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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 1801054

Marine Corps Air Station Yuma
Yuma, Arizona

November 2019

APPROVED FOR PUBLIC RELEASE: DISTRIBUTION UNLIMITED

June 12, 2018

Vista Work Order No. 1801054

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 May 26, 2018. This sample set was analyzed on a rush turn-around time, 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. 1801054
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

Sample "A1-PZ-19-SA1" contained particulate and was centrifuged prior to extraction.

The samples were extracted and analyzed for a selected list of PFAS using the PFAS Isotope Dilution Method (Modified EPA Method 537).

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 Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above 1/2 the LOQ. The recovery of PFTrDA was > 130% in the OPR. This analyte was not detected in the samples. The recoveries of all other analytes were within the method acceptance criteria.

As requested, an MS/MSD was performed on sample "A1-MW-53-SA1". The MS/MSD recoveries and/or RPDs were out of the acceptance criteria for PFBS, PFHxA, PFHxS, MeFOSAA and PFTrDA.

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

QC Anomalies

LabNumber	SampleName	Analysis	Analyte	Flag	%Rec
1801054-01	A1-MW-42-SA1	PFAS Isotope Dilution Method	13C3-PFBS	H	310
1801054-02	A1-MW-54-SA1	PFAS Isotope Dilution Method	13C3-PFBS	H	175
1801054-03	A1-MW-53-SA1	PFAS Isotope Dilution Method	13C3-PFBS	H	154
1801054-04	A1-PZ-19-SA1	PFAS Isotope Dilution Method	13C3-PFBS	H	182
1801054-05	A1-MW-52-SA1	PFAS Isotope Dilution Method	13C3-PFBS	H	211
1801054-06	A1-MW-01-SA1	PFAS Isotope Dilution Method	13C3-PFBS	H	192
1801054-07	A1-MW-01-SA1D	PFAS Isotope Dilution Method	13C3-PFBS	H	204
1801054-08	A1-MW-31-SA1	PFAS Isotope Dilution Method	13C3-PFBS	H	254
B8E0244-MS2	B8E0244-MS2	PFAS Isotope Dilution Method	13C3-PFBS	H	169
B8E0244-MSD2	B8E0244-MSD2	PFAS Isotope Dilution Method	13C3-PFBS	H	161

H = Recovery was outside laboratory acceptance criteria.

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Sample Inventory Report

Vista Sample ID	Client Sample ID		Sampled	Received	Components/Containers
1801054-01	A1-MW-42-SA1		25-May-18 07:56	26-May-18 09:54	HDPE Bottle, 125 mL
					HDPE Bottle, 125 mL
1801054-02	A1-MW-54-SA1		25-May-18 09:09	26-May-18 09:54	HDPE Bottle, 125 mL
					HDPE Bottle, 125 mL
1801054-03	A1-MW-53-SA1	MS/MSD	25-May-18 10:14	26-May-18 09:54	HDPE Bottle, 125 mL
					HDPE Bottle, 125 mL
					HDPE Bottle, 125 mL
					HDPE Bottle, 125 mL
					HDPE Bottle, 125 mL
					HDPE Bottle, 125 mL
1801054-04	A1-PZ-19-SA1		25-May-18 11:59	26-May-18 09:54	HDPE Bottle, 125 mL
					HDPE Bottle, 125 mL
1801054-05	A1-MW-52-SA1		25-May-18 13:00	26-May-18 09:54	HDPE Bottle, 125 mL
					HDPE Bottle, 125 mL
1801054-06	A1-MW-01-SA1		25-May-18 13:56	26-May-18 09:54	HDPE Bottle, 125 mL
					HDPE Bottle, 125 mL
1801054-07	A1-MW-01-SA1D		25-May-18 14:06	26-May-18 09:54	HDPE Bottle, 125 mL
					HDPE Bottle, 125 mL
1801054-08	A1-MW-31-SA1		25-May-18 14:49	26-May-18 09:54	HDPE Bottle, 125 mL
					HDPE Bottle, 125 mL
1801054-09	FRB-20180525		25-May-18 15:30	26-May-18 09:54	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: B8E0244-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	0.00179	0.00500	0.00800	U	B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
PFHxA	307-24-4	ND	0.00218	0.00500	0.00800	U	B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
PFHpA	375-85-9	ND	0.000591	0.00500	0.00800	U	B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
PFHxS	355-46-4	ND	0.000947	0.00500	0.00800	U	B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
PFOA	335-67-1	ND	0.000651	0.00500	0.00800	U	B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
PFNA	375-95-1	ND	0.000810	0.00500	0.00800	U	B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
PFOS	1763-23-1	ND	0.000807	0.00500	0.00800	U	B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
PFDA	335-76-2	ND	0.00149	0.00500	0.00800	U	B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
MeFOSAA	2355-31-9	ND	0.00165	0.00500	0.00800	U	B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
EtFOSAA	2991-50-6	ND	0.00137	0.00500	0.00800	U	B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
PFUnA	2058-94-8	ND	0.00105	0.00500	0.00800	U	B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
PFDoA	307-55-1	ND	0.000792	0.00500	0.00800	U	B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
PFTrDA	72629-94-8	ND	0.000494	0.00500	0.00800	U	B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
PFTeDA	376-06-7	ND	0.000755	0.00500	0.00800	U	B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	104	50 - 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
13C2-PFHxA	IS	93.6	50 - 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
13C4-PFHpA	IS	99.6	50 - 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
18O2-PFHxS	IS	90.8	50 - 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
13C2-PFOA	IS	83.7	50 - 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
13C5-PFNA	IS	84.2	50 - 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
13C8-PFOS	IS	102	50 - 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
13C2-PFDA	IS	72.9	50 - 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
d3-MeFOSAA	IS	50.6	50 - 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
d5-EtFOSAA	IS	62.6	50 - 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
13C2-PFUnA	IS	65.3	50 - 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
13C2-PFDoA	IS	91.4	50 - 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1
13C2-PFTeDA	IS	91.8	50 - 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:41	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

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

Client Data

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

Laboratory Data

Lab Sample: B8E0244-BS1
Column: BEH C18

Analyte	CAS Number	Amt Found (ug/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.0918	0.0800	115	70 - 130		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
PFHxA	307-24-4	0.0944	0.0800	118	70 - 130		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
PFHpA	375-85-9	0.0843	0.0800	105	70 - 130		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
PFHxS	355-46-4	0.0883	0.0800	110	70 - 130		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
PFOA	335-67-1	0.0941	0.0800	118	70 - 130		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
PFNA	375-95-1	0.0850	0.0800	106	70 - 130		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
PFOS	1763-23-1	0.0880	0.0800	110	70 - 130		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
PFDA	335-76-2	0.0850	0.0800	106	70 - 130		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
MeFOSAA	2355-31-9	0.0993	0.0800	124	70 - 130		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
EtFOSAA	2991-50-6	0.0885	0.0800	111	70 - 130		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
PFUnA	2058-94-8	0.0836	0.0800	105	70 - 130		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
PFDoA	307-55-1	0.100	0.0800	125	70 - 130		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
PFTrDA	72629-94-8	0.122	0.0800	153	70 - 130	H	B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
PFTeDA	376-06-7	0.0926	0.0800	116	70 - 130		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1

Labeled Standards	Type	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	115	50- 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
13C2-PFHxA	IS	94.9	50- 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
13C4-PFHpA	IS	103	50- 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
18O2-PFHxS	IS	92.1	50- 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
13C2-PFOA	IS	84.6	50- 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
13C5-PFNA	IS	89.9	50- 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
13C8-PFOS	IS	83.6	50- 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
13C2-PFDA	IS	84.3	50- 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
d3-MeFOSAA	IS	63.3	50- 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
d5-EtFOSAA	IS	62.7	50- 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
13C2-PFUnA	IS	76.2	50- 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
13C2-PFDoA	IS	90.4	50- 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1
13C2-PFTeDA	IS	92.7	50- 150		B8E0244	31-May-18	0.125 L	07-Jun-18 17:30	1

Sample ID: A1-MW-42-SA1

PFAS Isotope Dilution Method

Client Data

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

Matrix: Water
Date Collected: 25-May-18 07:56

Laboratory Data

Lab Sample: 1801054-01
Date Received: 26-May-18 09:54

Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.292	0.00198	0.00553	0.00887		B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
PFHxA	307-24-4	0.819	0.00242	0.00553	0.00887		B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
PFHpA	375-85-9	0.0248	0.000655	0.00553	0.00887		B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
PFHxS	355-46-4	0.147	0.00105	0.00553	0.00887		B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
PFOA	335-67-1	0.0243	0.000721	0.00553	0.00887		B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
PFNA	375-95-1	ND	0.000898	0.00553	0.00887	U	B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
PFOS	1763-23-1	0.00186	0.000894	0.00553	0.00887	J	B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
PFDA	335-76-2	ND	0.00165	0.00553	0.00887	U	B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
MeFOSAA	2355-31-9	ND	0.00183	0.00553	0.00887	U	B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
EtFOSAA	2991-50-6	ND	0.00152	0.00553	0.00887	U	B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
PFUnA	2058-94-8	ND	0.00116	0.00553	0.00887	U	B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
PFDoA	307-55-1	ND	0.000878	0.00553	0.00887	U	B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
PFTrDA	72629-94-8	ND	0.000547	0.00553	0.00887	U	B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
PFTeDA	376-06-7	ND	0.000837	0.00553	0.00887	U	B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	310	50 - 150	H	B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
13C2-PFHxA	IS	97.8	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
13C4-PFHpA	IS	100	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
18O2-PFHxS	IS	101	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
13C2-PFOA	IS	81.4	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
13C5-PFNA	IS	90.3	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
13C8-PFOS	IS	83.4	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
13C2-PFDA	IS	83.4	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
d3-MeFOSAA	IS	141	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
d5-EtFOSAA	IS	126	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
13C2-PFUnA	IS	63.6	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
13C2-PFDoA	IS	117	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1
13C2-PFTeDA	IS	139	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 22:34	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: A1-MW-54-SA1

PFAS Isotope Dilution Method

Client Data

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

Matrix: Water
Date Collected: 25-May-18 09:09

Laboratory Data

Lab Sample: 1801054-02
Date Received: 26-May-18 09:54

Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.536	0.00200	0.00558	0.00892		B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
PFHxA	307-24-4	1.50	0.00243	0.00558	0.00892		B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
PFHpA	375-85-9	0.0638	0.000659	0.00558	0.00892		B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
PFHxS	355-46-4	0.606	0.00106	0.00558	0.00892		B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
PFOA	335-67-1	0.0715	0.000726	0.00558	0.00892		B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
PFNA	375-95-1	ND	0.000903	0.00558	0.00892	U	B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
PFOS	1763-23-1	0.00652	0.000900	0.00558	0.00892	J	B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
PFDA	335-76-2	ND	0.00166	0.00558	0.00892	U	B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
MeFOSAA	2355-31-9	ND	0.00184	0.00558	0.00892	U	B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
EtFOSAA	2991-50-6	ND	0.00153	0.00558	0.00892	U	B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
PFUnA	2058-94-8	ND	0.00117	0.00558	0.00892	U	B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
PFDoA	307-55-1	ND	0.000883	0.00558	0.00892	U	B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
PFTrDA	72629-94-8	ND	0.000551	0.00558	0.00892	U	B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
PFTeDA	376-06-7	ND	0.000842	0.00558	0.00892	U	B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	175	50 - 150	H	B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
13C2-PFHxA	IS	93.1	50 - 150		B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
13C4-PFHpA	IS	96.6	50 - 150		B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
18O2-PFHxS	IS	101	50 - 150		B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
13C2-PFOA	IS	81.2	50 - 150		B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
13C5-PFNA	IS	87.1	50 - 150		B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
13C8-PFOS	IS	83.3	50 - 150		B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
13C2-PFDA	IS	95.2	50 - 150		B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
d3-MeFOSAA	IS	97.9	50 - 150		B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
d5-EtFOSAA	IS	117	50 - 150		B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
13C2-PFUnA	IS	78.8	50 - 150		B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
13C2-PFDoA	IS	102	50 - 150		B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1
13C2-PFTeDA	IS	113	50 - 150		B8E0244	31-May-18	0.112 L	07-Jun-18 22:44	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: A1-MW-53-SA1

PFAS Isotope Dilution Method

Client Data

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

Matrix: Water
Date Collected: 25-May-18 10:14

Laboratory Data

Lab Sample: 1801054-03
Date Received: 26-May-18 09:54

Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.551	0.00196	0.00548	0.00878		B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
PFHxA	307-24-4	1.46	0.00239	0.00548	0.00878		B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
PFHpA	375-85-9	0.0606	0.000649	0.00548	0.00878		B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
PFHxS	355-46-4	0.505	0.00104	0.00548	0.00878		B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
PFOA	335-67-1	0.0616	0.000714	0.00548	0.00878		B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
PFNA	375-95-1	ND	0.000889	0.00548	0.00878	U	B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
PFOS	1763-23-1	0.00188	0.000886	0.00548	0.00878	J	B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
PFDA	335-76-2	ND	0.00164	0.00548	0.00878	U	B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
MeFOSAA	2355-31-9	ND	0.00181	0.00548	0.00878	U	B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
EtFOSAA	2991-50-6	ND	0.00150	0.00548	0.00878	U	B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
PFUnA	2058-94-8	ND	0.00115	0.00548	0.00878	U	B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
PFDoA	307-55-1	ND	0.000869	0.00548	0.00878	U	B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
PFTrDA	72629-94-8	ND	0.000542	0.00548	0.00878	U	B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
PFTeDA	376-06-7	ND	0.000829	0.00548	0.00878	U	B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	154	50 - 150	H	B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
13C2-PFHxA	IS	94.9	50 - 150		B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
13C4-PFHpA	IS	101	50 - 150		B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
18O2-PFHxS	IS	93.3	50 - 150		B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
13C2-PFOA	IS	82.7	50 - 150		B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
13C5-PFNA	IS	81.4	50 - 150		B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
13C8-PFOS	IS	90.0	50 - 150		B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
13C2-PFDA	IS	76.1	50 - 150		B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
d3-MeFOSAA	IS	90.1	50 - 150		B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
d5-EtFOSAA	IS	94.7	50 - 150		B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
13C2-PFUnA	IS	66.9	50 - 150		B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
13C2-PFDoA	IS	76.4	50 - 150		B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1
13C2-PFTeDA	IS	97.7	50 - 150		B8E0244	31-May-18	0.114 L	07-Jun-18 22:55	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: A1-MW-53-SA1 **PFAS Isotope Dilution Method**

Name:	Tetra Tech EC, Inc.	Lab Sample:	B8E0244-MS2/B8E0244-MSD2	Source Lab Sample:	1801054-03
Project:	4663.3803	QC Batch:	B8E0244	Date Extracted:	31-May-18
Matrix:	Aqueous	Samp Size:	0.111/0.115 L	Column:	BEH C18

Analyte	CAS Number	Sample (ug/L)	MS (ug/L)	MS Spike Amt	MS % Rec	MS Quals	MSD (ug/L)	MSD Spike Amt	MSD % Rec	RPD	MSD Quals	%Rec Limits	RPD Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
PFBS	375-73-5	0.551	0.648	0.0899	108		0.583	0.0869	37.7	96.5	H	70-130	30	07-Jun-18 18:12	1	06-Jun-18 02:45	1
PFHxA	307-24-4	1.46	1.67	0.0899	232	H	1.61	0.0869	175	28.0	H	70-130	30	07-Jun-18 18:12	1	06-Jun-18 02:45	1
PFHpA	375-85-9	0.0606	0.159	0.0899	109		0.158	0.0869	112	2.71		70-130	30	07-Jun-18 18:12	1	06-Jun-18 02:45	1
PFHxS	355-46-4	0.505	0.631	0.0899	141	H	0.555	0.0869	58.4	82.8	H	70-130	30	07-Jun-18 18:12	1	06-Jun-18 02:45	1
PFOA	335-67-1	0.0616	0.164	0.0899	114		0.159	0.0869	112	1.77		70-130	30	07-Jun-18 18:12	1	06-Jun-18 02:45	1
PFNA	375-95-1	ND	0.0933	0.0899	104		0.0908	0.0869	104	0		70-130	30	07-Jun-18 18:12	1	06-Jun-18 02:45	1
PFOS	1763-23-1	0.00188	0.0963	0.0899	105		0.0939	0.0869	106	0.948		70-130	30	07-Jun-18 18:12	1	06-Jun-18 02:45	1
PFDA	335-76-2	ND	0.114	0.0899	127		0.0907	0.0869	104	19.9		70-130	30	07-Jun-18 18:12	1	06-Jun-18 02:45	1
MeFOSAA	2355-31-9	ND	0.104	0.0899	115		0.0717	0.0869	82.5	32.9	H	70-130	30	07-Jun-18 18:12	1	06-Jun-18 02:45	1
EtFOSAA	2991-50-6	ND	0.0889	0.0899	98.9		0.0746	0.0869	85.9	14.1		70-130	30	07-Jun-18 18:12	1	06-Jun-18 02:45	1
PFUnA	2058-94-8	ND	0.105	0.0899	117		0.0957	0.0869	110	6.17		70-130	30	07-Jun-18 18:12	1	06-Jun-18 02:45	1
PFDoA	307-55-1	ND	0.106	0.0899	118		0.105	0.0869	121	2.51		70-130	30	07-Jun-18 18:12	1	06-Jun-18 02:45	1
PFTrDA	72629-94-8	ND	0.127	0.0899	141	H	0.128	0.0869	148	4.84	H	70-130	30	07-Jun-18 18:12	1	06-Jun-18 02:45	1
PFTeDA	376-06-7	ND	0.103	0.0899	115		0.100	0.0869	115	0		70-130	30	07-Jun-18 18:12	1	06-Jun-18 02:45	1

Labeled Standards	Type	MS % Rec	MS Quals	MSD % Rec	MSD Quals	Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
13C3-PFBS	IS	169	H	161	H	50-150	07-Jun-18 18:12	1	06-Jun-18 02:45	1
13C2-PFHxA	IS	94.8		97.5		50-150	07-Jun-18 18:12	1	06-Jun-18 02:45	1
13C4-PFHpA	IS	106		99.1		50-150	07-Jun-18 18:12	1	06-Jun-18 02:45	1
18O2-PFHxS	IS	90.1		98.4		50-150	07-Jun-18 18:12	1	06-Jun-18 02:45	1
13C2-PFOA	IS	78.3		80.2		50-150	07-Jun-18 18:12	1	06-Jun-18 02:45	1
13C5-PFNA	IS	83.4		89.7		50-150	07-Jun-18 18:12	1	06-Jun-18 02:45	1
13C8-PFOS	IS	101		90.1		50-150	07-Jun-18 18:12	1	06-Jun-18 02:45	1
13C2-PFDA	IS	69.9		73.2		50-150	07-Jun-18 18:12	1	06-Jun-18 02:45	1
d3-MeFOSAA	IS	74.4		97.4		50-150	07-Jun-18 18:12	1	06-Jun-18 02:45	1
d5-EtFOSAA	IS	80.4		104		50-150	07-Jun-18 18:12	1	06-Jun-18 02:45	1
13C2-PFUnA	IS	72.6		68.4		50-150	07-Jun-18 18:12	1	06-Jun-18 02:45	1
13C2-PFDoA	IS	87.8		63.0		50-150	07-Jun-18 18:12	1	06-Jun-18 02:45	1
13C2-PFTeDA	IS	109		83.0		50-150	07-Jun-18 18:12	1	06-Jun-18 02:45	1

Sample ID: A1-PZ-19-SA1

PFAS Isotope Dilution Method

Client Data

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

Matrix: Water
Date Collected: 25-May-18 11:59

Laboratory Data

Lab Sample: 1801054-04
Date Received: 26-May-18 09:54

Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.0152	0.00191	0.00534	0.00852		B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
PFHxA	307-24-4	0.0403	0.00232	0.00534	0.00852		B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
PFHpA	375-85-9	0.00326	0.000629	0.00534	0.00852	J	B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
PFHxS	355-46-4	0.0114	0.00101	0.00534	0.00852		B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
PFOA	335-67-1	0.00756	0.000693	0.00534	0.00852	J	B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
PFNA	375-95-1	ND	0.000863	0.00534	0.00852	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
PFOS	1763-23-1	0.00115	0.000860	0.00534	0.00852	J	B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
PFDA	335-76-2	ND	0.00159	0.00534	0.00852	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
MeFOSAA	2355-31-9	ND	0.00176	0.00534	0.00852	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
EtFOSAA	2991-50-6	ND	0.00146	0.00534	0.00852	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
PFUnA	2058-94-8	ND	0.00112	0.00534	0.00852	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
PFDoA	307-55-1	ND	0.000844	0.00534	0.00852	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
PFTrDA	72629-94-8	ND	0.000526	0.00534	0.00852	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
PFTeDA	376-06-7	ND	0.000804	0.00534	0.00852	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	182	50 - 150	H	B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
13C2-PFHxA	IS	96.9	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
13C4-PFHpA	IS	91.3	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
18O2-PFHxS	IS	92.7	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
13C2-PFOA	IS	81.8	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
13C5-PFNA	IS	87.3	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
13C8-PFOS	IS	84.8	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
13C2-PFDA	IS	79.8	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
d3-MeFOSAA	IS	95.1	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
d5-EtFOSAA	IS	100	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
13C2-PFUnA	IS	65.9	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
13C2-PFDoA	IS	98.8	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1
13C2-PFTeDA	IS	117	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:05	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: A1-MW-52-SA1

PFAS Isotope Dilution Method

Client Data

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

Matrix: Water
Date Collected: 25-May-18 13:00

Laboratory Data

Lab Sample: 1801054-05
Date Received: 26-May-18 09:54

Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.146	0.00194	0.00543	0.00869		B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
PFHxA	307-24-4	0.421	0.00237	0.00543	0.00869		B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
PFHpA	375-85-9	0.0175	0.000642	0.00543	0.00869		B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
PFHxS	355-46-4	0.101	0.00103	0.00543	0.00869		B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
PFOA	335-67-1	0.0299	0.000707	0.00543	0.00869		B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
PFNA	375-95-1	ND	0.000880	0.00543	0.00869	U	B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
PFOS	1763-23-1	ND	0.000876	0.00543	0.00869	U	B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
PFDA	335-76-2	ND	0.00162	0.00543	0.00869	U	B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
MeFOSAA	2355-31-9	ND	0.00179	0.00543	0.00869	U	B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
EtFOSAA	2991-50-6	ND	0.00149	0.00543	0.00869	U	B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
PFUnA	2058-94-8	ND	0.00114	0.00543	0.00869	U	B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
PFDoA	307-55-1	ND	0.000860	0.00543	0.00869	U	B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
PFTrDA	72629-94-8	ND	0.000537	0.00543	0.00869	U	B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
PFTeDA	376-06-7	ND	0.000820	0.00543	0.00869	U	B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	211	50 - 150	H	B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
13C2-PFHxA	IS	97.0	50 - 150		B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
13C4-PFHpA	IS	98.3	50 - 150		B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
18O2-PFHxS	IS	104	50 - 150		B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
13C2-PFOA	IS	82.2	50 - 150		B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
13C5-PFNA	IS	91.3	50 - 150		B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
13C8-PFOS	IS	89.6	50 - 150		B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
13C2-PFDA	IS	96.5	50 - 150		B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
d3-MeFOSAA	IS	97.1	50 - 150		B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
d5-EtFOSAA	IS	111	50 - 150		B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
13C2-PFUnA	IS	70.2	50 - 150		B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
13C2-PFDoA	IS	109	50 - 150		B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1
13C2-PFTeDA	IS	123	50 - 150		B8E0244	31-May-18	0.115 L	07-Jun-18 23:16	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: A1-MW-01-SA1

PFAS Isotope Dilution Method

Client Data

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

Matrix: Water
Date Collected: 25-May-18 13:56

Laboratory Data

Lab Sample: 1801054-06
Date Received: 26-May-18 09:54

Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.0524	0.00203	0.00568	0.00907		B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
PFHxA	307-24-4	0.101	0.00247	0.00568	0.00907		B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
PFHpA	375-85-9	0.00225	0.000670	0.00568	0.00907	J	B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
PFHxS	355-46-4	0.0230	0.00107	0.00568	0.00907		B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
PFOA	335-67-1	ND	0.000738	0.00568	0.00907	U	B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
PFNA	375-95-1	ND	0.000919	0.00568	0.00907	U	B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
PFOS	1763-23-1	ND	0.000915	0.00568	0.00907	U	B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
PFDA	335-76-2	ND	0.00169	0.00568	0.00907	U	B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
MeFOSAA	2355-31-9	ND	0.00187	0.00568	0.00907	U	B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
EtFOSAA	2991-50-6	ND	0.00155	0.00568	0.00907	U	B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
PFUnA	2058-94-8	ND	0.00119	0.00568	0.00907	U	B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
PFDoA	307-55-1	ND	0.000898	0.00568	0.00907	U	B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
PFTrDA	72629-94-8	ND	0.000560	0.00568	0.00907	U	B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
PFTeDA	376-06-7	ND	0.000856	0.00568	0.00907	U	B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	192	50 - 150	H	B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
13C2-PFHxA	IS	99.2	50 - 150		B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
13C4-PFHpA	IS	101	50 - 150		B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
18O2-PFHxS	IS	99.4	50 - 150		B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
13C2-PFOA	IS	81.1	50 - 150		B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
13C5-PFNA	IS	82.3	50 - 150		B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
13C8-PFOS	IS	87.2	50 - 150		B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
13C2-PFDA	IS	76.4	50 - 150		B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
d3-MeFOSAA	IS	90.2	50 - 150		B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
d5-EtFOSAA	IS	115	50 - 150		B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
13C2-PFUnA	IS	66.1	50 - 150		B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
13C2-PFDoA	IS	96.2	50 - 150		B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1
13C2-PFTeDA	IS	116	50 - 150		B8E0244	31-May-18	0.110 L	07-Jun-18 23:26	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: A1-MW-01-SA1D

PFAS Isotope Dilution Method

Client Data

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

Matrix: Water
Date Collected: 25-May-18 14:06

Laboratory Data

Lab Sample: 1801054-07
Date Received: 26-May-18 09:54

Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.0557	0.00191	0.00534	0.00854		B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
PFHxA	307-24-4	0.0971	0.00233	0.00534	0.00854		B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
PFHpA	375-85-9	0.00273	0.000631	0.00534	0.00854	J	B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
PFHxS	355-46-4	0.0238	0.00101	0.00534	0.00854		B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
PFOA	335-67-1	ND	0.000695	0.00534	0.00854	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
PFNA	375-95-1	ND	0.000864	0.00534	0.00854	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
PFOS	1763-23-1	ND	0.000861	0.00534	0.00854	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
PFDA	335-76-2	ND	0.00159	0.00534	0.00854	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
MeFOSAA	2355-31-9	ND	0.00176	0.00534	0.00854	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
EtFOSAA	2991-50-6	ND	0.00146	0.00534	0.00854	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
PFUnA	2058-94-8	ND	0.00112	0.00534	0.00854	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
PFDoA	307-55-1	ND	0.000845	0.00534	0.00854	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
PFTrDA	72629-94-8	ND	0.000527	0.00534	0.00854	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
PFTeDA	376-06-7	ND	0.000806	0.00534	0.00854	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	204	50 - 150	H	B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
13C2-PFHxA	IS	94.4	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
13C4-PFHpA	IS	93.7	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
18O2-PFHxS	IS	90.9	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
13C2-PFOA	IS	84.5	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
13C5-PFNA	IS	91.7	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
13C8-PFOS	IS	95.0	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
13C2-PFDA	IS	77.7	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
d3-MeFOSAA	IS	109	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
d5-EtFOSAA	IS	126	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
13C2-PFUnA	IS	69.8	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
13C2-PFDoA	IS	87.5	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1
13C2-PFTeDA	IS	113	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:37	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: A1-MW-31-SA1

PFAS Isotope Dilution Method

Client Data

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

Matrix: Water
Date Collected: 25-May-18 14:49

Laboratory Data

Lab Sample: 1801054-08
Date Received: 26-May-18 09:54

Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	0.0634	0.00198	0.00553	0.00887		B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
PFHxA	307-24-4	0.182	0.00242	0.00553	0.00887		B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
PFHpA	375-85-9	0.00851	0.000655	0.00553	0.00887	J	B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
PFHxS	355-46-4	0.0448	0.00105	0.00553	0.00887		B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
PFOA	335-67-1	0.0111	0.000722	0.00553	0.00887		B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
PFNA	375-95-1	ND	0.000898	0.00553	0.00887	U	B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
PFOS	1763-23-1	ND	0.000895	0.00553	0.00887	U	B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
PFDA	335-76-2	ND	0.00165	0.00553	0.00887	U	B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
MeFOSAA	2355-31-9	ND	0.00183	0.00553	0.00887	U	B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
EtFOSAA	2991-50-6	ND	0.00152	0.00553	0.00887	U	B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
PFUnA	2058-94-8	ND	0.00116	0.00553	0.00887	U	B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
PFDoA	307-55-1	ND	0.000878	0.00553	0.00887	U	B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
PFTrDA	72629-94-8	ND	0.000548	0.00553	0.00887	U	B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
PFTeDA	376-06-7	ND	0.000837	0.00553	0.00887	U	B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	254	50 - 150	H	B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
13C2-PFHxA	IS	110	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
13C4-PFHpA	IS	110	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
18O2-PFHxS	IS	98.5	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
13C2-PFOA	IS	79.4	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
13C5-PFNA	IS	87.9	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
13C8-PFOS	IS	92.1	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
13C2-PFDA	IS	87.8	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
d3-MeFOSAA	IS	126	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
d5-EtFOSAA	IS	140	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
13C2-PFUnA	IS	65.1	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
13C2-PFDoA	IS	109	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1
13C2-PFTeDA	IS	122	50 - 150		B8E0244	31-May-18	0.113 L	07-Jun-18 23:47	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: FRB-20180525 **PFAS Isotope Dilution Method**

Client Data

Name: Tetra Tech EC, Inc.
Project: 4663.3803
Location: YUMA, AZ
Matrix: Water
Date Collected: 25-May-18 15:30

Laboratory Data

Lab Sample: 1801054-09
Date Received: 26-May-18 09:54
Column: BEH C18

Analyte	CAS Number	Conc. (ug/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	375-73-5	ND	0.00192	0.00534	0.00857	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
PFHxA	307-24-4	ND	0.00234	0.00534	0.00857	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
PFHpA	375-85-9	ND	0.000633	0.00534	0.00857	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
PFHxS	355-46-4	ND	0.00101	0.00534	0.00857	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
PFOA	335-67-1	ND	0.000698	0.00534	0.00857	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
PFNA	375-95-1	ND	0.000868	0.00534	0.00857	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
PFOS	1763-23-1	ND	0.000865	0.00534	0.00857	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
PFDA	335-76-2	ND	0.00160	0.00534	0.00857	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
MeFOSAA	2355-31-9	ND	0.00177	0.00534	0.00857	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
EtFOSAA	2991-50-6	ND	0.00147	0.00534	0.00857	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
PFUnA	2058-94-8	ND	0.00113	0.00534	0.00857	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
PFDoA	307-55-1	ND	0.000849	0.00534	0.00857	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
PFTrDA	72629-94-8	ND	0.000529	0.00534	0.00857	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
PFTeDA	376-06-7	ND	0.000809	0.00534	0.00857	U	B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C3-PFBS	IS	139	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
13C2-PFHxA	IS	94.2	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
13C4-PFHpA	IS	100	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
18O2-PFHxS	IS	99.3	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
13C2-PFOA	IS	82.3	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
13C5-PFNA	IS	81.9	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
13C8-PFOS	IS	89.9	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
13C2-PFDA	IS	76.2	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
d3-MeFOSAA	IS	62.0	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
d5-EtFOSAA	IS	62.6	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
13C2-PFUnA	IS	56.6	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
13C2-PFDoA	IS	72.9	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1
13C2-PFTeDA	IS	89.6	50 - 150		B8E0244	31-May-18	0.117 L	07-Jun-18 23:57	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.
When reported, PFHxS, PFOA and PFOS 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	17-015-0
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	2016026
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	4042-008
Pennsylvania Department of Environmental Protection	014
Texas Commission on Environmental Quality	T104704189-17-8
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.

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1801054 Temp: 1.8 °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
Spencer Doolittle	5/25/18	1600	MILLER O'HARE	5/25/18	1600
MILLER O'HARE	5/25/18	1615	FEDEX	5/26/18	1615 *

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
A1-MW-42-SA1	5/25/18	0756	YUMA, AZ	2	P	W			X						
A1-MW-54-SA1	5/25/18	0909	Yuma AZ	2	P	W			X						
A1-MW-53-SA1	5/25/18	1014	Yuma AZ	6	P	W			X						Run MS/MSD
A1-P2-19-SA1	5/25/18	1159	Yuma AZ	2	P	W			X						
A1-MW-52-SA1	5/25/18	1300	Yuma AZ	2	P	W			X						
A1-MW-01-SA1	5/25/18	1356	Yuma AZ	2	P	W			X						
A1-MW-01-SA1D	5/25/18	1406	Yuma AZ	2	P	W			X						
A1-MW-31-SA1	5/25/18	1449	Yuma AZ	2	P	W			X						
FRB-20180525	5/25/18	1530	Yuma AZ	2	P	W			X						

NFEPP

Special Instructions/Comments:
* RELINQUISHED BY FEDEX 0954 05/26/18
RECEIVED BY: KUM BURIC 1000 05/26/18

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: P

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

Vista Work Order #: 1801054 **TAT** 16

Samples Arrival:	**Date/Time** 05/26/18 0954	**Initials:** KE	**Location:** WR-2 **Shelf/Rack:** N/A
Logged In:	**Date/Time** 05/26/18 1538	**Initials:** KE	**Location:** WR-2 **Shelf/Rack:** E7

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

Temp °C: 1.9	(uncorrected)	**Time:** 1000	**Thermometer ID:** IR-4
Temp °C: 1.8	(corrected)	**Probe used: Yes☐ No☑**	

	YES	NO	NA
Adequate Sample Volume Received?	KE		
Holding Time Acceptable?	KE		
Shipping Container(s) Intact?	KE		
Shipping Custody Seals Intact?	KE		
Shipping Documentation Present?	KE		
Airbill — Trk # 7811 3855 7951	KE		
Sample Container Intact?	KE		
Sample Custody Seals Intact?			KE
Chain of Custody / Sample Documentation Present?	KE		
COC Anomaly/Sample Acceptance Form completed?		KE	KE

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

Comments:


ORIGIN ID:YUMA (619) 252-0460
MICHAEL OHARE

1230 COLUMBIA ST
STE 750
SAN DIEGO, CA 92101
UNITED STATES US

SHIP DATE: 25MAY18
ACTWGT: 33.10 LB
CAD: 006995180/SSFE1904
DIMS: 20x13x12 IN

BILL THIRD PARTY

Part # 156297-433 RMDG EAF 11/18

TO VISTA ANALYTICAL
VISTA ANALYTICAL
1104 WINDFIELD WAY

EL DORADO HILLS CA 95762
(916) 673-1520
INV:
PO:
REF:
DEPT:

FedEx Express

SATURDAY 12:00P
PRIORITY OVERNIGHT

TRK# 0201 7811 3855 7951

WO MHRA

95762
CA-US SMF

EXTRACTION INFORMATION

PRIORITY

Process Sheet

Workorder: 1801054

16-DAY TAT
RUSH

Prep Expiration: 2018-Jun-08
Client: Tetra Tech EC, Inc.

Workorder Due: 11-Jun-18 00:00

TAT: 16

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

Prep Batch: B8E0244

Prep Data Entered: HB 6/1/18
Date and Initials

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

Initial Sequence: 50F001a

LabSampID	A/B	Prep Rec	Spike Rec	ClientSampleID	Comments	Location	Container
1801054-01	A	☑	☒	A1-MW-42-SA1		WR-2 E-7	HDPE Bottle, 125 mL
1801054-02	↓	☑	☒	A1-MW-54-SA1		WR-2 E-7	HDPE Bottle, 125 mL
1801054-03	ABC	☑	☒	A1-MW-53-SA1	**MS/MSD**	WR-2 E-7	HDPE Bottle, 125 mL
1801054-04	A	☑	☒	A1-P2-19-SA1		WR-2 E-7	HDPE Bottle, 125 mL
1801054-05	↓	☑	☒	A1-MW-52-SA1		WR-2 E-7	HDPE Bottle, 125 mL
1801054-06		☑	☒	A1-MW-01-SA1		WR-2 E-7	HDPE Bottle, 125 mL
1801054-07		☑	☒	A1-MW-01-SA1D		WR-2 E-7	HDPE Bottle, 125 mL
1801054-08		☑	☒	A1-MW-31-SA1		WR-2 E-7	HDPE Bottle, 125 mL
1801054-09		☑	☒	FRB-20180525		WR-2 E-7	HDPE Bottle, 125 mL

Pre-Prep Check Out: LT 5/30/18
Pre-Prep Check In: LT 5/30/18

Prep Check Out: JR 5.31.18
Prep Check In: NA

Prep Reconciled Initals/Date: LT 5/30/18
Spike Reconciled Initals/Date: JR 5.31.18
VialBoxID: Lion King

Internal Chain of Custody

1801054

Vista Analytical Laboratory

Client: Tetra Tech EC, Inc. | Project Number: 4663.3803 | Received: 26-May-18 09:54 | 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
1801054-01	A/B	KE 5/27/18 1000 WR-2 E-7	LT 5/30/18 /11:15 Prep Lab 1	LT 5/30/18 /13:00 WR-2 Back-Wall	7R 5.31.18 /9:45 Prep lab 2	dm 6/5/18 1503 instrument	
1801054-02	A/B	KE 5/27/18 1000 WR-2 E-7	LT 5/30/18 /11:15 Prep lab 1	LT 5/30/18 /13:00 WR-2 Back-Wall			
1801054-03	A/B/C D/E/F	KE 5/27/18 1000 WR-2 E-7	LT 5/30/18 /11:15 Prep Lab 1	LT 5/30/18 /13:00 WR-2 Back-Wall			
1801054-04	A/B	KE 5/27/18 1000 WR-2 E-7	LT 5/30/18 /11:15 Prep Lab 1	LT 5/30/18 /13:00 WR-2 Back-Wall			
1801054-05	A/B	KE 5/27/18 1000 WR-2 E-7	LT 5/30/18 /11:15 Prep Lab 1	LT 5/30/18 /13:00 WR-2 Back-Wall			
1801054-06	A/B	KE 5/27/18 1000 WR-2 E-7	LT 5/30/18 /11:15 Prep Lab 1	LT 5/30/18 /13:00 WR-2 Back-Wall			
1801054-07	A/B	KE 5/27/18 1000 WR-2 E-7	LT 5/30/18 /11:15 Prep Lab 1	LT 5/30/18 /13:00 WR-2 Back-Wall			
1801054-08	A/B	KE 05/27/18 1000 WR-2 E-7	LT 5/30/18 /11:15 Prep Lab 1	LT 5/30/18 /13:00 WR-2 Back-Wall			
1801054-09	A/B	KE 05/27/18 1000 WR-2 E-7	LT 5/30/18 /11:15 Prep Lab 1	LT 5/30/18 /13:00 WR-2 Back-Wall			

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

PREPARATION BENCH SHEET

Matrix: Aqueous

Method: 537M PFAS DOD (LOQ as mRL)

B8E0244

Chemist: GRB

Prep Date: 5/31/18

Prep Time: 10:30

Prepared using: LCMS - SPE Extraction-LCMS

Date/Initals: LT 5/30/18 | BalanceID: HFMS-8

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	RS CHEM/WIT DATE
☐	B8E0244-BLK1 (B)	5	2	0	1	N/A	N/A	(0.125)	GRB 7R 5/31/18	GRB 5/31/18	GRB 7R 5/31/18
☐	B8E0244-BS1	5	2	0	1	↓	↓	(0.125)			
☐	B8E0244-MS1 1801037-06	6	2	0	3	137.41	27.13	0.11028			
☐	B8E0244-MS2 1801054-03	6	2	0	3	138.09	26.87	0.11122			
☐	B8E0244-MSD1 1801037-06	6	2	0	3	140.27	27.03	0.11324			
☐	B8E0244-MSD2 1801054-03	6	2	0	3	142.11	26.99	0.11512			
☐	1801037-01	6	2	0	2	139.74	27.09	~~0.11184~~ 0.11265 MB GRB			
☐	1801037-02	6	2	0	3	141.99	27.01	0.11493			
☐	1801037-03	5	2	0	2	145.39	27.07	0.11827			
☐	1801037-04	5	2	0	2	146.46	27.11	0.11915			
☐	1801037-05	6	2	0	2	143.05	27.10	0.11595			
☐	1801037-06	6	2	0	3	151.71	27.15	0.12466			
☐	1801037-07 (A)	6	2	0	2	141.92	27.12	0.11480			
☑	1801037-08	6	2	0	3	138.54	27.11	0.11143			
☐	1801037-09	5	2	0	1	149.32	27.13	0.11719			

IS: 18D2004, 10µL (V3)

IS SUP: NA

NS: 18E0923, 10µL (V5)

RS: 18D2005, 10µL (V3)

SPE Chem: Strata X-AW 33µm 200mg 6mL

Ele SOLV: MeOH/ 0.5% NH_4OH in MeOH

Final Volume(s) _____

Notes: (A) Light vacuum applied to simulate a gravity drip during elution 7R 5.31.18

(B) SUPELCO ENVI-CARB LOT NO. 10180601 USED. GRB 5/31/18

Comments: Assume 1 g = 1 mL

Cen = Centrifuged

PREPARATION BENCH SHEET

Matrix: Aqueous

Method: 537M PFAS DOD (LOQ as mRL)

B8E0244

Chemist: GRB

Prep Date: 5/31/18

Prep Time: 10:30

Prepared using: LCMS - SPE Extraction-LCMS

Date/Initals: LT 5/30/18 BalanceID: HRMS-8

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	RS CHEM/WIT DATE
☐	1801054-01 (B)	6	2	0	3	139.65	26.86	0.11279 ✓	GRB JR 5/31/18	GRB 5/31/18	GRB 5/31/18
☐	1801054-02	6	2	0	3	139.08	26.97	0.11241 ✓			
☐	1801054-03	6	2	0	3	140.75	26.85	0.11390 ✓			
☑	1801054-04	6	2	0	3	144.27	26.91	0.11736 ✓			
☐	1801054-05	6	2	0	3	142.97	27.88	0.11509 ✓			
☐	1801054-06	5	2	0	2	137.10	26.90	0.11020 ✓			
☐	1801054-07	5	2	0	2	144.11	26.96	0.11715 ✓			
☐	1801054-08	6	2	0	3	139.63	26.87	0.11276 ✓			
☐	1801054-09	5	2	0	1	143.54	26.91	0.11663 ✓			

IS: 18D2004, 10 µL (V3)

IS SUP: NA

NS: 18E0923, 10 µL (V5)

RS: 18D2005, 6 µL (V3)

SPE Chem: STRATA X-AW 33µm 200mg 6mL

Ele SOLV: MeOH / 0.5% NH_4OH in MeOH

Final Volume(s) _____

Notes:

(B) SUPELCO ENVI-CARB LOT NO. 10186D601 USED. GRB 5/31/18

Comments: Assume 1 g = 1 mL

Cen = Centrifuged

Batch: B8E0244

Matrix: Aqueous

LabNumber	WetWeight (Initial)	% Solids (Extraction Solids)	DryWeight	Final	Extracted	Ext By	Spike	SpikeAmount	ClientMatrix	Analysis
1801037-01	0.11265 ✓	NA	NA	1000	31-May-18 10:30	GRB			Water	537M PFAS DOD (LOQ as
1801037-02	0.11493 ✓			1000	31-May-18 10:30	GRB			Water	537M PFAS DOD (LOQ as
1801037-03	0.11827 ✓			1000	31-May-18 10:30	GRB			Water	537M PFAS DOD (LOQ as
1801037-04	0.11915 ✓			1000	31-May-18 10:30	GRB			Water	537M PFAS DOD (LOQ as
1801037-05	0.11595 ✓			1000	31-May-18 10:30	GRB			Water	537M PFAS DOD (LOQ as
1801037-06	0.12456 ✓			1000	31-May-18 10:30	GRB			Water	537M PFAS DOD (LOQ as
1801037-07	0.1148 ✓			1000	31-May-18 10:30	GRB			Water	537M PFAS DOD (LOQ as
1801037-08	0.11143 ✓			1000	31-May-18 10:30	GRB			Water	537M PFAS DOD (LOQ as
1801037-09	0.11719 ✓			1000	31-May-18 10:30	GRB			Water	537M PFAS DOD (LOQ as
1801054-01	0.11279 ✓			1000	31-May-18 10:30	GRB			Water	537M PFAS DOD (LOQ as
1801054-02	0.11211 ✓			1000	31-May-18 10:30	GRB			Water	537M PFAS DOD (LOQ as
1801054-03	0.1139 ✓			1000	31-May-18 10:30	GRB			Water	537M PFAS DOD (LOQ as
1801054-04	0.11736 ✓			1000	31-May-18 10:30	GRB			Water	537M PFAS DOD (LOQ as
1801054-05	0.11509 ✓			1000	31-May-18 10:30	GRB			Water	537M PFAS DOD (LOQ as
1801054-06	0.1102 ✓			1000	31-May-18 10:30	GRB			Water	537M PFAS DOD (LOQ as
1801054-07	0.11715 ✓			1000	31-May-18 10:30	GRB			Water	537M PFAS DOD (LOQ as
1801054-08	0.11276 ✓			1000	31-May-18 10:30	GRB			Water	537M PFAS DOD (LOQ as
1801054-09	0.11663 ✓			1000	31-May-18 10:30	GRB			Water	537M PFAS DOD (LOQ as
B8E0244-BLK1	0.125 ✓			1000	31-May-18 10:30	GRB				QC
B8E0244-BS1	0.125 ✓			1000	31-May-18 10:30	GRB	18E0923 ✓	10 ✓		QC
B8E0244-MS1	0.11028 ✓			1000	31-May-18 10:30	GRB	18E0923 ✓	10 ✓		QC
B8E0244-MS2	0.11122 ✓			1000	31-May-18 10:30	GRB	18E0923 ✓	10 ✓		QC
B8E0244-MSD1	0.11324 ✓			1000	31-May-18 10:30	GRB	18E0923 ✓	10 ✓		QC
B8E0244-MSD2	0.11512 ✓			1000	31-May-18 10:30	GRB	18E0923 ✓	10 ✓		QC

6/1/18

Printed: 6/1/2018 12:17:36PM

Sample Data – PFAS Isotope Dilution Method

Vista Analytical Laboratory

MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-21.qld

Last Altered: Monday, June 11, 2018 11:14:29 Pacific Daylight Time
Printed: Monday, June 11, 2018 11:16:35 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_21, Date: 07-Jun-2018, Time: 17:41:14, ID: B8E0244-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7		1.11e3	0.125		2.78						
2	5	PFHxA	313.2 > 268.9		2.97e3	0.125		3.28						
3	7	PFHpA	363.0 > 318.9		8.48e3	0.125		3.92						
4	8	L-PFHxS	398.9 > 79.6		8.64e2	0.125		4.04						
5	11	L-PFOA	413 > 368.7		1.13e4	0.125		4.43						
6	14	PFNA	463.0 > 418.8		8.66e3	0.125		4.68						
7	16	L-PFOS	499.1 > 79.9		2.37e3	0.125		4.93						
8	18	PFDA	513 > 468.8		9.79e3	0.125		5.05						
9	21	L-MeFOSAA	570.1 > 419		2.62e3	0.125		5.18						
10	23	L-EtFOSAA	584.2 > 419		3.58e3	0.125		5.37						

ANP 6/11/2018

Vista Analytical Laboratory

MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-21.qld

Last Altered: Monday, June 11, 2018 11:14:29 Pacific Daylight Time
Printed: Monday, June 11, 2018 11:16:43 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_21, Date: 07-Jun-2018, Time: 17:41:14, ID: B8E0244-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	25	PFUdA	563.0 > 518.9		9.80e3	0.125		5.37						
2	27	PFDoA	612.9 > 569.0		1.13e4	0.125		5.65						
3	28	N-MeFOSA	512.1 > 168.9			0.125		5.84						
4	29	PFTrDA	662.9 > 618.9		1.13e4	0.125		5.89						
5	30	PFTeDA	712.9 > 668.8		1.30e4	0.125		6.11						
6	36	13C3-PFBA	216.1 > 171.8	6.84e3	8.26e3	0.125	0.870	1.34	1.52	10.3	95.0903	95.1		
7	37	13C3-PFPeA	266. > 221.8	9.11e3	1.08e4	0.125	0.870	2.32	2.51	10.6	97.2989	97.3		
8	38	13C3-PFBS	302. > 98.8	1.11e3	1.08e4	0.125	0.099	2.60	2.79	1.28	104.2000	104.2		
9	39	13C2-4:2 FTS	329.2>308.9	2.23e3	1.08e4	0.125	0.265	3.01	3.19	2.59	78.0831	78.1		
10	40	13C2-PFHxA	315 > 269.8	2.97e3	1.08e4	0.125	0.737	3.10	3.29	3.45	37.4419	93.6		
11	41	13C4-PFHpA	367.2 > 321.8	8.48e3	1.08e4	0.125	0.791	3.71	3.92	9.84	99.5699	99.6		
12	42	18O2-PFHxS	403.0 > 102.6	8.64e2	2.15e3	0.125	0.442	3.86	4.06	5.01	90.7577	90.8		
13	43	13C2-6:2 FTS	429.1 > 408.9	2.32e3	1.05e4	0.125	0.306	4.18	4.39	2.76	72.0567	72.1		
14	44	13C2-PFOA	414.9 > 369.7	1.13e4	1.05e4	0.125	1.285	4.23	4.45	13.5	83.7377	83.7		
15	45	13C5-PFNA	468.2 > 422.9	8.66e3	1.10e4	0.125	0.930	4.67	4.88	9.80	84.2445	84.2		
16	46	13C8-PFOSA	506.1 > 77.7	2.03e3	1.47e4	0.125	0.237	4.74	4.94	1.72	57.9607	58.0		
17	47	13C8-PFOS	507.0 > 79.9	2.37e3	2.23e3	0.125	1.039	4.75	4.96	13.3	102.3443	102.3		
18	48	13C2-PFDA	515.1 > 469.9	9.79e3	1.17e4	0.125	1.144	5.04	5.26	10.4	72.8582	72.9		
19	49	13C2-8:2 FTS	529.1 > 508.7	1.51e3	1.08e4	0.125	0.215	5.01	5.23	1.75	64.8996	64.9		
20	50	d3-N-MeFOSAA	573.3 > 419	2.62e3	1.47e4	0.125	0.351	5.19	5.41	2.22	50.6014	50.6		
21	51	d5-N-EtFOSAA	589.3 > 419	3.58e3	1.47e4	0.125	0.388	5.35	5.56	3.04	62.6080	62.6		
22	52	13C2-PFUdA	565 > 519.8	9.80e3	1.47e4	0.125	1.019	5.37	5.58	8.32	65.2964	65.3		
23	53	13C2-PFDoA	615.0 > 569.7	1.13e4	1.17e4	0.125	1.057	5.65	5.86	12.1	91.4222	91.4		
24	54	d3-N-MeFOSA	515.2 > 168.9		1.47e4	0.125	0.107	5.87						
25	55	13C2-PFTeDA	714.8 > 669.6	1.30e4	1.47e4	0.125	0.964	6.11	6.31	11.1	91.7865	91.8		
26	56	d5-N-ETFOSA	531.1 > 168.9		1.47e4	0.125	0.157	6.25						
27	57	13C2-PFHxDA	815 > 769.7	7.26e3	1.47e4	0.125	1.562	6.45	6.61	6.16	31.5425	78.9		
28	58	d7-N-MeFOSE	623.1 > 58.9		1.47e4	0.125	0.147	6.37						
29	59	d9-N-EtFOSE	639.2 > 58.8		1.47e4	0.125	0.149	6.52						
30	60	13C4-PFBA	217. > 171.8	8.26e3	8.26e3	0.125	1.000	1.33	1.51	12.5	100.0000	100.0		
31	61	13C5-PFHxA	318 > 272.9	1.08e4	1.08e4	0.125	1.000	3.09	3.29	12.5	100.0000	100.0		
32	62	13C3-PFHxS	401.9 > 79.9	2.15e3	2.15e3	0.125	1.000	3.87	4.07	12.5	100.0000	100.0		ANP 6/11/2018

Vista Analytical Laboratory

MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-21.qld

Last Altered: Monday, June 11, 2018 11:14:29 Pacific Daylight Time
Printed: Monday, June 11, 2018 11:16:43 Pacific Daylight Time

Name: 180607M2_21, Date: 07-Jun-2018, Time: 17:41:14, ID: B8E0244-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
33	63	13C8-PFOA	421.3 > 376	1.05e4	1.05e4	0.125	1.000	4.24	4.45	12.5	100.0000	100.0		
34	64	13C9-PFNA	472.2 > 426.9	1.10e4	1.10e4	0.125	1.000	4.67	4.88	12.5	100.0000	100.0		
35	65	13C4-PFOS	503 > 79.9	2.23e3	2.23e3	0.125	1.000	4.75	4.96	12.5	100.0000	100.0		
36	66	13C6-PFDA	519.1 > 473.7	1.17e4	1.17e4	0.125	1.000	5.04	5.25	12.5	100.0000	100.0		
37	67	13C7-PFUdA	570.1 > 524.8	1.47e4	1.47e4	0.125	1.000	5.37	5.58	12.5	100.0000	100.0		
38	68	Total PFHxS	398.9 > 79.6	0.00e0	8.64e2	0.125		4.05		0.000				
39	69	Total PFOA	413 > 368.7	0.00e0	1.13e4	0.125		4.30		0.000				
40	70	Total PFOS	499.1 > 79.9	0.00e0	2.37e3	0.125		4.90		0.000				
41	71	Total N-MeFOSAA	570.1 > 419	0.00e0	2.62e3	0.125		5.55		0.000				
42	72	Total N-EtFOSAA	584.2 > 419	0.00e0	3.58e3	0.125		5.70		0.000				

ANP 6/11/2018

Vista Analytical Laboratory

MM 6/11/2018

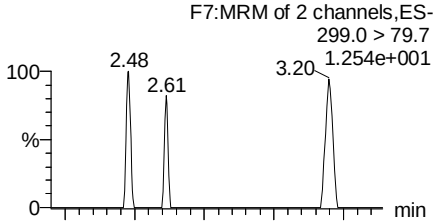
Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-21.qld

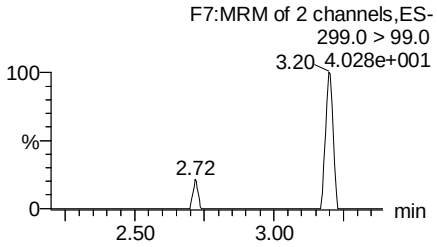
Last Altered: Monday, June 11, 2018 11:14:29 Pacific Daylight Time
Printed: Monday, June 11, 2018 11:16:43 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

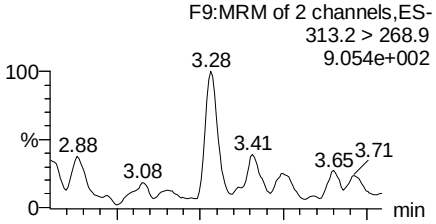
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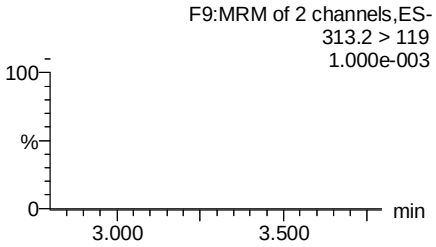
PFBS



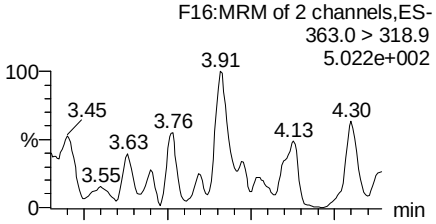


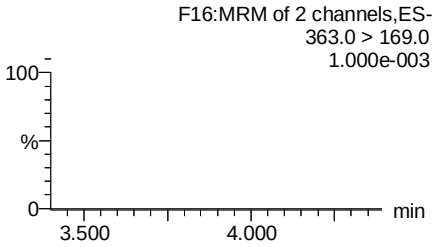
PFHxA



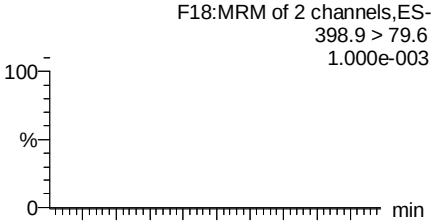


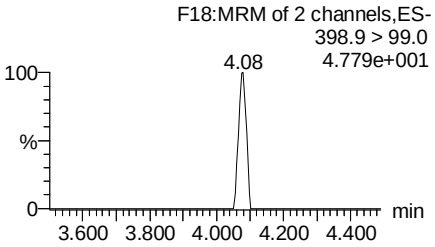
PFHpA



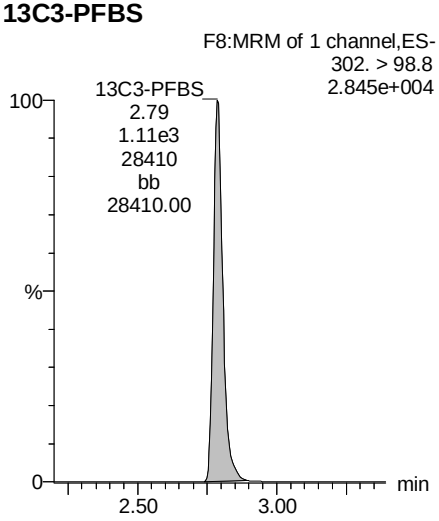


Total PFHxS

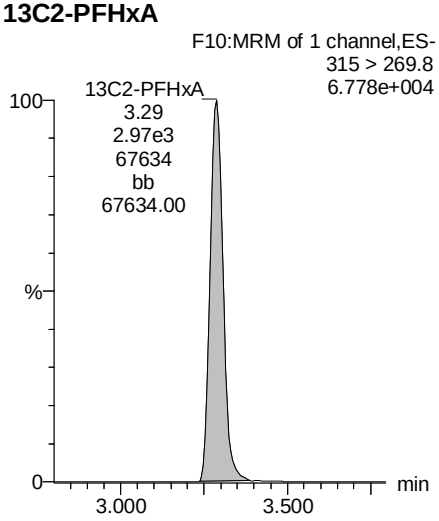




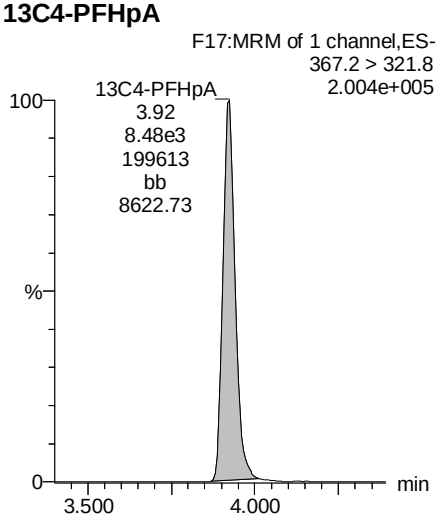
13C3-PFBS



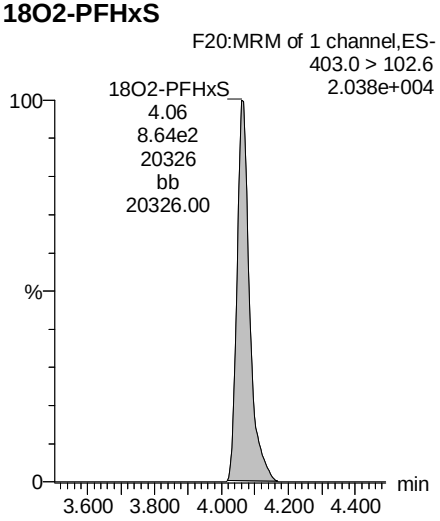
13C2-PFHxA



13C4-PFHpA



18O2-PFHxS



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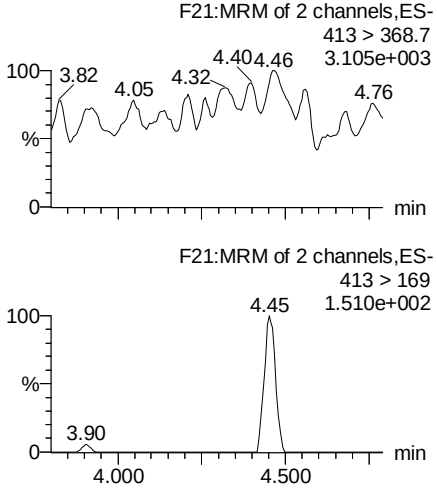
MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-21.qld

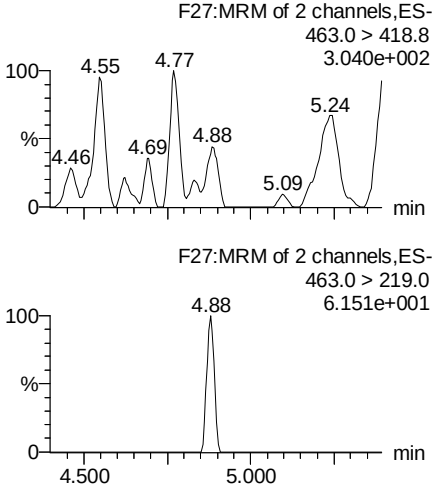
Last Altered: Monday, June 11, 2018 11:14:29 Pacific Daylight Time
Printed: Monday, June 11, 2018 11:16:43 Pacific Daylight Time

Name: 180607M2_21, Date: 07-Jun-2018, Time: 17:41:14, ID: B8E0244-BLK1 Method Blank 0.125, Description: Method Blank

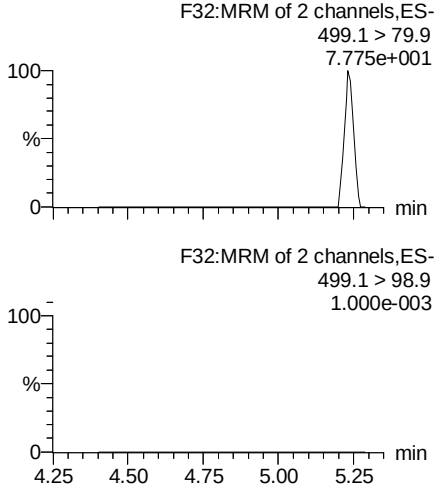
Total PFOA



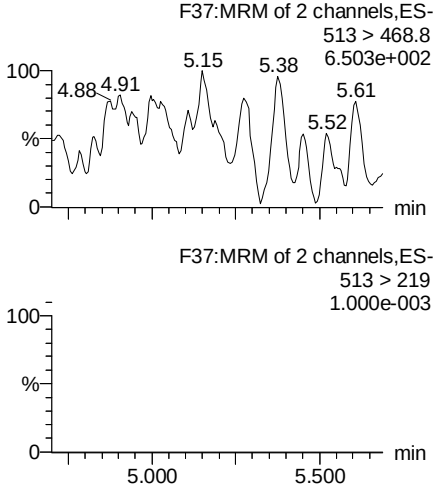
PFNA



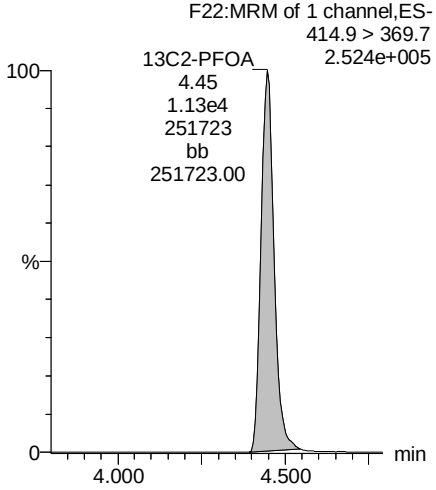
Total PFOS



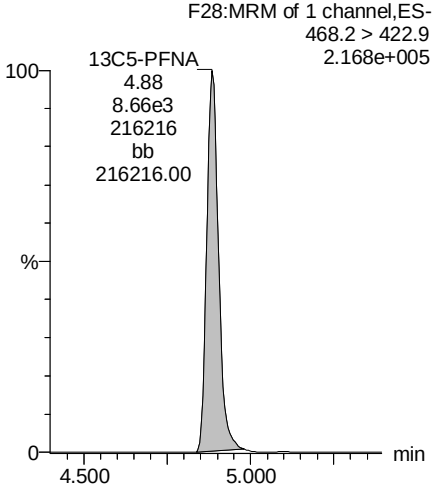
PFDA



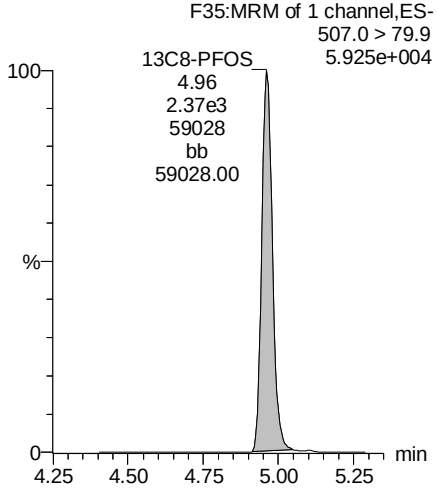
13C2-PFOA



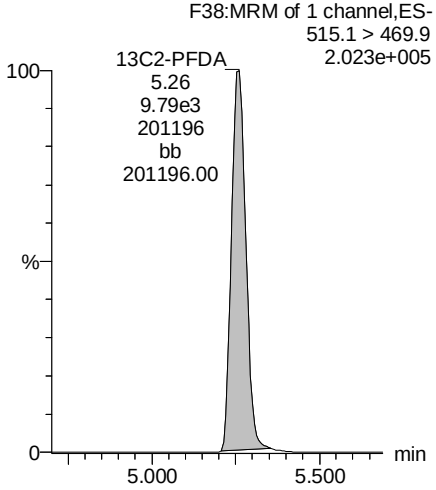
13C5-PFNA



13C8-PFOS



13C2-PFDA



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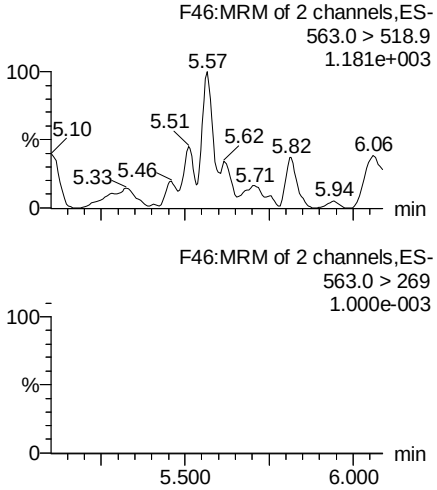
MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-21.qld

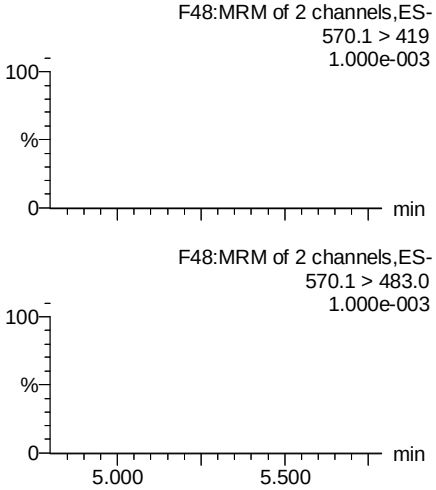
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Printed: Monday, June 11, 2018 11:16:43 Pacific Daylight Time

Name: 180607M2_21, Date: 07-Jun-2018, Time: 17:41:14, ID: B8E0244-BLK1 Method Blank 0.125, Description: Method Blank

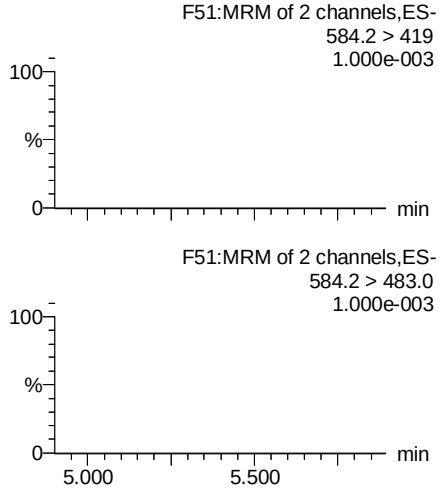
PFUdA



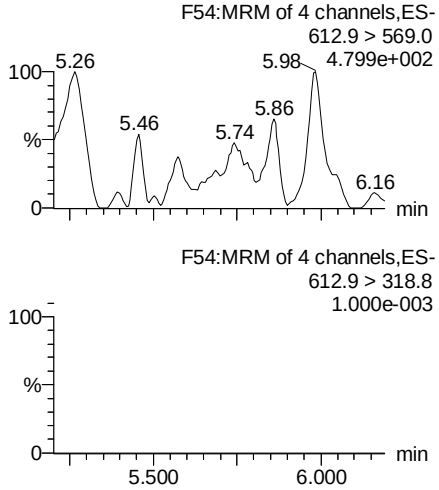
Total N-MeFOSAA



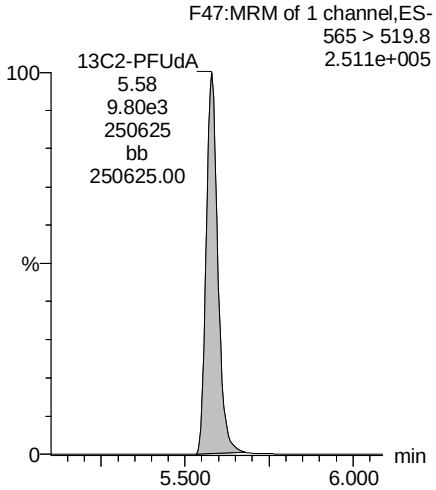
Total N-EtFOSAA



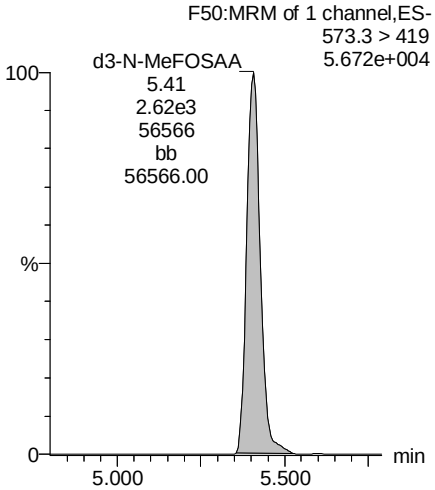
PFDoA



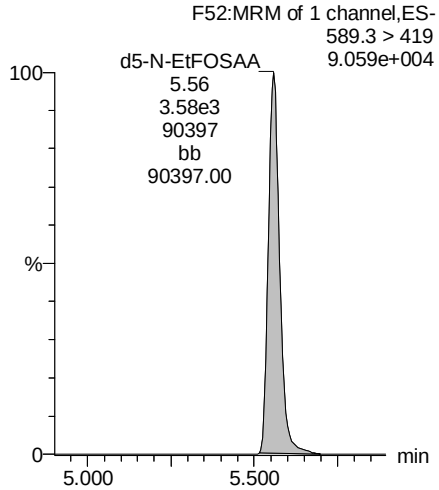
13C2-PFUdA



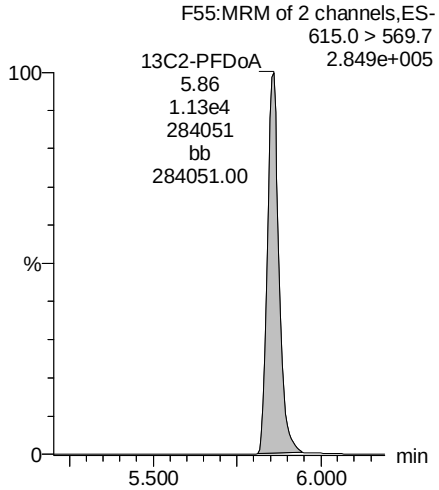
d3-N-MeFOSAA



d5-N-EtFOSAA



13C2-PFDoA



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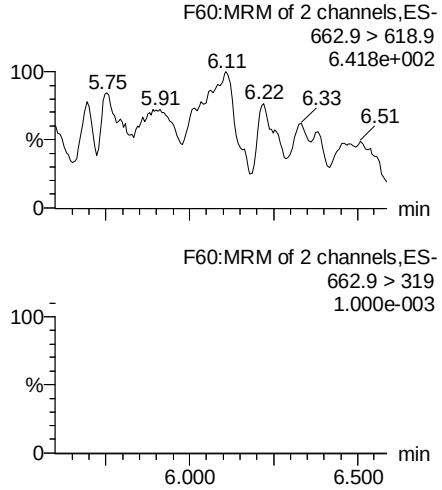
MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-21.qld

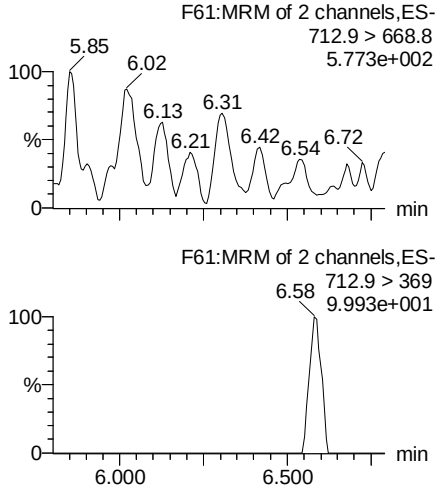
Last Altered: Monday, June 11, 2018 11:14:29 Pacific Daylight Time
Printed: Monday, June 11, 2018 11:16:43 Pacific Daylight Time

Name: 180607M2_21, Date: 07-Jun-2018, Time: 17:41:14, ID: B8E0244-BLK1 Method Blank 0.125, Description: Method Blank

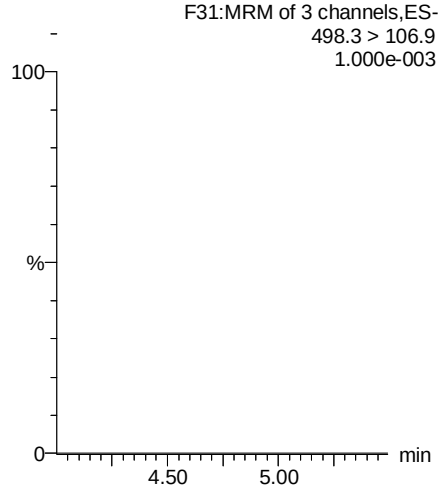
PFTrDA



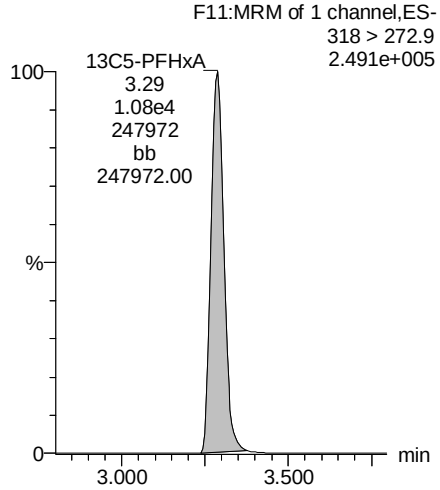
PFTeDA



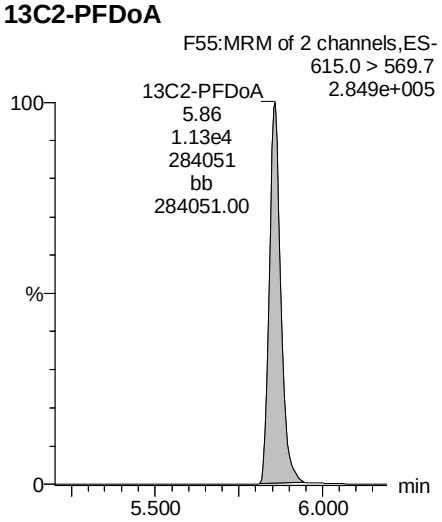
TCDA



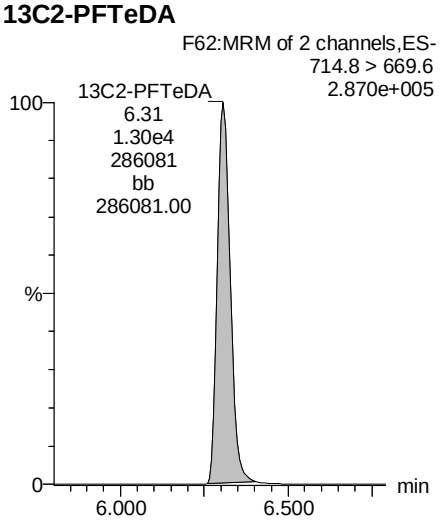
13C5-PFHxA



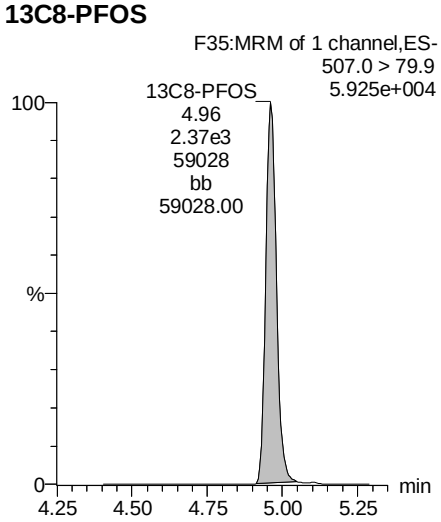
13C2-PFDoA



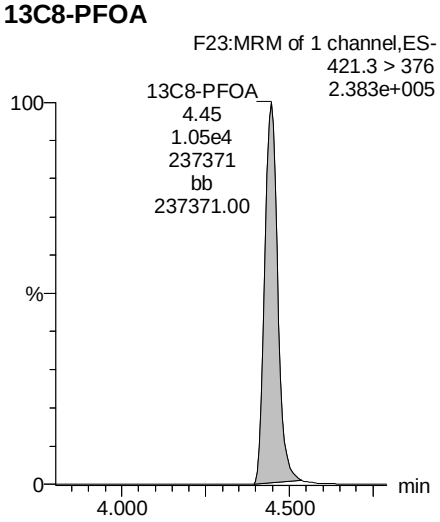
13C2-PFTeDA



13C8-PFOS



13C8-PFOA



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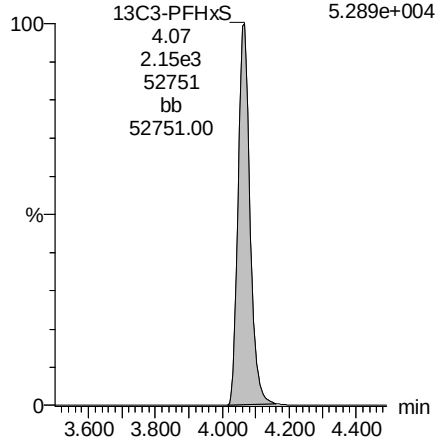
MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-21.qld

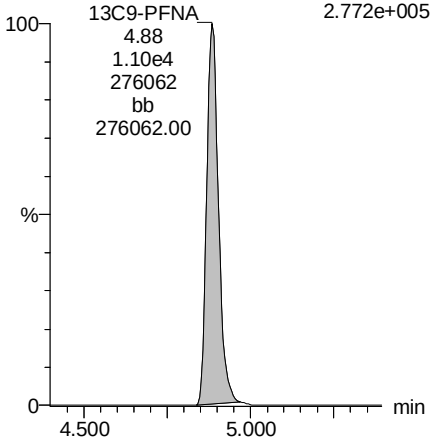
Last Altered: Monday, June 11, 2018 11:14:29 Pacific Daylight Time
Printed: Monday, June 11, 2018 11:16:43 Pacific Daylight Time

Name: 180607M2_21, Date: 07-Jun-2018, Time: 17:41:14, ID: B8E0244-BLK1 Method Blank 0.125, Description: Method Blank

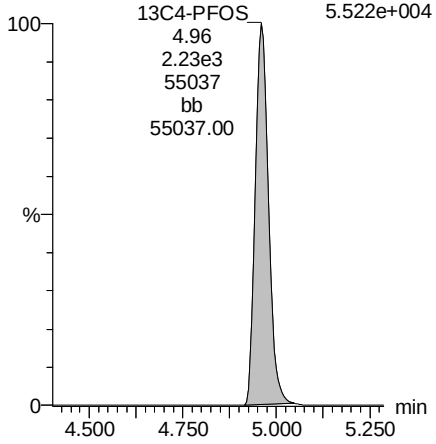
13C3-PFHxS



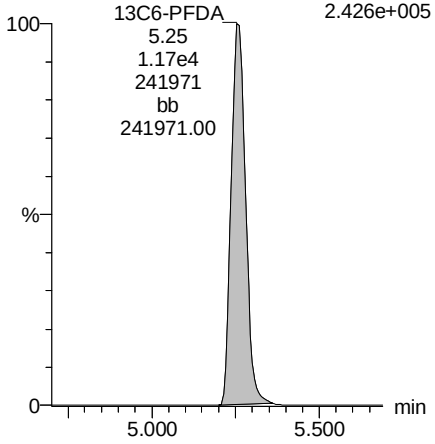
13C9-PFNA



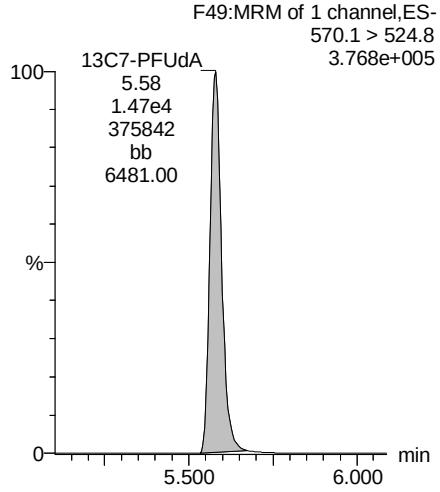
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-20.qld

Last Altered: Sunday, June 10, 2018 15:56:21 Pacific Daylight Time
Printed: Monday, June 11, 2018 11:07:33 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_20, Date: 07-Jun-2018, Time: 17:30:45, ID: B8E0244-BS1 OPR 0.125, Description: OPR

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7	2.18e3	1.17e3	0.125		2.79	2.80	23.3	91.8103	114.8	2.771	NO
2	5	PFHxA	313.2 > 268.9	1.02e4	2.88e3	0.125		3.29	3.30	17.8	94.4170	118.0	384.003	NO
3	7	PFHpA	363.0 > 318.9	8.57e3	8.34e3	0.125		3.93	3.93	12.9	84.2926	105.4	34.358	YES
4	8	L-PFHxS	398.9 > 79.6	1.68e3	9.67e2	0.125		4.05	4.07	21.7	88.3051	110.4	1.919	YES
5	11	L-PFOA	413 > 368.7	1.06e4	1.16e4	0.125		4.43	4.46	11.4	94.1164	117.6	5.411	NO
6	14	PFNA	463.0 > 418.8	1.03e4	9.62e3	0.125		4.68	4.89	13.4	85.0413	106.3	5.863	NO
7	16	L-PFOS	499.1 > 79.9	1.87e3	2.26e3	0.125		4.93	4.97	10.3	88.0126	110.0	1.871	NO
8	18	PFDA	513 > 468.8	8.92e3	1.09e4	0.125		5.05	5.27	10.3	84.9626	106.2	6.289	YES
9	21	L-MeFOSAA	570.1 > 419	4.45e3	3.17e3	0.125		5.18	5.42	17.5	99.3495	124.2	15.148	YES
10	23	L-EtFOSAA	584.2 > 419	3.15e3	3.48e3	0.125		5.37	5.57	11.3	88.4753	110.6	11.668	YES

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MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-20.qld

Last Altered: Sunday, June 10, 2018 15:56:21 Pacific Daylight Time
Printed: Monday, June 11, 2018 11:07:53 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_20, Date: 07-Jun-2018, Time: 17:30:45, ID: B8E0244-BS1 OPR 0.125, Description: OPR

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	25	PFUdA	563.0 > 518.9	8.93e3	1.11e4	0.125		5.37	5.58	10.1	83.6322	104.5	15.754	NO
2	27	PFDoA	612.9 > 569.0	1.23e4	1.07e4	0.125		5.65	5.86	14.3	100.0589	125.1	8.966	NO
3	28	N-MeFOSA	512.1 > 168.9	8.17e2		0.125		5.84	5.88				1.311	NO
4	29	PFTrDA	662.9 > 618.9	1.52e4	1.07e4	0.125		5.89	6.11	17.7	122.4964	153.1 H	33.238	NO
5	30	PFTeDA	712.9 > 668.8	1.35e4	1.28e4	0.125		6.11	6.31	13.2	92.6403	115.8	13.551	NO
6	36	13C3-PFBA	216.1 > 171.8	5.81e3	6.81e3	0.125	0.870	1.34	1.53	10.7	97.9099	97.9		
7	37	13C3-PFPeA	266. > 221.8	8.29e3	1.03e4	0.125	0.870	2.32	2.52	10.1	92.6651	92.7		
8	38	13C3-PFBS	302. > 98.8	1.17e3	1.03e4	0.125	0.099	2.60	2.80	1.42	115.0988	115.1		
9	39	13C2-4:2 FTS	329.2>308.9	2.81e3	1.03e4	0.125	0.265	3.01	3.21	3.41	102.9864	103.0		
10	40	13C2-PFHxA	315 > 269.8	2.88e3	1.03e4	0.125	0.737	3.10	3.30	3.50	37.9461	94.9		
11	41	13C4-PFHpA	367.2 > 321.8	8.34e3	1.03e4	0.125	0.791	3.71	3.93	10.1	102.4964	102.5		
12	42	18O2-PFHxS	403.0 > 102.6	9.67e2	2.38e3	0.125	0.442	3.86	4.08	5.09	92.0702	92.1		
13	43	13C2-6:2 FTS	429.1 > 408.9	2.71e3	1.07e4	0.125	0.306	4.18	4.41	3.17	82.6991	82.7		
14	44	13C2-PFOA	414.9 > 369.7	1.16e4	1.07e4	0.125	1.285	4.23	4.46	13.6	84.5652	84.6		
15	45	13C5-PFNA	468.2 > 422.9	9.62e3	1.15e4	0.125	0.930	4.67	4.89	10.5	89.9323	89.9		
16	46	13C8-PFOSA	506.1 > 77.7	1.67e3	1.43e4	0.125	0.237	4.74	4.95	1.46	49.3031	49.3		
17	47	13C8-PFOS	507.0 > 79.9	2.26e3	2.61e3	0.125	1.039	4.75	4.97	10.9	83.6308	83.6		
18	48	13C2-PFDA	515.1 > 469.9	1.09e4	1.13e4	0.125	1.144	5.04	5.27	12.1	84.3456	84.3		
19	49	13C2-8:2 FTS	529.1 > 508.7	1.95e3	1.03e4	0.125	0.215	5.01	5.24	2.37	88.1907	88.2		
20	50	d3-N-MeFOSAA	573.3 > 419	3.17e3	1.43e4	0.125	0.351	5.19	5.41	2.78	63.2857	63.3		
21	51	d5-N-EtFOSAA	589.3 > 419	3.48e3	1.43e4	0.125	0.388	5.35	5.57	3.05	62.7373	62.7		
22	52	13C2-PFUdA	565 > 519.8	1.11e4	1.43e4	0.125	1.019	5.37	5.59	9.72	76.2479	76.2		
23	53	13C2-PFDoA	615.0 > 569.7	1.07e4	1.13e4	0.125	1.057	5.65	5.86	11.9	90.3843	90.4		
24	54	d3-N-MeFOSA	515.2 > 168.9		1.43e4	0.125	0.107	5.87						
25	55	13C2-PFTeDA	714.8 > 669.6	1.28e4	1.43e4	0.125	0.964	6.11	6.31	11.2	92.7362	92.7		
26	56	d5-N-ETFOSA	531.1 > 168.9		1.43e4	0.125	0.157	6.25						
27	57	13C2-PFHxDA	815 > 769.7	7.82e3	1.43e4	0.125	1.562	6.45	6.61	6.85	35.0813	87.7		
28	58	d7-N-MeFOSE	623.1 > 58.9		1.43e4	0.125	0.147	6.37						
29	59	d9-N-EtFOSE	639.2 > 58.8		1.43e4	0.125	0.149	6.52						
30	60	13C4-PFBA	217. > 171.8	6.81e3	6.81e3	0.125	1.000	1.33	1.53	12.5	100.0000	100.0		
31	61	13C5-PFHxA	318 > 272.9	1.03e4	1.03e4	0.125	1.000	3.09	3.30	12.5	100.0000	100.0		
32	62	13C3-PFHxS	401.9 > 79.9	2.38e3	2.38e3	0.125	1.000	3.87	4.07	12.5	100.0000	100.0		ANP 6/11/2018

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-20.qld

Last Altered: Sunday, June 10, 2018 15:56:21 Pacific Daylight Time
Printed: Monday, June 11, 2018 11:07:53 Pacific Daylight Time

Name: 180607M2_20, Date: 07-Jun-2018, Time: 17:30:45, ID: B8E0244-BS1 OPR 0.125, Description: OPR

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
33	63	13C8-PFOA	421.3 > 376	1.07e4	1.07e4	0.125	1.000	4.24	4.46	12.5	100.0000	100.0		
34	64	13C9-PFNA	472.2 > 426.9	1.15e4	1.15e4	0.125	1.000	4.67	4.89	12.5	100.0000	100.0		
35	65	13C4-PFOS	503 > 79.9	2.61e3	2.61e3	0.125	1.000	4.75	4.97	12.5	100.0000	100.0		
36	66	13C6-PFDA	519.1 > 473.7	1.13e4	1.13e4	0.125	1.000	5.04	5.27	12.5	100.0000	100.0		
37	67	13C7-PFUdA	570.1 > 524.8	1.43e4	1.43e4	0.125	1.000	5.37	5.59	12.5	100.0000	100.0		
38	68	Total PFHxS	398.9 > 79.6	1.68e3	9.67e2	0.125		4.05		21.7	88.3051			
39	69	Total PFOA	413 > 368.7	1.06e4	1.16e4	0.125		4.30		11.4	94.1164			
40	70	Total PFOS	499.1 > 79.9	1.87e3	2.26e3	0.125		4.90		10.3	88.0126			
41	71	Total N-MeFOSAA	570.1 > 419	4.45e3	3.17e3	0.125		5.55		17.5	99.3495			
42	72	Total N-EtFOSAA	584.2 > 419	3.15e3	3.48e3	0.125		5.70		11.3	88.4753			

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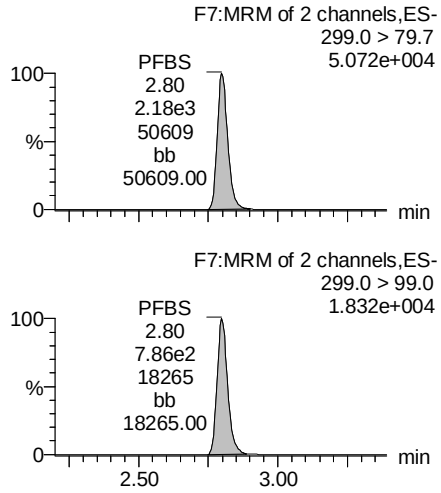
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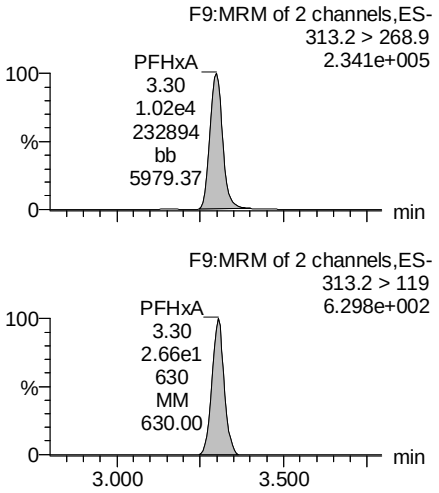
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Name: 180607M2_20, Date: 07-Jun-2018, Time: 17:30:45, ID: B8E0244-BS1 OPR 0.125, Description: OPR

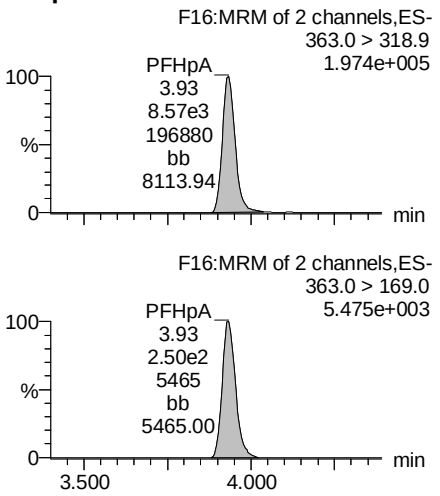
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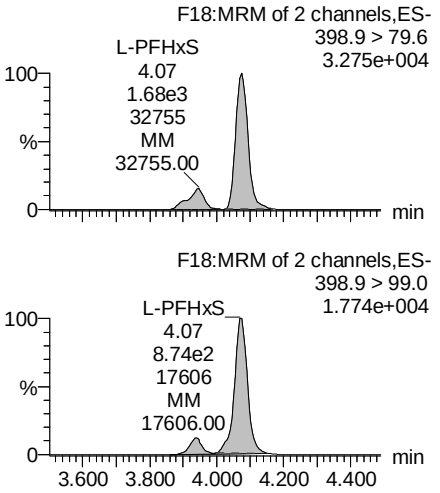
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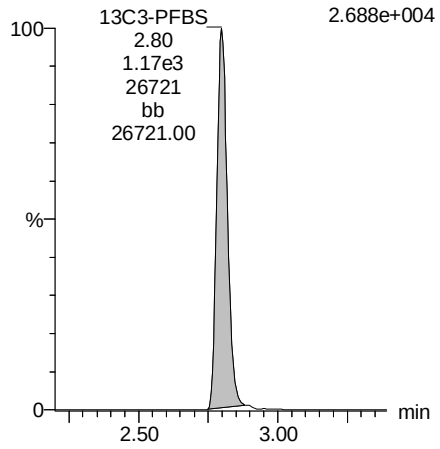
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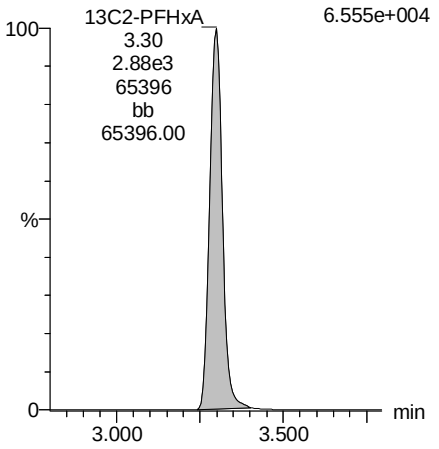
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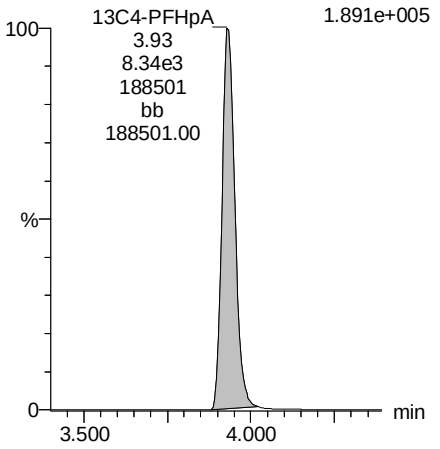
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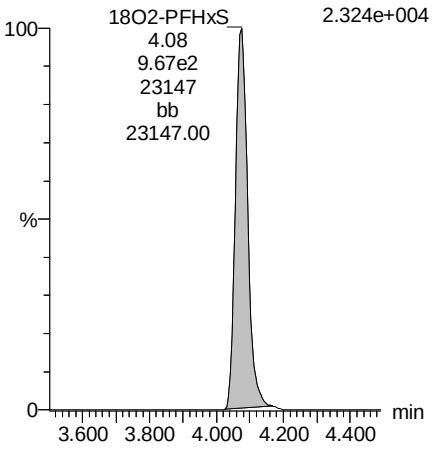
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13C4-PFHpA



18O2-PFHxS



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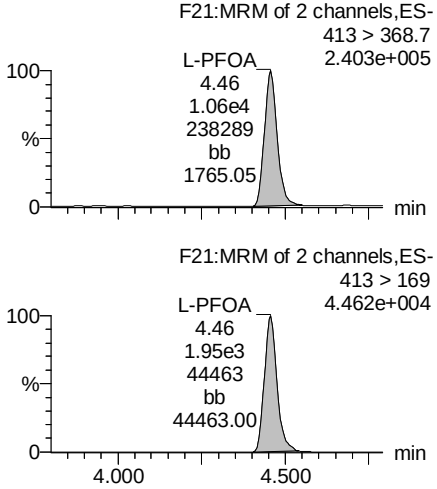
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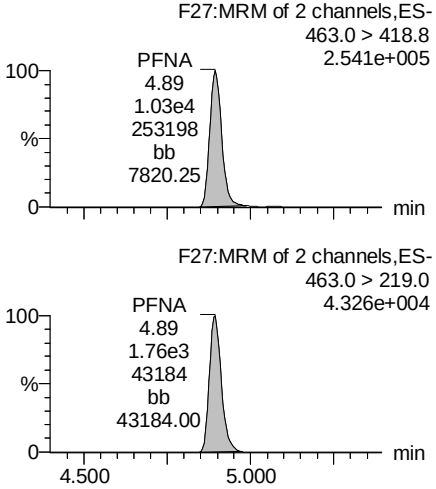
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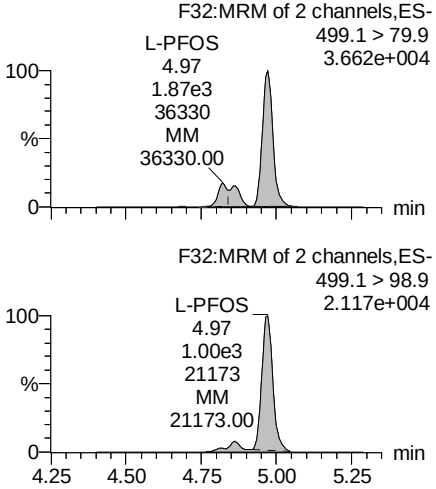
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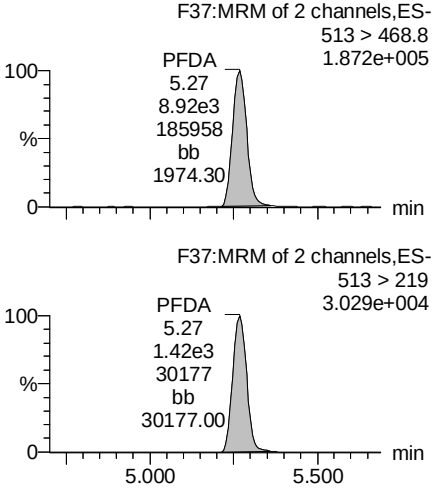
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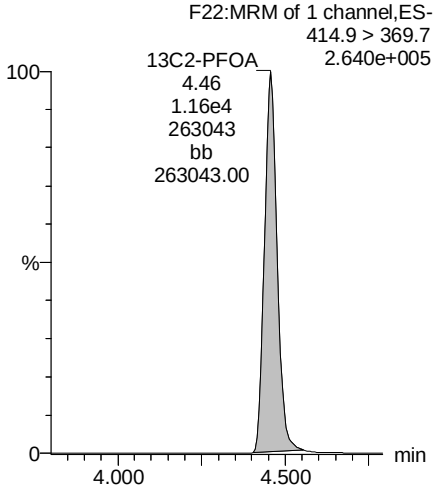
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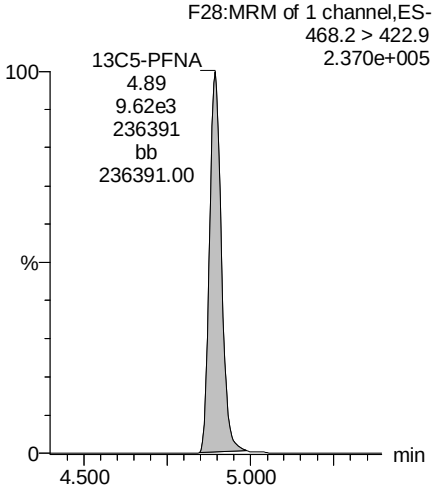
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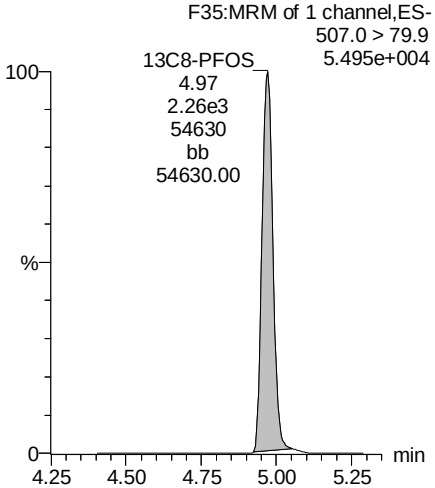
13C2-PFOA



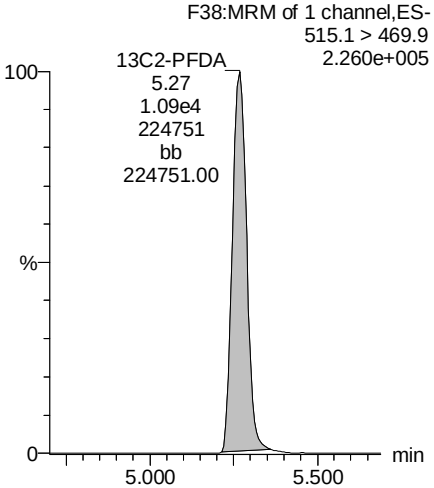
13C5-PFNA



13C8-PFOS



13C2-PFDA



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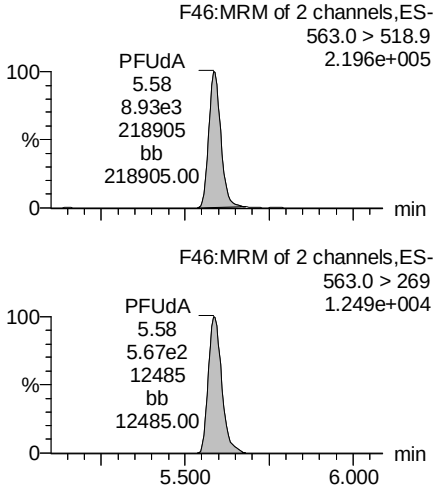
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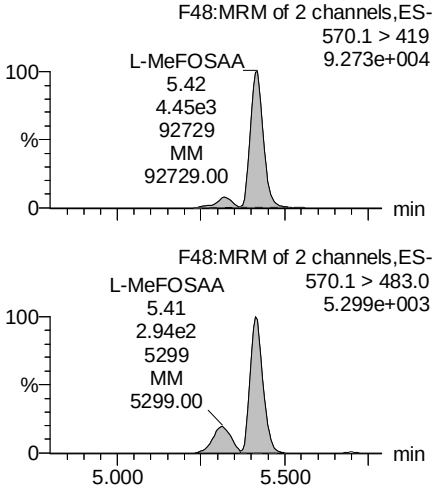
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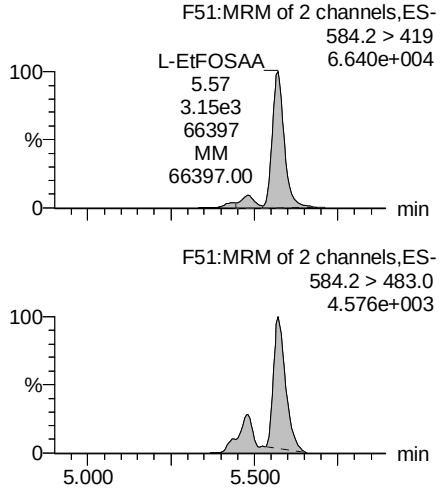
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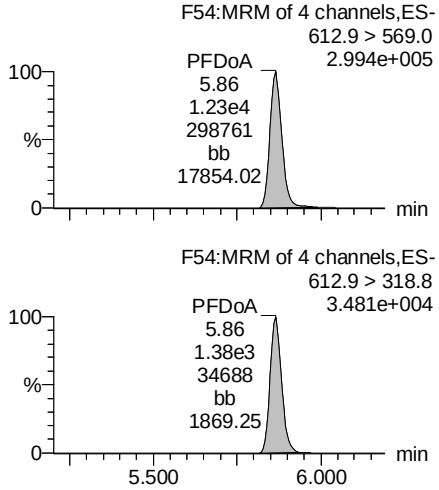
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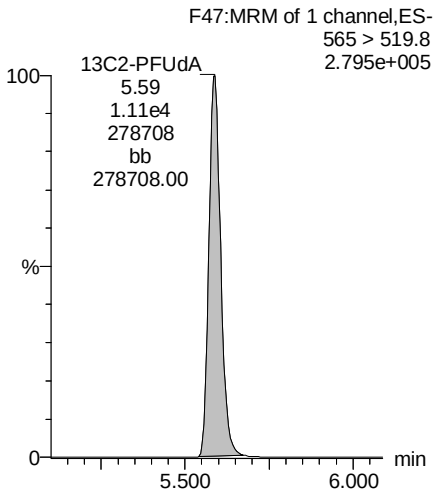
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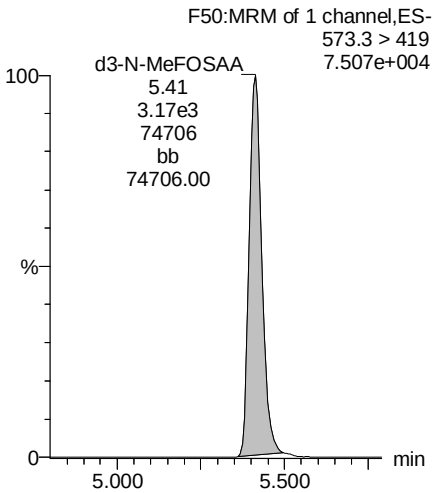
PFDoA



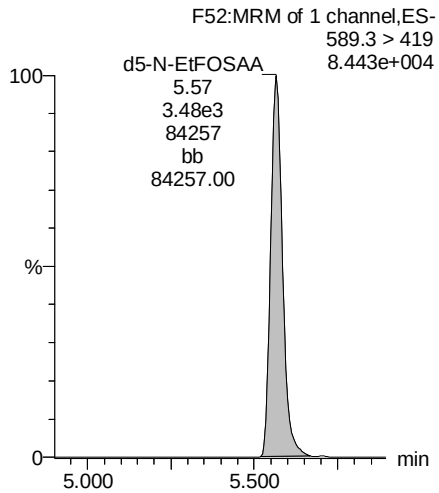
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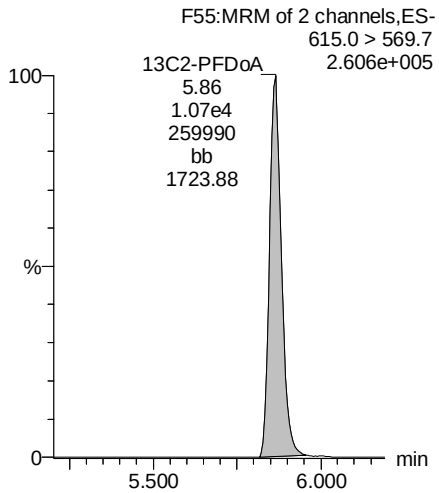
d3-N-MeFOSAA



d5-N-EtFOSAA



13C2-PFDoA



ANP 6/11/2018

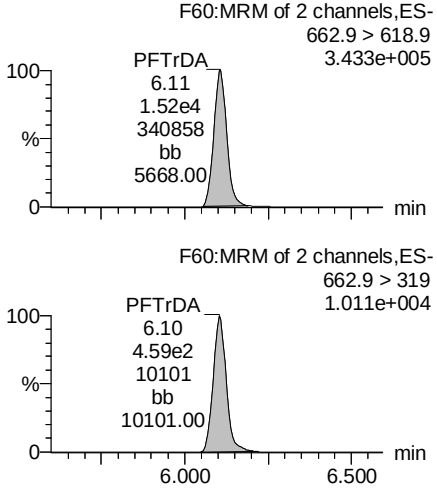
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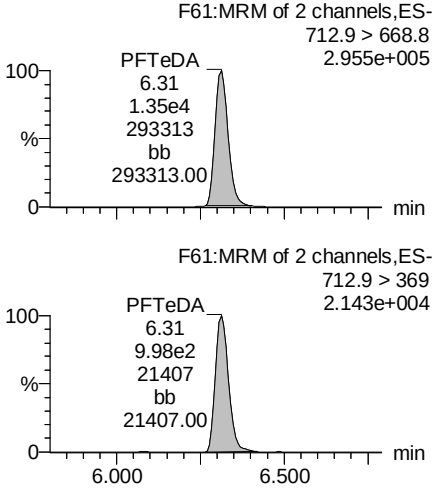
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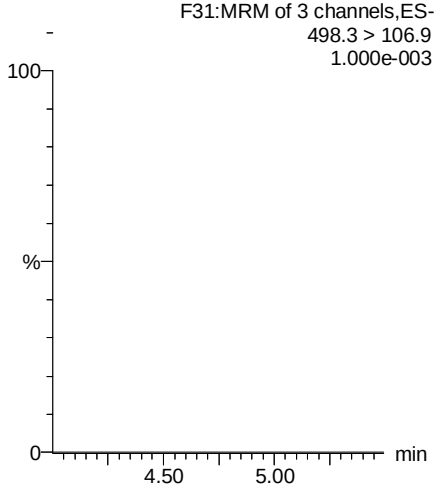
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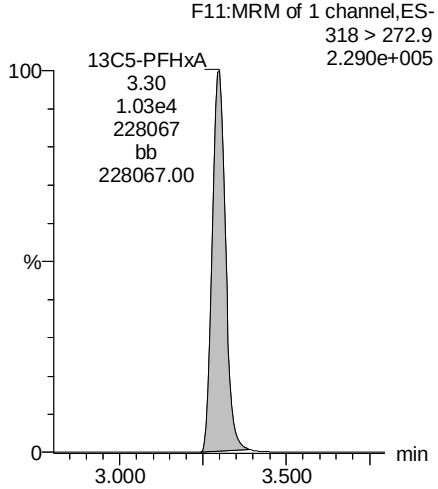
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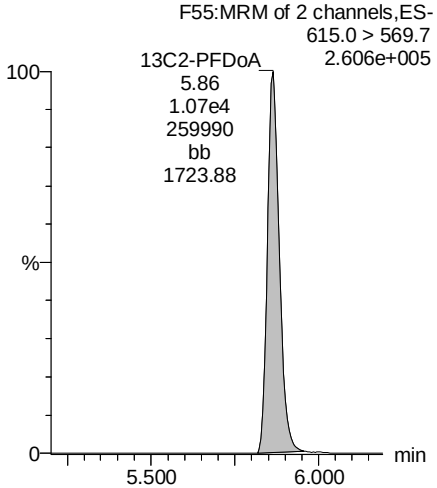
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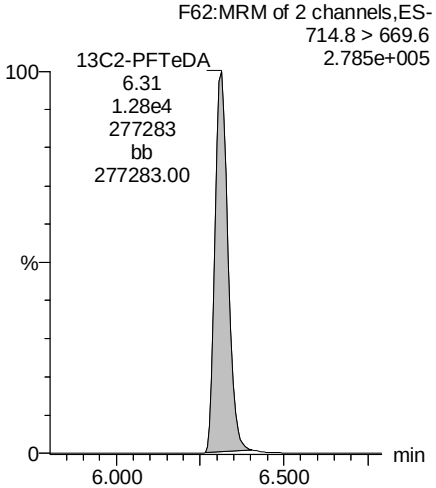
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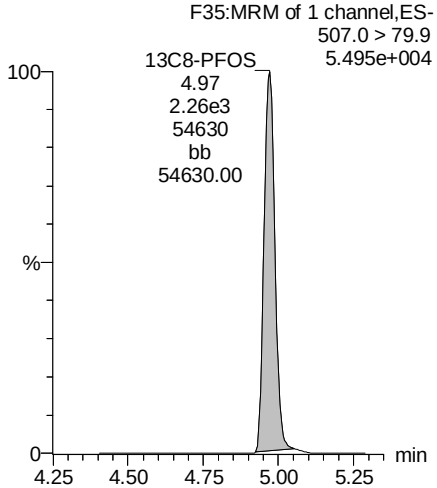
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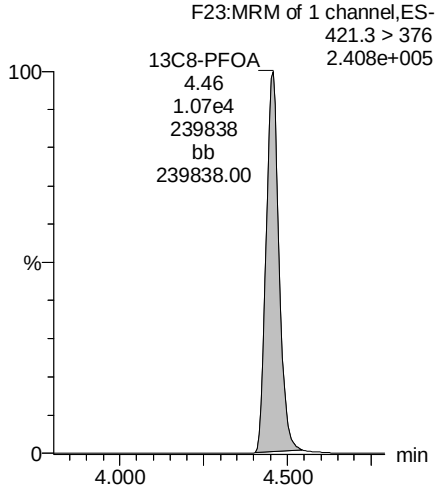
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13C8-PFOS



13C8-PFOA



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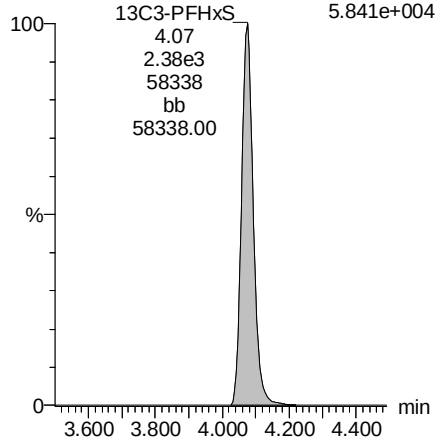
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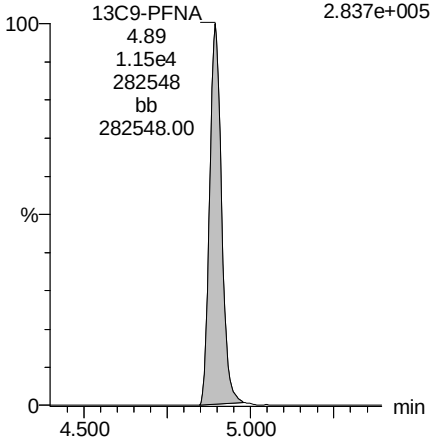
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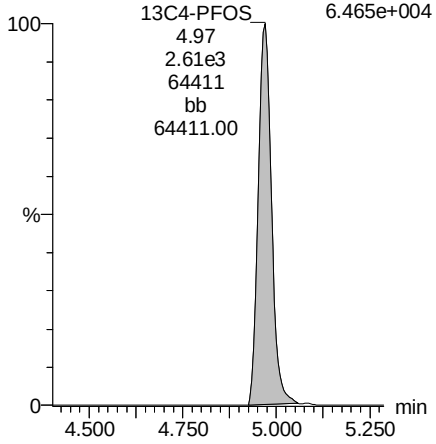
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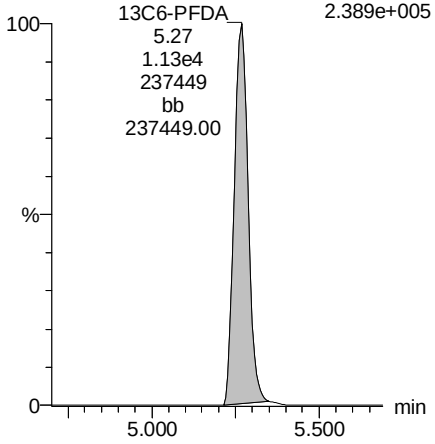
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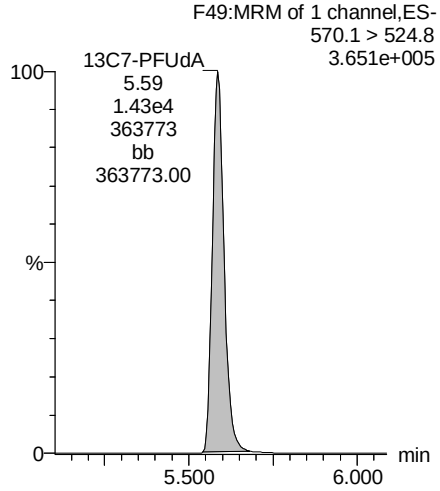
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-49.qld

Last Altered: Monday, June 11, 2018 11:12:07 Pacific Daylight Time
Printed: Monday, June 11, 2018 11:12:35 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_49, Date: 07-Jun-2018, Time: 22:34:14, ID: 1801054-01 A1-MW-42-SA1 0.11279, Description: A1-MW-42-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7	7.06e3	1.31e3	0.113		2.76	2.76	67.1	292.4239		2.695	NO
2	5	PFHxA	313.2 > 268.9	3.42e4	1.24e3	0.113		3.26	3.26	138	819.2661		304.625	NO
3	7	PFHpA	363.0 > 318.9	9.32e2	3.42e3	0.113		3.90	3.90	3.41	24.8434		34.025	YES
4	8	L-PFHxS	398.9 > 79.6	2.87e3	1.10e3	0.113		4.02	4.04	32.7	147.3074		1.937	YES
5	11	L-PFOA	413 > 368.7	8.20e2	4.53e3	0.113		4.43	4.43	2.26	20.3800		5.050	NO
6	14	PFNA	463.0 > 418.8		3.79e3	0.113		4.68						
7	16	L-PFOS	499.1 > 79.9	4.51e1	2.54e3	0.113		4.93	4.83	0.222	1.8562		10.372	YES
8	18	PFDA	513 > 468.8		4.48e3	0.113		5.05						
9	21	L-MeFOSAA	570.1 > 419		3.26e3	0.113		5.18						
10	23	L-EtFOSAA	584.2 > 419		3.22e3	0.113		5.37						

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-49.qld

Last Altered: Monday, June 11, 2018 11:12:07 Pacific Daylight Time
Printed: Monday, June 11, 2018 15:28:42 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_49, Date: 07-Jun-2018, Time: 22:34:14, ID: 1801054-01 A1-MW-42-SA1 0.11279, Description: A1-MW-42-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	25	PFUdA	563.0 > 518.9		4.26e3	0.113		5.37						
2	27	PFDoA	612.9 > 569.0		5.79e3	0.113		5.65						
3	29	PFTrDA	662.9 > 618.9		5.79e3	0.113		5.89						
4	30	PFTeDA	712.9 > 668.8		8.81e3	0.113		6.11						
5	36	13C3-PFBA	216.1 > 171.8	2.75e3	3.32e3	0.113	0.870	1.34	1.49	10.3	105.4174	95.1		
6	37	13C3-PFPeA	266. > 221.8	3.71e3	4.30e3	0.113	0.870	2.32	2.49	10.8	109.7641	99.0		
7	38	13C3-PFBS	302. > 98.8	1.31e3	4.30e3	0.113	0.099	2.60	2.77	3.82	343.1281	309.6		
8	39	13C2-4:2 FTS	329.2>308.9	2.72e3	4.30e3	0.113	0.265	3.01	3.17	7.90	264.3782	238.6		
9	40	13C2-PFHxA	315 > 269.8	1.24e3	4.30e3	0.113	0.737	3.10	3.26	3.61	43.3734	97.8		
10	41	13C4-PFHpA	367.2 > 321.8	3.42e3	4.30e3	0.113	0.791	3.71	3.90	9.92	111.2747	100.4		
11	42	18O2-PFHxS	403.0 > 102.6	1.10e3	2.46e3	0.113	0.442	3.86	4.04	5.58	111.9243	101.0		
12	43	13C2-6:2 FTS	429.1 > 408.9	2.88e3	4.33e3	0.113	0.306	4.18	4.37	8.31	240.4117	216.9		
13	44	13C2-PFOA	414.9 > 369.7	4.53e3	4.33e3	0.113	1.285	4.23	4.43	13.1	90.1649	81.4		
14	45	13C5-PFNA	468.2 > 422.9	3.79e3	4.51e3	0.113	0.930	4.67	4.87	10.5	100.0795	90.3		
15	46	13C8-PFOSA	506.1 > 77.7	1.32e3	6.57e3	0.113	0.237	4.74	4.92	2.51	93.6237	84.5		
16	47	13C8-PFOS	507.0 > 79.9	2.54e3	2.93e3	0.113	1.039	4.75	4.94	10.8	92.4475	83.4		
17	48	13C2-PFDA	515.1 > 469.9	4.48e3	4.70e3	0.113	1.144	5.04	5.24	11.9	92.4039	83.4		
18	49	13C2-8:2 FTS	529.1 > 508.7	2.23e3	4.30e3	0.113	0.215	5.01	5.21	6.48	266.6593	240.6		
19	50	d3-N-MeFOSAA	573.3 > 419	3.26e3	6.57e3	0.113	0.351	5.19	5.39	6.21	156.7179	141.4		
20	51	d5-N-EtFOSAA	589.3 > 419	3.22e3	6.57e3	0.113	0.388	5.35	5.54	6.12	139.6987	126.1		
21	52	13C2-PFUdA	565 > 519.8	4.26e3	6.57e3	0.113	1.019	5.37	5.56	8.11	70.4960	63.6		
22	53	13C2-PFDoA	615.0 > 569.7	5.79e3	4.70e3	0.113	1.057	5.65	5.84	15.4	129.2551	116.6		
23	54	d3-N-MeFOSA	515.2 > 168.9		6.57e3	0.113	0.107	5.87						
24	55	13C2-PFTeDA	714.8 > 669.6	8.81e3	6.57e3	0.113	0.964	6.11	6.29	16.8	154.1104	139.1		
25	56	d5-N-ETFOSA	531.1 > 168.9		6.57e3	0.113	0.157	6.25						
26	57	13C2-PFHxDA	815 > 769.7	6.13e3	6.57e3	0.113	1.562	6.45	6.60	11.7	66.2149	149.4		
27	58	d7-N-MeFOSE	623.1 > 58.9		6.57e3	0.113	0.147	6.37						
28	59	d9-N-EtFOSE	639.2 > 58.8		6.57e3	0.113	0.149	6.52						
29	60	13C4-PFBA	217. > 171.8	3.32e3	3.32e3	0.113	1.000	1.33	1.49	12.5	110.8254	100.0		
30	61	13C5-PFHxA	318 > 272.9	4.30e3	4.30e3	0.113	1.000	3.09	3.27	12.5	110.8254	100.0		
31	62	13C3-PFHxS	401.9 > 79.9	2.46e3	2.46e3	0.113	1.000	3.87	4.04	12.5	110.8254	100.0		
32	63	13C8-PFOA	421.3 > 376	4.33e3	4.33e3	0.113	1.000	4.24	4.43	12.5	110.8254	100.0		ANP 6/11/2018

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-49.qld

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Name: 180607M2_49, Date: 07-Jun-2018, Time: 22:34:14, ID: 1801054-01 A1-MW-42-SA1 0.11279, Description: A1-MW-42-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
33	64	13C9-PFNA	472.2 > 426.9	4.51e3	4.51e3	0.113	1.000	4.67	4.87	12.5	110.8254	100.0		
34	65	13C4-PFOS	503 > 79.9	2.93e3	2.93e3	0.113	1.000	4.75	4.94	12.5	110.8254	100.0		
35	66	13C6-PFDA	519.1 > 473.7	4.70e3	4.70e3	0.113	1.000	5.04	5.24	12.5	110.8254	100.0		
36	67	13C7-PFUdA	570.1 > 524.8	6.57e3	6.57e3	0.113	1.000	5.37	5.56	12.5	110.8254	100.0		
37	68	Total PFHxS	398.9 > 79.6	2.87e3	1.10e3	0.113		4.05		32.7	147.3074			
38	69	Total PFOA	413 > 368.7	9.89e2	4.53e3	0.113		4.30		2.73	24.2565			
39	70	Total PFOS	499.1 > 79.9	4.51e1	2.54e3	0.113		4.90		0.222	1.8562			
40	71	Total N-MeFOSAA	570.1 > 419	0.00e0	3.26e3	0.113		5.55		0.000				
41	72	Total N-EtFOSAA	584.2 > 419	0.00e0	3.22e3	0.113		5.70		0.000				

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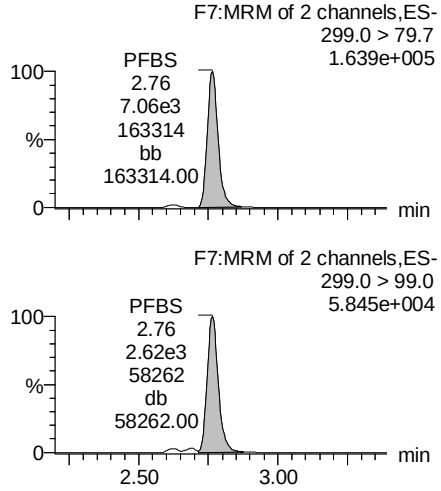
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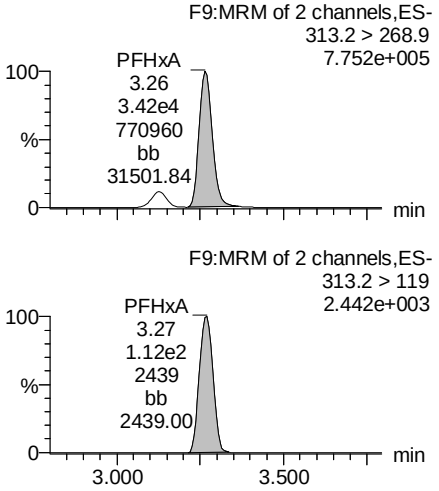
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Name: 180607M2_49, Date: 07-Jun-2018, Time: 22:34:14, ID: 1801054-01 A1-MW-42-SA1 0.11279, Description: A1-MW-42-SA1

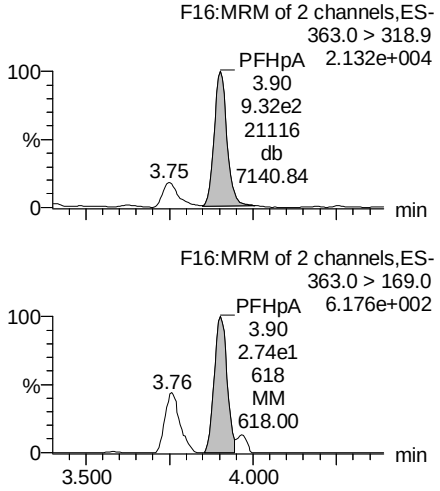
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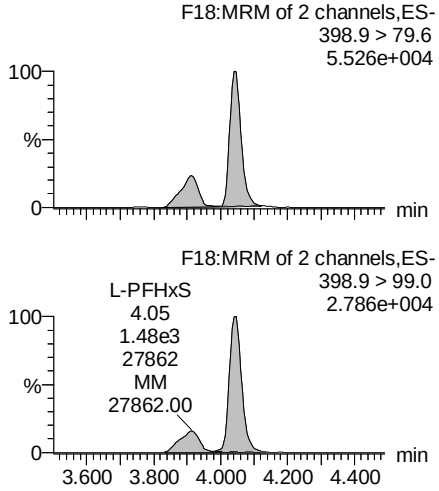
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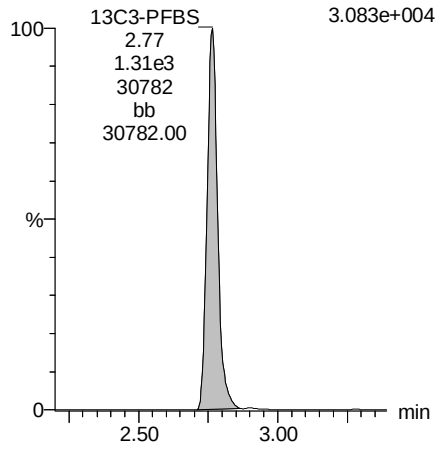
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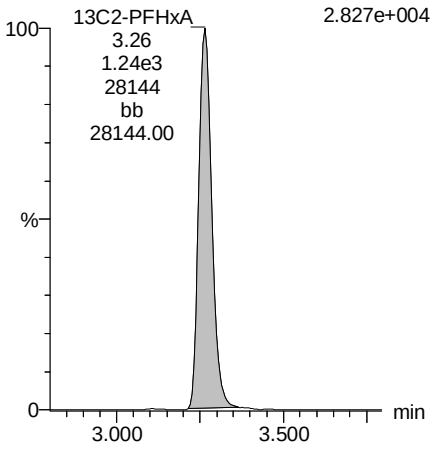
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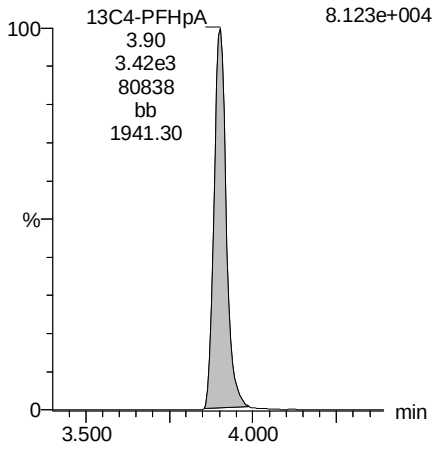
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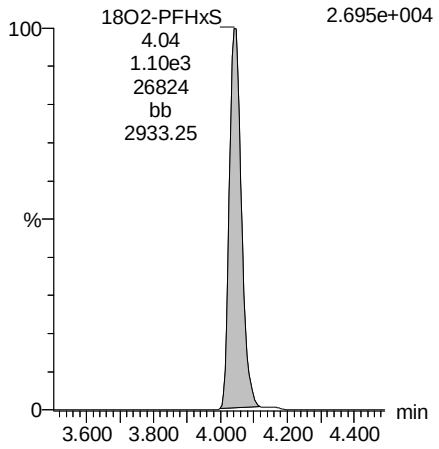
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13C4-PFHpA



18O2-PFHxS



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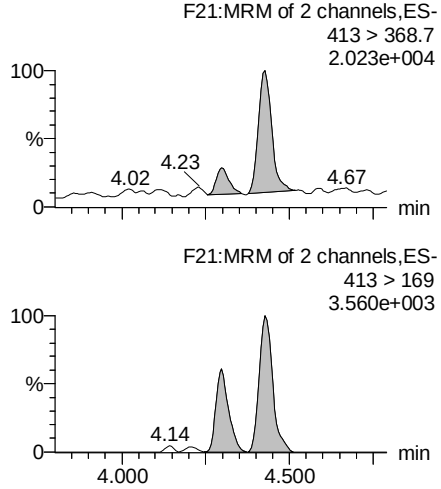
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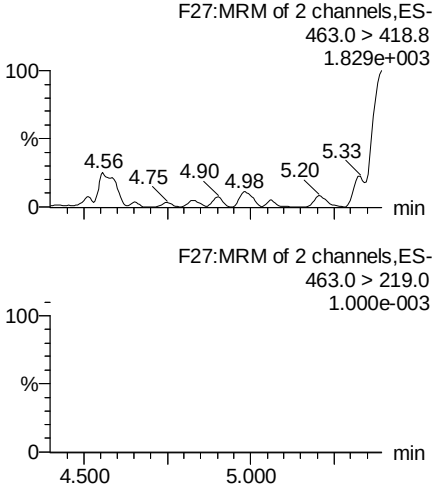
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Name: 180607M2_49, Date: 07-Jun-2018, Time: 22:34:14, ID: 1801054-01 A1-MW-42-SA1 0.11279, Description: A1-MW-42-SA1

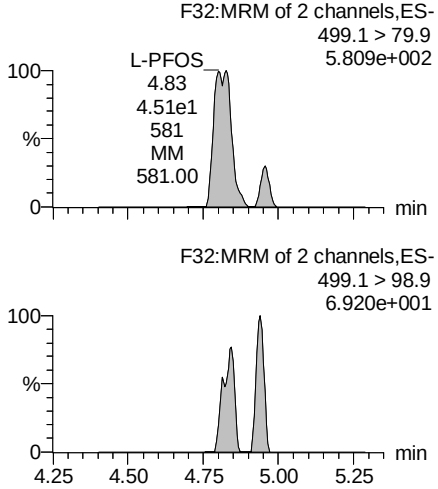
Total PFOA



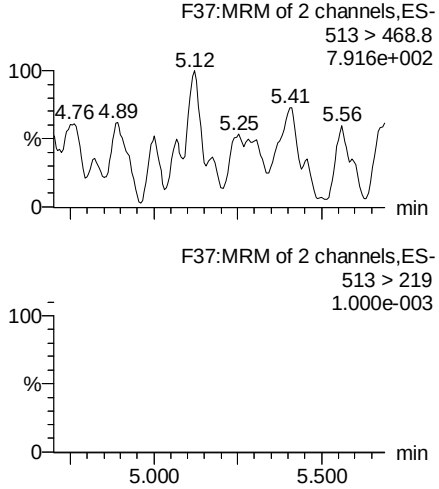
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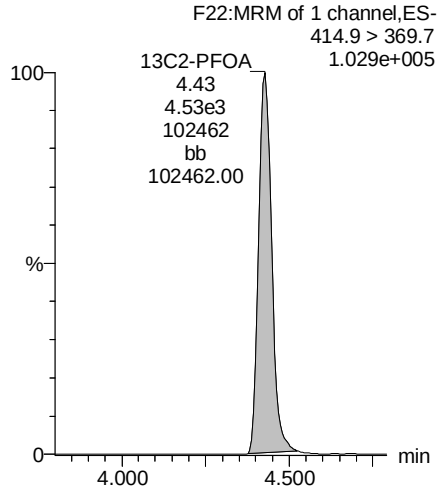
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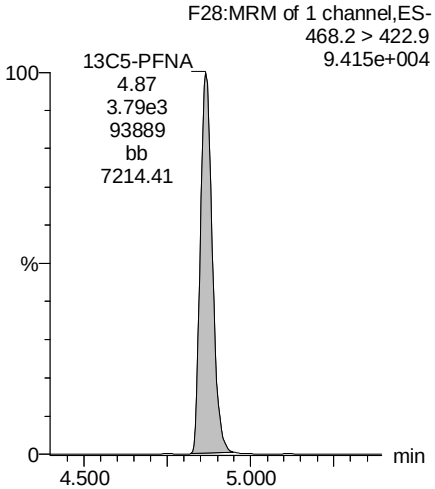
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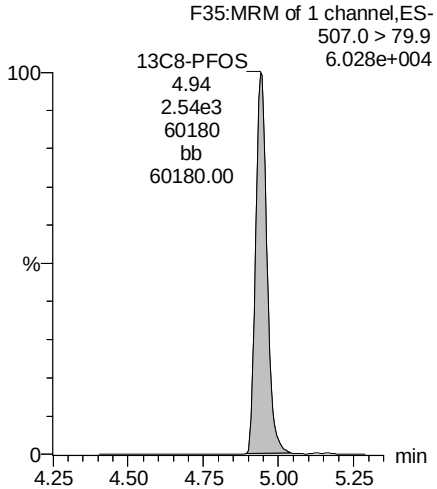
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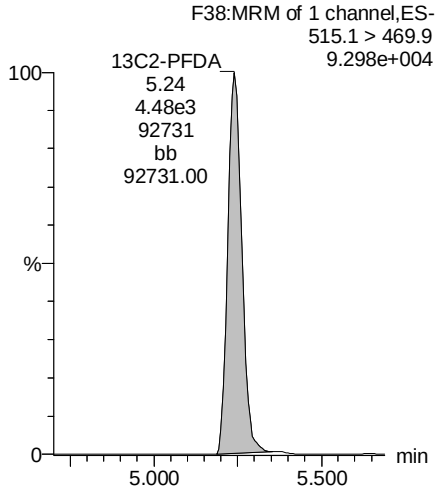
13C5-PFNA



13C8-PFOS



13C2-PFDA



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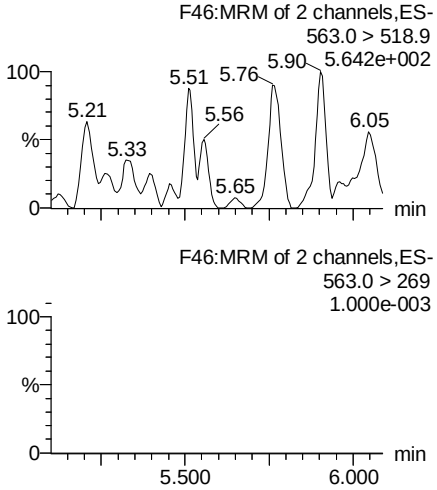
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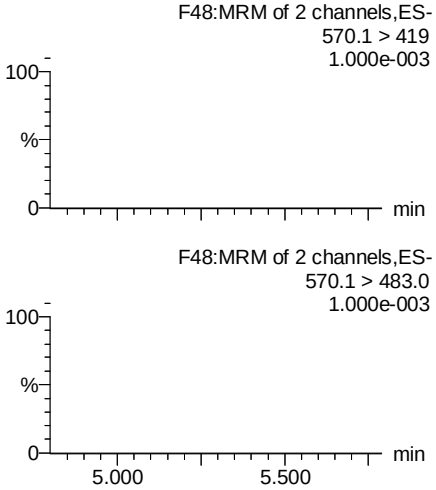
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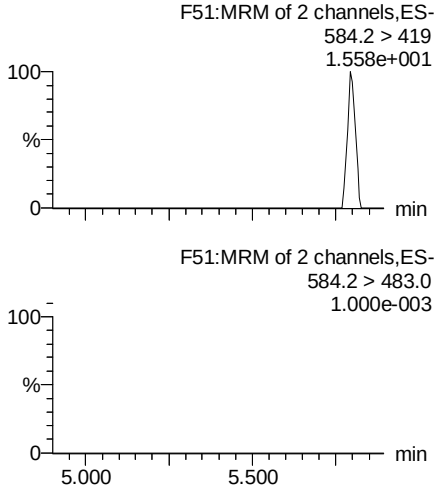
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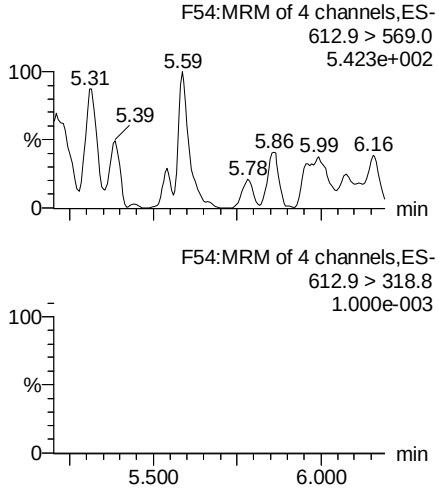
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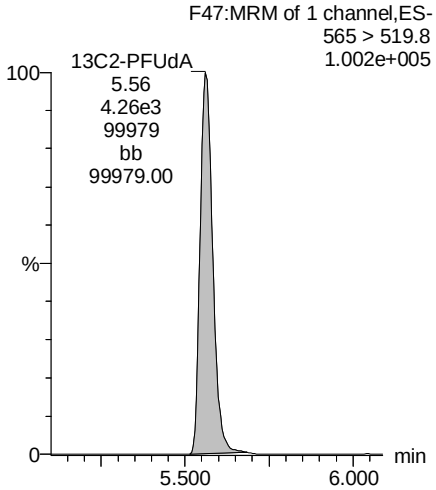
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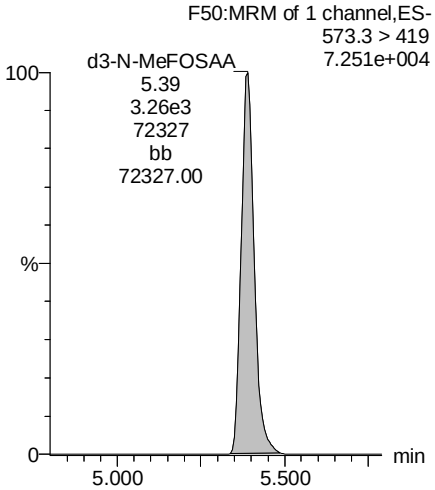
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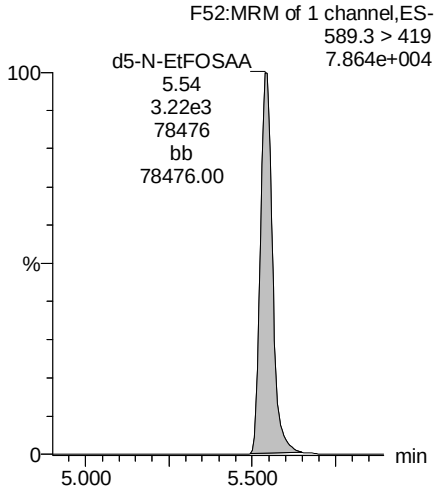
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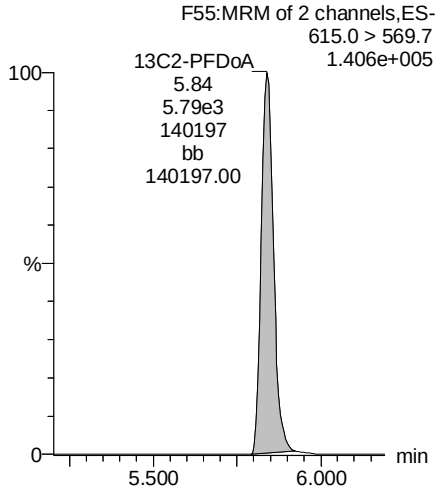
d3-N-MeFOSAA



d5-N-EtFOSAA



13C2-PFDoA



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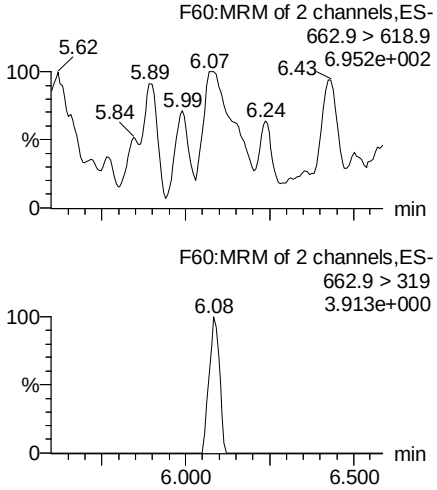
MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-49.qld

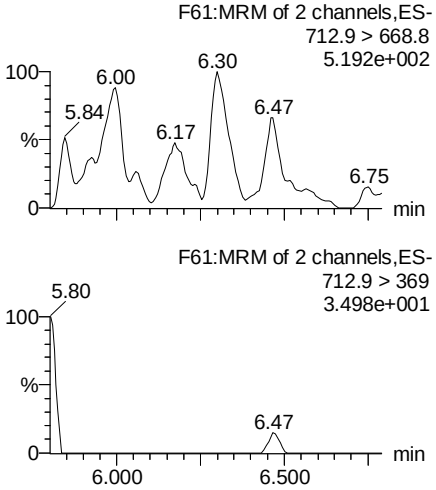
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Printed: Monday, June 11, 2018 11:12:35 Pacific Daylight Time

Name: 180607M2_49, Date: 07-Jun-2018, Time: 22:34:14, ID: 1801054-01 A1-MW-42-SA1 0.11279, Description: A1-MW-42-SA1

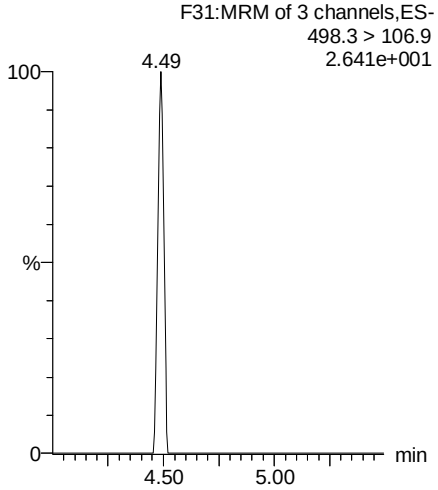
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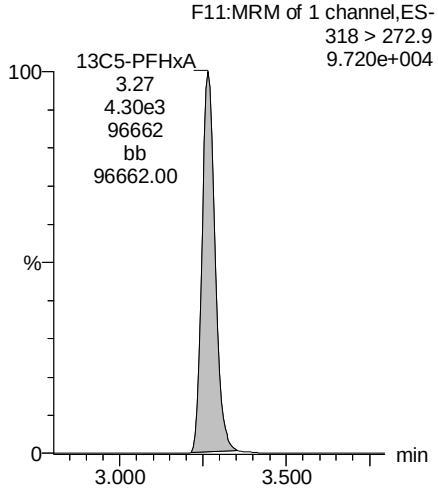
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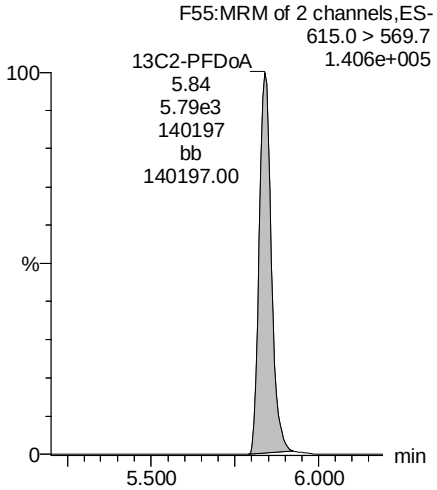
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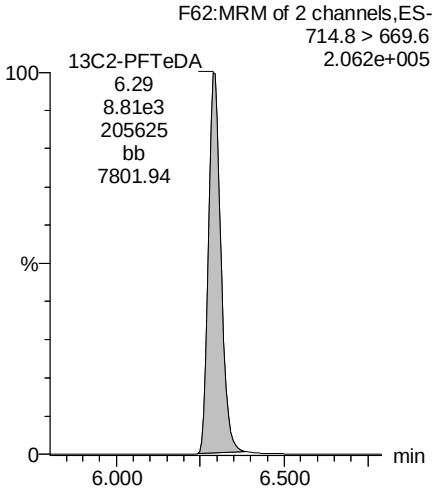
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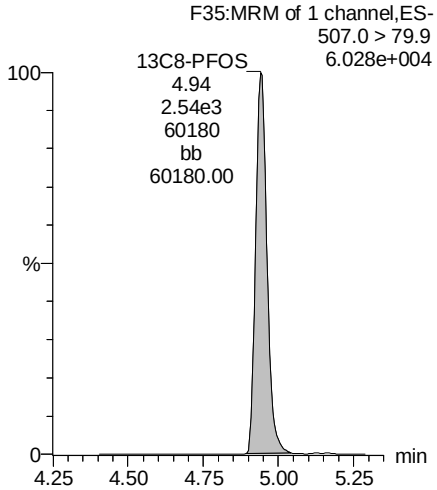
13C2-PFDoA



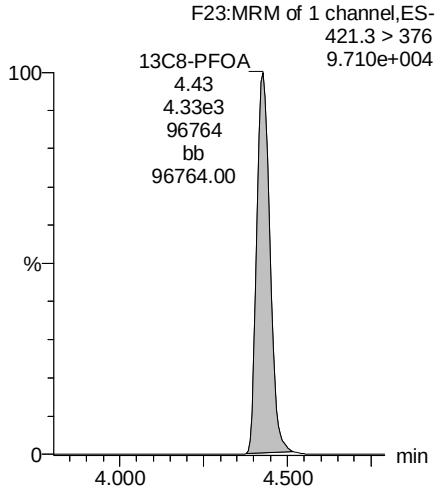
13C2-PFTeDA



13C8-PFOS



13C8-PFOA



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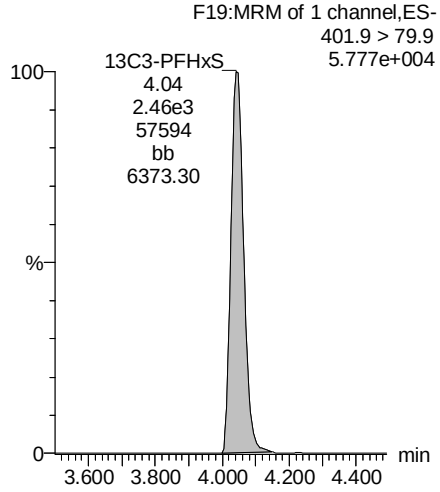
MM 6/11/2018

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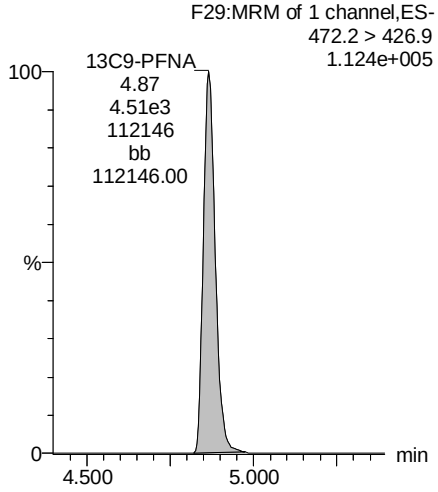
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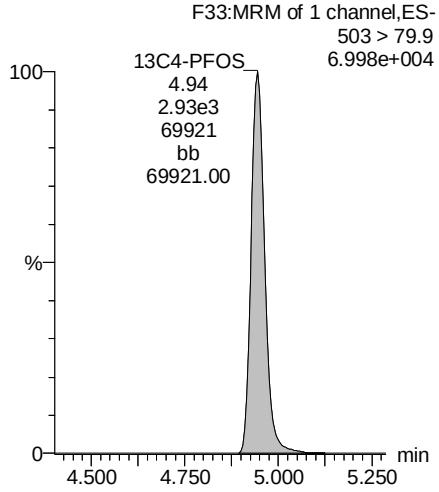
13C3-PFHxS



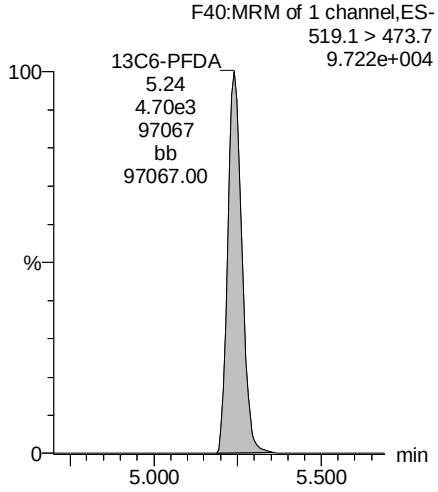
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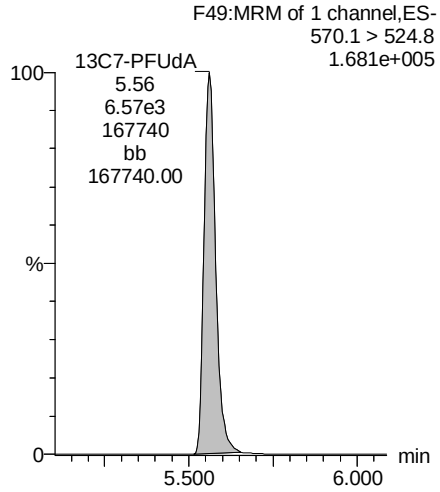
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-50.qld

Last Altered: Monday, June 11, 2018 11:26:27 Pacific Daylight Time
Printed: Monday, June 11, 2018 11:27:04 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_50, Date: 07-Jun-2018, Time: 22:44:39, ID: 1801054-02 A1-MW-54-SA1 0.11211, Description: A1-MW-54-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7	1.12e4	1.14e3	0.112		2.76	2.77	122	536.3119		2.691	NO
2	5	PFHxA	313.2 > 268.9	9.07e4	1.82e3	0.112		3.26	3.26	250	1503.9835		317.812	NO
3	7	PFHpA	363.0 > 318.9	3.53e3	5.05e3	0.112		3.90	3.90	8.72	63.7722		31.578	YES
4	8	L-PFHxS	398.9 > 79.6	1.02e4	9.60e2	0.112		4.02	4.04	133	606.2557		1.916	YES
5	11	L-PFOA	413 > 368.7	3.30e3	6.76e3	0.112		4.43	4.42	6.11	56.1308		5.861	NO
6	14	PFNA	463.0 > 418.8		5.73e3	0.112		4.68						
7	16	L-PFOS	499.1 > 79.9	1.25e2	2.20e3	0.112		4.93	4.79	0.710	6.5217		4.560	YES
8	18	PFDA	513 > 468.8		7.68e3	0.112		5.05						
9	21	L-MeFOSAA	570.1 > 419		2.90e3	0.112		5.18						
10	23	L-EtFOSAA	584.2 > 419		3.83e3	0.112		5.37						

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-50.qld

Last Altered: Monday, June 11, 2018 11:26:27 Pacific Daylight Time
Printed: Monday, June 11, 2018 15:29:28 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_50, Date: 07-Jun-2018, Time: 22:44:39, ID: 1801054-02 A1-MW-54-SA1 0.11211, Description: A1-MW-54-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	25	PFUdA	563.0 > 518.9		6.78e3	0.112		5.37						
2	27	PFDoA	612.9 > 569.0		7.58e3	0.112		5.65						
3	29	PFTrDA	662.9 > 618.9		7.58e3	0.112		5.89						
4	30	PFTeDA	712.9 > 668.8		9.16e3	0.112		6.11						
5	36	13C3-PFBA	216.1 > 171.8	4.38e3	5.23e3	0.112	0.870	1.34	1.50	10.5	107.2944	96.2		
6	37	13C3-PFPeA	266. > 221.8	5.53e3	6.62e3	0.112	0.870	2.32	2.49	10.4	107.0474	96.0		
7	38	13C3-PFBS	302. > 98.8	1.14e3	6.62e3	0.112	0.099	2.60	2.77	2.16	195.0705	175.0		
8	39	13C2-4:2 FTS	329.2>308.9	2.67e3	6.62e3	0.112	0.265	3.01	3.17	5.04	169.5529	152.1		
9	40	13C2-PFHxA	315 > 269.8	1.82e3	6.62e3	0.112	0.737	3.10	3.27	3.43	41.5369	93.1		
10	41	13C4-PFHpA	367.2 > 321.8	5.05e3	6.62e3	0.112	0.791	3.71	3.90	9.55	107.6835	96.6		
11	42	18O2-PFHxS	403.0 > 102.6	9.60e2	2.14e3	0.112	0.442	3.86	4.04	5.60	113.0898	101.4		
12	43	13C2-6:2 FTS	429.1 > 408.9	2.62e3	6.48e3	0.112	0.306	4.18	4.37	5.05	146.8512	131.7		
13	44	13C2-PFOA	414.9 > 369.7	6.76e3	6.48e3	0.112	1.285	4.23	4.43	13.0	90.4934	81.2		
14	45	13C5-PFNA	468.2 > 422.9	5.73e3	7.07e3	0.112	0.930	4.67	4.87	10.1	97.1386	87.1		
15	46	13C8-PFOSA	506.1 > 77.7	1.84e3	8.43e3	0.112	0.237	4.74	4.92	2.72	102.2512	91.7		
16	47	13C8-PFOS	507.0 > 79.9	2.20e3	2.55e3	0.112	1.039	4.75	4.94	10.8	92.8775	83.3		
17	48	13C2-PFDA	515.1 > 469.9	7.68e3	7.05e3	0.112	1.144	5.04	5.24	13.6	106.0915	95.2		
18	49	13C2-8:2 FTS	529.1 > 508.7	1.79e3	6.62e3	0.112	0.215	5.01	5.21	3.39	140.4371	126.0		
19	50	d3-N-MeFOSAA	573.3 > 419	2.90e3	8.43e3	0.112	0.351	5.19	5.39	4.30	109.1528	97.9		
20	51	d5-N-EtFOSAA	589.3 > 419	3.83e3	8.43e3	0.112	0.388	5.35	5.54	5.67	130.2153	116.8		
21	52	13C2-PFUdA	565 > 519.8	6.78e3	8.43e3	0.112	1.019	5.37	5.56	10.0	87.8852	78.8		
22	53	13C2-PFDoA	615.0 > 569.7	7.58e3	7.05e3	0.112	1.057	5.65	5.84	13.4	113.4200	101.7		
23	54	d3-N-MeFOSA	515.2 > 168.9		8.43e3	0.112	0.107	5.87						
24	55	13C2-PFTeDA	714.8 > 669.6	9.16e3	8.43e3	0.112	0.964	6.11	6.29	13.6	125.6563	112.7		
25	56	d5-N-ETFOSA	531.1 > 168.9		8.43e3	0.112	0.157	6.25						
26	57	13C2-PFHxDA	815 > 769.7	6.01e3	8.43e3	0.112	1.562	6.45	6.60	8.91	50.8678	114.1		
27	58	d7-N-MeFOSE	623.1 > 58.9		8.43e3	0.112	0.147	6.37						
28	59	d9-N-EtFOSE	639.2 > 58.8		8.43e3	0.112	0.149	6.52						
29	60	13C4-PFBA	217. > 171.8	5.23e3	5.23e3	0.112	1.000	1.33	1.50	12.5	111.4976	100.0		
30	61	13C5-PFHxA	318 > 272.9	6.62e3	6.62e3	0.112	1.000	3.09	3.27	12.5	111.4976	100.0		
31	62	13C3-PFHxS	401.9 > 79.9	2.14e3	2.14e3	0.112	1.000	3.87	4.04	12.5	111.4976	100.0		
32	63	13C8-PFOA	421.3 > 376	6.48e3	6.48e3	0.112	1.000	4.24	4.42	12.5	111.4976	100.0		ANP 6/11/2018

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-50.qld

Last Altered: Monday, June 11, 2018 11:26:27 Pacific Daylight Time
Printed: Monday, June 11, 2018 15:29:28 Pacific Daylight Time

Name: 180607M2_50, Date: 07-Jun-2018, Time: 22:44:39, ID: 1801054-02 A1-MW-54-SA1 0.11211, Description: A1-MW-54-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
33	64	13C9-PFNA	472.2 > 426.9	7.07e3	7.07e3	0.112	1.000	4.67	4.86	12.5	111.4976	100.0		
34	65	13C4-PFOS	503 > 79.9	2.55e3	2.55e3	0.112	1.000	4.75	4.94	12.5	111.4976	100.0		
35	66	13C6-PFDA	519.1 > 473.7	7.05e3	7.05e3	0.112	1.000	5.04	5.24	12.5	111.4976	100.0		
36	67	13C7-PFUdA	570.1 > 524.8	8.43e3	8.43e3	0.112	1.000	5.37	5.56	12.5	111.4976	100.0		
37	68	Total PFHxS	398.9 > 79.6	1.02e4	9.60e2	0.112		4.05		133	606.2557			
38	69	Total PFOA	413 > 368.7	4.23e3	6.76e3	0.112		4.30		7.81	71.4538			
39	70	Total PFOS	499.1 > 79.9	1.25e2	2.20e3	0.112		4.90		0.710	6.5217			
40	71	Total N-MeFOSAA	570.1 > 419	0.00e0	2.90e3	0.112		5.55		0.000				
41	72	Total N-EtFOSAA	584.2 > 419	0.00e0	3.83e3	0.112		5.70		0.000				

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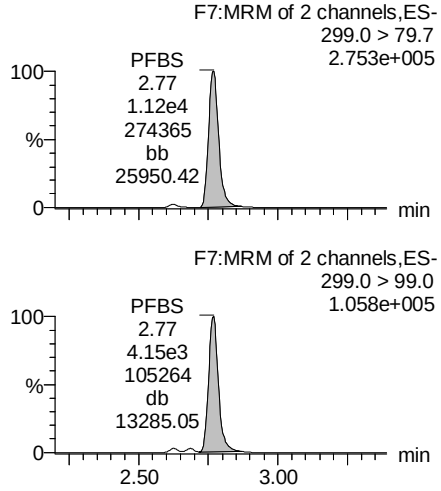
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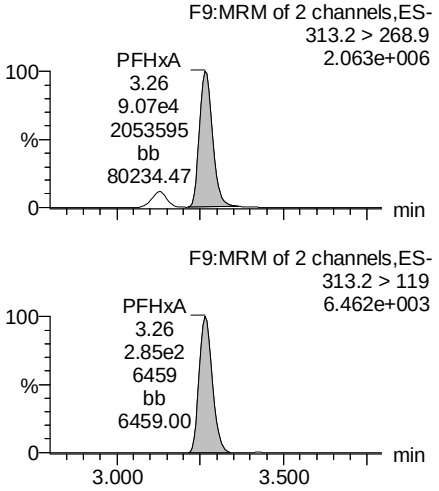
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Name: 180607M2_50, Date: 07-Jun-2018, Time: 22:44:39, ID: 1801054-02 A1-MW-54-SA1 0.11211, Description: A1-MW-54-SA1

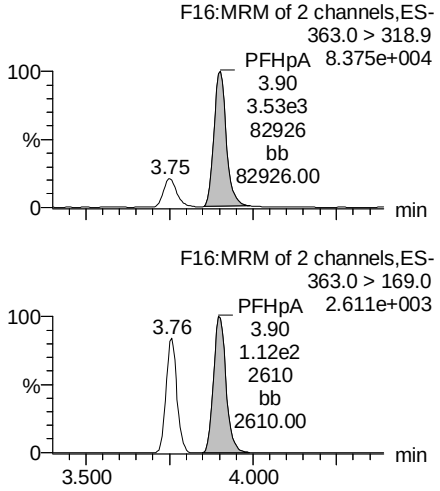
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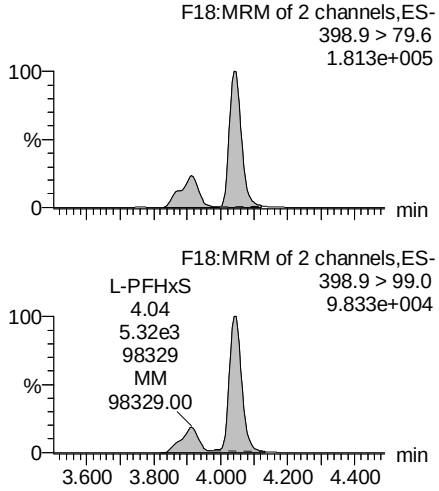
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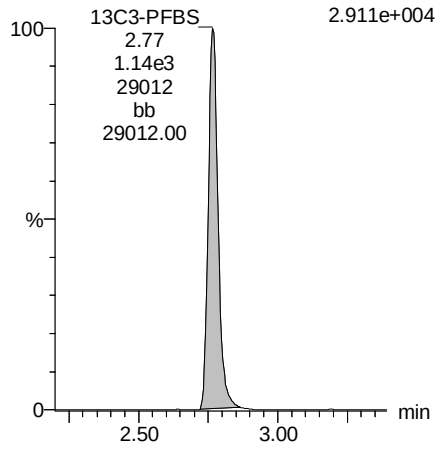
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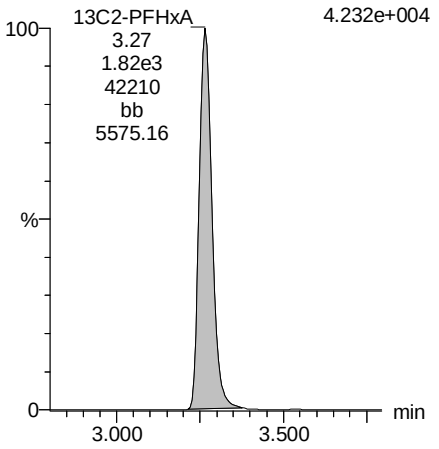
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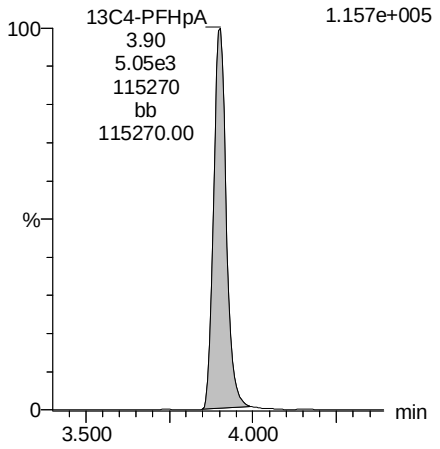
13C3-PFBS



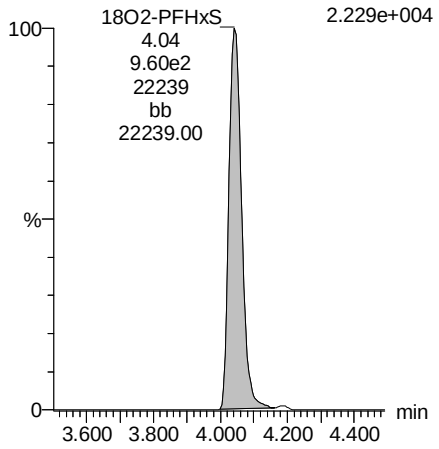
13C2-PFHxA



13C4-PFHpA



18O2-PFHxS



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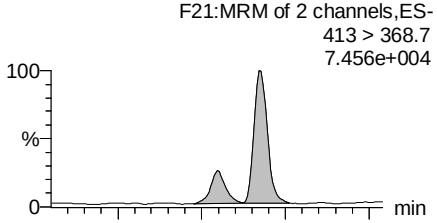
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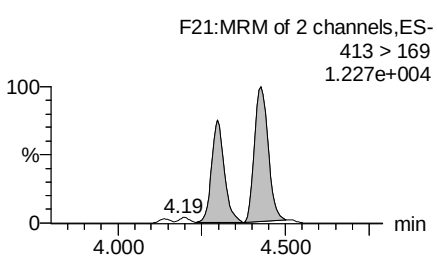
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Printed: Monday, June 11, 2018 11:27:17 Pacific Daylight Time

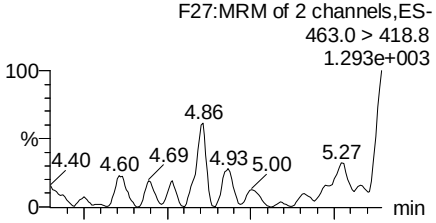
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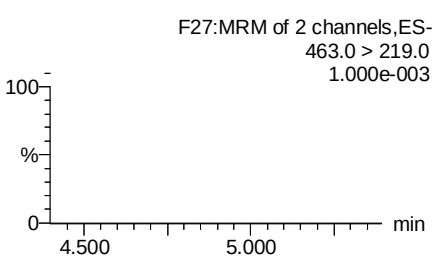
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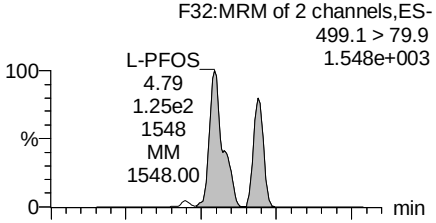


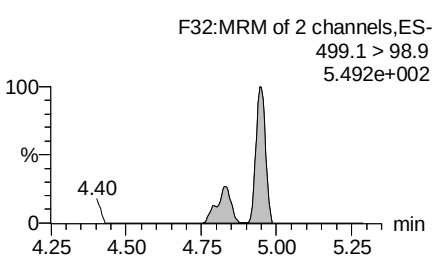
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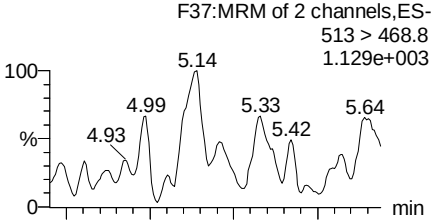


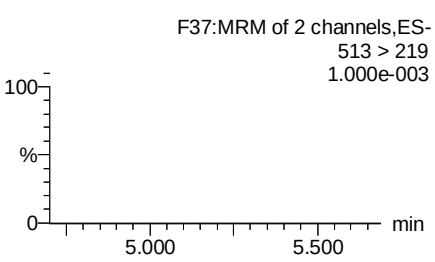
Total PFOS



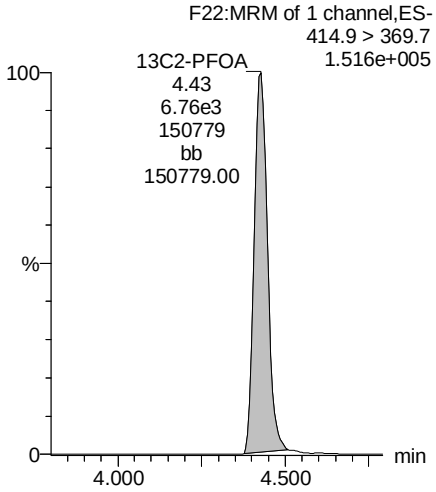


PFDA

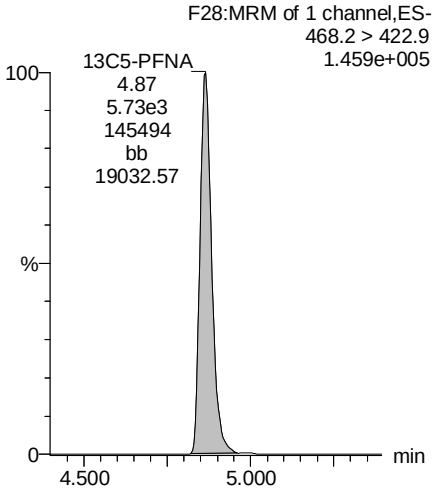




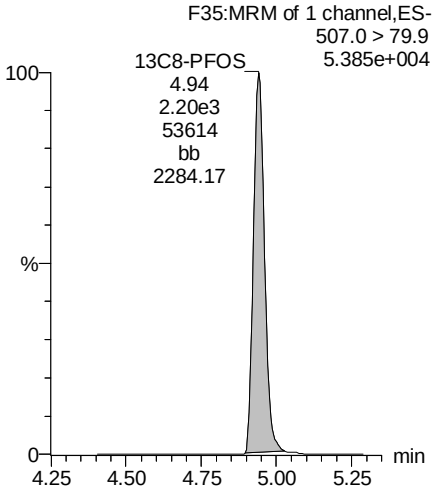
13C2-PFOA



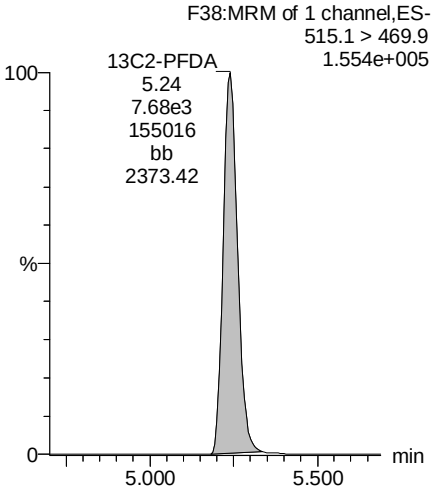
13C5-PFNA



13C8-PFOS



13C2-PFDA



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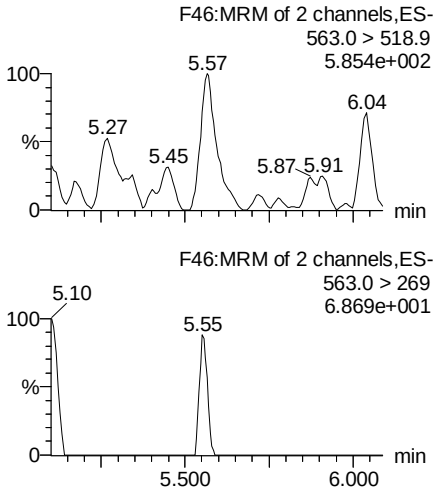
MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-50.qld

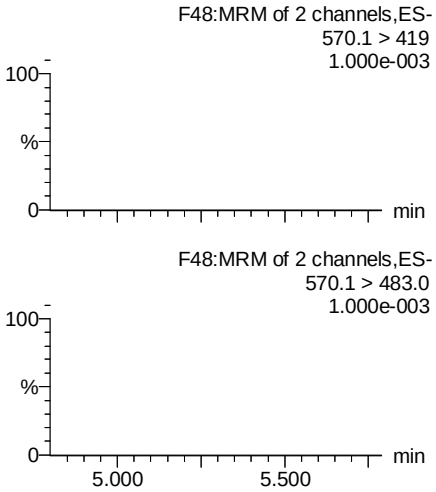
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Name: 180607M2_50, Date: 07-Jun-2018, Time: 22:44:39, ID: 1801054-02 A1-MW-54-SA1 0.11211, Description: A1-MW-54-SA1

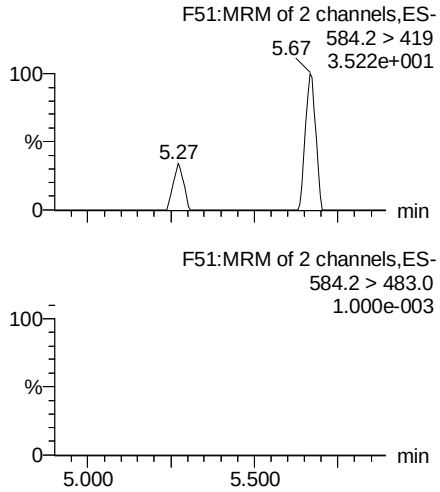
PFUdA



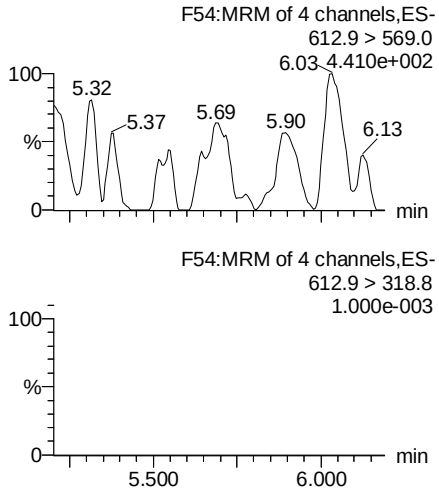
Total N-MeFOSAA



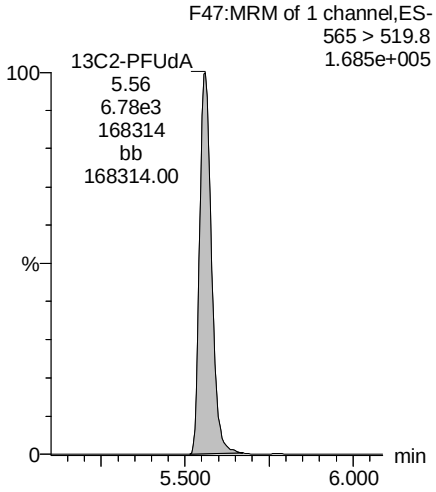
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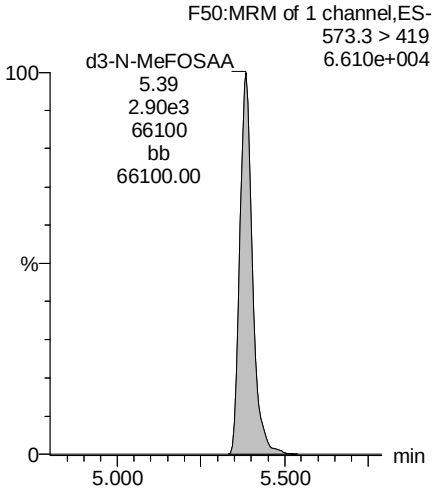
PFDoA



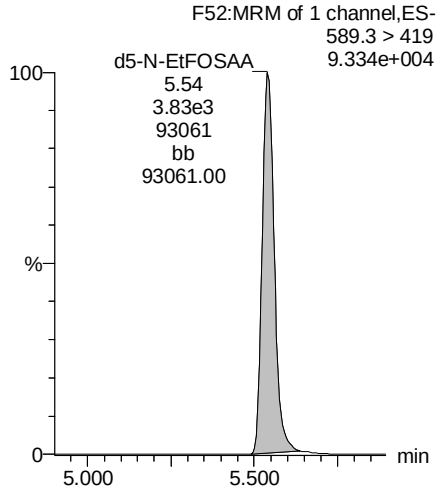
13C2-PFUdA



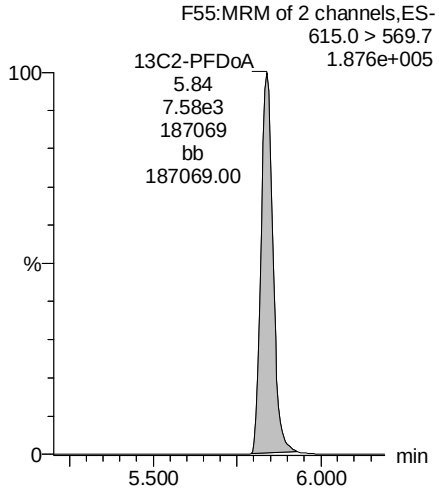
d3-N-MeFOSAA



d5-N-EtFOSAA



13C2-PFDoA



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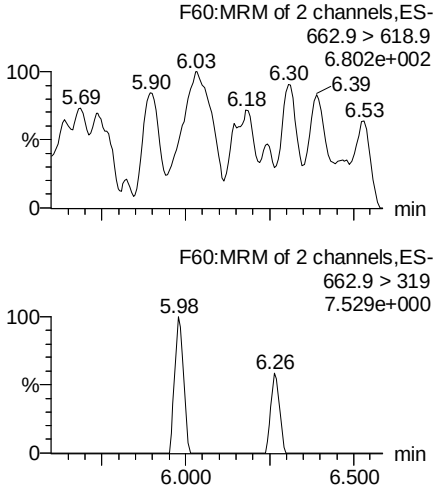
MM 6/11/2018

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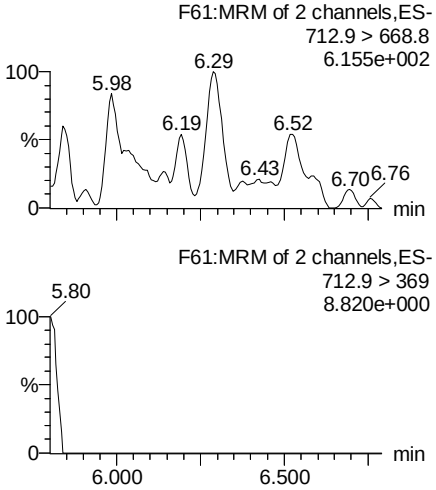
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Name: 180607M2_50, Date: 07-Jun-2018, Time: 22:44:39, ID: 1801054-02 A1-MW-54-SA1 0.11211, Description: A1-MW-54-SA1

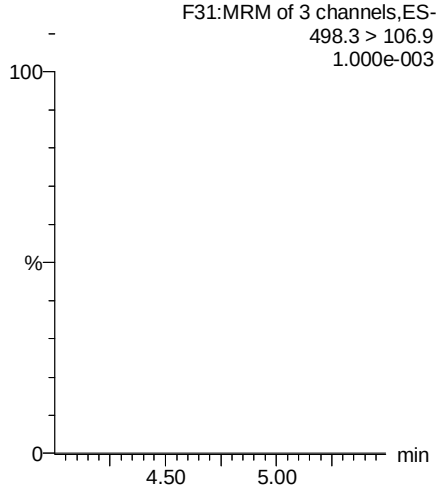
PFTrDA



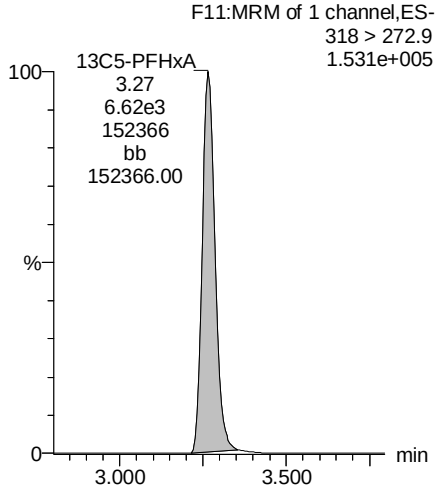
PFTeDA



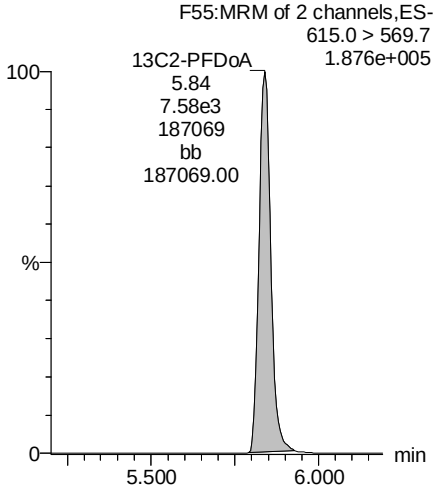
TCDA



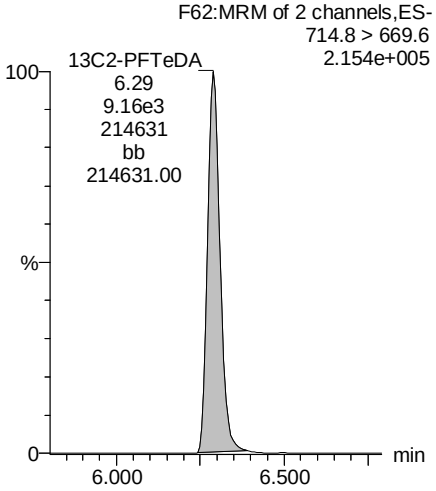
13C5-PFHxA



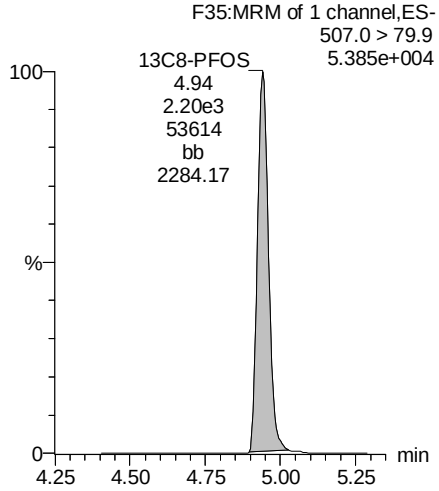
13C2-PFDoA



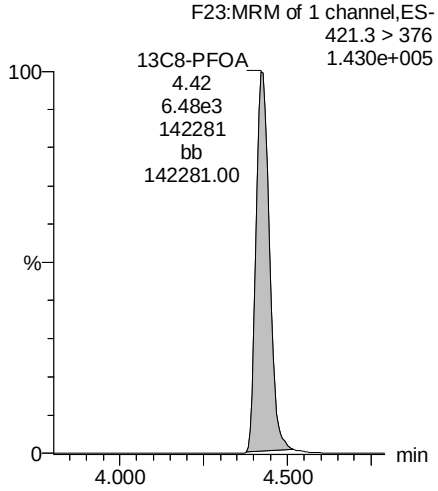
13C2-PFTeDA



13C8-PFOS



13C8-PFOA



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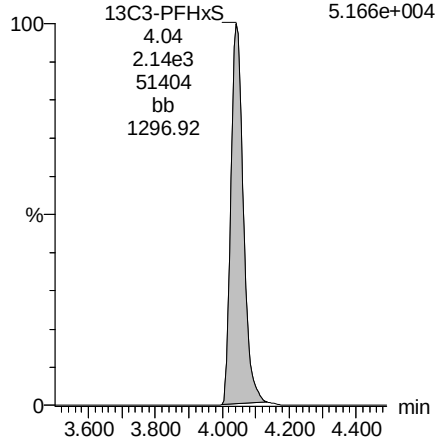
MM 6/11/2018

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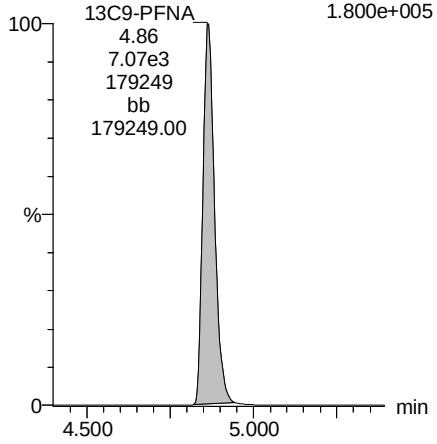
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Name: 180607M2_50, Date: 07-Jun-2018, Time: 22:44:39, ID: 1801054-02 A1-MW-54-SA1 0.11211, Description: A1-MW-54-SA1

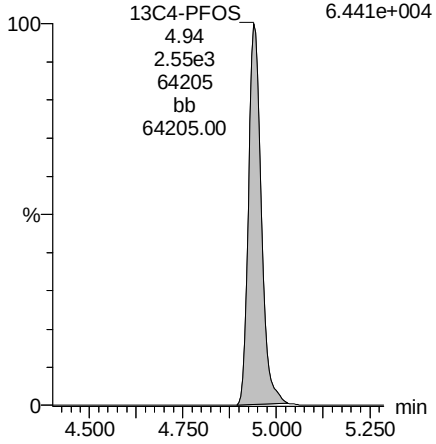
13C3-PFHxS



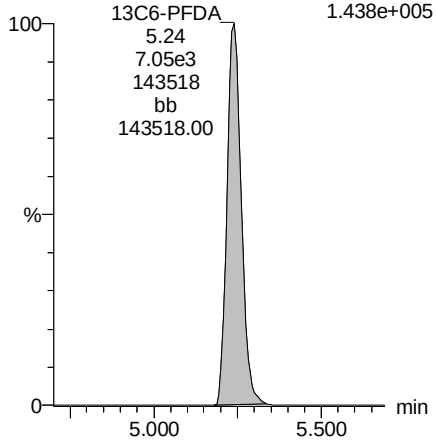
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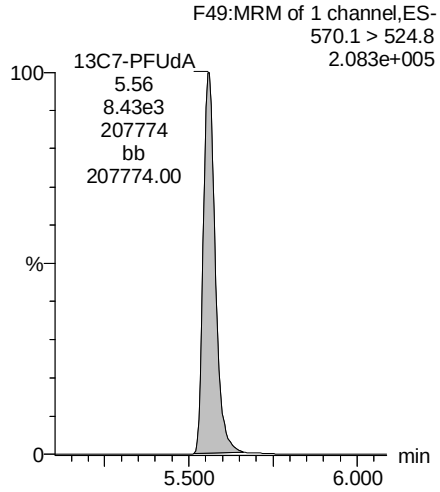
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-51.qld

Last Altered: Monday, June 11, 2018 11:45:21 Pacific Daylight Time
Printed: Monday, June 11, 2018 11:45:53 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_51, Date: 07-Jun-2018, Time: 22:55:09, ID: 1801054-03 A1-MW-53-SA1 0.1139, Description: A1-MW-53-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7	1.44e4	1.41e3	0.114		2.76	2.76	128	550.6738		2.717	NO
2	5	PFHxA	313.2 > 268.9	1.28e5	2.60e3	0.114		3.26	3.26	246	1461.0096		289.586	NO
3	7	PFHpA	363.0 > 318.9	5.02e3	7.44e3	0.114		3.90	3.90	8.43	60.6455		32.404	YES
4	8	L-PFHxS	398.9 > 79.6	1.13e4	1.25e3	0.114		4.02	4.04	112	504.6868		2.029	YES
5	11	L-PFOA	413 > 368.7	4.26e3	1.02e4	0.114		4.43	4.42	5.22	47.1246		5.098	NO
6	14	PFNA	463.0 > 418.8		7.67e3	0.114		4.68						
7	16	L-PFOS	499.1 > 79.9	5.22e1	2.88e3	0.114		4.93	4.83	0.227	1.8820		2.880	YES
8	18	PFDA	513 > 468.8		9.04e3	0.114		5.05						
9	21	L-MeFOSAA	570.1 > 419		3.78e3	0.114		5.18						
10	23	L-EtFOSAA	584.2 > 419		4.39e3	0.114		5.37						

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-51.qld

Last Altered: Monday, June 11, 2018 11:45:21 Pacific Daylight Time
Printed: Monday, June 11, 2018 15:30:15 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_51, Date: 07-Jun-2018, Time: 22:55:09, ID: 1801054-03 A1-MW-53-SA1 0.1139, Description: A1-MW-53-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	25	PFUdA	563.0 > 518.9		8.14e3	0.114		5.37						
2	27	PFDoA	612.9 > 569.0		8.39e3	0.114		5.65						
3	29	PFTrDA	662.9 > 618.9		8.39e3	0.114		5.89						
4	30	PFTeDA	712.9 > 668.8		1.12e4	0.114		6.11						
5	36	13C3-PFBA	216.1 > 171.8	5.79e3	7.10e3	0.114	0.870	1.34	1.50	10.2	102.7139	93.6		
6	37	13C3-PFPeA	266. > 221.8	7.67e3	9.28e3	0.114	0.870	2.32	2.49	10.3	104.2469	95.0		
7	38	13C3-PFBS	302. > 98.8	1.41e3	9.28e3	0.114	0.099	2.60	2.77	1.89	168.5555	153.6		
8	39	13C2-4:2 FTS	329.2>308.9	2.96e3	9.28e3	0.114	0.265	3.01	3.17	3.98	131.8672	120.2		
9	40	13C2-PFHxA	315 > 269.8	2.60e3	9.28e3	0.114	0.737	3.10	3.27	3.50	41.6568	94.9		
10	41	13C4-PFHpA	367.2 > 321.8	7.44e3	9.28e3	0.114	0.791	3.71	3.90	10.0	111.2503	101.4		
11	42	18O2-PFHxS	403.0 > 102.6	1.25e3	3.04e3	0.114	0.442	3.86	4.04	5.15	102.3800	93.3		
12	43	13C2-6:2 FTS	429.1 > 408.9	3.18e3	9.60e3	0.114	0.306	4.18	4.37	4.13	118.4463	107.9		
13	44	13C2-PFOA	414.9 > 369.7	1.02e4	9.60e3	0.114	1.285	4.23	4.42	13.3	90.7568	82.7		
14	45	13C5-PFNA	468.2 > 422.9	7.67e3	1.01e4	0.114	0.930	4.67	4.86	9.46	89.2809	81.4		
15	46	13C8-PFOSA	506.1 > 77.7	1.74e3	1.19e4	0.114	0.237	4.74	4.92	1.83	67.5237	61.5		
16	47	13C8-PFOS	507.0 > 79.9	2.88e3	3.08e3	0.114	1.039	4.75	4.94	11.7	98.7564	90.0		
17	48	13C2-PFDA	515.1 > 469.9	9.04e3	1.04e4	0.114	1.144	5.04	5.23	10.9	83.4788	76.1		
18	49	13C2-8:2 FTS	529.1 > 508.7	2.56e3	9.28e3	0.114	0.215	5.01	5.21	3.45	140.7522	128.3		
19	50	d3-N-MeFOSAA	573.3 > 419	3.78e3	1.19e4	0.114	0.351	5.19	5.39	3.96	98.8893	90.1		
20	51	d5-N-EtFOSAA	589.3 > 419	4.39e3	1.19e4	0.114	0.388	5.35	5.54	4.60	103.9372	94.7		
21	52	13C2-PFUdA	565 > 519.8	8.14e3	1.19e4	0.114	1.019	5.37	5.56	8.52	73.4119	66.9		
22	53	13C2-PFDoA	615.0 > 569.7	8.39e3	1.04e4	0.114	1.057	5.65	5.84	10.1	83.8646	76.4		
23	54	d3-N-MeFOSA	515.2 > 168.9		1.19e4	0.114	0.107	5.87						
24	55	13C2-PFTeDA	714.8 > 669.6	1.12e4	1.19e4	0.114	0.964	6.11	6.29	11.8	107.2239	97.7		
25	56	d5-N-ETFOSA	531.1 > 168.9		1.19e4	0.114	0.157	6.25						
26	57	13C2-PFHxDA	815 > 769.7	6.77e3	1.19e4	0.114	1.562	6.45	6.60	7.09	39.8405	90.8		
27	58	d7-N-MeFOSE	623.1 > 58.9		1.19e4	0.114	0.147	6.37						
28	59	d9-N-EtFOSE	639.2 > 58.8		1.19e4	0.114	0.149	6.52						
29	60	13C4-PFBA	217. > 171.8	7.10e3	7.10e3	0.114	1.000	1.33	1.49	12.5	109.7454	100.0		
30	61	13C5-PFHxA	318 > 272.9	9.28e3	9.28e3	0.114	1.000	3.09	3.27	12.5	109.7454	100.0		
31	62	13C3-PFHxS	401.9 > 79.9	3.04e3	3.04e3	0.114	1.000	3.87	4.04	12.5	109.7454	100.0		
32	63	13C8-PFOA	421.3 > 376	9.60e3	9.60e3	0.114	1.000	4.24	4.42	12.5	109.7454	100.0		ANP 6/11/2018

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-51.qld

Last Altered: Monday, June 11, 2018 11:45:21 Pacific Daylight Time
Printed: Monday, June 11, 2018 15:30:15 Pacific Daylight Time

Name: 180607M2_51, Date: 07-Jun-2018, Time: 22:55:09, ID: 1801054-03 A1-MW-53-SA1 0.1139, Description: A1-MW-53-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
33	64	13C9-PFNA	472.2 > 426.9	1.01e4	1.01e4	0.114	1.000	4.67	4.86	12.5	109.7454	100.0		
34	65	13C4-PFOS	503 > 79.9	3.08e3	3.08e3	0.114	1.000	4.75	4.94	12.5	109.7454	100.0		
35	66	13C6-PFDA	519.1 > 473.7	1.04e4	1.04e4	0.114	1.000	5.04	5.23	12.5	109.7454	100.0		
36	67	13C7-PFUdA	570.1 > 524.8	1.19e4	1.19e4	0.114	1.000	5.37	5.56	12.5	109.7454	100.0		
37	68	Total PFHxS	398.9 > 79.6	1.13e4	1.25e3	0.114		4.05		112	504.6868			
38	69	Total PFOA	413 > 368.7	5.59e3	1.02e4	0.114		4.30		6.85	61.5746			
39	70	Total PFOS	499.1 > 79.9	5.22e1	2.88e3	0.114		4.90		0.227	1.8820			
40	71	Total N-MeFOSAA	570.1 > 419	0.00e0	3.78e3	0.114		5.55		0.000				
41	72	Total N-EtFOSAA	584.2 > 419	0.00e0	4.39e3	0.114		5.70		0.000				

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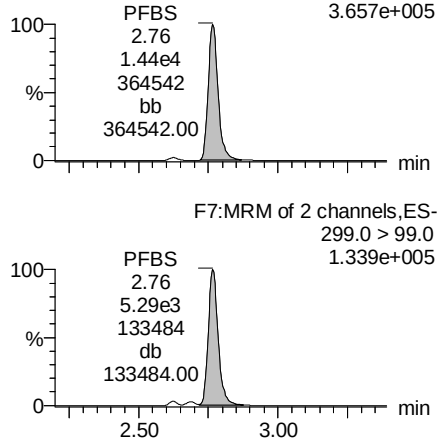
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Printed: Monday, June 11, 2018 11:46:01 Pacific Daylight Time

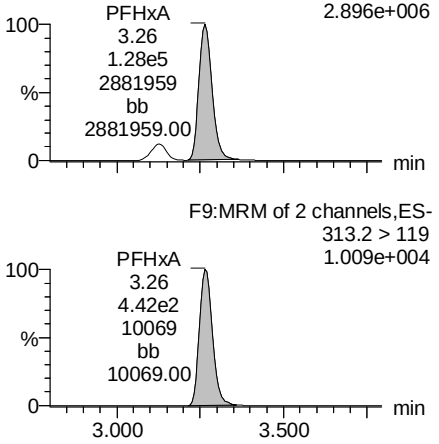
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Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_51, Date: 07-Jun-2018, Time: 22:55:09, ID: 1801054-03 A1-MW-53-SA1 0.1139, Description: A1-MW-53-SA1

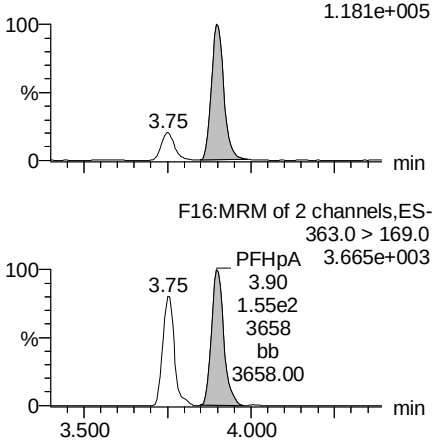
PFBS



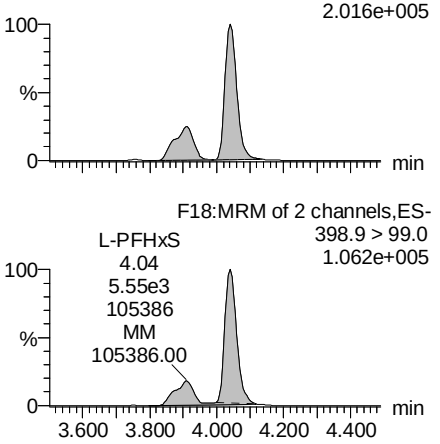
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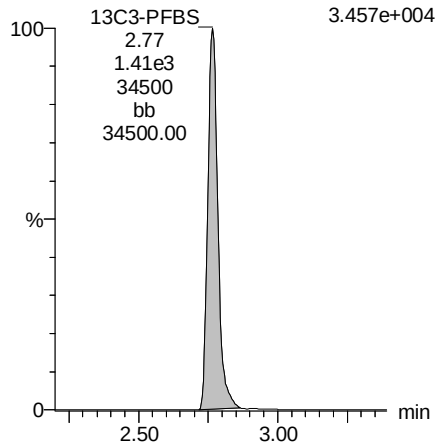
PFHpA



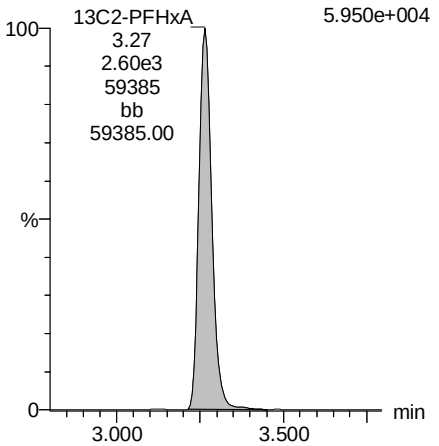
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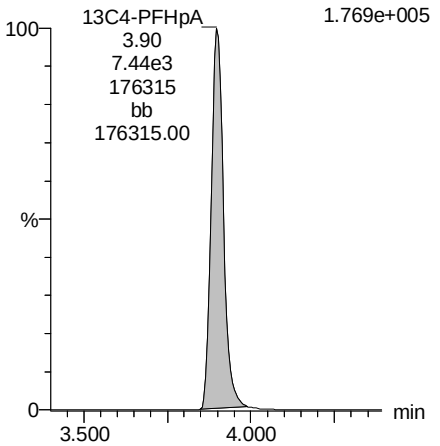
13C3-PFBS



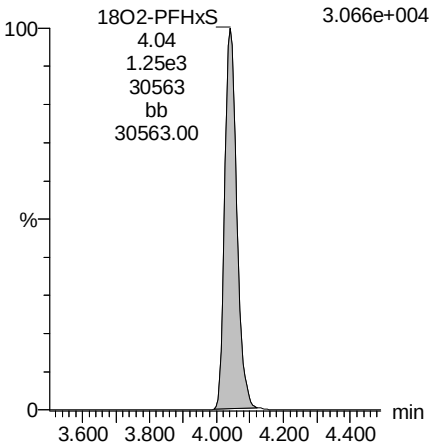
13C2-PFHxA



13C4-PFHpA



18O2-PFHxS



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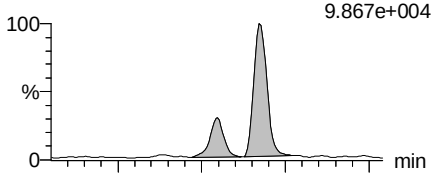
MM 6/11/2018

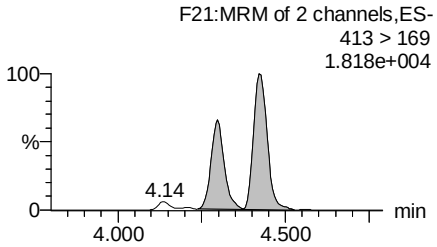
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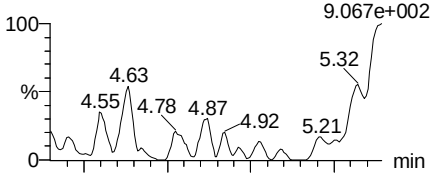
Name: 180607M2_51, Date: 07-Jun-2018, Time: 22:55:09, ID: 1801054-03 A1-MW-53-SA1 0.1139, Description: A1-MW-53-SA1

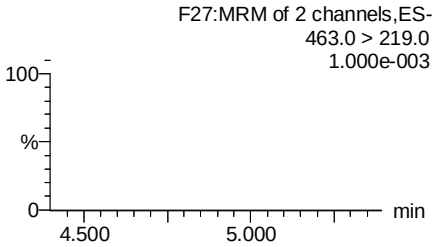
Total PFOA



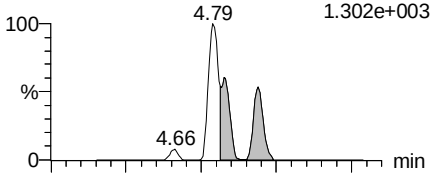


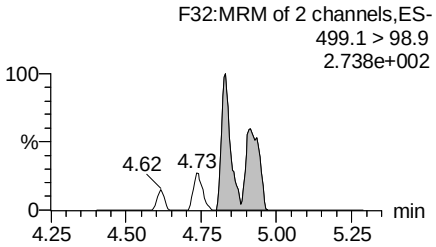
PFNA



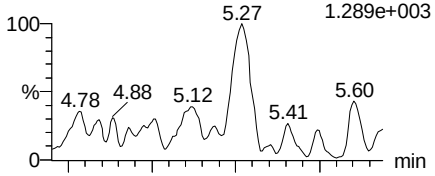


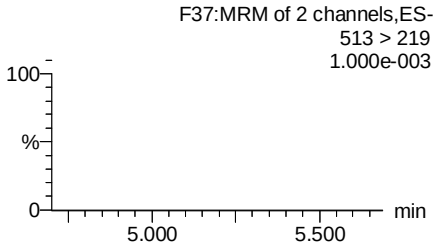
Total PFOS



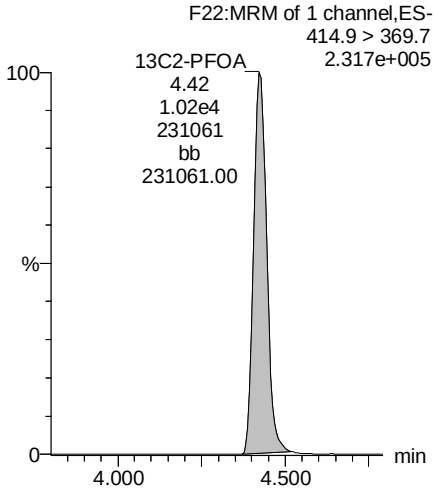


PFDA

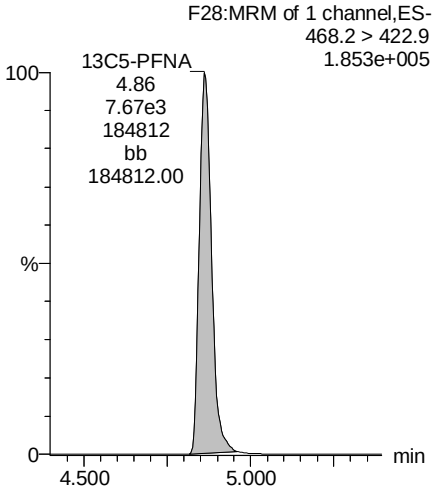




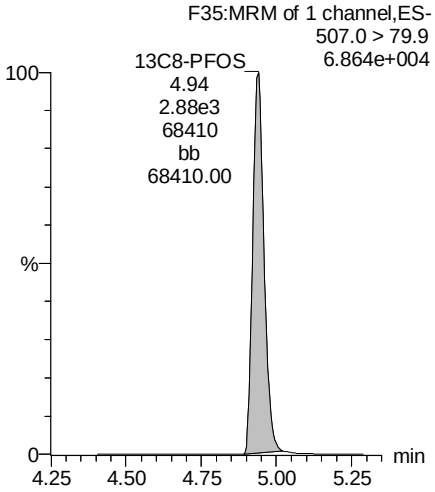
13C2-PFOA



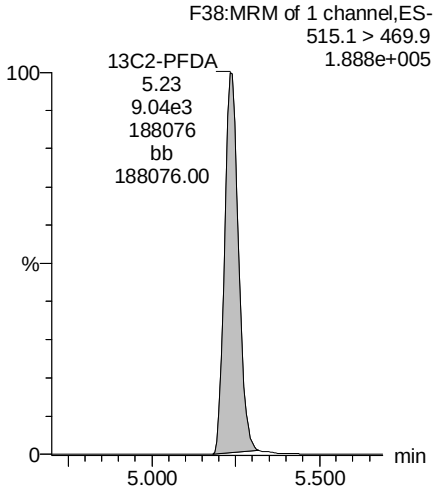
13C5-PFNA



13C8-PFOS



13C2-PFDA



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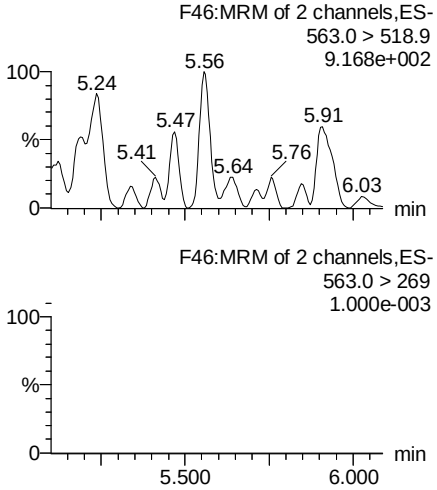
MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-51.qld

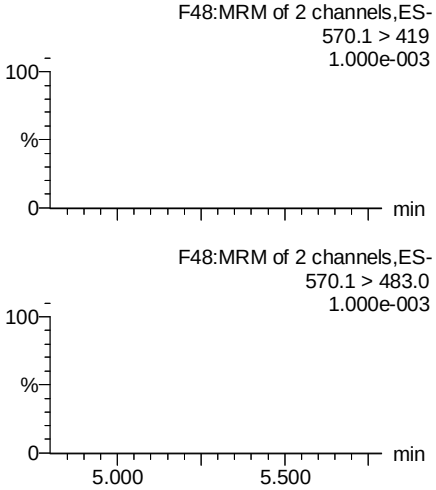
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Name: 180607M2_51, Date: 07-Jun-2018, Time: 22:55:09, ID: 1801054-03 A1-MW-53-SA1 0.1139, Description: A1-MW-53-SA1

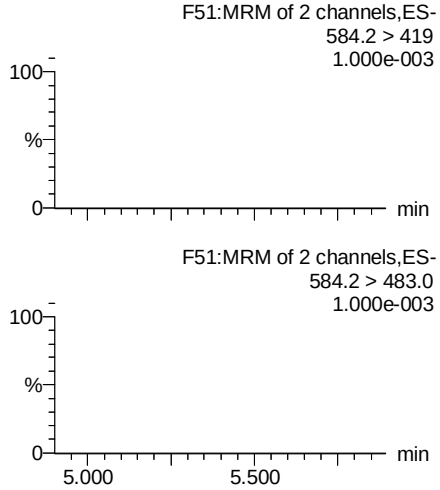
PFUdA



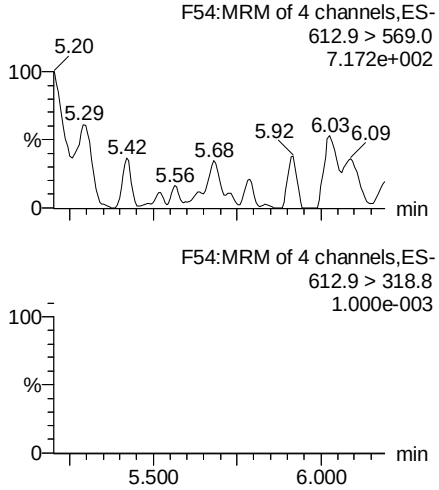
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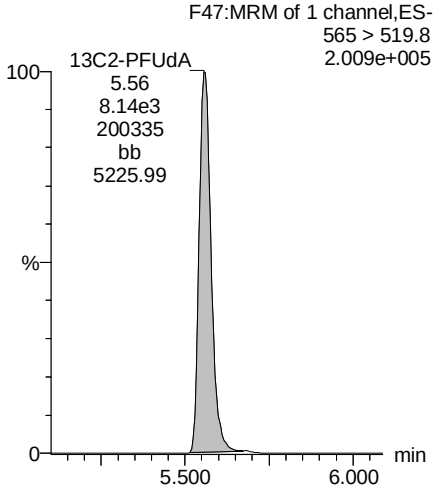
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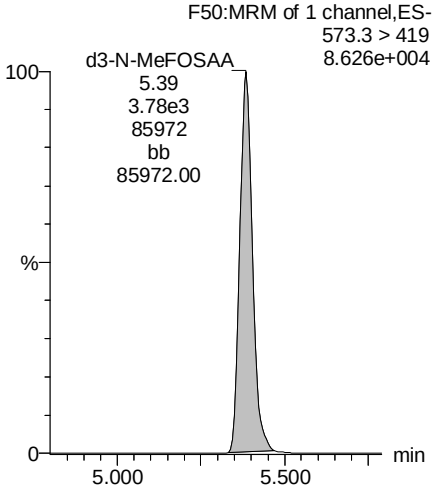
PFDoA



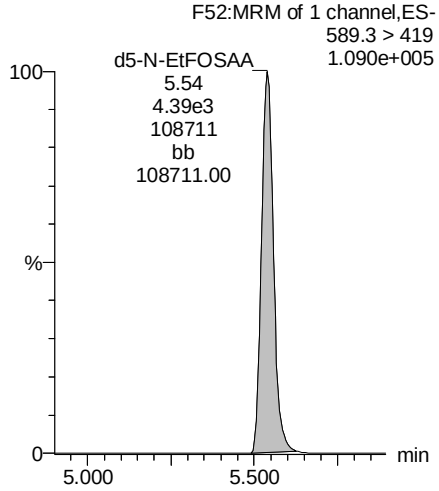
13C2-PFUdA



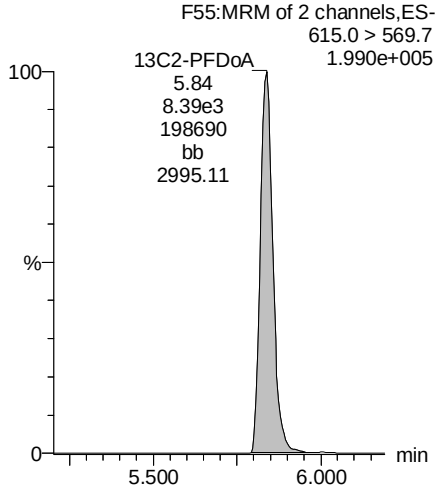
d3-N-MeFOSAA



d5-N-EtFOSAA



13C2-PFDoA



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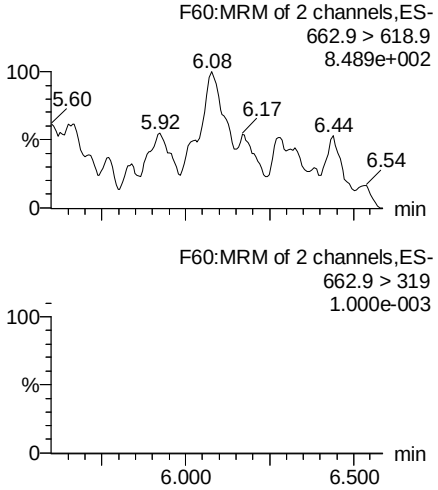
MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-51.qld

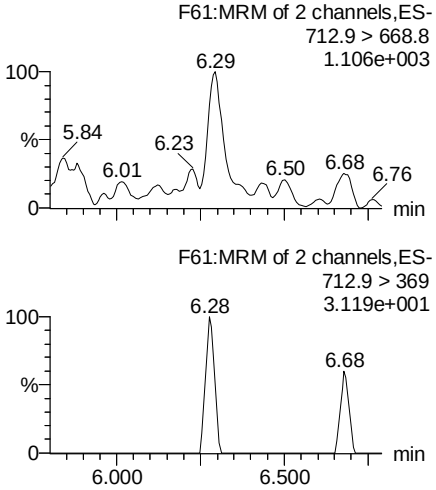
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Printed: Monday, June 11, 2018 11:46:01 Pacific Daylight Time

Name: 180607M2_51, Date: 07-Jun-2018, Time: 22:55:09, ID: 1801054-03 A1-MW-53-SA1 0.1139, Description: A1-MW-53-SA1

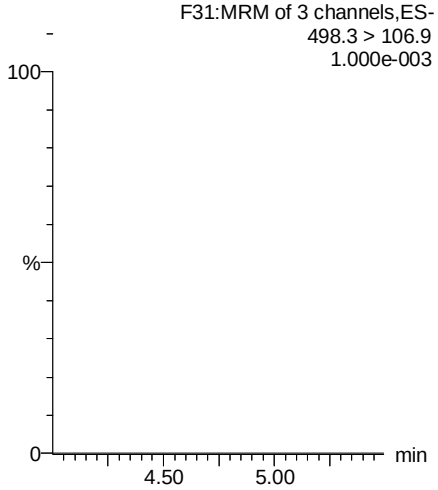
PFTrDA



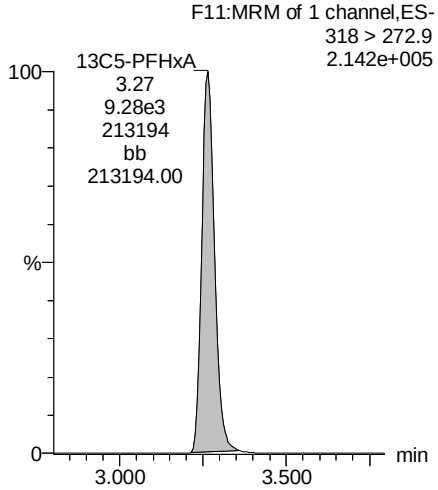
PFTeDA



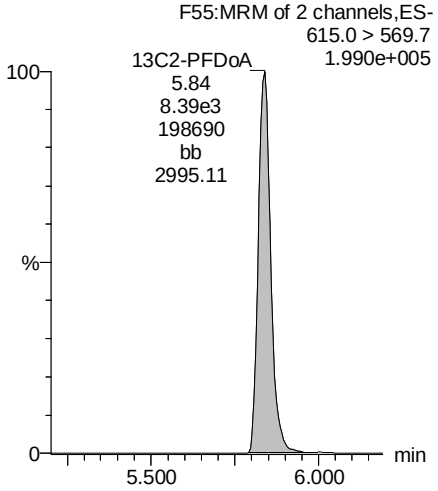
TCDA



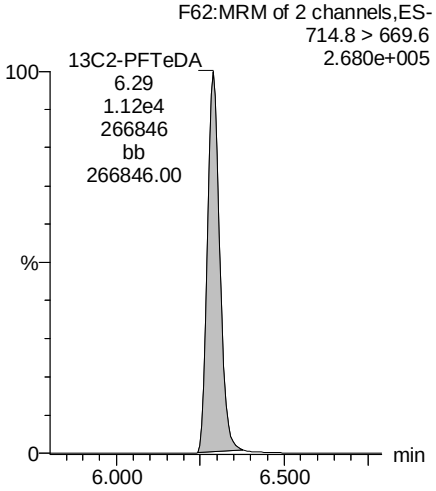
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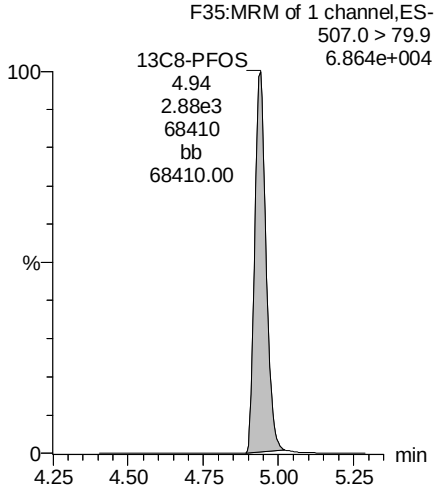
13C2-PFDoA



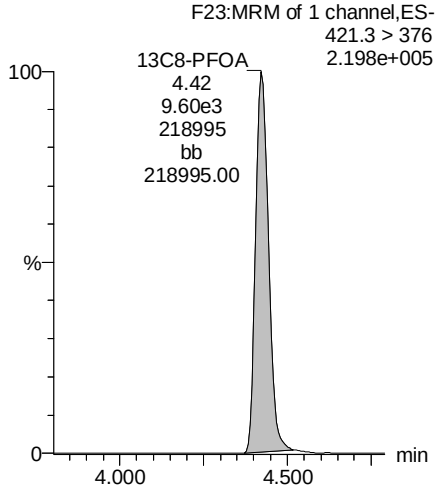
13C2-PFTeDA



13C8-PFOS



13C8-PFOA



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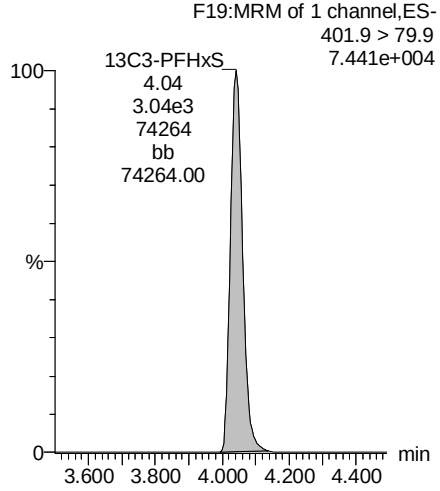
MM 6/11/2018

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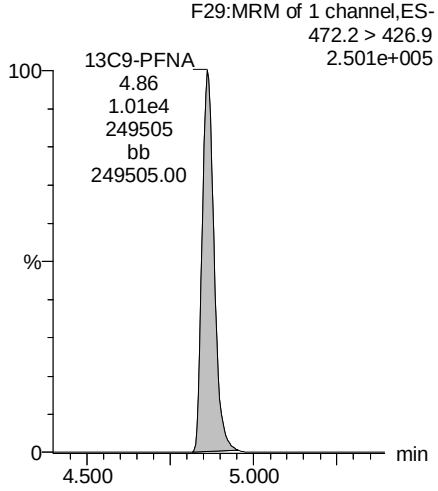
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Name: 180607M2_51, Date: 07-Jun-2018, Time: 22:55:09, ID: 1801054-03 A1-MW-53-SA1 0.1139, Description: A1-MW-53-SA1

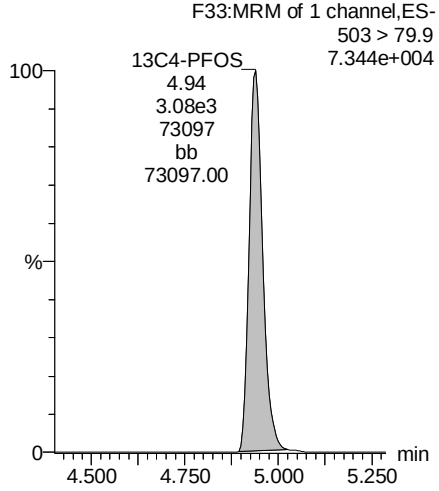
13C3-PFHxS



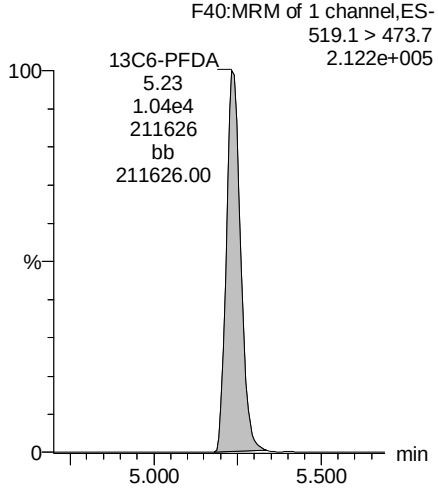
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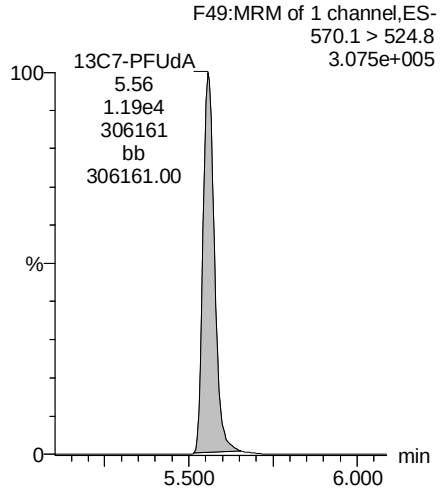
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-24.qld

Last Altered: Monday, June 11, 2018 11:22:03 Pacific Daylight Time
Printed: Monday, June 11, 2018 11:22:44 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_24, Date: 07-Jun-2018, Time: 18:12:39, ID: B8E0244-MS2 Matrix Spike 0.11122, Description: Matrix Spike

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7	1.12e4	9.58e2	0.111		2.77	2.78	147	647.8946		2.601	NO
2	5	PFHxA	313.2 > 268.9	8.80e4	1.60e3	0.111		3.28	3.28	274	1669.2598		310.605	NO
3	7	PFHpA	363.0 > 318.9	8.30e3	4.82e3	0.111		3.92	3.92	21.5	159.0294		31.409	YES
4	8	L-PFHxS	398.9 > 79.6	9.04e3	8.25e2	0.111		4.03	4.06	137	631.3481		1.780	YES
5	11	L-PFOA	413 > 368.7	9.50e3	7.40e3	0.111		4.43	4.44	16.1	149.6112		4.865	NO
6	14	PFNA	463.0 > 418.8	6.47e3	6.17e3	0.111		4.68	4.88	13.1	93.2812		5.327	NO
7	16	L-PFOS	499.1 > 79.9	1.83e3	2.27e3	0.111		4.93	4.95	10.1	96.3088		2.097	NO
8	18	PFDA	513 > 468.8	6.68e3	6.81e3	0.111		5.05	5.25	12.3	114.2761		7.603	YES
9	21	L-MeFOSAA	570.1 > 419	3.22e3	2.48e3	0.111		5.18	5.41	16.2	103.5406		13.081	YES
10	23	L-EtFOSAA	584.2 > 419	2.39e3	2.96e3	0.111		5.37	5.56	10.1	88.8891		15.564	NO

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-24.qld

Last Altered: Monday, June 11, 2018 11:22:03 Pacific Daylight Time
Printed: Monday, June 11, 2018 15:27:31 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_24, Date: 07-Jun-2018, Time: 18:12:39, ID: B8E0244-MS2 Matrix Spike 0.11122, Description: Matrix Spike

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	25	PFUdA	563.0 > 518.9	6.32e3	7.02e3	0.111		5.37	5.57	11.3	105.2889		14.149	NO
2	27	PFDoA	612.9 > 569.0	8.53e3	7.89e3	0.111		5.65	5.85	13.5	105.8542		9.409	NO
3	29	PFTrDA	662.9 > 618.9	1.03e4	7.89e3	0.111		5.89	6.10	16.3	126.7983		46.051	YES
4	30	PFTeDA	712.9 > 668.8	1.05e4	9.95e3	0.111		6.11	6.30	13.2	103.4881		12.806	NO
5	36	13C3-PFBA	216.1 > 171.8	3.19e3	4.00e3	0.111	0.870	1.34	1.51	9.96	102.8860	91.5		
6	37	13C3-PFPeA	266. > 221.8	4.42e3	5.74e3	0.111	0.870	2.32	2.50	9.64	99.6736	88.7		
7	38	13C3-PFBS	302. > 98.8	9.58e2	5.74e3	0.111	0.099	2.60	2.78	2.09	190.2645	169.3		
8	39	13C2-4:2 FTS	329.2>308.9	2.25e3	5.74e3	0.111	0.265	3.01	3.19	4.91	166.5631	148.2		
9	40	13C2-PFHxA	315 > 269.8	1.60e3	5.74e3	0.111	0.737	3.10	3.28	3.49	42.6209	94.8		
10	41	13C4-PFHpA	367.2 > 321.8	4.82e3	5.74e3	0.111	0.791	3.71	3.92	10.5	119.4300	106.3		
11	42	18O2-PFHxS	403.0 > 102.6	8.25e2	2.07e3	0.111	0.442	3.86	4.06	4.98	101.2337	90.1		
12	43	13C2-6:2 FTS	429.1 > 408.9	2.00e3	7.35e3	0.111	0.306	4.18	4.39	3.40	99.7090	88.7		
13	44	13C2-PFOA	414.9 > 369.7	7.40e3	7.35e3	0.111	1.285	4.23	4.45	12.6	88.0258	78.3		
14	45	13C5-PFNA	468.2 > 422.9	6.17e3	7.95e3	0.111	0.930	4.67	4.88	9.70	93.7501	83.4		
15	46	13C8-PFOSA	506.1 > 77.7	1.38e3	9.48e3	0.111	0.237	4.74	4.93	1.82	68.8638	61.3		
16	47	13C8-PFOS	507.0 > 79.9	2.27e3	2.17e3	0.111	1.039	4.75	4.96	13.0	112.9042	100.5		
17	48	13C2-PFDA	515.1 > 469.9	6.81e3	8.51e3	0.111	1.144	5.04	5.25	10.0	78.5440	69.9		
18	49	13C2-8:2 FTS	529.1 > 508.7	1.89e3	5.74e3	0.111	0.215	5.01	5.23	4.11	171.5976	152.7		
19	50	d3-N-MeFOSAA	573.3 > 419	2.48e3	9.48e3	0.111	0.351	5.19	5.40	3.27	83.6472	74.4		
20	51	d5-N-EtFOSAA	589.3 > 419	2.96e3	9.48e3	0.111	0.388	5.35	5.55	3.90	90.3821	80.4		
21	52	13C2-PFUdA	565 > 519.8	7.02e3	9.48e3	0.111	1.019	5.37	5.57	9.25	81.6293	72.6		
22	53	13C2-PFDoA	615.0 > 569.7	7.89e3	8.51e3	0.111	1.057	5.65	5.85	11.6	98.6508	87.8		
23	54	d3-N-MeFOSA	515.2 > 168.9		9.48e3	0.111	0.107	5.87						
24	55	13C2-PFTeDA	714.8 > 669.6	9.95e3	9.48e3	0.111	0.964	6.11	6.30	13.1	122.3396	108.9		
25	56	d5-N-ETFOSA	531.1 > 168.9		9.48e3	0.111	0.157	6.25						
26	57	13C2-PFHxDA	815 > 769.7	6.57e3	9.48e3	0.111	1.562	6.45	6.61	8.66	49.8330	110.8		
27	58	d7-N-MeFOSE	623.1 > 58.9		9.48e3	0.111	0.147	6.37						
28	59	d9-N-EtFOSE	639.2 > 58.8		9.48e3	0.111	0.149	6.52						
29	60	13C4-PFBA	217. > 171.8	4.00e3	4.00e3	0.111	1.000	1.33	1.51	12.5	112.3899	100.0		
30	61	13C5-PFHxA	318 > 272.9	5.74e3	5.74e3	0.111	1.000	3.09	3.28	12.5	112.3899	100.0		
31	62	13C3-PFHxS	401.9 > 79.9	2.07e3	2.07e3	0.111	1.000	3.87	4.06	12.5	112.3899	100.0		
32	63	13C8-PFOA	421.3 > 376	7.35e3	7.35e3	0.111	1.000	4.24	4.44	12.5	112.3899	100.0		ANP 6/11/2018

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-24.qld

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Printed: Monday, June 11, 2018 15:27:31 Pacific Daylight Time

Name: 180607M2_24, Date: 07-Jun-2018, Time: 18:12:39, ID: B8E0244-MS2 Matrix Spike 0.11122, Description: Matrix Spike

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
33	64	13C9-PFNA	472.2 > 426.9	7.95e3	7.95e3	0.111	1.000	4.67	4.88	12.5	112.3899	100.0		
34	65	13C4-PFOS	503 > 79.9	2.17e3	2.17e3	0.111	1.000	4.75	4.95	12.5	112.3899	100.0		
35	66	13C6-PFDA	519.1 > 473.7	8.51e3	8.51e3	0.111	1.000	5.04	5.25	12.5	112.3899	100.0		
36	67	13C7-PFUdA	570.1 > 524.8	9.48e3	9.48e3	0.111	1.000	5.37	5.58	12.5	112.3899	100.0		
37	68	Total PFHxS	398.9 > 79.6	9.04e3	8.25e2	0.111		4.05		137	631.3481			
38	69	Total PFOA	413 > 368.7	1.04e4	7.40e3	0.111		4.30		17.6	163.9327			
39	70	Total PFOS	499.1 > 79.9	1.83e3	2.27e3	0.111		4.90		10.1	96.3088			
40	71	Total N-MeFOSAA	570.1 > 419	3.22e3	2.48e3	0.111		5.55		16.2	103.5406			
41	72	Total N-EtFOSAA	584.2 > 419	2.39e3	2.96e3	0.111		5.70		10.1	88.8891			

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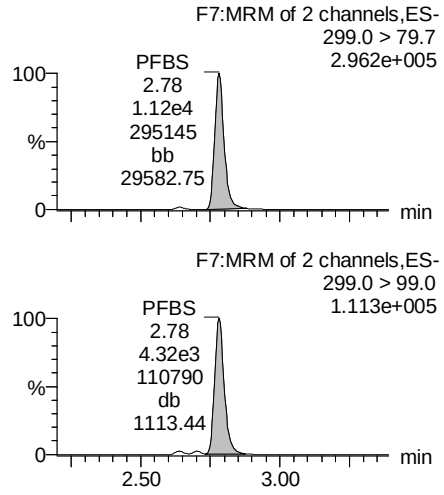
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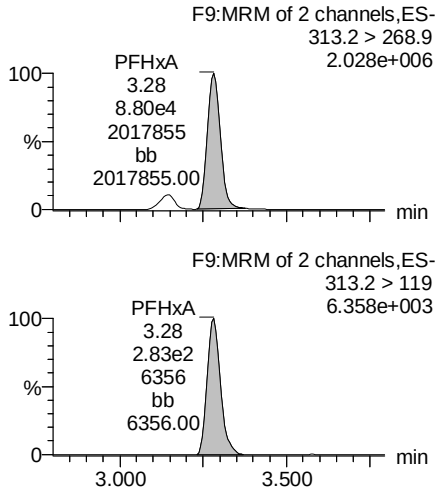
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Name: 180607M2_24, Date: 07-Jun-2018, Time: 18:12:39, ID: B8E0244-MS2 Matrix Spike 0.11122, Description: Matrix Spike

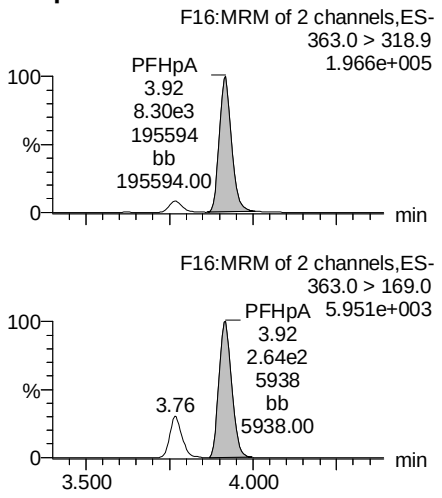
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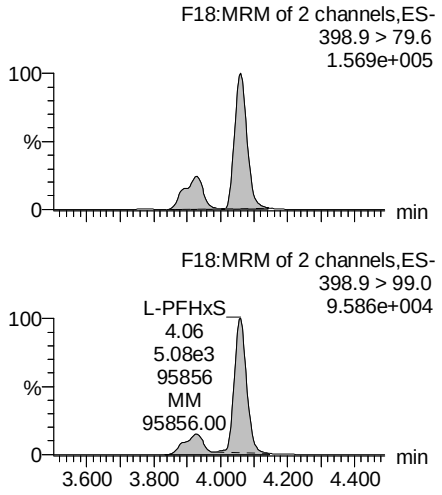
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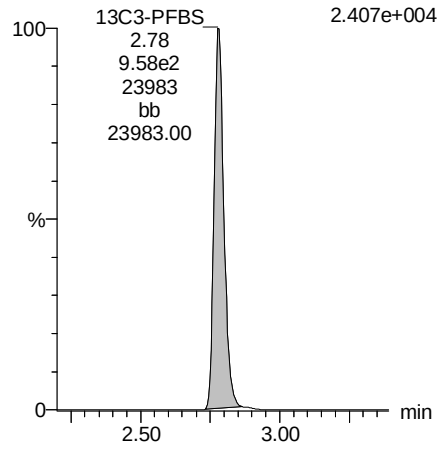
PFHpA



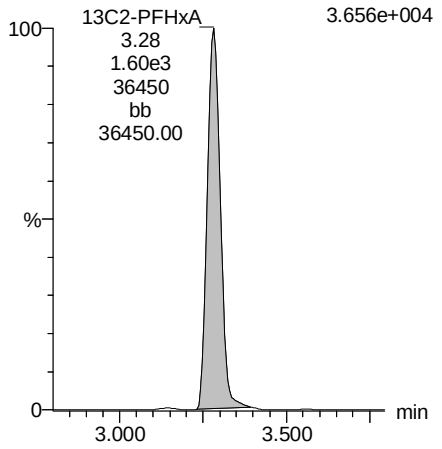
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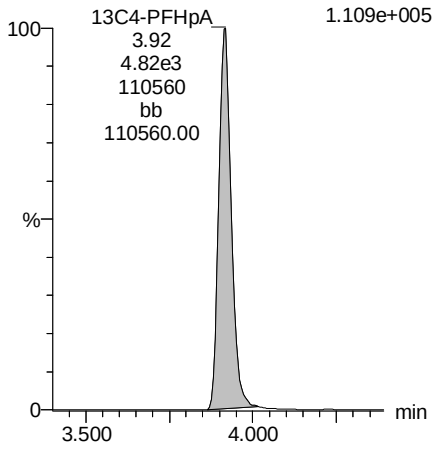
13C3-PFBS



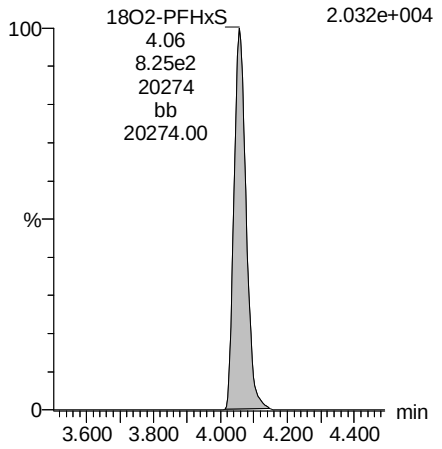
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13C4-PFHpA



18O2-PFHxS



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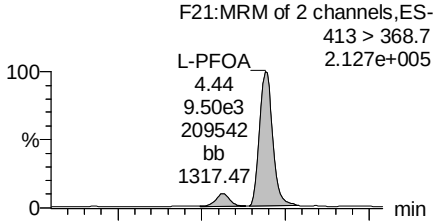
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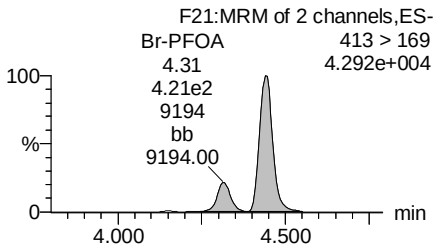
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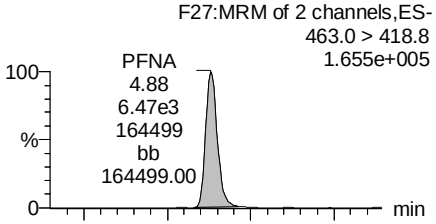
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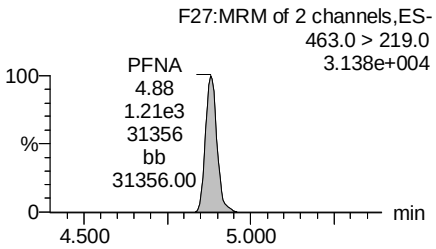
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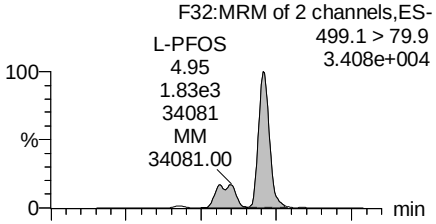


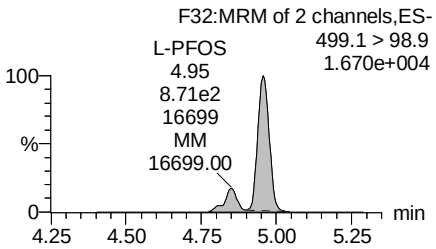
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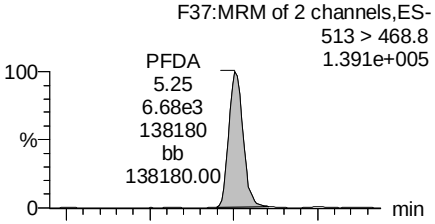


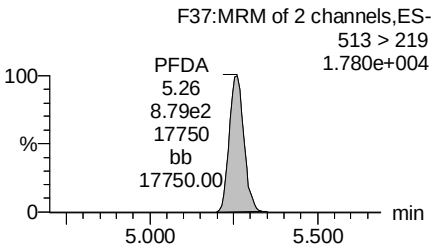
Total PFOS



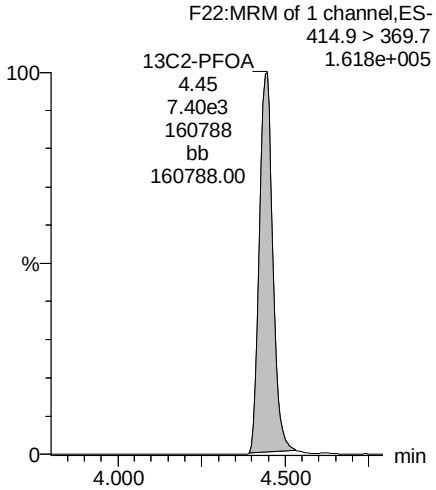


PFDA

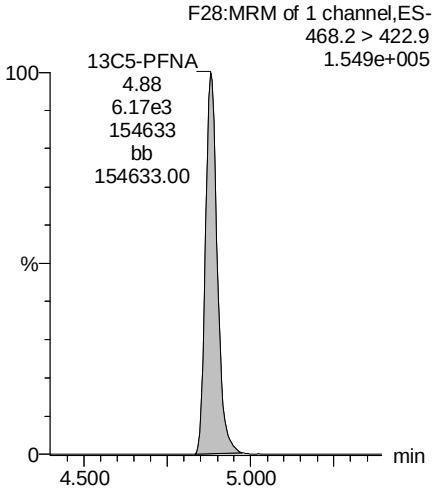




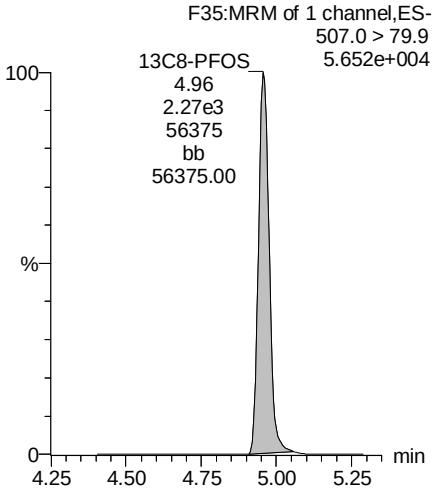
13C2-PFOA



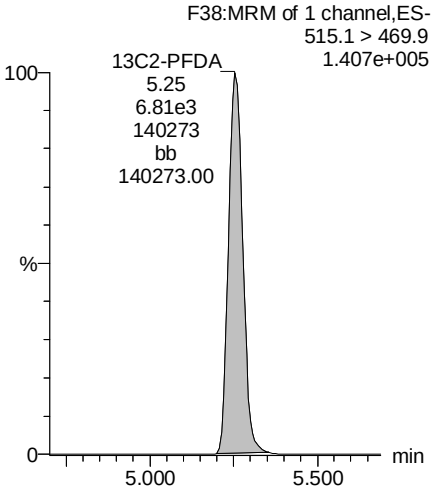
13C5-PFNA



13C8-PFOS



13C2-PFDA



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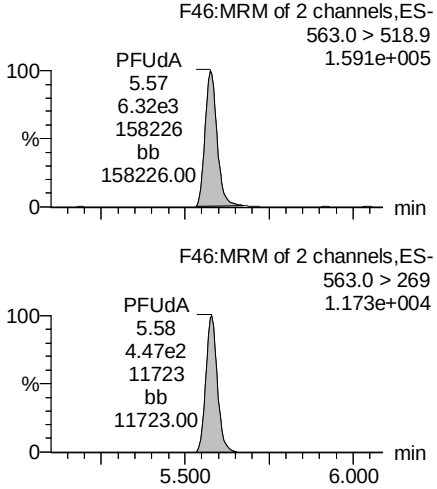
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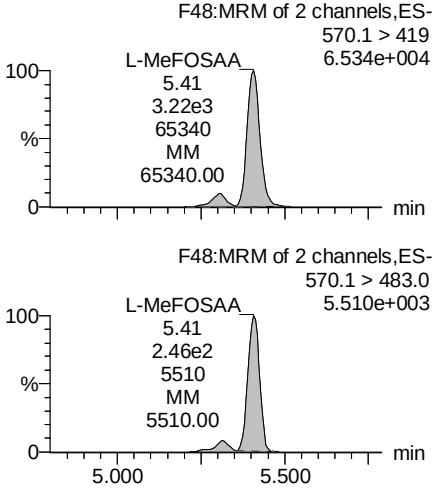
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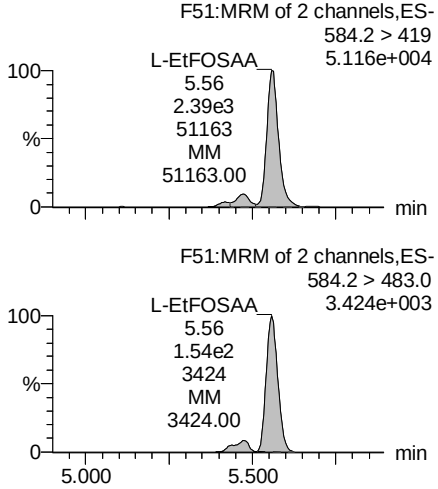
PFUdA



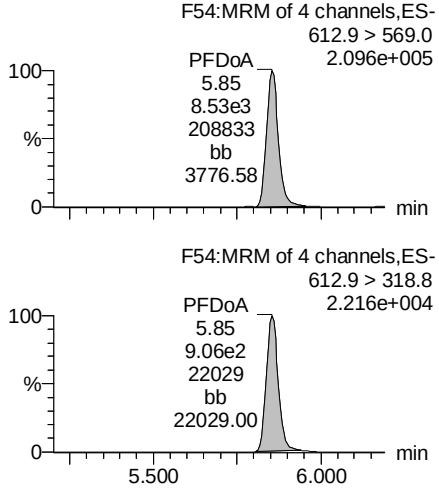
Total N-MeFOSAA



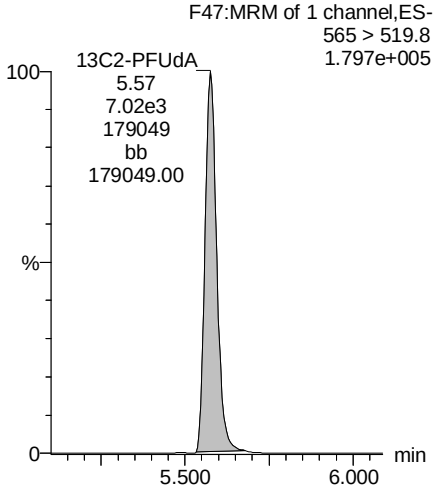
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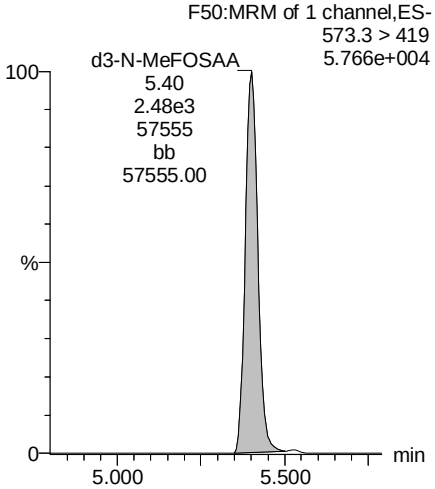
PFDoA



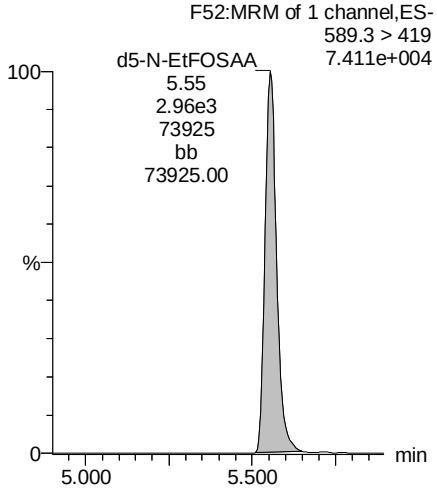
13C2-PFUdA



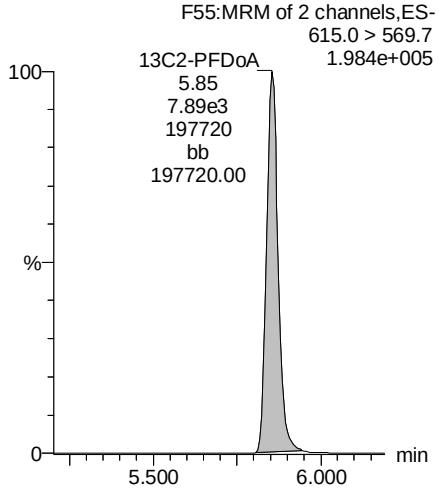
d3-N-MeFOSAA



d5-N-EtFOSAA



13C2-PFDoA



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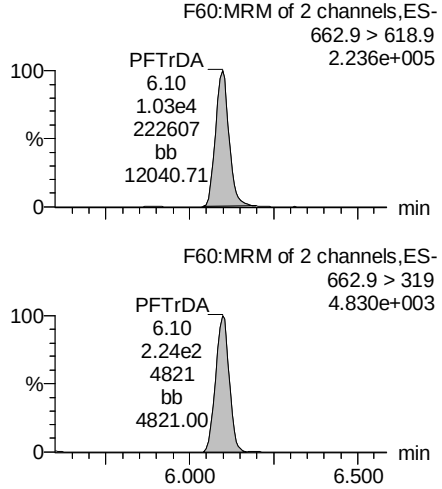
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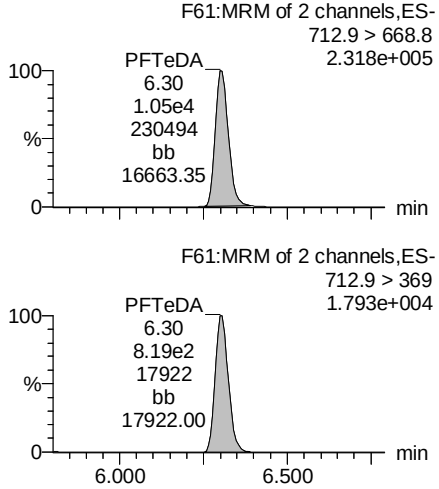
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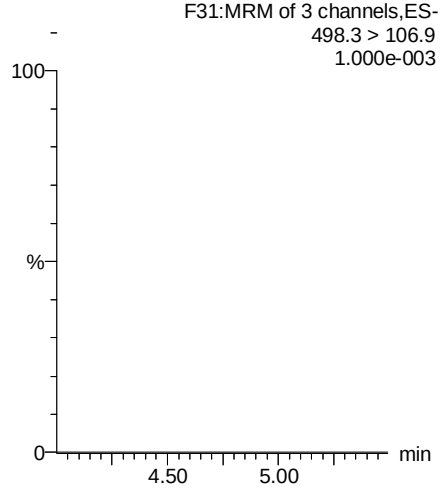
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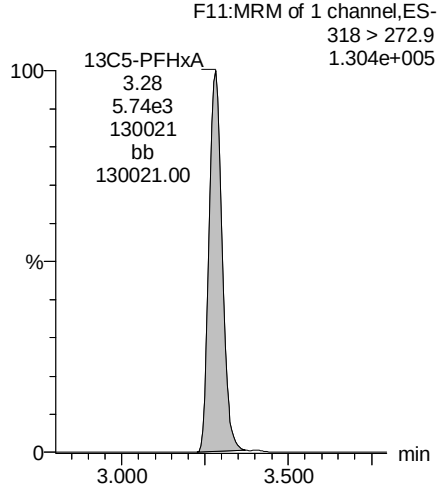
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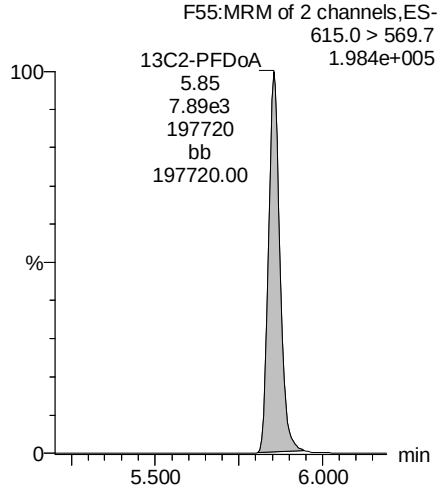
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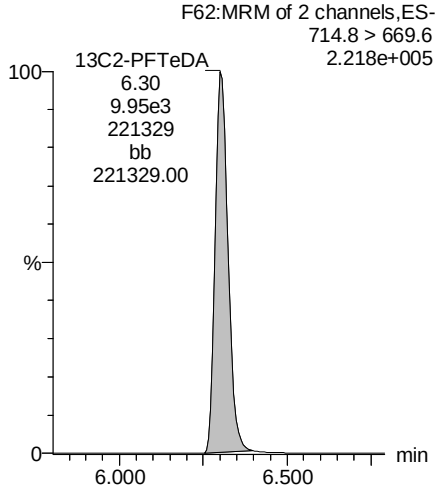
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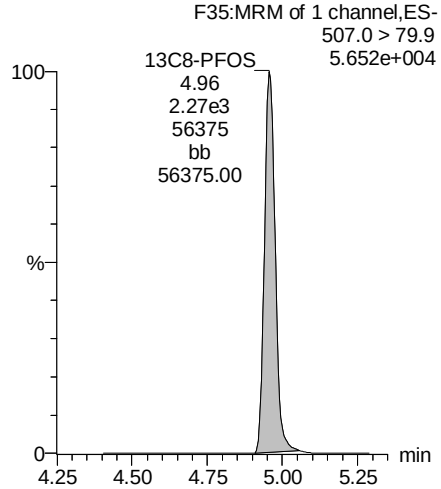
13C2-PFDoA



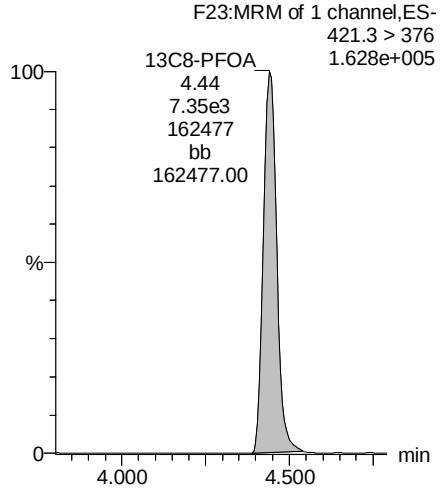
13C2-PFTeDA



13C8-PFOS



13C8-PFOA



ANP 6/11/2018

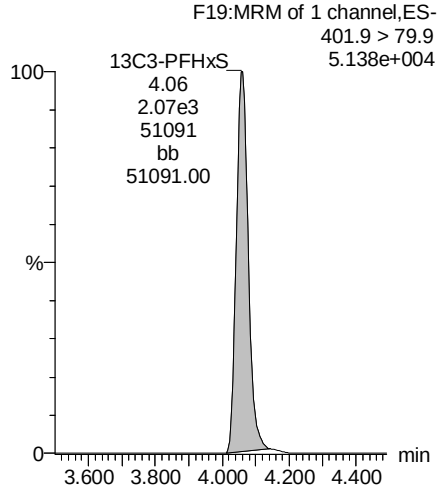
MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-24.qld

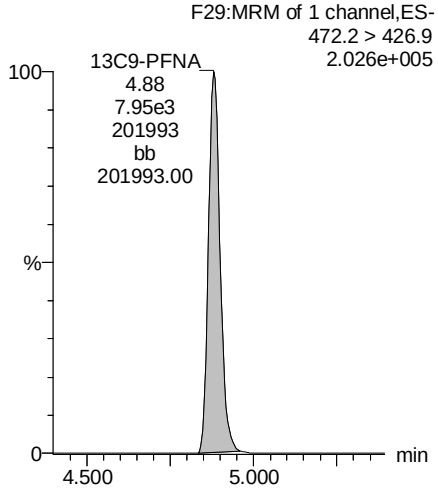
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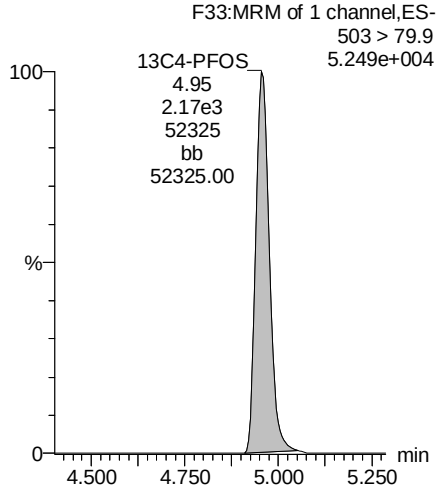
13C3-PFHxS



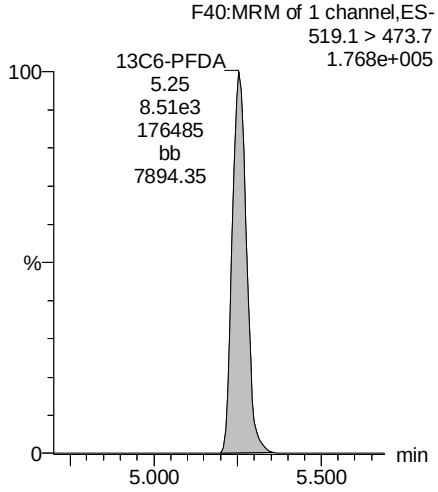
13C9-PFNA



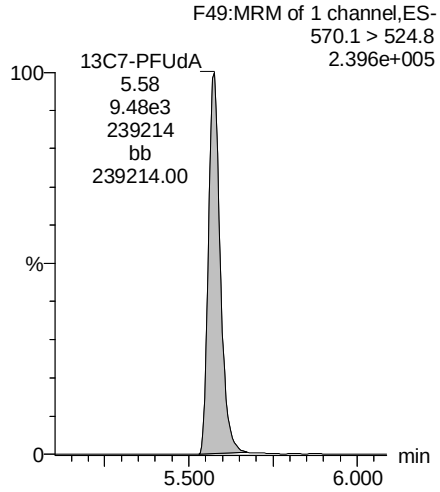
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180605M2\180605M2-60.qld

Last Altered: Monday, June 11, 2018 14:33:17 Pacific Daylight Time
Printed: Monday, June 11, 2018 14:34:51 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060518.mdb 09 Jun 2018 13:23:07
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-04-18.cdb 05 Jun 2018 10:43:30

Name: 180605M2_60, Date: 06-Jun-2018, Time: 02:45:18, ID: B8E0244-MSD2 Matrix Spike Dup 0.11512, Description: Matrix Spike Dup

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7	1.44e4	1.34e3	0.115		2.57	2.57	134	583.3988		2.760	NO
2	5	PFHxA	313.2 > 268.9	1.30e5	2.28e3	0.115		3.07	3.07	286	1612.7918		225.073	NO
3	7	PFHpA	363.0 > 318.9	1.13e4	6.64e3	0.115		3.68	3.68	21.2	158.0686		15.490	NO
4	8	L-PFHxS	398.9 > 79.6	1.14e4	1.15e3	0.115		3.83	3.83	123	555.4318		1.978	NO
5	11	L-PFOA	413 > 368.7	1.36e4	1.12e4	0.115		4.25	4.20	15.1	145.9401		3.601	NO
6	14	PFNA	463.0 > 418.8	1.05e4	9.84e3	0.115		4.66	4.64	13.4	90.7941		4.847	NO
7	16	L-PFOS	499.1 > 79.9	2.38e3	2.96e3	0.115		4.74	4.72	10.0	93.8749		1.888	NO
8	18	PFDA	513 > 468.8	1.01e4	1.18e4	0.115		5.03	5.01	10.8	90.7436		7.311	NO
9	21	L-MeFOSAA	570.1 > 419	3.72e3	2.98e3	0.115		5.18	5.17	15.6	71.6508		16.713	NO
10	23	L-EtFOSAA	584.2 > 419	3.05e3	3.89e3	0.115		5.37	5.33	9.80	74.6102		18.623	YES

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MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180605M2\180605M2-60.qld

Last Altered: Monday, June 11, 2018 14:33:17 Pacific Daylight Time
Printed: Monday, June 11, 2018 15:26:41 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060518.mdb 09 Jun 2018 13:23:07
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-04-18.cdb 05 Jun 2018 10:43:30

Name: 180605M2_60, Date: 06-Jun-2018, Time: 02:45:18, ID: B8E0244-MSD2 Matrix Spike Dup 0.11512, Description: Matrix Spike Dup

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	25	PFUdA	563.0 > 518.9	9.14e3	1.07e4	0.115		5.35	5.34	10.7	95.6891		11.771	NO
2	27	PFDoA	612.9 > 569.0	1.13e4	1.05e4	0.115		5.63	5.62	13.5	105.3057		11.042	NO
3	29	PFTrDA	662.9 > 618.9	1.34e4	1.05e4	0.115		5.88	5.87	16.0	128.3382		25.131	NO
4	30	PFTeDA	712.9 > 668.8	1.17e4	9.78e3	0.115		6.10	6.08	15.0	100.1736		12.409	NO
5	36	13C3-PFBA	216.1 > 171.8	4.59e3	5.24e3	0.115	0.885	1.34	1.30	10.9	107.4682	99.0		
6	37	13C3-PFPeA	266. > 221.8	6.18e3	8.01e3	0.115	0.849	2.31	2.28	9.64	98.6238	90.8		
7	38	13C3-PFBS	302. > 98.8	1.34e3	8.01e3	0.115	0.104	2.60	2.57	2.10	175.2817	161.4		
8	39	13C2-4:2 FTS	329.2>308.9	2.62e3	8.01e3	0.115	0.248	3.01	2.98	4.09	143.4323	132.1		
9	40	13C2-PFHxA	315 > 269.8	2.28e3	8.01e3	0.115	0.729	3.09	3.07	3.55	42.3383	97.5		
10	41	13C4-PFHpA	367.2 > 321.8	6.64e3	8.01e3	0.115	0.836	3.71	3.68	10.4	107.6133	99.1		
11	42	18O2-PFHxS	403.0 > 102.6	1.15e3	2.65e3	0.115	0.443	3.86	3.83	5.45	106.8981	98.4		
12	43	13C2-6:2 FTS	429.1 > 408.9	2.83e3	1.05e4	0.115	0.249	4.17	4.15	3.38	117.7937	108.5		
13	44	13C2-PFOA	414.9 > 369.7	1.12e4	1.05e4	0.115	1.332	4.23	4.20	13.4	87.0910	80.2		
14	45	13C5-PFNA	468.2 > 422.9	9.84e3	1.15e4	0.115	0.951	4.66	4.64	10.7	97.4351	89.7		
15	46	13C8-PFOSA	506.1 > 77.7	1.22e3	1.67e4	0.115	0.140	4.73	4.71	0.913	56.8397	52.3		
16	47	13C8-PFOS	507.0 > 79.9	2.96e3	3.10e3	0.115	1.060	4.74	4.72	11.9	97.8576	90.1		
17	48	13C2-PFDA	515.1 > 469.9	1.18e4	1.42e4	0.115	1.130	5.03	5.01	10.3	79.4680	73.2		
18	49	13C2-8:2 FTS	529.1 > 508.7	2.75e3	8.01e3	0.115	0.217	5.00	4.98	4.29	171.2521	157.7		
19	50	d3-N-MeFOSAA	573.3 > 419	2.98e3	1.67e4	0.115	0.184	5.18	5.17	2.23	105.7123	97.4		
20	51	d5-N-EtFOSAA	589.3 > 419	3.89e3	1.67e4	0.115	0.223	5.34	5.32	2.91	113.2498	104.3		
21	52	13C2-PFUdA	565 > 519.8	1.07e4	1.67e4	0.115	0.936	5.35	5.34	8.01	74.2684	68.4		
22	53	13C2-PFDoA	615.0 > 569.7	1.05e4	1.42e4	0.115	1.168	5.63	5.62	9.19	68.3663	63.0		
23	54	d3-N-MeFOSA	515.2 > 168.9		1.67e4	0.115	0.051	5.85						
24	55	13C2-PFTeDA	714.8 > 669.6	9.78e3	1.67e4	0.115	0.706	6.09	6.08	7.32	90.0961	83.0		
25	56	d5-N-ETFOSA	531.1 > 168.9		1.67e4	0.115	0.071	6.24						
26	57	13C2-PFHxDA	815 > 769.7	8.46e3	1.67e4	0.115	1.079	6.43	6.43	6.33	50.9998	117.4		
27	58	d7-N-MeFOSE	623.1 > 58.9		1.67e4	0.115	0.041	6.37						
28	59	d9-N-EtFOSE	639.2 > 58.8		1.67e4	0.115	0.038	6.51						
29	60	13C4-PFBA	217. > 171.8	5.24e3	5.24e3	0.115	1.000	1.35	1.30	12.5	108.5823	100.0		
30	61	13C5-PFHxA	318 > 272.9	8.01e3	8.01e3	0.115	1.000	3.09	3.06	12.5	108.5823	100.0		
31	62	13C3-PFHxS	401.9 > 79.9	2.65e3	2.65e3	0.115	1.000	3.86	3.83	12.5	108.5823	100.0		
32	63	13C8-PFOA	421.3 > 376	1.05e4	1.05e4	0.115	1.000	4.23	4.20	12.5	108.5823	100.0		ANP 6/11/2018

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Dataset: Z:\Projects\PFAS.PRO\Results\180605M2\180605M2-60.qld

Last Altered: Monday, June 11, 2018 14:33:17 Pacific Daylight Time
Printed: Monday, June 11, 2018 15:26:41 Pacific Daylight Time

Name: 180605M2_60, Date: 06-Jun-2018, Time: 02:45:18, ID: B8E0244-MSD2 Matrix Spike Dup 0.11512, Description: Matrix Spike Dup

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
33	64	13C9-PFNA	472.2 > 426.9	1.15e4	1.15e4	0.115	1.000	4.66	4.64	12.5	108.5823	100.0		
34	65	13C4-PFOS	503 > 79.9	3.10e3	3.10e3	0.115	1.000	4.74	4.72	12.5	108.5823	100.0		
35	66	13C6-PFDA	519.1 > 473.7	1.42e4	1.42e4	0.115	1.000	5.03	5.01	12.5	108.5823	100.0		
36	67	13C7-PFUdA	570.1 > 524.8	1.67e4	1.67e4	0.115	1.000	5.35	5.34	12.5	108.5823	100.0		
37	68	Total PFHxS	398.9 > 79.6	1.14e4	1.15e3	0.115		4.05		123	555.4318			
38	69	Total PFOA	413 > 368.7	1.48e4	1.12e4	0.115		4.30		16.5	158.5801			
39	70	Total PFOS	499.1 > 79.9	2.38e3	2.96e3	0.115		4.90		10.0	93.8749			
40	71	Total N-MeFOSAA	570.1 > 419	3.72e3	2.98e3	0.115		5.55		15.6	71.6508			
41	72	Total N-EtFOSAA	584.2 > 419	3.05e3	3.89e3	0.115		5.70		9.80	74.6102			

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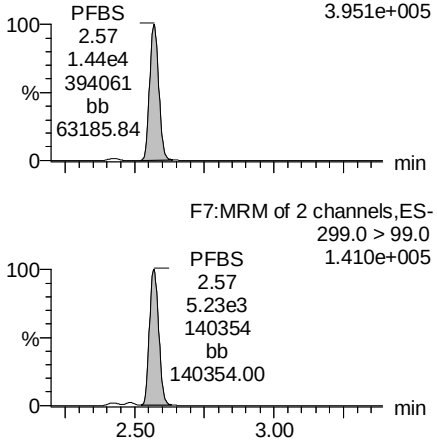
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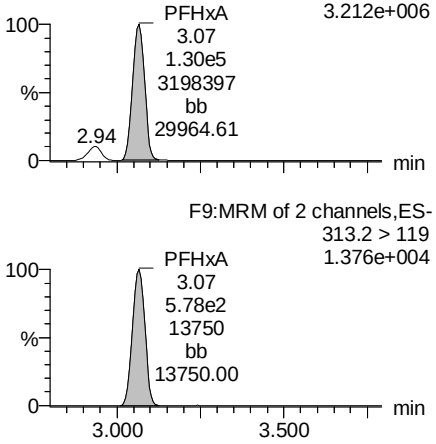
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Name: 180605M2_60, Date: 06-Jun-2018, Time: 02:45:18, ID: B8E0244-MSD2 Matrix Spike Dup 0.11512, Description: Matrix Spike Dup

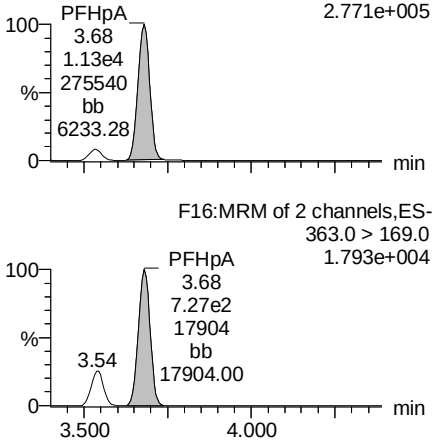
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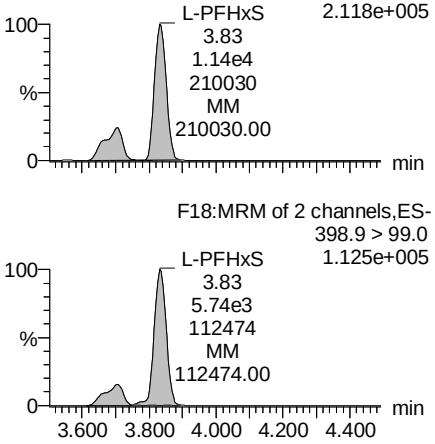
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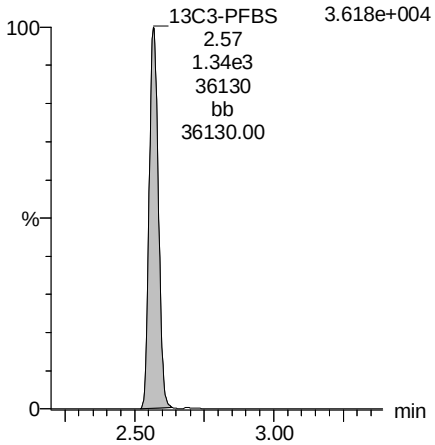
PFHpA



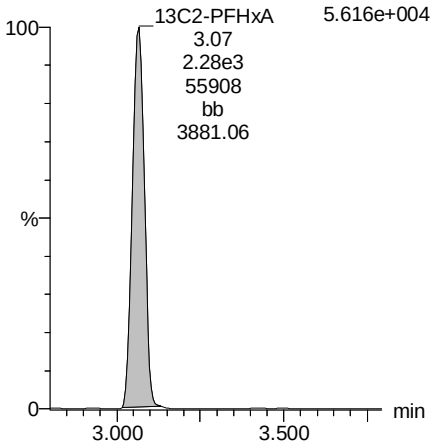
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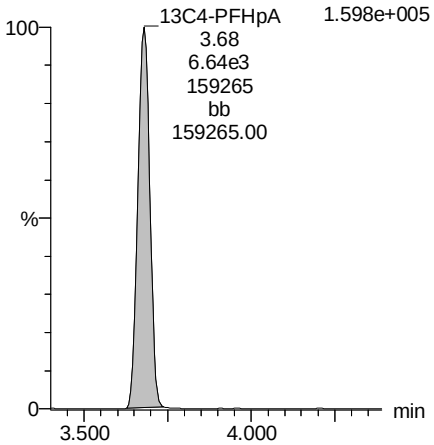
13C3-PFBS



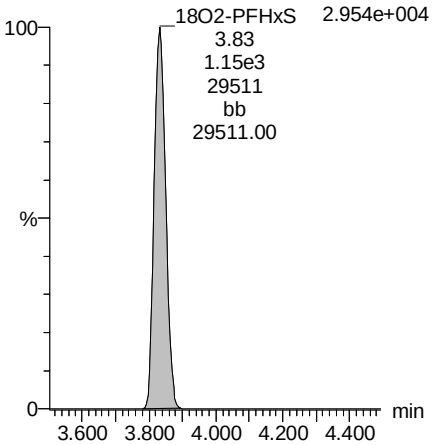
13C2-PFHxA



13C4-PFHpA



18O2-PFHxS



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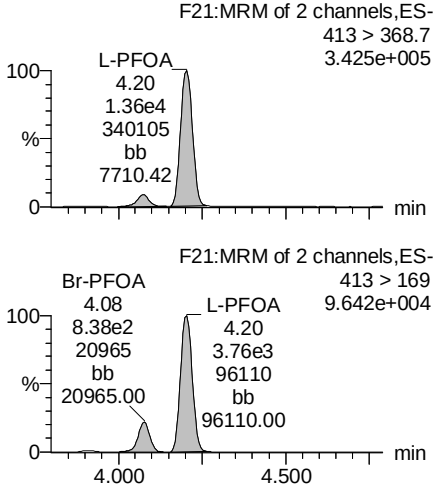
MM 6/11/2018

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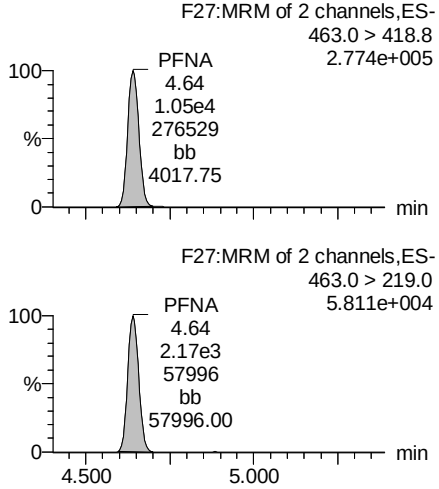
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Name: 180605M2_60, Date: 06-Jun-2018, Time: 02:45:18, ID: B8E0244-MSD2 Matrix Spike Dup 0.11512, Description: Matrix Spike Dup

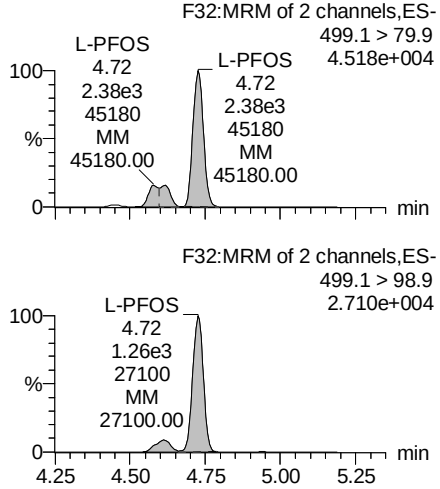
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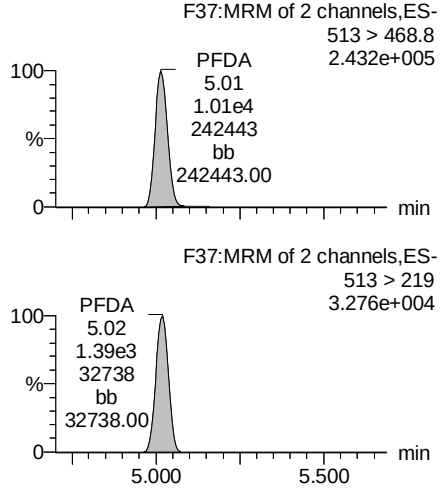
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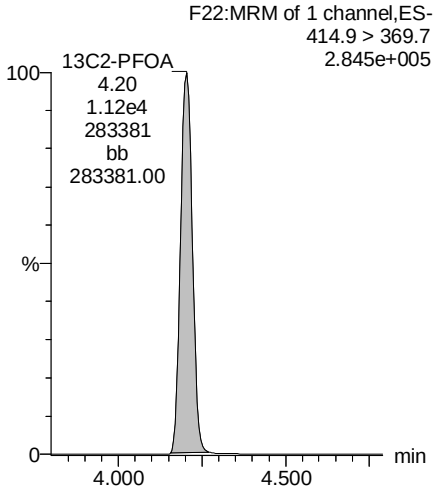
Total PFOS



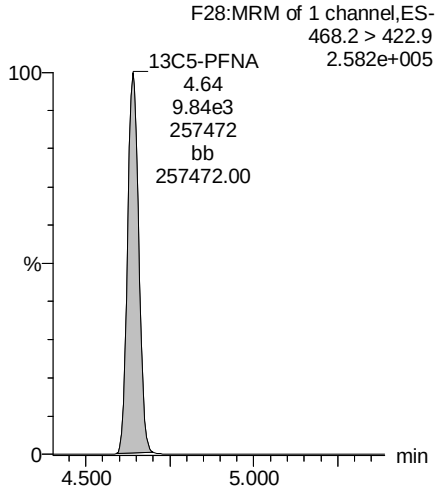
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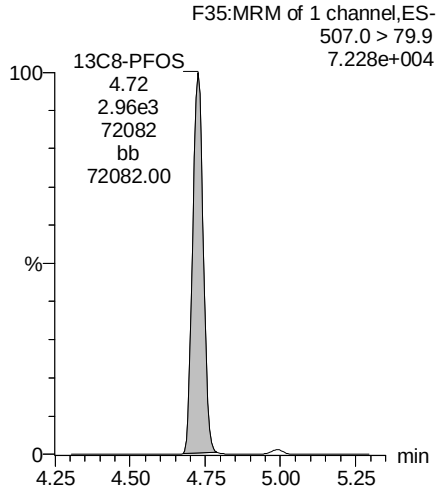
13C2-PFOA



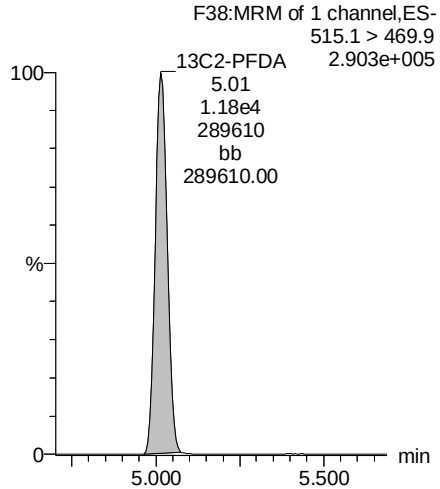
13C5-PFNA



13C8-PFOS



13C2-PFDA



ANP 6/11/2018

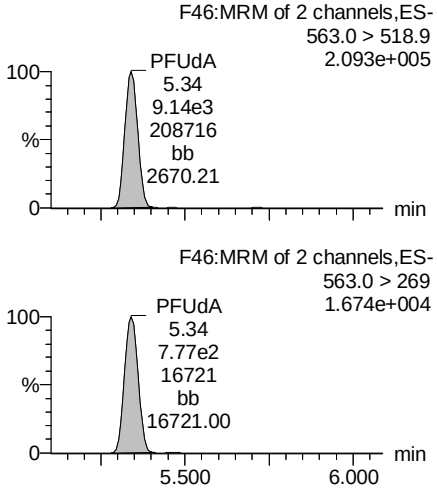
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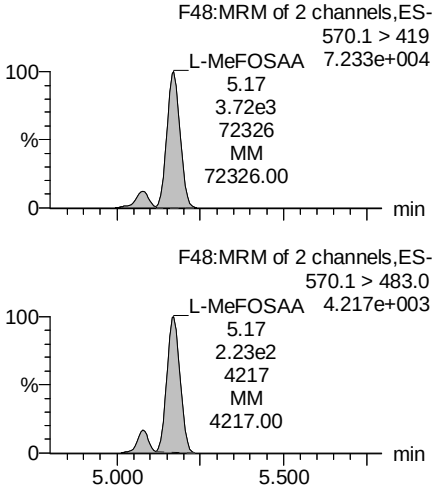
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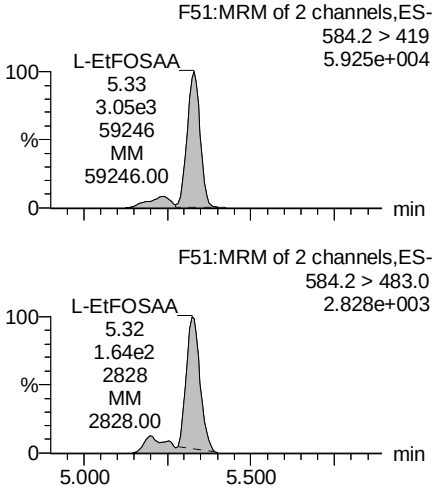
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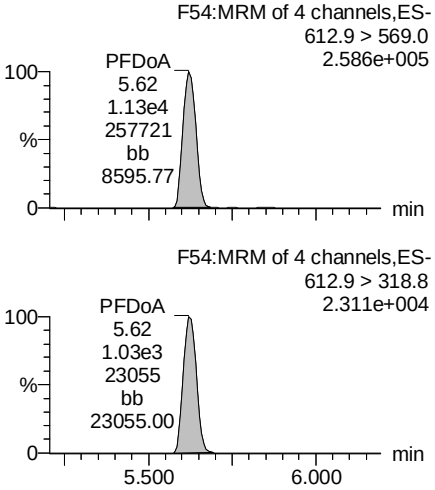
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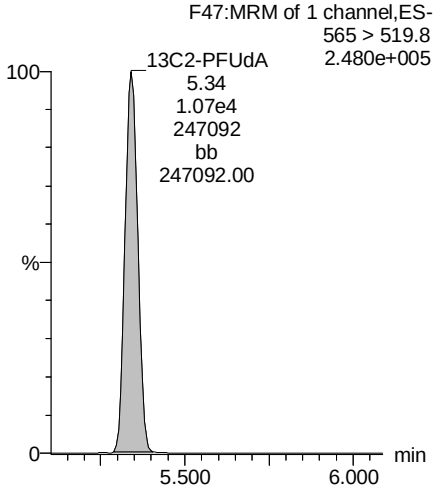
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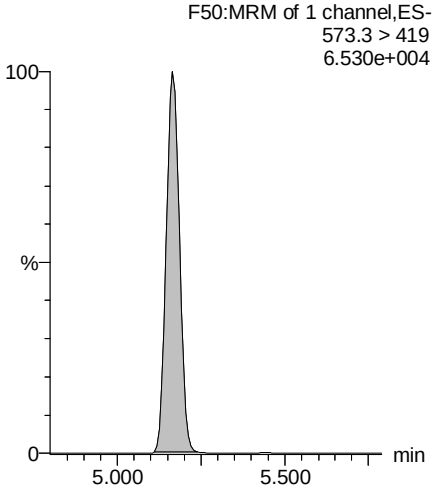
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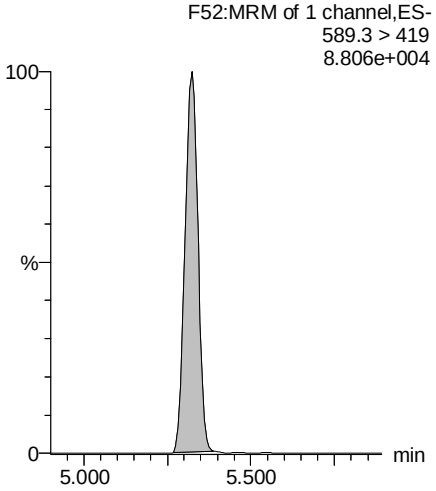
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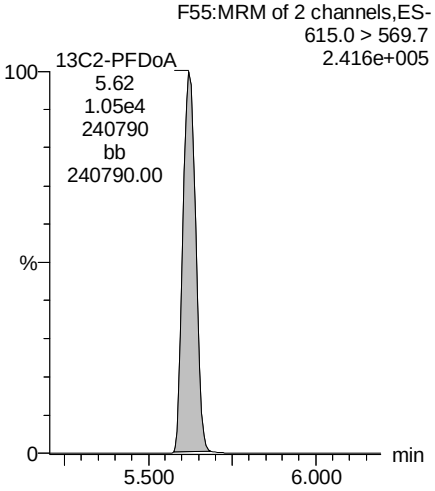
d3-N-MeFOSAA



d5-N-EtFOSAA



13C2-PFDoA



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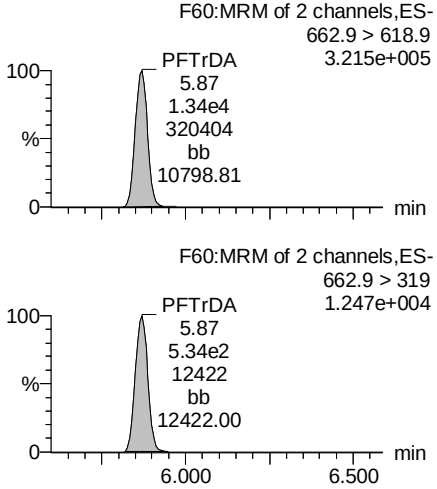
MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180605M2\180605M2-60.qld

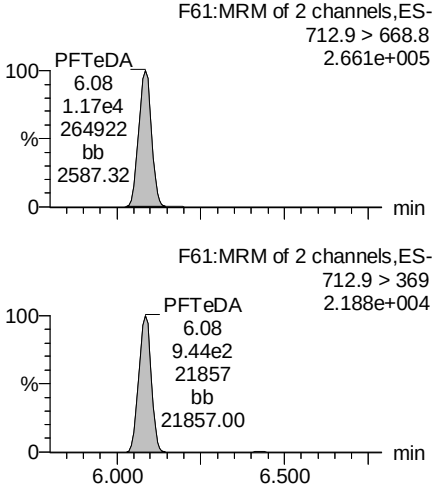
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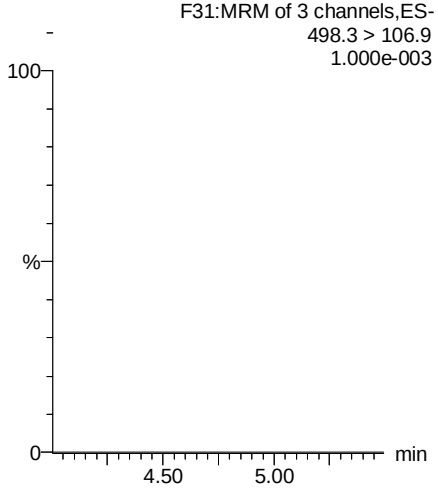
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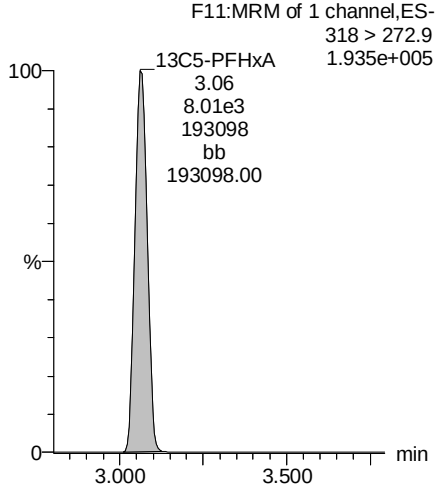
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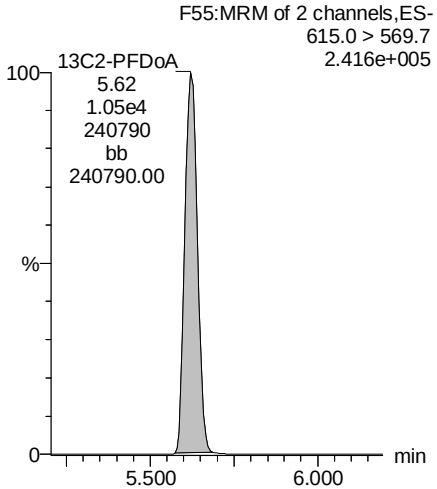
TCDA



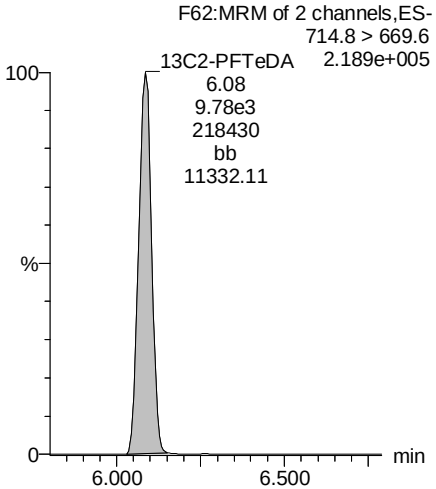
13C5-PFHxA



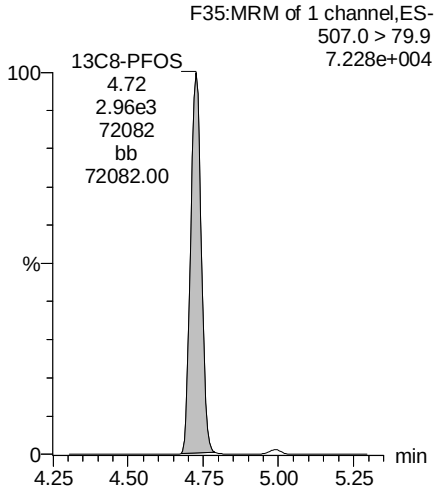
13C2-PFDoA



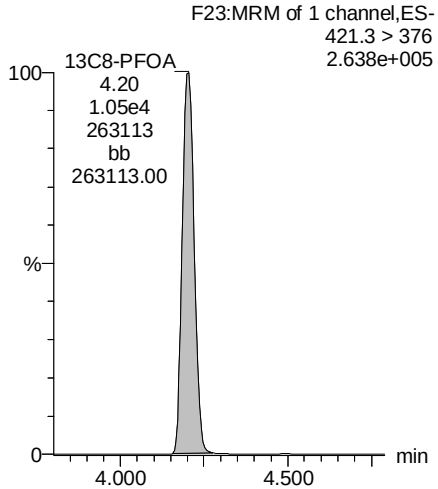
13C2-PFTeDA



13C8-PFOS



13C8-PFOA



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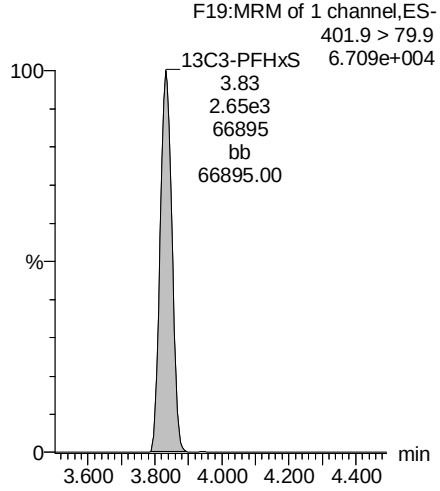
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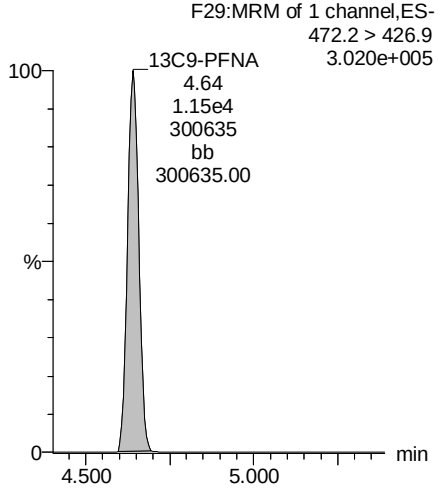
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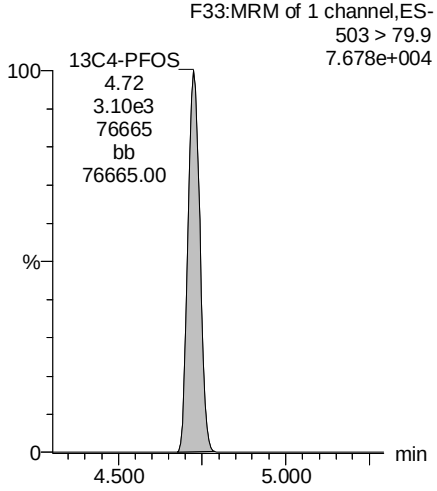
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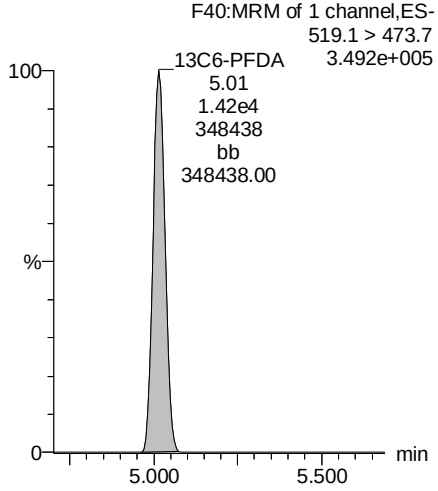
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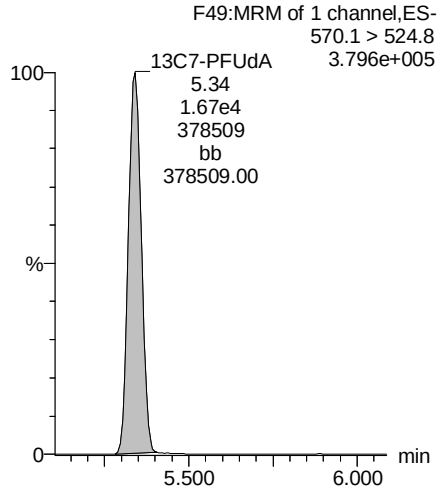
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-52.qld

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Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_52, Date: 07-Jun-2018, Time: 23:05:34, ID: 1801054-04 A1-P2-19-SA1 0.11736, Description: A1-P2-19-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7	3.21e2	1.13e3	0.117		2.76	2.76	3.56	15.1963		2.537	NO
2	5	PFHxA	313.2 > 268.9	2.57e3	1.79e3	0.117		3.26	3.26	7.16	40.3161		250.118	NO
3	7	PFHpA	363.0 > 318.9	1.62e2	4.53e3	0.117		3.90	3.90	0.449	3.2619		47.105	YES
4	8	L-PFHxS	398.9 > 79.6	1.85e2	9.56e2	0.117		4.02	4.05	2.42	11.3588		1.863	YES
5	11	L-PFOA	413 > 368.7	4.43e2	6.15e3	0.117		4.43	4.42	0.900	7.5586		4.420	NO
6	14	PFNA	463.0 > 418.8		5.10e3	0.117		4.68						
7	16	L-PFOS	499.1 > 79.9	2.85e1	2.33e3	0.117		4.93	4.94	0.153	1.1534		4.283	YES
8	18	PFDA	513 > 468.8		5.88e3	0.117		5.05						
9	21	L-MeFOSAA	570.1 > 419		2.76e3	0.117		5.18						
10	23	L-EtFOSAA	584.2 > 419		3.21e3	0.117		5.37						

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-52.qld

Last Altered: Monday, June 11, 2018 11:53:26 Pacific Daylight Time
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Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_52, Date: 07-Jun-2018, Time: 23:05:34, ID: 1801054-04 A1-P2-19-SA1 0.11736, Description: A1-P2-19-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	25	PFUdA	563.0 > 518.9		5.54e3	0.117		5.37						
2	27	PFDoA	612.9 > 569.0		6.73e3	0.117		5.65						
3	29	PFTrDA	662.9 > 618.9		6.73e3	0.117		5.89						
4	30	PFTeDA	712.9 > 668.8		9.28e3	0.117		6.11						
5	36	13C3-PFBA	216.1 > 171.8	3.96e3	4.80e3	0.117	0.870	1.34	1.50	10.3	100.8086	94.6		
6	37	13C3-PFPeA	266. > 221.8	4.99e3	6.27e3	0.117	0.870	2.32	2.49	9.95	97.5138	91.6		
7	38	13C3-PFBS	302. > 98.8	1.13e3	6.27e3	0.117	0.099	2.60	2.77	2.24	193.9061	182.1		
8	39	13C2-4:2 FTS	329.2>308.9	2.55e3	6.27e3	0.117	0.265	3.01	3.17	5.09	163.5669	153.6		
9	40	13C2-PFHxA	315 > 269.8	1.79e3	6.27e3	0.117	0.737	3.10	3.26	3.57	41.2947	96.9		
10	41	13C4-PFHpA	367.2 > 321.8	4.53e3	6.27e3	0.117	0.791	3.71	3.90	9.02	97.2465	91.3		
11	42	18O2-PFHxS	403.0 > 102.6	9.56e2	2.33e3	0.117	0.442	3.86	4.04	5.12	98.7302	92.7		
12	43	13C2-6:2 FTS	429.1 > 408.9	2.10e3	5.86e3	0.117	0.306	4.18	4.37	4.48	124.6838	117.1		
13	44	13C2-PFOA	414.9 > 369.7	6.15e3	5.86e3	0.117	1.285	4.23	4.42	13.1	87.0765	81.8		
14	45	13C5-PFNA	468.2 > 422.9	5.10e3	6.28e3	0.117	0.930	4.67	4.86	10.2	93.0231	87.3		
15	46	13C8-PFOSA	506.1 > 77.7	1.49e3	8.25e3	0.117	0.237	4.74	4.92	2.27	81.3067	76.3		
16	47	13C8-PFOS	507.0 > 79.9	2.33e3	2.65e3	0.117	1.039	4.75	4.94	11.0	90.3677	84.8		
17	48	13C2-PFDA	515.1 > 469.9	5.88e3	6.44e3	0.117	1.144	5.04	5.23	11.4	84.9631	79.8		
18	49	13C2-8:2 FTS	529.1 > 508.7	1.62e3	6.27e3	0.117	0.215	5.01	5.21	3.22	127.5512	119.8		
19	50	d3-N-MeFOSAA	573.3 > 419	2.76e3	8.25e3	0.117	0.351	5.19	5.39	4.18	101.2885	95.1		
20	51	d5-N-EtFOSAA	589.3 > 419	3.21e3	8.25e3	0.117	0.388	5.35	5.54	4.87	106.7531	100.2		
21	52	13C2-PFUdA	565 > 519.8	5.54e3	8.25e3	0.117	1.019	5.37	5.56	8.39	70.1580	65.9		
22	53	13C2-PFDoA	615.0 > 569.7	6.73e3	6.44e3	0.117	1.057	5.65	5.84	13.1	105.2676	98.8		
23	54	d3-N-MeFOSA	515.2 > 168.9		8.25e3	0.117	0.107	5.87						
24	55	13C2-PFTeDA	714.8 > 669.6	9.28e3	8.25e3	0.117	0.964	6.11	6.29	14.1	124.2526	116.7		
25	56	d5-N-ETFOSA	531.1 > 168.9		8.25e3	0.117	0.157	6.25						
26	57	13C2-PFHxDA	815 > 769.7	5.60e3	8.25e3	0.117	1.562	6.45	6.60	8.49	46.2905	108.7		
27	58	d7-N-MeFOSE	623.1 > 58.9		8.25e3	0.117	0.147	6.37						
28	59	d9-N-EtFOSE	639.2 > 58.8		8.25e3	0.117	0.149	6.52						
29	60	13C4-PFBA	217. > 171.8	4.80e3	4.80e3	0.117	1.000	1.33	1.50	12.5	106.5099	100.0		
30	61	13C5-PFHxA	318 > 272.9	6.27e3	6.27e3	0.117	1.000	3.09	3.27	12.5	106.5099	100.0		
31	62	13C3-PFHxS	401.9 > 79.9	2.33e3	2.33e3	0.117	1.000	3.87	4.04	12.5	106.5099	100.0		
32	63	13C8-PFOA	421.3 > 376	5.86e3	5.86e3	0.117	1.000	4.24	4.42	12.5	106.5099	100.0		ANP 6/11/2018

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-52.qld

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Name: 180607M2_52, Date: 07-Jun-2018, Time: 23:05:34, ID: 1801054-04 A1-P2-19-SA1 0.11736, Description: A1-P2-19-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
33	64	13C9-PFNA	472.2 > 426.9	6.28e3	6.28e3	0.117	1.000	4.67	4.86	12.5	106.5099	100.0		
34	65	13C4-PFOS	503 > 79.9	2.65e3	2.65e3	0.117	1.000	4.75	4.94	12.5	106.5099	100.0		
35	66	13C6-PFDA	519.1 > 473.7	6.44e3	6.44e3	0.117	1.000	5.04	5.23	12.5	106.5099	100.0		
36	67	13C7-PFUdA	570.1 > 524.8	8.25e3	8.25e3	0.117	1.000	5.37	5.56	12.5	106.5099	100.0		
37	68	Total PFHxS	398.9 > 79.6	1.85e2	9.56e2	0.117		4.05		2.42	11.3588			
38	69	Total PFOA	413 > 368.7	4.43e2	6.15e3	0.117		4.30		0.900	7.5586			
39	70	Total PFOS	499.1 > 79.9	2.85e1	2.33e3	0.117		4.90		0.153	1.1534			
40	71	Total N-MeFOSAA	570.1 > 419	0.00e0	2.76e3	0.117		5.55		0.000				
41	72	Total N-EtFOSAA	584.2 > 419	0.00e0	3.21e3	0.117		5.70		0.000				

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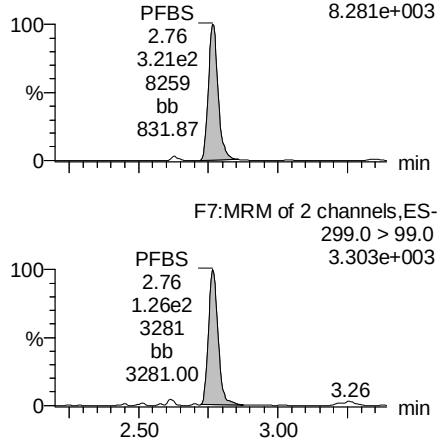
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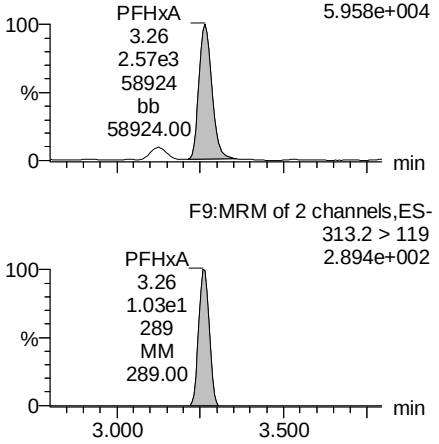
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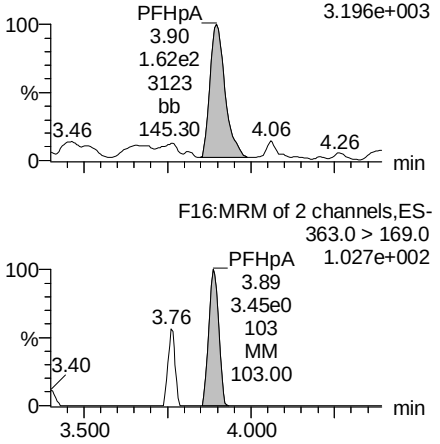
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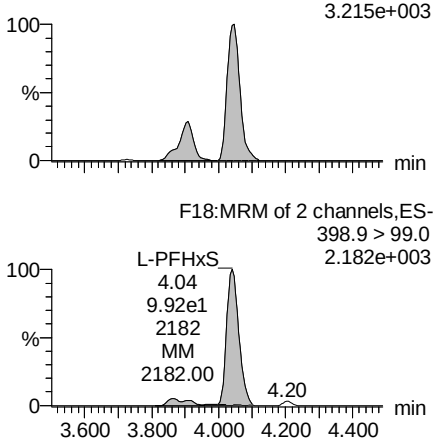
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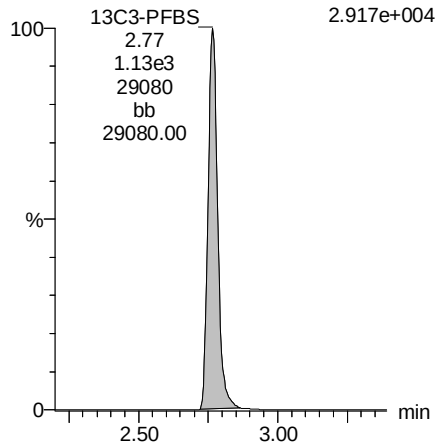
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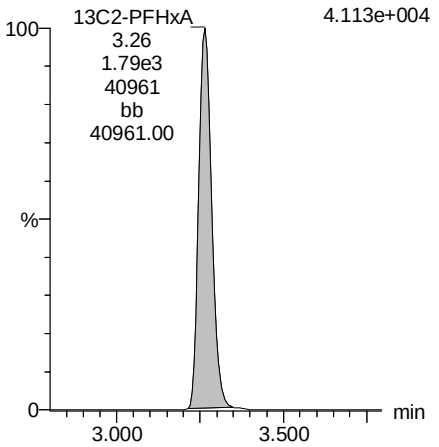
Total PFHxS



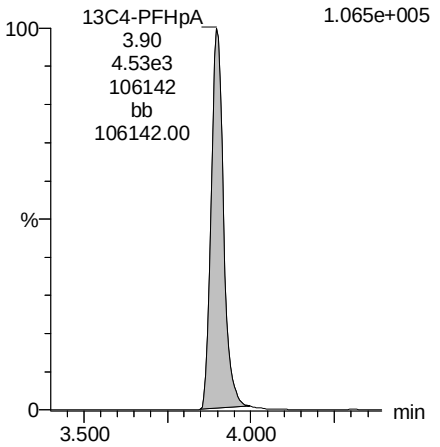
13C3-PFBS



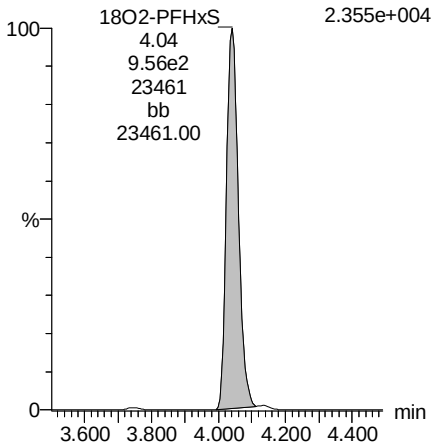
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13C4-PFHpA



18O2-PFHxS



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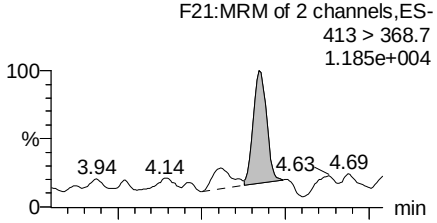
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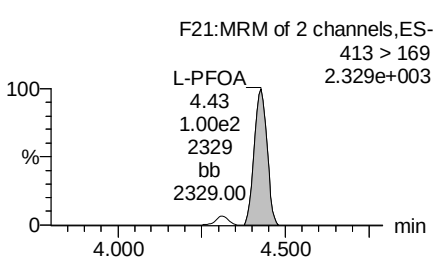
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Printed: Monday, June 11, 2018 12:44:38 Pacific Daylight Time

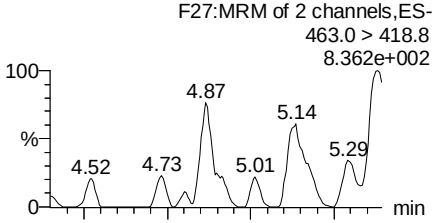
Name: 180607M2_52, Date: 07-Jun-2018, Time: 23:05:34, ID: 1801054-04 A1-P2-19-SA1 0.11736, Description: A1-P2-19-SA1

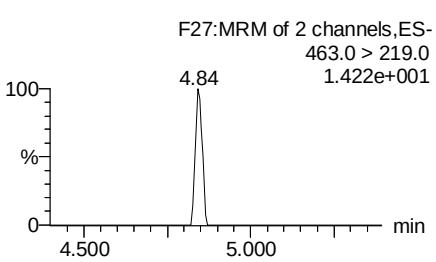
Total PFOA



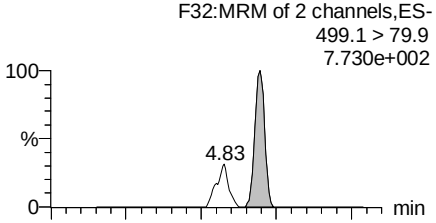


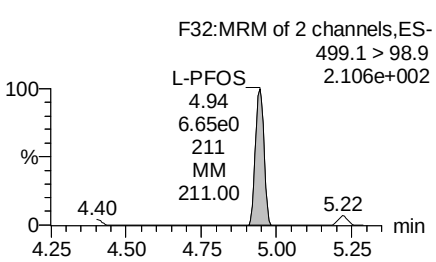
PFNA



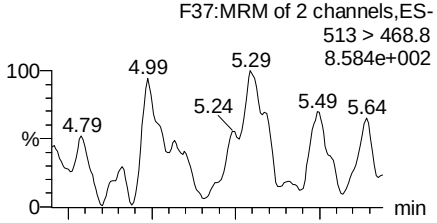


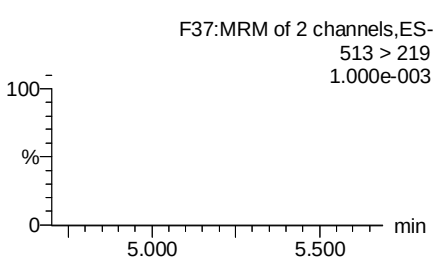
Total PFOS



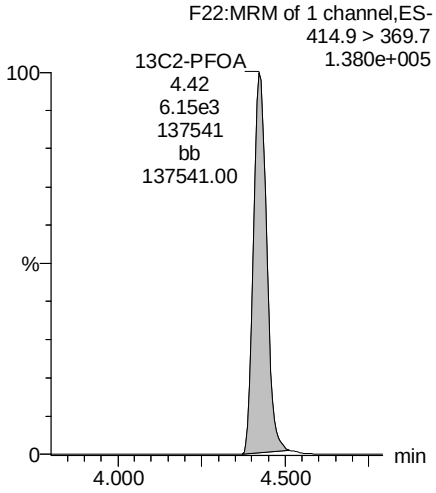


PFDA

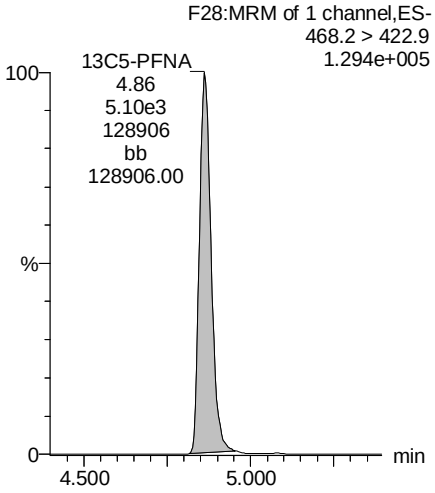




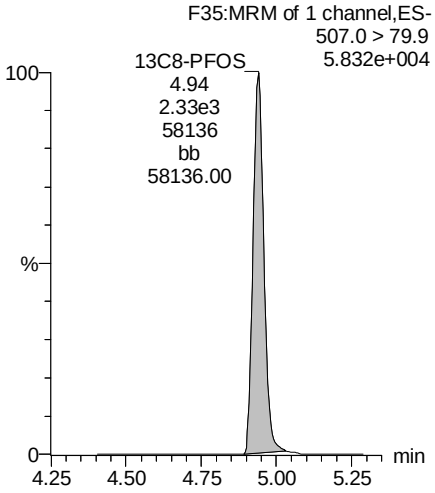
13C2-PFOA



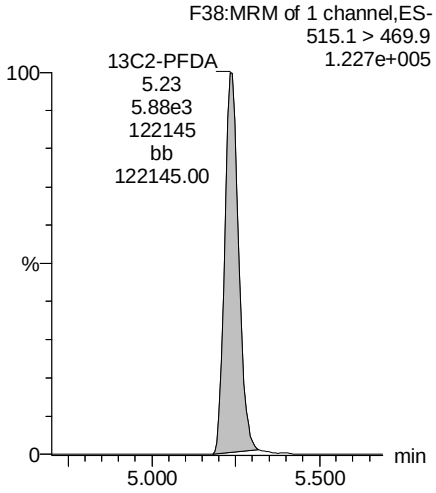
13C5-PFNA



13C8-PFOS



13C2-PFDA



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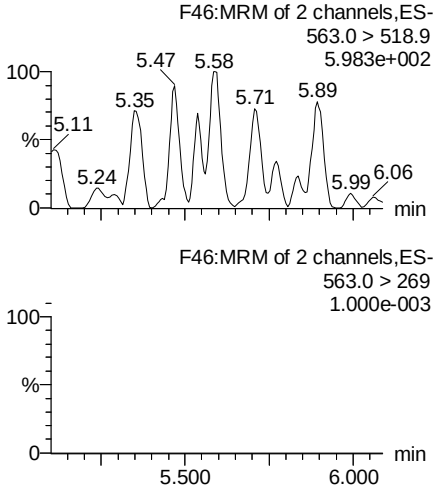
MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-52.qld

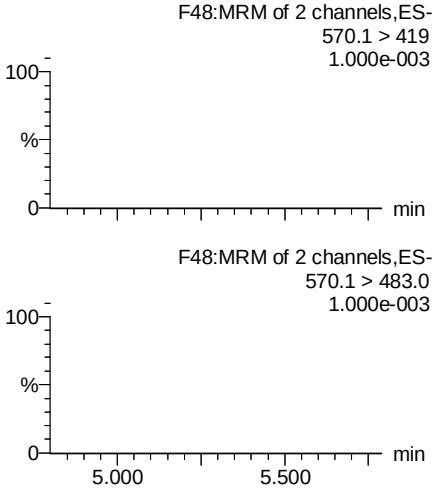
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Printed: Monday, June 11, 2018 12:44:38 Pacific Daylight Time

Name: 180607M2_52, Date: 07-Jun-2018, Time: 23:05:34, ID: 1801054-04 A1-P2-19-SA1 0.11736, Description: A1-P2-19-SA1

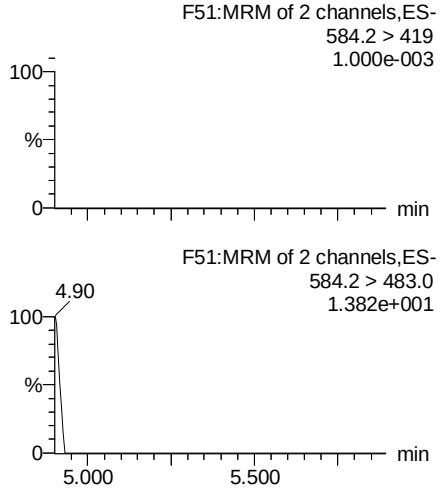
PFUdA



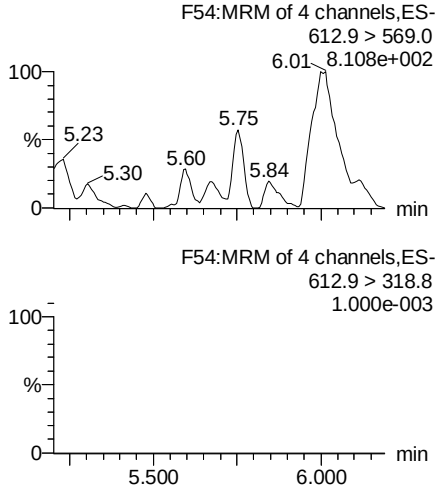
Total N-MeFOSAA



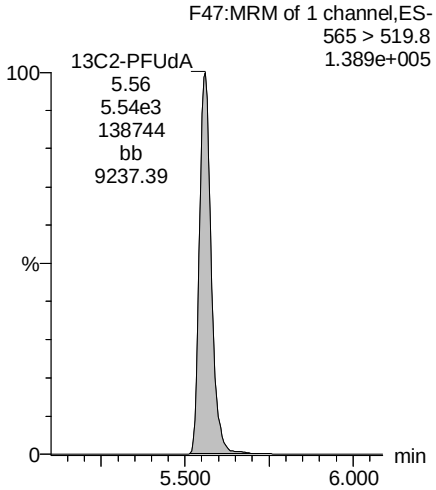
Total N-EtFOSAA



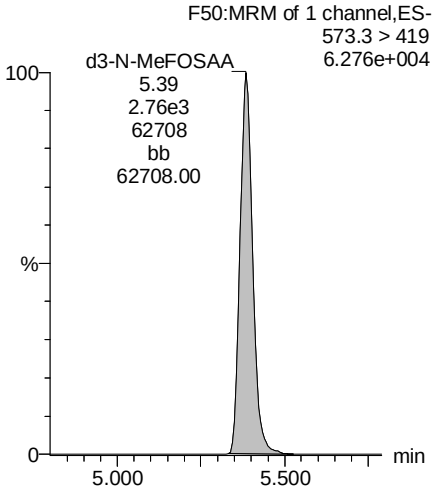
PFDoA



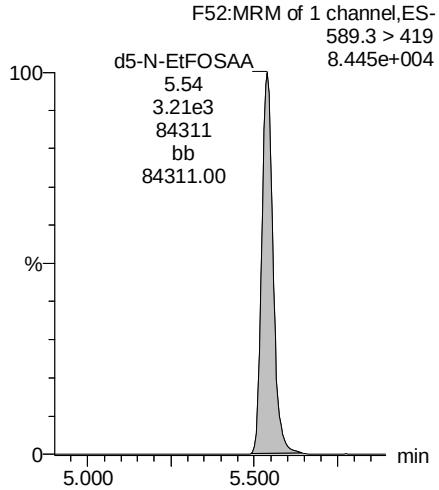
13C2-PFUdA



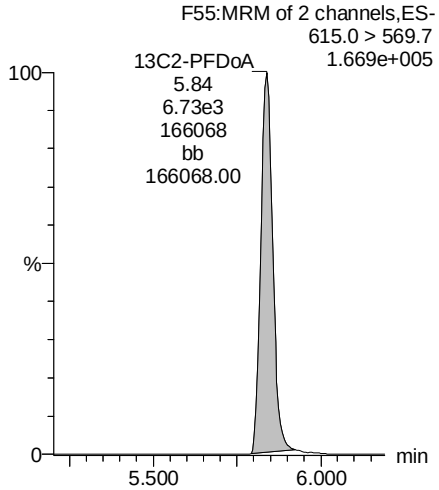
d3-N-MeFOSAA



d5-N-EtFOSAA



13C2-PFDoA



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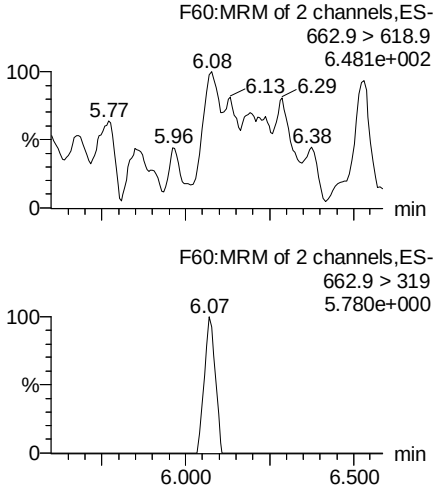
MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-52.qld

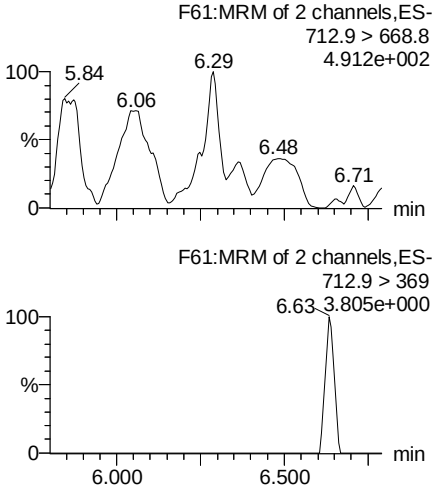
Last Altered: Monday, June 11, 2018 11:53:26 Pacific Daylight Time
Printed: Monday, June 11, 2018 12:44:38 Pacific Daylight Time

Name: 180607M2_52, Date: 07-Jun-2018, Time: 23:05:34, ID: 1801054-04 A1-P2-19-SA1 0.11736, Description: A1-P2-19-SA1

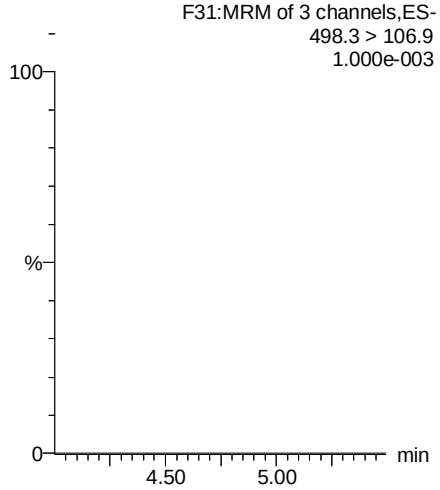
PFTrDA



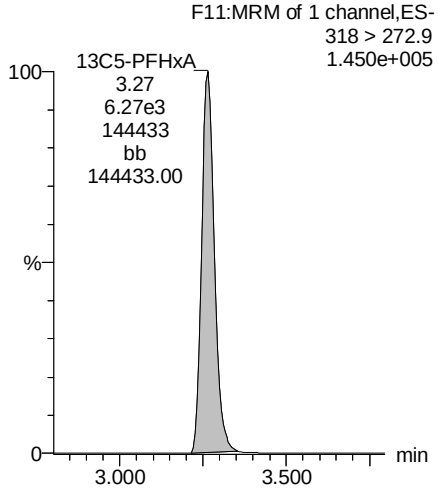
PFTeDA



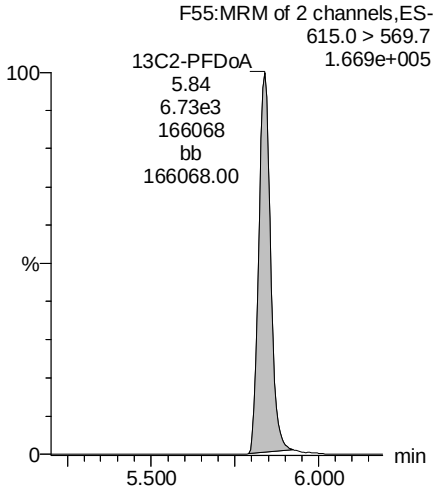
TCDA



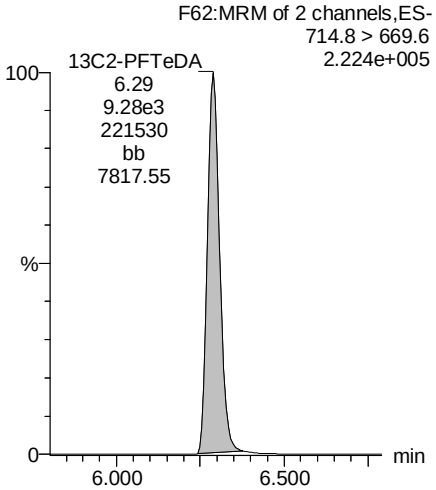
13C5-PFHxA



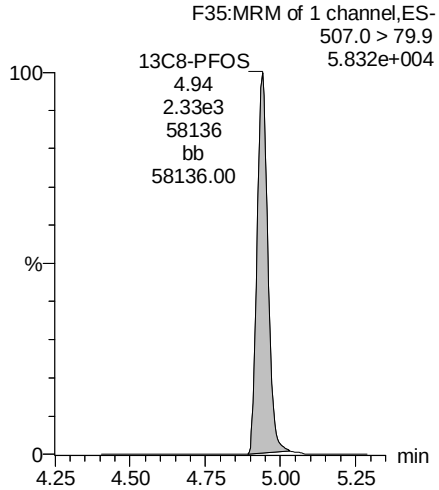
13C2-PFDoA



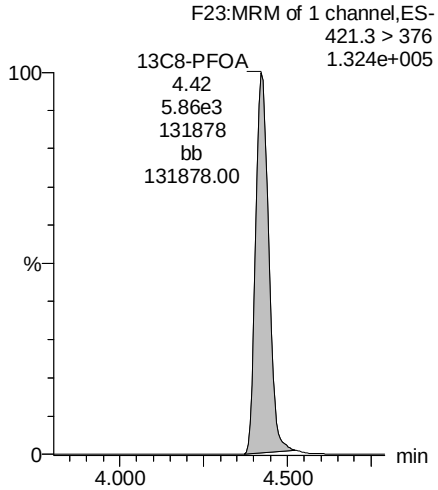
13C2-PFTeDA



13C8-PFOS



13C8-PFOA



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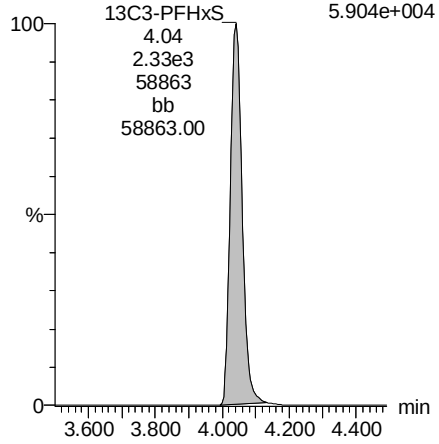
MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-52.qld

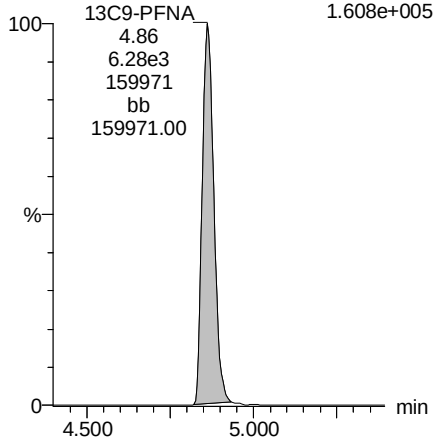
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Printed: Monday, June 11, 2018 12:44:38 Pacific Daylight Time

Name: 180607M2_52, Date: 07-Jun-2018, Time: 23:05:34, ID: 1801054-04 A1-P2-19-SA1 0.11736, Description: A1-P2-19-SA1

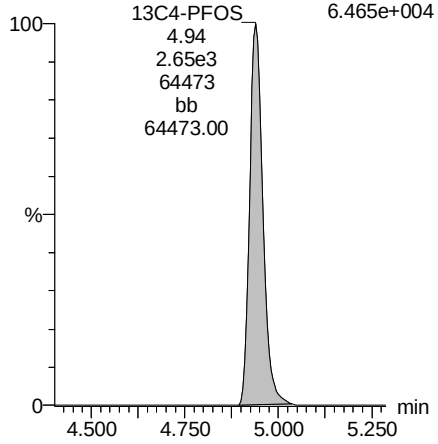
13C3-PFHxS



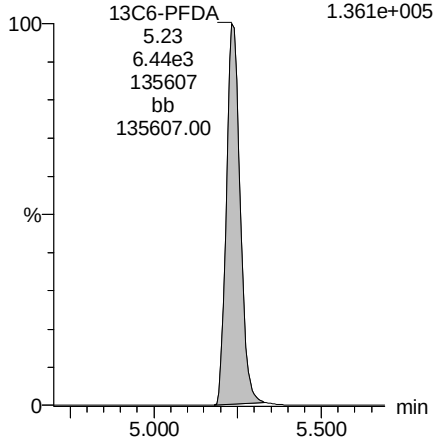
13C9-PFNA



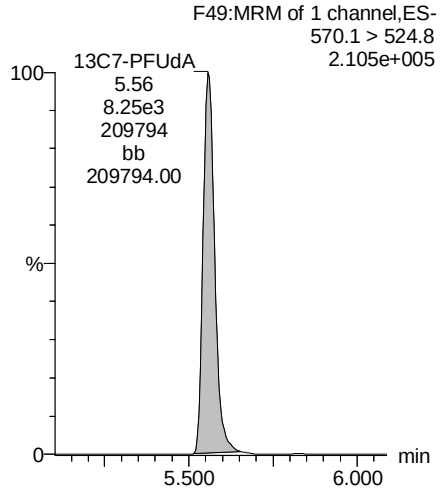
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-53.qld

Last Altered: Monday, June 11, 2018 14:11:10 Pacific Daylight Time
Printed: Monday, June 11, 2018 14:12:30 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_53, Date: 07-Jun-2018, Time: 23:16:04, ID: 1801054-05 A1-MW-52-SA1 0.11509, Description: A1-MW-52-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7	3.25e3	1.19e3	0.115		2.76	2.76	34.2	146.2641		2.619	NO
2	5	PFHxA	313.2 > 268.9	2.36e4	1.63e3	0.115		3.26	3.26	72.5	420.7184		298.581	NO
3	7	PFHpA	363.0 > 318.9	8.67e2	4.42e3	0.115		3.90	3.90	2.45	17.5117		70.393	YES
4	8	L-PFHxS	398.9 > 79.6	1.72e3	9.40e2	0.115		4.02	4.04	22.8	101.0111		2.116	YES
5	11	L-PFOA	413 > 368.7	1.25e3	5.73e3	0.115		4.43	4.43	2.74	24.2695		5.638	NO
6	14	PFNA	463.0 > 418.8		5.17e3	0.115		4.68						
7	16	L-PFOS	499.1 > 79.9		2.25e3	0.115		4.93						
8	18	PFDA	513 > 468.8		6.19e3	0.115		5.05						
9	21	L-MeFOSAA	570.1 > 419		2.69e3	0.115		5.18						
10	23	L-EtFOSAA	584.2 > 419		3.41e3	0.115		5.37						

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-53.qld

Last Altered: Monday, June 11, 2018 14:11:10 Pacific Daylight Time
Printed: Monday, June 11, 2018 15:31:25 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_53, Date: 07-Jun-2018, Time: 23:16:04, ID: 1801054-05 A1-MW-52-SA1 0.11509, Description: A1-MW-52-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	25	PFUdA	563.0 > 518.9		5.65e3	0.115		5.37						
2	27	PFDoA	612.9 > 569.0		6.48e3	0.115		5.65						
3	29	PFTrDA	662.9 > 618.9		6.48e3	0.115		5.89						
4	30	PFTeDA	712.9 > 668.8		9.38e3	0.115		6.11						
5	36	13C3-PFBA	216.1 > 171.8	3.75e3	4.33e3	0.115	0.870	1.34	1.50	10.8	108.1753	99.6		
6	37	13C3-PFPeA	266. > 221.8	4.82e3	5.69e3	0.115	0.870	2.32	2.49	10.6	105.6396	97.3		
7	38	13C3-PFBS	302. > 98.8	1.19e3	5.69e3	0.115	0.099	2.60	2.77	2.61	229.5299	211.3		
8	39	13C2-4:2 FTS	329.2>308.9	2.34e3	5.69e3	0.115	0.265	3.01	3.17	5.14	168.4516	155.1		
9	40	13C2-PFHxA	315 > 269.8	1.63e3	5.69e3	0.115	0.737	3.10	3.26	3.58	42.1573	97.0		
10	41	13C4-PFHpA	367.2 > 321.8	4.42e3	5.69e3	0.115	0.791	3.71	3.90	9.72	106.7663	98.3		
11	42	18O2-PFHxS	403.0 > 102.6	9.40e2	2.05e3	0.115	0.442	3.86	4.04	5.73	112.6011	103.7		
12	43	13C2-6:2 FTS	429.1 > 408.9	2.45e3	5.42e3	0.115	0.306	4.18	4.37	5.64	159.9418	147.3		
13	44	13C2-PFOA	414.9 > 369.7	5.73e3	5.42e3	0.115	1.285	4.23	4.42	13.2	89.3031	82.2		
14	45	13C5-PFNA	468.2 > 422.9	5.17e3	6.09e3	0.115	0.930	4.67	4.87	10.6	99.2013	91.3		
15	46	13C8-PFOSA	506.1 > 77.7	1.51e3	7.89e3	0.115	0.237	4.74	4.92	2.38	87.2380	80.3		
16	47	13C8-PFOS	507.0 > 79.9	2.25e3	2.42e3	0.115	1.039	4.75	4.94	11.6	97.3189	89.6		
17	48	13C2-PFDA	515.1 > 469.9	6.19e3	5.60e3	0.115	1.144	5.04	5.24	13.8	104.7985	96.5		
18	49	13C2-8:2 FTS	529.1 > 508.7	1.93e3	5.69e3	0.115	0.215	5.01	5.21	4.25	171.4396	157.8		
19	50	d3-N-MeFOSAA	573.3 > 419	2.69e3	7.89e3	0.115	0.351	5.19	5.39	4.27	105.4852	97.1		
20	51	d5-N-EtFOSAA	589.3 > 419	3.41e3	7.89e3	0.115	0.388	5.35	5.54	5.40	120.8094	111.2		
21	52	13C2-PFUdA	565 > 519.8	5.65e3	7.89e3	0.115	1.019	5.37	5.56	8.94	76.2445	70.2		
22	53	13C2-PFDoA	615.0 > 569.7	6.48e3	5.60e3	0.115	1.057	5.65	5.84	14.4	118.7781	109.4		
23	54	d3-N-MeFOSA	515.2 > 168.9		7.89e3	0.115	0.107	5.87						
24	55	13C2-PFTeDA	714.8 > 669.6	9.38e3	7.89e3	0.115	0.964	6.11	6.29	14.9	133.8591	123.2		
25	56	d5-N-ETFOSA	531.1 > 168.9		7.89e3	0.115	0.157	6.25						
26	57	13C2-PFHxDA	815 > 769.7	5.81e3	7.89e3	0.115	1.562	6.45	6.60	9.20	51.1446	117.7		
27	58	d7-N-MeFOSE	623.1 > 58.9		7.89e3	0.115	0.147	6.37						
28	59	d9-N-EtFOSE	639.2 > 58.8		7.89e3	0.115	0.149	6.52						
29	60	13C4-PFBA	217. > 171.8	4.33e3	4.33e3	0.115	1.000	1.33	1.49	12.5	108.6107	100.0		
30	61	13C5-PFHxA	318 > 272.9	5.69e3	5.69e3	0.115	1.000	3.09	3.27	12.5	108.6107	100.0		
31	62	13C3-PFHxS	401.9 > 79.9	2.05e3	2.05e3	0.115	1.000	3.87	4.04	12.5	108.6107	100.0		
32	63	13C8-PFOA	421.3 > 376	5.42e3	5.42e3	0.115	1.000	4.24	4.42	12.5	108.6107	100.0		ANP 6/11/2018

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-53.qld

Last Altered: Monday, June 11, 2018 14:11:10 Pacific Daylight Time
Printed: Monday, June 11, 2018 15:31:25 Pacific Daylight Time

Name: 180607M2_53, Date: 07-Jun-2018, Time: 23:16:04, ID: 1801054-05 A1-MW-52-SA1 0.11509, Description: A1-MW-52-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
33	64	13C9-PFNA	472.2 > 426.9	6.09e3	6.09e3	0.115	1.000	4.67	4.87	12.5	108.6107	100.0		
34	65	13C4-PFOS	503 > 79.9	2.42e3	2.42e3	0.115	1.000	4.75	4.94	12.5	108.6107	100.0		
35	66	13C6-PFDA	519.1 > 473.7	5.60e3	5.60e3	0.115	1.000	5.04	5.24	12.5	108.6107	100.0		
36	67	13C7-PFUdA	570.1 > 524.8	7.89e3	7.89e3	0.115	1.000	5.37	5.56	12.5	108.6107	100.0		
37	68	Total PFHxS	398.9 > 79.6	1.72e3	9.40e2	0.115		4.05		22.8	101.0111			
38	69	Total PFOA	413 > 368.7	1.56e3	5.73e3	0.115		4.30		3.41	29.9420			
39	70	Total PFOS	499.1 > 79.9	0.00e0	2.25e3	0.115		4.90		0.000				
40	71	Total N-MeFOSAA	570.1 > 419	0.00e0	2.69e3	0.115		5.55		0.000				
41	72	Total N-EtFOSAA	584.2 > 419	0.00e0	3.41e3	0.115		5.70		0.000				

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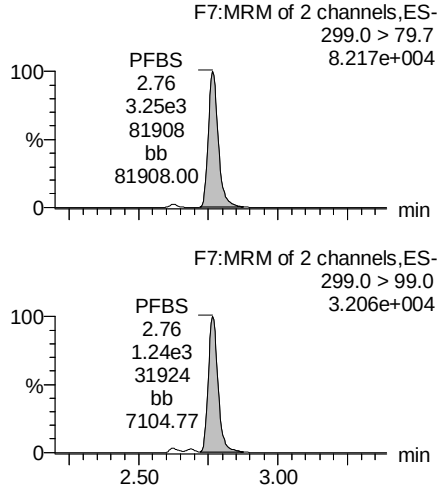
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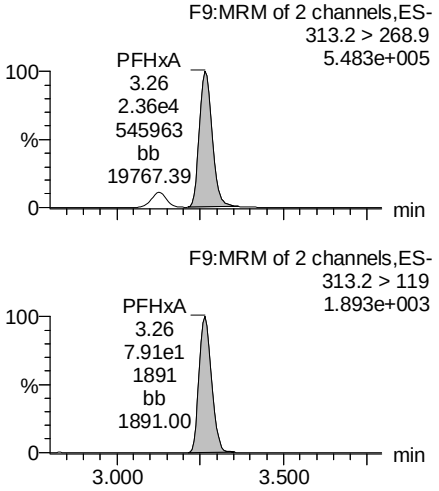
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Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_53, Date: 07-Jun-2018, Time: 23:16:04, ID: 1801054-05 A1-MW-52-SA1 0.11509, Description: A1-MW-52-SA1

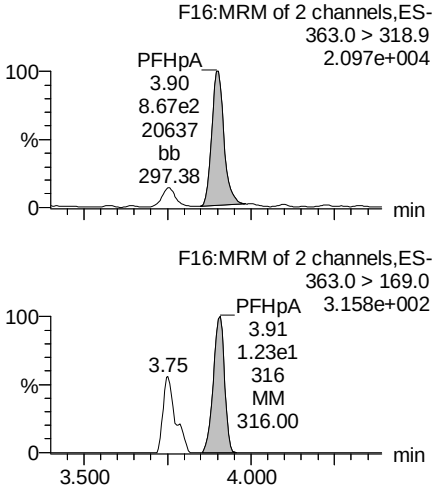
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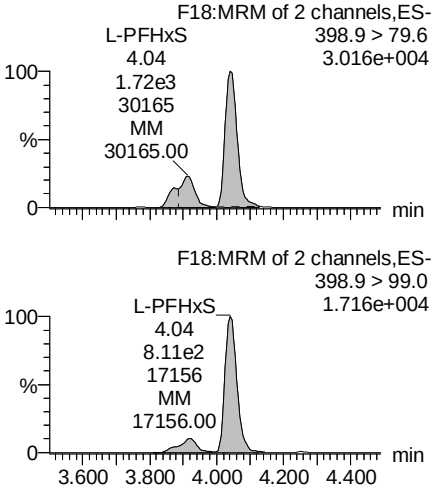
PFHxA



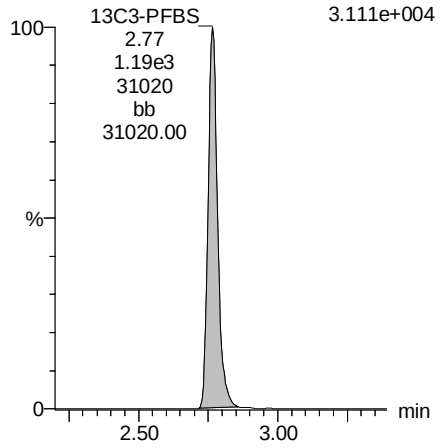
PFHpA



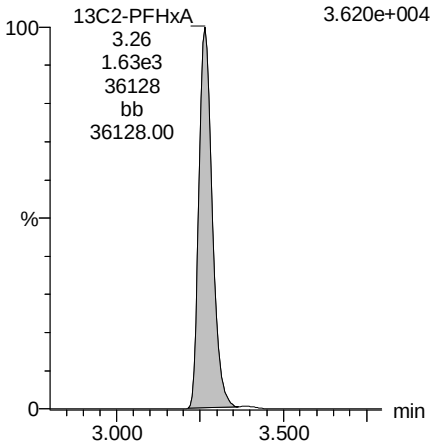
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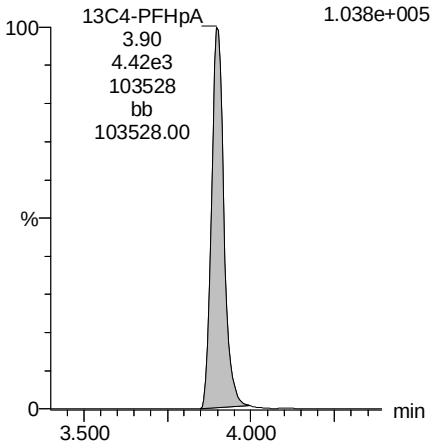
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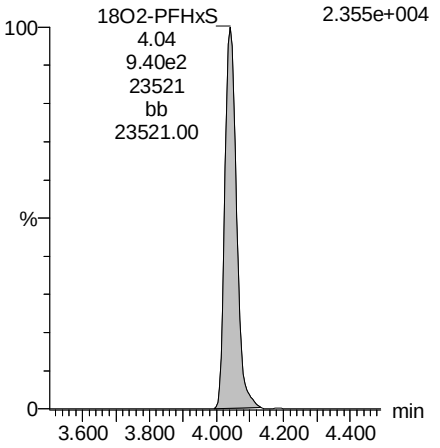
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13C4-PFHpA



18O2-PFHxS



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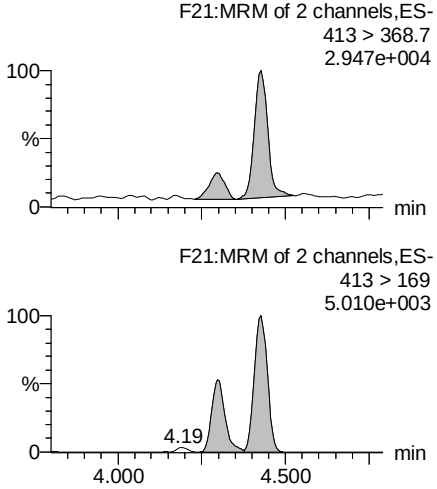
MM 6/11/2018

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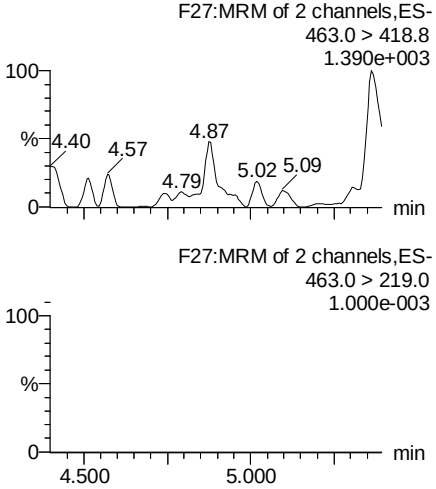
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Name: 180607M2_53, Date: 07-Jun-2018, Time: 23:16:04, ID: 1801054-05 A1-MW-52-SA1 0.11509, Description: A1-MW-52-SA1

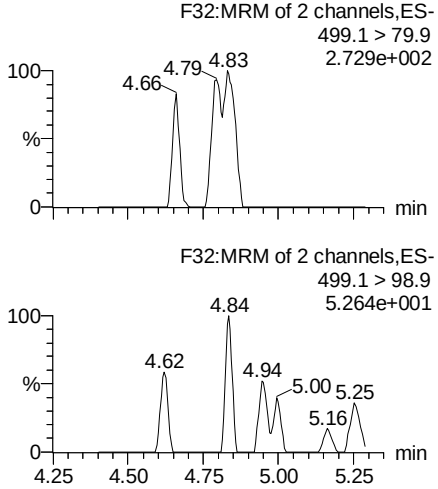
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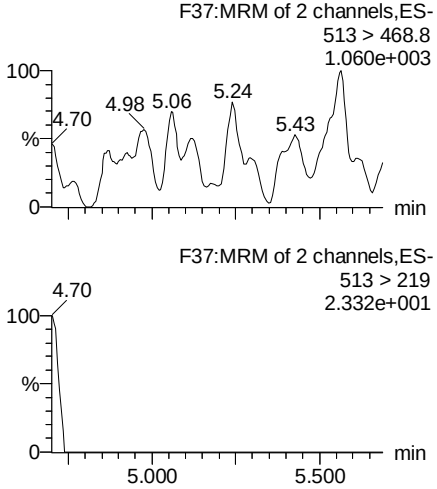
PFNA



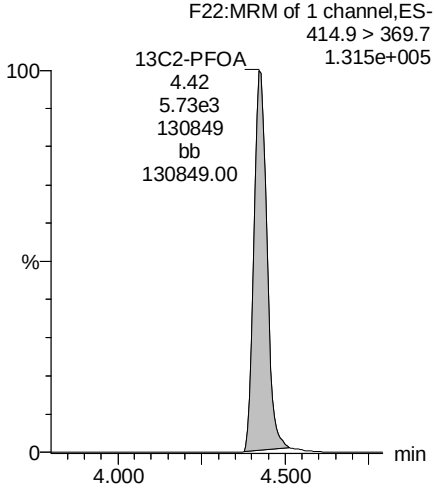
Total PFOS



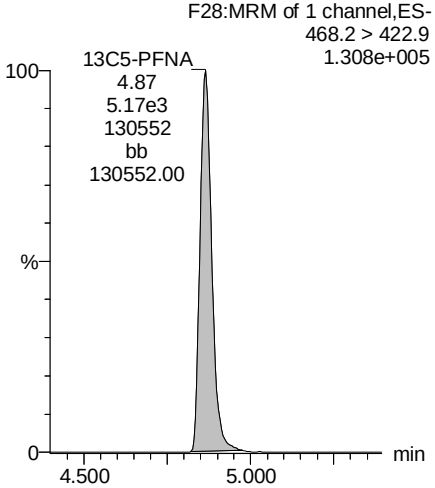
PFDA



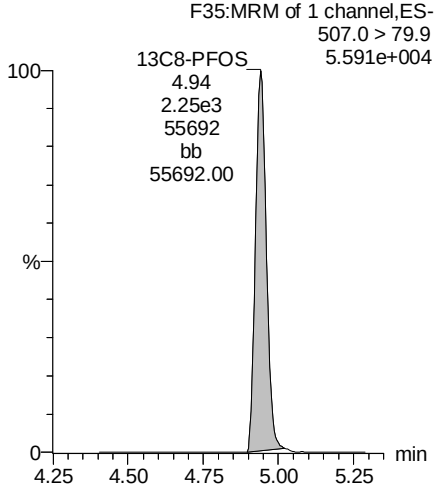
13C2-PFOA



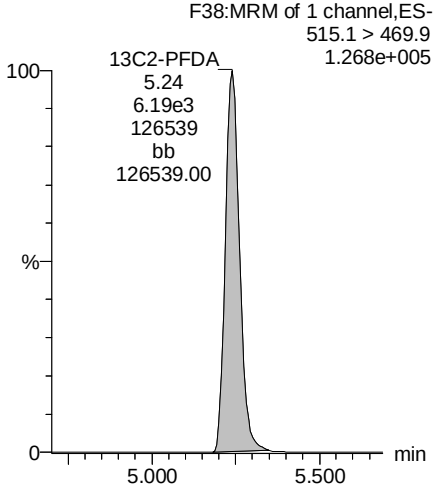
13C5-PFNA



13C8-PFOS



13C2-PFDA



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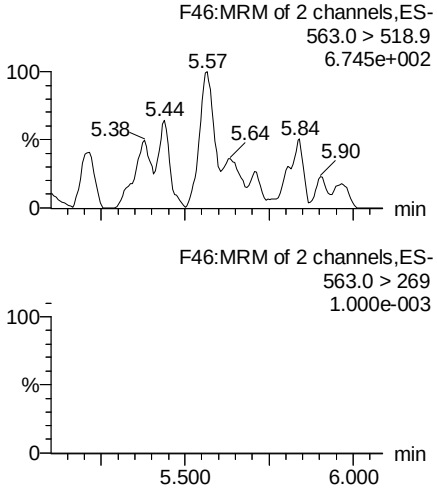
MM 6/11/2018

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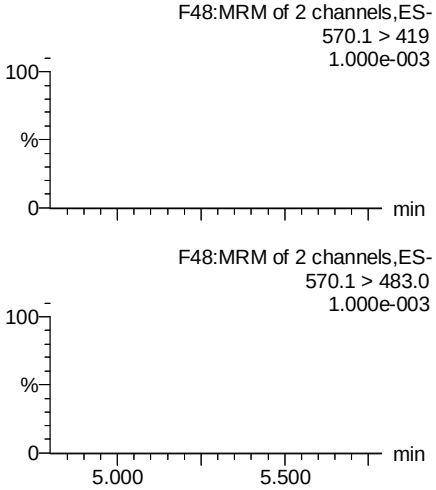
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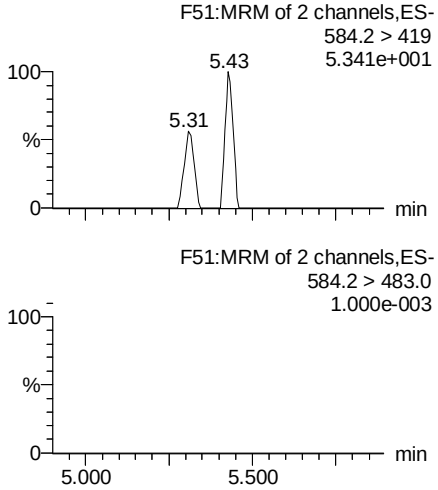
PFUdA



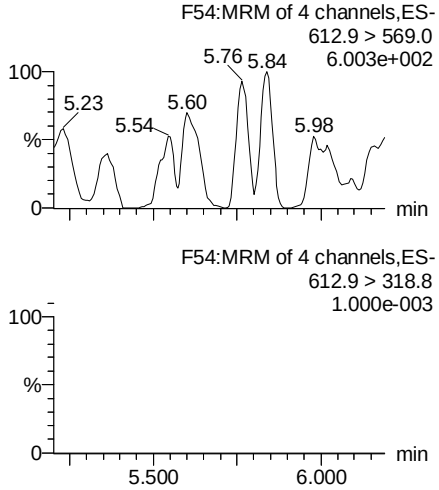
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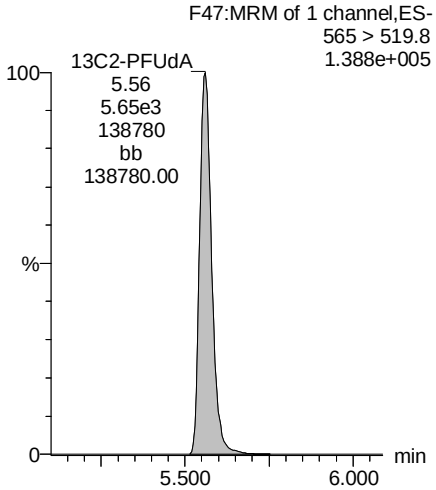
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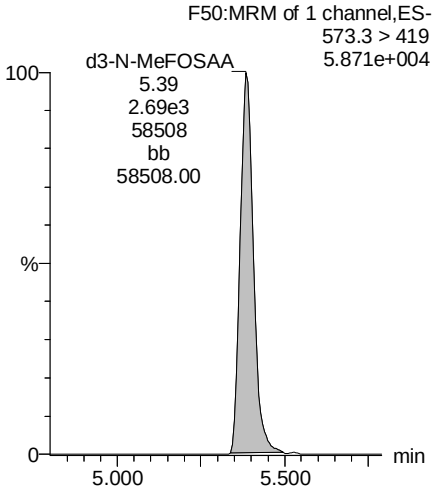
PFDoA



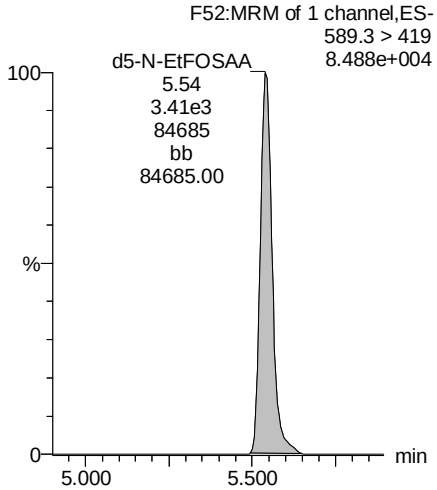
13C2-PFUdA



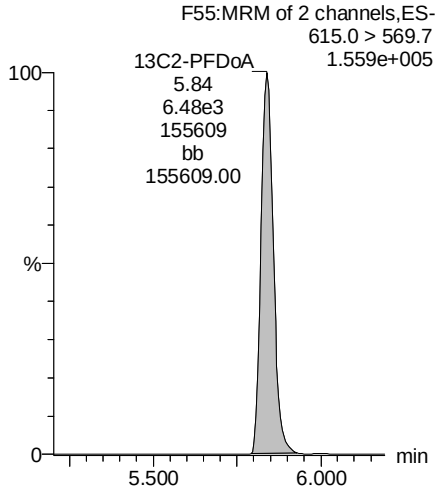
d3-N-MeFOSAA



d5-N-EtFOSAA



13C2-PFDoA



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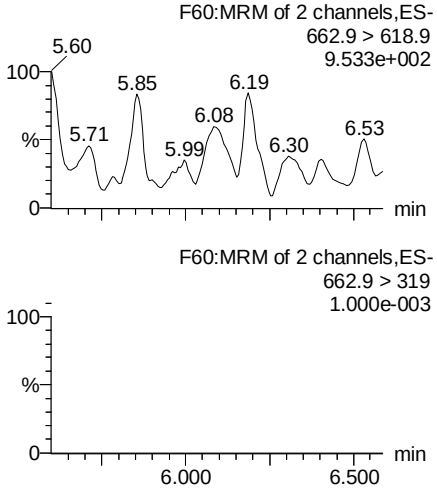
MM 6/11/2018

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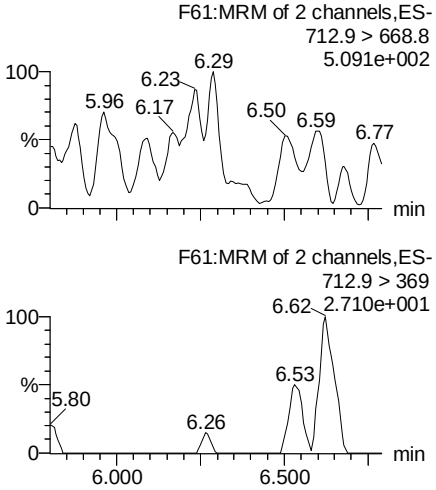
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Name: 180607M2_53, Date: 07-Jun-2018, Time: 23:16:04, ID: 1801054-05 A1-MW-52-SA1 0.11509, Description: A1-MW-52-SA1

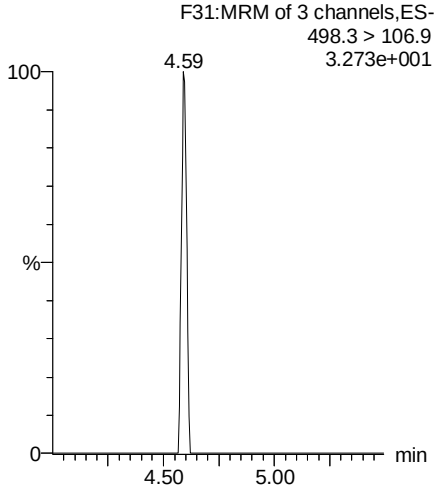
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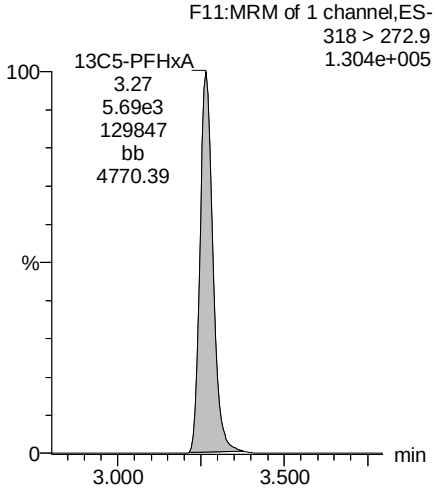
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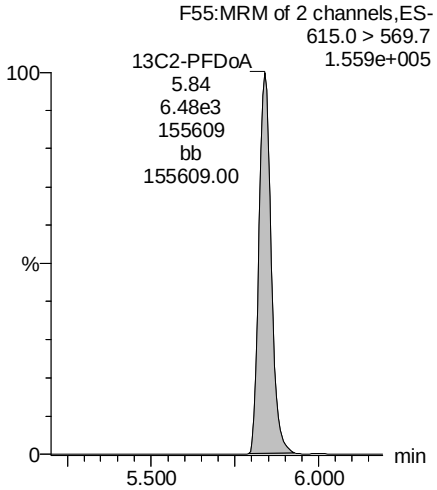
TCDA



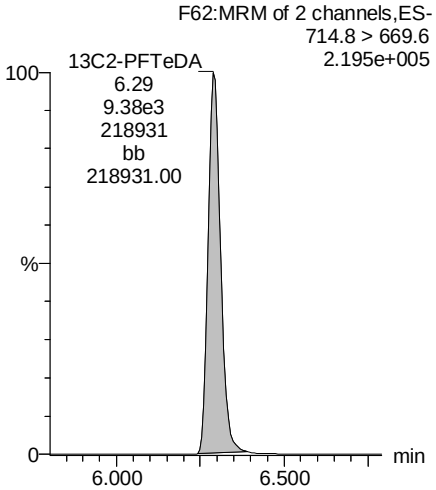
13C5-PFHxA



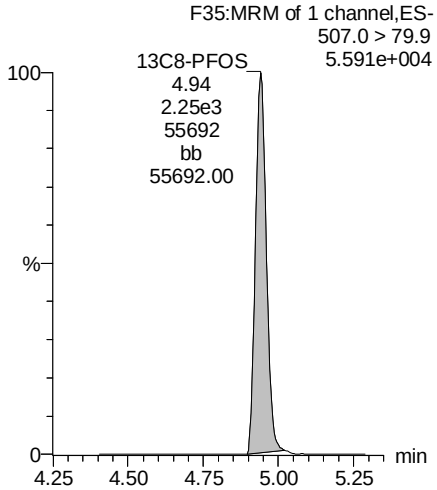
13C2-PFDoA



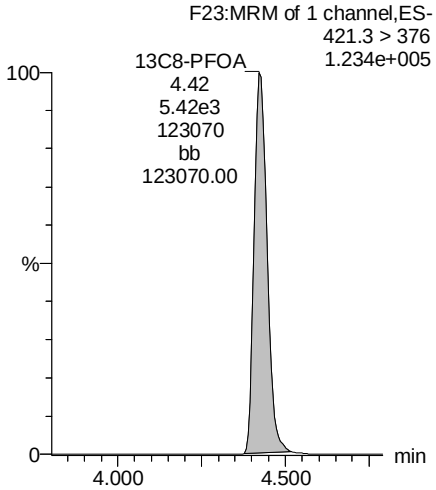
13C2-PFTeDA



13C8-PFOS



13C8-PFOA



ANP 6/11/2018

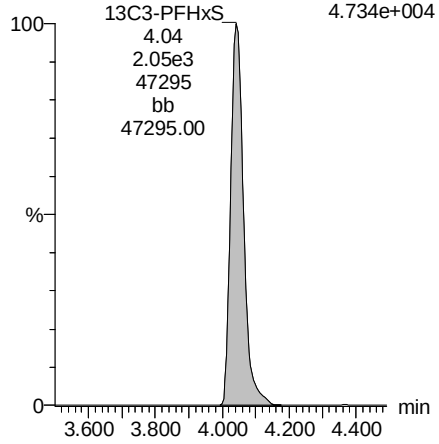
MM 6/11/2018

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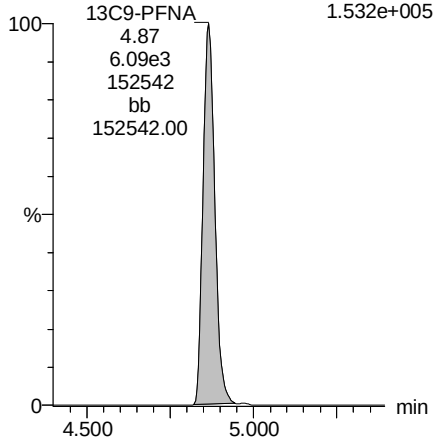
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Name: 180607M2_53, Date: 07-Jun-2018, Time: 23:16:04, ID: 1801054-05 A1-MW-52-SA1 0.11509, Description: A1-MW-52-SA1

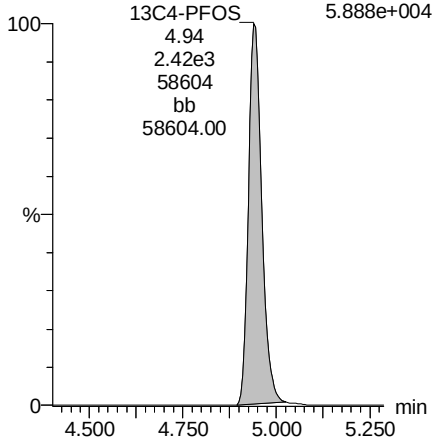
13C3-PFHxS



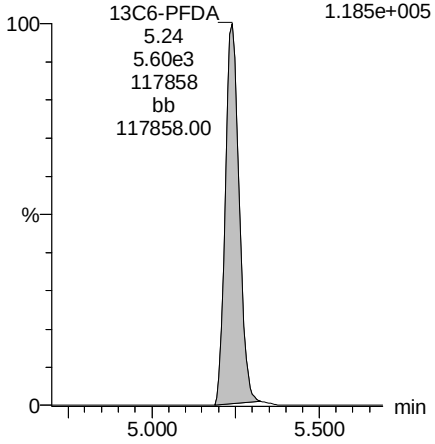
13C9-PFNA



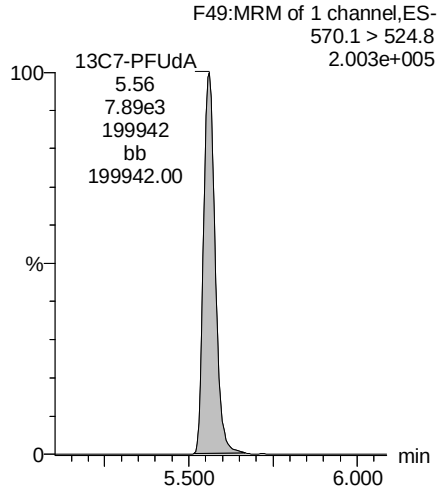
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-54.qld

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Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_54, Date: 07-Jun-2018, Time: 23:26:35, ID: 1801054-06 A1-MW-01-SA1 0.1102, Description: A1-MW-01-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7	1.06e3	1.14e3	0.110		2.76	2.76	11.7	52.4240		2.634	NO
2	5	PFHxA	313.2 > 268.9	5.90e3	1.76e3	0.110		3.26	3.26	16.8	101.1696		799.317	YES
3	7	PFHpA	363.0 > 318.9	1.09e2	4.81e3	0.110		3.90	3.90	0.283	2.2468		36.560	YES
4	8	L-PFHxS	398.9 > 79.6	3.83e2	9.96e2	0.110		4.02	4.04	4.81	23.0069		1.959	YES
5	11	L-PFOA	413 > 368.7		6.02e3	0.110		4.43						
6	14	PFNA	463.0 > 418.8		4.99e3	0.110		4.68						
7	16	L-PFOS	499.1 > 79.9		2.20e3	0.110		4.93						
8	18	PFDA	513 > 468.8		6.13e3	0.110		5.05						
9	21	L-MeFOSAA	570.1 > 419		2.59e3	0.110		5.18						
10	23	L-EtFOSAA	584.2 > 419		3.65e3	0.110		5.37						

