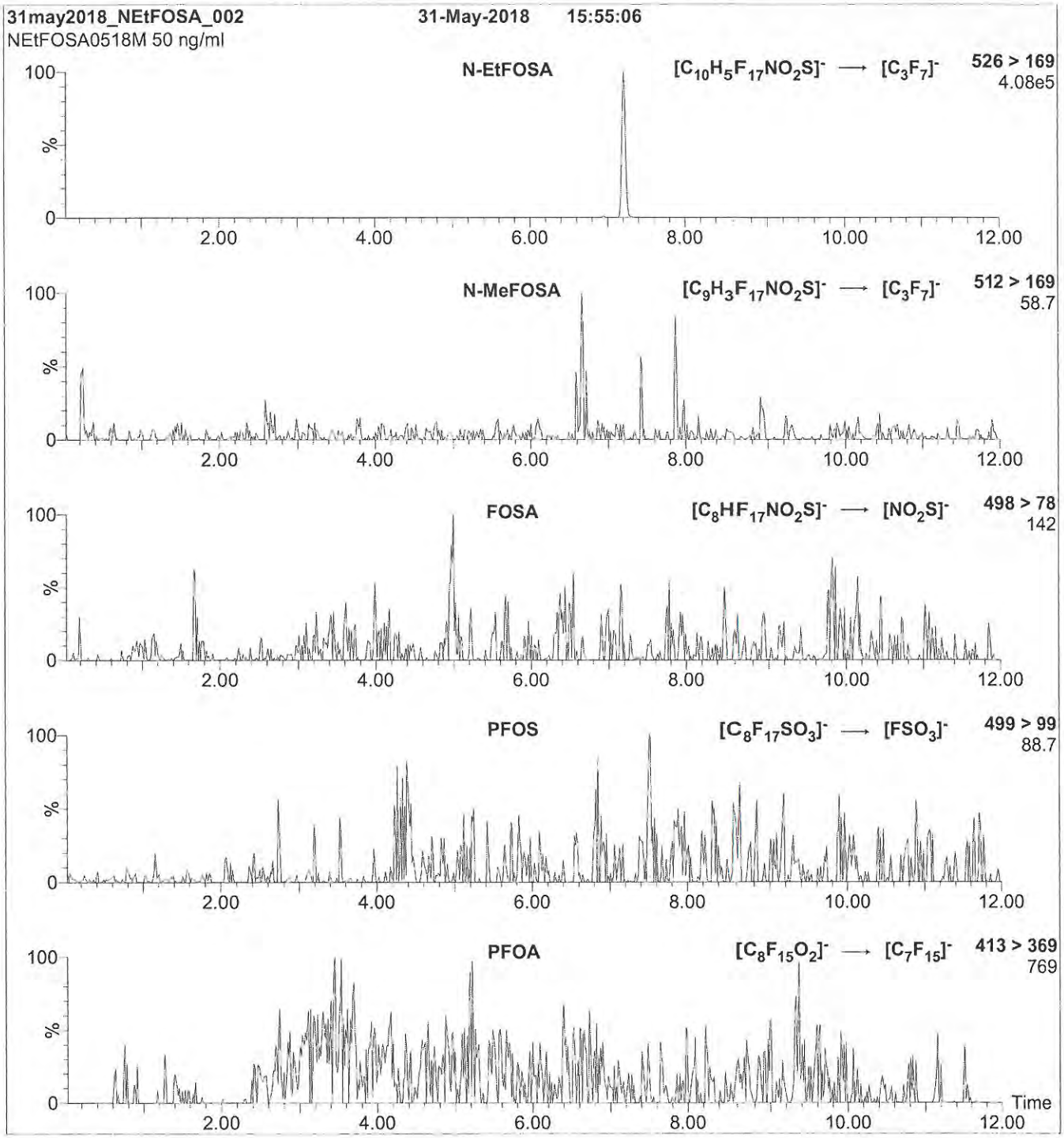
MS Parameters

Experiment: Full Scan (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) = 750

18I0763

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) = 3.37e-3
Collision Energy (eV) = 24

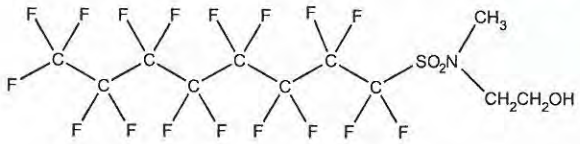
18I0764

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-MeFOSE-M **LOT NUMBER:** NMeFOSE0418M
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 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	05/17/2018 (HRGC/LRMS) 05/03/2018 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	05/17/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (TIC and Mass Spectrum)
Figure 2: LC/MS Data (TIC 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:** 05/25/2018 (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

18I0764

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CALA Testing Accreditation No. A 1226

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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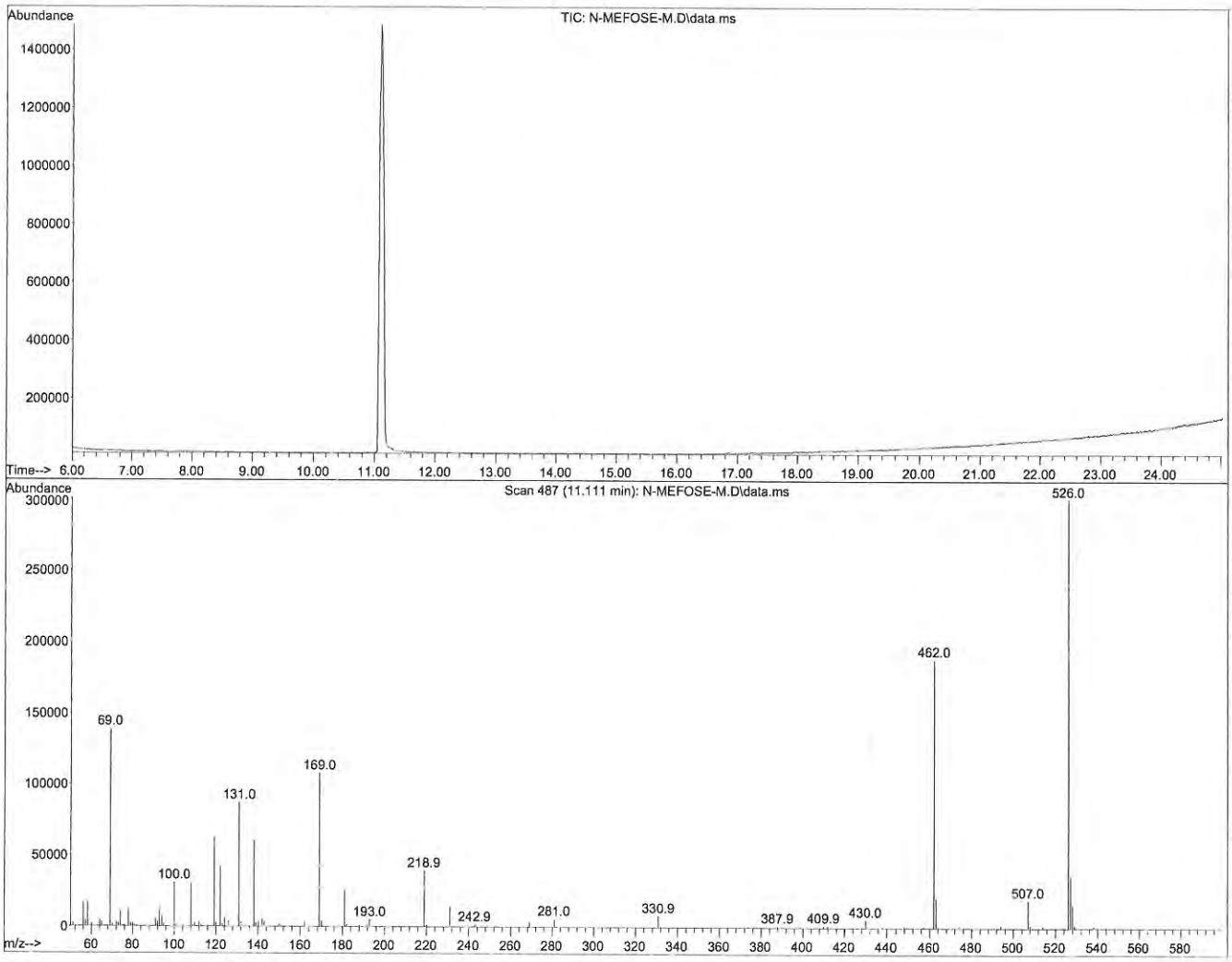
18I0764

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



HRGC/LRMS:

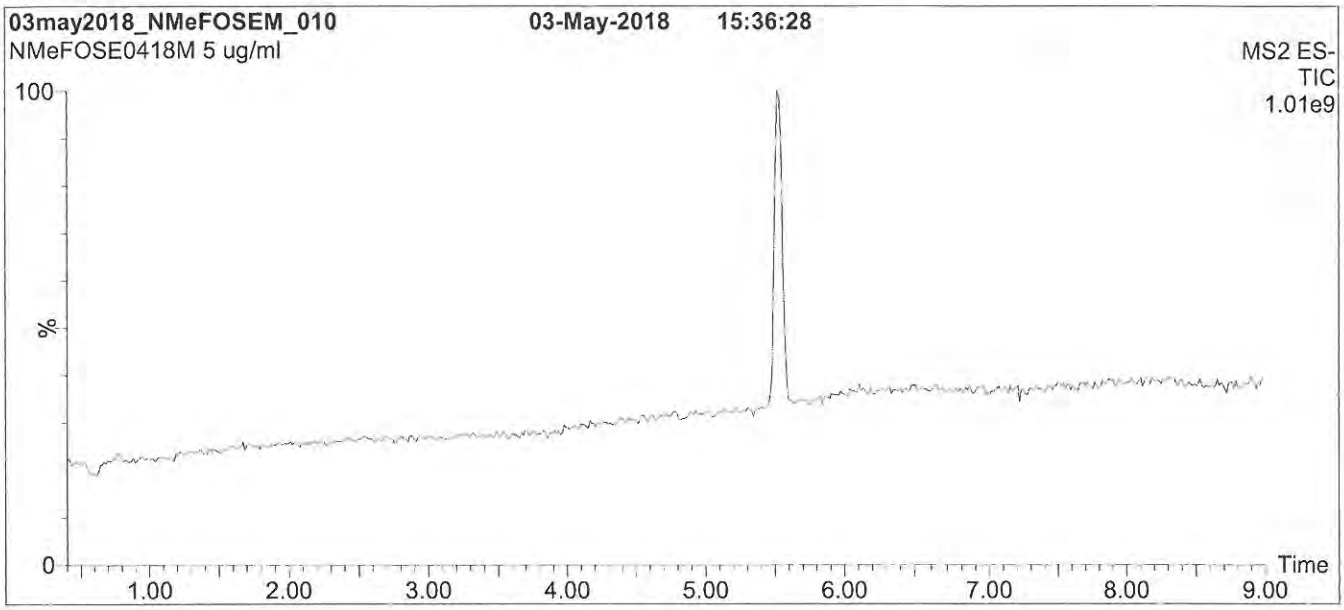
Agilent 7890A (HRGC)
Agilent 5975C (LRMS)

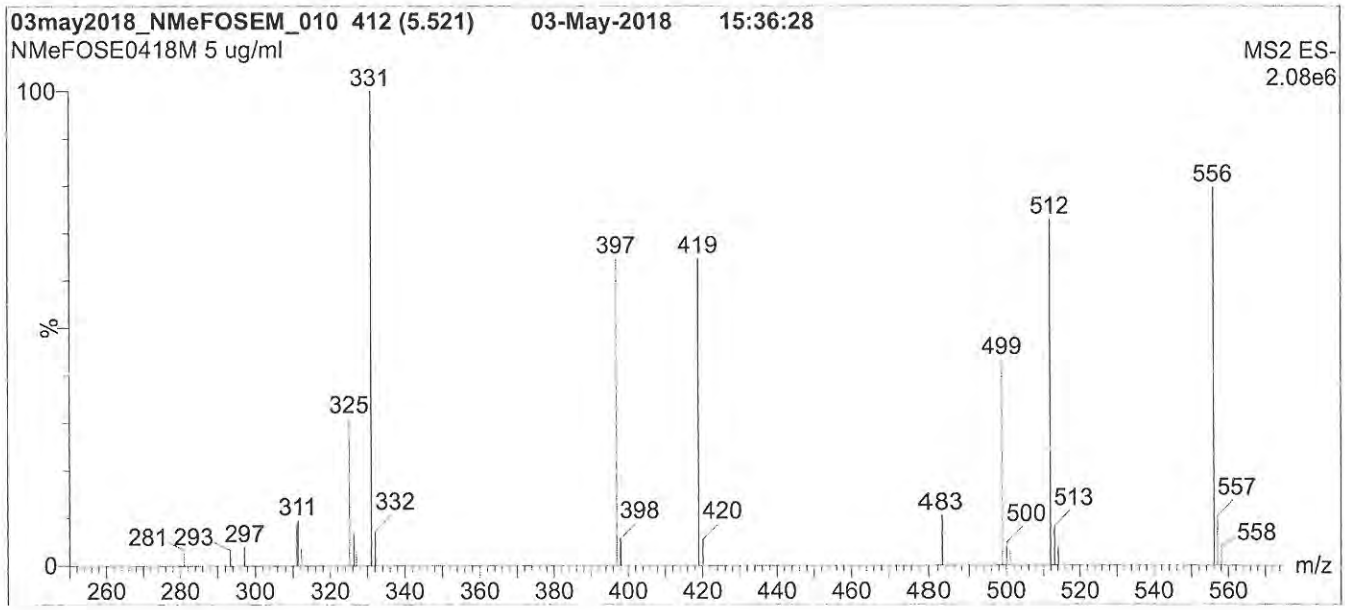
Chromatographic Conditions:

Column:	30 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W
Injector:	250 °C (Splitless Injection)
Oven:	100 °C (5 min) 10 °C/min to 325 °C 325 °C (20 min)
Ionization:	EI+
Detector:	250 °C Full Scan (50-1000 amu)

18I0764

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





Conditions for Figure 2:

LC: **Waters Acquity Ultra Performance LC**
MS: **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: 65% MeOH / 35% H_2O
Ramp to 85% 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

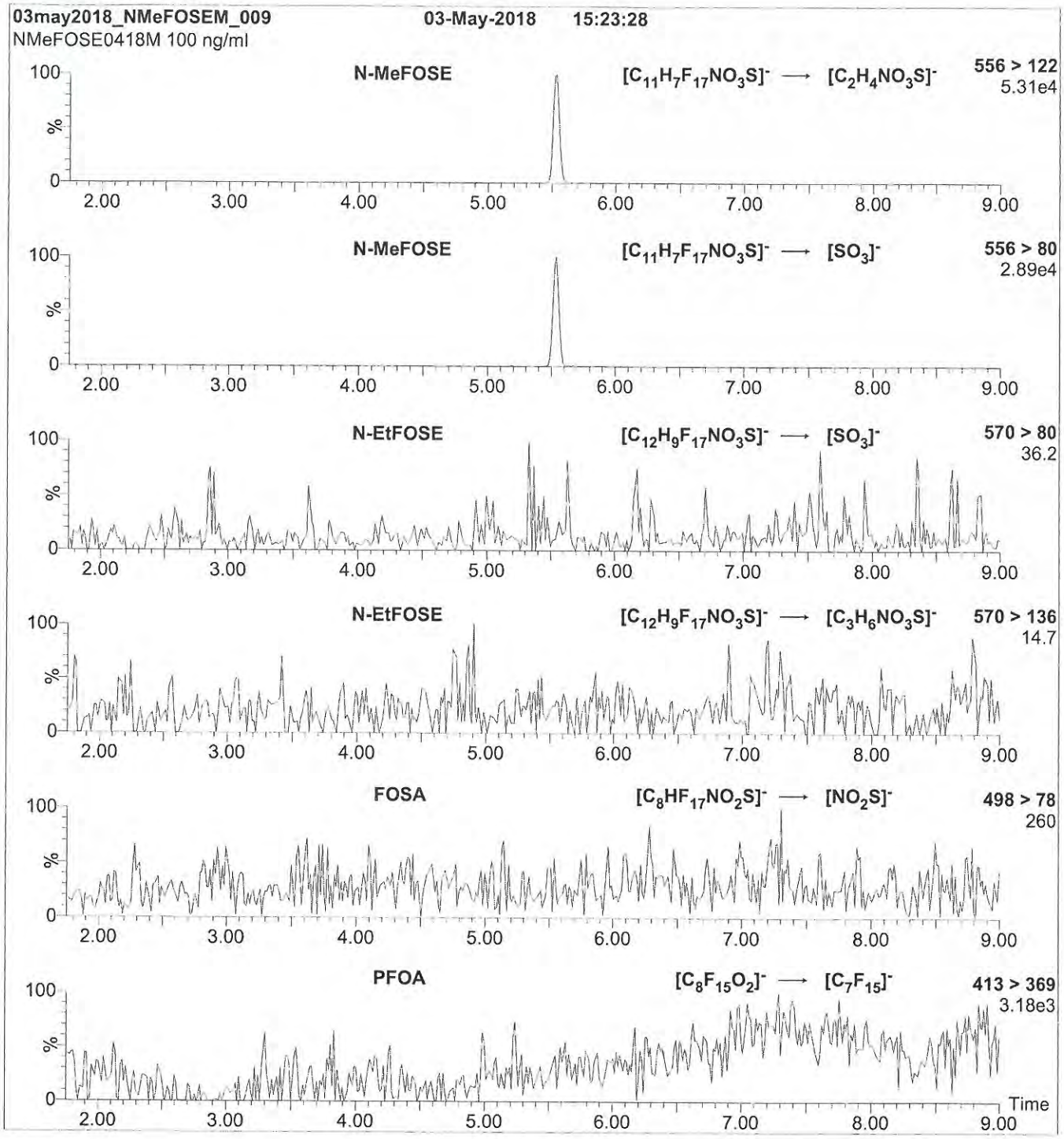
MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 65.00
Desolvation Temperature (°C) = 450
Desolvation Gas Flow (l/hr) = 750

18I0764

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) = 3.47e-3
Collision Energy (eV) = 36

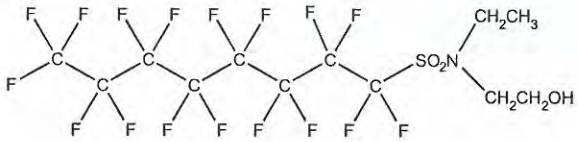
~~1801764~~ 1801765
GRB 9/12/18

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: N-EtFOSE-M **LOT NUMBER:** NEtFOSE0518M
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 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%		
LAST TESTED: (mm/dd/yyyy)	06/04/2018 (HRGC/LRMS) 05/30/2018 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	06/04/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

Figure 1: HRGC/LRMS Data (TIC and Mass Spectrum)
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ADDITIONAL INFORMATION:

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18I0765

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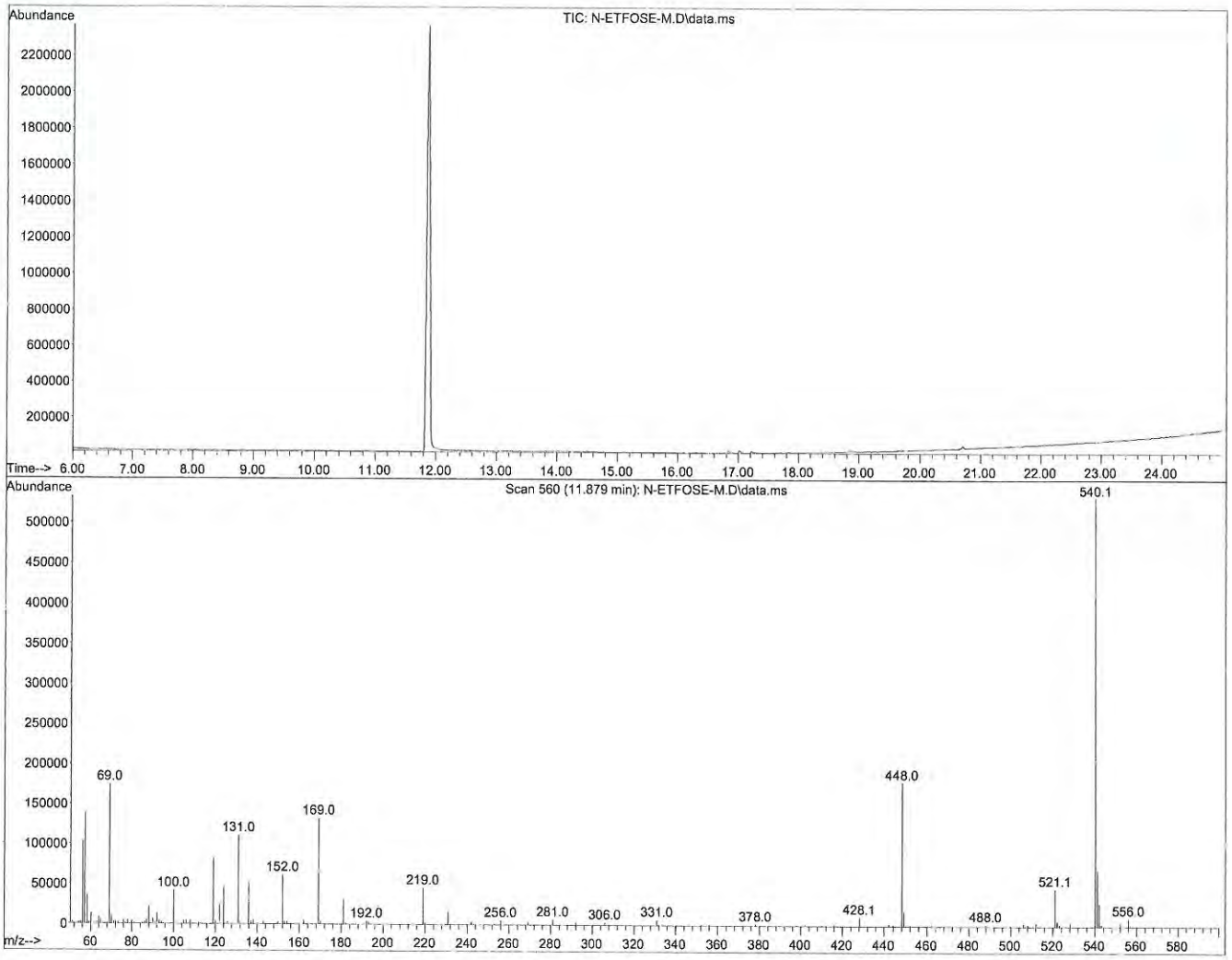
CALA Testing

ANAB 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

18I0765

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



HRGC/LRMS:

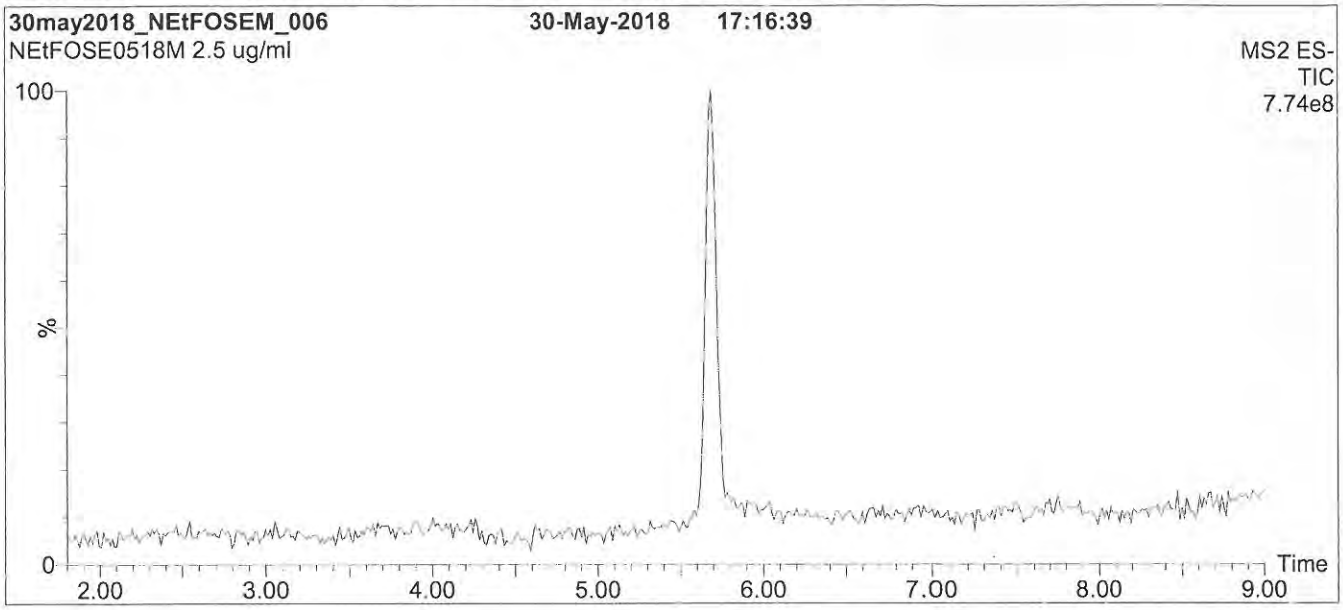
Agilent 7890A (HRGC)
Agilent 5975C (LRMS)

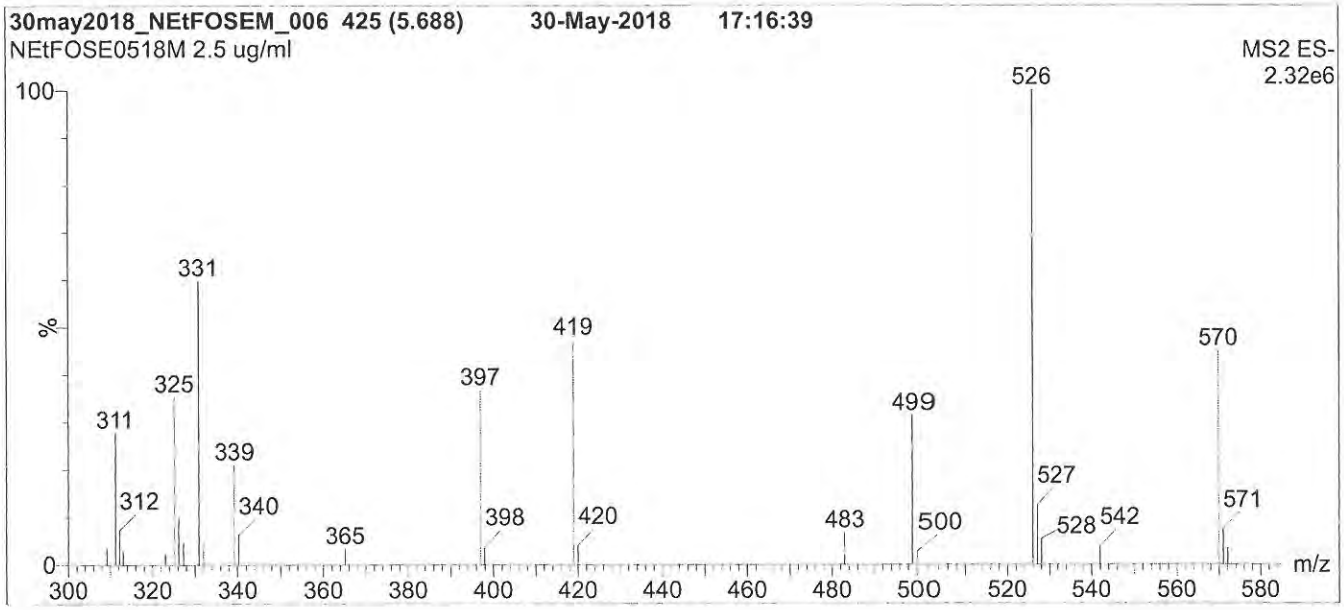
Chromatographic Conditions:

Column:	30 m DB-5 (0.25 mm id, 0.25 µm film thickness) Agilent J&W
Injector:	250 °C (Splitless Injection)
Oven:	100 °C (5 min) 10 °C/min to 325 °C 325 °C (20 min)
Ionization:	EI+
Detector:	250 °C Full Scan (50-1000 amu)

18I0765

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





Conditions for Figure 2:

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

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 70% MeOH / 30% H_2O
Ramp to 85% 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

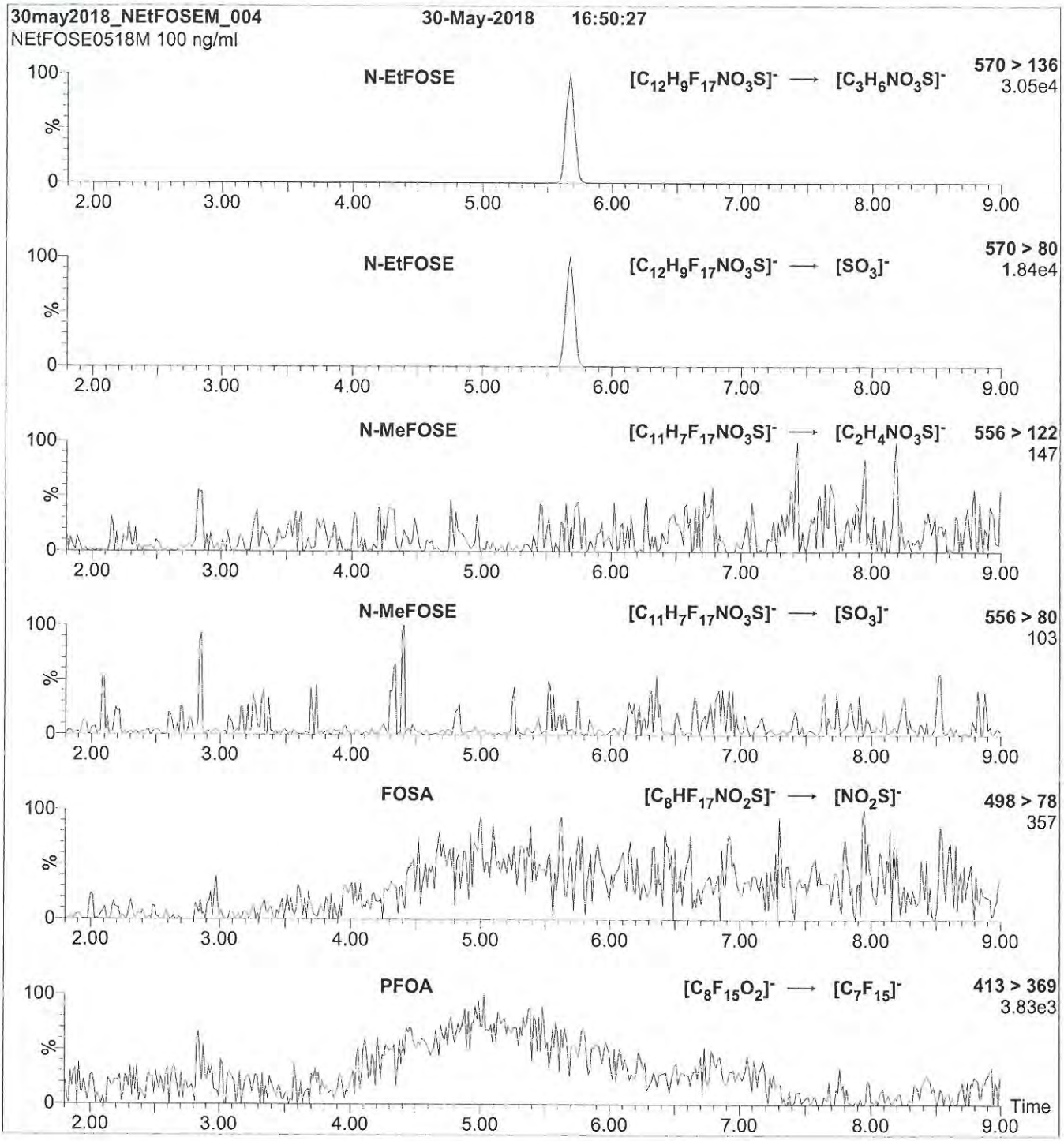
MS Parameters

Experiment: Full Scan (300 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 65.00
Desolvation Temperature (°C) = 450
Desolvation Gas Flow (l/hr) = 750

18I0765

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) = 3.45e-3
Collision Energy (eV) = 32

Analytical Standard Record

Vista Analytical Laboratory

18J1503

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	(mls)
18F2228	13C2-FOUEA	22-Jun-18	** Vendor **	14-Nov-19	1
18F2229	13C4-PFBA	22-Jun-18	** Vendor **	16-Feb-23	1
18F2230	13C6-PFDA	22-Jun-18	** Vendor **	17-Oct-22	1
18F2231	13C9-PFNA	22-Jun-18	** Vendor **	23-May-22	1
18F2232	13C7-PFUdA	22-Jun-18	** Vendor **	13-Jul-22	1
18F2233	13C5-PFHxA	22-Jun-18	** Vendor **	17-Oct-22	1
18F2234	13C3-PFHxS	22-Jun-18	** Vendor **	05-Jul-22	1.06
18F2235	13C4-PFOS	22-Jun-18	** Vendor **	15-Feb-23	1.05
18F2236	13C8-PFOA	22-Jun-18	** Vendor **	05-Jul-22	1.02

Description:	PFC-RS	Expires:	15-Oct-20
Standard Type:	Reagent	Prepared:	15-Oct-18
Solvent:	MeOH	Prepared By:	Giana R. Bilotta
Final Volume (mls):	40	Department:	LCMS
Vials:	1	Last Edit:	15-Oct-18 08:57 by GRB

Analyte	CAS Number	Concentration	Units
13C9-PFNA		1.25	ug/mL
13C8-PFOA		1.25	ug/mL
13C7-PFUnA		1.25	ug/mL
13C6-PFDA		1.25	ug/mL
13C5-PFHxA		1.25	ug/mL
13C4-PFOS		1.25	ug/mL
13C4-PFBA		1.25	ug/mL
13C3-PFHxS		1.25	ug/mL
13C2-FOUEA		1.25	ug/mL

18F2228

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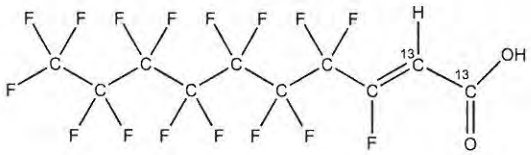
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MFOUEA	**LOT NUMBER:**	MFOUEA1117
COMPOUND:	2H-Perfluoro-[1,2-$^{13}C_2$]-2-decenoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_2{}^{12}C_8H_2F_{16}O_2$	**MOLECULAR WEIGHT:**	460.08
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Anhydrous Isopropanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2\text{-}^{13}C_2$)
LAST TESTED: (mm/dd/yyyy)	11/14/2017		
EXPIRY DATE: (mm/dd/yyyy)	11/14/2019		
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.
- Dilution of this standard in methanol may lead to the formation of 2H-3-methoxy-perfluoro-[1,2-$^{13}C_2$]-2-decenoic acid. This reaction can be catalyzed by the presence of acid or base. All dilutions should be routinely checked for degradation.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 11/15/2017 (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

18F2228

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.

HAZARDS:

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:

Where possible, all of our products are synthesized using single-product unambiguous routes. 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 tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. 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; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA

ANAB ACCREDITED

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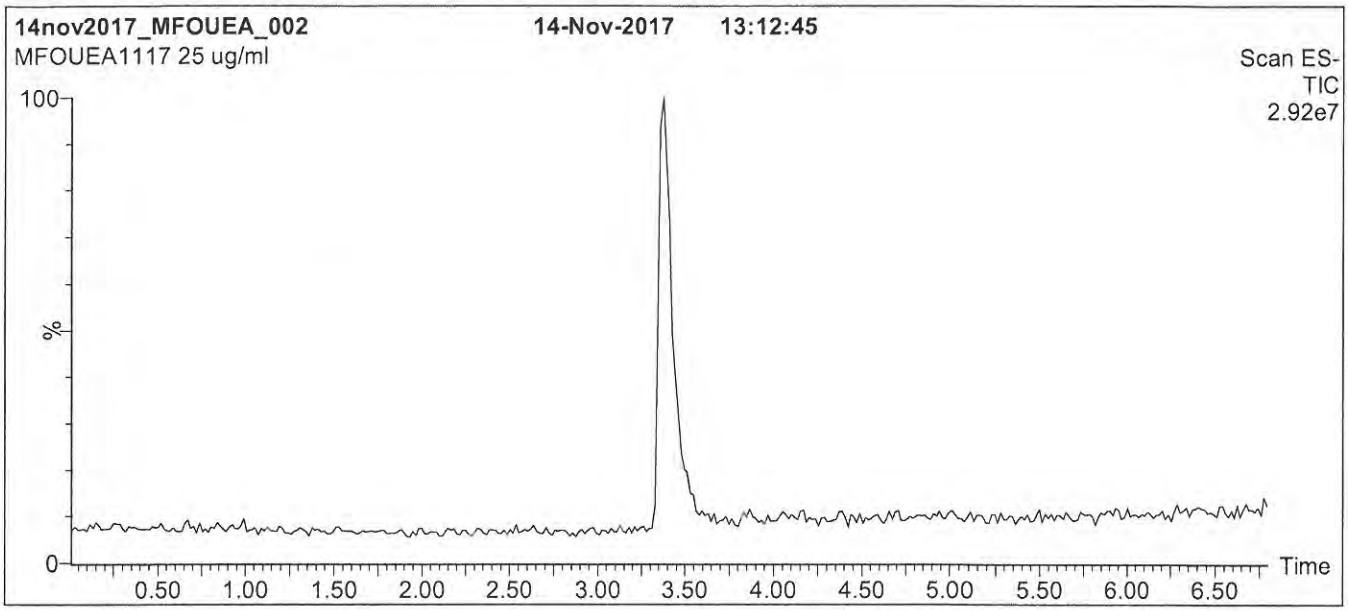
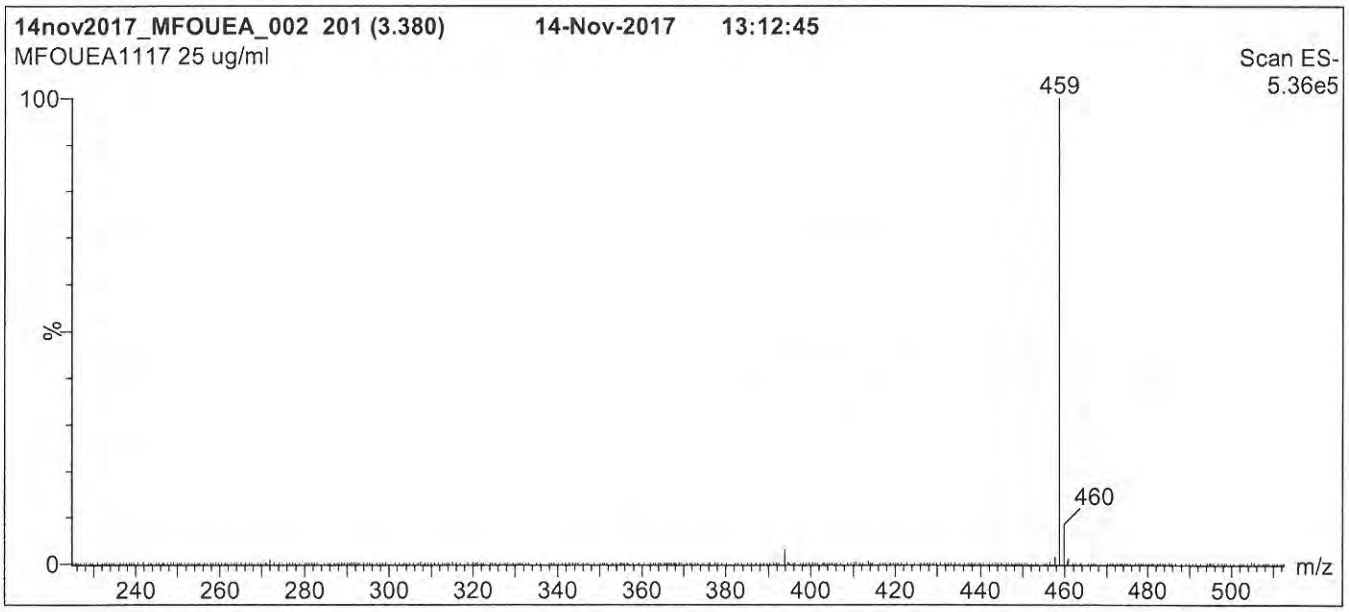
18F2228

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold
for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

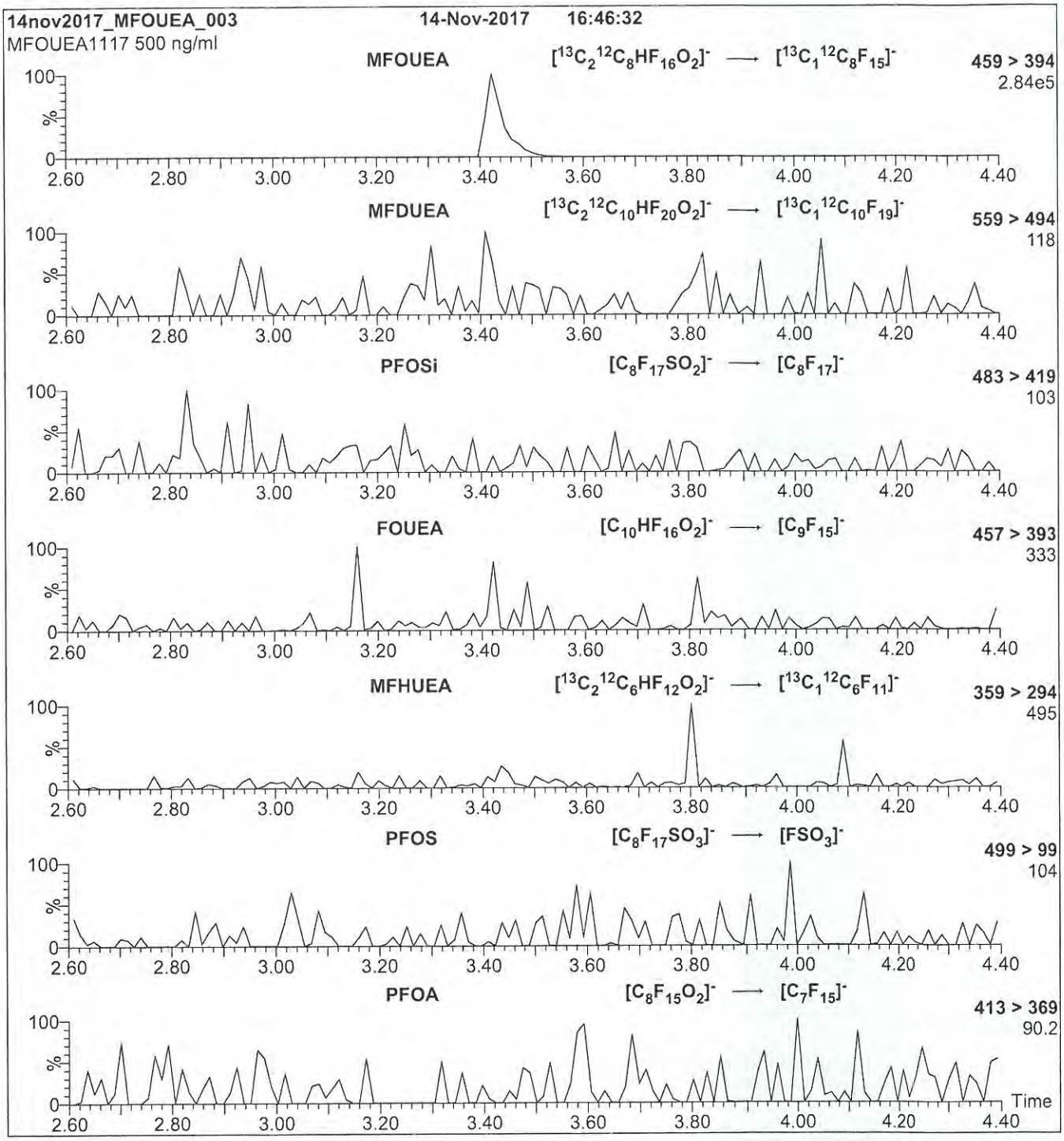
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 14.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

18F2228

Figure 2: **MFOUEA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MFOUEA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

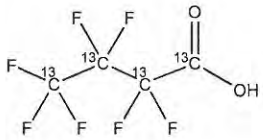
Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 21

18F2229

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFBA	**LOT NUMBER:**	MPFBA0218
COMPOUND:	Perfluoro-n-[1,2,3,4-$^{13}C_4$]butanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_4HF_7O_2$	**MOLECULAR WEIGHT:**	218.01
CONCENTRATION:	50 ± 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)	02/16/2018		
EXPIRY DATE: (mm/dd/yyyy)	02/16/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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 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:** 02/22/2018 (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

18F2229

INTENDED USE:

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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:

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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.

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.

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CALA

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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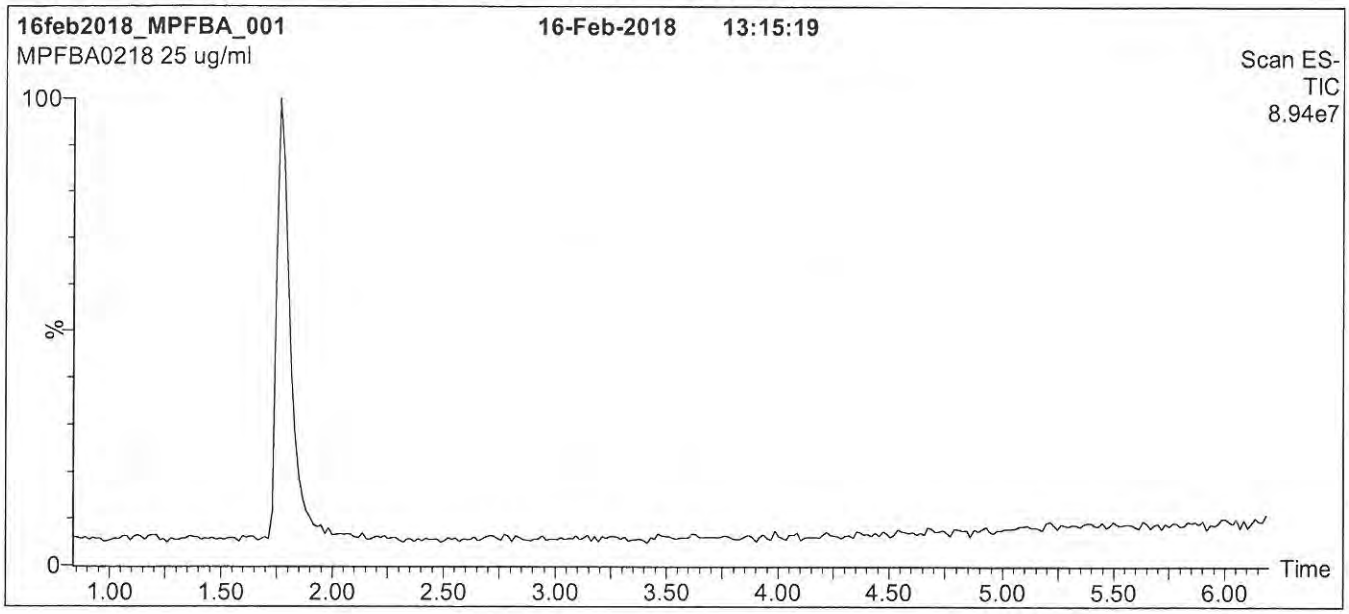
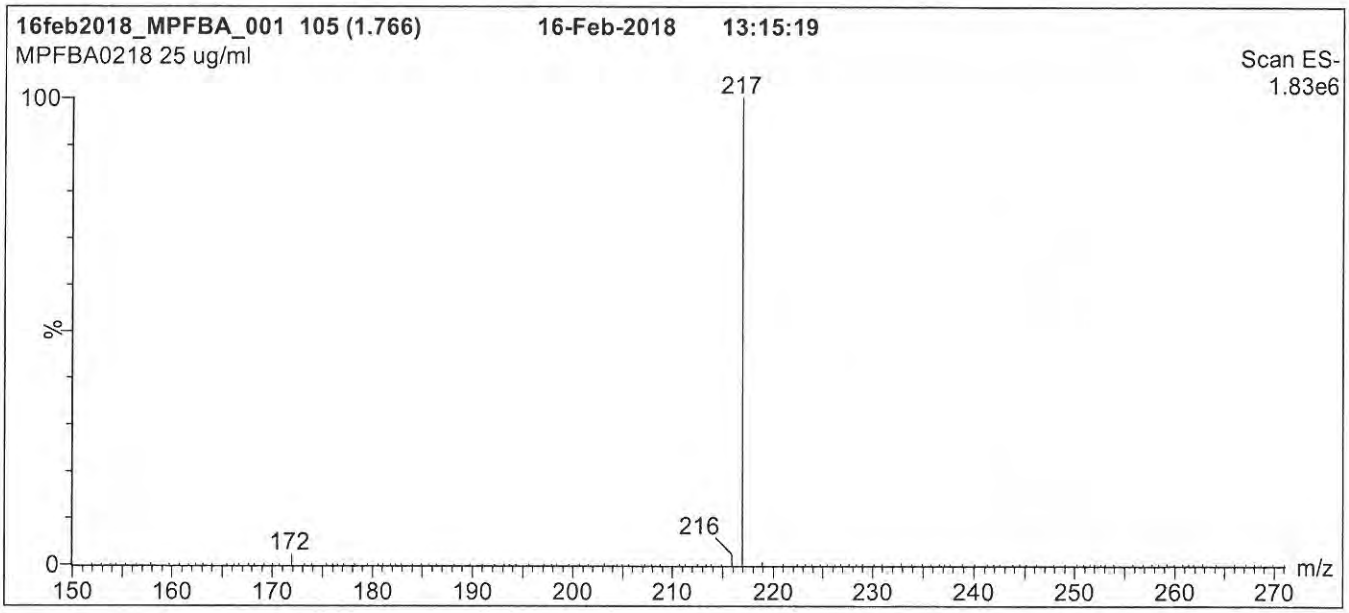
18F2229

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





Conditions for Figure 1:

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MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 30% (80:20 MeOH:ACN) / 70% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

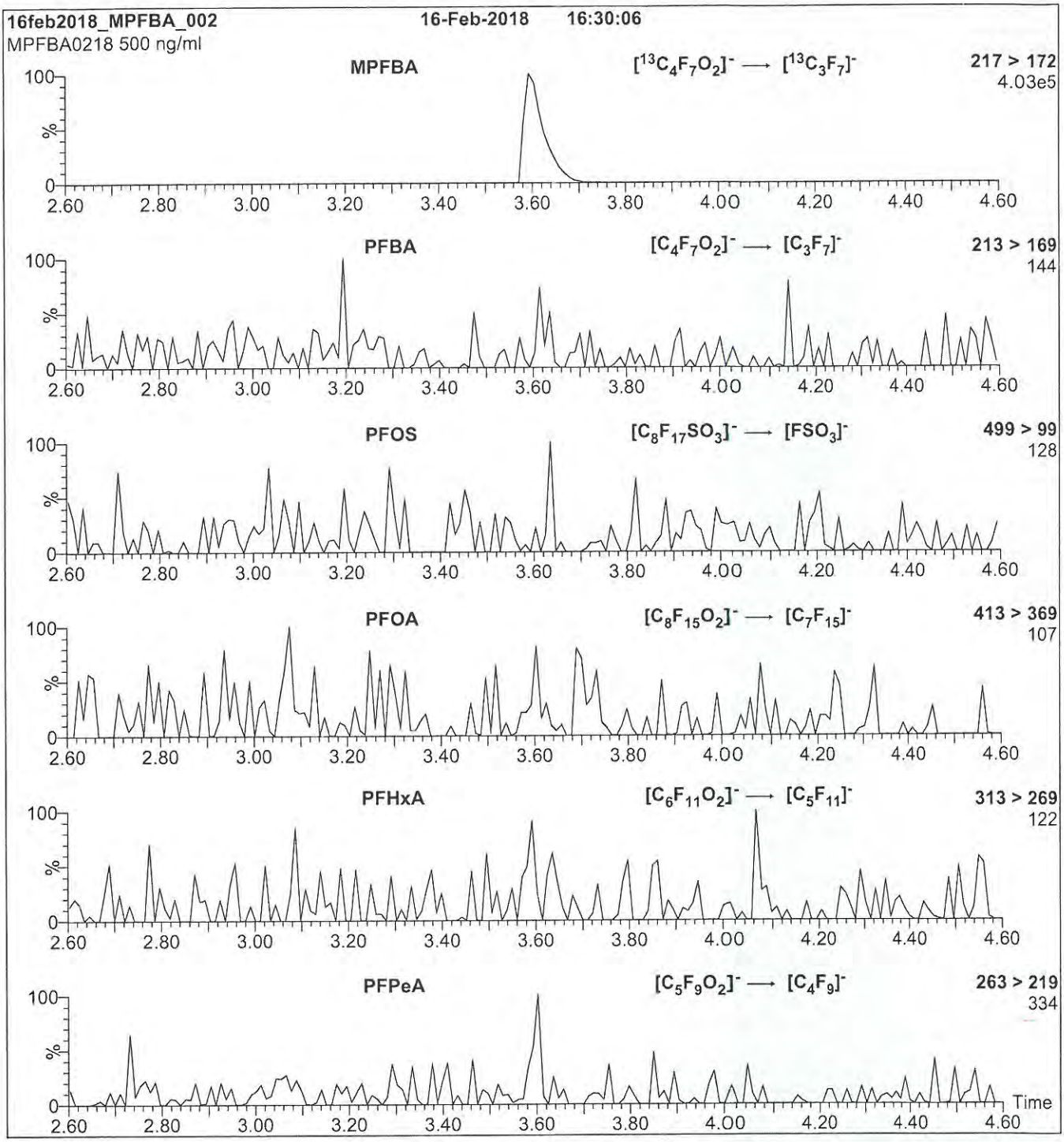
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 10.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

18F2229

Figure 2: **MPFBA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFBA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 10

18F2230

WELLINGTON LABORATORIES

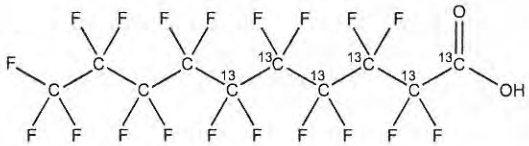
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M6PFDA
COMPOUND: Perfluoro-n-[1,2,3,4,5,6-$^{13}C_6$]decanoic acid

LOT NUMBER: M6PFDA1017

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:	$^{13}C_6{}^{12}C_4HF_{19}O_2$	**MOLECULAR WEIGHT:**	520.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2,3,4,5,6-$^{13}C_6$)
LAST TESTED: (mm/dd/yyyy)	10/17/2017		
EXPIRY DATE: (mm/dd/yyyy)	10/17/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

DOCUMENTATION/ DATA ATTACHED:

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FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/20/2017 (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

18F2230

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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; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

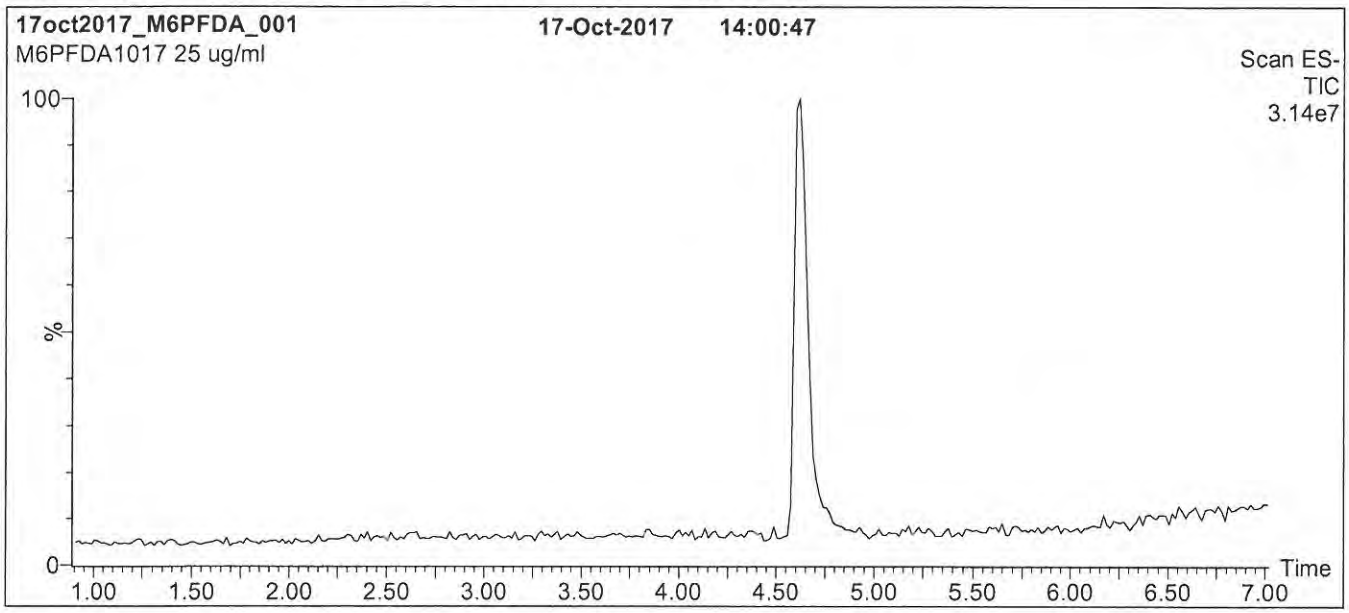
CALA

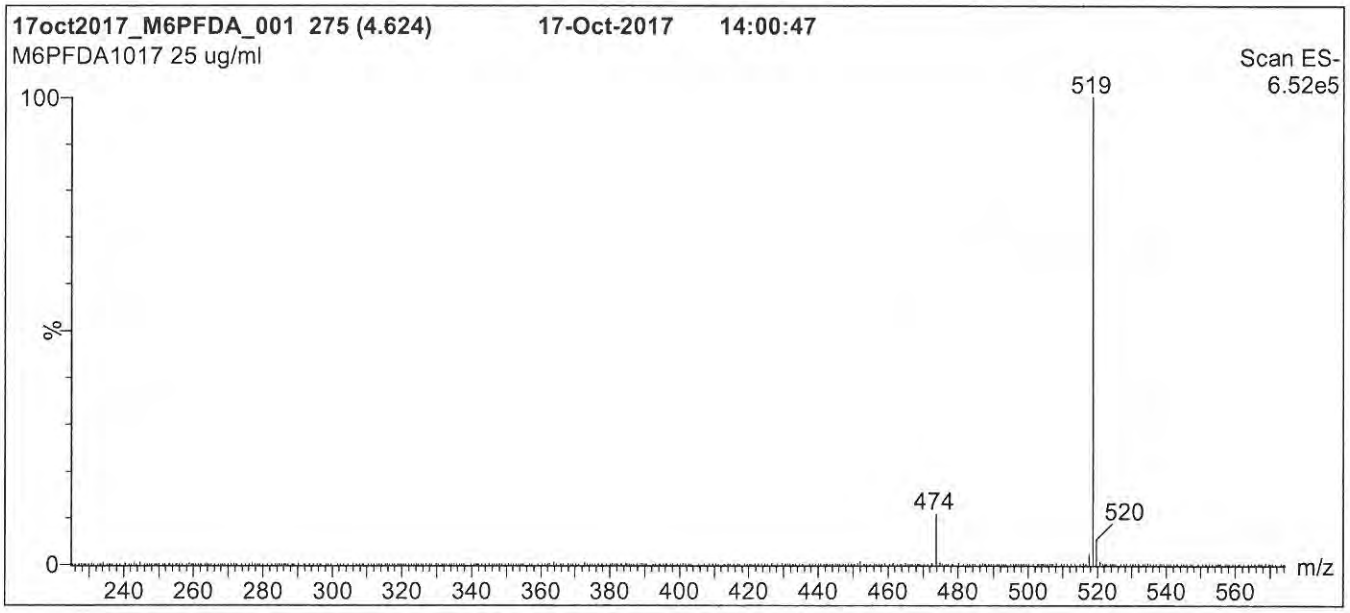
ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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

18F2230

Figure 1: **M6PFDA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

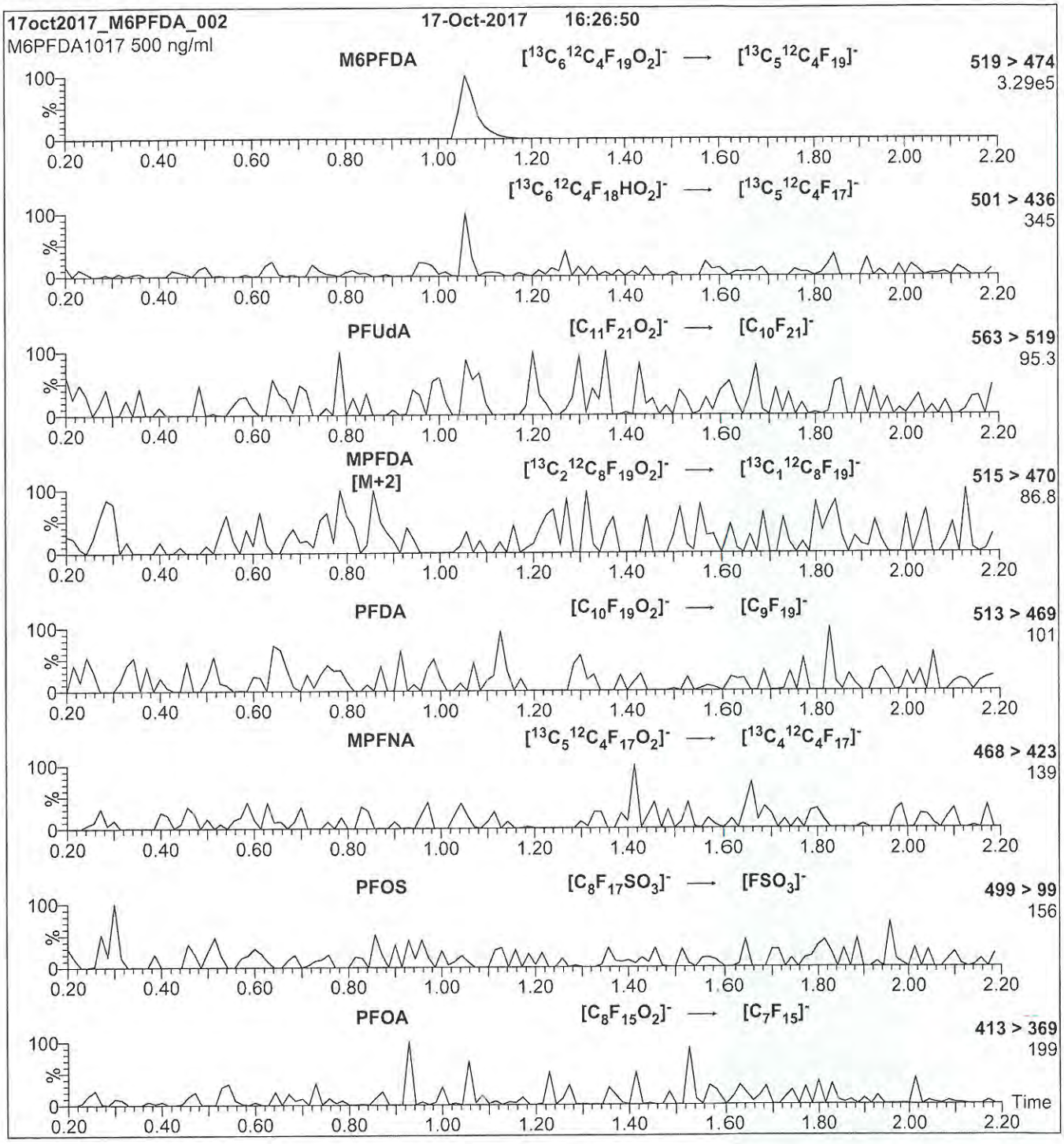
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18F2230

Figure 2: **M6PFDA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M6PFDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

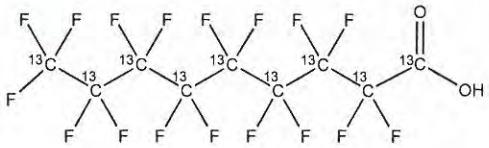
Collision Gas (mbar) = 3.24e-3
Collision Energy (eV) = 13

18F2231

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M9PFNA	**LOT NUMBER:**	M9PFNA0517
COMPOUND:	Perfluoro-n-[$^{13}C_9$]nonanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_9HF_{17}O_2$	**MOLECULAR WEIGHT:**	473.01
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_9$)
LAST TESTED: (mm/dd/yyyy)	05/23/2017		
EXPIRY DATE: (mm/dd/yyyy)	05/23/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains ~ 0.9% of $^{13}C_5{}^{12}C_4HF_{17}O_2$ (MPFNA).

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/25/2017 (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

18F2231

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.

HAZARDS:

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:

Where possible, all of our products are synthesized using single-product unambiguous routes. 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.