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-54.qld

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Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_54, Date: 07-Jun-2018, Time: 23:26:35, ID: 1801054-06 A1-MW-01-SA1 0.1102, Description: A1-MW-01-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	25	PFUdA	563.0 > 518.9		5.51e3	0.110		5.37						
2	27	PFDoA	612.9 > 569.0		7.13e3	0.110		5.65						
3	29	PFTrDA	662.9 > 618.9		7.13e3	0.110		5.89						
4	30	PFTeDA	712.9 > 668.8		9.12e3	0.110		6.11						
5	36	13C3-PFBA	216.1 > 171.8	4.08e3	4.90e3	0.110	0.870	1.34	1.50	10.4	108.4380	95.6		
6	37	13C3-PFPeA	266. > 221.8	5.35e3	6.00e3	0.110	0.870	2.32	2.49	11.2	116.3628	102.6		
7	38	13C3-PFBS	302. > 98.8	1.14e3	6.00e3	0.110	0.099	2.60	2.77	2.37	217.6201	191.9		
8	39	13C2-4:2 FTS	329.2>308.9	2.31e3	6.00e3	0.110	0.265	3.01	3.17	4.80	164.4910	145.0		
9	40	13C2-PFHxA	315 > 269.8	1.76e3	6.00e3	0.110	0.737	3.10	3.27	3.66	45.0268	99.2		
10	41	13C4-PFHpA	367.2 > 321.8	4.81e3	6.00e3	0.110	0.791	3.71	3.90	10.0	115.0697	101.4		
11	42	18O2-PFHxS	403.0 > 102.6	9.96e2	2.27e3	0.110	0.442	3.86	4.04	5.49	112.7943	99.4		
12	43	13C2-6:2 FTS	429.1 > 408.9	2.56e3	5.77e3	0.110	0.306	4.18	4.37	5.53	163.8066	144.4		
13	44	13C2-PFOA	414.9 > 369.7	6.02e3	5.77e3	0.110	1.285	4.23	4.42	13.0	91.9873	81.1		
14	45	13C5-PFNA	468.2 > 422.9	4.99e3	6.52e3	0.110	0.930	4.67	4.86	9.57	93.3795	82.3		
15	46	13C8-PFOSA	506.1 > 77.7	2.05e3	8.18e3	0.110	0.237	4.74	4.92	3.14	120.0533	105.8		
16	47	13C8-PFOS	507.0 > 79.9	2.20e3	2.43e3	0.110	1.039	4.75	4.94	11.3	98.8576	87.2		
17	48	13C2-PFDA	515.1 > 469.9	6.13e3	7.01e3	0.110	1.144	5.04	5.23	10.9	86.6430	76.4		
18	49	13C2-8:2 FTS	529.1 > 508.7	1.94e3	6.00e3	0.110	0.215	5.01	5.21	4.04	170.1720	150.0		
19	50	d3-N-MeFOSAA	573.3 > 419	2.59e3	8.18e3	0.110	0.351	5.19	5.38	3.96	102.2701	90.2		
20	51	d5-N-EtFOSAA	589.3 > 419	3.65e3	8.18e3	0.110	0.388	5.35	5.54	5.58	130.3296	114.9		
21	52	13C2-PFUdA	565 > 519.8	5.51e3	8.18e3	0.110	1.019	5.37	5.56	8.43	75.0233	66.1		
22	53	13C2-PFDoA	615.0 > 569.7	7.13e3	7.01e3	0.110	1.057	5.65	5.83	12.7	109.1672	96.2		
23	54	d3-N-MeFOSA	515.2 > 168.9		8.18e3	0.110	0.107	5.87						
24	55	13C2-PFTeDA	714.8 > 669.6	9.12e3	8.18e3	0.110	0.964	6.11	6.29	13.9	131.2743	115.7		
25	56	d5-N-ETFOSA	531.1 > 168.9		8.18e3	0.110	0.157	6.25						
26	57	13C2-PFHxDA	815 > 769.7	5.82e3	8.18e3	0.110	1.562	6.45	6.60	8.90	51.6928	113.9		
27	58	d7-N-MeFOSE	623.1 > 58.9		8.18e3	0.110	0.147	6.37						
28	59	d9-N-EtFOSE	639.2 > 58.8		8.18e3	0.110	0.149	6.52						
29	60	13C4-PFBA	217. > 171.8	4.90e3	4.90e3	0.110	1.000	1.33	1.50	12.5	113.4301	100.0		
30	61	13C5-PFHxA	318 > 272.9	6.00e3	6.00e3	0.110	1.000	3.09	3.27	12.5	113.4301	100.0		
31	62	13C3-PFHxS	401.9 > 79.9	2.27e3	2.27e3	0.110	1.000	3.87	4.04	12.5	113.4301	100.0		
32	63	13C8-PFOA	421.3 > 376	5.77e3	5.77e3	0.110	1.000	4.24	4.42	12.5	113.4301	100.0		ANP 6/11/2018

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-54.qld

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Name: 180607M2_54, Date: 07-Jun-2018, Time: 23:26:35, ID: 1801054-06 A1-MW-01-SA1 0.1102, Description: A1-MW-01-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
33	64	13C9-PFNA	472.2 > 426.9	6.52e3	6.52e3	0.110	1.000	4.67	4.86	12.5	113.4301	100.0		
34	65	13C4-PFOS	503 > 79.9	2.43e3	2.43e3	0.110	1.000	4.75	4.94	12.5	113.4301	100.0		
35	66	13C6-PFDA	519.1 > 473.7	7.01e3	7.01e3	0.110	1.000	5.04	5.23	12.5	113.4301	100.0		
36	67	13C7-PFUdA	570.1 > 524.8	8.18e3	8.18e3	0.110	1.000	5.37	5.56	12.5	113.4301	100.0		
37	68	Total PFHxS	398.9 > 79.6	3.83e2	9.96e2	0.110		4.05		4.81	23.0069			
38	69	Total PFOA	413 > 368.7	0.00e0	6.02e3	0.110		4.30		0.000				
39	70	Total PFOS	499.1 > 79.9	0.00e0	2.20e3	0.110		4.90		0.000				
40	71	Total N-MeFOSAA	570.1 > 419	0.00e0	2.59e3	0.110		5.55		0.000				
41	72	Total N-EtFOSAA	584.2 > 419	0.00e0	3.65e3	0.110		5.70		0.000				

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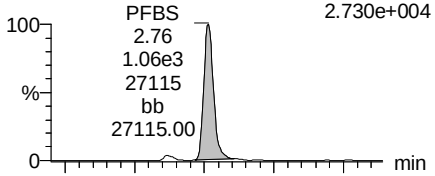
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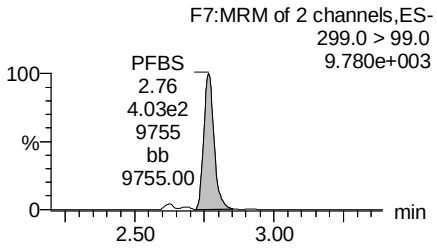
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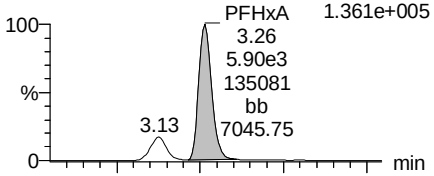
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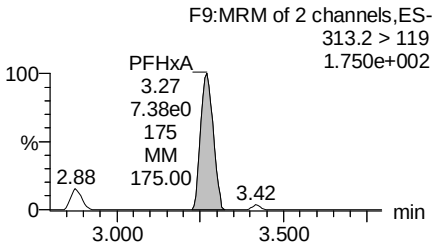
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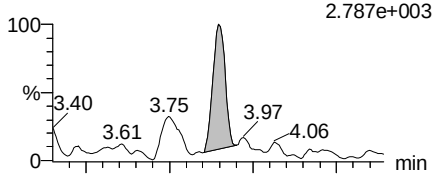


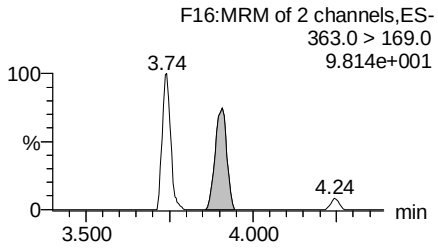
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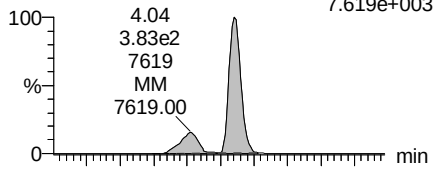


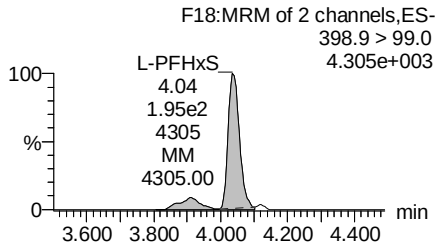
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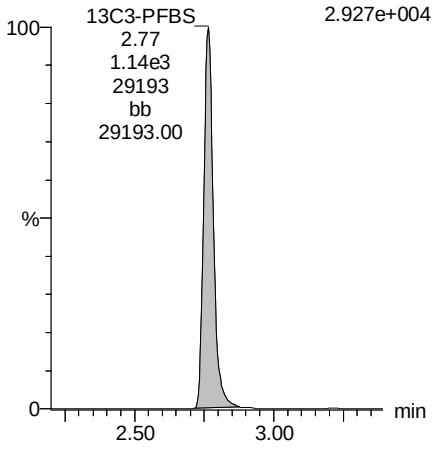


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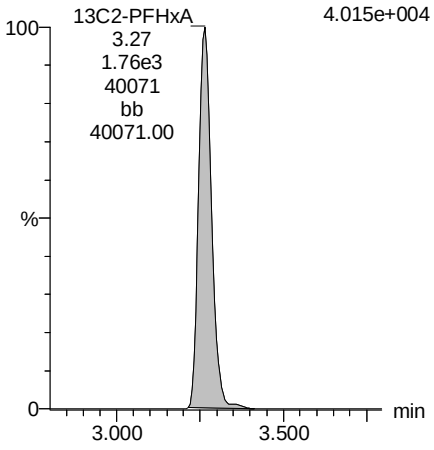




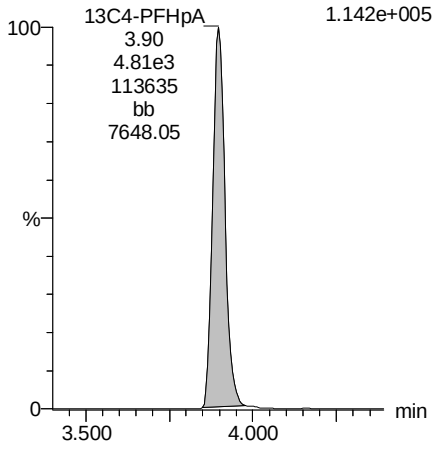
13C3-PFBS



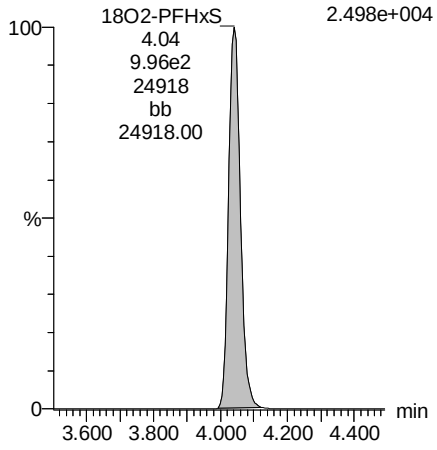
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13C4-PFHpA



18O2-PFHxS



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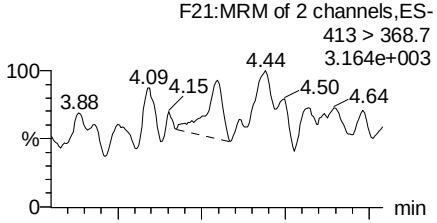
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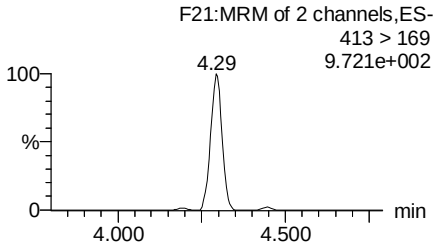
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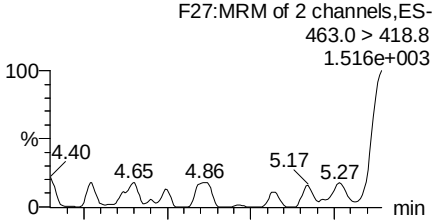
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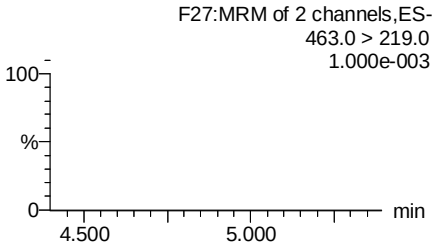
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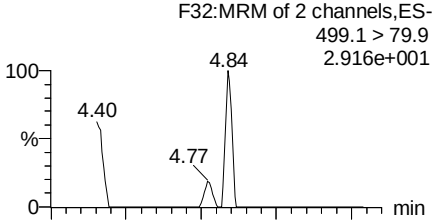


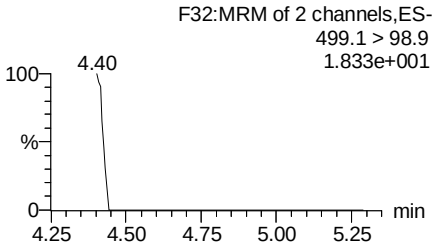
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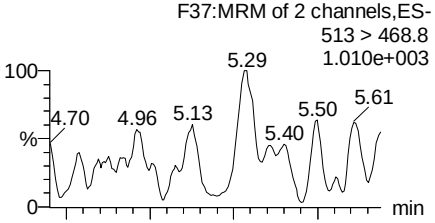


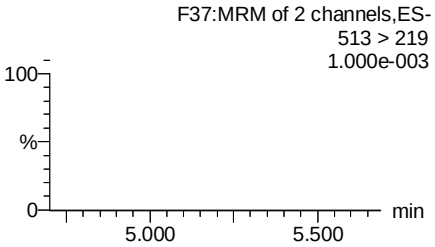
Total PFOS



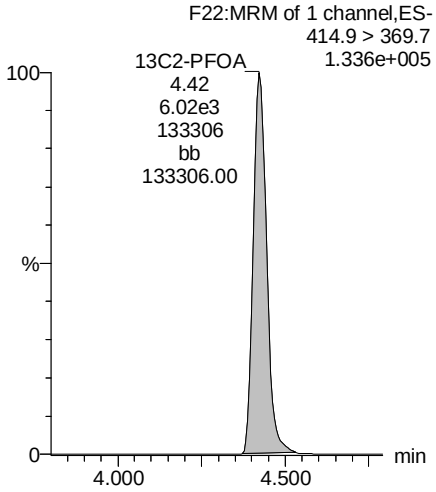


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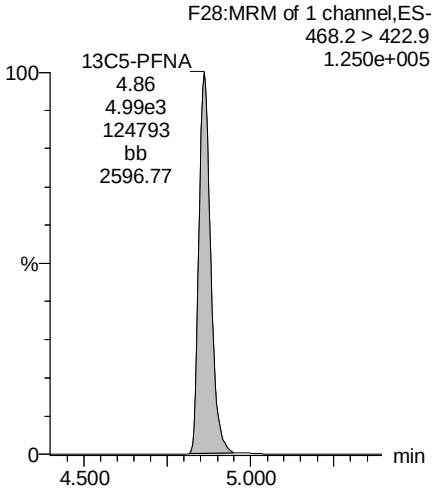




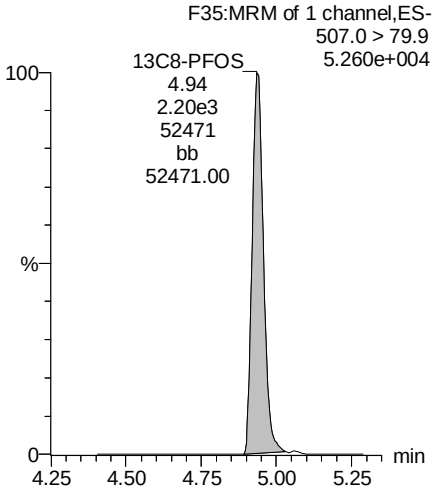
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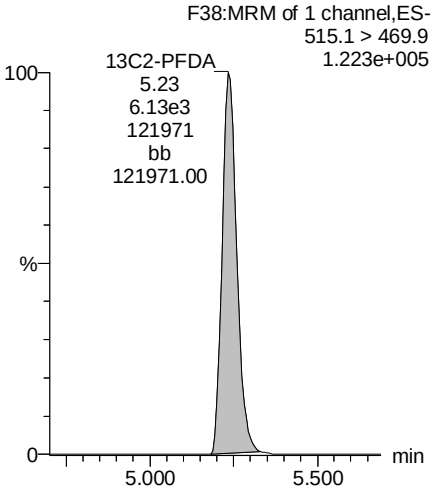
13C5-PFNA



13C8-PFOS



13C2-PFDA



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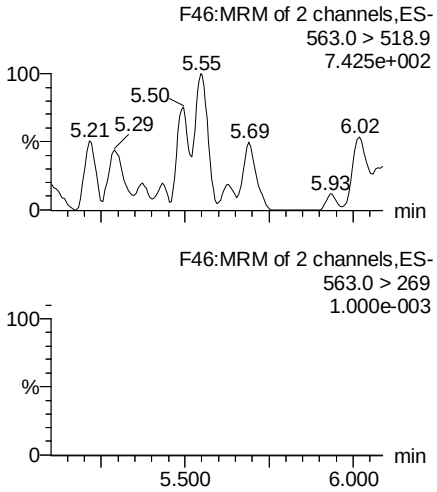
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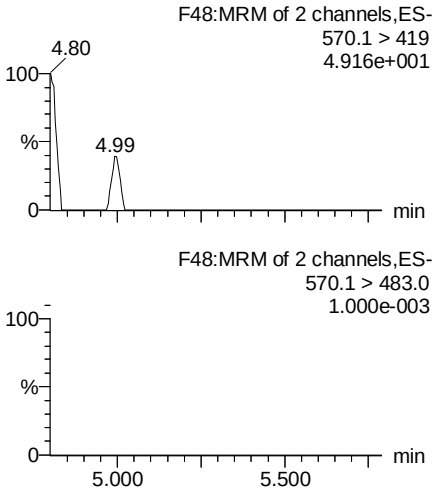
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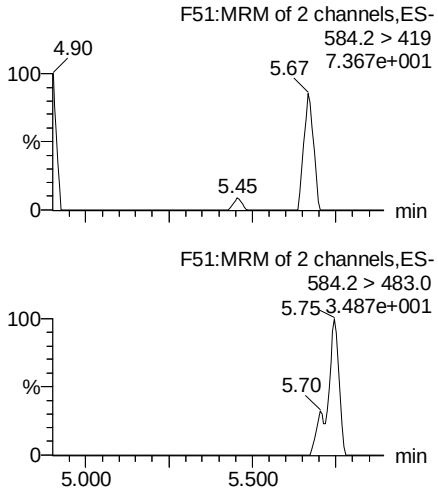
PFUdA



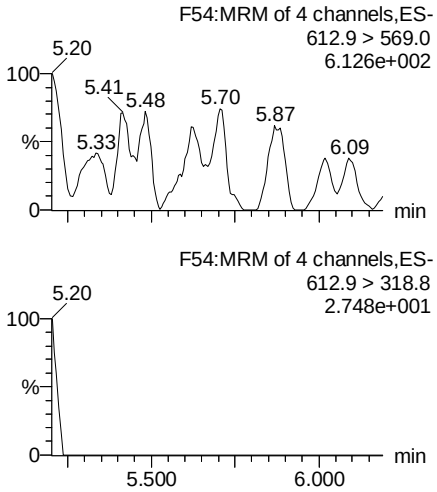
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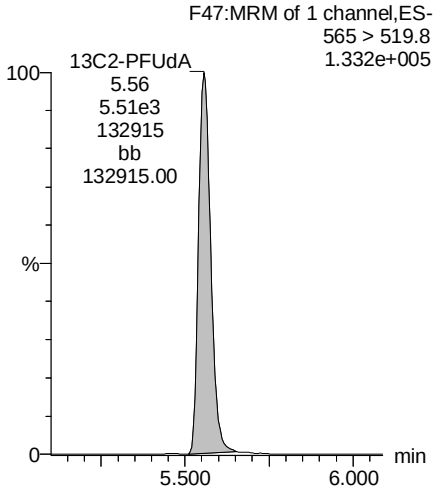
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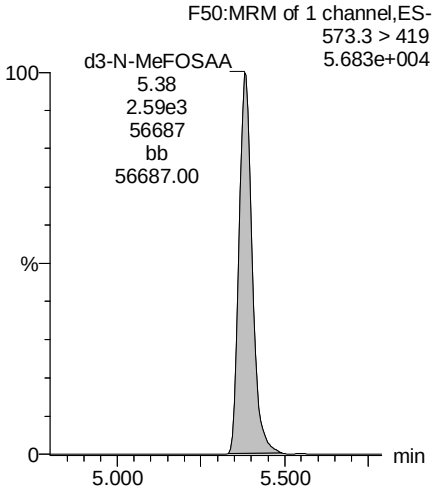
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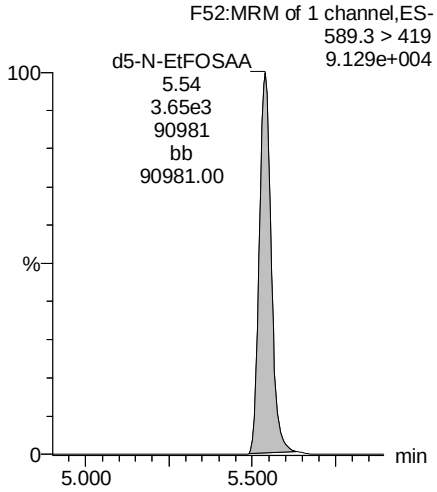
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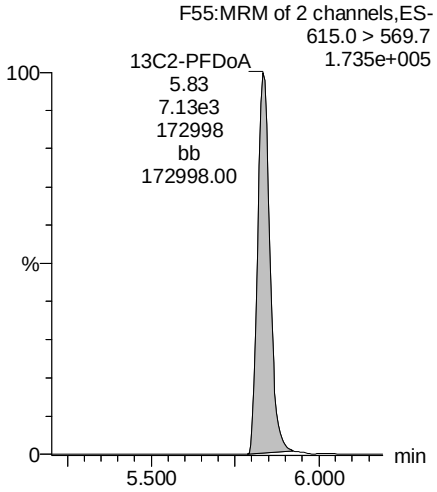
d3-N-MeFOSAA



d5-N-EtFOSAA



13C2-PFDoA



ANP 6/11/2018

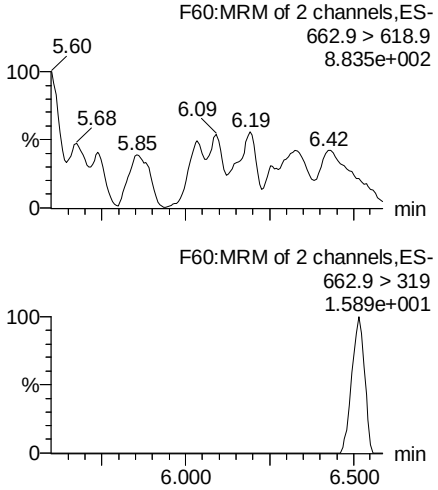
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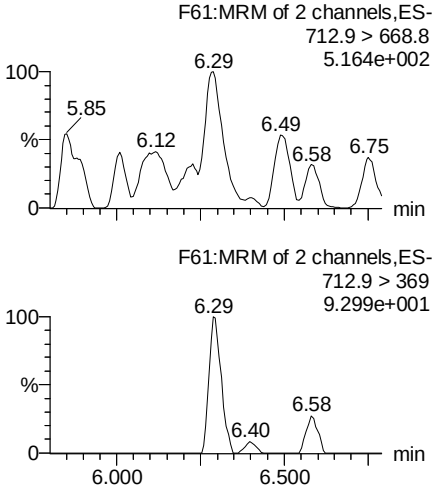
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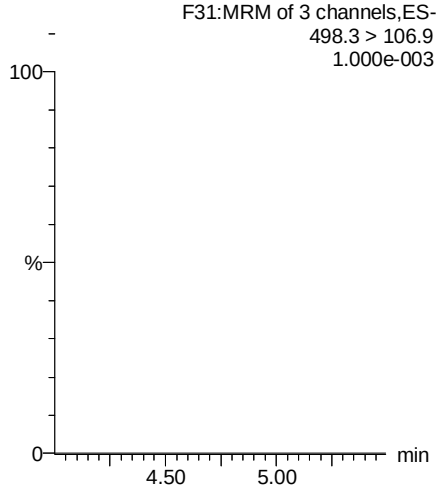
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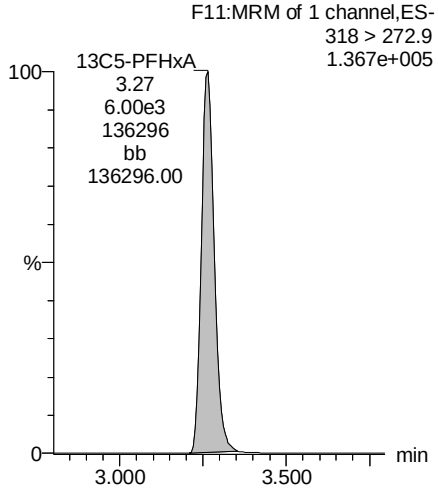
PFTeDA



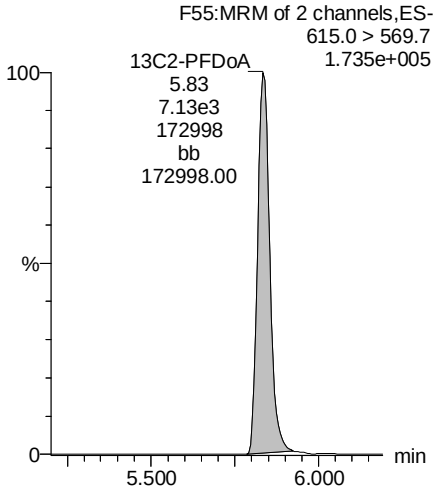
TCDA



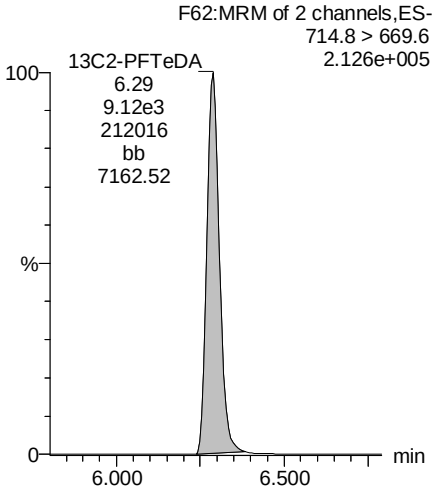
13C5-PFHxA



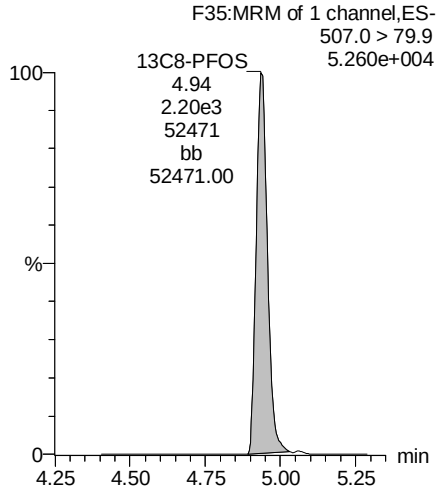
13C2-PFDoA



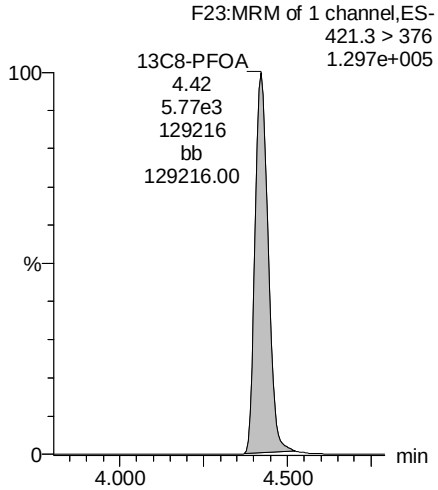
13C2-PFTeDA



13C8-PFOS



13C8-PFOA



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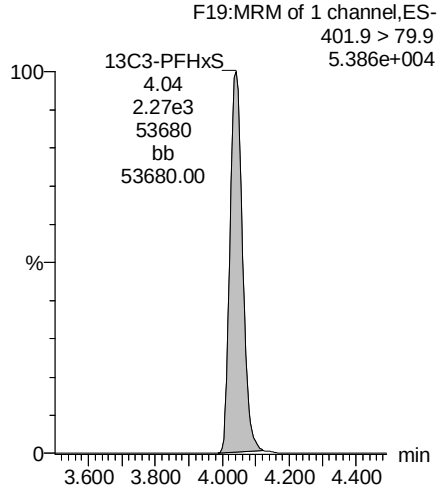
MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-54.qld

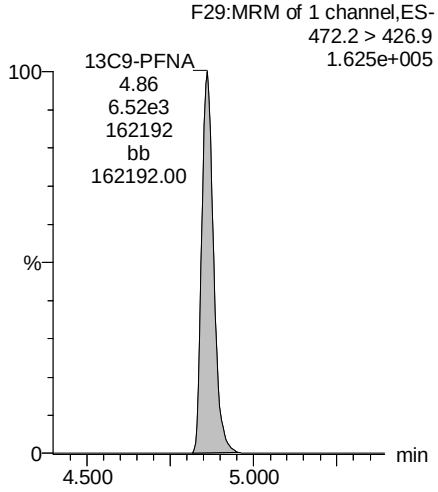
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Printed: Monday, June 11, 2018 14:08:48 Pacific Daylight Time

Name: 180607M2_54, Date: 07-Jun-2018, Time: 23:26:35, ID: 1801054-06 A1-MW-01-SA1 0.1102, Description: A1-MW-01-SA1

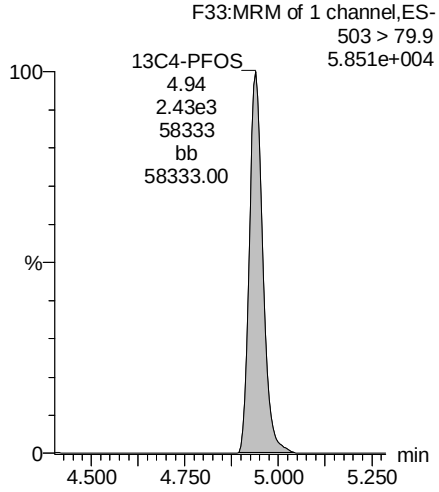
13C3-PFHxS



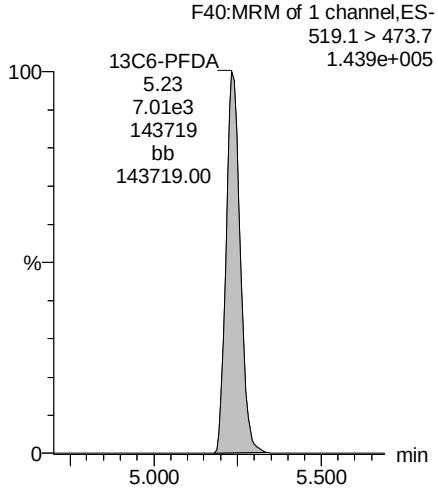
13C9-PFNA



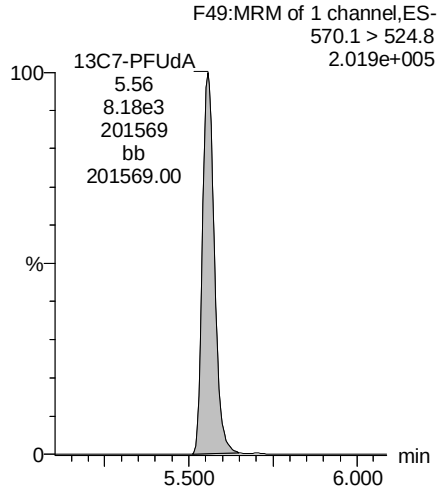
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-55.qld

Last Altered: Monday, June 11, 2018 14:14:48 Pacific Daylight Time
Printed: Monday, June 11, 2018 14:15:20 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_55, Date: 07-Jun-2018, Time: 23:37:00, ID: 1801054-07 A1-MW-01-SA1D 0.11715, Description: A1-MW-01-SA1D

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7	1.27e3	1.20e3	0.117		2.76	2.76	13.2	55.7362		2.741	NO
2	5	PFHxA	313.2 > 268.9	5.71e3	1.67e3	0.117		3.25	3.26	17.1	97.0911		308.523	NO
3	7	PFHpA	363.0 > 318.9	1.32e2	4.43e3	0.117		3.90	3.90	0.371	2.7254		57.090	YES
4	8	L-PFHxS	398.9 > 79.6	4.43e2	1.04e3	0.117		4.02	4.04	5.31	23.8300		1.860	YES
5	11	L-PFOA	413 > 368.7		6.42e3	0.117		4.43						
6	14	PFNA	463.0 > 418.8		4.90e3	0.117		4.68						
7	16	L-PFOS	499.1 > 79.9		2.47e3	0.117		4.93						
8	18	PFDA	513 > 468.8		6.20e3	0.117		5.05						
9	21	L-MeFOSAA	570.1 > 419		2.97e3	0.117		5.18						
10	23	L-EtFOSAA	584.2 > 419		3.80e3	0.117		5.37						

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-55.qld

Last Altered: Monday, June 11, 2018 14:14:48 Pacific Daylight Time
Printed: Monday, June 11, 2018 15:33:44 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_55, Date: 07-Jun-2018, Time: 23:37:00, ID: 1801054-07 A1-MW-01-SA1D 0.11715, Description: A1-MW-01-SA1D

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	25	PFUdA	563.0 > 518.9		5.53e3	0.117		5.37						
2	27	PFDoA	612.9 > 569.0		6.45e3	0.117		5.65						
3	29	PFTrDA	662.9 > 618.9		6.45e3	0.117		5.89						
4	30	PFTeDA	712.9 > 668.8		8.44e3	0.117		6.11						
5	36	13C3-PFBA	216.1 > 171.8	3.94e3	4.59e3	0.117	0.870	1.34	1.49	10.7	105.3410	98.7		
6	37	13C3-PFPeA	266. > 221.8	5.06e3	5.98e3	0.117	0.870	2.32	2.48	10.6	103.7132	97.2		
7	38	13C3-PFBS	302. > 98.8	1.20e3	5.98e3	0.117	0.099	2.60	2.76	2.51	217.1979	203.6		
8	39	13C2-4:2 FTS	329.2>308.9	2.64e3	5.98e3	0.117	0.265	3.01	3.17	5.52	177.7873	166.6		
9	40	13C2-PFHxA	315 > 269.8	1.67e3	5.98e3	0.117	0.737	3.10	3.26	3.48	40.3096	94.4		
10	41	13C4-PFHpA	367.2 > 321.8	4.43e3	5.98e3	0.117	0.791	3.71	3.90	9.26	100.0089	93.7		
11	42	18O2-PFHxS	403.0 > 102.6	1.04e3	2.59e3	0.117	0.442	3.86	4.04	5.02	97.0061	90.9		
12	43	13C2-6:2 FTS	429.1 > 408.9	2.47e3	5.90e3	0.117	0.306	4.18	4.37	5.23	145.6908	136.5		
13	44	13C2-PFOA	414.9 > 369.7	6.42e3	5.90e3	0.117	1.285	4.23	4.42	13.6	90.2004	84.5		
14	45	13C5-PFNA	468.2 > 422.9	4.90e3	5.75e3	0.117	0.930	4.67	4.86	10.7	97.8718	91.7		
15	46	13C8-PFOSA	506.1 > 77.7	1.54e3	7.77e3	0.117	0.237	4.74	4.92	2.47	88.8744	83.3		
16	47	13C8-PFOS	507.0 > 79.9	2.47e3	2.50e3	0.117	1.039	4.75	4.94	12.3	101.3844	95.0		
17	48	13C2-PFDA	515.1 > 469.9	6.20e3	6.97e3	0.117	1.144	5.04	5.23	11.1	82.9568	77.7		
18	49	13C2-8:2 FTS	529.1 > 508.7	1.55e3	5.98e3	0.117	0.215	5.01	5.21	3.24	128.3536	120.3		
19	50	d3-N-MeFOSAA	573.3 > 419	2.97e3	7.77e3	0.117	0.351	5.19	5.39	4.77	115.9062	108.6		
20	51	d5-N-EtFOSAA	589.3 > 419	3.80e3	7.77e3	0.117	0.388	5.35	5.53	6.11	134.3521	125.9		
21	52	13C2-PFUdA	565 > 519.8	5.53e3	7.77e3	0.117	1.019	5.37	5.56	8.90	74.4969	69.8		
22	53	13C2-PFDoA	615.0 > 569.7	6.45e3	6.97e3	0.117	1.057	5.65	5.83	11.6	93.3586	87.5		
23	54	d3-N-MeFOSA	515.2 > 168.9		7.77e3	0.117	0.107	5.87						
24	55	13C2-PFTeDA	714.8 > 669.6	8.44e3	7.77e3	0.117	0.964	6.11	6.29	13.6	120.2533	112.7		
25	56	d5-N-ETFOSA	531.1 > 168.9		7.77e3	0.117	0.157	6.25						
26	57	13C2-PFHxDA	815 > 769.7	5.46e3	7.77e3	0.117	1.562	6.45	6.60	8.79	48.0242	112.5		
27	58	d7-N-MeFOSE	623.1 > 58.9		7.77e3	0.117	0.147	6.37						
28	59	d9-N-EtFOSE	639.2 > 58.8		7.77e3	0.117	0.149	6.52						
29	60	13C4-PFBA	217. > 171.8	4.59e3	4.59e3	0.117	1.000	1.33	1.49	12.5	106.7008	100.0		
30	61	13C5-PFHxA	318 > 272.9	5.98e3	5.98e3	0.117	1.000	3.09	3.26	12.5	106.7008	100.0		
31	62	13C3-PFHxS	401.9 > 79.9	2.59e3	2.59e3	0.117	1.000	3.87	4.04	12.5	106.7008	100.0		
32	63	13C8-PFOA	421.3 > 376	5.90e3	5.90e3	0.117	1.000	4.24	4.42	12.5	106.7008	100.0		ANP 6/11/2018

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-55.qld

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Printed: Monday, June 11, 2018 15:33:44 Pacific Daylight Time

Name: 180607M2_55, Date: 07-Jun-2018, Time: 23:37:00, ID: 1801054-07 A1-MW-01-SA1D 0.11715, Description: A1-MW-01-SA1D

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
33	64	13C9-PFNA	472.2 > 426.9	5.75e3	5.75e3	0.117	1.000	4.67	4.86	12.5	106.7008	100.0		
34	65	13C4-PFOS	503 > 79.9	2.50e3	2.50e3	0.117	1.000	4.75	4.94	12.5	106.7008	100.0		
35	66	13C6-PFDA	519.1 > 473.7	6.97e3	6.97e3	0.117	1.000	5.04	5.23	12.5	106.7008	100.0		
36	67	13C7-PFUdA	570.1 > 524.8	7.77e3	7.77e3	0.117	1.000	5.37	5.56	12.5	106.7008	100.0		
37	68	Total PFHxS	398.9 > 79.6	4.43e2	1.04e3	0.117		4.05		5.31	23.8300			
38	69	Total PFOA	413 > 368.7	0.00e0	6.42e3	0.117		4.30		0.000				
39	70	Total PFOS	499.1 > 79.9	0.00e0	2.47e3	0.117		4.90		0.000				
40	71	Total N-MeFOSAA	570.1 > 419	0.00e0	2.97e3	0.117		5.55		0.000				
41	72	Total N-EtFOSAA	584.2 > 419	0.00e0	3.80e3	0.117		5.70		0.000				

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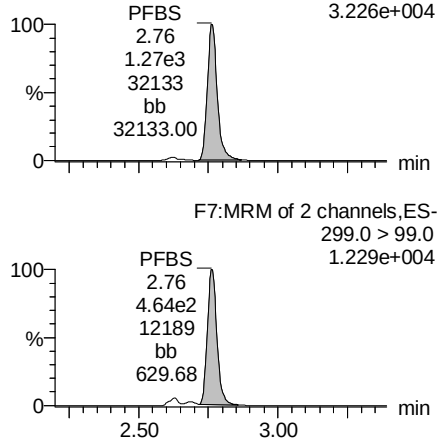
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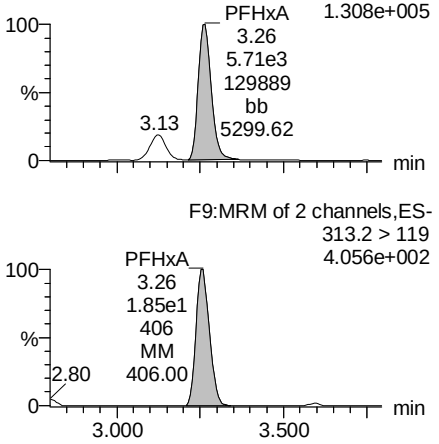
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Name: 180607M2_55, Date: 07-Jun-2018, Time: 23:37:00, ID: 1801054-07 A1-MW-01-SA1D 0.11715, Description: A1-MW-01-SA1D

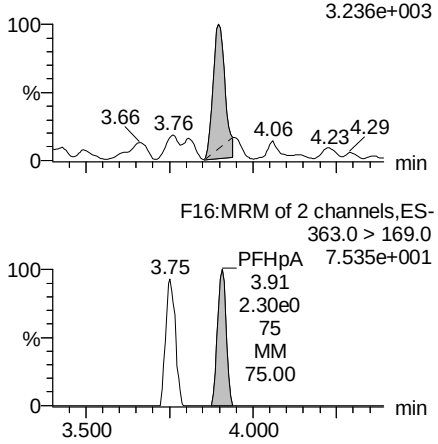
PFBS



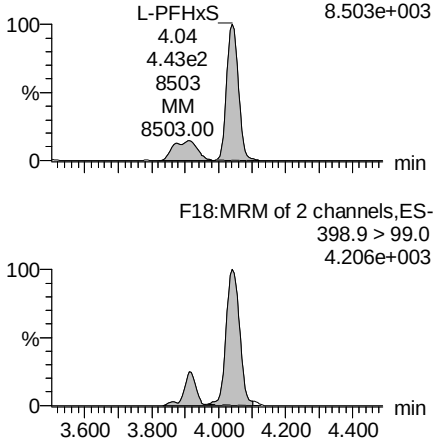
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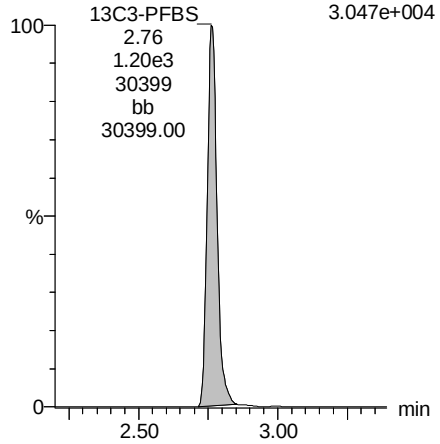
PFHpA



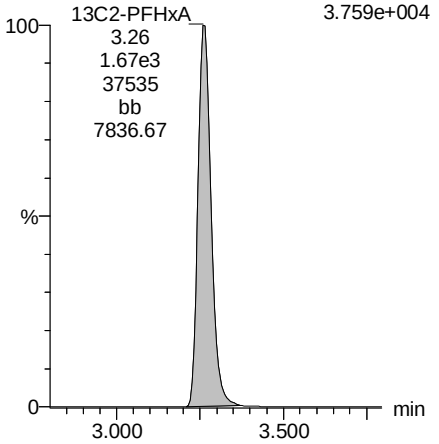
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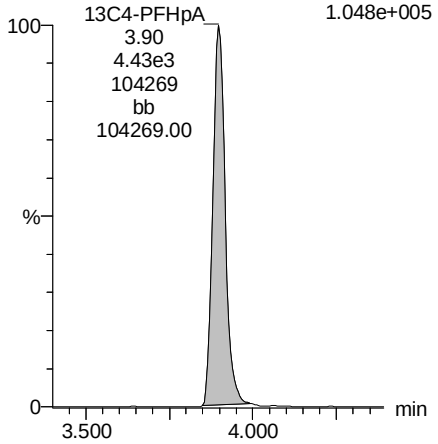
13C3-PFBS



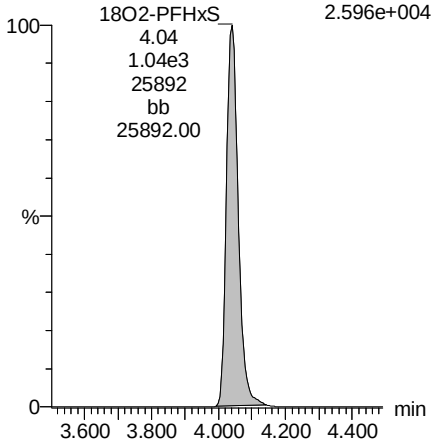
13C2-PFHxA



13C4-PFHpA



18O2-PFHxS



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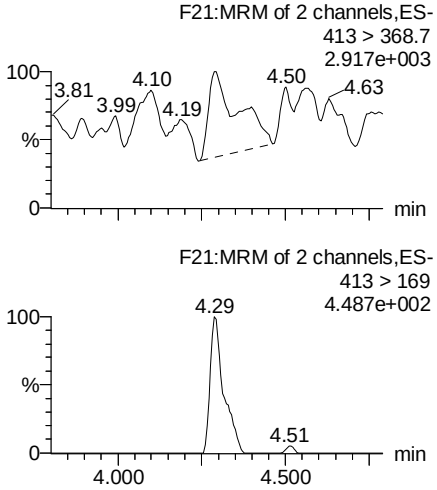
MM 6/11/2018

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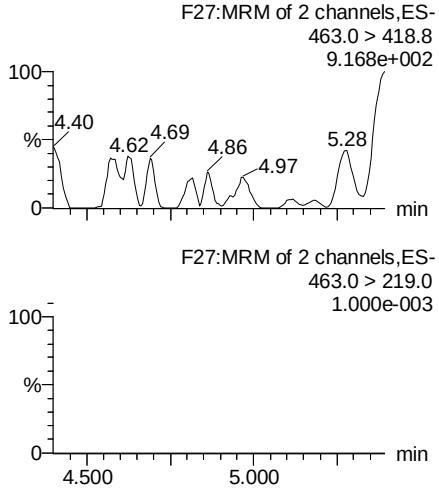
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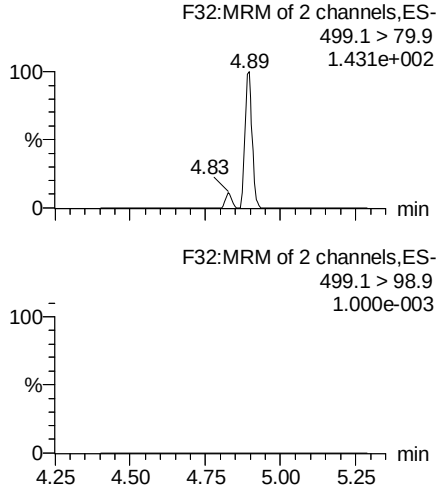
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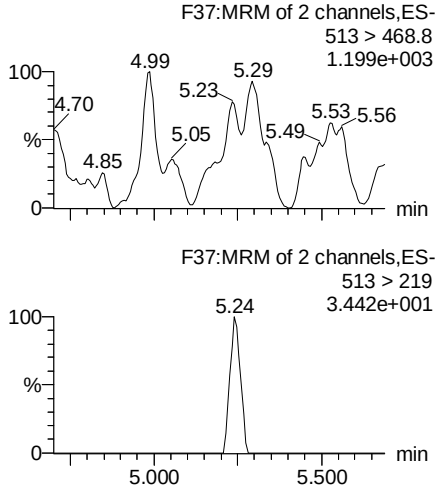
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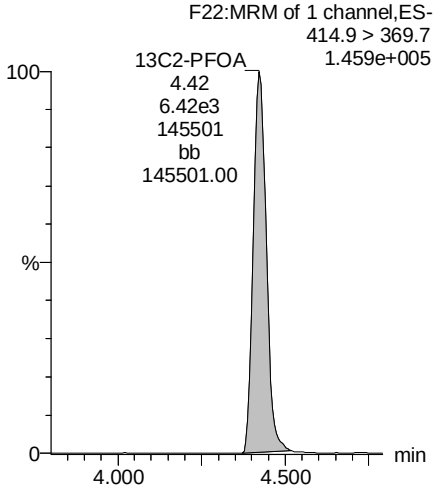
Total PFOS



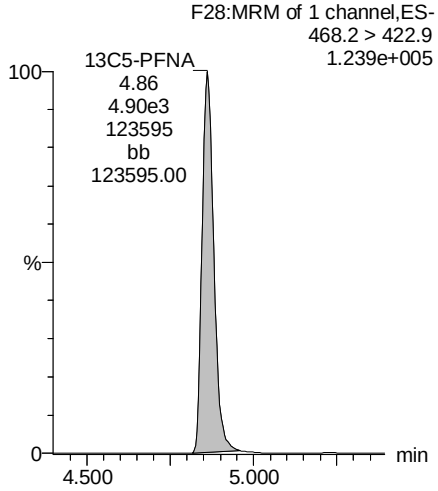
PFDA



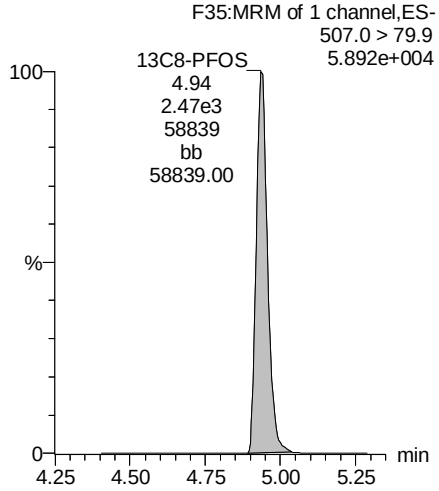
13C2-PFOA



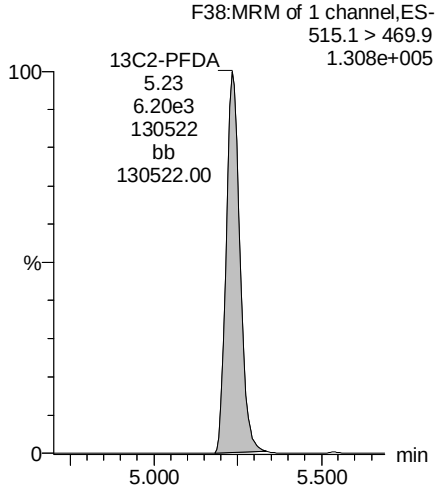
13C5-PFNA



13C8-PFOS



13C2-PFDA



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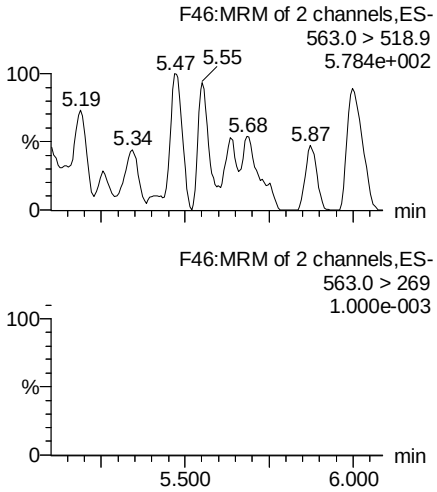
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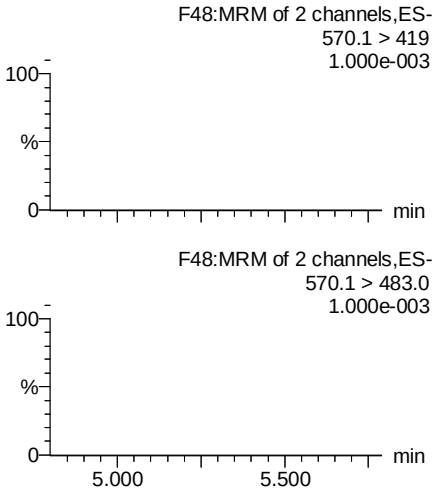
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Name: 180607M2_55, Date: 07-Jun-2018, Time: 23:37:00, ID: 1801054-07 A1-MW-01-SA1D 0.11715, Description: A1-MW-01-SA1D

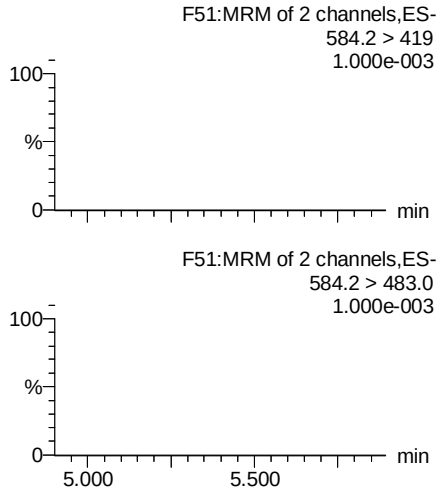
PFUdA



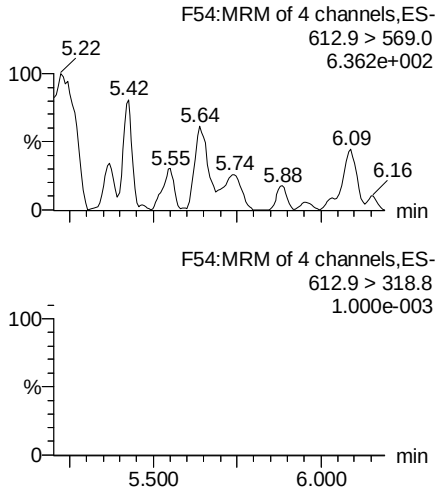
Total N-MeFOSAA



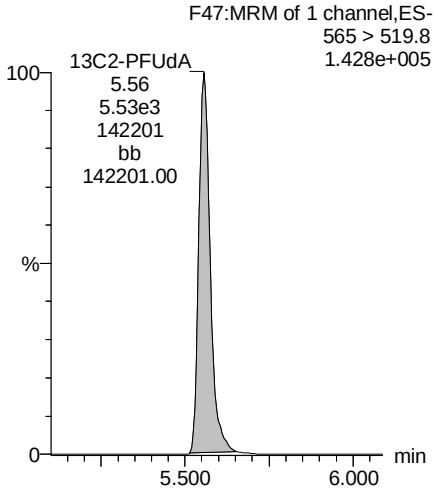
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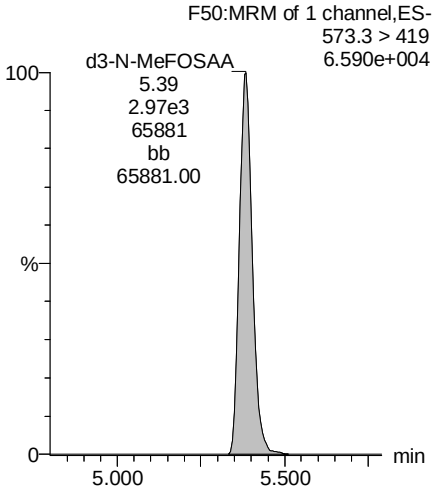
PFDoA



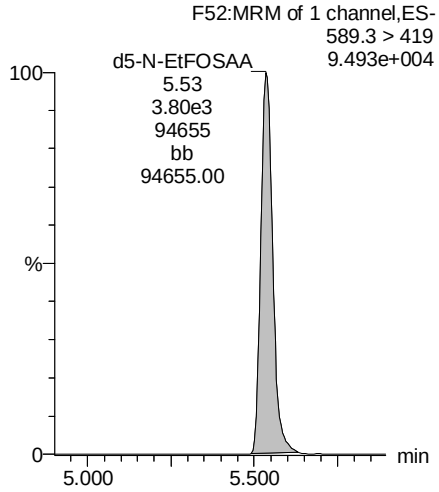
13C2-PFUdA



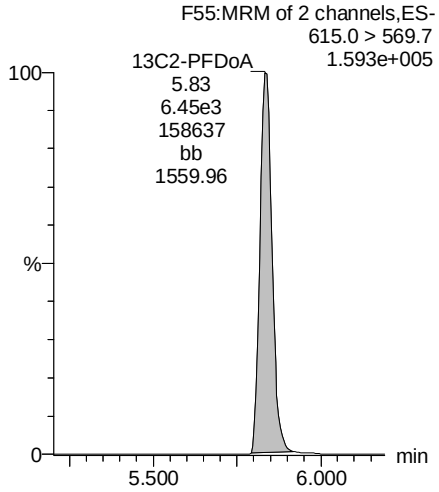
d3-N-MeFOSAA



d5-N-EtFOSAA



13C2-PFDoA



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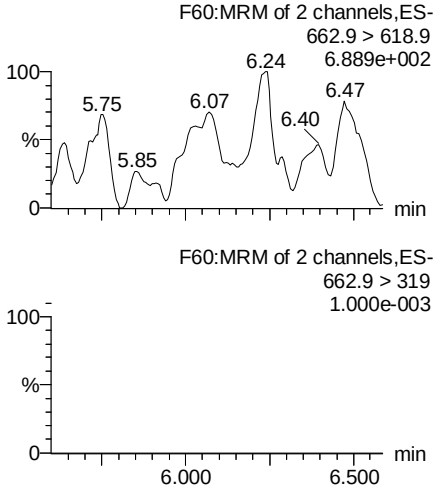
MM 6/11/2018

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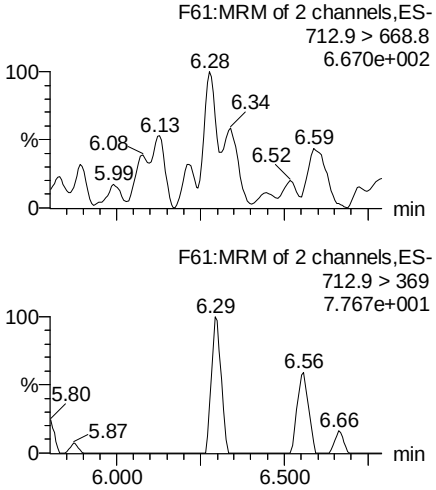
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Printed: Monday, June 11, 2018 14:15:20 Pacific Daylight Time

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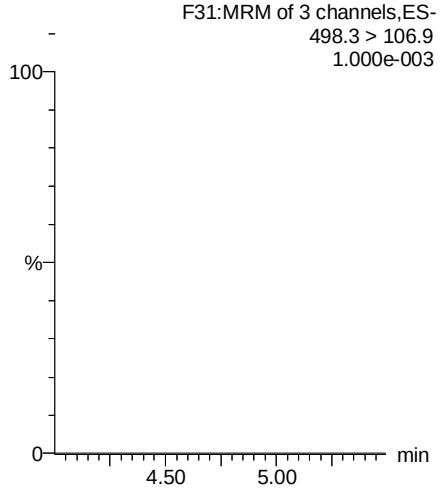
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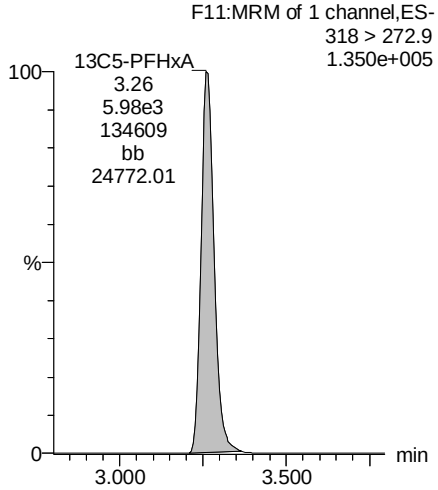
PFTeDA



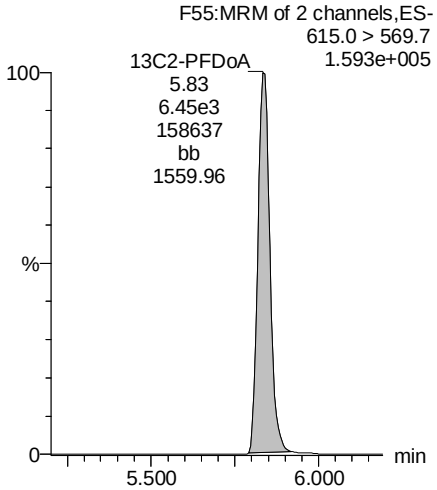
TCDA



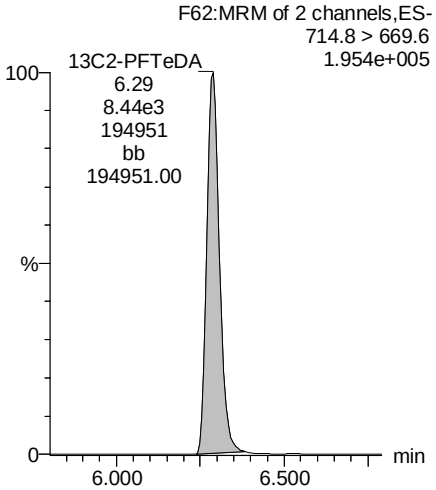
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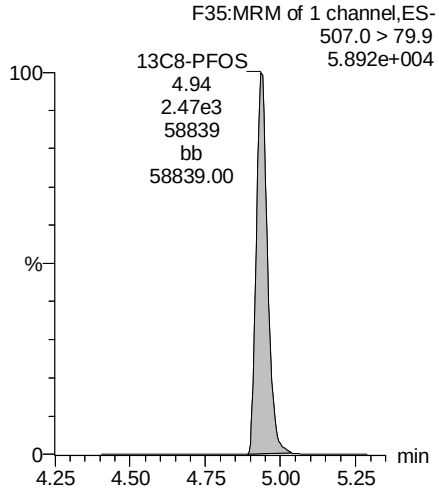
13C2-PFDoA



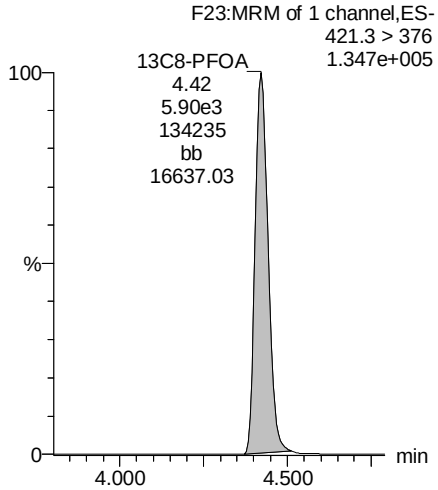
13C2-PFTeDA



13C8-PFOS



13C8-PFOA



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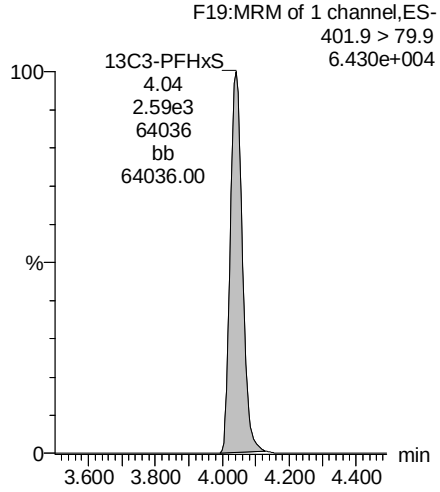
MM 6/11/2018

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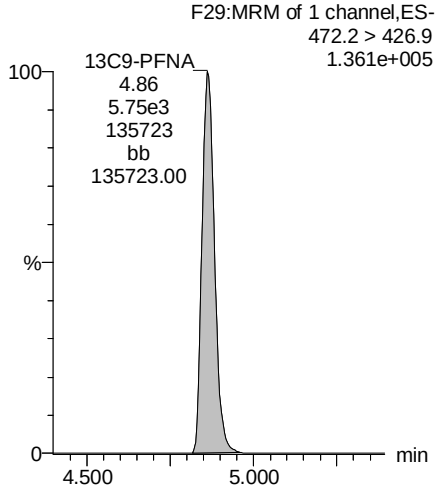
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Name: 180607M2_55, Date: 07-Jun-2018, Time: 23:37:00, ID: 1801054-07 A1-MW-01-SA1D 0.11715, Description: A1-MW-01-SA1D

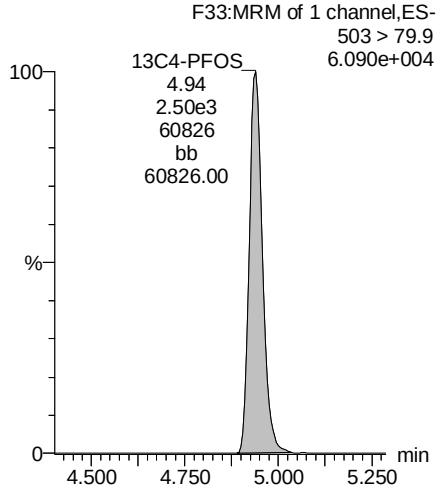
13C3-PFHxS



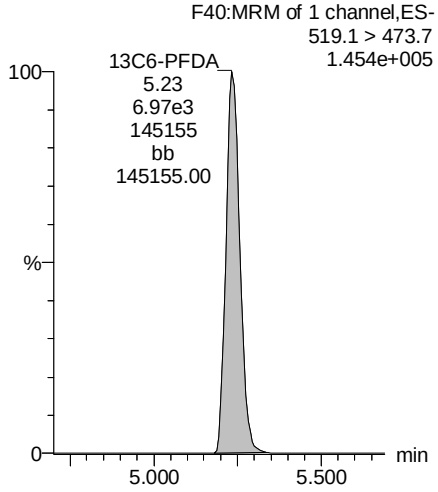
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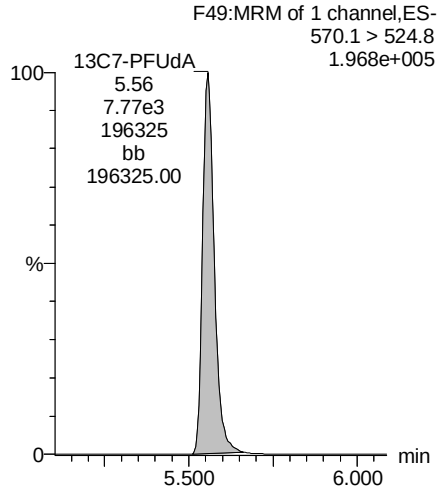
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-56.qld

Last Altered: Monday, June 11, 2018 14:17:11 Pacific Daylight Time
Printed: Monday, June 11, 2018 14:20:34 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_56, Date: 07-Jun-2018, Time: 23:47:30, ID: 1801054-08 A1-MW-31-SA1 0.11276, Description: A1-MW-31-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7	1.38e3	1.19e3	0.113		2.76	2.76	14.5	63.4292		2.701	NO
2	5	PFHxA	313.2 > 268.9	9.52e3	1.54e3	0.113		3.26	3.26	30.8	181.9445		353.587	NO
3	7	PFHpA	363.0 > 318.9	3.80e2	4.11e3	0.113		3.90	3.90	1.16	8.5145		25.375	YES
4	8	L-PFHxS	398.9 > 79.6	7.83e2	9.98e2	0.113		4.02	4.04	9.81	44.8151		1.730	NO
5	11	L-PFOA	413 > 368.7	5.68e2	5.67e3	0.113		4.43	4.42	1.25	11.1032		4.955	NO
6	14	PFNA	463.0 > 418.8		4.40e3	0.113		4.68						
7	16	L-PFOS	499.1 > 79.9	2.05e1	2.56e3	0.113		4.93	4.93	0.100	0.7028		5.844	YES
8	18	PFDA	513 > 468.8		5.46e3	0.113		5.05						
9	21	L-MeFOSAA	570.1 > 419		3.21e3	0.113		5.18						
10	23	L-EtFOSAA	584.2 > 419		3.94e3	0.113		5.37						

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-56.qld

Last Altered: Monday, June 11, 2018 14:17:11 Pacific Daylight Time
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Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_56, Date: 07-Jun-2018, Time: 23:47:30, ID: 1801054-08 A1-MW-31-SA1 0.11276, Description: A1-MW-31-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	25	PFUdA	563.0 > 518.9		4.82e3	0.113		5.37						
2	27	PFDoA	612.9 > 569.0		6.27e3	0.113		5.65						
3	29	PFTrDA	662.9 > 618.9		6.27e3	0.113		5.89						
4	30	PFTeDA	712.9 > 668.8		8.51e3	0.113		6.11						
5	36	13C3-PFBA	216.1 > 171.8	3.43e3	3.82e3	0.113	0.870	1.34	1.50	11.2	114.6187	103.4		
6	37	13C3-PFPeA	266. > 221.8	4.45e3	4.74e3	0.113	0.870	2.32	2.48	11.7	119.5997	107.9		
7	38	13C3-PFBS	302. > 98.8	1.19e3	4.74e3	0.113	0.099	2.60	2.76	3.13	281.4286	253.9		
8	39	13C2-4:2 FTS	329.2>308.9	2.64e3	4.74e3	0.113	0.265	3.01	3.17	6.95	232.5486	209.8		
9	40	13C2-PFHxA	315 > 269.8	1.54e3	4.74e3	0.113	0.737	3.10	3.27	4.07	48.9288	110.3		
10	41	13C4-PFHpA	367.2 > 321.8	4.11e3	4.74e3	0.113	0.791	3.71	3.90	10.8	121.4194	109.5		
11	42	18O2-PFHxS	403.0 > 102.6	9.98e2	2.29e3	0.113	0.442	3.86	4.04	5.44	109.2060	98.5		
12	43	13C2-6:2 FTS	429.1 > 408.9	2.61e3	5.56e3	0.113	0.306	4.18	4.37	5.88	170.1753	153.5		
13	44	13C2-PFOA	414.9 > 369.7	5.67e3	5.56e3	0.113	1.285	4.23	4.42	12.8	87.9724	79.4		
14	45	13C5-PFNA	468.2 > 422.9	4.40e3	5.39e3	0.113	0.930	4.67	4.86	10.2	97.4295	87.9		
15	46	13C8-PFOSA	506.1 > 77.7	1.86e3	7.27e3	0.113	0.237	4.74	4.92	3.21	119.7175	108.0		
16	47	13C8-PFOS	507.0 > 79.9	2.56e3	2.67e3	0.113	1.039	4.75	4.94	12.0	102.0755	92.1		
17	48	13C2-PFDA	515.1 > 469.9	5.46e3	5.44e3	0.113	1.144	5.04	5.23	12.6	97.2907	87.8		
18	49	13C2-8:2 FTS	529.1 > 508.7	1.97e3	4.74e3	0.113	0.215	5.01	5.21	5.20	214.0296	193.1		
19	50	d3-N-MeFOSAA	573.3 > 419	3.21e3	7.27e3	0.113	0.351	5.19	5.39	5.51	139.1809	125.6		
20	51	d5-N-EtFOSAA	589.3 > 419	3.94e3	7.27e3	0.113	0.388	5.35	5.53	6.77	154.6084	139.5		
21	52	13C2-PFUdA	565 > 519.8	4.82e3	7.27e3	0.113	1.019	5.37	5.56	8.30	72.2019	65.1		
22	53	13C2-PFDoA	615.0 > 569.7	6.27e3	5.44e3	0.113	1.057	5.65	5.84	14.4	120.9943	109.1		
23	54	d3-N-MeFOSA	515.2 > 168.9		7.27e3	0.113	0.107	5.87						
24	55	13C2-PFTeDA	714.8 > 669.6	8.51e3	7.27e3	0.113	0.964	6.11	6.29	14.6	134.6650	121.5		
25	56	d5-N-ETFOSA	531.1 > 168.9		7.27e3	0.113	0.157	6.25						
26	57	13C2-PFHxDA	815 > 769.7	6.08e3	7.27e3	0.113	1.562	6.45	6.60	10.5	59.4139	134.0		
27	58	d7-N-MeFOSE	623.1 > 58.9		7.27e3	0.113	0.147	6.37						
28	59	d9-N-EtFOSE	639.2 > 58.8		7.27e3	0.113	0.149	6.52						
29	60	13C4-PFBA	217. > 171.8	3.82e3	3.82e3	0.113	1.000	1.33	1.49	12.5	110.8549	100.0		
30	61	13C5-PFHxA	318 > 272.9	4.74e3	4.74e3	0.113	1.000	3.09	3.26	12.5	110.8549	100.0		
31	62	13C3-PFHxS	401.9 > 79.9	2.29e3	2.29e3	0.113	1.000	3.87	4.04	12.5	110.8549	100.0		
32	63	13C8-PFOA	421.3 > 376	5.56e3	5.56e3	0.113	1.000	4.24	4.42	12.5	110.8549	100.0		ANP 6/11/2018

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-56.qld

Last Altered: Monday, June 11, 2018 14:17:11 Pacific Daylight Time
Printed: Monday, June 11, 2018 15:34:57 Pacific Daylight Time

Name: 180607M2_56, Date: 07-Jun-2018, Time: 23:47:30, ID: 1801054-08 A1-MW-31-SA1 0.11276, Description: A1-MW-31-SA1

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
33	64	13C9-PFNA	472.2 > 426.9	5.39e3	5.39e3	0.113	1.000	4.67	4.86	12.5	110.8549	100.0		
34	65	13C4-PFOS	503 > 79.9	2.67e3	2.67e3	0.113	1.000	4.75	4.94	12.5	110.8549	100.0		
35	66	13C6-PFDA	519.1 > 473.7	5.44e3	5.44e3	0.113	1.000	5.04	5.23	12.5	110.8549	100.0		
36	67	13C7-PFUdA	570.1 > 524.8	7.27e3	7.27e3	0.113	1.000	5.37	5.56	12.5	110.8549	100.0		
37	68	Total PFHxS	398.9 > 79.6	7.83e2	9.98e2	0.113		4.05		9.81	44.8151			
38	69	Total PFOA	413 > 368.7	5.68e2	5.67e3	0.113		4.30		1.25	11.1032			
39	70	Total PFOS	499.1 > 79.9	2.05e1	2.56e3	0.113		4.90		0.100	0.7028			
40	71	Total N-MeFOSAA	570.1 > 419	0.00e0	3.21e3	0.113		5.55		0.000				
41	72	Total N-EtFOSAA	584.2 > 419	0.00e0	3.94e3	0.113		5.70		0.000				

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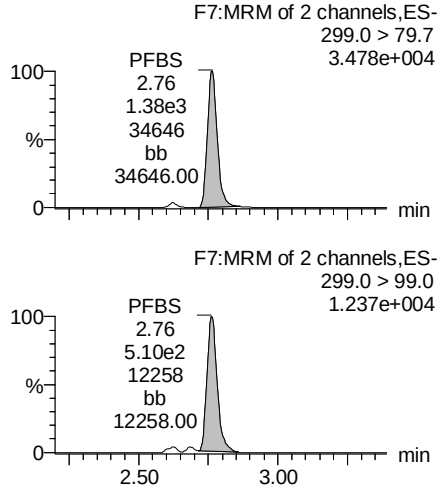
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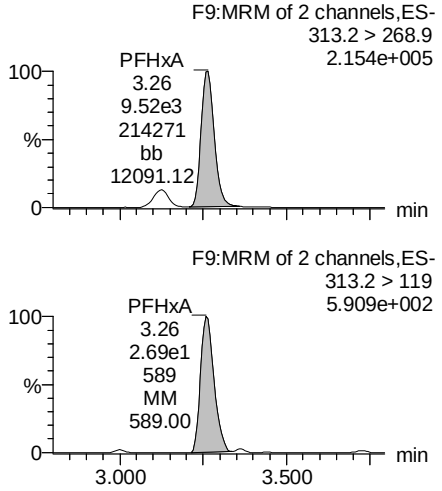
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Name: 180607M2_56, Date: 07-Jun-2018, Time: 23:47:30, ID: 1801054-08 A1-MW-31-SA1 0.11276, Description: A1-MW-31-SA1

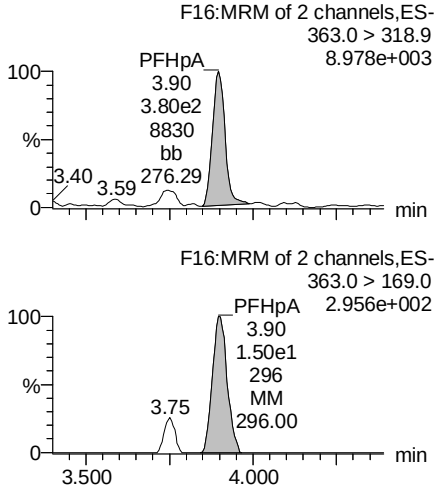
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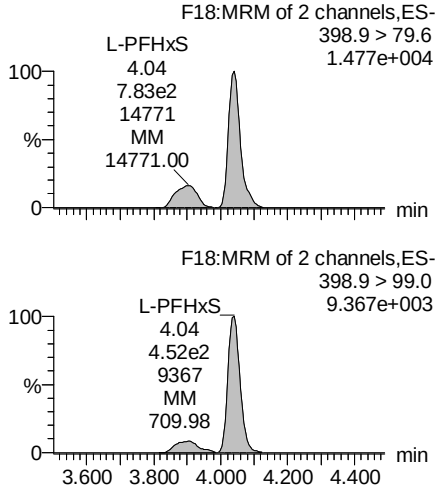
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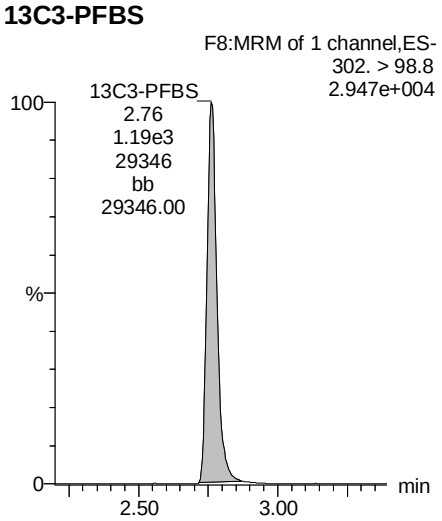
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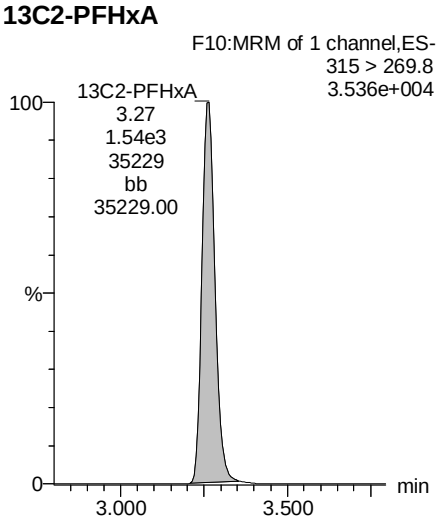
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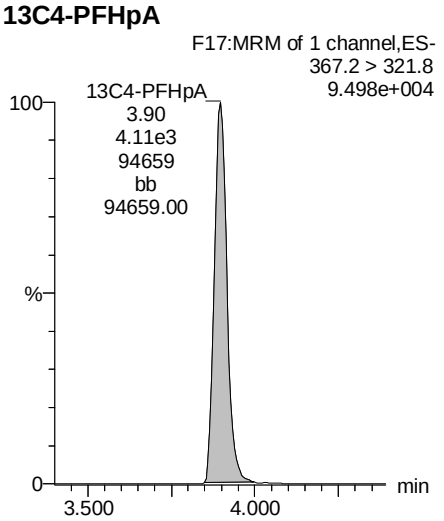
13C3-PFBS



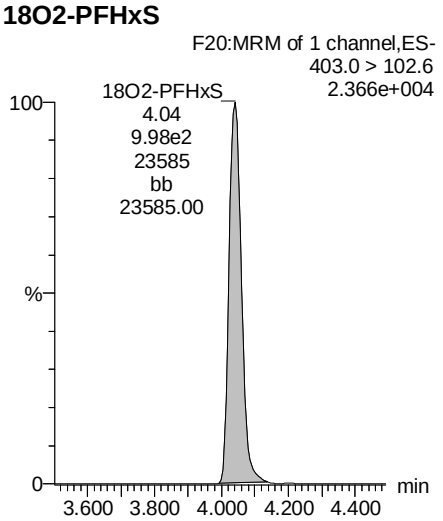
13C2-PFHxA



13C4-PFHpA



18O2-PFHxS



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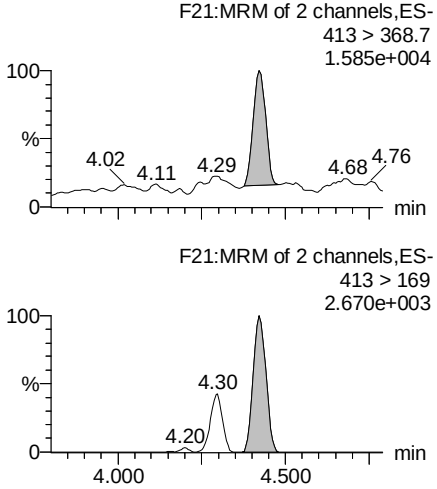
MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-56.qld

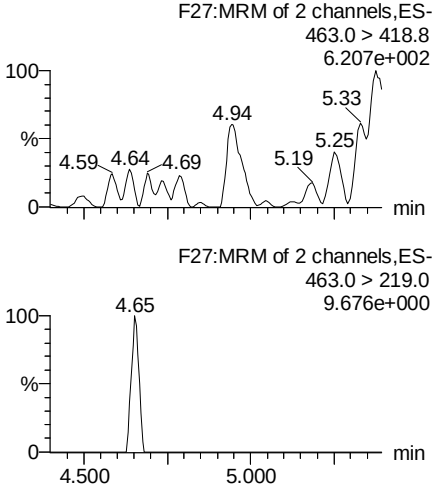
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Name: 180607M2_56, Date: 07-Jun-2018, Time: 23:47:30, ID: 1801054-08 A1-MW-31-SA1 0.11276, Description: A1-MW-31-SA1

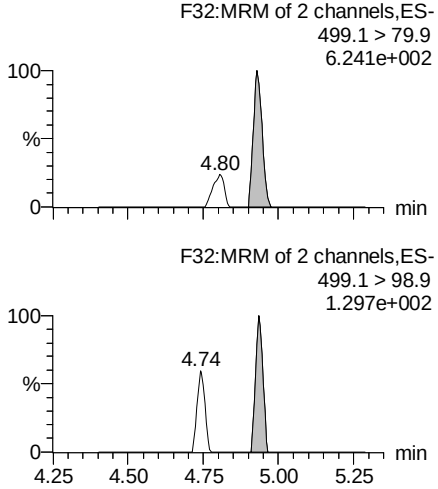
Total PFOA



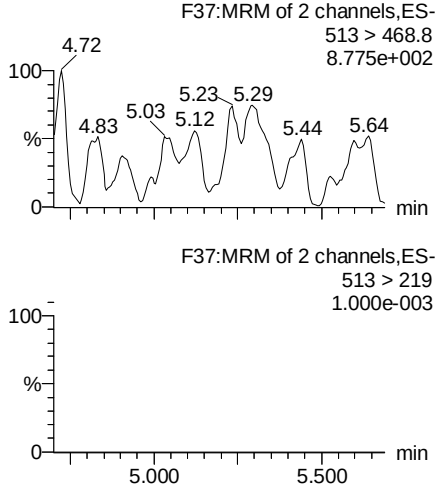
PFNA



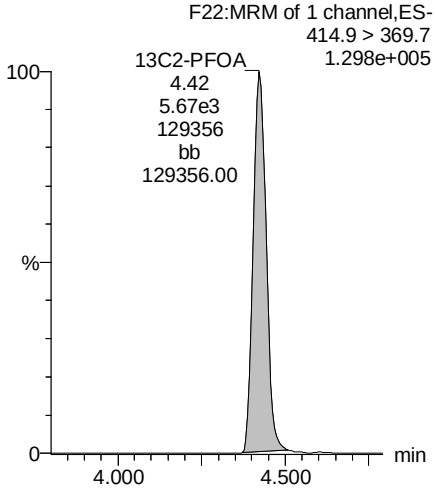
Total PFOS



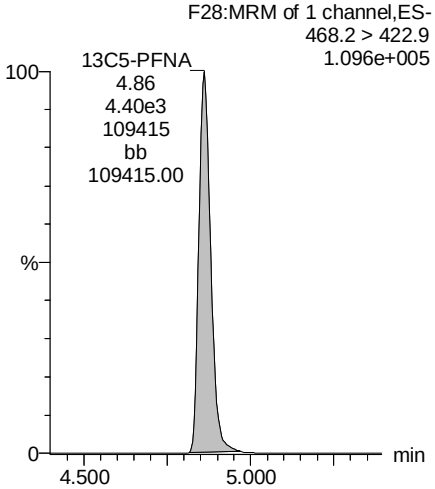
PFDA



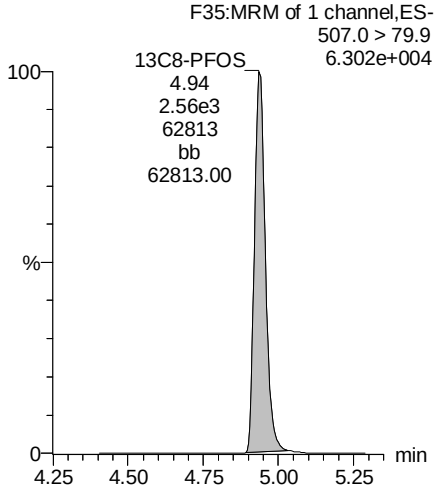
13C2-PFOA



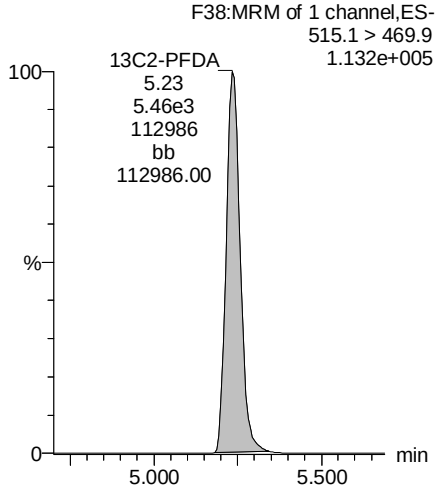
13C5-PFNA



13C8-PFOS



13C2-PFDA



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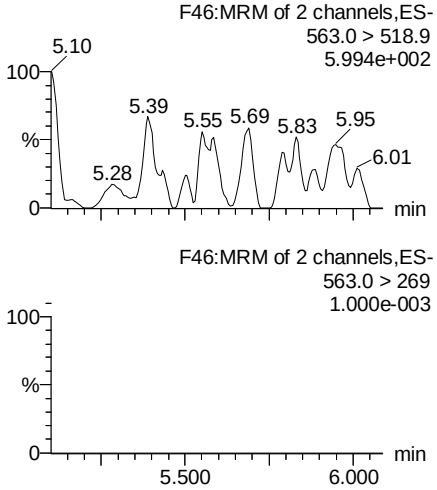
MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-56.qld

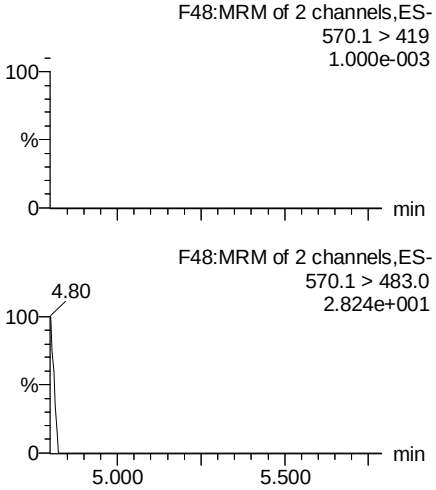
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Name: 180607M2_56, Date: 07-Jun-2018, Time: 23:47:30, ID: 1801054-08 A1-MW-31-SA1 0.11276, Description: A1-MW-31-SA1

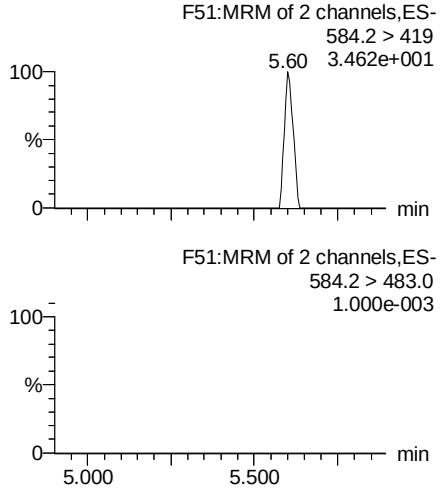
PFUdA



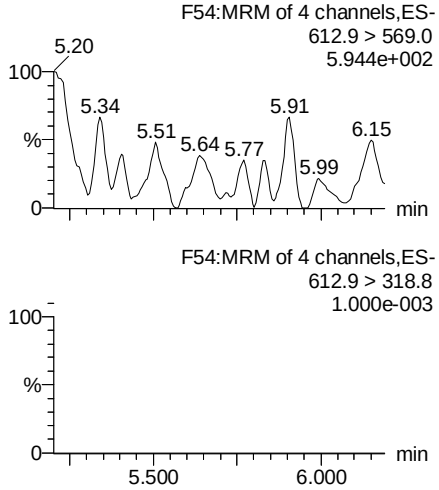
Total N-MeFOSAA



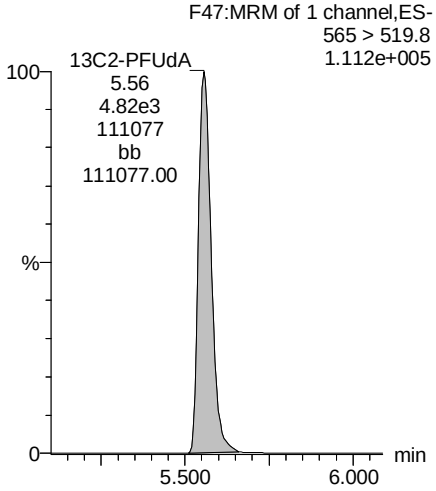
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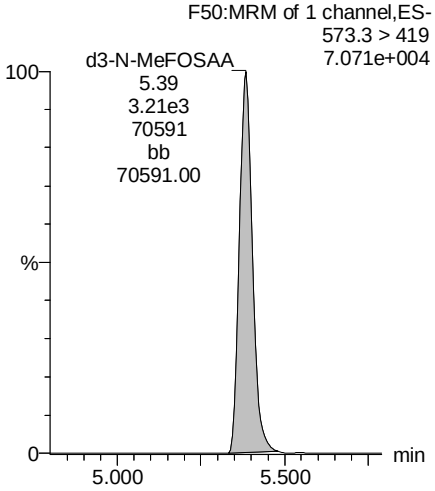
PFDoA



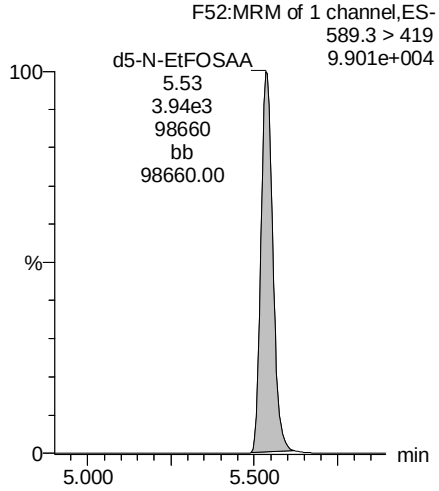
13C2-PFUdA



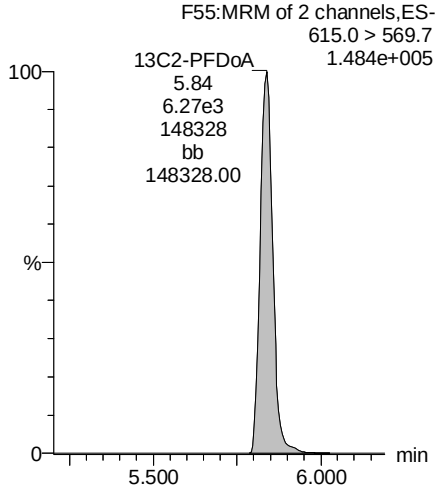
d3-N-MeFOSAA



d5-N-EtFOSAA



13C2-PFDoA



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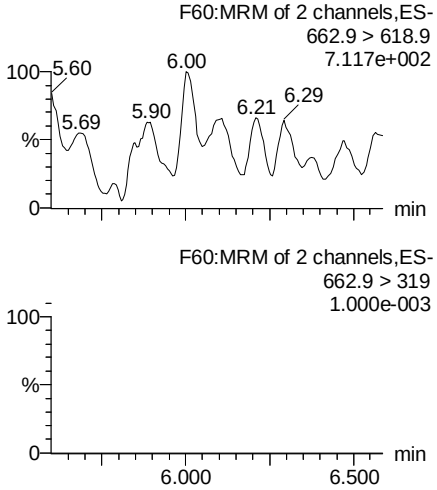
MM 6/11/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-56.qld

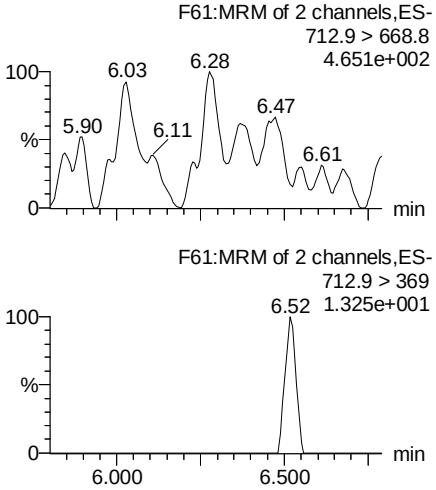
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Name: 180607M2_56, Date: 07-Jun-2018, Time: 23:47:30, ID: 1801054-08 A1-MW-31-SA1 0.11276, Description: A1-MW-31-SA1

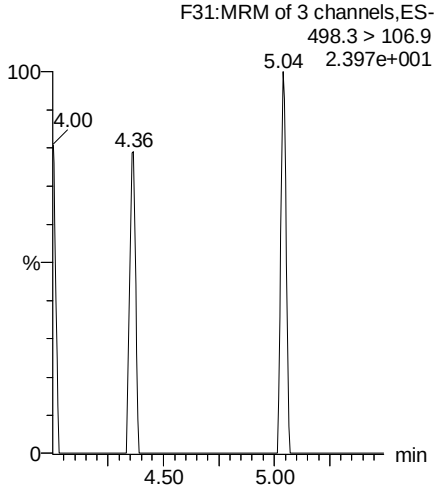
PFTrDA



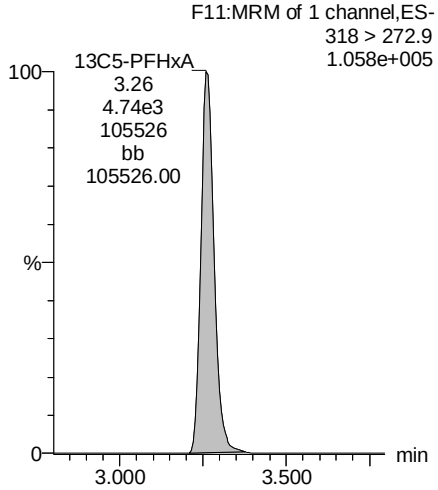
PFTeDA



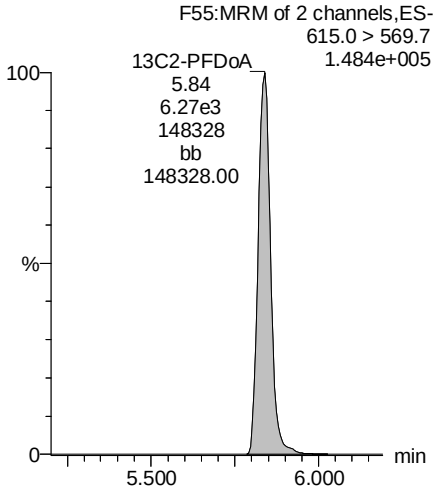
TCDA



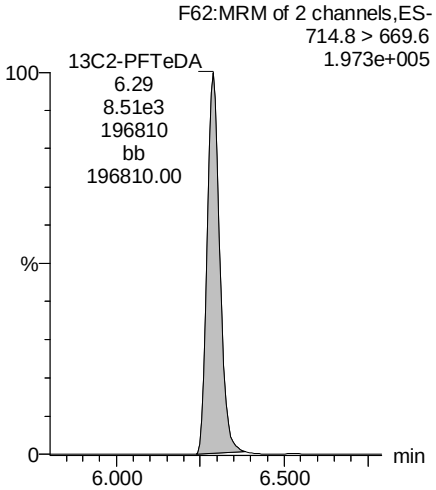
13C5-PFHxA



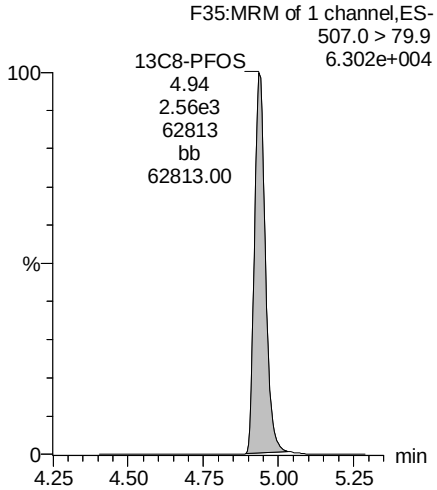
13C2-PFDoA



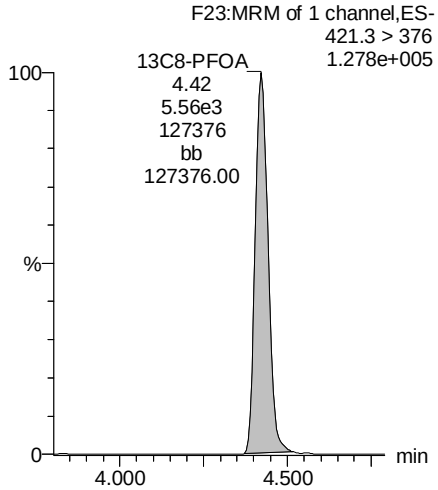
13C2-PFTeDA



13C8-PFOS



13C8-PFOA



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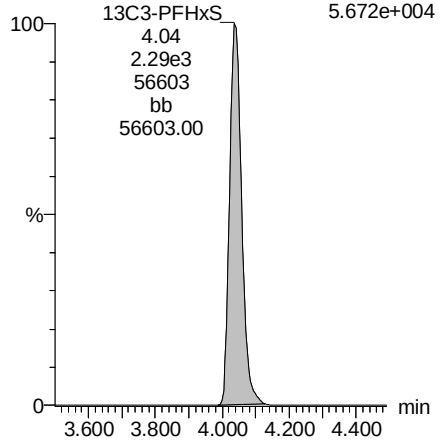
MM 6/11/2018

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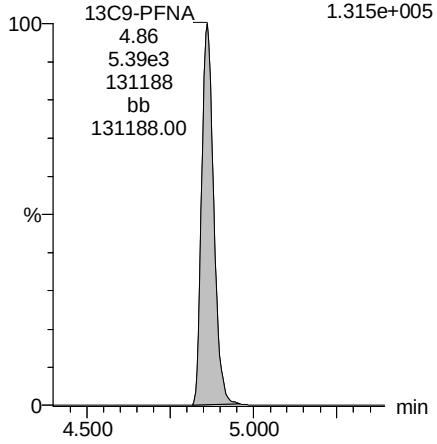
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Name: 180607M2_56, Date: 07-Jun-2018, Time: 23:47:30, ID: 1801054-08 A1-MW-31-SA1 0.11276, Description: A1-MW-31-SA1

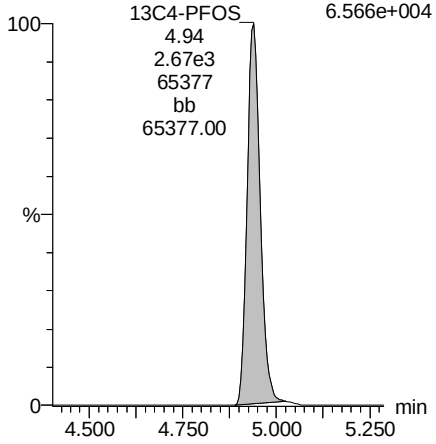
13C3-PFHxS



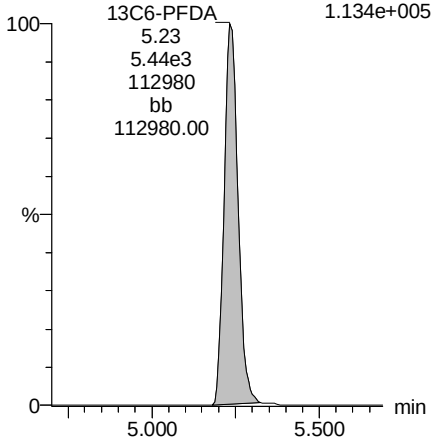
13C9-PFNA



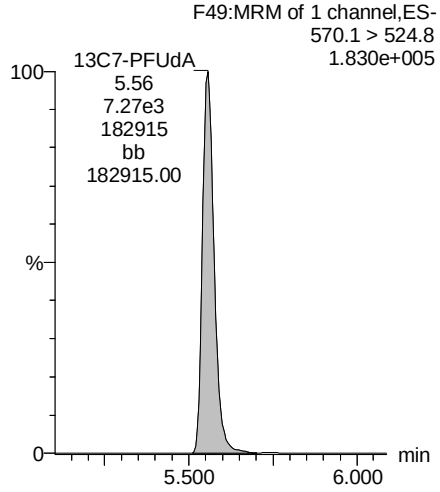
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-57.qld

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Printed: Monday, June 11, 2018 14:19:23 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_57, Date: 07-Jun-2018, Time: 23:57:55, ID: 1801054-09 FRB-20180525 0.11663, Description: FRB-20180525

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	3	PFBS	299.0 > 79.7		1.24e3	0.117		2.76						
2	5	PFHxA	313.2 > 268.9		2.51e3	0.117		3.26						
3	7	PFHpA	363.0 > 318.9		7.17e3	0.117		3.90						
4	8	L-PFHxS	398.9 > 79.6		1.01e3	0.117		4.02						
5	11	L-PFOA	413 > 368.7		1.05e4	0.117		4.43						
6	14	PFNA	463.0 > 418.8		7.99e3	0.117		4.68						
7	16	L-PFOS	499.1 > 79.9		2.57e3	0.117		4.93						
8	18	PFDA	513 > 468.8		9.69e3	0.117		5.05						
9	21	L-MeFOSAA	570.1 > 419		2.67e3	0.117		5.18						
10	23	L-EtFOSAA	584.2 > 419		2.98e3	0.117		5.37						

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Vista Analytical Laboratory

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-57.qld

Last Altered: Monday, June 11, 2018 14:17:54 Pacific Daylight Time
Printed: Monday, June 11, 2018 15:35:33 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 14:47:15
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_57, Date: 07-Jun-2018, Time: 23:57:55, ID: 1801054-09 FRB-20180525 0.11663, Description: FRB-20180525

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
1	25	PFUdA	563.0 > 518.9		7.07e3	0.117		5.37						
2	27	PFDoA	612.9 > 569.0		8.57e3	0.117		5.65						
3	29	PFTrDA	662.9 > 618.9		8.57e3	0.117		5.89						
4	30	PFTeDA	712.9 > 668.8		1.06e4	0.117		6.11						
5	36	13C3-PFBA	216.1 > 171.8	5.30e3	6.32e3	0.117	0.870	1.34	1.49	10.5	103.2978	96.4		
6	37	13C3-PFPeA	266. > 221.8	7.25e3	9.03e3	0.117	0.870	2.32	2.48	10.0	98.8696	92.2		
7	38	13C3-PFBS	302. > 98.8	1.24e3	9.03e3	0.117	0.099	2.60	2.77	1.71	148.7772	138.8		
8	39	13C2-4:2 FTS	329.2>308.9	2.32e3	9.03e3	0.117	0.265	3.01	3.17	3.22	104.0608	97.1		
9	40	13C2-PFHxA	315 > 269.8	2.51e3	9.03e3	0.117	0.737	3.10	3.26	3.47	40.3978	94.2		
10	41	13C4-PFHpA	367.2 > 321.8	7.17e3	9.03e3	0.117	0.791	3.71	3.90	9.92	107.5930	100.4		
11	42	18O2-PFHxS	403.0 > 102.6	1.01e3	2.31e3	0.117	0.442	3.86	4.04	5.48	106.3929	99.3		
12	43	13C2-6:2 FTS	429.1 > 408.9	2.59e3	9.97e3	0.117	0.306	4.18	4.37	3.25	90.8471	84.8		
13	44	13C2-PFOA	414.9 > 369.7	1.05e4	9.97e3	0.117	1.285	4.23	4.42	13.2	88.2008	82.3		
14	45	13C5-PFNA	468.2 > 422.9	7.99e3	1.05e4	0.117	0.930	4.67	4.86	9.52	87.7375	81.9		
15	46	13C8-PFOSA	506.1 > 77.7	1.44e3	1.22e4	0.117	0.237	4.74	4.92	1.47	53.2124	49.6		
16	47	13C8-PFOS	507.0 > 79.9	2.57e3	2.75e3	0.117	1.039	4.75	4.94	11.7	96.3799	89.9		
17	48	13C2-PFDA	515.1 > 469.9	9.69e3	1.11e4	0.117	1.144	5.04	5.23	10.9	81.6616	76.2		
18	49	13C2-8:2 FTS	529.1 > 508.7	2.05e3	9.03e3	0.117	0.215	5.01	5.21	2.84	112.9969	105.4		
19	50	d3-N-MeFOSAA	573.3 > 419	2.67e3	1.22e4	0.117	0.351	5.19	5.39	2.72	66.4823	62.0		
20	51	d5-N-EtFOSAA	589.3 > 419	2.98e3	1.22e4	0.117	0.388	5.35	5.54	3.04	67.1244	62.6		
21	52	13C2-PFUdA	565 > 519.8	7.07e3	1.22e4	0.117	1.019	5.37	5.56	7.21	60.6722	56.6		
22	53	13C2-PFDoA	615.0 > 569.7	8.57e3	1.11e4	0.117	1.057	5.65	5.84	9.63	78.1564	72.9		
23	54	d3-N-MeFOSA	515.2 > 168.9		1.22e4	0.117	0.107	5.87						
24	55	13C2-PFTeDA	714.8 > 669.6	1.06e4	1.22e4	0.117	0.964	6.11	6.29	10.8	95.9878	89.6		
25	56	d5-N-ETFOSA	531.1 > 168.9		1.22e4	0.117	0.157	6.25						
26	57	13C2-PFHxDA	815 > 769.7	5.51e2	1.22e4	0.117	1.562	6.45	6.60	0.563	3.0881	7.2		
27	58	d7-N-MeFOSE	623.1 > 58.9		1.22e4	0.117	0.147	6.37						
28	59	d9-N-EtFOSE	639.2 > 58.8		1.22e4	0.117	0.149	6.52						
29	60	13C4-PFBA	217. > 171.8	6.32e3	6.32e3	0.117	1.000	1.33	1.49	12.5	107.1765	100.0		
30	61	13C5-PFHxA	318 > 272.9	9.03e3	9.03e3	0.117	1.000	3.09	3.26	12.5	107.1765	100.0		
31	62	13C3-PFHxS	401.9 > 79.9	2.31e3	2.31e3	0.117	1.000	3.87	4.04	12.5	107.1765	100.0		
32	63	13C8-PFOA	421.3 > 376	9.97e3	9.97e3	0.117	1.000	4.24	4.42	12.5	107.1765	100.0		ANP 6/11/2018

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-57.qld

Last Altered: Monday, June 11, 2018 14:17:54 Pacific Daylight Time
Printed: Monday, June 11, 2018 15:35:33 Pacific Daylight Time

Name: 180607M2_57, Date: 07-Jun-2018, Time: 23:57:55, ID: 1801054-09 FRB-20180525 0.11663, Description: FRB-20180525

	#	Name	Trace	Area	IS Area	Wt./Vol.	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Ion Ratio	Ratio Out?
33	64	13C9-PFNA	472.2 > 426.9	1.05e4	1.05e4	0.117	1.000	4.67	4.86	12.5	107.1765	100.0		
34	65	13C4-PFOS	503 > 79.9	2.75e3	2.75e3	0.117	1.000	4.75	4.94	12.5	107.1765	100.0		
35	66	13C6-PFDA	519.1 > 473.7	1.11e4	1.11e4	0.117	1.000	5.04	5.23	12.5	107.1765	100.0		
36	67	13C7-PFUdA	570.1 > 524.8	1.22e4	1.22e4	0.117	1.000	5.37	5.56	12.5	107.1765	100.0		
37	68	Total PFHxS	398.9 > 79.6	0.00e0	1.01e3	0.117		4.05		0.000				
38	69	Total PFOA	413 > 368.7	0.00e0	1.05e4	0.117		4.30		0.000				
39	70	Total PFOS	499.1 > 79.9	0.00e0	2.57e3	0.117		4.90		0.000				
40	71	Total N-MeFOSAA	570.1 > 419	0.00e0	2.67e3	0.117		5.55		0.000				
41	72	Total N-EtFOSAA	584.2 > 419	0.00e0	2.98e3	0.117		5.70		0.000				

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Vista Analytical Laboratory

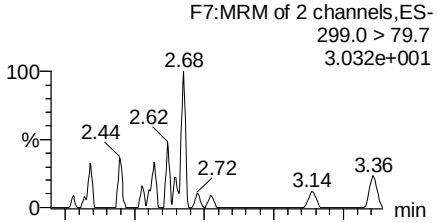
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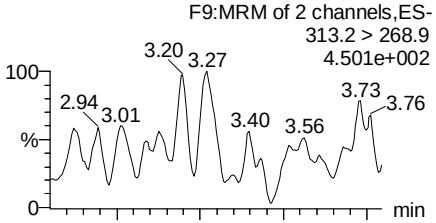
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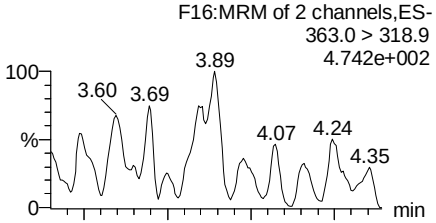
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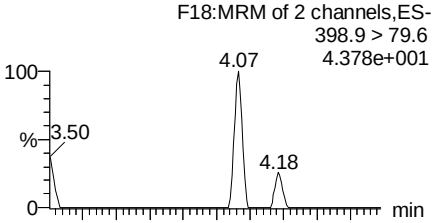
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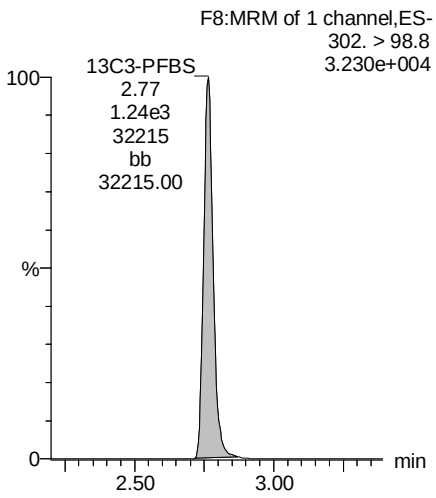
PFHpA



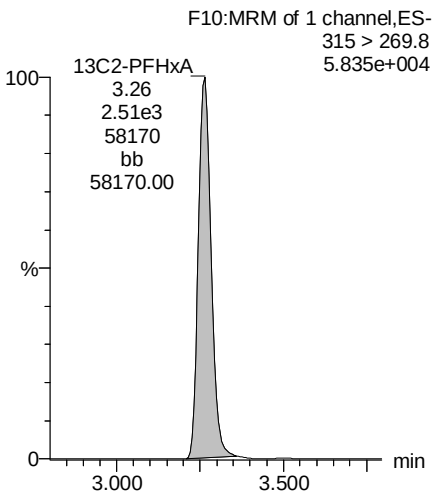
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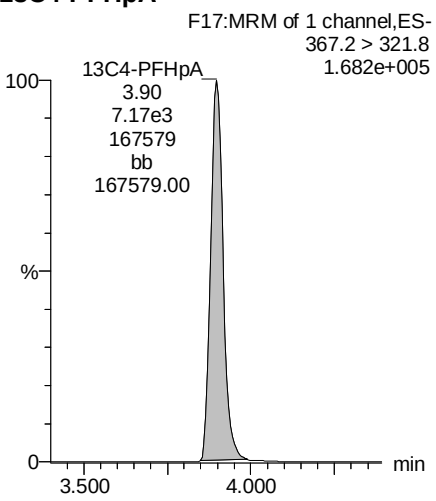
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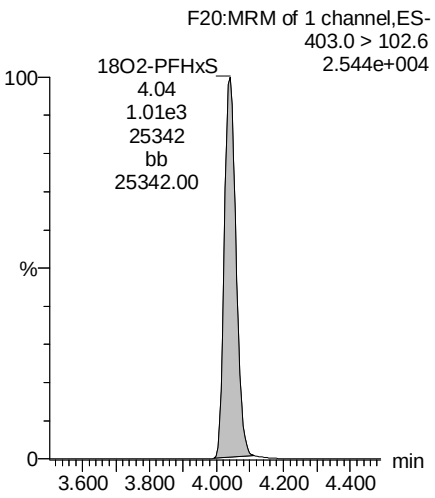
13C2-PFHxA



13C4-PFHpA



18O2-PFHxS



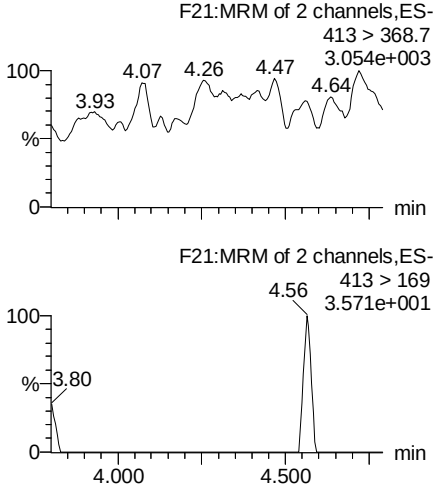
ANP 6/11/2018

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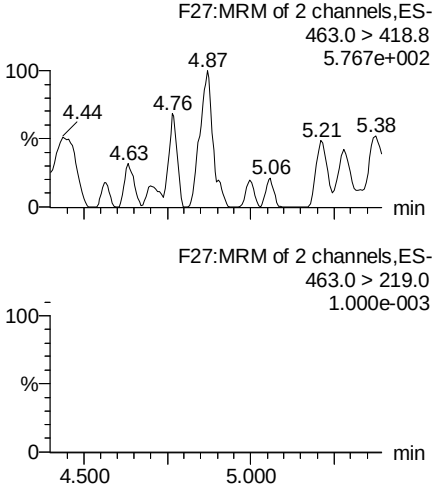
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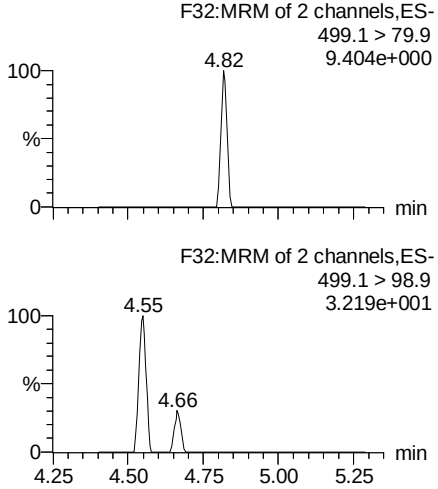
Total PFOA



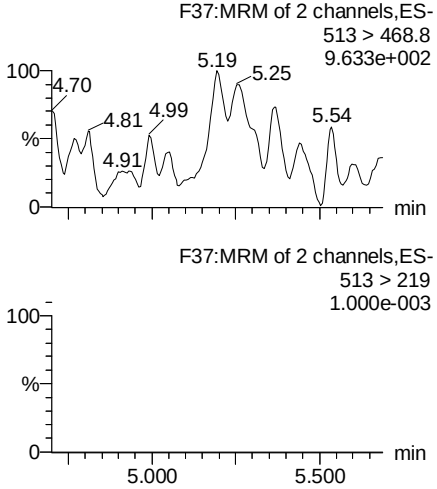
PFNA



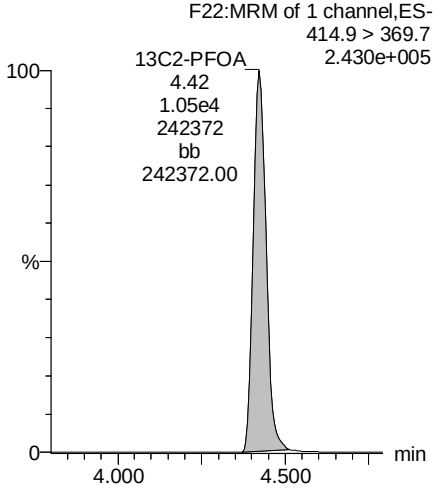
Total PFOS



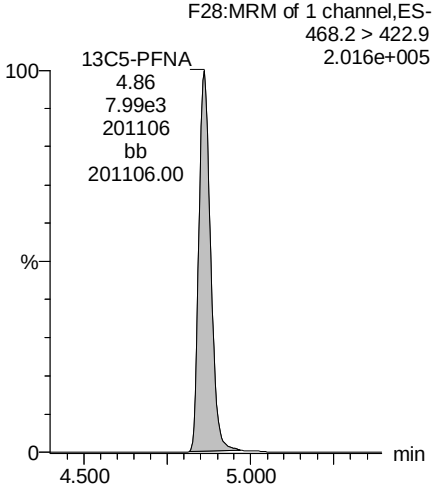
PFDA



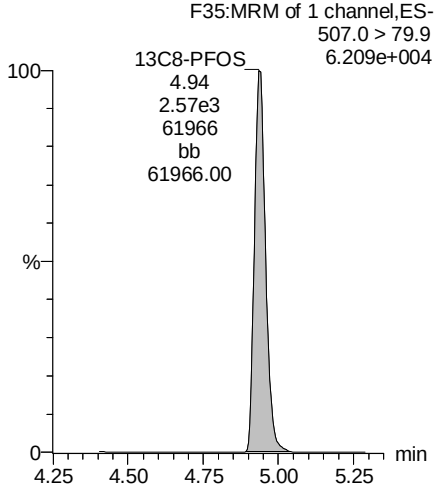
13C2-PFOA



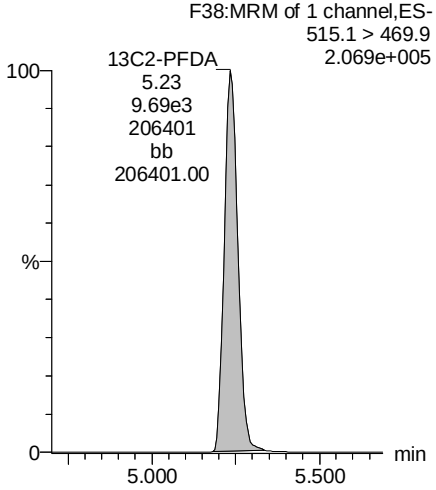
13C5-PFNA



13C8-PFOS



13C2-PFDA



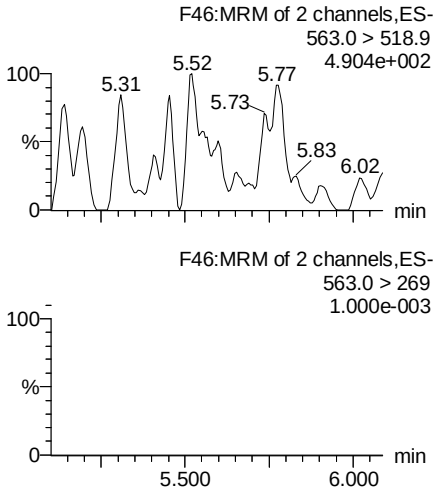
ANP 6/11/2018

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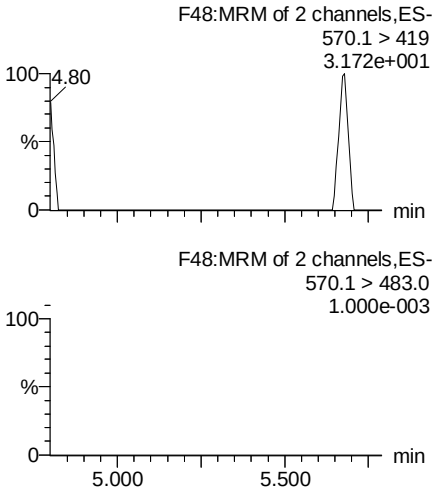
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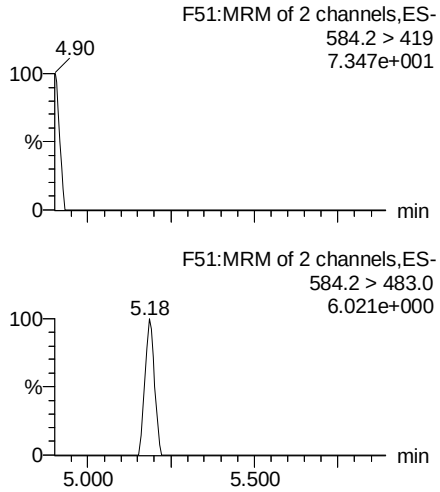
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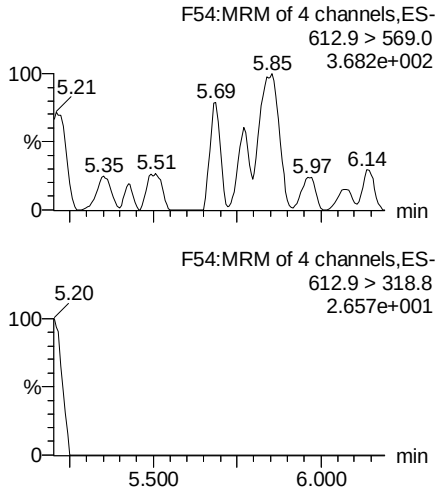
Total N-MeFOSAA



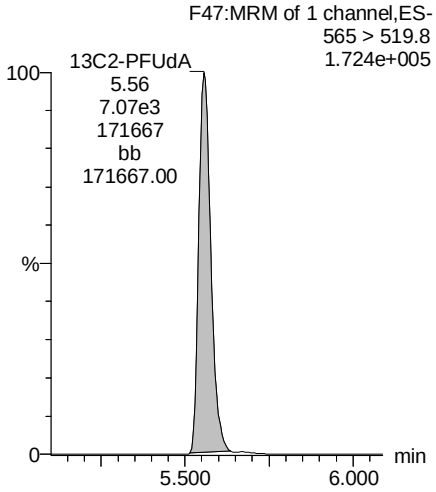
Total N-EtFOSAA



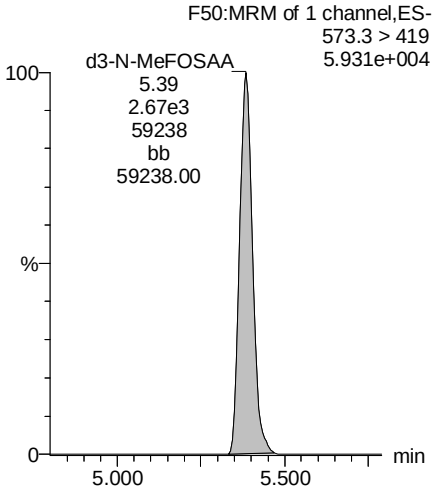
PFDoA



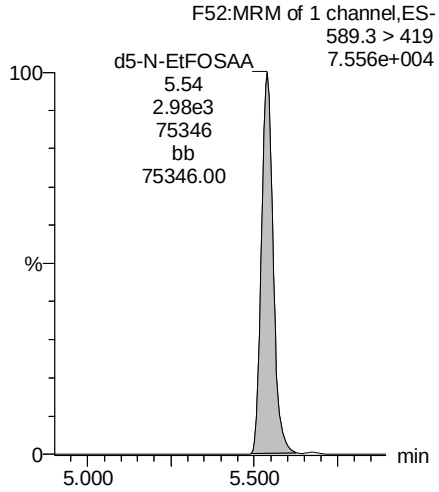
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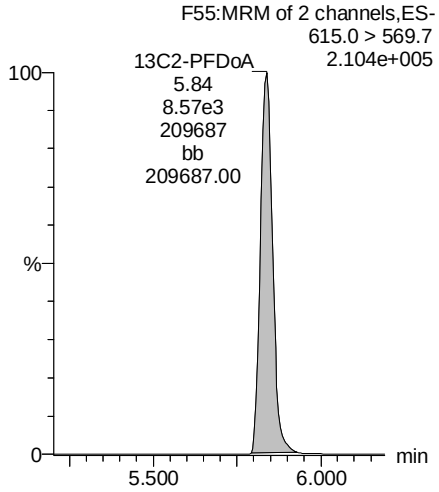
d3-N-MeFOSAA



d5-N-EtFOSAA



13C2-PFDoA



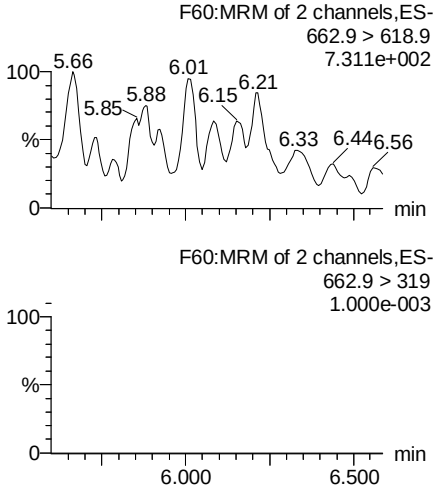
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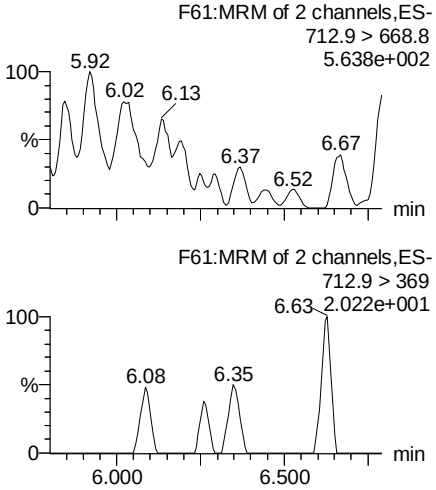
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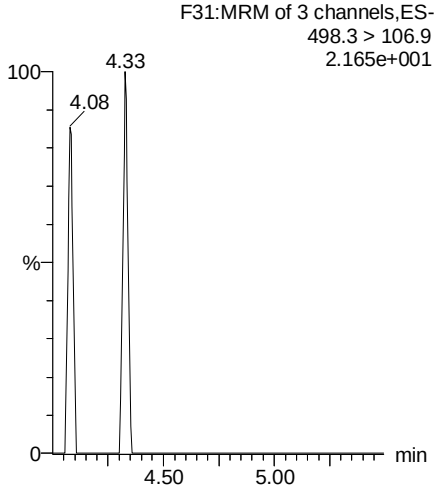
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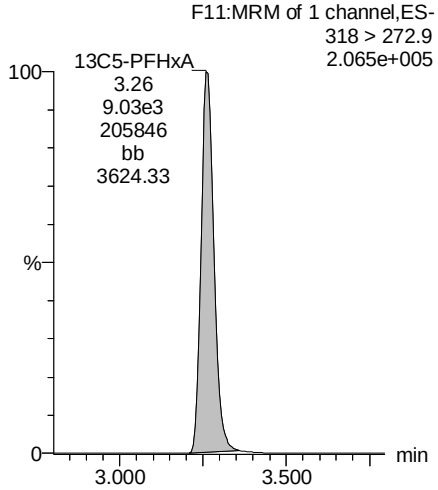
PFTeDA



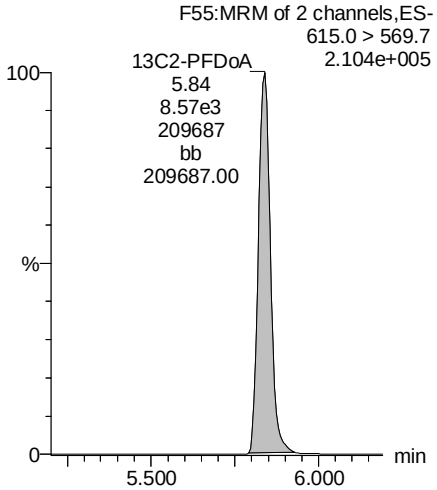
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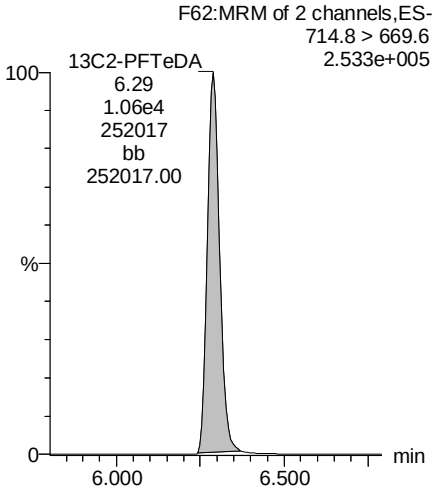
13C5-PFHxA



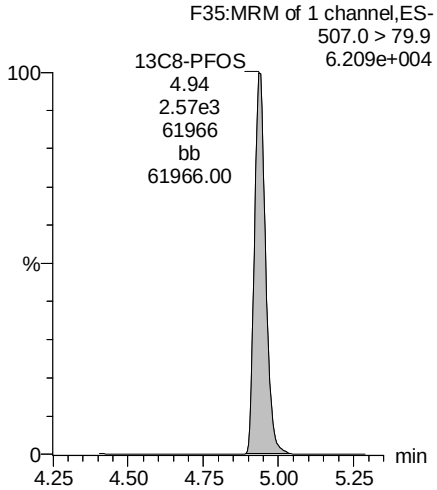
13C2-PFDoA



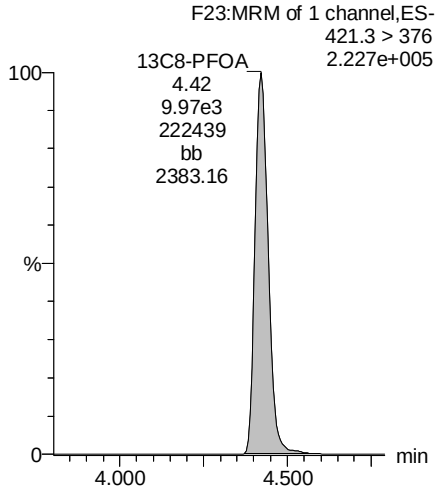
13C2-PFTeDA



13C8-PFOS



13C8-PFOA



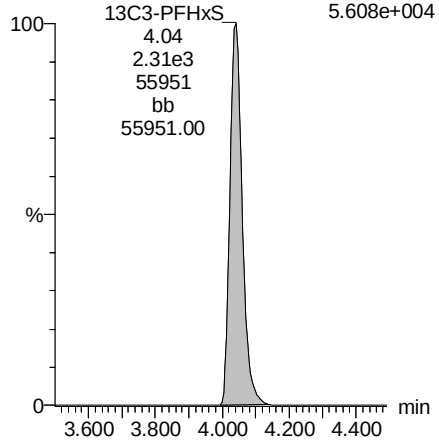
ANP 6/11/2018

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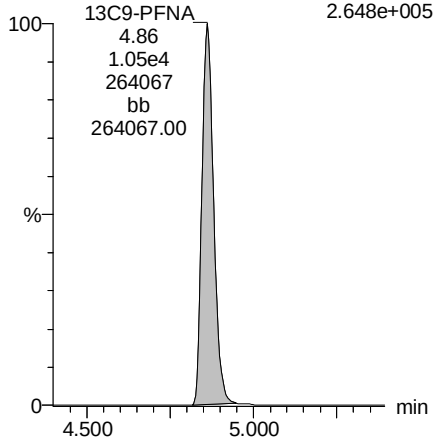
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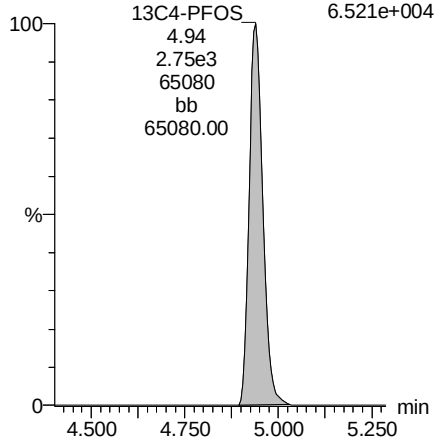
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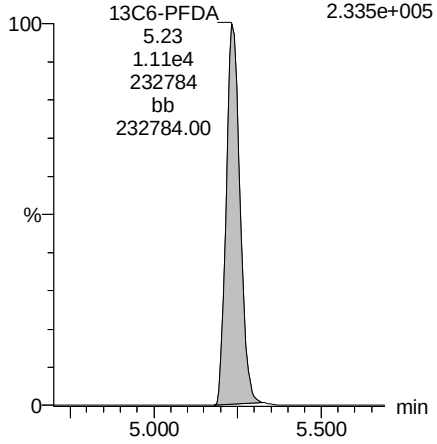
13C9-PFNA



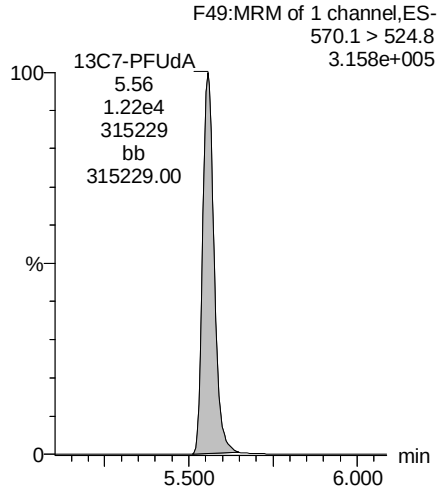
13C4-PFOS



13C6-PFDA



13C7-PFUdA



ANP 6/11/2018

INJECTION INTERNAL STANDARD (IIS) AREAS,

INSTRUMENT BLANKS (IB)

AND

CONTINUTING CALIBRATION VERIFICATIONS CCV)

Dataset: F:\Projects\PFAS.PRO\Results\180605M2\AREAS.qld

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Method: F:\Projects\PFAS.PRO\MethDB\PFAS_RS-5-19-18.mdb 20 May 2018 12:59:37
Calibration: 06 Jun 2018 13:41:40

Name: 180605M2_7, Date: 05-Jun-2018, Time: 17:30:59, ID: ST180605M2-6 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST180605M2-6 PFC CS3 18E2907	1.00e4	100.0	NO
2	2	13C5-PFHxA	ST180605M2-6 PFC CS3 18E2907	1.39e4	100.0	NO
3	3	13C3-PFHxS	ST180605M2-6 PFC CS3 18E2907	2.89e3	100.0	NO
4	4	13C8-PFOA	ST180605M2-6 PFC CS3 18E2907	1.40e4	100.0	NO
5	5	13C9-PFNA	ST180605M2-6 PFC CS3 18E2907	1.69e4	100.0	NO
6	6	13C4-PFOS	ST180605M2-6 PFC CS3 18E2907	2.89e3	100.0	NO
7	7	13C6-PFDA	ST180605M2-6 PFC CS3 18E2907	2.14e4	100.0	NO
8	8	13C7-PFUdA	ST180605M2-6 PFC CS3 18E2907	2.44e4	100.0	NO

Name: 180605M2_8, Date: 05-Jun-2018, Time: 17:41:30, ID: ST180605M2-7 PFC CS4 18E2908, Description: PFC CS4 18E2908

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST180605M2-7 PFC CS4 18E2908	9.35e3	93.5	NO
2	2	13C5-PFHxA	ST180605M2-7 PFC CS4 18E2908	1.34e4	96.1	NO
3	3	13C3-PFHxS	ST180605M2-7 PFC CS4 18E2908	2.69e3	93.4	NO
4	4	13C8-PFOA	ST180605M2-7 PFC CS4 18E2908	1.38e4	98.5	NO
5	5	13C9-PFNA	ST180605M2-7 PFC CS4 18E2908	1.75e4	103.7	NO
6	6	13C4-PFOS	ST180605M2-7 PFC CS4 18E2908	2.69e3	93.2	NO
7	7	13C6-PFDA	ST180605M2-7 PFC CS4 18E2908	1.85e4	86.4	NO
8	8	13C7-PFUdA	ST180605M2-7 PFC CS4 18E2908	2.19e4	89.5	NO

Name: 180605M2_9, Date: 05-Jun-2018, Time: 17:52:00, ID: ST180605M2-8 PFC CS5 18E2909, Description: PFC CS5 18E2909

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST180605M2-8 PFC CS5 18E2909	9.64e3	96.4	NO
2	2	13C5-PFHxA	ST180605M2-8 PFC CS5 18E2909	1.33e4	95.8	NO
3	3	13C3-PFHxS	ST180605M2-8 PFC CS5 18E2909	2.82e3	97.7	NO
4	4	13C8-PFOA	ST180605M2-8 PFC CS5 18E2909	1.49e4	106.1	NO
5	5	13C9-PFNA	ST180605M2-8 PFC CS5 18E2909	1.71e4	101.1	NO
6	6	13C4-PFOS	ST180605M2-8 PFC CS5 18E2909	2.71e3	93.9	NO
7	7	13C6-PFDA	ST180605M2-8 PFC CS5 18E2909	2.01e4	93.8	NO
8	8	13C7-PFUdA	ST180605M2-8 PFC CS5 18E2909	2.36e4	96.9	NO

Name: 180605M2_10, Date: 05-Jun-2018, Time: 18:02:25, ID: ST180605M2-9 PFC CS6 18E2910, Description: PFC CS6 18E2910

	#	Name	ID	Area	%Rec	Area Out
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2	2	13C5-PFHxA	ST180605M2-9 PFC CS6 18E2910	1.37e4	98.3	NO
3	3	13C3-PFHxS	ST180605M2-9 PFC CS6 18E2910	2.81e3	97.5	NO
4	4	13C8-PFOA	ST180605M2-9 PFC CS6 18E2910	1.55e4	110.2	NO
5	5	13C9-PFNA	ST180605M2-9 PFC CS6 18E2910	1.76e4	104.3	NO
6	6	13C4-PFOS	ST180605M2-9 PFC CS6 18E2910	2.87e3	99.2	NO
7	7	13C6-PFDA	ST180605M2-9 PFC CS6 18E2910	1.93e4	90.1	NO
8	8	13C7-PFUdA	ST180605M2-9 PFC CS6 18E2910	2.24e4	91.9	NO

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Name: 180605M2_11, Date: 05-Jun-2018, Time: 18:12:47, ID: ST180605M2-10 PFC CS7 18E2911, Description: PFC CS7 18E2911

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST180605M2-10 PFC CS7 18E2911	9.65e3	96.4	NO
2	2	13C5-PFHxA	ST180605M2-10 PFC CS7 18E2911	1.13e4	81.0	NO
3	3	13C3-PFHxS	ST180605M2-10 PFC CS7 18E2911	2.42e3	84.0	NO
4	4	13C8-PFOA	ST180605M2-10 PFC CS7 18E2911	1.30e4	92.6	NO
5	5	13C9-PFNA	ST180605M2-10 PFC CS7 18E2911	1.25e4	74.3	NO
6	6	13C4-PFOS	ST180605M2-10 PFC CS7 18E2911	2.39e3	82.7	NO
7	7	13C6-PFDA	ST180605M2-10 PFC CS7 18E2911	1.87e4	87.2	NO
8	8	13C7-PFUdA	ST180605M2-10 PFC CS7 18E2911	1.80e4	73.8	NO

Name: 180605M2_12, Date: 05-Jun-2018, Time: 18:23:17, 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: 180605M2_13, Date: 05-Jun-2018, Time: 18:33:43, ID: ICV180605M2-1 PFC 537 ICV 18E2901, Description: PFC ICV 18E2901

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ICV180605M2-1 PFC 537 ICV 18E2901	9.64e3	96.3	NO
2	2	13C5-PFHxA	ICV180605M2-1 PFC 537 ICV 18E2901	1.32e4	94.6	NO
3	3	13C3-PFHxS	ICV180605M2-1 PFC 537 ICV 18E2901	2.81e3	97.2	NO
4	4	13C8-PFOA	ICV180605M2-1 PFC 537 ICV 18E2901	1.55e4	110.3	NO
5	5	13C9-PFNA	ICV180605M2-1 PFC 537 ICV 18E2901	1.69e4	99.9	NO
6	6	13C4-PFOS	ICV180605M2-1 PFC 537 ICV 18E2901	2.62e3	90.5	NO
7	7	13C6-PFDA	ICV180605M2-1 PFC 537 ICV 18E2901	1.97e4	92.2	NO
8	8	13C7-PFUdA	ICV180605M2-1 PFC 537 ICV 18E2901	2.33e4	95.4	NO

Name: 180605M2_14, Date: 05-Jun-2018, Time: 18:44:13, 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: 180605M2_15, Date: 05-Jun-2018, Time: 18:54:40, ID: B8E0097-BS1 OPR 0.25, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0097-BS1 OPR 0.25	7.06e3	70.6	NO
2	2	13C5-PFHxA	B8E0097-BS1 OPR 0.25	9.46e3	68.0	NO
3	3	13C3-PFHxS	B8E0097-BS1 OPR 0.25	2.16e3	75.0	NO
4	4	13C8-PFOA	B8E0097-BS1 OPR 0.25	1.04e4	74.0	NO
5	5	13C9-PFNA	B8E0097-BS1 OPR 0.25	1.24e4	73.3	NO
6	6	13C4-PFOS	B8E0097-BS1 OPR 0.25	2.34e3	81.0	NO
7	7	13C6-PFDA	B8E0097-BS1 OPR 0.25	1.56e4	73.1	NO
8	8	13C7-PFUdA	B8E0097-BS1 OPR 0.25	1.66e4	68.2	NO

Name: 180605M2_16, Date: 05-Jun-2018, Time: 19:05:08, ID: B8E0097-BSD1 LCSD 0.25, Description: LCSD

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0097-BSD1 LCSD 0.25	7.61e3	76.1	NO
2	2	13C5-PFHxA	B8E0097-BSD1 LCSD 0.25	1.10e4	78.9	NO
3	3	13C3-PFHxS	B8E0097-BSD1 LCSD 0.25	2.40e3	83.1	NO
4	4	13C8-PFOA	B8E0097-BSD1 LCSD 0.25	1.22e4	86.8	NO
5	5	13C9-PFNA	B8E0097-BSD1 LCSD 0.25	1.51e4	89.7	NO
6	6	13C4-PFOS	B8E0097-BSD1 LCSD 0.25	2.26e3	78.4	NO
7	7	13C6-PFDA	B8E0097-BSD1 LCSD 0.25	1.81e4	84.4	NO
8	8	13C7-PFUdA	B8E0097-BSD1 LCSD 0.25	2.00e4	82.1	NO

Name: 180605M2_17, Date: 05-Jun-2018, Time: 19:15:33, ID: B8E0097-BLK1 Method Blank 0.25, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0097-BLK1 Method Blank 0.25	7.76e3	77.6	NO
2	2	13C5-PFHxA	B8E0097-BLK1 Method Blank 0.25	1.08e4	77.5	NO
3	3	13C3-PFHxS	B8E0097-BLK1 Method Blank 0.25	2.28e3	78.9	NO
4	4	13C8-PFOA	B8E0097-BLK1 Method Blank 0.25	1.25e4	88.9	NO
5	5	13C9-PFNA	B8E0097-BLK1 Method Blank 0.25	1.38e4	81.6	NO
6	6	13C4-PFOS	B8E0097-BLK1 Method Blank 0.25	2.23e3	77.2	NO
7	7	13C6-PFDA	B8E0097-BLK1 Method Blank 0.25	1.53e4	71.5	NO
8	8	13C7-PFUdA	B8E0097-BLK1 Method Blank 0.25	2.01e4	82.3	NO

Name: 180605M2_18, Date: 05-Jun-2018, Time: 19:26:03, ID: 1800863-01 Bemidji Pilot APR2 lead 0.25765, Description: Bemidji Pilot APR2 lead

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800863-01 Bemidji Pilot APR2 lead 0.2...	7.01e3	70.1	NO
2	2	13C5-PFHxA	1800863-01 Bemidji Pilot APR2 lead 0.2...	9.67e3	69.5	NO
3	3	13C3-PFHxS	1800863-01 Bemidji Pilot APR2 lead 0.2...	2.14e3	74.0	NO
4	4	13C8-PFOA	1800863-01 Bemidji Pilot APR2 lead 0.2...	1.12e4	79.5	NO
5	5	13C9-PFNA	1800863-01 Bemidji Pilot APR2 lead 0.2...	1.28e4	75.7	NO
6	6	13C4-PFOS	1800863-01 Bemidji Pilot APR2 lead 0.2...	2.20e3	76.3	NO
7	7	13C6-PFDA	1800863-01 Bemidji Pilot APR2 lead 0.2...	1.49e4	69.5	NO
8	8	13C7-PFUdA	1800863-01 Bemidji Pilot APR2 lead 0.2...	1.71e4	70.0	NO

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Name: 180605M2_19, Date: 05-Jun-2018, Time: 19:36:27, ID: 1800863-02 Bemidji Pilot PSR2 + 0.26433, Description: Bemidji Pilot PSR2 +

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800863-02 Bemidji Pilot PSR2 + 0.26433	7.35e3	73.5	NO
2	2	13C5-PFHxA	1800863-02 Bemidji Pilot PSR2 + 0.26433	9.54e3	68.5	NO
3	3	13C3-PFHxS	1800863-02 Bemidji Pilot PSR2 + 0.26433	2.34e3	81.0	NO
4	4	13C8-PFOA	1800863-02 Bemidji Pilot PSR2 + 0.26433	1.21e4	86.3	NO
5	5	13C9-PFNA	1800863-02 Bemidji Pilot PSR2 + 0.26433	1.35e4	79.8	NO
6	6	13C4-PFOS	1800863-02 Bemidji Pilot PSR2 + 0.26433	2.21e3	76.6	NO
7	7	13C6-PFDA	1800863-02 Bemidji Pilot PSR2 + 0.26433	1.69e4	78.9	NO
8	8	13C7-PFUdA	1800863-02 Bemidji Pilot PSR2 + 0.26433	1.66e4	67.8	NO

Name: 180605M2_20, Date: 05-Jun-2018, Time: 19:46:57, ID: 1800863-03 Bemidji Pilot INF 0.26399, Description: Bemidji Pilot INF

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800863-03 Bemidji Pilot INF 0.26399	7.14e3	71.4	NO
2	2	13C5-PFHxA	1800863-03 Bemidji Pilot INF 0.26399	9.37e3	67.3	NO
3	3	13C3-PFHxS	1800863-03 Bemidji Pilot INF 0.26399	2.04e3	70.8	NO
4	4	13C8-PFOA	1800863-03 Bemidji Pilot INF 0.26399	1.14e4	81.3	NO
5	5	13C9-PFNA	1800863-03 Bemidji Pilot INF 0.26399	1.24e4	73.6	NO
6	6	13C4-PFOS	1800863-03 Bemidji Pilot INF 0.26399	2.21e3	76.5	NO
7	7	13C6-PFDA	1800863-03 Bemidji Pilot INF 0.26399	1.52e4	71.0	NO
8	8	13C7-PFUdA	1800863-03 Bemidji Pilot INF 0.26399	1.78e4	73.0	NO

Name: 180605M2_21, Date: 05-Jun-2018, Time: 19:57:21, ID: 1800901-01 ACT Sample -16 0.23838, Description: ACT Sample -16

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800901-01 ACT Sample -16 0.23838	7.24e3	72.4	NO
2	2	13C5-PFHxA	1800901-01 ACT Sample -16 0.23838	1.02e4	73.2	NO
3	3	13C3-PFHxS	1800901-01 ACT Sample -16 0.23838	2.48e3	86.1	NO
4	4	13C8-PFOA	1800901-01 ACT Sample -16 0.23838	1.14e4	81.0	NO
5	5	13C9-PFNA	1800901-01 ACT Sample -16 0.23838	1.40e4	82.7	NO
6	6	13C4-PFOS	1800901-01 ACT Sample -16 0.23838	2.52e3	87.1	NO
7	7	13C6-PFDA	1800901-01 ACT Sample -16 0.23838	1.54e4	71.7	NO
8	8	13C7-PFUdA	1800901-01 ACT Sample -16 0.23838	1.90e4	77.8	NO

Name: 180605M2_22, Date: 05-Jun-2018, Time: 20:07:52, ID: 1800901-02 ACT Sample -19 0.23487, Description: ACT Sample -19

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800901-02 ACT Sample -19 0.23487	7.04e3	70.4	NO
2	2	13C5-PFHxA	1800901-02 ACT Sample -19 0.23487	9.91e3	71.2	NO
3	3	13C3-PFHxS	1800901-02 ACT Sample -19 0.23487	2.28e3	79.2	NO
4	4	13C8-PFOA	1800901-02 ACT Sample -19 0.23487	1.08e4	76.9	NO
5	5	13C9-PFNA	1800901-02 ACT Sample -19 0.23487	1.27e4	75.5	NO
6	6	13C4-PFOS	1800901-02 ACT Sample -19 0.23487	2.28e3	78.7	NO
7	7	13C6-PFDA	1800901-02 ACT Sample -19 0.23487	1.38e4	64.5	NO
8	8	13C7-PFUdA	1800901-02 ACT Sample -19 0.23487	1.88e4	76.8	NO

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Name: 180605M2_23, Date: 05-Jun-2018, Time: 20:18:16, ID: 1801071-02 A1-MW-55-SA1 0.11428, Description: A1-MW-55-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801071-02 A1-MW-55-SA1 0.11428	6.08e3	60.8	NO
2	2	13C5-PFHxA	1801071-02 A1-MW-55-SA1 0.11428	8.13e3	58.4	NO
3	3	13C3-PFHxS	1801071-02 A1-MW-55-SA1 0.11428	2.85e3	98.7	NO
4	4	13C8-PFOA	1801071-02 A1-MW-55-SA1 0.11428	1.09e4	77.7	NO
5	5	13C9-PFNA	1801071-02 A1-MW-55-SA1 0.11428	1.25e4	73.8	NO
6	6	13C4-PFOS	1801071-02 A1-MW-55-SA1 0.11428	2.75e3	95.3	NO
7	7	13C6-PFDA	1801071-02 A1-MW-55-SA1 0.11428	1.62e4	75.8	NO
8	8	13C7-PFUdA	1801071-02 A1-MW-55-SA1 0.11428	2.13e4	87.4	NO

Name: 180605M2_24, Date: 05-Jun-2018, Time: 20:28:47, ID: 1801071-03 A1-MW-23-SA1 0.11436, Description: A1-MW-23-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801071-03 A1-MW-23-SA1 0.11436	6.22e3	62.2	NO
2	2	13C5-PFHxA	1801071-03 A1-MW-23-SA1 0.11436	1.02e4	73.3	NO
3	3	13C3-PFHxS	1801071-03 A1-MW-23-SA1 0.11436	3.02e3	104.6	NO
4	4	13C8-PFOA	1801071-03 A1-MW-23-SA1 0.11436	1.32e4	94.0	NO
5	5	13C9-PFNA	1801071-03 A1-MW-23-SA1 0.11436	1.46e4	86.3	NO
6	6	13C4-PFOS	1801071-03 A1-MW-23-SA1 0.11436	2.97e3	102.9	NO
7	7	13C6-PFDA	1801071-03 A1-MW-23-SA1 0.11436	1.81e4	84.6	NO
8	8	13C7-PFUdA	1801071-03 A1-MW-23-SA1 0.11436	2.28e4	93.4	NO

Name: 180605M2_25, Date: 05-Jun-2018, Time: 20:39:12, ID: 1801071-04 A1-MW-07-SA1 0.11908, Description: A1-MW-07-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801071-04 A1-MW-07-SA1 0.11908	5.68e3	56.8	NO
2	2	13C5-PFHxA	1801071-04 A1-MW-07-SA1 0.11908	7.27e3	52.2	NO
3	3	13C3-PFHxS	1801071-04 A1-MW-07-SA1 0.11908	3.16e3	109.5	NO
4	4	13C8-PFOA	1801071-04 A1-MW-07-SA1 0.11908	9.00e3	64.2	NO
5	5	13C9-PFNA	1801071-04 A1-MW-07-SA1 0.11908	1.16e4	69.0	NO
6	6	13C4-PFOS	1801071-04 A1-MW-07-SA1 0.11908	3.27e3	113.2	NO
7	7	13C6-PFDA	1801071-04 A1-MW-07-SA1 0.11908	1.47e4	68.5	NO
8	8	13C7-PFUdA	1801071-04 A1-MW-07-SA1 0.11908	1.82e4	74.4	NO

Name: 180605M2_26, Date: 05-Jun-2018, Time: 20:49:42, ID: 1801039-01 A1-MW-13-SA1 0.10967, Description: A1-MW-13-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801039-01 A1-MW-13-SA1 0.10967	3.07e3	30.7	YES
2	2	13C5-PFHxA	1801039-01 A1-MW-13-SA1 0.10967	4.88e3	35.0	YES
3	3	13C3-PFHxS	1801039-01 A1-MW-13-SA1 0.10967	4.13e3	143.3	NO
4	4	13C8-PFOA	1801039-01 A1-MW-13-SA1 0.10967	8.00e3	57.1	NO
5	5	13C9-PFNA	1801039-01 A1-MW-13-SA1 0.10967	1.23e4	72.8	NO
6	6	13C4-PFOS	1801039-01 A1-MW-13-SA1 0.10967	4.20e3	145.4	NO
7	7	13C6-PFDA	1801039-01 A1-MW-13-SA1 0.10967	1.81e4	84.8	NO
8	8	13C7-PFUdA	1801039-01 A1-MW-13-SA1 0.10967	2.65e4	108.6	NO

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Name: 180605M2_27, Date: 05-Jun-2018, Time: 21:00:07, ID: 1801039-02 A1-MW-11-SA1 0.11624, Description: A1-MW-11-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801039-02 A1-MW-11-SA1 0.11624	4.60e3	46.0	YES
2	2	13C5-PFHxA	1801039-02 A1-MW-11-SA1 0.11624	6.51e3	46.8	YES
3	3	13C3-PFHxS	1801039-02 A1-MW-11-SA1 0.11624	3.84e3	133.0	NO
4	4	13C8-PFOA	1801039-02 A1-MW-11-SA1 0.11624	8.95e3	63.8	NO
5	5	13C9-PFNA	1801039-02 A1-MW-11-SA1 0.11624	1.22e4	72.4	NO
6	6	13C4-PFOS	1801039-02 A1-MW-11-SA1 0.11624	3.79e3	131.0	NO
7	7	13C6-PFDA	1801039-02 A1-MW-11-SA1 0.11624	1.44e4	67.3	NO
8	8	13C7-PFUdA	1801039-02 A1-MW-11-SA1 0.11624	2.49e4	102.0	NO

Name: 180605M2_28, Date: 05-Jun-2018, Time: 21:10:37, ID: 1801039-03 A1-MW-14-SA1 0.11194, Description: A1-MW-14-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801039-03 A1-MW-14-SA1 0.11194	2.44e3	24.3	YES
2	2	13C5-PFHxA	1801039-03 A1-MW-14-SA1 0.11194	3.78e3	27.1	YES
3	3	13C3-PFHxS	1801039-03 A1-MW-14-SA1 0.11194	4.67e3	161.7	YES
4	4	13C8-PFOA	1801039-03 A1-MW-14-SA1 0.11194	7.12e3	50.8	NO
5	5	13C9-PFNA	1801039-03 A1-MW-14-SA1 0.11194	8.67e3	51.4	NO
6	6	13C4-PFOS	1801039-03 A1-MW-14-SA1 0.11194	4.48e3	155.1	YES
7	7	13C6-PFDA	1801039-03 A1-MW-14-SA1 0.11194	1.31e4	61.3	NO
8	8	13C7-PFUdA	1801039-03 A1-MW-14-SA1 0.11194	2.36e4	96.5	NO

Name: 180605M2_29, Date: 05-Jun-2018, Time: 21:21:07, ID: 1801039-04 A1-MW-15-SA1 0.11248, Description: A1-MW-15-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801039-04 A1-MW-15-SA1 0.11248	4.70e3	47.0	YES
2	2	13C5-PFHxA	1801039-04 A1-MW-15-SA1 0.11248	7.74e3	55.6	NO
3	3	13C3-PFHxS	1801039-04 A1-MW-15-SA1 0.11248	3.96e3	137.4	NO
4	4	13C8-PFOA	1801039-04 A1-MW-15-SA1 0.11248	1.28e4	91.3	NO
5	5	13C9-PFNA	1801039-04 A1-MW-15-SA1 0.11248	1.59e4	94.2	NO
6	6	13C4-PFOS	1801039-04 A1-MW-15-SA1 0.11248	3.95e3	136.5	NO
7	7	13C6-PFDA	1801039-04 A1-MW-15-SA1 0.11248	2.03e4	94.9	NO
8	8	13C7-PFUdA	1801039-04 A1-MW-15-SA1 0.11248	2.53e4	103.6	NO

Name: 180605M2_30, Date: 05-Jun-2018, Time: 21:31:32, 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

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Name: 180605M2_31, Date: 05-Jun-2018, Time: 21:42:02, ID: ST180605M2-11 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST180605M2-11 PFC CS3 18E2907	9.00e3	90.0	NO
2	2	13C5-PFHxA	ST180605M2-11 PFC CS3 18E2907	1.48e4	106.6	NO
3	3	13C3-PFHxS	ST180605M2-11 PFC CS3 18E2907	3.26e3	113.1	NO
4	4	13C8-PFOA	ST180605M2-11 PFC CS3 18E2907	1.71e4	121.6	NO
5	5	13C9-PFNA	ST180605M2-11 PFC CS3 18E2907	1.96e4	116.1	NO
6	6	13C4-PFOS	ST180605M2-11 PFC CS3 18E2907	3.25e3	112.4	NO
7	7	13C6-PFDA	ST180605M2-11 PFC CS3 18E2907	2.49e4	116.3	NO
8	8	13C7-PFUdA	ST180605M2-11 PFC CS3 18E2907	2.67e4	109.5	NO

Name: 180605M2_32, Date: 05-Jun-2018, Time: 21:52:27, 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

Name: 180605M2_33, Date: 05-Jun-2018, Time: 22:02:57, ID: 1801039-07 A1-MW-25-SA1 0.11252, Description: A1-MW-25-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801039-07 A1-MW-25-SA1 0.11252	2.63e3	26.2	YES
2	2	13C5-PFHxA	1801039-07 A1-MW-25-SA1 0.11252	4.03e3	28.9	YES
3	3	13C3-PFHxS	1801039-07 A1-MW-25-SA1 0.11252	3.65e3	126.6	NO
4	4	13C8-PFOA	1801039-07 A1-MW-25-SA1 0.11252	5.58e3	39.8	YES
5	5	13C9-PFNA	1801039-07 A1-MW-25-SA1 0.11252	9.32e3	55.2	NO
6	6	13C4-PFOS	1801039-07 A1-MW-25-SA1 0.11252	3.89e3	134.7	NO
7	7	13C6-PFDA	1801039-07 A1-MW-25-SA1 0.11252	1.41e4	65.9	NO
8	8	13C7-PFUdA	1801039-07 A1-MW-25-SA1 0.11252	1.70e4	69.6	NO

Name: 180605M2_34, Date: 05-Jun-2018, Time: 22:13:21, ID: 1801024-01 A1-MW-51-SA1 0.11961, Description: A1-MW-51-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801024-01 A1-MW-51-SA1 0.11961	3.50e3	35.0	YES
2	2	13C5-PFHxA	1801024-01 A1-MW-51-SA1 0.11961	4.37e3	31.4	YES
3	3	13C3-PFHxS	1801024-01 A1-MW-51-SA1 0.11961	2.37e3	82.2	NO
4	4	13C8-PFOA	1801024-01 A1-MW-51-SA1 0.11961	5.30e3	37.8	YES
5	5	13C9-PFNA	1801024-01 A1-MW-51-SA1 0.11961	6.11e3	36.2	YES
6	6	13C4-PFOS	1801024-01 A1-MW-51-SA1 0.11961	2.36e3	81.8	NO
7	7	13C6-PFDA	1801024-01 A1-MW-51-SA1 0.11961	5.78e3	27.0	YES
8	8	13C7-PFUdA	1801024-01 A1-MW-51-SA1 0.11961	8.85e3	36.3	YES

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Name: 180605M2_35, Date: 05-Jun-2018, Time: 22:23:52, ID: 1801024-02 A1-MW-50-SA1 0.12082, Description: A1-MW-50-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801024-02 A1-MW-50-SA1 0.12082	8.68e3	86.8	NO
2	2	13C5-PFHxA	1801024-02 A1-MW-50-SA1 0.12082	1.15e4	82.8	NO
3	3	13C3-PFHxS	1801024-02 A1-MW-50-SA1 0.12082	2.74e3	95.0	NO
4	4	13C8-PFOA	1801024-02 A1-MW-50-SA1 0.12082	1.30e4	92.6	NO
5	5	13C9-PFNA	1801024-02 A1-MW-50-SA1 0.12082	1.57e4	92.8	NO
6	6	13C4-PFOS	1801024-02 A1-MW-50-SA1 0.12082	2.59e3	89.5	NO
7	7	13C6-PFDA	1801024-02 A1-MW-50-SA1 0.12082	1.59e4	74.2	NO
8	8	13C7-PFUdA	1801024-02 A1-MW-50-SA1 0.12082	2.02e4	82.7	NO

Name: 180605M2_36, Date: 05-Jun-2018, Time: 22:34:22, ID: 1801024-05 A1-MW-04-SA1 0.12315, Description: A1-MW-04-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801024-05 A1-MW-04-SA1 0.12315	6.30e3	63.0	NO
2	2	13C5-PFHxA	1801024-05 A1-MW-04-SA1 0.12315	8.42e3	60.4	NO
3	3	13C3-PFHxS	1801024-05 A1-MW-04-SA1 0.12315	2.52e3	87.3	NO
4	4	13C8-PFOA	1801024-05 A1-MW-04-SA1 0.12315	9.62e3	68.6	NO
5	5	13C9-PFNA	1801024-05 A1-MW-04-SA1 0.12315	1.06e4	62.8	NO
6	6	13C4-PFOS	1801024-05 A1-MW-04-SA1 0.12315	2.79e3	96.7	NO
7	7	13C6-PFDA	1801024-05 A1-MW-04-SA1 0.12315	1.20e4	56.3	NO
8	8	13C7-PFUdA	1801024-05 A1-MW-04-SA1 0.12315	1.53e4	62.6	NO

Name: 180605M2_37, Date: 05-Jun-2018, Time: 22:44:46, ID: B8E0078-BS1 OPR 0.125, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0078-BS1 OPR 0.125	5.57e3	55.7	NO
2	2	13C5-PFHxA	B8E0078-BS1 OPR 0.125	8.53e3	61.2	NO
3	3	13C3-PFHxS	B8E0078-BS1 OPR 0.125	2.30e3	79.9	NO
4	4	13C8-PFOA	B8E0078-BS1 OPR 0.125	1.11e4	79.0	NO
5	5	13C9-PFNA	B8E0078-BS1 OPR 0.125	1.28e4	75.9	NO
6	6	13C4-PFOS	B8E0078-BS1 OPR 0.125	2.25e3	77.8	NO
7	7	13C6-PFDA	B8E0078-BS1 OPR 0.125	1.34e4	62.8	NO
8	8	13C7-PFUdA	B8E0078-BS1 OPR 0.125	1.76e4	72.1	NO

Name: 180605M2_38, Date: 05-Jun-2018, Time: 22:55:16, ID: B8E0078-BSD1 LCSD 0.125, Description: LCSD

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0078-BSD1 LCSD 0.125	4.71e3	47.1	YES
2	2	13C5-PFHxA	B8E0078-BSD1 LCSD 0.125	8.79e3	63.1	NO
3	3	13C3-PFHxS	B8E0078-BSD1 LCSD 0.125	2.19e3	76.1	NO
4	4	13C8-PFOA	B8E0078-BSD1 LCSD 0.125	1.09e4	77.6	NO
5	5	13C9-PFNA	B8E0078-BSD1 LCSD 0.125	1.33e4	78.6	NO
6	6	13C4-PFOS	B8E0078-BSD1 LCSD 0.125	2.12e3	73.3	NO
7	7	13C6-PFDA	B8E0078-BSD1 LCSD 0.125	1.62e4	75.6	NO
8	8	13C7-PFUdA	B8E0078-BSD1 LCSD 0.125	1.85e4	75.8	NO

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Name: 180605M2_39, Date: 05-Jun-2018, Time: 23:05:40, ID: B8E0078-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0078-BLK1 Method Blank 0.125	6.78e3	67.7	NO
2	2	13C5-PFHxA	B8E0078-BLK1 Method Blank 0.125	1.05e4	75.3	NO
3	3	13C3-PFHxS	B8E0078-BLK1 Method Blank 0.125	2.46e3	85.2	NO
4	4	13C8-PFOA	B8E0078-BLK1 Method Blank 0.125	1.25e4	89.4	NO
5	5	13C9-PFNA	B8E0078-BLK1 Method Blank 0.125	1.42e4	84.3	NO
6	6	13C4-PFOS	B8E0078-BLK1 Method Blank 0.125	2.49e3	86.0	NO
7	7	13C6-PFDA	B8E0078-BLK1 Method Blank 0.125	1.78e4	83.3	NO
8	8	13C7-PFUdA	B8E0078-BLK1 Method Blank 0.125	1.94e4	79.5	NO

Name: 180605M2_40, Date: 05-Jun-2018, Time: 23:16:11, ID: 1800862-01 REEPDW451FRB 0.11732, Description: REEPDW451FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800862-01 REEPDW451FRB 0.11732	6.66e3	66.6	NO
2	2	13C5-PFHxA	1800862-01 REEPDW451FRB 0.11732	9.43e3	67.7	NO
3	3	13C3-PFHxS	1800862-01 REEPDW451FRB 0.11732	2.36e3	81.9	NO
4	4	13C8-PFOA	1800862-01 REEPDW451FRB 0.11732	1.07e4	76.6	NO
5	5	13C9-PFNA	1800862-01 REEPDW451FRB 0.11732	1.43e4	84.5	NO
6	6	13C4-PFOS	1800862-01 REEPDW451FRB 0.11732	2.32e3	80.1	NO
7	7	13C6-PFDA	1800862-01 REEPDW451FRB 0.11732	1.52e4	70.8	NO
8	8	13C7-PFUdA	1800862-01 REEPDW451FRB 0.11732	1.53e4	62.8	NO

Name: 180605M2_41, Date: 05-Jun-2018, Time: 23:26:35, ID: 1800862-02 REEPDW452FRB 0.11393, Description: REEPDW452FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800862-02 REEPDW452FRB 0.11393	5.92e3	59.2	NO
2	2	13C5-PFHxA	1800862-02 REEPDW452FRB 0.11393	9.99e3	71.8	NO
3	3	13C3-PFHxS	1800862-02 REEPDW452FRB 0.11393	2.43e3	84.1	NO
4	4	13C8-PFOA	1800862-02 REEPDW452FRB 0.11393	1.26e4	89.7	NO
5	5	13C9-PFNA	1800862-02 REEPDW452FRB 0.11393	1.38e4	81.9	NO
6	6	13C4-PFOS	1800862-02 REEPDW452FRB 0.11393	2.38e3	82.3	NO
7	7	13C6-PFDA	1800862-02 REEPDW452FRB 0.11393	1.51e4	70.6	NO
8	8	13C7-PFUdA	1800862-02 REEPDW452FRB 0.11393	2.05e4	84.0	NO

Name: 180605M2_42, Date: 05-Jun-2018, Time: 23:37:05, ID: 1800862-03 REEPDW453FRB 0.11381, Description: REEPDW453FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800862-03 REEPDW453FRB 0.11381	5.06e3	50.5	NO
2	2	13C5-PFHxA	1800862-03 REEPDW453FRB 0.11381	8.57e3	61.5	NO
3	3	13C3-PFHxS	1800862-03 REEPDW453FRB 0.11381	2.25e3	77.9	NO
4	4	13C8-PFOA	1800862-03 REEPDW453FRB 0.11381	1.03e4	73.5	NO
5	5	13C9-PFNA	1800862-03 REEPDW453FRB 0.11381	1.16e4	68.8	NO
6	6	13C4-PFOS	1800862-03 REEPDW453FRB 0.11381	2.28e3	78.9	NO
7	7	13C6-PFDA	1800862-03 REEPDW453FRB 0.11381	1.54e4	71.7	NO
8	8	13C7-PFUdA	1800862-03 REEPDW453FRB 0.11381	1.63e4	66.7	NO

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Name: 180605M2_43, Date: 05-Jun-2018, Time: 23:47:29, ID: 1800862-04 REEPDW454FRB 0.11483, Description: REEPDW454FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800862-04 REEPDW454FRB 0.11483	5.90e3	58.9	NO
2	2	13C5-PFHxA	1800862-04 REEPDW454FRB 0.11483	8.89e3	63.8	NO
3	3	13C3-PFHxS	1800862-04 REEPDW454FRB 0.11483	2.33e3	80.7	NO
4	4	13C8-PFOA	1800862-04 REEPDW454FRB 0.11483	1.09e4	77.4	NO
5	5	13C9-PFNA	1800862-04 REEPDW454FRB 0.11483	1.17e4	69.3	NO
6	6	13C4-PFOS	1800862-04 REEPDW454FRB 0.11483	2.34e3	81.1	NO
7	7	13C6-PFDA	1800862-04 REEPDW454FRB 0.11483	1.50e4	70.2	NO
8	8	13C7-PFUdA	1800862-04 REEPDW454FRB 0.11483	1.71e4	69.9	NO

Name: 180605M2_44, Date: 05-Jun-2018, Time: 23:58:00, ID: 1800862-05 REEPDW456FRB 0.1202, Description: REEPDW456FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800862-05 REEPDW456FRB 0.1202	6.32e3	63.1	NO
2	2	13C5-PFHxA	1800862-05 REEPDW456FRB 0.1202	8.62e3	61.9	NO
3	3	13C3-PFHxS	1800862-05 REEPDW456FRB 0.1202	2.09e3	72.5	NO
4	4	13C8-PFOA	1800862-05 REEPDW456FRB 0.1202	8.77e3	62.5	NO
5	5	13C9-PFNA	1800862-05 REEPDW456FRB 0.1202	1.19e4	70.5	NO
6	6	13C4-PFOS	1800862-05 REEPDW456FRB 0.1202	2.18e3	75.6	NO
7	7	13C6-PFDA	1800862-05 REEPDW456FRB 0.1202	1.04e4	48.7	YES
8	8	13C7-PFUdA	1800862-05 REEPDW456FRB 0.1202	1.43e4	58.8	NO

Name: 180605M2_45, Date: 06-Jun-2018, Time: 00:08:25, ID: 1800862-06 REEPDW446FRB 0.11919, Description: REEPDW446FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800862-06 REEPDW446FRB 0.11919	5.56e3	55.6	NO
2	2	13C5-PFHxA	1800862-06 REEPDW446FRB 0.11919	9.00e3	64.6	NO
3	3	13C3-PFHxS	1800862-06 REEPDW446FRB 0.11919	2.20e3	76.4	NO
4	4	13C8-PFOA	1800862-06 REEPDW446FRB 0.11919	1.11e4	79.4	NO
5	5	13C9-PFNA	1800862-06 REEPDW446FRB 0.11919	1.23e4	72.8	NO
6	6	13C4-PFOS	1800862-06 REEPDW446FRB 0.11919	2.21e3	76.5	NO
7	7	13C6-PFDA	1800862-06 REEPDW446FRB 0.11919	1.44e4	67.1	NO
8	8	13C7-PFUdA	1800862-06 REEPDW446FRB 0.11919	1.95e4	79.8	NO

Name: 180605M2_46, Date: 06-Jun-2018, Time: 00:18:55, ID: 1800862-07 REEPDW455FRB 0.12259, Description: REEPDW455FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800862-07 REEPDW455FRB 0.12259	5.25e3	52.5	NO
2	2	13C5-PFHxA	1800862-07 REEPDW455FRB 0.12259	8.44e3	60.6	NO
3	3	13C3-PFHxS	1800862-07 REEPDW455FRB 0.12259	2.27e3	78.7	NO
4	4	13C8-PFOA	1800862-07 REEPDW455FRB 0.12259	1.04e4	74.4	NO
5	5	13C9-PFNA	1800862-07 REEPDW455FRB 0.12259	1.28e4	75.9	NO
6	6	13C4-PFOS	1800862-07 REEPDW455FRB 0.12259	2.13e3	73.7	NO
7	7	13C6-PFDA	1800862-07 REEPDW455FRB 0.12259	1.50e4	70.1	NO
8	8	13C7-PFUdA	1800862-07 REEPDW455FRB 0.12259	1.61e4	66.1	NO

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Name: 180605M2_47, Date: 06-Jun-2018, Time: 00:29:20, ID: 1800862-08 REEPDW447FRB 0.11683, Description: REEPDW447FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800862-08 REEPDW447FRB 0.11683	4.34e3	43.4	YES
2	2	13C5-PFHxA	1800862-08 REEPDW447FRB 0.11683	7.20e3	51.7	NO
3	3	13C3-PFHxS	1800862-08 REEPDW447FRB 0.11683	1.89e3	65.5	NO
4	4	13C8-PFOA	1800862-08 REEPDW447FRB 0.11683	9.87e3	70.3	NO
5	5	13C9-PFNA	1800862-08 REEPDW447FRB 0.11683	1.10e4	65.0	NO
6	6	13C4-PFOS	1800862-08 REEPDW447FRB 0.11683	1.92e3	66.6	NO
7	7	13C6-PFDA	1800862-08 REEPDW447FRB 0.11683	1.34e4	62.5	NO
8	8	13C7-PFUdA	1800862-08 REEPDW447FRB 0.11683	1.60e4	65.4	NO

Name: 180605M2_48, Date: 06-Jun-2018, Time: 00:39:51, ID: 1800862-09 REEPDW448FRB 0.12114, Description: REEPDW448FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800862-09 REEPDW448FRB 0.12114	6.10e3	61.0	NO
2	2	13C5-PFHxA	1800862-09 REEPDW448FRB 0.12114	9.74e3	69.9	NO
3	3	13C3-PFHxS	1800862-09 REEPDW448FRB 0.12114	2.37e3	82.2	NO
4	4	13C8-PFOA	1800862-09 REEPDW448FRB 0.12114	1.12e4	79.7	NO
5	5	13C9-PFNA	1800862-09 REEPDW448FRB 0.12114	1.28e4	76.1	NO
6	6	13C4-PFOS	1800862-09 REEPDW448FRB 0.12114	2.43e3	84.2	NO
7	7	13C6-PFDA	1800862-09 REEPDW448FRB 0.12114	1.44e4	67.4	NO
8	8	13C7-PFUdA	1800862-09 REEPDW448FRB 0.12114	1.94e4	79.6	NO

Name: 180605M2_49, Date: 06-Jun-2018, Time: 00:50:16, ID: 1800862-10 REEPDW449FRB 0.11798, Description: REEPDW449FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800862-10 REEPDW449FRB 0.11798	6.56e3	65.6	NO
2	2	13C5-PFHxA	1800862-10 REEPDW449FRB 0.11798	9.07e3	65.1	NO
3	3	13C3-PFHxS	1800862-10 REEPDW449FRB 0.11798	2.08e3	71.9	NO
4	4	13C8-PFOA	1800862-10 REEPDW449FRB 0.11798	1.16e4	82.4	NO
5	5	13C9-PFNA	1800862-10 REEPDW449FRB 0.11798	1.05e4	62.1	NO
6	6	13C4-PFOS	1800862-10 REEPDW449FRB 0.11798	2.26e3	78.3	NO
7	7	13C6-PFDA	1800862-10 REEPDW449FRB 0.11798	1.52e4	71.1	NO
8	8	13C7-PFUdA	1800862-10 REEPDW449FRB 0.11798	1.75e4	71.8	NO

Name: 180605M2_50, Date: 06-Jun-2018, Time: 01:00:38, ID: 1800862-11 REEPDW450FRB 0.12118, Description: REEPDW450FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800862-11 REEPDW450FRB 0.12118	6.64e3	66.4	NO
2	2	13C5-PFHxA	1800862-11 REEPDW450FRB 0.12118	9.47e3	68.0	NO
3	3	13C3-PFHxS	1800862-11 REEPDW450FRB 0.12118	2.35e3	81.5	NO
4	4	13C8-PFOA	1800862-11 REEPDW450FRB 0.12118	1.06e4	75.6	NO
5	5	13C9-PFNA	1800862-11 REEPDW450FRB 0.12118	1.08e4	63.7	NO
6	6	13C4-PFOS	1800862-11 REEPDW450FRB 0.12118	2.19e3	75.9	NO
7	7	13C6-PFDA	1800862-11 REEPDW450FRB 0.12118	1.29e4	60.1	NO
8	8	13C7-PFUdA	1800862-11 REEPDW450FRB 0.12118	1.61e4	65.9	NO

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Name: 180605M2_51, Date: 06-Jun-2018, Time: 01:11:08, ID: 1800862-12 REEPDW457FRB 0.12446, Description: REEPDW457FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800862-12 REEPDW457FRB 0.12446	6.33e3	63.3	NO
2	2	13C5-PFHxA	1800862-12 REEPDW457FRB 0.12446	9.53e3	68.4	NO
3	3	13C3-PFHxS	1800862-12 REEPDW457FRB 0.12446	2.31e3	80.2	NO
4	4	13C8-PFOA	1800862-12 REEPDW457FRB 0.12446	1.19e4	85.1	NO
5	5	13C9-PFNA	1800862-12 REEPDW457FRB 0.12446	1.08e4	63.9	NO
6	6	13C4-PFOS	1800862-12 REEPDW457FRB 0.12446	2.42e3	83.7	NO
7	7	13C6-PFDA	1800862-12 REEPDW457FRB 0.12446	1.26e4	59.0	NO
8	8	13C7-PFUdA	1800862-12 REEPDW457FRB 0.12446	1.58e4	64.6	NO

Name: 180605M2_52, Date: 06-Jun-2018, Time: 01:21:33, ID: 1800862-13 REEPDW459FRB 0.12147, Description: REEPDW459FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800862-13 REEPDW459FRB 0.12147	6.33e3	63.3	NO
2	2	13C5-PFHxA	1800862-13 REEPDW459FRB 0.12147	9.67e3	69.5	NO
3	3	13C3-PFHxS	1800862-13 REEPDW459FRB 0.12147	2.25e3	78.0	NO
4	4	13C8-PFOA	1800862-13 REEPDW459FRB 0.12147	1.10e4	78.5	NO
5	5	13C9-PFNA	1800862-13 REEPDW459FRB 0.12147	1.31e4	77.5	NO
6	6	13C4-PFOS	1800862-13 REEPDW459FRB 0.12147	2.23e3	77.2	NO
7	7	13C6-PFDA	1800862-13 REEPDW459FRB 0.12147	1.54e4	71.8	NO
8	8	13C7-PFUdA	1800862-13 REEPDW459FRB 0.12147	1.46e4	59.9	NO

Name: 180605M2_53, Date: 06-Jun-2018, Time: 01:32:03, ID: 1800862-14 REEPDW458FRB 0.11703, Description: REEPDW458FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800862-14 REEPDW458FRB 0.11703	5.40e3	54.0	NO
2	2	13C5-PFHxA	1800862-14 REEPDW458FRB 0.11703	8.89e3	63.8	NO
3	3	13C3-PFHxS	1800862-14 REEPDW458FRB 0.11703	2.29e3	79.5	NO
4	4	13C8-PFOA	1800862-14 REEPDW458FRB 0.11703	1.14e4	81.2	NO
5	5	13C9-PFNA	1800862-14 REEPDW458FRB 0.11703	1.22e4	72.1	NO
6	6	13C4-PFOS	1800862-14 REEPDW458FRB 0.11703	2.24e3	77.5	NO
7	7	13C6-PFDA	1800862-14 REEPDW458FRB 0.11703	1.41e4	65.8	NO
8	8	13C7-PFUdA	1800862-14 REEPDW458FRB 0.11703	1.75e4	71.7	NO

Name: 180605M2_54, Date: 06-Jun-2018, Time: 01:42:28, ID: 1800862-15 REEPDW460FRB 0.11944, Description: REEPDW460FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800862-15 REEPDW460FRB 0.11944	4.83e3	48.3	YES
2	2	13C5-PFHxA	1800862-15 REEPDW460FRB 0.11944	7.56e3	54.3	NO
3	3	13C3-PFHxS	1800862-15 REEPDW460FRB 0.11944	1.89e3	65.3	NO
4	4	13C8-PFOA	1800862-15 REEPDW460FRB 0.11944	9.07e3	64.6	NO
5	5	13C9-PFNA	1800862-15 REEPDW460FRB 0.11944	8.96e3	53.1	NO
6	6	13C4-PFOS	1800862-15 REEPDW460FRB 0.11944	1.90e3	65.8	NO
7	7	13C6-PFDA	1800862-15 REEPDW460FRB 0.11944	1.21e4	56.4	NO
8	8	13C7-PFUdA	1800862-15 REEPDW460FRB 0.11944	1.37e4	56.1	NO

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Name: 180605M2_55, Date: 06-Jun-2018, Time: 01:52:59, ID: B8E0244-BS1 OPR 0.125, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0244-BS1 OPR 0.125	7.12e3	71.2	NO
2	2	13C5-PFHxA	B8E0244-BS1 OPR 0.125	1.13e4	81.1	NO
3	3	13C3-PFHxS	B8E0244-BS1 OPR 0.125	2.63e3	91.0	NO
4	4	13C8-PFOA	B8E0244-BS1 OPR 0.125	1.30e4	92.9	NO
5	5	13C9-PFNA	B8E0244-BS1 OPR 0.125	1.60e4	95.0	NO
6	6	13C4-PFOS	B8E0244-BS1 OPR 0.125	2.65e3	91.6	NO
7	7	13C6-PFDA	B8E0244-BS1 OPR 0.125	1.57e4	73.5	NO
8	8	13C7-PFUdA	B8E0244-BS1 OPR 0.125	1.93e4	79.2	NO

Name: 180605M2_56, Date: 06-Jun-2018, Time: 02:03:23, ID: B8E0244-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0244-BLK1 Method Blank 0.125	8.94e3	89.4	NO
2	2	13C5-PFHxA	B8E0244-BLK1 Method Blank 0.125	1.17e4	84.3	NO
3	3	13C3-PFHxS	B8E0244-BLK1 Method Blank 0.125	2.79e3	96.6	NO
4	4	13C8-PFOA	B8E0244-BLK1 Method Blank 0.125	1.46e4	103.9	NO
5	5	13C9-PFNA	B8E0244-BLK1 Method Blank 0.125	1.57e4	92.9	NO
6	6	13C4-PFOS	B8E0244-BLK1 Method Blank 0.125	2.67e3	92.5	NO
7	7	13C6-PFDA	B8E0244-BLK1 Method Blank 0.125	1.72e4	80.5	NO
8	8	13C7-PFUdA	B8E0244-BLK1 Method Blank 0.125	2.20e4	90.1	NO

Name: 180605M2_57, Date: 06-Jun-2018, Time: 02:13:53, ID: B8E0244-MS1 Matrix Spike 0.11028, Description: Matrix Spike

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0244-MS1 Matrix Spike 0.11028	8.15e3	81.4	NO
2	2	13C5-PFHxA	B8E0244-MS1 Matrix Spike 0.11028	9.91e3	71.1	NO
3	3	13C3-PFHxS	B8E0244-MS1 Matrix Spike 0.11028	3.74e3	129.6	NO
4	4	13C8-PFOA	B8E0244-MS1 Matrix Spike 0.11028	1.58e4	112.9	NO
5	5	13C9-PFNA	B8E0244-MS1 Matrix Spike 0.11028	1.84e4	109.3	NO
6	6	13C4-PFOS	B8E0244-MS1 Matrix Spike 0.11028	3.71e3	128.4	NO
7	7	13C6-PFDA	B8E0244-MS1 Matrix Spike 0.11028	2.25e4	105.1	NO
8	8	13C7-PFUdA	B8E0244-MS1 Matrix Spike 0.11028	2.54e4	104.2	NO

Name: 180605M2_58, Date: 06-Jun-2018, Time: 02:24:17, ID: B8E0244-MSD1 Matrix Spike Dup 0.11324, Description: Matrix Spike Dup

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0244-MSD1 Matrix Spike Dup 0.113...	5.81e3	58.1	NO
2	2	13C5-PFHxA	B8E0244-MSD1 Matrix Spike Dup 0.113...	6.73e3	48.3	YES
3	3	13C3-PFHxS	B8E0244-MSD1 Matrix Spike Dup 0.113...	2.69e3	93.3	NO
4	4	13C8-PFOA	B8E0244-MSD1 Matrix Spike Dup 0.113...	1.03e4	73.3	NO
5	5	13C9-PFNA	B8E0244-MSD1 Matrix Spike Dup 0.113...	1.01e4	59.8	NO
6	6	13C4-PFOS	B8E0244-MSD1 Matrix Spike Dup 0.113...	2.60e3	89.8	NO
7	7	13C6-PFDA	B8E0244-MSD1 Matrix Spike Dup 0.113...	1.56e4	72.7	NO
8	8	13C7-PFUdA	B8E0244-MSD1 Matrix Spike Dup 0.113...	1.65e4	67.7	NO

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Name: 180605M2_59, Date: 06-Jun-2018, Time: 02:34:48, ID: B8E0244-MS2 Matrix Spike 0.11122, Description: Matrix Spike

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0244-MS2 Matrix Spike 0.11122	4.07e3	40.7	YES
2	2	13C5-PFHxA	B8E0244-MS2 Matrix Spike 0.11122	6.19e3	44.5	YES
3	3	13C3-PFHxS	B8E0244-MS2 Matrix Spike 0.11122	2.37e3	82.2	NO
4	4	13C8-PFOA	B8E0244-MS2 Matrix Spike 0.11122	9.31e3	66.3	NO
5	5	13C9-PFNA	B8E0244-MS2 Matrix Spike 0.11122	1.01e4	59.8	NO
6	6	13C4-PFOS	B8E0244-MS2 Matrix Spike 0.11122	2.34e3	81.1	NO
7	7	13C6-PFDA	B8E0244-MS2 Matrix Spike 0.11122	1.09e4	50.8	NO
8	8	13C7-PFUdA	B8E0244-MS2 Matrix Spike 0.11122	1.36e4	55.8	NO

Name: 180605M2_60, Date: 06-Jun-2018, Time: 02:45:18, ID: B8E0244-MSD2 Matrix Spike Dup 0.11512, Description: Matrix Spike Dup

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0244-MSD2 Matrix Spike Dup 0.115...	5.24e3	52.4	NO
2	2	13C5-PFHxA	B8E0244-MSD2 Matrix Spike Dup 0.115...	8.01e3	57.5	NO
3	3	13C3-PFHxS	B8E0244-MSD2 Matrix Spike Dup 0.115...	2.65e3	91.9	NO
4	4	13C8-PFOA	B8E0244-MSD2 Matrix Spike Dup 0.115...	1.05e4	74.8	NO
5	5	13C9-PFNA	B8E0244-MSD2 Matrix Spike Dup 0.115...	1.15e4	68.4	NO
6	6	13C4-PFOS	B8E0244-MSD2 Matrix Spike Dup 0.115...	3.10e3	107.3	NO
7	7	13C6-PFDA	B8E0244-MSD2 Matrix Spike Dup 0.115...	1.42e4	66.5	NO
8	8	13C7-PFUdA	B8E0244-MSD2 Matrix Spike Dup 0.115...	1.67e4	68.4	NO

Name: 180605M2_61, Date: 06-Jun-2018, Time: 02:55:42, ID: 1801037-01 A1-MW-18-SA1 0.11265, Description: A1-MW-18-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801037-01 A1-MW-18-SA1 0.11265	5.85e3	58.5	NO
2	2	13C5-PFHxA	1801037-01 A1-MW-18-SA1 0.11265	7.59e3	54.5	NO
3	3	13C3-PFHxS	1801037-01 A1-MW-18-SA1 0.11265	2.81e3	97.3	NO
4	4	13C8-PFOA	1801037-01 A1-MW-18-SA1 0.11265	9.72e3	69.3	NO
5	5	13C9-PFNA	1801037-01 A1-MW-18-SA1 0.11265	1.09e4	64.8	NO
6	6	13C4-PFOS	1801037-01 A1-MW-18-SA1 0.11265	2.88e3	99.5	NO
7	7	13C6-PFDA	1801037-01 A1-MW-18-SA1 0.11265	1.22e4	57.2	NO
8	8	13C7-PFUdA	1801037-01 A1-MW-18-SA1 0.11265	1.62e4	66.2	NO

Name: 180605M2_62, Date: 06-Jun-2018, Time: 03:06:13, ID: 1801037-02 16-MW-08-SA1 0.11493, Description: 16-MW-08-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801037-02 16-MW-08-SA1 0.11493	5.47e3	54.7	NO
2	2	13C5-PFHxA	1801037-02 16-MW-08-SA1 0.11493	6.53e3	46.9	YES
3	3	13C3-PFHxS	1801037-02 16-MW-08-SA1 0.11493	2.91e3	101.0	NO
4	4	13C8-PFOA	1801037-02 16-MW-08-SA1 0.11493	9.09e3	64.8	NO
5	5	13C9-PFNA	1801037-02 16-MW-08-SA1 0.11493	1.11e4	65.7	NO
6	6	13C4-PFOS	1801037-02 16-MW-08-SA1 0.11493	2.80e3	96.8	NO
7	7	13C6-PFDA	1801037-02 16-MW-08-SA1 0.11493	9.64e3	45.0	YES
8	8	13C7-PFUdA	1801037-02 16-MW-08-SA1 0.11493	1.73e4	70.8	NO

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Name: 180605M2_63, Date: 06-Jun-2018, Time: 03:16:38, ID: 1801037-03 A1-MW-19-SA1 0.11827, Description: A1-MW-19-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801037-03 A1-MW-19-SA1 0.11827	4.90e3	49.0	YES
2	2	13C5-PFHxA	1801037-03 A1-MW-19-SA1 0.11827	6.32e3	45.4	YES
3	3	13C3-PFHxS	1801037-03 A1-MW-19-SA1 0.11827	2.76e3	95.5	NO
4	4	13C8-PFOA	1801037-03 A1-MW-19-SA1 0.11827	6.90e3	49.2	YES
5	5	13C9-PFNA	1801037-03 A1-MW-19-SA1 0.11827	7.39e3	43.8	YES
6	6	13C4-PFOS	1801037-03 A1-MW-19-SA1 0.11827	2.83e3	97.9	NO
7	7	13C6-PFDA	1801037-03 A1-MW-19-SA1 0.11827	1.01e4	47.3	YES
8	8	13C7-PFUdA	1801037-03 A1-MW-19-SA1 0.11827	1.31e4	53.5	NO

Name: 180605M2_64, Date: 06-Jun-2018, Time: 03:27:09, ID: 1801037-04 A1-MW-37-SA1 0.11915, Description: A1-MW-37-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801037-04 A1-MW-37-SA1 0.11915	3.78e3	37.8	YES
2	2	13C5-PFHxA	1801037-04 A1-MW-37-SA1 0.11915	4.69e3	33.7	YES
3	3	13C3-PFHxS	1801037-04 A1-MW-37-SA1 0.11915	2.31e3	80.2	NO
4	4	13C8-PFOA	1801037-04 A1-MW-37-SA1 0.11915	5.85e3	41.7	YES
5	5	13C9-PFNA	1801037-04 A1-MW-37-SA1 0.11915	5.45e3	32.3	YES
6	6	13C4-PFOS	1801037-04 A1-MW-37-SA1 0.11915	2.20e3	76.1	NO
7	7	13C6-PFDA	1801037-04 A1-MW-37-SA1 0.11915	6.33e3	29.6	YES
8	8	13C7-PFUdA	1801037-04 A1-MW-37-SA1 0.11915	1.01e4	41.3	YES

Name: 180605M2_65, Date: 06-Jun-2018, Time: 03:37:33, ID: 1801037-05 A1-MW-37-SA1D 0.11595, Description: A1-MW-37-SA1D

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801037-05 A1-MW-37-SA1D 0.11595	6.65e3	66.5	NO
2	2	13C5-PFHxA	1801037-05 A1-MW-37-SA1D 0.11595	8.48e3	60.9	NO
3	3	13C3-PFHxS	1801037-05 A1-MW-37-SA1D 0.11595	2.97e3	102.9	NO
4	4	13C8-PFOA	1801037-05 A1-MW-37-SA1D 0.11595	9.70e3	69.1	NO
5	5	13C9-PFNA	1801037-05 A1-MW-37-SA1D 0.11595	1.21e4	71.7	NO
6	6	13C4-PFOS	1801037-05 A1-MW-37-SA1D 0.11595	3.03e3	104.8	NO
7	7	13C6-PFDA	1801037-05 A1-MW-37-SA1D 0.11595	1.38e4	64.4	NO
8	8	13C7-PFUdA	1801037-05 A1-MW-37-SA1D 0.11595	1.67e4	68.3	NO

Name: 180605M2_66, Date: 06-Jun-2018, Time: 03:48:03, ID: 1801037-06 16-H5-03-SA1 0.12456, Description: 16-H5-03-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801037-06 16-H5-03-SA1 0.12456	6.80e3	68.0	NO
2	2	13C5-PFHxA	1801037-06 16-H5-03-SA1 0.12456	7.66e3	55.0	NO
3	3	13C3-PFHxS	1801037-06 16-H5-03-SA1 0.12456	2.52e3	87.2	NO
4	4	13C8-PFOA	1801037-06 16-H5-03-SA1 0.12456	1.05e4	75.1	NO
5	5	13C9-PFNA	1801037-06 16-H5-03-SA1 0.12456	1.05e4	62.2	NO
6	6	13C4-PFOS	1801037-06 16-H5-03-SA1 0.12456	2.64e3	91.2	NO
7	7	13C6-PFDA	1801037-06 16-H5-03-SA1 0.12456	1.39e4	64.9	NO
8	8	13C7-PFUdA	1801037-06 16-H5-03-SA1 0.12456	1.60e4	65.4	NO

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Name: 180605M2_67, Date: 06-Jun-2018, Time: 03:58:29, ID: IPA, Description: IPA

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IPA			NO
2	2	13C5-PFHxA	IPA	8.53e0	0.1	YES
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: 180605M2_68, Date: 06-Jun-2018, Time: 04:08:59, ID: ST180605M2-12 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST180605M2-12 PFC CS3 18E2907	1.03e4	103.1	NO
2	2	13C5-PFHxA	ST180605M2-12 PFC CS3 18E2907	1.62e4	116.3	NO
3	3	13C3-PFHxS	ST180605M2-12 PFC CS3 18E2907	3.57e3	123.7	NO
4	4	13C8-PFOA	ST180605M2-12 PFC CS3 18E2907	1.93e4	137.3	NO
5	5	13C9-PFNA	ST180605M2-12 PFC CS3 18E2907	2.00e4	118.2	NO
6	6	13C4-PFOS	ST180605M2-12 PFC CS3 18E2907	3.42e3	118.4	NO
7	7	13C6-PFDA	ST180605M2-12 PFC CS3 18E2907	2.26e4	105.8	NO
8	8	13C7-PFUdA	ST180605M2-12 PFC CS3 18E2907	2.80e4	114.6	NO

Name: 180605M2_69, Date: 06-Jun-2018, Time: 04:19:24, ID: ST180605M2-13 PFC CS0 18E2904, Description: PFC CS0 18E2904

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST180605M2-13 PFC CS0 18E2904	1.07e4	106.9	NO
2	2	13C5-PFHxA	ST180605M2-13 PFC CS0 18E2904	1.61e4	115.8	NO
3	3	13C3-PFHxS	ST180605M2-13 PFC CS0 18E2904	3.53e3	122.4	NO
4	4	13C8-PFOA	ST180605M2-13 PFC CS0 18E2904	1.66e4	118.6	NO
5	5	13C9-PFNA	ST180605M2-13 PFC CS0 18E2904	1.84e4	109.2	NO
6	6	13C4-PFOS	ST180605M2-13 PFC CS0 18E2904	3.35e3	115.9	NO
7	7	13C6-PFDA	ST180605M2-13 PFC CS0 18E2904	2.05e4	96.0	NO
8	8	13C7-PFUdA	ST180605M2-13 PFC CS0 18E2904	2.73e4	111.6	NO

Name: 180605M2_70, Date: 06-Jun-2018, Time: 04:29:54, 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

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Name: 180605M2_71, Date: 06-Jun-2018, Time: 04:40:20, ID: 1801037-07 16-MW-09-SA1 0.1148, Description: 16-MW-09-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801037-07 16-MW-09-SA1 0.1148	6.32e3	63.2	NO
2	2	13C5-PFHxA	1801037-07 16-MW-09-SA1 0.1148	8.30e3	59.6	NO
3	3	13C3-PFHxS	1801037-07 16-MW-09-SA1 0.1148	2.94e3	101.9	NO
4	4	13C8-PFOA	1801037-07 16-MW-09-SA1 0.1148	9.38e3	66.9	NO
5	5	13C9-PFNA	1801037-07 16-MW-09-SA1 0.1148	9.68e3	57.4	NO
6	6	13C4-PFOS	1801037-07 16-MW-09-SA1 0.1148	2.96e3	102.5	NO
7	7	13C6-PFDA	1801037-07 16-MW-09-SA1 0.1148	1.07e4	50.0	NO
8	8	13C7-PFUdA	1801037-07 16-MW-09-SA1 0.1148	1.48e4	60.8	NO

Name: 180605M2_72, Date: 06-Jun-2018, Time: 04:50:50, ID: 1801037-08 16-MW-06-5A1 0.11143, Description: 16-MW-06-5A1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801037-08 16-MW-06-5A1 0.11143	4.79e3	47.9	YES
2	2	13C5-PFHxA	1801037-08 16-MW-06-5A1 0.11143	6.03e3	43.3	YES
3	3	13C3-PFHxS	1801037-08 16-MW-06-5A1 0.11143	2.79e3	96.8	NO
4	4	13C8-PFOA	1801037-08 16-MW-06-5A1 0.11143	7.54e3	53.7	NO
5	5	13C9-PFNA	1801037-08 16-MW-06-5A1 0.11143	9.19e3	54.5	NO
6	6	13C4-PFOS	1801037-08 16-MW-06-5A1 0.11143	3.01e3	104.2	NO
7	7	13C6-PFDA	1801037-08 16-MW-06-5A1 0.11143	1.02e4	47.5	YES
8	8	13C7-PFUdA	1801037-08 16-MW-06-5A1 0.11143	1.31e4	53.5	NO

Name: 180605M2_73, Date: 06-Jun-2018, Time: 05:01:15, ID: 1801037-09 FRB-20180523 0.11719, Description: FRB-20180523

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801037-09 FRB-20180523 0.11719	6.15e3	61.5	NO
2	2	13C5-PFHxA	1801037-09 FRB-20180523 0.11719	8.66e3	62.2	NO
3	3	13C3-PFHxS	1801037-09 FRB-20180523 0.11719	2.72e3	94.1	NO
4	4	13C8-PFOA	1801037-09 FRB-20180523 0.11719	1.01e4	71.9	NO
5	5	13C9-PFNA	1801037-09 FRB-20180523 0.11719	1.22e4	72.1	NO
6	6	13C4-PFOS	1801037-09 FRB-20180523 0.11719	2.63e3	91.0	NO
7	7	13C6-PFDA	1801037-09 FRB-20180523 0.11719	1.44e4	67.2	NO
8	8	13C7-PFUdA	1801037-09 FRB-20180523 0.11719	1.94e4	79.5	NO

Name: 180605M2_74, Date: 06-Jun-2018, Time: 05:11:45, ID: 1801054-01 A1-MW-42-SA1 0.11279, Description: A1-MW-42-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801054-01 A1-MW-42-SA1 0.11279	3.39e3	33.9	YES
2	2	13C5-PFHxA	1801054-01 A1-MW-42-SA1 0.11279	4.45e3	32.0	YES
3	3	13C3-PFHxS	1801054-01 A1-MW-42-SA1 0.11279	2.73e3	94.6	NO
4	4	13C8-PFOA	1801054-01 A1-MW-42-SA1 0.11279	4.52e3	32.2	YES
5	5	13C9-PFNA	1801054-01 A1-MW-42-SA1 0.11279	5.18e3	30.7	YES
6	6	13C4-PFOS	1801054-01 A1-MW-42-SA1 0.11279	2.69e3	93.1	NO
7	7	13C6-PFDA	1801054-01 A1-MW-42-SA1 0.11279	6.69e3	31.2	YES
8	8	13C7-PFUdA	1801054-01 A1-MW-42-SA1 0.11279	9.43e3	38.6	YES

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Name: 180605M2_75, Date: 06-Jun-2018, Time: 05:22:09, ID: 1801054-02 A1-MW-54-SA1 0.11211, Description: A1-MW-54-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801054-02 A1-MW-54-SA1 0.11211	5.50e3	55.0	NO
2	2	13C5-PFHxA	1801054-02 A1-MW-54-SA1 0.11211	6.77e3	48.6	YES
3	3	13C3-PFHxS	1801054-02 A1-MW-54-SA1 0.11211	2.58e3	89.3	NO
4	4	13C8-PFOA	1801054-02 A1-MW-54-SA1 0.11211	8.47e3	60.4	NO
5	5	13C9-PFNA	1801054-02 A1-MW-54-SA1 0.11211	9.09e3	53.9	NO
6	6	13C4-PFOS	1801054-02 A1-MW-54-SA1 0.11211	2.75e3	95.1	NO
7	7	13C6-PFDA	1801054-02 A1-MW-54-SA1 0.11211	1.18e4	55.3	NO
8	8	13C7-PFUdA	1801054-02 A1-MW-54-SA1 0.11211	1.46e4	59.8	NO

Name: 180605M2_76, Date: 06-Jun-2018, Time: 05:32:40, ID: 1801054-03 A1-MW-53-SA1 0.1139, Description: A1-MW-53-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801054-03 A1-MW-53-SA1 0.1139	7.14e3	71.4	NO
2	2	13C5-PFHxA	1801054-03 A1-MW-53-SA1 0.1139	8.98e3	64.5	NO
3	3	13C3-PFHxS	1801054-03 A1-MW-53-SA1 0.1139	3.01e3	104.4	NO
4	4	13C8-PFOA	1801054-03 A1-MW-53-SA1 0.1139	1.13e4	80.8	NO
5	5	13C9-PFNA	1801054-03 A1-MW-53-SA1 0.1139	1.32e4	78.4	NO
6	6	13C4-PFOS	1801054-03 A1-MW-53-SA1 0.1139	3.10e3	107.2	NO
7	7	13C6-PFDA	1801054-03 A1-MW-53-SA1 0.1139	1.63e4	76.1	NO
8	8	13C7-PFUdA	1801054-03 A1-MW-53-SA1 0.1139	1.95e4	80.0	NO

Name: 180605M2_77, Date: 06-Jun-2018, Time: 05:43:10, ID: 1801054-04 A1-P2-19-SA1 0.11736, Description: A1-P2-19-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801054-04 A1-P2-19-SA1 0.11736	5.13e3	51.2	NO
2	2	13C5-PFHxA	1801054-04 A1-P2-19-SA1 0.11736	6.56e3	47.1	YES
3	3	13C3-PFHxS	1801054-04 A1-P2-19-SA1 0.11736	2.76e3	95.6	NO
4	4	13C8-PFOA	1801054-04 A1-P2-19-SA1 0.11736	7.25e3	51.7	NO
5	5	13C9-PFNA	1801054-04 A1-P2-19-SA1 0.11736	8.07e3	47.8	YES
6	6	13C4-PFOS	1801054-04 A1-P2-19-SA1 0.11736	2.75e3	95.1	NO
7	7	13C6-PFDA	1801054-04 A1-P2-19-SA1 0.11736	1.06e4	49.7	YES
8	8	13C7-PFUdA	1801054-04 A1-P2-19-SA1 0.11736	1.23e4	50.3	NO

Name: 180605M2_78, Date: 06-Jun-2018, Time: 05:53:35, ID: 1801054-05 A1-MW-52-SA1 0.11509, Description: A1-MW-52-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801054-05 A1-MW-52-SA1 0.11509	4.90e3	49.0	YES
2	2	13C5-PFHxA	1801054-05 A1-MW-52-SA1 0.11509	6.43e3	46.2	YES
3	3	13C3-PFHxS	1801054-05 A1-MW-52-SA1 0.11509	2.76e3	95.6	NO
4	4	13C8-PFOA	1801054-05 A1-MW-52-SA1 0.11509	7.41e3	52.9	NO
5	5	13C9-PFNA	1801054-05 A1-MW-52-SA1 0.11509	9.14e3	54.2	NO
6	6	13C4-PFOS	1801054-05 A1-MW-52-SA1 0.11509	2.68e3	92.9	NO
7	7	13C6-PFDA	1801054-05 A1-MW-52-SA1 0.11509	8.09e3	37.8	YES
8	8	13C7-PFUdA	1801054-05 A1-MW-52-SA1 0.11509	1.37e4	56.3	NO

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Name: 180605M2_79, Date: 06-Jun-2018, Time: 06:04:05, ID: 1801054-06 A1-MW-01-SA1 0.1102, Description: A1-MW-01-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801054-06 A1-MW-01-SA1 0.1102	5.07e3	50.7	NO
2	2	13C5-PFHxA	1801054-06 A1-MW-01-SA1 0.1102	6.24e3	44.8	YES
3	3	13C3-PFHxS	1801054-06 A1-MW-01-SA1 0.1102	2.64e3	91.6	NO
4	4	13C8-PFOA	1801054-06 A1-MW-01-SA1 0.1102	7.74e3	55.1	NO
5	5	13C9-PFNA	1801054-06 A1-MW-01-SA1 0.1102	8.57e3	50.8	NO
6	6	13C4-PFOS	1801054-06 A1-MW-01-SA1 0.1102	2.52e3	87.2	NO
7	7	13C6-PFDA	1801054-06 A1-MW-01-SA1 0.1102	1.05e4	49.2	YES
8	8	13C7-PFUdA	1801054-06 A1-MW-01-SA1 0.1102	1.26e4	51.5	NO

Name: 180605M2_80, Date: 06-Jun-2018, Time: 06:14:31, ID: 1801054-07 A1-MW-01-SA1D 0.11715, Description: A1-MW-01-SA1D

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801054-07 A1-MW-01-SA1D 0.11715	4.94e3	49.4	YES
2	2	13C5-PFHxA	1801054-07 A1-MW-01-SA1D 0.11715	6.15e3	44.2	YES
3	3	13C3-PFHxS	1801054-07 A1-MW-01-SA1D 0.11715	2.90e3	100.6	NO
4	4	13C8-PFOA	1801054-07 A1-MW-01-SA1D 0.11715	7.76e3	55.3	NO
5	5	13C9-PFNA	1801054-07 A1-MW-01-SA1D 0.11715	9.09e3	53.8	NO
6	6	13C4-PFOS	1801054-07 A1-MW-01-SA1D 0.11715	3.00e3	103.9	NO
7	7	13C6-PFDA	1801054-07 A1-MW-01-SA1D 0.11715	9.57e3	44.7	YES
8	8	13C7-PFUdA	1801054-07 A1-MW-01-SA1D 0.11715	1.32e4	54.1	NO

Name: 180605M2_81, Date: 06-Jun-2018, Time: 06:25:01, 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: 180605M2_82, Date: 06-Jun-2018, Time: 06:35:26, ID: ST180605M2-14 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST180605M2-14 PFC CS3 18E2907	1.06e4	105.5	NO
2	2	13C5-PFHxA	ST180605M2-14 PFC CS3 18E2907	1.67e4	120.2	NO
3	3	13C3-PFHxS	ST180605M2-14 PFC CS3 18E2907	3.58e3	124.2	NO
4	4	13C8-PFOA	ST180605M2-14 PFC CS3 18E2907	1.77e4	125.8	NO
5	5	13C9-PFNA	ST180605M2-14 PFC CS3 18E2907	1.80e4	106.9	NO
6	6	13C4-PFOS	ST180605M2-14 PFC CS3 18E2907	3.41e3	118.1	NO
7	7	13C6-PFDA	ST180605M2-14 PFC CS3 18E2907	2.12e4	99.0	NO
8	8	13C7-PFUdA	ST180605M2-14 PFC CS3 18E2907	2.58e4	105.8	NO

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Name: 180605M2_83, Date: 06-Jun-2018, Time: 06:45:57, 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: 180605M2_84, Date: 06-Jun-2018, Time: 06:56:27, ID: 1801054-08 A1-MW-31-SA1 0.11276, Description: A1-MW-31-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801054-08 A1-MW-31-SA1 0.11276	4.33e3	43.3	YES
2	2	13C5-PFHxA	1801054-08 A1-MW-31-SA1 0.11276	5.42e3	38.9	YES
3	3	13C3-PFHxS	1801054-08 A1-MW-31-SA1 0.11276	2.97e3	103.1	NO
4	4	13C8-PFOA	1801054-08 A1-MW-31-SA1 0.11276	6.01e3	42.8	YES
5	5	13C9-PFNA	1801054-08 A1-MW-31-SA1 0.11276	8.44e3	50.0	NO
6	6	13C4-PFOS	1801054-08 A1-MW-31-SA1 0.11276	2.84e3	98.4	NO
7	7	13C6-PFDA	1801054-08 A1-MW-31-SA1 0.11276	1.06e4	49.7	YES
8	8	13C7-PFUdA	1801054-08 A1-MW-31-SA1 0.11276	1.33e4	54.6	NO

Name: 180605M2_85, Date: 06-Jun-2018, Time: 07:06:52, ID: 1801054-09 FRB-20180525 0.11663, Description: FRB-20180525

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801054-09 FRB-20180525 0.11663	6.72e3	67.2	NO
2	2	13C5-PFHxA	1801054-09 FRB-20180525 0.11663	9.55e3	68.6	NO
3	3	13C3-PFHxS	1801054-09 FRB-20180525 0.11663	2.70e3	93.5	NO
4	4	13C8-PFOA	1801054-09 FRB-20180525 0.11663	1.14e4	81.1	NO
5	5	13C9-PFNA	1801054-09 FRB-20180525 0.11663	1.37e4	81.1	NO
6	6	13C4-PFOS	1801054-09 FRB-20180525 0.11663	2.52e3	87.2	NO
7	7	13C6-PFDA	1801054-09 FRB-20180525 0.11663	1.68e4	78.3	NO
8	8	13C7-PFUdA	1801054-09 FRB-20180525 0.11663	1.98e4	81.3	NO

Name: 180605M2_86, Date: 06-Jun-2018, Time: 07:17:22, ID: B8E0161-BS1 OPR 0.25, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0161-BS1 OPR 0.25	8.78e3	87.8	NO
2	2	13C5-PFHxA	B8E0161-BS1 OPR 0.25	1.19e4	85.2	NO
3	3	13C3-PFHxS	B8E0161-BS1 OPR 0.25	2.75e3	95.2	NO
4	4	13C8-PFOA	B8E0161-BS1 OPR 0.25	1.35e4	96.5	NO
5	5	13C9-PFNA	B8E0161-BS1 OPR 0.25	1.54e4	91.1	NO
6	6	13C4-PFOS	B8E0161-BS1 OPR 0.25	2.61e3	90.4	NO
7	7	13C6-PFDA	B8E0161-BS1 OPR 0.25	1.81e4	84.5	NO
8	8	13C7-PFUdA	B8E0161-BS1 OPR 0.25	1.88e4	77.2	NO

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Name: 180605M2_87, Date: 06-Jun-2018, Time: 07:27:47, ID: B8E0161-BLK1 Method Blank 0.25, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0161-BLK1 Method Blank 0.25	8.59e3	85.9	NO
2	2	13C5-PFHxA	B8E0161-BLK1 Method Blank 0.25	1.21e4	86.6	NO
3	3	13C3-PFHxS	B8E0161-BLK1 Method Blank 0.25	2.73e3	94.5	NO
4	4	13C8-PFOA	B8E0161-BLK1 Method Blank 0.25	1.39e4	99.0	NO
5	5	13C9-PFNA	B8E0161-BLK1 Method Blank 0.25	1.47e4	87.1	NO
6	6	13C4-PFOS	B8E0161-BLK1 Method Blank 0.25	2.82e3	97.7	NO
7	7	13C6-PFDA	B8E0161-BLK1 Method Blank 0.25	1.47e4	68.8	NO
8	8	13C7-PFUdA	B8E0161-BLK1 Method Blank 0.25	2.02e4	82.7	NO

Name: 180605M2_88, Date: 06-Jun-2018, Time: 07:38:17, ID: 1800989-01 KE-RD6954-MW01 0.11761, Description: KE-RD6954-MW01

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800989-01 KE-RD6954-MW01 0.11761	7.98e3	79.7	NO
2	2	13C5-PFHxA	1800989-01 KE-RD6954-MW01 0.11761	1.03e4	74.2	NO
3	3	13C3-PFHxS	1800989-01 KE-RD6954-MW01 0.11761	2.68e3	92.9	NO
4	4	13C8-PFOA	1800989-01 KE-RD6954-MW01 0.11761	1.29e4	92.0	NO
5	5	13C9-PFNA	1800989-01 KE-RD6954-MW01 0.11761	1.33e4	79.0	NO
6	6	13C4-PFOS	1800989-01 KE-RD6954-MW01 0.11761	2.75e3	95.2	NO
7	7	13C6-PFDA	1800989-01 KE-RD6954-MW01 0.11761	1.46e4	68.2	NO
8	8	13C7-PFUdA	1800989-01 KE-RD6954-MW01 0.11761	1.59e4	65.0	NO

Name: 180605M2_89, Date: 06-Jun-2018, Time: 07:48:48, ID: 1800989-02 KE-BBW-MW01 0.11717, Description: KE-BBW-MW01

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800989-02 KE-BBW-MW01 0.11717	8.07e3	80.7	NO
2	2	13C5-PFHxA	1800989-02 KE-BBW-MW01 0.11717	1.05e4	75.6	NO
3	3	13C3-PFHxS	1800989-02 KE-BBW-MW01 0.11717	2.55e3	88.2	NO
4	4	13C8-PFOA	1800989-02 KE-BBW-MW01 0.11717	1.25e4	88.8	NO
5	5	13C9-PFNA	1800989-02 KE-BBW-MW01 0.11717	1.31e4	77.9	NO
6	6	13C4-PFOS	1800989-02 KE-BBW-MW01 0.11717	2.47e3	85.4	NO
7	7	13C6-PFDA	1800989-02 KE-BBW-MW01 0.11717	1.43e4	66.7	NO
8	8	13C7-PFUdA	1800989-02 KE-BBW-MW01 0.11717	1.87e4	76.7	NO

Name: 180605M2_90, Date: 06-Jun-2018, Time: 07:59:12, ID: 1800989-03 KE-6954-MW01 0.11556, Description: KE-6954-MW01

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800989-03 KE-6954-MW01 0.11556	7.48e3	74.8	NO
2	2	13C5-PFHxA	1800989-03 KE-6954-MW01 0.11556	1.02e4	72.9	NO
3	3	13C3-PFHxS	1800989-03 KE-6954-MW01 0.11556	2.61e3	90.5	NO
4	4	13C8-PFOA	1800989-03 KE-6954-MW01 0.11556	1.19e4	84.9	NO
5	5	13C9-PFNA	1800989-03 KE-6954-MW01 0.11556	1.33e4	79.0	NO
6	6	13C4-PFOS	1800989-03 KE-6954-MW01 0.11556	2.57e3	89.1	NO
7	7	13C6-PFDA	1800989-03 KE-6954-MW01 0.11556	1.39e4	64.7	NO
8	8	13C7-PFUdA	1800989-03 KE-6954-MW01 0.11556	1.74e4	71.5	NO

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Name: 180605M2_91, Date: 06-Jun-2018, Time: 08:09:43, ID: 1800989-04 KE-APN-MW01 0.11557, Description: KE-APN-MW01

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800989-04 KE-APN-MW01 0.11557	8.58e3	85.8	NO
2	2	13C5-PFHxA	1800989-04 KE-APN-MW01 0.11557	1.15e4	82.4	NO
3	3	13C3-PFHxS	1800989-04 KE-APN-MW01 0.11557	2.50e3	86.8	NO
4	4	13C8-PFOA	1800989-04 KE-APN-MW01 0.11557	1.36e4	96.7	NO
5	5	13C9-PFNA	1800989-04 KE-APN-MW01 0.11557	1.46e4	86.6	NO
6	6	13C4-PFOS	1800989-04 KE-APN-MW01 0.11557	2.56e3	88.7	NO
7	7	13C6-PFDA	1800989-04 KE-APN-MW01 0.11557	1.60e4	74.8	NO
8	8	13C7-PFUdA	1800989-04 KE-APN-MW01 0.11557	1.77e4	72.4	NO

Name: 180605M2_92, Date: 06-Jun-2018, Time: 08:20:06, ID: 1800989-05 KE-FBA-MW01 0.11631, Description: KE-FBA-MW01

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800989-05 KE-FBA-MW01 0.11631	8.23e3	82.3	NO
2	2	13C5-PFHxA	1800989-05 KE-FBA-MW01 0.11631	1.04e4	74.4	NO
3	3	13C3-PFHxS	1800989-05 KE-FBA-MW01 0.11631	2.35e3	81.5	NO
4	4	13C8-PFOA	1800989-05 KE-FBA-MW01 0.11631	1.18e4	84.2	NO
5	5	13C9-PFNA	1800989-05 KE-FBA-MW01 0.11631	1.43e4	84.6	NO
6	6	13C4-PFOS	1800989-05 KE-FBA-MW01 0.11631	2.49e3	86.3	NO
7	7	13C6-PFDA	1800989-05 KE-FBA-MW01 0.11631	1.54e4	71.9	NO
8	8	13C7-PFUdA	1800989-05 KE-FBA-MW01 0.11631	1.68e4	68.8	NO

Name: 180605M2_93, Date: 06-Jun-2018, Time: 08:30:37, ID: 1800989-06 KE-FBA-MW01D 0.11705, Description: KE-FBA-MW01D

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800989-06 KE-FBA-MW01D 0.11705	8.37e3	83.7	NO
2	2	13C5-PFHxA	1800989-06 KE-FBA-MW01D 0.11705	1.13e4	81.2	NO
3	3	13C3-PFHxS	1800989-06 KE-FBA-MW01D 0.11705	2.39e3	82.7	NO
4	4	13C8-PFOA	1800989-06 KE-FBA-MW01D 0.11705	1.26e4	89.8	NO
5	5	13C9-PFNA	1800989-06 KE-FBA-MW01D 0.11705	1.31e4	77.5	NO
6	6	13C4-PFOS	1800989-06 KE-FBA-MW01D 0.11705	2.57e3	89.0	NO
7	7	13C6-PFDA	1800989-06 KE-FBA-MW01D 0.11705	1.58e4	73.8	NO
8	8	13C7-PFUdA	1800989-06 KE-FBA-MW01D 0.11705	1.74e4	71.3	NO

Name: 180605M2_94, Date: 06-Jun-2018, Time: 08:41:02, ID: 1800989-07 KE-NNTA-MW01 0.11356, Description: KE-NNTA-MW01

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800989-07 KE-NNTA-MW01 0.11356	8.56e3	85.5	NO
2	2	13C5-PFHxA	1800989-07 KE-NNTA-MW01 0.11356	1.15e4	82.8	NO
3	3	13C3-PFHxS	1800989-07 KE-NNTA-MW01 0.11356	2.19e3	76.1	NO
4	4	13C8-PFOA	1800989-07 KE-NNTA-MW01 0.11356	1.25e4	89.4	NO
5	5	13C9-PFNA	1800989-07 KE-NNTA-MW01 0.11356	1.43e4	84.6	NO
6	6	13C4-PFOS	1800989-07 KE-NNTA-MW01 0.11356	2.41e3	83.5	NO
7	7	13C6-PFDA	1800989-07 KE-NNTA-MW01 0.11356	1.53e4	71.4	NO
8	8	13C7-PFUdA	1800989-07 KE-NNTA-MW01 0.11356	2.04e4	83.6	NO

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Name: 180605M2_95, Date: 06-Jun-2018, Time: 08:51:32, ID: 1800989-08 KE-6918-MW01 0.11438, Description: KE-6918-MW01

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800989-08 KE-6918-MW01 0.11438	9.09e3	90.9	NO
2	2	13C5-PFHxA	1800989-08 KE-6918-MW01 0.11438	1.22e4	87.5	NO
3	3	13C3-PFHxS	1800989-08 KE-6918-MW01 0.11438	2.59e3	89.8	NO
4	4	13C8-PFOA	1800989-08 KE-6918-MW01 0.11438	1.41e4	100.4	NO
5	5	13C9-PFNA	1800989-08 KE-6918-MW01 0.11438	1.58e4	93.3	NO
6	6	13C4-PFOS	1800989-08 KE-6918-MW01 0.11438	1.44e3	49.8	YES
7	7	13C6-PFDA	1800989-08 KE-6918-MW01 0.11438	1.64e4	76.8	NO
8	8	13C7-PFUdA	1800989-08 KE-6918-MW01 0.11438	2.23e4	91.4	NO

Name: 180605M2_96, Date: 06-Jun-2018, Time: 09:01:58, ID: 1800989-09 KE-6917-MW01 0.11542, Description: KE-6917-MW01

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800989-09 KE-6917-MW01 0.11542	8.13e3	81.3	NO
2	2	13C5-PFHxA	1800989-09 KE-6917-MW01 0.11542	1.09e4	78.5	NO
3	3	13C3-PFHxS	1800989-09 KE-6917-MW01 0.11542	2.69e3	93.1	NO
4	4	13C8-PFOA	1800989-09 KE-6917-MW01 0.11542	1.33e4	94.7	NO
5	5	13C9-PFNA	1800989-09 KE-6917-MW01 0.11542	1.35e4	79.8	NO
6	6	13C4-PFOS	1800989-09 KE-6917-MW01 0.11542	2.48e3	85.9	NO
7	7	13C6-PFDA	1800989-09 KE-6917-MW01 0.11542	1.52e4	71.0	NO
8	8	13C7-PFUdA	1800989-09 KE-6917-MW01 0.11542	1.81e4	73.9	NO

Name: 180605M2_97, Date: 06-Jun-2018, Time: 09:12:28, 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: 180605M2_98, Date: 06-Jun-2018, Time: 09:22:52, ID: ST180605M2-15 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST180605M2-15 PFC CS3 18E2907	1.07e4	107.4	NO
2	2	13C5-PFHxA	ST180605M2-15 PFC CS3 18E2907	1.65e4	118.7	NO
3	3	13C3-PFHxS	ST180605M2-15 PFC CS3 18E2907	3.39e3	117.6	NO
4	4	13C8-PFOA	ST180605M2-15 PFC CS3 18E2907	1.88e4	133.7	NO
5	5	13C9-PFNA	ST180605M2-15 PFC CS3 18E2907	2.22e4	131.8	NO
6	6	13C4-PFOS	ST180605M2-15 PFC CS3 18E2907	3.68e3	127.3	NO
7	7	13C6-PFDA	ST180605M2-15 PFC CS3 18E2907	2.15e4	100.2	NO
8	8	13C7-PFUdA	ST180605M2-15 PFC CS3 18E2907	2.87e4	117.5	NO

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Name: 180605M2_99, Date: 06-Jun-2018, Time: 09:33:23, 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: 180605M2_100, Date: 06-Jun-2018, Time: 09:43:53, ID: 1800989-10 KE-EB-5-11-18 0.26165, Description: KE-EB-5-11-18

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800989-10 KE-EB-5-11-18 0.26165	8.22e3	82.2	NO
2	2	13C5-PFHxA	1800989-10 KE-EB-5-11-18 0.26165	1.04e4	74.5	NO
3	3	13C3-PFHxS	1800989-10 KE-EB-5-11-18 0.26165	2.58e3	89.6	NO
4	4	13C8-PFOA	1800989-10 KE-EB-5-11-18 0.26165	1.34e4	95.3	NO
5	5	13C9-PFNA	1800989-10 KE-EB-5-11-18 0.26165	1.42e4	84.4	NO
6	6	13C4-PFOS	1800989-10 KE-EB-5-11-18 0.26165	2.37e3	82.0	NO
7	7	13C6-PFDA	1800989-10 KE-EB-5-11-18 0.26165	1.62e4	75.6	NO
8	8	13C7-PFUdA	1800989-10 KE-EB-5-11-18 0.26165	1.72e4	70.3	NO

Name: 180605M2_101, Date: 06-Jun-2018, Time: 09:54:18, ID: 1800989-11 KE-FTA-MW01 0.1098, Description: KE-FTA-MW01

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800989-11 KE-FTA-MW01 0.1098	7.88e3	78.8	NO
2	2	13C5-PFHxA	1800989-11 KE-FTA-MW01 0.1098	6.70e3	48.1	YES
3	3	13C3-PFHxS	1800989-11 KE-FTA-MW01 0.1098	1.00e3	34.8	YES
4	4	13C8-PFOA	1800989-11 KE-FTA-MW01 0.1098	7.31e3	52.1	NO
5	5	13C9-PFNA	1800989-11 KE-FTA-MW01 0.1098	1.13e4	67.1	NO
6	6	13C4-PFOS	1800989-11 KE-FTA-MW01 0.1098	1.21e3	42.0	YES
7	7	13C6-PFDA	1800989-11 KE-FTA-MW01 0.1098	1.62e4	75.7	NO
8	8	13C7-PFUdA	1800989-11 KE-FTA-MW01 0.1098	1.74e4	71.1	NO

Name: 180605M2_102, Date: 06-Jun-2018, Time: 10:04:48, ID: 1800986-01 FR Fld Blk 0.25955, Description: FR Fld Blk

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800986-01 FR Fld Blk 0.25955	9.45e3	94.5	NO
2	2	13C5-PFHxA	1800986-01 FR Fld Blk 0.25955	1.23e4	88.0	NO
3	3	13C3-PFHxS	1800986-01 FR Fld Blk 0.25955	2.80e3	97.2	NO
4	4	13C8-PFOA	1800986-01 FR Fld Blk 0.25955	1.38e4	98.1	NO
5	5	13C9-PFNA	1800986-01 FR Fld Blk 0.25955	1.58e4	93.9	NO
6	6	13C4-PFOS	1800986-01 FR Fld Blk 0.25955	2.84e3	98.3	NO
7	7	13C6-PFDA	1800986-01 FR Fld Blk 0.25955	1.74e4	81.5	NO
8	8	13C7-PFUdA	1800986-01 FR Fld Blk 0.25955	2.19e4	89.6	NO

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Name: 180605M2_103, Date: 06-Jun-2018, Time: 10:27:41, ID: IS SUP TESTER, Description: IS SUP TESTER

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	IS SUP TESTER	7.67e3	76.7	NO
2	2	13C5-PFHxA	IS SUP TESTER	1.27e4	91.2	NO
3	3	13C3-PFHxS	IS SUP TESTER	2.89e3	100.3	NO
4	4	13C8-PFOA	IS SUP TESTER	1.45e4	103.2	NO
5	5	13C9-PFNA	IS SUP TESTER	1.66e4	98.6	NO
6	6	13C4-PFOS	IS SUP TESTER	2.79e3	96.4	NO
7	7	13C6-PFDA	IS SUP TESTER	1.86e4	87.1	NO
8	8	13C7-PFUdA	IS SUP TESTER	2.64e4	108.3	NO

Name: 180605M2_104, Date: 06-Jun-2018, Time: 10:38:06, ID: 1800986-02 Forest Ridge 0.27675, Description: Forest Ridge

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800986-02 Forest Ridge 0.27675	7.92e3	79.1	NO
2	2	13C5-PFHxA	1800986-02 Forest Ridge 0.27675	1.02e4	73.4	NO
3	3	13C3-PFHxS	1800986-02 Forest Ridge 0.27675	2.47e3	85.8	NO
4	4	13C8-PFOA	1800986-02 Forest Ridge 0.27675	1.18e4	84.2	NO
5	5	13C9-PFNA	1800986-02 Forest Ridge 0.27675	1.55e4	92.0	NO
6	6	13C4-PFOS	1800986-02 Forest Ridge 0.27675	2.48e3	85.8	NO
7	7	13C6-PFDA	1800986-02 Forest Ridge 0.27675	1.53e4	71.6	NO
8	8	13C7-PFUdA	1800986-02 Forest Ridge 0.27675	2.03e4	83.3	NO

Name: 180605M2_105, Date: 06-Jun-2018, Time: 10:48:37, ID: 1800986-03 K & V Fld Blk 0.25454, Description: K & V Fld Blk

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800986-03 K_V Fld Blk 0.25454	8.95e3	89.5	NO
2	2	13C5-PFHxA	1800986-03 K_V Fld Blk 0.25454	1.25e4	89.7	NO
3	3	13C3-PFHxS	1800986-03 K_V Fld Blk 0.25454	2.72e3	94.2	NO
4	4	13C8-PFOA	1800986-03 K_V Fld Blk 0.25454	1.43e4	101.8	NO
5	5	13C9-PFNA	1800986-03 K_V Fld Blk 0.25454	1.47e4	87.3	NO
6	6	13C4-PFOS	1800986-03 K_V Fld Blk 0.25454	2.74e3	94.8	NO
7	7	13C6-PFDA	1800986-03 K_V Fld Blk 0.25454	1.80e4	83.9	NO
8	8	13C7-PFUdA	1800986-03 K_V Fld Blk 0.25454	2.09e4	85.5	NO

Name: 180605M2_106, Date: 06-Jun-2018, Time: 10:59:02, ID: 1800986-04 K & V 0.27397, Description: K & V

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800986-04 K_V 0.27397	9.86e3	98.6	NO
2	2	13C5-PFHxA	1800986-04 K_V 0.27397	1.06e4	75.9	NO
3	3	13C3-PFHxS	1800986-04 K_V 0.27397	2.97e3	103.1	NO
4	4	13C8-PFOA	1800986-04 K_V 0.27397	1.59e4	113.6	NO
5	5	13C9-PFNA	1800986-04 K_V 0.27397	1.59e4	94.0	NO
6	6	13C4-PFOS	1800986-04 K_V 0.27397	2.91e3	100.8	NO
7	7	13C6-PFDA	1800986-04 K_V 0.27397	1.91e4	89.1	NO
8	8	13C7-PFUdA	1800986-04 K_V 0.27397	2.19e4	89.6	NO

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Name: 180605M2_107, Date: 06-Jun-2018, Time: 11:09:32, ID: 1800990-01 WIRR1805171315JLB 0.24616, Description: WIRR1805171315JLB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800990-01 WIRR1805171315JLB 0.2...	8.35e3	83.5	NO
2	2	13C5-PFHxA	1800990-01 WIRR1805171315JLB 0.2...	1.20e4	86.5	NO
3	3	13C3-PFHxS	1800990-01 WIRR1805171315JLB 0.2...	2.96e3	102.4	NO
4	4	13C8-PFOA	1800990-01 WIRR1805171315JLB 0.2...	1.34e4	95.6	NO
5	5	13C9-PFNA	1800990-01 WIRR1805171315JLB 0.2...	1.55e4	91.8	NO
6	6	13C4-PFOS	1800990-01 WIRR1805171315JLB 0.2...	2.89e3	100.1	NO
7	7	13C6-PFDA	1800990-01 WIRR1805171315JLB 0.2...	1.76e4	82.1	NO
8	8	13C7-PFUdA	1800990-01 WIRR1805171315JLB 0.2...	2.00e4	82.0	NO

Name: 180605M2_108, Date: 06-Jun-2018, Time: 11:19:56, ID: 1800990-02 FB1805171320JLB 0.25861, Description: FB1805171320JLB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800990-02 FB1805171320JLB 0.25861	8.59e3	85.9	NO
2	2	13C5-PFHxA	1800990-02 FB1805171320JLB 0.25861	1.25e4	89.6	NO
3	3	13C3-PFHxS	1800990-02 FB1805171320JLB 0.25861	2.81e3	97.3	NO
4	4	13C8-PFOA	1800990-02 FB1805171320JLB 0.25861	1.49e4	106.4	NO
5	5	13C9-PFNA	1800990-02 FB1805171320JLB 0.25861	1.41e4	83.7	NO
6	6	13C4-PFOS	1800990-02 FB1805171320JLB 0.25861	2.93e3	101.4	NO
7	7	13C6-PFDA	1800990-02 FB1805171320JLB 0.25861	1.90e4	88.8	NO
8	8	13C7-PFUdA	1800990-02 FB1805171320JLB 0.25861	2.24e4	91.8	NO

Name: 180605M2_109, Date: 06-Jun-2018, Time: 11:30:26, 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			NO
6	6	13C4-PFOS	IPA			NO
7	7	13C6-PFDA	IPA			NO
8	8	13C7-PFUdA	IPA			NO

Name: 180605M2_110, Date: 06-Jun-2018, Time: 11:40:57, ID: ST180605M2-16 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST180605M2-16 PFC CS3 18E2907	1.09e4	108.5	NO
2	2	13C5-PFHxA	ST180605M2-16 PFC CS3 18E2907	1.67e4	119.8	NO
3	3	13C3-PFHxS	ST180605M2-16 PFC CS3 18E2907	3.57e3	123.7	NO
4	4	13C8-PFOA	ST180605M2-16 PFC CS3 18E2907	1.83e4	130.7	NO
5	5	13C9-PFNA	ST180605M2-16 PFC CS3 18E2907	2.22e4	131.3	NO
6	6	13C4-PFOS	ST180605M2-16 PFC CS3 18E2907	3.72e3	128.9	NO
7	7	13C6-PFDA	ST180605M2-16 PFC CS3 18E2907	2.45e4	114.6	NO
8	8	13C7-PFUdA	ST180605M2-16 PFC CS3 18E2907	2.87e4	117.6	NO

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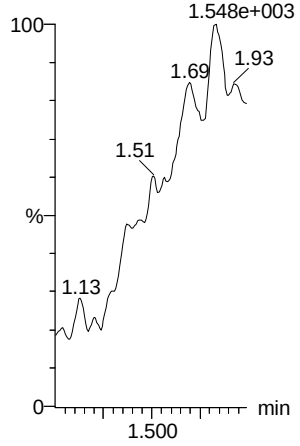
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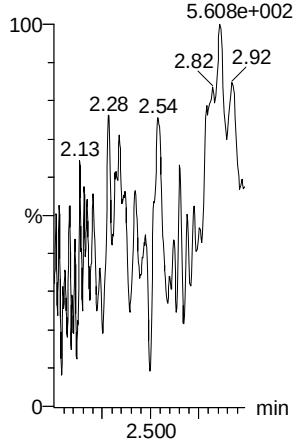
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Name: 180605M2_12, Date: 05-Jun-2018, Time: 18:23:17, ID: IPA, Description: IPA

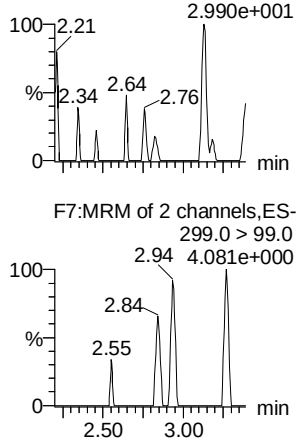
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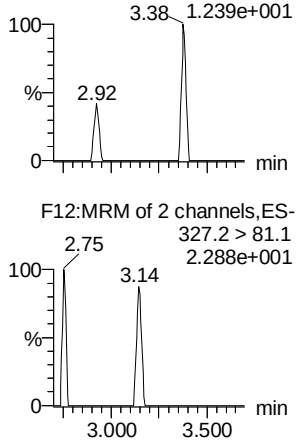
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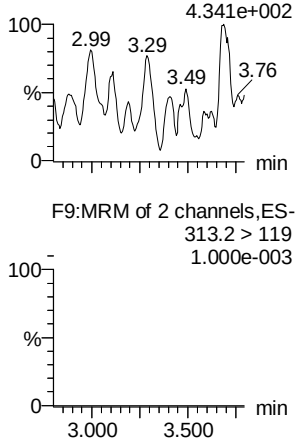
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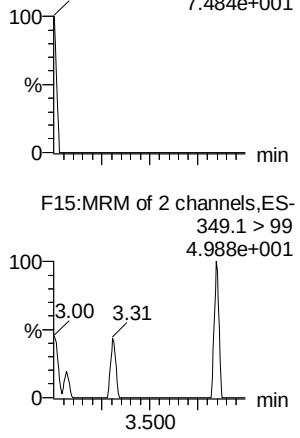
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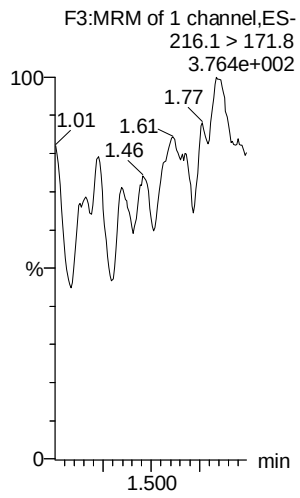
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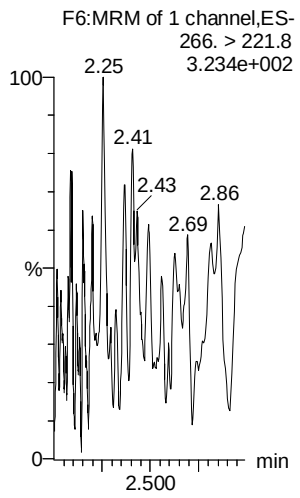
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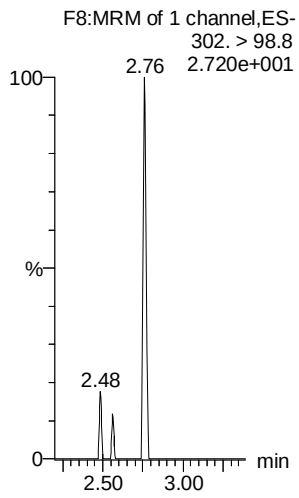
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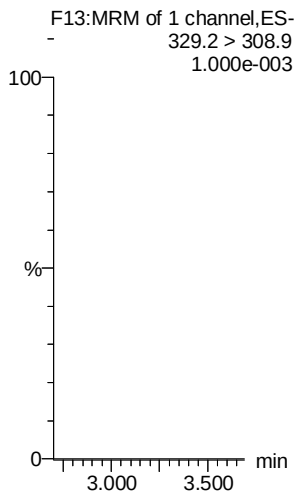
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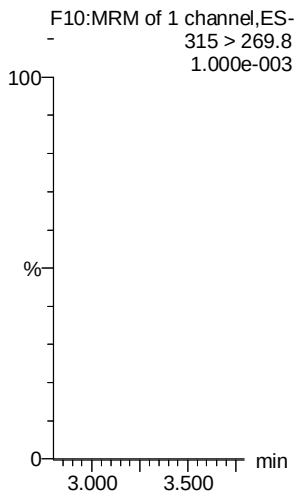
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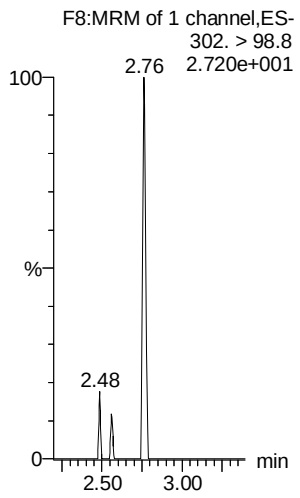
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13C3-PFBS



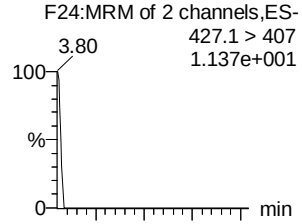
Vista Analytical Laboratory

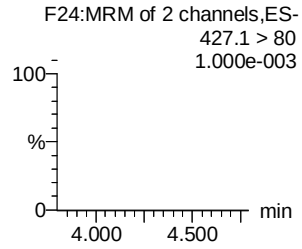
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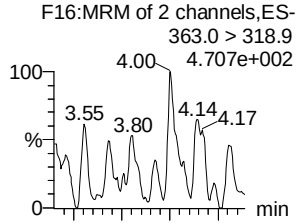
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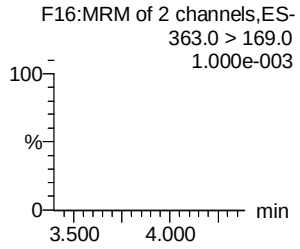
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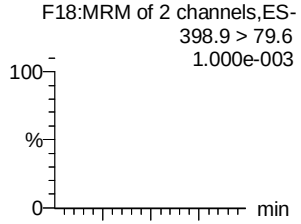


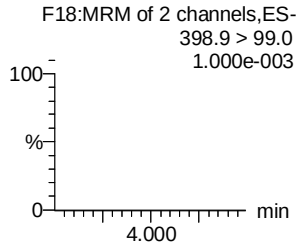
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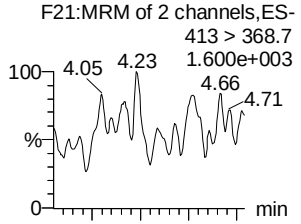


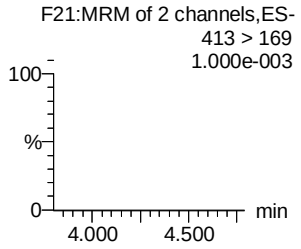
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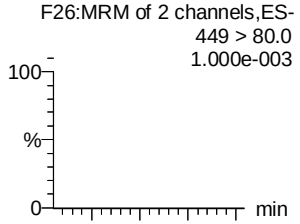


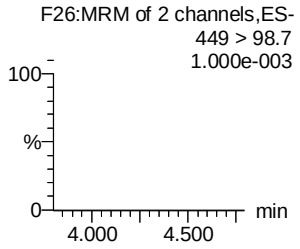
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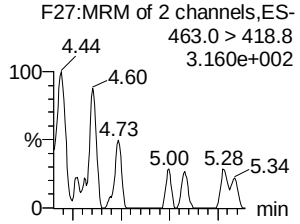


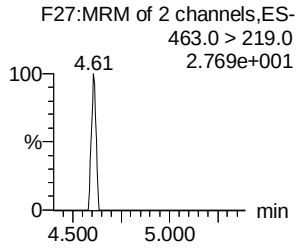
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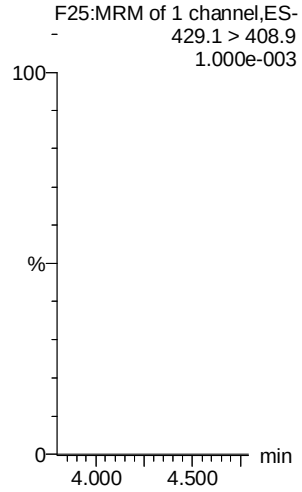


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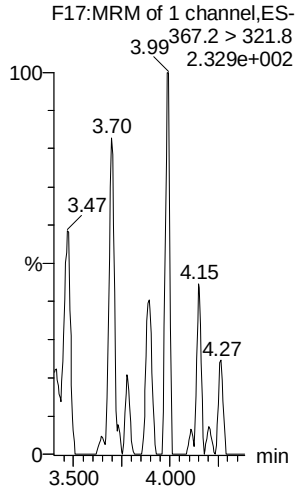




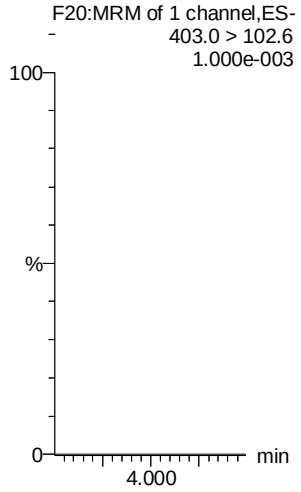
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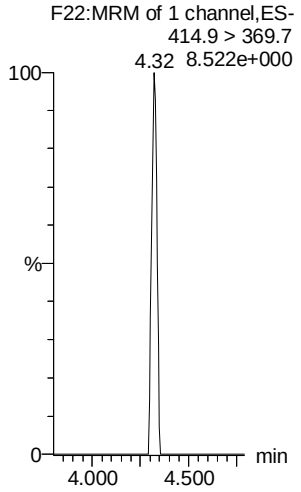
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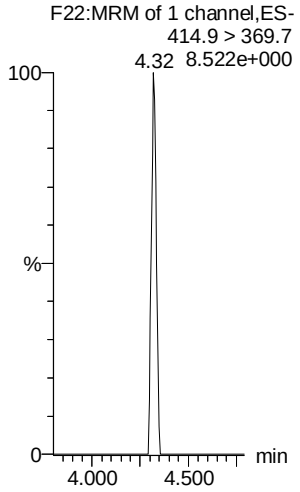
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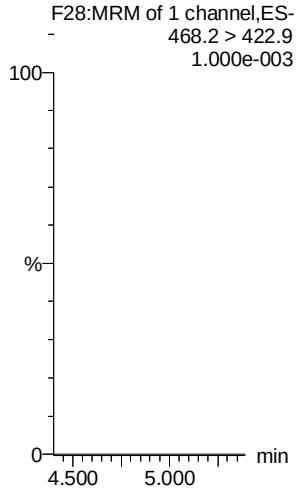
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13C2-PFOA



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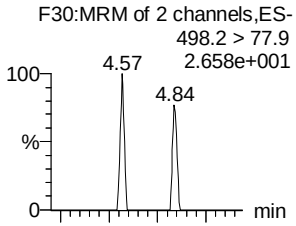


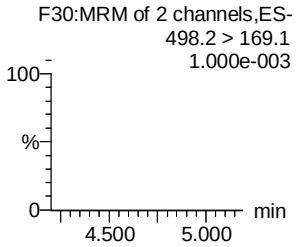
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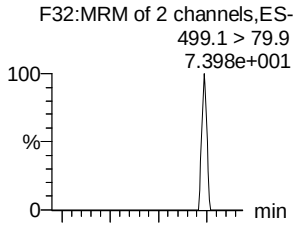
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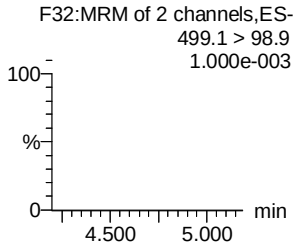
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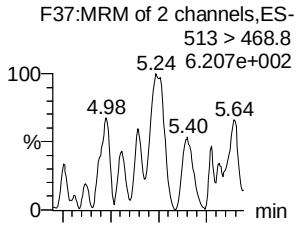


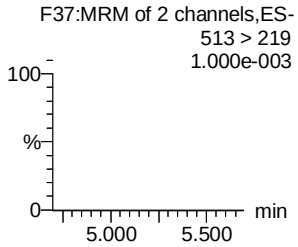
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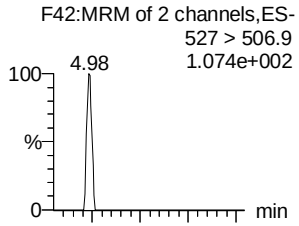


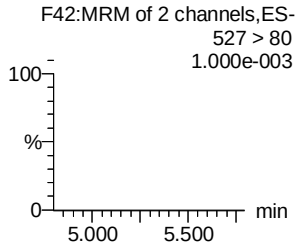
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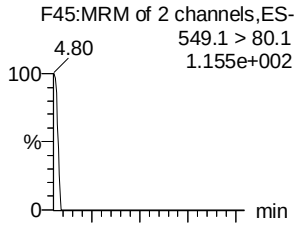


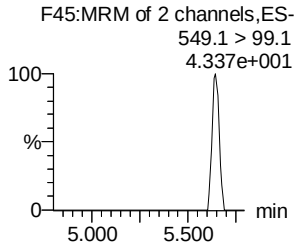
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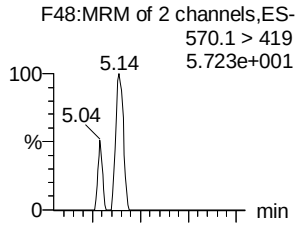


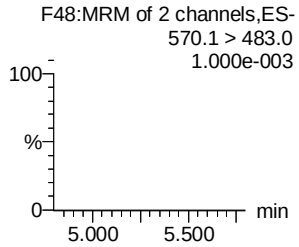
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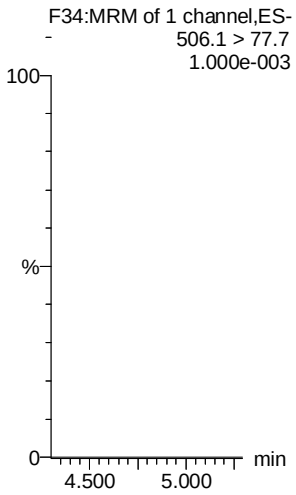


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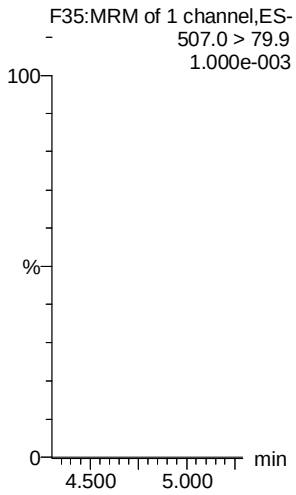




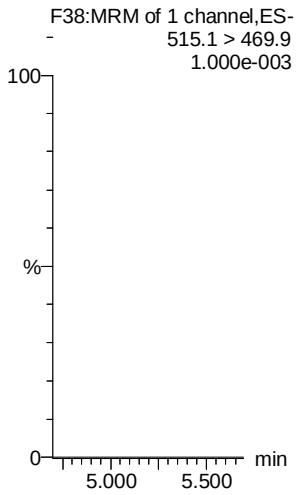
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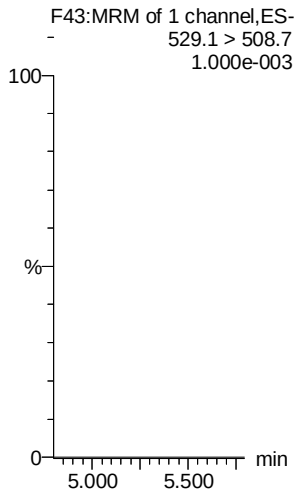
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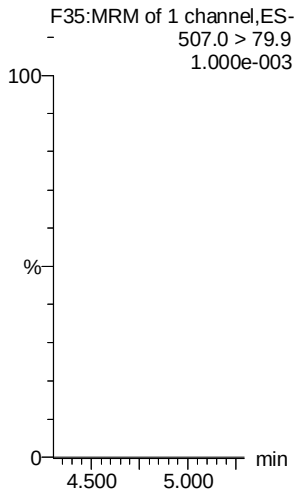
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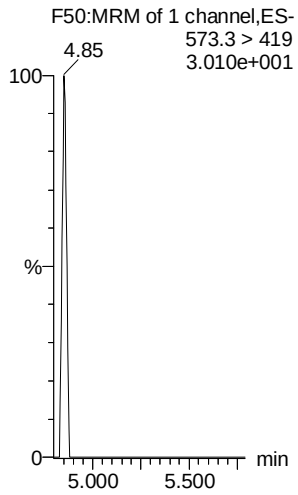
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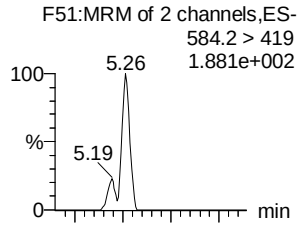


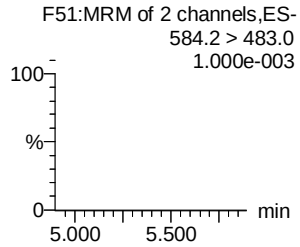
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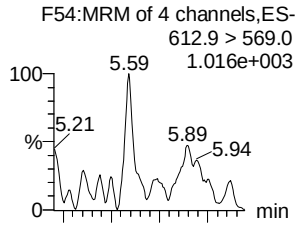
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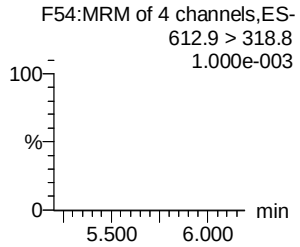
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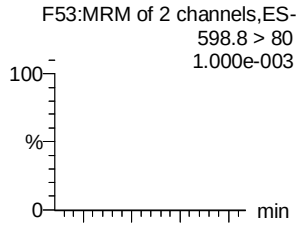


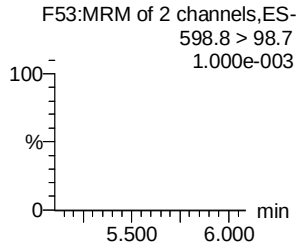
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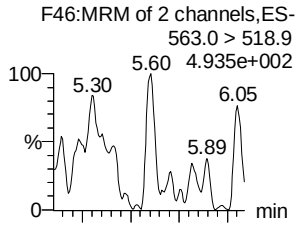


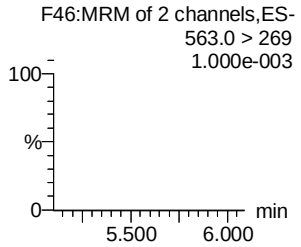
PFDS



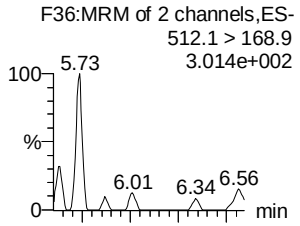


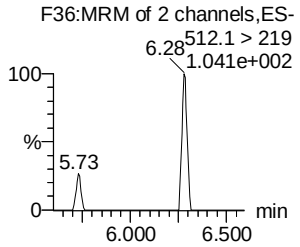
PFUdA



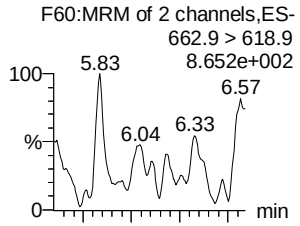


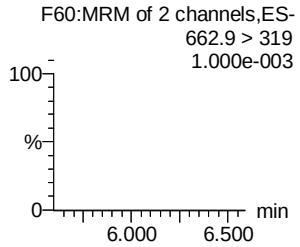
N-MeFOSA



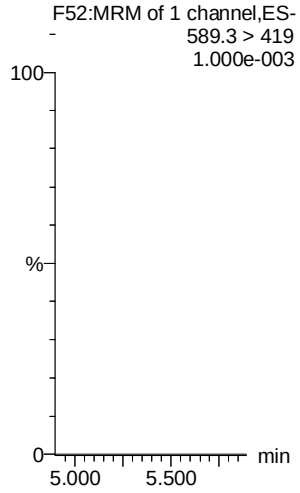


PFTrDA

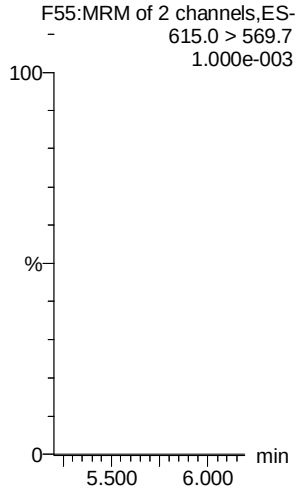




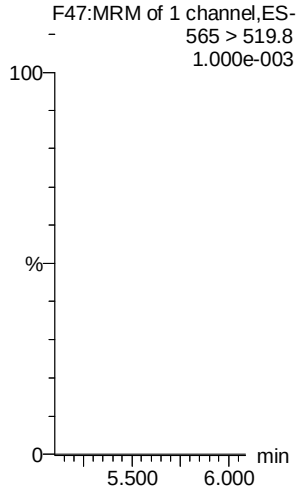
d5-N-EtFOSAA



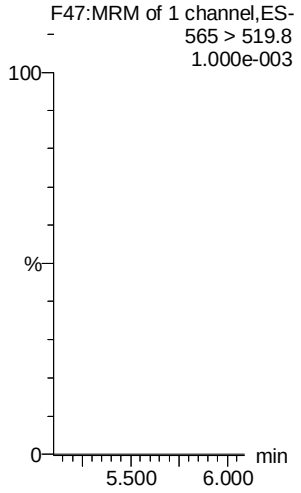
13C2-PFDoA



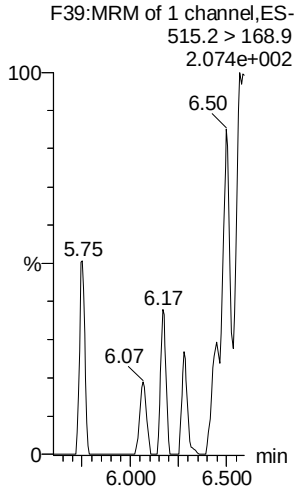
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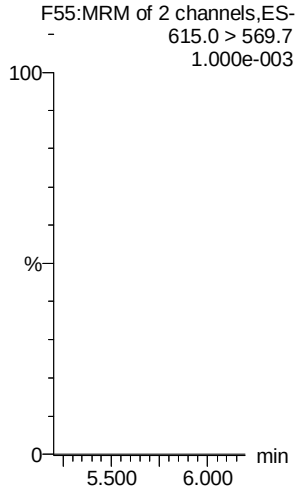
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA

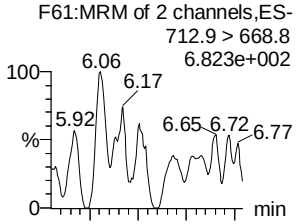


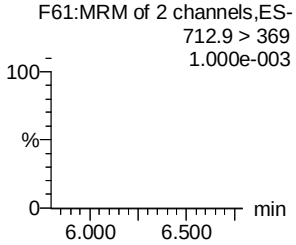
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Printed: Thursday, June 07, 2018 11:05:53 Pacific Daylight Time

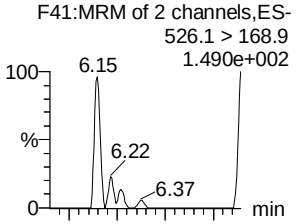
Name: 180605M2_12, Date: 05-Jun-2018, Time: 18:23:17, ID: IPA, Description: IPA

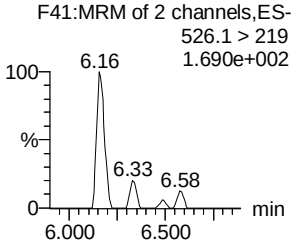
PFTeDA



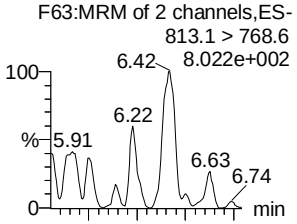


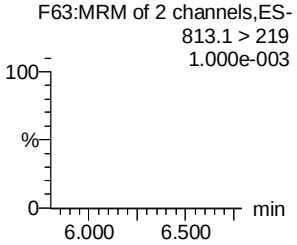
N-EtFOSA



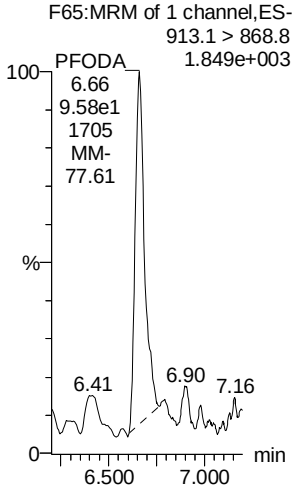


PFHxDA

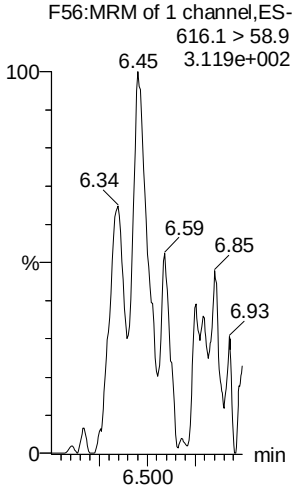




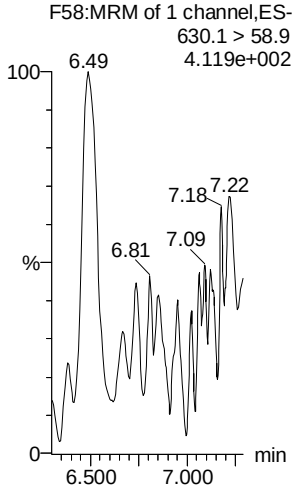
PFODA



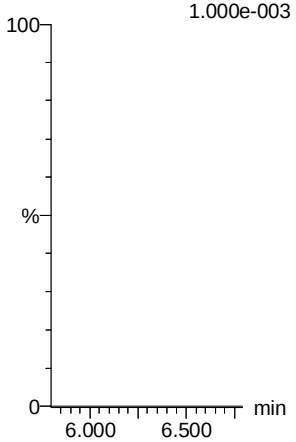
N-MeFOSE



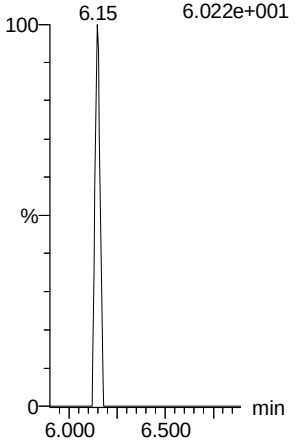
N-EtFOSE



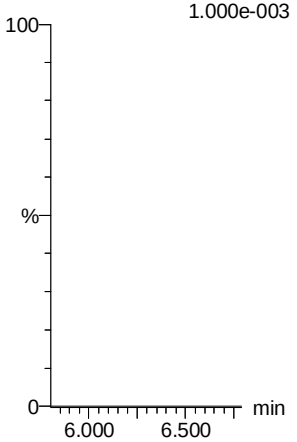
13C2-PFTeDA



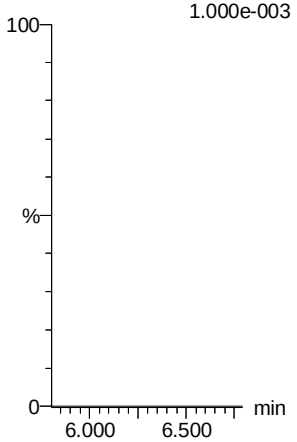
d5-N-ETFOSA



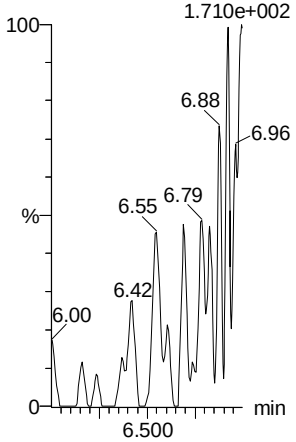
13C2-PFHxDA



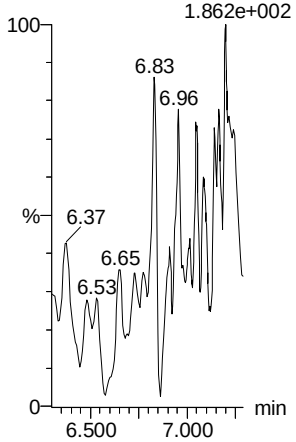
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE



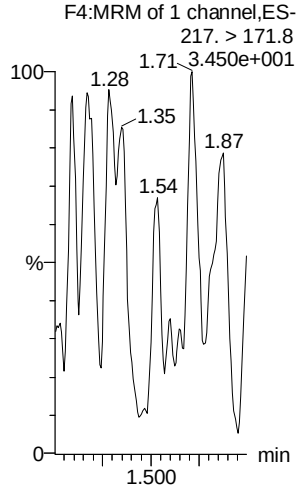
Vista Analytical Laboratory

Dataset: Untitled

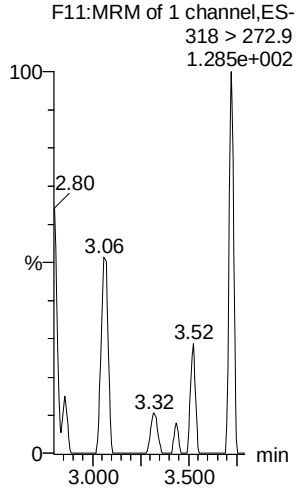
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Printed: Thursday, June 07, 2018 11:05:53 Pacific Daylight Time

Name: 180605M2_12, Date: 05-Jun-2018, Time: 18:23:17, ID: IPA, Description: IPA

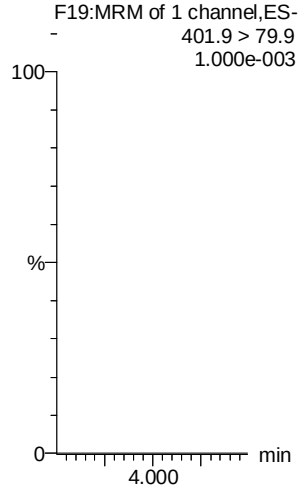
13C4-PFBA



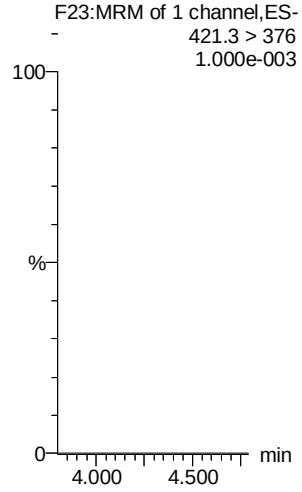
13C5-PFHxA



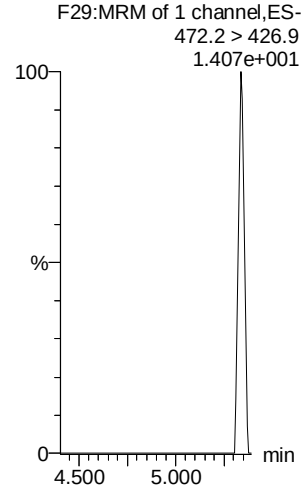
13C3-PFHxS



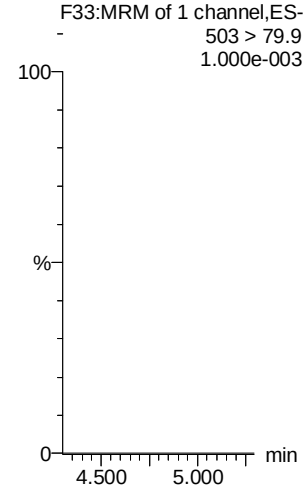
13C8-PFOA



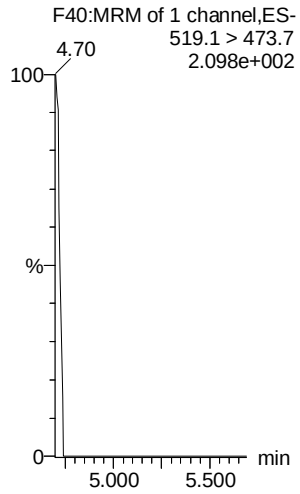
13C9-PFNA



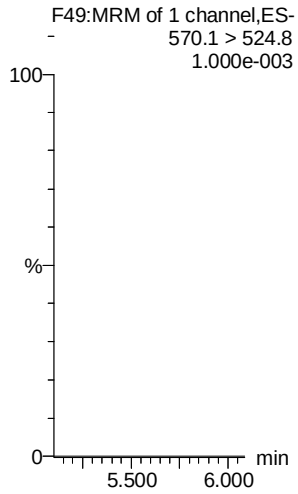
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Vista Analytical Laboratory

Dataset: F:\Projects\PFAS.PRO\Results\180605M2\180605M2-31.qld

Last Altered: Wednesday, June 06, 2018 16:43:59 Pacific Daylight Time
Printed: Wednesday, June 06, 2018 16:44:22 Pacific Daylight Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060518.mdb 06 Jun 2018 13:40:46
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-04-18.cdb 05 Jun 2018 10:43:30

Name: 180605M2_31, Date: 05-Jun-2018, Time: 21:42:02, ID: ST180605M2-11 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
1	1	PFBA	213.0 > 16...	7.45e3	8.01e3		1.31	1.31	11.6	10.5	104.7	NO		
2	2	PFPeA	263.1 > 21...	1.10e4	1.32e4		2.28	2.28	10.4	10.1	101.0	NO		
3	3	PFBS	299.0 > 79.7	2.71e3	1.59e3		2.57	2.57	21.3	10.7	106.9	NO	2.833	NO
4	4	4:2 FTS	327.2>307.2	3.66e3	3.55e3		2.98	2.98	12.9	12.1	120.6	NO	1.945	NO
5	5	PFHxA	313.2 > 26...	1.60e4	4.34e3		3.06	3.06	18.5	11.6	115.8	NO	215.779	NO
6	6	PFPeS	349.1>80.1	2.51e3	1.59e3		3.26	3.26	19.8	10.9	109.4	NO	1.820	NO
7	7	PFHpA	363.0 > 31...	1.21e4	1.20e4		3.67	3.68	12.6	10.8	107.6	NO	12.607	NO
8	8	L-PFHxS	398.9 > 79.6	2.02e3	1.43e3		3.83	3.83	17.7	9.20	92.0	NO	1.700	NO
9	10	6:2 FTS	427.1 > 407	4.00e3	3.52e3		4.17	4.15	14.2	11.5	115.1	NO	3.103	NO
10	11	L-PFOA	413 > 368.7	1.64e4	2.08e4		4.25	4.20	9.86	10.9	109.3	NO	4.101	NO
11	13	PFHpS	449 > 80.0	2.45e3	2.08e4		4.33	4.32	1.47	9.35	93.5	NO	1.816	NO
12	14	PFNA	463.0 > 41...	1.62e4	1.79e4		4.66	4.64	11.3	8.79	87.9	NO	4.289	NO
13	15	PFOSA	498.2 > 77.9	2.62e3	3.50e3		4.73	4.71	9.34	9.84	98.4	NO	33.170	NO
14	16	L-PFOS	499.1 > 79.9	2.58e3	3.53e3		4.74	4.72	9.14	9.84	98.4	NO	1.934	NO
15	18	PFDA	513 > 468.8	2.25e4	2.42e4		5.03	5.01	11.6	11.3	112.5	NO	6.594	NO
16	19	8:2 FTS	527 > 506.9	3.47e3	3.49e3		5.00	4.99	12.4	8.62	86.2	NO	2.686	NO
17	20	PFNS	549.1>80.1	2.35e3	3.53e3		5.09	5.08	8.33	9.97	99.7	NO	1.787	NO
18	21	L-MeFOSAA	570.1 > 419	6.22e3	4.89e3		5.18	5.17	15.9	8.42	84.2	NO	23.046	NO
19	23	L-EtFOSAA	584.2 > 419	4.98e3	6.39e3		5.37	5.33	9.73	8.53	85.3	NO	27.517	NO

GM 6/6/2018

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Dataset: F:\Projects\PFAS.PRO\Results\180605M2\180605M2-31.qld

Last Altered: Wednesday, June 06, 2018 16:43:59 Pacific Daylight Time
Printed: Wednesday, June 06, 2018 16:44:30 Pacific Daylight Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060518.mdb 06 Jun 2018 13:40:46
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-04-18.cdb 05 Jun 2018 10:43:30

Name: 180605M2_31, Date: 05-Jun-2018, Time: 21:42:02, ID: ST180605M2-11 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
1	25	PFUdA	563.0 > 51...	2.04e4	2.36e4		5.35	5.34	10.8	11.2	111.8	NO	10.558	NO
2	26	PFDS	598.8 > 80	2.66e3	2.36e4		5.40	5.39	1.41	9.78	97.8	NO	2.371	NO
3	27	PFDoA	612.9 > 56...	1.85e4	2.48e4		5.63	5.63	9.34	8.36	83.6	NO	7.041	YES
4	28	N-MeFOSA	512.1 > 16...	5.08e3	1.45e4		5.82	5.79	52.5	50.0	100.0	NO	1.430	NO
5	29	PFTrDA	662.9 > 61...	2.23e4	2.48e4		5.88	5.87	11.3	10.4	103.6	NO	23.759	NO
6	30	PFTeDA	712.9 > 66...	1.87e4	1.99e4		6.10	6.08	11.7	9.03	90.3	NO	13.102	NO
7	31	N-EtFOSA	526.1 > 16...	6.18e3	2.04e4		6.23	6.20	45.4	49.1	98.1	NO	1.561	NO
8	32	PFHxDA	813.1 > 76...	1.34e4	1.02e4		6.43	6.43	6.56	10.8	108.2	NO	27.305	NO
9	33	PFODA	913.1 > 86...	1.54e4	1.02e4		6.67	6.66	7.56	8.51	85.1	NO		
10	34	N-MeFOSE	616.1 > 58.9	3.99e3	1.19e4		6.37	6.37	50.1	50.4	100.8	NO		
11	35	N-EtFOSE	630.1 > 58.9	4.49e3	1.19e4		6.52	6.52	56.7	47.5	95.0	NO		
12	36	13C3-PFBA	216.1 > 17...	8.01e3	9.00e3	0.885	1.34	1.31	11.1	12.6	100.6	NO		
13	37	13C3-PFPeA	266. > 221.8	1.32e4	1.48e4	0.849	2.31	2.28	11.1	13.1	104.6	NO		
14	38	13C3-PFBS	302. > 98.8	1.59e3	1.48e4	0.104	2.60	2.57	1.34	12.9	103.2	NO		
15	39	13C2-4:2 FTS	329.2>308.9	3.55e3	1.48e4	0.248	3.01	2.98	2.99	12.1	96.5	NO		
16	40	13C2-PFHxA	315 > 269.8	4.34e3	1.48e4	0.729	3.09	3.06	3.66	5.02	100.3	NO		
17	41	13C4-PFHpA	367.2 > 32...	1.20e4	1.48e4	0.836	3.71	3.67	10.1	12.1	96.8	NO		
18	42	18O2-PFHxS	403.0 > 10...	1.43e3	3.26e3	0.443	3.86	3.83	5.48	12.4	99.0	NO		
19	43	13C2-6:2 FTS	429.1 > 40...	3.52e3	1.71e4	0.249	4.17	4.15	2.58	10.4	83.0	NO		
20	44	13C2-PFOA	414.9 > 36...	2.08e4	1.71e4	1.332	4.23	4.20	15.2	11.4	91.4	NO		
21	45	13C5-PFNA	468.2 > 42...	1.79e4	1.96e4	0.951	4.66	4.64	11.4	12.0	96.3	NO		
22	46	13C8-PFOSA	506.1 > 77.7	3.50e3	2.67e4	0.140	4.73	4.71	1.64	11.7	93.9	NO		
23	47	13C8-PFOS	507.0 > 79.9	3.53e3	3.25e3	1.060	4.74	4.72	13.6	12.8	102.4	NO		
24	48	13C2-PFDA	515.1 > 46...	2.42e4	2.49e4	1.130	5.03	5.01	12.2	10.8	86.2	NO		
25	49	13C2-8:2 FTS	529.1 > 50...	3.49e3	1.48e4	0.217	5.00	4.98	2.94	13.5	108.1	NO		
26	50	d3-N-MeFOSAA	573.3 > 419	4.89e3	2.67e4	0.184	5.18	5.17	2.29	12.5	99.7	NO		
27	51	d5-N-EtFOSAA	589.3 > 419	6.39e3	2.67e4	0.223	5.34	5.32	2.99	13.4	107.1	NO		
28	52	13C2-PFUdA	565 > 519.8	2.36e4	2.67e4	0.936	5.35	5.34	11.0	11.8	94.2	NO		
29	53	13C2-PFDoA	615.0 > 56...	2.48e4	2.49e4	1.168	5.63	5.62	12.5	10.7	85.3	NO		
30	54	d3-N-MeFOSA	515.2 > 16...	1.45e4	2.67e4	0.051	5.85	5.82	6.78	132	88.3	NO		
31	55	13C2-PFTeDA	714.8 > 66...	1.99e4	2.67e4	0.706	6.09	6.09	9.31	13.2	105.5	NO		
32	56	d5-N-ETFOSA	531.1 > 16...	2.04e4	2.67e4	0.071	6.24	6.22	9.54	134	89.3	NO		

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Dataset: F:\Projects\PFAS.PRO\Results\180605M2\180605M2-31.qld

Last Altered: Wednesday, June 06, 2018 16:43:59 Pacific Daylight Time
Printed: Wednesday, June 06, 2018 16:44:30 Pacific Daylight Time

Name: 180605M2_31, Date: 05-Jun-2018, Time: 21:42:02, ID: ST180605M2-11 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
33	57	13C2-PFHxDA	815 > 769.7	1.02e4	2.67e4	1.079	6.43	6.43	4.77	4.42	88.4	NO		
34	58	d7-N-MeFOSE	623.1 > 58.9	1.19e4	2.67e4	0.041	6.37	6.36	5.58	135	90.2	NO		
35	59	d9-N-EtFOSE	639.2 > 58.8	1.19e4	2.67e4	0.038	6.51	6.50	5.55	145	96.6	NO		
36	60	13C4-PFBA	217. > 171.8	9.00e3	9.00e3	1.000	1.35	1.30	12.5	12.5	100.0	NO		
37	61	13C5-PFHxA	318 > 272.9	1.48e4	1.48e4	1.000	3.09	3.06	12.5	12.5	100.0	NO		
38	62	13C3-PFHxS	401.9 > 79.9	3.26e3	3.26e3	1.000	3.86	3.83	12.5	12.5	100.0	NO		
39	63	13C8-PFOA	421.3 > 376	1.71e4	1.71e4	1.000	4.23	4.20	12.5	12.5	100.0	NO		
40	64	13C9-PFNA	472.2 > 42...	1.96e4	1.96e4	1.000	4.66	4.64	12.5	12.5	100.0	NO		
41	65	13C4-PFOS	503 > 79.9	3.25e3	3.25e3	1.000	4.74	4.72	12.5	12.5	100.0	NO		
42	66	13C6-PFDA	519.1 > 47...	2.49e4	2.49e4	1.000	5.03	5.01	12.5	12.5	100.0	NO		
43	67	13C7-PFUdA	570.1 > 52...	2.67e4	2.67e4	1.000	5.35	5.34	12.5	12.5	100.0	NO		

GM 6/6/2018

Quantify Compound Summary Report **MassLynx MassLynx V4.1 SCN945 SCN960**
Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Wednesday, June 06, 2018 17:00:17 Pacific Daylight Time
Printed: Wednesday, June 06, 2018 17:00:28 Pacific Daylight Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060518.mdb 06 Jun 2018 13:40:46
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-04-18.cdb 05 Jun 2018 10:43:30

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	180605M2_1	IPA	05-Jun-18	16:28:10
2	2	180605M2_2	ST180605M2-1 PFC CS-2 18E2902	05-Jun-18	16:38:43
3	3	180605M2_3	ST180605M2-2 PFC CS-1 18E2903	05-Jun-18	16:49:08
4	4	180605M2_4	ST180605M2-3 PFC CS0 18E2904 *	05-Jun-18	16:59:39
5	5	180605M2_5	ST180605M2-4 PFC CS1 18E2905	05-Jun-18	17:10:04
6	6	180605M2_6	ST180605M2-5 PFC CS2 18E2906	05-Jun-18	17:20:34
7	7	180605M2_7	ST180605M2-6 PFC CS3 18E2907	05-Jun-18	17:30:59
8	8	180605M2_8	ST180605M2-7 PFC CS4 18E2908	05-Jun-18	17:41:30
9	9	180605M2_9	ST180605M2-8 PFC CS5 18E2909	05-Jun-18	17:52:00
10	10	180605M2_10	ST180605M2-9 PFC CS6 18E2910	05-Jun-18	18:02:25
11	11	180605M2_11	ST180605M2-10 PFC CS7 18E2911	05-Jun-18	18:12:47
12	12	180605M2_12	IPA	05-Jun-18	18:23:17
13	13	180605M2_13	ICV180605M2-1 PFC 537 ICV 18E2901	05-Jun-18	18:33:43
14	14	180605M2_14	IPA	05-Jun-18	18:44:13
15	15	180605M2_15	B8E0097-BS1 OPR 0.25	05-Jun-18	18:54:40
16	16	180605M2_16	B8E0097-BSD1 LCSD 0.25	05-Jun-18	19:05:08
17	17	180605M2_17	B8E0097-BLK1 Method Blank 0.25	05-Jun-18	19:15:33
18	18	180605M2_18	1800863-01 Bemidji Pilot APR2 lead 0.2...	05-Jun-18	19:26:03
19	19	180605M2_19	1800863-02 Bemidji Pilot PSR2 + 0.26433	05-Jun-18	19:36:27
20	20	180605M2_20	1800863-03 Bemidji Pilot INF 0.26399	05-Jun-18	19:46:57
21	21	180605M2_21	1800901-01 ACT Sample -16 0.23838	05-Jun-18	19:57:21
22	22	180605M2_22	1800901-02 ACT Sample -19 0.23487	05-Jun-18	20:07:52
23	23	180605M2_23	1801071-02 A1-MW-55-SA1 0.11428	05-Jun-18	20:18:16
24	24	180605M2_24	1801071-03 A1-MW-23-SA1 0.11436	05-Jun-18	20:28:47
25	25	180605M2_25	1801071-04 A1-MW-07-SA1 0.11908	05-Jun-18	20:39:12
26	26	180605M2_26	1801039-01 A1-MW-13-SA1 0.10967	05-Jun-18	20:49:42
27	27	180605M2_27	1801039-02 A1-MW-11-SA1 0.11624	05-Jun-18	21:00:07
28	28	180605M2_28	1801039-03 A1-MW-14-SA1 0.11194	05-Jun-18	21:10:37
29	29	180605M2_29	1801039-04 A1-MW-15-SA1 0.11248	05-Jun-18	21:21:07
30	30	180605M2_30	IPA	05-Jun-18	21:31:32
31	31	180605M2_31	ST180605M2-11 PFC CS3 18E2907	05-Jun-18	21:42:02
32	32	180605M2_32	IPA	05-Jun-18	21:52:27

(R) over 10 samples. Can calculate

*CS0 fell in with previous calibration; curve not used KBF 6/8/18

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Wednesday, June 06, 2018 17:00:17 Pacific Daylight Time
Printed: Wednesday, June 06, 2018 17:00:28 Pacific Daylight Time

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
33	33	180605M2_33	1801039-07 A1-MW-25-SA1 0.11252	05-Jun-18	22:02:57
34	34	180605M2_34	1801024-01 A1-MW-51-SA1 0.11961	05-Jun-18	22:13:21
35	35	180605M2_35	1801024-02 A1-MW-50-SA1 0.12082	05-Jun-18	22:23:52
36	36	180605M2_36	1801024-05 A1-MW-04-SA1 0.12315	05-Jun-18	22:34:22
37	37	180605M2_37	B8E0078-BS1 OPR 0.125	05-Jun-18	22:44:46
38	38	180605M2_38	B8E0078-BSD1 LCSD 0.125	05-Jun-18	22:55:16
39	39	180605M2_39	B8E0078-BLK1 Method Blank 0.125	05-Jun-18	23:05:40
40	40	180605M2_40	1800862-01 REEPDW451FRB 0.11732	05-Jun-18	23:16:11
41	41	180605M2_41	1800862-02 REEPDW452FRB 0.11393	05-Jun-18	23:26:35
42	42	180605M2_42	1800862-03 REEPDW453FRB 0.11381	05-Jun-18	23:37:05
43	43	180605M2_43	1800862-04 REEPDW454FRB 0.11483	05-Jun-18	23:47:29
44	44	180605M2_44	1800862-05 REEPDW456FRB 0.1202	05-Jun-18	23:58:00
45	45	180605M2_45	1800862-06 REEPDW446FRB 0.11919	06-Jun-18	00:08:25
46	46	180605M2_46	1800862-07 REEPDW455FRB 0.12259	06-Jun-18	00:18:55
47	47	180605M2_47	1800862-08 REEPDW447FRB 0.11683	06-Jun-18	00:29:20
48	48	180605M2_48	1800862-09 REEPDW448FRB 0.12114	06-Jun-18	00:39:51
49	49	180605M2_49	1800862-10 REEPDW449FRB 0.11798	06-Jun-18	00:50:16
50	50	180605M2_50	1800862-11 REEPDW450FRB 0.12118	06-Jun-18	01:00:38
51	51	180605M2_51	1800862-12 REEPDW457FRB 0.12446	06-Jun-18	01:11:08
52	52	180605M2_52	1800862-13 REEPDW459FRB 0.12147	06-Jun-18	01:21:33
53	53	180605M2_53	1800862-14 REEPDW458FRB 0.11703	06-Jun-18	01:32:03
54	54	180605M2_54	1800862-15 REEPDW460FRB 0.11944	06-Jun-18	01:42:28
55	55	180605M2_55	B8E0244-BS1 OPR 0.125	06-Jun-18	01:52:59
56	56	180605M2_56	B8E0244-BLK1 Method Blank 0.125	06-Jun-18	02:03:23
57	57	180605M2_57	B8E0244-MS1 Matrix Spike 0.11028	06-Jun-18	02:13:53
58	58	180605M2_58	B8E0244-MSD1 Matrix Spike Dup 0.113...	06-Jun-18	02:24:17
59	59	180605M2_59	B8E0244-MS2 Matrix Spike 0.11122	06-Jun-18	02:34:48
60	60	180605M2_60	B8E0244-MSD2 Matrix Spike Dup 0.115...	06-Jun-18	02:45:18
61	61	180605M2_61	1801037-01 A1-MW-18-SA1 0.11265	06-Jun-18	02:55:42
62	62	180605M2_62	1801037-02 16-MW-08-SA1 0.11493	06-Jun-18	03:06:13
63	63	180605M2_63	1801037-03 A1-MW-19-SA1 0.11827	06-Jun-18	03:16:38
64	64	180605M2_64	1801037-04 A1-MW-37-SA1 0.11915	06-Jun-18	03:27:09
65	65	180605M2_65	1801037-05 A1-MW-37-SA1D 0.11595	06-Jun-18	03:37:33
66	66	180605M2_66	1801037-06 16-H5-03-SA1 0.12456	06-Jun-18	03:48:03
67	67	180605M2_67	IPA	06-Jun-18	03:58:29
68	68	180605M2_68	ST180605M2-12 PFC CS3 18E2907	06-Jun-18	04:08:59

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Dataset: Untitled

Last Altered: Wednesday, June 06, 2018 17:00:17 Pacific Daylight Time
Printed: Wednesday, June 06, 2018 17:00:28 Pacific Daylight Time

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
69	69	180605M2_69	ST180605M2-13 PFC CS0 18E2904	06-Jun-18	04:19:24
70	70	180605M2_70	IPA	06-Jun-18	04:29:54
71	71	180605M2_71	1801037-07 16-MW-09-SA1 0.1148	06-Jun-18	04:40:20
72	72	180605M2_72	1801037-08 16-MW-06-5A1 0.11143	06-Jun-18	04:50:50
73	73	180605M2_73	1801037-09 FRB-20180523 0.11719	06-Jun-18	05:01:15
74	74	180605M2_74	1801054-01 A1-MW-42-SA1 0.11279	06-Jun-18	05:11:45
75	75	180605M2_75	1801054-02 A1-MW-54-SA1 0.11211	06-Jun-18	05:22:09
76	76	180605M2_76	1801054-03 A1-MW-53-SA1 0.1139	06-Jun-18	05:32:40
77	77	180605M2_77	1801054-04 A1-P2-19-SA1 0.11736	06-Jun-18	05:43:10
78	78	180605M2_78	1801054-05 A1-MW-52-SA1 0.11509	06-Jun-18	05:53:35
79	79	180605M2_79	1801054-06 A1-MW-01-SA1 0.1102	06-Jun-18	06:04:05
80	80	180605M2_80	1801054-07 A1-MW-01-SA1D 0.11715	06-Jun-18	06:14:31
81	81	180605M2_81	IPA	06-Jun-18	06:25:01
82	82	180605M2_82	ST180605M2-14 PFC CS3 18E2907	06-Jun-18	06:35:26
83	83	180605M2_83	IPA	06-Jun-18	06:45:57
84	84	180605M2_84	1801054-08 A1-MW-31-SA1 0.11276	06-Jun-18	06:56:27
85	85	180605M2_85	1801054-09 FRB-20180525 0.11663	06-Jun-18	07:06:52
86	86	180605M2_86	B8E0161-BS1 OPR 0.25	06-Jun-18	07:17:22
87	87	180605M2_87	B8E0161-BLK1 Method Blank 0.25	06-Jun-18	07:27:47
88	88	180605M2_88	1800989-01 KE-RD6954-MW01 0.11761	06-Jun-18	07:38:17
89	89	180605M2_89	1800989-02 KE-BBW-MW01 0.11717	06-Jun-18	07:48:48
90	90	180605M2_90	1800989-03 KE-6954-MW01 0.11556	06-Jun-18	07:59:12
91	91	180605M2_91	1800989-04 KE-APN-MW01 0.11557	06-Jun-18	08:09:43
92	92	180605M2_92	1800989-05 KE-FBA-MW01 0.11631	06-Jun-18	08:20:06
93	93	180605M2_93	1800989-06 KE-FBA-MW01D 0.11705	06-Jun-18	08:30:37
94	94	180605M2_94	1800989-07 KE-NNTA-MW01 0.11356	06-Jun-18	08:41:02
95	95	180605M2_95	1800989-08 KE-6918-MW01 0.11438	06-Jun-18	08:51:32
96	96	180605M2_96	1800989-09 KE-6917-MW01 0.11542	06-Jun-18	09:01:58
97	97	180605M2_97	IPA	06-Jun-18	09:12:28
98	98	180605M2_98	ST180605M2-15 PFC CS3 18E2907	06-Jun-18	09:22:52
99	99	180605M2_99	IPA	06-Jun-18	09:33:23
100	1...	180605M2_100	1800989-10 KE-EB-5-11-18 0.26165	06-Jun-18	09:43:53
101	1...	180605M2_101	1800989-11 KE-FTA-MW01 0.1098	06-Jun-18	09:54:18
102	1...	180605M2_102	1800986-01 FR Fld Blk 0.25955	06-Jun-18	10:04:48
103	1...	180605M2_103	IS SUP TESTER	06-Jun-18	10:27:41
104	1...	180605M2_104	1800986-02 Forest Ridge 0.27675	06-Jun-18	10:38:06

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Dataset: Untitled

Last Altered: Wednesday, June 06, 2018 17:00:17 Pacific Daylight Time
Printed: Wednesday, June 06, 2018 17:00:28 Pacific Daylight Time

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
105	1...	180605M2_105	1800986-03 K_V Fld Blk 0.25454	06-Jun-18	10:48:37
106	1...	180605M2_106	1800986-04 K_V 0.27397	06-Jun-18	10:59:02
107	1...	180605M2_107	1800990-01 WIRR1805171315JLB 0.2...	06-Jun-18	11:09:32
108	1...	180605M2_108	1800990-02 FB1805171320JLB 0.25861	06-Jun-18	11:19:56
109	1...	180605M2_109	IPA	06-Jun-18	11:30:26
110	1...	180605M2_110	ST180605M2-16 PFC CS3 18E2907	06-Jun-18	11:40:57
111	1...	180605M2_111	IPA	06-Jun-18	11:51:21

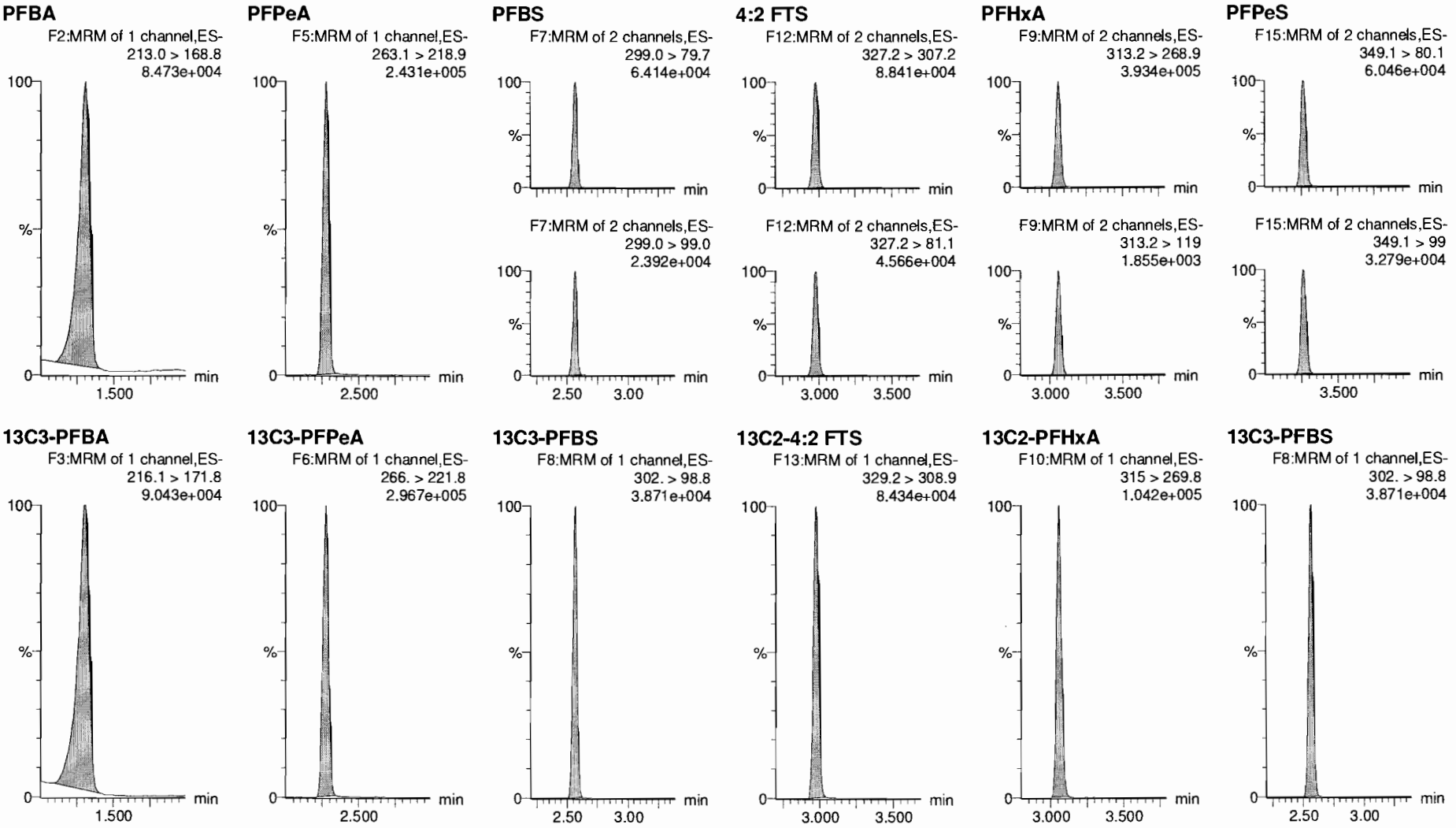
Vista Analytical Laboratory

Dataset: F:\Projects\PFAS.PRO\Results\180605M2\180605M2-31.qld

Last Altered: Wednesday, June 06, 2018 16:43:59 Pacific Daylight Time
Printed: Wednesday, June 06, 2018 16:44:30 Pacific Daylight Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060518.mdb 06 Jun 2018 13:40:46
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-04-18.cdb 05 Jun 2018 10:43:30

Name: 180605M2_31, Date: 05-Jun-2018, Time: 21:42:02, ID: ST180605M2-11 PFC CS3 18E2907, Description: PFC CS3 18E2907



GM 6/6/2018

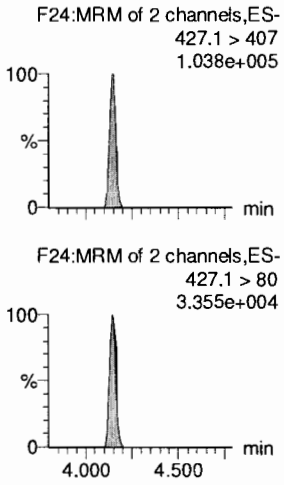
Vista Analytical Laboratory

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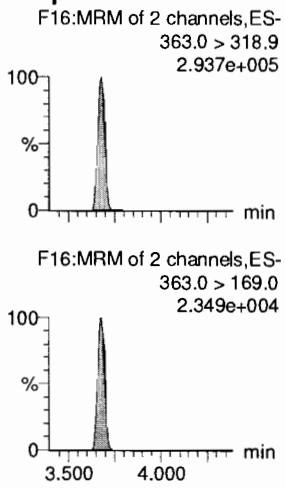
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Printed: Wednesday, June 06, 2018 16:44:30 Pacific Daylight Time

Name: 180605M2_31, Date: 05-Jun-2018, Time: 21:42:02, ID: ST180605M2-11 PFC CS3 18E2907, Description: PFC CS3 18E2907

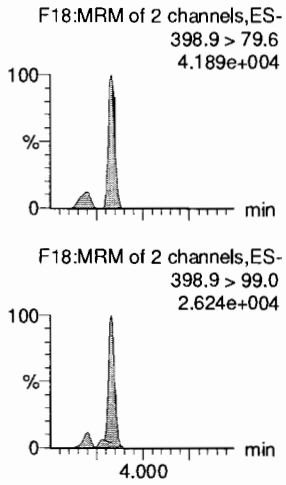
6:2 FTS



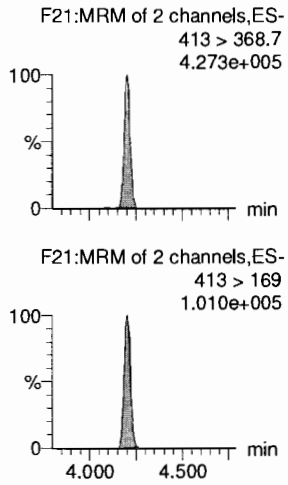
PFHpA



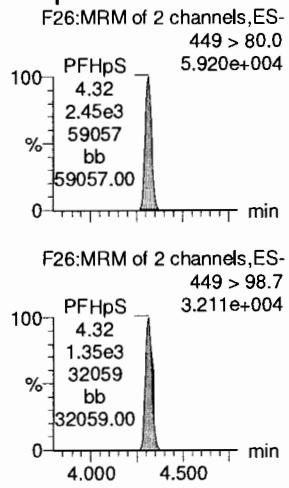
L-PFHxS



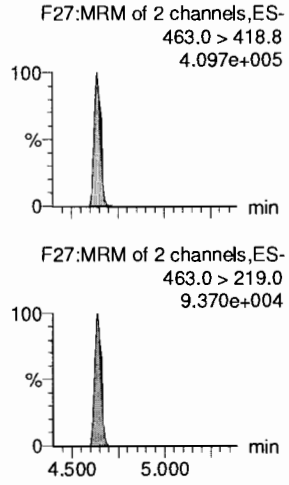
L-PFOA



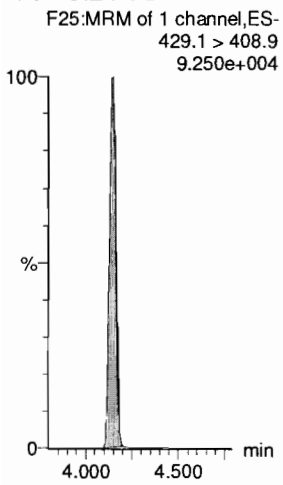
PFHpS



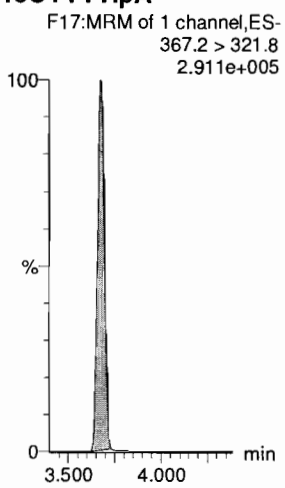
PFNA



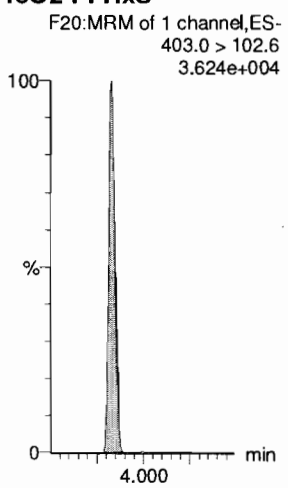
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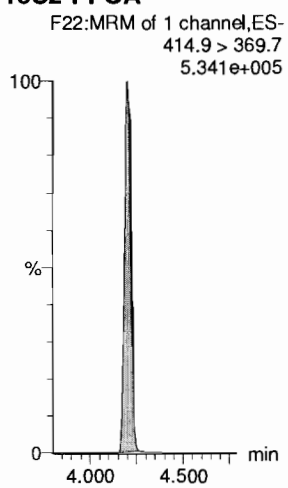
13C4-PFHpA



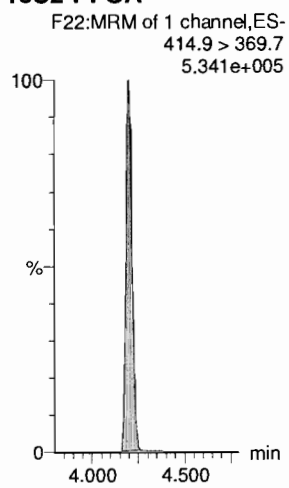
18O2-PFHxS



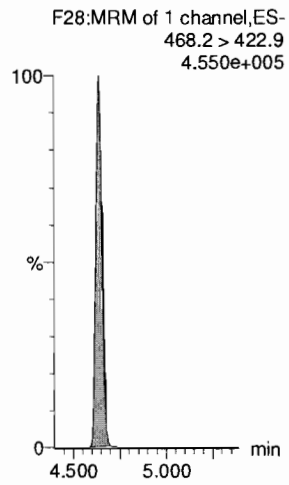
13C2-PFOA



13C2-PFOA



13C5-PFNA



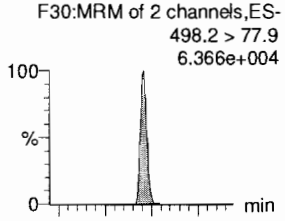
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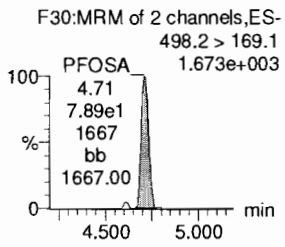
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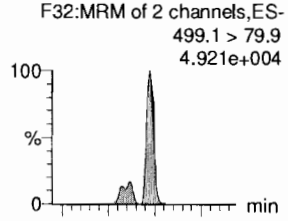
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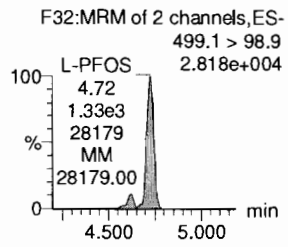
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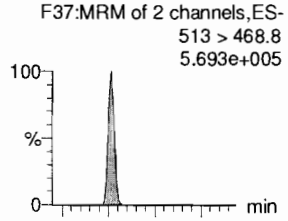


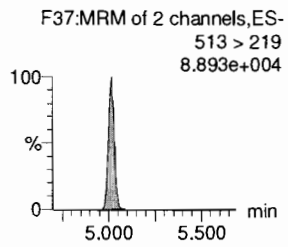
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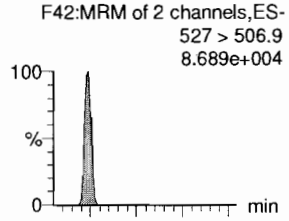


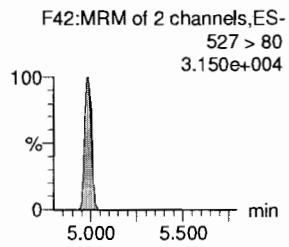
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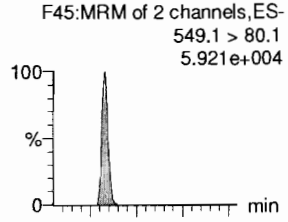


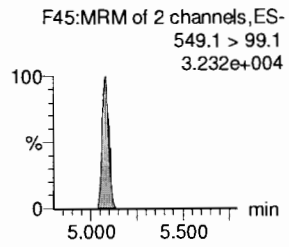
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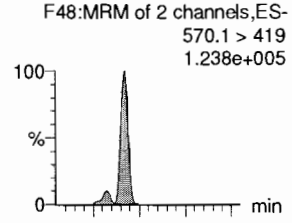


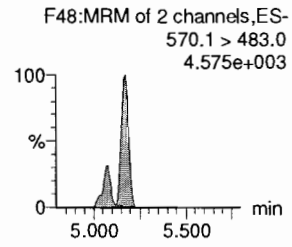
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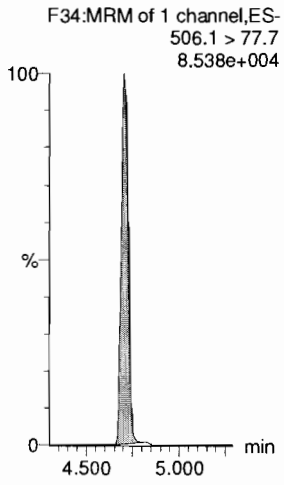


L-MeFOSAA

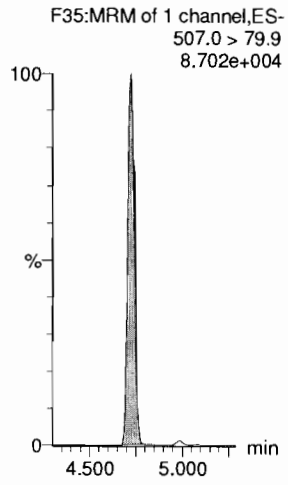




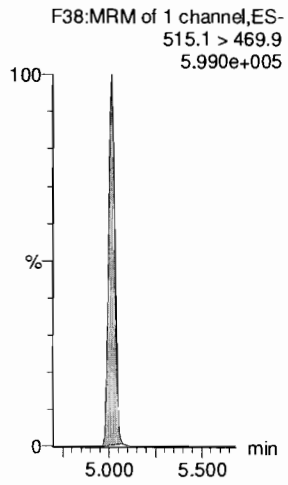
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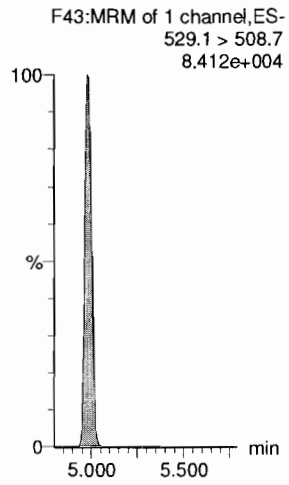
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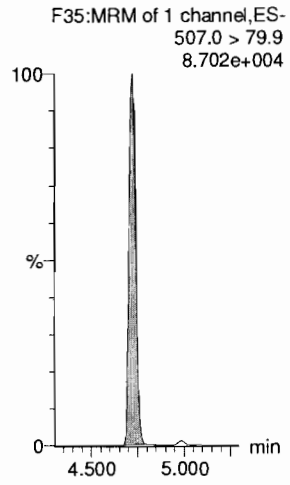
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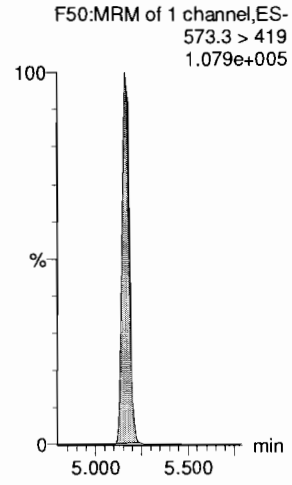
13C2-8:2 FTS



13C8-PFOS



d3-N-MeFOSAA



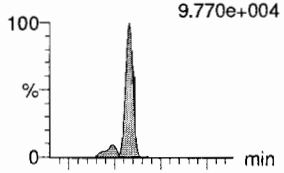
GM 6/6/2018

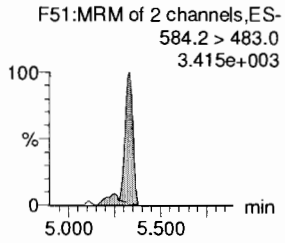
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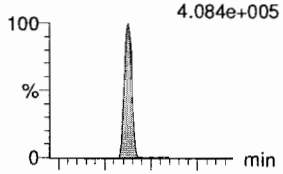
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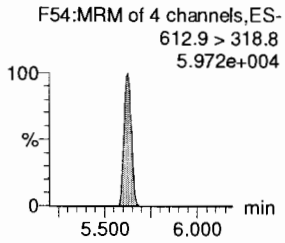
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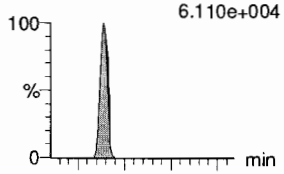


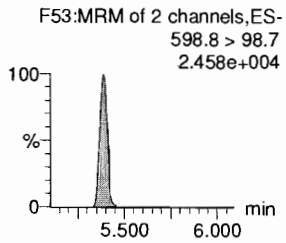
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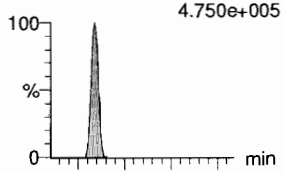


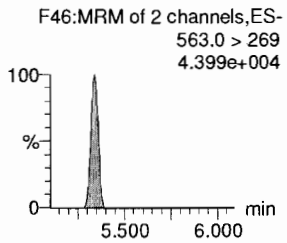
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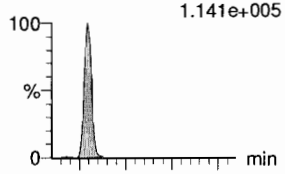


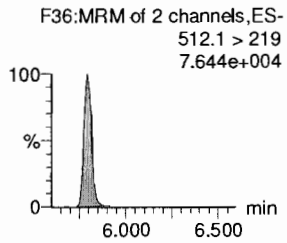
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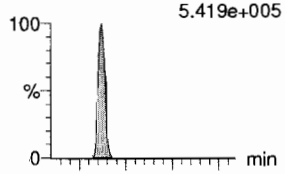


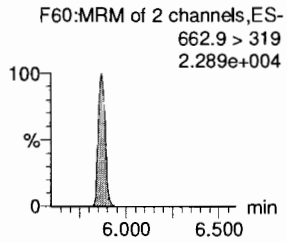
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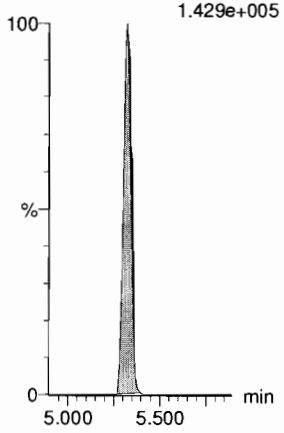


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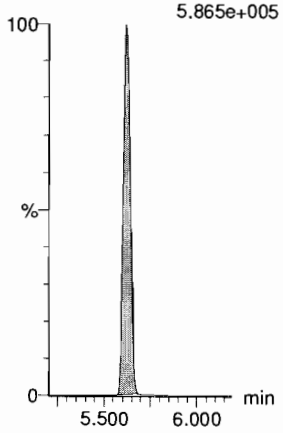




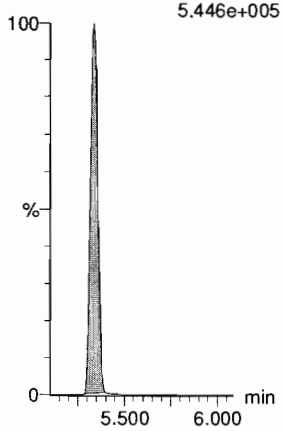
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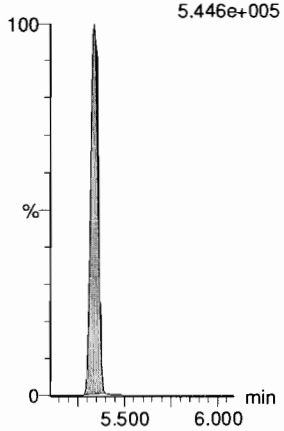
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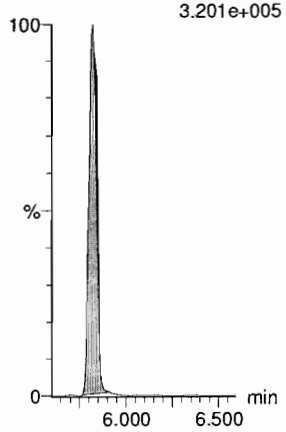
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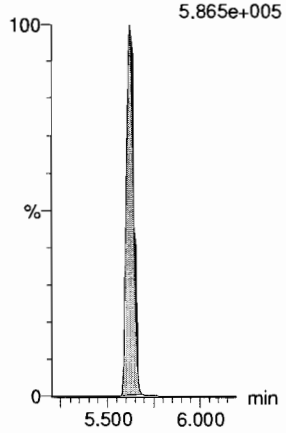
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA



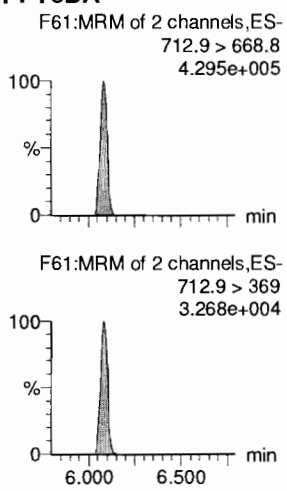
GM 6/6/2018

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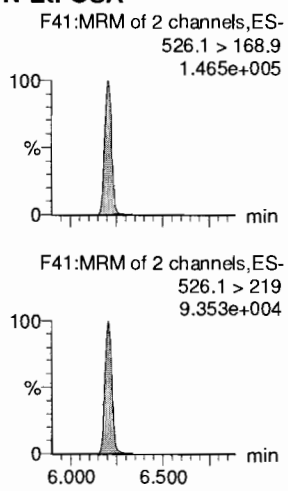
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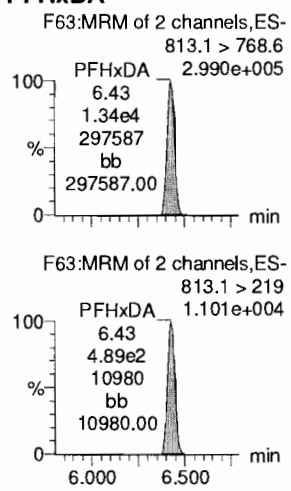
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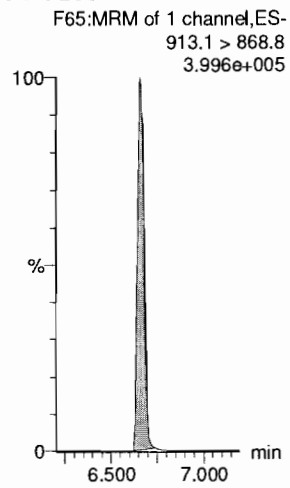
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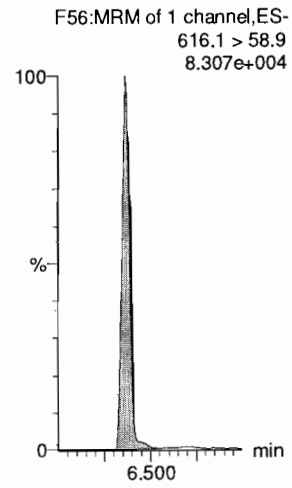
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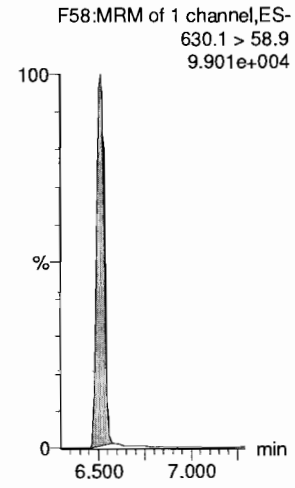
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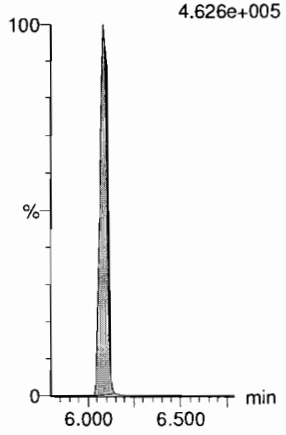
N-MeFOSE



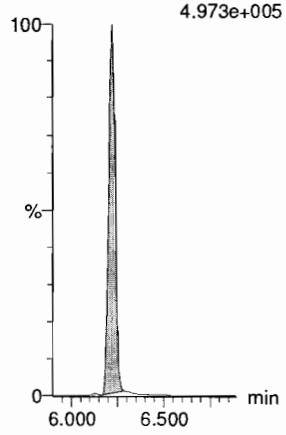
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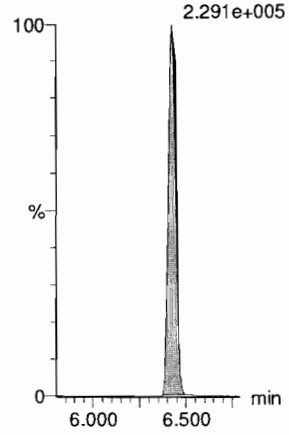
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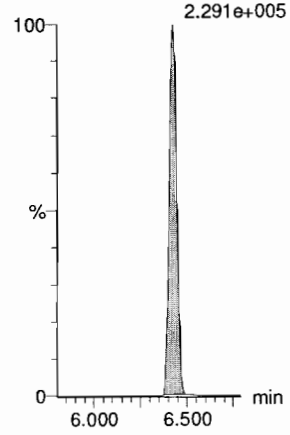
d5-N-ETFOSA



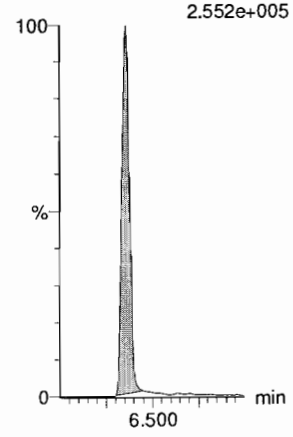
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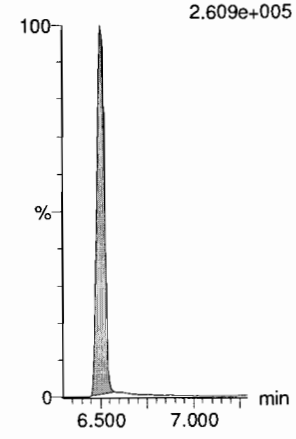
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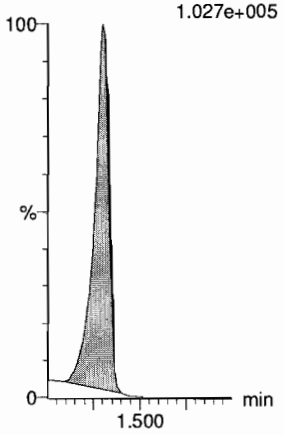
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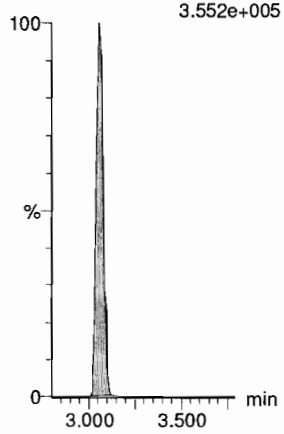
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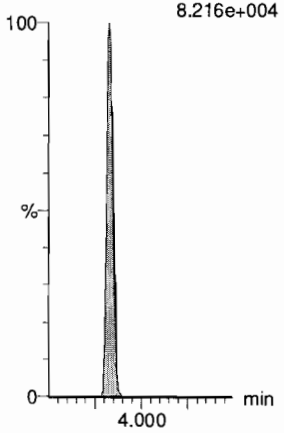
13C4-PFBA



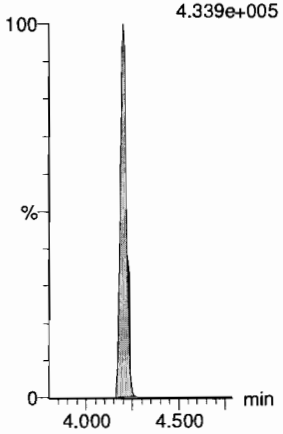
13C5-PFHxA



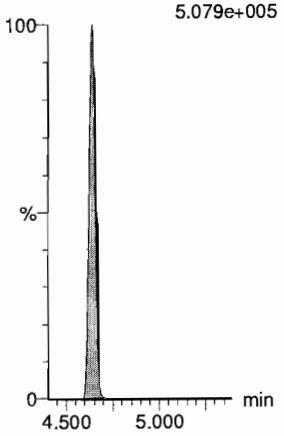
13C3-PFHxS



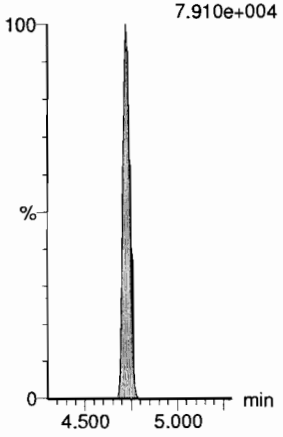
13C8-PFOA



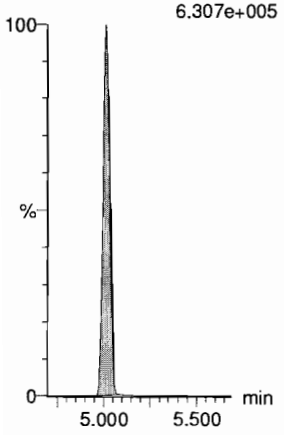
13C9-PFNA



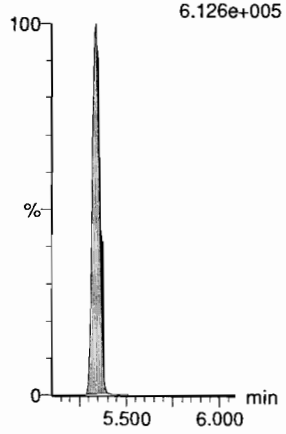
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Dataset: F:\Projects\PFAS.PRO\Results\180605M2\180605M2-68.qld

Last Altered: Wednesday, June 06, 2018 16:47:31 Pacific Daylight Time
Printed: Wednesday, June 06, 2018 16:48:03 Pacific Daylight Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060518.mdb 06 Jun 2018 13:40:46
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-04-18.cdb 05 Jun 2018 10:43:30

Name: 180605M2_68, Date: 06-Jun-2018, Time: 04:08:59, ID: ST180605M2-12 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
1	1	PFBA	213.0 > 16...	8.57e3	9.06e3		1.31	1.31	11.8	10.6	106.5	NO		
2	2	PFPeA	263.1 > 21...	1.17e4	1.42e4		2.28	2.28	10.3	9.99	99.9	NO		
3	3	PFBS	299.0 > 79.7	2.85e3	1.78e3		2.57	2.57	20.0	10.1	100.6	NO	2.840	NO
4	4	4:2 FTS	327.2>307.2	3.51e3	3.68e3		2.98	2.98	11.9	11.1	110.9	NO	1.836	NO
5	5	PFHxA	313.2 > 26...	1.54e4	4.69e3		3.07	3.07	16.5	10.3	103.1	NO	173.865	NO
6	6	PFPeS	349.1>80.1	2.65e3	1.78e3		3.26	3.27	18.6	10.3	103.2	NO	1.734	NO
7	7	PFHpA	363.0 > 31...	1.25e4	1.33e4		3.68	3.68	11.7	10.0	100.4	NO	15.128	NO
8	8	L-PFHxS	398.9 > 79.6	2.27e3	1.59e3		3.83	3.84	17.8	9.28	92.8	NO	1.806	NO
9	10	6:2 FTS	427.1 > 407	3.59e3	3.39e3		4.17	4.15	13.2	10.7	107.2	NO	2.858	NO
10	11	L-PFOA	413 > 368.7	1.67e4	2.15e4		4.25	4.20	9.68	10.7	107.3	NO	3.495	NO
11	13	PFHpS	449 > 80.0	2.69e3	2.15e4		4.33	4.32	1.57	9.94	99.4	NO	1.907	NO
12	14	PFNA	463.0 > 41...	1.85e4	1.80e4		4.66	4.64	12.8	10.0	100.2	NO	4.400	NO
13	15	PFOSA	498.2 > 77.9	2.76e3	3.67e3		4.73	4.71	9.40	9.90	99.0	NO	42.942	YES
14	16	L-PFOS	499.1 > 79.9	2.86e3	3.32e3		4.74	4.72	10.8	11.6	115.7	NO	1.978	NO
15	18	PFDA	513 > 468.8	1.96e4	2.16e4		5.03	5.01	11.3	11.0	110.0	NO	5.212	NO
16	19	8:2 FTS	527 > 506.9	3.43e3	3.16e3		5.00	4.99	13.6	9.45	94.5	NO	2.549	NO
17	20	PFNS	549.1>80.1	2.45e3	3.32e3		5.09	5.08	9.22	11.0	110.3	NO	1.774	NO
18	21	L-MeFOSAA	570.1 > 419	6.54e3	5.40e3		5.18	5.17	15.1	8.01	80.1	NO	16.746	NO
19	23	L-EtFOSAA	584.2 > 419	5.03e3	6.76e3		5.37	5.33	9.29	8.15	81.5	NO	19.854	NO

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Dataset: F:\Projects\PFAS.PRO\Results\180605M2\180605M2-68.qld

Last Altered: Wednesday, June 06, 2018 16:47:31 Pacific Daylight Time
Printed: Wednesday, June 06, 2018 16:48:11 Pacific Daylight Time

(K) Above limit criteria.