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CALA Testing

ANAB ACCREDITED

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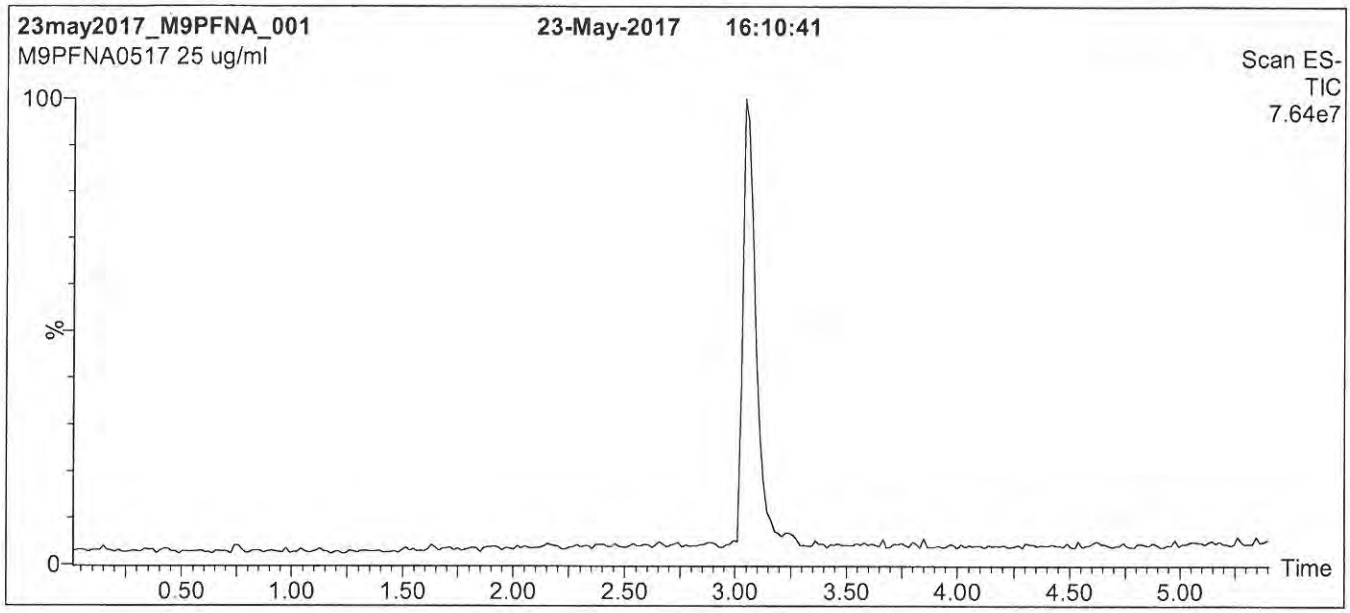
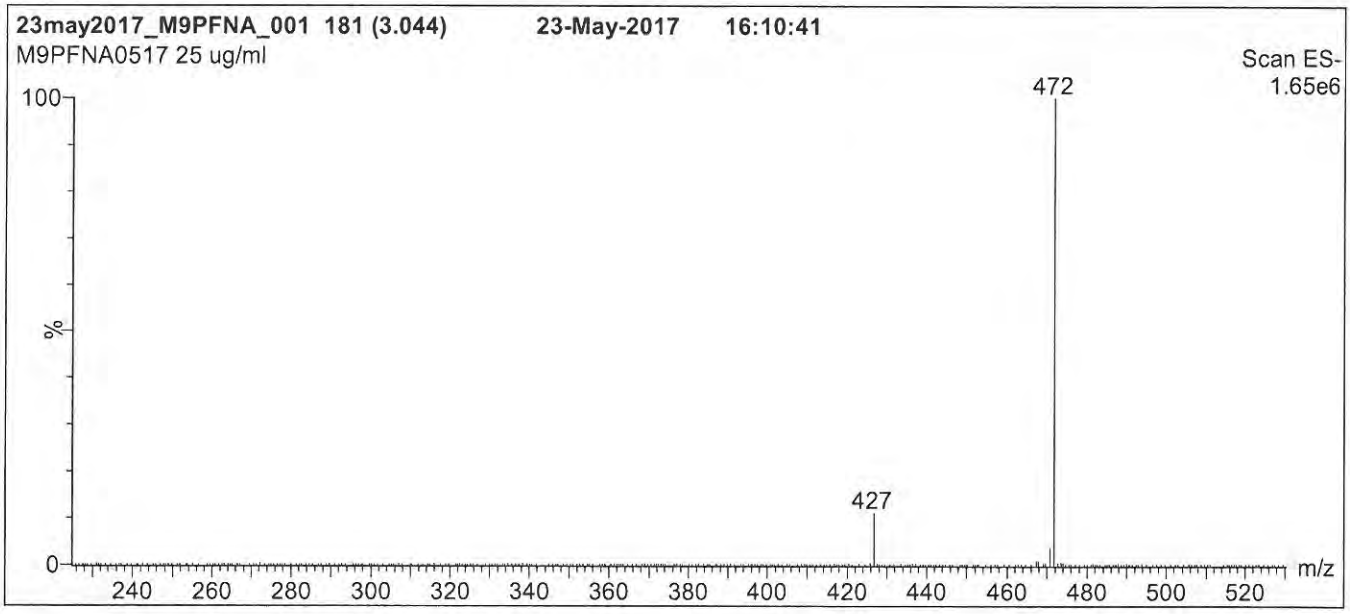
18F2231

Figure 1: **M9PFNA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 60% (80:20 MeOH:ACN) / 40% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

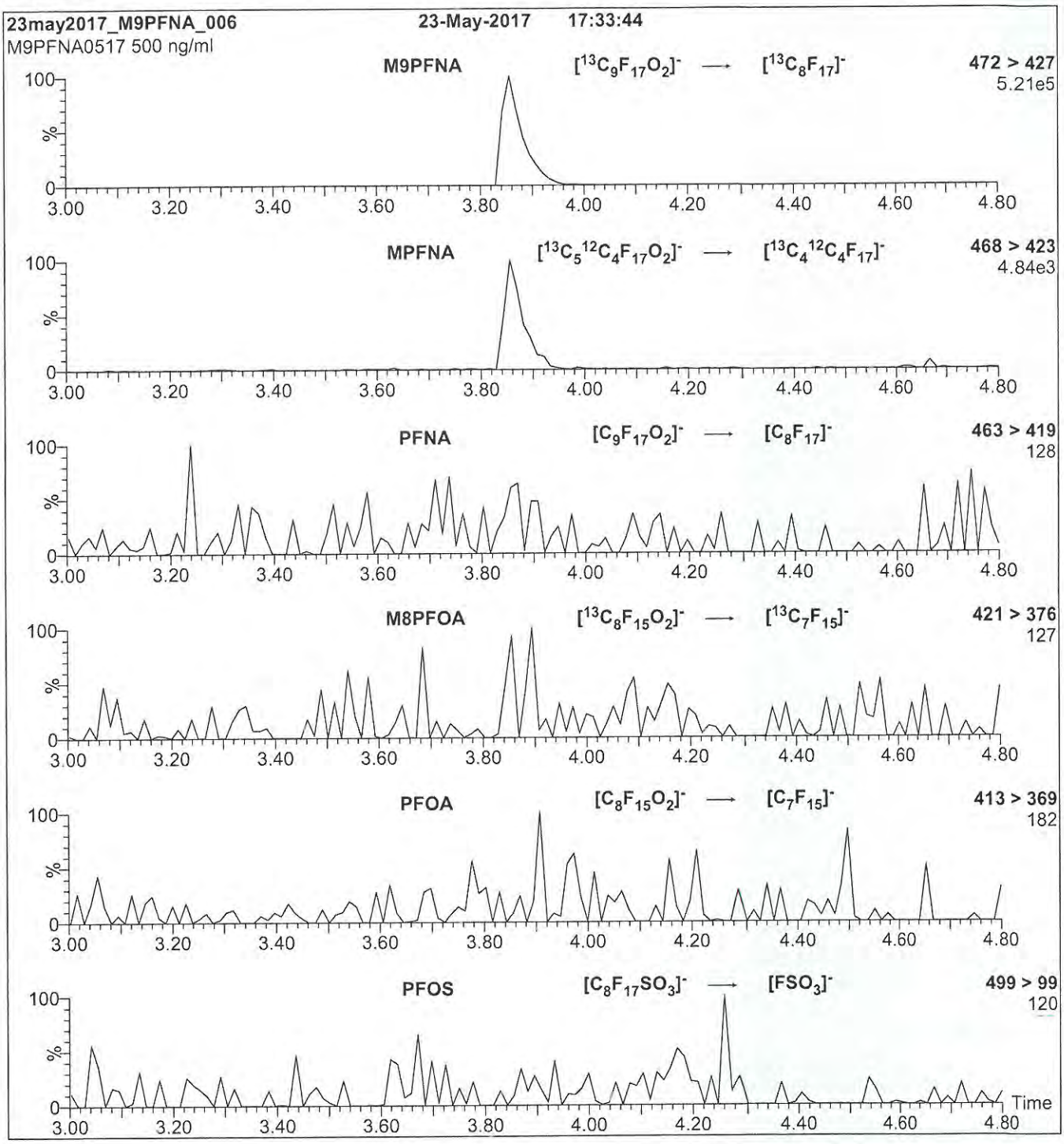
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18F2231

Figure 2: **M9PFNA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M9PFNA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

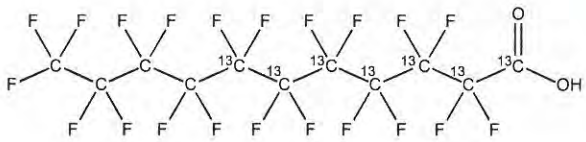
Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 11

18F2232

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M7PFUdA	**LOT NUMBER:**	M7PFUdA0717
COMPOUND:	Perfluoro-n-[1,2,3,4,5,6,7-$^{13}C_7$]undecanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_7{}^{12}C_4HF_{21}O_2$	**MOLECULAR WEIGHT:**	571.04
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2,3,4,5,6,7-$^{13}C_7$)
LAST TESTED: (mm/dd/yyyy)	07/13/2017		
EXPIRY DATE: (mm/dd/yyyy)	07/13/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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 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:** 07/14/2017 (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

18F2232

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CALA

ANAB ACCREDITED

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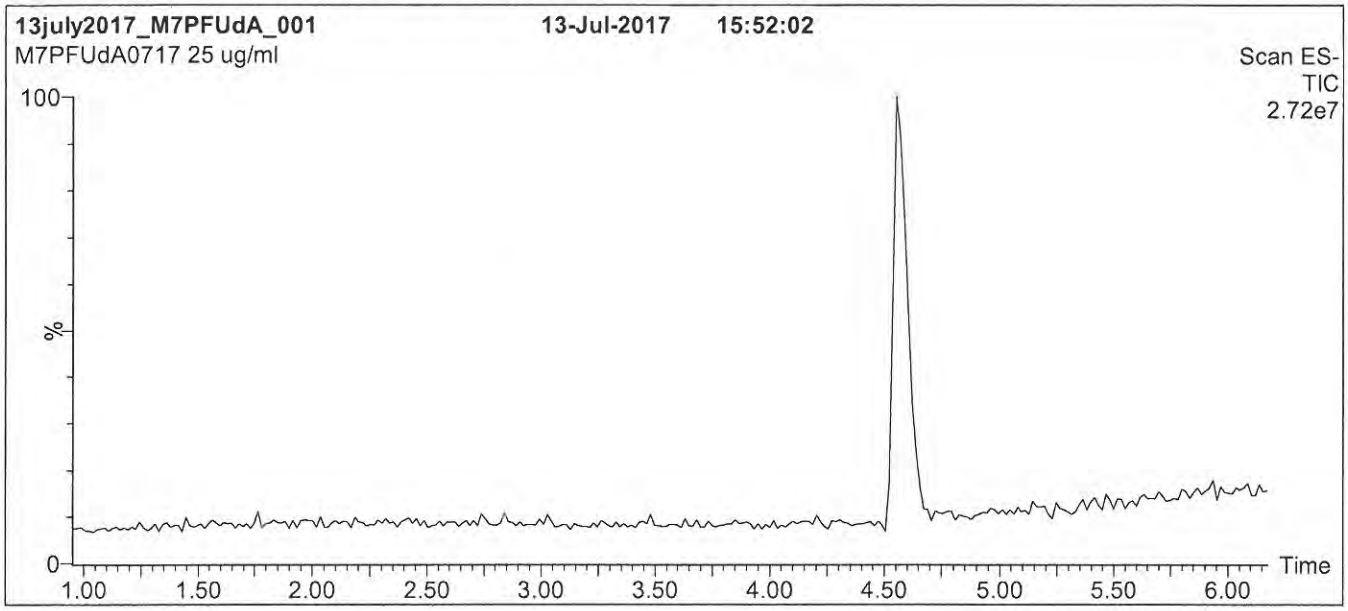
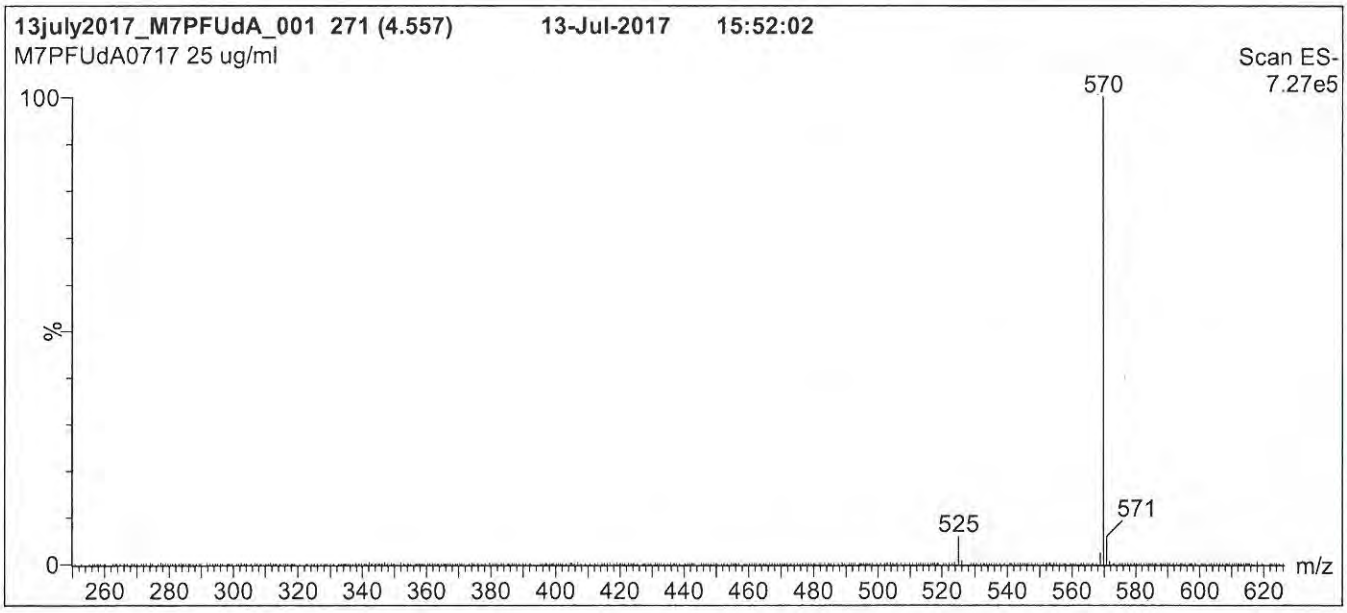
18F2232

Figure 1: **M7PFUdA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

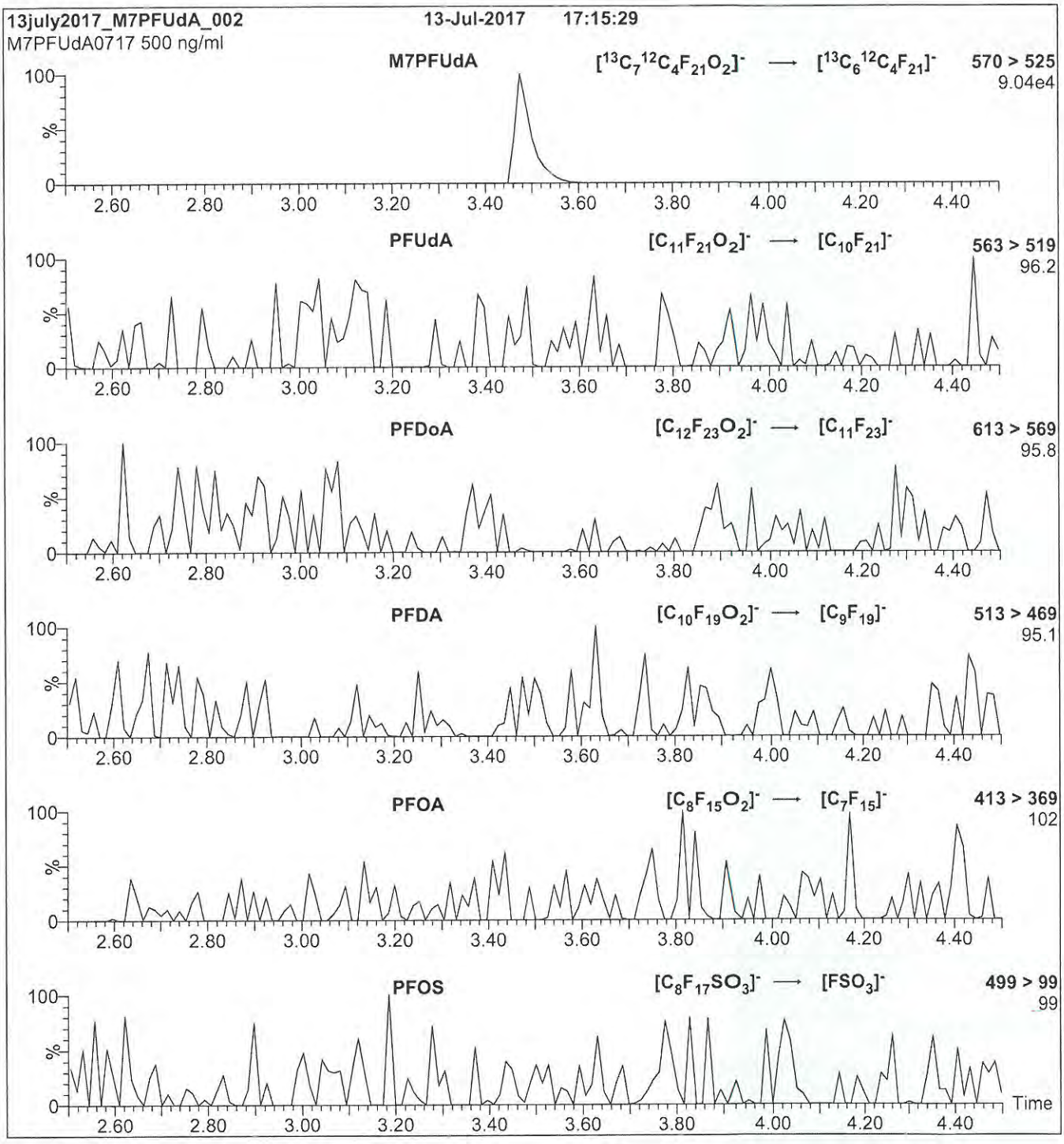
MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 65
Desolvation Gas Flow (l/hr) = 750

18F2232

Figure 2: **M7PFUdA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M7PFUdA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 11

18F2233

WELLINGTON LABORATORIES

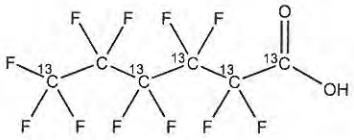
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M5PFHxA
COMPOUND: Perfluoro-n-[1,2,3,4,6-$^{13}C_5$]hexanoic acid

LOT NUMBER: M5PFHxA1017

STRUCTURE:

CAS #: Not available



MOLECULAR FORMULA:	$^{13}C_5{}^{12}C_1HF_{11}O_2$	**MOLECULAR WEIGHT:**	319.02
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (1,2,3,4,6-$^{13}C_5$)
LAST TESTED: (mm/dd/yyyy)	10/17/2017		
EXPIRY DATE: (mm/dd/yyyy)	10/17/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 10/18/2017 (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

18F2233

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CALA

ANAB ACCREDITED

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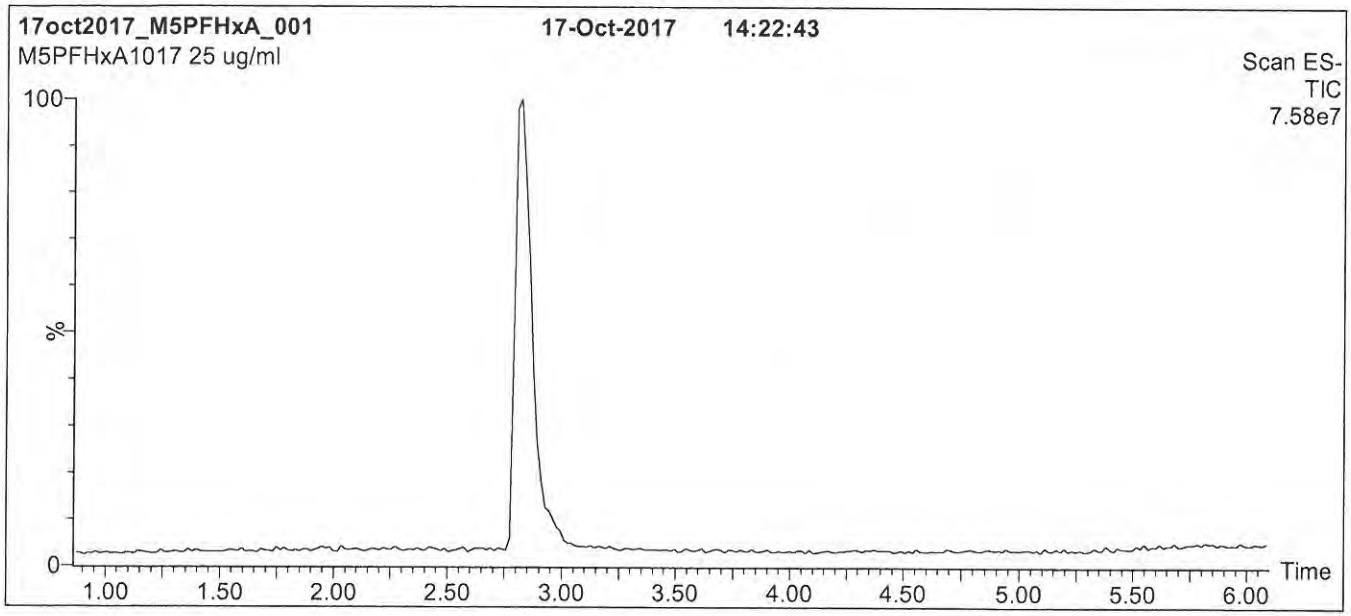
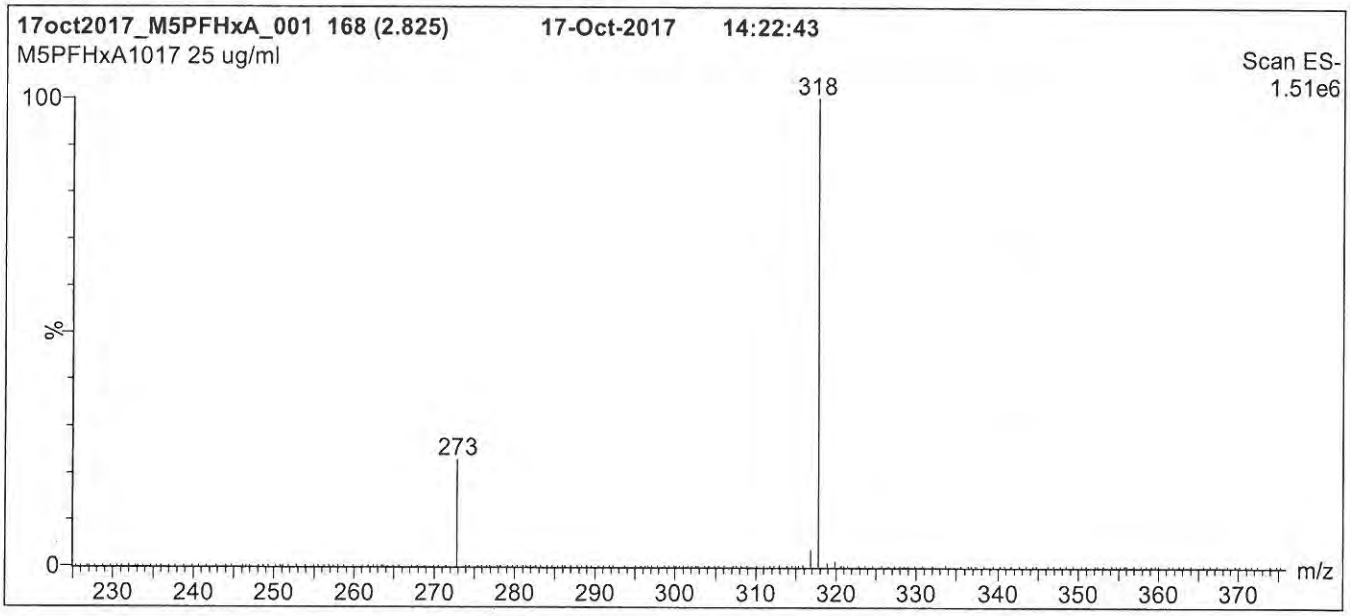
18F2233

Figure 1: **M5PFHxA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

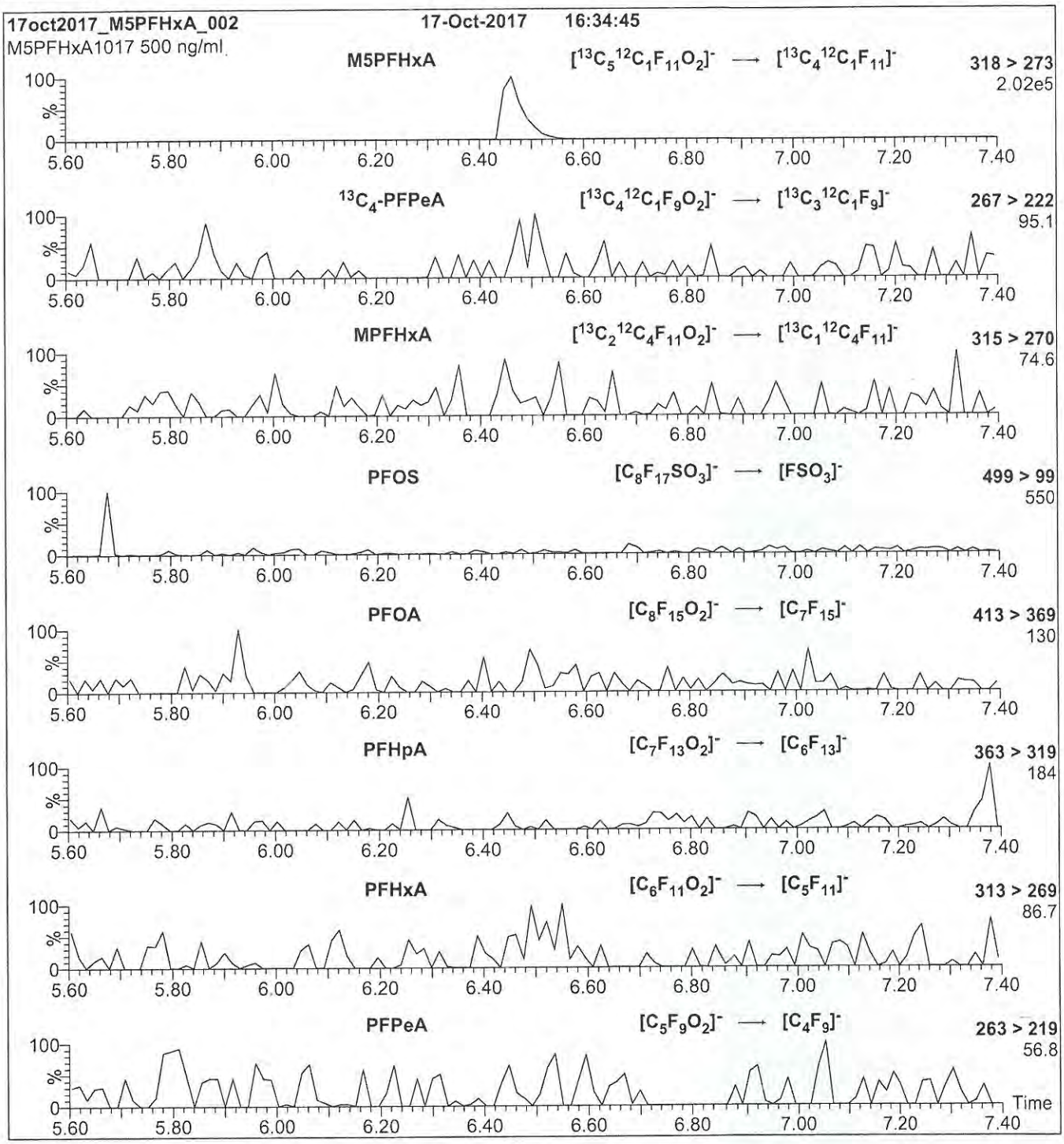
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

18F2233

Figure 2: **M5PFHxA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M5PFHxA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 9

18F2234

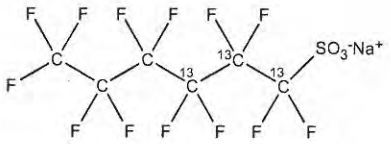
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M3PFHxS **LOT NUMBER:** M3PFHxS0717

COMPOUND: Sodium perfluoro-1-[1,2,3-$^{13}C_3$]hexanesulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}C_3F_{13}SO_3Na$	**MOLECULAR WEIGHT:**	425.07
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.3 ± 2.4 µg/ml (M3PFHxS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3\text{-}^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	07/05/2017		
EXPIRY DATE: (mm/dd/yyyy)	07/05/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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:** 07/14/2017 (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

18F2234

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.

HAZARDS:

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:

Where possible, all of our products are synthesized using single-product unambiguous routes. 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.

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All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using calibrated NIST and/or NRC traceable external weights. All volumetric glassware used is calibrated, of Class A tolerance, and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. 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:

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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; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).

CALA Testing

ANAB ACCREDITED

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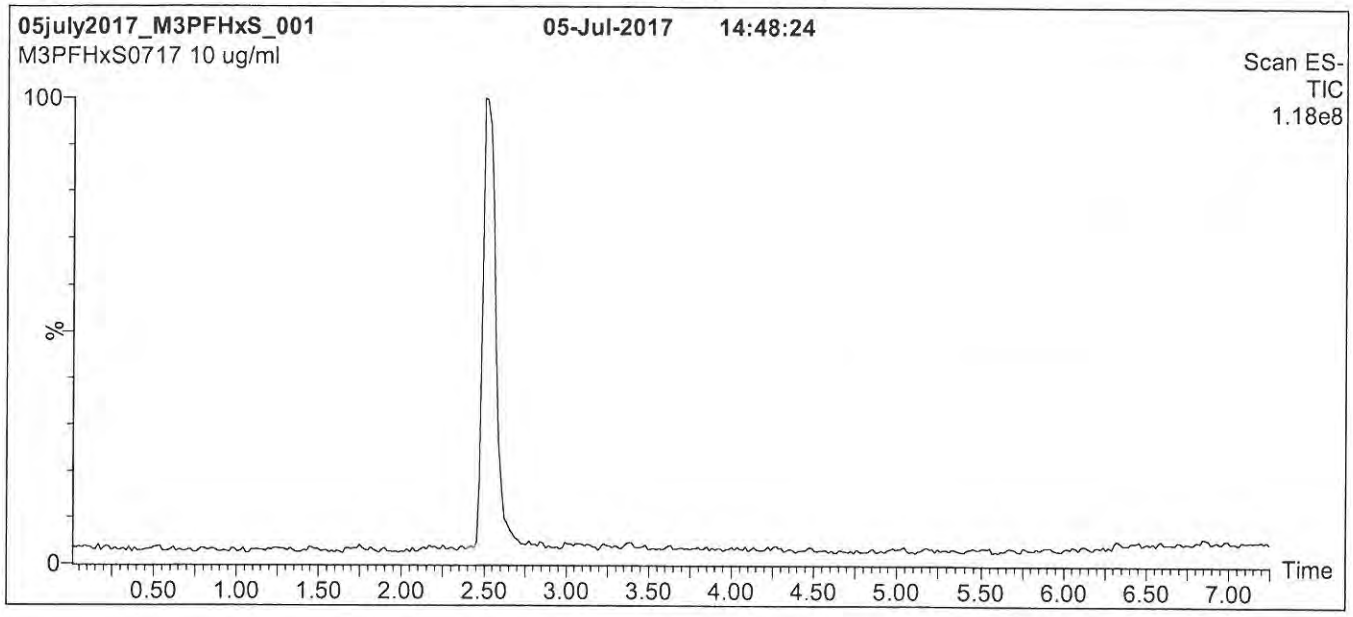
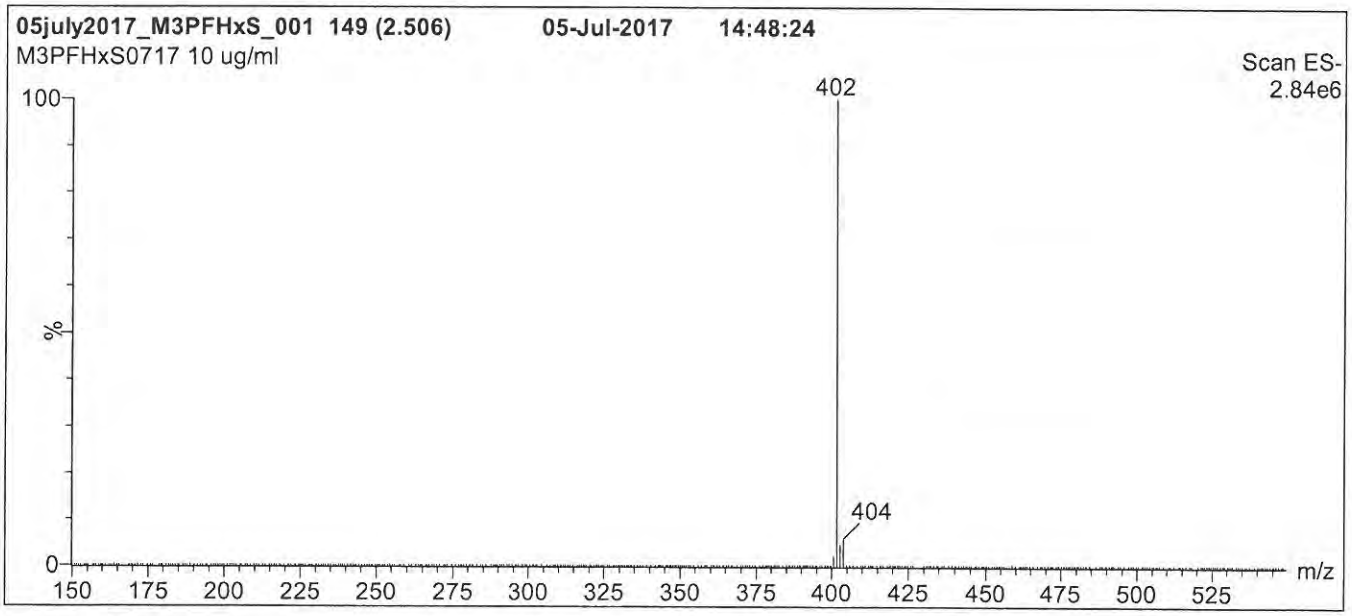
18F2234

Figure 1: **M3PFHxS; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for
1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

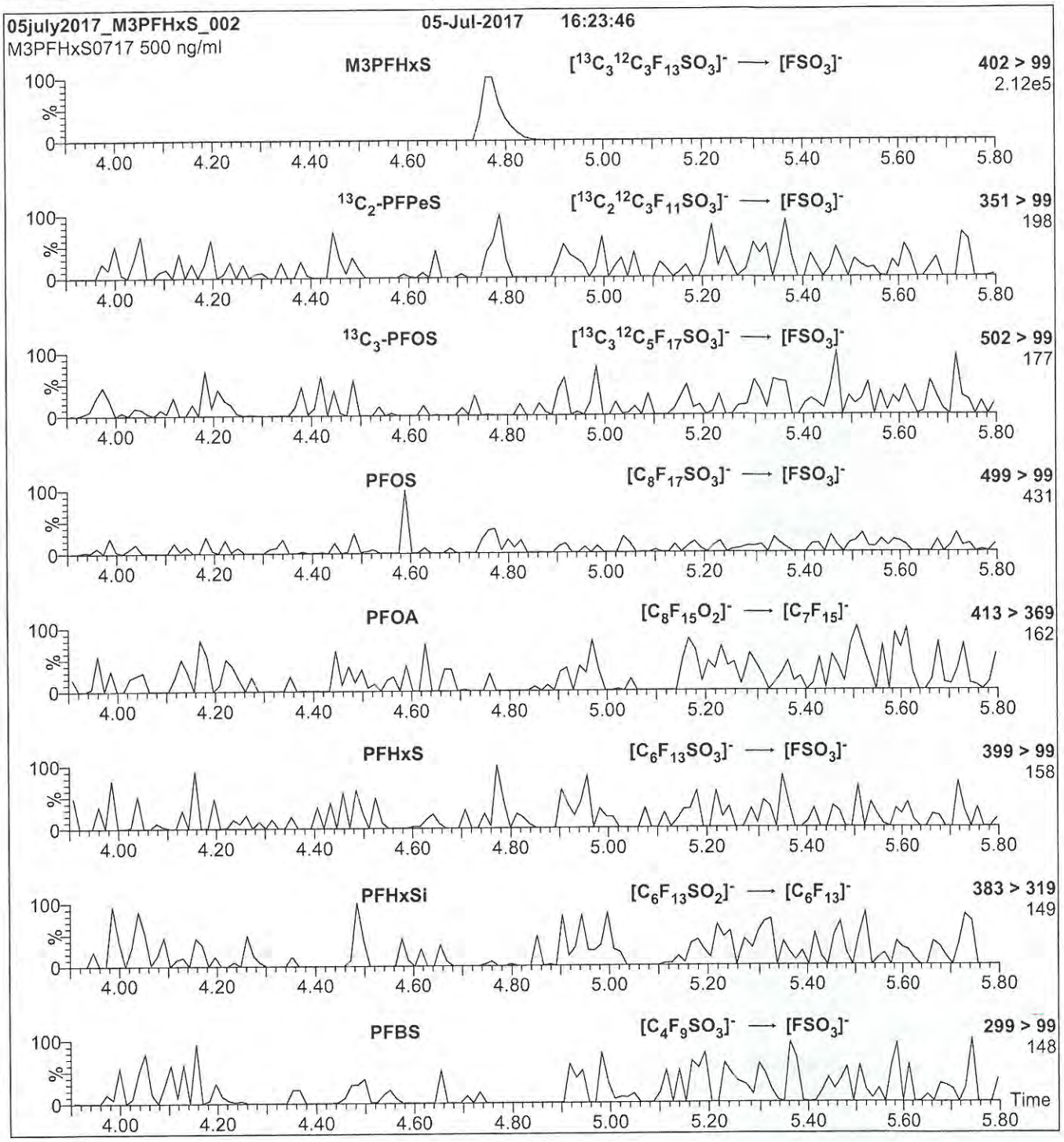
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 50.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

18F2234

Figure 2: **M3PFHxS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M3PFHxS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 30

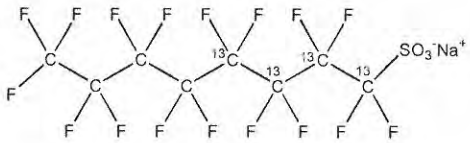
18F2235

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFOS
LOT NUMBER: MPFOS0218
COMPOUND: Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate

STRUCTURE:
CAS #: Not available



MOLECULAR FORMULA:	$^{13}C_4{}^{12}C_4F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	526.08
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.8 ± 2.4 µg/ml (MPFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C ($1,2,3,4\text{-}^{13}C_4$)
LAST TESTED: (mm/dd/yyyy)	02/15/2018		
EXPIRY DATE: (mm/dd/yyyy)	02/15/2023		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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 ~ 0.6% Sodium perfluoro-1-[1,2,3-$^{13}C_3$]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 02/20/2018 (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

18F2235

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.

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

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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:

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QUALITY MANAGEMENT:

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CALA

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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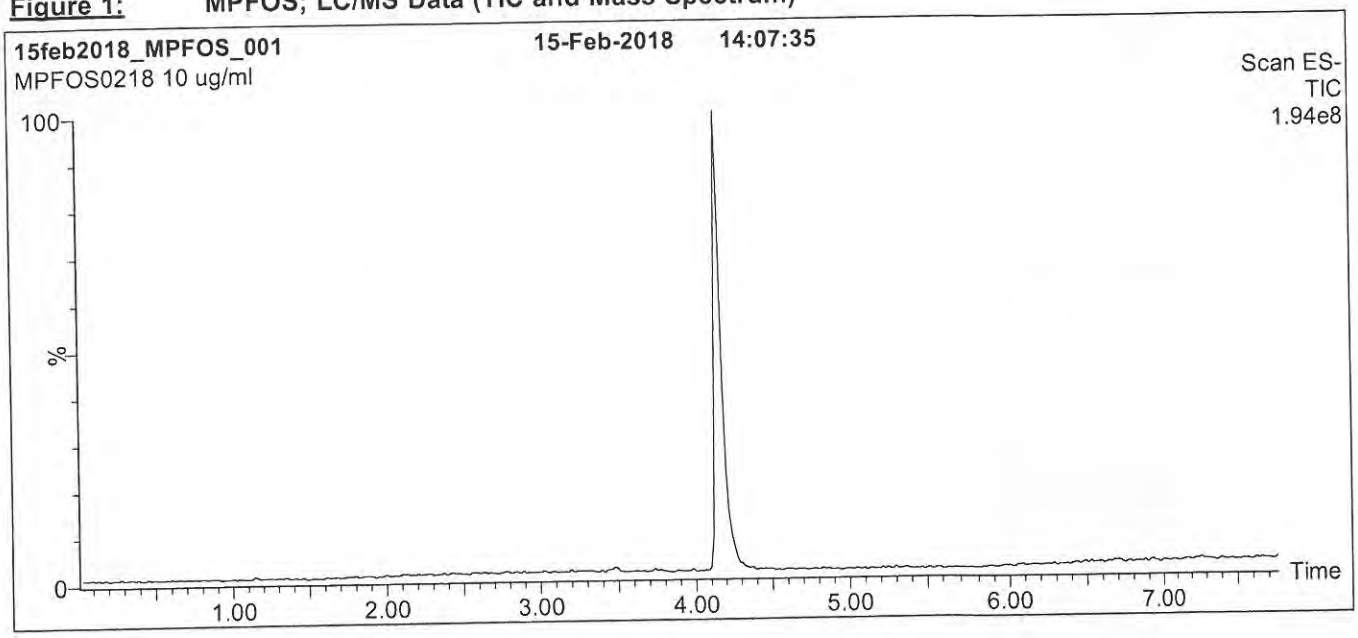
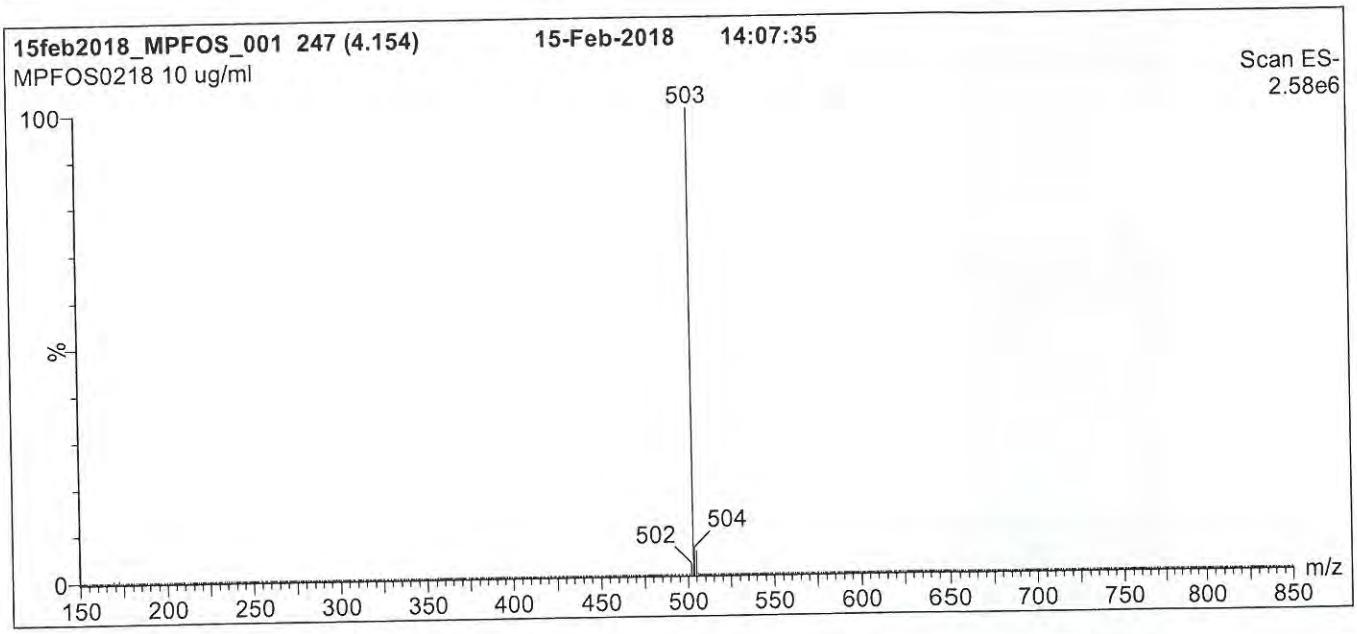
18F2235

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





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H_2O
(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 0.5 min.
Time: 10 min

Flow: 300 µl/min

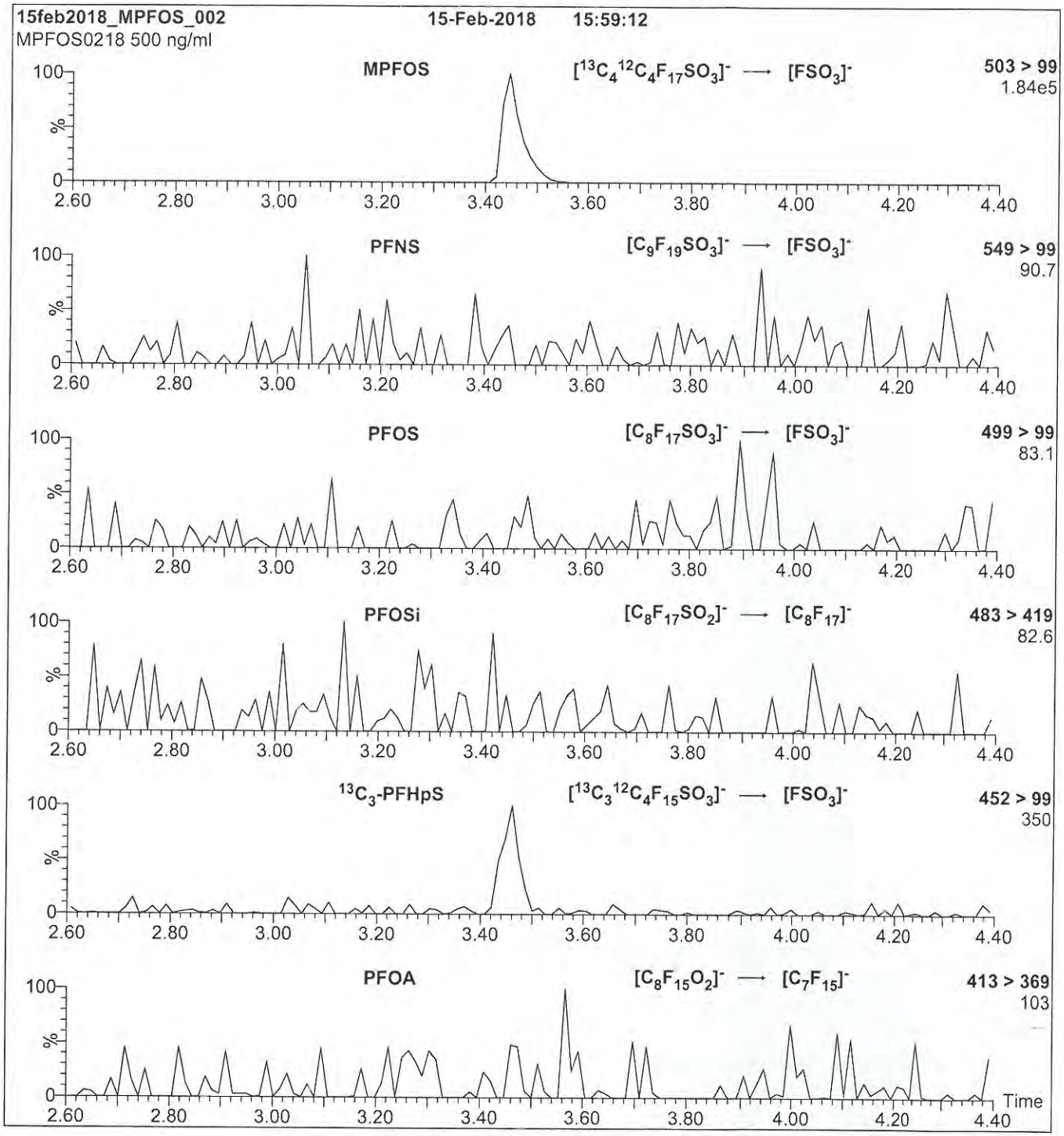
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 60.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18F2235

Figure 2: **MPFOS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFOS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

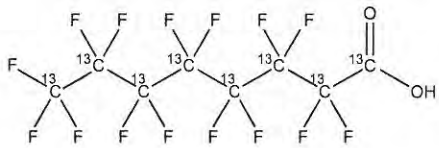
Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 40

18F2236

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M8PFOA	**LOT NUMBER:**	M8PFOA0717
COMPOUND:	Perfluoro-n-[$^{13}C_8$]octanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_8HF_{15}O_2$	**MOLECULAR WEIGHT:**	422.01
CONCENTRATION:	49 ± 2.45 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	97.9% (M8PFOA) 2.1% (MPFOA [M+4])	**ISOTOPIC PURITY:**	≥99% ^{13}C ($^{13}C_8$)
LAST TESTED: (mm/dd/yyyy)	07/05/2017		
EXPIRY DATE: (mm/dd/yyyy)	07/05/2022		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

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 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains < 0.1% of native perfluoro-n-octanoic acid (PFOA) and ~ 2.1% of [M+4] perfluoro-n-octanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 07/14/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
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18F2236

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CALA Testing

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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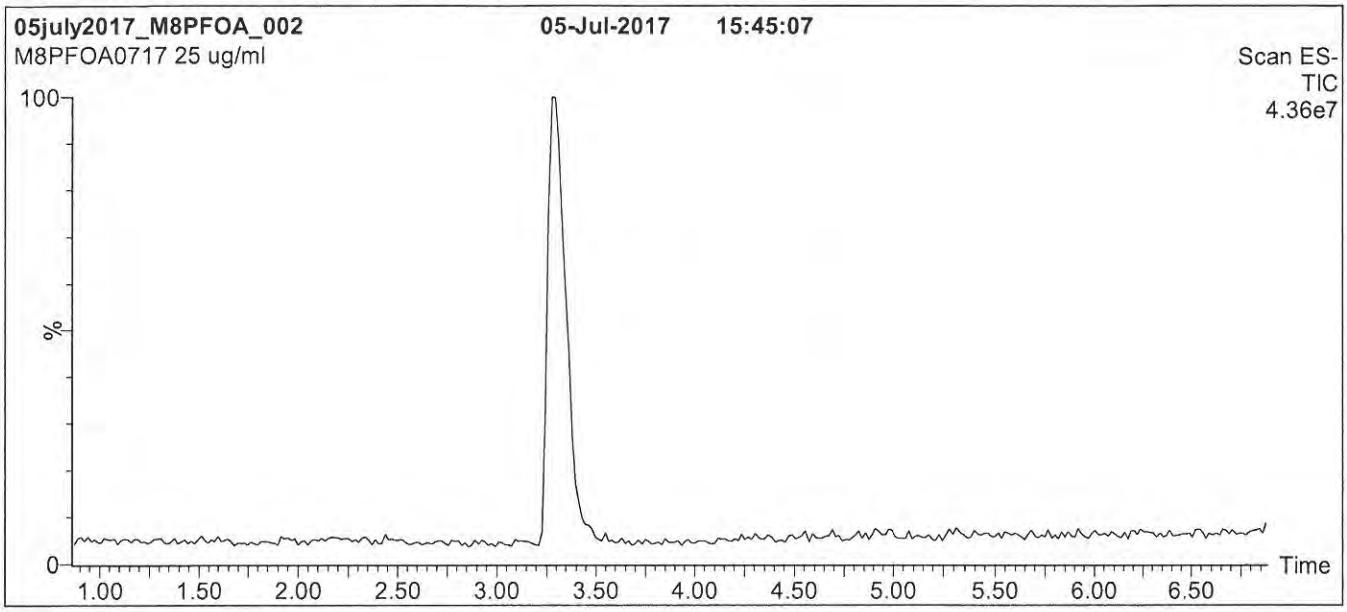
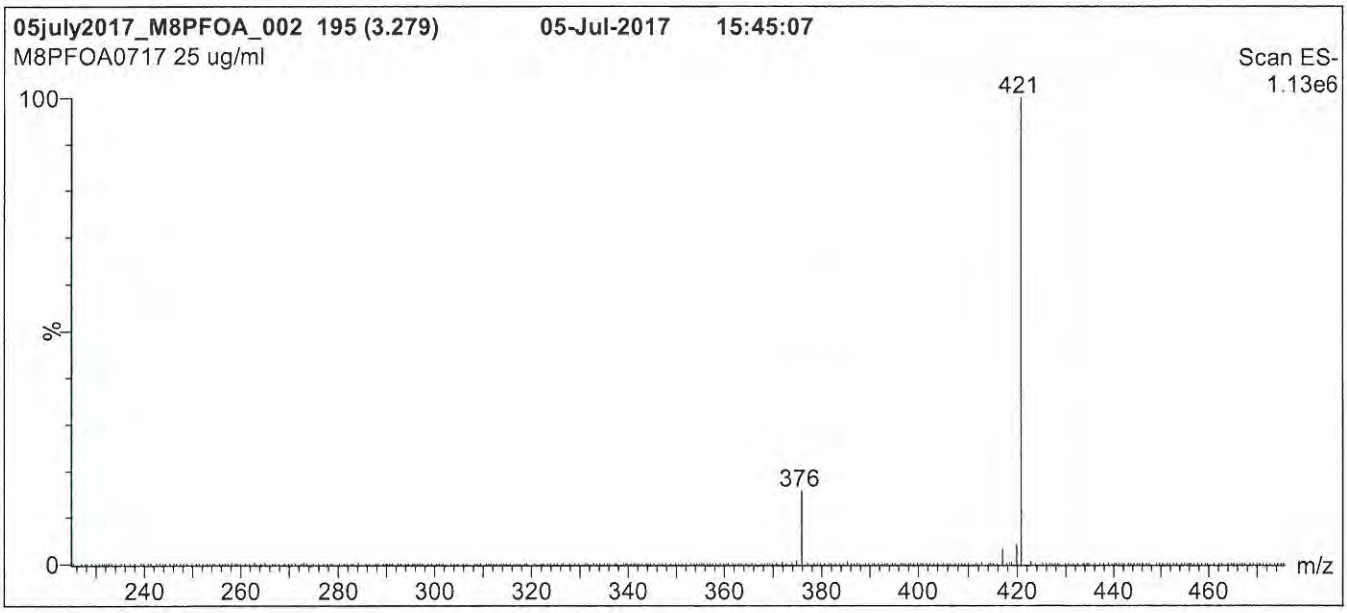
18F2236

Figure 1: **M8PFOA; LC/MS Data (TIC and Mass Spectrum)**





Conditions for Figure 1:

LC: **Waters Acquity Ultra Performance LC**
MS: **Micromass Quattro *micro* API MS**

Chromatographic Conditions

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

Mobile phase: Gradient
Start: 55% (80:20 MeOH:ACN) / 45% H_2O
(both with 10 mM NH_4OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

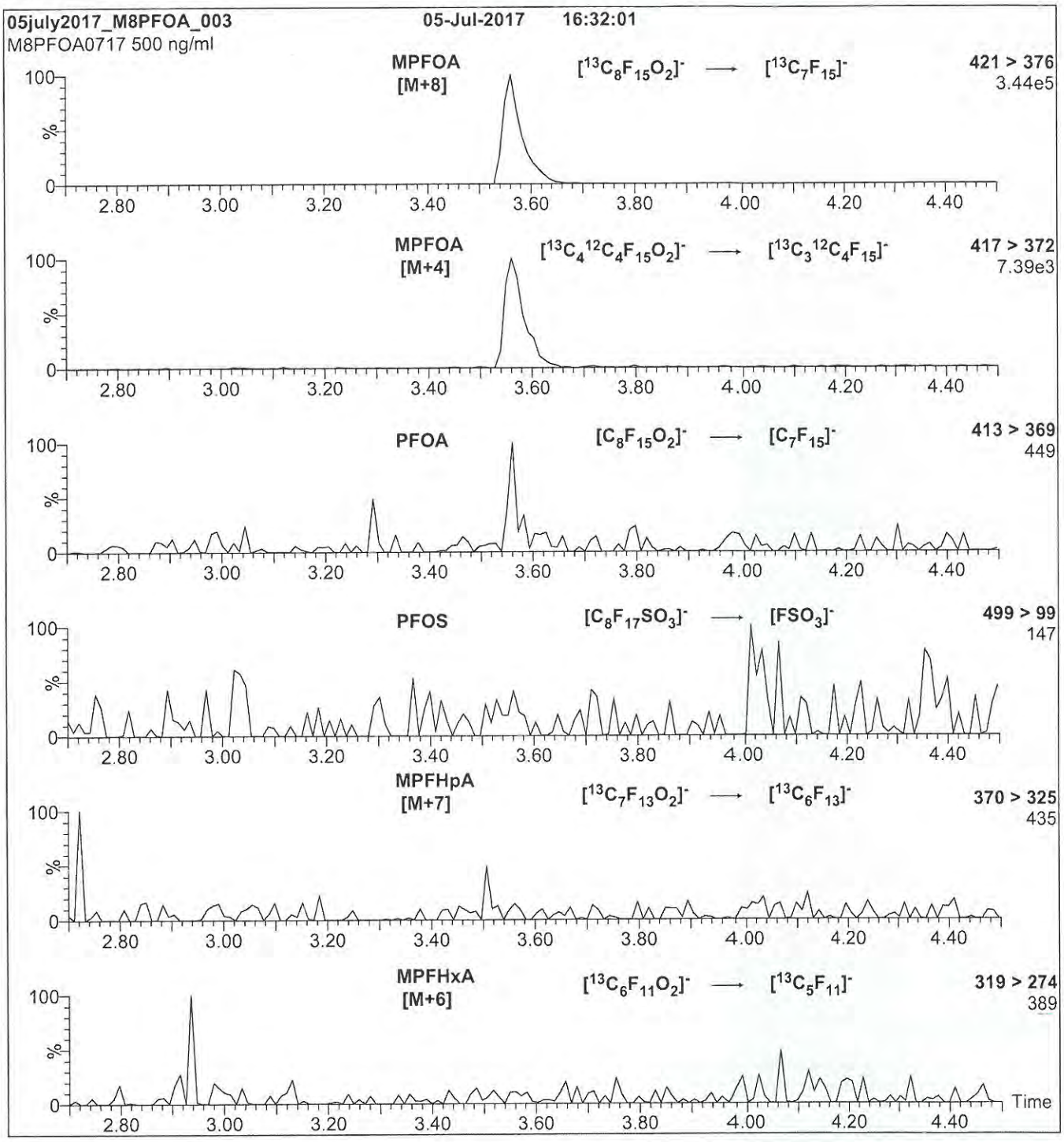
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

18F2236

Figure 2: **M8PFOA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml M8PFOA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 10

"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","375-73-
5","PFBS","1.34","ug/L","","0.00424","CRDL","","TRG","","","0.00848","CRDL","YES","0.00290"
"16-HS-03-SA2","537 MOD","DL","1803626-01","Vista","307-24-
4","PFHxA","10.3","ug/L","D","0.0212","CRDL","","TRG","","","0.0424","CRDL","YES","0.0145"
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","375-85-
9","PFHpA","0.405","ug/L","","0.00424","CRDL","","TRG","","","0.00848","CRDL","YES","0.00290"
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","355-46-
4","PFHxS","0.324","ug/L","","0.00424","CRDL","","TRG","","","0.00848","CRDL","YES","0.00290"
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","335-67-
1","PFOA","0.0206","ug/L","","0.00424","CRDL","","TRG","","","0.00848","CRDL","YES","0.00290"
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","375-95-
1","PFNA","0.00424","ug/L","U","0.00424","CRDL","","TRG","","","0.00848","CRDL","YES","0.00290"
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","1763-23-
1","PFOS","0.00424","ug/L","U","0.00424","CRDL","","TRG","","","0.00848","CRDL","YES","0.00290"
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","335-76-
2","PFDA","0.00424","ug/L","U","0.00424","CRDL","","TRG","","","0.00848","CRDL","YES","0.00290"
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","2355-31-
9","NMeFOSAA","0.00424","ug/L","U","0.00424","CRDL","","TRG","","","0.00848","CRDL","YES","0.00290"
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","2991-50-
6","NEtFOSAA","0.00424","ug/L","U","0.00424","CRDL","","TRG","","","0.00848","CRDL","YES","0.00290"
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","2058-94-
8","PFUnA","0.00424","ug/L","U","0.00424","CRDL","","TRG","","","0.00848","CRDL","YES","0.00290"
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","307-55-
1","PFDoA","0.00424","ug/L","U","0.00424","CRDL","","TRG","","","0.00848","CRDL","YES","0.00290"
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","72629-94-
8","PFTrDA","0.00424","ug/L","U","0.00424","CRDL","","TRG","","","0.00848","CRDL","YES","0.00290"
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","376-06-
7","PFTeDA","0.00424","ug/L","U","0.00424","CRDL","","TRG","","","0.00848","CRDL","YES","0.00290"
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","13C3-PFBS","13C3-
PFBS","86.1","%R","","","CRDL","","IS","86.1","","","CRDL","",""
"16-HS-03-SA2","537 MOD","DL","1803626-01","Vista","13C2-PFHxA","13C2-
PFHxA","108","%R","D","","CRDL","","IS","108","","","CRDL","",""
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","13C4-PFHpA","13C4-
PFHpA","135","%R","","","CRDL","","IS","135","","","CRDL","",""
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","18O2-PFHxS","18O2-
PFHxS","92.3","%R","","","CRDL","","IS","92.3","","","CRDL","",""
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","13C2-PFOA","13C2-
PFOA","86.8","%R","","","CRDL","","IS","86.8","","","CRDL","",""
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","13C5-PFNA","13C5-
PFNA","82.7","%R","","","CRDL","","IS","82.7","","","CRDL","",""
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","13C8-PFOS","13C8-
PFOS","93.7","%R","","","CRDL","","IS","93.7","","","CRDL","",""
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","13C2-PFDA","13C2-
PFDA","75.0","%R","","","CRDL","","IS","75.0","","","CRDL","",""
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","d3-MeFOSAA","d3-
MeFOSAA","94.5","%R","","","CRDL","","IS","94.5","","","CRDL","",""
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","d5-EtFOSAA","d5-
EtFOSAA","96.3","%R","","","CRDL","","IS","96.3","","","CRDL","",""
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","13C2-PFUnA","13C2-
PFUnA","72.7","%R","","","CRDL","","IS","72.7","","","CRDL","",""
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","13C2-PFDoA","13C2-
PFDoA","75.2","%R","","","CRDL","","IS","75.2","","","CRDL","",""
"16-HS-03-SA2","537 MOD","RES","1803626-01","Vista","13C2-PFTeDA","13C2-

PFTeDA","77.0","%R","","","CRDL","","IS","77.0","","","CRDL","",""
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","375-73-
5","PFBS","0.0432","ug/L","","0.00417","CRDL","","TRG","","","0.00835","CRDL","YES","0.00286"
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","307-24-
4","PFHxA","0.0962","ug/L","","0.00417","CRDL","","TRG","","","0.00835","CRDL","YES","0.00286"
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","375-85-
9","PFHpA","0.0780","ug/L","","0.00417","CRDL","","TRG","","","0.00835","CRDL","YES","0.00286"
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","355-46-
4","PFHxS","0.404","ug/L","","0.00417","CRDL","","TRG","","","0.00835","CRDL","YES","0.00286"
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","335-67-
1","PFOA","0.153","ug/L","","0.00417","CRDL","","TRG","","","0.00835","CRDL","YES","0.00286"
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","375-95-
1","PFNA","0.00417","ug/L","U","0.00417","CRDL","","TRG","","","0.00835","CRDL","YES","0.00286"
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","1763-23-
1","PFOS","0.00582","ug/L","J","0.00417","CRDL","","TRG","","","0.00835","CRDL","YES","0.00286"
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","335-76-
2","PFDA","0.00417","ug/L","U","0.00417","CRDL","","TRG","","","0.00835","CRDL","YES","0.00286"
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","2355-31-
9","NMeFOSAA","0.00417","ug/L","U","0.00417","CRDL","","TRG","","","0.00835","CRDL","YES","0.00286"
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","2991-50-
6","NEtFOSAA","0.00417","ug/L","U","0.00417","CRDL","","TRG","","","0.00835","CRDL","YES","0.00286"
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","2058-94-
8","PFUnA","0.00417","ug/L","U","0.00417","CRDL","","TRG","","","0.00835","CRDL","YES","0.00286"
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","307-55-
1","PFDoA","0.00417","ug/L","U","0.00417","CRDL","","TRG","","","0.00835","CRDL","YES","0.00286"
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","72629-94-
8","PFTrDA","0.00417","ug/L","U","0.00417","CRDL","","TRG","","","0.00835","CRDL","YES","0.00286"
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","376-06-
7","PFTeDA","0.00417","ug/L","U","0.00417","CRDL","","TRG","","","0.00835","CRDL","YES","0.00286"
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","13C3-PFBS","13C3-
PFBS","96.9","%R","","","CRDL","","IS","96.9","","","CRDL","",""
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","13C2-PFHxA","13C2-
PFHxA","88.4","%R","","","CRDL","","IS","88.4","","","CRDL","",""
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","13C4-PFHpA","13C4-
PFHpA","84.3","%R","","","CRDL","","IS","84.3","","","CRDL","",""
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","18O2-PFHxS","18O2-
PFHxS","103","%R","","","CRDL","","IS","103","","","CRDL","",""
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","13C2-PFOA","13C2-
PFOA","90.3","%R","","","CRDL","","IS","90.3","","","CRDL","",""
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","13C5-PFNA","13C5-
PFNA","81.1","%R","","","CRDL","","IS","81.1","","","CRDL","",""
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","13C8-PFOS","13C8-
PFOS","86.1","%R","","","CRDL","","IS","86.1","","","CRDL","",""
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","13C2-PFDA","13C2-
PFDA","73.2","%R","","","CRDL","","IS","73.2","","","CRDL","",""
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","d3-MeFOSAA","d3-
MeFOSAA","78.0","%R","","","CRDL","","IS","78.0","","","CRDL","",""
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","d5-EtFOSAA","d5-
EtFOSAA","88.9","%R","","","CRDL","","IS","88.9","","","CRDL","",""
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","13C2-PFUnA","13C2-
PFUnA","69.0","%R","","","CRDL","","IS","69.0","","","CRDL","",""
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","13C2-PFDoA","13C2-
PFDoA","66.4","%R","","","CRDL","","IS","66.4","","","CRDL","",""
"16-MW-06-SA2","537 MOD","RES","1803626-02","Vista","13C2-PFTeDA","13C2-

PFTeDA","75.9","%R","","","CRDL","","IS","75.9","","","CRDL","",""
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","375-73-
5","PFBS","0.109","ug/L","","0.00417","CRDL","","TRG","","","0.00836","CRDL","YES","0.00286"
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","307-24-
4","PFHxA","0.314","ug/L","","0.00417","CRDL","","TRG","","","0.00836","CRDL","YES","0.00286"
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","375-85-
9","PFHpA","0.0651","ug/L","","0.00417","CRDL","","TRG","","","0.00836","CRDL","YES","0.00286"
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","355-46-
4","PFHxS","0.261","ug/L","","0.00417","CRDL","","TRG","","","0.00836","CRDL","YES","0.00286"
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","335-67-
1","PFOA","0.0562","ug/L","","0.00417","CRDL","","TRG","","","0.00836","CRDL","YES","0.00286"
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","375-95-
1","PFNA","0.00417","ug/L","U","0.00417","CRDL","","TRG","","","0.00836","CRDL","YES","0.00286"
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","1763-23-
1","PFOS","0.0358","ug/L","","0.00417","CRDL","","TRG","","","0.00836","CRDL","YES","0.00286"
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","335-76-
2","PFDA","0.00417","ug/L","U","0.00417","CRDL","","TRG","","","0.00836","CRDL","YES","0.00286"
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","2355-31-
9","NMeFOSAA","0.00417","ug/L","U","0.00417","CRDL","","TRG","","","0.00836","CRDL","YES","0.00286"
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","2991-50-
6","NEtFOSAA","0.00417","ug/L","U","0.00417","CRDL","","TRG","","","0.00836","CRDL","YES","0.00286"
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","2058-94-
8","PFUnA","0.00417","ug/L","U","0.00417","CRDL","","TRG","","","0.00836","CRDL","YES","0.00286"
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","307-55-
1","PFDoA","0.00417","ug/L","U","0.00417","CRDL","","TRG","","","0.00836","CRDL","YES","0.00286"
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","72629-94-
8","PFTrDA","0.00417","ug/L","U","0.00417","CRDL","","TRG","","","0.00836","CRDL","YES","0.00286"
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","376-06-
7","PFTeDA","0.00417","ug/L","U","0.00417","CRDL","","TRG","","","0.00836","CRDL","YES","0.00286"
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","13C3-PFBS","13C3-
PFBS","98.2","%R","","","CRDL","","IS","98.2","","","CRDL","",""
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","13C2-PFHxA","13C2-
PFHxA","93.1","%R","","","CRDL","","IS","93.1","","","CRDL","",""
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","13C4-PFHpA","13C4-
PFHpA","97.3","%R","","","CRDL","","IS","97.3","","","CRDL","",""
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","18O2-PFHxS","18O2-
PFHxS","96.5","%R","","","CRDL","","IS","96.5","","","CRDL","",""
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","13C2-PFOA","13C2-
PFOA","83.6","%R","","","CRDL","","IS","83.6","","","CRDL","",""
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","13C5-PFNA","13C5-
PFNA","80.4","%R","","","CRDL","","IS","80.4","","","CRDL","",""
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","13C8-PFOS","13C8-
PFOS","100","%R","","","CRDL","","IS","100","","","CRDL","",""
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","13C2-PFDA","13C2-
PFDA","76.2","%R","","","CRDL","","IS","76.2","","","CRDL","",""
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","d3-MeFOSAA","d3-
MeFOSAA","81.4","%R","","","CRDL","","IS","81.4","","","CRDL","",""
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","d5-EtFOSAA","d5-
EtFOSAA","89.8","%R","","","CRDL","","IS","89.8","","","CRDL","",""
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","13C2-PFUnA","13C2-
PFUnA","73.9","%R","","","CRDL","","IS","73.9","","","CRDL","",""
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","13C2-PFDoA","13C2-
PFDoA","70.3","%R","","","CRDL","","IS","70.3","","","CRDL","",""
"16-MW-08-SA2","537 MOD","RES","1803626-03","Vista","13C2-PFTeDA","13C2-

PFTeDA","72.9","%R","","","CRDL","","IS","72.9","","","CRDL","",""
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","375-73-
5","PFBS","0.0818","ug/L","","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","307-24-
4","PFHxA","0.139","ug/L","","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","375-85-
9","PFHpA","0.0107","ug/L","","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","355-46-
4","PFHxS","0.0143","ug/L","","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","335-67-
1","PFOA","0.00449","ug/L","J","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","375-95-
1","PFNA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","1763-23-
1","PFOS","0.00503","ug/L","J","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","335-76-
2","PFDA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","2355-31-
9","NMeFOSAA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","2991-50-
6","NEtFOSAA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","2058-94-
8","PFUnA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","307-55-
1","PFDoA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","72629-94-
8","PFTrDA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","376-06-
7","PFTeDA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","13C3-PFBS","13C3-
PFBS","97.5","%R","","","CRDL","","IS","97.5","","","CRDL","",""
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","13C2-PFHxA","13C2-
PFHxA","97.1","%R","","","CRDL","","IS","97.1","","","CRDL","",""
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","13C4-PFHpA","13C4-
PFHpA","101","%R","","","CRDL","","IS","101","","","CRDL","",""
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","18O2-PFHxS","18O2-
PFHxS","92.1","%R","","","CRDL","","IS","92.1","","","CRDL","",""
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","13C2-PFOA","13C2-
PFOA","88.2","%R","","","CRDL","","IS","88.2","","","CRDL","",""
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","13C5-PFNA","13C5-
PFNA","82.7","%R","","","CRDL","","IS","82.7","","","CRDL","",""
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","13C8-PFOS","13C8-
PFOS","94.5","%R","","","CRDL","","IS","94.5","","","CRDL","",""
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","13C2-PFDA","13C2-
PFDA","85.9","%R","","","CRDL","","IS","85.9","","","CRDL","",""
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","d3-MeFOSAA","d3-
MeFOSAA","86.8","%R","","","CRDL","","IS","86.8","","","CRDL","",""
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","d5-EtFOSAA","d5-
EtFOSAA","94.8","%R","","","CRDL","","IS","94.8","","","CRDL","",""
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","13C2-PFUnA","13C2-
PFUnA","70.4","%R","","","CRDL","","IS","70.4","","","CRDL","",""
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","13C2-PFDoA","13C2-
PFDoA","78.1","%R","","","CRDL","","IS","78.1","","","CRDL","",""
"16-MW-09-SA2","537 MOD","RES","1803626-04","Vista","13C2-PFTeDA","13C2-

PFTeDA","75.2","%R","","","CRDL","","IS","75.2","","","CRDL","",""
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","375-73-
5","PFBS","0.0284","ug/L","","0.00427","CRDL","","TRG","","","0.00856","CRDL","YES","0.00293"
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","307-24-
4","PFHxA","0.0586","ug/L","","0.00427","CRDL","","TRG","","","0.00856","CRDL","YES","0.00293"
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","375-85-
9","PFHpA","0.0108","ug/L","","0.00427","CRDL","","TRG","","","0.00856","CRDL","YES","0.00293"
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","355-46-
4","PFHxS","0.0433","ug/L","","0.00427","CRDL","","TRG","","","0.00856","CRDL","YES","0.00293"
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","335-67-
1","PFOA","0.00309","ug/L","J","0.00427","CRDL","","TRG","","","0.00856","CRDL","YES","0.00293"
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","375-95-
1","PFNA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00856","CRDL","YES","0.00293"
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","1763-23-
1","PFOS","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00856","CRDL","YES","0.00293"
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","335-76-
2","PFDA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00856","CRDL","YES","0.00293"
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","2355-31-
9","NMeFOSAA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00856","CRDL","YES","0.00293"
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","2991-50-
6","NEtFOSAA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00856","CRDL","YES","0.00293"
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","2058-94-
8","PFUnA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00856","CRDL","YES","0.00293"
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","307-55-
1","PFDoA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00856","CRDL","YES","0.00293"
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","72629-94-
8","PFTrDA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00856","CRDL","YES","0.00293"
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","376-06-
7","PFTeDA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00856","CRDL","YES","0.00293"
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","13C3-PFBS","13C3-
PFBS","97.9","%R","","","CRDL","","IS","97.9","","","CRDL","",""
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","13C2-PFHxA","13C2-
PFHxA","90.8","%R","","","CRDL","","IS","90.8","","","CRDL","",""
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","13C4-PFHpA","13C4-
PFHpA","92.3","%R","","","CRDL","","IS","92.3","","","CRDL","",""
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","18O2-PFHxS","18O2-
PFHxS","96.4","%R","","","CRDL","","IS","96.4","","","CRDL","",""
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","13C2-PFOA","13C2-
PFOA","84.4","%R","","","CRDL","","IS","84.4","","","CRDL","",""
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","13C5-PFNA","13C5-
PFNA","78.9","%R","","","CRDL","","IS","78.9","","","CRDL","",""
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","13C8-PFOS","13C8-
PFOS","85.1","%R","","","CRDL","","IS","85.1","","","CRDL","",""
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","13C2-PFDA","13C2-
PFDA","74.5","%R","","","CRDL","","IS","74.5","","","CRDL","",""
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","d3-MeFOSAA","d3-
MeFOSAA","84.0","%R","","","CRDL","","IS","84.0","","","CRDL","",""
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","d5-EtFOSAA","d5-
EtFOSAA","87.5","%R","","","CRDL","","IS","87.5","","","CRDL","",""
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","13C2-PFUnA","13C2-
PFUnA","68.7","%R","","","CRDL","","IS","68.7","","","CRDL","",""
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","13C2-PFDoA","13C2-
PFDoA","75.9","%R","","","CRDL","","IS","75.9","","","CRDL","",""
"A1-MW-18-SA2","537 MOD","RES","1803626-05","Vista","13C2-PFTeDA","13C2-

PFTeDA","69.6","%R","","","CRDL","","IS","69.6","","","CRDL","",""
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","375-73-
5","PFBS","0.0311","ug/L","","0.00431","CRDL","","TRG","","","0.00861","CRDL","YES","0.00295"
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","307-24-
4","PFHxA","0.0605","ug/L","","0.00431","CRDL","","TRG","","","0.00861","CRDL","YES","0.00295"
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","375-85-
9","PFHpA","0.0161","ug/L","","0.00431","CRDL","","TRG","","","0.00861","CRDL","YES","0.00295"
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","355-46-
4","PFHxS","0.0934","ug/L","","0.00431","CRDL","","TRG","","","0.00861","CRDL","YES","0.00295"
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","335-67-
1","PFOA","0.0358","ug/L","","0.00431","CRDL","","TRG","","","0.00861","CRDL","YES","0.00295"
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","375-95-
1","PFNA","0.00398","ug/L","J","0.00431","CRDL","","TRG","","","0.00861","CRDL","YES","0.00295"
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","1763-23-
1","PFOS","0.0580","ug/L","","0.00431","CRDL","","TRG","","","0.00861","CRDL","YES","0.00295"
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","335-76-
2","PFDA","0.00721","ug/L","J","0.00431","CRDL","","TRG","","","0.00861","CRDL","YES","0.00295"
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","2355-31-
9","NMeFOSAA","0.00431","ug/L","U","0.00431","CRDL","","TRG","","","0.00861","CRDL","YES","0.00295"
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","2991-50-
6","NEtFOSAA","0.00431","ug/L","U","0.00431","CRDL","","TRG","","","0.00861","CRDL","YES","0.00295"
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","2058-94-
8","PFUnA","0.00431","ug/L","U","0.00431","CRDL","","TRG","","","0.00861","CRDL","YES","0.00295"
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","307-55-
1","PFDoA","0.00431","ug/L","U","0.00431","CRDL","","TRG","","","0.00861","CRDL","YES","0.00295"
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","72629-94-
8","PFTrDA","0.00431","ug/L","U","0.00431","CRDL","","TRG","","","0.00861","CRDL","YES","0.00295"
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","376-06-
7","PFTeDA","0.00431","ug/L","U","0.00431","CRDL","","TRG","","","0.00861","CRDL","YES","0.00295"
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","13C3-PFBS","13C3-
PFBS","104","%R","","","CRDL","","IS","104","","","CRDL","",""
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","13C2-PFHxA","13C2-
PFHxA","101","%R","","","CRDL","","IS","101","","","CRDL","",""
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","13C4-PFHpA","13C4-
PFHpA","96.5","%R","","","CRDL","","IS","96.5","","","CRDL","",""
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","18O2-PFHxS","18O2-
PFHxS","95.6","%R","","","CRDL","","IS","95.6","","","CRDL","",""
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","13C2-PFOA","13C2-
PFOA","95.5","%R","","","CRDL","","IS","95.5","","","CRDL","",""
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","13C5-PFNA","13C5-
PFNA","86.7","%R","","","CRDL","","IS","86.7","","","CRDL","",""
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","13C8-PFOS","13C8-
PFOS","97.8","%R","","","CRDL","","IS","97.8","","","CRDL","",""
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","13C2-PFDA","13C2-
PFDA","77.3","%R","","","CRDL","","IS","77.3","","","CRDL","",""
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","d3-MeFOSAA","d3-
MeFOSAA","91.4","%R","","","CRDL","","IS","91.4","","","CRDL","",""
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","d5-EtFOSAA","d5-
EtFOSAA","95.7","%R","","","CRDL","","IS","95.7","","","CRDL","",""
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","13C2-PFUnA","13C2-
PFUnA","74.2","%R","","","CRDL","","IS","74.2","","","CRDL","",""
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","13C2-PFDoA","13C2-
PFDoA","74.2","%R","","","CRDL","","IS","74.2","","","CRDL","",""
"A1-MW-19-SA2","537 MOD","RES","1803626-06","Vista","13C2-PFTeDA","13C2-

PFTeDA","74.3","%R","","","CRDL","","IS","74.3","","","CRDL","",""
"FRB-20181113","537 MOD","RES","1803626-07","Vista","375-73-
5","PFBS","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"FRB-20181113","537 MOD","RES","1803626-07","Vista","307-24-
4","PFHxA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"FRB-20181113","537 MOD","RES","1803626-07","Vista","375-85-
9","PFHpA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"FRB-20181113","537 MOD","RES","1803626-07","Vista","355-46-
4","PFHxS","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"FRB-20181113","537 MOD","RES","1803626-07","Vista","335-67-
1","PFOA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"FRB-20181113","537 MOD","RES","1803626-07","Vista","375-95-
1","PFNA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"FRB-20181113","537 MOD","RES","1803626-07","Vista","1763-23-
1","PFOS","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"FRB-20181113","537 MOD","RES","1803626-07","Vista","335-76-
2","PFDA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"FRB-20181113","537 MOD","RES","1803626-07","Vista","2355-31-
9","NMeFOSAA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"FRB-20181113","537 MOD","RES","1803626-07","Vista","2991-50-
6","NEtFOSAA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"FRB-20181113","537 MOD","RES","1803626-07","Vista","2058-94-
8","PFUnA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"FRB-20181113","537 MOD","RES","1803626-07","Vista","307-55-
1","PFDoA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"FRB-20181113","537 MOD","RES","1803626-07","Vista","72629-94-
8","PFTrDA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"FRB-20181113","537 MOD","RES","1803626-07","Vista","376-06-
7","PFTeDA","0.00427","ug/L","U","0.00427","CRDL","","TRG","","","0.00852","CRDL","YES","0.00292"
"FRB-20181113","537 MOD","RES","1803626-07","Vista","13C3-PFBS","13C3-
PFBS","98.3","%R","","","CRDL","","IS","98.3","","","CRDL","",""
"FRB-20181113","537 MOD","RES","1803626-07","Vista","13C2-PFHxA","13C2-
PFHxA","94.0","%R","","","CRDL","","IS","94.0","","","CRDL","",""
"FRB-20181113","537 MOD","RES","1803626-07","Vista","13C4-PFHpA","13C4-
PFHpA","89.2","%R","","","CRDL","","IS","89.2","","","CRDL","",""
"FRB-20181113","537 MOD","RES","1803626-07","Vista","18O2-PFHxS","18O2-
PFHxS","98.2","%R","","","CRDL","","IS","98.2","","","CRDL","",""
"FRB-20181113","537 MOD","RES","1803626-07","Vista","13C2-PFOA","13C2-
PFOA","82.2","%R","","","CRDL","","IS","82.2","","","CRDL","",""
"FRB-20181113","537 MOD","RES","1803626-07","Vista","13C5-PFNA","13C5-
PFNA","75.7","%R","","","CRDL","","IS","75.7","","","CRDL","",""
"FRB-20181113","537 MOD","RES","1803626-07","Vista","13C8-PFOS","13C8-
PFOS","104","%R","","","CRDL","","IS","104","","","CRDL","",""
"FRB-20181113","537 MOD","RES","1803626-07","Vista","13C2-PFDA","13C2-
PFDA","71.9","%R","","","CRDL","","IS","71.9","","","CRDL","",""
"FRB-20181113","537 MOD","RES","1803626-07","Vista","d3-MeFOSAA","d3-
MeFOSAA","80.5","%R","","","CRDL","","IS","80.5","","","CRDL","",""
"FRB-20181113","537 MOD","RES","1803626-07","Vista","d5-EtFOSAA","d5-
EtFOSAA","76.9","%R","","","CRDL","","IS","76.9","","","CRDL","",""
"FRB-20181113","537 MOD","RES","1803626-07","Vista","13C2-PFUnA","13C2-
PFUnA","65.7","%R","","","CRDL","","IS","65.7","","","CRDL","",""
"FRB-20181113","537 MOD","RES","1803626-07","Vista","13C2-PFDoA","13C2-
PFDoA","68.8","%R","","","CRDL","","IS","68.8","","","CRDL","",""
"FRB-20181113","537 MOD","RES","1803626-07","Vista","13C2-PFTeDA","13C2-

PFTeDA","66.0","%R","","","CRDL","","IS","66.0","","","CRDL","",""
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","375-73-
5","PFBS","0.505","ug/L","","0.00420","CRDL","","TRG","","","0.00841","CRDL","YES","0.00288"
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","307-24-
4","PFHxA","1.43","ug/L","","0.00420","CRDL","","TRG","","","0.00841","CRDL","YES","0.00288"
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","375-85-
9","PFHpA","0.0564","ug/L","","0.00420","CRDL","","TRG","","","0.00841","CRDL","YES","0.00288"
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","355-46-
4","PFHxS","0.464","ug/L","","0.00420","CRDL","","TRG","","","0.00841","CRDL","YES","0.00288"
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","335-67-
1","PFOA","0.0607","ug/L","","0.00420","CRDL","","TRG","","","0.00841","CRDL","YES","0.00288"
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","375-95-
1","PFNA","0.00420","ug/L","U","0.00420","CRDL","","TRG","","","0.00841","CRDL","YES","0.00288"
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","1763-23-1","PFOS","0.00400","ug/L","J,
Q","0.00420","CRDL","","TRG","","","0.00841","CRDL","YES","0.00288"
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","335-76-
2","PFDA","0.00420","ug/L","U","0.00420","CRDL","","TRG","","","0.00841","CRDL","YES","0.00288"
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","2355-31-
9","NMeFOSAA","0.00420","ug/L","U","0.00420","CRDL","","TRG","","","0.00841","CRDL","YES","0.00288"
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","2991-50-
6","NEtFOSAA","0.00420","ug/L","U","0.00420","CRDL","","TRG","","","0.00841","CRDL","YES","0.00288"
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","2058-94-
8","PFUnA","0.00420","ug/L","U","0.00420","CRDL","","TRG","","","0.00841","CRDL","YES","0.00288"
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","307-55-
1","PFDoA","0.00420","ug/L","U","0.00420","CRDL","","TRG","","","0.00841","CRDL","YES","0.00288"
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","72629-94-
8","PFTrDA","0.00420","ug/L","U","0.00420","CRDL","","TRG","","","0.00841","CRDL","YES","0.00288"
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","376-06-
7","PFTeDA","0.00420","ug/L","U","0.00420","CRDL","","TRG","","","0.00841","CRDL","YES","0.00288"
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","13C3-PFBS","13C3-
PFBS","92.0","%R","","","CRDL","","IS","92.0","","","CRDL","",""
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","13C2-PFHxA","13C2-
PFHxA","93.4","%R","","","CRDL","","IS","93.4","","","CRDL","",""
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","13C4-PFHpA","13C4-
PFHpA","99.8","%R","","","CRDL","","IS","99.8","","","CRDL","",""
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","18O2-PFHxS","18O2-
PFHxS","93.4","%R","","","CRDL","","IS","93.4","","","CRDL","",""
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","13C2-PFOA","13C2-
PFOA","86.0","%R","","","CRDL","","IS","86.0","","","CRDL","",""
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","13C5-PFNA","13C5-
PFNA","81.1","%R","","","CRDL","","IS","81.1","","","CRDL","",""
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","13C8-PFOS","13C8-
PFOS","91.0","%R","","","CRDL","","IS","91.0","","","CRDL","",""
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","13C2-PFDA","13C2-
PFDA","80.8","%R","","","CRDL","","IS","80.8","","","CRDL","",""
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","d3-MeFOSAA","d3-
MeFOSAA","79.3","%R","","","CRDL","","IS","79.3","","","CRDL","",""
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","d5-EtFOSAA","d5-
EtFOSAA","84.3","%R","","","CRDL","","IS","84.3","","","CRDL","",""
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","13C2-PFUnA","13C2-
PFUnA","70.3","%R","","","CRDL","","IS","70.3","","","CRDL","",""
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","13C2-PFDoA","13C2-
PFDoA","68.6","%R","","","CRDL","","IS","68.6","","","CRDL","",""
"A1-MW-53-SA2","537 MOD","RES","1803626-08","Vista","13C2-PFTeDA","13C2-

PFTeDA","68.7","%R","","","CRDL","","IS","68.7","","","CRDL","",""
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","375-73-
5","PFBS","1.39","ug/L","","0.00439","CRDL","","TRG","","","0.00880","CRDL","YES","0.00301"
"16-HS-03-SA2D","537 MOD","DL","1803626-09","Vista","307-24-
4","PFHxA","11.7","ug/L","D","0.0439","CRDL","","TRG","","","0.0880","CRDL","YES","0.0301"
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","375-85-
9","PFHpA","0.412","ug/L","","0.00439","CRDL","","TRG","","","0.00880","CRDL","YES","0.00301"
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","355-46-
4","PFHxS","0.312","ug/L","","0.00439","CRDL","","TRG","","","0.00880","CRDL","YES","0.00301"
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","335-67-
1","PFOA","0.0200","ug/L","","0.00439","CRDL","","TRG","","","0.00880","CRDL","YES","0.00301"
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","375-95-
1","PFNA","0.00439","ug/L","U","0.00439","CRDL","","TRG","","","0.00880","CRDL","YES","0.00301"
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","1763-23-
1","PFOS","0.00439","ug/L","U","0.00439","CRDL","","TRG","","","0.00880","CRDL","YES","0.00301"
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","335-76-
2","PFDA","0.00439","ug/L","U","0.00439","CRDL","","TRG","","","0.00880","CRDL","YES","0.00301"
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","2355-31-
9","NMeFOSAA","0.00439","ug/L","U","0.00439","CRDL","","TRG","","","0.00880","CRDL","YES","0.00301"
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","2991-50-
6","NEtFOSAA","0.00439","ug/L","U","0.00439","CRDL","","TRG","","","0.00880","CRDL","YES","0.00301"
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","2058-94-
8","PFUnA","0.00439","ug/L","U","0.00439","CRDL","","TRG","","","0.00880","CRDL","YES","0.00301"
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","307-55-
1","PFDoA","0.00439","ug/L","U","0.00439","CRDL","","TRG","","","0.00880","CRDL","YES","0.00301"
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","72629-94-
8","PFTrDA","0.00439","ug/L","U","0.00439","CRDL","","TRG","","","0.00880","CRDL","YES","0.00301"
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","376-06-
7","PFTeDA","0.00439","ug/L","U","0.00439","CRDL","","TRG","","","0.00880","CRDL","YES","0.00301"
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","13C3-PFBS","13C3-
PFBS","86.4","%R","","","CRDL","","IS","86.4","","","CRDL","",""
"16-HS-03-SA2D","537 MOD","DL","1803626-09","Vista","13C2-PFHxA","13C2-
PFHxA","105","%R","D","","CRDL","","IS","105","","","CRDL","",""
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","13C4-PFHpA","13C4-
PFHpA","133","%R","","","CRDL","","IS","133","","","CRDL","",""
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","18O2-PFHxS","18O2-
PFHxS","102","%R","","","CRDL","","IS","102","","","CRDL","",""
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","13C2-PFOA","13C2-
PFOA","86.5","%R","","","CRDL","","IS","86.5","","","CRDL","",""
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","13C5-PFNA","13C5-
PFNA","84.7","%R","","","CRDL","","IS","84.7","","","CRDL","",""
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","13C8-PFOS","13C8-
PFOS","98.6","%R","","","CRDL","","IS","98.6","","","CRDL","",""
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","13C2-PFDA","13C2-
PFDA","80.7","%R","","","CRDL","","IS","80.7","","","CRDL","",""
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","d3-MeFOSAA","d3-
MeFOSAA","86.6","%R","","","CRDL","","IS","86.6","","","CRDL","",""
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","d5-EtFOSAA","d5-
EtFOSAA","86.6","%R","","","CRDL","","IS","86.6","","","CRDL","",""
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","13C2-PFUnA","13C2-
PFUnA","68.4","%R","","","CRDL","","IS","68.4","","","CRDL","",""
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","13C2-PFDoA","13C2-
PFDoA","70.7","%R","","","CRDL","","IS","70.7","","","CRDL","",""
"16-HS-03-SA2D","537 MOD","RES","1803626-09","Vista","13C2-PFTeDA","13C2-

PFTeDA","60.9","%R","","","CRDL","","IS","60.9","","","CRDL","",""
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","375-73-
5","PFBS","0.00400","ug/L","U","0.00400","CRDL","","TRG","","","0.00800","CRDL","YES","0.00274"
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","307-24-
4","PFHxA","0.00400","ug/L","U","0.00400","CRDL","","TRG","","","0.00800","CRDL","YES","0.00274"
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","375-85-
9","PFHpA","0.00400","ug/L","U","0.00400","CRDL","","TRG","","","0.00800","CRDL","YES","0.00274"
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","355-46-
4","PFHxS","0.00400","ug/L","U","0.00400","CRDL","","TRG","","","0.00800","CRDL","YES","0.00274"
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","335-67-
1","PFOA","0.00400","ug/L","U","0.00400","CRDL","","TRG","","","0.00800","CRDL","YES","0.00274"
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","375-95-
1","PFNA","0.00400","ug/L","U","0.00400","CRDL","","TRG","","","0.00800","CRDL","YES","0.00274"
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","1763-23-
1","PFOS","0.00400","ug/L","U","0.00400","CRDL","","TRG","","","0.00800","CRDL","YES","0.00274"
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","335-76-
2","PFDA","0.00400","ug/L","U","0.00400","CRDL","","TRG","","","0.00800","CRDL","YES","0.00274"
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","2355-31-
9","NMeFOSAA","0.00400","ug/L","U","0.00400","CRDL","","TRG","","","0.00800","CRDL","YES","0.00274"
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","2991-50-
6","NEtFOSAA","0.00400","ug/L","U","0.00400","CRDL","","TRG","","","0.00800","CRDL","YES","0.00274"
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","2058-94-
8","PFUnA","0.00400","ug/L","U","0.00400","CRDL","","TRG","","","0.00800","CRDL","YES","0.00274"
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","307-55-
1","PFDoA","0.00400","ug/L","U","0.00400","CRDL","","TRG","","","0.00800","CRDL","YES","0.00274"
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","72629-94-
8","PFTrDA","0.00400","ug/L","U","0.00400","CRDL","","TRG","","","0.00800","CRDL","YES","0.00274"
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","376-06-
7","PFTeDA","0.00400","ug/L","U","0.00400","CRDL","","TRG","","","0.00800","CRDL","YES","0.00274"
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","13C3-PFBS","13C3-
PFBS","93.6","%R","","","CRDL","","IS","93.6","","","CRDL","",""
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","13C2-PFHxA","13C2-
PFHxA","99.0","%R","","","CRDL","","IS","99.0","","","CRDL","",""
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","13C4-PFHpA","13C4-
PFHpA","95.7","%R","","","CRDL","","IS","95.7","","","CRDL","",""
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","18O2-PFHxS","18O2-
PFHxS","95.8","%R","","","CRDL","","IS","95.8","","","CRDL","",""
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","13C2-PFOA","13C2-
PFOA","87.1","%R","","","CRDL","","IS","87.1","","","CRDL","",""
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","13C5-PFNA","13C5-
PFNA","79.6","%R","","","CRDL","","IS","79.6","","","CRDL","",""
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","13C8-PFOS","13C8-
PFOS","94.2","%R","","","CRDL","","IS","94.2","","","CRDL","",""
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","13C2-PFDA","13C2-
PFDA","71.4","%R","","","CRDL","","IS","71.4","","","CRDL","",""
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","d3-MeFOSAA","d3-
MeFOSAA","70.2","%R","","","CRDL","","IS","70.2","","","CRDL","",""
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","d5-EtFOSAA","d5-
EtFOSAA","72.3","%R","","","CRDL","","IS","72.3","","","CRDL","",""
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","13C2-PFUnA","13C2-
PFUnA","60.4","%R","","","CRDL","","IS","60.4","","","CRDL","",""
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","13C2-PFDoA","13C2-
PFDoA","69.2","%R","","","CRDL","","IS","69.2","","","CRDL","",""
"B8K0097-BLK1","537 MOD","RES","B8K0097-BLK1","Vista","13C2-PFTeDA","13C2-

PFTeDA","67.3","%R","","","CRDL","","IS","67.3","","","CRDL","",""
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","375-73-
5","PFBS","0.0822","ug/L","","0.00400","CRDL","","SPK","103","","0.00800","CRDL","YES","0.00274"
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","307-24-
4","PFHxA","0.0815","ug/L","","0.00400","CRDL","","SPK","102","","0.00800","CRDL","YES","0.00274"
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","375-85-
9","PFHpA","0.0810","ug/L","","0.00400","CRDL","","SPK","101","","0.00800","CRDL","YES","0.00274"
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","355-46-
4","PFHxS","0.0768","ug/L","","0.00400","CRDL","","SPK","95.9","","0.00800","CRDL","YES","0.00274"
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","335-67-
1","PFOA","0.0844","ug/L","","0.00400","CRDL","","SPK","106","","0.00800","CRDL","YES","0.00274"
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","375-95-
1","PFNA","0.0731","ug/L","","0.00400","CRDL","","SPK","91.3","","0.00800","CRDL","YES","0.00274"
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","1763-23-
1","PFOS","0.0817","ug/L","","0.00400","CRDL","","SPK","102","","0.00800","CRDL","YES","0.00274"
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","335-76-
2","PFDA","0.0805","ug/L","","0.00400","CRDL","","SPK","101","","0.00800","CRDL","YES","0.00274"
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","2355-31-
9","NMeFOSAA","0.0721","ug/L","","0.00400","CRDL","","SPK","90.1","","0.00800","CRDL","YES","0.00274"
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","2991-50-
6","NEtFOSAA","0.0669","ug/L","","0.00400","CRDL","","SPK","83.6","","0.00800","CRDL","YES","0.00274"
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","2058-94-
8","PFUnA","0.0769","ug/L","","0.00400","CRDL","","SPK","96.1","","0.00800","CRDL","YES","0.00274"
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","307-55-
1","PFDoA","0.0793","ug/L","","0.00400","CRDL","","SPK","99.1","","0.00800","CRDL","YES","0.00274"
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","72629-94-
8","PFTrDA","0.0829","ug/L","","0.00400","CRDL","","SPK","104","","0.00800","CRDL","YES","0.00274"
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","376-06-
7","PFTeDA","0.0819","ug/L","","0.00400","CRDL","","SPK","102","","0.00800","CRDL","YES","0.00274"
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","13C3-PFBS","13C3-
PFBS","96.7","%R","","","CRDL","","IS","96.7","","","CRDL","",""
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","13C2-PFHxA","13C2-
PFHxA","94.6","%R","","","CRDL","","IS","94.6","","","CRDL","",""
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","13C4-PFHpA","13C4-
PFHpA","86.4","%R","","","CRDL","","IS","86.4","","","CRDL","",""
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","18O2-PFHxS","18O2-
PFHxS","98.2","%R","","","CRDL","","IS","98.2","","","CRDL","",""
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","13C2-PFOA","13C2-
PFOA","88.9","%R","","","CRDL","","IS","88.9","","","CRDL","",""
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","13C5-PFNA","13C5-
PFNA","84.6","%R","","","CRDL","","IS","84.6","","","CRDL","",""
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","13C8-PFOS","13C8-
PFOS","94.9","%R","","","CRDL","","IS","94.9","","","CRDL","",""
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","13C2-PFDA","13C2-
PFDA","79.0","%R","","","CRDL","","IS","79.0","","","CRDL","",""
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","d3-MeFOSAA","d3-
MeFOSAA","83.7","%R","","","CRDL","","IS","83.7","","","CRDL","",""
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","d5-EtFOSAA","d5-
EtFOSAA","87.9","%R","","","CRDL","","IS","87.9","","","CRDL","",""
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","13C2-PFUnA","13C2-
PFUnA","71.1","%R","","","CRDL","","IS","71.1","","","CRDL","",""
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","13C2-PFDoA","13C2-
PFDoA","83.6","%R","","","CRDL","","IS","83.6","","","CRDL","",""
"B8K0097-BS1","537 MOD","RES","B8K0097-BS1","Vista","13C2-PFTeDA","13C2-

PFTeDA","82.2","%R","","","CRDL","","IS","82.2","","","CRDL","",""
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","375-73-
5","PFBS","0.0777","ug/L","","0.00400","CRDL","","SPK","97.1","5.58","0.00800","CRDL","YES","0.00274"
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","307-24-
4","PFHxA","0.0809","ug/L","","0.00400","CRDL","","SPK","101","0.759","0.00800","CRDL","YES","0.00274"
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","375-85-
9","PFHpA","0.0797","ug/L","","0.00400","CRDL","","SPK","99.7","1.56","0.00800","CRDL","YES","0.00274"
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","355-46-
4","PFHxS","0.0724","ug/L","","0.00400","CRDL","","SPK","90.6","5.78","0.00800","CRDL","YES","0.00274"
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","335-67-
1","PFOA","0.0846","ug/L","","0.00400","CRDL","","SPK","106","0.185","0.00800","CRDL","YES","0.00274"
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","375-95-
1","PFNA","0.0797","ug/L","","0.00400","CRDL","","SPK","99.6","8.64","0.00800","CRDL","YES","0.00274"
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","1763-23-
1","PFOS","0.0792","ug/L","","0.00400","CRDL","","SPK","99.0","3.05","0.00800","CRDL","YES","0.00274"
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","335-76-
2","PFDA","0.0790","ug/L","","0.00400","CRDL","","SPK","98.7","1.95","0.00800","CRDL","YES","0.00274"
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","2355-31-
9","NMeFOSAA","0.0682","ug/L","","0.00400","CRDL","","SPK","85.2","5.63","0.00800","CRDL","YES","0.00274"
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","2991-50-
6","NEtFOSAA","0.0695","ug/L","","0.00400","CRDL","","SPK","86.9","3.76","0.00800","CRDL","YES","0.00274"
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","2058-94-
8","PFUnA","0.0826","ug/L","","0.00400","CRDL","","SPK","103","7.18","0.00800","CRDL","YES","0.00274"
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","307-55-
1","PFDoA","0.0829","ug/L","","0.00400","CRDL","","SPK","104","4.47","0.00800","CRDL","YES","0.00274"
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","72629-94-
8","PFTrDA","0.0820","ug/L","","0.00400","CRDL","","SPK","102","1.17","0.00800","CRDL","YES","0.00274"
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","376-06-
7","PFTeDA","0.0816","ug/L","","0.00400","CRDL","","SPK","102","0.300","0.00800","CRDL","YES","0.00274"
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","13C3-PFBS","13C3-
PFBS","93.9","%R","","","CRDL","","IS","93.9","","","CRDL","",""
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","13C2-PFHxA","13C2-
PFHxA","92.7","%R","","","CRDL","","IS","92.7","","","CRDL","",""
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","13C4-PFHpA","13C4-
PFHpA","91.7","%R","","","CRDL","","IS","91.7","","","CRDL","",""
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","18O2-PFHxS","18O2-
PFHxS","89.1","%R","","","CRDL","","IS","89.1","","","CRDL","",""
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","13C2-PFOA","13C2-
PFOA","82.9","%R","","","CRDL","","IS","82.9","","","CRDL","",""
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","13C5-PFNA","13C5-
PFNA","78.9","%R","","","CRDL","","IS","78.9","","","CRDL","",""
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","13C8-PFOS","13C8-
PFOS","89.5","%R","","","CRDL","","IS","89.5","","","CRDL","",""
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","13C2-PFDA","13C2-
PFDA","77.7","%R","","","CRDL","","IS","77.7","","","CRDL","",""
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","d3-MeFOSAA","d3-
MeFOSAA","77.5","%R","","","CRDL","","IS","77.5","","","CRDL","",""
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","d5-EtFOSAA","d5-
EtFOSAA","76.5","%R","","","CRDL","","IS","76.5","","","CRDL","",""
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","13C2-PFUnA","13C2-
PFUnA","67.8","%R","","","CRDL","","IS","67.8","","","CRDL","",""
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","13C2-PFDoA","13C2-
PFDoA","71.2","%R","","","CRDL","","IS","71.2","","","CRDL","",""
"B8K0097-BSD1","537 MOD","RES","B8K0097-BSD1","Vista","13C2-PFTeDA","13C2-

PFTeDA","73.7","%R","","","CRDL","","IS","73.7","","","CRDL","",""
"4663.3803","CTO 17F3803 Yuma","16-HS-03-SA2","11/13/2018 12:00","AQ","1803626-01","","","","537
MOD","Gen Prep","DL","11/20/2018 08:45","11/27/2018
04:56","Vista","COA","","","5","","","","","B8K0097","B8K0097","S8K0062","S8K0062","1803626","11/14/2018
09:07","11/30/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","16-HS-03-SA2","11/13/2018 12:00","AQ","1803626-01","","","","537
MOD","Gen Prep","RES","11/20/2018 08:45","11/21/2018
16:40","Vista","COA","","","1","","","","","B8K0097","B8K0097","S8K0062","S8K0062","1803626","11/14/2018
09:07","11/30/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","16-MW-06-SA2","11/13/2018 09:38","AQ","1803626-02","","","","537
MOD","Gen Prep","RES","11/20/2018 08:45","11/27/2018
04:45","Vista","COA","","","1","","","","","B8K0097","B8K0097","S8K0062","S8K0062","1803626","11/14/2018
09:07","11/30/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","16-MW-08-SA2","11/13/2018 13:00","AQ","1803626-03","","","","537
MOD","Gen Prep","RES","11/20/2018 08:45","11/21/2018
17:22","Vista","COA","","","1","","","","","B8K0097","B8K0097","S8K0062","S8K0062","1803626","11/14/2018
09:07","11/30/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","16-MW-09-SA2","11/13/2018 13:44","AQ","1803626-04","","","","537
MOD","Gen Prep","RES","11/20/2018 08:45","11/21/2018
17:33","Vista","COA","","","1","","","","","B8K0097","B8K0097","S8K0062","S8K0062","1803626","11/14/2018
09:07","11/30/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","A1-MW-18-SA2","11/13/2018 10:31","AQ","1803626-05","","","","537
MOD","Gen Prep","RES","11/20/2018 08:45","11/21/2018
17:44","Vista","COA","","","1","","","","","B8K0097","B8K0097","S8K0062","S8K0062","1803626","11/14/2018
09:07","11/30/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","A1-MW-19-SA2","11/13/2018 11:15","AQ","1803626-06","","","","537
MOD","Gen Prep","RES","11/20/2018 08:45","11/21/2018
17:54","Vista","COA","","","1","","","","","B8K0097","B8K0097","S8K0062","S8K0062","1803626","11/14/2018
09:07","11/30/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","FRB-20181113","11/13/2018 15:20","AQ","1803626-07","","","","537
MOD","Gen Prep","RES","11/20/2018 08:45","11/21/2018
18:05","Vista","COA","","","1","","","","","B8K0097","B8K0097","S8K0062","S8K0062","1803626","11/14/2018
09:07","11/30/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","A1-MW-53-SA2","11/13/2018 14:54","AQ","1803626-08","","","","537
MOD","Gen Prep","RES","11/20/2018 08:45","11/21/2018
18:15","Vista","COA","","","1","","","","","B8K0097","B8K0097","S8K0062","S8K0062","1803626","11/14/2018
09:07","11/30/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","16-HS-03-SA2D","11/13/2018 12:10","AQ","1803626-09","","","","537
MOD","Gen Prep","DL","11/20/2018 08:45","11/28/2018
19:42","Vista","COA","","","10","","","","","B8K0097","B8K0097","S8K0062","S8K0062","1803626","11/14/2018
09:07","11/30/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","16-HS-03-SA2D","11/13/2018 12:10","AQ","1803626-09","","","","537
MOD","Gen Prep","RES","11/20/2018 08:45","11/21/2018
18:26","Vista","COA","","","1","","","","","B8K0097","B8K0097","S8K0062","S8K0062","1803626","11/14/2018
09:07","11/30/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","B8K0097-BLK1","","AQ","B8K0097-BLK1","MB","","","537 MOD","Gen
Prep","RES","11/20/2018 08:45","11/21/2018
16:29","Vista","COA","","","1","","","","","B8K0097","B8K0097","S8K0062","S8K0062","1803626","","11/30/2018
00:00"
"4663.3803","CTO 17F3803 Yuma","B8K0097-BS1","","AQ","B8K0097-BS1","LCS","","","537 MOD","Gen
Prep","RES","11/20/2018 08:45","11/21/2018
16:08","Vista","COA","","","1","","","","","B8K0097","B8K0097","S8K0062","S8K0062","1803626","","11/30/2018
00:00"
"4663.3803","CTO 17F3803 Yuma","B8K0097-BSD1","","AQ","B8K0097-BSD1","LCSD","","","537 MOD","Gen

Prep","RES","11/20/2018 08:45","11/21/2018 16:19","Vista","COA","","","1","","","","","B8K0097","B8K0097","S8K0062","S8K0062","1803626","","11/30/2018 00:00"

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Tetra Tech EC, Inc.
17885 Von Karman Avenue, Suite 500
Irvine, CA 92614
ATTN: Ms. Sabina Sudoko

July 24, 2018

SUBJECT: MCAS Yuma, CTO 17F3803, Data Validation

Dear Ms. Sudoko,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on July 6, 2018. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #42613:

SDG #	Fraction
280-110058-1, 280-110112-1 280-110226-1, 280-110291-1 280-110353-1, L1818881 L1819087, L1819352 L1819562, L1820050 L1820175, 1801024 1801037, 1801039 1801054, 1801071 1801084	Volatiles, 1,4-Dioxane, Wet Chemistry, Perfluorinated Alkyl Acids

The data validation was performed under Stage 2B & 4 guidelines. The analyses were validated using the following documents, as applicable to each method:

- Final Sampling and Analysis Plan for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona; April 2018
- U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.1; 2017
- USEPA National Functional Guidelines for Superfund Organic Methods Data Review; January 2017
- USEPA National Functional Guidelines for Inorganic Superfund Data Review; January 2017
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,

Shauna McKellar
Project Manager/Chemist

ADR/Stage 4 NEDD 80/20 **LDC #42613 (Tetra Tech-EC, Inc.-Irvine, CA / MCAS Yuma, CTO 17F3803)** **PO# 1153059**

LDC	SDG#	DATE REC'D	(3) DATE DUE	(3) VOA (8260B)		1,4-Diox (8270D -SIM)		PFAs (537)		Cl,SO_4 NO_3-N (9056A)		Fe II (3500 -Fe B)		pH (9040C)																							
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	280-110058-1	07/06/18	07/27/18	6	0	-	-	-	-	5	0	5	0	5	0																				
B	280-110112-1	07/06/18	07/27/18	7	0	-	-	-	-	6	0	6	0	6	0																				
C	280-110226-1	07/06/18	07/27/18	9	0	-	-	-	-	6	0	6	0	6	0																				
D	280-110291-1	07/06/18	07/27/18	7	0	-	-	-	-	6	0	6	0	6	0																				
E	280-110353-1	07/06/18	07/27/18	5	0	-	-	-	-	3	0	3	0	3	0																				
F	L1818881	07/06/18	07/27/18	-	-	5	0	-	-	-	-	-	-	-	-																				
G	L1819087	07/06/18	07/27/18	-	-	6	0	-	-	-	-	-	-	-	-																				
H	L1819352	07/06/18	07/27/18	-	-	5	0	-	-	-	-	-	-	-	-																				
I	L1819562	07/06/18	07/27/18	-	-	8	0	-	-	-	-	-	-	-	-																				
J	L1820050	07/06/18	07/27/18	-	-	4	0	-	-	-	-	-	-	-	-																				
K	L1820175	07/06/18	07/27/18	-	-	1	0	-	-	-	-	-	-	-	-																				
L	1801024	07/06/18	07/27/18	-	-	-	-	6	0	-	-	-	-	-	-																				
M	1801037	07/06/18	07/27/18	-	-	-	-	1	0	-	-	-	-	-	-																				
M	1801037	07/06/18	07/27/18	-	-	-	-	8	0	-	-	-	-	-	-																				
N	1801039	07/06/18	07/27/18	-	-	-	-	6	0	-	-	-	-	-	-																				
O	1801054	07/06/18	07/27/18	-	-	-	-	9	0	-	-	-	-	-	-																				
P	1801071	07/06/18	07/27/18	-	-	-	-	5	0	-	-	-	-	-	-																				
Q	1801084	07/06/18	07/27/18	-	-	-	-	1	0	-	-	-	-	-	-																				
Total	T/SM			34	0	29	0	36	0	26	0	26	0	26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	177

Shaded cells indicate Stage 4 validation (all other cells are ADR/Stage 2B validation).

Data Validation Report
MCAS Yuma, CTO 17F3803

SDGs: 280-110058-1, 280-110112-1, 280-110226-1, 280-110291-1, 280-110353-1, L1818881, L1819087, L1819352, L1819562, L1820050, L1820175, 1801024, 1801037, 1801039, 1801054, 1801071, and 1801084

Prepared for

Tetra Tech EC, Inc.
17885 Von Karman Avenue, Suite 500
Irvine, CA 92614

Prepared by

Laboratory Data Consultants, Inc
2701 Loker Ave West, Suite 220
Carlsbad, CA 92010

July 24, 2018

INTRODUCTION

This Data Validation Report (DVR) presents Stage 2B and Stage 4 data validation results for samples collected during the May 2018 sampling period. Data validation was performed in accordance with the Final Sampling and Analysis Plan (SAP) for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona (April 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), a modified outline of the US EPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (January 2017), and a modified outline of the US EPA National Functional Guidelines (NFG) for Inorganic Superfund Data Review (January 2017). Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260B
1,4-Dioxane by EPA SW 846 Method 8270D utilizing Selective Ion Monitoring (SIM)
Perfluorinated Alkyl Acids (PFAs) by EPA Method 537 Modified

Wet Chemistry:
Chloride, Nitrate as Nitrogen, and Sulfate by EPA SW 846 Method 9056A
Ferrous Iron by Standard Method 3500-Fe B
pH by EPA SW 846 Method 9040C

For samples reviewed by automated data review, the sample identification and methods of analyses performed on each sample is presented in Attachment 1. Overall data qualification summary is presented in Attachment 2. Stage 2B Automated Data Review outliers are presented in Enclosure I. DVRs for samples on which Stage 4 validation was performed are presented in Enclosure II. Validation for 1,4-Dioxane was performed manually and DVRs for Stage 2B and Stage 4 manual validation are also presented in Enclosure II.

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results for sample holding times, initial and continuing calibrations, laboratory blanks, initial and continuing calibration blanks (ICB/CCBs), surrogates, matrix spike/matrix spike duplicates (MS/MSD), laboratory control sample/laboratory control sample duplicates (LCS/LCSD), ongoing precision recovery (OPR), internal standards, trip blanks, equipment blanks, field rinsate blanks, and field duplicates. Approximately 20 percent of samples were subjected to Stage 4 evaluation as indicated in Attachment 1, which comprises a review of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

Automated data review was performed on all QC summary results using the Automated Data Review (ADR) software program (LDC, 2013) with the exception of the calibrations, ICB/CCBs, and internal standards, and all QC for 1,4-Dioxane, which were validated manually. Quality assurance (QA)/QC criteria specified in the SAP, DoD QSM, and NFGs were incorporated with the program's reference library to assess compliance with project requirements.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not applicable): Data did not warrant qualification since detected results only are affected and the compound was not detected in the associated samples.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt & Technical Holding Times

All samples were received in good condition with the following exceptions:

SDG/ Method	Sample	Compound	Finding	Criteria	Flag	A or P
280-110291-1/ 8260B	A1-MW-23-SA1	All compounds	A headspace of >6 mm was apparent in the sample containers.	There should be no headspace in the sample containers.	J (all detects) UJ (all non-detects)	A

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures upon receipt by the laboratory met validation criteria with the exception of one cooler in SDG L1818881 that was reported at 7.9°C. No data was qualified based on the cooler temperature.

All technical holding time requirements were met with the exception of twenty-five samples for pH and twenty-one samples for ferrous iron. Due to grossly exceeded holding times (e.g., >2x recommended holding time), 15 ferrous iron results were qualified as rejected (R). Additionally, the remainder of the data were qualified as detected estimated (J) or non-detected estimated (UJ) as applicable. The details regarding the qualification of data are provided in Enclosures I and II.

II. Instrument Performance Check

A tune was performed at 12 hour intervals as required by the methods.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

All criteria for the initial calibration and initial calibration verifications of each method were met.

IV. Continuing Calibration

All criteria for the continuing calibration of each method were met with the exception of one continuing calibration for PFAs. Since the outlier was associated with laboratory QC and there were no associated client samples, no data were qualified.

V. Laboratory Blanks

Laboratory blanks were performed as required by the methods. No contaminant concentrations were detected in the laboratory blanks reviewed by the ADR software program with the exception of one blank for chloride and sulfate. The associated sample results were not detected or were significantly greater than the concentrations found in the blanks, therefore no data were qualified. The details are presented in Enclosure I.

No contaminant concentrations were detected in the initial or continuing calibration blanks with the following exceptions:

SDG/ Method	Laboratory Blank ID	Analyte	Maximum Concentration	Associated Samples
280-110226-1/ 9056A	ICB/CCB	Nitrate as Nitrogen	0.04663 mg/L	A1-MW-42-SA1 A1-MW-54-SA1 A1-PZ-19-SA1 A1-MW-52-SA1 A1-MW-01-SA1 A1-MW-31-SA1
280-110291-1/ 9056A	ICB/CCB	Sulfate	0.2460 mg/L	A1-MW-14-SA1 A1-MW-23-SA1 A1-MW-55-SA1
280-110353-1/ 9056A	ICB/CCB	Chloride Sulfate	0.5385 mg/L 0.6554 mg/L	A1-MW-13-SA1 A1-MW-11-SA1 A1-MW-15-SA1

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were not detected or were significantly greater than the concentrations found in the associated blanks.

VI. Field Blank Samples

Five trip blanks were collected and analyzed for VOCs. No contaminants were found.

One equipment blank was collected and analyzed for VOCs and PFAs. No contaminants were found.

Five field rinsate blanks were collected and analyzed for PFAs. No contaminants were found.

VII. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the exception of sample 16-HS-03-SA1 in SDG 280-110112-1 for VOCs. The associated sample results were qualified as detected estimated (J) or non-detected estimated (UJ) as applicable. The details regarding the qualification of data are provided in Enclosure I.

IX. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the exception of one MS/MSD pair for 1,1-dichloroethene, two MS/MSD pairs for several PFAs, three MS/MSD pairs for chloride and sulfate, and three MS/MSD pairs for ferrous iron. The ferrous iron results in samples 16-HS-03-SA1 and A1-MW-31-SA1 were qualified as rejected (R) due to MS/MSD %Rs grossly outside QC limits (i.e., ≤ 30%). The remainder of the associated sample results were qualified as detected estimated (J) or non-detected estimated (UJ) as applicable. No data were qualified where sample concentrations were significantly greater (>4x) than the spike amount. The details regarding the qualification of data are provided in Enclosures I and II.

X. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

XII. Laboratory Control Samples/Ongoing Precision Recovery

Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD) were analyzed as required by the methods. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Ongoing precision recovery (OPR) samples were analyzed as required by Method 537 Mod. Percent recoveries (%R) were within QC limits with the exception of two OPR for PFTrDA. No data were qualified due to high %Rs since the associated results were non-detected. The details are presented in Enclosures I and II.

XIII. Field Duplicate Samples

Two field duplicate pairs were collected and analyzed for all methods. All RPDs were within QC limits. RPDs were not calculated when sample results in one or both samples were less than 5X the limit of quantitation (LOQ). The field duplicate result comparisons are provided in Enclosures I and II.

XIV. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

SDG/ Method	Sample	Internal Standards	%R (Limits)	Compound	Flag	A or P
1801024/ 537	A1-MW-51-SA1	^{13}C3-PFBS	247 (50-150)	PFBS	J (all detects)	P
1801024/ 537	A1-MW-51-SA1	^{13}C3-NEtFOSAA	151 (50-150)	NEtFOSAA	UJ (all non-detects)	P
1801037/ 537	A1-MW-18-SA1	^{13}C3-PFBS	170 (50-150)	PFBS	J (all detects)	P
1801037/ 537	16-MW-08-SA1	^{13}C3-PFBS	187 (50-150)	PFBS	J (all detects)	P
1801037/ 537	A1-MW-19-SA1	^{13}C3-PFBS	214 (50-150)	PFBS	J (all detects)	P
1801037/ 537	A1-MW-37-SA1	^{13}C3-PFBS	228 (50-150)	PFBS	J (all detects)	P
1801037/ 537	A1-MW-37-SA1D	^{13}C3-PFBS	161 (50-150)	PFBS	J (all detects)	P

SDG/ Method	Sample	Internal Standards	%R (Limits)	Compound	Flag	A or P
1801037/ 537	16-HS-03-SA1	^{13}C3-PFBS	154 (50-150)	PFBS	J (all detects)	P
1801037/ 537	16-MW-09-SA1	^{13}C3-PFBS	153 (50-150)	PFBS	J (all detects)	P
1801037/ 537	16-MW-06-SA1	^{13}C3-PFBS	214 (50-150)	PFBS	J (all detects)	P
1801039/ 537	A1-MW-13-SA1	^{13}C3-PFBS	419 (50-150)	PFBS	J (all detects)	P
1801039/ 537	A1-MW-11-SA1	^{13}C3-PFBS	271 (50-150)	PFBS	J (all detects)	P
1801039/ 537	A1-MW-14-SA1	^{13}C3-PFBS	527 (50-150)	PFBS	J (all detects)	P
1801039/ 537	A1-MW-15-SA1	^{13}C3-PFBS	235 (50-150)	PFBS	J (all detects)	P
1801039/ 537	A1-MW-25-SA1	^{13}C3-PFBS	428 (50-150)	PFBS	J (all detects)	P
1801054/ 537	A1-MW-42-SA1	^{13}C3-PFBS	310 (50-150)	PFBS	J (all detects)	P
1801054/ 537	A1-MW-54-SA1	^{13}C3-PFBS	175 (50-150)	PFBS	J (all detects)	P
1801054/ 537	A1-MW-53-SA1	^{13}C3-PFBS	154 (50-150)	PFBS	J (all detects)	P
1801054/ 537	A1-PZ-19-SA1	^{13}C3-PFBS	182 (50-150)	PFBS	J (all detects)	P
1801054/ 537	A1-MW-52-SA1	^{13}C3-PFBS	211 (50-150)	PFBS	J (all detects)	P
1801054/ 537	A1-MW-01-SA1	^{13}C3-PFBS	192 (50-150)	PFBS	J (all detects)	P
1801054/ 537	A1-MW-01-SA1D	^{13}C3-PFBS	204 (50-150)	PFBS	J (all detects)	P
1801054/ 537	A1-MW-31-SA1	^{13}C3-PFBS	254 (50-150)	PFBS	J (all detects)	P
1801071/ 537	A1-MW-27-SA1	^{13}C3-PFBS	174 (50-150)	PFBS	J (all detects)	P

SDG/ Method	Sample	Internal Standards	%R (Limits)	Compound	Flag	A or P
1801071/ 537	A1-MW-07-SA1	$^{13}C3$-PFBS	209 (50-150)	PFBS	J (all detects)	P
1801071/ 537	A1-MW-55-SA1	$^{13}C3$-PFBS	165 (50-150)	PFBS	UJ (all non-detects)	P

XV. Compound Quantitation

The laboratory reporting limits were evaluated. All laboratory reporting limits met the specified requirements.

All compounds reported below the LOQ as detected by the laboratory were qualified as detected estimated (J). The details regarding the qualification of data are provided in Enclosures I and II.

XVI. Overall Assessment of Data

The analysis was conducted within all specifications of the method.

Due to severe holding time exceedances and MS/MSD %Rs, data were qualified as rejected in fifteen samples.

Due to headspace, data were qualified as estimated in one sample.

Due to holding time exceedances, data were qualified as estimated in twenty-five samples.

Due to surrogate %R, data were qualified as estimated in one sample.

Due to MS/MSD %R and RPD, data were qualified as estimated in three samples.

Due to internal standard %R, data were qualified as estimated in twenty-five samples.

Due to results below the LOQ, data were qualified as estimated in twenty-six samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable.

Data flags are summarized and are presented as Attachment 2.