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060518.mdb 06 Jun 2018 13:40:46
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-04-18.cdb 05 Jun 2018 10:43:30

Name: 180605M2_68, Date: 06-Jun-2018, Time: 04:08:59, ID: ST180605M2-12 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
1	25	PFUdA	563.0 > 51...	2.06e4	2.42e4		5.35	5.34	10.6	11.0	109.6	NO	10.990	NO
2	26	PFDS	598.8 > 80	2.81e3	2.42e4		5.40	5.39	1.45	10.1	100.7	NO	1.985	NO
3	27	PFDoA	612.9 > 56...	2.05e4	2.08e4		5.63	5.63	12.3	11.1	110.5	NO	8.524	NO
4	28	N-MeFOSA	512.1 > 16...	5.34e3	1.50e4		5.82	5.79	53.3	50.7	101.4	NO	1.498	NO
5	29	PFTrDA	662.9 > 61...	2.45e4	2.08e4		5.88	5.87	14.7	13.6	135.7	YES(K)	24.194	NO
6	30	PFTeDA	712.9 > 66...	1.77e4	1.72e4		6.10	6.08	12.9	9.92	99.2	NO	11.690	NO
7	31	N-EtFOSA	526.1 > 16...	6.60e3	2.18e4		6.23	6.20	45.4	49.0	98.0	NO	1.550	NO
8	32	PFHxDA	813.1 > 76...	1.26e4	9.85e3		6.43	6.43	6.41	10.6	105.8	NO	26.053	NO
9	33	PFODA	913.1 > 86...	1.61e4	9.85e3		6.67	6.67	8.17	9.20	92.0	NO		
10	34	N-MeFOSE	616.1 > 58.9	3.98e3	1.25e4		6.37	6.37	47.6	47.9	95.7	NO		
11	35	N-EtFOSE	630.1 > 58.9	4.72e3	1.27e4		6.52	6.52	55.6	46.5	93.1	NO		
12	36	13C3-PFBA	216.1 > 17...	9.06e3	1.03e4	0.885	1.34	1.31	11.0	12.4	99.3	NO		
13	37	13C3-PFPeA	266. > 221.8	1.42e4	1.62e4	0.849	2.31	2.28	11.0	12.9	103.6	NO		
14	38	13C3-PFBS	302. > 98.8	1.78e3	1.62e4	0.104	2.60	2.57	1.37	13.2	105.8	NO		
15	39	13C2-4:2 FTS	329.2>308.9	3.68e3	1.62e4	0.248	3.01	2.98	2.84	11.5	91.8	NO		
16	40	13C2-PFHxA	315 > 269.8	4.69e3	1.62e4	0.729	3.09	3.07	3.62	4.97	99.4	NO		
17	41	13C4-PFHpA	367.2 > 32...	1.33e4	1.62e4	0.836	3.71	3.68	10.3	12.3	98.1	NO		
18	42	18O2-PFHxS	403.0 > 10...	1.59e3	3.57e3	0.443	3.86	3.83	5.58	12.6	100.9	NO		
19	43	13C2-6:2 FTS	429.1 > 40...	3.39e3	1.93e4	0.249	4.17	4.15	2.20	8.83	70.6	NO		
20	44	13C2-PFOA	414.9 > 36...	2.15e4	1.93e4	1.332	4.23	4.20	13.9	10.5	83.8	NO		
21	45	13C5-PFNA	468.2 > 42...	1.80e4	2.00e4	0.951	4.66	4.64	11.3	11.9	94.8	NO		
22	46	13C8-PFOSA	506.1 > 77.7	3.67e3	2.80e4	0.140	4.73	4.71	1.64	11.7	94.0	NO		
23	47	13C8-PFOS	507.0 > 79.9	3.32e3	3.42e3	1.060	4.74	4.72	12.1	11.5	91.7	NO		
24	48	13C2-PFDA	515.1 > 46...	2.16e4	2.26e4	1.130	5.03	5.01	11.9	10.6	84.5	NO		
25	49	13C2-8:2 FTS	529.1 > 50...	3.16e3	1.62e4	0.217	5.00	4.99	2.44	11.2	89.6	NO		
26	50	d3-N-MeFOSAA	573.3 > 419	5.40e3	2.80e4	0.184	5.18	5.17	2.41	13.1	105.2	NO		
27	51	d5-N-EtFOSAA	589.3 > 419	6.76e3	2.80e4	0.223	5.34	5.32	3.02	13.5	108.3	NO		
28	52	13C2-PFUdA	565 > 519.8	2.42e4	2.80e4	0.936	5.35	5.34	10.8	11.5	92.3	NO		
29	53	13C2-PFDoA	615.0 > 56...	2.08e4	2.26e4	1.168	5.63	5.62	11.5	9.83	78.7	NO		
30	54	d3-N-MeFOSA	515.2 > 16...	1.50e4	2.80e4	0.051	5.85	5.82	6.72	131	87.4	NO		
31	55	13C2-PFTeDA	714.8 > 66...	1.72e4	2.80e4	0.706	6.09	6.08	7.67	10.9	86.9	NO		
32	56	d5-N-ETFOSA	531.1 > 16...	2.18e4	2.80e4	0.071	6.24	6.22	9.76	137	91.3	NO		

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Dataset: F:\Projects\PFAS.PRO\Results\180605M2\180605M2-68.qld

Last Altered: Wednesday, June 06, 2018 16:47:31 Pacific Daylight Time
Printed: Wednesday, June 06, 2018 16:48:11 Pacific Daylight Time

Name: 180605M2_68, Date: 06-Jun-2018, Time: 04:08:59, ID: ST180605M2-12 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
33	57	13C2-PFHxDA	815 > 769.7	9.85e3	2.80e4	1.079	6.43	6.43	4.40	4.08	81.6	NO		
34	58	d7-N-MeFOSE	623.1 > 58.9	1.25e4	2.80e4	0.041	6.37	6.36	5.60	136	90.5	NO		
35	59	d9-N-EtFOSE	639.2 > 58.8	1.27e4	2.80e4	0.038	6.51	6.50	5.69	149	99.0	NO		
36	60	13C4-PFBA	217. > 171.8	1.03e4	1.03e4	1.000	1.35	1.31	12.5	12.5	100.0	NO		
37	61	13C5-PFHxA	318 > 272.9	1.62e4	1.62e4	1.000	3.09	3.07	12.5	12.5	100.0	NO		
38	62	13C3-PFHxS	401.9 > 79.9	3.57e3	3.57e3	1.000	3.86	3.84	12.5	12.5	100.0	NO		
39	63	13C8-PFOA	421.3 > 376	1.93e4	1.93e4	1.000	4.23	4.20	12.5	12.5	100.0	NO		
40	64	13C9-PFNA	472.2 > 42...	2.00e4	2.00e4	1.000	4.66	4.64	12.5	12.5	100.0	NO		
41	65	13C4-PFOS	503 > 79.9	3.42e3	3.42e3	1.000	4.74	4.72	12.5	12.5	100.0	NO		
42	66	13C6-PFDA	519.1 > 47...	2.26e4	2.26e4	1.000	5.03	5.01	12.5	12.5	100.0	NO		
43	67	13C7-PFUdA	570.1 > 52...	2.80e4	2.80e4	1.000	5.35	5.34	12.5	12.5	100.0	NO		

GM 6/6/2018

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Dataset: Untitled

Last Altered: Wednesday, June 06, 2018 17:00:17 Pacific Daylight Time
Printed: Wednesday, June 06, 2018 17:00:28 Pacific Daylight Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060518.mdb 06 Jun 2018 13:40:46
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-04-18.cdb 05 Jun 2018 10:43:30

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	180605M2_1	IPA	05-Jun-18	16:28:10
2	2	180605M2_2	ST180605M2-1 PFC CS-2 18E2902	05-Jun-18	16:38:43
3	3	180605M2_3	ST180605M2-2 PFC CS-1 18E2903	05-Jun-18	16:49:08
4	4	180605M2_4	ST180605M2-3 PFC CS0 18E2904 *	05-Jun-18	16:59:39
5	5	180605M2_5	ST180605M2-4 PFC CS1 18E2905	05-Jun-18	17:10:04
6	6	180605M2_6	ST180605M2-5 PFC CS2 18E2906	05-Jun-18	17:20:34
7	7	180605M2_7	ST180605M2-6 PFC CS3 18E2907	05-Jun-18	17:30:59
8	8	180605M2_8	ST180605M2-7 PFC CS4 18E2908	05-Jun-18	17:41:30
9	9	180605M2_9	ST180605M2-8 PFC CS5 18E2909	05-Jun-18	17:52:00
10	10	180605M2_10	ST180605M2-9 PFC CS6 18E2910	05-Jun-18	18:02:25
11	11	180605M2_11	ST180605M2-10 PFC CS7 18E2911	05-Jun-18	18:12:47
12	12	180605M2_12	IPA	05-Jun-18	18:23:17
13	13	180605M2_13	ICV180605M2-1 PFC 537 ICV 18E2901	05-Jun-18	18:33:43
14	14	180605M2_14	IPA	05-Jun-18	18:44:13
15	15	180605M2_15	B8E0097-BS1 OPR 0.25	05-Jun-18	18:54:40
16	16	180605M2_16	B8E0097-BSD1 LCSD 0.25	05-Jun-18	19:05:08
17	17	180605M2_17	B8E0097-BLK1 Method Blank 0.25	05-Jun-18	19:15:33
18	18	180605M2_18	1800863-01 Bemidji Pilot APR2 lead 0.2...	05-Jun-18	19:26:03
19	19	180605M2_19	1800863-02 Bemidji Pilot PSR2 + 0.26433	05-Jun-18	19:36:27
20	20	180605M2_20	1800863-03 Bemidji Pilot INF 0.26399	05-Jun-18	19:46:57
21	21	180605M2_21	1800901-01 ACT Sample -16 0.23838	05-Jun-18	19:57:21
22	22	180605M2_22	1800901-02 ACT Sample -19 0.23487	05-Jun-18	20:07:52
23	23	180605M2_23	1801071-02 A1-MW-55-SA1 0.11428	05-Jun-18	20:18:16
24	24	180605M2_24	1801071-03 A1-MW-23-SA1 0.11436	05-Jun-18	20:28:47
25	25	180605M2_25	1801071-04 A1-MW-07-SA1 0.11908	05-Jun-18	20:39:12
26	26	180605M2_26	1801039-01 A1-MW-13-SA1 0.10967	05-Jun-18	20:49:42
27	27	180605M2_27	1801039-02 A1-MW-11-SA1 0.11624	05-Jun-18	21:00:07
28	28	180605M2_28	1801039-03 A1-MW-14-SA1 0.11194	05-Jun-18	21:10:37
29	29	180605M2_29	1801039-04 A1-MW-15-SA1 0.11248	05-Jun-18	21:21:07
30	30	180605M2_30	IPA	05-Jun-18	21:31:32
31	31	180605M2_31	ST180605M2-11 PFC CS3 18E2907	05-Jun-18	21:42:02
32	32	180605M2_32	IPA	05-Jun-18	21:52:27

(R) over 10 samples. Ok calculus

*CS0 fell in with previous calibration; curve not used KBF 6/8/18

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Dataset: Untitled

Last Altered: Wednesday, June 06, 2018 17:00:17 Pacific Daylight Time
Printed: Wednesday, June 06, 2018 17:00:28 Pacific Daylight Time

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
33	33	180605M2_33	1801039-07 A1-MW-25-SA1 0.11252	05-Jun-18	22:02:57
34	34	180605M2_34	1801024-01 A1-MW-51-SA1 0.11961	05-Jun-18	22:13:21
35	35	180605M2_35	1801024-02 A1-MW-50-SA1 0.12082	05-Jun-18	22:23:52
36	36	180605M2_36	1801024-05 A1-MW-04-SA1 0.12315	05-Jun-18	22:34:22
37	37	180605M2_37	B8E0078-BS1 OPR 0.125	05-Jun-18	22:44:46
38	38	180605M2_38	B8E0078-BSD1 LCSD 0.125	05-Jun-18	22:55:16
39	39	180605M2_39	B8E0078-BLK1 Method Blank 0.125	05-Jun-18	23:05:40
40	40	180605M2_40	1800862-01 REEPDW451FRB 0.11732	05-Jun-18	23:16:11
41	41	180605M2_41	1800862-02 REEPDW452FRB 0.11393	05-Jun-18	23:26:35
42	42	180605M2_42	1800862-03 REEPDW453FRB 0.11381	05-Jun-18	23:37:05
43	43	180605M2_43	1800862-04 REEPDW454FRB 0.11483	05-Jun-18	23:47:29
44	44	180605M2_44	1800862-05 REEPDW456FRB 0.1202	05-Jun-18	23:58:00
45	45	180605M2_45	1800862-06 REEPDW446FRB 0.11919	06-Jun-18	00:08:25
46	46	180605M2_46	1800862-07 REEPDW455FRB 0.12259	06-Jun-18	00:18:55
47	47	180605M2_47	1800862-08 REEPDW447FRB 0.11683	06-Jun-18	00:29:20
48	48	180605M2_48	1800862-09 REEPDW448FRB 0.12114	06-Jun-18	00:39:51
49	49	180605M2_49	1800862-10 REEPDW449FRB 0.11798	06-Jun-18	00:50:16
50	50	180605M2_50	1800862-11 REEPDW450FRB 0.12118	06-Jun-18	01:00:38
51	51	180605M2_51	1800862-12 REEPDW457FRB 0.12446	06-Jun-18	01:11:08
52	52	180605M2_52	1800862-13 REEPDW459FRB 0.12147	06-Jun-18	01:21:33
53	53	180605M2_53	1800862-14 REEPDW458FRB 0.11703	06-Jun-18	01:32:03
54	54	180605M2_54	1800862-15 REEPDW460FRB 0.11944	06-Jun-18	01:42:28
55	55	180605M2_55	B8E0244-BS1 OPR 0.125	06-Jun-18	01:52:59
56	56	180605M2_56	B8E0244-BLK1 Method Blank 0.125	06-Jun-18	02:03:23
57	57	180605M2_57	B8E0244-MS1 Matrix Spike 0.11028	06-Jun-18	02:13:53
58	58	180605M2_58	B8E0244-MSD1 Matrix Spike Dup 0.113...	06-Jun-18	02:24:17
59	59	180605M2_59	B8E0244-MS2 Matrix Spike 0.11122	06-Jun-18	02:34:48
60	60	180605M2_60	B8E0244-MSD2 Matrix Spike Dup 0.115...	06-Jun-18	02:45:18
61	61	180605M2_61	1801037-01 A1-MW-18-SA1 0.11265	06-Jun-18	02:55:42
62	62	180605M2_62	1801037-02 16-MW-08-SA1 0.11493	06-Jun-18	03:06:13
63	63	180605M2_63	1801037-03 A1-MW-19-SA1 0.11827	06-Jun-18	03:16:38
64	64	180605M2_64	1801037-04 A1-MW-37-SA1 0.11915	06-Jun-18	03:27:09
65	65	180605M2_65	1801037-05 A1-MW-37-SA1D 0.11595	06-Jun-18	03:37:33
66	66	180605M2_66	1801037-06 16-H5-03-SA1 0.12456	06-Jun-18	03:48:03
67	67	180605M2_67	IPA	06-Jun-18	03:58:29
68	68	180605M2_68	ST180605M2-12 PFC CS3 18E2907	06-Jun-18	04:08:59

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Wednesday, June 06, 2018 17:00:17 Pacific Daylight Time
Printed: Wednesday, June 06, 2018 17:00:28 Pacific Daylight Time

Compound name: PFBA

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71	71	180605M2_71	1801037-07 16-MW-09-SA1 0.1148	06-Jun-18	04:40:20
72	72	180605M2_72	1801037-08 16-MW-06-5A1 0.11143	06-Jun-18	04:50:50
73	73	180605M2_73	1801037-09 FRB-20180523 0.11719	06-Jun-18	05:01:15
74	74	180605M2_74	1801054-01 A1-MW-42-SA1 0.11279	06-Jun-18	05:11:45
75	75	180605M2_75	1801054-02 A1-MW-54-SA1 0.11211	06-Jun-18	05:22:09
76	76	180605M2_76	1801054-03 A1-MW-53-SA1 0.1139	06-Jun-18	05:32:40
77	77	180605M2_77	1801054-04 A1-P2-19-SA1 0.11736	06-Jun-18	05:43:10
78	78	180605M2_78	1801054-05 A1-MW-52-SA1 0.11509	06-Jun-18	05:53:35
79	79	180605M2_79	1801054-06 A1-MW-01-SA1 0.1102	06-Jun-18	06:04:05
80	80	180605M2_80	1801054-07 A1-MW-01-SA1D 0.11715	06-Jun-18	06:14:31
81	81	180605M2_81	IPA	06-Jun-18	06:25:01
82	82	180605M2_82	ST180605M2-14 PFC CS3 18E2907	06-Jun-18	06:35:26
83	83	180605M2_83	IPA	06-Jun-18	06:45:57
84	84	180605M2_84	1801054-08 A1-MW-31-SA1 0.11276	06-Jun-18	06:56:27
85	85	180605M2_85	1801054-09 FRB-20180525 0.11663	06-Jun-18	07:06:52
86	86	180605M2_86	B8E0161-BS1 OPR 0.25	06-Jun-18	07:17:22
87	87	180605M2_87	B8E0161-BLK1 Method Blank 0.25	06-Jun-18	07:27:47
88	88	180605M2_88	1800989-01 KE-RD6954-MW01 0.11761	06-Jun-18	07:38:17
89	89	180605M2_89	1800989-02 KE-BBW-MW01 0.11717	06-Jun-18	07:48:48
90	90	180605M2_90	1800989-03 KE-6954-MW01 0.11556	06-Jun-18	07:59:12
91	91	180605M2_91	1800989-04 KE-APN-MW01 0.11557	06-Jun-18	08:09:43
92	92	180605M2_92	1800989-05 KE-FBA-MW01 0.11631	06-Jun-18	08:20:06
93	93	180605M2_93	1800989-06 KE-FBA-MW01D 0.11705	06-Jun-18	08:30:37
94	94	180605M2_94	1800989-07 KE-NNTA-MW01 0.11356	06-Jun-18	08:41:02
95	95	180605M2_95	1800989-08 KE-6918-MW01 0.11438	06-Jun-18	08:51:32
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101	1...	180605M2_101	1800989-11 KE-FTA-MW01 0.1098	06-Jun-18	09:54:18
102	1...	180605M2_102	1800986-01 FR Fld Blk 0.25955	06-Jun-18	10:04:48
103	1...	180605M2_103	IS SUP TESTER	06-Jun-18	10:27:41
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Vista Analytical Laboratory

Dataset: Untitled

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Compound name: PFBA

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106	1...	180605M2_106	1800986-04 K_V 0.27397	06-Jun-18	10:59:02
107	1...	180605M2_107	1800990-01 WIRR1805171315JLB 0.2...	06-Jun-18	11:09:32
108	1...	180605M2_108	1800990-02 FB1805171320JLB 0.25861	06-Jun-18	11:19:56
109	1...	180605M2_109	IPA	06-Jun-18	11:30:26
110	1...	180605M2_110	ST180605M2-16 PFC CS3 18E2907	06-Jun-18	11:40:57
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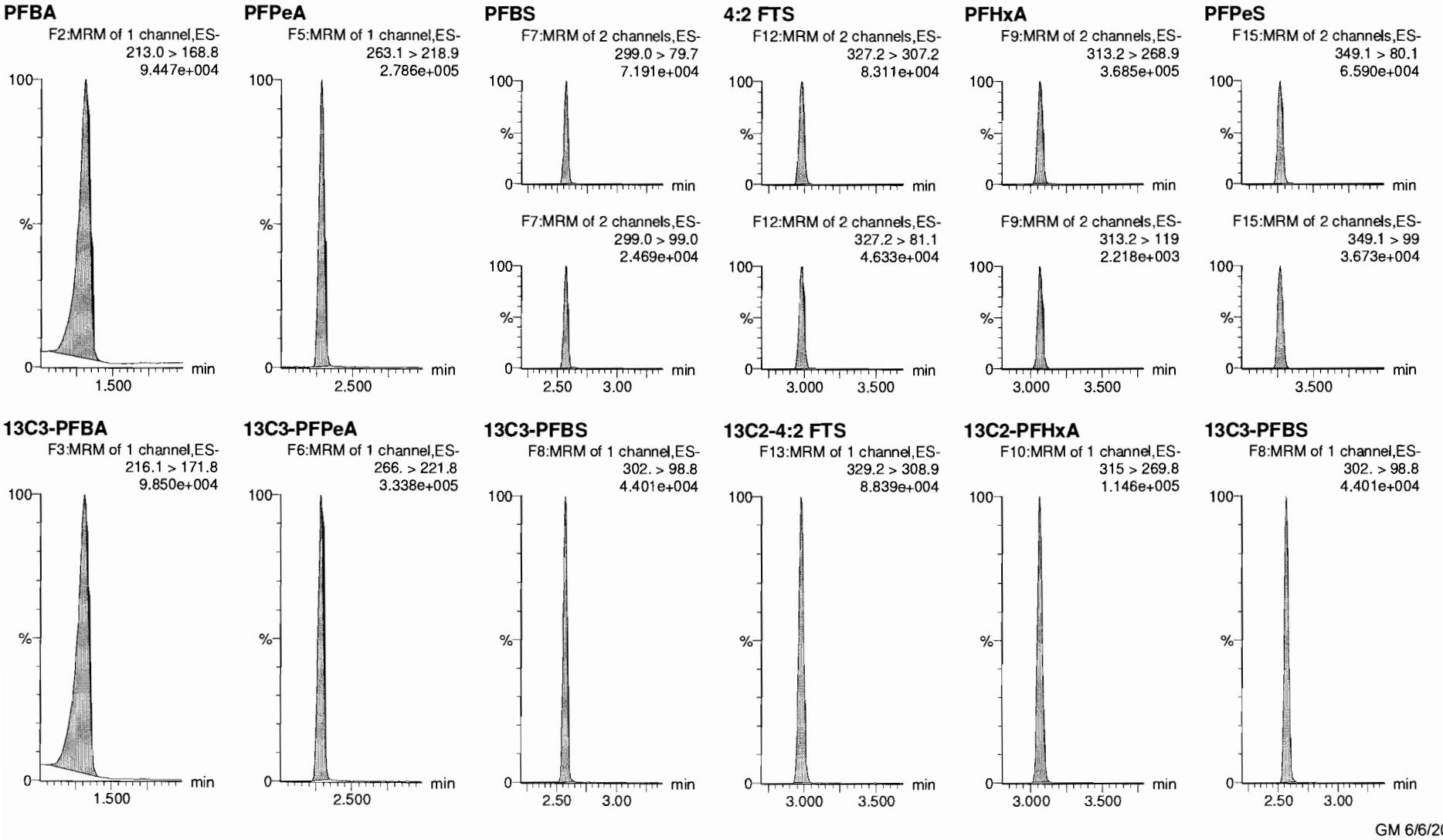
Vista Analytical Laboratory

Dataset: F:\Projects\PFAS.PRO\Results\180605M2\180605M2-68.qld

Last Altered: Wednesday, June 06, 2018 16:47:31 Pacific Daylight Time
Printed: Wednesday, June 06, 2018 16:48:11 Pacific Daylight Time

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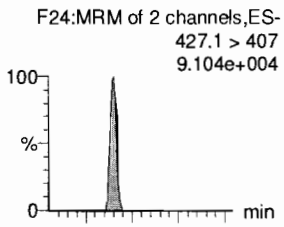
GM 6/6/2018

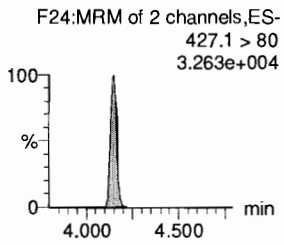
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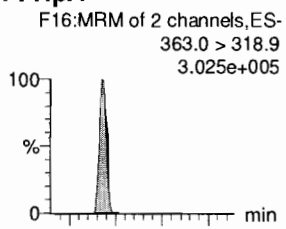
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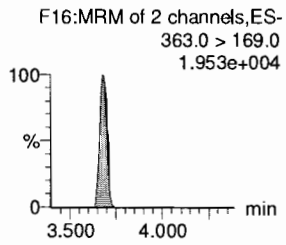
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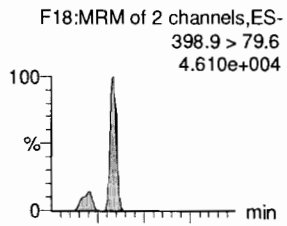


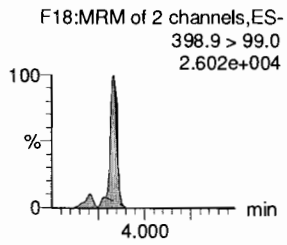
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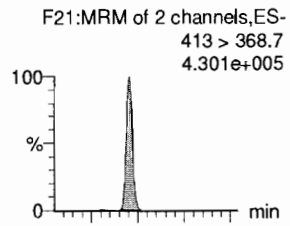


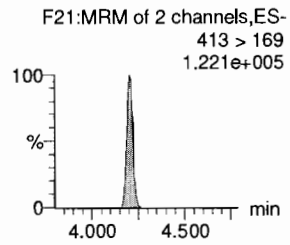
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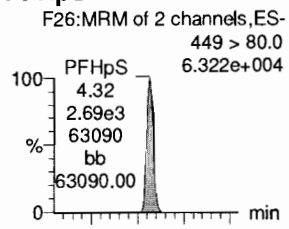


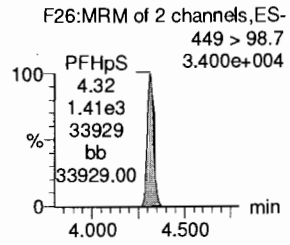
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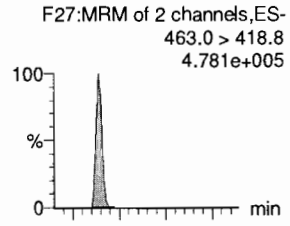


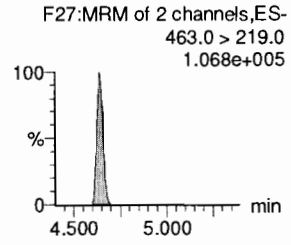
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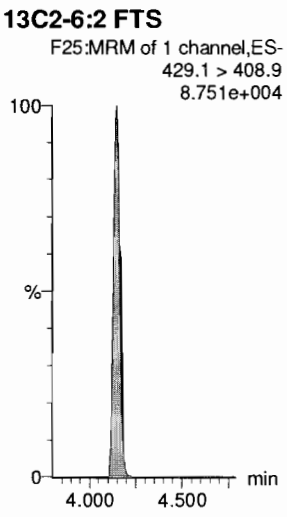


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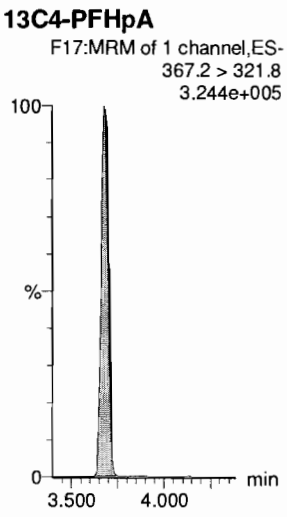




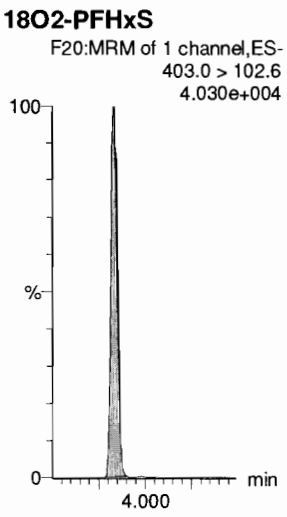
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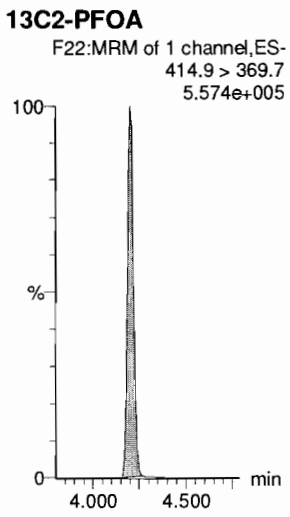
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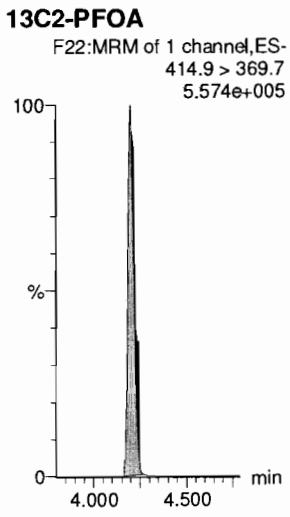
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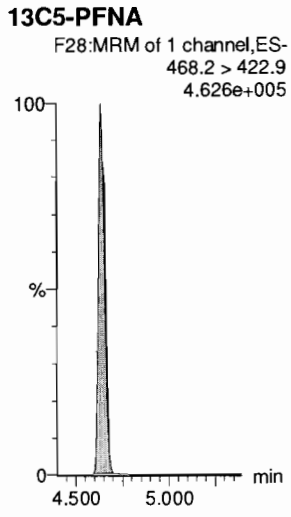
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13C2-PFOA



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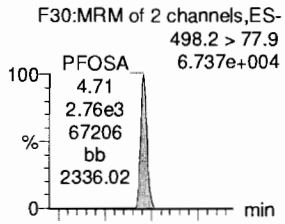
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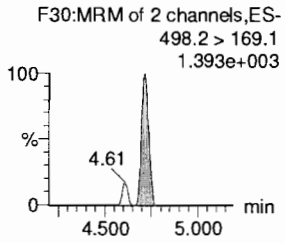
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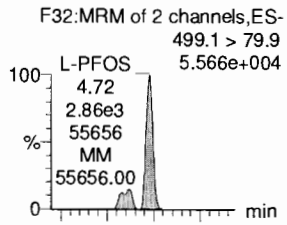
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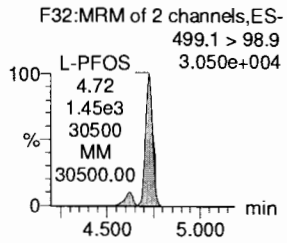
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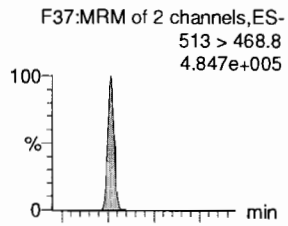


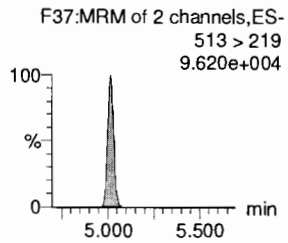
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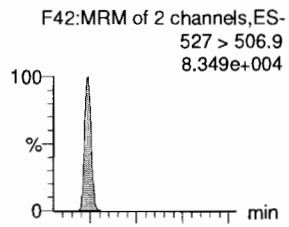


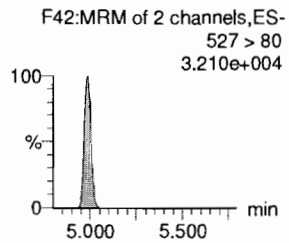
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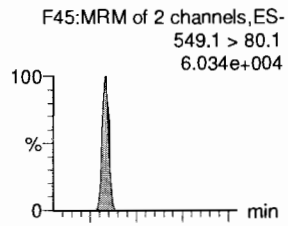


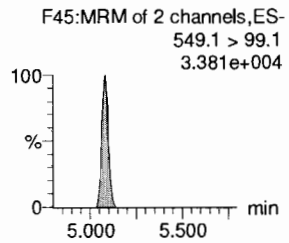
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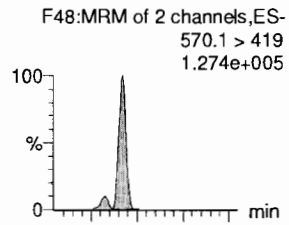


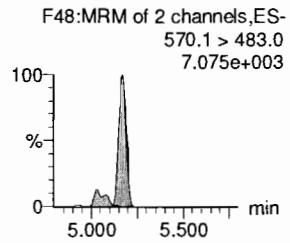
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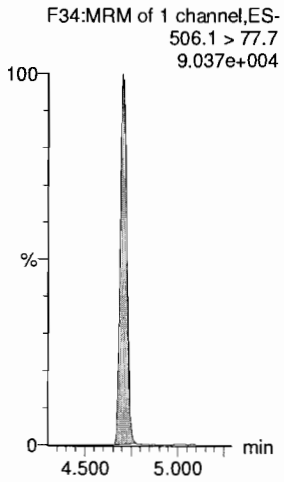


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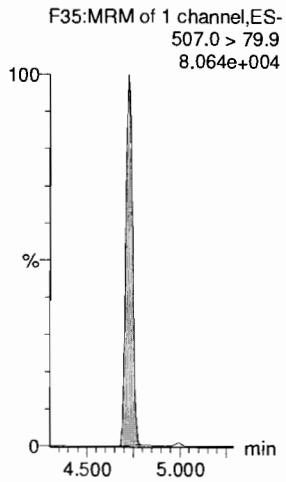




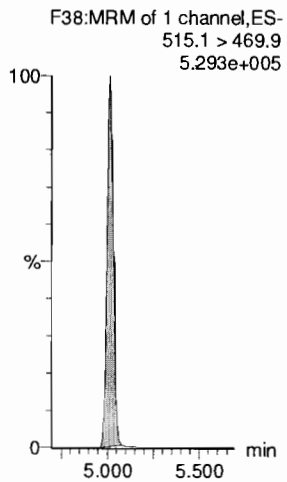
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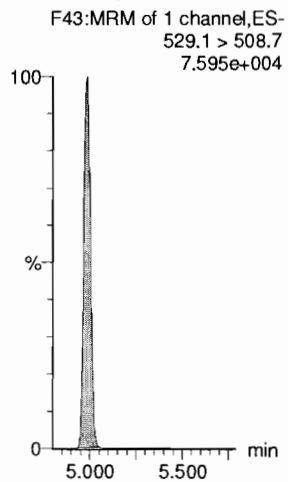
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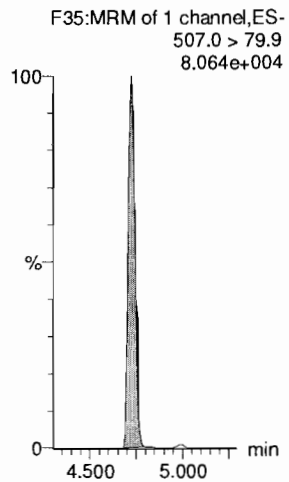
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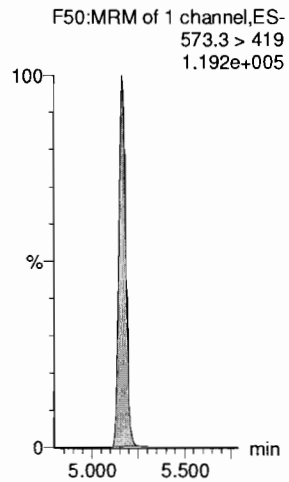
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13C8-PFOS



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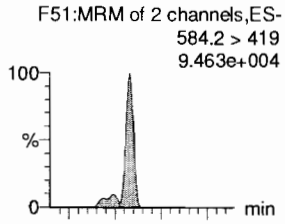
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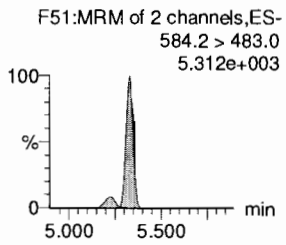
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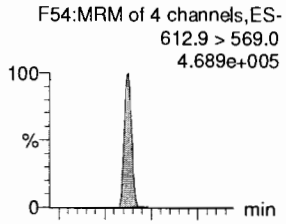
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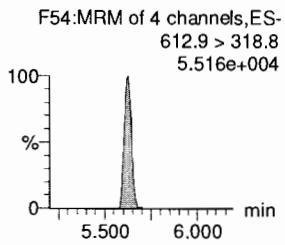
L-EtFOSAA



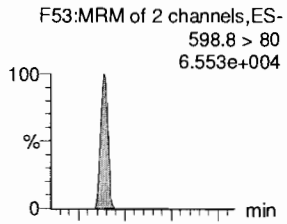


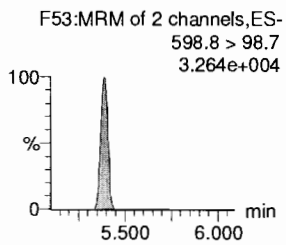
PFDoA



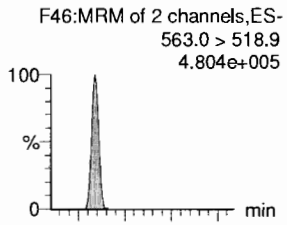


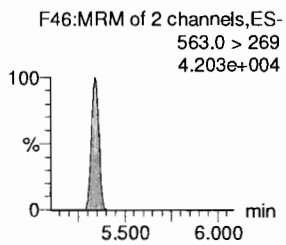
PFDS



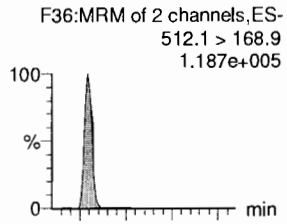


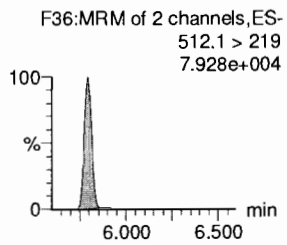
PFUdA



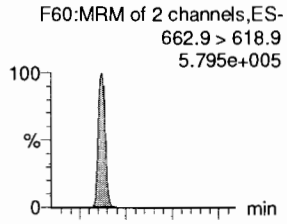


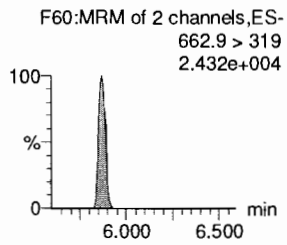
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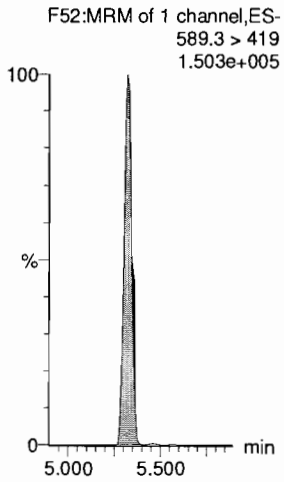


PFTrDA

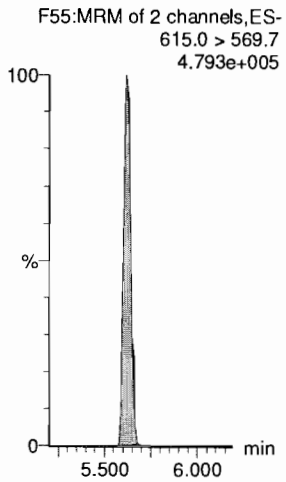




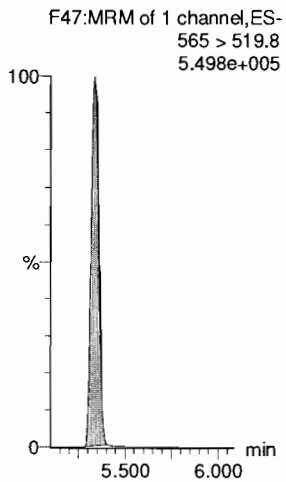
d5-N-EtFOSAA



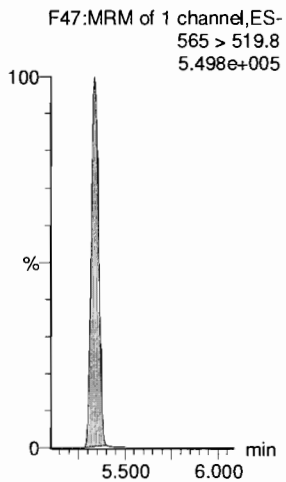
13C2-PFDoA



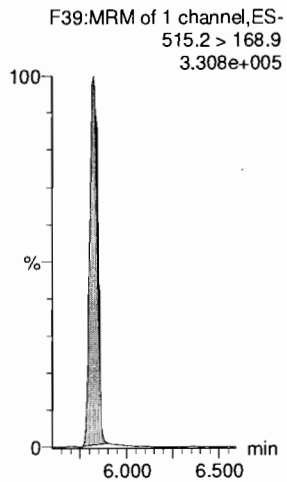
13C2-PFUdA



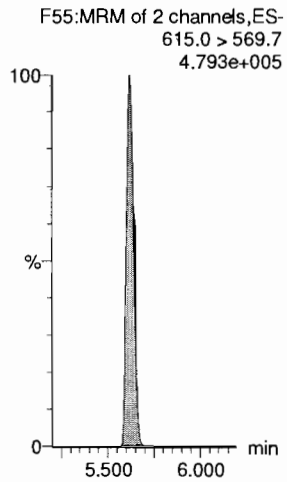
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA



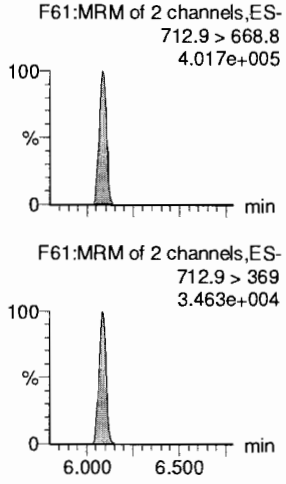
GM 6/6/2018

Dataset: F:\Projects\PFAS.PRO\Results\180605M2\180605M2-68.qld

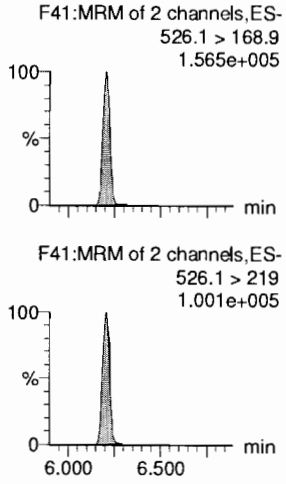
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Printed: Wednesday, June 06, 2018 16:48:11 Pacific Daylight Time

Name: 180605M2_68, Date: 06-Jun-2018, Time: 04:08:59, ID: ST180605M2-12 PFC CS3 18E2907, Description: PFC CS3 18E2907

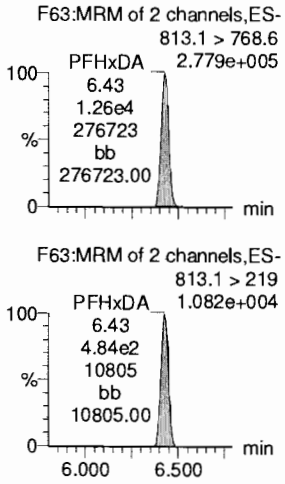
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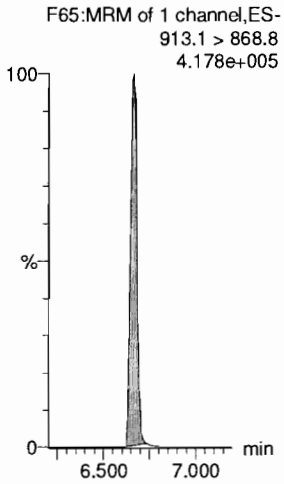
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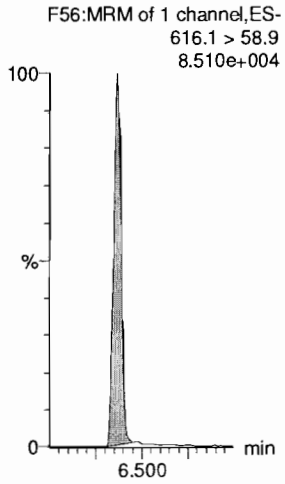
PFHxDA



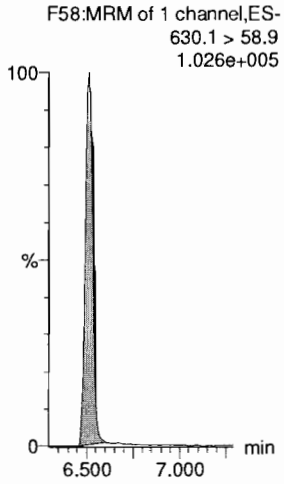
PFODA



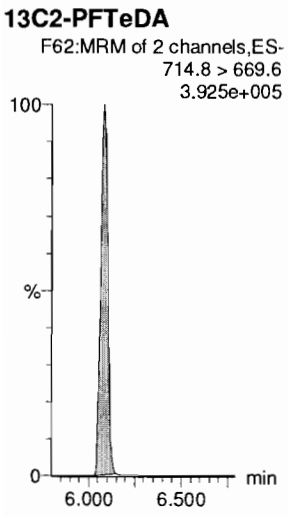
N-MeFOSE



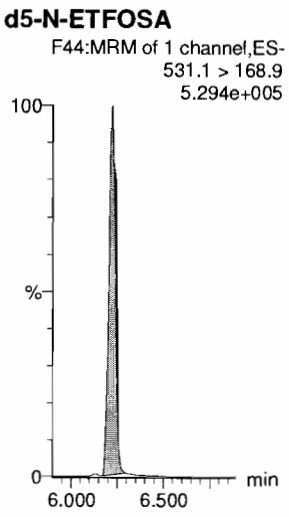
N-EtFOSE



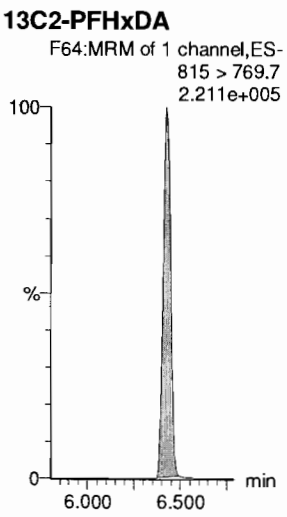
13C2-PFTeDA



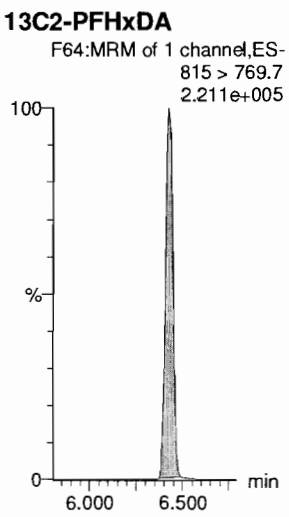
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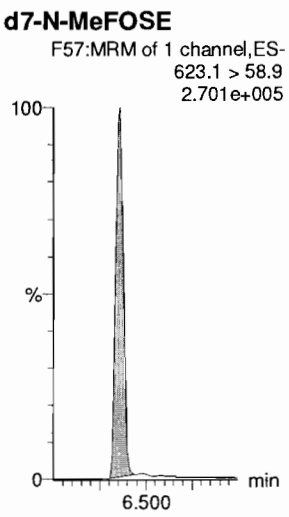
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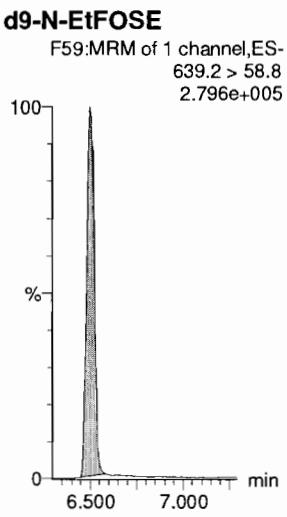
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d7-N-MeFOSE



d9-N-EtFOSE



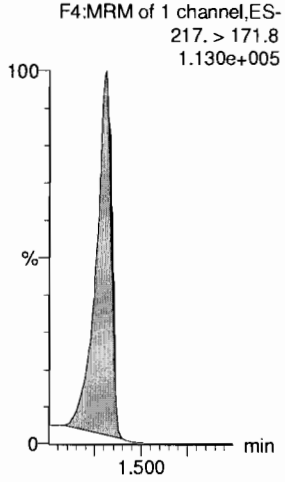
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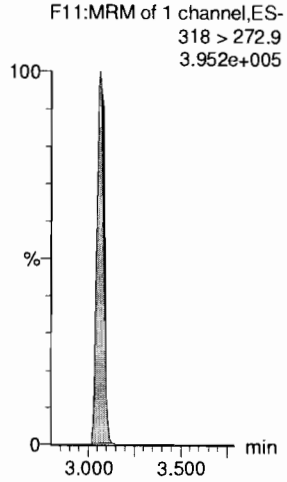
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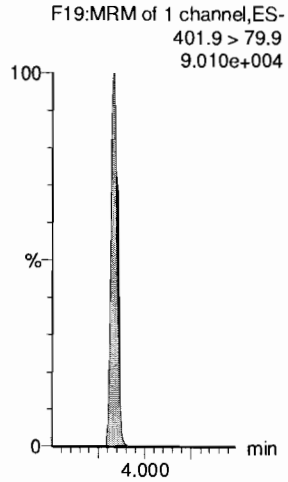
13C4-PFBA



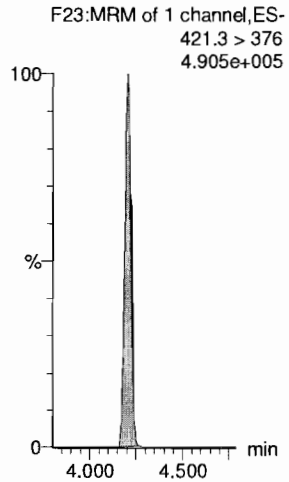
13C5-PFHxA



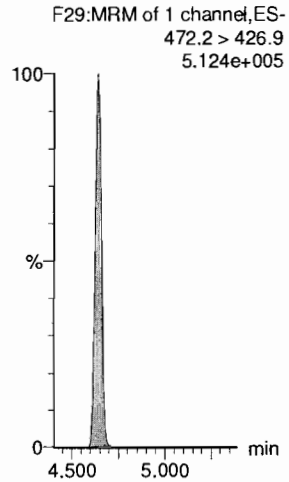
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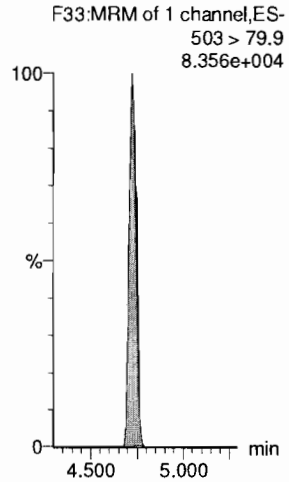
13C8-PFOA



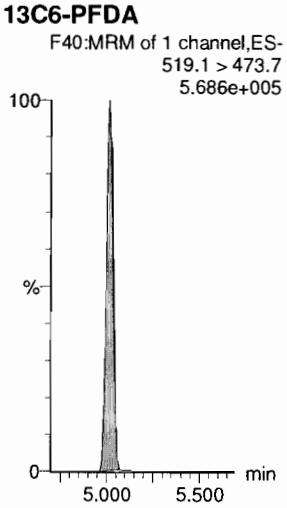
13C9-PFNA



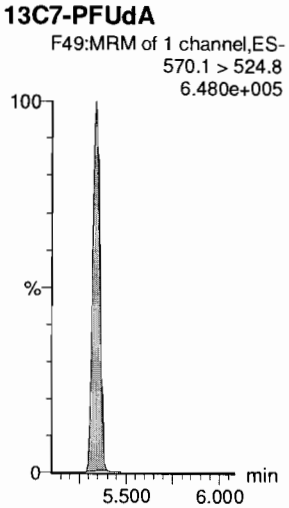
13C4-PFOS



13C6-PFDA



13C7-PFUdA



GM 6/6/2018

Dataset: F:\Projects\PFAS.PRO\Results\180607M2\180607M2-IIS AREAS.qld

Last Altered: Friday, June 08, 2018 15:59:05 Pacific Daylight Time
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Method: F:\Projects\PFAS.PRO\MethDB\PFAS_RS-5-19-18.mdb 20 May 2018 12:59:37
Calibration: 08 Jun 2018 15:59:05

Name: 180607M2_3, Date: 07-Jun-2018, Time: 13:53:21, ID: ST180607M2-2 PFC CS0 18E2904, Description: PFC CS0 18E2904

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST180607M2-2 PFC CS0 18E2904	1.05e4	100.0	NO
2	2	13C5-PFHxA	ST180607M2-2 PFC CS0 18E2904	1.29e4	100.0	NO
3	3	13C3-PFHxS	ST180607M2-2 PFC CS0 18E2904	2.68e3	100.0	NO
4	4	13C8-PFOA	ST180607M2-2 PFC CS0 18E2904	1.24e4	100.0	NO
5	5	13C9-PFNA	ST180607M2-2 PFC CS0 18E2904	1.27e4	100.0	NO
6	6	13C4-PFOS	ST180607M2-2 PFC CS0 18E2904	2.76e3	100.0	NO
7	7	13C6-PFDA	ST180607M2-2 PFC CS0 18E2904	1.43e4	100.0	NO
8	8	13C7-PFUdA	ST180607M2-2 PFC CS0 18E2904	1.62e4	100.0	NO

Name: 180607M2_4, Date: 07-Jun-2018, Time: 14:03:47, 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: 180607M2_5, Date: 07-Jun-2018, Time: 14:14:18, ID: B8F0025-BS1 OPR 0.25, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8F0025-BS1 OPR 0.25	7.74e3	74.1	NO
2	2	13C5-PFHxA	B8F0025-BS1 OPR 0.25	1.02e4	78.8	NO
3	3	13C3-PFHxS	B8F0025-BS1 OPR 0.25	2.24e3	83.5	NO
4	4	13C8-PFOA	B8F0025-BS1 OPR 0.25	1.02e4	82.5	NO
5	5	13C9-PFNA	B8F0025-BS1 OPR 0.25	1.04e4	81.6	NO
6	6	13C4-PFOS	B8F0025-BS1 OPR 0.25	2.56e3	92.6	NO
7	7	13C6-PFDA	B8F0025-BS1 OPR 0.25	1.17e4	82.1	NO
8	8	13C7-PFUdA	B8F0025-BS1 OPR 0.25	1.35e4	83.6	NO

Name: 180607M2_6, Date: 07-Jun-2018, Time: 14:24:40, ID: B8F0025-BLK1 Method Blank 0.25, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8F0025-BLK1 Method Blank 0.25	8.00e3	76.5	NO
2	2	13C5-PFHxA	B8F0025-BLK1 Method Blank 0.25	1.03e4	79.9	NO
3	3	13C3-PFHxS	B8F0025-BLK1 Method Blank 0.25	2.22e3	82.7	NO
4	4	13C8-PFOA	B8F0025-BLK1 Method Blank 0.25	9.82e3	79.3	NO
5	5	13C9-PFNA	B8F0025-BLK1 Method Blank 0.25	1.02e4	80.0	NO
6	6	13C4-PFOS	B8F0025-BLK1 Method Blank 0.25	2.40e3	86.9	NO
7	7	13C6-PFDA	B8F0025-BLK1 Method Blank 0.25	1.08e4	76.0	NO
8	8	13C7-PFUdA	B8F0025-BLK1 Method Blank 0.25	1.27e4	78.5	NO

Dataset: F:\Projects\PFAS.PRO\Results\180607M2\180607M2-IIS AREAS.qld

Last Altered: Friday, June 08, 2018 15:59:05 Pacific Daylight Time
Printed: Friday, June 08, 2018 16:33:17 Pacific Daylight Time

Name: 180607M2_7, Date: 07-Jun-2018, Time: 14:35:10, ID: 1800796-11 RCCB 1 0.26894, Description: RCCB 1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800796-11 RCCB 1 0.26894	7.88e3	75.3	NO
2	2	13C5-PFHxA	1800796-11 RCCB 1 0.26894	1.09e4	83.9	NO
3	3	13C3-PFHxS	1800796-11 RCCB 1 0.26894	2.36e3	87.9	NO
4	4	13C8-PFOA	1800796-11 RCCB 1 0.26894	1.07e4	86.3	NO
5	5	13C9-PFNA	1800796-11 RCCB 1 0.26894	1.05e4	82.2	NO
6	6	13C4-PFOS	1800796-11 RCCB 1 0.26894	2.50e3	90.4	NO
7	7	13C6-PFDA	1800796-11 RCCB 1 0.26894	1.12e4	78.6	NO
8	8	13C7-PFUdA	1800796-11 RCCB 1 0.26894	1.22e4	75.6	NO

Name: 180607M2_8, Date: 07-Jun-2018, Time: 14:45:36, ID: 1801123-01 MW-101 0.11977, Description: MW-101

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801123-01 MW-101 0.11977	7.66e3	73.3	NO
2	2	13C5-PFHxA	1801123-01 MW-101 0.11977	9.94e3	76.8	NO
3	3	13C3-PFHxS	1801123-01 MW-101 0.11977	2.20e3	81.9	NO
4	4	13C8-PFOA	1801123-01 MW-101 0.11977	9.58e3	77.3	NO
5	5	13C9-PFNA	1801123-01 MW-101 0.11977	1.02e4	79.8	NO
6	6	13C4-PFOS	1801123-01 MW-101 0.11977	2.01e3	72.6	NO
7	7	13C6-PFDA	1801123-01 MW-101 0.11977	1.02e4	71.8	NO
8	8	13C7-PFUdA	1801123-01 MW-101 0.11977	1.20e4	74.2	NO

Name: 180607M2_9, Date: 07-Jun-2018, Time: 14:56:06, ID: 1801123-02 MW-102 0.11688, Description: MW-102

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801123-02 MW-102 0.11688	8.23e3	78.7	NO
2	2	13C5-PFHxA	1801123-02 MW-102 0.11688	1.03e4	79.4	NO
3	3	13C3-PFHxS	1801123-02 MW-102 0.11688	2.20e3	82.0	NO
4	4	13C8-PFOA	1801123-02 MW-102 0.11688	1.04e4	83.8	NO
5	5	13C9-PFNA	1801123-02 MW-102 0.11688	1.09e4	85.9	NO
6	6	13C4-PFOS	1801123-02 MW-102 0.11688	2.51e3	90.6	NO
7	7	13C6-PFDA	1801123-02 MW-102 0.11688	1.19e4	83.3	NO
8	8	13C7-PFUdA	1801123-02 MW-102 0.11688	1.31e4	80.7	NO

Name: 180607M2_10, Date: 07-Jun-2018, Time: 15:06:30, ID: 1801123-03 MW-103 0.11631, Description: MW-103

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801123-03 MW-103 0.11631	8.29e3	79.3	NO
2	2	13C5-PFHxA	1801123-03 MW-103 0.11631	1.11e4	85.8	NO
3	3	13C3-PFHxS	1801123-03 MW-103 0.11631	2.29e3	85.3	NO
4	4	13C8-PFOA	1801123-03 MW-103 0.11631	1.04e4	83.6	NO
5	5	13C9-PFNA	1801123-03 MW-103 0.11631	1.14e4	89.2	NO
6	6	13C4-PFOS	1801123-03 MW-103 0.11631	2.43e3	88.0	NO
7	7	13C6-PFDA	1801123-03 MW-103 0.11631	1.08e4	75.8	NO
8	8	13C7-PFUdA	1801123-03 MW-103 0.11631	1.31e4	81.2	NO

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Name: 180607M2_11, Date: 07-Jun-2018, Time: 15:17:00, ID: 1801123-04 MW-104 0.11472, Description: MW-104

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801123-04 MW-104 0.11472	7.17e3	68.6	NO
2	2	13C5-PFHxA	1801123-04 MW-104 0.11472	9.64e3	74.5	NO
3	3	13C3-PFHxS	1801123-04 MW-104 0.11472	1.99e3	74.4	NO
4	4	13C8-PFOA	1801123-04 MW-104 0.11472	9.38e3	75.7	NO
5	5	13C9-PFNA	1801123-04 MW-104 0.11472	1.03e4	80.9	NO
6	6	13C4-PFOS	1801123-04 MW-104 0.11472	2.35e3	85.0	NO
7	7	13C6-PFDA	1801123-04 MW-104 0.11472	8.83e3	61.9	NO
8	8	13C7-PFUdA	1801123-04 MW-104 0.11472	1.16e4	71.5	NO

Name: 180607M2_12, Date: 07-Jun-2018, Time: 15:27:24, ID: 1801124-01 140 Harvey Rd 0.11503, Description: 140 Harvey Rd

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801124-01 140 Harvey Rd 0.11503	7.30e3	69.9	NO
2	2	13C5-PFHxA	1801124-01 140 Harvey Rd 0.11503	1.02e4	78.8	NO
3	3	13C3-PFHxS	1801124-01 140 Harvey Rd 0.11503	2.29e3	85.4	NO
4	4	13C8-PFOA	1801124-01 140 Harvey Rd 0.11503	9.78e3	78.9	NO
5	5	13C9-PFNA	1801124-01 140 Harvey Rd 0.11503	1.08e4	84.8	NO
6	6	13C4-PFOS	1801124-01 140 Harvey Rd 0.11503	2.46e3	89.1	NO
7	7	13C6-PFDA	1801124-01 140 Harvey Rd 0.11503	1.06e4	74.6	NO
8	8	13C7-PFUdA	1801124-01 140 Harvey Rd 0.11503	1.21e4	74.9	NO

Name: 180607M2_13, Date: 07-Jun-2018, Time: 15:37:57, ID: 1801039-03 A1-MW-14-SA1 0.11194, Description: A1-MW-14-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801039-03 A1-MW-14-SA1 0.11194	2.68e3	25.6	YES
2	2	13C5-PFHxA	1801039-03 A1-MW-14-SA1 0.11194	4.00e3	30.9	YES
3	3	13C3-PFHxS	1801039-03 A1-MW-14-SA1 0.11194	3.97e3	148.1	NO
4	4	13C8-PFOA	1801039-03 A1-MW-14-SA1 0.11194	5.59e3	45.1	YES
5	5	13C9-PFNA	1801039-03 A1-MW-14-SA1 0.11194	8.03e3	63.0	NO
6	6	13C4-PFOS	1801039-03 A1-MW-14-SA1 0.11194	4.59e3	166.3	YES
7	7	13C6-PFDA	1801039-03 A1-MW-14-SA1 0.11194	1.14e4	80.0	NO
8	8	13C7-PFUdA	1801039-03 A1-MW-14-SA1 0.11194	1.39e4	85.8	NO

Name: 180607M2_14, Date: 07-Jun-2018, Time: 15:48:25, ID: 1801039-04 A1-MW-15-SA1 0.11248, Description: A1-MW-15-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801039-04 A1-MW-15-SA1 0.11248	4.73e3	45.2	YES
2	2	13C5-PFHxA	1801039-04 A1-MW-15-SA1 0.11248	7.39e3	57.1	NO
3	3	13C3-PFHxS	1801039-04 A1-MW-15-SA1 0.11248	3.42e3	127.6	NO
4	4	13C8-PFOA	1801039-04 A1-MW-15-SA1 0.11248	1.10e4	88.6	NO
5	5	13C9-PFNA	1801039-04 A1-MW-15-SA1 0.11248	1.25e4	97.8	NO
6	6	13C4-PFOS	1801039-04 A1-MW-15-SA1 0.11248	4.10e3	148.4	NO
7	7	13C6-PFDA	1801039-04 A1-MW-15-SA1 0.11248	1.43e4	100.5	NO
8	8	13C7-PFUdA	1801039-04 A1-MW-15-SA1 0.11248	1.54e4	95.3	NO

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Name: 180607M2_15, Date: 07-Jun-2018, Time: 15:58:50, ID: 1800862-05 REEPDW456FRB 0.1202, Description: REEPDW456FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800862-05 REEPDW456FRB 0.1202	5.73e3	54.8	NO
2	2	13C5-PFHxA	1800862-05 REEPDW456FRB 0.1202	7.71e3	59.6	NO
3	3	13C3-PFHxS	1800862-05 REEPDW456FRB 0.1202	1.55e3	57.8	NO
4	4	13C8-PFOA	1800862-05 REEPDW456FRB 0.1202	7.66e3	61.8	NO
5	5	13C9-PFNA	1800862-05 REEPDW456FRB 0.1202	7.77e3	61.0	NO
6	6	13C4-PFOS	1800862-05 REEPDW456FRB 0.1202	1.75e3	63.3	NO
7	7	13C6-PFDA	1800862-05 REEPDW456FRB 0.1202	8.08e3	56.7	NO
8	8	13C7-PFUdA	1800862-05 REEPDW456FRB 0.1202	9.54e3	58.9	NO

Name: 180607M2_16, Date: 07-Jun-2018, Time: 16:09:21, ID: 1800862-08 REEPDW447FRB 0.11683, Description: REEPDW447FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800862-08 REEPDW447FRB 0.11683	3.93e3	37.6	YES
2	2	13C5-PFHxA	1800862-08 REEPDW447FRB 0.11683	6.39e3	49.4	YES
3	3	13C3-PFHxS	1800862-08 REEPDW447FRB 0.11683	1.67e3	62.4	NO
4	4	13C8-PFOA	1800862-08 REEPDW447FRB 0.11683	6.53e3	52.7	NO
5	5	13C9-PFNA	1800862-08 REEPDW447FRB 0.11683	7.57e3	59.4	NO
6	6	13C4-PFOS	1800862-08 REEPDW447FRB 0.11683	1.75e3	63.5	NO
7	7	13C6-PFDA	1800862-08 REEPDW447FRB 0.11683	7.51e3	52.6	NO
8	8	13C7-PFUdA	1800862-08 REEPDW447FRB 0.11683	8.37e3	51.7	NO

Name: 180607M2_17, Date: 07-Jun-2018, Time: 16:19:45, ID: 1800862-15 REEPDW460FRB 0.11944, Description: REEPDW460FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800862-15 REEPDW460FRB 0.11944	4.46e3	42.6	YES
2	2	13C5-PFHxA	1800862-15 REEPDW460FRB 0.11944	6.74e3	52.1	NO
3	3	13C3-PFHxS	1800862-15 REEPDW460FRB 0.11944	1.57e3	58.5	NO
4	4	13C8-PFOA	1800862-15 REEPDW460FRB 0.11944	7.07e3	57.1	NO
5	5	13C9-PFNA	1800862-15 REEPDW460FRB 0.11944	8.14e3	63.9	NO
6	6	13C4-PFOS	1800862-15 REEPDW460FRB 0.11944	1.63e3	59.1	NO
7	7	13C6-PFDA	1800862-15 REEPDW460FRB 0.11944	6.92e3	48.5	YES
8	8	13C7-PFUdA	1800862-15 REEPDW460FRB 0.11944	9.60e3	59.3	NO

Name: 180607M2_18, Date: 07-Jun-2018, Time: 17:09:15, ID: B8E0244-BS1 OPR 0.125, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0244-BS1 OPR 0.125			NO
2	2	13C5-PFHxA	B8E0244-BS1 OPR 0.125			NO
3	3	13C3-PFHxS	B8E0244-BS1 OPR 0.125			NO
4	4	13C8-PFOA	B8E0244-BS1 OPR 0.125			NO
5	5	13C9-PFNA	B8E0244-BS1 OPR 0.125			NO
6	6	13C4-PFOS	B8E0244-BS1 OPR 0.125			NO
7	7	13C6-PFDA	B8E0244-BS1 OPR 0.125			NO
8	8	13C7-PFUdA	B8E0244-BS1 OPR 0.125			NO

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Name: 180607M2_19, Date: 07-Jun-2018, Time: 17:20:17, ID: cs2 qc, Description: cs2 qc

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	cs2 qc	1.14e4	109.0	NO
2	2	13C5-PFHxA	cs2 qc	1.39e4	107.3	NO
3	3	13C3-PFHxS	cs2 qc	2.77e3	103.2	NO
4	4	13C8-PFOA	cs2 qc	1.42e4	114.9	NO
5	5	13C9-PFNA	cs2 qc	1.43e4	112.1	NO
6	6	13C4-PFOS	cs2 qc	2.98e3	107.7	NO
7	7	13C6-PFDA	cs2 qc	1.49e4	104.7	NO
8	8	13C7-PFUdA	cs2 qc	1.62e4	100.1	NO

Name: 180607M2_20, Date: 07-Jun-2018, Time: 17:30:45, ID: B8E0244-BS1 OPR 0.125, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0244-BS1 OPR 0.125	6.81e3	65.2	NO
2	2	13C5-PFHxA	B8E0244-BS1 OPR 0.125	1.03e4	79.5	NO
3	3	13C3-PFHxS	B8E0244-BS1 OPR 0.125	2.38e3	88.6	NO
4	4	13C8-PFOA	B8E0244-BS1 OPR 0.125	1.07e4	86.1	NO
5	5	13C9-PFNA	B8E0244-BS1 OPR 0.125	1.15e4	90.2	NO
6	6	13C4-PFOS	B8E0244-BS1 OPR 0.125	2.61e3	94.3	NO
7	7	13C6-PFDA	B8E0244-BS1 OPR 0.125	1.13e4	78.9	NO
8	8	13C7-PFUdA	B8E0244-BS1 OPR 0.125	1.43e4	88.2	NO

Name: 180607M2_21, Date: 07-Jun-2018, Time: 17:41:14, ID: B8E0244-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0244-BLK1 Method Blank 0.125	8.26e3	79.0	NO
2	2	13C5-PFHxA	B8E0244-BLK1 Method Blank 0.125	1.08e4	83.2	NO
3	3	13C3-PFHxS	B8E0244-BLK1 Method Blank 0.125	2.15e3	80.3	NO
4	4	13C8-PFOA	B8E0244-BLK1 Method Blank 0.125	1.05e4	84.7	NO
5	5	13C9-PFNA	B8E0244-BLK1 Method Blank 0.125	1.10e4	86.7	NO
6	6	13C4-PFOS	B8E0244-BLK1 Method Blank 0.125	2.23e3	80.5	NO
7	7	13C6-PFDA	B8E0244-BLK1 Method Blank 0.125	1.17e4	82.3	NO
8	8	13C7-PFUdA	B8E0244-BLK1 Method Blank 0.125	1.47e4	90.9	NO

Name: 180607M2_22, Date: 07-Jun-2018, Time: 17:51:44, ID: B8E0244-MS1 Matrix Spike 0.11028, Description: Matrix Spike

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0244-MS1 Matrix Spike 0.11028	9.52e3	91.1	NO
2	2	13C5-PFHxA	B8E0244-MS1 Matrix Spike 0.11028	1.15e4	88.7	NO
3	3	13C3-PFHxS	B8E0244-MS1 Matrix Spike 0.11028	4.16e3	155.3	YES
4	4	13C8-PFOA	B8E0244-MS1 Matrix Spike 0.11028	1.51e4	121.7	NO
5	5	13C9-PFNA	B8E0244-MS1 Matrix Spike 0.11028	1.64e4	128.8	NO
6	6	13C4-PFOS	B8E0244-MS1 Matrix Spike 0.11028	4.17e3	151.0	YES
7	7	13C6-PFDA	B8E0244-MS1 Matrix Spike 0.11028	1.78e4	124.8	NO
8	8	13C7-PFUdA	B8E0244-MS1 Matrix Spike 0.11028	2.03e4	125.2	NO

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Name: 180607M2_23, Date: 07-Jun-2018, Time: 18:02:08, ID: B8E0244-MSD1 Matrix Spike Dup 0.11324, Description: Matrix Spike Dup

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0244-MSD1 Matrix Spike Dup 0.113...	5.16e3	49.3	YES
2	2	13C5-PFHxA	B8E0244-MSD1 Matrix Spike Dup 0.113...	6.64e3	51.3	NO
3	3	13C3-PFHxS	B8E0244-MSD1 Matrix Spike Dup 0.113...	2.07e3	77.2	NO
4	4	13C8-PFOA	B8E0244-MSD1 Matrix Spike Dup 0.113...	8.17e3	66.0	NO
5	5	13C9-PFNA	B8E0244-MSD1 Matrix Spike Dup 0.113...	8.85e3	69.5	NO
6	6	13C4-PFOS	B8E0244-MSD1 Matrix Spike Dup 0.113...	2.35e3	85.1	NO
7	7	13C6-PFDA	B8E0244-MSD1 Matrix Spike Dup 0.113...	8.34e3	58.4	NO
8	8	13C7-PFUdA	B8E0244-MSD1 Matrix Spike Dup 0.113...	1.04e4	64.2	NO

Name: 180607M2_24, Date: 07-Jun-2018, Time: 18:12:39, ID: B8E0244-MS2 Matrix Spike 0.11122, Description: Matrix Spike

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0244-MS2 Matrix Spike 0.11122	4.00e3	38.2	YES
2	2	13C5-PFHxA	B8E0244-MS2 Matrix Spike 0.11122	5.74e3	44.3	YES
3	3	13C3-PFHxS	B8E0244-MS2 Matrix Spike 0.11122	2.07e3	77.3	NO
4	4	13C8-PFOA	B8E0244-MS2 Matrix Spike 0.11122	7.35e3	59.3	NO
5	5	13C9-PFNA	B8E0244-MS2 Matrix Spike 0.11122	7.95e3	62.4	NO
6	6	13C4-PFOS	B8E0244-MS2 Matrix Spike 0.11122	2.17e3	78.7	NO
7	7	13C6-PFDA	B8E0244-MS2 Matrix Spike 0.11122	8.51e3	59.6	NO
8	8	13C7-PFUdA	B8E0244-MS2 Matrix Spike 0.11122	9.48e3	58.6	NO

Name: 180607M2_25, Date: 07-Jun-2018, Time: 18:23:09, ID: B8E0244-MSD2 Matrix Spike Dup 0.11512, Description: Matrix Spike Dup

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0244-MSD2 Matrix Spike Dup 0.115...	4.87e3	46.6	YES
2	2	13C5-PFHxA	B8E0244-MSD2 Matrix Spike Dup 0.115...	7.09e3	54.8	NO
3	3	13C3-PFHxS	B8E0244-MSD2 Matrix Spike Dup 0.115...	2.30e3	85.6	NO
4	4	13C8-PFOA	B8E0244-MSD2 Matrix Spike Dup 0.115...	8.10e3	65.4	NO
5	5	13C9-PFNA	B8E0244-MSD2 Matrix Spike Dup 0.115...	8.63e3	67.8	NO
6	6	13C4-PFOS	B8E0244-MSD2 Matrix Spike Dup 0.115...	2.64e3	95.6	NO
7	7	13C6-PFDA	B8E0244-MSD2 Matrix Spike Dup 0.115...	9.00e3	63.1	NO
8	8	13C7-PFUdA	B8E0244-MSD2 Matrix Spike Dup 0.115...	1.08e4	66.7	NO

Name: 180607M2_26, Date: 07-Jun-2018, Time: 18:33:34, ID: 1801037-01 A1-MW-18-SA1 0.11265, Description: A1-MW-18-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801037-01 A1-MW-18-SA1 0.11265	5.81e3	55.6	NO
2	2	13C5-PFHxA	1801037-01 A1-MW-18-SA1 0.11265	7.44e3	57.5	NO
3	3	13C3-PFHxS	1801037-01 A1-MW-18-SA1 0.11265	2.63e3	97.9	NO
4	4	13C8-PFOA	1801037-01 A1-MW-18-SA1 0.11265	7.77e3	62.7	NO
5	5	13C9-PFNA	1801037-01 A1-MW-18-SA1 0.11265	9.30e3	73.0	NO
6	6	13C4-PFOS	1801037-01 A1-MW-18-SA1 0.11265	2.79e3	101.1	NO
7	7	13C6-PFDA	1801037-01 A1-MW-18-SA1 0.11265	9.46e3	66.3	NO
8	8	13C7-PFUdA	1801037-01 A1-MW-18-SA1 0.11265	1.11e4	68.5	NO

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Name: 180607M2_27, Date: 07-Jun-2018, Time: 18:44:05, ID: 1801037-02 16-MW-08-SA1 0.11493, Description: 16-MW-08-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801037-02 16-MW-08-SA1 0.11493	6.06e3	57.9	NO
2	2	13C5-PFHxA	1801037-02 16-MW-08-SA1 0.11493	7.63e3	58.9	NO
3	3	13C3-PFHxS	1801037-02 16-MW-08-SA1 0.11493	2.94e3	109.8	NO
4	4	13C8-PFOA	1801037-02 16-MW-08-SA1 0.11493	8.39e3	67.7	NO
5	5	13C9-PFNA	1801037-02 16-MW-08-SA1 0.11493	9.97e3	78.3	NO
6	6	13C4-PFOS	1801037-02 16-MW-08-SA1 0.11493	3.44e3	124.3	NO
7	7	13C6-PFDA	1801037-02 16-MW-08-SA1 0.11493	9.92e3	69.5	NO
8	8	13C7-PFUdA	1801037-02 16-MW-08-SA1 0.11493	1.20e4	74.2	NO

Name: 180607M2_28, Date: 07-Jun-2018, Time: 18:54:30, ID: ST180607M2-3 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST180607M2-3 PFC CS3 18E2907	8.63e3	82.5	NO
2	2	13C5-PFHxA	ST180607M2-3 PFC CS3 18E2907	1.15e4	88.7	NO
3	3	13C3-PFHxS	ST180607M2-3 PFC CS3 18E2907	2.22e3	82.7	NO
4	4	13C8-PFOA	ST180607M2-3 PFC CS3 18E2907	1.07e4	86.7	NO
5	5	13C9-PFNA	ST180607M2-3 PFC CS3 18E2907	1.15e4	90.5	NO
6	6	13C4-PFOS	ST180607M2-3 PFC CS3 18E2907	2.44e3	88.2	NO
7	7	13C6-PFDA	ST180607M2-3 PFC CS3 18E2907	1.12e4	78.5	NO
8	8	13C7-PFUdA	ST180607M2-3 PFC CS3 18E2907	1.31e4	80.8	NO

Name: 180607M2_29, Date: 07-Jun-2018, Time: 19:05:00, 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	9.06e0	0.1	YES

Name: 180607M2_30, Date: 07-Jun-2018, Time: 19:15:31, ID: 180607_ISSUP QC, Description: 180607_ISSUP QC

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	180607_ISSUP QC			NO
2	2	13C5-PFHxA	180607_ISSUP QC			NO
3	3	13C3-PFHxS	180607_ISSUP QC			NO
4	4	13C8-PFOA	180607_ISSUP QC			NO
5	5	13C9-PFNA	180607_ISSUP QC			NO
6	6	13C4-PFOS	180607_ISSUP QC			NO
7	7	13C6-PFDA	180607_ISSUP QC			NO
8	8	13C7-PFUdA	180607_ISSUP QC			NO

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Name: 180607M2_31, Date: 07-Jun-2018, Time: 19:25:55, ID: 180607_ISSUPQCDUP, Description: 180607_ISSUPQCDUP

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	180607_ISSUPQCDUP	6.71e3	64.1	NO
2	2	13C5-PFHxA	180607_ISSUPQCDUP	8.47e3	65.5	NO
3	3	13C3-PFHxS	180607_ISSUPQCDUP	1.94e3	72.3	NO
4	4	13C8-PFOA	180607_ISSUPQCDUP	8.48e3	68.4	NO
5	5	13C9-PFNA	180607_ISSUPQCDUP	9.39e3	73.7	NO
6	6	13C4-PFOS	180607_ISSUPQCDUP	2.10e3	76.0	NO
7	7	13C6-PFDA	180607_ISSUPQCDUP	1.01e4	70.8	NO
8	8	13C7-PFUdA	180607_ISSUPQCDUP	9.67e3	59.7	NO

Name: 180607M2_32, Date: 07-Jun-2018, Time: 19:36:25, ID: B8F0027-BS1 OPR 0.125, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8F0027-BS1 OPR 0.125	6.56e3	62.7	NO
2	2	13C5-PFHxA	B8F0027-BS1 OPR 0.125	9.25e3	71.5	NO
3	3	13C3-PFHxS	B8F0027-BS1 OPR 0.125	2.10e3	78.1	NO
4	4	13C8-PFOA	B8F0027-BS1 OPR 0.125	9.58e3	77.3	NO
5	5	13C9-PFNA	B8F0027-BS1 OPR 0.125	9.13e3	71.6	NO
6	6	13C4-PFOS	B8F0027-BS1 OPR 0.125	2.07e3	74.9	NO
7	7	13C6-PFDA	B8F0027-BS1 OPR 0.125	1.03e4	71.9	NO
8	8	13C7-PFUdA	B8F0027-BS1 OPR 0.125	1.02e4	63.3	NO

Name: 180607M2_33, Date: 07-Jun-2018, Time: 19:46:50, ID: B8F0027-BSD1 LCSD 0.125, Description: LCSD

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8F0027-BSD1 LCSD 0.125	7.22e3	69.1	NO
2	2	13C5-PFHxA	B8F0027-BSD1 LCSD 0.125	9.94e3	76.8	NO
3	3	13C3-PFHxS	B8F0027-BSD1 LCSD 0.125	2.14e3	79.7	NO
4	4	13C8-PFOA	B8F0027-BSD1 LCSD 0.125	1.03e4	83.1	NO
5	5	13C9-PFNA	B8F0027-BSD1 LCSD 0.125	1.09e4	85.7	NO
6	6	13C4-PFOS	B8F0027-BSD1 LCSD 0.125	2.29e3	83.0	NO
7	7	13C6-PFDA	B8F0027-BSD1 LCSD 0.125	1.01e4	70.8	NO
8	8	13C7-PFUdA	B8F0027-BSD1 LCSD 0.125	1.11e4	68.5	NO

Name: 180607M2_34, Date: 07-Jun-2018, Time: 19:57:21, ID: B8F0027-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8F0027-BLK1 Method Blank 0.125	7.04e3	67.3	NO
2	2	13C5-PFHxA	B8F0027-BLK1 Method Blank 0.125	9.37e3	72.4	NO
3	3	13C3-PFHxS	B8F0027-BLK1 Method Blank 0.125	1.94e3	72.2	NO
4	4	13C8-PFOA	B8F0027-BLK1 Method Blank 0.125	9.57e3	77.2	NO
5	5	13C9-PFNA	B8F0027-BLK1 Method Blank 0.125	1.07e4	84.0	NO
6	6	13C4-PFOS	B8F0027-BLK1 Method Blank 0.125	2.07e3	75.0	NO
7	7	13C6-PFDA	B8F0027-BLK1 Method Blank 0.125	9.42e3	66.1	NO
8	8	13C7-PFUdA	B8F0027-BLK1 Method Blank 0.125	1.06e4	65.7	NO

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Name: 180607M2_35, Date: 07-Jun-2018, Time: 20:07:51, ID: 1801127-01 MCLP00518 0.11531, Description: MCLP00518

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801127-01 MCLP00518 0.11531	7.38e3	70.6	NO
2	2	13C5-PFHxA	1801127-01 MCLP00518 0.11531	9.94e3	76.8	NO
3	3	13C3-PFHxS	1801127-01 MCLP00518 0.11531	2.21e3	82.4	NO
4	4	13C8-PFOA	1801127-01 MCLP00518 0.11531	1.03e4	83.1	NO
5	5	13C9-PFNA	1801127-01 MCLP00518 0.11531	1.08e4	84.5	NO
6	6	13C4-PFOS	1801127-01 MCLP00518 0.11531	2.37e3	85.9	NO
7	7	13C6-PFDA	1801127-01 MCLP00518 0.11531	1.07e4	75.3	NO
8	8	13C7-PFUdA	1801127-01 MCLP00518 0.11531	1.21e4	74.6	NO

Name: 180607M2_36, Date: 07-Jun-2018, Time: 20:18:15, ID: 1801127-02 MCLPCG436 0.11947, Description: MCLPCG436

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801127-02 MCLPCG436 0.11947	7.92e3	75.8	NO
2	2	13C5-PFHxA	1801127-02 MCLPCG436 0.11947	1.03e4	79.8	NO
3	3	13C3-PFHxS	1801127-02 MCLPCG436 0.11947	2.36e3	88.0	NO
4	4	13C8-PFOA	1801127-02 MCLPCG436 0.11947	1.04e4	84.2	NO
5	5	13C9-PFNA	1801127-02 MCLPCG436 0.11947	1.11e4	87.1	NO
6	6	13C4-PFOS	1801127-02 MCLPCG436 0.11947	2.51e3	90.8	NO
7	7	13C6-PFDA	1801127-02 MCLPCG436 0.11947	1.16e4	81.0	NO
8	8	13C7-PFUdA	1801127-02 MCLPCG436 0.11947	1.23e4	76.1	NO

Name: 180607M2_37, Date: 07-Jun-2018, Time: 20:28:46, ID: 1801127-03 MCLPCG515 0.11557, Description: MCLPCG515

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801127-03 MCLPCG515 0.11557	7.46e3	71.3	NO
2	2	13C5-PFHxA	1801127-03 MCLPCG515 0.11557	1.00e4	77.3	NO
3	3	13C3-PFHxS	1801127-03 MCLPCG515 0.11557	2.03e3	75.6	NO
4	4	13C8-PFOA	1801127-03 MCLPCG515 0.11557	1.03e4	83.2	NO
5	5	13C9-PFNA	1801127-03 MCLPCG515 0.11557	1.02e4	80.3	NO
6	6	13C4-PFOS	1801127-03 MCLPCG515 0.11557	1.95e3	70.7	NO
7	7	13C6-PFDA	1801127-03 MCLPCG515 0.11557	1.05e4	73.6	NO
8	8	13C7-PFUdA	1801127-03 MCLPCG515 0.11557	1.20e4	74.1	NO

Name: 180607M2_38, Date: 07-Jun-2018, Time: 20:39:10, ID: 1801127-04 MCLP00516 0.11034, Description: MCLP00516

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801127-04 MCLP00516 0.11034	7.11e3	68.0	NO
2	2	13C5-PFHxA	1801127-04 MCLP00516 0.11034	9.23e3	71.3	NO
3	3	13C3-PFHxS	1801127-04 MCLP00516 0.11034	1.98e3	73.9	NO
4	4	13C8-PFOA	1801127-04 MCLP00516 0.11034	8.91e3	71.9	NO
5	5	13C9-PFNA	1801127-04 MCLP00516 0.11034	9.95e3	78.1	NO
6	6	13C4-PFOS	1801127-04 MCLP00516 0.11034	2.23e3	80.9	NO
7	7	13C6-PFDA	1801127-04 MCLP00516 0.11034	9.69e3	67.9	NO
8	8	13C7-PFUdA	1801127-04 MCLP00516 0.11034	1.03e4	63.8	NO

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Name: 180607M2_39, Date: 07-Jun-2018, Time: 20:49:41, ID: 1801127-05 MCLP00517 0.1183, Description: MCLP00517

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801127-05 MCLP00517 0.1183	7.53e3	72.0	NO
2	2	13C5-PFHxA	1801127-05 MCLP00517 0.1183	9.23e3	71.3	NO
3	3	13C3-PFHxS	1801127-05 MCLP00517 0.1183	2.09e3	78.0	NO
4	4	13C8-PFOA	1801127-05 MCLP00517 0.1183	1.01e4	81.3	NO
5	5	13C9-PFNA	1801127-05 MCLP00517 0.1183	1.05e4	82.1	NO
6	6	13C4-PFOS	1801127-05 MCLP00517 0.1183	2.15e3	77.8	NO
7	7	13C6-PFDA	1801127-05 MCLP00517 0.1183	9.74e3	68.3	NO
8	8	13C7-PFUdA	1801127-05 MCLP00517 0.1183	1.19e4	73.5	NO

Name: 180607M2_40, Date: 07-Jun-2018, Time: 21:00:06, ID: 1801037-03 A1-MW-19-SA1 0.11827, Description: A1-MW-19-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801037-03 A1-MW-19-SA1 0.11827	4.63e3	44.3	YES
2	2	13C5-PFHxA	1801037-03 A1-MW-19-SA1 0.11827	6.01e3	46.5	YES
3	3	13C3-PFHxS	1801037-03 A1-MW-19-SA1 0.11827	2.51e3	93.4	NO
4	4	13C8-PFOA	1801037-03 A1-MW-19-SA1 0.11827	5.26e3	42.5	YES
5	5	13C9-PFNA	1801037-03 A1-MW-19-SA1 0.11827	6.39e3	50.2	NO
6	6	13C4-PFOS	1801037-03 A1-MW-19-SA1 0.11827	2.80e3	101.4	NO
7	7	13C6-PFDA	1801037-03 A1-MW-19-SA1 0.11827	6.98e3	48.9	YES
8	8	13C7-PFUdA	1801037-03 A1-MW-19-SA1 0.11827	8.30e3	51.2	NO

Name: 180607M2_41, Date: 07-Jun-2018, Time: 21:10:36, ID: 1801037-04 A1-MW-37-SA1 0.11915, Description: A1-MW-37-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801037-04 A1-MW-37-SA1 0.11915	3.59e3	34.4	YES
2	2	13C5-PFHxA	1801037-04 A1-MW-37-SA1 0.11915	4.61e3	35.6	YES
3	3	13C3-PFHxS	1801037-04 A1-MW-37-SA1 0.11915	2.09e3	77.9	NO
4	4	13C8-PFOA	1801037-04 A1-MW-37-SA1 0.11915	4.61e3	37.2	YES
5	5	13C9-PFNA	1801037-04 A1-MW-37-SA1 0.11915	4.75e3	37.3	YES
6	6	13C4-PFOS	1801037-04 A1-MW-37-SA1 0.11915	2.28e3	82.5	NO
7	7	13C6-PFDA	1801037-04 A1-MW-37-SA1 0.11915	5.46e3	38.3	YES
8	8	13C7-PFUdA	1801037-04 A1-MW-37-SA1 0.11915	5.91e3	36.5	YES

Name: 180607M2_42, Date: 07-Jun-2018, Time: 21:21:01, ID: 1801037-05 A1-MW-37-SA1D 0.11595, Description: A1-MW-37-SA1D

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801037-05 A1-MW-37-SA1D 0.11595	8.13e3	77.8	NO
2	2	13C5-PFHxA	1801037-05 A1-MW-37-SA1D 0.11595	1.04e4	80.6	NO
3	3	13C3-PFHxS	1801037-05 A1-MW-37-SA1D 0.11595	3.43e3	127.9	NO
4	4	13C8-PFOA	1801037-05 A1-MW-37-SA1D 0.11595	1.14e4	92.2	NO
5	5	13C9-PFNA	1801037-05 A1-MW-37-SA1D 0.11595	1.11e4	87.0	NO
6	6	13C4-PFOS	1801037-05 A1-MW-37-SA1D 0.11595	3.36e3	121.7	NO
7	7	13C6-PFDA	1801037-05 A1-MW-37-SA1D 0.11595	1.14e4	79.9	NO
8	8	13C7-PFUdA	1801037-05 A1-MW-37-SA1D 0.11595	1.37e4	84.7	NO

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Name: 180607M2_43, Date: 07-Jun-2018, Time: 21:31:31, ID: 1801037-06 16-H5-03-SA1 0.12456, Description: 16-H5-03-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801037-06 16-H5-03-SA1 0.12456	5.74e3	54.9	NO
2	2	13C5-PFHxA	1801037-06 16-H5-03-SA1 0.12456	6.69e3	51.7	NO
3	3	13C3-PFHxS	1801037-06 16-H5-03-SA1 0.12456	1.97e3	73.5	NO
4	4	13C8-PFOA	1801037-06 16-H5-03-SA1 0.12456	7.74e3	62.5	NO
5	5	13C9-PFNA	1801037-06 16-H5-03-SA1 0.12456	7.50e3	58.9	NO
6	6	13C4-PFOS	1801037-06 16-H5-03-SA1 0.12456	2.06e3	74.6	NO
7	7	13C6-PFDA	1801037-06 16-H5-03-SA1 0.12456	7.97e3	55.9	NO
8	8	13C7-PFUdA	1801037-06 16-H5-03-SA1 0.12456	9.19e3	56.8	NO

Name: 180607M2_44, Date: 07-Jun-2018, Time: 21:41:53, ID: 1801037-07 16-MW-09-SA1 0.1148, Description: 16-MW-09-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801037-07 16-MW-09-SA1 0.1148	6.38e3	61.1	NO
2	2	13C5-PFHxA	1801037-07 16-MW-09-SA1 0.1148	8.38e3	64.7	NO
3	3	13C3-PFHxS	1801037-07 16-MW-09-SA1 0.1148	2.66e3	99.3	NO
4	4	13C8-PFOA	1801037-07 16-MW-09-SA1 0.1148	8.06e3	65.0	NO
5	5	13C9-PFNA	1801037-07 16-MW-09-SA1 0.1148	8.09e3	63.5	NO
6	6	13C4-PFOS	1801037-07 16-MW-09-SA1 0.1148	2.93e3	106.1	NO
7	7	13C6-PFDA	1801037-07 16-MW-09-SA1 0.1148	7.76e3	54.4	NO
8	8	13C7-PFUdA	1801037-07 16-MW-09-SA1 0.1148	8.88e3	54.8	NO

Name: 180607M2_45, Date: 07-Jun-2018, Time: 21:52:23, ID: ST180607M2-4 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST180607M2-4 PFC CS3 18E2907	1.05e4	100.0	NO
2	2	13C5-PFHxA	ST180607M2-4 PFC CS3 18E2907	1.32e4	102.1	NO
3	3	13C3-PFHxS	ST180607M2-4 PFC CS3 18E2907	2.70e3	100.7	NO
4	4	13C8-PFOA	ST180607M2-4 PFC CS3 18E2907	1.37e4	110.6	NO
5	5	13C9-PFNA	ST180607M2-4 PFC CS3 18E2907	1.38e4	108.6	NO
6	6	13C4-PFOS	ST180607M2-4 PFC CS3 18E2907	2.98e3	107.8	NO
7	7	13C6-PFDA	ST180607M2-4 PFC CS3 18E2907	1.37e4	96.0	NO
8	8	13C7-PFUdA	ST180607M2-4 PFC CS3 18E2907	1.48e4	91.2	NO

Name: 180607M2_46, Date: 07-Jun-2018, Time: 22:02:49, 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: 180607M2_47, Date: 07-Jun-2018, Time: 22:13:19, ID: 1801037-08 16-MW-06-5A1 0.11143, Description: 16-MW-06-5A1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801037-08 16-MW-06-5A1 0.11143	4.24e3	40.6	YES
2	2	13C5-PFHxA	1801037-08 16-MW-06-5A1 0.11143	5.61e3	43.3	YES
3	3	13C3-PFHxS	1801037-08 16-MW-06-5A1 0.11143	2.16e3	80.7	NO
4	4	13C8-PFOA	1801037-08 16-MW-06-5A1 0.11143	5.68e3	45.8	YES
5	5	13C9-PFNA	1801037-08 16-MW-06-5A1 0.11143	6.39e3	50.1	NO
6	6	13C4-PFOS	1801037-08 16-MW-06-5A1 0.11143	2.65e3	95.9	NO
7	7	13C6-PFDA	1801037-08 16-MW-06-5A1 0.11143	7.15e3	50.1	NO
8	8	13C7-PFUdA	1801037-08 16-MW-06-5A1 0.11143	7.61e3	47.0	YES

Name: 180607M2_48, Date: 07-Jun-2018, Time: 22:23:44, ID: 1801037-09 FRB-20180523 0.11719, Description: FRB-20180523

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801037-09 FRB-20180523 0.11719	5.40e3	51.7	NO
2	2	13C5-PFHxA	1801037-09 FRB-20180523 0.11719	7.71e3	59.6	NO
3	3	13C3-PFHxS	1801037-09 FRB-20180523 0.11719	2.22e3	82.7	NO
4	4	13C8-PFOA	1801037-09 FRB-20180523 0.11719	8.22e3	66.3	NO
5	5	13C9-PFNA	1801037-09 FRB-20180523 0.11719	9.57e3	75.1	NO
6	6	13C4-PFOS	1801037-09 FRB-20180523 0.11719	2.34e3	84.8	NO
7	7	13C6-PFDA	1801037-09 FRB-20180523 0.11719	8.56e3	60.0	NO
8	8	13C7-PFUdA	1801037-09 FRB-20180523 0.11719	1.07e4	66.2	NO

Name: 180607M2_49, Date: 07-Jun-2018, Time: 22:34:14, ID: 1801054-01 A1-MW-42-SA1 0.11279, Description: A1-MW-42-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801054-01 A1-MW-42-SA1 0.11279	3.32e3	31.8	YES
2	2	13C5-PFHxA	1801054-01 A1-MW-42-SA1 0.11279	4.30e3	33.2	YES
3	3	13C3-PFHxS	1801054-01 A1-MW-42-SA1 0.11279	2.46e3	91.7	NO
4	4	13C8-PFOA	1801054-01 A1-MW-42-SA1 0.11279	4.33e3	35.0	YES
5	5	13C9-PFNA	1801054-01 A1-MW-42-SA1 0.11279	4.51e3	35.4	YES
6	6	13C4-PFOS	1801054-01 A1-MW-42-SA1 0.11279	2.93e3	106.1	NO
7	7	13C6-PFDA	1801054-01 A1-MW-42-SA1 0.11279	4.70e3	32.9	YES
8	8	13C7-PFUdA	1801054-01 A1-MW-42-SA1 0.11279	6.57e3	40.6	YES

Name: 180607M2_50, Date: 07-Jun-2018, Time: 22:44:39, ID: 1801054-02 A1-MW-54-SA1 0.11211, Description: A1-MW-54-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801054-02 A1-MW-54-SA1 0.11211	5.23e3	50.0	NO
2	2	13C5-PFHxA	1801054-02 A1-MW-54-SA1 0.11211	6.62e3	51.1	NO
3	3	13C3-PFHxS	1801054-02 A1-MW-54-SA1 0.11211	2.14e3	79.8	NO
4	4	13C8-PFOA	1801054-02 A1-MW-54-SA1 0.11211	6.48e3	52.3	NO
5	5	13C9-PFNA	1801054-02 A1-MW-54-SA1 0.11211	7.07e3	55.5	NO
6	6	13C4-PFOS	1801054-02 A1-MW-54-SA1 0.11211	2.55e3	92.2	NO
7	7	13C6-PFDA	1801054-02 A1-MW-54-SA1 0.11211	7.05e3	49.4	YES
8	8	13C7-PFUdA	1801054-02 A1-MW-54-SA1 0.11211	8.43e3	52.1	NO

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Name: 180607M2_51, Date: 07-Jun-2018, Time: 22:55:09, ID: 1801054-03 A1-MW-53-SA1 0.1139, Description: A1-MW-53-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801054-03 A1-MW-53-SA1 0.1139	7.10e3	67.9	NO
2	2	13C5-PFHxA	1801054-03 A1-MW-53-SA1 0.1139	9.28e3	71.7	NO
3	3	13C3-PFHxS	1801054-03 A1-MW-53-SA1 0.1139	3.04e3	113.2	NO
4	4	13C8-PFOA	1801054-03 A1-MW-53-SA1 0.1139	9.60e3	77.5	NO
5	5	13C9-PFNA	1801054-03 A1-MW-53-SA1 0.1139	1.01e4	79.5	NO
6	6	13C4-PFOS	1801054-03 A1-MW-53-SA1 0.1139	3.08e3	111.5	NO
7	7	13C6-PFDA	1801054-03 A1-MW-53-SA1 0.1139	1.04e4	72.8	NO
8	8	13C7-PFUdA	1801054-03 A1-MW-53-SA1 0.1139	1.19e4	73.7	NO

Name: 180607M2_52, Date: 07-Jun-2018, Time: 23:05:34, ID: 1801054-04 A1-P2-19-SA1 0.11736, Description: A1-P2-19-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801054-04 A1-P2-19-SA1 0.11736	4.80e3	45.9	YES
2	2	13C5-PFHxA	1801054-04 A1-P2-19-SA1 0.11736	6.27e3	48.4	YES
3	3	13C3-PFHxS	1801054-04 A1-P2-19-SA1 0.11736	2.33e3	87.0	NO
4	4	13C8-PFOA	1801054-04 A1-P2-19-SA1 0.11736	5.86e3	47.2	YES
5	5	13C9-PFNA	1801054-04 A1-P2-19-SA1 0.11736	6.28e3	49.3	YES
6	6	13C4-PFOS	1801054-04 A1-P2-19-SA1 0.11736	2.65e3	95.8	NO
7	7	13C6-PFDA	1801054-04 A1-P2-19-SA1 0.11736	6.44e3	45.2	YES
8	8	13C7-PFUdA	1801054-04 A1-P2-19-SA1 0.11736	8.25e3	50.9	NO

Name: 180607M2_53, Date: 07-Jun-2018, Time: 23:16:04, ID: 1801054-05 A1-MW-52-SA1 0.11509, Description: A1-MW-52-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801054-05 A1-MW-52-SA1 0.11509	4.33e3	41.4	YES
2	2	13C5-PFHxA	1801054-05 A1-MW-52-SA1 0.11509	5.69e3	44.0	YES
3	3	13C3-PFHxS	1801054-05 A1-MW-52-SA1 0.11509	2.05e3	76.5	NO
4	4	13C8-PFOA	1801054-05 A1-MW-52-SA1 0.11509	5.42e3	43.7	YES
5	5	13C9-PFNA	1801054-05 A1-MW-52-SA1 0.11509	6.09e3	47.8	YES
6	6	13C4-PFOS	1801054-05 A1-MW-52-SA1 0.11509	2.42e3	87.4	NO
7	7	13C6-PFDA	1801054-05 A1-MW-52-SA1 0.11509	5.60e3	39.3	YES
8	8	13C7-PFUdA	1801054-05 A1-MW-52-SA1 0.11509	7.89e3	48.8	YES

Name: 180607M2_54, Date: 07-Jun-2018, Time: 23:26:35, ID: 1801054-06 A1-MW-01-SA1 0.1102, Description: A1-MW-01-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801054-06 A1-MW-01-SA1 0.1102	4.90e3	46.9	YES
2	2	13C5-PFHxA	1801054-06 A1-MW-01-SA1 0.1102	6.00e3	46.4	YES
3	3	13C3-PFHxS	1801054-06 A1-MW-01-SA1 0.1102	2.27e3	84.5	NO
4	4	13C8-PFOA	1801054-06 A1-MW-01-SA1 0.1102	5.77e3	46.6	YES
5	5	13C9-PFNA	1801054-06 A1-MW-01-SA1 0.1102	6.52e3	51.1	NO
6	6	13C4-PFOS	1801054-06 A1-MW-01-SA1 0.1102	2.43e3	88.0	NO
7	7	13C6-PFDA	1801054-06 A1-MW-01-SA1 0.1102	7.01e3	49.1	YES
8	8	13C7-PFUdA	1801054-06 A1-MW-01-SA1 0.1102	8.18e3	50.5	NO

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Name: 180607M2_55, Date: 07-Jun-2018, Time: 23:37:00, ID: 1801054-07 A1-MW-01-SA1D 0.11715, Description: A1-MW-01-SA1D

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801054-07 A1-MW-01-SA1D 0.11715	4.59e3	43.9	YES
2	2	13C5-PFHxA	1801054-07 A1-MW-01-SA1D 0.11715	5.98e3	46.2	YES
3	3	13C3-PFHxS	1801054-07 A1-MW-01-SA1D 0.11715	2.59e3	96.6	NO
4	4	13C8-PFOA	1801054-07 A1-MW-01-SA1D 0.11715	5.90e3	47.6	YES
5	5	13C9-PFNA	1801054-07 A1-MW-01-SA1D 0.11715	5.75e3	45.1	YES
6	6	13C4-PFOS	1801054-07 A1-MW-01-SA1D 0.11715	2.50e3	90.5	NO
7	7	13C6-PFDA	1801054-07 A1-MW-01-SA1D 0.11715	6.97e3	48.9	YES
8	8	13C7-PFUdA	1801054-07 A1-MW-01-SA1D 0.11715	7.77e3	48.0	YES

Name: 180607M2_56, Date: 07-Jun-2018, Time: 23:47:30, ID: 1801054-08 A1-MW-31-SA1 0.11276, Description: A1-MW-31-SA1

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801054-08 A1-MW-31-SA1 0.11276	3.82e3	36.5	YES
2	2	13C5-PFHxA	1801054-08 A1-MW-31-SA1 0.11276	4.74e3	36.7	YES
3	3	13C3-PFHxS	1801054-08 A1-MW-31-SA1 0.11276	2.29e3	85.4	NO
4	4	13C8-PFOA	1801054-08 A1-MW-31-SA1 0.11276	5.56e3	44.8	YES
5	5	13C9-PFNA	1801054-08 A1-MW-31-SA1 0.11276	5.39e3	42.3	YES
6	6	13C4-PFOS	1801054-08 A1-MW-31-SA1 0.11276	2.67e3	96.7	NO
7	7	13C6-PFDA	1801054-08 A1-MW-31-SA1 0.11276	5.44e3	38.1	YES
8	8	13C7-PFUdA	1801054-08 A1-MW-31-SA1 0.11276	7.10e3	43.9	YES

Name: 180607M2_57, Date: 07-Jun-2018, Time: 23:57:55, ID: 1801054-09 FRB-20180525 0.11663, Description: FRB-20180525

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1801054-09 FRB-20180525 0.11663	6.32e3	60.5	NO
2	2	13C5-PFHxA	1801054-09 FRB-20180525 0.11663	9.03e3	69.8	NO
3	3	13C3-PFHxS	1801054-09 FRB-20180525 0.11663	2.31e3	86.0	NO
4	4	13C8-PFOA	1801054-09 FRB-20180525 0.11663	1.00e4	80.8	NO
5	5	13C9-PFNA	1801054-09 FRB-20180525 0.11663	1.05e4	82.3	NO
6	6	13C4-PFOS	1801054-09 FRB-20180525 0.11663	2.75e3	99.7	NO
7	7	13C6-PFDA	1801054-09 FRB-20180525 0.11663	1.11e4	77.9	NO
8	8	13C7-PFUdA	1801054-09 FRB-20180525 0.11663	1.22e4	75.6	NO

Name: 180607M2_58, Date: 08-Jun-2018, Time: 00:08:26, ID: B8E0139-BS1 OPR 0.125, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0139-BS1 OPR 0.125	7.54e3	72.2	NO
2	2	13C5-PFHxA	B8E0139-BS1 OPR 0.125	9.96e3	77.0	NO
3	3	13C3-PFHxS	B8E0139-BS1 OPR 0.125	2.06e3	76.7	NO
4	4	13C8-PFOA	B8E0139-BS1 OPR 0.125	9.73e3	78.6	NO
5	5	13C9-PFNA	B8E0139-BS1 OPR 0.125	1.03e4	81.1	NO
6	6	13C4-PFOS	B8E0139-BS1 OPR 0.125	2.30e3	83.2	NO
7	7	13C6-PFDA	B8E0139-BS1 OPR 0.125	9.86e3	69.1	NO
8	8	13C7-PFUdA	B8E0139-BS1 OPR 0.125	1.18e4	73.1	NO

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Name: 180607M2_59, Date: 08-Jun-2018, Time: 00:18:51, ID: B8E0139-BSD1 LCSD 0.125, Description: LCSD

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0139-BSD1 LCSD 0.125	7.51e3	71.8	NO
2	2	13C5-PFHxA	B8E0139-BSD1 LCSD 0.125	1.03e4	79.3	NO
3	3	13C3-PFHxS	B8E0139-BSD1 LCSD 0.125	2.03e3	75.7	NO
4	4	13C8-PFOA	B8E0139-BSD1 LCSD 0.125	1.03e4	83.1	NO
5	5	13C9-PFNA	B8E0139-BSD1 LCSD 0.125	1.06e4	83.0	NO
6	6	13C4-PFOS	B8E0139-BSD1 LCSD 0.125	2.35e3	85.2	NO
7	7	13C6-PFDA	B8E0139-BSD1 LCSD 0.125	1.07e4	75.3	NO
8	8	13C7-PFUdA	B8E0139-BSD1 LCSD 0.125	1.22e4	75.4	NO

Name: 180607M2_60, Date: 08-Jun-2018, Time: 00:29:21, ID: B8E0139-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0139-BLK1 Method Blank 0.125	6.69e3	64.0	NO
2	2	13C5-PFHxA	B8E0139-BLK1 Method Blank 0.125	8.60e3	66.4	NO
3	3	13C3-PFHxS	B8E0139-BLK1 Method Blank 0.125	1.87e3	69.9	NO
4	4	13C8-PFOA	B8E0139-BLK1 Method Blank 0.125	8.30e3	66.9	NO
5	5	13C9-PFNA	B8E0139-BLK1 Method Blank 0.125	8.44e3	66.3	NO
6	6	13C4-PFOS	B8E0139-BLK1 Method Blank 0.125	1.93e3	69.8	NO
7	7	13C6-PFDA	B8E0139-BLK1 Method Blank 0.125	8.76e3	61.4	NO
8	8	13C7-PFUdA	B8E0139-BLK1 Method Blank 0.125	1.01e4	62.2	NO

Name: 180607M2_61, Date: 08-Jun-2018, Time: 00:39:45, ID: 1800952-01 REEPDW485 0.12371, Description: REEPDW485

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800952-01 REEPDW485 0.12371	4.64e3	44.4	YES
2	2	13C5-PFHxA	1800952-01 REEPDW485 0.12371	7.06e3	54.6	NO
3	3	13C3-PFHxS	1800952-01 REEPDW485 0.12371	2.28e3	85.2	NO
4	4	13C8-PFOA	1800952-01 REEPDW485 0.12371	7.37e3	59.5	NO
5	5	13C9-PFNA	1800952-01 REEPDW485 0.12371	8.44e3	66.2	NO
6	6	13C4-PFOS	1800952-01 REEPDW485 0.12371	2.29e3	82.9	NO
7	7	13C6-PFDA	1800952-01 REEPDW485 0.12371	7.77e3	54.4	NO
8	8	13C7-PFUdA	1800952-01 REEPDW485 0.12371	9.40e3	58.1	NO

Name: 180607M2_62, Date: 08-Jun-2018, Time: 00:50:16, ID: ST180607M2-6 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST180607M2-6 PFC CS3 18E2907	9.34e3	89.3	NO
2	2	13C5-PFHxA	ST180607M2-6 PFC CS3 18E2907	1.17e4	90.1	NO
3	3	13C3-PFHxS	ST180607M2-6 PFC CS3 18E2907	2.33e3	86.7	NO
4	4	13C8-PFOA	ST180607M2-6 PFC CS3 18E2907	1.09e4	87.9	NO
5	5	13C9-PFNA	ST180607M2-6 PFC CS3 18E2907	1.20e4	94.1	NO
6	6	13C4-PFOS	ST180607M2-6 PFC CS3 18E2907	2.53e3	91.6	NO
7	7	13C6-PFDA	ST180607M2-6 PFC CS3 18E2907	1.04e4	72.7	NO
8	8	13C7-PFUdA	ST180607M2-6 PFC CS3 18E2907	1.25e4	77.1	NO

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Name: 180607M2_63, Date: 08-Jun-2018, Time: 01:00:40, ID: ST180607M2-6 PFC CS0 18E2904, Description: PFC CS0 18E2904

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST180607M2-6 PFC CS0 18E2904	1.05e4	100.1	NO
2	2	13C5-PFHxA	ST180607M2-6 PFC CS0 18E2904	1.37e4	106.2	NO
3	3	13C3-PFHxS	ST180607M2-6 PFC CS0 18E2904	2.65e3	99.0	NO
4	4	13C8-PFOA	ST180607M2-6 PFC CS0 18E2904	1.38e4	111.3	NO
5	5	13C9-PFNA	ST180607M2-6 PFC CS0 18E2904	1.32e4	103.3	NO
6	6	13C4-PFOS	ST180607M2-6 PFC CS0 18E2904	2.97e3	107.5	NO
7	7	13C6-PFDA	ST180607M2-6 PFC CS0 18E2904	1.36e4	95.1	NO
8	8	13C7-PFUdA	ST180607M2-6 PFC CS0 18E2904	1.39e4	85.8	NO

Name: 180607M2_64, Date: 08-Jun-2018, Time: 01:11:11, 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: 180607M2_65, Date: 08-Jun-2018, Time: 01:21:36, ID: 1800952-02 REEPDW491 0.11903, Description: REEPDW491

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800952-02 REEPDW491 0.11903	4.52e3	43.3	YES
2	2	13C5-PFHxA	1800952-02 REEPDW491 0.11903	5.89e3	45.5	YES
3	3	13C3-PFHxS	1800952-02 REEPDW491 0.11903	1.74e3	64.9	NO
4	4	13C8-PFOA	1800952-02 REEPDW491 0.11903	7.23e3	58.3	NO
5	5	13C9-PFNA	1800952-02 REEPDW491 0.11903	7.15e3	56.1	NO
6	6	13C4-PFOS	1800952-02 REEPDW491 0.11903	1.93e3	69.7	NO
7	7	13C6-PFDA	1800952-02 REEPDW491 0.11903	7.61e3	53.3	NO
8	8	13C7-PFUdA	1800952-02 REEPDW491 0.11903	8.86e3	54.7	NO

Name: 180607M2_66, Date: 08-Jun-2018, Time: 01:32:07, ID: 1800952-03 REEPDW493 0.12371, Description: REEPDW493

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800952-03 REEPDW493 0.12371	5.00e3	47.8	YES
2	2	13C5-PFHxA	1800952-03 REEPDW493 0.12371	6.87e3	53.1	NO
3	3	13C3-PFHxS	1800952-03 REEPDW493 0.12371	2.38e3	88.6	NO
4	4	13C8-PFOA	1800952-03 REEPDW493 0.12371	7.55e3	60.9	NO
5	5	13C9-PFNA	1800952-03 REEPDW493 0.12371	7.90e3	62.0	NO
6	6	13C4-PFOS	1800952-03 REEPDW493 0.12371	2.59e3	93.8	NO
7	7	13C6-PFDA	1800952-03 REEPDW493 0.12371	8.89e3	62.3	NO
8	8	13C7-PFUdA	1800952-03 REEPDW493 0.12371	9.99e3	61.7	NO

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Name: 180607M2_67, Date: 08-Jun-2018, Time: 01:42:32, ID: 1800952-04 REEPDW494 0.12591, Description: REEPDW494

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800952-04 REEPDW494 0.12591	4.93e3	47.2	YES
2	2	13C5-PFHxA	1800952-04 REEPDW494 0.12591	6.99e3	54.0	NO
3	3	13C3-PFHxS	1800952-04 REEPDW494 0.12591	2.05e3	76.5	NO
4	4	13C8-PFOA	1800952-04 REEPDW494 0.12591	7.49e3	60.5	NO
5	5	13C9-PFNA	1800952-04 REEPDW494 0.12591	7.57e3	59.4	NO
6	6	13C4-PFOS	1800952-04 REEPDW494 0.12591	2.33e3	84.2	NO
7	7	13C6-PFDA	1800952-04 REEPDW494 0.12591	8.21e3	57.5	NO
8	8	13C7-PFUdA	1800952-04 REEPDW494 0.12591	9.70e3	59.9	NO

Name: 180607M2_68, Date: 08-Jun-2018, Time: 01:52:54, ID: 1800952-05 REEPDW486 0.12668, Description: REEPDW486

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800952-05 REEPDW486 0.12668	5.25e3	50.2	NO
2	2	13C5-PFHxA	1800952-05 REEPDW486 0.12668	7.55e3	58.3	NO
3	3	13C3-PFHxS	1800952-05 REEPDW486 0.12668	2.12e3	79.2	NO
4	4	13C8-PFOA	1800952-05 REEPDW486 0.12668	7.47e3	60.3	NO
5	5	13C9-PFNA	1800952-05 REEPDW486 0.12668	8.75e3	68.7	NO
6	6	13C4-PFOS	1800952-05 REEPDW486 0.12668	2.19e3	79.2	NO
7	7	13C6-PFDA	1800952-05 REEPDW486 0.12668	8.74e3	61.3	NO
8	8	13C7-PFUdA	1800952-05 REEPDW486 0.12668	1.04e4	64.2	NO

Name: 180607M2_69, Date: 08-Jun-2018, Time: 02:03:24, ID: 1800952-06 REEPDW487 0.12126, Description: REEPDW487

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800952-06 REEPDW487 0.12126	5.51e3	52.7	NO
2	2	13C5-PFHxA	1800952-06 REEPDW487 0.12126	7.76e3	59.9	NO
3	3	13C3-PFHxS	1800952-06 REEPDW487 0.12126	2.11e3	78.6	NO
4	4	13C8-PFOA	1800952-06 REEPDW487 0.12126	8.24e3	66.5	NO
5	5	13C9-PFNA	1800952-06 REEPDW487 0.12126	8.60e3	67.5	NO
6	6	13C4-PFOS	1800952-06 REEPDW487 0.12126	2.51e3	90.9	NO
7	7	13C6-PFDA	1800952-06 REEPDW487 0.12126	8.69e3	60.9	NO
8	8	13C7-PFUdA	1800952-06 REEPDW487 0.12126	9.70e3	59.9	NO

Name: 180607M2_70, Date: 08-Jun-2018, Time: 02:13:50, ID: 1800952-07 REEPDW489 0.12109, Description: REEPDW489

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800952-07 REEPDW489 0.12109	5.36e3	51.2	NO
2	2	13C5-PFHxA	1800952-07 REEPDW489 0.12109	7.50e3	58.0	NO
3	3	13C3-PFHxS	1800952-07 REEPDW489 0.12109	2.35e3	87.8	NO
4	4	13C8-PFOA	1800952-07 REEPDW489 0.12109	8.02e3	64.7	NO
5	5	13C9-PFNA	1800952-07 REEPDW489 0.12109	9.19e3	72.1	NO
6	6	13C4-PFOS	1800952-07 REEPDW489 0.12109	2.34e3	84.6	NO
7	7	13C6-PFDA	1800952-07 REEPDW489 0.12109	9.34e3	65.4	NO
8	8	13C7-PFUdA	1800952-07 REEPDW489 0.12109	1.00e4	62.0	NO

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Name: 180607M2_71, Date: 08-Jun-2018, Time: 02:24:20, ID: 1800952-08 REEPDW492 0.12089, Description: REEPDW492

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800952-08 REEPDW492 0.12089	5.49e3	52.5	NO
2	2	13C5-PFHxA	1800952-08 REEPDW492 0.12089	7.55e3	58.4	NO
3	3	13C3-PFHxS	1800952-08 REEPDW492 0.12089	2.02e3	75.1	NO
4	4	13C8-PFOA	1800952-08 REEPDW492 0.12089	7.97e3	64.3	NO
5	5	13C9-PFNA	1800952-08 REEPDW492 0.12089	8.15e3	64.0	NO
6	6	13C4-PFOS	1800952-08 REEPDW492 0.12089	2.33e3	84.4	NO
7	7	13C6-PFDA	1800952-08 REEPDW492 0.12089	8.65e3	60.7	NO
8	8	13C7-PFUdA	1800952-08 REEPDW492 0.12089	1.05e4	65.0	NO

Name: 180607M2_72, Date: 08-Jun-2018, Time: 02:34:45, ID: 1800952-09 REEPDW495 0.11841, Description: REEPDW495

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800952-09 REEPDW495 0.11841	4.95e3	47.3	YES
2	2	13C5-PFHxA	1800952-09 REEPDW495 0.11841	6.95e3	53.7	NO
3	3	13C3-PFHxS	1800952-09 REEPDW495 0.11841	1.91e3	71.2	NO
4	4	13C8-PFOA	1800952-09 REEPDW495 0.11841	6.81e3	54.9	NO
5	5	13C9-PFNA	1800952-09 REEPDW495 0.11841	7.80e3	61.2	NO
6	6	13C4-PFOS	1800952-09 REEPDW495 0.11841	1.97e3	71.2	NO
7	7	13C6-PFDA	1800952-09 REEPDW495 0.11841	7.90e3	55.3	NO
8	8	13C7-PFUdA	1800952-09 REEPDW495 0.11841	9.89e3	61.1	NO

Name: 180607M2_73, Date: 08-Jun-2018, Time: 02:45:07, ID: 1800952-10 REEPDW496 0.12607, Description: REEPDW496

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800952-10 REEPDW496 0.12607	6.86e3	65.7	NO
2	2	13C5-PFHxA	1800952-10 REEPDW496 0.12607	9.44e3	72.9	NO
3	3	13C3-PFHxS	1800952-10 REEPDW496 0.12607	2.38e3	88.9	NO
4	4	13C8-PFOA	1800952-10 REEPDW496 0.12607	9.47e3	76.4	NO
5	5	13C9-PFNA	1800952-10 REEPDW496 0.12607	1.04e4	81.5	NO
6	6	13C4-PFOS	1800952-10 REEPDW496 0.12607	2.60e3	93.9	NO
7	7	13C6-PFDA	1800952-10 REEPDW496 0.12607	1.18e4	82.9	NO
8	8	13C7-PFUdA	1800952-10 REEPDW496 0.12607	1.37e4	84.5	NO

Name: 180607M2_74, Date: 08-Jun-2018, Time: 02:55:37, ID: 1800952-11 REEPDW497 0.11275, Description: REEPDW497

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800952-11 REEPDW497 0.11275	4.48e3	42.8	YES
2	2	13C5-PFHxA	1800952-11 REEPDW497 0.11275	6.15e3	47.5	YES
3	3	13C3-PFHxS	1800952-11 REEPDW497 0.11275	1.94e3	72.3	NO
4	4	13C8-PFOA	1800952-11 REEPDW497 0.11275	6.15e3	49.7	YES
5	5	13C9-PFNA	1800952-11 REEPDW497 0.11275	7.38e3	57.9	NO
6	6	13C4-PFOS	1800952-11 REEPDW497 0.11275	1.83e3	66.1	NO
7	7	13C6-PFDA	1800952-11 REEPDW497 0.11275	7.40e3	51.9	NO
8	8	13C7-PFUdA	1800952-11 REEPDW497 0.11275	7.69e3	47.5	YES

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Name: 180607M2_75, Date: 08-Jun-2018, Time: 03:06:07, ID: ST180607M2-7 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST180607M2-7 PFC CS3 18E2907	9.16e3	87.6	NO
2	2	13C5-PFHxA	ST180607M2-7 PFC CS3 18E2907	1.23e4	94.9	NO
3	3	13C3-PFHxS	ST180607M2-7 PFC CS3 18E2907	2.35e3	87.5	NO
4	4	13C8-PFOA	ST180607M2-7 PFC CS3 18E2907	1.15e4	92.9	NO
5	5	13C9-PFNA	ST180607M2-7 PFC CS3 18E2907	1.22e4	95.9	NO
6	6	13C4-PFOS	ST180607M2-7 PFC CS3 18E2907	2.64e3	95.4	NO
7	7	13C6-PFDA	ST180607M2-7 PFC CS3 18E2907	1.10e4	77.4	NO
8	8	13C7-PFUdA	ST180607M2-7 PFC CS3 18E2907	1.34e4	82.9	NO

Name: 180607M2_76, Date: 08-Jun-2018, Time: 03:16:32, 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: 180607M2_77, Date: 08-Jun-2018, Time: 03:27:02, ID: 1800952-12 REEPDW498 0.12162, Description: REEPDW498

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800952-12 REEPDW498 0.12162	4.39e3	42.0	YES
2	2	13C5-PFHxA	1800952-12 REEPDW498 0.12162	6.04e3	46.7	YES
3	3	13C3-PFHxS	1800952-12 REEPDW498 0.12162	1.73e3	64.4	NO
4	4	13C8-PFOA	1800952-12 REEPDW498 0.12162	6.46e3	52.1	NO
5	5	13C9-PFNA	1800952-12 REEPDW498 0.12162	6.94e3	54.5	NO
6	6	13C4-PFOS	1800952-12 REEPDW498 0.12162	1.70e3	61.5	NO
7	7	13C6-PFDA	1800952-12 REEPDW498 0.12162	6.94e3	48.7	YES
8	8	13C7-PFUdA	1800952-12 REEPDW498 0.12162	7.75e3	47.8	YES

Name: 180607M2_78, Date: 08-Jun-2018, Time: 03:37:27, ID: 1800952-13 REEPDW488 0.125, Description: REEPDW488

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800952-13 REEPDW488 0.125	4.31e3	41.2	YES
2	2	13C5-PFHxA	1800952-13 REEPDW488 0.125	5.67e3	43.8	YES
3	3	13C3-PFHxS	1800952-13 REEPDW488 0.125	1.76e3	65.6	NO
4	4	13C8-PFOA	1800952-13 REEPDW488 0.125	6.08e3	49.1	YES
5	5	13C9-PFNA	1800952-13 REEPDW488 0.125	6.64e3	52.1	NO
6	6	13C4-PFOS	1800952-13 REEPDW488 0.125	1.76e3	63.7	NO
7	7	13C6-PFDA	1800952-13 REEPDW488 0.125	6.28e3	44.1	YES
8	8	13C7-PFUdA	1800952-13 REEPDW488 0.125	7.91e3	48.8	YES

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Name: 180607M2_79, Date: 08-Jun-2018, Time: 03:47:57, ID: 1800952-14 REEPDW490 0.12133, Description: REEPDW490

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800952-14 REEPDW490 0.12133	5.06e3	48.4	YES
2	2	13C5-PFHxA	1800952-14 REEPDW490 0.12133	6.80e3	52.6	NO
3	3	13C3-PFHxS	1800952-14 REEPDW490 0.12133	1.71e3	63.6	NO
4	4	13C8-PFOA	1800952-14 REEPDW490 0.12133	6.71e3	54.1	NO
5	5	13C9-PFNA	1800952-14 REEPDW490 0.12133	7.23e3	56.7	NO
6	6	13C4-PFOS	1800952-14 REEPDW490 0.12133	1.75e3	63.4	NO
7	7	13C6-PFDA	1800952-14 REEPDW490 0.12133	7.44e3	52.2	NO
8	8	13C7-PFUdA	1800952-14 REEPDW490 0.12133	8.19e3	50.5	NO

Name: 180607M2_80, Date: 08-Jun-2018, Time: 03:58:27, ID: 1800952-15 REEPDW1000 0.11915, Description: REEPDW1000

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800952-15 REEPDW1000 0.11915	8.55e3	81.8	NO
2	2	13C5-PFHxA	1800952-15 REEPDW1000 0.11915	1.11e4	85.9	NO
3	3	13C3-PFHxS	1800952-15 REEPDW1000 0.11915	2.71e3	101.2	NO
4	4	13C8-PFOA	1800952-15 REEPDW1000 0.11915	1.10e4	89.0	NO
5	5	13C9-PFNA	1800952-15 REEPDW1000 0.11915	1.14e4	89.7	NO
6	6	13C4-PFOS	1800952-15 REEPDW1000 0.11915	2.88e3	104.1	NO
7	7	13C6-PFDA	1800952-15 REEPDW1000 0.11915	1.19e4	83.7	NO
8	8	13C7-PFUdA	1800952-15 REEPDW1000 0.11915	1.19e4	73.3	NO

Name: 180607M2_81, Date: 08-Jun-2018, Time: 04:08:52, ID: 1800952-16 REEPDW548 0.11758, Description: REEPDW548

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800952-16 REEPDW548 0.11758	5.76e3	55.1	NO
2	2	13C5-PFHxA	1800952-16 REEPDW548 0.11758	7.65e3	59.1	NO
3	3	13C3-PFHxS	1800952-16 REEPDW548 0.11758	1.86e3	69.3	NO
4	4	13C8-PFOA	1800952-16 REEPDW548 0.11758	7.84e3	63.3	NO
5	5	13C9-PFNA	1800952-16 REEPDW548 0.11758	8.36e3	65.6	NO
6	6	13C4-PFOS	1800952-16 REEPDW548 0.11758	2.03e3	73.4	NO
7	7	13C6-PFDA	1800952-16 REEPDW548 0.11758	7.69e3	53.9	NO
8	8	13C7-PFUdA	1800952-16 REEPDW548 0.11758	9.10e3	56.2	NO

Name: 180607M2_82, Date: 08-Jun-2018, Time: 04:19:22, ID: 1800952-17 REEPDW549 0.1221, Description: REEPDW549

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800952-17 REEPDW549 0.1221	8.66e3	82.9	NO
2	2	13C5-PFHxA	1800952-17 REEPDW549 0.1221	1.13e4	87.4	NO
3	3	13C3-PFHxS	1800952-17 REEPDW549 0.1221	2.62e3	97.7	NO
4	4	13C8-PFOA	1800952-17 REEPDW549 0.1221	1.08e4	87.0	NO
5	5	13C9-PFNA	1800952-17 REEPDW549 0.1221	1.13e4	88.9	NO
6	6	13C4-PFOS	1800952-17 REEPDW549 0.1221	2.65e3	95.9	NO
7	7	13C6-PFDA	1800952-17 REEPDW549 0.1221	9.56e3	67.0	NO
8	8	13C7-PFUdA	1800952-17 REEPDW549 0.1221	9.85e3	60.8	NO

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Name: 180607M2_83, Date: 08-Jun-2018, Time: 04:29:47, ID: B8E0168-BS1 OPR 0.125, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0168-BS1 OPR 0.125	5.65e3	54.1	NO
2	2	13C5-PFHxA	B8E0168-BS1 OPR 0.125	7.84e3	60.6	NO
3	3	13C3-PFHxS	B8E0168-BS1 OPR 0.125	1.79e3	66.8	NO
4	4	13C8-PFOA	B8E0168-BS1 OPR 0.125	7.78e3	62.8	NO
5	5	13C9-PFNA	B8E0168-BS1 OPR 0.125	8.71e3	68.4	NO
6	6	13C4-PFOS	B8E0168-BS1 OPR 0.125	2.03e3	73.3	NO
7	7	13C6-PFDA	B8E0168-BS1 OPR 0.125	7.50e3	52.6	NO
8	8	13C7-PFUdA	B8E0168-BS1 OPR 0.125	9.56e3	59.0	NO

Name: 180607M2_84, Date: 08-Jun-2018, Time: 04:40:17, ID: B8E0168-MS1 Matrix Spike 0.11902, Description: Matrix Spike

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0168-MS1 Matrix Spike 0.11902	4.65e3	44.5	YES
2	2	13C5-PFHxA	B8E0168-MS1 Matrix Spike 0.11902	6.66e3	51.4	NO
3	3	13C3-PFHxS	B8E0168-MS1 Matrix Spike 0.11902	1.63e3	60.6	NO
4	4	13C8-PFOA	B8E0168-MS1 Matrix Spike 0.11902	6.64e3	53.6	NO
5	5	13C9-PFNA	B8E0168-MS1 Matrix Spike 0.11902	7.64e3	60.0	NO
6	6	13C4-PFOS	B8E0168-MS1 Matrix Spike 0.11902	2.02e3	73.0	NO
7	7	13C6-PFDA	B8E0168-MS1 Matrix Spike 0.11902	7.22e3	50.6	NO
8	8	13C7-PFUdA	B8E0168-MS1 Matrix Spike 0.11902	8.84e3	54.6	NO

Name: 180607M2_85, Date: 08-Jun-2018, Time: 04:50:48, ID: B8E0168-MSD1 Matrix Spike Dup 0.11607, Description: Matrix Spike Dup

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0168-MSD1 Matrix Spike Dup 0.116...	5.59e3	53.5	NO
2	2	13C5-PFHxA	B8E0168-MSD1 Matrix Spike Dup 0.116...	7.72e3	59.6	NO
3	3	13C3-PFHxS	B8E0168-MSD1 Matrix Spike Dup 0.116...	2.14e3	79.8	NO
4	4	13C8-PFOA	B8E0168-MSD1 Matrix Spike Dup 0.116...	8.23e3	66.4	NO
5	5	13C9-PFNA	B8E0168-MSD1 Matrix Spike Dup 0.116...	9.00e3	70.7	NO
6	6	13C4-PFOS	B8E0168-MSD1 Matrix Spike Dup 0.116...	2.47e3	89.5	NO
7	7	13C6-PFDA	B8E0168-MSD1 Matrix Spike Dup 0.116...	8.79e3	61.6	NO
8	8	13C7-PFUdA	B8E0168-MSD1 Matrix Spike Dup 0.116...	1.13e4	69.5	NO

Name: 180607M2_86, Date: 08-Jun-2018, Time: 05:01:12, ID: B8E0168-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0168-BLK1 Method Blank 0.125	5.86e3	56.1	NO
2	2	13C5-PFHxA	B8E0168-BLK1 Method Blank 0.125	7.73e3	59.7	NO
3	3	13C3-PFHxS	B8E0168-BLK1 Method Blank 0.125	1.83e3	68.2	NO
4	4	13C8-PFOA	B8E0168-BLK1 Method Blank 0.125	8.50e3	68.6	NO
5	5	13C9-PFNA	B8E0168-BLK1 Method Blank 0.125	8.97e3	70.4	NO
6	6	13C4-PFOS	B8E0168-BLK1 Method Blank 0.125	2.00e3	72.5	NO
7	7	13C6-PFDA	B8E0168-BLK1 Method Blank 0.125	8.17e3	57.3	NO
8	8	13C7-PFUdA	B8E0168-BLK1 Method Blank 0.125	9.89e3	61.1	NO

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Name: 180607M2_87, Date: 08-Jun-2018, Time: 05:11:43, ID: 1800978-01 REEPDW1035 0.11488, Description: REEPDW1035

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800978-01 REEPDW1035 0.11488	5.53e3	52.9	NO
2	2	13C5-PFHxA	1800978-01 REEPDW1035 0.11488	7.85e3	60.7	NO
3	3	13C3-PFHxS	1800978-01 REEPDW1035 0.11488	2.20e3	82.2	NO
4	4	13C8-PFOA	1800978-01 REEPDW1035 0.11488	8.27e3	66.7	NO
5	5	13C9-PFNA	1800978-01 REEPDW1035 0.11488	8.96e3	70.4	NO
6	6	13C4-PFOS	1800978-01 REEPDW1035 0.11488	2.18e3	78.9	NO
7	7	13C6-PFDA	1800978-01 REEPDW1035 0.11488	8.61e3	60.4	NO
8	8	13C7-PFUdA	1800978-01 REEPDW1035 0.11488	1.06e4	65.4	NO

Name: 180607M2_88, Date: 08-Jun-2018, Time: 05:22:08, ID: 1800978-02 REEPDW1036 0.11708, Description: REEPDW1036

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800978-02 REEPDW1036 0.11708	5.54e3	53.0	NO
2	2	13C5-PFHxA	1800978-02 REEPDW1036 0.11708	7.37e3	57.0	NO
3	3	13C3-PFHxS	1800978-02 REEPDW1036 0.11708	2.25e3	83.8	NO
4	4	13C8-PFOA	1800978-02 REEPDW1036 0.11708	8.03e3	64.8	NO
5	5	13C9-PFNA	1800978-02 REEPDW1036 0.11708	8.65e3	67.9	NO
6	6	13C4-PFOS	1800978-02 REEPDW1036 0.11708	2.36e3	85.3	NO
7	7	13C6-PFDA	1800978-02 REEPDW1036 0.11708	8.93e3	62.6	NO
8	8	13C7-PFUdA	1800978-02 REEPDW1036 0.11708	1.04e4	64.0	NO

Name: 180607M2_89, Date: 08-Jun-2018, Time: 05:32:38, ID: 1800978-03 REEPDW1038 0.11726, Description: REEPDW1038

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800978-03 REEPDW1038 0.11726	5.58e3	53.3	NO
2	2	13C5-PFHxA	1800978-03 REEPDW1038 0.11726	7.45e3	57.6	NO
3	3	13C3-PFHxS	1800978-03 REEPDW1038 0.11726	1.77e3	66.0	NO
4	4	13C8-PFOA	1800978-03 REEPDW1038 0.11726	7.88e3	63.6	NO
5	5	13C9-PFNA	1800978-03 REEPDW1038 0.11726	8.72e3	68.4	NO
6	6	13C4-PFOS	1800978-03 REEPDW1038 0.11726	1.91e3	69.2	NO
7	7	13C6-PFDA	1800978-03 REEPDW1038 0.11726	8.59e3	60.2	NO
8	8	13C7-PFUdA	1800978-03 REEPDW1038 0.11726	9.86e3	60.9	NO

Name: 180607M2_90, Date: 08-Jun-2018, Time: 05:43:03, ID: 1800978-04 REEPDW1039 0.11839, Description: REEPDW1039

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800978-04 REEPDW1039 0.11839	4.61e3	44.1	YES
2	2	13C5-PFHxA	1800978-04 REEPDW1039 0.11839	6.54e3	50.5	NO
3	3	13C3-PFHxS	1800978-04 REEPDW1039 0.11839	1.78e3	66.5	NO
4	4	13C8-PFOA	1800978-04 REEPDW1039 0.11839	7.00e3	56.5	NO
5	5	13C9-PFNA	1800978-04 REEPDW1039 0.11839	7.48e3	58.7	NO
6	6	13C4-PFOS	1800978-04 REEPDW1039 0.11839	1.95e3	70.5	NO
7	7	13C6-PFDA	1800978-04 REEPDW1039 0.11839	6.68e3	46.8	YES
8	8	13C7-PFUdA	1800978-04 REEPDW1039 0.11839	8.79e3	54.3	NO

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Name: 180607M2_91, Date: 08-Jun-2018, Time: 05:53:25, ID: ST180607M2-8 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST180607M2-8 PFC CS3 18E2907	9.38e3	89.7	NO
2	2	13C5-PFHxA	ST180607M2-8 PFC CS3 18E2907	1.19e4	91.7	NO
3	3	13C3-PFHxS	ST180607M2-8 PFC CS3 18E2907	2.39e3	89.2	NO
4	4	13C8-PFOA	ST180607M2-8 PFC CS3 18E2907	1.16e4	93.4	NO
5	5	13C9-PFNA	ST180607M2-8 PFC CS3 18E2907	1.25e4	98.0	NO
6	6	13C4-PFOS	ST180607M2-8 PFC CS3 18E2907	2.38e3	86.1	NO
7	7	13C6-PFDA	ST180607M2-8 PFC CS3 18E2907	1.12e4	78.8	NO
8	8	13C7-PFUdA	ST180607M2-8 PFC CS3 18E2907	1.22e4	75.2	NO

Name: 180607M2_92, Date: 08-Jun-2018, Time: 06:03:55, 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: 180607M2_93, Date: 08-Jun-2018, Time: 06:14:20, ID: 1800978-05 REEPDW1040 0.11588, Description: REEPDW1040

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800978-05 REEPDW1040 0.11588	5.10e3	48.8	YES
2	2	13C5-PFHxA	1800978-05 REEPDW1040 0.11588	7.23e3	55.9	NO
3	3	13C3-PFHxS	1800978-05 REEPDW1040 0.11588	1.87e3	69.8	NO
4	4	13C8-PFOA	1800978-05 REEPDW1040 0.11588	7.44e3	60.0	NO
5	5	13C9-PFNA	1800978-05 REEPDW1040 0.11588	7.41e3	58.2	NO
6	6	13C4-PFOS	1800978-05 REEPDW1040 0.11588	1.90e3	68.8	NO
7	7	13C6-PFDA	1800978-05 REEPDW1040 0.11588	7.62e3	53.4	NO
8	8	13C7-PFUdA	1800978-05 REEPDW1040 0.11588	8.63e3	53.3	NO

Name: 180607M2_94, Date: 08-Jun-2018, Time: 06:24:50, ID: 1800978-06 REEPDW553 0.11895, Description: REEPDW553

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800978-06 REEPDW553 0.11895	6.37e3	60.9	NO
2	2	13C5-PFHxA	1800978-06 REEPDW553 0.11895	8.51e3	65.7	NO
3	3	13C3-PFHxS	1800978-06 REEPDW553 0.11895	2.12e3	78.9	NO
4	4	13C8-PFOA	1800978-06 REEPDW553 0.11895	8.07e3	65.2	NO
5	5	13C9-PFNA	1800978-06 REEPDW553 0.11895	9.62e3	75.5	NO
6	6	13C4-PFOS	1800978-06 REEPDW553 0.11895	2.34e3	84.7	NO
7	7	13C6-PFDA	1800978-06 REEPDW553 0.11895	9.14e3	64.1	NO
8	8	13C7-PFUdA	1800978-06 REEPDW553 0.11895	1.04e4	64.0	NO

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Name: 180607M2_95, Date: 08-Jun-2018, Time: 06:35:15, ID: 1800978-07 REEPDW1051 0.11897, Description: REEPDW1051

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800978-07 REEPDW1051 0.11897	5.85e3	56.0	NO
2	2	13C5-PFHxA	1800978-07 REEPDW1051 0.11897	7.73e3	59.7	NO
3	3	13C3-PFHxS	1800978-07 REEPDW1051 0.11897	2.05e3	76.4	NO
4	4	13C8-PFOA	1800978-07 REEPDW1051 0.11897	8.37e3	67.5	NO
5	5	13C9-PFNA	1800978-07 REEPDW1051 0.11897	8.48e3	66.5	NO
6	6	13C4-PFOS	1800978-07 REEPDW1051 0.11897	2.21e3	80.0	NO
7	7	13C6-PFDA	1800978-07 REEPDW1051 0.11897	8.56e3	60.0	NO
8	8	13C7-PFUdA	1800978-07 REEPDW1051 0.11897	1.08e4	66.6	NO

Name: 180607M2_96, Date: 08-Jun-2018, Time: 06:45:46, ID: 1800978-08 REEPDW1041 0.11682, Description: REEPDW1041

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800978-08 REEPDW1041 0.11682	5.32e3	50.9	NO
2	2	13C5-PFHxA	1800978-08 REEPDW1041 0.11682	7.40e3	57.1	NO
3	3	13C3-PFHxS	1800978-08 REEPDW1041 0.11682	2.02e3	75.2	NO
4	4	13C8-PFOA	1800978-08 REEPDW1041 0.11682	7.40e3	59.7	NO
5	5	13C9-PFNA	1800978-08 REEPDW1041 0.11682	7.96e3	62.5	NO
6	6	13C4-PFOS	1800978-08 REEPDW1041 0.11682	2.03e3	73.4	NO
7	7	13C6-PFDA	1800978-08 REEPDW1041 0.11682	8.61e3	60.3	NO
8	8	13C7-PFUdA	1800978-08 REEPDW1041 0.11682	9.25e3	57.1	NO

Name: 180607M2_97, Date: 08-Jun-2018, Time: 06:56:11, ID: 1800978-09 REEPDW1042 0.11863, Description: REEPDW1042

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800978-09 REEPDW1042 0.11863	5.84e3	55.8	NO
2	2	13C5-PFHxA	1800978-09 REEPDW1042 0.11863	8.17e3	63.1	NO
3	3	13C3-PFHxS	1800978-09 REEPDW1042 0.11863	2.09e3	78.0	NO
4	4	13C8-PFOA	1800978-09 REEPDW1042 0.11863	7.75e3	62.5	NO
5	5	13C9-PFNA	1800978-09 REEPDW1042 0.11863	8.69e3	68.2	NO
6	6	13C4-PFOS	1800978-09 REEPDW1042 0.11863	1.99e3	72.1	NO
7	7	13C6-PFDA	1800978-09 REEPDW1042 0.11863	7.84e3	55.0	NO
8	8	13C7-PFUdA	1800978-09 REEPDW1042 0.11863	1.08e4	66.9	NO

Name: 180607M2_98, Date: 08-Jun-2018, Time: 07:06:41, ID: 1800978-10 REEPDW1044 0.12068, Description: REEPDW1044

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800978-10 REEPDW1044 0.12068	5.33e3	51.0	NO
2	2	13C5-PFHxA	1800978-10 REEPDW1044 0.12068	7.21e3	55.7	NO
3	3	13C3-PFHxS	1800978-10 REEPDW1044 0.12068	1.74e3	64.9	NO
4	4	13C8-PFOA	1800978-10 REEPDW1044 0.12068	6.97e3	56.2	NO
5	5	13C9-PFNA	1800978-10 REEPDW1044 0.12068	7.48e3	58.7	NO
6	6	13C4-PFOS	1800978-10 REEPDW1044 0.12068	1.90e3	68.8	NO
7	7	13C6-PFDA	1800978-10 REEPDW1044 0.12068	7.78e3	54.5	NO
8	8	13C7-PFUdA	1800978-10 REEPDW1044 0.12068	8.24e3	50.9	NO

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Name: 180607M2_99, Date: 08-Jun-2018, Time: 07:17:06, ID: 1800978-11 REEPDW1045 0.1175, Description: REEPDW1045

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800978-11 REEPDW1045 0.1175	5.18e3	49.5	YES
2	2	13C5-PFHxA	1800978-11 REEPDW1045 0.1175	7.21e3	55.7	NO
3	3	13C3-PFHxS	1800978-11 REEPDW1045 0.1175	2.12e3	78.9	NO
4	4	13C8-PFOA	1800978-11 REEPDW1045 0.1175	8.07e3	65.1	NO
5	5	13C9-PFNA	1800978-11 REEPDW1045 0.1175	9.09e3	71.3	NO
6	6	13C4-PFOS	1800978-11 REEPDW1045 0.1175	2.23e3	80.6	NO
7	7	13C6-PFDA	1800978-11 REEPDW1045 0.1175	8.06e3	56.5	NO
8	8	13C7-PFUdA	1800978-11 REEPDW1045 0.1175	1.01e4	62.5	NO

Name: 180607M2_100, Date: 08-Jun-2018, Time: 07:27:37, ID: 1800978-12 REEPDW1046 0.12107, Description: REEPDW1046

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800978-12 REEPDW1046 0.12107	5.26e3	50.3	NO
2	2	13C5-PFHxA	1800978-12 REEPDW1046 0.12107	7.57e3	58.5	NO
3	3	13C3-PFHxS	1800978-12 REEPDW1046 0.12107	2.18e3	81.4	NO
4	4	13C8-PFOA	1800978-12 REEPDW1046 0.12107	7.86e3	63.4	NO
5	5	13C9-PFNA	1800978-12 REEPDW1046 0.12107	7.74e3	60.7	NO
6	6	13C4-PFOS	1800978-12 REEPDW1046 0.12107	2.20e3	79.7	NO
7	7	13C6-PFDA	1800978-12 REEPDW1046 0.12107	8.47e3	59.3	NO
8	8	13C7-PFUdA	1800978-12 REEPDW1046 0.12107	1.06e4	65.3	NO

Name: 180607M2_101, Date: 08-Jun-2018, Time: 07:38:01, ID: 1800978-13 REEPDW1047 0.11609, Description: REEPDW1047

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800978-13 REEPDW1047 0.11609	5.49e3	52.5	NO
2	2	13C5-PFHxA	1800978-13 REEPDW1047 0.11609	7.50e3	57.9	NO
3	3	13C3-PFHxS	1800978-13 REEPDW1047 0.11609	1.94e3	72.4	NO
4	4	13C8-PFOA	1800978-13 REEPDW1047 0.11609	7.63e3	61.6	NO
5	5	13C9-PFNA	1800978-13 REEPDW1047 0.11609	7.91e3	62.1	NO
6	6	13C4-PFOS	1800978-13 REEPDW1047 0.11609	1.85e3	66.9	NO
7	7	13C6-PFDA	1800978-13 REEPDW1047 0.11609	7.65e3	53.6	NO
8	8	13C7-PFUdA	1800978-13 REEPDW1047 0.11609	8.96e3	55.3	NO

Name: 180607M2_102, Date: 08-Jun-2018, Time: 07:48:31, 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: 180607M2_103, Date: 08-Jun-2018, Time: 07:58:56, ID: ST180607M2-9 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST180607M2-9 PFC CS3 18E2907	9.46e3	90.4	NO
2	2	13C5-PFHxA	ST180607M2-9 PFC CS3 18E2907	1.16e4	89.8	NO
3	3	13C3-PFHxS	ST180607M2-9 PFC CS3 18E2907	2.41e3	89.8	NO
4	4	13C8-PFOA	ST180607M2-9 PFC CS3 18E2907	1.13e4	91.2	NO
5	5	13C9-PFNA	ST180607M2-9 PFC CS3 18E2907	1.22e4	95.5	NO
6	6	13C4-PFOS	ST180607M2-9 PFC CS3 18E2907	2.65e3	95.9	NO
7	7	13C6-PFDA	ST180607M2-9 PFC CS3 18E2907	1.12e4	78.2	NO
8	8	13C7-PFUdA	ST180607M2-9 PFC CS3 18E2907	1.30e4	80.2	NO

Name: 180607M2_104, Date: 08-Jun-2018, Time: 08:09:26, ID: B8E0138-BS1 OPR 0.125, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0138-BS1 OPR 0.125	5.58e3	53.4	NO
2	2	13C5-PFHxA	B8E0138-BS1 OPR 0.125	7.68e3	59.3	NO
3	3	13C3-PFHxS	B8E0138-BS1 OPR 0.125	1.71e3	63.7	NO
4	4	13C8-PFOA	B8E0138-BS1 OPR 0.125	7.80e3	63.0	NO
5	5	13C9-PFNA	B8E0138-BS1 OPR 0.125	8.06e3	63.3	NO
6	6	13C4-PFOS	B8E0138-BS1 OPR 0.125	1.71e3	62.0	NO
7	7	13C6-PFDA	B8E0138-BS1 OPR 0.125	7.16e3	50.2	NO
8	8	13C7-PFUdA	B8E0138-BS1 OPR 0.125	8.39e3	51.8	NO

Name: 180607M2_105, Date: 08-Jun-2018, Time: 08:19:56, ID: B8E0138-BSD1 LCSD 0.125, Description: LCSD

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0138-BSD1 LCSD 0.125	5.35e3	51.1	NO
2	2	13C5-PFHxA	B8E0138-BSD1 LCSD 0.125	7.28e3	56.3	NO
3	3	13C3-PFHxS	B8E0138-BSD1 LCSD 0.125	1.65e3	61.4	NO
4	4	13C8-PFOA	B8E0138-BSD1 LCSD 0.125	7.34e3	59.2	NO
5	5	13C9-PFNA	B8E0138-BSD1 LCSD 0.125	7.21e3	56.6	NO
6	6	13C4-PFOS	B8E0138-BSD1 LCSD 0.125	1.69e3	61.3	NO
7	7	13C6-PFDA	B8E0138-BSD1 LCSD 0.125	7.33e3	51.4	NO
8	8	13C7-PFUdA	B8E0138-BSD1 LCSD 0.125	8.33e3	51.5	NO

Name: 180607M2_106, Date: 08-Jun-2018, Time: 08:30:21, ID: B8E0138-BLK1 Method Blank 0.125, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0138-BLK1 Method Blank 0.125	5.84e3	55.9	NO
2	2	13C5-PFHxA	B8E0138-BLK1 Method Blank 0.125	8.16e3	63.0	NO
3	3	13C3-PFHxS	B8E0138-BLK1 Method Blank 0.125	1.88e3	70.2	NO
4	4	13C8-PFOA	B8E0138-BLK1 Method Blank 0.125	8.07e3	65.1	NO
5	5	13C9-PFNA	B8E0138-BLK1 Method Blank 0.125	8.71e3	68.4	NO
6	6	13C4-PFOS	B8E0138-BLK1 Method Blank 0.125	1.81e3	65.4	NO
7	7	13C6-PFDA	B8E0138-BLK1 Method Blank 0.125	8.85e3	62.0	NO
8	8	13C7-PFUdA	B8E0138-BLK1 Method Blank 0.125	9.41e3	58.1	NO

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Name: 180607M2_107, Date: 08-Jun-2018, Time: 08:49:17, ID: 180608_QCISSUP, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	180608_QCISSUP	5.35e3	51.2	NO
2	2	13C5-PFHxA	180608_QCISSUP	8.82e3	68.2	NO
3	3	13C3-PFHxS	180608_QCISSUP	1.93e3	71.8	NO
4	4	13C8-PFOA	180608_QCISSUP	8.69e3	70.1	NO
5	5	13C9-PFNA	180608_QCISSUP	9.51e3	74.7	NO
6	6	13C4-PFOS	180608_QCISSUP	2.11e3	76.5	NO
7	7	13C6-PFDA	180608_QCISSUP	1.03e4	72.3	NO
8	8	13C7-PFUdA	180608_QCISSUP	1.24e4	76.6	NO

Name: 180607M2_108, Date: 08-Jun-2018, Time: 08:59:43, ID: 1800953-01 REEPDW485FRB 0.11479, Description: REEPDW485FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800953-01 REEPDW485FRB 0.11479	5.43e3	52.0	NO
2	2	13C5-PFHxA	1800953-01 REEPDW485FRB 0.11479	7.11e3	54.9	NO
3	3	13C3-PFHxS	1800953-01 REEPDW485FRB 0.11479	1.60e3	59.6	NO
4	4	13C8-PFOA	1800953-01 REEPDW485FRB 0.11479	6.90e3	55.7	NO
5	5	13C9-PFNA	1800953-01 REEPDW485FRB 0.11479	7.26e3	56.9	NO
6	6	13C4-PFOS	1800953-01 REEPDW485FRB 0.11479	1.67e3	60.6	NO
7	7	13C6-PFDA	1800953-01 REEPDW485FRB 0.11479	6.88e3	48.2	YES
8	8	13C7-PFUdA	1800953-01 REEPDW485FRB 0.11479	8.67e3	53.5	NO

Name: 180607M2_109, Date: 08-Jun-2018, Time: 09:10:08, ID: 1800953-02 REEPDW491FRB 0.12321, Description: REEPDW491FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800953-02 REEPDW491FRB 0.12321	6.37e3	60.9	NO
2	2	13C5-PFHxA	1800953-02 REEPDW491FRB 0.12321	8.31e3	64.2	NO
3	3	13C3-PFHxS	1800953-02 REEPDW491FRB 0.12321	1.90e3	71.0	NO
4	4	13C8-PFOA	1800953-02 REEPDW491FRB 0.12321	8.13e3	65.6	NO
5	5	13C9-PFNA	1800953-02 REEPDW491FRB 0.12321	9.03e3	70.9	NO
6	6	13C4-PFOS	1800953-02 REEPDW491FRB 0.12321	1.88e3	68.0	NO
7	7	13C6-PFDA	1800953-02 REEPDW491FRB 0.12321	8.60e3	60.3	NO
8	8	13C7-PFUdA	1800953-02 REEPDW491FRB 0.12321	9.78e3	60.4	NO

Name: 180607M2_110, Date: 08-Jun-2018, Time: 09:20:38, ID: 1800953-03 REEPDW493FRB 0.12134, Description: REEPDW493FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800953-03 REEPDW493FRB 0.12134	6.00e3	57.4	NO
2	2	13C5-PFHxA	1800953-03 REEPDW493FRB 0.12134	7.76e3	60.0	NO
3	3	13C3-PFHxS	1800953-03 REEPDW493FRB 0.12134	1.74e3	64.9	NO
4	4	13C8-PFOA	1800953-03 REEPDW493FRB 0.12134	7.62e3	61.5	NO
5	5	13C9-PFNA	1800953-03 REEPDW493FRB 0.12134	8.15e3	64.0	NO
6	6	13C4-PFOS	1800953-03 REEPDW493FRB 0.12134	1.77e3	64.0	NO
7	7	13C6-PFDA	1800953-03 REEPDW493FRB 0.12134	8.33e3	58.4	NO
8	8	13C7-PFUdA	1800953-03 REEPDW493FRB 0.12134	9.45e3	58.4	NO

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Name: 180607M2_111, Date: 08-Jun-2018, Time: 09:31:02, ID: 1800953-04 REEPDW494FRB 0.12123, Description: REEPDW494FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800953-04 REEPDW494FRB 0.12123	6.27e3	59.9	NO
2	2	13C5-PFHxA	1800953-04 REEPDW494FRB 0.12123	8.25e3	63.7	NO
3	3	13C3-PFHxS	1800953-04 REEPDW494FRB 0.12123	1.70e3	63.5	NO
4	4	13C8-PFOA	1800953-04 REEPDW494FRB 0.12123	8.11e3	65.4	NO
5	5	13C9-PFNA	1800953-04 REEPDW494FRB 0.12123	8.34e3	65.5	NO
6	6	13C4-PFOS	1800953-04 REEPDW494FRB 0.12123	1.70e3	61.4	NO
7	7	13C6-PFDA	1800953-04 REEPDW494FRB 0.12123	8.66e3	60.7	NO
8	8	13C7-PFUdA	1800953-04 REEPDW494FRB 0.12123	9.32e3	57.5	NO

Name: 180607M2_112, Date: 08-Jun-2018, Time: 09:41:33, ID: 1800953-05 REEPDW486FRB 0.11858, Description: REEPDW486FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800953-05 REEPDW486FRB 0.11858	6.34e3	60.7	NO
2	2	13C5-PFHxA	1800953-05 REEPDW486FRB 0.11858	8.39e3	64.8	NO
3	3	13C3-PFHxS	1800953-05 REEPDW486FRB 0.11858	1.66e3	62.0	NO
4	4	13C8-PFOA	1800953-05 REEPDW486FRB 0.11858	7.85e3	63.3	NO
5	5	13C9-PFNA	1800953-05 REEPDW486FRB 0.11858	9.06e3	71.1	NO
6	6	13C4-PFOS	1800953-05 REEPDW486FRB 0.11858	1.85e3	67.1	NO
7	7	13C6-PFDA	1800953-05 REEPDW486FRB 0.11858	9.03e3	63.3	NO
8	8	13C7-PFUdA	1800953-05 REEPDW486FRB 0.11858	9.38e3	57.9	NO

Name: 180607M2_113, Date: 08-Jun-2018, Time: 09:51:59, ID: 1800953-06 REEPDW487FRB 0.11947, Description: REEPDW487FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800953-06 REEPDW487FRB 0.11947	6.26e3	59.9	NO
2	2	13C5-PFHxA	1800953-06 REEPDW487FRB 0.11947	8.65e3	66.9	NO
3	3	13C3-PFHxS	1800953-06 REEPDW487FRB 0.11947	1.77e3	65.8	NO
4	4	13C8-PFOA	1800953-06 REEPDW487FRB 0.11947	8.14e3	65.7	NO
5	5	13C9-PFNA	1800953-06 REEPDW487FRB 0.11947	8.62e3	67.6	NO
6	6	13C4-PFOS	1800953-06 REEPDW487FRB 0.11947	2.08e3	75.4	NO
7	7	13C6-PFDA	1800953-06 REEPDW487FRB 0.11947	8.23e3	57.7	NO
8	8	13C7-PFUdA	1800953-06 REEPDW487FRB 0.11947	9.64e3	59.6	NO

Name: 180607M2_114, Date: 08-Jun-2018, Time: 10:02:29, ID: 1800953-07 REEPDW489FRB 0.12132, Description: REEPDW489FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800953-07 REEPDW489FRB 0.12132	5.95e3	56.9	NO
2	2	13C5-PFHxA	1800953-07 REEPDW489FRB 0.12132	7.94e3	61.3	NO
3	3	13C3-PFHxS	1800953-07 REEPDW489FRB 0.12132	1.56e3	58.3	NO
4	4	13C8-PFOA	1800953-07 REEPDW489FRB 0.12132	7.97e3	64.3	NO
5	5	13C9-PFNA	1800953-07 REEPDW489FRB 0.12132	7.81e3	61.3	NO
6	6	13C4-PFOS	1800953-07 REEPDW489FRB 0.12132	1.80e3	65.0	NO
7	7	13C6-PFDA	1800953-07 REEPDW489FRB 0.12132	8.31e3	58.2	NO
8	8	13C7-PFUdA	1800953-07 REEPDW489FRB 0.12132	9.13e3	56.4	NO

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Name: 180607M2_115, Date: 08-Jun-2018, Time: 10:12:54, ID: 1800953-08 REEPDW492FRB 0.11926, Description: REEPDW492FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800953-08 REEPDW492FRB 0.11926	6.27e3	59.9	NO
2	2	13C5-PFHxA	1800953-08 REEPDW492FRB 0.11926	8.50e3	65.7	NO
3	3	13C3-PFHxS	1800953-08 REEPDW492FRB 0.11926	1.77e3	66.1	NO
4	4	13C8-PFOA	1800953-08 REEPDW492FRB 0.11926	8.17e3	65.9	NO
5	5	13C9-PFNA	1800953-08 REEPDW492FRB 0.11926	8.76e3	68.7	NO
6	6	13C4-PFOS	1800953-08 REEPDW492FRB 0.11926	1.61e3	58.3	NO
7	7	13C6-PFDA	1800953-08 REEPDW492FRB 0.11926	7.69e3	53.9	NO
8	8	13C7-PFUdA	1800953-08 REEPDW492FRB 0.11926	9.14e3	56.5	NO

Name: 180607M2_116, Date: 08-Jun-2018, Time: 10:23:24, ID: 1800953-09 REEPDW495FRB 0.1162, Description: REEPDW495FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800953-09 REEPDW495FRB 0.1162	5.69e3	54.5	NO
2	2	13C5-PFHxA	1800953-09 REEPDW495FRB 0.1162	7.24e3	55.9	NO
3	3	13C3-PFHxS	1800953-09 REEPDW495FRB 0.1162	1.47e3	54.9	NO
4	4	13C8-PFOA	1800953-09 REEPDW495FRB 0.1162	7.38e3	59.6	NO
5	5	13C9-PFNA	1800953-09 REEPDW495FRB 0.1162	8.36e3	65.6	NO
6	6	13C4-PFOS	1800953-09 REEPDW495FRB 0.1162	1.87e3	67.6	NO
7	7	13C6-PFDA	1800953-09 REEPDW495FRB 0.1162	6.35e3	44.5	YES
8	8	13C7-PFUdA	1800953-09 REEPDW495FRB 0.1162	8.50e3	52.5	NO

Name: 180607M2_117, Date: 08-Jun-2018, Time: 10:33:49, ID: 1800953-10 REEPDW496FRB 0.11087, Description: REEPDW496FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800953-10 REEPDW496FRB 0.11087	6.27e3	60.0	NO
2	2	13C5-PFHxA	1800953-10 REEPDW496FRB 0.11087	7.93e3	61.3	NO
3	3	13C3-PFHxS	1800953-10 REEPDW496FRB 0.11087	1.83e3	68.2	NO
4	4	13C8-PFOA	1800953-10 REEPDW496FRB 0.11087	7.81e3	63.0	NO
5	5	13C9-PFNA	1800953-10 REEPDW496FRB 0.11087	8.18e3	64.2	NO
6	6	13C4-PFOS	1800953-10 REEPDW496FRB 0.11087	1.92e3	69.6	NO
7	7	13C6-PFDA	1800953-10 REEPDW496FRB 0.11087	8.38e3	58.7	NO
8	8	13C7-PFUdA	1800953-10 REEPDW496FRB 0.11087	9.18e3	56.7	NO

Name: 180607M2_118, Date: 08-Jun-2018, Time: 10:44:19, ID: 1800953-11 REEPDW497FRB 0.11881, Description: REEPDW497FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800953-11 REEPDW497FRB 0.11881	6.11e3	58.4	NO
2	2	13C5-PFHxA	1800953-11 REEPDW497FRB 0.11881	8.14e3	62.9	NO
3	3	13C3-PFHxS	1800953-11 REEPDW497FRB 0.11881	1.68e3	62.6	NO
4	4	13C8-PFOA	1800953-11 REEPDW497FRB 0.11881	8.52e3	68.8	NO
5	5	13C9-PFNA	1800953-11 REEPDW497FRB 0.11881	9.12e3	71.5	NO
6	6	13C4-PFOS	1800953-11 REEPDW497FRB 0.11881	1.94e3	70.1	NO
7	7	13C6-PFDA	1800953-11 REEPDW497FRB 0.11881	8.12e3	56.9	NO
8	8	13C7-PFUdA	1800953-11 REEPDW497FRB 0.11881	1.01e4	62.4	NO

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Name: 180607M2_119, Date: 08-Jun-2018, Time: 10:54:45, ID: 1800953-12 REEPDW498FRB 0.11073, Description: REEPDW498FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800953-12 REEPDW498FRB 0.11073	6.85e3	65.5	NO
2	2	13C5-PFHxA	1800953-12 REEPDW498FRB 0.11073	9.55e3	73.8	NO
3	3	13C3-PFHxS	1800953-12 REEPDW498FRB 0.11073	1.94e3	72.2	NO
4	4	13C8-PFOA	1800953-12 REEPDW498FRB 0.11073	9.82e3	79.2	NO
5	5	13C9-PFNA	1800953-12 REEPDW498FRB 0.11073	9.80e3	76.9	NO
6	6	13C4-PFOS	1800953-12 REEPDW498FRB 0.11073	1.94e3	70.3	NO
7	7	13C6-PFDA	1800953-12 REEPDW498FRB 0.11073	9.14e3	64.1	NO
8	8	13C7-PFUdA	1800953-12 REEPDW498FRB 0.11073	1.08e4	66.6	NO

Name: 180607M2_120, Date: 08-Jun-2018, Time: 11:05:15, ID: 1800953-13 REEPDW488FRB 0.12363, Description: REEPDW488FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800953-13 REEPDW488FRB 0.12363	6.40e3	61.2	NO
2	2	13C5-PFHxA	1800953-13 REEPDW488FRB 0.12363	8.07e3	62.4	NO
3	3	13C3-PFHxS	1800953-13 REEPDW488FRB 0.12363	1.87e3	69.9	NO
4	4	13C8-PFOA	1800953-13 REEPDW488FRB 0.12363	8.28e3	66.8	NO
5	5	13C9-PFNA	1800953-13 REEPDW488FRB 0.12363	8.98e3	70.5	NO
6	6	13C4-PFOS	1800953-13 REEPDW488FRB 0.12363	1.79e3	64.6	NO
7	7	13C6-PFDA	1800953-13 REEPDW488FRB 0.12363	8.24e3	57.7	NO
8	8	13C7-PFUdA	1800953-13 REEPDW488FRB 0.12363	9.22e3	56.9	NO

Name: 180607M2_121, Date: 08-Jun-2018, Time: 11:15:39, ID: 1800953-14 REEPDW490FRB 0.12363, Description: REEPDW490FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800953-14 REEPDW490FRB 0.12363	6.51e3	62.3	NO
2	2	13C5-PFHxA	1800953-14 REEPDW490FRB 0.12363	8.74e3	67.5	NO
3	3	13C3-PFHxS	1800953-14 REEPDW490FRB 0.12363	1.91e3	71.2	NO
4	4	13C8-PFOA	1800953-14 REEPDW490FRB 0.12363	8.72e3	70.4	NO
5	5	13C9-PFNA	1800953-14 REEPDW490FRB 0.12363	9.02e3	70.8	NO
6	6	13C4-PFOS	1800953-14 REEPDW490FRB 0.12363	1.97e3	71.3	NO
7	7	13C6-PFDA	1800953-14 REEPDW490FRB 0.12363	8.90e3	62.4	NO
8	8	13C7-PFUdA	1800953-14 REEPDW490FRB 0.12363	9.65e3	59.6	NO

Name: 180607M2_122, Date: 08-Jun-2018, Time: 11:26:10, ID: 1800953-15 REEPDW1000FRB 0.11202, Description: REEPDW1000FRB

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800953-15 REEPDW1000FRB 0.11202	6.30e3	60.2	NO
2	2	13C5-PFHxA	1800953-15 REEPDW1000FRB 0.11202	8.50e3	65.7	NO
3	3	13C3-PFHxS	1800953-15 REEPDW1000FRB 0.11202	1.64e3	61.0	NO
4	4	13C8-PFOA	1800953-15 REEPDW1000FRB 0.11202	8.42e3	67.9	NO
5	5	13C9-PFNA	1800953-15 REEPDW1000FRB 0.11202	8.49e3	66.6	NO
6	6	13C4-PFOS	1800953-15 REEPDW1000FRB 0.11202	1.84e3	66.7	NO
7	7	13C6-PFDA	1800953-15 REEPDW1000FRB 0.11202	8.43e3	59.1	NO
8	8	13C7-PFUdA	1800953-15 REEPDW1000FRB 0.11202	8.77e3	54.2	NO

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Name: 180607M2_123, Date: 08-Jun-2018, Time: 11:36:40, ID: B8E0172-BS1 OPR 0.25, Description: OPR

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0172-BS1 OPR 0.25	6.79e3	64.9	NO
2	2	13C5-PFHxA	B8E0172-BS1 OPR 0.25	9.16e3	70.8	NO
3	3	13C3-PFHxS	B8E0172-BS1 OPR 0.25	2.05e3	76.3	NO
4	4	13C8-PFOA	B8E0172-BS1 OPR 0.25	8.90e3	71.8	NO
5	5	13C9-PFNA	B8E0172-BS1 OPR 0.25	9.12e3	71.6	NO
6	6	13C4-PFOS	B8E0172-BS1 OPR 0.25	1.98e3	71.5	NO
7	7	13C6-PFDA	B8E0172-BS1 OPR 0.25	9.77e3	68.5	NO
8	8	13C7-PFUdA	B8E0172-BS1 OPR 0.25	9.12e3	56.3	NO

Name: 180607M2_124, Date: 08-Jun-2018, Time: 11:47:05, ID: B8E0172-BLK1 Method Blank 0.25, Description: Method Blank

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	B8E0172-BLK1 Method Blank 0.25	6.28e3	60.0	NO
2	2	13C5-PFHxA	B8E0172-BLK1 Method Blank 0.25	8.52e3	65.9	NO
3	3	13C3-PFHxS	B8E0172-BLK1 Method Blank 0.25	1.96e3	73.1	NO
4	4	13C8-PFOA	B8E0172-BLK1 Method Blank 0.25	8.27e3	66.7	NO
5	5	13C9-PFNA	B8E0172-BLK1 Method Blank 0.25	8.71e3	68.3	NO
6	6	13C4-PFOS	B8E0172-BLK1 Method Blank 0.25	1.85e3	66.8	NO
7	7	13C6-PFDA	B8E0172-BLK1 Method Blank 0.25	8.54e3	59.8	NO
8	8	13C7-PFUdA	B8E0172-BLK1 Method Blank 0.25	9.03e3	55.8	NO

Name: 180607M2_125, Date: 08-Jun-2018, Time: 11:57:35, ID: 1800980-01 SW-2 0.24555, Description: SW-2

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800980-01 SW-2 0.24555	6.94e3	66.3	NO
2	2	13C5-PFHxA	1800980-01 SW-2 0.24555	9.45e3	73.0	NO
3	3	13C3-PFHxS	1800980-01 SW-2 0.24555	1.82e3	67.9	NO
4	4	13C8-PFOA	1800980-01 SW-2 0.24555	9.22e3	74.4	NO
5	5	13C9-PFNA	1800980-01 SW-2 0.24555	9.83e3	77.1	NO
6	6	13C4-PFOS	1800980-01 SW-2 0.24555	2.02e3	72.9	NO
7	7	13C6-PFDA	1800980-01 SW-2 0.24555	9.01e3	63.2	NO
8	8	13C7-PFUdA	1800980-01 SW-2 0.24555	9.51e3	58.8	NO

Name: 180607M2_126, Date: 08-Jun-2018, Time: 12:08:00, ID: 1800980-02 SW-3 0.24142, Description: SW-3

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	1800980-02 SW-3 0.24142	6.04e3	57.7	NO
2	2	13C5-PFHxA	1800980-02 SW-3 0.24142	8.20e3	63.4	NO
3	3	13C3-PFHxS	1800980-02 SW-3 0.24142	1.78e3	66.2	NO
4	4	13C8-PFOA	1800980-02 SW-3 0.24142	8.19e3	66.1	NO
5	5	13C9-PFNA	1800980-02 SW-3 0.24142	7.88e3	61.8	NO
6	6	13C4-PFOS	1800980-02 SW-3 0.24142	1.85e3	66.9	NO
7	7	13C6-PFDA	1800980-02 SW-3 0.24142	8.36e3	58.6	NO
8	8	13C7-PFUdA	1800980-02 SW-3 0.24142	8.80e3	54.3	NO

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Name: 180607M2_127, Date: 08-Jun-2018, Time: 12:18:30, 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: 180607M2_128, Date: 08-Jun-2018, Time: 12:28:56, ID: ST180607M2-10 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	ID	Area	%Rec	Area Out
1	1	13C4-PFBA	ST180607M2-10 PFC CS3 18E2907	9.28e3	88.7	NO
2	2	13C5-PFHxA	ST180607M2-10 PFC CS3 18E2907	1.22e4	94.4	NO
3	3	13C3-PFHxS	ST180607M2-10 PFC CS3 18E2907	2.49e3	92.8	NO
4	4	13C8-PFOA	ST180607M2-10 PFC CS3 18E2907	1.19e4	96.3	NO
5	5	13C9-PFNA	ST180607M2-10 PFC CS3 18E2907	1.21e4	94.6	NO
6	6	13C4-PFOS	ST180607M2-10 PFC CS3 18E2907	2.48e3	89.7	NO
7	7	13C6-PFDA	ST180607M2-10 PFC CS3 18E2907	1.17e4	81.8	NO
8	8	13C7-PFUdA	ST180607M2-10 PFC CS3 18E2907	1.25e4	76.9	NO

Vista Analytical Laboratory

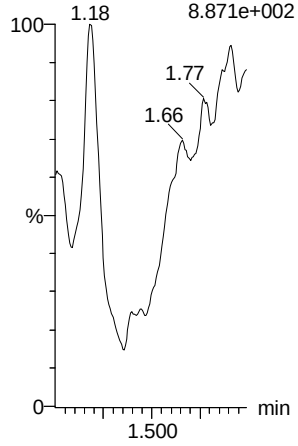
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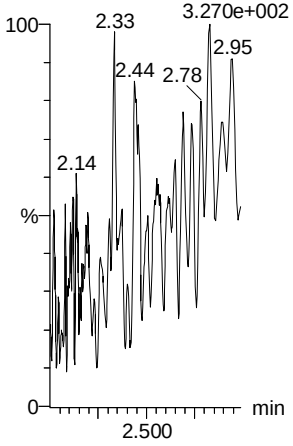
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Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

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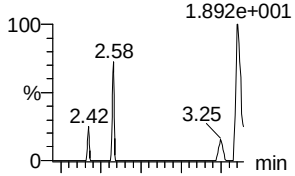
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
8.871e+002



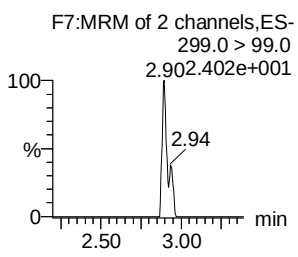
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
3.270e+002



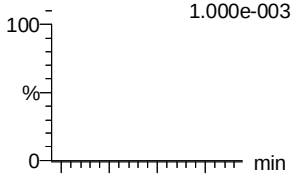
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
1.892e+001



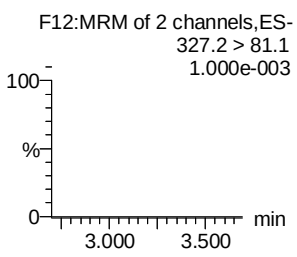
F7:MRM of 2 channels,ES-
299.0 > 99.0
2.402e+001



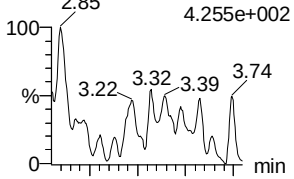
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
1.000e-003



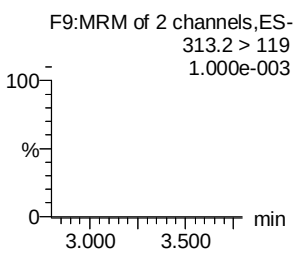
F12:MRM of 2 channels,ES-
327.2 > 81.1
1.000e-003



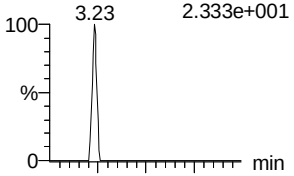
PFHxA
F9:MRM of 2 channels,ES-
313.2 > 268.9
4.255e+002



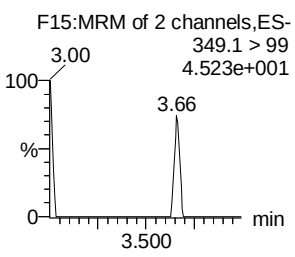
F9:MRM of 2 channels,ES-
313.2 > 119
1.000e-003



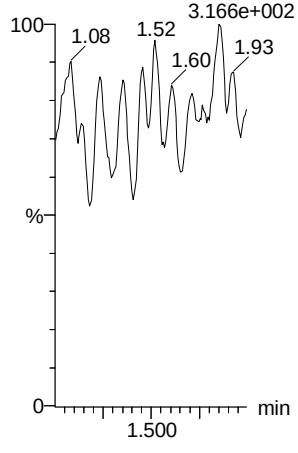
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
2.333e+001



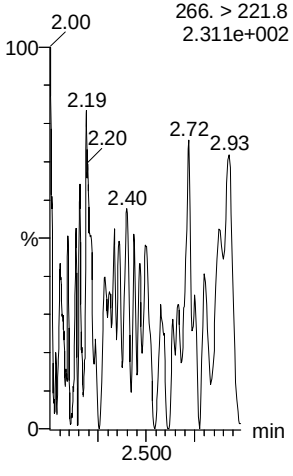
F15:MRM of 2 channels,ES-
349.1 > 99
4.523e+001



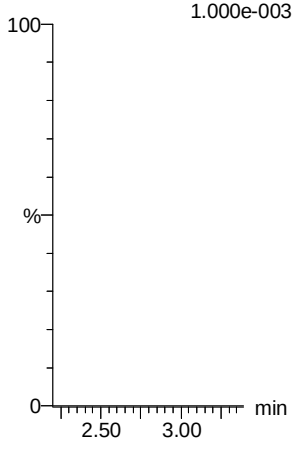
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
3.166e+002



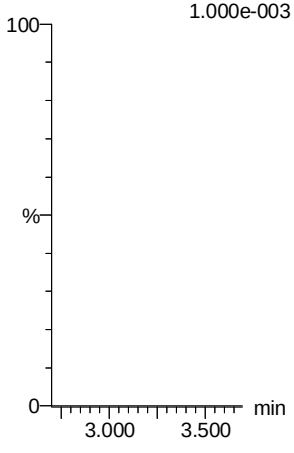
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
2.311e+002



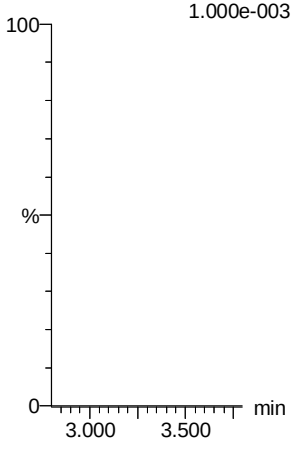
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
1.000e-003



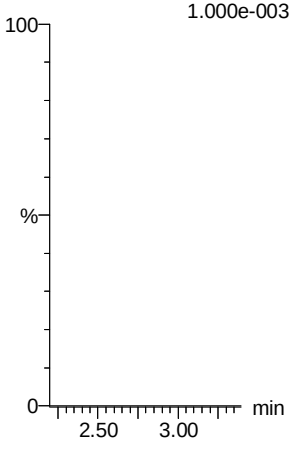
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
1.000e-003



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 269.8
1.000e-003



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
1.000e-003



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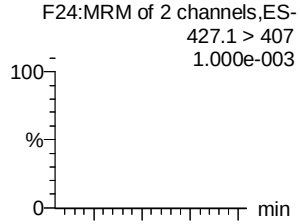
Vista Analytical Laboratory

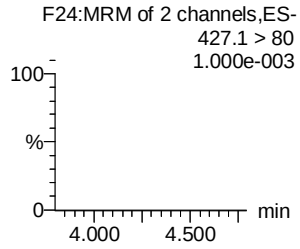
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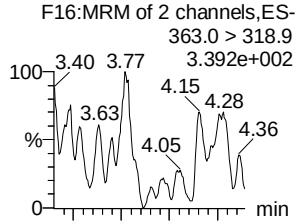
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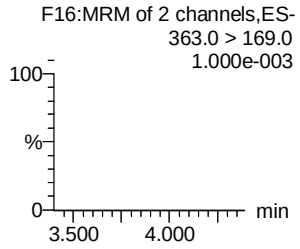
6:2 FTS



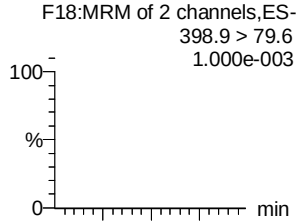


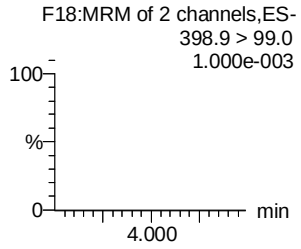
PFHpA



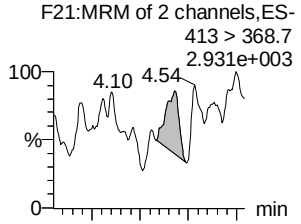


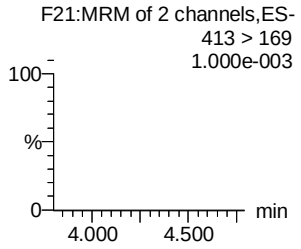
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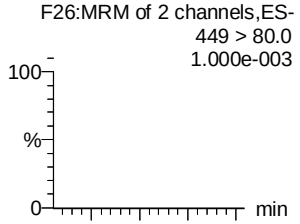


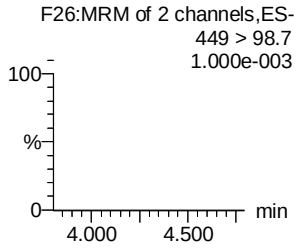
L-PFOA



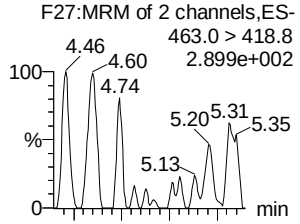


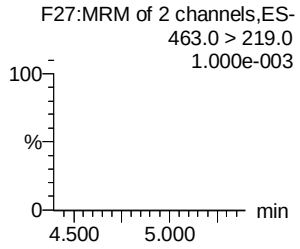
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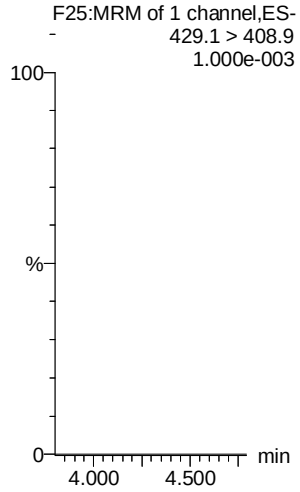


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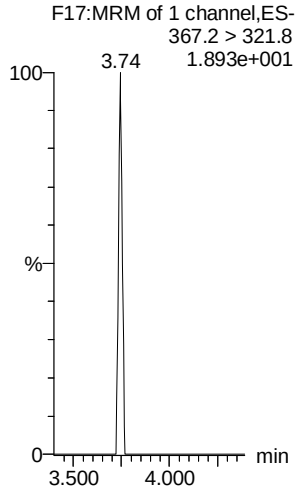




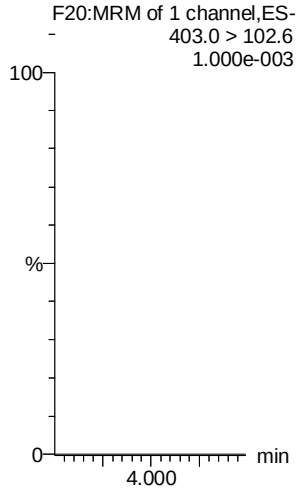
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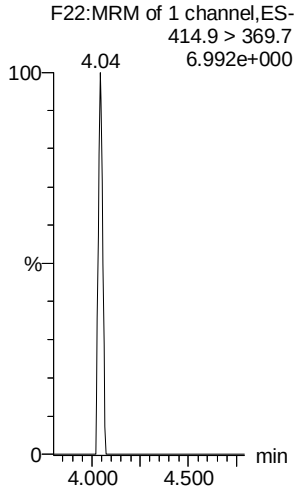
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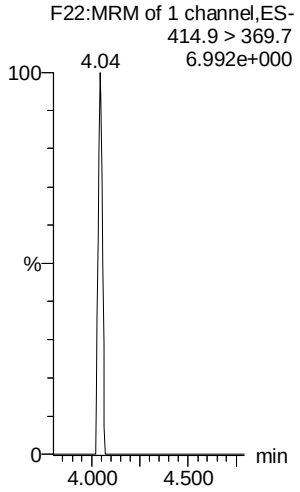
18O2-PFHxS



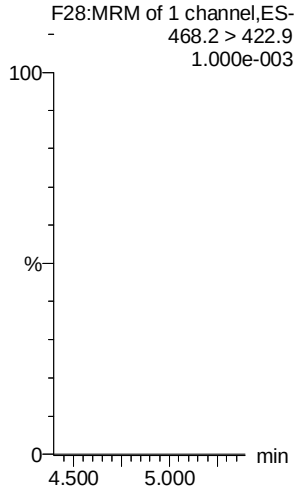
13C2-PFOA



13C2-PFOA



13C5-PFNA



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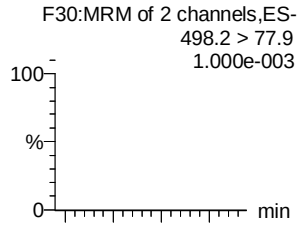
Vista Analytical Laboratory

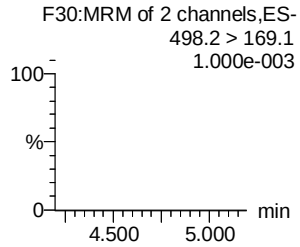
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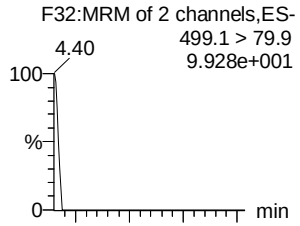
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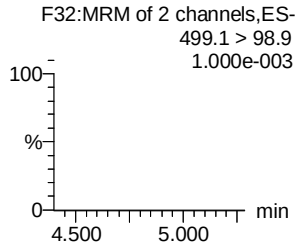
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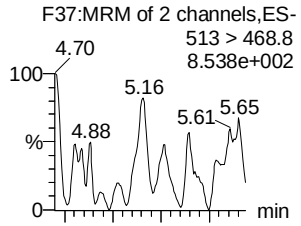


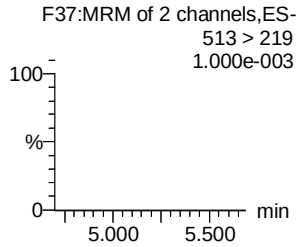
L-PFOS



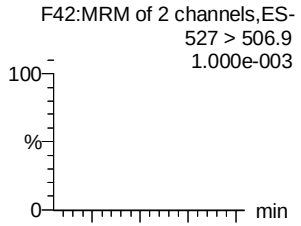


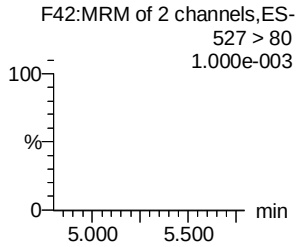
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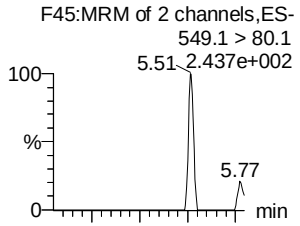


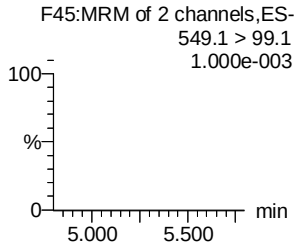
8:2 FTS



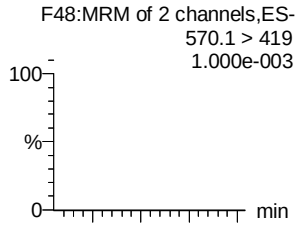


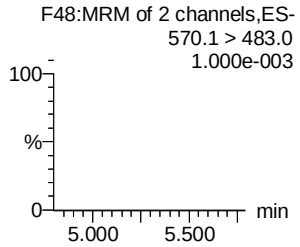
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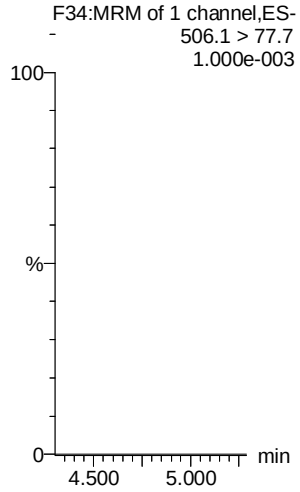


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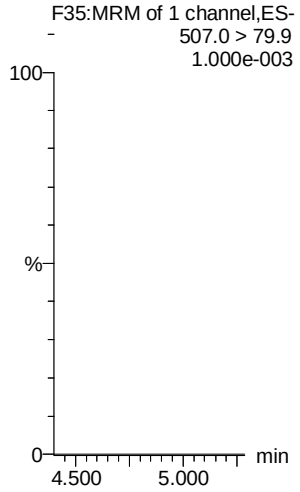




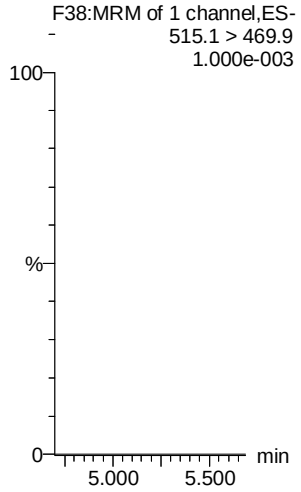
13C8-PFOSA



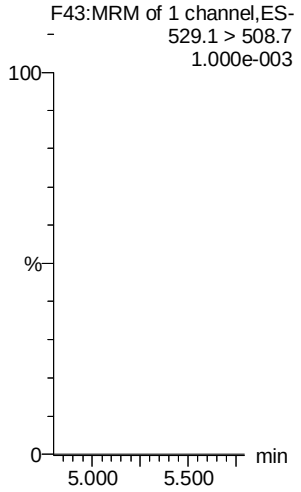
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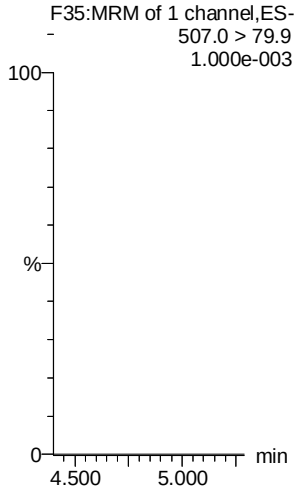
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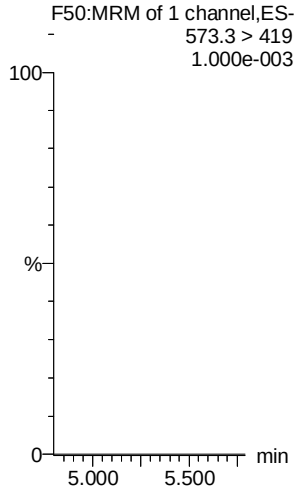
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13C8-PFOS



d3-N-MeFOSAA



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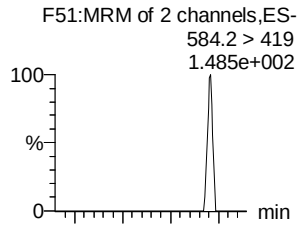
Vista Analytical Laboratory

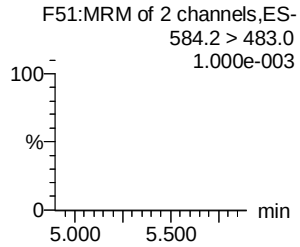
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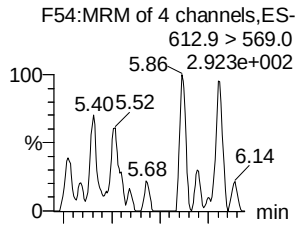
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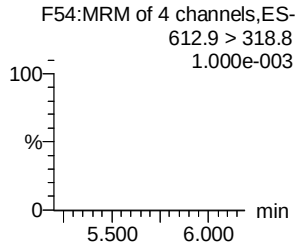
L-EtFOSAA



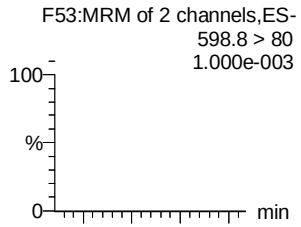


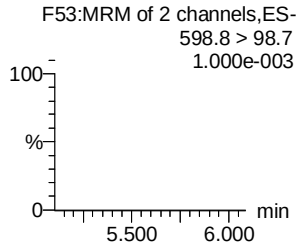
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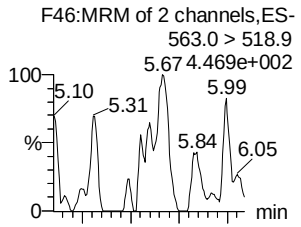


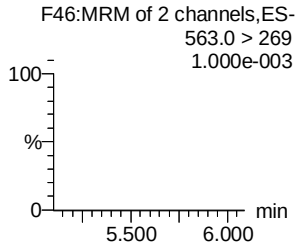
PFDS



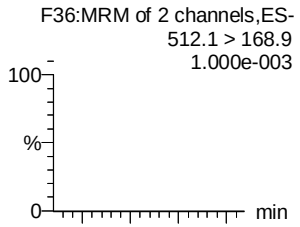


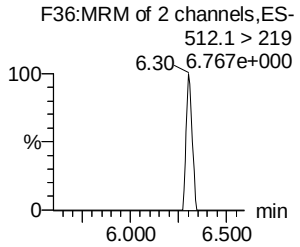
PFUdA



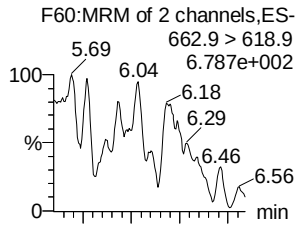


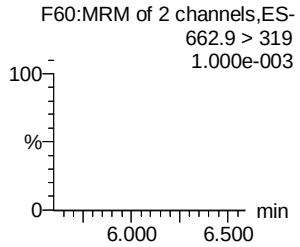
N-MeFOSA



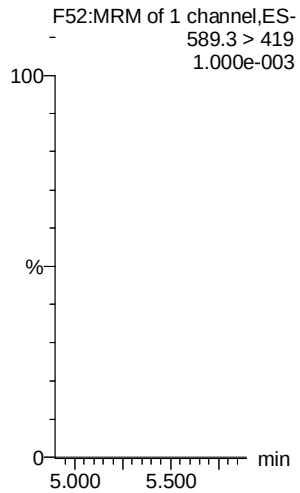


PFTrDA

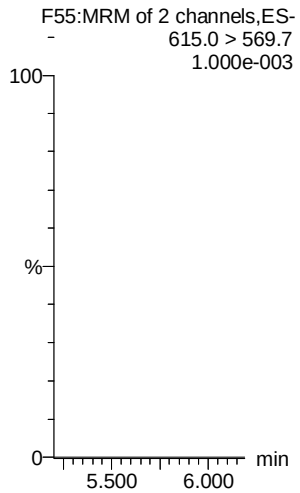




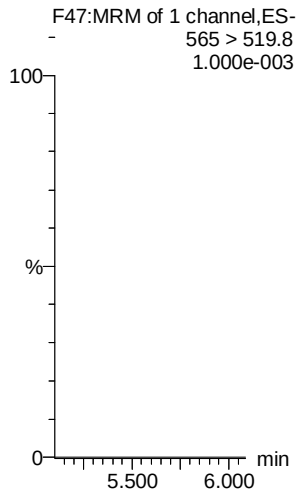
d5-N-EtFOSAA



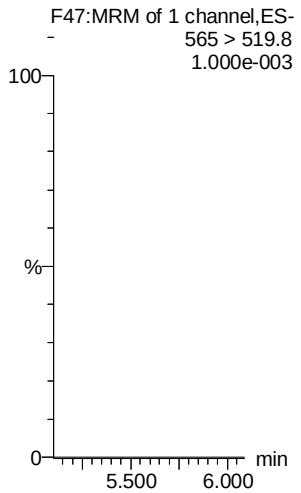
13C2-PFDoA



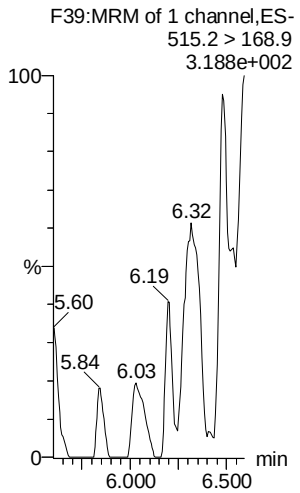
13C2-PFUdA



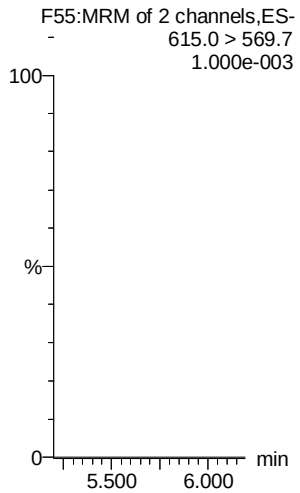
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA



AD 6/10/2018

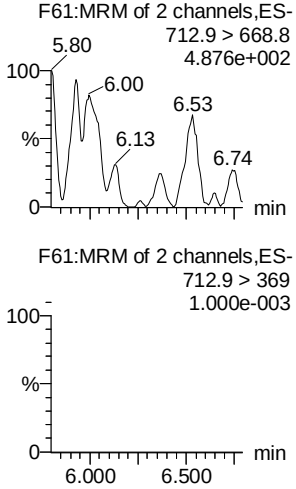
Vista Analytical Laboratory

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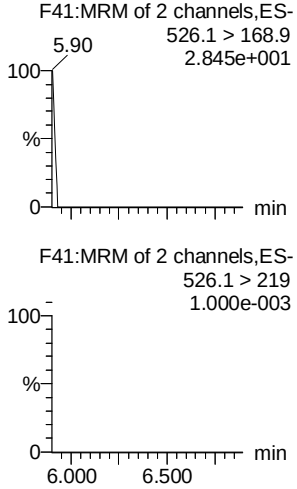
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Printed: Sunday, June 10, 2018 15:25:46 Pacific Daylight Time

Name: 180607M2_4, Date: 07-Jun-2018, Time: 14:03:47, ID: IPA, Description: IPA

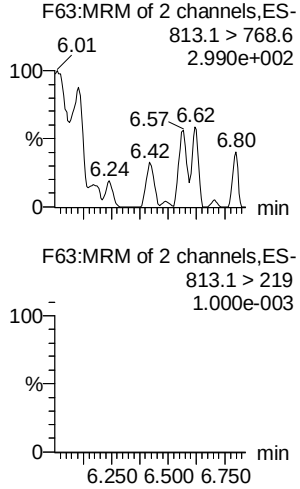
PFTeDA



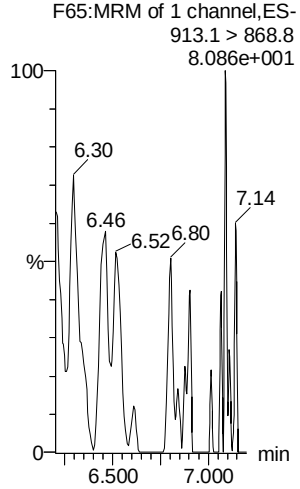
N-EtFOSA



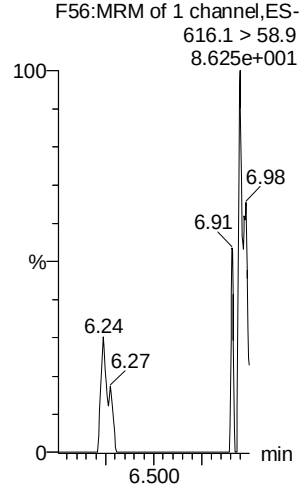
PFHxDA



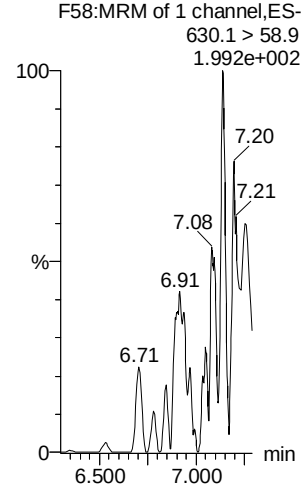
PFODA



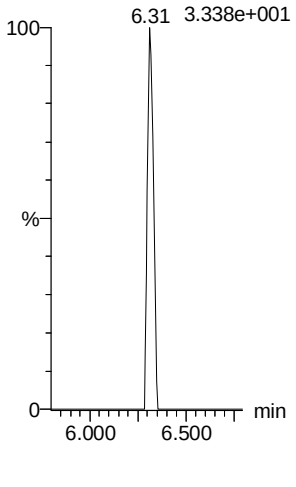
N-MeFOSE



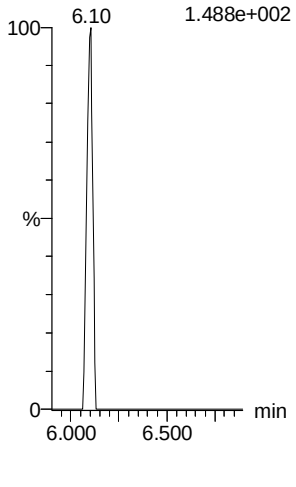
N-EtFOSE



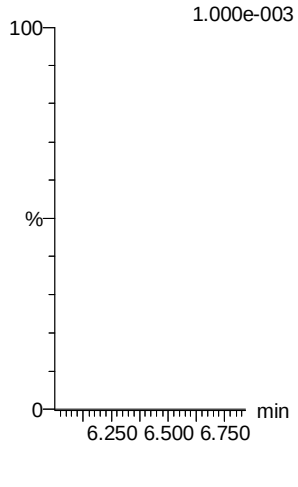
13C2-PFTeDA



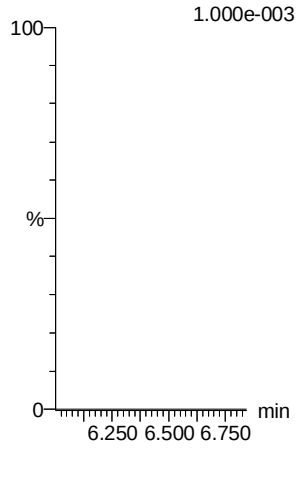
d5-N-ETFOSA



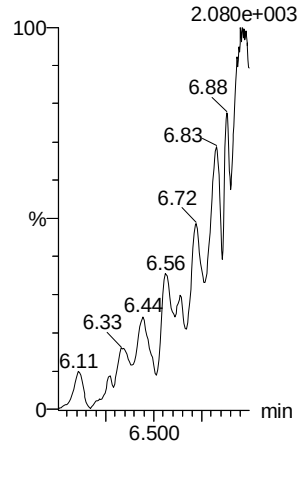
13C2-PFHxDA



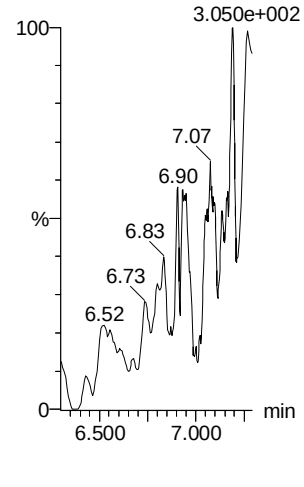
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE



AD 6/10/2018

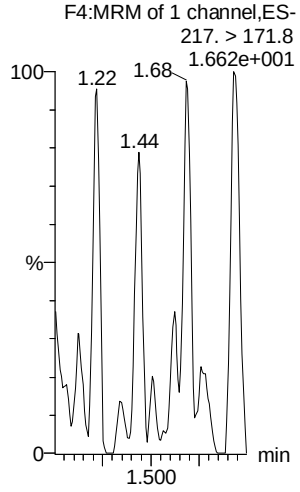
Vista Analytical Laboratory

Dataset: Untitled

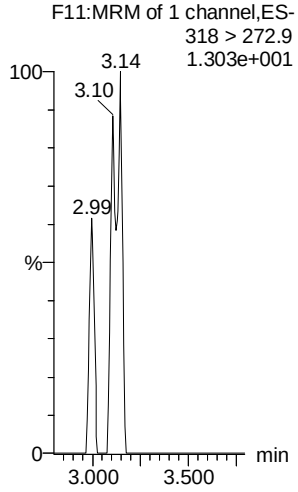
Last Altered: Sunday, June 10, 2018 15:25:28 Pacific Daylight Time
Printed: Sunday, June 10, 2018 15:25:46 Pacific Daylight Time

Name: 180607M2_4, Date: 07-Jun-2018, Time: 14:03:47, ID: IPA, Description: IPA

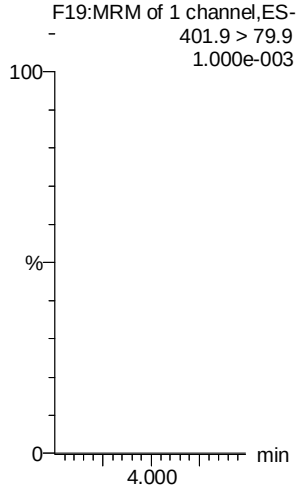
13C4-PFBA



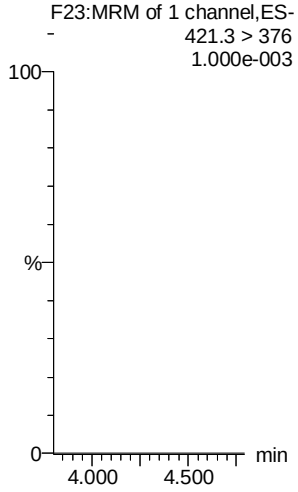
13C5-PFHxA



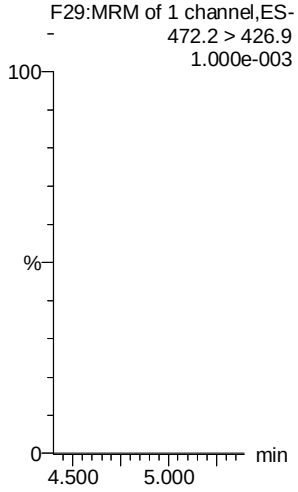
13C3-PFHxS



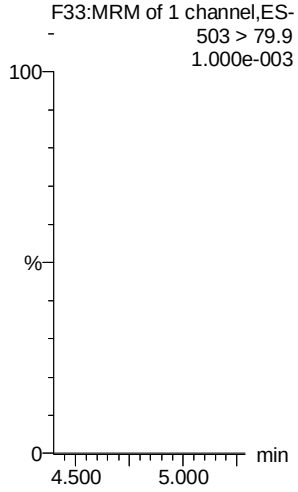
13C8-PFOA



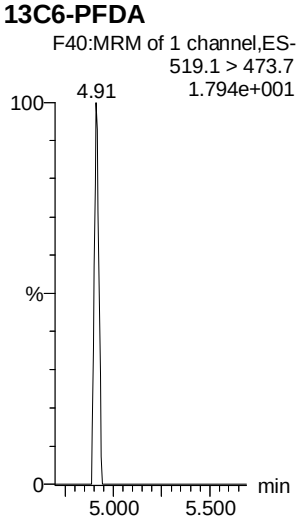
13C9-PFNA



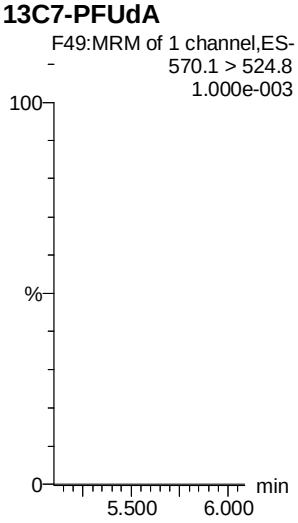
13C4-PFOS



13C6-PFDA



13C7-PFUdA



AD 6/10/2018

LC Calibration Standards Review Checklist 04

			ION Ratio	Concentration	C-Cals Name	Sign Date	Correct I-Cal	Manual Integrations	N/A
Calibration ID:	ST180607M2-2	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:	-9	L M H	☑	☑	☑	☑	☑	☑	☐
Calibration ID:	-9	L M H	☑	☑	☑	☑	☑	☑	☐
Calibration ID:	-10	L M H	☑	☑	☑	☑	☑	☑	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐	☐

Full Mass Cal. Date: 6/6/18

Run Log Present: ☑

of Samples per Sequence Checked: ☑

Instrument Blank Saved ☑

IIS Area Saved ☑

Reviewed By: KBF 6/9/18
Initials/Date

Comments:

Vista Analytical Laboratory

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-3.qld

Last Altered: Saturday, June 09, 2018 11:05:11 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:05:24 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 10:17:35
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_3, Date: 07-Jun-2018, Time: 13:53:21, ID: ST180607M2-2 PFC CS0 18E2904, Description: PFC CS0 18E2904

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
1	1	PFBA	213.0 > 16...	8.46e2	8.96e3		1.58	1.59	1.18	1.04	103.9	NO		
2	2	PFPeA	263.1 > 21...	9.87e2	1.17e4		2.58	2.57	1.05	1.02	101.8	NO		
3	3	PFBS	299.0 > 79.7	1.95e2	1.36e3		2.84	2.84	1.79	0.913	91.3	NO	2.723	NO
4	4	4:2 FTS	327.2>307.2	2.44e2	2.74e3		3.24	3.26	1.11	1.15	115.5	NO	1.665	NO
5	5	PFHxA	313.2 > 26...	1.13e3	3.78e3		3.34	3.35	1.50	0.962	96.2	NO	653.617	YES
6	6	PFPeS	349.1>80.1	1.80e2	1.36e3		3.53	3.54	1.65	0.966	96.6	NO	1.467	NO
7	7	PFHpA	363.0 > 31...	9.56e2	1.00e4		3.98	3.98	1.19	0.988	98.8	NO	24.847	YES
8	8	L-PFHxS	398.9 > 79.6	1.34e2	1.18e3		4.10	4.12	1.42	0.831	83.1	NO	1.503	NO
9	10	6:2 FTS	427.1 > 407	2.85e2	2.88e3		4.18	4.45	1.24	1.22	122.5	NO	5.019	NO
10	11	L-PFOA	413 > 368.7	1.32e3	1.55e4		4.43	4.50	1.06	1.05	105.4	NO	6.125	NO
11	13	PFHpS	449 > 80.0	2.11e2	1.55e4		4.33	4.61	0.169	0.994	99.4	NO	2.251	NO
12	14	PFNA	463.0 > 41...	1.19e3	1.21e4		4.68	4.94	1.23	0.962	96.2	NO	5.240	NO
13	15	PFOSA	498.2 > 77.9	3.12e2	4.43e3		4.73	4.99	0.882	1.02	101.9	NO	99.786	YES
14	16	L-PFOS	499.1 > 79.9	2.06e2	2.65e3		4.95	5.02	0.975	1.01	101.4	NO	1.790	NO
15	18	PFDA	513 > 468.8	1.31e3	1.72e4		5.05	5.31	0.950	0.945	94.5	NO	7.497	YES
16	19	8:2 FTS	527 > 506.9	3.05e2	2.85e3		5.00	5.28	1.34	1.10	110.3	NO	3.332	YES
17	20	PFNS	549.1>80.1	1.22e2	2.65e3		5.09	5.37	0.576	0.752	75.2	NO	0.975	YES
18	21	L-MeFOSAA	570.1 > 419	4.67e2	4.02e3		5.18	5.46	1.45	0.999	99.9	NO	94.386	YES
19	23	L-EtFOSAA	584.2 > 419	3.86e2	5.21e3		5.37	5.61	0.926	0.978	97.8	NO	42.742	YES

VBF 6/9/18

GM 6/9/2018

Vista Analytical Laboratory

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-3.qld

Last Altered: Saturday, June 09, 2018 11:05:11 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:05:31 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 10:17:35
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_3, Date: 07-Jun-2018, Time: 13:53:21, ID: ST180607M2-2 PFC CS0 18E2904, Description: PFC CS0 18E2904

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
1	25	PFUdA	563.0 > 51...	1.27e3	1.63e4		5.37	5.63	0.973	0.904	90.4	NO	16.034	NO
2	26	PFDS	598.8 > 80	2.98e2	1.63e4		5.40	5.67	0.228	1.13	113.1	NO	2.695	YES
3	27	PFDoA	612.9 > 56...	2.08e3	1.88e4		5.65	5.91	1.38	1.16	115.6	NO	12.335	NO
4	28	N-MeFOSA	512.1 > 16...	6.90e2	1.95e4		5.84	5.90	5.32	4.85	97.0	NO	1.276	NO
5	29	PFTrDA	662.9 > 61...	2.19e3	1.88e4		5.89	6.14	1.46	1.21	121.2	NO	49.720	YES
6	30	PFTeDA	712.9 > 66...	1.56e3	1.78e4		6.11	6.35	1.10	0.913	91.3	NO	13.184	NO
7	31	N-EtFOSA	526.1 > 16...	7.64e2	2.44e4		6.23	6.27	4.70	5.08	101.5	NO	1.479	NO
8	32	PFHxDA	813.1 > 76...	1.33e3	8.41e3		6.45	6.64	0.790	1.13	112.7	NO	77.970	YES
9	33	PFODA	913.1 > 86...	1.18e3	8.41e3		6.68	6.86	0.699	0.920	92.0	NO		
10	34	N-MeFOSE	616.1 > 58.9	7.22e2	2.36e4		6.38	6.40	4.59	4.99	99.8	NO		
11	35	N-EtFOSE	630.1 > 58.9	7.35e2	1.90e4		6.52	6.54	5.81	5.16	103.1	NO		
12	36	13C3-PFBA	216.1 > 17...	8.96e3	1.05e4	0.870	1.34	1.58	10.7	12.3	98.4	NO		
13	37	13C3-PFPeA	266. > 221.8	1.17e4	1.29e4	0.870	2.32	2.57	11.3	13.0	104.1	NO		
14	38	13C3-PFBS	302. > 98.8	1.36e3	1.29e4	0.099	2.60	2.84	1.32	13.3	106.8	NO		
15	39	13C2-4:2 FTS	329.2>308.9	2.74e3	1.29e4	0.265	3.01	3.25	2.65	9.99	79.9	NO		
16	40	13C2-PFHxA	315 > 269.8	3.78e3	1.29e4	0.737	3.10	3.35	3.65	4.96	99.1	NO		
17	41	13C4-PFHpA	367.2 > 32...	1.00e4	1.29e4	0.791	3.71	3.98	9.69	12.3	98.1	NO		
18	42	18O2-PFHxS	403.0 > 10...	1.18e3	2.68e3	0.442	3.86	4.12	5.50	12.5	99.6	NO		
19	43	13C2-6:2 FTS	429.1 > 40...	2.88e3	1.24e4	0.306	4.18	4.45	2.91	9.49	76.0	NO		
20	44	13C2-PFOA	414.9 > 36...	1.55e4	1.24e4	1.285	4.23	4.50	15.7	12.2	97.5	NO		
21	45	13C5-PFNA	468.2 > 42...	1.21e4	1.27e4	0.930	4.67	4.94	11.8	12.7	101.7	NO		
22	46	13C8-PFOSA	506.1 > 77.7	4.43e3	1.62e4	0.237	4.74	5.00	3.42	14.4	115.1	NO		
23	47	13C8-PFOS	507.0 > 79.9	2.65e3	2.76e3	1.039	4.75	5.02	12.0	11.5	92.3	NO		
24	48	13C2-PFDA	515.1 > 46...	1.72e4	1.43e4	1.144	5.04	5.31	15.1	13.2	105.5	NO		
25	49	13C2-8:2 FTS	529.1 > 50...	2.85e3	1.29e4	0.215	5.01	5.28	2.75	12.8	102.3	NO		
26	50	d3-N-MeFOSAA	573.3 > 419	4.02e3	1.62e4	0.351	5.19	5.45	3.10	8.83	70.6	NO		
27	51	d5-N-EtFOSAA	589.3 > 419	5.21e3	1.62e4	0.388	5.35	5.61	4.02	10.4	82.8	NO		
28	52	13C2-PFUdA	565 > 519.8	1.63e4	1.62e4	1.019	5.37	5.63	12.6	12.4	98.9	NO		
29	53	13C2-PFDoA	615.0 > 56...	1.88e4	1.43e4	1.057	5.65	5.91	16.5	15.6	124.7	NO		
30	54	d3-N-MeFOSA	515.2 > 16...	1.95e4	1.62e4	0.107	5.87	5.93	15.0	141	93.9	NO		
31	55	13C2-PFTeDA	714.8 > 66...	1.78e4	1.62e4	0.964	6.11	6.35	13.7	14.2	113.9	NO		
32	56	d5-N-ETFOSA	531.1 > 16...	2.44e4	1.62e4	0.157	6.25	6.29	18.8	120	80.1	NO		

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-3.qld

Last Altered: Saturday, June 09, 2018 11:05:11 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:05:31 Pacific Daylight Time

Name: 180607M2_3, Date: 07-Jun-2018, Time: 13:53:21, ID: ST180607M2-2 PFC CS0 18E2904, Description: PFC CS0 18E2904

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
33	57	13C2-PFHxDA	815 > 769.7	8.41e3	1.62e4	1.562	6.45	6.65	6.49	4.16	83.1	NO		
34	58	d7-N-MeFOSE	623.1 > 58.9	2.36e4	1.62e4	0.147	6.37	6.39	18.2	124	82.4	NO		
35	59	d9-N-EtFOSE	639.2 > 58.8	1.90e4	1.62e4	0.149	6.52	6.54	14.6	98.2	65.5	NO		
36	60	13C4-PFBA	217. > 171.8	1.05e4	1.05e4	1.000	1.33	1.59	12.5	12.5	100.0	NO		
37	61	13C5-PFHxA	318 > 272.9	1.29e4	1.29e4	1.000	3.09	3.35	12.5	12.5	100.0	NO		
38	62	13C3-PFHxS	401.9 > 79.9	2.68e3	2.68e3	1.000	3.87	4.12	12.5	12.5	100.0	NO		
39	63	13C8-PFOA	421.3 > 376	1.24e4	1.24e4	1.000	4.24	4.50	12.5	12.5	100.0	NO		
40	64	13C9-PFNA	472.2 > 42...	1.27e4	1.27e4	1.000	4.67	4.94	12.5	12.5	100.0	NO		
41	65	13C4-PFOS	503 > 79.9	2.76e3	2.76e3	1.000	4.75	5.02	12.5	12.5	100.0	NO		
42	66	13C6-PFDA	519.1 > 47...	1.43e4	1.43e4	1.000	5.04	5.31	12.5	12.5	100.0	NO		
43	67	13C7-PFUdA	570.1 > 52...	1.62e4	1.62e4	1.000	5.37	5.63	12.5	12.5	100.0	NO		

GM 6/9/2018

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Dataset: Untitled

Last Altered: Saturday, June 09, 2018 11:27:35 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:28:46 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 10:17:35
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	180607M2_3	ST180607M2-2 PFC CS0 18E2904	07-Jun-18	13:53:21
2	2	180607M2_4	IPA	07-Jun-18	14:03:47
3	3	180607M2_5	B8F0025-BS1 OPR 0.25	07-Jun-18	14:14:18
4	4	180607M2_6	B8F0025-BLK1 Method Blank 0.25	07-Jun-18	14:24:40
5	5	180607M2_7	1800796-11 RCCB 1 0.26894	07-Jun-18	14:35:10
6	6	180607M2_8	1801123-01 MW-101 0.11977	07-Jun-18	14:45:36
7	7	180607M2_9	1801123-02 MW-102 0.11688	07-Jun-18	14:56:06
8	8	180607M2_10	1801123-03 MW-103 0.11631	07-Jun-18	15:06:30
9	9	180607M2_11	1801123-04 MW-104 0.11472	07-Jun-18	15:17:00
10	10	180607M2_12	1801124-01 140 Harvey Rd 0.11503	07-Jun-18	15:27:24
11	11	180607M2_13	1801039-03 A1-MW-14-SA1 0.11194	07-Jun-18	15:37:57
12	12	180607M2_14	1801039-04 A1-MW-15-SA1 0.11248	07-Jun-18	15:48:25
13	13	180607M2_15	1800862-05 REEPDW456FRB 0.1202	07-Jun-18	15:58:50
14	14	180607M2_16	1800862-08 REEPDW447FRB 0.11683	07-Jun-18	16:09:21
15	15	180607M2_17	1800862-15 REEPDW460FRB 0.11944	07-Jun-18	16:19:45
16	16	180607M2_18	B8E0244-BS1 OPR 0.125	07-Jun-18	17:09:15
17	17	180607M2_19	cs2 qc	07-Jun-18	17:20:17
18	18	180607M2_20	B8E0244-BS1 OPR 0.125	07-Jun-18	17:30:45
19	19	180607M2_21	B8E0244-BLK1 Method Blank 0.125	07-Jun-18	17:41:14
20	20	180607M2_22	B8E0244-MS1 Matrix Spike 0.11028	07-Jun-18	17:51:44
21	21	180607M2_23	B8E0244-MSD1 Matrix Spike Dup 0.11...	07-Jun-18	18:02:08
22	22	180607M2_24	B8E0244-MS2 Matrix Spike 0.11122	07-Jun-18	18:12:39
23	23	180607M2_25	B8E0244-MSD2 Matrix Spike Dup 0.11...	07-Jun-18	18:23:09
24	24	180607M2_26	1801037-01 A1-MW-18-SA1 0.11265	07-Jun-18	18:33:34
25	25	180607M2_27	1801037-02 16-MW-08-SA1 0.11493	07-Jun-18	18:44:05
26	26	180607M2_28	ST180607M2-3 PFC CS3 18E2907	07-Jun-18	18:54:30
27	27	180607M2_29	IPA	07-Jun-18	19:05:00
28	28	180607M2_30	180607_ISSUP QC	07-Jun-18	19:15:31
29	29	180607M2_31	180607_ISSUPQCDUP	07-Jun-18	19:25:55
30	30	180607M2_32	B8F0027-BS1 OPR 0.125	07-Jun-18	19:36:25
31	31	180607M2_33	B8F0027-BSD1 LCSD 0.125	07-Jun-18	19:46:50

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Dataset: Untitled

Last Altered: Saturday, June 09, 2018 11:27:35 Pacific Daylight Time
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Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
32	32	180607M2_34	B8F0027-BLK1 Method Blank 0.125	07-Jun-18	19:57:21
33	33	180607M2_35	1801127-01 MCLP00518 0.11531	07-Jun-18	20:07:51
34	34	180607M2_36	1801127-02 MCLPCG436 0.11947	07-Jun-18	20:18:15
35	35	180607M2_37	1801127-03 MCLPCG515 0.11557	07-Jun-18	20:28:46
36	36	180607M2_38	1801127-04 MCLP00516 0.11034	07-Jun-18	20:39:10
37	37	180607M2_39	1801127-05 MCLP00517 0.1183	07-Jun-18	20:49:41
38	38	180607M2_40	1801037-03 A1-MW-19-SA1 0.11827	07-Jun-18	21:00:06
39	39	180607M2_41	1801037-04 A1-MW-37-SA1 0.11915	07-Jun-18	21:10:36
40	40	180607M2_42	1801037-05 A1-MW-37-SA1D 0.11595	07-Jun-18	21:21:01
41	41	180607M2_43	1801037-06 16-H5-03-SA1 0.12456	07-Jun-18	21:31:31
42	42	180607M2_44	1801037-07 16-MW-09-SA1 0.1148	07-Jun-18	21:41:53
43	43	180607M2_45	ST180607M2-4 PFC CS3 18E2907	07-Jun-18	21:52:23
44	44	180607M2_46	IPA	07-Jun-18	22:02:49
45	45	180607M2_47	1801037-08 16-MW-06-5A1 0.11143	07-Jun-18	22:13:19
46	46	180607M2_48	1801037-09 FRB-20180523 0.11719	07-Jun-18	22:23:44
47	47	180607M2_49	1801054-01 A1-MW-42-SA1 0.11279	07-Jun-18	22:34:14
48	48	180607M2_50	1801054-02 A1-MW-54-SA1 0.11211	07-Jun-18	22:44:39
49	49	180607M2_51	1801054-03 A1-MW-53-SA1 0.1139	07-Jun-18	22:55:09
50	50	180607M2_52	1801054-04 A1-P2-19-SA1 0.11736	07-Jun-18	23:05:34
51	51	180607M2_53	1801054-05 A1-MW-52-SA1 0.11509	07-Jun-18	23:16:04
52	52	180607M2_54	1801054-06 A1-MW-01-SA1 0.1102	07-Jun-18	23:26:35
53	53	180607M2_55	1801054-07 A1-MW-01-SA1D 0.11715	07-Jun-18	23:37:00
54	54	180607M2_56	1801054-08 A1-MW-31-SA1 0.11276	07-Jun-18	23:47:30
55	55	180607M2_57	1801054-09 FRB-20180525 0.11663	07-Jun-18	23:57:55
56	56	180607M2_58	B8E0139-BS1 OPR 0.125	08-Jun-18	00:08:26
57	57	180607M2_59	B8E0139-BSD1 LCSD 0.125	08-Jun-18	00:18:51
58	58	180607M2_60	B8E0139-BLK1 Method Blank 0.125	08-Jun-18	00:29:21
59	59	180607M2_61	1800952-01 REEPDW485 0.12371	08-Jun-18	00:39:45
60	60	180607M2_62	ST180607M2-5 PFC CS3 18E2907	08-Jun-18	00:50:16
61	61	180607M2_63	ST180607M2-6 PFC CS0 18E2904	08-Jun-18	01:00:40
62	62	180607M2_64	IPA	08-Jun-18	01:11:11
63	63	180607M2_65	1800952-02 REEPDW491 0.11903	08-Jun-18	01:21:36
64	64	180607M2_66	1800952-03 REEPDW493 0.12371	08-Jun-18	01:32:07
65	65	180607M2_67	1800952-04 REEPDW494 0.12591	08-Jun-18	01:42:32

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Last Altered: Saturday, June 09, 2018 11:27:35 Pacific Daylight Time
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Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
66	66	180607M2_68	1800952-05 REEPDW486 0.12668	08-Jun-18	01:52:54
67	67	180607M2_69	1800952-06 REEPDW487 0.12126	08-Jun-18	02:03:24
68	68	180607M2_70	1800952-07 REEPDW489 0.12109	08-Jun-18	02:13:50
69	69	180607M2_71	1800952-08 REEPDW492 0.12089	08-Jun-18	02:24:20
70	70	180607M2_72	1800952-09 REEPDW495 0.11841	08-Jun-18	02:34:45
71	71	180607M2_73	1800952-10 REEPDW496 0.12607	08-Jun-18	02:45:07
72	72	180607M2_74	1800952-11 REEPDW497 0.11275	08-Jun-18	02:55:37
73	73	180607M2_75	ST180607M2-7 PFC CS3 18E2907	08-Jun-18	03:06:07
74	74	180607M2_76	IPA	08-Jun-18	03:16:32
75	75	180607M2_77	1800952-12 REEPDW498 0.12162	08-Jun-18	03:27:02
76	76	180607M2_78	1800952-13 REEPDW488 0.125	08-Jun-18	03:37:27
77	77	180607M2_79	1800952-14 REEPDW490 0.12133	08-Jun-18	03:47:57
78	78	180607M2_80	1800952-15 REEPDW1000 0.11915	08-Jun-18	03:58:27
79	79	180607M2_81	1800952-16 REEPDW548 0.11758	08-Jun-18	04:08:52
80	80	180607M2_82	1800952-17 REEPDW549 0.1221	08-Jun-18	04:19:22
81	81	180607M2_83	B8E0168-BS1 OPR 0.125	08-Jun-18	04:29:47
82	82	180607M2_84	B8E0168-MS1 Matrix Spike 0.11902	08-Jun-18	04:40:17
83	83	180607M2_85	B8E0168-MSD1 Matrix Spike Dup 0.11...	08-Jun-18	04:50:48
84	84	180607M2_86	B8E0168-BLK1 Method Blank 0.125	08-Jun-18	05:01:12
85	85	180607M2_87	1800978-01 REEPDW1035 0.11488	08-Jun-18	05:11:43
86	86	180607M2_88	1800978-02 REEPDW1036 0.11708	08-Jun-18	05:22:08
87	87	180607M2_89	1800978-03 REEPDW1038 0.11726	08-Jun-18	05:32:38
88	88	180607M2_90	1800978-04 REEPDW1039 0.11839	08-Jun-18	05:43:03
89	89	180607M2_91	ST180607M2-8 PFC CS3 18E2907	08-Jun-18	05:53:25
90	90	180607M2_92	IPA	08-Jun-18	06:03:55
91	91	180607M2_93	1800978-05 REEPDW1040 0.11588	08-Jun-18	06:14:20
92	92	180607M2_94	1800978-06 REEPDW553 0.11895	08-Jun-18	06:24:50
93	93	180607M2_95	1800978-07 REEPDW1051 0.11897	08-Jun-18	06:35:15
94	94	180607M2_96	1800978-08 REEPDW1041 0.11682	08-Jun-18	06:45:46
95	95	180607M2_97	1800978-09 REEPDW1042 0.11863	08-Jun-18	06:56:11
96	96	180607M2_98	1800978-10 REEPDW1044 0.12068	08-Jun-18	07:06:41
97	97	180607M2_99	1800978-11 REEPDW1045 0.1175	08-Jun-18	07:17:06
98	98	180607M2_100	1800978-12 REEPDW1046 0.12107	08-Jun-18	07:27:37
99	99	180607M2_101	1800978-13 REEPDW1047 0.11609	08-Jun-18	07:38:01

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Last Altered: Saturday, June 09, 2018 11:27:35 Pacific Daylight Time
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Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
100	1...	180607M2_102	IPA	08-Jun-18	07:48:31
101	1...	180607M2_103	ST180607M2-9 PFC CS3 18E2907	08-Jun-18	07:58:56
102	1...	180607M2_104	B8E0138-BS1 OPR 0.125	08-Jun-18	08:09:26
103	1...	180607M2_105	B8E0138-BSD1 LCSD 0.125	08-Jun-18	08:19:56
104	1...	180607M2_106	B8E0138-BLK1 Method Blank 0.125	08-Jun-18	08:30:21
105	1...	180607M2_107	180608_QCISSUP	08-Jun-18	08:49:17
106	1...	180607M2_108	1800953-01 REEPDW485FRB 0.11479	08-Jun-18	08:59:43
107	1...	180607M2_109	1800953-02 REEPDW491FRB 0.12321	08-Jun-18	09:10:08
108	1...	180607M2_110	1800953-03 REEPDW493FRB 0.12134	08-Jun-18	09:20:38
109	1...	180607M2_111	1800953-04 REEPDW494FRB 0.12123	08-Jun-18	09:31:02
110	1...	180607M2_112	1800953-05 REEPDW486FRB 0.11858	08-Jun-18	09:41:33
111	1...	180607M2_113	1800953-06 REEPDW487FRB 0.11947	08-Jun-18	09:51:59
112	1...	180607M2_114	1800953-07 REEPDW489FRB 0.12132	08-Jun-18	10:02:29
113	1...	180607M2_115	1800953-08 REEPDW492FRB 0.11926	08-Jun-18	10:12:54
114	1...	180607M2_116	1800953-09 REEPDW495FRB 0.1162	08-Jun-18	10:23:24
115	1...	180607M2_117	1800953-10 REEPDW496FRB 0.11087	08-Jun-18	10:33:49
116	1...	180607M2_118	1800953-11 REEPDW497FRB 0.11881	08-Jun-18	10:44:19
117	1...	180607M2_119	1800953-12 REEPDW498FRB 0.11073	08-Jun-18	10:54:45
118	1...	180607M2_120	1800953-13 REEPDW488FRB 0.12363	08-Jun-18	11:05:15
119	1...	180607M2_121	1800953-14 REEPDW490FRB 0.12363	08-Jun-18	11:15:39
120	1...	180607M2_122	1800953-15 REEPDW1000FRB 0.11202	08-Jun-18	11:26:10
121	1...	180607M2_123	B8E0172-BS1 OPR 0.25	08-Jun-18	11:36:40
122	1...	180607M2_124	B8E0172-BLK1 Method Blank 0.25	08-Jun-18	11:47:05
123	1...	180607M2_125	1800980-01 SW-2 0.24555	08-Jun-18	11:57:35
124	1...	180607M2_126	1800980-02 SW-3 0.24142	08-Jun-18	12:08:00
125	1...	180607M2_127	IPA	08-Jun-18	12:18:30
126	1...	180607M2_128	ST180607M2-10 PFC CS3 18E2907	08-Jun-18	12:28:56

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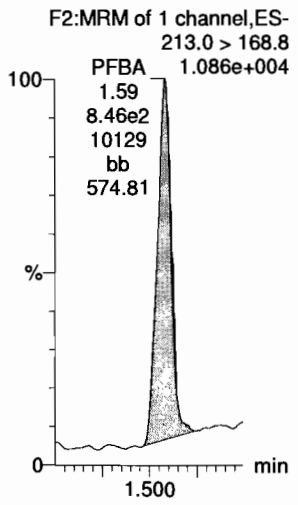
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Last Altered: Saturday, June 09, 2018 11:05:11 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:05:31 Pacific Daylight Time

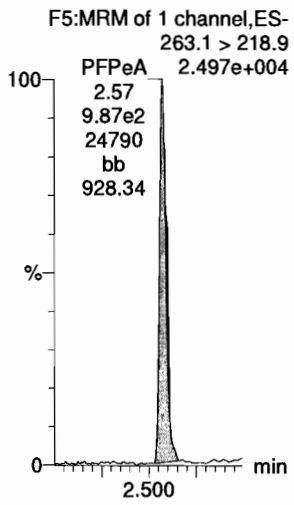
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Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_3, Date: 07-Jun-2018, Time: 13:53:21, ID: ST180607M2-2 PFC CS0 18E2904, Description: PFC CS0 18E2904

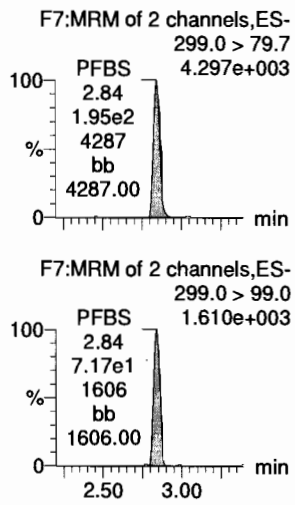
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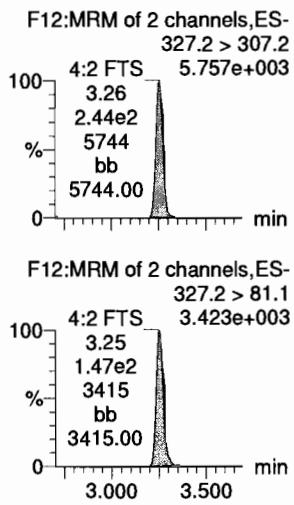
PFPeA



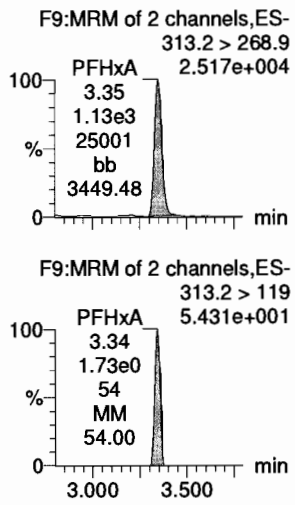
PFBS



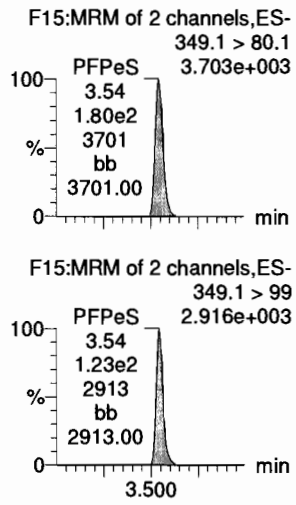
4:2 FTS



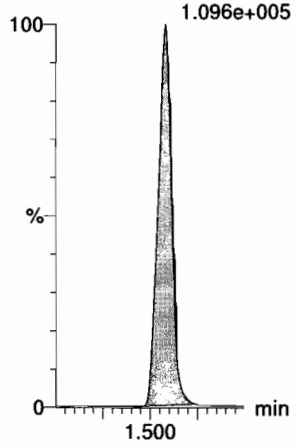
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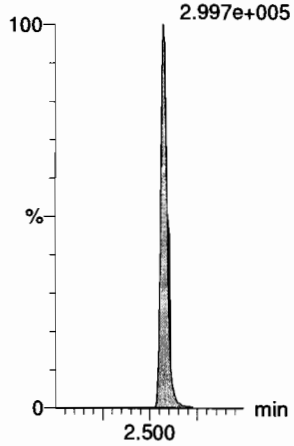
PFPeS



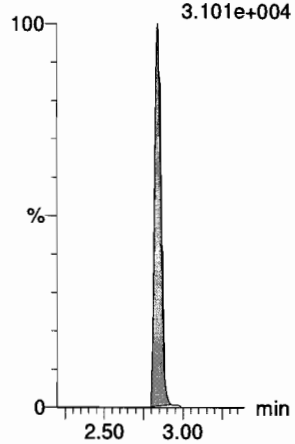
13C3-PFBA



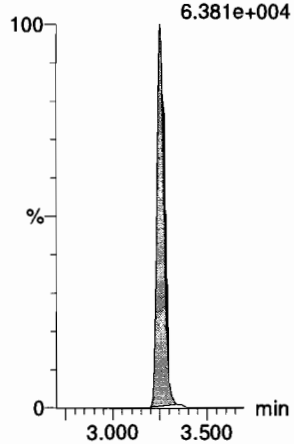
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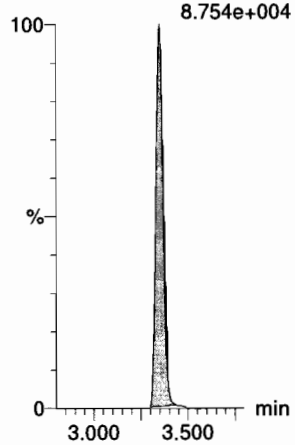
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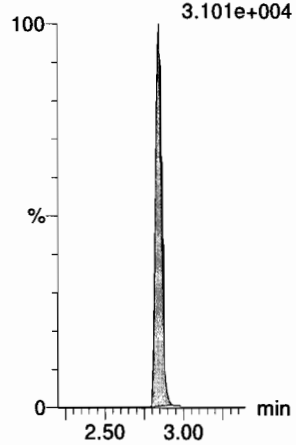
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13C2-PFHxA



13C3-PFBS



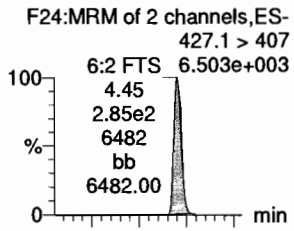
GM 6/9/2018

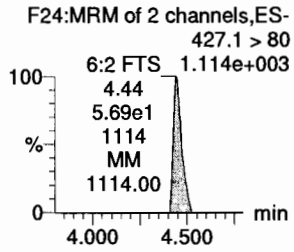
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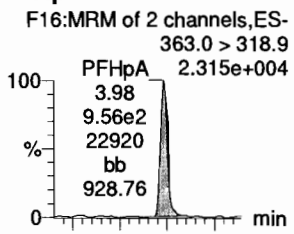
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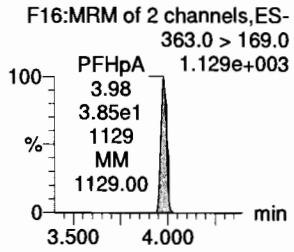
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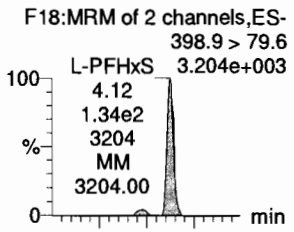


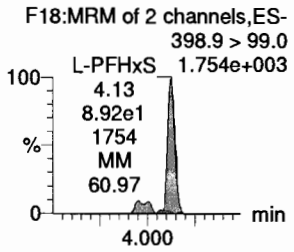
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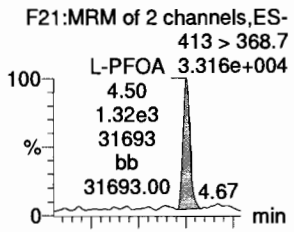


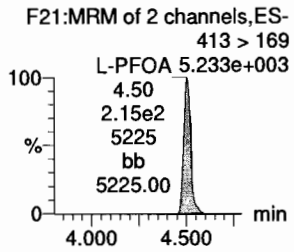
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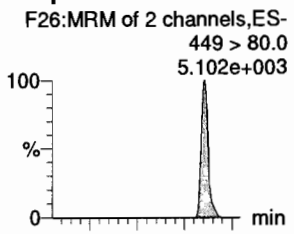


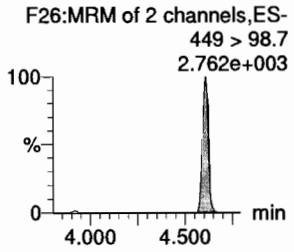
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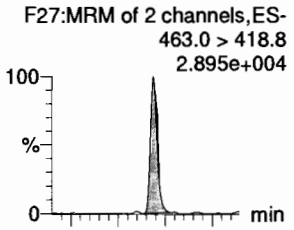


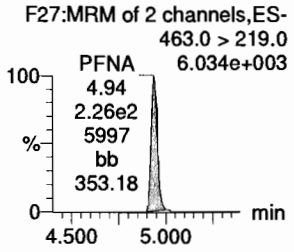
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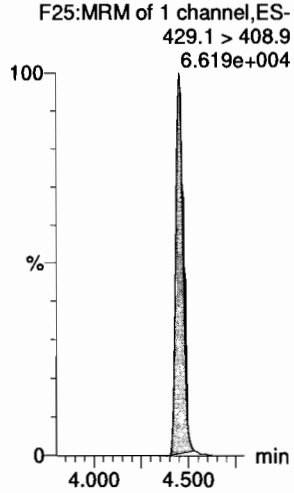


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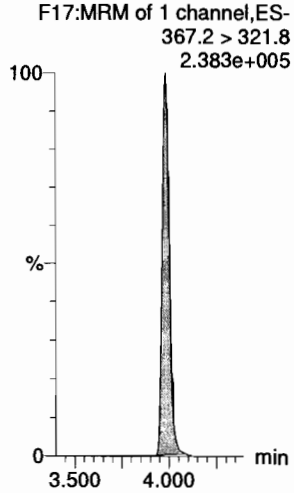




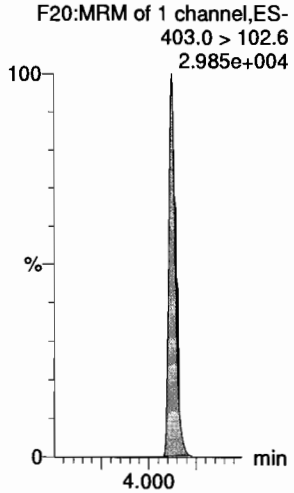
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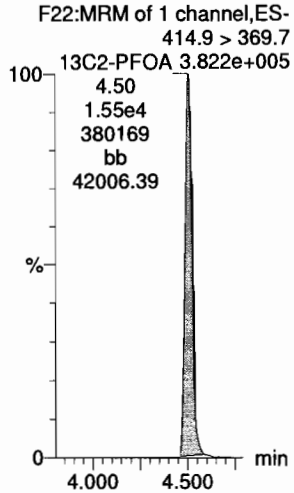
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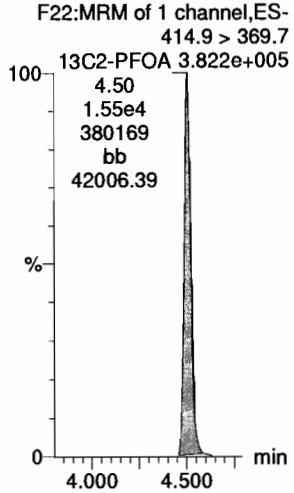
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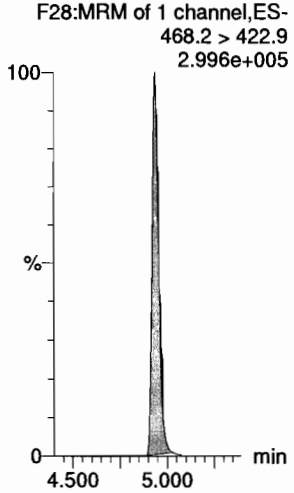
13C2-PFOA



13C2-PFOA



13C5-PFNA



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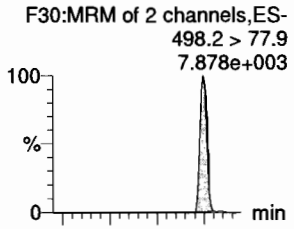
Vista Analytical Laboratory

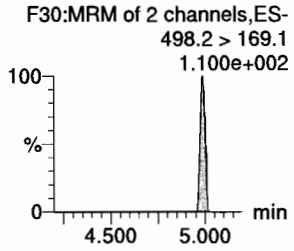
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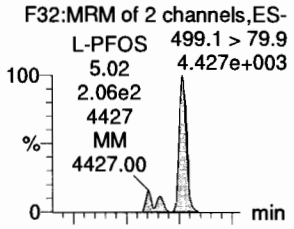
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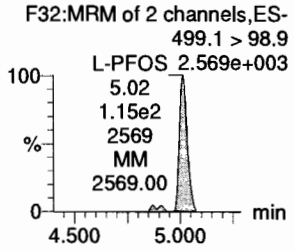
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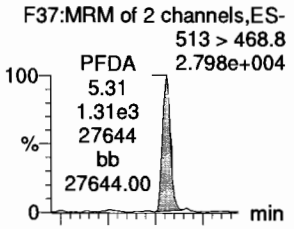


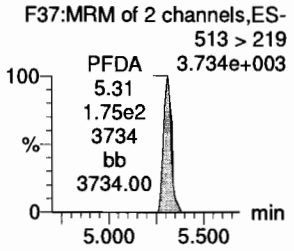
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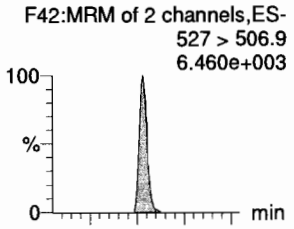


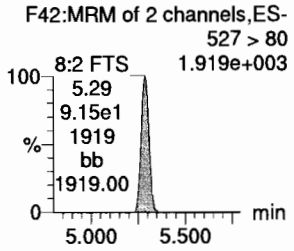
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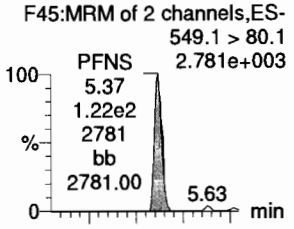


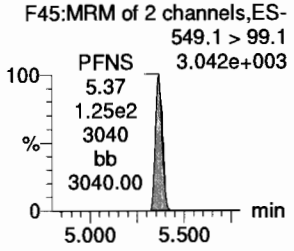
8:2 FTS



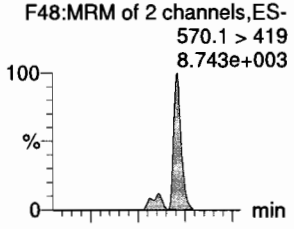


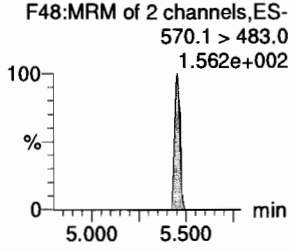
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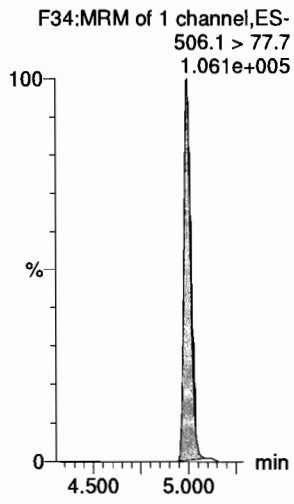


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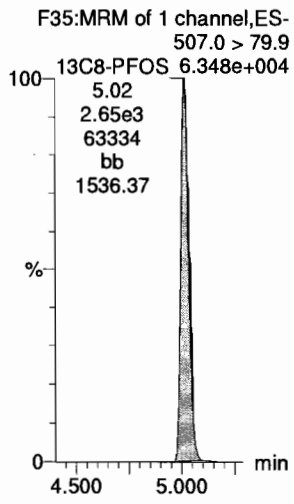




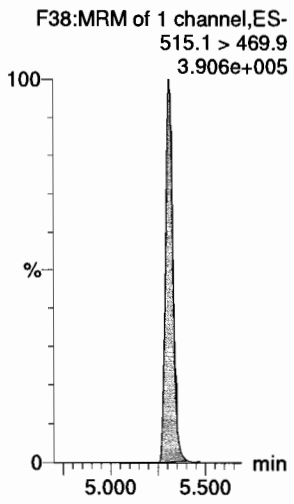
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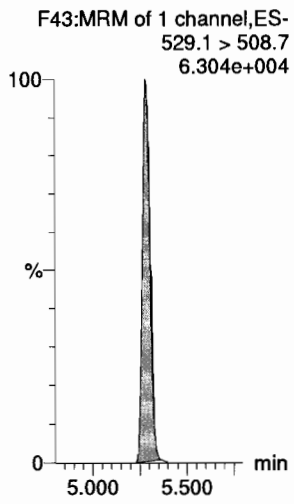
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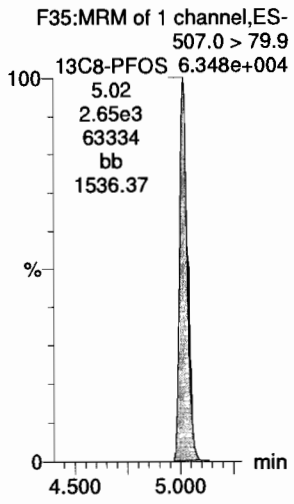
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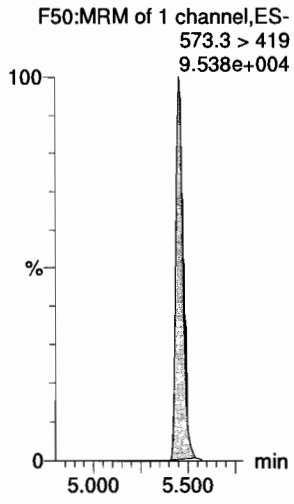
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13C8-PFOS



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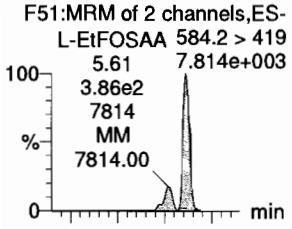
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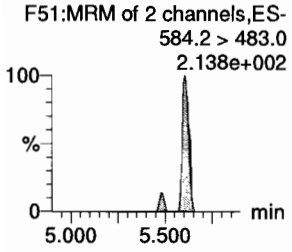
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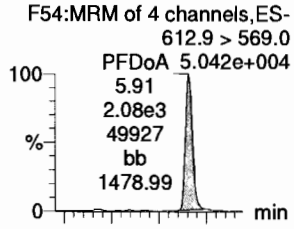
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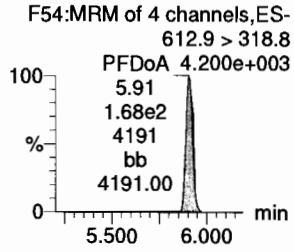
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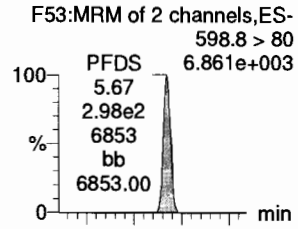


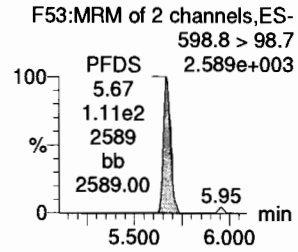
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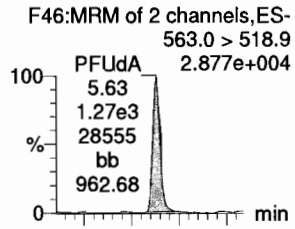


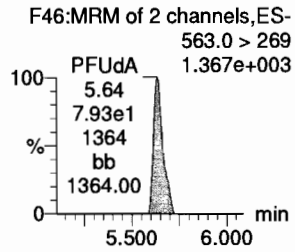
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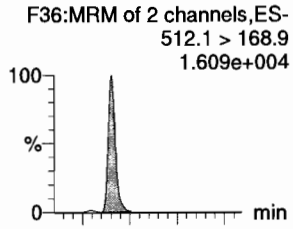


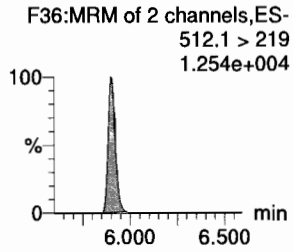
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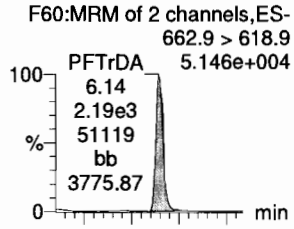


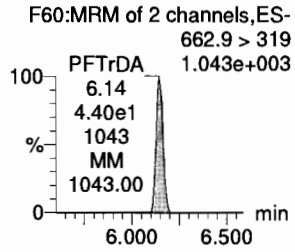
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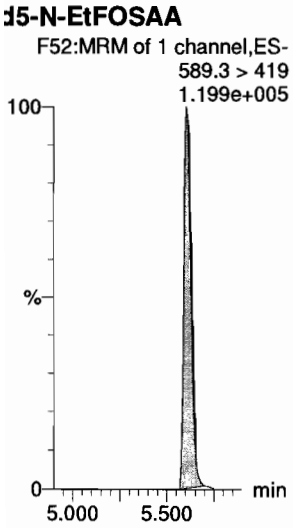


PFTrDA

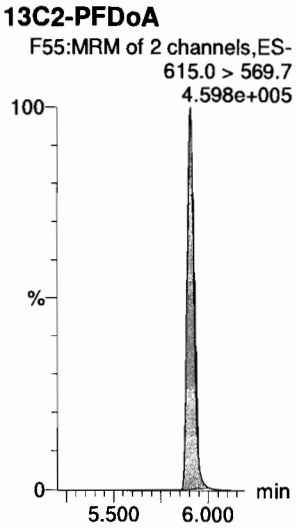




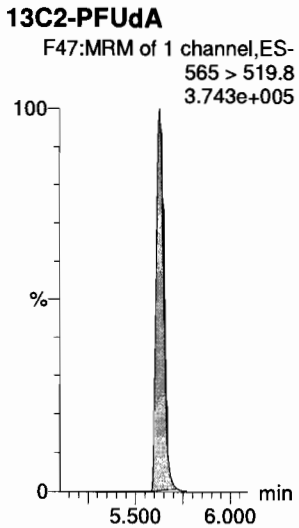
d5-N-EtFOSAA



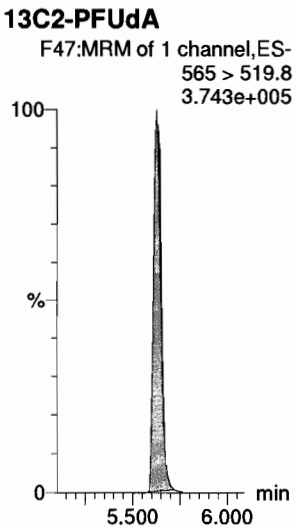
13C2-PFDoA



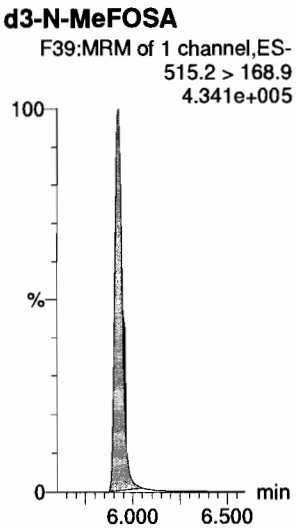
13C2-PFUdA



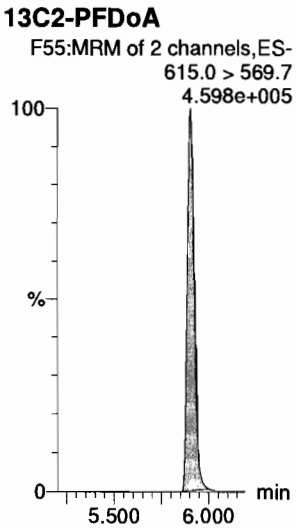
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA



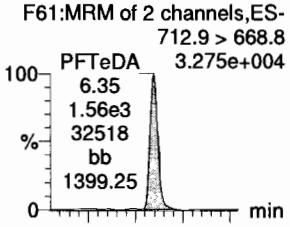
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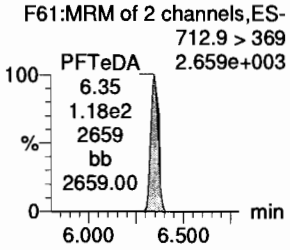
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Last Altered: Saturday, June 09, 2018 11:05:11 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:05:31 Pacific Daylight Time

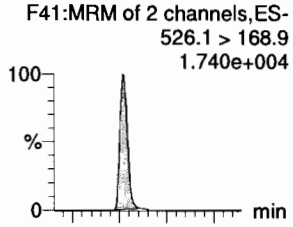
Name: 180607M2_3, Date: 07-Jun-2018, Time: 13:53:21, ID: ST180607M2-2 PFC CS0 18E2904, Description: PFC CS0 18E2904

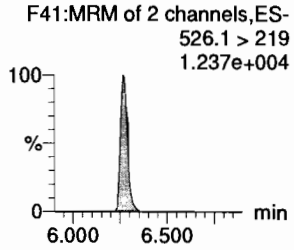
PFTeDA



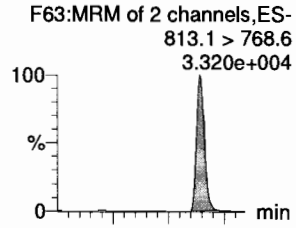


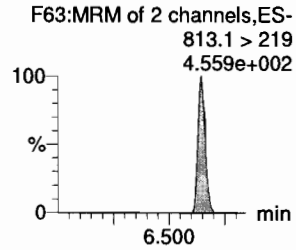
N-EtFOSA



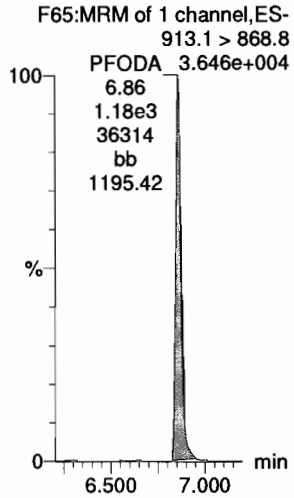


PFHxDA

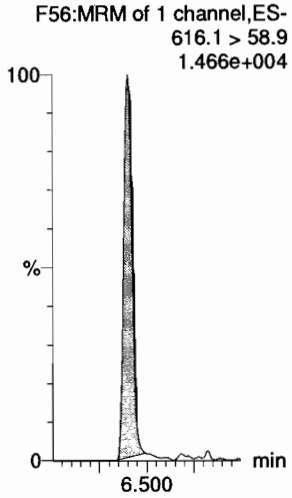




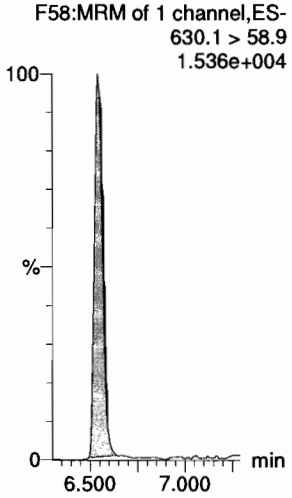
PFODA



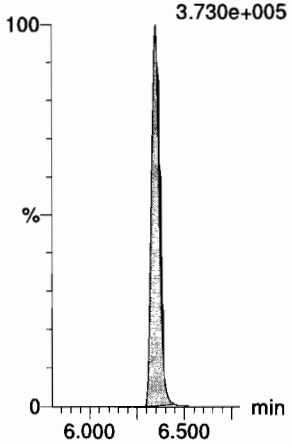
N-MeFOSE



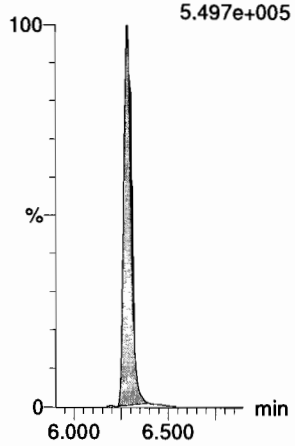
N-EtFOSE



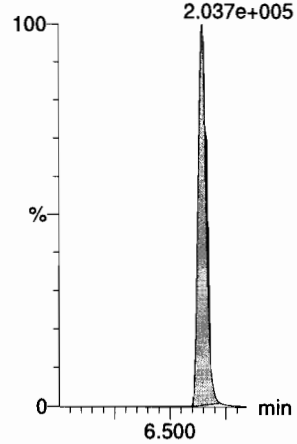
13C2-PFTeDA



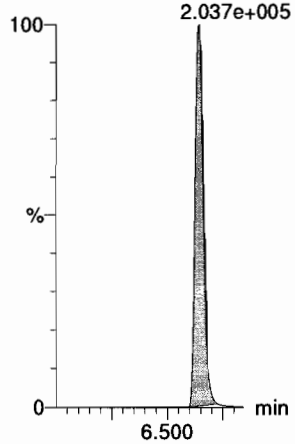
d5-N-ETFOSA



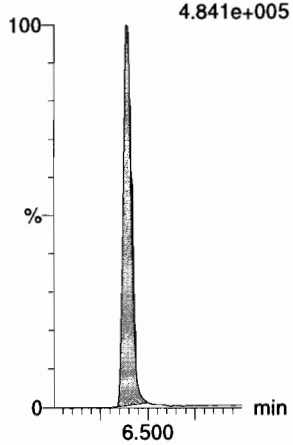
13C2-PFHxDA



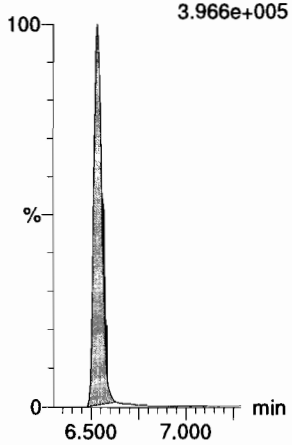
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE



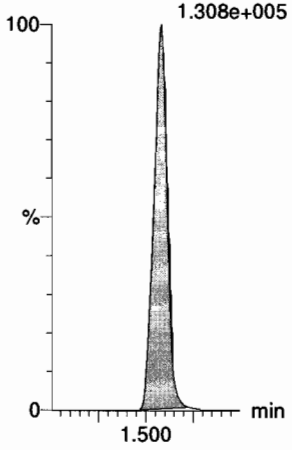
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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-3.qld

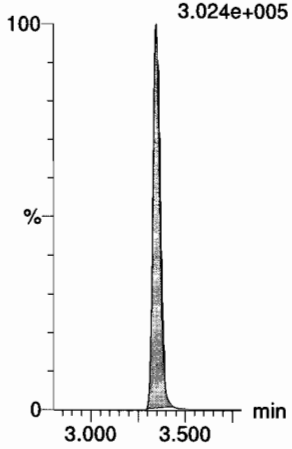
Last Altered: Saturday, June 09, 2018 11:05:11 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:05:31 Pacific Daylight Time

Name: 180607M2_3, Date: 07-Jun-2018, Time: 13:53:21, ID: ST180607M2-2 PFC CS0 18E2904, Description: PFC CS0 18E2904

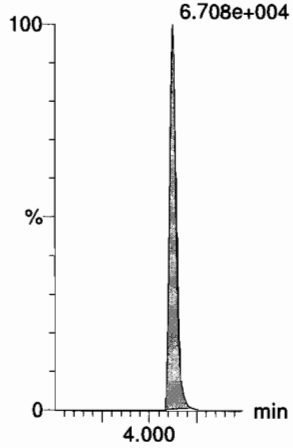
13C4-PFBA



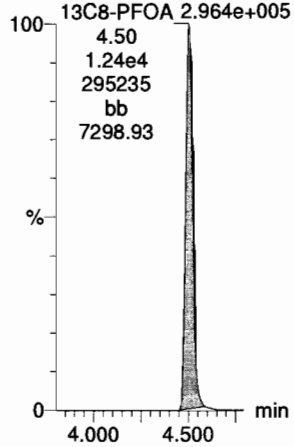
13C5-PFHxA



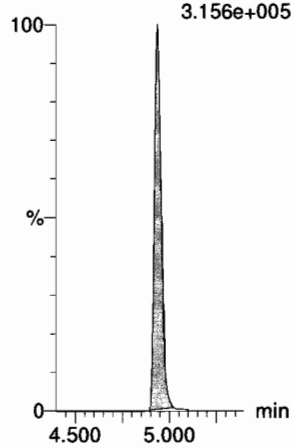
13C3-PFHxS



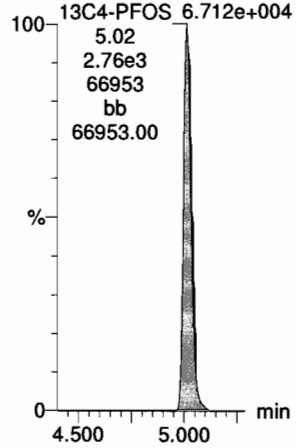
13C8-PFOA



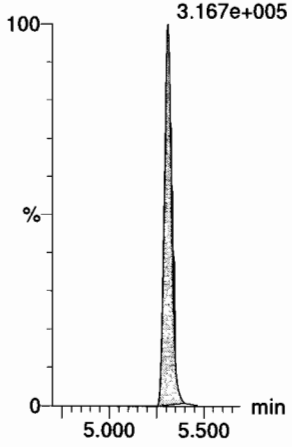
13C9-PFNA



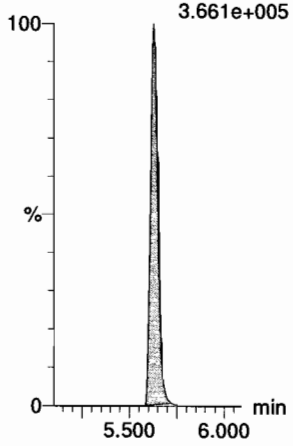
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-28.qld

Last Altered: Saturday, June 09, 2018 11:00:02 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:00:21 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 10:17:35
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_28, Date: 07-Jun-2018, Time: 18:54:30, ID: ST180607M2-3 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
1	1	PFBA	213.0 > 16...	6.48e3	7.54e3		1.51	1.51	10.7	9.47	94.7	NO		
2	2	PFPeA	263.1 > 21...	7.45e3	9.83e3		2.50	2.50	9.46	9.40	94.0	NO		
3	3	PFBS	299.0 > 79.7	1.75e3	1.16e3		2.77	2.78	18.8	9.27	92.7	NO	2.536	NO
4	4	4:2 FTS	327.2>307.2	1.81e3	2.41e3		3.18	3.18	9.38	9.33	93.3	NO	1.846	NO
5	5	PFHxA	313.2 > 26...	9.73e3	3.29e3		3.27	3.28	14.8	9.83	98.3	NO	389.715	NO
6	6	PFPeS	349.1>80.1	1.58e3	1.16e3		3.46	3.47	17.1	9.40	94.0	NO	1.743	NO
7	7	PFHpA	363.0 > 31...	8.20e3	8.89e3		3.92	3.92	11.5	9.45	94.5	NO	39.027	YES
8	8	L-PFHxS	398.9 > 79.6	1.37e3	1.00e3		4.04	4.06	17.2	8.76	87.6	NO	1.611	NO
9	10	6:2 FTS	427.1 > 407	1.88e3	2.69e3		4.18	4.39	8.73	8.79	87.9	NO	3.810	NO
10	11	L-PFOA	413 > 368.7	9.52e3	1.29e4		4.43	4.44	9.21	9.52	95.2	NO	5.249	NO
11	13	PFHpS	449 > 80.0	1.75e3	1.29e4		4.33	4.54	1.70	9.79	97.9	NO	2.020	NO
12	14	PFNA	463.0 > 41...	1.07e4	1.12e4		4.68	4.88	11.9	9.40	94.0	NO	5.906	NO
13	15	PFOSA	498.2 > 77.9	2.41e3	3.14e3		4.73	4.93	9.60	10.4	104.4	NO	24.073	YES
14	16	L-PFOS	499.1 > 79.9	1.75e3	2.47e3		4.95	4.95	8.84	9.41	94.1	NO	1.986	NO
15	18	PFDA	513 > 468.8	9.87e3	1.32e4		5.05	5.25	9.35	9.67	96.7	NO	6.301	YES
16	19	8:2 FTS	527 > 506.9	2.04e3	2.04e3		5.00	5.23	12.5	7.93	79.3	NO	2.479	NO
17	20	PFNS	549.1>80.1	1.61e3	2.47e3		5.09	5.31	8.13	9.29	92.9	NO	1.755	NO
18	21	L-MeFOSAA	570.1 > 419	4.38e3	3.66e3		5.18	5.40	15.0	10.6	106.2	NO	13.423	YES
19	23	L-EtFOSAA	584.2 > 419	3.39e3	4.88e3		5.37	5.56	8.68	8.51	85.1	NO	14.183	YES

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-28.qld

Last Altered: Saturday, June 09, 2018 11:00:02 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:00:31 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 10:17:35
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_28, Date: 07-Jun-2018, Time: 18:54:30, ID: ST180607M2-3 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
1	25	PFUdA	563.0 > 51...	1.00e4	1.29e4		5.37	5.57	9.68	10.1	100.6	NO	16.765	NO
2	26	PFDS	598.8 > 80	1.94e3	1.29e4		5.40	5.61	1.87	8.96	89.6	NO	2.168	NO
3	27	PFDoA	612.9 > 56...	1.19e4	1.34e4		5.65	5.85	11.1	9.71	97.1	NO	8.759	NO
4	28	N-MeFOSA	512.1 > 16...	5.74e3	1.64e4		5.84	5.87	52.5	48.8	97.6	NO	1.341	NO
5	29	PFTrDA	662.9 > 61...	1.43e4	1.34e4		5.89	6.10	13.3	11.5	115.0	NO	36.221	NO
6	30	PFTeDA	712.9 > 66...	1.41e4	1.51e4		6.11	6.30	11.6	10.2	101.7	NO	13.498	NO
7	31	N-EtFOSA	526.1 > 16...	6.24e3	2.08e4		6.23	6.24	45.1	47.9	95.8	NO	1.369	NO
8	32	PFHxDA	813.1 > 76...	1.13e4	8.40e3		6.45	6.61	6.72	9.98	99.8	NO	54.806	NO
9	33	PFODA	913.1 > 86...	1.03e4	8.40e3		6.68	6.83	6.14	7.83	78.3	NO		
10	34	N-MeFOSE	616.1 > 58.9	5.19e3	1.71e4		6.38	6.37	45.7	48.5	97.0	NO		
11	35	N-EtFOSE	630.1 > 58.9	6.06e3	1.83e4		6.52	6.51	49.6	44.7	89.4	NO		
12	36	13C3-PFBA	216.1 > 17...	7.54e3	8.63e3	0.870	1.34	1.51	10.9	12.5	100.4	NO		
13	37	13C3-PFPeA	266. > 221.8	9.83e3	1.17e4	0.870	2.32	2.50	10.5	12.1	96.5	NO		
14	38	13C3-PFBS	302. > 98.8	1.16e3	1.17e4	0.099	2.60	2.78	1.24	12.5	100.4	NO		
15	39	13C2-4:2 FTS	329.2>308.9	2.41e3	1.17e4	0.265	3.01	3.19	2.57	9.71	77.6	NO		
16	40	13C2-PFHxA	315 > 269.8	3.29e3	1.17e4	0.737	3.10	3.28	3.50	4.75	95.1	NO		
17	41	13C4-PFHpA	367.2 > 32...	8.89e3	1.17e4	0.791	3.71	3.92	9.48	12.0	95.9	NO		
18	42	18O2-PFHxS	403.0 > 10...	1.00e3	2.22e3	0.442	3.86	4.06	5.64	12.8	102.1	NO		
19	43	13C2-6:2 FTS	429.1 > 40...	2.69e3	1.07e4	0.306	4.18	4.39	3.13	10.2	81.6	NO		
20	44	13C2-PFOA	414.9 > 36...	1.29e4	1.07e4	1.285	4.23	4.44	15.0	11.7	93.5	NO		
21	45	13C5-PFNA	468.2 > 42...	1.12e4	1.15e4	0.930	4.67	4.88	12.2	13.1	104.7	NO		
22	46	13C8-PFOSA	506.1 > 77.7	3.14e3	1.31e4	0.237	4.74	4.93	3.00	12.6	101.0	NO		
23	47	13C8-PFOS	507.0 > 79.9	2.47e3	2.44e3	1.039	4.75	4.96	12.7	12.2	97.6	NO		
24	48	13C2-PFDA	515.1 > 46...	1.32e4	1.12e4	1.144	5.04	5.25	14.7	12.9	103.0	NO		
25	49	13C2-8:2 FTS	529.1 > 50...	2.04e3	1.17e4	0.215	5.01	5.23	2.18	10.1	80.9	NO		
26	50	d3-N-MeFOSAA	573.3 > 419	3.66e3	1.31e4	0.351	5.19	5.40	3.50	9.95	79.6	NO		
27	51	d5-N-EtFOSAA	589.3 > 419	4.88e3	1.31e4	0.388	5.35	5.55	4.66	12.0	96.0	NO		
28	52	13C2-PFUdA	565 > 519.8	1.29e4	1.31e4	1.019	5.37	5.57	12.3	12.1	96.9	NO		
29	53	13C2-PFDoA	615.0 > 56...	1.34e4	1.12e4	1.057	5.65	5.85	14.9	14.1	113.1	NO		
30	54	d3-N-MeFOSA	515.2 > 16...	1.64e4	1.31e4	0.107	5.87	5.89	15.7	147	97.8	NO		
31	55	13C2-PFTeDA	714.8 > 66...	1.51e4	1.31e4	0.964	6.11	6.30	14.4	15.0	119.7	NO		
32	56	d5-N-ETFOSA	531.1 > 16...	2.08e4	1.31e4	0.157	6.25	6.25	19.9	127	84.5	NO		

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-28.qld

Last Altered: Saturday, June 09, 2018 11:00:02 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:00:31 Pacific Daylight Time

Name: 180607M2_28, Date: 07-Jun-2018, Time: 18:54:30, ID: ST180607M2-3 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
33	57	13C2-PFHxDA	815 > 769.7	8.40e3	1.31e4	1.562	6.45	6.61	8.03	5.14	102.7	NO		
34	58	d7-N-MeFOSE	623.1 > 58.9	1.71e4	1.31e4	0.147	6.37	6.36	16.3	111	73.8	NO		
35	59	d9-N-EtFOSE	639.2 > 58.8	1.83e4	1.31e4	0.149	6.52	6.50	17.5	118	78.3	NO		
36	60	13C4-PFBA	217. > 171.8	8.63e3	8.63e3	1.000	1.33	1.51	12.5	12.5	100.0	NO		
37	61	13C5-PFHxA	318 > 272.9	1.17e4	1.17e4	1.000	3.09	3.28	12.5	12.5	100.0	NO		
38	62	13C3-PFHxS	401.9 > 79.9	2.22e3	2.22e3	1.000	3.87	4.06	12.5	12.5	100.0	NO		
39	63	13C8-PFOA	421.3 > 376	1.07e4	1.07e4	1.000	4.24	4.44	12.5	12.5	100.0	NO		
40	64	13C9-PFNA	472.2 > 42...	1.15e4	1.15e4	1.000	4.67	4.88	12.5	12.5	100.0	NO		
41	65	13C4-PFOS	503 > 79.9	2.44e3	2.44e3	1.000	4.75	4.95	12.5	12.5	100.0	NO		
42	66	13C6-PFDA	519.1 > 47...	1.12e4	1.12e4	1.000	5.04	5.25	12.5	12.5	100.0	NO		
43	67	13C7-PFUdA	570.1 > 52...	1.31e4	1.31e4	1.000	5.37	5.57	12.5	12.5	100.0	NO		

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Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 10:17:35
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	180607M2_3	ST180607M2-2 PFC CS0 18E2904	07-Jun-18	13:53:21
2	2	180607M2_4	IPA	07-Jun-18	14:03:47
3	3	180607M2_5	B8F0025-BS1 OPR 0.25	07-Jun-18	14:14:18
4	4	180607M2_6	B8F0025-BLK1 Method Blank 0.25	07-Jun-18	14:24:40
5	5	180607M2_7	1800796-11 RCCB 1 0.26894	07-Jun-18	14:35:10
6	6	180607M2_8	1801123-01 MW-101 0.11977	07-Jun-18	14:45:36
7	7	180607M2_9	1801123-02 MW-102 0.11688	07-Jun-18	14:56:06
8	8	180607M2_10	1801123-03 MW-103 0.11631	07-Jun-18	15:06:30
9	9	180607M2_11	1801123-04 MW-104 0.11472	07-Jun-18	15:17:00
10	10	180607M2_12	1801124-01 140 Harvey Rd 0.11503	07-Jun-18	15:27:24
11	11	180607M2_13	1801039-03 A1-MW-14-SA1 0.11194	07-Jun-18	15:37:57
12	12	180607M2_14	1801039-04 A1-MW-15-SA1 0.11248	07-Jun-18	15:48:25
13	13	180607M2_15	1800862-05 REEPDW456FRB 0.1202	07-Jun-18	15:58:50
14	14	180607M2_16	1800862-08 REEPDW447FRB 0.11683	07-Jun-18	16:09:21
15	15	180607M2_17	1800862-15 REEPDW460FRB 0.11944	07-Jun-18	16:19:45
16	16	180607M2_18	B8E0244-BS1 OPR 0.125	07-Jun-18	17:09:15
17	17	180607M2_19	cs2 qc	07-Jun-18	17:20:17
18	18	180607M2_20	B8E0244-BS1 OPR 0.125	07-Jun-18	17:30:45
19	19	180607M2_21	B8E0244-BLK1 Method Blank 0.125	07-Jun-18	17:41:14
20	20	180607M2_22	B8E0244-MS1 Matrix Spike 0.11028	07-Jun-18	17:51:44
21	21	180607M2_23	B8E0244-MSD1 Matrix Spike Dup 0.11...	07-Jun-18	18:02:08
22	22	180607M2_24	B8E0244-MS2 Matrix Spike 0.11122	07-Jun-18	18:12:39
23	23	180607M2_25	B8E0244-MSD2 Matrix Spike Dup 0.11...	07-Jun-18	18:23:09
24	24	180607M2_26	1801037-01 A1-MW-18-SA1 0.11265	07-Jun-18	18:33:34
25	25	180607M2_27	1801037-02 16-MW-08-SA1 0.11493	07-Jun-18	18:44:05
26	26	180607M2_28	ST180607M2-3 PFC CS3 18E2907	07-Jun-18	18:54:30
27	27	180607M2_29	IPA	07-Jun-18	19:05:00
28	28	180607M2_30	180607_ISSUP QC	07-Jun-18	19:15:31
29	29	180607M2_31	180607_ISSUPQCDUP	07-Jun-18	19:25:55
30	30	180607M2_32	B8F0027-BS1 OPR 0.125	07-Jun-18	19:36:25
31	31	180607M2_33	B8F0027-BSD1 LCSD 0.125	07-Jun-18	19:46:50

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Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
32	32	180607M2_34	B8F0027-BLK1 Method Blank 0.125	07-Jun-18	19:57:21
33	33	180607M2_35	1801127-01 MCLP00518 0.11531	07-Jun-18	20:07:51
34	34	180607M2_36	1801127-02 MCLPCG436 0.11947	07-Jun-18	20:18:15
35	35	180607M2_37	1801127-03 MCLPCG515 0.11557	07-Jun-18	20:28:46
36	36	180607M2_38	1801127-04 MCLP00516 0.11034	07-Jun-18	20:39:10
37	37	180607M2_39	1801127-05 MCLP00517 0.1183	07-Jun-18	20:49:41
38	38	180607M2_40	1801037-03 A1-MW-19-SA1 0.11827	07-Jun-18	21:00:06
39	39	180607M2_41	1801037-04 A1-MW-37-SA1 0.11915	07-Jun-18	21:10:36
40	40	180607M2_42	1801037-05 A1-MW-37-SA1D 0.11595	07-Jun-18	21:21:01
41	41	180607M2_43	1801037-06 16-H5-03-SA1 0.12456	07-Jun-18	21:31:31
42	42	180607M2_44	1801037-07 16-MW-09-SA1 0.1148	07-Jun-18	21:41:53
43	43	180607M2_45	ST180607M2-4 PFC CS3 18E2907	07-Jun-18	21:52:23
44	44	180607M2_46	IPA	07-Jun-18	22:02:49
45	45	180607M2_47	1801037-08 16-MW-06-5A1 0.11143	07-Jun-18	22:13:19
46	46	180607M2_48	1801037-09 FRB-20180523 0.11719	07-Jun-18	22:23:44
47	47	180607M2_49	1801054-01 A1-MW-42-SA1 0.11279	07-Jun-18	22:34:14
48	48	180607M2_50	1801054-02 A1-MW-54-SA1 0.11211	07-Jun-18	22:44:39
49	49	180607M2_51	1801054-03 A1-MW-53-SA1 0.1139	07-Jun-18	22:55:09
50	50	180607M2_52	1801054-04 A1-P2-19-SA1 0.11736	07-Jun-18	23:05:34
51	51	180607M2_53	1801054-05 A1-MW-52-SA1 0.11509	07-Jun-18	23:16:04
52	52	180607M2_54	1801054-06 A1-MW-01-SA1 0.1102	07-Jun-18	23:26:35
53	53	180607M2_55	1801054-07 A1-MW-01-SA1D 0.11715	07-Jun-18	23:37:00
54	54	180607M2_56	1801054-08 A1-MW-31-SA1 0.11276	07-Jun-18	23:47:30
55	55	180607M2_57	1801054-09 FRB-20180525 0.11663	07-Jun-18	23:57:55
56	56	180607M2_58	B8E0139-BS1 OPR 0.125	08-Jun-18	00:08:26
57	57	180607M2_59	B8E0139-BSD1 LCSD 0.125	08-Jun-18	00:18:51
58	58	180607M2_60	B8E0139-BLK1 Method Blank 0.125	08-Jun-18	00:29:21
59	59	180607M2_61	1800952-01 REEPDW485 0.12371	08-Jun-18	00:39:45
60	60	180607M2_62	ST180607M2-5 PFC CS3 18E2907	08-Jun-18	00:50:16
61	61	180607M2_63	ST180607M2-6 PFC CS0 18E2904	08-Jun-18	01:00:40
62	62	180607M2_64	IPA	08-Jun-18	01:11:11
63	63	180607M2_65	1800952-02 REEPDW491 0.11903	08-Jun-18	01:21:36
64	64	180607M2_66	1800952-03 REEPDW493 0.12371	08-Jun-18	01:32:07
65	65	180607M2_67	1800952-04 REEPDW494 0.12591	08-Jun-18	01:42:32

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	#	Name	ID	Acq.Date	Acq.Time
66	66	180607M2_68	1800952-05 REEPDW486 0.12668	08-Jun-18	01:52:54
67	67	180607M2_69	1800952-06 REEPDW487 0.12126	08-Jun-18	02:03:24
68	68	180607M2_70	1800952-07 REEPDW489 0.12109	08-Jun-18	02:13:50
69	69	180607M2_71	1800952-08 REEPDW492 0.12089	08-Jun-18	02:24:20
70	70	180607M2_72	1800952-09 REEPDW495 0.11841	08-Jun-18	02:34:45
71	71	180607M2_73	1800952-10 REEPDW496 0.12607	08-Jun-18	02:45:07
72	72	180607M2_74	1800952-11 REEPDW497 0.11275	08-Jun-18	02:55:37
73	73	180607M2_75	ST180607M2-7 PFC CS3 18E2907	08-Jun-18	03:06:07
74	74	180607M2_76	IPA	08-Jun-18	03:16:32
75	75	180607M2_77	1800952-12 REEPDW498 0.12162	08-Jun-18	03:27:02
76	76	180607M2_78	1800952-13 REEPDW488 0.125	08-Jun-18	03:37:27
77	77	180607M2_79	1800952-14 REEPDW490 0.12133	08-Jun-18	03:47:57
78	78	180607M2_80	1800952-15 REEPDW1000 0.11915	08-Jun-18	03:58:27
79	79	180607M2_81	1800952-16 REEPDW548 0.11758	08-Jun-18	04:08:52
80	80	180607M2_82	1800952-17 REEPDW549 0.1221	08-Jun-18	04:19:22
81	81	180607M2_83	B8E0168-BS1 OPR 0.125	08-Jun-18	04:29:47
82	82	180607M2_84	B8E0168-MS1 Matrix Spike 0.11902	08-Jun-18	04:40:17
83	83	180607M2_85	B8E0168-MSD1 Matrix Spike Dup 0.11...	08-Jun-18	04:50:48
84	84	180607M2_86	B8E0168-BLK1 Method Blank 0.125	08-Jun-18	05:01:12
85	85	180607M2_87	1800978-01 REEPDW1035 0.11488	08-Jun-18	05:11:43
86	86	180607M2_88	1800978-02 REEPDW1036 0.11708	08-Jun-18	05:22:08
87	87	180607M2_89	1800978-03 REEPDW1038 0.11726	08-Jun-18	05:32:38
88	88	180607M2_90	1800978-04 REEPDW1039 0.11839	08-Jun-18	05:43:03
89	89	180607M2_91	ST180607M2-8 PFC CS3 18E2907	08-Jun-18	05:53:25
90	90	180607M2_92	IPA	08-Jun-18	06:03:55
91	91	180607M2_93	1800978-05 REEPDW1040 0.11588	08-Jun-18	06:14:20
92	92	180607M2_94	1800978-06 REEPDW553 0.11895	08-Jun-18	06:24:50
93	93	180607M2_95	1800978-07 REEPDW1051 0.11897	08-Jun-18	06:35:15
94	94	180607M2_96	1800978-08 REEPDW1041 0.11682	08-Jun-18	06:45:46
95	95	180607M2_97	1800978-09 REEPDW1042 0.11863	08-Jun-18	06:56:11
96	96	180607M2_98	1800978-10 REEPDW1044 0.12068	08-Jun-18	07:06:41
97	97	180607M2_99	1800978-11 REEPDW1045 0.1175	08-Jun-18	07:17:06
98	98	180607M2_100	1800978-12 REEPDW1046 0.12107	08-Jun-18	07:27:37
99	99	180607M2_101	1800978-13 REEPDW1047 0.11609	08-Jun-18	07:38:01

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Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
100	1...	180607M2_102	IPA	08-Jun-18	07:48:31
101	1...	180607M2_103	ST180607M2-9 PFC CS3 18E2907	08-Jun-18	07:58:56
102	1...	180607M2_104	B8E0138-BS1 OPR 0.125	08-Jun-18	08:09:26
103	1...	180607M2_105	B8E0138-BSD1 LCSD 0.125	08-Jun-18	08:19:56
104	1...	180607M2_106	B8E0138-BLK1 Method Blank 0.125	08-Jun-18	08:30:21
105	1...	180607M2_107	180608_QCISSUP	08-Jun-18	08:49:17
106	1...	180607M2_108	1800953-01 REEPDW485FRB 0.11479	08-Jun-18	08:59:43
107	1...	180607M2_109	1800953-02 REEPDW491FRB 0.12321	08-Jun-18	09:10:08
108	1...	180607M2_110	1800953-03 REEPDW493FRB 0.12134	08-Jun-18	09:20:38
109	1...	180607M2_111	1800953-04 REEPDW494FRB 0.12123	08-Jun-18	09:31:02
110	1...	180607M2_112	1800953-05 REEPDW486FRB 0.11858	08-Jun-18	09:41:33
111	1...	180607M2_113	1800953-06 REEPDW487FRB 0.11947	08-Jun-18	09:51:59
112	1...	180607M2_114	1800953-07 REEPDW489FRB 0.12132	08-Jun-18	10:02:29
113	1...	180607M2_115	1800953-08 REEPDW492FRB 0.11926	08-Jun-18	10:12:54
114	1...	180607M2_116	1800953-09 REEPDW495FRB 0.1162	08-Jun-18	10:23:24
115	1...	180607M2_117	1800953-10 REEPDW496FRB 0.11087	08-Jun-18	10:33:49
116	1...	180607M2_118	1800953-11 REEPDW497FRB 0.11881	08-Jun-18	10:44:19
117	1...	180607M2_119	1800953-12 REEPDW498FRB 0.11073	08-Jun-18	10:54:45
118	1...	180607M2_120	1800953-13 REEPDW488FRB 0.12363	08-Jun-18	11:05:15
119	1...	180607M2_121	1800953-14 REEPDW490FRB 0.12363	08-Jun-18	11:15:39
120	1...	180607M2_122	1800953-15 REEPDW1000FRB 0.11202	08-Jun-18	11:26:10
121	1...	180607M2_123	B8E0172-BS1 OPR 0.25	08-Jun-18	11:36:40
122	1...	180607M2_124	B8E0172-BLK1 Method Blank 0.25	08-Jun-18	11:47:05
123	1...	180607M2_125	1800980-01 SW-2 0.24555	08-Jun-18	11:57:35
124	1...	180607M2_126	1800980-02 SW-3 0.24142	08-Jun-18	12:08:00
125	1...	180607M2_127	IPA	08-Jun-18	12:18:30
126	1...	180607M2_128	ST180607M2-10 PFC CS3 18E2907	08-Jun-18	12:28:56

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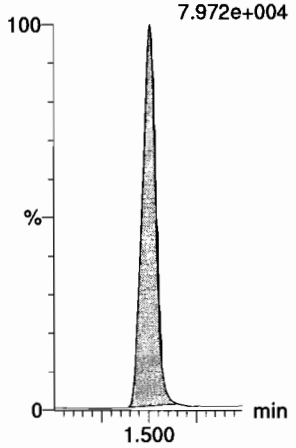
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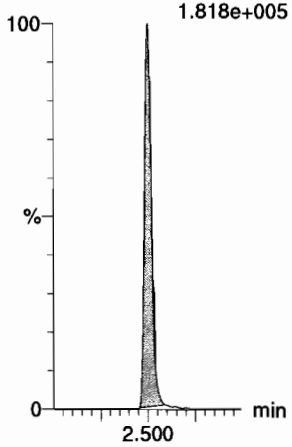
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Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

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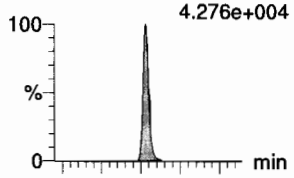
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
7.972e+004



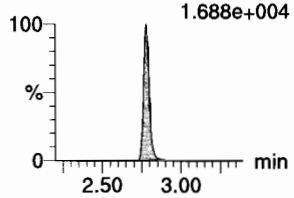
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
1.818e+005



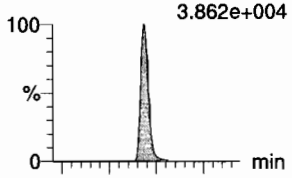
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
4.276e+004



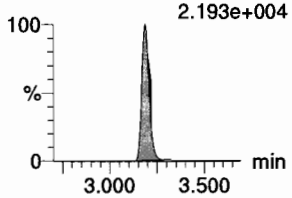
F7:MRM of 2 channels,ES-
299.0 > 99.0
1.688e+004



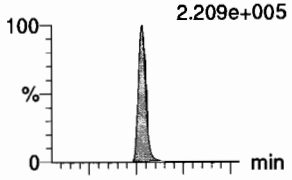
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
3.862e+004



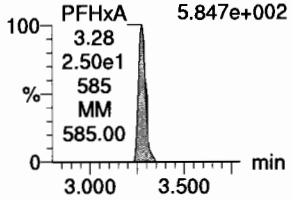
F12:MRM of 2 channels,ES-
327.2 > 81.1
2.193e+004



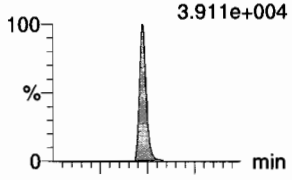
PFHxA
F9:MRM of 2 channels,ES-
313.2 > 268.9
2.209e+005



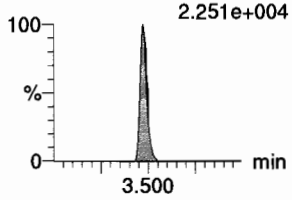
F9:MRM of 2 channels,ES-
313.2 > 119
5.847e+002



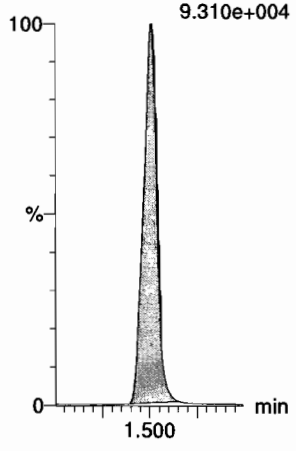
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
3.911e+004



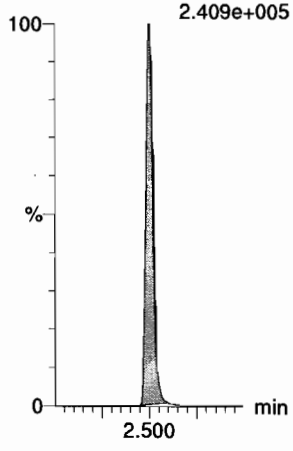
F15:MRM of 2 channels,ES-
349.1 > 99
2.251e+004



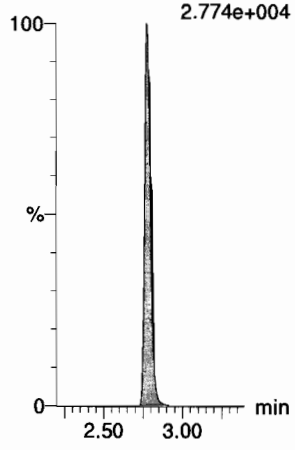
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
9.310e+004



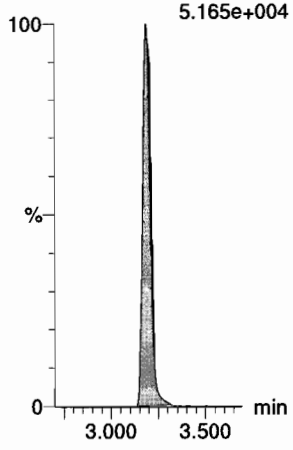
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F6:MRM of 1 channel,ES-
266. > 221.8
2.409e+005



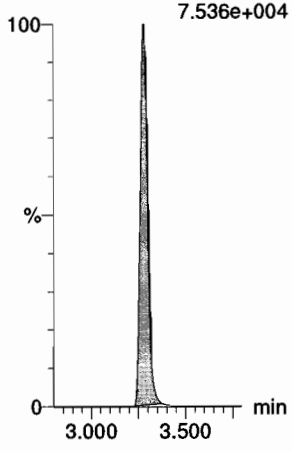
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.774e+004



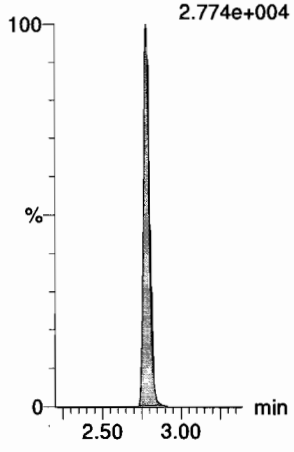
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
5.165e+004



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 269.8
7.536e+004



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.774e+004



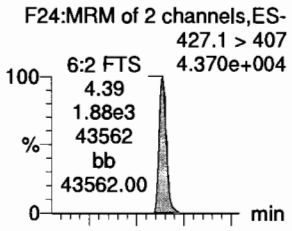
GM 6/9/2018

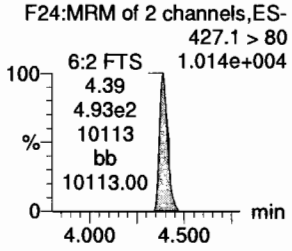
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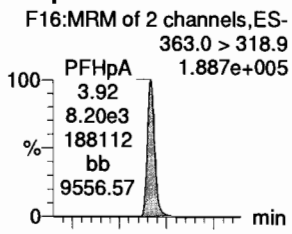
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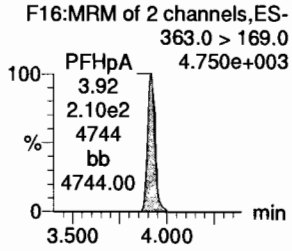
5:2 FTS



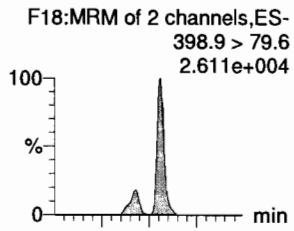


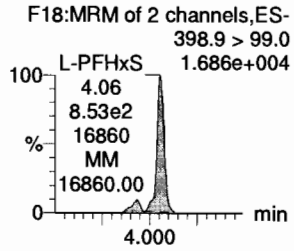
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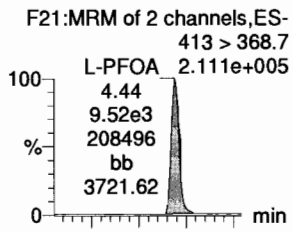


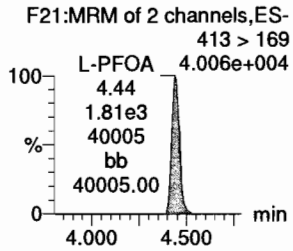
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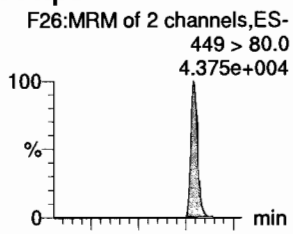


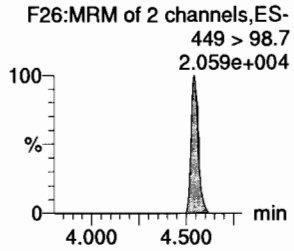
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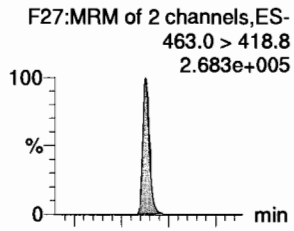


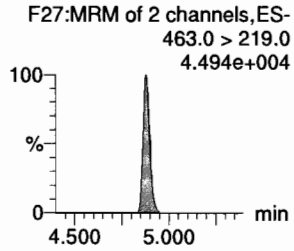
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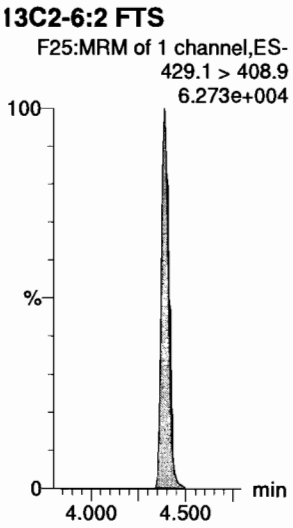


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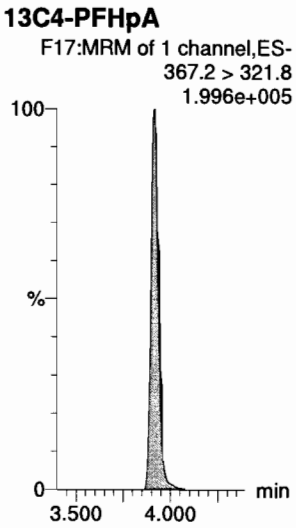




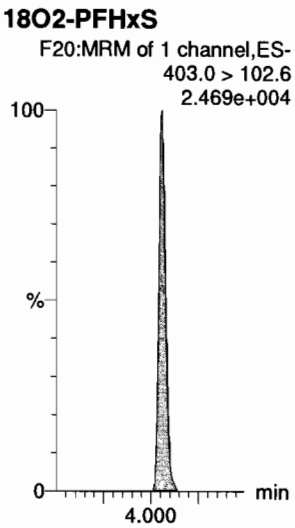
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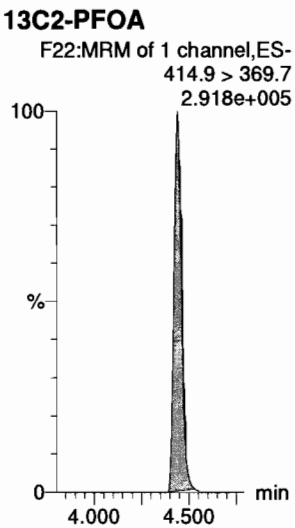
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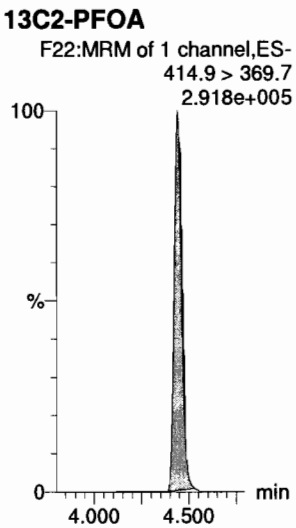
18O2-PFHxS



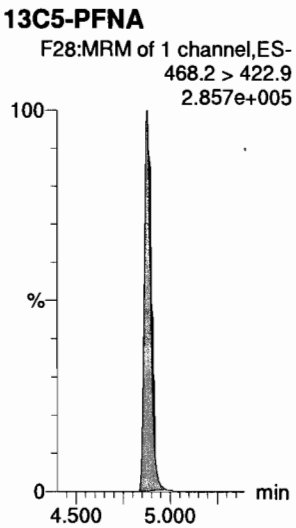
13C2-PFOA



13C2-PFOA



13C5-PFNA



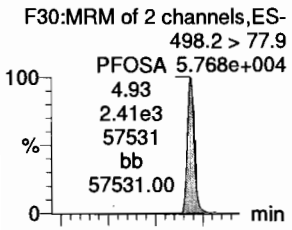
GM 6/9/2018

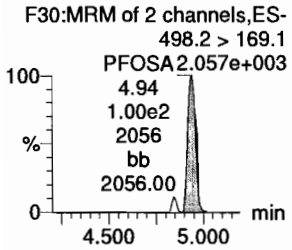
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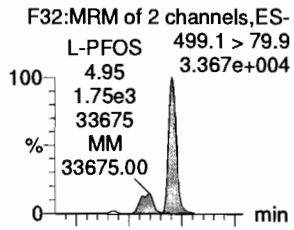
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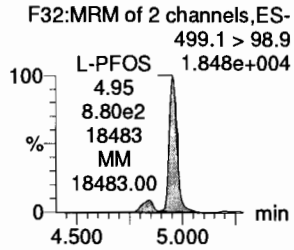
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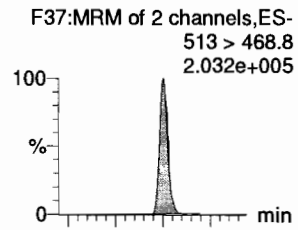


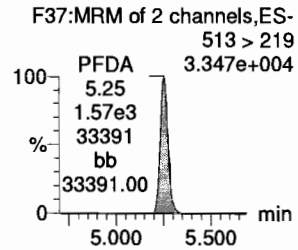
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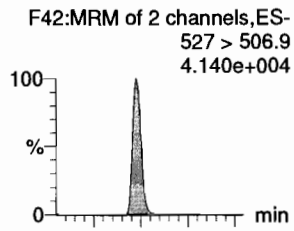


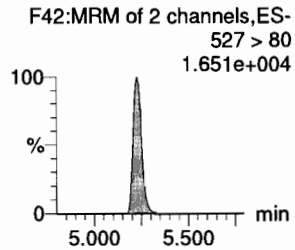
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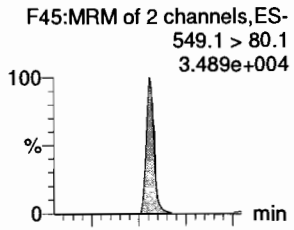


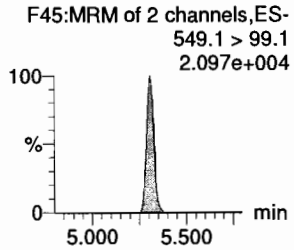
8:2 FTS



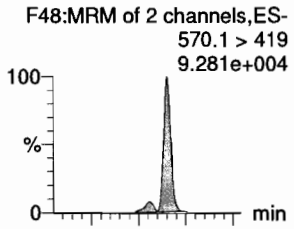


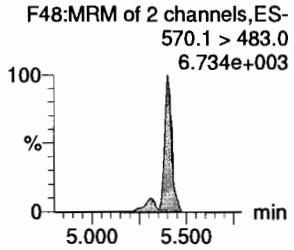
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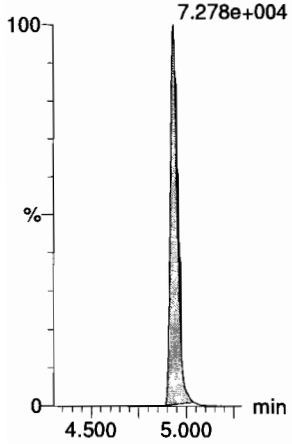


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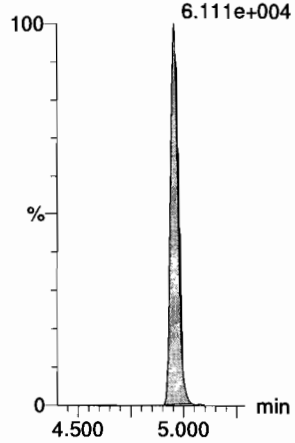




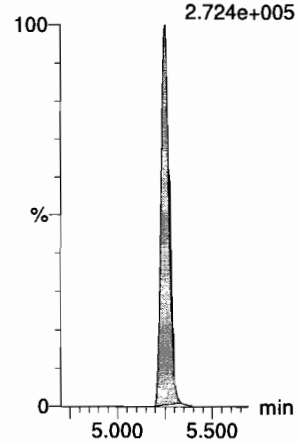
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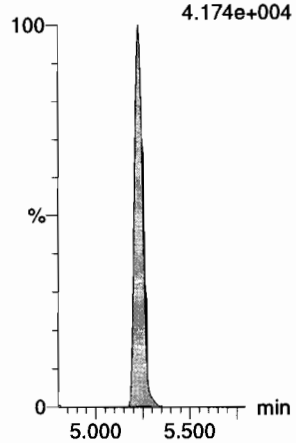
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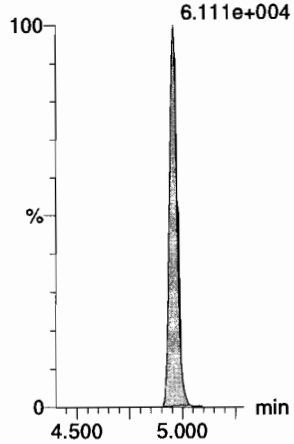
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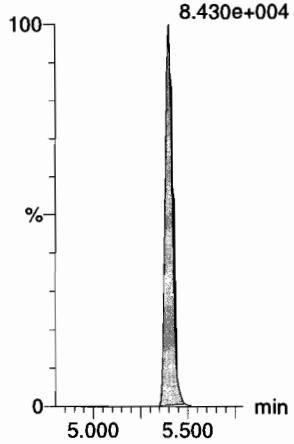
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13C8-PFOS



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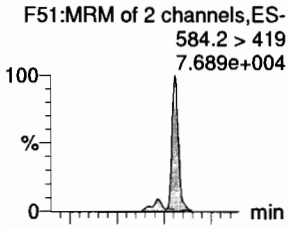
GM 6/9/2018

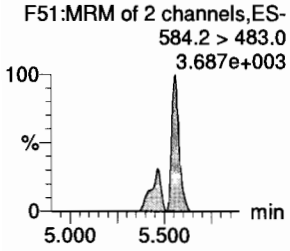
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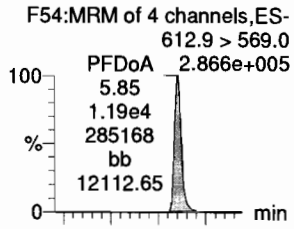
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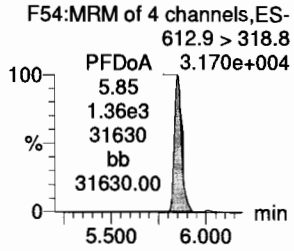
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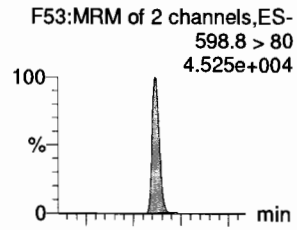


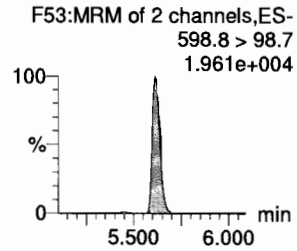
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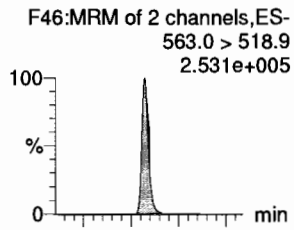


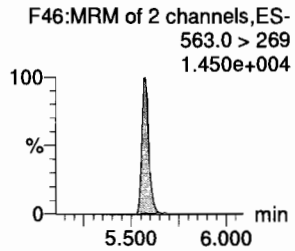
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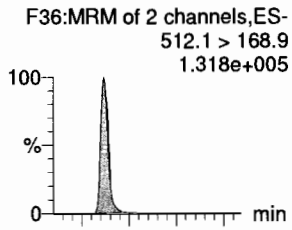


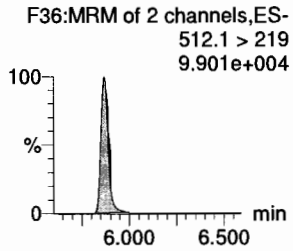
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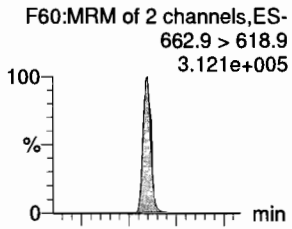


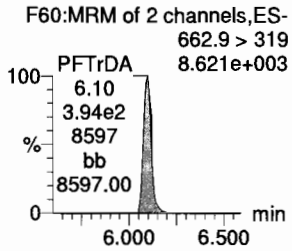
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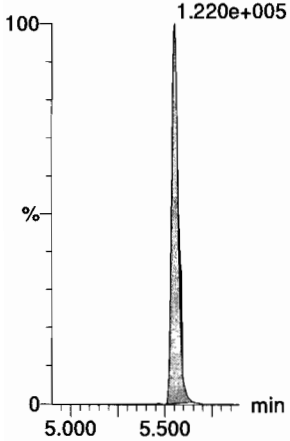


PFTrDA

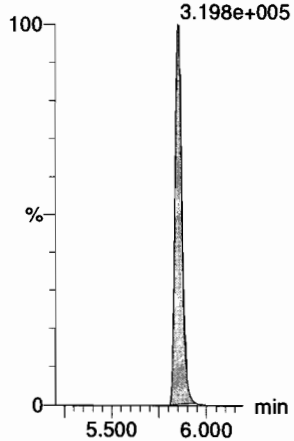




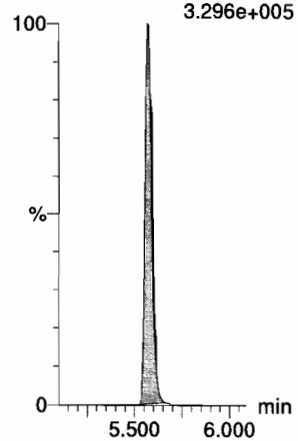
d5-N-EtFOSAA



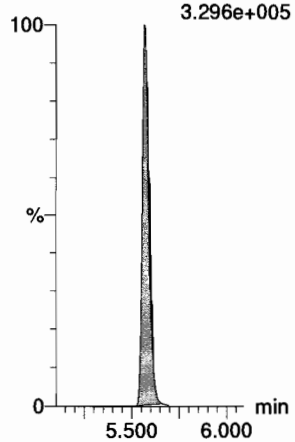
13C2-PFDoA



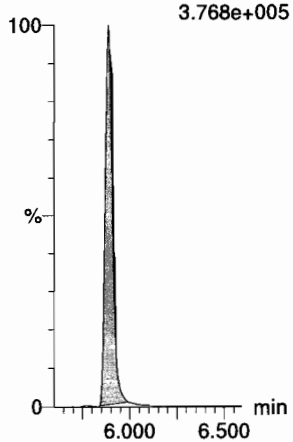
13C2-PFUdA



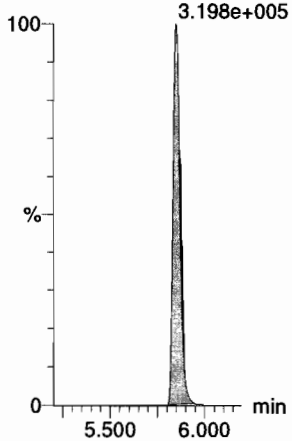
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA



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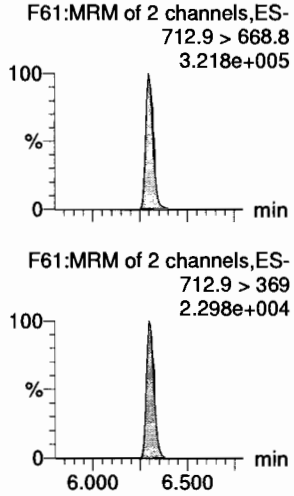
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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-28.qld

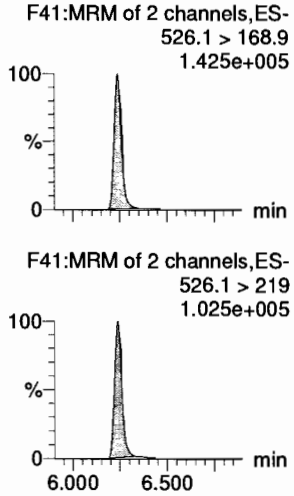
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Printed: Saturday, June 09, 2018 11:00:31 Pacific Daylight Time

Name: 180607M2_28, Date: 07-Jun-2018, Time: 18:54:30, ID: ST180607M2-3 PFC CS3 18E2907, Description: PFC CS3 18E2907

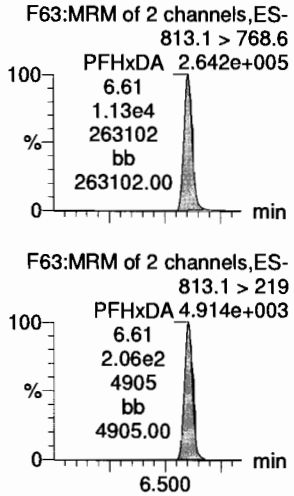
PFTeDA



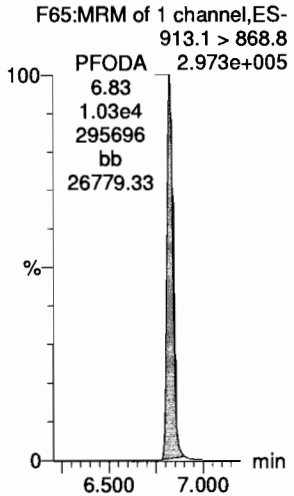
N-EtFOSA



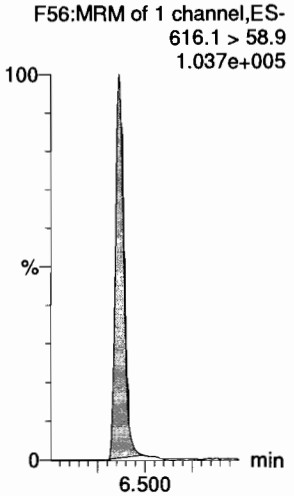
PFHxDA



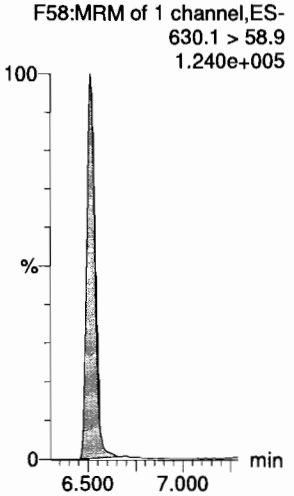
PFODA



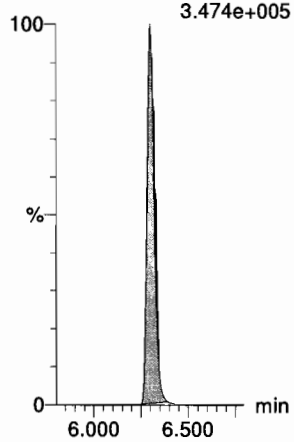
N-MeFOSE



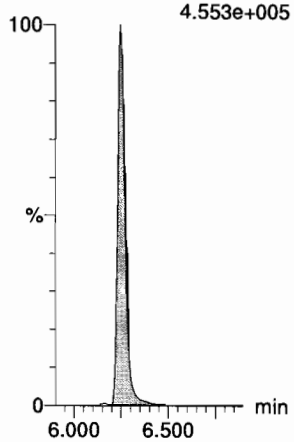
N-EtFOSE



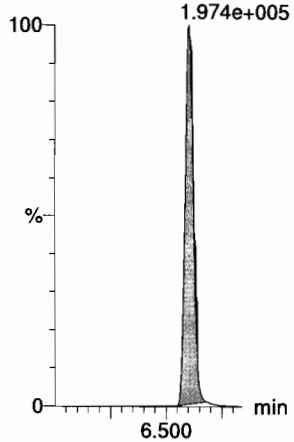
13C2-PFTeDA



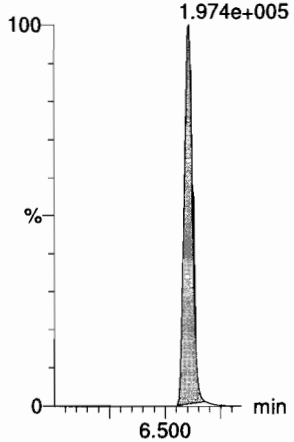
d5-N-ETFOSA



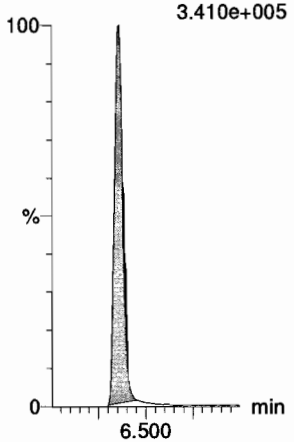
13C2-PFHxDA



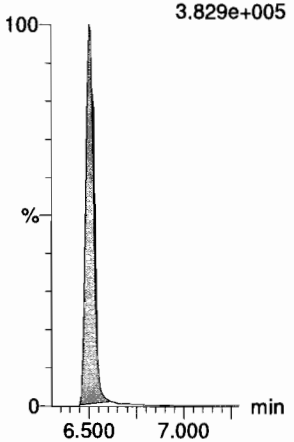
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE



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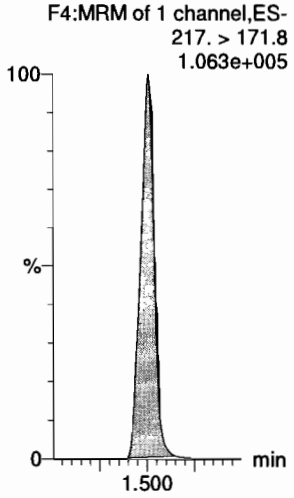
Vista Analytical Laboratory

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-28.qld

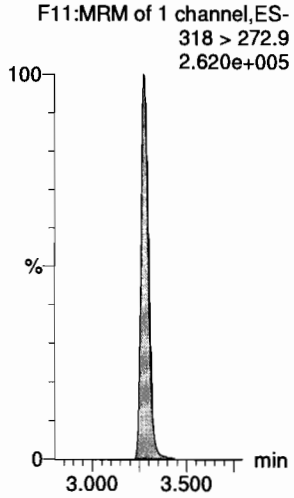
Last Altered: Saturday, June 09, 2018 11:00:02 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:00:31 Pacific Daylight Time

Name: 180607M2_28, Date: 07-Jun-2018, Time: 18:54:30, ID: ST180607M2-3 PFC CS3 18E2907, Description: PFC CS3 18E2907

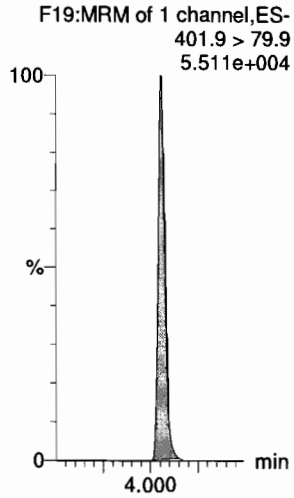
13C4-PFBA



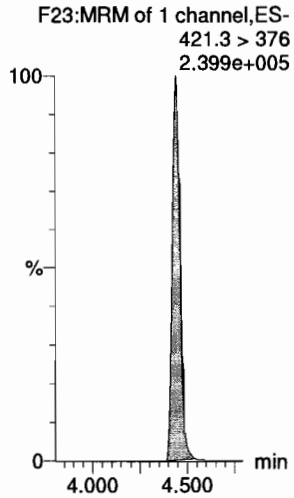
13C5-PFHxA



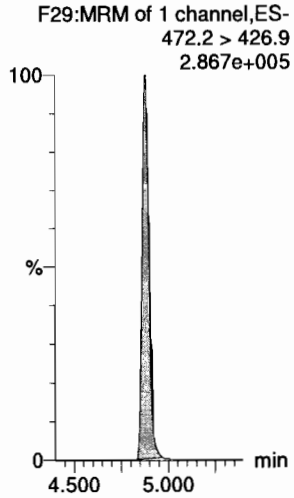
13C3-PFHxS



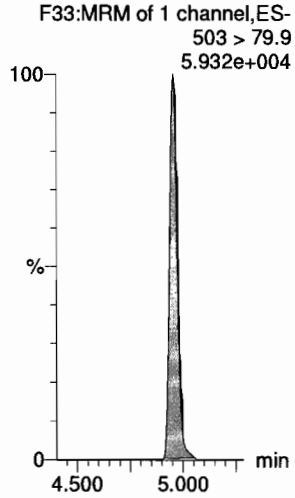
13C8-PFOA



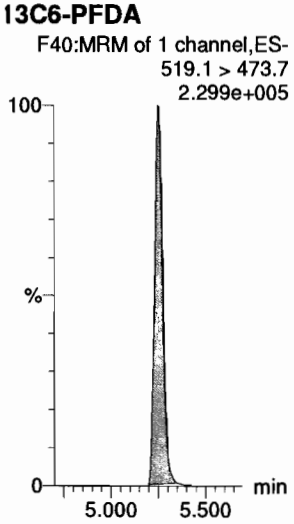
13C9-PFNA



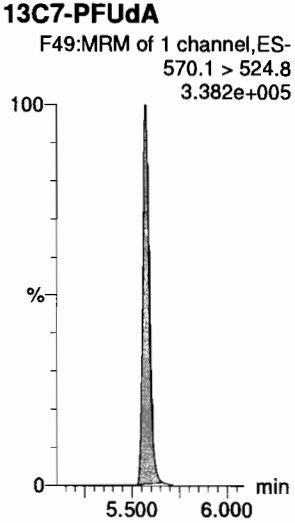
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Vista Analytical Laboratory

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-45.qld

Last Altered: Saturday, June 09, 2018 11:03:50 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:04:03 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 10:17:35
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_45, Date: 07-Jun-2018, Time: 21:52:23, ID: ST180607M2-4 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
1	1	PFBA	213.0 > 16...	8.32e2	9.23e3		1.50	1.50	1.13	0.992	99.2	NO		
2	2	PFPeA	263.1 > 21...	9.48e2	1.20e4		2.49	2.49	0.987	0.952	95.2	NO		
3	3	PFBS	299.0 > 79.7	2.08e2	1.50e3		2.76	2.77	1.73	0.885	88.5	NO	2.800	NO
4	4	4:2 FTS	327.2>307.2	2.01e2	2.89e3		3.17	3.18	0.871	0.923	92.3	NO	1.560	YES
5	5	PFHxA	313.2 > 26...	1.26e3	4.05e3		3.26	3.26	1.56	1.00	100.3	NO	226.124	NO
6	6	PFPeS	349.1>80.1	2.01e2	1.50e3		3.45	3.46	1.68	0.980	98.0	NO	1.737	NO
7	7	PFHpA	363.0 > 31...	1.06e3	1.03e4		3.90	3.90	1.29	1.07	106.9	NO	25.927	YES
8	8	L-PFHxS	398.9 > 79.6	1.64e2	1.24e3		4.02	4.05	1.65	0.946	94.6	NO	1.583	NO
9	10	6:2 FTS	427.1 > 407	2.20e2	3.20e3		4.18	4.38	0.860	0.855	85.5	NO	4.166	NO
10	11	L-PFOA	413 > 368.7	1.38e3	1.56e4		4.43	4.43	1.10	1.10	109.8	NO	6.154	NO
11	13	PFHpS	449 > 80.0	1.81e2	1.56e4		4.33	4.53	0.145	0.854	85.4	NO	1.620	NO
12	14	PFNA	463.0 > 41...	1.21e3	1.35e4		4.68	4.87	1.12	0.874	87.4	NO	5.055	NO
13	15	PFOSA	498.2 > 77.9	3.25e2	4.25e3		4.73	4.92	0.955	1.10	109.7	NO	56.912	YES
14	16	L-PFOS	499.1 > 79.9	1.96e2	2.92e3		4.95	4.94	0.837	0.866	86.6	NO	2.403	YES
15	18	PFDA	513 > 468.8	1.32e3	1.66e4		5.05	5.24	0.992	0.988	98.8	NO	9.583	YES
16	19	8:2 FTS	527 > 506.9	3.10e2	2.63e3		5.00	5.21	1.48	1.19	118.6	NO	2.204	NO
17	20	PFNS	549.1>80.1	1.88e2	2.92e3		5.09	5.30	0.806	1.01	101.1	NO	2.382	NO
18	21	L-MeFOSAA	570.1 > 419	4.65e2	5.11e3		5.18	5.40	1.14	0.776	77.6	NO	13.268	YES
19	23	L-EtFOSAA	584.2 > 419	3.20e2	5.76e3		5.37	5.55	0.694	0.752	75.2	NO	21.605	NO

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GM 6/9/2018

Vista Analytical Laboratory

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-45.qld

Last Altered: Saturday, June 09, 2018 11:03:50 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:04:16 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 10:17:35
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_45, Date: 07-Jun-2018, Time: 21:52:23, ID: ST180607M2-4 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
1	25	PFUdA	563.0 > 51...	1.27e3	1.39e4		5.37	5.57	1.14	1.08	108.3	NO	14.056	NO
2	26	PFDS	598.8 > 80	1.89e2	1.39e4		5.40	5.61	0.171	0.859	85.9	NO	1.709	NO
3	27	PFDoA	612.9 > 56...	1.69e3	1.64e4		5.65	5.84	1.29	1.07	107.4	NO	10.149	NO
4	28	N-MeFOSA	512.1 > 16...	6.69e2	2.06e4		5.84	5.86	4.86	4.43	88.6	NO	1.231	NO
5	29	PFTrDA	662.9 > 61...	1.85e3	1.64e4		5.89	6.08	1.41	1.17	117.5	NO	35.042	NO
6	30	PFTeDA	712.9 > 66...	1.61e3	1.57e4		6.11	6.29	1.28	1.07	107.1	NO	16.369	YES
7	31	N-EtFOSA	526.1 > 16...	8.51e2	2.53e4		6.23	6.23	5.04	5.44	108.7	NO	1.436	NO
8	32	PFHxDA	813.1 > 76...	1.29e3	8.77e3		6.45	6.59	0.738	1.05	104.9	NO	63.209	YES
9	33	PFODA	913.1 > 86...	1.26e3	8.77e3		6.68	6.82	0.719	0.947	94.7	NO		
10	34	N-MeFOSE	616.1 > 58.9	6.18e2	2.06e4		6.38	6.37	4.49	4.89	97.8	NO		
11	35	N-EtFOSE	630.1 > 58.9	8.46e2	2.41e4		6.52	6.51	5.26	4.65	93.1	NO		
12	36	13C3-PFBA	216.1 > 17...	9.23e3	1.05e4	0.870	1.34	1.51	11.0	12.7	101.4	NO		
13	37	13C3-PFPeA	266. > 221.8	1.20e4	1.32e4	0.870	2.32	2.49	11.4	13.0	104.4	NO		
14	38	13C3-PFBS	302. > 98.8	1.50e3	1.32e4	0.099	2.60	2.77	1.42	14.4	115.0	NO		
15	39	13C2-4:2 FTS	329.2>308.9	2.89e3	1.32e4	0.265	3.01	3.17	2.73	10.3	82.4	NO		
16	40	13C2-PFHxA	315 > 269.8	4.05e3	1.32e4	0.737	3.10	3.27	3.83	5.20	104.0	NO		
17	41	13C4-PFHpA	367.2 > 32...	1.03e4	1.32e4	0.791	3.71	3.90	9.76	12.3	98.7	NO		
18	42	18O2-PFHxS	403.0 > 10...	1.24e3	2.70e3	0.442	3.86	4.05	5.75	13.0	104.1	NO		
19	43	13C2-6:2 FTS	429.1 > 40...	3.20e3	1.37e4	0.306	4.18	4.38	2.92	9.52	76.1	NO		
20	44	13C2-PFOA	414.9 > 36...	1.56e4	1.37e4	1.285	4.23	4.43	14.3	11.1	88.7	NO		
21	45	13C5-PFNA	468.2 > 42...	1.35e4	1.38e4	0.930	4.67	4.87	12.2	13.2	105.2	NO		
22	46	13C8-PFOSA	506.1 > 77.7	4.25e3	1.48e4	0.237	4.74	4.92	3.60	15.2	121.3	NO		
23	47	13C8-PFOS	507.0 > 79.9	2.92e3	2.98e3	1.039	4.75	4.94	12.3	11.8	94.5	NO		
24	48	13C2-PFDA	515.1 > 46...	1.66e4	1.37e4	1.144	5.04	5.24	15.1	13.2	105.8	NO		
25	49	13C2-8:2 FTS	529.1 > 50...	2.63e3	1.32e4	0.215	5.01	5.22	2.48	11.5	92.3	NO		
26	50	d3-N-MeFOSAA	573.3 > 419	5.11e3	1.48e4	0.351	5.19	5.39	4.32	12.3	98.4	NO		
27	51	d5-N-EtFOSAA	589.3 > 419	5.76e3	1.48e4	0.388	5.35	5.54	4.87	12.5	100.4	NO		
28	52	13C2-PFUdA	565 > 519.8	1.39e4	1.48e4	1.019	5.37	5.56	11.7	11.5	92.0	NO		
29	53	13C2-PFDoA	615.0 > 56...	1.64e4	1.37e4	1.057	5.65	5.84	14.9	14.1	113.1	NO		
30	54	d3-N-MeFOSA	515.2 > 16...	2.06e4	1.48e4	0.107	5.87	5.88	17.5	164	109.1	NO		
31	55	13C2-PFTeDA	714.8 > 66...	1.57e4	1.48e4	0.964	6.11	6.29	13.3	13.8	110.4	NO		
32	56	d5-N-ETFOSA	531.1 > 16...	2.53e4	1.48e4	0.157	6.25	6.25	21.4	137	91.2	NO		

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-45.qld

Last Altered: Saturday, June 09, 2018 11:03:50 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:04:16 Pacific Daylight Time

Name: 180607M2_45, Date: 07-Jun-2018, Time: 21:52:23, ID: ST180607M2-4 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
33	57	13C2-PFHxDA	815 > 769.7	8.77e3	1.48e4	1.562	6.45	6.60	7.42	4.75	95.0	NO		
34	58	d7-N-MeFOSE	623.1 > 58.9	2.06e4	1.48e4	0.147	6.37	6.35	17.4	118	79.0	NO		
35	59	d9-N-EtFOSE	639.2 > 58.8	2.41e4	1.48e4	0.149	6.52	6.50	20.4	137	91.4	NO		
36	60	13C4-PFBA	217. > 171.8	1.05e4	1.05e4	1.000	1.33	1.50	12.5	12.5	100.0	NO		
37	61	13C5-PFHxA	318 > 272.9	1.32e4	1.32e4	1.000	3.09	3.27	12.5	12.5	100.0	NO		
38	62	13C3-PFHxS	401.9 > 79.9	2.70e3	2.70e3	1.000	3.87	4.04	12.5	12.5	100.0	NO		
39	63	13C8-PFOA	421.3 > 376	1.37e4	1.37e4	1.000	4.24	4.43	12.5	12.5	100.0	NO		
40	64	13C9-PFNA	472.2 > 42...	1.38e4	1.38e4	1.000	4.67	4.87	12.5	12.5	100.0	NO		
41	65	13C4-PFOS	503 > 79.9	2.98e3	2.98e3	1.000	4.75	4.94	12.5	12.5	100.0	NO		
42	66	13C6-PFDA	519.1 > 47...	1.37e4	1.37e4	1.000	5.04	5.24	12.5	12.5	100.0	NO		
43	67	13C7-PFUdA	570.1 > 52...	1.48e4	1.48e4	1.000	5.37	5.56	12.5	12.5	100.0	NO		

GM 6/9/2018

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Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 10:17:35
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	180607M2_3	ST180607M2-2 PFC CS0 18E2904	07-Jun-18	13:53:21
2	2	180607M2_4	IPA	07-Jun-18	14:03:47
3	3	180607M2_5	B8F0025-BS1 OPR 0.25	07-Jun-18	14:14:18
4	4	180607M2_6	B8F0025-BLK1 Method Blank 0.25	07-Jun-18	14:24:40
5	5	180607M2_7	1800796-11 RCCB 1 0.26894	07-Jun-18	14:35:10
6	6	180607M2_8	1801123-01 MW-101 0.11977	07-Jun-18	14:45:36
7	7	180607M2_9	1801123-02 MW-102 0.11688	07-Jun-18	14:56:06
8	8	180607M2_10	1801123-03 MW-103 0.11631	07-Jun-18	15:06:30
9	9	180607M2_11	1801123-04 MW-104 0.11472	07-Jun-18	15:17:00
10	10	180607M2_12	1801124-01 140 Harvey Rd 0.11503	07-Jun-18	15:27:24
11	11	180607M2_13	1801039-03 A1-MW-14-SA1 0.11194	07-Jun-18	15:37:57
12	12	180607M2_14	1801039-04 A1-MW-15-SA1 0.11248	07-Jun-18	15:48:25
13	13	180607M2_15	1800862-05 REEPDW456FRB 0.1202	07-Jun-18	15:58:50
14	14	180607M2_16	1800862-08 REEPDW447FRB 0.11683	07-Jun-18	16:09:21
15	15	180607M2_17	1800862-15 REEPDW460FRB 0.11944	07-Jun-18	16:19:45
16	16	180607M2_18	B8E0244-BS1 OPR 0.125	07-Jun-18	17:09:15
17	17	180607M2_19	cs2 qc	07-Jun-18	17:20:17
18	18	180607M2_20	B8E0244-BS1 OPR 0.125	07-Jun-18	17:30:45
19	19	180607M2_21	B8E0244-BLK1 Method Blank 0.125	07-Jun-18	17:41:14
20	20	180607M2_22	B8E0244-MS1 Matrix Spike 0.11028	07-Jun-18	17:51:44
21	21	180607M2_23	B8E0244-MSD1 Matrix Spike Dup 0.11...	07-Jun-18	18:02:08
22	22	180607M2_24	B8E0244-MS2 Matrix Spike 0.11122	07-Jun-18	18:12:39
23	23	180607M2_25	B8E0244-MSD2 Matrix Spike Dup 0.11...	07-Jun-18	18:23:09
24	24	180607M2_26	1801037-01 A1-MW-18-SA1 0.11265	07-Jun-18	18:33:34
25	25	180607M2_27	1801037-02 16-MW-08-SA1 0.11493	07-Jun-18	18:44:05
26	26	180607M2_28	ST180607M2-3 PFC CS3 18E2907	07-Jun-18	18:54:30
27	27	180607M2_29	IPA	07-Jun-18	19:05:00
28	28	180607M2_30	180607_ISSUP QC	07-Jun-18	19:15:31
29	29	180607M2_31	180607_ISSUPQCDUP	07-Jun-18	19:25:55
30	30	180607M2_32	B8F0027-BS1 OPR 0.125	07-Jun-18	19:36:25
31	31	180607M2_33	B8F0027-BSD1 LCSD 0.125	07-Jun-18	19:46:50

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Compound name: PFBA

	# Name	ID	Acq.Date	Acq.Time
32	32 180607M2_34	B8F0027-BLK1 Method Blank 0.125	07-Jun-18	19:57:21
33	33 180607M2_35	1801127-01 MCLP00518 0.11531	07-Jun-18	20:07:51
34	34 180607M2_36	1801127-02 MCLPCG436 0.11947	07-Jun-18	20:18:15
35	35 180607M2_37	1801127-03 MCLPCG515 0.11557	07-Jun-18	20:28:46
36	36 180607M2_38	1801127-04 MCLP00516 0.11034	07-Jun-18	20:39:10
37	37 180607M2_39	1801127-05 MCLP00517 0.1183	07-Jun-18	20:49:41
38	38 180607M2_40	1801037-03 A1-MW-19-SA1 0.11827	07-Jun-18	21:00:06
39	39 180607M2_41	1801037-04 A1-MW-37-SA1 0.11915	07-Jun-18	21:10:36
40	40 180607M2_42	1801037-05 A1-MW-37-SA1D 0.11595	07-Jun-18	21:21:01
41	41 180607M2_43	1801037-06 16-H5-03-SA1 0.12456	07-Jun-18	21:31:31
42	42 180607M2_44	1801037-07 16-MW-09-SA1 0.1148	07-Jun-18	21:41:53
43	43 180607M2_45	ST180607M2-4 PFC CS3 18E2907	07-Jun-18	21:52:23
44	44 180607M2_46	IPA	07-Jun-18	22:02:49
45	45 180607M2_47	1801037-08 16-MW-06-5A1 0.11143	07-Jun-18	22:13:19
46	46 180607M2_48	1801037-09 FRB-20180523 0.11719	07-Jun-18	22:23:44
47	47 180607M2_49	1801054-01 A1-MW-42-SA1 0.11279	07-Jun-18	22:34:14
48	48 180607M2_50	1801054-02 A1-MW-54-SA1 0.11211	07-Jun-18	22:44:39
49	49 180607M2_51	1801054-03 A1-MW-53-SA1 0.1139	07-Jun-18	22:55:09
50	50 180607M2_52	1801054-04 A1-P2-19-SA1 0.11736	07-Jun-18	23:05:34
51	51 180607M2_53	1801054-05 A1-MW-52-SA1 0.11509	07-Jun-18	23:16:04
52	52 180607M2_54	1801054-06 A1-MW-01-SA1 0.1102	07-Jun-18	23:26:35
53	53 180607M2_55	1801054-07 A1-MW-01-SA1D 0.11715	07-Jun-18	23:37:00
54	54 180607M2_56	1801054-08 A1-MW-31-SA1 0.11276	07-Jun-18	23:47:30
55	55 180607M2_57	1801054-09 FRB-20180525 0.11663	07-Jun-18	23:57:55
56	56 180607M2_58	B8E0139-BS1 OPR 0.125	08-Jun-18	00:08:26
57	57 180607M2_59	B8E0139-BSD1 LCSD 0.125	08-Jun-18	00:18:51
58	58 180607M2_60	B8E0139-BLK1 Method Blank 0.125	08-Jun-18	00:29:21
59	59 180607M2_61	1800952-01 REEPDW485 0.12371	08-Jun-18	00:39:45
60	60 180607M2_62	ST180607M2-5 PFC CS3 18E2907	08-Jun-18	00:50:16
61	61 180607M2_63	ST180607M2-6 PFC CS0 18E2904	08-Jun-18	01:00:40
62	62 180607M2_64	IPA	08-Jun-18	01:11:11
63	63 180607M2_65	1800952-02 REEPDW491 0.11903	08-Jun-18	01:21:36
64	64 180607M2_66	1800952-03 REEPDW493 0.12371	08-Jun-18	01:32:07
65	65 180607M2_67	1800952-04 REEPDW494 0.12591	08-Jun-18	01:42:32

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Compound name: PFBA

	# Name	ID	Acq.Date	Acq.Time
66	66 180607M2_68	1800952-05 REEPDW486 0.12668	08-Jun-18	01:52:54
67	67 180607M2_69	1800952-06 REEPDW487 0.12126	08-Jun-18	02:03:24
68	68 180607M2_70	1800952-07 REEPDW489 0.12109	08-Jun-18	02:13:50
69	69 180607M2_71	1800952-08 REEPDW492 0.12089	08-Jun-18	02:24:20
70	70 180607M2_72	1800952-09 REEPDW495 0.11841	08-Jun-18	02:34:45
71	71 180607M2_73	1800952-10 REEPDW496 0.12607	08-Jun-18	02:45:07
72	72 180607M2_74	1800952-11 REEPDW497 0.11275	08-Jun-18	02:55:37
73	73 180607M2_75	ST180607M2-7 PFC CS3 18E2907	08-Jun-18	03:06:07
74	74 180607M2_76	IPA	08-Jun-18	03:16:32
75	75 180607M2_77	1800952-12 REEPDW498 0.12162	08-Jun-18	03:27:02
76	76 180607M2_78	1800952-13 REEPDW488 0.125	08-Jun-18	03:37:27
77	77 180607M2_79	1800952-14 REEPDW490 0.12133	08-Jun-18	03:47:57
78	78 180607M2_80	1800952-15 REEPDW1000 0.11915	08-Jun-18	03:58:27
79	79 180607M2_81	1800952-16 REEPDW548 0.11758	08-Jun-18	04:08:52
80	80 180607M2_82	1800952-17 REEPDW549 0.1221	08-Jun-18	04:19:22
81	81 180607M2_83	B8E0168-BS1 OPR 0.125	08-Jun-18	04:29:47
82	82 180607M2_84	B8E0168-MS1 Matrix Spike 0.11902	08-Jun-18	04:40:17
83	83 180607M2_85	B8E0168-MSD1 Matrix Spike Dup 0.11...	08-Jun-18	04:50:48
84	84 180607M2_86	B8E0168-BLK1 Method Blank 0.125	08-Jun-18	05:01:12
85	85 180607M2_87	1800978-01 REEPDW1035 0.11488	08-Jun-18	05:11:43
86	86 180607M2_88	1800978-02 REEPDW1036 0.11708	08-Jun-18	05:22:08
87	87 180607M2_89	1800978-03 REEPDW1038 0.11726	08-Jun-18	05:32:38
88	88 180607M2_90	1800978-04 REEPDW1039 0.11839	08-Jun-18	05:43:03
89	89 180607M2_91	ST180607M2-8 PFC CS3 18E2907	08-Jun-18	05:53:25
90	90 180607M2_92	IPA	08-Jun-18	06:03:55
91	91 180607M2_93	1800978-05 REEPDW1040 0.11588	08-Jun-18	06:14:20
92	92 180607M2_94	1800978-06 REEPDW553 0.11895	08-Jun-18	06:24:50
93	93 180607M2_95	1800978-07 REEPDW1051 0.11897	08-Jun-18	06:35:15
94	94 180607M2_96	1800978-08 REEPDW1041 0.11682	08-Jun-18	06:45:46
95	95 180607M2_97	1800978-09 REEPDW1042 0.11863	08-Jun-18	06:56:11
96	96 180607M2_98	1800978-10 REEPDW1044 0.12068	08-Jun-18	07:06:41
97	97 180607M2_99	1800978-11 REEPDW1045 0.1175	08-Jun-18	07:17:06
98	98 180607M2_100	1800978-12 REEPDW1046 0.12107	08-Jun-18	07:27:37
99	99 180607M2_101	1800978-13 REEPDW1047 0.11609	08-Jun-18	07:38:01

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Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
100	1...	180607M2_102	IPA	08-Jun-18	07:48:31
101	1...	180607M2_103	ST180607M2-9 PFC CS3 18E2907	08-Jun-18	07:58:56
102	1...	180607M2_104	B8E0138-BS1 OPR 0.125	08-Jun-18	08:09:26
103	1...	180607M2_105	B8E0138-BSD1 LCSD 0.125	08-Jun-18	08:19:56
104	1...	180607M2_106	B8E0138-BLK1 Method Blank 0.125	08-Jun-18	08:30:21
105	1...	180607M2_107	180608_QCISSUP	08-Jun-18	08:49:17
106	1...	180607M2_108	1800953-01 REEPDW485FRB 0.11479	08-Jun-18	08:59:43
107	1...	180607M2_109	1800953-02 REEPDW491FRB 0.12321	08-Jun-18	09:10:08
108	1...	180607M2_110	1800953-03 REEPDW493FRB 0.12134	08-Jun-18	09:20:38
109	1...	180607M2_111	1800953-04 REEPDW494FRB 0.12123	08-Jun-18	09:31:02
110	1...	180607M2_112	1800953-05 REEPDW486FRB 0.11858	08-Jun-18	09:41:33
111	1...	180607M2_113	1800953-06 REEPDW487FRB 0.11947	08-Jun-18	09:51:59
112	1...	180607M2_114	1800953-07 REEPDW489FRB 0.12132	08-Jun-18	10:02:29
113	1...	180607M2_115	1800953-08 REEPDW492FRB 0.11926	08-Jun-18	10:12:54
114	1...	180607M2_116	1800953-09 REEPDW495FRB 0.1162	08-Jun-18	10:23:24
115	1...	180607M2_117	1800953-10 REEPDW496FRB 0.11087	08-Jun-18	10:33:49
116	1...	180607M2_118	1800953-11 REEPDW497FRB 0.11881	08-Jun-18	10:44:19
117	1...	180607M2_119	1800953-12 REEPDW498FRB 0.11073	08-Jun-18	10:54:45
118	1...	180607M2_120	1800953-13 REEPDW488FRB 0.12363	08-Jun-18	11:05:15
119	1...	180607M2_121	1800953-14 REEPDW490FRB 0.12363	08-Jun-18	11:15:39
120	1...	180607M2_122	1800953-15 REEPDW1000FRB 0.11202	08-Jun-18	11:26:10
121	1...	180607M2_123	B8E0172-BS1 OPR 0.25	08-Jun-18	11:36:40
122	1...	180607M2_124	B8E0172-BLK1 Method Blank 0.25	08-Jun-18	11:47:05
123	1...	180607M2_125	1800980-01 SW-2 0.24555	08-Jun-18	11:57:35
124	1...	180607M2_126	1800980-02 SW-3 0.24142	08-Jun-18	12:08:00
125	1...	180607M2_127	IPA	08-Jun-18	12:18:30
126	1...	180607M2_128	ST180607M2-10 PFC CS3 18E2907	08-Jun-18	12:28:56

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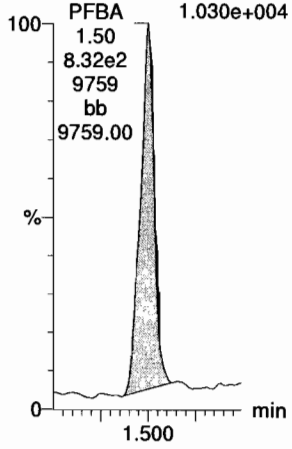
Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-45.qld

Last Altered: Saturday, June 09, 2018 11:03:50 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:04:16 Pacific Daylight Time

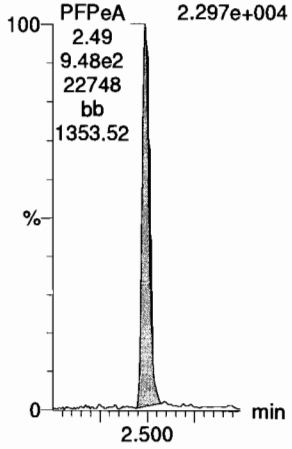
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Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

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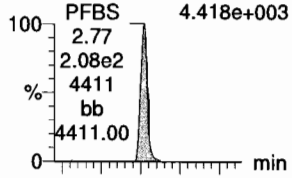
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
1.030e+004
PFBA
1.50
8.32e2
9759
bb
9759.00



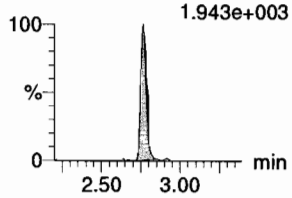
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
2.297e+004
PFPeA
2.49
9.48e2
22748
bb
1353.52



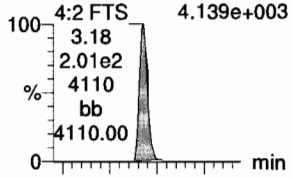
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
4.418e+003
PFBS
2.77
2.08e2
4411
bb
4411.00



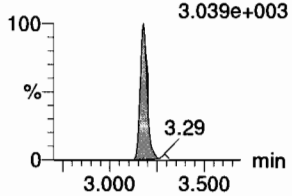
F7:MRM of 2 channels,ES-
299.0 > 99.0
1.943e+003



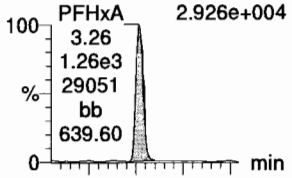
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
4.139e+003
4:2 FTS
3.18
2.01e2
4110
bb
4110.00



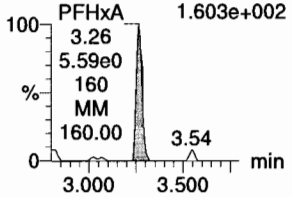
F12:MRM of 2 channels,ES-
327.2 > 81.1
3.039e+003



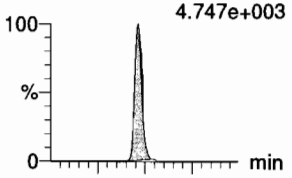
PFHxA
F9:MRM of 2 channels,ES-
313.2 > 268.9
2.926e+004
PFHxA
3.26
1.26e3
29051
bb
639.60



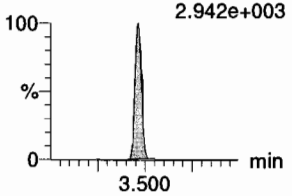
F9:MRM of 2 channels,ES-
313.2 > 119
1.603e+002



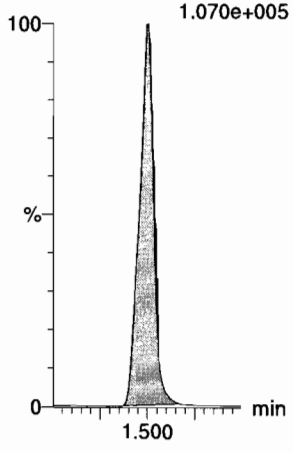
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
4.747e+003



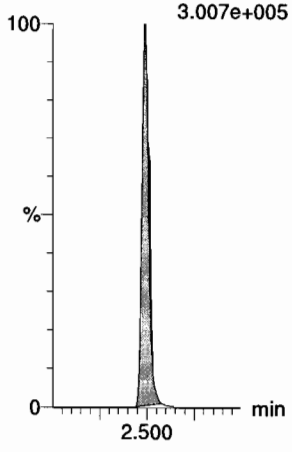
F15:MRM of 2 channels,ES-
349.1 > 99
2.942e+003



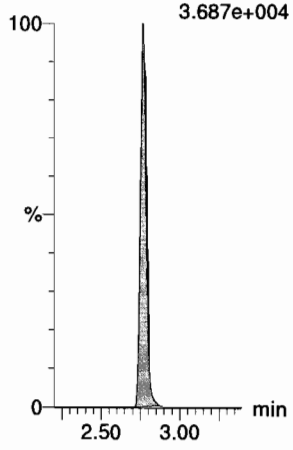
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
1.070e+005



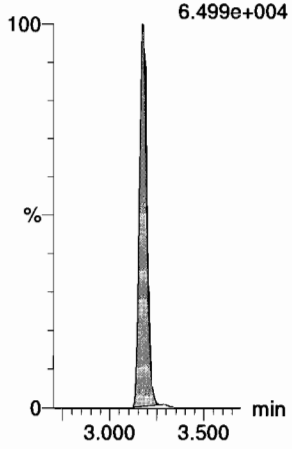
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
3.007e+005



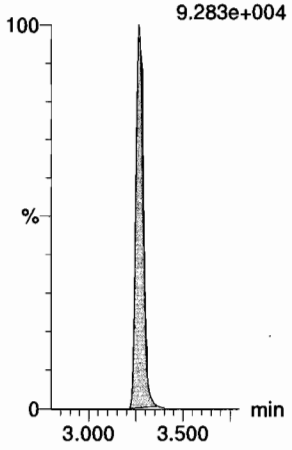
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
3.687e+004



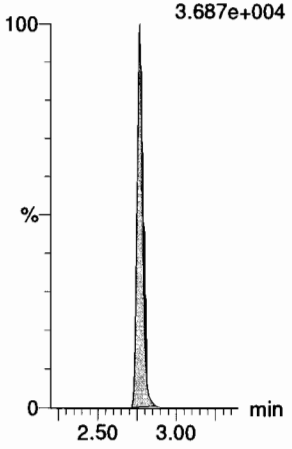
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F13:MRM of 1 channel,ES-
329.2 > 308.9
6.499e+004



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 269.8
9.283e+004



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
3.687e+004



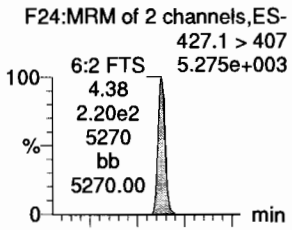
GM 6/9/2018

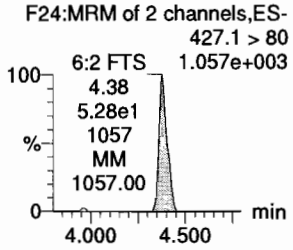
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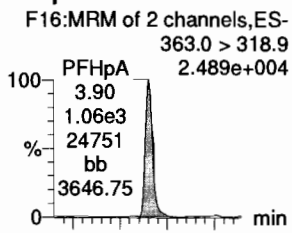
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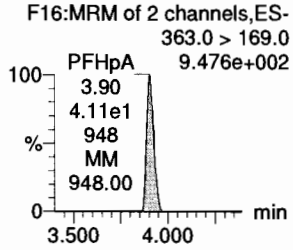
6:2 FTS



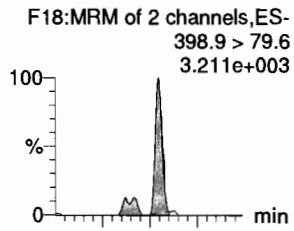


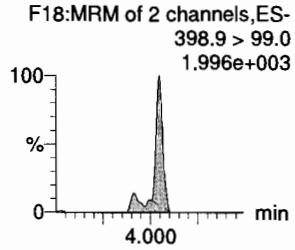
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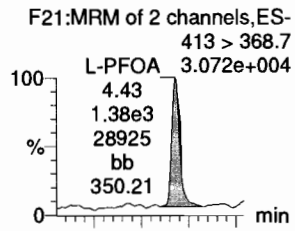


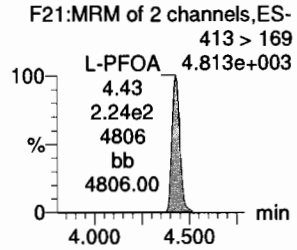
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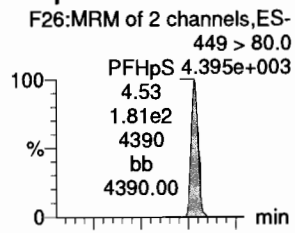


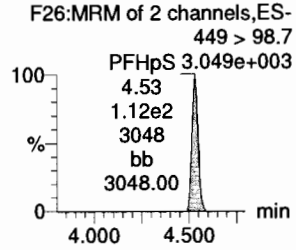
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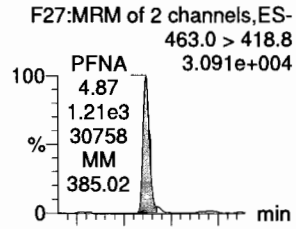


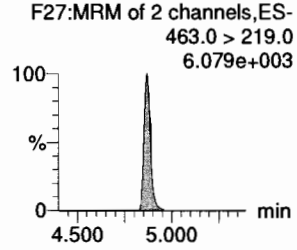
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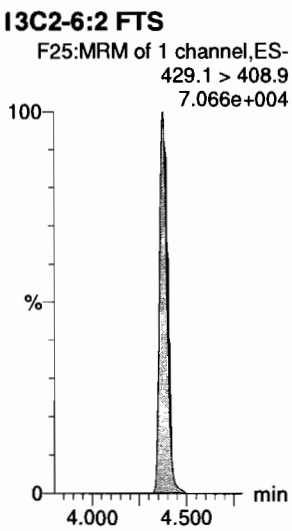


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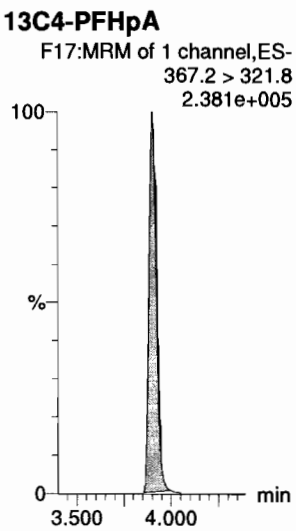




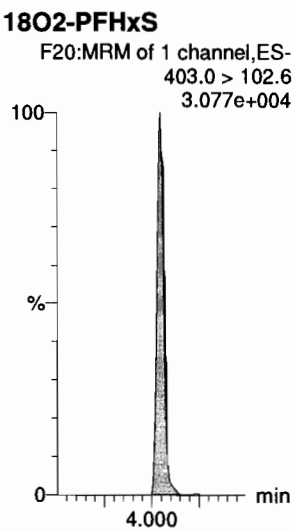
13C2-6:2 FTS



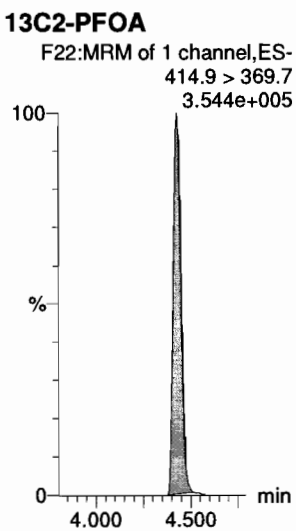
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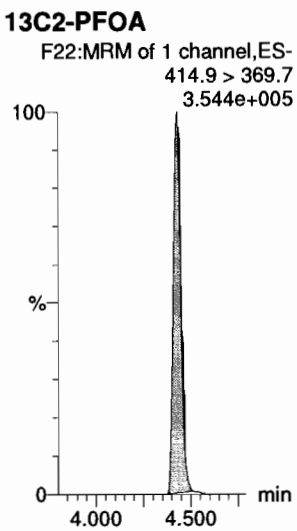
18O2-PFHxS



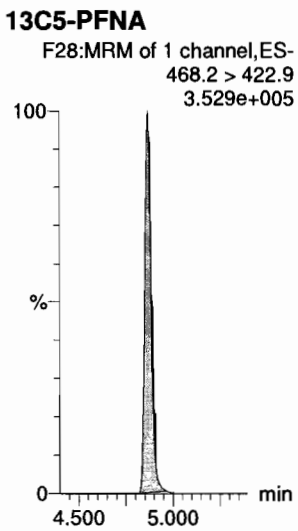
13C2-PFOA



13C2-PFOA



13C5-PFNA



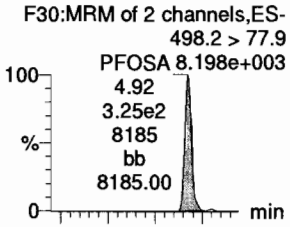
GM 6/9/2018

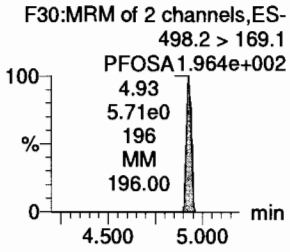
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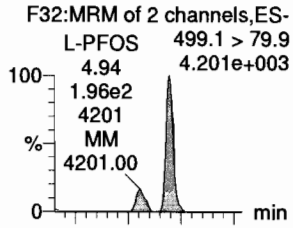
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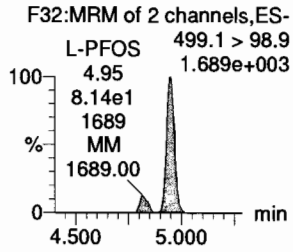
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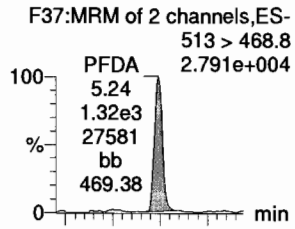


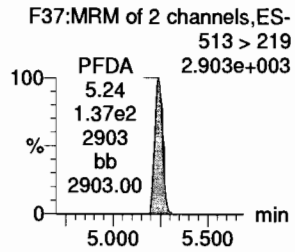
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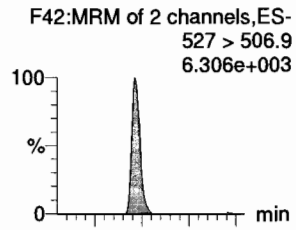


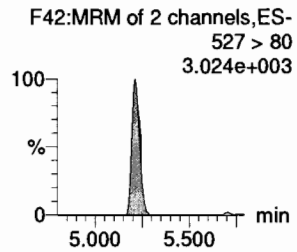
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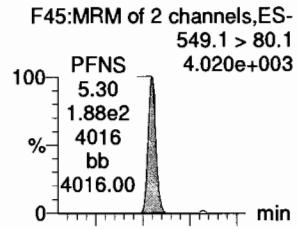


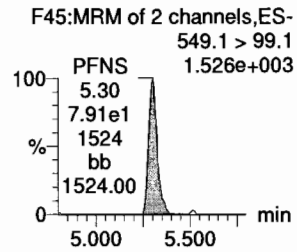
8:2 FTS



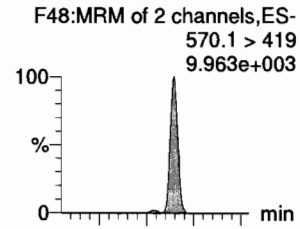


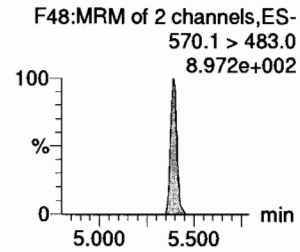
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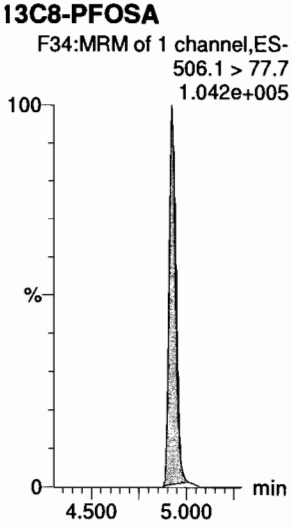


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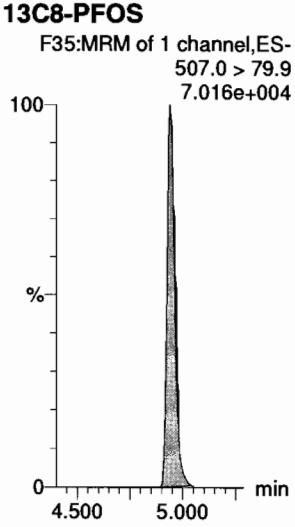




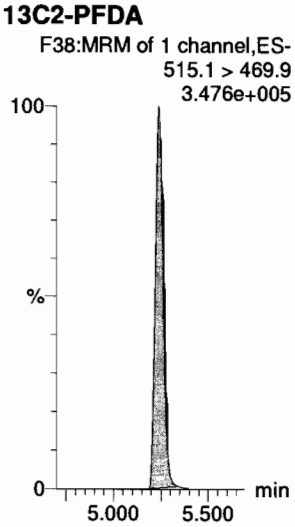
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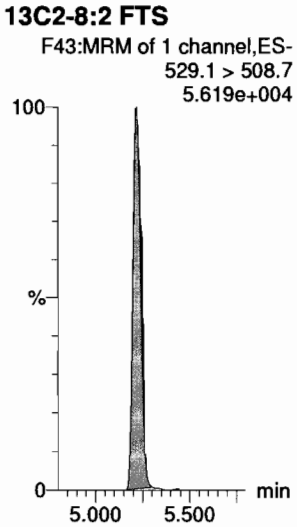
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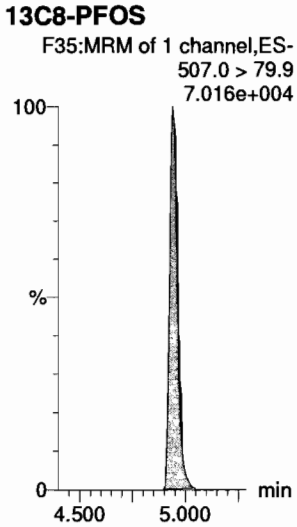
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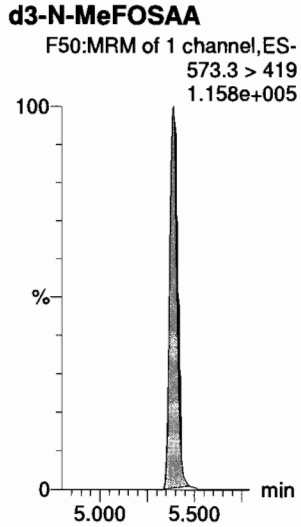
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13C8-PFOS



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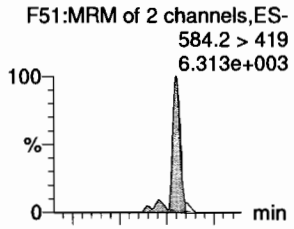
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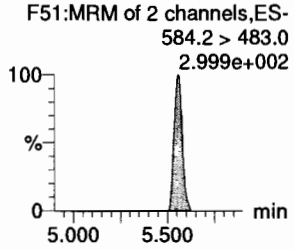
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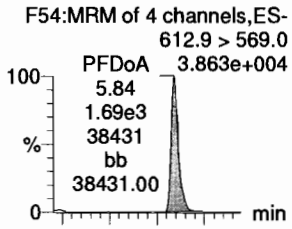
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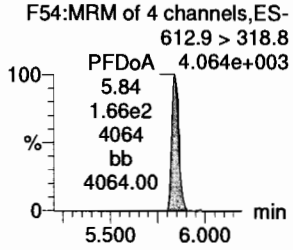
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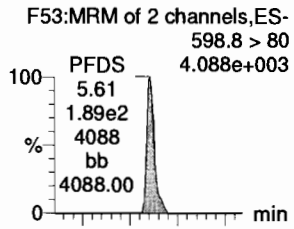


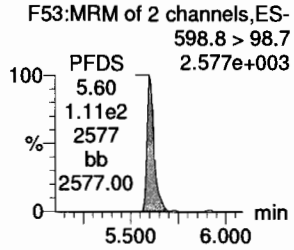
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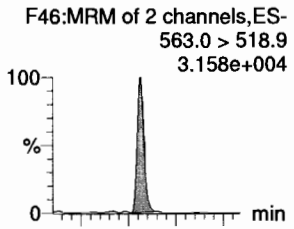


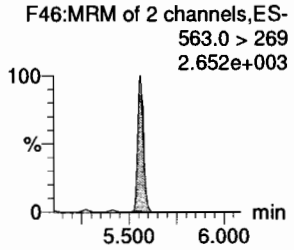
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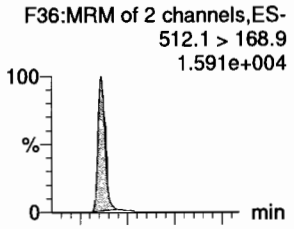


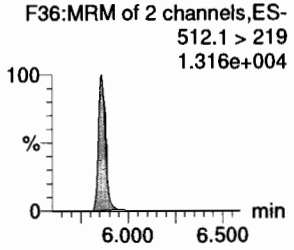
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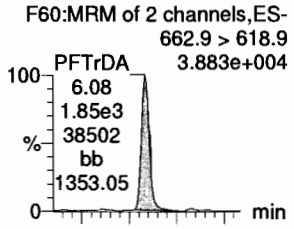


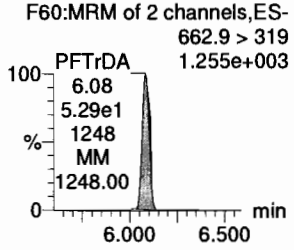
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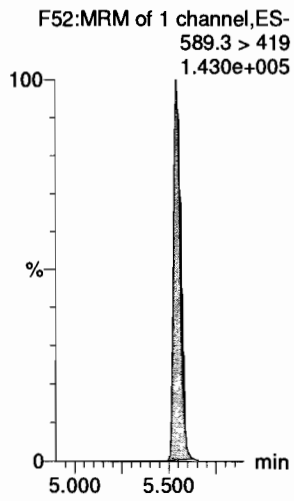


PFTrDA

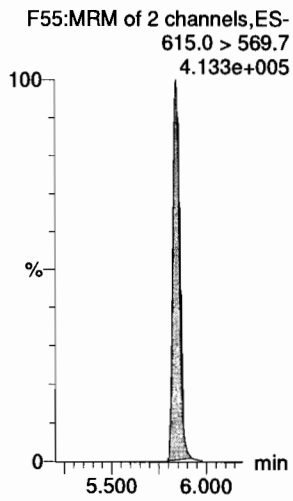




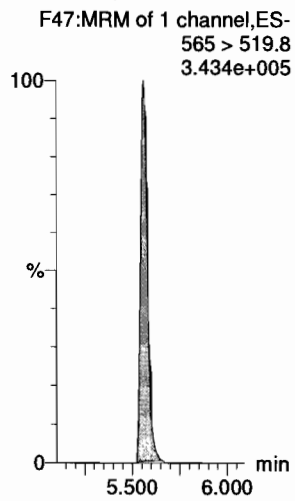
d5-N-EtFOSAA



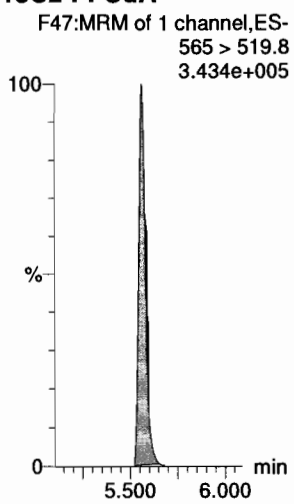
13C2-PFDoA



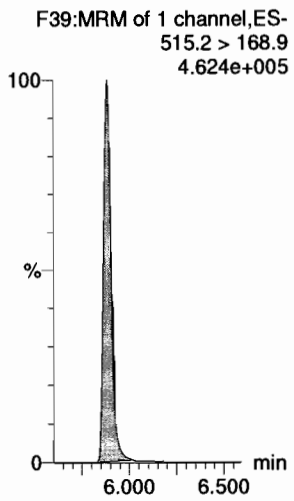
13C2-PFUdA



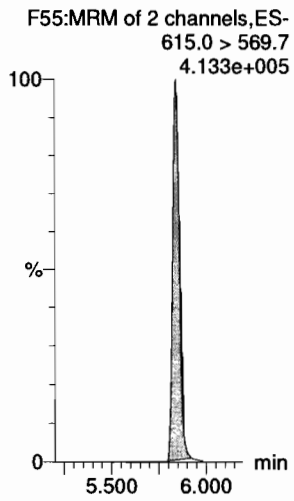
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA



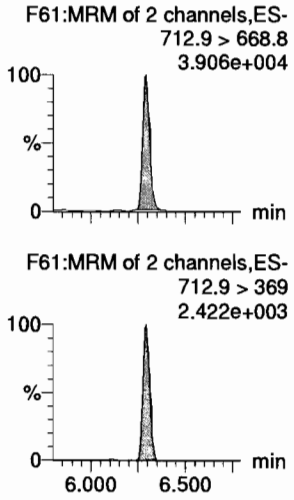
GM 6/9/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-45.qld

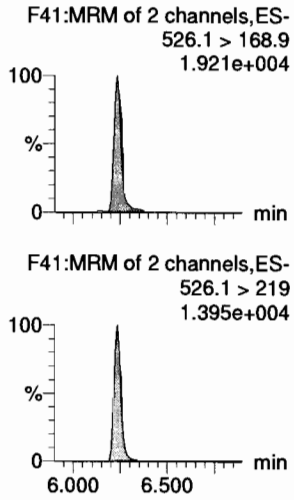
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Printed: Saturday, June 09, 2018 11:04:16 Pacific Daylight Time

Name: 180607M2_45, Date: 07-Jun-2018, Time: 21:52:23, ID: ST180607M2-4 PFC CS3 18E2907, Description: PFC CS3 18E2907

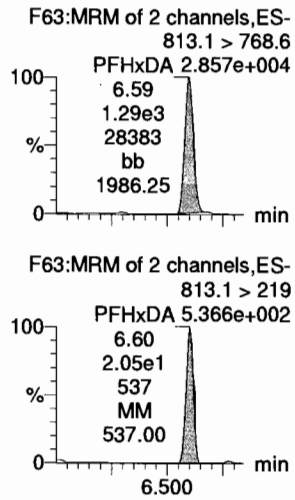
PFTeDA



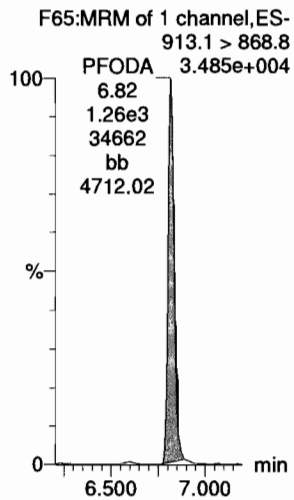
N-EtFOSA



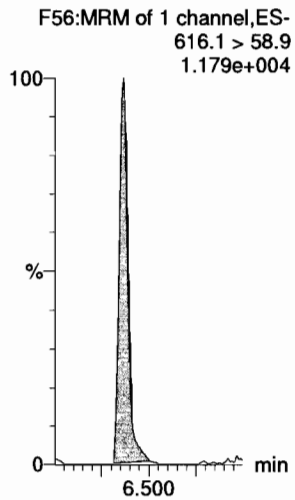
PFHxDA



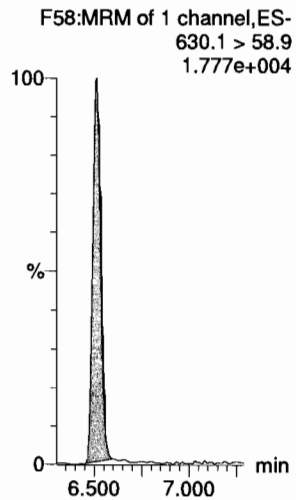
PFODA



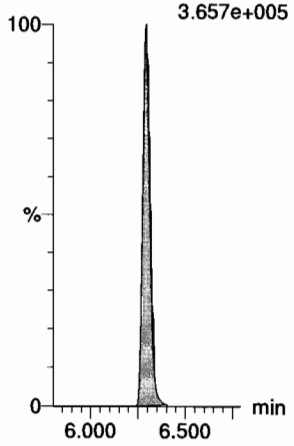
N-MeFOSE



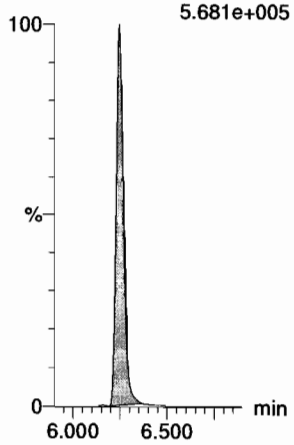
N-EtFOSE



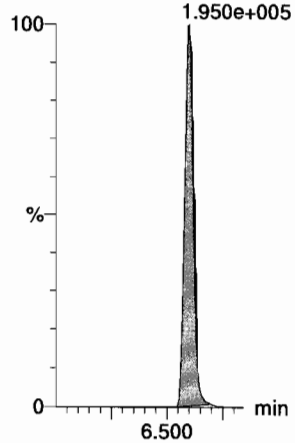
13C2-PFTeDA



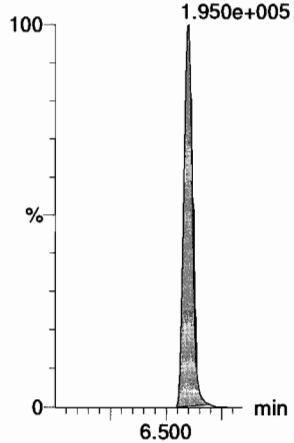
d5-N-ETFOSA



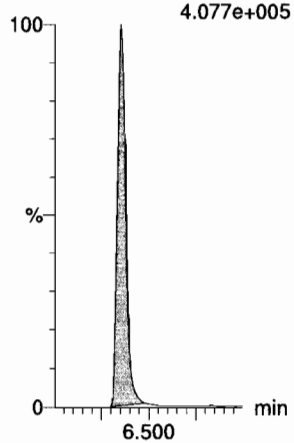
13C2-PFHxDA



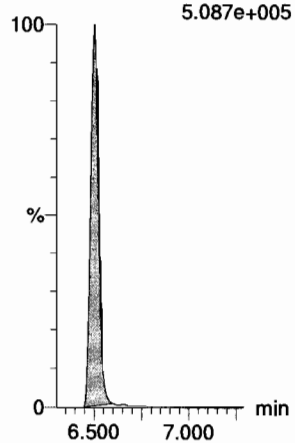
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE



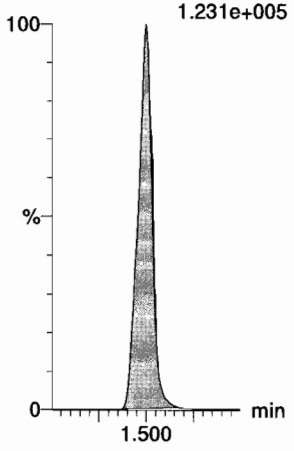
GM 6/9/2018

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-45.qld

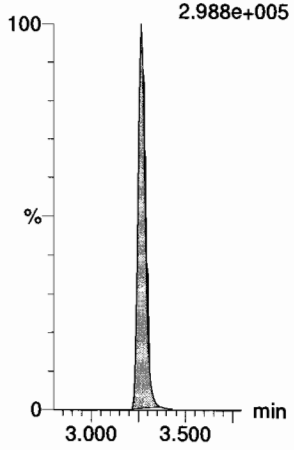
Last Altered: Saturday, June 09, 2018 11:03:50 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:04:16 Pacific Daylight Time

Name: 180607M2_45, Date: 07-Jun-2018, Time: 21:52:23, ID: ST180607M2-4 PFC CS3 18E2907, Description: PFC CS3 18E2907

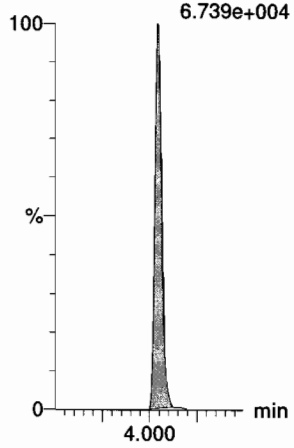
13C4-PFBA



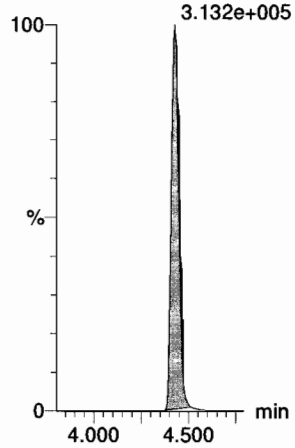
13C5-PFHxA



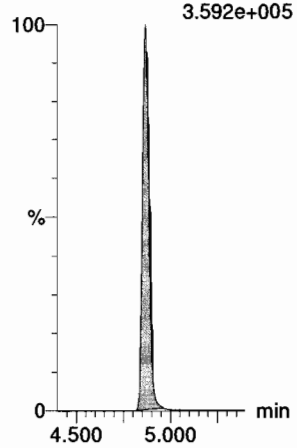
13C3-PFHxS



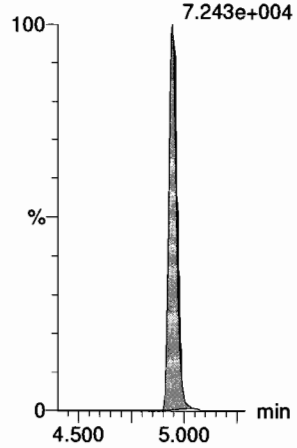
13C8-PFOA



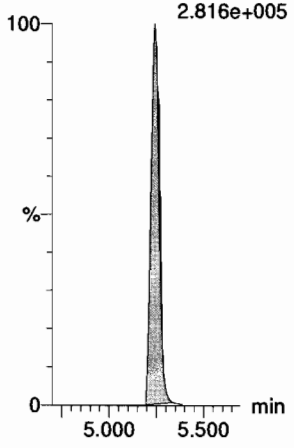
13C9-PFNA



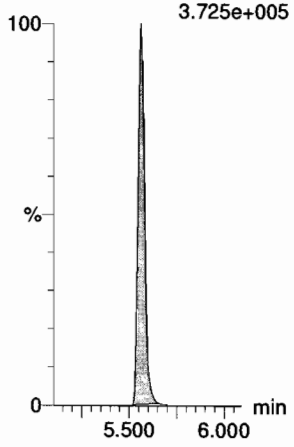
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-62.qld

Last Altered: Saturday, June 09, 2018 11:09:13 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:09:25 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 10:17:35
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_62, Date: 08-Jun-2018, Time: 00:50:16, ID: ST180607M2-5 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
1	1	PFBA	213.0 > 16...	7.01e3	8.22e3		1.49	1.50	10.7	9.39	93.9	NO		
2	2	PFPeA	263.1 > 21...	8.10e3	1.06e4		2.48	2.48	9.58	9.52	95.2	NO		
3	3	PFBS	299.0 > 79.7	1.89e3	1.32e3		2.75	2.76	17.9	8.81	88.1	NO	2.790	NO
4	4	4:2 FTS	327.2>307.2	2.13e3	2.75e3		3.16	3.17	9.65	9.61	96.1	NO	2.140	NO
5	5	PFHxA	313.2 > 26...	1.08e4	3.56e3		3.25	3.26	15.1	10.0	100.3	NO	383.599	NO
6	6	PFPeS	349.1>80.1	1.72e3	1.32e3		3.44	3.45	16.2	8.95	89.5	NO	1.684	NO
7	7	PFHpA	363.0 > 31...	8.88e3	9.37e3		3.89	3.90	11.8	9.70	97.0	NO	32.931	YES
8	8	L-PFHxS	398.9 > 79.6	1.52e3	1.02e3		4.01	4.04	18.6	9.48	94.8	NO	1.549	NO
9	10	6:2 FTS	427.1 > 407	1.97e3	2.92e3		4.18	4.37	8.43	8.47	84.7	NO	3.134	YES
10	11	L-PFOA	413 > 368.7	1.00e4	1.26e4		4.43	4.42	9.94	10.3	102.7	NO	5.104	NO
11	13	PFHpS	449 > 80.0	1.95e3	1.26e4		4.33	4.52	1.93	11.1	111.4	NO	1.897	NO
12	14	PFNA	463.0 > 41...	1.01e4	1.14e4		4.68	4.86	11.1	8.80	88.0	NO	5.359	NO
13	15	PFOSA	498.2 > 77.9	2.53e3	3.79e3		4.73	4.92	8.35	9.09	90.9	NO	30.633	YES
14	16	L-PFOS	499.1 > 79.9	1.87e3	2.69e3		4.95	4.94	8.69	9.25	92.5	NO	1.813	NO
15	18	PFDA	513 > 468.8	9.26e3	1.35e4		5.05	5.23	8.60	8.89	88.9	NO	6.200	YES
16	19	8:2 FTS	527 > 506.9	2.08e3	2.02e3		5.00	5.21	12.8	8.15	81.5	NO	2.705	YES
17	20	PFNS	549.1>80.1	1.55e3	2.69e3		5.09	5.29	7.19	8.22	82.2	NO	1.913	NO
18	21	L-MeFOSAA	570.1 > 419	4.79e3	4.52e3		5.18	5.38	13.2	9.39	93.9	NO	16.083	YES
19	23	L-EtFOSAA	584.2 > 419	3.79e3	5.07e3		5.37	5.54	9.33	9.14	91.4	NO	12.672	YES

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-62.qld

Last Altered: Saturday, June 09, 2018 11:09:13 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:09:32 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 10:17:35
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180607M2_62, Date: 08-Jun-2018, Time: 00:50:16, ID: ST180607M2-5 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
1	25	PFUdA	563.0 > 51...	1.02e4	1.22e4		5.37	5.56	10.5	10.9	108.8	NO	15.272	NO
2	26	PFDS	598.8 > 80	2.12e3	1.22e4		5.40	5.60	2.17	10.4	103.9	NO	1.993	NO
3	27	PFDoA	612.9 > 56...	1.31e4	1.30e4		5.65	5.83	12.7	11.1	110.6	NO	8.821	NO
4	28	N-MeFOSA	512.1 > 16...	6.28e3	1.83e4		5.84	5.86	51.6	48.0	95.9	NO	1.334	NO
5	29	PFTrDA	662.9 > 61...	1.45e4	1.30e4		5.89	6.08	14.0	12.0	120.4	NO	38.995	NO
6	30	PFTeDA	712.9 > 66...	1.29e4	1.34e4		6.11	6.29	12.1	10.6	105.8	NO	11.293	NO
7	31	N-EtFOSA	526.1 > 16...	6.69e3	2.25e4		6.23	6.23	44.5	47.3	94.5	NO	1.386	NO
8	32	PFHxDA	813.1 > 76...	9.72e3	8.00e3		6.45	6.59	6.08	9.02	90.2	NO	53.665	NO
9	33	PFODA	913.1 > 86...	1.11e4	8.00e3		6.68	6.81	6.96	8.88	88.8	NO		
10	34	N-MeFOSE	616.1 > 58.9	6.01e3	2.11e4		6.38	6.37	42.8	45.4	90.9	NO		
11	35	N-EtFOSE	630.1 > 58.9	6.37e3	1.98e4		6.52	6.51	48.2	43.5	86.9	NO		
12	36	13C3-PFBA	216.1 > 17...	8.22e3	9.34e3	0.870	1.34	1.49	11.0	12.6	101.2	NO		
13	37	13C3-PFPeA	266. > 221.8	1.06e4	1.17e4	0.870	2.32	2.48	11.3	13.0	104.2	NO		
14	38	13C3-PFBS	302. > 98.8	1.32e3	1.17e4	0.099	2.60	2.76	1.42	14.4	114.9	NO		
15	39	13C2-4:2 FTS	329.2>308.9	2.75e3	1.17e4	0.265	3.01	3.17	2.95	11.1	89.1	NO		
16	40	13C2-PFHxA	315 > 269.8	3.56e3	1.17e4	0.737	3.10	3.26	3.81	5.17	103.4	NO		
17	41	13C4-PFHpA	367.2 > 32...	9.37e3	1.17e4	0.791	3.71	3.89	10.0	12.7	101.7	NO		
18	42	18O2-PFHxS	403.0 > 10...	1.02e3	2.33e3	0.442	3.86	4.04	5.51	12.5	99.6	NO		
19	43	13C2-6:2 FTS	429.1 > 40...	2.92e3	1.09e4	0.306	4.18	4.37	3.35	10.9	87.4	NO		
20	44	13C2-PFOA	414.9 > 36...	1.26e4	1.09e4	1.285	4.23	4.42	14.5	11.3	90.1	NO		
21	45	13C5-PFNA	468.2 > 42...	1.14e4	1.20e4	0.930	4.67	4.86	11.9	12.8	102.5	NO		
22	46	13C8-PFOSA	506.1 > 77.7	3.79e3	1.25e4	0.237	4.74	4.91	3.79	16.0	127.8	NO		
23	47	13C8-PFOS	507.0 > 79.9	2.69e3	2.53e3	1.039	4.75	4.94	13.3	12.8	102.4	NO		
24	48	13C2-PFDA	515.1 > 46...	1.35e4	1.04e4	1.144	5.04	5.23	16.2	14.2	113.4	NO		
25	49	13C2-8:2 FTS	529.1 > 50...	2.02e3	1.17e4	0.215	5.01	5.21	2.17	10.1	80.6	NO		
26	50	d3-N-MeFOSAA	573.3 > 419	4.52e3	1.25e4	0.351	5.19	5.38	4.52	12.9	102.9	NO		
27	51	d5-N-EtFOSAA	589.3 > 419	5.07e3	1.25e4	0.388	5.35	5.53	5.08	13.1	104.6	NO		
28	52	13C2-PFUdA	565 > 519.8	1.22e4	1.25e4	1.019	5.37	5.56	12.2	12.0	96.0	NO		
29	53	13C2-PFDoA	615.0 > 56...	1.30e4	1.04e4	1.057	5.65	5.83	15.6	14.8	118.1	NO		
30	54	d3-N-MeFOSA	515.2 > 16...	1.83e4	1.25e4	0.107	5.87	5.88	18.3	171	114.2	NO		
31	55	13C2-PFTeDA	714.8 > 66...	1.34e4	1.25e4	0.964	6.11	6.29	13.4	13.9	111.0	NO		
32	56	d5-N-ETFOSA	531.1 > 16...	2.25e4	1.25e4	0.157	6.25	6.25	22.6	144	96.1	NO		

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Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-62.qld

Last Altered: Saturday, June 09, 2018 11:09:13 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:09:32 Pacific Daylight Time

Name: 180607M2_62, Date: 08-Jun-2018, Time: 00:50:16, ID: ST180607M2-5 PFC CS3 18E2907, Description: PFC CS3 18E2907

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
33	57	13C2-PFHxDA	815 > 769.7	8.00e3	1.25e4	1.562	6.45	6.60	8.01	5.13	102.5	NO		
34	58	d7-N-MeFOSE	623.1 > 58.9	2.11e4	1.25e4	0.147	6.37	6.35	21.1	143	95.4	NO		
35	59	d9-N-EtFOSE	639.2 > 58.8	1.98e4	1.25e4	0.149	6.52	6.50	19.8	133	88.8	NO		
36	60	13C4-PFBA	217. > 171.8	9.34e3	9.34e3	1.000	1.33	1.49	12.5	12.5	100.0	NO		
37	61	13C5-PFHxA	318 > 272.9	1.17e4	1.17e4	1.000	3.09	3.26	12.5	12.5	100.0	NO		
38	62	13C3-PFHxS	401.9 > 79.9	2.33e3	2.33e3	1.000	3.87	4.04	12.5	12.5	100.0	NO		
39	63	13C8-PFOA	421.3 > 376	1.09e4	1.09e4	1.000	4.24	4.42	12.5	12.5	100.0	NO		
40	64	13C9-PFNA	472.2 > 42...	1.20e4	1.20e4	1.000	4.67	4.86	12.5	12.5	100.0	NO		
41	65	13C4-PFOS	503 > 79.9	2.53e3	2.53e3	1.000	4.75	4.93	12.5	12.5	100.0	NO		
42	66	13C6-PFDA	519.1 > 47...	1.04e4	1.04e4	1.000	5.04	5.23	12.5	12.5	100.0	NO		
43	67	13C7-PFUdA	570.1 > 52...	1.25e4	1.25e4	1.000	5.37	5.56	12.5	12.5	100.0	NO		

GM 6/9/2018

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Dataset: Untitled

Last Altered: Saturday, June 09, 2018 11:27:35 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:28:46 Pacific Daylight Time

Method: Z:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060718.mdb 09 Jun 2018 10:17:35
Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	180607M2_3	ST180607M2-2 PFC CS0 18E2904	07-Jun-18	13:53:21
2	2	180607M2_4	IPA	07-Jun-18	14:03:47
3	3	180607M2_5	B8F0025-BS1 OPR 0.25	07-Jun-18	14:14:18
4	4	180607M2_6	B8F0025-BLK1 Method Blank 0.25	07-Jun-18	14:24:40
5	5	180607M2_7	1800796-11 RCCB 1 0.26894	07-Jun-18	14:35:10
6	6	180607M2_8	1801123-01 MW-101 0.11977	07-Jun-18	14:45:36
7	7	180607M2_9	1801123-02 MW-102 0.11688	07-Jun-18	14:56:06
8	8	180607M2_10	1801123-03 MW-103 0.11631	07-Jun-18	15:06:30
9	9	180607M2_11	1801123-04 MW-104 0.11472	07-Jun-18	15:17:00
10	10	180607M2_12	1801124-01 140 Harvey Rd 0.11503	07-Jun-18	15:27:24
11	11	180607M2_13	1801039-03 A1-MW-14-SA1 0.11194	07-Jun-18	15:37:57
12	12	180607M2_14	1801039-04 A1-MW-15-SA1 0.11248	07-Jun-18	15:48:25
13	13	180607M2_15	1800862-05 REEPDW456FRB 0.1202	07-Jun-18	15:58:50
14	14	180607M2_16	1800862-08 REEPDW447FRB 0.11683	07-Jun-18	16:09:21
15	15	180607M2_17	1800862-15 REEPDW460FRB 0.11944	07-Jun-18	16:19:45
16	16	180607M2_18	B8E0244-BS1 OPR 0.125	07-Jun-18	17:09:15
17	17	180607M2_19	cs2 qc	07-Jun-18	17:20:17
18	18	180607M2_20	B8E0244-BS1 OPR 0.125	07-Jun-18	17:30:45
19	19	180607M2_21	B8E0244-BLK1 Method Blank 0.125	07-Jun-18	17:41:14
20	20	180607M2_22	B8E0244-MS1 Matrix Spike 0.11028	07-Jun-18	17:51:44
21	21	180607M2_23	B8E0244-MSD1 Matrix Spike Dup 0.11...	07-Jun-18	18:02:08
22	22	180607M2_24	B8E0244-MS2 Matrix Spike 0.11122	07-Jun-18	18:12:39
23	23	180607M2_25	B8E0244-MSD2 Matrix Spike Dup 0.11...	07-Jun-18	18:23:09
24	24	180607M2_26	1801037-01 A1-MW-18-SA1 0.11265	07-Jun-18	18:33:34
25	25	180607M2_27	1801037-02 16-MW-08-SA1 0.11493	07-Jun-18	18:44:05
26	26	180607M2_28	ST180607M2-3 PFC CS3 18E2907	07-Jun-18	18:54:30
27	27	180607M2_29	IPA	07-Jun-18	19:05:00
28	28	180607M2_30	180607_ISSUP QC	07-Jun-18	19:15:31
29	29	180607M2_31	180607_ISSUPQCDUP	07-Jun-18	19:25:55
30	30	180607M2_32	B8F0027-BS1 OPR 0.125	07-Jun-18	19:36:25
31	31	180607M2_33	B8F0027-BSD1 LCSD 0.125	07-Jun-18	19:46:50

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Last Altered: Saturday, June 09, 2018 11:27:35 Pacific Daylight Time
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Compound name: PFBA

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32	32 180607M2_34	B8F0027-BLK1 Method Blank 0.125	07-Jun-18	19:57:21
33	33 180607M2_35	1801127-01 MCLP00518 0.11531	07-Jun-18	20:07:51
34	34 180607M2_36	1801127-02 MCLPCG436 0.11947	07-Jun-18	20:18:15
35	35 180607M2_37	1801127-03 MCLPCG515 0.11557	07-Jun-18	20:28:46
36	36 180607M2_38	1801127-04 MCLP00516 0.11034	07-Jun-18	20:39:10
37	37 180607M2_39	1801127-05 MCLP00517 0.1183	07-Jun-18	20:49:41
38	38 180607M2_40	1801037-03 A1-MW-19-SA1 0.11827	07-Jun-18	21:00:06
39	39 180607M2_41	1801037-04 A1-MW-37-SA1 0.11915	07-Jun-18	21:10:36
40	40 180607M2_42	1801037-05 A1-MW-37-SA1D 0.11595	07-Jun-18	21:21:01
41	41 180607M2_43	1801037-06 16-H5-03-SA1 0.12456	07-Jun-18	21:31:31
42	42 180607M2_44	1801037-07 16-MW-09-SA1 0.1148	07-Jun-18	21:41:53
43	43 180607M2_45	ST180607M2-4 PFC CS3 18E2907	07-Jun-18	21:52:23
44	44 180607M2_46	IPA	07-Jun-18	22:02:49
45	45 180607M2_47	1801037-08 16-MW-06-5A1 0.11143	07-Jun-18	22:13:19
46	46 180607M2_48	1801037-09 FRB-20180523 0.11719	07-Jun-18	22:23:44
47	47 180607M2_49	1801054-01 A1-MW-42-SA1 0.11279	07-Jun-18	22:34:14
48	48 180607M2_50	1801054-02 A1-MW-54-SA1 0.11211	07-Jun-18	22:44:39
49	49 180607M2_51	1801054-03 A1-MW-53-SA1 0.1139	07-Jun-18	22:55:09
50	50 180607M2_52	1801054-04 A1-P2-19-SA1 0.11736	07-Jun-18	23:05:34
51	51 180607M2_53	1801054-05 A1-MW-52-SA1 0.11509	07-Jun-18	23:16:04
52	52 180607M2_54	1801054-06 A1-MW-01-SA1 0.1102	07-Jun-18	23:26:35
53	53 180607M2_55	1801054-07 A1-MW-01-SA1D 0.11715	07-Jun-18	23:37:00
54	54 180607M2_56	1801054-08 A1-MW-31-SA1 0.11276	07-Jun-18	23:47:30
55	55 180607M2_57	1801054-09 FRB-20180525 0.11663	07-Jun-18	23:57:55
56	56 180607M2_58	B8E0139-BS1 OPR 0.125	08-Jun-18	00:08:26
57	57 180607M2_59	B8E0139-BSD1 LCSD 0.125	08-Jun-18	00:18:51
58	58 180607M2_60	B8E0139-BLK1 Method Blank 0.125	08-Jun-18	00:29:21
59	59 180607M2_61	1800952-01 REEPDW485 0.12371	08-Jun-18	00:39:45
60	60 180607M2_62	ST180607M2-5 PFC CS3 18E2907	08-Jun-18	00:50:16
61	61 180607M2_63	ST180607M2-6 PFC CS0 18E2904	08-Jun-18	01:00:40
62	62 180607M2_64	IPA	08-Jun-18	01:11:11
63	63 180607M2_65	1800952-02 REEPDW491 0.11903	08-Jun-18	01:21:36
64	64 180607M2_66	1800952-03 REEPDW493 0.12371	08-Jun-18	01:32:07
65	65 180607M2_67	1800952-04 REEPDW494 0.12591	08-Jun-18	01:42:32

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Last Altered: Saturday, June 09, 2018 11:27:35 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:28:46 Pacific Daylight Time

Compound name: PFBA

	# Name	ID	Acq.Date	Acq.Time
66	66 180607M2_68	1800952-05 REEPDW486 0.12668	08-Jun-18	01:52:54
67	67 180607M2_69	1800952-06 REEPDW487 0.12126	08-Jun-18	02:03:24
68	68 180607M2_70	1800952-07 REEPDW489 0.12109	08-Jun-18	02:13:50
69	69 180607M2_71	1800952-08 REEPDW492 0.12089	08-Jun-18	02:24:20
70	70 180607M2_72	1800952-09 REEPDW495 0.11841	08-Jun-18	02:34:45
71	71 180607M2_73	1800952-10 REEPDW496 0.12607	08-Jun-18	02:45:07
72	72 180607M2_74	1800952-11 REEPDW497 0.11275	08-Jun-18	02:55:37
73	73 180607M2_75	ST180607M2-7 PFC CS3 18E2907	08-Jun-18	03:06:07
74	74 180607M2_76	IPA	08-Jun-18	03:16:32
75	75 180607M2_77	1800952-12 REEPDW498 0.12162	08-Jun-18	03:27:02
76	76 180607M2_78	1800952-13 REEPDW488 0.125	08-Jun-18	03:37:27
77	77 180607M2_79	1800952-14 REEPDW490 0.12133	08-Jun-18	03:47:57
78	78 180607M2_80	1800952-15 REEPDW1000 0.11915	08-Jun-18	03:58:27
79	79 180607M2_81	1800952-16 REEPDW548 0.11758	08-Jun-18	04:08:52
80	80 180607M2_82	1800952-17 REEPDW549 0.1221	08-Jun-18	04:19:22
81	81 180607M2_83	B8E0168-BS1 OPR 0.125	08-Jun-18	04:29:47
82	82 180607M2_84	B8E0168-MS1 Matrix Spike 0.11902	08-Jun-18	04:40:17
83	83 180607M2_85	B8E0168-MSD1 Matrix Spike Dup 0.11...	08-Jun-18	04:50:48
84	84 180607M2_86	B8E0168-BLK1 Method Blank 0.125	08-Jun-18	05:01:12
85	85 180607M2_87	1800978-01 REEPDW1035 0.11488	08-Jun-18	05:11:43
86	86 180607M2_88	1800978-02 REEPDW1036 0.11708	08-Jun-18	05:22:08
87	87 180607M2_89	1800978-03 REEPDW1038 0.11726	08-Jun-18	05:32:38
88	88 180607M2_90	1800978-04 REEPDW1039 0.11839	08-Jun-18	05:43:03
89	89 180607M2_91	ST180607M2-8 PFC CS3 18E2907	08-Jun-18	05:53:25
90	90 180607M2_92	IPA	08-Jun-18	06:03:55
91	91 180607M2_93	1800978-05 REEPDW1040 0.11588	08-Jun-18	06:14:20
92	92 180607M2_94	1800978-06 REEPDW553 0.11895	08-Jun-18	06:24:50
93	93 180607M2_95	1800978-07 REEPDW1051 0.11897	08-Jun-18	06:35:15
94	94 180607M2_96	1800978-08 REEPDW1041 0.11682	08-Jun-18	06:45:46
95	95 180607M2_97	1800978-09 REEPDW1042 0.11863	08-Jun-18	06:56:11
96	96 180607M2_98	1800978-10 REEPDW1044 0.12068	08-Jun-18	07:06:41
97	97 180607M2_99	1800978-11 REEPDW1045 0.1175	08-Jun-18	07:17:06
98	98 180607M2_100	1800978-12 REEPDW1046 0.12107	08-Jun-18	07:27:37
99	99 180607M2_101	1800978-13 REEPDW1047 0.11609	08-Jun-18	07:38:01

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Last Altered: Saturday, June 09, 2018 11:27:35 Pacific Daylight Time
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Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
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102	1...	180607M2_104	B8E0138-BS1 OPR 0.125	08-Jun-18	08:09:26
103	1...	180607M2_105	B8E0138-BSD1 LCSD 0.125	08-Jun-18	08:19:56
104	1...	180607M2_106	B8E0138-BLK1 Method Blank 0.125	08-Jun-18	08:30:21
105	1...	180607M2_107	180608_QCISSUP	08-Jun-18	08:49:17
106	1...	180607M2_108	1800953-01 REEPDW485FRB 0.11479	08-Jun-18	08:59:43
107	1...	180607M2_109	1800953-02 REEPDW491FRB 0.12321	08-Jun-18	09:10:08
108	1...	180607M2_110	1800953-03 REEPDW493FRB 0.12134	08-Jun-18	09:20:38
109	1...	180607M2_111	1800953-04 REEPDW494FRB 0.12123	08-Jun-18	09:31:02
110	1...	180607M2_112	1800953-05 REEPDW486FRB 0.11858	08-Jun-18	09:41:33
111	1...	180607M2_113	1800953-06 REEPDW487FRB 0.11947	08-Jun-18	09:51:59
112	1...	180607M2_114	1800953-07 REEPDW489FRB 0.12132	08-Jun-18	10:02:29
113	1...	180607M2_115	1800953-08 REEPDW492FRB 0.11926	08-Jun-18	10:12:54
114	1...	180607M2_116	1800953-09 REEPDW495FRB 0.1162	08-Jun-18	10:23:24
115	1...	180607M2_117	1800953-10 REEPDW496FRB 0.11087	08-Jun-18	10:33:49
116	1...	180607M2_118	1800953-11 REEPDW497FRB 0.11881	08-Jun-18	10:44:19
117	1...	180607M2_119	1800953-12 REEPDW498FRB 0.11073	08-Jun-18	10:54:45
118	1...	180607M2_120	1800953-13 REEPDW488FRB 0.12363	08-Jun-18	11:05:15
119	1...	180607M2_121	1800953-14 REEPDW490FRB 0.12363	08-Jun-18	11:15:39
120	1...	180607M2_122	1800953-15 REEPDW1000FRB 0.11202	08-Jun-18	11:26:10
121	1...	180607M2_123	B8E0172-BS1 OPR 0.25	08-Jun-18	11:36:40
122	1...	180607M2_124	B8E0172-BLK1 Method Blank 0.25	08-Jun-18	11:47:05
123	1...	180607M2_125	1800980-01 SW-2 0.24555	08-Jun-18	11:57:35
124	1...	180607M2_126	1800980-02 SW-3 0.24142	08-Jun-18	12:08:00
125	1...	180607M2_127	IPA	08-Jun-18	12:18:30
126	1...	180607M2_128	ST180607M2-10 PFC CS3 18E2907	08-Jun-18	12:28:56

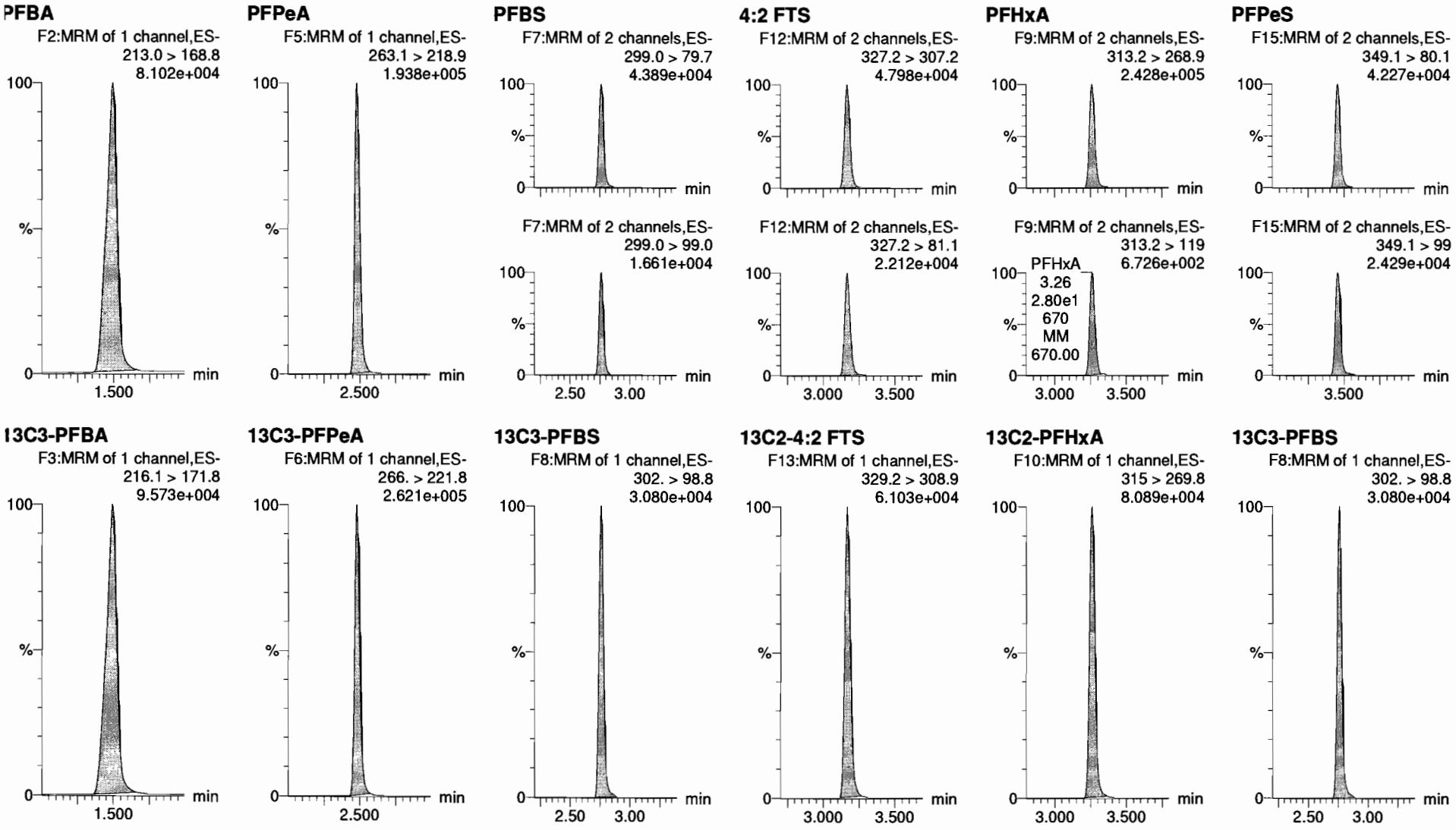
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Last Altered: Saturday, June 09, 2018 11:09:13 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:09:32 Pacific Daylight Time

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Calibration: Z:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

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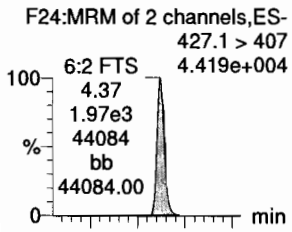
Vista Analytical Laboratory

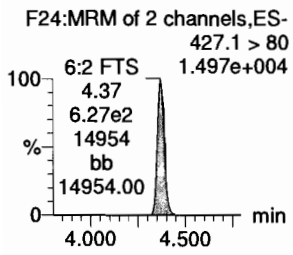
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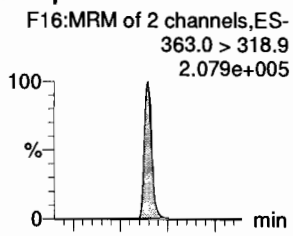
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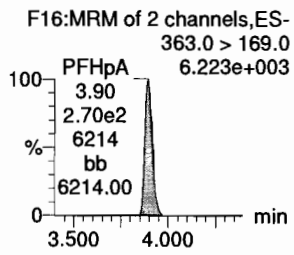
6:2 FTS



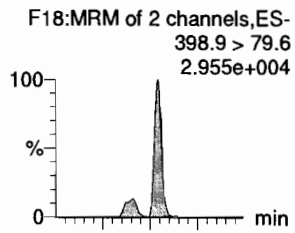


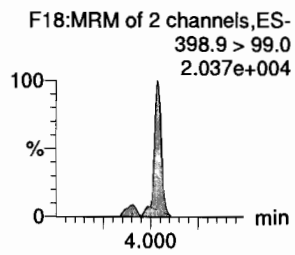
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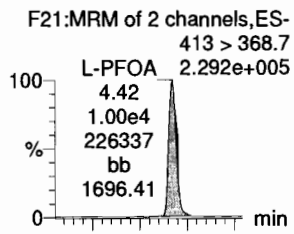


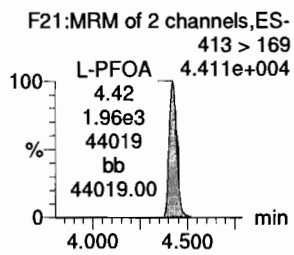
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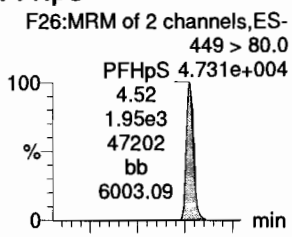


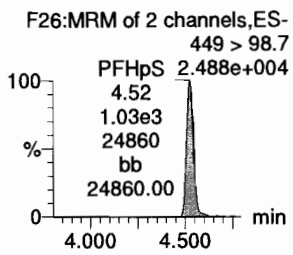
L-PFOA



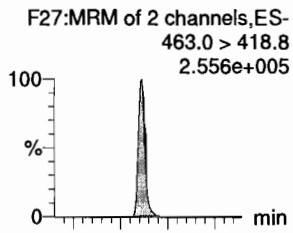


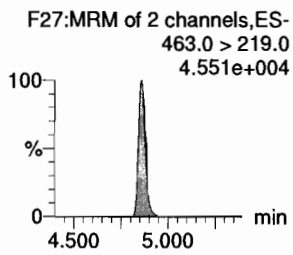
PFHpS



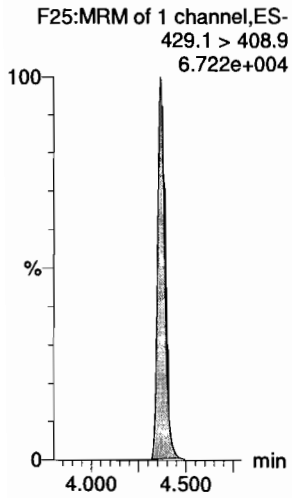


PFNA

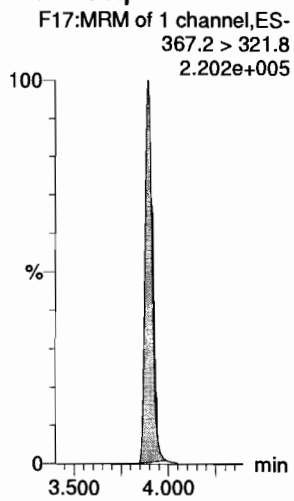




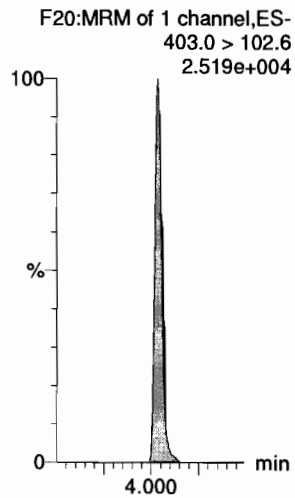
13C2-6:2 FTS



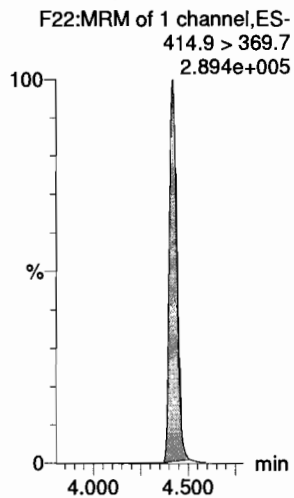
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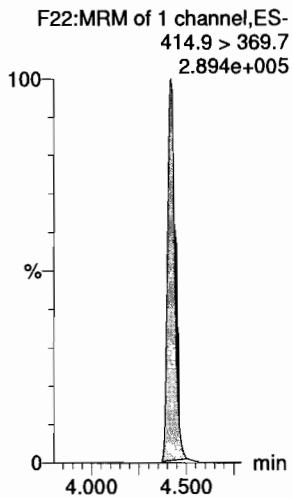
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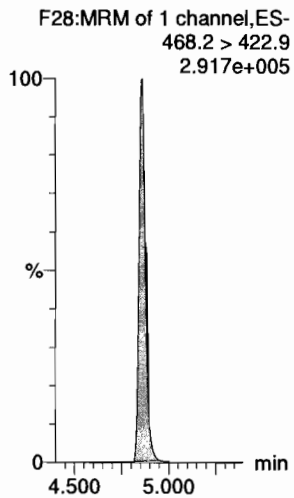
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13C2-PFOA



13C5-PFNA



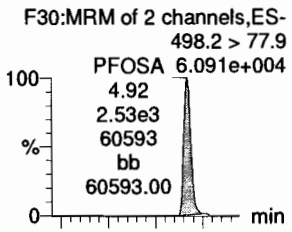
GM 6/9/2018

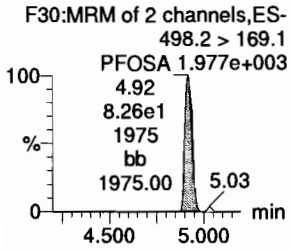
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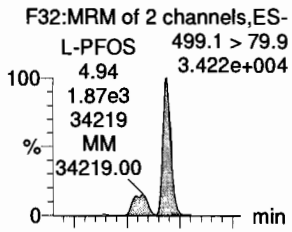
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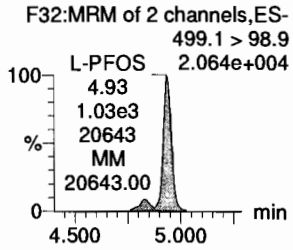
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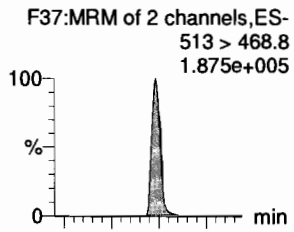


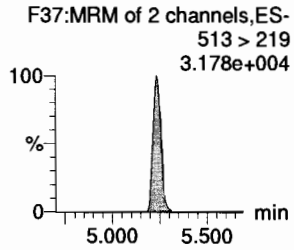
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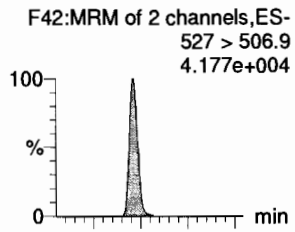


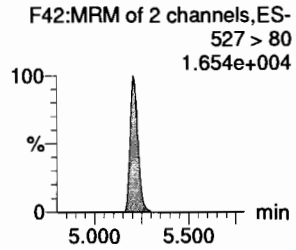
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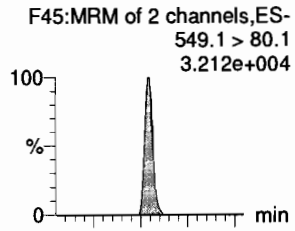


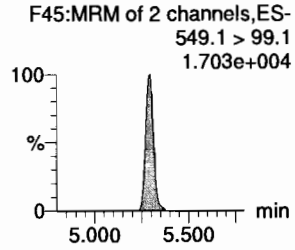
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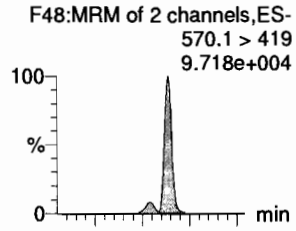


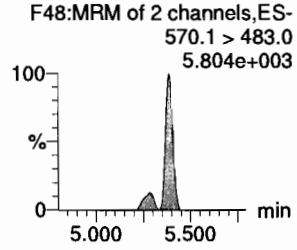
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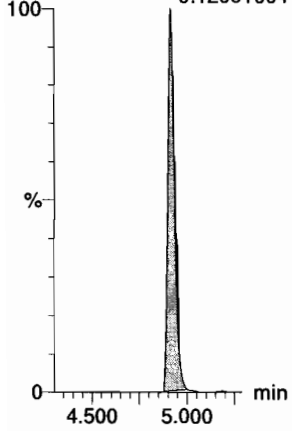


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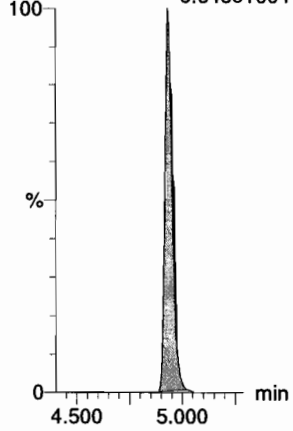




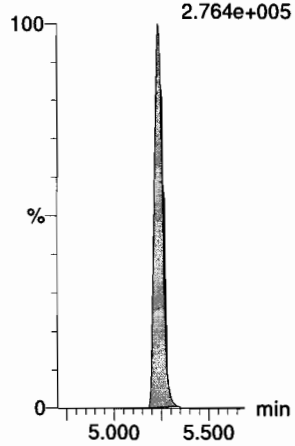
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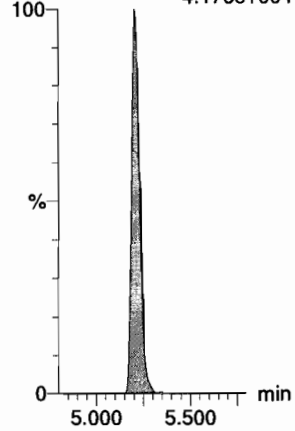
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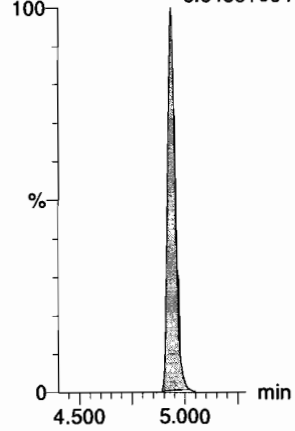
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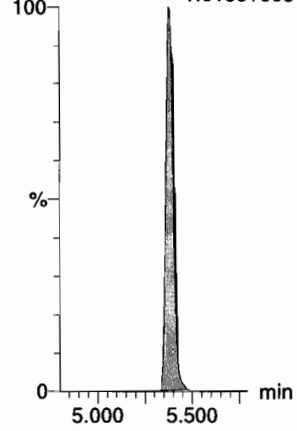
13C2-8:2 FTS



13C8-PFOS



d3-N-MeFOSAA



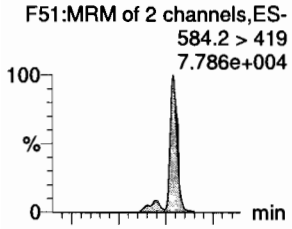
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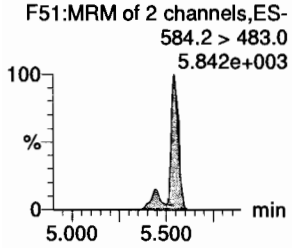
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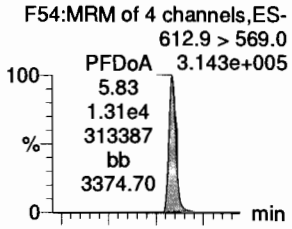
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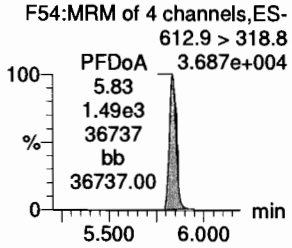
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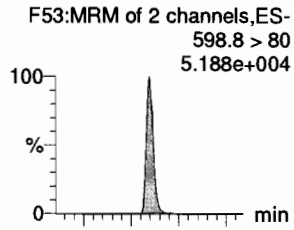


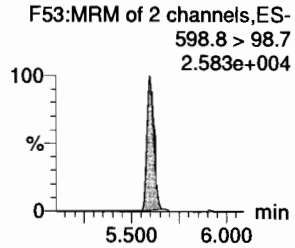
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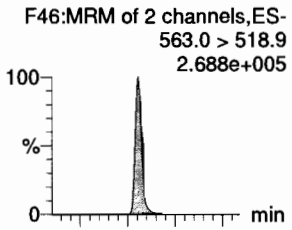


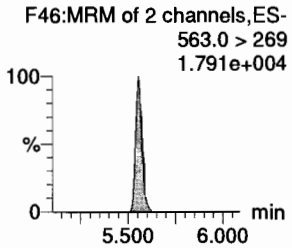
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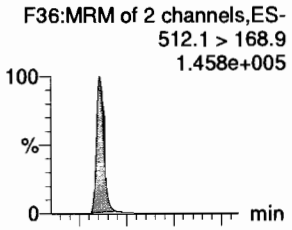


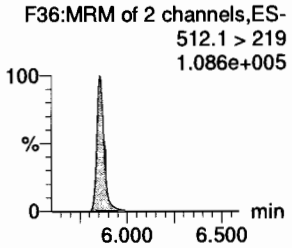
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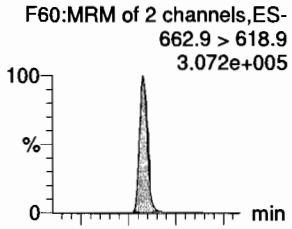


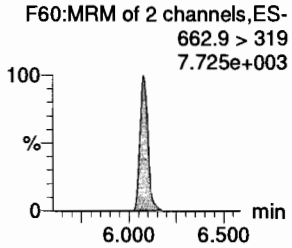
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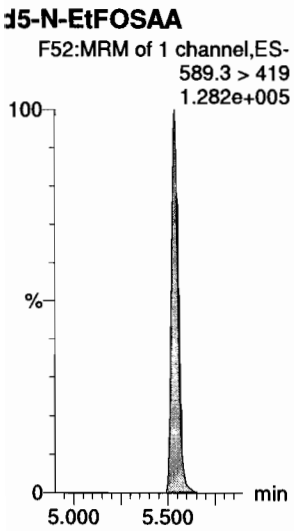


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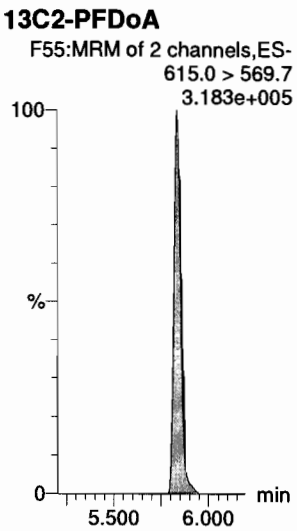




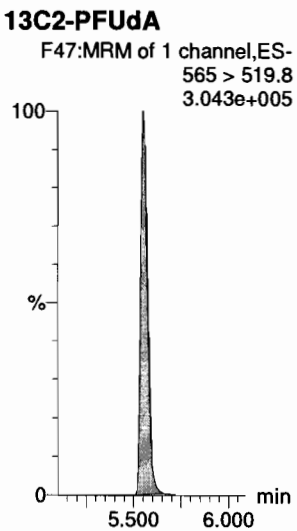
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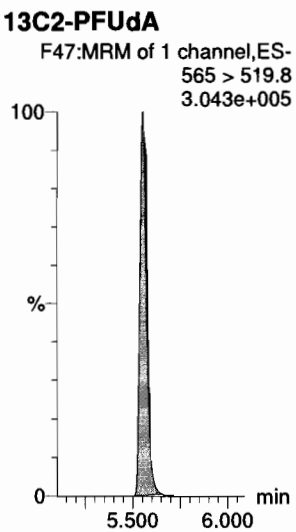
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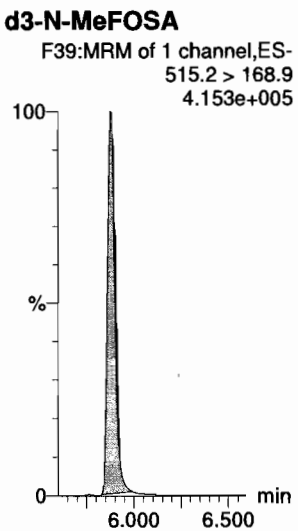
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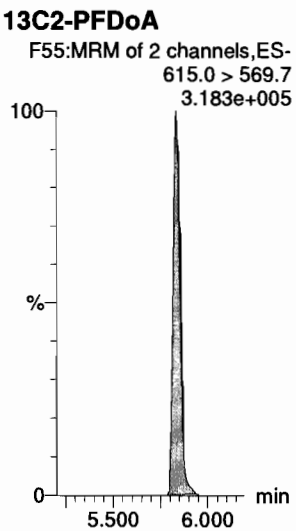
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d3-N-MeFOSA



13C2-PFDoA



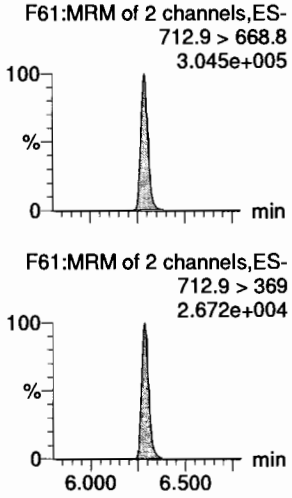
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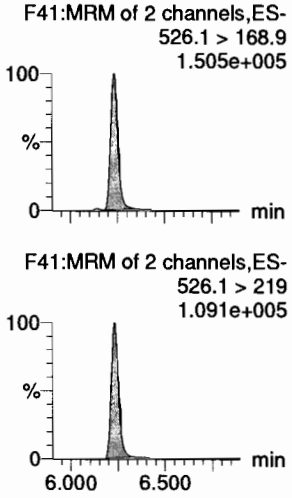
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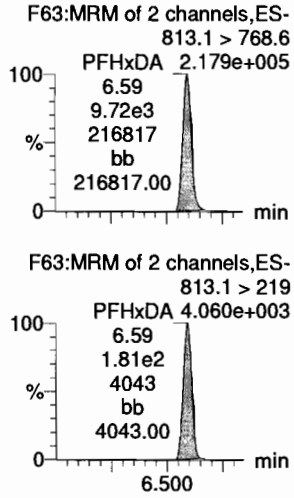
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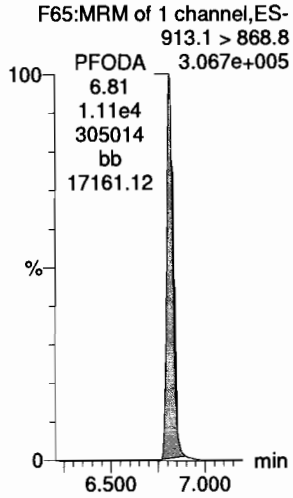
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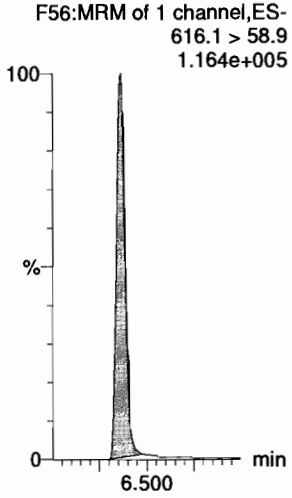
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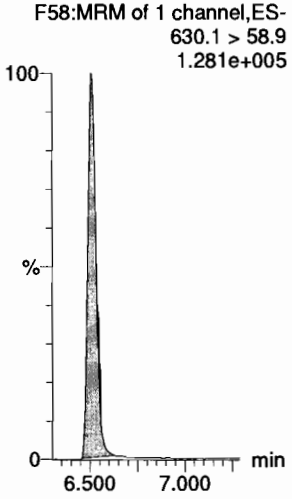
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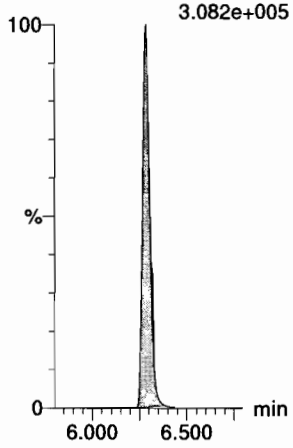
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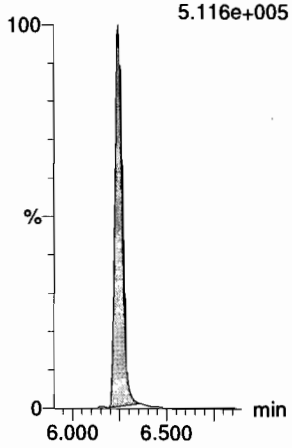
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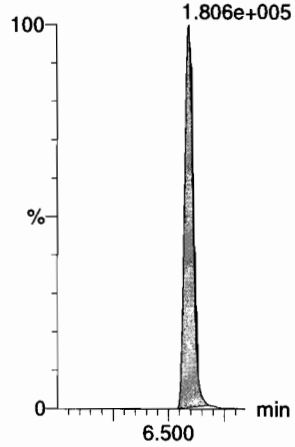
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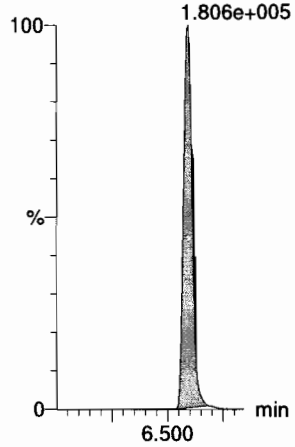
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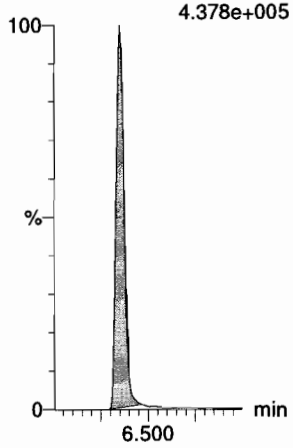
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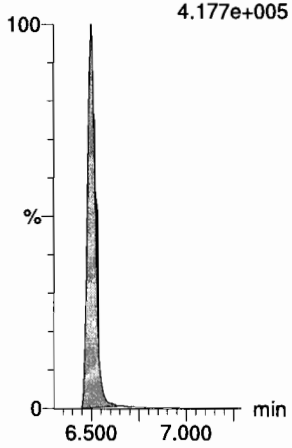
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d9-N-EtFOSE



GM 6/9/2018

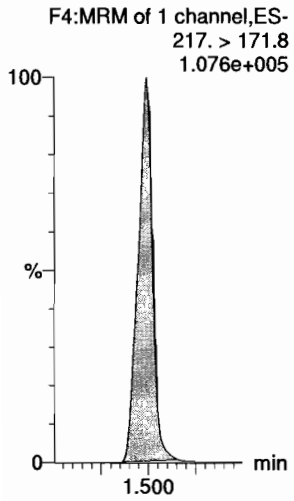
Vista Analytical Laboratory

Dataset: Z:\Projects\PFAS.PRO\Results\180607M2\180607M2-62.qld

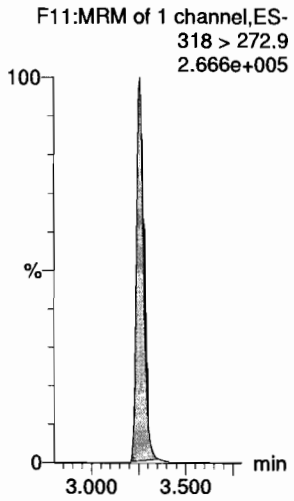
Last Altered: Saturday, June 09, 2018 11:09:13 Pacific Daylight Time
Printed: Saturday, June 09, 2018 11:09:32 Pacific Daylight Time

Name: 180607M2_62, Date: 08-Jun-2018, Time: 00:50:16, ID: ST180607M2-5 PFC CS3 18E2907, Description: PFC CS3 18E2907

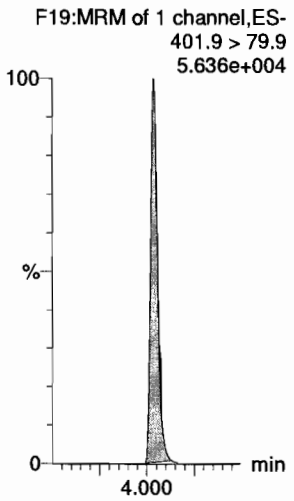
13C4-PFBA



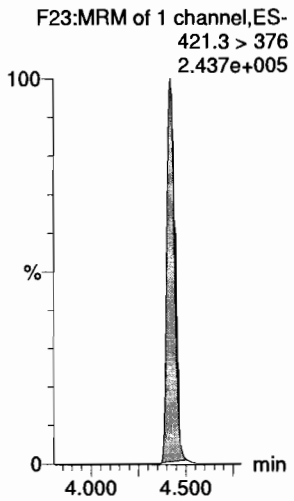
13C5-PFHxA



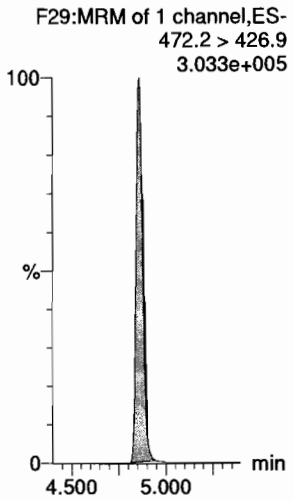
13C3-PFHxS



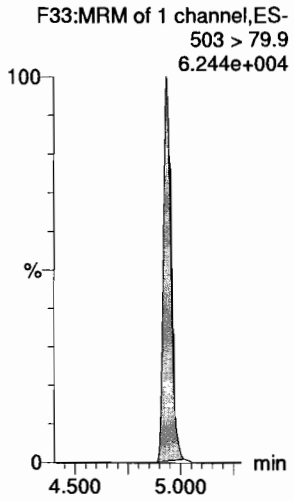
13C8-PFOA



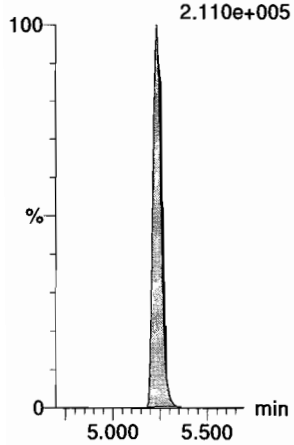
13C9-PFNA



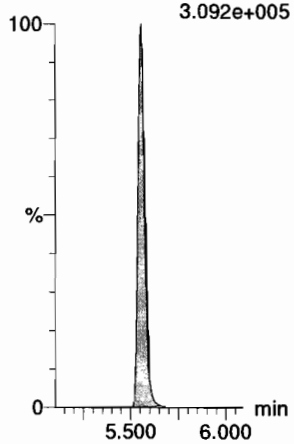
13C4-PFOS



13C6-PFDA



13C7-PFUdA



GM 6/9/2018

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

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
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High PTs
4:2
6:2
8:2
100

Low PTs
– NO Low PTs dropped
AR 6/5/18

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060418.mdb 05 Jun 2018 10:44:45
Calibration: 05 Jun 2018 10:50:38

C18_VAL-PFAS_Q4_06-04-18

JAM 6/5/18

Compound name: PFBA
Correlation coefficient: r = 0.999948, r^2 = 0.999896
Calibration curve: 1.11083 * x + 0.00822384
Response type: Internal Std (Ref 36), 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	180604M2_2	Standard	0.250	1.35	200.218	9005.189	0.278	0.2	-2.9	NO	1.000	NO	MM
2	2	180604M2_3	Standard	0.500	1.34	397.783	9082.563	0.547	0.5	-2.9	NO	1.000	NO	MM
3	3	180604M2_4	Standard	1.000	1.35	904.446	9855.626	1.147	1.0	2.5	NO	1.000	NO	bb
4	4	180604M2_5	Standard	2.000	1.34	1563.720	8997.036	2.173	1.9	-2.6	NO	1.000	NO	bb
5	5	180604M2_6	Standard	5.000	1.35	4286.670	9430.916	5.682	5.1	2.1	NO	1.000	NO	bb
6	6	180604M2_7	Standard	10.000	1.34	9968.157	10868.822	11.464	10.3	3.1	NO	1.000	NO	bb
7	7	180604M2_8	Standard	50.000	1.35	43785.090	9593.588	57.050	51.4	2.7	NO	1.000	NO	bb
8	8	180604M2_9	Standard	100.000	1.34	86013.398	9523.508	112.896	101.6	1.6	NO	1.000	NO	bb
9	9	180604M2_10	Standard	250.000	1.35	205135.797	9255.525	277.045	249.4	-0.2	NO	1.000	NO	bb
10	10	180604M2_11	Standard	500.000	1.34	387010.906	8757.902	552.374	497.3	-0.5	NO	1.000	NO	bb

Compound name: PFPeA
Correlation coefficient: r = 0.999955, r^2 = 0.999909
Calibration curve: 1.02545 * x + 0.0205051
Response type: Internal Std (Ref 37), 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	180604M2_2	Standard	0.250	2.31	281.378	12347.332	0.285	0.3	3.1	NO	1.000	NO	bb
2	2	180604M2_3	Standard	0.500	2.31	541.365	12476.627	0.542	0.5	1.8	NO	1.000	NO	bb
3	3	180604M2_4	Standard	1.000	2.31	1146.746	13544.467	1.058	1.0	1.2	NO	1.000	NO	bb
4	4	180604M2_5	Standard	2.000	2.31	2236.822	14007.501	1.996	1.9	-3.7	NO	1.000	NO	bb
5	5	180604M2_6	Standard	5.000	2.31	5521.838	13406.085	5.149	5.0	0.0	NO	1.000	NO	bb
6	6	180604M2_7	Standard	10.000	2.31	12246.265	15122.394	10.123	9.9	-1.5	NO	1.000	NO	bb
7	7	180604M2_8	Standard	50.000	2.31	54015.914	13022.961	51.847	50.5	1.1	NO	1.000	NO	bb
8	8	180604M2_9	Standard	100.000	2.31	100253.805	12487.914	100.351	97.8	-2.2	NO	1.000	NO	bb
9	9	180604M2_10	Standard	250.000	2.31	241271.422	11821.135	255.127	248.8	-0.5	NO	1.000	NO	bb
10	10	180604M2_11	Standard	500.000	2.31	436875.281	10586.028	515.863	503.0	0.6	NO	1.000	NO	bb

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
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Compound name: PFBS
Coefficient of Determination: R^2 = 0.999853
Calibration curve: 0.000168277 * x^2 + 1.98828 * x + -0.00386959
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 180604M2_2	Standard	0.250	2.60	54.703	1498.706	0.456	0.2	-7.4	NO	1.000	NO	MM
2	2 180604M2_3	Standard	0.500	2.60	122.335	1529.458	1.000	0.5	1.0	NO	1.000	NO	MM
3	3 180604M2_4	Standard	1.000	2.60	270.237	1663.006	2.031	1.0	2.3	NO	1.000	NO	bb
4	4 180604M2_5	Standard	2.000	2.60	541.800	1756.558	3.856	1.9	-3.0	NO	1.000	NO	bb
5	5 180604M2_6	Standard	5.000	2.60	1353.673	1672.393	10.118	5.1	1.8	NO	1.000	NO	MM
6	6 180604M2_7	Standard	10.000	2.60	3063.067	1855.024	20.640	10.4	3.7	NO	1.000	NO	bb
7	7 180604M2_8	Standard	50.000	2.60	13257.850	1634.481	101.392	50.8	1.6	NO	1.000	NO	bb
8	8 180604M2_9	Standard	100.000	2.60	24840.961	1526.828	203.371	101.4	1.4	NO	1.000	NO	bb
9	9 180604M2_10	Standard	250.000	2.60	57154.797	1432.947	498.577	245.7	-1.7	NO	1.000	NO	bb
10	10 180604M2_11	Standard	500.000	2.60	100354.070	1206.225	1039.960	501.7	0.3	NO	1.000	NO	bb

Compound name: 4:2 FTS
Coefficient of Determination: R^2 = 0.998838
Calibration curve: -0.00374524 * x^2 + 1.11582 * x + -0.011422
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 180604M2_2	Standard	0.250	3.01	71.012	3169.168	0.280	0.3	4.6	NO	0.999	NO	bb
2	2 180604M2_3	Standard	0.500	3.01	132.382	3422.257	0.484	0.4	-11.2	NO	0.999	NO	bb
3	3 180604M2_4	Standard	1.000	3.01	404.889	3927.586	1.289	1.2	17.0	NO	0.999	NO	bb
4	4 180604M2_5	Standard	2.000	3.01	660.839	4054.097	2.038	1.8	-7.6	NO	0.999	NO	bb
5	5 180604M2_6	Standard	5.000	3.01	1446.402	3586.589	5.041	4.6	-8.0	NO	0.999	NO	bb
6	6 180604M2_7	Standard	10.000	3.01	3845.656	4233.463	11.355	10.6	5.6	NO	0.999	NO	bb
7	7 180604M2_8	Standard	50.000	3.00	15015.386	4058.697	46.244	49.8	-0.5	NO	0.999	NO	bb
8	8 180604M2_9	Standard	100.000	3.01	26308.025	4433.810	74.169	100.1	0.1	NO	0.999	NO	bb
9	9 180604M2_10	Standard	250.000	3.01	64149.801	5370.476	149.311			NO	0.999	NO	bbXI
10	10 180604M2_11	Standard	500.000	3.01	103178.016	6656.033	193.768			NO	0.999	NO	bbXI

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Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

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Compound name: PFHxA
Coefficient of Determination: R^2 = 0.999553
Calibration curve: -0.000313716 * x^2 + 1.59614 * x + 0.0424276
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	180604M2_2	Standard	0.250	3.09	320.340	4246.335	0.377	0.2	-16.1	NO	1.000	NO	bb
2	2	180604M2_3	Standard	0.500	3.09	760.906	4142.994	0.918	0.5	9.8	NO	1.000	NO	bb
3	3	180604M2_4	Standard	1.000	3.09	1574.964	4630.566	1.701	1.0	3.9	NO	1.000	NO	bb
4	4	180604M2_5	Standard	2.000	3.09	3214.021	4710.073	3.412	2.1	5.6	NO	1.000	NO	bb
5	5	180604M2_6	Standard	5.000	3.09	7264.569	4612.718	7.874	4.9	-1.8	NO	1.000	NO	bb
6	6	180604M2_7	Standard	10.000	3.09	16854.840	4951.568	17.020	10.7	6.6	NO	1.000	NO	bb
7	7	180604M2_8	Standard	50.000	3.09	73282.320	4486.201	81.675	51.7	3.3	NO	1.000	NO	bb
8	8	180604M2_9	Standard	100.000	3.09	130754.266	4110.789	159.038	101.6	1.6	NO	1.000	NO	bb
9	9	180604M2_10	Standard	250.000	3.09	312826.594	4245.043	368.461	242.4	-3.1	NO	1.000	NO	bb
10	10	180604M2_11	Standard	500.000	3.09	577387.438	3985.266	724.403	503.7	0.7	NO	1.000	NO	bb

Compound name: PFPeS
Correlation coefficient: r = 0.999819, r^2 = 0.999638
Calibration curve: 1.79807 * x + 0.0789454
Response type: Internal Std (Ref 38), 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	180604M2_2	Standard	0.250	3.29	73.657	1498.706	0.614	0.3	19.1	NO	1.000	NO	bb
2	2	180604M2_3	Standard	0.500	3.29	98.936	1529.458	0.809	0.4	-18.8	NO	1.000	NO	bb
3	3	180604M2_4	Standard	1.000	3.29	267.720	1663.006	2.012	1.1	7.5	NO	1.000	NO	bb
4	4	180604M2_5	Standard	2.000	3.29	473.774	1756.558	3.371	1.8	-8.4	NO	1.000	NO	bb
5	5	180604M2_6	Standard	5.000	3.29	1210.386	1672.393	9.047	5.0	-0.3	NO	1.000	NO	bb
6	6	180604M2_7	Standard	10.000	3.29	2736.896	1855.024	18.442	10.2	2.1	NO	1.000	NO	bb
7	7	180604M2_8	Standard	50.000	3.29	11685.241	1634.481	89.365	49.7	-0.7	NO	1.000	NO	bb
8	8	180604M2_9	Standard	100.000	3.29	22186.217	1526.828	181.637	101.0	1.0	NO	1.000	NO	bb
9	9	180604M2_10	Standard	250.000	3.30	50125.336	1432.947	437.257	243.1	-2.7	NO	1.000	NO	bb
10	10	180604M2_11	Standard	500.000	3.29	87833.469	1206.225	910.210	506.2	1.2	NO	1.000	NO	bb

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Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

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Compound name: PFHpA
Correlation coefficient: r = 0.999421, r^2 = 0.998843
Calibration curve: 1.16069 * x + 0.0713148
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	180604M2_2	Standard	0.250	3.71	332.437	12501.413	0.332	0.2	-10.0	NO	0.999	NO	bb
2	2	180604M2_3	Standard	0.500	3.71	647.045	11729.507	0.690	0.5	6.5	NO	0.999	NO	bb
3	3	180604M2_4	Standard	1.000	3.70	1322.232	13016.023	1.270	1.0	3.3	NO	0.999	NO	bb
4	4	180604M2_5	Standard	2.000	3.71	2560.595	13914.408	2.300	1.9	-4.0	NO	0.999	NO	bb
5	5	180604M2_6	Standard	5.000	3.70	6473.215	13247.432	6.108	5.2	4.0	NO	0.999	NO	bb
6	6	180604M2_7	Standard	10.000	3.70	13712.969	14486.901	11.832	10.1	1.3	NO	0.999	NO	MM
7	7	180604M2_8	Standard	50.000	3.70	60131.785	12638.182	59.474	51.2	2.4	NO	0.999	NO	bb
8	8	180604M2_9	Standard	100.000	3.70	116906.781	12671.674	115.323	99.3	-0.7	NO	0.999	NO	bb
9	9	180604M2_10	Standard	250.000	3.71	273748.719	12444.102	274.978	236.8	-5.3	NO	0.999	NO	bb
10	10	180604M2_11	Standard	500.000	3.70	481857.938	10126.721	594.785	512.4	2.5	NO	0.999	NO	bb

Compound name: L-PFHxS
Correlation coefficient: r = 0.999443, r^2 = 0.998887
Calibration curve: 1.9216 * x + -0.00896228
Response type: Internal Std (Ref 42), 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	180604M2_2	Standard	0.250	3.86	51.876	1333.795	0.486	0.3	3.1	NO	0.999	NO	MM
2	2	180604M2_3	Standard	0.500	3.86	98.207	1335.589	0.919	0.5	-3.4	NO	0.999	NO	MM
3	3	180604M2_4	Standard	1.000	3.86	233.406	1500.467	1.944	1.0	1.7	NO	0.999	NO	MM
4	4	180604M2_5	Standard	2.000	3.86	421.065	1457.849	3.610	1.9	-5.8	NO	0.999	NO	MM
5	5	180604M2_6	Standard	5.000	3.85	1040.155	1355.524	9.592	5.0	-0.1	NO	0.999	NO	MM
6	6	180604M2_7	Standard	10.000	3.86	2483.240	1524.630	20.359	10.6	6.0	NO	0.999	NO	MM
7	7	180604M2_8	Standard	50.000	3.85	10770.157	1363.064	98.768	51.4	2.8	NO	0.999	NO	MM
8	8	180604M2_9	Standard	100.000	3.86	20282.564	1342.743	188.817	98.3	-1.7	NO	0.999	NO	MM
9	9	180604M2_10	Standard	250.000	3.86	46991.344	1285.869	456.805	237.7	-4.9	NO	0.999	NO	MM
10	10	180604M2_11	Standard	500.000	3.85	85220.055	1082.486	984.078	512.1	2.4	NO	0.999	NO	MM

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
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Compound name: 6:2 FTS
Coefficient of Determination: R^2 = 0.999839
Calibration curve: -0.00346555 * x^2 + 1.27447 * x + -0.0336081
Response type: Internal Std (Ref 43), 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	180604M2_2	Standard	0.250	4.17	77.617	3136.696	0.309	0.3	7.7	NO	1.000	NO	MM
2	2	180604M2_3	Standard	0.500	4.17	157.005	3478.213	0.564	0.5	-6.1	NO	1.000	NO	bb
3	3	180604M2_4	Standard	1.000	4.17	364.671	3819.201	1.194	1.0	-3.5	NO	1.000	NO	bb
4	4	180604M2_5	Standard	2.000	4.17	803.633	3828.594	2.624	2.1	4.9	NO	1.000	NO	MM
5	5	180604M2_6	Standard	5.000	4.17	1834.352	3805.419	6.025	4.8	-3.7	NO	1.000	NO	MM
6	6	180604M2_7	Standard	10.000	4.17	3972.782	4005.856	12.397	10.0	0.3	NO	1.000	NO	bb
7	7	180604M2_8	Standard	50.000	4.17	17959.236	4061.438	55.274	50.3	0.5	NO	1.000	NO	bb
8	8	180604M2_9	Standard	100.000	4.17	33775.742	4557.357	92.641	99.8	-0.2	NO	1.000	NO	bb
9	9	180604M2_10	Standard	250.000	4.17	70401.641	5639.339	156.050			NO	1.000	NO	bbXl
10	10	180604M2_11	Standard	500.000	4.17	120391.594	7863.491	191.377			NO	1.000	NO	bbXl

Compound name: L-PFOA
Coefficient of Determination: R^2 = 0.999247
Calibration curve: -5.24867e-005 * x^2 + 0.895395 * x + 0.0852547
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	180604M2_2	Standard	0.250	4.23	399.295	20205.967	0.247	0.2	-27.7	NO	0.999	NO	bb
2	2	180604M2_3	Standard	0.500	4.23	827.505	19150.432	0.540	0.5	1.6	NO	0.999	NO	MM
3	3	180604M2_4	Standard	1.000	4.23	1635.800	18664.631	1.096	1.1	12.8	NO	0.999	NO	MM
4	4	180604M2_5	Standard	2.000	4.23	3433.985	21305.520	2.015	2.2	7.8	NO	0.999	NO	bb
5	5	180604M2_6	Standard	5.000	4.22	7674.669	20989.240	4.571	5.0	0.2	NO	0.999	NO	MM
6	6	180604M2_7	Standard	10.000	4.23	17909.258	23488.016	9.531	10.6	5.6	NO	0.999	NO	bb
7	7	180604M2_8	Standard	50.000	4.22	71871.891	19220.492	46.742	52.3	4.5	NO	0.999	NO	bb
8	8	180604M2_9	Standard	100.000	4.22	132108.922	19779.754	83.487	93.7	-6.3	NO	0.999	NO	bb
9	9	180604M2_10	Standard	250.000	4.23	332175.688	18486.152	224.611	254.6	1.8	NO	0.999	NO	MM
10	10	180604M2_11	Standard	500.000	4.22	597850.250	17235.395	433.592	498.7	-0.3	NO	0.999	NO	bb

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

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Compound name: PFHpS
Coefficient of Determination: R^2 = 0.999609
Calibration curve: -2.99805e-005 * x^2 + 0.157724 * x + 0.00259156
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	180604M2_2	Standard	0.250	4.34	60.445	20205.967	0.037	0.2	-11.7	NO	1.000	NO	bb
2	2	180604M2_3	Standard	0.500	4.33	123.093	19150.432	0.080	0.5	-1.4	NO	1.000	NO	MM
3	3	180604M2_4	Standard	1.000	4.33	266.700	18664.631	0.179	1.1	11.6	NO	1.000	NO	bb
4	4	180604M2_5	Standard	2.000	4.33	523.876	21305.520	0.307	1.9	-3.4	NO	1.000	NO	MM
5	5	180604M2_6	Standard	5.000	4.33	1398.650	20989.240	0.833	5.3	5.4	NO	1.000	NO	bb
6	6	180604M2_7	Standard	10.000	4.33	2866.486	23488.016	1.526	9.7	-3.3	NO	1.000	NO	bb
7	7	180604M2_8	Standard	50.000	4.33	12718.886	19220.492	8.272	53.0	5.9	NO	1.000	NO	bb
8	8	180604M2_9	Standard	100.000	4.33	23718.021	19779.754	14.989	96.8	-3.2	NO	1.000	NO	bb
9	9	180604M2_10	Standard	250.000	4.33	55497.215	18486.152	37.526	249.8	-0.1	NO	1.000	NO	bb
10	10	180604M2_11	Standard	500.000	4.33	98501.461	17235.395	71.438	500.5	0.1	NO	1.000	NO	bb

Compound name: PFNA
Coefficient of Determination: R^2 = 0.997864
Calibration curve: 0.000147582 * x^2 + 1.2693 * x + 0.0983793
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	180604M2_2	Standard	0.250	4.66	441.622	16427.822	0.336	0.2	-25.1	NO	0.998	NO	MM
2	2	180604M2_3	Standard	0.500	4.66	956.573	17421.307	0.686	0.5	-7.4	NO	0.998	NO	MM
3	3	180604M2_4	Standard	1.000	4.66	1975.412	19878.240	1.242	0.9	-9.9	NO	0.998	NO	MM
4	4	180604M2_5	Standard	2.000	4.66	4082.241	18188.109	2.806	2.1	6.6	NO	0.998	NO	MM
5	5	180604M2_6	Standard	5.000	4.66	9768.227	15834.358	7.711	6.0	19.9	NO	0.998	NO	MM
6	6	180604M2_7	Standard	10.000	4.66	17862.461	16231.207	13.756	10.7	7.5	NO	0.998	NO	MM
7	7	180604M2_8	Standard	50.000	4.66	92683.320	15917.798	72.783	56.9	13.8	NO	0.998	NO	MM
8	8	180604M2_9	Standard	100.000	4.66	165536.297	16328.868	126.721	98.6	-1.4	NO	0.998	NO	MM
9	9	180604M2_10	Standard	250.000	4.66	415747.969	16797.787	309.377	237.1	-5.2	NO	0.998	NO	MM
10	10	180604M2_11	Standard	500.000	4.66	759963.063	13975.681	679.719	505.7	1.1	NO	0.998	NO	MM

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

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Compound name: PFOSA
Coefficient of Determination: R^2 = 0.999493
Calibration curve: -0.000225332 * x^2 + 0.955318 * x + -0.036378
Response type: Internal Std (Ref 46), 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	180604M2_2	Standard	0.250	4.73	46.728	3431.462	0.170	0.2	-13.5	NO	0.999	NO	MM
2	2	180604M2_3	Standard	0.500	4.72	123.414	3179.648	0.485	0.5	9.2	NO	0.999	NO	bb
3	3	180604M2_4	Standard	1.000	4.73	261.758	3595.649	0.910	1.0	-0.9	NO	0.999	NO	bb
4	4	180604M2_5	Standard	2.000	4.73	488.988	3834.985	1.594	1.7	-14.6	NO	0.999	NO	bb
5	5	180604M2_6	Standard	5.000	4.73	1424.439	3390.498	5.252	5.5	10.9	NO	0.999	NO	bb
6	6	180604M2_7	Standard	10.000	4.73	2880.019	3889.938	9.255	9.7	-2.5	NO	0.999	NO	MM
7	7	180604M2_8	Standard	50.000	4.72	12077.262	3418.532	44.161	46.8	-6.4	NO	0.999	NO	bb
8	8	180604M2_9	Standard	100.000	4.73	23619.221	3112.179	94.866	101.8	1.8	NO	0.999	NO	MM
9	9	180604M2_10	Standard	250.000	4.73	54122.398	2973.532	227.517	253.3	1.3	NO	0.999	NO	MM
10	10	180604M2_11	Standard	500.000	4.72	92360.813	2749.737	419.862	498.0	-0.4	NO	0.999	NO	MM

Compound name: L-PFOS
Coefficient of Determination: R^2 = 0.999458
Calibration curve: 1.42803e-007 * x^2 + 0.934629 * x + -0.0613722
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	180604M2_2	Standard	0.250	4.75	42.566	3315.648	0.160	0.2	-5.1	NO	0.999	NO	MM
2	2	180604M2_3	Standard	0.500	4.74	112.495	2954.499	0.476	0.6	15.0	NO	0.999	NO	MM
3	3	180604M2_4	Standard	1.000	4.74	238.462	3630.876	0.821	0.9	-5.6	NO	0.999	NO	MM
4	4	180604M2_5	Standard	2.000	4.74	505.739	3704.720	1.706	1.9	-5.4	NO	0.999	NO	MM
5	5	180604M2_6	Standard	5.000	4.74	1278.387	3298.775	4.844	5.2	5.0	NO	0.999	NO	MM
6	6	180604M2_7	Standard	10.000	4.74	2927.725	3897.956	9.389	10.1	1.1	NO	0.999	NO	MM
7	7	180604M2_8	Standard	50.000	4.74	12183.854	3440.435	44.267	47.4	-5.1	NO	0.999	NO	MM
8	8	180604M2_9	Standard	100.000	4.74	23893.512	3274.599	91.208	97.7	-2.3	NO	0.999	NO	MM
9	9	180604M2_10	Standard	250.000	4.74	55947.535	2902.207	240.970	257.9	3.2	NO	0.999	NO	MM
10	10	180604M2_11	Standard	500.000	4.74	100952.094	2717.965	464.282	496.8	-0.6	NO	0.999	NO	MM

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Compound name: PFDA
Coefficient of Determination: R^2 = 0.999743
Calibration curve: 0.00037847 * x^2 + 1.01718 * x + 0.0671158
Response type: Internal Std (Ref 48), 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	180604M2_2	Standard	0.250	5.04	508.313	21761.287	0.292	0.2	-11.6	NO	1.000	NO	MM
2	2	180604M2_3	Standard	0.500	5.03	1152.791	20533.658	0.702	0.6	24.8	NO	1.000	NO	MM
3	3	180604M2_4	Standard	1.000	5.03	1838.713	20788.254	1.106	1.0	2.1	NO	1.000	NO	MM
4	4	180604M2_5	Standard	2.000	5.03	4669.937	26067.412	2.239	2.1	6.7	NO	1.000	NO	bb
5	5	180604M2_6	Standard	5.000	5.03	9633.189	23295.496	5.169	5.0	0.1	NO	1.000	NO	MM
6	6	180604M2_7	Standard	10.000	5.03	23717.045	26637.291	11.130	10.8	8.3	NO	1.000	NO	MM
7	7	180604M2_8	Standard	50.000	5.03	92221.961	23496.604	49.061	47.3	-5.3	NO	1.000	NO	MM
8	8	180604M2_9	Standard	100.000	5.03	139928.125	16383.868	106.758	101.1	1.1	NO	1.000	NO	MM
9	9	180604M2_10	Standard	250.000	5.03	429837.344	19258.957	278.985	250.8	0.3	NO	1.000	NO	MM
10	10	180604M2_11	Standard	500.000	5.03	817929.813	16960.596	602.816	499.7	-0.1	NO	1.000	NO	MM

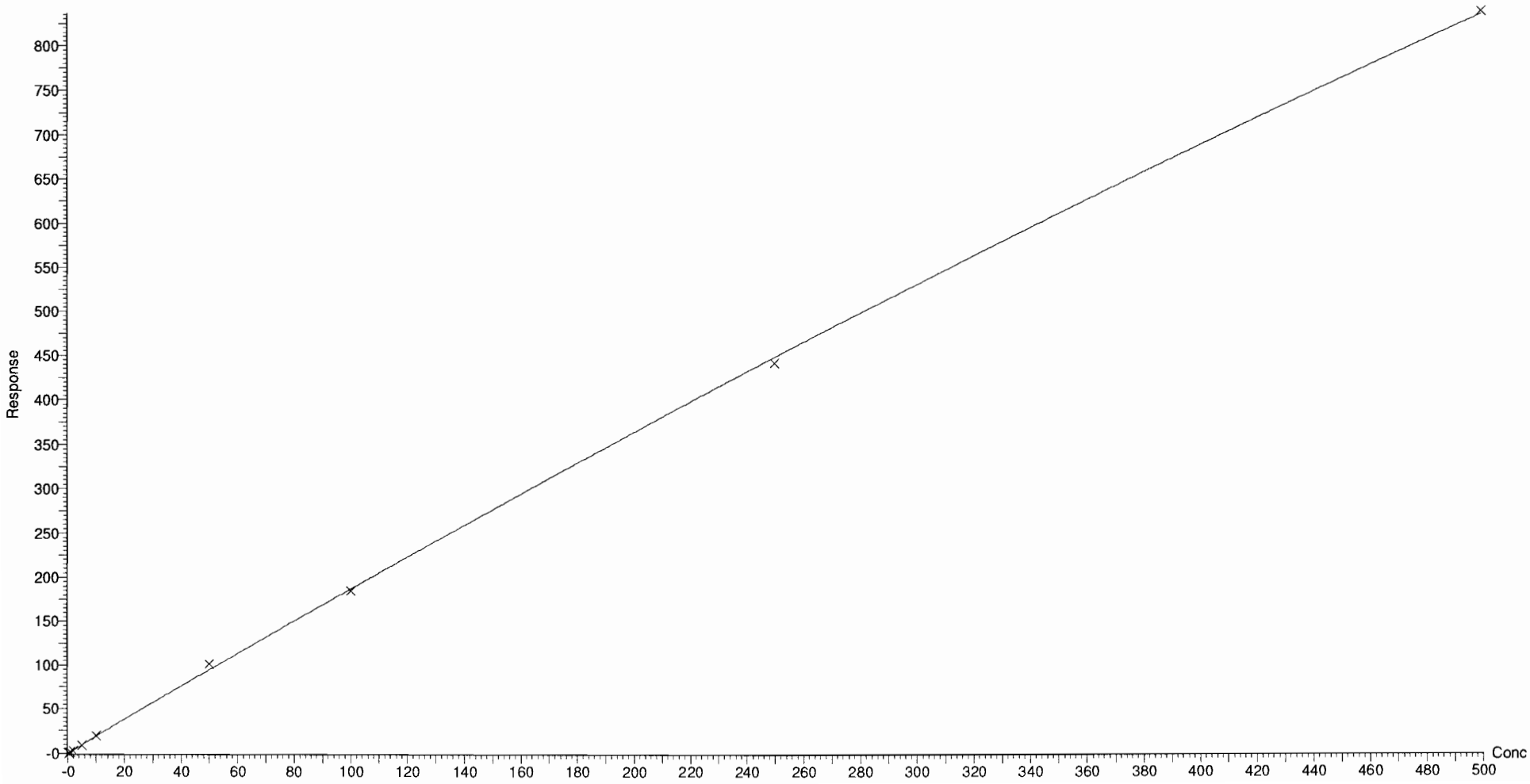
Compound name: 8:2 FTS
Coefficient of Determination: R^2 = 0.999723
Calibration curve: -0.0051377 * x^2 + 1.48665 * x + 0.00181394
Response type: Internal Std (Ref 49), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	180604M2_2	Standard	0.250	5.00	91.591	2934.979	0.390	0.3	4.6	NO	1.000	NO	bb
2	2	180604M2_3	Standard	0.500	5.00	173.944	3009.166	0.723	0.5	-2.9	NO	1.000	NO	bb
3	3	180604M2_4	Standard	1.000	5.00	391.783	3267.680	1.499	1.0	1.0	NO	1.000	NO	bb
4	4	180604M2_5	Standard	2.000	5.00	779.362	3210.507	3.034	2.1	2.7	NO	1.000	NO	bb
5	5	180604M2_6	Standard	5.000	5.00	1832.006	3308.789	6.921	4.7	-5.4	NO	1.000	NO	bb
6	6	180604M2_7	Standard	10.000	5.00	4234.394	3729.984	14.190	9.9	-1.2	NO	1.000	NO	bb
7	7	180604M2_8	Standard	50.000	5.00	18019.498	3613.179	62.339	50.9	1.8	NO	1.000	NO	bb
8	8	180604M2_9	Standard	100.000	5.00	31084.084	4009.876	96.899	99.2	-0.8	NO	1.000	NO	bb
9	9	180604M2_10	Standard	250.000	5.00	68676.156	5046.779	170.099			NO	1.000	NO	bbXI
10	10	180604M2_11	Standard	500.000	4.99	114753.305	6978.822	205.538			NO	1.000	NO	bbXI

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
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Compound name: L-MeFOSAA
Coefficient of Determination: R^2 = 0.999432
Calibration curve: -0.000502031 * x^2 + 1.91815 * x + -0.195978
Response type: Internal Std (Ref 50), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



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Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
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Compound name: PFNS
Coefficient of Determination: R^2 = 0.999403
Calibration curve: -0.000141031 * x^2 + 0.84601 * x + -0.0910263
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	180604M2_2	Standard	0.250	5.10	35.733	3315.648	0.135	0.3	6.7	NO	0.999	NO	MM
2	2	180604M2_3	Standard	0.500	5.09	94.093	2954.499	0.398	0.6	15.6	NO	0.999	NO	bb
3	3	180604M2_4	Standard	1.000	5.09	209.017	3630.876	0.720	1.0	-4.2	NO	0.999	NO	bb
4	4	180604M2_5	Standard	2.000	5.09	416.509	3704.720	1.405	1.8	-11.5	NO	0.999	NO	bb
5	5	180604M2_6	Standard	5.000	5.09	1073.949	3298.775	4.069	4.9	-1.6	NO	0.999	NO	MM
6	6	180604M2_7	Standard	10.000	5.09	2582.372	3897.956	8.281	9.9	-0.9	NO	0.999	NO	MM
7	7	180604M2_8	Standard	50.000	5.09	10938.496	3440.435	39.742	47.5	-5.1	NO	0.999	NO	bb
8	8	180604M2_9	Standard	100.000	5.09	21378.234	3274.599	81.606	98.2	-1.8	NO	0.999	NO	bb
9	9	180604M2_10	Standard	250.000	5.09	48609.973	2902.207	209.366	258.7	3.5	NO	0.999	NO	bb
10	10	180604M2_11	Standard	500.000	5.09	83666.563	2717.965	384.785	495.9	-0.8	NO	0.999	NO	bb

Compound name: L-MeFOSAA
Coefficient of Determination: R^2 = 0.999432
Calibration curve: -0.000502031 * x^2 + 1.91815 * x + -0.195978
Response type: Internal Std (Ref 50), 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	180604M2_2	Standard	0.250	5.19	128.578	4210.790	0.382	0.3	20.5	NO	0.999	NO	MM
2	2	180604M2_3	Standard	0.500	5.18	168.771	4114.854	0.513	0.4	-26.1	NO	0.999	NO	MM
3	3	180604M2_4	Standard	1.000	5.18	747.096	4411.583	2.117	1.2	20.6	NO	0.999	NO	MM
4	4	180604M2_5	Standard	2.000	5.18	1176.726	4785.307	3.074	1.7	-14.7	NO	0.999	NO	MM
5	5	180604M2_6	Standard	5.000	5.18	3169.990	4484.180	8.837	4.7	-5.7	NO	0.999	NO	MM
6	6	180604M2_7	Standard	10.000	5.18	7635.587	4988.149	19.134	10.1	1.0	NO	0.999	NO	MM
7	7	180604M2_8	Standard	50.000	5.18	35062.242	4352.490	100.696	53.3	6.7	NO	0.999	NO	MM
8	8	180604M2_9	Standard	100.000	5.18	63922.762	4328.779	184.587	98.9	-1.1	NO	0.999	NO	MM
9	9	180604M2_10	Standard	250.000	5.18	150590.078	4265.706	441.281	246.0	-1.6	NO	0.999	NO	MM
10	10	180604M2_11	Standard	500.000	5.18	261962.859	3914.602	836.493	502.2	0.4	NO	0.999	NO	MM

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Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

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Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060418.mdb 05 Jun 2018 10:44:45
Calibration: 05 Jun 2018 10:50:38 C18_VAL PFAS_04_06-04-18

Compound name: L-EtFOSAA
Coefficient of Determination: R^2 = 0.999646
Calibration curve: -0.00010475 * x^2 + 1.14871 * x + -0.0588573
Response type: Internal Std (Ref 51), 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	180604M2_2	Standard	0.250	5.35	117.195	5523.320	0.265	0.3	12.9	NO	1.000	NO	MM
2	2	180604M2_3	Standard	0.500	5.34	214.899	5238.067	0.513	0.5	-0.5	NO	1.000	NO	MM
3	3	180604M2_4	Standard	1.000	5.34	403.874	5567.794	0.907	0.8	-15.9	NO	1.000	NO	MM
4	4	180604M2_5	Standard	2.000	5.34	873.437	5895.005	1.852	1.7	-16.8	NO	1.000	NO	MM
5	5	180604M2_6	Standard	5.000	5.34	2547.371	5760.961	5.527	4.9	-2.7	NO	1.000	NO	MM
6	6	180604M2_7	Standard	10.000	5.34	5775.263	6157.235	11.725	10.3	2.7	NO	1.000	NO	MM
7	7	180604M2_8	Standard	50.000	5.34	25802.385	5813.378	55.481	48.6	-2.9	NO	1.000	NO	MM
8	8	180604M2_9	Standard	100.000	5.34	47811.383	5069.896	117.881	103.7	3.7	NO	1.000	NO	MM
9	9	180604M2_10	Standard	250.000	5.34	104052.688	4683.729	277.697	247.4	-1.0	NO	1.000	NO	MM
10	10	180604M2_11	Standard	500.000	5.34	182901.938	4165.334	548.881	500.7	0.1	NO	1.000	NO	MM

Compound name: PFUdA
Coefficient of Determination: R^2 = 0.997692
Calibration curve: -0.00013883 * x^2 + 0.96625 * x + 0.0663674
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	180604M2_2	Standard	0.250	5.36	454.345	22871.002	0.248	0.2	-24.7	NO	0.998	NO	MM
2	2	180604M2_3	Standard	0.500	5.35	926.813	18741.598	0.618	0.6	14.2	NO	0.998	NO	MM
3	3	180604M2_4	Standard	1.000	5.35	2190.952	26986.771	1.015	1.0	-1.8	NO	0.998	NO	MM
4	4	180604M2_5	Standard	2.000	5.35	3484.744	18264.871	2.385	2.4	20.0	NO	0.998	NO	MM
5	5	180604M2_6	Standard	5.000	5.35	9520.334	25583.273	4.652	4.7	-5.0	NO	0.998	NO	MM
6	6	180604M2_7	Standard	10.000	5.35	21604.178	25767.896	10.480	10.8	7.9	NO	0.998	NO	MM
7	7	180604M2_8	Standard	50.000	5.35	83864.031	24683.182	42.470	44.2	-11.7	NO	0.998	NO	bb
8	8	180604M2_9	Standard	100.000	5.35	159380.531	21720.848	91.721	96.2	-3.8	NO	0.998	NO	MM
9	9	180604M2_10	Standard	250.000	5.35	408045.594	20656.635	246.922	265.6	6.2	NO	0.998	NO	MM
10	10	180604M2_11	Standard	500.000	5.35	688705.938	19443.674	442.757	493.1	-1.4	NO	0.998	NO	MM

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Compound name: PFDS
Coefficient of Determination: R^2 = 0.998713
Calibration curve: -2.08709e-005 * x^2 + 0.145076 * x + -0.00507523
Response type: Internal Std (Ref 52), 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	180604M2_2	Standard	0.250	5.41	45.757	22871.002	0.025	0.2	-17.1	NO	0.999	NO	MM
2	2	180604M2_3	Standard	0.500	5.41	95.649	18741.598	0.064	0.5	-5.1	NO	0.999	NO	MM
3	3	180604M2_4	Standard	1.000	5.40	284.888	26986.771	0.132	0.9	-5.5	NO	0.999	NO	MM
4	4	180604M2_5	Standard	2.000	5.40	542.767	18264.871	0.371	2.6	29.8	NO	0.999	NO	MM
5	5	180604M2_6	Standard	5.000	5.40	1196.045	25583.273	0.584	4.1	-18.7	NO	0.999	NO	MM
6	6	180604M2_7	Standard	10.000	5.40	3208.356	25767.896	1.556	10.8	7.8	NO	0.999	NO	MM
7	7	180604M2_8	Standard	50.000	5.40	12832.533	24683.182	6.499	45.1	-9.8	NO	0.999	NO	MM
8	8	180604M2_9	Standard	100.000	5.40	25807.607	21720.848	14.852	104.0	4.0	NO	0.999	NO	MM
9	9	180604M2_10	Standard	250.000	5.40	58224.566	20656.635	35.234	252.0	0.8	NO	0.999	NO	MM
10	10	180604M2_11	Standard	500.000	5.39	104428.633	19443.674	67.135	498.6	-0.3	NO	0.999	NO	MM

Compound name: PFDoA
Coefficient of Determination: R^2 = 0.997401
Calibration curve: 0.000212677 * x^2 + 1.10562 * x + 0.0813564
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	180604M2_2	Standard	0.250	5.64	456.527	19397.404	0.294	0.2	-23.0	NO	0.997	NO	MM
2	2	180604M2_3	Standard	0.500	5.63	1134.501	17754.355	0.799	0.6	29.8	NO	0.997	NO	bb
3	3	180604M2_4	Standard	1.000	5.63	2182.828	25882.254	1.054	0.9	-12.0	NO	0.997	NO	MM
4	4	180604M2_5	Standard	2.000	5.63	4066.530	23953.689	2.122	1.8	-7.7	NO	0.997	NO	MM
5	5	180604M2_6	Standard	5.000	5.63	12163.052	24244.600	6.271	5.6	11.8	NO	0.997	NO	MM
6	6	180604M2_7	Standard	10.000	5.63	24404.803	27755.697	10.991	9.8	-1.5	NO	0.997	NO	MM
7	7	180604M2_8	Standard	50.000	5.63	112908.602	22544.379	62.604	55.9	11.9	NO	0.997	NO	MM
8	8	180604M2_9	Standard	100.000	5.63	181720.422	22912.549	99.138	88.1	-11.9	NO	0.997	NO	MM
9	9	180604M2_10	Standard	250.000	5.63	487289.656	20375.152	298.948	257.6	3.0	NO	0.997	NO	MM
10	10	180604M2_11	Standard	500.000	5.63	813939.313	16857.902	603.530	498.1	-0.4	NO	0.997	NO	MM

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Compound name: N-MeFOSA
Coefficient of Determination: R^2 = 0.999647
Calibration curve: -6.00765e-005 * x^2 + 1.05382 * x + 1.43912e-005
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	180604M2_2	Standard	1.250	5.84	99.834	14272.175	1.049	1.0	-20.3	NO	1.000	NO	bb
2	2	180604M2_3	Standard	2.500	5.82	262.255	13534.160	2.907	2.8	10.3	NO	1.000	NO	bb
3	3	180604M2_4	Standard	5.000	5.82	542.064	14890.748	5.460	5.2	3.7	NO	1.000	NO	bb
4	4	180604M2_5	Standard	10.000	5.82	1052.964	15456.740	10.218	9.7	-3.0	NO	1.000	NO	bb
5	5	180604M2_6	Standard	25.000	5.82	2661.011	14561.282	27.412	26.1	4.2	NO	1.000	NO	MM
6	6	180604M2_7	Standard	50.000	5.82	5989.729	16522.182	54.379	51.8	3.5	NO	1.000	NO	MM
7	7	180604M2_8	Standard	250.000	5.82	26163.229	14948.137	262.540	252.8	1.1	NO	1.000	NO	MM
8	8	180604M2_9	Standard	500.000	5.82	49787.059	14228.368	524.871	513.1	2.6	NO	1.000	NO	MM
9	9	180604M2_10	Standard	1250.000	5.82	114688.125	14432.672	1191.964	1215.3	-2.8	NO	1.000	NO	MM
10	10	180604M2_11	Standard	2500.000	5.82	206537.891	13636.706	2271.860	2517.0	0.7	NO	1.000	NO	MM

Compound name: PFTrDA
Coefficient of Determination: R^2 = 0.998885
Calibration curve: 0.000371643 * x^2 + 1.06917 * x + 0.144786
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	180604M2_2	Standard	0.250	5.88	605.594	19397.404	0.390	0.2	-8.2	NO	0.999	NO	MM
2	2	180604M2_3	Standard	0.500	5.88	1162.894	17754.355	0.819	0.6	26.0	NO	0.999	NO	MM
3	3	180604M2_4	Standard	1.000	5.88	2058.899	25882.254	0.994	0.8	-20.6	NO	0.999	NO	MM
4	4	180604M2_5	Standard	2.000	5.88	4096.845	23953.689	2.138	1.9	-6.9	NO	0.999	NO	MM
5	5	180604M2_6	Standard	5.000	5.88	10095.215	24244.600	5.205	4.7	-5.5	NO	0.999	NO	MM
6	6	180604M2_7	Standard	10.000	5.88	27843.785	27755.697	12.540	11.5	15.5	NO	0.999	NO	MM
7	7	180604M2_8	Standard	50.000	5.88	103653.180	22544.379	57.472	52.7	5.3	NO	0.999	NO	MM
8	8	180604M2_9	Standard	100.000	5.88	187340.047	22912.549	102.204	92.5	-7.5	NO	0.999	NO	MM
9	9	180604M2_10	Standard	250.000	5.88	483962.938	20375.152	296.908	255.0	2.0	NO	0.999	NO	MM
10	10	180604M2_11	Standard	500.000	5.88	844121.625	16857.902	625.909	498.8	-0.2	NO	0.999	NO	MM

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Compound name: PFTeDA
Coefficient of Determination: R^2 = 0.999161
Calibration curve: -0.000334653 * x^2 + 1.29716 * x + 0.0524742
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	180604M2_2	Standard	0.250	6.10	472.059	17876.412	0.330	0.2	-14.4	NO	0.999	NO	MM
2	2	180604M2_3	Standard	0.500	6.10	841.893	16472.129	0.639	0.5	-9.6	NO	0.999	NO	MM
3	3	180604M2_4	Standard	1.000	6.09	1922.840	16315.121	1.473	1.1	9.6	NO	0.999	NO	MM
4	4	180604M2_5	Standard	2.000	6.10	3725.166	17710.369	2.629	2.0	-0.6	NO	0.999	NO	MM
5	5	180604M2_6	Standard	5.000	6.09	9742.960	17267.689	7.053	5.4	8.1	NO	0.999	NO	MM
6	6	180604M2_7	Standard	10.000	6.09	21137.033	19111.336	13.825	10.6	6.5	NO	0.999	NO	MM
7	7	180604M2_8	Standard	50.000	6.09	83730.727	16598.182	63.057	49.2	-1.6	NO	0.999	NO	MM
8	8	180604M2_9	Standard	100.000	6.09	181719.109	17128.834	132.612	105.0	5.0	NO	0.999	NO	MM
9	9	180604M2_10	Standard	250.000	6.10	378320.563	16157.284	292.686	240.5	-3.8	NO	0.999	NO	MM
10	10	180604M2_11	Standard	500.000	6.09	655769.125	14401.537	569.183	504.4	0.9	NO	0.999	NO	MM

Compound name: N-EtFOSA
Coefficient of Determination: R^2 = 0.999998
Calibration curve: -3.24276e-005 * x^2 + 0.927207 * x + 0.0223365
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	180604M2_2	Standard	1.250	6.23	142.481	18564.291	1.151	1.2	-2.6	NO	1.000	NO	MM
2	2	180604M2_3	Standard	2.500	6.23	316.888	19925.244	2.386	2.5	2.0	NO	1.000	NO	MM
3	3	180604M2_4	Standard	5.000	6.22	681.625	21577.180	4.739	5.1	1.7	NO	1.000	NO	MM
4	4	180604M2_5	Standard	10.000	6.23	1385.069	22476.027	9.244	9.9	-0.5	NO	1.000	NO	MM
5	5	180604M2_6	Standard	25.000	6.22	3215.166	21033.535	22.929	24.7	-1.1	NO	1.000	NO	MM
6	6	180604M2_7	Standard	50.000	6.22	7577.270	24418.678	46.546	50.3	0.5	NO	1.000	NO	MM
7	7	180604M2_8	Standard	250.000	6.22	32583.484	21256.074	229.935	250.2	0.1	NO	1.000	NO	MM
8	8	180604M2_9	Standard	500.000	6.22	61194.531	20182.076	454.818	499.2	-0.2	NO	1.000	NO	MM
9	9	180604M2_10	Standard	1250.000	6.23	139089.672	18810.104	1109.162	1250.9	0.1	NO	1.000	NO	MM
10	10	180604M2_11	Standard	2500.000	6.22	241858.438	17152.324	2115.093	2499.6	-0.0	NO	1.000	NO	MM

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Compound name: PFHxDA
Coefficient of Determination: R^2 = 0.999511
Calibration curve: -0.000267807 * x^2 + 0.605113 * x + 0.0392849
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	180604M2_2	Standard	0.250	6.43	330.938	9317.349	0.178	0.2	-8.6	NO	1.000	NO	MM
2	2	180604M2_3	Standard	0.500	6.43	716.259	9338.518	0.383	0.6	13.8	NO	1.000	NO	MM
3	3	180604M2_4	Standard	1.000	6.43	1338.395	11752.719	0.569	0.9	-12.4	NO	1.000	NO	MM
4	4	180604M2_5	Standard	2.000	6.43	2664.839	11152.150	1.195	1.9	-4.4	NO	1.000	NO	MM
5	5	180604M2_6	Standard	5.000	6.43	6709.463	10286.672	3.261	5.3	6.7	NO	1.000	NO	MM
6	6	180604M2_7	Standard	10.000	6.43	15079.014	11743.332	6.420	10.6	5.9	NO	1.000	NO	MM
7	7	180604M2_8	Standard	50.000	6.43	61798.699	10233.453	30.194	51.0	2.0	NO	1.000	NO	MM
8	8	180604M2_9	Standard	100.000	6.43	112417.227	10143.569	55.413	95.6	-4.4	NO	1.000	NO	MM
9	9	180604M2_10	Standard	250.000	6.43	258363.797	9457.769	136.588	254.3	1.7	NO	1.000	NO	MM
10	10	180604M2_11	Standard	500.000	6.43	451723.313	9608.434	235.066	498.3	-0.3	NO	1.000	NO	MM

Compound name: PFODA
Coefficient of Determination: R^2 = 0.999491
Calibration curve: -0.000404358 * x^2 + 0.894092 * x + -0.0222858
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	180604M2_2	Standard	0.250	6.67	421.840	9317.349	0.226	0.3	11.3	NO	0.999	NO	bb
2	2	180604M2_3	Standard	0.500	6.67	880.754	9338.518	0.472	0.6	10.5	NO	0.999	NO	bb
3	3	180604M2_4	Standard	1.000	6.67	1757.530	11752.719	0.748	0.9	-13.8	NO	0.999	NO	bb
4	4	180604M2_5	Standard	2.000	6.67	3544.492	11152.150	1.589	1.8	-9.8	NO	0.999	NO	bb
5	5	180604M2_6	Standard	5.000	6.67	8985.215	10286.672	4.367	4.9	-1.6	NO	0.999	NO	bb
6	6	180604M2_7	Standard	10.000	6.67	19850.248	11743.332	8.452	9.5	-4.8	NO	0.999	NO	bb
7	7	180604M2_8	Standard	50.000	6.67	87936.969	10233.453	42.965	49.2	-1.7	NO	0.999	NO	bb
8	8	180604M2_9	Standard	100.000	6.67	169032.750	10143.569	83.320	97.5	-2.5	NO	0.999	NO	bb
9	9	180604M2_10	Standard	250.000	6.67	386187.063	9457.769	204.164	258.6	3.4	NO	0.999	NO	bb
10	10	180604M2_11	Standard	500.000	6.67	660007.313	9608.434	343.452	495.0	-1.0	NO	0.999	NO	bb

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Compound name: N-MeFOSE
Correlation coefficient: r = 0.997461, r^2 = 0.994929
Calibration curve: 1.00285 * x + -0.37541
Response type: Internal Std (Ref 58), 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 180604M2_2	Standard	1.250	6.38	70.618	11044.131	0.959	1.3	6.5	NO	0.995	NO	MM
2	2 180604M2_3	Standard	2.500	6.37	146.761	10474.625	2.102	2.5	-1.2	NO	0.995	NO	MM
3	3 180604M2_4	Standard	5.000	6.37	418.207	12360.827	5.075	5.4	8.7	NO	0.995	NO	MM
4	4 180604M2_5	Standard	10.000	6.37	822.932	13301.675	9.280	9.6	-3.7	NO	0.995	NO	MM
5	5 180604M2_6	Standard	25.000	6.37	1900.876	11701.808	24.366	24.7	-1.3	NO	0.995	NO	MM
6	6 180604M2_7	Standard	50.000	6.37	4146.294	12515.271	49.695	49.9	-0.1	NO	0.995	NO	MM
7	7 180604M2_8	Standard	250.000	6.37	18776.223	11664.843	241.446	241.1	-3.5	NO	0.995	NO	MM
8	8 180604M2_9	Standard	500.000	6.37	38398.934	11530.785	499.518	498.5	-0.3	NO	0.995	NO	MM
9	9 180604M2_10	Standard	1250.000	6.37	88299.289	11837.472	1118.895	1116.1	-10.7	NO	0.995	NO	MM
10	10 180604M2_11	Standard	2500.000	6.37	198307.703	11217.550	2651.752	2644.6	5.8	NO	0.995	NO	MM

Compound name: N-EtFOSE
Coefficient of Determination: R^2 = 0.999985
Calibration curve: 1.74191e-005 * x^2 + 1.19563 * x + -0.124308
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 180604M2_2	Standard	1.250	6.53	97.683	9984.098	1.468	1.3	6.5	NO	1.000	NO	MM
2	2 180604M2_3	Standard	2.500	6.51	190.657	10038.572	2.849	2.5	-0.5	NO	1.000	NO	MM
3	3 180604M2_4	Standard	5.000	6.52	426.287	11277.418	5.670	4.8	-3.1	NO	1.000	NO	MM
4	4 180604M2_5	Standard	10.000	6.52	883.671	11254.722	11.777	10.0	-0.5	NO	1.000	NO	MM
5	5 180604M2_6	Standard	25.000	6.52	2199.000	11039.759	29.878	25.1	0.3	NO	1.000	NO	MM
6	6 180604M2_7	Standard	50.000	6.52	4909.453	12745.162	57.780	48.4	-3.2	NO	1.000	NO	MM
7	7 180604M2_8	Standard	250.000	6.52	22161.285	11078.604	300.055	250.2	0.1	NO	1.000	NO	MM
8	8 180604M2_9	Standard	500.000	6.52	43466.652	10782.540	604.681	502.2	0.4	NO	1.000	NO	MM
9	9 180604M2_10	Standard	1250.000	6.51	108494.961	10699.962	1520.963	1249.5	-0.0	NO	1.000	NO	MM
10	10 180604M2_11	Standard	2500.000	6.51	218959.797	10602.889	3097.643	2499.9	-0.0	NO	1.000	NO	MM

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Compound name: 13C3-PFBA
Response Factor: 0.885048
RRF SD: 0.0114078, Relative SD: 1.28894
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 180604M2_2	Standard	12.500	1.34	9005.189	10271.474	10.959	12.4	-0.9	NO		NO	MM
2	2 180604M2_3	Standard	12.500	1.34	9082.563	10065.069	11.280	12.7	2.0	NO		NO	bb
3	3 180604M2_4	Standard	12.500	1.34	9855.626	11352.728	10.852	12.3	-1.9	NO		NO	bb
4	4 180604M2_5	Standard	12.500	1.34	8997.036	10214.078	11.011	12.4	-0.5	NO		NO	bb
5	5 180604M2_6	Standard	12.500	1.34	9430.916	10765.735	10.950	12.4	-1.0	NO		NO	bb
6	6 180604M2_7	Standard	12.500	1.34	10868.822	12417.303	10.941	12.4	-1.1	NO		NO	bb
7	7 180604M2_8	Standard	12.500	1.34	9593.588	10796.833	11.107	12.5	0.4	NO		NO	bb
8	8 180604M2_9	Standard	12.500	1.34	9523.508	10598.734	11.232	12.7	1.5	NO		NO	bb
9	9 180604M2_10	Standard	12.500	1.34	9255.525	10421.132	11.102	12.5	0.4	NO		NO	bb
10	10 180604M2_11	Standard	12.500	1.34	8757.902	9776.241	11.198	12.7	1.2	NO		NO	bb

Compound name: 13C3-PFPeA
Response Factor: 0.84942
RRF SD: 0.0318525, Relative SD: 3.74991
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 180604M2_2	Standard	12.500	2.31	12347.332	15007.401	10.284	12.1	-3.1	NO		NO	bb
2	2 180604M2_3	Standard	12.500	2.31	12476.627	13827.207	11.279	13.3	6.2	NO		NO	bb
3	3 180604M2_4	Standard	12.500	2.31	13544.467	16888.469	10.025	11.8	-5.6	NO		NO	MM
4	4 180604M2_5	Standard	12.500	2.31	14007.501	15740.042	11.124	13.1	4.8	NO		NO	bb
5	5 180604M2_6	Standard	12.500	2.31	13406.085	15291.013	10.959	12.9	3.2	NO		NO	bb
6	6 180604M2_7	Standard	12.500	2.31	15122.394	17659.707	10.704	12.6	0.8	NO		NO	bb
7	7 180604M2_8	Standard	12.500	2.31	13022.961	15758.688	10.330	12.2	-2.7	NO		NO	bb
8	8 180604M2_9	Standard	12.500	2.31	12487.914	14738.479	10.591	12.5	-0.2	NO		NO	bb
9	9 180604M2_10	Standard	12.500	2.31	11821.135	14148.502	10.444	12.3	-1.6	NO		NO	bb
10	10 180604M2_11	Standard	12.500	2.31	10586.028	12678.664	10.437	12.3	-1.7	NO		NO	bb

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Compound name: 13C3-PFBS
Response Factor: 0.103869
RRF SD: 0.00542707, Relative SD: 5.22492
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	180604M2_2	Standard	12.500	2.60	1498.706	15007.401	1.248	12.0	-3.9	NO		NO	MM
2	2	180604M2_3	Standard	12.500	2.60	1529.458	13827.207	1.383	13.3	6.5	NO		NO	bb
3	3	180604M2_4	Standard	12.500	2.60	1663.006	16888.469	1.231	11.9	-5.2	NO		NO	bb
4	4	180604M2_5	Standard	12.500	2.60	1756.558	15740.042	1.395	13.4	7.4	NO		NO	bb
5	5	180604M2_6	Standard	12.500	2.60	1672.393	15291.013	1.367	13.2	5.3	NO		NO	MM
6	6	180604M2_7	Standard	12.500	2.60	1855.024	17659.707	1.313	12.6	1.1	NO		NO	bb
7	7	180604M2_8	Standard	12.500	2.60	1634.481	15758.688	1.296	12.5	-0.1	NO		NO	bb
8	8	180604M2_9	Standard	12.500	2.60	1526.828	14738.479	1.295	12.5	-0.3	NO		NO	bb
9	9	180604M2_10	Standard	12.500	2.60	1432.947	14148.502	1.266	12.2	-2.5	NO		NO	bb
10	10	180604M2_11	Standard	12.500	2.60	1206.225	12678.664	1.189	11.4	-8.4	NO		NO	bb

Compound name: 13C2-4:2 FTS
Response Factor: 0.247683
RRF SD: 0.0262332, Relative SD: 10.5914
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	180604M2_2	Standard	12.500	3.01	3169.168	15007.401	2.640	10.7	-14.7	NO		NO	bb
2	2	180604M2_3	Standard	12.500	3.01	3422.257	13827.207	3.094	12.5	-0.1	NO		NO	bb
3	3	180604M2_4	Standard	12.500	3.01	3927.586	16888.469	2.907	11.7	-6.1	NO		NO	bb
4	4	180604M2_5	Standard	12.500	3.01	4054.097	15740.042	3.220	13.0	4.0	NO		NO	bb
5	5	180604M2_6	Standard	12.500	3.00	3586.589	15291.013	2.932	11.8	-5.3	NO		NO	bb
6	6	180604M2_7	Standard	12.500	3.01	4233.463	17659.707	2.997	12.1	-3.2	NO		NO	bb
7	7	180604M2_8	Standard	12.500	3.00	4058.697	15758.688	3.219	13.0	4.0	NO		NO	bb
8	8	180604M2_9	Standard	12.500	3.01	4433.810	14738.479	3.760	15.2	21.5	NO		NO	bb
9	9	180604M2_10	Standard	12.500	3.01	5370.476	14148.502	4.745	19.2	53.3	NO		NO	bbX
10	10	180604M2_11	Standard	12.500	3.01	6656.033	12678.664	6.562	26.5	112.0	NO		NO	bbX

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Compound name: 13C2-PFHxA
Response Factor: 0.729003
RRF SD: 0.0325361, Relative SD: 4.4631
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	180604M2_2	Standard	5.000	3.09	4246.335	15007.401	3.537	4.9	-3.0	NO		NO	bb
2	2	180604M2_3	Standard	5.000	3.09	4142.994	13827.207	3.745	5.1	2.8	NO		NO	bb
3	3	180604M2_4	Standard	5.000	3.09	4630.566	16888.469	3.427	4.7	-6.0	NO		NO	bb
4	4	180604M2_5	Standard	5.000	3.09	4710.073	15740.042	3.741	5.1	2.6	NO		NO	bb
5	5	180604M2_6	Standard	5.000	3.09	4612.718	15291.013	3.771	5.2	3.5	NO		NO	bb
6	6	180604M2_7	Standard	5.000	3.09	4951.568	17659.707	3.505	4.8	-3.8	NO		NO	bb
7	7	180604M2_8	Standard	5.000	3.09	4486.201	15758.688	3.559	4.9	-2.4	NO		NO	bb
8	8	180604M2_9	Standard	5.000	3.09	4110.789	14738.479	3.486	4.8	-4.4	NO		NO	bb
9	9	180604M2_10	Standard	5.000	3.09	4245.043	14148.502	3.750	5.1	2.9	NO		NO	bb
10	10	180604M2_11	Standard	5.000	3.09	3985.266	12678.664	3.929	5.4	7.8	NO		NO	bb

Compound name: 13C4-PFHpA
Response Factor: 0.836272
RRF SD: 0.0378621, Relative SD: 4.52749
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	180604M2_2	Standard	12.500	3.71	12501.413	15007.401	10.413	12.5	-0.4	NO		NO	bb
2	2	180604M2_3	Standard	12.500	3.70	11729.507	13827.207	10.604	12.7	1.4	NO		NO	bb
3	3	180604M2_4	Standard	12.500	3.70	13016.023	16888.469	9.634	11.5	-7.8	NO		NO	bb
4	4	180604M2_5	Standard	12.500	3.71	13914.408	15740.042	11.050	13.2	5.7	NO		NO	bb
5	5	180604M2_6	Standard	12.500	3.70	13247.432	15291.013	10.829	12.9	3.6	NO		NO	bb
6	6	180604M2_7	Standard	12.500	3.70	14486.901	17659.707	10.254	12.3	-1.9	NO		NO	bb
7	7	180604M2_8	Standard	12.500	3.70	12638.182	15758.688	10.025	12.0	-4.1	NO		NO	bb
8	8	180604M2_9	Standard	12.500	3.70	12671.674	14738.479	10.747	12.9	2.8	NO		NO	bb
9	9	180604M2_10	Standard	12.500	3.71	12444.102	14148.502	10.994	13.1	5.2	NO		NO	bb
10	10	180604M2_11	Standard	12.500	3.70	10126.721	12678.664	9.984	11.9	-4.5	NO		NO	bb

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Compound name: 18O2-PFHxS
Response Factor: 0.442568
RRF SD: 0.0142283, Relative SD: 3.21493
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 180604M2_2	Standard	12.500	3.86	1333.795	3044.086	5.477	12.4	-1.0	NO		NO	MM
2	2 180604M2_3	Standard	12.500	3.86	1335.589	2855.621	5.846	13.2	5.7	NO		NO	MM
3	3 180604M2_4	Standard	12.500	3.85	1500.467	3323.627	5.643	12.8	2.0	NO		NO	MM
4	4 180604M2_5	Standard	12.500	3.86	1457.849	3243.628	5.618	12.7	1.6	NO		NO	MM
5	5 180604M2_6	Standard	12.500	3.85	1355.524	3131.864	5.410	12.2	-2.2	NO		NO	MM
6	6 180604M2_7	Standard	12.500	3.85	1524.630	3617.574	5.268	11.9	-4.8	NO		NO	MM
7	7 180604M2_8	Standard	12.500	3.85	1363.064	3005.609	5.669	12.8	2.5	NO		NO	MM
8	8 180604M2_9	Standard	12.500	3.85	1342.743	3121.421	5.377	12.1	-2.8	NO		NO	MM
9	9 180604M2_10	Standard	12.500	3.86	1285.869	2851.130	5.638	12.7	1.9	NO		NO	MM
10	10 180604M2_11	Standard	12.500	3.85	1082.486	2517.609	5.375	12.1	-2.8	NO		NO	MM

Compound name: 13C2-6:2 FTS
Response Factor: 0.249011
RRF SD: 0.0286251, Relative SD: 11.4955
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 180604M2_2	Standard	12.500	4.17	3136.696	15167.363	2.585	10.4	-16.9	NO		NO	MM
2	2 180604M2_3	Standard	12.500	4.17	3478.213	14724.747	2.953	11.9	-5.1	NO		NO	bb
3	3 180604M2_4	Standard	12.500	4.17	3819.201	15358.042	3.108	12.5	-0.1	NO		NO	MM
4	4 180604M2_5	Standard	12.500	4.17	3828.594	16216.819	2.951	11.9	-5.2	NO		NO	bb
5	5 180604M2_6	Standard	12.500	4.17	3805.419	16212.924	2.934	11.8	-5.7	NO		NO	bb
6	6 180604M2_7	Standard	12.500	4.17	4005.856	15974.759	3.135	12.6	0.7	NO		NO	bb
7	7 180604M2_8	Standard	12.500	4.17	4061.438	14468.508	3.509	14.1	12.7	NO		NO	bb
8	8 180604M2_9	Standard	12.500	4.17	4557.357	15287.114	3.726	15.0	19.7	NO		NO	bb
9	9 180604M2_10	Standard	12.500	4.17	5639.339	12818.621	5.499	22.1	76.7	NO		NO	bbX
10	10 180604M2_11	Standard	12.500	4.17	7863.491	12943.563	7.594	30.5	144.0	NO		NO	bbX

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Compound name: 13C2-PFOA
Response Factor: 1.33228
RRF SD: 0.0738349, Relative SD: 5.54199
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	180604M2_2	Standard	12.500	4.23	20205.967	15167.363	16.653	12.5	-0.0	NO		NO	bb
2	2	180604M2_3	Standard	12.500	4.23	19150.432	14724.747	16.257	12.2	-2.4	NO		NO	bb
3	3	180604M2_4	Standard	12.500	4.23	18664.631	15358.042	15.191	11.4	-8.8	NO		NO	bb
4	4	180604M2_5	Standard	12.500	4.23	21305.520	16216.819	16.422	12.3	-1.4	NO		NO	bb
5	5	180604M2_6	Standard	12.500	4.22	20989.240	16212.924	16.182	12.1	-2.8	NO		NO	bb
6	6	180604M2_7	Standard	12.500	4.23	23488.016	15974.759	18.379	13.8	10.4	NO		NO	bb
7	7	180604M2_8	Standard	12.500	4.22	19220.492	14468.508	16.605	12.5	-0.3	NO		NO	bb
8	8	180604M2_9	Standard	12.500	4.22	19779.754	15287.114	16.174	12.1	-2.9	NO		NO	bb
9	9	180604M2_10	Standard	12.500	4.23	18486.152	12818.621	18.027	13.5	8.2	NO		NO	MM
10	10	180604M2_11	Standard	12.500	4.22	17235.395	12943.563	16.645	12.5	-0.1	NO		NO	bb

Compound name: 13C5-PFNA
Response Factor: 0.95074
RRF SD: 0.0610405, Relative SD: 6.42031
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	180604M2_2	Standard	12.500	4.66	16427.822	16881.150	12.164	12.8	2.4	NO		NO	MM
2	2	180604M2_3	Standard	12.500	4.66	17421.307	18334.830	11.877	12.5	-0.1	NO		NO	bb
3	3	180604M2_4	Standard	12.500	4.66	19878.240	20973.391	11.847	12.5	-0.3	NO		NO	bb
4	4	180604M2_5	Standard	12.500	4.66	18188.109	20413.705	11.137	11.7	-6.3	NO		NO	bb
5	5	180604M2_6	Standard	12.500	4.66	15834.358	15700.341	12.607	13.3	6.1	NO		NO	bb
6	6	180604M2_7	Standard	12.500	4.66	16231.207	18020.547	11.259	11.8	-5.3	NO		NO	bb
7	7	180604M2_8	Standard	12.500	4.66	15917.798	18653.123	10.667	11.2	-10.2	NO		NO	bb
8	8	180604M2_9	Standard	12.500	4.66	16328.868	17510.518	11.656	12.3	-1.9	NO		NO	MM
9	9	180604M2_10	Standard	12.500	4.66	16797.787	15816.211	13.276	14.0	11.7	NO		NO	MM
10	10	180604M2_11	Standard	12.500	4.66	13975.681	14143.361	12.352	13.0	3.9	NO		NO	MM

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Compound name: 13C8-PFOSA
Response Factor: 0.139501
RRF SD: 0.0131475, Relative SD: 9.42465
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	180604M2_2	Standard	12.500	4.73	3431.462	25518.572	1.681	12.0	-3.6	NO		NO	bb
2	2	180604M2_3	Standard	12.500	4.72	3179.648	24694.490	1.609	11.5	-7.7	NO		NO	bb
3	3	180604M2_4	Standard	12.500	4.72	3595.649	25475.063	1.764	12.6	1.2	NO		NO	bb
4	4	180604M2_5	Standard	12.500	4.73	3834.985	25878.838	1.852	13.3	6.2	NO		NO	bb
5	5	180604M2_6	Standard	12.500	4.72	3390.498	27276.764	1.554	11.1	-10.9	NO		NO	bb
6	6	180604M2_7	Standard	12.500	4.72	3889.938	29220.201	1.664	11.9	-4.6	NO		NO	MM
7	7	180604M2_8	Standard	12.500	4.72	3418.532	26358.738	1.621	11.6	-7.0	NO		NO	bb
8	8	180604M2_9	Standard	12.500	4.72	3112.179	22964.137	1.694	12.1	-2.9	NO		NO	MM
9	9	180604M2_10	Standard	12.500	4.72	2973.532	19544.465	1.902	13.6	9.1	NO		NO	MM
10	10	180604M2_11	Standard	12.500	4.72	2749.737	16400.094	2.096	15.0	20.2	NO		NO	MM

Compound name: 13C8-PFOS
Response Factor: 1.06017
RRF SD: 0.0418424, Relative SD: 3.94676
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	180604M2_2	Standard	12.500	4.75	3315.648	3009.181	13.773	13.0	3.9	NO		NO	MM
2	2	180604M2_3	Standard	12.500	4.74	2954.499	2803.353	13.174	12.4	-0.6	NO		NO	MM
3	3	180604M2_4	Standard	12.500	4.74	3630.876	3163.443	14.347	13.5	8.3	NO		NO	MM
4	4	180604M2_5	Standard	12.500	4.74	3704.720	3406.201	13.595	12.8	2.6	NO		NO	MM
5	5	180604M2_6	Standard	12.500	4.74	3298.775	3250.212	12.687	12.0	-4.3	NO		NO	MM
6	6	180604M2_7	Standard	12.500	4.74	3897.956	3730.943	13.060	12.3	-1.5	NO		NO	MM
7	7	180604M2_8	Standard	12.500	4.74	3440.435	3324.223	12.937	12.2	-2.4	NO		NO	MM
8	8	180604M2_9	Standard	12.500	4.74	3274.599	3196.282	12.806	12.1	-3.4	NO		NO	MM
9	9	180604M2_10	Standard	12.500	4.74	2902.207	2834.296	12.800	12.1	-3.4	NO		NO	MM
10	10	180604M2_11	Standard	12.500	4.74	2717.965	2546.279	13.343	12.6	0.7	NO		NO	MM

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Compound name: 13C2-PFDA
Response Factor: 1.13012
RRF SD: 0.0968721, Relative SD: 8.57185
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 180604M2_2	Standard	12.500	5.04	21761.287	16320.667	16.667	14.7	18.0	NO		NO	bb
2	2 180604M2_3	Standard	12.500	5.03	20533.658	18545.604	13.840	12.2	-2.0	NO		NO	bb
3	3 180604M2_4	Standard	12.500	5.03	20788.254	20377.879	12.752	11.3	-9.7	NO		NO	MM
4	4 180604M2_5	Standard	12.500	5.03	26067.412	22186.215	14.687	13.0	4.0	NO		NO	MM
5	5 180604M2_6	Standard	12.500	5.03	23295.496	22014.791	13.227	11.7	-6.4	NO		NO	MM
6	6 180604M2_7	Standard	12.500	5.03	26637.291	23696.297	14.051	12.4	-0.5	NO		NO	MM
7	7 180604M2_8	Standard	12.500	5.03	23496.604	18802.346	15.621	13.8	10.6	NO		NO	MM
8	8 180604M2_9	Standard	12.500	5.03	16383.868	15408.911	13.291	11.8	-5.9	NO		NO	MM
9	9 180604M2_10	Standard	12.500	5.03	19258.957	17490.107	13.764	12.2	-2.6	NO		NO	MM
10	10 180604M2_11	Standard	12.500	5.03	16960.596	15862.810	13.365	11.8	-5.4	NO		NO	MM

Compound name: 13C2-8:2 FTS
Response Factor: 0.217451
RRF SD: 0.0250656, Relative SD: 11.527
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 180604M2_2	Standard	12.500	5.00	2934.979	15007.401	2.445	11.2	-10.1	NO		NO	bb
2	2 180604M2_3	Standard	12.500	5.00	3009.166	13827.207	2.720	12.5	0.1	NO		NO	bb
3	3 180604M2_4	Standard	12.500	5.00	3267.680	16888.469	2.419	11.1	-11.0	NO		NO	bb
4	4 180604M2_5	Standard	12.500	5.00	3210.507	15740.042	2.550	11.7	-6.2	NO		NO	bb
5	5 180604M2_6	Standard	12.500	5.00	3308.789	15291.013	2.705	12.4	-0.5	NO		NO	bb
6	6 180604M2_7	Standard	12.500	5.00	3729.984	17659.707	2.640	12.1	-2.9	NO		NO	bb
7	7 180604M2_8	Standard	12.500	5.00	3613.179	15758.688	2.866	13.2	5.4	NO		NO	bb
8	8 180604M2_9	Standard	12.500	5.00	4009.876	14738.479	3.401	15.6	25.1	NO		NO	bb
9	9 180604M2_10	Standard	12.500	5.00	5046.779	14148.502	4.459	20.5	64.0	NO		NO	bbX
10	10 180604M2_11	Standard	12.500	4.99	6978.822	12678.664	6.880	31.6	153.1	NO		NO	bbX

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Compound name: d3-N-MeFOSAA
Response Factor: 0.183541
RRF SD: 0.025562, Relative SD: 13.9272
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	180604M2_2	Standard	12.500	5.18	4210.790	25518.572	2.063	11.2	-10.1	NO		NO	MM
2	2	180604M2_3	Standard	12.500	5.18	4114.854	24694.490	2.083	11.3	-9.2	NO		NO	MM
3	3	180604M2_4	Standard	12.500	5.18	4411.583	25475.063	2.165	11.8	-5.6	NO		NO	MM
4	4	180604M2_5	Standard	12.500	5.18	4785.307	25878.838	2.311	12.6	0.7	NO		NO	MM
5	5	180604M2_6	Standard	12.500	5.18	4484.180	27276.764	2.055	11.2	-10.4	NO		NO	MM
6	6	180604M2_7	Standard	12.500	5.18	4988.149	29220.201	2.134	11.6	-7.0	NO		NO	MM
7	7	180604M2_8	Standard	12.500	5.18	4352.490	26358.738	2.064	11.2	-10.0	NO		NO	MM
8	8	180604M2_9	Standard	12.500	5.18	4328.779	22964.137	2.356	12.8	2.7	NO		NO	MM
9	9	180604M2_10	Standard	12.500	5.18	4265.706	19544.465	2.728	14.9	18.9	NO		NO	MM
10	10	180604M2_11	Standard	12.500	5.18	3914.602	16400.094	2.984	16.3	30.0	NO		NO	MM

Compound name: d5-N-EtFOSAA
Response Factor: 0.223178
RRF SD: 0.0139114, Relative SD: 6.23334
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	180604M2_2	Standard	12.500	5.34	5523.320	25518.572	2.706	12.1	-3.0	NO		NO	MM
2	2	180604M2_3	Standard	12.500	5.34	5238.067	24694.490	2.651	11.9	-5.0	NO		NO	MM
3	3	180604M2_4	Standard	12.500	5.34	5567.794	25475.063	2.732	12.2	-2.1	NO		NO	MM
4	4	180604M2_5	Standard	12.500	5.34	5895.005	25878.838	2.847	12.8	2.1	NO		NO	MM
5	5	180604M2_6	Standard	12.500	5.34	5760.961	27276.764	2.640	11.8	-5.4	NO		NO	MM
6	6	180604M2_7	Standard	12.500	5.34	6157.235	29220.201	2.634	11.8	-5.6	NO		NO	MM
7	7	180604M2_8	Standard	12.500	5.34	5813.378	26358.738	2.757	12.4	-1.2	NO		NO	MM
8	8	180604M2_9	Standard	12.500	5.34	5069.896	22964.137	2.760	12.4	-1.1	NO		NO	MM
9	9	180604M2_10	Standard	12.500	5.34	4683.729	19544.465	2.996	13.4	7.4	NO		NO	MM
10	10	180604M2_11	Standard	12.500	5.33	4165.334	16400.094	3.175	14.2	13.8	NO		NO	MM

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Compound name: 13C2-PFUdA
Response Factor: 0.936486
RRF SD: 0.141846, Relative SD: 15.1467
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	180604M2_2	Standard	12.500	5.35	22871.002	25518.572	11.203	12.0	-4.3	NO		NO	bb
2	2	180604M2_3	Standard	12.500	5.35	18741.598	24694.490	9.487	10.1	-19.0	NO		NO	MM
3	3	180604M2_4	Standard	12.500	5.35	26986.771	25475.063	13.242	14.1	13.1	NO		NO	MM
4	4	180604M2_5	Standard	12.500	5.35	18264.871	25878.838	8.822	9.4	-24.6	NO		NO	MM
5	5	180604M2_6	Standard	12.500	5.35	25583.273	27276.764	11.724	12.5	0.2	NO		NO	MM
6	6	180604M2_7	Standard	12.500	5.35	25767.896	29220.201	11.023	11.8	-5.8	NO		NO	MM
7	7	180604M2_8	Standard	12.500	5.35	24683.182	26358.738	11.705	12.5	-0.0	NO		NO	MM
8	8	180604M2_9	Standard	12.500	5.35	21720.848	22964.137	11.823	12.6	1.0	NO		NO	MM
9	9	180604M2_10	Standard	12.500	5.35	20656.635	19544.465	13.211	14.1	12.9	NO		NO	MM
10	10	180604M2_11	Standard	12.500	5.35	19443.674	16400.094	14.820	15.8	26.6	NO		NO	MM

Compound name: 13C2-PFDoA
Response Factor: 1.16819
RRF SD: 0.141926, Relative SD: 12.1492
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	180604M2_2	Standard	12.500	5.64	19397.404	16320.667	14.856	12.7	1.7	NO		NO	bb
2	2	180604M2_3	Standard	12.500	5.63	17754.355	18545.604	11.967	10.2	-18.0	NO		NO	MM
3	3	180604M2_4	Standard	12.500	5.63	25882.254	20377.879	15.876	13.6	8.7	NO		NO	MM
4	4	180604M2_5	Standard	12.500	5.63	23953.689	22186.215	13.496	11.6	-7.6	NO		NO	MM
5	5	180604M2_6	Standard	12.500	5.63	24244.600	22014.791	13.766	11.8	-5.7	NO		NO	MM
6	6	180604M2_7	Standard	12.500	5.63	27755.697	23696.297	14.641	12.5	0.3	NO		NO	MM
7	7	180604M2_8	Standard	12.500	5.63	22544.379	18802.346	14.988	12.8	2.6	NO		NO	MM
8	8	180604M2_9	Standard	12.500	5.63	22912.549	15408.911	18.587	15.9	27.3	NO		NO	MM
9	9	180604M2_10	Standard	12.500	5.63	20375.152	17490.107	14.562	12.5	-0.3	NO		NO	MM
10	10	180604M2_11	Standard	12.500	5.63	16857.902	15862.810	13.284	11.4	-9.0	NO		NO	MM

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Compound name: d3-N-MeFOSA
Response Factor: 0.0512089
RRF SD: 0.0079688, Relative SD: 15.5614
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	180604M2_2	Standard	150.000	5.86	14272.175	25518.572	6.991	136.5	-9.0	NO		NO	bb
2	2	180604M2_3	Standard	150.000	5.85	13534.160	24694.490	6.851	133.8	-10.8	NO		NO	bb
3	3	180604M2_4	Standard	150.000	5.85	14890.748	25475.063	7.307	142.7	-4.9	NO		NO	bb
4	4	180604M2_5	Standard	150.000	5.85	15456.740	25878.838	7.466	145.8	-2.8	NO		NO	bb
5	5	180604M2_6	Standard	150.000	5.85	14561.282	27276.764	6.673	130.3	-13.1	NO		NO	MM
6	6	180604M2_7	Standard	150.000	5.85	16522.182	29220.201	7.068	138.0	-8.0	NO		NO	MM
7	7	180604M2_8	Standard	150.000	5.85	14948.137	26358.738	7.089	138.4	-7.7	NO		NO	MM
8	8	180604M2_9	Standard	150.000	5.85	14228.368	22964.137	7.745	151.2	0.8	NO		NO	MM
9	9	180604M2_10	Standard	150.000	5.85	14432.672	19544.465	9.231	180.3	20.2	NO		NO	MM
10	10	180604M2_11	Standard	150.000	5.85	13636.706	16400.094	10.394	203.0	35.3	NO		NO	MM

Compound name: 13C2-PFTeDA
Response Factor: 0.705988
RRF SD: 0.0856003, Relative SD: 12.1249
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	180604M2_2	Standard	12.500	6.10	17876.412	25518.572	8.757	12.4	-0.8	NO		NO	MM
2	2	180604M2_3	Standard	12.500	6.09	16472.129	24694.490	8.338	11.8	-5.5	NO		NO	MM
3	3	180604M2_4	Standard	12.500	6.09	16315.121	25475.063	8.005	11.3	-9.3	NO		NO	MM
4	4	180604M2_5	Standard	12.500	6.09	17710.369	25878.838	8.554	12.1	-3.1	NO		NO	MM
5	5	180604M2_6	Standard	12.500	6.09	17267.689	27276.764	7.913	11.2	-10.3	NO		NO	MM
6	6	180604M2_7	Standard	12.500	6.09	19111.336	29220.201	8.176	11.6	-7.4	NO		NO	MM
7	7	180604M2_8	Standard	12.500	6.09	16598.182	26358.738	7.871	11.1	-10.8	NO		NO	MM
8	8	180604M2_9	Standard	12.500	6.09	17128.834	22964.137	9.324	13.2	5.7	NO		NO	MM
9	9	180604M2_10	Standard	12.500	6.09	16157.284	19544.465	10.334	14.6	17.1	NO		NO	MM
10	10	180604M2_11	Standard	12.500	6.09	14401.537	16400.094	10.977	15.5	24.4	NO		NO	MM

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Compound name: d5-N-ETFOSA
Response Factor: 0.0712517
RRF SD: 0.00771474, Relative SD: 10.8274
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 180604M2_2	Standard	150.000	6.25	18564.291	25518.572	9.094	127.6	-14.9	NO		NO	MM
2	2 180604M2_3	Standard	150.000	6.24	19925.244	24694.490	10.086	141.6	-5.6	NO		NO	MM
3	3 180604M2_4	Standard	150.000	6.24	21577.180	25475.063	10.587	148.6	-0.9	NO		NO	MM
4	4 180604M2_5	Standard	150.000	6.24	22476.027	25878.838	10.856	152.4	1.6	NO		NO	MM
5	5 180604M2_6	Standard	150.000	6.24	21033.535	27276.764	9.639	135.3	-9.8	NO		NO	bb
6	6 180604M2_7	Standard	150.000	6.24	24418.678	29220.201	10.446	146.6	-2.3	NO		NO	MM
7	7 180604M2_8	Standard	150.000	6.24	21256.074	26358.738	10.080	141.5	-5.7	NO		NO	MM
8	8 180604M2_9	Standard	150.000	6.24	20182.076	22964.137	10.986	154.2	2.8	NO		NO	MM
9	9 180604M2_10	Standard	150.000	6.24	18810.104	19544.465	12.030	168.8	12.6	NO		NO	MM
10	10 180604M2_11	Standard	150.000	6.24	17152.324	16400.094	13.073	183.5	22.3	NO		NO	MM

Compound name: 13C2-PFHxDA
Response Factor: 1.07858
RRF SD: 0.167769, Relative SD: 15.5546
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 180604M2_2	Standard	5.000	6.43	9317.349	25518.572	4.564	4.2	-15.4	NO		NO	MM
2	2 180604M2_3	Standard	5.000	6.43	9338.518	24694.490	4.727	4.4	-12.3	NO		NO	MM
3	3 180604M2_4	Standard	5.000	6.43	11752.719	25475.063	5.767	5.3	6.9	NO		NO	MM
4	4 180604M2_5	Standard	5.000	6.43	11152.150	25878.838	5.387	5.0	-0.1	NO		NO	MM
5	5 180604M2_6	Standard	5.000	6.43	10286.672	27276.764	4.714	4.4	-12.6	NO		NO	MM
6	6 180604M2_7	Standard	5.000	6.43	11743.332	29220.201	5.024	4.7	-6.8	NO		NO	MM
7	7 180604M2_8	Standard	5.000	6.43	10233.453	26358.738	4.853	4.5	-10.0	NO		NO	MM
8	8 180604M2_9	Standard	5.000	6.43	10143.569	22964.137	5.521	5.1	2.4	NO		NO	MM
9	9 180604M2_10	Standard	5.000	6.43	9457.769	19544.465	6.049	5.6	12.2	NO		NO	MM
10	10 180604M2_11	Standard	5.000	6.43	9608.434	16400.094	7.323	6.8	35.8	NO		NO	MM

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Compound name: d7-N-MeFOSE
Response Factor: 0.0412317
RRF SD: 0.00729216, Relative SD: 17.6858
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	180604M2_2	Standard	150.000	6.37	11044.131	25518.572	5.410	131.2	-12.5	NO		NO	MM
2	2	180604M2_3	Standard	150.000	6.36	10474.625	24694.490	5.302	128.6	-14.3	NO		NO	MM
3	3	180604M2_4	Standard	150.000	6.36	12360.827	25475.063	6.065	147.1	-1.9	NO		NO	MM
4	4	180604M2_5	Standard	150.000	6.37	13301.675	25878.838	6.425	155.8	3.9	NO		NO	MM
5	5	180604M2_6	Standard	150.000	6.36	11701.808	27276.764	5.363	130.1	-13.3	NO		NO	MM
6	6	180604M2_7	Standard	150.000	6.36	12515.271	29220.201	5.354	129.8	-13.4	NO		NO	MM
7	7	180604M2_8	Standard	150.000	6.36	11664.843	26358.738	5.532	134.2	-10.6	NO		NO	MM
8	8	180604M2_9	Standard	150.000	6.36	11530.785	22964.137	6.277	152.2	1.5	NO		NO	MM
9	9	180604M2_10	Standard	150.000	6.36	11837.472	19544.465	7.571	183.6	22.4	NO		NO	MM
10	10	180604M2_11	Standard	150.000	6.36	11217.550	16400.094	8.550	207.4	38.2	NO		NO	MM

Compound name: d9-N-EtFOSE
Response Factor: 0.0383339
RRF SD: 0.00658778, Relative SD: 17.1852
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	180604M2_2	Standard	150.000	6.52	9984.098	25518.572	4.891	127.6	-14.9	NO		NO	MM
2	2	180604M2_3	Standard	150.000	6.51	10038.572	24694.490	5.081	132.6	-11.6	NO		NO	MM
3	3	180604M2_4	Standard	150.000	6.51	11277.418	25475.063	5.534	144.4	-3.8	NO		NO	MM
4	4	180604M2_5	Standard	150.000	6.51	11254.722	25878.838	5.436	141.8	-5.5	NO		NO	MM
5	5	180604M2_6	Standard	150.000	6.51	11039.759	27276.764	5.059	132.0	-12.0	NO		NO	MM
6	6	180604M2_7	Standard	150.000	6.51	12745.162	29220.201	5.452	142.2	-5.2	NO		NO	MM
7	7	180604M2_8	Standard	150.000	6.50	11078.604	26358.738	5.254	137.1	-8.6	NO		NO	MM
8	8	180604M2_9	Standard	150.000	6.51	10782.540	22964.137	5.869	153.1	2.1	NO		NO	MM
9	9	180604M2_10	Standard	150.000	6.51	10699.962	19544.465	6.843	178.5	19.0	NO		NO	MM
10	10	180604M2_11	Standard	150.000	6.50	10602.889	16400.094	8.081	210.8	40.5	NO		NO	MM

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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	180604M2_2	Standard	12.500	1.35	10271.474	10271.474	12.500	12.5	0.0	NO		NO	bb
2	2	180604M2_3	Standard	12.500	1.34	10065.069	10065.069	12.500	12.5	0.0	NO		NO	bb
3	3	180604M2_4	Standard	12.500	1.35	11352.728	11352.728	12.500	12.5	0.0	NO		NO	bb
4	4	180604M2_5	Standard	12.500	1.35	10214.078	10214.078	12.500	12.5	0.0	NO		NO	bb
5	5	180604M2_6	Standard	12.500	1.35	10765.735	10765.735	12.500	12.5	0.0	NO		NO	bb
6	6	180604M2_7	Standard	12.500	1.34	12417.303	12417.303	12.500	12.5	0.0	NO		NO	bb
7	7	180604M2_8	Standard	12.500	1.35	10796.833	10796.833	12.500	12.5	0.0	NO		NO	bb
8	8	180604M2_9	Standard	12.500	1.34	10598.734	10598.734	12.500	12.5	0.0	NO		NO	bb
9	9	180604M2_10	Standard	12.500	1.35	10421.132	10421.132	12.500	12.5	0.0	NO		NO	bb
10	10	180604M2_11	Standard	12.500	1.35	9776.241	9776.241	12.500	12.5	0.0	NO		NO	bb

Compound name: 13C5-PFHxA
Response Factor: 1
RRF SD: 1.33432e-016, Relative SD: 1.33432e-014
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	180604M2_2	Standard	12.500	3.09	15007.401	15007.401	12.500	12.5	0.0	NO		NO	bb
2	2	180604M2_3	Standard	12.500	3.09	13827.207	13827.207	12.500	12.5	0.0	NO		NO	bb
3	3	180604M2_4	Standard	12.500	3.09	16888.469	16888.469	12.500	12.5	0.0	NO		NO	bb
4	4	180604M2_5	Standard	12.500	3.09	15740.042	15740.042	12.500	12.5	0.0	NO		NO	bb
5	5	180604M2_6	Standard	12.500	3.09	15291.013	15291.013	12.500	12.5	0.0	NO		NO	bb
6	6	180604M2_7	Standard	12.500	3.09	17659.707	17659.707	12.500	12.5	0.0	NO		NO	bb
7	7	180604M2_8	Standard	12.500	3.09	15758.688	15758.688	12.500	12.5	0.0	NO		NO	bb
8	8	180604M2_9	Standard	12.500	3.09	14738.479	14738.479	12.500	12.5	0.0	NO		NO	bb
9	9	180604M2_10	Standard	12.500	3.09	14148.502	14148.502	12.500	12.5	0.0	NO		NO	bb
10	10	180604M2_11	Standard	12.500	3.09	12678.664	12678.664	12.500	12.5	0.0	NO		NO	bb

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

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Printed: Tuesday, June 05, 2018 10:57:00 Pacific Daylight Time

Compound name: 13C3-PFHxS
Response Factor: 1
RRF SD: 7.40149e-017, Relative SD: 7.40149e-015
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 180604M2_2	Standard	12.500	3.86	3044.086	3044.086	12.500	12.5	0.0	NO		NO	bb
2	2 180604M2_3	Standard	12.500	3.86	2855.621	2855.621	12.500	12.5	0.0	NO		NO	bb
3	3 180604M2_4	Standard	12.500	3.85	3323.627	3323.627	12.500	12.5	0.0	NO		NO	bb
4	4 180604M2_5	Standard	12.500	3.86	3243.628	3243.628	12.500	12.5	0.0	NO		NO	bb
5	5 180604M2_6	Standard	12.500	3.85	3131.864	3131.864	12.500	12.5	0.0	NO		NO	bb
6	6 180604M2_7	Standard	12.500	3.85	3617.574	3617.574	12.500	12.5	0.0	NO		NO	bb
7	7 180604M2_8	Standard	12.500	3.85	3005.609	3005.609	12.500	12.5	0.0	NO		NO	bb
8	8 180604M2_9	Standard	12.500	3.85	3121.421	3121.421	12.500	12.5	0.0	NO		NO	bb
9	9 180604M2_10	Standard	12.500	3.86	2851.130	2851.130	12.500	12.5	0.0	NO		NO	bb
10	10 180604M2_11	Standard	12.500	3.85	2517.609	2517.609	12.500	12.5	0.0	NO		NO	bb

Compound name: 13C8-PFOA
Response Factor: 1
RRF SD: 7.40149e-017, Relative SD: 7.40149e-015
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 180604M2_2	Standard	12.500	4.23	15167.363	15167.363	12.500	12.5	0.0	NO		NO	bb
2	2 180604M2_3	Standard	12.500	4.22	14724.747	14724.747	12.500	12.5	0.0	NO		NO	bb
3	3 180604M2_4	Standard	12.500	4.22	15358.042	15358.042	12.500	12.5	0.0	NO		NO	bb
4	4 180604M2_5	Standard	12.500	4.23	16216.819	16216.819	12.500	12.5	0.0	NO		NO	bb
5	5 180604M2_6	Standard	12.500	4.22	16212.924	16212.924	12.500	12.5	0.0	NO		NO	bb
6	6 180604M2_7	Standard	12.500	4.22	15974.759	15974.759	12.500	12.5	0.0	NO		NO	bb
7	7 180604M2_8	Standard	12.500	4.22	14468.508	14468.508	12.500	12.5	0.0	NO		NO	bb
8	8 180604M2_9	Standard	12.500	4.22	15287.114	15287.114	12.500	12.5	0.0	NO		NO	bb
9	9 180604M2_10	Standard	12.500	4.23	12818.621	12818.621	12.500	12.5	0.0	NO		NO	bb
10	10 180604M2_11	Standard	12.500	4.22	12943.563	12943.563	12.500	12.5	0.0	NO		NO	bb

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

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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	180604M2_2	Standard	12.500	4.66	16881.150	16881.150	12.500	12.5	0.0	NO		NO	bb
2	2	180604M2_3	Standard	12.500	4.66	18334.830	18334.830	12.500	12.5	0.0	NO		NO	bb
3	3	180604M2_4	Standard	12.500	4.66	20973.391	20973.391	12.500	12.5	0.0	NO		NO	bb
4	4	180604M2_5	Standard	12.500	4.66	20413.705	20413.705	12.500	12.5	0.0	NO		NO	bb
5	5	180604M2_6	Standard	12.500	4.66	15700.341	15700.341	12.500	12.5	0.0	NO		NO	bb
6	6	180604M2_7	Standard	12.500	4.66	18020.547	18020.547	12.500	12.5	0.0	NO		NO	bb
7	7	180604M2_8	Standard	12.500	4.66	18653.123	18653.123	12.500	12.5	0.0	NO		NO	bb
8	8	180604M2_9	Standard	12.500	4.66	17510.518	17510.518	12.500	12.5	0.0	NO		NO	bb
9	9	180604M2_10	Standard	12.500	4.66	15816.211	15816.211	12.500	12.5	0.0	NO		NO	bb
10	10	180604M2_11	Standard	12.500	4.66	14143.361	14143.361	12.500	12.5	0.0	NO		NO	bb

Compound name: 13C4-PFOS
Response Factor: 1
RRF SD: 7.40149e-017, Relative SD: 7.40149e-015
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	180604M2_2	Standard	12.500	4.75	3009.181	3009.181	12.500	12.5	0.0	NO		NO	bb
2	2	180604M2_3	Standard	12.500	4.74	2803.353	2803.353	12.500	12.5	0.0	NO		NO	bb
3	3	180604M2_4	Standard	12.500	4.74	3163.443	3163.443	12.500	12.5	0.0	NO		NO	bb
4	4	180604M2_5	Standard	12.500	4.74	3406.201	3406.201	12.500	12.5	0.0	NO		NO	bb
5	5	180604M2_6	Standard	12.500	4.74	3250.212	3250.212	12.500	12.5	0.0	NO		NO	bb
6	6	180604M2_7	Standard	12.500	4.74	3730.943	3730.943	12.500	12.5	0.0	NO		NO	bb
7	7	180604M2_8	Standard	12.500	4.74	3324.223	3324.223	12.500	12.5	0.0	NO		NO	bb
8	8	180604M2_9	Standard	12.500	4.74	3196.282	3196.282	12.500	12.5	0.0	NO		NO	bb
9	9	180604M2_10	Standard	12.500	4.74	2834.296	2834.296	12.500	12.5	0.0	NO		NO	bb
10	10	180604M2_11	Standard	12.500	4.74	2546.279	2546.279	12.500	12.5	0.0	NO		NO	bb

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

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Compound name: 13C6-PFDA
Response Factor: 1
RRF SD: 7.40149e-017, Relative SD: 7.40149e-015
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	180604M2_2	Standard	12.500	5.04	16320.667	16320.667	12.500	12.5	0.0	NO		NO	bb
2	2	180604M2_3	Standard	12.500	5.03	18545.604	18545.604	12.500	12.5	0.0	NO		NO	bb
3	3	180604M2_4	Standard	12.500	5.03	20377.879	20377.879	12.500	12.5	0.0	NO		NO	bb
4	4	180604M2_5	Standard	12.500	5.03	22186.215	22186.215	12.500	12.5	0.0	NO		NO	bb
5	5	180604M2_6	Standard	12.500	5.03	22014.791	22014.791	12.500	12.5	0.0	NO		NO	bb
6	6	180604M2_7	Standard	12.500	5.03	23696.297	23696.297	12.500	12.5	0.0	NO		NO	bb
7	7	180604M2_8	Standard	12.500	5.03	18802.346	18802.346	12.500	12.5	0.0	NO		NO	bb
8	8	180604M2_9	Standard	12.500	5.03	15408.911	15408.911	12.500	12.5	0.0	NO		NO	bb
9	9	180604M2_10	Standard	12.500	5.03	17490.107	17490.107	12.500	12.5	0.0	NO		NO	bb
10	10	180604M2_11	Standard	12.500	5.03	15862.810	15862.810	12.500	12.5	0.0	NO		NO	bb

Compound name: 13C7-PFUdA
Response Factor: 1
RRF SD: 8.27511e-017, Relative SD: 8.27511e-015
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	180604M2_2	Standard	12.500	5.35	25518.572	25518.572	12.500	12.5	0.0	NO		NO	bb
2	2	180604M2_3	Standard	12.500	5.35	24694.490	24694.490	12.500	12.5	0.0	NO		NO	bb
3	3	180604M2_4	Standard	12.500	5.35	25475.063	25475.063	12.500	12.5	0.0	NO		NO	bb
4	4	180604M2_5	Standard	12.500	5.35	25878.838	25878.838	12.500	12.5	0.0	NO		NO	bb
5	5	180604M2_6	Standard	12.500	5.35	27276.764	27276.764	12.500	12.5	0.0	NO		NO	bb
6	6	180604M2_7	Standard	12.500	5.35	29220.201	29220.201	12.500	12.5	0.0	NO		NO	bb
7	7	180604M2_8	Standard	12.500	5.35	26358.738	26358.738	12.500	12.5	0.0	NO		NO	bb
8	8	180604M2_9	Standard	12.500	5.35	22964.137	22964.137	12.500	12.5	0.0	NO		NO	bb
9	9	180604M2_10	Standard	12.500	5.35	19544.465	19544.465	12.500	12.5	0.0	NO		NO	bb
10	10	180604M2_11	Standard	12.500	5.35	16400.094	16400.094	12.500	12.5	0.0	NO		NO	bb

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Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:56:32 Pacific Daylight Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060418.mdb 05 Jun 2018 10:44:45
Calibration: 05 Jun 2018 10:50:38

Name: 180604M2_2, Date: 04-Jun-2018, Time: 19:11:49, ID: ST180604M2-2 PFC CS-2 18E2902, Description: PFC CS-2 18E2902

	#	Name	IS#	CoD	CoD Flag	%RSD
1	1	PFBA	36	0.9999	NO	
2	2	PFPeA	37	0.9999	NO	
3	3	PFBS	38	0.9999	NO	
4	4	4:2 FTS	39	0.9988	NO	
5	5	PFHxA	40	0.9996	NO	
6	6	PFPeS	38	0.9996	NO	
7	7	PFHpA	41	0.9988	NO	
8	8	L-PFHxS	42	0.9989	NO	
9	10	6:2 FTS	43	0.9998	NO	
10	11	L-PFOA	44	0.9992	NO	
11	13	PFHpS	44	0.9996	NO	
12	14	PFNA	45	0.9979	NO	
13	15	PFOSA	46	0.9995	NO	
14	16	L-PFOS	47	0.9995	NO	
15	18	PFDA	48	0.9997	NO	
16	19	8:2 FTS	49	0.9997	NO	
17	20	PFNS	47	0.9994	NO	
18	21	L-MeFOSAA	50	0.9994	NO	

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Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:57:00 Pacific Daylight Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060418.mdb 05 Jun 2018 10:44:45
Calibration: 05 Jun 2018 10:50:38

Name: 180604M2_2, Date: 04-Jun-2018, Time: 19:11:49, ID: ST180604M2-2 PFC CS-2 18E2902, Description: PFC CS-2 18E2902

	#	Name	IS#	CoD	CoD Flag	%RSD
1	23	L-EtFOSAA	51	0.9996	NO	
2	25	PFUdA	52	0.9977	NO	
3	26	PFDS	52	0.9987	NO	
4	27	PFDoA	53	0.9974	NO	
5	28	N-MeFOSA	54	0.9996	NO	
6	29	PFTrDA	53	0.9989	NO	
7	30	PFTeDA	55	0.9992	NO	
8	31	N-EtFOSA	56	1.0000	NO	
9	32	PFHxDA	57	0.9995	NO	
10	33	PFODA	57	0.9995	NO	
11	34	N-MeFOSE	58	0.9949	NO	
12	35	N-EtFOSE	59	1.0000	NO	
13	36	13C3-PFBA	60		NO	1.289
14	37	13C3-PFPeA	61		NO	3.750
15	38	13C3-PFBS	61		NO	5.225
16	39	13C2-4:2 FTS	61		NO	10.591
17	40	13C2-PFHxA	61		NO	4.463
18	41	13C4-PFHpA	61		NO	4.527
19	42	18O2-PFHxS	62		NO	3.215
20	43	13C2-6:2 FTS	63		NO	11.496
21	44	13C2-PFOA	63		NO	5.542
22	45	13C5-PFNA	64		NO	6.420
23	46	13C8-PFOSA	67		NO	9.425
24	47	13C8-PFOS	65		NO	3.947
25	48	13C2-PFDA	66		NO	8.572
26	49	13C2-8:2 FTS	61		NO	11.527
27	50	d3-N-MeFOSAA	67		NO	13.927
28	51	d5-N-EtFOSAA	67		NO	6.233
29	52	13C2-PFUdA	67		NO	15.147
30	53	13C2-PFDoA	66		NO	12.149
31	54	d3-N-MeFOSA	67		NO	15.561
32	55	13C2-PFTeDA	67		NO	12.125

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:57:00 Pacific Daylight Time

Name: 180604M2_2, Date: 04-Jun-2018, Time: 19:11:49, ID: ST180604M2-2 PFC CS-2 18E2902, Description: PFC CS-2 18E2902

	#	Name	IS#	CoD	CoD Flag	%RSD
33	56	d5-N-ETFOSA	67		NO	10.827
34	57	13C2-PFHxDA	67		NO	15.555
35	58	d7-N-MeFOSE	67		NO	17.686
36	59	d9-N-EtFOSE	67		NO	17.185
37	60	13C4-PFBA	60		NO	0.000
38	61	13C5-PFHxA	61		NO	0.000
39	62	13C3-PFHxS	62		NO	0.000
40	63	13C8-PFOA	63		NO	0.000
41	64	13C9-PFNA	64		NO	0.000
42	65	13C4-PFOS	65		NO	0.000
43	66	13C6-PFDA	66		NO	0.000
44	67	13C7-PFUdA	67		NO	0.000

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Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 11:01:56 Pacific Daylight Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060418.mdb 05 Jun 2018 10:44:45
Calibration: 05 Jun 2018 10:50:38

Name: 180604M2_7, Date: 04-Jun-2018, Time: 20:04:03, ID: ST180604M2-6 PFC CS3 18E2907, Description: PFC CS3 18E2907

	Name	Ion Ratio	Ratio out?
1	PFBA		
2	PFPeA		
3	PFBS	2.849	NO
4	4:2 FTS	2.064	NO
5	PFHxA	314.526	NO
6	PFPeS	1.664	NO
7	PFHpA	18.241	NO
8	L-PFHxS	1.800	NO
9	6:2 FTS	2.945	NO
10	L-PFOA	4.244	NO
11	PFHpS	1.815	NO
12	PFNA	4.476	NO
13	PFOSA	17.870	NO
14	L-PFOS	1.988	NO
15	PFDA	6.803	NO
16	8:2 FTS	2.528	NO
17	PFNS	1.892	NO
18	L-MeFOSAA	13.965	NO

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Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 11:02:25 Pacific Daylight Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060418.mdb 05 Jun 2018 10:44:45
Calibration: 05 Jun 2018 10:50:38

Name: 180604M2_7, Date: 04-Jun-2018, Time: 20:04:03, ID: ST180604M2-6 PFC CS3 18E2907, Description: PFC CS3 18E2907

	Name	Ion Ratio	Ratio out?
1	L-EtFOSAA	13.776	NO
2	PFUdA	11.018	NO
3	PFDS	2.115	NO
4	PFDoA	8.300	NO
5	N-MeFOSA	1.431	NO
6	PFTrDA	32.402	NO
7	PFTeDA	13.373	NO
8	N-EtFOSA	1.479	NO
9	PFHxDA	35.333	NO
10	PFODA		
11	N-MeFOSE		
12	N-EtFOSE		

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Dataset: Untitled

Last Altered: Tuesday, June 05, 2018 11:05:15 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 11:05:32 Pacific Daylight Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060418.mdb 05 Jun 2018 10:44:45
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-04-18.cdb 05 Jun 2018 10:43:30

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	180604M2_1	IPA	04-Jun-18	19:01:22
2	2	180604M2_2	ST180604M2-1 PFC CS-2 18E2902	04-Jun-18	19:11:49
3	3	180604M2_3	ST180604M2-2 PFC CS-1 18E2903	04-Jun-18	19:22:13
4	4	180604M2_4	ST180604M2-3 PFC CS0 18E2904	04-Jun-18	19:32:43
5	5	180604M2_5	ST180604M2-4 PFC CS1 18E2905	04-Jun-18	19:43:08
6	6	180604M2_6	ST180604M2-5 PFC CS2 18E2906	04-Jun-18	19:53:38
7	7	180604M2_7	ST180604M2-6 PFC CS3 18E2907	04-Jun-18	20:04:03
8	8	180604M2_8	ST180604M2-7 PFC CS4 18E2908	04-Jun-18	20:14:33
9	9	180604M2_9	ST180604M2-8 PFC CS5 18E2909	04-Jun-18	20:24:59
10	10	180604M2_10	ST180604M2-9 PFC CS6 18E2910	04-Jun-18	20:35:29
11	11	180604M2_11	ST180604M2-10 PFC CS7 18E2911	04-Jun-18	20:45:54
12	12	180604M2_12	IPA	04-Jun-18	20:56:24
13	13	180604M2_13	ICV180604M2-1 PFC 537 ICV 18E2901	04-Jun-18	21:06:49
14	14	180604M2_14	IPA	04-Jun-18	21:17:19

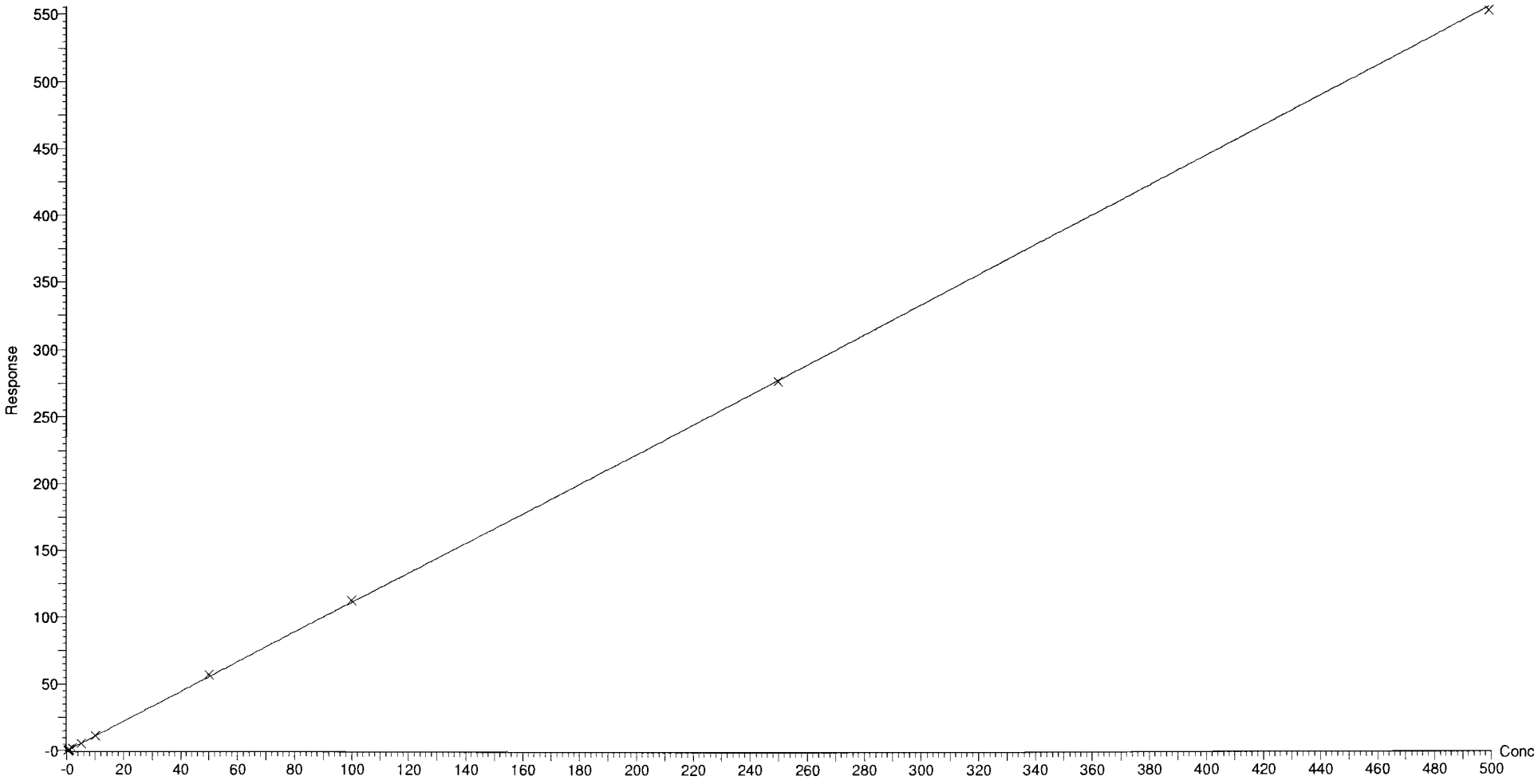
Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:34 Pacific Daylight Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060418.mdb 05 Jun 2018 10:44:45
Calibration: 05 Jun 2018 10:50:38 C18_VAL-PFAS_Q4_060-04-18

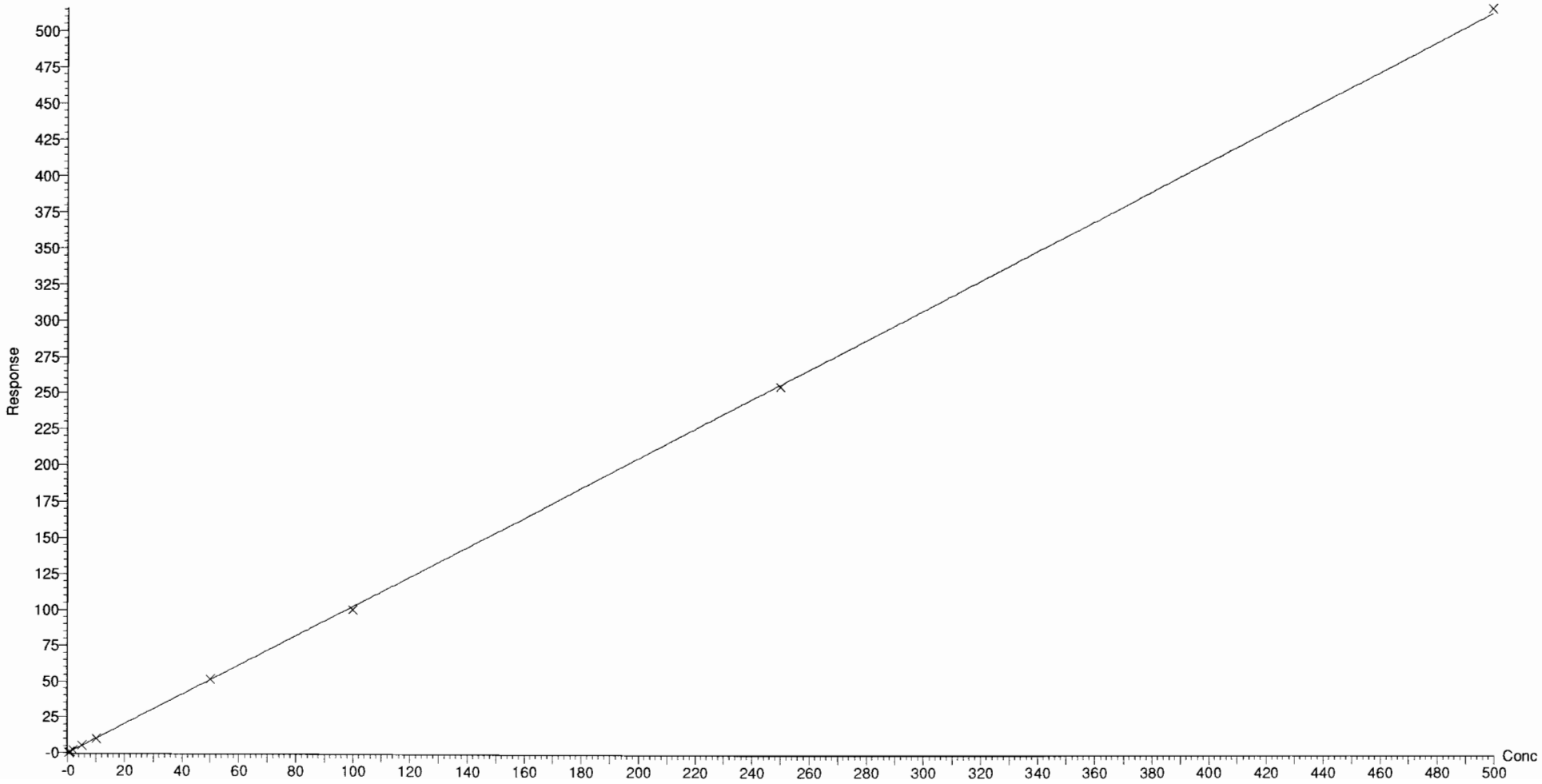
Compound name: PFBA
Correlation coefficient: r = 0.999948, r^2 = 0.999896
Calibration curve: 1.11083 * x + 0.00822384
Response type: Internal Std (Ref 36), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:34 Pacific Daylight Time

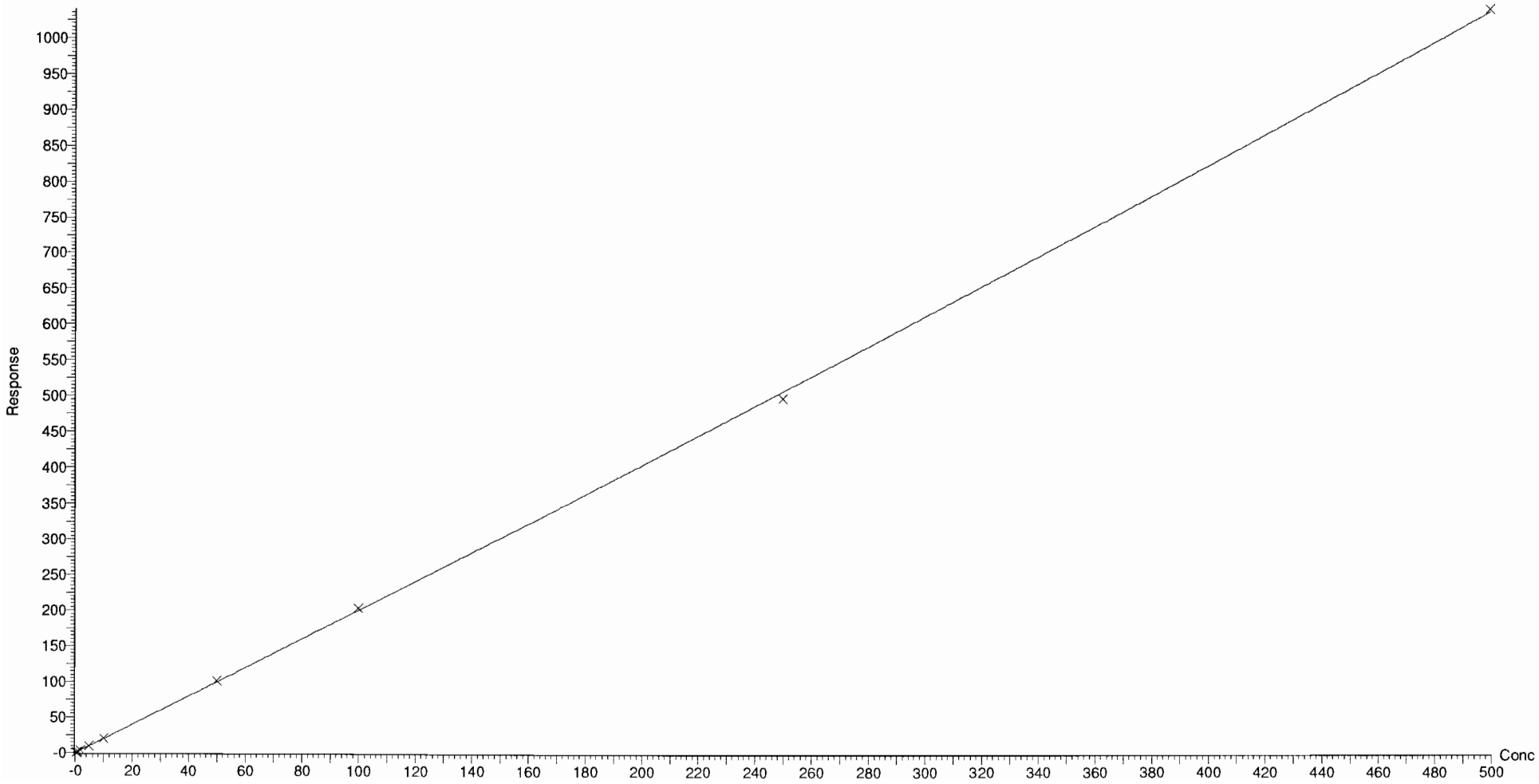
Compound name: PFPeA
Correlation coefficient: r = 0.999955, r^2 = 0.999909
Calibration curve: 1.02545 * x + 0.0205051
Response type: Internal Std (Ref 37), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:34 Pacific Daylight Time

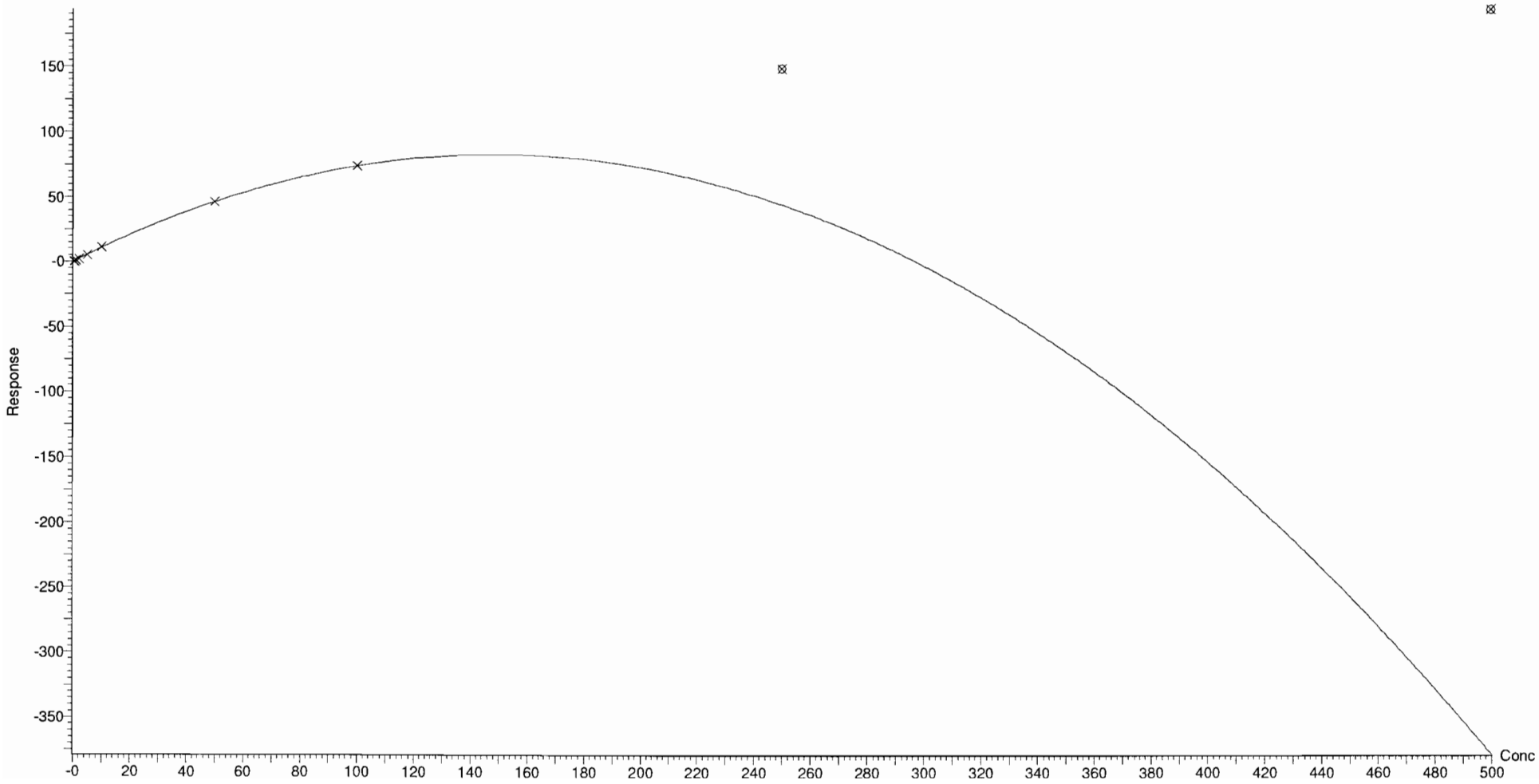
Compound name: PFBS
Coefficient of Determination: R^2 = 0.999853
Calibration curve: 0.000168277 * x^2 + 1.98828 * x + -0.00386959
Response type: Internal Std (Ref 38), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:34 Pacific Daylight Time

Compound name: 4:2 FTS
Coefficient of Determination: R^2 = 0.998838
Calibration curve: -0.00374524 * x^2 + 1.11582 * x + -0.011422
Response type: Internal Std (Ref 39), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

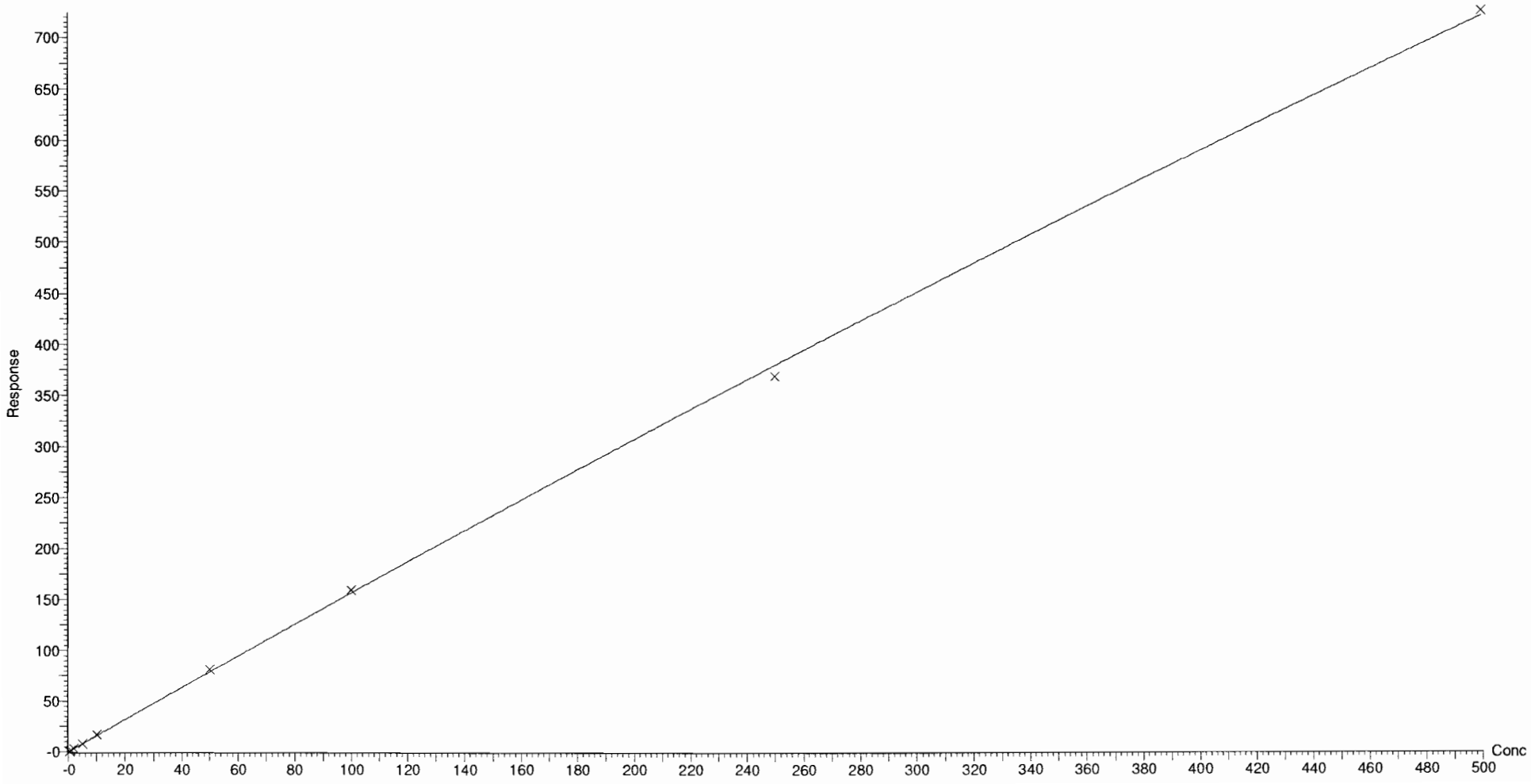


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:34 Pacific Daylight Time

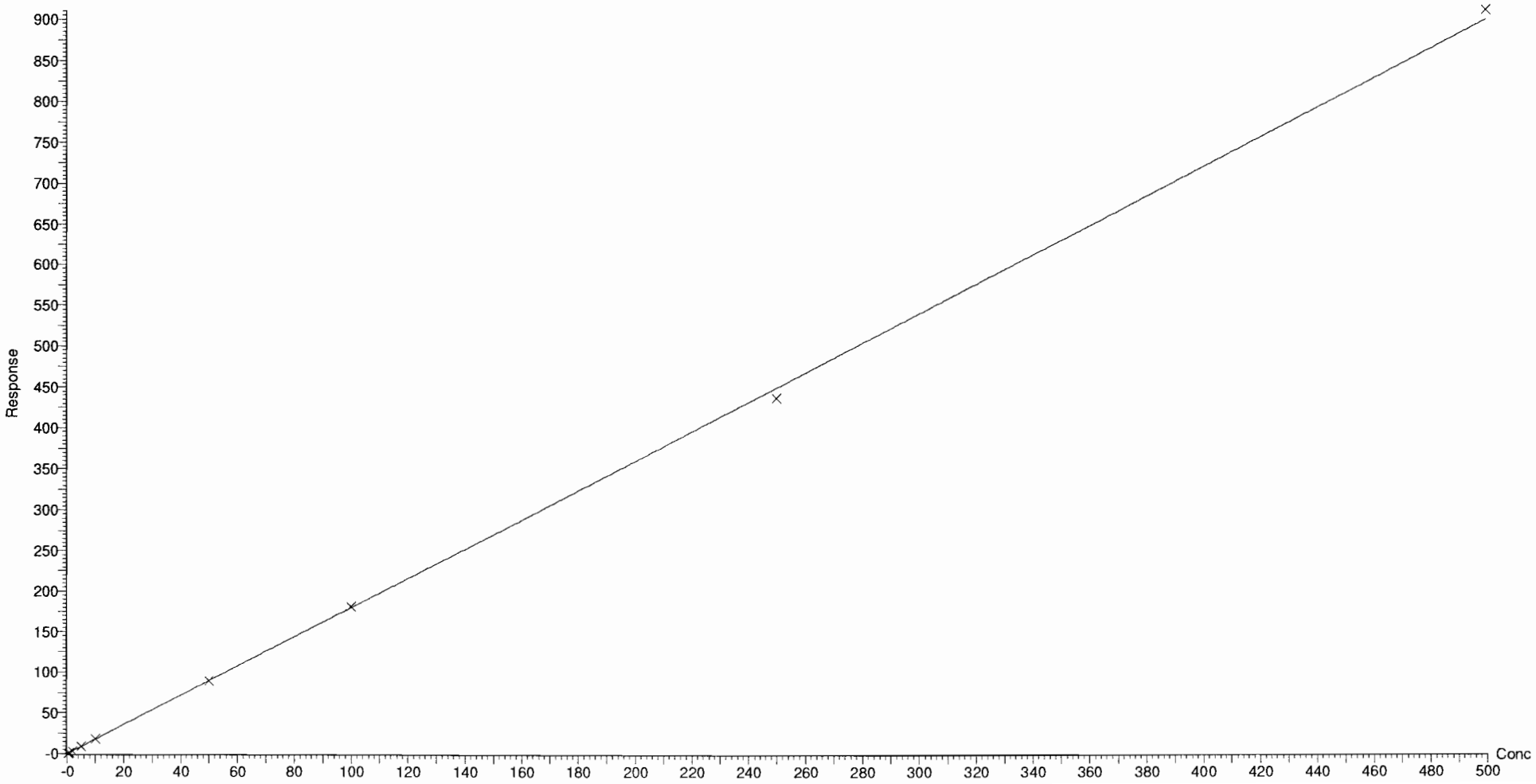
Compound name: PFHxA
Coefficient of Determination: R^2 = 0.999553
Calibration curve: -0.000313716 * x^2 + 1.59614 * x + 0.0424276
Response type: Internal Std (Ref 40), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:34 Pacific Daylight Time

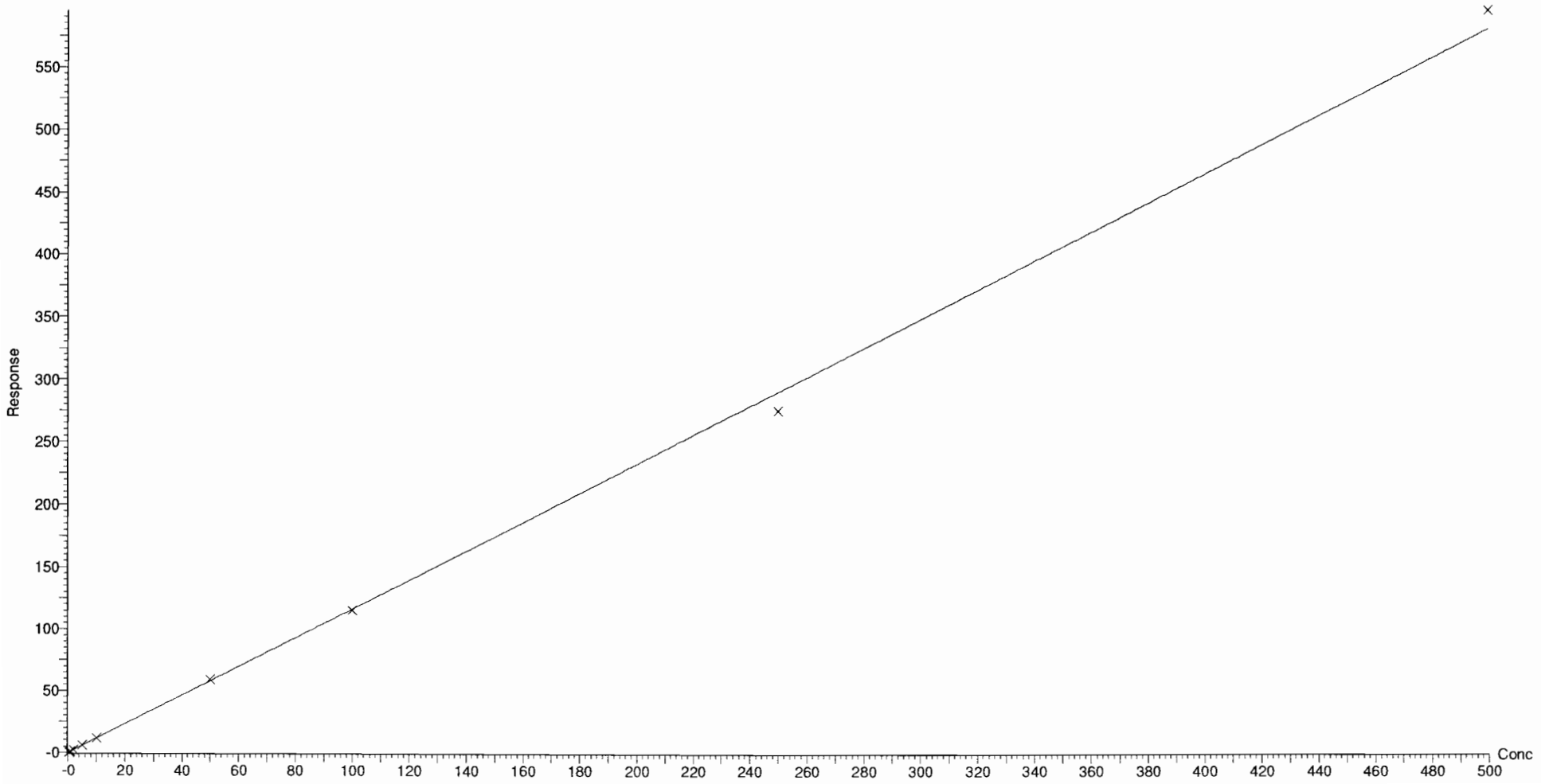
Compound name: PFPeS
Correlation coefficient: r = 0.999819, r^2 = 0.999638
Calibration curve: 1.79807 * x + 0.0789454
Response type: Internal Std (Ref 38), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:34 Pacific Daylight Time

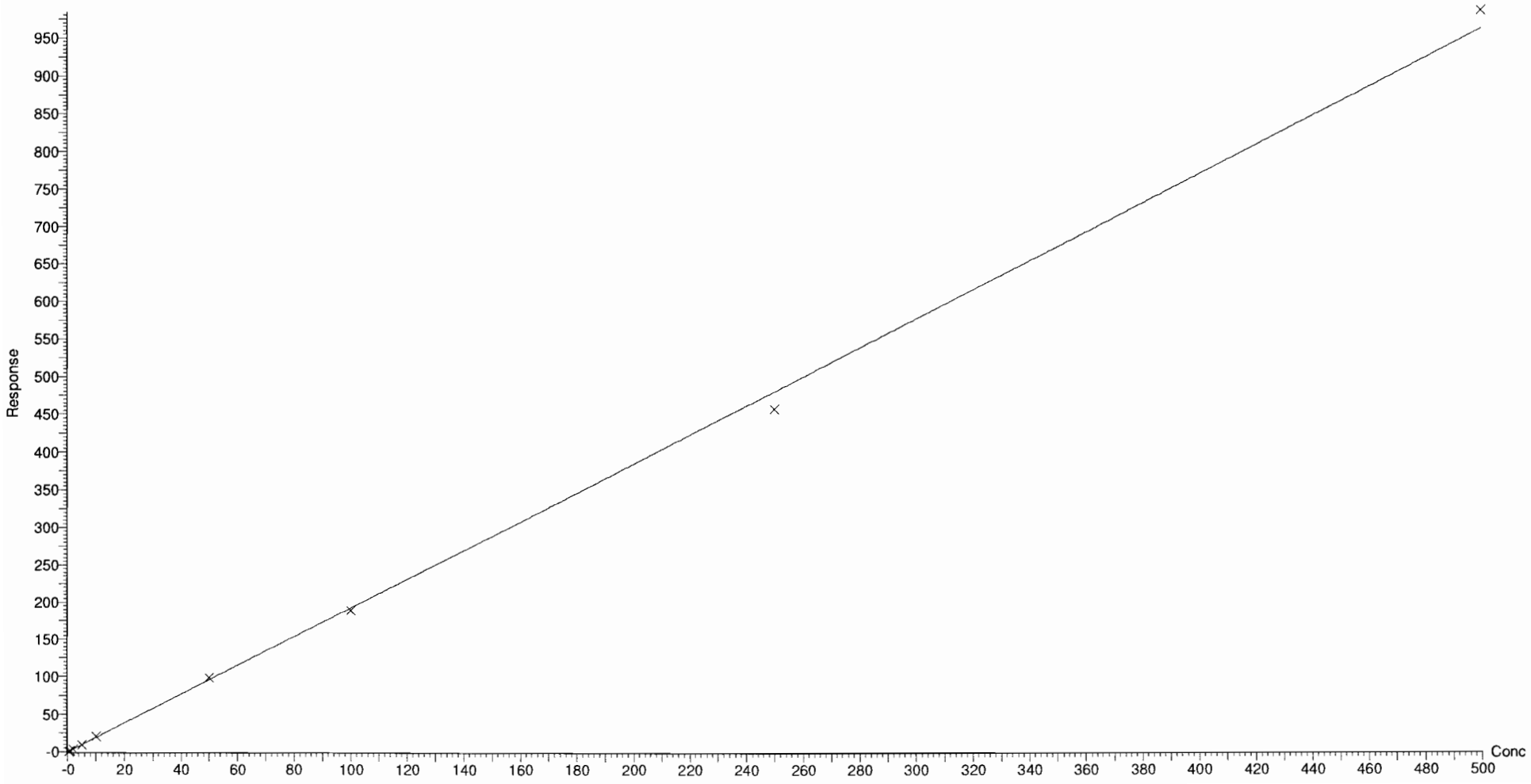
Compound name: PFHpA
Correlation coefficient: r = 0.999421, r^2 = 0.998843
Calibration curve: 1.16069 * x + 0.0713148
Response type: Internal Std (Ref 41), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:34 Pacific Daylight Time

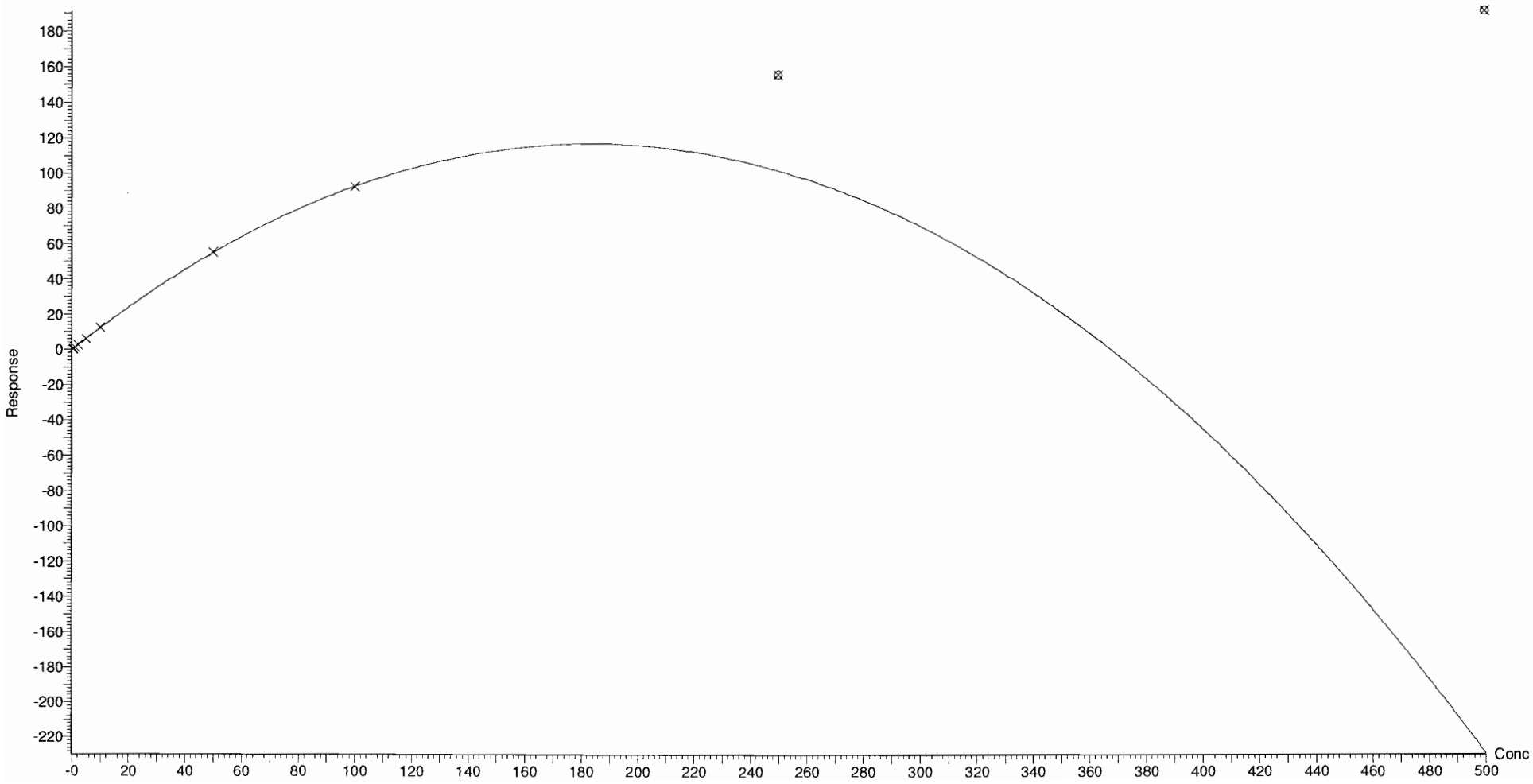
Compound name: L-PFHxS
Correlation coefficient: r = 0.999443, r^2 = 0.998887
Calibration curve: 1.9216 * x + -0.00896228
Response type: Internal Std (Ref 42), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:34 Pacific Daylight Time

Compound name: 6:2 FTS
Coefficient of Determination: R^2 = 0.999839
Calibration curve: -0.00346555 * x^2 + 1.27447 * x + -0.0336081
Response type: Internal Std (Ref 43), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

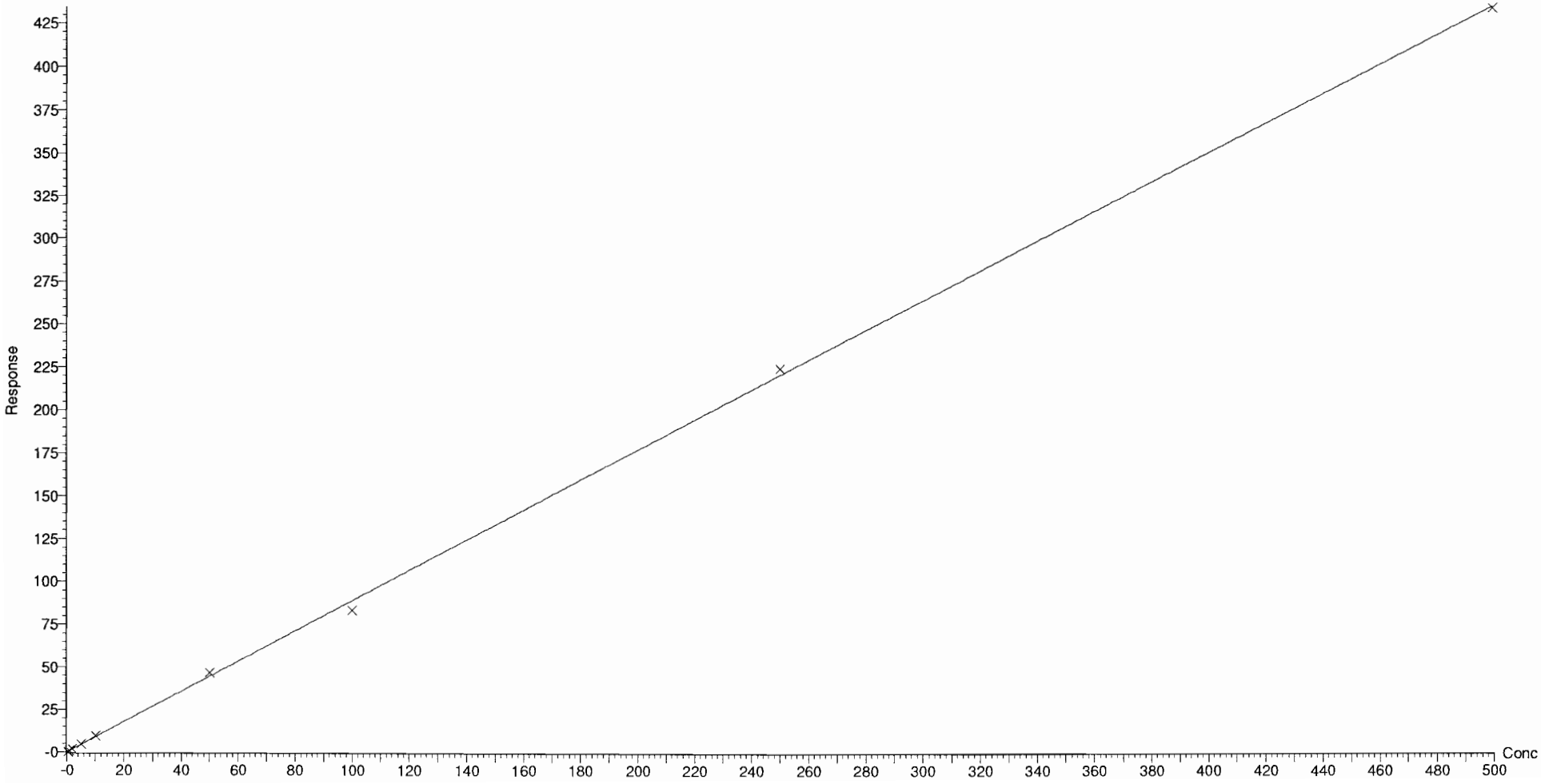


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:34 Pacific Daylight Time

Compound name: L-PFOA
Coefficient of Determination: R^2 = 0.999247
Calibration curve: -5.24867e-005 * x^2 + 0.895395 * x + 0.0852547
Response type: Internal Std (Ref 44), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

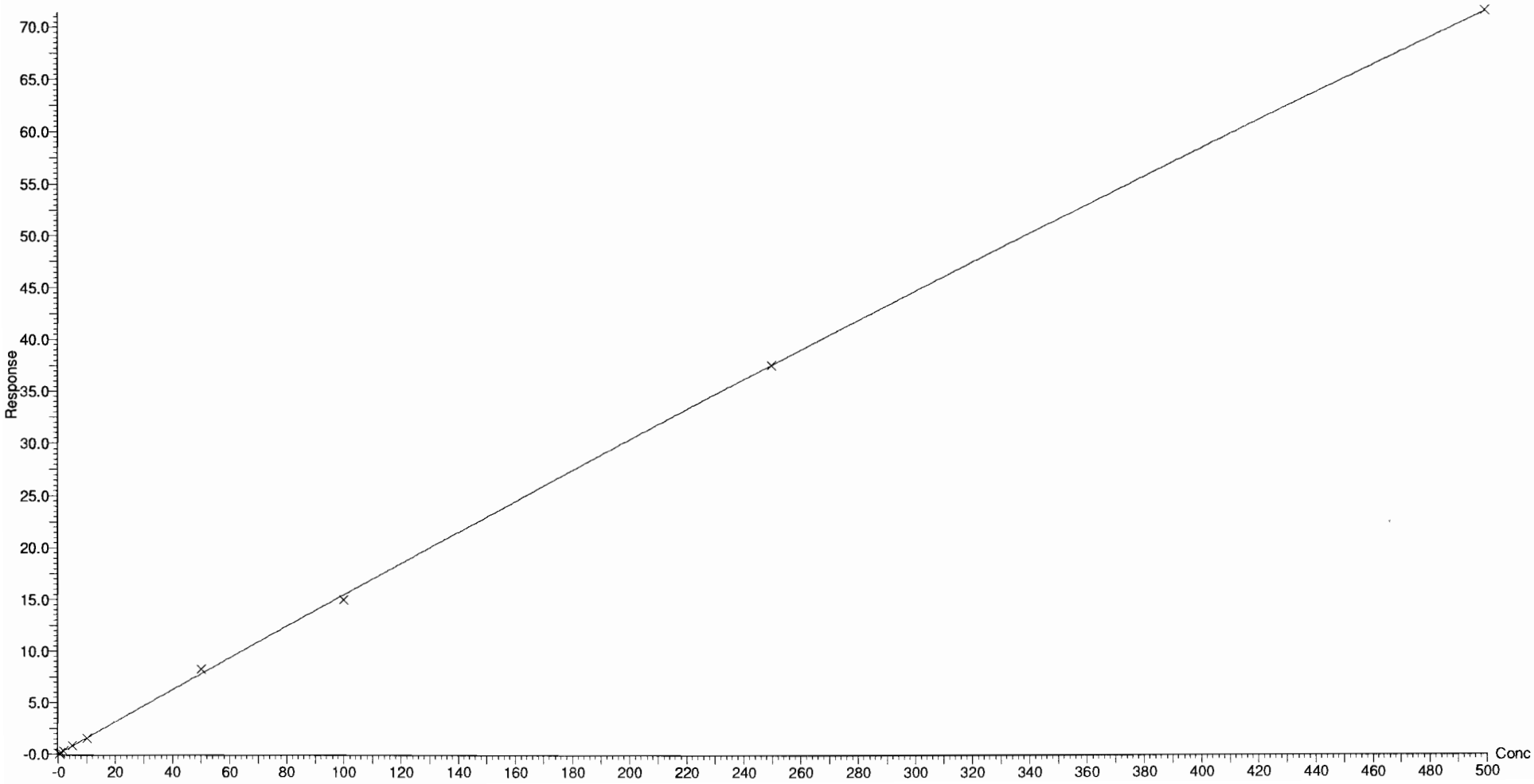


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:34 Pacific Daylight Time

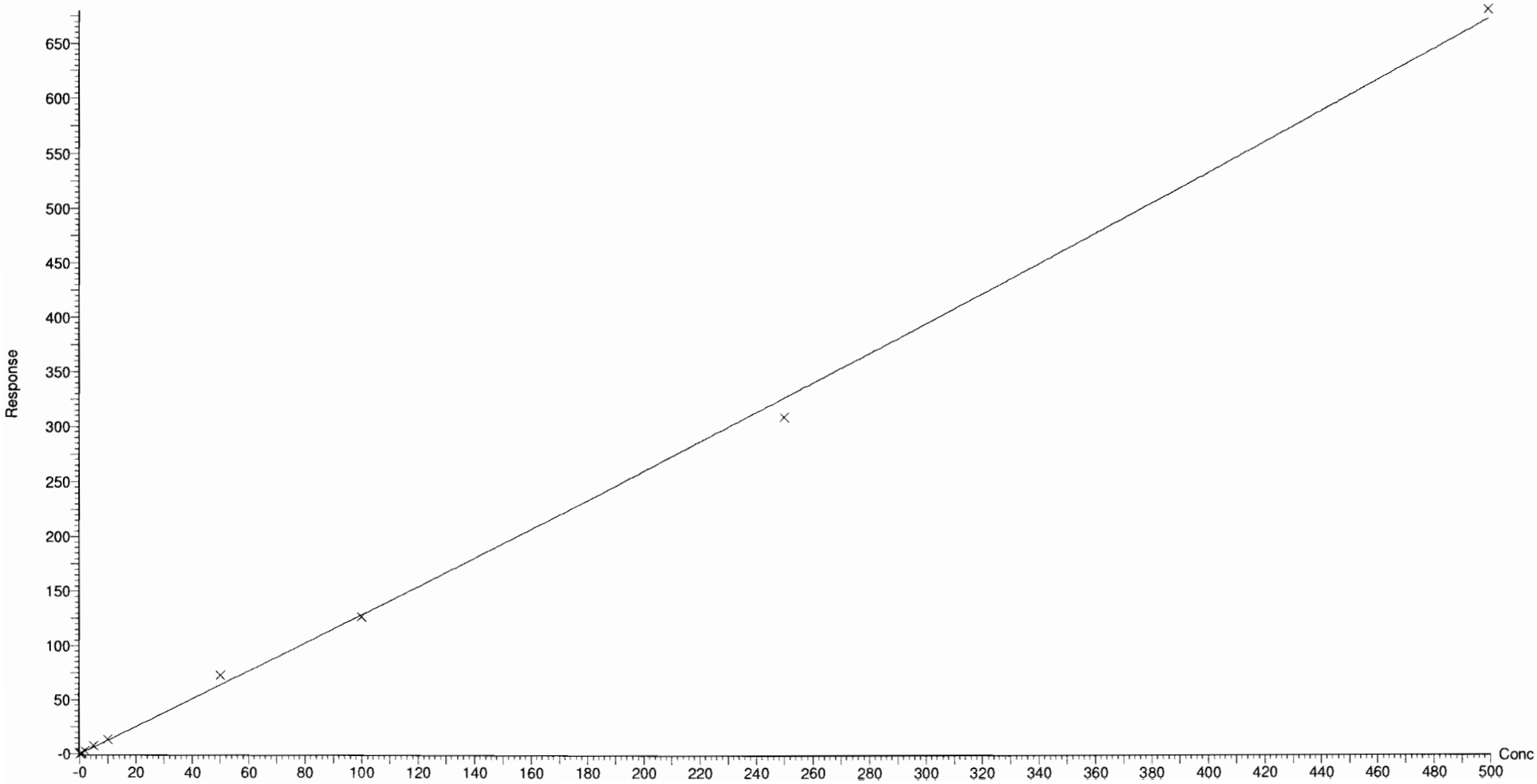
Compound name: PFHpS
Coefficient of Determination: R^2 = 0.999609
Calibration curve: -2.99805e-005 * x^2 + 0.157724 * x + 0.00259156
Response type: Internal Std (Ref 44), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:34 Pacific Daylight Time

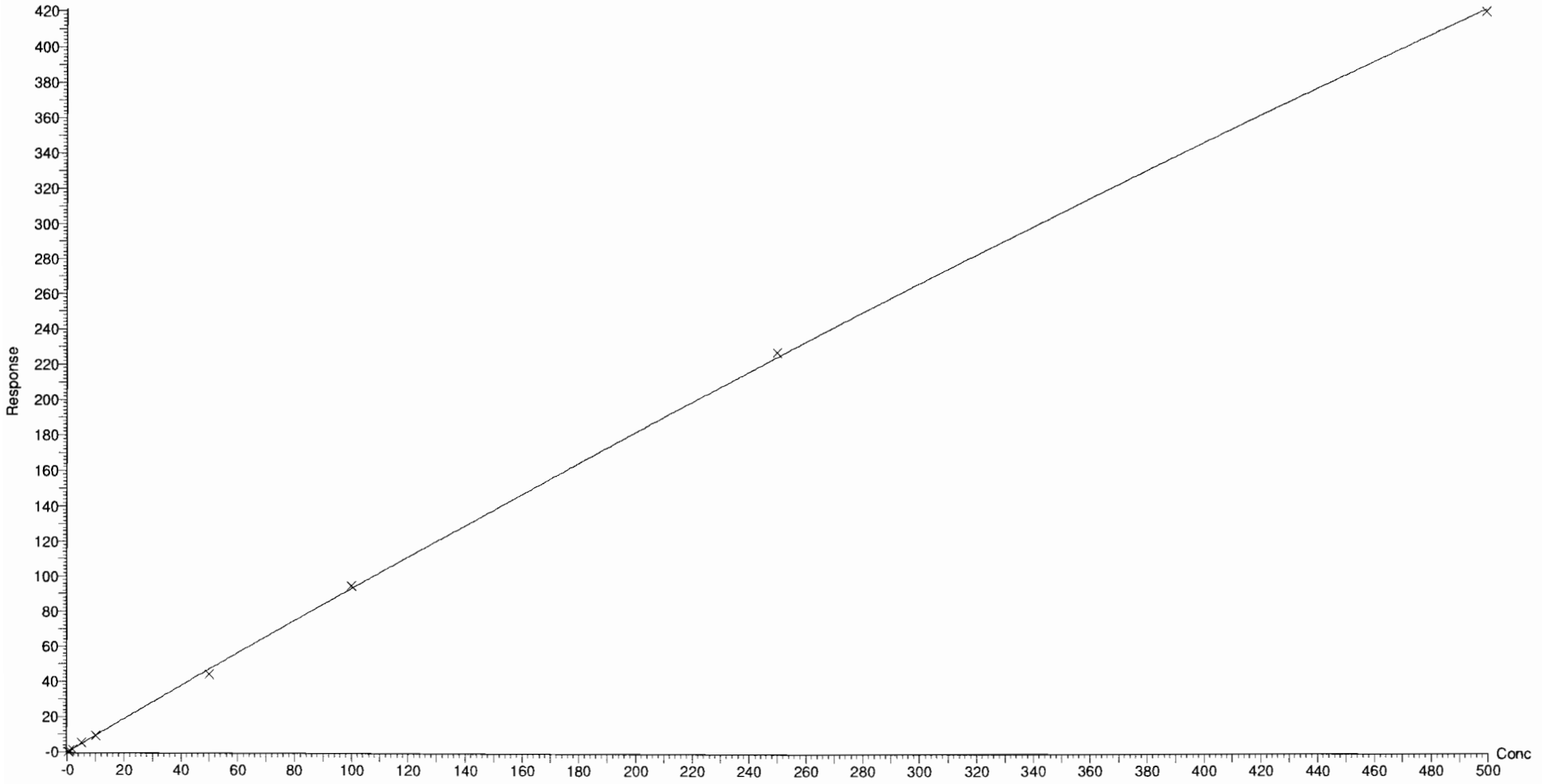
Compound name: PFNA
Coefficient of Determination: R^2 = 0.997864
Calibration curve: 0.000147582 * x^2 + 1.2693 * x + 0.0983793
Response type: Internal Std (Ref 45), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:34 Pacific Daylight Time

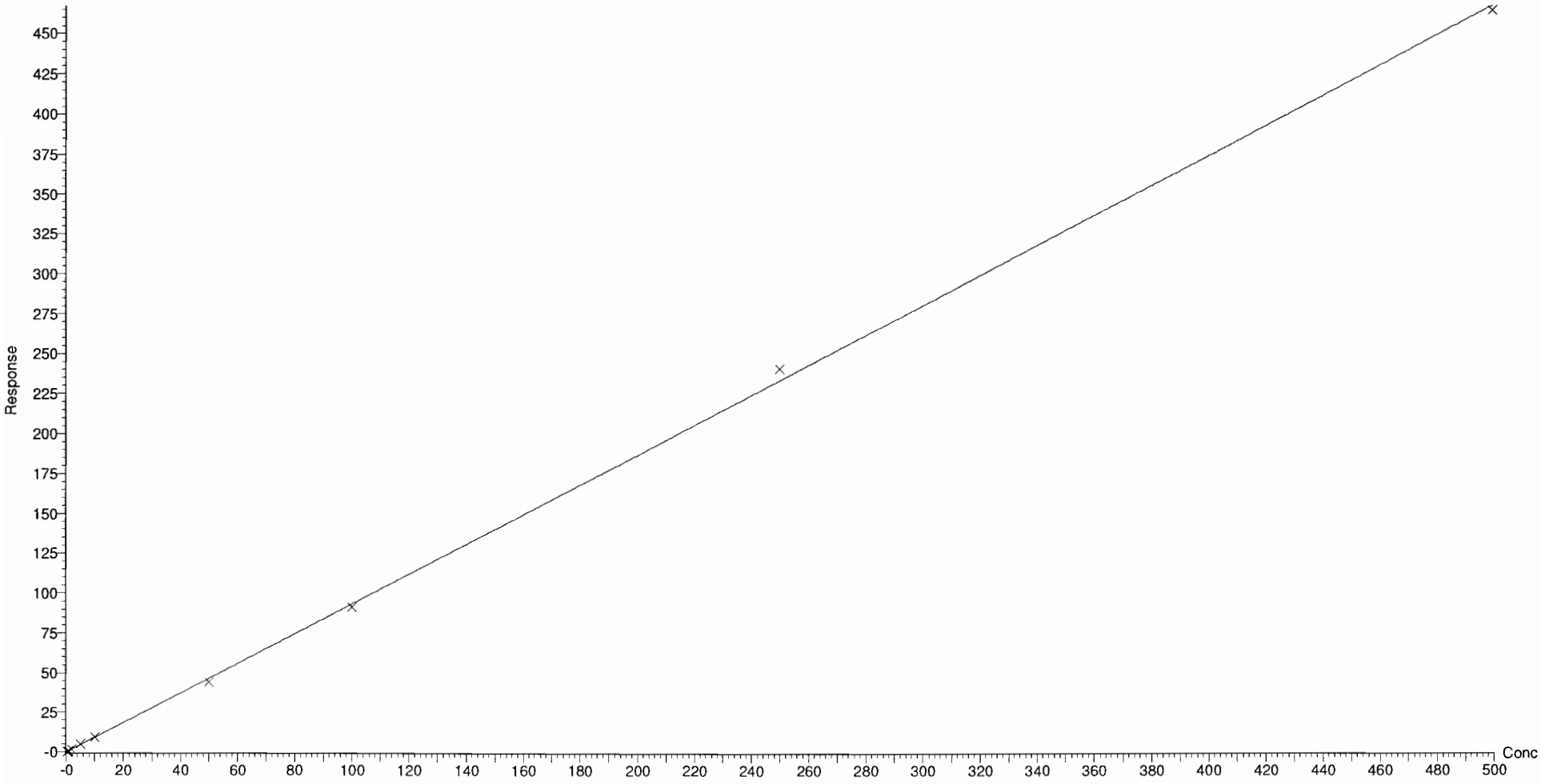
Compound name: PFOSA
Coefficient of Determination: R^2 = 0.999493
Calibration curve: -0.000225332 * x^2 + 0.955318 * x + -0.036378
Response type: Internal Std (Ref 46), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:34 Pacific Daylight Time

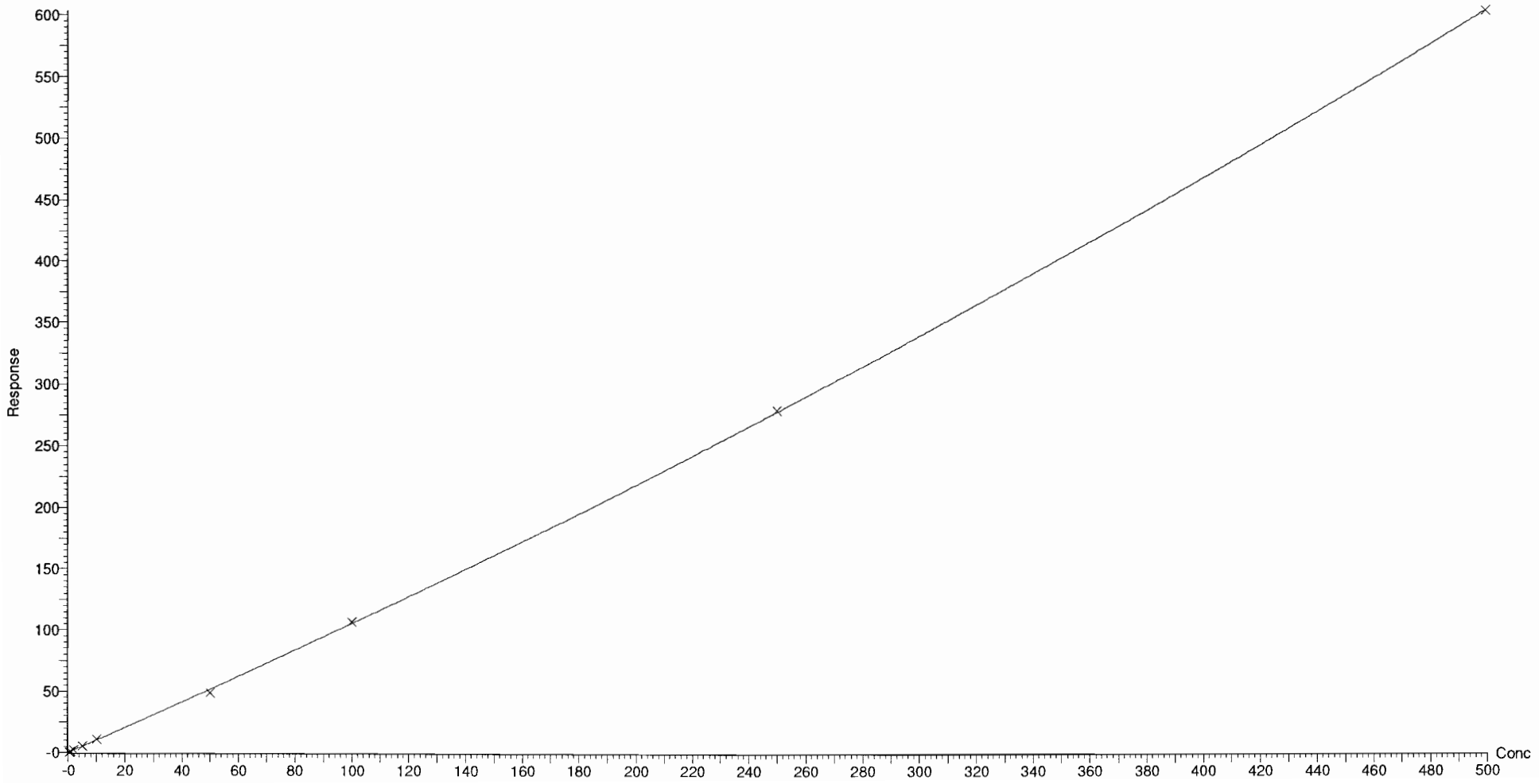
Compound name: L-PFOS
Coefficient of Determination: R^2 = 0.999458
Calibration curve: 1.42803e-007 * x^2 + 0.934629 * x + -0.0613722
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:34 Pacific Daylight Time

Compound name: PFDA
Coefficient of Determination: R^2 = 0.999743
Calibration curve: 0.00037847 * x^2 + 1.01718 * x + 0.0671158
Response type: Internal Std (Ref 48), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

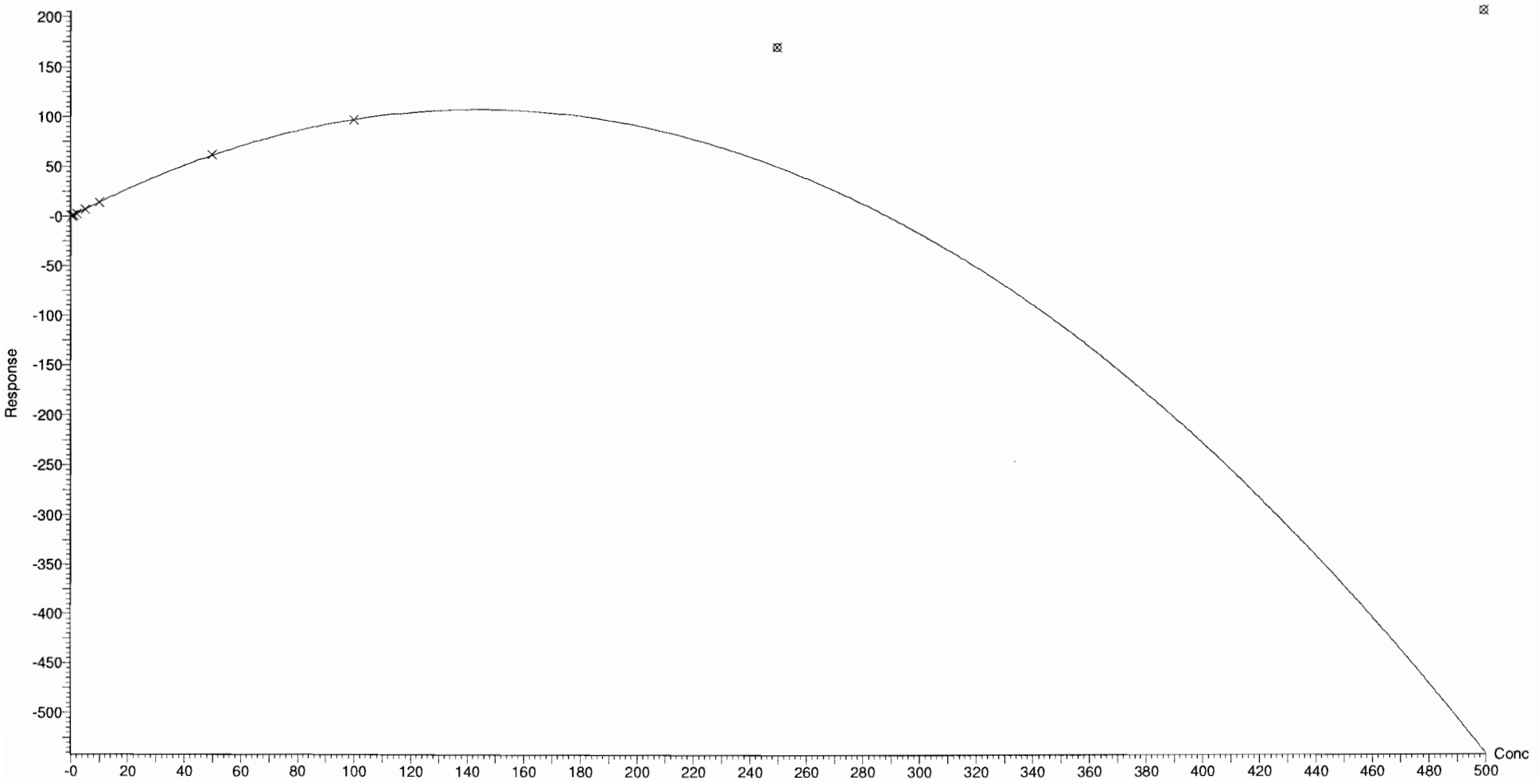


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:34 Pacific Daylight Time

Compound name: 8:2 FTS
Coefficient of Determination: R^2 = 0.999723
Calibration curve: -0.0051377 * x^2 + 1.48665 * x + 0.00181394
Response type: Internal Std (Ref 49), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

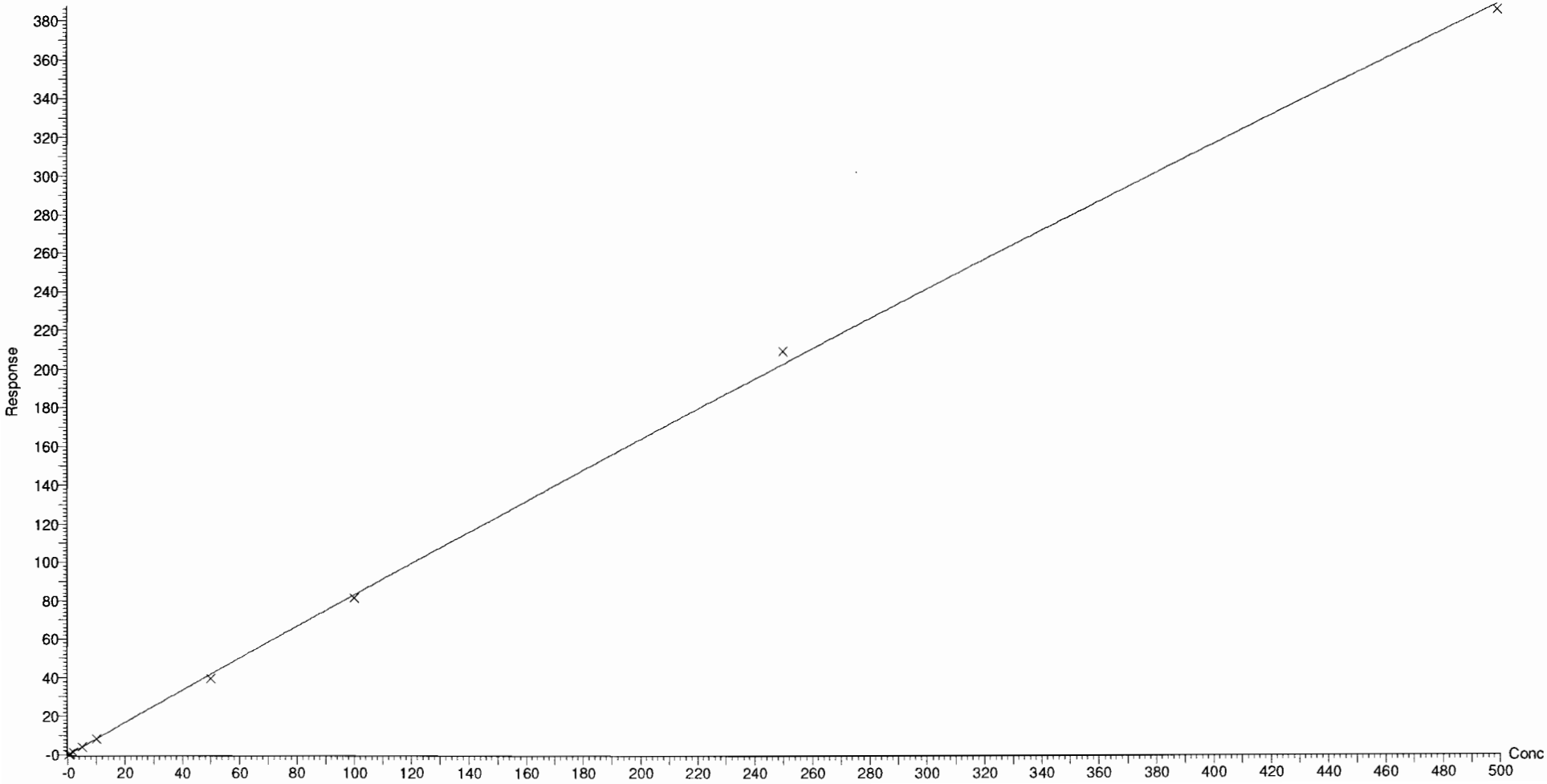


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
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Compound name: PFNS
Coefficient of Determination: R^2 = 0.999403
Calibration curve: -0.000141031 * x^2 + 0.84601 * x + -0.0910263
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



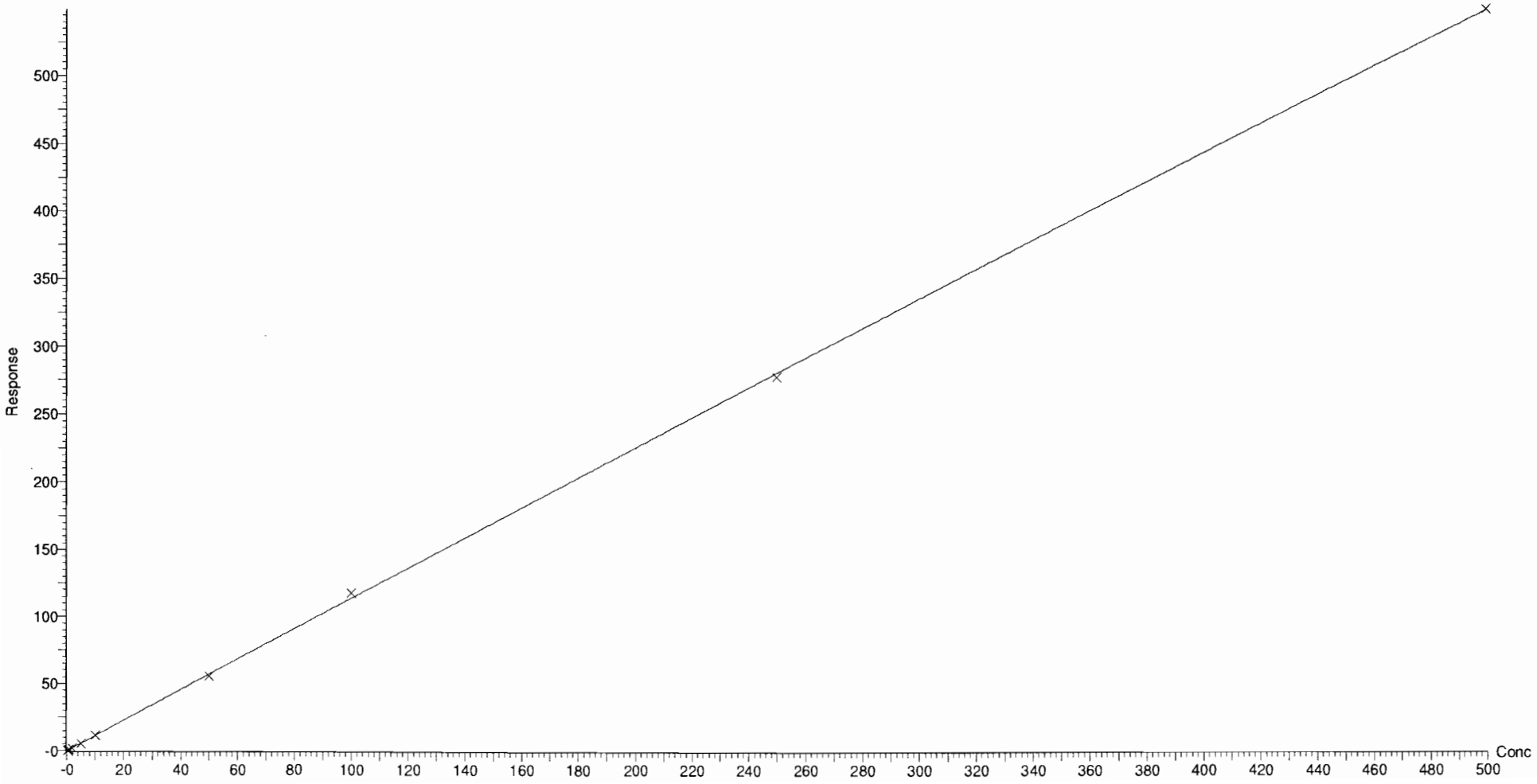
Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:48 Pacific Daylight Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060418.mdb 05 Jun 2018 10:44:45
Calibration: 05 Jun 2018 10:50:38 VAL_PFAS-04_00-04-18

Compound name: L-EtFOSAA
Coefficient of Determination: R^2 = 0.999646
Calibration curve: -0.00010475 * x^2 + 1.14871 * x + -0.0588573
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

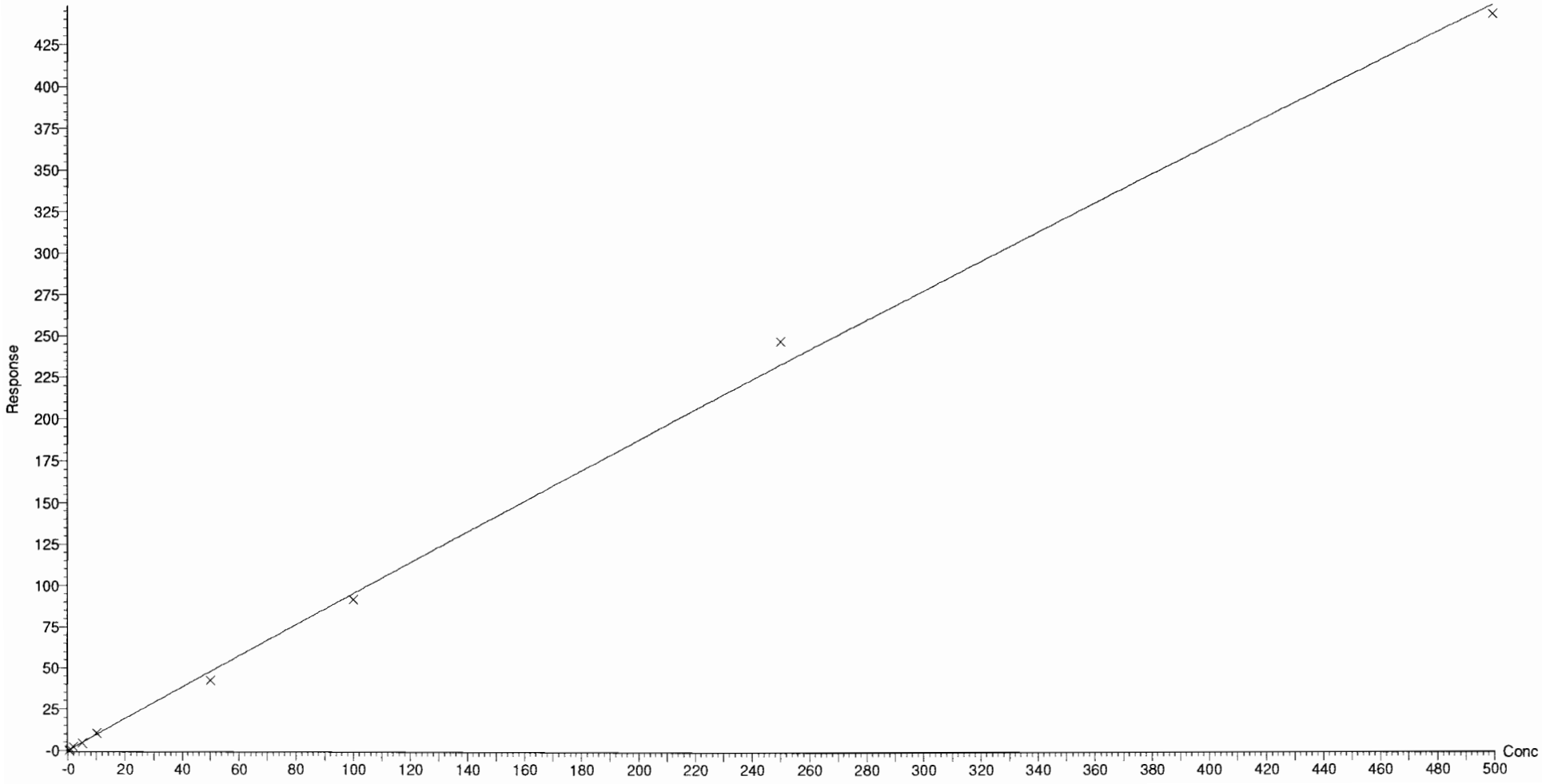


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
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Compound name: PFUdA
Coefficient of Determination: R^2 = 0.997692
Calibration curve: -0.00013883 * x^2 + 0.96625 * x + 0.0663674
Response type: Internal Std (Ref 52), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

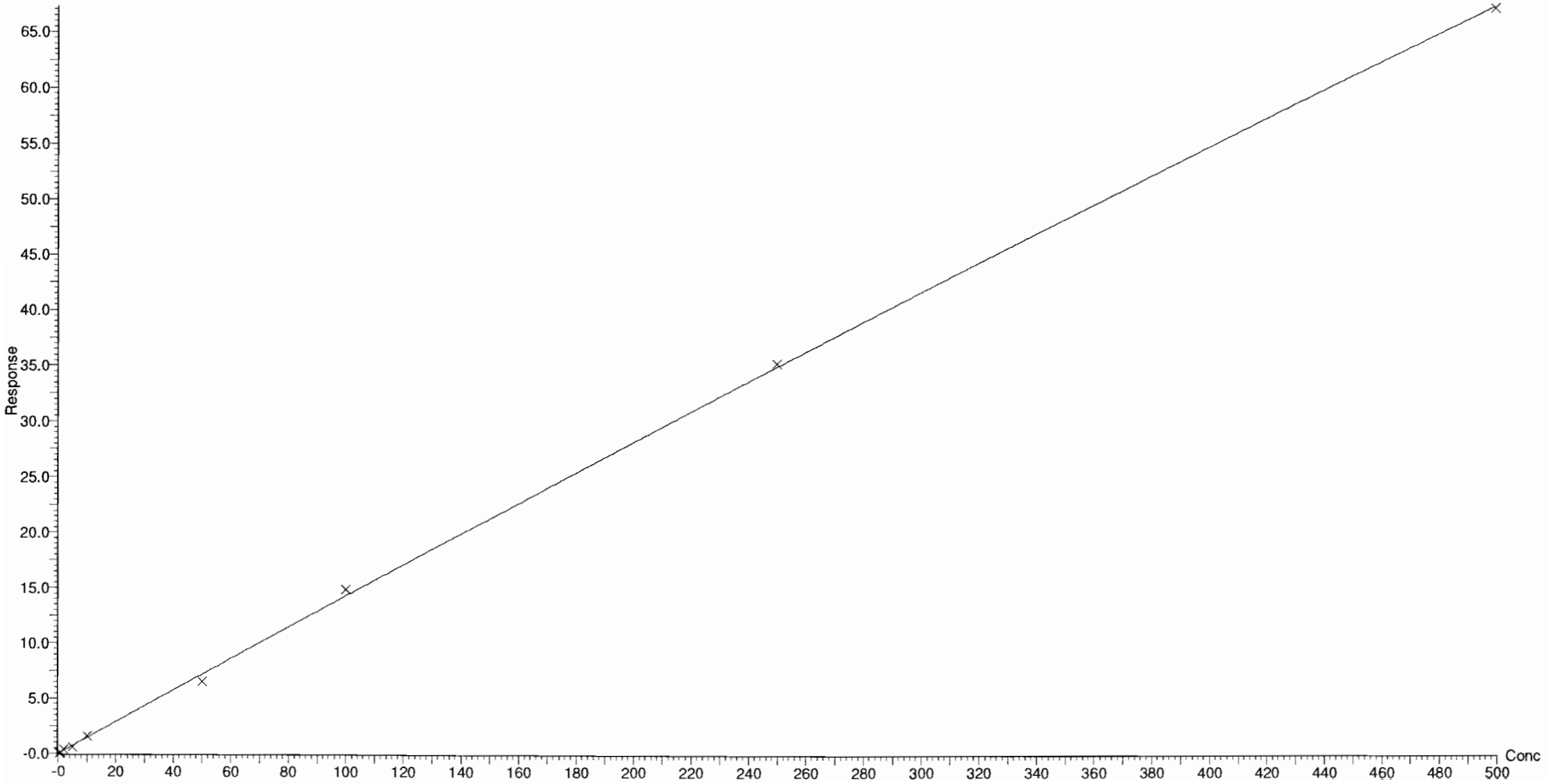


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:48 Pacific Daylight Time

Compound name: PFDS
Coefficient of Determination: R^2 = 0.998713
Calibration curve: -2.08709e-005 * x^2 + 0.145076 * x + -0.00507523
Response type: Internal Std (Ref 52), Area * (IS Conc. / IS Area)
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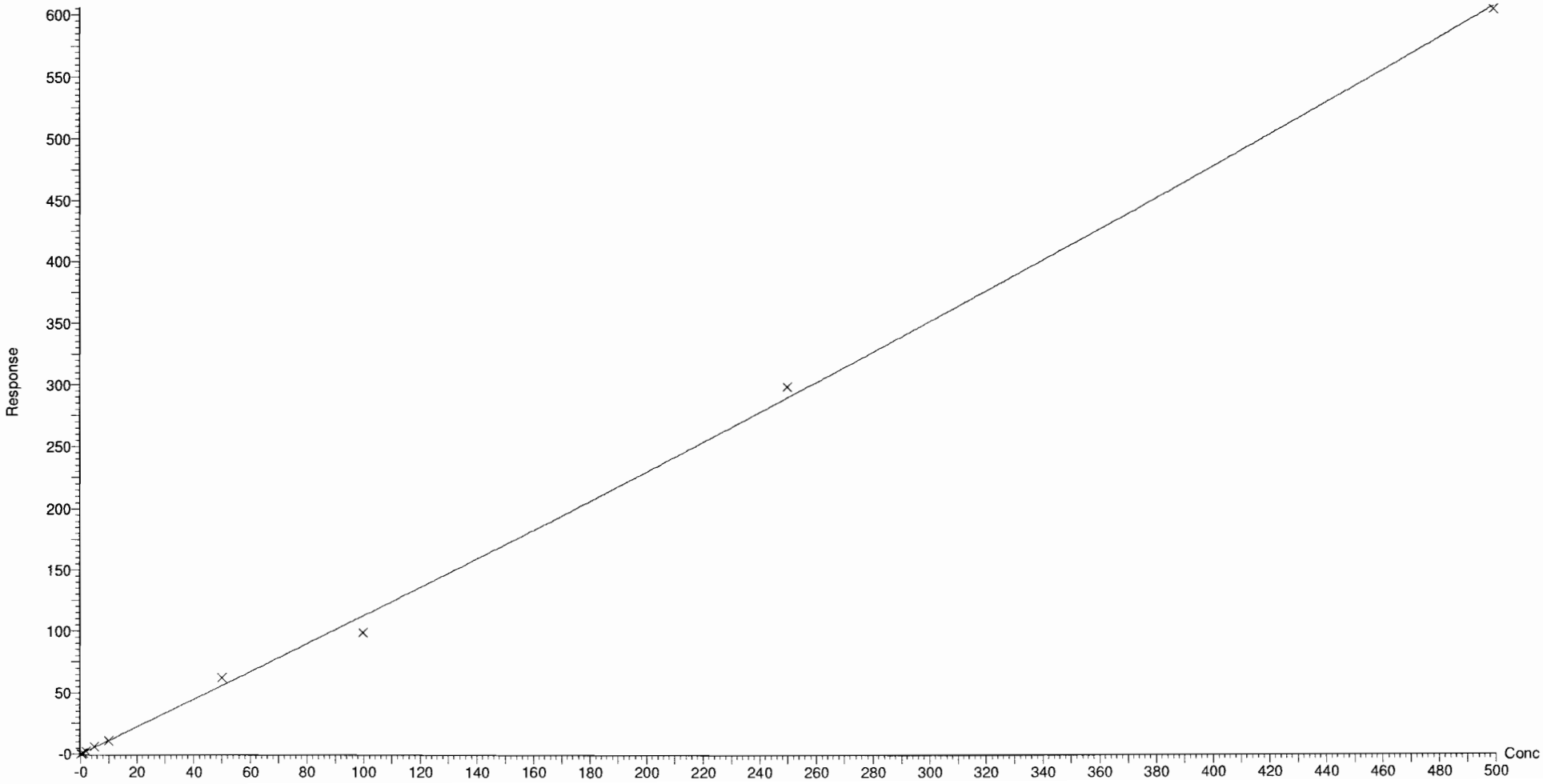


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
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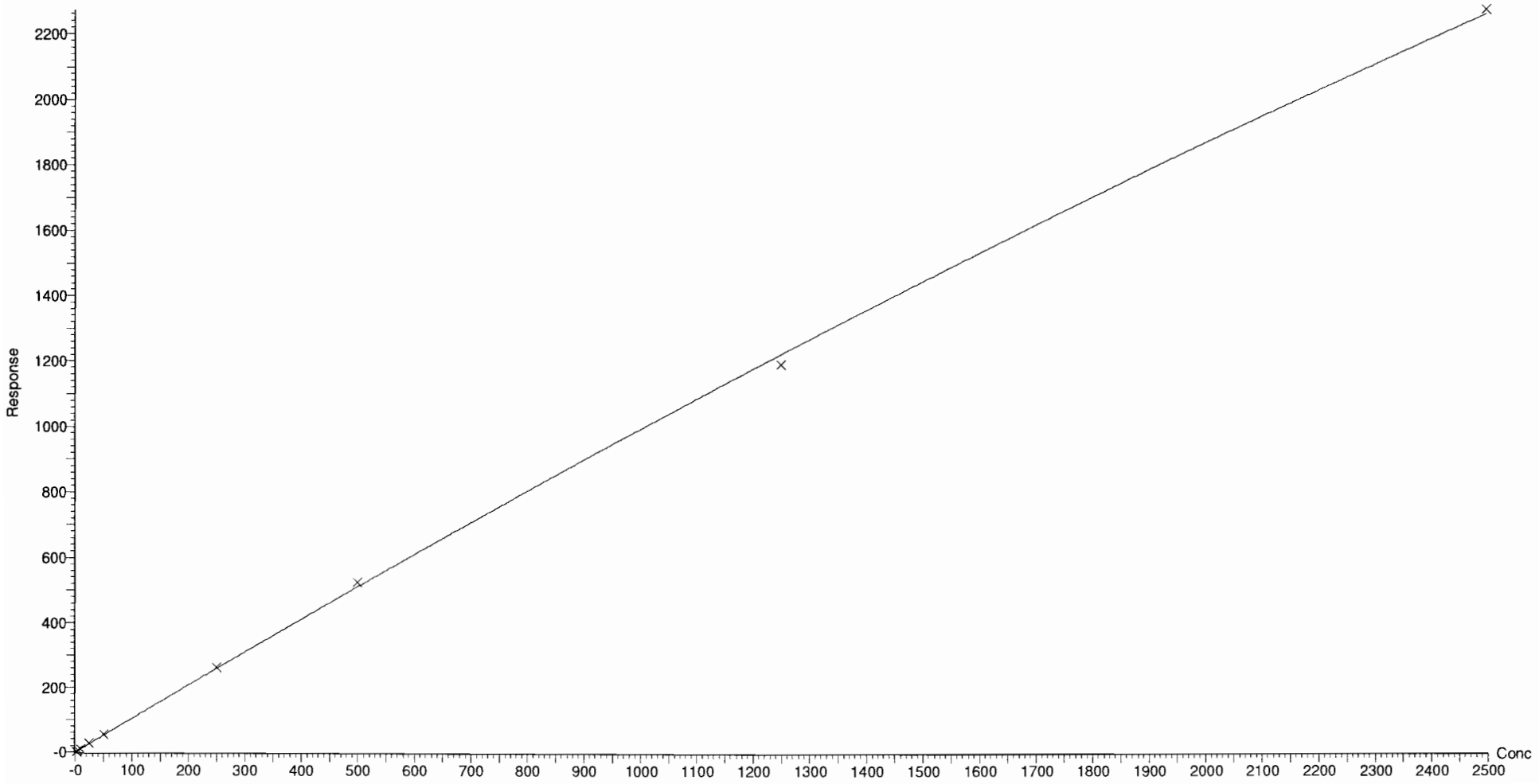
Compound name: PFDoA
Coefficient of Determination: R^2 = 0.997401
Calibration curve: 0.000212677 * x^2 + 1.10562 * x + 0.0813564
Response type: Internal Std (Ref 53), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:48 Pacific Daylight Time

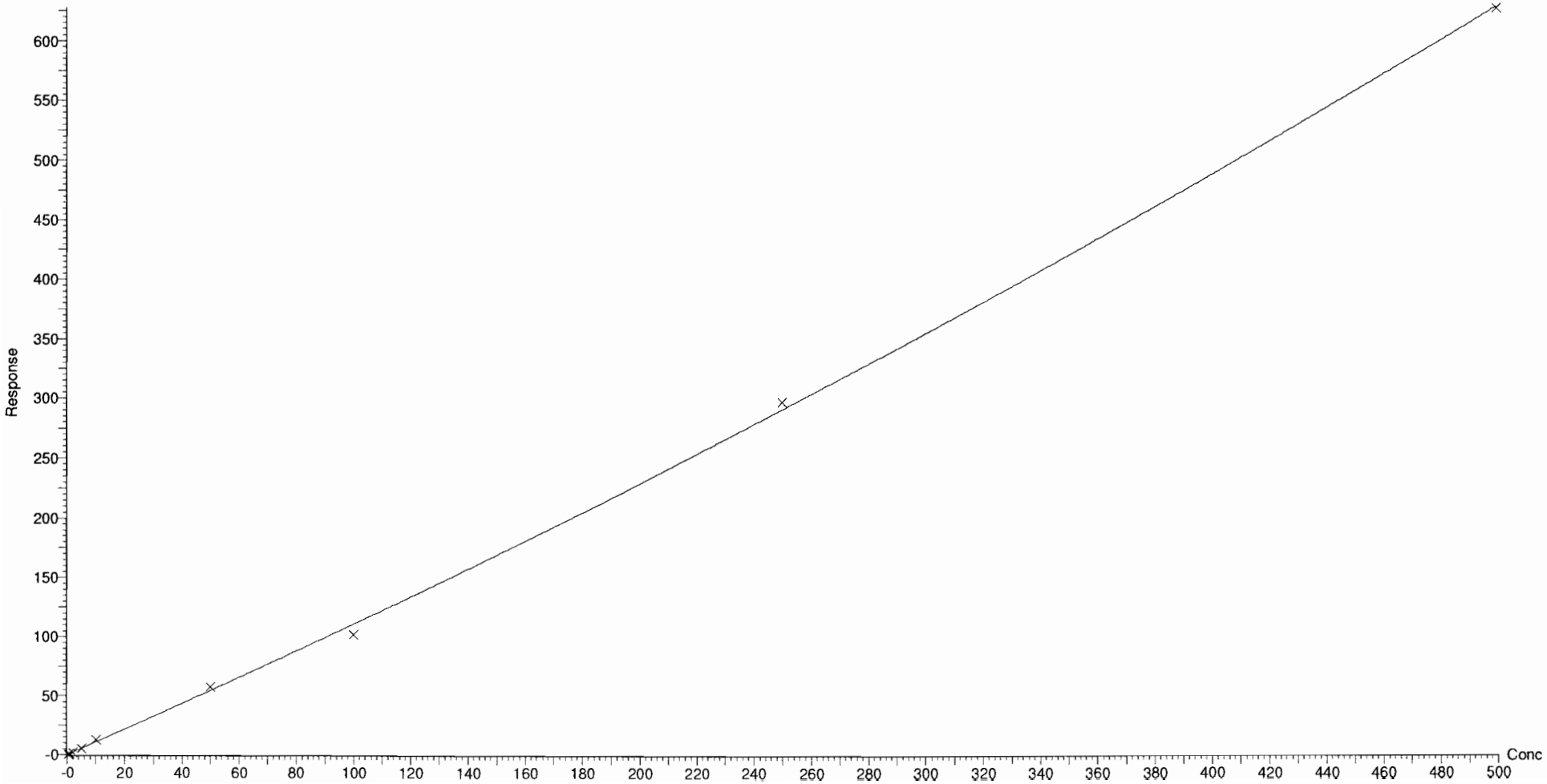
Compound name: N-MeFOSA
Coefficient of Determination: R^2 = 0.999647
Calibration curve: -6.00765e-005 * x^2 + 1.05382 * x + 1.43912e-005
Response type: Internal Std (Ref 54), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:48 Pacific Daylight Time

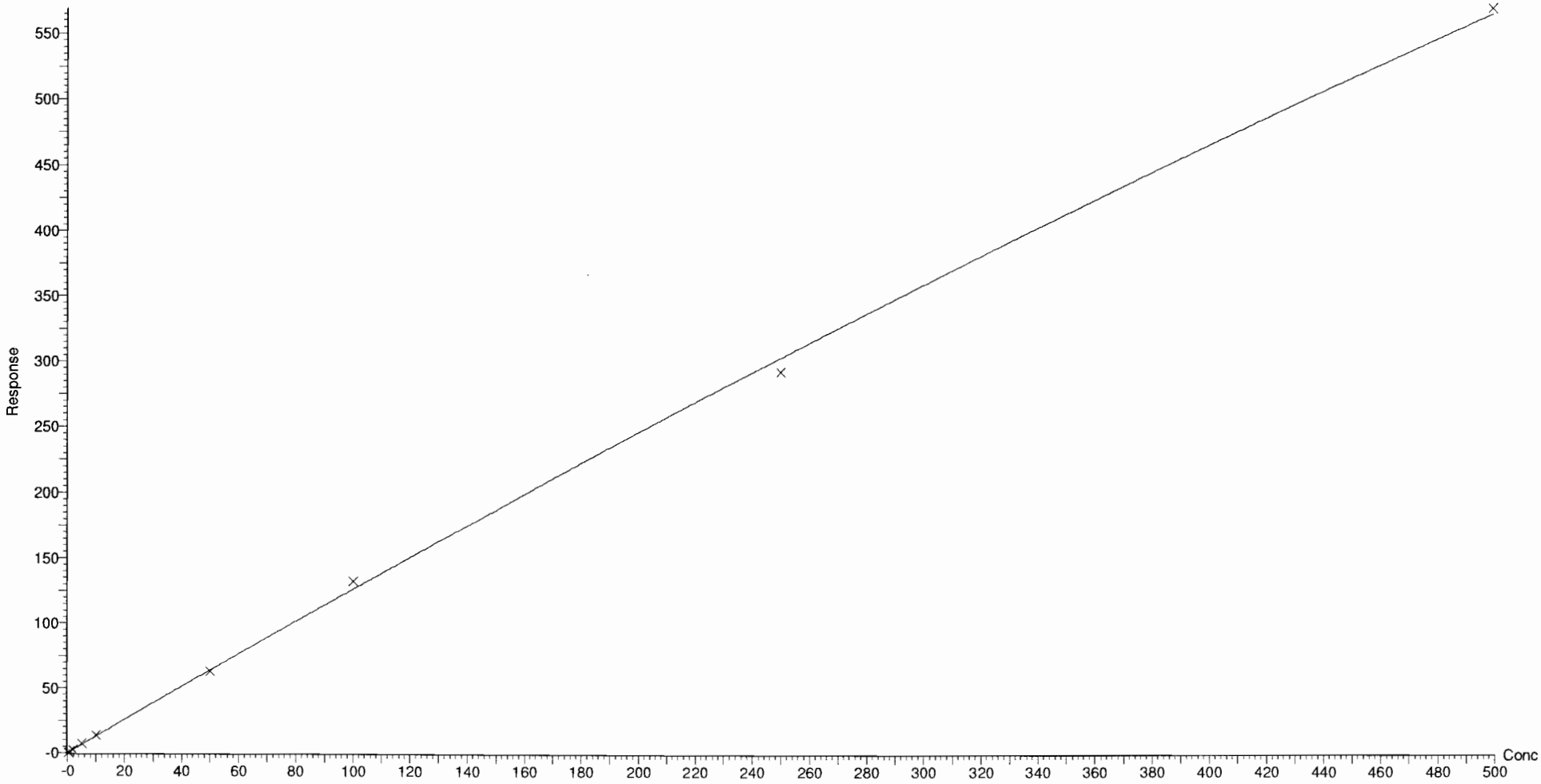
Compound name: PFTrDA
Coefficient of Determination: R^2 = 0.998885
Calibration curve: 0.000371643 * x^2 + 1.06917 * x + 0.144786
Response type: Internal Std (Ref 53), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:48 Pacific Daylight Time

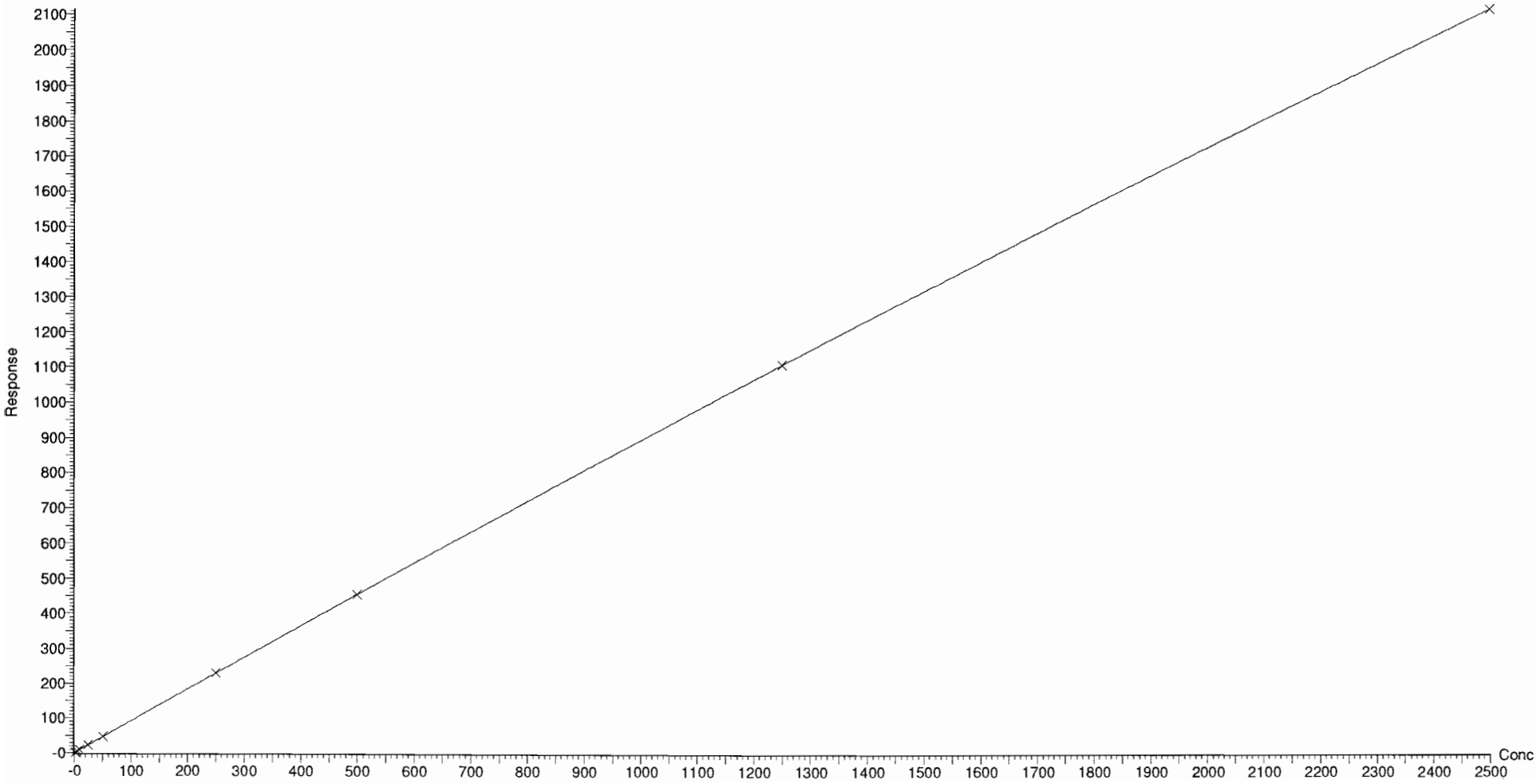
Compound name: PFTeDA
Coefficient of Determination: R^2 = 0.999161
Calibration curve: -0.000334653 * x^2 + 1.29716 * x + 0.0524742
Response type: Internal Std (Ref 55), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:48 Pacific Daylight Time

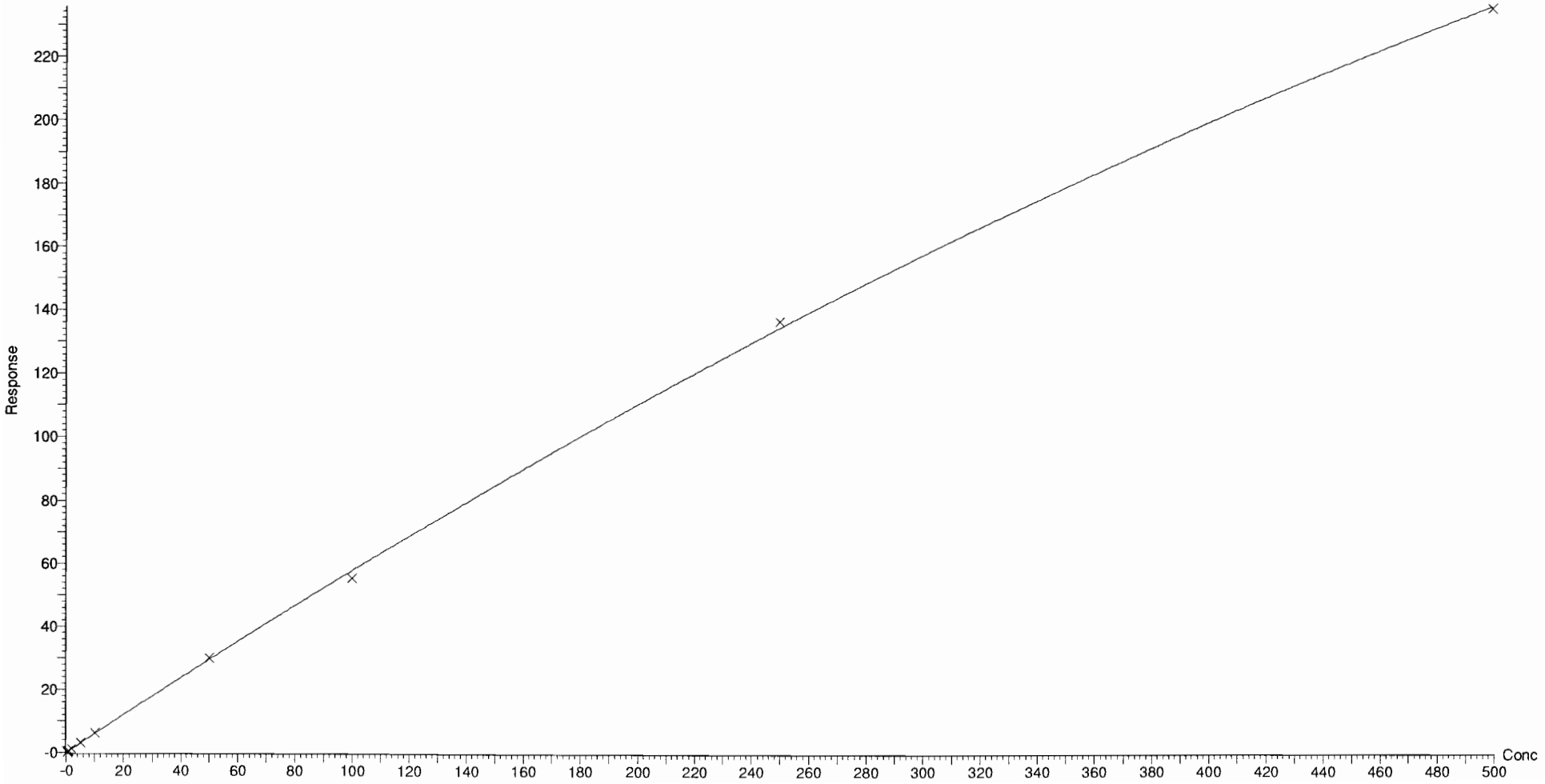
Compound name: N-EtFOSA
Coefficient of Determination: R^2 = 0.999998
Calibration curve: -3.24276e-005 * x^2 + 0.927207 * x + 0.0223365
Response type: Internal Std (Ref 56), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:48 Pacific Daylight Time

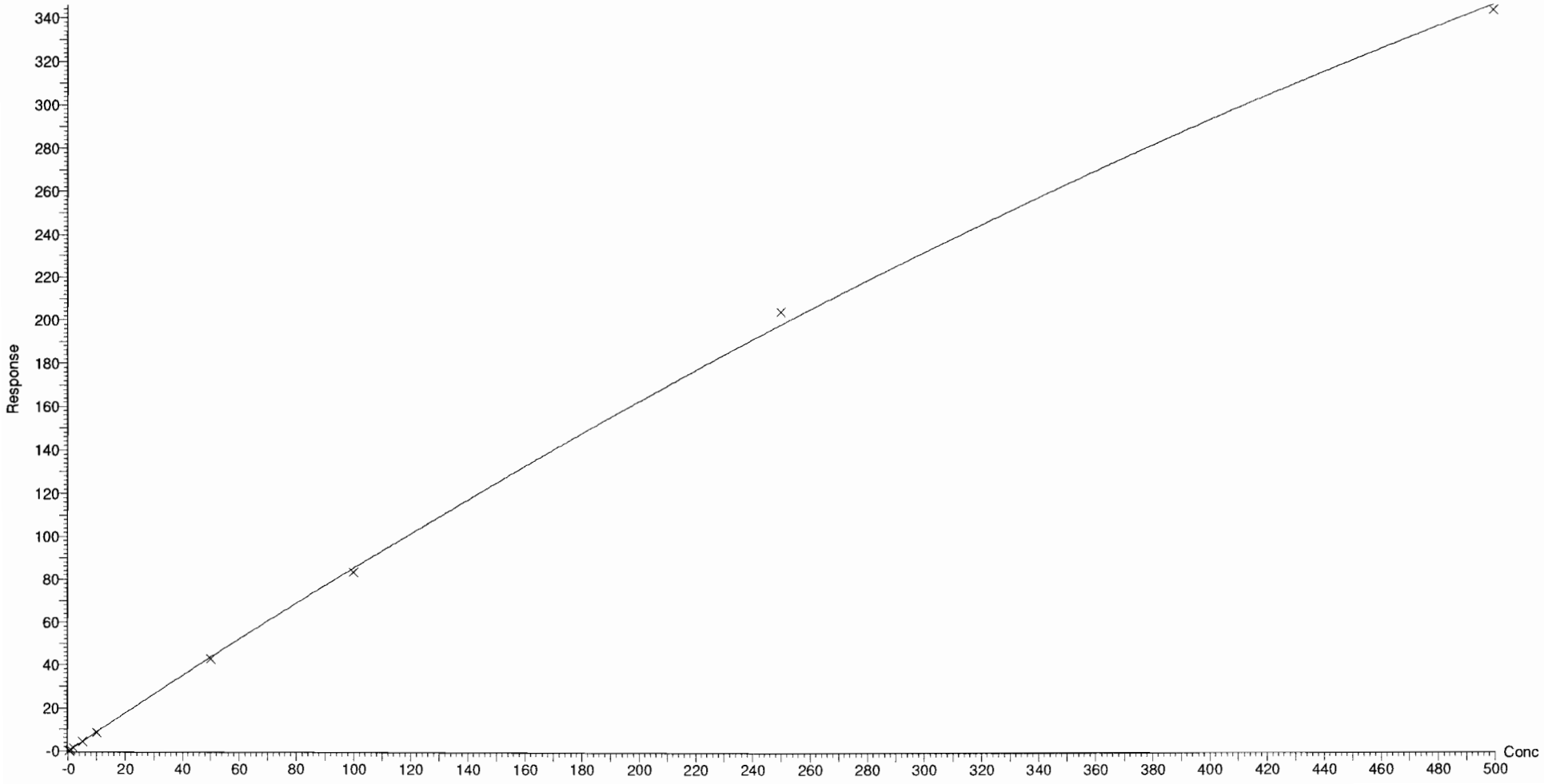
Compound name: PFHxDA
Coefficient of Determination: R^2 = 0.999511
Calibration curve: -0.000267807 * x^2 + 0.605113 * x + 0.0392849
Response type: Internal Std (Ref 57), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:48 Pacific Daylight Time

Compound name: PFODA
Coefficient of Determination: R^2 = 0.999491
Calibration curve: -0.000404358 * x^2 + 0.894092 * x + -0.0222858
Response type: Internal Std (Ref 57), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

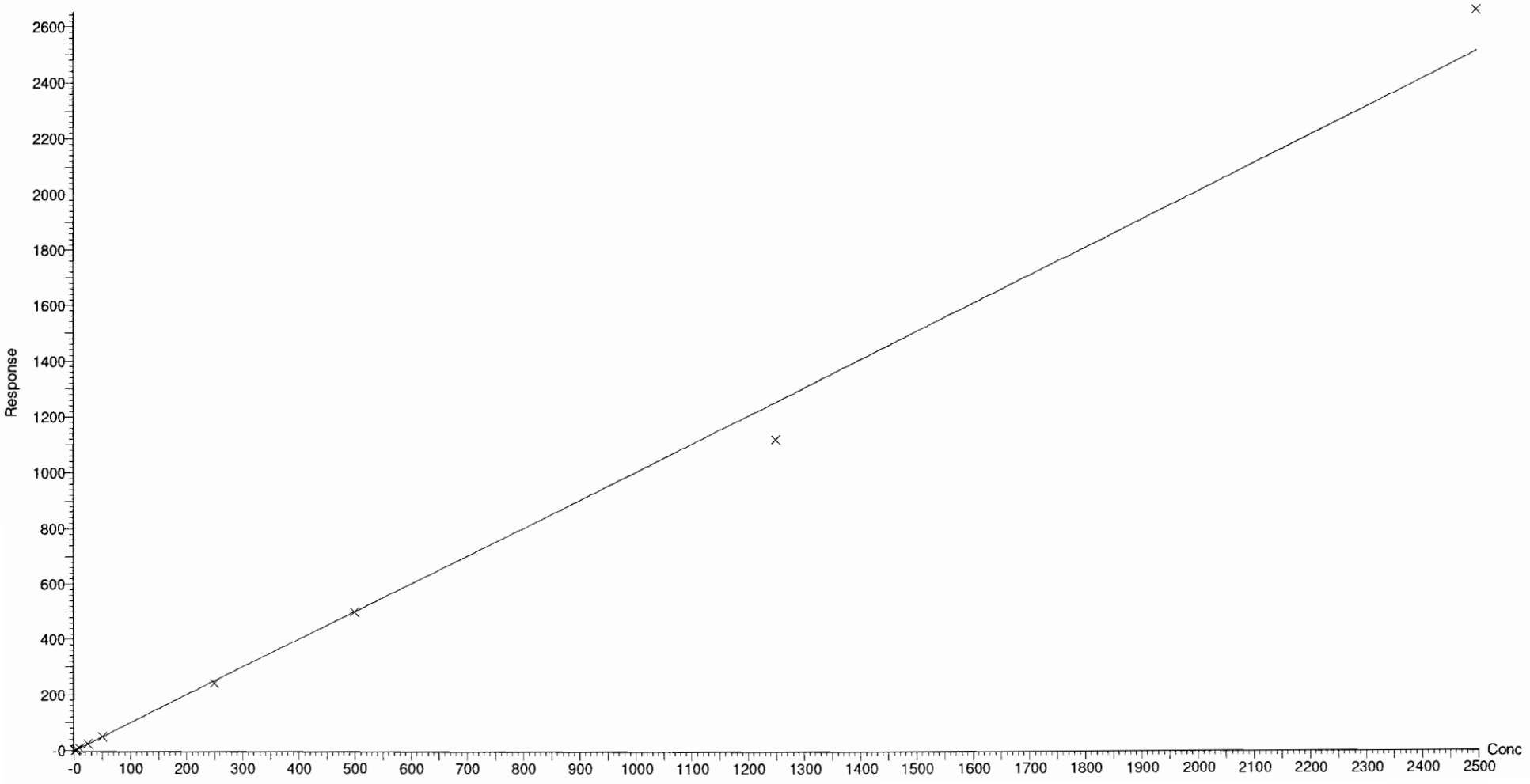


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

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Printed: Tuesday, June 05, 2018 10:53:48 Pacific Daylight Time

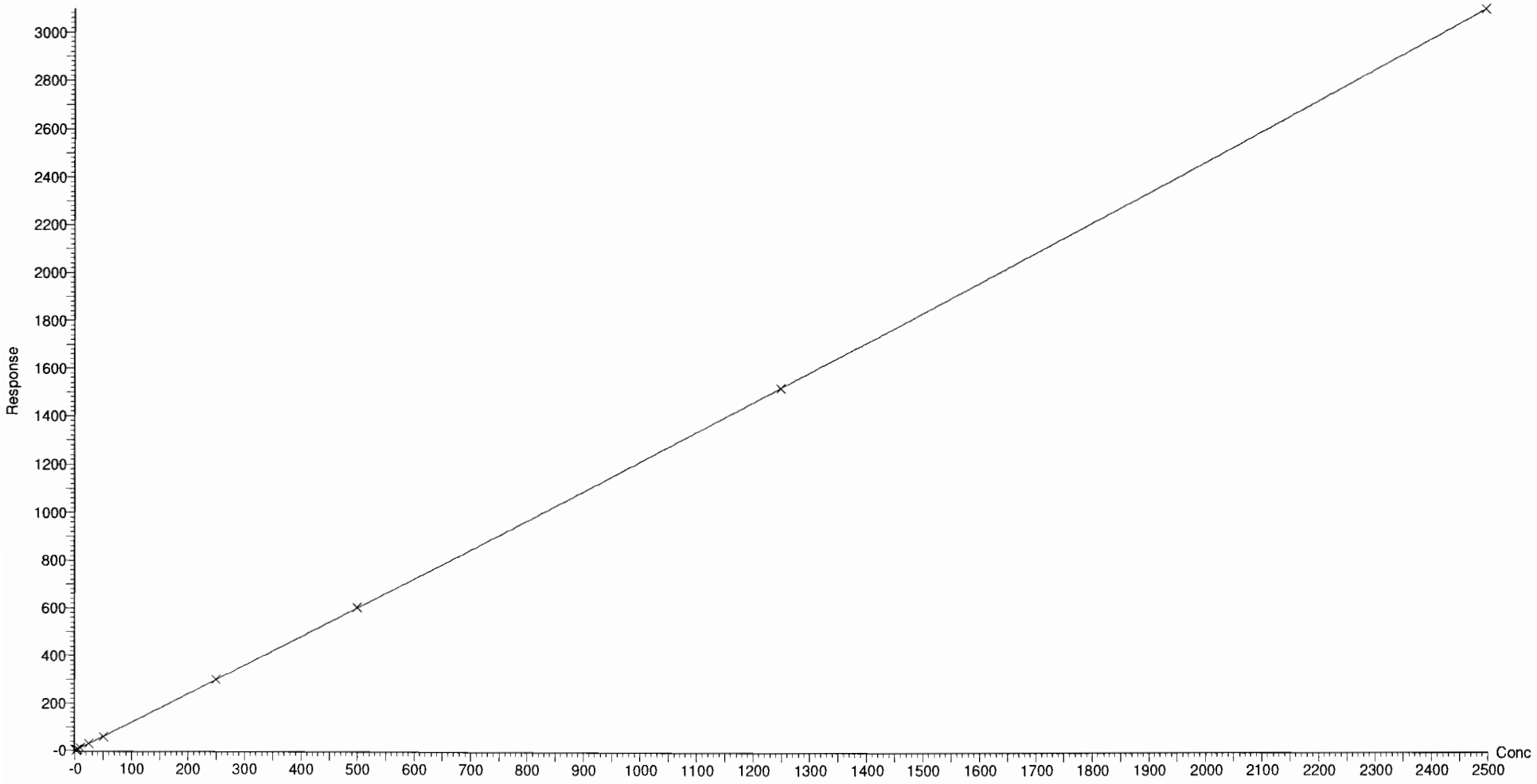
Compound name: N-MeFOSE
Correlation coefficient: r = 0.997461, r^2 = 0.994929
Calibration curve: 1.00285 * x + -0.37541
Response type: Internal Std (Ref 58), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

Last Altered: Tuesday, June 05, 2018 10:50:38 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 10:53:48 Pacific Daylight Time

Compound name: N-EtFOSE
Coefficient of Determination: R^2 = 0.999985
Calibration curve: 1.74191e-005 * x^2 + 1.19563 * x + -0.124308
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\180604M2\180604M2-CRV.qld

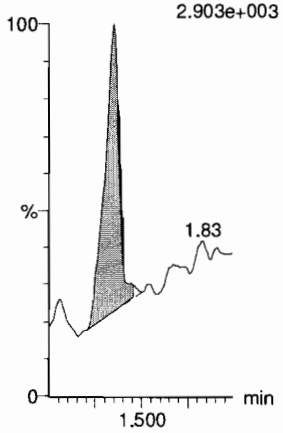
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Printed: Tuesday, June 05, 2018 10:51:02 Pacific Daylight Time

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Calibration: 05 Jun 2018 10:50:38

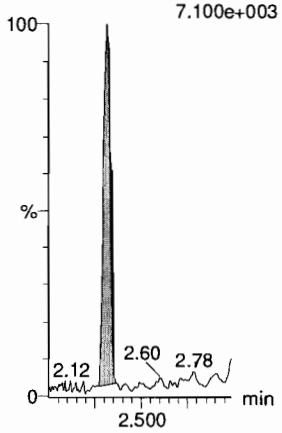
1 dm 6/5/18

Name: 180604M2_2, Date: 04-Jun-2018, Time: 19:11:49, ID: ST180604M2-2 PFC CS-2 18E2902, Description: PFC CS-2 18E2902

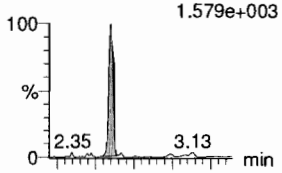
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
2.903e+003



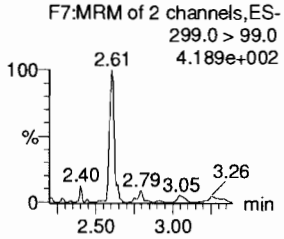
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
7.100e+003



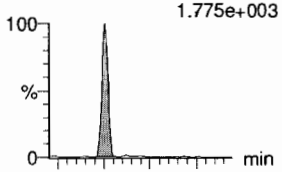
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
1.579e+003



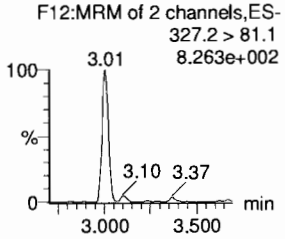
F7:MRM of 2 channels,ES-
299.0 > 99.0
4.189e+002



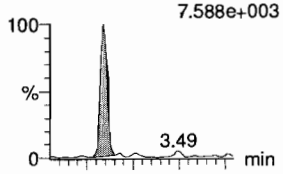
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
1.775e+003



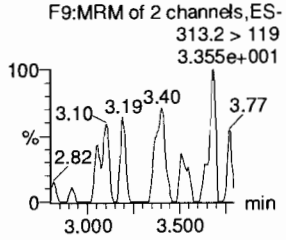
F12:MRM of 2 channels,ES-
327.2 > 81.1
8.263e+002



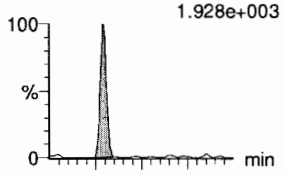
PFHxA
F9:MRM of 2 channels,ES-
313.2 > 268.9
7.588e+003



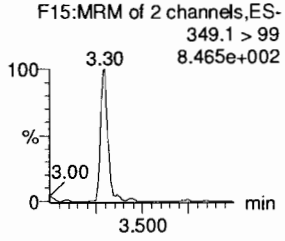
F9:MRM of 2 channels,ES-
313.2 > 119
3.355e+001



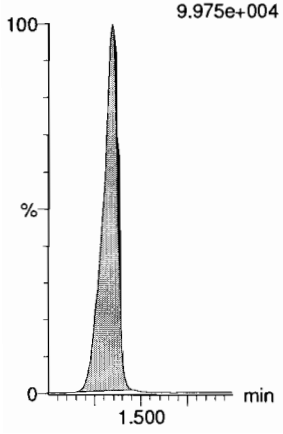
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
1.928e+003



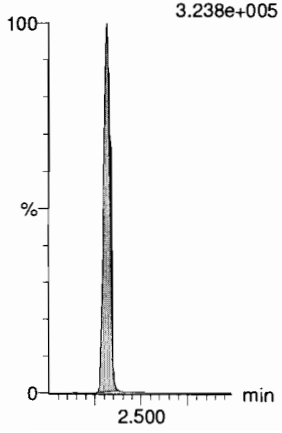
F15:MRM of 2 channels,ES-
349.1 > 99
8.465e+002



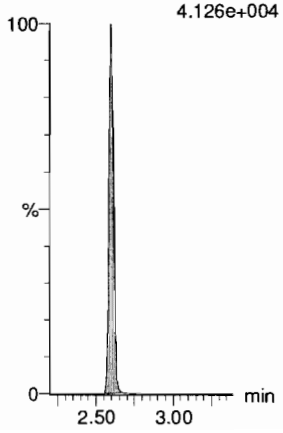
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
9.975e+004



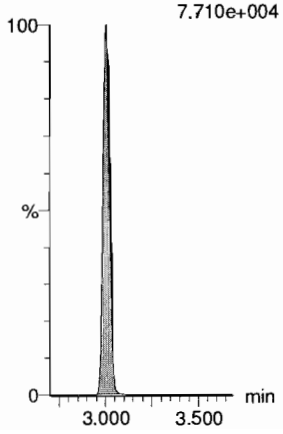
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
3.238e+005



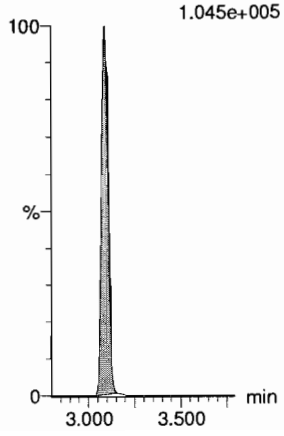
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
4.126e+004



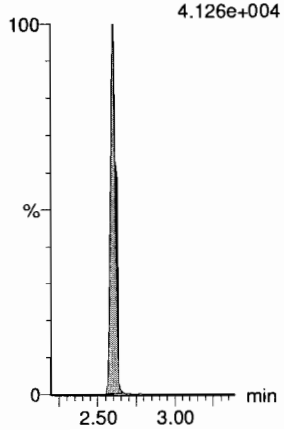
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
7.710e+004



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 269.8
1.045e+005



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
4.126e+004

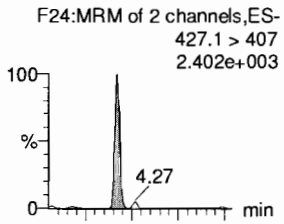


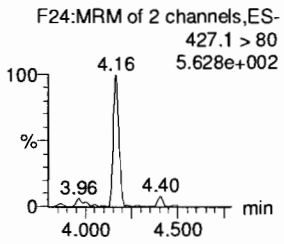
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Printed: Tuesday, June 05, 2018 10:51:02 Pacific Daylight Time

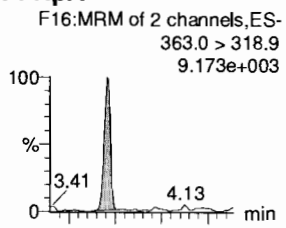
Name: 180604M2_2, Date: 04-Jun-2018, Time: 19:11:49, ID: ST180604M2-2 PFC CS-2 18E2902, Description: PFC CS-2 18E2902

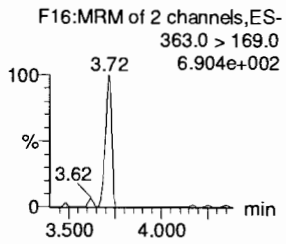
6:2 FTS



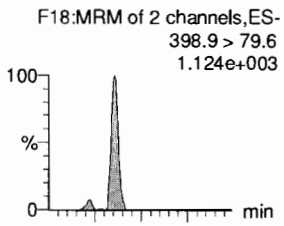


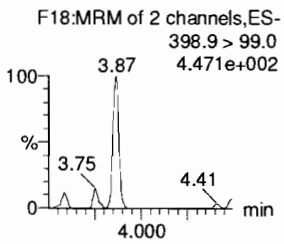
PFHpA



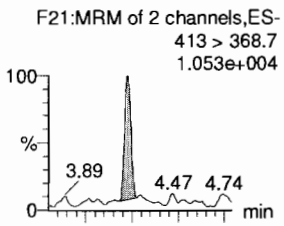


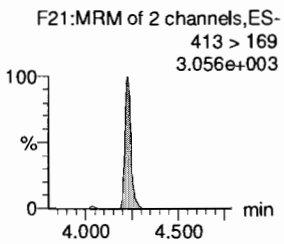
L-PFHxS



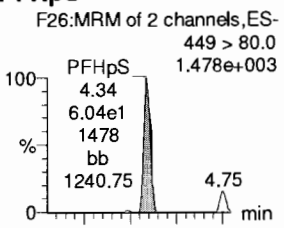


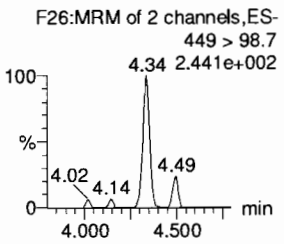
L-PFOA



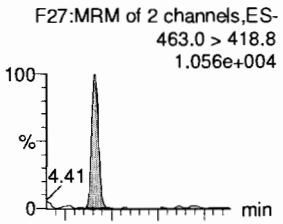


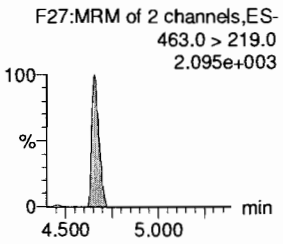
PFHpS



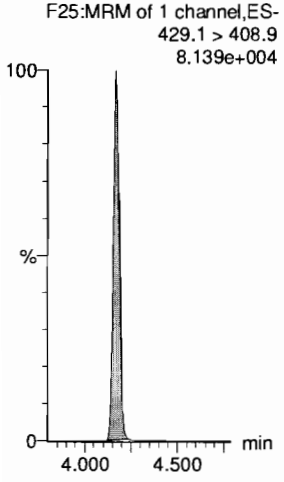


PFNA

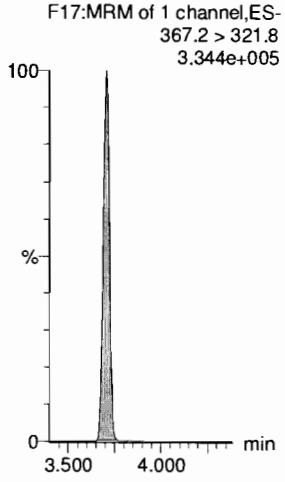




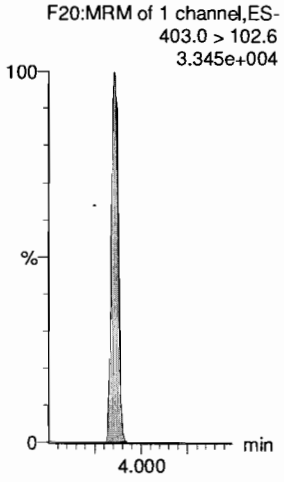
13C2-6:2 FTS



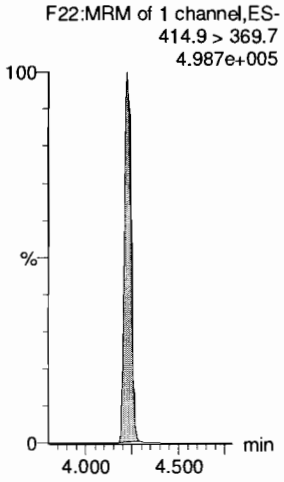
13C4-PFHpA



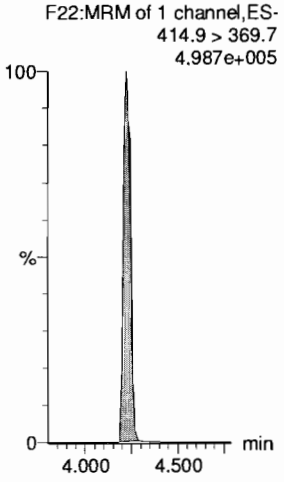
18O2-PFHxS



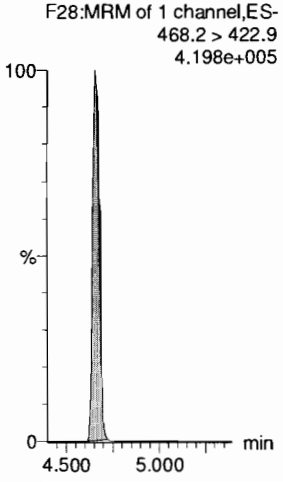
13C2-PFOA



13C2-PFOA



13C5-PFNA

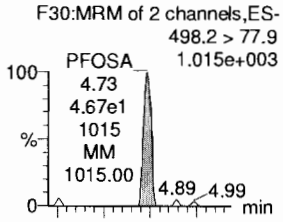


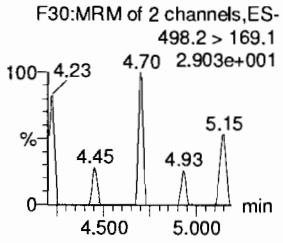
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Printed: Tuesday, June 05, 2018 10:51:02 Pacific Daylight Time

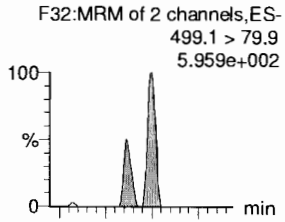
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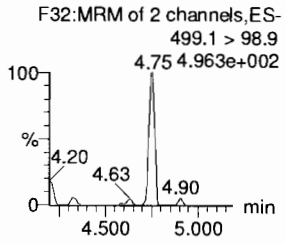
PFOSA



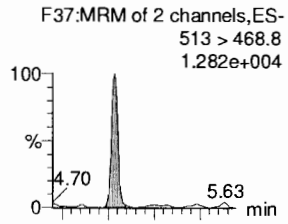


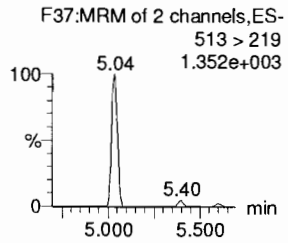
L-PFOS



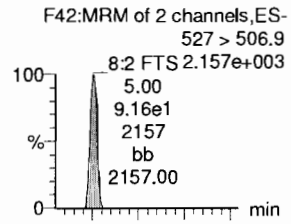


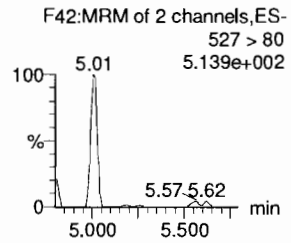
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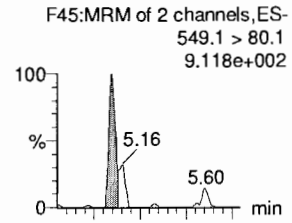


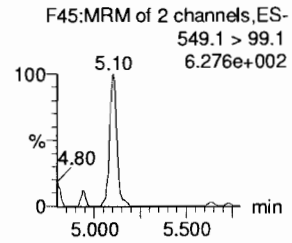
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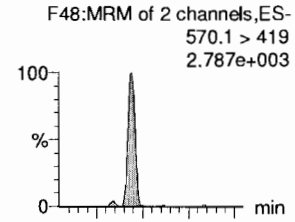


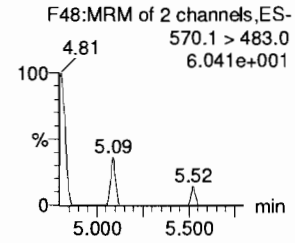
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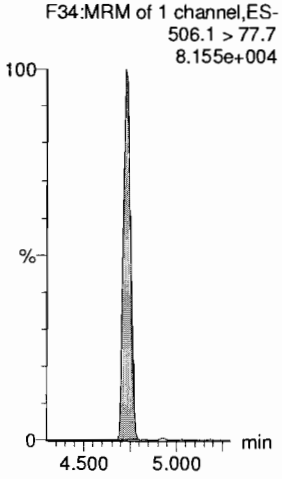


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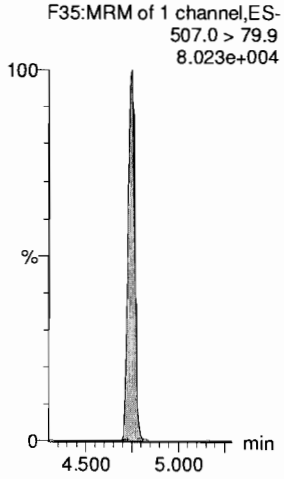




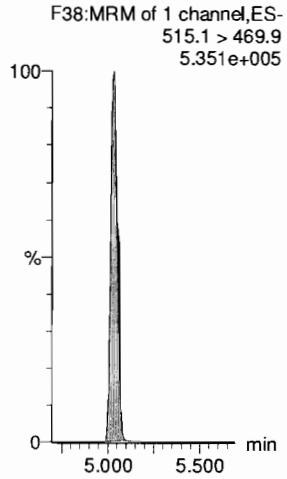
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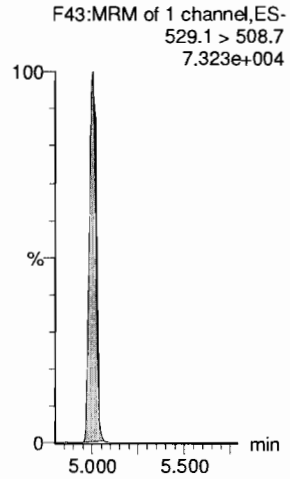
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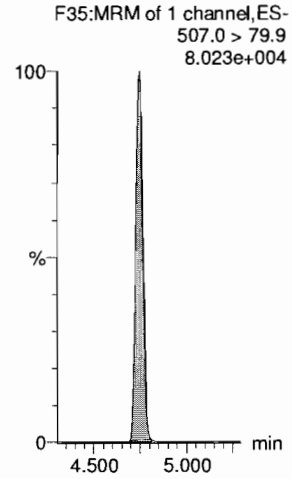
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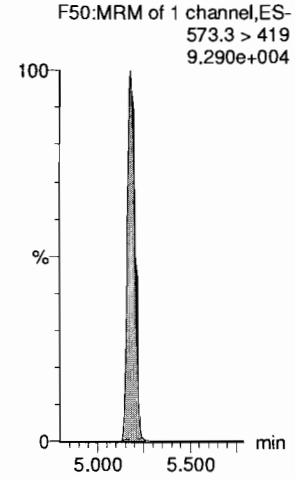
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13C8-PFOS



d3-N-MeFOSAA

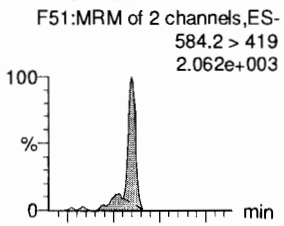


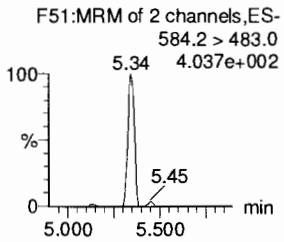
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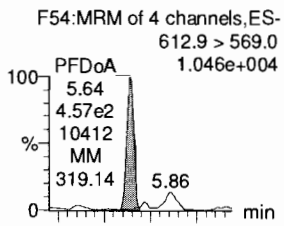
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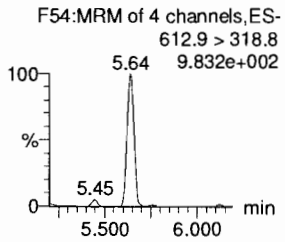
L-EtFOSAA



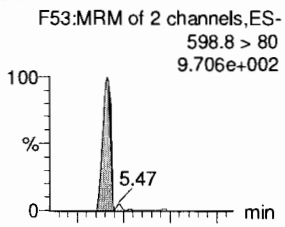


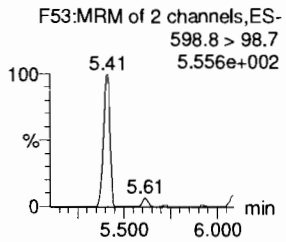
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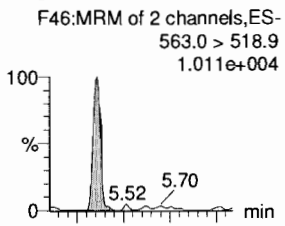


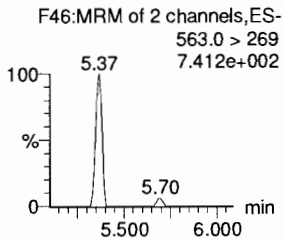
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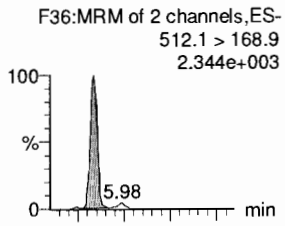


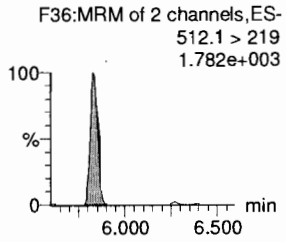
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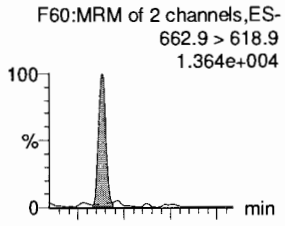


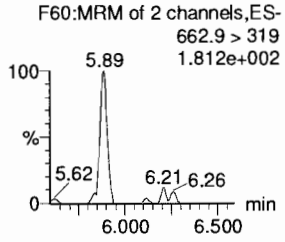
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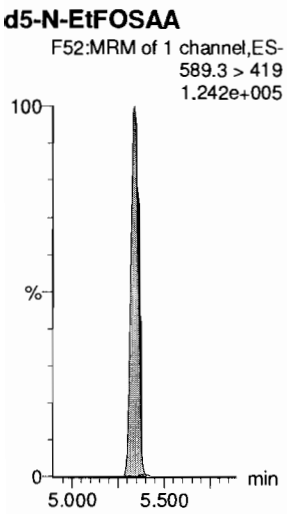


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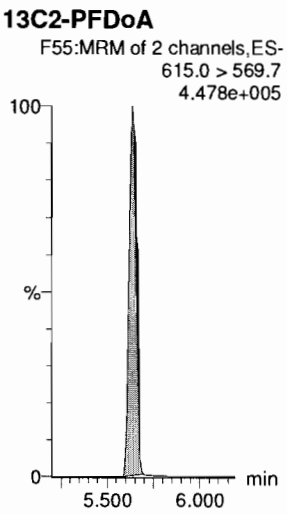




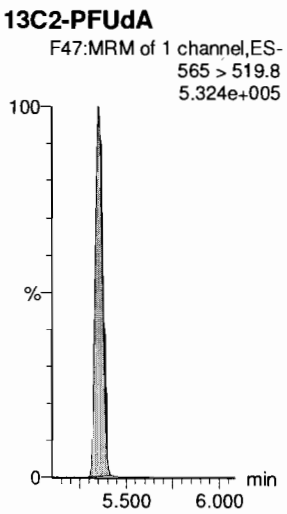
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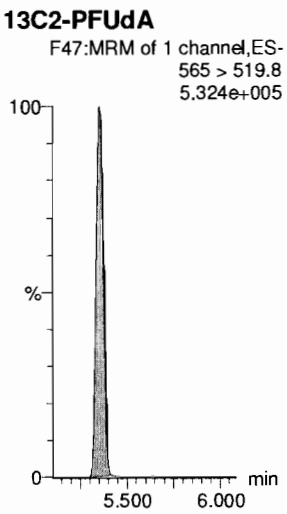
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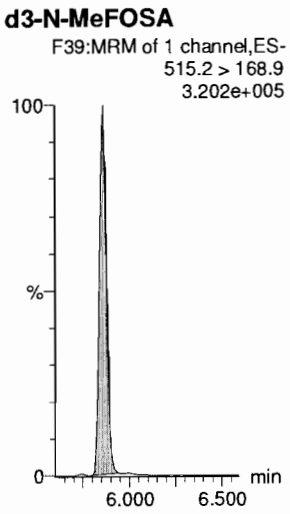
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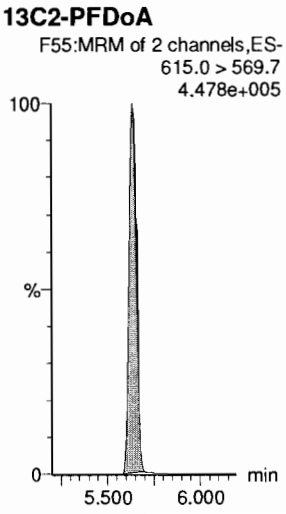
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d3-N-MeFOSA



13C2-PFDoA

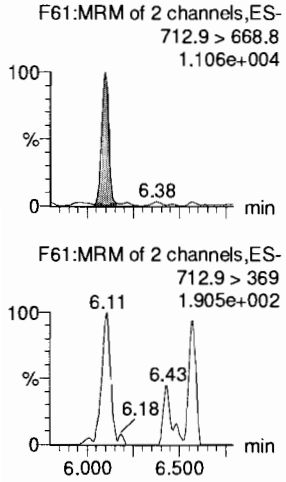


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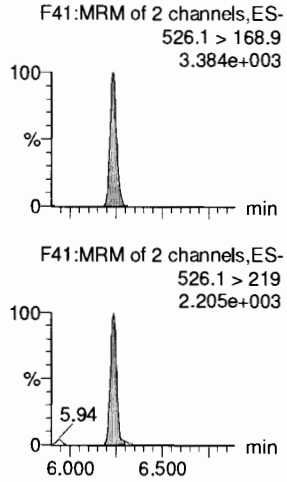
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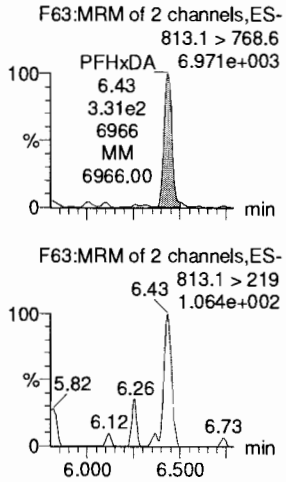
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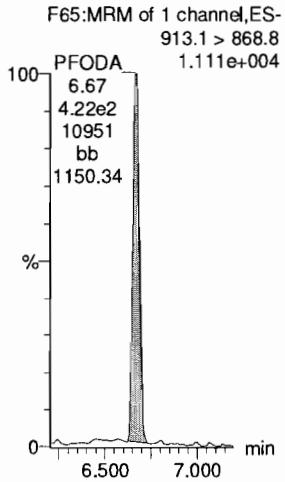
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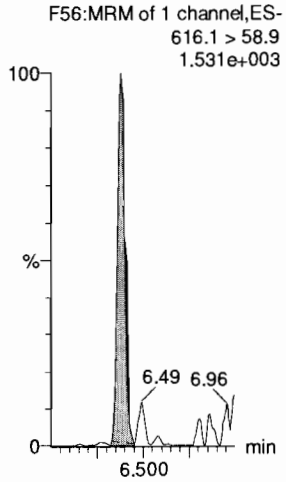
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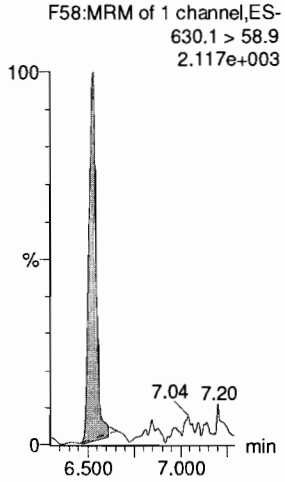
PFODA



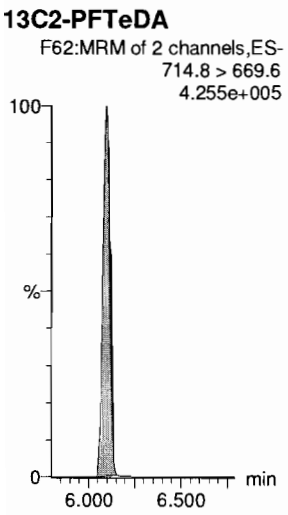
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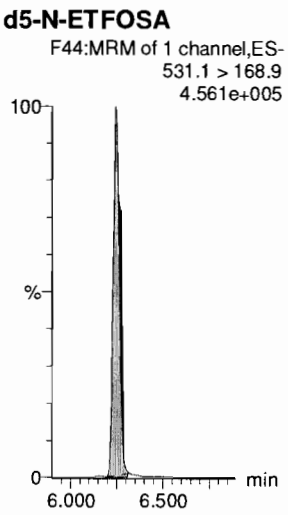
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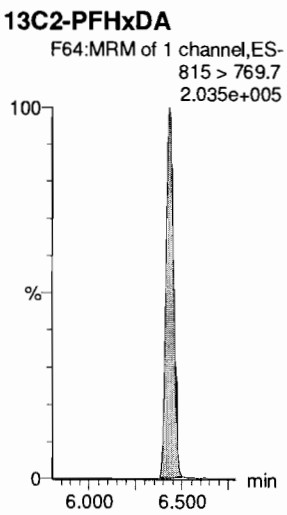
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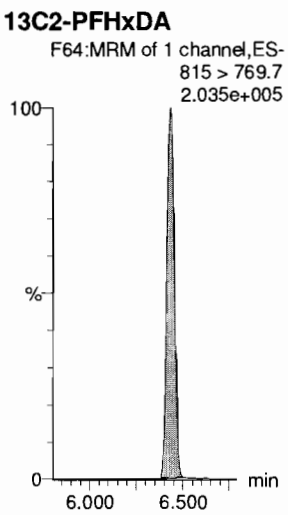
d5-N-ETFOSA



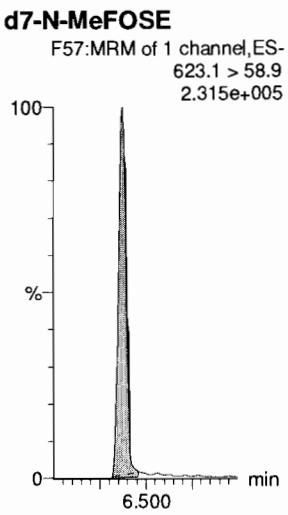
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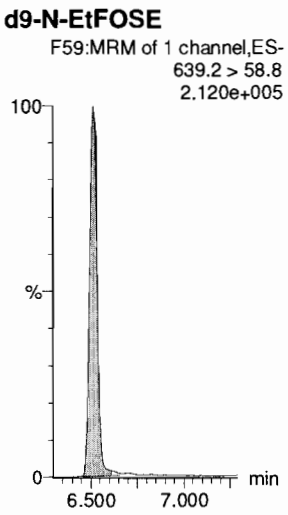
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d7-N-MeFOSE



d9-N-EtFOSE

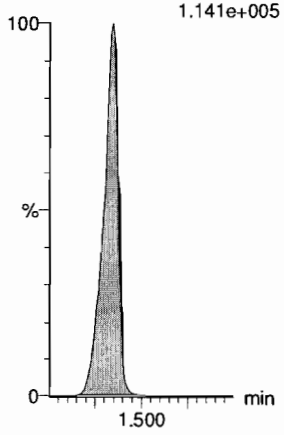


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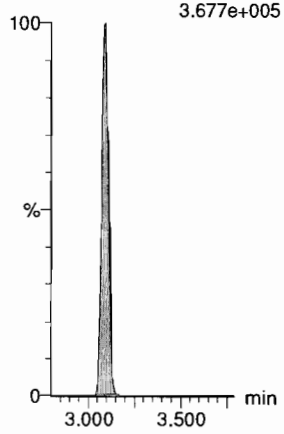
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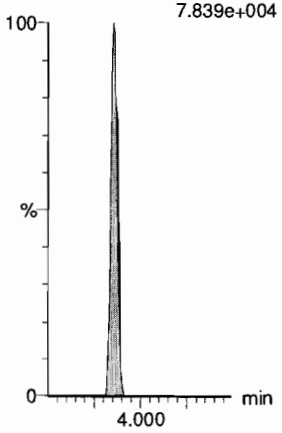
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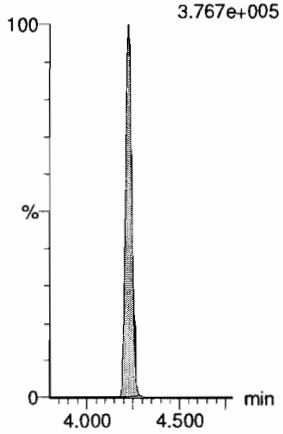
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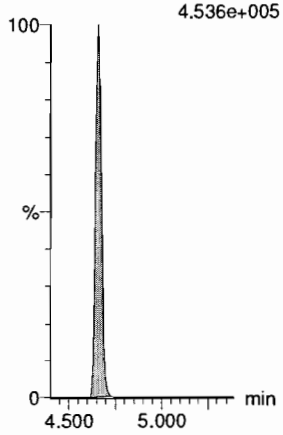
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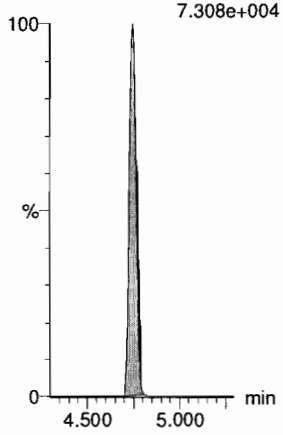
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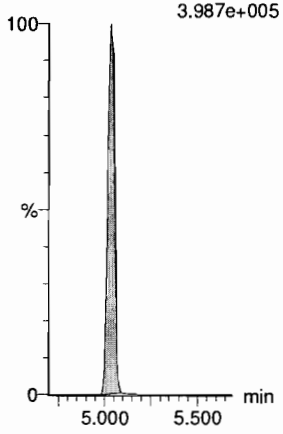
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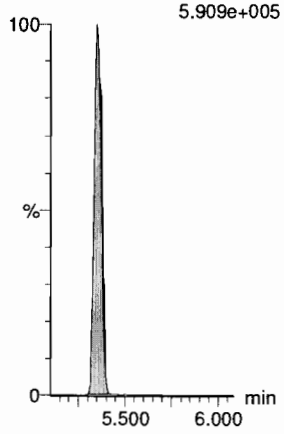
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13C6-PFDA



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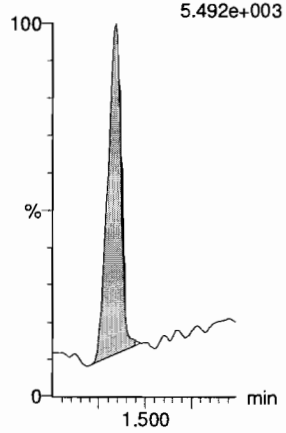


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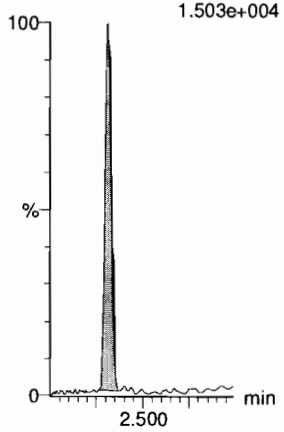
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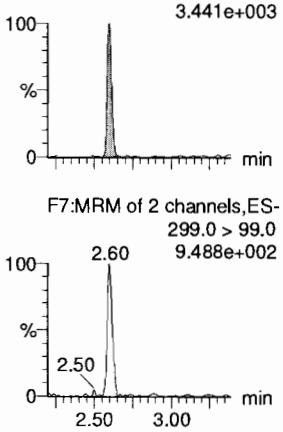
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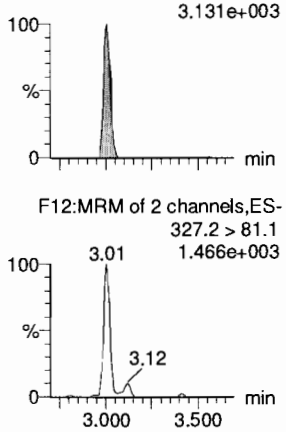
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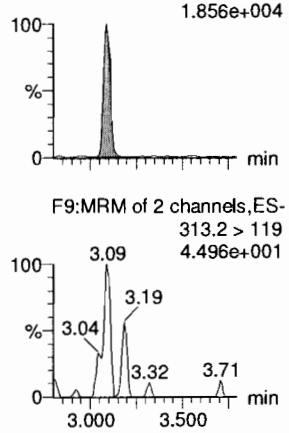
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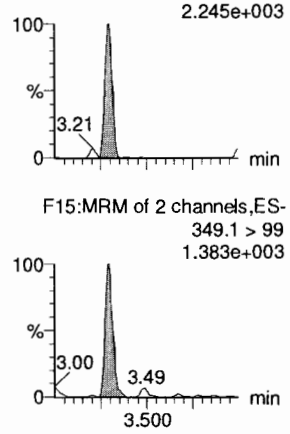
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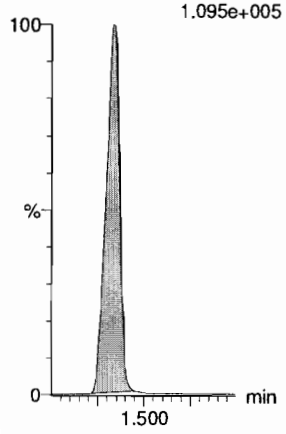
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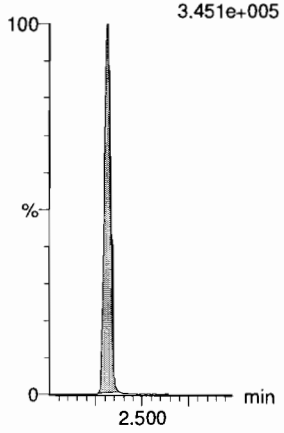
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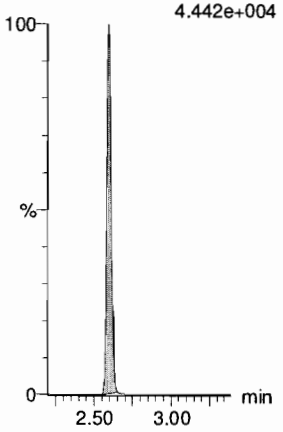
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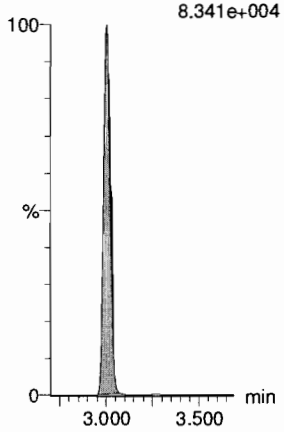
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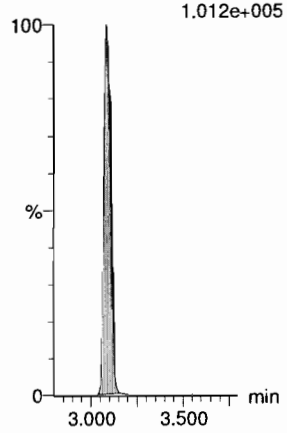
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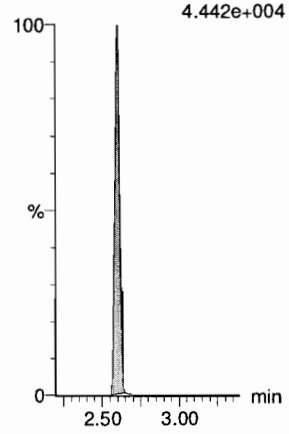
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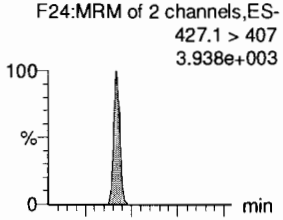


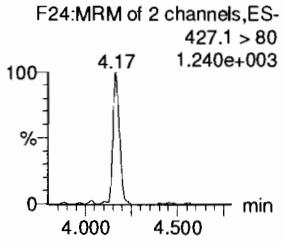
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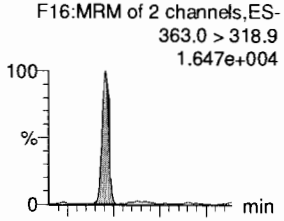
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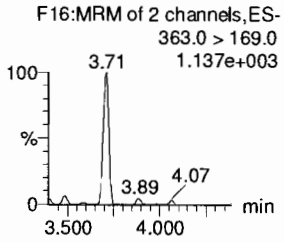
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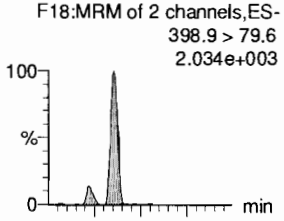


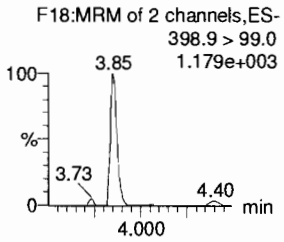
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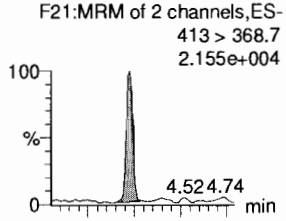


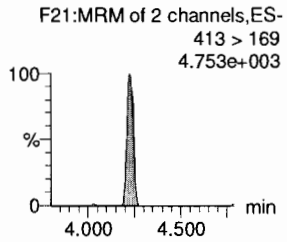
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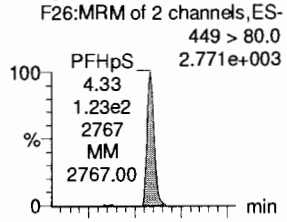


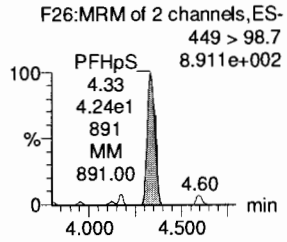
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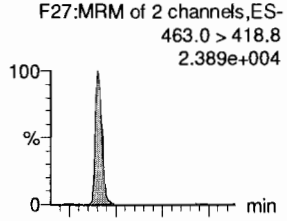


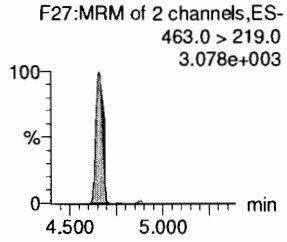
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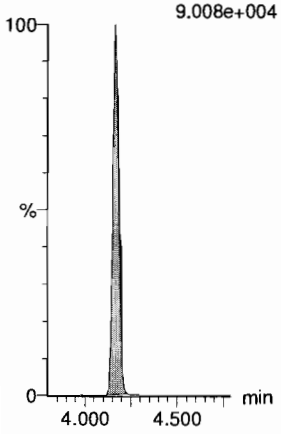


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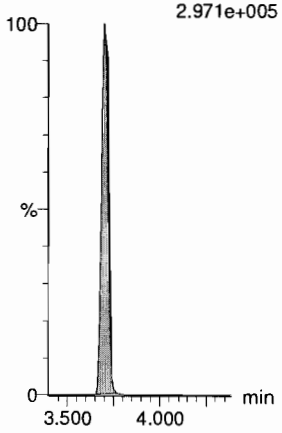




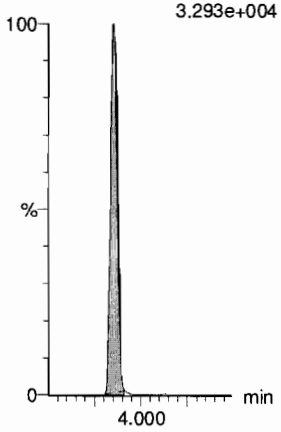
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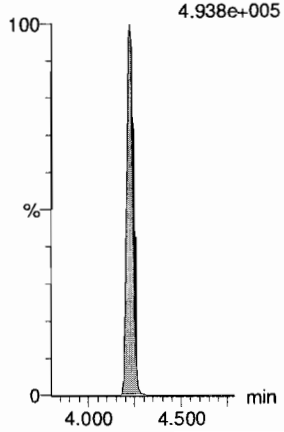
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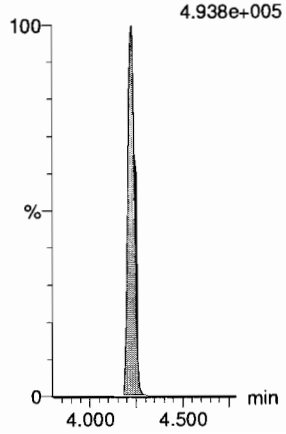
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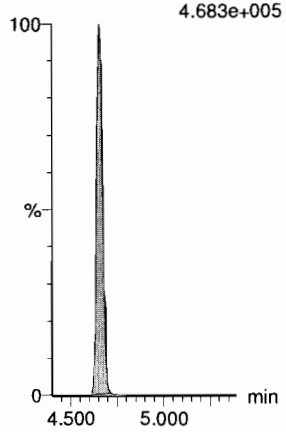
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13C2-PFOA



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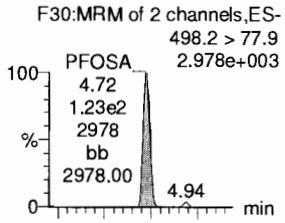


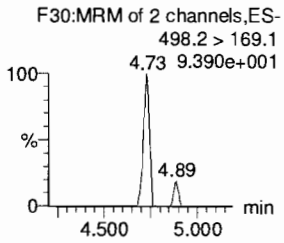
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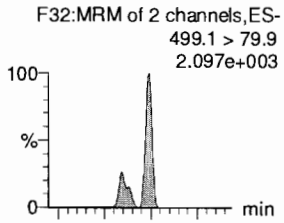
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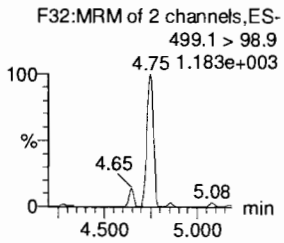
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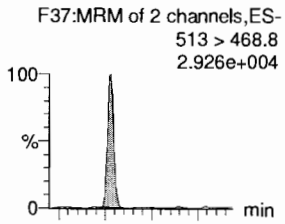


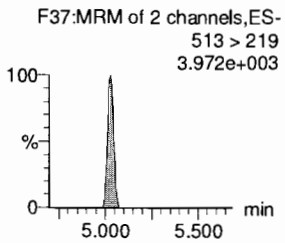
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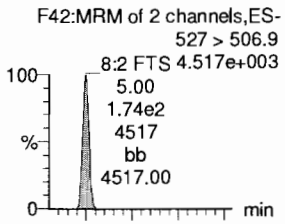


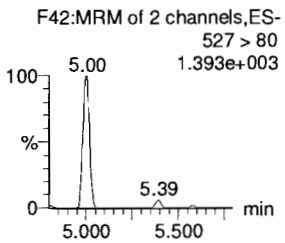
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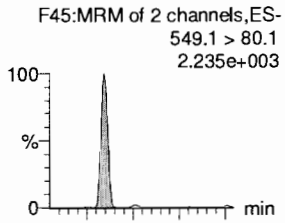


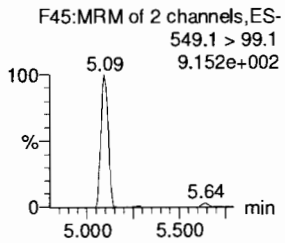
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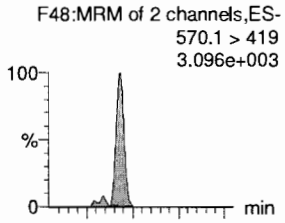


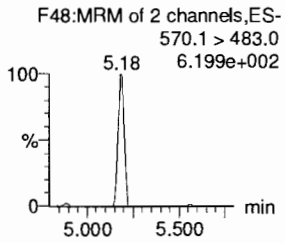
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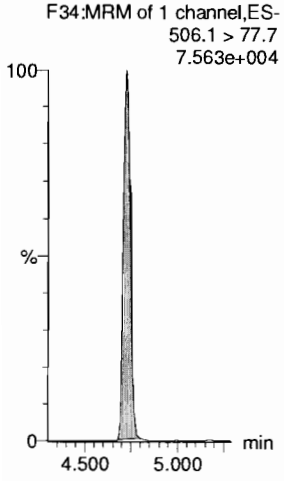


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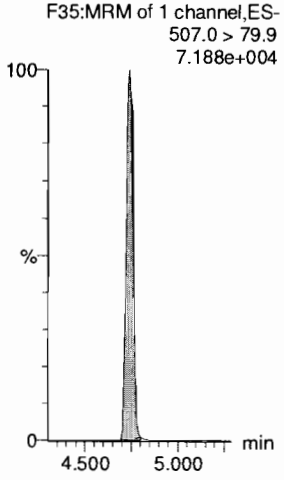




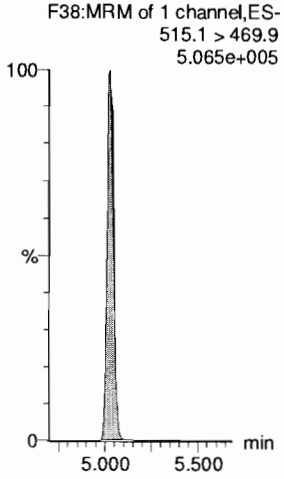
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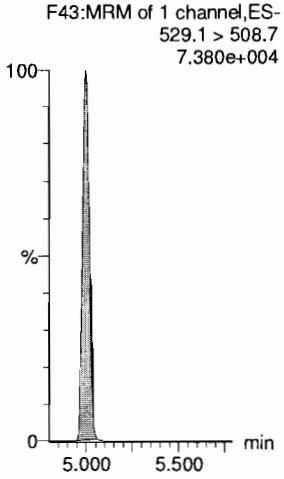
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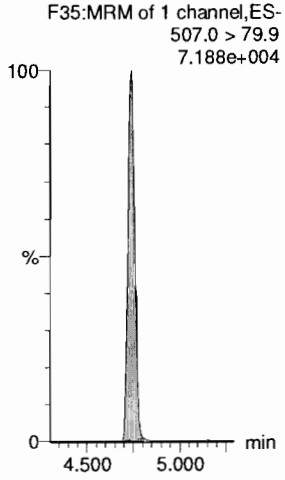
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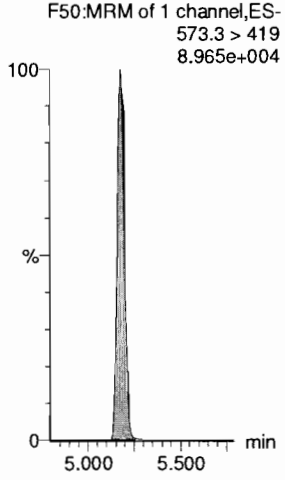
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13C8-PFOS



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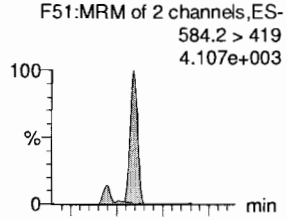


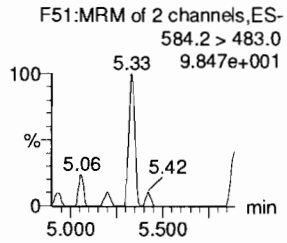
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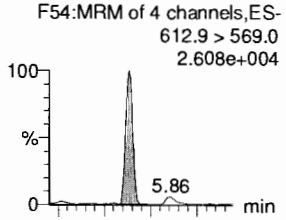
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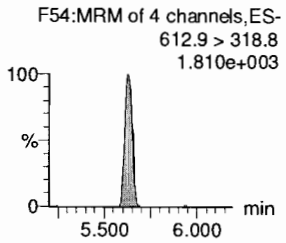
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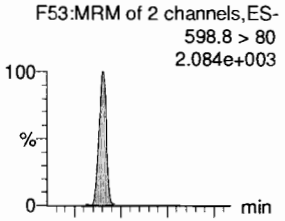


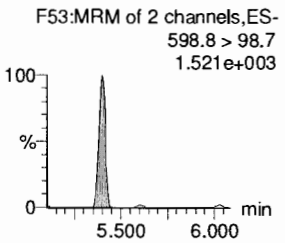
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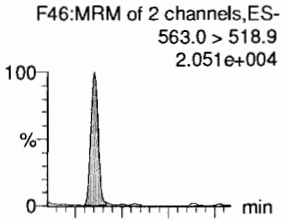


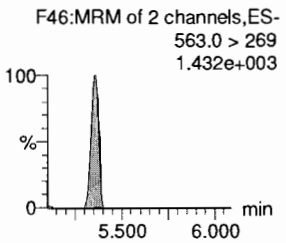
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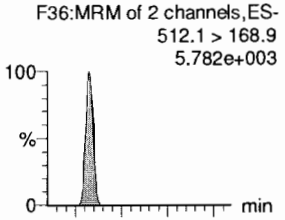


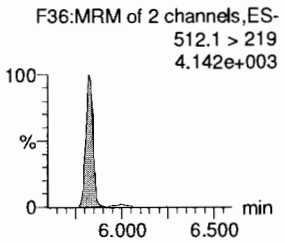
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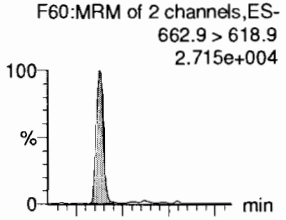


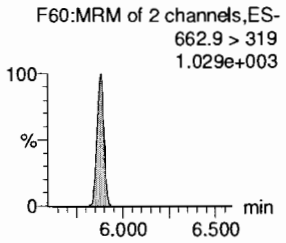
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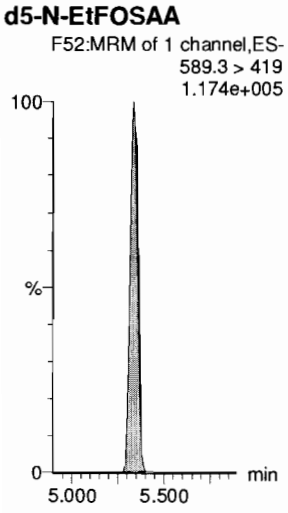


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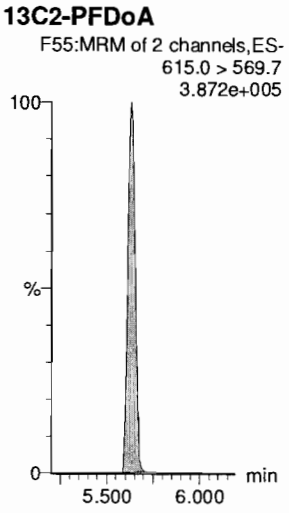




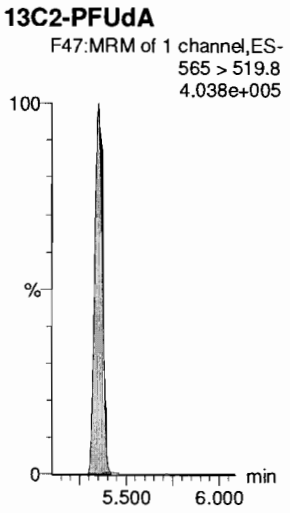
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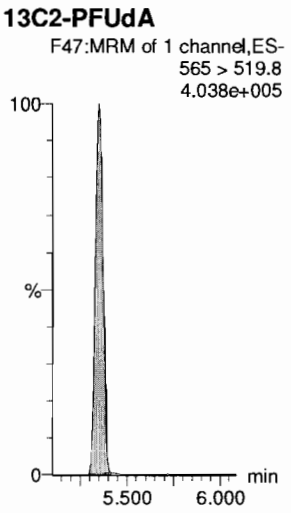
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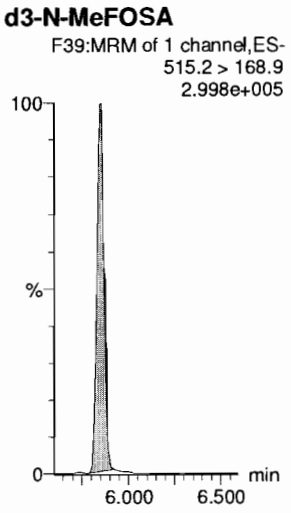
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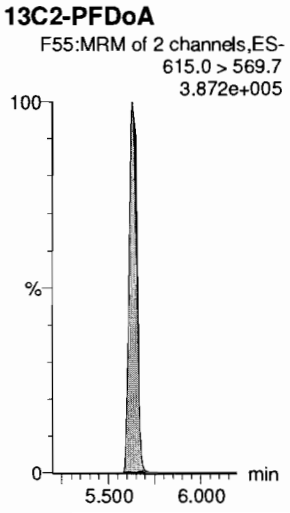
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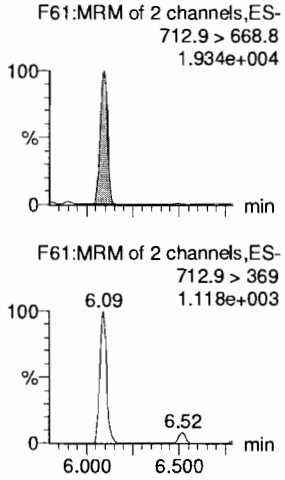


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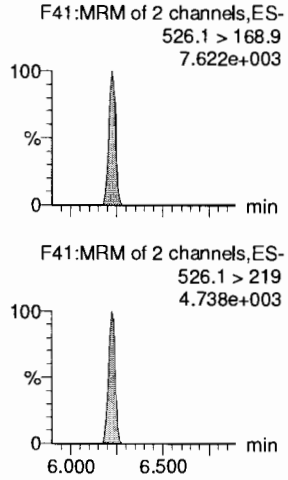
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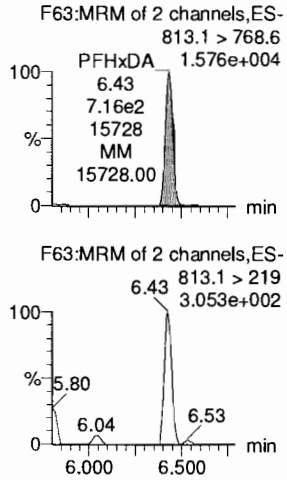
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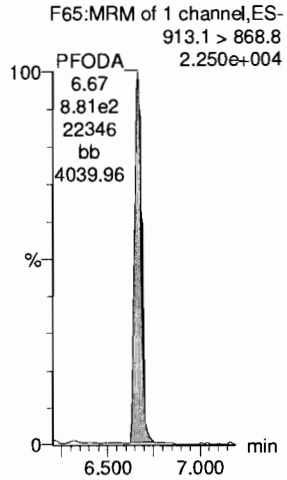
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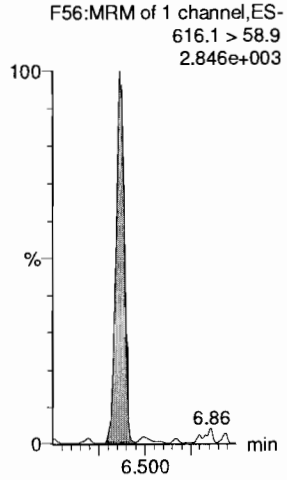
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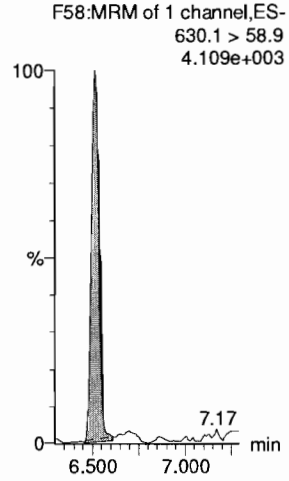
PFODA



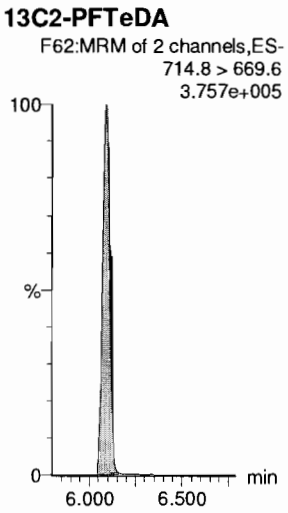
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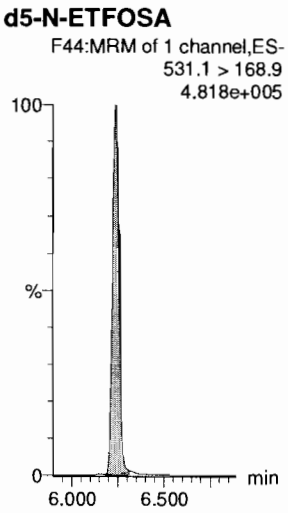
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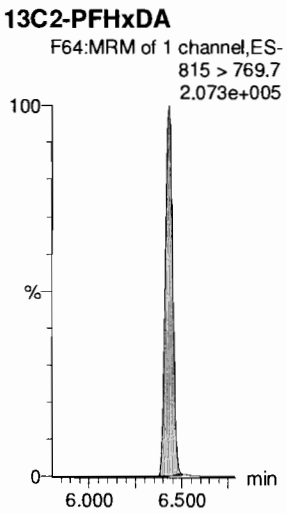
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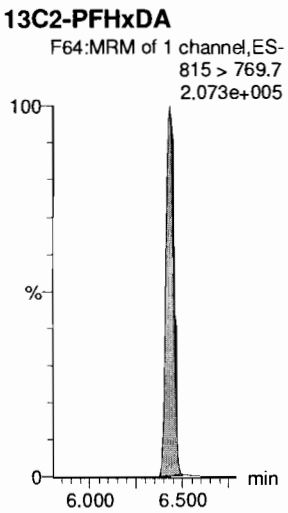
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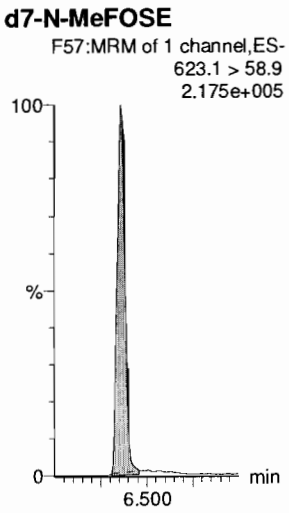
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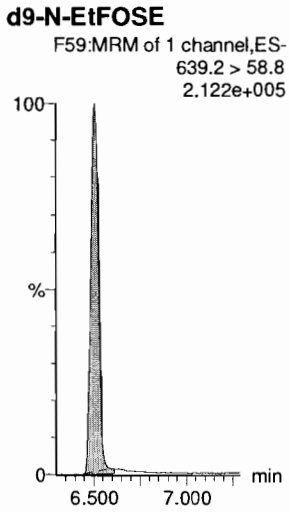
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d7-N-MeFOSE



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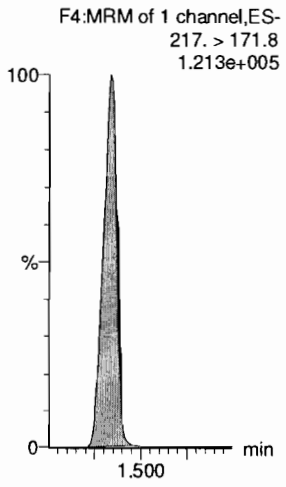


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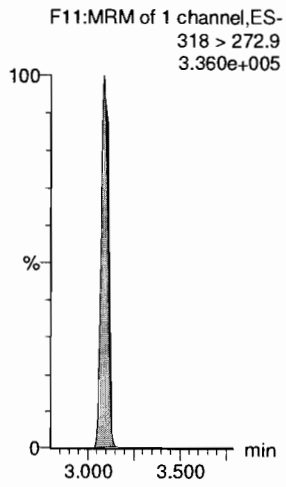
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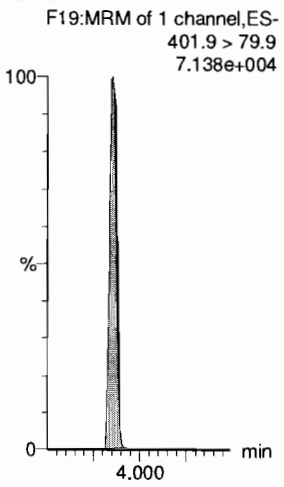
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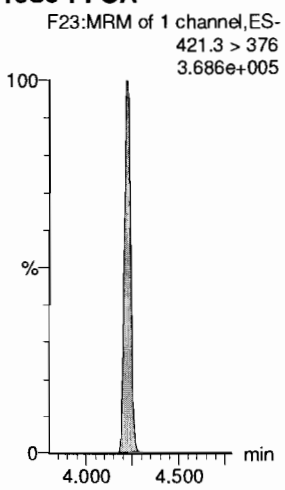
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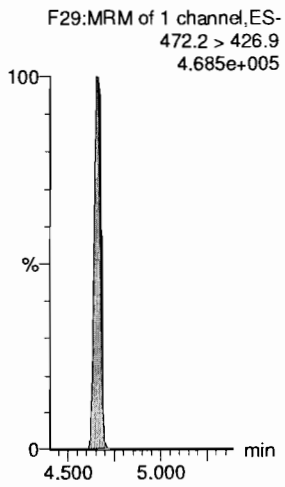
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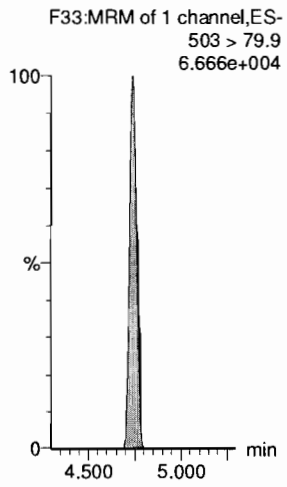
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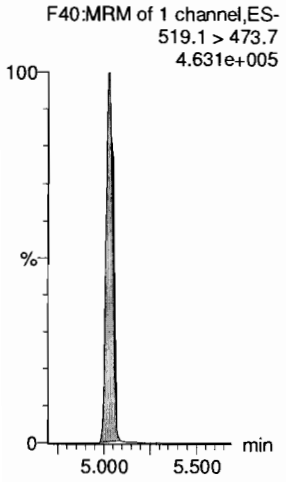
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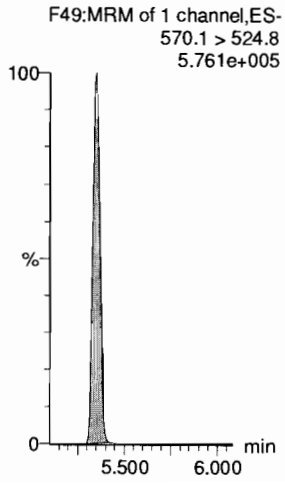
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13C6-PFDA



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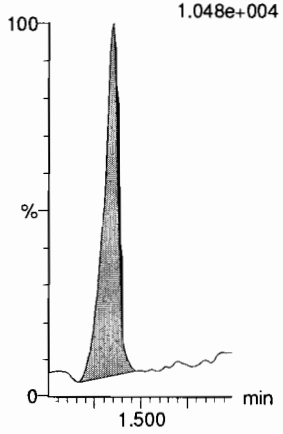


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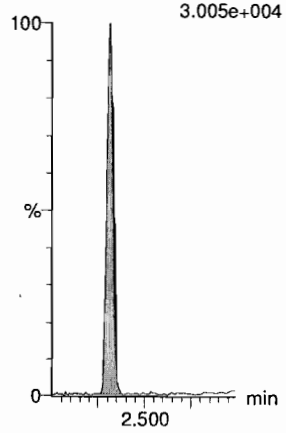
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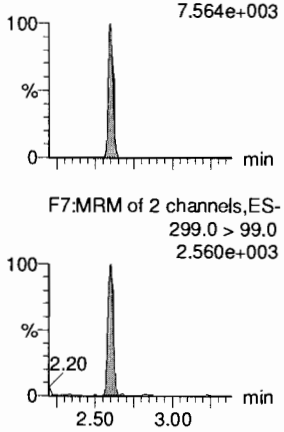
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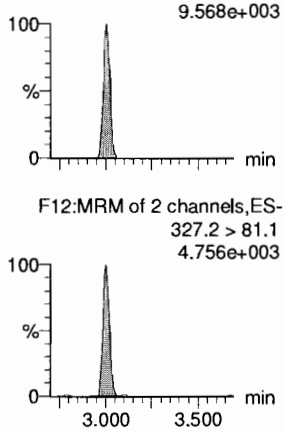
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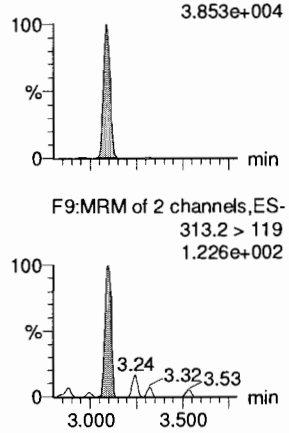
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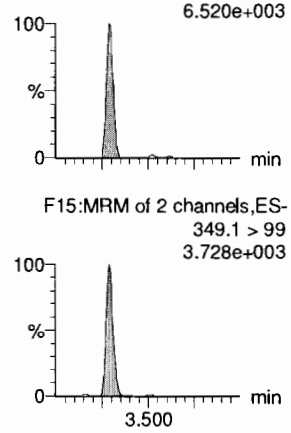
4:2 FTS



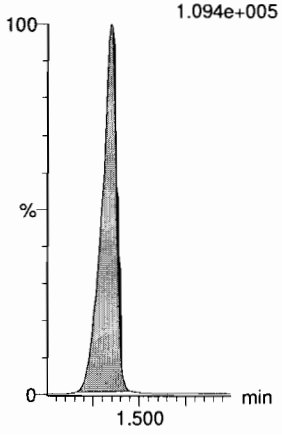
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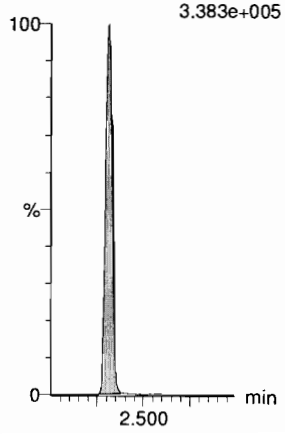
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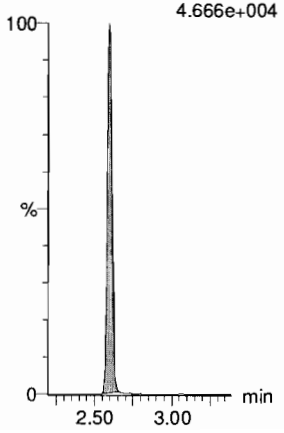
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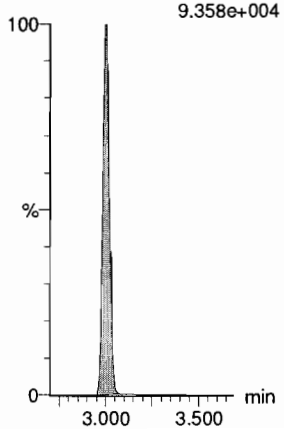
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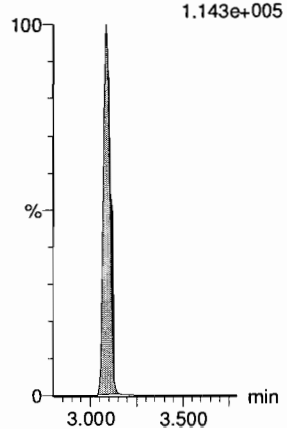
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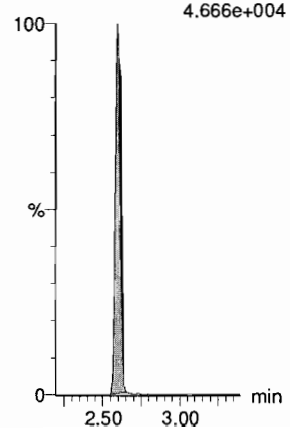
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13C2-PFHxA



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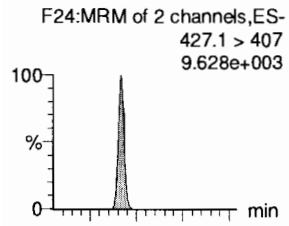


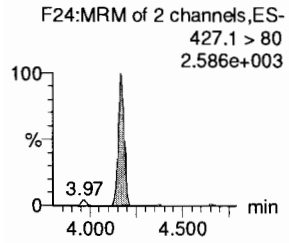
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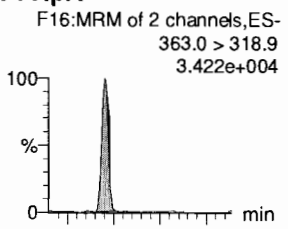
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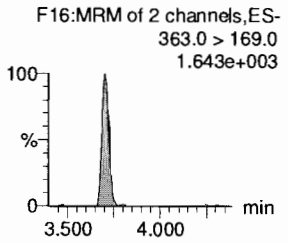
6:2 FTS



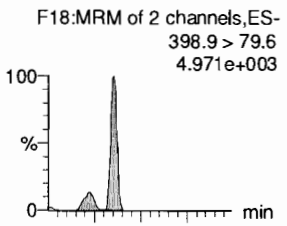


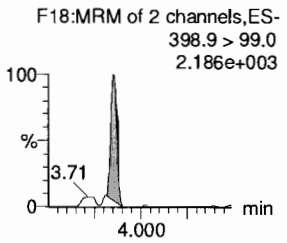
PFHpA



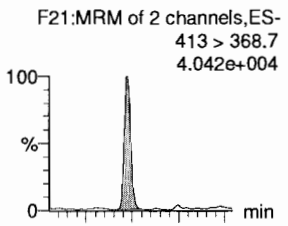


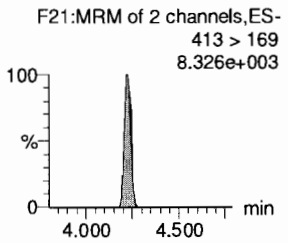
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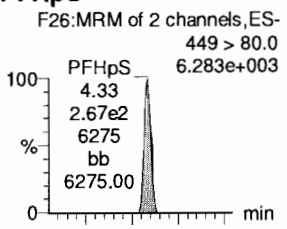


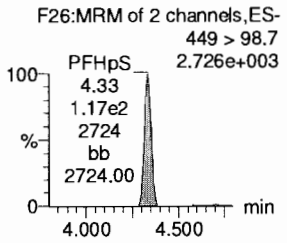
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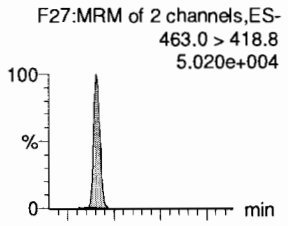


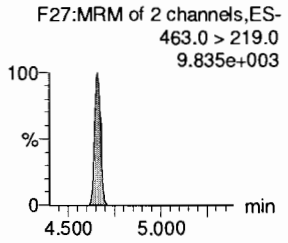
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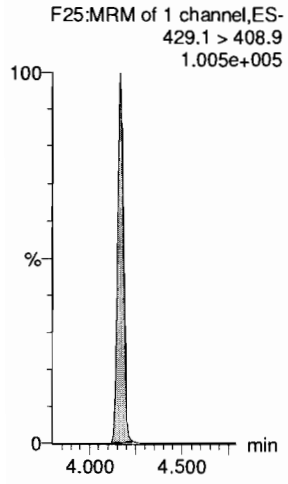


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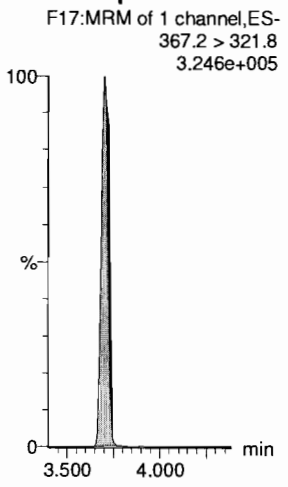




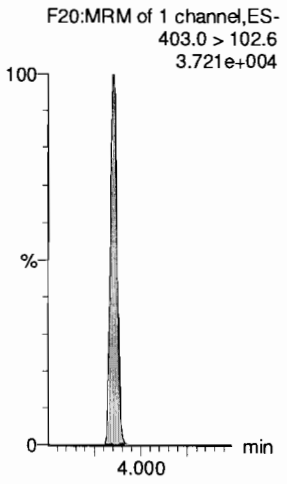
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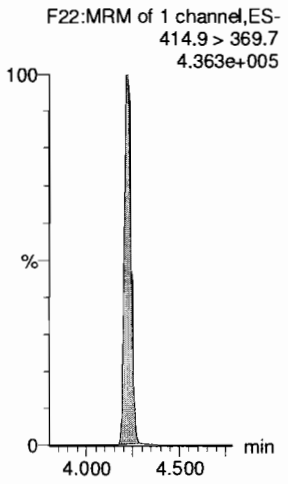
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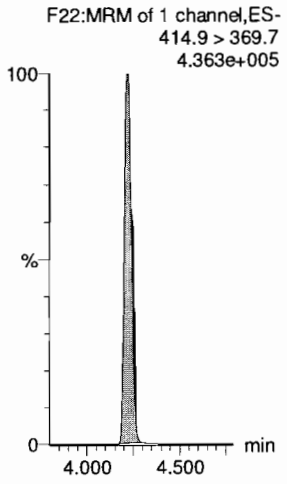
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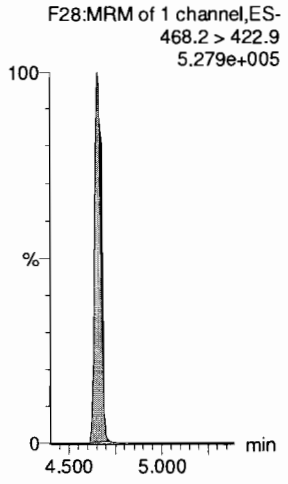
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13C2-PFOA



13C5-PFNA

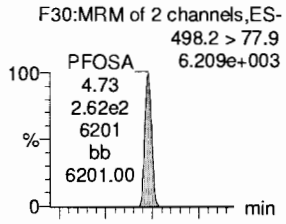


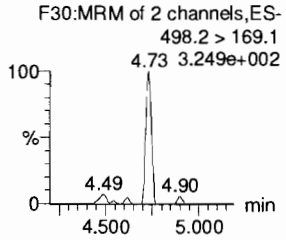
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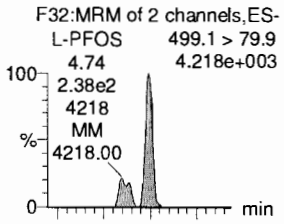
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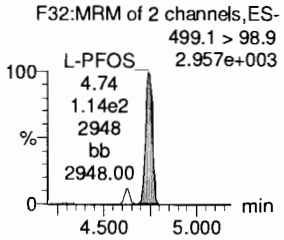
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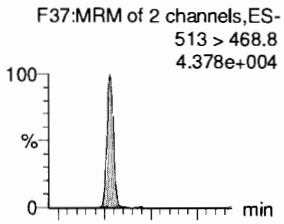


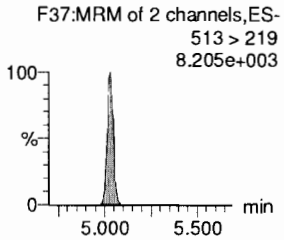
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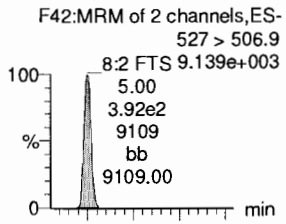


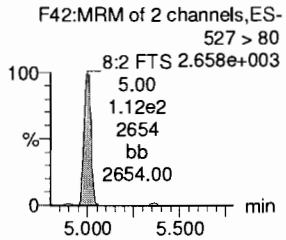
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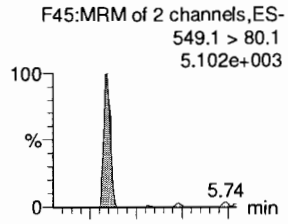


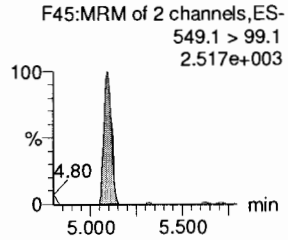
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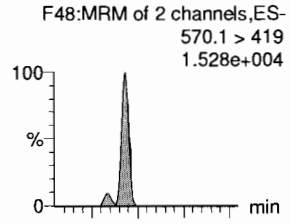


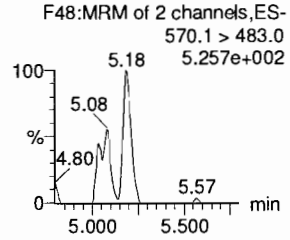
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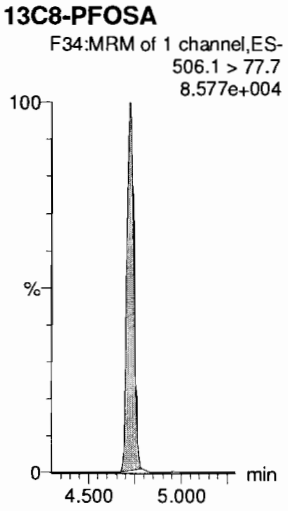


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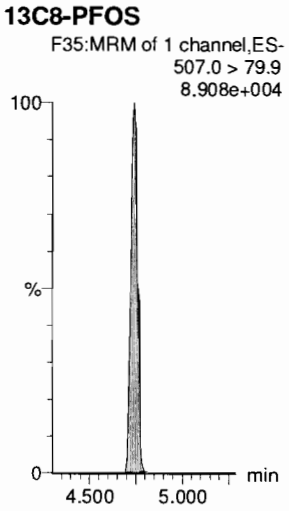




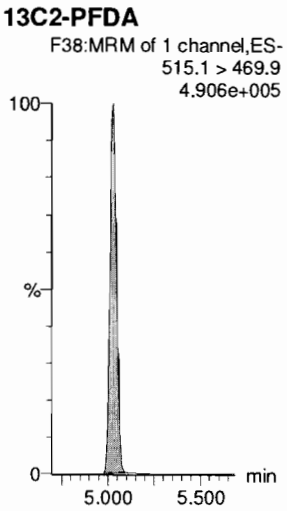
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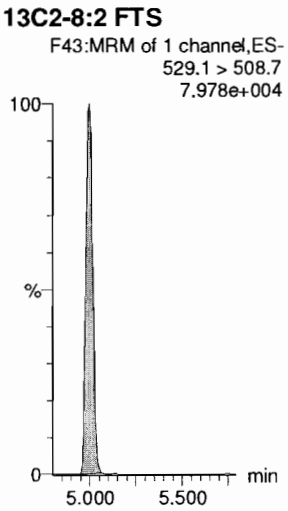
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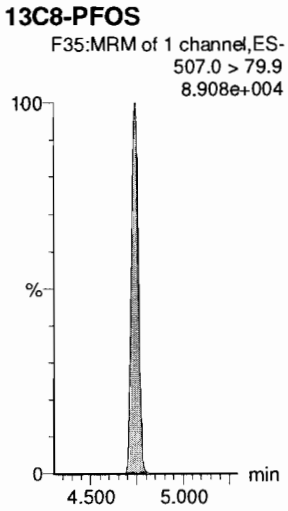
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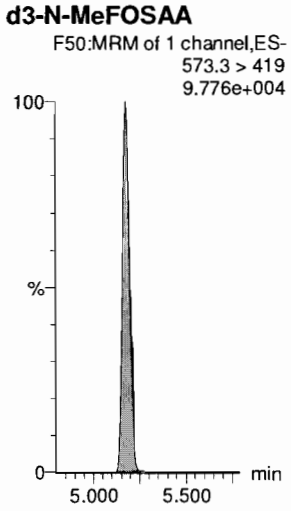
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13C8-PFOS



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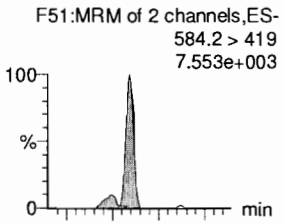


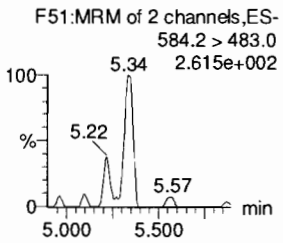
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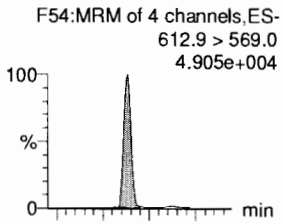
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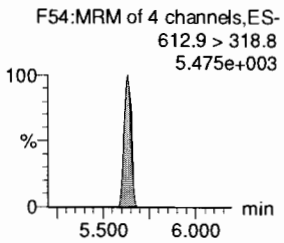
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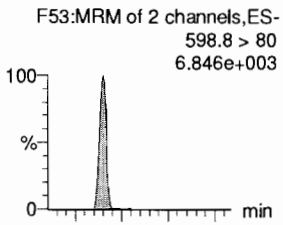


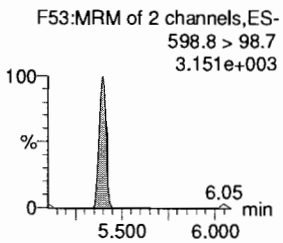
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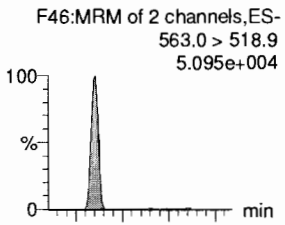


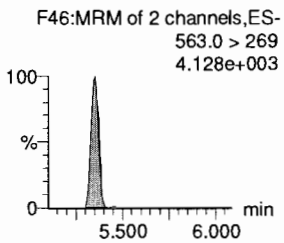
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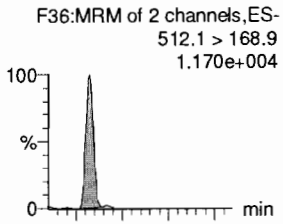


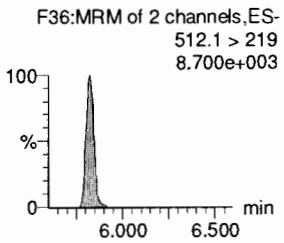
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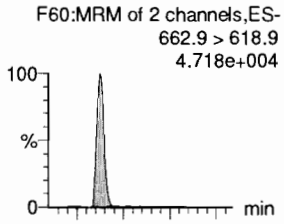


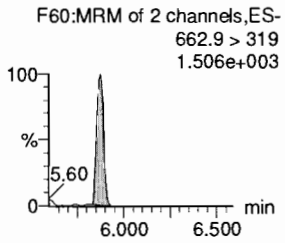
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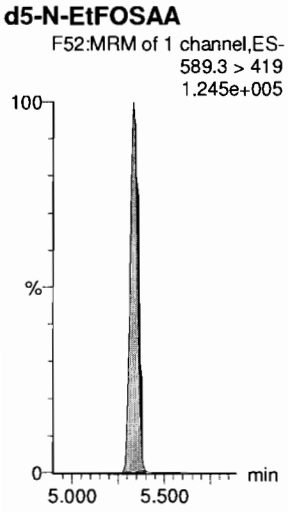


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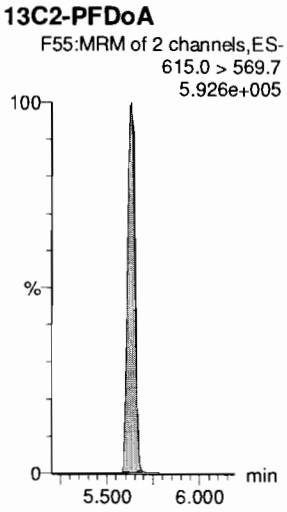




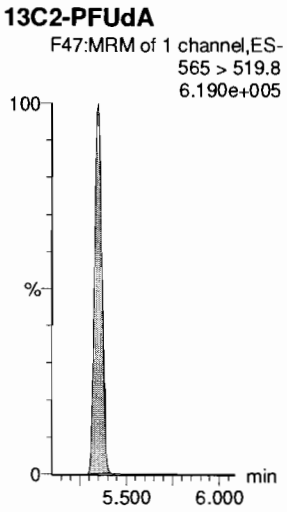
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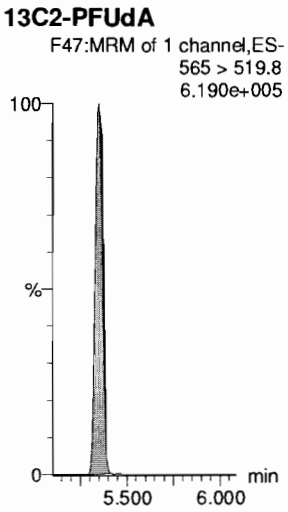
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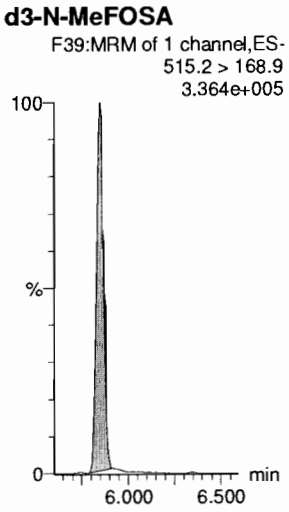
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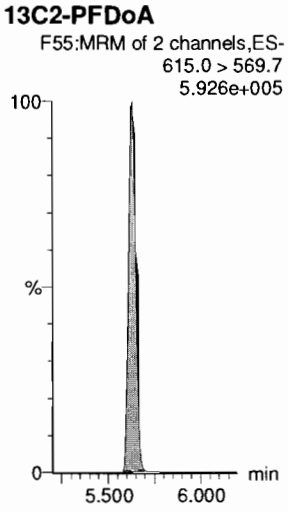
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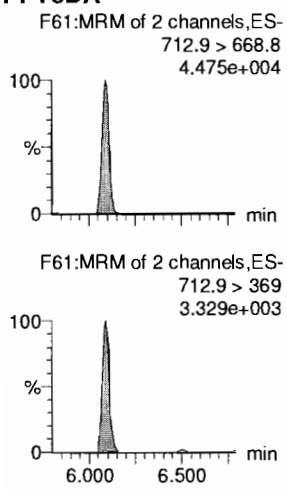


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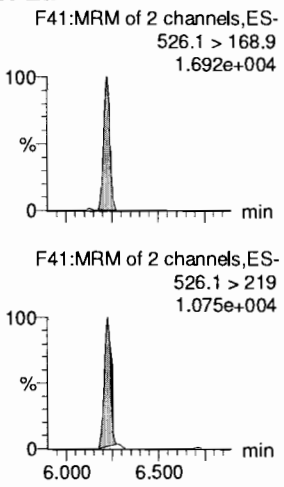
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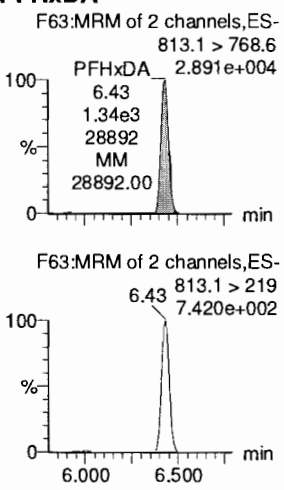
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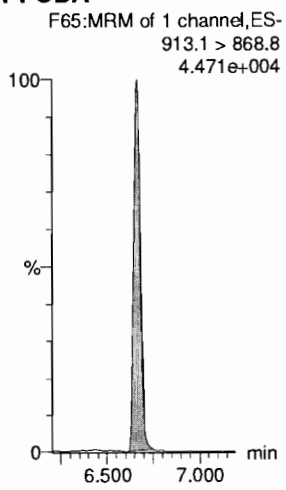
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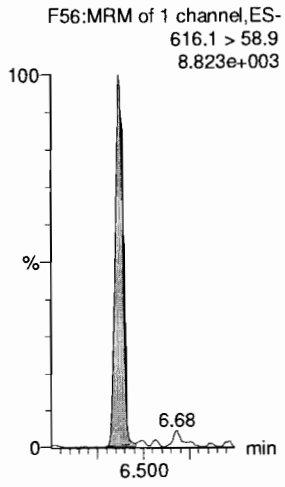
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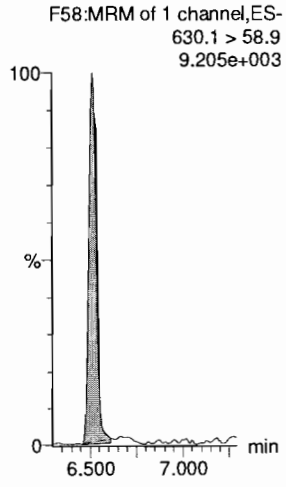
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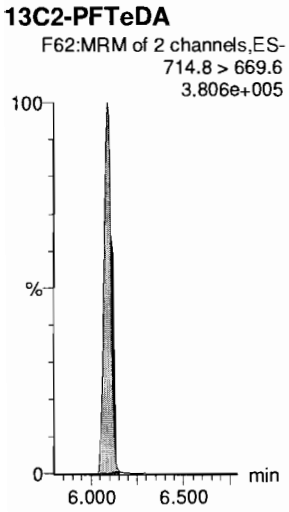
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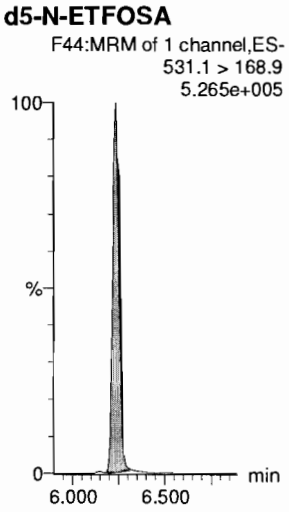
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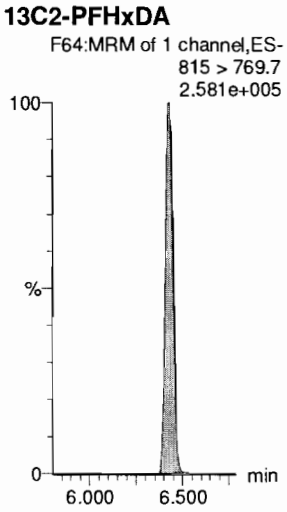
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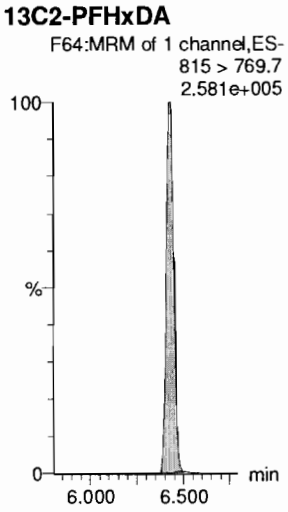
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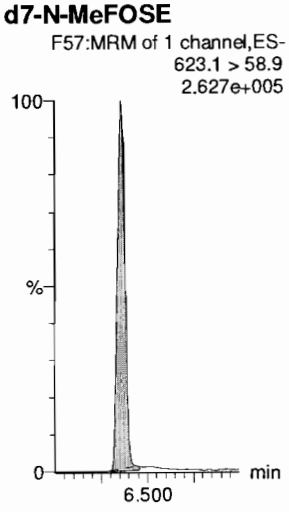
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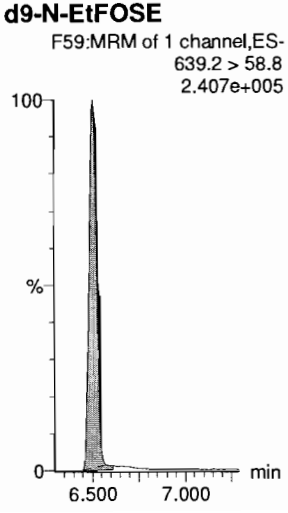
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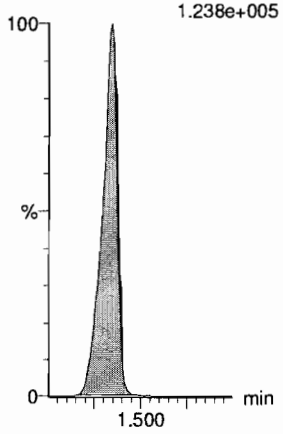


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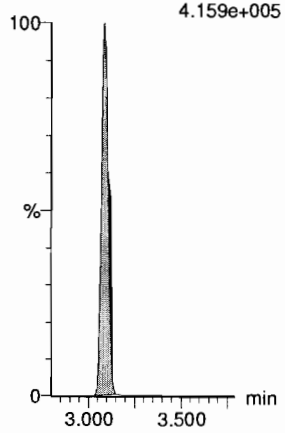
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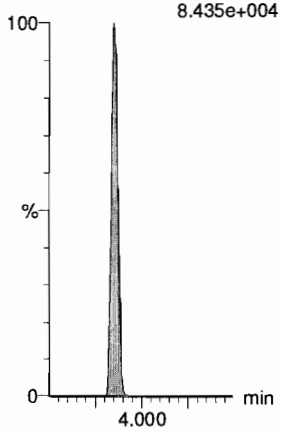
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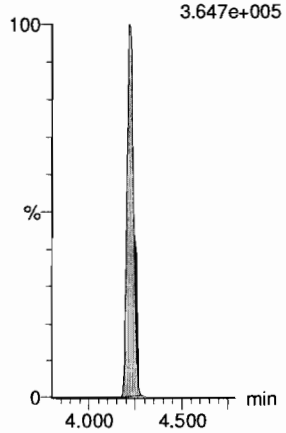
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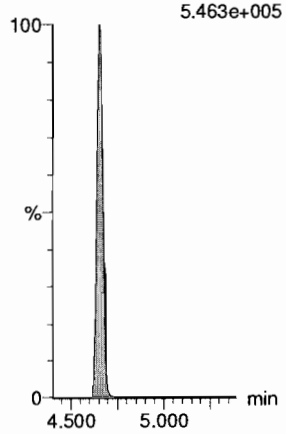
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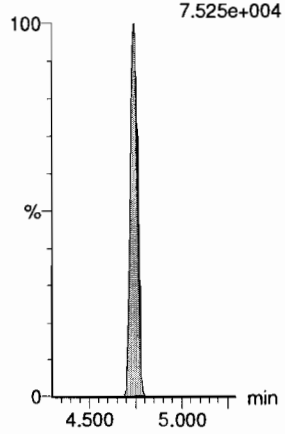
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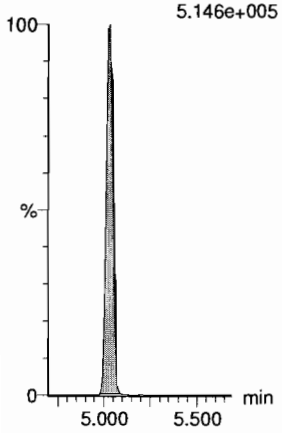
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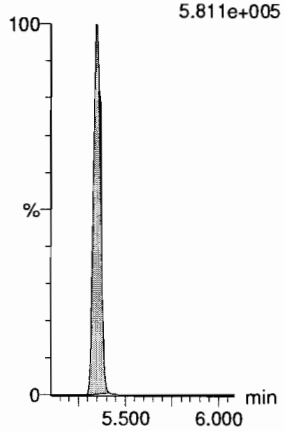
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13C6-PFDA