Attachment 1

Sample Cross Reference

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
22-May-2018	TB-20180522	280-110058-1	TB	METHOD	8260B	Stage 2B
22-May-2018	A1-MW-51-SA1	1801024-01	N	Gen Prep	537 MOD	Stage 2B
22-May-2018	A1-MW-51-SA1	280-110058-2	N	METHOD	8260B	Stage 2B
22-May-2018	A1-MW-51-SA1	280-110058-2	N	METHOD	9040C	Stage 2B
22-May-2018	A1-MW-51-SA1	280-110058-2	N	METHOD	9056A	Stage 2B
22-May-2018	A1-MW-51-SA1	280-110058-2	N	METHOD	SM3500 Fe B D	Stage 2B
22-May-2018	A1-MW-51-SA1DUP	280-110058-2DUP	DUP	METHOD	SM3500 Fe B D	Stage 2B
22-May-2018	A1-MW-51-SA1MS	280-110058-2MS	MS	METHOD	8260B	Stage 2B
22-May-2018	A1-MW-51-SA1MS	280-110058-2MS	MS	METHOD	SM3500 Fe B D	Stage 2B
22-May-2018	A1-MW-51-SA1MSD	280-110058-2MSD	MSD	METHOD	8260B	Stage 2B
22-May-2018	A1-MW-51-SA1MSD	280-110058-2MSD	MSD	METHOD	SM3500 Fe B D	Stage 2B
22-May-2018	A1-MW-50-SA1	1801024-02	N	Gen Prep	537 MOD	Stage 2B
22-May-2018	A1-MW-50-SA1	280-110058-3	N	METHOD	8260B	Stage 2B
22-May-2018	A1-MW-50-SA1	280-110058-3	N	METHOD	9040C	Stage 2B
22-May-2018	A1-MW-50-SA1	280-110058-3	N	METHOD	9056A	Stage 2B
22-May-2018	A1-MW-50-SA1	280-110058-3	N	METHOD	SM3500 Fe B D	Stage 2B
22-May-2018	A1-MW-50-SA1DUP	280-110058-3DUP	DUP	METHOD	9040C	Stage 2B
22-May-2018	A1-MW-49-SA1	1801024-03	N	Gen Prep	537 MOD	Stage 2B
22-May-2018	A1-MW-49-SA1	280-110058-4	N	METHOD	8260B	Stage 2B
22-May-2018	A1-MW-49-SA1	280-110058-4	N	METHOD	9040C	Stage 2B
22-May-2018	A1-MW-49-SA1	280-110058-4	N	METHOD	9056A	Stage 2B
22-May-2018	A1-MW-49-SA1	280-110058-4	N	METHOD	SM3500 Fe B D	Stage 2B
22-May-2018	A1-MW-05-SA1	1801024-04	N	Gen Prep	537 MOD	Stage 2B
22-May-2018	A1-MW-05-SA1	280-110058-5	N	METHOD	8260B	Stage 2B
22-May-2018	A1-MW-05-SA1	280-110058-5	N	METHOD	9040C	Stage 2B
22-May-2018	A1-MW-05-SA1	280-110058-5	N	METHOD	9056A	Stage 2B

N = Normal Sample
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MSD = Matrix Spike Duplicate
EB = Equipment Blank
DUP = Laboratory Duplicate
FRB = Field Rinsate Blank

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
22-May-2018	A1-MW-05-SA1	280-110058-5	N	METHOD	SM3500 Fe B D	Stage 2B
22-May-2018	A1-MW-04-SA1	1801024-05	N	Gen Prep	537 MOD	Stage 2B
22-May-2018	A1-MW-04-SA1	280-110058-6	N	METHOD	8260B	Stage 2B
22-May-2018	A1-MW-04-SA1	280-110058-6	N	METHOD	9040C	Stage 2B
22-May-2018	A1-MW-04-SA1	280-110058-6	N	METHOD	9056A	Stage 2B
22-May-2018	A1-MW-04-SA1	280-110058-6	N	METHOD	SM3500 Fe B D	Stage 2B
22-May-2018	FRB-20180522	1801024-06	FRB	Gen Prep	537 MOD	Stage 2B
23-May-2018	TB-20180523	280-110112-1	TB	METHOD	8260B	Stage 4
23-May-2018	A1-MW-18-SA1	1801037-01	N	Gen Prep	537 MOD	Stage 4
23-May-2018	A1-MW-18-SA1	280-110112-2	N	METHOD	8260B	Stage 4
23-May-2018	A1-MW-18-SA1	280-110112-2	N	METHOD	9040C	Stage 4
23-May-2018	A1-MW-18-SA1	280-110112-2	N	METHOD	9056A	Stage 4
23-May-2018	A1-MW-18-SA1	280-110112-2	N	METHOD	SM3500 Fe B D	Stage 4
23-May-2018	A1-MW-18-SA1DUP	280-110112-2DUP	DUP	METHOD	9056A	Stage 4
23-May-2018	A1-MW-18-SA1MS	280-110112-2MS	MS	METHOD	9056A	Stage 4
23-May-2018	A1-MW-18-SA1MSD	280-110112-2MSD	MSD	METHOD	9056A	Stage 4
23-May-2018	16-MW-06-SA1	1801037-08	N	Gen Prep	537 MOD	Stage 4
23-May-2018	16-MW-09-SA1	1801037-07	N	Gen Prep	537 MOD	Stage 4
23-May-2018	16-MW-08-SA1	1801037-02	N	Gen Prep	537 MOD	Stage 4
23-May-2018	16-MW-08-SA1	280-110112-3	N	METHOD	8260B	Stage 4
23-May-2018	16-MW-08-SA1	280-110112-3	N	METHOD	9040C	Stage 4
23-May-2018	16-MW-08-SA1	280-110112-3	N	METHOD	9056A	Stage 4
23-May-2018	16-MW-08-SA1	280-110112-3	N	METHOD	SM3500 Fe B D	Stage 4
23-May-2018	A1-MW-19-SA1	1801037-03	N	Gen Prep	537 MOD	Stage 4
23-May-2018	A1-MW-19-SA1	280-110112-4	N	METHOD	8260B	Stage 4
23-May-2018	A1-MW-19-SA1	280-110112-4	N	METHOD	9040C	Stage 4

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DUP = Laboratory Duplicate
FRB = Field Rinsate Blank

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
23-May-2018	A1-MW-19-SA1	280-110112-4	N	METHOD	9056A	Stage 4
23-May-2018	A1-MW-19-SA1	280-110112-4	N	METHOD	SM3500 Fe B D	Stage 4
23-May-2018	A1-MW-37-SA1	1801037-04	N	Gen Prep	537 MOD	Stage 4
23-May-2018	A1-MW-37-SA1	280-110112-6	N	METHOD	8260B	Stage 4
23-May-2018	A1-MW-37-SA1	280-110112-6	N	METHOD	9040C	Stage 4
23-May-2018	A1-MW-37-SA1	280-110112-6	N	METHOD	9056A	Stage 4
23-May-2018	A1-MW-37-SA1	280-110112-6	N	METHOD	SM3500 Fe B D	Stage 4
23-May-2018	A1-MW-37-SA1D	1801037-05	FD	Gen Prep	537 MOD	Stage 4
23-May-2018	A1-MW-37-SA1D	280-110112-5	FD	METHOD	8260B	Stage 4
23-May-2018	16-HS-03-SA1	1801037-06	N	Gen Prep	537 MOD	Stage 4
23-May-2018	16-HS-03-SA1	280-110112-7	N	METHOD	8260B	Stage 4
23-May-2018	16-HS-03-SA1	280-110112-7	N	METHOD	9040C	Stage 4
23-May-2018	16-HS-03-SA1	280-110112-7	N	METHOD	9056A	Stage 4
23-May-2018	16-HS-03-SA1	280-110112-7	N	METHOD	SM3500 Fe B D	Stage 4
23-May-2018	16-HS-03-SA1DUP	280-110112-7DUP	DUP	METHOD	9056A	Stage 4
23-May-2018	16-HS-03-SA1DUP	280-110112-7DUP	DUP	METHOD	SM3500 Fe B D	Stage 4
23-May-2018	16-HS-03-SA1MS	280-110112-7MS	MS	METHOD	8260B	Stage 4
23-May-2018	16-HS-03-SA1MS	280-110112-7MS	MS	METHOD	9056A	Stage 4
23-May-2018	16-HS-03-SA1MS	280-110112-7MS	MS	METHOD	SM3500 Fe B D	Stage 4
23-May-2018	16-HS-03-SA1MSD	280-110112-7MSD	MSD	METHOD	8260B	Stage 4
23-May-2018	16-HS-03-SA1MSD	280-110112-7MSD	MSD	METHOD	9056A	Stage 4
23-May-2018	16-HS-03-SA1MSD	280-110112-7MSD	MSD	METHOD	SM3500 Fe B D	Stage 4
23-May-2018	FRB-20180523	1801037-09	FRB	Gen Prep	537 MOD	Stage 2B
24-May-2018	A1-MW-13-SA1	1801039-01	N	Gen Prep	537 MOD	Stage 2B
24-May-2018	A1-MW-11-SA1	1801039-02	N	Gen Prep	537 MOD	Stage 2B
24-May-2018	A1-MW-14-SA1	1801039-03	N	Gen Prep	537 MOD	Stage 2B

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DUP = Laboratory Duplicate
FRB = Field Rinsate Blank

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
24-May-2018	A1-MW-15-SA1	1801039-04	N	Gen Prep	537 MOD	Stage 2B
24-May-2018	A1-MW-25-SA1	1801039-07	N	Gen Prep	537 MOD	Stage 2B
24-May-2018	FRB-20180524	1801039-08	FRB	Gen Prep	537 MOD	Stage 2B
25-May-2018	TB-20180525	280-110226-12	TB	METHOD	8260B	Stage 2B
25-May-2018	A1-MW-42-SA1	1801054-01	N	Gen Prep	537 MOD	Stage 2B
25-May-2018	A1-MW-42-SA1	280-110226-1	N	METHOD	8260B	Stage 2B
25-May-2018	A1-MW-42-SA1	280-110226-1	N	METHOD	9040C	Stage 2B
25-May-2018	A1-MW-42-SA1	280-110226-1	N	METHOD	9056A	Stage 2B
25-May-2018	A1-MW-42-SA1	280-110226-1	N	METHOD	SM3500 Fe B D	Stage 2B
25-May-2018	A1-MW-54-SA1	1801054-02	N	Gen Prep	537 MOD	Stage 2B
25-May-2018	A1-MW-54-SA1	280-110226-2	N	METHOD	8260B	Stage 2B
25-May-2018	A1-MW-54-SA1	280-110226-2	N	METHOD	9040C	Stage 2B
25-May-2018	A1-MW-54-SA1	280-110226-2	N	METHOD	9056A	Stage 2B
25-May-2018	A1-MW-54-SA1	280-110226-2	N	METHOD	SM3500 Fe B D	Stage 2B
25-May-2018	A1-MW-53-SA1	1801054-03	N	Gen Prep	537 MOD	Stage 2B
25-May-2018	A1-MW-53-SA1	280-110226-3	N	METHOD	8260B	Stage 2B
25-May-2018	A1-MW-53-SA1MS	280-110226-3MS	MS	METHOD	8260B	Stage 2B
25-May-2018	A1-MW-53-SA1MSD	280-110226-3MSD	MSD	METHOD	8260B	Stage 2B
25-May-2018	A1-PZ-19-SA1	1801054-04	N	Gen Prep	537 MOD	Stage 2B
25-May-2018	A1-PZ-19-SA1	280-110226-4	N	METHOD	8260B	Stage 2B
25-May-2018	A1-PZ-19-SA1	280-110226-4	N	METHOD	9040C	Stage 2B
25-May-2018	A1-PZ-19-SA1	280-110226-4	N	METHOD	9056A	Stage 2B
25-May-2018	A1-PZ-19-SA1	280-110226-4	N	METHOD	SM3500 Fe B D	Stage 2B
25-May-2018	A1-MW-52-SA1	1801054-05	N	Gen Prep	537 MOD	Stage 2B
25-May-2018	A1-MW-52-SA1	280-110226-5	N	METHOD	8260B	Stage 2B
25-May-2018	A1-MW-52-SA1	280-110226-5	N	METHOD	9040C	Stage 2B

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DUP = Laboratory Duplicate
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Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
25-May-2018	A1-MW-52-SA1	280-110226-5	N	METHOD	9056A	Stage 2B
25-May-2018	A1-MW-52-SA1	280-110226-5	N	METHOD	SM3500 Fe B D	Stage 2B
25-May-2018	A1-MW-52-SA1DUP	280-110226-5DUP	DUP	METHOD	9056A	Stage 2B
25-May-2018	A1-MW-52-SA1MS	280-110226-5MS	MS	METHOD	9056A	Stage 2B
25-May-2018	A1-MW-52-SA1MSD	280-110226-5MSD	MSD	METHOD	9056A	Stage 2B
25-May-2018	A1-MW-01-SA1	1801054-06	N	Gen Prep	537 MOD	Stage 2B
25-May-2018	A1-MW-01-SA1	280-110226-6	N	METHOD	8260B	Stage 2B
25-May-2018	A1-MW-01-SA1	280-110226-6	N	METHOD	9040C	Stage 2B
25-May-2018	A1-MW-01-SA1	280-110226-6	N	METHOD	9056A	Stage 2B
25-May-2018	A1-MW-01-SA1	280-110226-6	N	METHOD	SM3500 Fe B D	Stage 2B
25-May-2018	A1-MW-01-SA1D	1801054-07	FD	Gen Prep	537 MOD	Stage 2B
25-May-2018	A1-MW-01-SA1D	280-110226-7	FD	METHOD	8260B	Stage 2B
25-May-2018	A1-MW-31-SA1	1801054-08	N	Gen Prep	537 MOD	Stage 2B
25-May-2018	A1-MW-31-SA1	280-110226-8	N	METHOD	8260B	Stage 2B
25-May-2018	A1-MW-31-SA1	280-110226-8	N	METHOD	9040C	Stage 2B
25-May-2018	A1-MW-31-SA1	280-110226-8	N	METHOD	9056A	Stage 2B
25-May-2018	A1-MW-31-SA1	280-110226-8	N	METHOD	SM3500 Fe B D	Stage 2B
25-May-2018	A1-MW-31-SA1DUP	280-110226-8DUP	DUP	METHOD	SM3500 Fe B D	Stage 2B
25-May-2018	A1-MW-31-SA1MS	280-110226-8MS	MS	METHOD	SM3500 Fe B D	Stage 2B
25-May-2018	A1-MW-31-SA1MSD	280-110226-8MSD	MSD	METHOD	SM3500 Fe B D	Stage 2B
25-May-2018	FRB-20180525	1801054-09	FRB	Gen Prep	537 MOD	Stage 2B
30-May-2018	TB-20180530	280-110291-1	TB	METHOD	8260B	Stage 2B
30-May-2018	A1-MW-27-SA1	1801071-01	N	Gen Prep	537 MOD	Stage 2B
30-May-2018	A1-MW-27-SA1	280-110291-6	N	METHOD	8260B	Stage 2B
30-May-2018	A1-MW-27-SA1	280-110291-6	N	METHOD	9040C	Stage 2B
30-May-2018	A1-MW-27-SA1	280-110291-6	N	METHOD	9056A	Stage 2B

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DUP = Laboratory Duplicate
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Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
30-May-2018	A1-MW-27-SA1	280-110291-6	N	METHOD	SM3500 Fe B D	Stage 2B
30-May-2018	A1-MW-25-SA1	280-110291-5	N	METHOD	8260B	Stage 2B
30-May-2018	A1-MW-25-SA1	280-110291-5	N	METHOD	9040C	Stage 2B
30-May-2018	A1-MW-25-SA1	280-110291-5	N	METHOD	9056A	Stage 2B
30-May-2018	A1-MW-25-SA1	280-110291-5	N	METHOD	SM3500 Fe B D	Stage 2B
30-May-2018	A1-MW-55-SA1	1801071-02	N	Gen Prep	537 MOD	Stage 2B
30-May-2018	A1-MW-55-SA1	280-110291-4	N	METHOD	8260B	Stage 2B
30-May-2018	A1-MW-55-SA1	280-110291-4	N	METHOD	9040C	Stage 2B
30-May-2018	A1-MW-55-SA1	280-110291-4	N	METHOD	9056A	Stage 2B
30-May-2018	A1-MW-55-SA1	280-110291-4	N	METHOD	SM3500 Fe B D	Stage 2B
30-May-2018	A1-MW-23-SA1	1801071-03	N	Gen Prep	537 MOD	Stage 2B
30-May-2018	A1-MW-23-SA1	280-110291-3	N	METHOD	8260B	Stage 2B
30-May-2018	A1-MW-23-SA1	280-110291-3	N	METHOD	9040C	Stage 2B
30-May-2018	A1-MW-23-SA1	280-110291-3	N	METHOD	9056A	Stage 2B
30-May-2018	A1-MW-23-SA1	280-110291-3	N	METHOD	SM3500 Fe B D	Stage 2B
30-May-2018	A1-MW-07-SA1	1801071-04	N	Gen Prep	537 MOD	Stage 2B
30-May-2018	A1-MW-07-SA1	280-110291-7	N	METHOD	8260B	Stage 2B
30-May-2018	A1-MW-07-SA1	280-110291-7	N	METHOD	9040C	Stage 2B
30-May-2018	A1-MW-07-SA1	280-110291-7	N	METHOD	9056A	Stage 2B
30-May-2018	A1-MW-07-SA1	280-110291-7	N	METHOD	SM3500 Fe B D	Stage 2B
30-May-2018	A1-MW-14-SA1	280-110291-2	N	METHOD	8260B	Stage 2B
30-May-2018	A1-MW-14-SA1	280-110291-2	N	METHOD	9040C	Stage 2B
30-May-2018	A1-MW-14-SA1	280-110291-2	N	METHOD	9056A	Stage 2B
30-May-2018	A1-MW-14-SA1	280-110291-2	N	METHOD	SM3500 Fe B D	Stage 2B
30-May-2018	A1-MW-14-SA1DUP	280-110291-2DUP	DUP	METHOD	9056A	Stage 2B
30-May-2018	A1-MW-14-SA1MS	280-110291-2MS	MS	METHOD	9056A	Stage 2B

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Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
30-May-2018	A1-MW-14-SA1MSD	280-110291-2MSD	MSD	METHOD	9056A	Stage 2B
30-May-2018	FRB-20180530	1801071-05	FRB	Gen Prep	537 MOD	Stage 2B
31-May-2018	TB-20180531	280-110353-1	TB	METHOD	8260B	Stage 2B
31-May-2018	A1-MW-13-SA1	280-110353-2	N	METHOD	8260B	Stage 2B
31-May-2018	A1-MW-13-SA1	280-110353-2	N	METHOD	9040C	Stage 2B
31-May-2018	A1-MW-13-SA1	280-110353-2	N	METHOD	9056A	Stage 2B
31-May-2018	A1-MW-13-SA1	280-110353-2	N	METHOD	SM3500 Fe B D	Stage 2B
31-May-2018	A1-MW-11-SA1	280-110353-3	N	METHOD	8260B	Stage 2B
31-May-2018	A1-MW-11-SA1	280-110353-3	N	METHOD	9040C	Stage 2B
31-May-2018	A1-MW-11-SA1	280-110353-3	N	METHOD	9056A	Stage 2B
31-May-2018	A1-MW-11-SA1	280-110353-3	N	METHOD	SM3500 Fe B D	Stage 2B
31-May-2018	A1-MW-11-SA1DUP	280-110353-3DUP	DUP	METHOD	9040C	Stage 2B
31-May-2018	A1-MW-15-SA1	280-110353-4	N	METHOD	8260B	Stage 2B
31-May-2018	A1-MW-15-SA1	280-110353-4	N	METHOD	9040C	Stage 2B
31-May-2018	A1-MW-15-SA1	280-110353-4	N	METHOD	9056A	Stage 2B
31-May-2018	A1-MW-15-SA1	280-110353-4	N	METHOD	SM3500 Fe B D	Stage 2B
31-May-2018	EB-20180531	1801084-01	EB	Gen Prep	537 MOD	Stage 2B
31-May-2018	EB-20180531	280-110353-5	EB	METHOD	8260B	Stage 2B
31-May-2018	16-HS-03-SA1MS	B8E0244-MS1	MS	Gen Prep	537 MOD	Stage 4
31-May-2018	A1-MW-53-SA1MS	B8E0244-MS2	MS	Gen Prep	537 MOD	Stage 2B
31-May-2018	16-HS-03-SA1MSD	B8E0244-MSD1	MSD	Gen Prep	537 MOD	Stage 4
31-May-2018	A1-MW-53-SA1MSD	B8E0244-MSD2	MSD	Gen Prep	537 MOD	Stage 2B

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Attachment 2

Overall Data Qualification Summary

Data Qualifier Summary

Lab Reporting Batch ID: 280-110058-1, 280-110112-1, **Laboratory: TA DEN**

EDD Filename: Prep280-110058-1, Prep280-110112-1, Prep280-110226-1, Prep280-110291-1, Prep280-110353-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

SDG: 280-110058-1

Method Category: EM

Method: 9040C **Matrix: AQ**

Sample ID: A1-MW-04-SA1 **Collected:** 5/22/2018 2:06:00 PM **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.9	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: A1-MW-05-SA1 **Collected:** 5/22/2018 1:19:00 PM **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.9	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: A1-MW-49-SA1 **Collected:** 5/22/2018 12:20:00 PM **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.8	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: A1-MW-50-SA1 **Collected:** 5/22/2018 11:30:00 AM **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.7	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: A1-MW-51-SA1 **Collected:** 5/22/2018 10:14:00 AM **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.9	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Method Category: GENCHEM

Method: 9056A **Matrix: AQ**

Sample ID: A1-MW-49-SA1 **Collected:** 5/22/2018 12:20:00 PM **Analysis Type:** RE/TOT **Dilution:** 10

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NITRATE	2.82	J	1.00	LOD	5.00	LOQ	mg/L	J	RI

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-110058-1, 280-110112-1,

Laboratory: TA DEN

EDD Filename: Prep280-110058-1, Prep280-110112-1, Prep280-110226-1, Prep280-110291-1, Prep280-110353-1

eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver

SDG: 280-110058-1

Method Category: **GENCHEM**

Method: **SM3500 Fe B D** ***Matrix:*** **AQ**

Sample ID: **A1-MW-04-SA1** ***Collected:*** **5/22/2018 2:06:00 PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0751	J HF	0.0500	LOD	0.200	LOQ	mg/L	J	RI, StoA

Sample ID: **A1-MW-05-SA1** ***Collected:*** **5/22/2018 1:19:00 PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0617	J HF	0.0500	LOD	0.200	LOQ	mg/L	J	RI, StoA

Sample ID: **A1-MW-49-SA1** ***Collected:*** **5/22/2018 12:20:00 PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	UJ	StoA

Sample ID: **A1-MW-50-SA1** ***Collected:*** **5/22/2018 11:30:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Sample ID: **A1-MW-51-SA1** ***Collected:*** **5/22/2018 10:14:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0563	J HF F1	0.0500	LOD	0.200	LOQ	mg/L	J	RI, Ms, StoA

Method Category: **VOA**

Method: **8260B** ***Matrix:*** **AQ**

Sample ID: **A1-MW-50-SA1** ***Collected:*** **5/22/2018 11:30:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHENE	0.643	J	0.800	LOD	1.00	LOQ	ug/L	J	RI
TRICHLOROETHENE	0.903	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-110058-1, 280-110112-1,

Laboratory: TA DEN

EDD Filename: Prep280-110058-1, Prep280-110112-1, Prep280-110226-1, Prep280-110291-1, Prep280-110353-1

eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver

SDG: 280-110058-1

Method Category: VOA

Method: 8260B **Matrix:** AQ

Sample ID: A1-MW-51-SA1 **Collected:** 5/22/2018 10:14:00 AM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHENE	0.629	J	0.800	LOD	1.00	LOQ	ug/L	J	RI
TRICHLOROETHENE	0.571	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

SDG: 280-110112-1

Method Category: EM

Method: 9040C **Matrix:** AQ

Sample ID: 16-HS-03-SA1 **Collected:** 5/23/2018 2:19:00 PM **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.2	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: 16-MW-08-SA1 **Collected:** 5/23/2018 11:09:00 AM **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: A1-MW-18-SA1 **Collected:** 5/23/2018 9:00:00 AM **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.7	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: A1-MW-19-SA1 **Collected:** 5/23/2018 12:03:00 PM **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.7	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-110058-1, 280-110112-1, **Laboratory: TA DEN**

EDD Filename: Prep280-110058-1, Prep280-110112-1, Prep280-110226-1, Prep280-110291-1, Prep280-110353-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

SDG: 280-110112-1

Method Category: EM
Method: 9040C ***Matrix:*** AQ

Sample ID: A1-MW-37-SA1 ***Collected:*** 5/23/2018 1:16:00 PM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.7	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Method Category: GENCHEM
Method: 9056A ***Matrix:*** AQ

Sample ID: 16-HS-03-SA1 ***Collected:*** 5/23/2018 2:19:00 PM ***Analysis Type:*** RE2/TOT ***Dilution:*** 50

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Sulfate	2120	F1	25.0	LOD	250	LOQ	mg/L	J	Ms

Method Category: GENCHEM
Method: SM3500 Fe B D ***Matrix:*** AQ

Sample ID: 16-HS-03-SA1 ***Collected:*** 5/23/2018 2:19:00 PM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	Ms

Sample ID: 16-MW-08-SA1 ***Collected:*** 5/23/2018 11:09:00 AM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0403	J HF	0.0500	LOD	0.200	LOQ	mg/L	J	RI

Sample ID: A1-MW-18-SA1 ***Collected:*** 5/23/2018 9:00:00 AM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0215	J HF	0.0500	LOD	0.200	LOQ	mg/L	J	RI, StoA

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-110058-1, 280-110112-1,

Laboratory: TA DEN

EDD Filename: Prep280-110058-1, Prep280-110112-1, Prep280-110226-1, Prep280-110291-1, Prep280-110353-1

eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver

SDG: 280-110112-1

Method Category: GENCHEM

Method: SM3500 Fe B D ***Matrix:*** AQ

Sample ID: A1-MW-37-SA1 ***Collected:*** 5/23/2018 1:16:00 PM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.166	J HF	0.0500	LOD	0.200	LOQ	mg/L	J	RI

Method Category: VOA

Method: 8260B ***Matrix:*** AQ

Sample ID: 16-HS-03-SA1 ***Collected:*** 5/23/2018 2:19:00 PM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHENE	0.800	U F1 F2	0.800	LOD	1.00	LOQ	ug/L	UJ	Ms, Surr
TETRACHLOROETHENE	0.400	U	0.400	LOD	1.00	LOQ	ug/L	UJ	Surr
TRICHLOROETHENE	0.400	U	0.400	LOD	1.00	LOQ	ug/L	UJ	Surr

Sample ID: 16-MW-08-SA1 ***Collected:*** 5/23/2018 11:09:00 AM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TETRACHLOROETHENE	0.669	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

Sample ID: A1-MW-18-SA1 ***Collected:*** 5/23/2018 9:00:00 AM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHENE	0.452	J	0.800	LOD	1.00	LOQ	ug/L	J	RI

Sample ID: A1-MW-19-SA1 ***Collected:*** 5/23/2018 12:03:00 PM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TRICHLOROETHENE	0.424	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: 280-110058-1, 280-110112-1,

Laboratory: TA DEN

EDD Filename: Prep280-110058-1, Prep280-110112-1, Prep280-110226-1, Prep280-110291-1, Prep280-110353-1

eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver

SDG: 280-110112-1

Method Category: VOA

Method: 8260B ***Matrix:*** AQ

Sample ID: A1-MW-37-SA1 ***Collected:*** 5/23/2018 1:16:00 PM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TRICHLOROETHENE	0.624	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

Sample ID: A1-MW-37-SA1D ***Collected:*** 5/23/2018 1:26:00 PM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TRICHLOROETHENE	0.652	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

SDG: 280-110226-1

Method Category: EM

Method: 9040C ***Matrix:*** AQ

Sample ID: A1-MW-01-SA1 ***Collected:*** 5/25/2018 1:56:00 PM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.9	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: A1-MW-31-SA1 ***Collected:*** 5/25/2018 2:49:00 PM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: A1-MW-42-SA1 ***Collected:*** 5/25/2018 7:56:00 AM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.9	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: A1-MW-52-SA1 ***Collected:*** 5/25/2018 1:00:00 PM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-110058-1, 280-110112-1, **Laboratory: TA DEN**

EDD Filename: Prep280-110058-1, Prep280-110112-1, Prep280-110226-1, Prep280-110291-1, Prep280-110353-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

SDG: 280-110226-1

Method Category: **EM**

Method: **9040C** ***Matrix:*** **AQ**

Sample ID: **A1-MW-54-SA1** ***Collected:*** **5/25/2018 9:09:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.9	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: **A1-PZ-19-SA1** ***Collected:*** **5/25/2018 11:59:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.9	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Method Category: **GENCHEM**

Method: **9056A** ***Matrix:*** **AQ**

Sample ID: **A1-MW-52-SA1** ***Collected:*** **5/25/2018 1:00:00 PM** ***Analysis Type:*** **RE/TOT** ***Dilution:*** **5**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
CHLORIDE	500	F1	2.50	LOD	15.0	LOQ	mg/L	J	Ms

Sample ID: **A1-MW-54-SA1** ***Collected:*** **5/25/2018 9:09:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NITRATE	0.343	J	0.100	LOD	0.500	LOQ	mg/L	J	RI

Method Category: **GENCHEM**

Method: **SM3500 Fe B D** ***Matrix:*** **AQ**

Sample ID: **A1-MW-01-SA1** ***Collected:*** **5/25/2018 1:56:00 PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-110058-1, 280-110112-1,

Laboratory: TA DEN

EDD Filename: Prep280-110058-1, Prep280-110112-1, Prep280-110226-1, Prep280-110291-1, Prep280-110353-1

eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver

SDG: 280-110226-1

Method Category: **GENCHEM**

Method: **SM3500 Fe B D** ***Matrix:*** **AQ**

Sample ID: **A1-MW-31-SA1** ***Collected:*** **5/25/2018 2:49:00 PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	Ms, StoA

Sample ID: **A1-MW-42-SA1** ***Collected:*** **5/25/2018 7:56:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Sample ID: **A1-MW-52-SA1** ***Collected:*** **5/25/2018 1:00:00 PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Sample ID: **A1-MW-54-SA1** ***Collected:*** **5/25/2018 9:09:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Sample ID: **A1-PZ-19-SA1** ***Collected:*** **5/25/2018 11:59:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.198	J HF	0.0500	LOD	0.200	LOQ	mg/L	J	RI, StoA

Method Category: **VOA**

Method: **8260B** ***Matrix:*** **AQ**

Sample ID: **A1-MW-31-SA1** ***Collected:*** **5/25/2018 2:49:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TRICHLOROETHENE	0.353	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-110058-1, 280-110112-1, **Laboratory: TA DEN**

EDD Filename: Prep280-110058-1, Prep280-110112-1, Prep280-110226-1, Prep280-110291-1, Prep280-110353-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

SDG: 280-110226-1

Method Category: **VOA**

Method: **8260B** ***Matrix:*** **AQ**

Sample ID: **A1-MW-42-SA1** ***Collected:*** **5/25/2018 7:56:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHENE	0.298	J	0.800	LOD	1.00	LOQ	ug/L	J	RI
TRICHLOROETHENE	0.415	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

Sample ID: **A1-MW-52-SA1** ***Collected:*** **5/25/2018 1:00:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHENE	0.507	J	0.800	LOD	1.00	LOQ	ug/L	J	RI
TRICHLOROETHENE	0.627	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

Sample ID: **A1-PZ-19-SA1** ***Collected:*** **5/25/2018 11:59:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TRICHLOROETHENE	0.269	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

SDG: 280-110291-1

Method Category: **EM**

Method: **9040C** ***Matrix:*** **AQ**

Sample ID: **A1-MW-07-SA1** ***Collected:*** **5/30/2018 12:06:00 PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: **A1-MW-14-SA1** ***Collected:*** **5/30/2018 1:38:00 PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.9	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-110058-1, 280-110112-1, **Laboratory: TA DEN**

EDD Filename: Prep280-110058-1, Prep280-110112-1, Prep280-110226-1, Prep280-110291-1, Prep280-110353-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

SDG: 280-110291-1

Method Category: **EM**

Method: **9040C** ***Matrix:*** **AQ**

Sample ID: **A1-MW-23-SA1** ***Collected:*** **5/30/2018 11:10:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.9	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: **A1-MW-25-SA1** ***Collected:*** **5/30/2018 9:12:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: **A1-MW-27-SA1** ***Collected:*** **5/30/2018 8:18:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.9	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: **A1-MW-55-SA1** ***Collected:*** **5/30/2018 10:16:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.9	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Method Category: **GENCHEM**

Method: **SM3500 Fe B D** ***Matrix:*** **AQ**

Sample ID: **A1-MW-07-SA1** ***Collected:*** **5/30/2018 12:06:00 PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Sample ID: **A1-MW-14-SA1** ***Collected:*** **5/30/2018 1:38:00 PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-110058-1, 280-110112-1,

Laboratory: TA DEN

EDD Filename: Prep280-110058-1, Prep280-110112-1, Prep280-110226-1, Prep280-110291-1, Prep280-110353-1

eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver

SDG: 280-110291-1

Method Category: GENCHEM

Method: SM3500 Fe B D ***Matrix:*** AQ

Sample ID: A1-MW-23-SA1 ***Collected:*** 5/30/2018 11:10:00 AM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Sample ID: A1-MW-25-SA1 ***Collected:*** 5/30/2018 9:12:00 AM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.123	J HF	0.0500	LOD	0.200	LOQ	mg/L	J	RI, StoA

Sample ID: A1-MW-27-SA1 ***Collected:*** 5/30/2018 8:18:00 AM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Sample ID: A1-MW-55-SA1 ***Collected:*** 5/30/2018 10:16:00 AM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Method Category: VOA

Method: 8260B ***Matrix:*** AQ

Sample ID: A1-MW-07-SA1 ***Collected:*** 5/30/2018 12:06:00 PM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHENE	0.405	J	0.800	LOD	1.00	LOQ	ug/L	J	RI
TRICHLOROETHENE	0.797	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

Sample ID: A1-MW-14-SA1 ***Collected:*** 5/30/2018 1:38:00 PM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHENE	0.898	J	0.800	LOD	1.00	LOQ	ug/L	J	RI

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-110058-1, 280-110112-1,

Laboratory: TA DEN

EDD Filename: Prep280-110058-1, Prep280-110112-1, Prep280-110226-1, Prep280-110291-1, Prep280-110353-1

eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver

SDG: 280-110291-1

Method Category: **VOA**

Method: **8260B** ***Matrix:*** **AQ**

Sample ID: **A1-MW-14-SA1** ***Collected:*** **5/30/2018 1:38:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TRICHLOROETHENE	0.876	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

Sample ID: **A1-MW-23-SA1** ***Collected:*** **5/30/2018 11:10:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHENE	0.800	U	0.800	LOD	1.00	LOQ	ug/L	UJ	Headspace
TETRACHLOROETHENE	0.400	U	0.400	LOD	1.00	LOQ	ug/L	UJ	Headspace
TRICHLOROETHENE	0.400	U	0.400	LOD	1.00	LOQ	ug/L	UJ	Headspace

Sample ID: **A1-MW-25-SA1** ***Collected:*** **5/30/2018 9:12:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHENE	0.204	J	0.800	LOD	1.00	LOQ	ug/L	J	RI
TRICHLOROETHENE	0.418	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

SDG: 280-110353-1

Method Category: **EM**

Method: **9040C** ***Matrix:*** **AQ**

Sample ID: **A1-MW-11-SA1** ***Collected:*** **5/31/2018 8:24:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.1	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: **A1-MW-13-SA1** ***Collected:*** **5/31/2018 7:43:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-110058-1, 280-110112-1, **Laboratory: TA DEN**

EDD Filename: Prep280-110058-1, Prep280-110112-1, Prep280-110226-1, Prep280-110291-1, Prep280-110353-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

SDG: 280-110353-1

Method Category: **EM**

Method: **9040C** ***Matrix:*** **AQ**

Sample ID: **A1-MW-15-SA1** ***Collected:*** **5/31/2018 9:16:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	*Lab Result*	*Lab Qual*	*DL*	*DL Type*	*RL*	*RL Type*	*Units*	*Data Review Qual*	*Reason Code*
PH	8.1	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Method Category: **GENCHEM**

Method: **SM3500 Fe B D** ***Matrix:*** **AQ**

Sample ID: **A1-MW-11-SA1** ***Collected:*** **5/31/2018 8:24:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	*Lab Result*	*Lab Qual*	*DL*	*DL Type*	*RL*	*RL Type*	*Units*	*Data Review Qual*	*Reason Code*
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Sample ID: **A1-MW-13-SA1** ***Collected:*** **5/31/2018 7:43:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	*Lab Result*	*Lab Qual*	*DL*	*DL Type*	*RL*	*RL Type*	*Units*	*Data Review Qual*	*Reason Code*
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Sample ID: **A1-MW-15-SA1** ***Collected:*** **5/31/2018 9:16:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	*Lab Result*	*Lab Qual*	*DL*	*DL Type*	*RL*	*RL Type*	*Units*	*Data Review Qual*	*Reason Code*
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Method Category: **VOA**

Method: **8260B** ***Matrix:*** **AQ**

Sample ID: **A1-MW-15-SA1** ***Collected:*** **5/31/2018 9:16:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	*Lab Result*	*Lab Qual*	*DL*	*DL Type*	*RL*	*RL Type*	*Units*	*Data Review Qual*	*Reason Code*
TRICHLOROETHENE	0.321	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-110058-1, 280-110112-1,

Laboratory: TA DEN

EDD Filename: Prep280-110058-1, Prep280-110112-1, Prep280-110226-1, Prep280-110291-1, Prep280-110353-1

eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver

Reason Code Legend

Reason Code	*Description*
Headspace	Preservation
Mb	Method Blank Contamination
Ms	Matrix Spike Lower Estimation
Ms	Matrix Spike Lower Rejection
Ms	Matrix Spike Precision
Preservation	Preservation
RI	Reporting Limit Trace Value
StoA	Sampling to Analysis Estimation
StoA	Sampling to Analysis Rejection
Surr	Surrogate/Tracer Recovery Lower Estimation

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: 1801024, 1801037, 1801039,

Laboratory: Vista

EDD Filename: 1801024, 1801037, 1801039, 1801054, 1801071, 1801084

eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista

SDG: 1801024

Method Category: **SVOA**

Method: **537 MOD** ***Matrix:*** **AQ**

Sample ID: **A1-MW-04-SA1** ***Collected:*** **5/22/2018 2:06:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFOA	0.00333	J	0.00508	LOD	0.00812	LOQ	ug/L	J	RI
PFOS	0.00161	J	0.00508	LOD	0.00812	LOQ	ug/L	J	RI

Sample ID: **A1-MW-05-SA1** ***Collected:*** **5/22/2018 1:19:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFHpA	0.000917	J	0.00525	LOD	0.00842	LOQ	ug/L	J	RI
PFHxS	0.00278	J	0.00525	LOD	0.00842	LOQ	ug/L	J	RI

Sample ID: **A1-MW-49-SA1** ***Collected:*** **5/22/2018 12:20:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.00627	J	0.00508	LOD	0.00812	LOQ	ug/L	J	RI

Sample ID: **A1-MW-51-SA1** ***Collected:*** **5/22/2018 10:14:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NEtFOSAA	0.00521	U	0.00521	LOD	0.00836	LOQ	ug/L	UJ	Is
PFBS	0.0613		0.00521	LOD	0.00836	LOQ	ug/L	J	Is
PFOS	0.00303	J	0.00521	LOD	0.00836	LOQ	ug/L	J	RI

SDG: 1801037

Method Category: **SVOA**

Method: **537 MOD** ***Matrix:*** **AQ**

Sample ID: **16-HS-03-SA1** ***Collected:*** **5/23/2018 2:19:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.582		0.00500	LOD	0.00803	LOQ	ug/L	J	Is
PFHxS	0.150		0.00500	LOD	0.00803	LOQ	ug/L	J	Ms

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 1801024, 1801037, 1801039,

Laboratory: Vista

EDD Filename: 1801024, 1801037, 1801039, 1801054, 1801071, 1801084

eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista

SDG: 1801037

Method Category: SVOA

Method: 537 MOD ***Matrix:*** AQ

Sample ID: 16-HS-03-SA1 ***Collected:*** 5/23/2018 2:19:00 PM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFOA	0.0218		0.00500	LOD	0.00803	LOQ	ug/L	J	Ms
PFHpA	0.198		0.00500	LOD	0.00803	LOQ	ug/L	J	Ms, Ms

Sample ID: 16-MW-06-SA1 ***Collected:*** 5/23/2018 9:50:00 AM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.112		0.00563	LOD	0.00897	LOQ	ug/L	J	Is
PFOS	0.00227	J	0.00563	LOD	0.00897	LOQ	ug/L	J	RI

Sample ID: 16-MW-08-SA1 ***Collected:*** 5/23/2018 11:09:00 AM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	1.29		0.00543	LOD	0.00870	LOQ	ug/L	J	Is
PFNA	0.00102	J	0.00543	LOD	0.00870	LOQ	ug/L	J	RI

Sample ID: 16-MW-09-SA1 ***Collected:*** 5/23/2018 10:15:00 AM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.124		0.00543	LOD	0.00871	LOQ	ug/L	J	Is
PFDA	0.00440	J	0.00543	LOD	0.00871	LOQ	ug/L	J	RI
PFNA	0.00326	J	0.00543	LOD	0.00871	LOQ	ug/L	J	RI

Sample ID: A1-MW-18-SA1 ***Collected:*** 5/23/2018 9:00:00 AM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.0244		0.00553	LOD	0.00888	LOQ	ug/L	J	Is
PFOA	0.00187	J	0.00553	LOD	0.00888	LOQ	ug/L	J	RI
PFOS	0.00437	J	0.00553	LOD	0.00888	LOQ	ug/L	J	RI

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 1801024, 1801037, 1801039,

Laboratory: Vista

EDD Filename: 1801024, 1801037, 1801039, 1801054, 1801071, 1801084

eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista

SDG: 1801037

Method Category: **SVOA**

Method: **537 MOD** ***Matrix:*** **AQ**

Sample ID: **A1-MW-19-SA1** ***Collected:*** **5/23/2018 12:03:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.0166		0.00530	LOD	0.00846	LOQ	ug/L	J	Is
PFDA	0.00727	J	0.00530	LOD	0.00846	LOQ	ug/L	J	RI

Sample ID: **A1-MW-37-SA1** ***Collected:*** **5/23/2018 1:16:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.230		0.00525	LOD	0.00839	LOQ	ug/L	J	Is
PFNA	0.00170	J	0.00525	LOD	0.00839	LOQ	ug/L	J	RI

Sample ID: **A1-MW-37-SA1D** ***Collected:*** **5/23/2018 1:26:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.252		0.00539	LOD	0.00862	LOQ	ug/L	J	Is
PFNA	0.00210	J	0.00539	LOD	0.00862	LOQ	ug/L	J	RI
PFUnA	0.00135	J	0.00539	LOD	0.00862	LOQ	ug/L	J	RI

SDG: 1801039

Method Category: **SVOA**

Method: **537 MOD** ***Matrix:*** **AQ**

Sample ID: **A1-MW-11-SA1** ***Collected:*** **5/24/2018 8:51:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFOS	0.00359	J	0.00539	LOD	0.00860	LOQ	ug/L	J	RI
PFBS	0.109		0.00539	LOD	0.00860	LOQ	ug/L	J	Is

Sample ID: **A1-MW-13-SA1** ***Collected:*** **5/24/2018 7:44:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.318		0.00568	LOD	0.00912	LOQ	ug/L	J	Is

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 1801024, 1801037, 1801039, **Laboratory: Vista**

EDD Filename: 1801024, 1801037, 1801039, 1801054, 1801071, 1801084 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

SDG: 1801039

Method Category: SVOA

Method: 537 MOD ***Matrix:*** AQ

Sample ID: A1-MW-14-SA1 ***Collected:*** 5/24/2018 10:05:00 AM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.118		0.00558	LOD	0.00893	LOQ	ug/L	J	Is

Sample ID: A1-MW-15-SA1 ***Collected:*** 5/24/2018 11:11:00 AM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.523		0.00558	LOD	0.00889	LOQ	ug/L	J	Is

Sample ID: A1-MW-25-SA1 ***Collected:*** 5/24/2018 2:18:00 PM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.355		0.00553	LOD	0.00889	LOQ	ug/L	J	Is

SDG: 1801054

Method Category: SVOA

Method: 537 MOD ***Matrix:*** AQ

Sample ID: A1-MW-01-SA1 ***Collected:*** 5/25/2018 1:56:00 PM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.0524		0.00568	LOD	0.00907	LOQ	ug/L	J	Is
PFHpA	0.00225	J	0.00568	LOD	0.00907	LOQ	ug/L	J	RI

Sample ID: A1-MW-01-SA1D ***Collected:*** 5/25/2018 2:06:00 PM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.0557		0.00534	LOD	0.00854	LOQ	ug/L	J	Is
PFHpA	0.00273	J	0.00534	LOD	0.00854	LOQ	ug/L	J	RI

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 1801024, 1801037, 1801039, **Laboratory: Vista**

EDD Filename: 1801024, 1801037, 1801039, 1801054, 1801071, 1801084 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

SDG: 1801054

Method Category: **SVOA**

Method: **537 MOD** ***Matrix:*** **AQ**

Sample ID: **A1-MW-31-SA1** ***Collected:*** **5/25/2018 2:49:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.0634		0.00553	LOD	0.00887	LOQ	ug/L	J	Is
PFHpA	0.00851	J	0.00553	LOD	0.00887	LOQ	ug/L	J	RI

Sample ID: **A1-MW-42-SA1** ***Collected:*** **5/25/2018 7:56:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.292		0.00553	LOD	0.00887	LOQ	ug/L	J	Is
PFOS	0.00186	J	0.00553	LOD	0.00887	LOQ	ug/L	J	RI

Sample ID: **A1-MW-52-SA1** ***Collected:*** **5/25/2018 1:00:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.146		0.00543	LOD	0.00869	LOQ	ug/L	J	Is

Sample ID: **A1-MW-53-SA1** ***Collected:*** **5/25/2018 10:14:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.551		0.00548	LOD	0.00878	LOQ	ug/L	J	Is
PFOS	0.00188	J	0.00548	LOD	0.00878	LOQ	ug/L	J	RI

Sample ID: **A1-MW-54-SA1** ***Collected:*** **5/25/2018 9:09:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.536		0.00558	LOD	0.00892	LOQ	ug/L	J	Is
PFOS	0.00652	J	0.00558	LOD	0.00892	LOQ	ug/L	J	RI

Sample ID: **A1-PZ-19-SA1** ***Collected:*** **5/25/2018 11:59:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.0152		0.00534	LOD	0.00852	LOQ	ug/L	J	Is

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 1801024, 1801037, 1801039,

Laboratory: Vista

EDD Filename: 1801024, 1801037, 1801039, 1801054, 1801071, 1801084

eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista

SDG: 1801054

Method Category: **SVOA**

Method: **537 MOD** ***Matrix:*** **AQ**

Sample ID: **A1-PZ-19-SA1** ***Collected:*** **5/25/2018 11:59:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFHpA	0.00326	J	0.00534	LOD	0.00852	LOQ	ug/L	J	RI
PFOA	0.00756	J	0.00534	LOD	0.00852	LOQ	ug/L	J	RI
PFOS	0.00115	J	0.00534	LOD	0.00852	LOQ	ug/L	J	RI

SDG: 1801071

Method Category: **SVOA**

Method: **537 MOD** ***Matrix:*** **AQ**

Sample ID: **A1-MW-07-SA1** ***Collected:*** **5/30/2018 12:06:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.112		0.00525	LOD	0.00840	LOQ	ug/L	J	Is

Sample ID: **A1-MW-23-SA1** ***Collected:*** **5/30/2018 11:10:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFHxS	0.00581	J	0.00548	LOD	0.00874	LOQ	ug/L	J	RI

Sample ID: **A1-MW-27-SA1** ***Collected:*** **5/30/2018 8:18:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.0819		0.00534	LOD	0.00854	LOQ	ug/L	J	Is

Sample ID: **A1-MW-55-SA1** ***Collected:*** **5/30/2018 10:16:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFBS	0.00548	U	0.00548	LOD	0.00875	LOQ	ug/L	UJ	Is

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 1801024, 1801037, 1801039,

Laboratory: Vista

EDD Filename: 1801024, 1801037, 1801039, 1801054, 1801071, 1801084

eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista

Reason Code Legend

Reason Code	*Description*
Is	Internal Standard Estimation
Lcs	Laboratory Control Spike Upper Estimation
Ms	Matrix Spike Lower Estimation
Ms	Matrix Spike Lower Rejection
Ms	Matrix Spike Precision
Ms	Matrix Spike Upper Estimation
RI	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Enclosure I

Stage 2B ADR Outliers

(Including Manual Review Outliers)

Quality Control
Outlier Reports

280-110058-1

QC Outlier Report: HoldingTimes

Lab Reporting Batch ID: 280-110058-1 **Laboratory: TA DEN**

EDD Filename: 280-110058-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: 9040C **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
A1-MW-04-SA1 (RES/TOT)	Sampling To Analysis	226.00	24.00	HOURS	J (all detects)
A1-MW-05-SA1 (RES/TOT)		319.25	24.00	HOURS	
A1-MW-49-SA1 (RES/TOT)		227.75	24.00	HOURS	
A1-MW-50-SA1 (RES/TOT)		228.25	24.00	HOURS	
A1-MW-50-SA1DUP (RES/TOT)		228.50	24.00	HOURS	
A1-MW-51-SA1 (RES/TOT)		229.25	24.00	HOURS	

Method: SM3500 Fe B D **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
A1-MW-04-SA1 (RES/TOT)	Sampling To Analysis	45.75	24.00	HOURS	J(all detects)
A1-MW-05-SA1 (RES/TOT)		46.50	24.00	HOURS	UJ(all non-detects)
A1-MW-49-SA1 (RES/TOT)		47.50	24.00	HOURS	
A1-MW-50-SA1 (RES/TOT)	Sampling To Analysis	48.25	24.00	HOURS	J(all detects)
A1-MW-51-SA1 (RES/TOT)		49.50	24.00	HOURS	R(all non-detects)
A1-MW-51-SA1DUP (RES/TOT)		49.50	24.00	HOURS	
A1-MW-51-SA1MS (RES/TOT)		49.50	24.00	HOURS	
A1-MW-51-SA1MSD (RES/TOT)		49.50	24.00	HOURS	

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 280-110058-1 **Laboratory: TA DEN**

EDD Filename: 280-110058-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: **SM3500 Fe B D**
Matrix: **AQ**

QC Sample ID (Associated Samples)	*Compound*	*MS %R*	*MSD %R*	*%R Limits*	*RPD (Limits)*	*Affected Compounds*	*Flag*
A1-MW-51-SA1MS A1-MW-51-SA1MSD (A1-MW-51-SA1)	Ferrous Iron	38	39	85.00-113.00	-	Ferrous Iron	J (all detects) UJ (all non-detects)

Reporting Limit Outliers

Lab Reporting Batch ID: 280-110058-1 **Laboratory: TA DEN**

EDD Filename: 280-110058-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: 8260B

Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
A1-MW-50-SA1	1,1-DICHLOROETHENE TRICHLOROETHENE	J J	0.643 0.903	1.00 1.00	LOQ LOQ	ug/L ug/L	J (all detects)
A1-MW-51-SA1	1,1-DICHLOROETHENE TRICHLOROETHENE	J J	0.629 0.571	1.00 1.00	LOQ LOQ	ug/L ug/L	J (all detects)

Method: 9056A

Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
A1-MW-49-SA1	NITRATE	J	2.82	5.00	LOQ	mg/L	J (all detects)

Method: SM3500 Fe B D

Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
A1-MW-04-SA1	Ferrous Iron	J HF	0.0751	0.200	LOQ	mg/L	J (all detects)
A1-MW-05-SA1	Ferrous Iron	J HF	0.0617	0.200	LOQ	mg/L	J (all detects)
A1-MW-51-SA1	Ferrous Iron	J HF F1	0.0563	0.200	LOQ	mg/L	J (all detects)

LDC #: 42613A1
SDG #: 280-110058-1
Laboratory: Test America, Inc.

VALIDATION COMPLETENESS WORKSHEET
ADR

Date: 7/13/18
Page: 1 of 1
Reviewer: Q
2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSD≤15%. ICV≤20%
IV.	Continuing calibration	A	CCV≤20/60%
V.	Laboratory Blanks	N	
VI.	Field blanks	ND	TB=1.
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	TB-20180522	280-110058-1	Water	05/22/18
2	A1-MW-51-SA1	280-110058-2	Water	05/22/18
3	A1-MW-50-SA1	280-110058-3	Water	05/22/18
4	A1-MW-49-SA1	280-110058-4	Water	05/22/18
5	A1-MW-05-SA1	280-110058-5	Water	05/22/18
6	A1-MW-04-SA1	280-110058-6	Water	05/22/18
7	A1-MW-51-SA1MS	280-110058-2MS	Water	05/22/18
8	A1-MW-51-SA1MSD	280-110058-2MSD	Water	05/22/18
9				
10				

Notes:

LDC #: 42613A6
SDG #: 280-110058-1
Laboratory: Test America, Inc.

VALIDATION COMPLETENESS WORKSHEET
ADR

Date: 7/18/18
Page: 1 of 1
Reviewer: a
2nd Reviewer: KC

METHOD: (Analyte) Chloride, Nitrate-N, Sulfate (EPA SW846 Method 9056A), Ferrous Iron (SM3500-Fe B) pH (EPA SW846 Method (9040C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	A	
V	Field blanks	—	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicate sample analysis	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	—	
X.	Sample result verification	N	
XI	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-51-SA1	280-110058-2	Water	05/22/18
2	A1-MW-50-SA1	280-110058-3	Water	05/22/18
3	A1-MW-49-SA1	280-110058-4	Water	05/22/18
4	A1-MW-05-SA1	280-110058-5	Water	05/22/18
5	A1-MW-04-SA1	280-110058-6	Water	05/22/18
6	A1-MW-51-SA1MS	280-110058-2MS	Water	05/22/18
7	A1-MW-51-SA1MSD	280-110058-2MSD	Water	05/22/18
8	A1-MW-51-SA1DUP	280-110058-2DUP	Water	05/22/18
9	A1-MW-50-SA1DUP	280-110058-3DUP	Water	05/22/18
10				
11				
12				
13				
14				
15				

Notes:

LDC #: 42613A6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: CR
2nd reviewer: KW

All circled methods are applicable to each sample.

Sample ID	Parameter
1-5	(pH) TDS (Cl) F (NO3) NO2 (SO4) O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4 (Fe3+)
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
QC:6,7	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4 (Fe2+)
8	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4 (Fe2+)
9	(pH) TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4

Comments:

Quality Control
Outlier Reports

280-110112-1

QC Outlier Report: HoldingTimes

Lab Reporting Batch ID: 280-110112-1 **Laboratory: TA DEN**

EDD Filename: 280-110112-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: 9040C **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
16-HS-03-SA1 (RES/TOT)	Sampling To Analysis	201.25	24.00	HOURS	J (all detects)
16-MW-08-SA1 (RES/TOT)		204.25	24.00	HOURS	
A1-MW-18-SA1 (RES/TOT)		206.25	24.00	HOURS	
A1-MW-19-SA1 (RES/TOT)		203.25	24.00	HOURS	
A1-MW-37-SA1 (RES/TOT)		202.25	24.00	HOURS	

Method: SM3500 Fe B D **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
A1-MW-18-SA1 (RES/TOT)	Sampling To Analysis	26.85	24.00	HOURS	J(all detects) UJ(all non-detects)

Surrogate Outlier Report

Lab Reporting Batch ID: 280-110112-1 **Laboratory: TA DEN**

EDD Filename: 280-110112-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: **8260B**
Matrix: **AQ**

Sample ID (Analysis Type)	*Surrogate*	*Sample % Recovery*	*% Recovery Limits*	*Affected Compounds*	*Flag*
16-HS-03-SA1	TOLUENE-D8	75	89.00-112.00	All Target Analytes	J (all detects) UJ (all non-detects)

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 280-110112-1 **Laboratory: TA DEN**

EDD Filename: 280-110112-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: SM3500 Fe B D
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
16-HS-03-SA1MS 16-HS-03-SA1MSD (16-HS-03-SA1)	Ferrous Iron	1	0	85.00-113.00	-	Ferrous Iron	J (all detects) R (all non-detects)

Method: 8260B
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
16-HS-03-SA1MS 16-HS-03-SA1MSD (16-HS-03-SA1)	1,1-DICHLOROETHENE	56	33	71.00-131.00	53 (20.00)	1,1-DICHLOROETHENE	J(all detects) UJ(all non-detects)

Method: 9056A
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
16-HS-03-SA1MSD (16-HS-03-SA1)	Sulfate	-	86	87.00-112.00	-	Sulfate	J(all detects) UJ(all non-detects)
A1-MW-18-SA1MS A1-MW-18-SA1MSD (A1-MW-18-SA1)	CHLORIDE Sulfate	50 73	45 72	87.00-111.00 87.00-112.00	- -	CHLORIDE Sulfate	No Qual, >4x

Reporting Limit Outliers

Lab Reporting Batch ID: 280-110112-1 **Laboratory: TA DEN**

EDD Filename: 280-110112-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: **8260B**

Matrix: **AQ**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
16-MW-08-SA1	TETRACHLOROETHENE	J	0.669	1.00	LOQ	ug/L	J (all detects)
A1-MW-18-SA1	1,1-DICHLOROETHENE	J	0.452	1.00	LOQ	ug/L	J (all detects)
A1-MW-19-SA1	TRICHLOROETHENE	J	0.424	1.00	LOQ	ug/L	J (all detects)
A1-MW-37-SA1	TRICHLOROETHENE	J	0.624	1.00	LOQ	ug/L	J (all detects)
A1-MW-37-SA1D	TRICHLOROETHENE	J	0.652	1.00	LOQ	ug/L	J (all detects)

Method: **SM3500 Fe B D**

Matrix: **AQ**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
16-MW-08-SA1	Ferrous Iron	J HF	0.0403	0.200	LOQ	mg/L	J (all detects)
A1-MW-18-SA1	Ferrous Iron	J HF	0.0215	0.200	LOQ	mg/L	J (all detects)
A1-MW-37-SA1	Ferrous Iron	J HF	0.166	0.200	LOQ	mg/L	J (all detects)

Field Duplicate RPD Report

Lab Reporting Batch ID: 280-110112-1 **Laboratory: TA DEN**

EDD Filename: 280-110112-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: 8260B
Matrix: AQ

Analyte	*Concentration (ug/L)*		*Sample RPD*	*eQAPP RPD*	*Flag*
	A1-MW-37-SA1	A1-MW-37-SA1D			
TRICHLOROETHENE	0.624	0.652	NC	30.00	No Qualifiers Applied

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Quality Control
Outlier Reports

280-110226-1

QC Outlier Report: HoldingTimes

Lab Reporting Batch ID: 280-110226-1 **Laboratory: TA DEN**

EDD Filename: 280-110226-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: 9040C **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
A1-MW-01-SA1 (RES/TOT)	Sampling To Analysis	154.50	24.00	HOURS	J (all detects)
A1-MW-31-SA1 (RES/TOT)		154.00	24.00	HOURS	
A1-MW-42-SA1 (RES/TOT)		160.25	24.00	HOURS	
A1-MW-52-SA1 (RES/TOT)		155.50	24.00	HOURS	
A1-MW-54-SA1 (RES/TOT)		159.25	24.00	HOURS	
A1-PZ-19-SA1 (RES/TOT)		156.50	24.00	HOURS	

Method: SM3500 Fe B D **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
A1-MW-01-SA1 (RES/TOT)	Sampling To Analysis	452.25	24.00	HOURS	J(all detects)
A1-MW-31-SA1 (RES/TOT)		451.25	24.00	HOURS	R(all non-detects)
A1-MW-31-SA1DUP (RES/TOT)		451.25	24.00	HOURS	
A1-MW-31-SA1DUP (RE/TOT)		452.25	24.00	HOURS	
A1-MW-31-SA1MS (RES/TOT)		451.25	24.00	HOURS	
A1-MW-31-SA1MS (RE/TOT)		452.25	24.00	HOURS	
A1-MW-31-SA1MSD (RES/TOT)		451.50	24.00	HOURS	
A1-MW-31-SA1MSD (RE/TOT)		452.25	24.00	HOURS	
A1-MW-42-SA1 (RES/TOT)		458.25	24.00	HOURS	
A1-MW-52-SA1 (RES/TOT)		453.25	24.00	HOURS	
A1-MW-54-SA1 (RES/TOT)		457.00	24.00	HOURS	
A1-PZ-19-SA1 (RES/TOT)		454.25	24.00	HOURS	

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 280-110226-1 **Laboratory: TA DEN**

EDD Filename: 280-110226-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: 9056A
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
A1-MW-52-SA1MS A1-MW-52-SA1MSD (A1-MW-52-SA1)	CHLORIDE Sulfate	- 75	84 70	87.00-111.00 87.00-112.00	- -	CHLORIDE Sulfate**	J (all detects) ** No Qual, >4x

Method: SM3500 Fe B D
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
A1-MW-31-SA1MS A1-MW-31-SA1MSD (A1-MW-31-SA1)	Ferrous Iron	21	21	85.00-113.00	-	Ferrous Iron	J(all detects) R(all non-detects)

Reporting Limit Outliers

Lab Reporting Batch ID: 280-110226-1 **Laboratory: TA DEN**

EDD Filename: 280-110226-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: 8260B

Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
A1-MW-31-SA1	TRICHLOROETHENE	J	0.353	1.00	LOQ	ug/L	J (all detects)
A1-MW-42-SA1	1,1-DICHLOROETHENE TRICHLOROETHENE	J J	0.298 0.415	1.00 1.00	LOQ LOQ	ug/L ug/L	J (all detects)
A1-MW-52-SA1	1,1-DICHLOROETHENE TRICHLOROETHENE	J J	0.507 0.627	1.00 1.00	LOQ LOQ	ug/L ug/L	J (all detects)
A1-PZ-19-SA1	TRICHLOROETHENE	J	0.269	1.00	LOQ	ug/L	J (all detects)

Method: 9056A

Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
A1-MW-54-SA1	NITRATE	J	0.343	0.500	LOQ	mg/L	J (all detects)

Method: SM3500 Fe B D

Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
A1-PZ-19-SA1	Ferrous Iron	J HF	0.198	0.200	LOQ	mg/L	J (all detects)

LDC #: 42613C1
SDG #: 280-110226-1
Laboratory: Test America, Inc.

VALIDATION COMPLETENESS WORKSHEET
ADR

Date: 7/19/18
Page: 1 of 1
Reviewer: 1
2nd Reviewer: RW

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSD ≤ 15%. ICV ≤ 20%
IV.	Continuing calibration	A	CCV ≤ 20/20%
V.	Laboratory Blanks	N	
VI.	Field blanks	ND	TB = 9
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	ND	D = 6+7
XI.	Internal standards	A	(MS/MSD - FSaut)
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-42-SA1	280-110226-1	Water	05/25/18
2	A1-MW-54-SA1	280-110226-2	Water	05/25/18
3	A1-MW-53-SA1	280-110226-3	Water	05/25/18
4	A1-PZ-19-SA1	280-110226-4	Water	05/25/18
5	A1-MW-52-SA1	280-110226-5	Water	05/25/18
6	A1-MW-01-SA1	280-110226-6	Water	05/25/18
7	A1-MW-01-SA1D	280-110226-7	Water	05/25/18
8	A1-MW-31-SA1	280-110226-8	Water	05/25/18
9	TB-20180525	280-110226-12	Water	05/25/18
10	A1-MW-53-SA1MS	280-110226-3MS	Water	05/25/18
11	A1-MW-53-SA1MSD	280-110226-3MSD	Water	05/25/18
12				
13				

LDC #: 42613C6
SDG #: 280-110226-1
Laboratory: Test America, Inc.

VALIDATION COMPLETENESS WORKSHEET
ADR

Date: 7/18/18
Page: 1 of 1
Reviewer: G
2nd Reviewer: KW

METHOD: (Analyte) Chloride, Nitrate-N, Sulfate (EPA SW846 Method 9056A), Ferrous Iron (SM3500-Fe B)
pH (EPA SW846 Method (9040C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/-	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	ASW	
V	Field blanks	-	
VI.	Matrix Spike/Matrix Spike Duplicates	N	7/8:SO4 7/x
VII.	Duplicate sample analysis	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	-	
X.	Sample result verification	N	
XI	Overall assessment of data	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank
SB=Source blank
OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-42-SA1	280-110226-1	Water	05/25/18
2	A1-MW-54-SA1	280-110226-2	Water	05/25/18
3	A1-PZ-19-SA1	280-110226-4	Water	05/25/18
4	A1-MW-52-SA1	280-110226-5	Water	05/25/18
5	A1-MW-01-SA1	280-110226-6	Water	05/25/18
6	A1-MW-31-SA1	280-110226-8	Water	05/25/18
7	A1-MW-52-SA1MS	280-110226-5MS	Water	05/25/18
8	A1-MW-52-SA1MSD	280-110226-5MSD	Water	05/25/18
9	A1-MW-52-SA1DUP	280-110226-5DUP	Water	05/25/18
10	A1-MW-31-SA1MS1	280-110226-8MS1	Water	05/25/18
11	A1-MW-31-SA1MSD1	280-110226-8MSD1	Water	05/25/18
12	A1-MW-31-SA1DUP1	280-110226-8DUP2	Water	05/25/18
13	A1-MW-31-SA1MS2	280-110226-8MS2	Water	05/25/18
14	A1-MW-31-SA1MSD2	280-110226-8MSD2	Water	05/25/18
15	A1-MW-31-SA1DUP2	280-110226-8DUP2	Water	05/25/18
16				

Notes:

LDC #: 42613C6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: CR
2nd reviewer: KK

All circled methods are applicable to each sample.

Sample ID	Parameter
1-6	(pH) TDS (Cl) F (NO3) NO2 (SO4) O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4 (Fe2+)
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
QC: 7,8	pH TDS (Cl) F NO3 NO2 (SO4) O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
9	pH TDS (Cl) F NO3 NO2 (SO4) O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
10,11	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4 (Fe2+)
12	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4 (Fe2+)
13,14	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4 (Fe2+)
15	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4 (Fe2+)
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4

Comments:

LDC #: 42613C6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: G
2nd Reviewer: KK

METHOD: Inorganics, Method See Cover

Conc. units: mg/L **Associated Samples:** All

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No qual (>5x)								
NO3-N		0.04663	0.23315									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

Quality Control
Outlier Reports

280-110291-1

QC Outlier Report: HoldingTimes

Lab Reporting Batch ID: 280-110291-1 **Laboratory: TA DEN**

EDD Filename: 280-110291-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: 9040C **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
A1-MW-07-SA1 (RES/TOT)	Sampling To Analysis	78.25	24.00	HOURS	J (all detects)
A1-MW-14-SA1 (RES/TOT)		76.25	24.00	HOURS	
A1-MW-23-SA1 (RES/TOT)		79.00	24.00	HOURS	
A1-MW-25-SA1 (RES/TOT)		81.00	24.00	HOURS	
A1-MW-27-SA1 (RES/TOT)		82.00	24.00	HOURS	
A1-MW-55-SA1 (RES/TOT)		79.75	24.00	HOURS	

Method: SM3500 Fe B D **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
A1-MW-07-SA1 (RES/TOT)	Sampling To Analysis	334.25	24.00	HOURS	J(all detects)
A1-MW-14-SA1 (RES/TOT)		332.50	24.00	HOURS	R(all non-detects)
A1-MW-23-SA1 (RES/TOT)		335.00	24.00	HOURS	
A1-MW-25-SA1 (RES/TOT)		337.00	24.00	HOURS	
A1-MW-27-SA1 (RES/TOT)		338.00	24.00	HOURS	
A1-MW-55-SA1 (RES/TOT)		336.00	24.00	HOURS	

Reporting Limit Outliers

Lab Reporting Batch ID: 280-110291-1 **Laboratory: TA DEN**

EDD Filename: 280-110291-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: **8260B**

Matrix: **AQ**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
A1-MW-07-SA1	1,1-DICHLOROETHENE TRICHLOROETHENE	J J	0.405 0.797	1.00 1.00	LOQ LOQ	ug/L ug/L	J (all detects)
A1-MW-14-SA1	1,1-DICHLOROETHENE TRICHLOROETHENE	J J	0.898 0.876	1.00 1.00	LOQ LOQ	ug/L ug/L	J (all detects)
A1-MW-25-SA1	1,1-DICHLOROETHENE TRICHLOROETHENE	J J	0.204 0.418	1.00 1.00	LOQ LOQ	ug/L ug/L	J (all detects)

Method: **SM3500 Fe B D**

Matrix: **AQ**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
A1-MW-25-SA1	Ferrous Iron	J HF	0.123	0.200	LOQ	mg/L	J (all detects)

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

LDC #: 42613D1

SDG #: 280-110291-1

Laboratory: Test America, Inc.

VALIDATION COMPLETENESS WORKSHEET

ADR

Date: 7/18/18

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	SW A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	RSD ≤ 15%. ICV ≤ 20%
IV.	Continuing calibration / Endrin	A	CCV ≤ 20/50%
V.	Laboratory Blanks	N	
VI.	Field blanks	ND	TB = 1
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	TB-20180530	280-110291-1	Water	05/30/18
2	A1-MW-14-SA1	280-110291-2	Water	05/30/18
3	A1-MW-23-SA1	280-110291-3	Water	05/30/18
4	A1-MW-55-SA1	280-110291-4	Water	05/30/18
5	A1-MW-25-SA1	280-110291-5	Water	05/30/18
6	A1-MW-27-SA1	280-110291-6	Water	05/30/18
7	A1-MW-07-SA1	280-110291-7	Water	05/30/18
8				
9				

Notes:

LDC #: 43613D1

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer: 9
2nd Reviewer: RK

All circled dates have exceeded the technical holding times.
(Y) N N/A Were all cooler temperatures within validation criteria?
(Y) N N/A Were air bubbles > 1/4 inch or was headspace present in the vials?

METHOD : GC/MS VOA (EPA SW 846 Method 8260B)

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
3 (ND)	Headspace		> 6 mm				J (ND)

TECHNICAL HOLDING TIME CRITERIA

Water unpreserved:	Aromatic within 7 days, non-aromatic within 14 days of sample collection.
Water preserved:	Within 14 days of sample collection.
Soil:	Within 14 days of sample collection.

LDC #: 42613D6
SDG #: 280-110291-1
Laboratory: Test America, Inc.

VALIDATION COMPLETENESS WORKSHEET
ADR

Date: 7/18/18
Page: 1 of 1
Reviewer: a
2nd Reviewer: KK

METHOD: (Analyte) Chloride, Nitrate-N, Sulfate (EPA SW846 Method 9056A), Ferrous Iron (SM3500-Fe B) pH (EPA SW846 Method (9040C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/-	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	
V	Field blanks	—	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicate sample analysis	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	—	
X.	Sample result verification	N	
XI	Overall assessment of data	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank
SB=Source blank
OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-14-SA1	280-110291-2	Water	05/30/18
2	A1-MW-23-SA1	280-110291-3	Water	05/30/18
3	A1-MW-55-SA1	280-110291-4	Water	05/30/18
4	A1-MW-25-SA1	280-110291-5	Water	05/30/18
5	A1-MW-27-SA1	280-110291-6	Water	05/30/18
6	A1-MW-07-SA1	280-110291-7	Water	05/30/18
7	A1-MW-14-SA1MS	280-110291-2MS	Water	05/30/18
8	A1-MW-14-SA1MSD	280-110291-2MSD	Water	05/30/18
9	A1-MW-14-SA1DUP	280-110291-2DUP	Water	05/30/18
10				
11				
12				
13				
14				
15				
16				

Notes:

LDC #: 42613O6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: CR
2nd reviewer: RW

All circled methods are applicable to each sample.

Sample ID	Parameter
1-6	(pH) TDS (Cl) F (NO3) NO2 (SO4) O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4 (Fe2+)
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
QC: 7,8	pH TDS (Cl) F (NO3) NO2 (SO4) O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
9	pH TDS (Cl) F (NO3) NO2 (SO4) O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4

Comments: _____

LDC #: 42613D6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: G
2nd Reviewer: KK

METHOD: Inorganics, Method See Cover

Conc. units: mg/L **Associated Samples:** 1-3

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No qual (>5x)								
SO4		0.2460	1.23									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

Quality Control
Outlier Reports

280-110353-1

QC Outlier Report: HoldingTimes

Lab Reporting Batch ID: 280-110353-1 **Laboratory: TA DEN**

EDD Filename: 280-110353-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: 9040C **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
A1-MW-11-SA1 (RES/TOT)	Sampling To Analysis	111.75	24.00	HOURS	J (all detects)
A1-MW-11-SA1DUP (RES/TOT)		111.75	24.00	HOURS	
A1-MW-13-SA1 (RES/TOT)		112.50	24.00	HOURS	
A1-MW-15-SA1 (RES/TOT)		110.50	24.00	HOURS	

Method: SM3500 Fe B D **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
A1-MW-11-SA1 (RES/TOT)	Sampling To Analysis	313.75	24.00	HOURS	J(all detects)
A1-MW-13-SA1 (RES/TOT)		314.50	24.00	HOURS	R(all non-detects)
A1-MW-15-SA1 (RES/TOT)		313.00	24.00	HOURS	

Method Blank Outlier Report

Lab Reporting Batch ID: 280-110353-1 **Laboratory: TA DEN**

EDD Filename: 280-110353-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: **9056A**
Matrix: **AQ**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
MB 280-417070/6	6/1/2018 12:10:00 PM	CHLORIDE Sulfate	0.5189 mg/L 0.6146 mg/L	A1-MW-11-SA1 A1-MW-13-SA1 A1-MW-15-SA1

Reporting Limit Outliers

Lab Reporting Batch ID: 280-110353-1 **Laboratory: TA DEN**

EDD Filename: 280-110353-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: **8260B**

Matrix: **AQ**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
A1-MW-15-SA1	TRICHLOROETHENE	J	0.321	1.00	LOQ	ug/L	J (all detects)

LDC #: 42613E1 **VALIDATION COMPLETENESS WORKSHEET** Date: 7/12/18
SDG #: 280-110353-1 ADR Page: 1 of 1
Laboratory: Test America, Inc. Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSD ≤ 15%. ICV ≤ 20%
IV.	Continuing calibration	A	CCV ≤ 20/50%
V.	Laboratory Blanks	N	
VI.	Field blanks	ND	TB = 1. EB = 5
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	TB-20180531	280-110353-1	Water	05/31/18
2	A1-MW-13-SA1	280-110353-2	Water	05/31/18
3	A1-MW-11-SA1	280-110353-3	Water	05/31/18
4	A1-MW-15-SA1	280-110353-4	Water	05/31/18
5	EB-20180531	280-110353-5	Water	05/31/18
6				
7				
8				

Notes:

LDC #: 42613E6
SDG #: 280-110353-1
Laboratory: Test America, Inc.

VALIDATION COMPLETENESS WORKSHEET
ADR

Date: 7/8/18
Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: (Analyte) Chloride, Nitrate-N, Sulfate (EPA SW846 Method 9056A), Ferrous Iron (SM3500-Fe B) pH (EPA SW846 Method (9040C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/—	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	
V	Field blanks	—	
VI.	Matrix Spike/Matrix Spike Duplicates	N	
VII.	Duplicate sample analysis	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	—	
X.	Sample result verification	N	
XI	Overall assessment of data	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank
SB=Source blank
OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-13-SA1	280-110353-2	Water	05/31/18
2	A1-MW-11-SA1	280-110353-3	Water	05/31/18
3	A1-MW-15-SA1	280-110353-4	Water	05/31/18
4	A1-MW-11-SA1DUP	280-110353-3DUP	Water	05/31/18
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				

Notes:

LDC #: 42613E6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: CR
2nd reviewer: KK

All circled methods are applicable to each sample.