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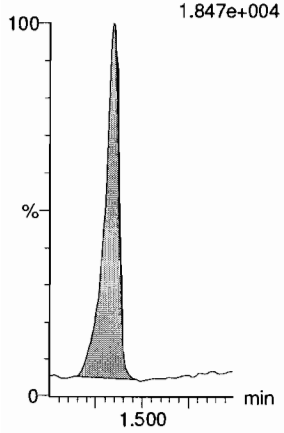


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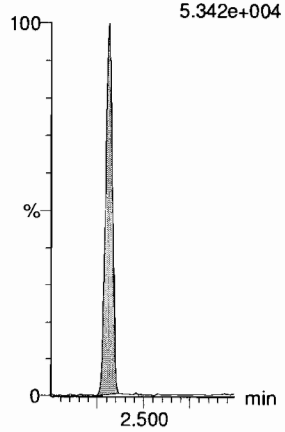
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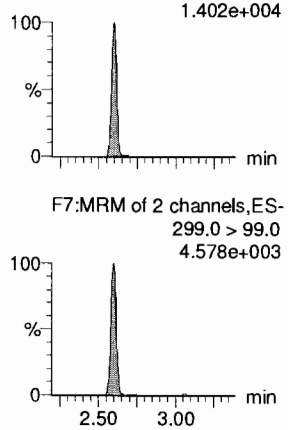
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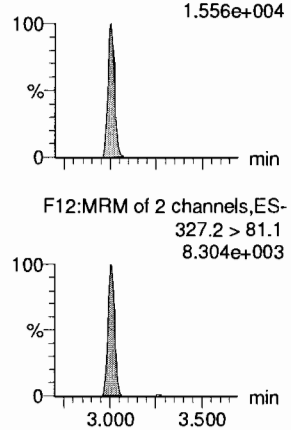
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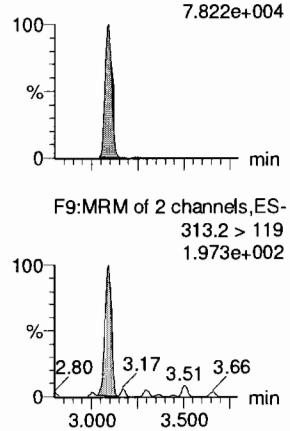
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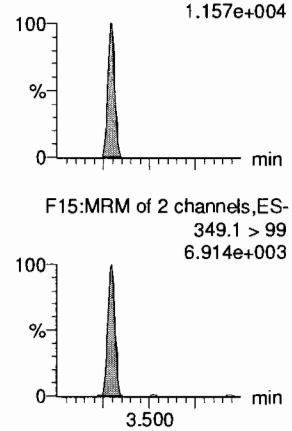
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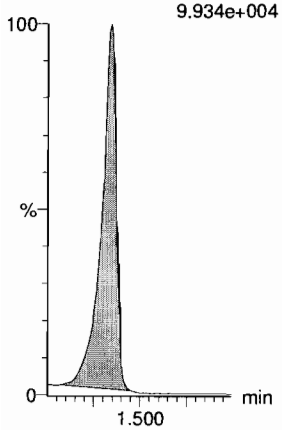
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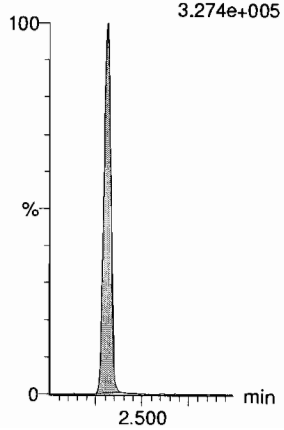
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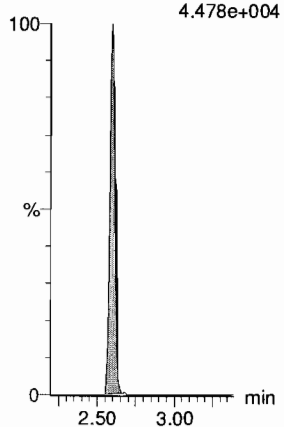
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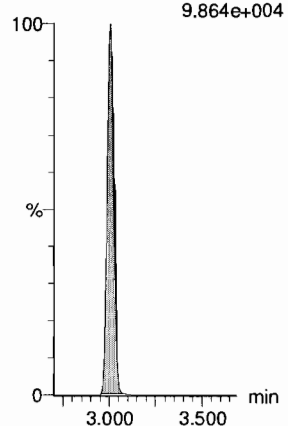
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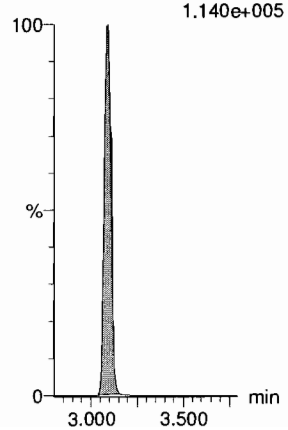
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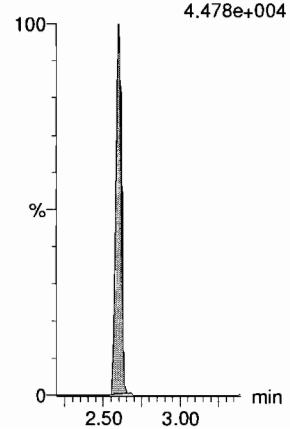
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13C2-PFHxA



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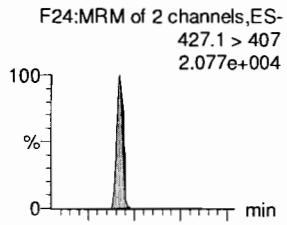


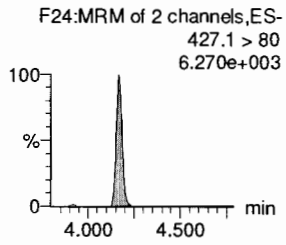
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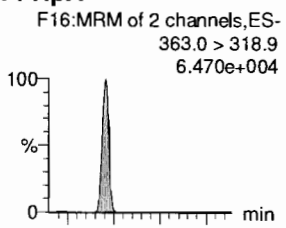
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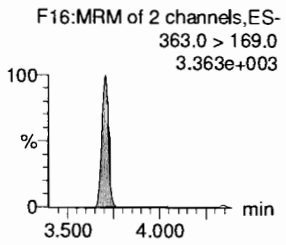
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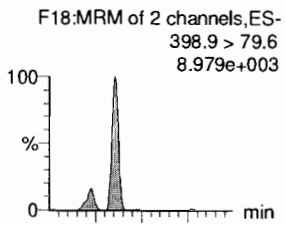


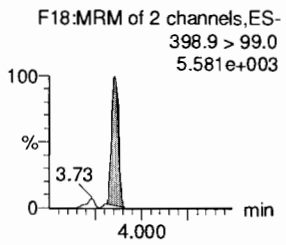
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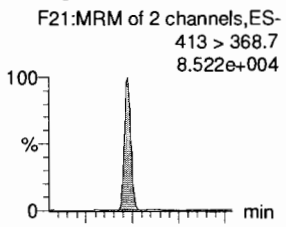


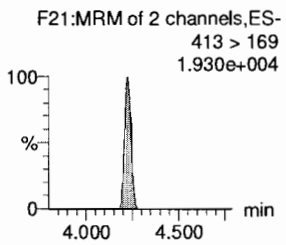
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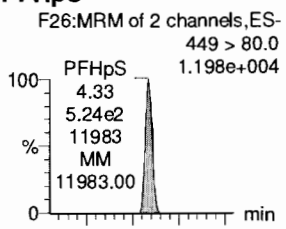


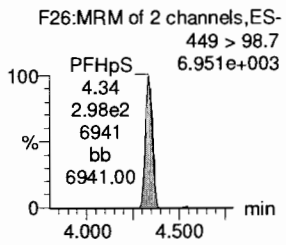
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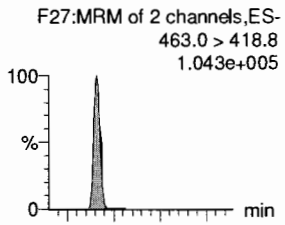


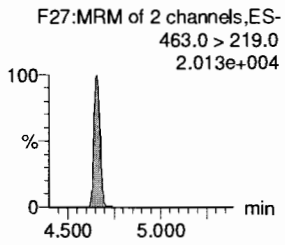
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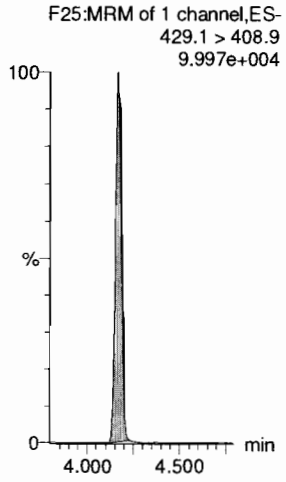


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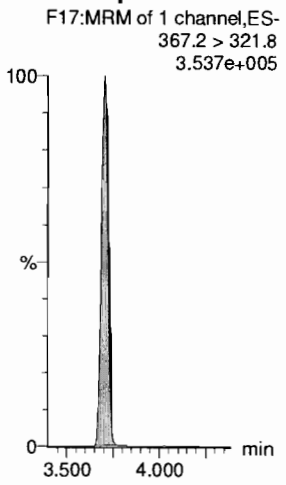




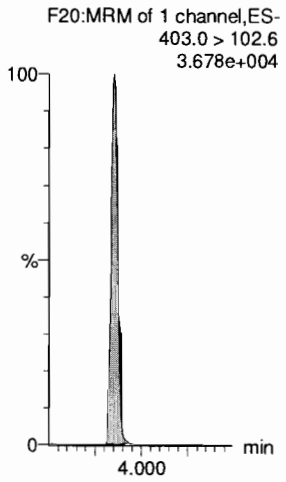
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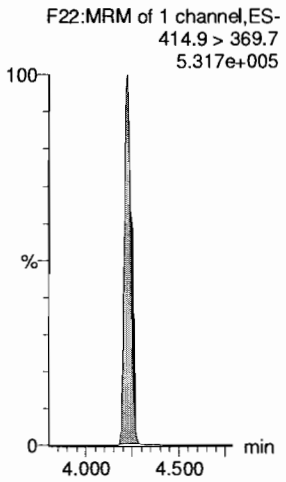
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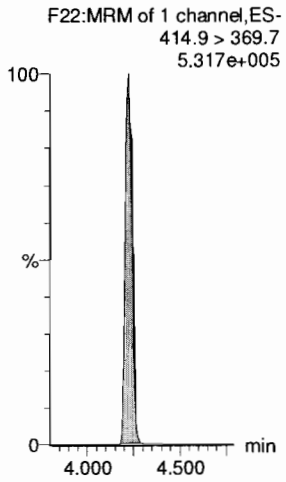
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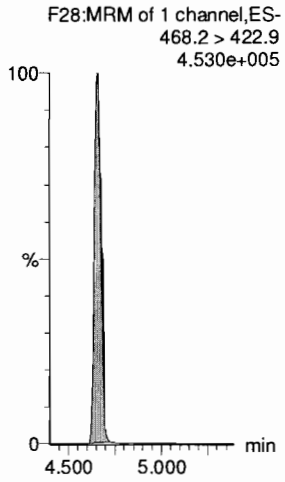
13C2-PFOA



13C2-PFOA



13C5-PFNA

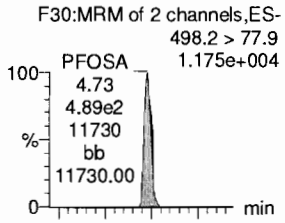


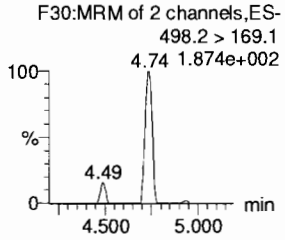
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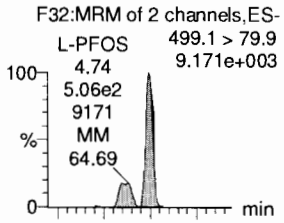
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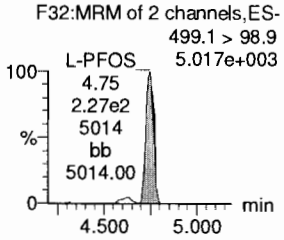
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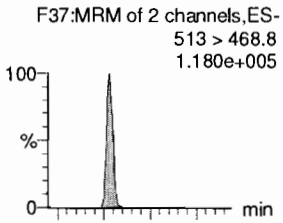


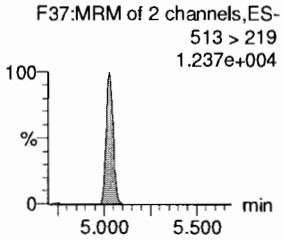
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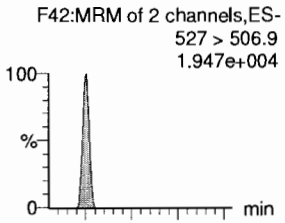


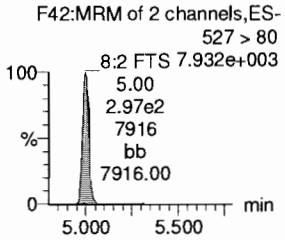
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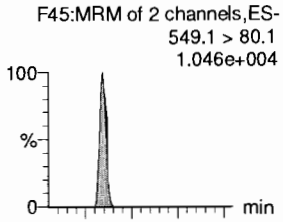


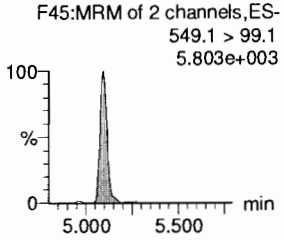
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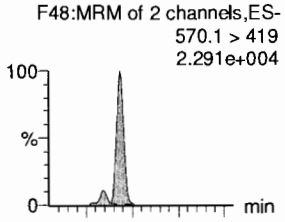


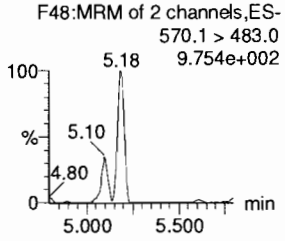
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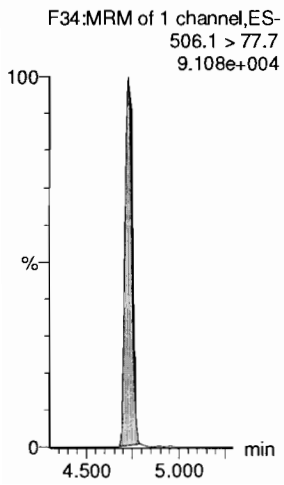


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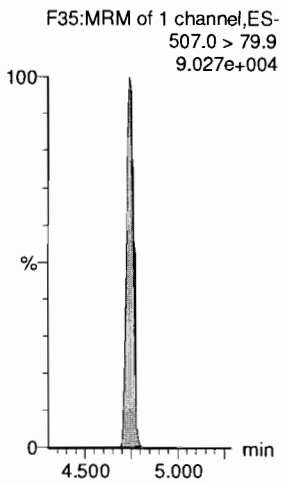




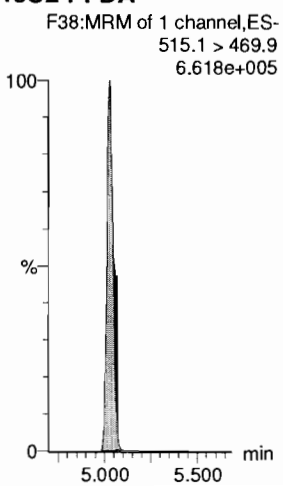
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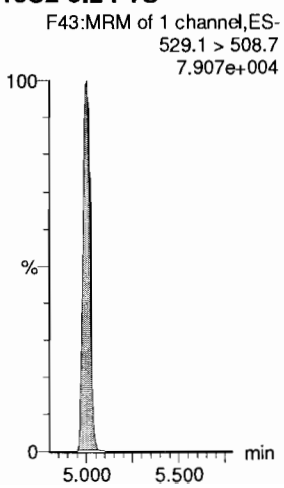
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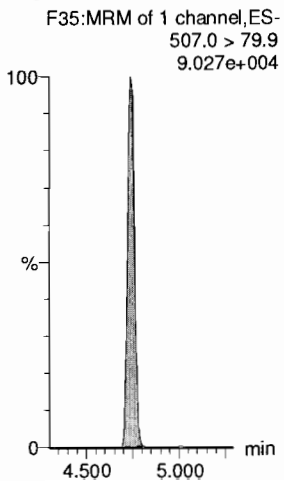
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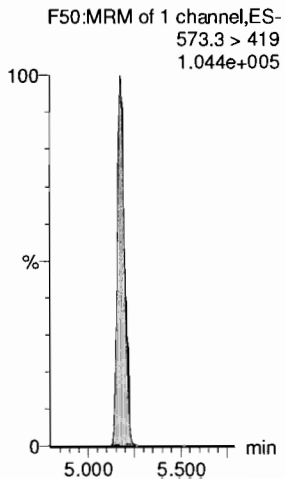
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13C8-PFOS



d3-N-MeFOSAA

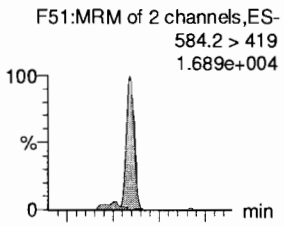


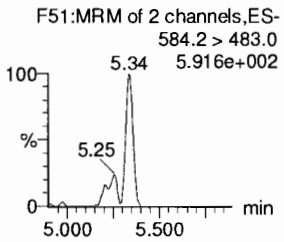
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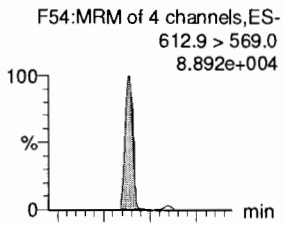
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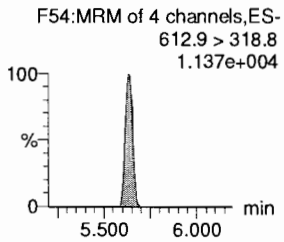
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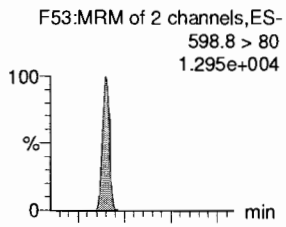


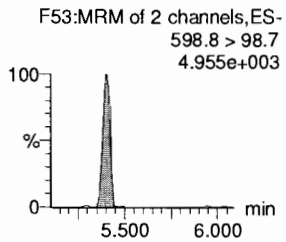
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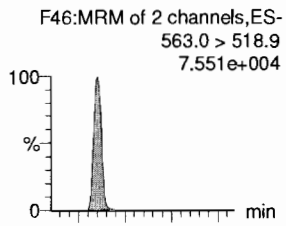


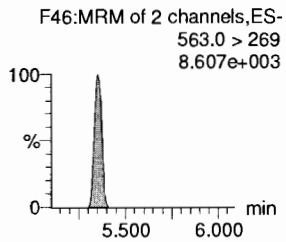
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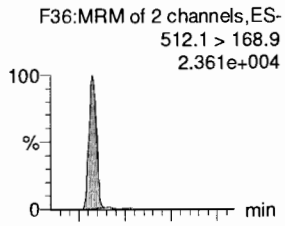


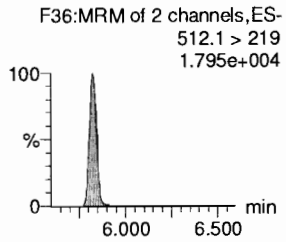
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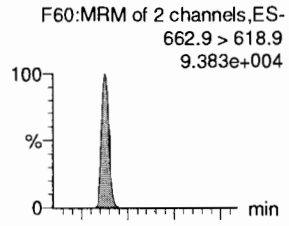


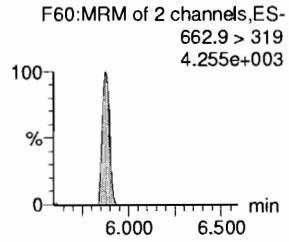
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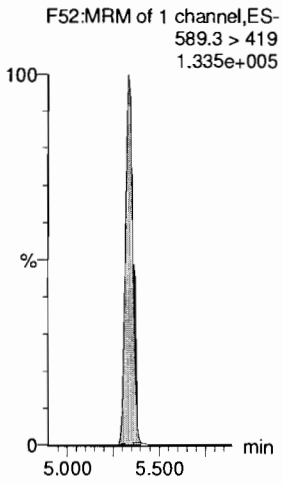


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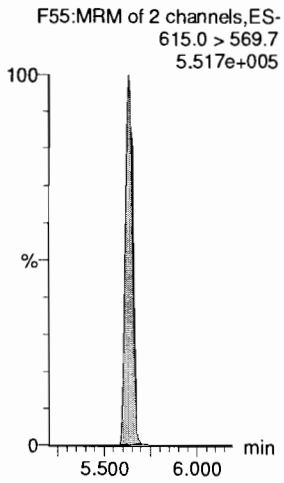




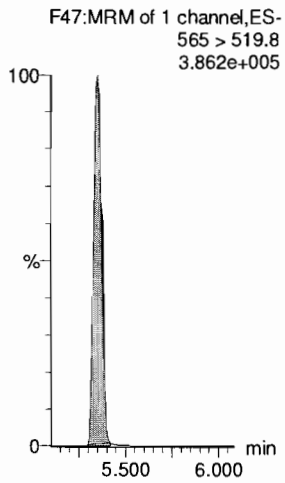
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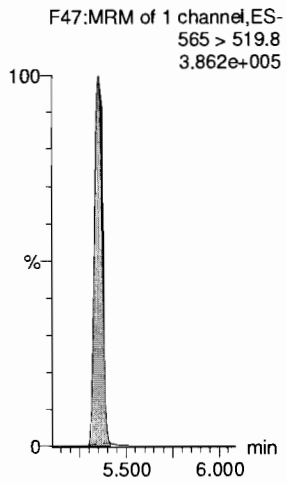
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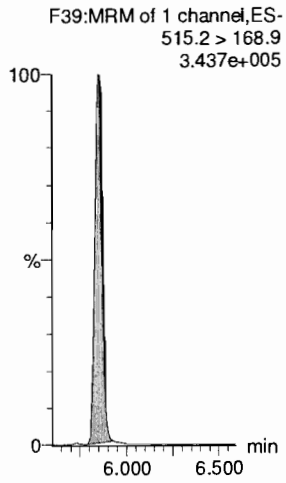
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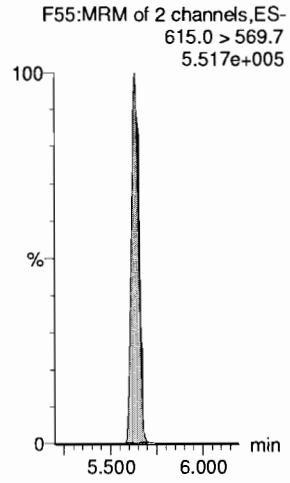
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA

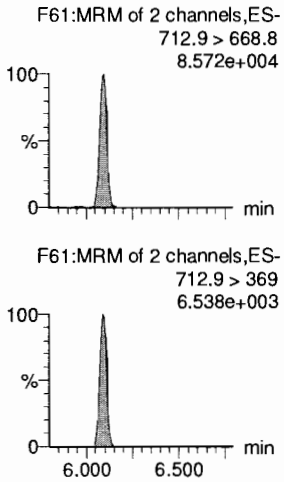


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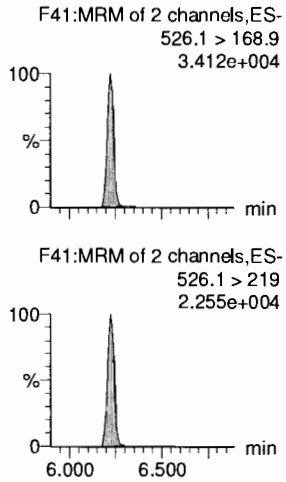
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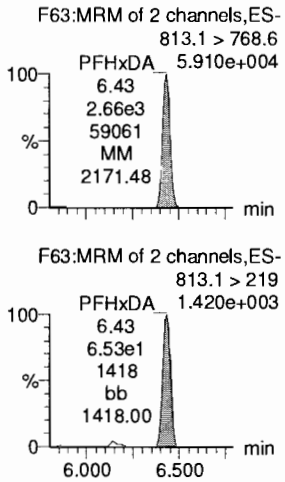
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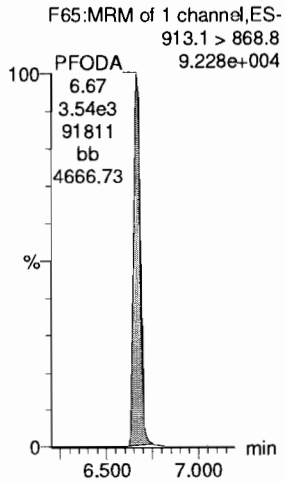
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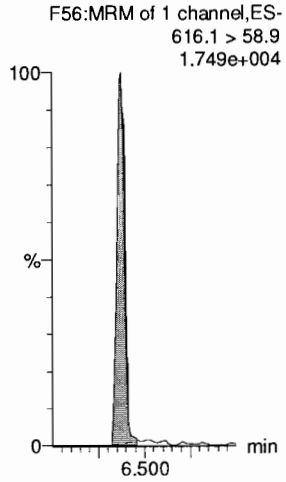
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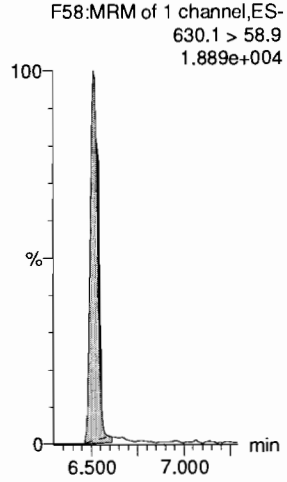
PFODA



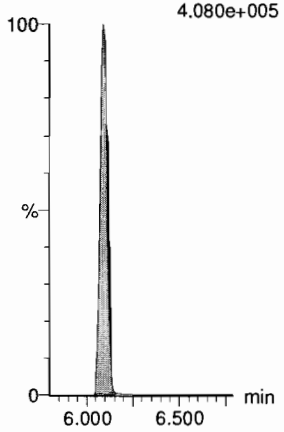
N-MeFOSE



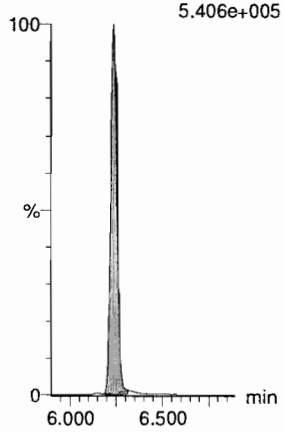
N-EtFOSE



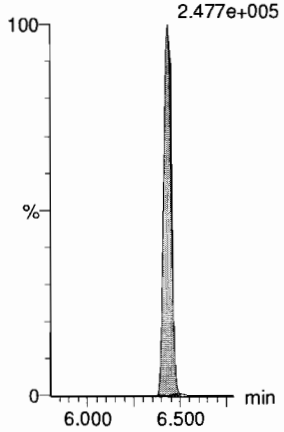
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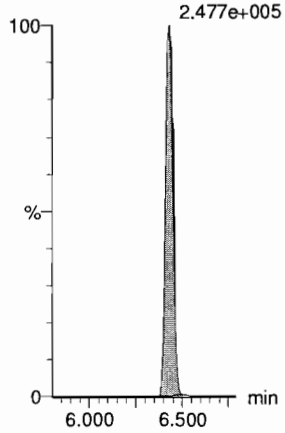
d5-N-ETFOSA



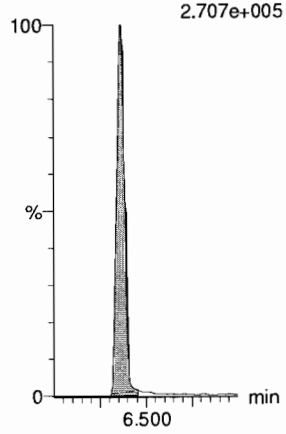
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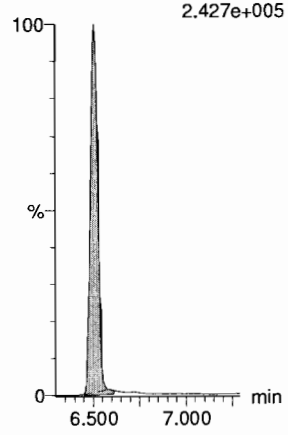
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d7-N-MeFOSE



d9-N-EtFOSE

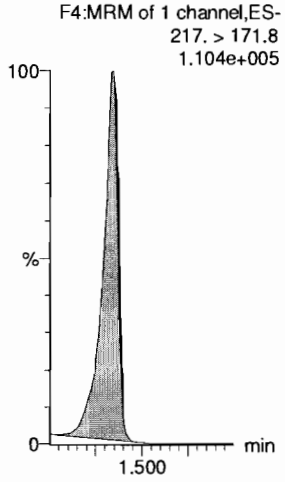


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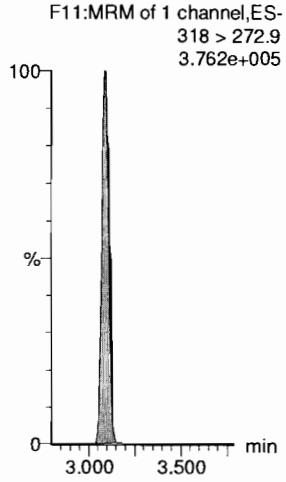
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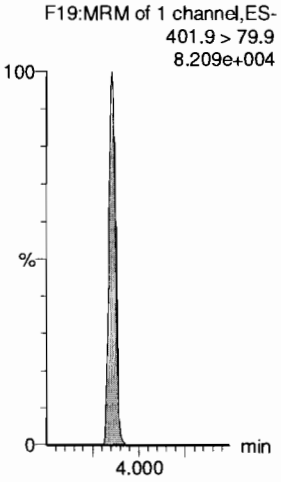
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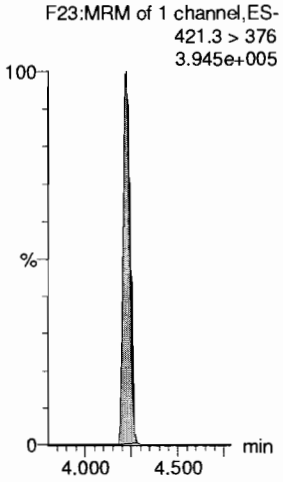
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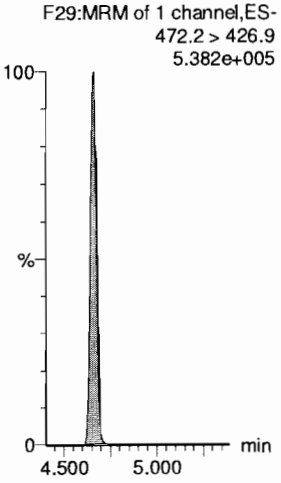
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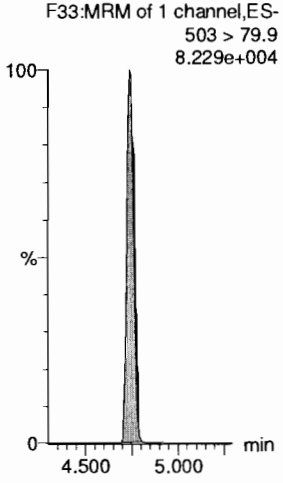
13C8-PFOA



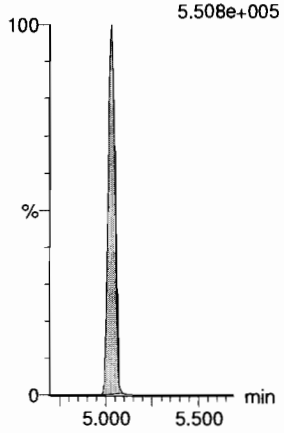
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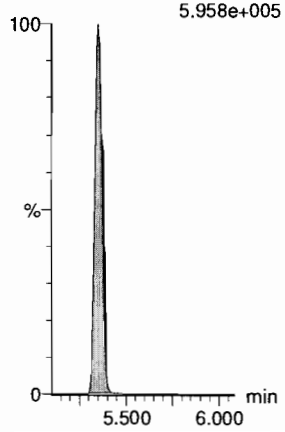
13C4-PFOS



13C6-PFDA



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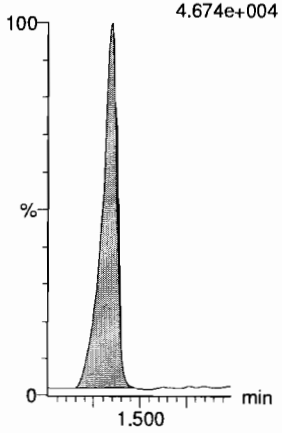


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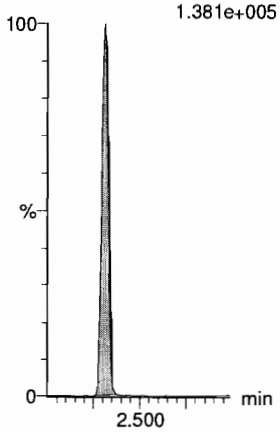
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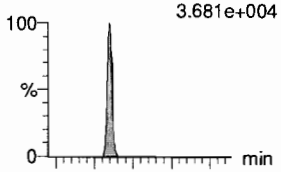
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
4.674e+004



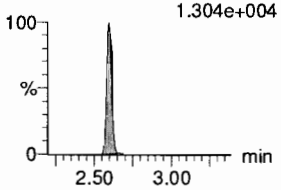
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F5:MRM of 1 channel,ES-
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1.381e+005



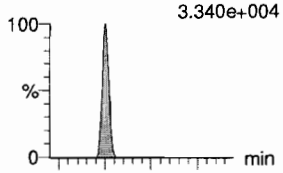
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
3.681e+004



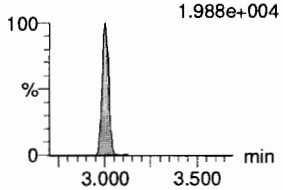
F7:MRM of 2 channels,ES-
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1.304e+004



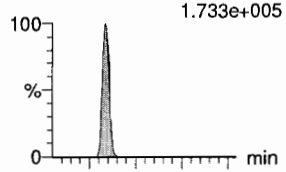
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
3.340e+004



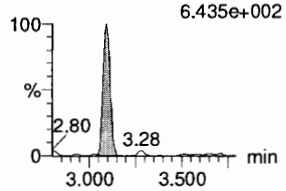
F12:MRM of 2 channels,ES-
327.2 > 81.1
1.988e+004



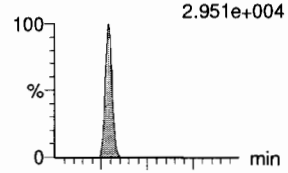
PFHxA
F9:MRM of 2 channels,ES-
313.2 > 268.9
1.733e+005



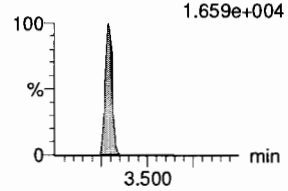
F9:MRM of 2 channels,ES-
313.2 > 119
6.435e+002



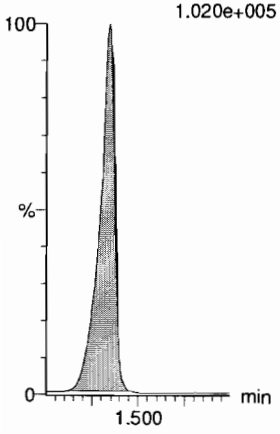
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
2.951e+004



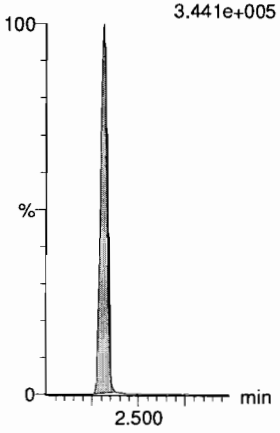
F15:MRM of 2 channels,ES-
349.1 > 99
1.659e+004



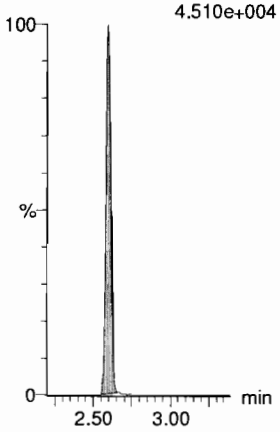
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
1.020e+005



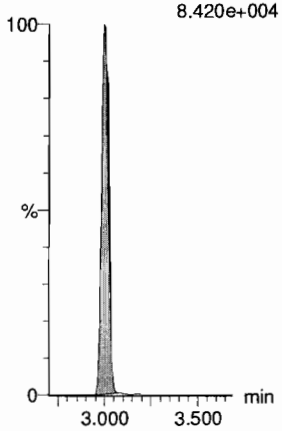
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
3.441e+005



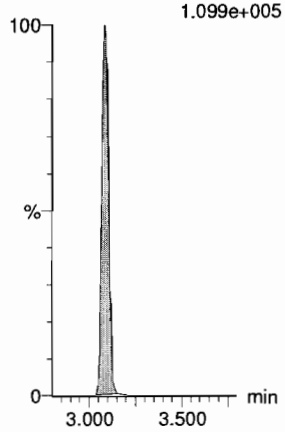
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
4.510e+004



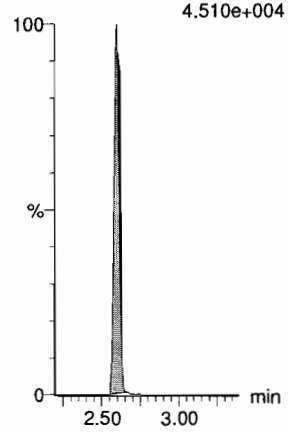
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
8.420e+004



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 269.8
1.099e+005



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
4.510e+004

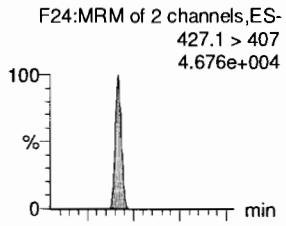


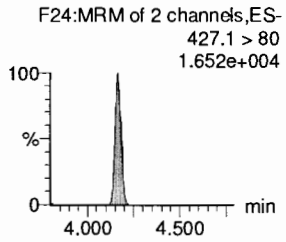
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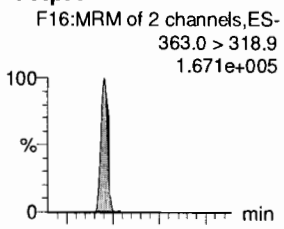
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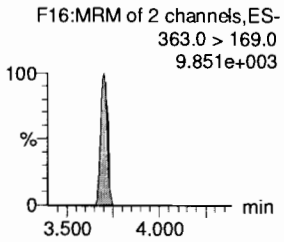
6:2 FTS



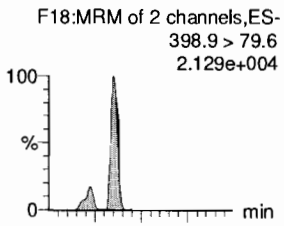


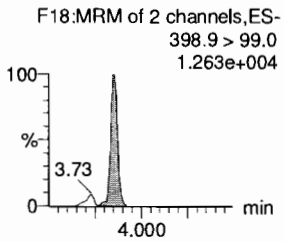
PFHpA



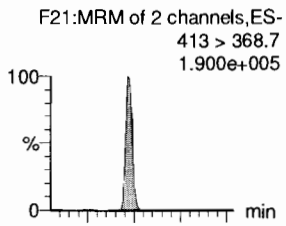


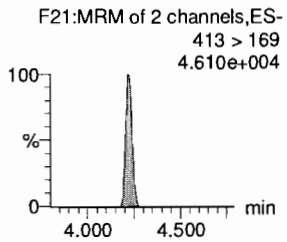
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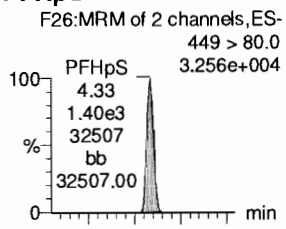


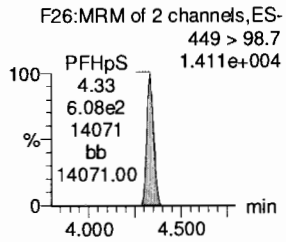
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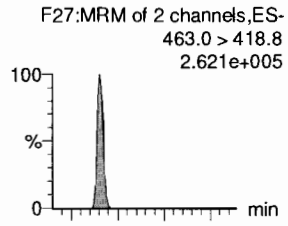


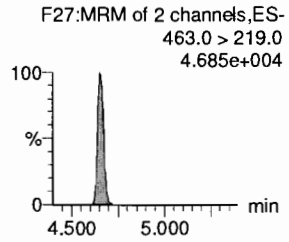
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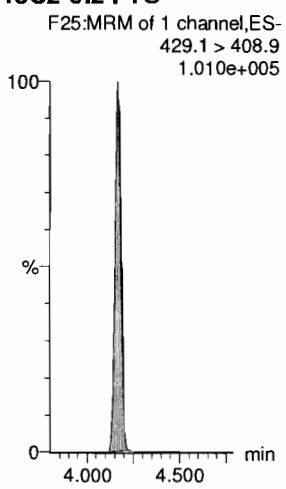


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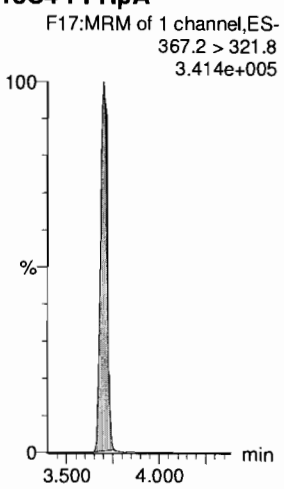




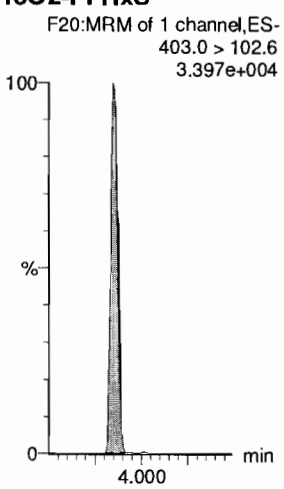
13C2-6:2 FTS



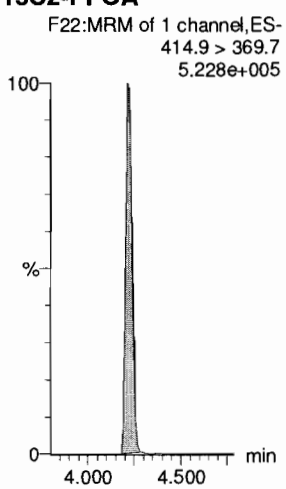
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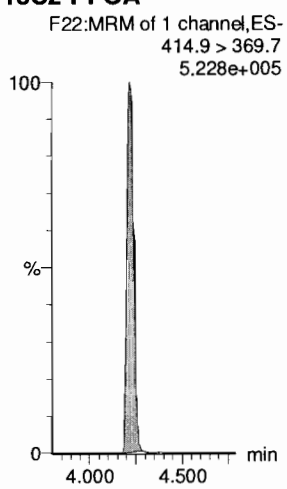
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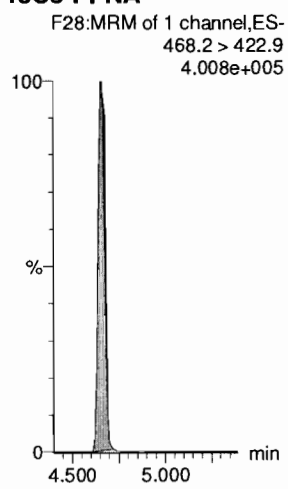
13C2-PFOA



13C2-PFOA



13C5-PFNA

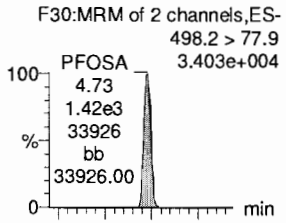


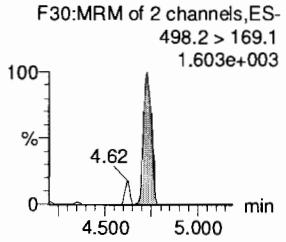
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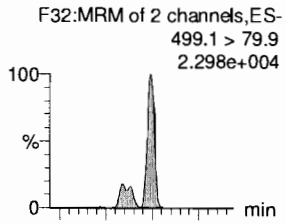
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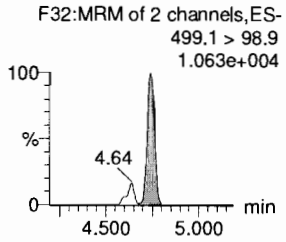
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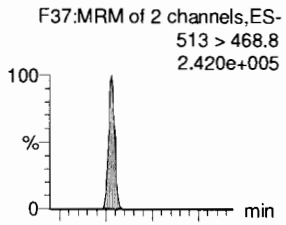


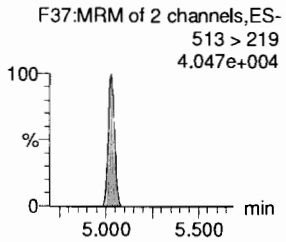
L-PFOS



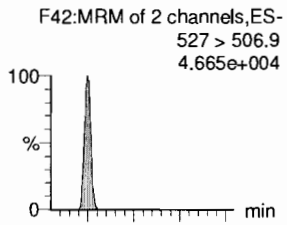


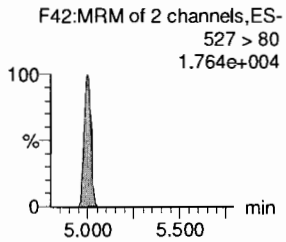
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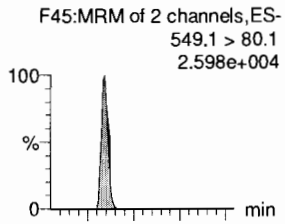


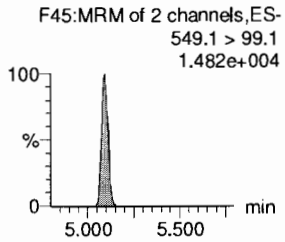
8:2 FTS



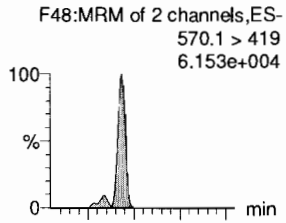


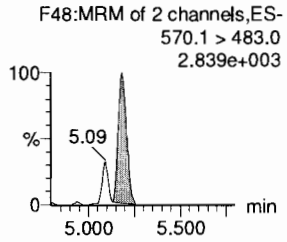
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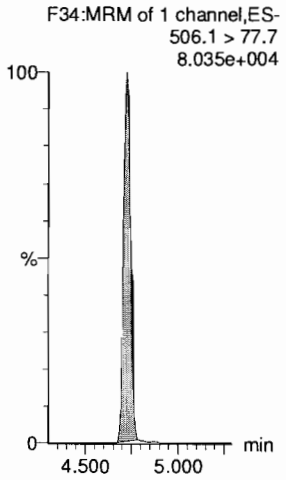


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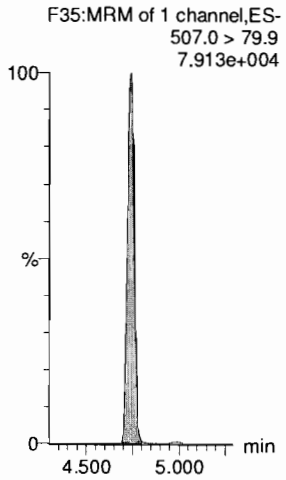




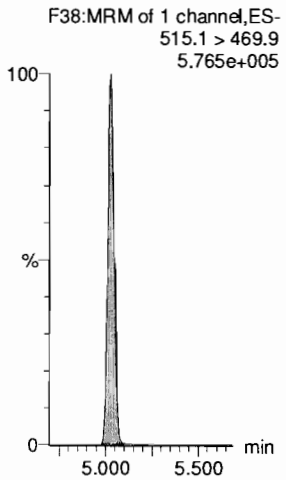
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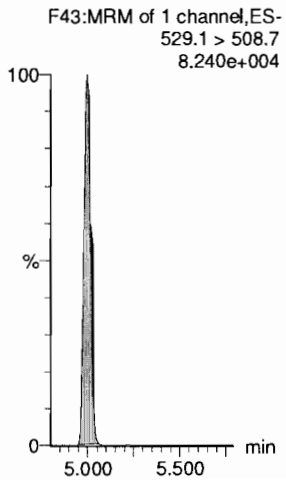
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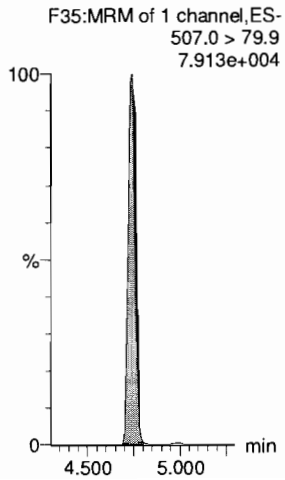
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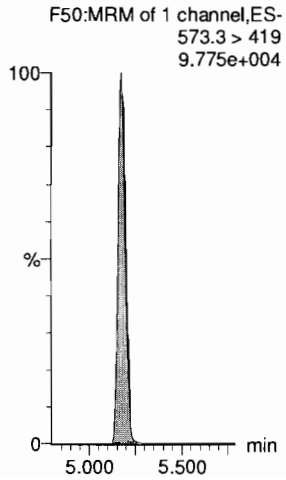
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13C8-PFOS



d3-N-MeFOSAA

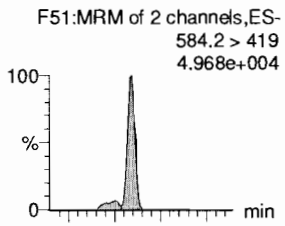


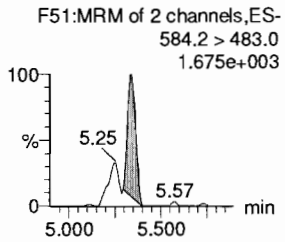
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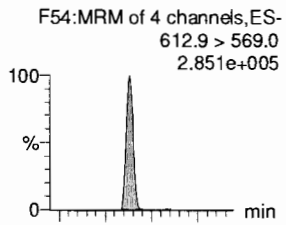
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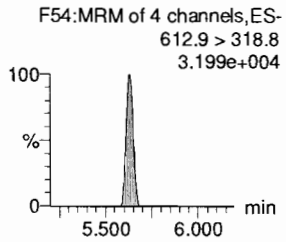
L-EtFOSAA



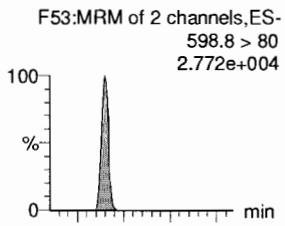


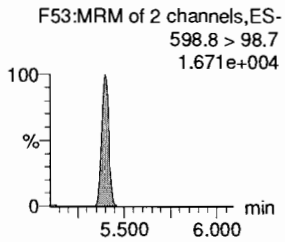
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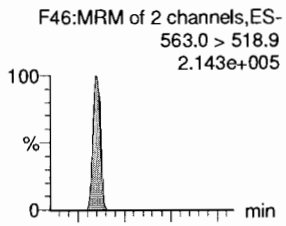


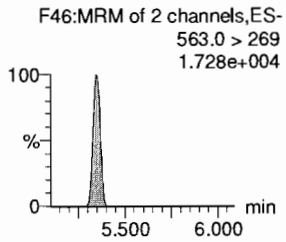
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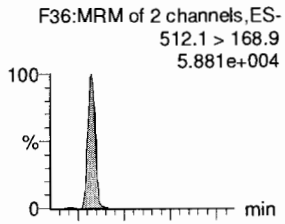


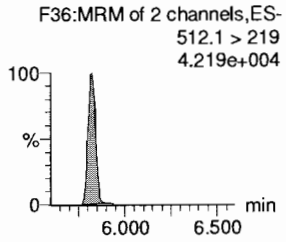
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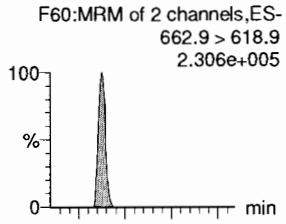


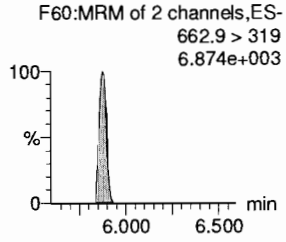
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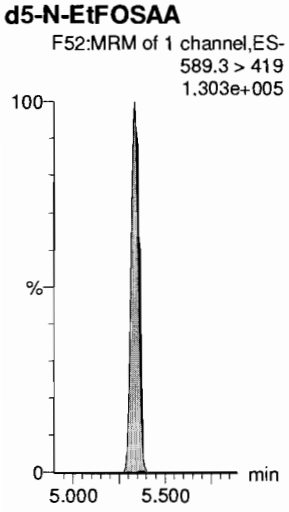


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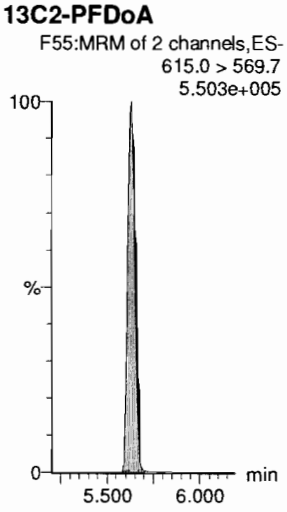




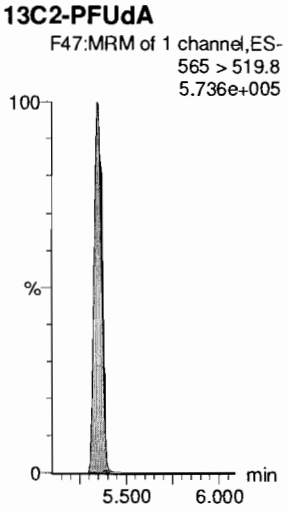
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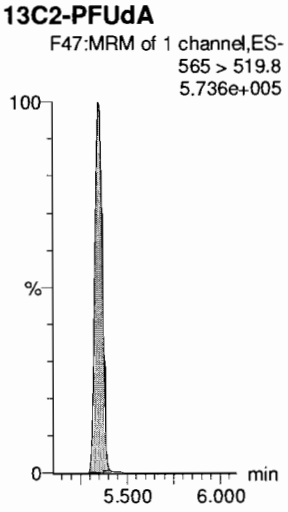
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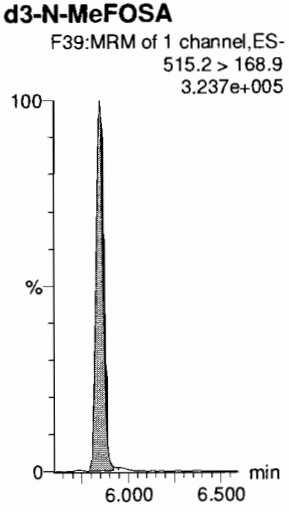
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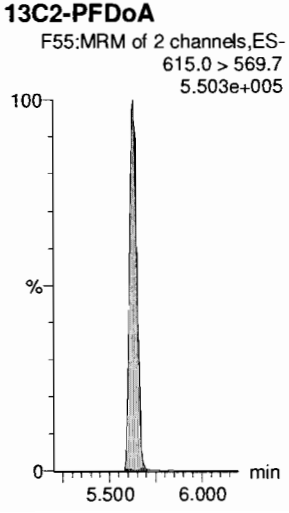
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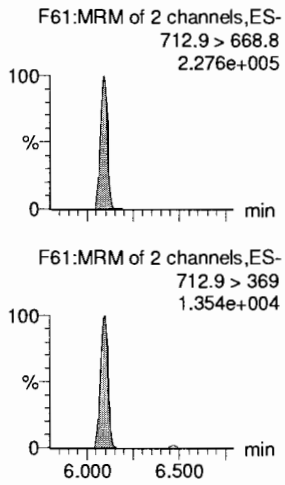


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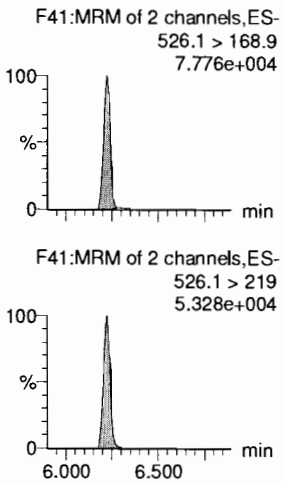
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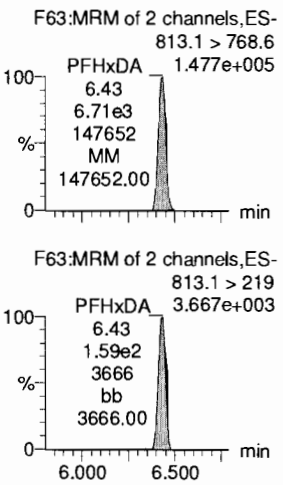
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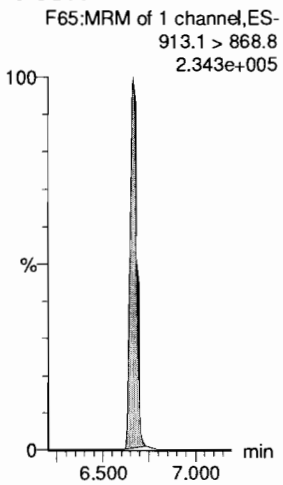
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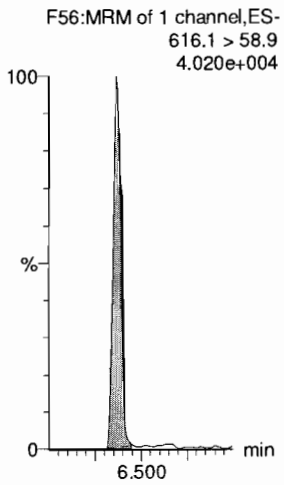
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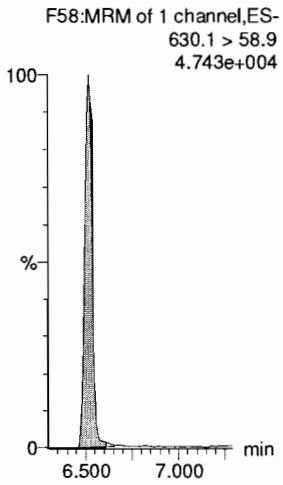
PFODA



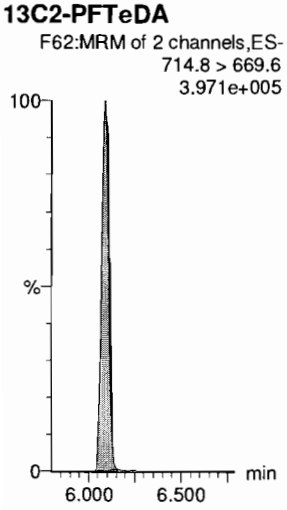
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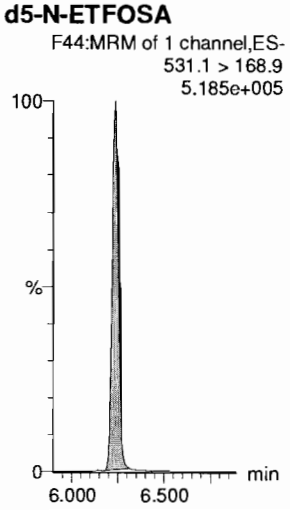
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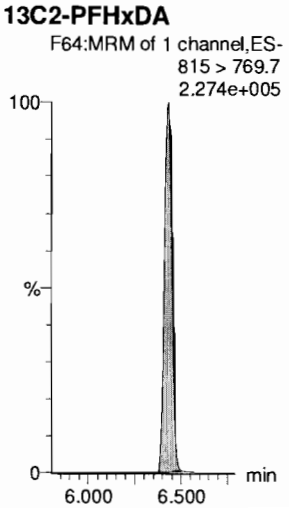
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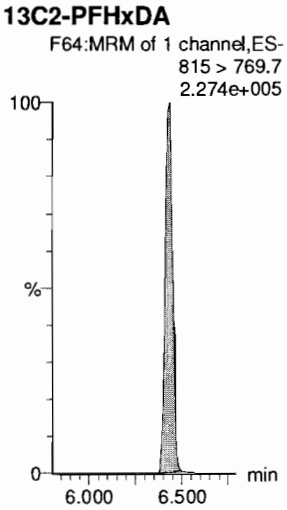
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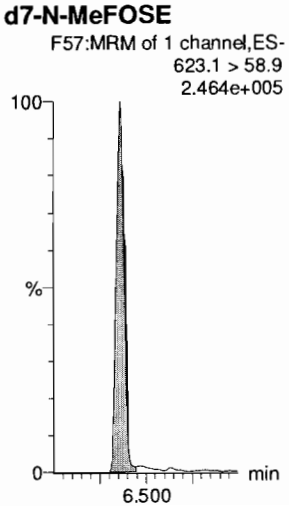
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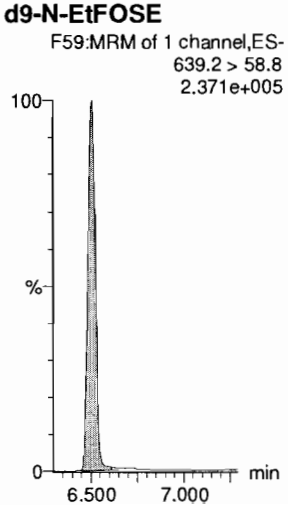
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d7-N-MeFOSE



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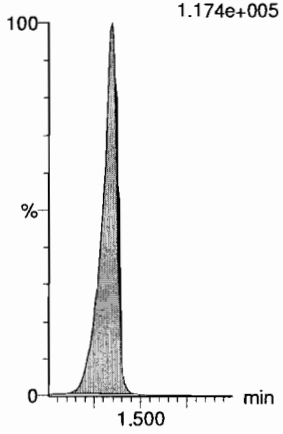


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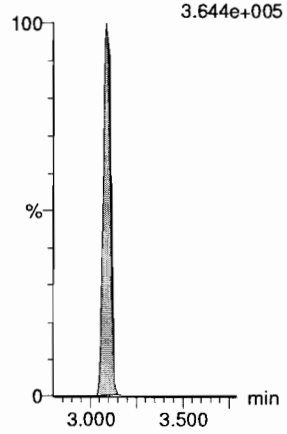
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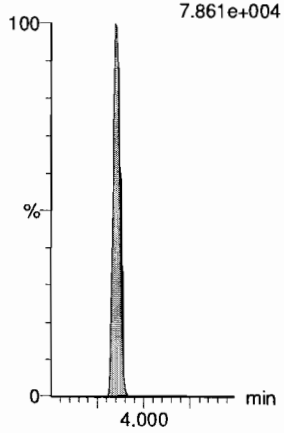
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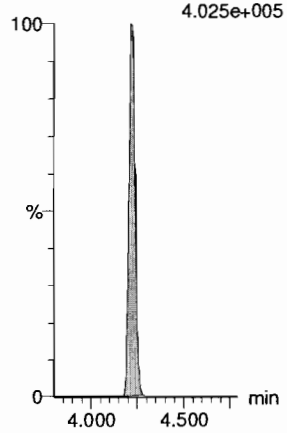
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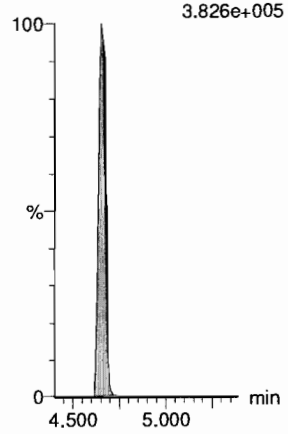
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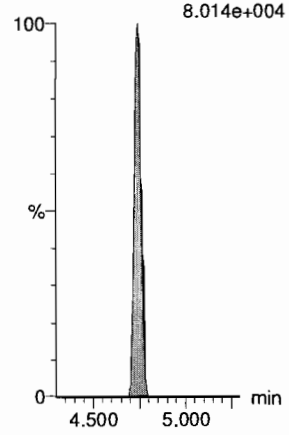
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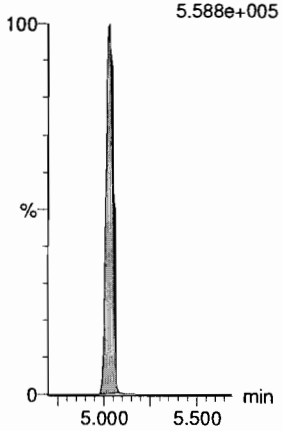
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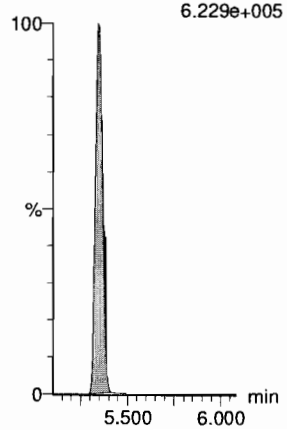
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13C6-PFDA



13C7-PFUdA

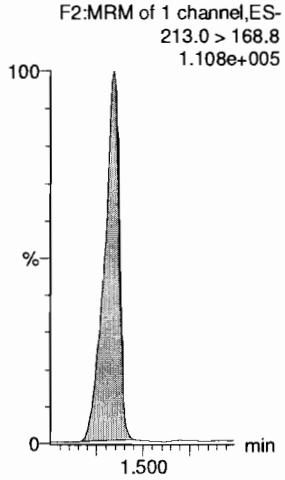


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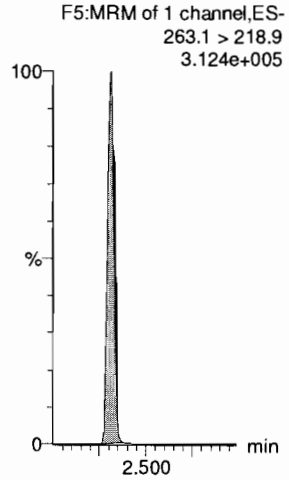
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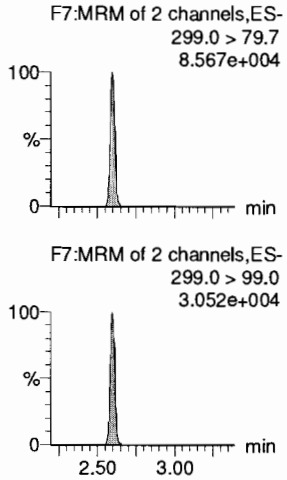
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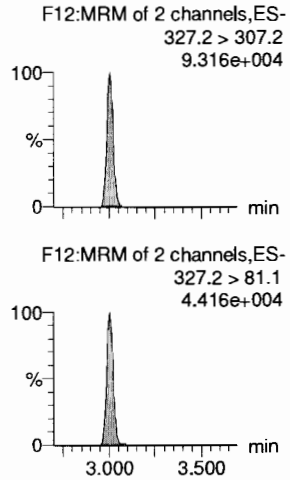
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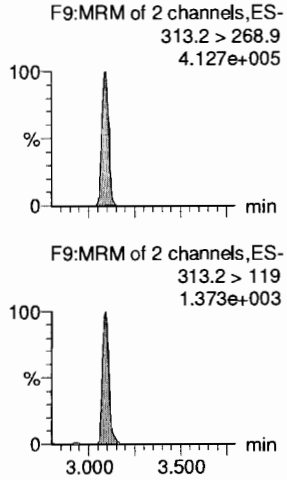
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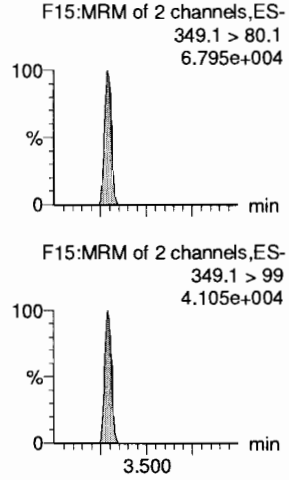
4:2 FTS



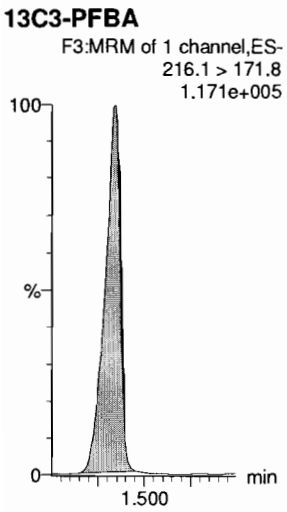
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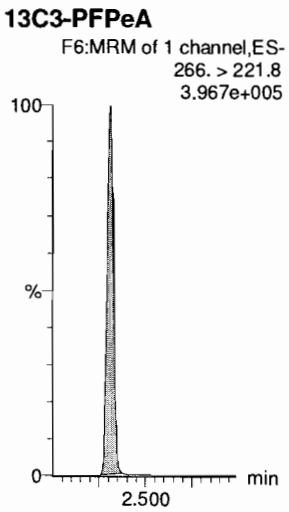
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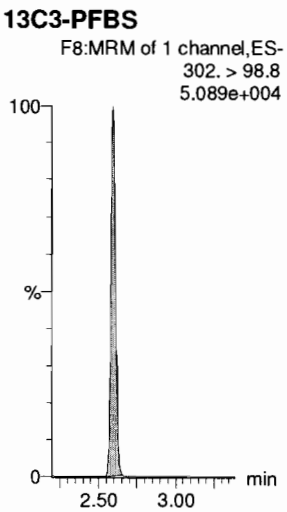
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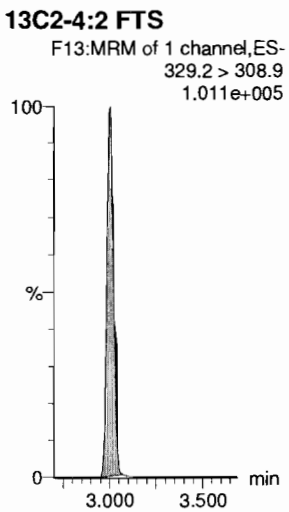
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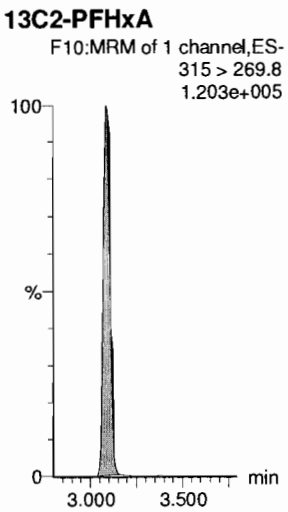
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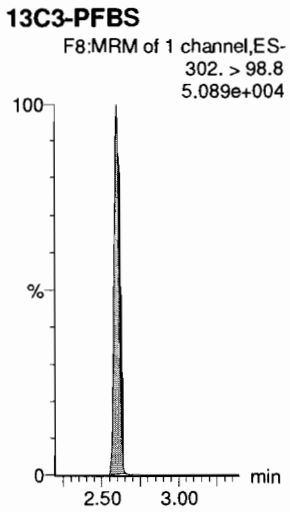
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13C2-PFHxA



13C3-PFBS

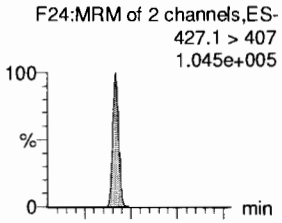


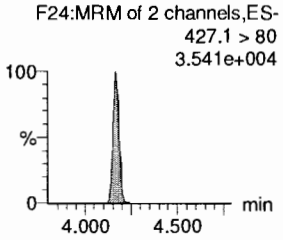
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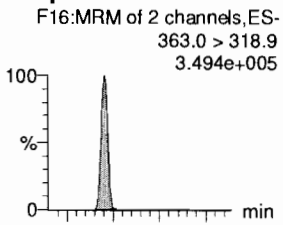
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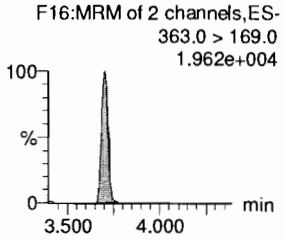
6:2 FTS



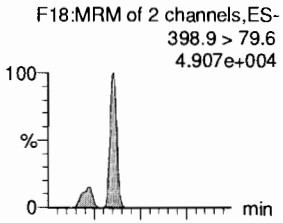


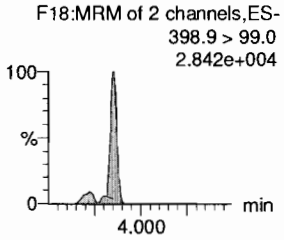
PFHpA



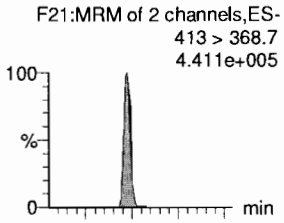


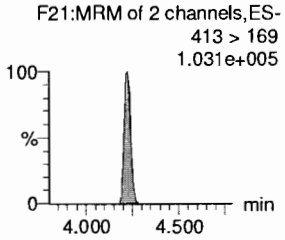
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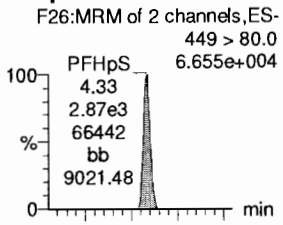


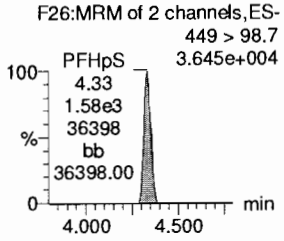
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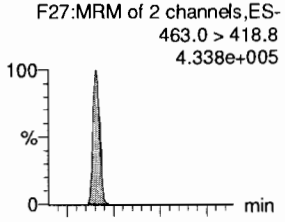


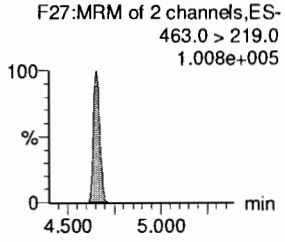
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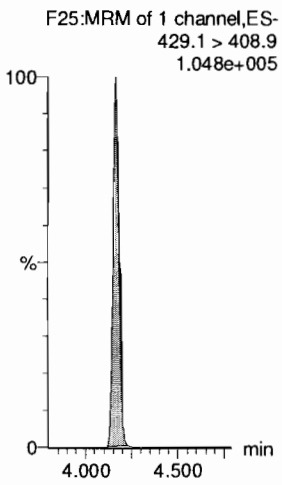


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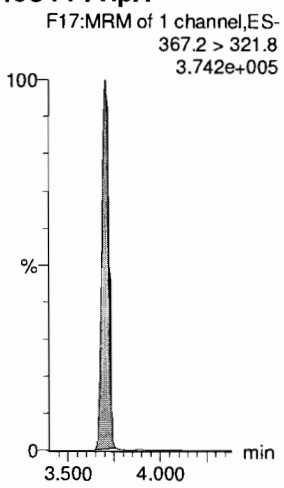




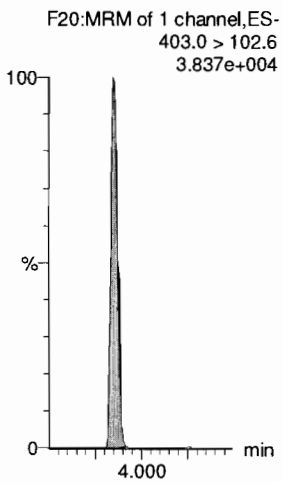
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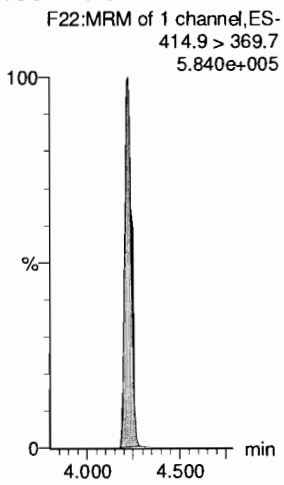
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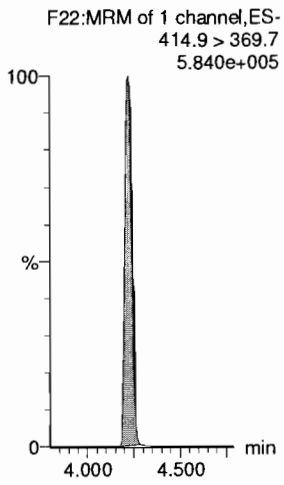
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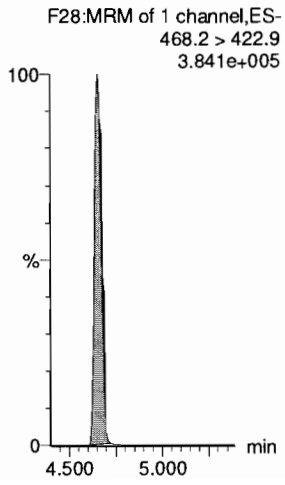
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13C2-PFOA



13C5-PFNA

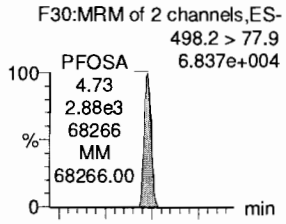


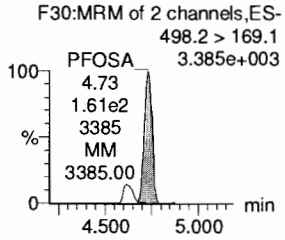
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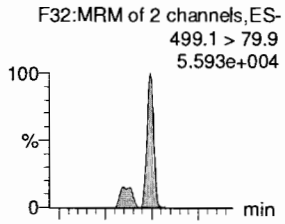
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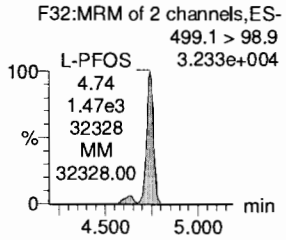
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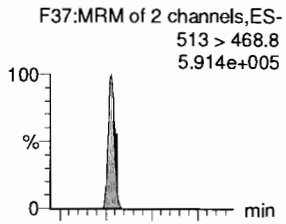


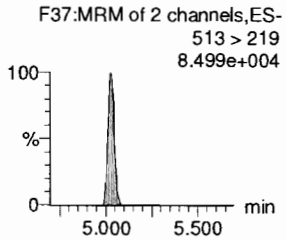
L-PFOS



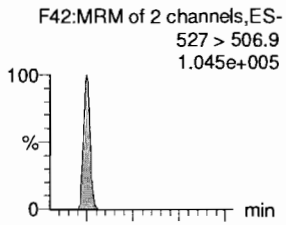


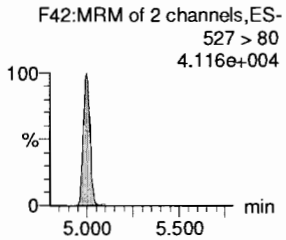
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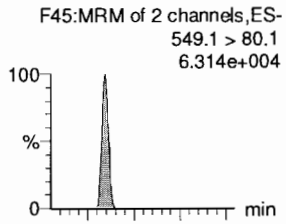


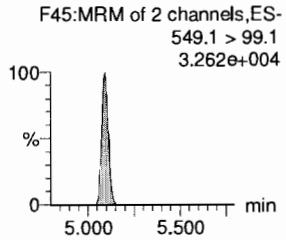
8:2 FTS



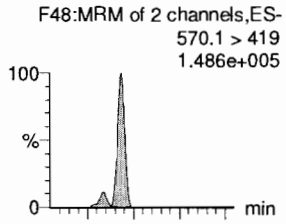


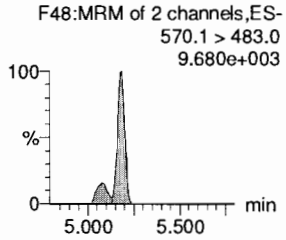
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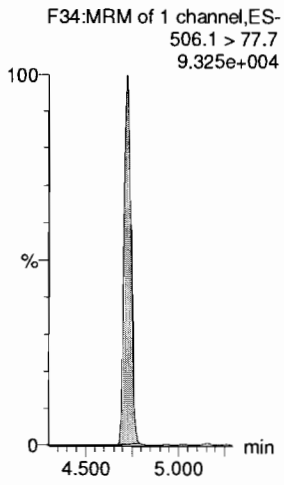


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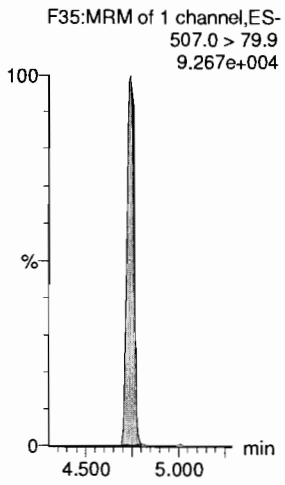




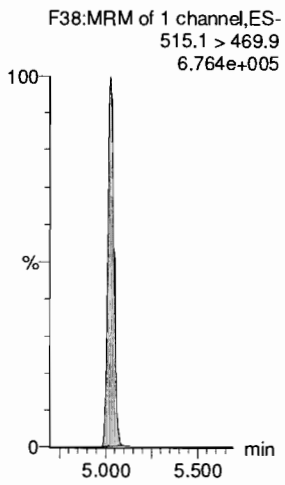
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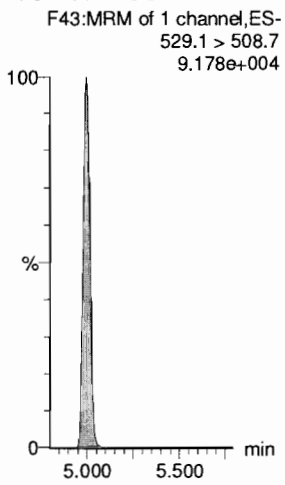
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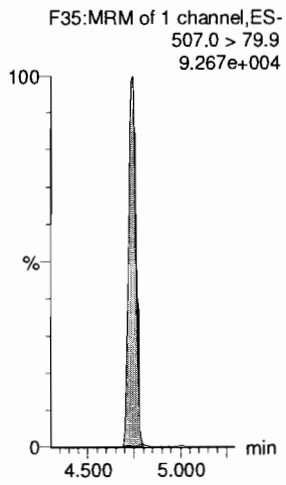
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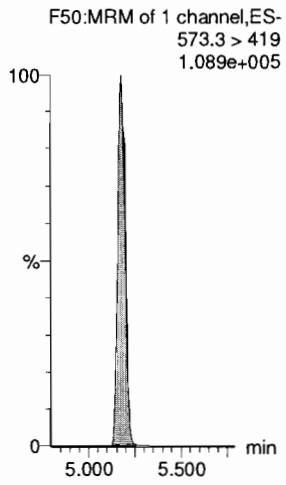
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13C8-PFOS



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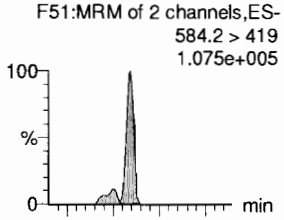


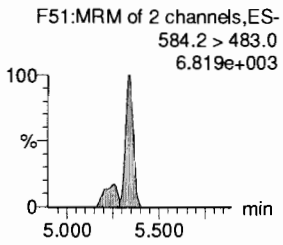
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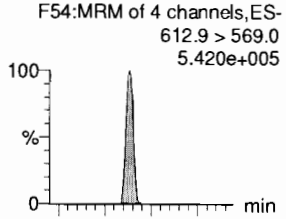
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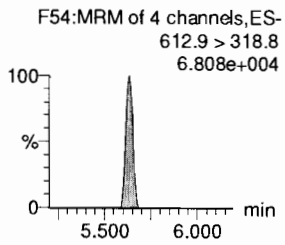
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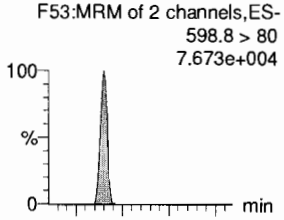


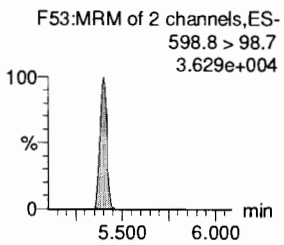
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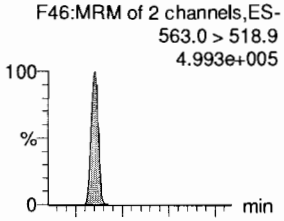


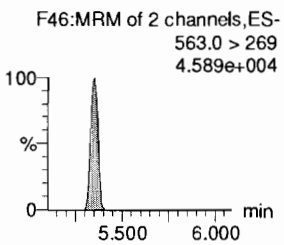
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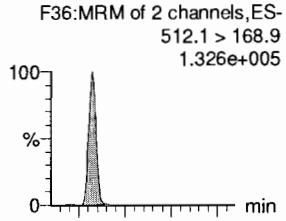


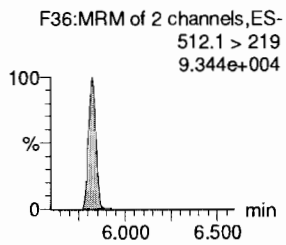
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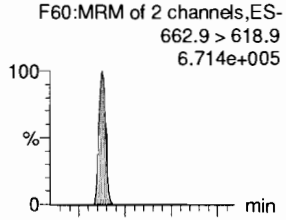


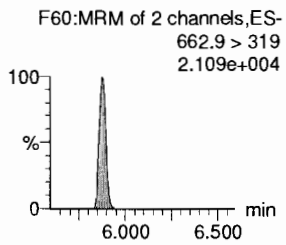
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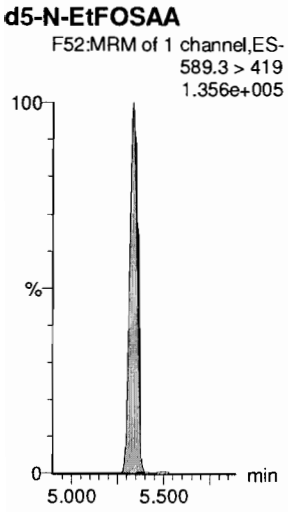


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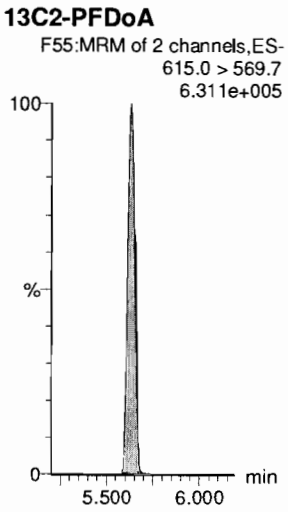




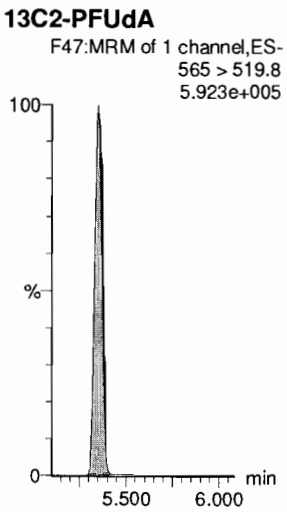
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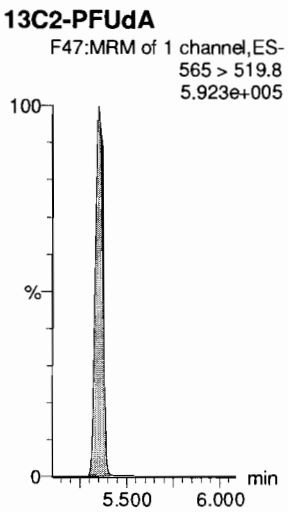
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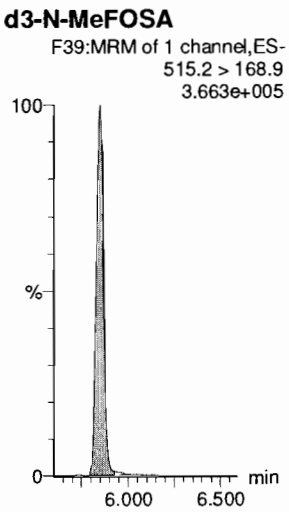
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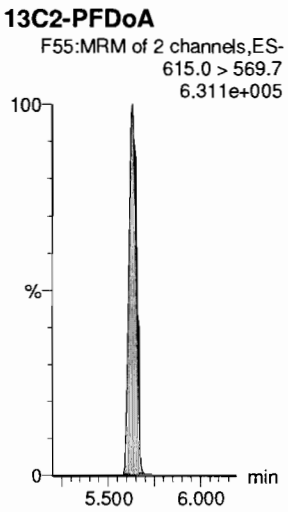
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13C2-PFDoA

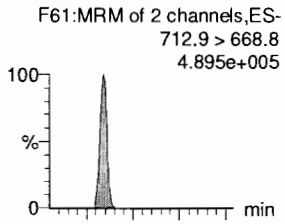


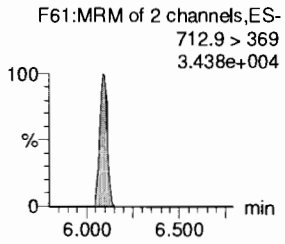
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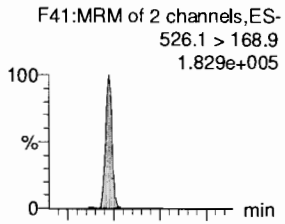
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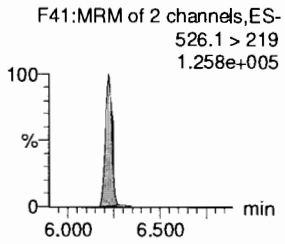
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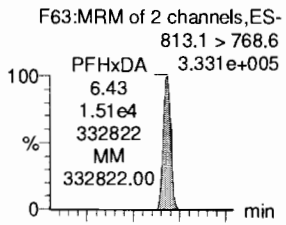


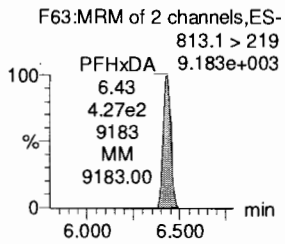
N-EtFOSA



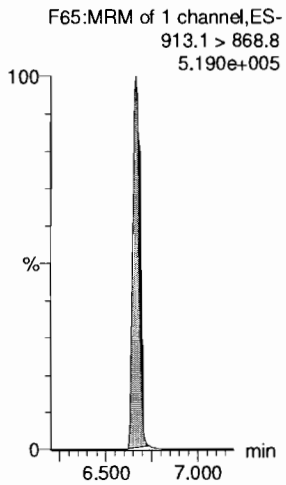


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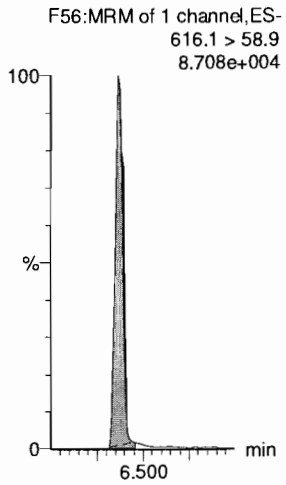




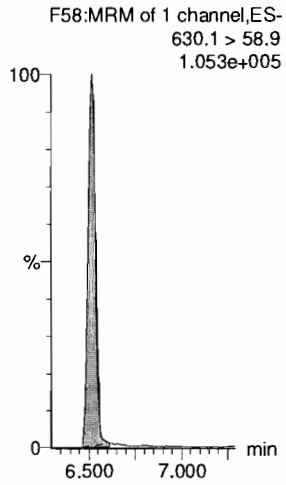
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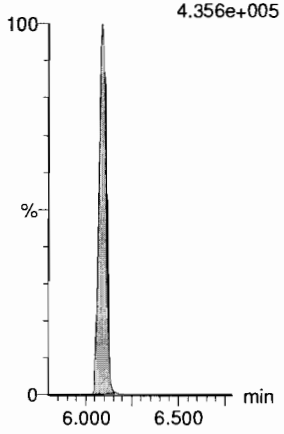
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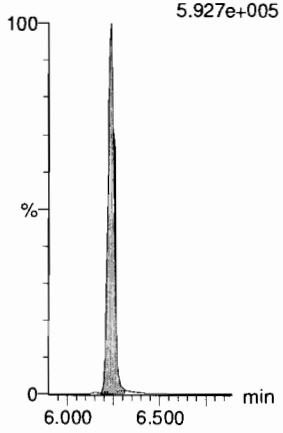
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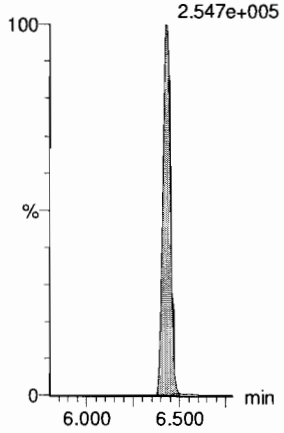
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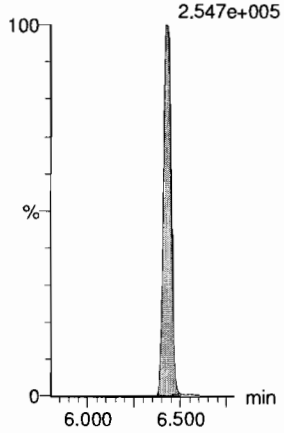
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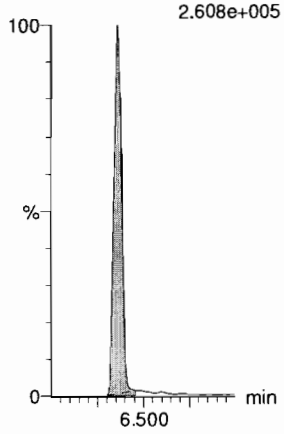
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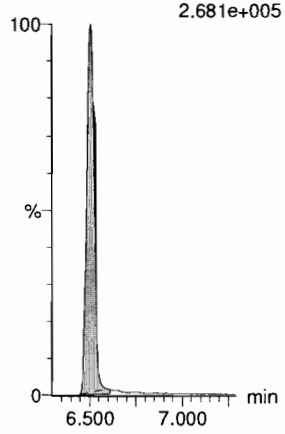
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d7-N-MeFOSE



d9-N-EtFOSE

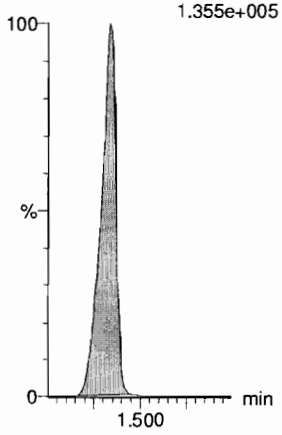


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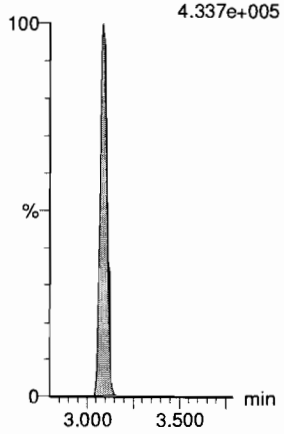
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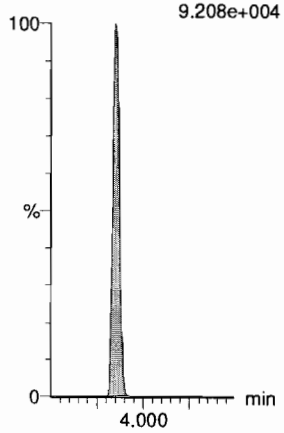
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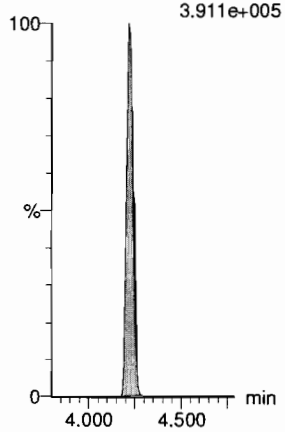
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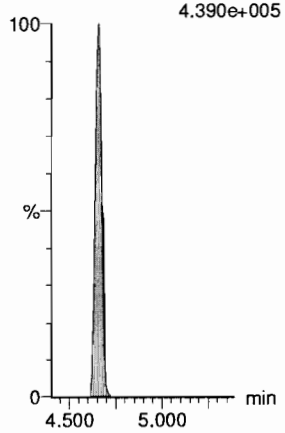
13C3-PFHxS



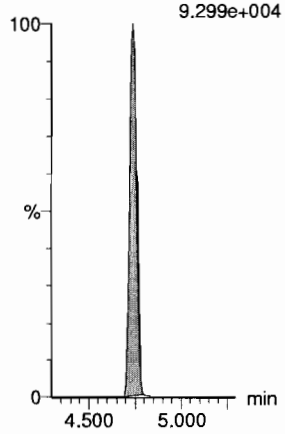
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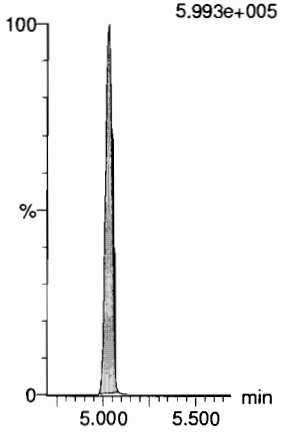
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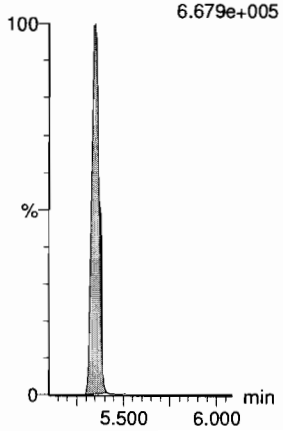
13C4-PFOS



13C6-PFDA



13C7-PFUdA

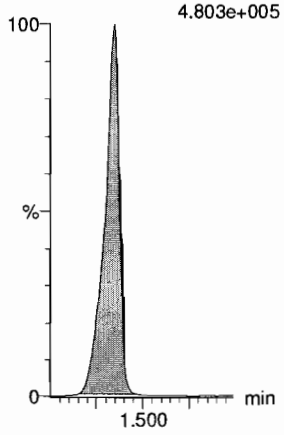


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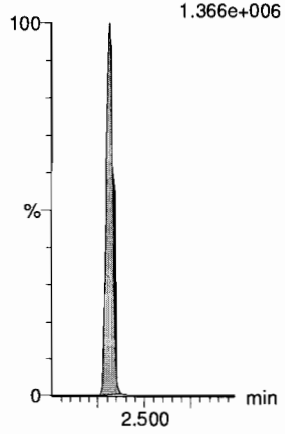
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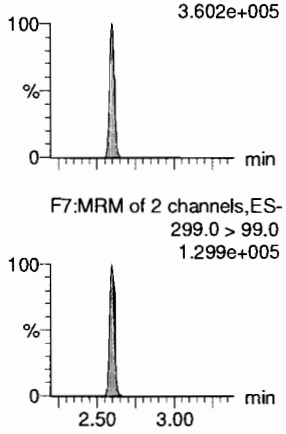
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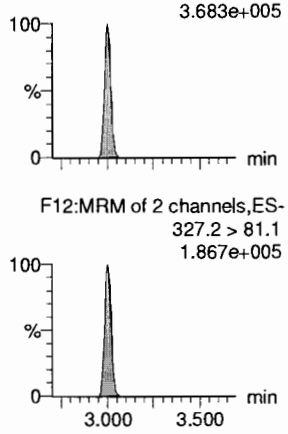
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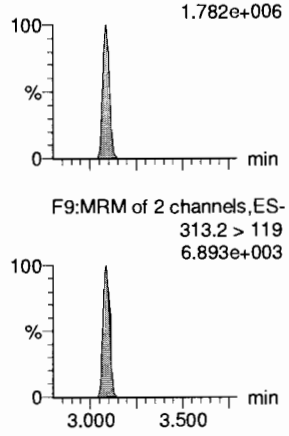
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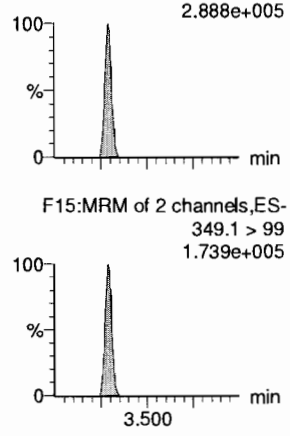
4:2 FTS



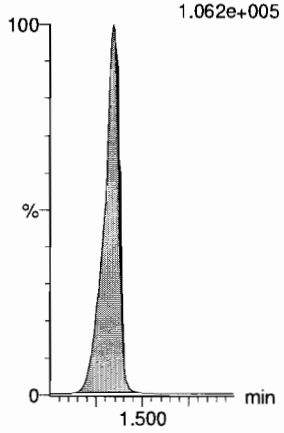
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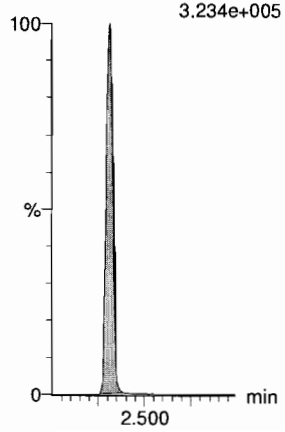
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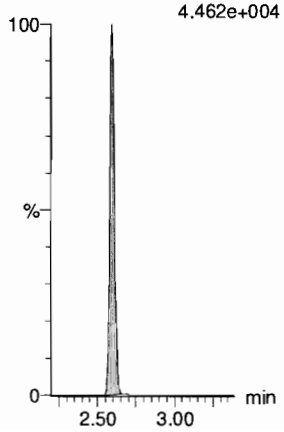
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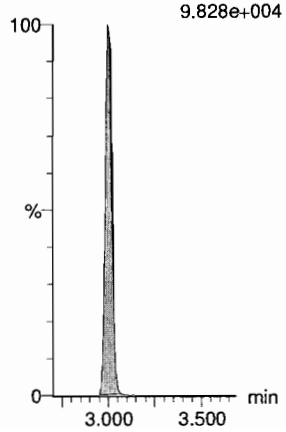
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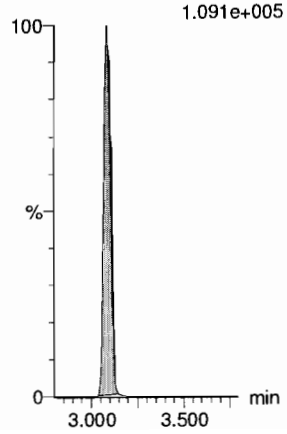
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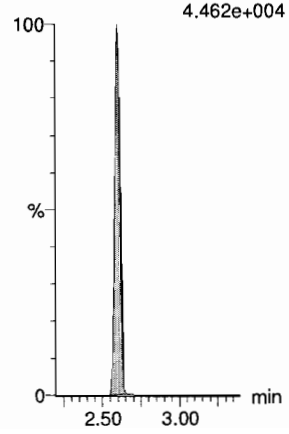
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13C2-PFHxA



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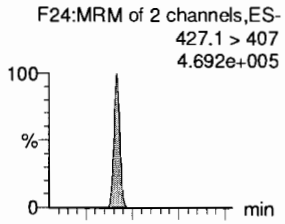


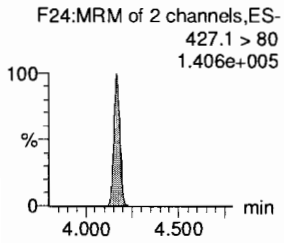
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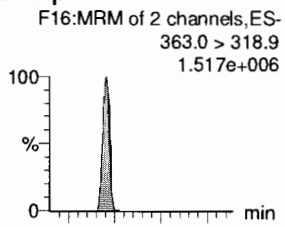
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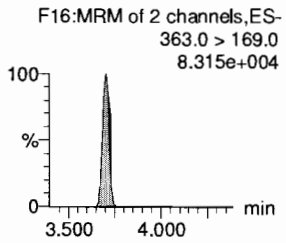
6:2 FTS



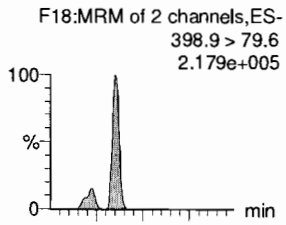


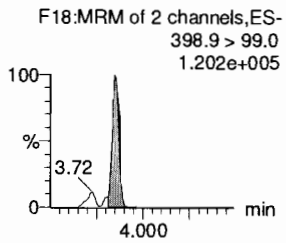
PFHpA



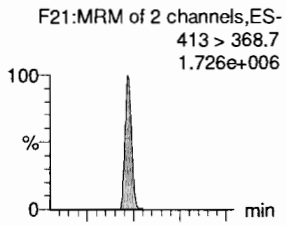


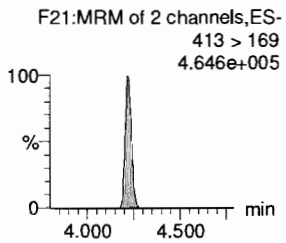
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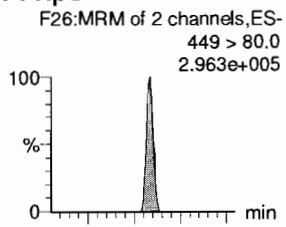


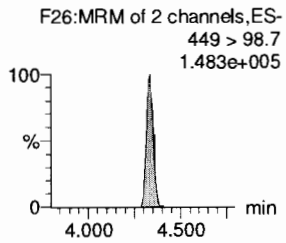
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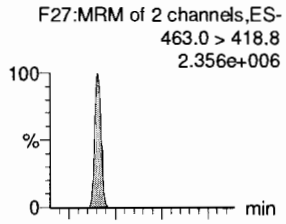


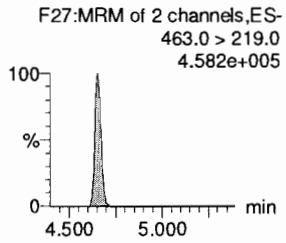
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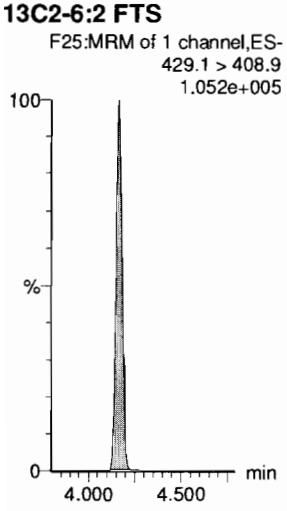


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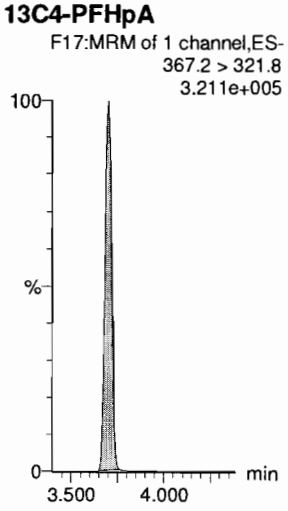




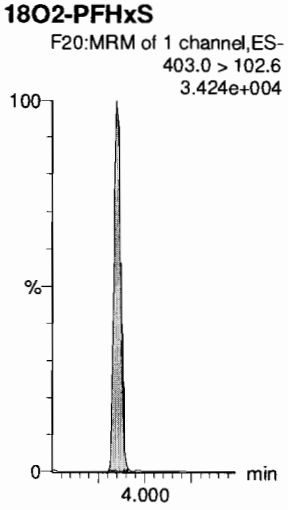
13C2-6:2 FTS



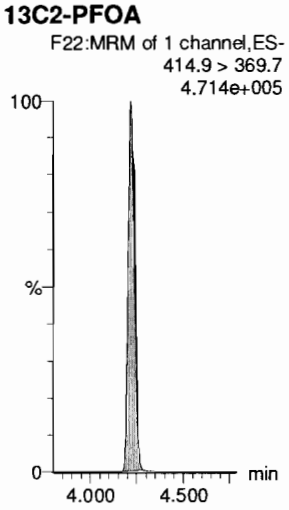
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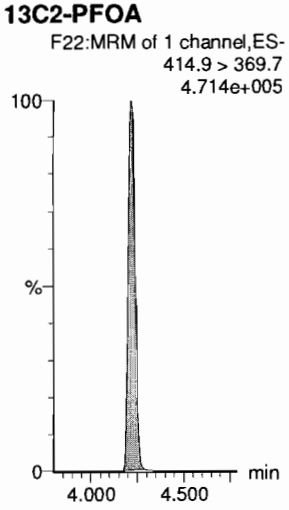
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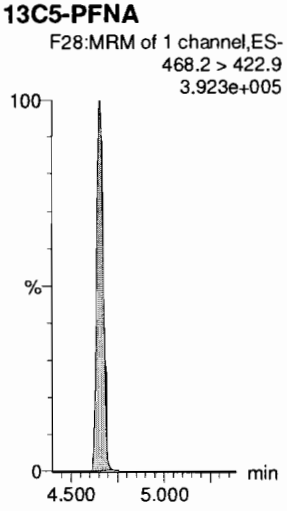
13C2-PFOA



13C2-PFOA



13C5-PFNA

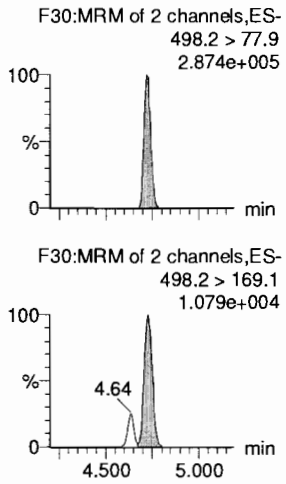


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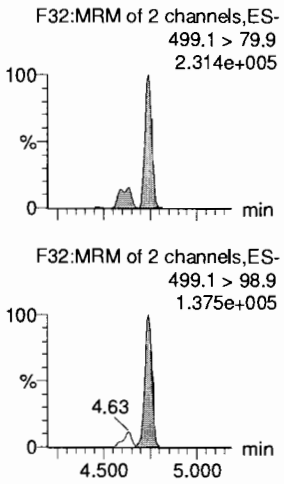
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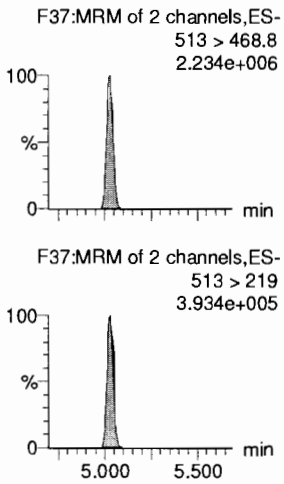
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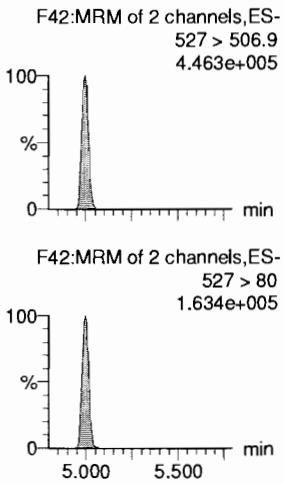
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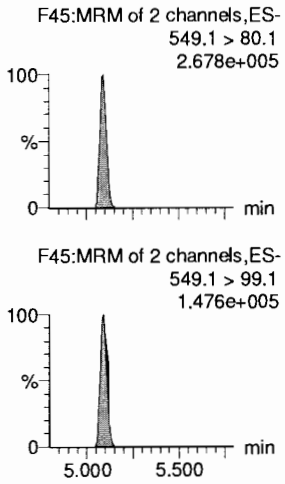
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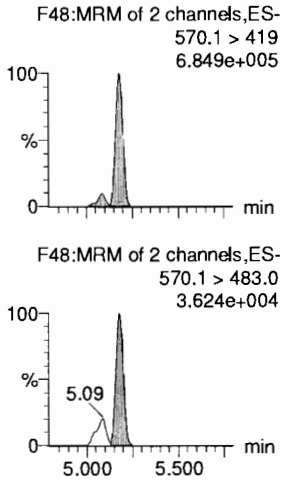
8:2 FTS



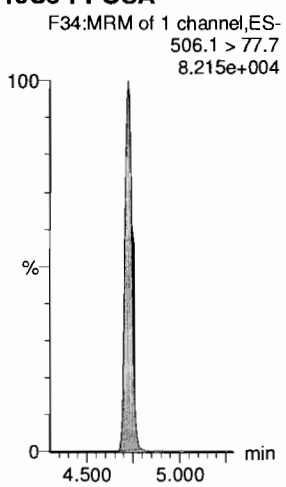
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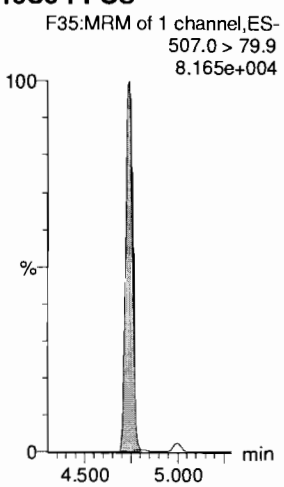
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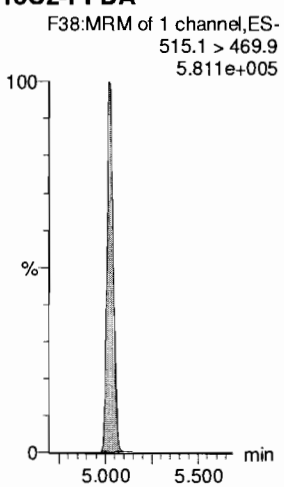
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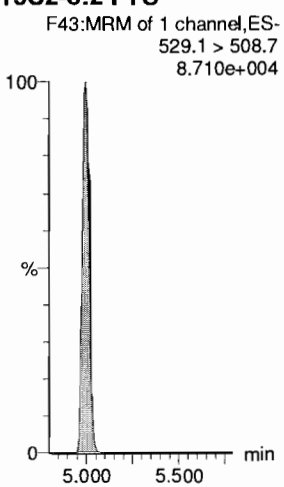
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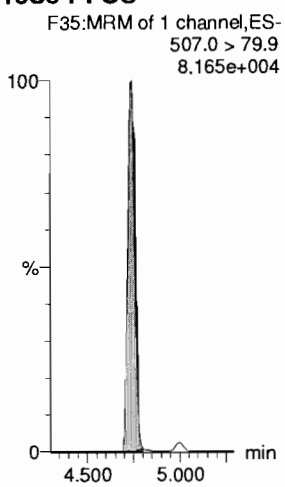
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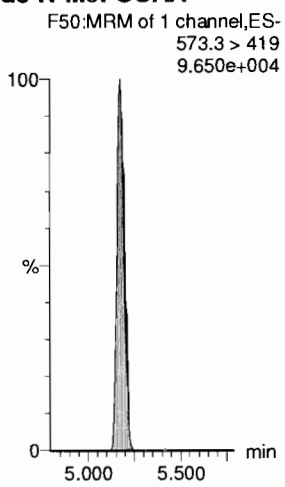
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13C8-PFOS



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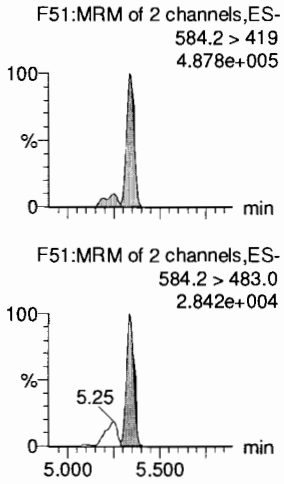


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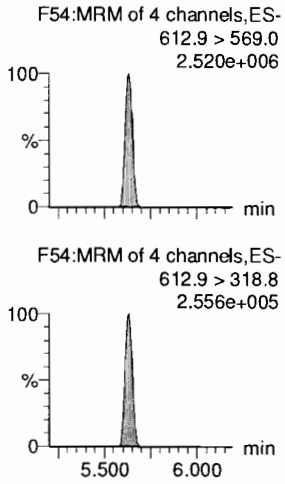
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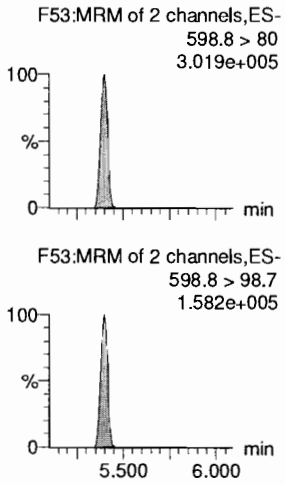
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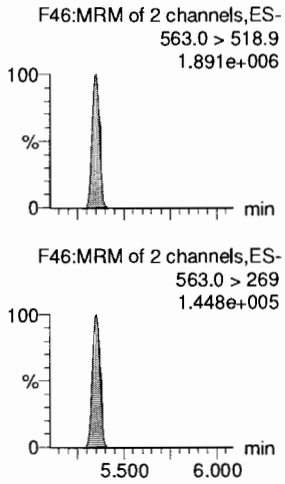
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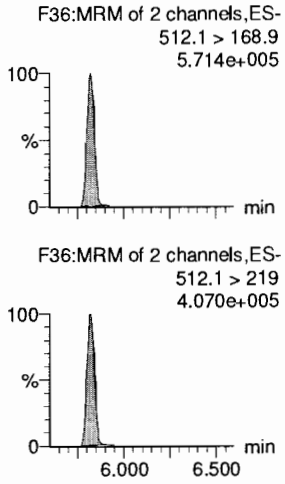
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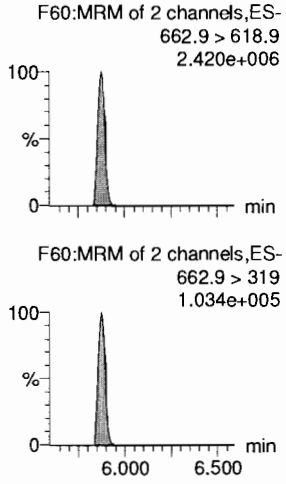
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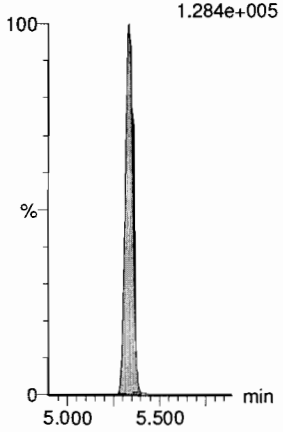
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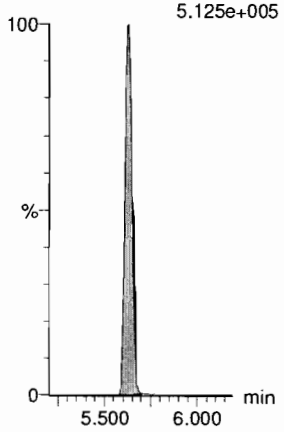
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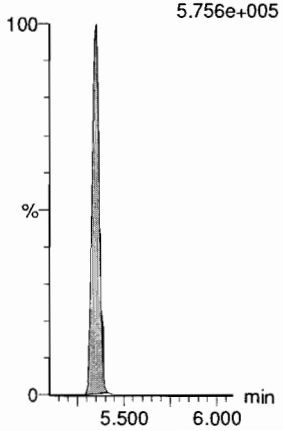
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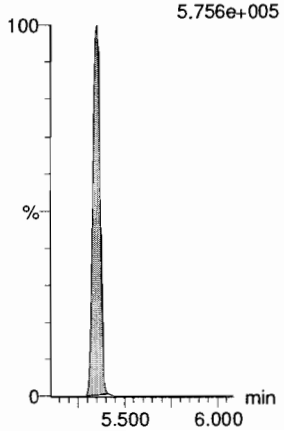
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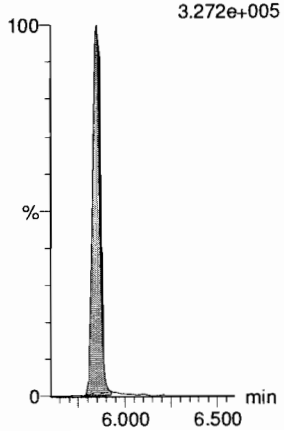
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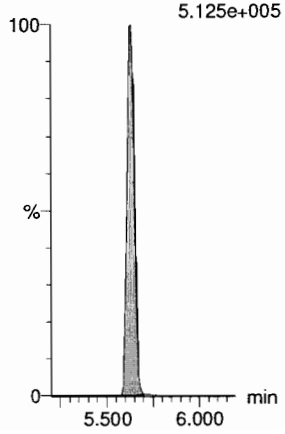
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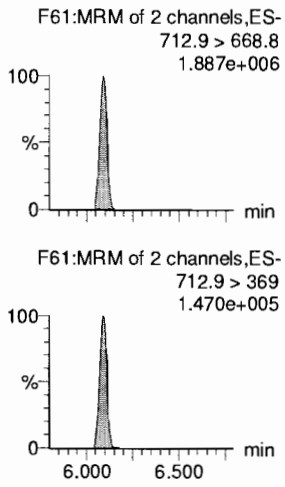


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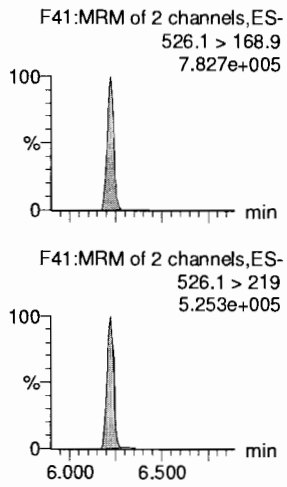
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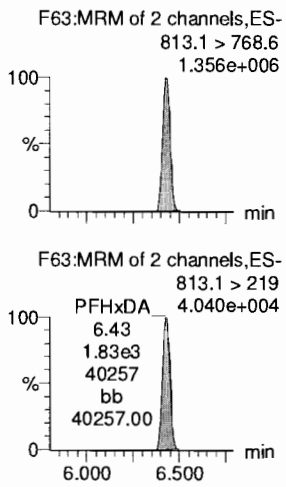
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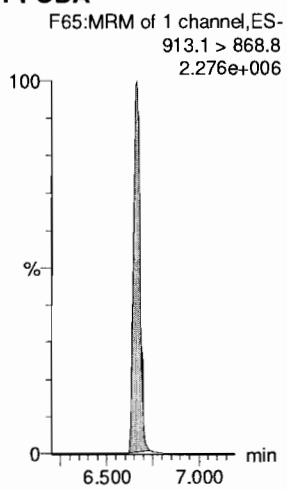
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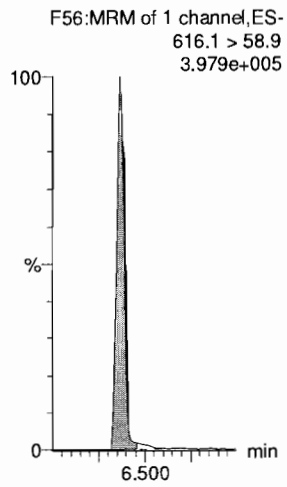
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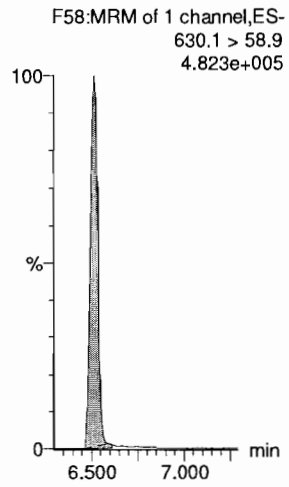
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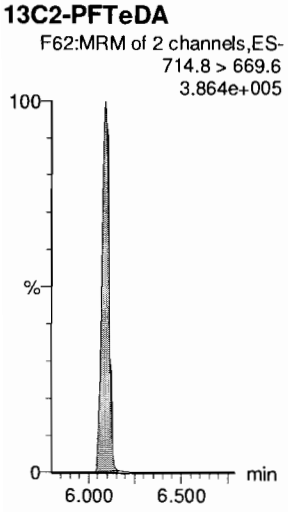
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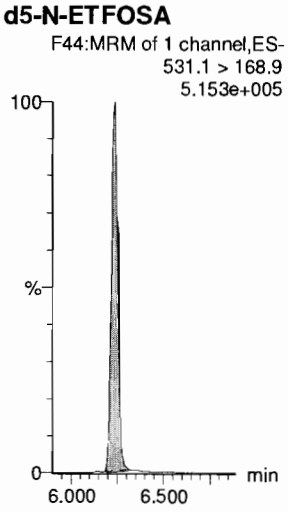
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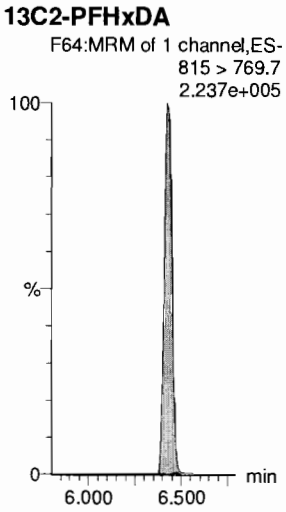
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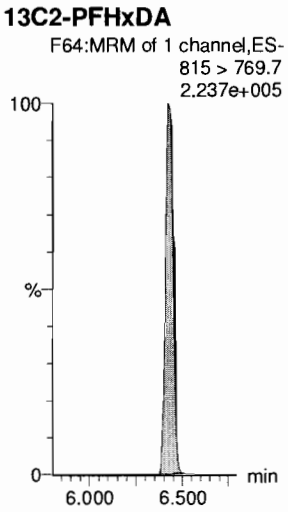
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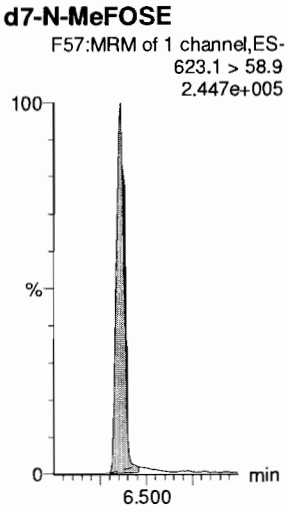
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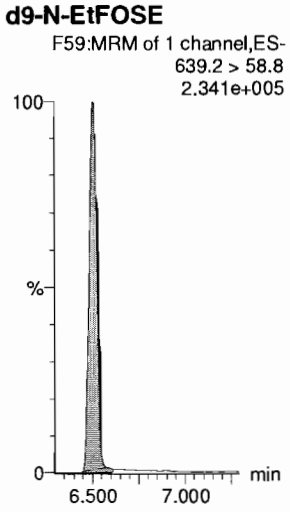
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d7-N-MeFOSE



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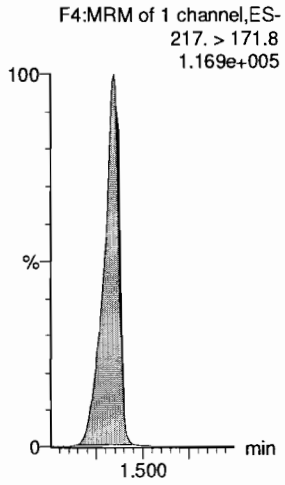


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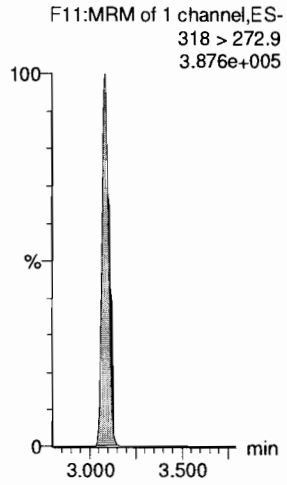
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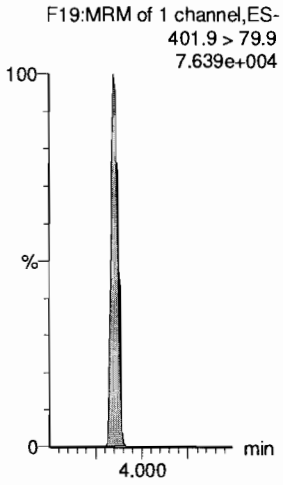
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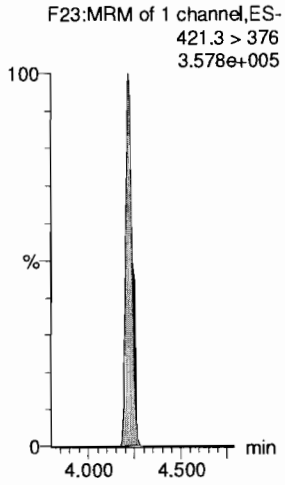
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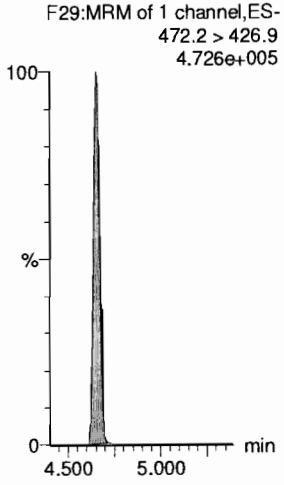
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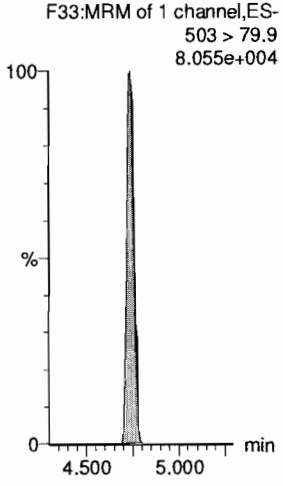
13C8-PFOA



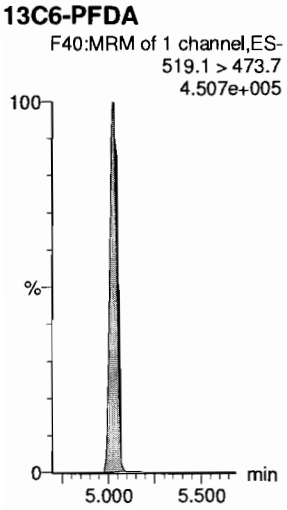
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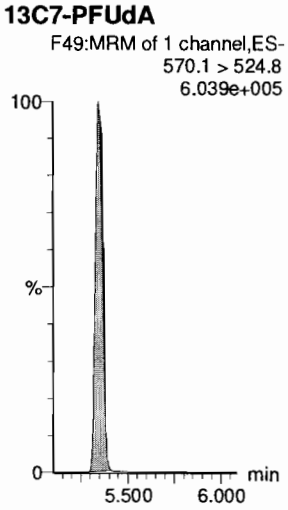
13C4-PFOS



13C6-PFDA



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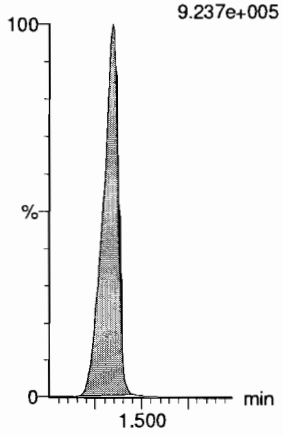


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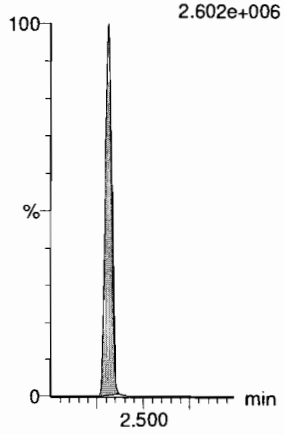
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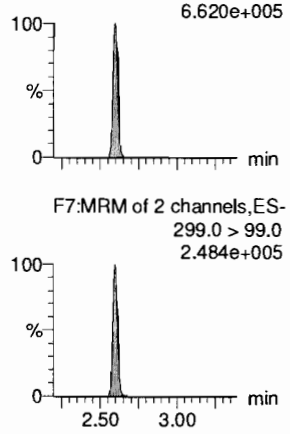
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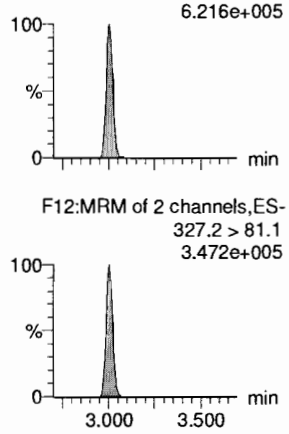
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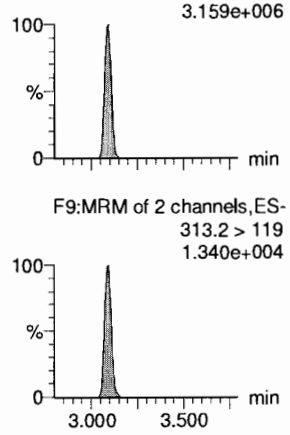
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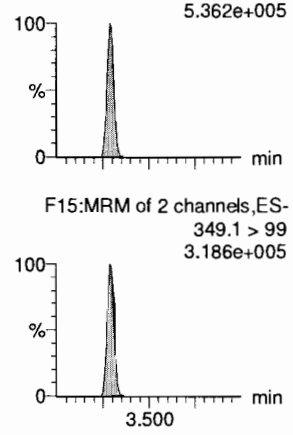
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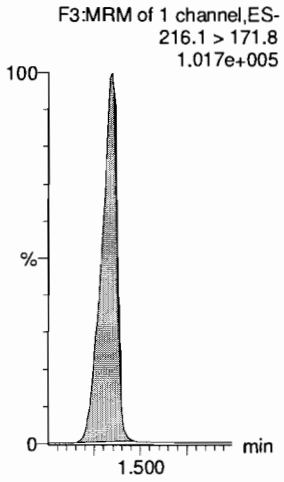
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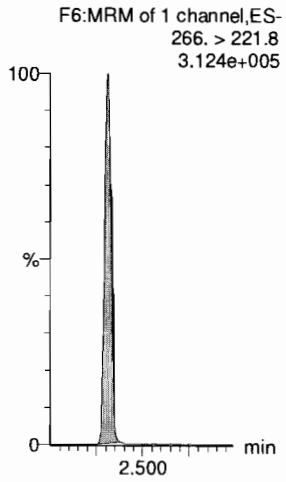
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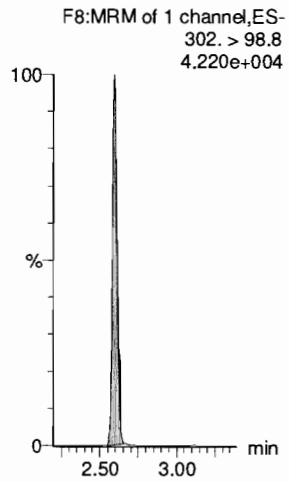
13C3-PFBA



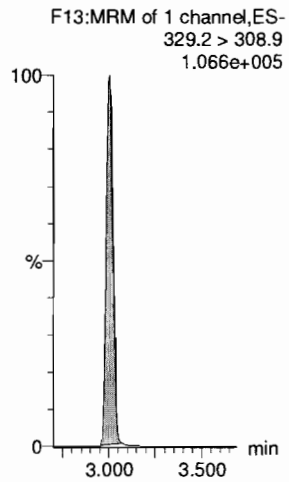
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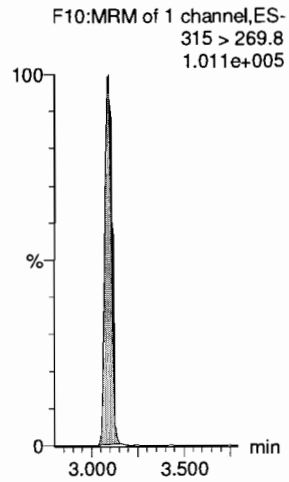
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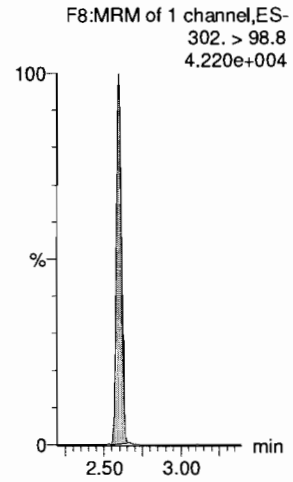
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13C2-PFHxA



13C3-PFBS

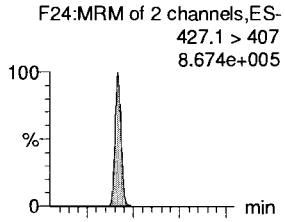


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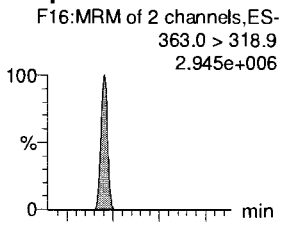
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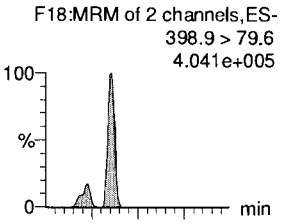
6:2 FTS



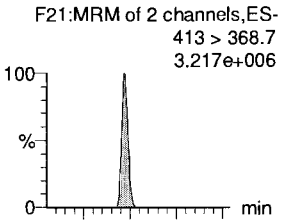
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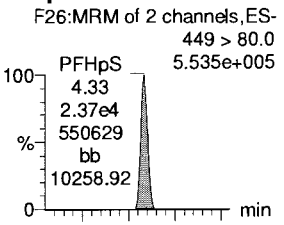
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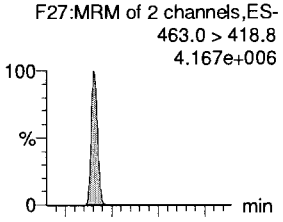
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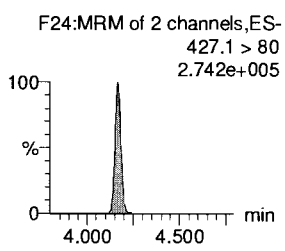


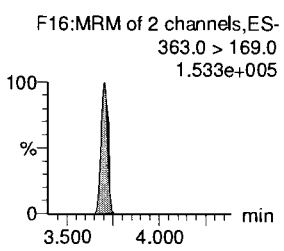
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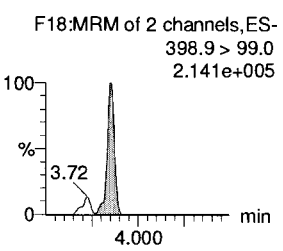


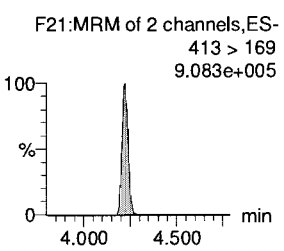
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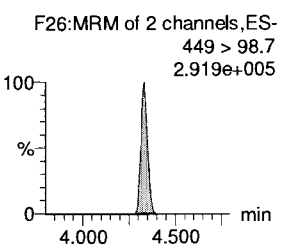


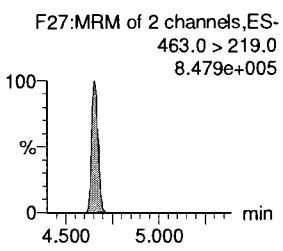




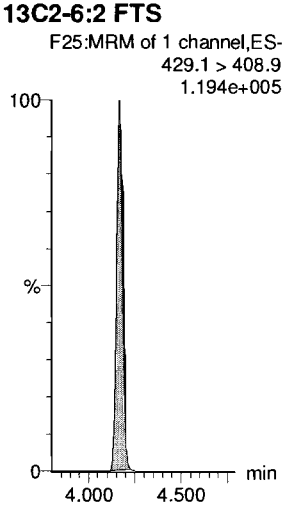




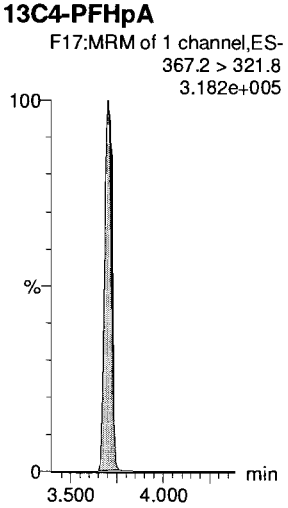




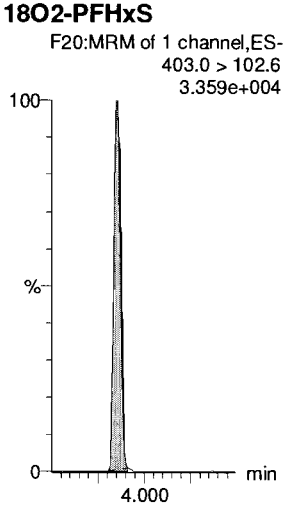
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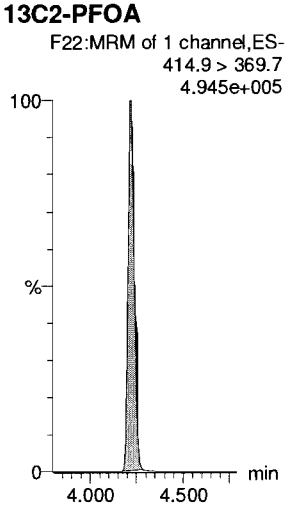
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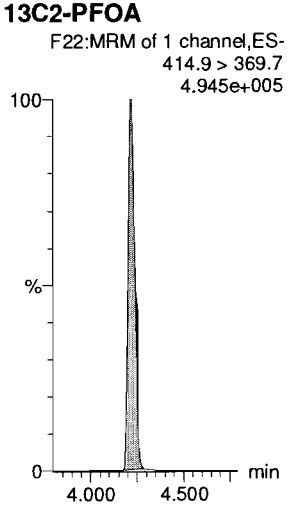
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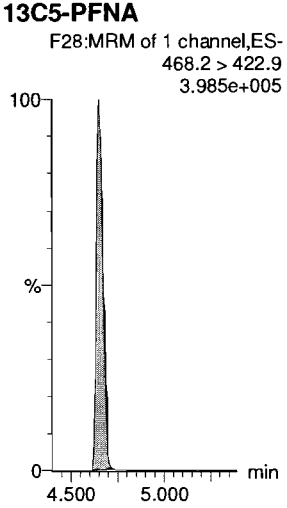
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13C2-PFOA



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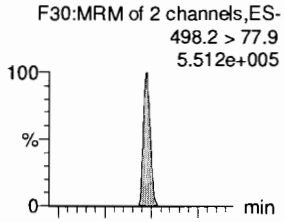


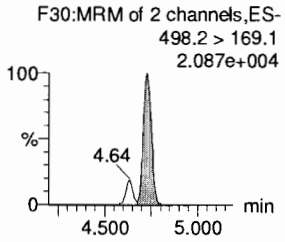
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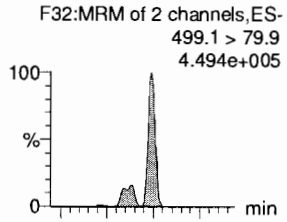
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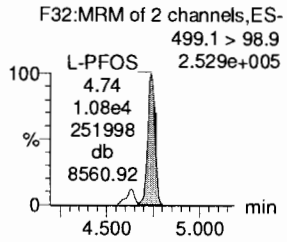
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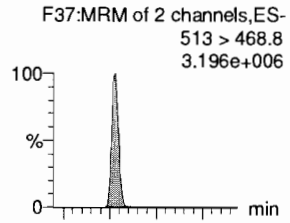


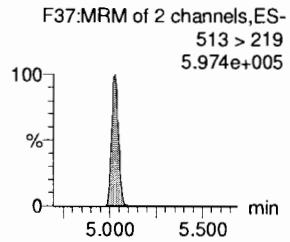
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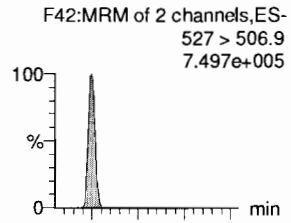


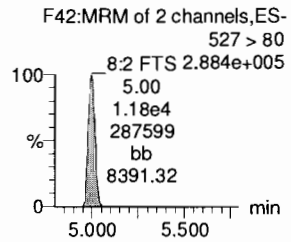
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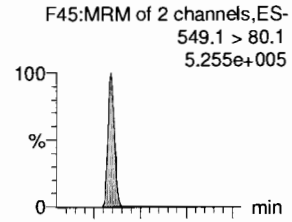


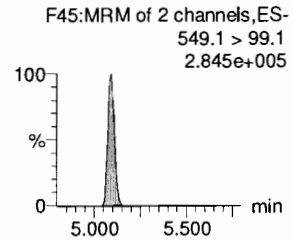
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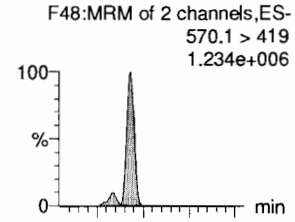


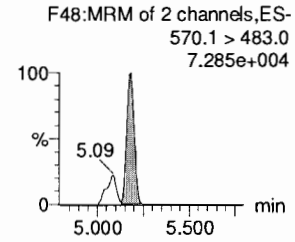
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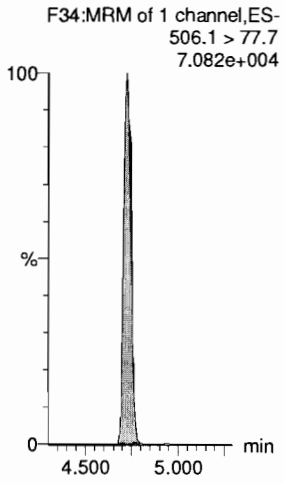


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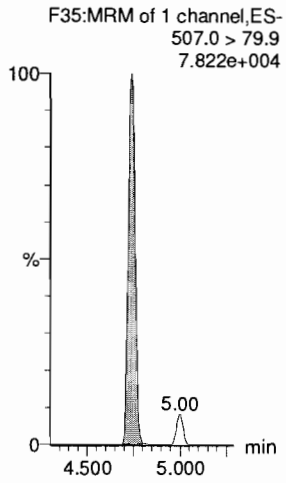




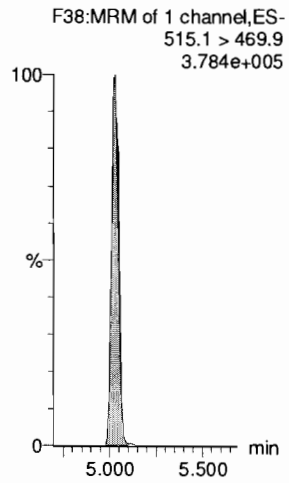
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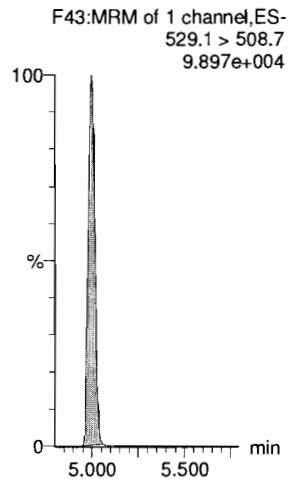
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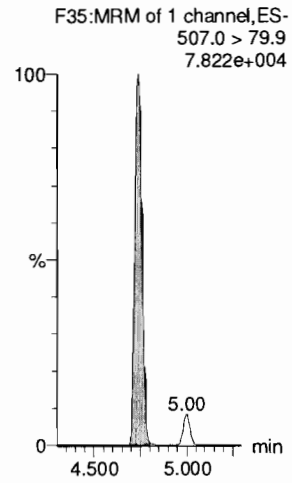
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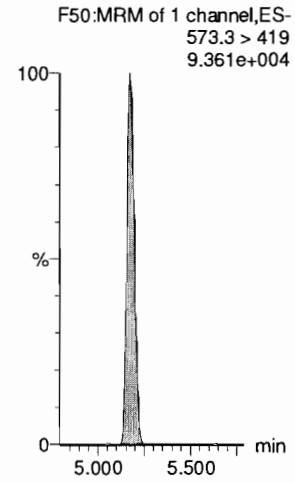
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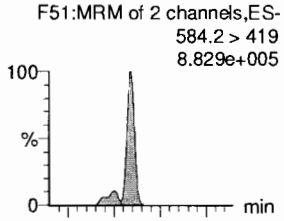


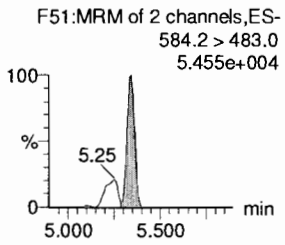
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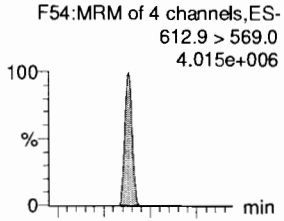
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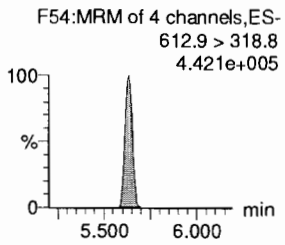
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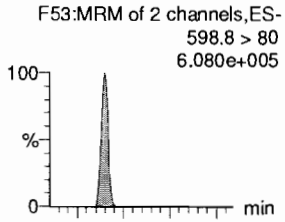


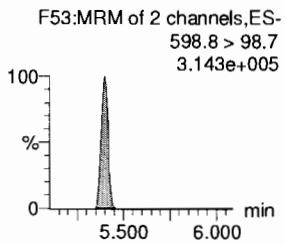
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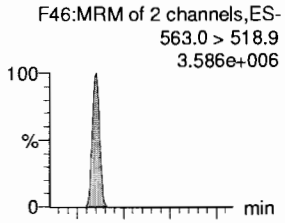


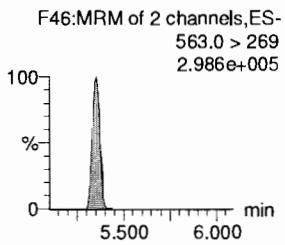
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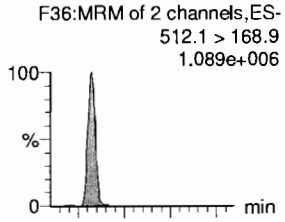


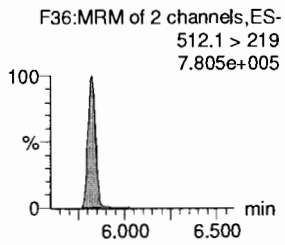
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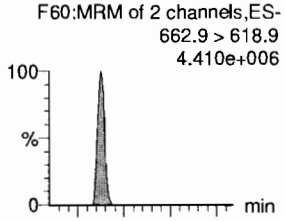


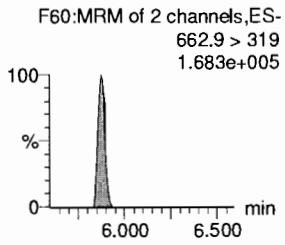
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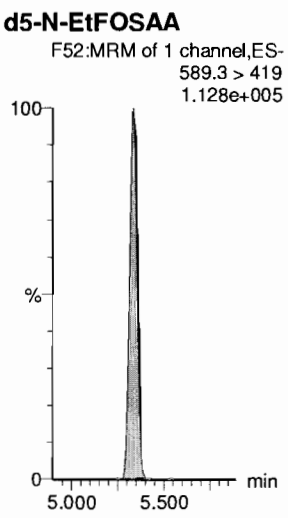


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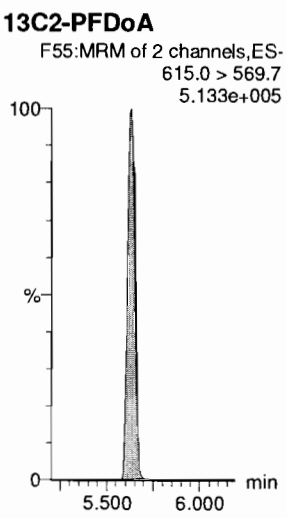




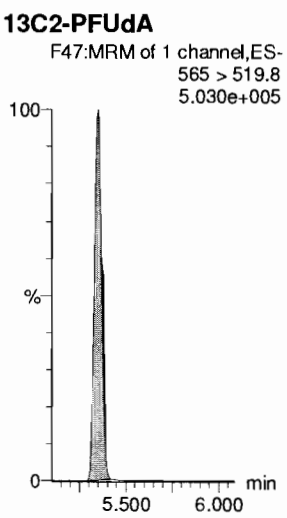
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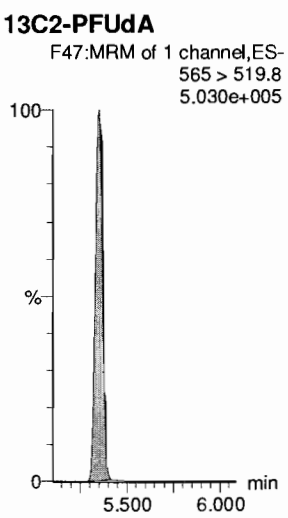
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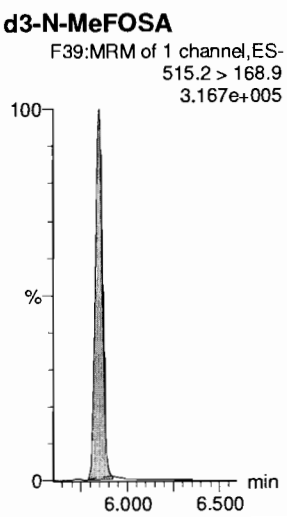
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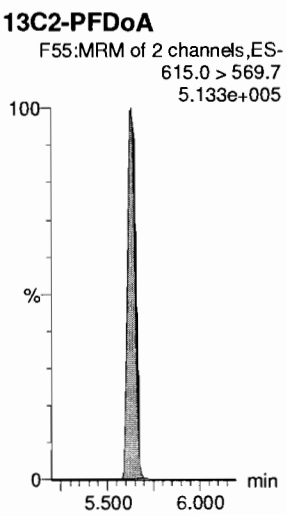
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13C2-PFDoA

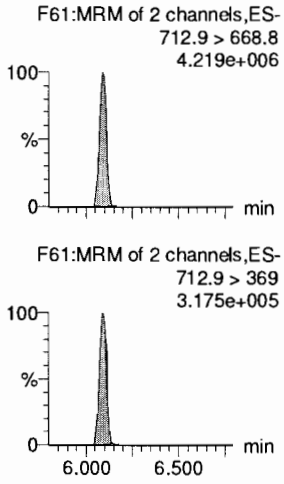


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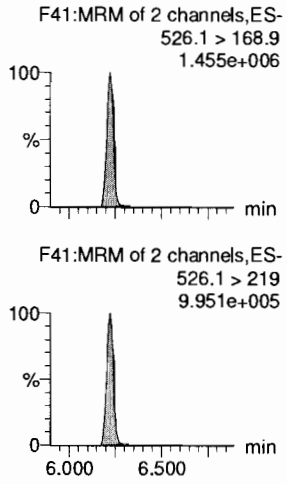
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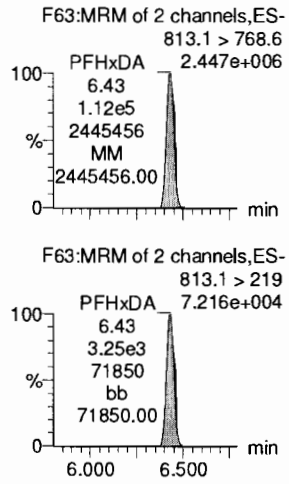
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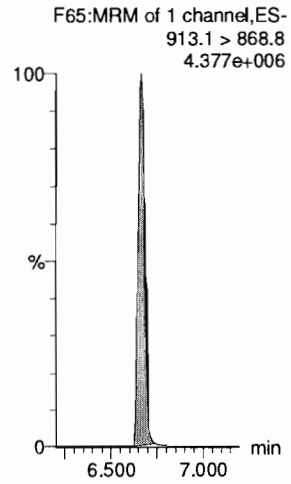
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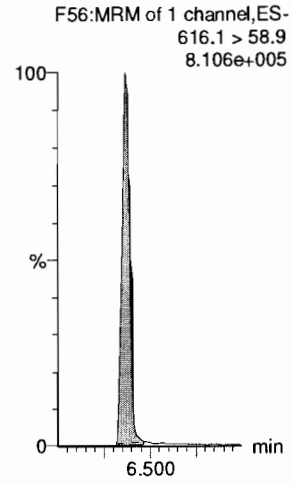
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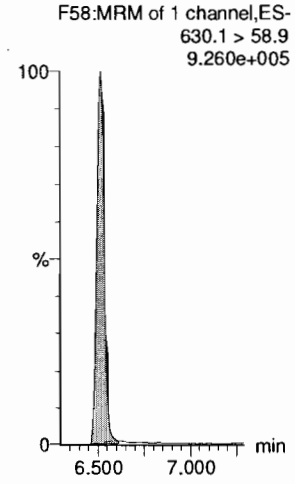
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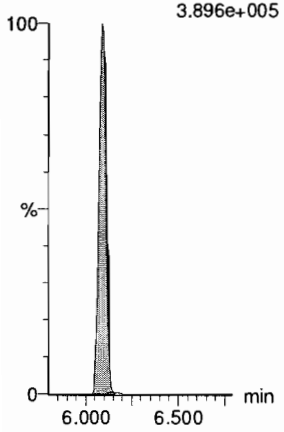
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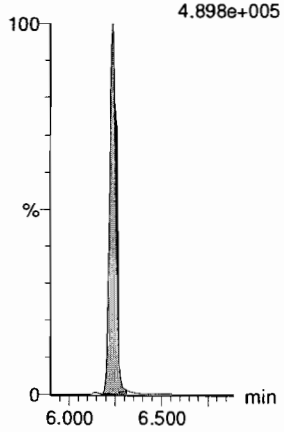
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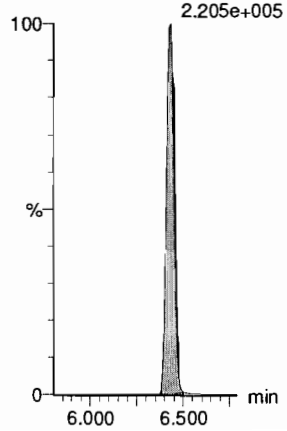
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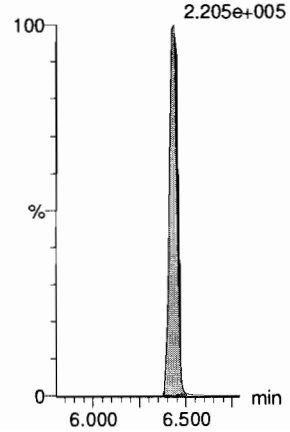
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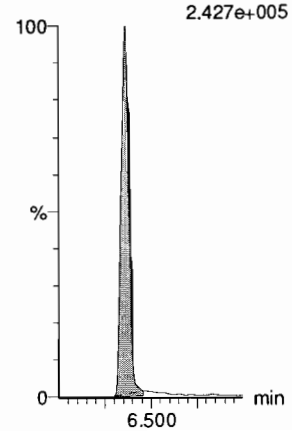
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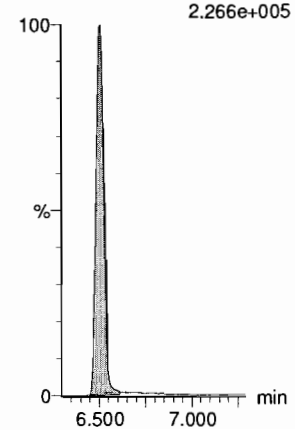
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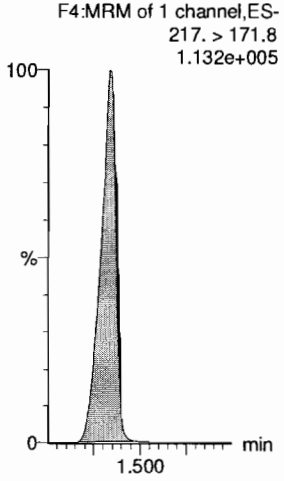


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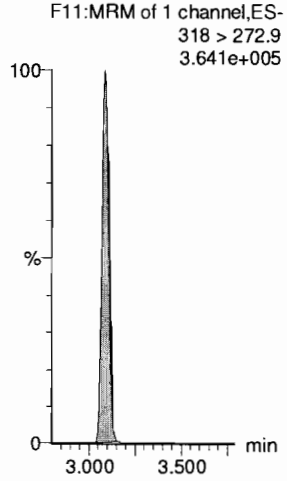
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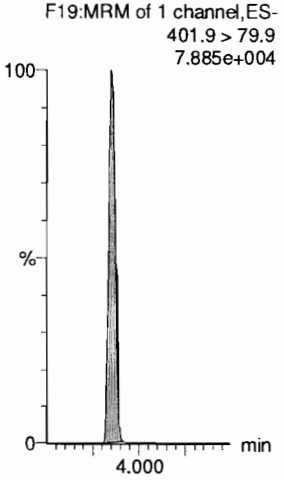
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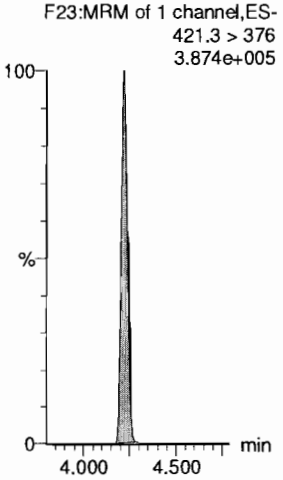
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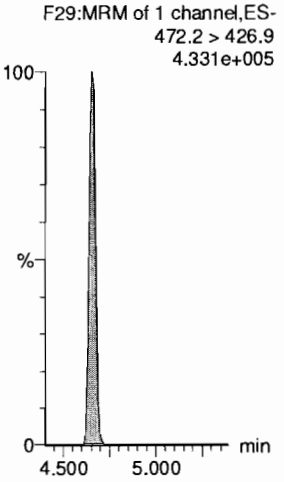
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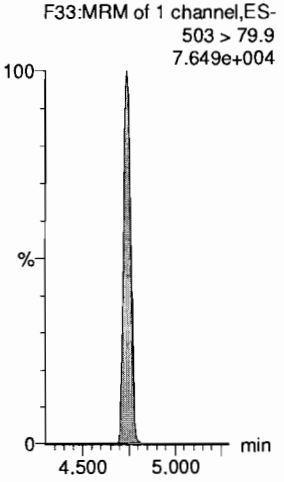
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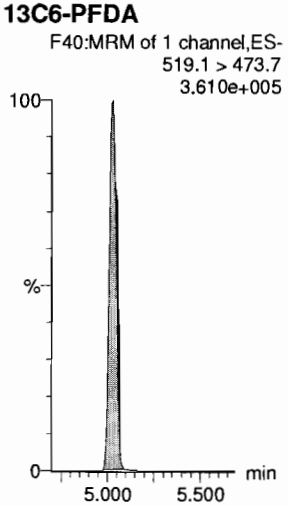
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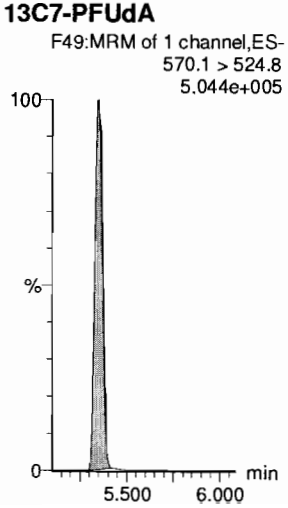
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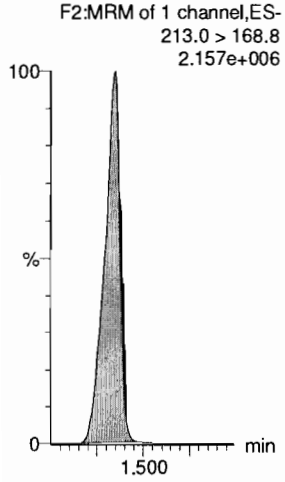


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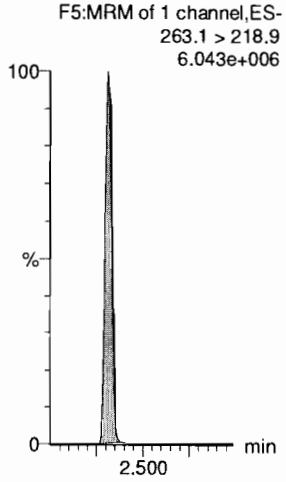
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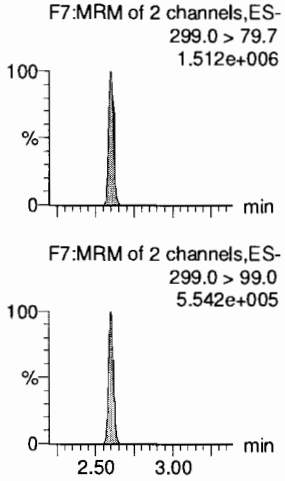
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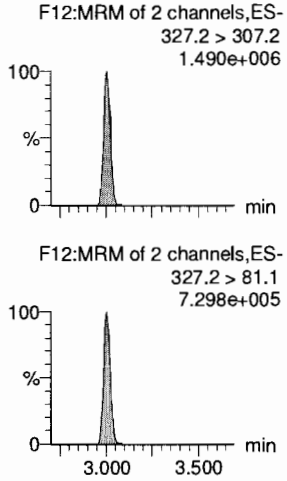
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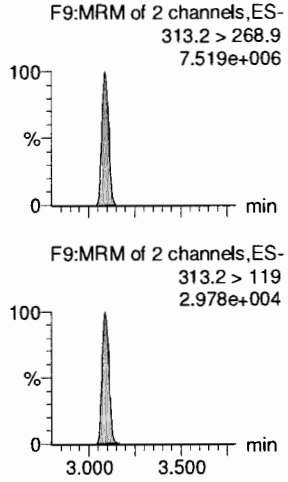
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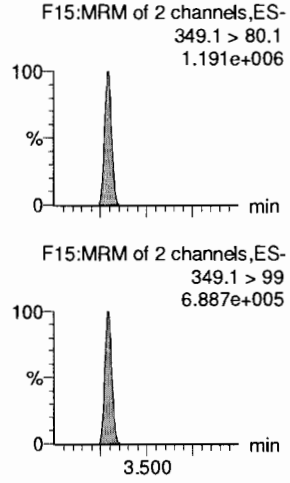
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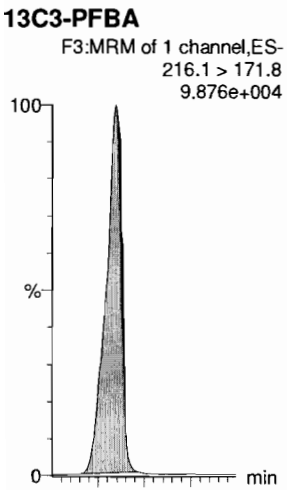
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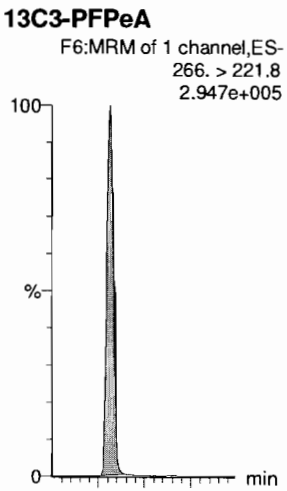
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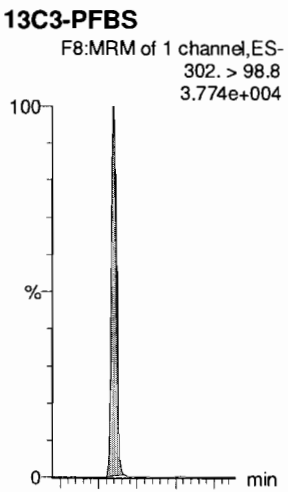
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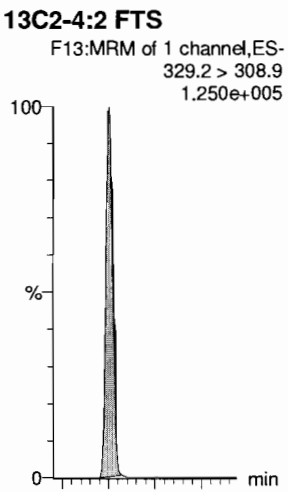
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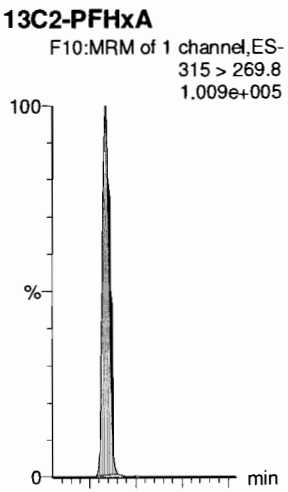
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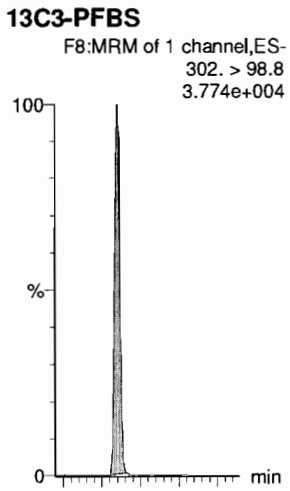
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13C2-PFHxA



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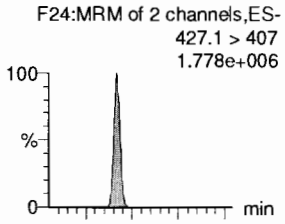


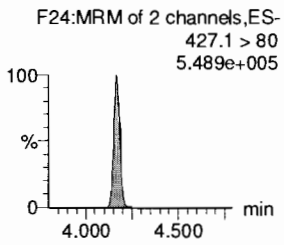
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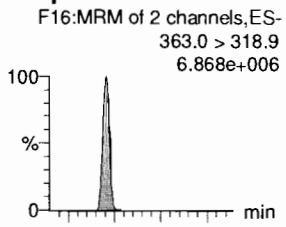
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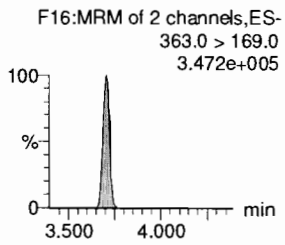
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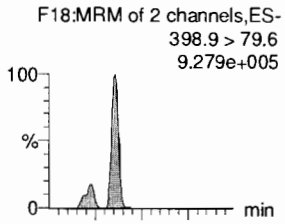


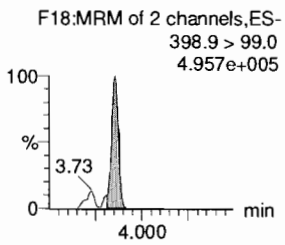
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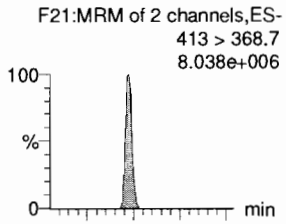


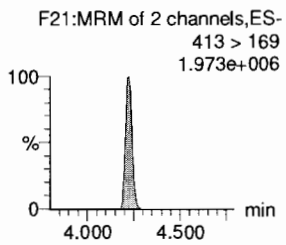
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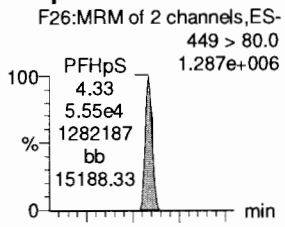


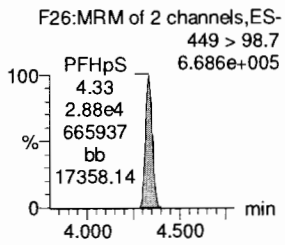
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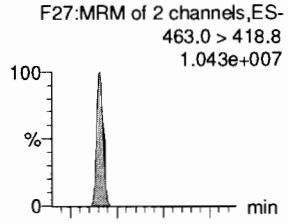


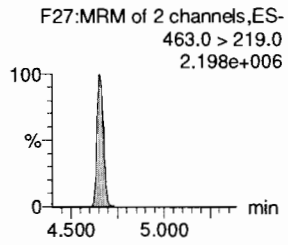
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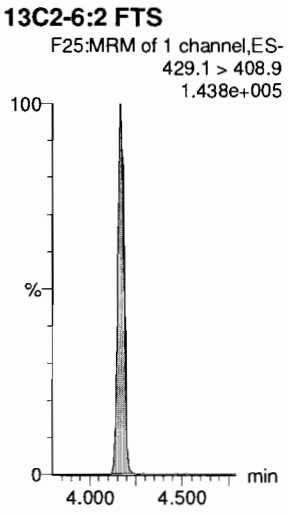


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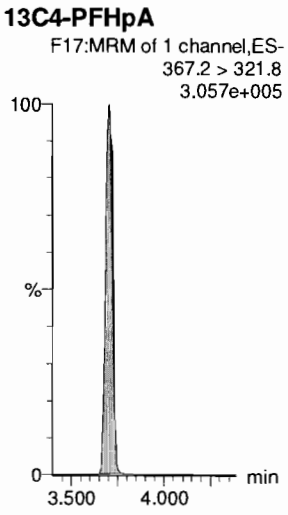




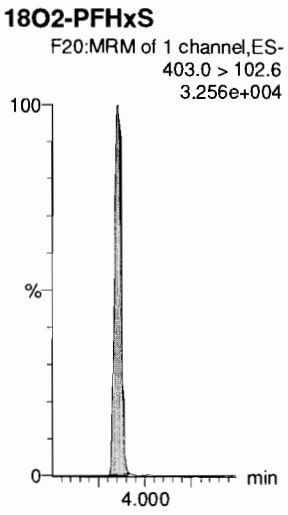
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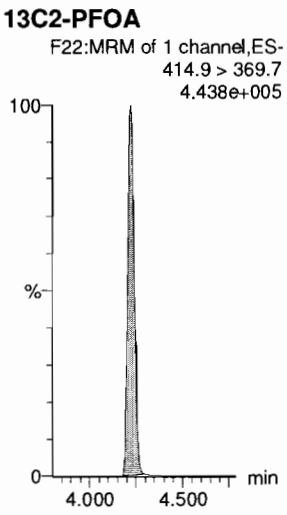
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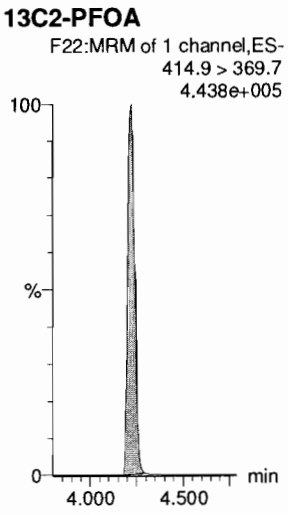
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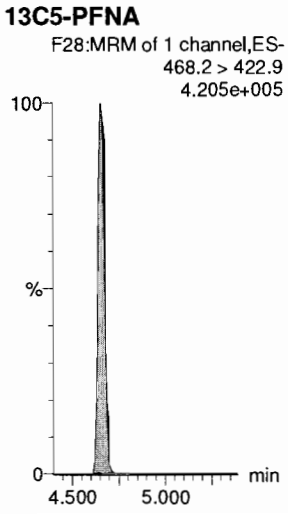
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13C2-PFOA



13C5-PFNA

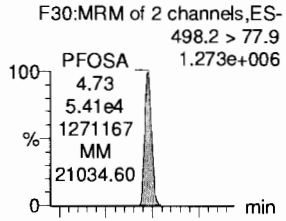


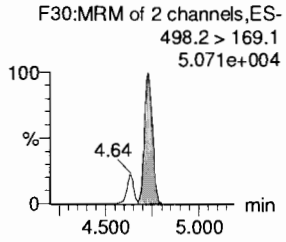
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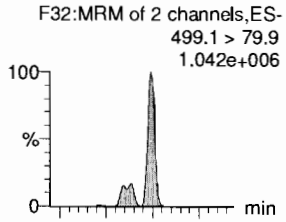
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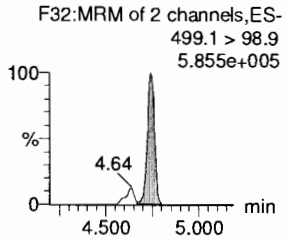
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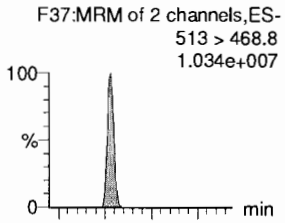


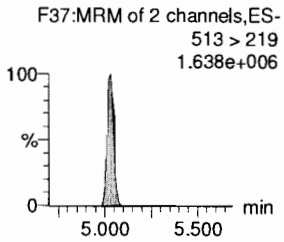
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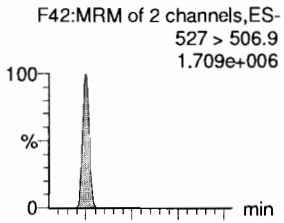


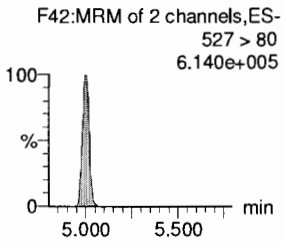
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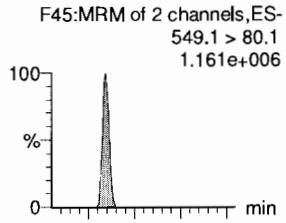


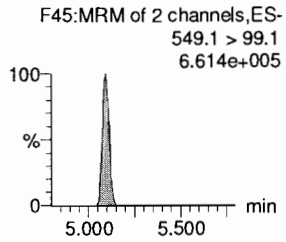
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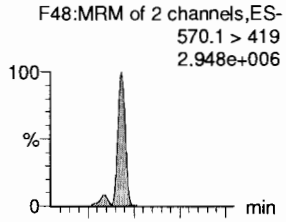


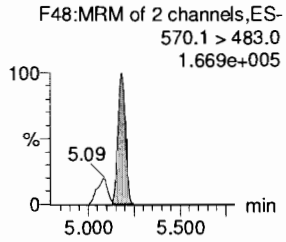
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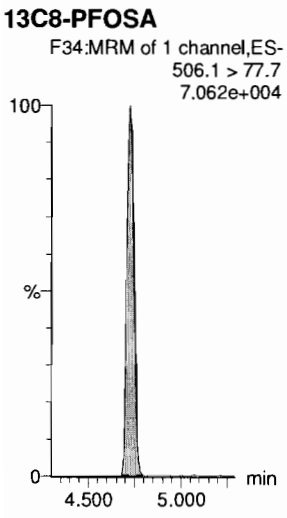


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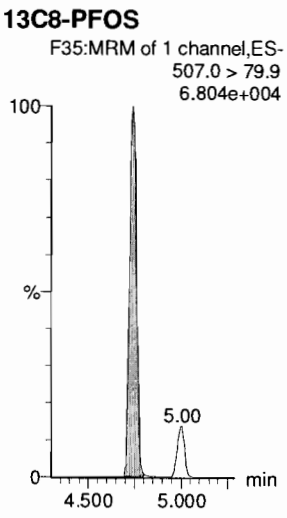




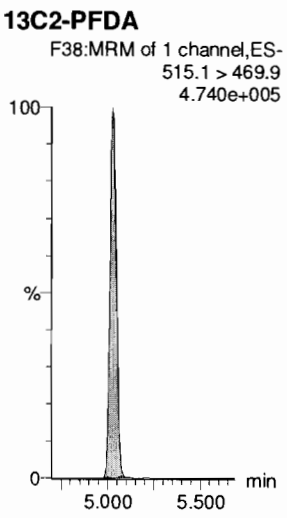
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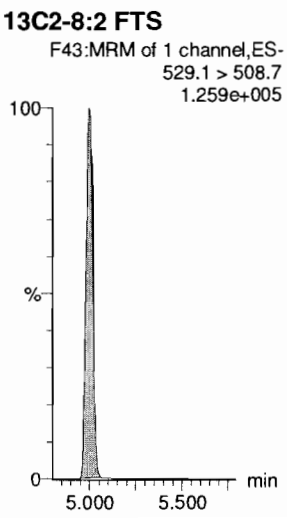
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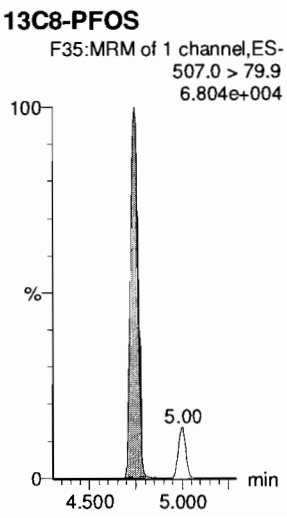
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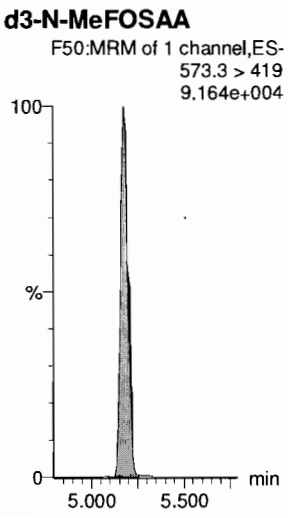
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13C8-PFOS



d3-N-MeFOSAA

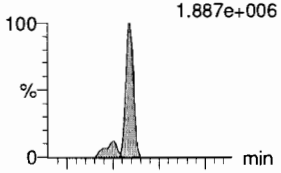


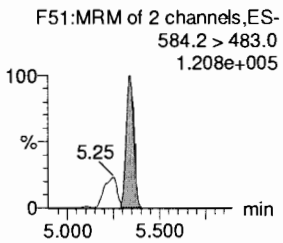
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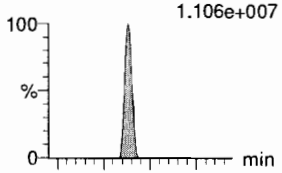
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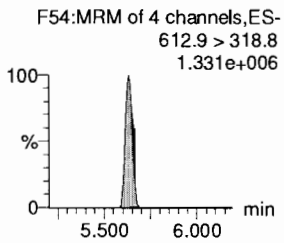
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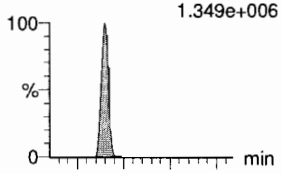


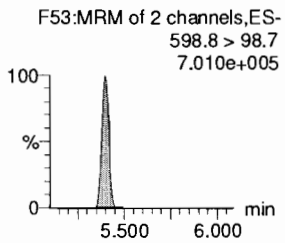
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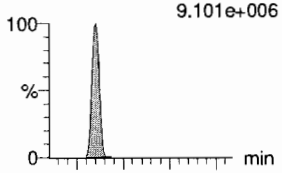


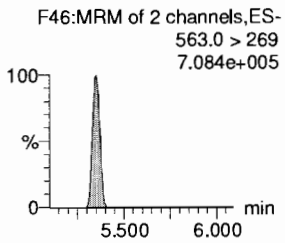
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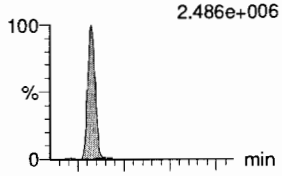


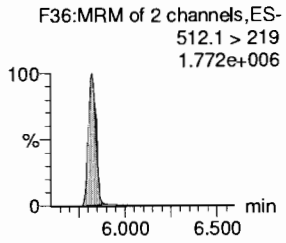
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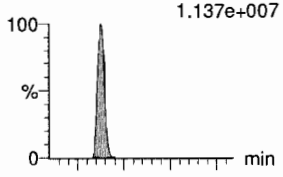


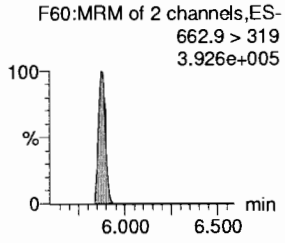
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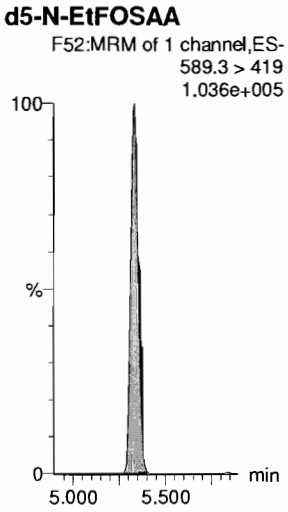


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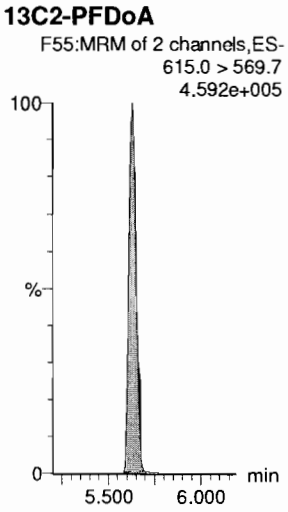




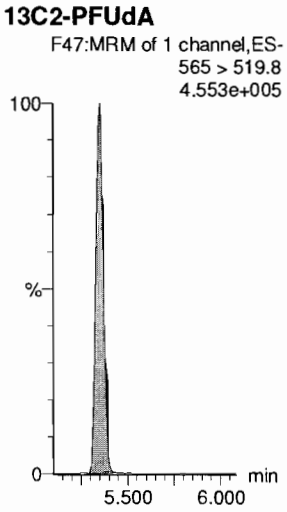
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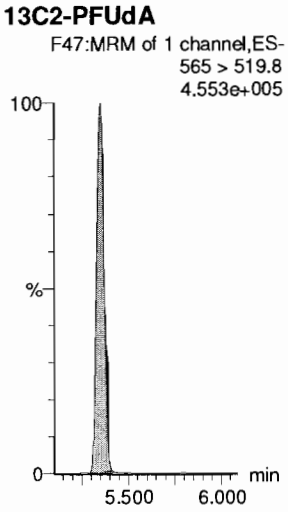
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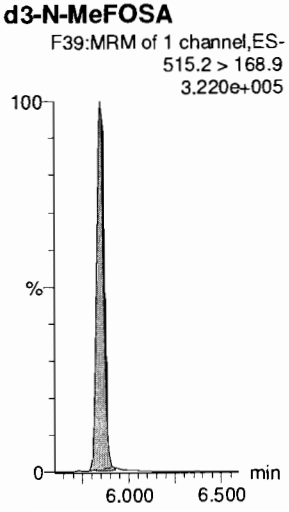
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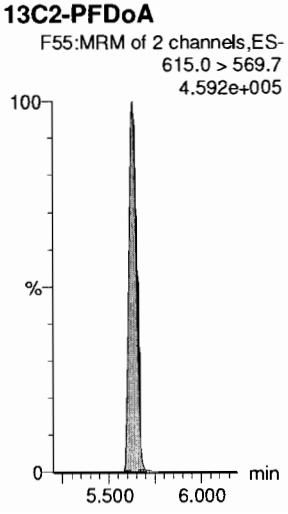
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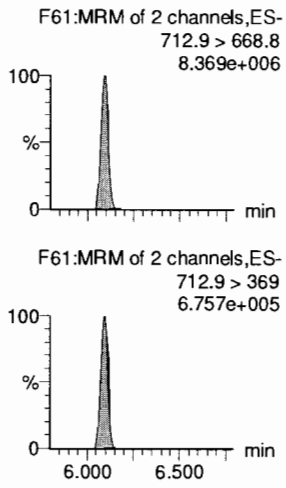


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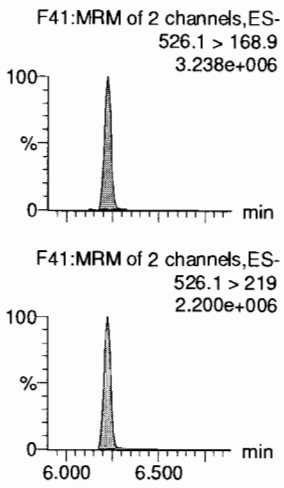
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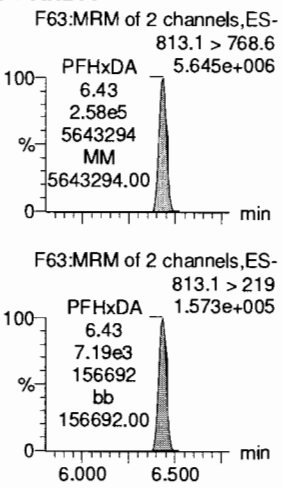
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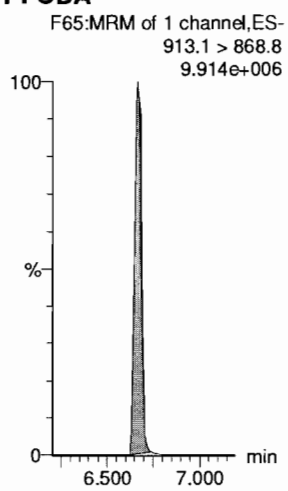
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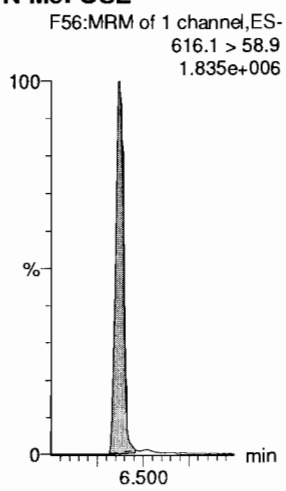
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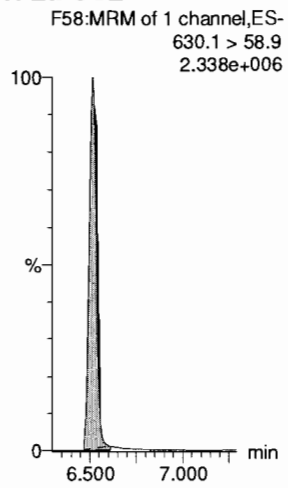
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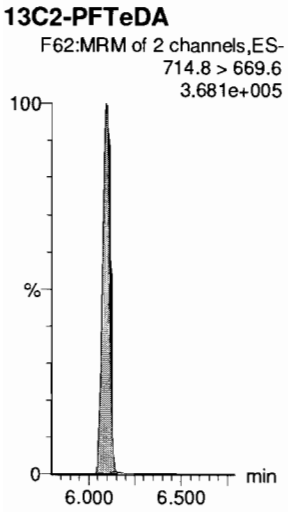
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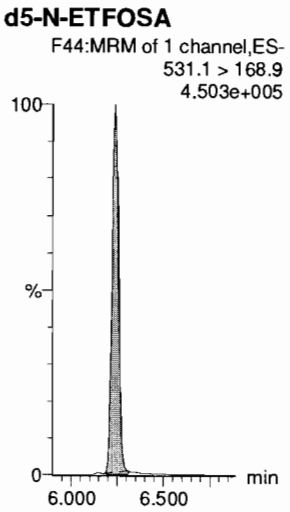
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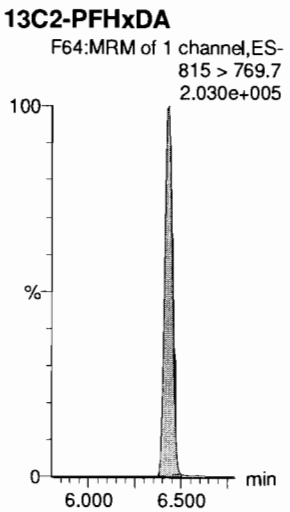
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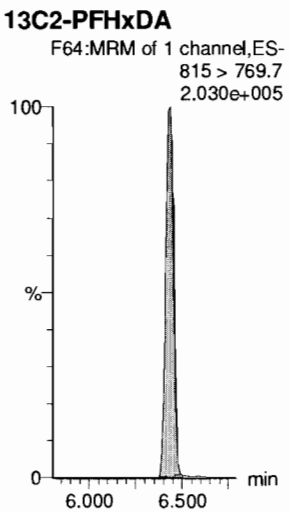
d5-N-ETFOSA



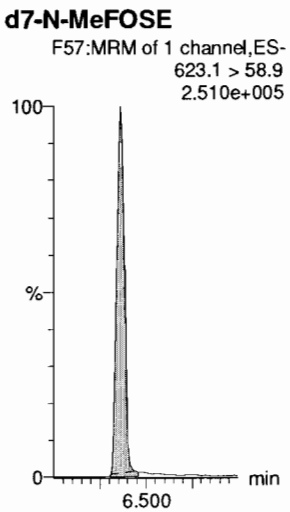
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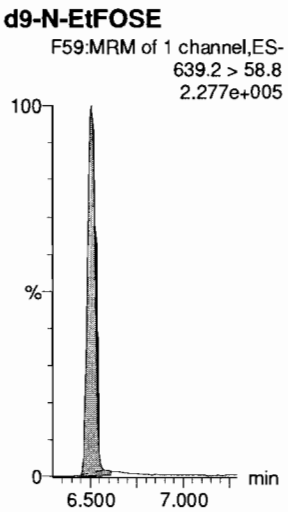
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d7-N-MeFOSE



d9-N-EtFOSE

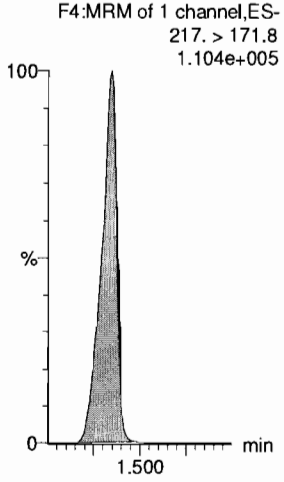


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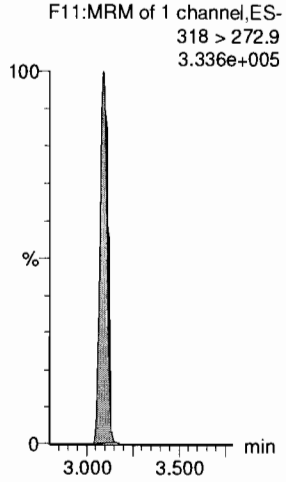
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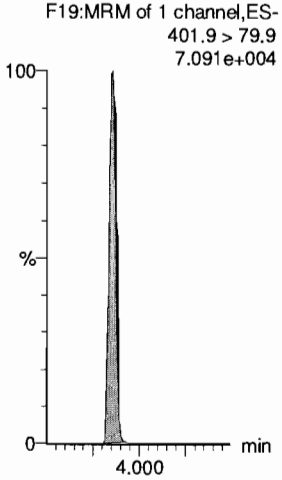
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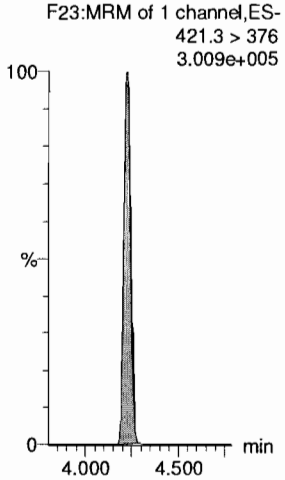
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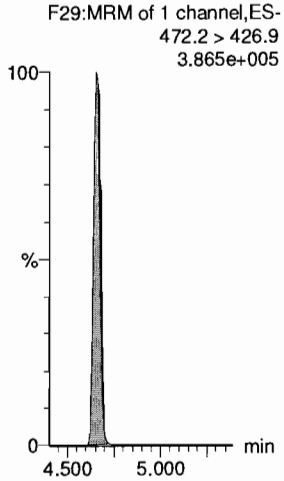
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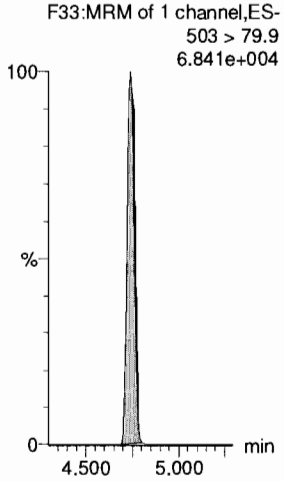
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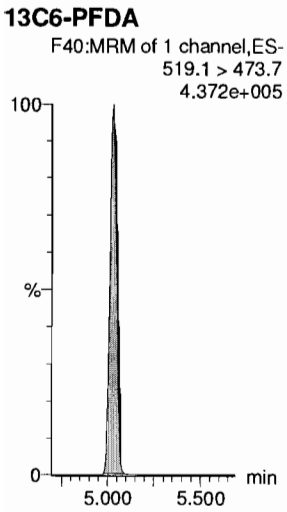
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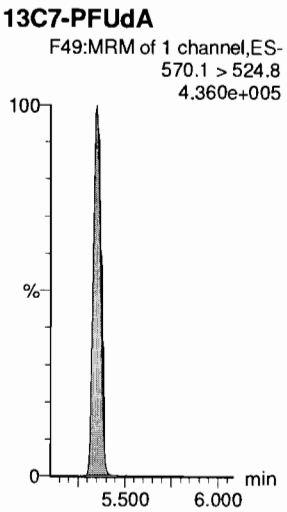
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13C6-PFDA



13C7-PFUdA

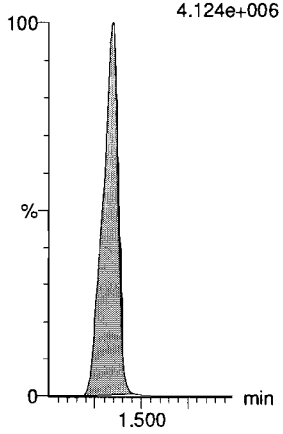


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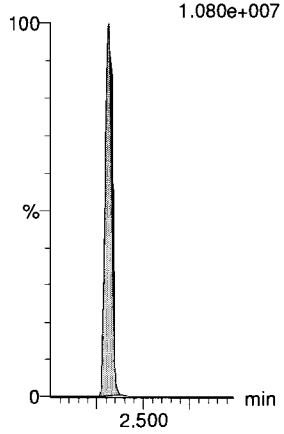
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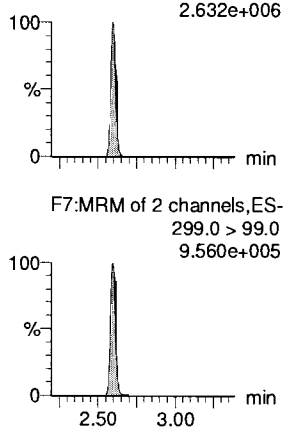
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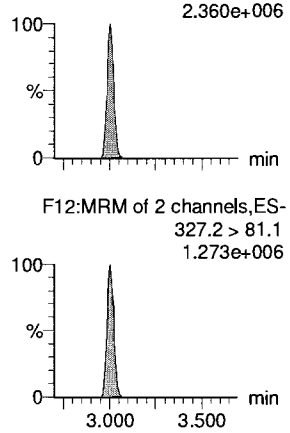
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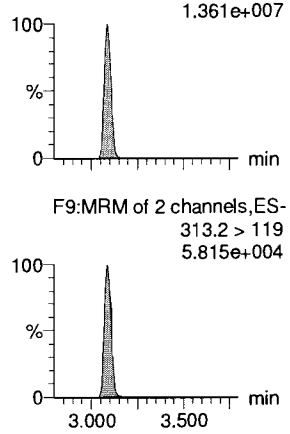
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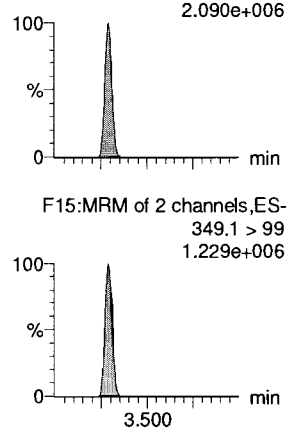
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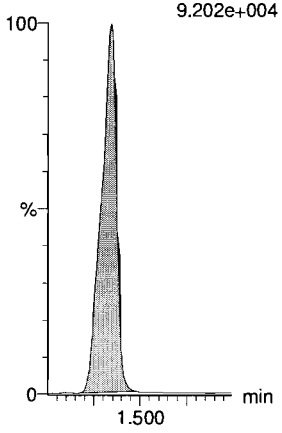
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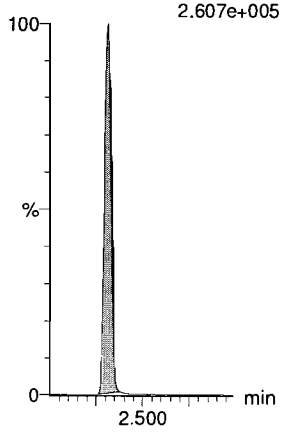
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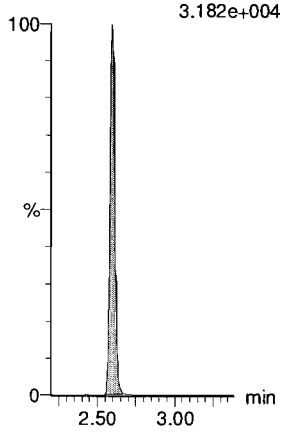
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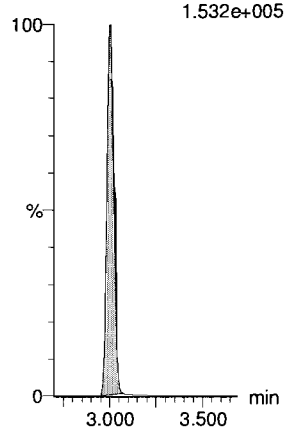
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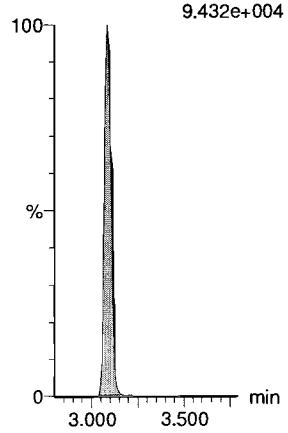
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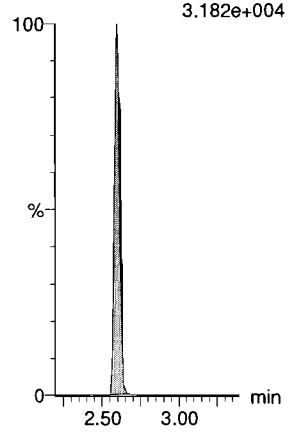
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13C2-PFHxA



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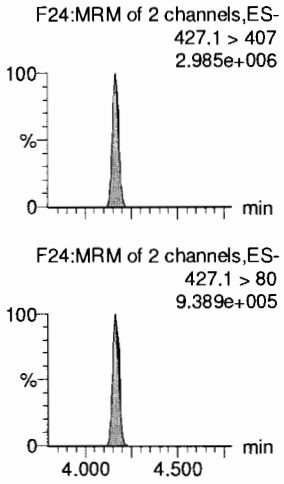


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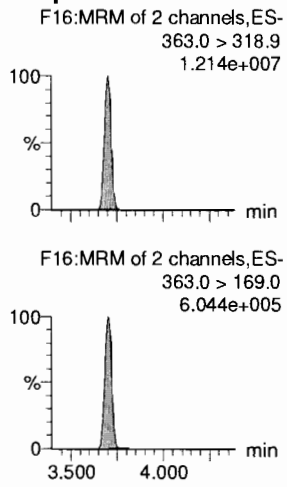
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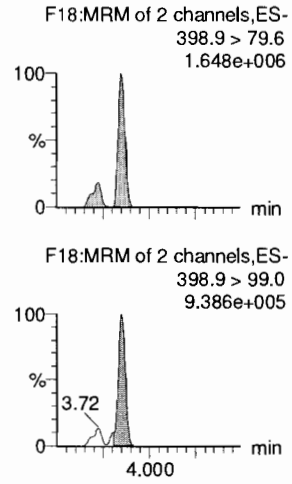
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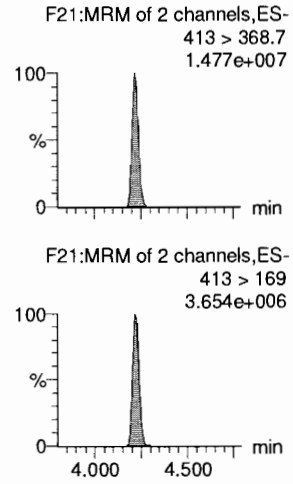
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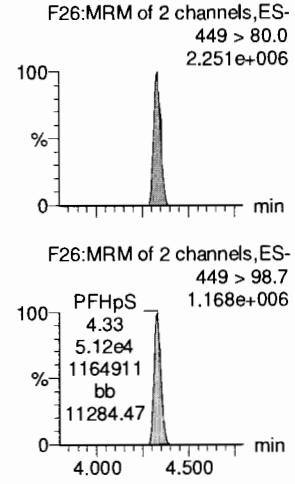
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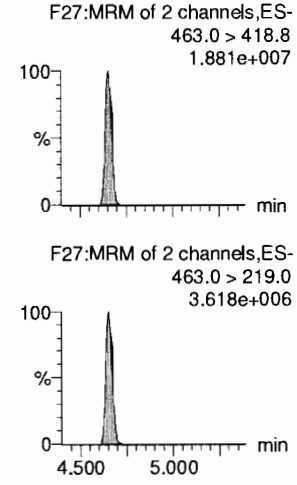
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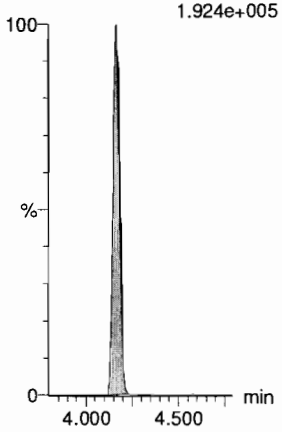
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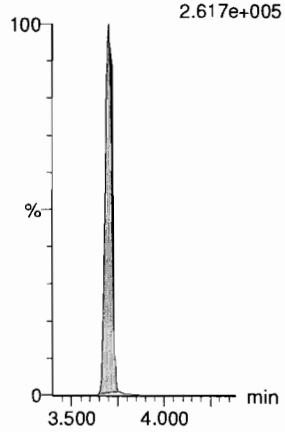
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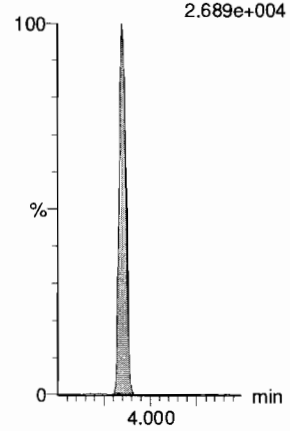
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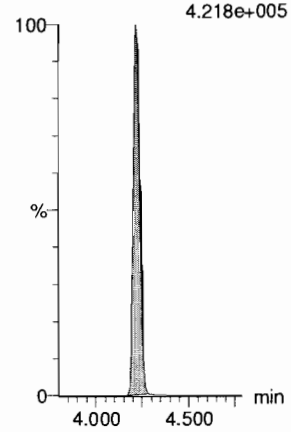
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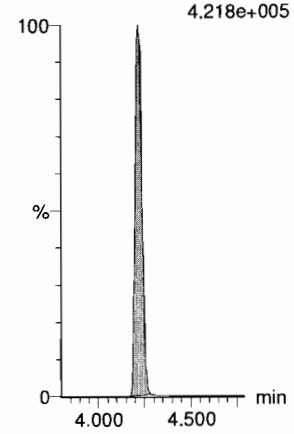
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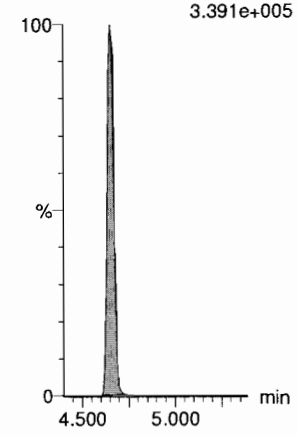
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13C2-PFOA



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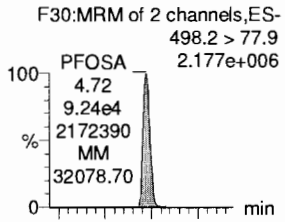


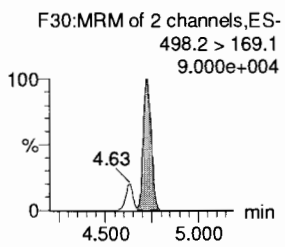
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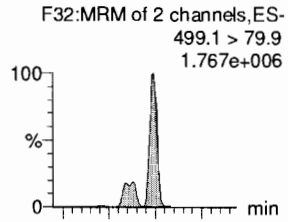
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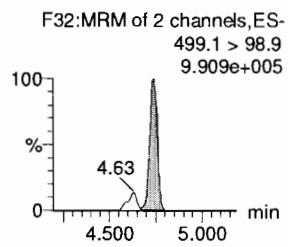
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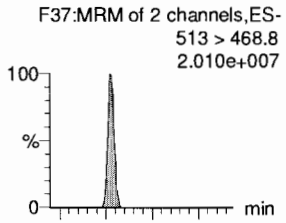


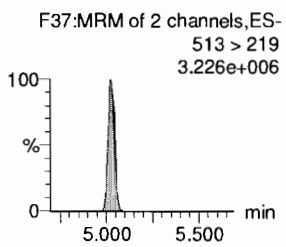
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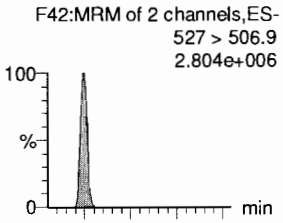


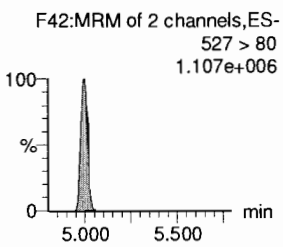
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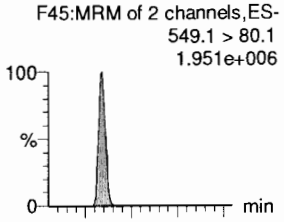


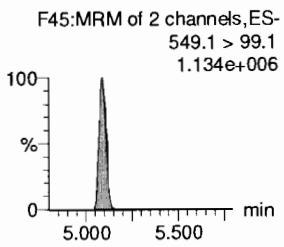
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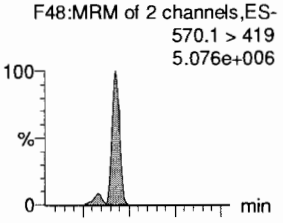


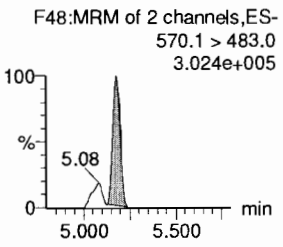
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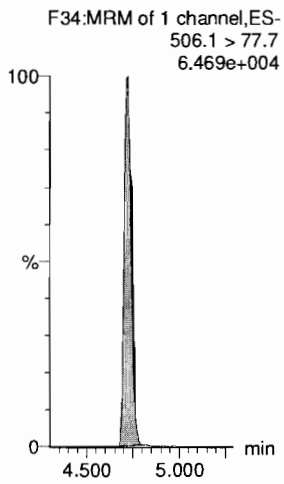


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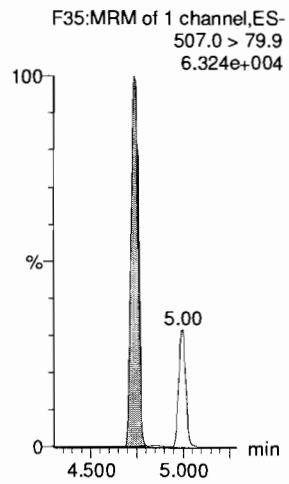




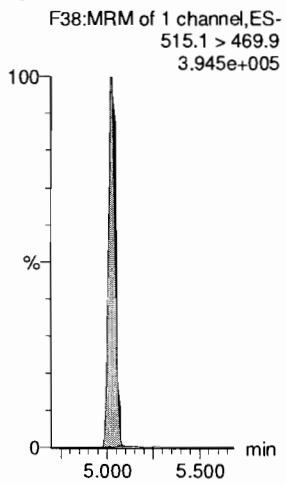
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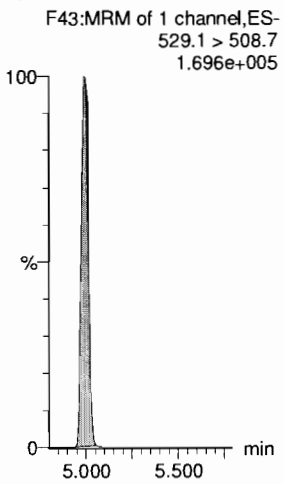
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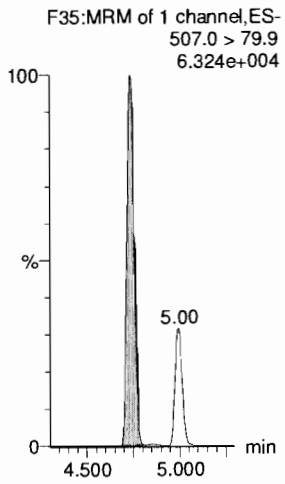
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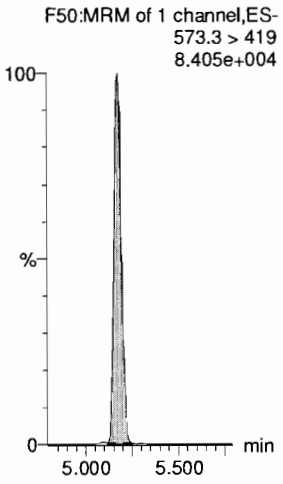
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13C8-PFOS



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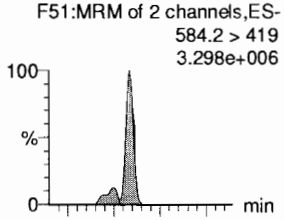


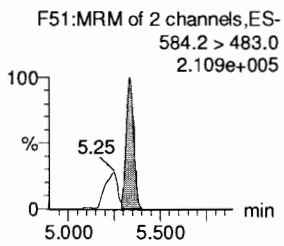
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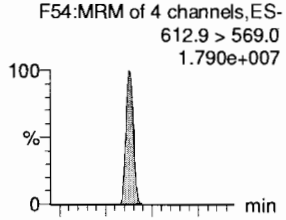
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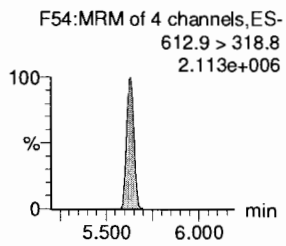
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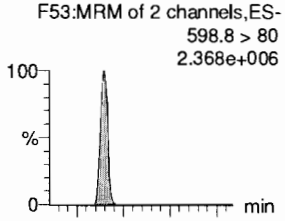


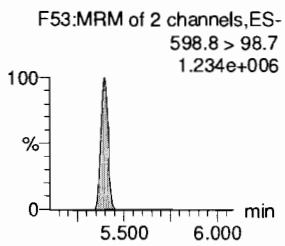
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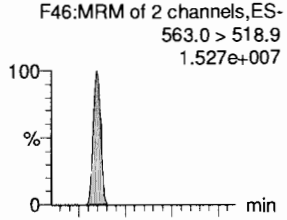


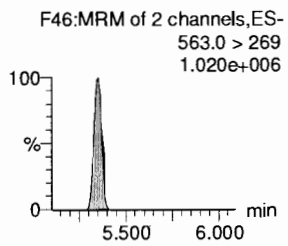
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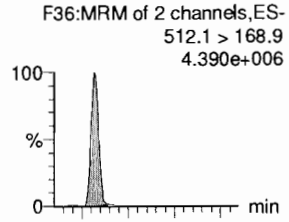


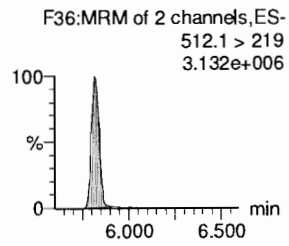
PFUdA



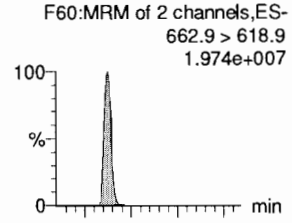


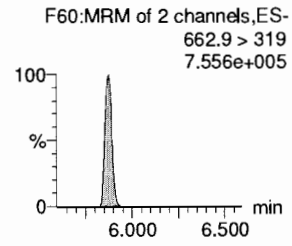
N-MeFOSA



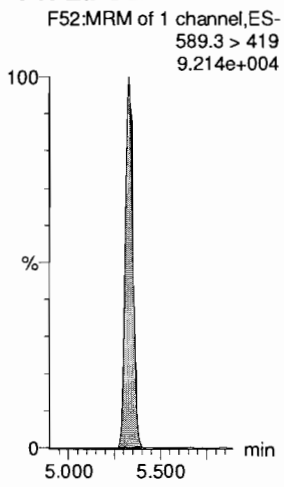


PFTrDA

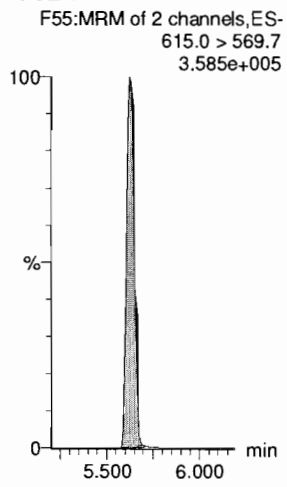




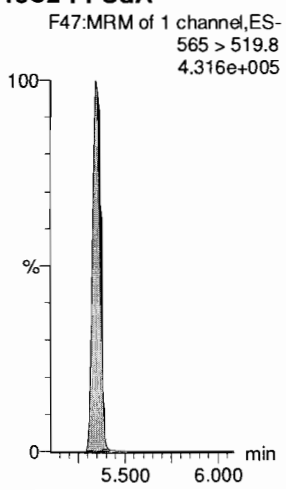
d5-N-EtFOSAA



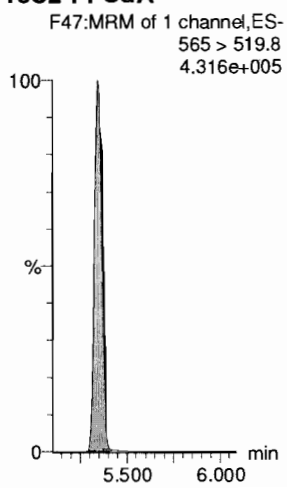
13C2-PFDoA



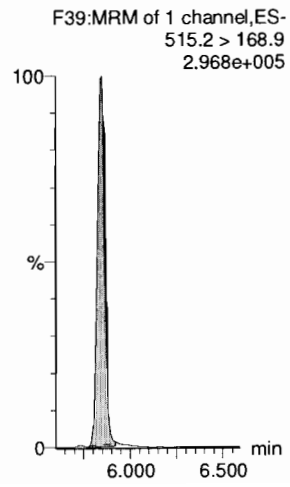
13C2-PFUdA



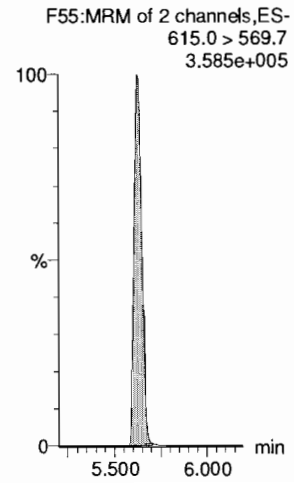
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA

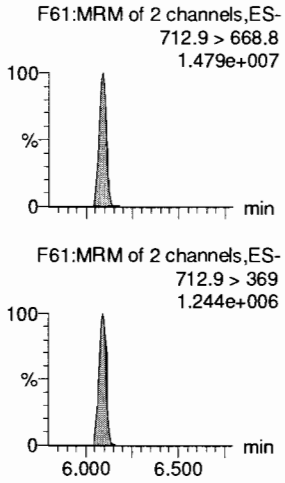


Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

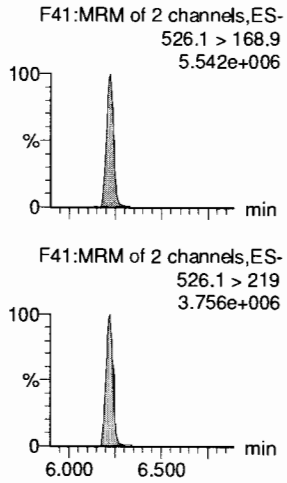
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Printed: Tuesday, June 05, 2018 10:51:02 Pacific Daylight Time

Name: 180604M2_11, Date: 04-Jun-2018, Time: 20:45:54, ID: ST180604M2-10 PFC CS7 18E2911, Description: PFC CS7 18E2911

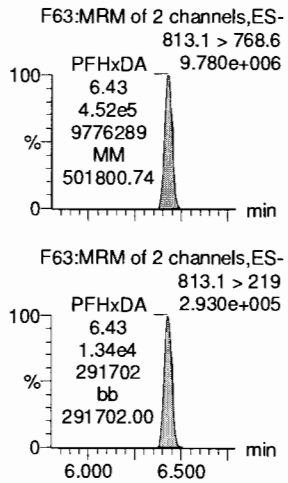
PFTeDA



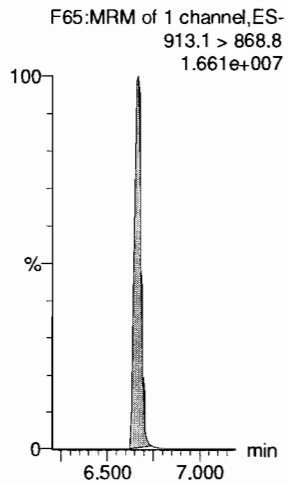
N-EtFOSA



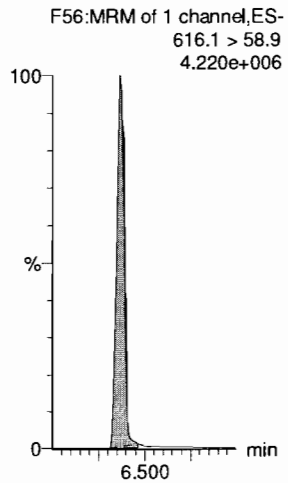
PFHxDA



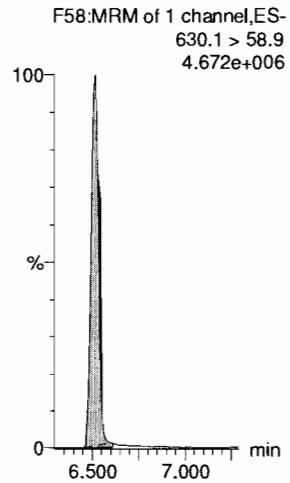
PFODA



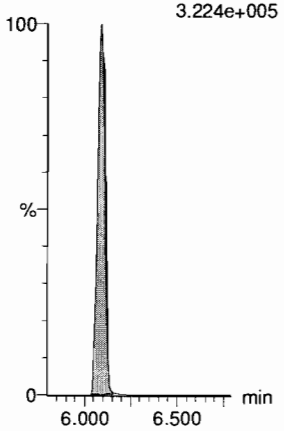
N-MeFOSE



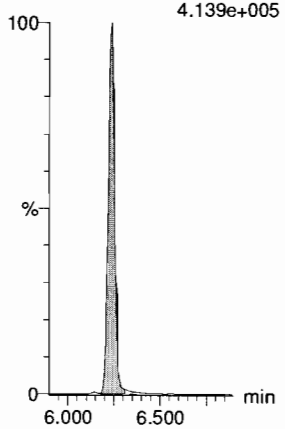
N-EtFOSE



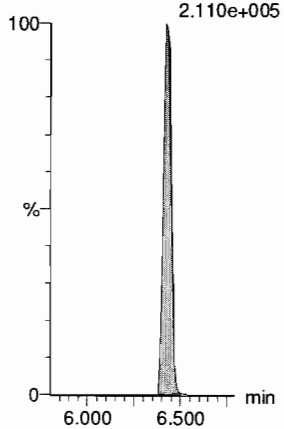
13C2-PFTeDA



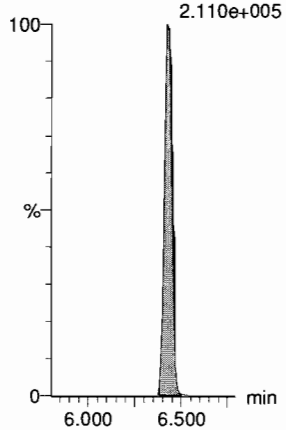
d5-N-ETFOSA



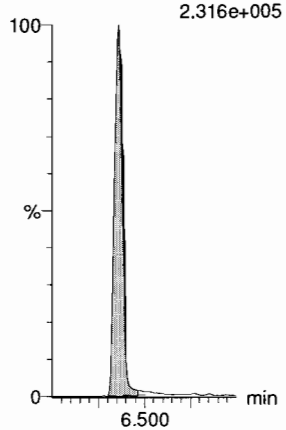
13C2-PFHxDA



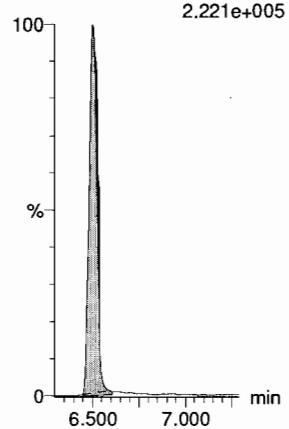
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE

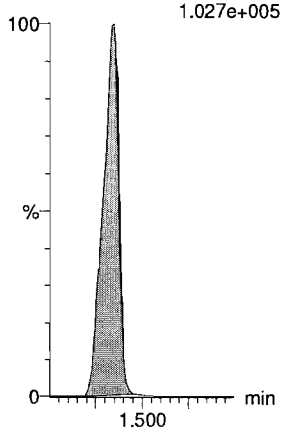


Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-CRV.qld

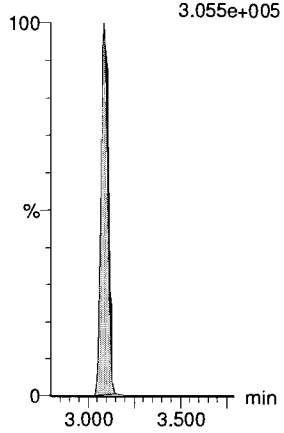
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Printed: Tuesday, June 05, 2018 10:51:02 Pacific Daylight Time

Name: 180604M2_11, Date: 04-Jun-2018, Time: 20:45:54, ID: ST180604M2-10 PFC CS7 18E2911, Description: PFC CS7 18E2911

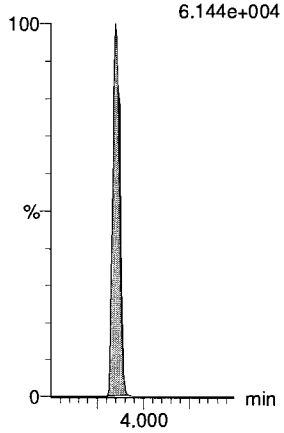
13C4-PFBA



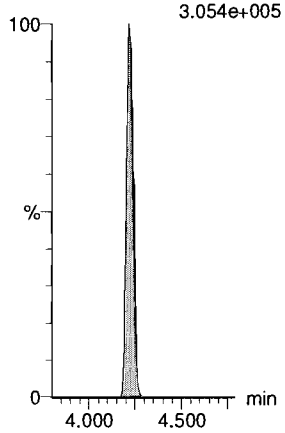
13C5-PFHxA



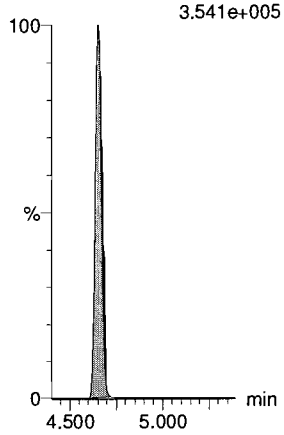
13C3-PFHxS



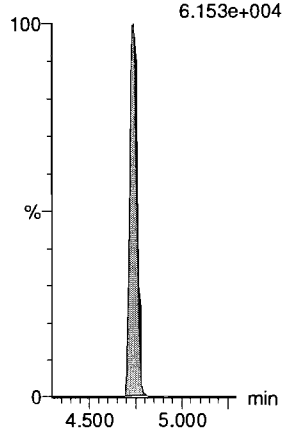
13C8-PFOA



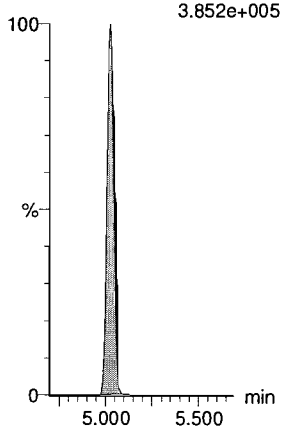
13C9-PFNA



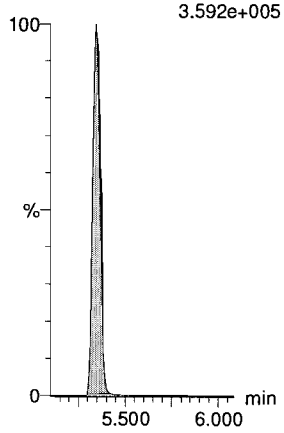
13C4-PFOS



13C6-PFDA



13C7-PFUdA



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Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-ICV.qld

Last Altered: Tuesday, June 05, 2018 11:27:26 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 11:28:17 Pacific Daylight Time

JAM 6/5/18

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060418.mdb 05 Jun 2018 10:44:45
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-04-18.cdb 05 Jun 2018 10:43:30

Name: 180604M2_13, Date: 04-Jun-2018, Time: 21:06:49, ID: ICV180604M2-1 PFC 537 ICV 18E2901, Description: PFC ICV 18E2901

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
1	1	PFBA	213.0 > 16...	7.94e3	9.15e3		1.33	1.34	10.9	9.77	97.7	NO		
2	2	PFPeA	263.1 > 21...	9.41e3	1.25e4		2.31	2.31	9.40	9.14	91.4	NO		
3	3	PFBS	299.0 > 79.7	2.13e3	1.56e3		2.59	2.60	17.1	8.59	85.9	NO	2.666	NO
4	4	4:2 FTS	327.2>307.2	2.67e3	3.36e3		3.00	3.00	9.94	9.20	92.0	NO	1.868	NO
5	5	PFHxA	313.2 > 26...	1.38e4	4.49e3		3.09	3.09	15.4	9.63	96.3	NO	304.989	NO
6	6	PFPeS	349.1>80.1	1.99e3	1.56e3		3.28	3.29	15.9	8.81	88.1	NO	1.664	NO
7	7	PFHpA	363.0 > 31...	1.10e4	1.23e4		3.70	3.71	11.3	9.64	96.4	NO	18.569	NO
8	8	L-PFHxS	398.9 > 79.6	1.74e3	1.39e3		3.85	3.86	15.7	8.17	81.7	NO	1.772	NO
9	10	6:2 FTS	427.1 > 407	3.20e3	3.80e3		4.17	4.17	10.5	8.48	84.8	NO	3.138	NO
10	11	L-PFOA	413 > 368.7	1.38e4	1.77e4		4.25	4.22	9.78	10.8	108.4	NO	4.032	NO
11	13	PFHpS	449 > 80.0	2.22e3	1.77e4		4.33	4.33	1.57	9.96	99.6	NO	1.861	NO
12	14	PFNA	463.0 > 41...	1.70e4	1.70e4		4.66	4.66	12.4	9.72	97.2	NO	4.808	NO
13	15	PFOSA	498.2 > 77.9	2.24e3	3.29e3		4.73	4.72	8.53	8.98	89.8	NO	21.032	NO
14	16	L-PFOS	499.1 > 79.9	2.12e3	3.16e3		4.74	4.74	8.39	9.04	90.4	NO	2.004	NO
15	18	PFDA	513 > 468.8	1.83e4	2.36e4		5.03	5.03	9.73	9.44	94.4	NO	6.697	NO
16	19	8:2 FTS	527 > 506.9	3.17e3	3.13e3		5.00	5.00	12.7	8.80	88.0	NO	2.405	NO
17	20	PFNS	549.1>80.1	1.96e3	3.16e3		5.09	5.09	7.77	9.31	93.1	NO	1.772	NO
18	21	L-MeFOSAA	570.1 > 419	7.33e3	4.38e3		5.18	5.18	20.9	11.0	110.2	NO	18.683	YES

AL 6/5/18

Vista Analytical Laboratory

Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-ICV.qld

Last Altered: Tuesday, June 05, 2018 11:27:26 Pacific Daylight Time
Printed: Tuesday, June 05, 2018 11:28:30 Pacific Daylight Time

(A) NOT IN ICV

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060418.mdb 05 Jun 2018 10:44:45
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-04-18.cdb 05 Jun 2018 10:43:30

AN 6/5/18

Name: 180604M2_13, Date: 04-Jun-2018, Time: 21:06:49, ID: ICV180604M2-1 PFC 537 ICV 18E2901, Description: PFC ICV 18E2901

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
1	23	L-EtFOSAA	584.2 > 419	5.58e3	5.43e3		5.37	5.34	12.8	11.2	112.5	NO	14.744	NO
2	25	PFUdA	563.0 > 51...	1.78e4	1.99e4		5.35	5.35	11.2	11.5	115.4	NO	12.555	NO
3	26	PFDS	598.8 > 80	2.49e3	1.99e4		5.40	5.40	1.56	10.8	108.1	NO	2.023	NO
4	27	PFDoA	612.9 > 56...	2.17e4	1.99e4		5.63	5.63	13.7	12.3	122.7	NO	9.431	NO
5	28	N-MeFOSA	512.1 > 16...		1.39e4		5.82					NO	(A)	
6	29	PFTrDA	662.9 > 61...	2.24e4	1.99e4		5.88	5.88	14.1	13.0	129.9	NO	35.084	NO
7	30	PFTeDA	712.9 > 66...	1.73e4	1.75e4		6.10	6.09	12.3	9.49	94.9	NO	12.015	NO
8	31	N-EtFOSA	526.1 > 16...		2.06e4		6.23					NO	(A)	
9	32	PFHxDA	813.1 > 76...		1.08e4		6.43					NO		
10	33	PFODA	913.1 > 86...		1.08e4		6.67					NO		
11	34	N-MeFOSE	616.1 > 58.9		1.11e4		6.37					NO		
12	35	N-EtFOSE	630.1 > 58.9		1.05e4		6.52					NO		
13	36	13C3-PFBA	216.1 > 17...	9.15e3	1.04e4	0.885	1.34	1.34	11.0	12.4	99.6	NO		
14	37	13C3-PFPeA	266. > 221.8	1.25e4	1.50e4	0.849	2.31	2.31	10.4	12.2	98.0	NO		
15	38	13C3-PFBS	302. > 98.8	1.56e3	1.50e4	0.104	2.60	2.60	1.30	12.5	99.8	NO		
16	39	13C2-4:2 FTS	329.2>308.9	3.36e3	1.50e4	0.248	3.01	3.00	2.79	11.3	90.2	NO		
17	40	13C2-PFHxA	315 > 269.8	4.49e3	1.50e4	0.729	3.09	3.09	3.73	5.11	102.3	NO		
18	41	13C4-PFHpA	367.2 > 32...	1.23e4	1.50e4	0.836	3.71	3.70	10.2	12.2	97.5	NO		
19	42	18O2-PFHxS	403.0 > 10...	1.39e3	3.08e3	0.443	3.86	3.85	5.62	12.7	101.6	NO		
20	43	13C2-6:2 FTS	429.1 > 40...	3.80e3	1.53e4	0.249	4.17	4.17	3.11	12.5	99.8	NO		
21	44	13C2-PFOA	414.9 > 36...	1.77e4	1.53e4	1.332	4.23	4.22	14.4	10.8	86.7	NO		
22	45	13C5-PFNA	468.2 > 42...	1.70e4	1.67e4	0.951	4.66	4.66	12.8	13.4	107.3	NO		
23	46	13C8-PFOSA	506.1 > 77.7	3.29e3	2.36e4	0.140	4.73	4.72	1.74	12.5	99.8	NO		
24	47	13C8-PFOS	507.0 > 79.9	3.16e3	3.23e3	1.060	4.74	4.74	12.2	11.5	92.2	NO		
25	48	13C2-PFDA	515.1 > 46...	2.36e4	1.90e4	1.130	5.03	5.03	15.5	13.7	110.0	NO		
26	49	13C2-8:2 FTS	529.1 > 50...	3.13e3	1.50e4	0.217	5.00	5.00	2.60	12.0	95.7	NO		
27	50	d3-N-MeFOSAA	573.3 > 419	4.38e3	2.36e4	0.184	5.18	5.18	2.32	12.6	101.1	NO		
28	51	d5-N-EtFOSAA	589.3 > 419	5.43e3	2.36e4	0.223	5.34	5.34	2.87	12.9	102.9	NO		
29	52	13C2-PFUdA	565 > 519.8	1.99e4	2.36e4	0.936	5.35	5.35	10.5	11.3	90.1	NO		
30	53	13C2-PFDoA	615.0 > 56...	1.99e4	1.90e4	1.168	5.63	5.63	13.1	11.2	89.6	NO		
31	54	d3-N-MeFOSA	515.2 > 16...	1.39e4	2.36e4	0.051	5.85	5.85	7.33	143	95.4	NO		
32	55	13C2-PFTeDA	714.8 > 66...	1.75e4	2.36e4	0.706	6.09	6.09	9.27	13.1	105.0	NO		

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Dataset: F:\Projects\PFAS.PRO\Results\180604M2\180604M2-ICV.qld

Last Altered: Tuesday, June 05, 2018 11:27:26 Pacific Daylight Time
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Name: 180604M2_13, Date: 04-Jun-2018, Time: 21:06:49, ID: ICV180604M2-1 PFC 537 ICV 18E2901, Description: PFC ICV 18E2901

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
33	56	d5-N-ETFOSA	531.1 > 16...	2.06e4	2.36e4	0.071	6.24	6.24	10.9	153	101.7	NO		
34	57	13C2-PFHxDA	815 > 769.7	1.08e4	2.36e4	1.079	6.43	6.43	5.71	5.29	105.9	NO		
35	58	d7-N-MeFOSE	623.1 > 58.9	1.11e4	2.36e4	0.041	6.37	6.36	5.87	142	95.0	NO		
36	59	d9-N-EtFOSE	639.2 > 58.8	1.05e4	2.36e4	0.038	6.51	6.51	5.55	145	96.5	NO		
37	60	13C4-PFBA	217. > 171.8	1.04e4	1.04e4	1.000	1.35	1.34	12.5	12.5	100.0	NO		
38	61	13C5-PFHxA	318 > 272.9	1.50e4	1.50e4	1.000	3.09	3.09	12.5	12.5	100.0	NO		
39	62	13C3-PFHxS	401.9 > 79.9	3.08e3	3.08e3	1.000	3.86	3.85	12.5	12.5	100.0	NO		
40	63	13C8-PFOA	421.3 > 376	1.53e4	1.53e4	1.000	4.23	4.22	12.5	12.5	100.0	NO		
41	64	13C9-PFNA	472.2 > 42...	1.67e4	1.67e4	1.000	4.66	4.66	12.5	12.5	100.0	NO		
42	65	13C4-PFOS	503 > 79.9	3.23e3	3.23e3	1.000	4.74	4.74	12.5	12.5	100.0	NO		
43	66	13C6-PFDA	519.1 > 47...	1.90e4	1.90e4	1.000	5.03	5.03	12.5	12.5	100.0	NO		
44	67	13C7-PFUdA	570.1 > 52...	2.36e4	2.36e4	1.000	5.35	5.35	12.5	12.5	100.0	NO		

Vista Analytical Laboratory

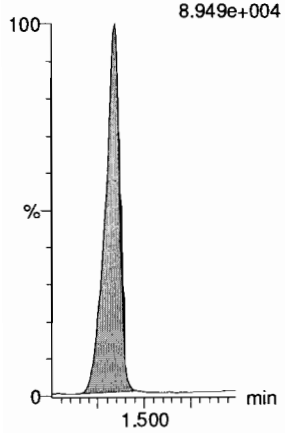
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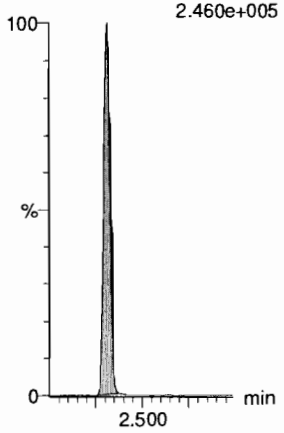
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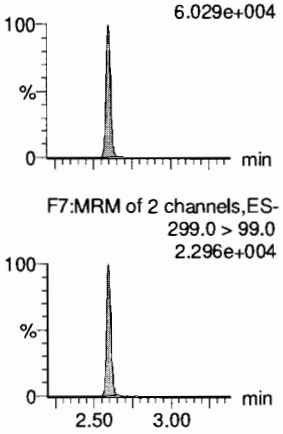
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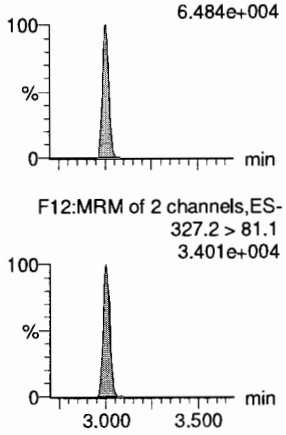
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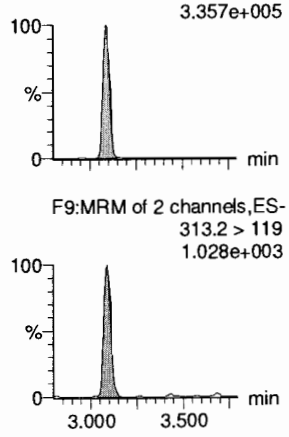
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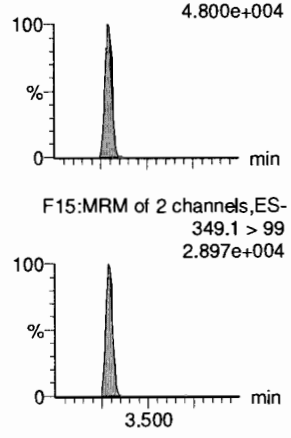
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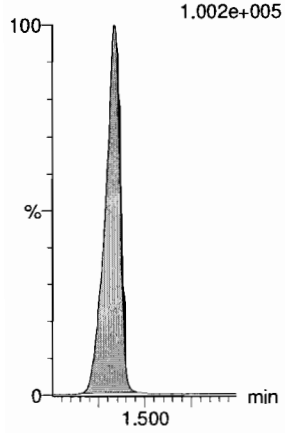
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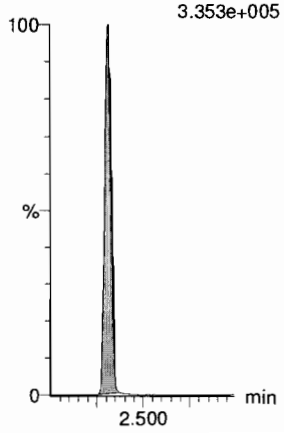
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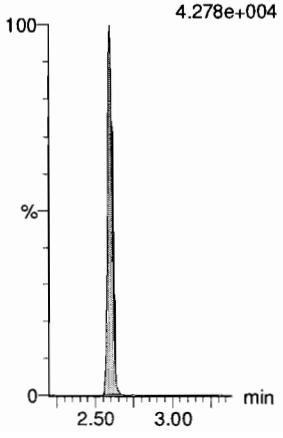
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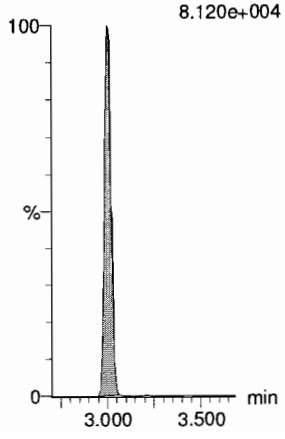
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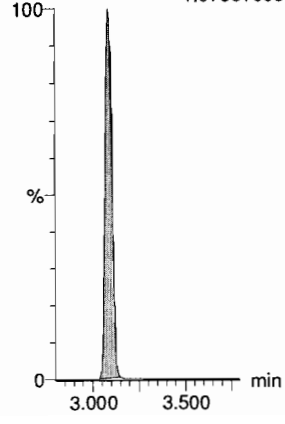
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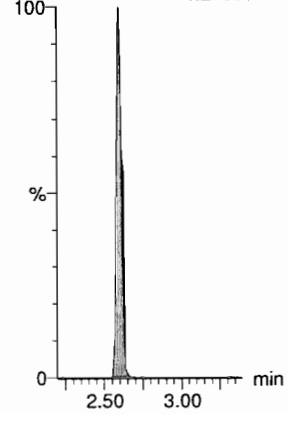
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13C2-PFHxA



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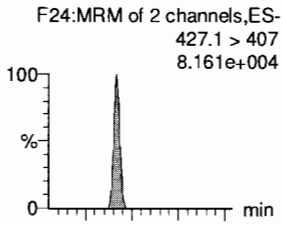


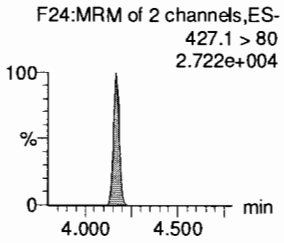
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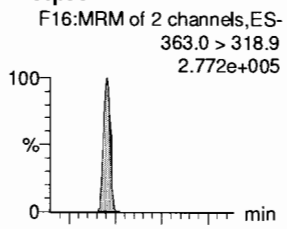
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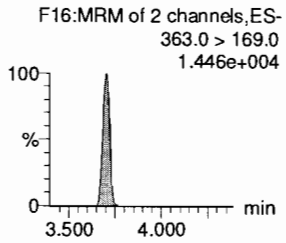
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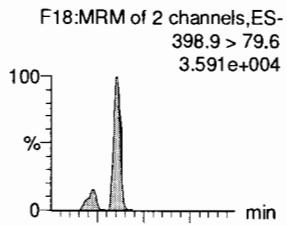


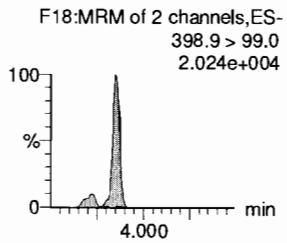
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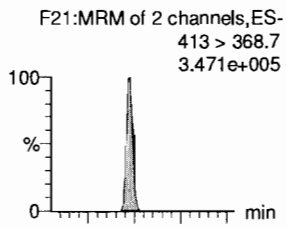


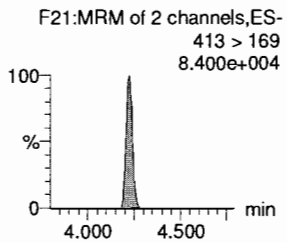
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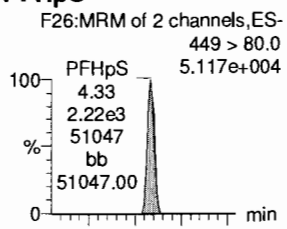


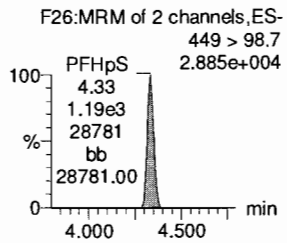
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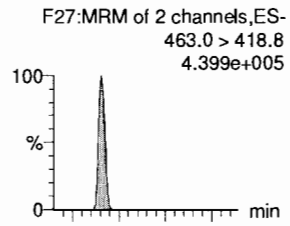


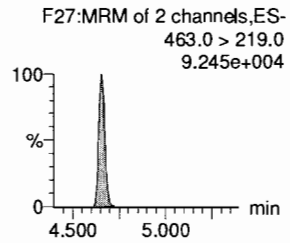
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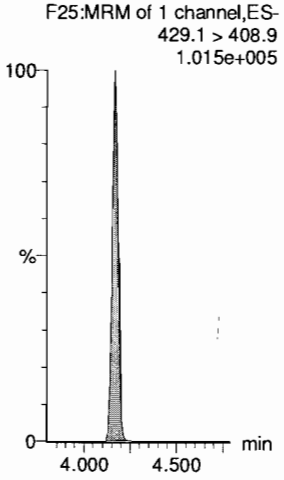


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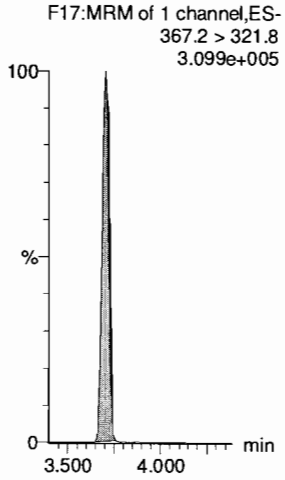




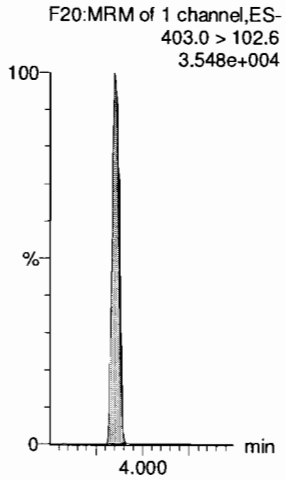
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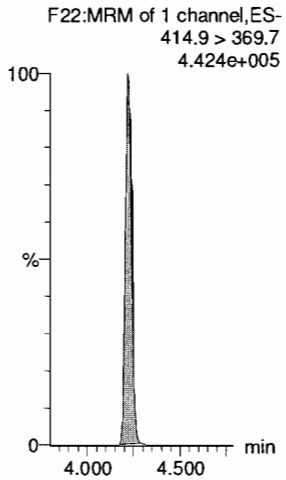
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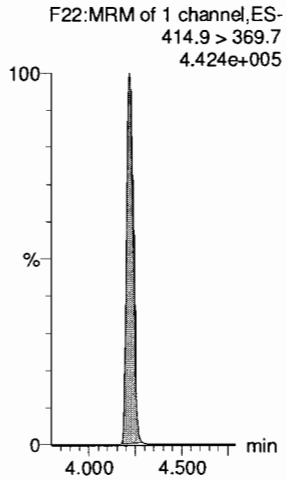
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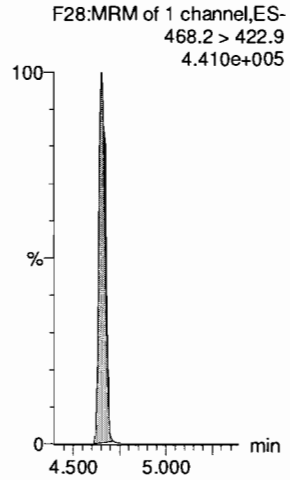
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13C2-PFOA



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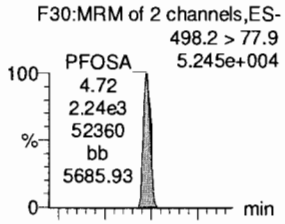


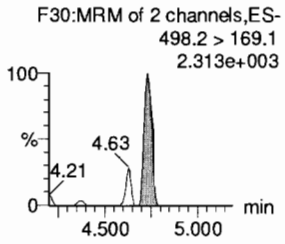
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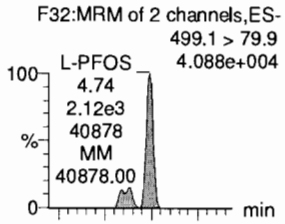
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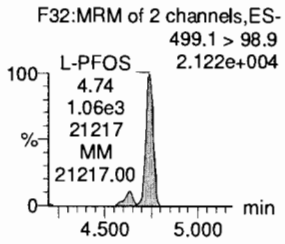
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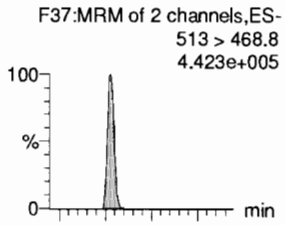


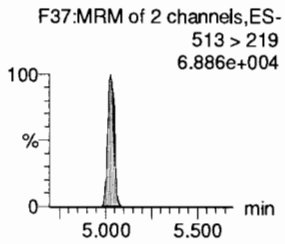
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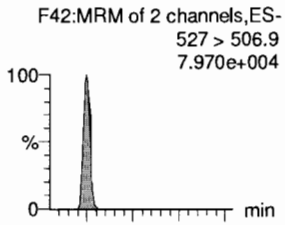


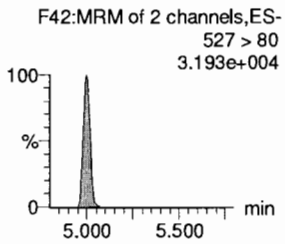
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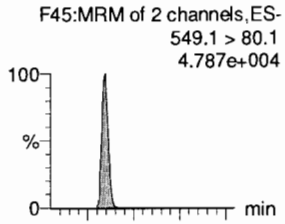


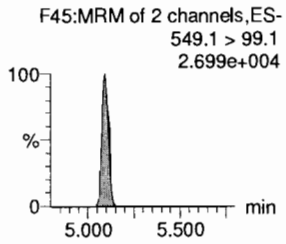
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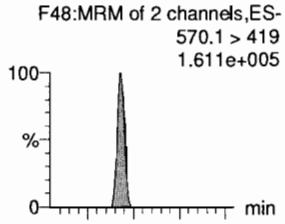


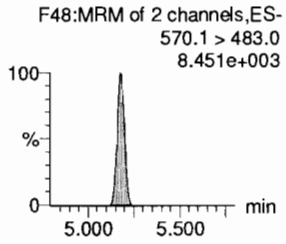
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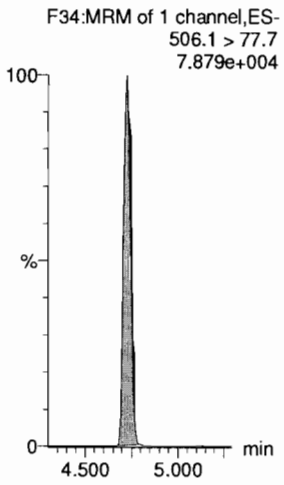


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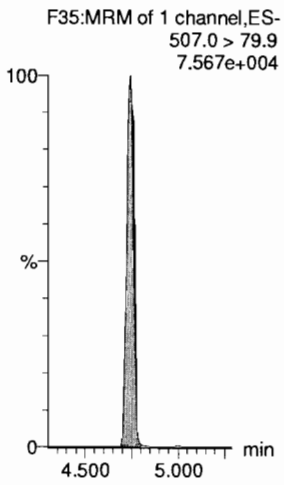




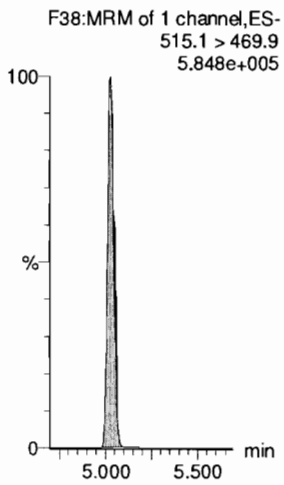
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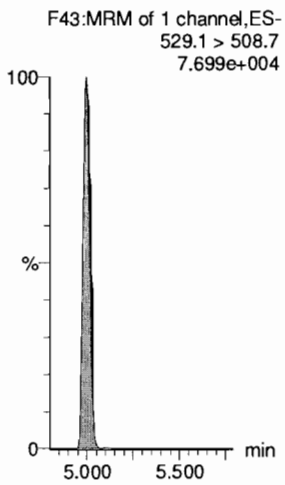
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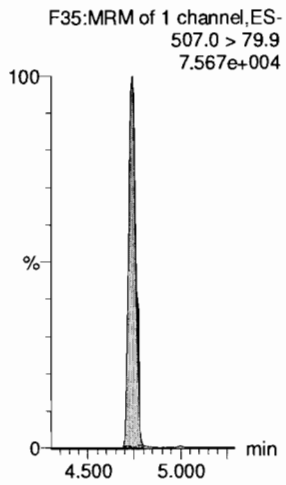
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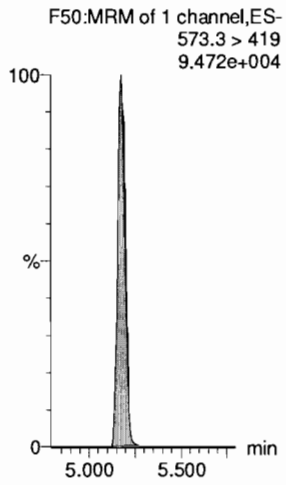
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13C8-PFOS



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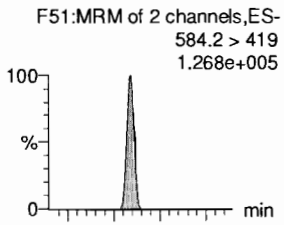


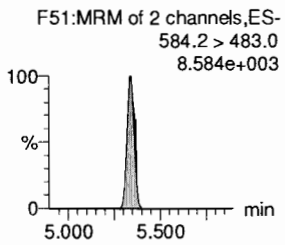
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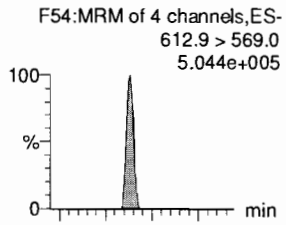
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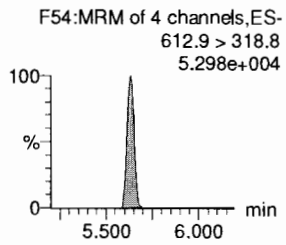
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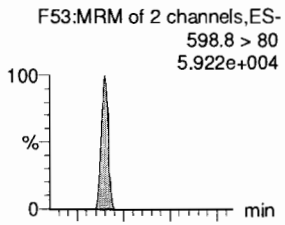


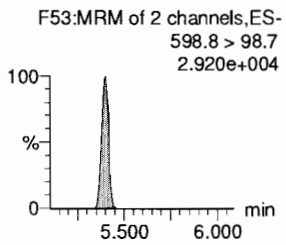
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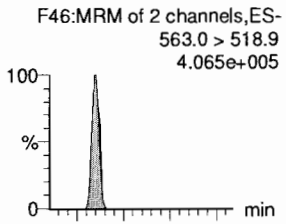


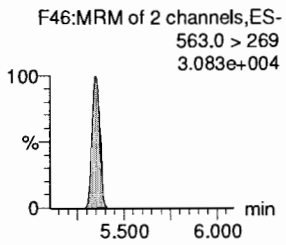
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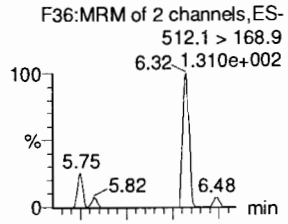


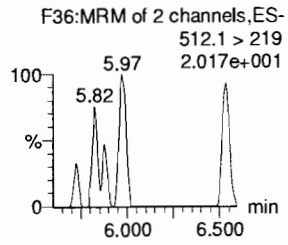
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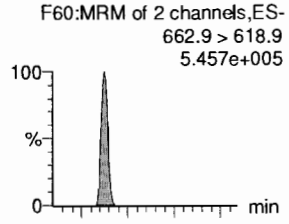


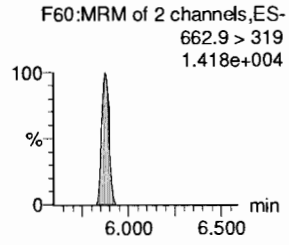
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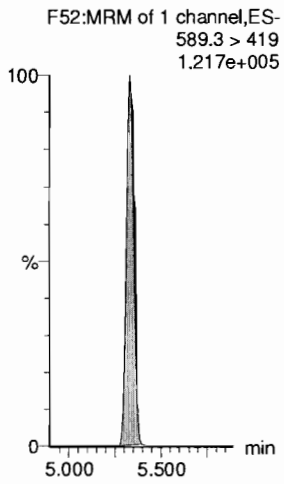


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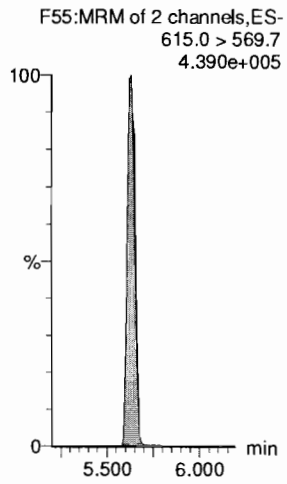




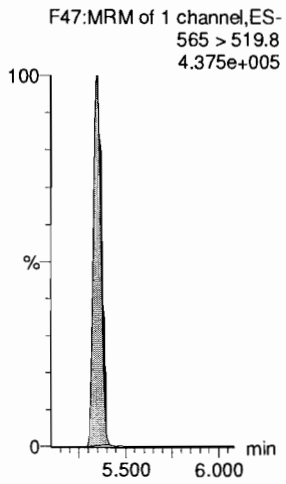
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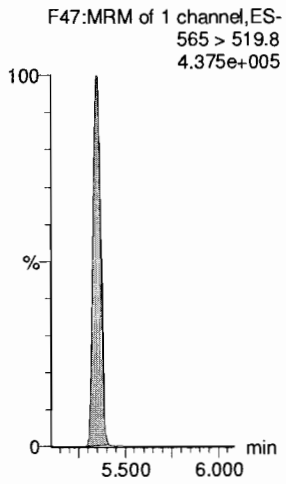
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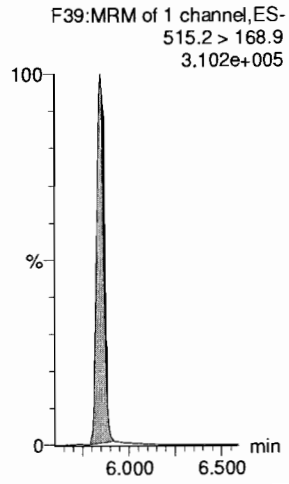
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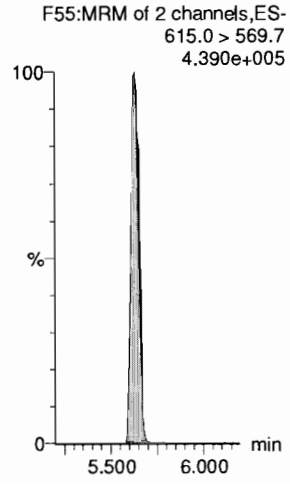
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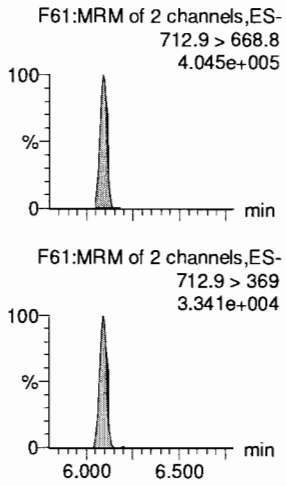


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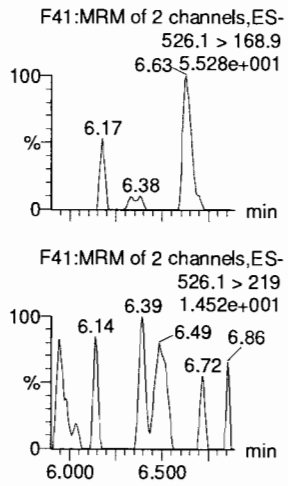
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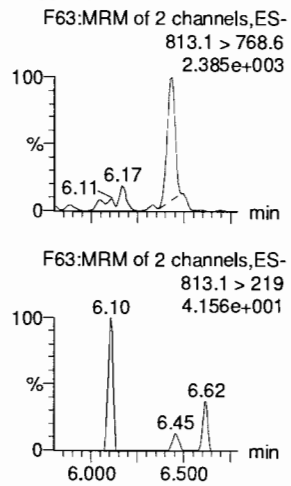
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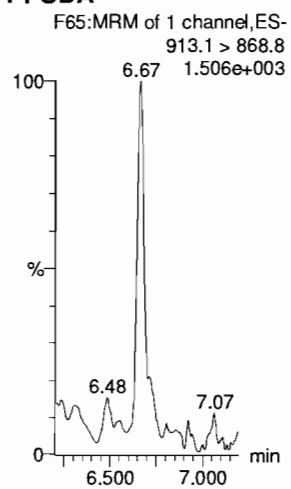
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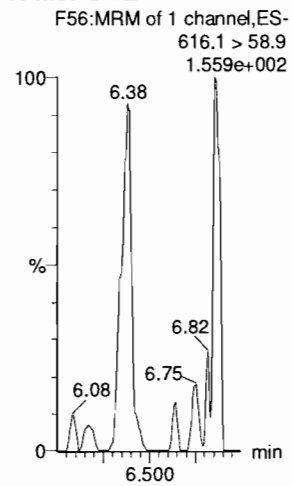
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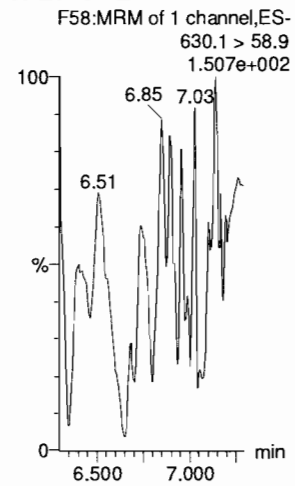
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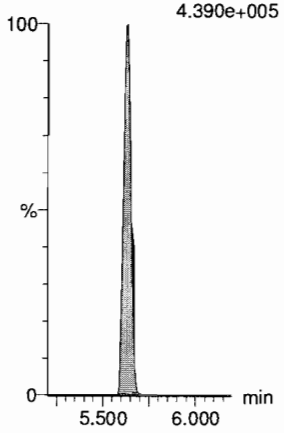
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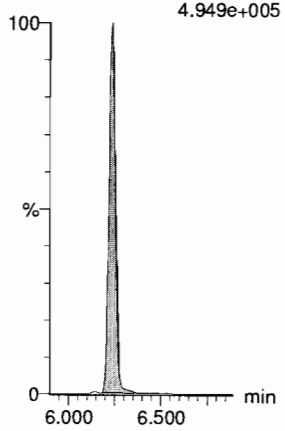
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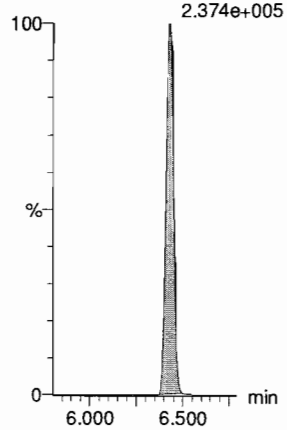
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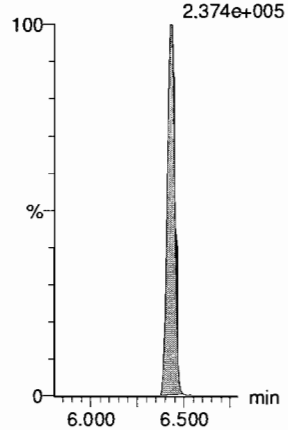
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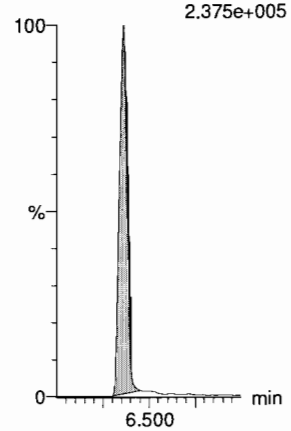
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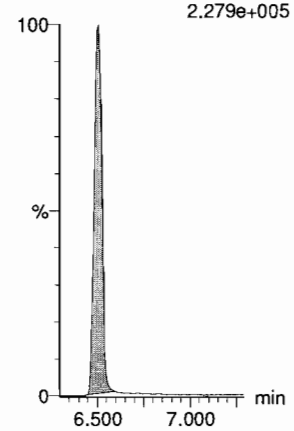
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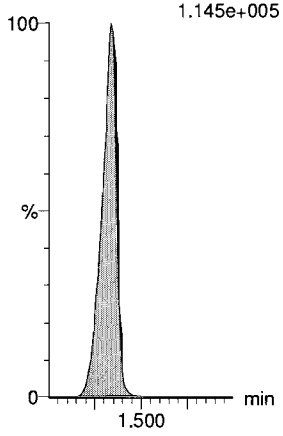


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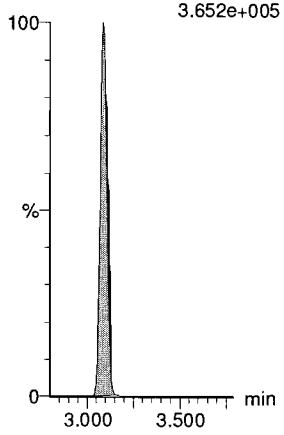
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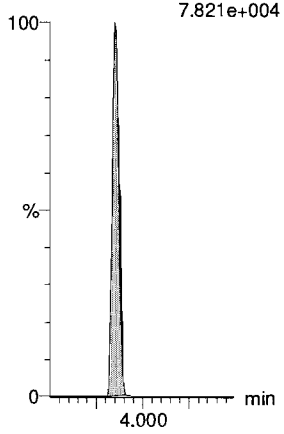
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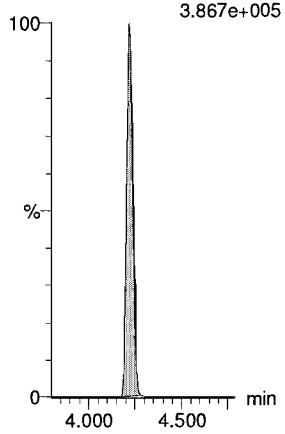
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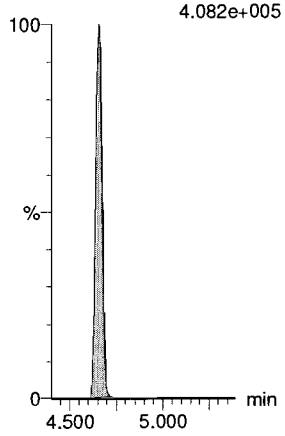
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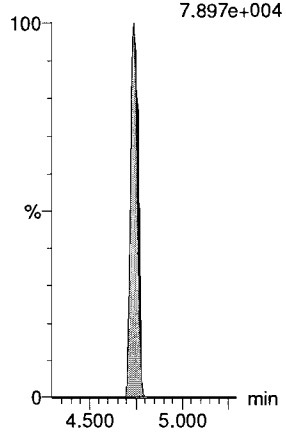
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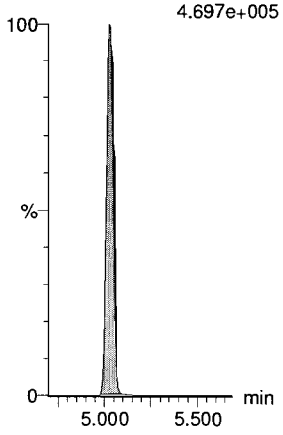
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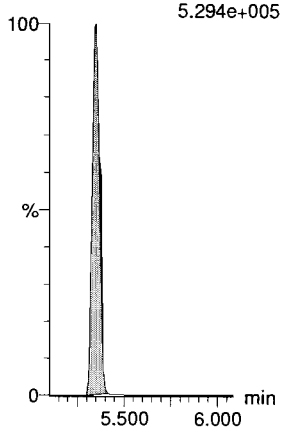
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Vista Analytical Laboratory

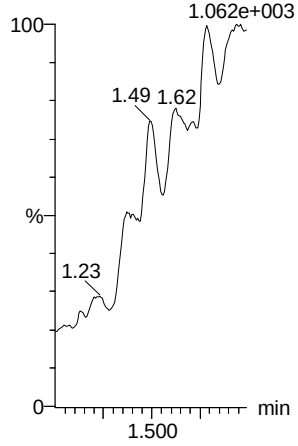
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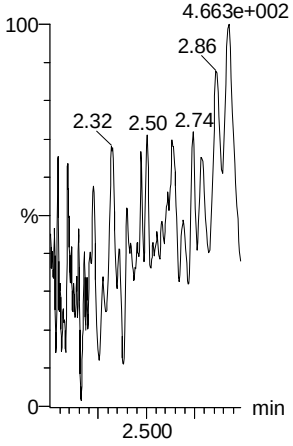
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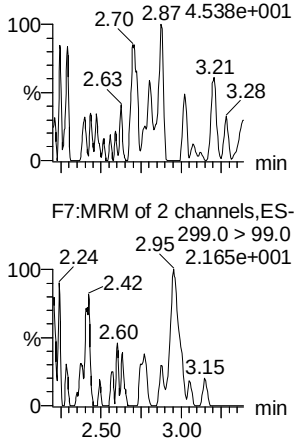
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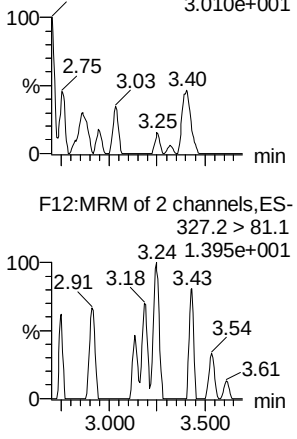
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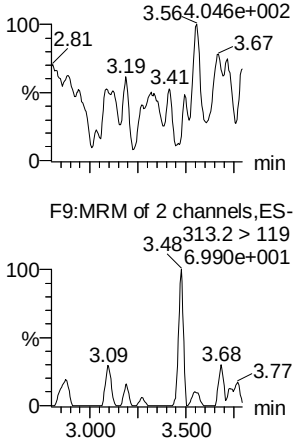
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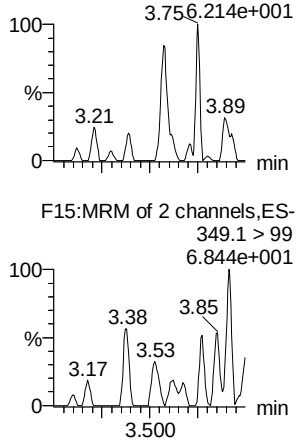
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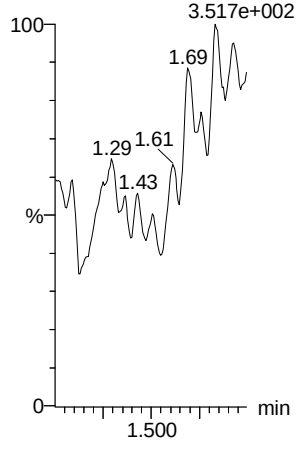
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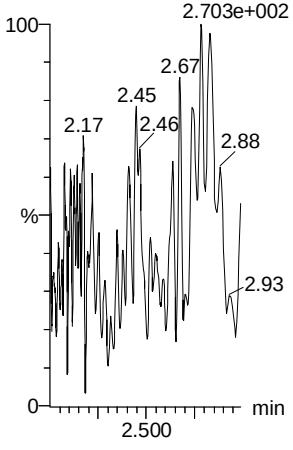
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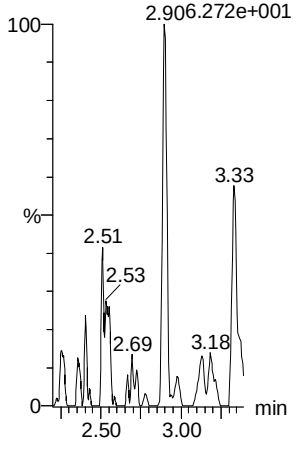
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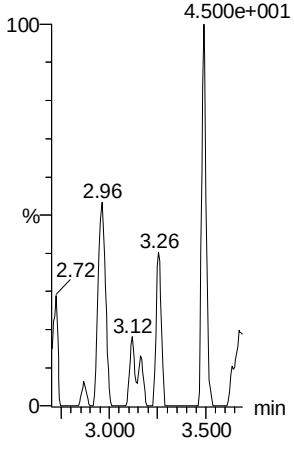
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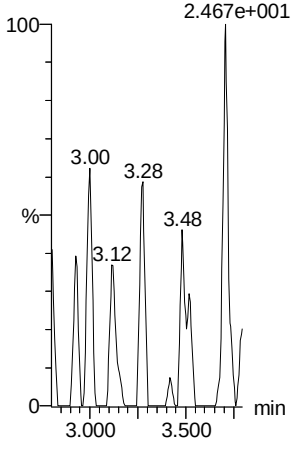
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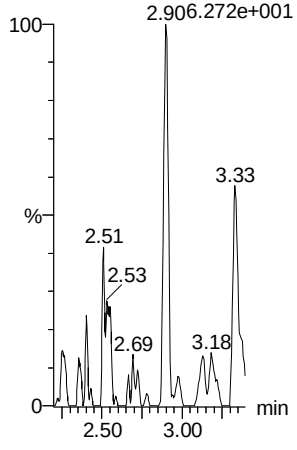
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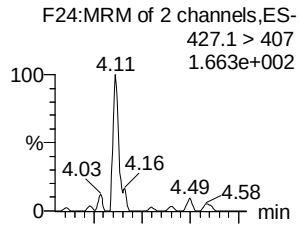


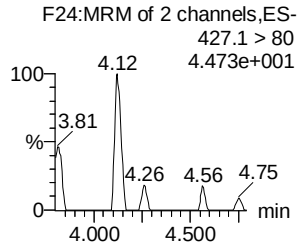
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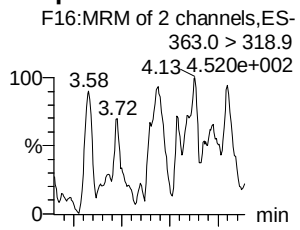
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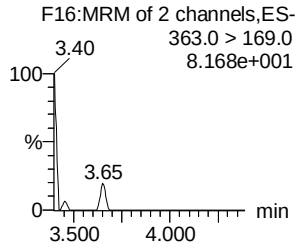
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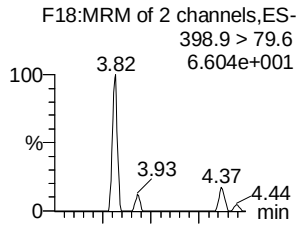


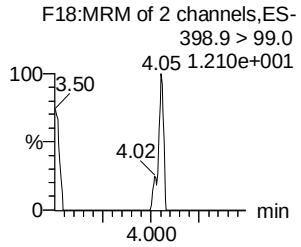
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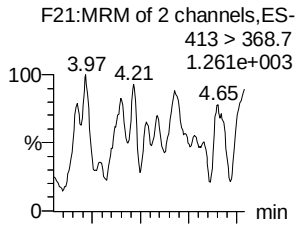


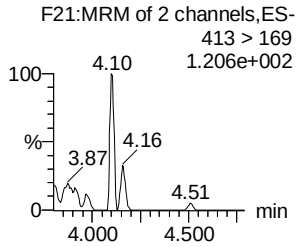
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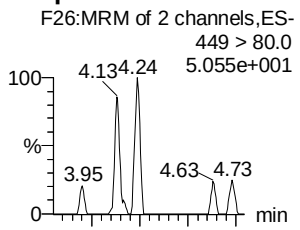


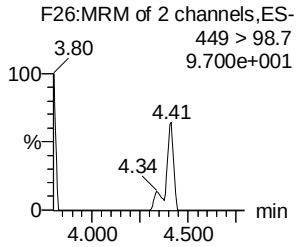
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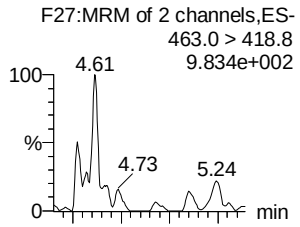


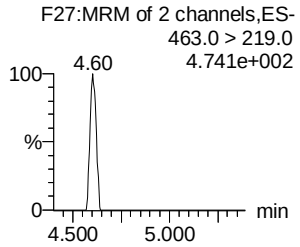
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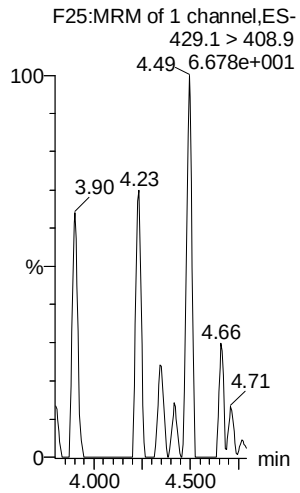


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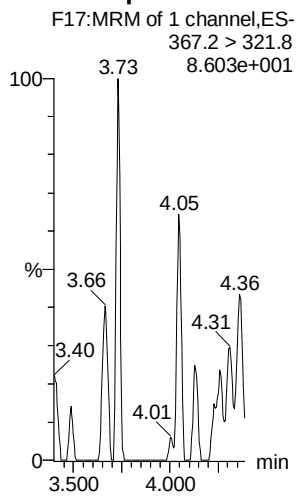




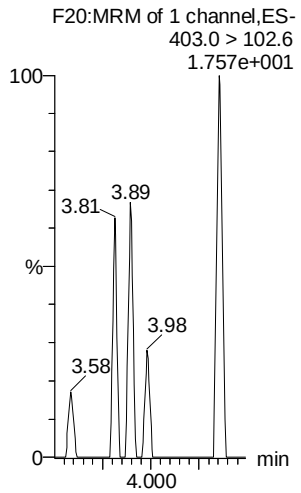
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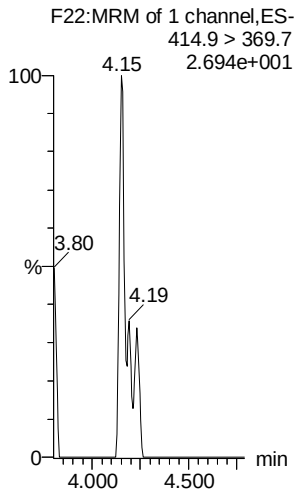
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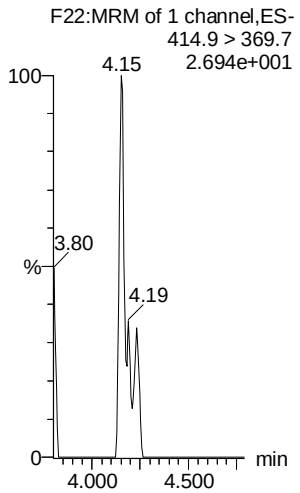
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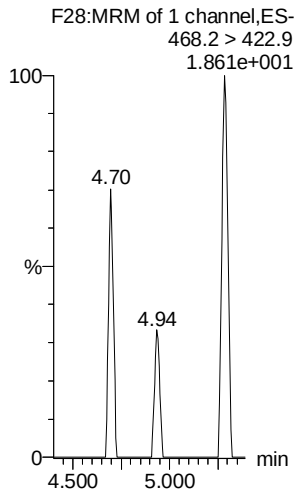
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13C2-PFOA



13C5-PFNA

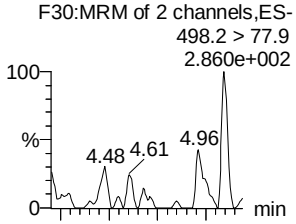


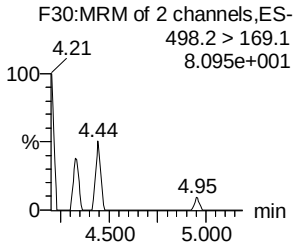
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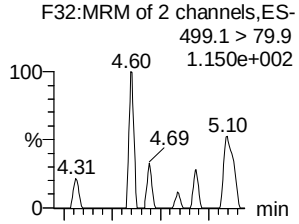
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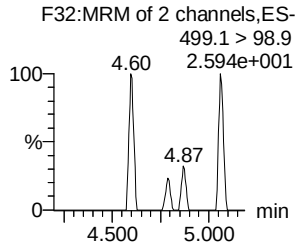
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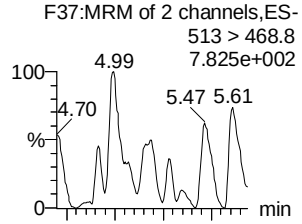


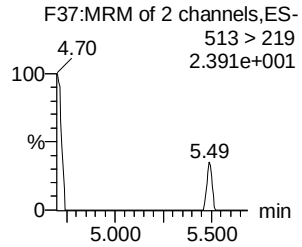
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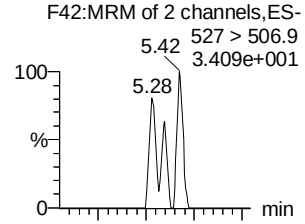


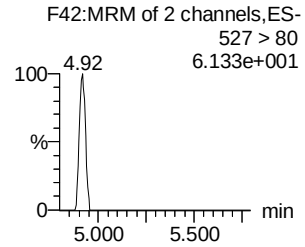
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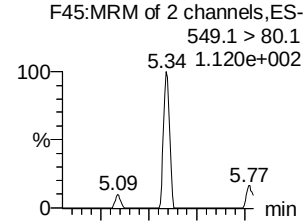


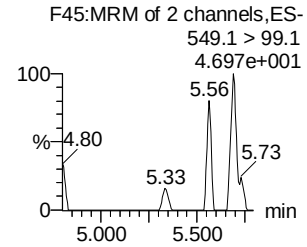
8:2 FTS



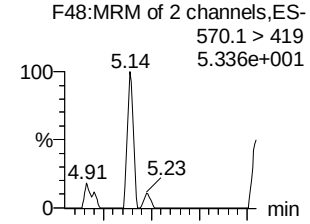


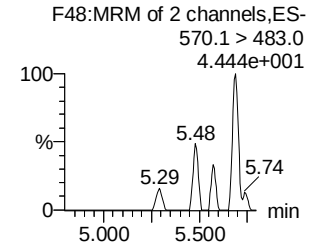
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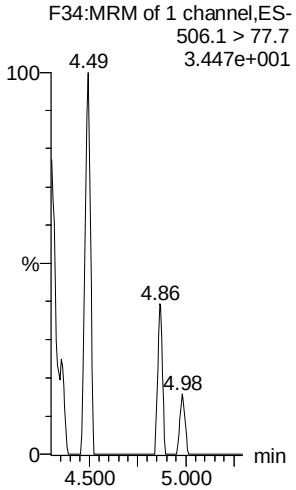


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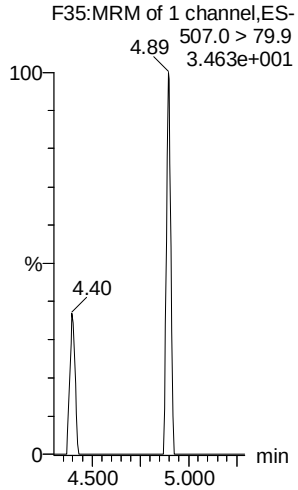




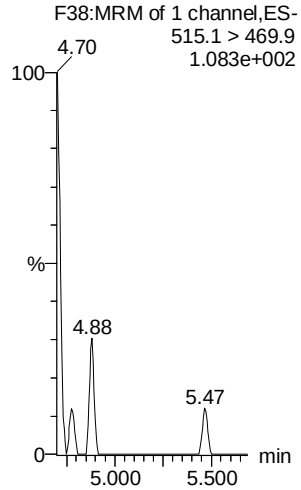
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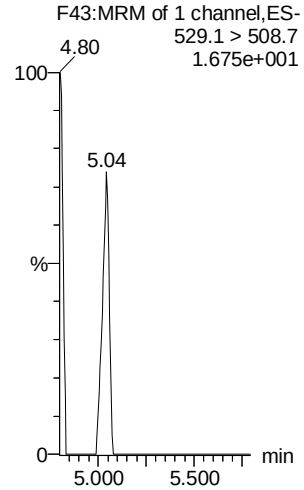
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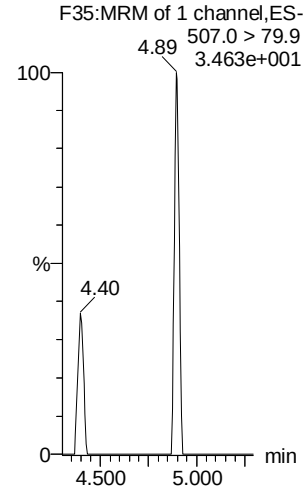
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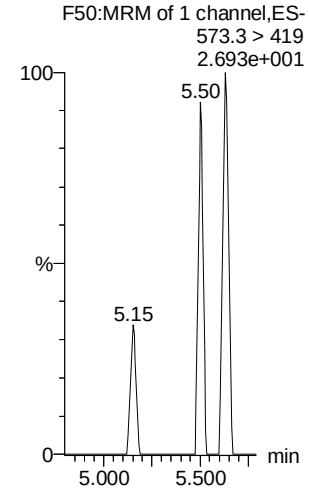
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13C8-PFOS



d3-N-MeFOSAA



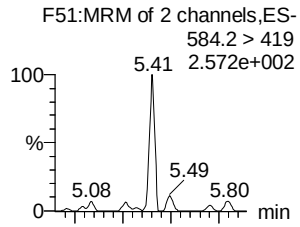
Vista Analytical Laboratory

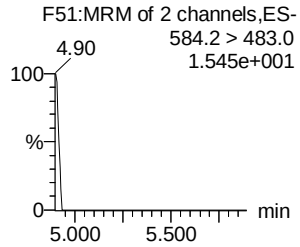
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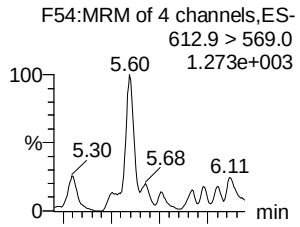
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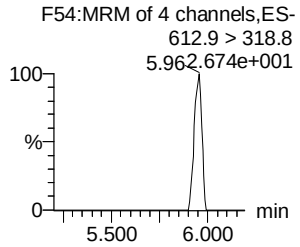
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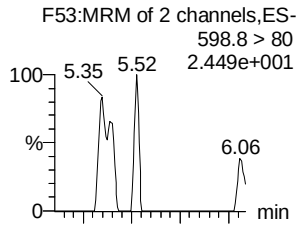


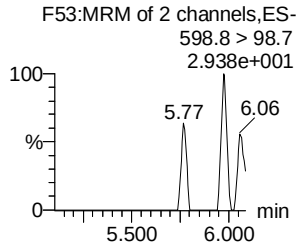
PFDoA



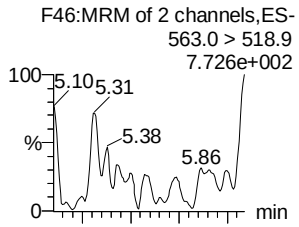


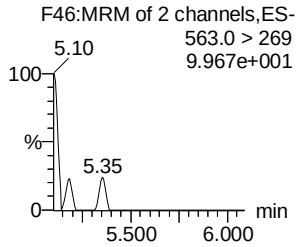
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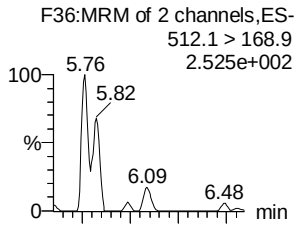


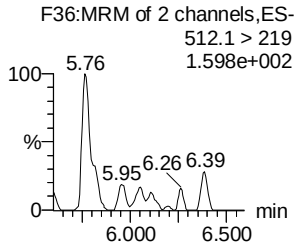
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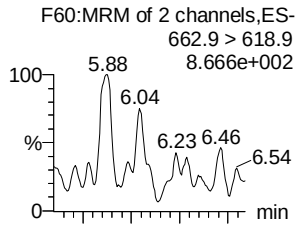


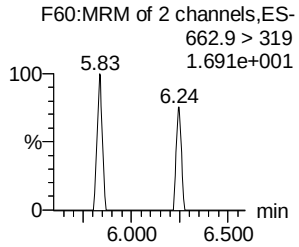
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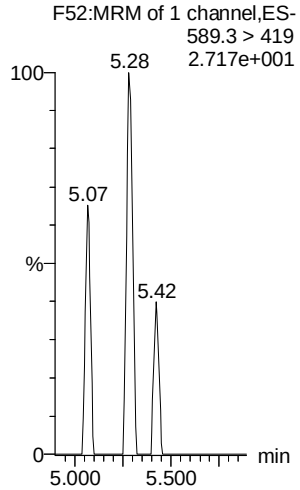


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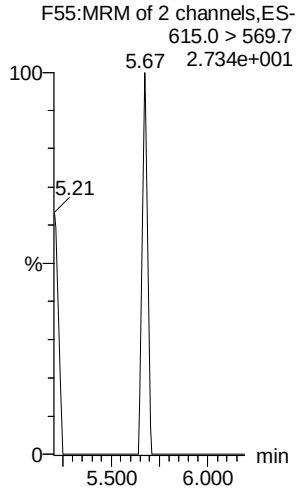




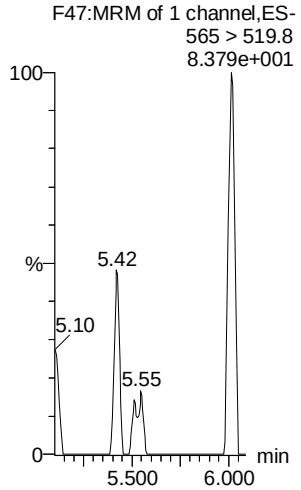
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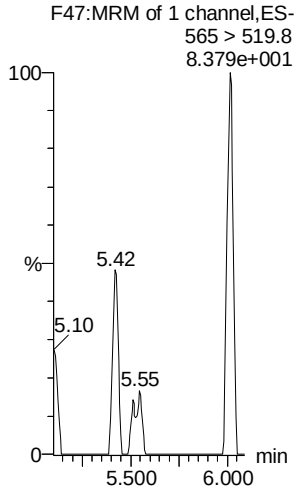
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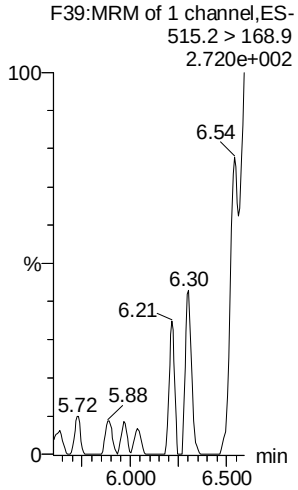
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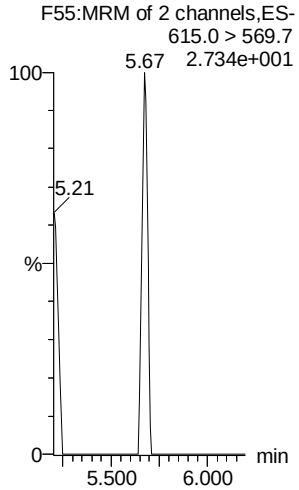
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d3-N-MeFOSA



13C2-PFDoA

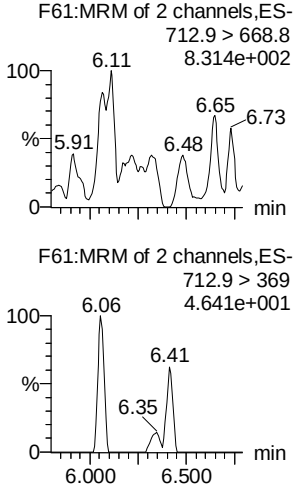


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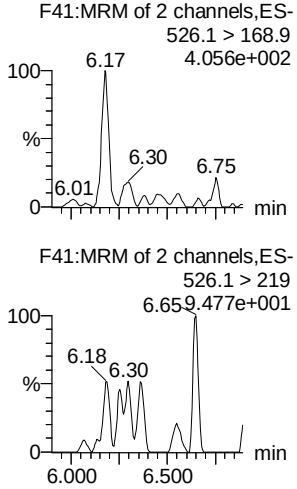
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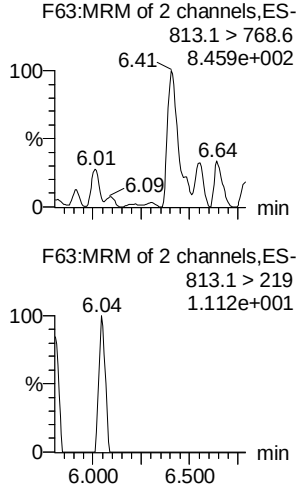
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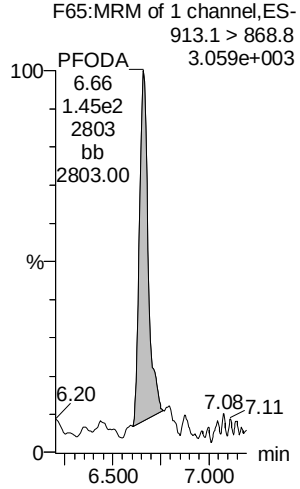
N-EtFOSA



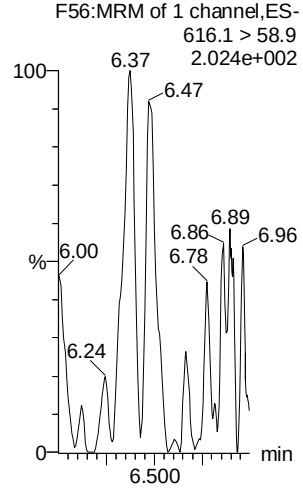
PFHxDA



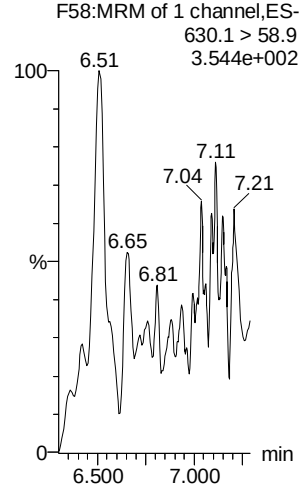
PFODA



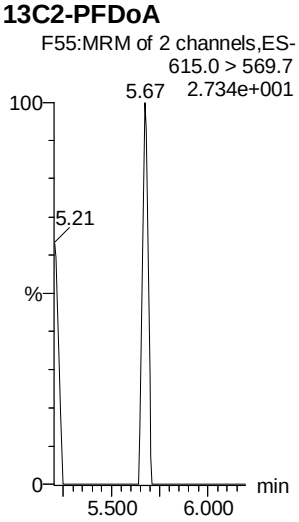
N-MeFOSE



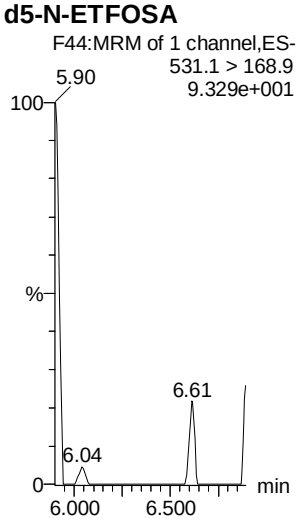
N-EtFOSE



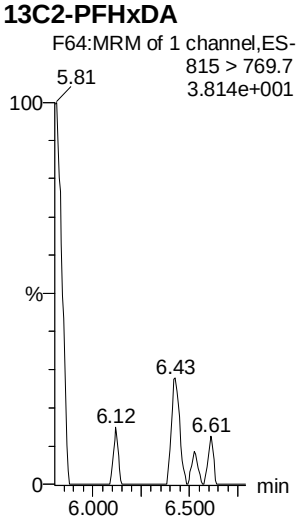
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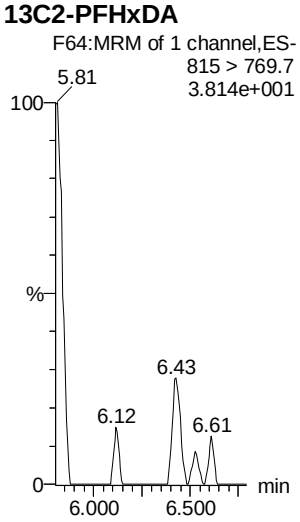
d5-N-ETFOSA



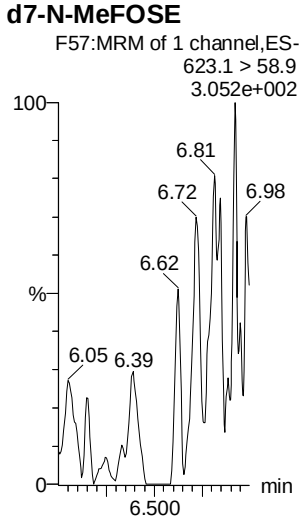
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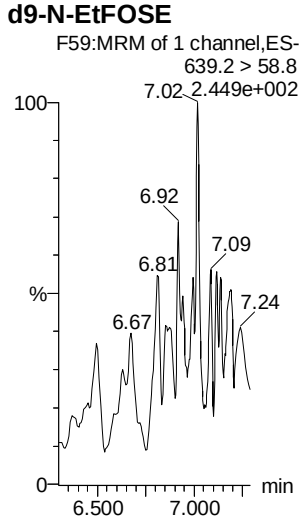
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE



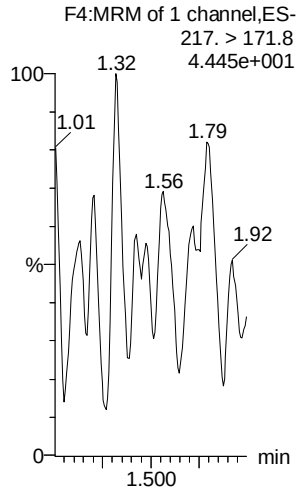
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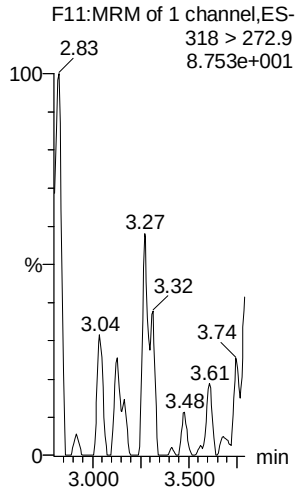
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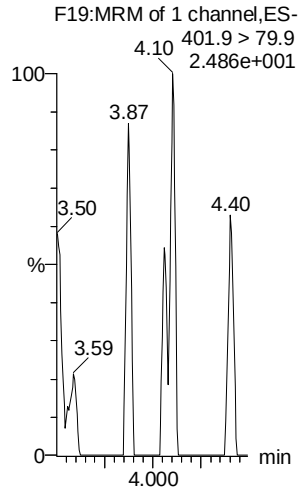
13C4-PFBA



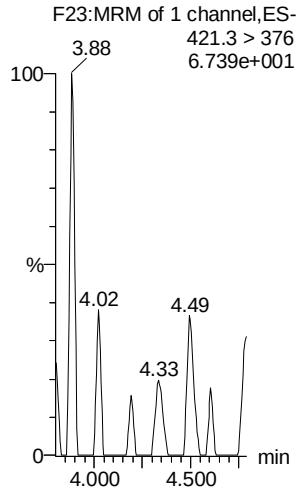
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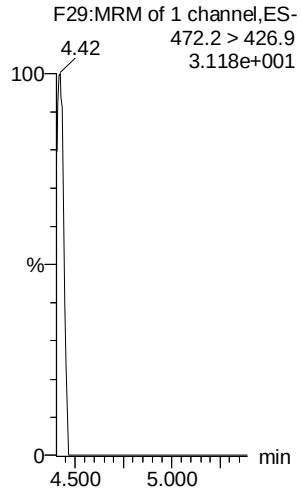
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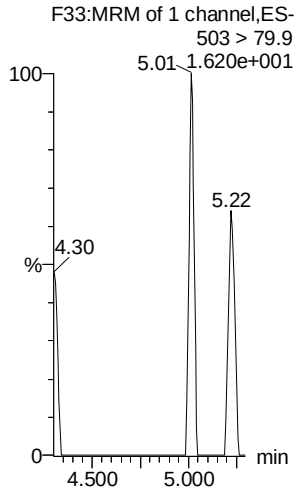
13C8-PFOA



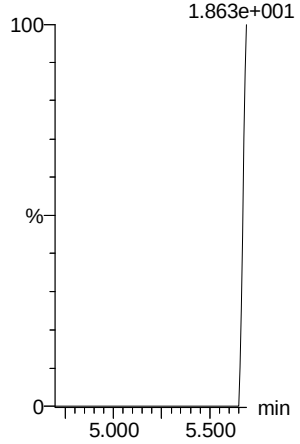
13C9-PFNA



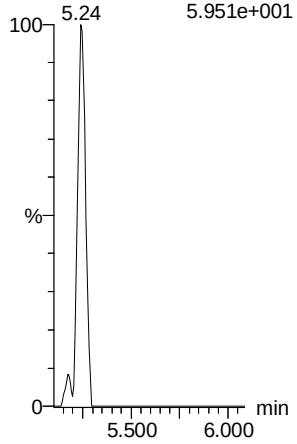
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:14:30 Pacific Daylight Time

high pt
4:2FTS =100
6:2FTS
8:2FTS

low pt
6:2FTS=0.5

PFHpA =250
PFOSA
PFNS

✓ KBF 6/7/18
am 6/7/18

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060618.mdb 07 Jun 2018 11:00:55
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Compound name: PFBA
Correlation coefficient: r = 0.999963, r^2 = 0.999926
Calibration curve: 1.1345 * x + 0.00216471
Response type: Internal Std (Ref 36), 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	180606M2_2	Standard	0.250	1.33	177.185	7777.186	0.285	0.2	-0.4	NO	1.000	NO	MM
2	2	180606M2_3	Standard	0.500	1.33	361.807	7662.256	0.590	0.5	3.7	NO	1.000	NO	MM
3	3	180606M2_4	Standard	1.000	1.33	790.103	8483.255	1.164	1.0	2.4	NO	1.000	NO	MM
4	4	180606M2_5	Standard	2.000	1.33	1439.584	7981.701	2.255	2.0	-0.7	NO	1.000	NO	bb
5	5	180606M2_6	Standard	5.000	1.33	3487.976	7822.446	5.574	4.9	-1.8	NO	1.000	NO	bb
6	6	180606M2_7	Standard	10.000	1.33	8311.948	9282.181	11.193	9.9	-1.4	NO	1.000	NO	bb
7	7	180606M2_8	Standard	50.000	1.33	35426.902	7755.155	57.102	50.3	0.7	NO	1.000	NO	bb
8	8	180606M2_9	Standard	100.000	1.33	70425.469	7904.829	111.365	98.2	-1.8	NO	1.000	NO	bb
9	9	180606M2_10	Standard	250.000	1.33	172944.281	7663.732	282.082	248.6	-0.5	NO	1.000	NO	bb
10	10	180606M2_11	Standard	500.000	1.33	331542.438	7261.293	570.736	503.1	0.6	NO	1.000	NO	bb

Compound name: PFPeA
Correlation coefficient: r = 0.999928, r^2 = 0.999856
Calibration curve: 1.00322 * x + 0.0316741
Response type: Internal Std (Ref 37), 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	180606M2_2	Standard	0.250	2.32	232.037	10483.145	0.277	0.2	-2.3	NO	1.000	NO	bb
2	2	180606M2_3	Standard	0.500	2.31	450.891	10503.514	0.537	0.5	0.7	NO	1.000	NO	bb
3	3	180606M2_4	Standard	1.000	2.31	964.624	11690.527	1.031	1.0	-0.3	NO	1.000	NO	bb
4	4	180606M2_5	Standard	2.000	2.31	1754.542	10994.139	1.995	2.0	-2.2	NO	1.000	NO	bb
5	5	180606M2_6	Standard	5.000	2.31	4316.192	10625.920	5.077	5.0	0.6	NO	1.000	NO	bb
6	6	180606M2_7	Standard	10.000	2.31	10299.227	12316.081	10.453	10.4	3.9	NO	1.000	NO	bb
7	7	180606M2_8	Standard	50.000	2.31	42736.309	10410.896	51.312	51.1	2.2	NO	1.000	NO	bb
8	8	180606M2_9	Standard	100.000	2.31	84501.172	10768.060	98.092	97.7	-2.3	NO	1.000	NO	bb
9	9	180606M2_10	Standard	250.000	2.31	202496.594	10182.377	248.587	247.8	-0.9	NO	1.000	NO	bb

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:14:30 Pacific Daylight Time

Compound name: PFPeA

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
10	10 180606M2_11	Standard	500.000	2.31	375561.625	9302.312	504.662	503.0	0.6	NO	1.000	NO	bb

Compound name: PFBS
Coefficient of Determination: R^2 = 0.999934
Calibration curve: 2.30679e-006 * x^2 + 2.03725 * x + -0.0700934
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 180606M2_2	Standard	0.250	2.60	50.018	1203.442	0.520	0.3	15.8	NO	1.000	NO	MM
2	2 180606M2_3	Standard	0.500	2.61	83.427	1153.463	0.904	0.5	-4.4	NO	1.000	NO	bb
3	3 180606M2_4	Standard	1.000	2.60	205.938	1315.213	1.957	1.0	-0.5	NO	1.000	NO	bb
4	4 180606M2_5	Standard	2.000	2.60	375.980	1268.493	3.705	1.9	-7.3	NO	1.000	NO	bb
5	5 180606M2_6	Standard	5.000	2.59	982.674	1220.360	10.065	5.0	-0.5	NO	1.000	NO	bb
6	6 180606M2_7	Standard	10.000	2.59	2291.833	1440.545	19.887	9.8	-2.0	NO	1.000	NO	bb
7	7 180606M2_8	Standard	50.000	2.59	9792.567	1227.479	99.722	49.0	-2.0	NO	1.000	NO	bb
8	8 180606M2_9	Standard	100.000	2.59	19279.682	1177.845	204.608	100.5	0.5	NO	1.000	NO	bb
9	9 180606M2_10	Standard	250.000	2.60	46195.230	1125.406	513.095	251.8	0.7	NO	1.000	NO	bb
10	10 180606M2_11	Standard	500.000	2.59	85046.984	1045.000	1017.308	499.1	-0.2	NO	1.000	NO	bb

Compound name: 4:2 FTS
Coefficient of Determination: R^2 = 0.999129
Calibration curve: -0.00430261 * x^2 + 1.05566 * x + -0.100102
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 180606M2_2	Standard	0.250	3.02	42.250	2990.656	0.177	0.3	5.0	NO	0.999	NO	MM
2	2 180606M2_3	Standard	0.500	3.01	104.940	2870.421	0.457	0.5	5.8	NO	0.999	NO	bb
3	3 180606M2_4	Standard	1.000	3.01	248.719	3392.918	0.916	1.0	-3.3	NO	0.999	NO	bb
4	4 180606M2_5	Standard	2.000	3.00	474.910	3124.514	1.900	1.9	-4.5	NO	0.999	NO	bb
5	5 180606M2_6	Standard	5.000	3.00	1193.524	3213.721	4.642	4.6	-8.4	NO	0.999	NO	bb
6	6 180606M2_7	Standard	10.000	3.00	3046.840	3600.054	10.579	10.6	5.7	NO	0.999	NO	bb
7	7 180606M2_8	Standard	50.000	3.01	11714.637	3493.834	41.912	50.0	-0.0	NO	0.999	NO	bb

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

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Compound name: 4:2 FTS

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
8	8	180606M2_9	Standard	100.000	3.01	20428.500	4091.278	62.415	99.9	-0.1	NO	0.999	NO	bb
9	9	180606M2_10	Standard	250.000	3.01	48052.055	5254.127	114.320			NO	0.999	NO	bbXI
10	10	180606M2_11	Standard	500.000	3.01	88063.125	6857.819	160.516			NO	0.999	NO	bbXI

Compound name: PFHxA
Coefficient of Determination: R^2 = 0.999871
Calibration curve: -0.000134295 * x^2 + 1.50293 * x + 0.0525257
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	180606M2_2	Standard	0.250	3.09	342.281	3680.990	0.465	0.3	9.8	NO	1.000	NO	bb
2	2	180606M2_3	Standard	0.500	3.09	562.947	3619.003	0.778	0.5	-3.5	NO	1.000	NO	bb
3	3	180606M2_4	Standard	1.000	3.09	1251.290	3840.126	1.629	1.0	4.9	NO	1.000	NO	bb
4	4	180606M2_5	Standard	2.000	3.09	2123.635	3708.397	2.863	1.9	-6.5	NO	1.000	NO	bb
5	5	180606M2_6	Standard	5.000	3.09	5314.436	3422.868	7.763	5.1	2.7	NO	1.000	NO	bb
6	6	180606M2_7	Standard	10.000	3.09	13408.017	4185.071	16.019	10.6	6.3	NO	1.000	NO	bb
7	7	180606M2_8	Standard	50.000	3.09	54056.066	3538.441	76.384	51.0	2.0	NO	1.000	NO	bb
8	8	180606M2_9	Standard	100.000	3.09	104844.383	3575.760	146.604	98.4	-1.6	NO	1.000	NO	bb
9	9	180606M2_10	Standard	250.000	3.09	253982.453	3465.416	366.453	249.3	-0.3	NO	1.000	NO	bb
10	10	180606M2_11	Standard	500.000	3.09	474634.969	3301.945	718.720	500.6	0.1	NO	1.000	NO	bb

Compound name: PFPeS
Correlation coefficient: r = 0.999961, r^2 = 0.999922
Calibration curve: 1.82694 * x + -0.11189
Response type: Internal Std (Ref 38), 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	180606M2_2	Standard	0.250	3.30	33.817	1203.442	0.351	0.3	1.4	NO	1.000	NO	MM
2	2	180606M2_3	Standard	0.500	3.30	65.861	1153.463	0.714	0.5	-9.6	NO	1.000	NO	bb
3	3	180606M2_4	Standard	1.000	3.29	192.806	1315.213	1.832	1.1	6.4	NO	1.000	NO	bb
4	4	180606M2_5	Standard	2.000	3.29	373.969	1268.493	3.685	2.1	3.9	NO	1.000	NO	bb
5	5	180606M2_6	Standard	5.000	3.29	844.911	1220.360	8.654	4.8	-4.0	NO	1.000	NO	bb

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Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

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Compound name: PFPeS

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
6	6	180606M2_7	Standard	10.000	3.29	2146.573	1440.545	18.626	10.3	2.6	NO	1.000	NO	bb
7	7	180606M2_8	Standard	50.000	3.29	8935.681	1227.479	90.996	49.9	-0.3	NO	1.000	NO	bb
8	8	180606M2_9	Standard	100.000	3.29	17238.289	1177.845	182.943	100.2	0.2	NO	1.000	NO	bb
9	9	180606M2_10	Standard	250.000	3.30	40654.910	1125.406	451.558	247.2	-1.1	NO	1.000	NO	bb
10	10	180606M2_11	Standard	500.000	3.29	76746.844	1045.000	918.024	502.6	0.5	NO	1.000	NO	bb

Compound name: PFHpA
Coefficient of Determination: R^2 = 0.999926
Calibration curve: -0.000418493 * x^2 + 1.22618 * x + -0.0205846
Response type: Internal Std (Ref 41), 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	180606M2_2	Standard	0.250	3.71	214.766	9512.477	0.282	0.2	-1.2	NO	1.000	NO	bb
2	2	180606M2_3	Standard	0.500	3.71	479.810	9479.930	0.633	0.5	6.6	NO	1.000	NO	bb
3	3	180606M2_4	Standard	1.000	3.71	1072.481	10469.780	1.280	1.1	6.1	NO	1.000	NO	bb
4	4	180606M2_5	Standard	2.000	3.71	1796.424	10083.788	2.227	1.8	-8.3	NO	1.000	NO	bb
5	5	180606M2_6	Standard	5.000	3.71	4558.667	9562.926	5.959	4.9	-2.3	NO	1.000	NO	bb
6	6	180606M2_7	Standard	10.000	3.71	11350.727	11813.939	12.010	9.8	-1.6	NO	1.000	NO	bb
7	7	180606M2_8	Standard	50.000	3.71	47684.566	9851.771	60.503	50.2	0.4	NO	1.000	NO	bb
8	8	180606M2_9	Standard	100.000	3.71	89548.273	9426.133	118.750	100.3	0.3	NO	1.000	NO	bb
9	9	180606M2_10	Standard	250.000	3.71	213113.844	9507.410	280.194	249.8	-0.1	NO	1.000	NO	bb
10	10	180606M2_11	Standard	500.000	3.71	410744.344	7989.597	642.624	683.6	36.7	YES	1.000	NO	bbX

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Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

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Compound name: L-PFHxS
Coefficient of Determination: R^2 = 0.999773
Calibration curve: -0.000504996 * x^2 + 1.98959 * x + -0.235591
Response type: Internal Std (Ref 42), 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	180606M2_2	Standard	0.250	3.86	29.719	1035.746	0.359	0.3	19.5	NO	1.000	NO	MM
2	2	180606M2_3	Standard	0.500	3.87	61.836	1062.573	0.727	0.5	-3.2	NO	1.000	NO	MM
3	3	180606M2_4	Standard	1.000	3.86	174.733	1120.867	1.949	1.1	9.8	NO	1.000	NO	MM
4	4	180606M2_5	Standard	2.000	3.86	279.423	1163.269	3.003	1.6	-18.6	NO	1.000	NO	MM
5	5	180606M2_6	Standard	5.000	3.86	802.384	1086.347	9.233	4.8	-4.7	NO	1.000	NO	MM
6	6	180606M2_7	Standard	10.000	3.86	2013.354	1309.813	19.214	9.8	-2.0	NO	1.000	NO	MM
7	7	180606M2_8	Standard	50.000	3.86	7939.297	1041.277	95.307	48.6	-2.8	NO	1.000	NO	MM
8	8	180606M2_9	Standard	100.000	3.86	15658.669	996.102	196.499	101.5	1.5	NO	1.000	NO	MM
9	9	180606M2_10	Standard	250.000	3.86	38020.852	1014.340	468.542	251.7	0.7	NO	1.000	NO	MM
10	10	180606M2_11	Standard	500.000	3.86	69332.531	1000.119	866.554	498.8	-0.2	NO	1.000	NO	MM

Compound name: 6:2 FTS
Coefficient of Determination: R^2 = 0.997412
Calibration curve: -0.00361429 * x^2 + 1.02708 * x + -0.0162032
Response type: Internal Std (Ref 43), 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	180606M2_2	Standard	0.250	4.18	61.070	3160.684	0.242	0.3	0.5	NO	0.997	NO	bb
2	2	180606M2_3	Standard	0.500	4.18	138.768	3149.125	0.551	0.6	10.6	NO	0.997	NO	bb
3	3	180606M2_4	Standard	1.000	4.17	257.531	3378.789	0.953	0.9	-5.3	NO	0.997	NO	bb
4	4	180606M2_5	Standard	2.000	4.17	555.794	3201.727	2.170	2.1	7.2	NO	0.997	NO	bb
5	5	180606M2_6	Standard	5.000	4.17	1162.970	3095.195	4.697	4.7	-6.7	NO	0.997	NO	bb
6	6	180606M2_7	Standard	10.000	4.17	2774.287	3893.605	8.907	9.0	-10.3	NO	0.997	NO	bb
7	7	180606M2_8	Standard	50.000	4.17	12046.514	3390.013	44.419	53.2	6.5	NO	0.997	NO	bb
8	8	180606M2_9	Standard	100.000	4.17	21945.793	4181.592	65.602	97.0	-3.0	NO	0.997	NO	bb
9	9	180606M2_10	Standard	250.000	4.17	54671.762	5272.453	129.617			NO	0.997	NO	bbXI
10	10	180606M2_11	Standard	500.000	4.17	96148.797	7339.344	163.756			NO	0.997	NO	bbXI

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

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Compound name: L-PFOA
Coefficient of Determination: R^2 = 0.999424
Calibration curve: -0.000132122 * x^2 + 0.964706 * x + 0.0441882
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	180606M2_2	Standard	0.250	4.24	261.775	13179.849	0.248	0.2	-15.4	NO	0.999	NO	bb
2	2	180606M2_3	Standard	0.500	4.23	628.443	13667.166	0.575	0.6	10.0	NO	0.999	NO	bb
3	3	180606M2_4	Standard	1.000	4.23	1312.686	15490.549	1.059	1.1	5.2	NO	0.999	NO	bb
4	4	180606M2_5	Standard	2.000	4.23	2082.711	14101.065	1.846	1.9	-6.6	NO	0.999	NO	bb
5	5	180606M2_6	Standard	5.000	4.23	5336.970	14224.214	4.690	4.8	-3.6	NO	0.999	NO	bb
6	6	180606M2_7	Standard	10.000	4.23	12991.056	15853.278	10.243	10.6	5.9	NO	0.999	NO	bb
7	7	180606M2_8	Standard	50.000	4.23	56165.480	13626.719	51.521	53.8	7.5	NO	0.999	NO	bb
8	8	180606M2_9	Standard	100.000	4.23	107071.219	14260.732	93.851	98.6	-1.4	NO	0.999	NO	bb
9	9	180606M2_10	Standard	250.000	4.23	260937.203	14302.788	228.047	244.5	-2.2	NO	0.999	NO	bb
10	10	180606M2_11	Standard	500.000	4.23	464561.438	12855.162	451.727	502.8	0.6	NO	0.999	NO	bb

Compound name: PFHpS
Coefficient of Determination: R^2 = 0.999053
Calibration curve: -3.75942e-005 * x^2 + 0.17416 * x + -0.00354737
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	180606M2_2	Standard	0.250	4.35	33.682	13179.849	0.032	0.2	-18.5	NO	0.999	NO	MM
2	2	180606M2_3	Standard	0.500	4.34	99.867	13667.166	0.091	0.5	9.0	NO	0.999	NO	bb
3	3	180606M2_4	Standard	1.000	4.35	179.555	15490.549	0.145	0.9	-14.8	NO	0.999	NO	bb
4	4	180606M2_5	Standard	2.000	4.34	420.148	14101.065	0.372	2.2	8.0	NO	0.999	NO	bb
5	5	180606M2_6	Standard	5.000	4.34	1029.136	14224.214	0.904	5.2	4.4	NO	0.999	NO	bb
6	6	180606M2_7	Standard	10.000	4.34	2369.780	15853.278	1.869	10.8	7.7	NO	0.999	NO	bb
7	7	180606M2_8	Standard	50.000	4.34	9887.115	13626.719	9.070	52.7	5.4	NO	0.999	NO	bb
8	8	180606M2_9	Standard	100.000	4.34	19842.627	14260.732	17.393	102.1	2.1	NO	0.999	NO	bb
9	9	180606M2_10	Standard	250.000	4.34	45137.691	14302.788	39.448	238.8	-4.5	NO	0.999	NO	bb
10	10	180606M2_11	Standard	500.000	4.34	80655.266	12855.162	78.427	505.5	1.1	NO	0.999	NO	bb

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Compound name: PFNA
Coefficient of Determination: R^2 = 0.999861
Calibration curve: -0.000147724 * x^2 + 1.26209 * x + 0.0151814
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	180606M2_2	Standard	0.250	4.68	274.041	11057.647	0.310	0.2	-6.6	NO	1.000	NO	bb
2	2	180606M2_3	Standard	0.500	4.67	538.049	11135.390	0.604	0.5	-6.7	NO	1.000	NO	bb
3	3	180606M2_4	Standard	1.000	4.66	1264.050	12177.443	1.298	1.0	1.6	NO	1.000	NO	bb
4	4	180606M2_5	Standard	2.000	4.66	2461.314	11966.160	2.571	2.0	1.3	NO	1.000	NO	bb
5	5	180606M2_6	Standard	5.000	4.66	5846.289	10871.185	6.722	5.3	6.4	NO	1.000	NO	bb
6	6	180606M2_7	Standard	10.000	4.66	12837.450	12365.553	12.977	10.3	2.8	NO	1.000	NO	bb
7	7	180606M2_8	Standard	50.000	4.66	57394.977	11080.885	64.745	51.6	3.2	NO	1.000	NO	bb
8	8	180606M2_9	Standard	100.000	4.66	103324.609	10501.831	122.984	98.6	-1.4	NO	1.000	NO	bb
9	9	180606M2_10	Standard	250.000	4.67	257697.328	10593.792	304.066	248.1	-0.8	NO	1.000	NO	bb
10	10	180606M2_11	Standard	500.000	4.66	477375.313	10022.301	595.391	501.1	0.2	NO	1.000	NO	bb

Compound name: PFOSA
Coefficient of Determination: R^2 = 0.999796
Calibration curve: 0.000304771 * x^2 + 0.922061 * x + -0.0577663
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	180606M2_2	Standard	0.250	4.75	29.541	3056.974	0.121	0.2	-22.5	NO	1.000	NO	MM
2	2	180606M2_3	Standard	0.500	4.74	117.346	2851.387	0.514	0.6	24.1	NO	1.000	NO	bb
3	3	180606M2_4	Standard	1.000	4.74	240.608	3481.029	0.864	1.0	-0.1	NO	1.000	NO	bb
4	4	180606M2_5	Standard	2.000	4.73	457.932	3165.306	1.808	2.0	1.1	NO	1.000	NO	bb
5	5	180606M2_6	Standard	5.000	4.73	1025.552	3010.177	4.259	4.7	-6.5	NO	1.000	NO	bb
6	6	180606M2_7	Standard	10.000	4.73	2703.287	3547.403	9.526	10.4	3.6	NO	1.000	NO	bb
7	7	180606M2_8	Standard	50.000	4.73	10728.279	2831.358	47.364	50.6	1.2	NO	1.000	NO	bb
8	8	180606M2_9	Standard	100.000	4.73	20981.043	2781.650	94.283	99.1	-0.9	NO	1.000	NO	bb
9	9	180606M2_10	Standard	250.000	4.73	49294.445	2467.170	249.752	250.2	0.1	NO	1.000	NO	bb
10	10	180606M2_11	Standard	500.000	4.73	86247.531	2407.804	447.750	425.7	-14.9	NO	1.000	NO	bbX

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Compound name: L-PFOS
Coefficient of Determination: R^2 = 0.999147
Calibration curve: 0.000107269 * x^2 + 0.935815 * x + 0.0260535
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	180606M2_2	Standard	0.250	4.75	52.403	2573.667	0.255	0.2	-2.4	NO	0.999	NO	MM
2	2	180606M2_3	Standard	0.500	4.75	111.242	2447.529	0.568	0.6	15.8	NO	0.999	NO	MM
3	3	180606M2_4	Standard	1.000	4.75	222.000	2905.106	0.955	1.0	-0.7	NO	0.999	NO	MM
4	4	180606M2_5	Standard	2.000	4.75	344.795	2619.194	1.646	1.7	-13.5	NO	0.999	NO	MM
5	5	180606M2_6	Standard	5.000	4.75	946.749	2511.577	4.712	5.0	0.1	NO	0.999	NO	MM
6	6	180606M2_7	Standard	10.000	4.75	2272.750	2943.056	9.653	10.3	2.8	NO	0.999	NO	MM
7	7	180606M2_8	Standard	50.000	4.75	9579.377	2742.568	43.661	46.4	-7.2	NO	0.999	NO	MM
8	8	180606M2_9	Standard	100.000	4.75	18975.998	2350.881	100.898	106.5	6.5	NO	0.999	NO	MM
9	9	180606M2_10	Standard	250.000	4.75	46210.473	2439.688	236.764	246.0	-1.6	NO	0.999	NO	MM
10	10	180606M2_11	Standard	500.000	4.75	89538.688	2257.407	495.805	501.0	0.2	NO	0.999	NO	MM

Compound name: PFDA
Coefficient of Determination: R^2 = 0.999818
Calibration curve: 2.09961e-005 * x^2 + 0.962592 * x + 0.0405964
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	180606M2_2	Standard	0.250	5.05	276.410	12936.714	0.267	0.2	-5.9	NO	1.000	NO	bb
2	2	180606M2_3	Standard	0.500	5.04	641.254	13967.376	0.574	0.6	10.8	NO	1.000	NO	bb
3	3	180606M2_4	Standard	1.000	5.04	1049.936	15838.193	0.829	0.8	-18.1	NO	1.000	NO	bb
4	4	180606M2_5	Standard	2.000	5.04	2332.456	14122.532	2.064	2.1	5.1	NO	1.000	NO	bb
5	5	180606M2_6	Standard	5.000	5.04	5458.659	13474.172	5.064	5.2	4.4	NO	1.000	NO	bb
6	6	180606M2_7	Standard	10.000	5.04	11893.146	15107.130	9.841	10.2	1.8	NO	1.000	NO	bb
7	7	180606M2_8	Standard	50.000	5.04	51260.738	12797.849	50.068	51.9	3.8	NO	1.000	NO	bb
8	8	180606M2_9	Standard	100.000	5.04	107564.273	14107.418	95.308	98.8	-1.2	NO	1.000	NO	bb
9	9	180606M2_10	Standard	250.000	5.04	243759.281	12699.721	239.926	247.9	-0.9	NO	1.000	NO	bb
10	10	180606M2_11	Standard	500.000	5.04	493965.875	12661.288	487.673	501.1	0.2	NO	1.000	NO	bb

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Compound name: 8:2 FTS
Coefficient of Determination: R^2 = 0.994263
Calibration curve: -0.00694077 * x^2 + 1.69686 * x + -0.526669
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	180606M2_2	Standard	0.250	5.00	37.371	2429.918	0.192	0.4	69.8	YES	0.994	NO	MMX
2	2	180606M2_3	Standard	0.500	5.02	96.153	2333.777	0.515	0.6	23.1	NO	0.994	NO	bb
3	3	180606M2_4	Standard	1.000	5.00	280.556	2791.703	1.256	1.1	5.5	NO	0.994	NO	bb
4	4	180606M2_5	Standard	2.000	5.00	521.557	2559.407	2.547	1.8	-8.7	NO	0.994	NO	bb
5	5	180606M2_6	Standard	5.000	5.00	1305.830	2599.321	6.280	4.1	-18.4	NO	0.994	NO	bb
6	6	180606M2_7	Standard	10.000	5.01	3728.311	3183.042	14.641	9.3	-7.1	NO	0.994	NO	bb
7	7	180606M2_8	Standard	50.000	5.00	14195.052	2470.759	71.815	55.0	10.0	NO	0.994	NO	bb
8	8	180606M2_9	Standard	100.000	5.00	26656.436	3416.916	97.516	93.7	-6.3	NO	0.994	NO	bb
9	9	180606M2_10	Standard	250.000	5.00	58652.797	4277.777	171.388			NO	0.994	NO	bbXI
10	10	180606M2_11	Standard	500.000	5.00	107777.305	6113.688	220.361			NO	0.994	NO	bbXI

Compound name: PFNS
Coefficient of Determination: R^2 = 0.999117
Calibration curve: -0.000467511 * x^2 + 0.889848 * x + -0.0931108
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	180606M2_2	Standard	0.250	5.12	21.214	2573.667	0.103	0.2	-11.8	NO	0.999	NO	MM
2	2	180606M2_3	Standard	0.500	5.09	82.623	2447.529	0.422	0.6	15.8	NO	0.999	NO	bb
3	3	180606M2_4	Standard	1.000	5.10	218.800	2905.106	0.941	1.2	16.3	NO	0.999	NO	bb
4	4	180606M2_5	Standard	2.000	5.10	316.198	2619.194	1.509	1.8	-9.9	NO	0.999	NO	bb
5	5	180606M2_6	Standard	5.000	5.10	819.065	2511.577	4.076	4.7	-6.1	NO	0.999	NO	bb
6	6	180606M2_7	Standard	10.000	5.10	1982.179	2943.056	8.419	9.6	-3.9	NO	0.999	NO	bb
7	7	180606M2_8	Standard	50.000	5.10	9120.575	2742.568	41.570	48.0	-3.9	NO	0.999	NO	bb
8	8	180606M2_9	Standard	100.000	5.10	16435.271	2350.881	87.389	104.0	4.0	NO	0.999	NO	bb
9	9	180606M2_10	Standard	250.000	5.10	37518.961	2439.688	192.232	248.6	-0.6	NO	0.999	NO	bb
10	10	180606M2_11	Standard	500.000	5.10	73651.156	2257.407	407.831	769.6	53.9	YES	0.999	NO	bbX

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Compound name: L-MeFOSAA
Coefficient of Determination: R^2 = 0.998895
Calibration curve: 2.9069e-005 * x^2 + 1.40576 * x + 0.0487161
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	180606M2_2	Standard	0.250	5.20	113.897	4376.343	0.325	0.2	-21.3	NO	0.999	NO	MM
2	2	180606M2_3	Standard	0.500	5.20	231.534	4366.329	0.663	0.4	-12.6	NO	0.999	NO	MM
3	3	180606M2_4	Standard	1.000	5.19	569.652	4294.792	1.658	1.1	14.5	NO	0.999	NO	MM
4	4	180606M2_5	Standard	2.000	5.18	950.312	4056.303	2.929	2.0	2.4	NO	0.999	NO	MM
5	5	180606M2_6	Standard	5.000	5.19	2539.254	3951.248	8.033	5.7	13.6	NO	0.999	NO	MM
6	6	180606M2_7	Standard	10.000	5.19	6845.375	4973.269	17.205	12.2	22.0	NO	0.999	NO	MM
7	7	180606M2_8	Standard	50.000	5.18	25364.936	4797.947	66.083	46.9	-6.1	NO	0.999	NO	MM
8	8	180606M2_9	Standard	100.000	5.19	52659.527	4533.250	145.204	103.0	3.0	NO	0.999	NO	MM
9	9	180606M2_10	Standard	250.000	5.19	119348.117	4310.982	346.058	244.9	-2.0	NO	0.999	NO	MM
10	10	180606M2_11	Standard	500.000	5.19	229236.047	4017.047	713.323	502.2	0.4	NO	0.999	NO	MM

Compound name: L-EtFOSAA
Coefficient of Determination: R^2 = 0.999788
Calibration curve: 3.11192e-005 * x^2 + 1.03008 * x + -0.0812856
Response type: Internal Std (Ref 51), 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	180606M2_2	Standard	0.250	5.35	57.369	4936.693	0.145	0.2	-12.0	NO	1.000	NO	MM
2	2	180606M2_3	Standard	0.500	5.35	163.945	5263.193	0.389	0.5	-8.6	NO	1.000	NO	MM
3	3	180606M2_4	Standard	1.000	5.35	351.157	5074.782	0.865	0.9	-8.1	NO	1.000	NO	MM
4	4	180606M2_5	Standard	2.000	5.35	689.833	4813.884	1.791	1.8	-9.1	NO	1.000	NO	MM
5	5	180606M2_6	Standard	5.000	5.35	1883.410	4562.179	5.160	5.1	1.8	NO	1.000	NO	MM
6	6	180606M2_7	Standard	10.000	5.35	4901.481	5849.305	10.474	10.2	2.4	NO	1.000	NO	MM
7	7	180606M2_8	Standard	50.000	5.35	21603.441	5153.620	52.399	50.9	1.7	NO	1.000	NO	MM
8	8	180606M2_9	Standard	100.000	5.35	37255.039	4430.296	105.114	101.8	1.8	NO	1.000	NO	MM
9	9	180606M2_10	Standard	250.000	5.35	91126.234	4470.780	254.783	245.6	-1.8	NO	1.000	NO	MM
10	10	180606M2_11	Standard	500.000	5.34	161959.609	3859.358	524.568	501.7	0.3	NO	1.000	NO	MM

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Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

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Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060618.mdb 07 Jun 2018 11:00:55
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Compound name: PFUdA
Correlation coefficient: r = 0.999685, r^2 = 0.999371
Calibration curve: 0.951255 * x + 0.113297
Response type: Internal Std (Ref 52), 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	180606M2_2	Standard	0.250	5.37	308.802	12475.155	0.309	0.2	-17.5	NO	0.999	NO	bb
2	2	180606M2_3	Standard	0.500	5.36	478.729	12149.885	0.493	0.4	-20.3	NO	0.999	NO	bb
3	3	180606M2_4	Standard	1.000	5.36	1269.682	13015.151	1.219	1.2	16.3	NO	0.999	NO	bb
4	4	180606M2_5	Standard	2.000	5.36	2273.155	12956.334	2.193	2.2	9.3	NO	0.999	NO	bb
5	5	180606M2_6	Standard	5.000	5.36	5155.394	12432.334	5.183	5.3	6.6	NO	0.999	NO	bb
6	6	180606M2_7	Standard	10.000	5.36	11452.533	15250.499	9.387	9.7	-2.5	NO	0.999	NO	bb
7	7	180606M2_8	Standard	50.000	5.36	49857.363	12139.122	51.340	53.9	7.7	NO	0.999	NO	bb
8	8	180606M2_9	Standard	100.000	5.36	97957.938	12759.544	95.965	100.8	0.8	NO	0.999	NO	bb
9	9	180606M2_10	Standard	250.000	5.36	225141.109	11682.225	240.901	253.1	1.3	NO	0.999	NO	bb
10	10	180606M2_11	Standard	500.000	5.36	448594.906	11978.961	468.107	492.0	-1.6	NO	0.999	NO	bb

Compound name: PFDS
Coefficient of Determination: R^2 = 0.999791
Calibration curve: -7.97249e-005 * x^2 + 0.210894 * x + -0.0104181
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	180606M2_2	Standard	0.250	5.41	40.748	12475.155	0.041	0.2	-2.8	NO	1.000	NO	MM
2	2	180606M2_3	Standard	0.500	5.42	94.382	12149.885	0.097	0.5	2.0	NO	1.000	NO	bb
3	3	180606M2_4	Standard	1.000	5.41	188.907	13015.151	0.181	0.9	-9.0	NO	1.000	NO	bb
4	4	180606M2_5	Standard	2.000	5.41	422.254	12956.334	0.407	2.0	-0.9	NO	1.000	NO	bb
5	5	180606M2_6	Standard	5.000	5.41	1092.191	12432.334	1.098	5.3	5.3	NO	1.000	NO	bb
6	6	180606M2_7	Standard	10.000	5.41	2747.707	15250.499	2.252	10.8	7.7	NO	1.000	NO	bb
7	7	180606M2_8	Standard	50.000	5.41	9910.207	12139.122	10.205	49.4	-1.3	NO	1.000	NO	bb
8	8	180606M2_9	Standard	100.000	5.41	20310.506	12759.544	19.897	98.0	-2.0	NO	1.000	NO	bb
9	9	180606M2_10	Standard	250.000	5.41	45042.406	11682.225	48.195	252.7	1.1	NO	1.000	NO	bb

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Compound name: PFDS

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
10	10	180606M2_11	Standard	500.000	5.41	81800.602	11978.961	85.359	498.9	-0.2	NO	1.000	NO	bb

Compound name: PFDoA
Coefficient of Determination: R^2 = 0.998369
Calibration curve: -2.93002e-005 * x^2 + 1.14201 * x + 0.0599611
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	180606M2_2	Standard	0.250	5.65	329.623	13720.087	0.300	0.2	-15.8	NO	0.998	NO	bb
2	2	180606M2_3	Standard	0.500	5.64	603.883	12262.280	0.616	0.5	-2.7	NO	0.998	NO	bb
3	3	180606M2_4	Standard	1.000	5.64	1340.893	13316.993	1.259	1.0	5.0	NO	0.998	NO	bb
4	4	180606M2_5	Standard	2.000	5.64	2427.925	12304.349	2.467	2.1	5.4	NO	0.998	NO	bb
5	5	180606M2_6	Standard	5.000	5.64	5443.757	12357.347	5.507	4.8	-4.6	NO	0.998	NO	bb
6	6	180606M2_7	Standard	10.000	5.64	14917.435	15182.565	12.282	10.7	7.0	NO	0.998	NO	bb
7	7	180606M2_8	Standard	50.000	5.64	58610.133	12283.308	59.644	52.2	4.5	NO	0.998	NO	bb
8	8	180606M2_9	Standard	100.000	5.64	118124.219	12230.034	120.732	106.0	6.0	NO	0.998	NO	bb
9	9	180606M2_10	Standard	250.000	5.64	261655.563	12249.251	267.012	235.2	-5.9	NO	0.998	NO	bb
10	10	180606M2_11	Standard	500.000	5.64	514582.063	11275.295	570.475	506.1	1.2	NO	0.998	NO	bb

Compound name: N-MeFOSA
Coefficient of Determination: R^2 = 0.999865
Calibration curve: -4.85509e-005 * x^2 + 1.07555 * x + 0.10055
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	180606M2_2	Standard	1.250	5.84	155.891	16082.222	1.454	1.3	0.7	NO	1.000	NO	bb
2	2	180606M2_3	Standard	2.500	5.84	273.034	15323.124	2.673	2.4	-4.3	NO	1.000	NO	bb
3	3	180606M2_4	Standard	5.000	5.83	647.827	17288.033	5.621	5.1	2.7	NO	1.000	NO	bb
4	4	180606M2_5	Standard	10.000	5.84	1160.636	16068.291	10.835	10.0	-0.2	NO	1.000	NO	bb
5	5	180606M2_6	Standard	25.000	5.84	2805.043	15515.770	27.118	25.1	0.6	NO	1.000	NO	bb
6	6	180606M2_7	Standard	50.000	5.84	7080.727	18228.291	58.267	54.2	8.4	NO	1.000	NO	MM
7	7	180606M2_8	Standard	250.000	5.84	27567.467	15576.434	265.473	249.5	-0.2	NO	1.000	NO	bb

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Compound name: N-MeFOSA

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
8	8	180606M2_9	Standard	500.000	5.83	54679.660	15509.506	528.834	503.0	0.6	NO	1.000	NO	bb
9	9	180606M2_10	Standard	1250.000	5.84	127578.977	15243.663	1255.397	1236.1	-1.1	NO	1.000	NO	bb
10	10	180606M2_11	Standard	2500.000	5.83	231891.656	14544.662	2391.513	2507.2	0.3	NO	1.000	NO	bb

Compound name: PFTrDA
Coefficient of Determination: R^2 = 0.999952
Calibration curve: -0.000114408 * x^2 + 1.15632 * x + 0.0550033
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	180606M2_2	Standard	0.250	5.89	381.618	13720.087	0.348	0.3	1.2	NO	1.000	NO	bb
2	2	180606M2_3	Standard	0.500	5.89	633.186	12262.280	0.645	0.5	2.1	NO	1.000	NO	bb
3	3	180606M2_4	Standard	1.000	5.88	1322.218	13316.993	1.241	1.0	2.6	NO	1.000	NO	MM
4	4	180606M2_5	Standard	2.000	5.89	2222.228	12304.349	2.258	1.9	-4.7	NO	1.000	NO	bb
5	5	180606M2_6	Standard	5.000	5.88	5609.406	12357.347	5.674	4.9	-2.8	NO	1.000	NO	bb
6	6	180606M2_7	Standard	10.000	5.88	14276.080	15182.565	11.754	10.1	1.3	NO	1.000	NO	bb
7	7	180606M2_8	Standard	50.000	5.88	57258.609	12283.308	58.269	50.6	1.2	NO	1.000	NO	bb
8	8	180606M2_9	Standard	100.000	5.88	110599.969	12230.034	113.041	98.7	-1.3	NO	1.000	NO	bb
9	9	180606M2_10	Standard	250.000	5.88	277630.406	12249.251	283.314	251.2	0.5	NO	1.000	NO	bb
10	10	180606M2_11	Standard	500.000	5.88	495375.531	11275.295	549.182	499.6	-0.1	NO	1.000	NO	bb

Compound name: PFTeDA
Coefficient of Determination: R^2 = 0.999877
Calibration curve: -0.000202583 * x^2 + 1.14174 * x + 0.0540258
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	180606M2_2	Standard	0.250	6.11	302.564	12421.180	0.304	0.2	-12.3	NO	1.000	NO	bb
2	2	180606M2_3	Standard	0.500	6.10	586.659	12006.059	0.611	0.5	-2.5	NO	1.000	NO	bb
3	3	180606M2_4	Standard	1.000	6.10	1348.221	12830.489	1.313	1.1	10.3	NO	1.000	NO	bb
4	4	180606M2_5	Standard	2.000	6.10	2179.730	12461.347	2.186	1.9	-6.6	NO	1.000	NO	bb
5	5	180606M2_6	Standard	5.000	6.10	5343.234	10732.074	6.223	5.4	8.2	NO	1.000	NO	bb

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Compound name: PFTeDA

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
6	6	180606M2_7	Standard	10.000	6.10	13032.205	13806.814	11.799	10.3	3.1	NO	1.000	NO	bb
7	7	180606M2_8	Standard	50.000	6.10	53043.254	11564.396	57.335	50.6	1.2	NO	1.000	NO	bb
8	8	180606M2_9	Standard	100.000	6.10	100246.844	11347.115	110.432	98.4	-1.6	NO	1.000	NO	bb
9	9	180606M2_10	Standard	250.000	6.10	241130.938	11042.439	272.959	250.1	0.1	NO	1.000	NO	bb
10	10	180606M2_11	Standard	500.000	6.10	487561.688	11709.270	520.487	500.2	0.0	NO	1.000	NO	bb

Compound name: N-EtFOSA
Coefficient of Determination: R^2 = 0.999985
Calibration curve: -4.98957e-006 * x^2 + 0.94367 * x + -0.0927262
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	180606M2_2	Standard	1.250	6.23	177.146	23620.074	1.125	1.3	3.2	NO	1.000	NO	bb
2	2	180606M2_3	Standard	2.500	6.23	344.399	23600.947	2.189	2.4	-3.3	NO	1.000	NO	MM
3	3	180606M2_4	Standard	5.000	6.23	785.181	26018.023	4.527	4.9	-2.1	NO	1.000	NO	bb
4	4	180606M2_5	Standard	10.000	6.23	1540.386	23887.080	9.673	10.3	3.5	NO	1.000	NO	bb
5	5	180606M2_6	Standard	25.000	6.23	3621.516	23175.855	23.439	24.9	-0.2	NO	1.000	NO	bb
6	6	180606M2_7	Standard	50.000	6.23	8790.326	28104.588	46.916	49.8	-0.3	NO	1.000	NO	bb
7	7	180606M2_8	Standard	250.000	6.23	36282.887	23381.852	232.763	247.1	-1.2	NO	1.000	NO	bb
8	8	180606M2_9	Standard	500.000	6.23	72042.195	22931.516	471.244	500.8	0.2	NO	1.000	NO	bb
9	9	180606M2_10	Standard	1250.000	6.23	164044.469	20932.955	1175.499	1254.1	0.3	NO	1.000	NO	db
10	10	180606M2_11	Standard	2500.000	6.23	287304.875	18526.844	2326.124	2498.1	-0.1	NO	1.000	NO	bb

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Compound name: PFHxDA
Coefficient of Determination: R^2 = 0.999797
Calibration curve: -8.12065e-005 * x^2 + 0.670329 * x + 0.0348309
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	180606M2_2	Standard	0.250	6.45	349.500	7857.074	0.222	0.3	11.9	NO	1.000	NO	bb
2	2	180606M2_3	Standard	0.500	6.44	518.474	7832.306	0.331	0.4	-11.6	NO	1.000	NO	bb
3	3	180606M2_4	Standard	1.000	6.44	1239.687	8690.982	0.713	1.0	1.2	NO	1.000	NO	bb
4	4	180606M2_5	Standard	2.000	6.44	2057.863	7784.843	1.322	1.9	-4.0	NO	1.000	NO	MM
5	5	180606M2_6	Standard	5.000	6.44	5295.382	7598.710	3.484	5.1	3.0	NO	1.000	NO	bb
6	6	180606M2_7	Standard	10.000	6.44	12605.400	9144.915	6.892	10.2	2.4	NO	1.000	NO	bb
7	7	180606M2_8	Standard	50.000	6.44	47739.961	7366.894	32.402	48.6	-2.9	NO	1.000	NO	bb
8	8	180606M2_9	Standard	100.000	6.44	94994.219	7279.137	65.251	98.5	-1.5	NO	1.000	NO	bb
9	9	180606M2_10	Standard	250.000	6.44	237447.656	7175.140	165.466	254.6	1.9	NO	1.000	NO	bb
10	10	180606M2_11	Standard	500.000	6.44	443392.094	7066.523	313.727	498.0	-0.4	NO	1.000	NO	bb

Compound name: PFODA
Coefficient of Determination: R^2 = 0.999778
Calibration curve: -0.000104837 * x^2 + 0.787581 * x + -0.0259677
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	180606M2_2	Standard	0.250	6.68	281.105	7857.074	0.179	0.3	4.0	NO	1.000	NO	bb
2	2	180606M2_3	Standard	0.500	6.68	560.664	7832.306	0.358	0.5	-2.5	NO	1.000	NO	bb
3	3	180606M2_4	Standard	1.000	6.67	1271.046	8690.982	0.731	1.0	-3.8	NO	1.000	NO	bb
4	4	180606M2_5	Standard	2.000	6.67	2330.568	7784.843	1.497	1.9	-3.3	NO	1.000	NO	bb
5	5	180606M2_6	Standard	5.000	6.67	5592.181	7598.710	3.680	4.7	-5.8	NO	1.000	NO	bb
6	6	180606M2_7	Standard	10.000	6.67	13870.272	9144.915	7.584	9.7	-3.3	NO	1.000	NO	bb
7	7	180606M2_8	Standard	50.000	6.67	59446.957	7366.894	40.347	51.6	3.2	NO	1.000	NO	bb
8	8	180606M2_9	Standard	100.000	6.67	110143.617	7279.137	75.657	97.4	-2.6	NO	1.000	NO	bb
9	9	180606M2_10	Standard	250.000	6.67	276131.031	7175.140	192.422	252.9	1.1	NO	1.000	NO	bb
10	10	180606M2_11	Standard	500.000	6.67	518386.656	7066.523	366.790	498.9	-0.2	NO	1.000	NO	bb

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Compound name: N-MeFOSE
Correlation coefficient: r = 0.998810, r^2 = 0.997622
Calibration curve: 0.944668 * x + -0.12551
Response type: Internal Std (Ref 58), 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	180606M2_2	Standard	1.250	6.38	193.352	23601.014	1.229	1.4	14.7	NO	0.998	NO	bb
2	2	180606M2_3	Standard	2.500	6.37	319.615	21134.082	2.268	2.5	1.4	NO	0.998	NO	bb
3	3	180606M2_4	Standard	5.000	6.37	695.872	25479.484	4.097	4.5	-10.6	NO	0.998	NO	bb
4	4	180606M2_5	Standard	10.000	6.37	1307.304	23156.014	8.468	9.1	-9.0	NO	0.998	NO	bb
5	5	180606M2_6	Standard	25.000	6.37	3554.559	22809.092	23.376	24.9	-0.5	NO	0.998	NO	bb
6	6	180606M2_7	Standard	50.000	6.37	7234.823	19808.225	54.787	58.1	16.3	NO	0.998	NO	bb
7	7	180606M2_8	Standard	250.000	6.37	28148.875	21573.430	195.719	207.3	-17.1	NO	0.998	NO	bb
8	8	180606M2_9	Standard	500.000	6.37	70065.531	21142.615	497.092	526.3	5.3	NO	0.998	NO	MM
9	9	180606M2_10	Standard	1250.000	6.37	163338.984	21077.207	1162.433	1230.7	-1.5	NO	0.998	NO	bb
10	10	180606M2_11	Standard	2500.000	6.37	302575.938	18999.293	2388.846	2528.9	1.2	NO	0.998	NO	bb

Compound name: N-EtFOSE
Coefficient of Determination: R^2 = 0.999144
Calibration curve: -9.29024e-006 * x^2 + 1.1078 * x + 0.102011
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	180606M2_2	Standard	1.250	6.52	207.998	22068.779	1.414	1.2	-5.3	NO	0.999	NO	MM
2	2	180606M2_3	Standard	2.500	6.52	385.714	19757.746	2.928	2.6	2.1	NO	0.999	NO	bb
3	3	180606M2_4	Standard	5.000	6.52	909.034	23062.811	5.912	5.2	4.9	NO	0.999	NO	bb
4	4	180606M2_5	Standard	10.000	6.52	1669.339	22279.260	11.239	10.1	0.5	NO	0.999	NO	bb
5	5	180606M2_6	Standard	25.000	6.51	4197.757	23537.316	26.752	24.1	-3.8	NO	0.999	NO	bb
6	6	180606M2_7	Standard	50.000	6.52	9884.550	27960.549	53.028	47.8	-4.4	NO	0.999	NO	bb
7	7	180606M2_8	Standard	250.000	6.51	43047.363	22233.205	290.426	262.7	5.1	NO	0.999	NO	bb
8	8	180606M2_9	Standard	500.000	6.52	80641.984	21059.482	574.387	520.7	4.1	NO	0.999	NO	bb
9	9	180606M2_10	Standard	1250.000	6.51	190459.719	21723.752	1315.102	1199.1	-4.1	NO	0.999	NO	bb
10	10	180606M2_11	Standard	2500.000	6.52	350334.688	19226.051	2733.281	2520.5	0.8	NO	0.999	NO	bb

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

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Compound name: 13C3-PFBA
Response Factor: 0.870327
RRF SD: 0.0134387, Relative SD: 1.5441
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	180606M2_2	Standard	12.500	1.34	7777.186	9021.506	10.776	12.4	-0.9	NO		NO	bb
2	2	180606M2_3	Standard	12.500	1.34	7662.256	8949.171	10.702	12.3	-1.6	NO		NO	bb
3	3	180606M2_4	Standard	12.500	1.34	8483.255	9616.927	11.026	12.7	1.4	NO		NO	bb
4	4	180606M2_5	Standard	12.500	1.33	7981.701	9125.460	10.933	12.6	0.5	NO		NO	bb
5	5	180606M2_6	Standard	12.500	1.33	7822.446	8948.399	10.927	12.6	0.4	NO		NO	bb
6	6	180606M2_7	Standard	12.500	1.33	9282.181	10559.325	10.988	12.6	1.0	NO		NO	bb
7	7	180606M2_8	Standard	12.500	1.34	7755.155	8881.307	10.915	12.5	0.3	NO		NO	bb
8	8	180606M2_9	Standard	12.500	1.34	7904.829	8846.516	11.169	12.8	2.7	NO		NO	bb
9	9	180606M2_10	Standard	12.500	1.33	7663.732	8928.356	10.729	12.3	-1.4	NO		NO	bb
10	10	180606M2_11	Standard	12.500	1.33	7261.293	8543.877	10.624	12.2	-2.3	NO		NO	bb

Compound name: 13C3-PFPeA
Response Factor: 0.869751
RRF SD: 0.0221301, Relative SD: 2.54442
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	180606M2_2	Standard	12.500	2.32	10483.145	12213.237	10.729	12.3	-1.3	NO		NO	bb
2	2	180606M2_3	Standard	12.500	2.31	10503.514	12065.569	10.882	12.5	0.1	NO		NO	bb
3	3	180606M2_4	Standard	12.500	2.31	11690.527	13348.229	10.948	12.6	0.7	NO		NO	bb
4	4	180606M2_5	Standard	12.500	2.31	10994.139	12795.249	10.740	12.3	-1.2	NO		NO	bb
5	5	180606M2_6	Standard	12.500	2.31	10625.920	12125.490	10.954	12.6	0.8	NO		NO	bb
6	6	180606M2_7	Standard	12.500	2.30	12316.081	14436.190	10.664	12.3	-1.9	NO		NO	bb
7	7	180606M2_8	Standard	12.500	2.31	10410.896	12562.079	10.359	11.9	-4.7	NO		NO	bb
8	8	180606M2_9	Standard	12.500	2.31	10768.060	11796.510	11.410	13.1	5.0	NO		NO	bb
9	9	180606M2_10	Standard	12.500	2.31	10182.377	11583.050	10.988	12.6	1.1	NO		NO	bb
10	10	180606M2_11	Standard	12.500	2.31	9302.312	10529.329	11.043	12.7	1.6	NO		NO	bb

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

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Compound name: 13C3-PFBS
Response Factor: 0.0986202
RRF SD: 0.00148018, Relative SD: 1.50089
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	180606M2_2	Standard	12.500	2.60	1203.442	12213.237	1.232	12.5	-0.1	NO		NO	bb
2	2	180606M2_3	Standard	12.500	2.60	1153.463	12065.569	1.195	12.1	-3.1	NO		NO	bb
3	3	180606M2_4	Standard	12.500	2.60	1315.213	13348.229	1.232	12.5	-0.1	NO		NO	bb
4	4	180606M2_5	Standard	12.500	2.60	1268.493	12795.249	1.239	12.6	0.5	NO		NO	bb
5	5	180606M2_6	Standard	12.500	2.59	1220.360	12125.490	1.258	12.8	2.1	NO		NO	bb
6	6	180606M2_7	Standard	12.500	2.60	1440.545	14436.190	1.247	12.6	1.2	NO		NO	bb
7	7	180606M2_8	Standard	12.500	2.60	1227.479	12562.079	1.221	12.4	-0.9	NO		NO	bb
8	8	180606M2_9	Standard	12.500	2.60	1177.845	11796.510	1.248	12.7	1.2	NO		NO	bb
9	9	180606M2_10	Standard	12.500	2.59	1125.406	11583.050	1.214	12.3	-1.5	NO		NO	bb
10	10	180606M2_11	Standard	12.500	2.60	1045.000	10529.329	1.241	12.6	0.6	NO		NO	bb

Compound name: 13C2-4:2 FTS
Response Factor: 0.265064
RRF SD: 0.0354571, Relative SD: 13.3768
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	180606M2_2	Standard	12.500	3.01	2990.656	12213.237	3.061	11.5	-7.6	NO		NO	bb
2	2	180606M2_3	Standard	12.500	3.01	2870.421	12065.569	2.974	11.2	-10.2	NO		NO	bb
3	3	180606M2_4	Standard	12.500	3.01	3392.918	13348.229	3.177	12.0	-4.1	NO		NO	bb
4	4	180606M2_5	Standard	12.500	3.00	3124.514	12795.249	3.052	11.5	-7.9	NO		NO	bb
5	5	180606M2_6	Standard	12.500	3.01	3213.721	12125.490	3.313	12.5	-0.0	NO		NO	bb
6	6	180606M2_7	Standard	12.500	3.00	3600.054	14436.190	3.117	11.8	-5.9	NO		NO	bb
7	7	180606M2_8	Standard	12.500	3.01	3493.834	12562.079	3.477	13.1	4.9	NO		NO	bb
8	8	180606M2_9	Standard	12.500	3.01	4091.278	11796.510	4.335	16.4	30.8	NO		NO	bb
9	9	180606M2_10	Standard	12.500	3.01	5254.127	11583.050	5.670	21.4	71.1	NO		NO	bbX
10	10	180606M2_11	Standard	12.500	3.01	6857.819	10529.329	8.141	30.7	145.7	NO		NO	bbX

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Compound name: 13C2-PFHxA
Response Factor: 0.737153
RRF SD: 0.0255453, Relative SD: 3.46539
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	180606M2_2	Standard	5.000	3.10	3680.990	12213.237	3.767	5.1	2.2	NO		NO	bb
2	2	180606M2_3	Standard	5.000	3.09	3619.003	12065.569	3.749	5.1	1.7	NO		NO	bb
3	3	180606M2_4	Standard	5.000	3.09	3840.126	13348.229	3.596	4.9	-2.4	NO		NO	bb
4	4	180606M2_5	Standard	5.000	3.09	3708.397	12795.249	3.623	4.9	-1.7	NO		NO	bb
5	5	180606M2_6	Standard	5.000	3.09	3422.868	12125.490	3.529	4.8	-4.3	NO		NO	bb
6	6	180606M2_7	Standard	5.000	3.09	4185.071	14436.190	3.624	4.9	-1.7	NO		NO	bb
7	7	180606M2_8	Standard	5.000	3.09	3538.441	12562.079	3.521	4.8	-4.5	NO		NO	bb
8	8	180606M2_9	Standard	5.000	3.09	3575.760	11796.510	3.789	5.1	2.8	NO		NO	bb
9	9	180606M2_10	Standard	5.000	3.09	3465.416	11583.050	3.740	5.1	1.5	NO		NO	bb
10	10	180606M2_11	Standard	5.000	3.09	3301.945	10529.329	3.920	5.3	6.4	NO		NO	bb

Compound name: 13C4-PFHpA
Response Factor: 0.790694
RRF SD: 0.0183085, Relative SD: 2.3155
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	180606M2_2	Standard	12.500	3.71	9512.477	12213.237	9.736	12.3	-1.5	NO		NO	bb
2	2	180606M2_3	Standard	12.500	3.71	9479.930	12065.569	9.821	12.4	-0.6	NO		NO	bb
3	3	180606M2_4	Standard	12.500	3.71	10469.780	13348.229	9.804	12.4	-0.8	NO		NO	bb
4	4	180606M2_5	Standard	12.500	3.71	10083.788	12795.249	9.851	12.5	-0.3	NO		NO	bb
5	5	180606M2_6	Standard	12.500	3.71	9562.926	12125.490	9.858	12.5	-0.3	NO		NO	bb
6	6	180606M2_7	Standard	12.500	3.71	11813.939	14436.190	10.229	12.9	3.5	NO		NO	bb
7	7	180606M2_8	Standard	12.500	3.71	9851.771	12562.079	9.803	12.4	-0.8	NO		NO	bb
8	8	180606M2_9	Standard	12.500	3.71	9426.133	11796.510	9.988	12.6	1.1	NO		NO	bb
9	9	180606M2_10	Standard	12.500	3.71	9507.410	11583.050	10.260	13.0	3.8	NO		NO	bb
10	10	180606M2_11	Standard	12.500	3.71	7989.597	10529.329	9.485	12.0	-4.0	NO		NO	bb