Sample ID	Parameter
1-3	(pH) TDS (Cl) F (NO3) NO2 (SO4) O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4 (Fe2+)
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
QC:4	(pH) TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4

Comments:

LDC #: 42613E6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: G
2nd Reviewer: KK

METHOD: Inorganics, Method See Cover

Conc. units: mg/L **Associated Samples:** All

Analyte	Blank ID	Blank ID	Blank Action Limit										
	PB	ICB/CCB (mg/L)		No qual (>5x)									
Cl		0.5385	2.6925										
SO4		0.6554	3.277										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

Quality Control Outlier Reports

1801024

Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: 1801024 **Laboratory: Vista**

EDD Filename: 1801024 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: **537 MOD**
Matrix: **AQ**

QC Sample ID (Associated Samples)	*Compound*	*LCS %R*	*LCSD %R*	*%R Limits*	*RPD (Limits)*	*Affected Compounds*	*Flag*
B8E0250-BS1 (A1-MW-04-SA1 A1-MW-05-SA1 A1-MW-49-SA1 A1-MW-50-SA1 A1-MW-51-SA1 FRB-20180522)	PFTrDA	138	-	70.00-130.00	-	PFTrDA	J (all detects)

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Reporting Limit Outliers

Lab Reporting Batch ID: 1801024 **Laboratory: Vista**

EDD Filename: 1801024 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: **537 MOD**

Matrix: **AQ**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
A1-MW-04-SA1	PFOA PFOS	J J	0.00333 0.00161	0.00812 0.00812	LOQ LOQ	ug/L ug/L	J (all detects)
A1-MW-05-SA1	PFHpA PFHxS	J J	0.000917 0.00278	0.00842 0.00842	LOQ LOQ	ug/L ug/L	J (all detects)
A1-MW-49-SA1	PFBS	J	0.00627	0.00812	LOQ	ug/L	J (all detects)
A1-MW-51-SA1	PFOS	J	0.00303	0.00836	LOQ	ug/L	J (all detects)

LDC #: 42613L96 **VALIDATION COMPLETENESS WORKSHEET** Date: 7/13/18
SDG #: 1801024 ADR Page: 1 of 1
Laboratory: Vista Analytical Laboratory Reviewer: 2nd Reviewer: KLC

METHOD: LC/MS Perfluorinated Alkyl Acids (EPA Method 537 Modified)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A A	RSD<20% r². True/ICV = 30%
IV.	Continuing calibration	A	CCV = 30%
V.	Laboratory Blanks	N	
VI.	Field blanks	ND	FRB = 6
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	N	
XI.	Internal standards	A N	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-51-SA1	1801024-01	Water	05/22/18
2	A1-MW-50-SA1	1801024-02	Water	05/22/18
3	A1-MW-49-SA1	1801024-03	Water	05/22/18
4	A1-MW-05-SA1	1801024-04	Water	05/22/18
5	A1-MW-04-SA1	1801024-05	Water	05/22/18
6	FRB-20180522	1801024-06	Water	05/22/18
7				
8				
9				

Notes:

	BBE0250-BK1						

LDC #: 26132L96

VALIDATION FINDINGS WORKSHEET
Internal Standards

Reviewer: 9
2nd Reviewer: KK

METHOD: LC/MS PFCs

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y/N N/A Were all internal standard area counts within 50-150% limits?

Y/N N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Sample ID	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
		BBE0250-BA	13C2-PFUnA	AT. 6 (50-150)		Y/N/A
		1 (dets)	13C3-PFBS	247		(PFBS)
		(ND)	d5-Et FOSAA	151		(Et FOSAA)

Privileged and Confidential

Quality Control
Outlier Reports

1801037

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 1801037 **Laboratory: Vista**

EDD Filename: 1801037 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: **537 MOD**
Matrix: **AQ**

QC Sample ID (Associated Samples)	*Compound*	*MS %R*	*MSD %R*	*%R Limits*	*RPD (Limits)*	*Affected Compounds*	*Flag*
16-HS-03-SA1MS 16-HS-03-SA1MSD (16-HS-03-SA1)	NMeFOSAA	-	-	70.00-130.00	41.1 (30.00)	NMeFOSAA	J (all detects)
	PFDA	132	-	70.00-130.00	-	PFDA	
	PFDoA	136	-	70.00-130.00	-	PFDoA	
	PFHpA	140	-	70.00-130.00	49.6 (30.00)	PFHpA	
	PFHxS	146	-	70.00-130.00	-	PFHxS	
	PFOA	131	-	70.00-130.00	-	PFOA	
	PFTrDA	136	133	70.00-130.00	-	PFTrDA	
16-HS-03-SA1MS 16-HS-03-SA1MSD (16-HS-03-SA1)	PFHxA	-21	-	70.00-130.00	329 (30.00)	PFHxA	No Qual, >4x
	PFBS	182	-	70.00-130.00	45.9 (30.00)	PFBS	

Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: 1801037 **Laboratory: Vista**

EDD Filename: 1801037 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: **537 MOD**
Matrix: **AQ**

QC Sample ID (Associated Samples)	*Compound*	*LCS %R*	*LCSD %R*	*%R Limits*	*RPD (Limits)*	*Affected Compounds*	*Flag*
B8E0244-BS1 (16-HS-03-SA1 16-MW-06-SA1 16-MW-08-SA1 16-MW-09-SA1 A1-MW-18-SA1 A1-MW-19-SA1 A1-MW-37-SA1 A1-MW-37-SA1D FRB-20180523)	PFTrDA	153	-	70.00-130.00	-	PFTrDA	J (all detects)

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Reporting Limit Outliers

Lab Reporting Batch ID: 1801037 **Laboratory: Vista**

EDD Filename: 1801037 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: **537 MOD**

Matrix: **AQ**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
16-MW-06-SA1	PFOS	J	0.00227	0.00897	LOQ	ug/L	J (all detects)
16-MW-08-SA1	PFNA	J	0.00102	0.00870	LOQ	ug/L	J (all detects)
16-MW-09-SA1	PFDA PFNA	J J	0.00440 0.00326	0.00871 0.00871	LOQ LOQ	ug/L ug/L	J (all detects)
A1-MW-18-SA1	PFOA PFOS	J J	0.00187 0.00437	0.00888 0.00888	LOQ LOQ	ug/L ug/L	J (all detects)
A1-MW-19-SA1	PFDA	J	0.00727	0.00846	LOQ	ug/L	J (all detects)
A1-MW-37-SA1	PFNA	J	0.00170	0.00839	LOQ	ug/L	J (all detects)
A1-MW-37-SA1D	PFNA PFUnA	J J	0.00210 0.00135	0.00862 0.00862	LOQ LOQ	ug/L ug/L	J (all detects)

Field Duplicate RPD Report

Lab Reporting Batch ID: 1801037 **Laboratory: Vista**

EDD Filename: 1801037 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: 537 MOD
Matrix: AQ

Analyte	Concentration (ug/L)		Sample RPD	eQAPP RPD	Flag
	A1-MW-37-SA1	A1-MW-37-SA1D			
PFBS	0.230	0.252	9	30.00	No Qualifiers Applied
PFHpA	0.0328	0.0322	NC	30.00	
PFHxA	1.66	1.71	3	30.00	
PFHxS	0.155	0.152	2	30.00	
PFNA	0.00170	0.00210	NC	30.00	
PFOA	0.0196	0.0203	NC	30.00	
PFOS	0.0458	0.0416	NC	30.00	
PFUnA	0.00839 U	0.00135	NC	30.00	

LDC #: 42613M96 **VALIDATION COMPLETENESS WORKSHEET** Date: 7/13/18
SDG #: 1801037 ADR/Stage 4 Page: 1 of 1
Laboratory: Vista Analytical Laboratory Reviewer: 1
2nd Reviewer: KC

METHOD: LC/MS Perfluorinated Alkyl Acids (EPA Method 537 Modified)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	
IV.	Continuing calibration	A	
V.	Laboratory Blanks	N	Not reviewed for ADR validation
VI.	Field blanks	ND	FRB = 9
VII.	Surrogate spikes	N	Not reviewed for ADR validation
VIII.	Matrix spike/Matrix spike duplicates		Not reviewed for ADR validation
IX.	Laboratory control samples		Not reviewed for ADR validation
X.	Field duplicates	SW	D = 4+5
XI.	Internal standards	SW	Not reviewed for ADR validation
XII.	Compound quantitation RL/LOQ/LODs	N	Not reviewed for ADR validation
XIII.	Target compound identification		Not reviewed for ADR validation
XIV.	System performance		Not reviewed for ADR validation
XV.	Overall assessment of data		Not reviewed for ADR validation

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

** Indicates sample underwent Stage 4 validation

	Client ID	Lab ID	Matrix	Date
1	A1-MW-18-SA1**	1801037-01**	Water	05/23/18
2	16-MW-08-SA1**	1801037-02**	Water	05/23/18
3	A1-MW-19-SA1**	1801037-03**	Water	05/23/18
4	A1-MW-37-SA1**	1801037-04**	Water	05/23/18
5	A1-MW-37-SA1D**	1801037-05**	Water	05/23/18
6	16-HS-03-SA1**	1801037-06**	Water	05/23/18
7	16-MW-09-SA1**	1801037-07**	Water	05/23/18
8	16-MW-06-SA1**	1801037-08**	Water	05/23/18
9	FRB-20180523	1801037-09	Water	05/23/18
10	16-HS-03-SA1MS	1801037-06MS	Water	05/23/18
11	16-HS-03-SA1MSD	1801037-06MSD	Water	05/23/18
12				
13	B8E0244-BLK1			
14				

LDC #: 423496

VALIDATION FINDINGS WORKSHEET
Internal Standards

Page: 1 of 1
Reviewer: 9
2nd Reviewer: [illegible]

METHOD: LC/MS PFCs

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were all internal standard area counts within 50-150% limits?

(Y) N N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Sample ID	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
		1 (lab)	13C3-PFBS	170 (50-150)		J (PFBS)
		2		187		
		3		214		
		4		228		
		5		161		
		6		154		
		7		153		
		8		214		
		10 (MS)		167		No Qual
		11 (MSD)		165		

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LDC#: 42613M96

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: 9
2nd Reviewer: RK

METHOD: PFCs

Compound	Concentration (ug/L)		(≤30) RPD	Qual
	4	5		
PFBS	0.230	0.252	9	
PFHxA	1.66	1.71	3	
PFHpA	0.0328	0.0322	~~2~~ NC	
PFHxS	0.155	0.152	2	
PFOA	0.0196	0.0203	~~4~~ NC	
PFNA	0.00170	0.00210	~~21~~ NC	
PFOS	0.0458	0.0416	~~10~~ NC	
PFUnA	0.00525U	0.00135	NC	

Quality Control
Outlier Reports

1801039

Reporting Limit Outliers

Lab Reporting Batch ID: 1801039 **Laboratory: Vista**

EDD Filename: 1801039 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: **537 MOD**

Matrix: **AQ**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
A1-MW-11-SA1	PFOS	J	0.00359	0.00860	LOQ	ug/L	J (all detects)

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

LDC #: 42613N96 **VALIDATION COMPLETENESS WORKSHEET** Date: 7/12/18
SDG #: 1801039 ADR Page: 1 of 1
Laboratory: Vista Analytical Laboratory Reviewer: 9
2nd Reviewer: KK

METHOD: LC/MS Perfluorinated Alkyl Acids (EPA Method 537 Modified)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	
IV.	Continuing calibration	A	
V.	Laboratory Blanks	N	
VI.	Field blanks	ND	FRB=6
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	N	
XI.	Internal standards	SW	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-13-SA1	1801039-01	Water	05/24/18
2	A1-MW-11-SA1	1801039-02	Water	05/24/18
3	A1-MW-14-SA1	1801039-03	Water	05/24/18
4	A1-MW-15-SA1	1801039-04	Water	05/24/18
5	A1-MW-25-SA1	1801039-07	Water	05/24/18
6	FRB-20180524	1801039-08	Water	05/24/18
7				
8				
9				

Notes:

	BBF0004-BK1						

LDC #: ~~26363N96~~

VALIDATION FINDINGS WORKSHEET
Internal Standards

Reviewer: 9
2nd Reviewer: [illegible]

METHOD: LC/MS PFCs

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all internal standard area counts within 50-150% limits?

(Y) N N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Sample ID	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
		1 (dob)	13C3-PFBS	419 (50-150)		Y/N/A (PFBS)
		2		271		
		3		527		
		4		235		
		5 (~~ND~~) (Det)		428		

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Quality Control Outlier Reports

1801054

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 1801054 **Laboratory: Vista**

EDD Filename: 1801054 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: **537 MOD**
Matrix: **AQ**

QC Sample ID (Associated Samples)	*Compound*	*MS %R*	*MSD %R*	*%R Limits*	*RPD (Limits)*	*Affected Compounds*	*Flag*
A1-MW-53-SA1MS A1-MW-53-SA1MSD (A1-MW-53-SA1)	NMeFOSAA PFTrDA	- 141	- 148	70.00-130.00 70.00-130.00	32.9 (30.00) -	NMeFOSAA PFTrDA	J (all detects)
A1-MW-53-SA1MS A1-MW-53-SA1MSD (A1-MW-53-SA1)	PFBS PFHxS PFHxA	- 141 232	37.7 58.4 175	70.00-130.00 70.00-130.00 70.00-130.00	96.5 (30.00) 82.8 (30.00) -	PFBS PFHxS PFHxA	No Qual, >4x

Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: 1801054 **Laboratory: Vista**

EDD Filename: 1801054 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: **537 MOD**
Matrix: **AQ**

QC Sample ID (Associated Samples)	*Compound*	*LCS %R*	*LCSD %R*	*%R Limits*	*RPD (Limits)*	*Affected Compounds*	*Flag*
B8E0244-BS1 (A1-MW-01-SA1 A1-MW-01-SA1D A1-MW-31-SA1 A1-MW-42-SA1 A1-MW-52-SA1 A1-MW-53-SA1 A1-MW-54-SA1 A1-PZ-19-SA1 FRB-20180525)	PFTrDA	153	-	70.00-130.00	-	PFTrDA	J (all detects)

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Reporting Limit Outliers

Lab Reporting Batch ID: 1801054 **Laboratory: Vista**

EDD Filename: 1801054 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: **537 MOD**

Matrix: **AQ**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
A1-MW-01-SA1	PFHpA	J	0.00225	0.00907	LOQ	ug/L	J (all detects)
A1-MW-01-SA1D	PFHpA	J	0.00273	0.00854	LOQ	ug/L	J (all detects)
A1-MW-31-SA1	PFHpA	J	0.00851	0.00887	LOQ	ug/L	J (all detects)
A1-MW-42-SA1	PFOS	J	0.00186	0.00887	LOQ	ug/L	J (all detects)
A1-MW-53-SA1	PFOS	J	0.00188	0.00878	LOQ	ug/L	J (all detects)
A1-MW-54-SA1	PFOS	J	0.00652	0.00892	LOQ	ug/L	J (all detects)
A1-PZ-19-SA1	PFHpA	J	0.00326	0.00852	LOQ	ug/L	J (all detects)
	PFOA	J	0.00756	0.00852	LOQ	ug/L	
	PFOS	J	0.00115	0.00852	LOQ	ug/L	

Field Duplicate RPD Report

Lab Reporting Batch ID: 1801054 **Laboratory: Vista**

EDD Filename: 1801054 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: 537 MOD
Matrix: AQ

Analyte	*Concentration (ug/L)*		*Sample RPD*	*eQAPP RPD*	*Flag*
	A1-MW-01-SA1	A1-MW-01-SA1D			
PFBS	0.0524	0.0557	6	30.00	No Qualifiers Applied
PFHpA	0.00225	0.00273	NC	30.00	
PFHxA	0.101	0.0971	4	30.00	
PFHxS	0.0230	0.0238	NC	30.00	

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

LDC #: 42613O96 **VALIDATION COMPLETENESS WORKSHEET** Date: 7/13/18
SDG #: 1801054 ADR Page: 1 of 1
Laboratory: Vista Analytical Laboratory Reviewer: 9
2nd Reviewer: KW

METHOD: LC/MS Perfluorinated Alkyl Acids (EPA Method 537 Modified)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSD≤20% . r^2 ≥ TMW/ICV = 30%
IV.	Continuing calibration	A	CCV ≤ 30%
V.	Laboratory Blanks	N	
VI.	Field blanks	ND	FRB = 9
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	SW	A = 6+7
XI.	Internal standards	SW	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-42-SA1	1801054-01	Water	05/25/18
2	A1-MW-54-SA1	1801054-02	Water	05/25/18
3	A1-MW-53-SA1	1801054-03	Water	05/25/18
4	A1-PZ-19-SA1	1801054-04	Water	05/25/18
5	A1-MW-52-SA1	1801054-05	Water	05/25/18
6	A1-MW-01-SA1	1801054-06	Water	05/25/18
7	A1-MW-01-SA1D	1801054-07	Water	05/25/18
8	A1-MW-31-SA1	1801054-08	Water	05/25/18
9	FRB-20180525	1801054-09	Water	05/25/18
10	A1-MW-53-SA1MS	1801054-03MS	Water	05/25/18
11	A1-MW-53-SA1MSD	1801054-03MSD	Water	05/25/18
12				
13				
14	BBE0244-BK1			

LDC#: 42613096

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: 9
2nd Reviewer: WK

METHOD: PFCs

Compound	Concentration (ug/L)		(≤30) RPD	Qual
	6	7		
PFBS	0.0524	0.0557	6	
PFHxA	0.101	0.0971	4	
PFHpA	0.00225	0.00273	~~19~~ NC	
PFHxS	0.0230	0.0238	~~3~~ NC	

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LDC #: 42613096

VALIDATION FINDINGS WORKSHEET
Internal Standards

Page: 1 of 1
Reviewer: 9
2nd Reviewer: MK

METHOD: LC/MS PFCs

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all internal standard area counts within 50-150% limits?

(Y) N N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Sample ID	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
		1 (dets)	13C3-PFBS	310 (50-150)		J (all dets) UJ (PFBS)
		2 (dets)		175		
		3		154		
		10 (MS)		169		No qual
		11 (MSD)		161		
		4 (dets)		182		J (all dets) UJ (PFBS)
		5		211		
		6		192		
		7		204		
		8		254		

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Quality Control Outlier Reports

1801071

Reporting Limit Outliers

Lab Reporting Batch ID: 1801071 **Laboratory: Vista**

EDD Filename: 1801071 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: **537 MOD**

Matrix: **AQ**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
A1-MW-23-SA1	PFHxS	J	0.00581	0.00874	LOQ	ug/L	J (all detects)

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

LDC #: 42613P96 **VALIDATION COMPLETENESS WORKSHEET** Date: 7/13/18
SDG #: 1801071 ADR Page: 1 of 1
Laboratory: Vista Analytical Laboratory Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: LC/MS Perfluorinated Alkyl Acids (EPA Method 537 Modified)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	
IV.	Continuing calibration	A	
V.	Laboratory Blanks	N	
VI.	Field blanks	ND	FRB = 5
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	N	
XI.	Internal standards	N	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-27-SA1	1801071-01	Water	05/30/18
2	A1-MW-55-SA1	1801071-02	Water	05/30/18
3	A1-MW-23-SA1	1801071-03	Water	05/30/18
4	A1-MW-07-SA1	1801071-04	Water	05/30/18
5	FRB-20180530	1801071-05	Water	05/30/18
6				
7				
8				
9				

Notes:

TARGET COMPOUND WORKSHEET

METHOD: PFOS/PFOAs

A. Perfluorohexanoic acid (PFHxA)			
B. Perfluoroheptanoic acid (PFHpA)			
C. Perfluorooctanoic acid (PFOA)			
D. Perfluorononanoic acid (PFNA)			
E. Perfluorodecanoic acid (PFDA)			
F. Perfluoroundecanoic acid (PFUnA)			
G. Perfluorododecanoic acid (PFDoA)			
H. Perfluorotridecanoic acid (PFTriDA)			
I. Perfluorotetradecanoic acid (PFTeDA)			
J. Perfluorobutanesulfonic acid (PFBS)			
K. Perfluorohexanesulfonic acid (PFHxS)			
L. Perfluoroheptanesulfonic acid (PFHpS)			
M. Perfluorooctanesulfonic acid (PFOS)			
N.Perfluorodecanesulfonic acid (PFDS)			
O. Perfluorooctane Sulfonamide (FOSA)			
P. Perfluorobutanoic acid (PFBA)			
Q. Perfluoropentanoic acis (PFPeA)			
R. 6:2FTS			
S. 8:2 FTS			
T. N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)			
U. N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)			

LDC #: 42613P96

VALIDATION FINDINGS WORKSHEET
Internal Standards

Reviewer: 9
2nd Reviewer: KK

METHOD: LC/MS PFCs

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all internal standard area counts within 50-150% limits?

Y N N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Sample ID	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
		1 (dets)	13C8-PFBS	174 (50-150)		J/UJ (PFBS)
		2 (ND)	↓	165		↓
		4 (dets)	↓	209		↓

Privileged and Confidential

Quality Control
Outlier Reports

1801084

LDC #: 42613Q96 **VALIDATION COMPLETENESS WORKSHEET** Date: 7/13/18

SDG #: 1801084 ADR Page: 1 of 1

Laboratory: Vista Analytical Laboratory Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: LC/MS Perfluorinated Alkyl Acids (EPA Method 537 Modified)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A A	~~RSD≤20%~~. r^2 TMO/ICV ≤ 30%
IV.	Continuing calibration	SW	CCV ≤ 30% ~~≤20%~~
V.	Laboratory Blanks	N	
VI.	Field blanks	ND	EB=1
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	EB-20180531	1801084-01	Water	05/31/18
2				
3				
4				
5				
6				
7				
8				
9				

Notes:

	RBF0069-BLK1						

TARGET COMPOUND WORKSHEET

METHOD: PFOS/PFOAs

A. Perfluorohexanoic acid (PFHxA)			
B. Perfluoroheptanoic acid (PFHpA)			
C. Perfluorooctanoic acid (PFOA)			
D. Perfluorononanoic acid (PFNA)			
E. Perfluorodecanoic acid (PFDA)			
F. Perfluoroundecanoic acid (PFUnA)			
G. Perfluorododecanoic acid (PFDoA)			
H. Perfluorotridecanoic acid (PFTriDA)			
I. Perfluorotetradecanoic acid (PFTeDA)			
J. Perfluorobutanesulfonic acid (PFBS)			
K. Perfluorohexanesulfonic acid (PFHxS)			
L. Perfluoroheptanesulfonic acid (PFHpS)			
M. Perfluorooctanesulfonic acid (PFOS)			
N.Perfluorodecanesulfonic acid (PFDS)			
O. Perfluorooctane Sulfonamide (FOSA)			
P. Perfluorobutanoic acid (PFBA)			
Q. Perfluoropentanoic acis (PFPeA)			
R. 1H, 1H, 2H, 2H-perfluorooctane sulfonate (6:2FTS)			
S. 1H, 1H, 2H, 2H-perfluorodecane sulfonate (8:2 FTS)			
T. N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)			
U. N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)			

LDC #: ~~42638~~ 96

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: Q
2nd Reviewer: KK

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Was a continuing calibration standard analyzed after every 10 injections for each instrument?

Y (N) N/A Were all continuing calibration percent differences (%D) ≤30 %?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤30.0%)	Finding RRF (Limit:)	Associated Samples	Qualifications
	6/18/18	180617M1-10	d3-T	55.2 (~~>50%~~)		MB	J/UJ/P (T)

Enclosure II

Manual Stage 2B and Stage 4 Data Validation Reports

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS Yuma, CTO 17F3803

LDC Report Date: July 16, 2018

Parameters: Volatiles

Validation Level: Stage 4

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): 280-110112-1

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TB-20180523	280-110112-1	Water	05/23/18
A1-MW-18-SA1	280-110112-2	Water	05/23/18
16-MW-08-SA1	280-110112-3	Water	05/23/18
A1-MW-19-SA1	280-110112-4	Water	05/23/18
A1-MW-37-SA1D	280-110112-5	Water	05/23/18
A1-MW-37-SA1	280-110112-6	Water	05/23/18
16-HS-03-SA1	280-110112-7	Water	05/23/18
16-HS-03-SA1MS	280-110112-7MS	Water	05/23/18
16-HS-03-SA1MSD	280-110112-7MSD	Water	05/23/18

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona (April 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), and a modified outline of the USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260B

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample TB-20180523 was identified as a trip blank. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Affected Compound	Flag	A or P
16-HS-03-SA1	Toluene-d8	75 (89-112)	All compounds	UJ (all non-detects)	A

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
16-HS-03-SA1MS/MSD (16-HS-03-SA1)	1,1-Dichloroethene	56 (71-131)	33 (71-131)	UJ (all non-detects)	A

Relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
16-HS-03-SA1MS/MSD (16-HS-03-SA1)	1,1-Dichloroethene	53 (≤20)	NA	-

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

Samples A1-MW-37-SA1 and A1-MW-37-SA1D were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	A1-MW-37-SA1D	A1-MW-37-SA1			
Trichloroethene	0.652	0.624	Not calculable	-	-

RPDs were not calculated when sample results in one or both samples were less than 5x the limit of quantitation (LOQ).

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

All compound quantitations met validation criteria.

All compounds reported below the limit of quantitation (LOQ) were qualified as follows:

Sample	Finding	Flag	A or P
A1-MW-18-SA1 16-MW-08-SA1 A1-MW-19-SA1 A1-MW-37-SA1D A1-MW-37-SA1	All compounds reported below the LOQ.	J (all detects)	A

XIII. Target Compound Identifications

All target compound identifications met validation criteria.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to surrogate %R, MS/MSD %R, and results below the LOQ, data were qualified as estimated in six samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable.

MCAS Yuma, CTO 17F3803
Volatiles - Data Qualification Summary - SDG 280-110112-1

Sample	Compound	Flag	A or P	Reason
16-HS-03-SA1	All compounds	UJ (all non-detects)	A	Surrogates (%R)
16-HS-03-SA1	1,1-Dichloroethene	UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R)
A1-MW-18-SA1 16-MW-08-SA1 A1-MW-19-SA1 A1-MW-37-SA1D A1-MW-37-SA1	All compounds reported below the LOQ.	J (all detects)	A	Compound quantitation

MCAS Yuma, CTO 17F3803
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-110112-1

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
Volatiles - Field Blank Data Qualification Summary - SDG 280-110112-1

No Sample Data Qualified in this SDG

LDC #: 42613B1 **VALIDATION COMPLETENESS WORKSHEET** Date: 7/13/18

SDG #: 280-110112-1 Stage 4 Page: 1 of 1

Laboratory: Test America, Inc. Reviewer: Q

2nd Reviewer: KLC

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A A	RSD ≤ 15%. ICV ≤ 20%
IV.	Continuing calibration Level 3	A	CCV ≤ 20/50%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB = 1
VII.	Surrogate spikes	SW	
VIII.	Matrix spike/Matrix spike duplicates	SW	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	SW	D = 5+6
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	
XIII.	Target compound identification	A	
XIV.	System performance	A	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	TB-20180523	280-110112-1	Water	05/23/18
2	A1-MW-18-SA1	280-110112-2	Water	05/23/18
3	16-MW-08-SA1	280-110112-3	Water	05/23/18
4	A1-MW-19-SA1	280-110112-4	Water	05/23/18
5	A1-MW-37-SA1D	280-110112-5	Water	05/23/18
6	A1-MW-37-SA1	280-110112-6	Water	05/23/18
7	16-HS-03-SA1	280-110112-7	Water	05/23/18
8	16-HS-03-SA1MS	280-110112-7MS	Water	05/23/18
9	16-HS-03-SA1MSD	280-110112-7MSD	Water	05/23/18
10				
11				
12				
13				

LDC #: 42613B1

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: 9
2nd Reviewer: RV

Method: Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
Were all percent relative standard deviations (%RSD) ≤ 30%/15% and relative response factors (RRF) ≥ 0.05?	✓			
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 20% or percent recoveries (%R) 80-120%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) ≥ 0.05?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Field blanks				
Were field blanks were identified in this SDG?	✓			
Were target compounds detected in the field blanks?		✓		
VII. Surrogate spikes				
Were all surrogate percent recovery (%R) within QC limits?		✓		
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?	✓			

LDC #: 42613B1

VALIDATION FINDINGS CHECKLIST

Reviewer: 9
2nd Reviewer: KK

Validation Area	Yes	No	NA	Findings/Comments
VIII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		✓		
IX. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?	✓			
XI. Internal standards				
Were internal standard area counts within -50% to +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XII. Compound quantitation				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data	✓			
Overall assessment of data was found to be acceptable.				

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane
C. Vinyl choride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO.1,1-Difluoroethane	O1. 3-Methylpentane
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.

LDC #: 42613B1

VALIDATION FINDINGS WORKSHEET
Surrogate Spikes

Page: 1 of 1
Reviewer:
2nd Reviewer: KK

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all surrogate %R within QC limits?

Y N N/A If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R out of outside of criteria?

#	Date	Sample ID	Surrogate	%Recovery (Limits)	Qualifications
		7	TOL	75 (89-112)	J/UH/A (ND)
				( )	
				( )	
				( )	
				( )	
				( )	
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				( )	
				( )	

(TOL) = Toluene-d8 (DCE) = 1,2-Dichloroethane-d4
(BFB) = Bromofluorobenzene (DFM) = Dibromofluoromethane

LDC #: 43633

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: 9
2nd Reviewer: KK

METHOD : GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

(Y) N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y (N) N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		8/9	H	56 (71-131)	33 (71-131)	( )	7 (ND)	J (H) / A
			H	( )	( )	53 (≤20)		J (all det.) / A
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )	

LDC#: 42613B1

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: 9
2nd Reviewer: KK

METHOD: GCMS VOA 8260B

Compound	Concentration (ug/L)		(≤30) RPD	Qual
	5	6		
S	0.652	0.624	4 NC	

V:\FIELD DUPLICATES\Field Duplicates\FD_Organics\2018\42613B1.wpd

LDC #: ~~42643B~~

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: Q
2nd Reviewer: KK

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs
X = Mean of the RRFs

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (10 std)	Recalculated RRF (10 std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL (R1)	5/16/18	H (1st internal standard)	0.3187	0.3187	0.3149	0.3149	4.8	4.8
			AA (2nd internal standard)	1.3348	1.3348	1.3251	1.3251	3.5	3.5
			(3rd internal standard)						
			(4th internal standard)						
2			(1st internal standard)						
			(2nd internal standard)						
			(3rd internal standard)						
			(4th internal standard)						
3			(1st internal standard)						
			(2nd internal standard)						
			(3rd internal standard)						
			(4th internal standard)						
4			(1st internal standard)						
			(2nd internal standard)						
			(3rd internal standard)						
			(4th internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 42613B1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: KK

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	R1735	6/4/18	H (1st internal standard)	0.3149	0.3312	0.3312	5.2	5.2
			AA (2nd internal standard)	1.325	1.401	1.401	5.7	5.7
			(3rd internal standard)					
			(4th internal standard)					
2			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					
3			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					
4			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 40413B1

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: 9
2nd reviewer: KK

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane	11.5	12.2	106	106	0
1,2-Dichloroethane-d4	↓	12.4	108	108	↓
Toluene-d8		11.5	100	100	
Bromofluorobenzene		11.6	100	102	

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

LDC #: 42438J

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: 9
2nd Reviewer: KK

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA

Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentration

RPD = I MSC - MSC I * 2/(MSC + MSDC)

MSC = Matrix spike concentration; MSDC = Matrix spike duplicate concentration

MS/MSD sample: 8/9

Compound	Spike Added (ug/L)		Sample Concentration (ug/L)	Spiked Sample Concentration (ug/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
1,1-Dichloroethene	5.00	5.00	ND	2.795	1.629	56	56	33	33	53	53
Trichloroethene	V	V	V	4.863	4.489	97	97	90	90	8	8
Benzene											
Toluene											
Chlorobenzene											

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 42613B1

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer: 9
2nd Reviewer: KK

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA Where: SSC = Spiked sample concentration; SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboraotry control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS ID: 280-417198/4

Compound	Spike Added (ug/L)		Spiked Sample Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	5.00	NA	5.615	NA	112	112				
Trichloroethene	↓	↓	5.111	↓	102	102				
Benzene										
Toluene										
Chlorobenzene										

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 26138

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: A
2nd reviewer: KK

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. 2 , H :

Conc. = $\frac{(22988)(12.5)(1)}{(201941)(0.3149)(\quad)(\quad)}$

= 0.452 µg/L

#	Sample ID	Compound	Reported Concentration (µg/L)	Calculated Concentration ( )	Qualification
	2	H	0.452		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS Yuma, CTO 17F3803

LDC Report Date: July 19, 2018

Parameters: Wet Chemistry

Validation Level: Stage 4

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): 280-110112-1

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
A1-MW-18-SA1	280-110112-2	Water	05/23/18
16-MW-08-SA1	280-110112-3	Water	05/23/18
A1-MW-19-SA1	280-110112-4	Water	05/23/18
A1-MW-37-SA1	280-110112-6	Water	05/23/18
16-HS-03-SA1	280-110112-7	Water	05/23/18
A1-MW-18-SA1MS	280-110112-2MS	Water	05/23/18
A1-MW-18-SA1MSD	280-110112-2MSD	Water	05/23/18
A1-MW-18-SA1DUP	280-110112-2DUP	Water	05/23/18
16-HS-03-SA1MS	280-110112-7MS	Water	05/23/18
16-HS-03-SA1MSD	280-110112-7MSD	Water	05/23/18
16-HS-03-SA1DUP	280-110112-7DUP	Water	05/23/18
16-HS-03-SA1DLMS	280-110112-7DLMS	Water	05/23/18
16-HS-03-SA1DLMSD	280-110112-7DLMSD	Water	05/23/18
16-HS-03-SA1DLDUP	280-110112-7DLDUP	Water	05/23/18

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona (April 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), and a modified outline of the USEPA National Functional Guidelines (NFG) for Inorganic Superfund Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Chloride, Nitrate as Nitrogen, and Sulfate by Environmental Protection Agency (EPA) SW 846 Method 9056A
Ferrous Iron by Standard Method 3500-Fe B
pH by EPA SW 846 Method 9040C

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
A1-MW-18-SA1 16-MW-08-SA1 A1-MW-19-SA1 A1-MW-37-SA1 16-HS-03-SA1	pH	8 days	24 hours	J (all detects)	P
A1-MW-18-SA1	Ferrous Iron	26.85 hours	24 hours	J (all detects)	P

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
16-HS-03-SA1MS/MSD (16-HS-03-SA1)	Sulfate	88 (87-112)	86 (87-112)	J (all detects)	A
16-HS-03-SA1MS/MSD (16-HS-03-SA1)	Ferrous Iron	1 (85-113)	0 (85-113)	R (all non-detects)	A

For A1-MW-18-SA1MS/MSD, no data were qualified for Chloride and Sulfate percent recoveries (%R) outside the QC limits since the parent sample results were greater than 4X the spike concentration.

Relative percent differences (RPD) were within QC limits.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Sample Result Verification

All sample result verifications were acceptable.

All analytes reported below the limit of quantitation (LOQ) were qualified as follows:

Sample	Finding	Flag	A or P
A1-MW-18-SA1 16-MW-08-SA1 A1-MW-37-SA1	All analytes reported below the LOQ.	J (all detects)	A

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the methods.

Due to MS/MSD %R, data were rejected in one sample.

Due to technical holding time, MS/MSD %R, and results below the LOQ, data were qualified as estimated in five samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable.

MCAS Yuma, CTO 17F3803
Wet Chemistry - Data Qualification Summary - SDG 280-110112-1

Sample	Analyte	Flag	A or P	Reason
A1-MW-18-SA1 16-MW-08-SA1 A1-MW-19-SA1 A1-MW-37-SA1 16-HS-03-SA1	pH	J (all detects)	P	Technical holding times
A1-MW-18-SA1	Ferrous Iron	J (all detects)	P	Technical holding times
16-HS-03-SA1	Sulfate	J (all detects)	A	Matrix spike/Matrix spike duplicate (%R)
16-HS-03-SA1	Ferrous Iron	R (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R)
A1-MW-18-SA1 16-MW-08-SA1 A1-MW-37-SA1	All analytes reported below the LOQ.	J (all detects)	A	Sample result verification

MCAS Yuma, CTO 17F3803
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-110112-1

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-110112-1

No Sample Data Qualified in this SDG

LDC #: 42613B6
SDG #: 280-110112-1
Laboratory: Test America, Inc.

VALIDATION COMPLETENESS WORKSHEET
Statge 4

Date: 7/18/18
Page: 1 of 1
Reviewer: CL
2nd Reviewer: KK

METHOD: (Analyte) Chloride, Nitrate-N, Sulfate (EPA SW846 Method 9056A), Ferrous Iron (SM3500-Fe B)
pH (EPA SW846 Method (9040C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A SW	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	A	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	SW	~~1of1~~ Cl, SO4 : 7/8 >4x
VII.	Duplicate sample analysis	A	
VIII.	Laboratory control samples	A	LCS/D
IX.	Field duplicates	N	(4,5) a
X.	Sample result verification	A	
XI	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-18-SA1	280-110112-2	Water	05/23/18
2	16-MW-08-SA1	280-110112-3	Water	05/23/18
3	A1-MW-19-SA1	280-110112-4	Water	05/23/18
~~4~~	~~A1-MW-37-SA1D~~	~~280-110112-5~~	~~Water~~	~~05/23/18~~ 02
5	A1-MW-37-SA1	280-110112-6	Water	05/23/18
6	16-HS-03-SA1	280-110112-7	Water	05/23/18
7	A1-MW-18-SA1MS	280-110112-2MS	Water	05/23/18
8	A1-MW-18-SA1MSD	280-110112-2MSD	Water	05/23/18
9	A1-MW-18-SA1DUP	280-110112-2DUP	Water	05/23/18
10	16-HS-03-SA1MS	280-110112-7MS	Water	05/23/18
11	16-HS-03-SA1MSD	280-110112-7MSD	Water	05/23/18
12	16-HS-03-SA1DUP	280-110112-7DUP	Water	05/23/18
13	#6 DL MS			
14	↓ MSD			
15	↓ DUP			

Notes:

LDC #: 47961386

VALIDATION FINDINGS CHECKLIST

Reviewer: 01
2nd Reviewer: KK

Method: Inorganics (EPA Method Sel cover)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.		✓		
II. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)			✓	
Were balance checks performed as required? (Level IV only)			✓	
III. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
IV. Matrix spike/Matrix spike duplicates and Duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.		✓		
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of ≤ CRDL(≤ 2X CRDL for soil) was used for samples that were ≤ 5X the CRDL, including when only one of the duplicate sample values were ≤ 5X the CRDL.	✓			
V. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
VI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓	✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

LDC #: 4296B86

VALIDATION FINDINGS CHECKLIST

Reviewer: 02
2nd Reviewer: KK

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
VIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
IX. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
X. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 42653B6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: CR
2nd reviewer: KK

All circled methods are applicable to each sample.

Sample ID	Parameter
1-3,5,6	(pH) TDS (Cl) F (NO3) NO2 (SO4) O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4 (Fe2+)
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
QC: 7,8	pH TDS (Cl) F NO3 NO2 (SO4) O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
9	pH TDS (Cl) F NO3 NO2 (SO4) O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
10,11	pH TDS (Cl) F (NO3) NO2 (SO4) O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4 (Fe2+)
12	pH TDS (Cl) F (NO3) NO2 (SO4) O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4 (Fe2+)
13,14	pH TDS (Cl) F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
15	pH TDS (Cl) F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4
	pH TDS Cl F NO3 NO2 SO4 O-PO4 Alk CN NH3 TKN TOC Cr6+ ClO4

Comments:

LDC #: 42613B6

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer: CA
2nd reviewer: KK

All circled dates have exceeded the technical holding time.
(Y) N N/A Were all samples preserved as applicable to each method ?
(Y) N N/A Were all cooler temperatures within validation criteria?

Method:	9040C				SM 3500 FE B		
Parameters:	pH				Ferrous Iron		
Technical holding time:	~~48 HRS~~ 24 hrs				24 hrs		
Sample ID	Sampling date	Analysis date	Time ~~Exceeded~~	Qualifier	Analysis date	Time Exceeded	Qualifier
All (Det)	5/23/18	5/31/18	8days	J/UJ/P			
1 (Det)	5/23/18				5/24/18	26.85 hrs	J/UJ/P
	(09:00)				(11:51)		

HTTETRA.wpd

LDC #: 42613B6

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer:
2nd Reviewer: KK

METHOD: Inorganics, EPA Method See cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y N N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

Y N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤35% for soil samples?

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
	10/11		SO_4	88(87-112)	86		6	J/UJ/A (Det)
			~~Ferrous Fe~~	1(85-113)	0		6	J/R/A (MD)
			Ferrous Iron					

Comments: 7/8: Cl, SO_4 74X

LDC #: 42623B6

Validation Findings Worksheet
Initial and Continuing Calibration Calculation Verification

Page: 1 of 1
Reviewer: G
2nd Reviewer: KK

Method: Inorganics, Method See Cover

The correlation coefficient (r) for the calibration of Cl was recalculated. Calibration date: 3/21/18

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

%R = Found X 100 / True Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution
True = concentration of each analyte in the ICV or CCV source

Type of analysis	Analyte	Standard	Conc. (mg/L)	Area	Recalculated r or r^2	Reported r or r^2	Acceptable (Y/N)
Initial calibration	Cl	s1	1.0	16911296	*1.000*	*1.000*	Y
		s2	2.5	43759132			
		s3	5	85841374			
		s4	60	1053445301			
		s5	120	2068634717			
		s6	200	3433898767			
Calibration verification	NO_3N	ICV	4	3.93	98	98	
Calibration verification	SO_4	CCV	100	102.1	102	102	
Calibration verification	Fe^{2+}	CCV	1.0	10686	107	107	

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 42613B6

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of 1
Reviewer: OR
2nd Reviewer: KK

METHOD: Inorganics, Method See cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

%R = Found / True x 100 Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

RPD = |S-D| / (S+D)/2 x 100 Where, S = Original sample concentration
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
LCS	Laboratory control sample	Ferrous Iron	2.2416	2.00	112	112	Y
10	Matrix spike sample	NO3N	(SSR-SR) 10.0	10	100	100	
12	Duplicate sample	SO4	42.4	38.4	10	10	

Comments: _____

LDC #: 42613 B6

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: CR
2nd reviewer: KK

METHOD: Inorganics, Method See cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments?
Y N N/A Are all detection limits below the CRQL?

Compound (analyte) results for Cl reported with a positive detect were recalculated and verified using the following equation:

Concentration = $y = 1655360x - 440112$

Recalculation: $\frac{1079969301 + 440112}{1655360} \times 50 = 3263.3 mg/L$

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
	1	pH (SU)	7.7	7.7	Y
	2	Ferrous Iron	0.0403	0.0403	↓
	3	Cl	3260	3260	↓
	5	NO_3N	7.26	7.26	↓
	6	SO_4	2120	2120	✓

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS Yuma, CTO 17F3803

LDC Report Date: July 19, 2018

Parameters: 1,4-Dioxane

Validation Level: Stage 2B

Laboratory: Alpha Analytical, Inc.

Sample Delivery Group (SDG): L1818881

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
A1-MW-51-SA1	L1818881-01	Water	05/22/18
A1-MW-50-SA1	L1818881-02	Water	05/22/18
A1-MW-49-SA1	L1818881-03	Water	05/22/18
A1-MW-05-SA1	L1818881-04	Water	05/22/18
A1-MW-04-SA1	L1818881-05	Water	05/22/18

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona (April 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), and a modified outline of the USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

1,4-Dioxane by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

The chain-of-custodies were reviewed for documentation of cooler temperatures. Cooler temperatures for all samples were reported at 7.9°C upon receipt by the laboratory. No data was qualified based on the cooler temperature.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0%.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Stage 2B validation.

XIV. System Performance

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable.

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Data Qualification Summary - SDG L1818881

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG L1818881

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Field Blank Data Qualification Summary - SDG L1818881

No Sample Data Qualified in this SDG

LDC #: 42613F2b

SDG #: L1818881

Laboratory: Alpha Analytical, Inc.

VALIDATION COMPLETENESS WORKSHEET

Stage 2B

Date: 7/13/18

Page: 1 of 1

Reviewer:

2nd Reviewer: KW

METHOD: GC/MS 1,4-Dioxane (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	Temp @ 7.9°C
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A A	RSD ≤ 15%. ICV ≤ 20%
IV.	Continuing calibration / 2nd Col	A	CCV ≤ 20/50%
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	⊂
IX.	Laboratory control samples	A	LCS/D
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-51-SA1	L1818881-01	Water	05/22/18
2	A1-MW-50-SA1	L1818881-02	Water	05/22/18
3	A1-MW-49-SA1	L1818881-03	Water	05/22/18
4	A1-MW-05-SA1	L1818881-04	Water	05/22/18
5	A1-MW-04-SA1	L1818881-05	Water	05/22/18
6				
7				
8				

Notes:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS Yuma, CTO 17F3803

LDC Report Date: July 16, 2018

Parameters: 1,4-Dioxane

Validation Level: Stage 4

Laboratory: Alpha Analytical, Inc.

Sample Delivery Group (SDG): L1819087

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
A1-MW-18-SA	L1819087-01	Water	05/23/18
16-MW-08-SA1	L1819087-02	Water	05/23/18
A1-MW-19-SA1	L1819087-03	Water	05/23/18
A1-MW-37-SA1	L1819087-04	Water	05/23/18
A1-MW-37-SA1D	L1819087-05	Water	05/23/18
16-HS-03-SA1	L1819087-06	Water	05/23/18
16-HS-03-SA1MS	L1819087-06MS	Water	05/23/18
16-HS-03-SA1MSD	L1819087-06MSD	Water	05/23/18

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona (April 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), and a modified outline of the USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

1,4-Dioxane by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0%.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

Samples A1-MW-37-SA1 and A1-MW-37-SA1D were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

	Concentration (ng/L)				
Compound	A1-MW-37-SA1	A1-MW-37-SA1D	RPD (Limits)	Flag	A or P
1,4-Dioxane	7780	7500	4 (≤30)	-	-

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

All compound quantitations were within validation criteria.

XIII. Target Compound Identifications

All target compound identifications were within validation criteria.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable.

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Data Qualification Summary - SDG L1819087

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG L1819087

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Field Blank Data Qualification Summary - SDG L1819087

No Sample Data Qualified in this SDG

LDC #: 42613G2b **VALIDATION COMPLETENESS WORKSHEET** Date: 7/13/18
SDG #: L1819087 Stage 4 Page: 1 of 1
Laboratory: Alpha Analytical, Inc. Reviewer: Q
2nd Reviewer: KK

METHOD: GC/MS 1,4-Dioxane (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A A	RSD≤ 15%. ICV≤ 20%
IV.	Continuing calibration / Endrin	A	CCV≤ 20/50%
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	A	
IX.	Laboratory control samples	A	LCS/D
X.	Field duplicates	SW	D=4+5
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	
XIII.	Target compound identification	A	
XIV.	System performance	A	
XV.	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	A1-MW-18-SA	L1819087-01	Water	05/23/18
2	16-MW-08-SA1	L1819087-02	Water	05/23/18
3	A1-MW-19-SA1	L1819087-03	Water	05/23/18
4	A1-MW-37-SA1	L1819087-04	Water	05/23/18
5	A1-MW-37-SA1D	L1819087-05	Water	05/23/18
6	16-HS-03-SA1	L1819087-06	Water	05/23/18
7	16-HS-03-SA1MS	L1819087-06MS	Water	05/23/18
8	16-HS-03-SA1MSD	L1819087-06MSD	Water	05/23/18
9				

Notes:

LDC #: 42613F3b

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: O
2nd Reviewer: RK

Method: Semivolatiles (EPA SW 846 Method 8270C-SIM)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/MS Instrument performance check (Not required)				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 15% and relative response factors (RRF) ≥ 0.05?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤20% or percent recoveries (%R) 80-120%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) ≥ 0.05?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Field blanks				
Were field blanks identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	
VII. Surrogate spikes				
Were all surrogate percent differences (%R) within QC limits?	✓			
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any percent recoveries (%R) was less than 10 percent, was a reanalysis performed to confirm %R?			✓	

LDC #: 42613B6

VALIDATION FINDINGS CHECKLIST

Reviewer: Q
2nd Reviewer: MK

Validation Area	Yes	No	NA	Findings/Comments
VIII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
IX. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?	✓			
XI. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XII. Compound quantitation				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	AA. 2-Chloronaphthalene	AAA. Butylbenzylphthalate	AAAA. Dibenzothiophene	A1.
B. Bis (2-chloroethyl) ether	BB. 2-Nitroaniline	BBB. 3,3'-Dichlorobenzidine	BBBB. Benzo(a)fluoranthene	B1.
C. 2-Chlorophenol	CC. Dimethylphthalate	CCC. Benzo(a)anthracene	CCCC. Benzo(b)fluorene	C1.
D. 1,3-Dichlorobenzene	DD. Acenaphthylene	DDD. Chrysene	DDDD. cis/trans-Decalin	D1.
E. 1,4-Dichlorobenzene	EE. 2,6-Dinitrotoluene	EEE. Bis(2-ethylhexyl)phthalate	EEEE. Biphenyl	E1.
F. 1,2-Dichlorobenzene	FF. 3-Nitroaniline	FFF. Di-n-octylphthalate	FFFF. Retene	F1.
G. 2-Methylphenol	GG. Acenaphthene	GGG. Benzo(b)fluoranthene	GGGG. C30-Hopane	G1.
H. 2,2'-Oxybis(1-chloropropane)	HH. 2,4-Dinitrophenol	HHH. Benzo(k)fluoranthene	HHHH. 1-Methylphenanthrene	H1.
I. 4-Methylphenol	II. 4-Nitrophenol	III. Benzo(a)pyrene	IIII. 1,4-Dioxane	I1.
J. N-Nitroso-di-n-propylamine	JJ. Dibenzofuran	JJJ. Indeno(1,2,3-cd)pyrene	JJJJ. Acetophenone	J1.
K. Hexachloroethane	KK. 2,4-Dinitrotoluene	KKK. Dibenz(a,h)anthracene	KKKK. Atrazine	K1.
L. Nitrobenzene	LL. Diethylphthalate	LLL. Benzo(g,h,i)perylene	LLLL. Benzaldehyde	L1.
M. Isophorone	MM. 4-Chlorophenyl-phenyl ether	MMM. Bis(2-Chloroisopropyl)ether	MMMM. Caprolactam	M1.
N. 2-Nitrophenol	NN. Fluorene	NNN. Aniline	NNNN. 2,6-Dichlorophenol	N1.
O. 2,4-Dimethylphenol	OO. 4-Nitroaniline	OOO. N-Nitrosodimethylamine	OOOO. 1,2-Diphenylhydrazine	O1.
P. Bis(2-chloroethoxy)methane	PP. 4,6-Dinitro-2-methylphenol	PPP. Benzoic Acid	PPPP. 3-Methylphenol	P1.
Q. 2,4-Dichlorophenol	QQ. N-Nitrosodiphenylamine	QQQ. Benzyl alcohol	QQQQ. 3&4-Methylphenol	Q1.
R. 1,2,4-Trichlorobenzene	RR. 4-Bromophenyl-phenylether	RRR. Pyridine	RRRR. 4-Dimethyldibenzothiophene (4MDT)	R1.
S. Naphthalene	SS. Hexachlorobenzene	SSS. Benzidine	SSSS. 2/3-Dimethyldibenzothiophene (4MDT)	S1.
T. 4-Chloroaniline	TT. Pentachlorophenol	TTT. 1-Methylnaphthalene	TTTT. 1-Methyldibenzothiophene (1MDT)	T1.
U. Hexachlorobutadiene	UU. Phenanthrene	UUU.Benzo(b)thiophene	UUUU.	U1.
V. 4-Chloro-3-methylphenol	VV. Anthracene	VVV.Benzonaphthothiophene	VVVV.	V1.
W. 2-Methylnaphthalene	WW. Carbazole	WWW.Benzo(e)pyrene	WWWW.	W1.
X. Hexachlorocyclopentadiene	XX. Di-n-butylphthalate	XXX. 2,6-Dimethylnaphthalene	XXXX.	X1.
Y. 2,4,6-Trichlorophenol	YY. Fluoranthene	YYY. 2,3,5-Trimethylnaphthalene	YYYY.	Y1.
Z. 2,4,5-Trichlorophenol	ZZ. Pyrene	ZZZ. Perylene	ZZZZ.	Z1.

LDC#: 42613G2b

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: 9
2nd Reviewer: KK

METHOD: GCMS SVOA 8270D-SIM

Compound	Concentration (ng/L)		(≤30) RPD	Qual
	4	5		
1,4-Dioxane	7780	7500	4	

V:\FIELD DUPLICATES\Field Duplicates\FD_Organics\2018\42613G2b.wpd

LDC #: [illegible]

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: Q
2nd Reviewer: KK

METHOD: GC/MS BNA (EPA SW 846 Method 8270C-SIM)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs,

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard
X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (500 std)	Recalculated RRF (500 std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL	5/29/18	IIII (1st internal standard)	1.618	1.618	1.686	1.686	7.57	7.57
			Naphthalene (2nd internal standard)						
			Fluorene (3rd internal standard)						
			Phenanthrene (4th internal standard)						
			Chrysene (5th internal standard)						
			Benzo(a)pyrene (6th internal standard)						
2	ICAL	6/1/18	IIII (1st internal standard)	1.471	1.471	1.437	1.437	4.02	4.02
			Naphthalene (2nd internal standard)						
			Fluorene (3rd internal standard)						
			Phenanthrene (4th internal standard)						
			Chrysene (5th internal standard)						
			Benzo(a)pyrene (6th internal standard)						
3			(1st internal standard)						
			Naphthalene (2nd internal standard)						
			Fluorene (3rd internal standard)						
			Phenanthrene (4th internal standard)						
			Chrysene (5th internal standard)						
			Benzo(a)pyrene (6th internal standard)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: ~~46613~~6

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: A
2nd Reviewer: KK

METHOD: GC/MS BNA (EPA SW 846 Method 8270C-SIM)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	F6060118 02	6/1/18	1111 (1st internal standard)	1.686	1.767	1.767	4.8	4.8
			Naphthalene (2nd internal standard)					
			Fluorene (3rd internal standard)					
			Phenanthrene (4th internal standard)					
			Chrysene (5th internal standard)					
			Benzo(a)pyrene (6th internal standard)					
2	F1606058 07	6/5/18	1111 (1st internal standard)	1.437	1.538	1.538	7	7
			Naphthalene (2nd internal standard)					
			Fluorene (3rd internal standard)					
			Phenanthrene (4th internal standard)					
			Chrysene (5th internal standard)					
			Benzo(a)pyrene (6th internal standard)					
3	~~F~~		(1st internal standard)					
			Naphthalene (2nd internal standard)					
			Fluorene (3rd internal standard)					
			Phenanthrene (4th internal standard)					
			Chrysene (5th internal standard)					
			Benzo(a)pyrene (6th internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 42436-b

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: Q
2nd reviewer: KK

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270C-SIM)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
1,4-Dioxane-d8	500	98.32	20	20	0

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

LDC #: 36154-D

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Page: 1 of 1
Reviewer: 9
2nd Reviewer: KK

METHOD: GC/MS (EPA SW 846 Method 8270C-SIM)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentation

RPD = I MSC - MSC I * 2/(MSC + MSDC) MSC = Matrix spike concentration MSDC = Matrix spike duplicate concentration

MS/MSD samples: 7/8

Compound	Spike Added (NS/L)		Sample Concentration (NS/L)	Spiked Sample Concentration (NS/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
Acenaphthene											
Pyrene											
1,4-Dioxane	5100	5100	3270	8340	8660	99	99	106	106	4	4

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270C-SIM)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA) Where: SSC = Spike concentration
SA = Spike added

RPD = | LCSC - LCSDC | * 2/(LCSC + LCSDC) LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: NG1120650-1/-3

Compound	Spike Added (ug/L)		Spike Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
Acenaphthene										
Pyrene										
1,4-Dioxane	5000	5000	5640	5660	113	113	113	113	0	0

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 42613-26

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: Q
2nd reviewer: KK

METHOD: GC/MS PAHs (EPA SW 846 Method 8270D-SIM)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.
2.0	=	Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 1, 1,4-Dioxane

Conc. = $\frac{(2376)(500)(5)(1)(\quad)}{(5587)(1.686)(0.5)(\quad)(\quad)}$

= 1261.1 ng/L

#	Sample ID	Compound	Reported Concentration (ng/L)	Calculated Concentration ( )	Qualification
	1	1,4-Dioxane	1260		

LDC Report# 42613H2b

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS Yuma, CTO 17F3803

LDC Report Date: July 19, 2018

Parameters: 1,4-Dioxane

Validation Level: Stage 2B

Laboratory: Alpha Analytical, Inc.

Sample Delivery Group (SDG): L1819352

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
A1-MW-13-SA1	L1819352-01	Water	05/24/18
A1-MW-11-SA1	L1819352-02	Water	05/24/18
A1-MW-14-SA1	L1819352-03	Water	05/24/18
A1-MW-15-SA1	L1819352-04	Water	05/24/18
A1-MW-25-SA1	L1819352-07	Water	05/24/18

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona (April 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), and a modified outline of the USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

1,4-Dioxane by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0%.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Stage 2B validation.

XIV. System Performance

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable.

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Data Qualification Summary - SDG L1819352

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG L1819352

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Field Blank Data Qualification Summary - SDG L1819352

No Sample Data Qualified in this SDG

LDC #: 42613H2b

SDG #: L1819352

Laboratory: Alpha Analytical, Inc.

VALIDATION COMPLETENESS WORKSHEET

Stage 2B

Date: 7/13/18

Page: 1 of 1

Reviewer:

2nd Reviewer: KK

METHOD: GC/MS 1,4-Dioxane (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSD ≤ 15%. ICV ≤ 20%
IV.	Continuing calibration	A	CCV ≤ 20/50%
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	CS
IX.	Laboratory control samples	A	LCSB
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-13-SA1	L1819352-01	Water	05/24/18
2	A1-MW-11-SA1	L1819352-02	Water	05/24/18
3	A1-MW-14-SA1	L1819352-03	Water	05/24/18
4	A1-MW-15-SA1	L1819352-04	Water	05/24/18
5	A1-MW-25-SA1	L1819352-07	Water	05/24/18
6				
7				
8				

Notes:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS Yuma, CTO 17F3803

LDC Report Date: July 19, 2018

Parameters: 1,4-Dioxane

Validation Level: Stage 2B

Laboratory: Alpha Analytical, Inc.

Sample Delivery Group (SDG): L1819562

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
A1-MW-42-SA1	L1819562-01	Water	05/25/18
A1-MW-54-SA1	L1819562-02	Water	05/25/18
A1-MW-53-SA1	L1819562-03	Water	05/25/18
A1-PZ-19-SA1	L1819562-04	Water	05/25/18
A1-MW-52-SA1	L1819562-05	Water	05/25/18
A1-MW-01-SA1	L1819562-06	Water	05/25/18
A1-MW-01-SA1D	L1819562-07	Water	05/25/18
A1-MW-31-SA1	L1819562-08	Water	05/25/18
A1-MW-53-SA1MS	L1819562-03MS	Water	05/25/18
A1-MW-53-SA1MSD	L1819562-03MSD	Water	05/25/18

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona (April 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), and a modified outline of the USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

1,4-Dioxane by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0%.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

Samples A1-MW-01-SA1 and A1-MW-01-SA1D were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

	Concentration (ug/L)				
Compound	A1-MW-01-SA1	A1-MW-01-SA1D	RPD (Limits)	Flag	A or P
1,4-Dioxane	1840	1880	2 (≤30)	-	-

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Stage 2B validation.

XIV. System Performance

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable.

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Data Qualification Summary - SDG L1819562

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG L1819562

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Field Blank Data Qualification Summary - SDG L1819562

No Sample Data Qualified in this SDG

LDC #: 42613I2b

SDG #: L1819562

Laboratory: Alpha Analytical, Inc.

VALIDATION COMPLETENESS WORKSHEET

Stage 2B

Date: 7/13/18

Page: 1 of 1

Reviewer:

2nd Reviewer: KK

METHOD: GC/MS 1,4-Dioxane (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSD ≤ 15%. ICV ≤ 20%
IV.	Continuing calibration	A	CCV ≤ 20/50%
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	A	
IX.	Laboratory control samples	A	LCS/D
X.	Field duplicates	SW	D = 6+7
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-42-SA1	L1819562-01	Water	05/25/18
2	A1-MW-54-SA1	L1819562-02	Water	05/25/18
3	A1-MW-53-SA1	L1819562-03	Water	05/25/18
4	A1-PZ-19-SA1	L1819562-04	Water	05/25/18
5	A1-MW-52-SA1	L1819562-05	Water	05/25/18
6	A1-MW-01-SA1	L1819562-06	Water	05/25/18
7	A1-MW-01-SA1D	L1819562-07	Water	05/25/18
8	A1-MW-31-SA1	L1819562-08	Water	05/25/18
9	A1-MW-53-SA1MS	L1819562-03MS	Water	05/25/18
10	A1-MW-53-SA1MSD	L1819562-03MSD	Water	05/25/18
11				
12				
13				

LDC#: 42613I2b

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: Q
2nd Reviewer: KK

METHOD: GCMS SVOA 8270D-SIM

Compound	Concentration (ng/L)		(≤30) RPD	Qual
	6	7		
1,4-Dioxane	1840	1880	2	

V:\FIELD DUPLICATES\Field Duplicates\FD_Organics\2018\42613I2b.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS Yuma, CTO 17F3803

LDC Report Date: July 19, 2018

Parameters: 1,4-Dioxane

Validation Level: Stage 2B

Laboratory: Alpha Analytical, Inc.

Sample Delivery Group (SDG): L1820050

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
A1-MW-27-SA1	L1820050-01	Water	05/30/18
A1-MW-55-SA1	L1820050-02	Water	05/30/18
A1-MW-23-SA1	L1820050-03	Water	05/30/18
A1-MW-07-SA1	L1820050-04	Water	05/30/18

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona (April 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), and a modified outline of the USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

1,4-Dioxane by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0%.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

All compounds reported below the reporting limit (RL) were qualified as follows:

Sample	Finding	Flag	A or P
A1-MW-23-SA1	All compounds reported below the RL.	J (all detects)	A

Raw data were not reviewed for Stage 2B validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Stage 2B validation.

XIV. System Performance

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to results below the RL, data were qualified as estimated in one sample.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable.

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Data Qualification Summary - SDG L1820050

Sample	Compound	Flag	A or P	Reason
A1-MW-23-SA1	All compounds reported below the RL.	J (all detects)	A	Compound quantitation

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG L1820050

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Field Blank Data Qualification Summary - SDG L1820050

No Sample Data Qualified in this SDG

LDC #: 42613J2b

SDG #: L1820050

Laboratory: Alpha Analytical, Inc.

VALIDATION COMPLETENESS WORKSHEET

Stage 2B

Date: 7/12/18

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: KK

METHOD: GC/MS 1,4-Dioxane (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSD≤15%. ICV≤20%
IV.	Continuing calibration	A	CCV≤20/50%
V.	Laboratory Blanks	A	
VI.	Field blanks	N	
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	CS
IX.	Laboratory control samples	A	LCS/D
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-27-SA1	L1820050-01	Water	05/30/18
2	A1-MW-55-SA1	L1820050-02	Water	05/30/18
3	A1-MW-23-SA1	L1820050-03	Water	05/30/18
4	A1-MW-07-SA1	L1820050-04	Water	05/30/18
5				
6				
7				
8				

Notes:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS Yuma, CTO 17F3803

LDC Report Date: July 19, 2018

Parameters: 1,4-Dioxane

Validation Level: Stage 2B

Laboratory: Alpha Analytical, Inc.

Sample Delivery Group (SDG): L1820175

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
EB-20180531	L1820175-01	Water	05/31/18

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona (April 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), and a modified outline of the USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

1,4-Dioxane by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0%.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample EB-20180531 was identified as an equipment blank. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Stage 2B validation.

XIV. System Performance

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable.

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Data Qualification Summary - SDG L1820175

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG L1820175

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Field Blank Data Qualification Summary - SDG L1820175

No Sample Data Qualified in this SDG

LDC #: 42613K2b

SDG #: L1820175

Laboratory: Alpha Analytical, Inc.

VALIDATION COMPLETENESS WORKSHEET

Stage 2B

Date: 7/13/18

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: RK

METHOD: GC/MS 1,4-Dioxane (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	RSD≤ 15%. ICV ≤ 20%
IV.	Continuing calibration	A	CCV ≤ 20/50%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	EB=1
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	N	CS
IX.	Laboratory control samples	A	LCS/6
X.	Field duplicates	N	
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	EB-20180531	L1820175-01	Water	05/31/18
2				
3				
4				
5				
6				
7				
8				

Notes:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS Yuma, CTO 17F3803

LDC Report Date: July 16, 2018

Parameters: Perfluorinated Alkyl Acids

Validation Level: Stage 4

Laboratory: Vista Analytical Laboratory

Sample Delivery Group (SDG): 1801037

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
A1-MW-18-SA1	1801037-01	Water	05/23/18
16-MW-08-SA1	1801037-02	Water	05/23/18
A1-MW-19-SA1	1801037-03	Water	05/23/18
A1-MW-37-SA1	1801037-04	Water	05/23/18
A1-MW-37-SA1D	1801037-05	Water	05/23/18
16-HS-03-SA1	1801037-06	Water	05/23/18
16-MW-09-SA1	1801037-07	Water	05/23/18
16-MW-06-SA1	1801037-08	Water	05/23/18

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona (April 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), and a modified outline of the USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Perfluorinated Alkyl Acids by Environmental Protection Agency (EPA) Method 537 Modified

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. LC/MS Instrument Performance Check

Instrument performance was checked as applicable.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

Initial calibration was performed as required by the method.