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

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Compound name: 18O2-PFHxS
Response Factor: 0.442002
RRF SD: 0.0263863, Relative SD: 5.96971
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	180606M2_2	Standard	12.500	3.86	1035.746	2521.025	5.136	11.6	-7.0	NO		NO	bb
2	2	180606M2_3	Standard	12.500	3.86	1062.573	2506.215	5.300	12.0	-4.1	NO		NO	bb
3	3	180606M2_4	Standard	12.500	3.86	1120.867	2598.988	5.391	12.2	-2.4	NO		NO	bb
4	4	180606M2_5	Standard	12.500	3.86	1163.269	2417.698	6.014	13.6	8.9	NO		NO	bb
5	5	180606M2_6	Standard	12.500	3.86	1086.347	2436.195	5.574	12.6	0.9	NO		NO	bb
6	6	180606M2_7	Standard	12.500	3.86	1309.813	2736.844	5.982	13.5	8.3	NO		NO	bb
7	7	180606M2_8	Standard	12.500	3.86	1041.277	2491.595	5.224	11.8	-5.4	NO		NO	bb
8	8	180606M2_9	Standard	12.500	3.86	996.102	2193.432	5.677	12.8	2.7	NO		NO	bb
9	9	180606M2_10	Standard	12.500	3.86	1014.340	2453.033	5.169	11.7	-6.4	NO		NO	bb
10	10	180606M2_11	Standard	12.500	3.86	1000.119	2161.334	5.784	13.1	4.7	NO		NO	bb

Compound name: 13C2-6:2 FTS
Response Factor: 0.306485
RRF SD: 0.0342199, Relative SD: 11.1653
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	180606M2_2	Standard	12.500	4.18	3160.684	11112.456	3.555	11.6	-7.2	NO		NO	bb
2	2	180606M2_3	Standard	12.500	4.17	3149.125	10947.850	3.596	11.7	-6.1	NO		NO	bb
3	3	180606M2_4	Standard	12.500	4.17	3378.789	11663.195	3.621	11.8	-5.5	NO		NO	bb
4	4	180606M2_5	Standard	12.500	4.17	3201.727	10767.363	3.717	12.1	-3.0	NO		NO	bb
5	5	180606M2_6	Standard	12.500	4.17	3095.195	10556.323	3.665	12.0	-4.3	NO		NO	bb
6	6	180606M2_7	Standard	12.500	4.17	3893.605	13087.399	3.719	12.1	-2.9	NO		NO	bb
7	7	180606M2_8	Standard	12.500	4.17	3390.013	10802.341	3.923	12.8	2.4	NO		NO	bb
8	8	180606M2_9	Standard	12.500	4.17	4181.592	10771.344	4.853	15.8	26.7	NO		NO	bb
9	9	180606M2_10	Standard	12.500	4.17	5272.453	11189.403	5.890	19.2	53.7	NO		NO	bbX
10	10	180606M2_11	Standard	12.500	4.17	7339.344	9458.304	9.700	31.6	153.2	NO		NO	bbX

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Compound name: 13C2-PFOA
Response Factor: 1.28538
RRF SD: 0.0582529, Relative SD: 4.53196
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	180606M2_2	Standard	12.500	4.23	13179.849	11112.456	14.826	11.5	-7.7	NO		NO	bb
2	2	180606M2_3	Standard	12.500	4.23	13667.166	10947.850	15.605	12.1	-2.9	NO		NO	bb
3	3	180606M2_4	Standard	12.500	4.23	15490.549	11663.195	16.602	12.9	3.3	NO		NO	bb
4	4	180606M2_5	Standard	12.500	4.23	14101.065	10767.363	16.370	12.7	1.9	NO		NO	bb
5	5	180606M2_6	Standard	12.500	4.23	14224.214	10556.323	16.843	13.1	4.8	NO		NO	bb
6	6	180606M2_7	Standard	12.500	4.23	15853.278	13087.399	15.142	11.8	-5.8	NO		NO	bb
7	7	180606M2_8	Standard	12.500	4.23	13626.719	10802.341	15.768	12.3	-1.9	NO		NO	bb
8	8	180606M2_9	Standard	12.500	4.23	14260.732	10771.344	16.549	12.9	3.0	NO		NO	bb
9	9	180606M2_10	Standard	12.500	4.23	14302.788	11189.403	15.978	12.4	-0.6	NO		NO	bb
10	10	180606M2_11	Standard	12.500	4.23	12855.162	9458.304	16.989	13.2	5.7	NO		NO	bb

Compound name: 13C5-PFNA
Response Factor: 0.930363
RRF SD: 0.0391606, Relative SD: 4.20918
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	180606M2_2	Standard	12.500	4.67	11057.647	12226.986	11.305	12.2	-2.8	NO		NO	bb
2	2	180606M2_3	Standard	12.500	4.67	11135.390	11723.763	11.873	12.8	2.1	NO		NO	bb
3	3	180606M2_4	Standard	12.500	4.66	12177.443	13771.153	11.053	11.9	-5.0	NO		NO	bb
4	4	180606M2_5	Standard	12.500	4.67	11966.160	12145.791	12.315	13.2	5.9	NO		NO	bb
5	5	180606M2_6	Standard	12.500	4.66	10871.185	12129.898	11.203	12.0	-3.7	NO		NO	bb
6	6	180606M2_7	Standard	12.500	4.66	12365.553	13476.981	11.469	12.3	-1.4	NO		NO	bb
7	7	180606M2_8	Standard	12.500	4.66	11080.885	12504.790	11.077	11.9	-4.8	NO		NO	bb
8	8	180606M2_9	Standard	12.500	4.66	10501.831	11301.531	11.615	12.5	-0.1	NO		NO	bb
9	9	180606M2_10	Standard	12.500	4.67	10593.792	10991.116	12.048	12.9	3.6	NO		NO	bb
10	10	180606M2_11	Standard	12.500	4.66	10022.301	10154.438	12.337	13.3	6.1	NO		NO	bb

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Compound name: 13C8-PFOSA
Response Factor: 0.237438
RRF SD: 0.0229753, Relative SD: 9.67633
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	180606M2_2	Standard	12.500	4.74	3056.974	11654.897	3.279	13.8	10.5	NO		NO	bb
2	2	180606M2_3	Standard	12.500	4.74	2851.387	11754.814	3.032	12.8	2.2	NO		NO	bb
3	3	180606M2_4	Standard	12.500	4.73	3481.029	13487.583	3.226	13.6	8.7	NO		NO	bb
4	4	180606M2_5	Standard	12.500	4.73	3165.306	12392.864	3.193	13.4	7.6	NO		NO	bb
5	5	180606M2_6	Standard	12.500	4.74	3010.177	11473.639	3.279	13.8	10.5	NO		NO	bb
6	6	180606M2_7	Standard	12.500	4.74	3547.403	15667.469	2.830	11.9	-4.6	NO		NO	bb
7	7	180606M2_8	Standard	12.500	4.74	2831.358	12772.020	2.771	11.7	-6.6	NO		NO	bb
8	8	180606M2_9	Standard	12.500	4.74	2781.650	11665.687	2.981	12.6	0.4	NO		NO	bb
9	9	180606M2_10	Standard	12.500	4.74	2467.170	12480.646	2.471	10.4	-16.7	NO		NO	bb
10	10	180606M2_11	Standard	12.500	4.73	2407.804	11497.285	2.618	11.0	-11.8	NO		NO	bb

Compound name: 13C8-PFOS
Response Factor: 1.03851
RRF SD: 0.106119, Relative SD: 10.2184
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	180606M2_2	Standard	12.500	4.75	2573.667	2555.982	12.586	12.1	-3.0	NO		NO	bb
2	2	180606M2_3	Standard	12.500	4.75	2447.529	2384.486	12.830	12.4	-1.2	NO		NO	bb
3	3	180606M2_4	Standard	12.500	4.75	2905.106	2456.079	14.785	14.2	13.9	NO		NO	bb
4	4	180606M2_5	Standard	12.500	4.75	2619.194	2529.219	12.945	12.5	-0.3	NO		NO	bb
5	5	180606M2_6	Standard	12.500	4.75	2511.577	2396.632	13.100	12.6	0.9	NO		NO	bb
6	6	180606M2_7	Standard	12.500	4.75	2943.056	3125.999	11.768	11.3	-9.3	NO		NO	bb
7	7	180606M2_8	Standard	12.500	4.74	2742.568	2231.633	15.362	14.8	18.3	NO		NO	bb
8	8	180606M2_9	Standard	12.500	4.75	2350.881	2726.467	10.778	10.4	-17.0	NO		NO	bb
9	9	180606M2_10	Standard	12.500	4.75	2439.688	2457.090	12.411	12.0	-4.4	NO		NO	bb
10	10	180606M2_11	Standard	12.500	4.75	2257.407	2130.119	13.247	12.8	2.0	NO		NO	bb

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Compound name: 13C2-PFDA
Response Factor: 1.14438
RRF SD: 0.0590212, Relative SD: 5.15751
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	180606M2_2	Standard	12.500	5.04	12936.714	12063.084	13.405	11.7	-6.3	NO		NO	bb
2	2	180606M2_3	Standard	12.500	5.04	13967.376	12157.146	14.361	12.5	0.4	NO		NO	bb
3	3	180606M2_4	Standard	12.500	5.04	15838.193	13488.243	14.678	12.8	2.6	NO		NO	bb
4	4	180606M2_5	Standard	12.500	5.04	14122.532	12559.279	14.056	12.3	-1.7	NO		NO	bb
5	5	180606M2_6	Standard	12.500	5.04	13474.172	11133.315	15.128	13.2	5.8	NO		NO	bb
6	6	180606M2_7	Standard	12.500	5.04	15107.130	13530.316	13.957	12.2	-2.4	NO		NO	bb
7	7	180606M2_8	Standard	12.500	5.03	12797.849	12374.633	12.928	11.3	-9.6	NO		NO	bb
8	8	180606M2_9	Standard	12.500	5.04	14107.418	12026.601	14.663	12.8	2.5	NO		NO	bb
9	9	180606M2_10	Standard	12.500	5.04	12699.721	10894.023	14.572	12.7	1.9	NO		NO	bb
10	10	180606M2_11	Standard	12.500	5.04	12661.288	10344.429	15.300	13.4	7.0	NO		NO	bb

Compound name: 13C2-8:2 FTS
Response Factor: 0.215344
RRF SD: 0.0314409, Relative SD: 14.6003
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	180606M2_2	Standard	12.500	5.01	2429.918	12213.237	2.487	11.5	-7.6	NO		NO	bb
2	2	180606M2_3	Standard	12.500	5.01	2333.777	12065.569	2.418	11.2	-10.2	NO		NO	bb
3	3	180606M2_4	Standard	12.500	5.00	2791.703	13348.229	2.614	12.1	-2.9	NO		NO	bb
4	4	180606M2_5	Standard	12.500	5.00	2559.407	12795.249	2.500	11.6	-7.1	NO		NO	bb
5	5	180606M2_6	Standard	12.500	5.01	2599.321	12125.490	2.680	12.4	-0.5	NO		NO	bb
6	6	180606M2_7	Standard	12.500	5.00	3183.042	14436.190	2.756	12.8	2.4	NO		NO	bb
7	7	180606M2_8	Standard	12.500	5.01	2470.759	12562.079	2.459	11.4	-8.7	NO		NO	bb
8	8	180606M2_9	Standard	12.500	5.01	3416.916	11796.510	3.621	16.8	34.5	NO		NO	bb
9	9	180606M2_10	Standard	12.500	5.00	4277.777	11583.050	4.616	21.4	71.5	NO		NO	bbX
10	10	180606M2_11	Standard	12.500	5.00	6113.688	10529.329	7.258	33.7	169.6	NO		NO	bbX

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Compound name: d3-N-MeFOSAA
Response Factor: 0.351354
RRF SD: 0.0255295, Relative SD: 7.26601
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	180606M2_2	Standard	12.500	5.19	4376.343	11654.897	4.694	13.4	6.9	NO		NO	bb
2	2	180606M2_3	Standard	12.500	5.19	4366.329	11754.814	4.643	13.2	5.7	NO		NO	bb
3	3	180606M2_4	Standard	12.500	5.18	4294.792	13487.583	3.980	11.3	-9.4	NO		NO	bb
4	4	180606M2_5	Standard	12.500	5.18	4056.303	12392.864	4.091	11.6	-6.8	NO		NO	bb
5	5	180606M2_6	Standard	12.500	5.19	3951.248	11473.639	4.305	12.3	-2.0	NO		NO	bb
6	6	180606M2_7	Standard	12.500	5.18	4973.269	15667.469	3.968	11.3	-9.7	NO		NO	bb
7	7	180606M2_8	Standard	12.500	5.19	4797.947	12772.020	4.696	13.4	6.9	NO		NO	bb
8	8	180606M2_9	Standard	12.500	5.18	4533.250	11665.687	4.857	13.8	10.6	NO		NO	bb
9	9	180606M2_10	Standard	12.500	5.19	4310.982	12480.646	4.318	12.3	-1.7	NO		NO	bb
10	10	180606M2_11	Standard	12.500	5.18	4017.047	11497.285	4.367	12.4	-0.6	NO		NO	bb

Compound name: d5-N-EtFOSAA
Response Factor: 0.388415
RRF SD: 0.0319934, Relative SD: 8.2369
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	180606M2_2	Standard	12.500	5.35	4936.693	11654.897	5.295	13.6	9.1	NO		NO	bb
2	2	180606M2_3	Standard	12.500	5.34	5263.193	11754.814	5.597	14.4	15.3	NO		NO	bb
3	3	180606M2_4	Standard	12.500	5.34	5074.782	13487.583	4.703	12.1	-3.1	NO		NO	bb
4	4	180606M2_5	Standard	12.500	5.34	4813.884	12392.864	4.855	12.5	0.0	NO		NO	bb
5	5	180606M2_6	Standard	12.500	5.34	4562.179	11473.639	4.970	12.8	2.4	NO		NO	bb
6	6	180606M2_7	Standard	12.500	5.34	5849.305	15667.469	4.667	12.0	-3.9	NO		NO	bb
7	7	180606M2_8	Standard	12.500	5.34	5153.620	12772.020	5.044	13.0	3.9	NO		NO	bb
8	8	180606M2_9	Standard	12.500	5.34	4430.296	11665.687	4.747	12.2	-2.2	NO		NO	bb
9	9	180606M2_10	Standard	12.500	5.34	4470.780	12480.646	4.478	11.5	-7.8	NO		NO	bb
10	10	180606M2_11	Standard	12.500	5.34	3859.358	11497.285	4.196	10.8	-13.6	NO		NO	bb

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Compound name: 13C2-PFUdA
Response Factor: 1.01935
RRF SD: 0.0581358, Relative SD: 5.70322
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	180606M2_2	Standard	12.500	5.37	12475.155	11654.897	13.380	13.1	5.0	NO		NO	bb
2	2	180606M2_3	Standard	12.500	5.36	12149.885	11754.814	12.920	12.7	1.4	NO		NO	bb
3	3	180606M2_4	Standard	12.500	5.36	13015.151	13487.583	12.062	11.8	-5.3	NO		NO	bb
4	4	180606M2_5	Standard	12.500	5.36	12956.334	12392.864	13.068	12.8	2.6	NO		NO	bb
5	5	180606M2_6	Standard	12.500	5.36	12432.334	11473.639	13.544	13.3	6.3	NO		NO	bb
6	6	180606M2_7	Standard	12.500	5.36	15250.499	15667.469	12.167	11.9	-4.5	NO		NO	bb
7	7	180606M2_8	Standard	12.500	5.35	12139.122	12772.020	11.881	11.7	-6.8	NO		NO	bb
8	8	180606M2_9	Standard	12.500	5.36	12759.544	11665.687	13.672	13.4	7.3	NO		NO	bb
9	9	180606M2_10	Standard	12.500	5.36	11682.225	12480.646	11.700	11.5	-8.2	NO		NO	bb
10	10	180606M2_11	Standard	12.500	5.35	11978.961	11497.285	13.024	12.8	2.2	NO		NO	bb

Compound name: 13C2-PFDoA
Response Factor: 1.0569
RRF SD: 0.0650247, Relative SD: 6.1524
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	180606M2_2	Standard	12.500	5.65	13720.087	12063.084	14.217	13.5	7.6	NO		NO	bb
2	2	180606M2_3	Standard	12.500	5.64	12262.280	12157.146	12.608	11.9	-4.6	NO		NO	bb
3	3	180606M2_4	Standard	12.500	5.64	13316.993	13488.243	12.341	11.7	-6.6	NO		NO	bb
4	4	180606M2_5	Standard	12.500	5.64	12304.349	12559.279	12.246	11.6	-7.3	NO		NO	bb
5	5	180606M2_6	Standard	12.500	5.64	12357.347	11133.315	13.874	13.1	5.0	NO		NO	bb
6	6	180606M2_7	Standard	12.500	5.64	15182.565	13530.316	14.026	13.3	6.2	NO		NO	bb
7	7	180606M2_8	Standard	12.500	5.64	12283.308	12374.633	12.408	11.7	-6.1	NO		NO	bb
8	8	180606M2_9	Standard	12.500	5.64	12230.034	12026.601	12.711	12.0	-3.8	NO		NO	bb
9	9	180606M2_10	Standard	12.500	5.64	12249.251	10894.023	14.055	13.3	6.4	NO		NO	bb
10	10	180606M2_11	Standard	12.500	5.64	11275.295	10344.429	13.625	12.9	3.1	NO		NO	bb

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Compound name: d3-N-MeFOSA
Response Factor: 0.106775
RRF SD: 0.00551103, Relative SD: 5.16134
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	180606M2_2	Standard	150.000	5.87	16082.222	11654.897	17.248	161.5	7.7	NO		NO	bb
2	2	180606M2_3	Standard	150.000	5.86	15323.124	11754.814	16.295	152.6	1.7	NO		NO	bb
3	3	180606M2_4	Standard	150.000	5.86	17288.033	13487.583	16.022	150.1	0.0	NO		NO	bd
4	4	180606M2_5	Standard	150.000	5.86	16068.291	12392.864	16.207	151.8	1.2	NO		NO	bb
5	5	180606M2_6	Standard	150.000	5.86	15515.770	11473.639	16.904	158.3	5.5	NO		NO	bb
6	6	180606M2_7	Standard	150.000	5.86	18228.291	15667.469	14.543	136.2	-9.2	NO		NO	bb
7	7	180606M2_8	Standard	150.000	5.86	15576.434	12772.020	15.245	142.8	-4.8	NO		NO	bb
8	8	180606M2_9	Standard	150.000	5.86	15509.506	11665.687	16.619	155.6	3.8	NO		NO	bb
9	9	180606M2_10	Standard	150.000	5.86	15243.663	12480.646	15.267	143.0	-4.7	NO		NO	bd
10	10	180606M2_11	Standard	150.000	5.86	14544.662	11497.285	15.813	148.1	-1.3	NO		NO	bb

Compound name: 13C2-PFTeDA
Response Factor: 0.964188
RRF SD: 0.0631969, Relative SD: 6.55441
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	180606M2_2	Standard	12.500	6.11	12421.180	11654.897	13.322	13.8	10.5	NO		NO	bb
2	2	180606M2_3	Standard	12.500	6.10	12006.059	11754.814	12.767	13.2	5.9	NO		NO	bb
3	3	180606M2_4	Standard	12.500	6.10	12830.489	13487.583	11.891	12.3	-1.3	NO		NO	bb
4	4	180606M2_5	Standard	12.500	6.10	12461.347	12392.864	12.569	13.0	4.3	NO		NO	bb
5	5	180606M2_6	Standard	12.500	6.10	10732.074	11473.639	11.692	12.1	-3.0	NO		NO	bb
6	6	180606M2_7	Standard	12.500	6.10	13806.814	15667.469	11.016	11.4	-8.6	NO		NO	bb
7	7	180606M2_8	Standard	12.500	6.10	11564.396	12772.020	11.318	11.7	-6.1	NO		NO	bb
8	8	180606M2_9	Standard	12.500	6.10	11347.115	11665.687	12.159	12.6	0.9	NO		NO	bb
9	9	180606M2_10	Standard	12.500	6.10	11042.439	12480.646	11.060	11.5	-8.2	NO		NO	bb
10	10	180606M2_11	Standard	12.500	6.10	11709.270	11497.285	12.730	13.2	5.6	NO		NO	bb

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Compound name: d5-N-ETFOSA
Response Factor: 0.156581
RRF SD: 0.0121878, Relative SD: 7.78368
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	180606M2_2	Standard	150.000	6.25	23620.074	11654.897	25.333	161.8	7.9	NO		NO	bb
2	2	180606M2_3	Standard	150.000	6.25	23600.947	11754.814	25.097	160.3	6.9	NO		NO	bb
3	3	180606M2_4	Standard	150.000	6.24	26018.023	13487.583	24.113	154.0	2.7	NO		NO	bb
4	4	180606M2_5	Standard	150.000	6.24	23887.080	12392.864	24.094	153.9	2.6	NO		NO	db
5	5	180606M2_6	Standard	150.000	6.24	23175.855	11473.639	25.249	161.3	7.5	NO		NO	bb
6	6	180606M2_7	Standard	150.000	6.24	28104.588	15667.469	22.423	143.2	-4.5	NO		NO	MM
7	7	180606M2_8	Standard	150.000	6.24	23381.852	12772.020	22.884	146.1	-2.6	NO		NO	db
8	8	180606M2_9	Standard	150.000	6.24	22931.516	11665.687	24.572	156.9	4.6	NO		NO	bb
9	9	180606M2_10	Standard	150.000	6.24	20932.955	12480.646	20.965	133.9	-10.7	NO		NO	bb
10	10	180606M2_11	Standard	150.000	6.24	18526.844	11497.285	20.143	128.6	-14.2	NO		NO	bb

Compound name: 13C2-PFHxDA
Response Factor: 1.56231
RRF SD: 0.093335, Relative SD: 5.97415
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	180606M2_2	Standard	5.000	6.45	7857.074	11654.897	8.427	5.4	7.9	NO		NO	bb
2	2	180606M2_3	Standard	5.000	6.44	7832.306	11754.814	8.329	5.3	6.6	NO		NO	bb
3	3	180606M2_4	Standard	5.000	6.44	8690.982	13487.583	8.055	5.2	3.1	NO		NO	bb
4	4	180606M2_5	Standard	5.000	6.44	7784.843	12392.864	7.852	5.0	0.5	NO		NO	bb
5	5	180606M2_6	Standard	5.000	6.44	7598.710	11473.639	8.278	5.3	6.0	NO		NO	bb
6	6	180606M2_7	Standard	5.000	6.44	9144.915	15667.469	7.296	4.7	-6.6	NO		NO	bb
7	7	180606M2_8	Standard	5.000	6.44	7366.894	12772.020	7.210	4.6	-7.7	NO		NO	bb
8	8	180606M2_9	Standard	5.000	6.44	7279.137	11665.687	7.800	5.0	-0.2	NO		NO	bb
9	9	180606M2_10	Standard	5.000	6.44	7175.140	12480.646	7.186	4.6	-8.0	NO		NO	bb
10	10	180606M2_11	Standard	5.000	6.44	7066.523	11497.285	7.683	4.9	-1.6	NO		NO	bb

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Compound name: d7-N-MeFOSE
Response Factor: 0.147296
RRF SD: 0.0180366, Relative SD: 12.2451
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	180606M2_2	Standard	150.000	6.37	23601.014	11654.897	25.312	171.8	14.6	NO		NO	bb
2	2	180606M2_3	Standard	150.000	6.36	21134.082	11754.814	22.474	152.6	1.7	NO		NO	bb
3	3	180606M2_4	Standard	150.000	6.36	25479.484	13487.583	23.614	160.3	6.9	NO		NO	bb
4	4	180606M2_5	Standard	150.000	6.36	23156.014	12392.864	23.356	158.6	5.7	NO		NO	bb
5	5	180606M2_6	Standard	150.000	6.36	22809.092	11473.639	24.849	168.7	12.5	NO		NO	bb
6	6	180606M2_7	Standard	150.000	6.36	19808.225	15667.469	15.804	107.3	-28.5	NO		NO	bb
7	7	180606M2_8	Standard	150.000	6.36	21573.430	12772.020	21.114	143.3	-4.4	NO		NO	bb
8	8	180606M2_9	Standard	150.000	6.35	21142.615	11665.687	22.655	153.8	2.5	NO		NO	bb
9	9	180606M2_10	Standard	150.000	6.36	21077.207	12480.646	21.110	143.3	-4.5	NO		NO	bb
10	10	180606M2_11	Standard	150.000	6.36	18999.293	11497.285	20.656	140.2	-6.5	NO		NO	bb

Compound name: d9-N-EtFOSE
Response Factor: 0.148974
RRF SD: 0.00947682, Relative SD: 6.36138
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	180606M2_2	Standard	150.000	6.52	22068.779	11654.897	23.669	158.9	5.9	NO		NO	bb
2	2	180606M2_3	Standard	150.000	6.51	19757.746	11754.814	21.010	141.0	-6.0	NO		NO	bb
3	3	180606M2_4	Standard	150.000	6.51	23062.811	13487.583	21.374	143.5	-4.3	NO		NO	bb
4	4	180606M2_5	Standard	150.000	6.51	22279.260	12392.864	22.472	150.8	0.6	NO		NO	bb
5	5	180606M2_6	Standard	150.000	6.51	23537.316	11473.639	25.643	172.1	14.8	NO		NO	bb
6	6	180606M2_7	Standard	150.000	6.51	27960.549	15667.469	22.308	149.7	-0.2	NO		NO	bb
7	7	180606M2_8	Standard	150.000	6.51	22233.205	12772.020	21.760	146.1	-2.6	NO		NO	bb
8	8	180606M2_9	Standard	150.000	6.50	21059.482	11665.687	22.566	151.5	1.0	NO		NO	bb
9	9	180606M2_10	Standard	150.000	6.51	21723.752	12480.646	21.757	146.0	-2.6	NO		NO	bb
10	10	180606M2_11	Standard	150.000	6.51	19226.051	11497.285	20.903	140.3	-6.5	NO		NO	bb

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

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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	180606M2_2	Standard	12.500	1.33	9021.506	9021.506	12.500	12.5	0.0	NO		NO	bb
2	2	180606M2_3	Standard	12.500	1.33	8949.171	8949.171	12.500	12.5	0.0	NO		NO	bb
3	3	180606M2_4	Standard	12.500	1.33	9616.927	9616.927	12.500	12.5	0.0	NO		NO	bb
4	4	180606M2_5	Standard	12.500	1.32	9125.460	9125.460	12.500	12.5	0.0	NO		NO	bb
5	5	180606M2_6	Standard	12.500	1.33	8948.399	8948.399	12.500	12.5	0.0	NO		NO	bb
6	6	180606M2_7	Standard	12.500	1.33	10559.325	10559.325	12.500	12.5	0.0	NO		NO	bb
7	7	180606M2_8	Standard	12.500	1.33	8881.307	8881.307	12.500	12.5	0.0	NO		NO	bb
8	8	180606M2_9	Standard	12.500	1.33	8846.516	8846.516	12.500	12.5	0.0	NO		NO	bb
9	9	180606M2_10	Standard	12.500	1.33	8928.356	8928.356	12.500	12.5	0.0	NO		NO	bb
10	10	180606M2_11	Standard	12.500	1.32	8543.877	8543.877	12.500	12.5	0.0	NO		NO	bb

Compound name: 13C5-PFHxA
Response Factor: 1
RRF SD: 8.27511e-017, Relative SD: 8.27511e-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	180606M2_2	Standard	12.500	3.09	12213.237	12213.237	12.500	12.5	0.0	NO		NO	bb
2	2	180606M2_3	Standard	12.500	3.09	12065.569	12065.569	12.500	12.5	0.0	NO		NO	bb
3	3	180606M2_4	Standard	12.500	3.09	13348.229	13348.229	12.500	12.5	0.0	NO		NO	bb
4	4	180606M2_5	Standard	12.500	3.09	12795.249	12795.249	12.500	12.5	0.0	NO		NO	bb
5	5	180606M2_6	Standard	12.500	3.09	12125.490	12125.490	12.500	12.5	0.0	NO		NO	bb
6	6	180606M2_7	Standard	12.500	3.09	14436.190	14436.190	12.500	12.5	0.0	NO		NO	bb
7	7	180606M2_8	Standard	12.500	3.09	12562.079	12562.079	12.500	12.5	0.0	NO		NO	bb
8	8	180606M2_9	Standard	12.500	3.09	11796.510	11796.510	12.500	12.5	0.0	NO		NO	bb
9	9	180606M2_10	Standard	12.500	3.09	11583.050	11583.050	12.500	12.5	0.0	NO		NO	bb
10	10	180606M2_11	Standard	12.500	3.09	10529.329	10529.329	12.500	12.5	0.0	NO		NO	bb

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

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Compound name: 13C3-PFHxS
Response Factor: 1
RRF SD: 3.70074e-017, Relative SD: 3.70074e-015
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	180606M2_2	Standard	12.500	3.87	2521.025	2521.025	12.500	12.5	0.0	NO		NO	bb
2	2	180606M2_3	Standard	12.500	3.86	2506.215	2506.215	12.500	12.5	0.0	NO		NO	bb
3	3	180606M2_4	Standard	12.500	3.86	2598.988	2598.988	12.500	12.5	0.0	NO		NO	bb
4	4	180606M2_5	Standard	12.500	3.86	2417.698	2417.698	12.500	12.5	0.0	NO		NO	bb
5	5	180606M2_6	Standard	12.500	3.86	2436.195	2436.195	12.500	12.5	0.0	NO		NO	bb
6	6	180606M2_7	Standard	12.500	3.86	2736.844	2736.844	12.500	12.5	0.0	NO		NO	bb
7	7	180606M2_8	Standard	12.500	3.86	2491.595	2491.595	12.500	12.5	0.0	NO		NO	bb
8	8	180606M2_9	Standard	12.500	3.86	2193.432	2193.432	12.500	12.5	0.0	NO		NO	bb
9	9	180606M2_10	Standard	12.500	3.86	2453.033	2453.033	12.500	12.5	0.0	NO		NO	bb
10	10	180606M2_11	Standard	12.500	3.86	2161.334	2161.334	12.500	12.5	0.0	NO		NO	bb

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	180606M2_2	Standard	12.500	4.24	11112.456	11112.456	12.500	12.5	0.0	NO		NO	bb
2	2	180606M2_3	Standard	12.500	4.23	10947.850	10947.850	12.500	12.5	0.0	NO		NO	bb
3	3	180606M2_4	Standard	12.500	4.23	11663.195	11663.195	12.500	12.5	0.0	NO		NO	bb
4	4	180606M2_5	Standard	12.500	4.23	10767.363	10767.363	12.500	12.5	0.0	NO		NO	bb
5	5	180606M2_6	Standard	12.500	4.23	10556.323	10556.323	12.500	12.5	0.0	NO		NO	bb
6	6	180606M2_7	Standard	12.500	4.23	13087.399	13087.399	12.500	12.5	0.0	NO		NO	bb
7	7	180606M2_8	Standard	12.500	4.23	10802.341	10802.341	12.500	12.5	0.0	NO		NO	bb
8	8	180606M2_9	Standard	12.500	4.23	10771.344	10771.344	12.500	12.5	0.0	NO		NO	bb
9	9	180606M2_10	Standard	12.500	4.23	11189.403	11189.403	12.500	12.5	0.0	NO		NO	bb
10	10	180606M2_11	Standard	12.500	4.23	9458.304	9458.304	12.500	12.5	0.0	NO		NO	bb

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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	180606M2_2	Standard	12.500	4.67	12226.986	12226.986	12.500	12.5	0.0	NO		NO	bb
2	2	180606M2_3	Standard	12.500	4.67	11723.763	11723.763	12.500	12.5	0.0	NO		NO	bb
3	3	180606M2_4	Standard	12.500	4.66	13771.153	13771.153	12.500	12.5	0.0	NO		NO	bb
4	4	180606M2_5	Standard	12.500	4.67	12145.791	12145.791	12.500	12.5	0.0	NO		NO	bb
5	5	180606M2_6	Standard	12.500	4.66	12129.898	12129.898	12.500	12.5	0.0	NO		NO	bb
6	6	180606M2_7	Standard	12.500	4.67	13476.981	13476.981	12.500	12.5	0.0	NO		NO	bb
7	7	180606M2_8	Standard	12.500	4.66	12504.790	12504.790	12.500	12.5	0.0	NO		NO	bb
8	8	180606M2_9	Standard	12.500	4.66	11301.531	11301.531	12.500	12.5	0.0	NO		NO	bb
9	9	180606M2_10	Standard	12.500	4.66	10991.116	10991.116	12.500	12.5	0.0	NO		NO	bb
10	10	180606M2_11	Standard	12.500	4.66	10154.438	10154.438	12.500	12.5	0.0	NO		NO	bb

Compound name: 13C4-PFOS
Response Factor: 1
RRF SD: 7.40149e-017, Relative SD: 7.40149e-015
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	180606M2_2	Standard	12.500	4.75	2555.982	2555.982	12.500	12.5	0.0	NO		NO	bb
2	2	180606M2_3	Standard	12.500	4.75	2384.486	2384.486	12.500	12.5	0.0	NO		NO	bb
3	3	180606M2_4	Standard	12.500	4.75	2456.079	2456.079	12.500	12.5	0.0	NO		NO	bb
4	4	180606M2_5	Standard	12.500	4.75	2529.219	2529.219	12.500	12.5	0.0	NO		NO	bb
5	5	180606M2_6	Standard	12.500	4.74	2396.632	2396.632	12.500	12.5	0.0	NO		NO	bb
6	6	180606M2_7	Standard	12.500	4.75	3125.999	3125.999	12.500	12.5	0.0	NO		NO	bb
7	7	180606M2_8	Standard	12.500	4.74	2231.633	2231.633	12.500	12.5	0.0	NO		NO	bb
8	8	180606M2_9	Standard	12.500	4.75	2726.467	2726.467	12.500	12.5	0.0	NO		NO	bb
9	9	180606M2_10	Standard	12.500	4.75	2457.090	2457.090	12.500	12.5	0.0	NO		NO	bb
10	10	180606M2_11	Standard	12.500	4.75	2130.119	2130.119	12.500	12.5	0.0	NO		NO	bb

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

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Compound name: 13C6-PFDA
Response Factor: 1
RRF SD: 3.70074e-017, Relative SD: 3.70074e-015
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	180606M2_2	Standard	12.500	5.04	12063.084	12063.084	12.500	12.5	0.0	NO		NO	bb
2	2	180606M2_3	Standard	12.500	5.04	12157.146	12157.146	12.500	12.5	0.0	NO		NO	bb
3	3	180606M2_4	Standard	12.500	5.04	13488.243	13488.243	12.500	12.5	0.0	NO		NO	bb
4	4	180606M2_5	Standard	12.500	5.03	12559.279	12559.279	12.500	12.5	0.0	NO		NO	bb
5	5	180606M2_6	Standard	12.500	5.04	11133.315	11133.315	12.500	12.5	0.0	NO		NO	bb
6	6	180606M2_7	Standard	12.500	5.04	13530.316	13530.316	12.500	12.5	0.0	NO		NO	bb
7	7	180606M2_8	Standard	12.500	5.04	12374.633	12374.633	12.500	12.5	0.0	NO		NO	bb
8	8	180606M2_9	Standard	12.500	5.04	12026.601	12026.601	12.500	12.5	0.0	NO		NO	bb
9	9	180606M2_10	Standard	12.500	5.04	10894.023	10894.023	12.500	12.5	0.0	NO		NO	bb
10	10	180606M2_11	Standard	12.500	5.04	10344.429	10344.429	12.500	12.5	0.0	NO		NO	bb

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	180606M2_2	Standard	12.500	5.37	11654.897	11654.897	12.500	12.5	0.0	NO		NO	bb
2	2	180606M2_3	Standard	12.500	5.36	11754.814	11754.814	12.500	12.5	0.0	NO		NO	bb
3	3	180606M2_4	Standard	12.500	5.36	13487.583	13487.583	12.500	12.5	0.0	NO		NO	bb
4	4	180606M2_5	Standard	12.500	5.35	12392.864	12392.864	12.500	12.5	0.0	NO		NO	bb
5	5	180606M2_6	Standard	12.500	5.36	11473.639	11473.639	12.500	12.5	0.0	NO		NO	bb
6	6	180606M2_7	Standard	12.500	5.35	15667.469	15667.469	12.500	12.5	0.0	NO		NO	bb
7	7	180606M2_8	Standard	12.500	5.36	12772.020	12772.020	12.500	12.5	0.0	NO		NO	bb
8	8	180606M2_9	Standard	12.500	5.35	11665.687	11665.687	12.500	12.5	0.0	NO		NO	bb
9	9	180606M2_10	Standard	12.500	5.36	12480.646	12480.646	12.500	12.5	0.0	NO		NO	bb
10	10	180606M2_11	Standard	12.500	5.36	11497.285	11497.285	12.500	12.5	0.0	NO		NO	bb

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Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060618.mdb 07 Jun 2018 11:00:55
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180606M2_2, Date: 06-Jun-2018, Time: 17:59:10, ID: ST180606M2-1 PFC CS-2 18E2902, Description: PFC CS-2 18E2902

	#	Name	IS#	CoD	CoD Flag	%RSD
1	1	PFBA	36	0.9999	NO	
2	2	PFPeA	37	0.9999	NO	
3	3	PFBS	38	0.9999	NO	
4	4	4:2 FTS	39	0.9991	NO	
5	5	PFHxA	40	0.9999	NO	
6	6	PFPeS	38	0.9999	NO	
7	7	PFHpA	41	0.9999	NO	
8	8	L-PFHxS	42	0.9998	NO	
9	10	6:2 FTS	43	0.9974	NO	
10	11	L-PFOA	44	0.9994	NO	
11	13	PFHpS	44	0.9991	NO	
12	14	PFNA	45	0.9999	NO	
13	15	PFOSA	46	0.9998	NO	
14	16	L-PFOS	47	0.9991	NO	
15	18	PFDA	48	0.9998	NO	
16	19	8:2 FTS	49	0.9943	NO	
17	20	PFNS	47	0.9991	NO	
18	21	L-MeFOSAA	50	0.9989	NO	
19	23	L-EtFOSAA	51	0.9998	NO	

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Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

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Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060618.mdb 07 Jun 2018 11:00:55
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180606M2_2, Date: 06-Jun-2018, Time: 17:59:10, ID: ST180606M2-1 PFC CS-2 18E2902, Description: PFC CS-2 18E2902

	#	Name	IS#	CoD	CoD Flag	%RSD
1	25	PFUdA	52	0.9994	NO	
2	26	PFDS	52	0.9998	NO	
3	27	PFDoA	53	0.9984	NO	
4	28	N-MeFOSA	54	0.9999	NO	
5	29	PFTrDA	53	1.0000	NO	
6	30	PFTeDA	55	0.9999	NO	
7	31	N-EtFOSA	56	1.0000	NO	
8	32	PFHxDA	57	0.9998	NO	
9	33	PFODA	57	0.9998	NO	
10	34	N-MeFOSE	58	0.9976	NO	
11	35	N-EtFOSE	59	0.9991	NO	
12	36	13C3-PFBA	60		NO	1.544
13	37	13C3-PFPeA	61		NO	2.544
14	38	13C3-PFBS	61		NO	1.501
15	39	13C2-4:2 FTS	61		NO	13.377
16	40	13C2-PFHxA	61		NO	3.465
17	41	13C4-PFHpA	61		NO	2.315
18	42	18O2-PFHxS	62		NO	5.970
19	43	13C2-6:2 FTS	63		NO	11.165
20	44	13C2-PFOA	63		NO	4.532
21	45	13C5-PFNA	64		NO	4.209
22	46	13C8-PFOSA	67		NO	9.676
23	47	13C8-PFOS	65		NO	10.218
24	48	13C2-PFDA	66		NO	5.158
25	49	13C2-8:2 FTS	61		NO	14.600
26	50	d3-N-MeFOSAA	67		NO	7.266
27	51	d5-N-EtFOSAA	67		NO	8.237
28	52	13C2-PFUdA	67		NO	5.703
29	53	13C2-PFDoA	66		NO	6.152
30	54	d3-N-MeFOSA	67		NO	5.161
31	55	13C2-PFTeDA	67		NO	6.554

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

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Name: 180606M2_2, Date: 06-Jun-2018, Time: 17:59:10, ID: ST180606M2-1 PFC CS-2 18E2902, Description: PFC CS-2 18E2902

	#	Name	IS#	CoD	CoD Flag	%RSD
32	56	d5-N-ETFOSA	67		NO	7.784
33	57	13C2-PFHxDA	67		NO	5.974
34	58	d7-N-MeFOSE	67		NO	12.245
35	59	d9-N-EtFOSE	67		NO	6.361
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

Vista Analytical Laboratory

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:17:03 Pacific Daylight Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060618.mdb 07 Jun 2018 11:00:55
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180606M2_7, Date: 06-Jun-2018, Time: 18:51:31, ID: ST180606M2-6 PFC CS3 18E2907, Description: PFC CS3 18E2907

	Name	Ion Ratio	Ratio out?
1	PFBA		
2	PFPeA		
3	PFBS	2.528	NO
4	4:2 FTS	2.027	NO
5	PFHxA	453.955	NO
6	PFPeS	1.842	NO
7	PFHpA	29.406	NO
8	L-PFHxS	1.795	NO
9	6:2 FTS	2.940	NO
10	L-PFOA	5.338	NO
11	PFHpS	1.897	NO
12	PFNA	5.730	NO
13	PFOSA	22.105	NO
14	L-PFOS	1.821	NO
15	PFDA	6.632	NO
16	8:2 FTS	2.927	NO
17	PFNS	1.727	NO
18	L-MeFOSAA	13.575	NO
19	L-EtFOSAA	14.388	NO

Vista Analytical Laboratory

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:17:16 Pacific Daylight Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060618.mdb 07 Jun 2018 11:00:55
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180606M2_7, Date: 06-Jun-2018, Time: 18:51:31, ID: ST180606M2-6 PFC CS3 18E2907, Description: PFC CS3 18E2907

	Name	Ion Ratio	Ratio out?
1	PFUdA	16.970	NO
2	PFDS	2.051	NO
3	PFDoA	10.226	NO
4	N-MeFOSA	1.428	NO
5	PFTrDA	44.113	NO
6	PFTeDA	13.349	NO
7	N-EtFOSA	1.440	NO
8	PFHxDA	62.711	NO
9	PFODA		
10	N-MeFOSE		
11	N-EtFOSE		
12	13C3-PFBA		
13	13C3-PFPeA		
14	13C3-PFBS		
15	13C2-4:2 FTS		
16	13C2-PFHxA		
17	13C4-PFHpA		
18	18O2-PFHxS		
19	13C2-6:2 FTS		
20	13C2-PFOA		
21	13C5-PFNA		
22	13C8-PFOSA		
23	13C8-PFOS		
24	13C2-PFDA		
25	13C2-8:2 FTS		
26	d3-N-MeFOSAA		
27	d5-N-EtFOSAA		
28	13C2-PFUdA		
29	13C2-PFDoA		
30	d3-N-MeFOSA		
31	13C2-PFTeDA		

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:17:16 Pacific Daylight Time

Name: 180606M2_7, Date: 06-Jun-2018, Time: 18:51:31, ID: ST180606M2-6 PFC CS3 18E2907, Description: PFC CS3 18E2907

	Name	Ion Ratio	Ratio out?
32	d5-N-ETFOSA		
33	13C2-PFHxDA		
34	d7-N-MeFOSE		
35	d9-N-EtFOSE		
36	13C4-PFBA		
37	13C5-PFHxA		
38	13C3-PFHxS		
39	13C8-PFOA		
40	13C9-PFNA		
41	13C4-PFOS		
42	13C6-PFDA		
43	13C7-PFUdA		

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Thursday, June 07, 2018 11:36:19 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:36:35 Pacific Daylight Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060618.mdb 07 Jun 2018 11:00:55
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Compound name: PFBA

	#	Name	ID	Acq.Date	Acq.Time
1	1	180606M2_1	IPA	06-Jun-18	17:48:46
2	2	180606M2_2	ST180606M2-1 PFC CS-2 18E2902	06-Jun-18	17:59:10
3	3	180606M2_3	ST180606M2-2 PFC CS-1 18E2903	06-Jun-18	18:09:41
4	4	180606M2_4	ST180606M2-3 PFC CS0 18E2904	06-Jun-18	18:20:06
5	5	180606M2_5	ST180606M2-4 PFC CS1 18E2905	06-Jun-18	18:30:36
6	6	180606M2_6	ST180606M2-5 PFC CS2 18E2906	06-Jun-18	18:41:01
7	7	180606M2_7	ST180606M2-6 PFC CS3 18E2907	06-Jun-18	18:51:31
8	8	180606M2_8	ST180606M2-7 PFC CS4 18E2908	06-Jun-18	19:01:57
9	9	180606M2_9	ST180606M2-8 PFC CS5 18E2909	06-Jun-18	19:12:27
10	10	180606M2_10	ST180606M2-9 PFC CS6 18E2910	06-Jun-18	19:22:52
11	11	180606M2_11	ST180606M2-10 PFC CS7 18E2911	06-Jun-18	19:33:14
12	12	180606M2_12	IPA	06-Jun-18	19:43:44
13	13	180606M2_13	ICV180606M2-1 PFC 537 ICV 18E2901	06-Jun-18	19:54:10
14	14	180606M2_14	IPA	06-Jun-18	20:04:40

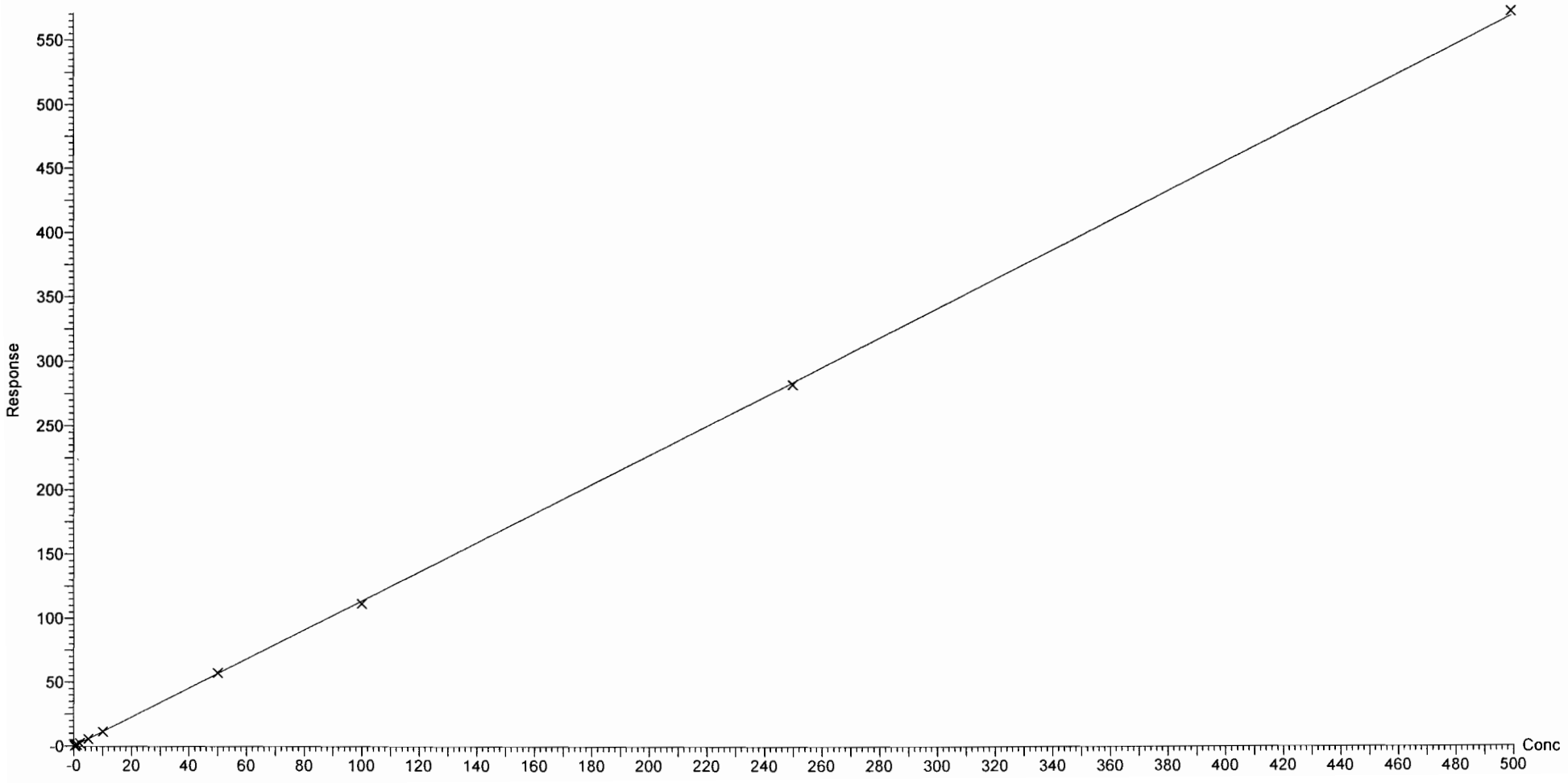
Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:38 Pacific Daylight Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060618.mdb 07 Jun 2018 11:00:55
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

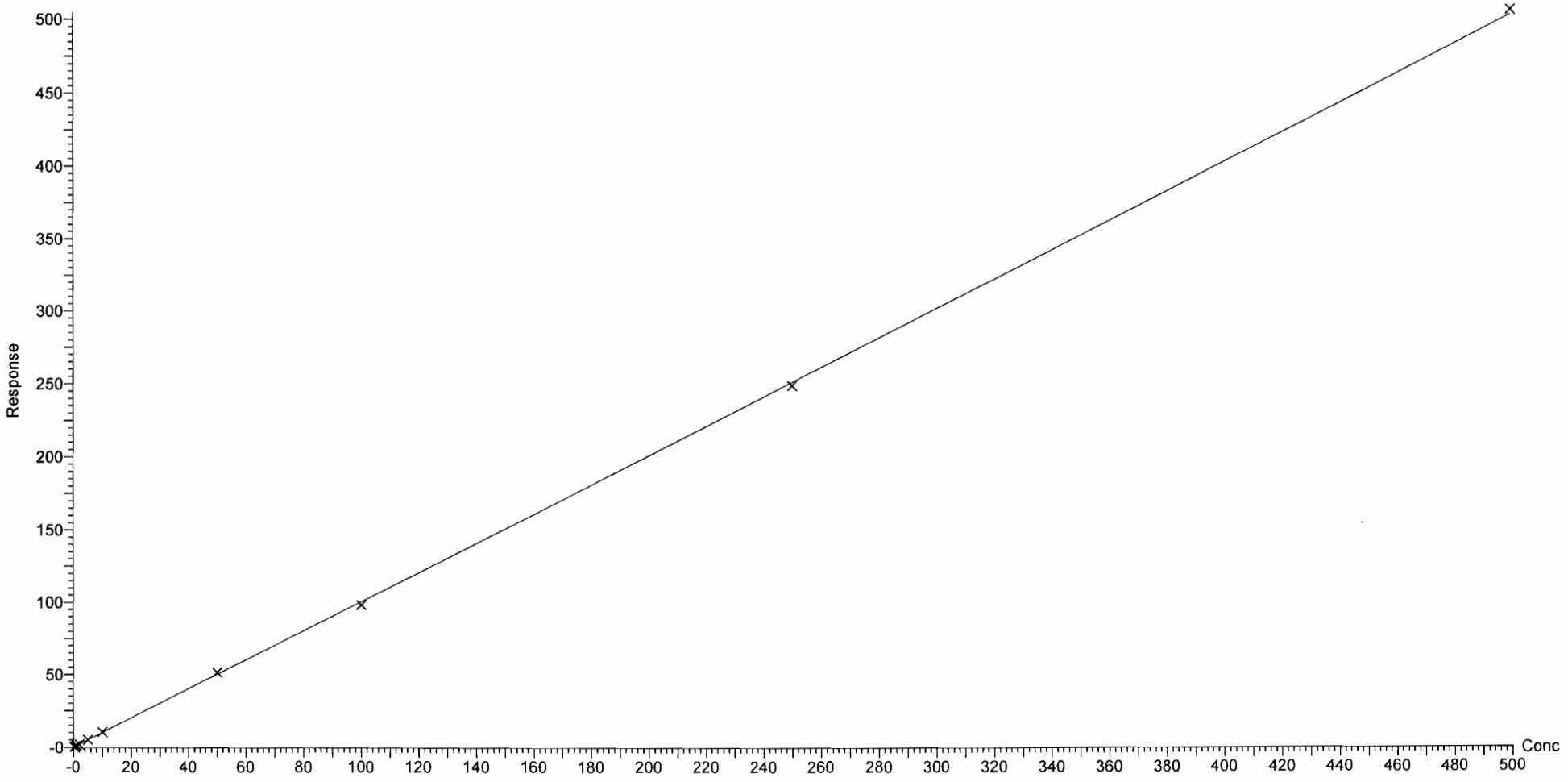
Compound name: PFBA
Correlation coefficient: r = 0.999963, r^2 = 0.999926
Calibration curve: 1.1345 * x + 0.00216471
Response type: Internal Std (Ref 36), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:38 Pacific Daylight Time

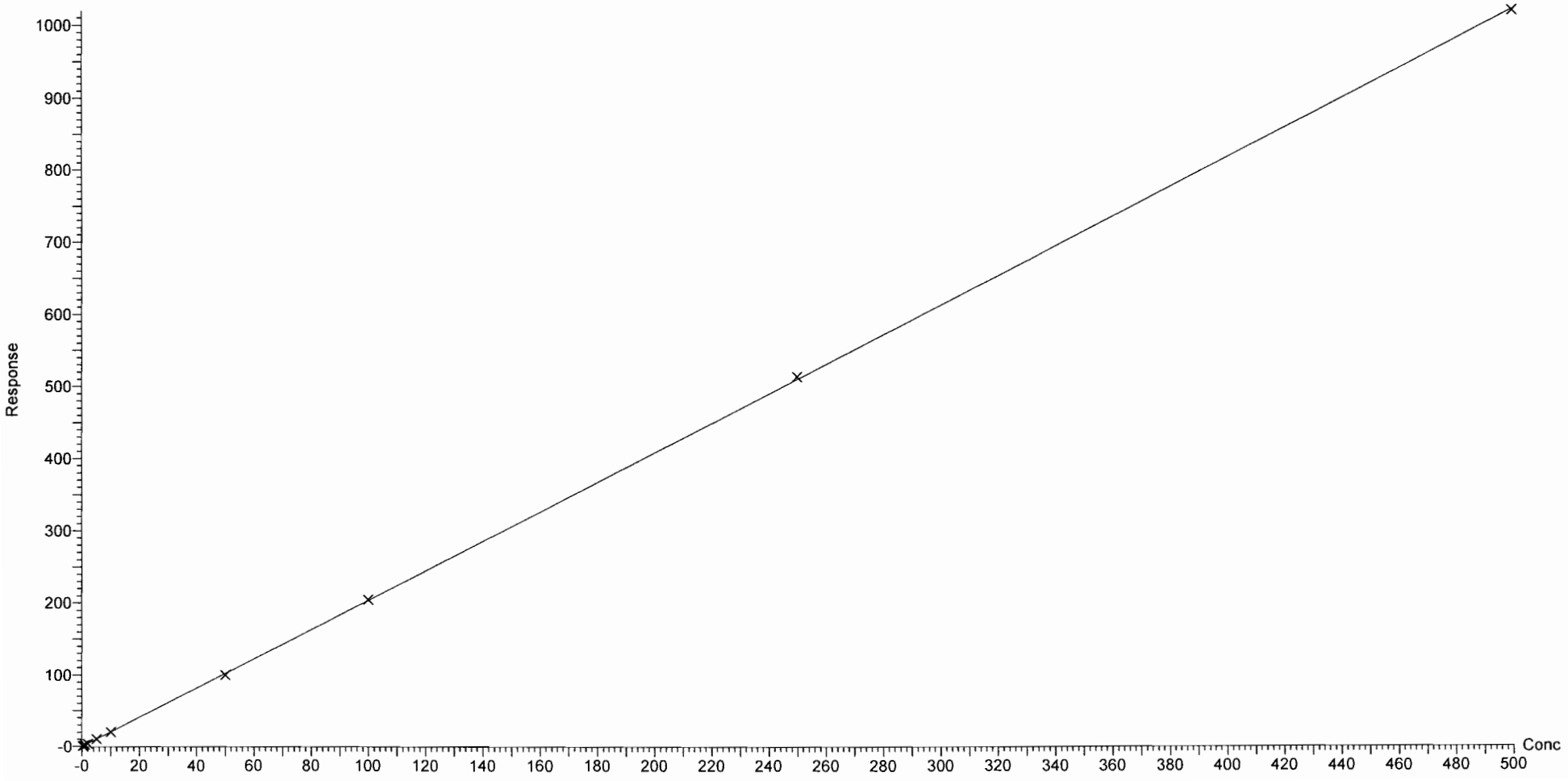
Compound name: PFPeA
Correlation coefficient: r = 0.999928, r^2 = 0.999856
Calibration curve: 1.00322 * x + 0.0316741
Response type: Internal Std (Ref 37), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:38 Pacific Daylight Time

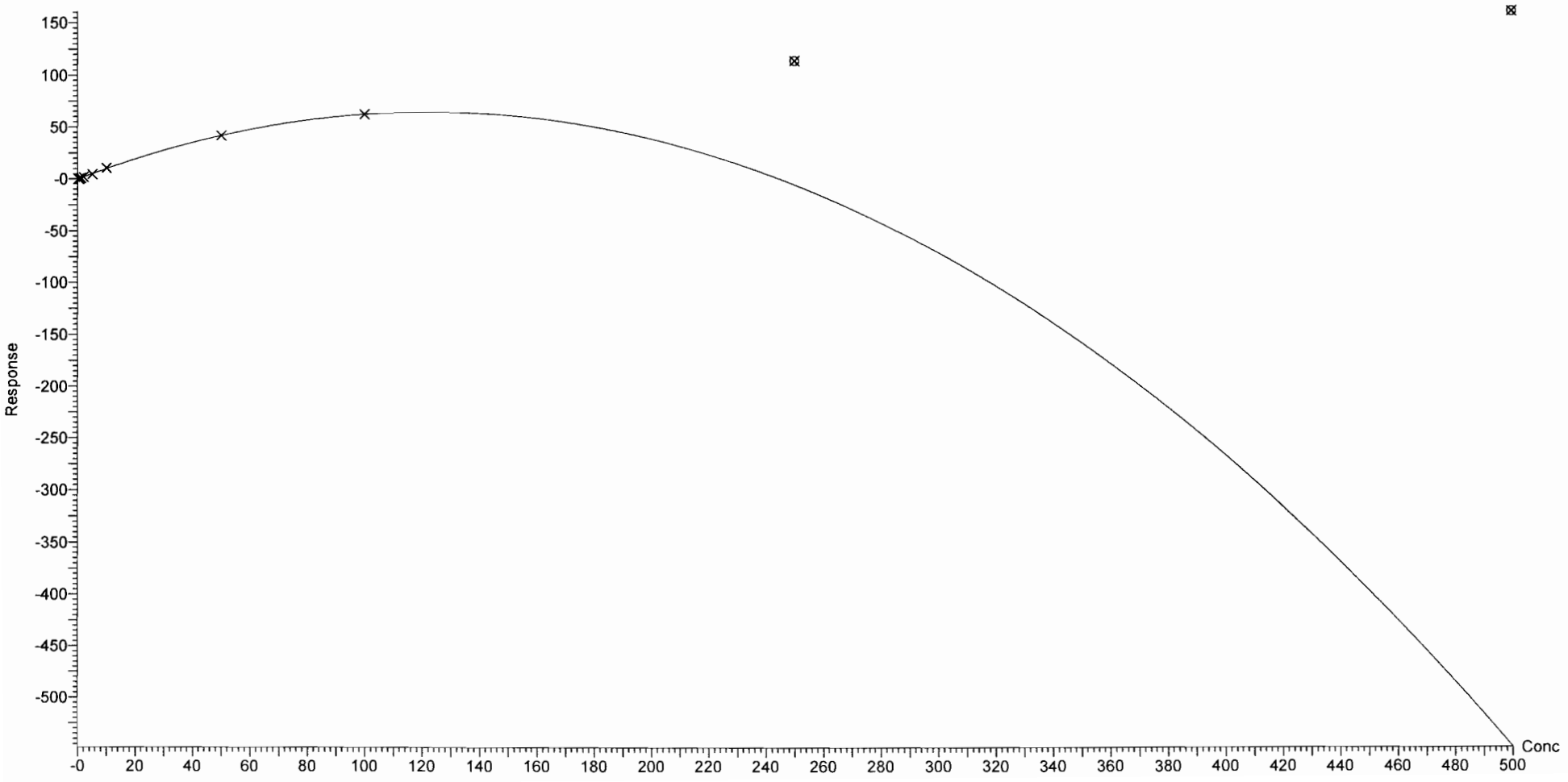
Compound name: PFBS
Coefficient of Determination: R^2 = 0.999934
Calibration curve: 2.30679e-006 * x^2 + 2.03725 * x + -0.0700934
Response type: Internal Std (Ref 38), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:38 Pacific Daylight Time

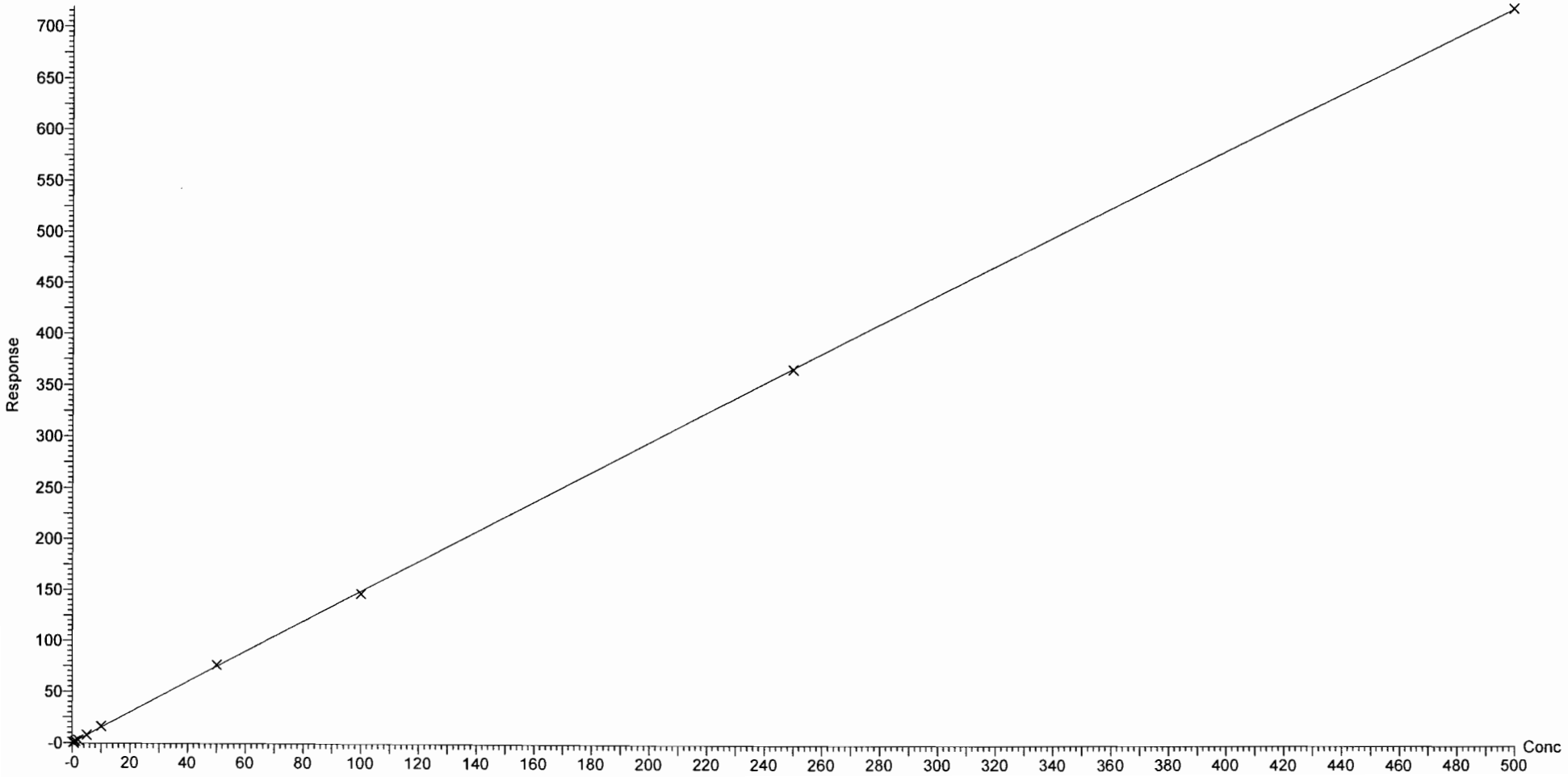
Compound name: 4:2 FTS
Coefficient of Determination: R^2 = 0.999129
Calibration curve: -0.00430261 * x^2 + 1.05566 * x + -0.100102
Response type: Internal Std (Ref 39), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:38 Pacific Daylight Time

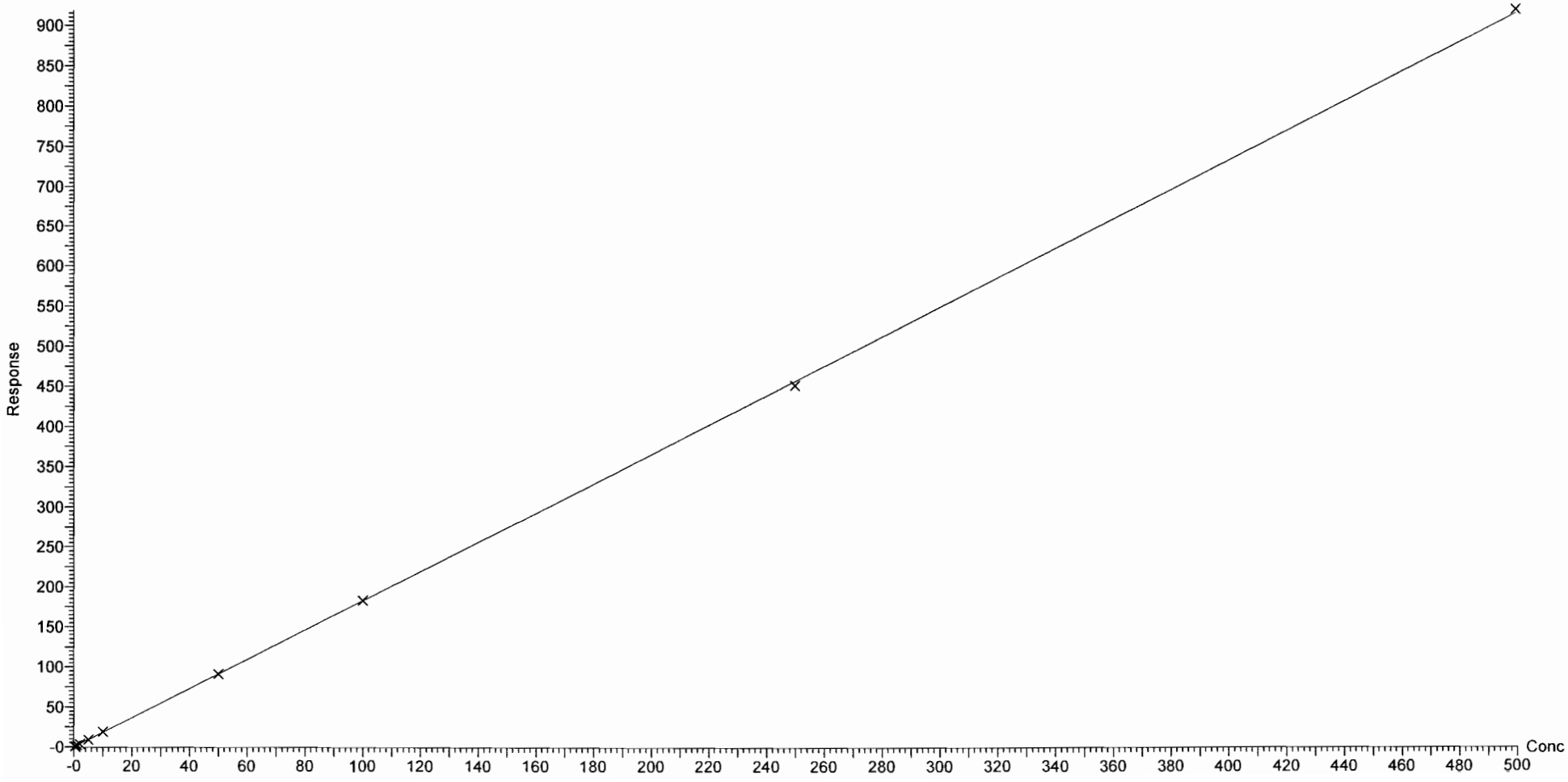
Compound name: PFHxA
Coefficient of Determination: R^2 = 0.999871
Calibration curve: -0.000134295 * x^2 + 1.50293 * x + 0.0525257
Response type: Internal Std (Ref 40), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:38 Pacific Daylight Time

Compound name: PFPeS
Correlation coefficient: r = 0.999961, r^2 = 0.999922
Calibration curve: 1.82694 * x + -0.11189
Response type: Internal Std (Ref 38), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

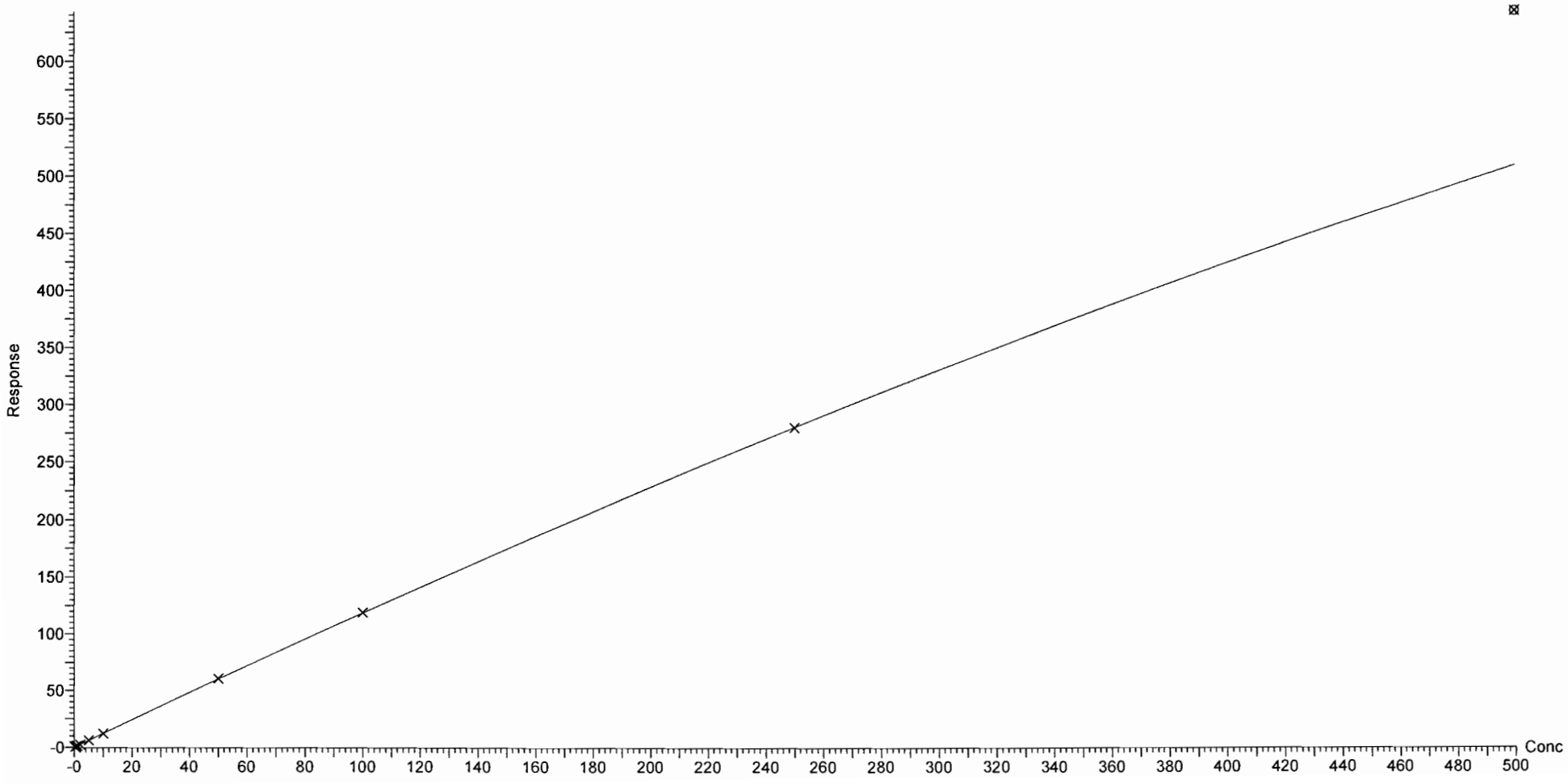


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

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Printed: Thursday, June 07, 2018 11:06:38 Pacific Daylight Time

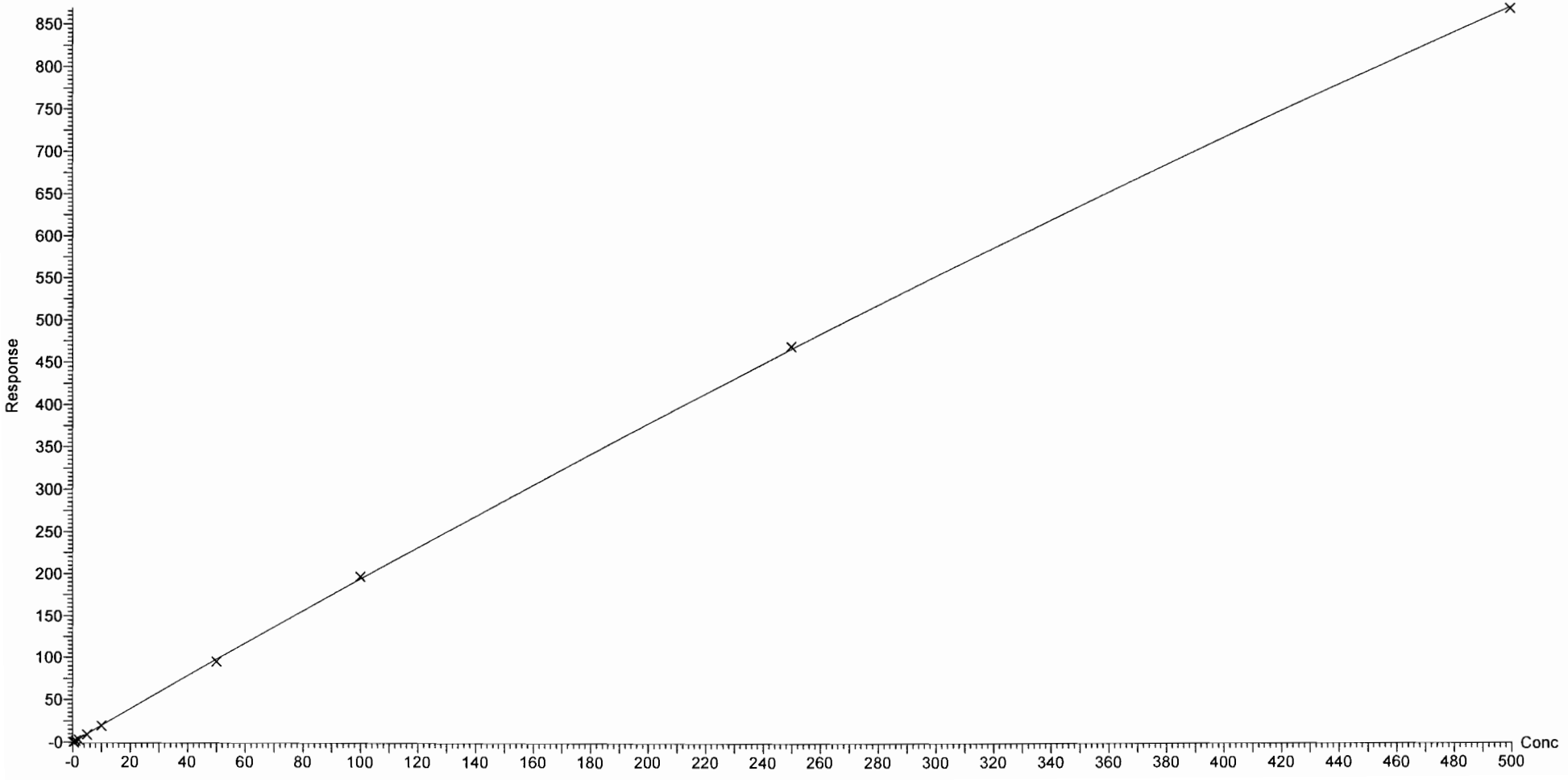
Compound name: PFHpA
Coefficient of Determination: R^2 = 0.999926
Calibration curve: -0.000418493 * x^2 + 1.22618 * x + -0.0205846
Response type: Internal Std (Ref 41), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:38 Pacific Daylight Time

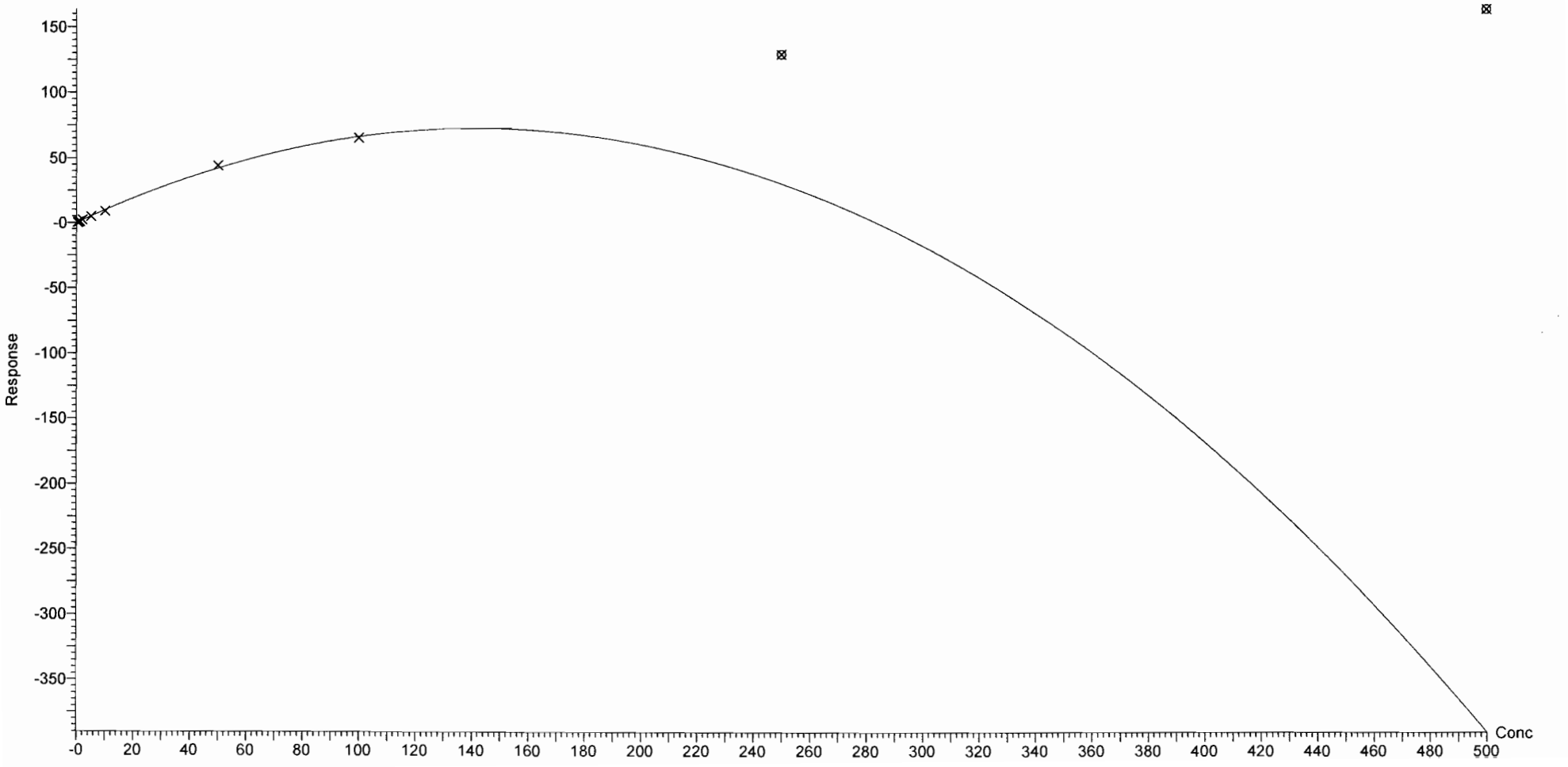
Compound name: L-PFHxS
Coefficient of Determination: R^2 = 0.999773
Calibration curve: -0.000504996 * x^2 + 1.98959 * x + -0.235591
Response type: Internal Std (Ref 42), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:38 Pacific Daylight Time

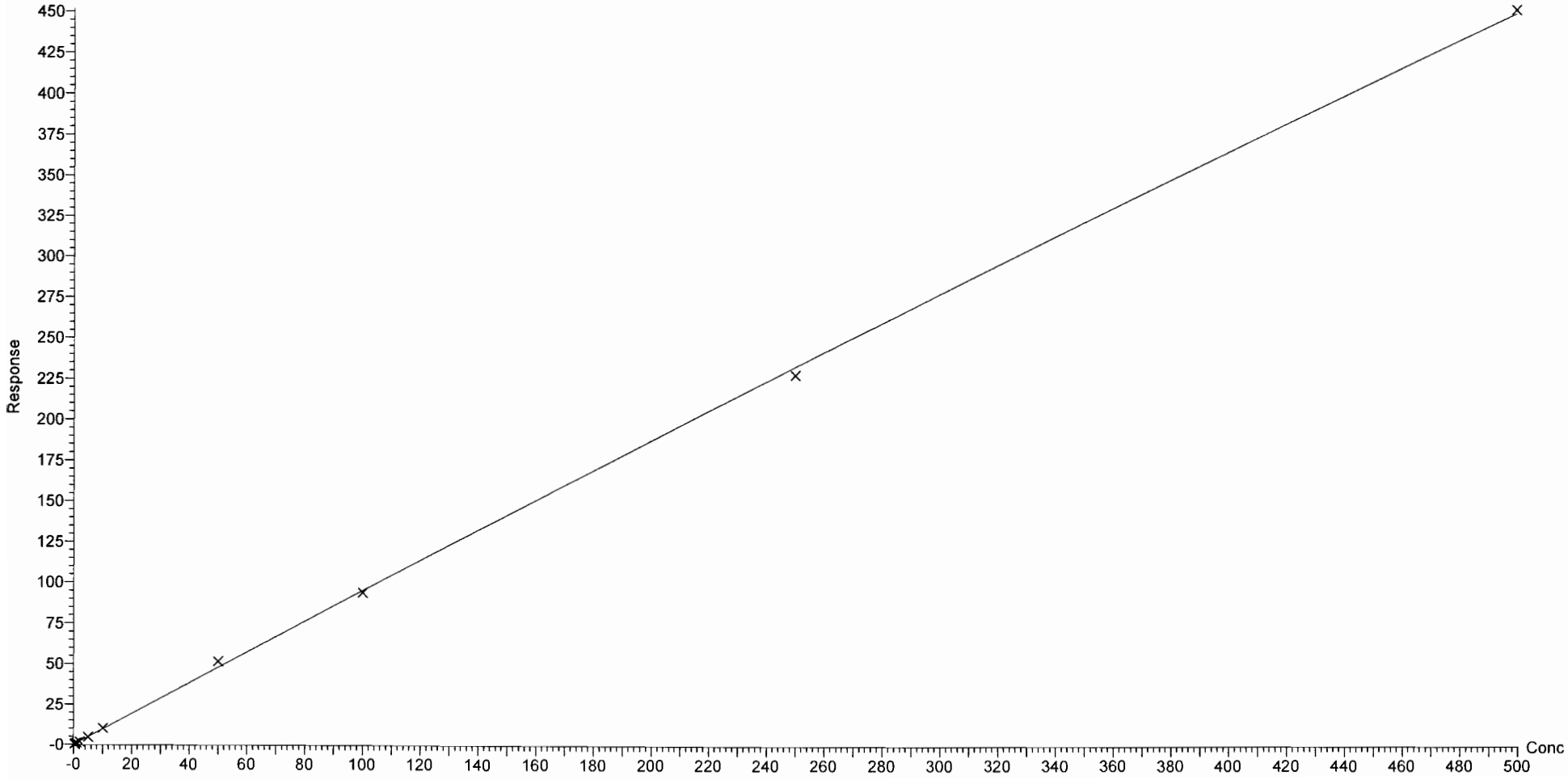
Compound name: 6:2 FTS
Coefficient of Determination: R^2 = 0.997412
Calibration curve: -0.00361429 * x^2 + 1.02708 * x + -0.0162032
Response type: Internal Std (Ref 43), Area * (IS Conc. / IS Area)
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Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:38 Pacific Daylight Time

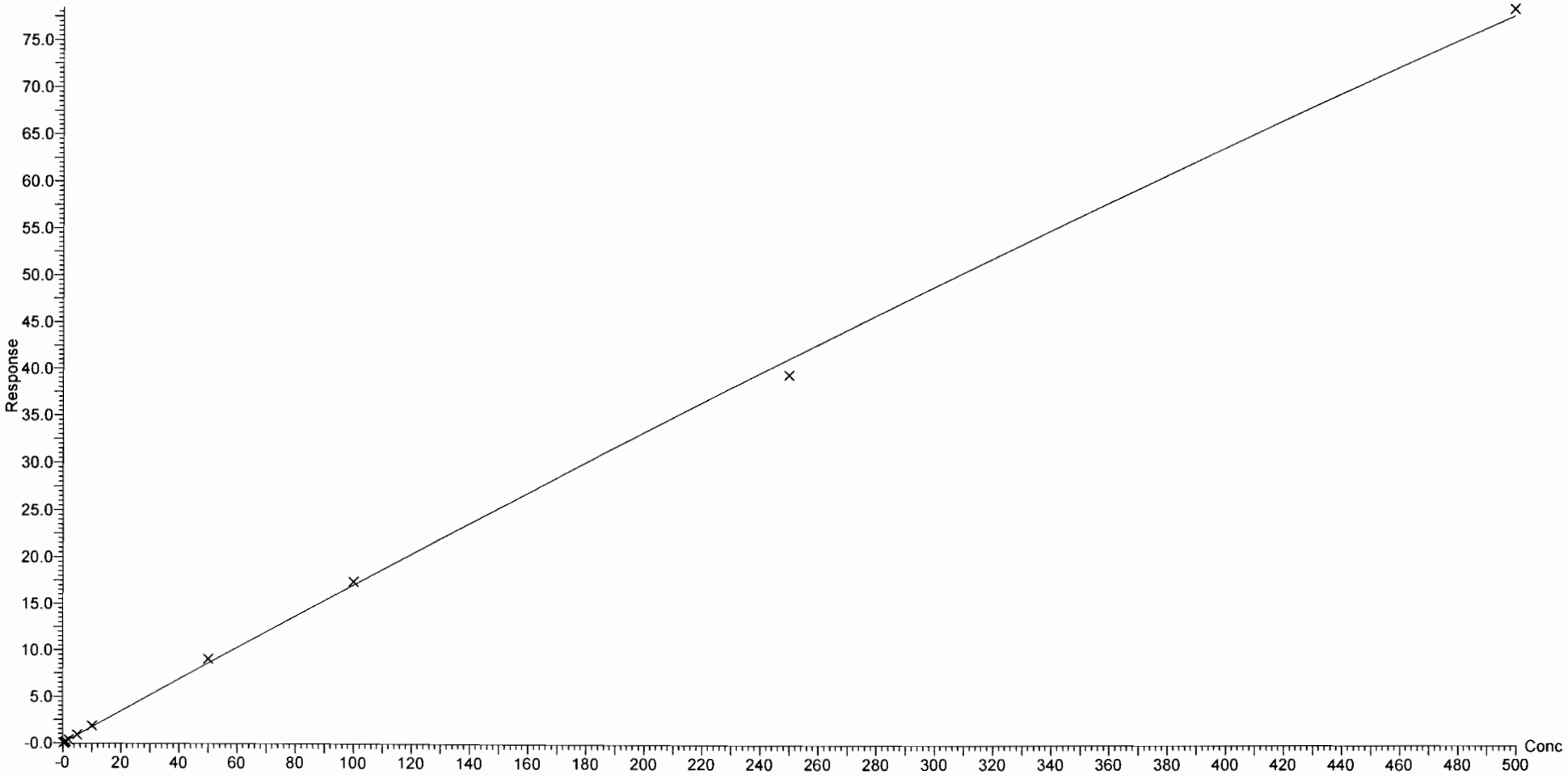
Compound name: L-PFOA
Coefficient of Determination: R^2 = 0.999424
Calibration curve: -0.000132122 * x^2 + 0.964706 * x + 0.0441882
Response type: Internal Std (Ref 44), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:38 Pacific Daylight Time

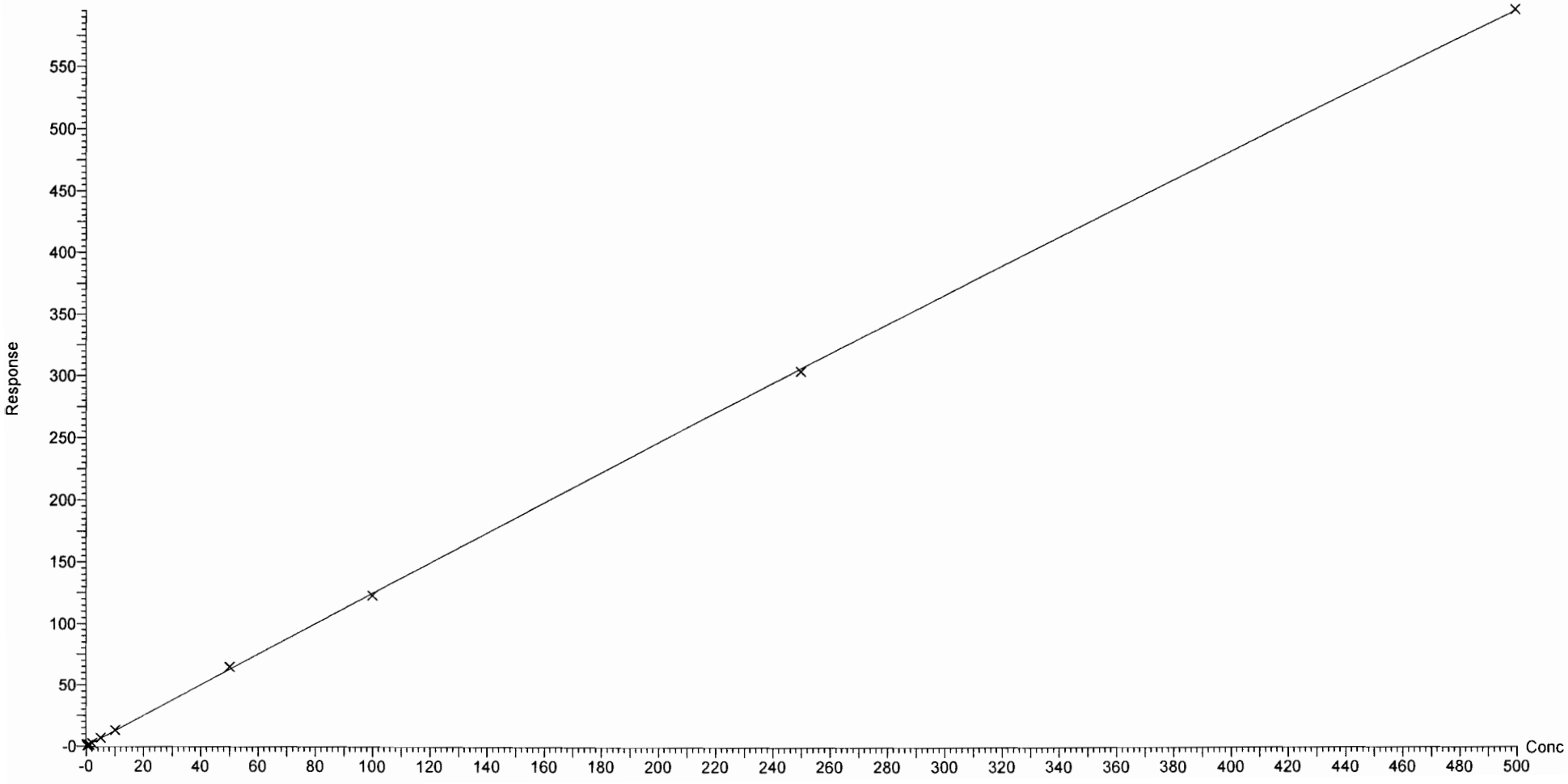
Compound name: PFHpS
Coefficient of Determination: R^2 = 0.999053
Calibration curve: -3.75942e-005 * x^2 + 0.17416 * x + -0.00354737
Response type: Internal Std (Ref 44), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:38 Pacific Daylight Time

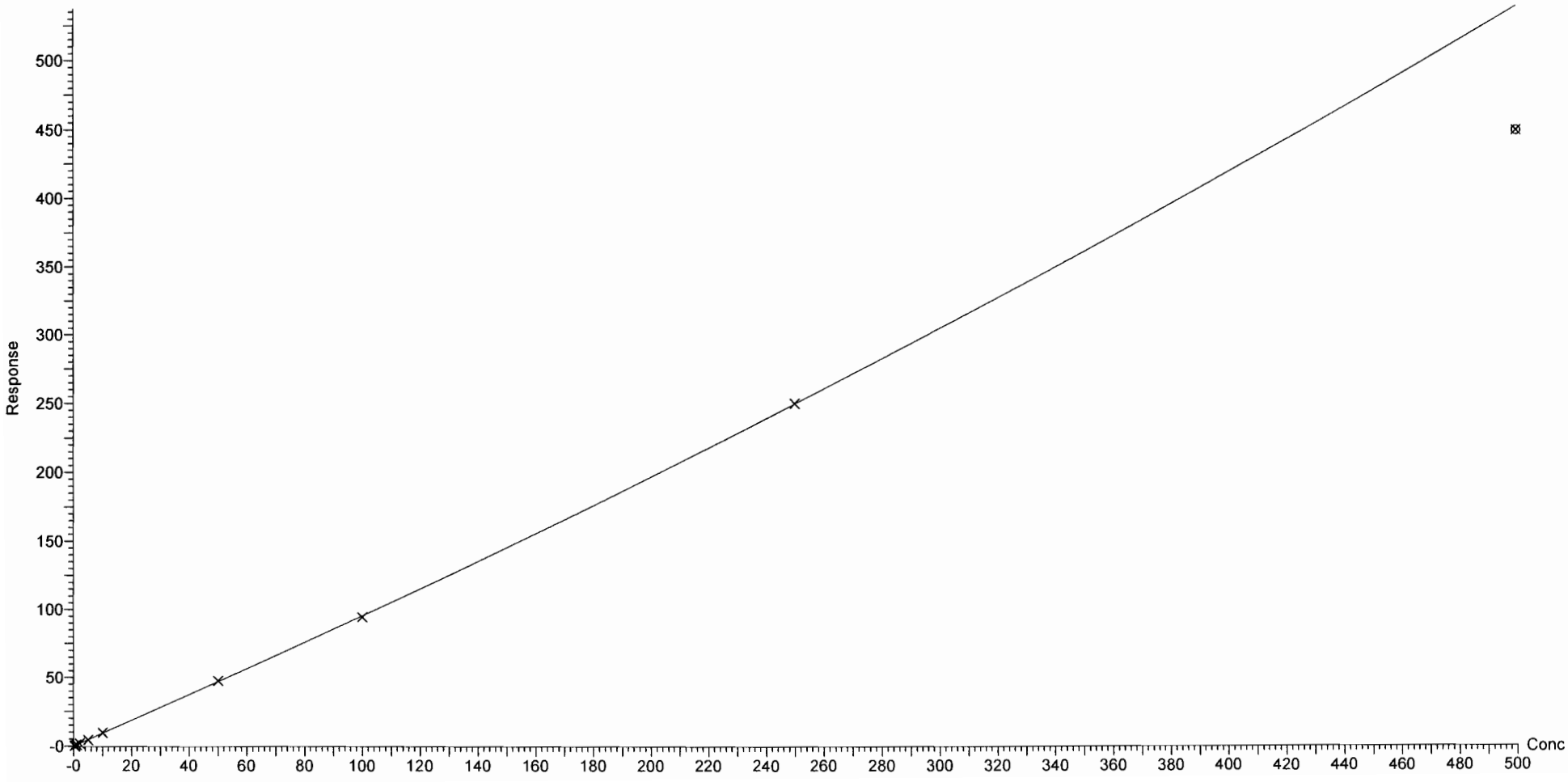
Compound name: PFNA
Coefficient of Determination: R^2 = 0.999861
Calibration curve: -0.000147724 * x^2 + 1.26209 * x + 0.0151814
Response type: Internal Std (Ref 45), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:38 Pacific Daylight Time

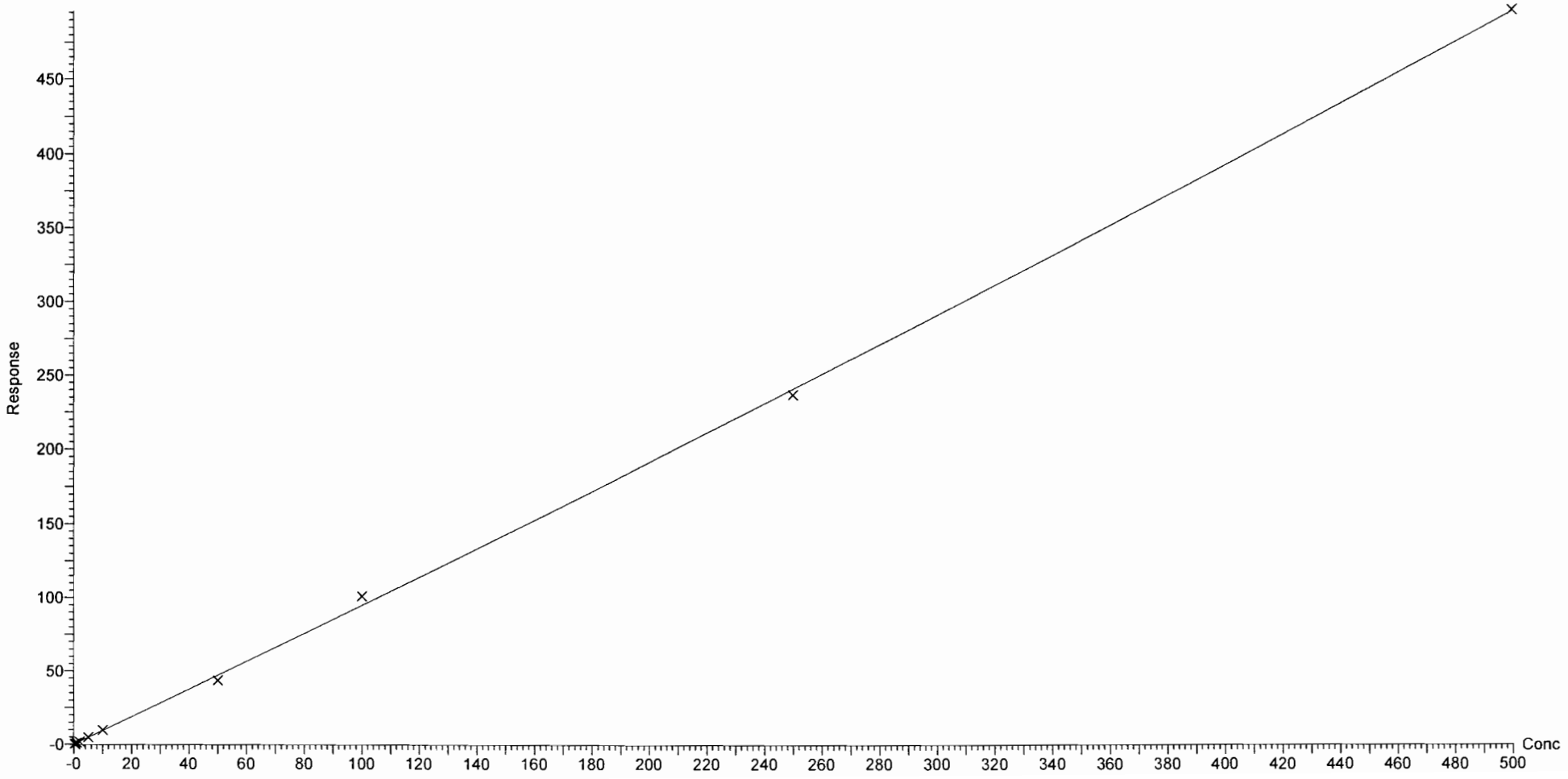
Compound name: PFOSA
Coefficient of Determination: R^2 = 0.999796
Calibration curve: 0.000304771 * x^2 + 0.922061 * x + -0.0577663
Response type: Internal Std (Ref 46), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:38 Pacific Daylight Time

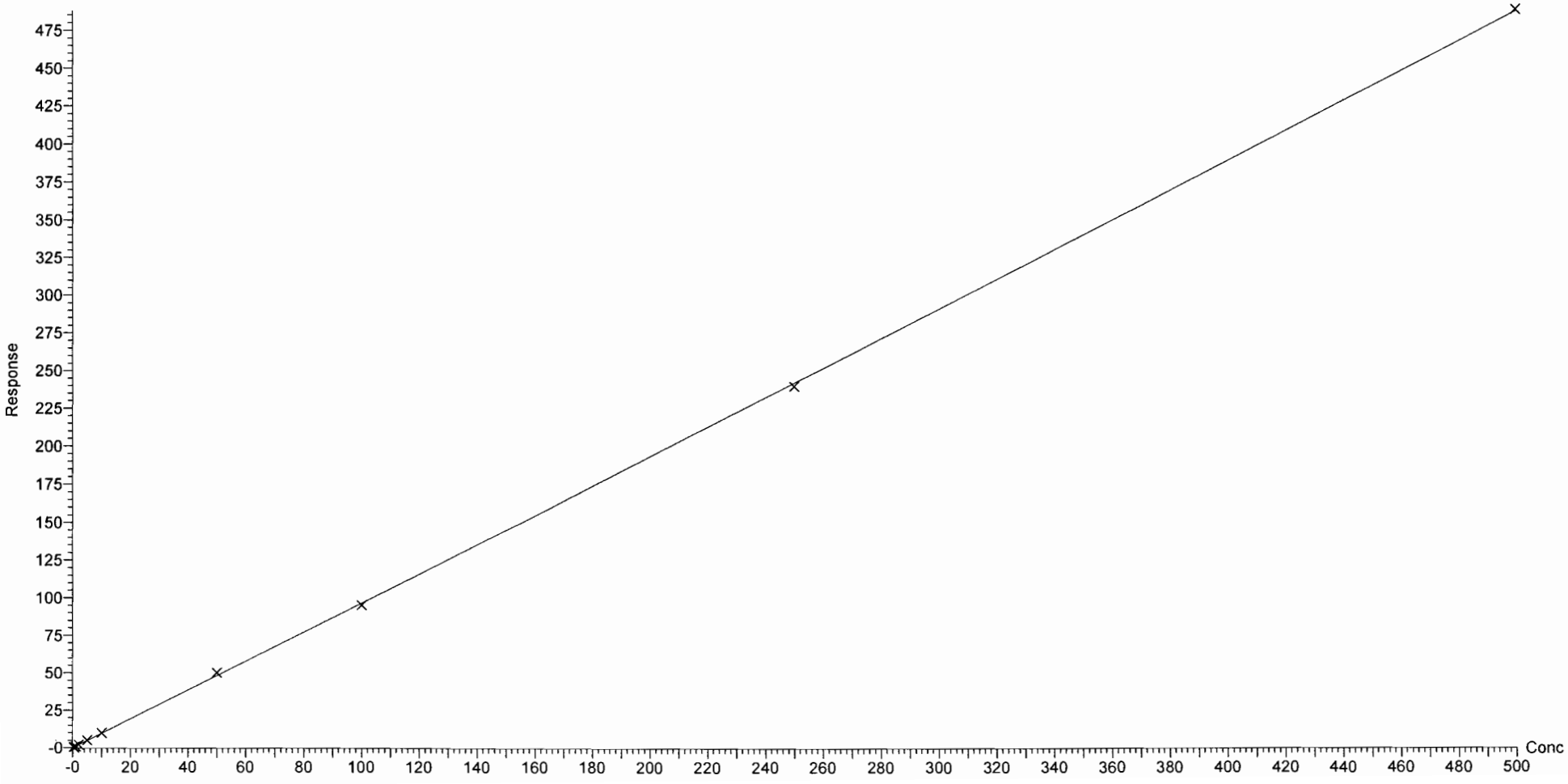
Compound name: L-PFOS
Coefficient of Determination: R^2 = 0.999147
Calibration curve: 0.000107269 * x^2 + 0.935815 * x + 0.0260535
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:38 Pacific Daylight Time

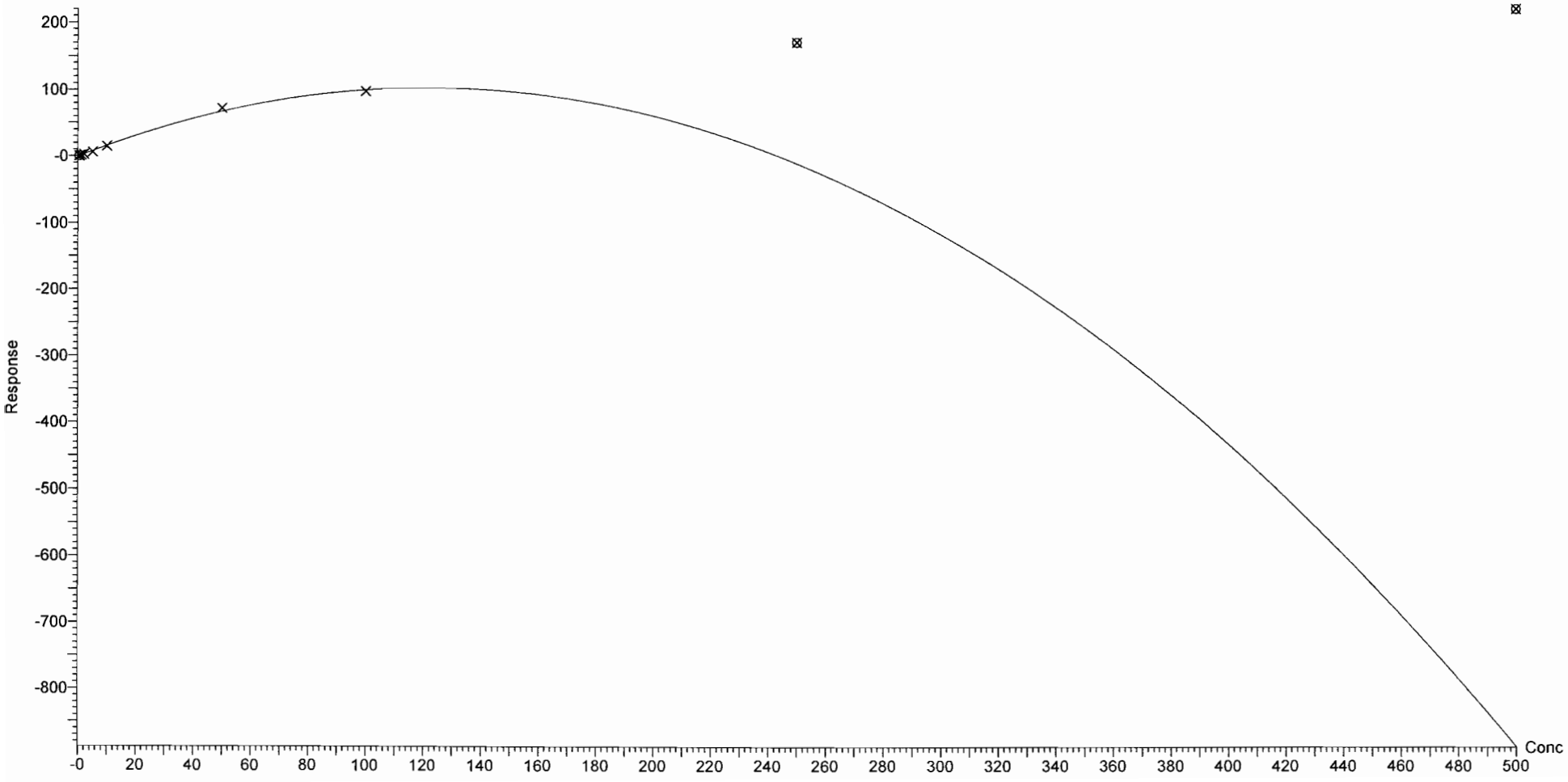
Compound name: PFDA
Coefficient of Determination: R^2 = 0.999818
Calibration curve: 2.09961e-005 * x^2 + 0.962592 * x + 0.0405964
Response type: Internal Std (Ref 48), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:38 Pacific Daylight Time

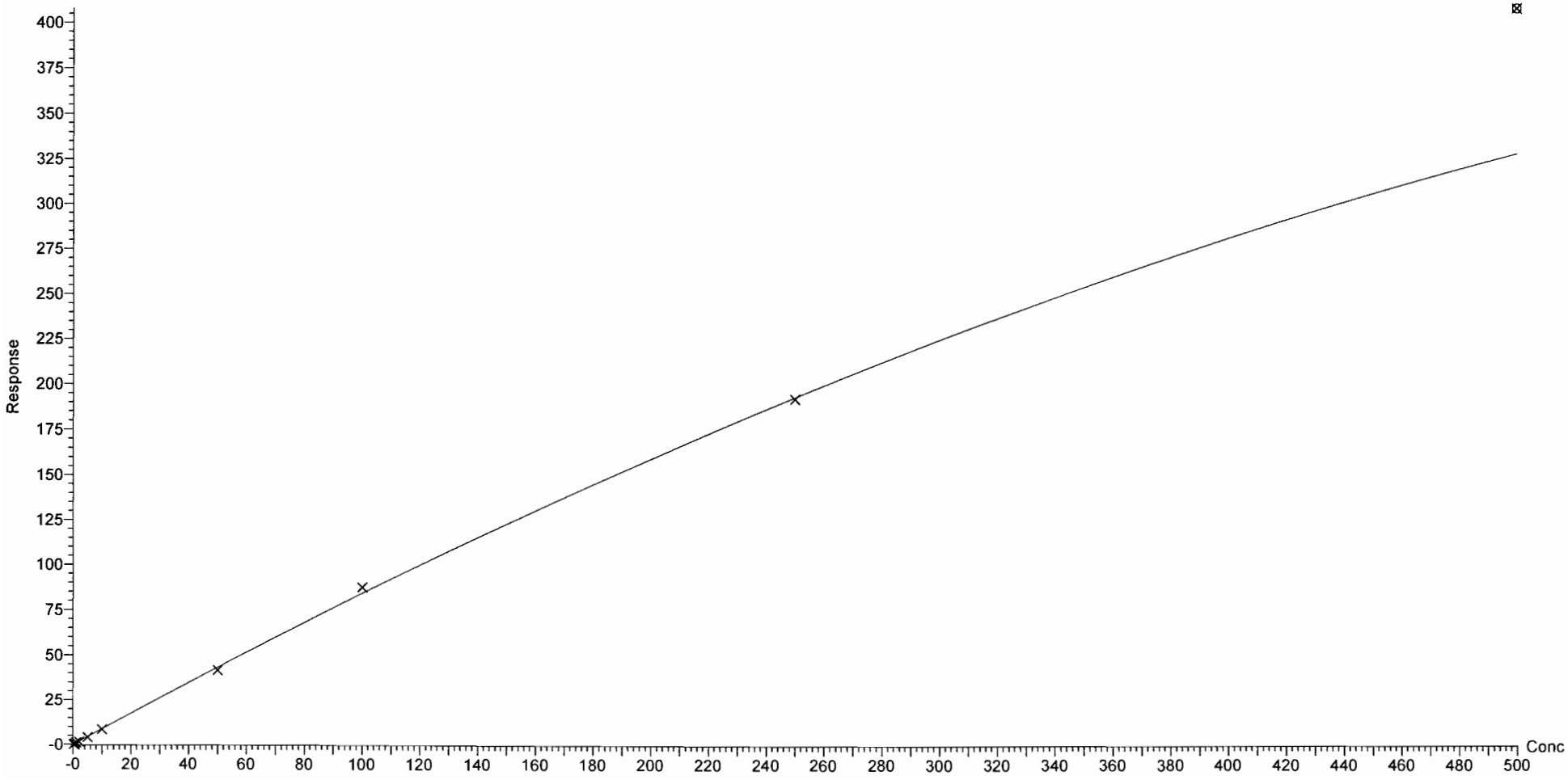
Compound name: 8:2 FTS
Coefficient of Determination: R^2 = 0.994263
Calibration curve: -0.00694077 * x^2 + 1.69686 * x + -0.526669
Response type: Internal Std (Ref 49), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:38 Pacific Daylight Time

Compound name: PFNS
Coefficient of Determination: R^2 = 0.999117
Calibration curve: -0.000467511 * x^2 + 0.889848 * x + -0.0931108
Response type: Internal Std (Ref 47), Area * (IS Conc. / IS Area)
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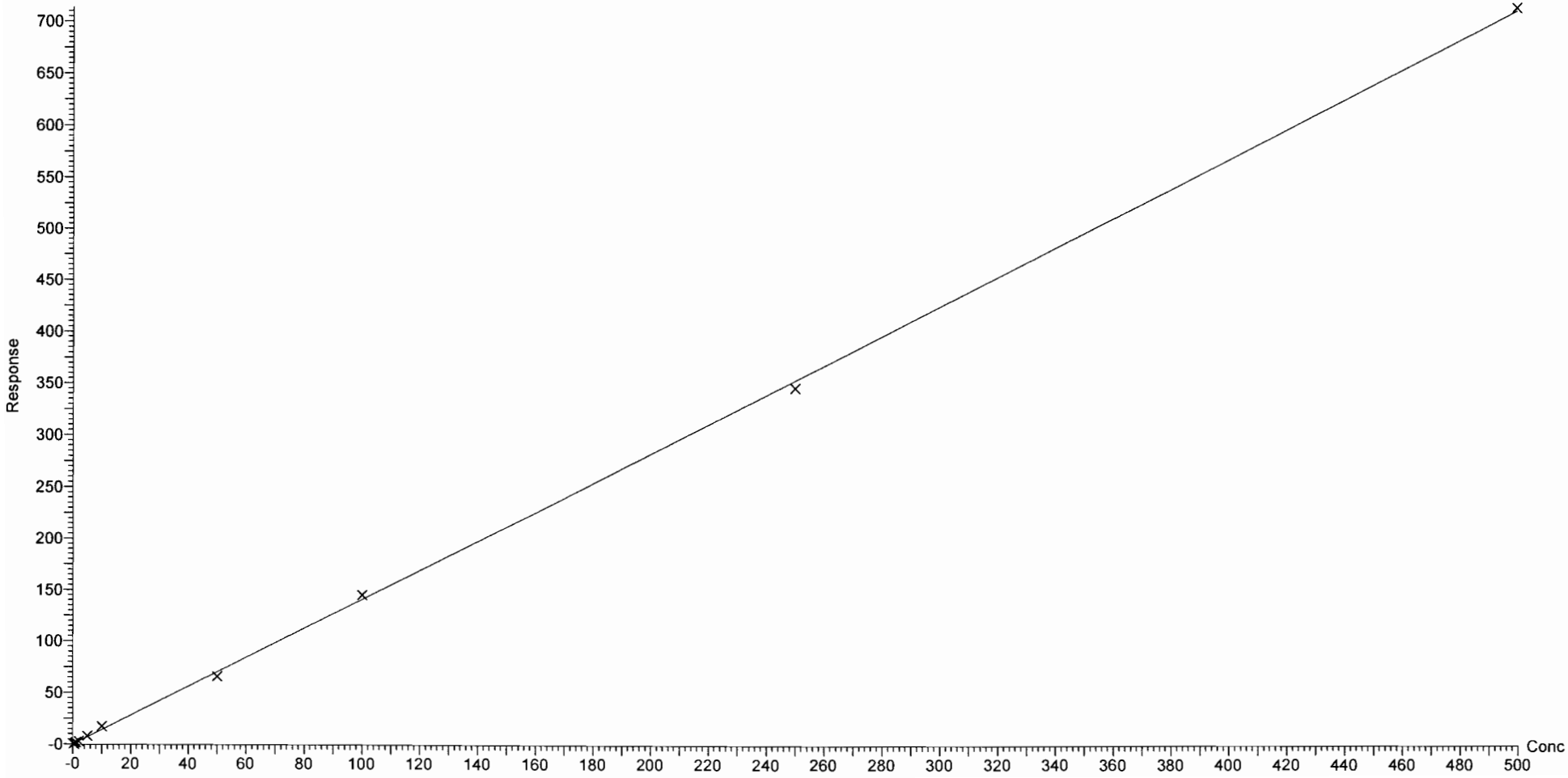


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:38 Pacific Daylight Time

Compound name: L-MeFOSAA
Coefficient of Determination: R^2 = 0.998895
Calibration curve: 2.9069e-005 * x^2 + 1.40576 * x + 0.0487161
Response type: Internal Std (Ref 50), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

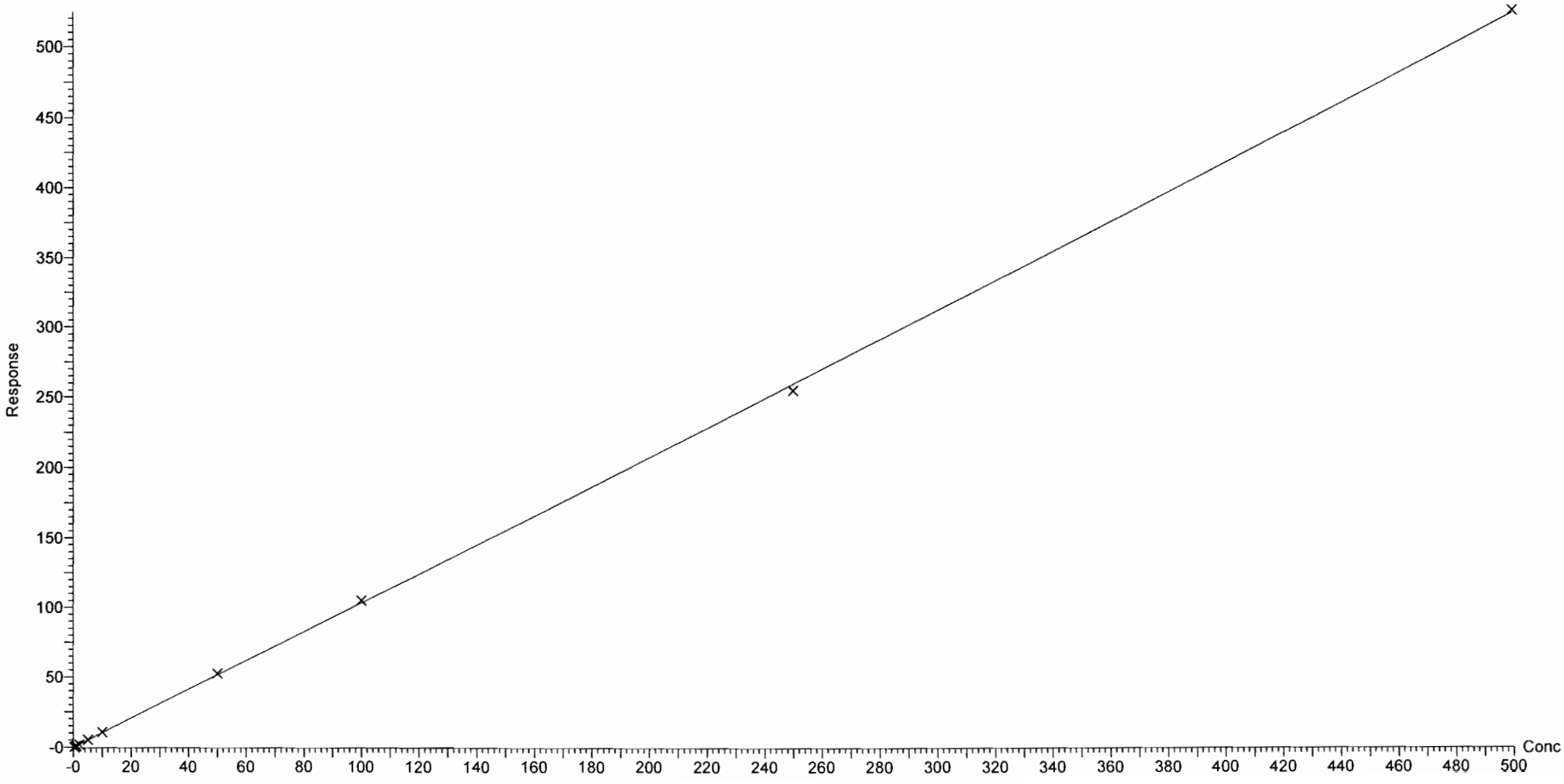


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:38 Pacific Daylight Time

Compound name: L-EtFOSAA
Coefficient of Determination: R^2 = 0.999788
Calibration curve: 3.11192e-005 * x^2 + 1.03008 * x + -0.0812856
Response type: Internal Std (Ref 51), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None



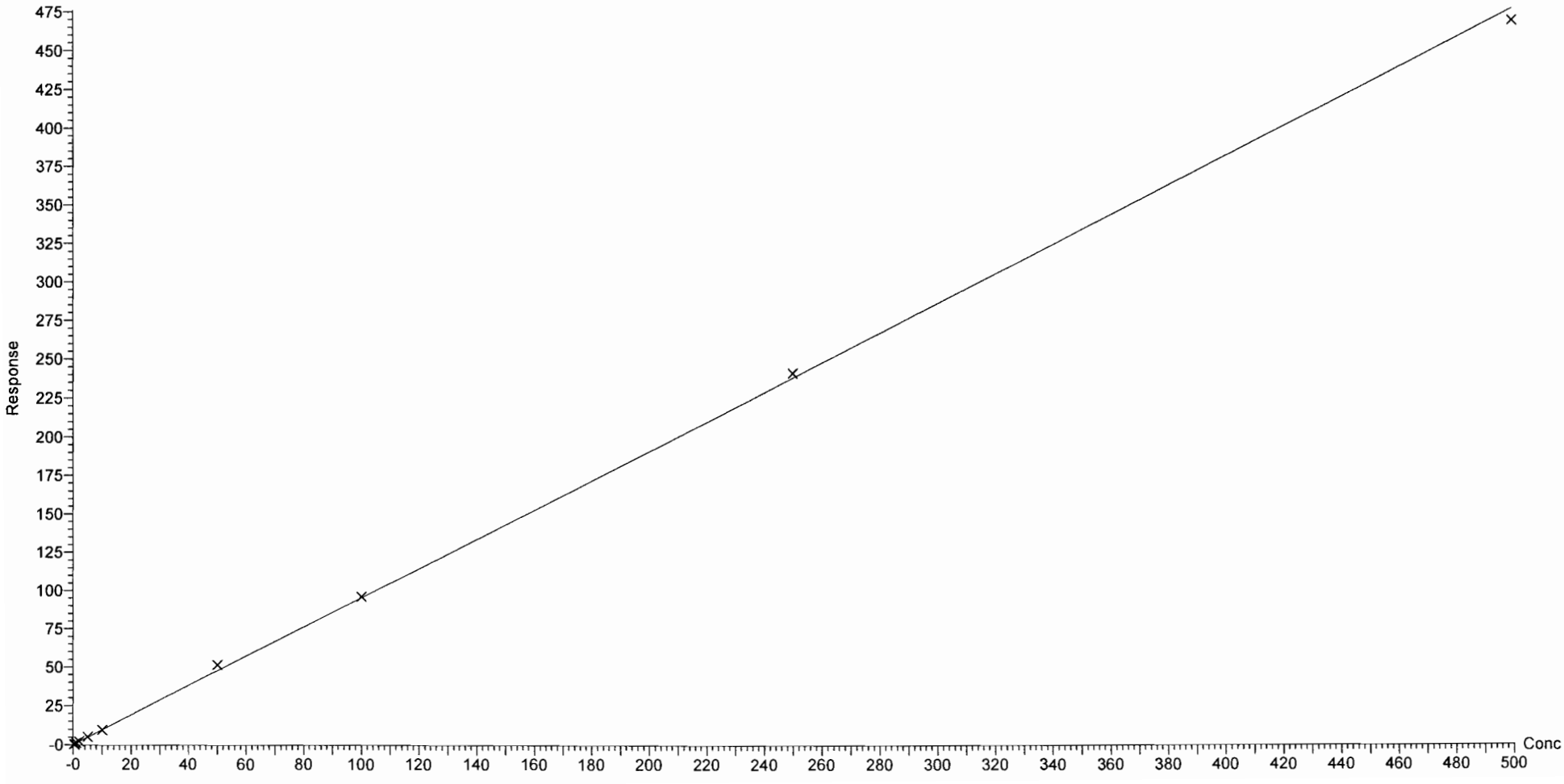
Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:58 Pacific Daylight Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060618.mdb 07 Jun 2018 11:00:55
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

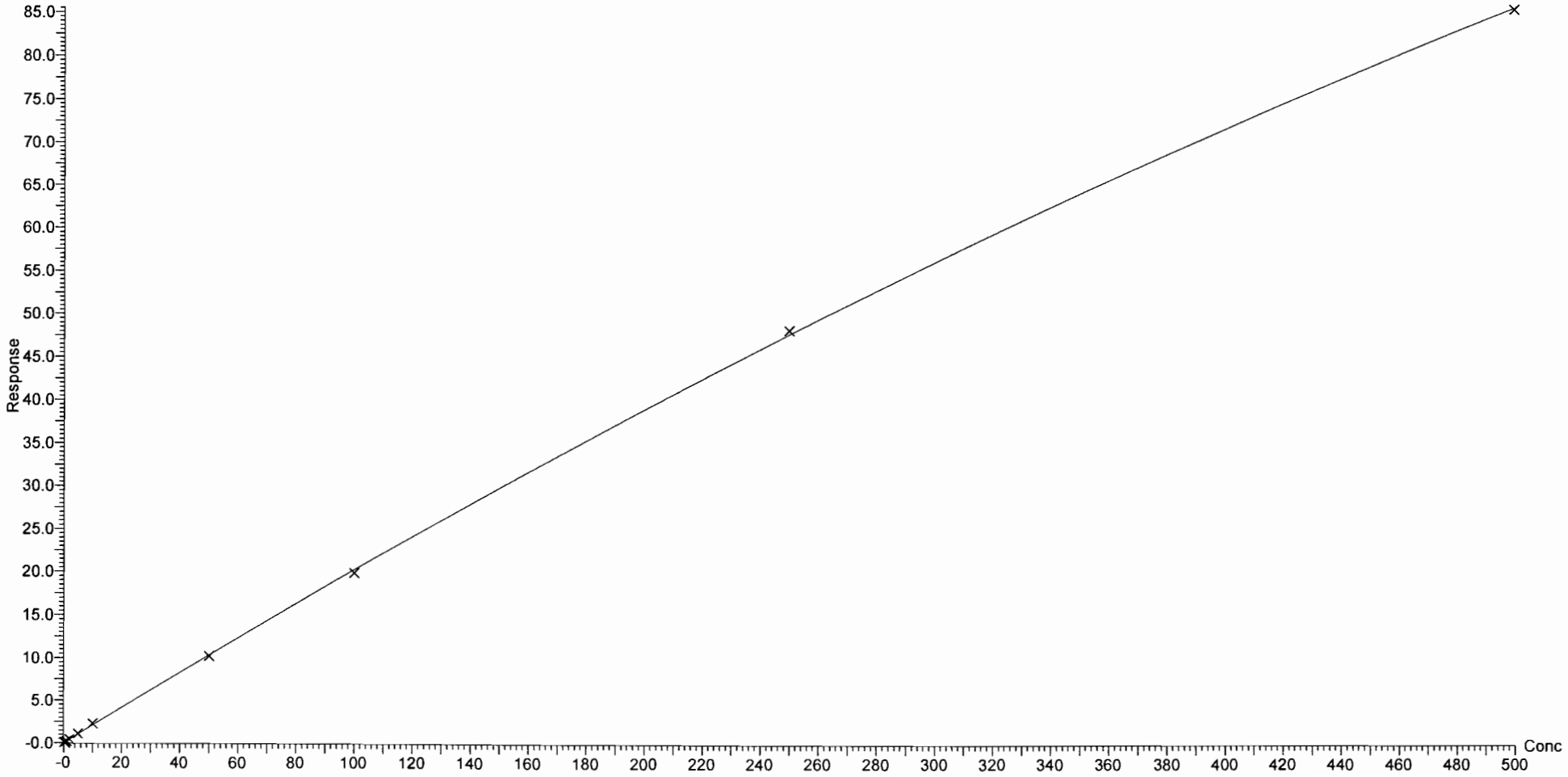
Compound name: PFUdA
Correlation coefficient: r = 0.999685, r^2 = 0.999371
Calibration curve: 0.951255 * x + 0.113297
Response type: Internal Std (Ref 52), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:58 Pacific Daylight Time

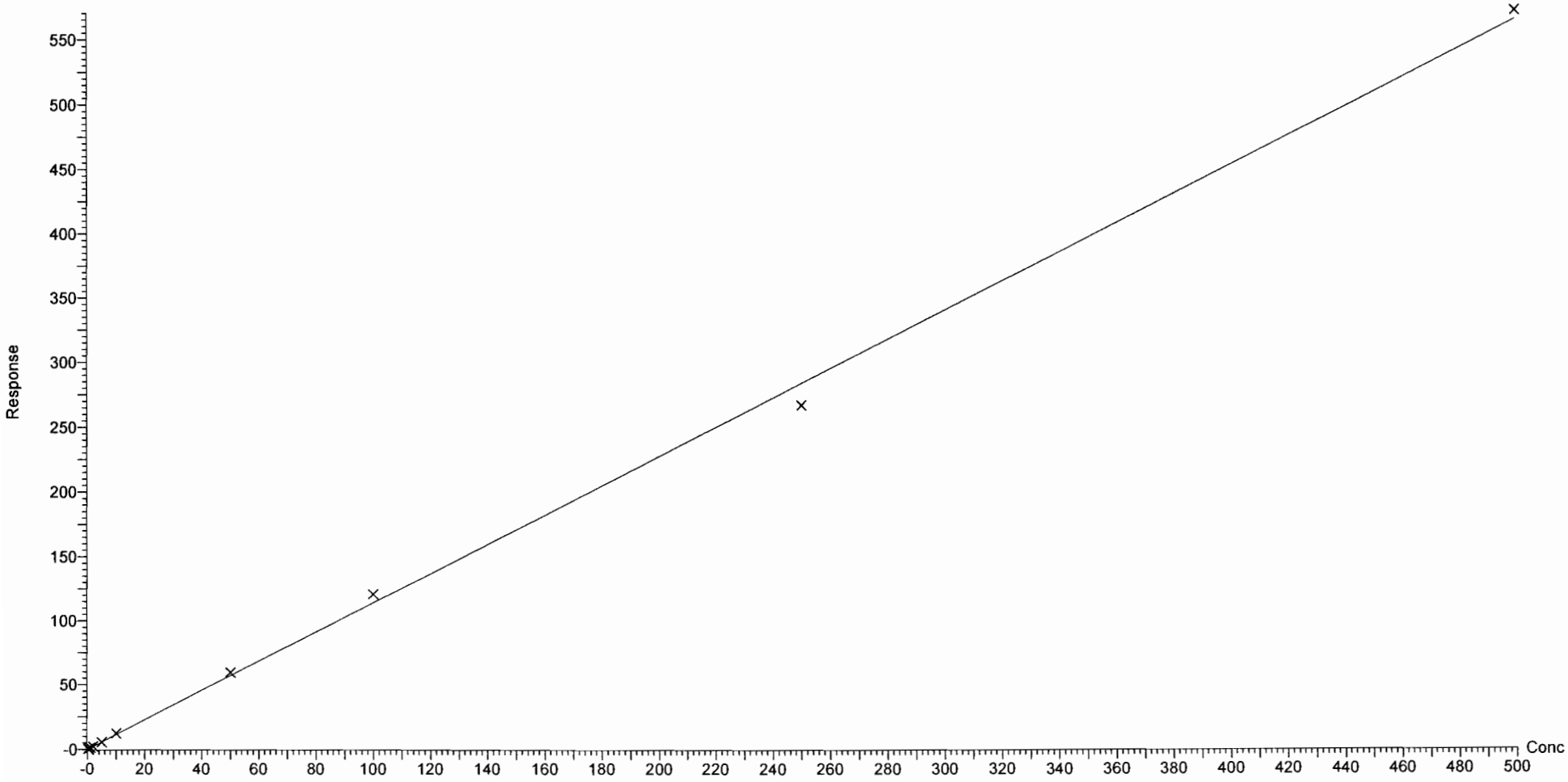
Compound name: PFDS
Coefficient of Determination: R^2 = 0.999791
Calibration curve: -7.97249e-005 * x^2 + 0.210894 * x + -0.0104181
Response type: Internal Std (Ref 52), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:58 Pacific Daylight Time

Compound name: PFDoA
Coefficient of Determination: R^2 = 0.998369
Calibration curve: -2.93002e-005 * x^2 + 1.14201 * x + 0.0599611
Response type: Internal Std (Ref 53), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

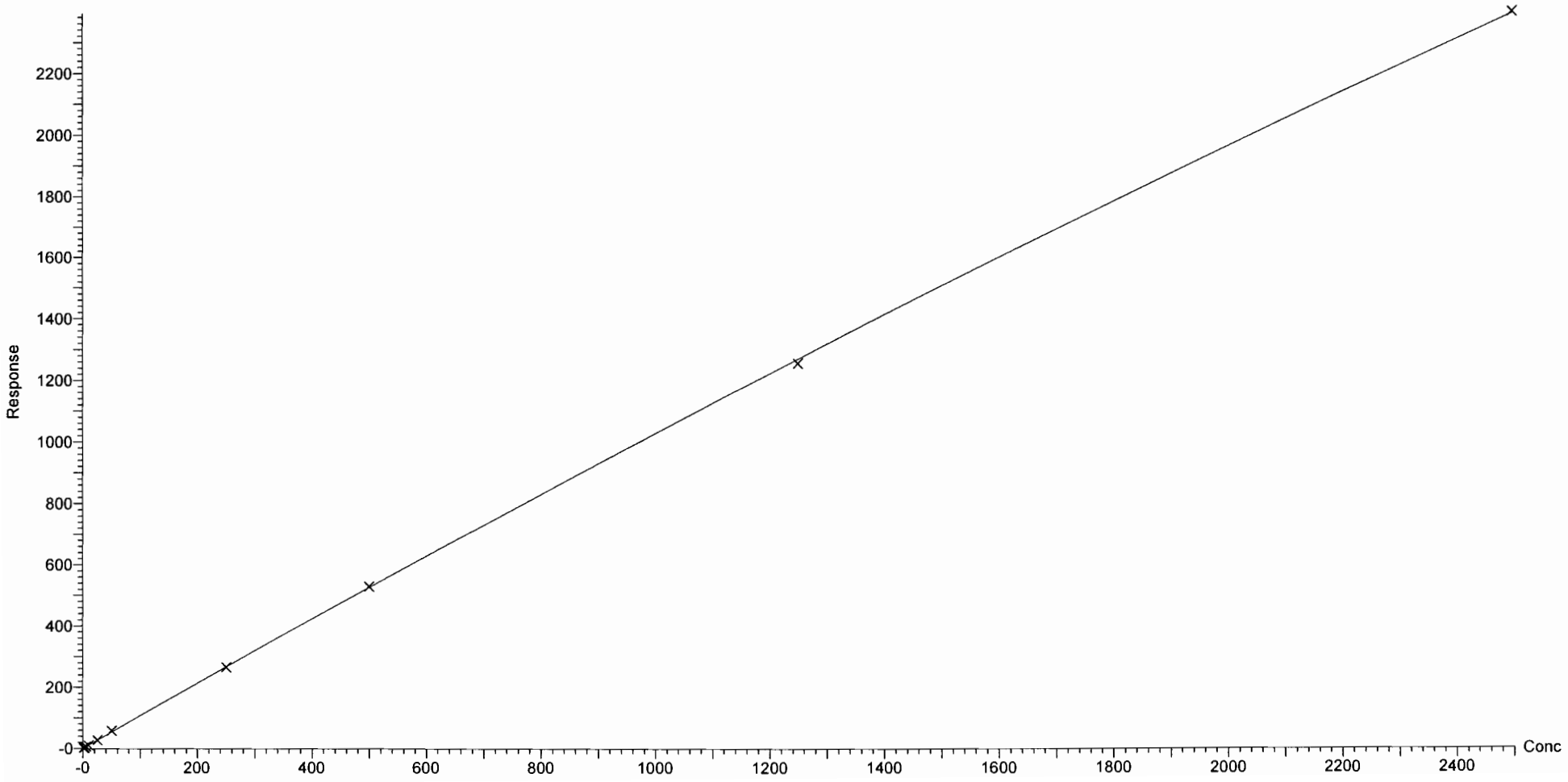


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:58 Pacific Daylight Time

Compound name: N-MeFOSA
Coefficient of Determination: R^2 = 0.999865
Calibration curve: -4.85509e-005 * x^2 + 1.07555 * x + 0.10055
Response type: Internal Std (Ref 54), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

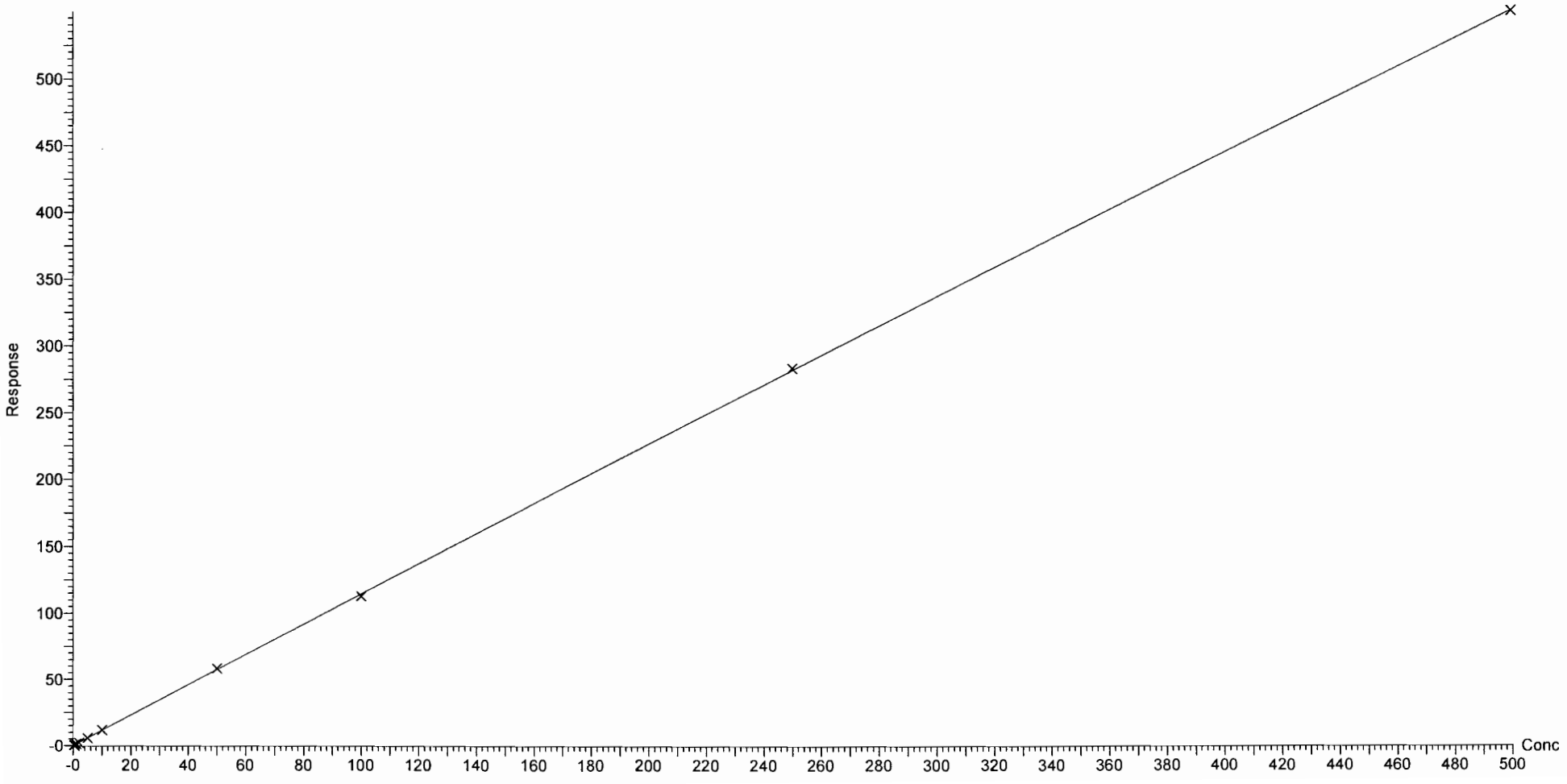


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:58 Pacific Daylight Time

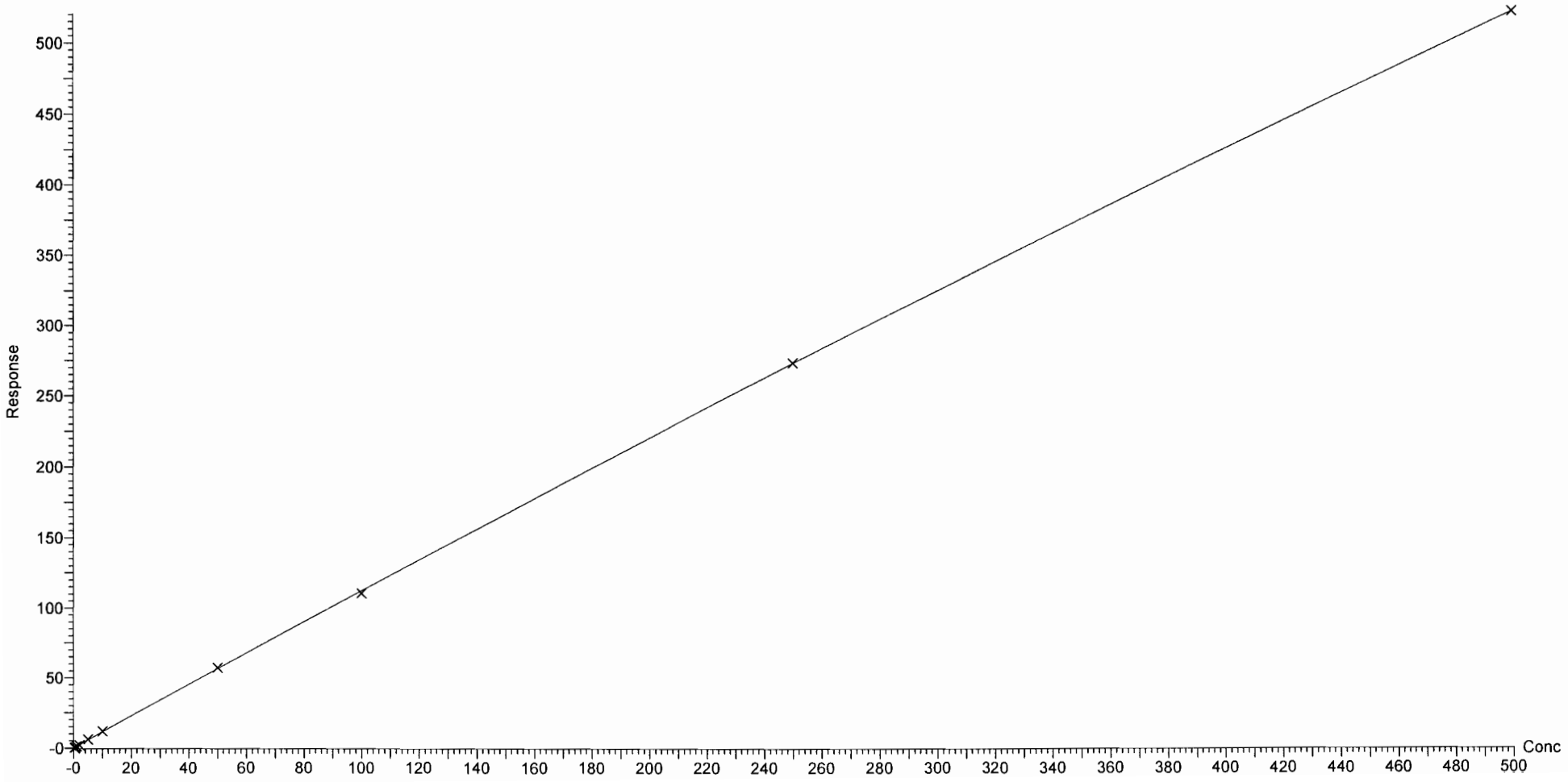
Compound name: PFTrDA
Coefficient of Determination: R^2 = 0.999952
Calibration curve: -0.000114408 * x^2 + 1.15632 * x + 0.0550033
Response type: Internal Std (Ref 53), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:58 Pacific Daylight Time

Compound name: PFTeDA
Coefficient of Determination: R^2 = 0.999877
Calibration curve: -0.000202583 * x^2 + 1.14174 * x + 0.0540258
Response type: Internal Std (Ref 55), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

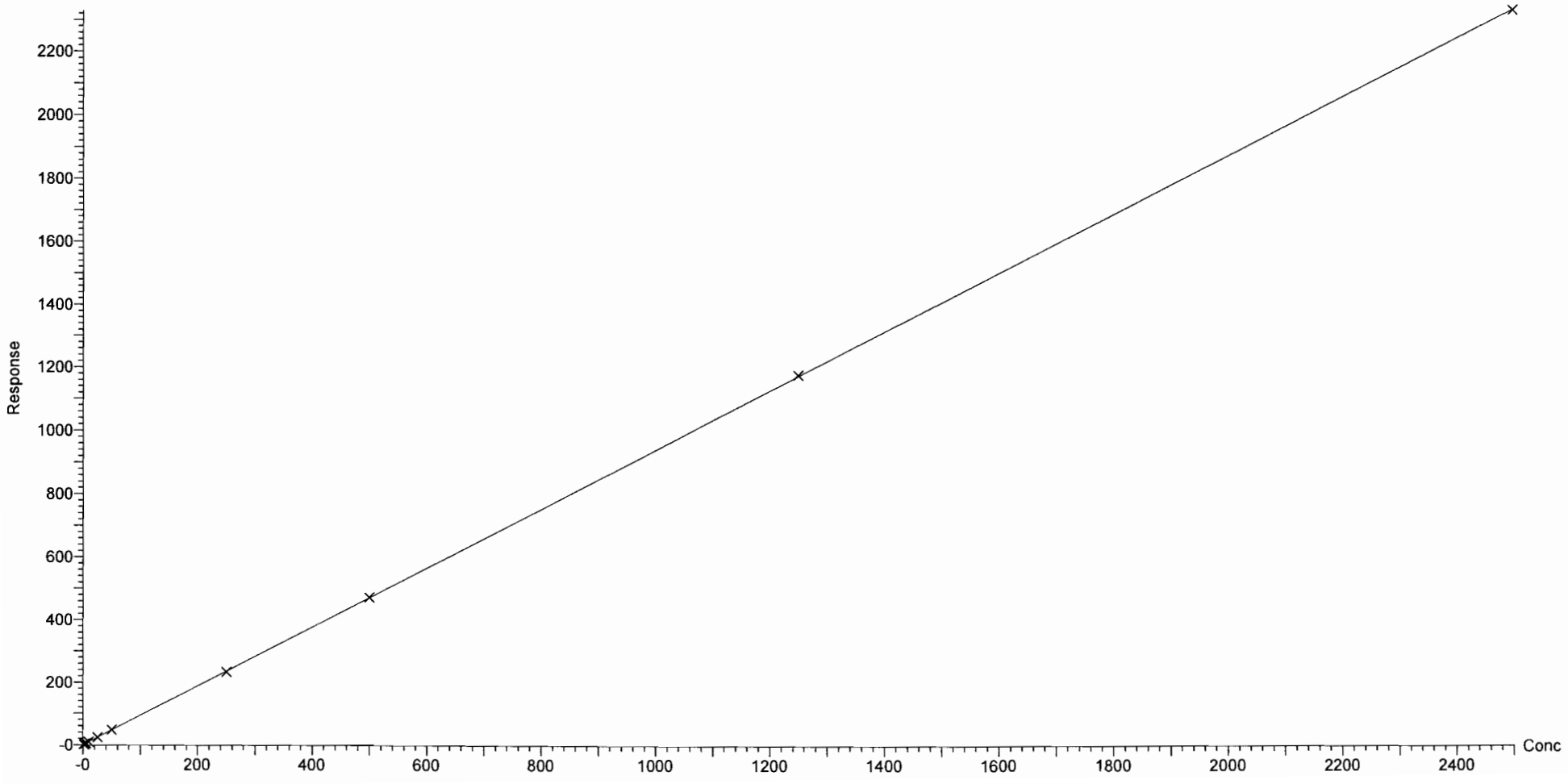


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:58 Pacific Daylight Time

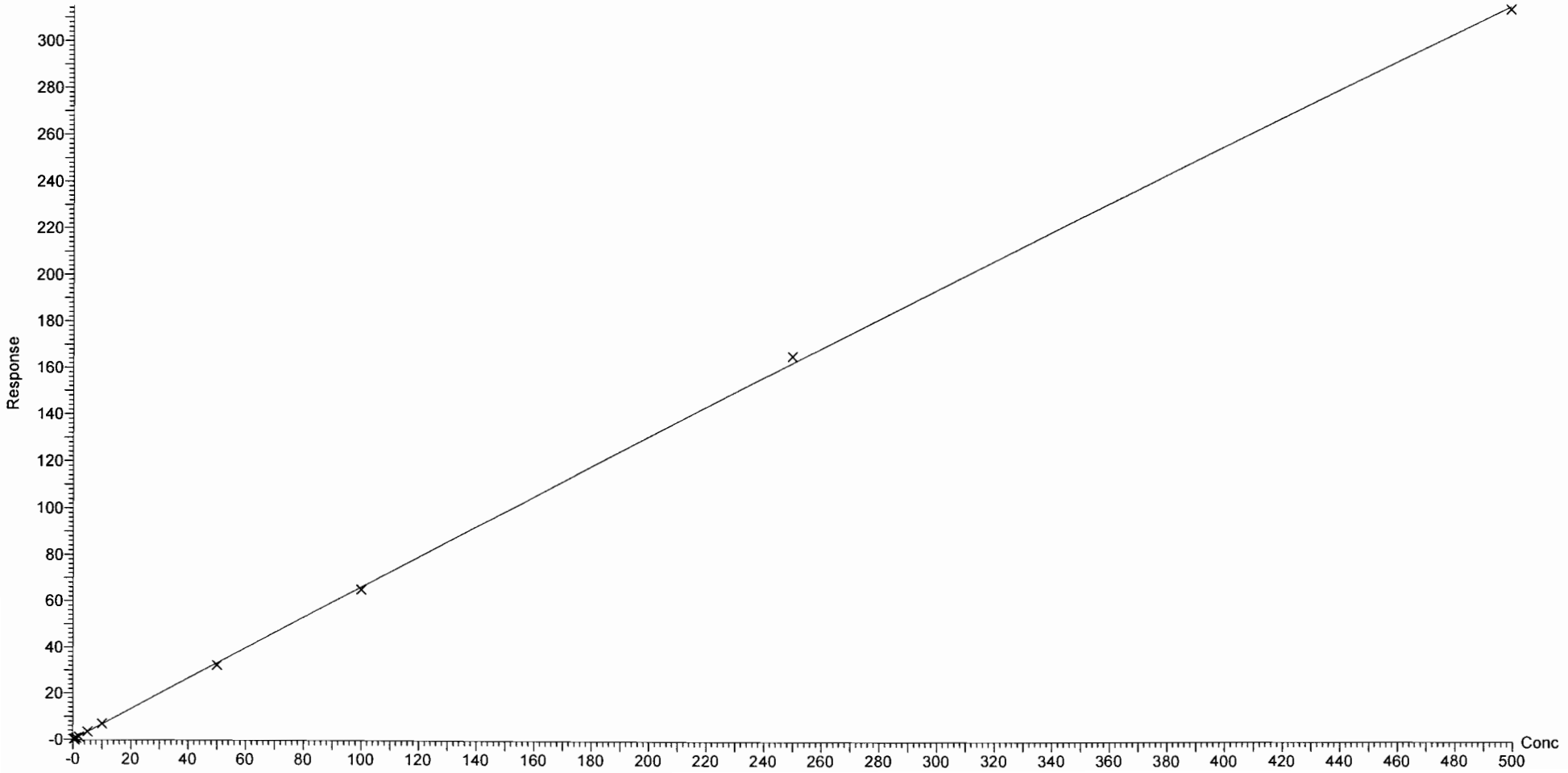
Compound name: N-EtFOSA
Coefficient of Determination: R^2 = 0.999985
Calibration curve: -4.98957e-006 * x^2 + 0.94367 * x + -0.0927262
Response type: Internal Std (Ref 56), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:58 Pacific Daylight Time

Compound name: PFHxDA
Coefficient of Determination: R^2 = 0.999797
Calibration curve: -8.12065e-005 * x^2 + 0.670329 * x + 0.0348309
Response type: Internal Std (Ref 57), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None

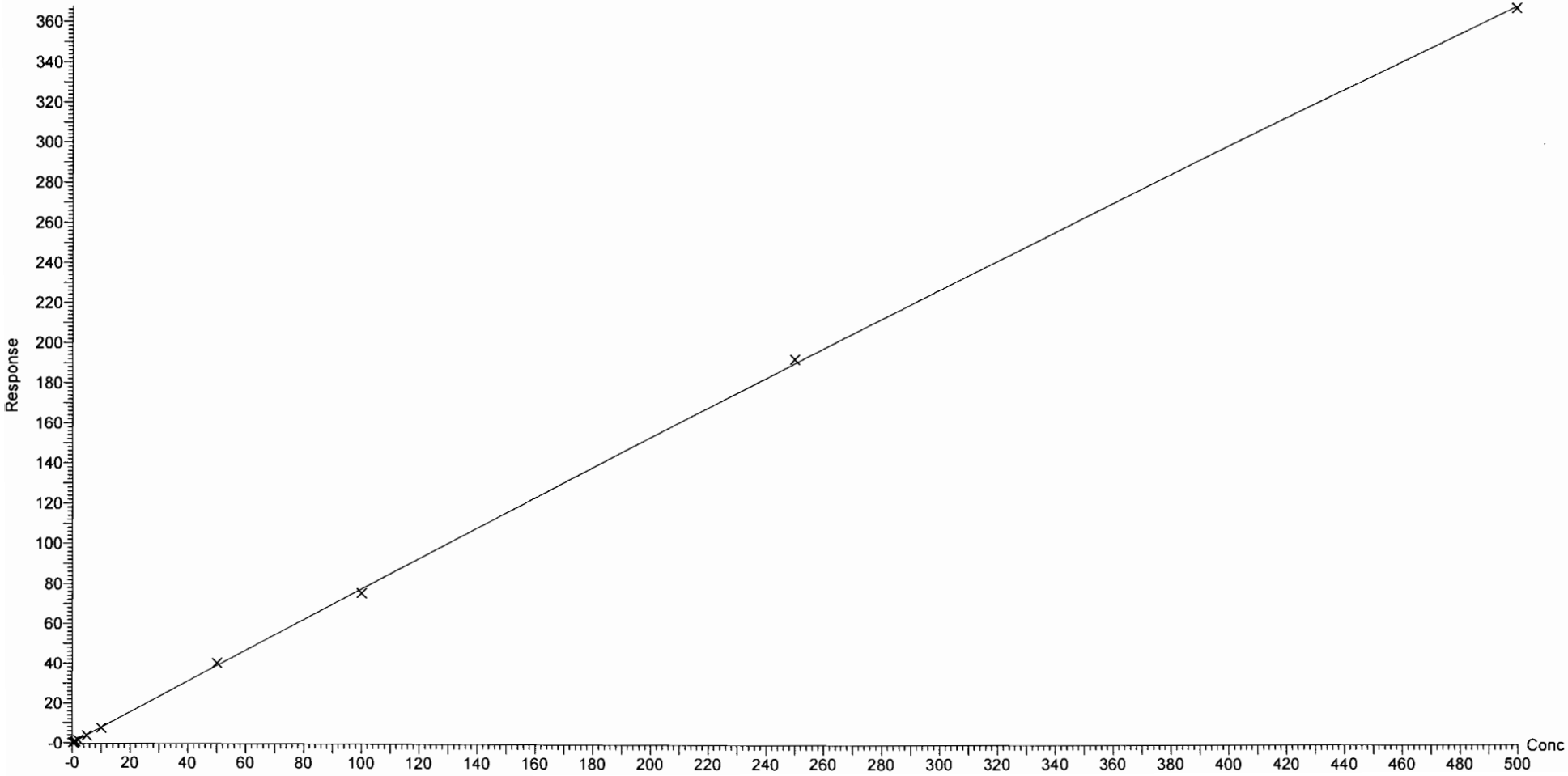


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:58 Pacific Daylight Time

Compound name: PFODA
Coefficient of Determination: R^2 = 0.999778
Calibration curve: -0.000104837 * x^2 + 0.787581 * x + -0.0259677
Response type: Internal Std (Ref 57), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Include, Weighting: 1/x, Axis trans: None

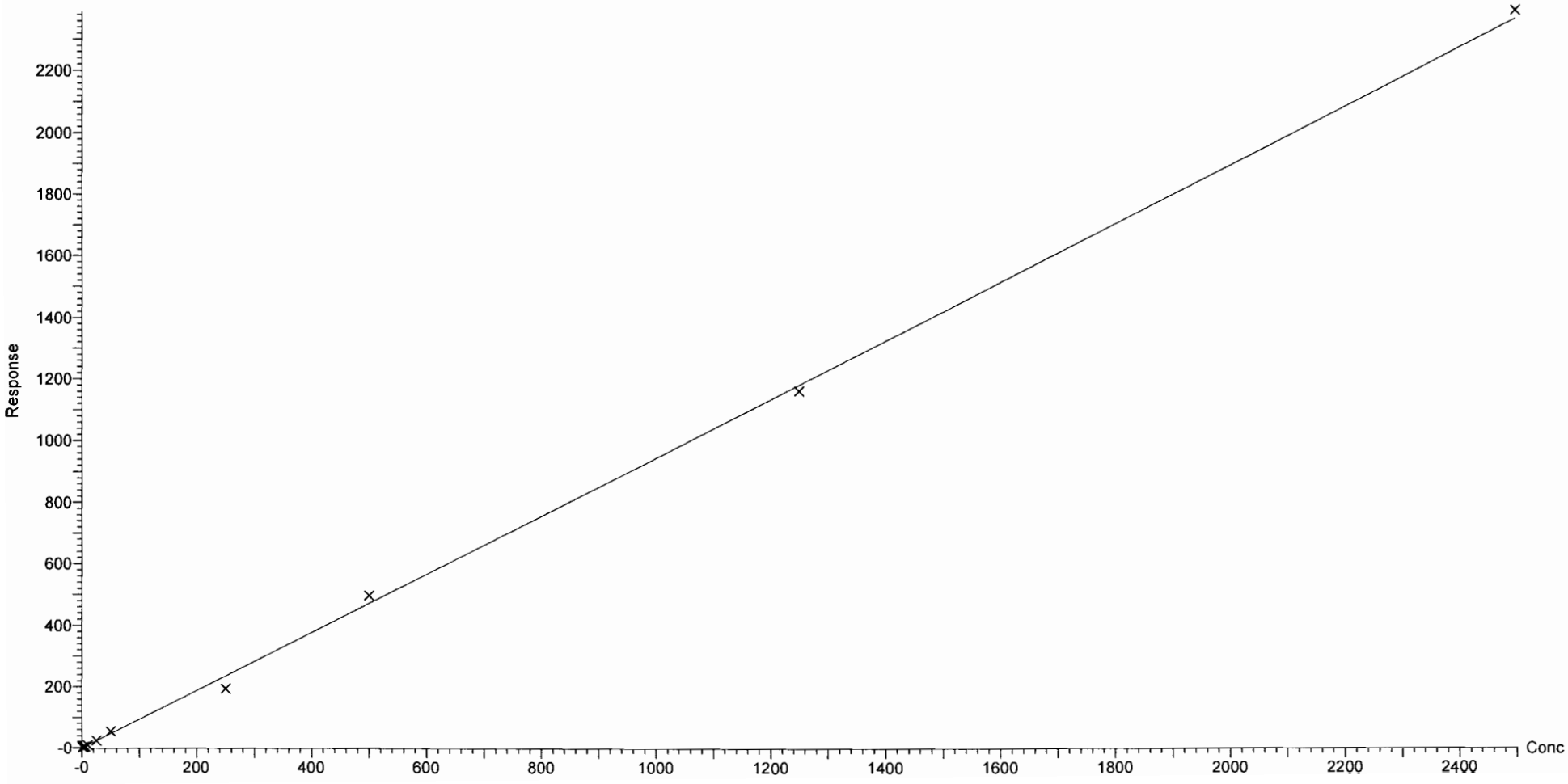


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:58 Pacific Daylight Time

Compound name: N-MeFOSE
Correlation coefficient: r = 0.998810, r^2 = 0.997622
Calibration curve: 0.944668 * x + -0.12551
Response type: Internal Std (Ref 58), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None

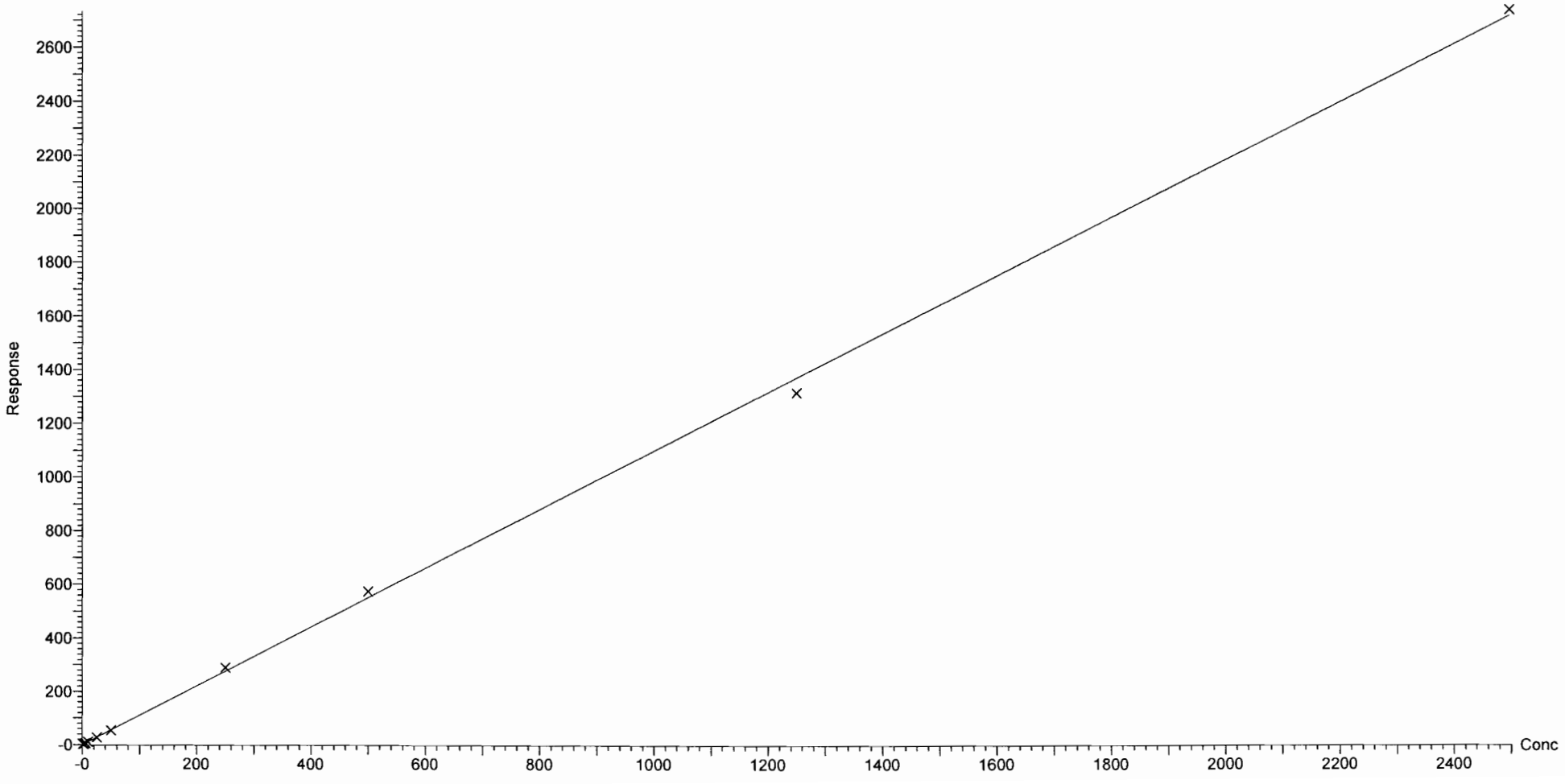


Vista Analytical Laboratory Q1

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_CRV.qld

Last Altered: Thursday, June 07, 2018 11:02:16 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:06:58 Pacific Daylight Time

Compound name: N-EtFOSE
Coefficient of Determination: R^2 = 0.999144
Calibration curve: -9.29024e-006 * x^2 + 1.1078 * x + 0.102011
Response type: Internal Std (Ref 59), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Exclude, Weighting: 1/x, Axis trans: None



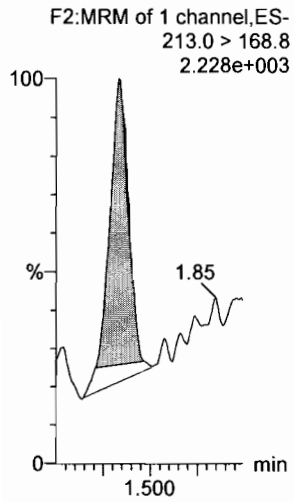
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Last Altered: Thursday, June 07, 2018 10:08:32 Pacific Daylight Time
Printed: Thursday, June 07, 2018 10:08:48 Pacific Daylight Time

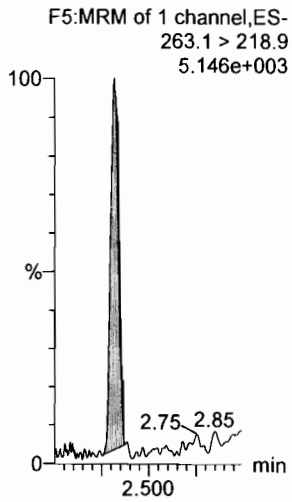
Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060618.mdb 07 Jun 2018 10:08:13
Calibration: 07 Jun 2018 10:08:32

Name: 180606M2_2, Date: 06-Jun-2018, Time: 17:59:10, ID: ST180606M2-1 PFC CS-2 18E2902, Description: PFC CS-2 18E2902

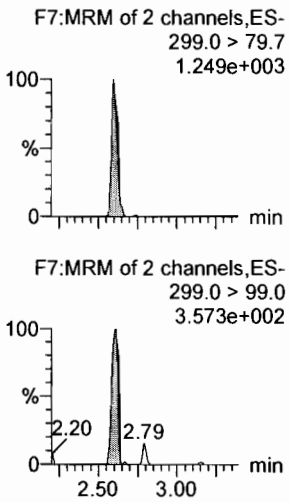
PFBA



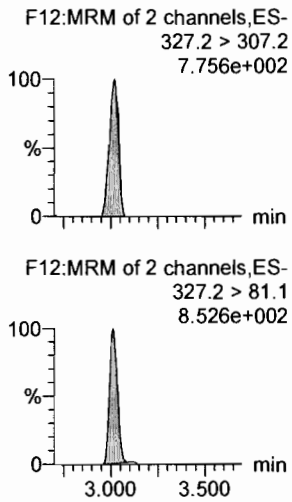
PFPeA



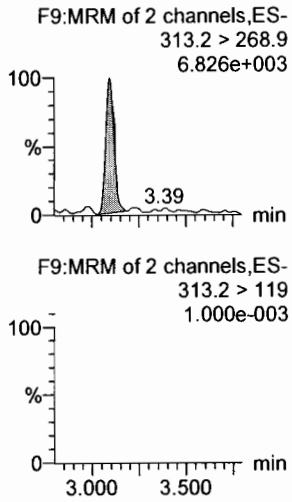
PFBS



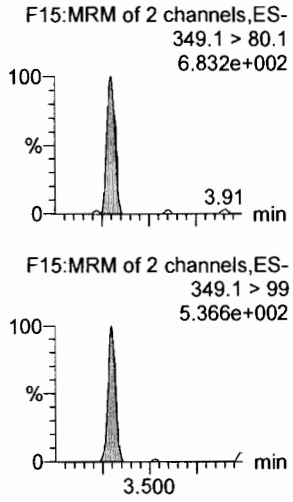
4:2 FTS



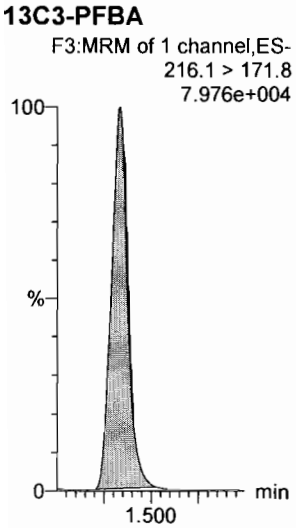
PFHxA



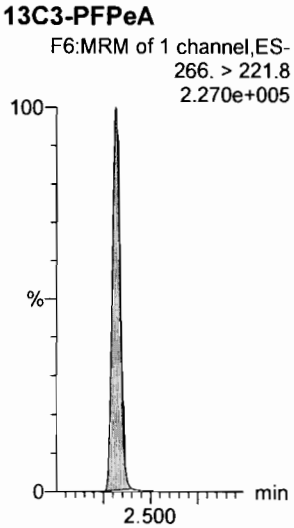
PFPeS



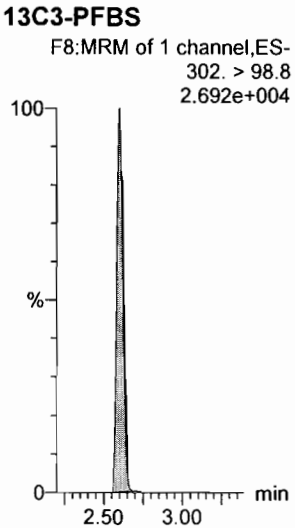
13C3-PFBA



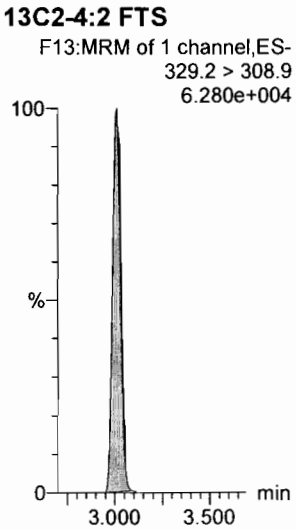
13C3-PFPeA



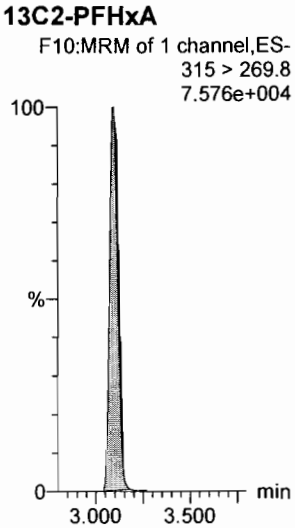
13C3-PFBS



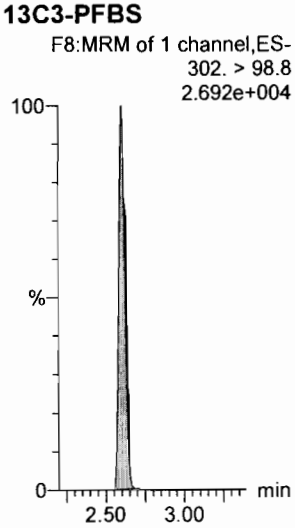
13C2-4:2 FTS



13C2-PFHxA



13C3-PFBS

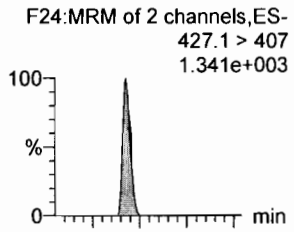


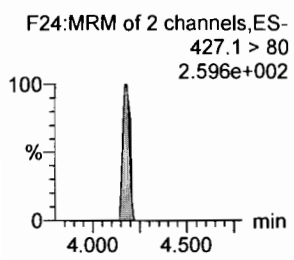
Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2.qld

Last Altered: Thursday, June 07, 2018 10:08:32 Pacific Daylight Time
Printed: Thursday, June 07, 2018 10:08:48 Pacific Daylight Time

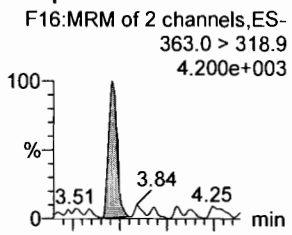
Name: 180606M2_2, Date: 06-Jun-2018, Time: 17:59:10, ID: ST180606M2-1 PFC CS-2 18E2902, Description: PFC CS-2 18E2902

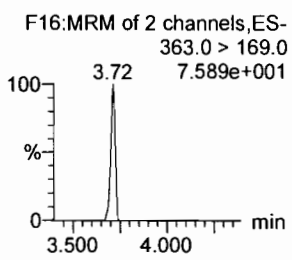
6:2 FTS



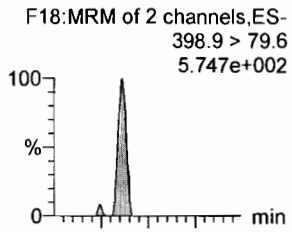


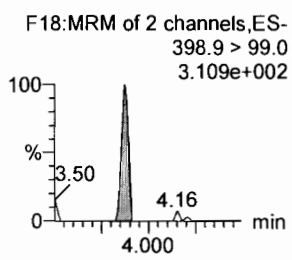
PFHpA



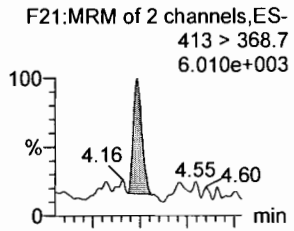


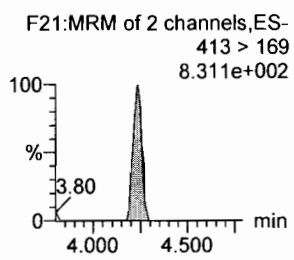
L-PFHxS



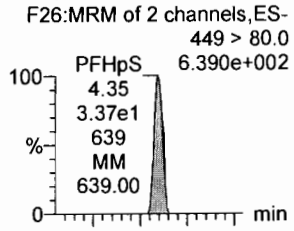


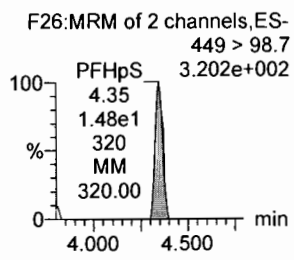
L-PFOA



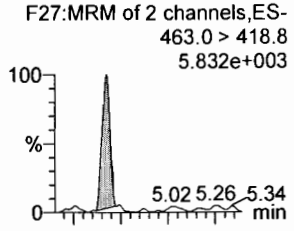


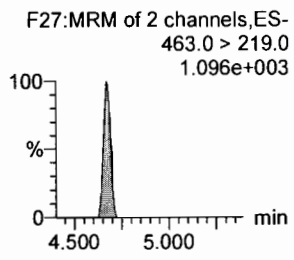
PFHpS



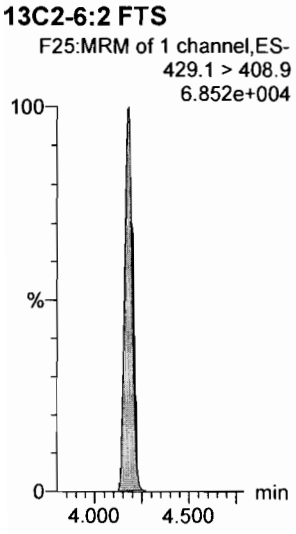


PFNA

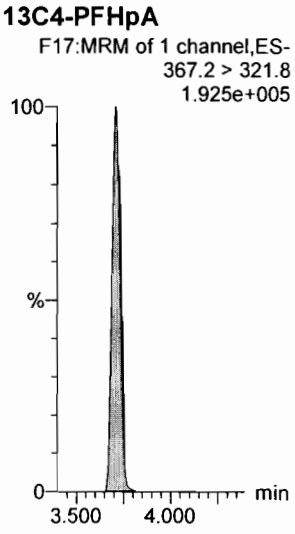




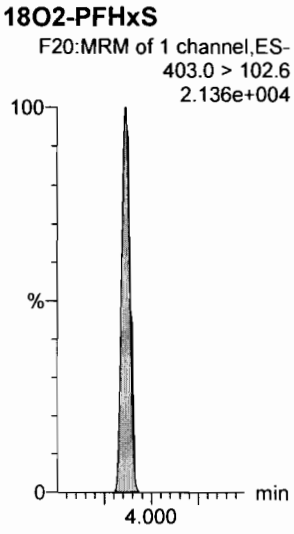
13C2-6:2 FTS



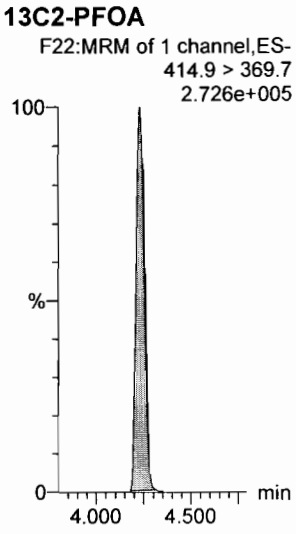
13C4-PFHpA



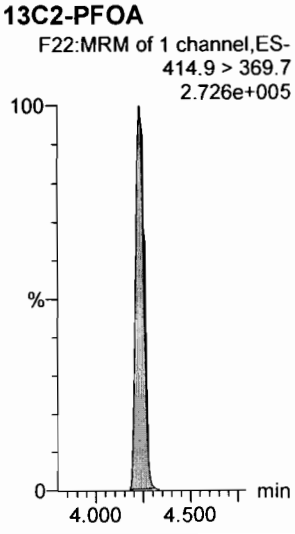
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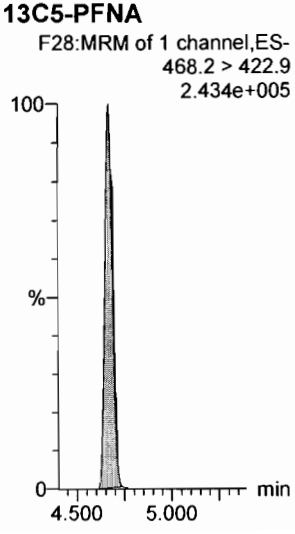
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13C2-PFOA



13C5-PFNA

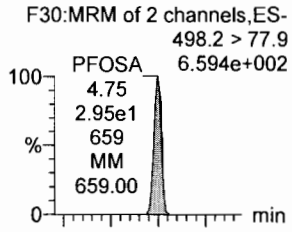


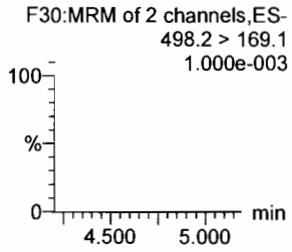
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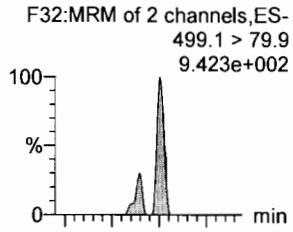
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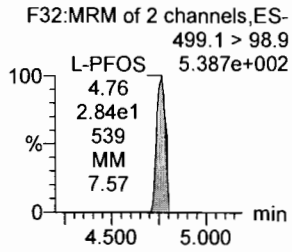
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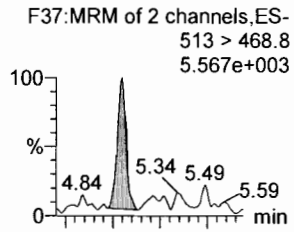


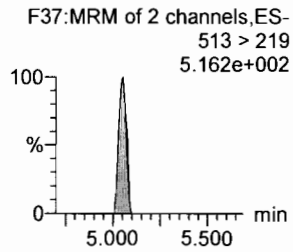
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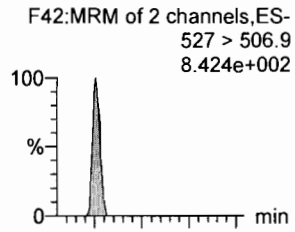


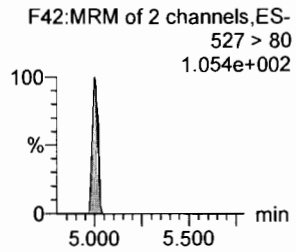
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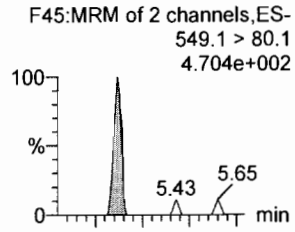


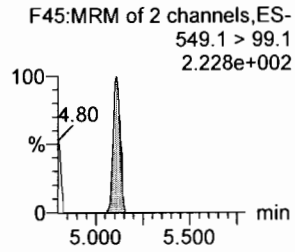
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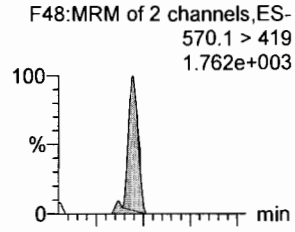


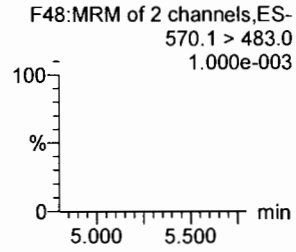
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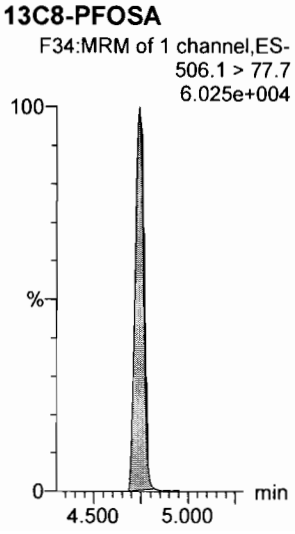


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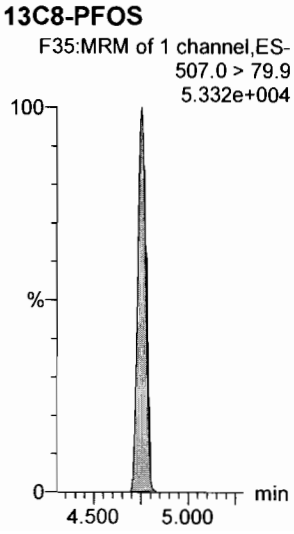




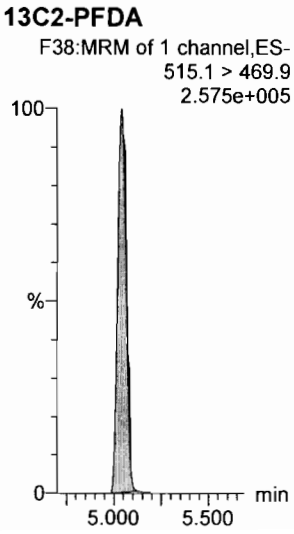
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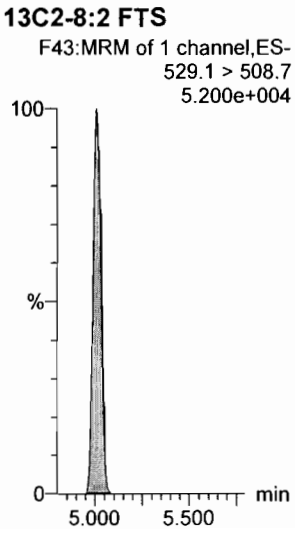
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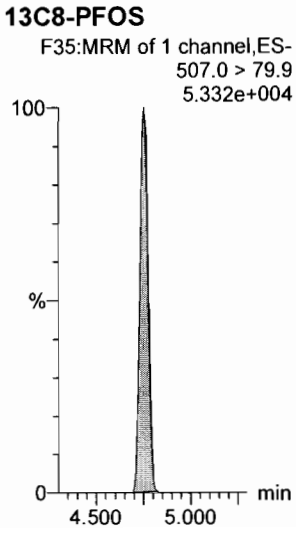
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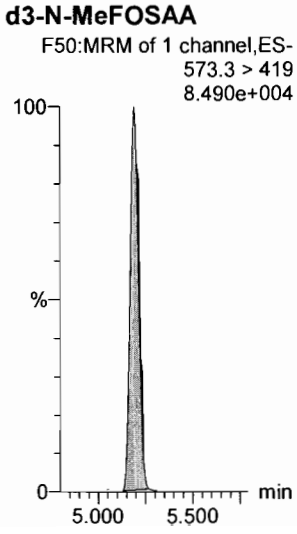
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13C8-PFOS



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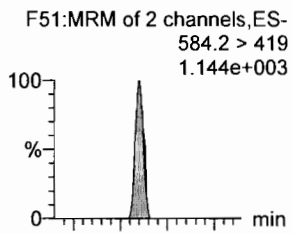


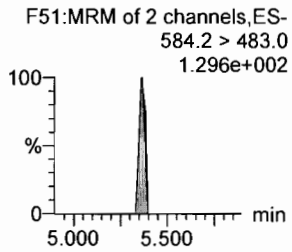
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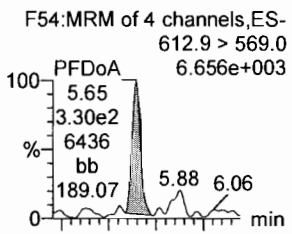
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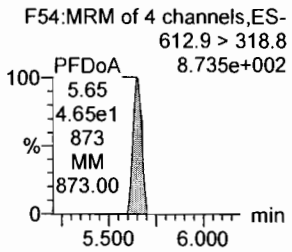
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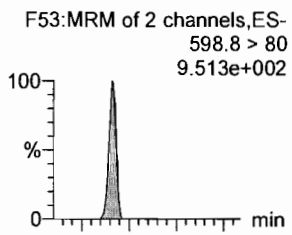


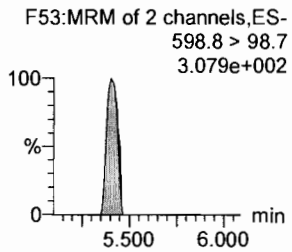
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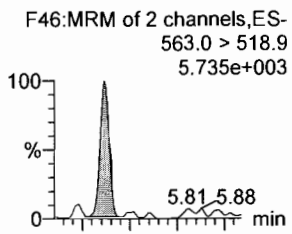


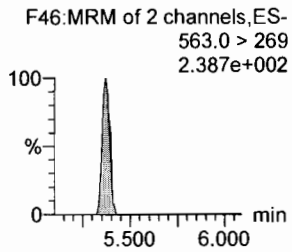
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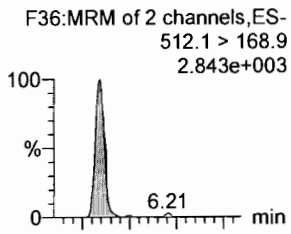


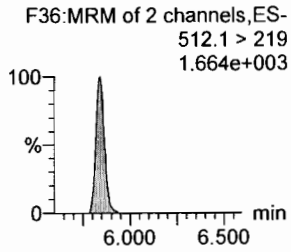
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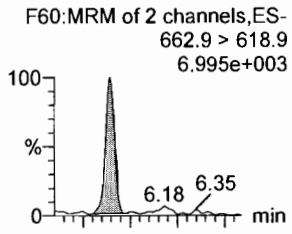


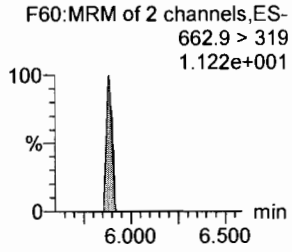
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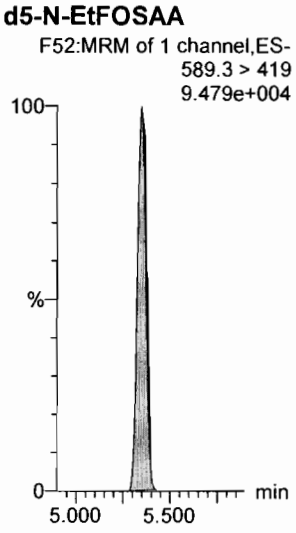


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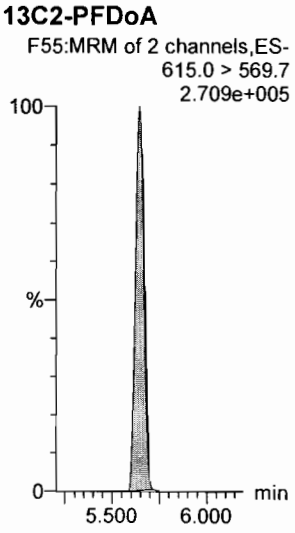




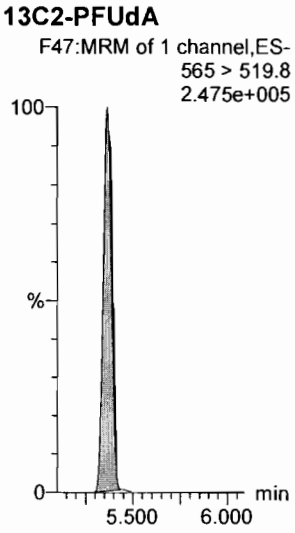
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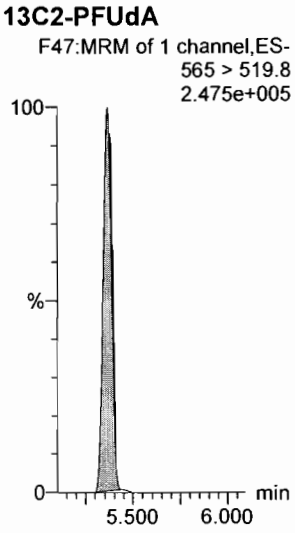
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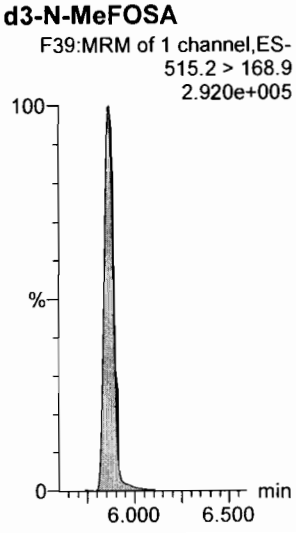
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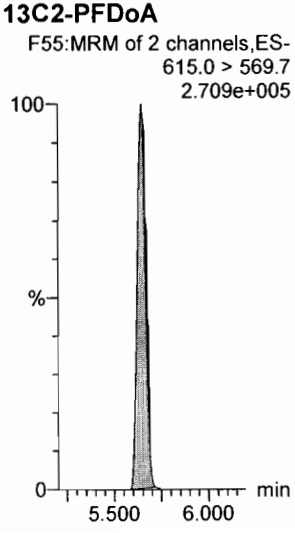
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d3-N-MeFOSA



13C2-PFDoA

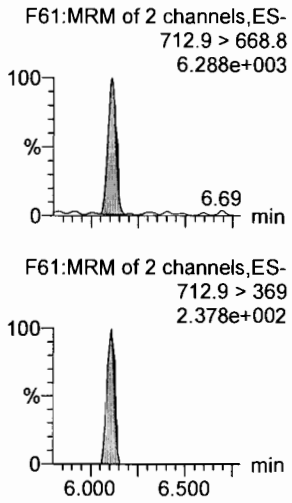


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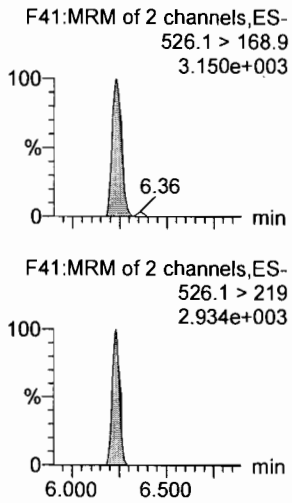
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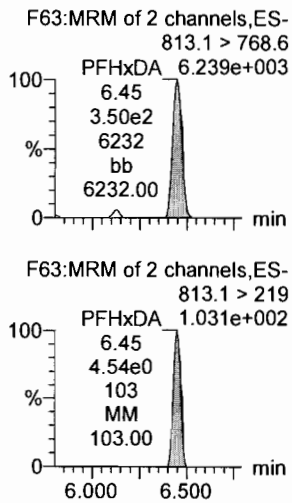
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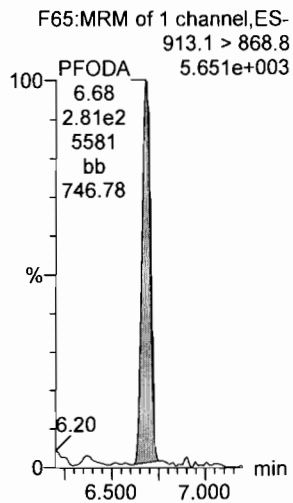
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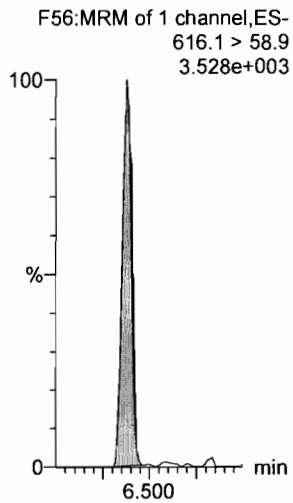
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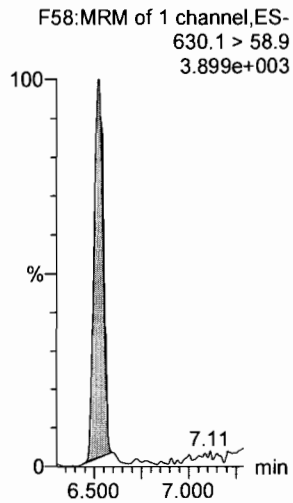
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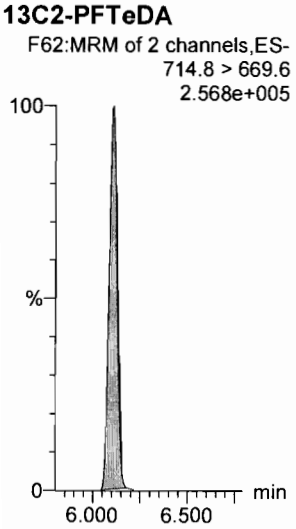
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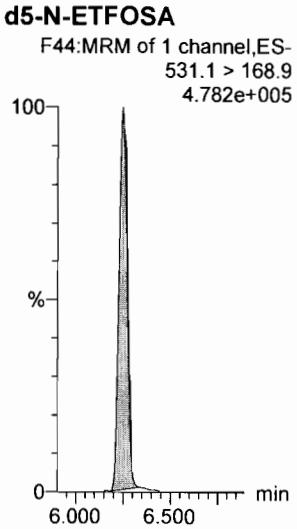
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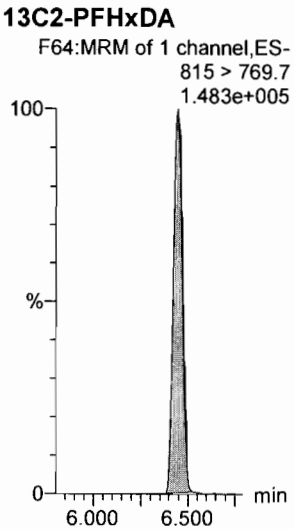
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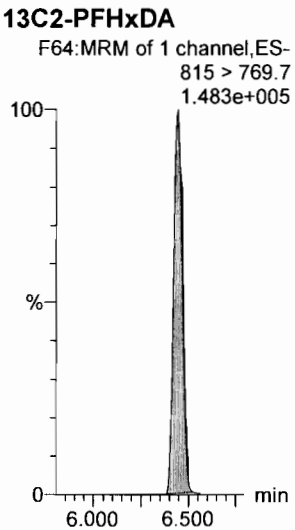
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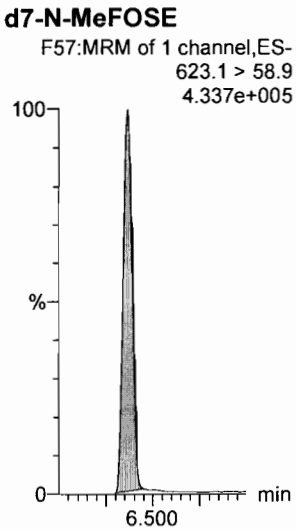
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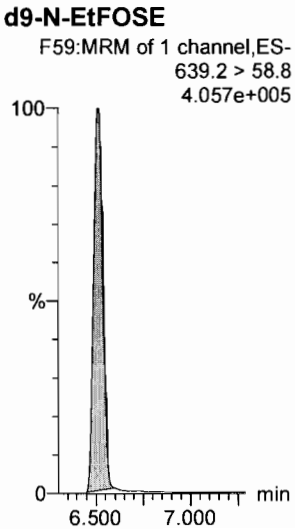
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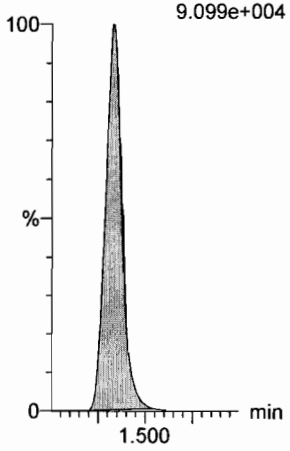


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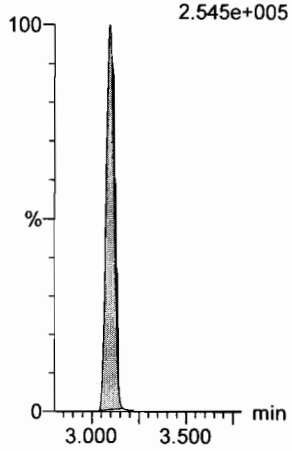
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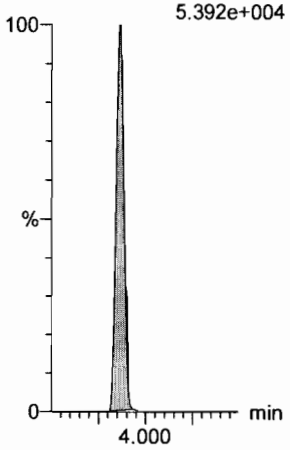
13C4-PFBA



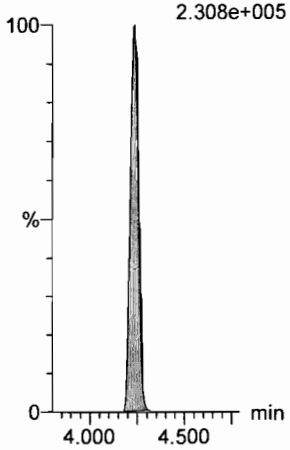
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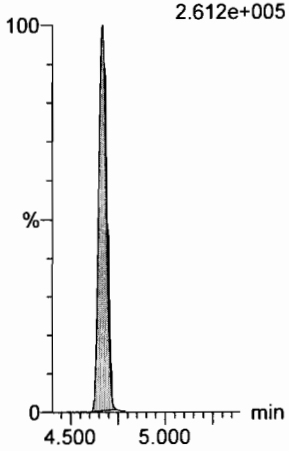
13C3-PFHxS



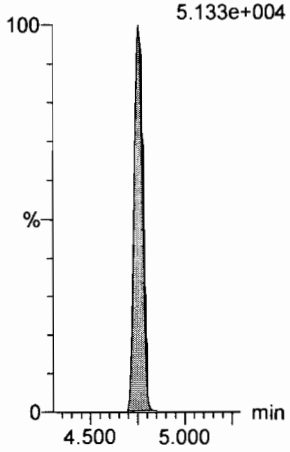
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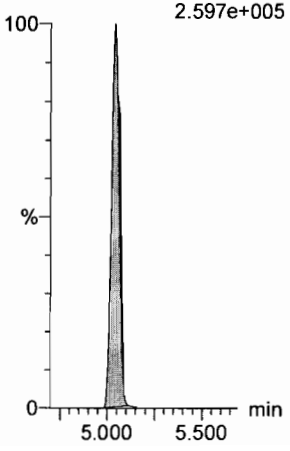
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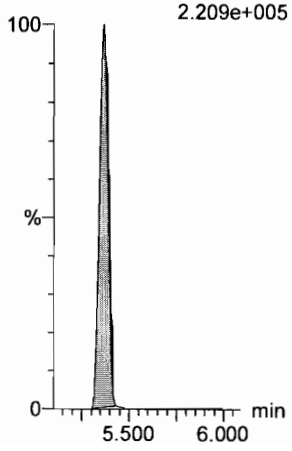
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13C6-PFDA



13C7-PFUdA

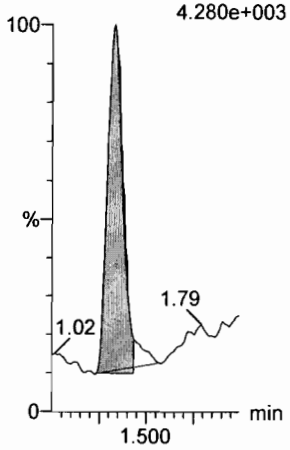


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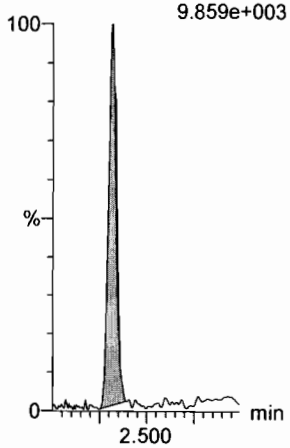
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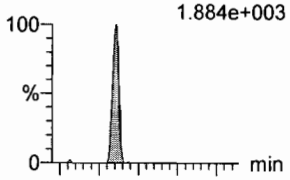
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
4.280e+003



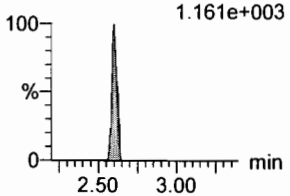
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
9.859e+003



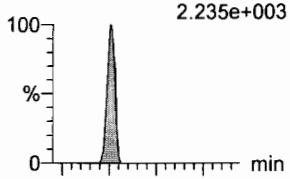
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F7:MRM of 2 channels,ES-
299.0 > 79.7
1.884e+003



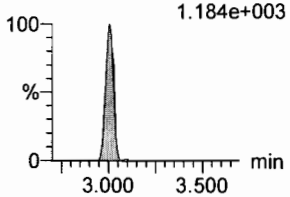
F7:MRM of 2 channels,ES-
299.0 > 99.0
1.161e+003



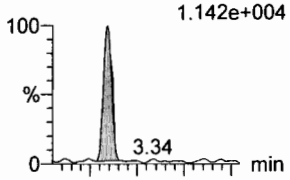
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
2.235e+003



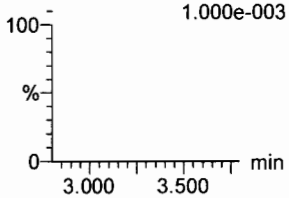
F12:MRM of 2 channels,ES-
327.2 > 81.1
1.184e+003



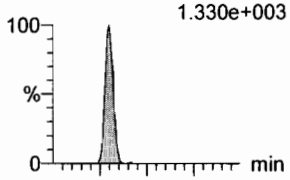
PFHxA
F9:MRM of 2 channels,ES-
313.2 > 268.9
1.142e+004



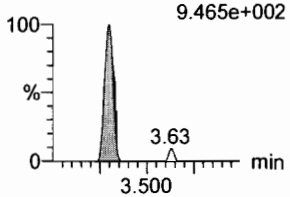
F9:MRM of 2 channels,ES-
313.2 > 119
1.000e-003



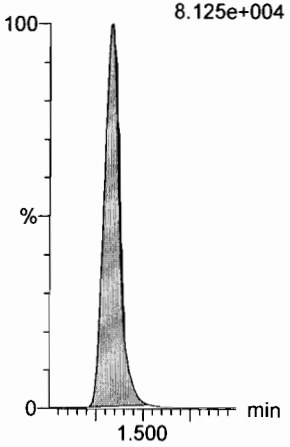
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
1.330e+003



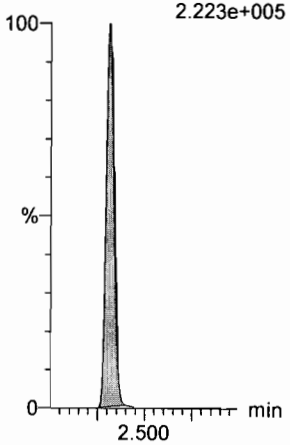
F15:MRM of 2 channels,ES-
349.1 > 99
9.465e+002



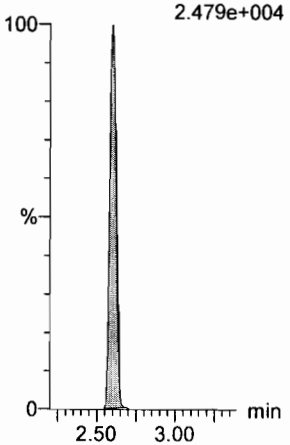
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
8.125e+004



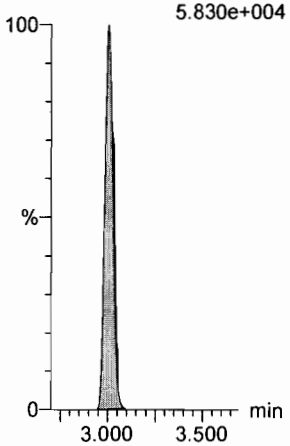
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F6:MRM of 1 channel,ES-
266. > 221.8
2.223e+005



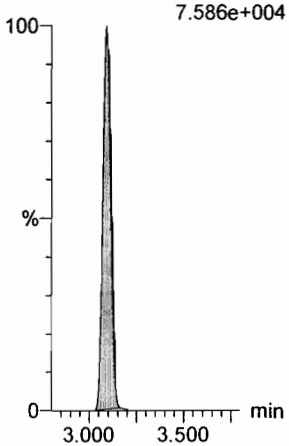
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.479e+004



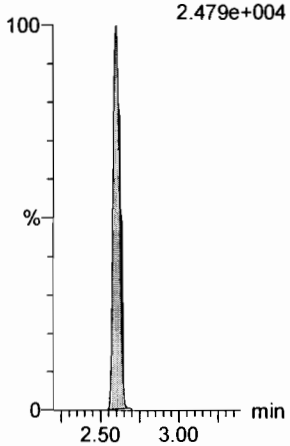
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
5.830e+004



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 269.8
7.586e+004



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.479e+004

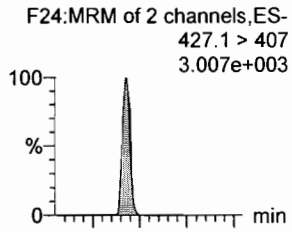


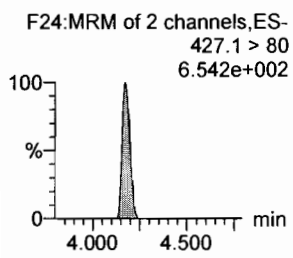
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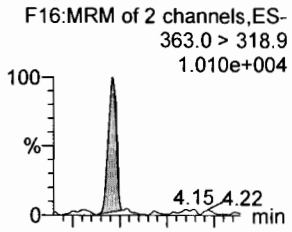
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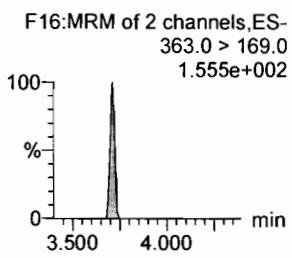
6:2 FTS



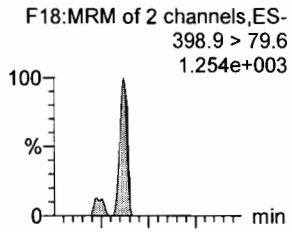


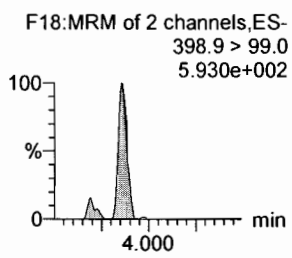
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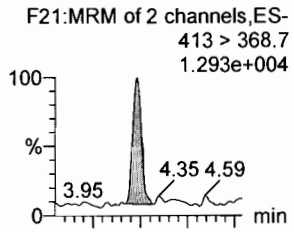


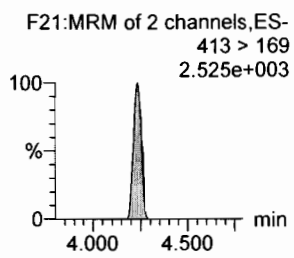
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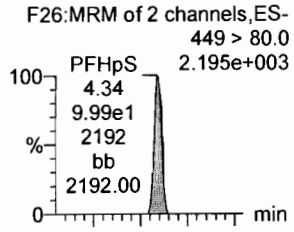


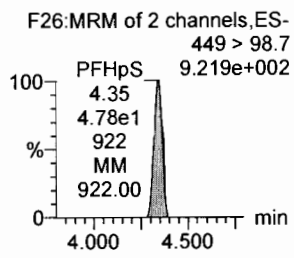
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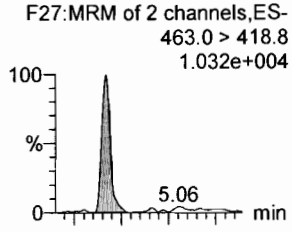


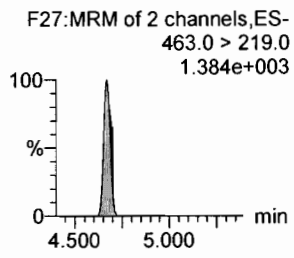
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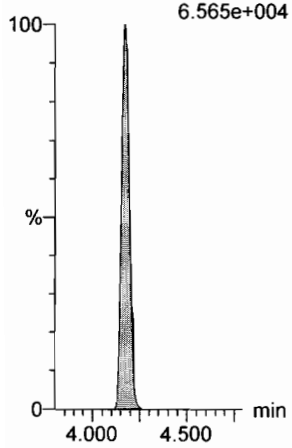


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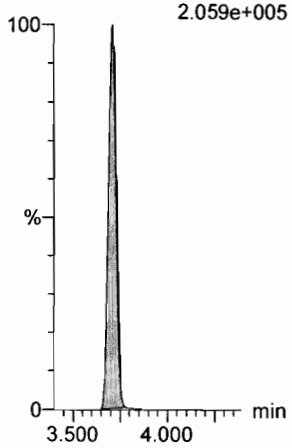




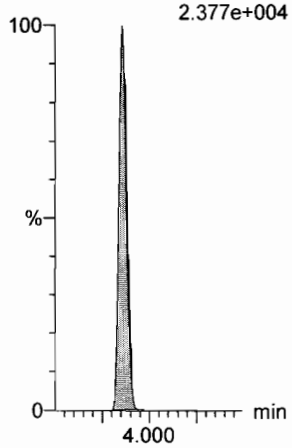
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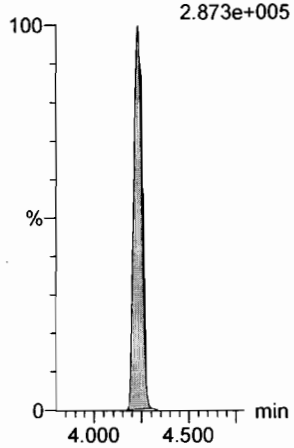
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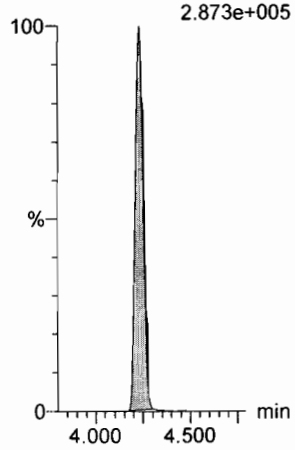
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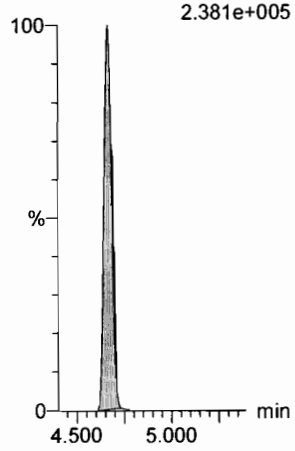
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13C2-PFOA



13C5-PFNA

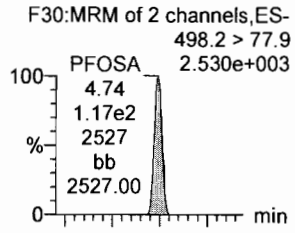


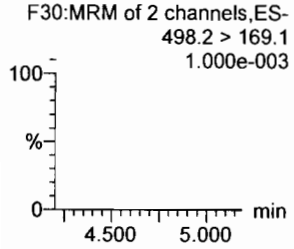
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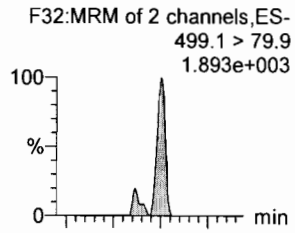
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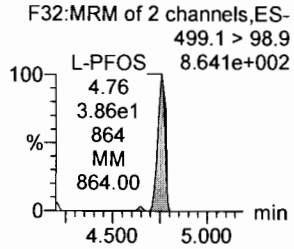
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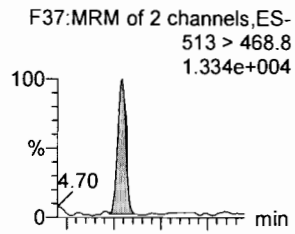


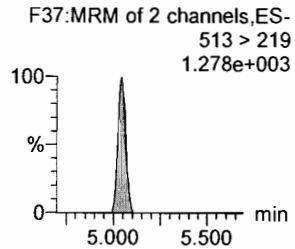
L-PFOS



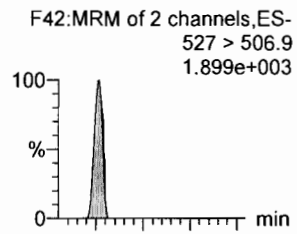


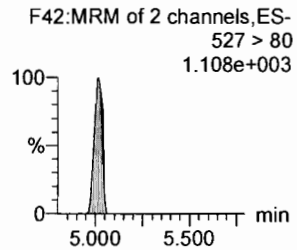
PFDA



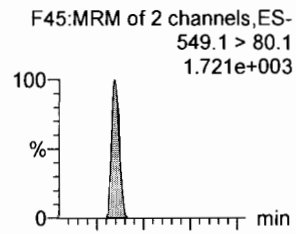


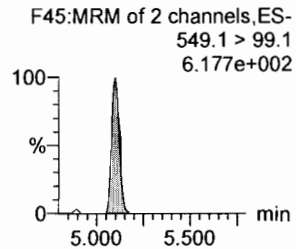
8:2 FTS



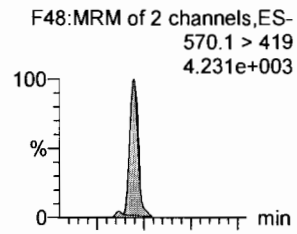


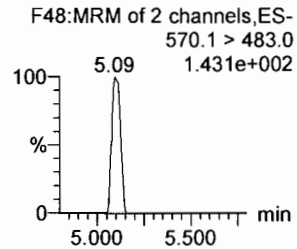
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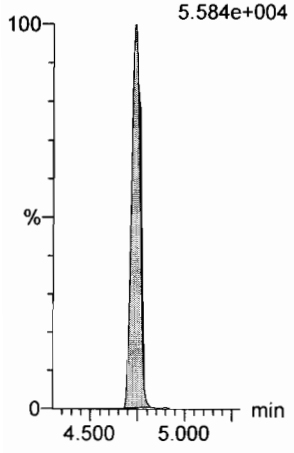


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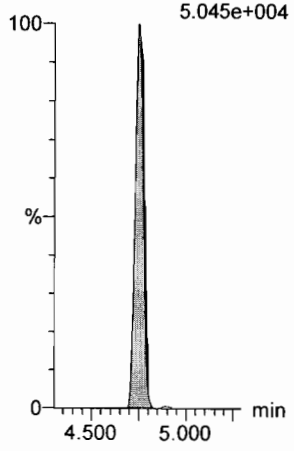




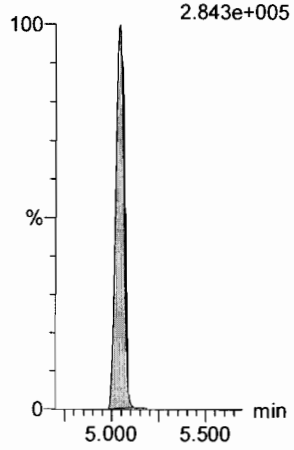
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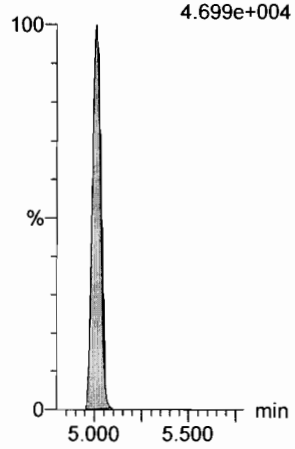
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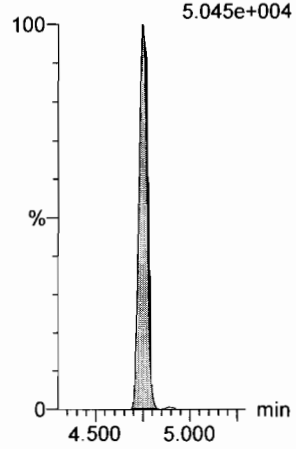
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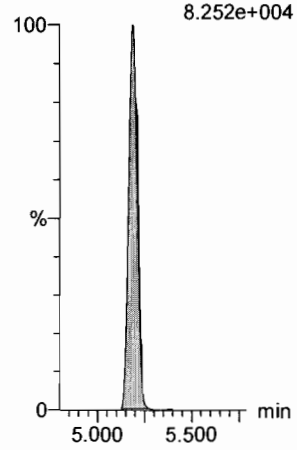
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13C8-PFOS



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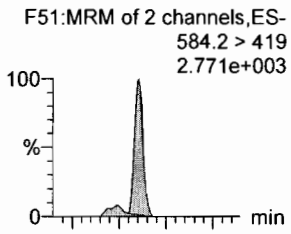


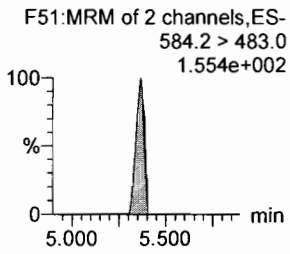
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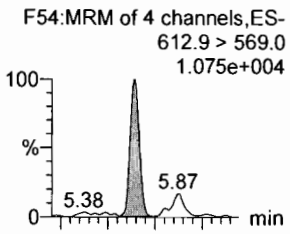
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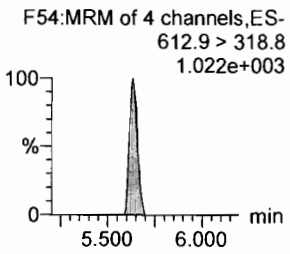
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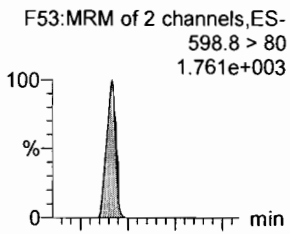


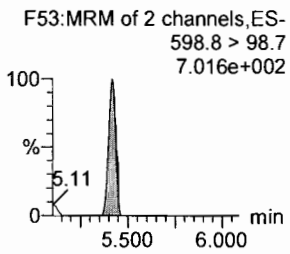
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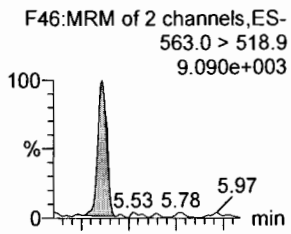


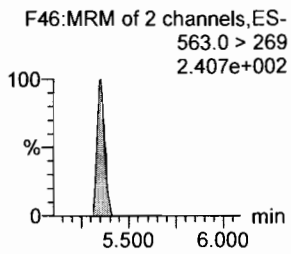
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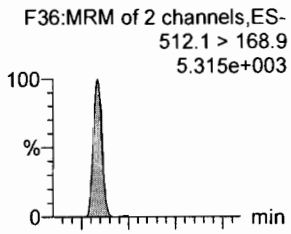


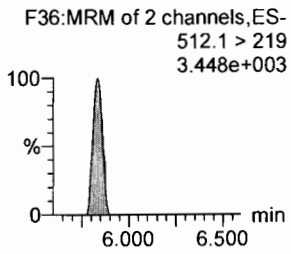
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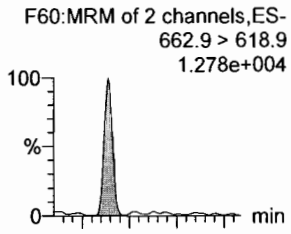


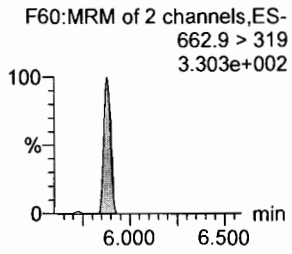
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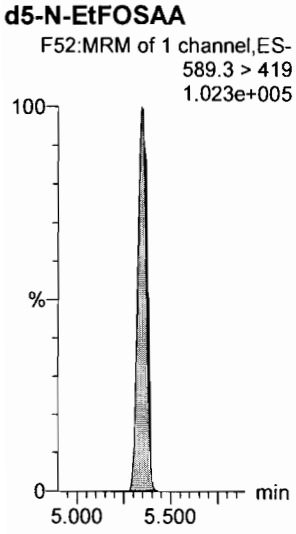


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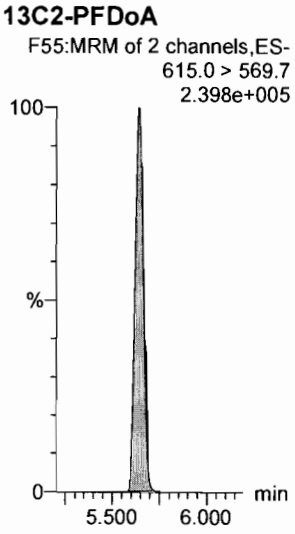




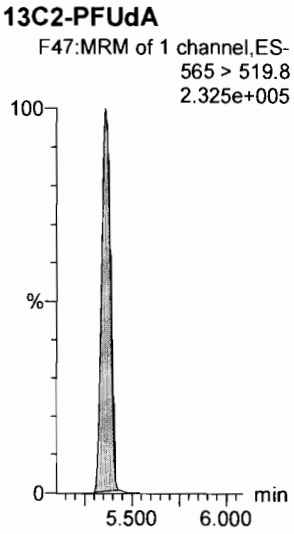
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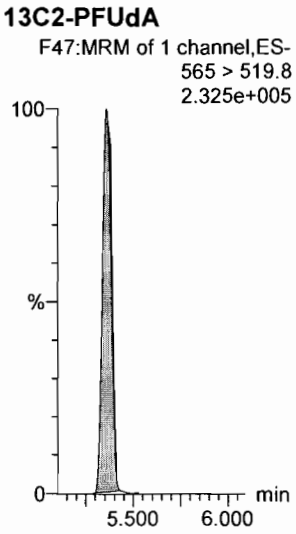
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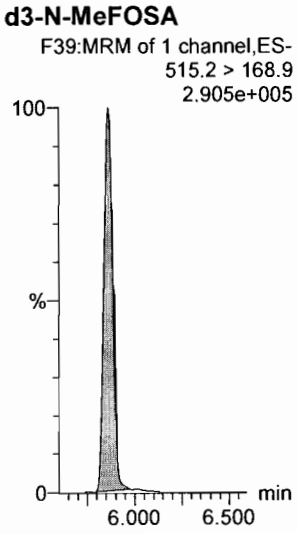
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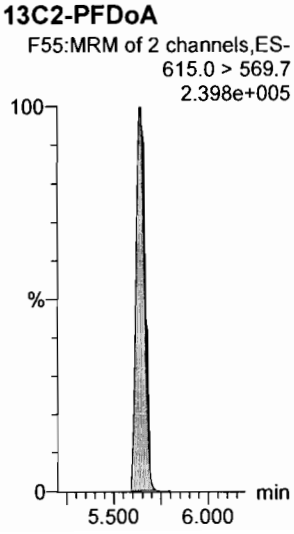
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13C2-PFDoA

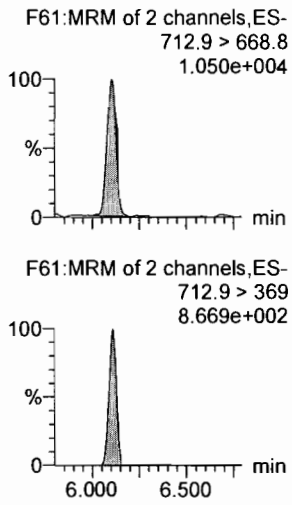


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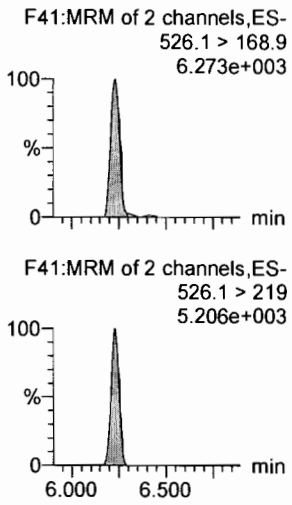
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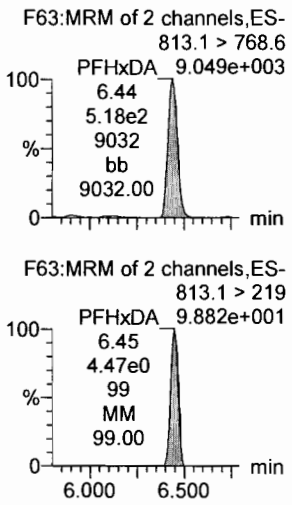
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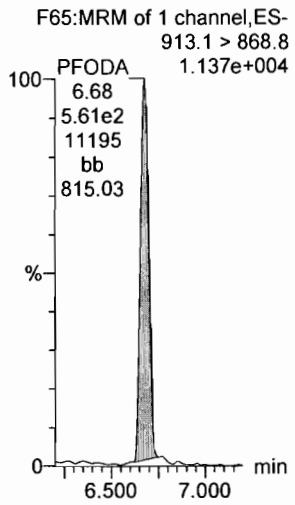
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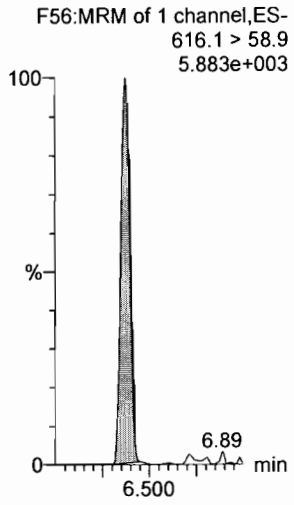
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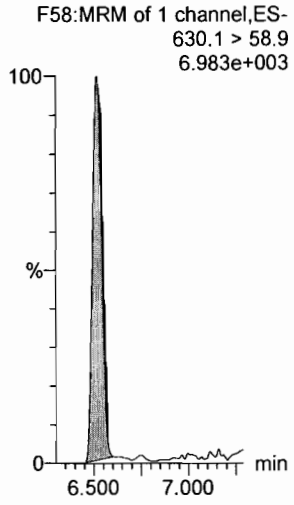
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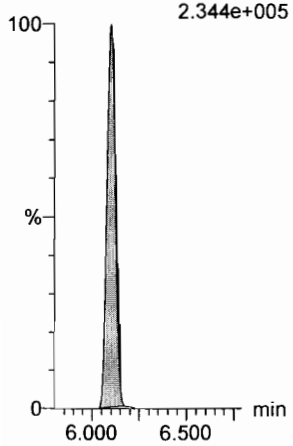
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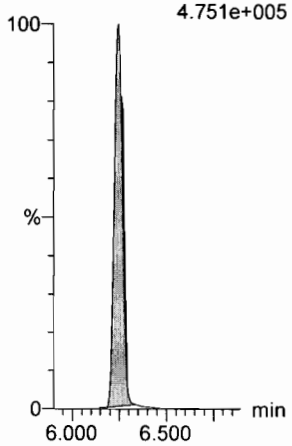
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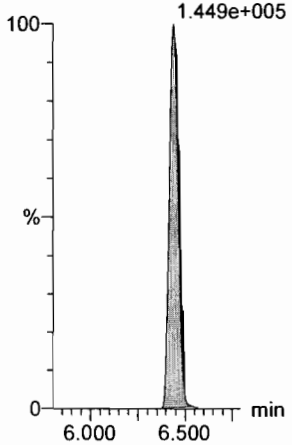
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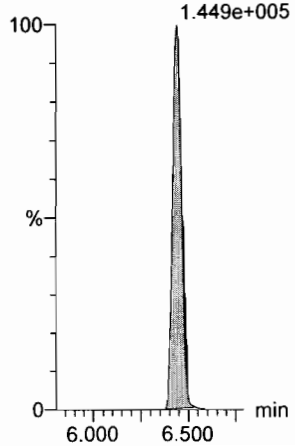
d5-N-ETFOSA



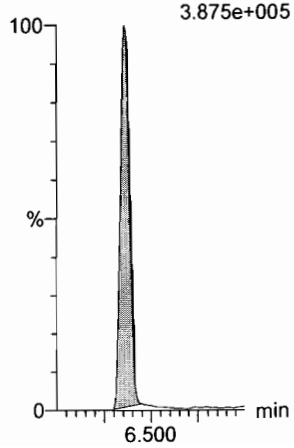
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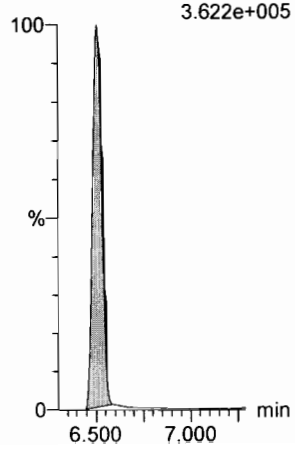
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d7-N-MeFOSE



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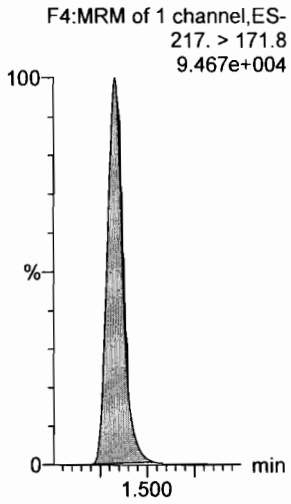


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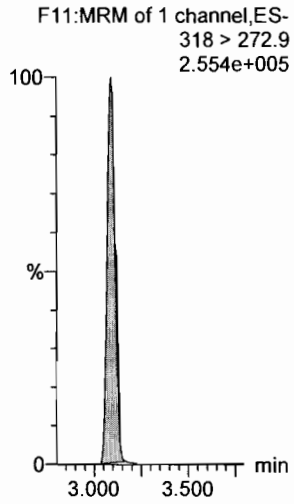
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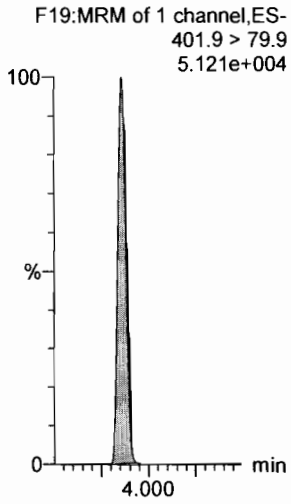
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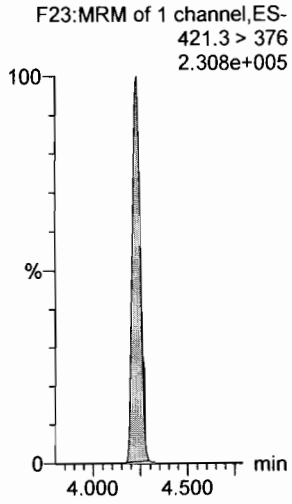
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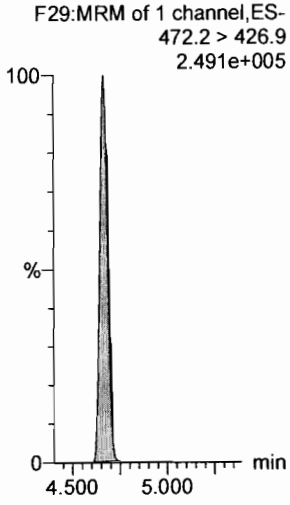
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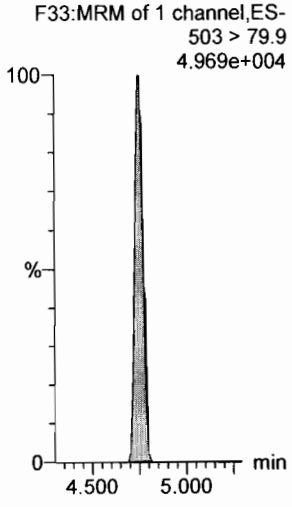
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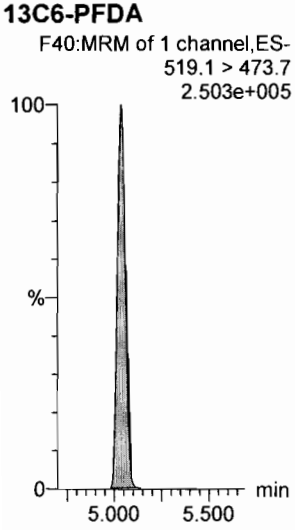
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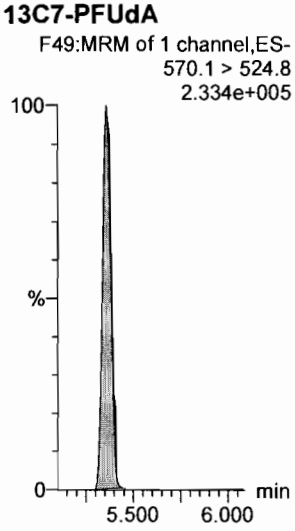
13C4-PFOS



13C6-PFDA



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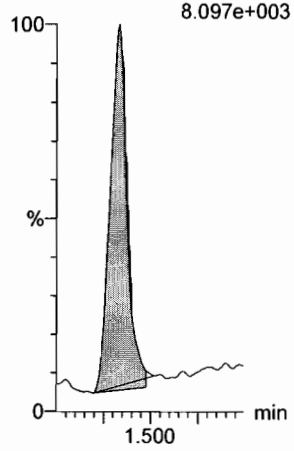


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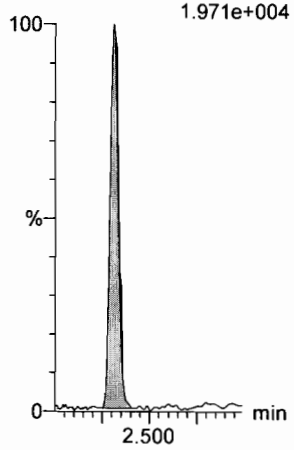
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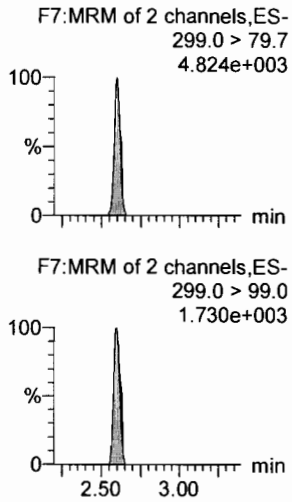
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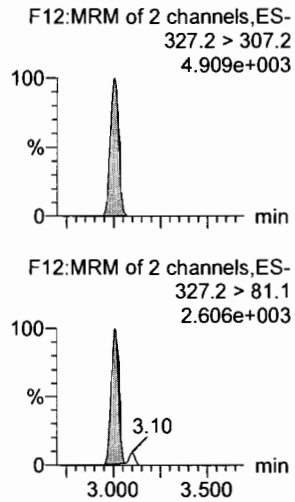
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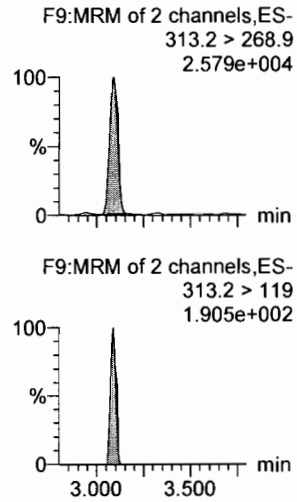
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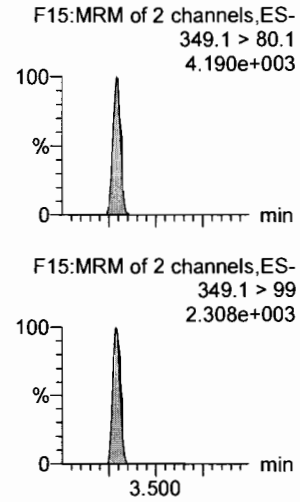
4:2 FTS



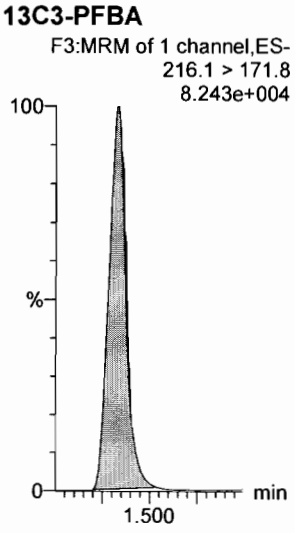
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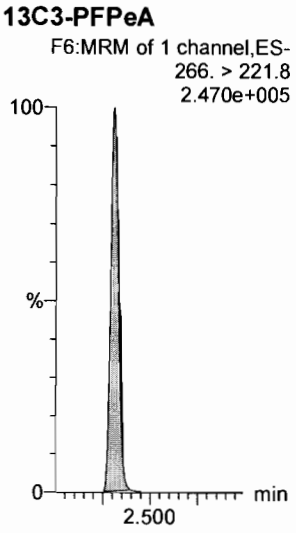
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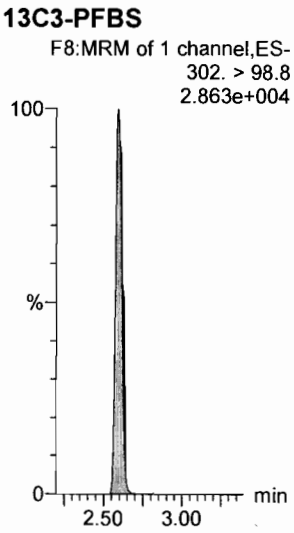
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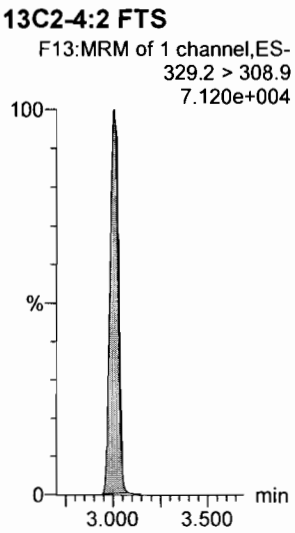
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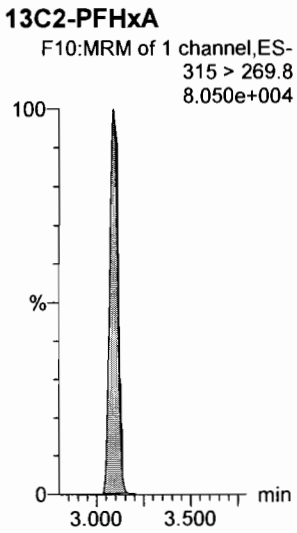
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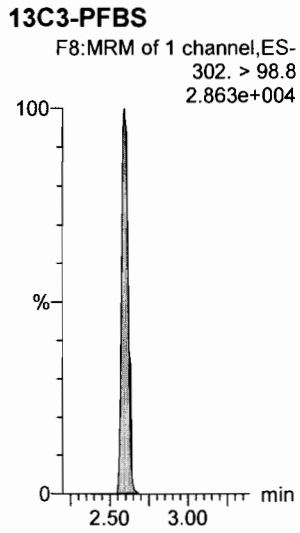
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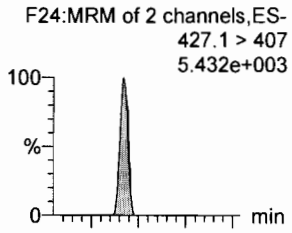


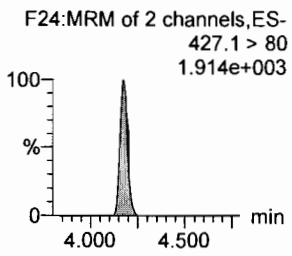
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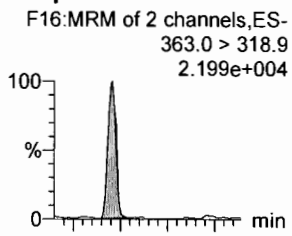
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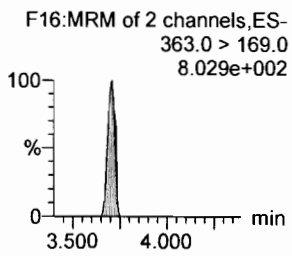
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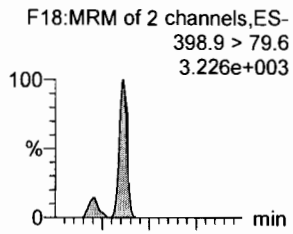


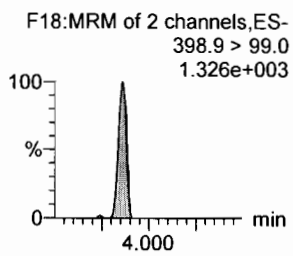
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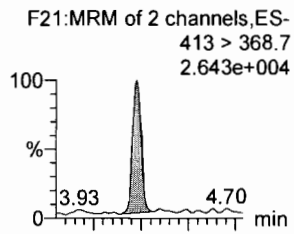


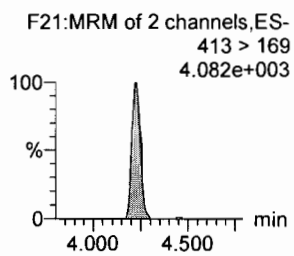
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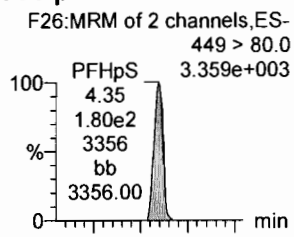


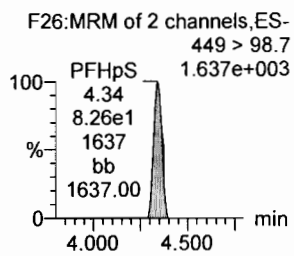
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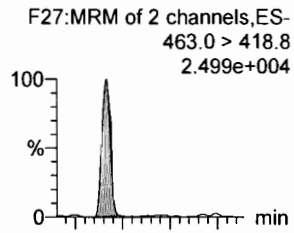


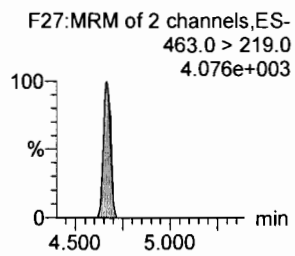
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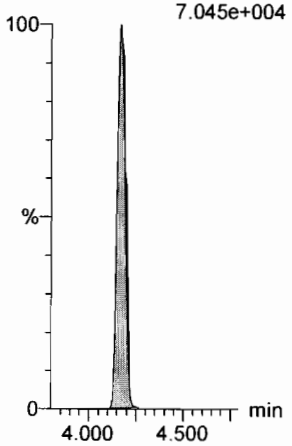


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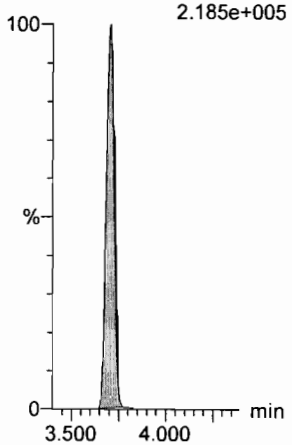




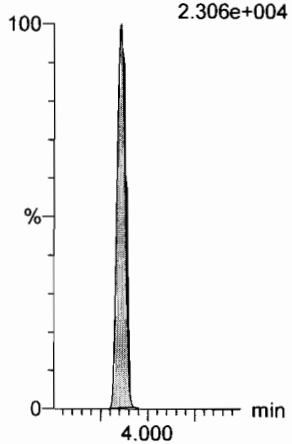
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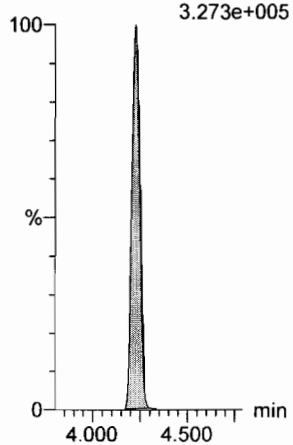
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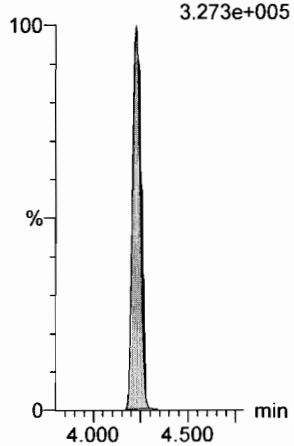
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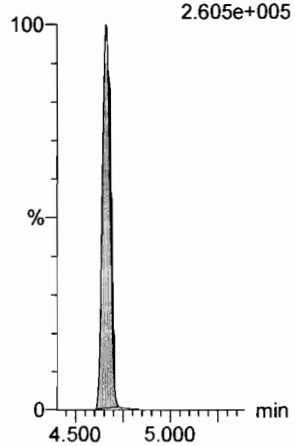
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13C2-PFOA



13C5-PFNA

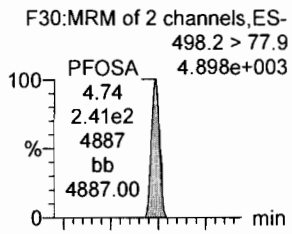


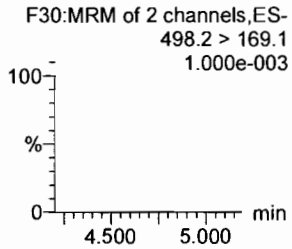
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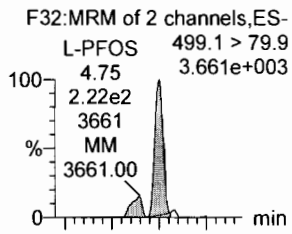
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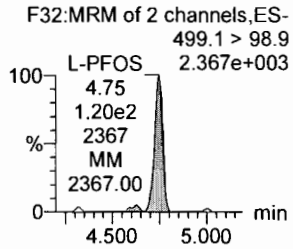
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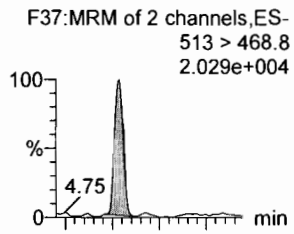


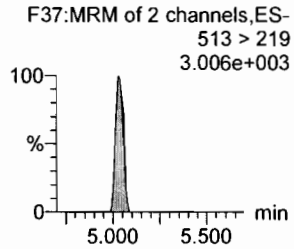
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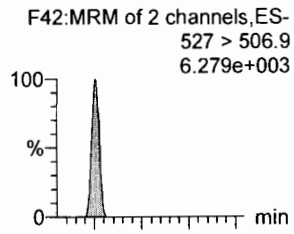


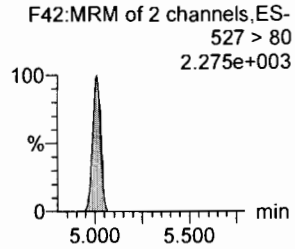
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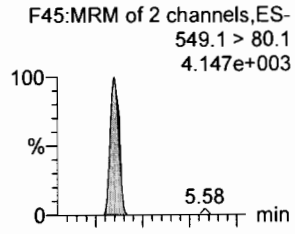


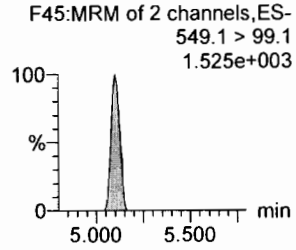
8:2 FTS



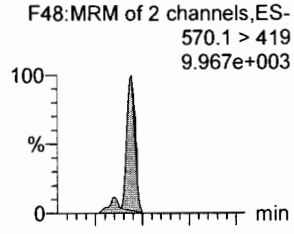


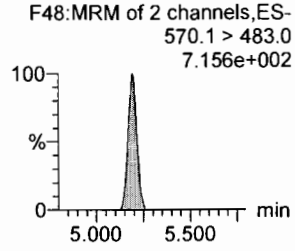
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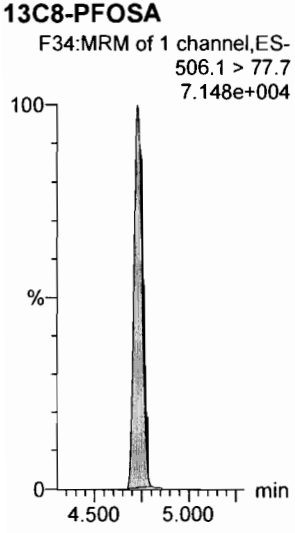


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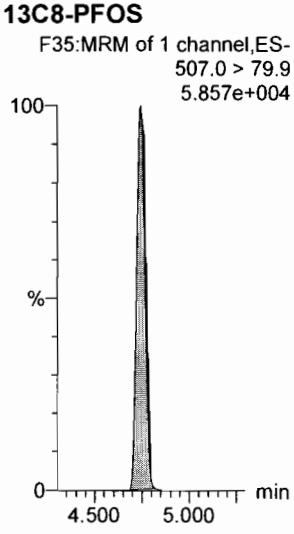




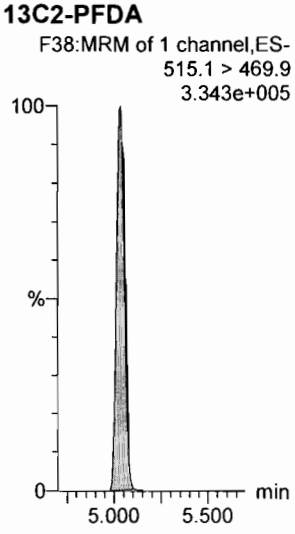
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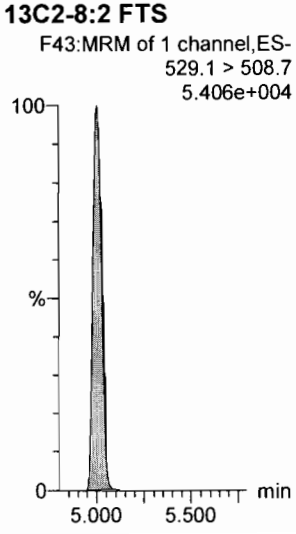
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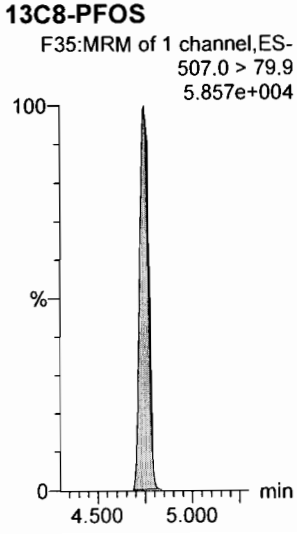
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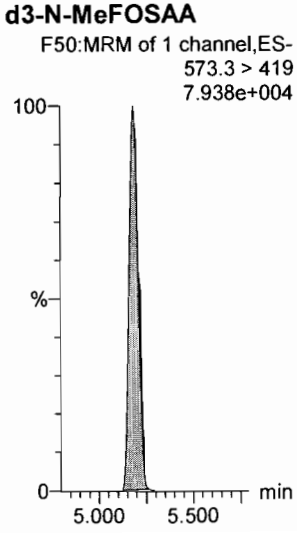
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13C8-PFOS



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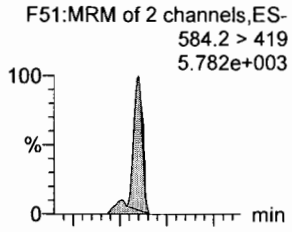


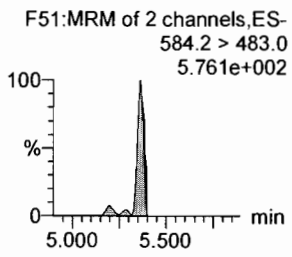
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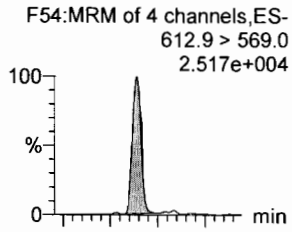
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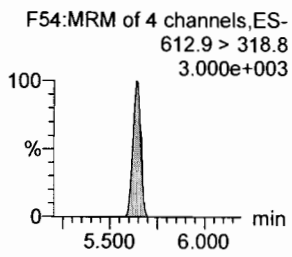
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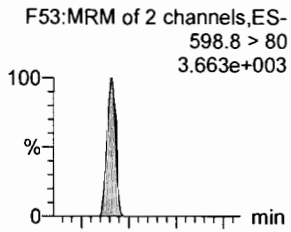


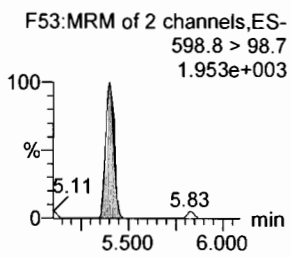
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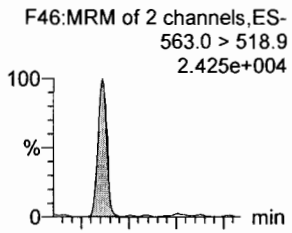


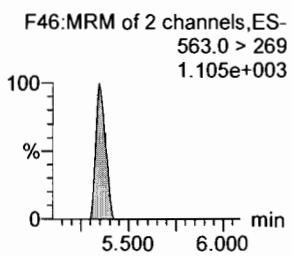
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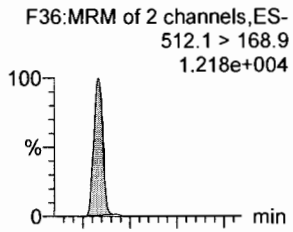


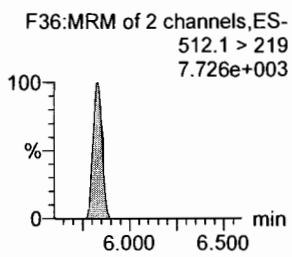
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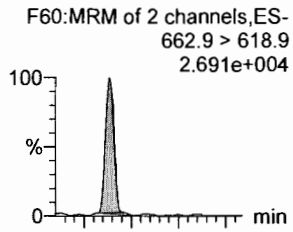


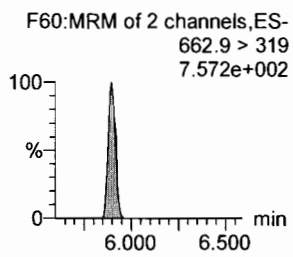
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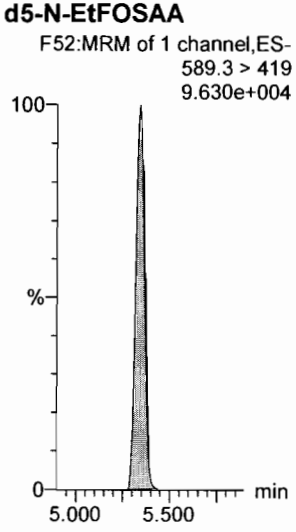


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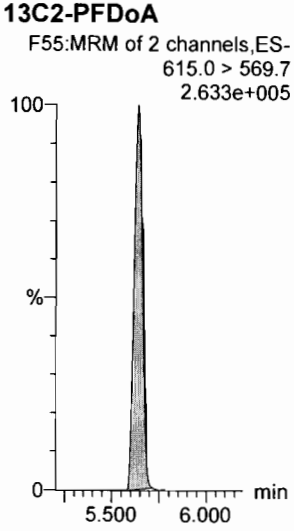




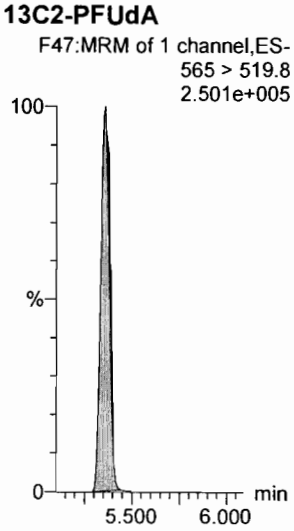
d5-N-EtFOSAA



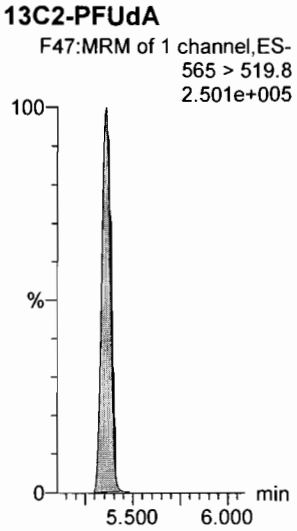
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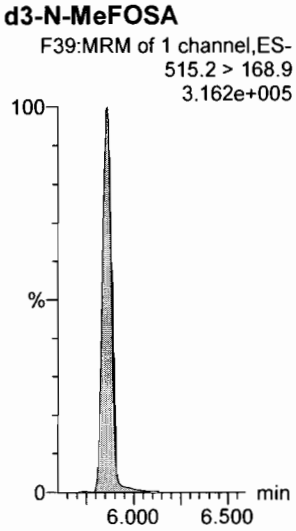
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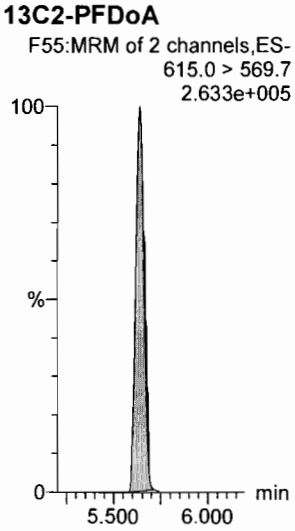
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d3-N-MeFOSA



13C2-PFDoA

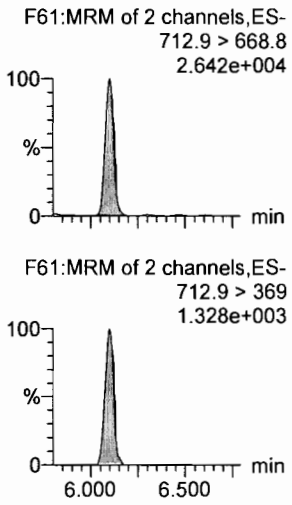


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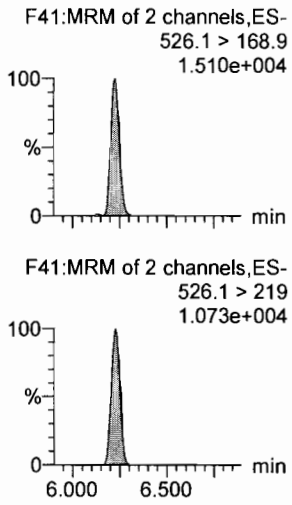
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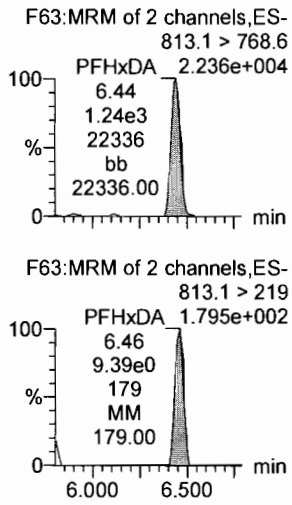
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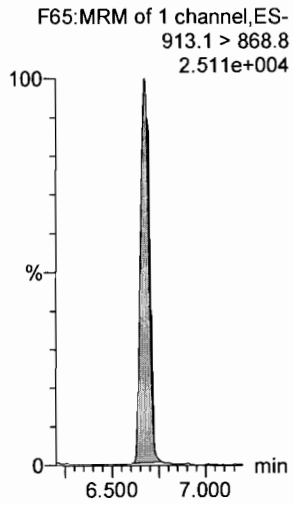
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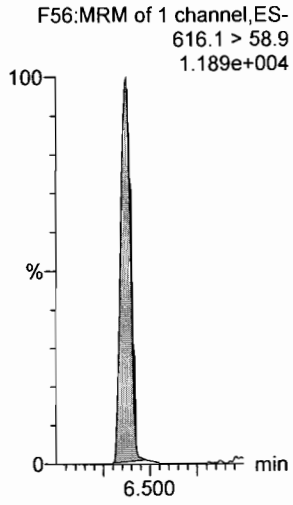
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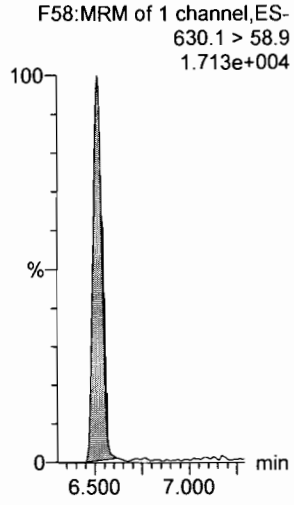
PFODA



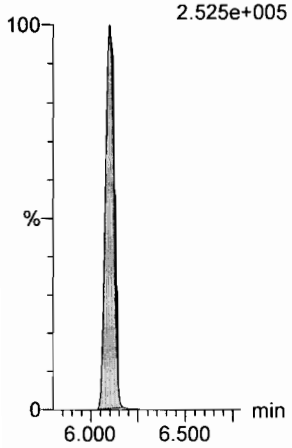
N-MeFOSE



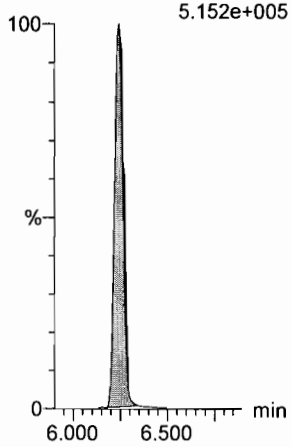
N-EtFOSE



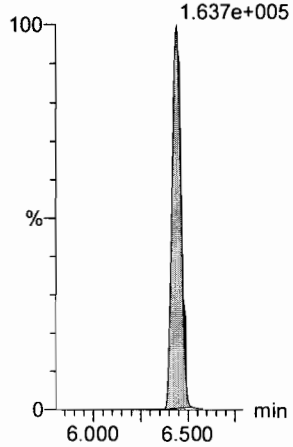
13C2-PFTeDA



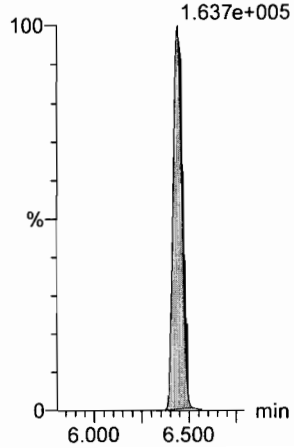
d5-N-ETFOSA



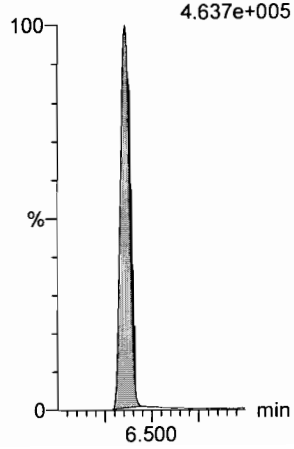
13C2-PFHxDA



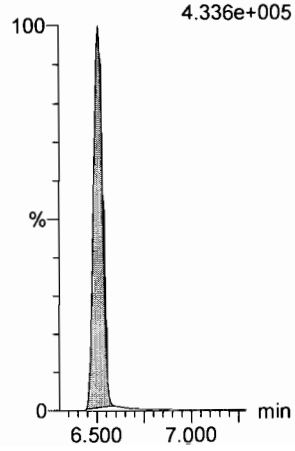
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE

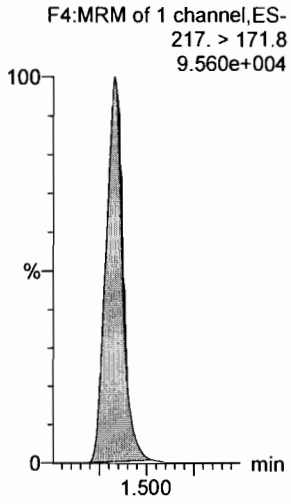


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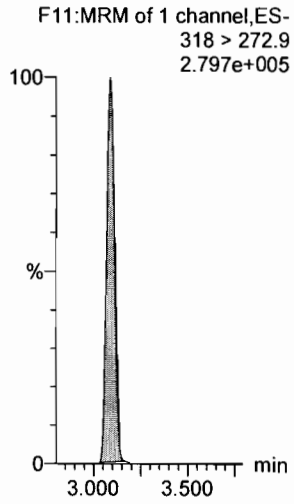
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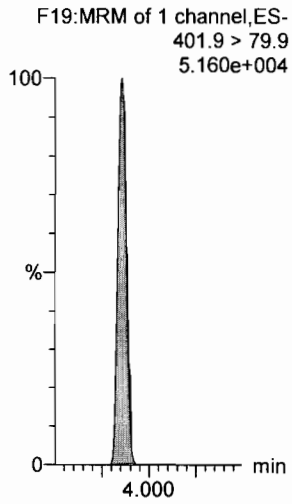
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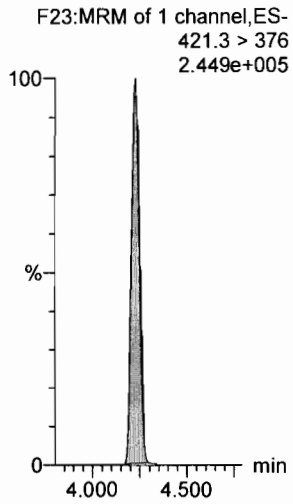
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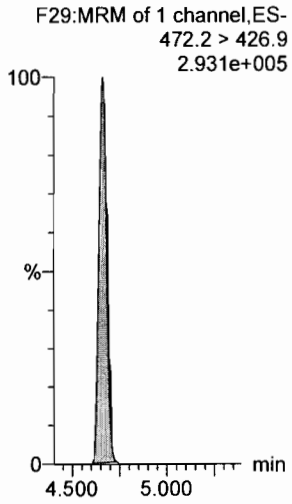
13C3-PFHxS



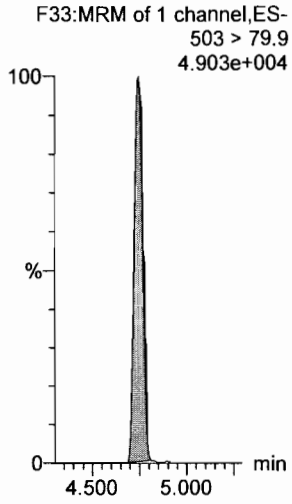
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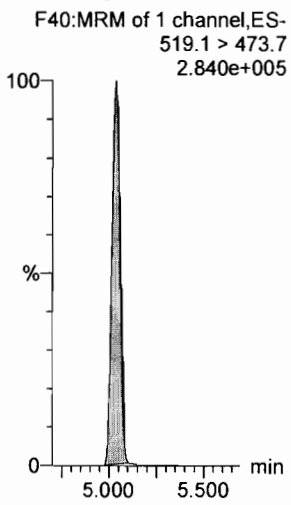
13C9-PFNA



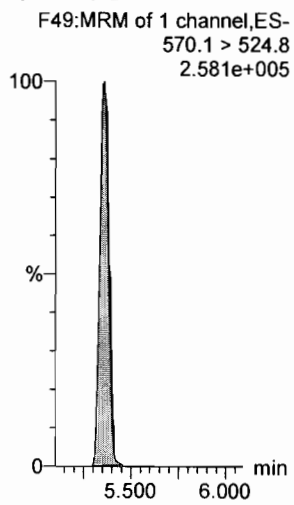
13C4-PFOS



13C6-PFDA



13C7-PFUdA

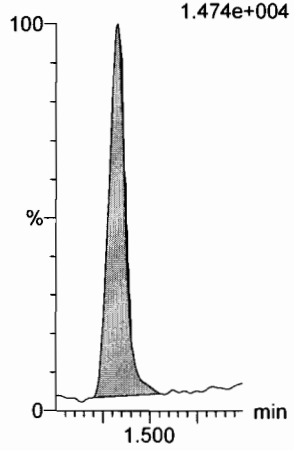


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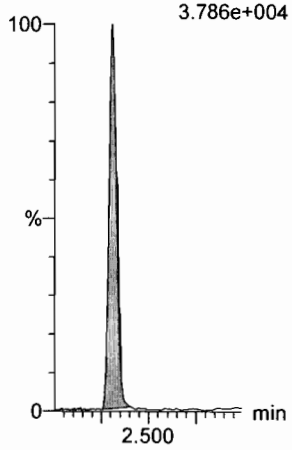
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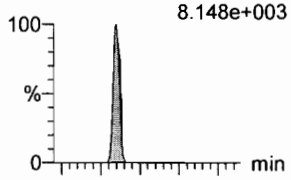
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
1.474e+004



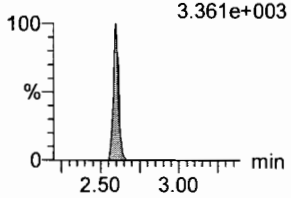
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
3.786e+004



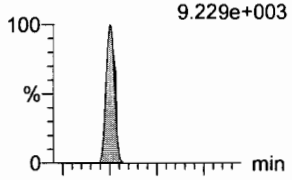
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
8.148e+003



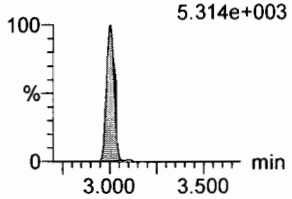
F7:MRM of 2 channels,ES-
299.0 > 99.0
3.361e+003



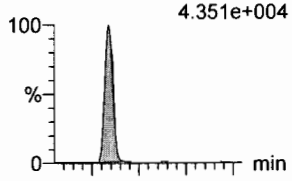
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
9.229e+003



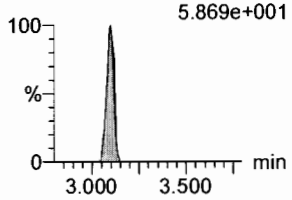
F12:MRM of 2 channels,ES-
327.2 > 81.1
5.314e+003



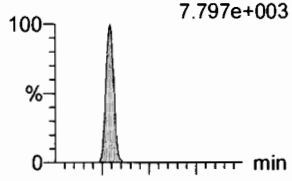
PFHxA
F9:MRM of 2 channels,ES-
313.2 > 268.9
4.351e+004



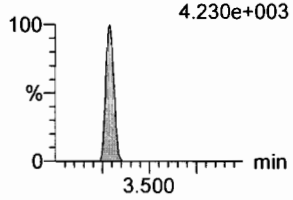
F9:MRM of 2 channels,ES-
313.2 > 119
5.869e+001



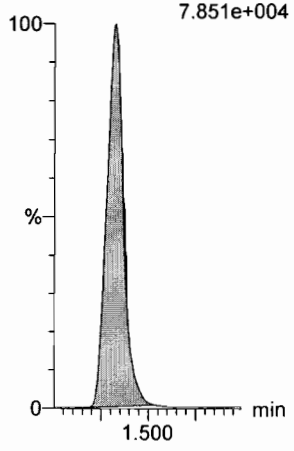
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
7.797e+003



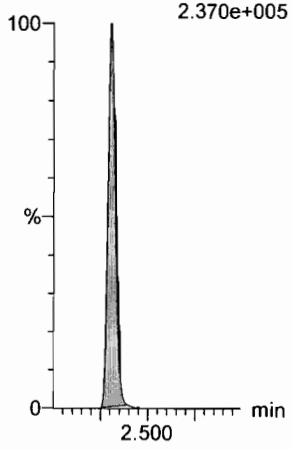
F15:MRM of 2 channels,ES-
349.1 > 99
4.230e+003



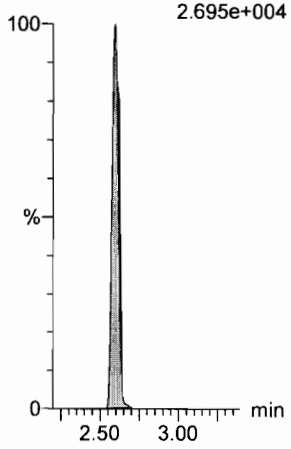
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
7.851e+004



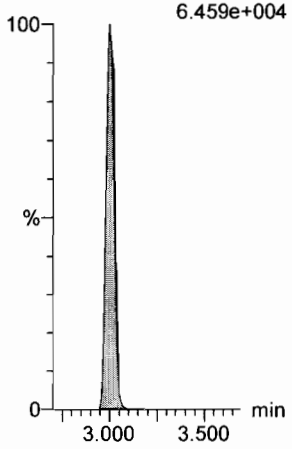
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
2.370e+005



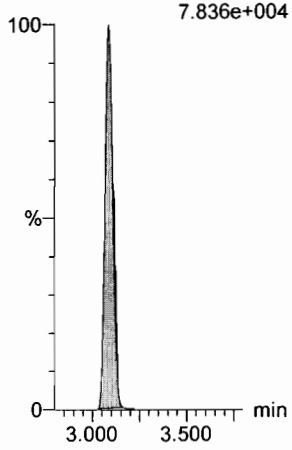
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.695e+004



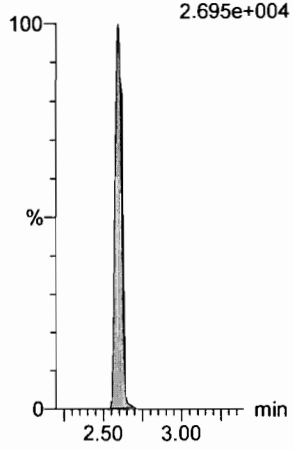
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
6.459e+004



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 269.8
7.836e+004



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.695e+004

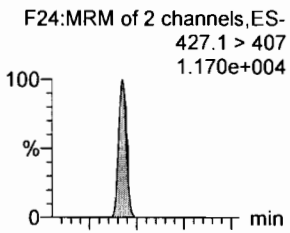


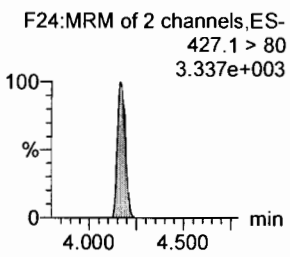
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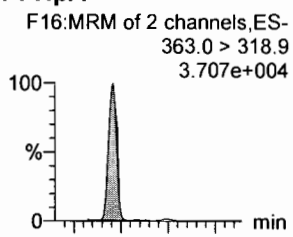
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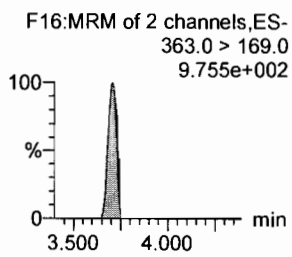
6:2 FTS



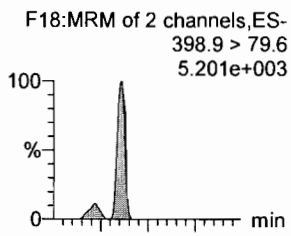


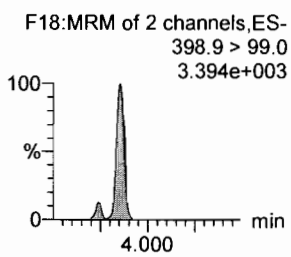
PFHpA



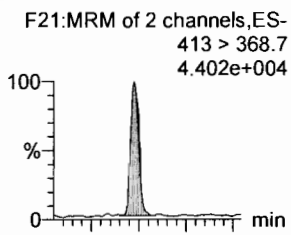


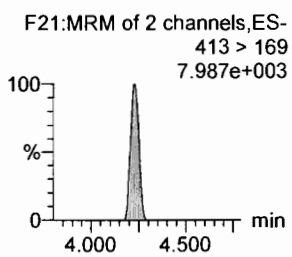
L-PFHxS



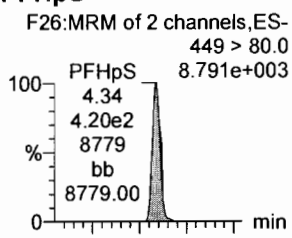


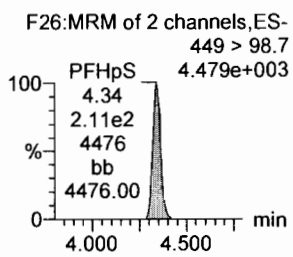
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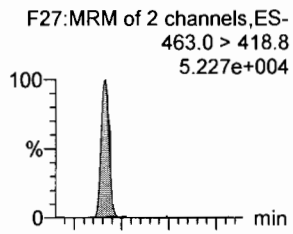


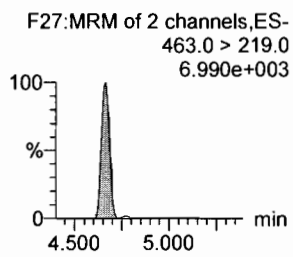
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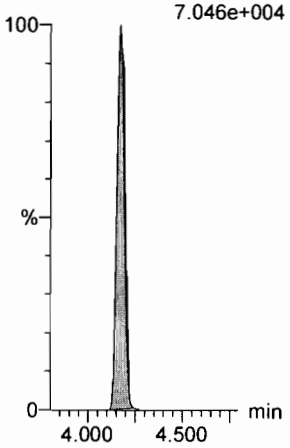


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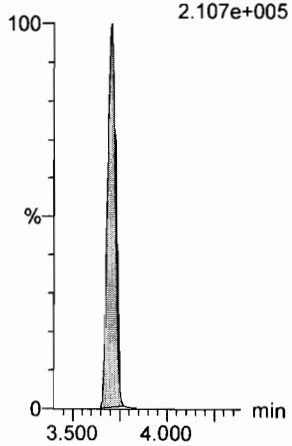




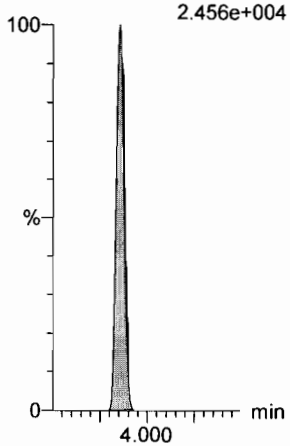
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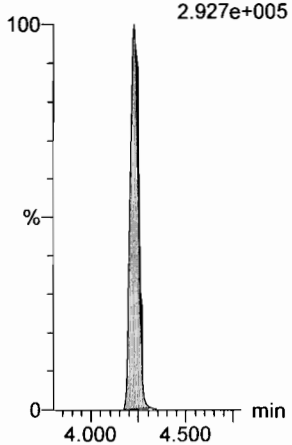
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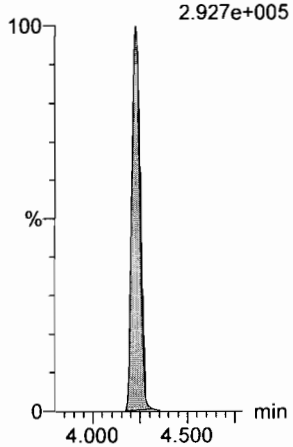
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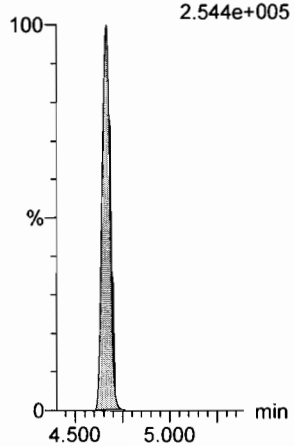
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13C2-PFOA



13C5-PFNA

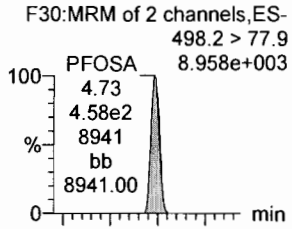


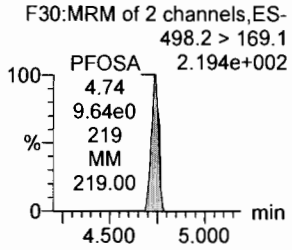
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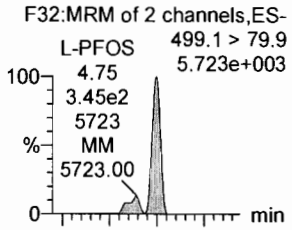
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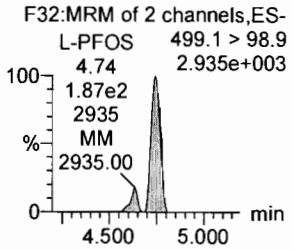
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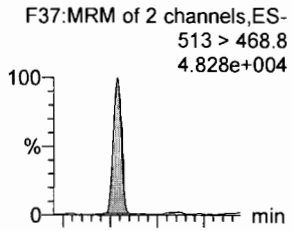


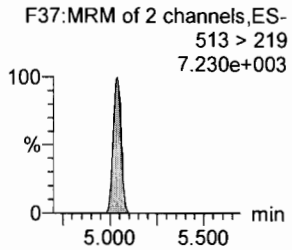
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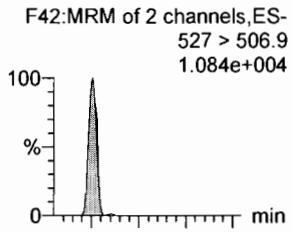


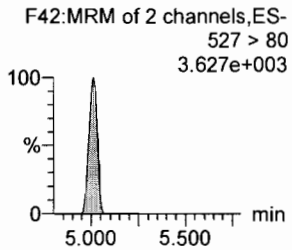
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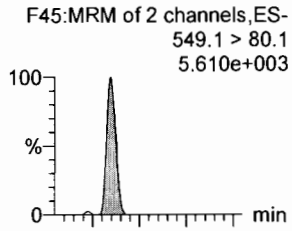


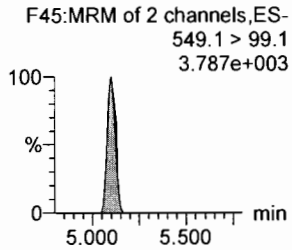
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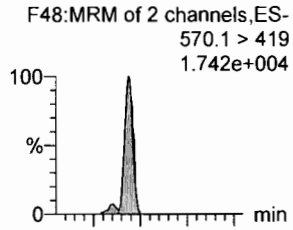


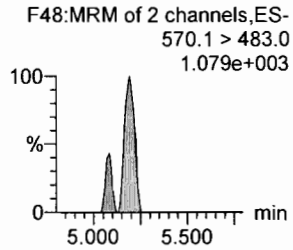
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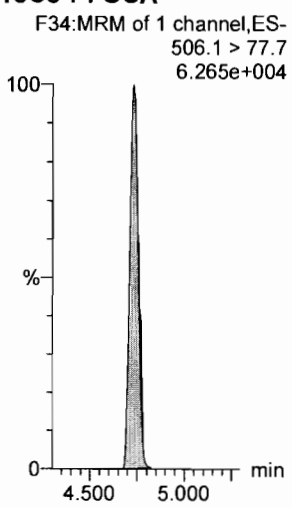


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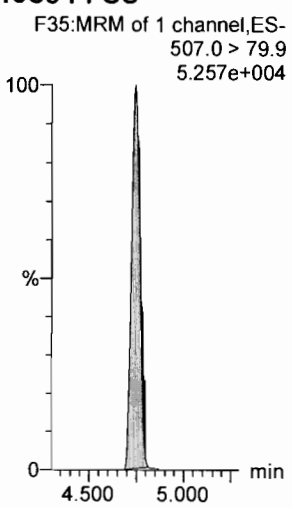




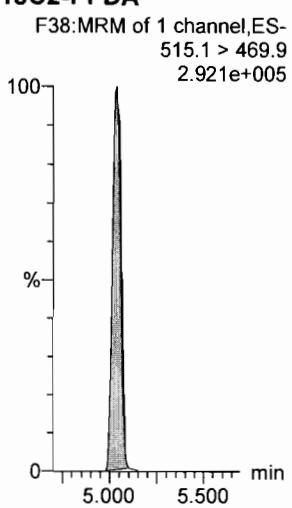
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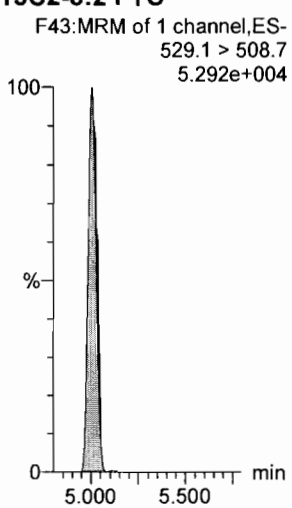
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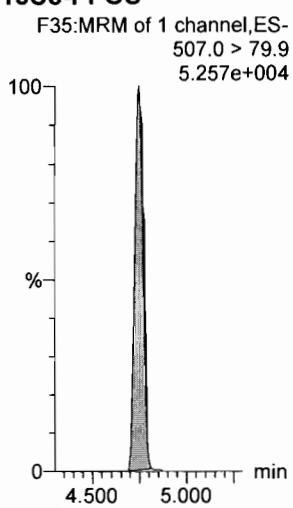
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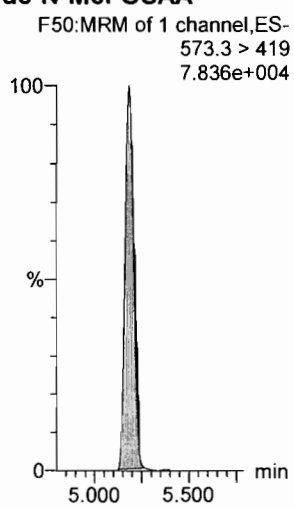
13C2-8:2 FTS



13C8-PFOS



d3-N-MeFOSAA

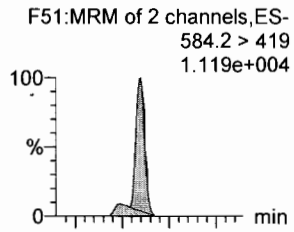


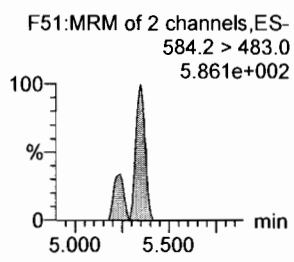
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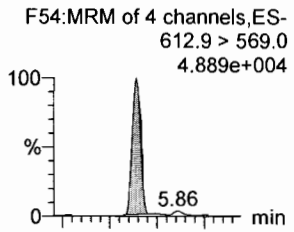
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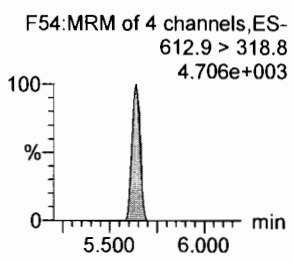
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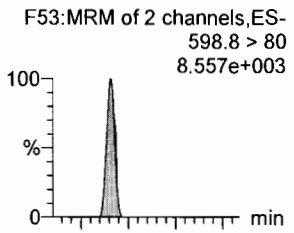


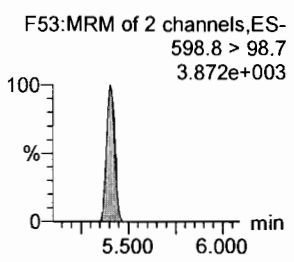
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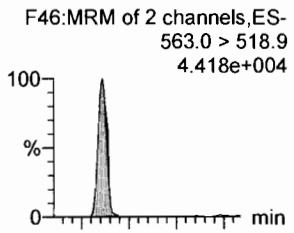


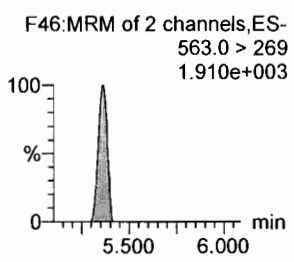
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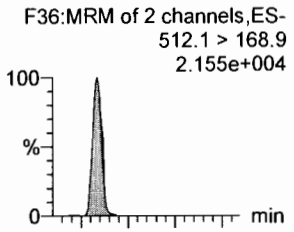


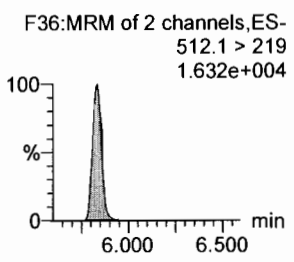
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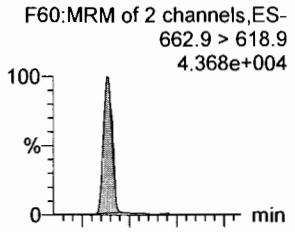


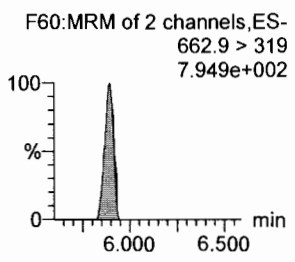
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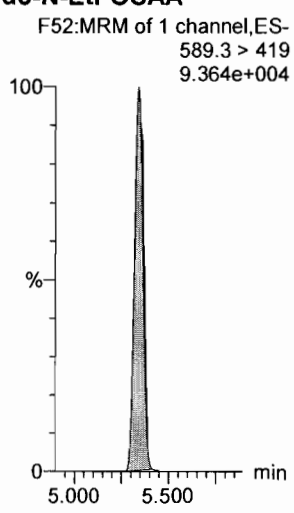


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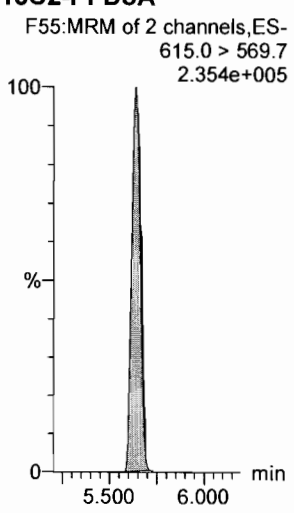




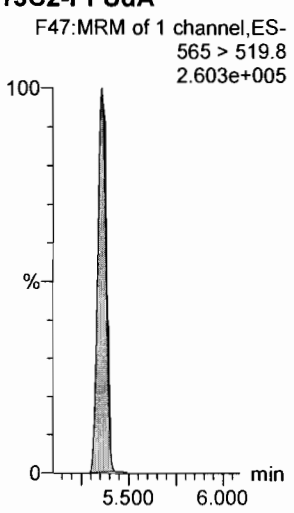
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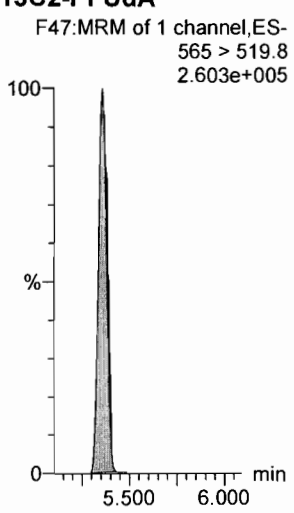
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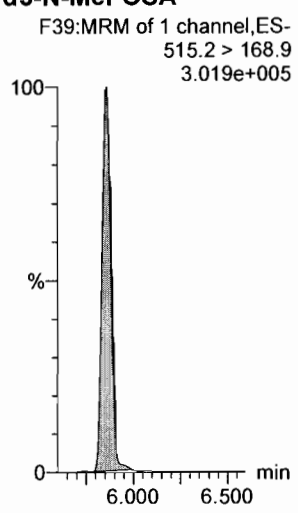
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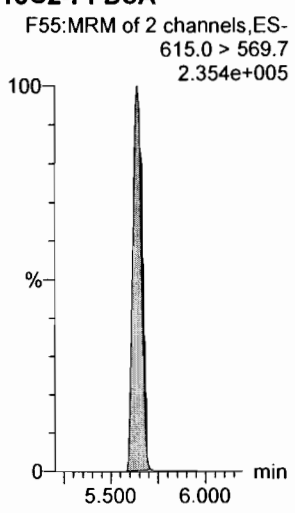
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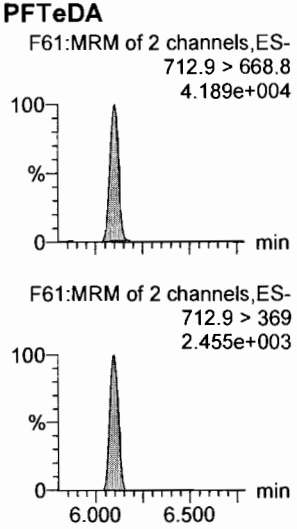


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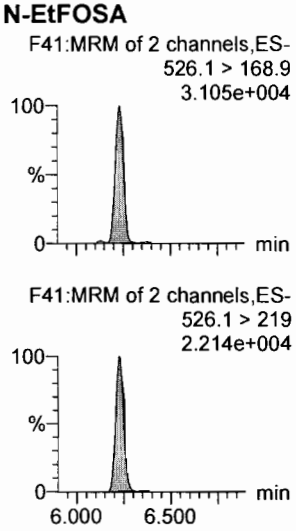
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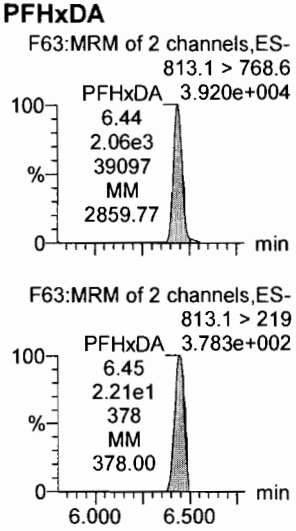
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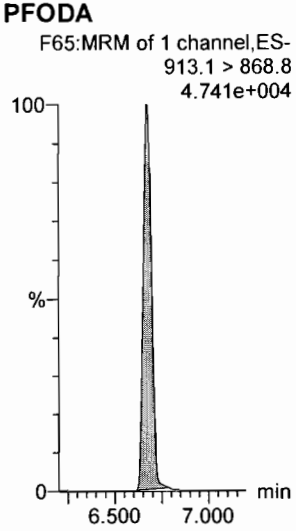
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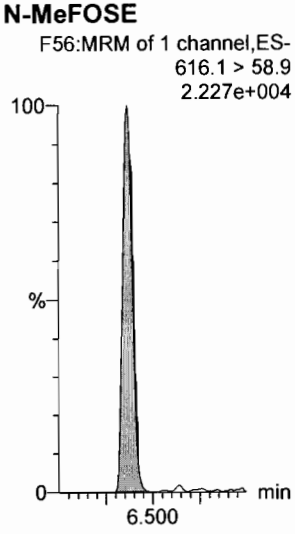
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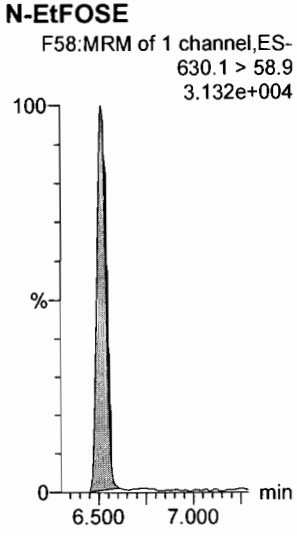
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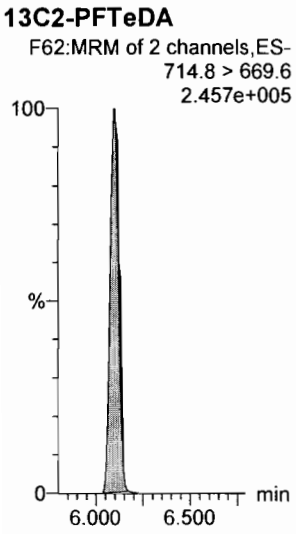
N-MeFOSE



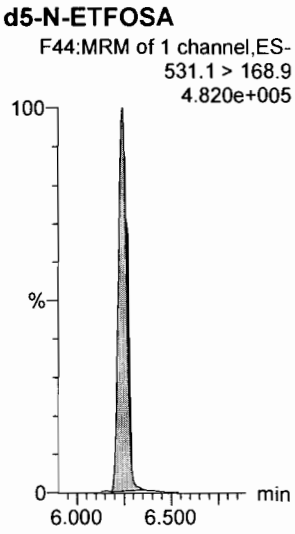
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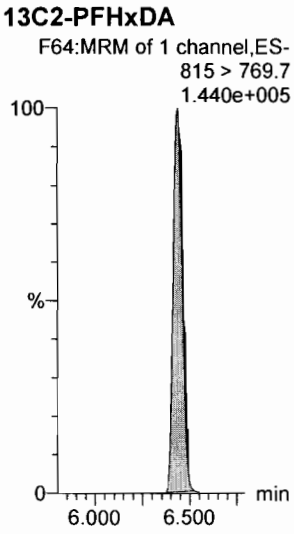
13C2-PFTeDA



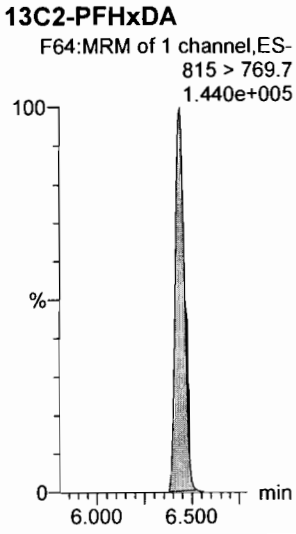
d5-N-ETFOSA



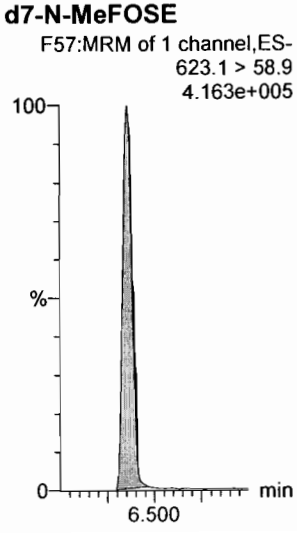
13C2-PFHxDA



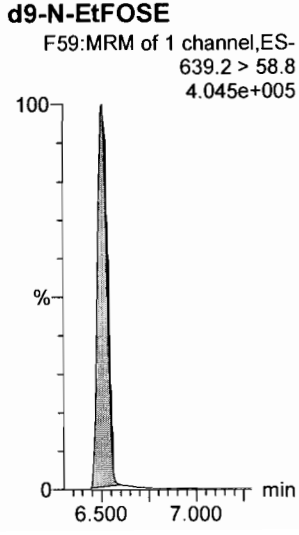
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE

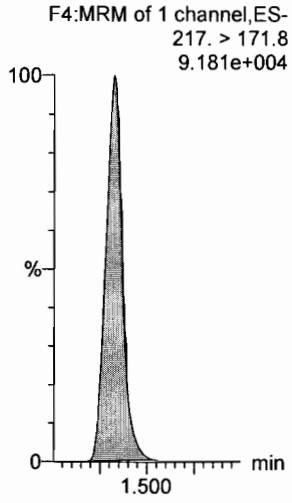


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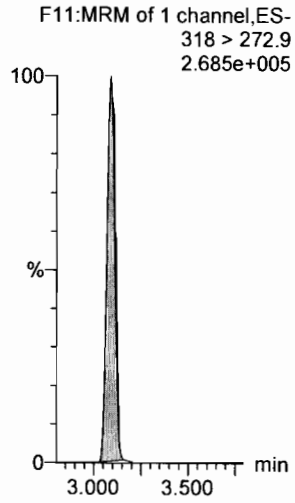
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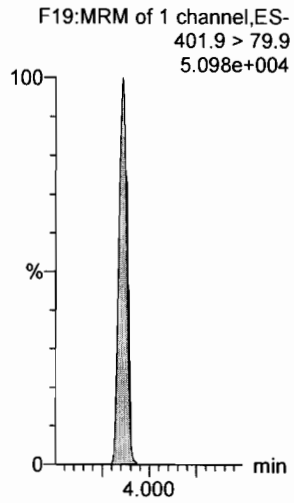
13C4-PFBA



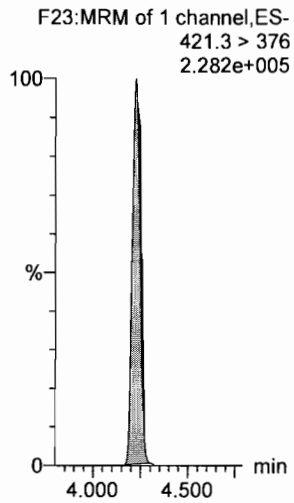
13C5-PFHxA



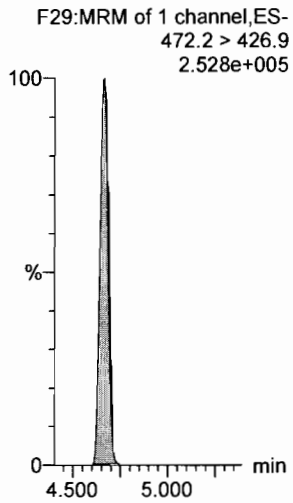
13C3-PFHxS



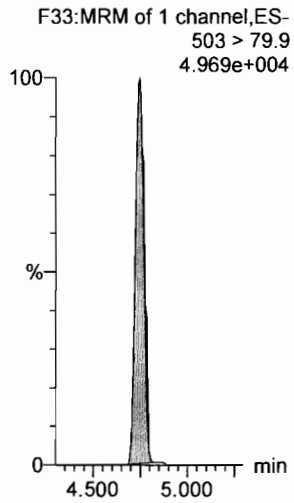
13C8-PFOA



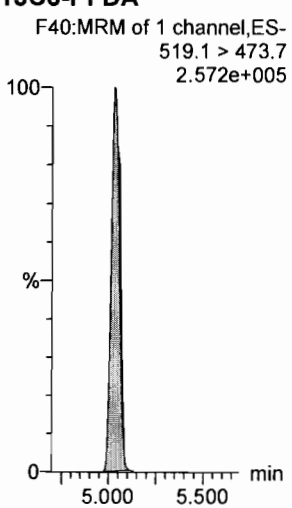
13C9-PFNA



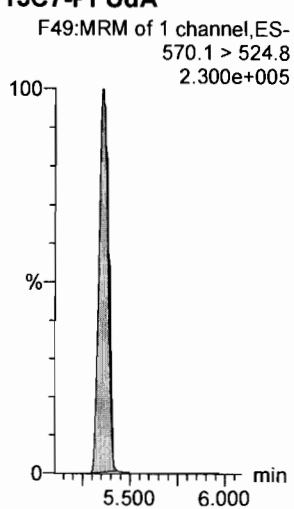
13C4-PFOS



13C6-PFDA



13C7-PFUdA

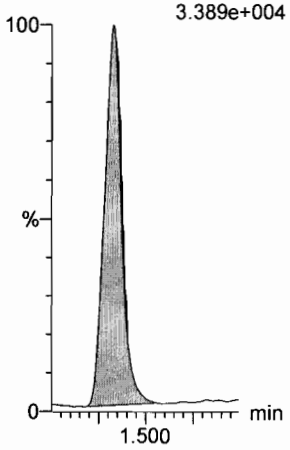


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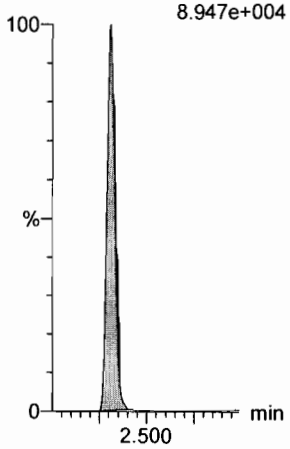
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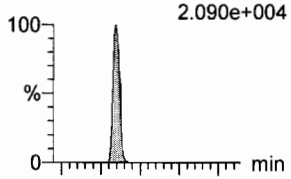
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
3.389e+004



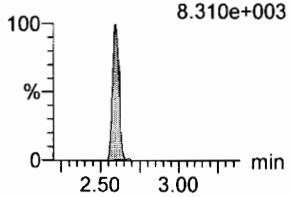
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
8.947e+004



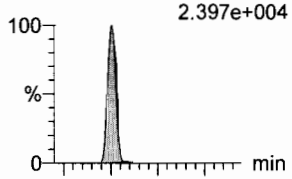
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
2.090e+004



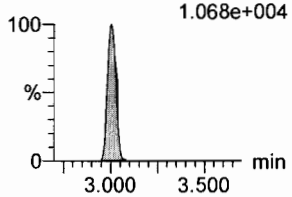
F7:MRM of 2 channels,ES-
299.0 > 99.0
8.310e+003



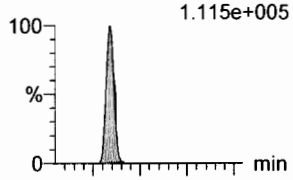
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
2.397e+004



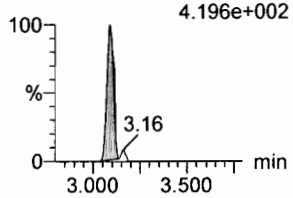
F12:MRM of 2 channels,ES-
327.2 > 81.1
1.068e+004



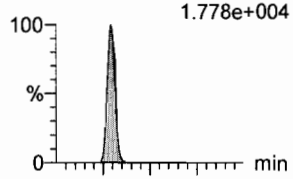
PFHxA
F9:MRM of 2 channels,ES-
313.2 > 268.9
1.115e+005



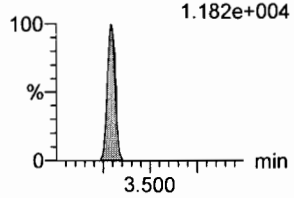
F9:MRM of 2 channels,ES-
313.2 > 119
4.196e+002



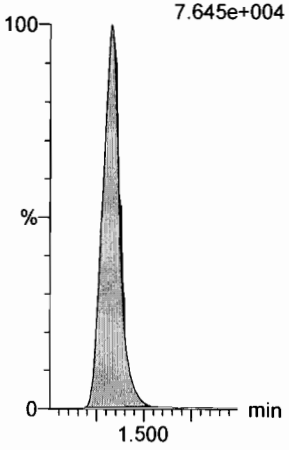
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
1.778e+004



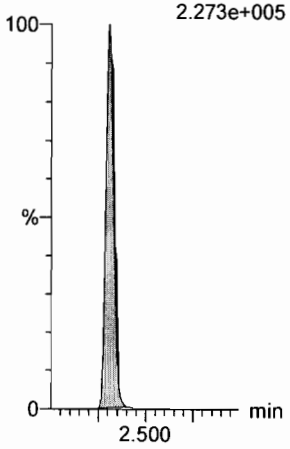
F15:MRM of 2 channels,ES-
349.1 > 99
1.182e+004



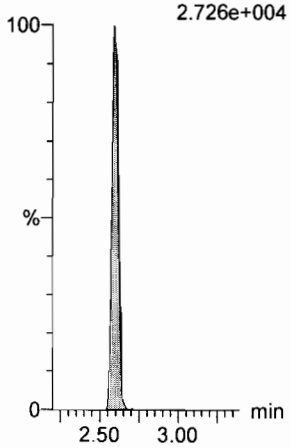
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
7.645e+004



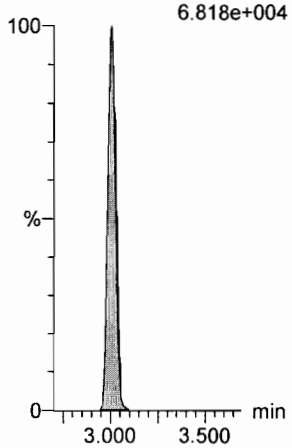
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
2.273e+005



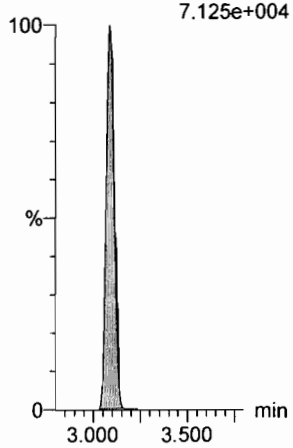
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.726e+004



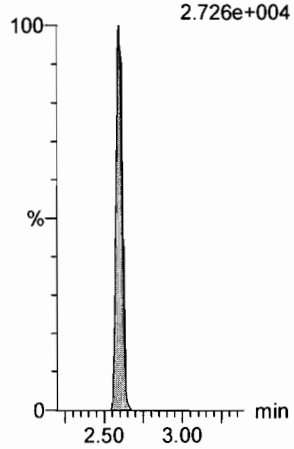
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
6.818e+004



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 269.8
7.125e+004



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.726e+004

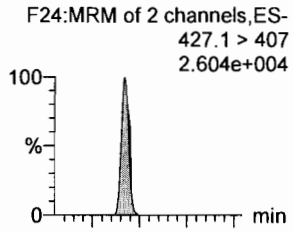


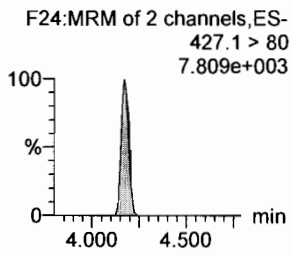
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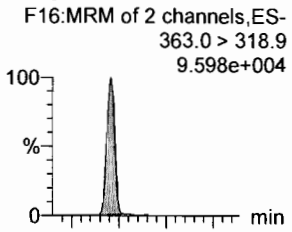
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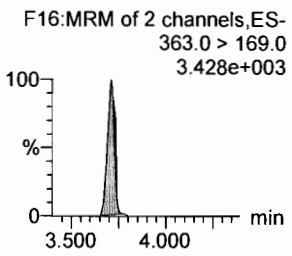
6:2 FTS



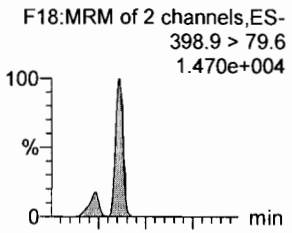


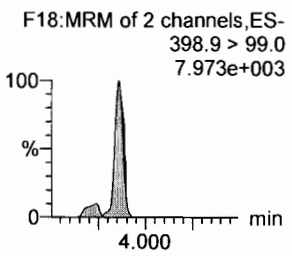
PFHpA



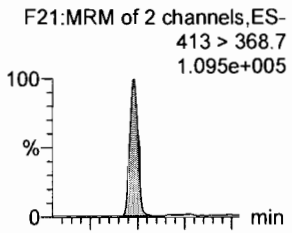


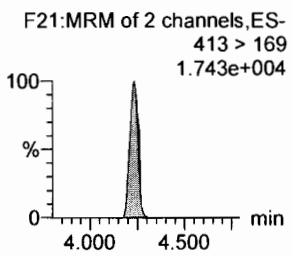
L-PFHxS



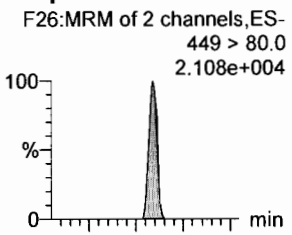


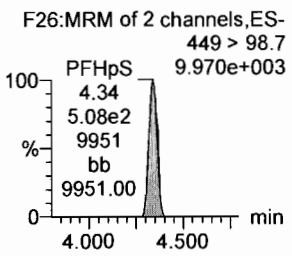
L-PFOA



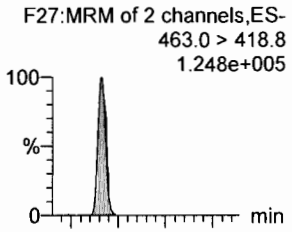


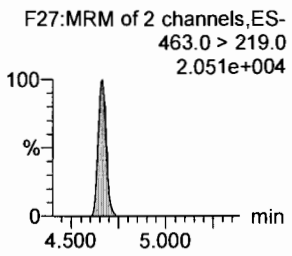
PFHpS



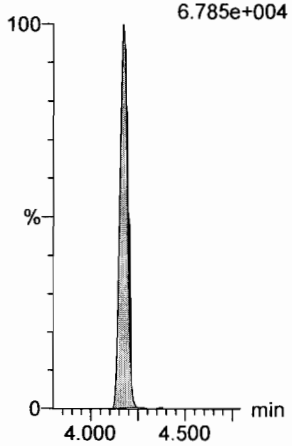


PFNA

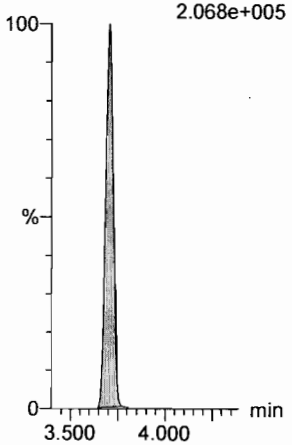




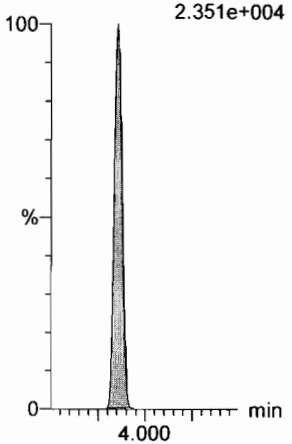
13C2-6:2 FTS



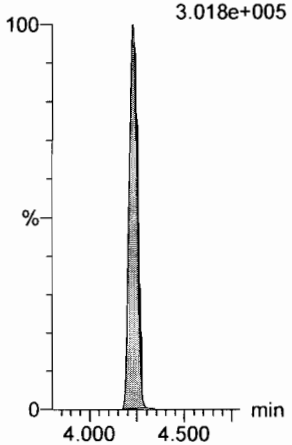
13C4-PFHpA



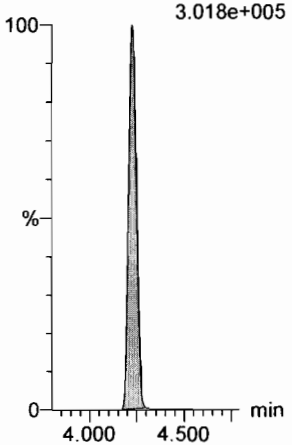
18O2-PFHxS



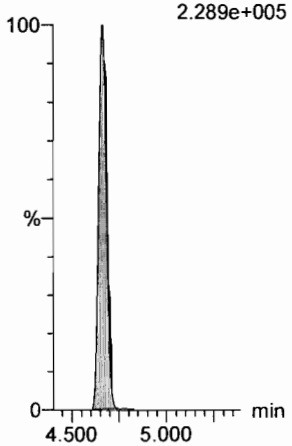
13C2-PFOA



13C2-PFOA



13C5-PFNA

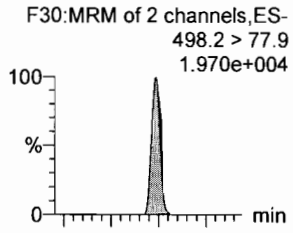


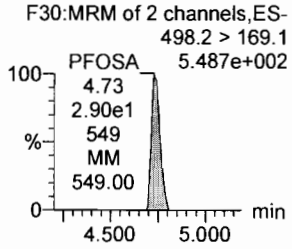
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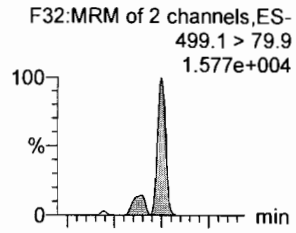
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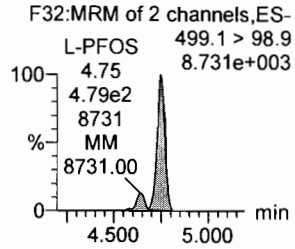
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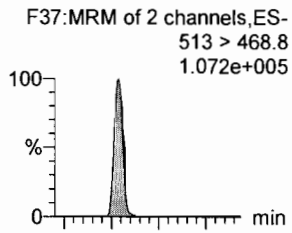


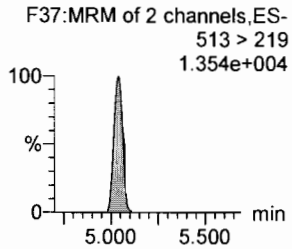
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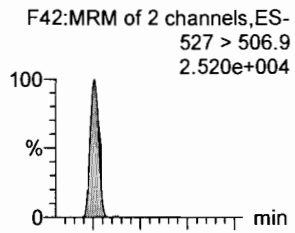


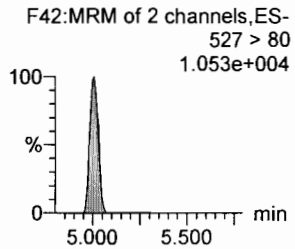
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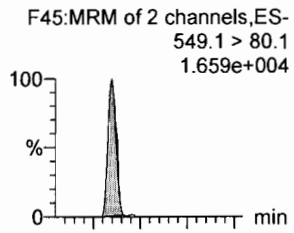


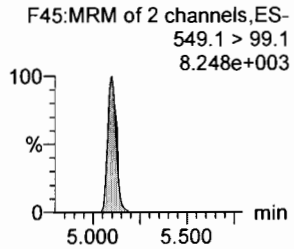
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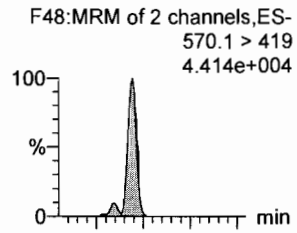


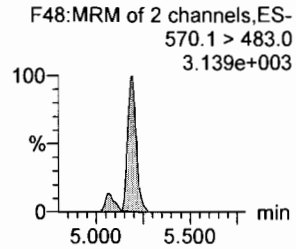
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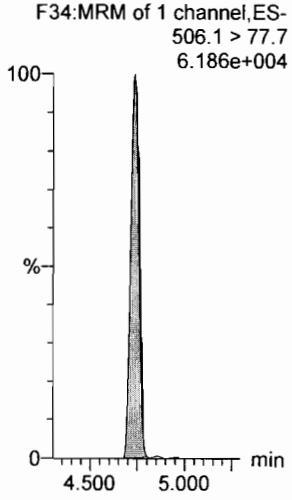


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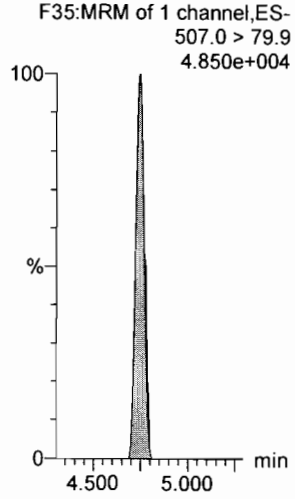




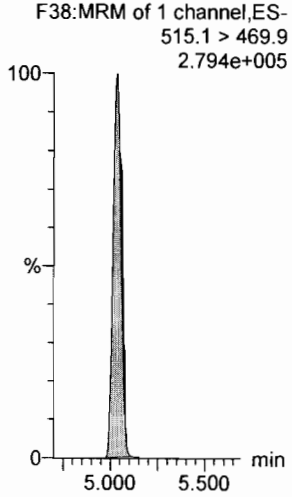
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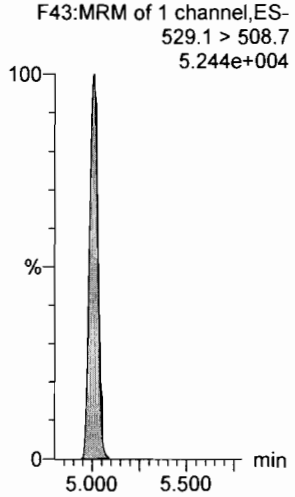
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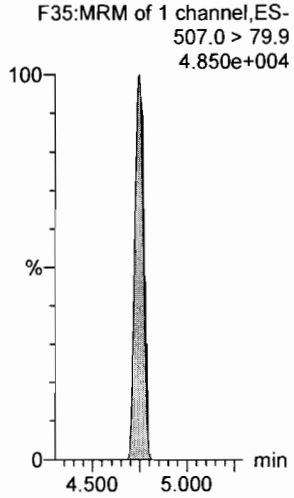
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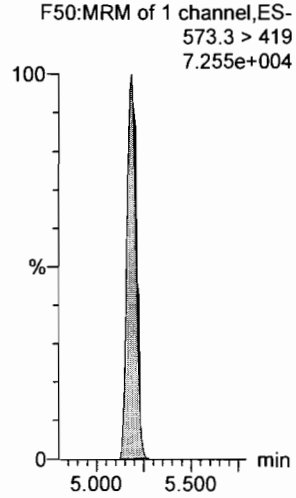
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13C8-PFOS



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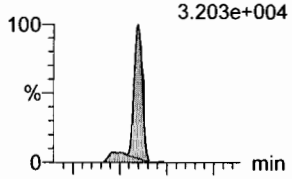


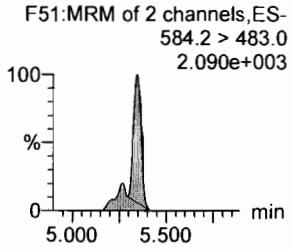
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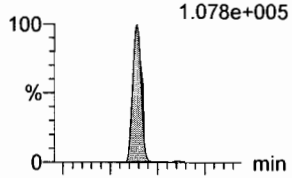
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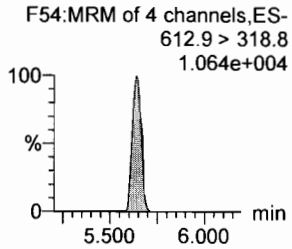
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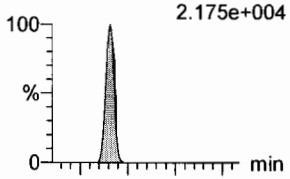


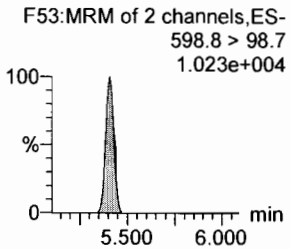
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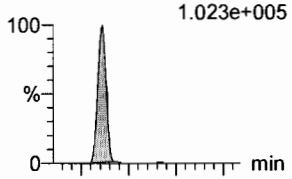


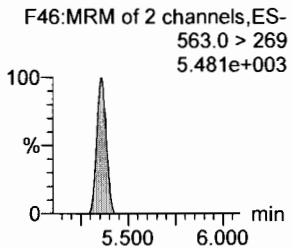
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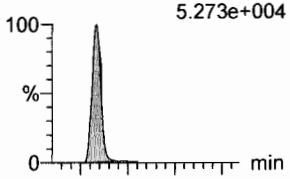


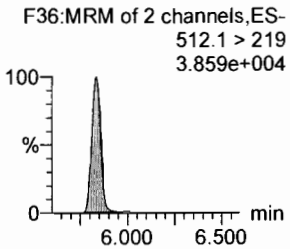
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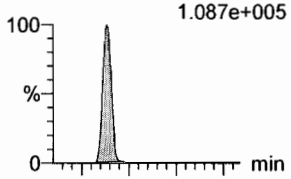


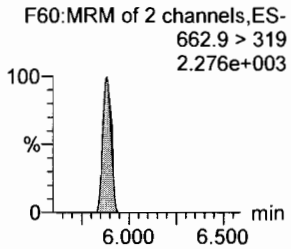
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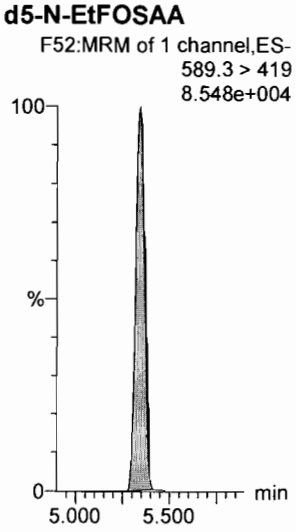


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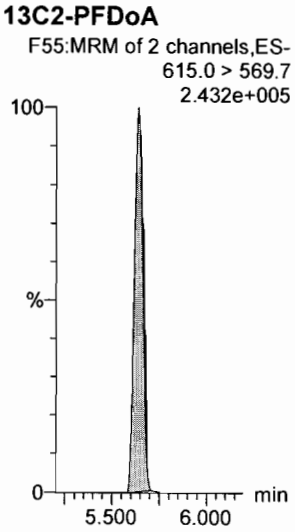




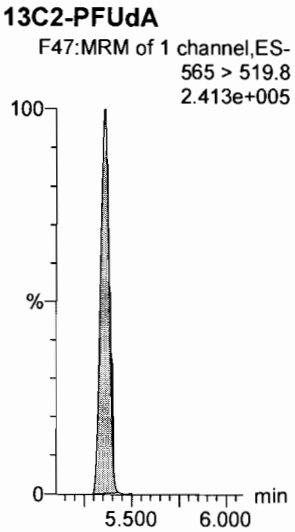
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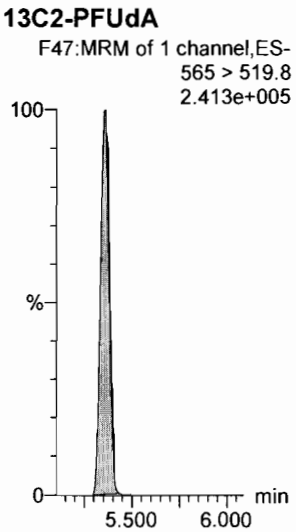
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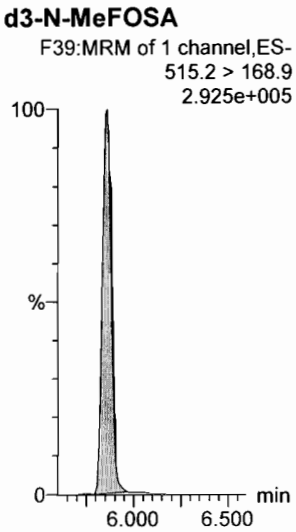
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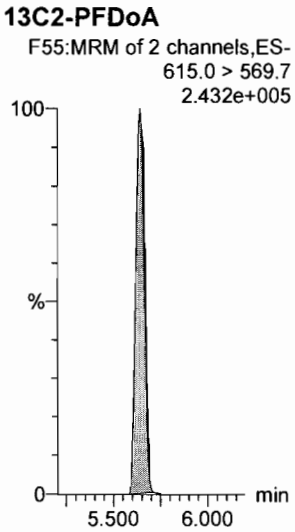
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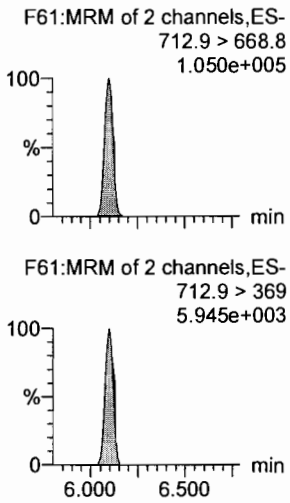


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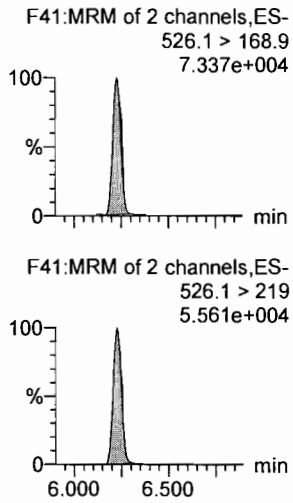
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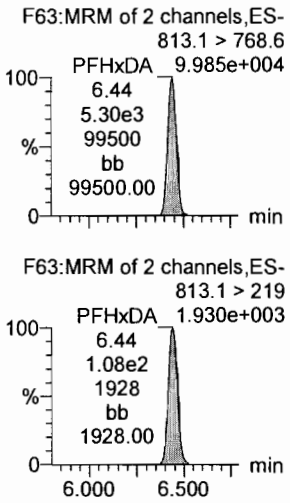
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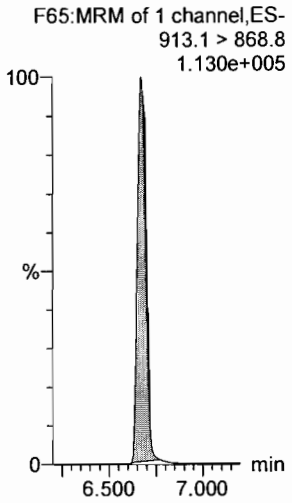
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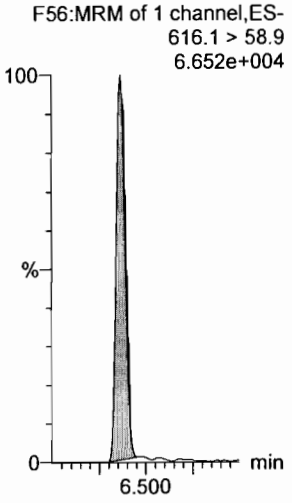
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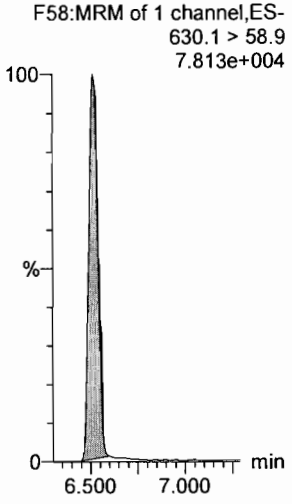
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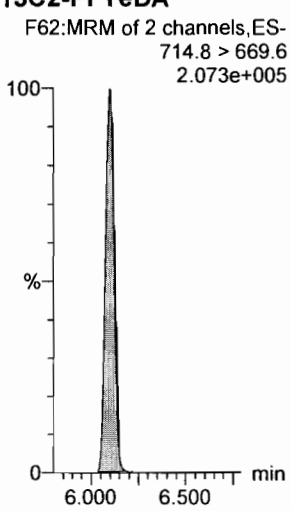
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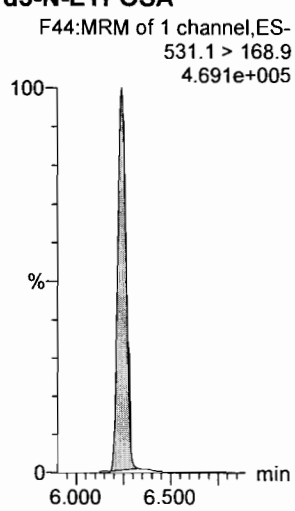
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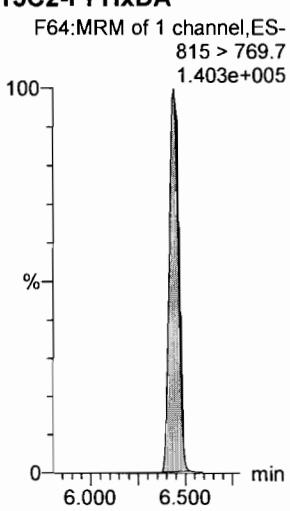
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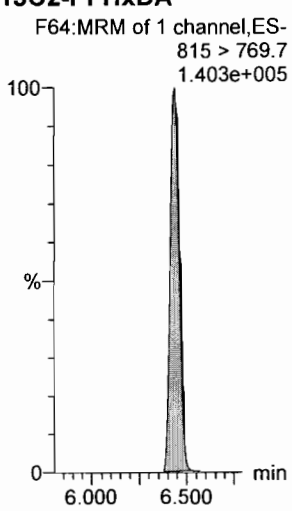
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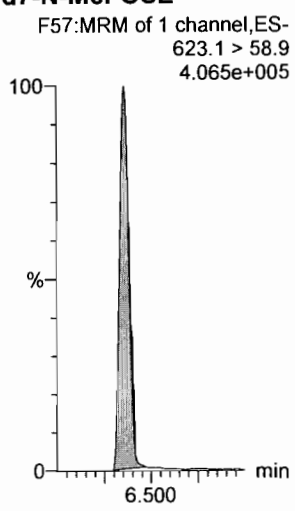
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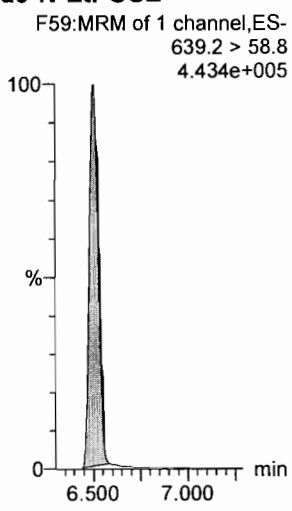
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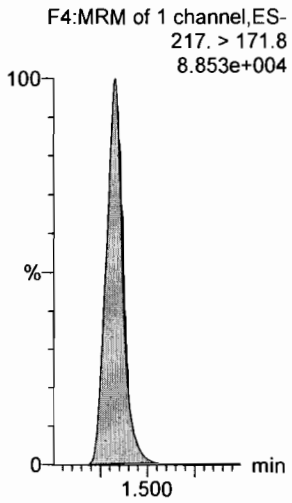


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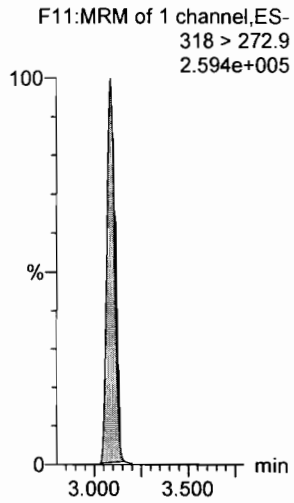
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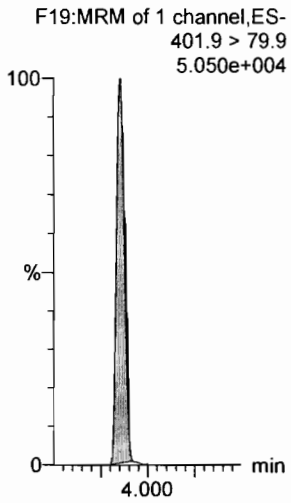
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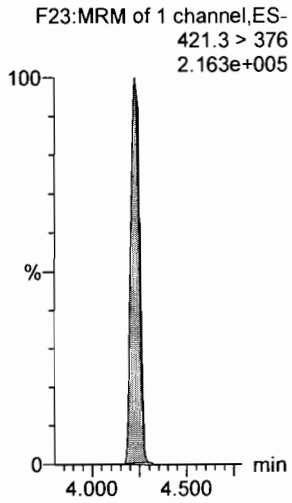
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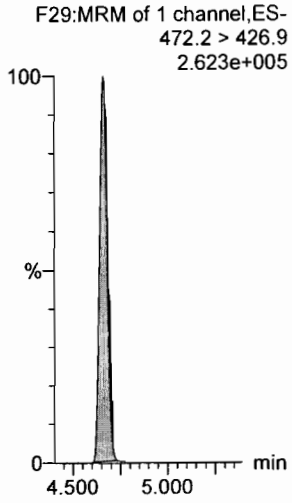
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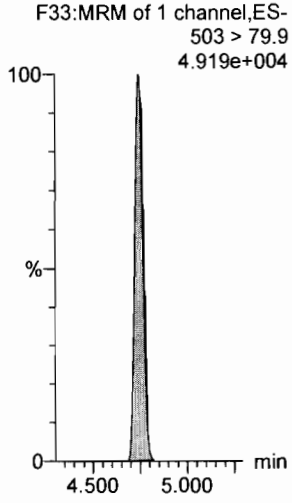
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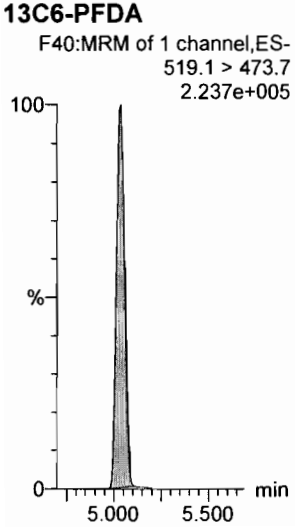
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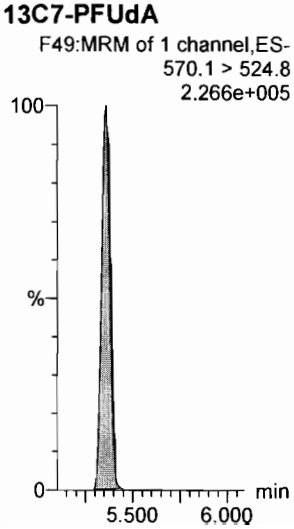
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13C6-PFDA



13C7-PFUdA

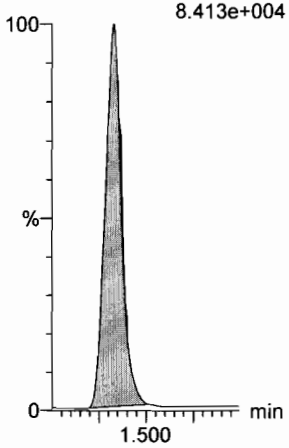


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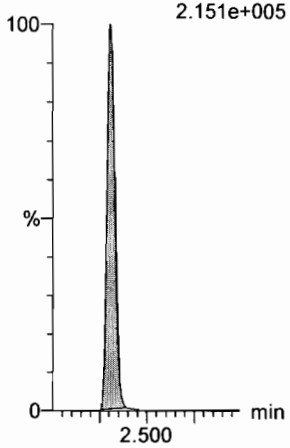
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Printed: Thursday, June 07, 2018 10:08:48 Pacific Daylight Time

Name: 180606M2_7, Date: 06-Jun-2018, Time: 18:51:31, ID: ST180606M2-6 PFC CS3 18E2907, Description: PFC CS3 18E2907

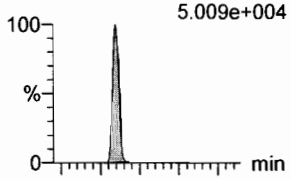
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
8.413e+004



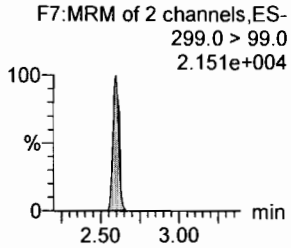
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
2.151e+005



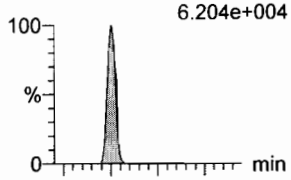
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
5.009e+004



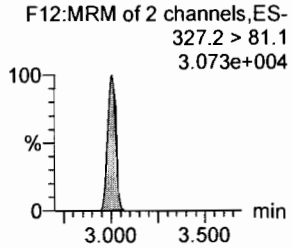
F7:MRM of 2 channels,ES-
299.0 > 99.0
2.151e+004



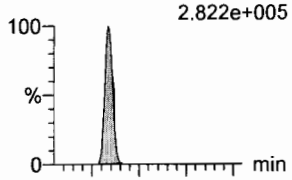
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
6.204e+004



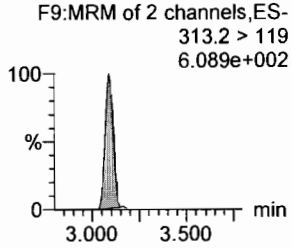
F12:MRM of 2 channels,ES-
327.2 > 81.1
3.073e+004



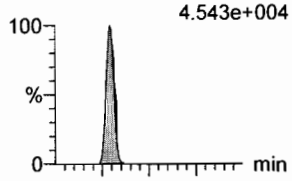
PFHxA
F9:MRM of 2 channels,ES-
313.2 > 268.9
2.822e+005



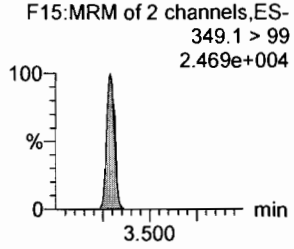
F9:MRM of 2 channels,ES-
313.2 > 119
6.089e+002



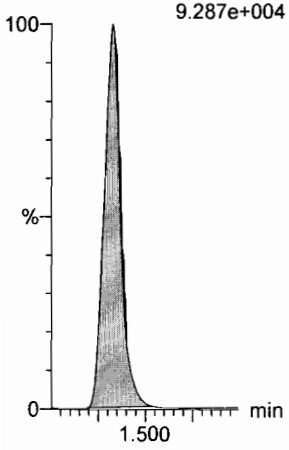
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
4.543e+004



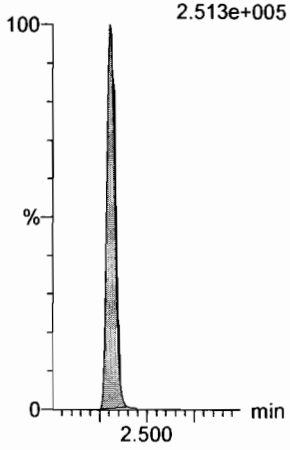
F15:MRM of 2 channels,ES-
349.1 > 99
2.469e+004



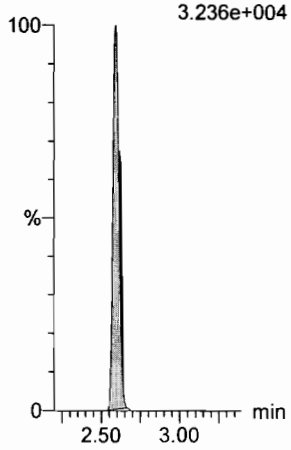
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
9.287e+004



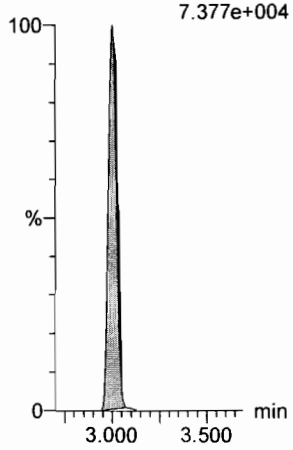
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
2.513e+005



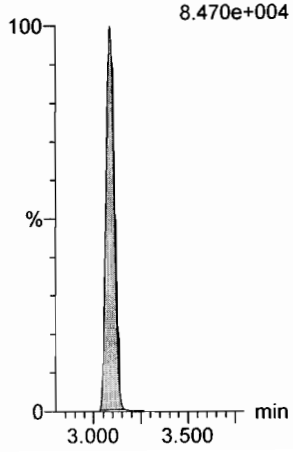
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
3.236e+004



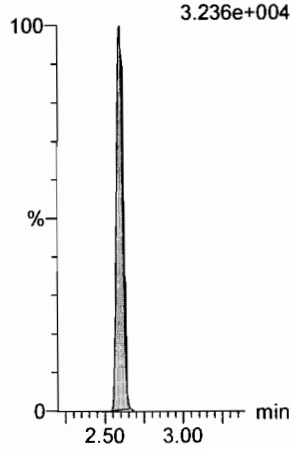
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
7.377e+004



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 269.8
8.470e+004



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
3.236e+004

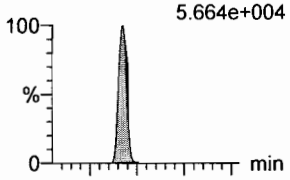


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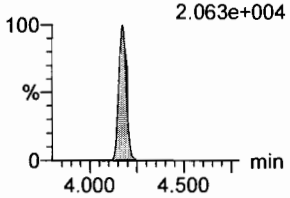
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Name: 180606M2_7, Date: 06-Jun-2018, Time: 18:51:31, ID: ST180606M2-6 PFC CS3 18E2907, Description: PFC CS3 18E2907

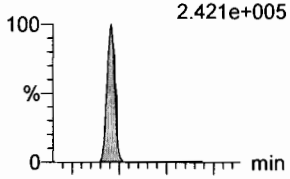
6:2 FTS
F24:MRM of 2 channels,ES-
427.1 > 407
5.664e+004



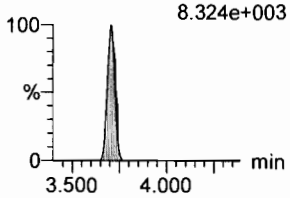
F24:MRM of 2 channels,ES-
427.1 > 80
2.063e+004



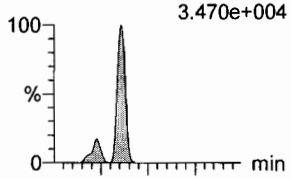
PFHpA
F16:MRM of 2 channels,ES-
363.0 > 318.9
2.421e+005



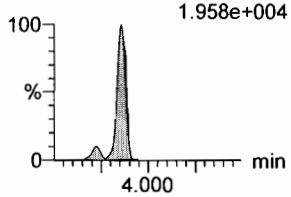
F16:MRM of 2 channels,ES-
363.0 > 169.0
8.324e+003



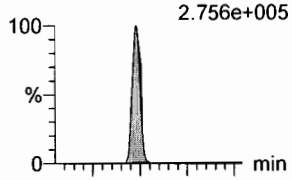
L-PFHxS
F18:MRM of 2 channels,ES-
398.9 > 79.6
3.470e+004



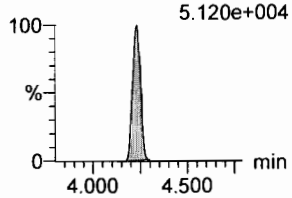
F18:MRM of 2 channels,ES-
398.9 > 99.0
1.958e+004



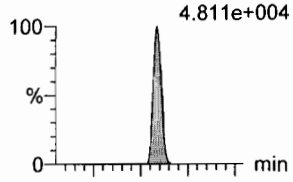
L-PFOA
F21:MRM of 2 channels,ES-
413 > 368.7
2.756e+005



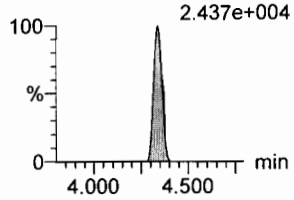
F21:MRM of 2 channels,ES-
413 > 169
5.120e+004



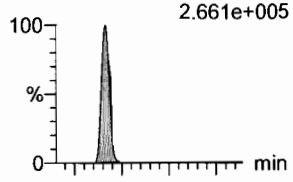
PFHpS
F26:MRM of 2 channels,ES-
449 > 80.0
4.811e+004



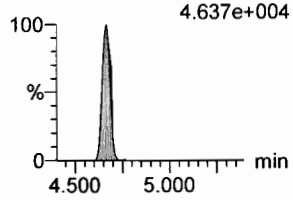
F26:MRM of 2 channels,ES-
449 > 98.7
2.437e+004



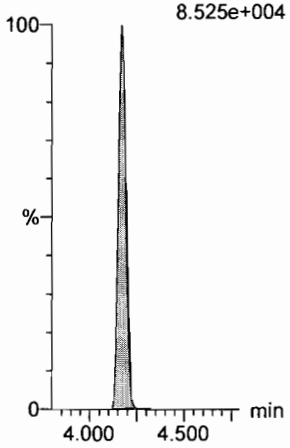
PFNA
F27:MRM of 2 channels,ES-
463.0 > 418.8
2.661e+005



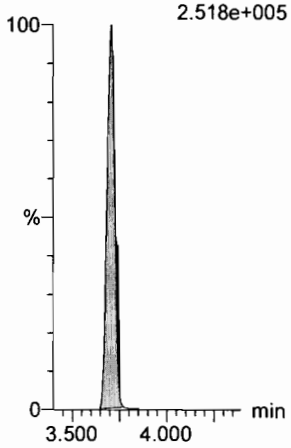
F27:MRM of 2 channels,ES-
463.0 > 219.0
4.637e+004



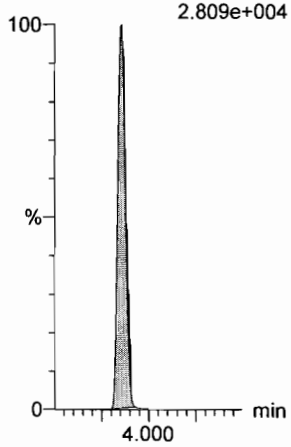
13C2-6:2 FTS
F25:MRM of 1 channel,ES-
429.1 > 408.9
8.525e+004



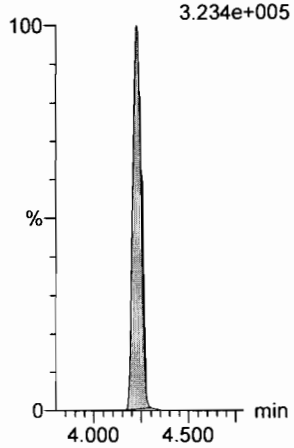
13C4-PFHpA
F17:MRM of 1 channel,ES-
367.2 > 321.8
2.518e+005



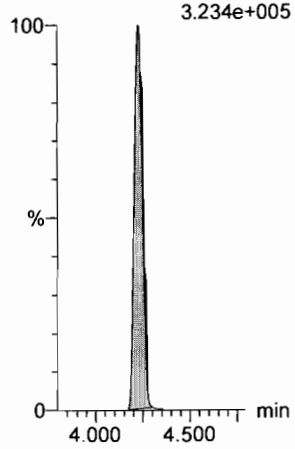
18O2-PFHxS
F20:MRM of 1 channel,ES-
403.0 > 102.6
2.809e+004



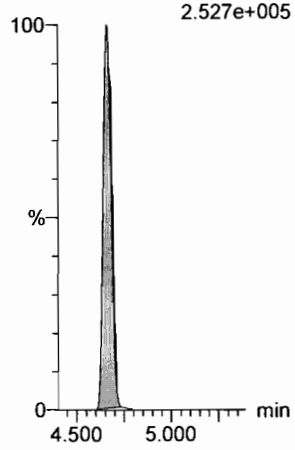
13C2-PFOA
F22:MRM of 1 channel,ES-
414.9 > 369.7
3.234e+005



13C2-PFOA
F22:MRM of 1 channel,ES-
414.9 > 369.7
3.234e+005



13C5-PFNA
F28:MRM of 1 channel,ES-
468.2 > 422.9
2.527e+005

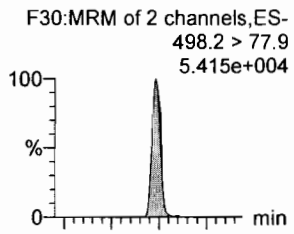


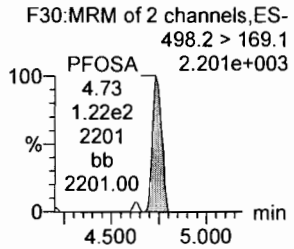
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Printed: Thursday, June 07, 2018 10:08:48 Pacific Daylight Time

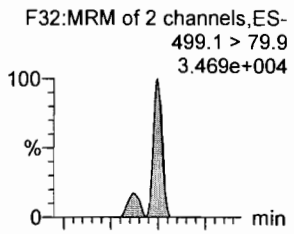
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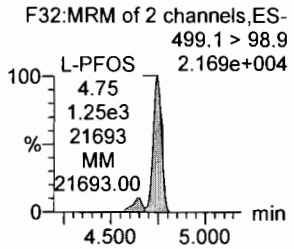
PFOSA



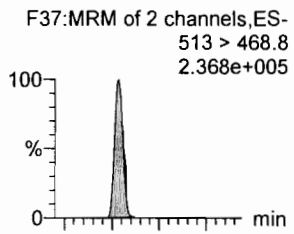


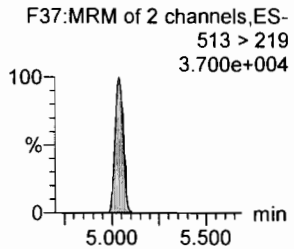
L-PFOS



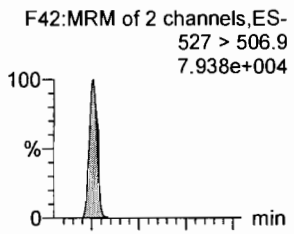


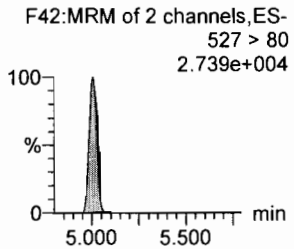
PFDA



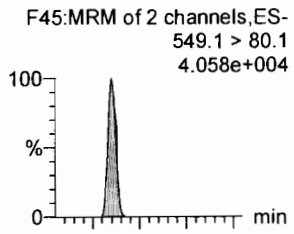


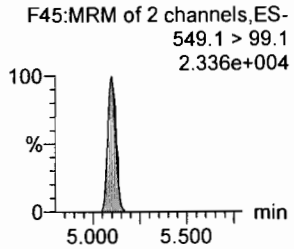
8:2 FTS



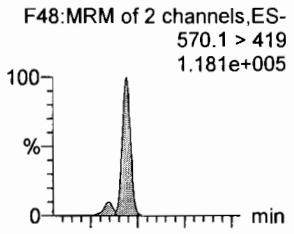


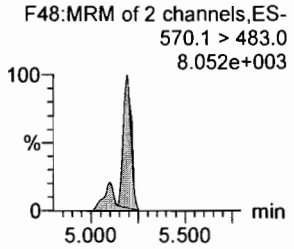
PFNS



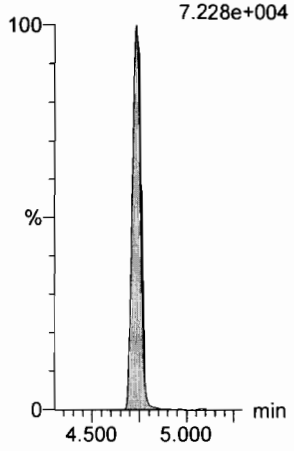


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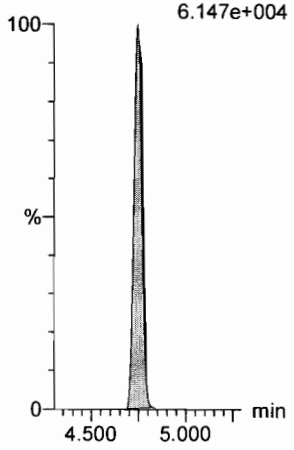




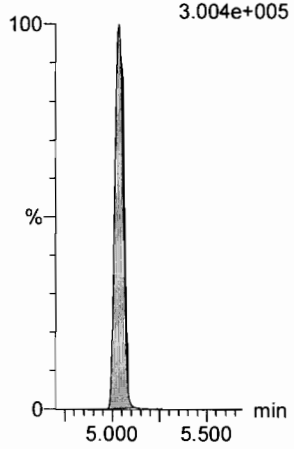
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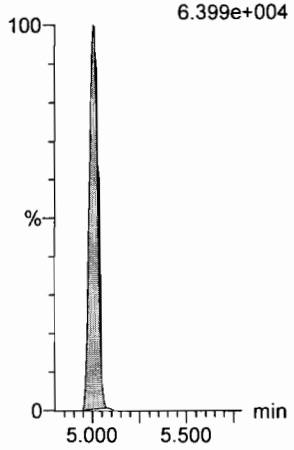
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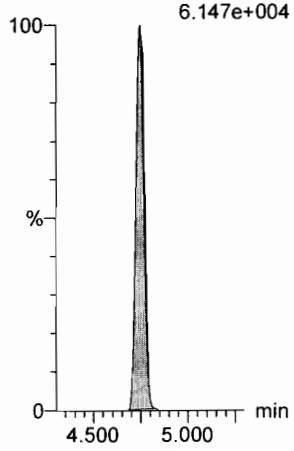
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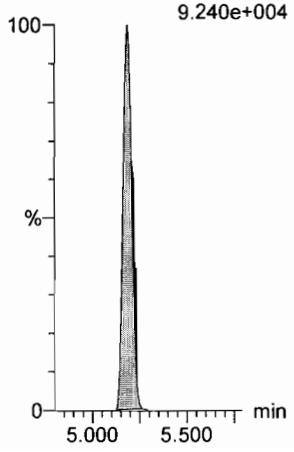
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13C8-PFOS



d3-N-MeFOSAA

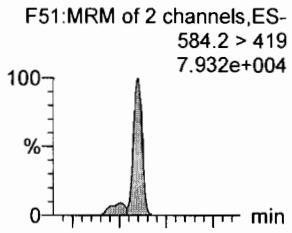


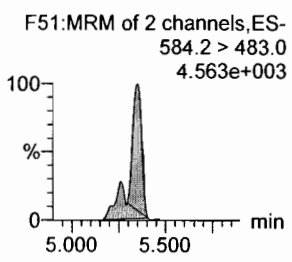
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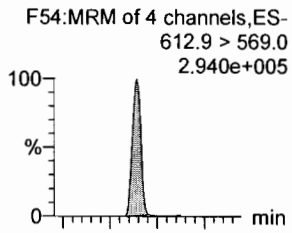
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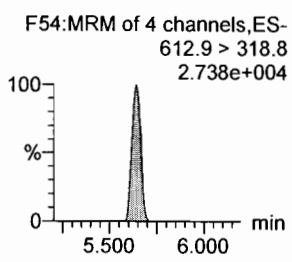
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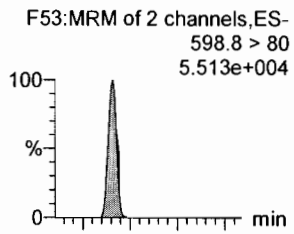


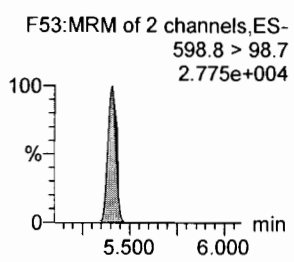
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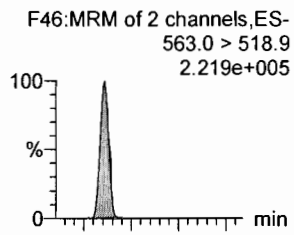


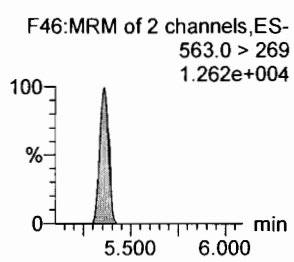
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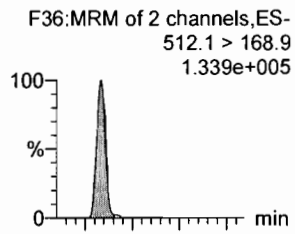


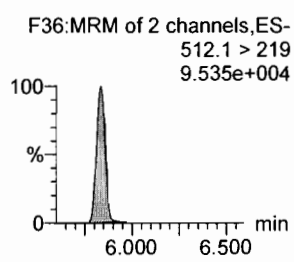
PFUdA



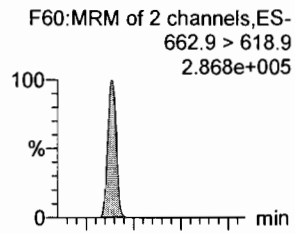


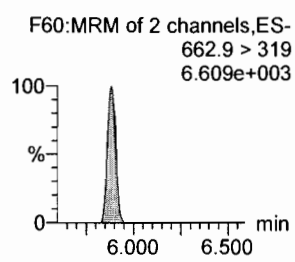
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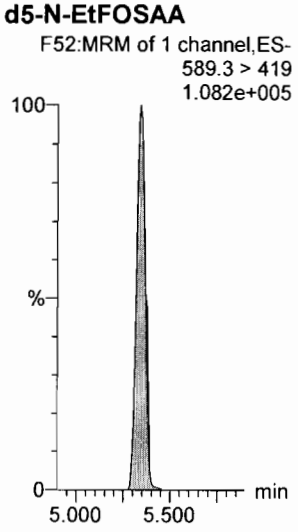


PFTrDA

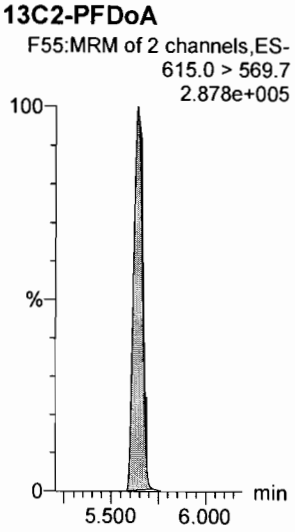




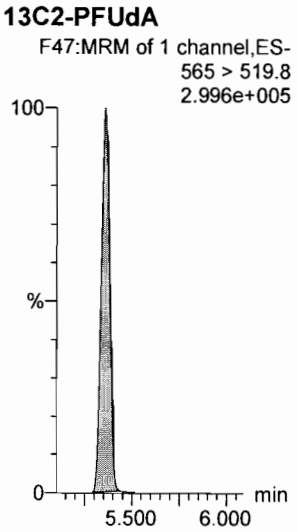
d5-N-EtFOSAA



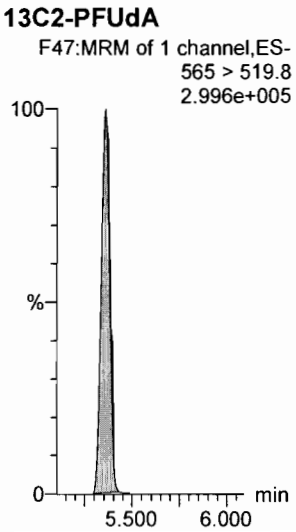
13C2-PFDoA



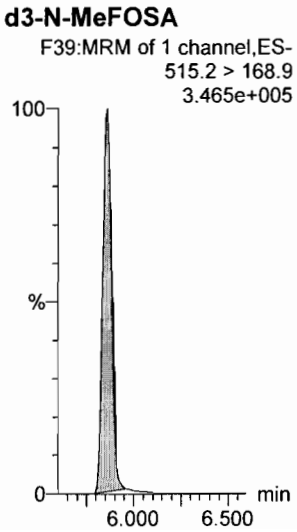
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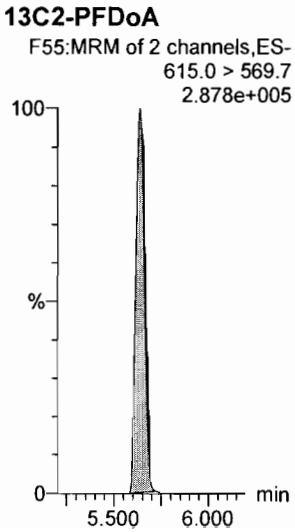
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d3-N-MeFOSA



13C2-PFDoA

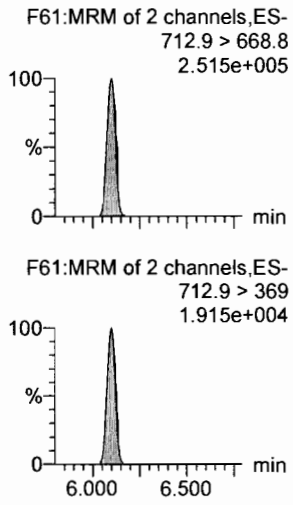


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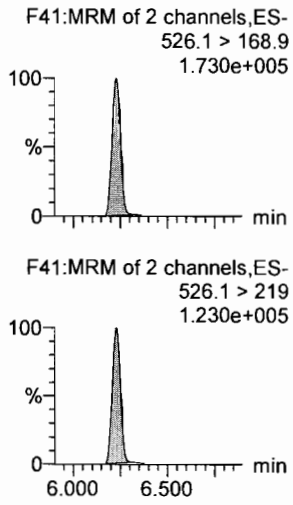
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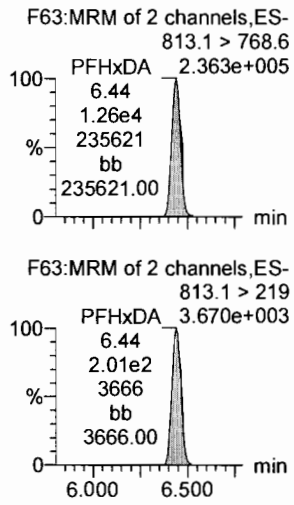
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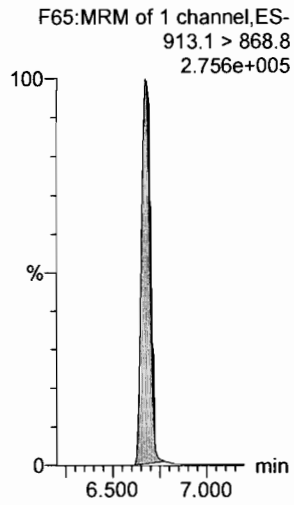
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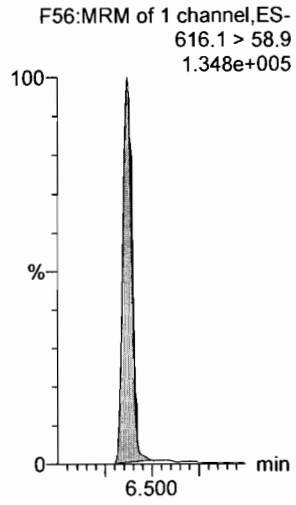
PFHxDA



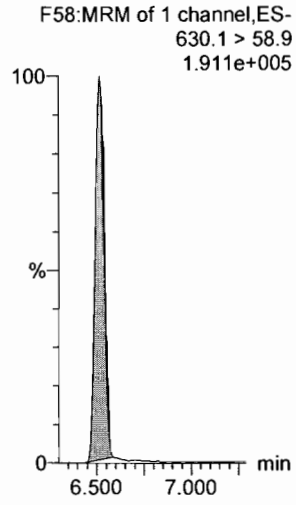
PFODA



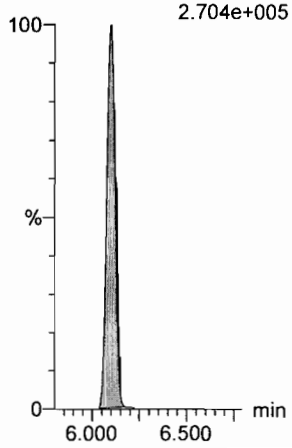
N-MeFOSE



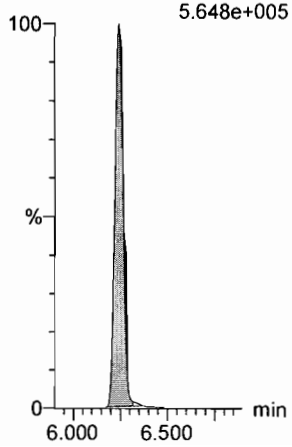
N-EtFOSE



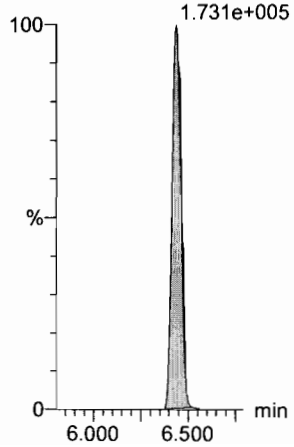
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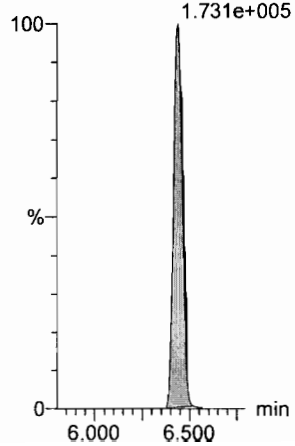
d5-N-ETFOSA



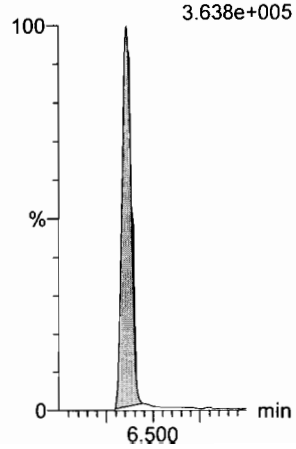
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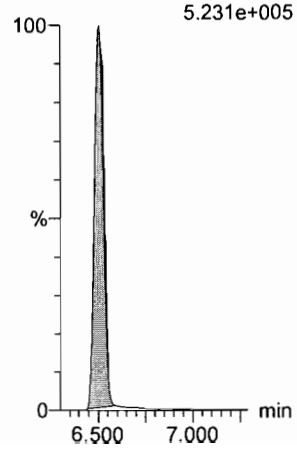
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d7-N-MeFOSE



d9-N-EtFOSE

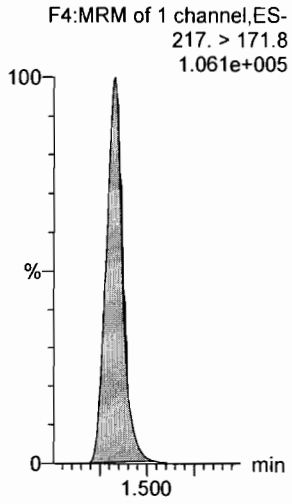


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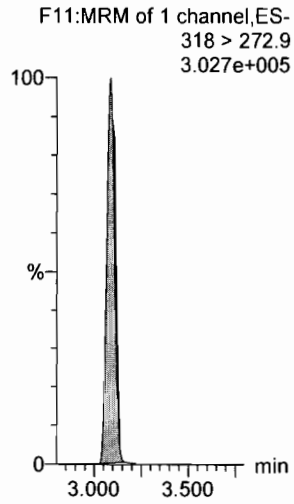
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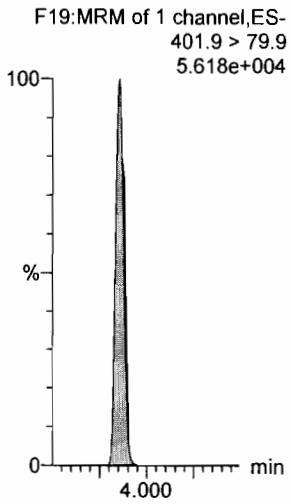
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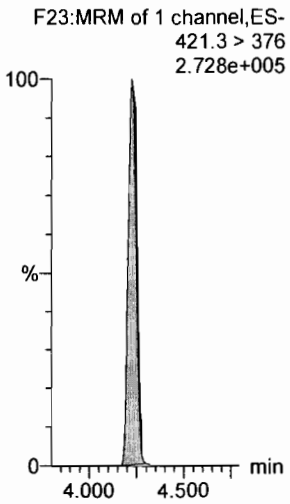
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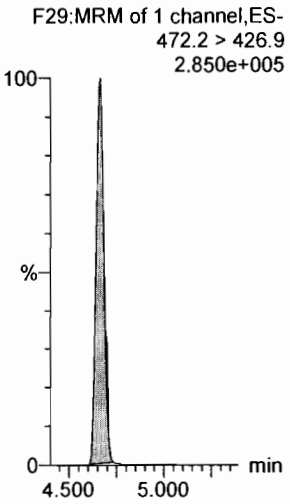
13C3-PFHxS



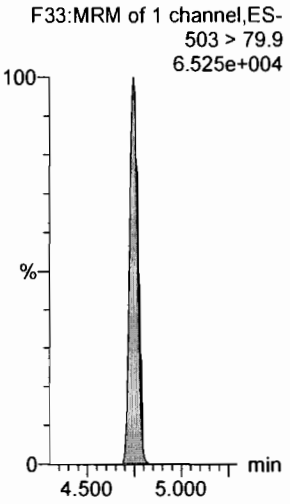
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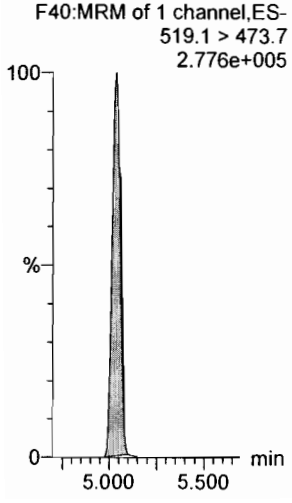
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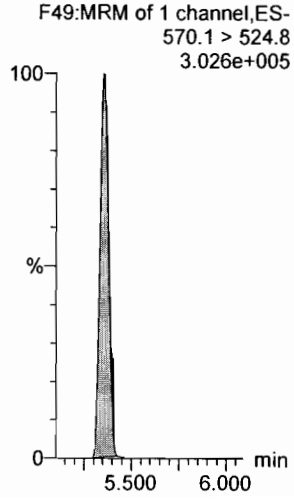
13C4-PFOS



13C6-PFDA



13C7-PFUdA

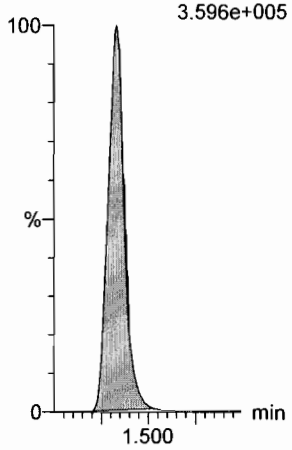


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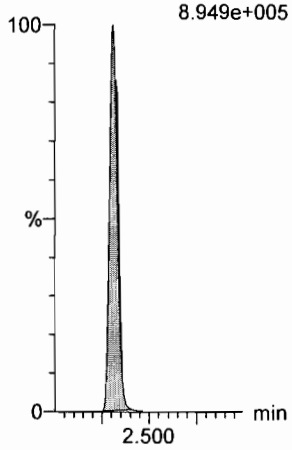
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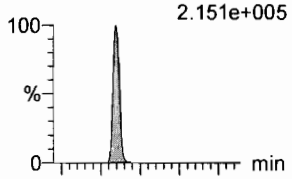
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
3.596e+005



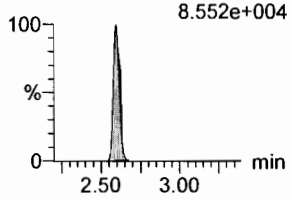
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F5:MRM of 1 channel,ES-
263.1 > 218.9
8.949e+005



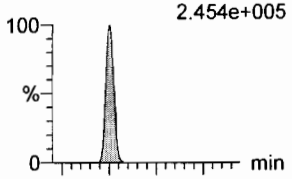
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F7:MRM of 2 channels,ES-
299.0 > 79.7
2.151e+005



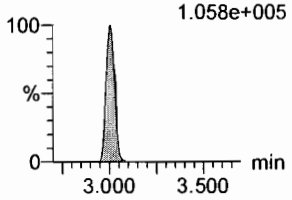
F7:MRM of 2 channels,ES-
299.0 > 99.0
8.552e+004



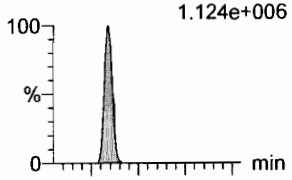
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
2.454e+005



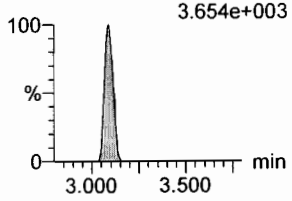
F12:MRM of 2 channels,ES-
327.2 > 81.1
1.058e+005



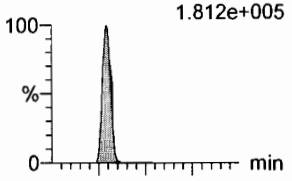
PFHxA
F9:MRM of 2 channels,ES-
313.2 > 268.9
1.124e+006



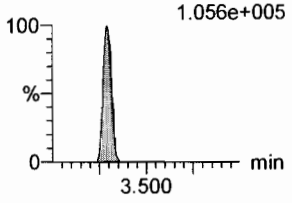
F9:MRM of 2 channels,ES-
313.2 > 119
3.654e+003



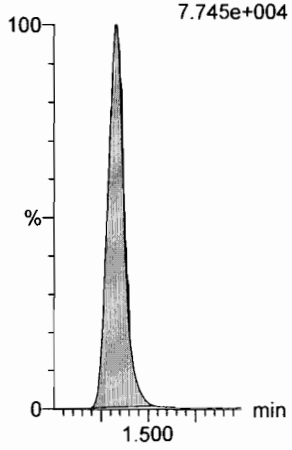
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
1.812e+005



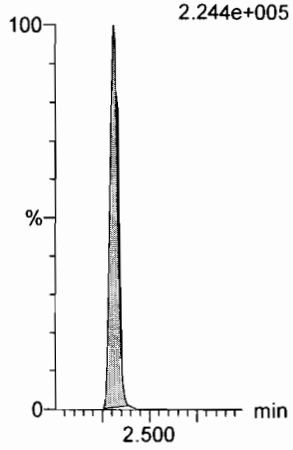
F15:MRM of 2 channels,ES-
349.1 > 99
1.056e+005



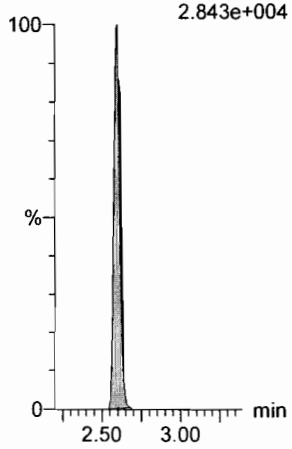
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
7.745e+004



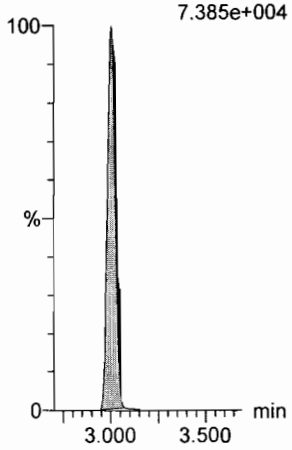
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
2.244e+005



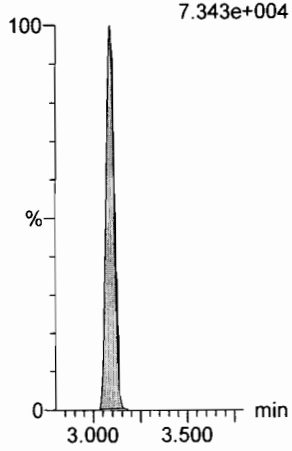
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.843e+004



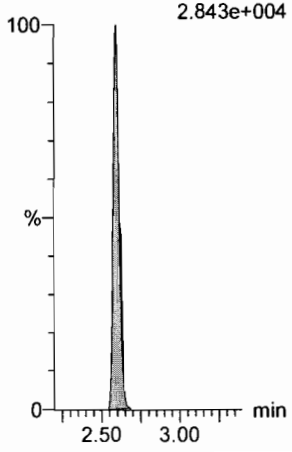
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
7.385e+004



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 269.8
7.343e+004



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.843e+004

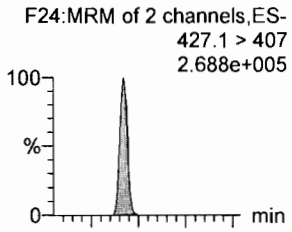


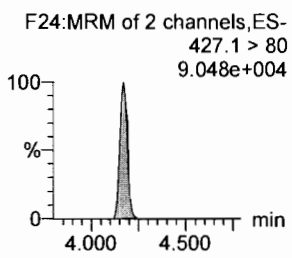
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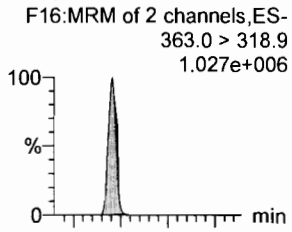
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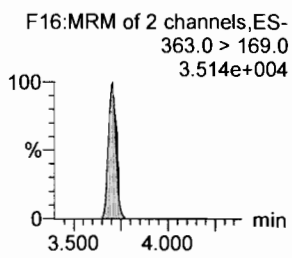
6:2 FTS



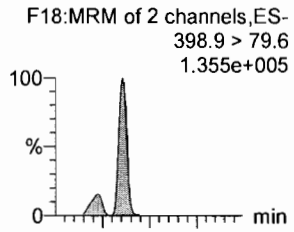


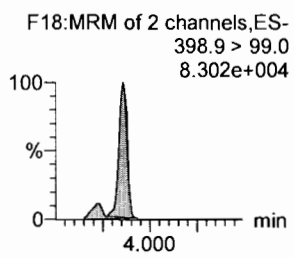
PFHpA



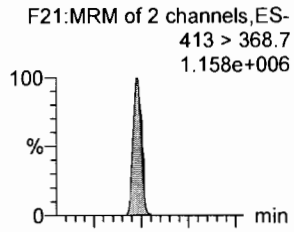


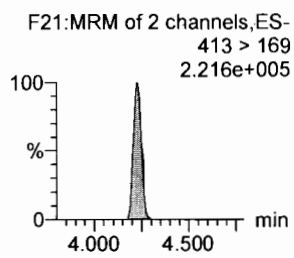
L-PFHxS



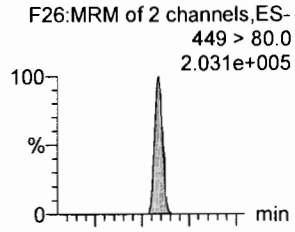


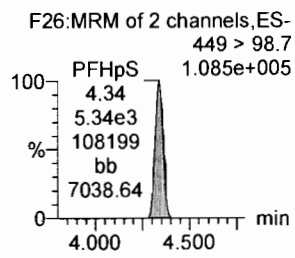
L-PFOA



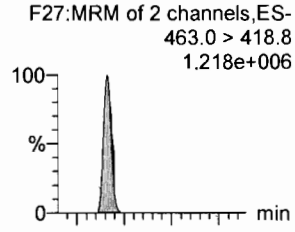


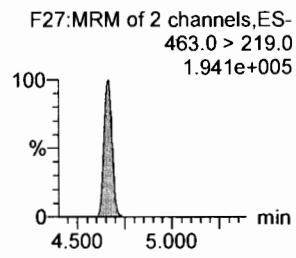
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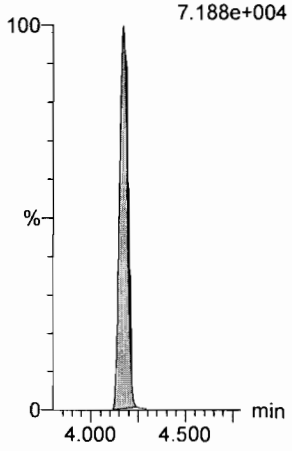


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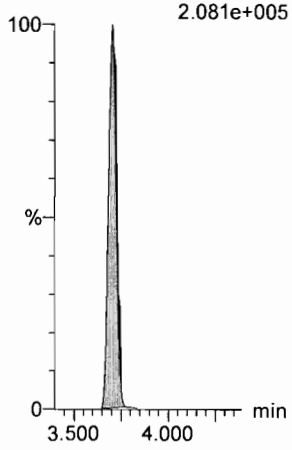




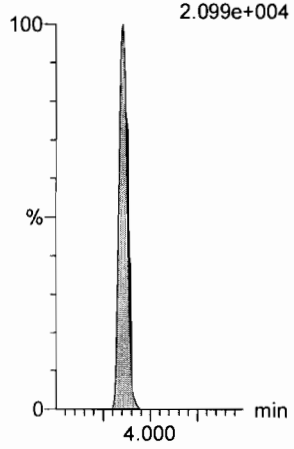
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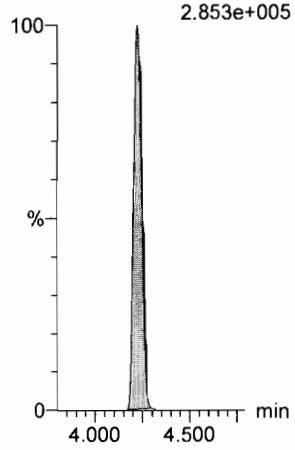
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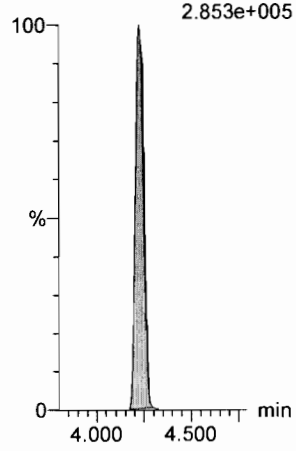
18O2-PFHxS



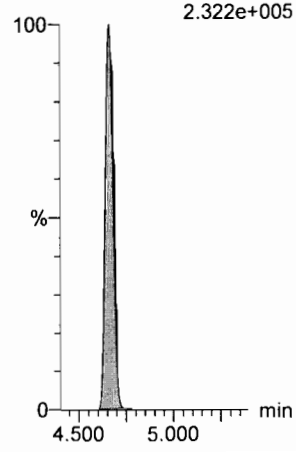
13C2-PFOA



13C2-PFOA



13C5-PFNA

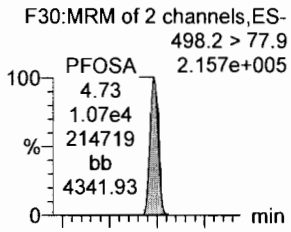


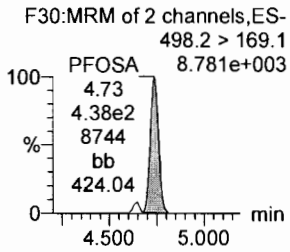
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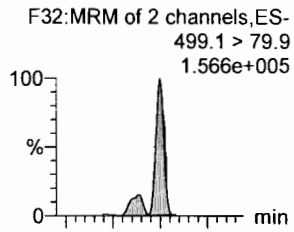
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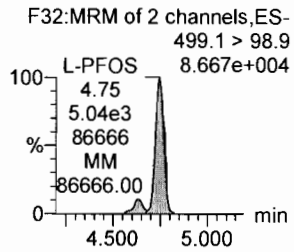
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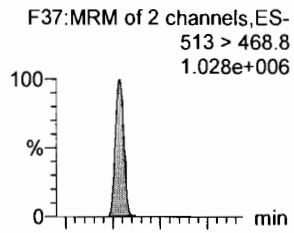


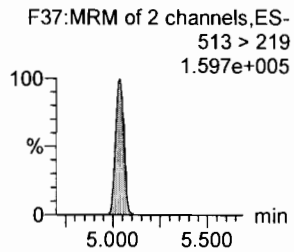
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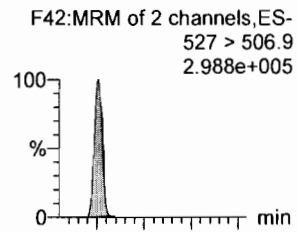


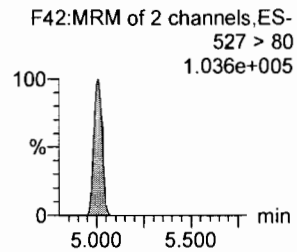
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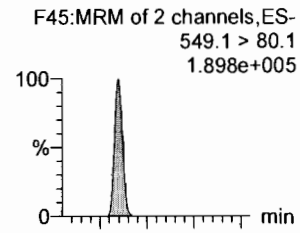


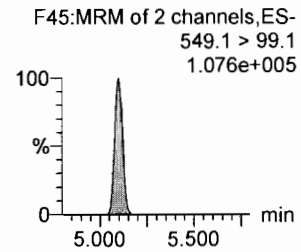
8:2 FTS



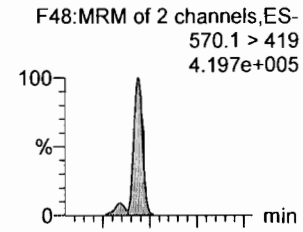


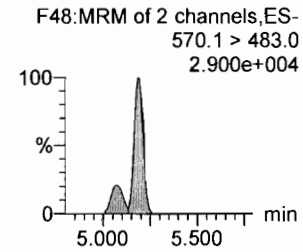
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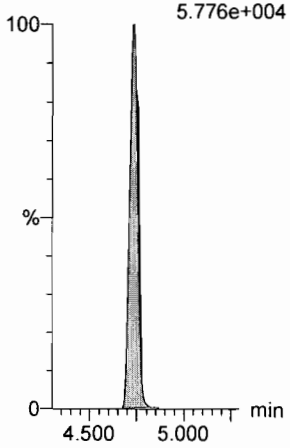


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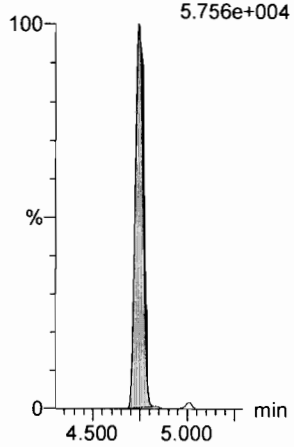




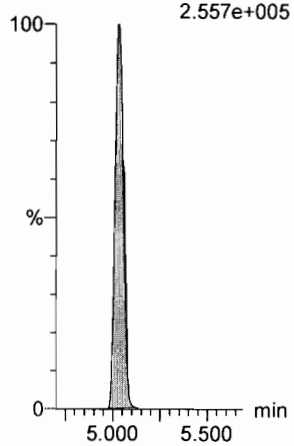
13C8-PFOSA



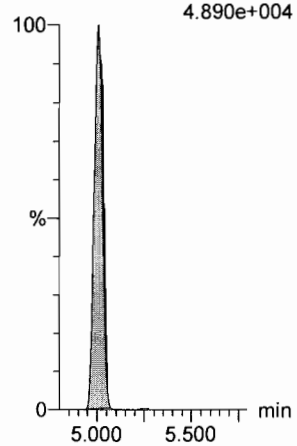
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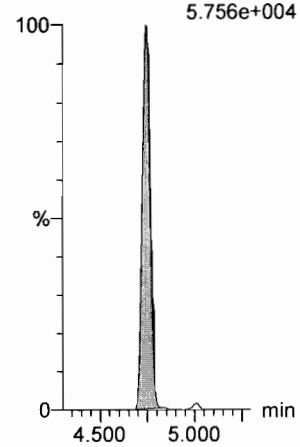
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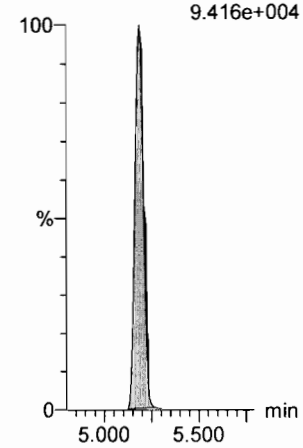
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13C8-PFOS



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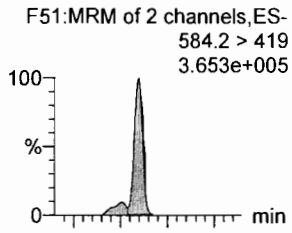


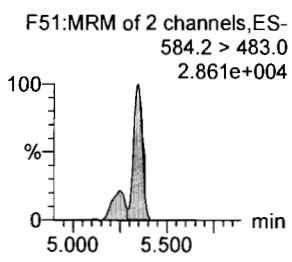
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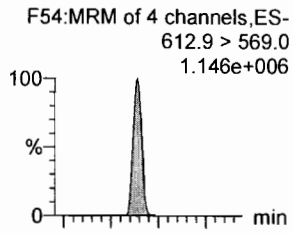
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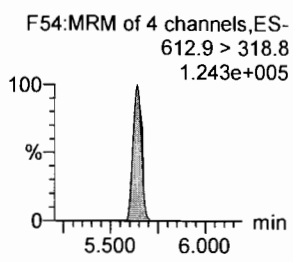
L-EtFOSAA



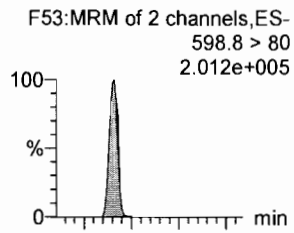


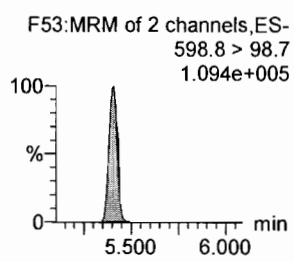
PFDoA



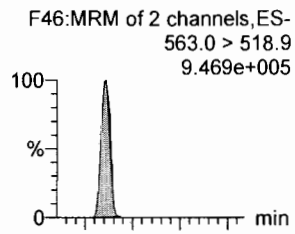


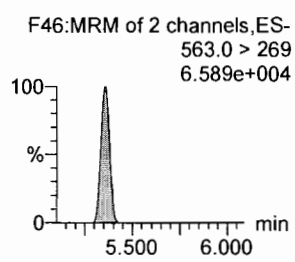
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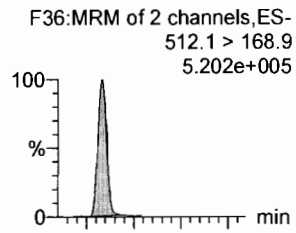


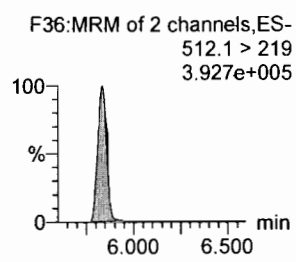
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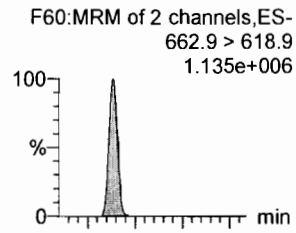


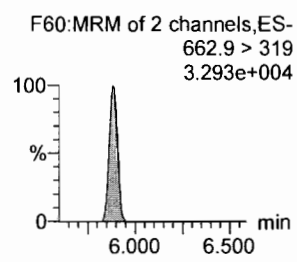
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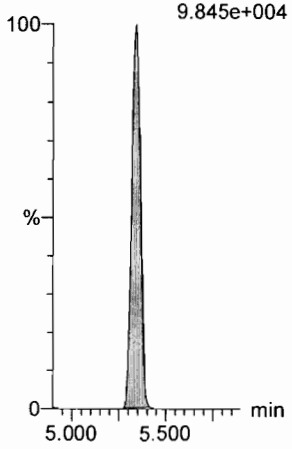


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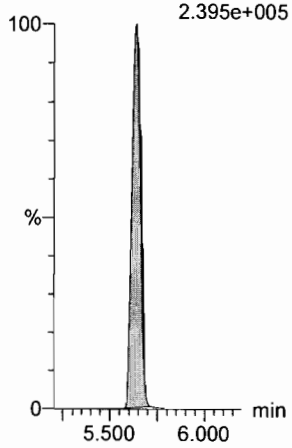




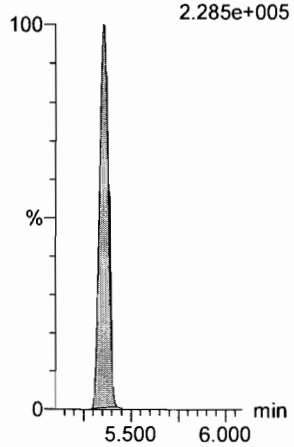
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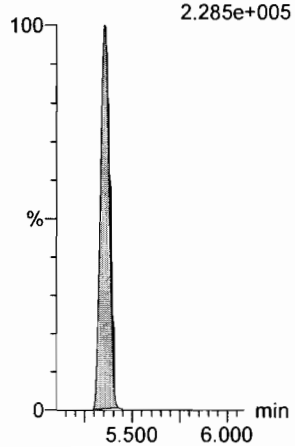
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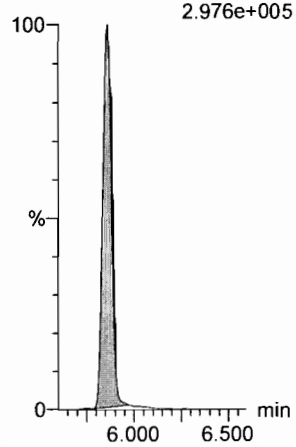
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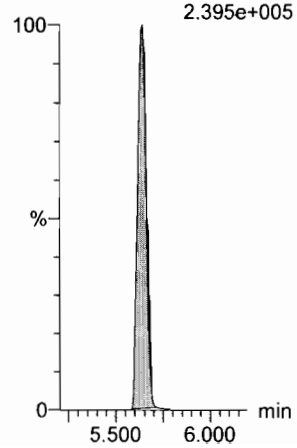
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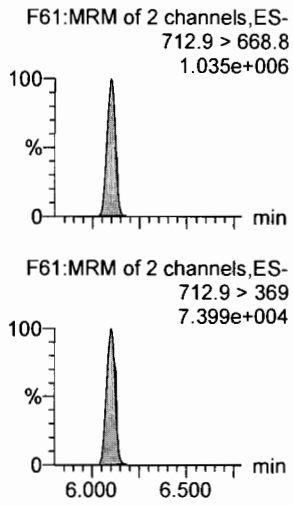


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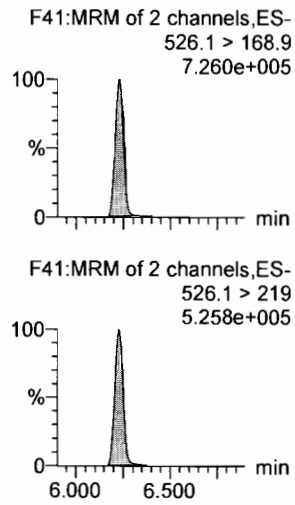
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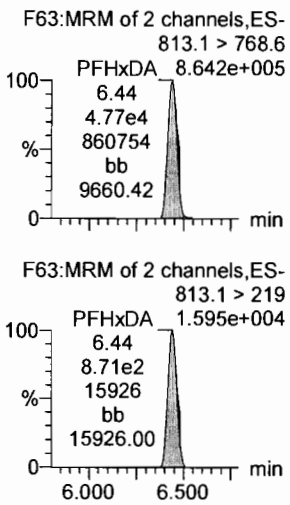
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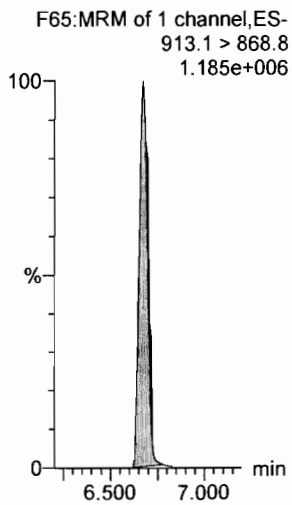
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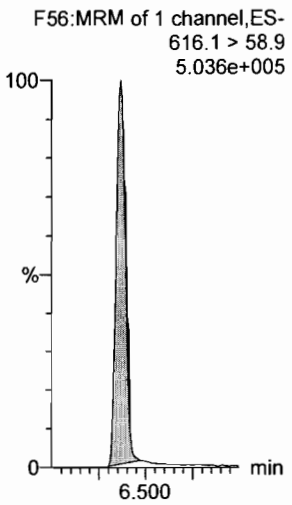
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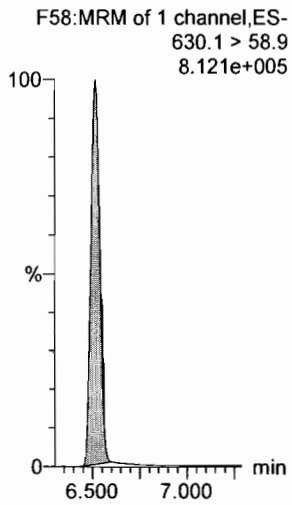
PFODA



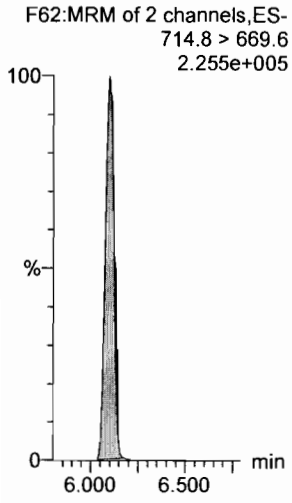
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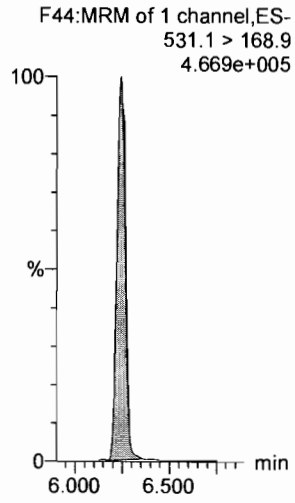
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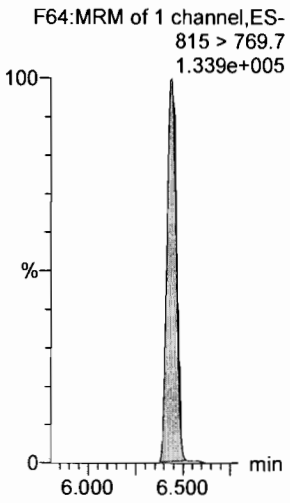
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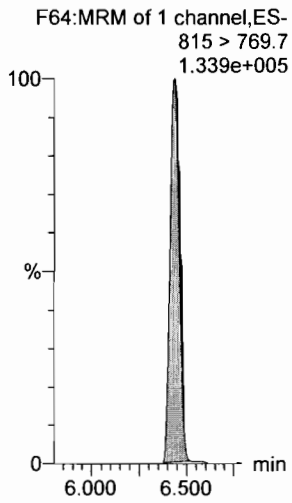
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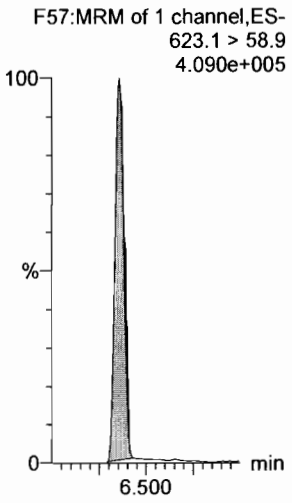
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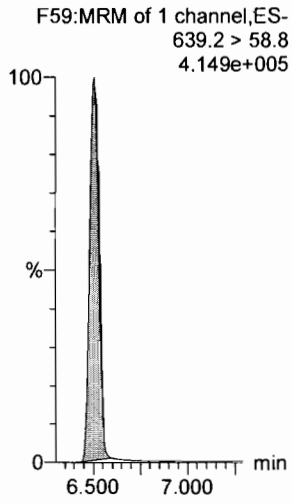
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d7-N-MeFOSE



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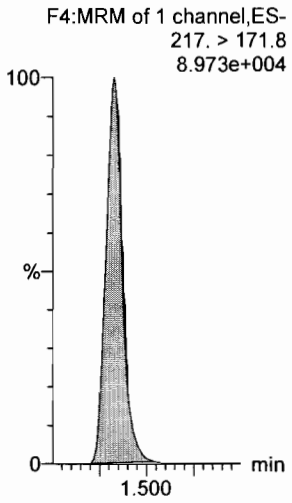


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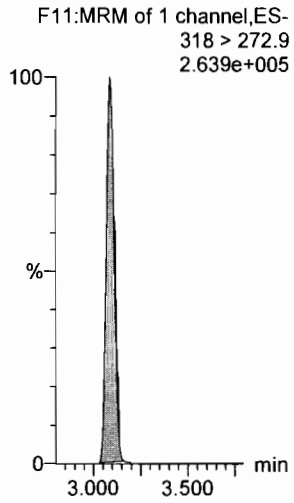
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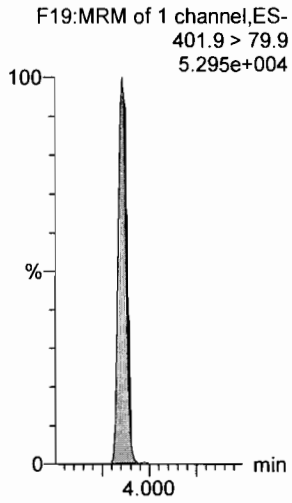
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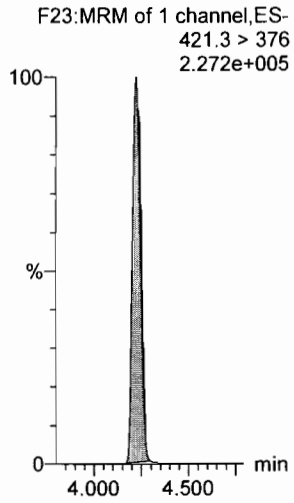
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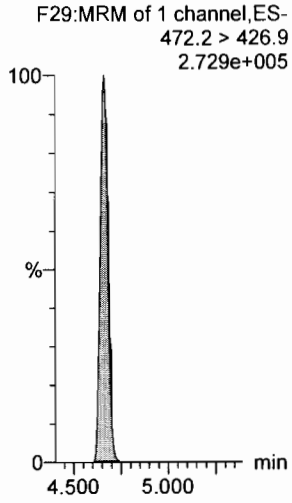
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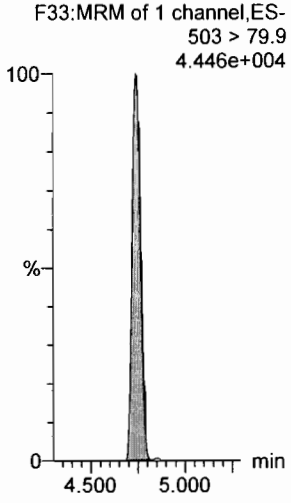
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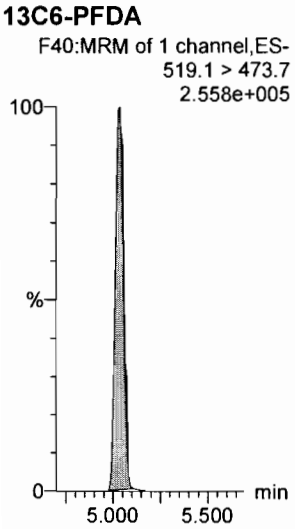
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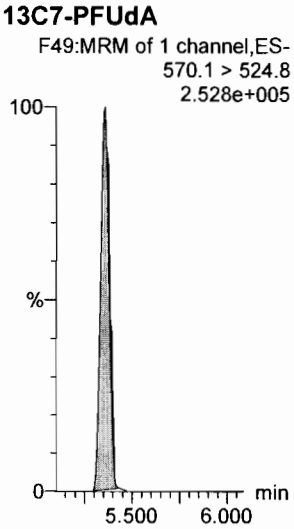
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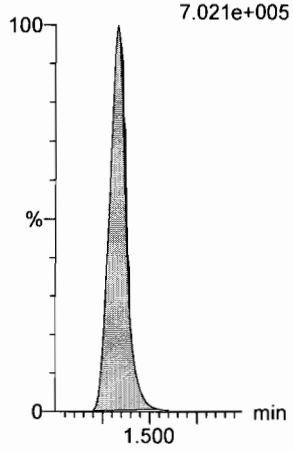


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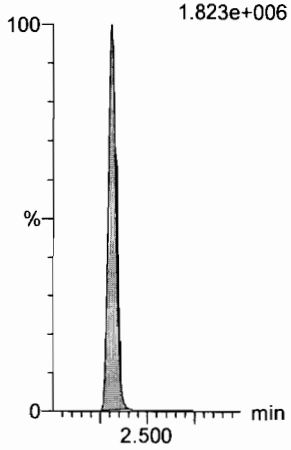
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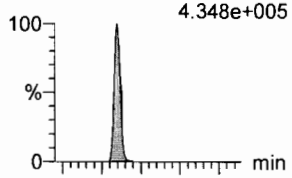
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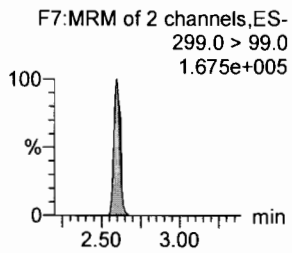


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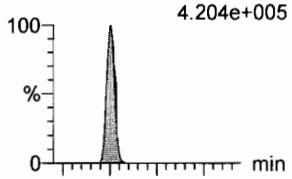


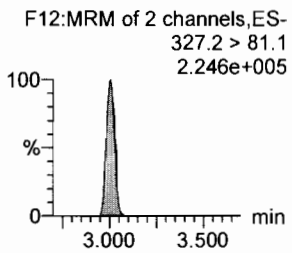
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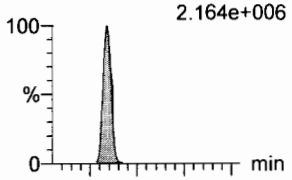


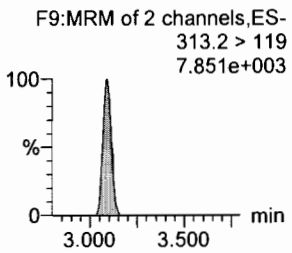
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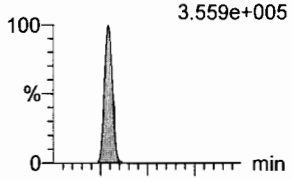


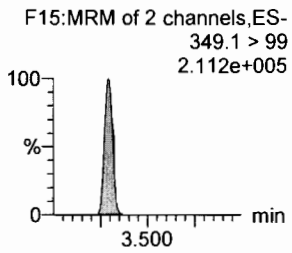
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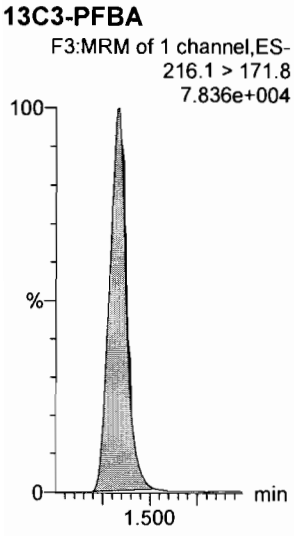


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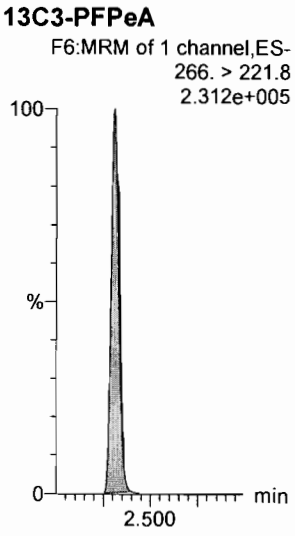




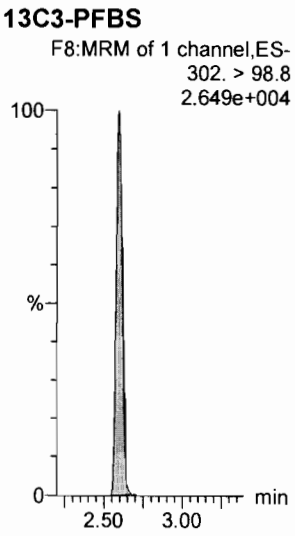
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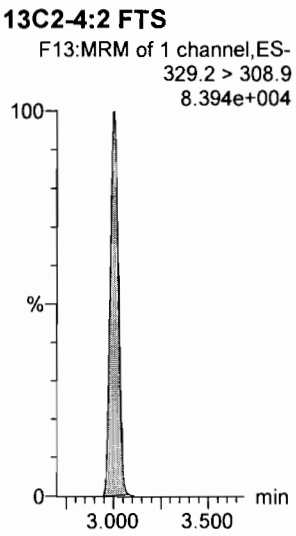
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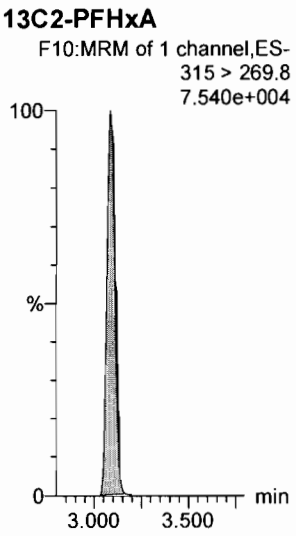
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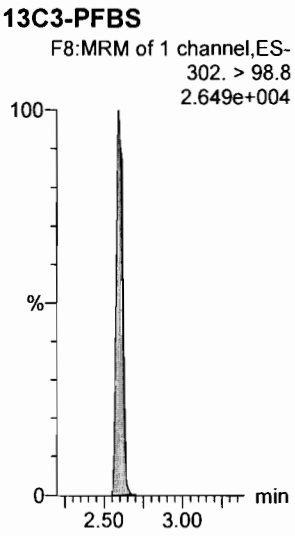
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13C2-PFHxA



13C3-PFBS

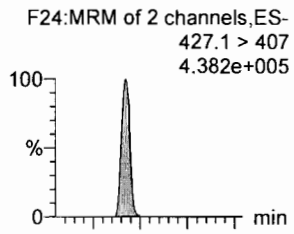


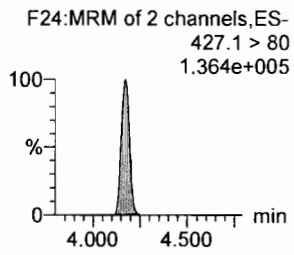
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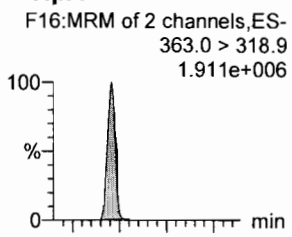
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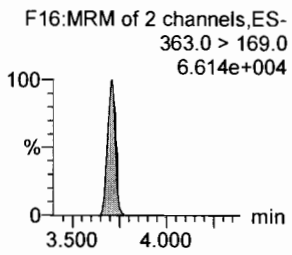
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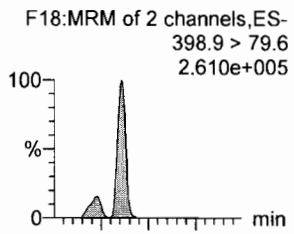


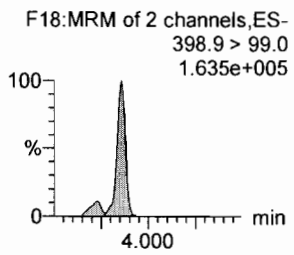
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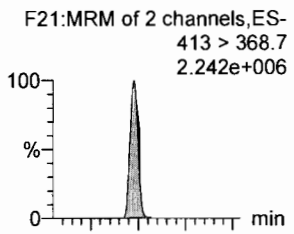


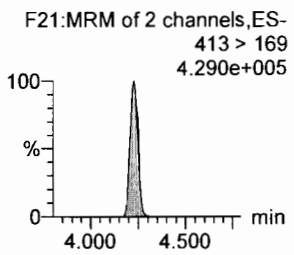
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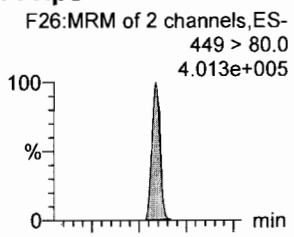


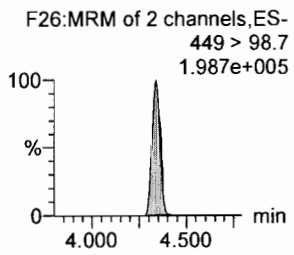
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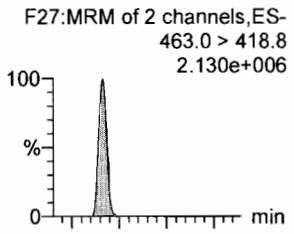


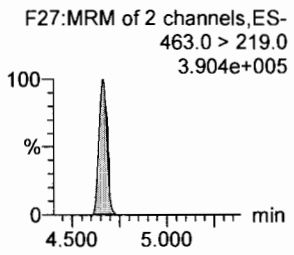
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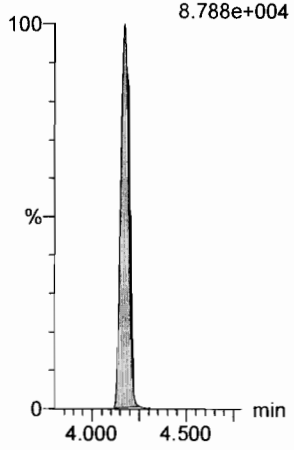


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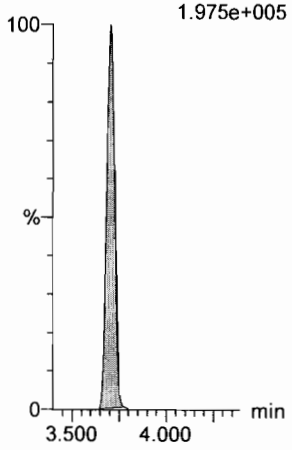




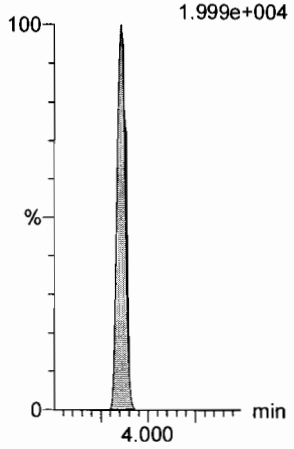
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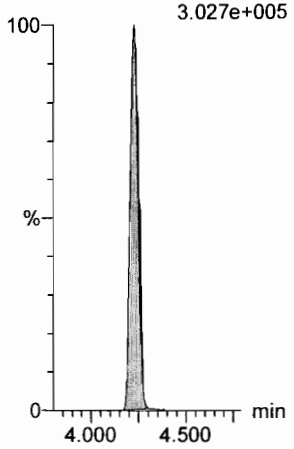
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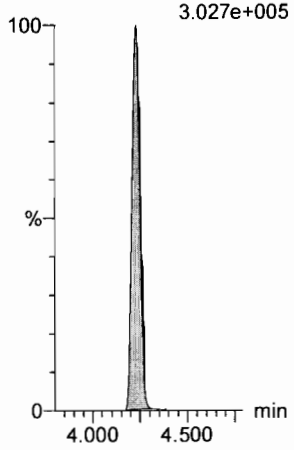
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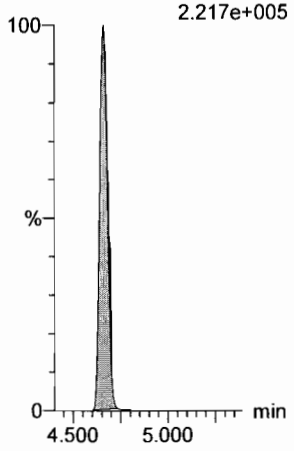
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13C2-PFOA



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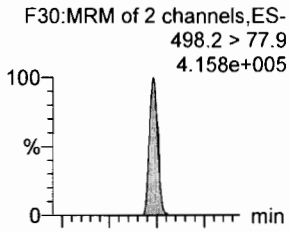


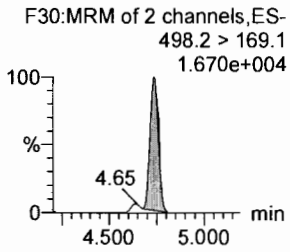
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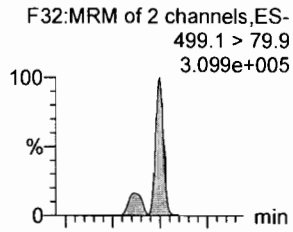
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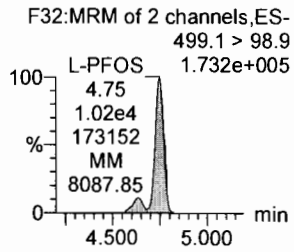
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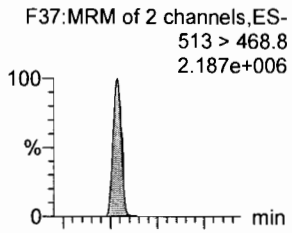


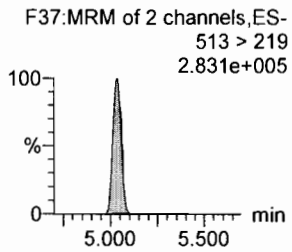
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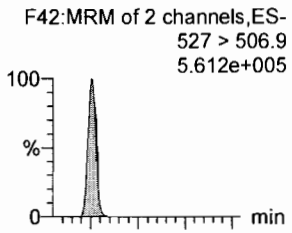


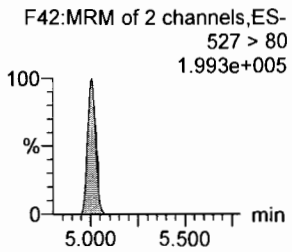
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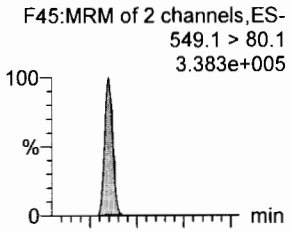


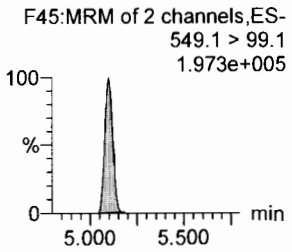
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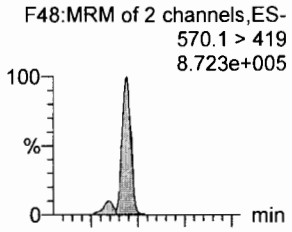


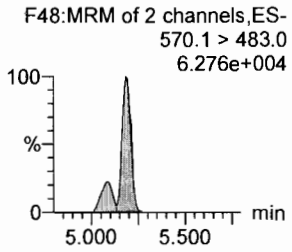
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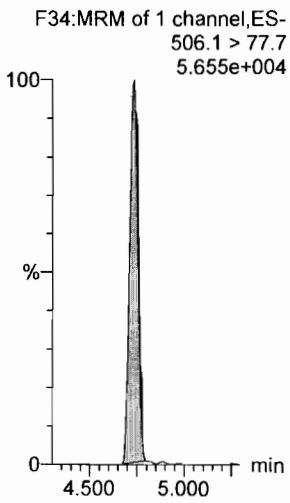


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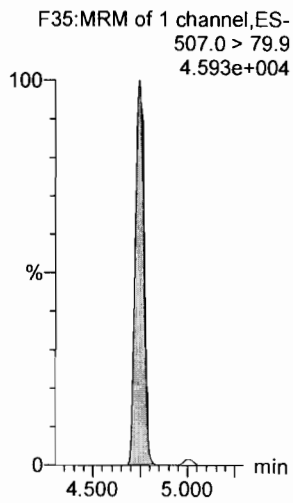




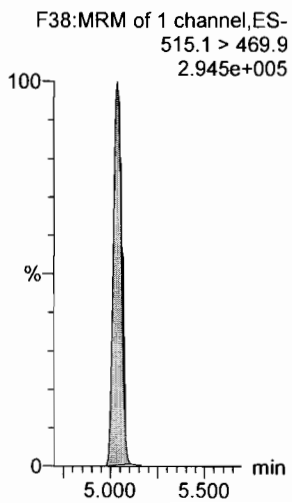
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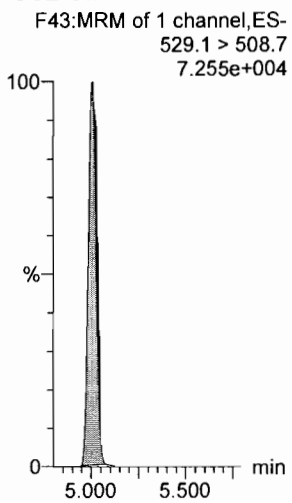
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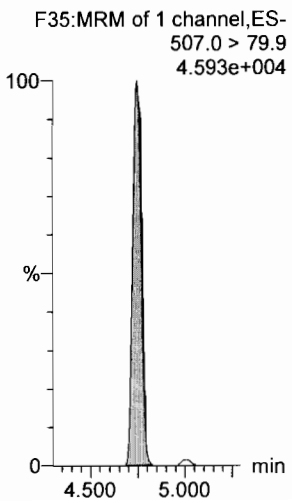
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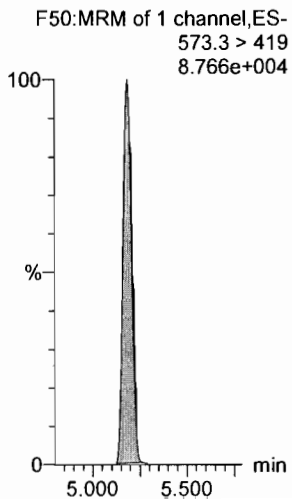
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13C8-PFOS



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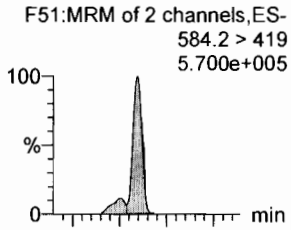


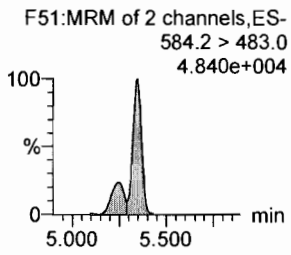
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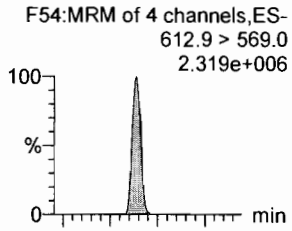
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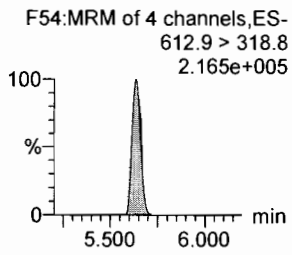
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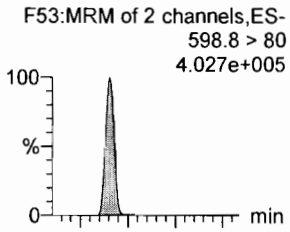


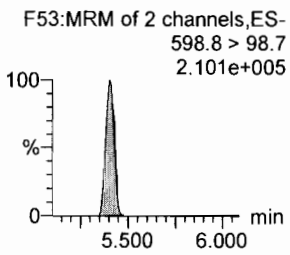
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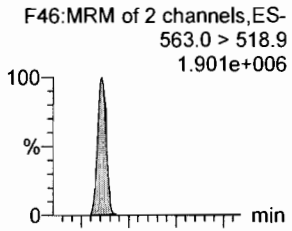


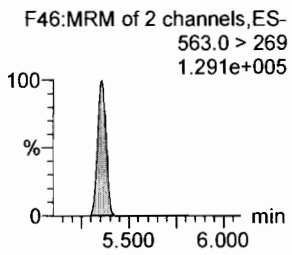
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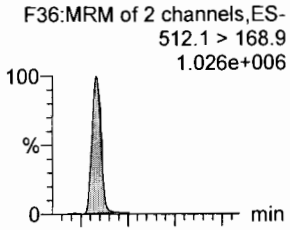


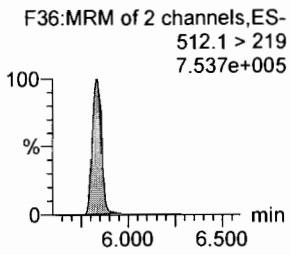
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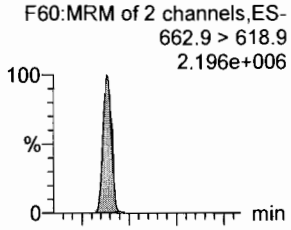


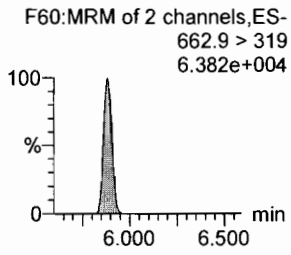
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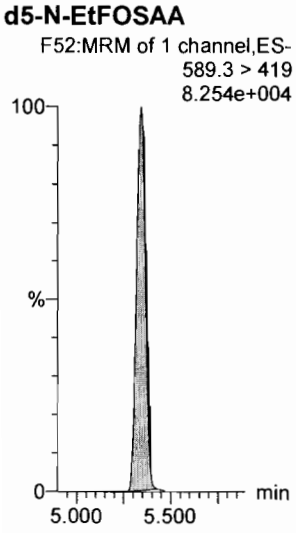


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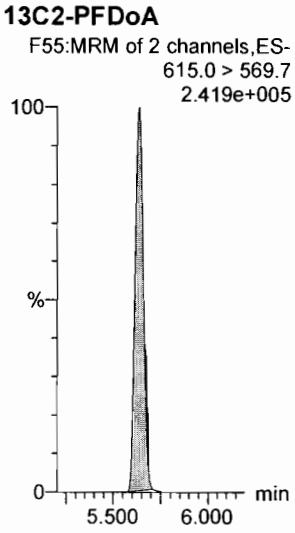




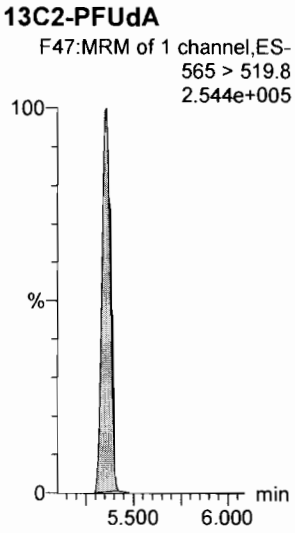
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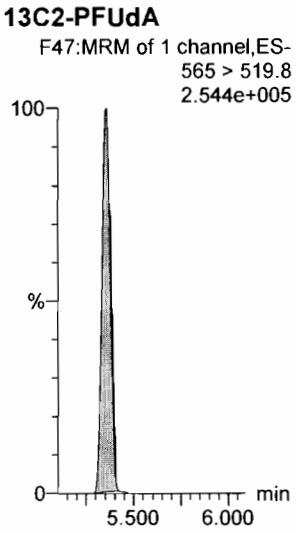
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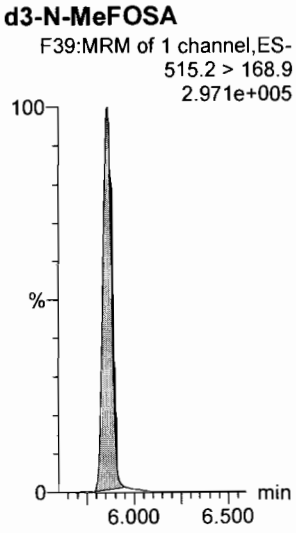
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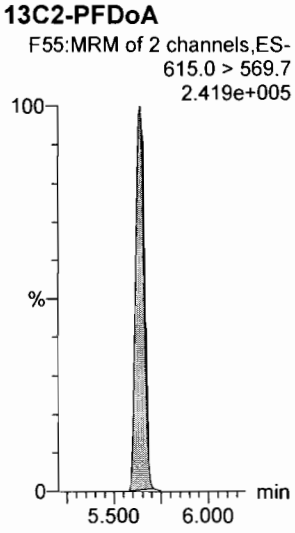
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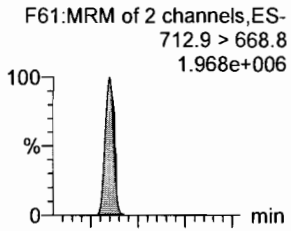


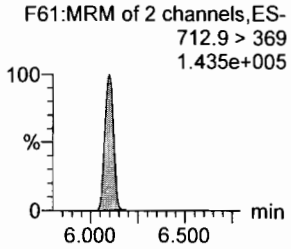
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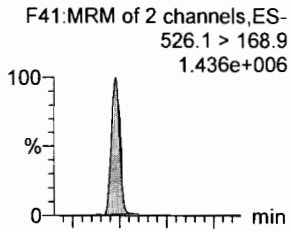
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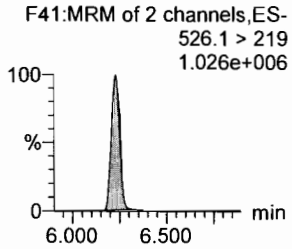
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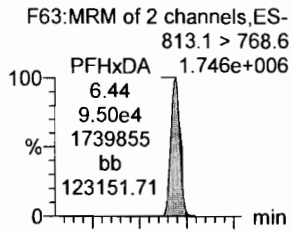


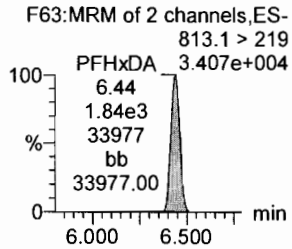
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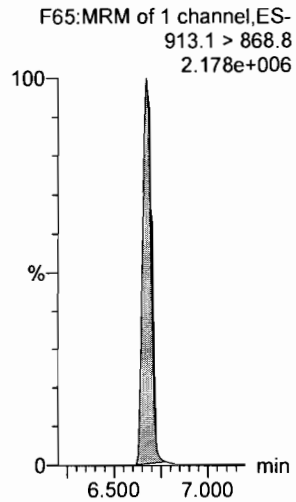


PFHxDA

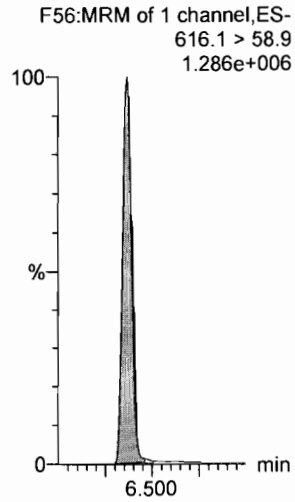




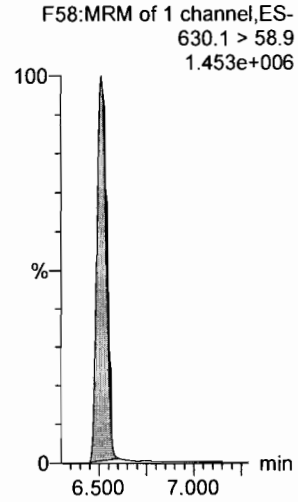
PFODA



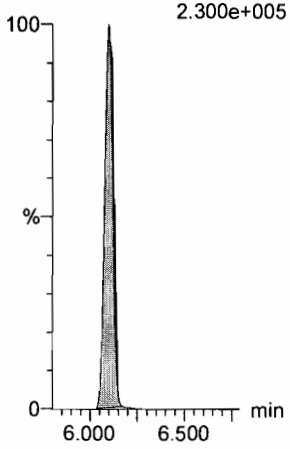
N-MeFOSE



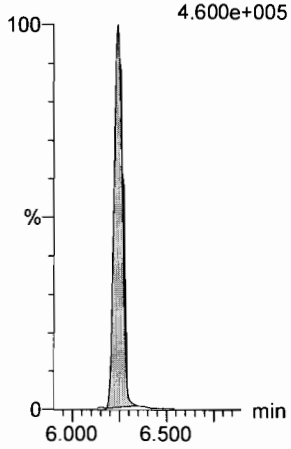
N-EtFOSE



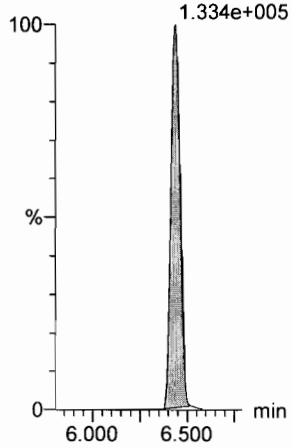
13C2-PFTeDA



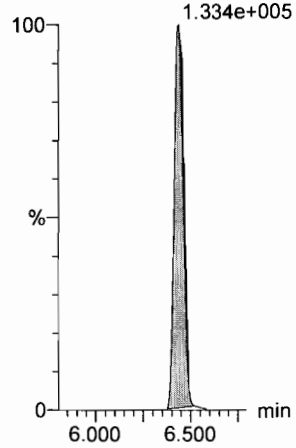
d5-N-ETFOSA



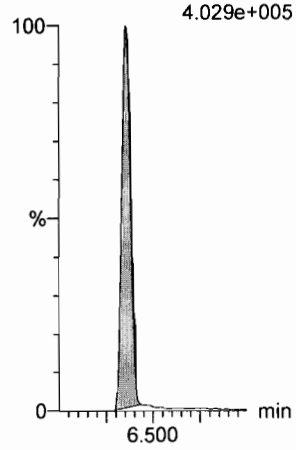
13C2-PFHxDA



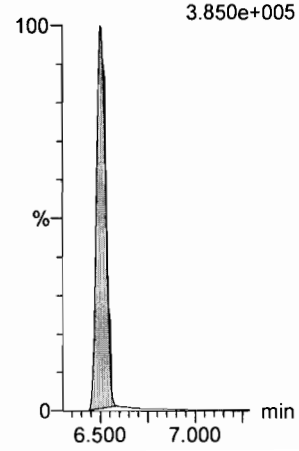
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE

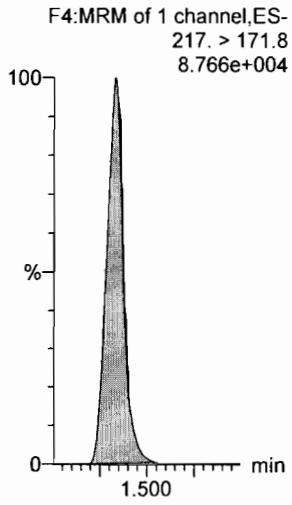


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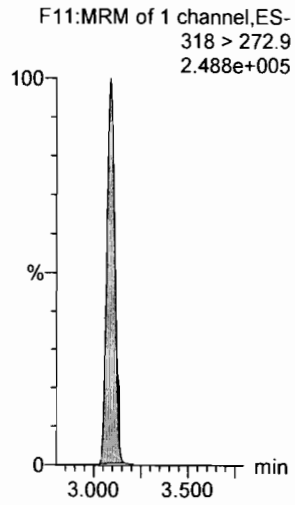
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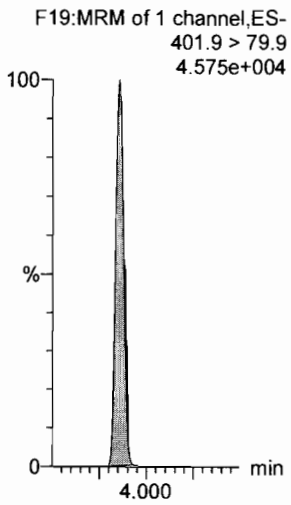
13C4-PFBA



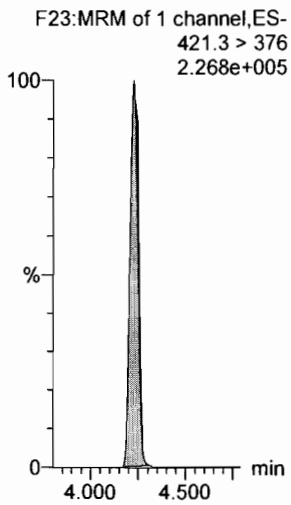
13C5-PFHxA



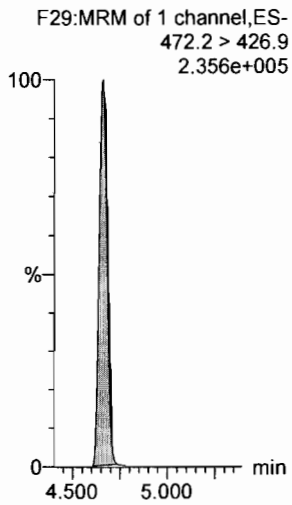
13C3-PFHxS



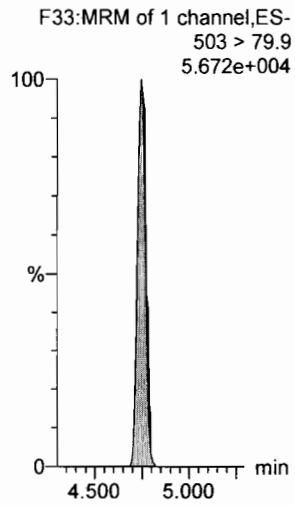
13C8-PFOA



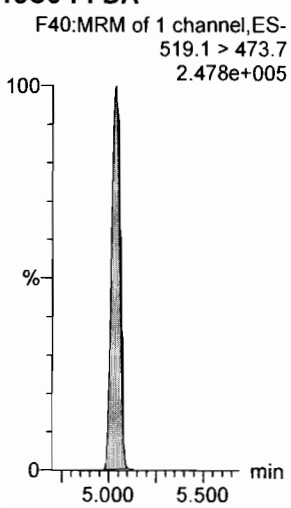
13C9-PFNA



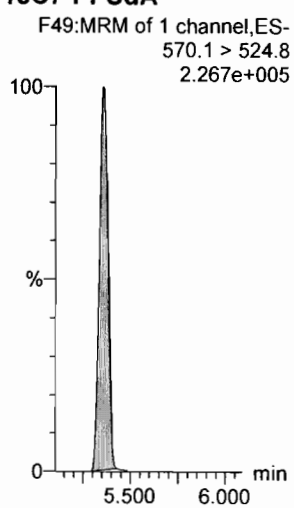
13C4-PFOS



13C6-PFDA



13C7-PFUdA

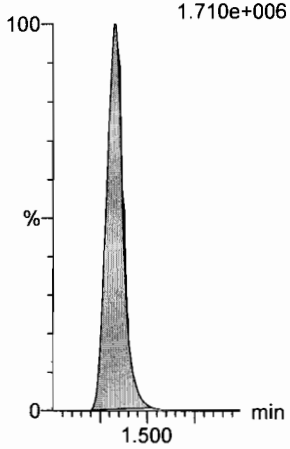


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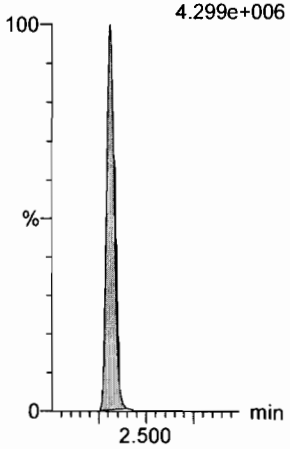
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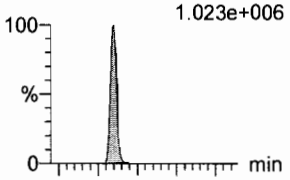
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
1.710e+006



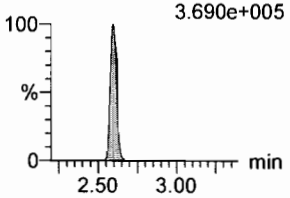
PFPeA
F5:MRM of 1 channel,ES-
263.1 > 218.9
4.299e+006



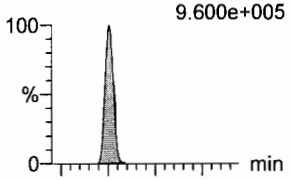
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
1.023e+006



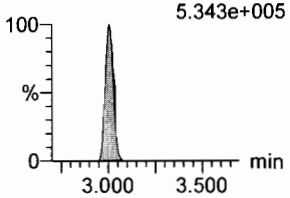
F7:MRM of 2 channels,ES-
299.0 > 99.0
3.690e+005



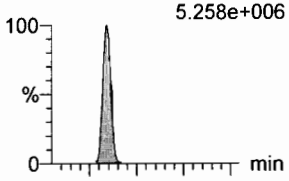
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
9.600e+005



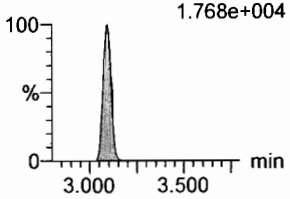
F12:MRM of 2 channels,ES-
327.2 > 81.1
5.343e+005



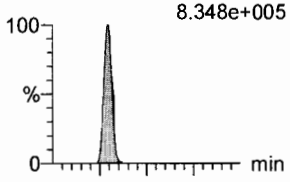
PFHxA
F9:MRM of 2 channels,ES-
313.2 > 268.9
5.258e+006



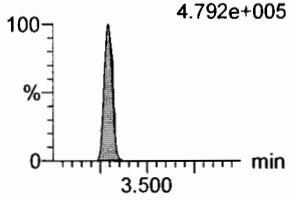
F9:MRM of 2 channels,ES-
313.2 > 119
1.768e+004



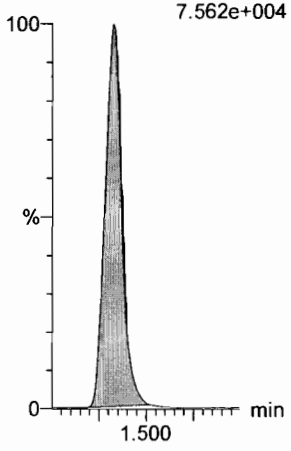
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
8.348e+005



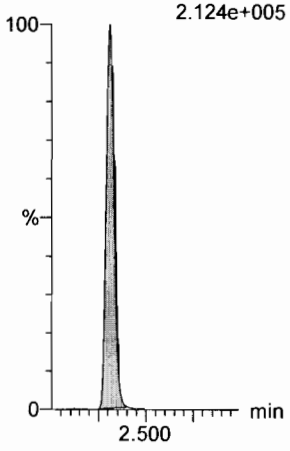
F15:MRM of 2 channels,ES-
349.1 > 99
4.792e+005



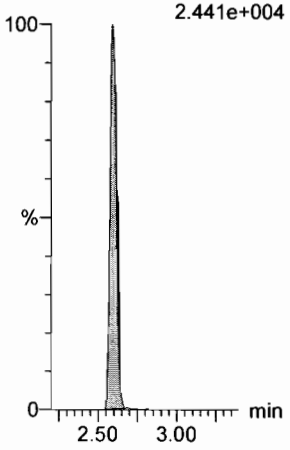
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
7.562e+004



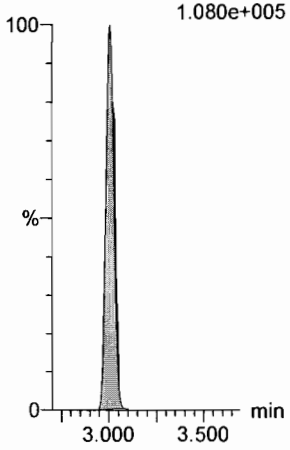
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
2.124e+005



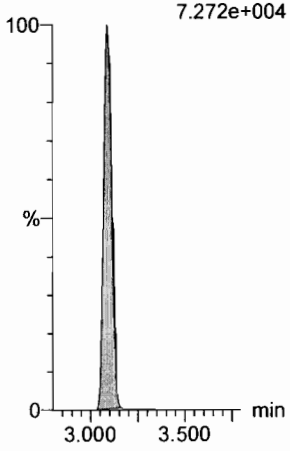
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.441e+004



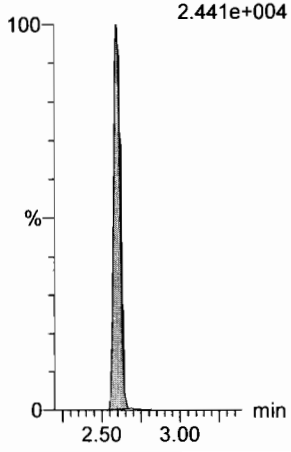
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
1.080e+005



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 269.8
7.272e+004



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.441e+004

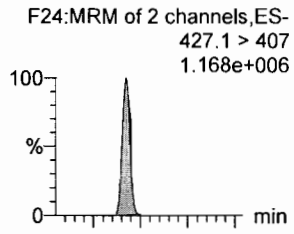


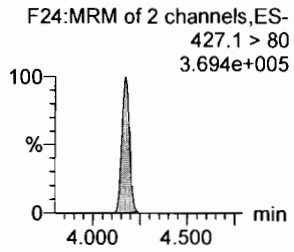
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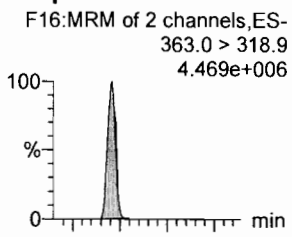
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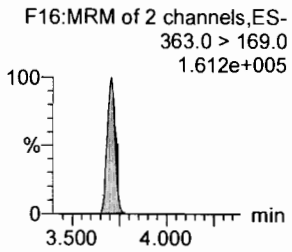
6:2 FTS



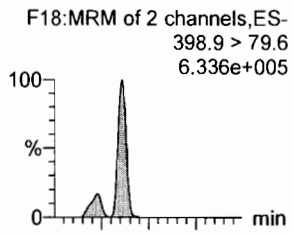


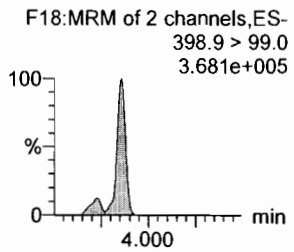
PFHpA



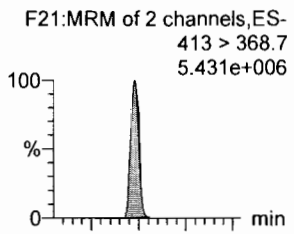


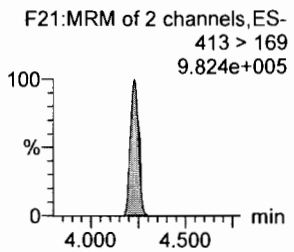
L-PFHxS



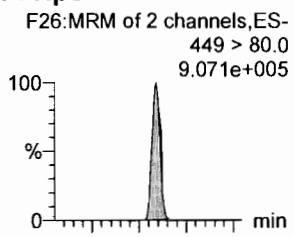


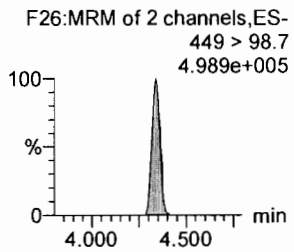
L-PFOA



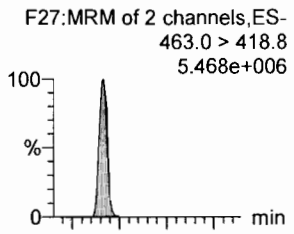


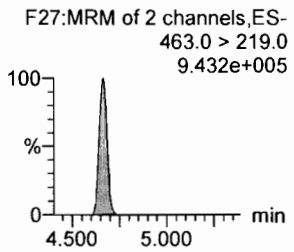
PFHpS



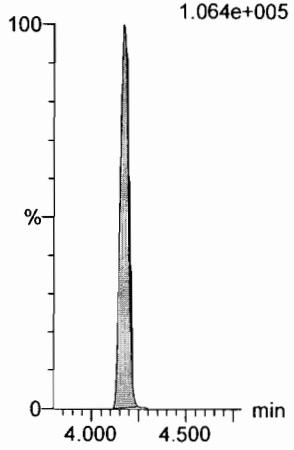


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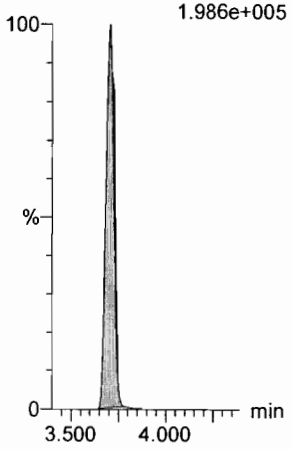




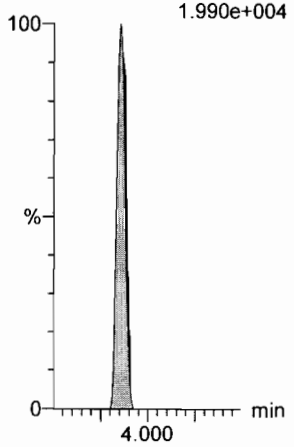
13C2-6:2 FTS



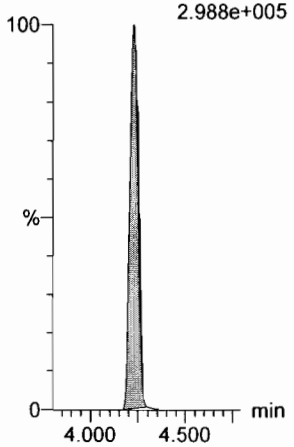
13C4-PFHpA



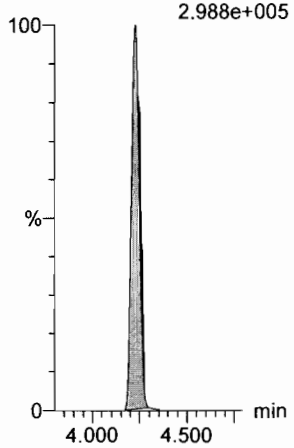
18O2-PFHxS



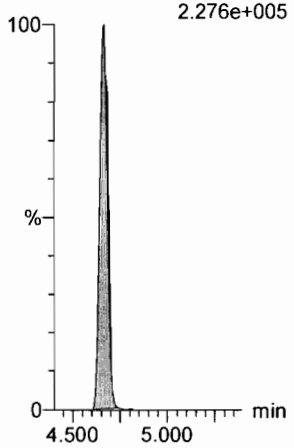
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13C2-PFOA



13C5-PFNA

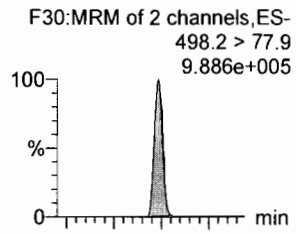


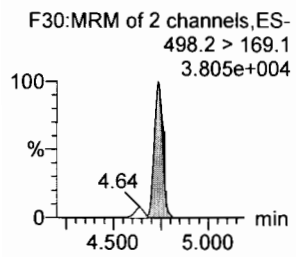
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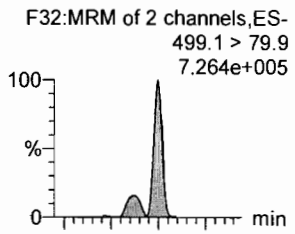
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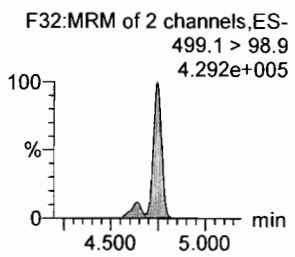
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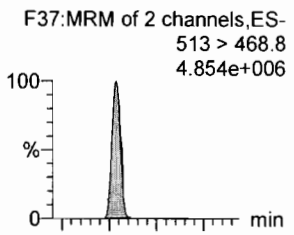


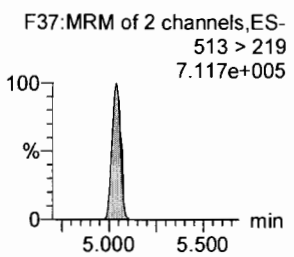
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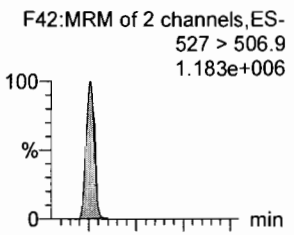


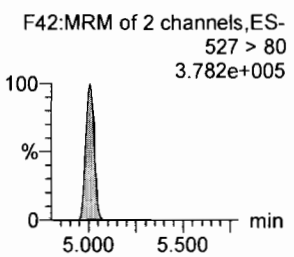
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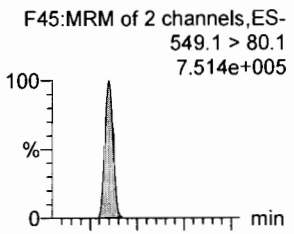


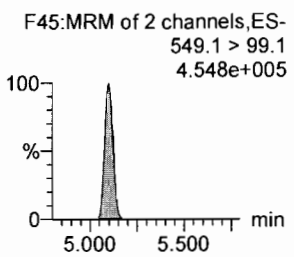
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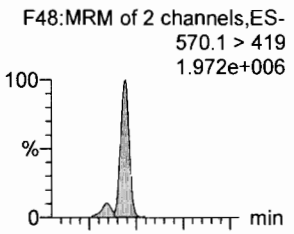


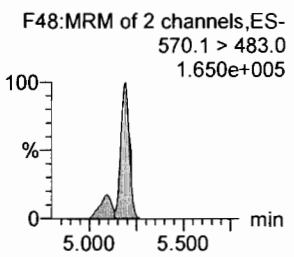
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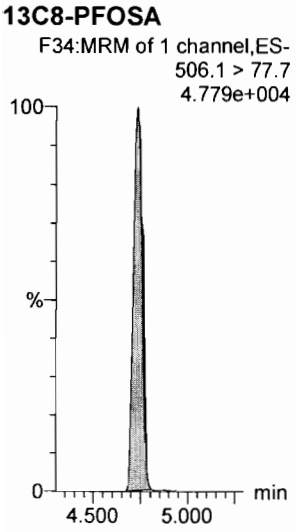


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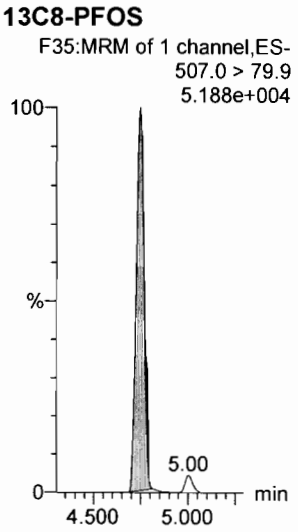




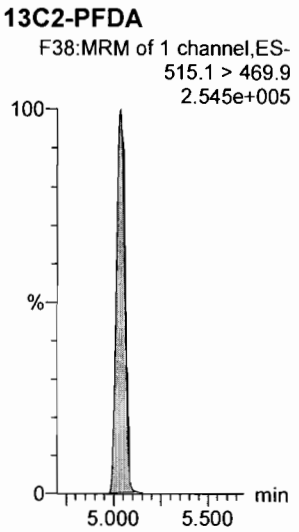
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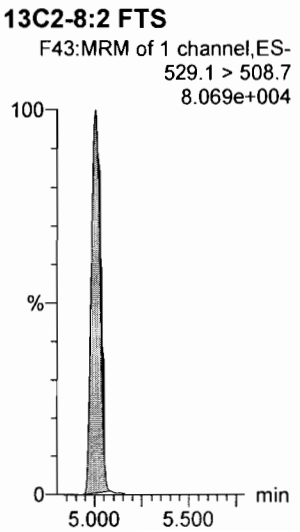
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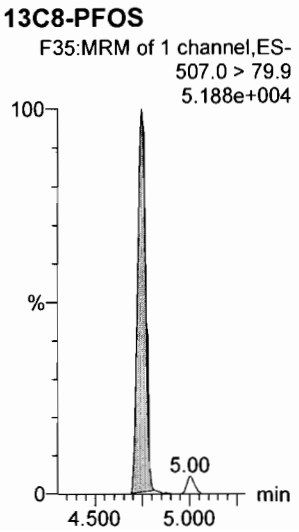
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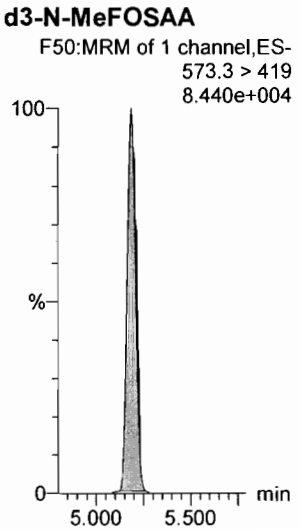
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13C8-PFOS



d3-N-MeFOSAA

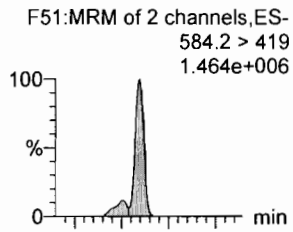


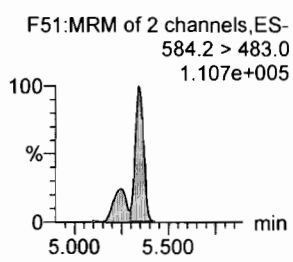
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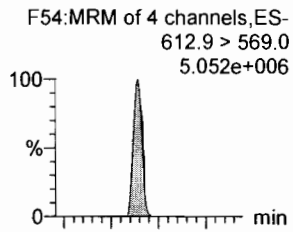
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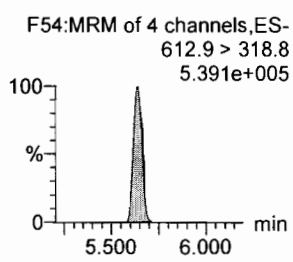
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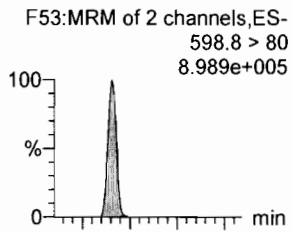


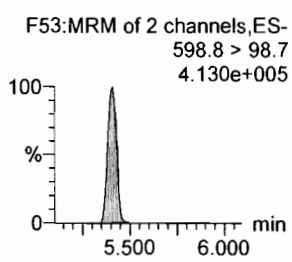
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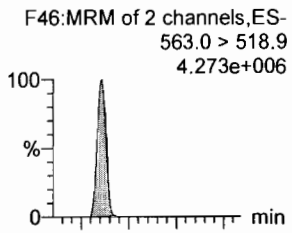


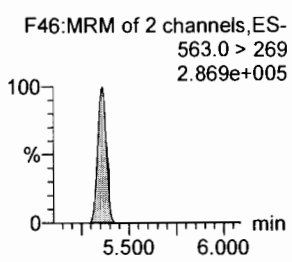
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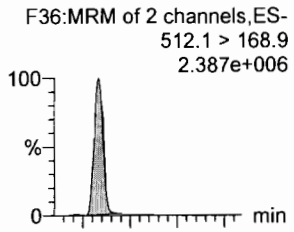


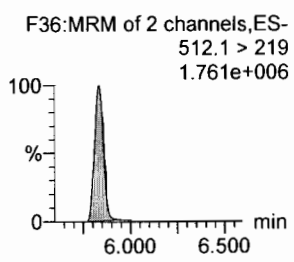
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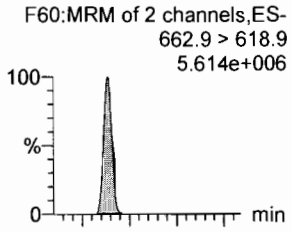


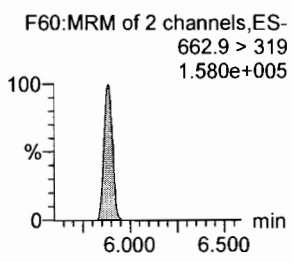
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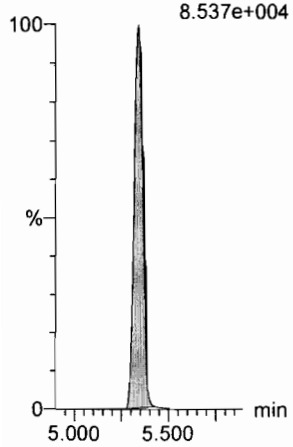


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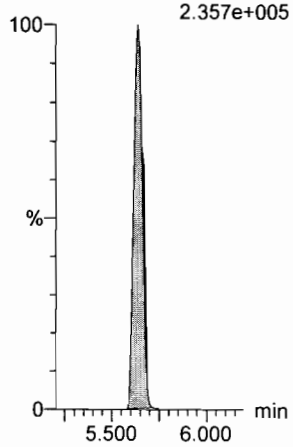




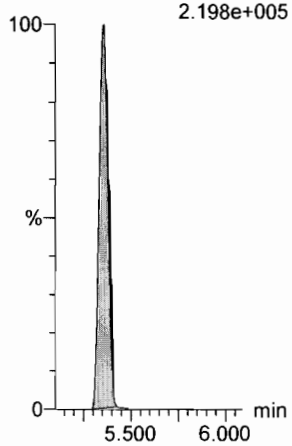
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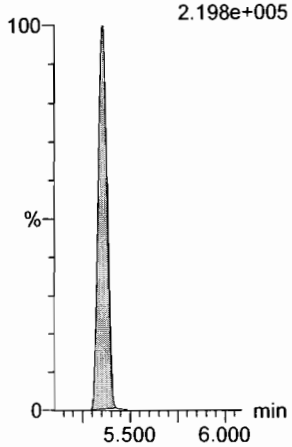
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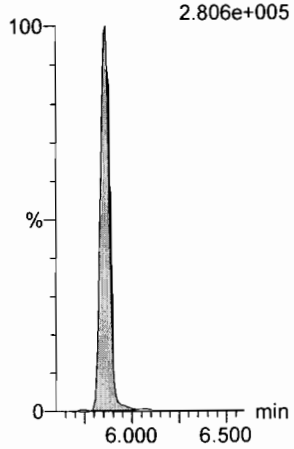
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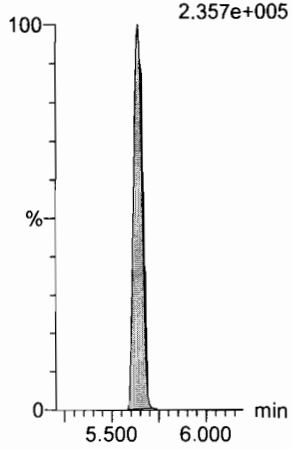
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13C2-PFDoA

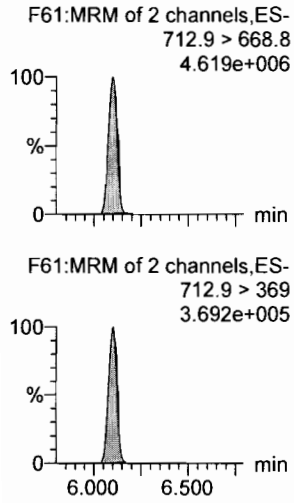


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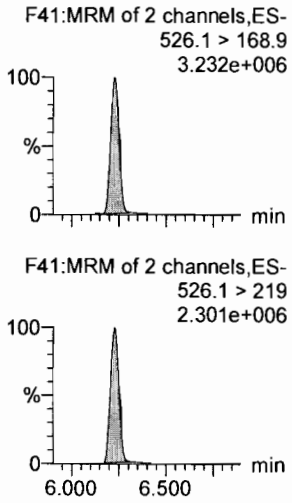
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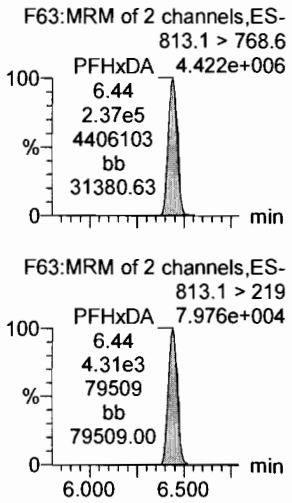
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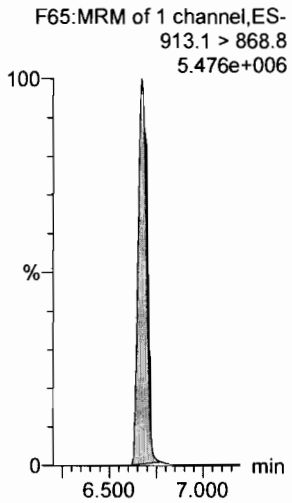
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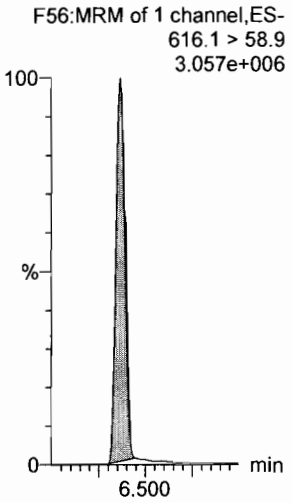
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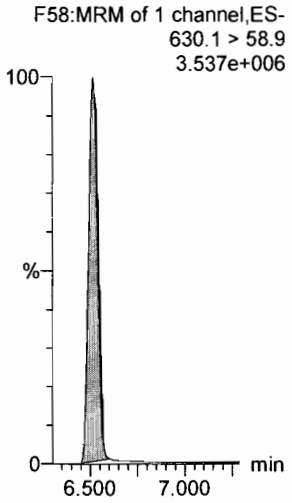
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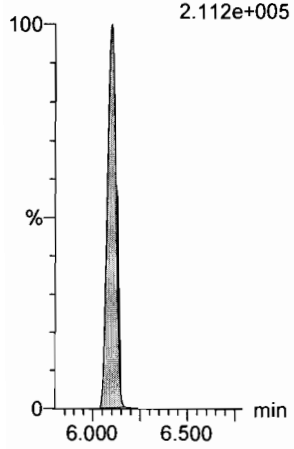
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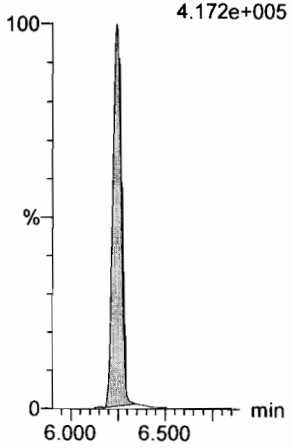
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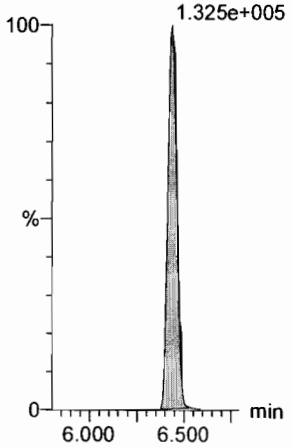
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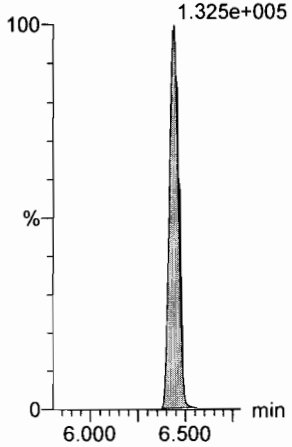
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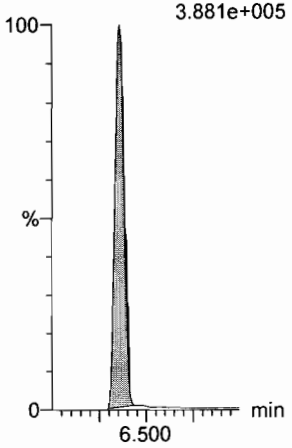
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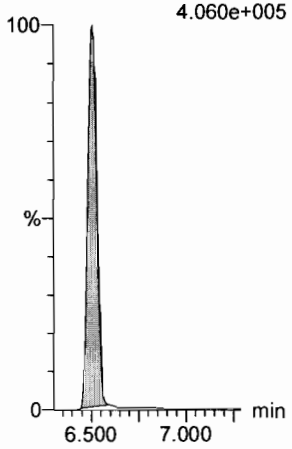
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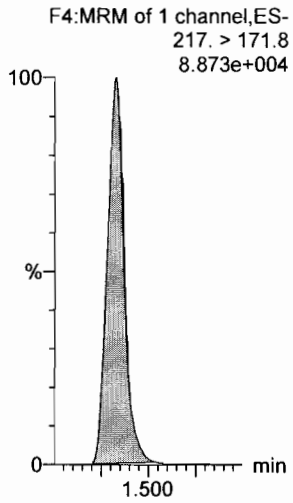


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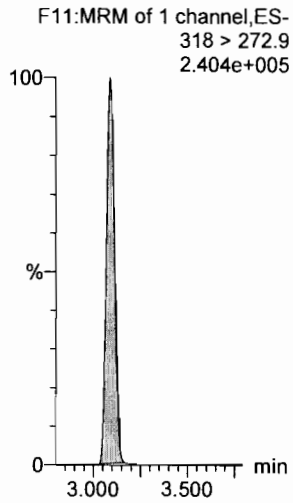
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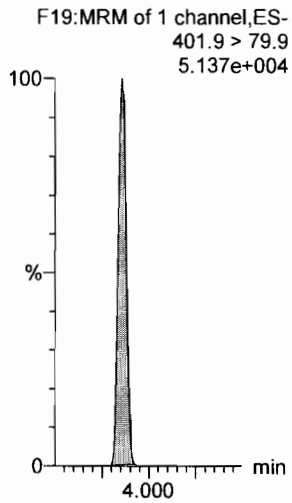
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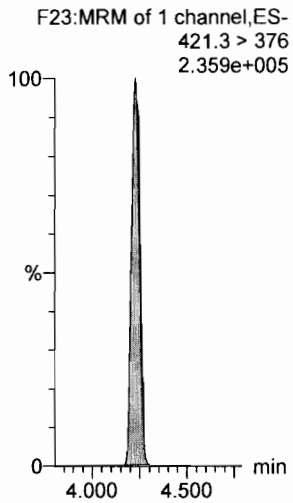
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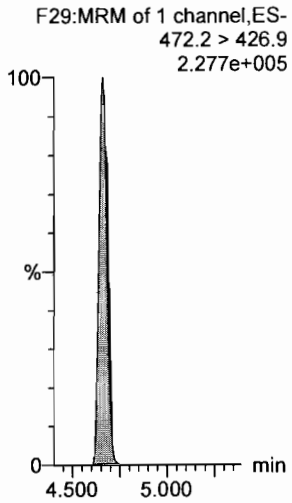
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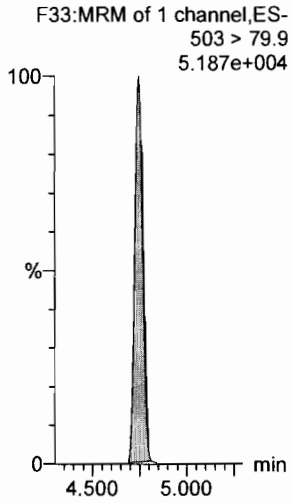
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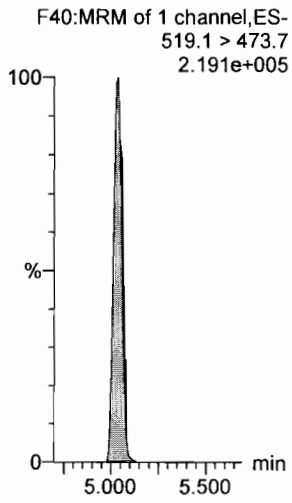
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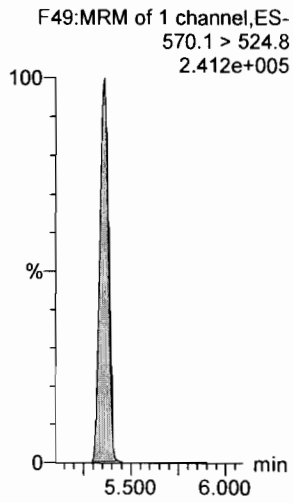
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13C6-PFDA



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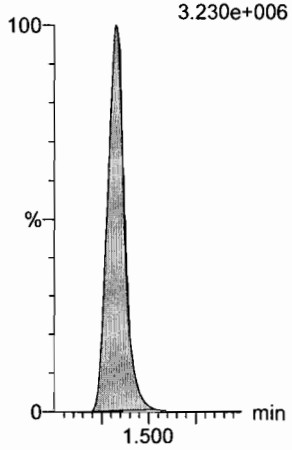


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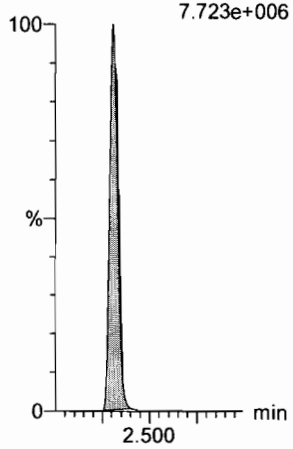
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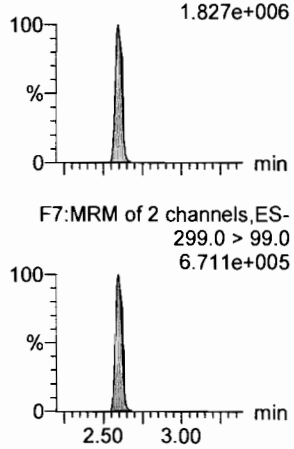
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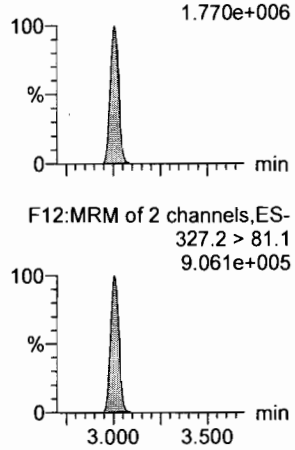
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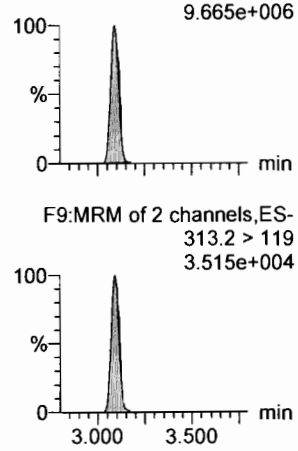
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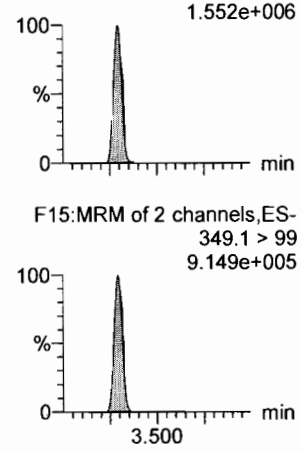
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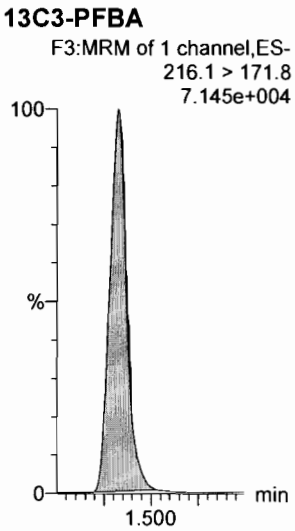
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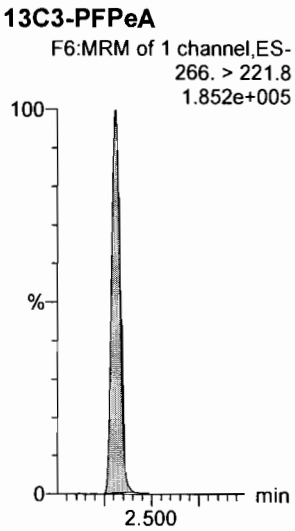
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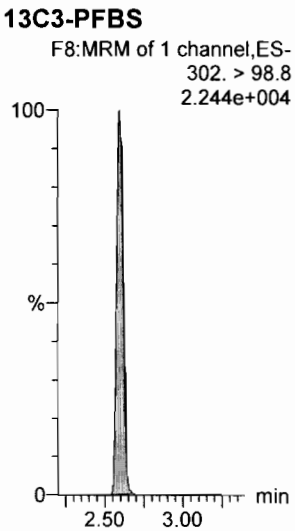
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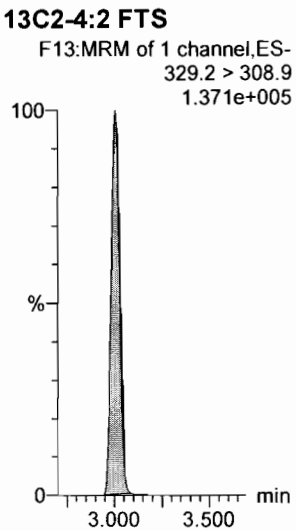
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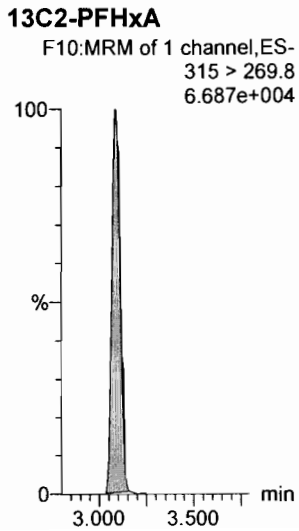
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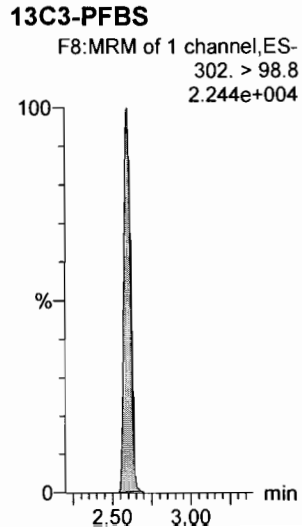
13C2-4:2 FTS



13C2-PFHxA



13C3-PFBS

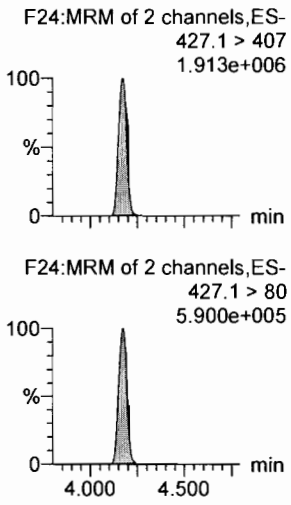


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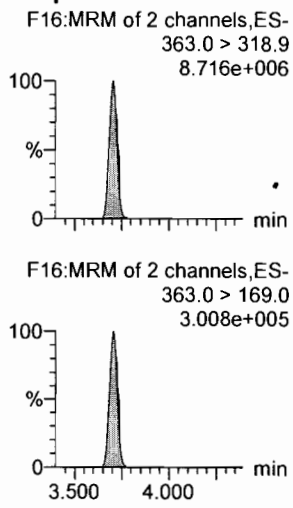
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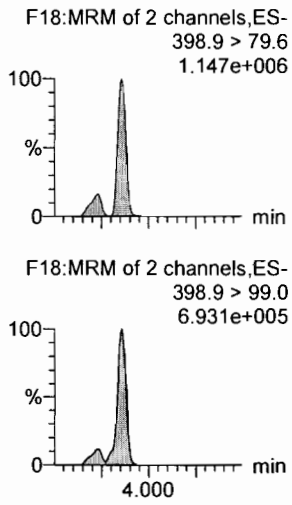
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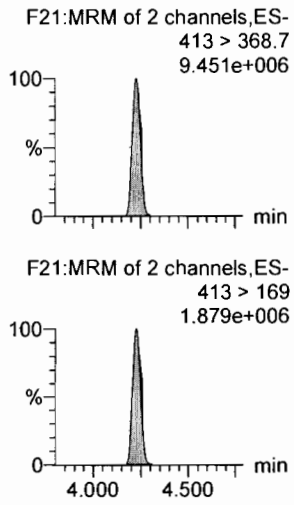
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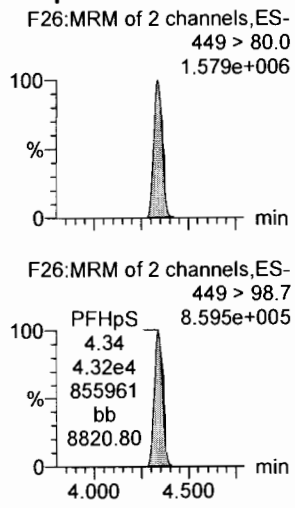
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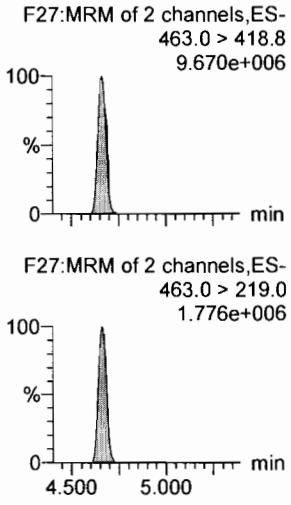
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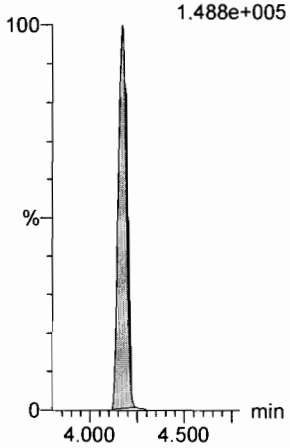
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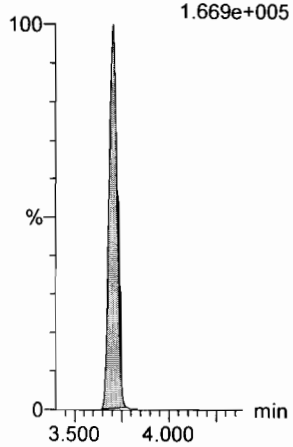
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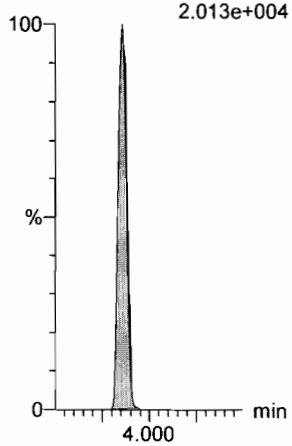
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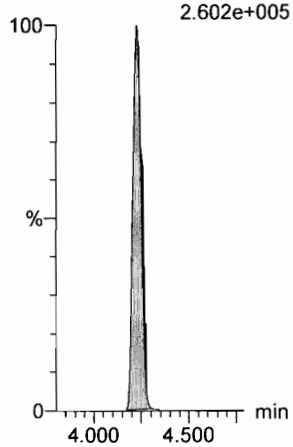
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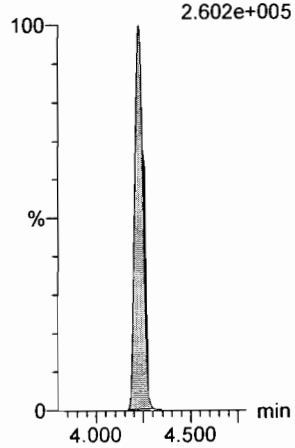
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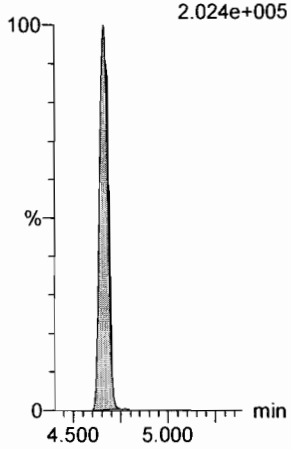
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13C2-PFOA



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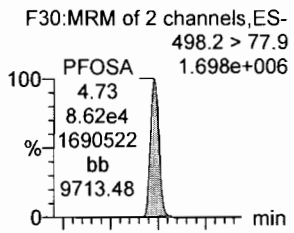


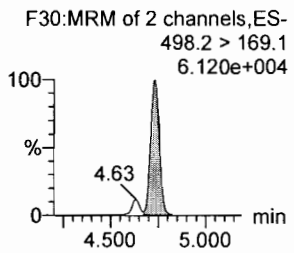
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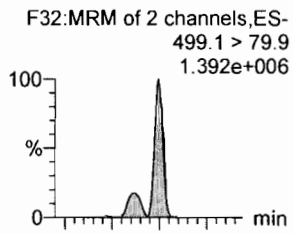
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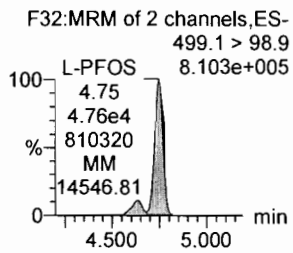
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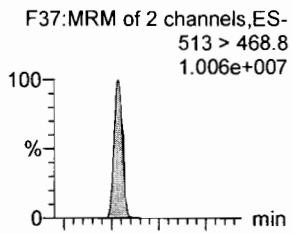


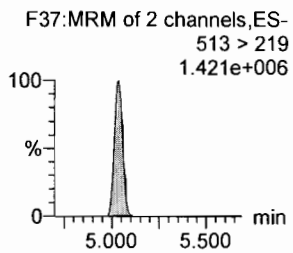
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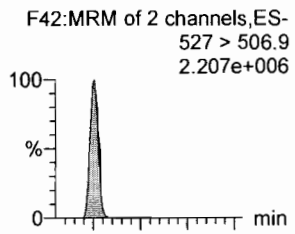


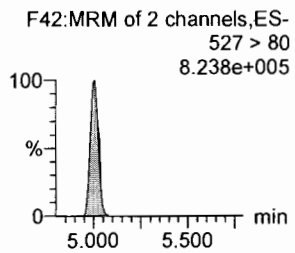
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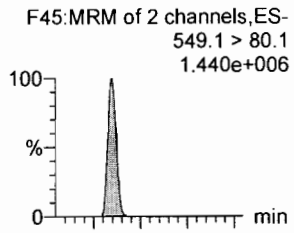


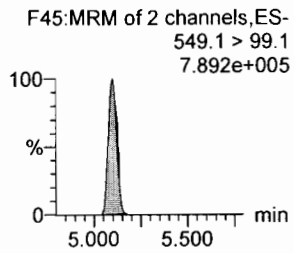
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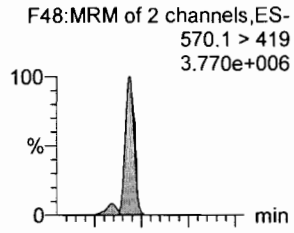


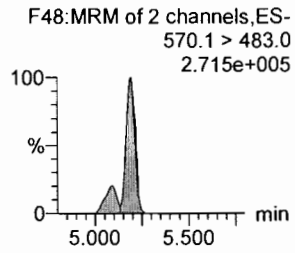
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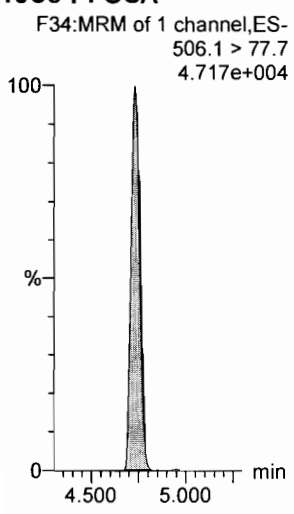


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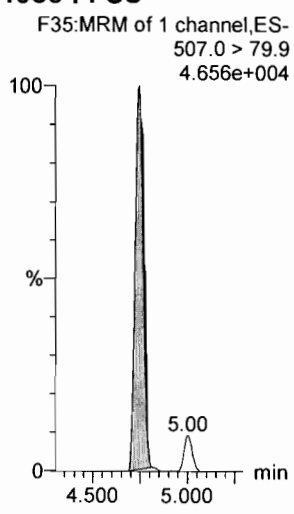




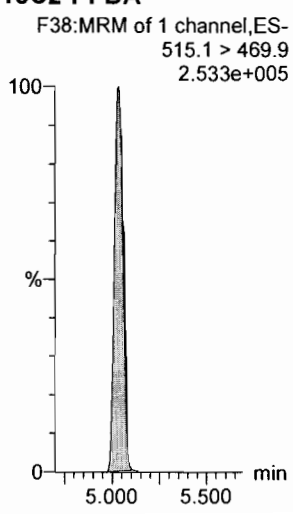
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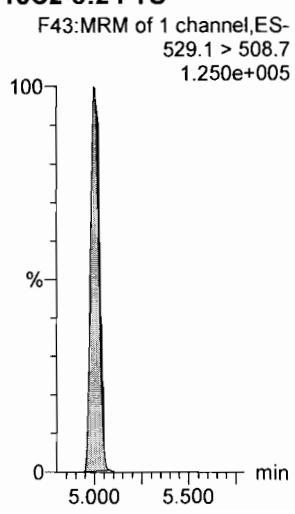
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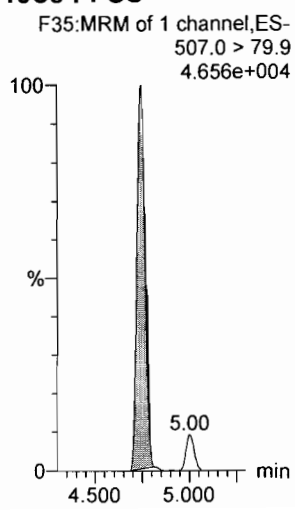
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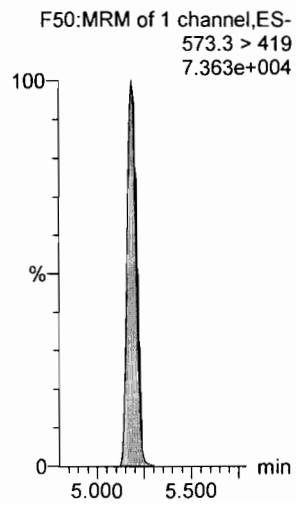
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13C8-PFOS



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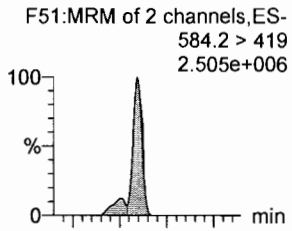


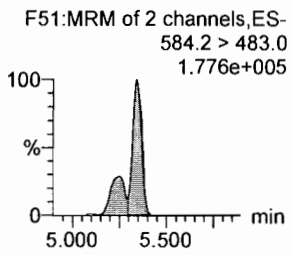
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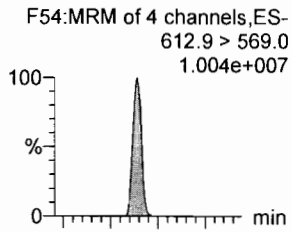
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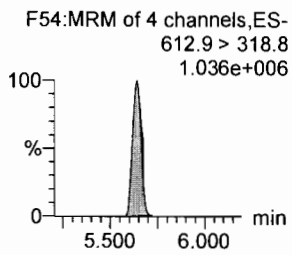
L-EtFOSAA



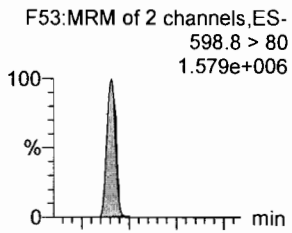


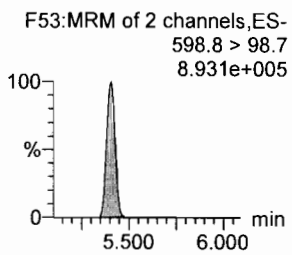
PFDoA



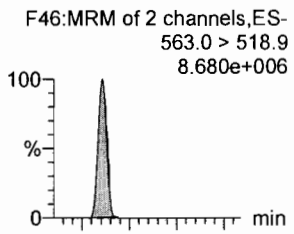


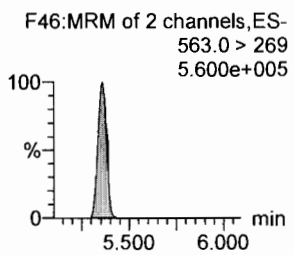
PFDS



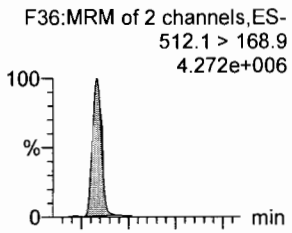


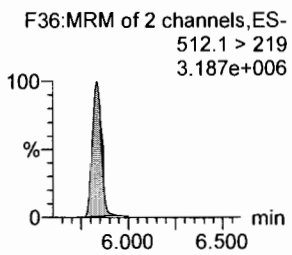
PFUdA



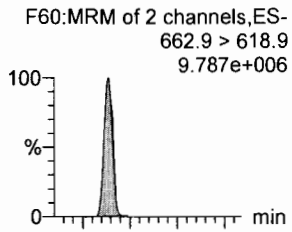


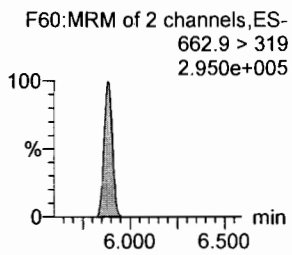
N-MeFOSA



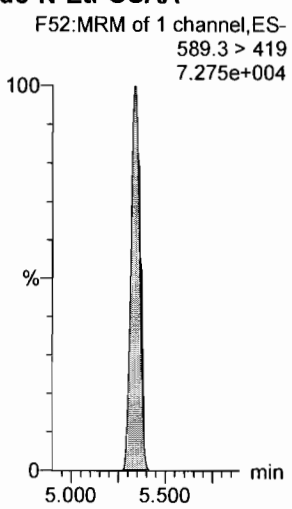


PFTrDA

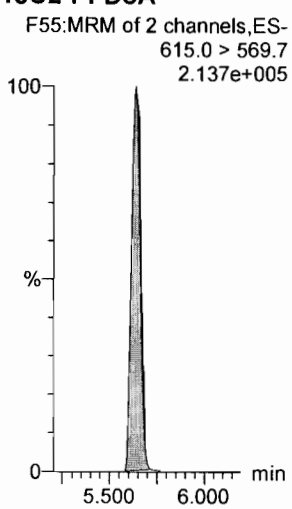




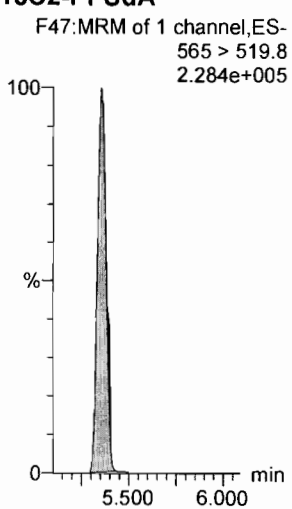
d5-N-EtFOSAA



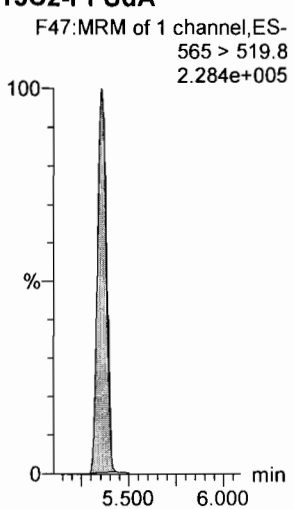
13C2-PFDoA



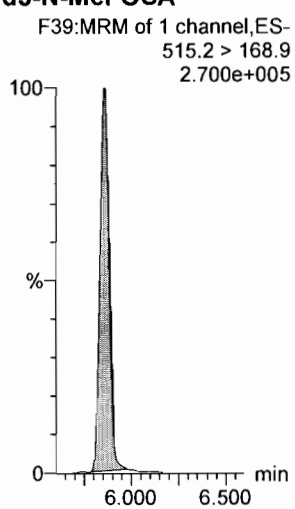
13C2-PFUdA



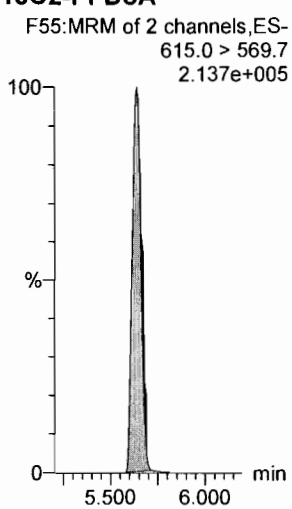
13C2-PFUdA



d3-N-MeFOSA



13C2-PFDoA

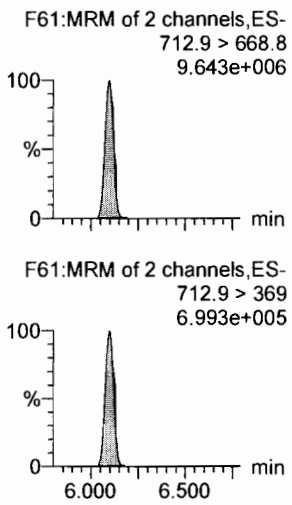


Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2.qld

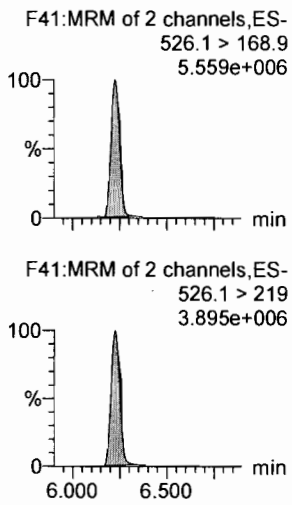
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Printed: Thursday, June 07, 2018 10:08:48 Pacific Daylight Time

Name: 180606M2_11, Date: 06-Jun-2018, Time: 19:33:14, ID: ST180606M2-10 PFC CS7 18E2911, Description: PFC CS7 18E2911

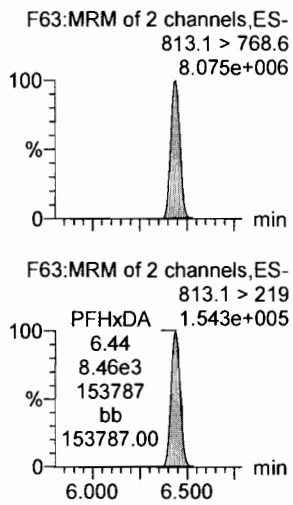
PFTeDA



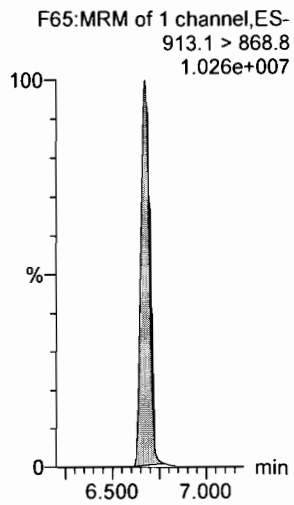
N-EtFOSA



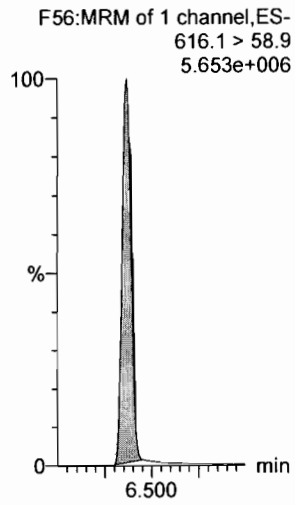
PFHxDA



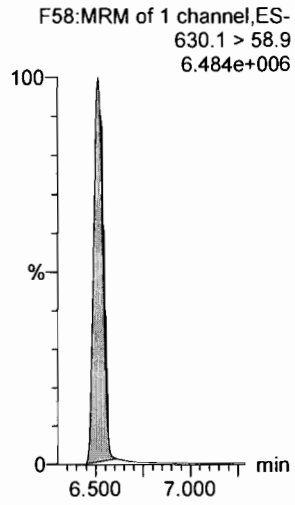
PFODA



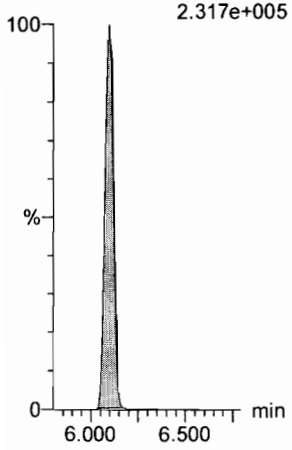
N-MeFOSE



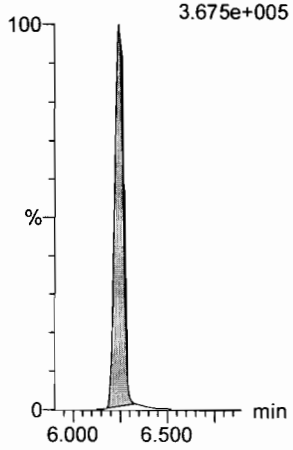
N-EtFOSE



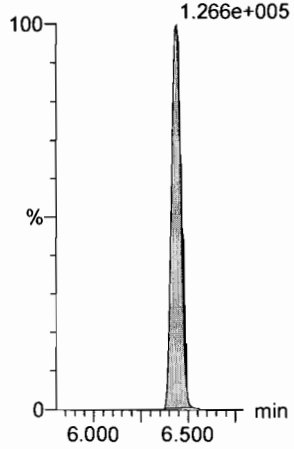
13C2-PFTeDA



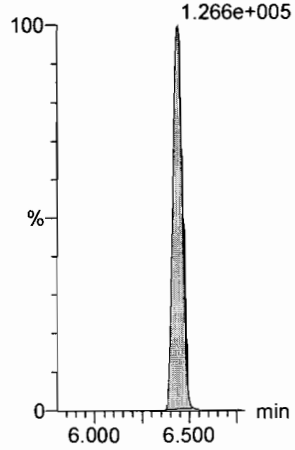
d5-N-ETFOSA



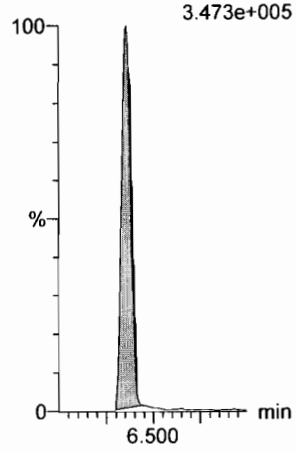
13C2-PFHxDA



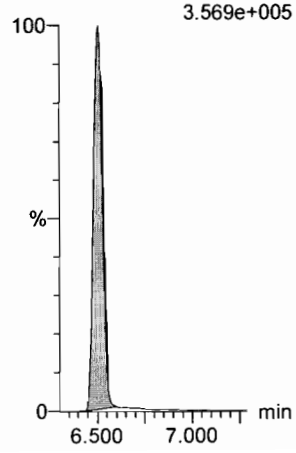
13C2-PFHxDA



d7-N-MeFOSE



d9-N-EtFOSE

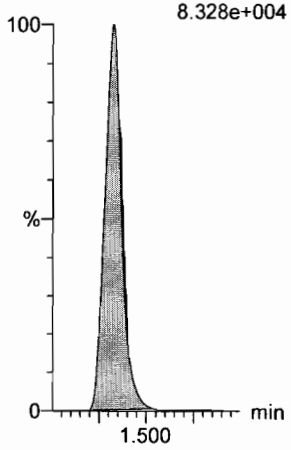


Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2.qld

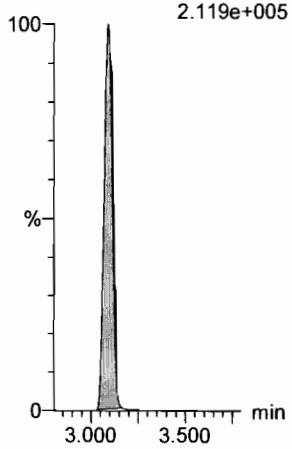
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Printed: Thursday, June 07, 2018 10:08:48 Pacific Daylight Time

Name: 180606M2_11, Date: 06-Jun-2018, Time: 19:33:14, ID: ST180606M2-10 PFC CS7 18E2911, Description: PFC CS7 18E2911

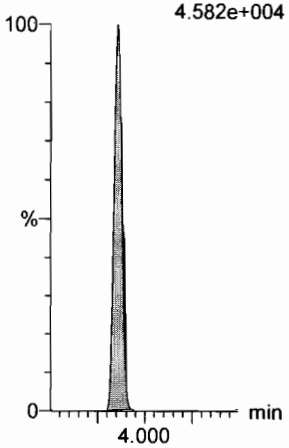
13C4-PFBA



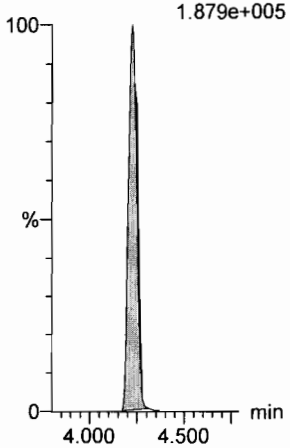
13C5-PFHxA



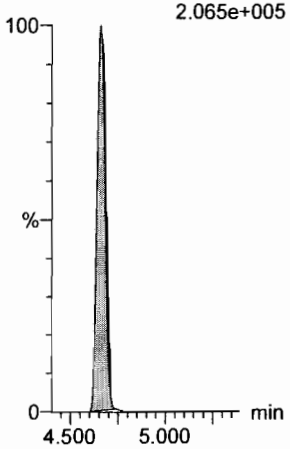
13C3-PFHxS



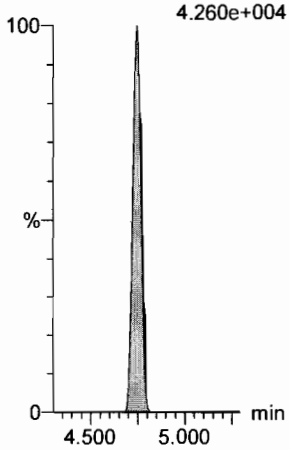
13C8-PFOA



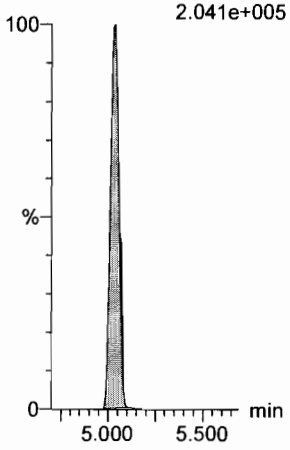
13C9-PFNA



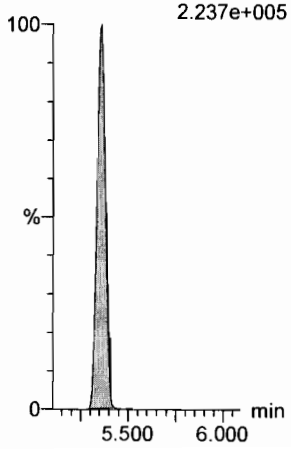
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Vista Analytical Laboratory

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_ICV.qld

Last Altered: Thursday, June 07, 2018 11:23:02 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:23:29 Pacific Daylight Time

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060618.mdb 07 Jun 2018 11:00:55
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180606M2_13, Date: 06-Jun-2018, Time: 19:54:10, ID: ICV180606M2-1 PFC 537 ICV 18E2901, Description: PFC ICV 18E2901

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
1	1	PFBA	213.0 > 16...	6.62e3	7.63e3		1.33	1.33	10.8	9.55	95.5	NO		
2	2	PFPeA	263.1 > 21...	7.79e3	1.03e4		2.31	2.31	9.44	9.38	93.8	NO		
3	3	PFBS	299.0 > 79.7	1.65e3	1.14e3		2.59	2.60	18.0	8.88	88.8	NO	2.687	NO
4	4	4:2 FTS	327.2>307.2	2.18e3	2.90e3		3.00	3.01	9.43	9.38	93.8	NO	2.200	NO
5	5	PFHxA	313.2 > 26...	1.11e4	3.49e3		3.09	3.09	15.9	10.6	105.7	NO	289.343	YES
6	6	PFPeS	349.1>80.1	1.52e3	1.14e3		3.28	3.29	16.6	9.12	91.2	NO	1.755	NO
7	7	PFHpA	363.0 > 31...	9.27e3	8.88e3		3.71	3.71	13.1	10.7	107.0	NO	32.677	NO
8	8	L-PFHxS	398.9 > 79.6	1.37e3	9.70e2		3.85	3.86	17.7	9.02	90.2	NO	1.967	NO
9	10	6:2 FTS	427.1 > 407	2.20e3	3.28e3		4.18	4.18	8.38	8.42	84.2	NO	3.306	NO
10	11	L-PFOA	413 > 368.7	1.04e4	1.43e4		4.25	4.23	9.10	9.40	94.0	NO	5.474	NO
11	13	PFHpS	449 > 80.0	1.79e3	1.43e4		4.33	4.34	1.56	8.99	89.9	NO	1.987	NO
12	14	PFNA	463.0 > 41...	1.00e4	1.10e4		4.68	4.66	11.4	9.06	90.6	NO	5.768	NO
13	15	PFOSA	498.2 > 77.9	1.82e3	2.97e3		4.73	4.73	7.68	8.37	83.7	NO	19.959	NO
14	16	L-PFOS	499.1 > 79.9	1.80e3	2.55e3		4.74	4.75	8.85	9.41	94.1	NO	1.843	NO
15	18	PFDA	513 > 468.8	1.05e4	1.30e4		5.05	5.04	10.0	10.4	103.9	NO	7.422	NO
16	19	8:2 FTS	527 > 506.9	2.78e3	2.47e3		5.00	5.00	14.1	8.93	89.3	NO	3.099	NO
17	20	PFNS	549.1>80.1	1.50e3	2.55e3		5.09	5.10	7.37	8.43	84.3	NO	1.634	NO
18	21	L-MeFOSAA	570.1 > 419	5.75e3	4.42e3		5.18	5.19	16.3	11.5	115.5	NO	13.169	NO
19	23	L-EtFOSAA	584.2 > 419	4.15e3	4.80e3		5.37	5.34	10.8	10.6	105.6	NO	16.288	NO

√ KBF 6/7/18

GM 6/7/2018

Vista Analytical Laboratory

Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_ICV.qld

Last Altered: Thursday, June 07, 2018 11:23:02 Pacific Daylight Time
Printed: Thursday, June 07, 2018 11:23:37 Pacific Daylight Time

(A) Compounds not present in ICV

Method: F:\Projects\PFAS.PRO\MethDB\PFAS_FULL_80C_060618.mdb 07 Jun 2018 11:00:55
Calibration: F:\Projects\PFAS.PRO\CurveDB\C18_VAL-PFAS_Q4_06-06-18.cdb 07 Jun 2018 11:02:16

Name: 180606M2_13, Date: 06-Jun-2018, Time: 19:54:10, ID: ICV180606M2-1 PFC 537 ICV 18E2901, Description: PFC ICV 18E2901

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
1	25	PFUdA	563.0 > 51...	9.95e3	1.18e4		5.37	5.36	10.6	11.0	109.7	NO	17.507	NO
2	26	PFDS	598.8 > 80	1.99e3	1.18e4		5.40	5.41	2.11	10.1	101.0	NO	2.150	NO
3	27	PFDoA	612.9 > 56...	1.00e4	1.23e4		5.65	5.64	10.2	8.90	89.0	NO	8.929	NO
4	28	N-MeFOSA	512.1 > 16...		1.55e4		5.84				(A)	NO		
5	29	PFTrDA	662.9 > 61...	1.04e4	1.23e4		5.89	5.88	10.6	9.15	91.5	NO	34.789	NO
6	30	PFTeDA	712.9 > 66...	8.83e3	1.01e4		6.11	6.10	10.9	9.56	95.6	NO	13.523	NO
7	31	N-EtFOSA	526.1 > 16...		2.31e4		6.23				(A)	NO		
8	32	PFHxDA	813.1 > 76...		7.74e3		6.45					NO		
9	33	PFODA	913.1 > 86...		7.74e3		6.68					NO		
10	34	N-MeFOSE	616.1 > 58.9		2.11e4		6.38					NO		
11	35	N-EtFOSE	630.1 > 58.9		2.25e4		6.52					NO		
12	36	13C3-PFBA	216.1 > 17...	7.63e3	8.85e3	0.870	1.34	1.33	10.8	12.4	99.1	NO		
13	37	13C3-PFPeA	266. > 221.8	1.03e4	1.19e4	0.870	2.32	2.31	10.8	12.4	99.5	NO		
14	38	13C3-PFBS	302. > 98.8	1.14e3	1.19e4	0.099	2.60	2.60	1.20	12.2	97.4	NO		
15	39	13C2-4:2 FTS	329.2>308.9	2.90e3	1.19e4	0.265	3.01	3.01	3.04	11.5	91.7	NO		
16	40	13C2-PFHxA	315 > 269.8	3.49e3	1.19e4	0.737	3.10	3.09	3.66	4.96	99.3	NO		
17	41	13C4-PFHpA	367.2 > 32...	8.88e3	1.19e4	0.791	3.71	3.71	9.32	11.8	94.2	NO		
18	42	18O2-PFHxS	403.0 > 10...	9.70e2	2.49e3	0.442	3.86	3.86	4.88	11.0	88.3	NO		
19	43	13C2-6:2 FTS	429.1 > 40...	3.28e3	1.20e4	0.306	4.18	4.17	3.41	11.1	88.9	NO		
20	44	13C2-PFOA	414.9 > 36...	1.43e4	1.20e4	1.285	4.23	4.23	14.9	11.6	92.7	NO		
21	45	13C5-PFNA	468.2 > 42...	1.10e4	1.16e4	0.930	4.67	4.66	11.8	12.7	101.8	NO		
22	46	13C8-PFOSA	506.1 > 77.7	2.97e3	1.17e4	0.237	4.74	4.74	3.17	13.3	106.7	NO		
23	47	13C8-PFOS	507.0 > 79.9	2.55e3	2.36e3	1.039	4.75	4.74	13.5	13.0	103.9	NO		
24	48	13C2-PFDA	515.1 > 46...	1.30e4	1.17e4	1.144	5.04	5.04	13.9	12.1	96.9	NO		
25	49	13C2-8:2 FTS	529.1 > 50...	2.47e3	1.19e4	0.215	5.01	5.01	2.59	12.0	96.3	NO		
26	50	d3-N-MeFOSAA	573.3 > 419	4.42e3	1.17e4	0.351	5.19	5.18	4.71	13.4	107.3	NO		
27	51	d5-N-EtFOSAA	589.3 > 419	4.80e3	1.17e4	0.388	5.35	5.34	5.12	13.2	105.5	NO		
28	52	13C2-PFUdA	565 > 519.8	1.18e4	1.17e4	1.019	5.37	5.35	12.6	12.3	98.8	NO		
29	53	13C2-PFDoA	615.0 > 56...	1.23e4	1.17e4	1.057	5.65	5.64	13.1	12.4	98.9	NO		
30	54	d3-N-MeFOSA	515.2 > 16...	1.55e4	1.17e4	0.107	5.87	5.86	16.5	155	103.0	NO		
31	55	13C2-PFTeDA	714.8 > 66...	1.01e4	1.17e4	0.964	6.11	6.10	10.8	11.2	89.3	NO		
32	56	d5-N-ETFOSA	531.1 > 16...	2.31e4	1.17e4	0.157	6.25	6.24	24.7	157	105.0	NO		

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Dataset: F:\Projects\PFAS.PRO\Results\180606M2\180606M2_ICV.qld

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Name: 180606M2_13, Date: 06-Jun-2018, Time: 19:54:10, ID: ICV180606M2-1 PFC 537 ICV 18E2901, Description: PFC ICV 18E2901

	#	Name	Trace	Area	IS Area	RRF	Pred.RT	RT	y Axis Resp.	Conc.	%Rec	Recovery Out	Ion Ratio	Ratio out?
33	57	13C2-PFHxDA	815 > 769.7	7.74e3	1.17e4	1.562	6.45	6.44	8.26	5.29	105.7	NO		
34	58	d7-N-MeFOSE	623.1 > 58.9	2.11e4	1.17e4	0.147	6.37	6.36	22.5	153	101.8	NO		
35	59	d9-N-EtFOSE	639.2 > 58.8	2.25e4	1.17e4	0.149	6.52	6.50	24.0	161	107.4	NO		
36	60	13C4-PFBA	217. > 171.8	8.85e3	8.85e3	1.000	1.33	1.33	12.5	12.5	100.0	NO		
37	61	13C5-PFHxA	318 > 272.9	1.19e4	1.19e4	1.000	3.09	3.09	12.5	12.5	100.0	NO		
38	62	13C3-PFHxS	401.9 > 79.9	2.49e3	2.49e3	1.000	3.87	3.86	12.5	12.5	100.0	NO		
39	63	13C8-PFOA	421.3 > 376	1.20e4	1.20e4	1.000	4.24	4.23	12.5	12.5	100.0	NO		
40	64	13C9-PFNA	472.2 > 42...	1.16e4	1.16e4	1.000	4.67	4.66	12.5	12.5	100.0	NO		
41	65	13C4-PFOS	503 > 79.9	2.36e3	2.36e3	1.000	4.75	4.75	12.5	12.5	100.0	NO		
42	66	13C6-PFDA	519.1 > 47...	1.17e4	1.17e4	1.000	5.04	5.04	12.5	12.5	100.0	NO		
43	67	13C7-PFUdA	570.1 > 52...	1.17e4	1.17e4	1.000	5.37	5.36	12.5	12.5	100.0	NO		

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Vista Analytical Laboratory

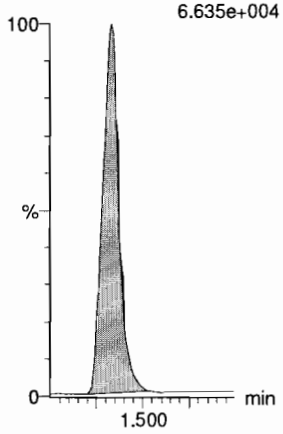
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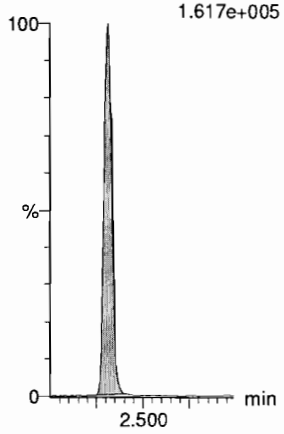
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Name: 180606M2_13, Date: 06-Jun-2018, Time: 19:54:10, ID: ICV180606M2-1 PFC 537 ICV 18E2901, Description: PFC ICV 18E2901

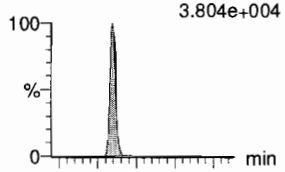
PFBA
F2:MRM of 1 channel,ES-
213.0 > 168.8
6.635e+004



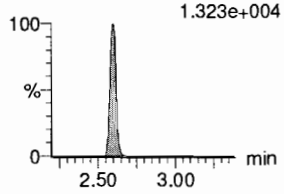
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F5:MRM of 1 channel,ES-
263.1 > 218.9
1.617e+005



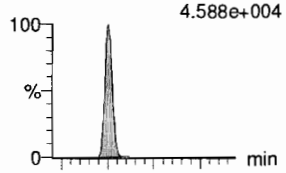
PFBS
F7:MRM of 2 channels,ES-
299.0 > 79.7
3.804e+004



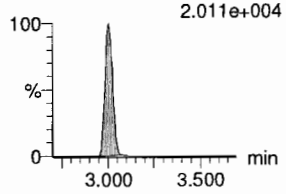
F7:MRM of 2 channels,ES-
299.0 > 99.0
1.323e+004



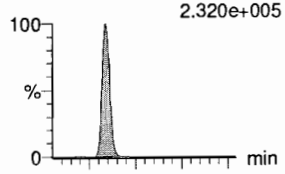
4:2 FTS
F12:MRM of 2 channels,ES-
327.2 > 307.2
4.588e+004



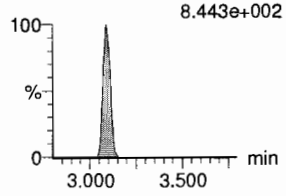
F12:MRM of 2 channels,ES-
327.2 > 81.1
2.011e+004



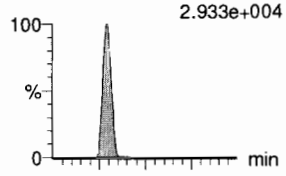
PFHxA
F9:MRM of 2 channels,ES-
313.2 > 268.9
2.320e+005



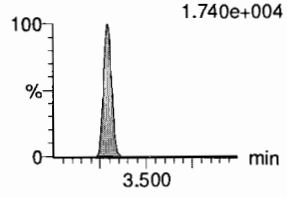
F9:MRM of 2 channels,ES-
313.2 > 119
8.443e+002



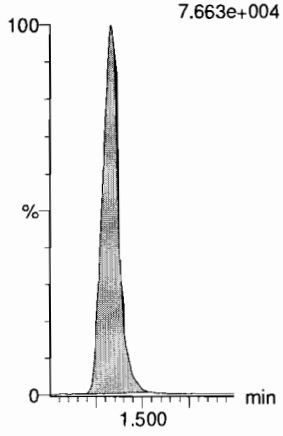
PFPeS
F15:MRM of 2 channels,ES-
349.1 > 80.1
2.933e+004



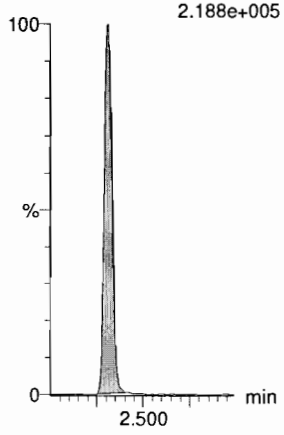
F15:MRM of 2 channels,ES-
349.1 > 99
1.740e+004



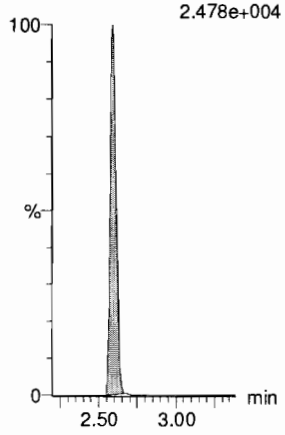
13C3-PFBA
F3:MRM of 1 channel,ES-
216.1 > 171.8
7.663e+004



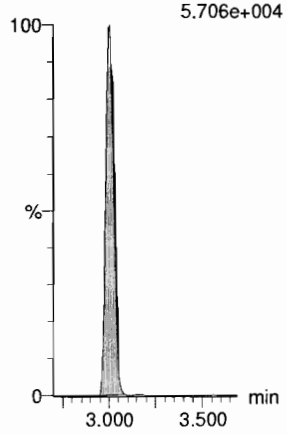
13C3-PFPeA
F6:MRM of 1 channel,ES-
266. > 221.8
2.188e+005



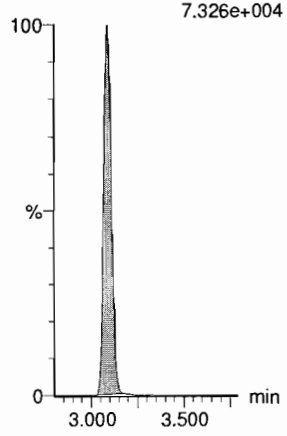
13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.478e+004



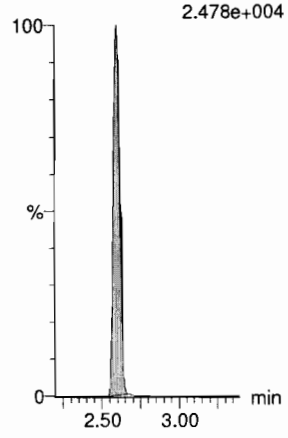
13C2-4:2 FTS
F13:MRM of 1 channel,ES-
329.2 > 308.9
5.706e+004



13C2-PFHxA
F10:MRM of 1 channel,ES-
315 > 269.8
7.326e+004



13C3-PFBS
F8:MRM of 1 channel,ES-
302. > 98.8
2.478e+004



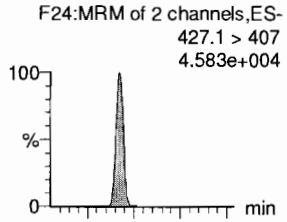
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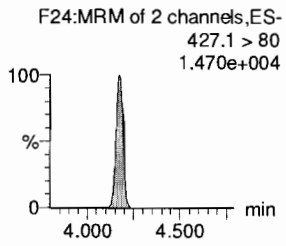
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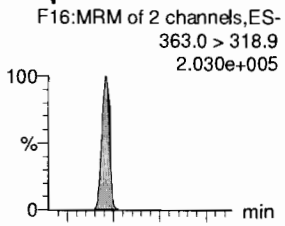
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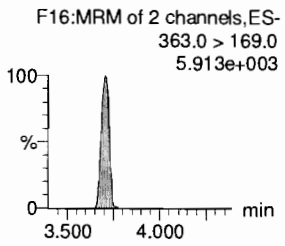
6:2 FTS



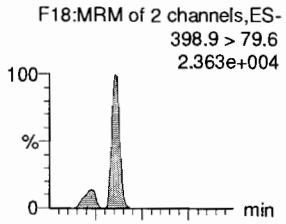


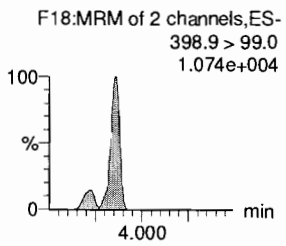
PFHpA



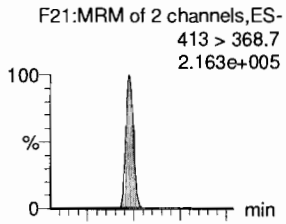


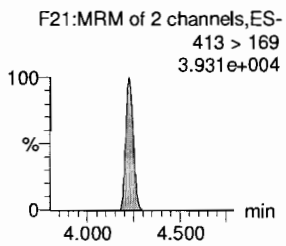
L-PFHxS



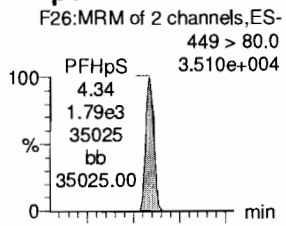


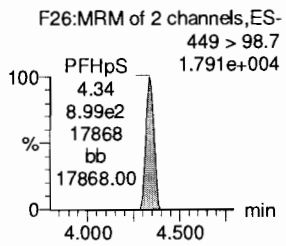
L-PFOA



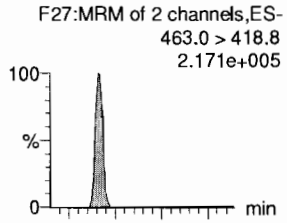


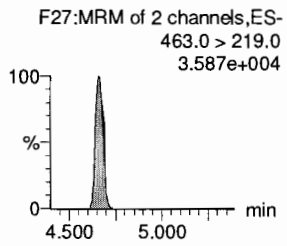
PFHpS



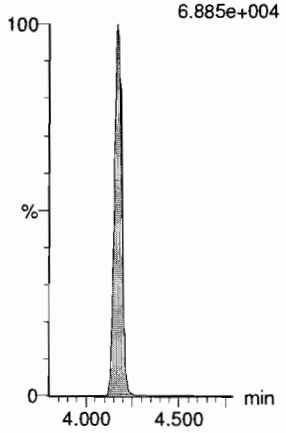


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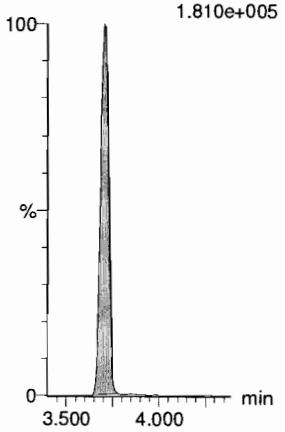




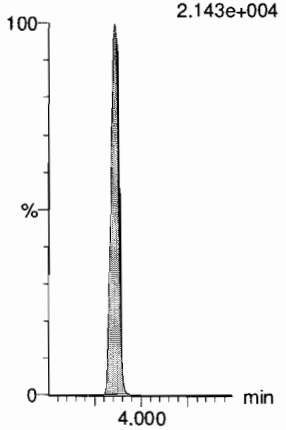
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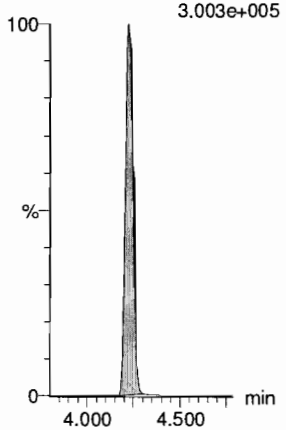
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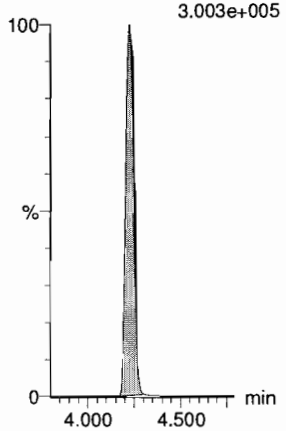
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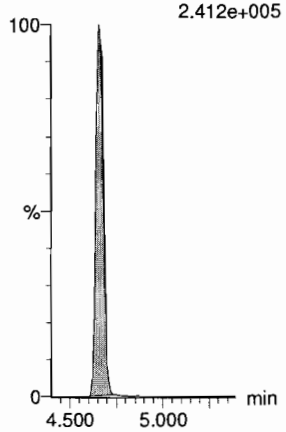
13C2-PFOA



13C2-PFOA



13C5-PFNA



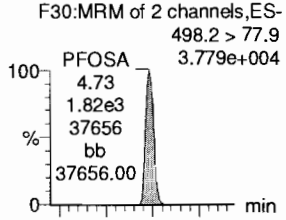
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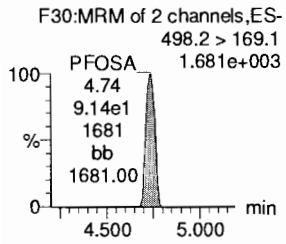
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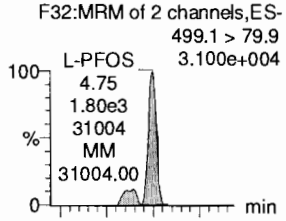
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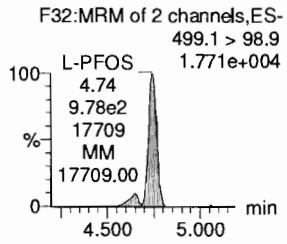
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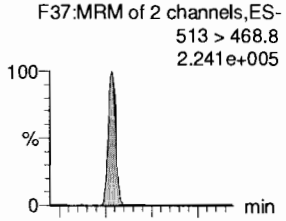


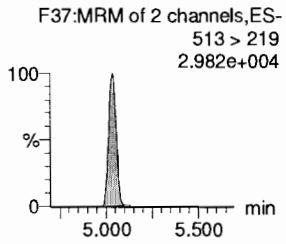
L-PFOS



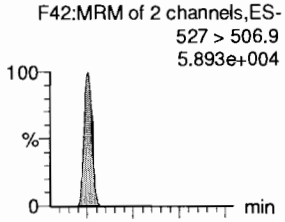


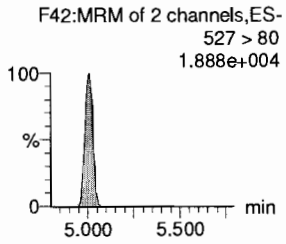
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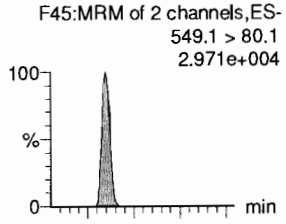


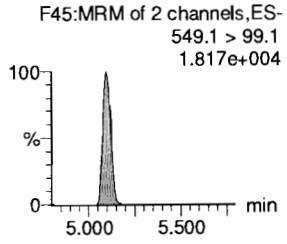
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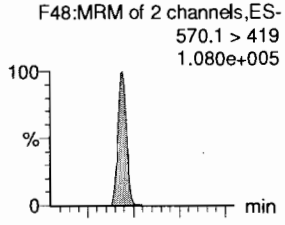


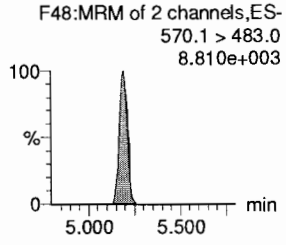
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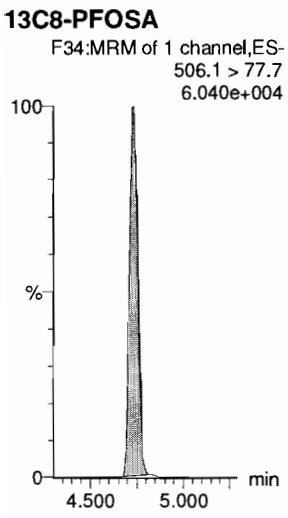


L-MeFOSAA

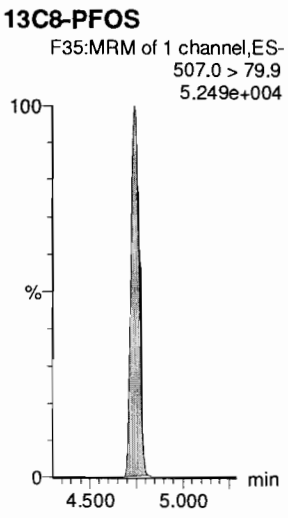




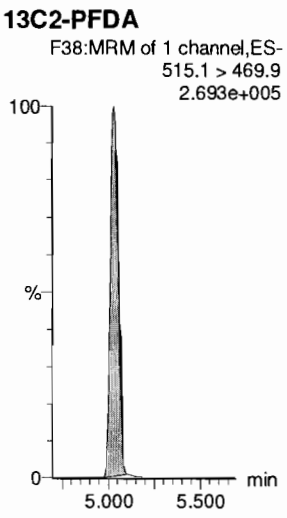
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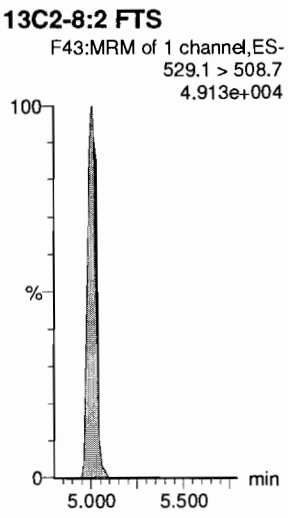
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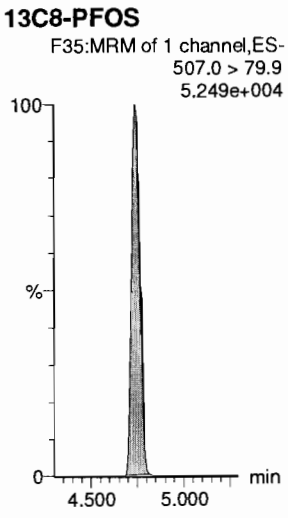
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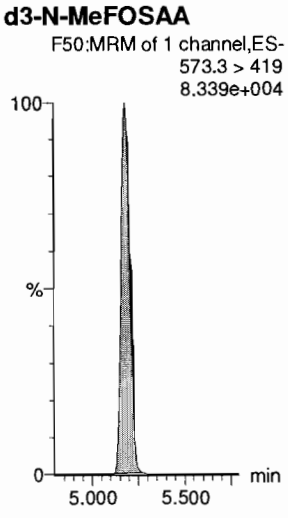
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13C8-PFOS



d3-N-MeFOSAA



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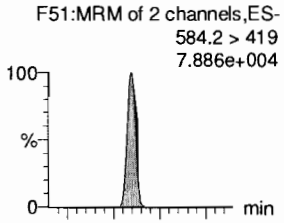
Vista Analytical Laboratory

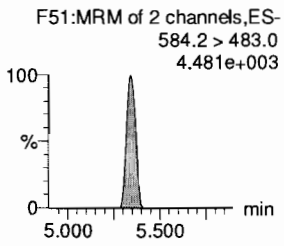
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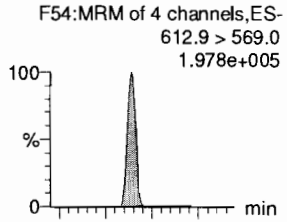
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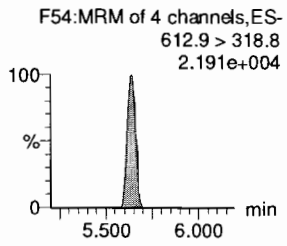
L-EtFOSAA



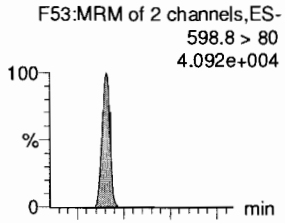


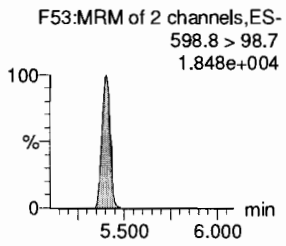
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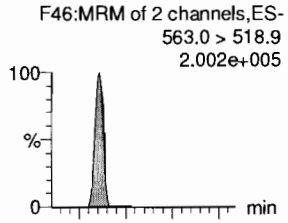


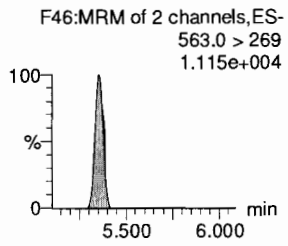
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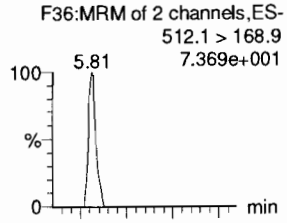


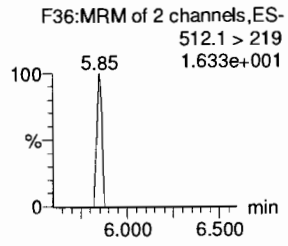
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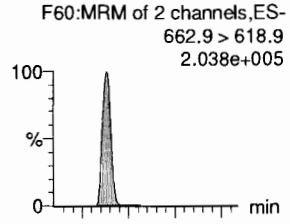


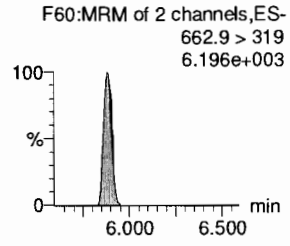
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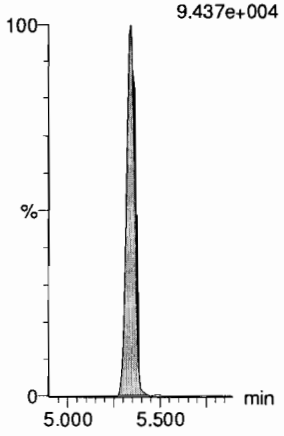


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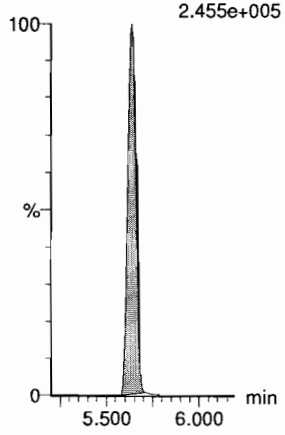




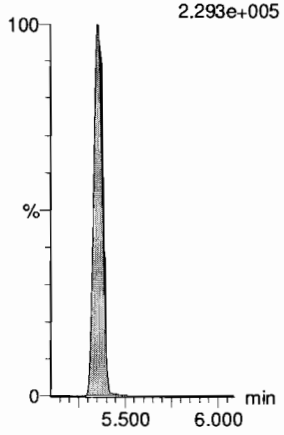
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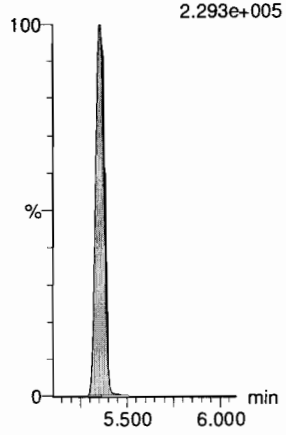
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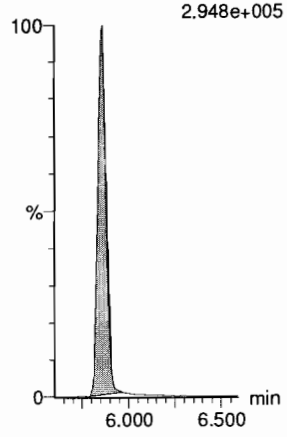
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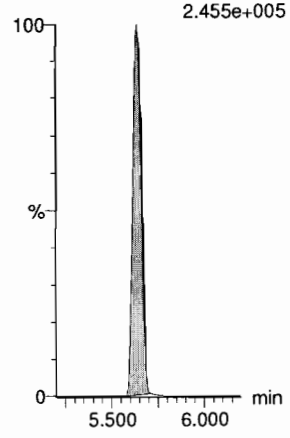
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d3-N-MeFOSA



13C2-PFDoA



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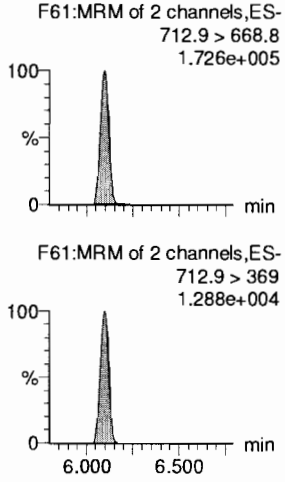
Vista Analytical Laboratory

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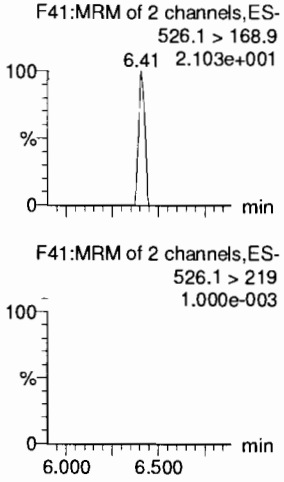
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Name: 180606M2_13, Date: 06-Jun-2018, Time: 19:54:10, ID: ICV180606M2-1 PFC 537 ICV 18E2901, Description: PFC ICV 18E2901

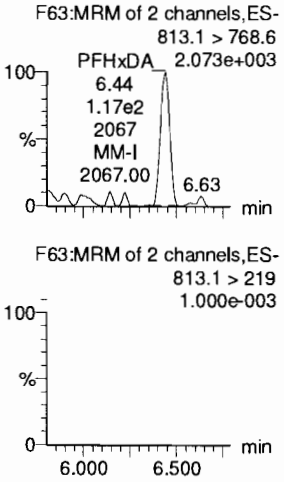
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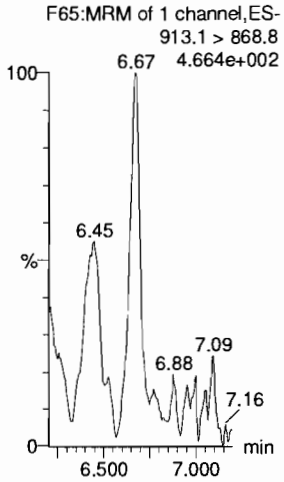
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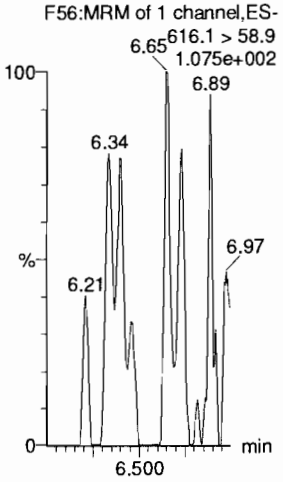
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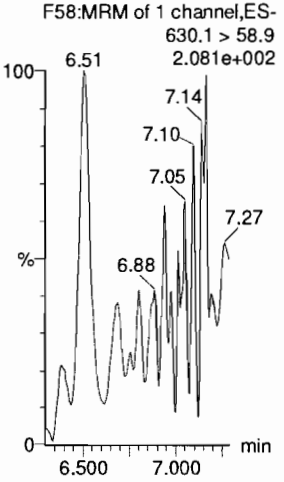
PFODA



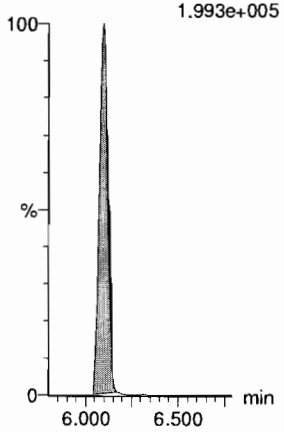
N-MeFOSE



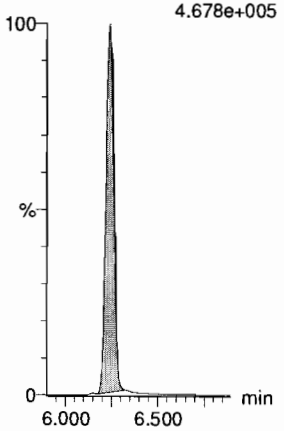
N-EtFOSE



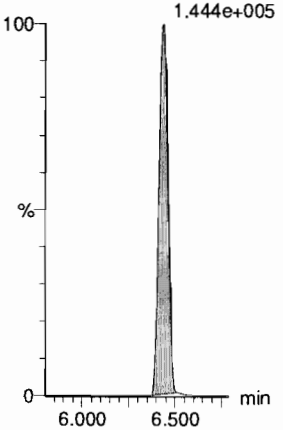
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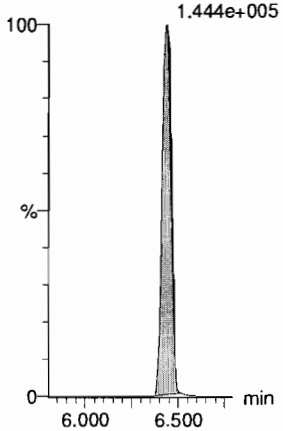
d5-N-ETFOSA



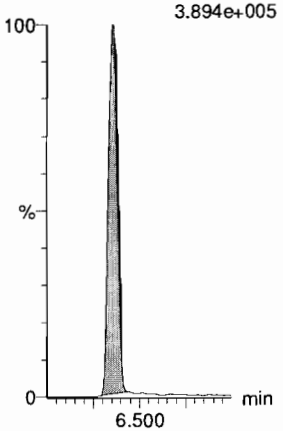
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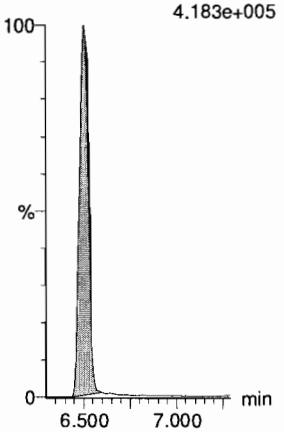
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d7-N-MeFOSE



d9-N-EtFOSE



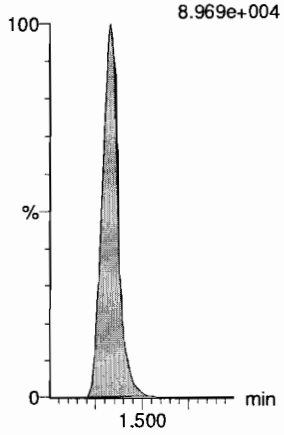
GM 6/7/2018

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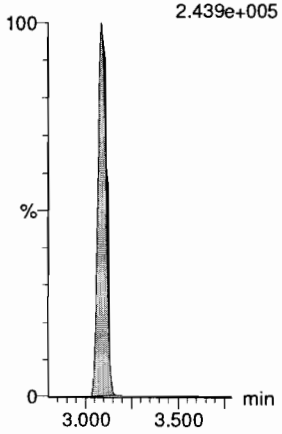
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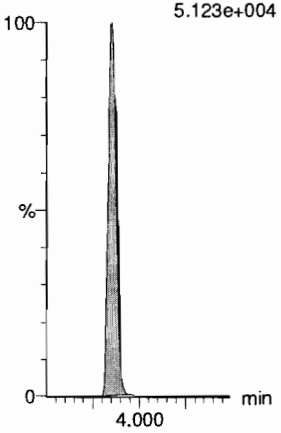
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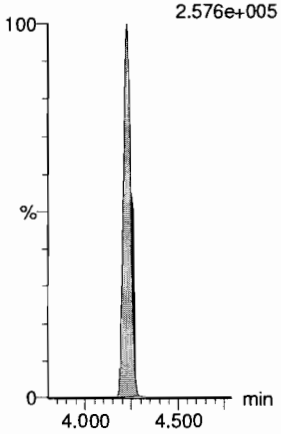
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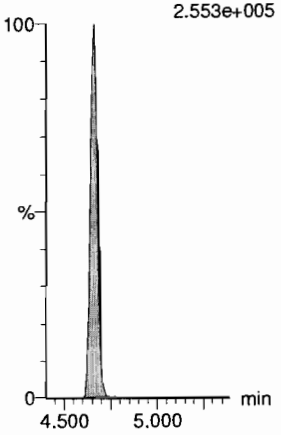
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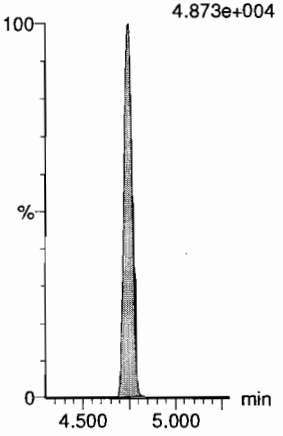
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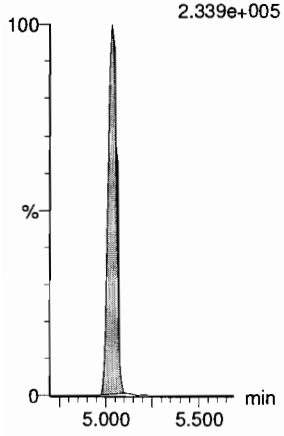
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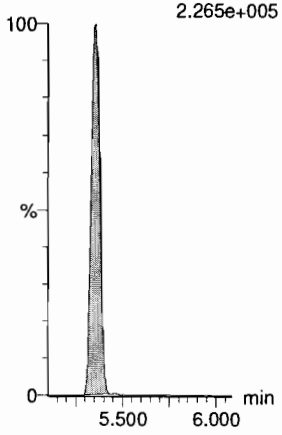
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13C6-PFDA



13C7-PFUdA



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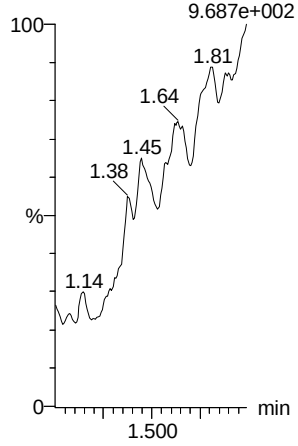
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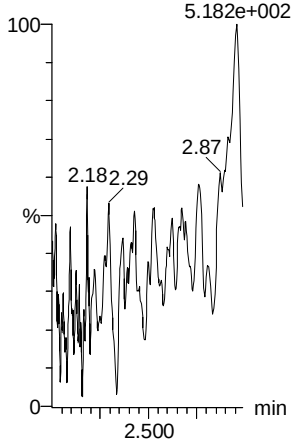
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Name: 180606M2_12, Date: 06-Jun-2018, Time: 19:43:44, ID: IPA, Description: IPA

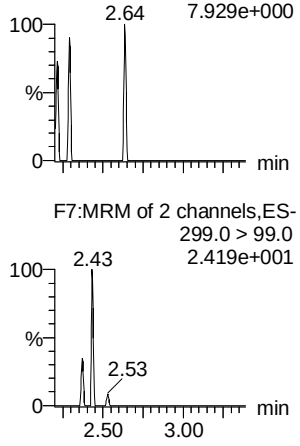
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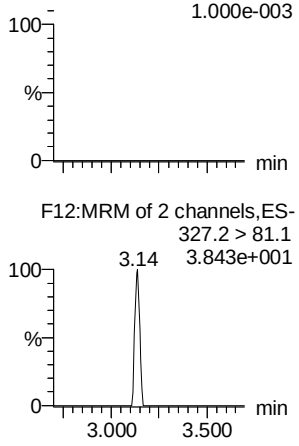
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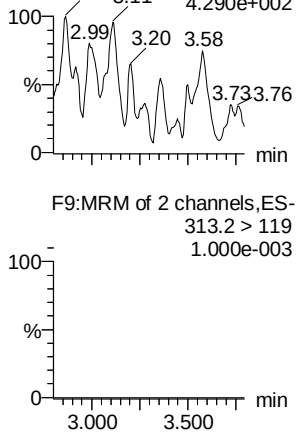
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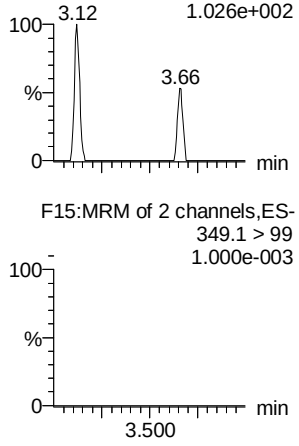
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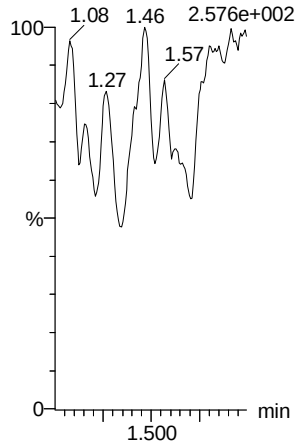
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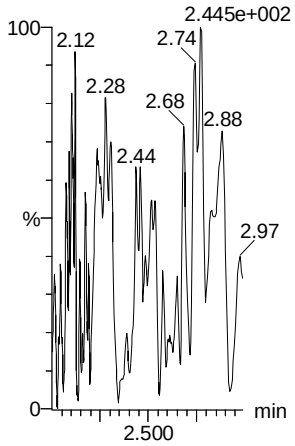
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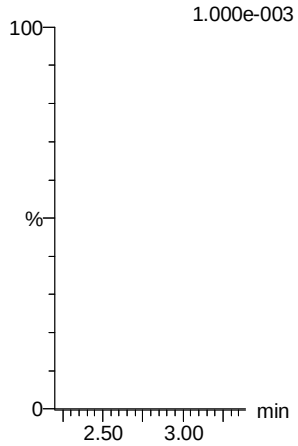
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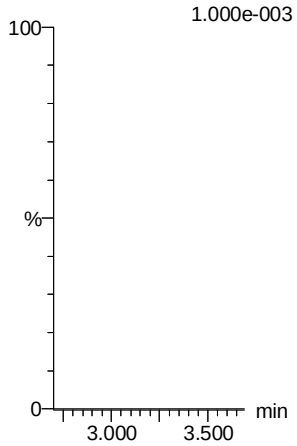
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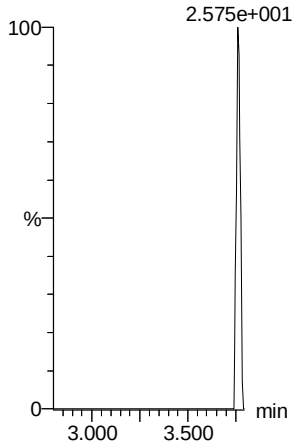
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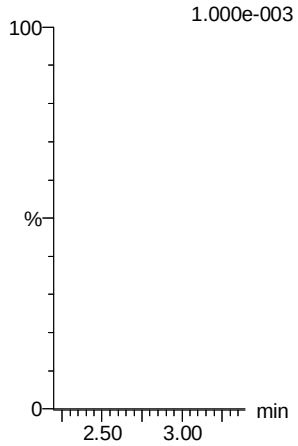
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13C2-PFHxA



13C3-PFBS



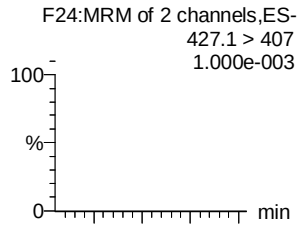
Vista Analytical Laboratory

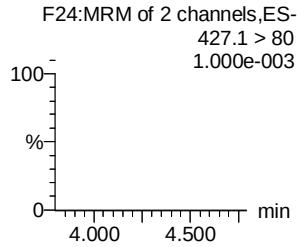
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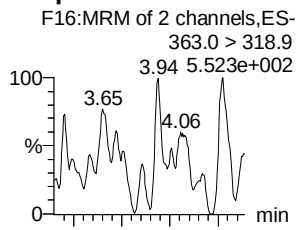
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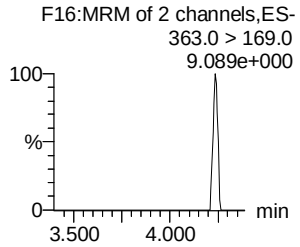
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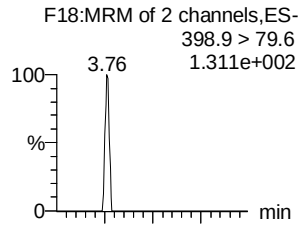


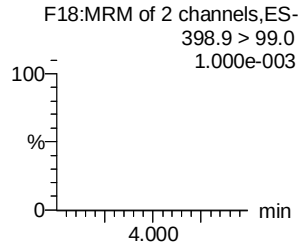
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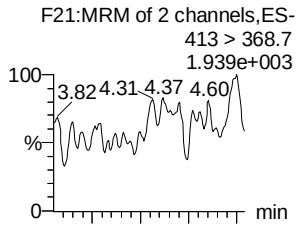


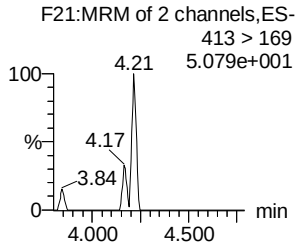
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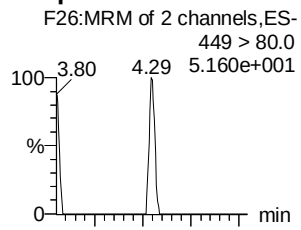


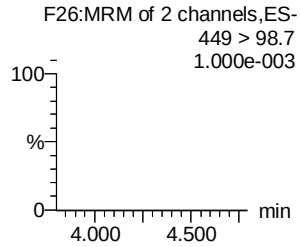
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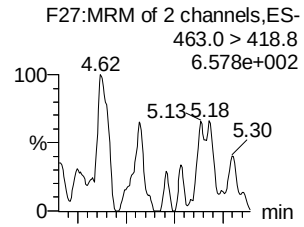


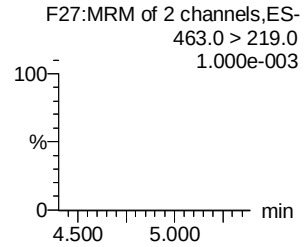
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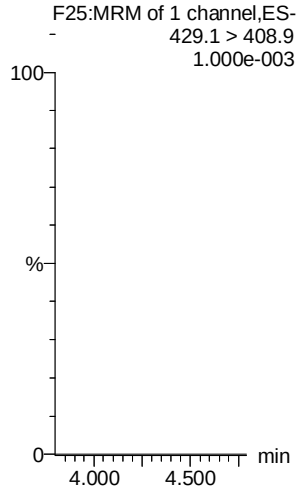


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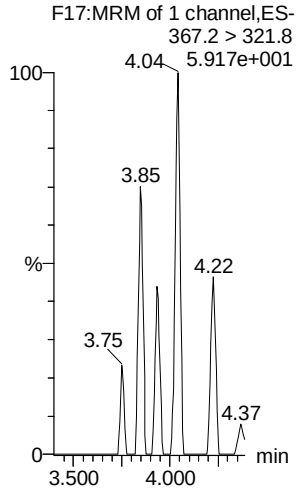




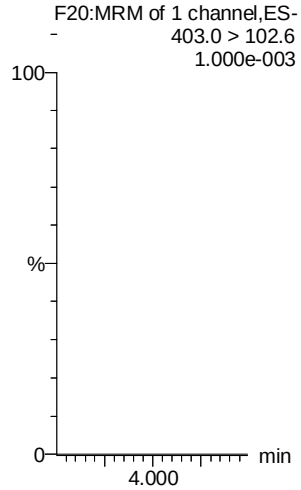
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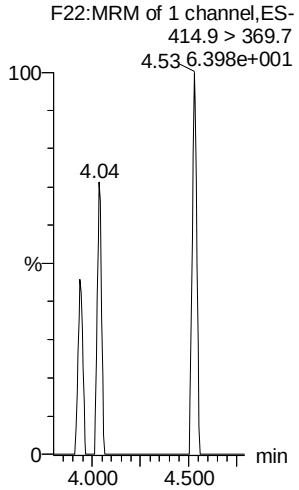
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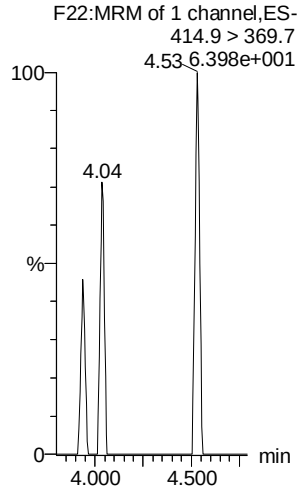
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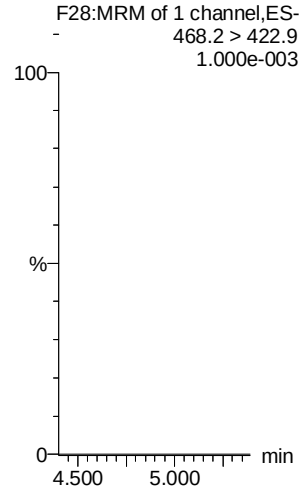
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13C2-PFOA



13C5-PFNA



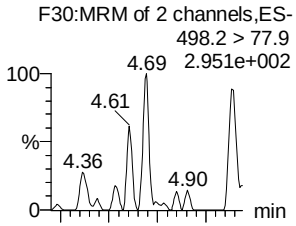
Vista Analytical Laboratory

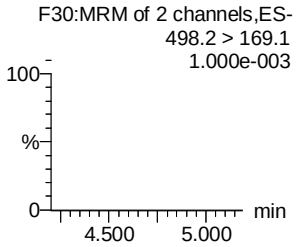
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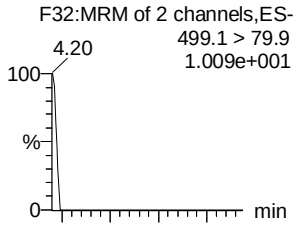
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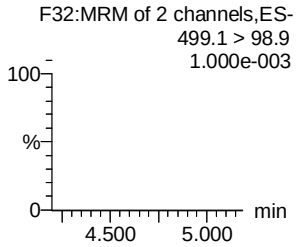
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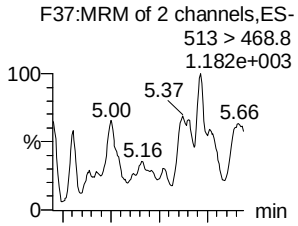


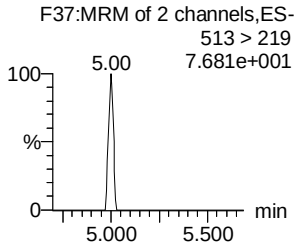
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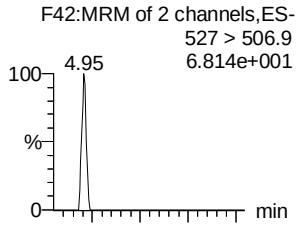


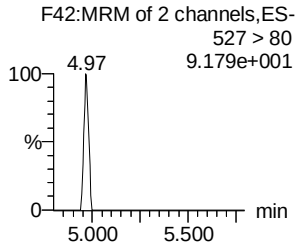
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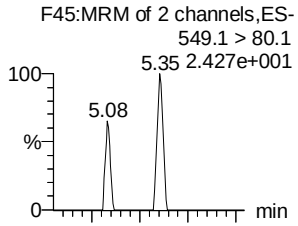


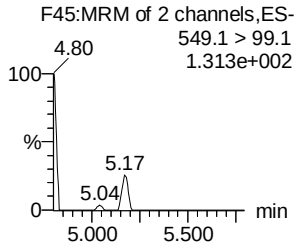
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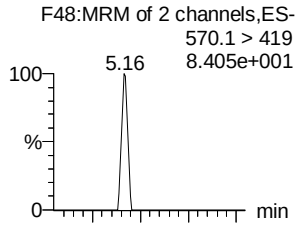


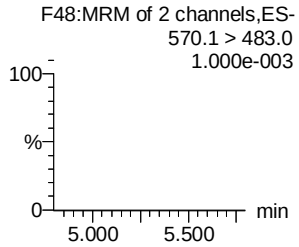
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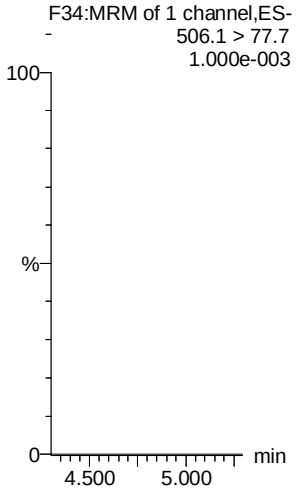


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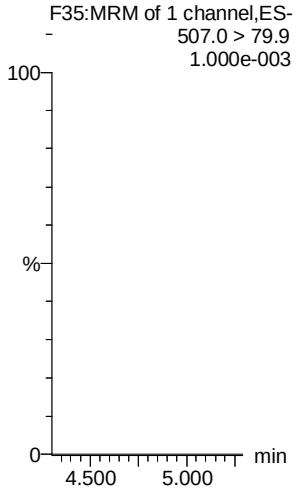




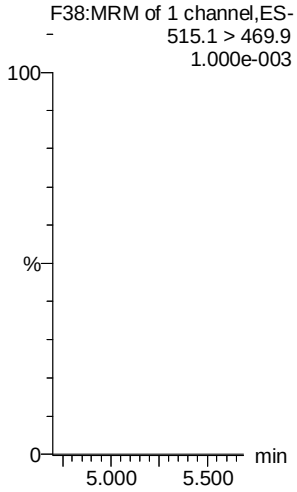
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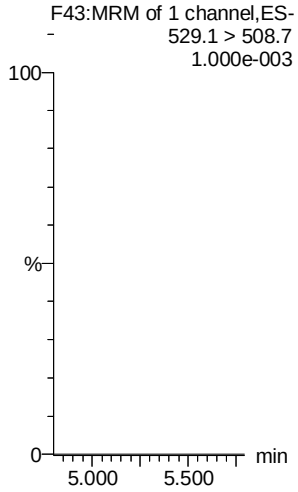
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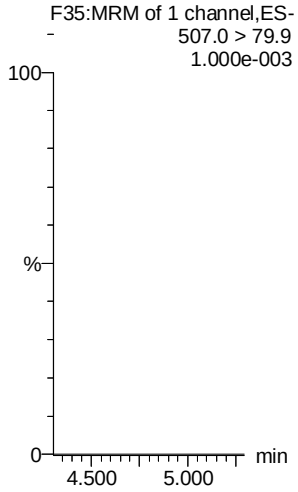
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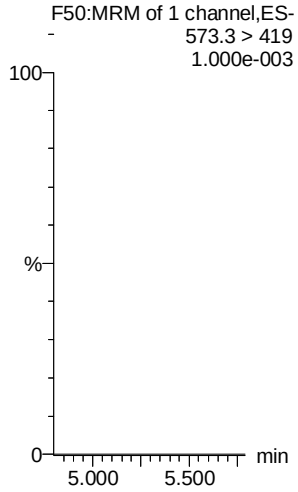
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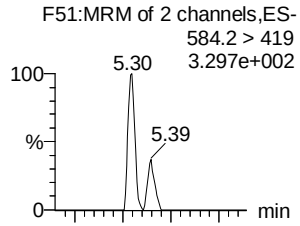
Vista Analytical Laboratory

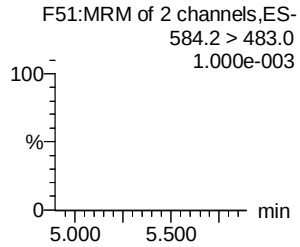
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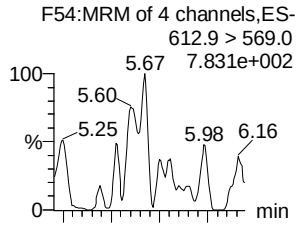
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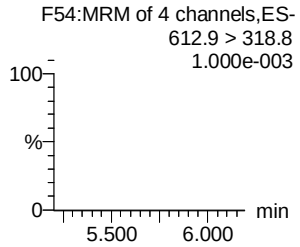
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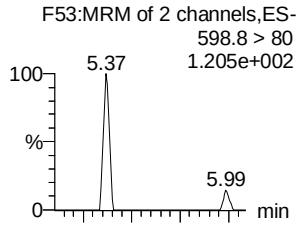


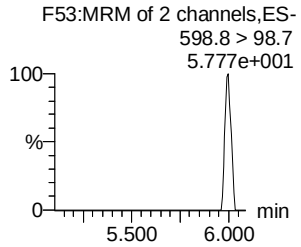
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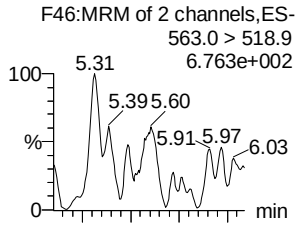


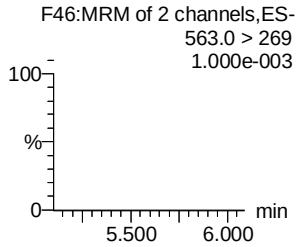
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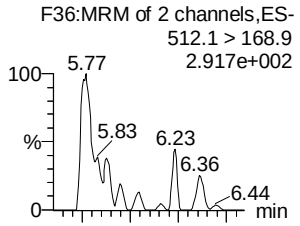


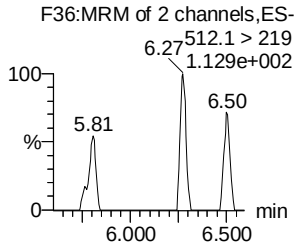
PFUdA



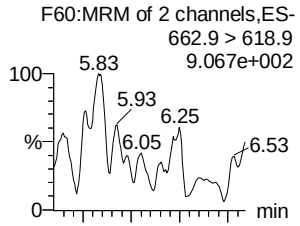


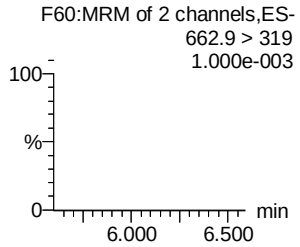
N-MeFOSA



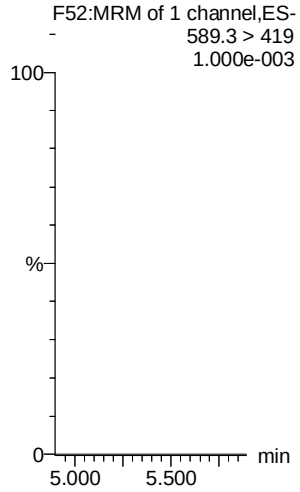


PFTrDA

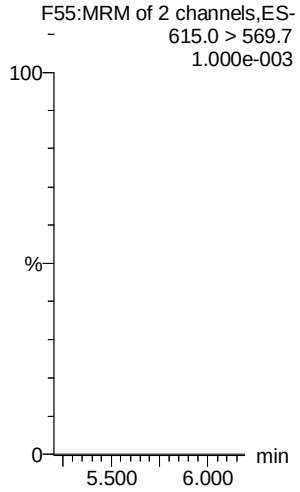




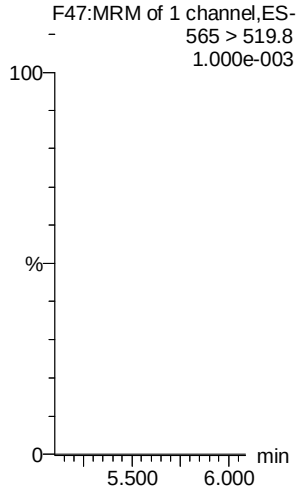
d5-N-EtFOSAA



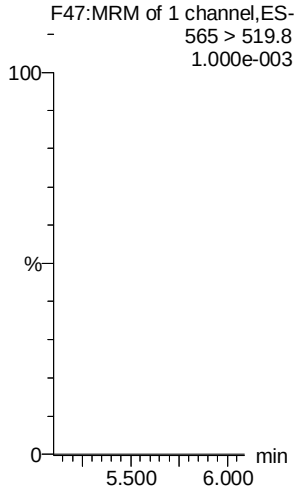
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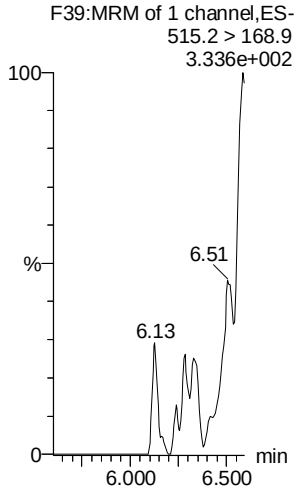
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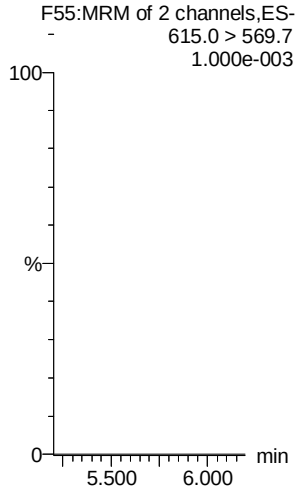
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d3-N-MeFOSA



13C2-PFDoA

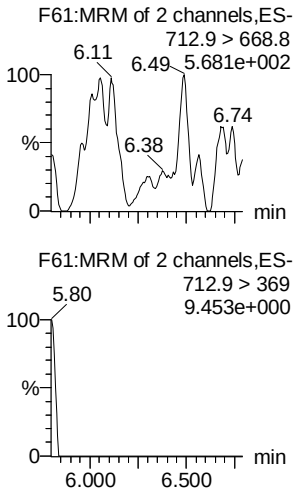


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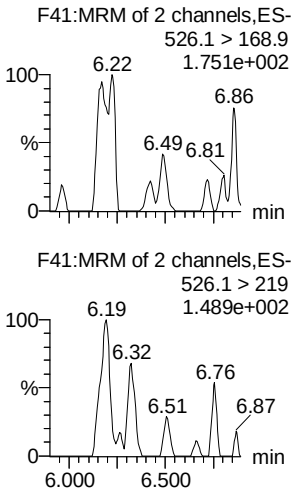
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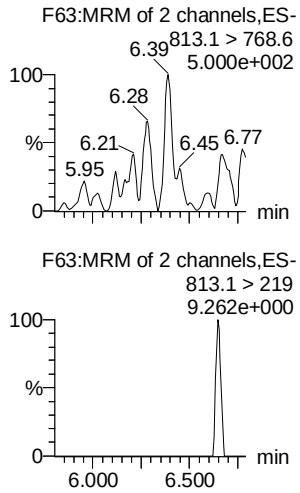
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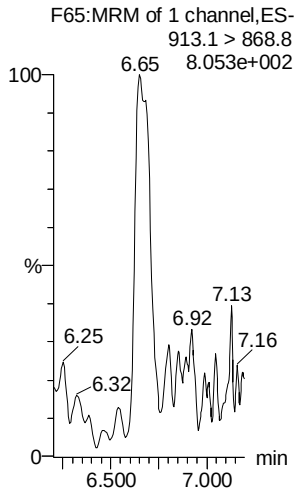
N-EtFOSA



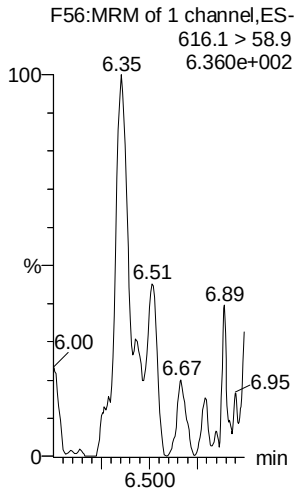
PFHxDA



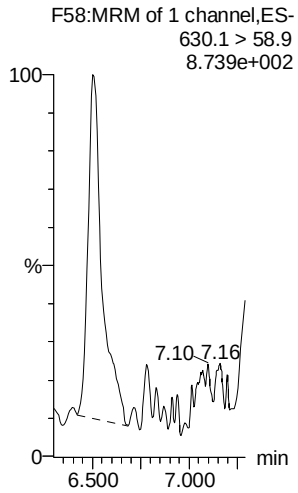
PFODA



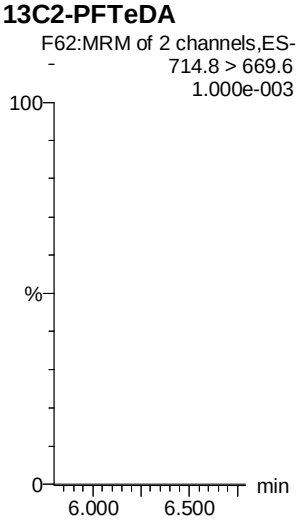
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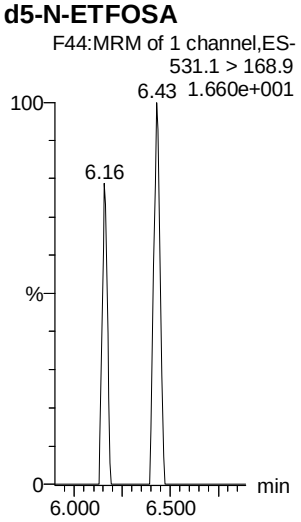
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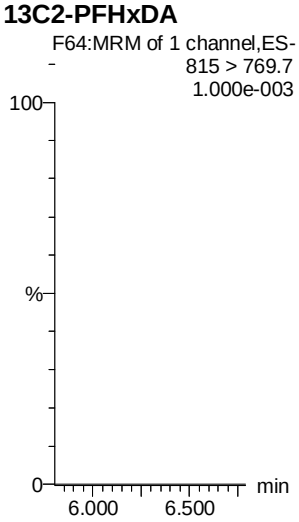
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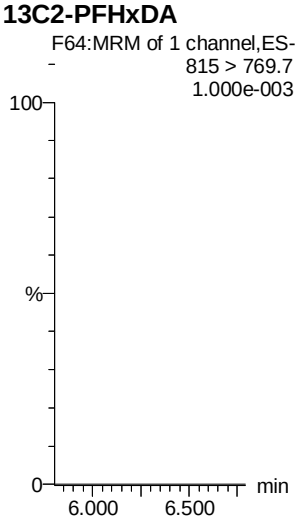
d5-N-ETFOSA



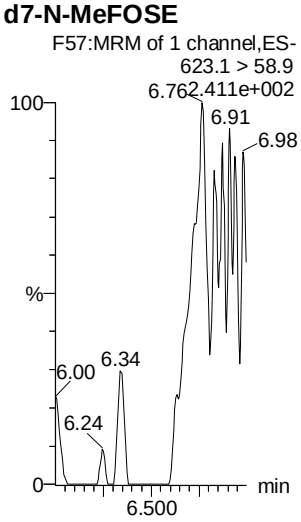
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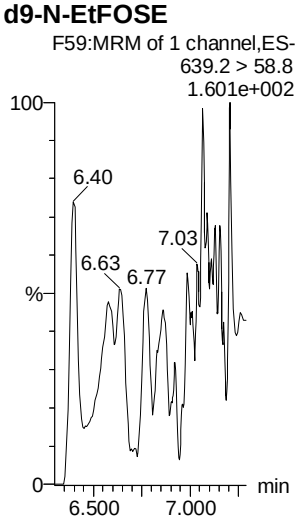
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d7-N-MeFOSE



d9-N-EtFOSE



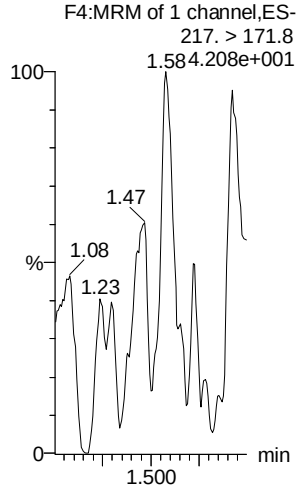
Vista Analytical Laboratory

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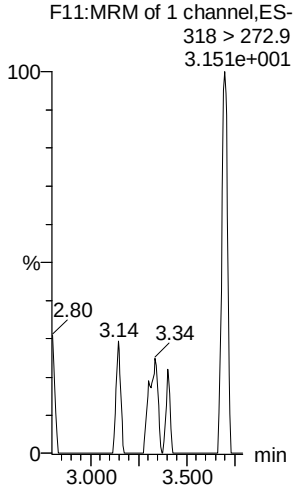
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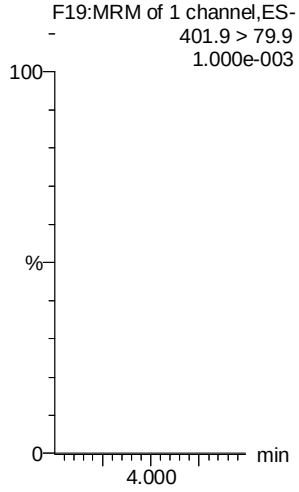
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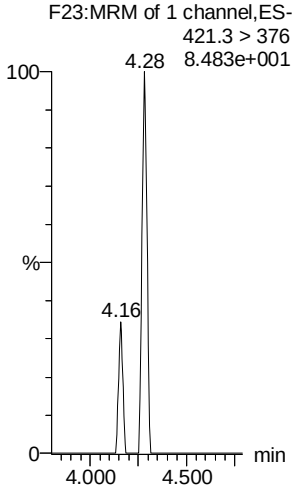
13C5-PFHxA



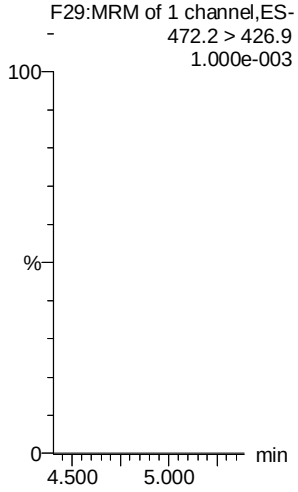
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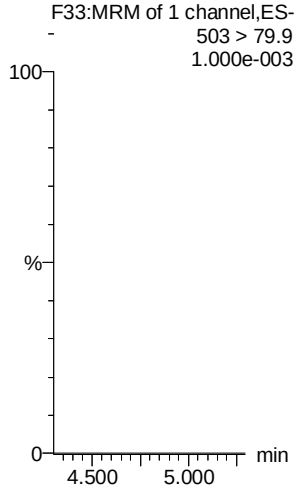
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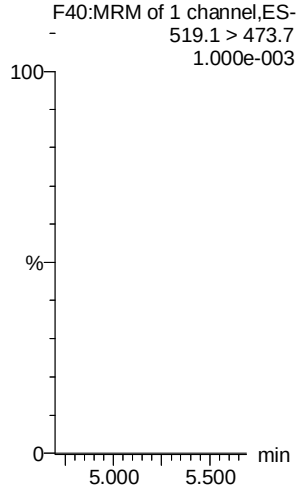
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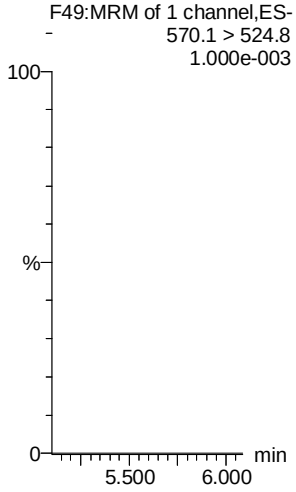
13C4-PFOS



13C6-PFDA



13C7-PFUdA



Tune Checks

Mass Calibration Q4(M) 05-30-2018

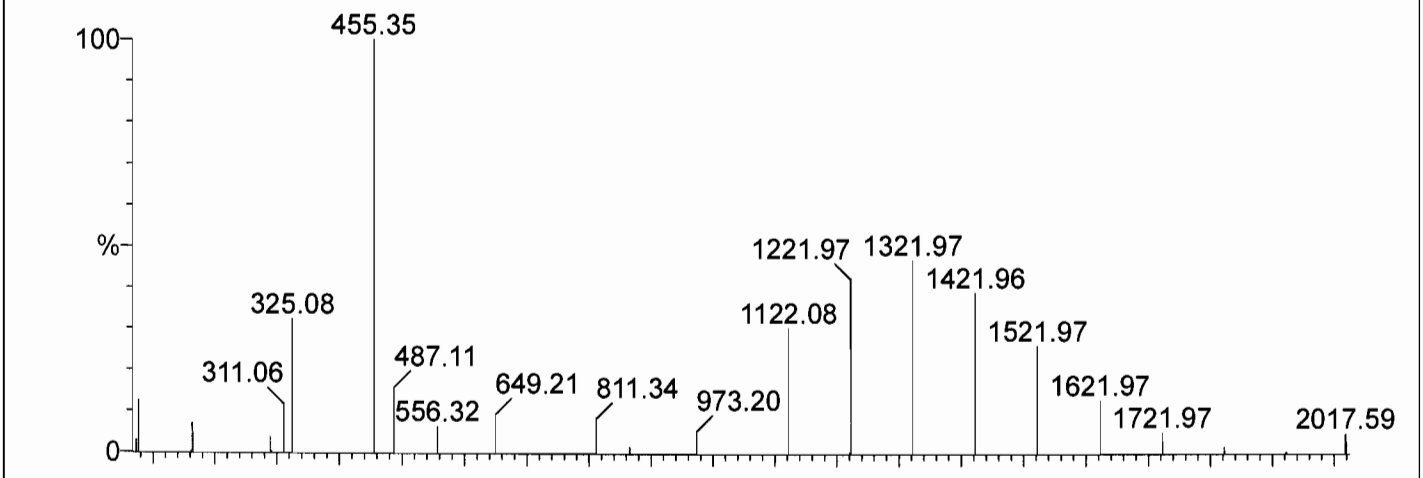
Calibration Report - MS1 Static

20180530

Printed: **Wed May 30 17:00:26 2018**

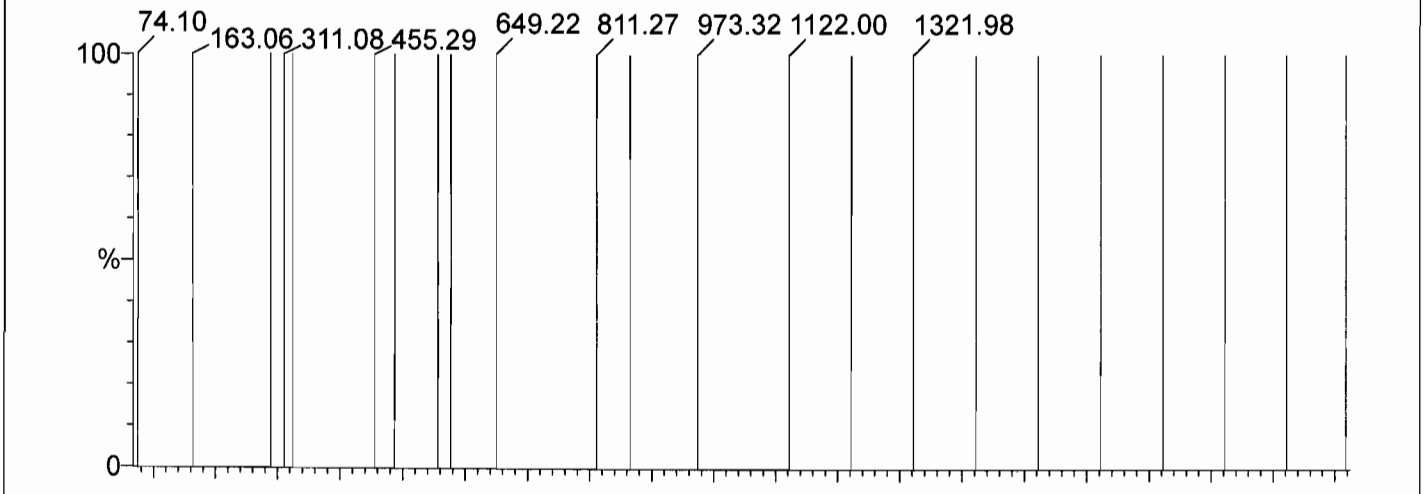
Data file: STATMS1 - Calibrated

21 matches of 23 tested references



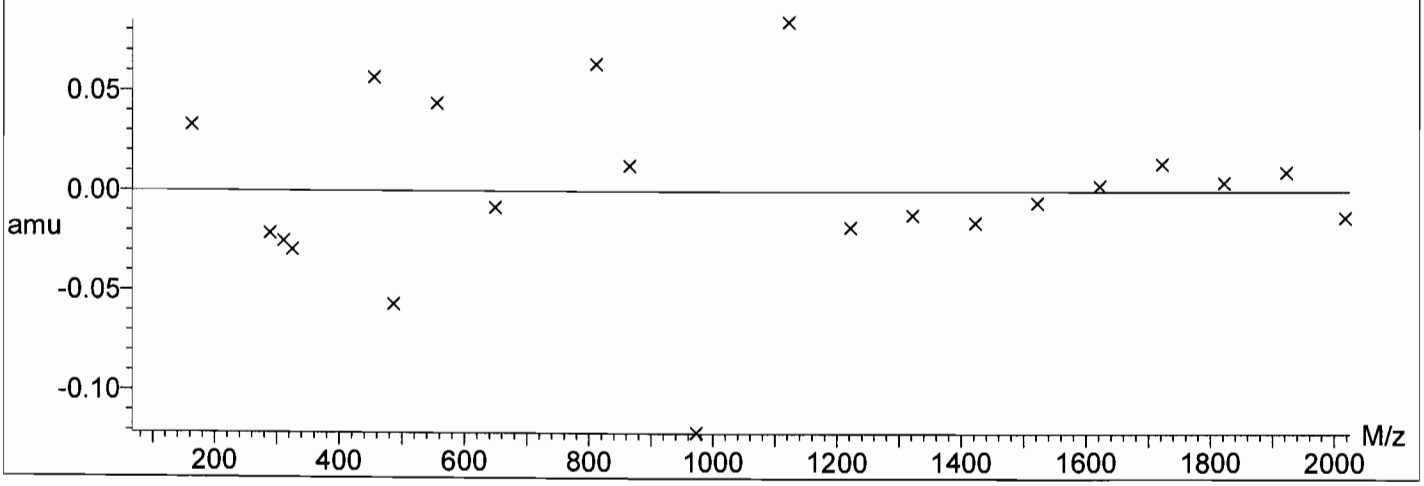
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref

Mean residual = 0.0309 amu

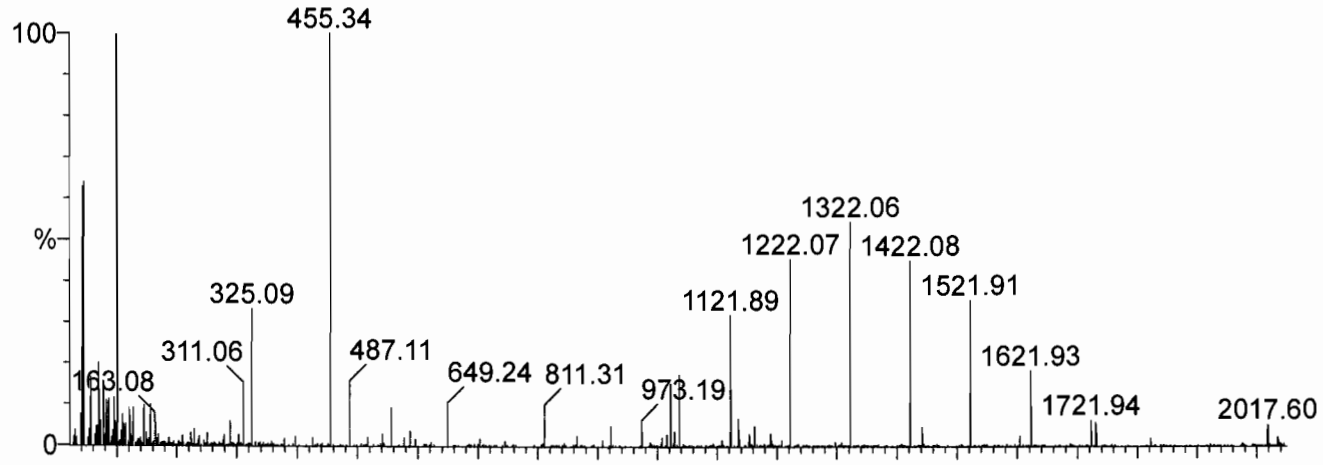


Residual Polynomial order = 4

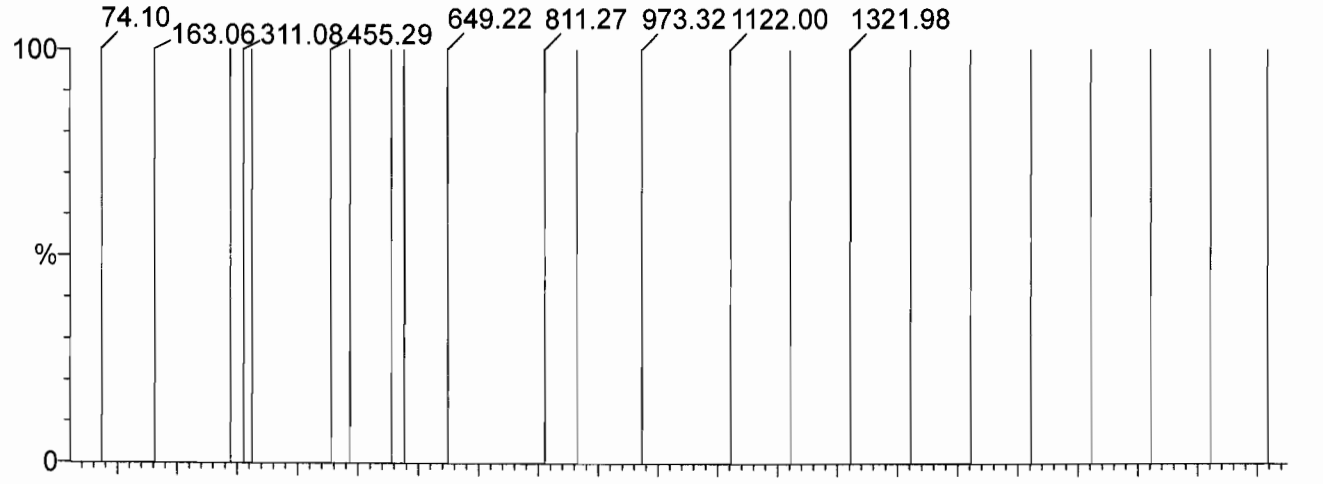
RMS residual = 0.0428 amu



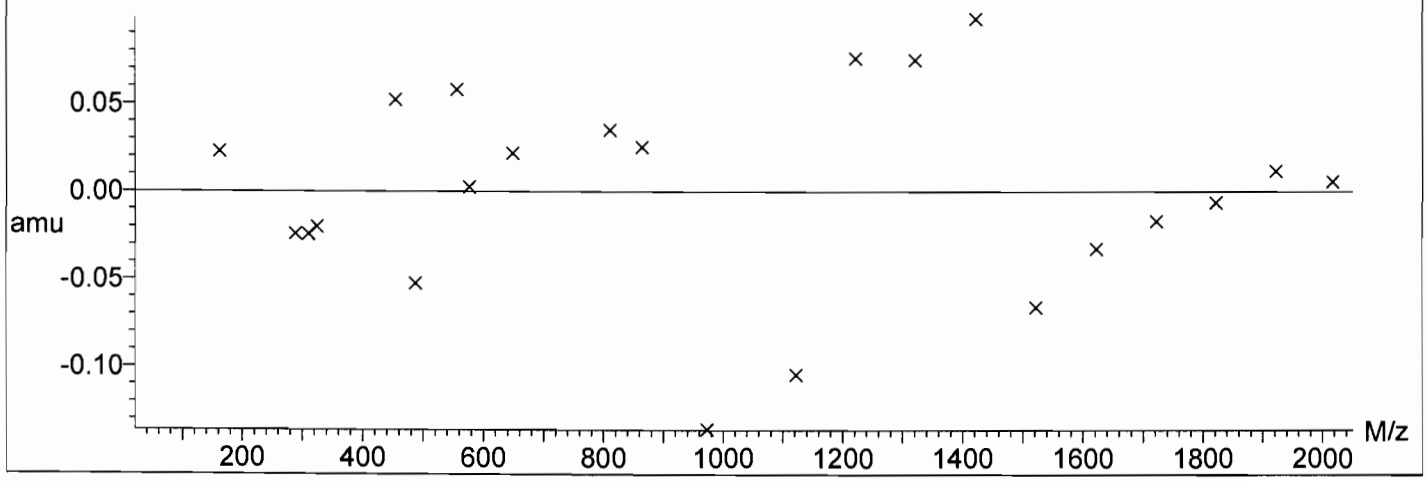
Data file: SCNMS1 - Calibrated 22 matches of 23 tested references



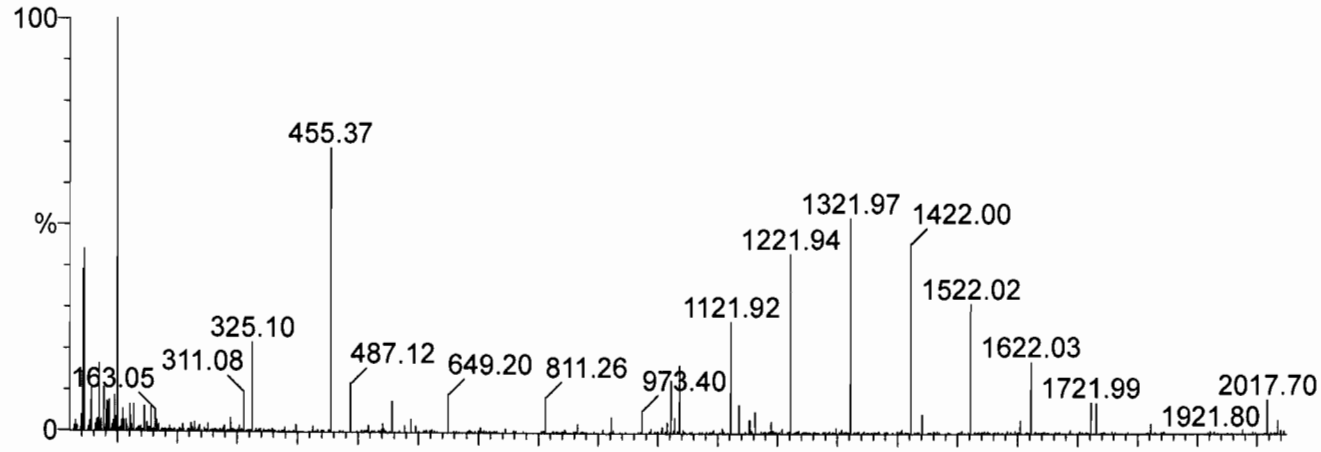
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.044 amu



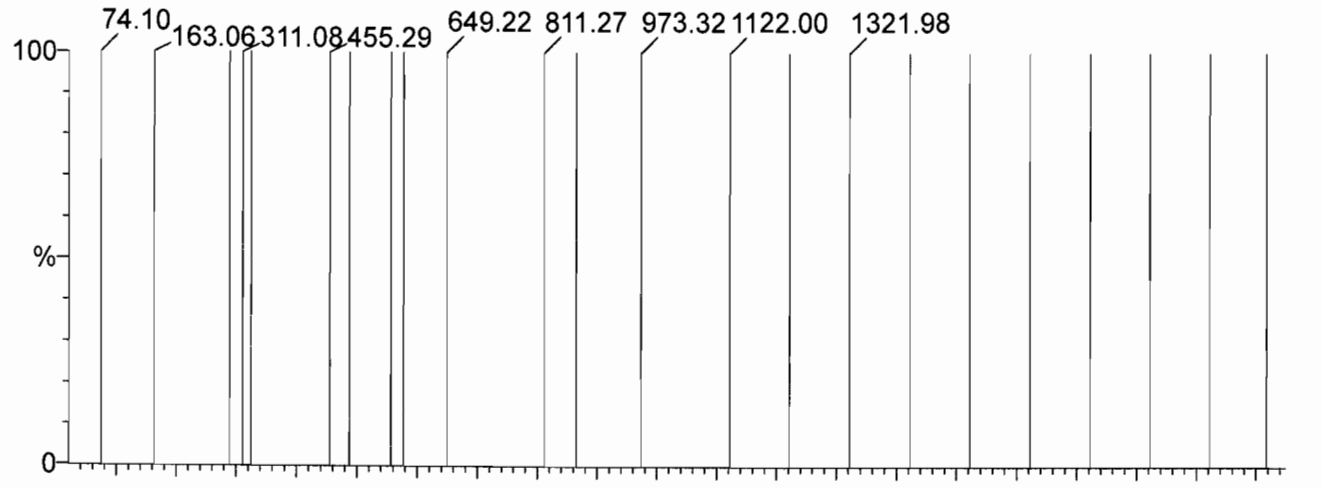
Residual Polynomial order = 4 RMS residual = 0.0563 amu



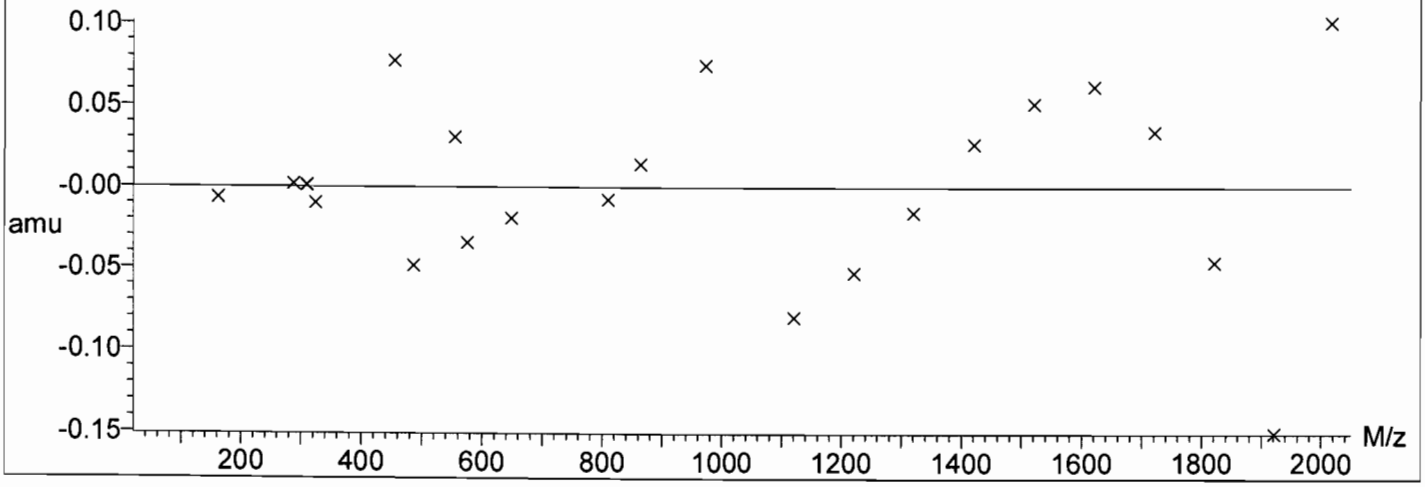
Data file: FASTMS1 - Calibrated 22 matches of 23 tested references



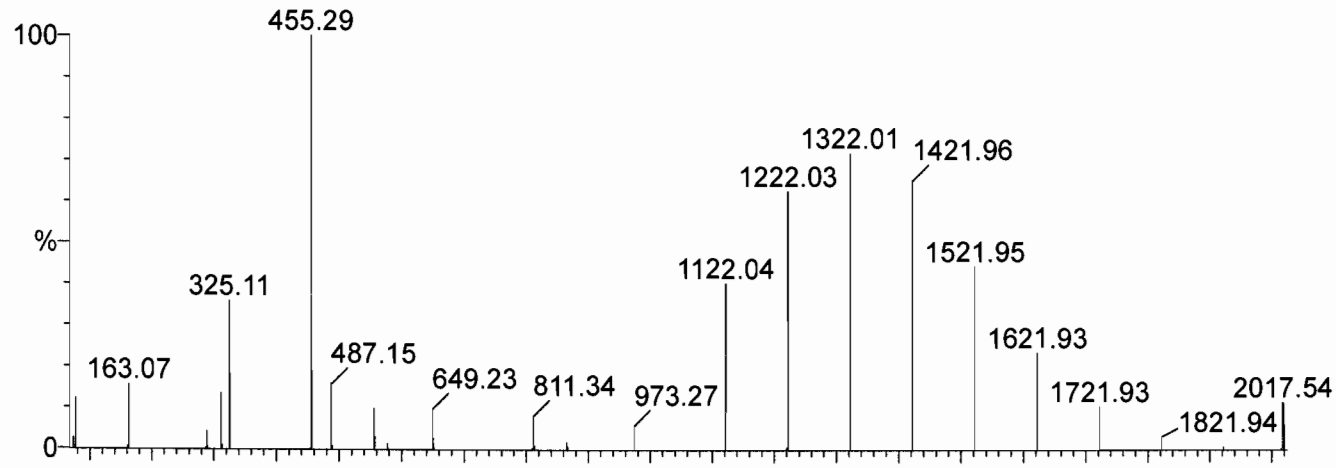
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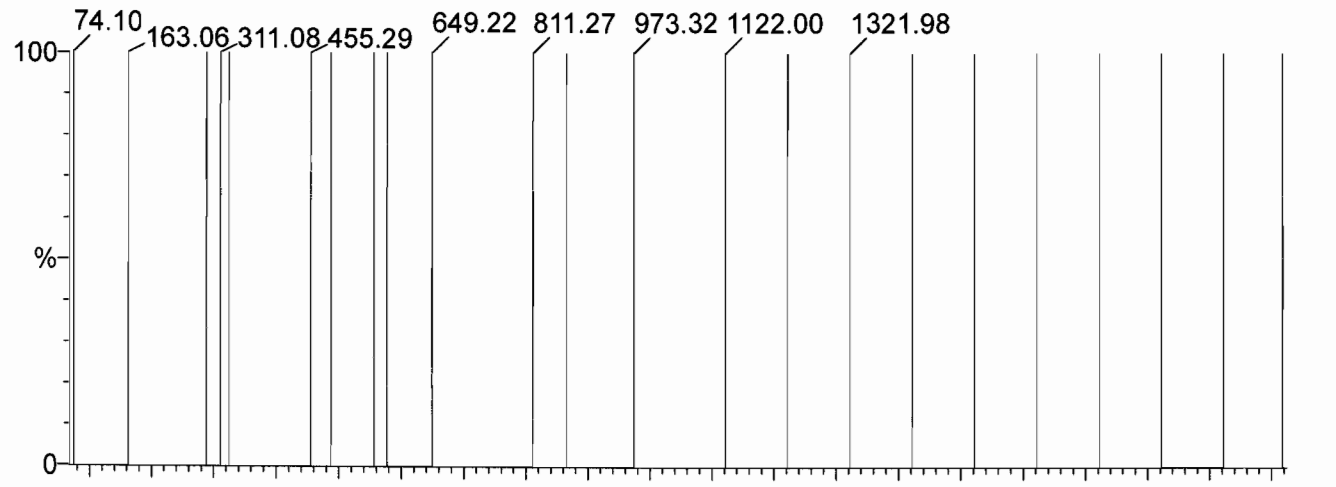
Residual Polynomial order = 4 RMS residual = 0.0563 amu



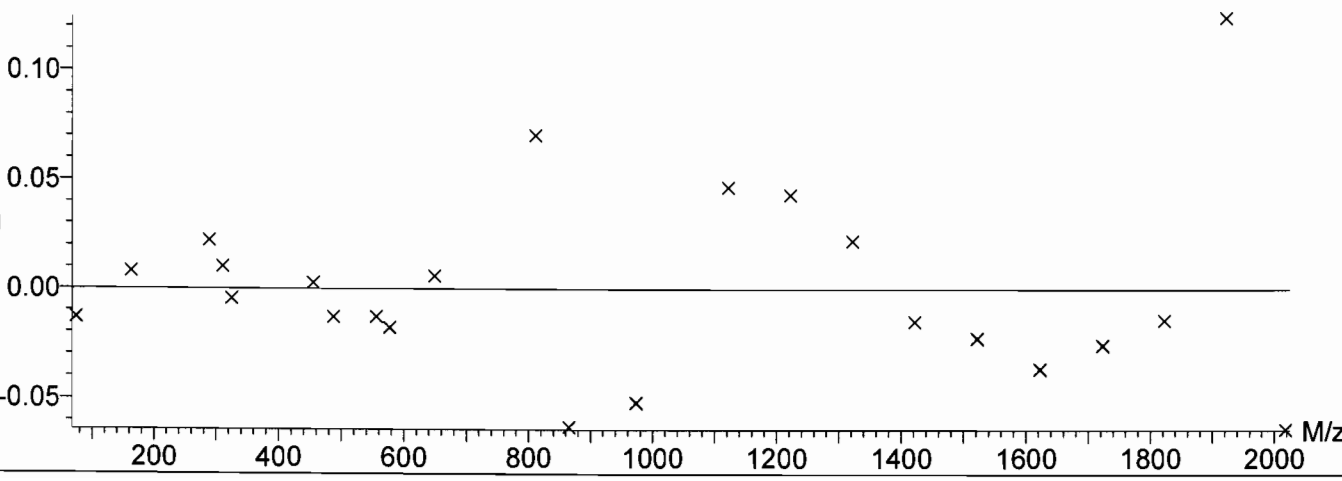
Data file: STATMS2 - Calibrated 23 matches of 23 tested references



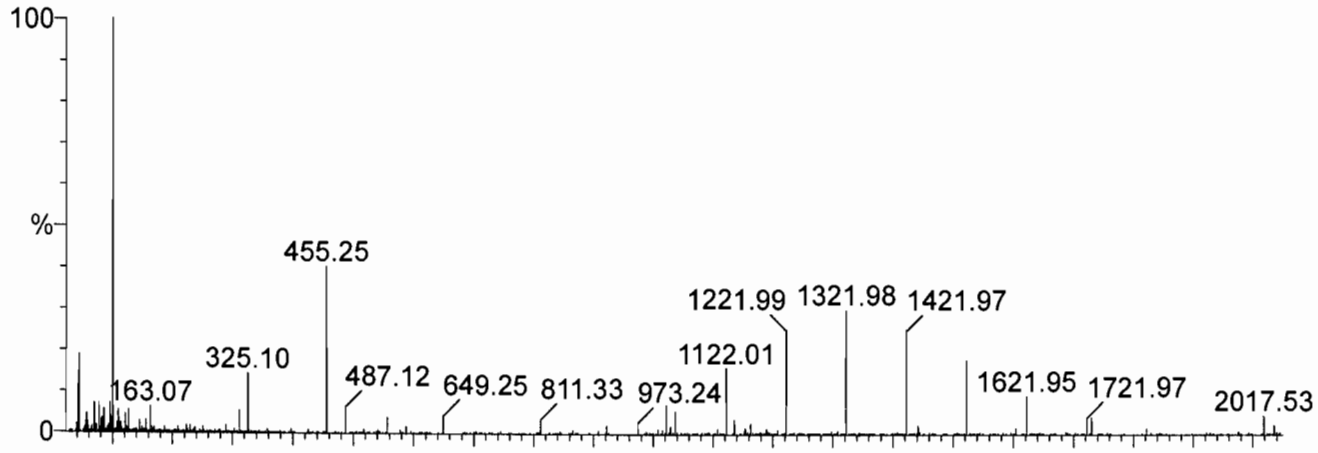
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0309 amu



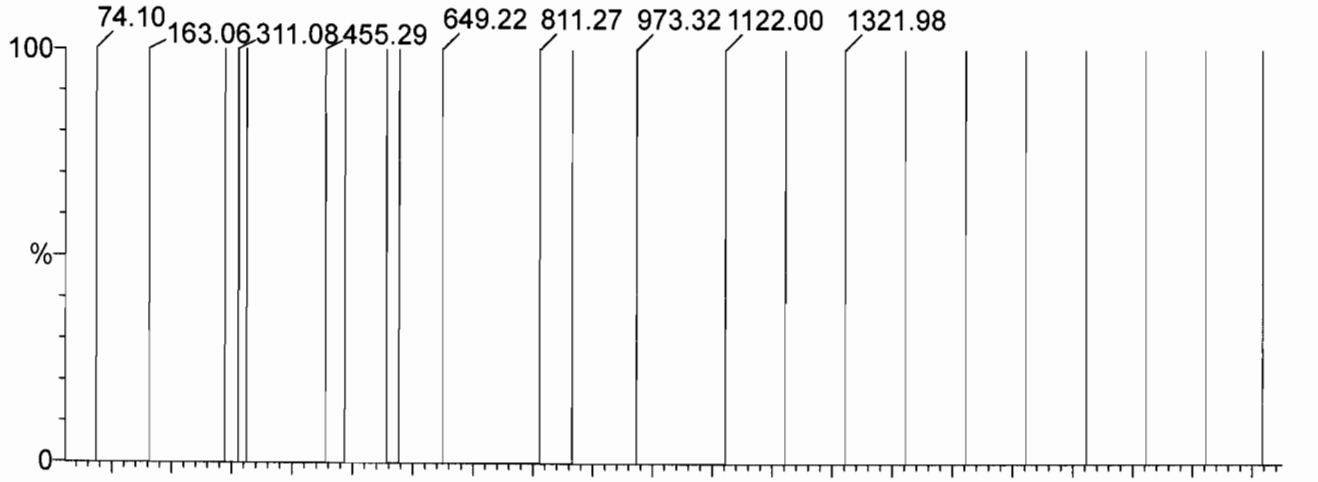
Residual Polynomial order = 4 RMS residual = 0.0418 amu



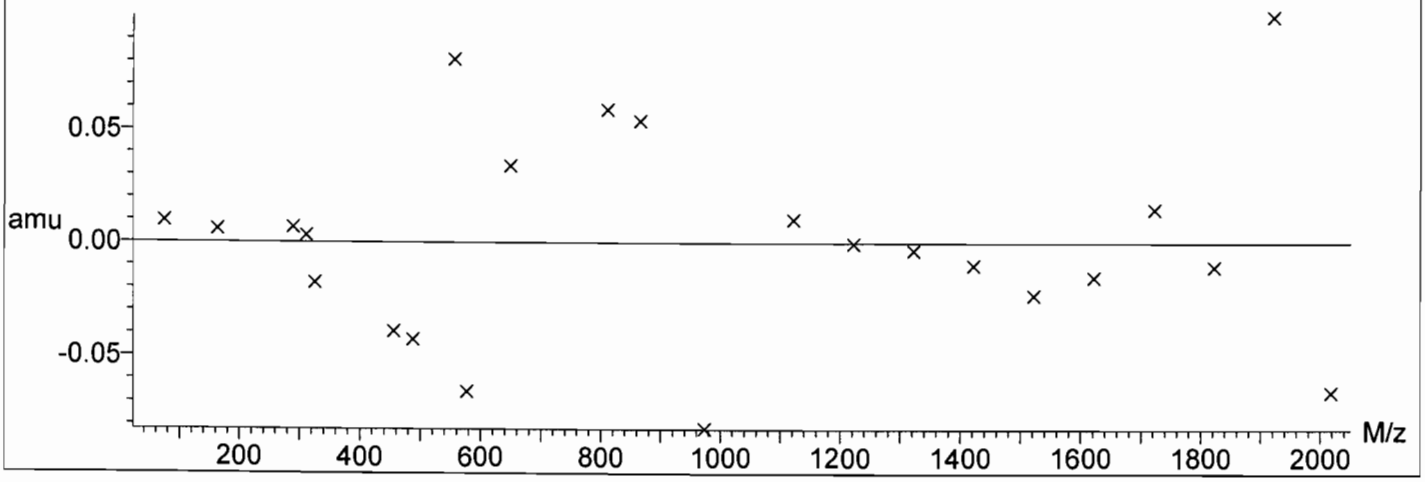
Data file: SCNMS2 - Calibrated 23 matches of 23 tested references



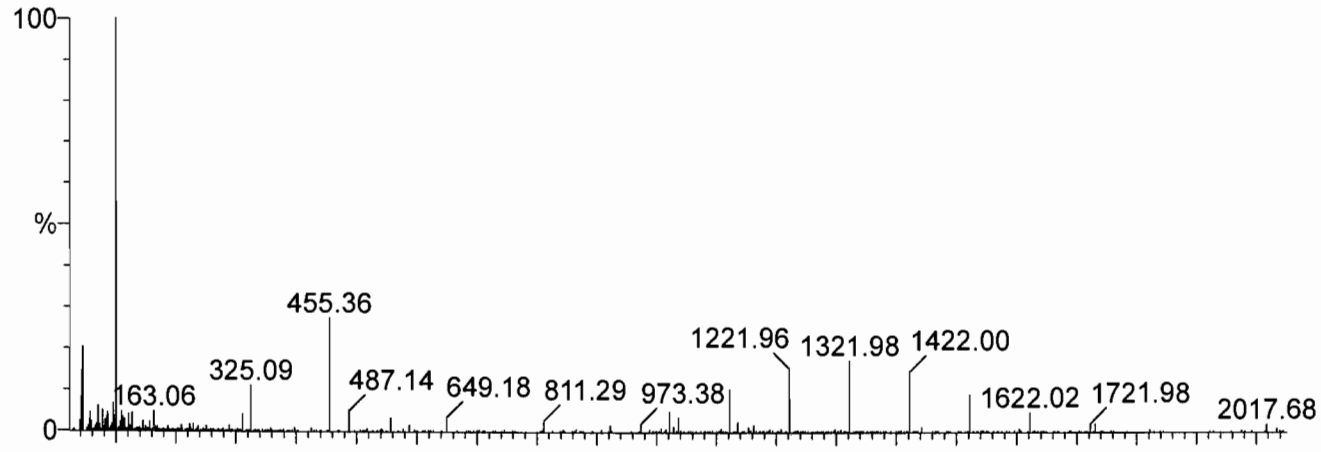
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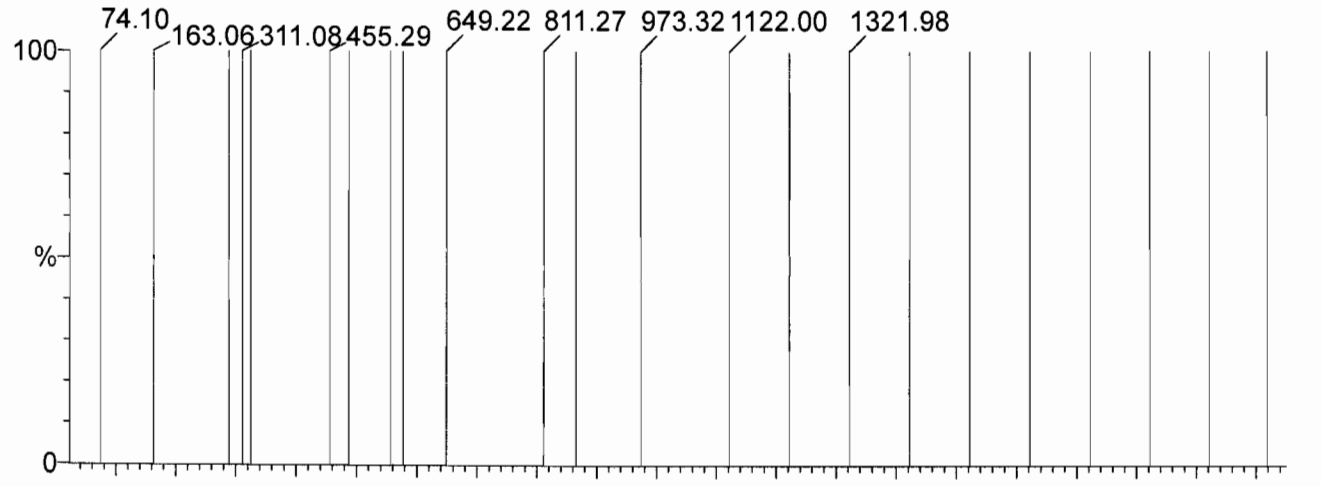
Residual Polynomial order = 4 RMS residual = 0.044 amu



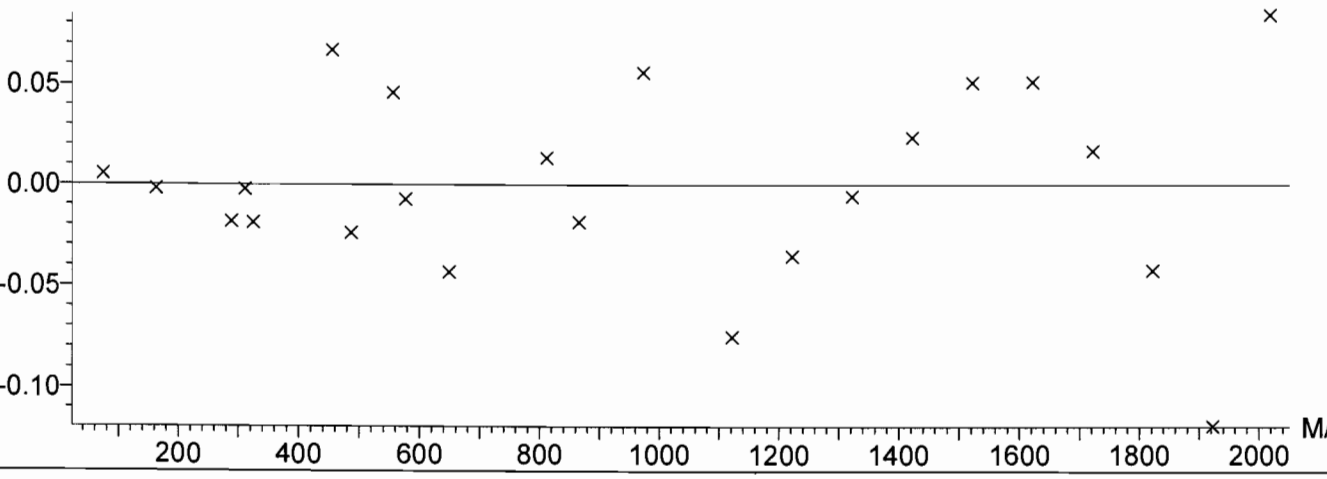
Data file: FASTMS2 - Calibrated 23 matches of 23 tested references



Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.036 amu



Residual Polynomial order = 4 RMS residual = 0.0464 amu



Mass Calibration Q4 (H) 06-05-2018

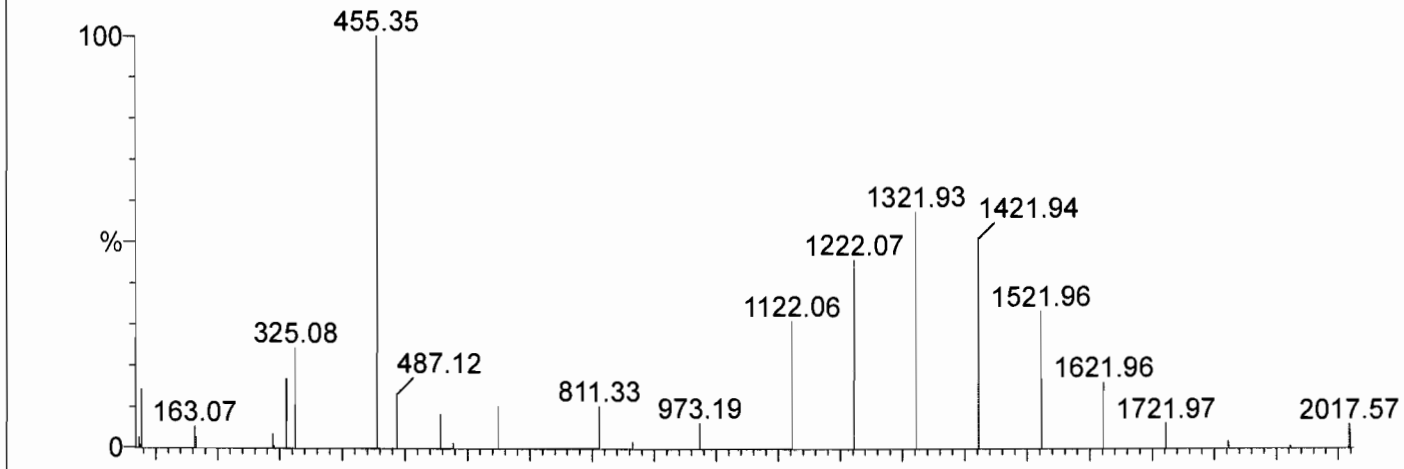
Calibration Report - MS1 Static

Printed: **Tue Jun 05 16:01:19 2018**

20180605_2

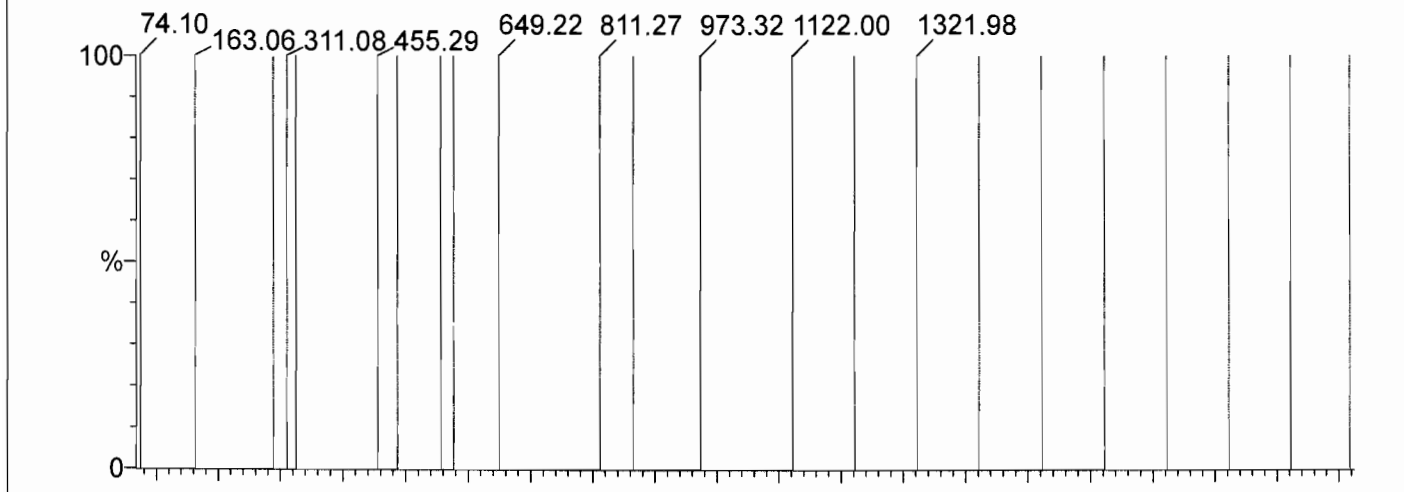
Data file: STATMS1 - Calibrated

23 matches of 23 tested references



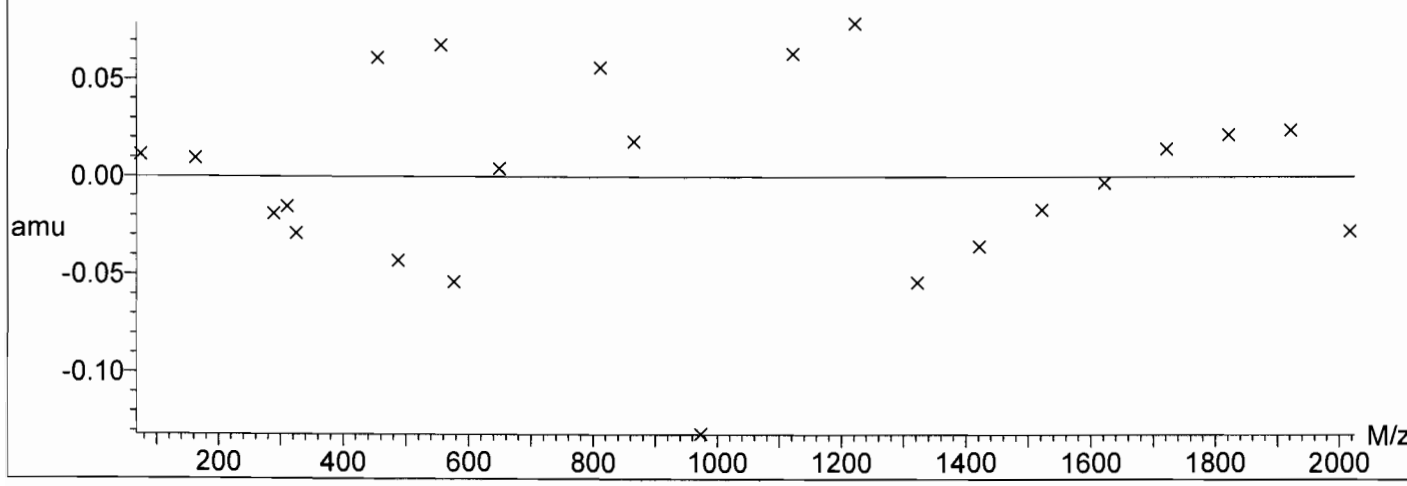
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Mean residual = 0.0373 amu

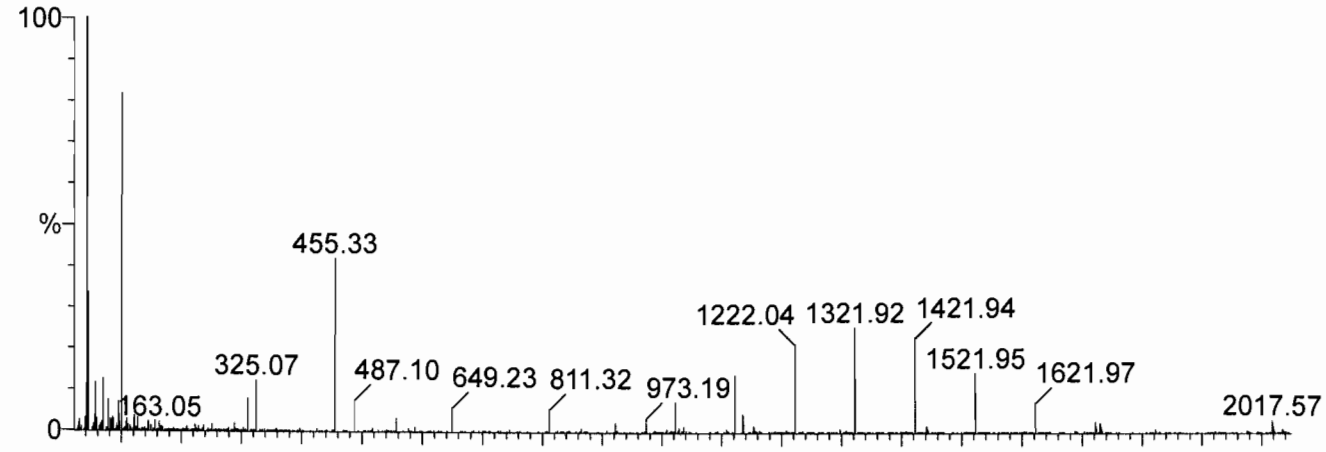


Residual Polynomial order = 4

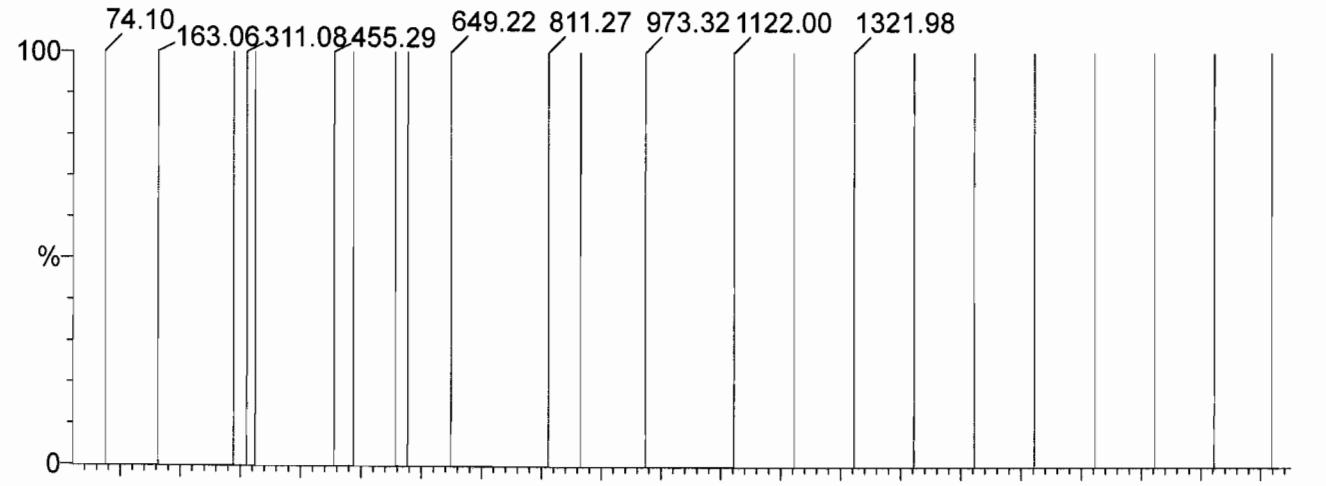
RMS residual = 0.0476 amu



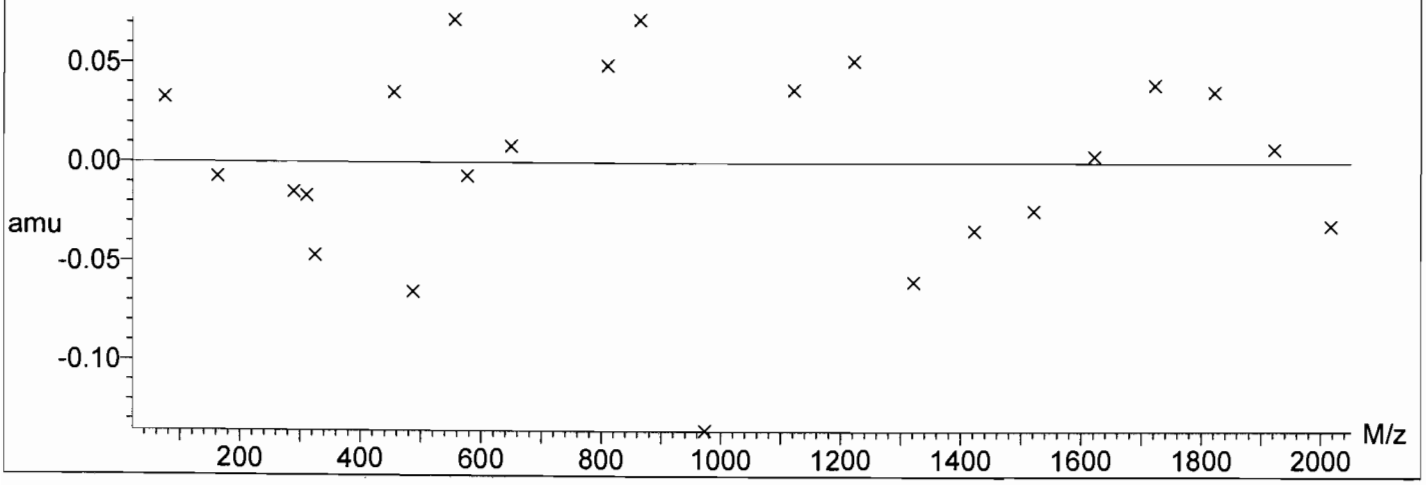
Data file: SCNMS1 - Calibrated 23 matches of 23 tested references



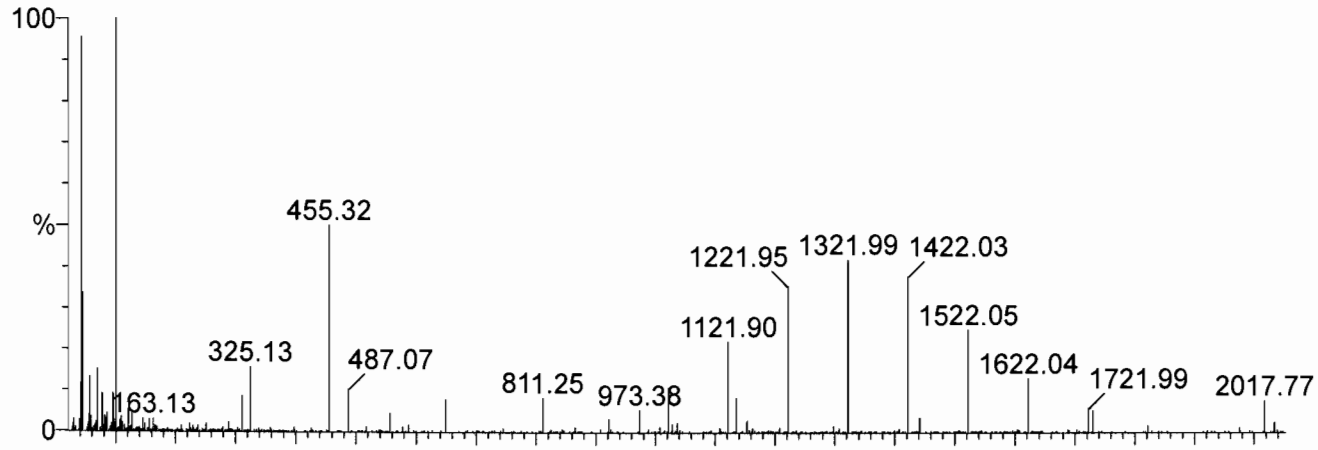
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0385 amu



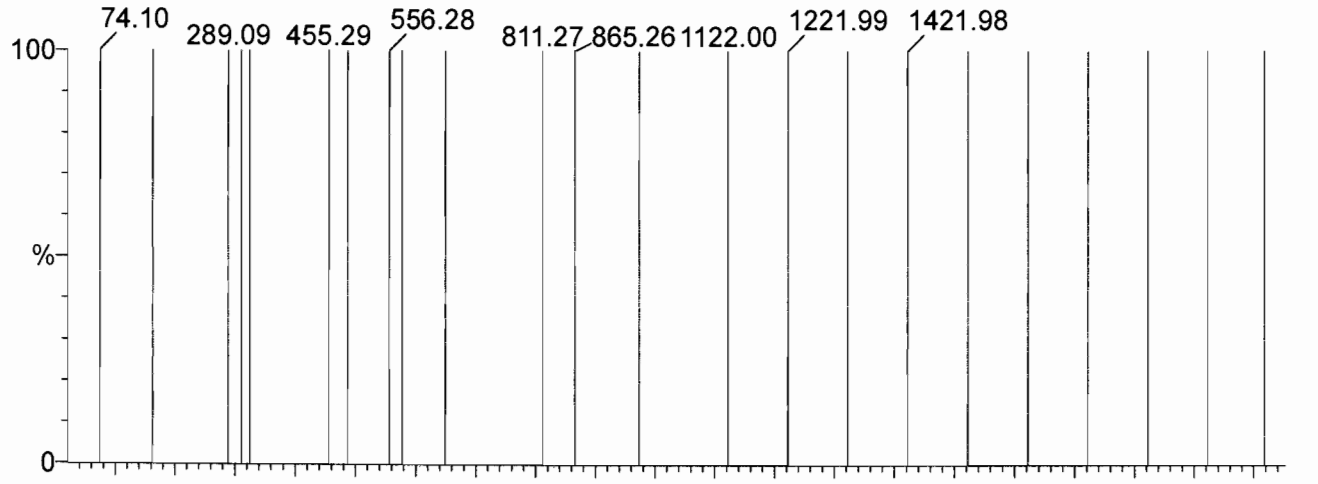
Residual Polynomial order = 4 RMS residual = 0.0484 amu



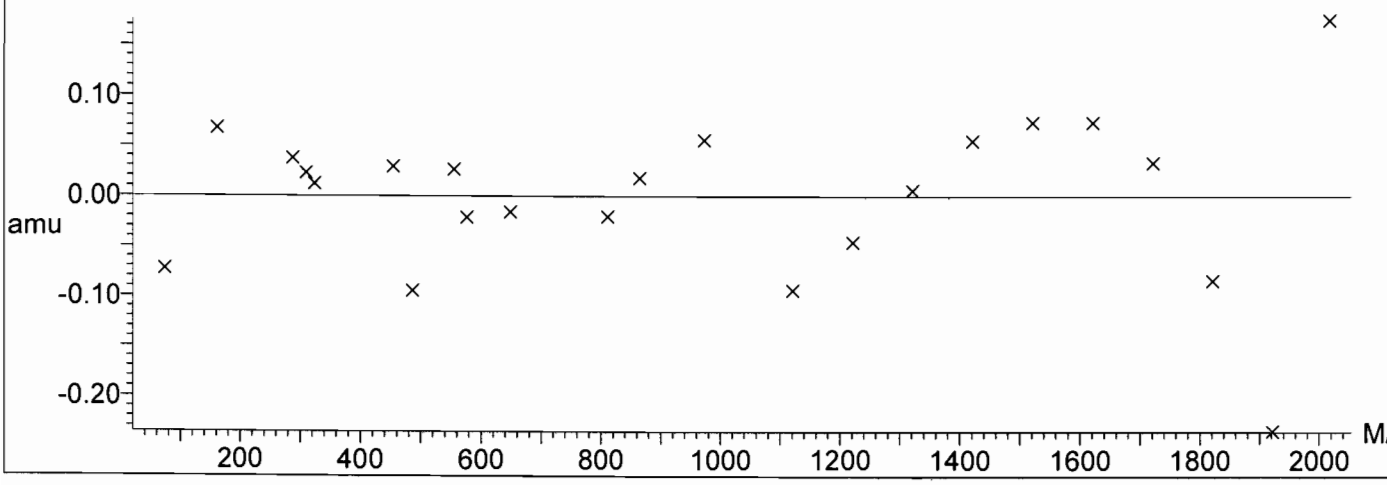
Data file: FASTMS1 - Calibrated 23 matches of 23 tested references



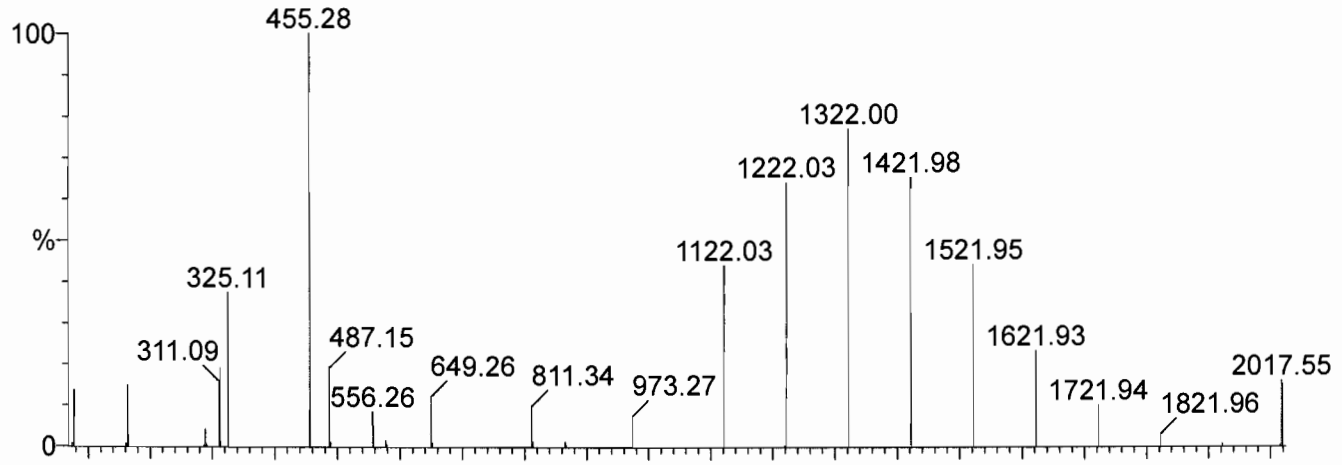
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0595 amu



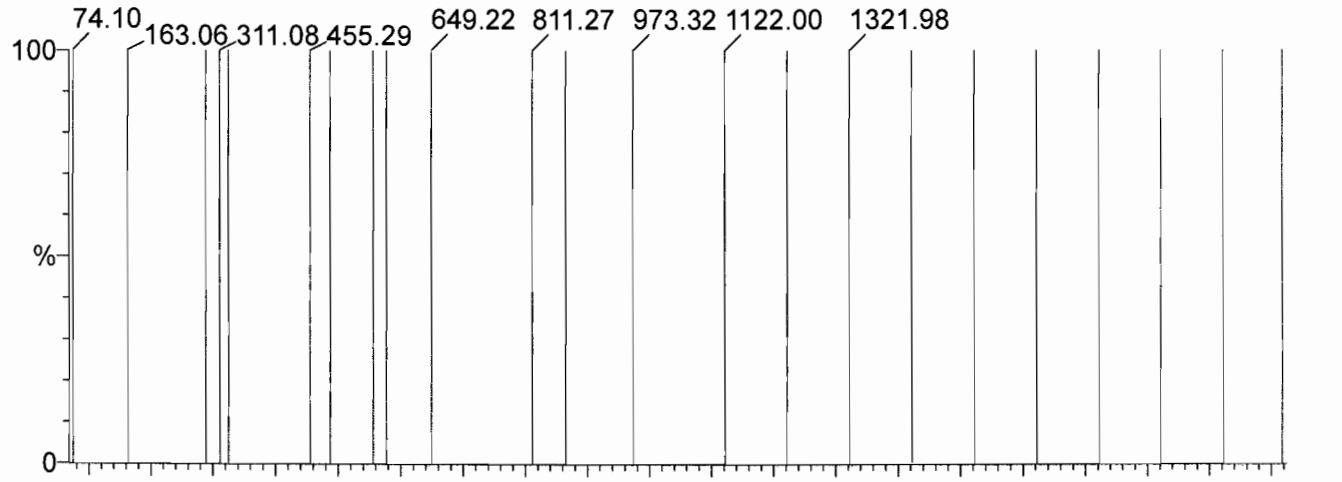
Residual Polynomial order = 4 RMS residual = 0.0797 amu



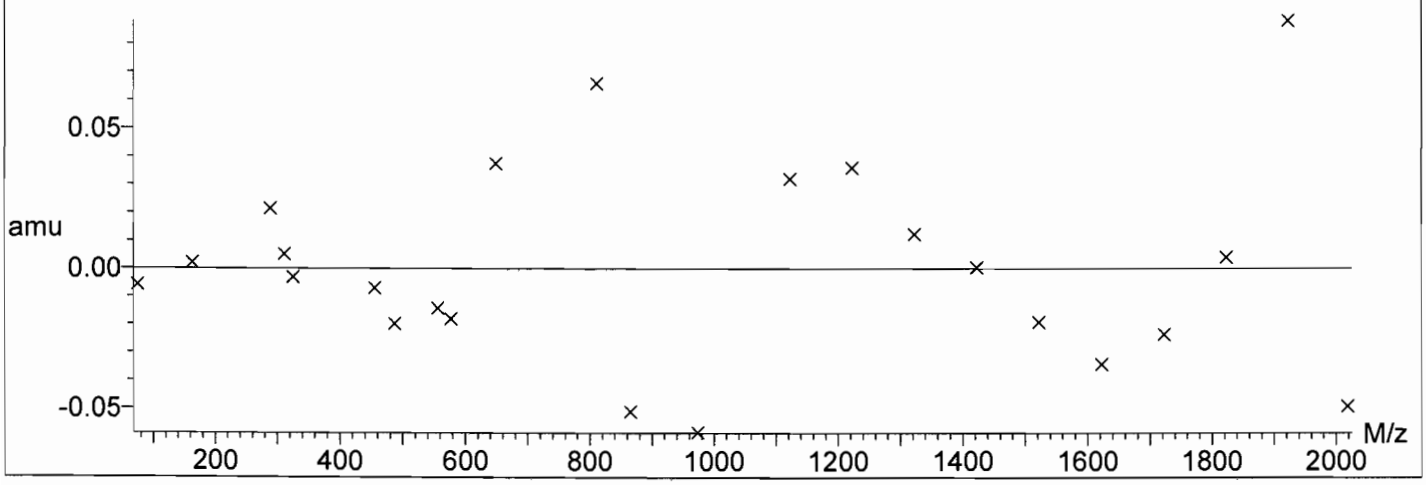
Data file: STATMS2 - Calibrated 23 matches of 23 tested references



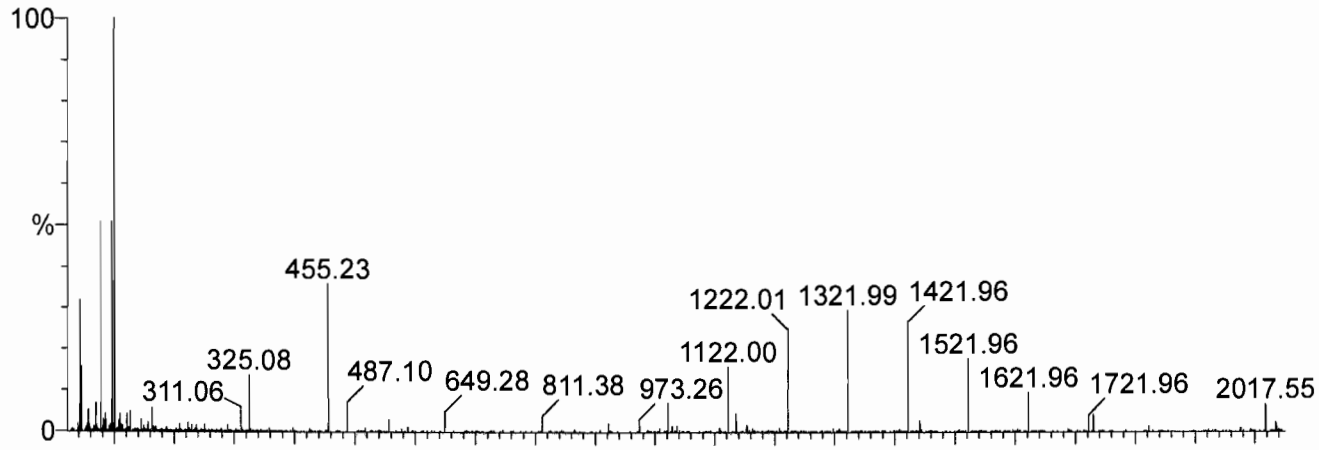
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0265 amu



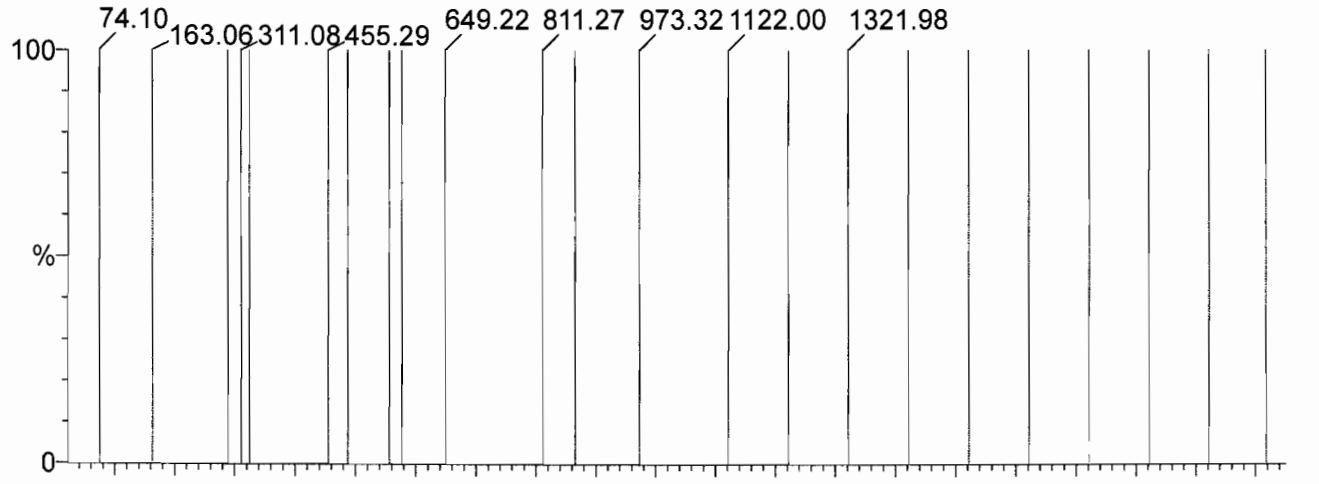
Residual Polynomial order = 4 RMS residual = 0.035 amu



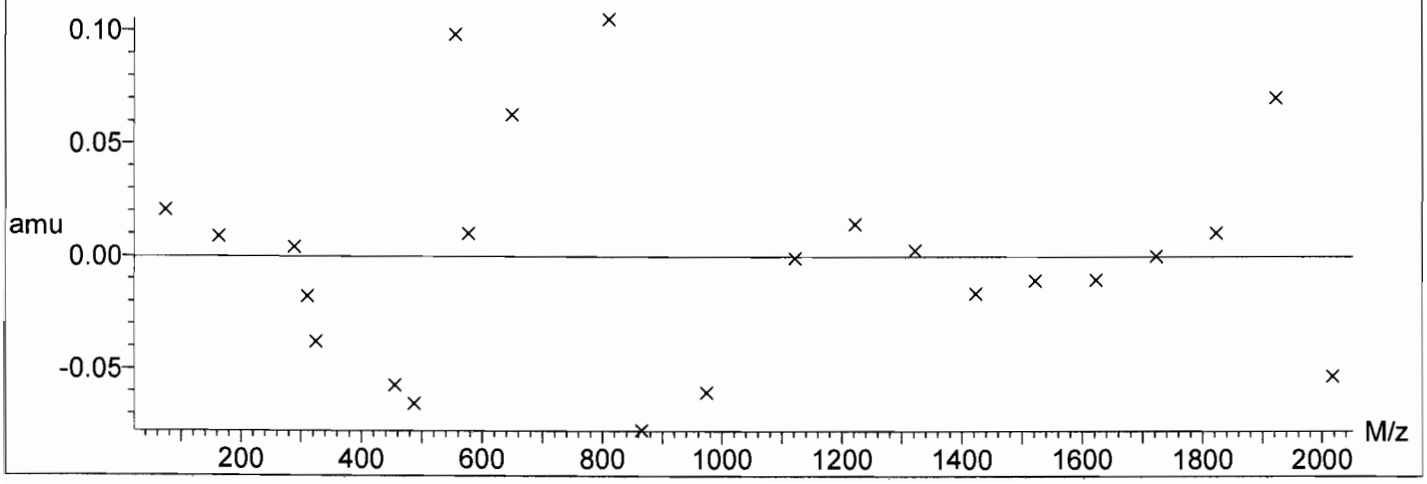
Data file: SCNMS2 - Calibrated 23 matches of 23 tested references



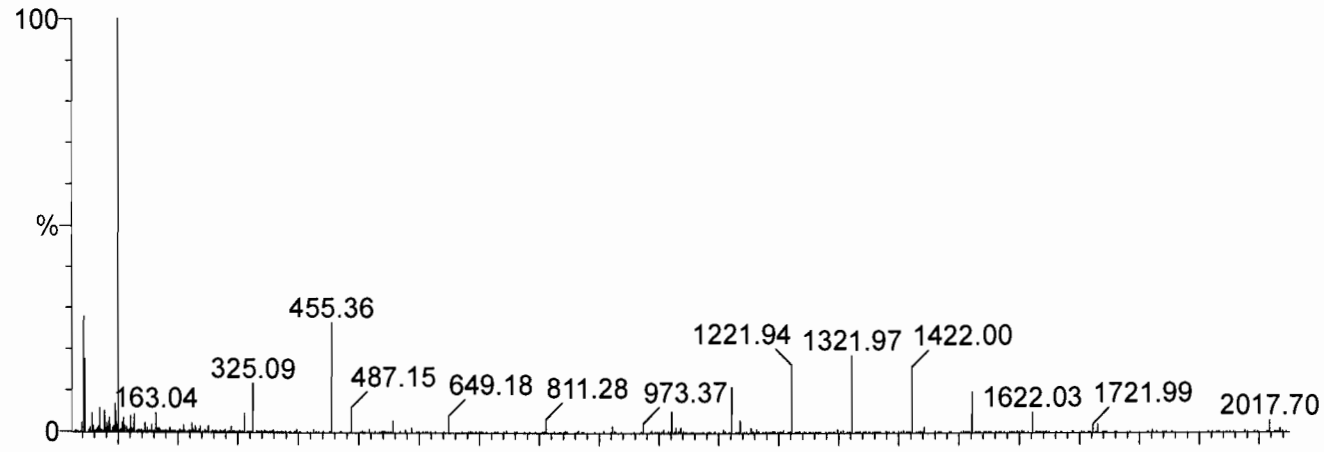
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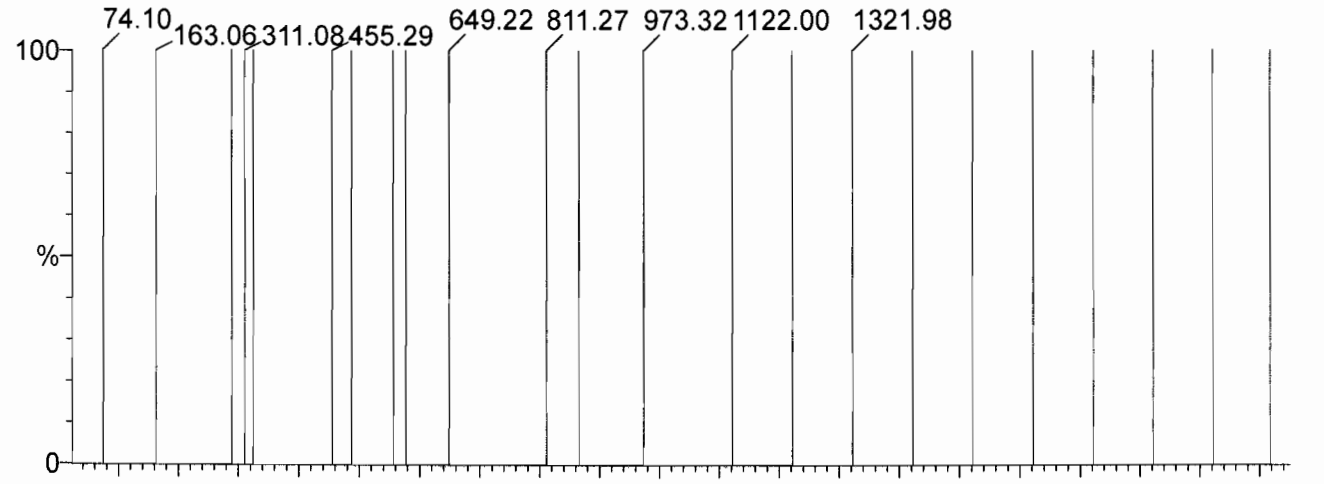
Residual Polynomial order = 4 RMS residual = 0.0479 amu



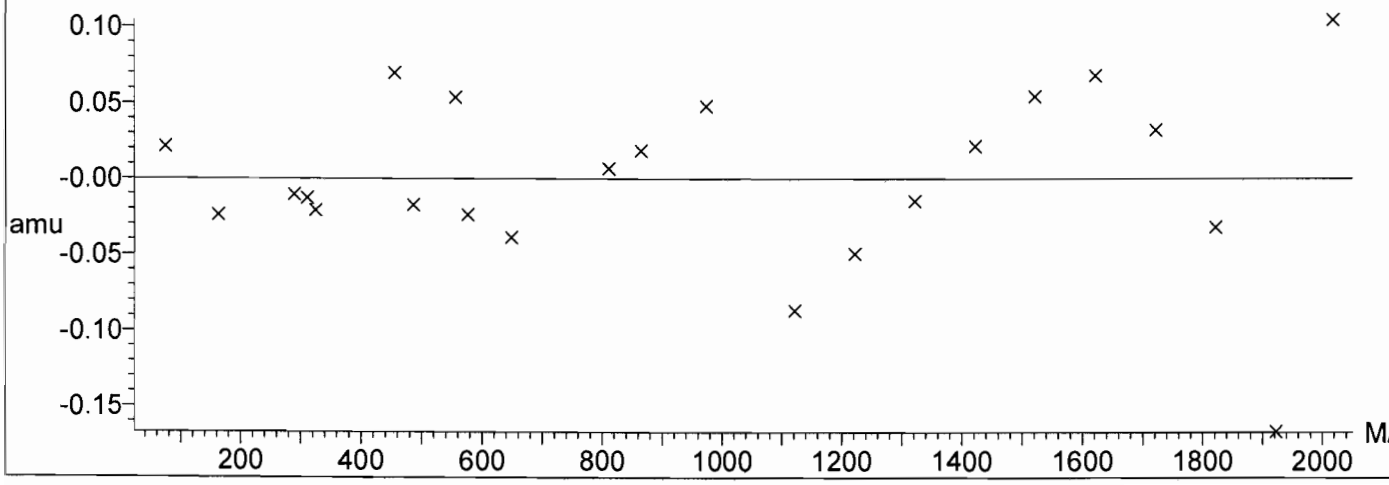
Data file: FASTMS2 - Calibrated 23 matches of 23 tested references



Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0433 amu



Residual Polynomial order = 4 RMS residual = 0.0565 amu

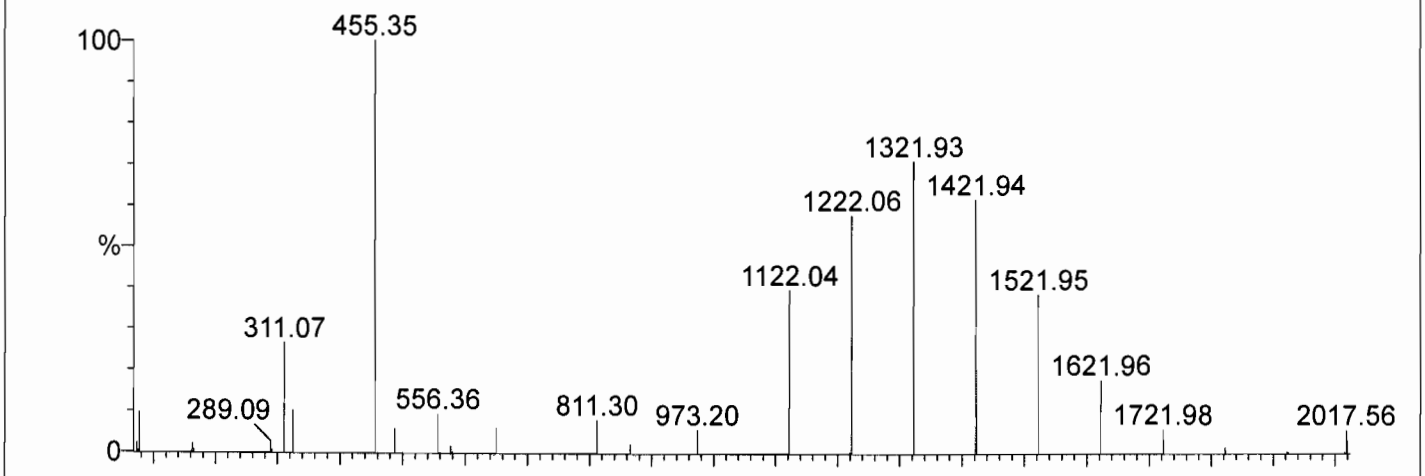


mass calibration Q4 (M) 06-05-2018
-06-2018
IMF
6/8/18

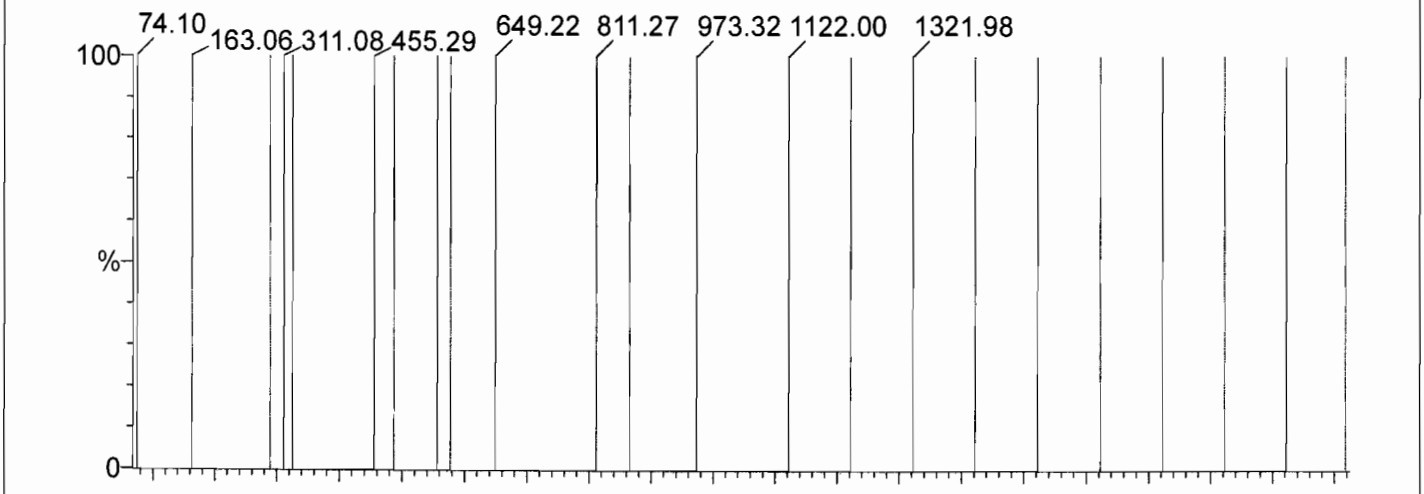
Calibration Report - MS1 Static 20180606_1 **Page 1 of 6**

Printed: **Wed Jun 06 15:15:57 2018**

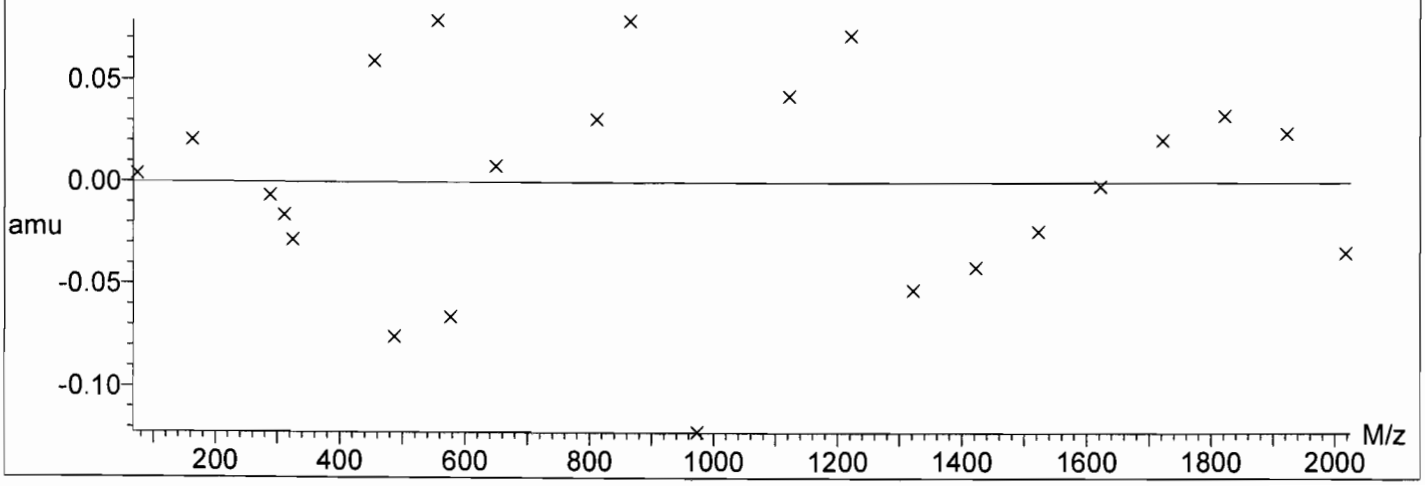
Data file: STATMS1 - Calibrated 23 matches of 23 tested references



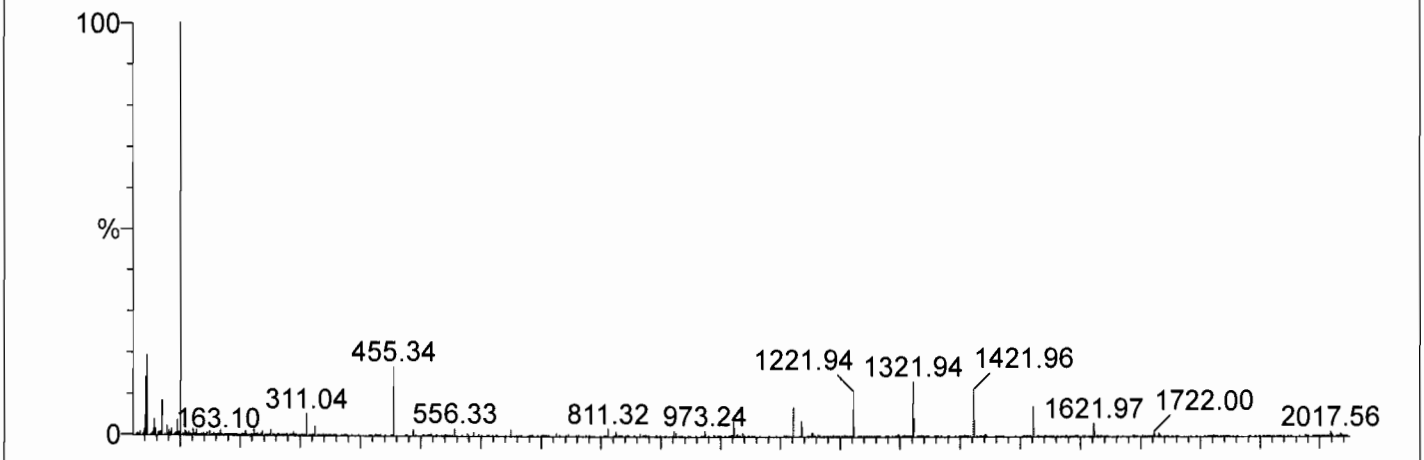
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0409 amu



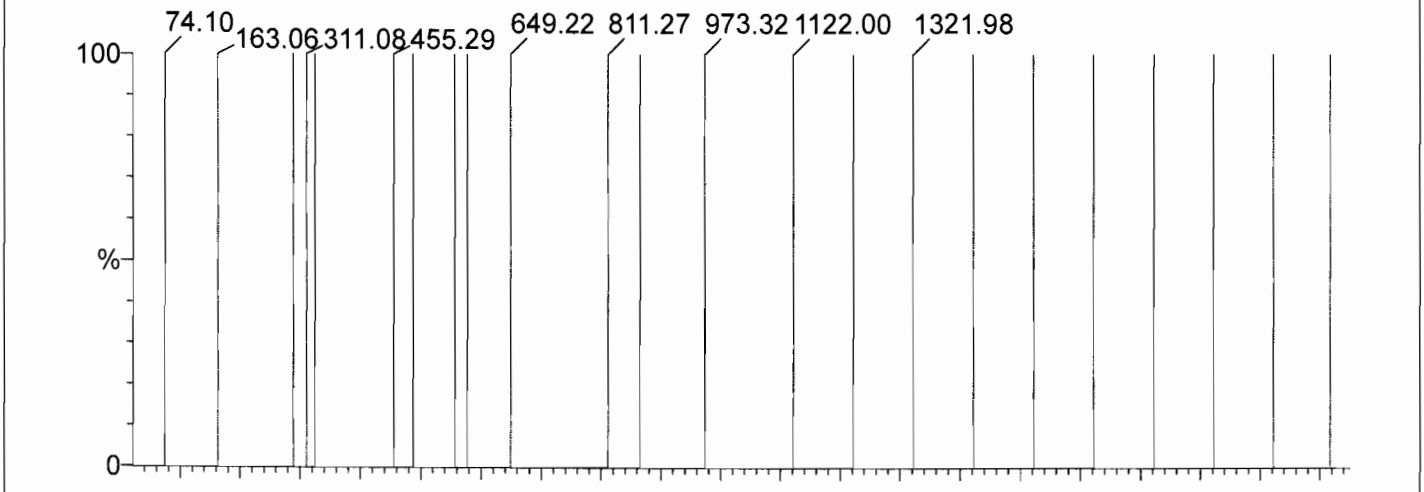
Residual Polynomial order = 4 RMS residual = 0.0505 amu



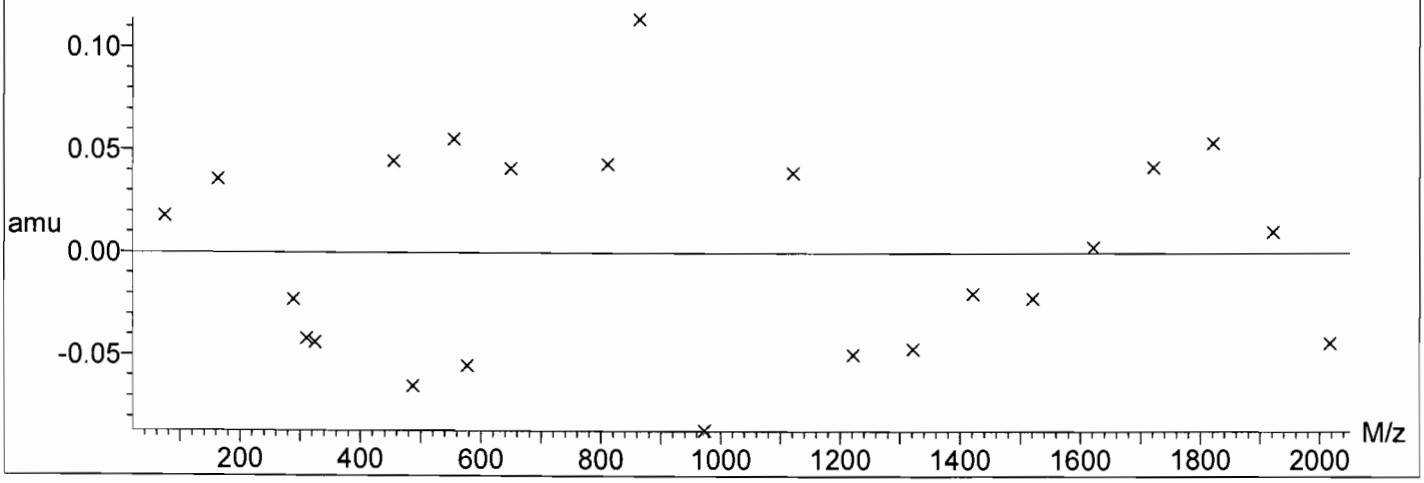
Data file: SCNMS1 - Calibrated 23 matches of 23 tested references



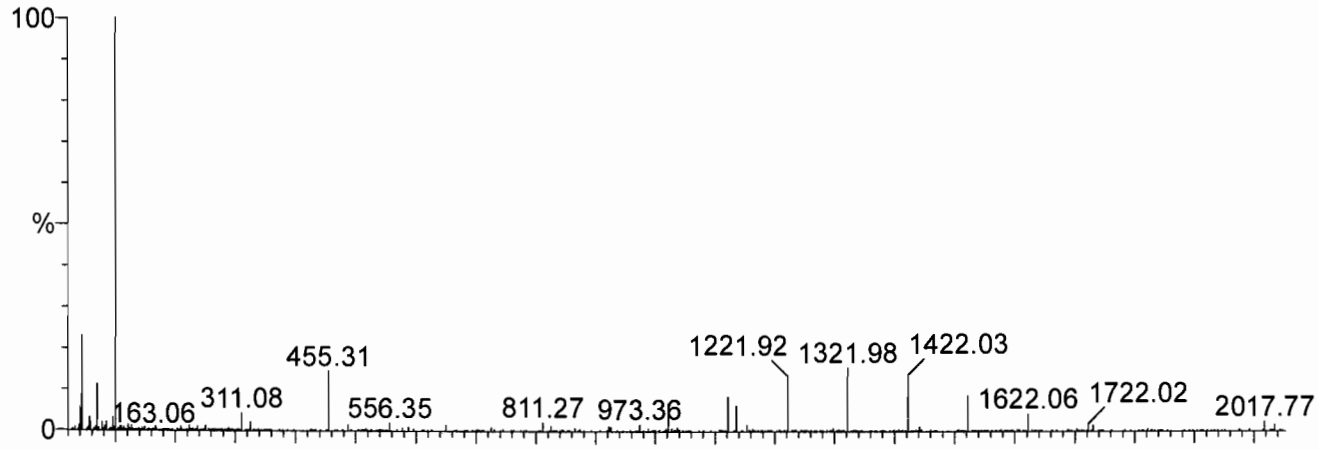
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0433 amu



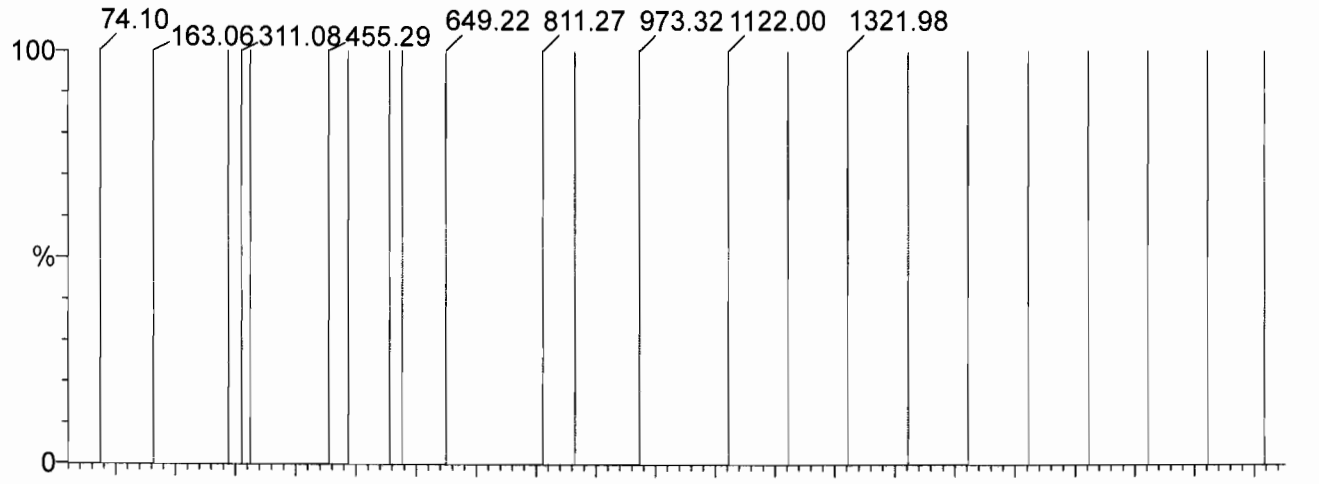
Residual Polynomial order = 4 RMS residual = 0.0492 amu



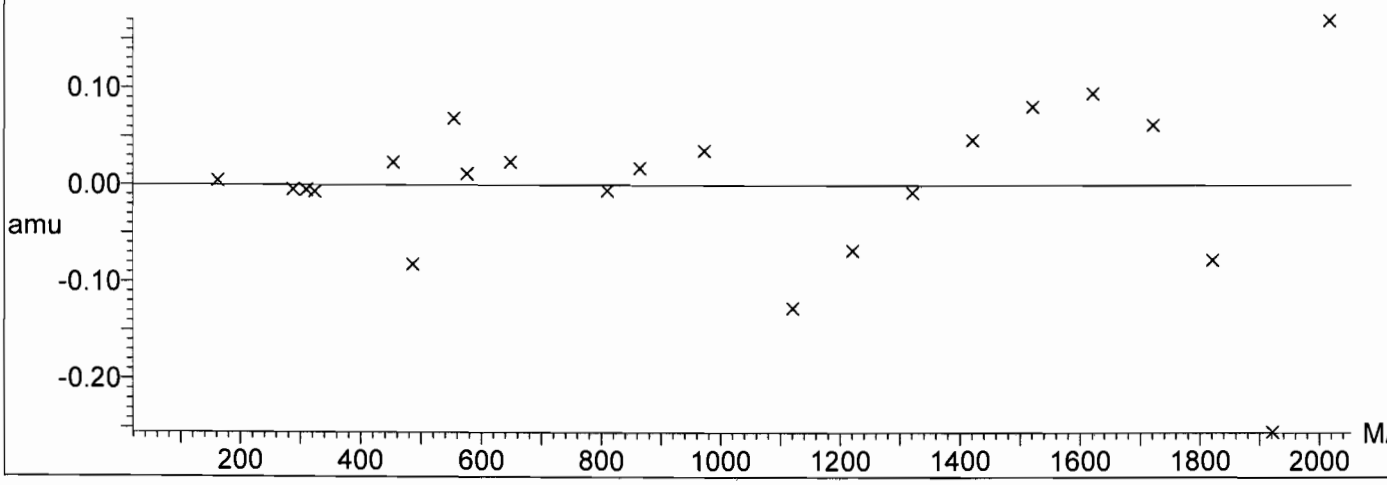
Data file: FASTMS1 - Calibrated 22 matches of 23 tested references



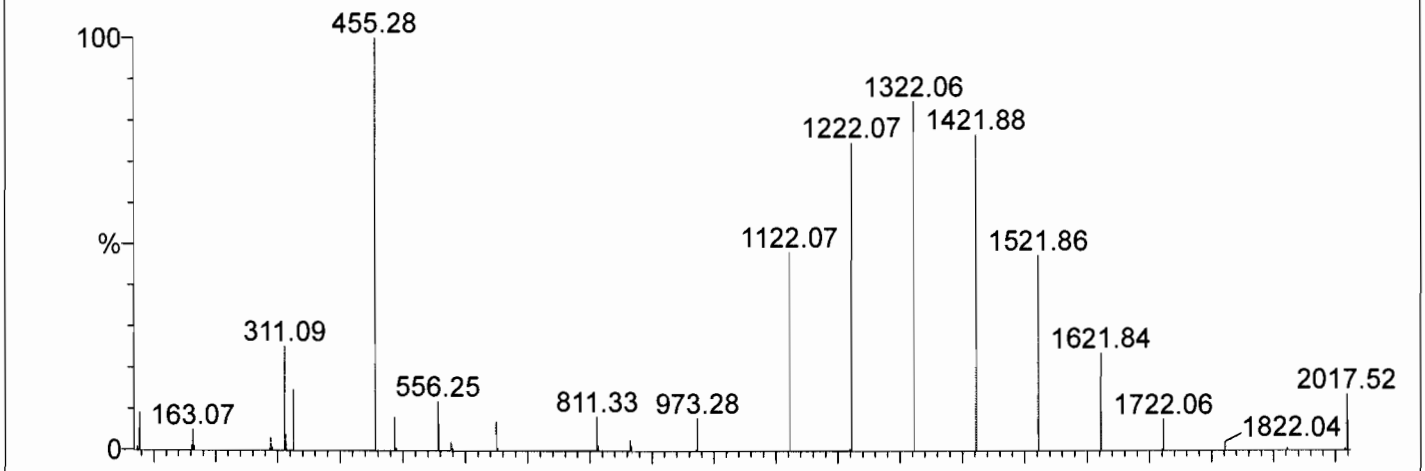
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0581 amu



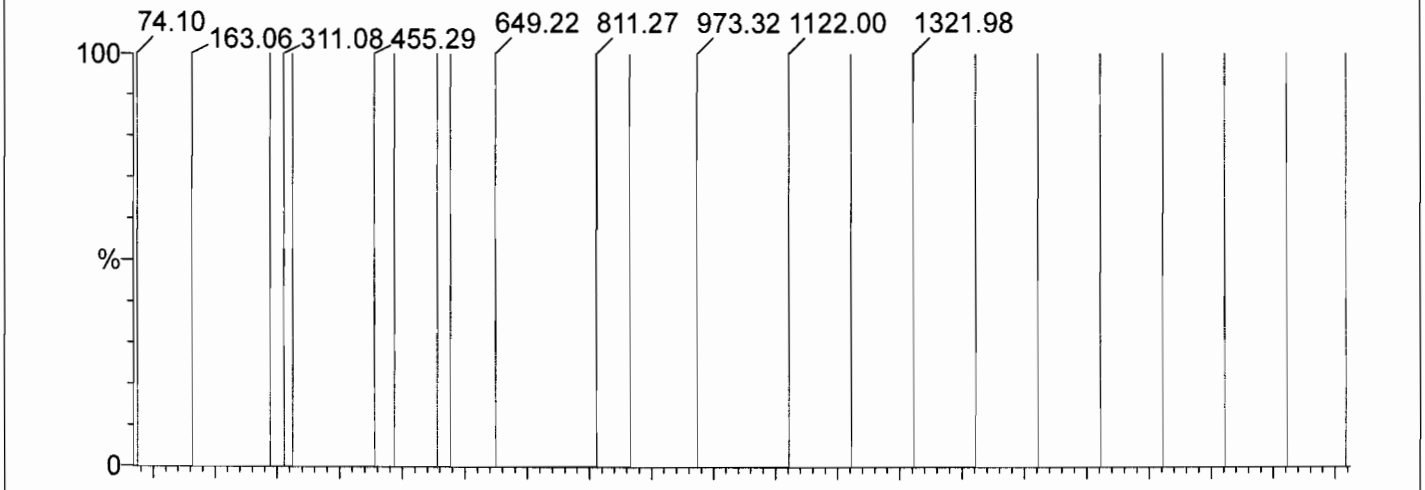
Residual Polynomial order = 4 RMS residual = 0.0843 amu



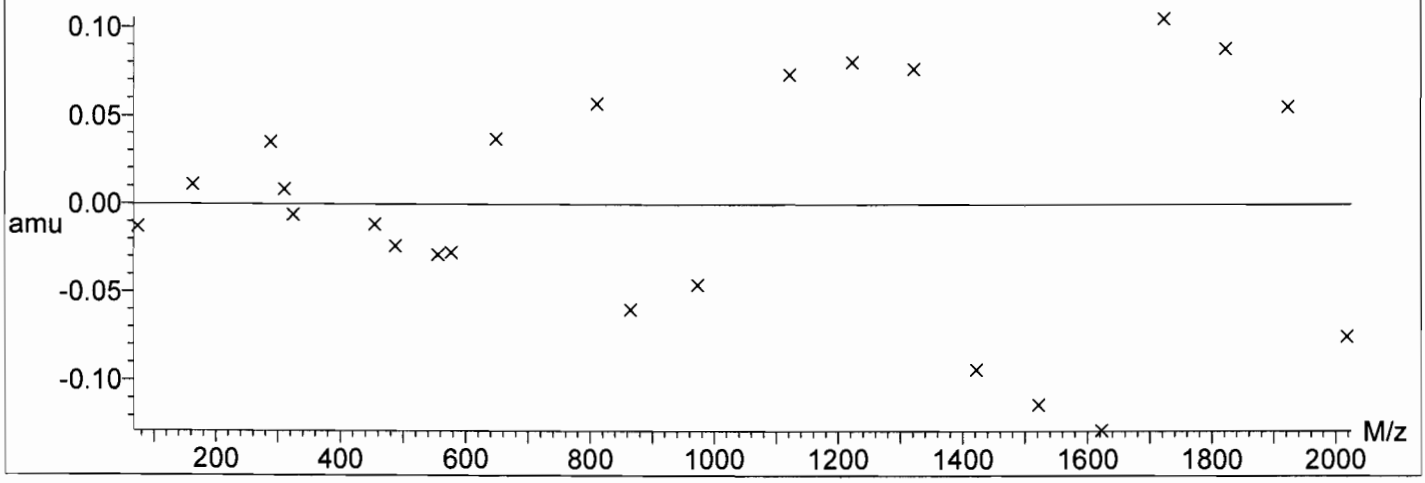
Data file: STATMS2 - Calibrated 23 matches of 23 tested references



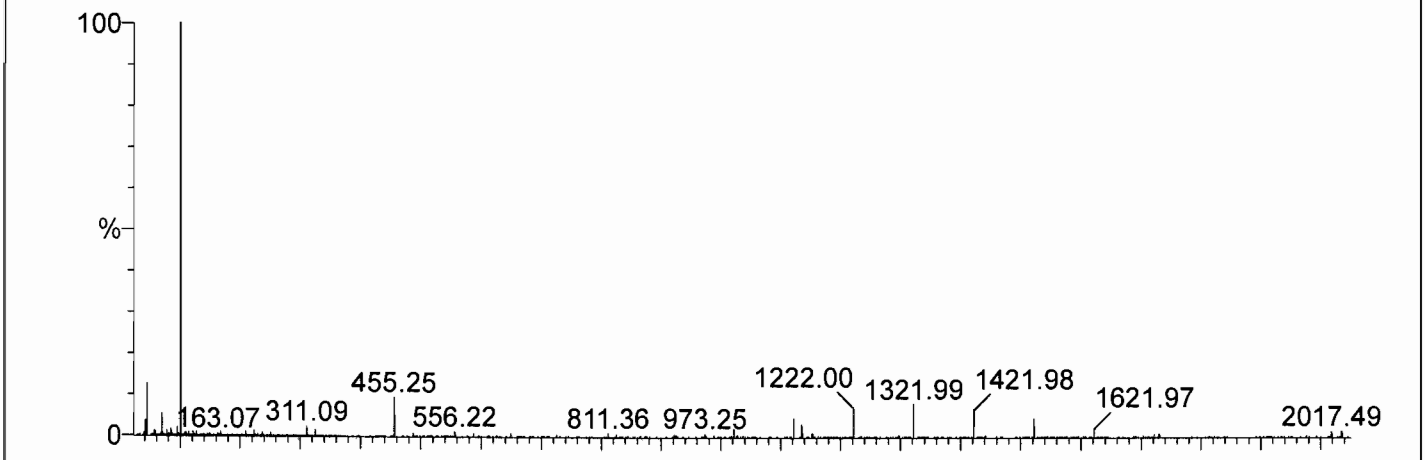
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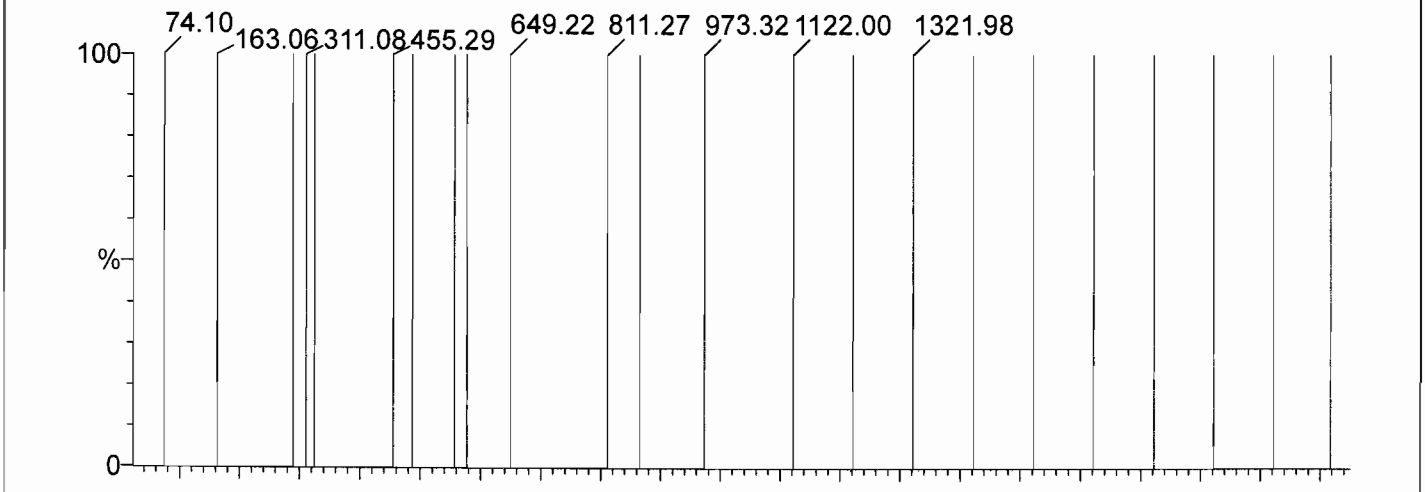
Residual Polynomial order = 4 RMS residual = 0.0651 amu



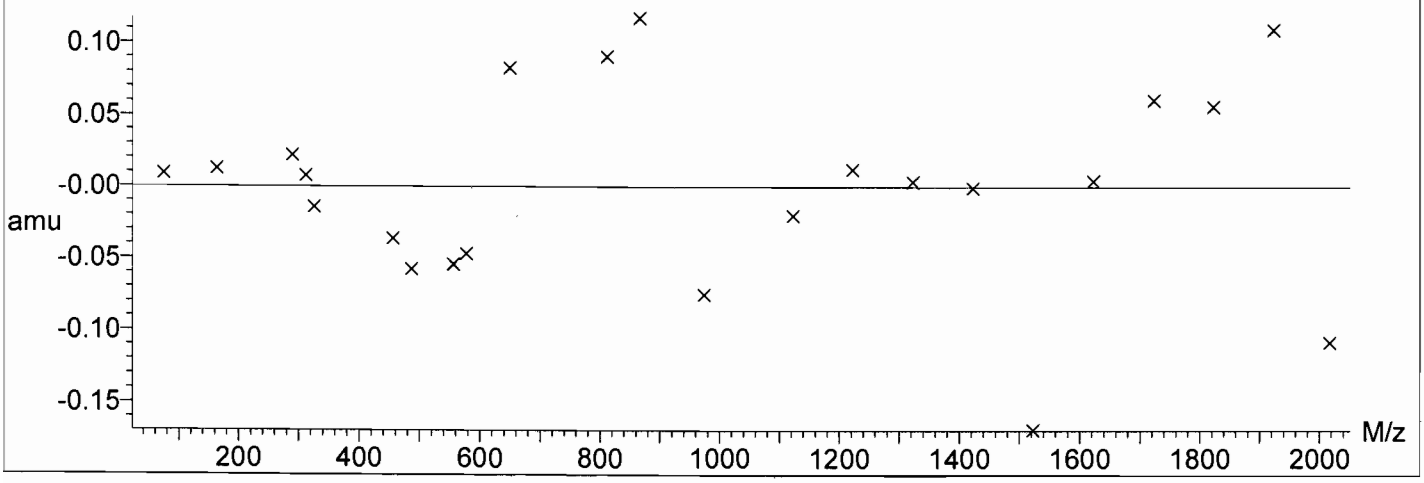
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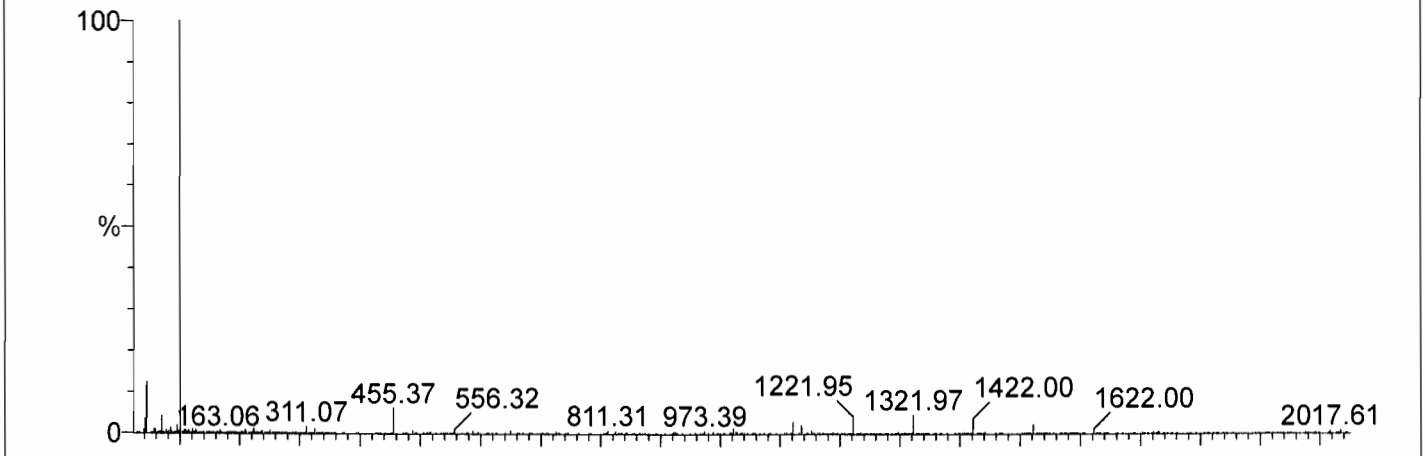
Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0508 amu



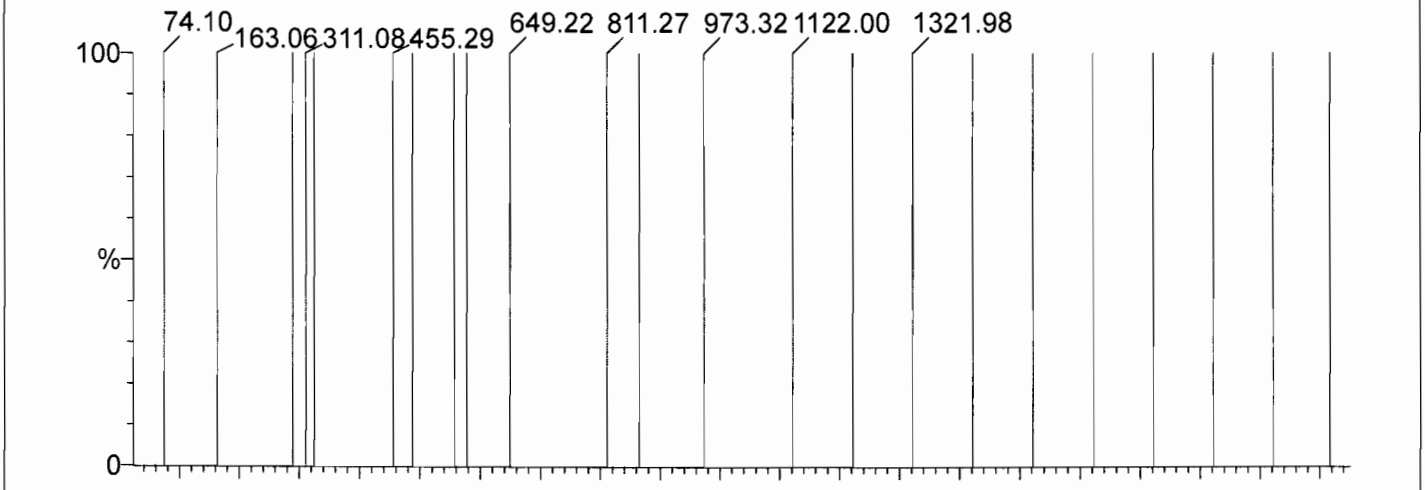
Residual Polynomial order = 4 RMS residual = 0.0675 amu



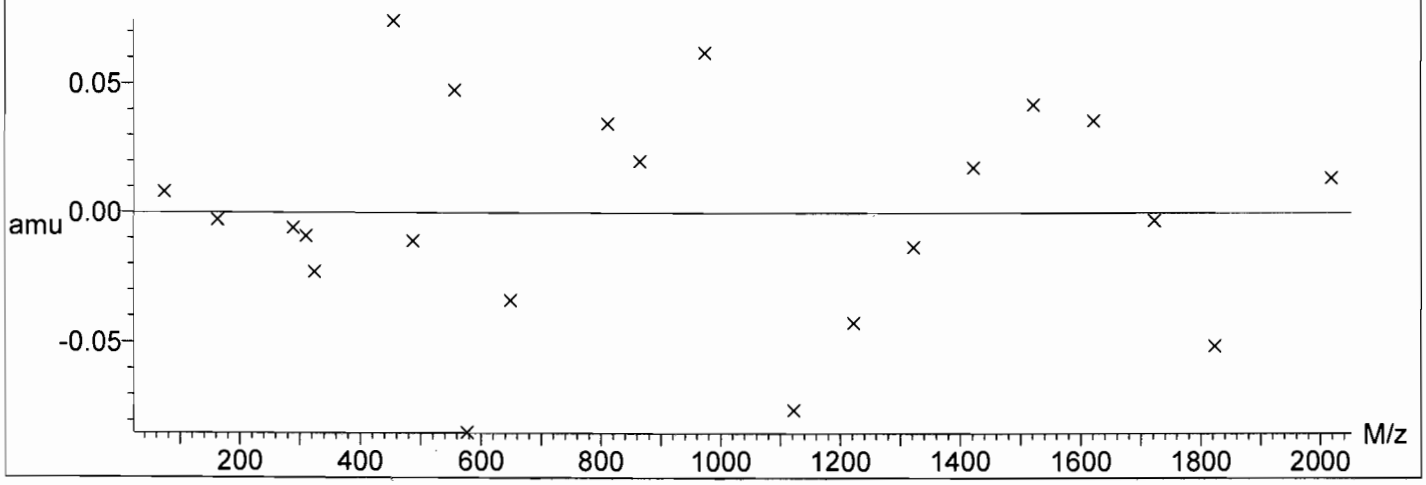
Data file: FASTMS2 - Calibrated 22 matches of 23 tested references



Reference: c:\masslynx\ref\ESI Calibration TQ ResCal.ref Mean residual = 0.0323 amu



Residual Polynomial order = 4 RMS residual = 0.0406 amu



Standards

Analytical Standard Record

Vista Analytical Laboratory

18D2004

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	(mls)
18A2908	13C2-PFHxA	29-Jan-18	** Vendor **	27-Sep-22	0.4
18B1503	13C2-6:2 FTS	15-Feb-18	** Vendor **	17-Feb-22	1.05
18B1504	13C2-8:2 FTS	15-Feb-18	** Vendor **	24-Jan-23	1.044
18B1505	13C3-PFBA	15-Feb-18	** Vendor **	27-May-21	1
18B1506	13C2-PFDA	15-Feb-18	** Vendor **	13-Jul-22	1
18B1507	13C2-PFUdA	15-Feb-18	** Vendor **	11-Nov-21	1
18B1508	13C2-PFTeDA	15-Feb-18	** Vendor **	30-Nov-22	1
18B1509	13C5-PFNA	15-Feb-18	** Vendor **	14-Dec-22	1
18B1510	13C2-PFDoA	15-Feb-18	** Vendor **	23-May-22	1
18B1511	13C4-PFHpA	15-Feb-18	** Vendor **	03-May-22	1
18B1512	13C2-PFOA	15-Feb-18	** Vendor **	26-Oct-22	1
18B1513	13C3-PFPeA	15-Feb-18	** Vendor **	20-Apr-22	1
18B1514	13C2-PFHxDA	15-Feb-18	** Vendor **	13-Jul-22	0.4
18B1515	d3-N-Me-FOSAA	15-Feb-18	** Vendor **	08-Nov-19	1
18B1516	d5-N-EtFOSAA	15-Feb-18	** Vendor **	08-Nov-22	1
18B1517	13C3-PFBS	15-Feb-18	** Vendor **	24-May-22	1.076
18B1518	18O2-PFHxS	15-Feb-18	** Vendor **	17-Feb-22	1.058
18B1520	13C8-PFOS	15-Feb-18	** Vendor **	08-Nov-22	1.05
18B1525	13C8-FOSA-I	15-Feb-18	** Vendor **	11-Oct-22	1
18C0910	13C2-4:2 FTS	09-Mar-18	** Vendor **	01-Sep-22	1.07

Description:	PFC - IS	Expires:	08-Nov-19
Standard Type:	Reagent	Prepared:	20-Apr-18
Solvent:	MeOH	Prepared By:	Giana R. Bilotta
Final Volume (mls):	40	Department:	LCMS
Vials:	1	Last Edit:	20-Apr-18 10:40 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

18D2004

Description:	PFC - IS	Expires:	08-Nov-19
Standard Type:	Reagent	Prepared:	20-Apr-18
Solvent:	MeOH	Prepared By:	Giana R. Bilotta
Final Volume (mls):	40	Department:	LCMS
Vials:	1	Last Edit:	20-Apr-18 10:40 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

18A2908

WELLINGTON LABORATORIES

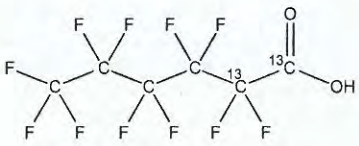
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

18A2908

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).

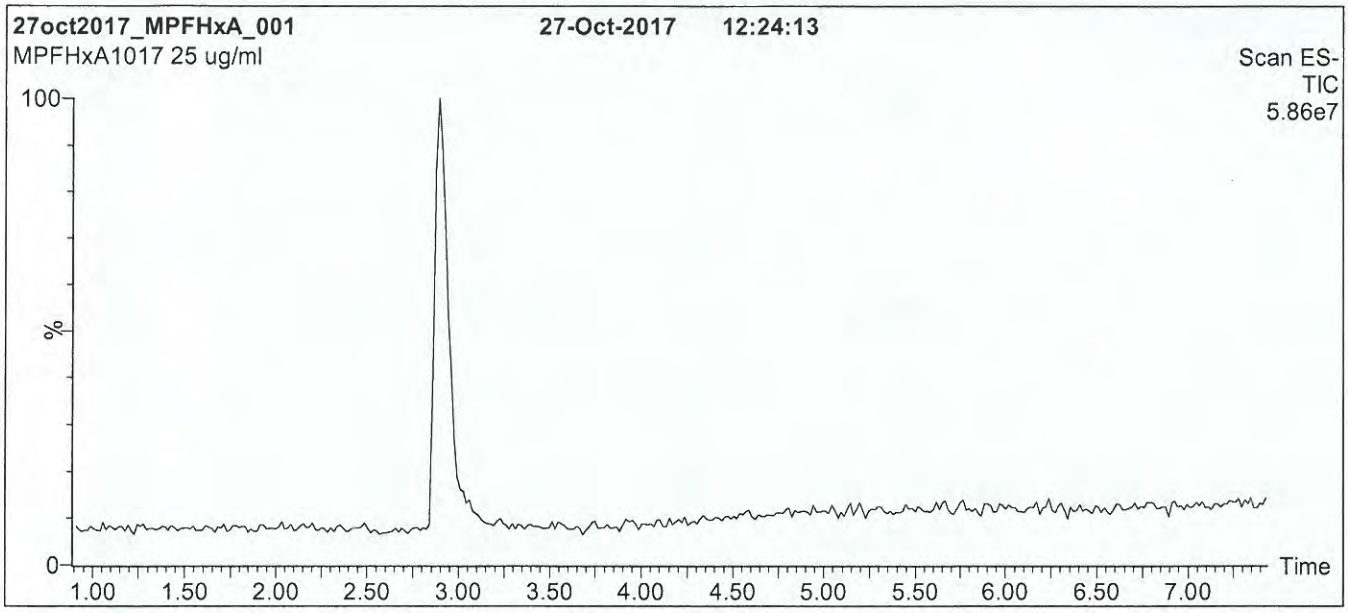
CALA Testing Accreditation No. A 1226

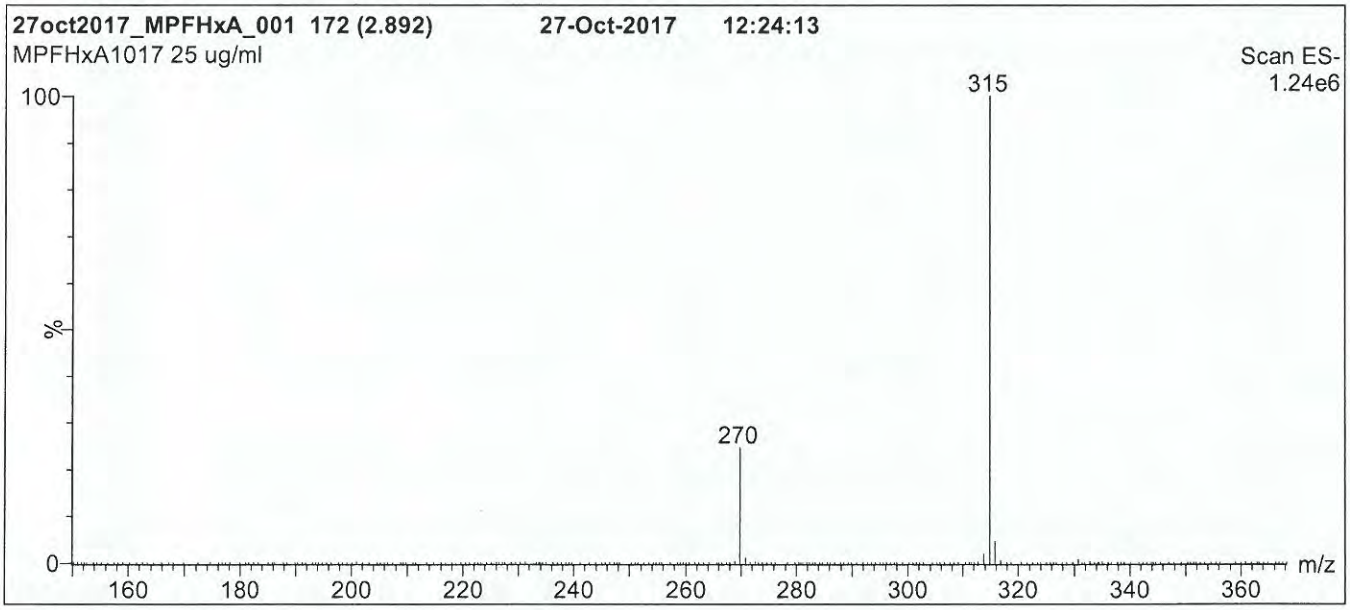
ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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18A2908

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

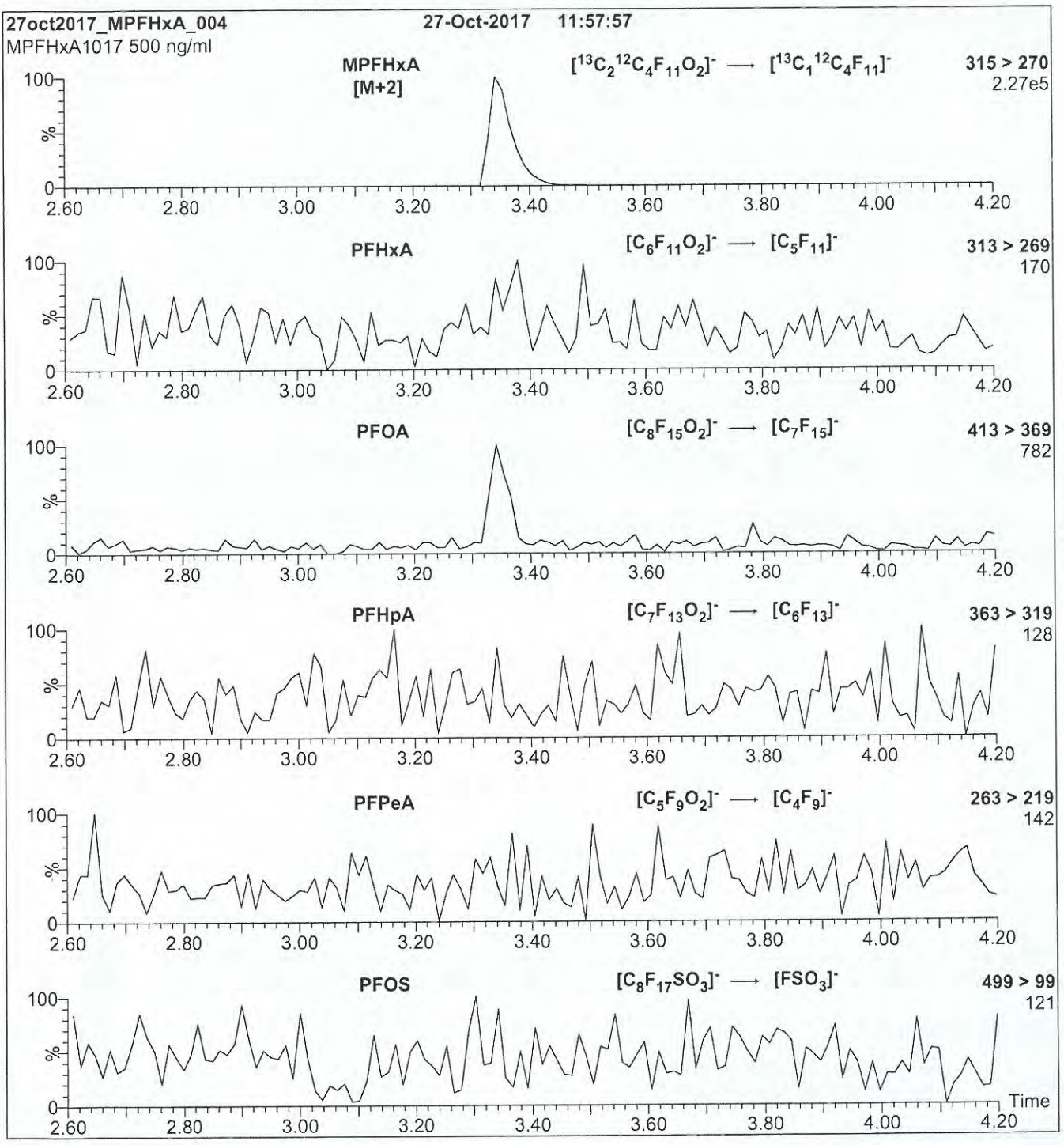
MS Parameters

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

18A2908

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

1881503

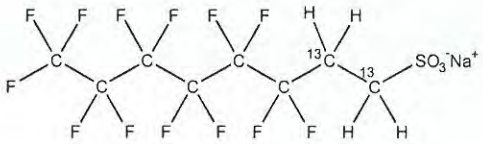
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M2-6:2FTS **LOT NUMBER:** M262FTS0217

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)	02/17/2017		
EXPIRY DATE: (mm/dd/yyyy)	02/17/2022		
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 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: B.G. Chittim **Date:** 02/24/2017 (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

18B1503

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.

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.