For compounds where average relative response factors (RRFs) were utilized, the percent relative standard deviations (%RSD) were less than or equal to 20.0%.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

For each calibration point, the percent differences (%D) for their true value were less than or equal to 30.0% for all compounds.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample FRB-20180523 was identified as a field rinsate blank. No contaminants were found.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
16-HS-03-SA1MS/MSD (16-HS-03-SA1)	PFHpA PFHxS PFOA	140 (70-130) 146 (70-130) 131 (70-130)	- - -	J (all detects) J (all detects) J (all detects)	A
16-HS-03-SA1MS/MSD (16-HS-03-SA1)	PFDA PFDoA PFTrDA	132 (70-130) 136 (70-130) 136 (70-130)	- - 133 (70-130)	NA	-

Relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
16-HS-03-SA1MS/MSD (16-HS-03-SA1)	PFHpA	49.6 (≤30)	J (all detects)	A
16-HS-03-SA1MS/MSD (16-HS-03-SA1)	NMeFOSAA	41.1 (≤30)	NA	-

For 16-HS-03-SA1MS/MSD, no data were qualified for PFBS and PFHxA percent recoveries (%R) and relative percent differences (RPD) outside the QC limits since the parent sample results were greater than 4X the spike concentration.

VIII. Ongoing Precision Recovery

Ongoing precision recovery (OPR) samples were analyzed as required by the method. Percent recoveries (%R) were within QC limits with the following exceptions:

OPR ID (Associated Samples)	Compound	%R (Limits)	Flag	A or P
B8E0244-BS1 (All samples in SDG 1801037)	PFTrDA	153 (70-130)	NA	-

IX. Field Duplicates

Samples A1-MW-37-SA1 and A1-MW-37-SA1D were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	A1-MW-37-SA1	A1-MW-37-SA1D			
PFBS	0.230	0.252	9 (≤30)	-	-
PFHxA	1.66	1.71	3 (≤30)	-	-
PFHpA	0.0328	0.0322	Not calculable	-	-
PFHxS	0.155	0.152	2 (≤30)	-	-
PFOA	0.0196	0.0203	Not calculable	-	-
PFNA	0.00170	0.00210	Not calculable	-	-
PFOS	0.0458	0.0416	Not calculable	-	-
PFUnA	0.00525U	0.00135	Not calculable	-	-

RPDs were not calculated when sample results in one or both samples were less than 5x the limit of quantitation (LOQ).

X. Internal Standards

All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Affected Compound	Flag	A or P
A1-MW-18-SA1	^{13}C3-PFBS	170 (50-150)	PFBS	J (all detects)	P
16-MW-08-SA1	^{13}C3-PFBS	187 (50-150)	PFBS	J (all detects)	P
A1-MW-19-SA1	^{13}C3-PFBS	214 (50-150)	PFBS	J (all detects)	P
A1-MW-37-SA1	^{13}C3-PFBS	228 (50-150)	PFBS	J (all detects)	P
A1-MW-37-SA1D	^{13}C3-PFBS	161 (50-150)	PFBS	J (all detects)	P
16-HS-03-SA1	^{13}C3-PFBS	154 (50-150)	PFBS	J (all detects)	P
16-MW-09-SA1	^{13}C3-PFBS	153 (50-150)	PFBS	J (all detects)	P
16-MW-06-SA1	^{13}C3-PFBS	214 (50-150)	PFBS	J (all detects)	P

XI. Compound Quantitation

All compound quantitations met validation criteria.

All compounds reported below the limit of quantitation (LOQ) were qualified as follows:

Sample	Finding	Flag	A or P
A1-MW-18-SA1 16-MW-08-SA1 A1-MW-19-SA1 A1-MW-37-SA1 A1-MW-37-SA1D 16-MW-09-SA1 16-MW-06-SA1	All compounds reported below the LOQ.	J (all detects)	A

XII. Target Compound Identifications

All target compound identifications met validation criteria.

XIII. System Performance

The system performance was acceptable.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to MS/MSD %R and RPD, internal standard %R, and results below the LOQ, data were qualified as estimated in eight samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable.

MCAS Yuma, CTO 17F3803
Perfluorinated Alkyl Acids - Data Qualification Summary - SDG 1801037

Sample	Compound	Flag	A or P	Reason
16-HS-03-SA1	PFHpA PFHxS PFOA	J (all detects) J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicate (%R)
16-HS-03-SA1	PFHpA	J (all detects)	A	Matrix spike/Matrix spike duplicate (RPD)
A1-MW-18-SA1 16-MW-08-SA1 A1-MW-19-SA1 A1-MW-37-SA1 A1-MW-37-SA1D 16-HS-03-SA1 16-MW-09-SA1 16-MW-06-SA1	PFBS	J (all detects)	P	Internal standards (%R)
A1-MW-18-SA1 16-MW-08-SA1 A1-MW-19-SA1 A1-MW-37-SA1 A1-MW-37-SA1D 16-MW-09-SA1 16-MW-06-SA1	All compounds reported below the LOQ.	J (all detects)	A	Compound quantitation

MCAS Yuma, CTO 17F3803
Perfluorinated Alkyl Acids - Laboratory Blank Data Qualification Summary - SDG 1801037

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
Perfluorinated Alkyl Acids - Field Blank Data Qualification Summary - SDG 1801037

No Sample Data Qualified in this SDG

LDC #: 42613M96 **VALIDATION COMPLETENESS WORKSHEET** Date: 7/13/18
SDG #: 1801037 Stage 4 Page: 1 of 1
Laboratory: Vista Analytical Laboratory Reviewer: [illegible]
2nd Reviewer: IKK

METHOD: LC/MS Perfluorinated Alkyl Acids (EPA Method 537 Modified)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A A	RSD ≤ 20% or r^2 True value/ICV ≤ 30%
IV.	Continuing calibration	A	CCV ≤ 30%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	FRB = 9
~~VII.~~	~~Surrogate spikes~~	N	
VIII.	Matrix spike/Matrix spike duplicates	SW	
IX.	Laboratory control samples	SW	OPR
X.	Field duplicates	SW	D = 1-5
XI.	Internal standards	SW	
XII.	Compound quantitation RL/LOQ/LODs	A	
XIII.	Target compound identification	A	
XIV.	System performance	A	
XV.	Overall assessment of data	A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

** Indicates sample underwent Stage 4 validation

	Client ID	Lab ID	Matrix	Date
1	A1-MW-18-SA1**	1801037-01**	Water	05/23/18
2	16-MW-08-SA1**	1801037-02**	Water	05/23/18
3	A1-MW-19-SA1**	1801037-03**	Water	05/23/18
4	A1-MW-37-SA1**	1801037-04**	Water	05/23/18
5	A1-MW-37-SA1D**	1801037-05**	Water	05/23/18
6	16-HS-03-SA1**	1801037-06**	Water	05/23/18
7	16-MW-09-SA1**	1801037-07**	Water	05/23/18
8	16-MW-06-SA1**	1801037-08**	Water	05/23/18
9	FRB-20180523	1801037-09	Water	05/23/18
10	16-HS-03-SA1MS	1801037-06MS	Water	05/23/18
11	16-HS-03-SA1MSD	1801037-06MSD	Water	05/23/18
12				
13				
14				

LDC #: 42613496

VALIDATION FINDINGS CHECKLIST

Reviewer: Q
2nd Reviewer: WC

Method: LC/MS PFOS/PFOAs (EPA Method 537M)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. LC/MS Instrument performance check				
Were the instrument performance reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?	✓			
Were the S/N ratio for all compounds within validation criteria?	✓			
Were all analytes within 70-130% or percent differences (%D) ≤30% of their true value for each calibration standard?	✓			
IIIb.Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 30%	✓			
IV. Continuing calibration				
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 30%	✓			
Were the S/N ratio for all compounds within validation criteria?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Laboratory Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		
VII. Surrogate spikes				
Were all surrogate %R within the QC limits?			✓	
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VIII. Matrix spike/Matrix spike duplicates				

LDC #: 42613M96

VALIDATION FINDINGS CHECKLIST

Reviewer: 9
2nd Reviewer: KK

Validation Area	Yes	No	NA	Findings/Comments
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		✓		
IV. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?		✓		
X. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			
XI. Internal standards				
Were internal standard area counts within acceptance limits?	✓			
XII. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XIII. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

TARGET COMPOUND WORKSHEET

METHOD: PFOS/PFOAs

A. Perfluorohexanoic acid (PFHxA)			
B. Perfluoroheptanoic acid (PFHpA)			
C. Perfluorooctanoic acid (PFOA)			
D. Perfluorononanoic acid (PFNA)			
E. Perfluorodecanoic acid (PFDA)			
F. Perfluoroundecanoic acid (PFUnA)			
G. Perfluorododecanoic acid (PFDoA)			
H. Perfluorotridecanoic acid (PFTriDA)			
I. Perfluorotetradecanoic acid (PFTeDA)			
J. Perfluorobutanesulfonic acid (PFBS)			
K. Perfluorohexanesulfonic acid (PFHxS)			
L. Perfluoroheptanesulfonic acid (PFHpS)			
M. Perfluorooctanesulfonic acid (PFOS)			
N.Perfluorodecanesulfonic acid (PFDS)			
O. Perfluorooctane Sulfonamide (FOSA)			
P. Perfluorobutanoic acid (PFBA)			
Q. Perfluoropentanoic acis (PFPeA)			
R. 6:2FTS			
S. 8:2 FTS			
T. N-methyl perfluorooctanesulfonamidoacetic acid (NMeFOSAA)			
U. N-Ethyl perfluorooctanesulfonamidoacetic acid (NEtFOSAA)			

LDC #: 42613M96

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates/Duplicates

Page: 1 of 1
Reviewer: 9
2nd Reviewer: KK

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) or duplicate sample analyzed for each matrix in this SDG?
Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?
Y N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?
Y N N/A Were all duplicate sample relative percent differences (RPD) or differences within QC limits?

#	Date	MS/MSD/DUP ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		10/11	PFBS	180 (70-130)		45.9 (≤30)	6 (dets)	No qual ~~NA~~
			PFHxA	-210 (↓)		329 (↓)	↓	↓
			PFHpA	140 (70-130)				dets/A
			PFHxS	146 (			↓	
			PFOA	131 (				↓
			PFDA	132 (			(ND)	
			PFDoA	86 (			↓	
			PFTrDA	136 (↓)	133 (70-130)			
			PFHpA			49.6 (≤30)	(dets)	dets/A
			MeFOSAA			41.1 (↓)	(ND)	d

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LDC #: 42623M96

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: 9
2nd Reviewer: KK

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Was a LCS required?

Y (N) N/A Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

#	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	BBE0244-BS1		( )	( )	( )		
	B		( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
	BBE0244-BS1	PFTeDA	153 (70-130)	( )	( )	All (ND)	J+ (all samples)
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )	

LDC#: 42613M96

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: KK

METHOD: PFCs

Compound	Concentration (ug/L)		(≤30) RPD	Qual
	4	5		
PFBS	0.230	0.252	9	
PFHxA	1.66	1.71	3	
PFHpA	0.0328	0.0322	~~2~~ NC	
PFHxS	0.155	0.152	2	
PFOA	0.0196	0.0203	~~4~~ NC	
PFNA	0.00170	0.00210	~~21~~ NC	
PFOS	0.0458	0.0416	~~10~~ NC	
PFUnA	0.00525U	0.00135	NC	

LDC #: 4-163496

VALIDATION FINDINGS WORKSHEET
Internal Standards

Page: 1 of 1
Reviewer: 9
2nd Reviewer: KK

METHOD: LC/MS PFCs

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all internal standard area counts within 50-150% limits?

(Y) N N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Sample ID	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
		1 (dets)	13C3-PFBS	170 (50-150)		J (4 PFBS)
		2		187		
		3		214		
		4		228		
		5		161		
		6		154		
		7		153		
		8		214		
		10 (MS)		167		No qual
		11 (MSD)		165		

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LDC #: 46634 96

Validation Findings Worksheet
Initial Calibration Calculation Verification

Reviewer: 9
2nd Reviewer: KK

Method: PFCs (EPA Method 537)

Calibration Date	Instrument/Column	Compound	Standard	(Y) Response	(X) Conc.	(X^2) Conc.
6/6/2018	M2	PFBS	0	0.51953	0.25	0.0625
			s1	0.9040925	0.5	0.25
			s2	1.9572675	1	1
			s3	3.7049862	2	4
			s4	10.06541	5	25
			s5	19.886856	10	100
			s6	99.722347	50	2500
			s7	204.60758	100	10000
			s8	513.09516	250	62500
			s9	1017.3084	500	250000

Regression Output	Calculated		*Reported*	
Constant	c	-0.63805	c	-0.0700934
Std Err of Y Est				
R Squared		0.9999897		0.9999340
Degrees of Freedom				
	b	a	b	a
X Coefficient(s)	2.063159148	-5.34413E-05	2.03725	2.30679E-06
Std Err of Coef.				
Correlation Coefficient		0.999995		
Coefficient of Determination (r^2)		0.999990		

Validation Findings Worksheet
Initial Calibration Calculation Verification

Method: PFCs (EPA Method 537)

Calibration Date	Instrument/Column	Compound	Standard	(Y) Response	(X) Conc.	(X^2) Conc.
6/6/2018	M2	PFOA	0	0.2482712	0.25	0.0625
			s1	0.5747737	0.5	0.25
			s2	1.0592625	1	1
			s3	1.846235	2	4
			s4	4.6900387	5	25
			s5	10.243193	10	100
			s6	51.521462	50	2500
			s7	93.85144027	100	10000
			s8	228.044994	250	62500
			s9	451.7265496	500	250000

Regression Output	Calculated		*Reported*	
Constant	c	0.76340	c	0.0441882
Std Err of Y Est				
R Squared		0.9998726		0.9994240
Degrees of Freedom				
	b	a	b	a
X Coefficient(s)	0.931889278	-6.1517E-05	0.964706	-0.000132122
Std Err of Coef.				
Correlation Coefficient		0.999936		
Coefficient of Determination (r^2)		0.999873		

Validation Findings Worksheet
Initial Calibration Calculation Verification

Method: PFCs (EPA Method 537)

Calibration Date	Instrument/Column	Compound	Standard	(Y) Response	(X) Conc.	(X^2) Conc.
6/13/2018	M2	PFHxA	0	0.4266035	0.25	0.0625
			s1	0.97093	0.5	0.25
			s2	1.9639255	1	1
			s3	3.6634565	2	4
			s4	8.4481905	5	25
			s5	15.881127	10	100
			s6	85.352945	50	2500
			s7	154.4073192	100	10000
			s8	412.8312447	250	62500
			s9	789.7483287	500	250000

Regression Output	Calculated		*Reported*	
Constant	c	-0.57068	c	0.0713566
Std Err of Y Est				
R Squared		0.9997320		0.9993330
Degrees of Freedom				
	b	a	b	a
X Coefficient(s)	1.676648676	-0.000187679	1.64736	-0.000124659
Std Err of Coef.				
Correlation Coefficient		0.999866		
Coefficient of Determination (r^2)		0.999732		

LDC #: 26BU96

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: 1
2nd Reviewer: KK

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	18060TM2_3	6/7/18	PFBS (1st internal standard)	1.0	0.913	0.911	8.7	8.9
			PFOA (2nd internal standard)	1.0	1.05	1.06	5.4	5.8
			(3rd internalstandard)					
2	18060TM2_28	6/7/18	PFBS (1st internal standard)	10.0	9.27	9.27	7.3	7.3
			PFOA (2nd internal standard)	10.0	9.52	9.53	4.8	4.7
			(3rd internalstandard)					
3	18060TM2_45	6/7/18	PFBS (1st internal standard)	1.0	0.885	0.884	11.5	11.8
			PFOA (2nd internal standard)	1.0	1.10	1.10	9.8	10.1
			(3rd internalstandard)					
4	18061TM2_40	6/13/18	PFHxA (1st internal standard)	10.0	10.4	10.4	4.2	4.5
			(2nd internal standard)					
			(3rd internalstandard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

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LDC #: 4963M90

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: 9
2nd Reviewer: KK

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentation

RPD = | MSC - MSC | * 2/(MSC + MSDC) MSC = Matrix spike concentration MSDC = Matrix spike duplicate concentration

MS/MSD samples: 10/11

Compound	Spike Added (ng/L)		Sample Concentration (ng/L)	Spiked Sample Concentration (ng/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
PFBS	0.0907	0.0883	0.582	0.746	0.682	182	181	114	113	~~45.9~~	45.9
PFOA	↓	↓	0.0218	0.141	0.113	131	131	103	103	23.9	23.9

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

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Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration
SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: BBE0244-BS1

Compound	Spike Added (ng/L)		Spike Concentration (ng/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
PFBS	0.0800	NA	0.0918	NA	115	115				
PFOA	↓	↓	0.0941	↓	118	118				

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

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LDC #: 42683M96

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: 9
2nd reviewer: KK

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

(Y) N N/A Were all reported results recalculated and verified for all level IV samples?
(Y) N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

V_o = Volume or weight of sample extract in milliliters (ml) or grams (g).

V_i = Volume of extract injected in microliters (ul)

V_t = Volume of the concentrated extract in microliters (ul)

Df = Dilution Factor.

%S = Percent solids, applicable to soil and solid matrices only.

2.0 = Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 1, PFOA:

Conc. = $\frac{(0.964(06) + \sqrt{(0.964(06)^2 - 4 \times (-0.000132)(0)}}{(2)(-0.000132)(2)} \frac{(180 \times 10^5)}{9070} + 0.0448)(0.113)$

= 1.87 ng/L

= 0.00187 µg/L

#	Sample ID	Compound	Reported Concentration (µg/L)	Calculated Concentration ( )	Qualification
	1	PFOA	0.00187		

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LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

Tetra Tech EC, Inc.
17885 Von Karman Avenue, Suite 500
Irvine, CA 92614
ATTN: Ms. Sabina Sudoko

January 2, 2019

SUBJECT: MCAS Yuma, CTO 3803, Data Validation

Dear Ms. Sudoko,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on December 10, 2018. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #43888:

SDG #	Fraction
280-116898-1, 280-116942-1 280-117007-1, 280-117103-1 280-117110-1, L1846366 L1846592, L1846856 L1847243, L1847316 1803615, 1803626 1803659, 1803676 1803678	Volatiles, 1,4-Dioxane, Wet Chemistry, Perfluoroalkyl and Polyfluoroalkyl Substances

The data validation was performed under Stage 2B & 4 guidelines. The analyses were validated using the following documents, as applicable to each method:

- Final Sampling and Analysis Plan for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona; April 2018
- U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.1; 2017
- USEPA National Functional Guidelines for Superfund Organic Methods Data Review; January 2017
- USEPA National Functional Guidelines for Inorganic Superfund Data Review; January 2017
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,

Shauna McKellar
Project Manager/Chemist

Stage 2B/4 ADR/NEDD 80/20

LDC #43888 (Tetra Tech-EC, Inc.-Irvine, CA / MCAS Yuma, CTO 3803)

PO# 1153059

LDC	SDG#	DATE REC'D	(3) DATE DUE	(3) VOA (8260B)		1,4-Diox (8270D -SIM)		PFAs (537)		Cl,SO_4 NO_3-N (9056A)		Fe II (3500 -Fe B)		pH (9040C)																							
Matrix: Water/Soil				W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	280-116898-1	12/10/18	01/02/19	1	0	-	-	-	-	1	0	1	0	1	0																				
A	280-116898-1	12/10/18	01/02/19	8	0	-	-	-	-	6	0	6	0	6	0																				
B	280-116942-1	12/10/18	01/02/19	9	0	-	-	-	-	7	0	7	0	7	0																				
C	280-117007-1	12/10/18	01/02/19	7	0	-	-	-	-	6	0	6	0	6	0																				
D	280-117103-1	12/10/18	01/02/19	8	0	-	-	-	-	6	0	6	0	6	0																				
E	280-117110-1	12/10/18	01/02/19	4	0	-	-	-	-	2	0	2	0	2	0																				
F	L1846366	12/10/18	01/02/19	-	-	1	0	-	-	-	-	-	-	-	-																				
F	L1846366	12/10/18	01/02/19	-	-	7	0	-	-	-	-	-	-	-	-																				
G	L1846592	12/10/18	01/02/19	-	-	8	0	-	-	-	-	-	-	-	-																				
H	L1846856	12/10/18	01/02/19	-	-	6	0	-	-	-	-	-	-	-	-																				
I	L1847243	12/10/18	01/02/19	-	-	7	0	-	-	-	-	-	-	-	-																				
J	L1847316	12/10/18	01/02/19	-	-	3	0	-	-	-	-	-	-	-	-																				
K	1803615	12/10/18	01/02/19	-	-	-	-	1	0	-	-	-	-	-	-																				
K	1803615	12/10/18	01/02/19	-	-	-	-	8	0	-	-	-	-	-	-																				
L	1803626	12/10/18	01/02/19	-	-	-	-	9	0	-	-	-	-	-	-																				
M	1803659	12/10/18	01/02/19	-	-	-	-	7	0	-	-	-	-	-	-																				
N	1803676	12/10/18	01/02/19	-	-	-	-	8	0	-	-	-	-	-	-																				
O	1803678	12/10/18	01/02/19	-	-	-	-	4	0	-	-	-	-	-	-																				
Total	T/SM			37	0	32	0	37	0	28	0	28	0	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	190

Shaded cells indicate Stage 4 validation (all other cells are ADR validation).

Data Validation Report
MCAS Yuma, CTO 3803

SDGs: 280-116898-1, 280-116942-1, 280-117007-1, 280-117103-1, 280-117110-1, L1846366, L1846592, L1846856, L1847243, L1847316, 1803615, 1803626, 1803659, 1803676, and 1803678

Prepared for

Tetra Tech EC, Inc.
17885 Von Karman Avenue, Suite 500
Irvine, CA 92614

Prepared by

Laboratory Data Consultants, Inc
2701 Loker Ave West, Suite 220
Carlsbad, CA 92010

January 2, 2019

INTRODUCTION

This Data Validation Report (DVR) presents Stage 2B and Stage 4 data validation results for samples collected during the November 2018 sampling period. Data validation was performed in accordance with the Final Sampling and Analysis Plan (SAP) for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona (April 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), a modified outline of the US EPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (January 2017), and a modified outline of the US EPA National Functional Guidelines (NFG) for Inorganic Superfund Data Review (January 2017). Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260B
1,4-Dioxane by EPA SW 846 Method 8270D utilizing Selective Ion Monitoring (SIM)
Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) by EPA Method 537 Modified

Wet Chemistry:
Chloride, Nitrate as Nitrogen, and Sulfate by EPA SW 846 Method 9056A
Ferrous Iron by Standard Method 3500-Fe B
pH by EPA SW 846 Method 9040C

For samples reviewed by automated data review, the sample identification and methods of analyses performed on each sample is presented in Attachment 1. Overall data qualification summary is presented in Attachment 2. Stage 2B Automated Data Review outliers are presented in Enclosure I. DVRs for samples on which Stage 4 validation was performed are presented in Enclosure II. Validation for 1,4-Dioxane was performed manually and DVRs for Stage 2B and Stage 4 manual validation are also presented in Enclosure II.

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results for sample holding times, initial and continuing calibrations, laboratory blanks, initial and continuing calibration blanks (ICB/CCBs), surrogates, matrix spike/matrix spike duplicates (MS/MSD), laboratory control sample/laboratory control sample duplicates (LCS/LCSD), ongoing precision recovery (OPR), internal standards, trip blanks, equipment blanks, field rinsate blanks, and field duplicates. Approximately 20 percent of samples were subjected to Stage 4 evaluation as indicated in Attachment 1, which comprises a review of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

Automated data review was performed on all QC summary results using the Automated Data Review (ADR) software program (LDC, 2013) with the exception of the calibrations, ICB/CCBs, and internal standards, and all QC for 1,4-Dioxane, which were validated manually. Quality assurance (QA)/QC criteria specified in the SAP, DoD QSM, and NFGs were incorporated with the program's reference library to assess compliance with project requirements.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not applicable): Data did not warrant qualification since detected results only are affected and the compound was not detected in the associated samples.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt & Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met with the exception of eight samples for PFAs, twenty-eight samples for pH, one sample for nitrate as N, and twenty-eight samples for ferrous iron. Due to grossly exceeded holding times (e.g., >2x recommended holding time), 23 ferrous iron results were qualified as rejected (R). The remainder of the data were qualified as detected estimated (J) and non-detected estimated (UJ) as applicable. The details regarding the qualification of data are provided in Enclosures I and II.

II. Instrument Performance Check

A tune was performed at 12 hour intervals as required by the methods.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

All criteria for the initial calibration and initial calibration verifications of each method were met.

IV. Continuing Calibration

All criteria for the continuing calibration verifications of each method were met with the following exceptions:

SDG/ Method	Date	Compound	%D (Limits)	Associated Samples	Flag	A or P
1803676/ 537 Mod.	12/03/18	PFTeDA	42.4 (≤30)	A1-MW-11-SA2 A1-MW-13-SA2 A1-MW-14-SA2 A1-MW-15-SA2 A1-MW-37-SA2 A1-MW-37-SA2D FRB-20181115 A1-MW-31-SA2	UJ (all non-detects)	A
1803678/ 537 Mod.	12/03/18	PFTeDA	42.4 (≤30)	A1-MW-01-SA2 A1-MW-42-SA2 FRB-20181116 EB-20181116	UJ (all non-detects)	A

V. Laboratory Blanks

Laboratory blanks were performed as required by the methods. No contaminant concentrations were detected in the laboratory blanks reviewed by the ADR software program with the exception of several blanks for chloride, nitrate as N, and sulfate. The associated sample results were not detected or were significantly greater than the concentrations found in the blanks, therefore no data were qualified. The details are presented in Enclosures I and II.

No contaminant concentrations were detected in the initial or continuing calibration blanks with the following exceptions:

SDG/ Method	Laboratory Blank ID	Analyte	Maximum Concentration	Associated Samples
280-116898-1/ 9056A	ICB/CCB	Nitrate as Nitrogen Sulfate	0.04526 mg/L 0.3841 mg/L	A1-MW-04-SA2 A1-MW-05-SA2 A1-MW-49-SA2 A1-MW-50-SA2 A1-MW-51-SA2 A1-PZ-19-SA2 A1-MW-52-SA2
280-116942-1/ 9056A	ICB/CCB	Sulfate	0.6931 mg/L	16-HS-03-SA2 16-MW-06-SA2 16-MW-08-SA2 16-MW-09-SA2 A1-MW-19-SA2
280-116942-1/ 9056A	ICB/CCB	Chloride	0.3086 mg/L	16-MW-06-SA2 16-MW-08-SA2 16-MW-09-SA2 A1-MW-53-SA2
280-117007-1/ 9056A	ICB/CCB	Chloride	0.2558 mg/L	A1-MW-07-SA2 A1-MW-23-SA2 A1-MW-25-SA2 A1-MW-27-SA2 A1-MW-55-SA2
280-117007-1/ 9056A	ICB/CCB	Chloride	0.2618 mg/L	A1-MW-54-SA2
280-117103-1/ 9056A	ICB/CCB	Chloride Sulfate	0.2982 mg/L 0.4094 mg/L	A1-MW-11-SA2 A1-MW-13-SA2 A1-MW-14-SA2 A1-MW-15-SA2 A1-MW-37-SA2 A1-MW-31-SA2
280-117103-1/ 9056A	ICB/CCB	Nitrate as N	0.04805 mg/L	A1-MW-11-SA2 A1-MW-13-SA2 A1-MW-14-SA2 A1-MW-15-SA2 A1-MW-37-SA2
280-117103-1/ 9056A	ICB/CCB	Nitrate as N	0.04749 mg/L	A1-MW-31-SA2
280-117110-1/ 9056A	ICB/CCB	Chloride Sulfate	0.6147 mg/L 0.3987 mg/L	A1-MW-42-SA2

Sample concentrations were compared to concentrations detected in the laboratory blanks. The sample concentrations were not detected or were significantly greater than the concentrations found in the associated blanks.

VI. Field Blank Samples

Five trip blanks were collected and analyzed for VOCs. No contaminants were found.
One equipment blank was collected and analyzed for VOCs and PFAs. No contaminants were found.

Five field rinsate blanks were collected and analyzed for PFAs. No contaminants were found.

VII. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the exception of sample EB-20181116 in SDG 280-117110-1 for VOCs. No data were qualified due to high %Rs since the associated results were non-detected.

IX. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the exception of one MS/MSD pair for 1,1-dichloroethene, one MS/MSD pair for PFTeDA, one MS/MSD pair for sulfate, three MS/MSD pairs for ferrous iron. The ferrous iron results in sample A1-MW-42-SA2 was qualified as rejected (R) due to MS/MSD %Rs grossly outside QC limits (i.e., < 30%). The remainder of the associated sample results were qualified as detected estimated (J) or non-detected estimated (UJ) as applicable. The details regarding the qualification of data are provided in Enclosures I and II.

X. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

XII. Laboratory Control Samples/Ongoing Precision Recovery

Laboratory control samples (LCS) and laboratory control sample duplicates (LCSD) were analyzed as required by the methods. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

Ongoing precision recovery (OPR) samples were analyzed as required by Method 537 Mod. Percent recoveries (%R) were within QC limits with the exception of two OPR samples for PFTeDA. No data were qualified due to high %Rs since the associated results were non-detected. The details are presented in Enclosure I.

XIII. Field Duplicate Samples

Three field duplicate pairs were collected and analyzed for all methods. All RPDs were within QC limits. RPDs were not calculated when sample results in one or both samples were less than 5X the limit of quantitation (LOQ). The field duplicate result comparisons are provided in Enclosures I and II.

XIV. Internal Standards/Labeled Compounds

All internal standard areas and retention times were within QC limits. All percent recoveries (%R) for labeled compounds used to quantitate target compounds were within QC limits.

XV. Compound Quantitation

The laboratory reporting limits were evaluated. All laboratory reporting limits met the specified requirements.

The laboratory indicated that the parent/product transition ion ratios met laboratory requirements with the following exceptions:

SDG/Method	Sample	Compound	Finding
1803615/537M	A1-MW-05-SA2 A1-MW-50-SA2 A1-PZ-19-SA2	All compounds qualified 'Q' by the laboratory	The parent/product transition ion ratio was outside of the 70-130% laboratory limits.
1803626/537M	A1-MW-53-SA2	All compounds qualified 'Q' by the laboratory	The parent/product transition ion ratio was outside of the 70-130% laboratory limits.
1803659/537M	A1-MW-25-SA2 A1-MW-54-SA2	All compounds qualified 'Q' by the laboratory	The parent/product transition ion ratio was outside of the 70-130% laboratory limits.
1803678/537M	A1-MW-01-SA2	All compounds qualified 'Q' by the laboratory	The parent/product transition ion ratio was outside of the 70-130% laboratory limits.

Since there are no established transition ion ratio requirements in the validation documents for this project, using professional judgment, no data were qualified.

All compounds reported below the LOQ as detected by the laboratory were qualified as detected estimated (J). The details regarding the qualification of data are provided in Enclosures I and II.

XVI. Overall Assessment of Data

The analysis was conducted within all specifications of the method.

Due to severe holding time exceedances, data were qualified as rejected in twenty-three samples.

Due to gross MS/MSD %R exceedance, data were qualified as rejected in one sample.

Due to holding time exceedances, data were qualified as estimated in thirty samples.

Due to CCV %D, data were qualified as estimated in twelve samples.

Due to MS/MSD %R, data were qualified as estimated in one sample.

Due to results below the LOQ, data were qualified as estimated in twenty-two samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Data flags are summarized and are presented as Attachment 2.

Attachment 1

Sample Cross Reference

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
12-Nov-2018	TB-20181112	280-116898-7	TB	METHOD	8260B	Stage 2B
12-Nov-2018	A1-MW-49-SA2	1803615-03	N	Gen Prep	537 MOD	Stage 4
12-Nov-2018	A1-MW-49-SA2	280-116898-3	N	METHOD	8260B	Stage 4
12-Nov-2018	A1-MW-49-SA2	280-116898-3	N	METHOD	9040C	Stage 4
12-Nov-2018	A1-MW-49-SA2	280-116898-3	N	METHOD	9056A	Stage 4
12-Nov-2018	A1-MW-49-SA2	280-116898-3	N	METHOD	SM3500 Fe B D	Stage 4
12-Nov-2018	A1-MW-50-SA2	1803615-04	N	Gen Prep	537 MOD	Stage 4
12-Nov-2018	A1-MW-50-SA2	280-116898-4	N	METHOD	8260B	Stage 4
12-Nov-2018	A1-MW-50-SA2	280-116898-4	N	METHOD	9040C	Stage 4
12-Nov-2018	A1-MW-50-SA2	280-116898-4	N	METHOD	9056A	Stage 4
12-Nov-2018	A1-MW-50-SA2	280-116898-4	N	METHOD	SM3500 Fe B D	Stage 4
12-Nov-2018	A1-MW-50-SA2DUP	280-116898-4DUP	DUP	METHOD	9056A	Stage 4
12-Nov-2018	A1-MW-50-SA2MS	280-116898-4MS	MS	METHOD	8260B	Stage 4
12-Nov-2018	A1-MW-50-SA2MS	280-116898-4MS	MS	METHOD	9056A	Stage 4
12-Nov-2018	A1-MW-50-SA2MSD	280-116898-4MSD	MSD	METHOD	8260B	Stage 4
12-Nov-2018	A1-MW-50-SA2MSD	280-116898-4MSD	MSD	METHOD	9056A	Stage 4
12-Nov-2018	A1-MW-50-SA2D	1803615-05	FD	Gen Prep	537 MOD	Stage 4
12-Nov-2018	A1-MW-50-SA2D	280-116898-5	FD	METHOD	8260B	Stage 4
12-Nov-2018	A1-MW-51-SA2	1803615-06	N	Gen Prep	537 MOD	Stage 4
12-Nov-2018	A1-MW-51-SA2	280-116898-6	N	METHOD	8260B	Stage 4
12-Nov-2018	A1-MW-51-SA2	280-116898-6	N	METHOD	9040C	Stage 2B
12-Nov-2018	A1-MW-51-SA2	280-116898-6	N	METHOD	9056A	Stage 2B
12-Nov-2018	A1-MW-51-SA2	280-116898-6	N	METHOD	SM3500 Fe B D	Stage 2B
12-Nov-2018	A1-MW-04-SA2	1803615-01	N	Gen Prep	537 MOD	Stage 4
12-Nov-2018	A1-MW-04-SA2	280-116898-1	N	METHOD	8260B	Stage 4
12-Nov-2018	A1-MW-04-SA2	280-116898-1	N	METHOD	9040C	Stage 4

N = Normal Sample
FD = Field Duplicate
TB = Trip Blank
MS = Matrix Spike
MSD = Matrix Spike Duplicate
EB = Equipment Blank
DUP = Laboratory Duplicate
FRB = Field Rinsate Blank

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
12-Nov-2018	A1-MW-04-SA2	280-116898-1	N	METHOD	9056A	Stage 4
12-Nov-2018	A1-MW-04-SA2	280-116898-1	N	METHOD	SM3500 Fe B D	Stage 4
12-Nov-2018	A1-PZ-19-SA2	1803615-09	N	Gen Prep	537 MOD	Stage 4
12-Nov-2018	A1-PZ-19-SA2	280-116898-8	N	METHOD	8260B	Stage 4
12-Nov-2018	A1-PZ-19-SA2	280-116898-8	N	METHOD	9040C	Stage 4
12-Nov-2018	A1-PZ-19-SA2	280-116898-8	N	METHOD	9056A	Stage 4
12-Nov-2018	A1-PZ-19-SA2	280-116898-8	N	METHOD	SM3500 Fe B D	Stage 4
12-Nov-2018	A1-MW-52-SA2	1803615-07	N	Gen Prep	537 MOD	Stage 4
12-Nov-2018	A1-MW-52-SA2	280-116898-9	N	METHOD	8260B	Stage 4
12-Nov-2018	A1-MW-52-SA2	280-116898-9	N	METHOD	9040C	Stage 4
12-Nov-2018	A1-MW-52-SA2	280-116898-9	N	METHOD	9056A	Stage 4
12-Nov-2018	A1-MW-52-SA2	280-116898-9	N	METHOD	SM3500 Fe B D	Stage 4
12-Nov-2018	A1-MW-05-SA2	1803615-02	N	Gen Prep	537 MOD	Stage 4
12-Nov-2018	A1-MW-05-SA2	280-116898-2	N	METHOD	8260B	Stage 4
12-Nov-2018	A1-MW-05-SA2	280-116898-2	N	METHOD	9040C	Stage 4
12-Nov-2018	A1-MW-05-SA2	280-116898-2	N	METHOD	9056A	Stage 4
12-Nov-2018	A1-MW-05-SA2	280-116898-2	N	METHOD	SM3500 Fe B D	Stage 4
12-Nov-2018	FRB-20181112	1803615-08	FRB	Gen Prep	537 MOD	Stage 2B
13-Nov-2018	TB-20181113	280-116942-7	TB	METHOD	8260B	Stage 2B
13-Nov-2018	16-MW-06-SA2	1803626-02	N	Gen Prep	537 MOD	Stage 2B
13-Nov-2018	16-MW-06-SA2	280-116942-2	N	METHOD	8260B	Stage 2B
13-Nov-2018	16-MW-06-SA2	280-116942-2	N	METHOD	9040C	Stage 2B
13-Nov-2018	16-MW-06-SA2	280-116942-2	N	METHOD	9056A	Stage 2B
13-Nov-2018	16-MW-06-SA2	280-116942-2	N	METHOD	SM3500 Fe B D	Stage 2B
13-Nov-2018	16-MW-06-SA2DUP	280-116942-2DUP	DUP	METHOD	9056A	Stage 2B
13-Nov-2018	16-MW-06-SA2MS	280-116942-2MS	MS	METHOD	9056A	Stage 2B

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Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
13-Nov-2018	16-MW-06-SA2MSD	280-116942-2MSD	MSD	METHOD	9056A	Stage 2B
13-Nov-2018	A1-MW-18-SA2	1803626-05	N	Gen Prep	537 MOD	Stage 2B
13-Nov-2018	A1-MW-18-SA2	280-116942-5	N	METHOD	8260B	Stage 2B
13-Nov-2018	A1-MW-18-SA2	280-116942-5	N	METHOD	9040C	Stage 2B
13-Nov-2018	A1-MW-18-SA2	280-116942-5	N	METHOD	9056A	Stage 2B
13-Nov-2018	A1-MW-18-SA2	280-116942-5	N	METHOD	SM3500 Fe B D	Stage 2B
13-Nov-2018	A1-MW-19-SA2	1803626-06	N	Gen Prep	537 MOD	Stage 2B
13-Nov-2018	A1-MW-19-SA2	280-116942-6	N	METHOD	8260B	Stage 2B
13-Nov-2018	A1-MW-19-SA2	280-116942-6	N	METHOD	9040C	Stage 2B
13-Nov-2018	A1-MW-19-SA2	280-116942-6	N	METHOD	9056A	Stage 2B
13-Nov-2018	A1-MW-19-SA2	280-116942-6	N	METHOD	SM3500 Fe B D	Stage 2B
13-Nov-2018	16-HS-03-SA2	1803626-01	N	Gen Prep	537 MOD	Stage 2B
13-Nov-2018	16-HS-03-SA2	280-116942-1	N	METHOD	8260B	Stage 2B
13-Nov-2018	16-HS-03-SA2	280-116942-1	N	METHOD	9040C	Stage 2B
13-Nov-2018	16-HS-03-SA2	280-116942-1	N	METHOD	9056A	Stage 2B
13-Nov-2018	16-HS-03-SA2	280-116942-1	N	METHOD	SM3500 Fe B D	Stage 2B
13-Nov-2018	16-HS-03-SA2D	1803626-09	FD	Gen Prep	537 MOD	Stage 2B
13-Nov-2018	16-HS-03-SA2D	280-116942-9	FD	METHOD	8260B	Stage 2B
13-Nov-2018	16-MW-08-SA2	1803626-03	N	Gen Prep	537 MOD	Stage 2B
13-Nov-2018	16-MW-08-SA2	280-116942-3	N	METHOD	8260B	Stage 2B
13-Nov-2018	16-MW-08-SA2	280-116942-3	N	METHOD	9040C	Stage 2B
13-Nov-2018	16-MW-08-SA2	280-116942-3	N	METHOD	9056A	Stage 2B
13-Nov-2018	16-MW-08-SA2	280-116942-3	N	METHOD	SM3500 Fe B D	Stage 2B
13-Nov-2018	16-MW-09-SA2	1803626-04	N	Gen Prep	537 MOD	Stage 2B
13-Nov-2018	16-MW-09-SA2	280-116942-4	N	METHOD	8260B	Stage 2B
13-Nov-2018	16-MW-09-SA2	280-116942-4	N	METHOD	9040C	Stage 2B

N = Normal Sample *MS = Matrix Spike* *DUP = Laboratory Duplicate*
FD = Field Duplicate *MSD = Matrix Spike Duplicate*
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Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
13-Nov-2018	16-MW-09-SA2	280-116942-4	N	METHOD	9056A	Stage 2B
13-Nov-2018	16-MW-09-SA2	280-116942-4	N	METHOD	SM3500 Fe B D	Stage 2B
13-Nov-2018	16-MW-09-SA2DUP	280-116942-4DUP	DUP	METHOD	SM3500 Fe B D	Stage 2B
13-Nov-2018	16-MW-09-SA2MS	280-116942-4MS	MS	METHOD	SM3500 Fe B D	Stage 2B
13-Nov-2018	16-MW-09-SA2MSD	280-116942-4MSD	MSD	METHOD	SM3500 Fe B D	Stage 2B
13-Nov-2018	A1-MW-53-SA2	1803626-08	N	Gen Prep	537 MOD	Stage 2B
13-Nov-2018	A1-MW-53-SA2	280-116942-8	N	METHOD	8260B	Stage 2B
13-Nov-2018	A1-MW-53-SA2	280-116942-8	N	METHOD	9040C	Stage 2B
13-Nov-2018	A1-MW-53-SA2	280-116942-8	N	METHOD	9056A	Stage 2B
13-Nov-2018	A1-MW-53-SA2	280-116942-8	N	METHOD	SM3500 Fe B D	Stage 2B
13-Nov-2018	FRB-20181113	1803626-07	FRB	Gen Prep	537 MOD	Stage 2B
14-Nov-2018	TB-20181114	280-117007-6	TB	METHOD	8260B	Stage 2B
14-Nov-2018	A1-MW-07-SA2	1803659-01	N	Gen Prep	537 MOD	Stage 2B
14-Nov-2018	A1-MW-07-SA2	280-117007-1	N	METHOD	8260B	Stage 2B
14-Nov-2018	A1-MW-07-SA2	280-117007-1	N	METHOD	9040C	Stage 2B
14-Nov-2018	A1-MW-07-SA2	280-117007-1	N	METHOD	9056A	Stage 2B
14-Nov-2018	A1-MW-07-SA2	280-117007-1	N	METHOD	SM3500 Fe B D	Stage 2B
14-Nov-2018	A1-MW-07-SA2MS	280-117007-1MS	MS	METHOD	8260B	Stage 2B
14-Nov-2018	A1-MW-07-SA2MSD	280-117007-1MSD	MSD	METHOD	8260B	Stage 2B
14-Nov-2018	A1-MW-23-SA2	1803659-02	N	Gen Prep	537 MOD	Stage 2B
14-Nov-2018	A1-MW-23-SA2	280-117007-2	N	METHOD	8260B	Stage 2B
14-Nov-2018	A1-MW-23-SA2	280-117007-2	N	METHOD	9040C	Stage 2B
14-Nov-2018	A1-MW-23-SA2	280-117007-2	N	METHOD	9056A	Stage 2B
14-Nov-2018	A1-MW-23-SA2	280-117007-2	N	METHOD	SM3500 Fe B D	Stage 2B
14-Nov-2018	A1-MW-55-SA2	1803659-05	N	Gen Prep	537 MOD	Stage 2B
14-Nov-2018	A1-MW-55-SA2	280-117007-5	N	METHOD	8260B	Stage 2B

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MSD = Matrix Spike Duplicate
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DUP = Laboratory Duplicate
FRB = Field Rinsate Blank

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
14-Nov-2018	A1-MW-55-SA2	280-117007-5	N	METHOD	9040C	Stage 2B
14-Nov-2018	A1-MW-55-SA2	280-117007-5	N	METHOD	9056A	Stage 2B
14-Nov-2018	A1-MW-55-SA2	280-117007-5	N	METHOD	SM3500 Fe B D	Stage 2B
14-Nov-2018	A1-MW-25-SA2	1803659-03	N	Gen Prep	537 MOD	Stage 2B
14-Nov-2018	A1-MW-25-SA2	280-117007-3	N	METHOD	8260B	Stage 2B
14-Nov-2018	A1-MW-25-SA2	280-117007-3	N	METHOD	9040C	Stage 2B
14-Nov-2018	A1-MW-25-SA2	280-117007-3	N	METHOD	9056A	Stage 2B
14-Nov-2018	A1-MW-25-SA2	280-117007-3	N	METHOD	SM3500 Fe B D	Stage 2B
14-Nov-2018	A1-MW-27-SA2	1803659-04	N	Gen Prep	537 MOD	Stage 2B
14-Nov-2018	A1-MW-27-SA2	280-117007-4	N	METHOD	8260B	Stage 2B
14-Nov-2018	A1-MW-27-SA2	280-117007-4	N	METHOD	9040C	Stage 2B
14-Nov-2018	A1-MW-27-SA2	280-117007-4	N	METHOD	9056A	Stage 2B
14-Nov-2018	A1-MW-27-SA2	280-117007-4	N	METHOD	SM3500 Fe B D	Stage 2B
14-Nov-2018	FRB-20181114	1803659-07	FRB	Gen Prep	537 MOD	Stage 2B
14-Nov-2018	A1-MW-54-SA2	1803659-06	N	Gen Prep	537 MOD	Stage 2B
14-Nov-2018	A1-MW-54-SA2	280-117007-7	N	METHOD	8260B	Stage 2B
14-Nov-2018	A1-MW-54-SA2	280-117007-7	N	METHOD	9040C	Stage 2B
14-Nov-2018	A1-MW-54-SA2	280-117007-7	N	METHOD	9056A	Stage 2B
14-Nov-2018	A1-MW-54-SA2	280-117007-7	N	METHOD	SM3500 Fe B D	Stage 2B
14-Nov-2018	A1-MW-54-SA2DUP	280-117007-7DUP	DUP	METHOD	SM3500 Fe B D	Stage 2B
14-Nov-2018	A1-MW-54-SA2MS	280-117007-7MS	MS	METHOD	SM3500 Fe B D	Stage 2B
14-Nov-2018	A1-MW-54-SA2MSD	280-117007-7MSD	MSD	METHOD	SM3500 Fe B D	Stage 2B
15-Nov-2018	TB-20181115	280-117103-7	TB	METHOD	8260B	Stage 2B
15-Nov-2018	A1-MW-13-SA2	1803676-02	N	Gen Prep	537 MOD	Stage 2B
15-Nov-2018	A1-MW-13-SA2	280-117103-2	N	METHOD	8260B	Stage 2B
15-Nov-2018	A1-MW-13-SA2	280-117103-2	N	METHOD	9040C	Stage 2B

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MSD = Matrix Spike Duplicate
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DUP = Laboratory Duplicate
FRB = Field Rinsate Blank

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
15-Nov-2018	A1-MW-13-SA2	280-117103-2	N	METHOD	9056A	Stage 2B
15-Nov-2018	A1-MW-13-SA2	280-117103-2	N	METHOD	SM3500 Fe B D	Stage 2B
15-Nov-2018	A1-MW-11-SA2	1803676-01	N	Gen Prep	537 MOD	Stage 2B
15-Nov-2018	A1-MW-11-SA2	280-117103-1	N	METHOD	8260B	Stage 2B
15-Nov-2018	A1-MW-11-SA2	280-117103-1	N	METHOD	9040C	Stage 2B
15-Nov-2018	A1-MW-11-SA2	280-117103-1	N	METHOD	9056A	Stage 2B
15-Nov-2018	A1-MW-11-SA2	280-117103-1	N	METHOD	SM3500 Fe B D	Stage 2B
15-Nov-2018	A1-MW-15-SA2	1803676-04	N	Gen Prep	537 MOD	Stage 2B
15-Nov-2018	A1-MW-15-SA2	280-117103-4	N	METHOD	8260B	Stage 2B
15-Nov-2018	A1-MW-15-SA2	280-117103-4	N	METHOD	9040C	Stage 2B
15-Nov-2018	A1-MW-15-SA2	280-117103-4	N	METHOD	9056A	Stage 2B
15-Nov-2018	A1-MW-15-SA2	280-117103-4	N	METHOD	SM3500 Fe B D	Stage 2B
15-Nov-2018	A1-MW-14-SA2	1803676-03	N	Gen Prep	537 MOD	Stage 2B
15-Nov-2018	A1-MW-14-SA2	280-117103-3	N	METHOD	8260B	Stage 2B
15-Nov-2018	A1-MW-14-SA2	280-117103-3	N	METHOD	9040C	Stage 2B
15-Nov-2018	A1-MW-14-SA2	280-117103-3	N	METHOD	9056A	Stage 2B
15-Nov-2018	A1-MW-14-SA2	280-117103-3	N	METHOD	SM3500 Fe B D	Stage 2B
15-Nov-2018	A1-MW-14-SA2DUP	280-117103-3DUP	DUP	METHOD	9040C	Stage 2B
15-Nov-2018	A1-MW-37-SA2	1803676-05	N	Gen Prep	537 MOD	Stage 2B
15-Nov-2018	A1-MW-37-SA2	280-117103-5	N	METHOD	8260B	Stage 2B
15-Nov-2018	A1-MW-37-SA2	280-117103-5	N	METHOD	9040C	Stage 2B
15-Nov-2018	A1-MW-37-SA2	280-117103-5	N	METHOD	9056A	Stage 2B
15-Nov-2018	A1-MW-37-SA2	280-117103-5	N	METHOD	SM3500 Fe B D	Stage 2B
15-Nov-2018	A1-MW-37-SA2D	1803676-06	FD	Gen Prep	537 MOD	Stage 2B
15-Nov-2018	A1-MW-37-SA2D	280-117103-6	FD	METHOD	8260B	Stage 2B
15-Nov-2018	A1-MW-31-SA2	1803676-08	N	Gen Prep	537 MOD	Stage 2B

N = Normal Sample *MS = Matrix Spike* *DUP = Laboratory Duplicate*
FD = Field Duplicate *MSD = Matrix Spike Duplicate*
TB = Trip Blank *EB = Equipment Blank* *FRB = Field Rinsate Blank*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
15-Nov-2018	A1-MW-31-SA2	280-117103-8	N	METHOD	8260B	Stage 2B
15-Nov-2018	A1-MW-31-SA2	280-117103-8	N	METHOD	9040C	Stage 2B
15-Nov-2018	A1-MW-31-SA2	280-117103-8	N	METHOD	9056A	Stage 2B
15-Nov-2018	A1-MW-31-SA2	280-117103-8	N	METHOD	SM3500 Fe B D	Stage 2B
15-Nov-2018	FRB-20181115	1803676-07	FRB	Gen Prep	537 MOD	Stage 2B
16-Nov-2018	TB-20181116	280-117110-3	TB	METHOD	8260B	Stage 2B
16-Nov-2018	A1-MW-01-SA2	1803678-01	N	Gen Prep	537 MOD	Stage 2B
16-Nov-2018	A1-MW-01-SA2	280-117110-1	N	METHOD	8260B	Stage 2B
16-Nov-2018	A1-MW-01-SA2	280-117110-1	N	METHOD	9040C	Stage 2B
16-Nov-2018	A1-MW-01-SA2	280-117110-1	N	METHOD	9056A	Stage 2B
16-Nov-2018	A1-MW-01-SA2	280-117110-1	N	METHOD	SM3500 Fe B D	Stage 2B
16-Nov-2018	A1-MW-01-SA2MS	280-117110-1MS	MS	METHOD	8260B	Stage 2B
16-Nov-2018	A1-MW-01-SA2MSD	280-117110-1MSD	MSD	METHOD	8260B	Stage 2B
16-Nov-2018	A1-MW-42-SA2	1803678-02	N	Gen Prep	537 MOD	Stage 2B
16-Nov-2018	A1-MW-42-SA2	280-117110-2	N	METHOD	8260B	Stage 2B
16-Nov-2018	A1-MW-42-SA2	280-117110-2	N	METHOD	9040C	Stage 2B
16-Nov-2018	A1-MW-42-SA2	280-117110-2	N	METHOD	9056A	Stage 2B
16-Nov-2018	A1-MW-42-SA2	280-117110-2	N	METHOD	SM3500 Fe B D	Stage 2B
16-Nov-2018	A1-MW-42-SA2DUP	280-117110-2DUP	DUP	METHOD	SM3500 Fe B D	Stage 2B
16-Nov-2018	A1-MW-42-SA2MS	280-117110-2MS	MS	METHOD	SM3500 Fe B D	Stage 2B
16-Nov-2018	A1-MW-42-SA2MSD	280-117110-2MSD	MSD	METHOD	SM3500 Fe B D	Stage 2B
16-Nov-2018	FRB-20181116	1803678-03	FRB	Gen Prep	537 MOD	Stage 2B
16-Nov-2018	EB-20181116	1803678-04	EB	Gen Prep	537 MOD	Stage 2B
16-Nov-2018	EB-20181116	280-117110-4	EB	METHOD	8260B	Stage 2B
19-Nov-2018	A1-MW-50-SA2MS	B8K0091-MS1	MS	Gen Prep	537 MOD	Stage 4
19-Nov-2018	A1-MW-50-SA2MSD	B8K0091-MSD1	MSD	Gen Prep	537 MOD	Stage 4

N = Normal Sample *MS = Matrix Spike* *DUP = Laboratory Duplicate*
FD = Field Duplicate *MSD = Matrix Spike Duplicate*
TB = Trip Blank *EB = Equipment Blank* *FRB = Field Rinsate Blank*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
30-Nov-2018	A1-MW-01-SA2MS	B8K0153-MS1	MS	Gen Prep	537 MOD	Stage 2B
30-Nov-2018	A1-MW-01-SA2MSD	B8K0153-MSD1	MSD	Gen Prep	537 MOD	Stage 2B

N = Normal Sample
FD = Field Duplicate
TB = Trip Blank
MS = Matrix Spike
MSD = Matrix Spike Duplicate
EB = Equipment Blank
DUP = Laboratory Duplicate
FRB = Field Rinsate Blank

Attachment 2

Overall Data Qualification Summary

Data Qualifier Summary

Lab Reporting Batch ID: 280-116898-1, 280-116942-1, **Laboratory: TA DEN**

EDD Filename: 280-116898-1, 280-116942-1, 280-117007-1, 280-117103-1, 280-117110-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

SDG: 280-116898-1

Method Category: **EM**

Method: **9040C** ***Matrix:*** **AQ**

11/12/2018 11:40:00

Sample ID: **A1-MW-04-SA2** ***Collected:*** **AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

11/12/2018 2:24:00

Sample ID: **A1-MW-05-SA2** ***Collected:*** **PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.9	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

11/12/2018 8:32:00

Sample ID: **A1-MW-49-SA2** ***Collected:*** **AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.9	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

11/12/2018 9:25:00

Sample ID: **A1-MW-50-SA2** ***Collected:*** **AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.8	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

11/12/2018 10:46:00

Sample ID: **A1-MW-51-SA2** ***Collected:*** **AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

11/12/2018 1:39:00

Sample ID: **A1-MW-52-SA2** ***Collected:*** **PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-116898-1, 280-116942-1, **Laboratory: TA DEN**

EDD Filename: 280-116898-1, 280-116942-1, 280-117007-1, 280-117103-1, 280-117110-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

SDG: 280-116898-1

Method Category: EM

Method: 9040C ***Matrix:*** AQ

Sample ID: A1-PZ-19-SA2 ***Collected:*** 11/12/2018 12:43:00 PM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Method Category: GENCHEM

Method: 9056A ***Matrix:*** AQ

Sample ID: A1-PZ-19-SA2 ***Collected:*** 11/12/2018 12:43:00 PM ***Analysis Type:*** RES/TOT ***Dilution:*** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NITRATE	0.896	J B	0.200	LOD	1.00	LOQ	mg/L	J	RI

Method Category: GENCHEM

Method: SM3500 Fe B D ***Matrix:*** AQ

Sample ID: A1-MW-04-SA2 ***Collected:*** 11/12/2018 11:40:00 AM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Sample ID: A1-MW-05-SA2 ***Collected:*** 11/12/2018 2:24:00 PM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.119	J HF	0.0500	LOD	0.200	LOQ	mg/L	J	RI, StoA

Sample ID: A1-MW-49-SA2 ***Collected:*** 11/12/2018 8:32:00 AM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-116898-1, 280-116942-1, **Laboratory: TA DEN**

EDD Filename: 280-116898-1, 280-116942-1, 280-117007-1, 280-117103-1, 280-117110-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

SDG: 280-116898-1

Method Category: **GENCHEM**

Method: **SM3500 Fe B D** ***Matrix:*** **AQ**

Sample ID: **A1-MW-50-SA2** ***Collected:*** **11/12/2018 9:25:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.380	HF	0.0500	LOD	0.200	LOQ	mg/L	J	StoA

Sample ID: **A1-MW-51-SA2** ***Collected:*** **11/12/2018 10:46:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0278	J HF	0.0500	LOD	0.200	LOQ	mg/L	J	RI, StoA

Sample ID: **A1-MW-52-SA2** ***Collected:*** **11/12/2018 1:39:00 PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Sample ID: **A1-PZ-19-SA2** ***Collected:*** **11/12/2018 12:43:00 PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0591	J HF	0.0500	LOD	0.200	LOQ	mg/L	J	RI, StoA

Method Category: **VOA**

Method: **8260B** ***Matrix:*** **AQ**

Sample ID: **A1-MW-50-SA2** ***Collected:*** **11/12/2018 9:25:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHENE	0.564	J	0.800	LOD	1.00	LOQ	ug/L	J	RI
TRICHLOROETHENE	0.780	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

Sample ID: **A1-MW-50-SA2D** ***Collected:*** **11/12/2018 9:35:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHENE	0.630	J	0.800	LOD	1.00	LOQ	ug/L	J	RI

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-116898-1, 280-116942-1, **Laboratory: TA DEN**

EDD Filename: 280-116898-1, 280-116942-1, 280-117007-1, 280-117103-1, 280-117110-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

SDG: 280-116898-1

Method Category: **VOA**

Method: **8260B** ***Matrix:*** **AQ**

Sample ID: **A1-MW-50-SA2D** ***Collected:*** **11/12/2018 9:35:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TRICHLOROETHENE	0.949	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

Sample ID: **A1-MW-52-SA2** ***Collected:*** **11/12/2018 1:39:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHENE	0.458	J	0.800	LOD	1.00	LOQ	ug/L	J	RI
TRICHLOROETHENE	0.811	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

Sample ID: **A1-PZ-19-SA2** ***Collected:*** **11/12/2018 12:43:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TRICHLOROETHENE	0.430	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

SDG: 280-116942-1

Method Category: **EM**

Method: **9040C** ***Matrix:*** **AQ**

Sample ID: **16-HS-03-SA2** ***Collected:*** **11/13/2018 12:00:00 PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.4	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: **16-MW-06-SA2** ***Collected:*** **11/13/2018 9:38:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.2	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-116898-1, 280-116942-1, **Laboratory: TA DEN**

EDD Filename: 280-116898-1, 280-116942-1, 280-117007-1, 280-117103-1, 280-117110-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

SDG: 280-116942-1

Method Category: EM

Method: 9040C **Matrix: AQ**

Sample ID:16-MW-08-SA2 **Collected: 11/13/2018 1:00:00 PM** **Analysis Type: RES/TOT** **Dilution: 1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID:16-MW-09-SA2 **Collected: 11/13/2018 1:44:00 PM** **Analysis Type: RES/TOT** **Dilution: 1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID:A1-MW-18-SA2 **Collected: 11/13/2018 10:31:00 AM** **Analysis Type: RES/TOT** **Dilution: 1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.8	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID:A1-MW-19-SA2 **Collected: 11/13/2018 11:15:00 AM** **Analysis Type: RES/TOT** **Dilution: 1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.9	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID:A1-MW-53-SA2 **Collected: 11/13/2018 2:54:00 PM** **Analysis Type: RES/TOT** **Dilution: 1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.9	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Method Category: GENCHEM

Method: 9056A **Matrix: AQ**

Sample ID:16-MW-06-SA2 **Collected: 11/13/2018 9:38:00 AM** **Analysis Type: RE/TOT** **Dilution: 10**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Sulfate	695	F1	5.00	LOD	50.0	LOQ	mg/L	J	Ms

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-116898-1, 280-116942-1, **Laboratory: TA DEN**

EDD Filename: 280-116898-1, 280-116942-1, 280-117007-1, 280-117103-1, 280-117110-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

SDG: 280-116942-1

Method Category: GENCHEM

Method: 9056A ***Matrix:*** AQ

Sample ID: A1-MW-18-SA2 ***Collected:*** 11/13/2018 10:31:00 AM ***Analysis Type:*** RES/TOT ***Dilution:*** 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NITRATE	11.0	H	0.500	LOD	2.50	LOQ	mg/L	J	StoA

Method Category: GENCHEM

Method: SM3500 Fe B D ***Matrix:*** AQ

Sample ID: 16-HS-03-SA2 ***Collected:*** 11/13/2018 12:00:00 PM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Sample ID: 16-MW-06-SA2 ***Collected:*** 11/13/2018 9:38:00 AM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Sample ID: 16-MW-08-SA2 ***Collected:*** 11/13/2018 1:00:00 PM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Sample ID: 16-MW-09-SA2 ***Collected:*** 11/13/2018 1:44:00 PM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF F1	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Sample ID: A1-MW-18-SA2 ***Collected:*** 11/13/2018 10:31:00 AM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-116898-1, 280-116942-1, **Laboratory: TA DEN**

EDD Filename: 280-116898-1, 280-116942-1, 280-117007-1, 280-117103-1, 280-117110-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

SDG: 280-116942-1

Method Category: GENCHEM

Method: SM3500 Fe B D ***Matrix:*** AQ

Sample ID: A1-MW-19-SA2 ***Collected:*** 11/13/2018 11:15:00 AM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Sample ID: A1-MW-53-SA2 ***Collected:*** 11/13/2018 2:54:00 PM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Method Category: VOA

Method: 8260B ***Matrix:*** AQ

Sample ID: 16-MW-06-SA2 ***Collected:*** 11/13/2018 9:38:00 AM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TRICHLOROETHENE	0.195	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

Sample ID: 16-MW-08-SA2 ***Collected:*** 11/13/2018 1:00:00 PM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TETRACHLOROETHENE	0.538	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

Sample ID: 16-MW-09-SA2 ***Collected:*** 11/13/2018 1:44:00 PM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TETRACHLOROETHENE	0.271	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

Sample ID: A1-MW-19-SA2 ***Collected:*** 11/13/2018 11:15:00 AM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TRICHLOROETHENE	0.545	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-116898-1, 280-116942-1,

Laboratory: TA DEN

EDD Filename: 280-116898-1, 280-116942-1, 280-117007-1, 280-117103-1, 280-117110-1

eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver

SDG: 280-117007-1

Method Category: **EM**

Method: **9040C** ***Matrix:*** **AQ**

Sample ID: **A1-MW-07-SA2** ***Collected:*** **11/14/2018 9:07:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: **A1-MW-23-SA2** ***Collected:*** **11/14/2018 10:03:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.9	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: **A1-MW-25-SA2** ***Collected:*** **11/14/2018 12:15:00 PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: **A1-MW-27-SA2** ***Collected:*** **11/14/2018 1:03:00 PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: **A1-MW-54-SA2** ***Collected:*** **11/14/2018 3:17:00 PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: **A1-MW-55-SA2** ***Collected:*** **11/14/2018 11:02:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-116898-1, 280-116942-1, **Laboratory: TA DEN**

EDD Filename: 280-116898-1, 280-116942-1, 280-117007-1, 280-117103-1, 280-117110-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

SDG: 280-117007-1

Method Category: **GENCHEM**

Method: **SM3500 Fe B D** ***Matrix:*** **AQ**

11/14/2018 9:07:00

Sample ID: **A1-MW-07-SA2** ***Collected:*** **AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

11/14/2018 10:03:00

Sample ID: **A1-MW-23-SA2** ***Collected:*** **AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

11/14/2018 12:15:00

Sample ID: **A1-MW-25-SA2** ***Collected:*** **PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

11/14/2018 1:03:00

Sample ID: **A1-MW-27-SA2** ***Collected:*** **PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

11/14/2018 3:17:00

Sample ID: **A1-MW-54-SA2** ***Collected:*** **PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF F1	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

11/14/2018 11:02:00

Sample ID: **A1-MW-55-SA2** ***Collected:*** **AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-116898-1, 280-116942-1, **Laboratory: TA DEN**

EDD Filename: 280-116898-1, 280-116942-1, 280-117007-1, 280-117103-1, 280-117110-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

SDG: 280-117007-1

Method Category: VOA

Method: 8260B ***Matrix:*** AQ

Sample ID: A1-MW-07-SA2 ***Collected:*** 11/14/2018 9:07:00 AM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHENE	0.357	J	0.800	LOD	1.00	LOQ	ug/L	J	RI
TRICHLOROETHENE	0.826	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

Sample ID: A1-MW-25-SA2 ***Collected:*** 11/14/2018 12:15:00 PM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHENE	0.273	J	0.800	LOD	1.00	LOQ	ug/L	J	RI
TRICHLOROETHENE	0.539	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

SDG: 280-117103-1

Method Category: EM

Method: 9040C ***Matrix:*** AQ

Sample ID: A1-MW-11-SA2 ***Collected:*** 11/15/2018 9:06:00 AM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.1	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: A1-MW-13-SA2 ***Collected:*** 11/15/2018 8:20:00 AM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: A1-MW-14-SA2 ***Collected:*** 11/15/2018 10:53:00 AM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-116898-1, 280-116942-1, **Laboratory: TA DEN**

EDD Filename: 280-116898-1, 280-116942-1, 280-117007-1, 280-117103-1, 280-117110-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

SDG: 280-117103-1

Method Category: **EM**

Method: **9040C** ***Matrix:*** **AQ**

11/15/2018 10:07:00

Sample ID: **A1-MW-15-SA2** ***Collected:*** **AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.1	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

11/15/2018 2:16:00

Sample ID: **A1-MW-31-SA2** ***Collected:*** **PM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

11/15/2018 11:54:00

Sample ID: **A1-MW-37-SA2** ***Collected:*** **AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	7.8	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Method Category: **GENCHEM**

Method: **SM3500 Fe B D** ***Matrix:*** **AQ**

11/15/2018 9:06:00

Sample ID: **A1-MW-11-SA2** ***Collected:*** **AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

11/15/2018 8:20:00

Sample ID: **A1-MW-13-SA2** ***Collected:*** **AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

11/15/2018 10:53:00

Sample ID: **A1-MW-14-SA2** ***Collected:*** **AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-116898-1, 280-116942-1, **Laboratory: TA DEN**

EDD Filename: 280-116898-1, 280-116942-1, 280-117007-1, 280-117103-1, 280-117110-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

SDG: 280-117103-1

Method Category: GENCHEM

Method: SM3500 Fe B D ***Matrix:*** AQ

Sample ID: A1-MW-15-SA2 ***Collected:*** 11/15/2018 10:07:00 AM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Sample ID: A1-MW-31-SA2 ***Collected:*** 11/15/2018 2:16:00 PM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

Sample ID: A1-MW-37-SA2 ***Collected:*** 11/15/2018 11:54:00 AM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.156	J HF	0.0500	LOD	0.200	LOQ	mg/L	J	RI, StoA

Method Category: VOA

Method: 8260B ***Matrix:*** AQ

Sample ID: A1-MW-14-SA2 ***Collected:*** 11/15/2018 10:53:00 AM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHENE	0.635	J	0.800	LOD	1.00	LOQ	ug/L	J	RI
TRICHLOROETHENE	0.728	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

Sample ID: A1-MW-15-SA2 ***Collected:*** 11/15/2018 10:07:00 AM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TRICHLOROETHENE	0.426	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

Sample ID: A1-MW-37-SA2 ***Collected:*** 11/15/2018 11:54:00 AM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHENE	0.379	J	0.800	LOD	1.00	LOQ	ug/L	J	RI

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-116898-1, 280-116942-1, **Laboratory: TA DEN**

EDD Filename: 280-116898-1, 280-116942-1, 280-117007-1, 280-117103-1, 280-117110-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

SDG: 280-117103-1

Method Category: **VOA**

Method: **8260B** ***Matrix:*** **AQ**

Sample ID: **A1-MW-37-SA2** ***Collected:*** **11/15/2018 11:54:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
TRICHLOROETHENE	0.914	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

Sample ID: **A1-MW-37-SA2D** ***Collected:*** **11/15/2018 12:04:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHENE	0.373	J	0.800	LOD	1.00	LOQ	ug/L	J	RI
TRICHLOROETHENE	0.909	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

SDG: 280-117110-1

Method Category: **EM**

Method: **9040C** ***Matrix:*** **AQ**

Sample ID: **A1-MW-01-SA2** ***Collected:*** **11/16/2018 8:12:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Sample ID: **A1-MW-42-SA2** ***Collected:*** **11/16/2018 9:17:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PH	8.0	HF	0.1	LOD	0.1	LOQ	SU	J	StoA

Method Category: **GENCHEM**

Method: **SM3500 Fe B D** ***Matrix:*** **AQ**

Sample ID: **A1-MW-01-SA2** ***Collected:*** **11/16/2018 8:12:00 AM** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF	0.0500	LOD	0.200	LOQ	mg/L	R	StoA

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-116898-1, 280-116942-1, **Laboratory: TA DEN**

EDD Filename: 280-116898-1, 280-116942-1, 280-117007-1, 280-117103-1, 280-117110-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

SDG: 280-117110-1

Method Category: GENCHEM

Method: SM3500 Fe B D ***Matrix:*** AQ

Sample ID: A1-MW-42-SA2 ***Collected:*** 11/16/2018 9:17:00 AM ***Analysis Type:*** RES/TOT ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Ferrous Iron	0.0500	U HF F1	0.0500	LOD	0.200	LOQ	mg/L	R	Ms, StoA

Method Category: VOA

Method: 8260B ***Matrix:*** AQ

Sample ID: A1-MW-42-SA2 ***Collected:*** 11/16/2018 9:17:00 AM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,1-DICHLOROETHENE	0.238	J	0.800	LOD	1.00	LOQ	ug/L	J	RI
TRICHLOROETHENE	0.367	J	0.400	LOD	1.00	LOQ	ug/L	J	RI

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

Lab Reporting Batch ID: 280-116898-1, 280-116942-1,

Laboratory: TA DEN

EDD Filename: 280-116898-1, 280-116942-1, 280-117007-1, 280-117103-1, 280-117110-1

eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver

Reason Code Legend

Reason Code	*Description*
Mb	Method Blank Contamination
Ms	Matrix Spike Lower Estimation
Ms	Matrix Spike Lower Rejection
Ms	Matrix Spike Precision
RI	Reporting Limit Trace Value
StoA	Sampling to Analysis Estimation
StoA	Sampling to Analysis Rejection
Surr	Surrogate/Tracer Recovery Upper Estimation

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

1803676, 1803678
EDD Filename: Prep1803615, Prep1803626, Prep1803659, Prep1803676, Prep1803678

Laboratory: Vista

eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista

SDG: 1803615

Method Category: SVOA

Method: 537 MOD **Matrix:** AQ

11/12/2018 11:40:

Sample ID: A1-MW-04-SA2 **Collected:** AM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFOA	0.00646	J	0.00442	LOD	0.00881	LOQ	ug/L	J	RI

11/12/2018 2:24:0

Sample ID: A1-MW-05-SA2 **Collected:** PM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFHxS	0.00359	J, Q	0.00431	LOD	0.00864	LOQ	ug/L	J	RI

11/12/2018 9:25:0

Sample ID: A1-MW-50-SA2 **Collected:** AM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFHpA	0.00474	J, Q	0.00446	LOD	0.00894	LOQ	ug/L	J	RI

11/12/2018 9:35:0

Sample ID: A1-MW-50-SA2D **Collected:** AM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFHpA	0.00494	J	0.00439	LOD	0.00874	LOQ	ug/L	J	RI

11/12/2018 1:39:0

Sample ID: A1-MW-52-SA2 **Collected:** PM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFOS	0.00356	J	0.00435	LOD	0.00872	LOQ	ug/L	J	RI

11/12/2018 12:43:

Sample ID: A1-PZ-19-SA2 **Collected:** PM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFHpA	0.00548	J	0.00442	LOD	0.00884	LOQ	ug/L	J	RI
PFOS	0.00321	J, Q	0.00442	LOD	0.00884	LOQ	ug/L	J	RI

SDG: 1803626

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

1803676, 1803678
EDD Filename: Prep1803615, Prep1803626, Prep1803659, Prep1803676, Prep1803678

Laboratory: Vista
eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista

SDG: 1803626

Method Category: SVOA
Method: 537 MOD **Matrix:** AQ

11/13/2018 9:38:0
Sample ID:16-MW-06-SA2 **Collected:**AM **Analysis Type:**RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFOS	0.00582	J	0.00417	LOD	0.00835	LOQ	ug/L	J	RI

11/13/2018 1:44:0
Sample ID:16-MW-09-SA2 **Collected:**PM **Analysis Type:**RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFOA	0.00449	J	0.00427	LOD	0.00852	LOQ	ug/L	J	RI
PFOS	0.00503	J	0.00427	LOD	0.00852	LOQ	ug/L	J	RI

11/13/2018 10:31:
Sample ID:A1-MW-18-SA2 **Collected:**AM **Analysis Type:**RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFOA	0.00309	J	0.00427	LOD	0.00856	LOQ	ug/L	J	RI

11/13/2018 11:15:
Sample ID:A1-MW-19-SA2 **Collected:**AM **Analysis Type:**RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFDA	0.00721	J	0.00431	LOD	0.00861	LOQ	ug/L	J	RI
PFNA	0.00398	J	0.00431	LOD	0.00861	LOQ	ug/L	J	RI

11/13/2018 2:54:0
Sample ID:A1-MW-53-SA2 **Collected:**PM **Analysis Type:**RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFOS	0.00400	J, Q	0.00420	LOD	0.00841	LOQ	ug/L	J	RI

SDG: 1803659

Method Category: SVOA
Method: 537 MOD **Matrix:** AQ

11/14/2018 10:03:
Sample ID:A1-MW-23-SA2 **Collected:**AM **Analysis Type:**RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFHxS	0.00594	J	0.00424	LOD	0.00849	LOQ	ug/L	J	RI

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

1803676, 1803678
EDD Filename: Prep1803615, Prep1803626, Prep1803659, Prep1803676, Prep1803678

Laboratory: Vista
eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista

SDG: 1803676

Method Category: SVOA
Method: 537 MOD ***Matrix:*** AQ

11/15/2018 9:06:0

Sample ID: A1-MW-11-SA2 ***Collected:*** AM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NEtFOSAA	0.00431	U	0.00431	LOD	0.00860	LOQ	ug/L	UJ	StoE
NMeFOSAA	0.00431	U	0.00431	LOD	0.00860	LOQ	ug/L	UJ	StoE
PFBS	0.184		0.00431	LOD	0.00860	LOQ	ug/L	J	StoE
PFDA	0.00431	U	0.00431	LOD	0.00860	LOQ	ug/L	UJ	StoE
PFDoA	0.00431	U	0.00431	LOD	0.00860	LOQ	ug/L	UJ	StoE
PFHpA	0.0352		0.00431	LOD	0.00860	LOQ	ug/L	J	StoE
PFHxA	0.460		0.00431	LOD	0.00860	LOQ	ug/L	J	StoE
PFHxS	0.109		0.00431	LOD	0.00860	LOQ	ug/L	J	StoE
PFNA	0.00431	U	0.00431	LOD	0.00860	LOQ	ug/L	UJ	StoE
PFOS	0.00916		0.00431	LOD	0.00860	LOQ	ug/L	J	StoE
PFTeDA	0.00431	U	0.00431	LOD	0.00860	LOQ	ug/L	UJ	StoE, Ccv
PFTrDA	0.00431	U	0.00431	LOD	0.00860	LOQ	ug/L	UJ	StoE
PFUnA	0.00431	U	0.00431	LOD	0.00860	LOQ	ug/L	UJ	StoE
PFOA	0.0349		0.00431	LOD	0.00860	LOQ	ug/L	J	StoE

11/15/2018 8:20:0

Sample ID: A1-MW-13-SA2 ***Collected:*** AM ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NEtFOSAA	0.00455	U	0.00455	LOD	0.00906	LOQ	ug/L	UJ	StoE
NMeFOSAA	0.00455	U	0.00455	LOD	0.00906	LOQ	ug/L	UJ	StoE
PFBS	0.259		0.00455	LOD	0.00906	LOQ	ug/L	J	StoE
PFDA	0.00455	U	0.00455	LOD	0.00906	LOQ	ug/L	UJ	StoE
PFDoA	0.00455	U	0.00455	LOD	0.00906	LOQ	ug/L	UJ	StoE
PFHpA	0.105		0.00455	LOD	0.00906	LOQ	ug/L	J	StoE
PFHxA	0.655		0.00455	LOD	0.00906	LOQ	ug/L	J	StoE
PFHxS	0.368		0.00455	LOD	0.00906	LOQ	ug/L	J	StoE
PFNA	0.00455	U	0.00455	LOD	0.00906	LOQ	ug/L	UJ	StoE
PFOA	0.0695		0.00455	LOD	0.00906	LOQ	ug/L	J	StoE
PFOS	0.107		0.00455	LOD	0.00906	LOQ	ug/L	J	StoE
PFTeDA	0.00455	U	0.00455	LOD	0.00906	LOQ	ug/L	UJ	StoE, Ccv
PFTrDA	0.00455	U	0.00455	LOD	0.00906	LOQ	ug/L	UJ	StoE
PFUnA	0.00455	U	0.00455	LOD	0.00906	LOQ	ug/L	UJ	StoE

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

1803676, 1803678
EDD Filename: Prep1803615, Prep1803626, Prep1803659, Prep1803676, Prep1803678

Laboratory: Vista

eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista

SDG: 1803676

Method Category: SVOA

Method: 537 MOD **Matrix:** AQ

11/15/2018 10:53

Sample ID: A1-MW-14-SA2 **Collected:** AM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NEtFOSAA	0.00431	U	0.00431	LOD	0.00860	LOQ	ug/L	UJ	StoE
NMeFOSAA	0.00431	U	0.00431	LOD	0.00860	LOQ	ug/L	UJ	StoE
PFBS	0.101		0.00431	LOD	0.00860	LOQ	ug/L	J	StoE
PFDA	0.00431	U	0.00431	LOD	0.00860	LOQ	ug/L	UJ	StoE
PFDoA	0.00431	U	0.00431	LOD	0.00860	LOQ	ug/L	UJ	StoE
PFHpA	0.0658		0.00431	LOD	0.00860	LOQ	ug/L	J	StoE
PFHxA	0.327		0.00431	LOD	0.00860	LOQ	ug/L	J	StoE
PFHxS	0.253		0.00431	LOD	0.00860	LOQ	ug/L	J	StoE
PFNA	0.00431	U	0.00431	LOD	0.00860	LOQ	ug/L	UJ	StoE
PFOA	0.0527		0.00431	LOD	0.00860	LOQ	ug/L	J	StoE
PFOS	0.0604		0.00431	LOD	0.00860	LOQ	ug/L	J	StoE
PFTeDA	0.00431	U	0.00431	LOD	0.00860	LOQ	ug/L	UJ	StoE, Ccv
PFTrDA	0.00431	U	0.00431	LOD	0.00860	LOQ	ug/L	UJ	StoE
PFUnA	0.00431	U	0.00431	LOD	0.00860	LOQ	ug/L	UJ	StoE

11/15/2018 10:07

Sample ID: A1-MW-15-SA2 **Collected:** AM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NEtFOSAA	0.00450	U	0.00450	LOD	0.00902	LOQ	ug/L	UJ	StoE
NMeFOSAA	0.00450	U	0.00450	LOD	0.00902	LOQ	ug/L	UJ	StoE
PFBS	0.363		0.00450	LOD	0.00902	LOQ	ug/L	J	StoE
PFDA	0.00450	U	0.00450	LOD	0.00902	LOQ	ug/L	UJ	StoE
PFDoA	0.00450	U	0.00450	LOD	0.00902	LOQ	ug/L	UJ	StoE
PFHpA	0.0773		0.00450	LOD	0.00902	LOQ	ug/L	J	StoE
PFHxA	0.596		0.00450	LOD	0.00902	LOQ	ug/L	J	StoE
PFHxS	0.322		0.00450	LOD	0.00902	LOQ	ug/L	J	StoE
PFNA	0.00450	U	0.00450	LOD	0.00902	LOQ	ug/L	UJ	StoE
PFOA	0.190		0.00450	LOD	0.00902	LOQ	ug/L	J	StoE
PFOS	0.0185		0.00450	LOD	0.00902	LOQ	ug/L	J	StoE
PFTeDA	0.00450	U	0.00450	LOD	0.00902	LOQ	ug/L	UJ	StoE, Ccv
PFTrDA	0.00450	U	0.00450	LOD	0.00902	LOQ	ug/L	UJ	StoE
PFUnA	0.00450	U	0.00450	LOD	0.00902	LOQ	ug/L	UJ	StoE

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

1803676, 1803678
EDD Filename: Prep1803615, Prep1803626, Prep1803659, Prep1803676, Prep1803678

Laboratory: Vista
eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista

SDG: 1803676

Method Category: SVOA
Method: 537 MOD **Matrix:** AQ

11/15/2018 2:16:0

Sample ID: A1-MW-31-SA2 **Collected:** PM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NEtFOSAA	0.00427	U	0.00427	LOD	0.00855	LOQ	ug/L	UJ	StoE
NMeFOSAA	0.00427	U	0.00427	LOD	0.00855	LOQ	ug/L	UJ	StoE
PFBS	0.0235		0.00427	LOD	0.00855	LOQ	ug/L	J	StoE
PFDA	0.00427	U	0.00427	LOD	0.00855	LOQ	ug/L	UJ	StoE
PFDoA	0.00427	U	0.00427	LOD	0.00855	LOQ	ug/L	UJ	StoE
PFHpA	0.00427	U	0.00427	LOD	0.00855	LOQ	ug/L	UJ	StoE
PFHxA	0.0732		0.00427	LOD	0.00855	LOQ	ug/L	J	StoE
PFHxS	0.00855		0.00427	LOD	0.00855	LOQ	ug/L	J	StoE
PFNA	0.00427	U	0.00427	LOD	0.00855	LOQ	ug/L	UJ	StoE
PFOA	0.00388	J	0.00427	LOD	0.00855	LOQ	ug/L	J	RI, StoE
PFOS	0.00427	U	0.00427	LOD	0.00855	LOQ	ug/L	UJ	StoE
PFTeDA	0.00427	U	0.00427	LOD	0.00855	LOQ	ug/L	UJ	StoE, Ccv
PFTrDA	0.00427	U	0.00427	LOD	0.00855	LOQ	ug/L	UJ	StoE
PFUnA	0.00427	U	0.00427	LOD	0.00855	LOQ	ug/L	UJ	StoE

11/15/2018 11:54:

Sample ID: A1-MW-37-SA2 **Collected:** AM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NEtFOSAA	0.00424	U	0.00424	LOD	0.00851	LOQ	ug/L	UJ	StoE
NMeFOSAA	0.00424	U	0.00424	LOD	0.00851	LOQ	ug/L	UJ	StoE
PFBS	0.151		0.00424	LOD	0.00851	LOQ	ug/L	J	StoE
PFDA	0.00424	U	0.00424	LOD	0.00851	LOQ	ug/L	UJ	StoE
PFDoA	0.00424	U	0.00424	LOD	0.00851	LOQ	ug/L	UJ	StoE
PFHpA	0.0856		0.00424	LOD	0.00851	LOQ	ug/L	J	StoE
PFHxA	0.520		0.00424	LOD	0.00851	LOQ	ug/L	J	StoE
PFHxS	0.438		0.00424	LOD	0.00851	LOQ	ug/L	J	StoE
PFNA	0.00424	U	0.00424	LOD	0.00851	LOQ	ug/L	UJ	StoE
PFOA	0.0599		0.00424	LOD	0.00851	LOQ	ug/L	J	StoE
PFOS	0.0288		0.00424	LOD	0.00851	LOQ	ug/L	J	StoE
PFTeDA	0.00424	U	0.00424	LOD	0.00851	LOQ	ug/L	UJ	StoE, Ccv
PFTrDA	0.00424	U	0.00424	LOD	0.00851	LOQ	ug/L	UJ	StoE
PFUnA	0.00424	U	0.00424	LOD	0.00851	LOQ	ug/L	UJ	StoE

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

1803676, 1803678
EDD Filename: Prep1803615, Prep1803626, Prep1803659, Prep1803676, Prep1803678

Laboratory: Vista

eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista

SDG: 1803676

Method Category: SVOA

Method: 537 MOD **Matrix:** AQ

11/15/2018 12:04:

Sample ID: A1-MW-37-SA2D **Collected:** PM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NEtFOSAA	0.00435	U	0.00435	LOD	0.00870	LOQ	ug/L	UJ	StoE
NMeFOSAA	0.00435	U	0.00435	LOD	0.00870	LOQ	ug/L	UJ	StoE
PFBS	0.150		0.00435	LOD	0.00870	LOQ	ug/L	J	StoE
PFDA	0.00435	U	0.00435	LOD	0.00870	LOQ	ug/L	UJ	StoE
PFDoA	0.00435	U	0.00435	LOD	0.00870	LOQ	ug/L	UJ	StoE
PFHpA	0.0830		0.00435	LOD	0.00870	LOQ	ug/L	J	StoE
PFHxA	0.529		0.00435	LOD	0.00870	LOQ	ug/L	J	StoE
PFHxS	0.429		0.00435	LOD	0.00870	LOQ	ug/L	J	StoE
PFNA	0.00435	U	0.00435	LOD	0.00870	LOQ	ug/L	UJ	StoE
PFOA	0.0555		0.00435	LOD	0.00870	LOQ	ug/L	J	StoE
PFOS	0.0275		0.00435	LOD	0.00870	LOQ	ug/L	J	StoE
PFTeDA	0.00435	U	0.00435	LOD	0.00870	LOQ	ug/L	UJ	StoE, Ccv
PFTrDA	0.00435	U	0.00435	LOD	0.00870	LOQ	ug/L	UJ	StoE
PFUnA	0.00435	U	0.00435	LOD	0.00870	LOQ	ug/L	UJ	StoE

11/15/2018 2:30:0

Sample ID: FRB-20181115 **Collected:** PM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NEtFOSAA	0.00450	U	0.00450	LOD	0.00904	LOQ	ug/L	UJ	StoE
NMeFOSAA	0.00450	U	0.00450	LOD	0.00904	LOQ	ug/L	UJ	StoE
PFBS	0.00450	U	0.00450	LOD	0.00904	LOQ	ug/L	UJ	StoE
PFDA	0.00450	U	0.00450	LOD	0.00904	LOQ	ug/L	UJ	StoE
PFDoA	0.00450	U	0.00450	LOD	0.00904	LOQ	ug/L	UJ	StoE
PFHpA	0.00450	U	0.00450	LOD	0.00904	LOQ	ug/L	UJ	StoE
PFHxA	0.00450	U	0.00450	LOD	0.00904	LOQ	ug/L	UJ	StoE
PFHxS	0.00450	U	0.00450	LOD	0.00904	LOQ	ug/L	UJ	StoE
PFNA	0.00450	U	0.00450	LOD	0.00904	LOQ	ug/L	UJ	StoE
PFOA	0.00450	U	0.00450	LOD	0.00904	LOQ	ug/L	UJ	StoE
PFOS	0.00450	U	0.00450	LOD	0.00904	LOQ	ug/L	UJ	StoE
PFTeDA	0.00450	U	0.00450	LOD	0.00904	LOQ	ug/L	UJ	StoE, Ccv
PFTrDA	0.00450	U	0.00450	LOD	0.00904	LOQ	ug/L	UJ	StoE
PFUnA	0.00450	U	0.00450	LOD	0.00904	LOQ	ug/L	UJ	StoE

* denotes a non-reportable result

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Data Qualifier Summary

1803676, 1803678
EDD Filename: Prep1803615, Prep1803626, Prep1803659, Prep1803676, Prep1803678

Laboratory: Vista

eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista

SDG: 1803678

Method Category: SVOA
Method: 537 MOD **Matrix:** AQ

11/16/2018 8:12:0
Sample ID: A1-MW-01-SA2 **Collected:** AM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFTeDA	0.00446	U	0.00446	LOD	0.00894	LOQ	ug/L	UJ	Ccv

11/16/2018 9:17:0
Sample ID: A1-MW-42-SA2 **Collected:** AM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFTeDA	0.00424	U	0.00424	LOD	0.00849	LOQ	ug/L	UJ	Ccv

11/16/2018 9:50:0
Sample ID: EB-20181116 **Collected:** AM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFTeDA	0.00424	U	0.00424	LOD	0.00849	LOQ	ug/L	UJ	Ccv

11/16/2018 9:40:0
Sample ID: FRB-20181116 **Collected:** AM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PFTeDA	0.00481	U	0.00481	LOD	0.00965	LOQ	ug/L	UJ	Ccv

* denotes a non-reportable result

Data Qualifier Summary

1803676, 1803678
EDD Filename: Prep1803615, Prep1803626, Prep1803659, Prep1803676, Prep1803678

Laboratory: Vista
eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista

Reason Code Legend

Reason Code	*Description*
Ccv	Continuing Calibration Verification Percent Difference Lower Estimation
Lcs	Laboratory Control Spike Upper Estimation
Ms	Matrix Spike Precision
Ms	Matrix Spike Upper Estimation
RI	Reporting Limit Trace Value
StoE	Sampling to Extraction Estimation

* denotes a non-reportable result

Enclosure I

Stage 2B ADR Outliers

(Including Manual Review Outliers)

Quality Control
Outlier Reports

280-116898-1

QC Outlier Report: HoldingTimes

Lab Reporting Batch ID: 280-116898-1 **Laboratory: TA DEN**

EDD Filename: 280-116898-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: 9040C **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
A1-MW-04-SA2 (RES/TOT)	Sampling To Analysis	267.00	24.00	HOURS	J (all detects)
A1-MW-05-SA2 (RES/TOT)		335.00	24.00	HOURS	
A1-MW-49-SA2 (RES/TOT)		341.00	24.00	HOURS	
A1-MW-50-SA2 (RES/TOT)		270.00	24.00	HOURS	
A1-MW-51-SA2 (RES/TOT)		268.75	24.00	HOURS	
A1-MW-52-SA2 (RES/TOT)		265.75	24.00	HOURS	
A1-PZ-19-SA2 (RES/TOT)		336.75	24.00	HOURS	

Method: SM3500 Fe B D **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
A1-MW-04-SA2 (RES/TOT)	Sampling To Analysis	222.75	24.00	HOURS	J(all detects)
A1-MW-05-SA2 (RES/TOT)		220.00	24.00	HOURS	R(all non-detects)
A1-MW-49-SA2 (RES/TOT)		226.00	24.00	HOURS	
A1-MW-50-SA2 (RES/TOT)		225.00	24.00	HOURS	
A1-MW-51-SA2 (RES/TOT)		223.75	24.00	HOURS	
A1-MW-52-SA2 (RES/TOT)		220.75	24.00	HOURS	
A1-PZ-19-SA2 (RES/TOT)		221.75	24.00	HOURS	

Method Blank Outlier Report

Lab Reporting Batch ID: 280-116898-1 **Laboratory: TA DEN**

EDD Filename: 280-116898-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: **9056A**
Matrix: **AQ**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
MB 280-437370/6	11/13/2018 12:25:00 PM	Sulfate	0.3332 mg/L	A1-MW-04-SA2 A1-MW-05-SA2 A1-MW-49-SA2 A1-MW-50-SA2 A1-MW-51-SA2 A1-MW-52-SA2 A1-PZ-19-SA2
MB 280-437371/6	11/13/2018 12:25:00 PM	NITRATE	0.04530 mg/L	A1-MW-04-SA2 A1-MW-05-SA2 A1-MW-49-SA2 A1-MW-50-SA2 A1-MW-51-SA2 A1-MW-52-SA2 A1-PZ-19-SA2

Reporting Limit Outliers

Lab Reporting Batch ID: 280-116898-1 **Laboratory: TA DEN**

EDD Filename: 280-116898-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: 8260B
Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
A1-MW-50-SA2	1,1-DICHLOROETHENE TRICHLOROETHENE	J J	0.564 0.780	1.00 1.00	LOQ LOQ	ug/L ug/L	J (all detects)
A1-MW-50-SA2D	1,1-DICHLOROETHENE TRICHLOROETHENE	J J	0.630 0.949	1.00 1.00	LOQ LOQ	ug/L ug/L	J (all detects)
A1-MW-52-SA2	1,1-DICHLOROETHENE TRICHLOROETHENE	J J	0.458 0.811	1.00 1.00	LOQ LOQ	ug/L ug/L	J (all detects)
A1-PZ-19-SA2	TRICHLOROETHENE	J	0.430	1.00	LOQ	ug/L	J (all detects)

Method: 9056A
Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
A1-PZ-19-SA2	NITRATE	J B	0.896	1.00	LOQ	mg/L	J (all detects)

Method: SM3500 Fe B D
Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
A1-MW-05-SA2	Ferrous Iron	J HF	0.119	0.200	LOQ	mg/L	J (all detects)
A1-MW-51-SA2	Ferrous Iron	J HF	0.0278	0.200	LOQ	mg/L	J (all detects)
A1-PZ-19-SA2	Ferrous Iron	J HF	0.0591	0.200	LOQ	mg/L	J (all detects)

Field Duplicate RPD Report

Lab Reporting Batch ID: 280-116898-1 **Laboratory: TA DEN**

EDD Filename: Prep280-116898-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: 8260B
Matrix: AQ

Analyte	Concentration (ug/L)		Sample RPD	eQAPP RPD	Flag
	A1-MW-50-SA2	A1-MW-50-SA2D			
1,1-DICHLOROETHENE	0.564	0.630	NC	30.00	No Qualifiers Applied
TRICHLOROETHENE	0.780	0.949	NC	30.00	

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

LDC #: 43888A1a **VALIDATION COMPLETENESS WORKSHEET** Date: 12/18/18
SDG #: 280-116898-1 ADR/Stage ~~2B~~ 4 Page: 1 of 1
Laboratory: Test America, Inc. Reviewer: DM
2nd Reviewer:

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	ICAL ≤ 15% ICV ≤ 20 %
IV.	Continuing calibration	A	CCV ≤ 20/50 %
V.	Laboratory Blanks	N	Not reviewed for ADR validation.
VI.	Field blanks		
VII.	Surrogate spikes		Not reviewed for ADR validation.
VIII.	Matrix spike/Matrix spike duplicates		Not reviewed for ADR validation.
IX.	Laboratory control samples		Not reviewed for ADR validation.
X.	Field duplicates		
XI.	Internal standards	A	Not reviewed for ADR validation.
XII.	Compound quantitation RL/LOQ/LODs	N	Not reviewed for ADR validation.
XIII.	Target compound identification		Not reviewed for ADR validation.
XIV.	System performance		Not reviewed for ADR validation.
XV.	Overall assessment of data		Not reviewed for ADR validation.

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

** Indicates sample underwent Stage 4 validation

	Client ID	Lab ID	Matrix	Date
1	A1-MW-04-SA2**	280-116898-1**	Water	11/12/18
2	A1-MW-05-SA2**	280-116898-2**	Water	11/12/18
3	A1-MW-49-SA2**	280-116898-3**	Water	11/12/18
4	A1-MW-50-SA2**	280-116898-4**	Water	11/12/18
5	A1-MW-50-SA2D**	280-116898-5**	Water	11/12/18
6	A1-MW-51-SA2**	280-116898-6**	Water	11/12/18
7	TB-20181112	280-116898-7	Water	11/12/18
8	A1-PZ-19-SA2**	280-116898-8**	Water	11/12/18
9	A1-MW-52-SA2**	280-116898-9**	Water	11/12/18
10	A1-MW-50-SA2MS	280-116898-4MS	Water	11/12/18
11	A1-MW-50-SA2MSD	280-116898-4MSD	Water	11/12/18
12				
13	MB 280-498700/6 - 498747/4			

LDC #: 43888A6 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-20-18
SDG #: 280-116898-1 ADR/~~Stage 4~~ Page: 1 of 1
Laboratory: Test America, Inc. Reviewer: MG
2nd Reviewer:

METHOD: (Analyte) Chloride, Nitrate-N, Sulfate (EPA SW846 Method 9056A), Ferrous Iron (SM3500-Fe B), pH (EPA SW846 Method 9040C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	SW	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	A	Not reviewed for ADR validation. MS/MSD
VII.	Duplicate sample analysis	A	Not reviewed for ADR validation. DUP
VIII.	Laboratory control samples	A	Not reviewed for ADR validation. LCS/LCSD
IX.	Field duplicates	N	
X.	Sample result verification	A	Not reviewed for ADR validation.
XI	Overall assessment of data	A	Not reviewed for ADR validation.

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank
** Indicates sample underwent Stage 4 validation

	Client ID	Lab ID	Matrix	Date
1	A1-MW-04-SA2**	280-116898-1**	Water	11/12/18
2	A1-MW-05-SA2**	280-116898-2**	Water	11/12/18
3	A1-MW-49-SA2**	280-116898-3**	Water	11/12/18
4	A1-MW-50-SA2**	280-116898-4**	Water	11/12/18
5	A1-MW-51-SA2	280-116898-6	Water	11/12/18
6	A1-PZ-19-SA2**	280-116898-8**	Water	11/12/18
7	A1-MW-52-SA2**	280-116898-9**	Water	11/12/18
8	A1-MW-50-SA2MS	280-116898-4MS	Water	11/12/18
9	A1-MW-50-SA2MSD	280-116898-4MSD	Water	11/12/18
10	A1-MW-50-SA2DUP	280-116898-4DUP	Water	11/12/18
11				
12				
13				
14				
15	PBW			

Notes:

LDC #: 43888A6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: MG
2nd reviewer:

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1 → 7	W	(pH) TDS (Cl) F (NO3) NO2 (SO4) PO4 ALK CN- NH3 TKN TOC CR6+ ClO4 (Fe+3)
QC 8 → 10	↓	pH TDS (Cl) F (NO3) NO2 (SO4) PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4

Comments:

LDC #: 43888A6

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Reviewer: MG
2nd reviewer:

All circled dates have exceeded the technical holding time.
(Y) N N/A Were all samples preserved as applicable to each method?
(Y) N N/A Were all cooler temperatures within validation criteria?

Method:		9040C		SM 3500 Fe B			
Parameters:		pH		Ferrous Iron			
Technical holding time:		24 hr		24 hr			
Sample ID	Sampling date	Analysis date	Analysis date	Analysis date	Analysis date	Analysis date	Qualifier
1	11:40 11-12-18	14:43 11-23-18	(11 days)				J/UJ/P (det)
2	14:24 11-12-18	13:37 11-26-18	(14)				( )
3	08:32 11-12-18	13:36 11-26-18	(14)				( )
4	09:35 11-12-18	15:19 11-23-18	(11)				( )
5	10:46 11-12-18	15:33 11-23-18	(11)				( )
6	12:43 11-12-18	13:32 11-26-18	(14)				( )
7	13:39 11-12-18	15:23 11-23-18	(11)				( )
1	11:40 11-12-18			18:30 11-21-18	(9 days)		J/R/P (N.D.)
2	14:24 11-12-18				( )		(det)
3	08:32 11-12-18				( )		(ND)
4	09:35 11-12-18				( )		(det)
5	10:46 11-12-18				( )		( )
6	12:43 11-12-18				( )		( )
7	13:39 11-12-18				( )		(ND)

LDC #: 43888A6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: MG
2nd Reviewer:

METHOD: Inorganics, Method See Cover

Conc. units: mg/L **Associated Samples:** all **(NO3-N: 2x dil, SO4: 20x dil, >5x or ND)**

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No Qual's.								
NO3-N	0.04530	0.04526	0.4526									
SO4	0.3332	0.3841	38.41									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

Quality Control
Outlier Reports

280-116942-1

QC Outlier Report: HoldingTimes

Lab Reporting Batch ID: 280-116942-1 **Laboratory: TA DEN**

EDD Filename: 280-116942-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: 9040C **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
16-HS-03-SA2 (RES/TOT)	Sampling To Analysis	316.00	24.00	HOURS	J (all detects)
16-MW-06-SA2 (RES/TOT)		318.50	24.00	HOURS	
16-MW-08-SA2 (RES/TOT)		314.75	24.00	HOURS	
16-MW-09-SA2 (RES/TOT)		314.50	24.00	HOURS	
A1-MW-18-SA2 (RES/TOT)		317.50	24.00	HOURS	
A1-MW-19-SA2 (RES/TOT)		316.25	24.00	HOURS	
A1-MW-53-SA2 (RES/TOT)		312.75	24.00	HOURS	

Method: 9056A **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
A1-MW-18-SA2 (RES/TOT)	Sampling To Analysis	62.25	48.00	HOURS	J(all detects)
		62.50	48.00	HOURS	UJ(all non-detects)

Method: SM3500 Fe B D **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
16-HS-03-SA2 (RES/TOT)	Sampling To Analysis	198.50	24.00	HOURS	J(all detects)
16-MW-06-SA2 (RES/TOT)		200.75	24.00	HOURS	R(all non-detects)
16-MW-08-SA2 (RES/TOT)		197.50	24.00	HOURS	
16-MW-09-SA2 (RES/TOT)		196.75	24.00	HOURS	
16-MW-09-SA2DUP (RES/TOT)		196.75	24.00	HOURS	
16-MW-09-SA2MS (RES/TOT)		196.75	24.00	HOURS	
16-MW-09-SA2MSD (RES/TOT)		196.75	24.00	HOURS	
A1-MW-18-SA2 (RES/TOT)		200.00	24.00	HOURS	
A1-MW-19-SA2 (RES/TOT)		199.25	24.00	HOURS	
A1-MW-53-SA2 (RES/TOT)		195.50	24.00	HOURS	

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 280-116942-1 **Laboratory: TA DEN**

EDD Filename: 280-116942-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: **9056A**
Matrix: **AQ**

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
16-MW-06-SA2MS 16-MW-06-SA2MSD (16-MW-06-SA2)	Sulfate	80	74	87.00-112.00	-	Sulfate	J (all detects) UJ (all non-detects)

Method: **SM3500 Fe B D**
Matrix: **AQ**

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
16-MW-09-SA2MS 16-MW-09-SA2MSD (16-MW-09-SA2)	Ferrous Iron	53	51	85.00-113.00	-	Ferrous Iron	J(all detects) UJ(all non-detects)

Reporting Limit Outliers

Lab Reporting Batch ID: 280-116942-1 **Laboratory: TA DEN**

EDD Filename: 280-116942-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: **8260B**

Matrix: **AQ**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
16-MW-06-SA2	TRICHLOROETHENE	J	0.195	1.00	LOQ	ug/L	J (all detects)
16-MW-08-SA2	TETRACHLOROETHENE	J	0.538	1.00	LOQ	ug/L	J (all detects)
16-MW-09-SA2	TETRACHLOROETHENE	J	0.271	1.00	LOQ	ug/L	J (all detects)
A1-MW-19-SA2	TRICHLOROETHENE	J	0.545	1.00	LOQ	ug/L	J (all detects)

LDC #: 43888B1a **VALIDATION COMPLETENESS WORKSHEET** Date: 12/19/18
SDG #: 280-116942-1 ADR Page: 1 of 1
Laboratory: Test America, Inc. Reviewer: DG
2nd Reviewer:

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	ICAL ≤ 15%. ICV ≤ 20%.
IV.	Continuing calibration	A	CCV ≤ 20/50%.
V.	Laboratory Blanks	N	
VI.	Field blanks	N	
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	N	
XI.	Internal standards	~~N~~A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	16-HS-03-SA2	280-116942-1	Water	11/13/18
2	16-MW-06-SA2	280-116942-2	Water	11/13/18
3	16-MW-08-SA2	280-116942-3	Water	11/13/18
4	16-MW-09-SA2	280-116942-4	Water	11/13/18
5	A1-MW-18-SA2	280-116942-5	Water	11/13/18
6	A1-MW-19-SA2	280-116942-6	Water	11/13/18
7	TB-20181113	280-116942-7	Water	11/13/18
8	A1-MW-53-SA2	280-116942-8	Water	11/13/18
9	16-HS-063-SA2D	280-116942-9	Water	11/13/18
10				
11				
12	MB 280-438817/4			
13				

(H, AA, S only)

LDC #: 43888B6 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-20-18
SDG #: 280-116942-1 ADR Page: 1 of 1
Laboratory: Test America, Inc. Reviewer: MG
2nd Reviewer:

METHOD: (Analyte) Chloride, Nitrate-N, Sulfate (EPA SW846 Method 9056A), Ferrous Iron (SM3500-Fe B), pH (EPA SW846 Method 9040C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	SW	HT out for all pH, Fe^{+2}; NO3 out for #5
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	ICB/CCB only
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	MS/MSD (#8/9: SO4 fails, #11/12: Fe^{+2} fails)
VII.	Duplicate sample analysis	N	DUP
VIII.	Laboratory control samples	N	LCS/LCSD
IX.	Field duplicates	N	
X.	Sample result verification	N	
XI	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	16-HS-03-SA2	280-116942-1	Water	11/13/18
2	16-MW-06-SA2	280-116942-2	Water	11/13/18
3	16-MW-08-SA2	280-116942-3	Water	11/13/18
4	16-MW-09-SA2	280-116942-4	Water	11/13/18
5	A1-MW-18-SA2	280-116942-5	Water	11/13/18
6	A1-MW-19-SA2	280-116942-6	Water	11/13/18
7	A1-MW-53-SA2	280-116942-8	Water	11/13/18
8	16-MW-06-SA2MS	280-116942-2MS	Water	11/13/18
9	16-MW-06-SA2MSD	280-116942-2MSD	Water	11/13/18
10	16-MW-06-SA2DUP	280-116942-2DUP	Water	11/13/18
11	16-MW-09-SA2MS	280-116942-4MS	Water	11/13/18
12	16-MW-09-SA2MSD	280-116942-4MSD	Water	11/13/18
13	16-MW-09-SA2DUP	280-116942-4DUP	Water	11/13/18
14	PBW1			
15	PBW2			

Notes:

LDC #: 43888B6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: MG
2nd reviewer:

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1→7	W	(pH) TDS (Cl) F (NO3) NO2 (SO4) PO4 ALK CN- NH3 TKN TOC CR6+ ClO4 (Fe+2)
QC 8→10	↓	pH TDS (Cl) F (NO3) NO2 (SO4) PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
↓ 11→13	↓	pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4 (Fe+2)
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4

Comments:

LDC #: 43888B6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: MG
2nd Reviewer

METHOD: Inorganics, Method See Cover

Conc. units: mg/L **Associated Samples:** 1-4,6 (various dilutions, >5x)

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No Qual's.								
SO4		0.6931	3.466									

Conc. units: mg/L **Associated Samples:** 2,3,4,7 (various dilutions, >5x)

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No Qual's.								
Cl		0.3086	1.543									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

Quality Control
Outlier Reports

280-117007-1

QC Outlier Report: HoldingTimes

Lab Reporting Batch ID: 280-117007-1 **Laboratory: TA DEN**

EDD Filename: 280-117007-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: 9040C **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
A1-MW-07-SA2 (RES/TOT)	Sampling To Analysis	363.25	24.00	HOURS	J (all detects)
A1-MW-23-SA2 (RES/TOT)		362.25	24.00	HOURS	
A1-MW-25-SA2 (RES/TOT)		359.75	24.00	HOURS	
A1-MW-27-SA2 (RES/TOT)		359.25	24.00	HOURS	
A1-MW-54-SA2 (RES/TOT)		356.75	24.00	HOURS	
A1-MW-55-SA2 (RES/TOT)		361.00	24.00	HOURS	

Method: SM3500 Fe B D **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
A1-MW-07-SA2 (RES/TOT)	Sampling To Analysis	177.50	24.00	HOURS	J(all detects)
A1-MW-23-SA2 (RES/TOT)		176.50	24.00	HOURS	R(all non-detects)
A1-MW-25-SA2 (RES/TOT)		174.25	24.00	HOURS	
A1-MW-27-SA2 (RES/TOT)		173.50	24.00	HOURS	
A1-MW-54-SA2 (RES/TOT)		171.25	24.00	HOURS	
A1-MW-54-SA2DUP (RES/TOT)		171.25	24.00	HOURS	
A1-MW-54-SA2MS (RES/TOT)		171.25	24.00	HOURS	
A1-MW-54-SA2MSD (RES/TOT)		171.25	24.00	HOURS	
A1-MW-55-SA2 (RES/TOT)		175.50	24.00	HOURS	

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 280-117007-1 **Laboratory: TA DEN**

EDD Filename: 280-117007-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: **SM3500 Fe B D**
Matrix: **AQ**

QC Sample ID (Associated Samples)	*Compound*	*MS %R*	*MSD %R*	*%R Limits*	*RPD (Limits)*	*Affected Compounds*	*Flag*
A1-MW-54-SA2MS A1-MW-54-SA2MSD (A1-MW-54-SA2)	Ferrous Iron	34	35	85.00-113.00	-	Ferrous Iron	J (all detects) UJ (all non-detects)

Reporting Limit Outliers

Lab Reporting Batch ID: 280-117007-1 **Laboratory: TA DEN**

EDD Filename: 280-117007-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: **8260B**

Matrix: **AQ**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
A1-MW-07-SA2	1,1-DICHLOROETHENE TRICHLOROETHENE	J J	0.357 0.826	1.00 1.00	LOQ LOQ	ug/L ug/L	J (all detects)
A1-MW-25-SA2	1,1-DICHLOROETHENE TRICHLOROETHENE	J J	0.273 0.539	1.00 1.00	LOQ LOQ	ug/L ug/L	J (all detects)

LDC #: 43888C1a **VALIDATION COMPLETENESS WORKSHEET** Date: 12/19/18
SDG #: 280-117007-1 ADR Page: 1 of 1
Laboratory: Test America, Inc. Reviewer: JV
2nd Reviewer:

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	ICAL ≤ 15% ICV ≤ 20%
IV.	Continuing calibration	A	CCV ≤ 20/50%
V.	Laboratory Blanks	N	
VI.	Field blanks	N	
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	N	
XI.	Internal standards	~~N~~ A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-07-SA2	280-117007-1	Water	11/14/18
2	A1-MW-23-SA2	280-117007-2	Water	11/14/18
3	A1-MW-25-SA2	280-117007-3	Water	11/14/18
4	A1-MW-27-SA2	280-117007-4	Water	11/14/18
5	A1-MW-55-SA2	280-117007-5	Water	11/14/18
6	TB-20181114	280-117007-6	Water	11/14/18
7	A1-MW-54-SA2	280-117007-7	Water	11/14/18
8	A1-MW-07-SA2MS	280-117007-1MS	Water	11/14/18
9	A1-MW-07-SA2MSD	280-117007-1MSD	Water	11/14/18
10				
11	MB 280-438841/6			
12				
13				

(H, AA, S only)

LDC #: 43888C6 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-20-18
SDG #: 280-117007-1 ADR Page: 1 of 1
Laboratory: Test America, Inc. Reviewer: MG
2nd Reviewer:

METHOD: (Analyte) Chloride, Nitrate-N, Sulfate (EPA SW846 Method 9056A), Ferrous Iron (SM3500-Fe B), pH (EPA SW846 Method 9040C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	SW	HT out for all pH, Fe^{+2}
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	ICB/CCB only
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	MS/MSD (#7/8: Fe^{+2} fails)
VII.	Duplicate sample analysis	N	DUP
VIII.	Laboratory control samples	N	LCS/LCSD
IX.	Field duplicates	N	
X.	Sample result verification	N	
XI	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-07-SA2	280-117007-1	Water	11/14/18
2	A1-MW-23-SA2	280-117007-2	Water	11/14/18
3	A1-MW-25-SA2	280-117007-3	Water	11/14/18
4	A1-MW-27-SA2	280-117007-4	Water	11/14/18
5	A1-MW-55-SA2	280-117007-5	Water	11/14/18
6	A1-MW-54-SA2	280-117007-7	Water	11/14/18
7	A1-MW-54-SA2MS	280-117007-7MS	Water	11/14/18
8	A1-MW-54-SA2MSD	280-117007-7MSD	Water	11/14/18
9	A1-MW-54-SA2DUP	280-117007-7DUP	Water	11/14/18
10				
11				
12				
13				
14				
15	PBW			

Notes:

LDC #: 43888C6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: MG
2nd reviewer:

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1→6	W	(pH) TDS (Cl) F (NO3) NO2 (SO4) PO4 ALK CN- NH3 TKN TOC CR6+ ClO4 (Fe+2)
QC 7→9	↓	pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4 (Fe+2)
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4

Comments:

LDC #: 43888C6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: MG
2nd Reviewer:

METHOD: Inorganics, Method See Cover

Conc. units: mg/L **Associated Samples:** 1-5 (10x dil, >5x)

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No Qual's.								
Cl		0.2558	12.79									

Conc. units: mg/L **Associated Samples:** 6 (10x dil, >5x)

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No Qual.								
Cl		0.2618	13.09									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

Quality Control
Outlier Reports

280-117103-1

QC Outlier Report: HoldingTimes

Lab Reporting Batch ID: 280-117103-1 **Laboratory: TA DEN**

EDD Filename: 280-117103-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: 9040C **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
A1-MW-11-SA2 (RES/TOT)	Sampling To Analysis	340.75	24.00	HOURS	J (all detects)
A1-MW-13-SA2 (RES/TOT)		341.00	24.00	HOURS	
A1-MW-14-SA2 (RES/TOT)		338.75	24.00	HOURS	
A1-MW-14-SA2DUP (RES/TOT)		338.75	24.00	HOURS	
A1-MW-15-SA2 (RES/TOT)		339.75	24.00	HOURS	
A1-MW-31-SA2 (RES/TOT)		335.50	24.00	HOURS	
A1-MW-37-SA2 (RES/TOT)		337.75	24.00	HOURS	

Method: SM3500 Fe B D **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
A1-MW-11-SA2 (RES/TOT)	Sampling To Analysis	153.50	24.00	HOURS	J(all detects)
A1-MW-13-SA2 (RES/TOT)		154.25	24.00	HOURS	R(all non-detects)
A1-MW-14-SA2 (RES/TOT)		151.75	24.00	HOURS	
A1-MW-15-SA2 (RES/TOT)		152.50	24.00	HOURS	
A1-MW-31-SA2 (RES/TOT)		148.25	24.00	HOURS	
A1-MW-37-SA2 (RES/TOT)		150.75	24.00	HOURS	

Method Blank Outlier Report

Lab Reporting Batch ID: 280-117103-1 **Laboratory: TA DEN**

EDD Filename: 280-117103-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: **9056A**
Matrix: **AQ**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
MB 280-437914/6	11/16/2018 5:36:00 PM	CHLORIDE Sulfate	0.2635 mg/L 0.3386 mg/L	A1-MW-11-SA2 A1-MW-13-SA2 A1-MW-14-SA2 A1-MW-15-SA2 A1-MW-31-SA2 A1-MW-37-SA2
MB 280-437915/6	11/16/2018 5:36:00 PM	NITRATE	0.04638 mg/L	A1-MW-11-SA2 A1-MW-13-SA2 A1-MW-14-SA2 A1-MW-15-SA2 A1-MW-31-SA2 A1-MW-37-SA2

Reporting Limit Outliers

Lab Reporting Batch ID: 280-117103-1 **Laboratory: TA DEN**

EDD Filename: 280-117103-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: 8260B

Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
A1-MW-14-SA2	1,1-DICHLOROETHENE TRICHLOROETHENE	J J	0.635 0.728	1.00 1.00	LOQ LOQ	ug/L ug/L	J (all detects)
A1-MW-15-SA2	TRICHLOROETHENE	J	0.426	1.00	LOQ	ug/L	J (all detects)
A1-MW-37-SA2	1,1-DICHLOROETHENE TRICHLOROETHENE	J J	0.379 0.914	1.00 1.00	LOQ LOQ	ug/L ug/L	J (all detects)
A1-MW-37-SA2D	1,1-DICHLOROETHENE TRICHLOROETHENE	J J	0.373 0.909	1.00 1.00	LOQ LOQ	ug/L ug/L	J (all detects)

Method: SM3500 Fe B D

Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
A1-MW-37-SA2	Ferrous Iron	J HF	0.156	0.200	LOQ	mg/L	J (all detects)

Field Duplicate RPD Report

Lab Reporting Batch ID: 280-117103-1 **Laboratory: TA DEN**

EDD Filename: Prep280-117103-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: 8260B
Matrix: AQ

Analyte	*Concentration (ug/L)*		*Sample RPD*	*eQAPP RPD*	*Flag*
	A1-MW-37-SA2	**A1-MW-37-SA2D**			
1,1-DICHLOROETHENE	0.379	0.373	NC	30.00	No Qualifiers Applied
TRICHLOROETHENE	0.914	0.909	NC	30.00	

LDC #: 43888D1a **VALIDATION COMPLETENESS WORKSHEET** Date: 12/19/18
SDG #: 280-117103-1 ADR Page: 1 of 1
Laboratory: Test America, Inc. Reviewer: SV6
2nd Reviewer:

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	ICAL ≤ 15? ICV ≤ 20?
IV.	Continuing calibration	A	CCV ≤ 20/50?
V.	Laboratory Blanks	N	
VI.	Field blanks	N	
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	N	
XI.	Internal standards	~~N~~ A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-11-SA2	280-117103-1	Water	11/15/18
2	A1-MW-13-SA2	280-117103-2	Water	11/15/18
3	A1-MW-14-SA2	280-117103-3	Water	11/15/18
4	A1-MW-15-SA2	280-117103-4	Water	11/15/18
5	A1-MW-37-SA2	280-117103-5	Water	11/15/18
6	A1-MW-37-SA2D	280-117103-6	Water	11/15/18
7	TB-20181115	280-117103-7	Water	11/15/18
8	A1-MW-31-SA2	280-117103-8	Water	11/15/18
9				
10				
11				
12	MB 280-438823/9			
13				

(H, AA, S only)

LDC #: 43888D6 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-20-18
SDG #: 280-117103-1 ADR Page: 1 of 1
Laboratory: Test America, Inc. Reviewer: MG
2nd Reviewer:

METHOD: (Analyte) Chloride, Nitrate-N, Sulfate (EPA SW846 Method 9056A), Ferrous Iron (SM3500-Fe B), pH (EPA SW846 Method 9040C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	SW	HT out for all pH, Fe^{+2}
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	ICB/CCB only
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	client specified
VII.	Duplicate sample analysis	N	DUP
VIII.	Laboratory control samples	N	LCS/LCSD
IX.	Field duplicates	N	
X.	Sample result verification	N	
XI	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-11-SA2	280-117103-1	Water	11/15/18
2	A1-MW-13-SA2	280-117103-2	Water	11/15/18
3	A1-MW-14-SA2	280-117103-3	Water	11/15/18
4	A1-MW-15-SA2	280-117103-4	Water	11/15/18
5	A1-MW-37-SA2	280-117103-5	Water	11/15/18
6	A1-MW-31-SA2	280-117103-8	Water	11/15/18
7	A1-MW-14-SA2DUP	280-117103-3DUP	Water	11/15/18
8				
9				
10				
11				
12				
13				
14				
15	PBW			

Notes:

LDC #: 43888D6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: MG
2nd reviewer:

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1→6	W	(pH) TDS (Cl) F (NO3) NO2 (SO4) PO4 ALK CN- NH3 TKN TOC CR6+ ClO4 (Fe+2)
QC 7	↓	(pH) TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4

Comments:

LDC #: 43888D6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: MG
2nd Reviewer:

METHOD: Inorganics, Method See Cover

Conc. units: mg/L **Associated Samples:** all (20x dil, >5x)

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No Qual's.								
Cl		0.2982	29.82									
SO4		0.4094	40.94									

Conc. units: mg/L **Associated Samples:** 1-5 (>5x)

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No Qual's.								
NO3-N		0.04805	0.2402									

Conc. units: mg/L **Associated Samples:** 6 (>5x)

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No Qual.								
NO3-N		0.04749	0.2374									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

Quality Control
Outlier Reports

280-117110-1

QC Outlier Report: HoldingTimes

Lab Reporting Batch ID: 280-117110-1 **Laboratory: TA DEN**

EDD Filename: 280-117110-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: 9040C **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
A1-MW-01-SA2 (RES/TOT)	Sampling To Analysis	318.00	24.00	HOURS	J (all detects)
A1-MW-42-SA2 (RES/TOT)		316.75	24.00	HOURS	

Method: SM3500 Fe B D **Preparation Method: METHOD**

Matrix: AQ

Sample ID	Type	Actual	Criteria	Units	Flag
A1-MW-01-SA2 (RES/TOT)	Sampling To Analysis	130.25	24.00	HOURS	J(all detects)
A1-MW-42-SA2 (RES/TOT)		129.25	24.00	HOURS	R(all non-detects)
A1-MW-42-SA2DUP (RES/TOT)		129.25	24.00	HOURS	
A1-MW-42-SA2MS (RES/TOT)		129.25	24.00	HOURS	
A1-MW-42-SA2MSD (RES/TOT)		129.25	24.00	HOURS	

Surrogate Outlier Report

Lab Reporting Batch ID: 280-117110-1 **Laboratory: TA DEN**

EDD Filename: 280-117110-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: **8260B**
Matrix: **AQ**

Sample ID (Analysis Type)	*Surrogate*	*Sample % Recovery*	*% Recovery Limits*	*Affected Compounds*	*Flag*
EB-20181116	1,2-DICHLOROETHANE-D4	122	81.00-118.00	All Target Analytes	J (all detects)

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 280-117110-1 **Laboratory: TA DEN**

EDD Filename: 280-117110-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: SM3500 Fe B D
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
A1-MW-42-SA2MS A1-MW-42-SA2MSD (A1-MW-42-SA2)	Ferrous Iron	27	27	85.00-113.00	-	Ferrous Iron	J (all detects) R (all non-detects)

Method: 8260B
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
A1-MW-01-SA2MSD (A1-MW-01-SA2)	1,1-DICHLOROETHENE	-	-	71.00-131.00	22 (20.00)	1,1-DICHLOROETHENE	J(all detects)

Reporting Limit Outliers

Lab Reporting Batch ID: 280-117110-1 **Laboratory: TA DEN**

EDD Filename: 280-117110-1 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Denver**

Method: **8260B**

Matrix: **AQ**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
A1-MW-42-SA2	1,1-DICHLOROETHENE	J	0.238	1.00	LOQ	ug/L	J (all detects)
	TRICHLOROETHENE	J	0.367	1.00	LOQ	ug/L	

LDC #: 43888E1a **VALIDATION COMPLETENESS WORKSHEET** Date: 12/19/18
SDG #: 280-117110-1 ADR Page: 1 of 1
Laboratory: Test America, Inc. Reviewer: JV
2nd Reviewer:

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	ICAL ≤ 15% ICV ≤ 20%
IV.	Continuing calibration	A	CCV ≤ 20/50%
V.	Laboratory Blanks	N	
VI.	Field blanks	N	TB
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N	
X.	Field duplicates	N	
XI.	Internal standards	NA	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank

	Client ID	Lab ID	Matrix	Date
1	A1-MW-01-SA2	280-117110-1	Water	11/16/18
2	A1-MW-42-SA2	280-117110-2	Water	11/16/18
3	TB-20181116	280-117110-3	Water	11/16/18
4	EB-20181116	280-117110-4	Water	11/16/18
5	A1-MW-01-SA2MS	280-117110-1MS	Water	11/16/18
6	A1-MW-01-SA2MSD	280-117110-1MSD	Water	11/16/18
7				
8				
9				

Notes:

(H, AA, S only)

LDC #: 43888E6 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-20-18
SDG #: 280-117110-1 ADR Page: 1 of 1
Laboratory: Test America, Inc. Reviewer: MG
2nd Reviewer:

METHOD: (Analyte) Chloride, Nitrate-N, Sulfate (EPA SW846 Method 9056A), Ferrous Iron (SM3500-Fe B), pH (EPA SW846 Method 9040C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	SW	HT out for all pH, Fe^{+2}
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	ICB/CCB only
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	N	MS/MSD (#3/4: Fe^{+2} fails)
VII.	Duplicate sample analysis	N	DUP
VIII.	Laboratory control samples	N	LCS/LCSD
IX.	Field duplicates	N	
X.	Sample result verification	N	
XI	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-01-SA2	280-117110-1	Water	11/16/18
2	A1-MW-42-SA2	280-117110-2	Water	11/16/18
3	A1-MW-42-SA2MS	280-117110-2MS	Water	11/16/18
4	A1-MW-42-SA2MSD	280-117110-2MSD	Water	11/16/18
5	A1-MW-42-SA2DUP	280-117110-2DUP	Water	11/16/18
6				
7				
8				
9				
10				
11				
12				
13				
14				
15	PBW			

Notes:

LDC #: 43888E6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: MG
2nd reviewer:

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1, 2	W	(pH) TDS (Cl) F (NO3) NO2 (SO4) PO4 ALK CN- NH3 TKN TOC CR6+ ClO4 (Fe+2)
QC 3→5	↓	pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4 (Fe+2)
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4
		pH TDS Cl F NO3 NO2 SO4 PO4 ALK CN- NH3 TKN TOC CR6+ ClO4

Comments:

LDC #: 43888E6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: MG
2nd Reviewer:

METHOD: Inorganics, Method See Cover

Conc. units: mg/L **Associated Samples:** 2 (20x dil, >5x)

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No Qual's.								
Cl		0.6147	61.47									
SO4		0.3987	39.87									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

Quality Control
Outlier Reports

1803615

Reporting Limit Outliers

Lab Reporting Batch ID: 1803615 **Laboratory: Vista**

EDD Filename: 1803615 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: **537 MOD**

Matrix: **AQ**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
A1-MW-04-SA2	PFOA	J	0.00646	0.00881	LOQ	ug/L	J (all detects)
A1-MW-05-SA2	PFHxS	J, Q	0.00359	0.00864	LOQ	ug/L	J (all detects)
A1-MW-50-SA2	PFHpA	J, Q	0.00474	0.00894	LOQ	ug/L	J (all detects)
A1-MW-50-SA2D	PFHpA	J	0.00494	0.00874	LOQ	ug/L	J (all detects)
A1-MW-52-SA2	PFOS	J	0.00356	0.00872	LOQ	ug/L	J (all detects)
A1-PZ-19-SA2	PFHpA PFOS	J J, Q	0.00548 0.00321	0.00884 0.00884	LOQ LOQ	ug/L ug/L	J (all detects)

Field Duplicate RPD Report

Lab Reporting Batch ID: 1803615 **Laboratory: Vista**

EDD Filename: Prep1803615 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: 537 MOD
Matrix: AQ

Analyte	*Concentration (ug/L)*		*Sample RPD*	*eQAPP RPD*	*Flag*
	A1-MW-50-SA2	**A1-MW-50-SA2D**			
PFBS	0.0250	0.0264	5	30.00	
PFHpA	0.00474	0.00494	NC	30.00	
PFHxA	0.0806	0.0829	3	30.00	No Qualifiers Applied
PFHxS	0.0367	0.0355	3	30.00	
PFOA	0.00947	0.00878	8	30.00	

LDC #: 43888K96 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/19/18
SDG #: 1803615 ADR/Stage 4 Page: 1 of 1
Laboratory: Vista Analytical Laboratory Reviewer: JM
2nd Reviewer:

METHOD: LC/MS Perfluoroalkyl & Polyfluoroalkyl Substances (EPA Method 537)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	LC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	ICAL ≤ 20% Individual ≤ 30% ICV ≤ 30%
IV.	Continuing calibration/ISC	A	CCV ≤ 30% true conc.
V.	Laboratory Blanks	N	Not reviewed for ADR validation.
VI.	Field blanks		
VII.	Matrix spike/Matrix spike duplicates		Not reviewed for ADR validation.
VIII.	Laboratory control samples		Not reviewed for ADR validation.
IX.	Field duplicates		
X.	Labeled Compounds	A	Not reviewed for ADR validation.
XI.	Compound quantitation RL/LOQ/LODs	N	Not reviewed for ADR validation.
XII.	Target compound identification		Not reviewed for ADR validation.
XIII.	System performance		Not reviewed for ADR validation.
XIV.	Overall assessment of data		Not reviewed for ADR validation.

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:
SW = See worksheet FB = Field blank EB = Equipment blank
** Indicates sample underwent Stage 4 validation

	Client ID	Lab ID	Matrix	Date
1	A1-MW-04-SA2**	1803615-01**	Water	11/12/18
2	A1-MW-05-SA2**	1803615-02**	Water	11/12/18
3	A1-MW-49-SA2**	1803615-03**	Water	11/12/18
4	A1-MW-50-SA2**	1803615-04**	Water	11/12/18
5	A1-MW-50-SA2D**	1803615-05**	Water	11/12/18
6	A1-MW-51-SA2**	1803615-06**	Water	11/12/18
7	A1-MW-52-SA2**	1803615-07**	Water	11/12/18
8	FRB-20181112	1803615-08	Water	11/12/18
9	A1-~~MW~~ PZ-19-SA2**	1803615-09**	Water	11/12/18
10	A1-MW-50-SA2MS	1803615-04MS	Water	11/12/18
11	A1-MW-50-SA2MSD	1803615-04MSD	Water	11/12/18
12				
13				
14	PBW0091-BLK1			
15				

Quality Control
Outlier Reports

1803626

Reporting Limit Outliers

Lab Reporting Batch ID: 1803626 **Laboratory: Vista**

EDD Filename: 1803626 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: **537 MOD**

Matrix: **AQ**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
16-MW-06-SA2	PFOS	J	0.00582	0.00835	LOQ	ug/L	J (all detects)
16-MW-09-SA2	PFOA PFOS	J J	0.00449 0.00503	0.00852 0.00852	LOQ LOQ	ug/L ug/L	J (all detects)
A1-MW-18-SA2	PFOA	J	0.00309	0.00856	LOQ	ug/L	J (all detects)
A1-MW-19-SA2	PFDA PFNA	J J	0.00721 0.00398	0.00861 0.00861	LOQ LOQ	ug/L ug/L	J (all detects)
A1-MW-53-SA2	PFOS	J, Q	0.00400	0.00841	LOQ	ug/L	J (all detects)

Field Duplicate RPD Report

Lab Reporting Batch ID: 1803626 **Laboratory: Vista**

EDD Filename: 1803626 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: 537 MOD
Matrix: AQ

Analyte	*Concentration (ug/L)*		*Sample RPD*	*eQAPP RPD*	*Flag*
	16-HS-03-SA2	**16-HS-03-SA2D**			
PFBS	1.34	1.39	4	30.00	
PFHpA	0.405	0.412	2	30.00	
PFHxA	10.3	11.7	13	30.00	No Qualifiers Applied
PFHxS	0.324	0.312	4	30.00	
PFOA	0.0206	0.0200	3	30.00	

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

LDC #: 43888L96 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/19/18
SDG #: 1803626 ADR Page: 1 of 1
Laboratory: Vista Analytical Laboratory Reviewer: JVC
2nd Reviewer:

METHOD: LC/MS Perfluoroalkyl & Polyfluoroalkyl Substances (EPA Method 537)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	LC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	r² Individual ≤30% Mean value ICV ≤30%
IV.	Continuing calibration/ISC	A	CCV ≤30%
V.	Laboratory Blanks	N	
VI.	Field blanks	N	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	N	
X.	Labeled Compounds	N/A	
XI.	Compound quantitation RL/LOQ/LODs	N	
XII.	Target compound identification	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	16-HS-03-SA2	1803626-01	Water	11/13/18
2	16-MW-06-SA2	1803626-02	Water	11/13/18
3	16-MW-08-SA2	1803626-03	Water	11/13/18
4	16-MW-09-SA2	1803626-04	Water	11/13/18
5	A1-MW-18-SA2	1803626-05	Water	11/13/18
6	A1-MW-19-SA2	1803626-06	Water	11/13/18
7	FRB-20181113	1803626-07	Water	11/13/18
8	A1-MW-53-SA2	1803626-08	Water	11/13/18
9	16-HS-03-SA2D	1803626-09	Water	11/13/18
10				
11				

Notes:

Quality Control
Outlier Reports

1803659

Reporting Limit Outliers

Lab Reporting Batch ID: 1803659 **Laboratory: Vista**

EDD Filename: 1803659 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: **537 MOD**

Matrix: **AQ**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
A1-MW-23-SA2	PFHxS	J	0.00594	0.00849	LOQ	ug/L	J (all detects)

LDC #: 43888M96 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/19/18
SDG #: 1803659 ADR Page: 1 of 1
Laboratory: Vista Analytical Laboratory Reviewer: SM
2nd Reviewer:

METHOD: LC/MS Perfluoroalkyl & Polyfluoroalkyl Substances (EPA Method 537)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	LC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	~~r~~ r Individual ≤30% ICV ≤ 30% True value
IV.	Continuing calibration/ISC	A	CCV ≤ 30%
V.	Laboratory Blanks	N	
VI.	Field blanks	N	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	N	
X.	Labeled Compounds	~~N~~ A	
XI.	Compound quantitation RL/LOQ/LODs	N	
XII.	Target compound identification	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank
SB=Source blank
OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-07-SA2	1803659-01	Water	11/14/18
2	A1-MW-23-SA2	1803659-02	Water	11/14/18
3	A1-MW-25-SA2	1803659-03	Water	11/14/18
4	A1-MW-27-SA2	1803659-04	Water	11/14/18
5	A1-MW-55-SA2	1803659-05	Water	11/14/18
6	A1-MW-54-SA2	1803659-06	Water	11/14/18
7	FRB-20181114	1803659-07	Water	11/14/18
8				
9				
10				

Notes:

	B8K0149-BLK1						

Quality Control
Outlier Reports

1803676

QC Outlier Report: HoldingTimes

Lab Reporting Batch ID: 1803676 **Laboratory: Vista**

EDD Filename: 1803676 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: 537 MOD **Preparation Method: Gen Prep**

Matrix: AQ

Sample ID	*Type*	*Actual*	*Criteria*	*Units*	*Flag*
A1-MW-11-SA2 (RES)	Sampling To Extraction	15.00	14.00	DAYS	J (all detects)
A1-MW-13-SA2 (RES)		15.00	14.00	DAYS	UJ (all non-detects)
A1-MW-14-SA2 (RES)		15.00	14.00	DAYS	
A1-MW-15-SA2 (RES)		15.00	14.00	DAYS	
A1-MW-31-SA2 (RES)		15.00	14.00	DAYS	
A1-MW-37-SA2 (RES)		15.00	14.00	DAYS	
A1-MW-37-SA2D (RES)		15.00	14.00	DAYS	
FRB-20181115 (RES)		15.00	14.00	DAYS	

Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: 1803676 **Laboratory: Vista**

EDD Filename: 1803676 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: **537 MOD**
Matrix: **AQ**

QC Sample ID (Associated Samples)	*Compound*	*LCS %R*	*LCSD %R*	*%R Limits*	*RPD (Limits)*	*Affected Compounds*	*Flag*
B8K0153-BS1 (A1-MW-11-SA2 A1-MW-13-SA2 A1-MW-14-SA2 A1-MW-15-SA2 A1-MW-31-SA2 A1-MW-37-SA2 A1-MW-37-SA2D FRB-20181115)	PFTeDA	140	-	70.00-130.00	-	PFTeDA	J (all detects)

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Reporting Limit Outliers

Lab Reporting Batch ID: 1803676 **Laboratory: Vista**

EDD Filename: 1803676 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: **537 MOD**

Matrix: **AQ**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
A1-MW-31-SA2	PFOA	J	0.00388	0.00855	LOQ	ug/L	J (all detects)

Field Duplicate RPD Report

Lab Reporting Batch ID: 1803676 **Laboratory: Vista**

EDD Filename: 1803676 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: 537 MOD
Matrix: AQ

Analyte	*Concentration (ug/L)*		*Sample RPD*	*eQAPP RPD*	*Flag*
	A1-MW-37-SA2	**A1-MW-37-SA2D**			
PFBS	0.151	0.150	1	30.00	No Qualifiers Applied
PFHpA	0.0856	0.0830	3	30.00	
PFHxA	0.520	0.529	2	30.00	
PFHxS	0.438	0.429	2	30.00	
PFOA	0.0599	0.0555	8	30.00	
PFOS	0.0288	0.0275	5	30.00	

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

LDC #: 43888N96 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/19/18
SDG #: 1803676 ADR Page: 1 of 1
Laboratory: Vista Analytical Laboratory Reviewer: DG
2nd Reviewer:

METHOD: LC/MS Perfluoroalkyl & Polyfluoroalkyl Substances (EPA Method 537)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A, ~~A~~SW	
II.	LC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	r r Individual ≤30% ICV≤30% true value
IV.	Continuing calibration/ISC	SW	CCV≤30%
V.	Laboratory Blanks	N	
VI.	Field blanks	N	
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	N	
X.	Labeled Compounds	~~N~~ A	
XI.	Compound quantitation RL/LOQ/LODs	N	
XII.	Target compound identification	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-11-SA2	1803676-01	Water	11/15/18
2	A1-MW-13-SA2	1803676-02	Water	11/15/18
3	A1-MW-14-SA2	1803676-03	Water	11/15/18
4	A1-MW-15-SA2	1803676-04	Water	11/15/18
5	A1-MW-37-SA2	1803676-05	Water	11/15/18
6	A1-MW-37-SA2D	1803676-06	Water	11/15/18
7	FRB-20181115	1803676-07	Water	11/15/18
8	A1-MW-31-SA2	1803676-08	Water	11/15/18
9				
10				
11				

Notes:

	B8K0153-BLK1						

TARGET COMPOUND WORKSHEET

METHOD: PFAS

A. PFHxA			
B. PFHpA			
C. PFOA			
D. PFNA			
E. PFDA			
F. PFUnA			
G. PFDoA			
H. PFTriA			
I. PFTeDA			
J. PFBS			
K. PFHxS			
L. PFHpS			
M. PFOS			
N. PFDS			
O. FOSA			
P. PFBA			
Q. PFPeA			
R. 6:2FTS			
S. 8:2FTS			
T. MeFOSAA			
U. EtFOSAA			
V. Combined PFOAS/PFOS			

LDC #: 43588 N96

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: MG
2nd Reviewer:

METHOD: LC/MS PFOS/PFOAs (EPA Method 537M)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a continuing calibration standard analyzed after every 10 injections for each instrument?

Y N N/A Were all continuing calibration percent differences (%D) ≤30 %?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤30.0%)	Associated Samples	Qualifications
	12/03/18	181203M1_3	I	42.4	All (ND)	J/UJ/A

Quality Control
Outlier Reports

1803678

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: 1803678 **Laboratory: Vista**

EDD Filename: 1803678 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: **537 MOD**
Matrix: **AQ**

QC Sample ID (Associated Samples)	*Compound*	*MS %R*	*MSD %R*	*%R Limits*	*RPD (Limits)*	*Affected Compounds*	*Flag*
A1-MW-01-SA2MS A1-MW-01-SA2MSD (A1-MW-01-SA2)	PFTeDA	139	-	70.00-130.00	31.7 (30.00)	PFTeDA	J (all detects)

Project Name and Number: 4663.3803 - CTO 17F3803 Yuma

Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: 1803678 **Laboratory: Vista**

EDD Filename: 1803678 **eQAPP Name: SW RAC 6_CTO 3803 YUMA - Vista**

Method: 537 MOD
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
B8K0153-BS1 (A1-MW-01-SA2 A1-MW-42-SA2 EB-20181116 FRB-20181116)	PFTeDA	140	-	70.00-130.00	-	PFTeDA	J (all detects)

LDC #: 43888O96 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/19/18
SDG #: 1803678 ADR Page: 1 of 1
Laboratory: Vista Analytical Laboratory Reviewer: JW
2nd Reviewer:

METHOD: LC/MS Perfluoroalkyl & Polyfluoroalkyl Substances (EPA Method 537)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	LC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	te r² Individual ≤ 30% ICV ≤ 30% True value
IV.	Continuing calibration/ISC	SW	CCV ≤ 30%
V.	Laboratory Blanks	N	
VI.	Field blanks	N	FRB = 3 EB = 4
VII.	Matrix spike/Matrix spike duplicates	N	
VIII.	Laboratory control samples	N	
IX.	Field duplicates	N	
X.	Labeled Compounds	N/A	
XI.	Compound quantitation RL/LOQ/LODs	N	
XII.	Target compound identification	N	
XIII.	System performance	N	
XIV.	Overall assessment of data	N	

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank
SB=Source blank
OTHER:

	Client ID	Lab ID	Matrix	Date
1	A1-MW-01-SA2	1803678-01	Water	11/16/18
2	A1-MW-42-SA2	1803678-02	Water	11/16/18
3	FRB-20181116	1803678-03	Water	11/16/18
4	EB-20181116	1803678-04	Water	11/16/18
5	A1-MW-01-SA2MS	1803678-01MS	Water	11/16/18
6	A1-MW-01-SA2MSD	1803678-01MSD	Water	11/16/18
7				
8				
9				
10				

Notes:

	B8K0153-BLK1						

TARGET COMPOUND WORKSHEET

METHOD: PFAS

A. PFHxA			
B. PFHpA			
C. PFOA			
D. PFNA			
E. PFDA			
F. PFUnA			
G. PFDoA			
H. PFTriA			
I. PFTeDA			
J. PFBS			
K. PFHxS			
L. PFHpS			
M. PFOS			
N. PFDS			
O. FOSA			
P. PFBA			
Q. PFPeA			
R. 6:2FTS			
S. 8:2FTS			
T. MeFOSAA			
U. EtFOSAA			
V. Combined PFOAS/PFOS			

LDC #: 43888096

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Reviewer: JVG
2nd Reviewer: C

METHOD: LC/MS PFAS (EPA Method 537M)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a continuing calibration standard analyzed after every 10 injections for each instrument?

Y (N) N/A Were all continuing calibration percent differences (%D) ≤30 %?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤30.0%)	Finding RRF (Limit:)	Associated Samples	Qualifications
	12/03/18	181203M1_2	I	42.4		All (ND)	J/UJ/A

Enclosure II

Manual Stage 2B and Stage 4 Data Validation Reports

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS Yuma, CTO 17F3803

LDC Report Date: December 20, 2018

Parameters: Volatiles

Validation Level: Stage 4

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): 280-116898-1

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
A1-MW-04-SA2	280-116898-1	Water	11/12/18
A1-MW-05-SA2	280-116898-2	Water	11/12/18
A1-MW-49-SA2	280-116898-3	Water	11/12/18
A1-MW-50-SA2	280-116898-4	Water	11/12/18
A1-MW-50-SA2D	280-116898-5	Water	11/12/18
A1-MW-51-SA2	280-116898-6	Water	11/12/18
A1-PZ-19-SA2	280-116898-8	Water	11/12/18
A1-MW-52-SA2	280-116898-9	Water	11/12/18
A1-MW-50-SA2MS	280-116898-4MS	Water	11/12/18
A1-MW-50-SA2MSD	280-116898-4MSD	Water	11/12/18

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona (April 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), and a modified outline of the USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260B

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample TB-20181112 was identified as a trip blank. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

Samples A1-MW-50-SA2 and A1-MW-50-SA2D were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

	Concentration (ug/L)				
Compound	A1-MW-50-SA2	A1-MW-50-SA2D	RPD (Limits)	Flag	A or P
1,1-Dichloroethene	0.564	0.630	Not calculable	-	-
Trichloroethene	0.780	0.949	Not calculable	-	-

RPDs were not calculated when sample results in one or both samples were less than 5x the limit of quantitation (LOQ).

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

All compound quantitations met validation criteria.

All compounds reported below the limit of quantitation (LOQ) were qualified as follows:

Sample	Finding	Flag	A or P
A1-MW-04-SA2 A1-MW-05-SA2 A1-MW-49-SA2 A1-MW-50-SA2 A1-MW-50-SA2D A1-MW-51-SA2 A1-PZ-19-SA2 A1-MW-52-SA2	All compounds reported below the LOQ.	J (all detects)	A

XIII. Target Compound Identifications

All target compound identifications met validation criteria.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to results below the LOQ, data were qualified as estimated in eight samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable.

MCAS Yuma, CTO 17F3803
Volatiles - Data Qualification Summary - SDG 280-116898-1

Sample	Compound	Flag	A or P	Reason
A1-MW-04-SA2 A1-MW-05-SA2 A1-MW-49-SA2 A1-MW-50-SA2 A1-MW-50-SA2D A1-MW-51-SA2 A1-PZ-19-SA2 A1-MW-52-SA2	All compounds reported below the LOQ.	J (all detects)	A	Compound quantitation

MCAS Yuma, CTO 17F3803
Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-116898-1

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
Volatiles - Field Blank Data Qualification Summary - SDG 280-116898-1

No Sample Data Qualified in this SDG

LDC #: 43888A1a **VALIDATION COMPLETENESS WORKSHEET** Date: 12/19/18
SDG #: 280-116898-1 ADR/Stage ~~2B~~ 4 Page: 1 of 1
Laboratory: Test America, Inc. Reviewer: SW
2nd Reviewer:

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	ICAL ≤ 15% ICV ≤ 20%
IV.	Continuing calibration	A	CCV ≤ 20/50 %
V.	Laboratory Blanks	A	~~Not reviewed for ADR validation.~~
VI.	Field blanks	ND	TB = 7
VII.	Surrogate spikes	A	~~Not reviewed for ADR validation.~~
VIII.	Matrix spike/Matrix spike duplicates	A	Not reviewed for ADR validation.
IX.	Laboratory control samples	A	~~Not reviewed for ADR validation.~~ LCS
X.	Field duplicates	SW	D = 4/5
XI.	Internal standards	A	~~Not reviewed for ADR validation.~~
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for ADR validation.
XIII.	Target compound identification	A	Not reviewed for ADR validation.
XIV.	System performance	A	Not reviewed for ADR validation.
XV.	Overall assessment of data	A	~~Not reviewed for ADR validation.~~

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

** Indicates sample underwent Stage 4 validation

	Client ID	Lab ID	Matrix	Date
1	A1-MW-04-SA2**	280-116898-1**	Water	11/12/18
2	A1-MW-05-SA2**	280-116898-2**	Water	11/12/18
3	A1-MW-49-SA2**	280-116898-3**	Water	11/12/18
4	A1-MW-50-SA2** D	280-116898-4**	Water	11/12/18
5	A1-MW-50-SA2D** D	280-116898-5**	Water	11/12/18
6	A1-MW-51-SA2**	280-116898-6**	Water	11/12/18
7	~~TB-20181112~~	280-116898-7	Water	11/12/18
8	A1-PZ-19-SA2**	280-116898-8**	Water	11/12/18
9	A1-MW-52-SA2**	280-116898-9**	Water	11/12/18
10	A1-MW-50-SA2MS	280-116898-4MS	Water	11/12/18
11	A1-MW-50-SA2MSD	280-116898-4MSD	Water	11/12/18
12	MB 280-438700/6			
13	L - 438747/4			

(H, AA, S only)

LDC #: 43888A1N

VALIDATION FINDINGS CHECKLIST

Reviewer: JVG
2nd Reviewer:

Method: Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
Were all percent relative standard deviations (%RSD) ≤ 30%/15% and relative response factors (RRF) ≥ 0.05?	✓			
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤ 20% or percent recoveries (%R) 80-120%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) ≥ 0.05?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed at least once every 12 hours for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Field blanks				
Were field blanks were identified in this SDG?	✓	*		
Were target compounds detected in the field blanks?		✓		
VII. Surrogate spikes				
Were all surrogate percent recovery (%R) within QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	

LDC #: 93888A1a

VALIDATION FINDINGS CHECKLIST

Reviewer: JVG
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
VIII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
IX. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?	✓			
XI. Internal standards				
Were internal standard area counts within -50% to +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XII. Compound quantitation				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene	A2.
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane	B2.
C. Vinyl choride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane	C2.
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene	D2.
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11	E2.
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12	F2.
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113	G2.
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114	H2.
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane	I2.
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide	J2.
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane	K2.
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane	L2.
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane	M2.
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane	N2.
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO.1,1-Difluoroethane	O1. 3-Methylpentane	O2.
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane	P2.
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane	Q2.
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane	R2.
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane	S2.
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane	T2.
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal	U2.
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene	V2.
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol	W2.
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene	X2.
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1.	Y2.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.	Z2.

LDC#: 43888A1a

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: JVG
2nd Reviewer:

METHOD: GCMS VOA (EPA SW 846 Method 8260B)

Y N NA Were field duplicate pairs identified in this SDG?
Y N NA Were target analytes detected in the field duplicate pairs?

Compound	Concentration (ug/L)		RPD (≤30%)	Qualifications (Parent only)
	4	5		
H	0.564	0.630	NC	
S	0.780	0.949	NC	

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LDC #: 43888A1a

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$ — A_x = Area of Compound — A_{is} = Area of associated internal standard

average RRF = sum of the RRFs/number of standards — C_x = Concentration of compound — C_{is} = Concentration of internal standard

%RSD = 100 * (S/X) — S= Standard deviation of the RRFs — X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 10 std)	Recalculated RRF (RRF 10 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL GC MSV G	10/29/2018	Trichloroethene (IS1)	0.4141	0.4141	0.3989	0.3989	3.0	3.0
			Tetrachloroethene (IS2)	1.5494	1.5494	1.4974	1.4974	2.5	2.5
2	ICAL GC MSV Z	11/3/2018	Trichloroethene (IS1)	0.4665	0.4665	0.4837	0.4837	6.8	6.8
			Tetrachloroethene (IS2)	1.6975	1.6975	1.7599	1.7599	5.9	5.9

LDC # 43888A1a

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Calculation Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = (Ax)(Cis)/(Ais)(Cx)

Where:
ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
Ax = Area of compound
Cx = Concentration of compound,
Ais = Area of associated internal standard
Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial)	Reported RRF (CCV)	Recalculated RRF (CCV)	Reported % D	Recalculated %D
1	G2197 GC MSV G	11/26/2018	Trichloroethene (IS1)	0.3989	0.4216	0.4216	5.7	5.7
			Tetrachloroethene (IS2)	1.4974	1.5171	1.5171	1.3	1.3
2	Z3472 GC MSV Z	11/26/2018	Trichloroethene (IS1)	0.4837	0.5081	0.5081	5.0	5.0
			Tetrachloroethene (IS2)	1.7599	1.7106	1.7106	2.8	2.8

LDC #: 43888 A1a

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: JVG
2nd reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane	10.0	10.1	101	101	0
1,2-Dichloroethane-d4		9.22	92	92	
Toluene-d8		10.3	103	103	
Bromofluorobenzene		10.1	101	101	

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

LDC #: 42888A1a

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA

Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentration

RPD = I MSC - MSC I * 2/(MSC + MSDC)

MSC = Matrix spike concentration; MSDC = Matrix spike duplicate concentration

MS/MSD sample: 10/11

Compound	Spike Added (ug/L)		Sample Concentration (ug/L)	Spiked Sample Concentration (ug/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
1,1-Dichloroethene	5.00	5.00	0.564	5.549	5.972	100	100	108	108	7	7
Trichloroethene	↓	↓	0.780	5.580	5.935	96	96	103	107	6	6
Benzene											
Toluene											
Chlorobenzene											

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 93888 A1a

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA Where: SSC = Spiked sample concentration
SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboraotry control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS ID: LCS 280-438700/4

Compound	Spike Added (ug/L)		Spiked Sample Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	5.00	NA	4.874	NA	97	97				
Trichloroethene	5.00	↓	5.029	↓	101	101				
Benzene										
Toluene										
Chlorobenzene										

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 43888A1a

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: JVG
2nd reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Were all reported results recalculated and verified for all level IV samples?

Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

V_o = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

%S = Percent solids, applicable to soils and solid matrices only.

Example:

Sample I.D. 4, TCE:

Conc. = $\frac{(13951)(12.5)(\quad)}{(560722)(0.3989)(\quad)(\quad)}$

= 0.780 ug/L

#	Sample ID	Compound	Reported Concentration (ug/L)	Calculated Concentration ( )	Qualification
			0.780		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS Yuma, CTO 17F3803

LDC Report Date: January 2, 2019

Parameters: Wet Chemistry

Validation Level: Stage 4

Laboratory: TestAmerica, Inc.

Sample Delivery Group (SDG): 280-116898-1

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
A1-MW-04-SA2	280-116898-1	Water	11/12/18
A1-MW-05-SA2	280-116898-2	Water	11/12/18
A1-MW-49-SA2	280-116898-3	Water	11/12/18
A1-MW-50-SA2	280-116898-4	Water	11/12/18
A1-PZ-19-SA2	280-116898-8	Water	11/12/18
A1-MW-52-SA2	280-116898-9	Water	11/12/18
A1-MW-50-SA2MS	280-116898-4MS	Water	11/12/18
A1-MW-50-SA2MSD	280-116898-4MSD	Water	11/12/18
A1-MW-50-SA2DUP	280-116898-4DUP	Water	11/12/18

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona (April 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), and a modified outline of the USEPA National Functional Guidelines (NFG) for Inorganic Superfund Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Chloride, Nitrate as Nitrogen, and Sulfate by Environmental Protection Agency (EPA) SW 846 Method 9056A
Ferrous Iron by Standard Method 3500-Fe B
pH by EPA SW 846 Method 9040C

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
A1-MW-04-SA2 A1-MW-50-SA2 A1-MW-52-SA2	pH	11 days	24 hours	J (all detects)	P
A1-MW-05-SA2 A1-MW-49-SA2 A1-PZ-19-SA2	pH	14 days	24 hours	J (all detects)	P
A1-MW-04-SA2 A1-MW-49-SA2 A1-MW-52-SA2	Ferrous Iron	9 days	24 hours	R (all non-detects)	P
A1-MW-05-SA2 A1-MW-50-SA2 A1-PZ-19-SA2	Ferrous Iron	9 days	24 hours	J (all detects)	P

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Nitrate as N Sulfate	0.04530 mg/L 0.3332 mg/L	All samples in SDG 280-116898-1
ICB/CCB	Nitrate as N Sulfate	0.04526 mg/L 0.3841 mg/L	All samples in SDG 280-116898-1

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks.

V. Field Blanks

No field blanks were identified in this SDG.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the methods. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Field Duplicates

No field duplicates were identified in this SDG.

X. Sample Result Verification

All sample result verifications were acceptable.

All analytes reported below the limit of quantitation (LOQ) were qualified as follows:

Sample	Finding	Flag	A or P
A1-MW-04-SA2 A1-MW-05-SA2 A1-MW-49-SA2 A1-MW-50-SA2 A1-PZ-19-SA2 A1-MW-52-SA2	All analytes reported below the LOQ.	J (all detects)	A

XI. Overall Assessment of Data

The analysis was conducted within all specifications of the methods.

Due to technical holding time, data were rejected in three samples.

Due to technical holding time and results below the LOQ, data were qualified as estimated in six samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable.

MCAS Yuma, CTO 17F3803
Wet Chemistry - Data Qualification Summary - SDG 280-116898-1

Sample	Analyte	Flag	A or P	Reason
A1-MW-04-SA2 A1-MW-05-SA2 A1-MW-49-SA2 A1-MW-50-SA2 A1-PZ-19-SA2 A1-MW-52-SA2	pH	J (all detects)	P	Technical holding times
A1-MW-04-SA2 A1-MW-49-SA2 A1-MW-52-SA2	Ferrous Iron	R (all non-detects)	P	Technical holding times
A1-MW-05-SA2 A1-MW-50-SA2 A1-PZ-19-SA2	Ferrous Iron	J (all detects)	P	Technical holding times
A1-MW-04-SA2 A1-MW-05-SA2 A1-MW-49-SA2 A1-MW-50-SA2 A1-PZ-19-SA2 A1-MW-52-SA2	All analytes reported below the LOQ.	J (all detects)	A	Sample result verification

MCAS Yuma, CTO 17F3803
Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-116898-1

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-116898-1

No Sample Data Qualified in this SDG

LDC #: 43888A6 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-20-18

SDG #: 280-116898-1 ~~ADR~~/Stage 4 Page: 1 of 1

Laboratory: Test America, Inc. Reviewer: MG

2nd Reviewer:

METHOD: (Analyte) Chloride, Nitrate-N, Sulfate (EPA SW846 Method 9056A), Ferrous Iron (SM3500-Fe B), pH (EPA SW846 Method 9040C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	SW	
II	Initial calibration	A	
III.	Calibration verification	A	
IV	Laboratory Blanks	SW	
V	Field blanks	N	
VI.	Matrix Spike/Matrix Spike Duplicates	A	Not reviewed for ADR validation. MS/MSD
VII.	Duplicate sample analysis	A	Not reviewed for ADR validation. DUP
VIII.	Laboratory control samples	A	Not reviewed for ADR validation. LCS/LCSD
IX.	Field duplicates	N	
X.	Sample result verification	A	Not reviewed for ADR validation.
XI	Overall assessment of data	A	Not reviewed for ADR validation.

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

** Indicates sample underwent Stage 4 validation

	Client ID	Lab ID	Matrix	Date
1	A1-MW-04-SA2**	280-116898-1**	Water	11/12/18
2	A1-MW-05-SA2**	280-116898-2**	Water	11/12/18
3	A1-MW-49-SA2**	280-116898-3**	Water	11/12/18
4	A1-MW-50-SA2**	280-116898-4**	Water	11/12/18
5	~~A1-MW-51-SA2~~	280-116898-6	Water	11/12/18
6	A1-PZ-19-SA2**	280-116898-8**	Water	11/12/18
7	A1-MW-52-SA2**	280-116898-9**	Water	11/12/18
8	~~A1-MW-50-SA2MS~~	280-116898-4MS	Water	11/12/18
9	A1-MW-50-SA2MSD	280-116898-4MSD	Water	11/12/18
10	~~A1-MW-50-SA2DUP~~	280-116898-4DUP	Water	11/12/18
11				
12				
13				
14				
15	PBW			

Notes:

LDC #: 43888A6

VALIDATION FINDINGS CHECKLIST

Reviewer: MG
2nd Reviewer:

Method: Inorganics (EPA Method See cover)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.		✓		
Cooler temperature criteria was met.	✓			
II. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)			✓	
Were balance checks performed as required? (Level IV only)			✓	
III. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
IV. Matrix spike/Matrix spike duplicates and Duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of ≤ CRDL(≤ 2X CRDL for soil) was used for samples that were ≤ 5X the CRDL, including when only one of the duplicate sample values were ≤ 5X the CRDL.	✓			
V. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
VI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
VIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
IX. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
X. Field blanks				
Field blanks were identified in this SDG.		✓		
Target analytes were detected in the field blanks.			✓	

LDC #: 43888A6

VALIDATION FINDINGS WORKSHEET
Sample Specific Analysis Reference

Reviewer: MG
2nd reviewer:

All circled methods are applicable to each sample.

Sample ID	Matrix	Parameter
1→7	W	(pH) TDS (Cl) F (NO_3) NO_2 (SO_4) PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4 (Fe+2)
QC 8→10	↓	pH TDS (Cl) F (NO_3) NO_2 (SO_4) PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4
		pH TDS Cl F NO_3 NO_2 SO_4 PO_4 ALK CN^- NH_3 TKN TOC CR^{6+} ClO_4

Comments:

LDC #: 43888A6

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer: MG
2nd reviewer:

All circled dates have exceeded the technical holding time.
(Y) N N/A Were all samples preserved as applicable to each method?
(Y) N N/A Were all cooler temperatures within validation criteria?

Method:	9040C	SM 3500 Fe B				
Parameters:	pH	Ferrous Iron				
Technical holding time:	24 hr	24 hr				

Sample ID	Sampling date	Analysis date	Analysis date	Analysis date	Analysis date	Analysis date	Qualifier	
1	11:40 11-12-18	14:43 11-23-18	(11 days)				J/UJ/P	(det)
2	14:24 11-12-18	13:27 11-26-18	(14)					( )
3	08:32 11-12-18	13:36 11-26-18	(14)					( )
4	09:25 11-12-18	15:19 11-23-18	(11)					( )
~~5~~	~~10:46 11-12-18~~	~~15:33 11-23-18~~	(11)					( )
6	12:43 11-12-18	13:32 11-26-18	(14)					( )
7	13:39 11-12-18	15:23 11-23-18	(11)					( )
1	11:40 11-12-18			18:30 11-21-18	(9 days)		J/R/P	(N.D.)
2	14:24 11-12-18				( )			(det)
3	08:32 11-12-18				( )			(ND)
4	09:25 11-12-18				( )			(det)
~~5~~	~~10:46 11-12-18~~				( )			( )
6	12:43 11-12-18				( )			( )
7	13:39 11-12-18				( )			(ND)

LDC #: 43888A6

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: MG
2nd Reviewer:

METHOD: Inorganics, Method See Cover

Conc. units: mg/L **Associated Samples:** all **(NO3-N: 2x dil, SO4: 20x dil, >5x or ND)**

Analyte	Blank ID	Blank ID	Blank Action Limit									
	PB	ICB/CCB (mg/L)		No Qual's.									
NO3-N	0.04530	0.04526	0.4526									
SO4	0.3332	0.3841	38.41									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 43888A6

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Page: 1 of 1
Reviewer: MG
2nd Reviewer:

METHOD: Inorganics, Method See cover

The correlation coefficient (r) for the calibration of Cl was recalculated. Calibration date: 9-1-18

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

%R = Found x 100 / True

Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution
True = concentration of each analyte in the ICV or CCV source

Type of Analysis	Analyte	Standard ID	Conc. Found (units)	Area True (units)	Recalculated r or %R	Reported r or %R	Acceptable (Y/N)
Initial calibration	Cl	Blank	-	-	r=1.000	r= 1.000	Y
		Standard 1	1.0 (mg/L)	17320827			
		Standard 2	2.5 ( )	46063990			
		Standard 3	5.0 ( )	94576246			
		Standard 4	60.0 ( )	1169987193			
		Standard 5	120.0 ( )	2305131911			
		Standard 6	200.0 ( )	3845262113			
		Standard 7	-	-			
Calibration verification	Ferrous Iron	1830 ICV	1.045 (mg/L)	1.00 (mg/L)	104	105	
Calibration verification	NO_3-N	1052 CCV	4.85 (mg/L)	5.00 (mg/L)	97	97	
Calibration verification	SO_4	1646 CCV	102.2 (mg/L)	100 (mg/L)	102	102	

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 43888A6

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: MG
2nd Reviewer:

METHOD: Inorganics, Method See Cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

%R = Found / True x 100 Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

RPD = |S-D| / (S+D)/2 x 100 Where, S = Original sample concentration
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
1830 LCS	Laboratory control sample	Ferrous Iron	2.13 (mg/L)	2.00 (mg/L)	106	106	Y
1801 8	Matrix spike sample	Cl	(SSR-SR) 512 (mg/L)	500 (mg/L)	102	102	
1724/1743 10	Duplicate sample	SO_4	894 (mg/L)	866 (mg/L)	3	3	

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 43888A6

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: MG
2nd reviewer:

METHOD: Inorganics, Method see cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Have results been reported and calculated correctly?
(Y) N N/A Are results within the calibrated range of the instruments?
(Y) N N/A Are all detection limits below the CRQL?

Compound (analyte) results for #1, SO_4 reported with a positive detect were recalculated and verified using the following equation:

Concentration = $Y = mx + b$
where
$m = 14253830$
$b = -272056$
dil = 20 x

Recalculation:

$$601084316 = 14253830\left(\frac{x}{20}\right) - 272056$$

$$843.78 \text{ mg/L} = x$$

#	Sample ID	Analyte	Reported Concentration (mg/L)	Calculated Concentration (mg/L)	Acceptable (Y/N)
1	1	SO_4	847	844	Y
2	2	Ferrous Iron	0.119	0.119	
3	3	pH	7.9 (SU)	7.9 (SU)	
4	4	NO_3-N	3.26	3.18	
5	6	Ferrous Iron	0.0591	0.0591	
6	7	pH	8.0 (SU)	8.0 (SU)	

Note:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS Yuma, CTO 17F3803

LDC Report Date: December 20, 2018

Parameters: 1,4-Dioxane

Validation Level: Stage 2B & 4

Laboratory: Alpha Analytical, Inc.

Sample Delivery Group (SDG): L1846366

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
A1-MW-04-SA2**	L1846366-01**	Water	11/12/18
A1-MW-05-SA2**	L1846366-02**	Water	11/12/18
A1-MW-49-SA2**	L1846366-03**	Water	11/12/18
A1-MW-50-SA2**	L1846366-04**	Water	11/12/18
A1-MW-50-SA2D	L1846366-05	Water	11/12/18
A1-MW-51-SA2**	L1846366-06**	Water	11/12/18
A1-PZ-19-SA2**	L1846366-07**	Water	11/12/18
A1-MW-52-SA2**	L1846366-08**	Water	11/12/18
A1-MW-50-SA2MS	L1846366-04MS	Water	11/12/18
A1-MW-50-SA2MSD	L1846366-04MSD	Water	11/12/18

**Indicates sample underwent Stage 4 validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona (April 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), and a modified outline of the USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

1,4-Dioxane by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Stage 4 data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0%.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

Samples A1-MW-50-SA2** and A1-MW-50-SA2D were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

	Concentration (ng/L)				
Compound	A1-MW-50-SA2**	A1-MW-50-SA2D	RPD (Limits)	Flag	A or P
1,4-Dioxane	592	591	0 (≤30)	-	-

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

XIV. System Performance

The system performance was acceptable for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable.

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Data Qualification Summary - SDG L1846366

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG L1846366

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Field Blank Data Qualification Summary - SDG L1846366

No Sample Data Qualified in this SDG

LDC #: 43888F2b

SDG #: L1846366

Laboratory: Alpha Analytical, Inc.

VALIDATION COMPLETENESS WORKSHEET

~~ADR/~~Stage 4 2B

Date: 12/19/18

Page: 1 of 1

Reviewer: JG

2nd Reviewer:

METHOD: GC/MS 1,4-Dioxane (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	ICAL ≤ 15%. ICV ≤ 20%
IV.	Continuing calibration	A	CCV ≤ 20/50%
V.	Laboratory Blanks	A	~~Not reviewed for ADR validation~~.
VI.	Field blanks	N	
VII.	Surrogate spikes	A	~~Not reviewed for ADR validation~~.
VIII.	Matrix spike/Matrix spike duplicates	A	Not reviewed for ~~ADR~~ validation.
IX.	Laboratory control samples	A	~~Not reviewed for ADR validation~~. LCS/D
X.	Field duplicates	SW	D = 4/5
XI.	Internal standards	A	~~Not reviewed for ADR validation~~.
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for ADR validation.
XIII.	Target compound identification	A	Not reviewed for ADR validation.
XIV.	System performance	A	Not reviewed for ADR validation.
XV.	Overall assessment of data	A	~~Not reviewed for ADR validation~~.

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

** Indicates sample underwent Stage 4 validation

	Client ID	Lab ID	Matrix	Date
1	A1-MW-04-SA2**	L1846366-01**	Water	11/12/18
2	A1-MW-05-SA2**	L1846366-02**	Water	11/12/18
3	A1-MW-49-SA2**	L1846366-03**	Water	11/12/18
4	A1-MW-50-SA2** D	L1846366-04**	Water	11/12/18
5	A1-MW-50-SA2D D	L1846366-05	Water	11/12/18
6	A1-MW-51-SA2**	L1846366-06**	Water	11/12/18
7	A1-PZ-19-SA2**	L1846366-07**	Water	11/12/18
8	A1-MW-52-SA2**	L1846366-08**	Water	11/12/18
9	A1-MW-50-SA2MS	L1846366-04MS	Water	11/12/18
10	A1-MW-50-SA2MSD	L1846366-04MSD	Water	11/12/18
11				
12				
13	NG118091I-1 BLANK			

LDC #: 43888F2b

VALIDATION FINDINGS CHECKLIST

Reviewer: JVG
2nd Reviewer:

Method: ~~PAH~~ SVOA (EPA SW 846 Method 8270D-SIM)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. GC/MS Instrument performance check (Not required)				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20% and relative response factors (RRF) ≥ 0.05?	✓			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) ≤30% or percent recoveries (%R) 70-130%?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) ≥ 0.05?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Field blanks				
Were field blanks identified in this SDG?		✓		
Were target compounds detected in the field blanks?			✓	
VII. Surrogate spikes				
Were all surrogate percent differences (%R) within QC limits?	✓			
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any percent recoveries (%R) was less than 10 percent, was a reanalysis performed to confirm %R?			✓	

LDC #: 43858F26

VALIDATION FINDINGS CHECKLIST

Reviewer: JVG
2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
VIII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
IX. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per analytical batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓	-		
Were target compounds detected in the field duplicates?		✓		
XI. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds of the associated calibration standard?	✓			
XII. Compound quantitation				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

LDC #: 43888F2b

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS 1,4-Dioxane (EPA SW 846 Method 8270D-SIM)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$ — A_x = Area of Compound — A_{is} = Area of associated internal standard

average RRF = sum of the RRFs/number of standards — C_x = Concentration of compound, — C_{is} = Concentration of internal standard

%RSD = 100 * (S/X) — S= Standard deviation of the RRFs, — X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (500 std)	Recalculated RRF (500 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL MS16	11/15/2018	1,4-Dioxane (DXN-d8)	1.428	1.428	1.407	1.407	3.61	3.60

LDC #: 43888 F2b

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: JVG
2nd reviewer:

METHOD: GC/MS ~~PAH~~ SVOA (EPA SW 846 Method 8270D-SIM)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
~~Nitrobenzene-d5~~ 1,4-Dioxane-d8	500	126.288	25	25	0
2-Fluorobiphenyl					
Terphenyl-d14					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					

LDC #: 43888 F26

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS ~~PAH~~ SVOA (EPA SW 846 Method 8270D-SIM)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentation

RPD = I MSC - MSC I * 2/(MSC + MSDC) MSC = Matrix spike concentration MSDC = Matrix spike duplicate concentration

MS/MSD samples: 9/10

Compound	Spike Added (ng/L)		Sample Concentration (ng/L)	Spiked Sample Concentration (ng/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Acenaphthene											
Pyrene											
1,4-Dioxane-d8	5000	5000	592	6560	6760	119	119	123	123	3	3

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 43888F2b

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: JVG
2nd Reviewer:

METHOD: GC/MS ~~PAH~~ SVOA (EPA SW 846 Method 8270D-SIM)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration
SA = Spike added

RPD = | LCSC - LCSDC | * 2/(LCSC + LCSDC) LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: WG11 80911-2/3

Compound	Spike Added (ng/L)		Spike Concentration (ng/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
Acenaphthene										
Pyrene										
1,4-Dioxane	5000	5000	5780	5890	116	116	118	118	2	2

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 43888 F26

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: JVG
2nd reviewer:

METHOD: GC/MS ~~PAH~~ SVOA (EPA SW 846 Method 8270D-SIM)

(Y) N N/A Were all reported results recalculated and verified for all level IV samples?
Y (N) N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.
2.0	=	Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 1, 1,4-Dioxane

Conc. = $\frac{(9071)(500)(5\ ml)(\ )(\ )(\ )}{(7476)(1.407)(0.5\ L)(\ )(\ )(\ )}$

= 4311 ng/L

#	Sample ID	Compound	Reported Concentration (ng/L)	Calculated Concentration ( )	Qualification
			4310		

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS Yuma, CTO 17F3803

LDC Report Date: December 20, 2018

Parameters: 1,4-Dioxane

Validation Level: Stage 2B

Laboratory: Alpha Analytical, Inc.

Sample Delivery Group (SDG): L1846592

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
16-HS-03-SA2	L1846592-01	Water	11/13/18
16-MW-06-SA2	L1846592-02	Water	11/13/18
16-MW-08-SA2	L1846592-03	Water	11/13/18
16-MW-09-SA2	L1846592-04	Water	11/13/18
A1-MW-18-SA2	L1846592-05	Water	11/13/18
A1-MW-19-SA2	L1846592-06	Water	11/13/18
A1-MW-53-SA2	L1846592-07	Water	11/13/18
16-HS-03-SA2D	L1846592-08	Water	11/13/18

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona (April 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), and a modified outline of the USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

1,4-Dioxane by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0%.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

Samples 16-HS-03-SA2 and 16-HS-03-SA2D were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ng/L)		RPD (Limits)	Flag	A or P
	16-HS-03-SA2	16-HS-03-SA2D			
1,4-Dioxane	5330	6120	14 (≤30)	-	-

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Stage 2B validation.

XIV. System Performance

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable.

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Data Qualification Summary - SDG L1846592

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG L1846592

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Field Blank Data Qualification Summary - SDG L1846592

No Sample Data Qualified in this SDG

LDC #: 43888G2b **VALIDATION COMPLETENESS WORKSHEET** Date: 12/19/18
SDG #: L1846592 ADR Stage2B Page: 1 of 1
Laboratory: Alpha Analytical, Inc. Reviewer: SW
2nd Reviewer:

METHOD: GC/MS 1,4-Dioxane (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	ICAL ≤ 15%. ICV ≤ 20%
IV.	Continuing calibration	A	CCV ≤ 20/50%
V.	Laboratory Blanks	N/A	
VI.	Field blanks	N	
VII.	Surrogate spikes	N/A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	N/A	LCS/D
X.	Field duplicates	SW	D = 1/8
XI.	Internal standards	N/A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	N/A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID		Lab ID	Matrix	Date
1	16-HS-03-SA2	D	L1846592-01	Water	11/13/18
2	16-MW-06-SA2		L1846592-02	Water	11/13/18
3	16-MW-08-SA2		L1846592-03	Water	11/13/18
4	16-MW-09-SA2		L1846592-04	Water	11/13/18
5	A1-MW-18-SA2		L1846592-05	Water	11/13/18
6	A1-MW-19-SA2		L1846592-06	Water	11/13/18
7	A1-MW-53-SA2		L1846592-07	Water	11/13/18
8	16-HS-03-SA2D	D	L1846592-08	Water	11/13/18
9					
10					

Notes:

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LDC#: 43888G2b

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: JVG
2nd Reviewer:

METHOD: GCMS 1,4-Dioxane (EPA SW 846 Method 8270D-SIM)

Y N NA Were field duplicate pairs identified in this SDG?
Y N NA Were target analytes detected in the field duplicate pairs?

Compound	Concentration (ng/L)		RPD (≤30%)	Qualifications (Parent only)
	1	8		
1,4-Dioxane	5330	6120	14	

V:\Josephine\FIELD DUPLICATES\43888G2b ttech yuma.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS Yuma, CTO 17F3803

LDC Report Date: December 20, 2018

Parameters: 1,4-Dioxane

Validation Level: Stage 2B

Laboratory: Alpha Analytical, Inc.

Sample Delivery Group (SDG): L1846856

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
A1-MW-07-SA2	L1846856-01	Water	11/14/18
A1-MW-23-SA2	L1846856-02	Water	11/14/18
A1-MW-25-SA2	L1846856-03	Water	11/14/18
A1-MW-27-SA2	L1846856-04	Water	11/14/18
A1-MW-55-SA2	L1846856-05	Water	11/14/18
A1-MW-54-SA2	L1846856-06	Water	11/14/18

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona (April 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), and a modified outline of the USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

1,4-Dioxane by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0%.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Stage 2B validation.

XIV. System Performance

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable.

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Data Qualification Summary - SDG L1846856

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG L1846856

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Field Blank Data Qualification Summary - SDG L1846856

No Sample Data Qualified in this SDG

LDC #: 43888H2b **VALIDATION COMPLETENESS WORKSHEET** Date: 12/19/18
SDG #: L1846856 ~~ADR~~ Stage2B Page: 1 of 1
Laboratory: Alpha Analytical, Inc. Reviewer: SW
2nd Reviewer:

METHOD: GC/MS 1,4-Dioxane (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	ICAL ≤ 15% ICV ≤ 20
IV.	Continuing calibration	A	CCV ≤ 20/50%
V.	Laboratory Blanks	~~N~~ A	
VI.	Field blanks	N	
VII.	Surrogate spikes	~~N~~ A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	~~N~~ A	LCS/D
X.	Field duplicates	N	
XI.	Internal standards	~~N~~ A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	~~N~~ A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
+ 1	A1-MW-07-SA2	L1846856-01	Water	11/14/18
— 2	A1-MW-23-SA2	L1846856-02	Water	11/14/18
+ 3	A1-MW-25-SA2	L1846856-03	Water	11/14/18
+ 4	A1-MW-27-SA2	L1846856-04	Water	11/14/18
— 5	A1-MW-55-SA2	L1846856-05	Water	11/14/18
— 6	A1-MW-54-SA2	L1846856-06	Water	11/14/18
7				
8				
9				

Notes:

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Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS Yuma, CTO 17F3803

LDC Report Date: December 20, 2018

Parameters: 1,4-Dioxane

Validation Level: Stage 2B

Laboratory: Alpha Analytical, Inc.

Sample Delivery Group (SDG): L1847243

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
A1-MW-11-SA2	L1847243-01	Water	11/15/18
A1-MW-13-SA2	L1847243-02	Water	11/15/18
A1-MW-14-SA2	L1847243-03	Water	11/15/18
A1-MW-15-SA2	L1847243-04	Water	11/15/18
A1-MW-37-SA2	L1847243-05	Water	11/15/18
A1-MW-37-SA2D	L1847243-06	Water	11/15/18
A1-MW-31-SA2	L1847243-07	Water	11/15/18

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona (April 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), and a modified outline of the USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

1,4-Dioxane by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0%.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

No field blanks were identified in this SDG.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

IX. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

X. Field Duplicates

Samples A1-MW-37-SA2 and A1-MW-37-SA2D were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ng/L)		RPD (Limits)	Flag	A or P
	A1-MW-37-SA2	A1-MW-37-SA2D			
1,4-Dioxane	13100	13200	1 (≤30)	-	-

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Stage 2B validation.

XIV. System Performance

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable.

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Data Qualification Summary - SDG L1847243

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG L1847243

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Field Blank Data Qualification Summary - SDG L1847243

No Sample Data Qualified in this SDG

LDC #: 43888I2b

SDG #: L1847243

Laboratory: Alpha Analytical, Inc.

VALIDATION COMPLETENESS WORKSHEET

ADR Stage 2B

Date: 12/19/18

Page: 1 of 1

Reviewer: JM

2nd Reviewer:

METHOD: GC/MS 1,4-Dioxane (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	ICAL ≤ 15% ICV ≤ 20%
IV.	Continuing calibration	A	CCV ≤ 20/50%
V.	Laboratory Blanks	~~N~~ A	
VI.	Field blanks	N	
VII.	Surrogate spikes	~~N~~ A	
VIII.	Matrix spike/Matrix spike duplicates	N	
IX.	Laboratory control samples	~~N~~ A	LCS/D
X.	Field duplicates	SW	D = 5/6
XI.	Internal standards	~~N~~ A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	~~N~~ A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID		Lab ID	Matrix	Date
1	A1-MW-11-SA2		L1847243-01	Water	11/15/18
2	A1-MW-13-SA2		L1847243-02	Water	11/15/18
3	A1-MW-14-SA2		L1847243-03	Water	11/15/18
4	A1-MW-15-SA2		L1847243-04	Water	11/15/18
5	A1-MW-37-SA2	D	L1847243-05	Water	11/15/18
6	A1-MW-37-SA2D	D	L1847243-06	Water	11/15/18
7	A1-MW-31-SA2		L1847243-07	Water	11/15/18
8					
9					

Notes:

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(EB - on hold)

LDC#: 43888I2b

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: JVG
2nd Reviewer:

METHOD: GCMS 1,4-Dioxane (EPA SW 846 Method 8270D-SIM)

Y N NA Were field duplicate pairs identified in this SDG?
Y N NA Were target analytes detected in the field duplicate pairs?

Compound	Concentration (ng/L)		RPD (≤30%)	Qualifications (Parent only)
	5	6		
1,4-Dioxane	13100	13200	1	

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Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS Yuma, CTO 17F3803

LDC Report Date: December 20, 2018

Parameters: 1,4-Dioxane

Validation Level: Stage 2B

Laboratory: Alpha Analytical, Inc.

Sample Delivery Group (SDG): L1847316

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
A1-MW-01-SA2	L1847316-01	Water	11/16/18
A1-MW-42-SA2	L1847316-02	Water	11/16/18
EB-20181116	L1847316-03	Water	11/16/18
A1-MW-01-SA2MS	L1847316-01MS	Water	11/16/18
A1-MW-01-SA2MSD	L1847316-01MSD	Water	11/16/18

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona (April 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), and a modified outline of the USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

1,4-Dioxane by Environmental Protection Agency (EPA) SW 846 Method 8270D in Selected Ion Monitoring (SIM) mode

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0%.

Average relative response factors (RRF) were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample EB-20181116 was identified as an equipment blank. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

No field duplicates were identified in this SDG.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Stage 2B validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Stage 2B validation.

XIV. System Performance

Raw data were not reviewed for Stage 2B validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable.

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Data Qualification Summary - SDG L1847316

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG L1847316

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
1,4-Dioxane - Field Blank Data Qualification Summary - SDG L1847316

No Sample Data Qualified in this SDG

LDC #: 43888J2b

VALIDATION COMPLETENESS WORKSHEET

~~ADR~~ Stage2B

Date: 2/19/19

SDG #: L1847316

Page: 1 of 1

Laboratory: Alpha Analytical, Inc.

Reviewer: JVG

2nd Reviewer:

METHOD: GC/MS 1,4-Dioxane (EPA SW 846 Method 8270D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	ICAL ≤ 15%. ICV ≤ 20%
IV.	Continuing calibration	A	CCV ≤ 20%/50%.
V.	Laboratory Blanks	~~X~~ A	
VI.	Field blanks	ND	EB = 3
VII.	Surrogate spikes	~~X~~ A	
VIII.	Matrix spike/Matrix spike duplicates	~~X~~ A	
IX.	Laboratory control samples	~~X~~ A	LCS
X.	Field duplicates	N	
XI.	Internal standards	~~X~~ A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	~~X~~ A	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER:

	Client ID	Lab ID	Matrix	Date
+ 1	A1-MW-01-SA2	L1847316-01	Water	11/16/18
+ 2	A1-MW-42-SA2	L1847316-02	Water	11/16/18
− 3	EB-20181116	L1847316-03	Water	11/16/18
4	A1-MW-01-SA2MS	L1847316-01MS	Water	11/16/18
5	A1-MW-01-SA2MSD	L1847316-01MSD	Water	11/16/18
6				
7				
8				

Notes:

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Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name: MCAS Yuma, CTO 17F3803

LDC Report Date: January 2, 2019

Parameters: Perfluoroalkyl & Polyfluoroalkyl Substances

Validation Level: Stage 4

Laboratory: Vista Analytical Laboratory

Sample Delivery Group (SDG): 1803615

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
A1-MW-04-SA2	1803615-01	Water	11/12/18
A1-MW-05-SA2	1803615-02	Water	11/12/18
A1-MW-49-SA2	1803615-03	Water	11/12/18
A1-MW-50-SA2	1803615-04	Water	11/12/18
A1-MW-50-SA2D	1803615-05	Water	11/12/18
A1-MW-51-SA2	1803615-06	Water	11/12/18
A1-MW-52-SA2	1803615-07	Water	11/12/18
FRB-20181112	1803615-08	Water	11/12/18
A1-PZ-19-SA2	1803615-09	Water	11/12/18
A1-MW-50-SA2MS	1803615-04MS	Water	11/12/18
A1-MW-50-SA2MSD	1803615-04MSD	Water	11/12/18

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Sampling and Analysis Plan for Groundwater Long-Term Monitoring Program at Operable Unit-1 Area 1, Marine Corps Air Station Yuma, Arizona (April 2018), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.1 (2017), and a modified outline of the USEPA National Functional Guidelines (NFG) for Superfund Organic Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) by Environmental Protection Agency (EPA) Method 537

All sample results were subjected to Stage 4 data validation, which is comprised of the quality control (QC) summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.

U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. LC/MS Instrument Performance Check

Instrument performance was checked and the requirements were met.

III. Initial Calibration and Initial Calibration Verification

Initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination (r^2) was greater than or equal to 0.990.

For each calibration standard, all compounds were less than or equal to 30% of their true value.

The signal to noise (S/N) ratio was within validation criteria for all compounds.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds.

The signal to noise (S/N) ratio was within validation criteria for all compounds.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample FRB-20181112 was identified as a field rinsate blank. No contaminants were found.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

VIII. Ongoing Precision Recovery

Ongoing precision recovery (OPR) samples were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

IX. Field Duplicates

Samples A1-MW-50-SA2 and A1-MW-50-SA2D were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	A1-MW-50-SA2	A1-MW-50-SA2D			
PFTeDA	0.0250	0.0264	5 (≤30)	-	-
PFHxA	0.0806	0.0829	3 (≤30)	-	-
PFHpA	0.00474	0.00494	Not calculable	-	-
PFHxS	0.0367	0.0355	3 (≤30)	-	-
PFOA	0.00947	0.00878	Not calculable	-	-

RPDs were not calculated when sample results in one or both samples were less than 5x the limit of quantitation (LOQ).

X. Labeled Compounds

All percent recoveries (%R) for labeled compounds used to quantitate target compounds were within QC limits.

XI. Compound Quantitation

All compound quantitations met validation criteria.

The laboratory indicated that the parent/product transition ion ratios met laboratory requirements with the following exceptions:

Sample	Compound	Finding
A1-MW-05-SA2 A1-MW-50-SA2 A1-PZ-19-SA2	All compounds qualified 'Q' by the laboratory	The parent/product transition ion ratio was outside of the 70-130% laboratory limits.

Since there are no established transition ion ratio requirements in the validation documents for this project, using professional judgment, no data were qualified.

All compounds reported below the limit of quantitation (LOQ) were qualified as follows:

Sample	Finding	Flag	A or P
A1-MW-04-SA2 A1-MW-05-SA2 A1-MW-49-SA2 A1-MW-50-SA2 A1-MW-50-SA2D A1-MW-51-SA2 A1-MW-52-SA2 A1-PZ-19-SA2	All compounds reported below the LOQ.	J (all detects)	A

XII. Target Compound Identifications

All target compound identifications met validation criteria.

XIII. System Performance

The system performance was acceptable.

XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to results below the LOQ, data were qualified as estimated in eight samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable.

MCAS Yuma, CTO 17F3803
Perfluoroalkyl & Polyfluoroalkyl Substances - Data Qualification Summary - SDG 1803615

Sample	Compound	Flag	A or P	Reason
A1-MW-04-SA2 A1-MW-05-SA2 A1-MW-49-SA2 A1-MW-50-SA2 A1-MW-50-SA2D A1-MW-51-SA2 A1-MW-52-SA2 A1-PZ-19-SA2	All compounds reported below the LOQ.	J (all detects)	A	Compound quantitation

MCAS Yuma, CTO 17F3803
Perfluoroalkyl & Polyfluoroalkyl Substances - Laboratory Blank Data Qualification Summary - SDG 1803615

No Sample Data Qualified in this SDG

MCAS Yuma, CTO 17F3803
Perfluoroalkyl & Polyfluoroalkyl Substances - Field Blank Data Qualification Summary - SDG 1803615

No Sample Data Qualified in this SDG

LDC #: 43888K96 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/19/18

SDG #: 1803615 ADR/Stage 4 Page: 1 of 1

Laboratory: Vista Analytical Laboratory Reviewer: SVG

2nd Reviewer:

METHOD: LC/MS Perfluoroalkyl & Polyfluoroalkyl Substances (EPA Method 537)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A, A	
II.	LC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A, A	ICAL ~~≤~~ r² Individual ≤30% ICV ≤ 30%
IV.	Continuing calibration/ISC	A	CCV ≤ 30% True value
V.	Laboratory Blanks	A	Not reviewed for ADR validation.
VI.	Field blanks	ND	FRB = 8
VII.	Matrix spike/Matrix spike duplicates	A	Not reviewed for ADR validation.
VIII.	Laboratory control samples	A	Not reviewed for ADR validation. OPR
IX.	Field duplicates	SW	D = 4/5
X.	Labeled Compounds	A	Not reviewed for ADR validation.
XI.	Compound quantitation RL/LOQ/LODs	SW	Not reviewed for ADR validation.
XII.	Target compound identification	A	Not reviewed for ADR validation.
XIII.	System performance	A	Not reviewed for ADR validation.
XIV.	Overall assessment of data	A	Not reviewed for ADR validation.

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; SB=Source blank; OTHER: FRB = Field Rinsate Blk

** Indicates sample underwent Stage 4 validation

	Client ID	Lab ID	Matrix	Date
1	A1-MW-04-SA2**	1803615-01**	Water	11/12/18
2	A1-MW-05-SA2**	1803615-02**	Water	11/12/18
3	A1-MW-49-SA2**	1803615-03**	Water	11/12/18
4	A1-MW-50-SA2**	1803615-04**	Water	11/12/18
5	A1-MW-50-SA2D**	1803615-05**	Water	11/12/18
6	A1-MW-51-SA2**	1803615-06**	Water	11/12/18
7	A1-MW-52-SA2**	1803615-07**	Water	11/12/18
8	FRB-20181112	1803615-08	Water	11/12/18
9	A1-MW-19-SA2**	1803615-09**	Water	11/12/18
10	A1-MW-50-SA2MS	1803615-04MS	Water	11/12/18
11	A1-MW-50-SA2MSD	1803615-04MSD	Water	11/12/18
12				
13				
14	B8K0091-BLK1			
15				

LDC #: 43888 K96

VALIDATION FINDINGS CHECKLIST

Reviewer: SK
2nd Reviewer: [illegible]

Method: LCMS (EPA Method 537 Modified)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	✓			
Was cooler temperature criteria met?	✓			
II. LC/MS Instrument performance check				
Were the instrument performance reviewed and found to be within the validation criteria?	✓			
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?			✓	
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit criteria of ≥ 0.990?	✓			
Were all analytes within 70-130% or percent differences (%D) ≤30% of their true value for each calibration standard?	✓			
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	✓			
Were all percent differences (%D) < 30%?	✓			
IV. Continuing calibration				
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) of the continuing calibration < 30%?	✓			
Was the signal to noise (S/N) ratio for all compounds within the validation criteria?	✓			
Were all percent differences (%D) of the Instrument Sensitivity Check < 30%?	✓			
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	✓			
Was a laboratory blank analyzed for each matrix and concentration?	✓			
Was there contamination in the laboratory blanks?		✓		
VI. Field blanks				
Were field blanks identified in this SDG?	✓			
Were target compounds detected in the field blanks?		✓		
VIII. Matrix spike/Matrix spike duplicates				
Were matrix spike (MS) and matrix spike duplicate (MSD) analyzed in this SDG?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
IX. Laboratory control samples				
Was an LCS analyzed per extraction batch for this SDG?	✓			

Validation Area	Yes	No	NA	Findings/Comments
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	✓			
Were target compounds detected in the field duplicates?	✓			
XI. Labeled compounds				
Were labeled compound percent recoveries (%R) within the QC limits?	✓			
XII. Compound quantitation				
Did the laboratory reporting limits (RL) meet the QAPP RLs?	✓			
Did reported results include both branched and linear isomers?	✓			
Were the correct ion transition, labeled compound and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Target compound identification				
Were two transitions and the ion transition ratio per analyte monitored and documented with the exception of PFBA and PFPeA?	✓			
XIV. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			

TARGET COMPOUND WORKSHEET

METHOD: PFAS

A. PFHxA			
B. PFHpA			
C. PFOA			
D. PFNA			
E. PFDA			
F. PFUnA			
G. PFDoA			
H. PFTriA			
I. PFTeDA			
J. PFBS			
K. PFHxS			
L. PFHpS			
M. PFOS			
N. PFDS			
O. FOSA			
P. PFBA			
Q. PFPeA			
R. 6:2FTS			
S. 8:2FTS			
T. MeFOSAA			
U. EtFOSAA			
V. Combined PFOAS/PFOS			

LDC#: 43888K96

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: JVG
2nd Reviewer:

METHOD: LCMS PFAS (EPA Method 537M)

Y N NA Were field duplicate pairs identified in this SDG?
Y N NA Were target analytes detected in the field duplicate pairs?

Compound	Concentration (ug/L)		RPD (≤30%)	Qualifications (Parent only)
	4	5		
J	0.0250	0.0264	5	
A	0.0806	0.0829	3	
B	0.00474	0.00494	NC	
K	0.0367	0.0355	3	
C	0.00947	0.00878	NC	

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LDC #: 43888K96

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and Reported RLs

Reviewer: JVG
2nd Reviewer: A

METHOD: LCMS PFAS (EPA Method 537M)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?

Y N N/A Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?

#	Samples	Compound	Finding	Qualifications
	2, 4, 9	All compounds qualified "Q" by the lab.	The laboratory indicated that the parent/product transition ion ratio was outside of the 70-130% laboratory limits.	Since there are no established transition ion ratio requirements in the validation documents for this project, using professional judgment, no data were qualified.

Comments: See sample calculation verification worksheet for recalculations

LDC # 43888K96

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: JVG
2nd Reviewer:

METHOD: LC/MS PFCs (EPA Method 537Mod)

Calibration Date	Instrument	Compound	Standard	(Y) Response ratio	(X) Conc. Ratio	(X^2) Conc. Ratio
11/19/2018	SCN960	PFOA	1	0.0327	0.02	0.00040
			2	0.0593	0.04	0.0016
		13C2-PFOA	3	0.1197	0.08	0.0064
			4	0.2358	0.16	0.0256
			5	0.5699	0.40	0.1600
			6	1.0165	0.80	0.6400
			7	5.1296	4.00	16.0000
			8	10.3516	8.00	64.0000
			9	25.6395	20.00	400.0000
			10	51.9892	40.00	1600.0000

Regression Output	**Calculated**		***Reported WQR***	
Constant	*c*	*0.03180*	*c*	*0.1398430*
Std Err of Y Est				
R Squared		*0.9999917*		*0.9999030*
Degrees of Freedom				
	m1	*m2*	*m1*	*m2*
X Coefficient(s)	*1.2736124*	*0.0006421*	*1.2814700*	*0.000032442*
Std Err of Coef.				
Correlation Coefficient		*0.999996*		
Coefficient of Determination (r^2)		*0.999992*		

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

METHOD: LC/MS PFCs (EPA Method 537Mod)

Calibration Date	System	Compound	Standard	(Y) Area ratio	(X) Conc ratio
11/19/2018	SCN960	PFOS	1	0.02405	0.020
			2	0.04028	0.040
			3	0.00828	0.080
		13C8-PFOS	4	0.15076	0.160
			5	0.42475	0.400
			6	0.84488	0.800
			7	4.25487	4.000
			8	8.43628	8.000
			9	21.03584	20.000
			10	43.32010	40.000

Regression Output	Calculated	Reported WLR
Constant	-0.073380	-0.0118865
Std Err of Y Est		
R Squared	0.999854	0.999775
Degrees of Freedom		
X Coefficient(s)	1.07855632	1.069710
Std Err of Coef.		
Correlation Coefficient	0.999927	
Coefficient of Determination (r^2)	0.999854	0.999775

LDC # 43888K96

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Calculation Verification

Reviewer: JVG
2nd Reviewer:

METHOD: LC/MS PFAs (EPA Method 537Mod)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = (Ax)(Cis)/(Ais)(Cx)

Where:
ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
Ax = Area of compound
Cx = Concentration of compound,
Ais = Area of associated internal standard
Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound	(IS)	Conc	Reported	Recalculated	Reported % R	Recalculated % R
1	181120M1_58	11/20/2018	PFOA	(13C2-PFOA)	1.00	1.139	1.139	113.9	113.9
			PFOS	(13C8-PFOS)	1.00	1.092	1.092	109.2	109.2

LDC #: 43888k9G

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: JVG
2nd Reviewer:

METHOD: LC/MS PFAS (EPA Method 537Mod)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentation

RPD = I MSC - MSC I * 2/(MSC + MSDC) MSC = Matrix spike concentration MSDC = Matrix spike duplicate concentration

MS/MSD samples: 10/11

Compound	Spike Added (ng/L)		Sample Conc (ng/L)	Spiked Sample Concentration (ng/L)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalc
PFOA	0.0567	0.0863	0.00947	0.112	0.110	118	118	116	116	1.71	1.80
PFOS	↓	↓	0	0.0954	0.0910	110	110	105	105	4.65	4.72

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 43888K96

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample/ Sample Duplicates Results Verification

Page: 1 of 1
Reviewer: JVG
2nd Reviewer:

METHOD: LC/MS PFCs (EPA Method 537Mod)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration
SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: BSK0091-BS1

Compound	Spike Added (ng/L)		Spike Concentration (ng/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc..
PFOS	0.0800	~~0.086~~ NA	0.0864	NA	108	108				
PFOA	"	"	0.0969	"	119	119				

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 43888 K96

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: JVG
2nd reviewer:

METHOD: LC/MS PFAS (EPA Method 537M)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x = Area of the characteristic ion (EICP) for the compound to be measured

A_{is} = Area of the characteristic ion (EICP) for the specific internal standard

I_s = Amount of internal standard added in nanograms (ng)

V_o = Volume or weight of sample extract in milliliters (ml) or grams (g).

V_i = Volume of extract injected in microliters (ul)

V_t = Volume of the concentrated extract in microliters (ul)

Df = Dilution Factor.

%S = Percent solids, applicable to soil and solid matrices only.

2.0 = Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 1 , PFOA :

Conc. $= \frac{(437)(12.5)}{(5070)} = 3.24421e-5X^2 + 1.28147X + 0.B9843$

$X = 0.73163$

final conc. $= \frac{(0.73163)(1L)}{(0.113454)(1000)}$

$= 0.00645$ ng/L

#	Sample ID	Compound	Reported Concentration (ug/L)	Calculated Concentration ( )	Qualification
			0.00646		

LOCATION-NAME	SITE_NAME	INSTALLATION_ID	LOCATION_TYPE	LOCATION_TYPE_DESC	SDG	COORD_X	COORD_Y	ANALYTICAL_METHOD_GRP_DESC	SAMPLE_NAME	SAMPLE_MATRIX	SAMPLE_MATRIC_DESC	COLLECT_DATE
16-HS-03	SITE 00019	YUMA_MCAS	WLM	Monitoring well	1803626	441712.6895	605539.6474	Perfluoroalkyl Compounds	16-HS-03-SA2	WG	GROUNDWATER	11/13/2018
16-MW-06	SITE 00019	YUMA_MCAS	WLM	Monitoring well	1803626	442562.7747	605123.5928	Perfluoroalkyl Compounds	16-MW-06-SA2	WG	GROUNDWATER	11/13/2018
16-MW-08	SITE 00019	YUMA_MCAS	WLM	Monitoring well	1803626	442128.793	605331.0117	Perfluoroalkyl Compounds	16-MW-08-SA2	WG	GROUNDWATER	11/13/2018
16-MW-09	SITE 00019	YUMA_MCAS	WLM	Monitoring well	1803626	442254.0975	605368.0231	Perfluoroalkyl Compounds	16-MW-09-SA2	WG	GROUNDWATER	11/13/2018
A1-MW-18	SITE 00019	YUMA_MCAS	WLM	Monitoring well	1803626	442390.7249	605493.1429	Perfluoroalkyl Compounds	A1-MW-18-SA2	WG	GROUNDWATER	11/13/2018
A1-MW-19	SITE 00019	YUMA_MCAS	WLM	Monitoring well	1803626	442155.8248	605599.4029	Perfluoroalkyl Compounds	A1-MW-19-SA2	WG	GROUNDWATER	11/13/2018
A1-MW-53	OU 0000001 AREA 1	YUMA_MCAS	WLM	Monitoring well	1803626	436340.185	606920.256	Perfluoroalkyl Compounds	A1-MW-53-SA2	WG	GROUNDWATER	11/13/2018