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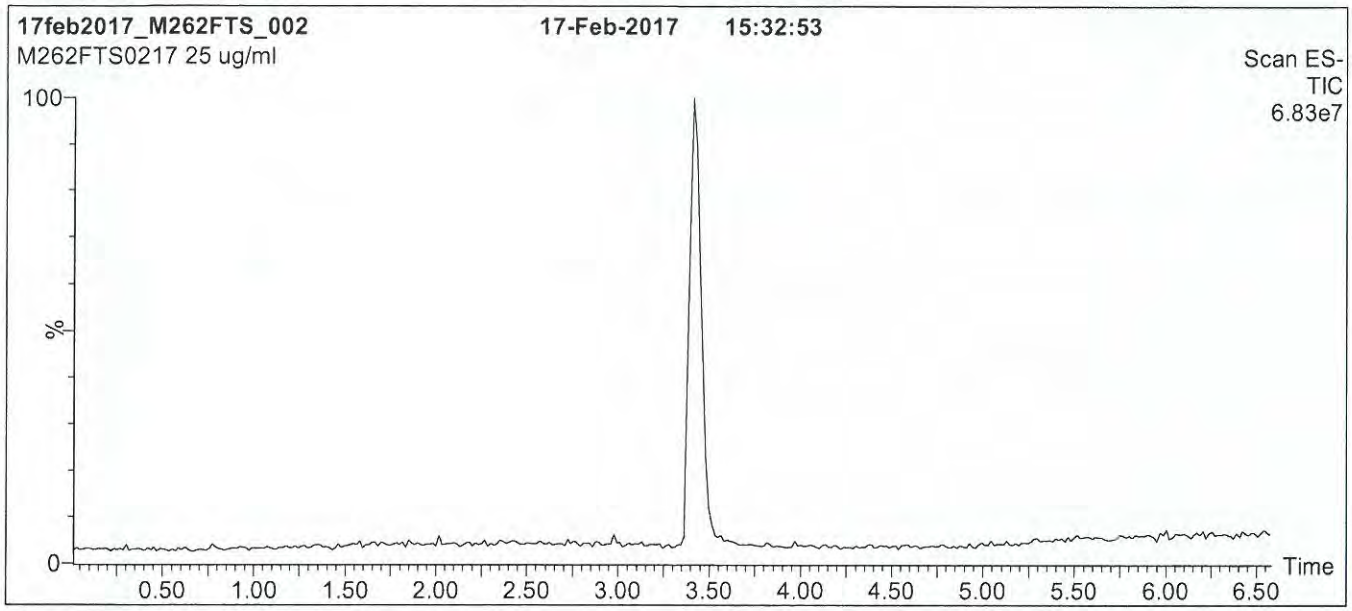
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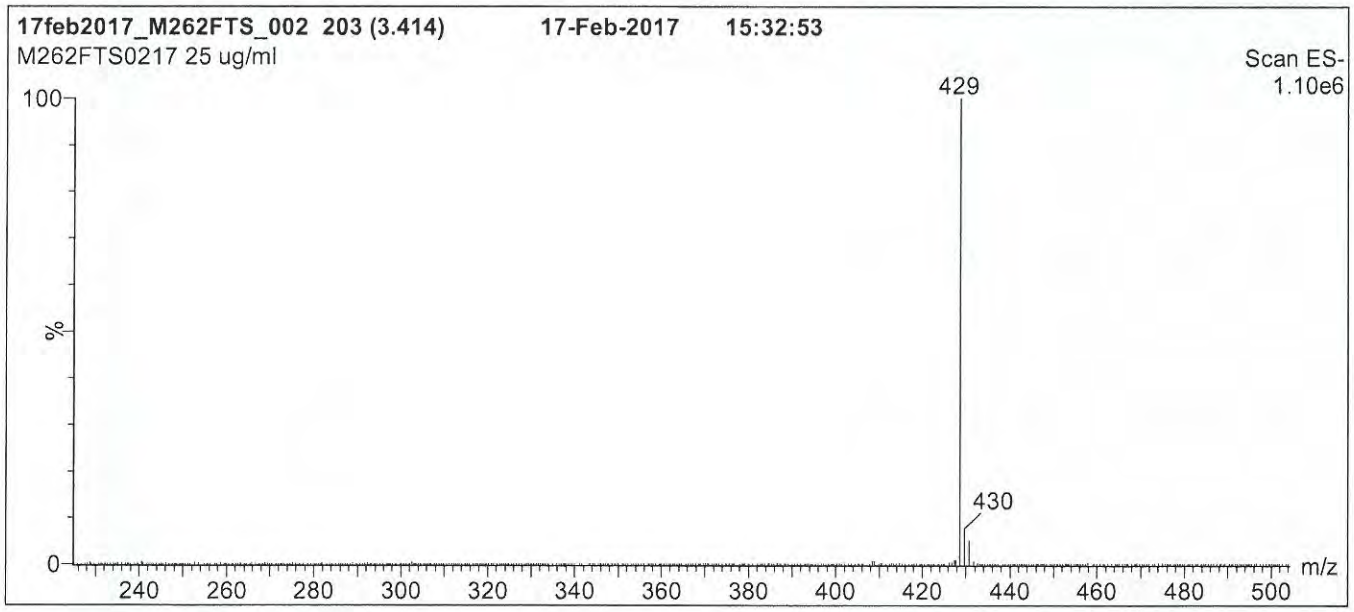
ANAB ACCREDITED

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

18B1503

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 8 min and hold for 1 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 µl/min

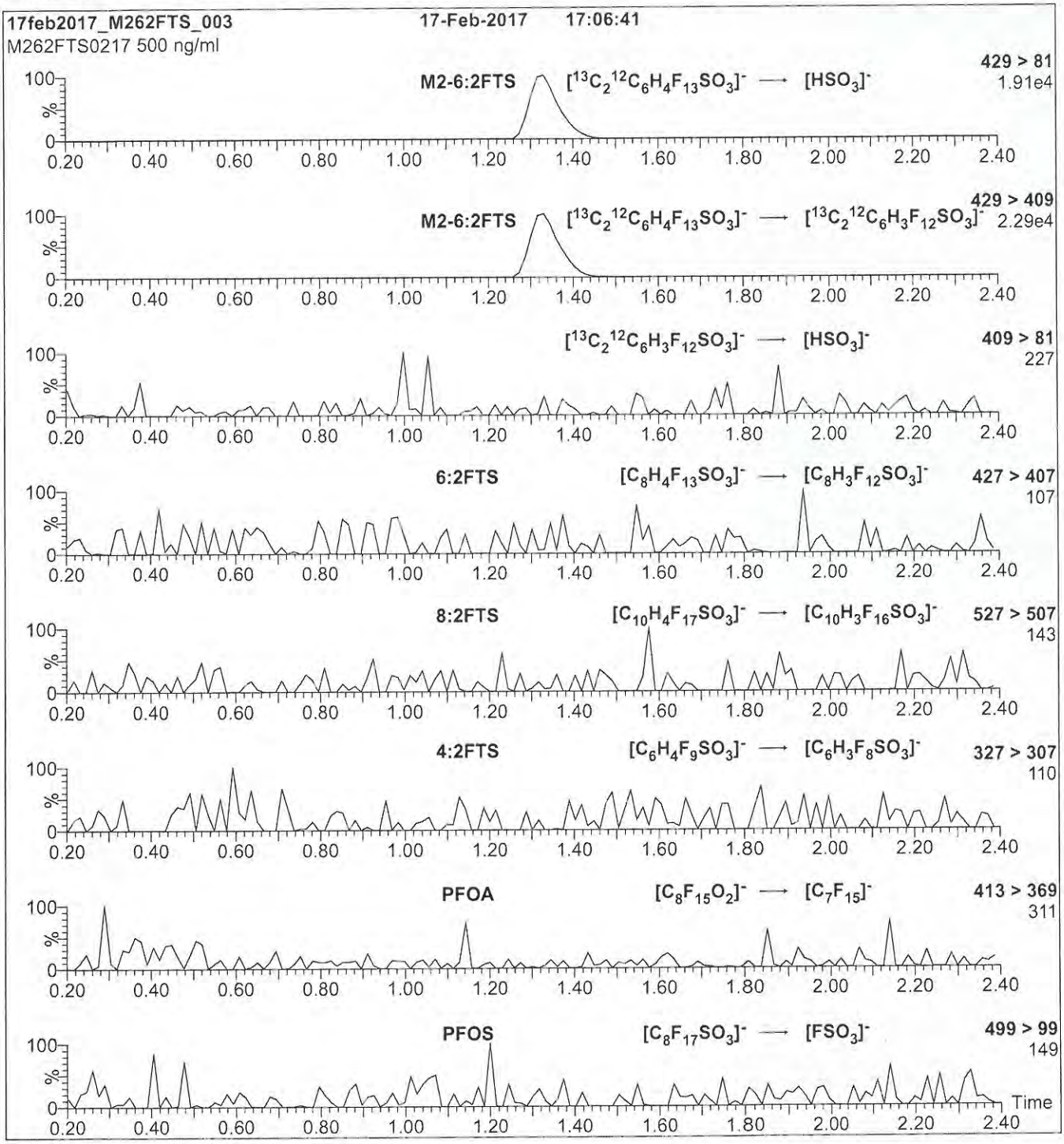
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source:Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 30.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

1801503

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

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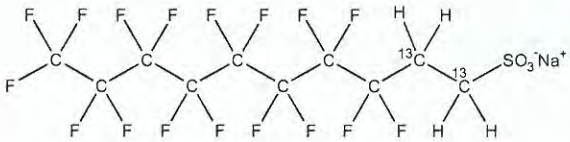
WELLINGTON LABORATORIES

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

18B1504

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:

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QUALITY MANAGEMENT:

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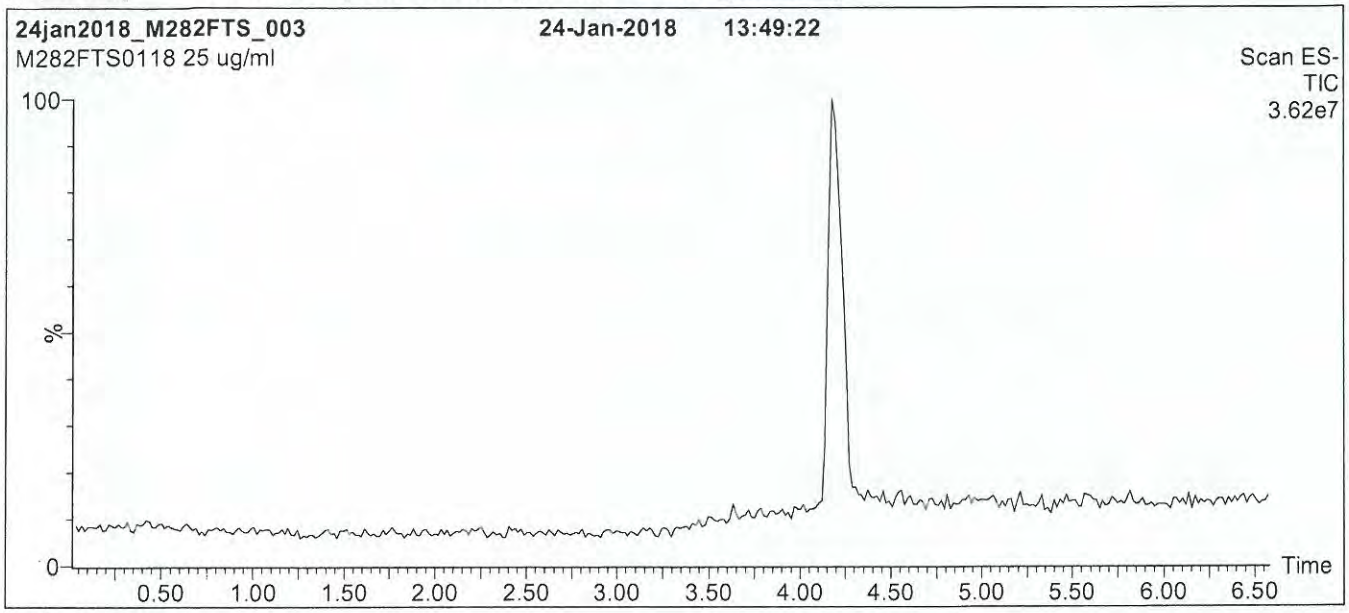
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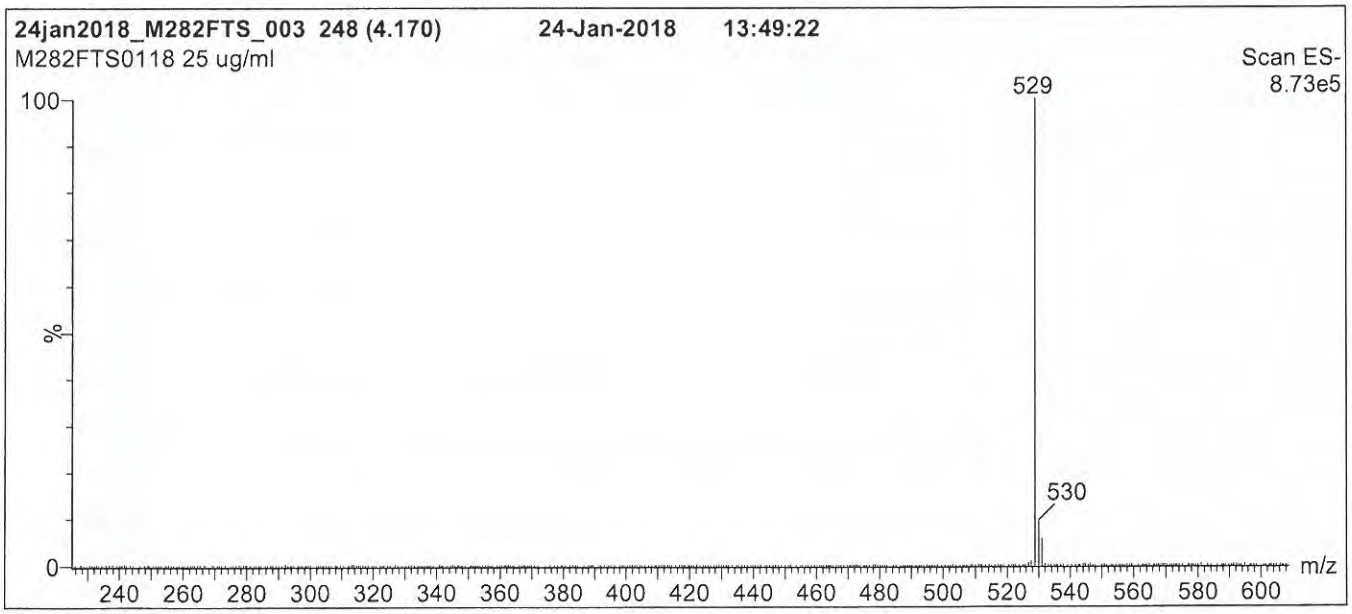
ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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18B1504

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

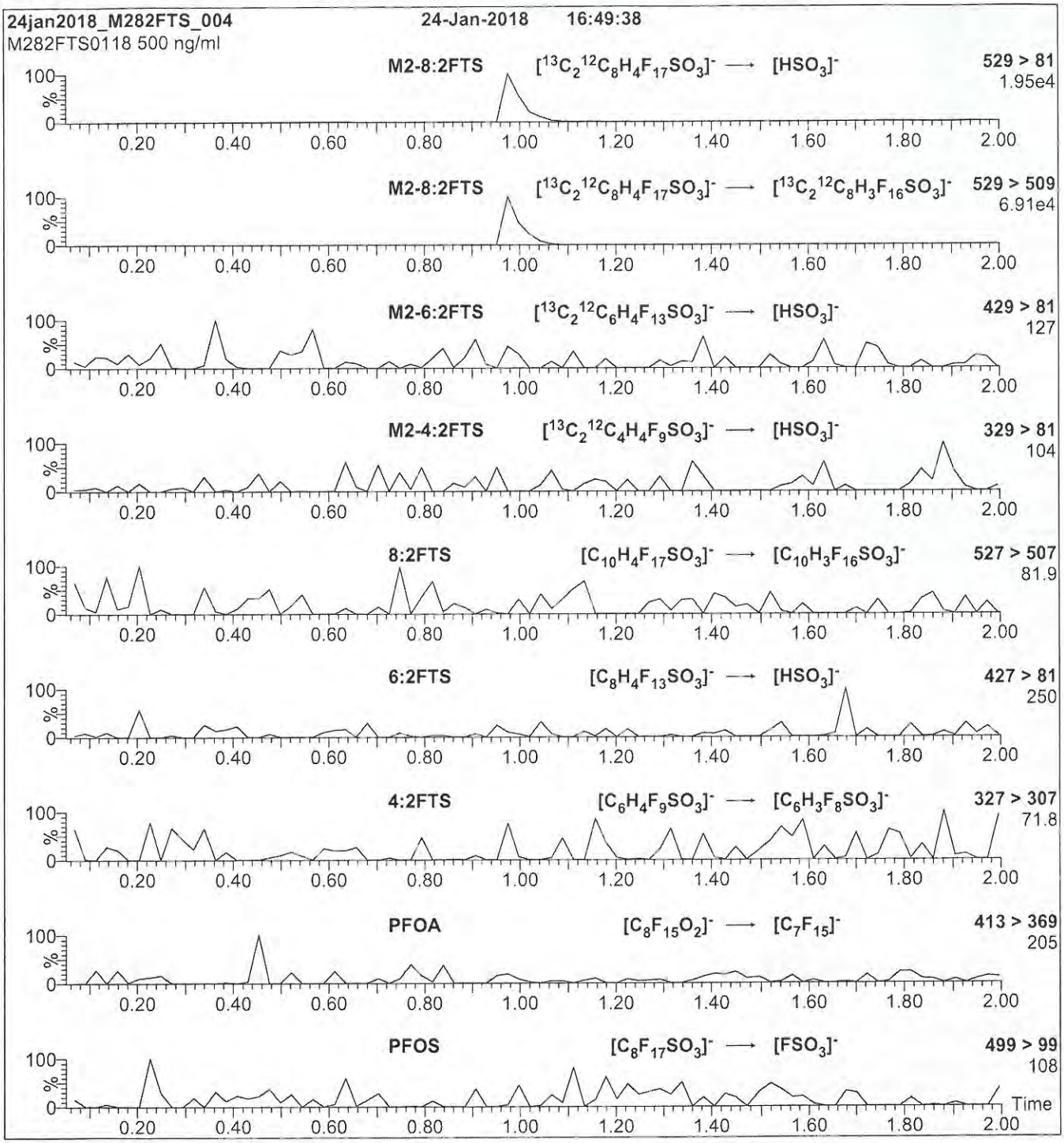
MS Parameters

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

18B1504

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

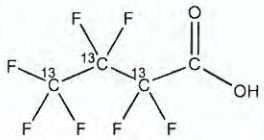
Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 25

18B1505

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	M3PFBA	**LOT NUMBER:**	M3PFBA0516
COMPOUND:	Perfluoro-n-[2,3,4-$^{13}C_3$]butanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}CHF_7O_2$	**MOLECULAR WEIGHT:**	217.02
CONCENTRATION:	50 ± 2.5 µg/ml	**SOLVENT(S):**	Methanol Water (<1%)
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	≥99% ^{13}C (2,3,4-$^{13}C_3$)
LAST TESTED: (mm/dd/yyyy)	05/27/2016		
EXPIRY DATE: (mm/dd/yyyy)	05/27/2021		
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.
- 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: B.G. Chittim **Date:** 07/08/2016 (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

18B1505

INTENDED USE:

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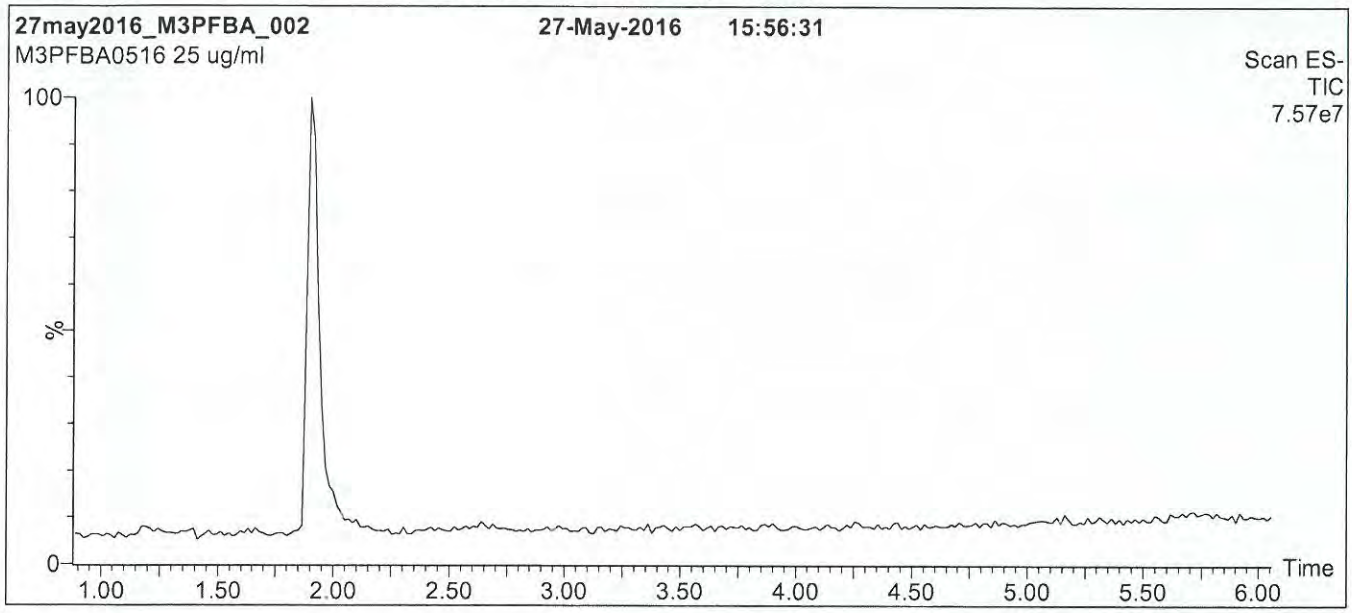
CALA

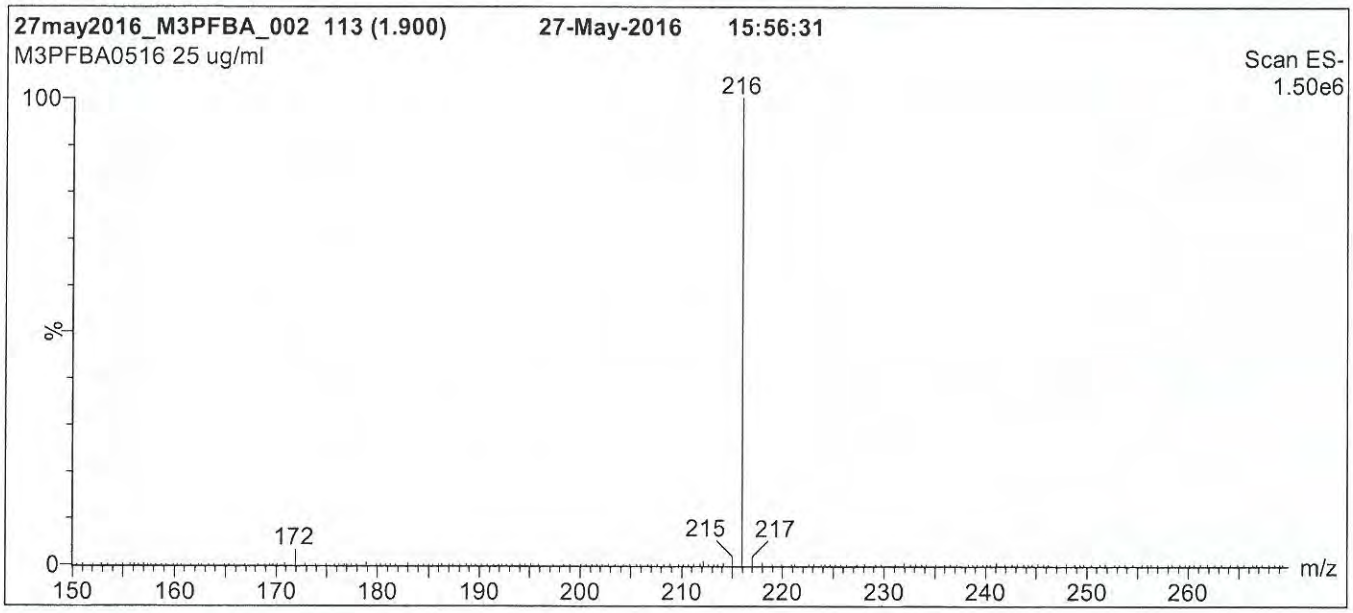
ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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18B1505

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

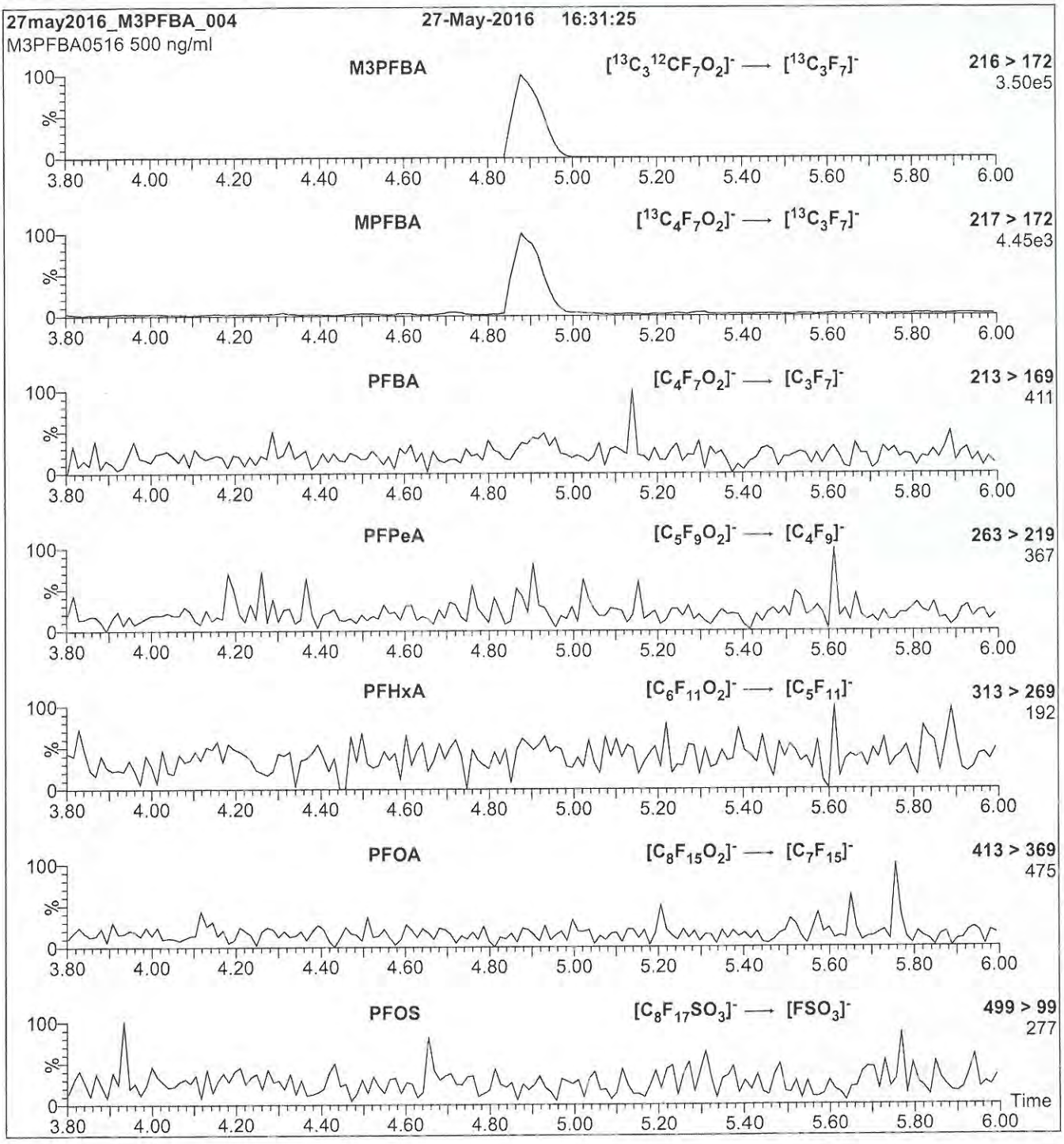
MS Parameters

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

18B1505

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) = 3.62e-3
Collision Energy (eV) = 10

18B1506

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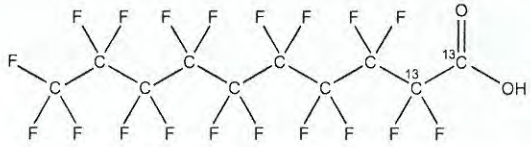
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFDA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]decanoic acid

LOT NUMBER: MPFDA0717

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)	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 < 0.1% of $^{13}C_1$-PFNA.

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

1881506

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).

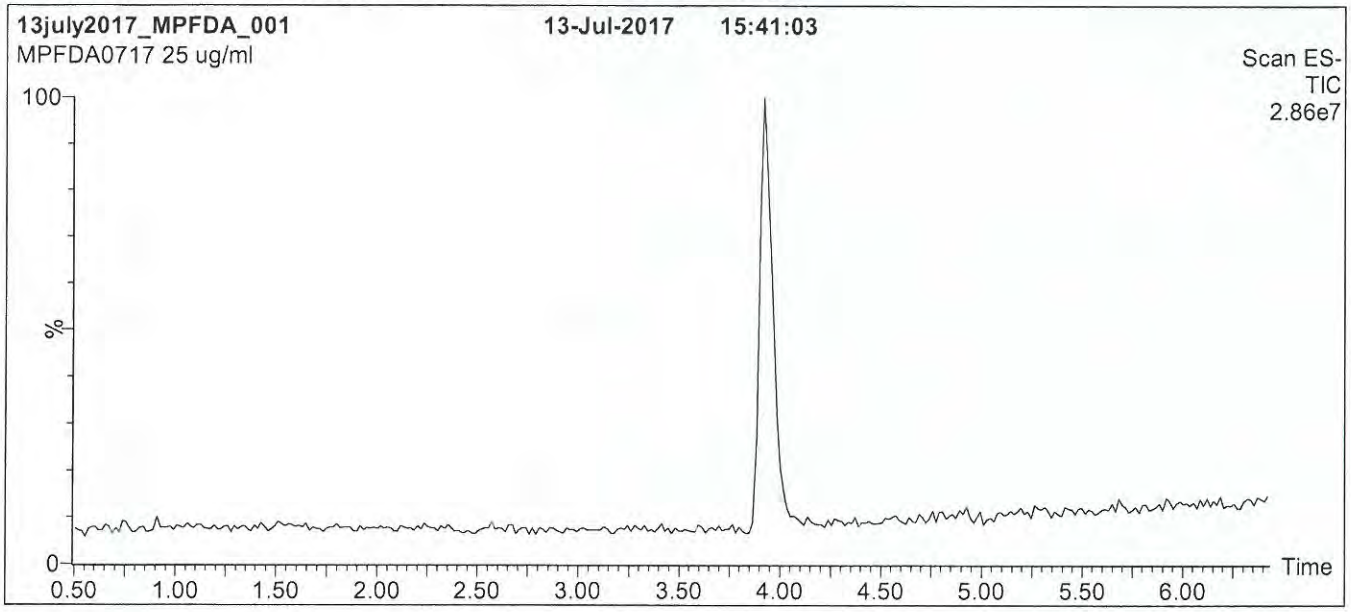
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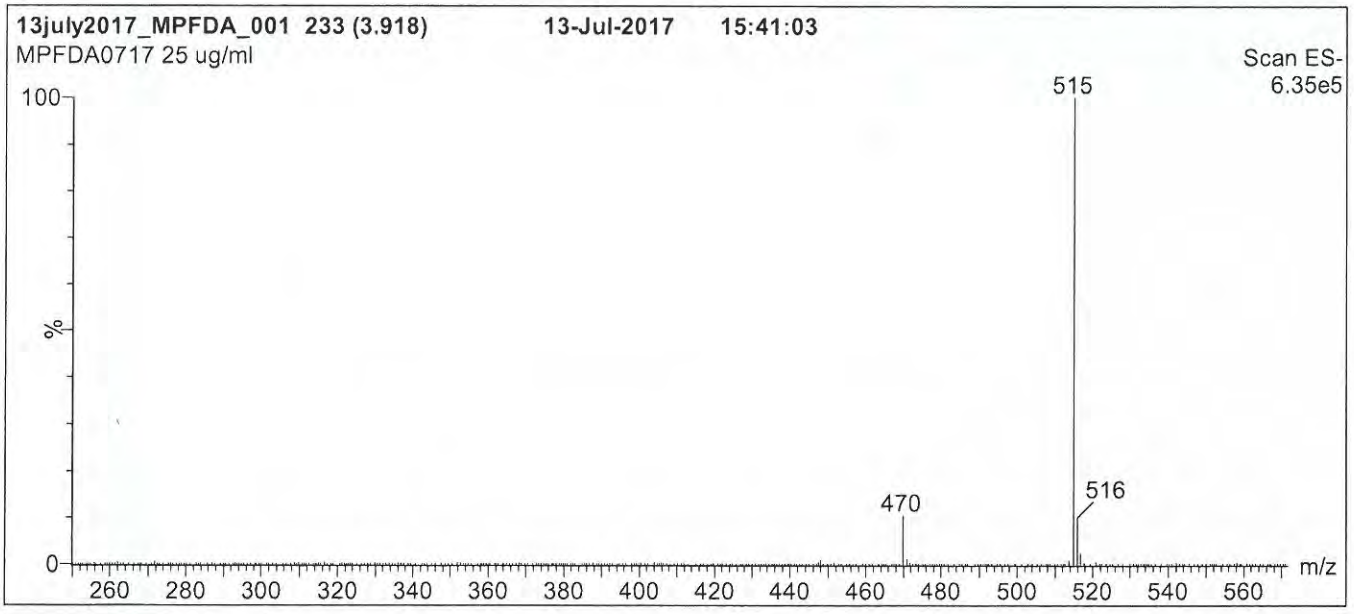
ANAB ACCREDITED

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18B1506

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: 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

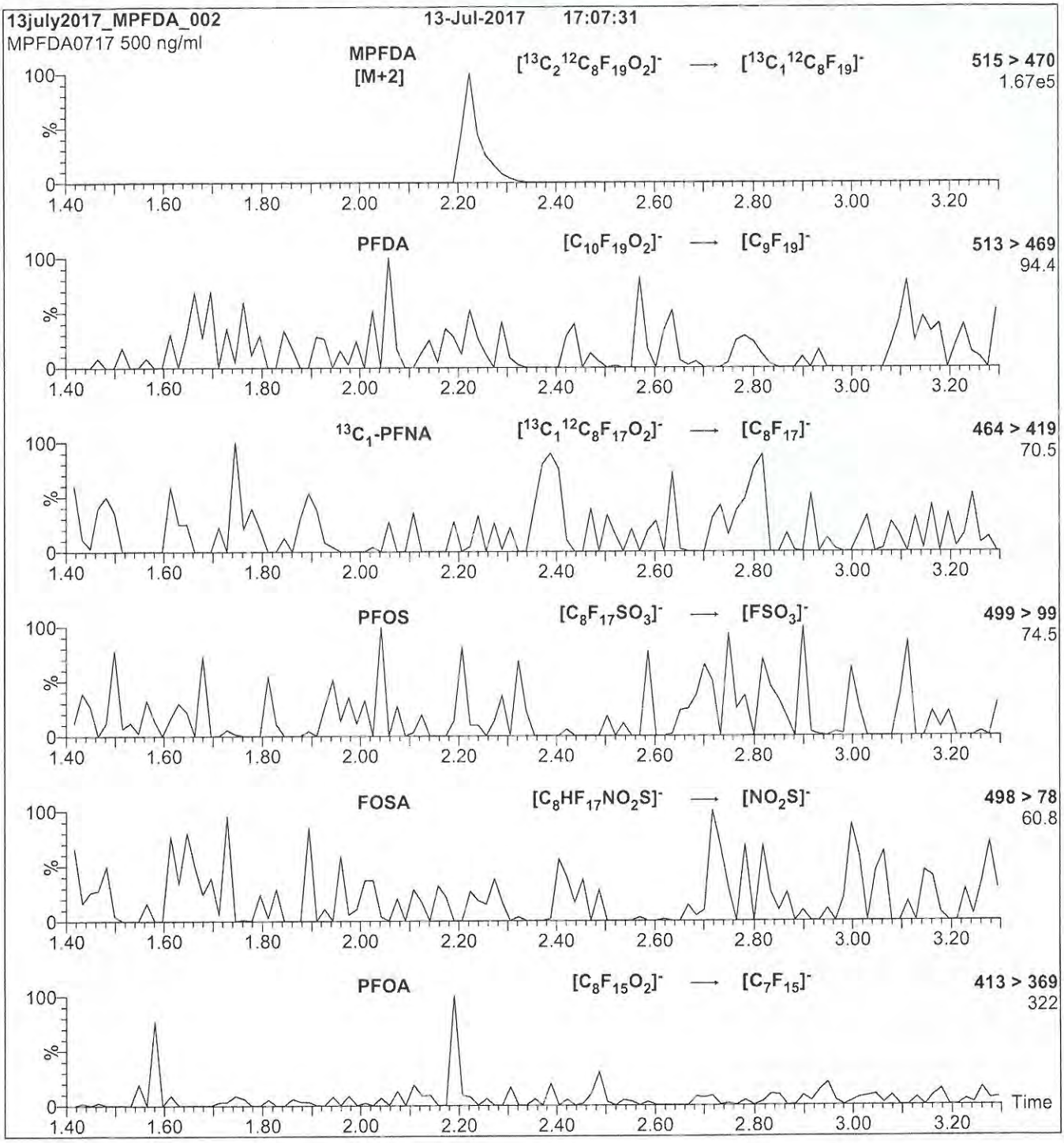
MS Parameters

Experiment: Full Scan (250 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

1801506

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) = 3.17e-3
Collision Energy (eV) = 13

18B1507

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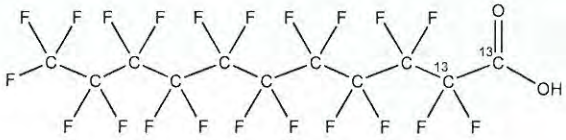
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: MPFUdA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]undecanoic acid

LOT NUMBER: MPFUdA1116

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 ($1,2\text{-}^{13}C_2$)
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

1881507

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.

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).

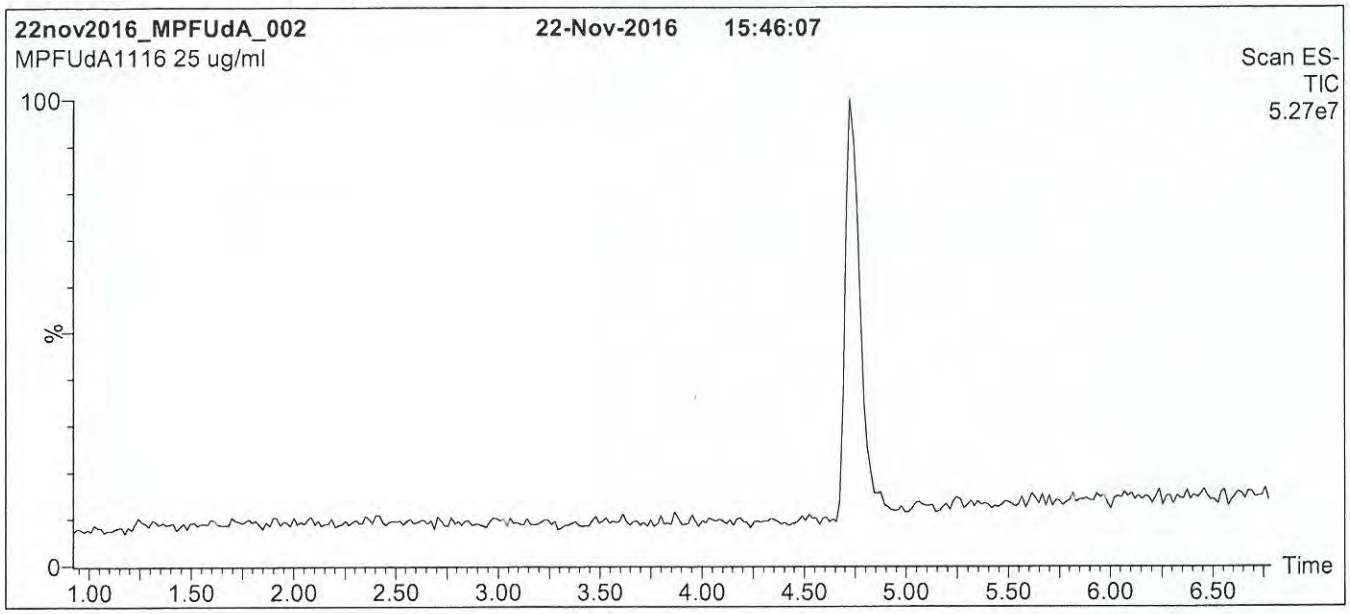
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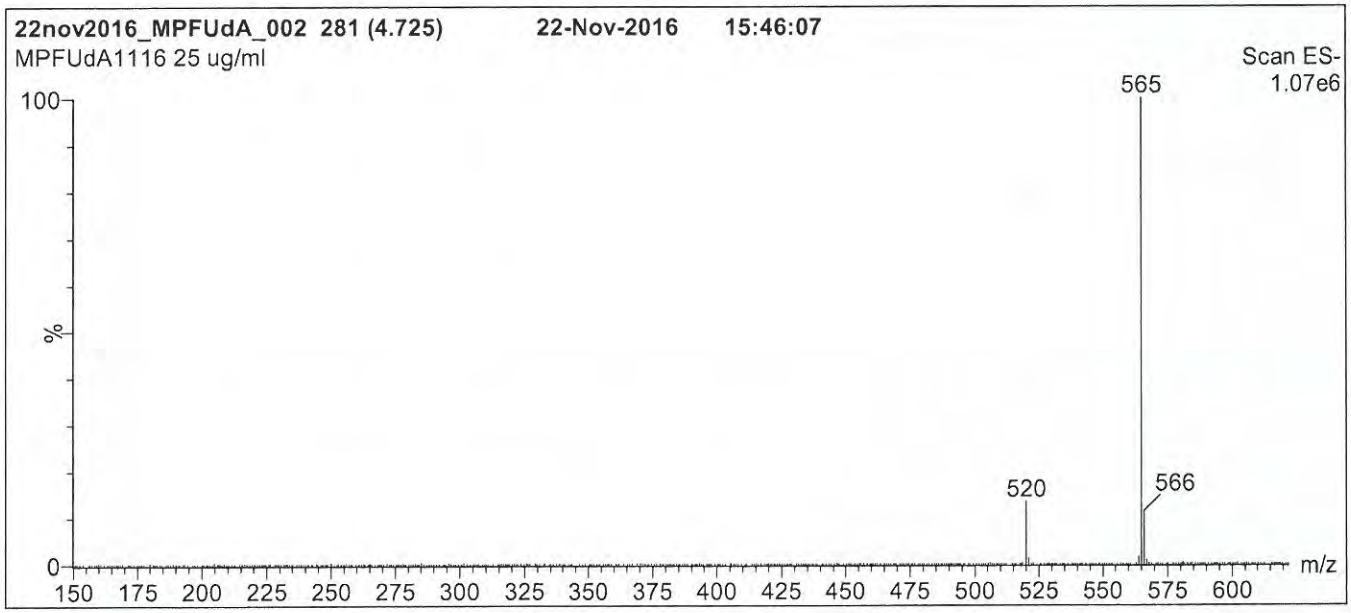
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18B1507

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

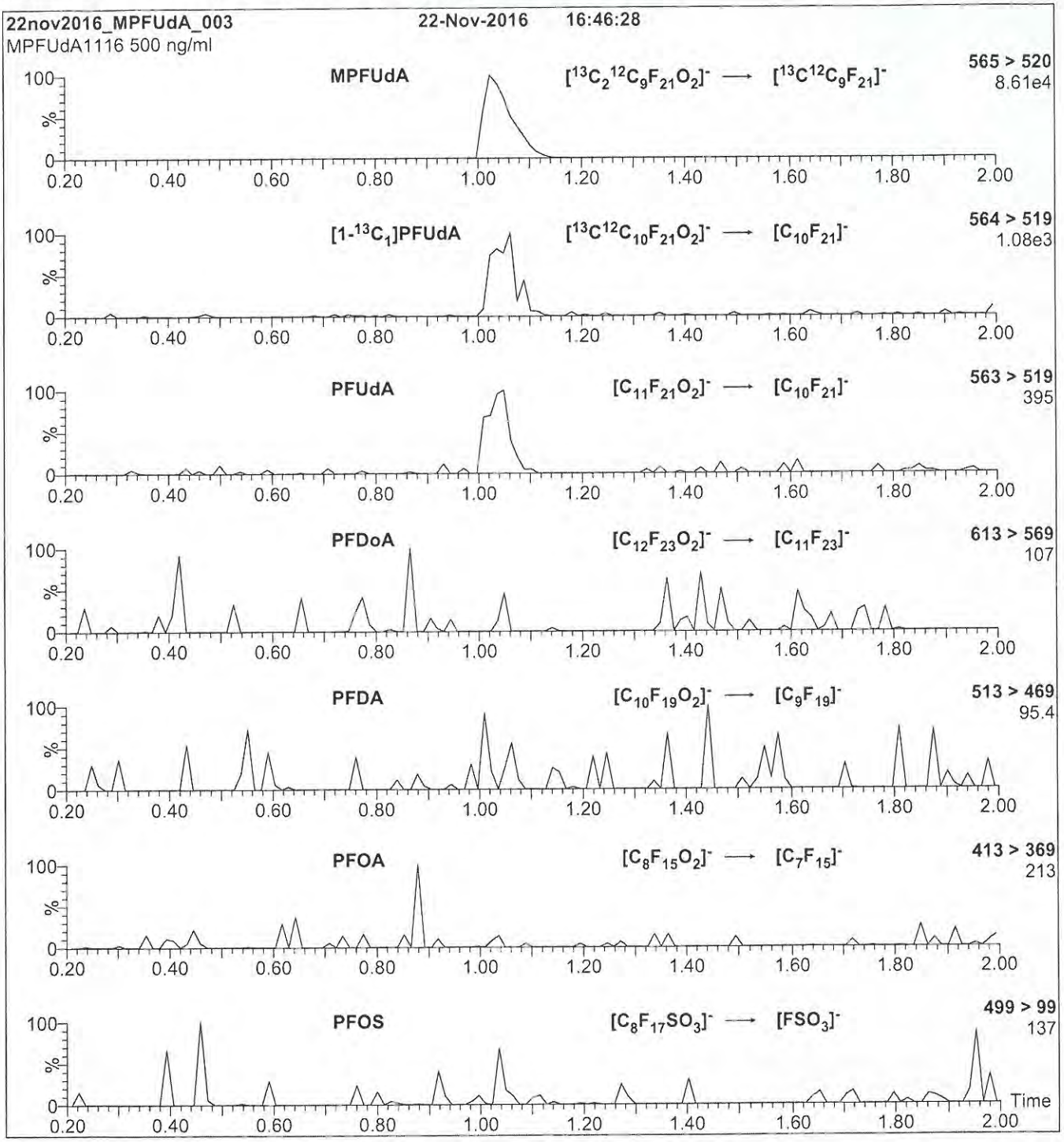
MS Parameters

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

1881507

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

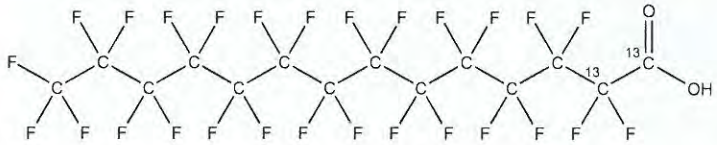
Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 11

18B1508

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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

1801508

INTENDED USE:

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TRACEABILITY:

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EXPIRY DATE / PERIOD OF VALIDITY:

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QUALITY MANAGEMENT:

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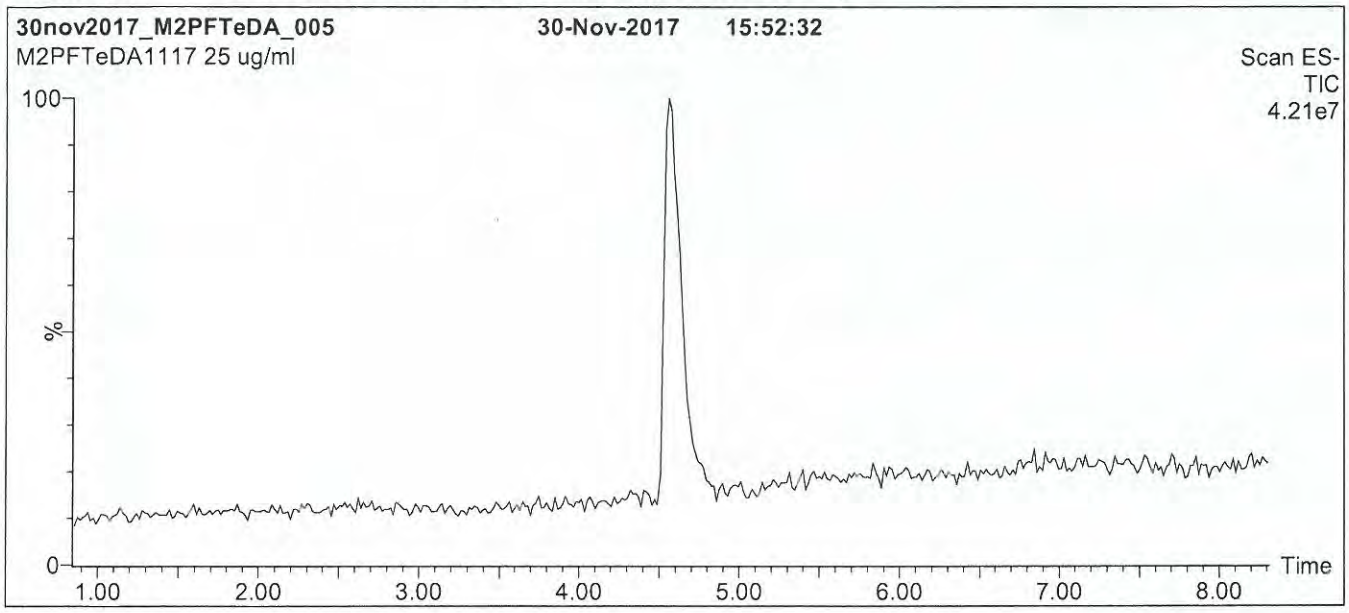
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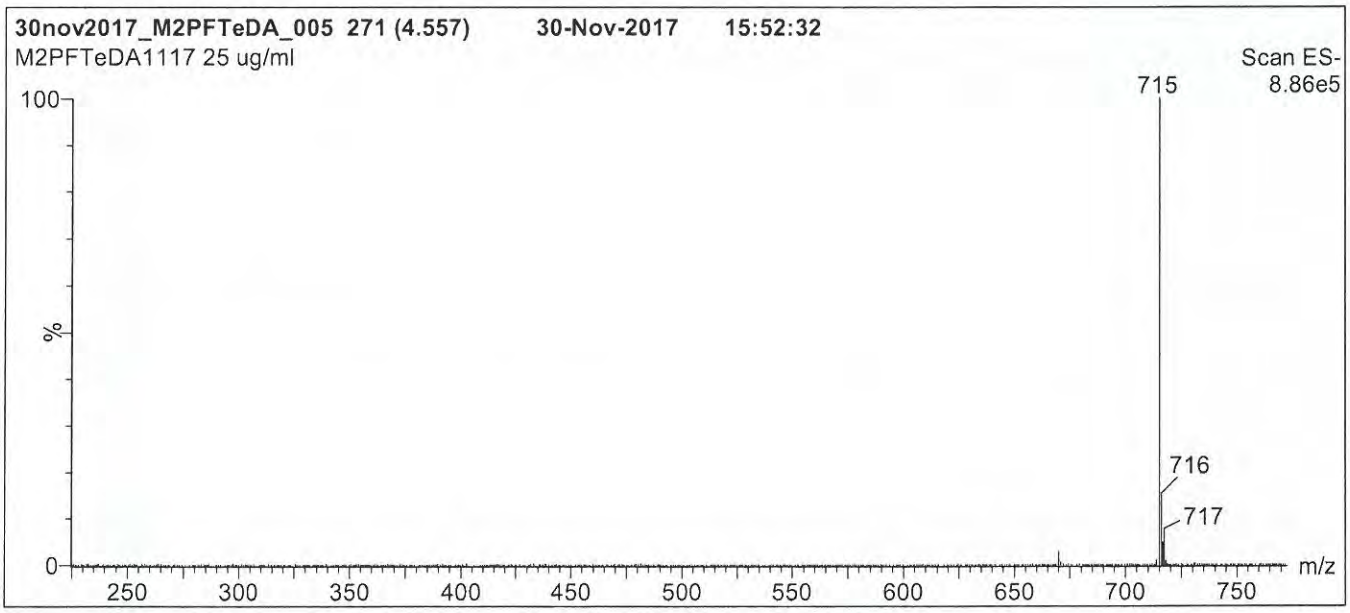
ANAB ACCREDITED

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18B1508

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

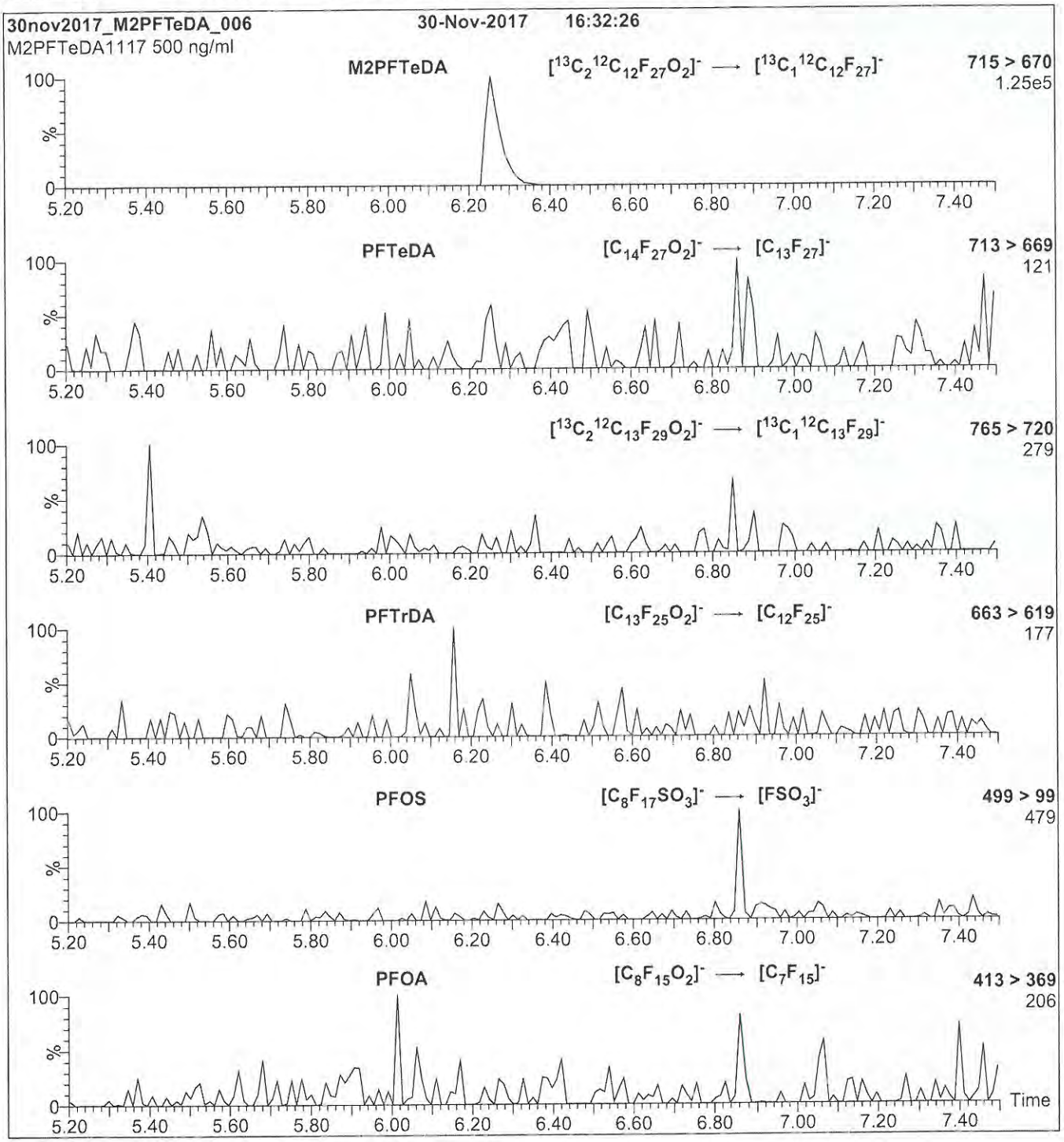
MS Parameters

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

18B1508

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

18B1509

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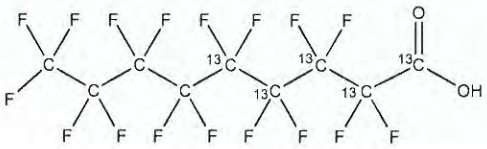
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFNA
COMPOUND: Perfluoro-n-[1,2,3,4,5-$^{13}C_5$]nonanoic acid

LOT NUMBER: MPFNA1217

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

18B1509

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).

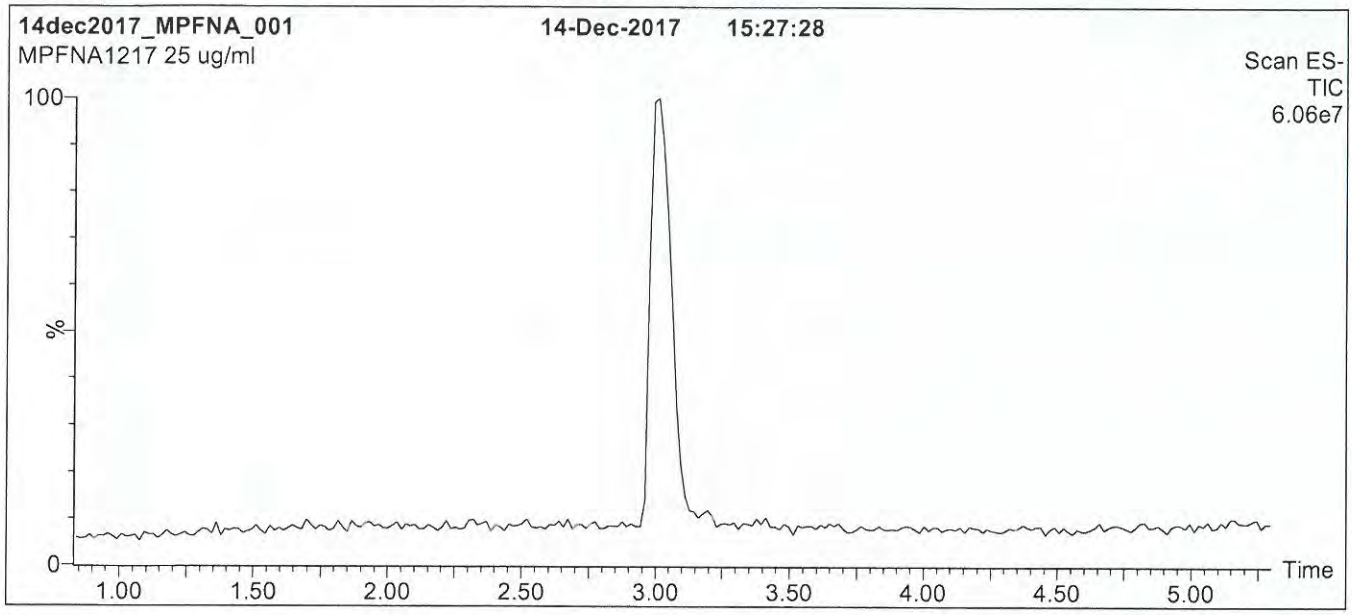
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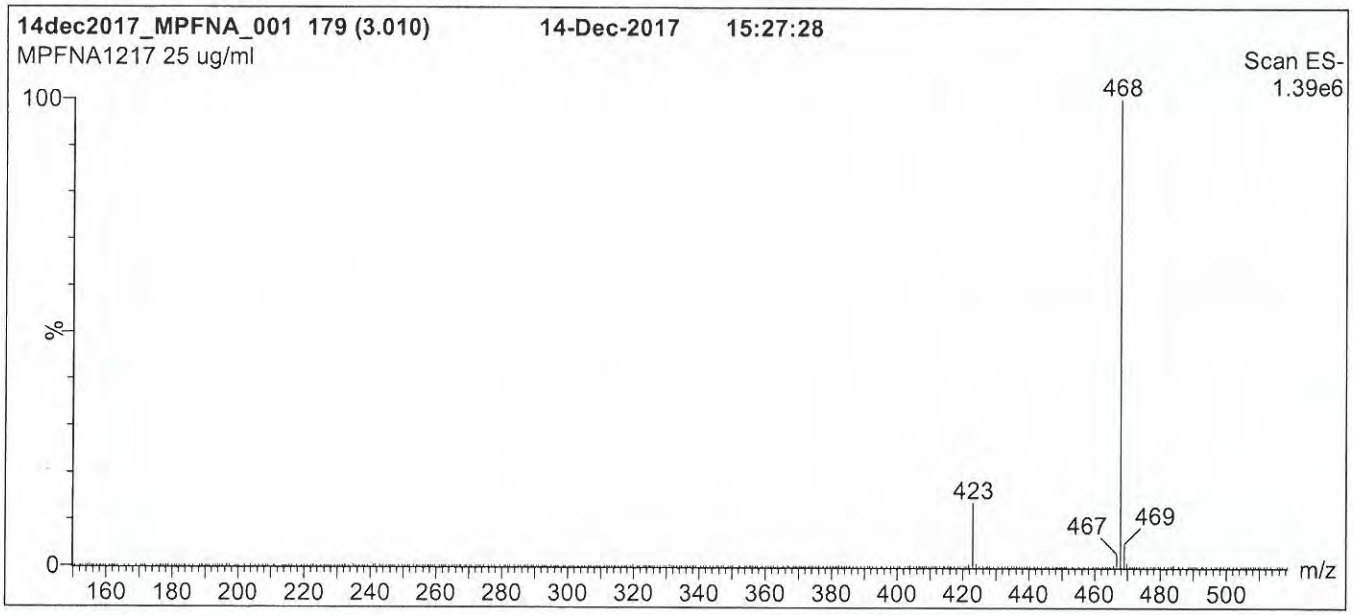
ANAB ACCREDITED

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

18B1509

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

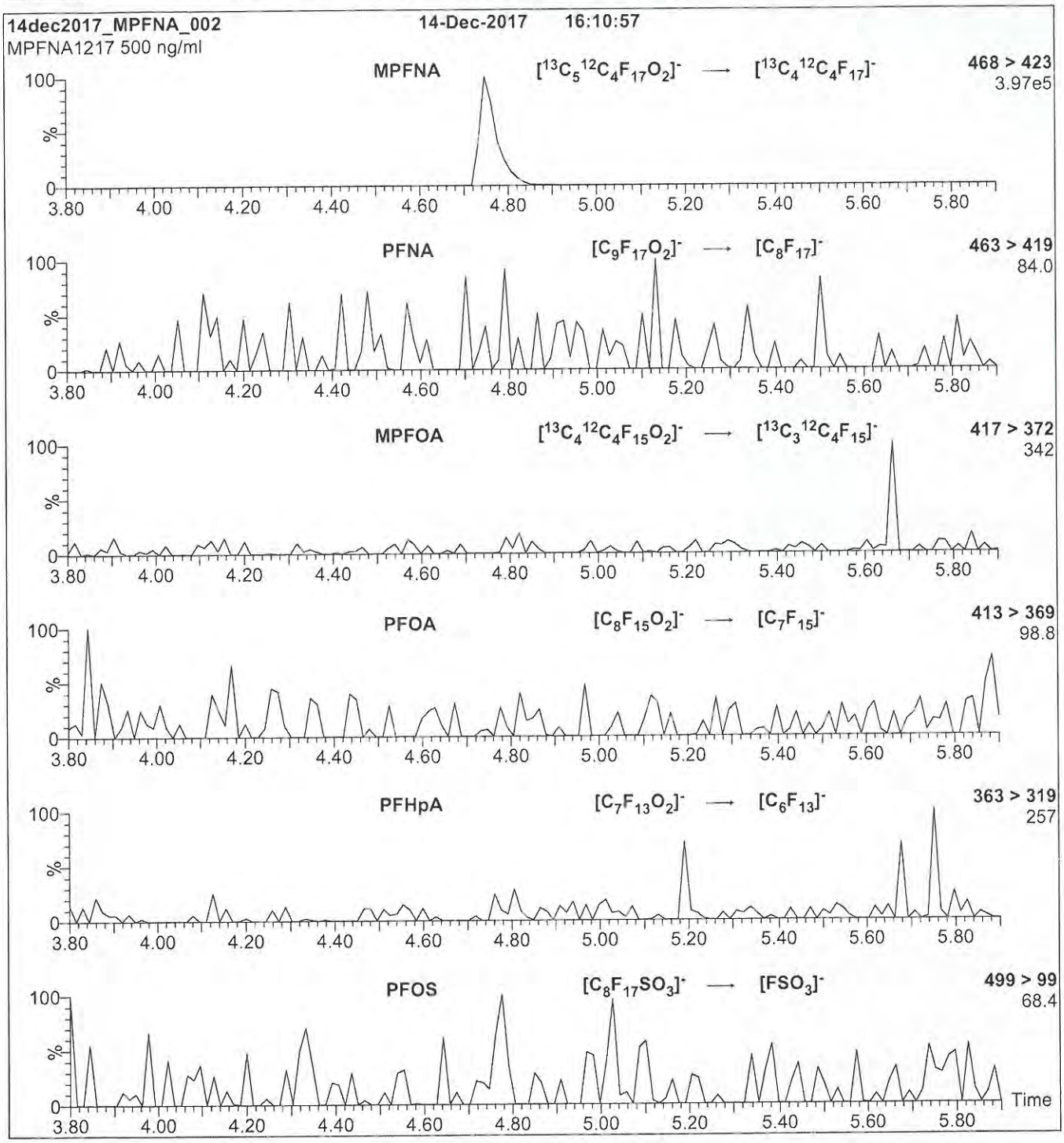
MS Parameters

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

18B1509

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

18B1510

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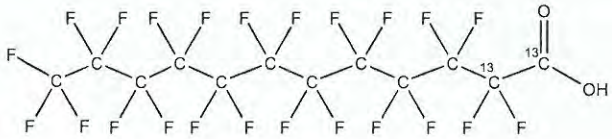
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFDoA
COMPOUND: Perfluoro-n-[1,2-$^{13}C_2$]dodecanoic acid

LOT NUMBER: MPFDoA0517

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)	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.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: _____ **Date:** 05/26/2017 (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

18B1570

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:

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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.

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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:

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QUALITY MANAGEMENT:

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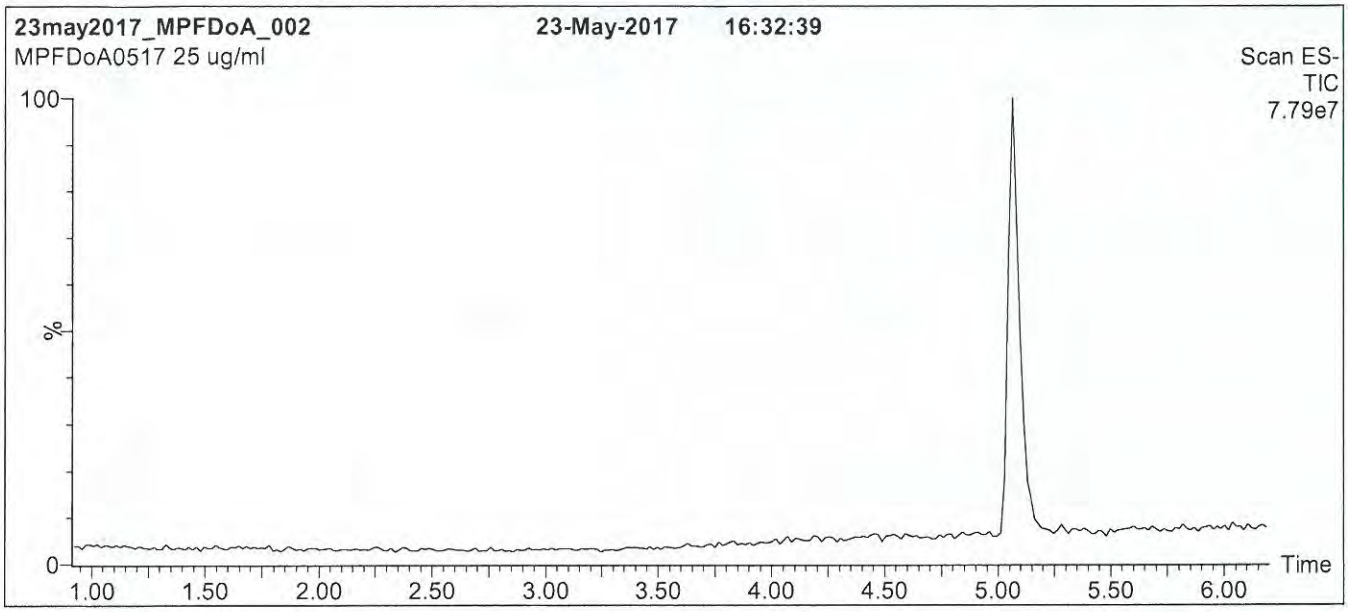
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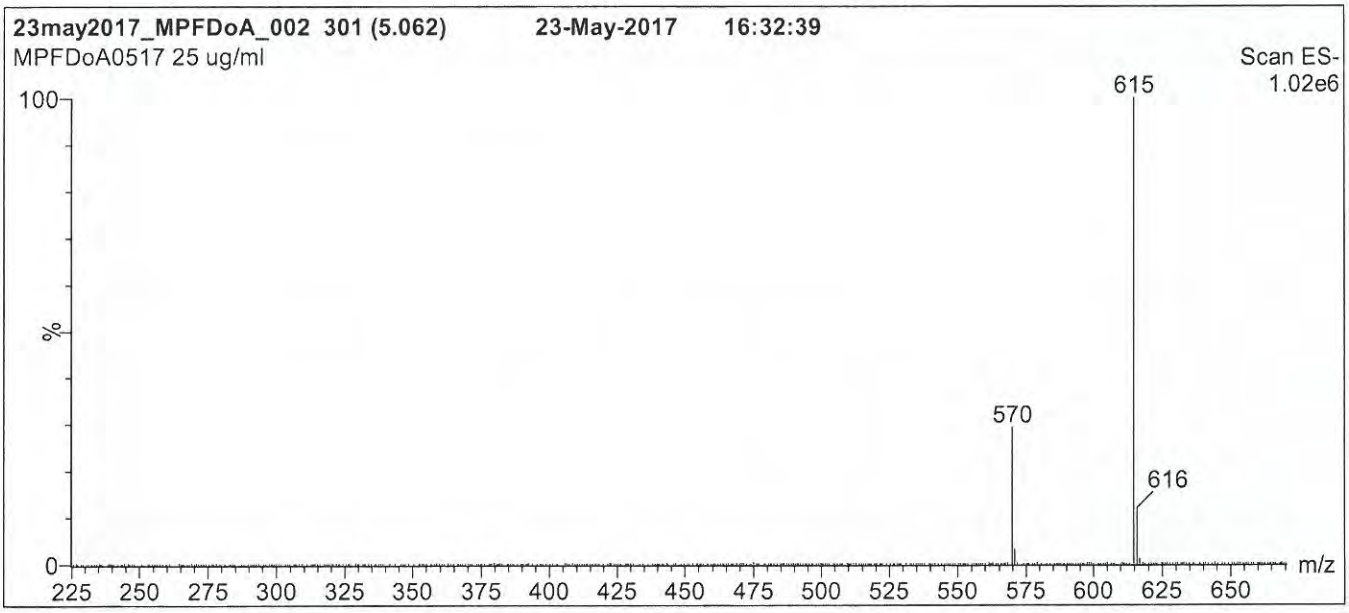
ANAB ACCREDITED

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18B1510

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: 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

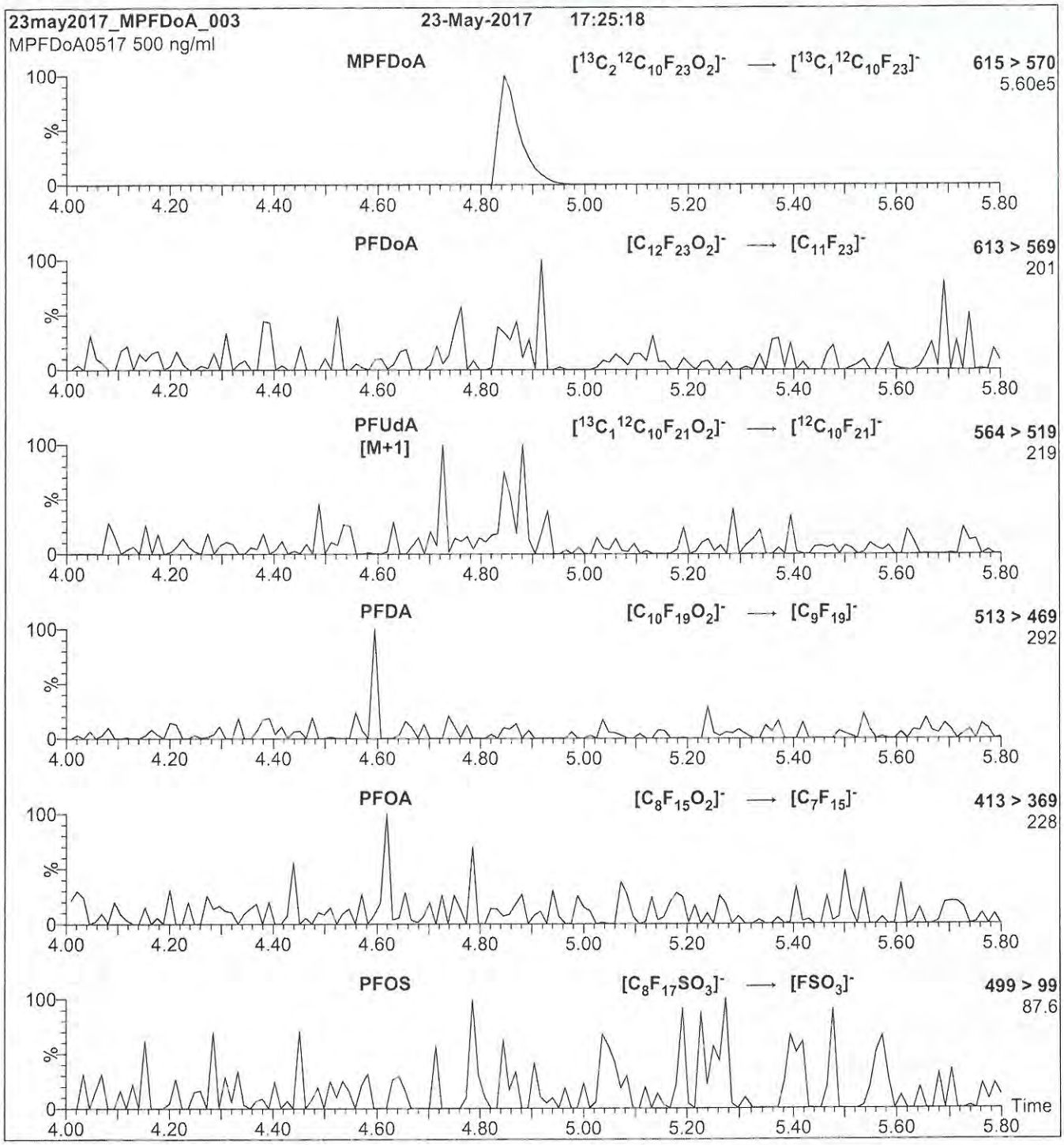
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 20.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

18B1510

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

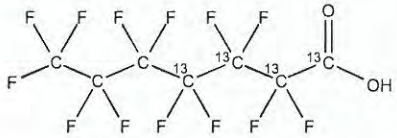
Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 13

18B1511

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		

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:** 05/11/2017 (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

18B1511

INTENDED USE:

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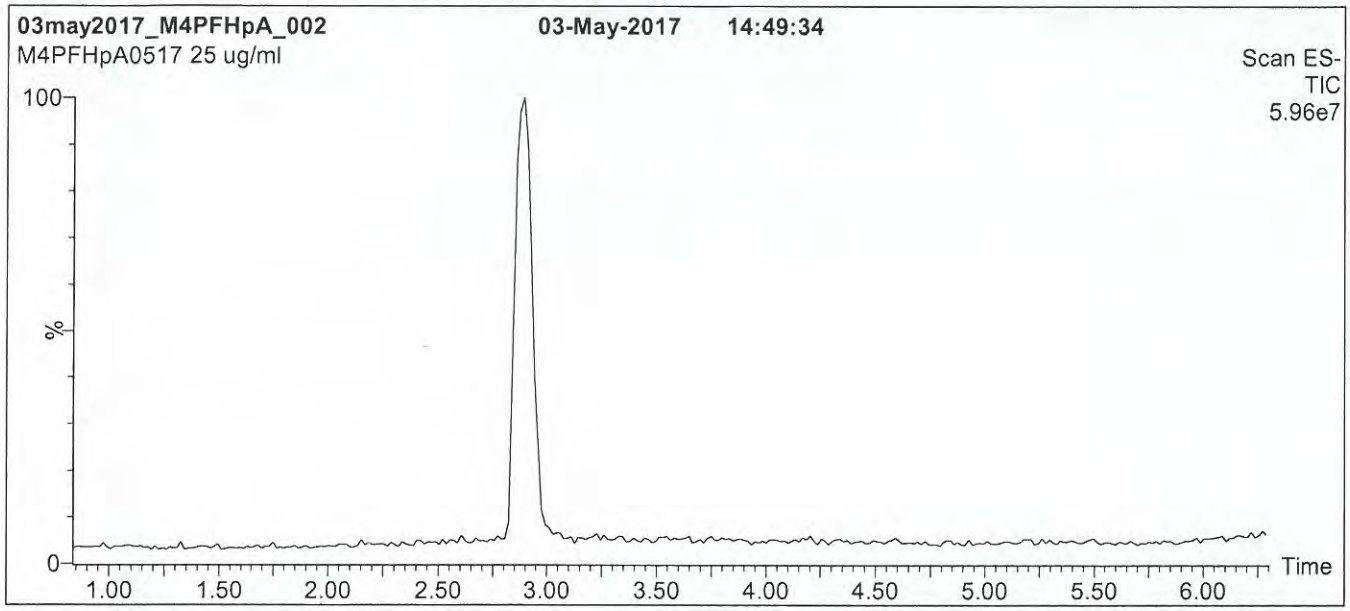
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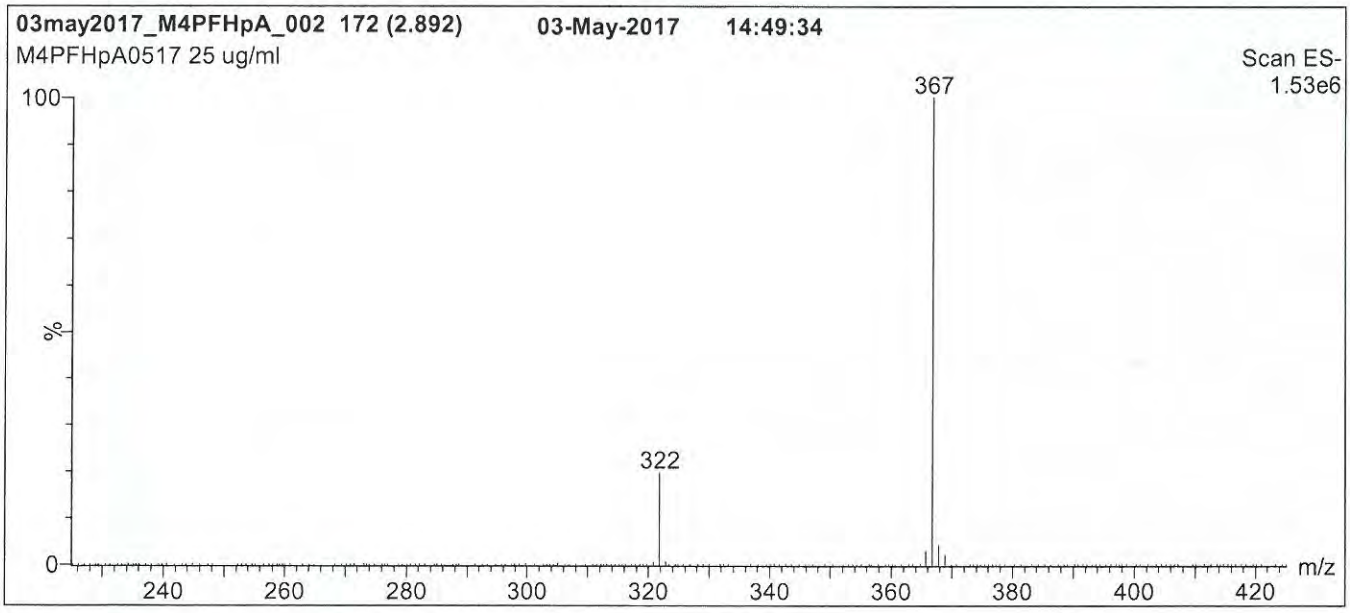
ANAB ACCREDITED

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

18B1511

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

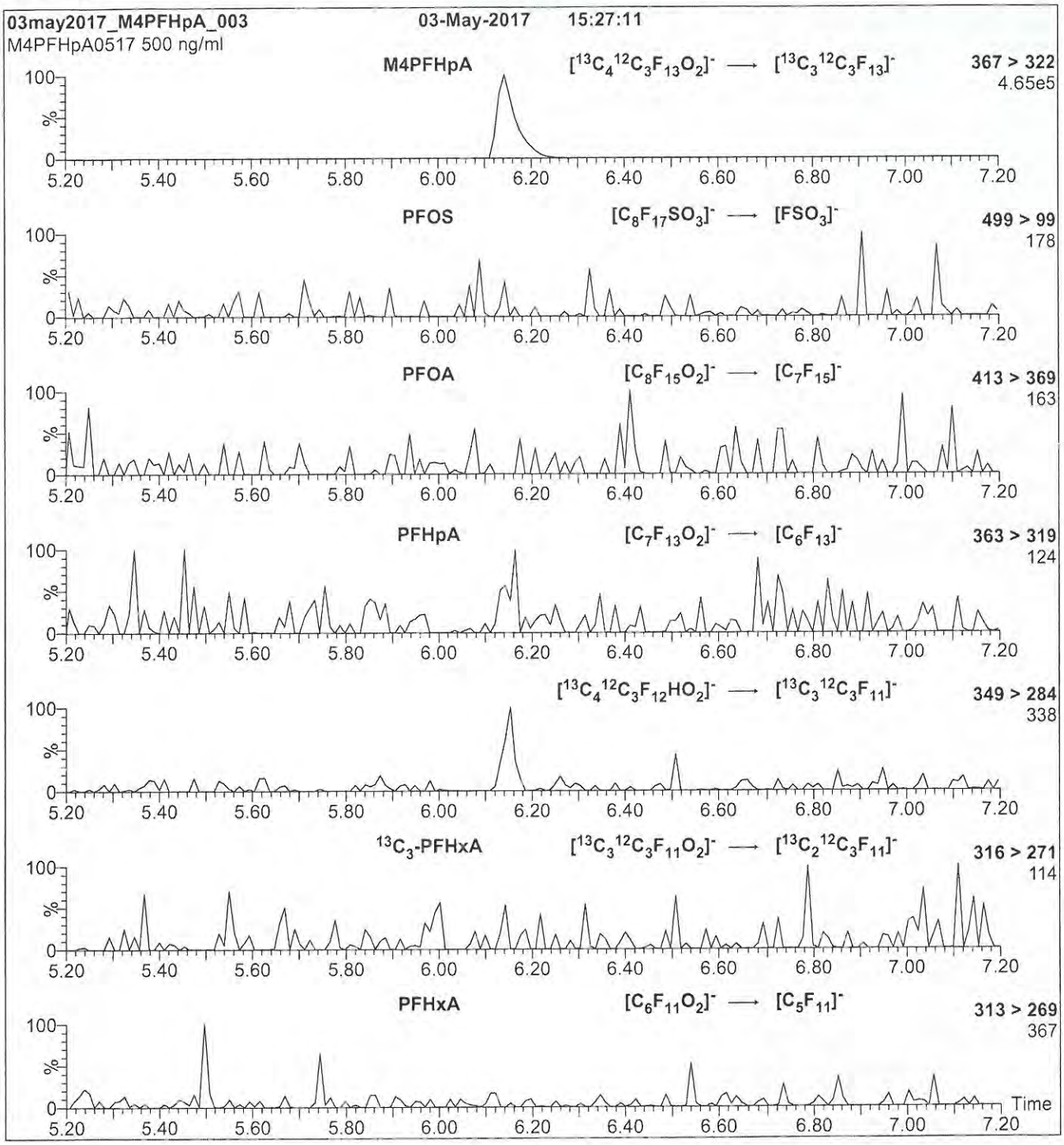
MS Parameters

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

18B1511

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

18B1512

WELLINGTON LABORATORIES

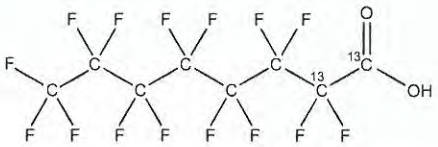
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

MOLECULAR WEIGHT: 416.05
SOLVENT(S): Methanol
Water (<1%)

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

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

18B1512

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).

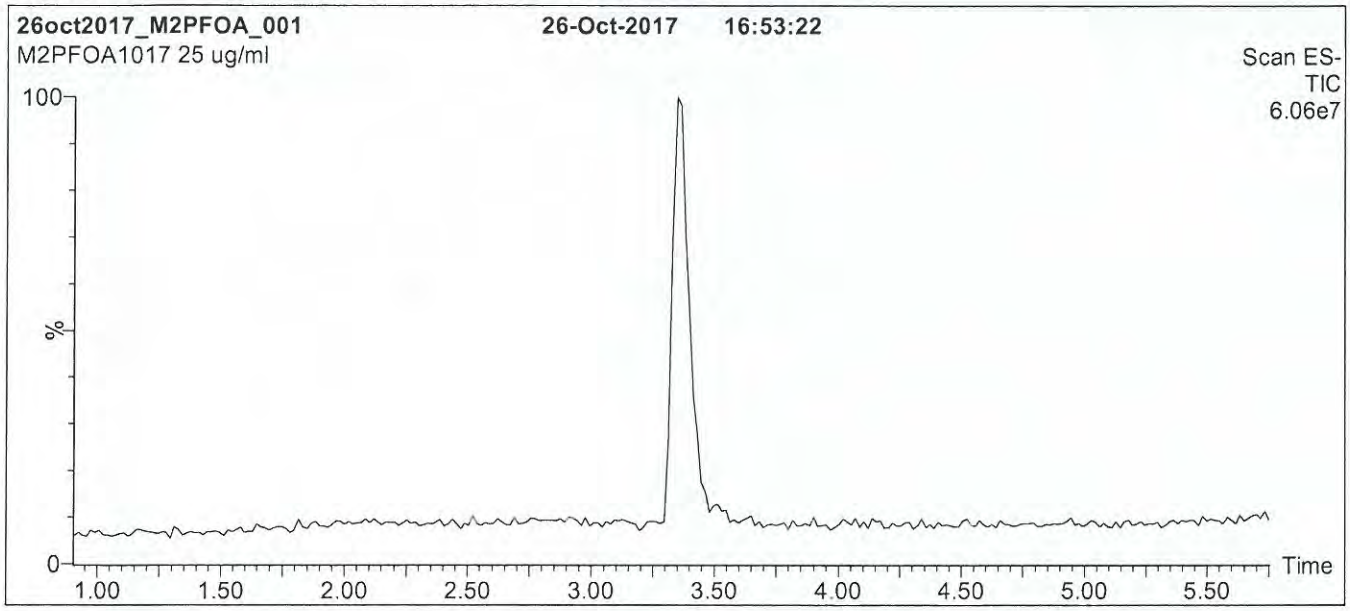
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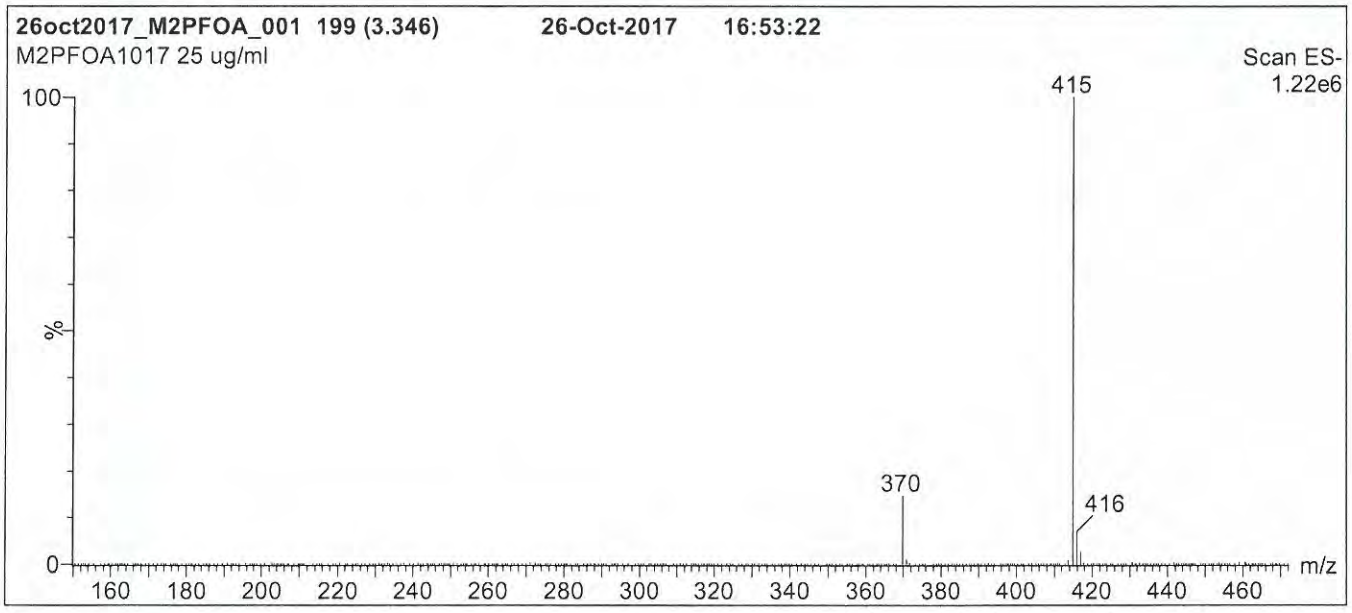
ANAB ACCREDITED

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

18B1512

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

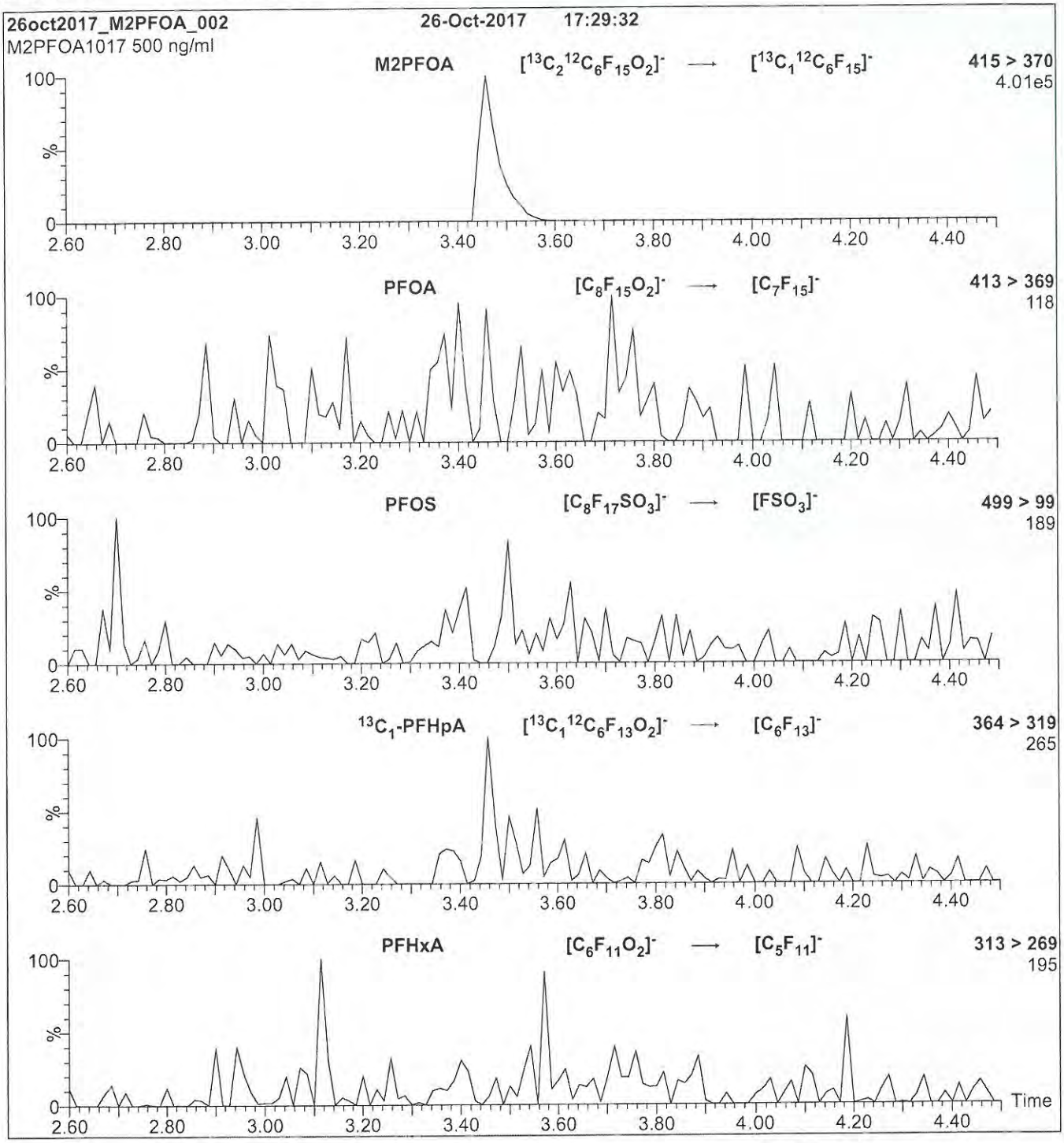
MS Parameters

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

1801512

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

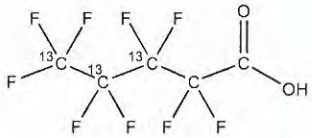
Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 10

18B1513

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	M3PFPeA	**LOT NUMBER:**	M3PFPeA0417
COMPOUND:	Perfluoro-n-[3,4,5-$^{13}C_3$]pentanoic acid		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_3{}^{12}C_2HF_9O_2$	**MOLECULAR WEIGHT:**	267.02
CONCENTRATION:	50 ± 2.5 µg/ml	**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

1881513

INTENDED USE:

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HAZARDS:

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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:

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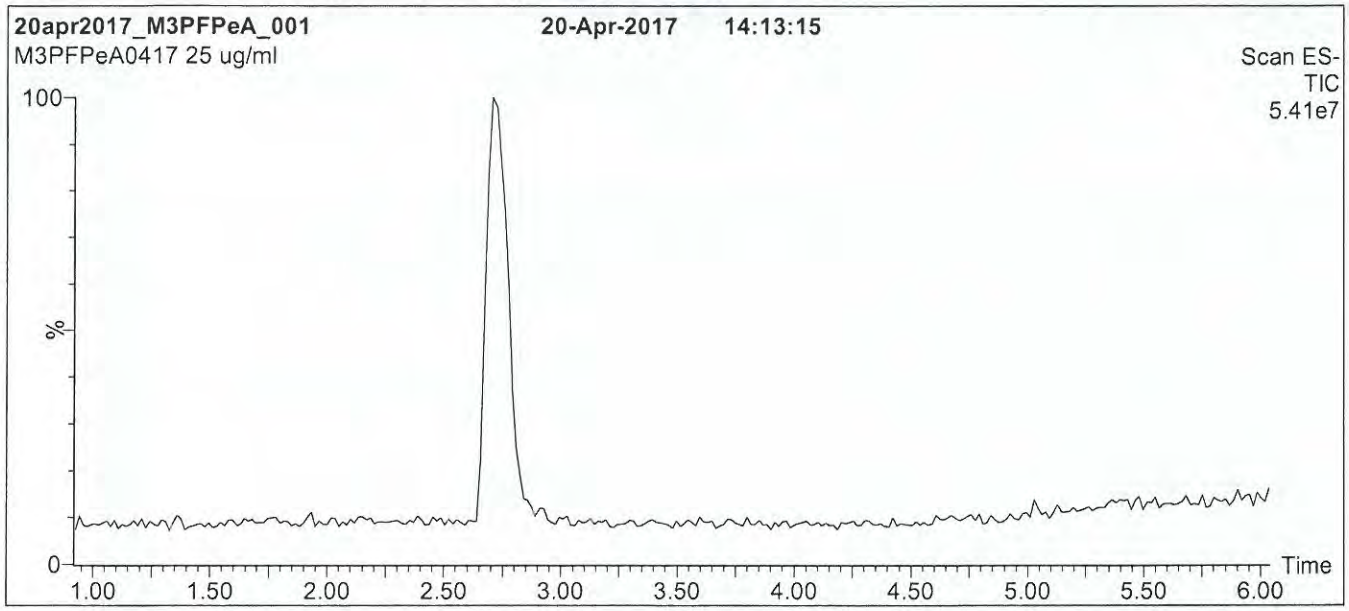
CALA

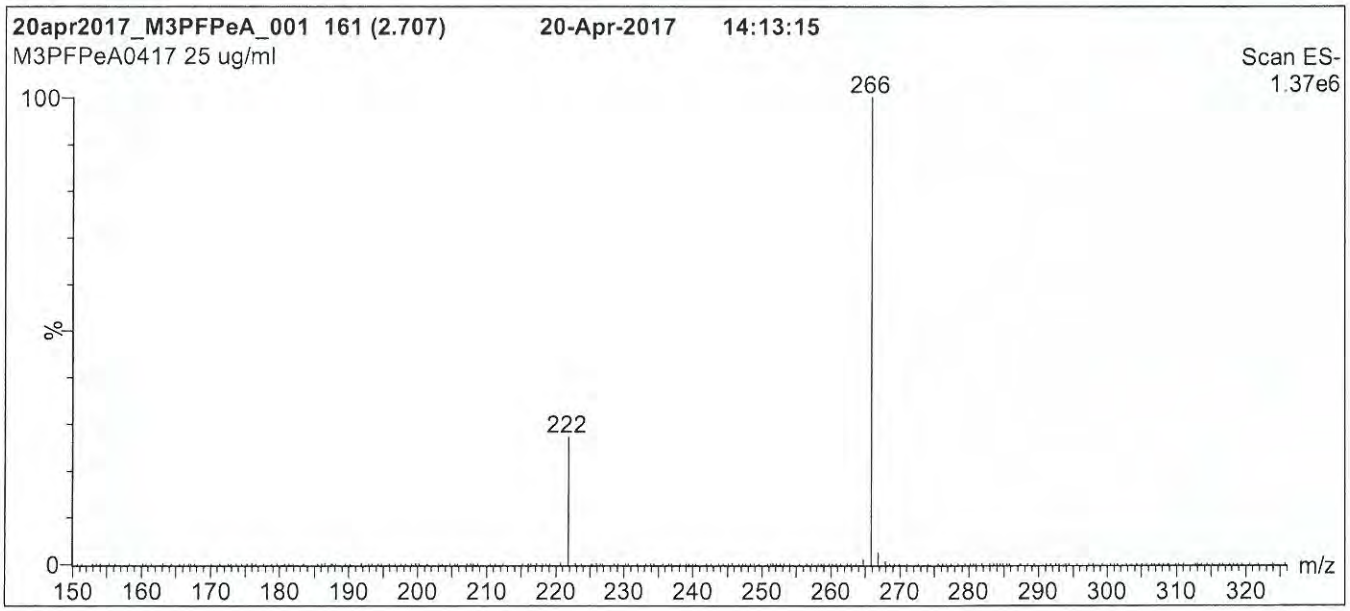
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18B1513

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

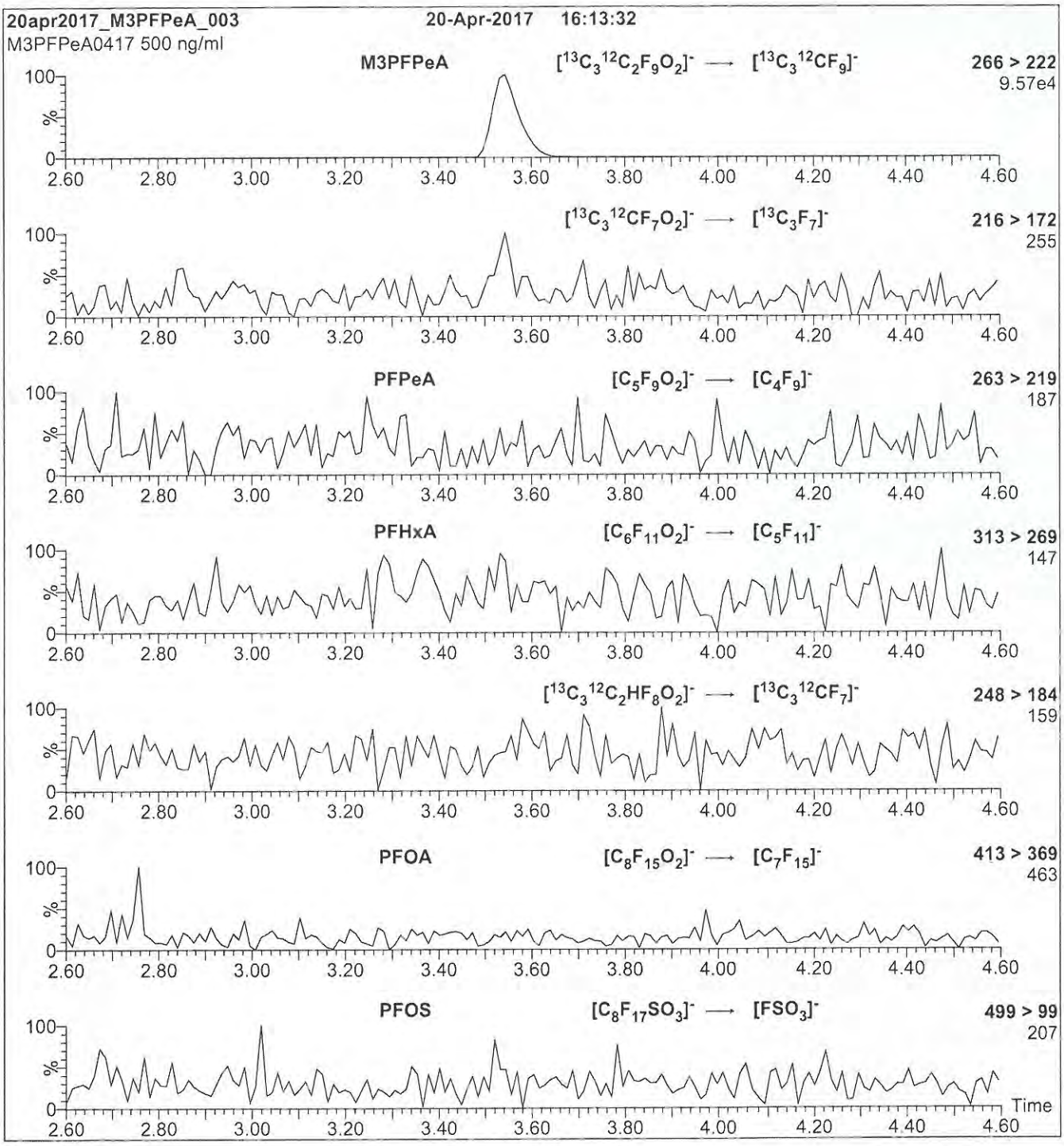
MS Parameters

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

18B1513

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

18B1514

WELLINGTON LABORATORIES

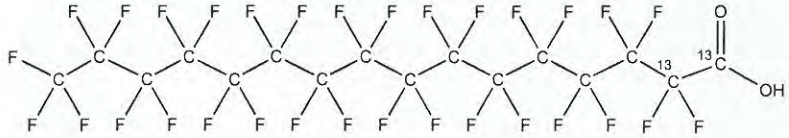
CERTIFICATE OF ANALYSIS
DOCUMENTATION

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

18B1514

INTENDED USE:

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HAZARDS:

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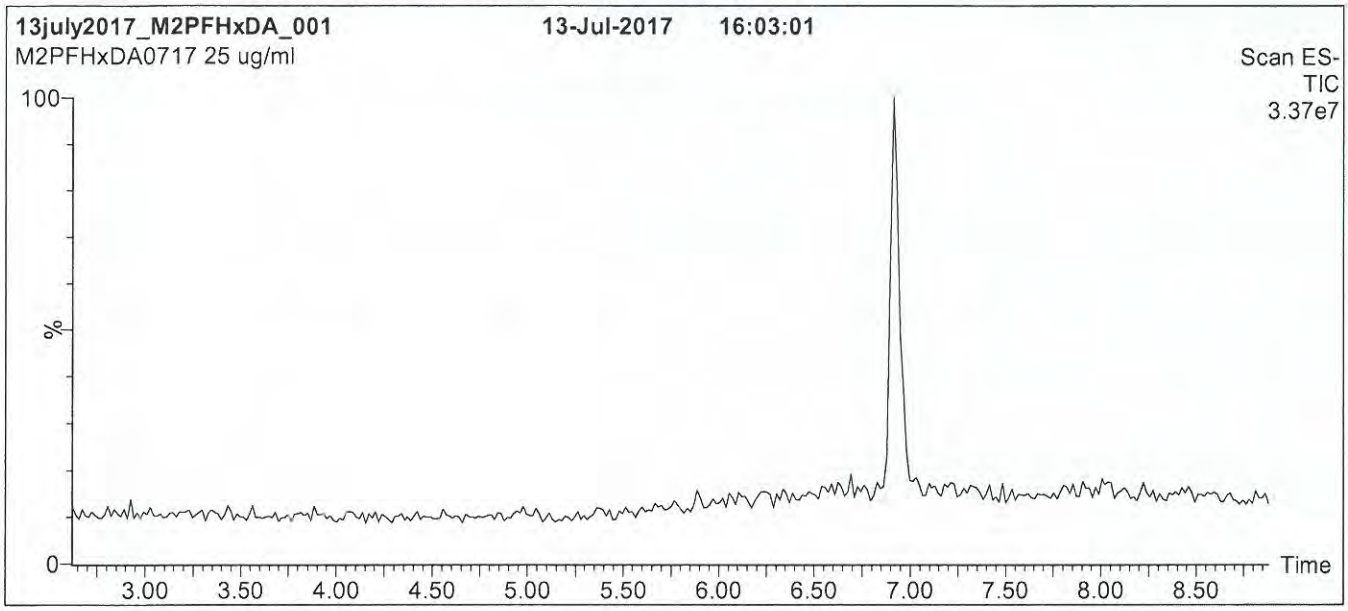
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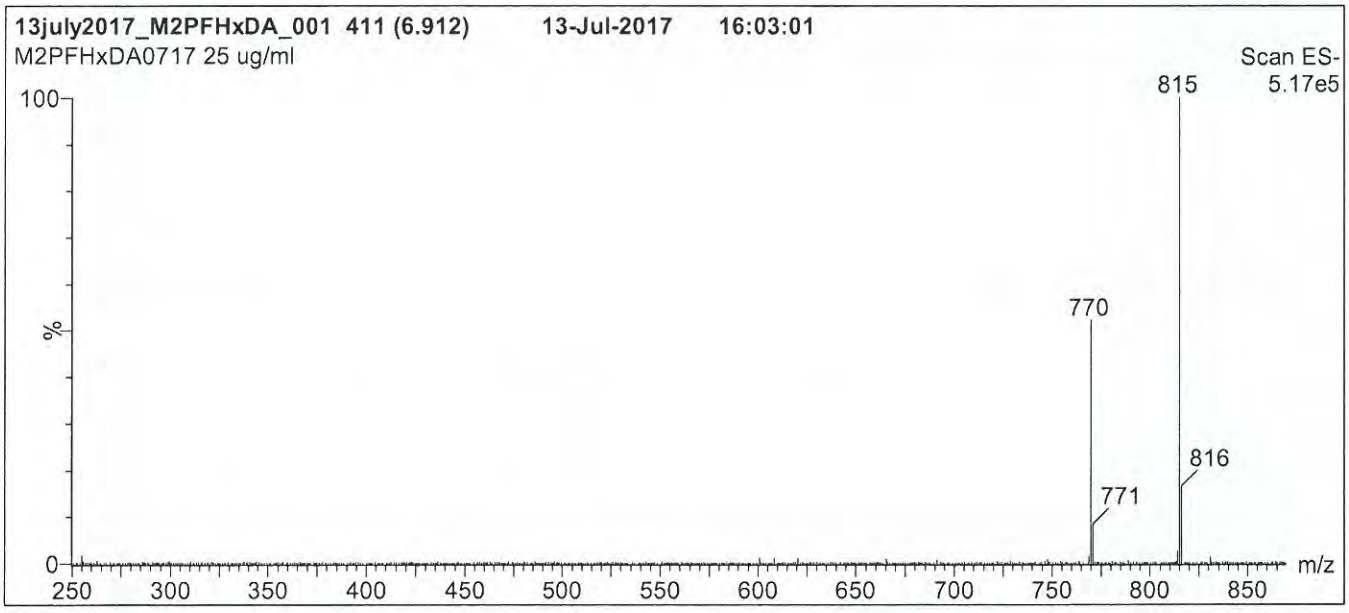
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For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

18B514

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

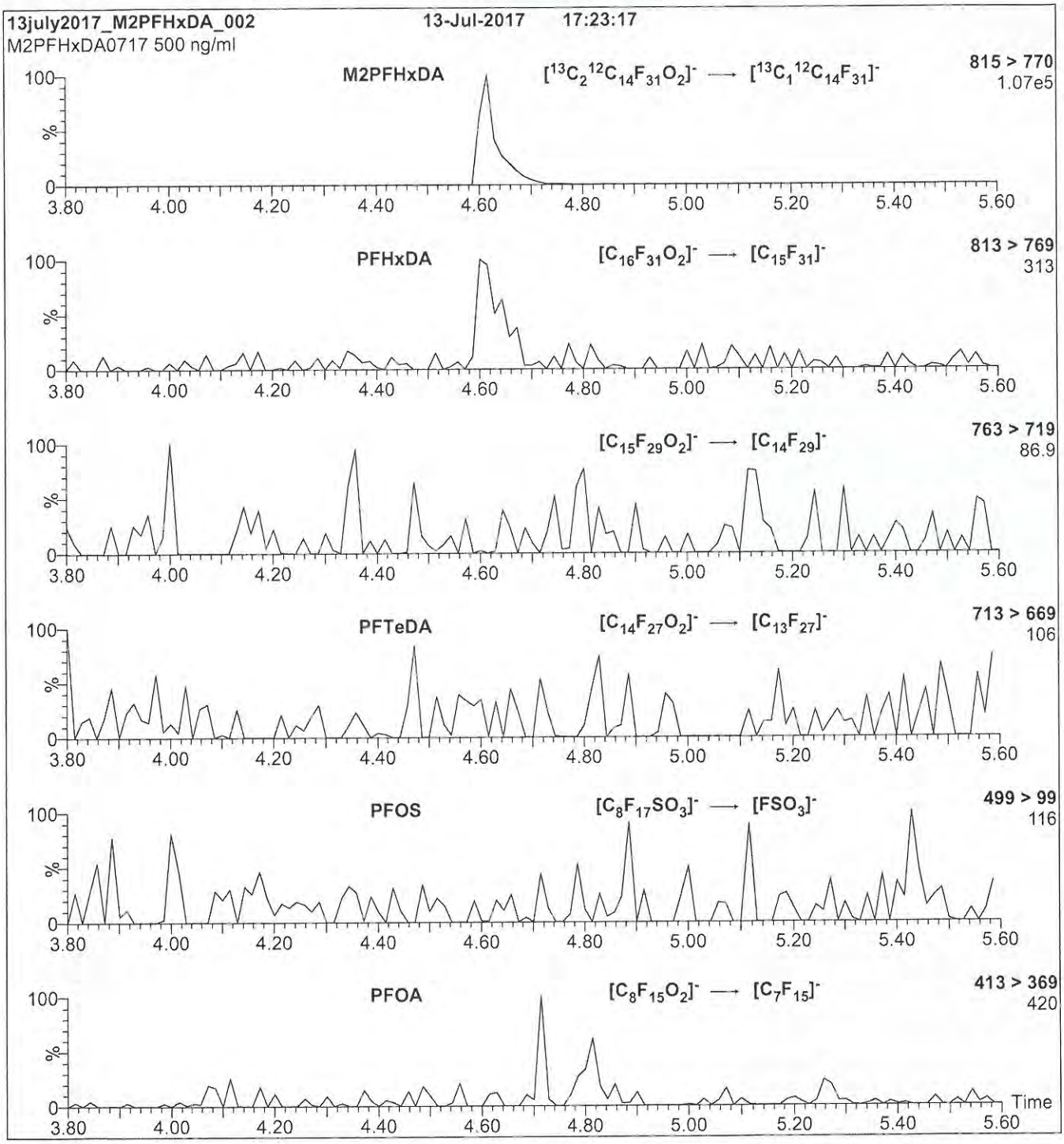
MS Parameters

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

18B1514

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

18B1515

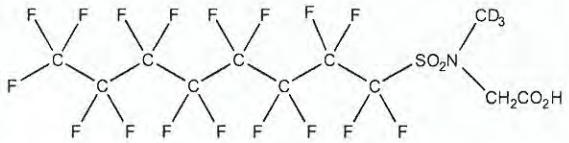
WELLINGTON LABORATORIES

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
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1801515

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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).

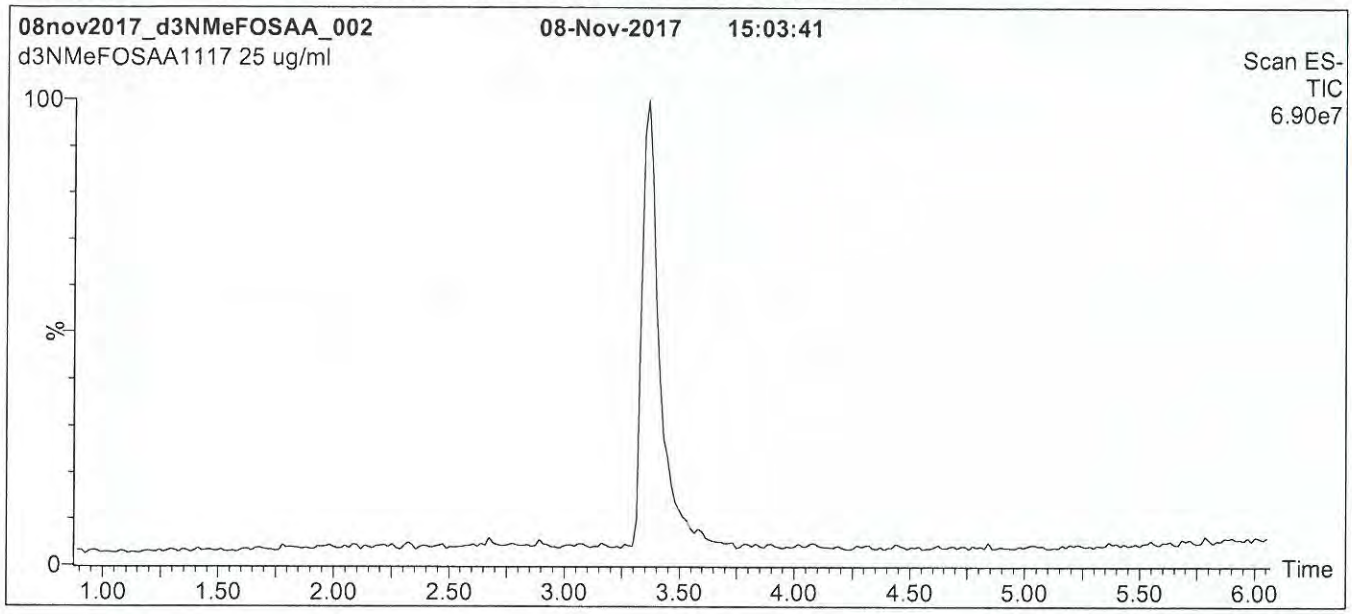
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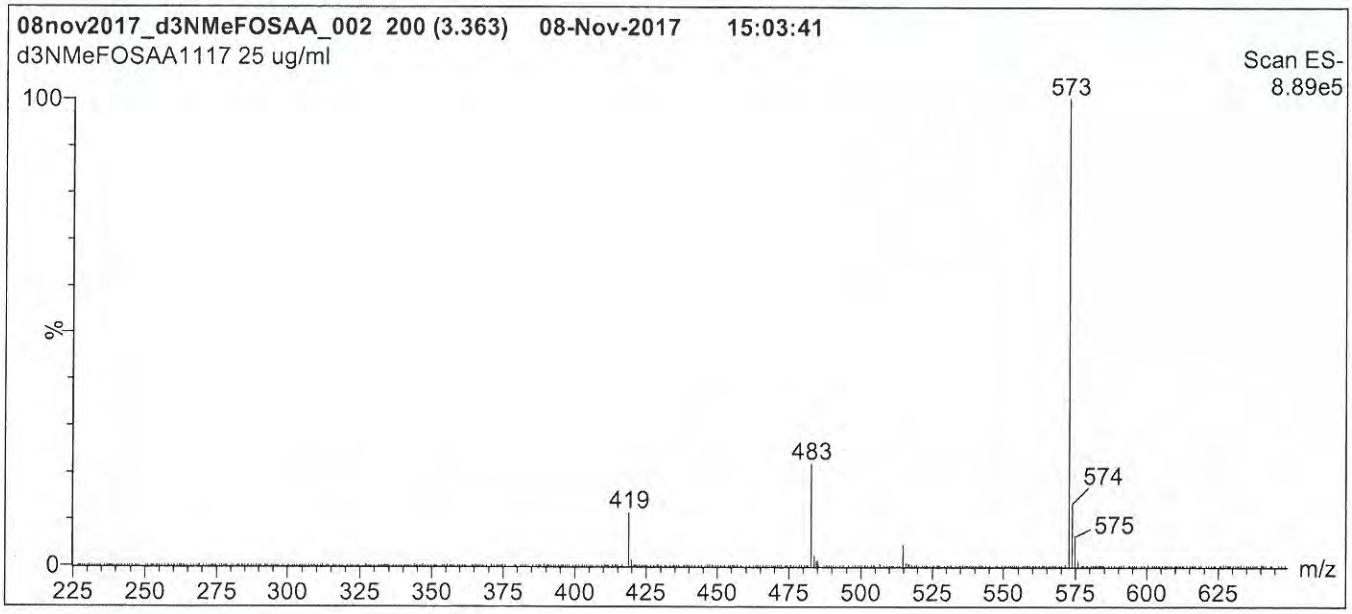
ANAB ACCREDITED

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

18B1515

Figure 1: **d3-N-MeFOSAA; 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

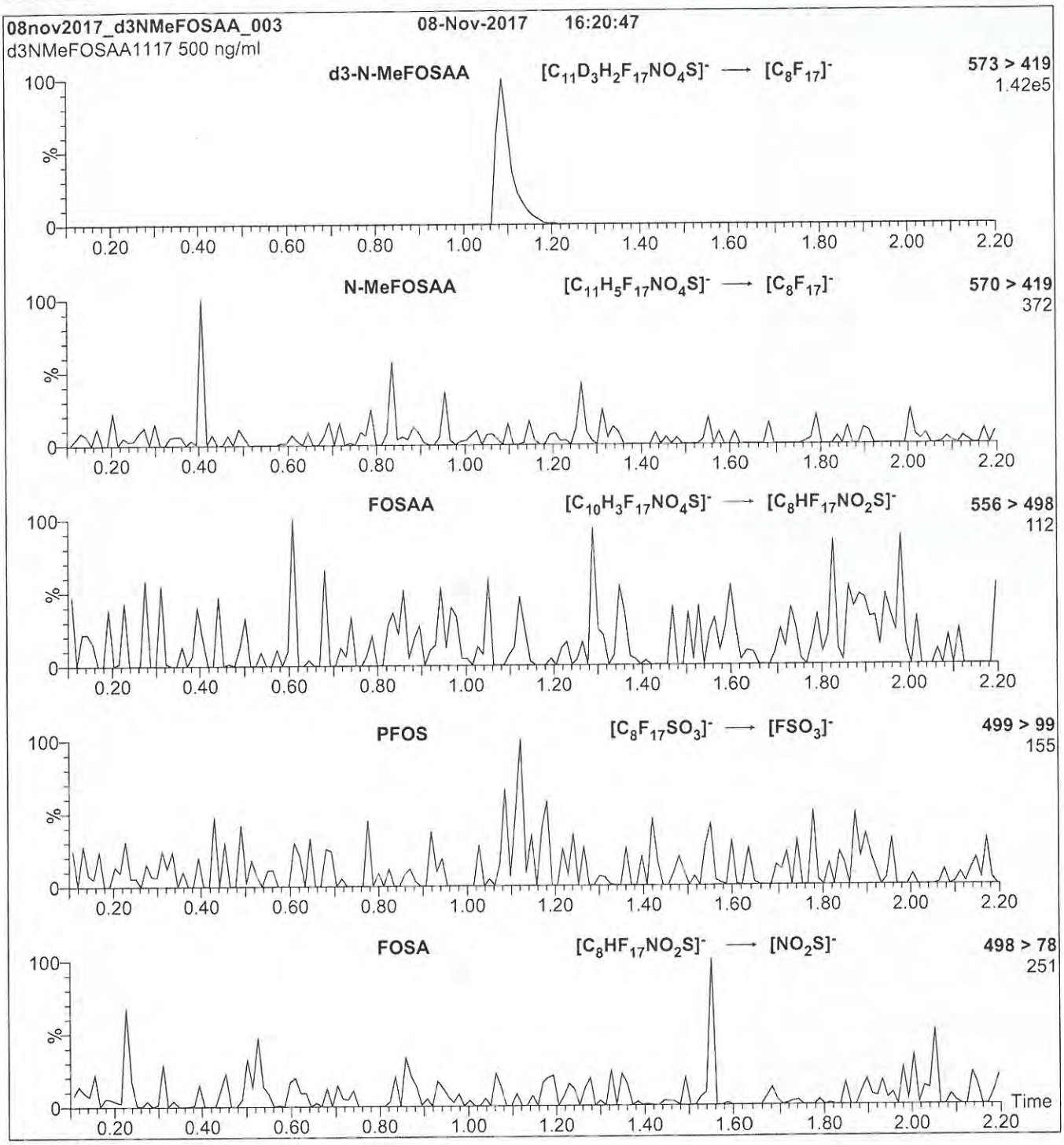
MS Parameters

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

1801515

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

18B1516

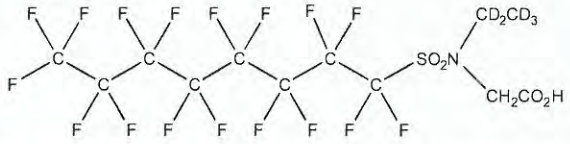
WELLINGTON LABORATORIES

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.

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

1801516

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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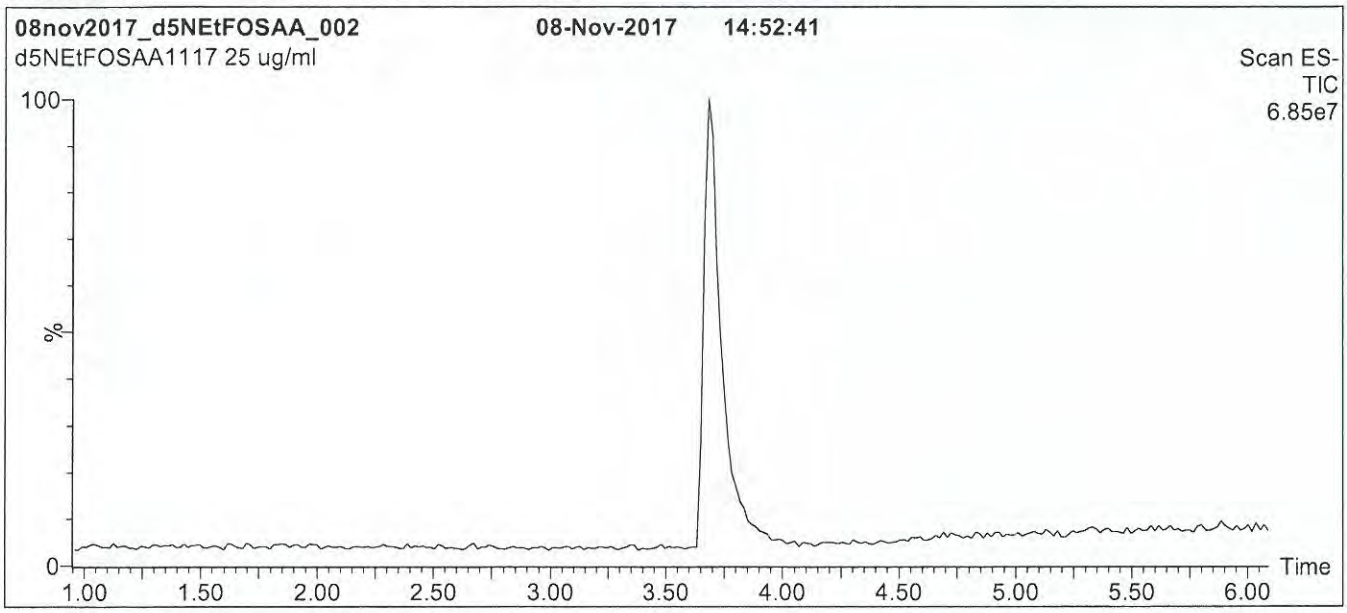
CALA

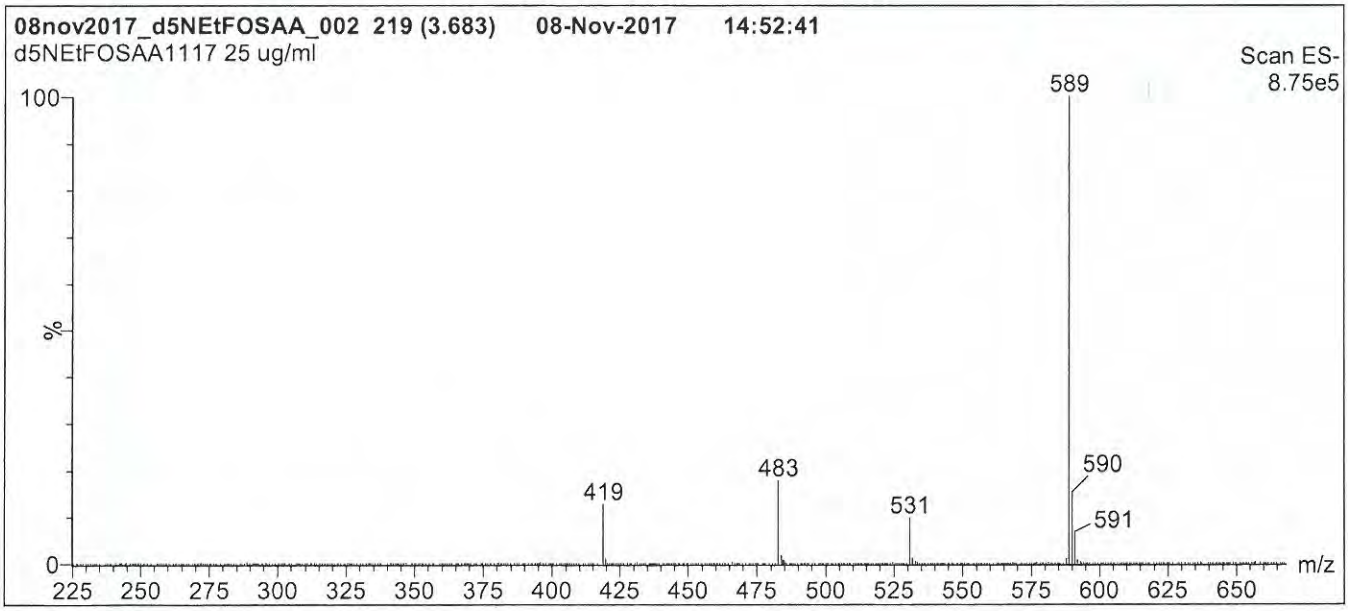
ANAB ACCREDITED

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18B1516

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

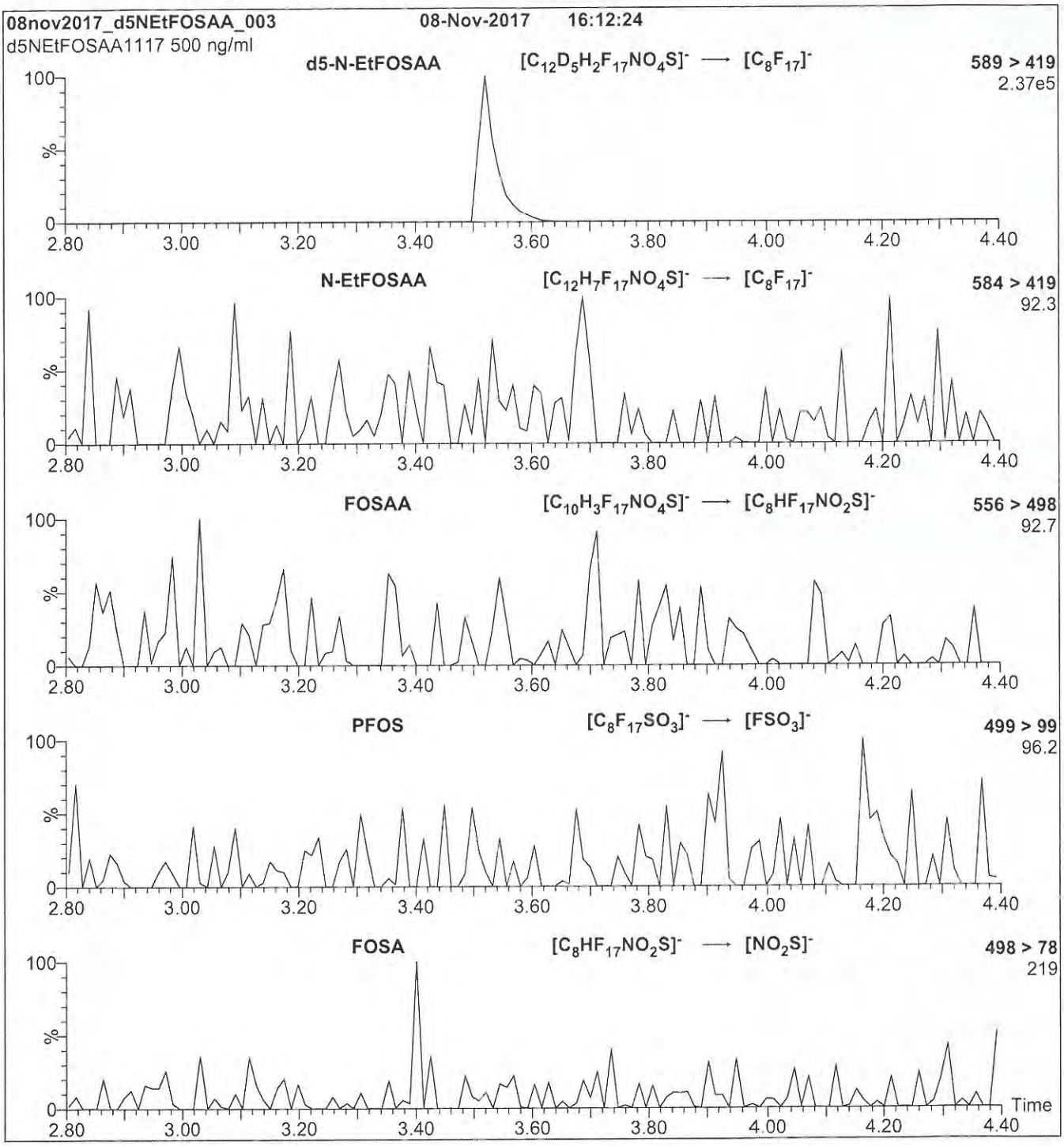
MS Parameters

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

18B1576

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

18B1517

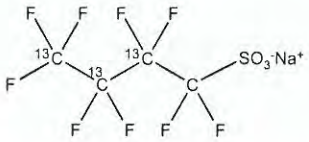
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: M3PFBS **LOT NUMBER:** M3PFBS0815

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)	05/24/2017		
EXPIRY DATE: (mm/dd/yyyy)	05/24/2022		
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:** 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

181517

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:

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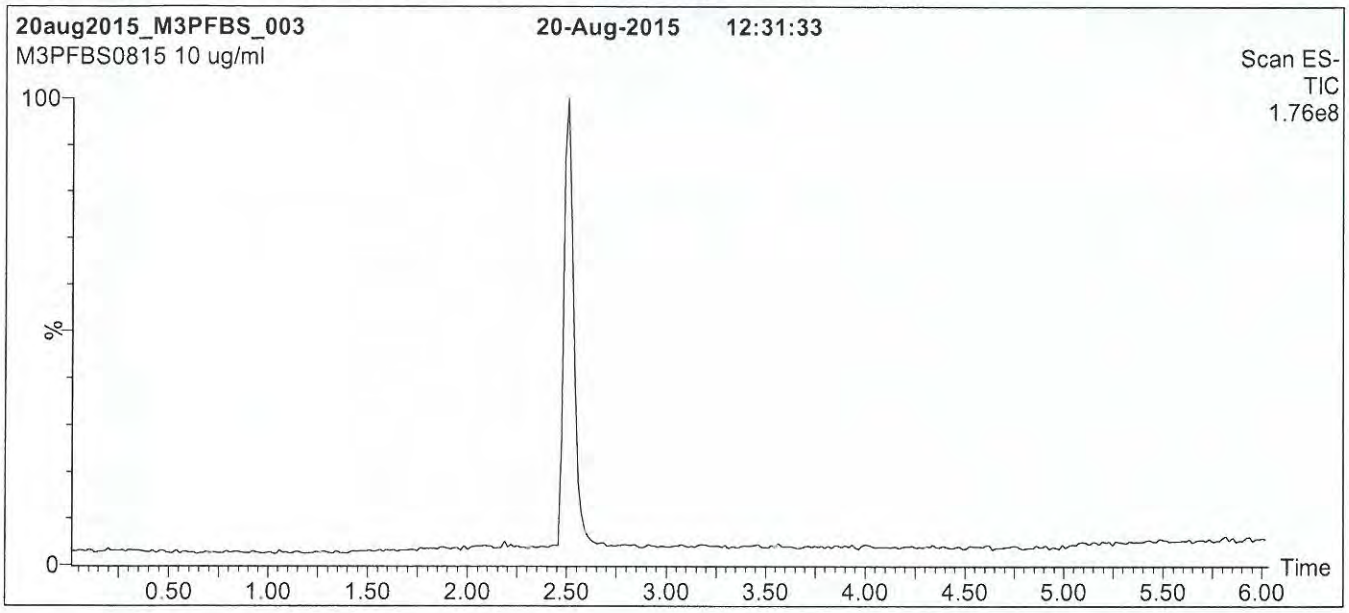
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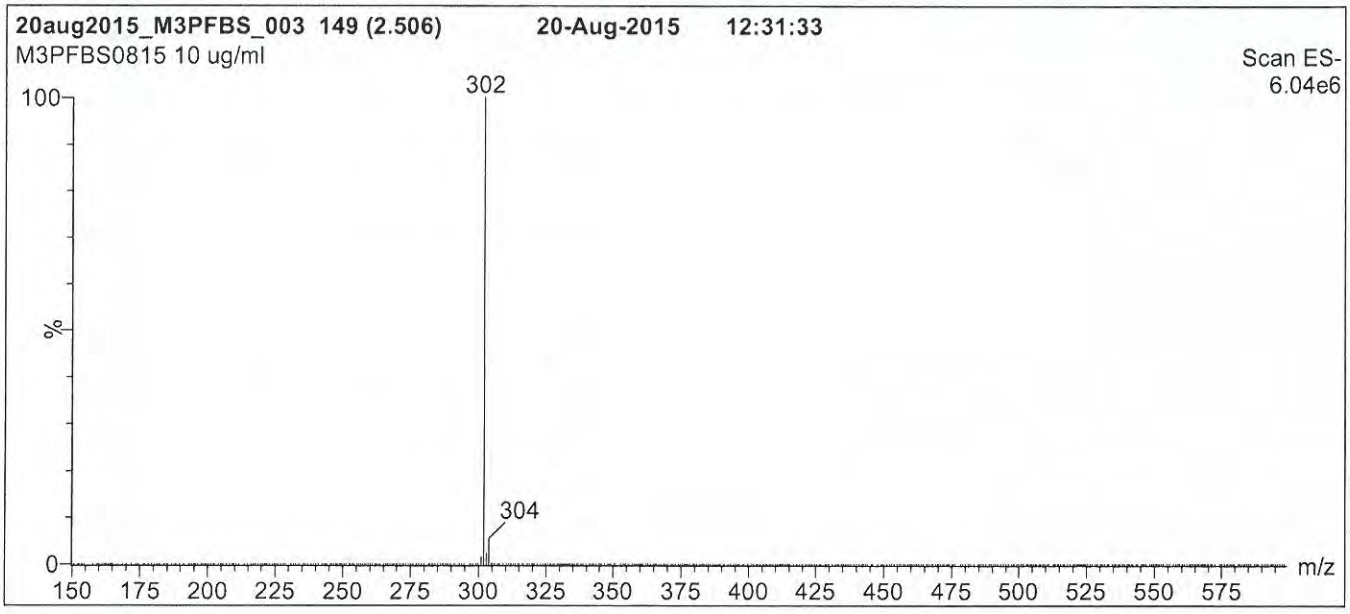
ANAB ACCREDITED

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18B1517

Figure 1: **M3PFBS; 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

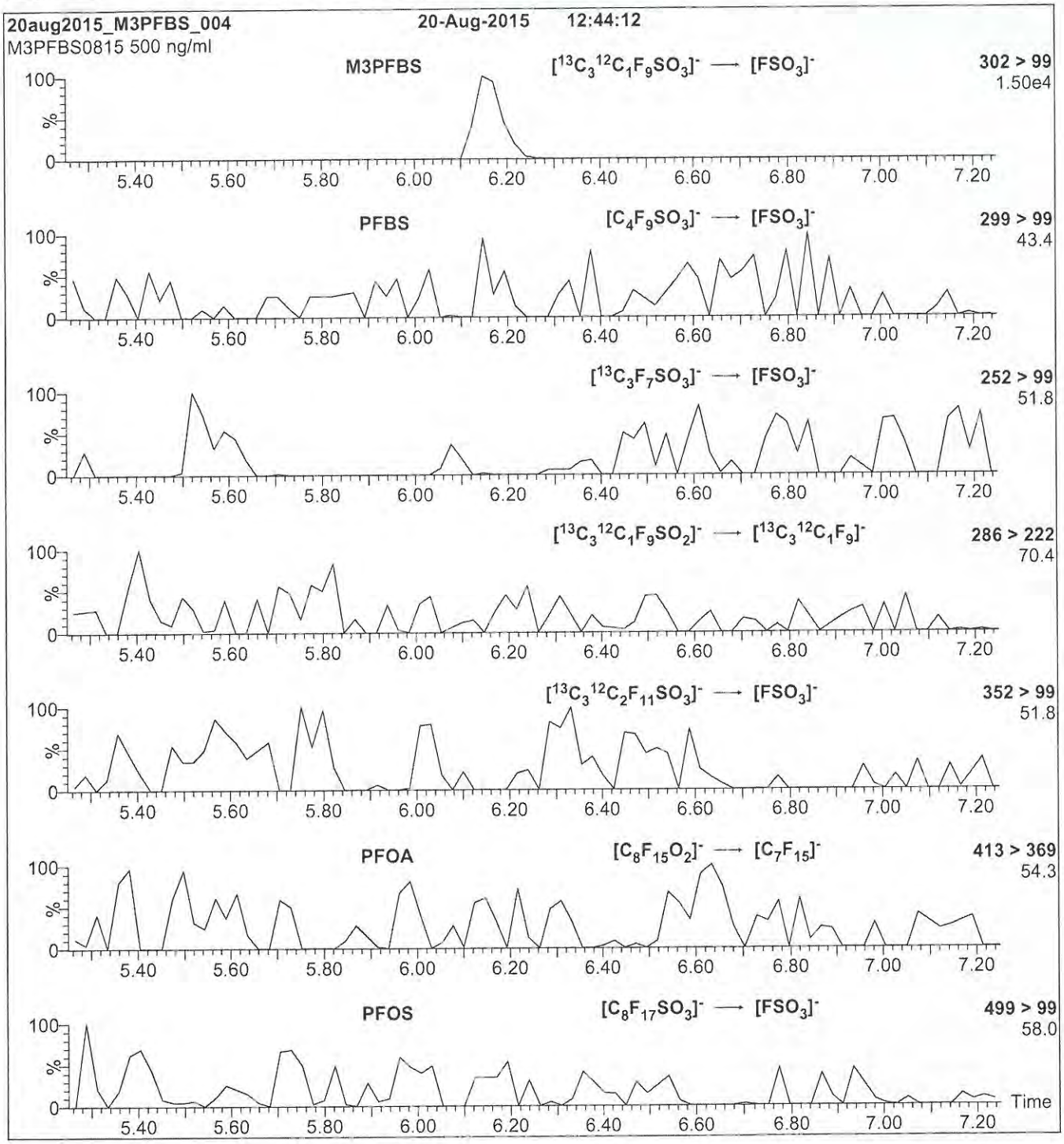
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18B1517

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

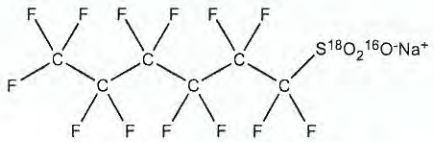
Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 25

18B1518

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	MPFHxS	**LOT NUMBER:**	MPFHxS0217
COMPOUND:	Sodium perfluoro-1-hexane[$^{18}O_2$]sulfonate		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$C_6F_{13}S^{18}O_2{}^{16}ONa$	**MOLECULAR WEIGHT:**	426.10
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.3 ± 2.4 µg/ml (MPFHxS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	>94% ($^{18}O_2$)
LAST TESTED: (mm/dd/yyyy)	02/17/2017		
EXPIRY DATE: (mm/dd/yyyy)	02/17/2022		
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.
- 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).
- 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: B.G. Chittim **Date:** 03/02/2017 (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

18B1518

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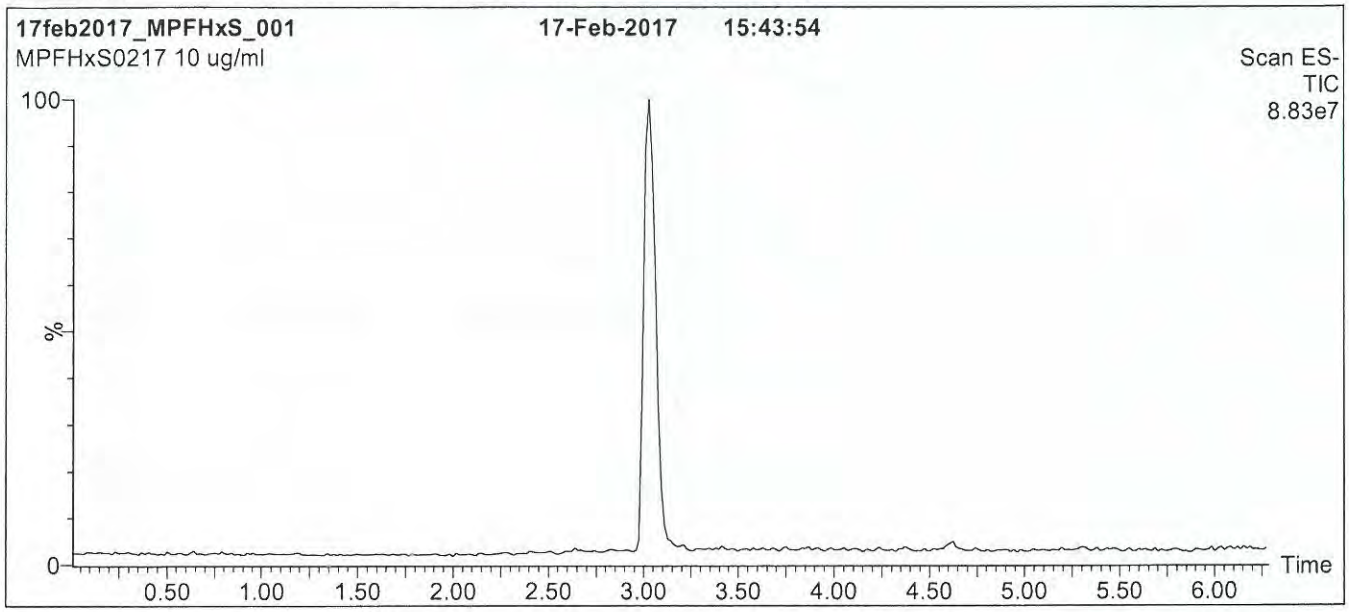
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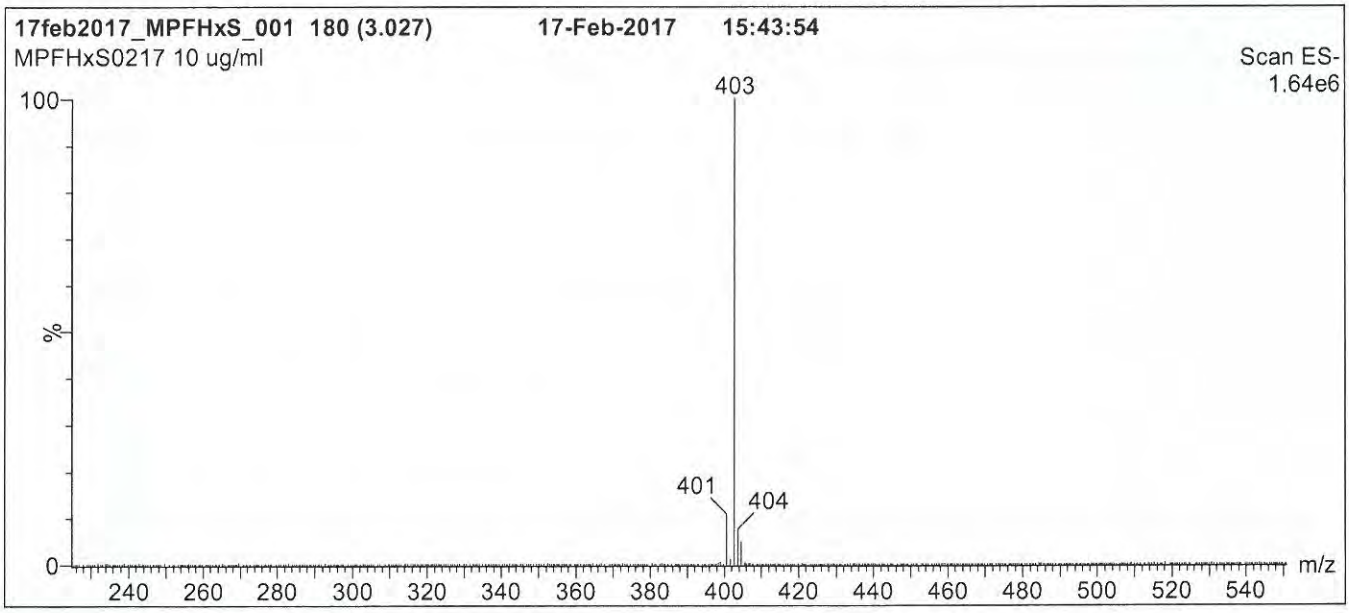
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18B1518

Figure 1: **MPFHxS; 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

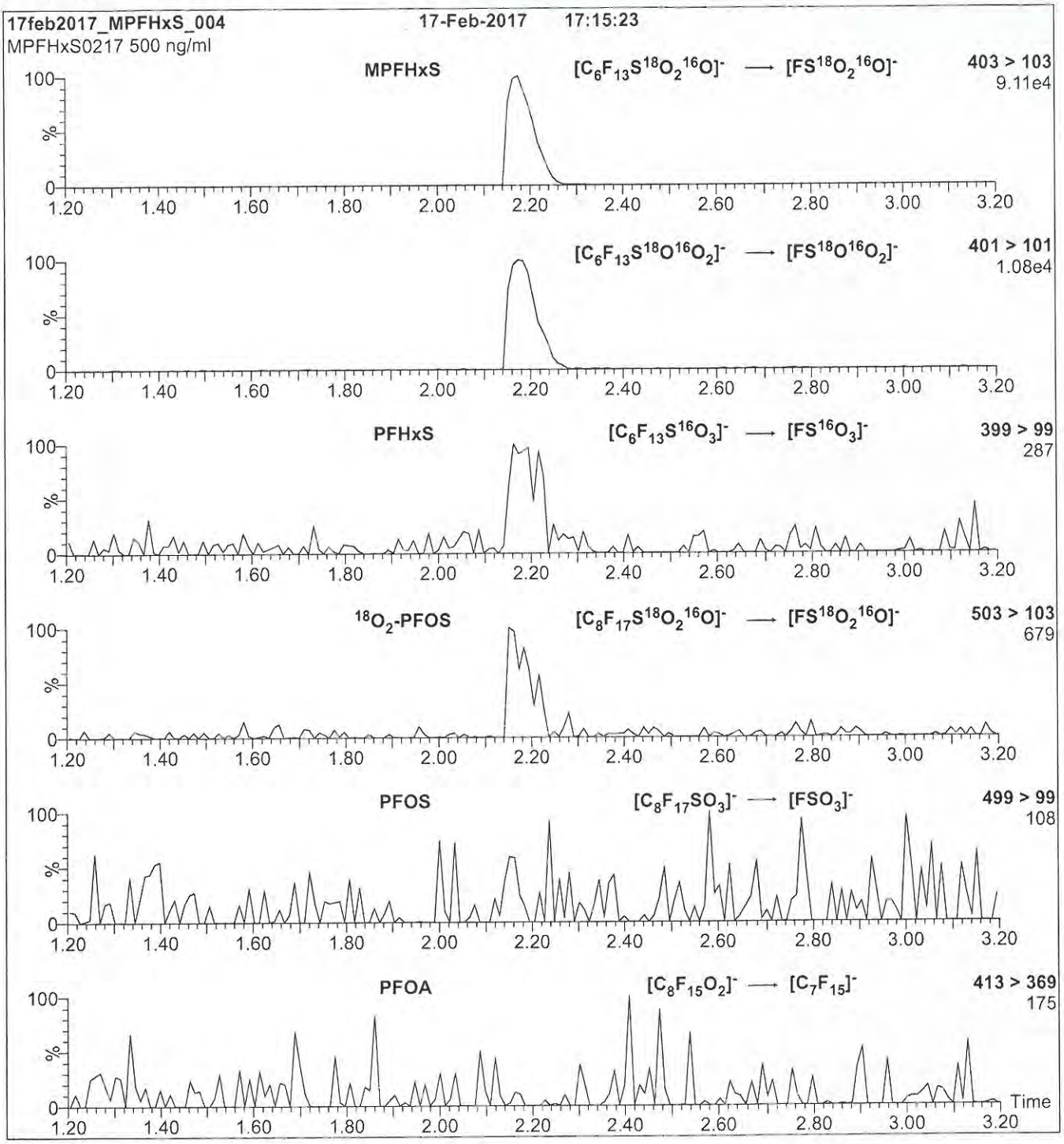
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 50.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

18B1518

Figure 2: **MPFHxS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml MPFHxS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

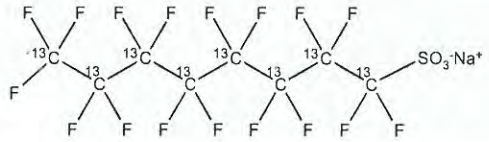
Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 30

18B1520

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CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	M8PFOS	**LOT NUMBER:**	M8PFOS1117
COMPOUND:	Sodium perfluoro-1-[$^{13}C_8$]octanesulfonate		
STRUCTURE:		**CAS #:**	Not available



MOLECULAR FORMULA:	$^{13}C_8F_{17}SO_3Na$	**MOLECULAR WEIGHT:**	530.05
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.8 ± 2.4 µg/ml (M8PFOS anion)	**SOLVENT(S):**	Methanol
CHEMICAL PURITY:	>98%	**ISOTOPIC PURITY:**	>99% ^{13}C ($^{13}C_8$)
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 ~ 0.3% 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

18B1520

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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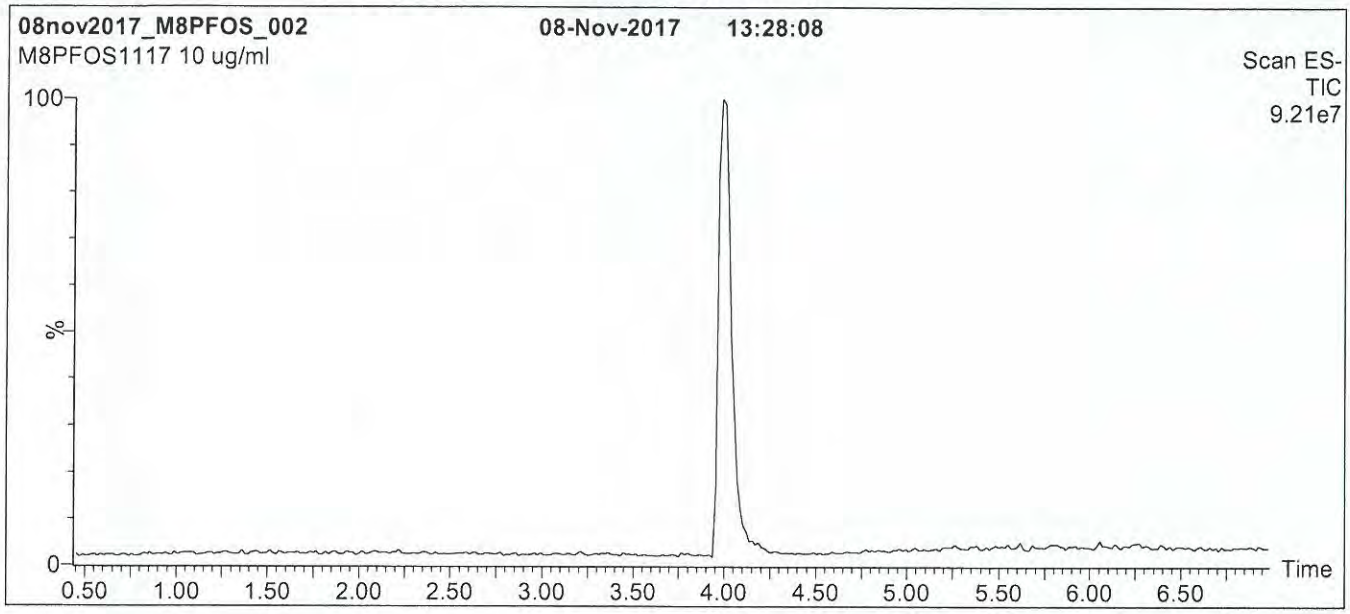
CALA

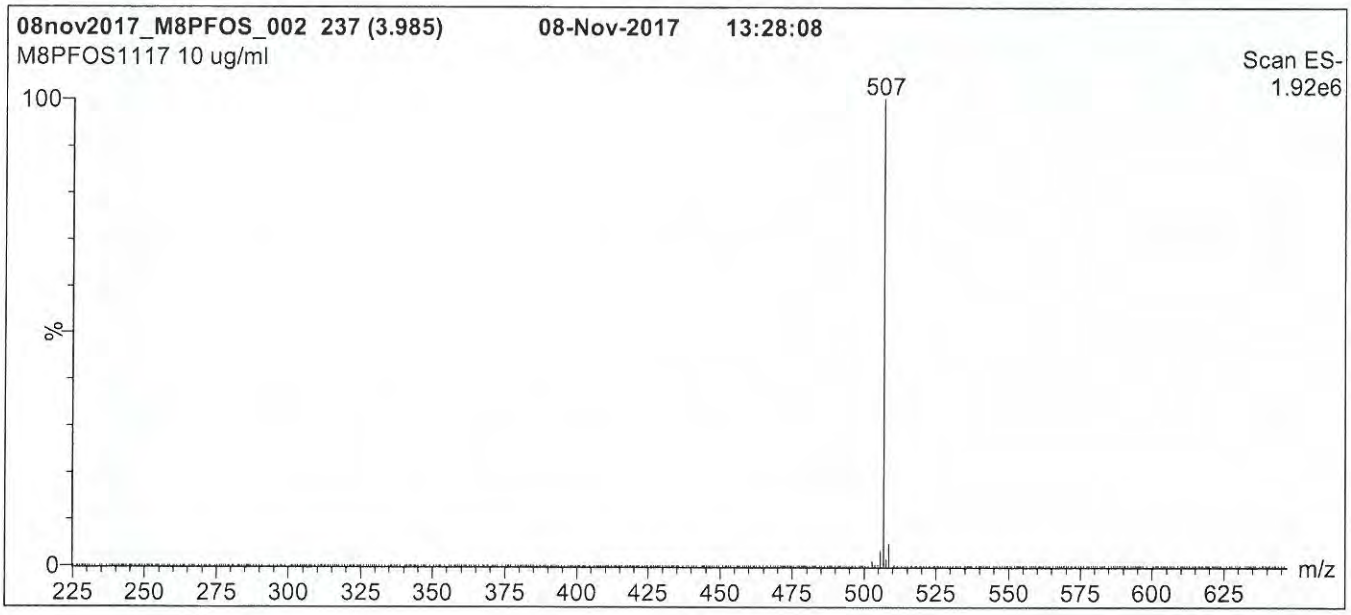
ANAB ACCREDITED

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18B1520

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

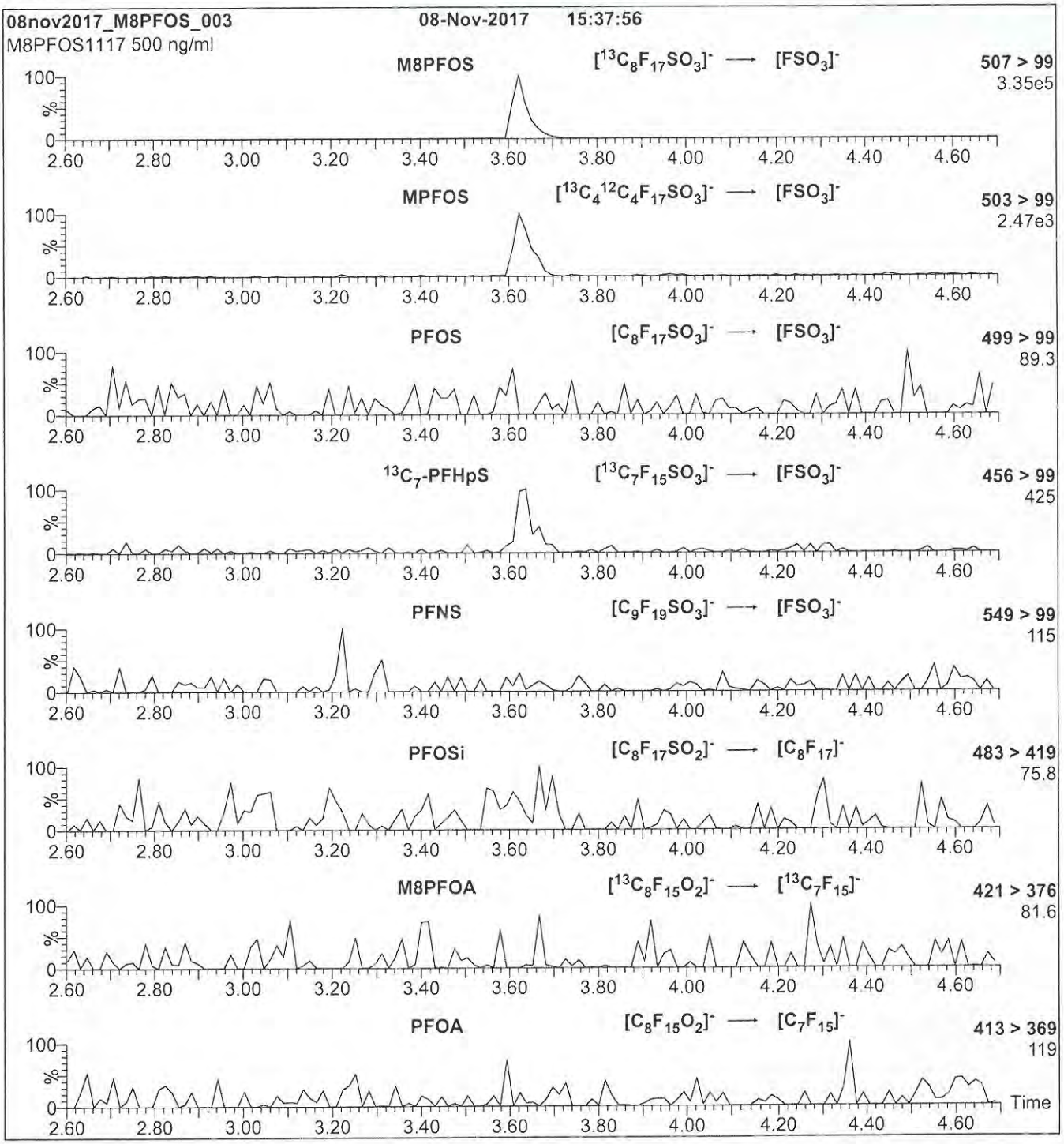
MS Parameters

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

18B1520

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

18B1525

WELLINGTON LABORATORIES

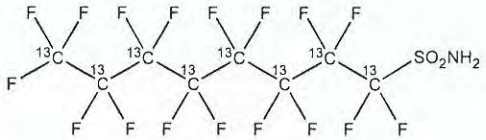
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

18B1525

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HOMOGENEITY:

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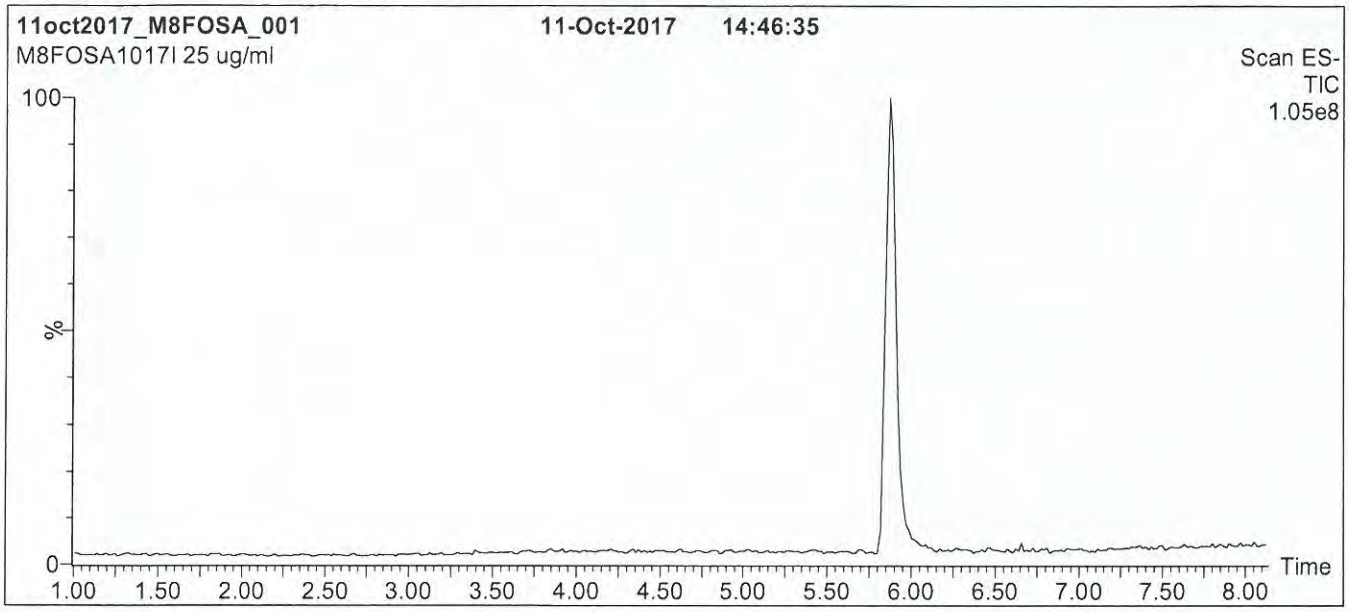
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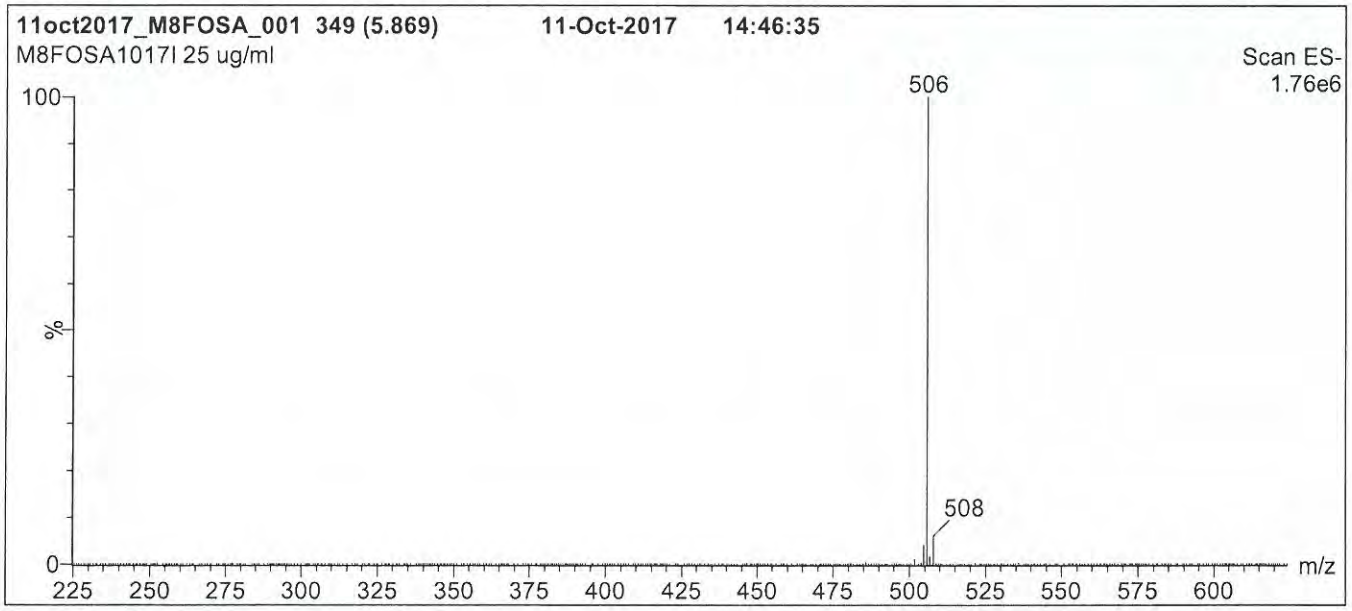
ANAB ACCREDITED

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18B1525

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

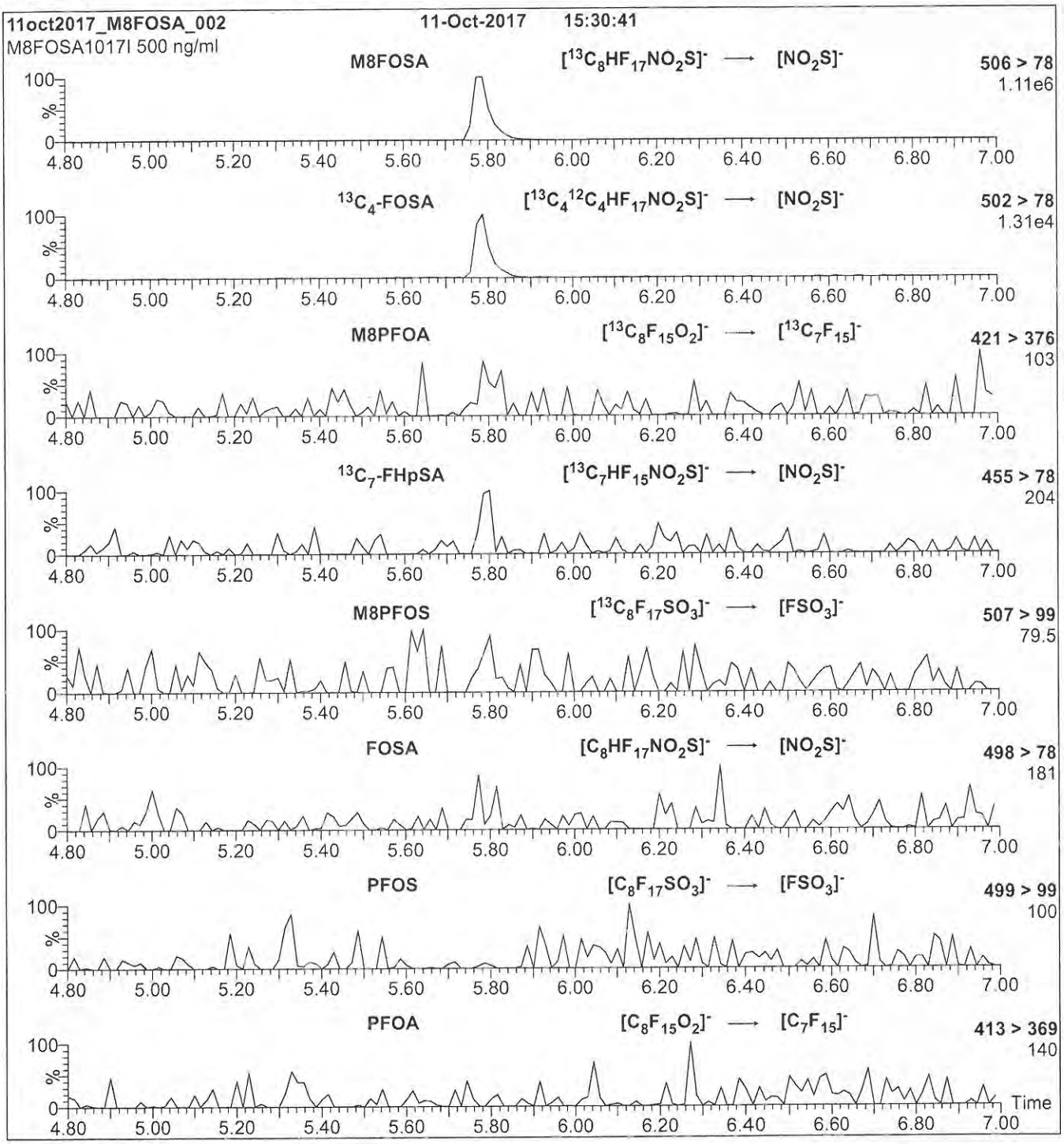
MS Parameters

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

18B1525

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

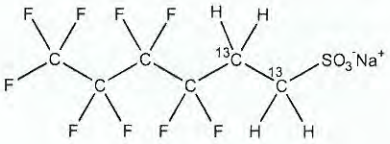
Collision Gas (mbar) = 3.43e-3
Collision Energy (eV) = 30

180910

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) 46.7 ± 2.3 µg/ml (M2-4:2FTS anion)	**SOLVENT(S):**	Methanol
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

180910

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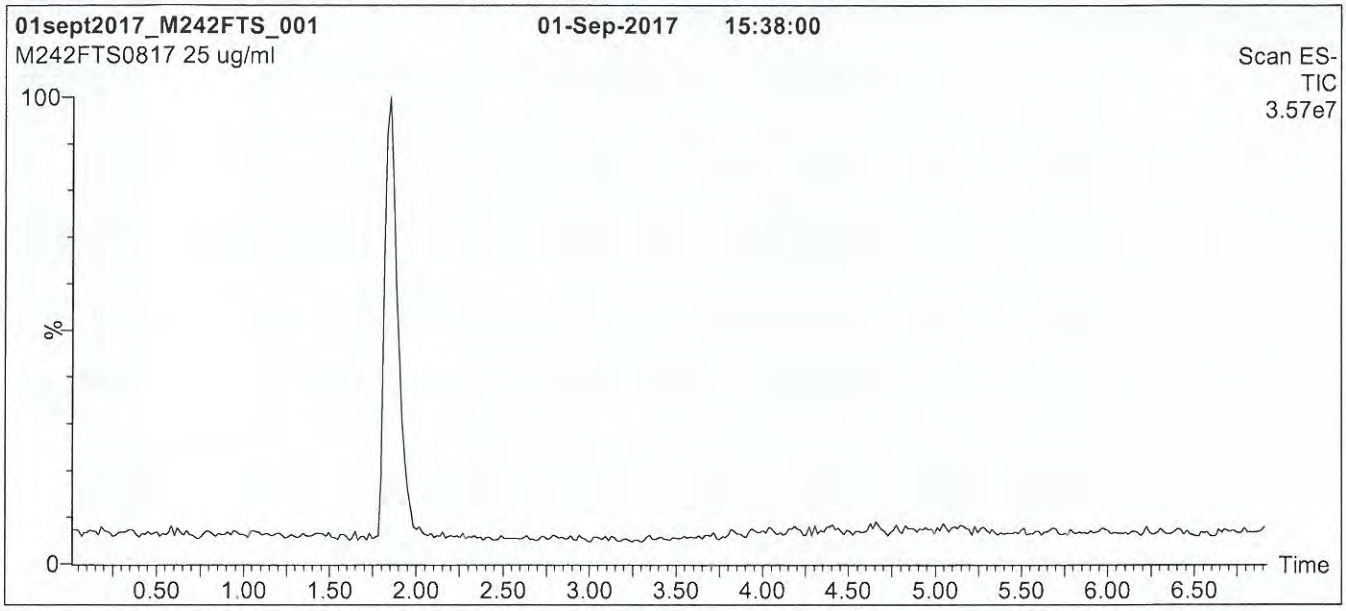
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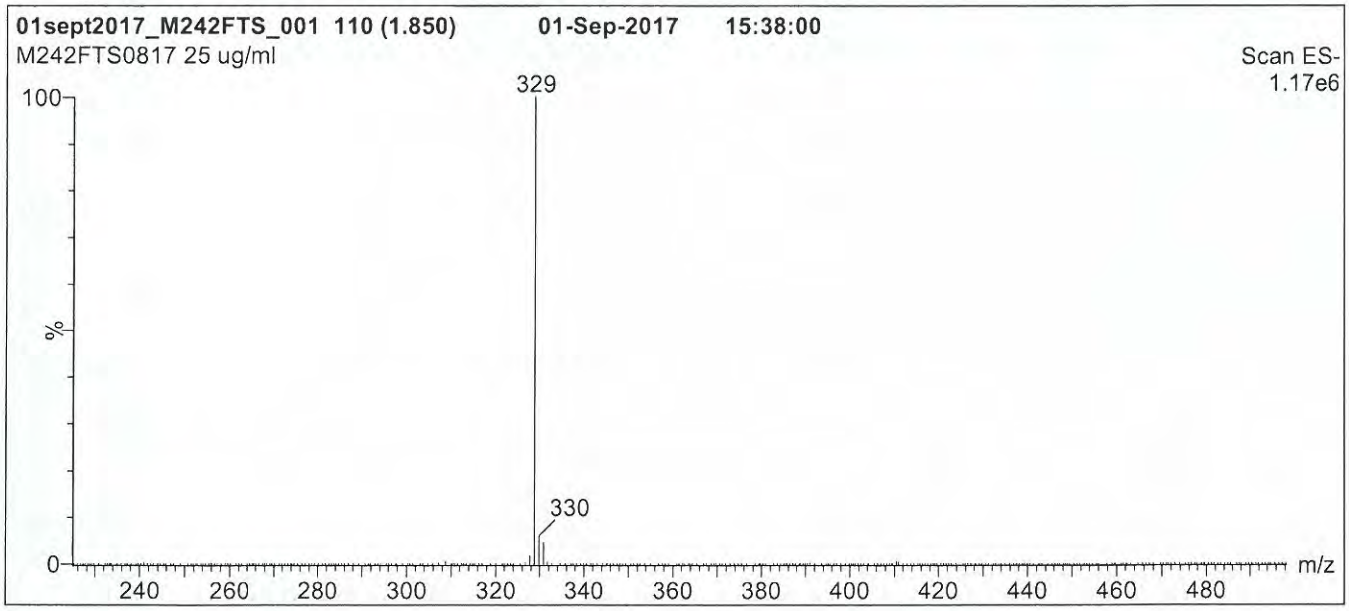
ANAB ACCREDITED

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18C0910

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

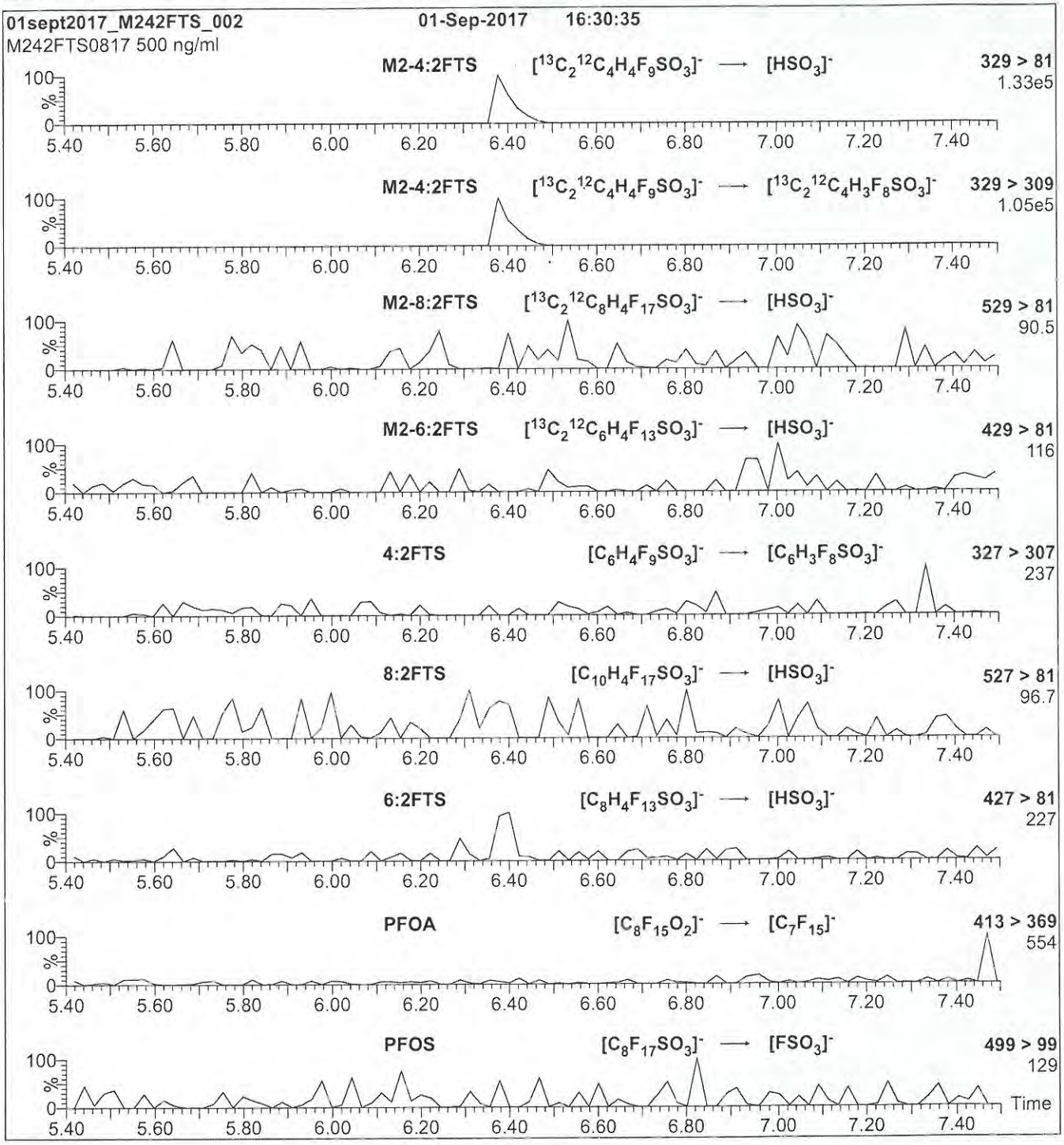
MS Parameters

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

18C0910

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

Analytical Standard Record

Vista Analytical Laboratory

18E0923

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	(mls)
18C2711	PFDoA	27-Mar-18	** Vendor **	29-May-22	0.4
18C2712	PFBA	27-Mar-18	** Vendor **	14-Dec-22	0.4
18C2713	PFPeA	27-Mar-18	** Vendor **	14-Jun-22	0.4
18C2714	PFHxA	27-Mar-18	** Vendor **	27-Sep-22	0.4
18C2715	PFDA	27-Mar-18	** Vendor **	14-Dec-22	0.4
18C2716	PFUdA	27-Mar-18	** Vendor **	21-Sep-22	0.4
18C2717	PFTrDA	27-Mar-18	** Vendor **	02-May-22	0.4
18C2718	PFHpA	27-Mar-18	** Vendor **	27-Sep-22	0.4
18C2719	PFOA	27-Mar-18	** Vendor **	27-Sep-22	0.4
18C2720	PFNA	27-Mar-18	** Vendor **	20-Jul-22	0.4
18C2721	PFTeDA	27-Mar-18	** Vendor **	21-Sep-22	0.4
18C2722	PFHxDA	27-Mar-18	** Vendor **	13-Jul-22	0.4
18C2723	PFODA	27-Mar-18	** Vendor **	13-Jul-22	0.4
18C2724	br-PFHxSK	27-Mar-18	** Vendor **	04-Jan-22	0.44
18C2725	br-PFOSK anion	27-Mar-18	** Vendor **	12-Jan-22	0.431
18C2726	L-PFBS	27-Mar-18	** Vendor **	21-Sep-22	0.454
18C2727	L-PFPeS	27-Mar-18	** Vendor **	11-Jan-22	0.428
18C2728	L-PFHpS	27-Mar-18	** Vendor **	01-Sep-22	0.42
18C2729	L-PFNS	27-Mar-18	** Vendor **	27-Sep-22	0.418
18C2730	L-PFDS	27-Mar-18	** Vendor **	08-Nov-22	0.415
18C2731	4:2 FTS	27-Mar-18	** Vendor **	12-Dec-21	0.43
18C2732	6:2FTS	27-Mar-18	** Vendor **	20-Apr-22	0.422
18C2733	8:2FTS	27-Mar-18	** Vendor **	24-Jan-23	0.418
18C2734	FOSA-I	27-Mar-18	** Vendor **	01-Sep-22	0.4
18C2737	N-MeFOSA-M	27-Mar-18	** Vendor **	05-Jul-22	2
18C2738	N-EtFOSA-M	27-Mar-18	** Vendor **	05-Jul-22	2
18C2739	N-MeFOSE-M	27-Mar-18	** Vendor **	24-Apr-22	2
18C2740	N-EtFOSE-M	27-Mar-18	** Vendor **	24-Apr-22	2
18D1306	br-NMeFOSAA	13-Apr-18	** Vendor **	17-Jan-23	0.4
18D1307	br-NEtFOSAA	13-Apr-18	** Vendor **	17-Jan-23	0.4

Description:	PFC NS Stock	Expires:	10-May-20
Standard Type:	Analyte Spike	Prepared:	10-May-18
Solvent:	MeOH	Prepared By:	Giana R. Bilotta
Final Volume (mls):	20	Department:	LCMS
Vials:	1	Last Edit:	31-May-18 14:02 by AEW

PFOS and PFHxS linear and branched components
As of 5/27/18, MeFOSAA and EtFOSAA include Linear and Branched.
180517M1-4
QC OPR Tester for New Spikes. Run on May 17, 2018. GRB

Analyte	CAS Number	Concentration	Units
L-PFOA		1	ug/mL
L-PFTrDA		1	ug/mL
L-PFHpA		1	ug/mL

Analytical Standard Record

Vista Analytical Laboratory

18E0923

Description:	PFC NS Stock	Expires:	10-May-20
Standard Type:	Analyte Spike	Prepared:	10-May-18
Solvent:	MeOH	Prepared By:	Giana R. Bilotta
Final Volume (mls):	20	Department:	LCMS
Vials:	1	Last Edit:	31-May-18 14:02 by AEW

PFOS and PFHxS linear and branched components
As of 5/27/18, MeFOSAA and EtFOSAA include Linear and Branched.
180517M1-4
QC OPR Tester for New Spikes. Run on May 17, 2018. GRB

Analyte	CAS Number	Concentration	Units
L-PFHpS		1	ug/mL
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	1	ug/mL
L-MeFOSAA	2355-31-9	1	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

Analytical Standard Record

Vista Analytical Laboratory

18E0923

Description:	PFC NS Stock	Expires:	10-May-20
Standard Type:	Analyte Spike	Prepared:	10-May-18
Solvent:	MeOH	Prepared By:	Giana R. Bilotta
Final Volume (mls):	20	Department:	LCMS
Vials:	1	Last Edit:	31-May-18 14:02 by AEW

PFOS and PFHxS linear and branched components
As of 5/27/18, MeFOSAA and EtFOSAA include Linear and Branched.
180517M1-4
QC OPR Tester for New Spikes. Run on May 17, 2018. GRB

Analyte	CAS Number	Concentration	Units
PFOSA	754-91-6	1	ug/mL
PFPeA	2706-90-3	1	ug/mL
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

18C2711

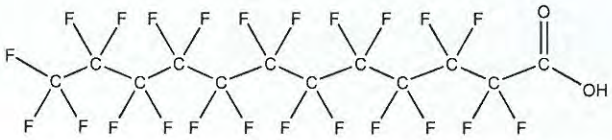
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFDoA
COMPOUND: Perfluoro-n-dodecanoic acid
LOT NUMBER: PFDoA0517

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) 05/29/2017
EXPIRY DATE: (mm/dd/yyyy) 05/29/2022
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:** 05/30/2017 (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

18C2711

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:

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

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).

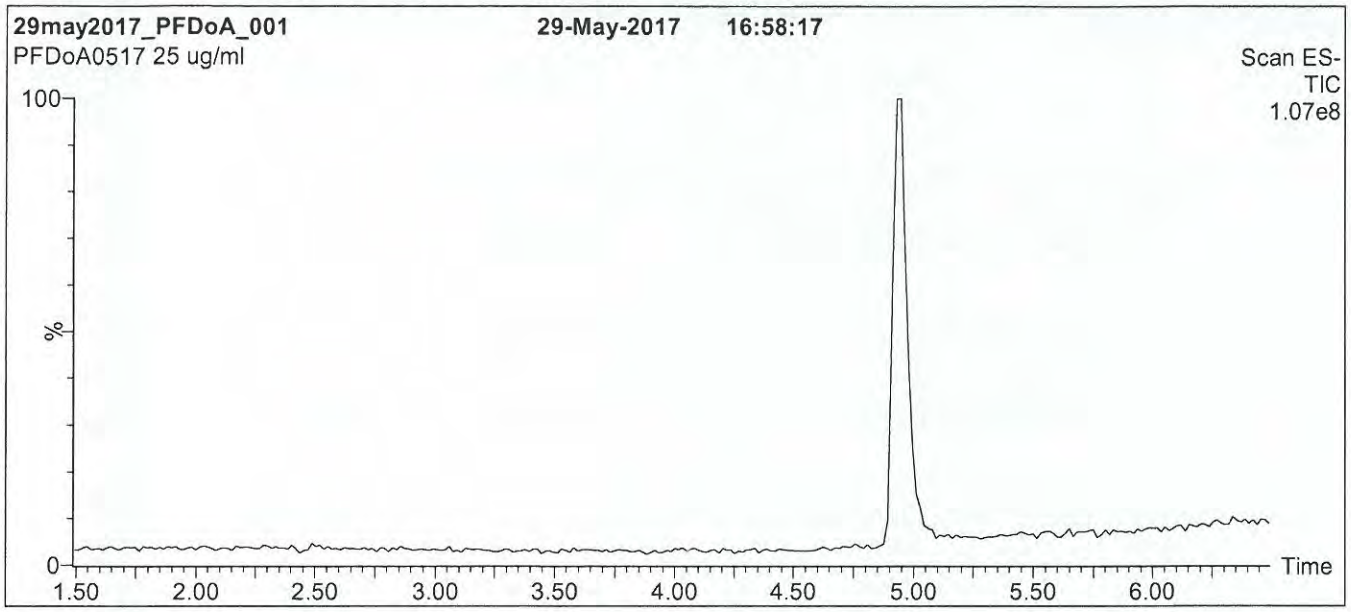
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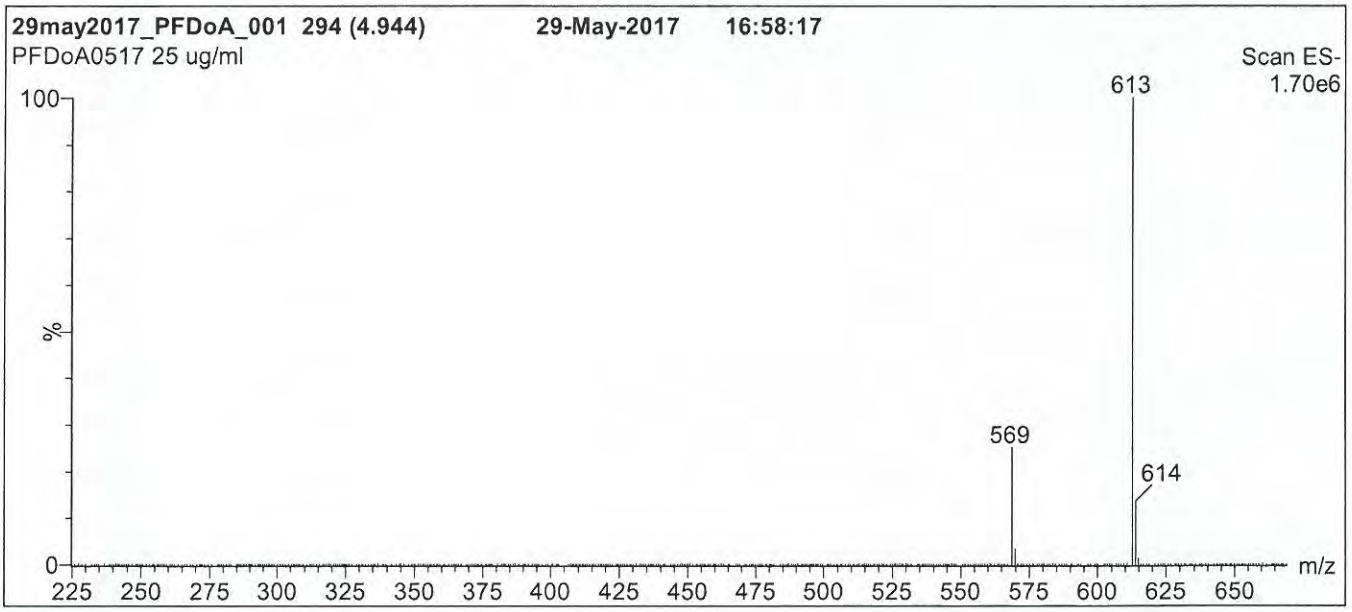
ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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

18C2711

Figure 1: **PFDoA; 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

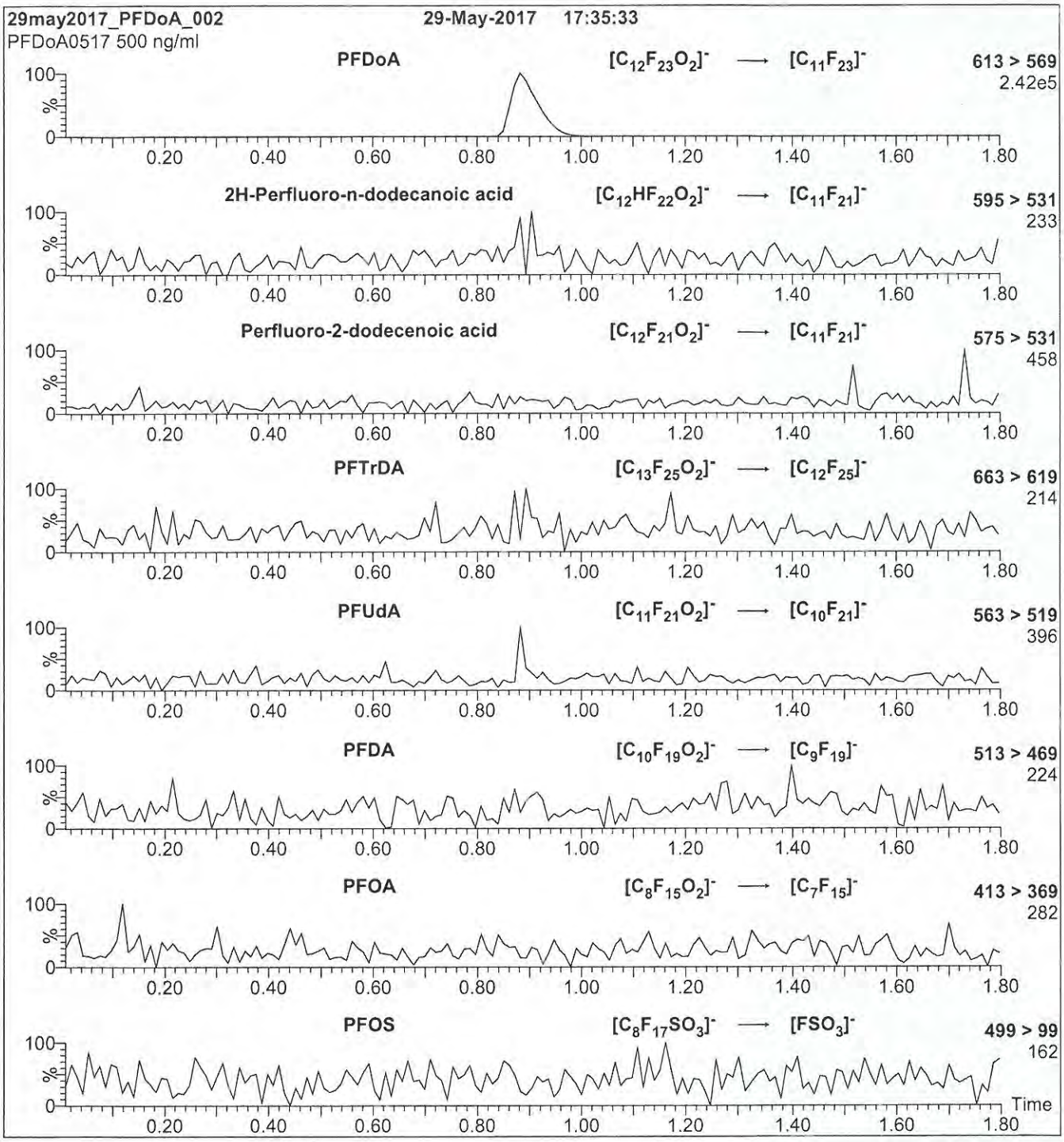
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 20.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

18C2711

Figure 2: **PFDoA; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml PFDoA)

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

18C2712

WELLINGTON LABORATORIES

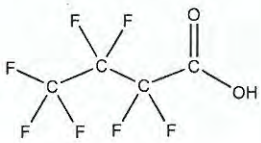
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFBA
COMPOUND: Perfluoro-n-butanoic acid

LOT NUMBER: PFBA1217

STRUCTURE:

CAS #: 375-22-4



MOLECULAR FORMULA: $C_4HF_7O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 214.04
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

18C2712

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:

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EXPIRY DATE / PERIOD OF VALIDITY:

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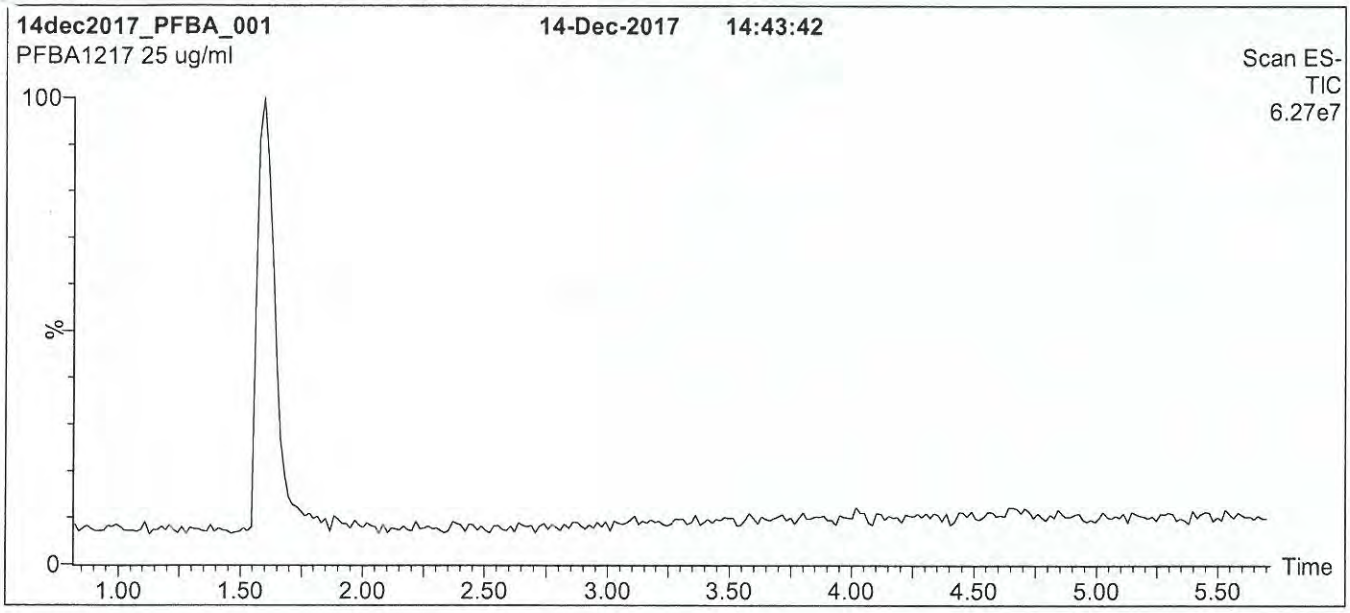
CALA Testing

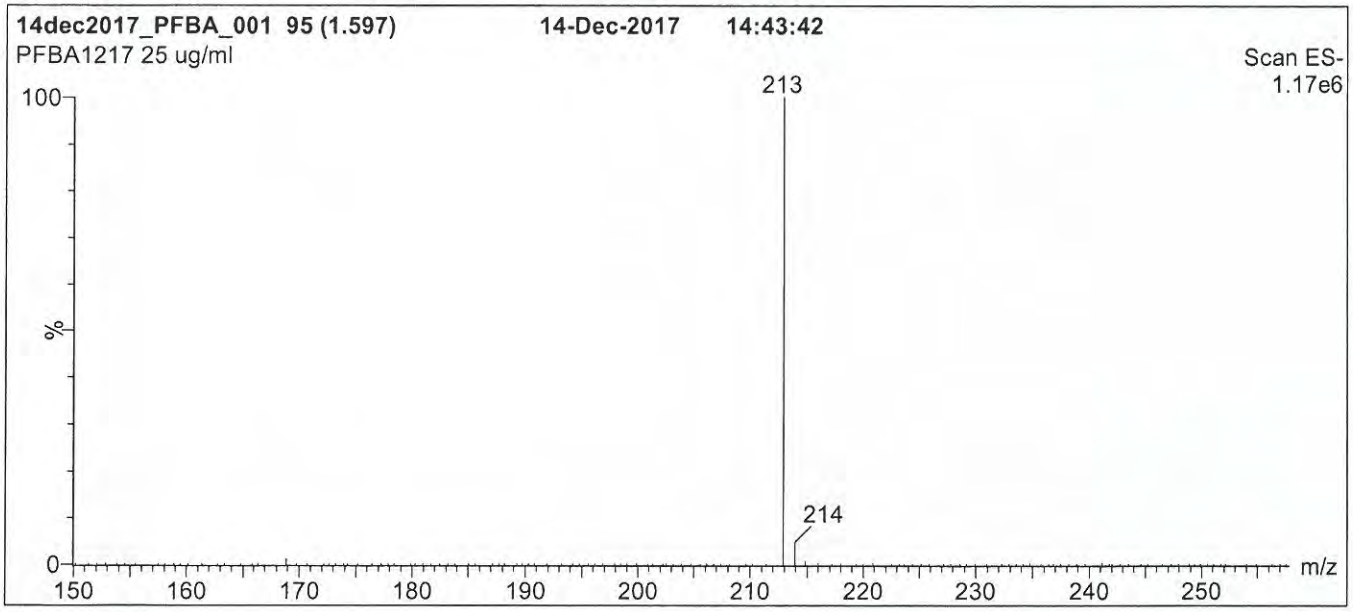
ANAB ACCREDITED Reference Material Producer

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

18C2712

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

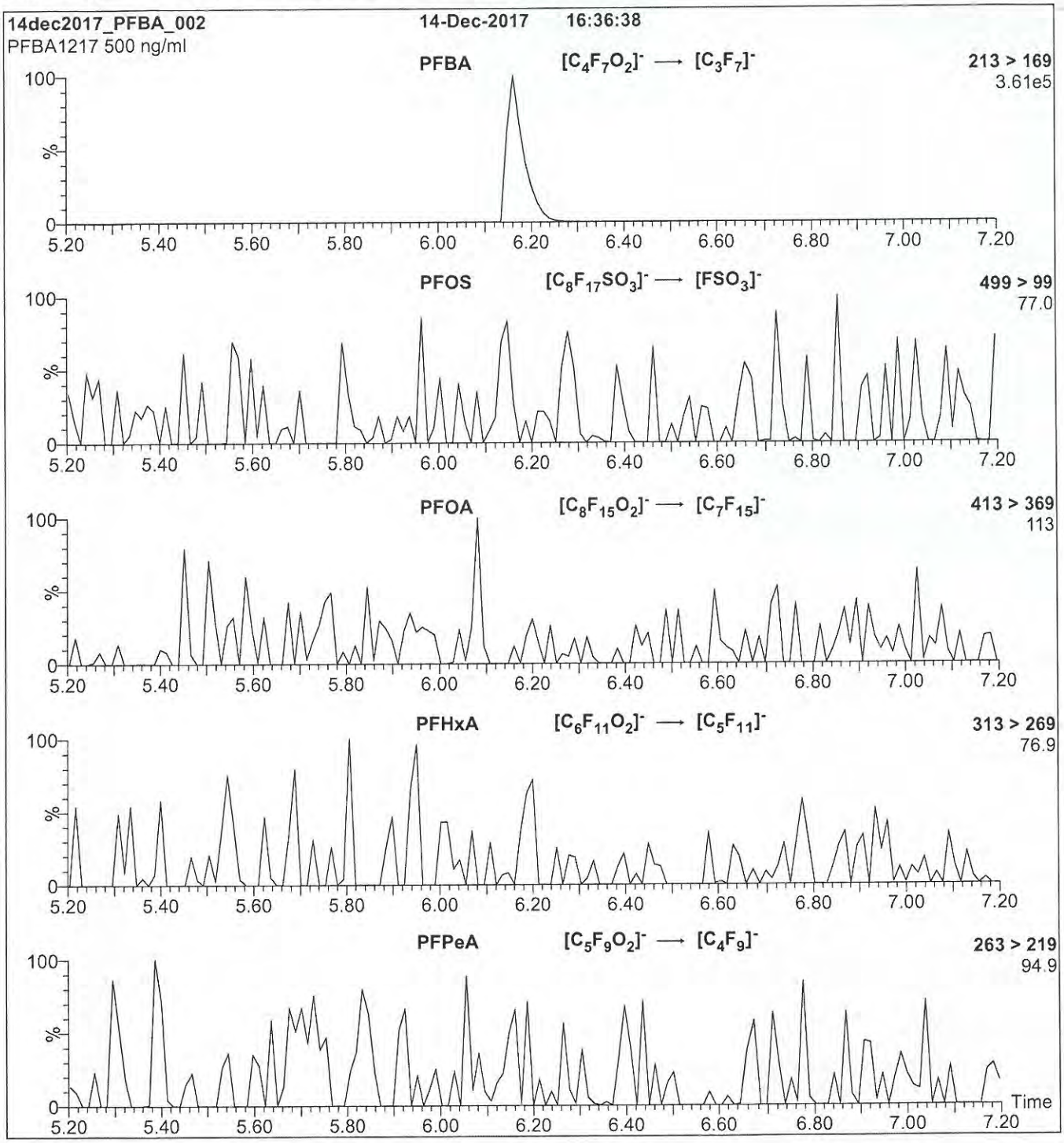
MS Parameters

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

18C2712

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

18C2713

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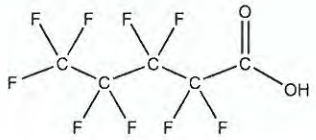
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFPeA
COMPOUND: Perfluoro-n-pentanoic acid

LOT NUMBER: PFPeA0617

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) 06/14/2017
EXPIRY DATE: (mm/dd/yyyy) 06/14/2022
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 ~ 0.3% 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:** 06/16/2017 (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

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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 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).

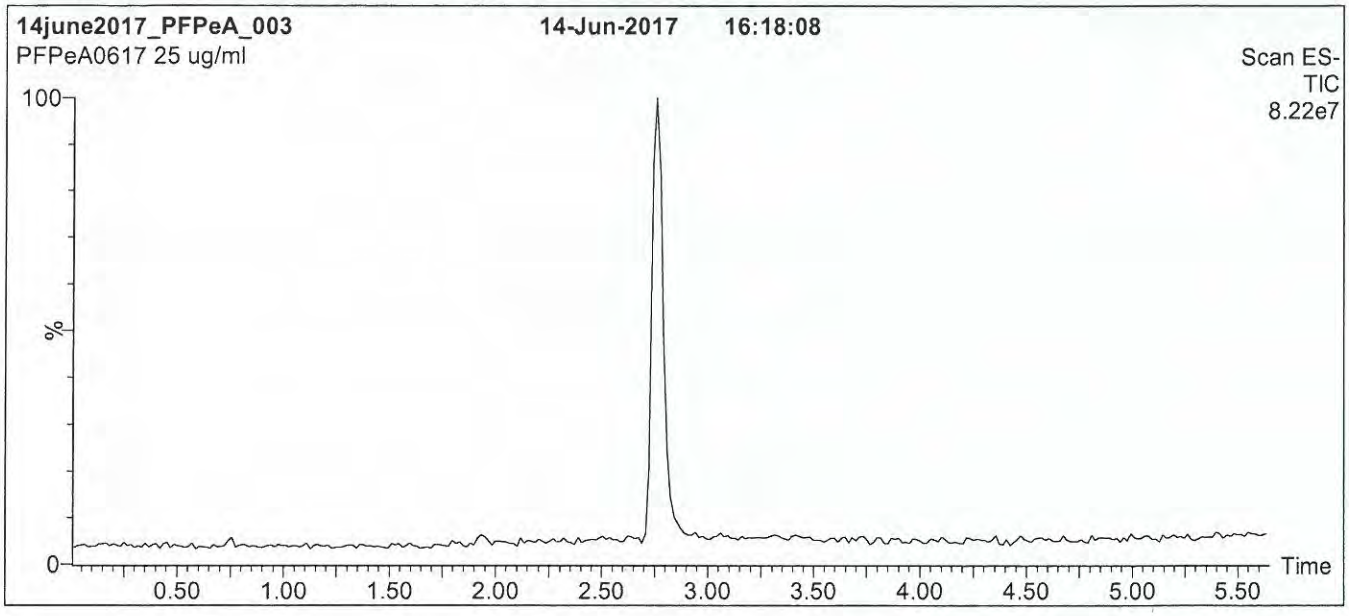
CALA Testing

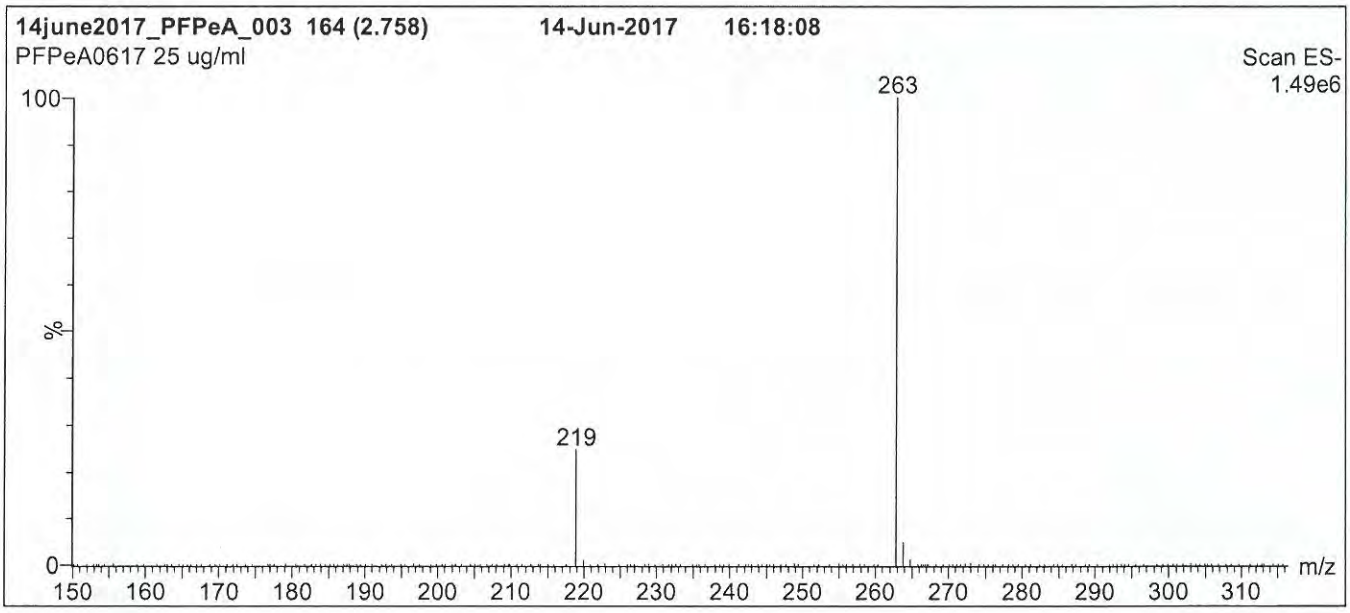
ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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182713

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

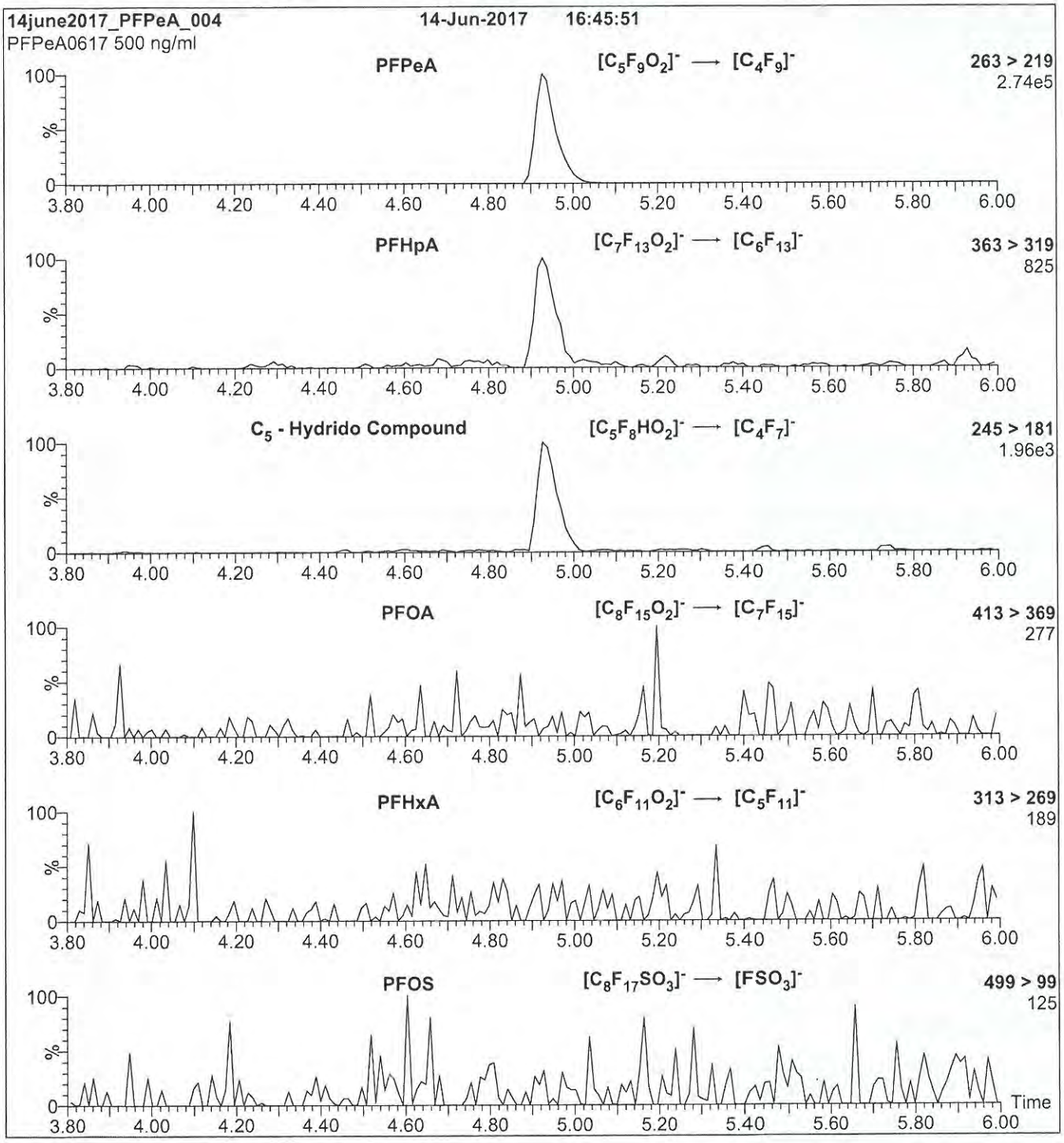
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

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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) = 3.62e-3
Collision Energy (eV) = 9

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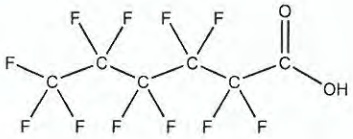
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFHxA
COMPOUND: Perfluoro-n-hexanoic acid

LOT NUMBER: PFHxA0917

STRUCTURE:

CAS #: 307-24-4



MOLECULAR FORMULA: $C_6HF_{11}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 314.05
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

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INTENDED USE:

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HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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UNCERTAINTY:

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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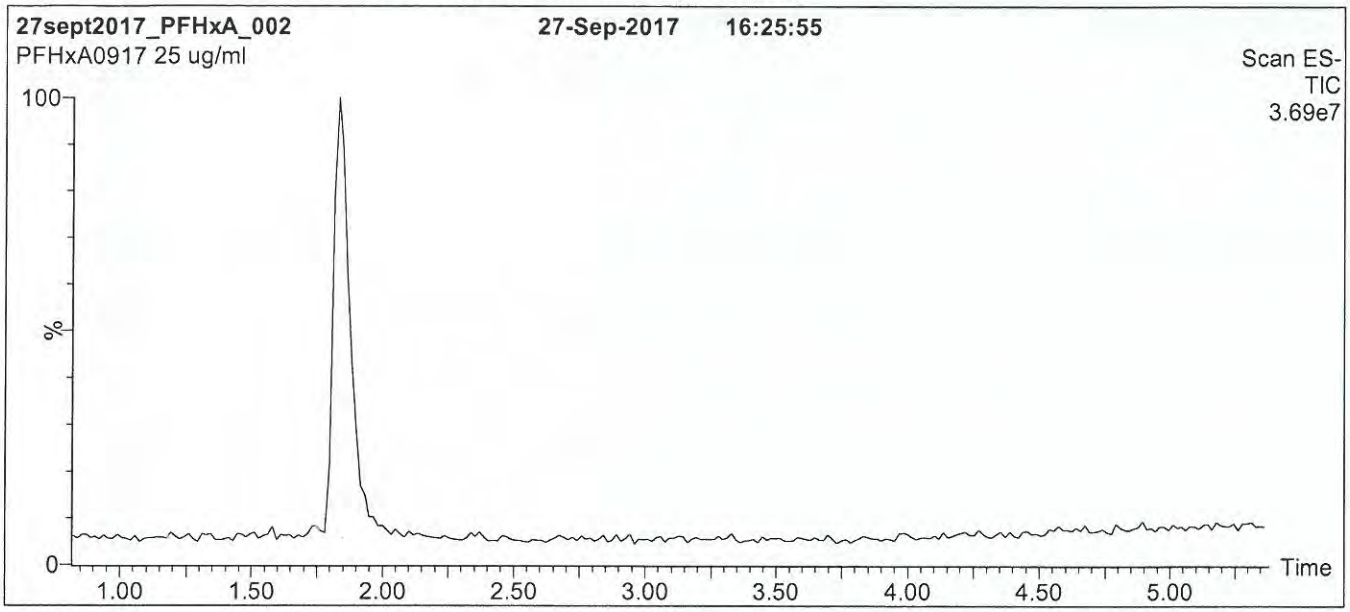
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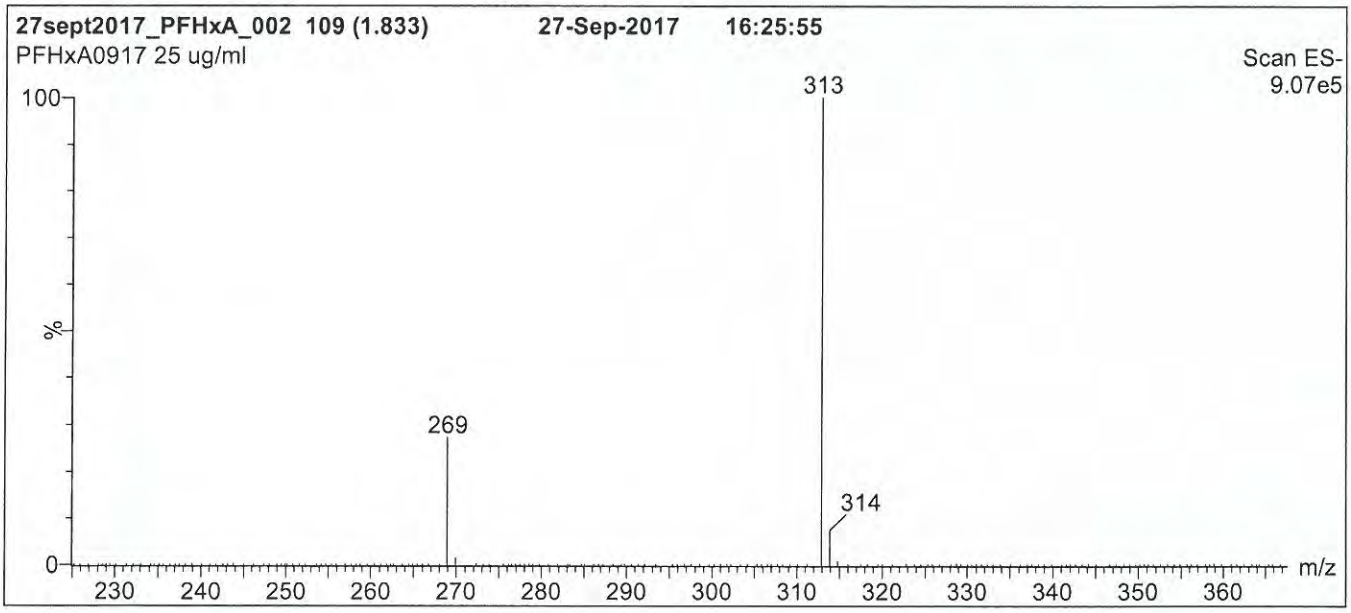
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18C2714

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

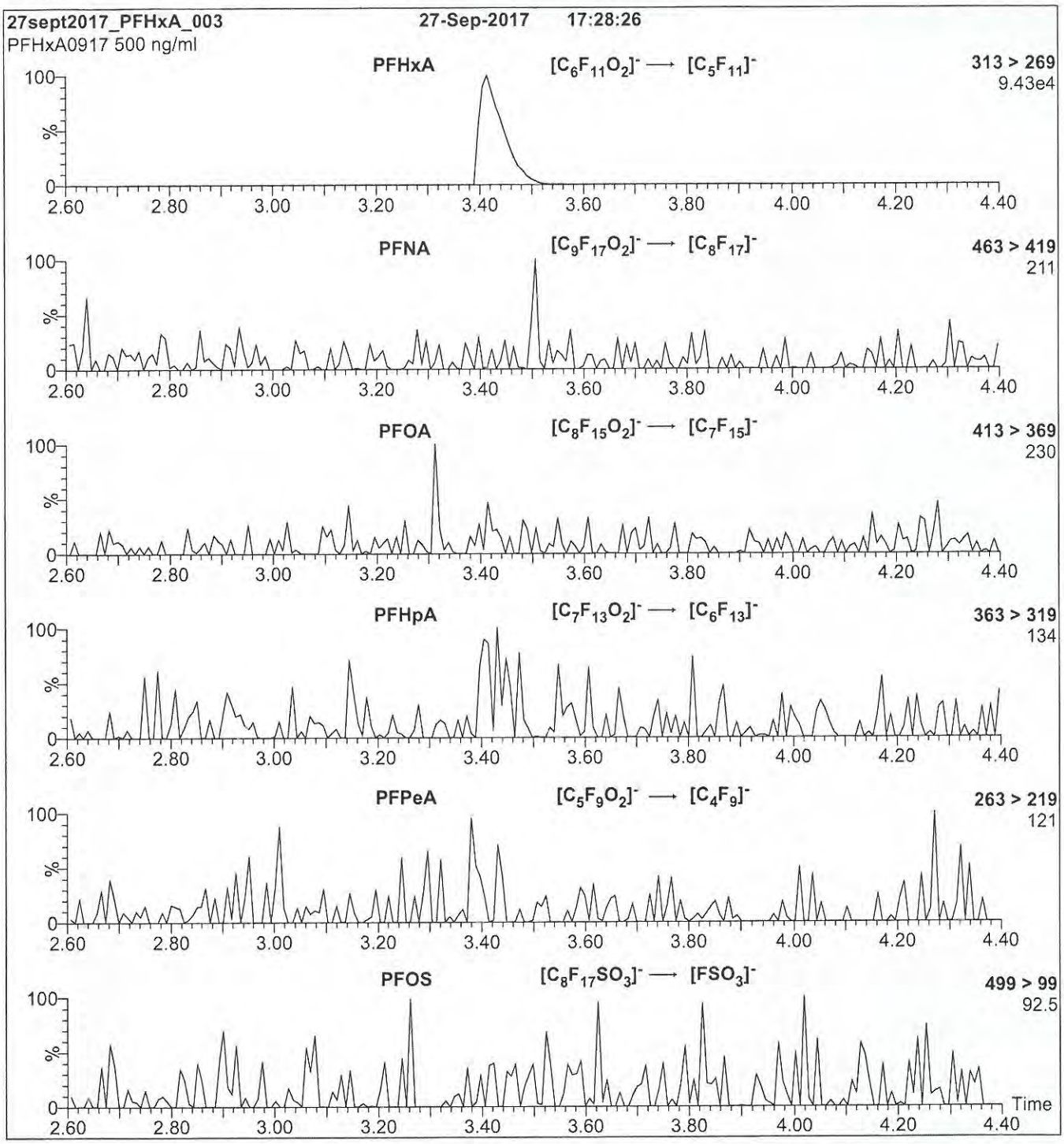
MS Parameters

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

18C2714

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

18C2715

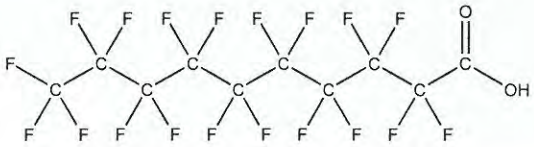
WELLINGTON LABORATORIES

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

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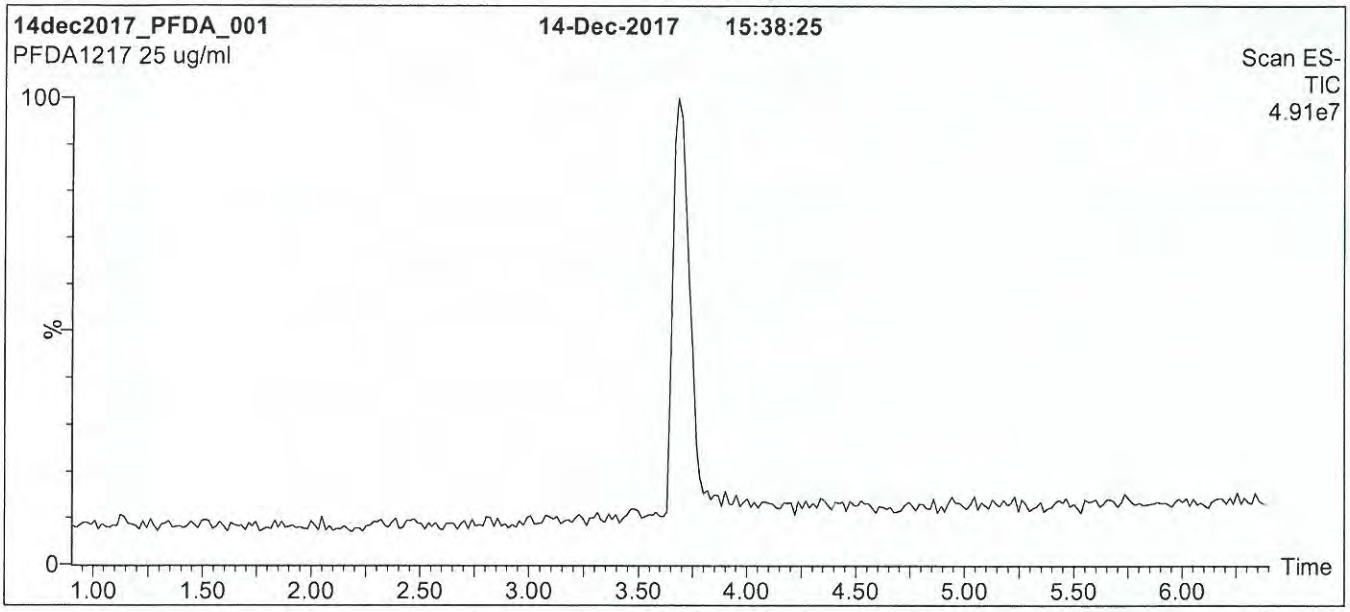
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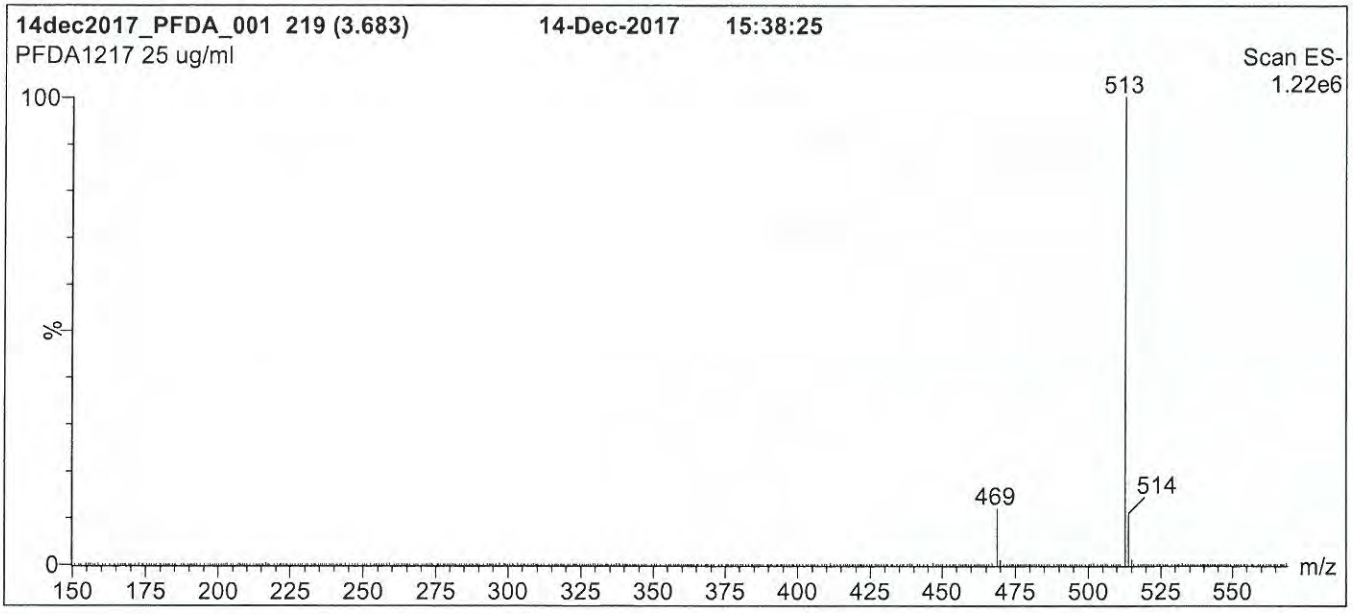
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1802715

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

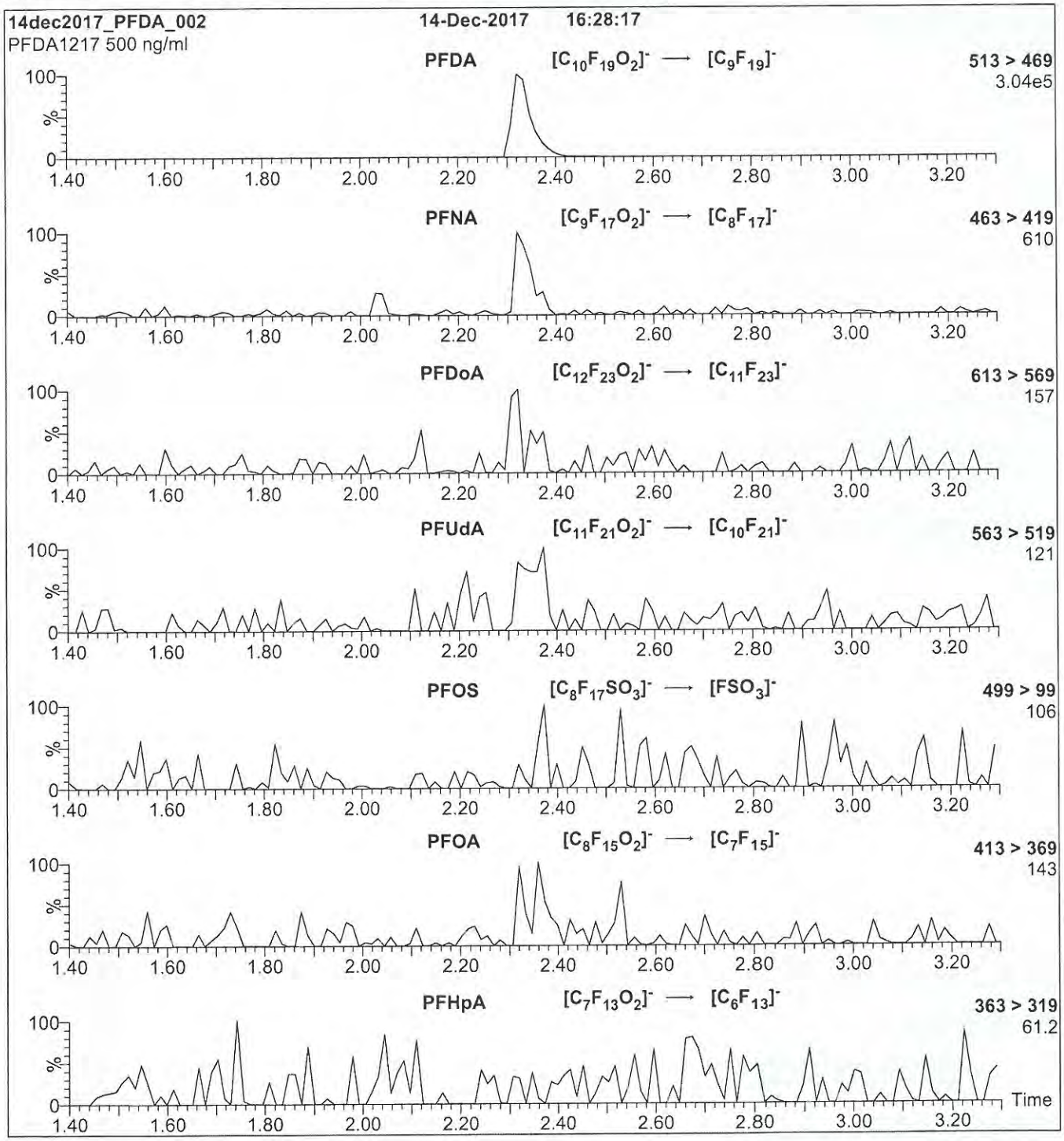
MS Parameters

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

18C2715

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

18C2716

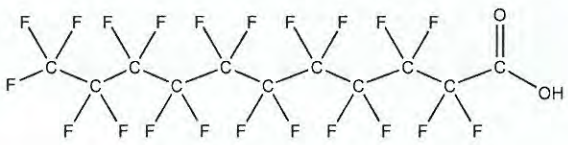
WELLINGTON LABORATORIES

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
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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:

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).

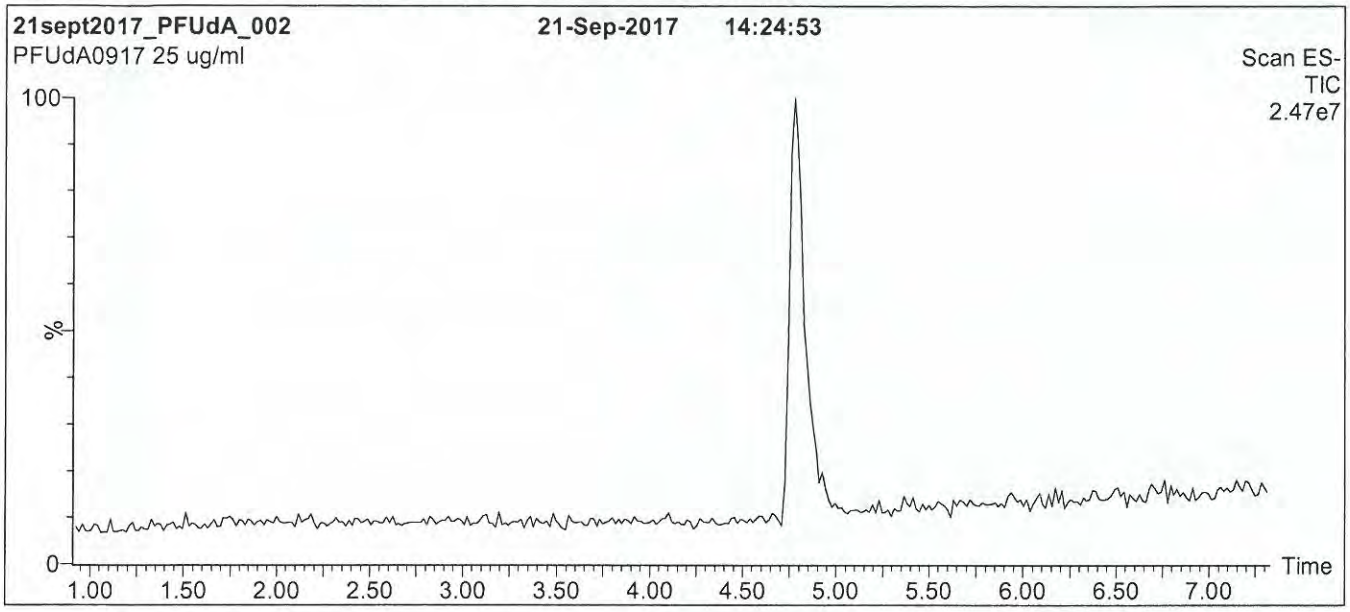
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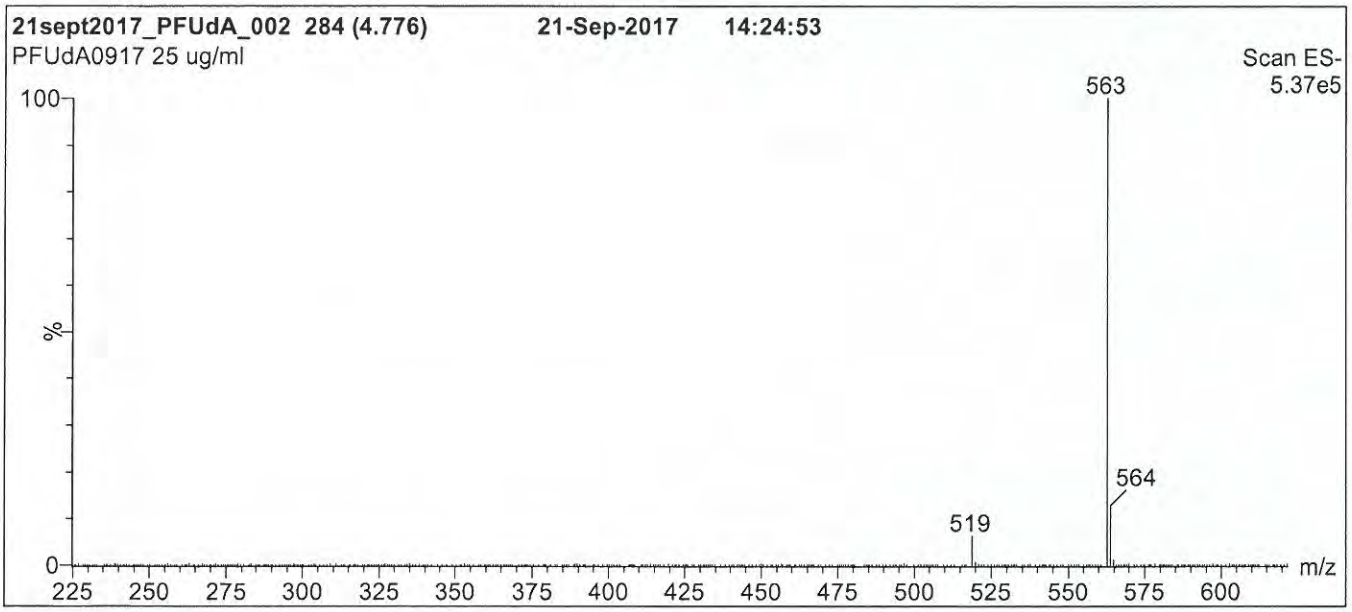
ANAB ACCREDITED Reference Material Producer

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18C2716

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

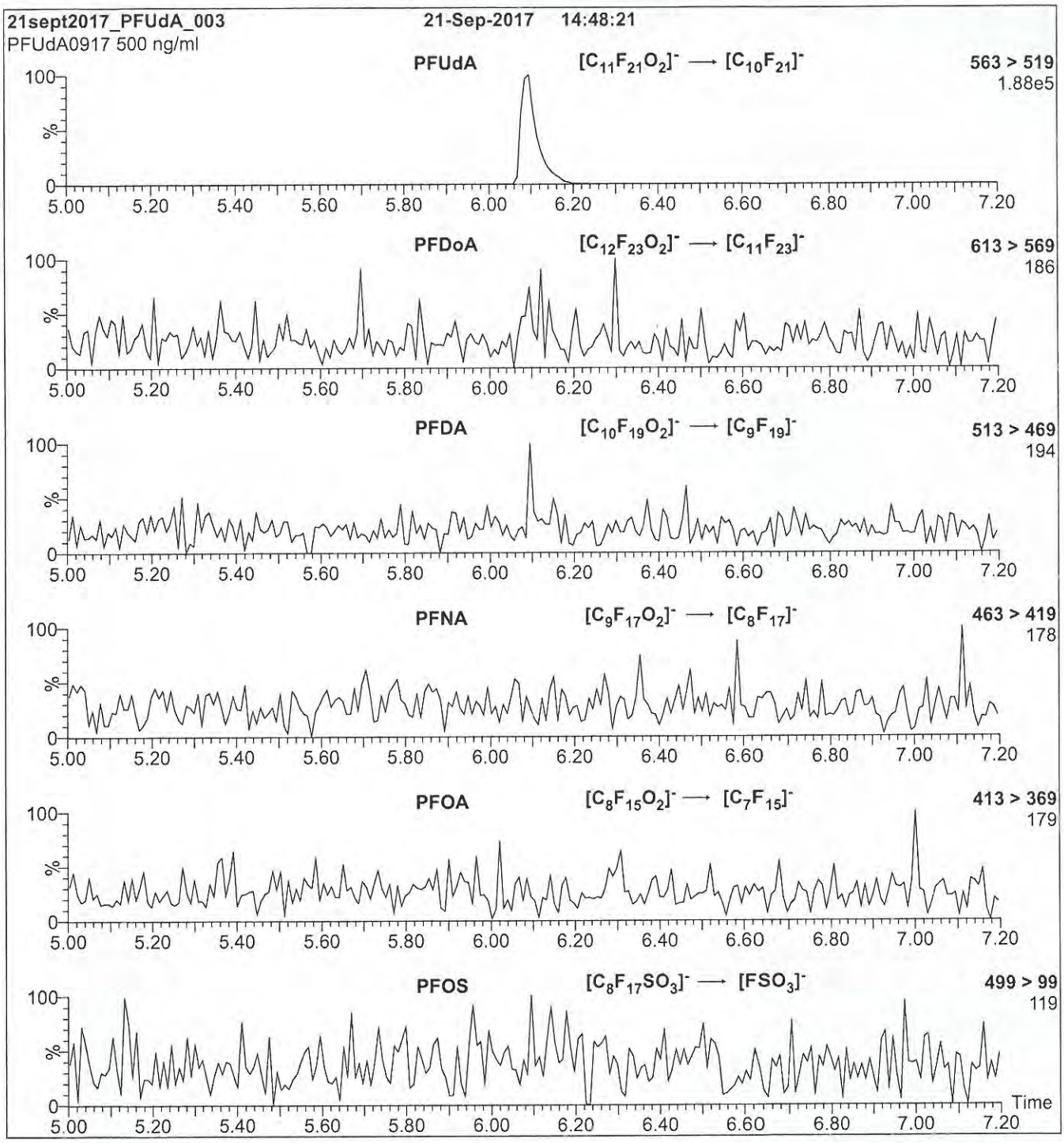
MS Parameters

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

18C2716

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

18C2717

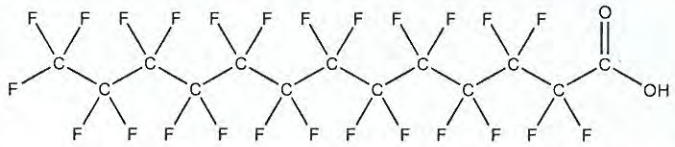
WELLINGTON LABORATORIES

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: B.G. Chittim, General Manager
Date: 05/04/2017 (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

18C2717

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:

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QUALITY MANAGEMENT:

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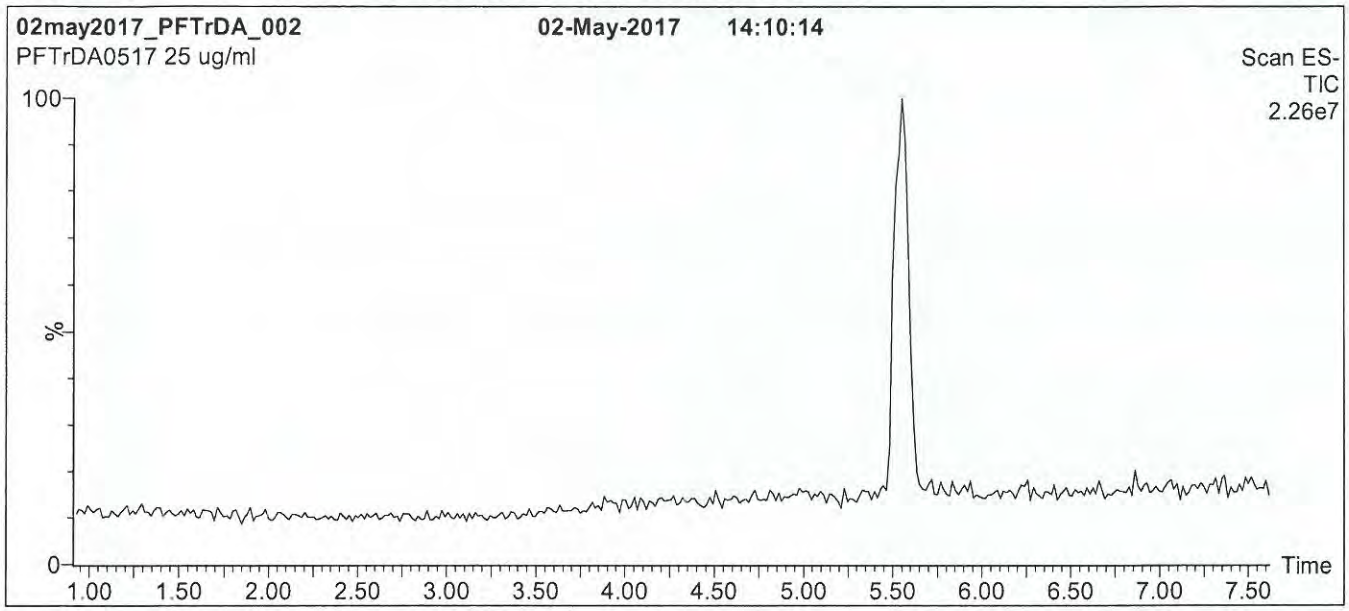
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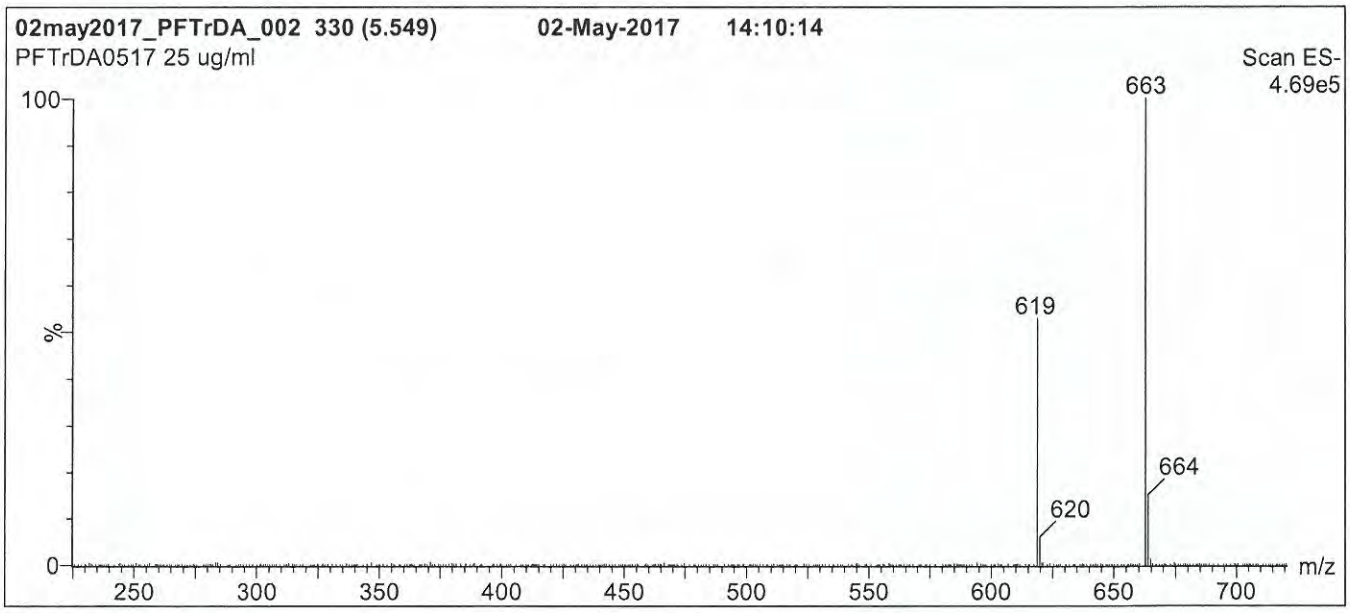
ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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18C2717

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

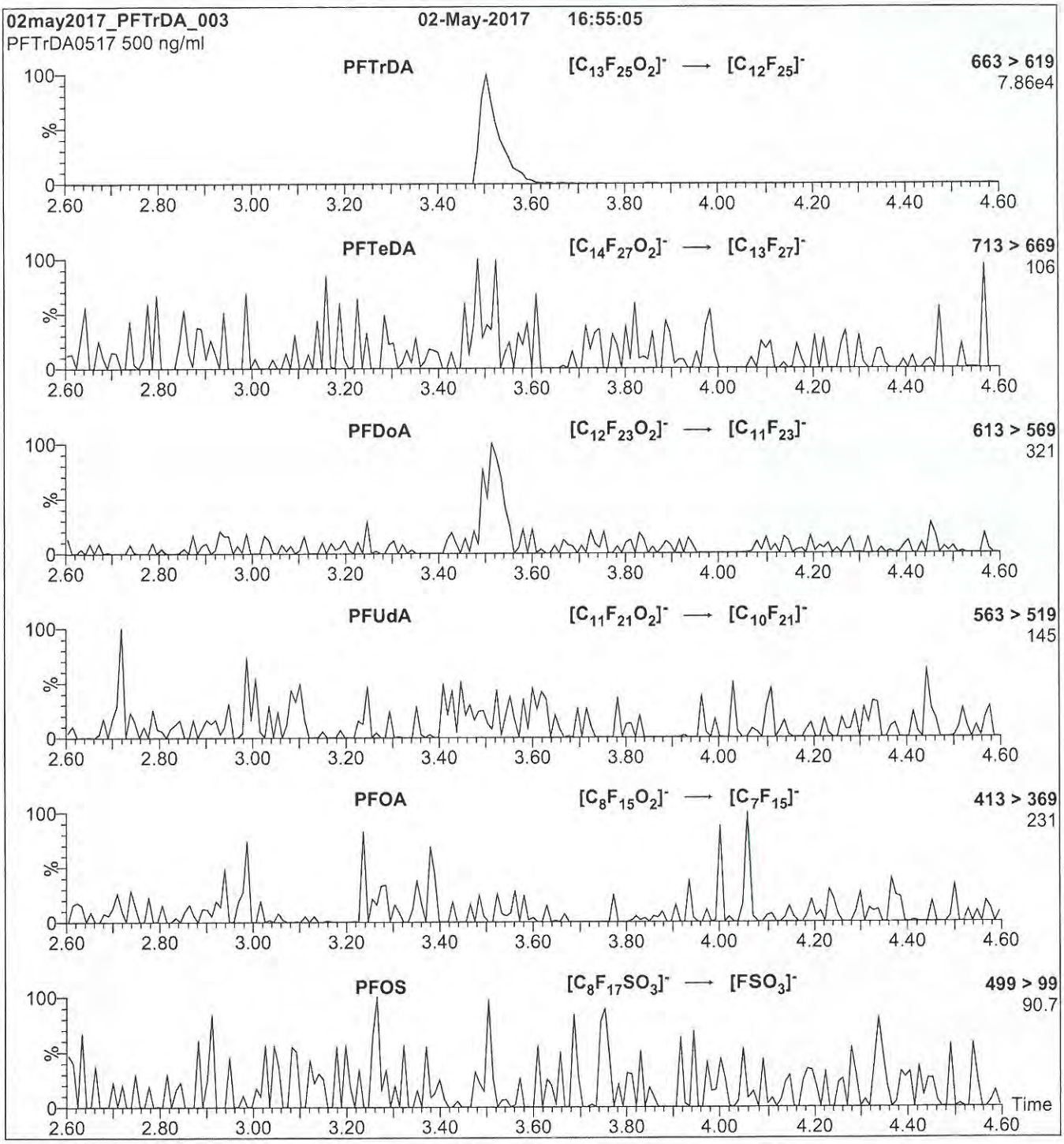
MS Parameters

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

18C2717

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

18C2718

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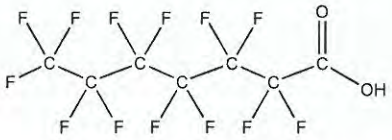
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFHpA
COMPOUND: Perfluoro-n-heptanoic acid

LOT NUMBER: PFHpA0917

STRUCTURE:

CAS #: 375-85-9



MOLECULAR FORMULA: $C_7HF_{13}O_2$
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 364.06
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

18C2718

INTENDED USE:

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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:

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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.

TRACEABILITY:

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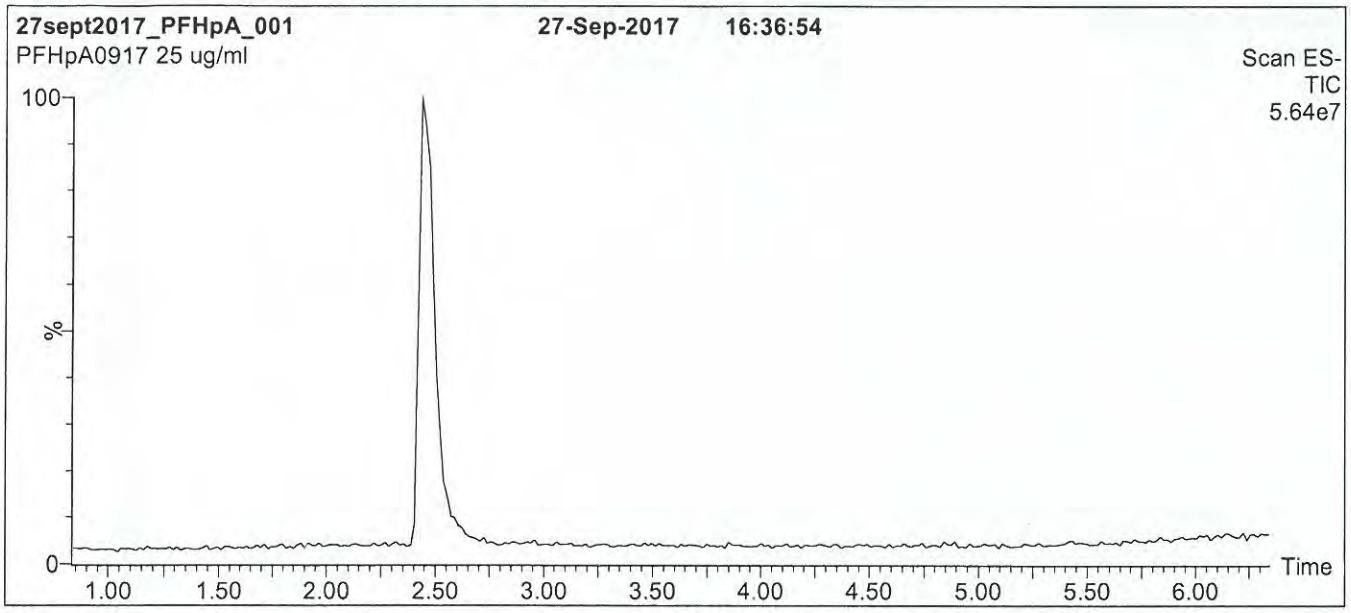
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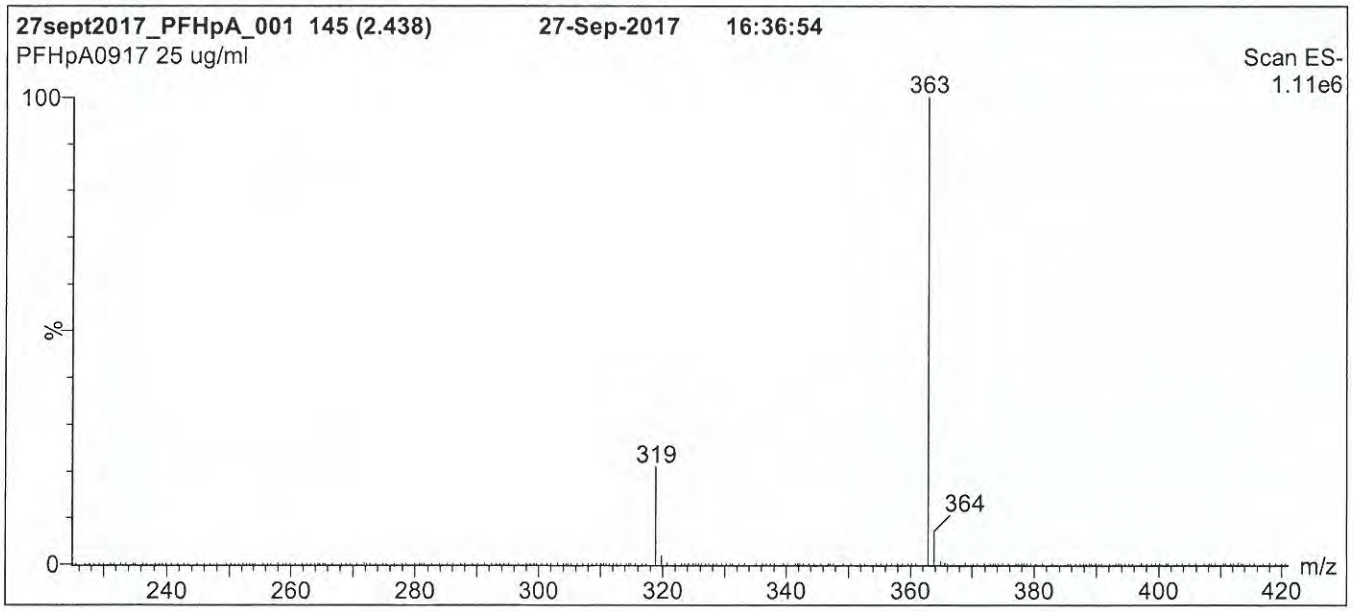
ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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18C2718

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

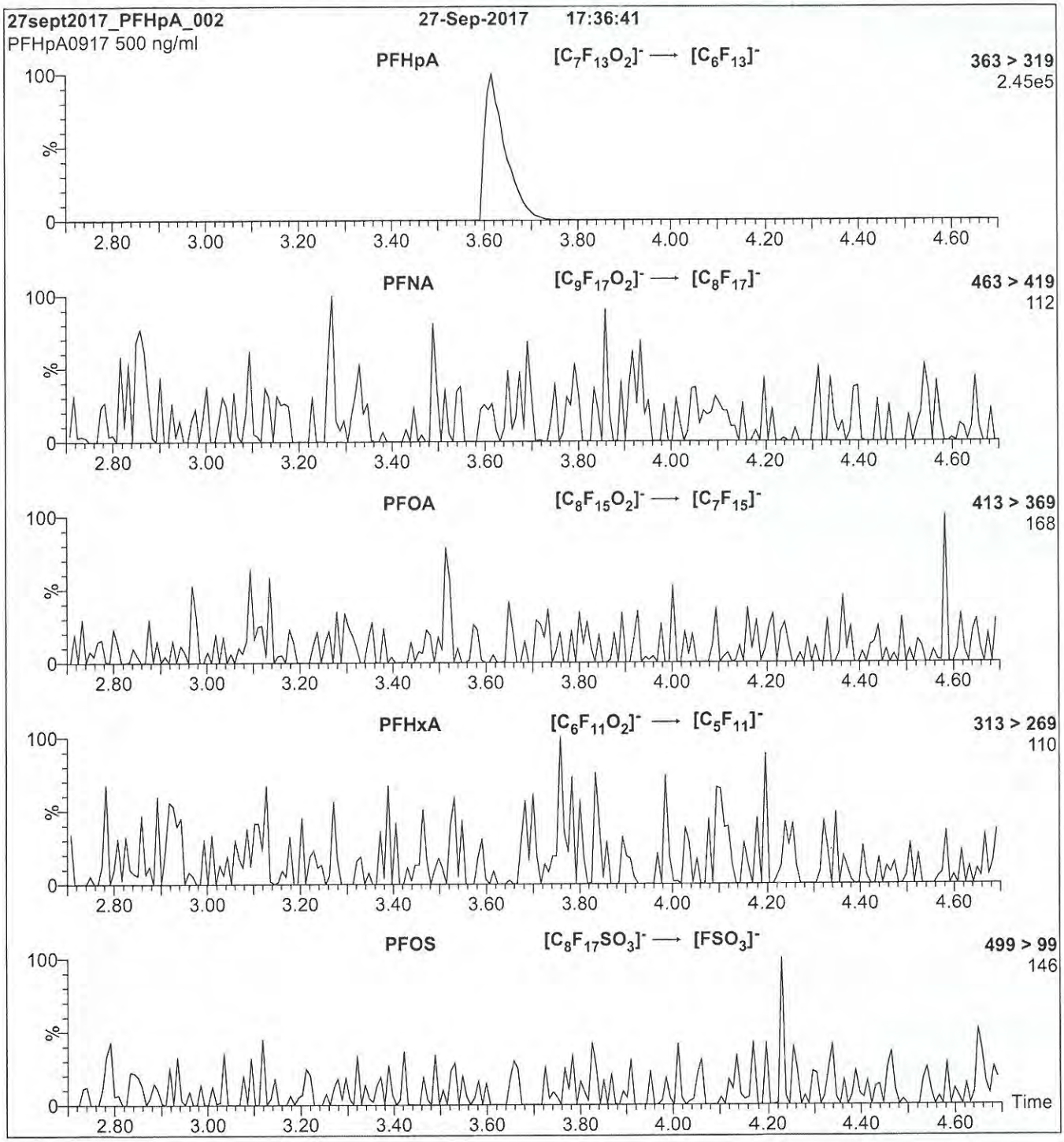
MS Parameters

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

18C2718

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

18C2719

WELLINGTON LABORATORIES

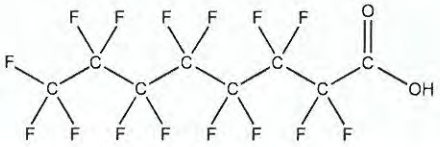
CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: PFOA
COMPOUND: Perfluoro-n-octanoic acid

LOT NUMBER: PFOA0917

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) 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.

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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

18C2719

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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).

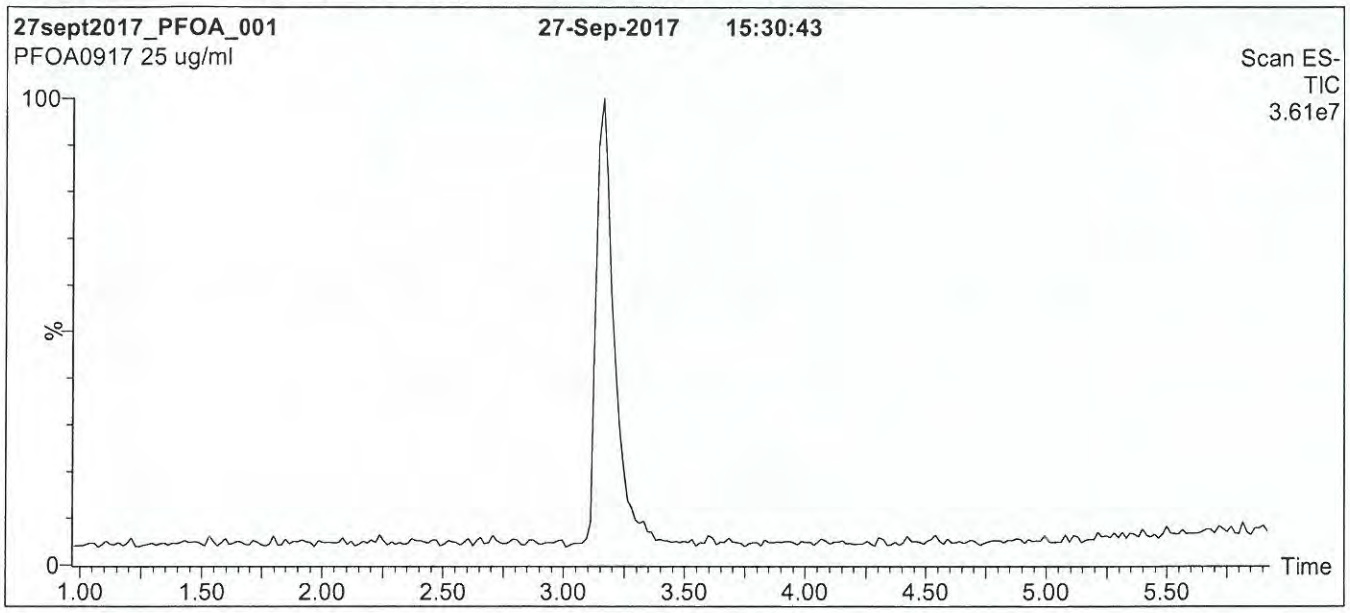
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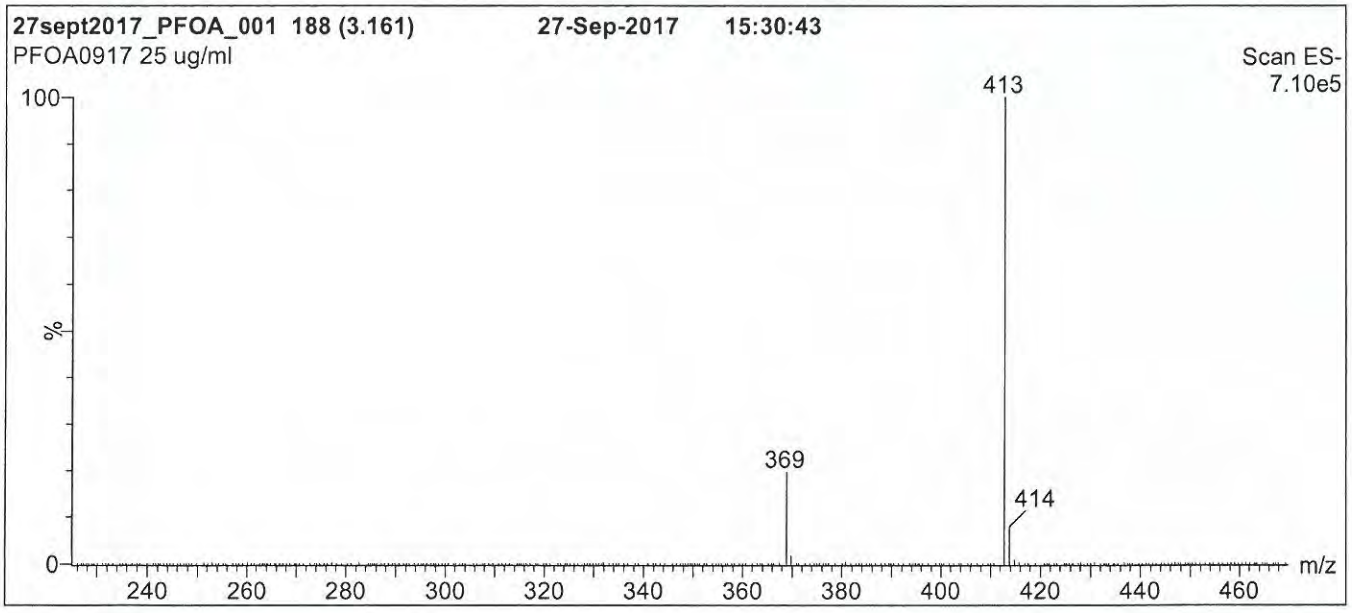
ANAB ACCREDITED Reference Material Producer

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18C2719

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

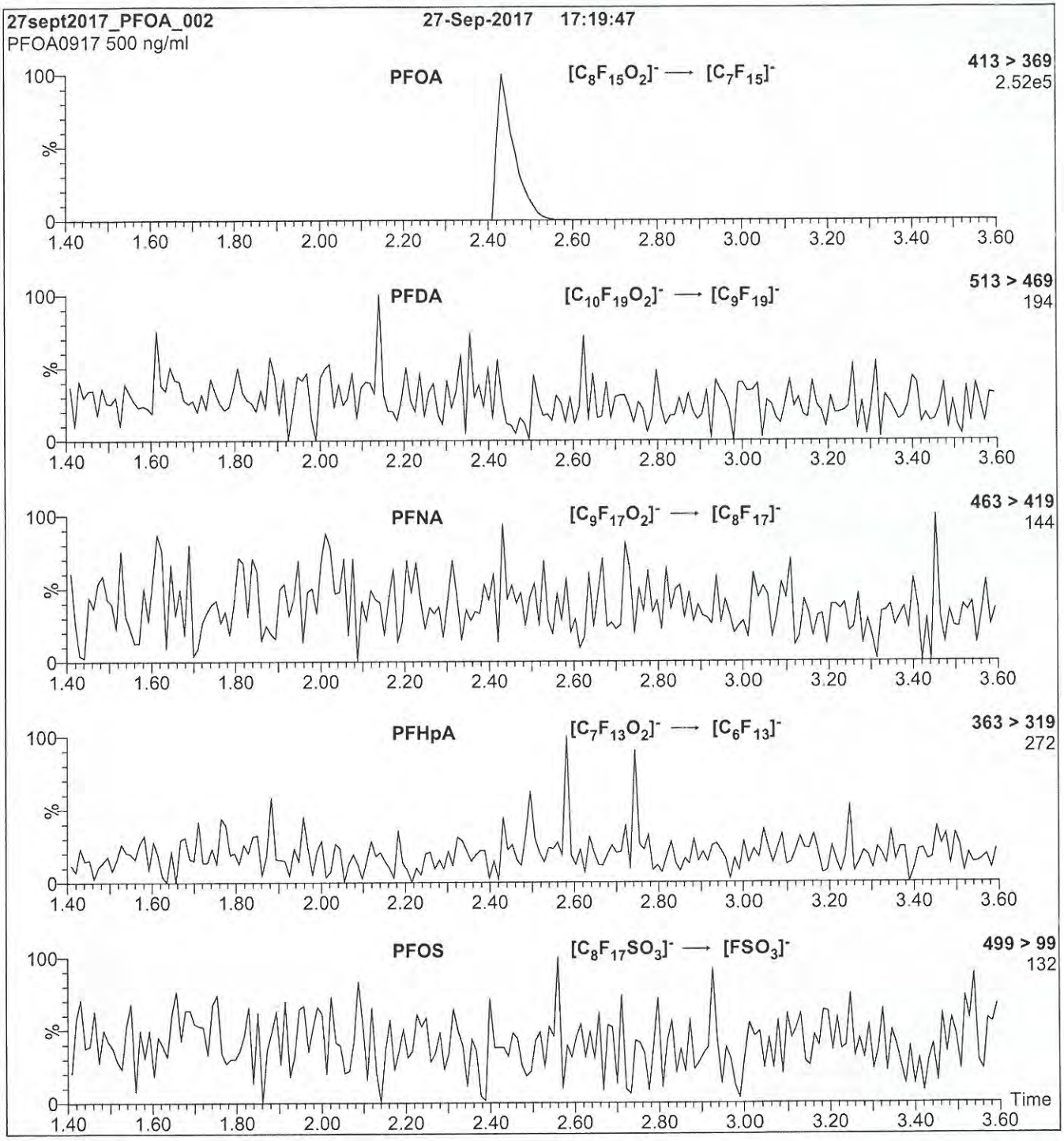
MS Parameters

Experiment: Full Scan (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

18C2719

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) = 3.46e-3
Collision Energy (eV) = 11

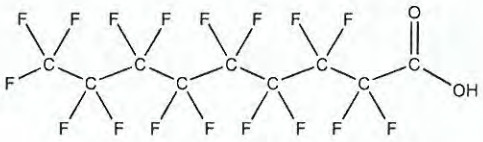
18C2720

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

18C2720

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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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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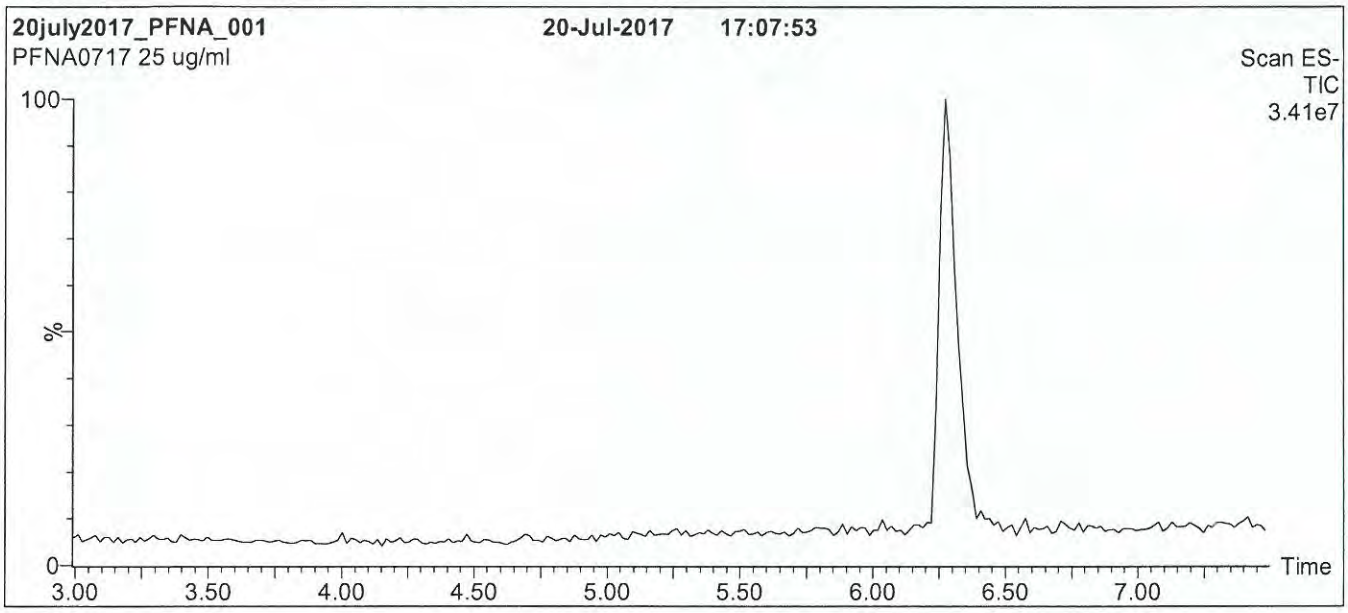
CALA Testing

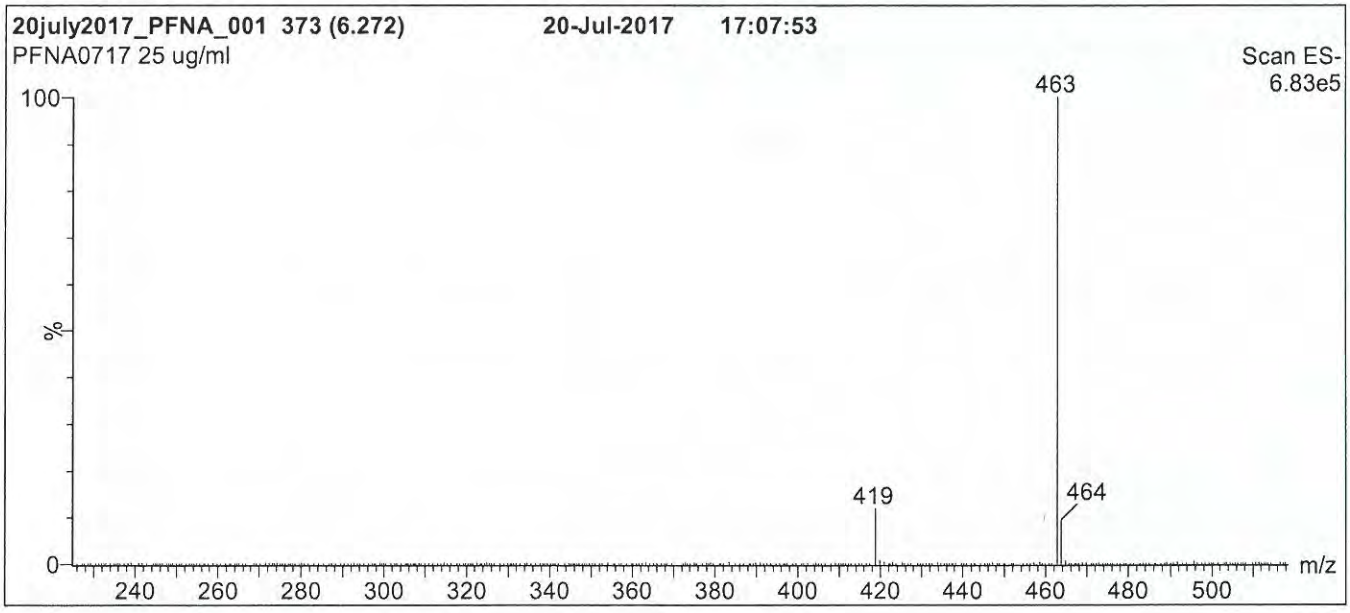
ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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1802720

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

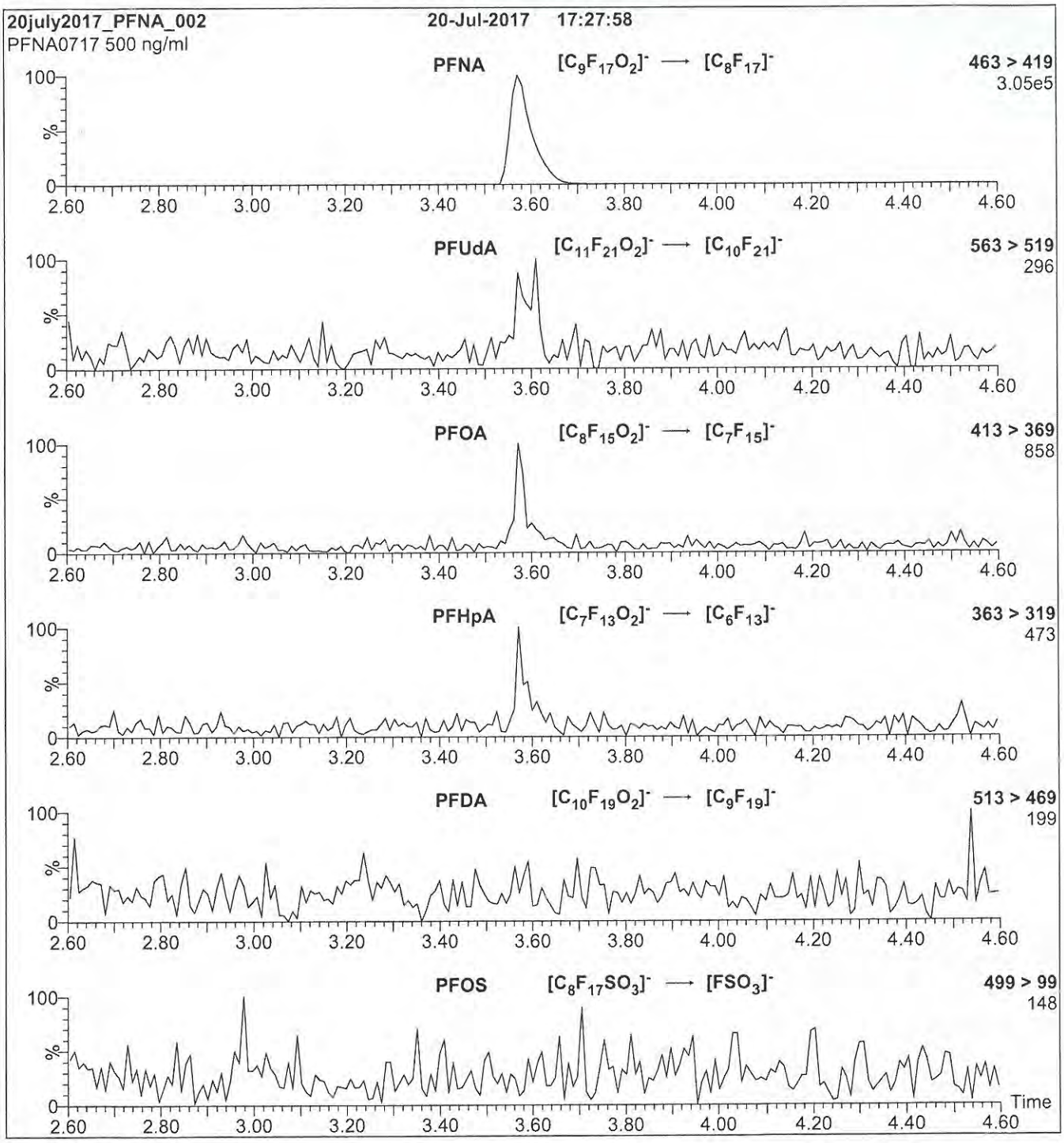
MS Parameters

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

18C2720

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

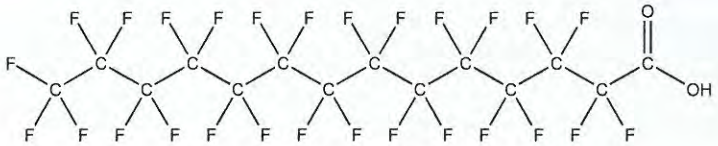
18C2721

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: PFTeDA
COMPOUND: Perfluoro-n-tetradecanoic acid
LOT NUMBER: PFTeDA0917

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

18C2721

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:

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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:

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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 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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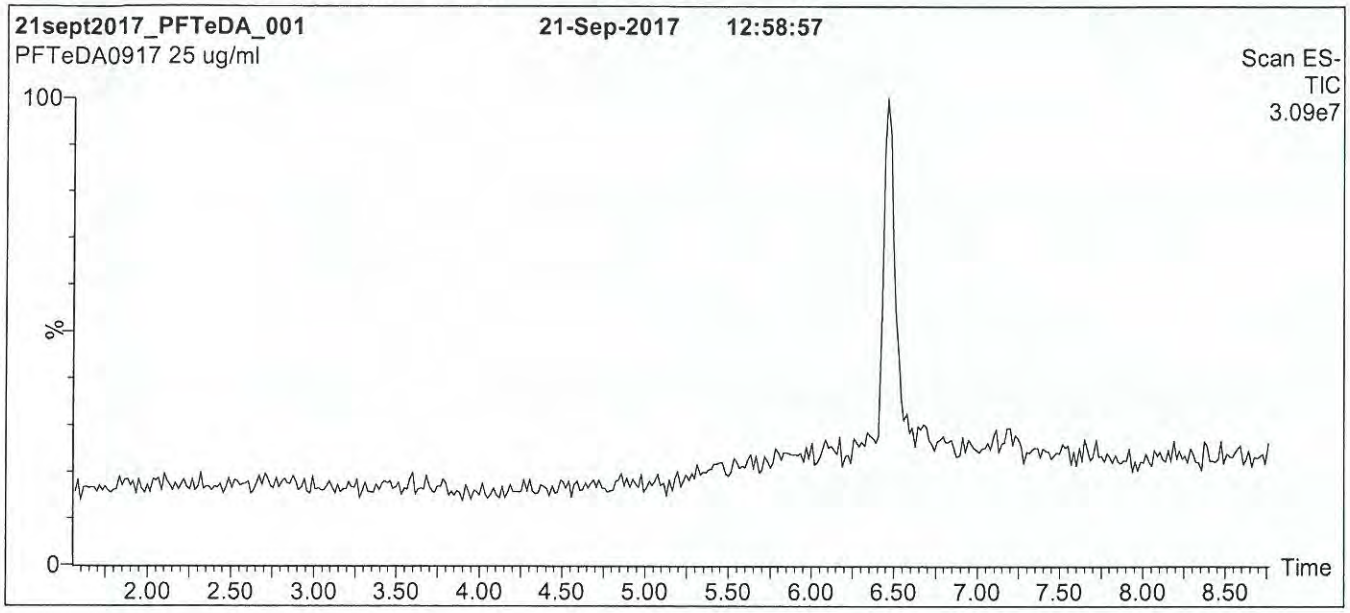
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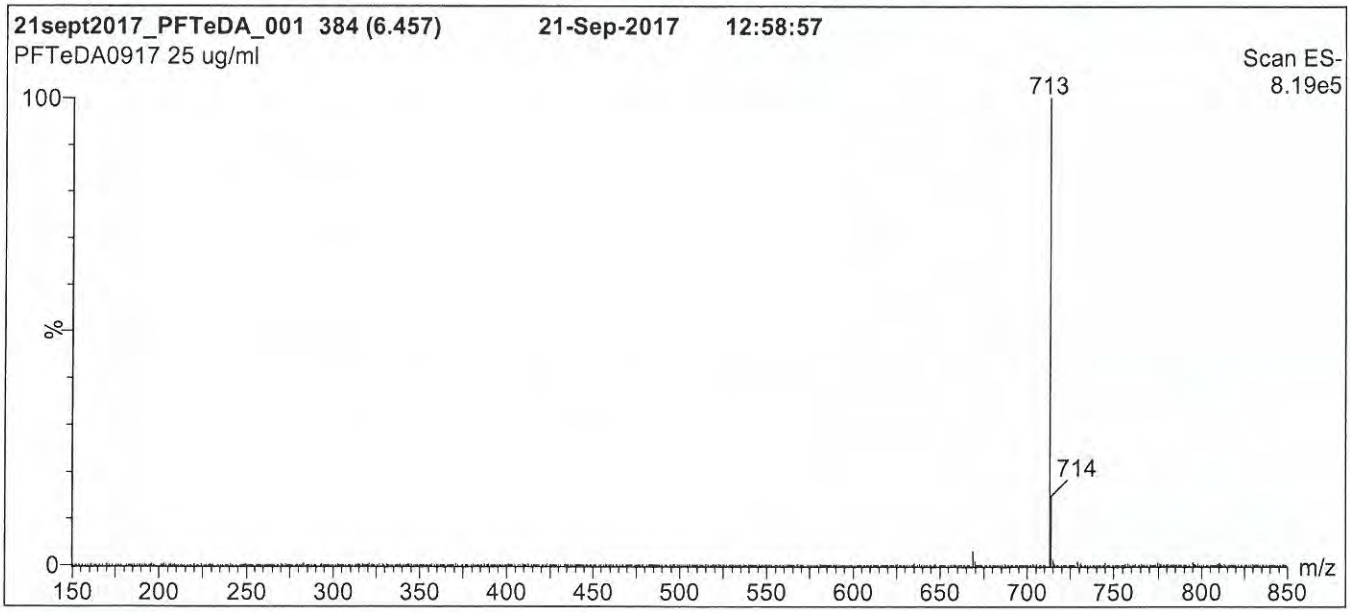
ANAB ACCREDITED

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18C2721

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

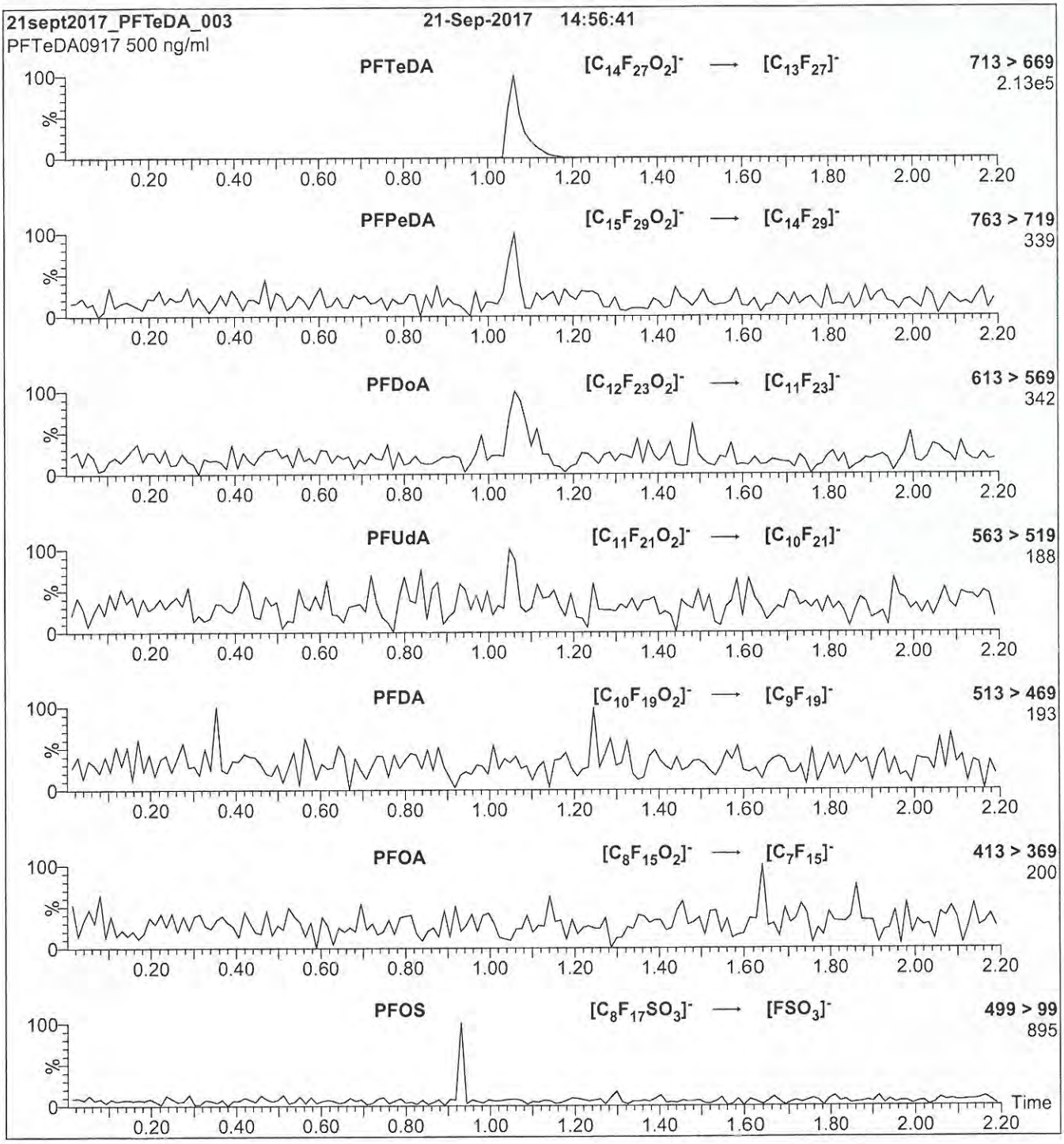
MS Parameters

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

18C2721

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

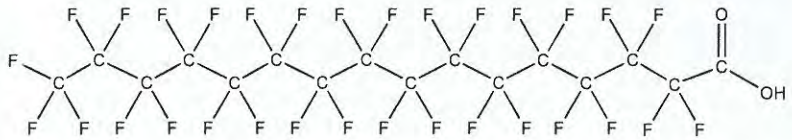
18C2722

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

1802722

INTENDED USE:

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HAZARDS:

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TRACEABILITY:

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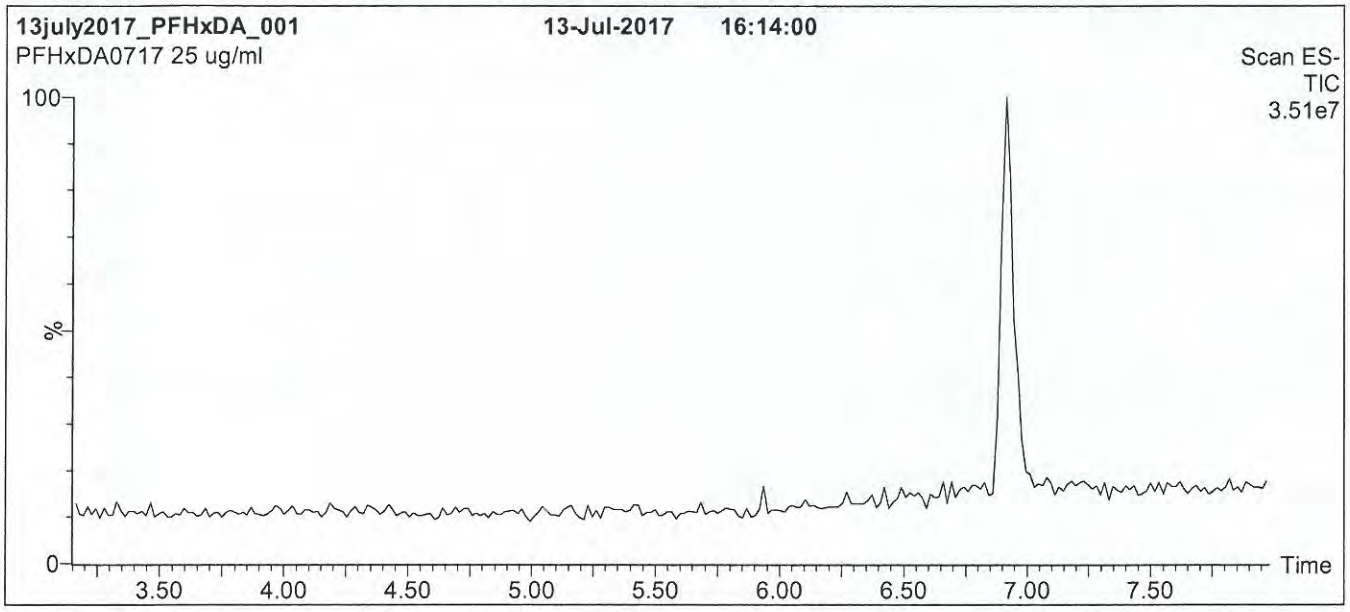
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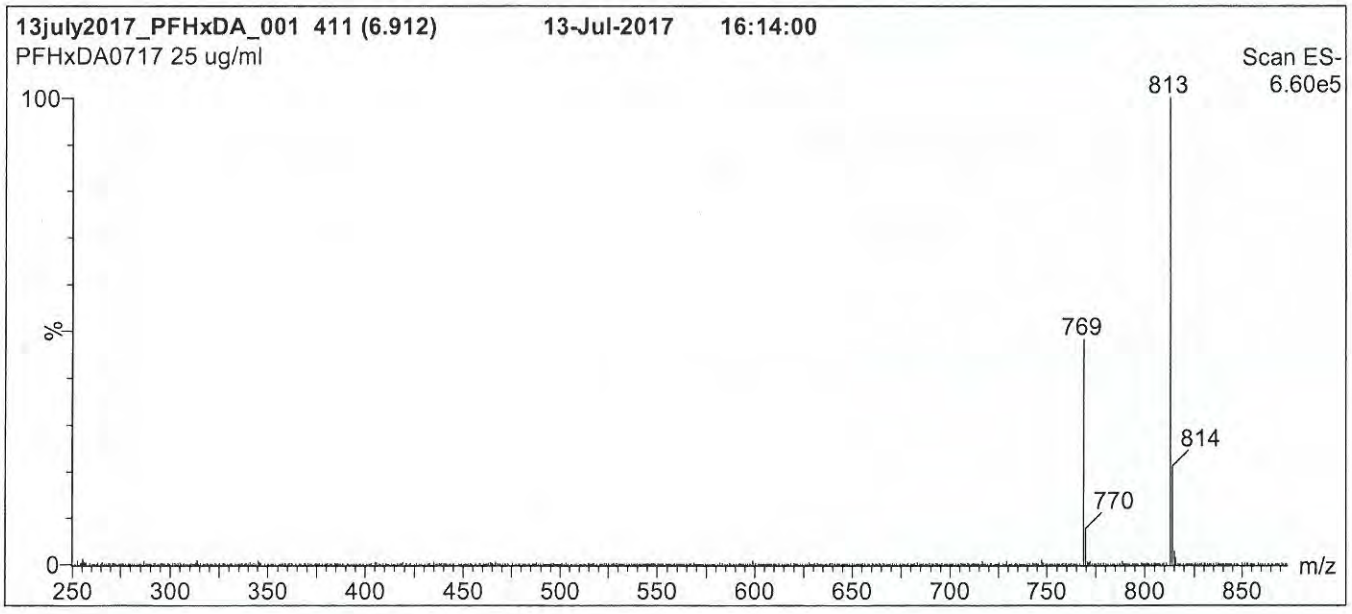
ANAB ACCREDITED Accredited to ISO 17034 REFERENCE MATERIAL PRODUCER

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18C2722

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

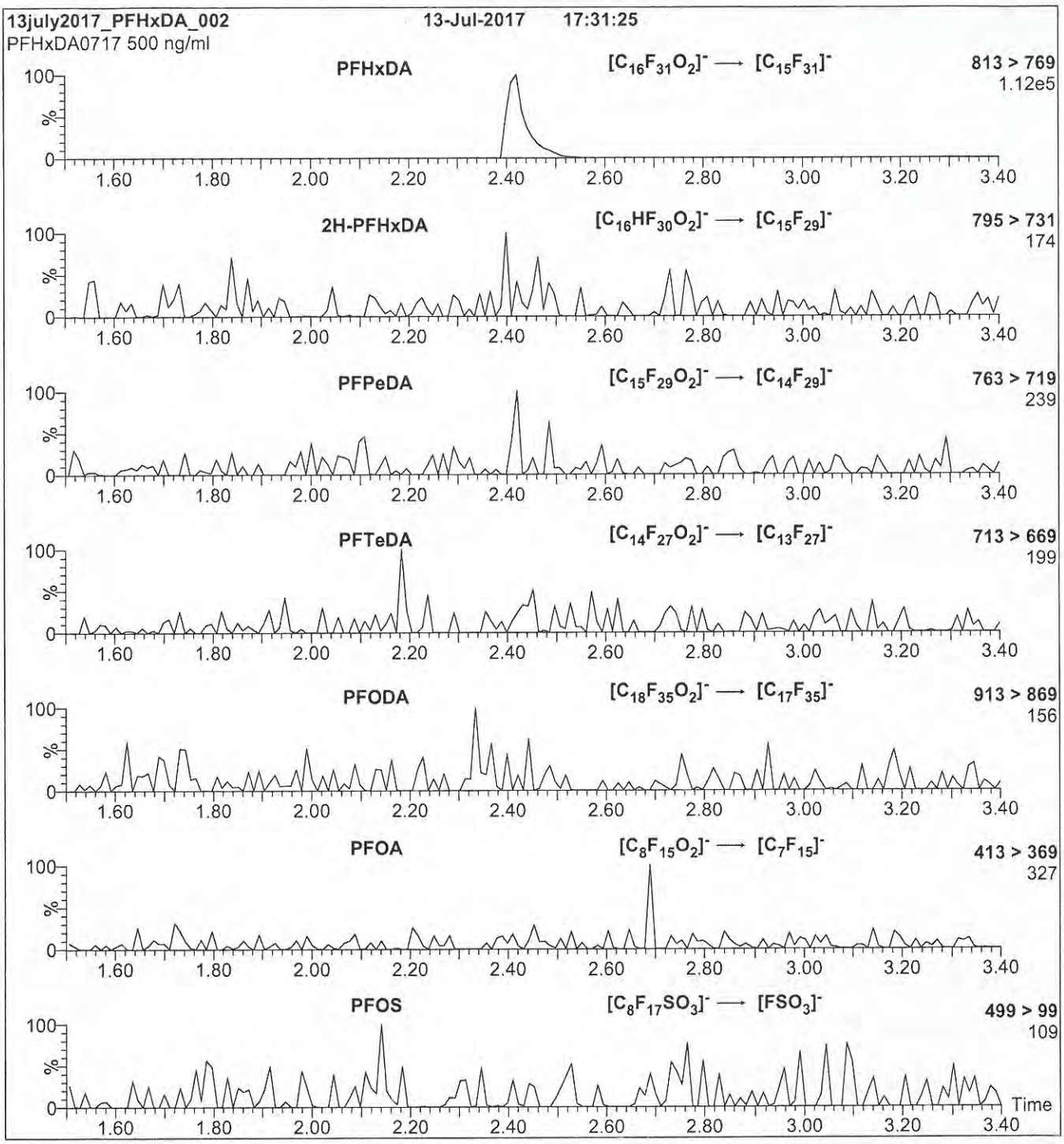
MS Parameters

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

18C2722

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

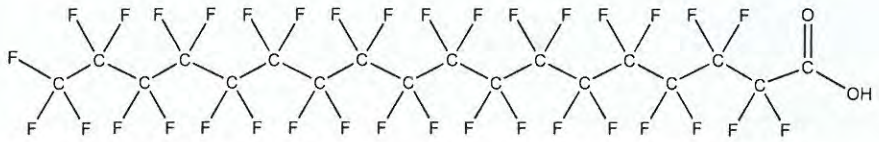
18C2723

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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.

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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18C2723

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).

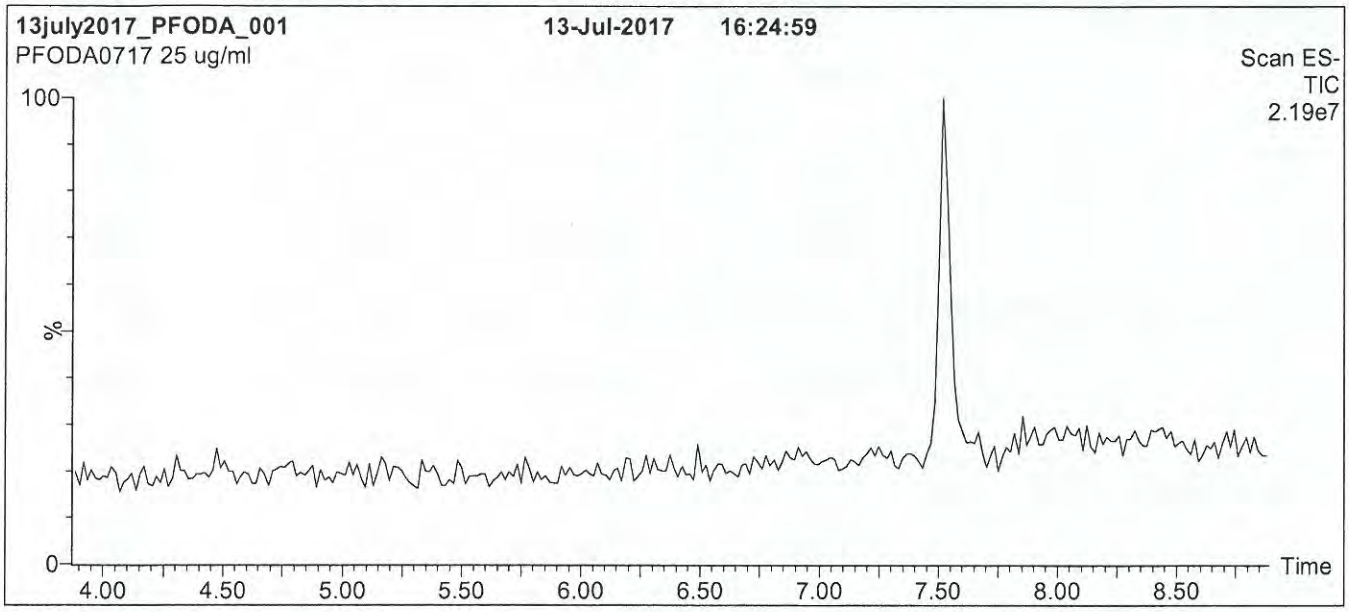
CALA Testing Accreditation No. A1226

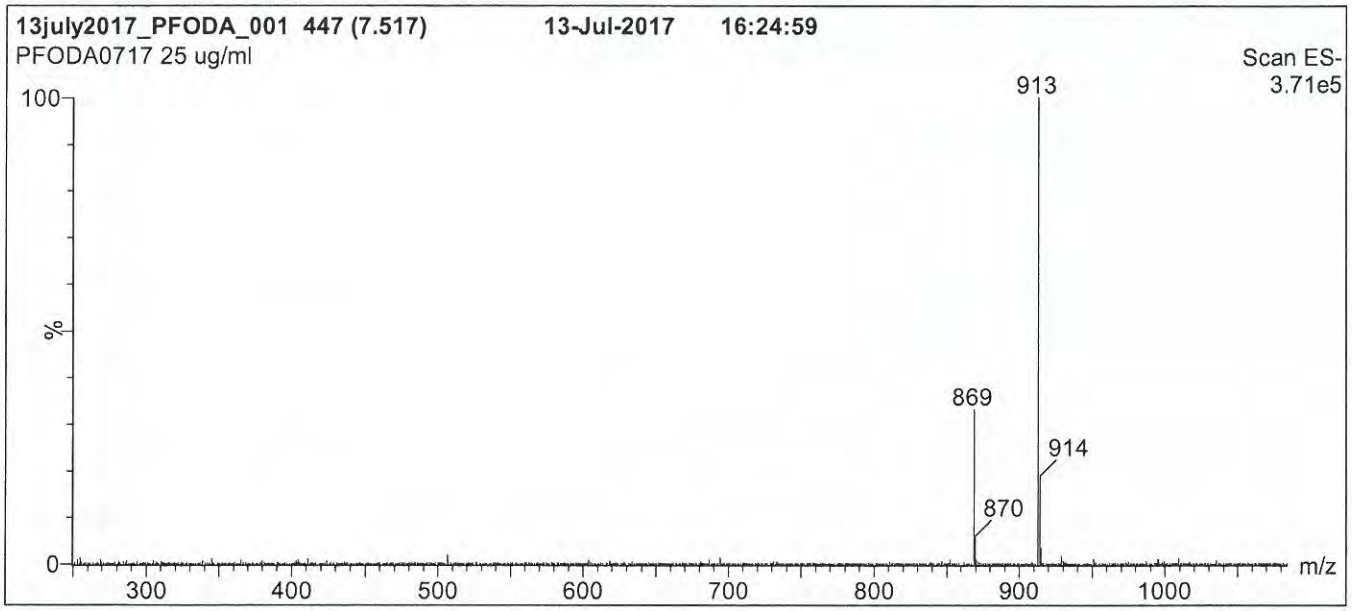
ANAB ACCREDITED Reference Material Producer

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18C2723

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

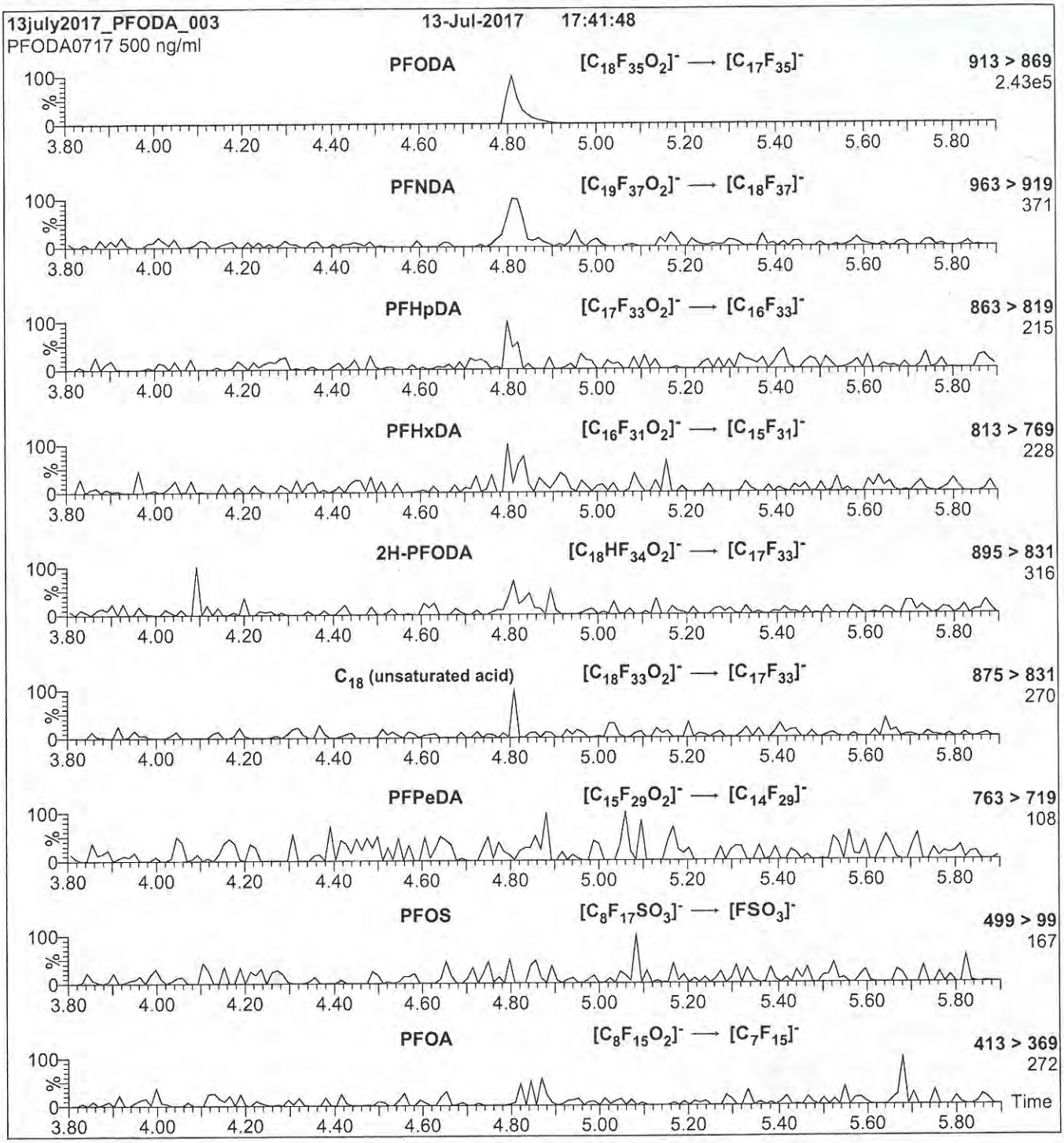
MS Parameters

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

18C2723

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

18C2724

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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18C2724

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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1802724

Table A: **br-PFHxSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

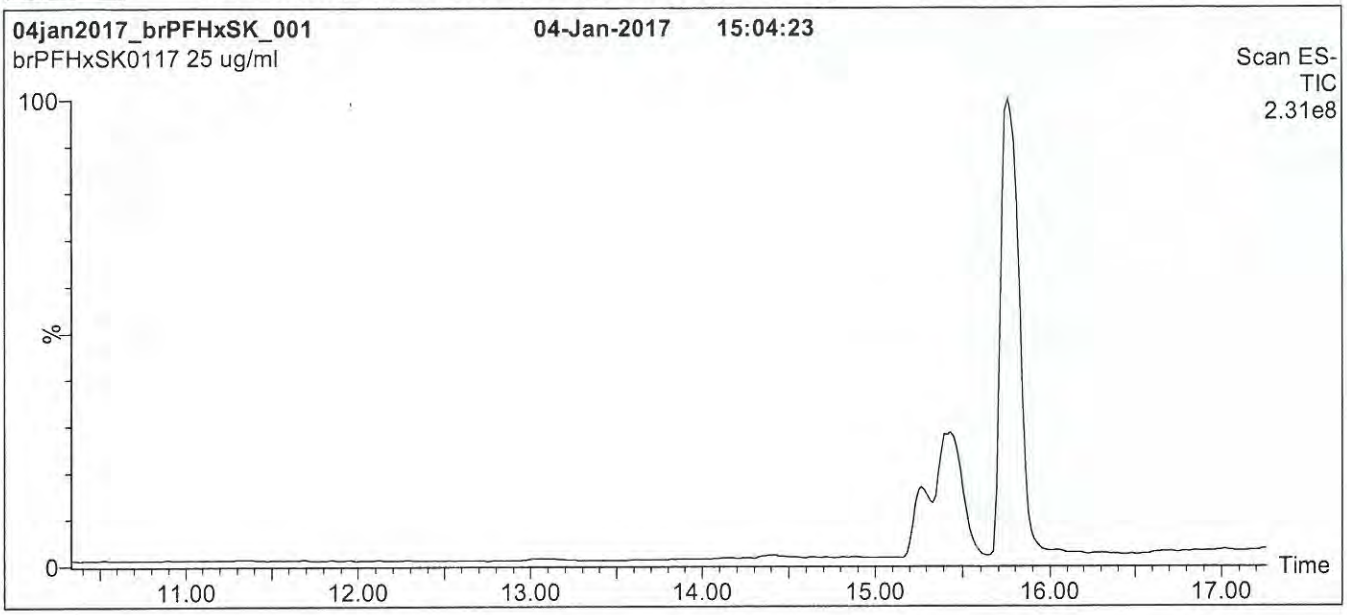
Isomer	Name	Structure	Percent Composition by ^{19}F-NMR
1	Potassium perfluoro-1-hexanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$CF_3CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	2.9
3	Potassium 2-trifluoromethylperfluoropentanesulfonate	$CF_3CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	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	$CF_3C(CF_3)CF_2CF_2SO_3^-K^+$	0.2
7	Other Unidentified Isomers		0.5

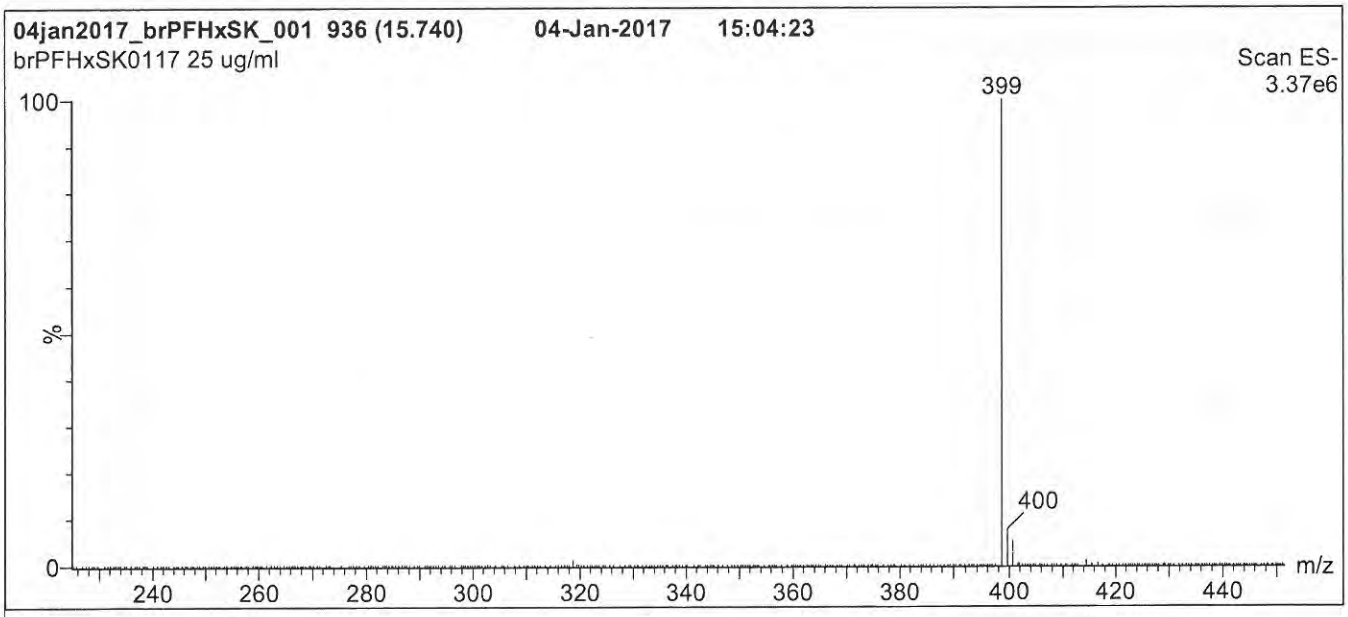
* Percent of total perfluorohexanesulfonate isomers only.
** Systematic Name: Potassium perfluorohexane-2-sulfonate.

Certified By: B.G. Chittim **Date:** 01/20/2017 (mm/dd/yyyy)

18C2724

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

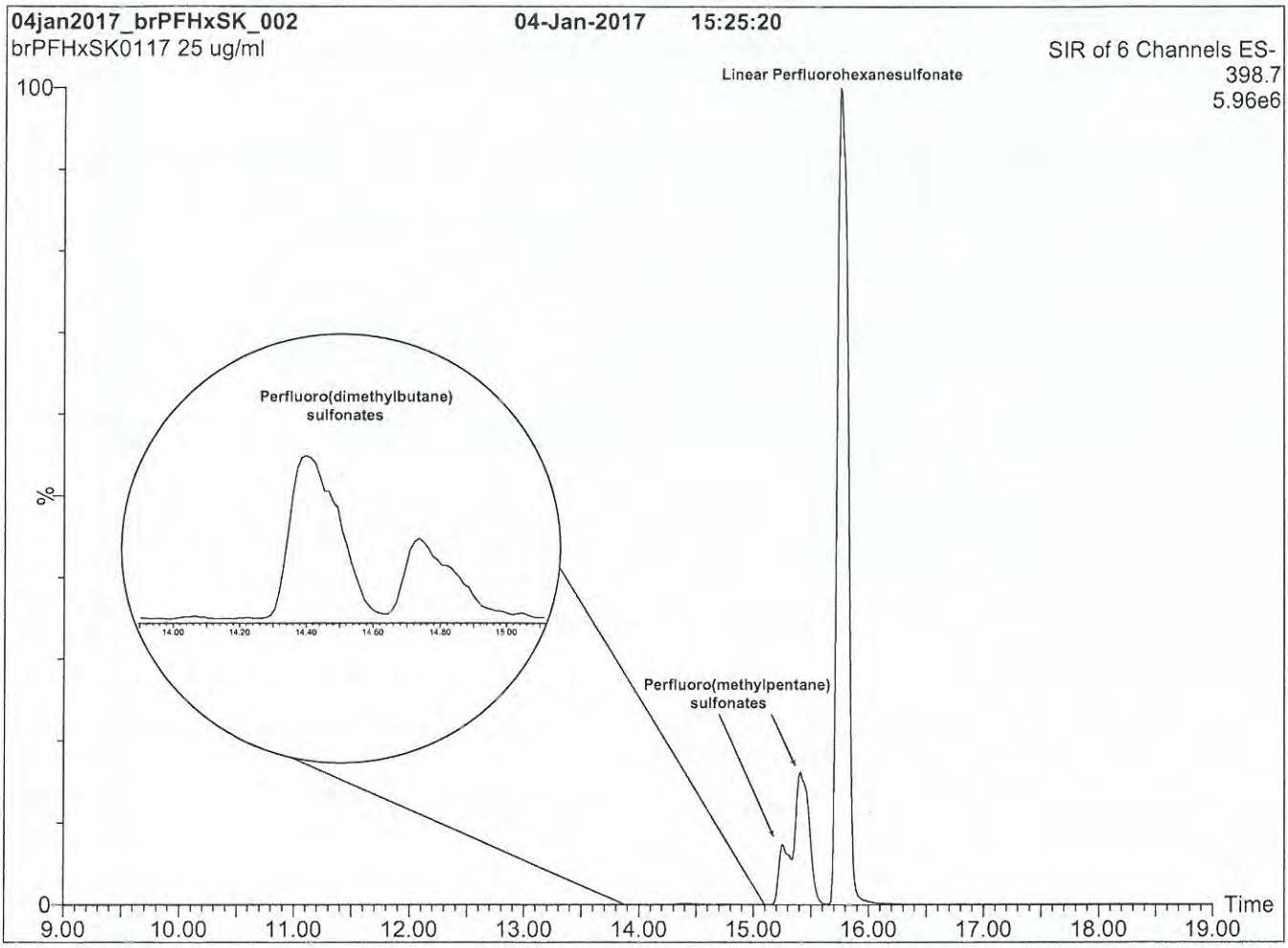
MS Parameters

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

1802724

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

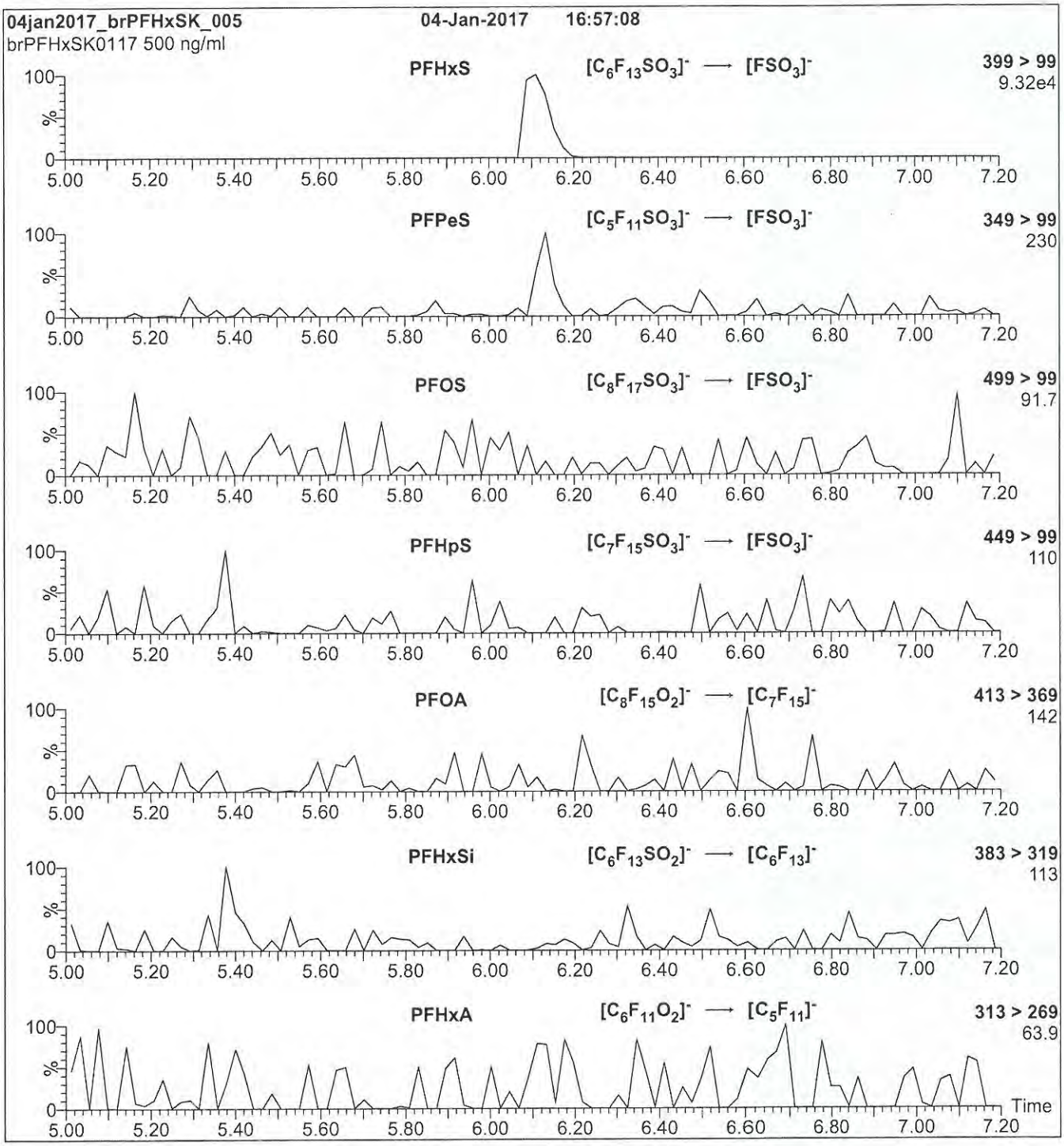
MS Parameters

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

18C2724

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

18C2725

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 Testing

ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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18C2725

Table A: **br-PFOSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

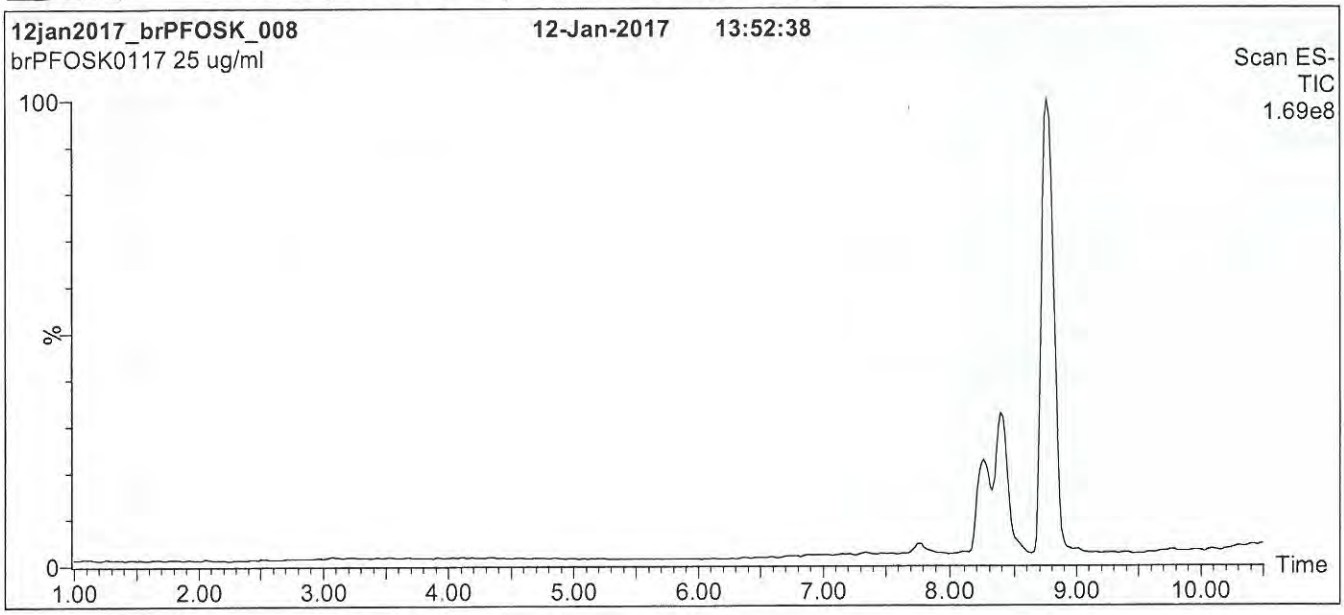
Isomer	Name	Structure	Percent Composition by ^{19}F-NMR
1	Potassium perfluoro-1-octanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$CF_3CF_2CF_2CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	1.2
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	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	$CF_3CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	0.4
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	0.07

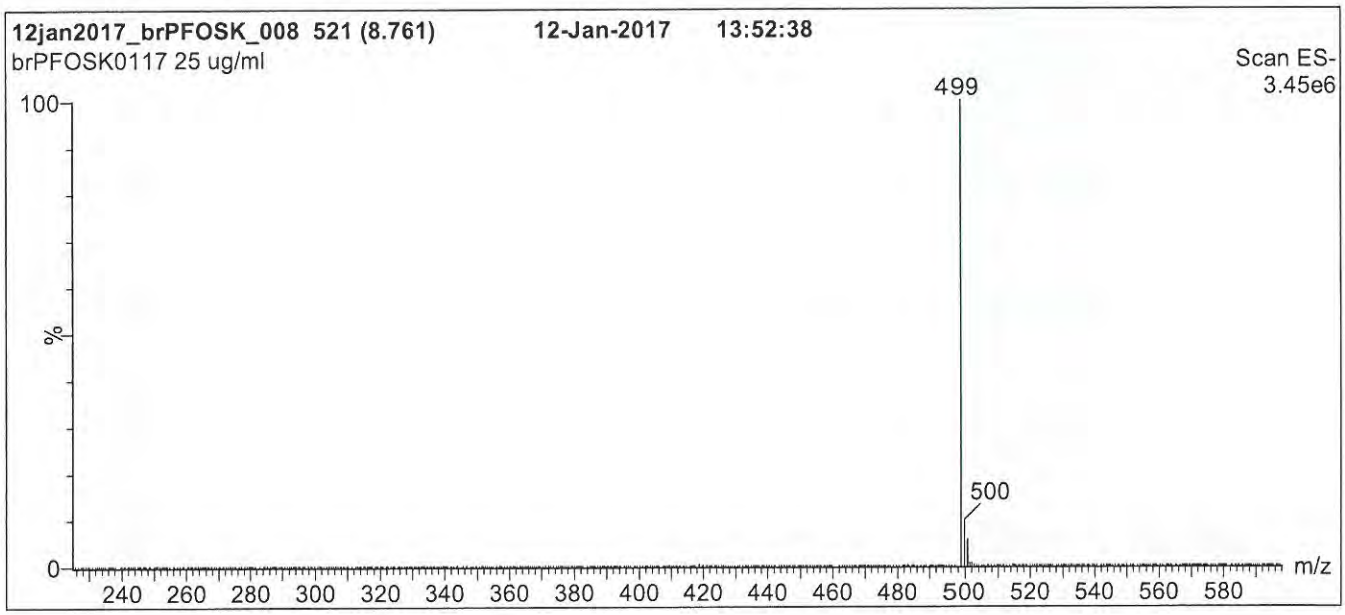
* Percent of total perfluorooctanesulfonate isomers only. Isomers are labelled in Figure 2.
** Systematic Name: Potassium perfluorooctane-2-sulfonate.

Certified By: B.G. Chittim **Date:** 01/20/2017 (mm/dd/yyyy)

18C2725

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

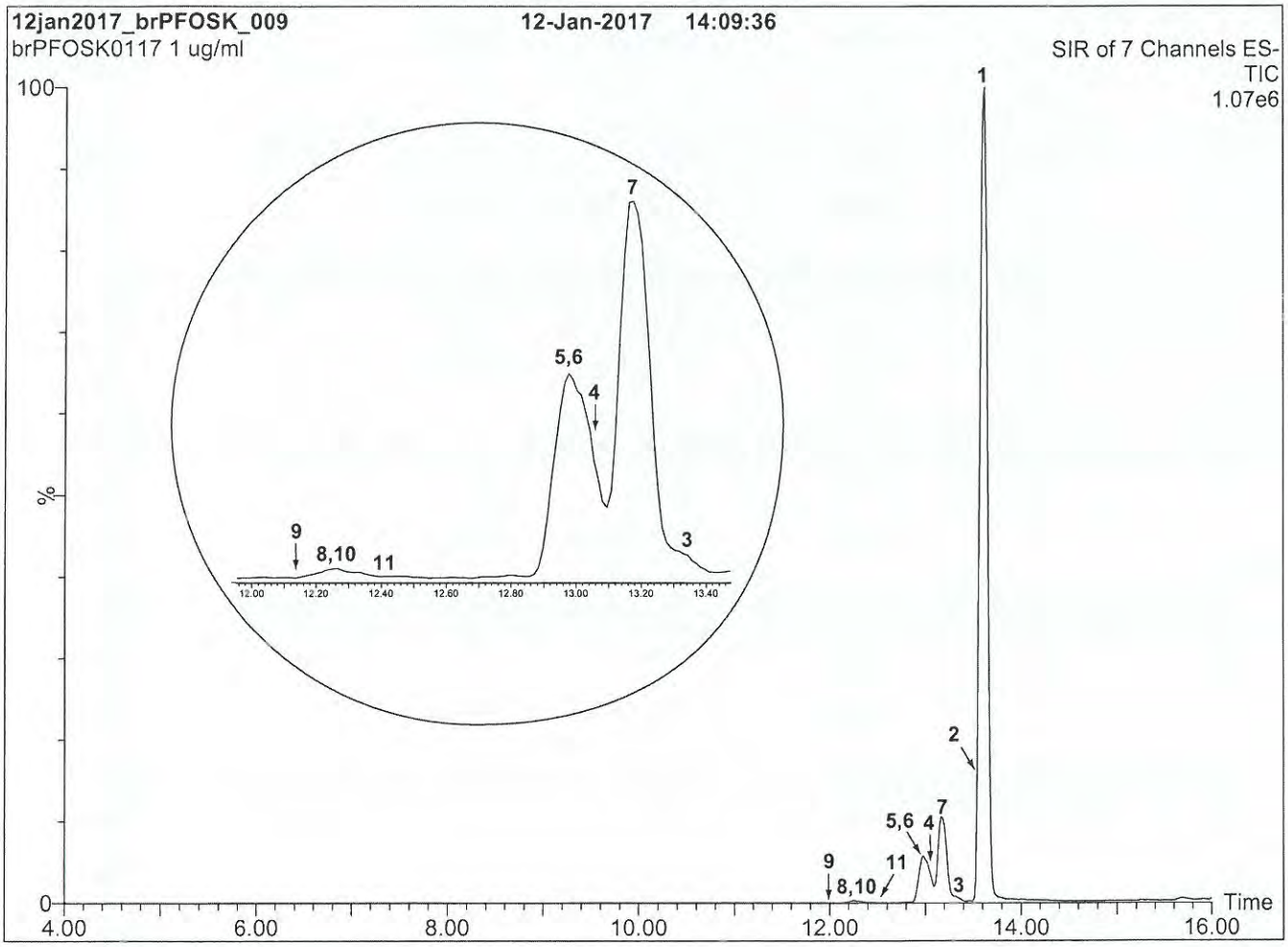
MS Parameters

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

18C2725

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

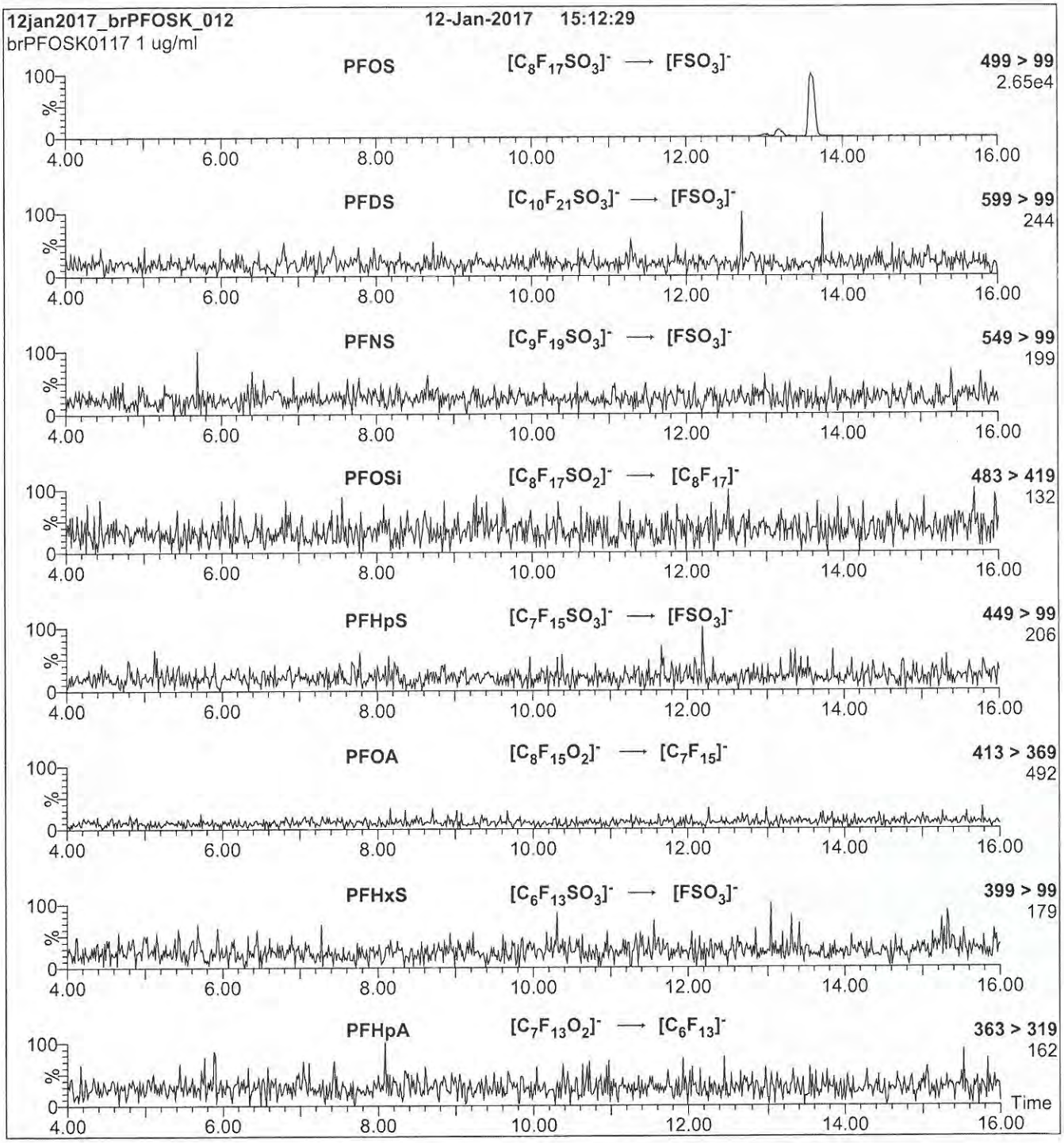
Flow: 300 µl/min

MS Conditions:

SIR (ES^-)
Source = 110 °C
Desolvation = 325 °C
Cone Voltage = 60V

18C2725

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)

18C2726

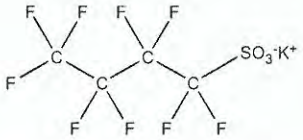
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE: L-PFBS
COMPOUND: Potassium perfluoro-1-butanesulfonate
LOT NUMBER: LPFBS0917

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

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

1802726

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.

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:

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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).

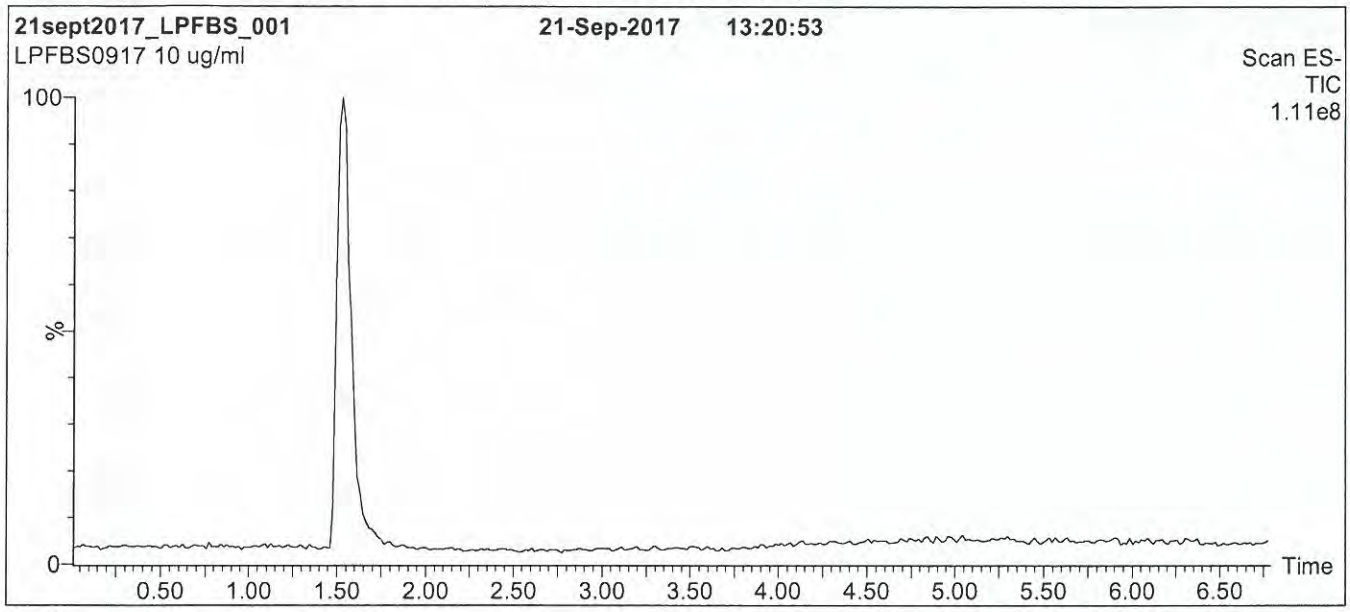
CALA

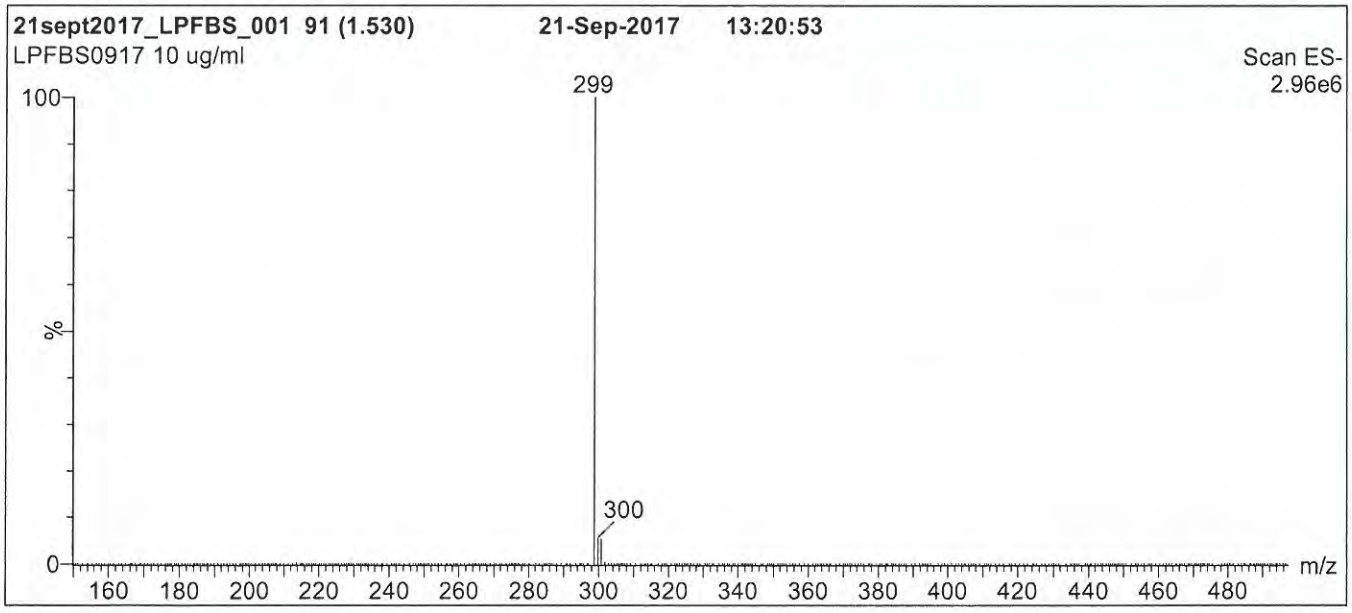
ANAB ACCREDITED

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

18C2726

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

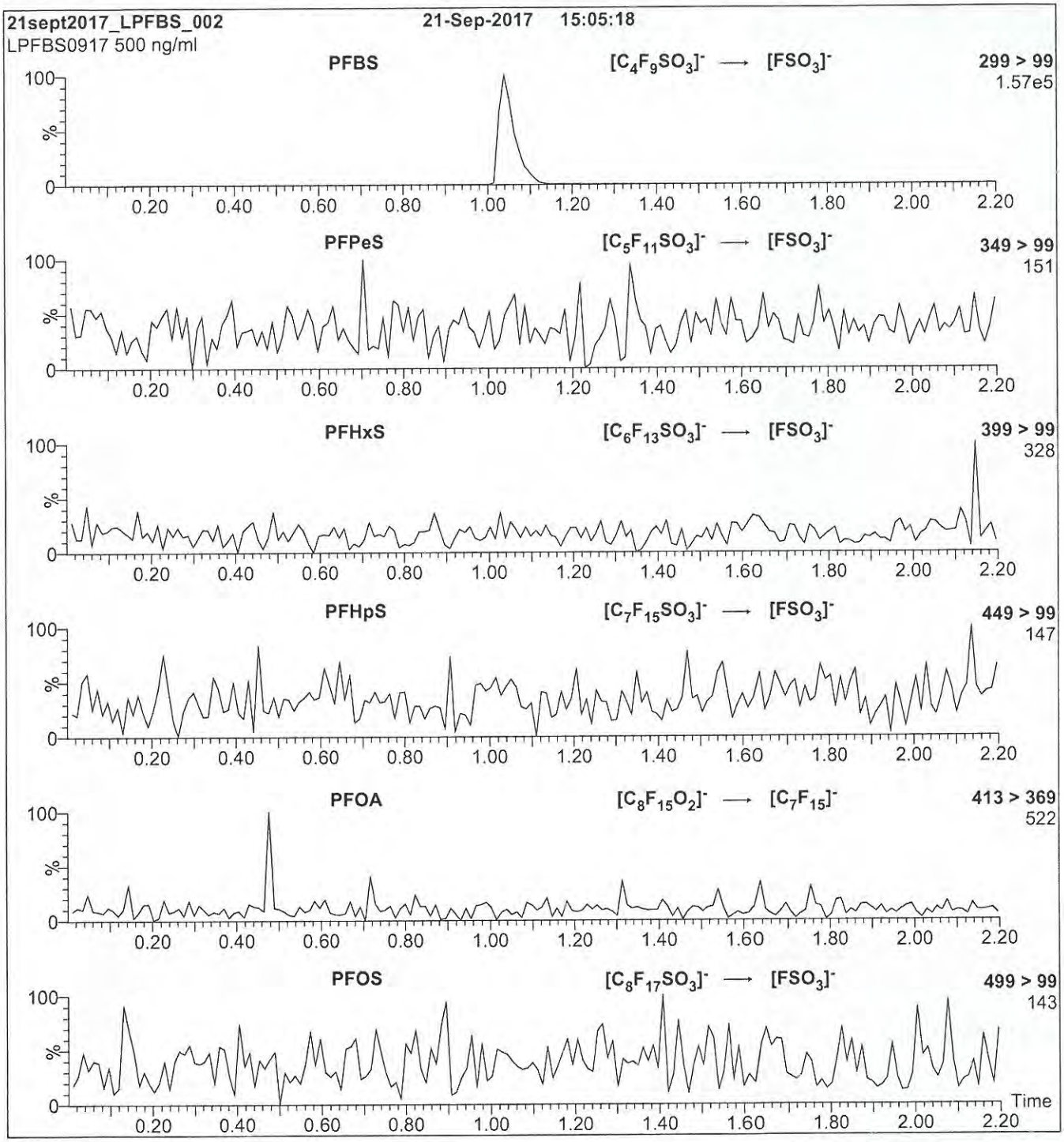
MS Parameters

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

18C2726

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

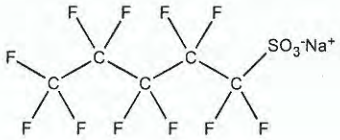
Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 25

18C2727

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		

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:** 09/06/2017 (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

1802727

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.

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:

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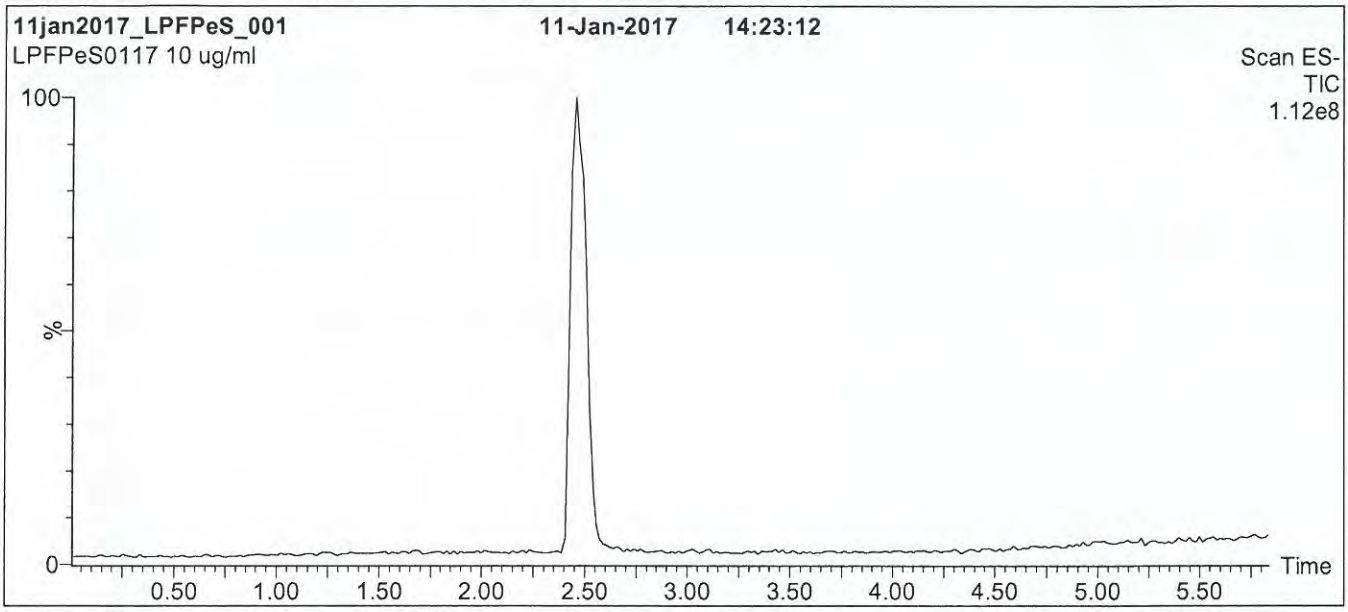
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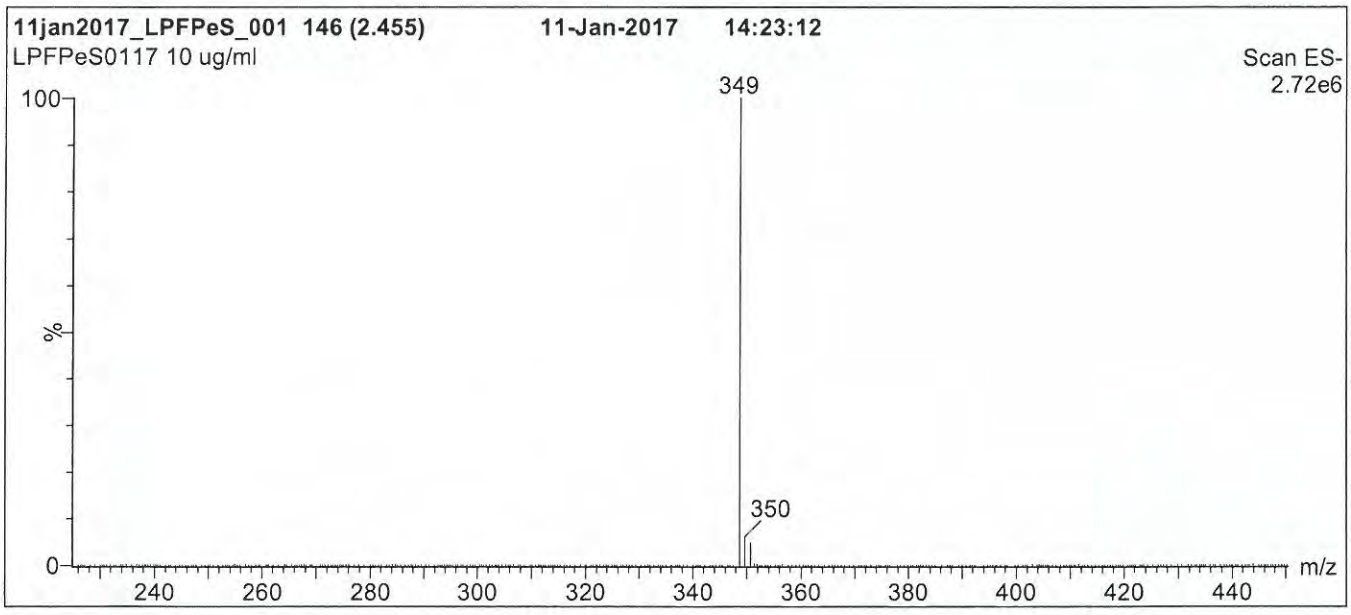
ANAB ACCREDITED Reference Material Producer

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18C2727

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

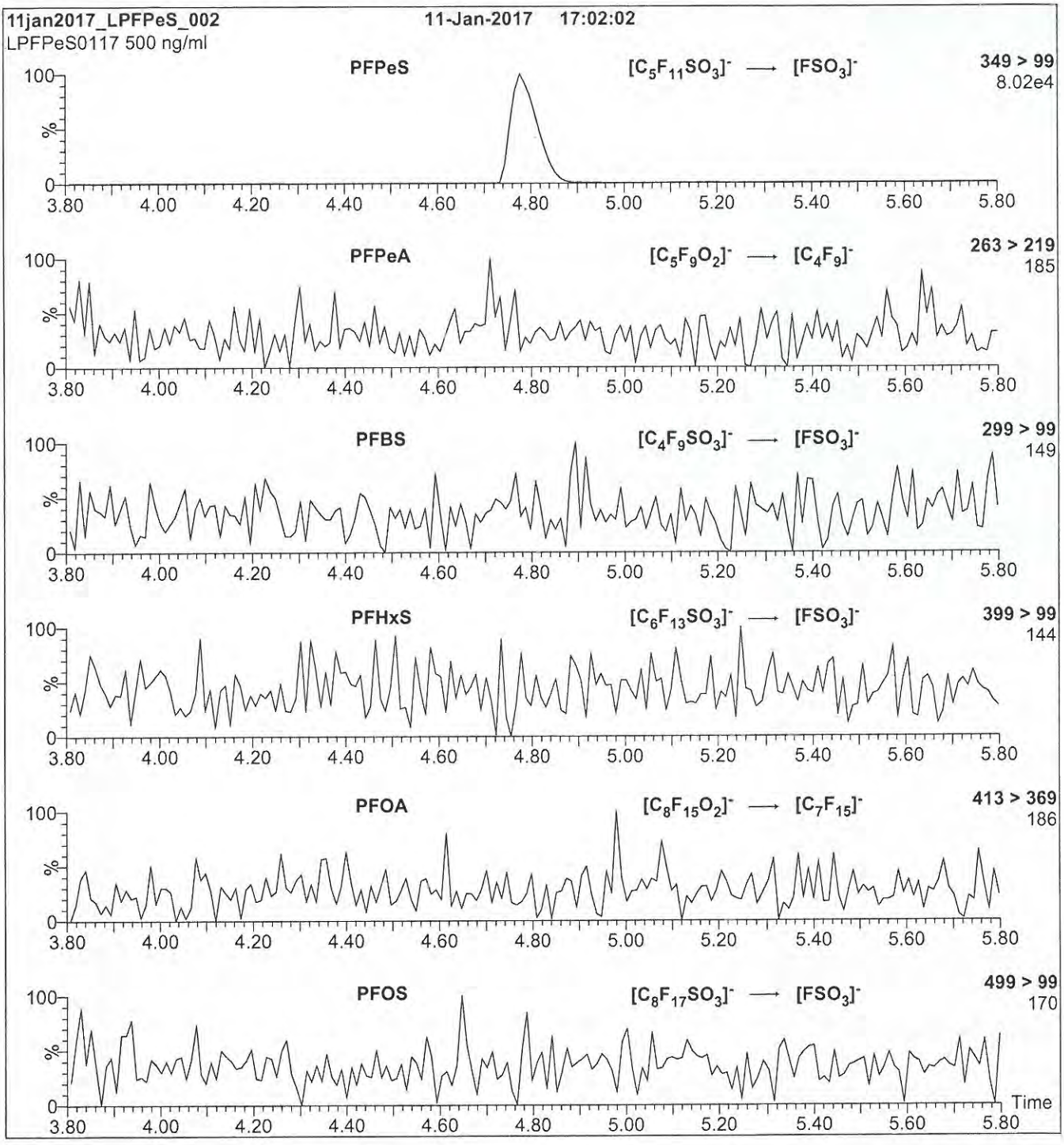
MS Parameters

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

1802727

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

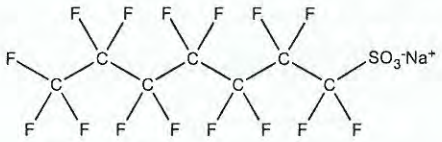
18C2728

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: L-PFHpS
COMPOUND: Sodium perfluoro-1-heptanesulfonate
LOT NUMBER: LPFHpS0817

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

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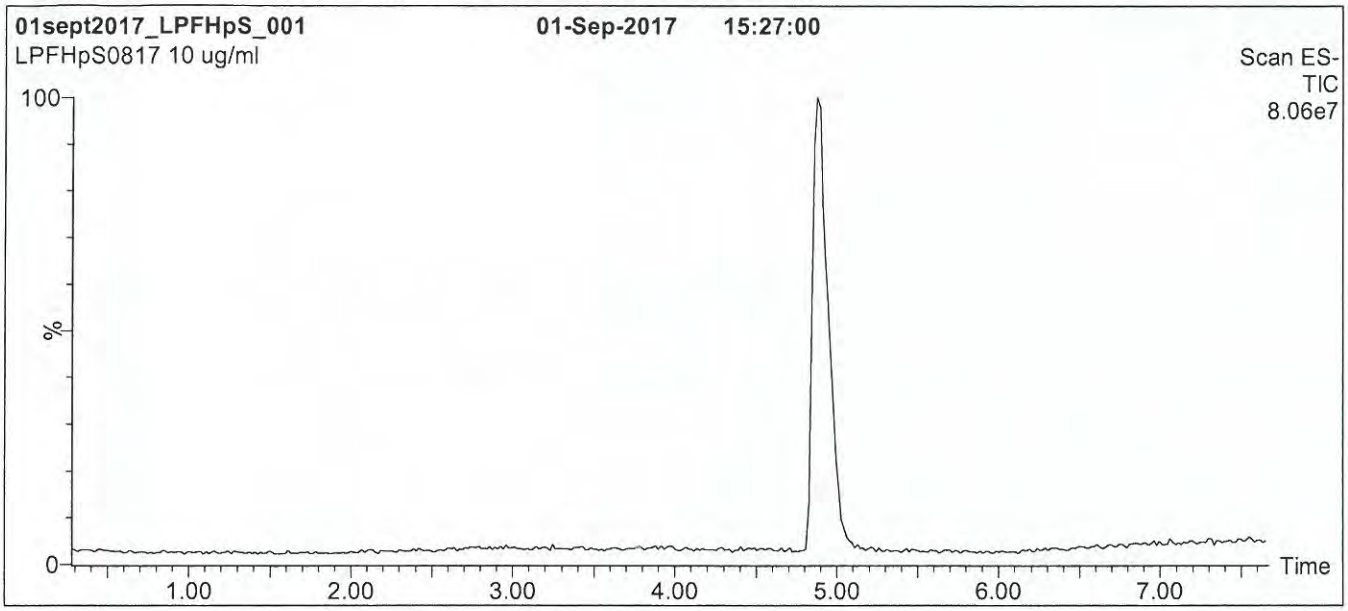
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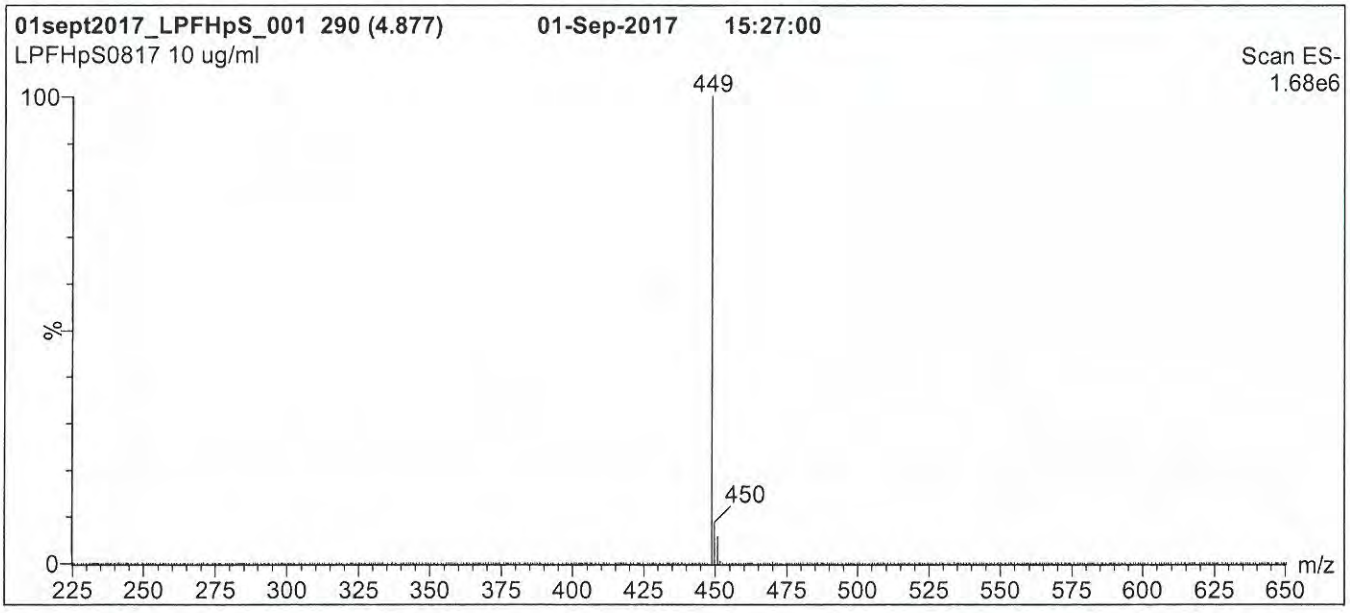
ANAB ACCREDITED Reference Material Producer

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

18C2728

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

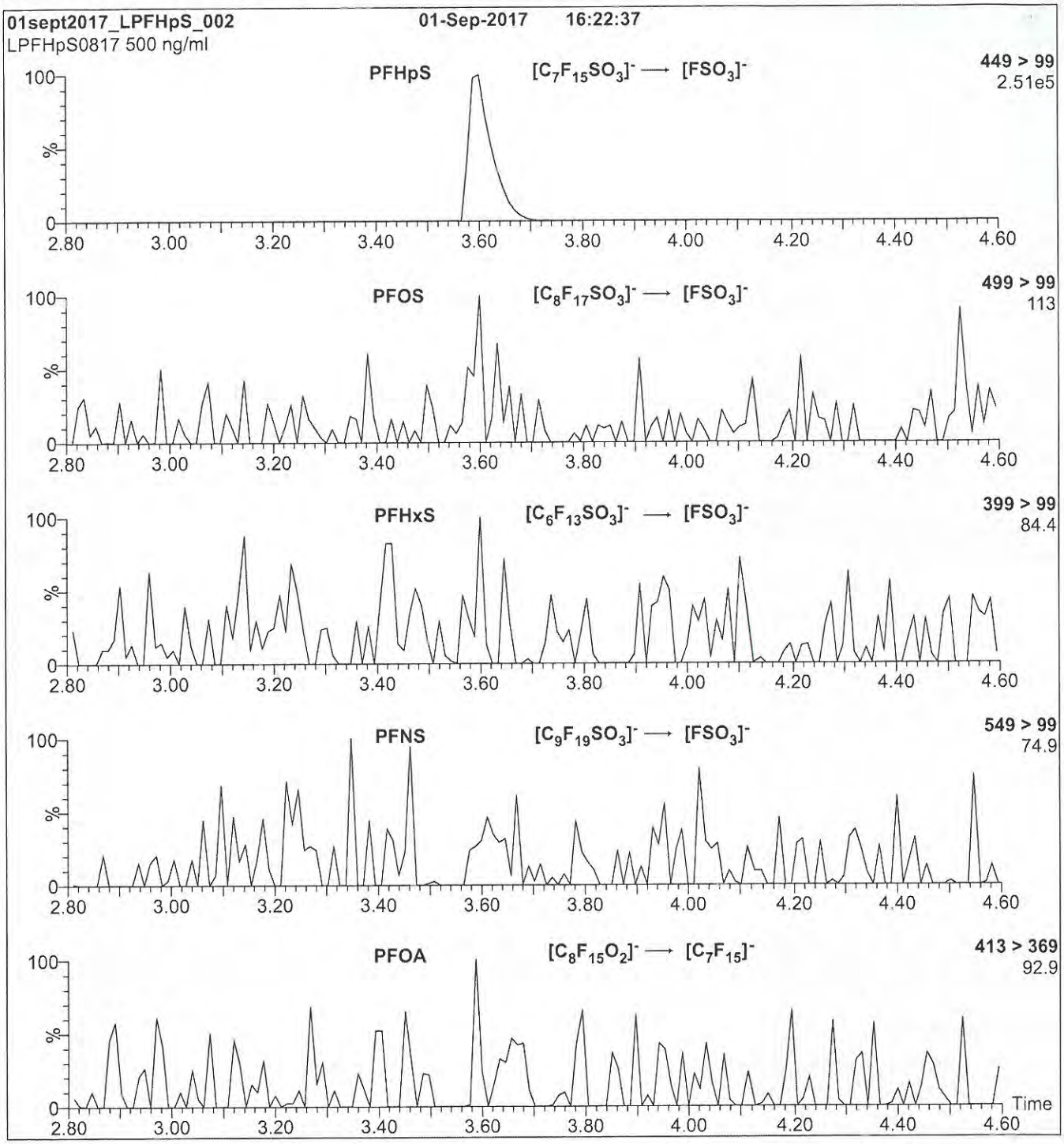
MS Parameters

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

18C2728

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

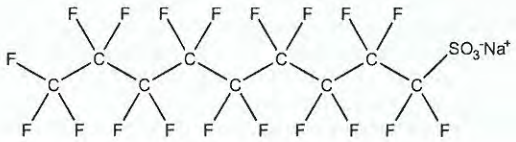
Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 35

18C2729

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

18C2729

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).

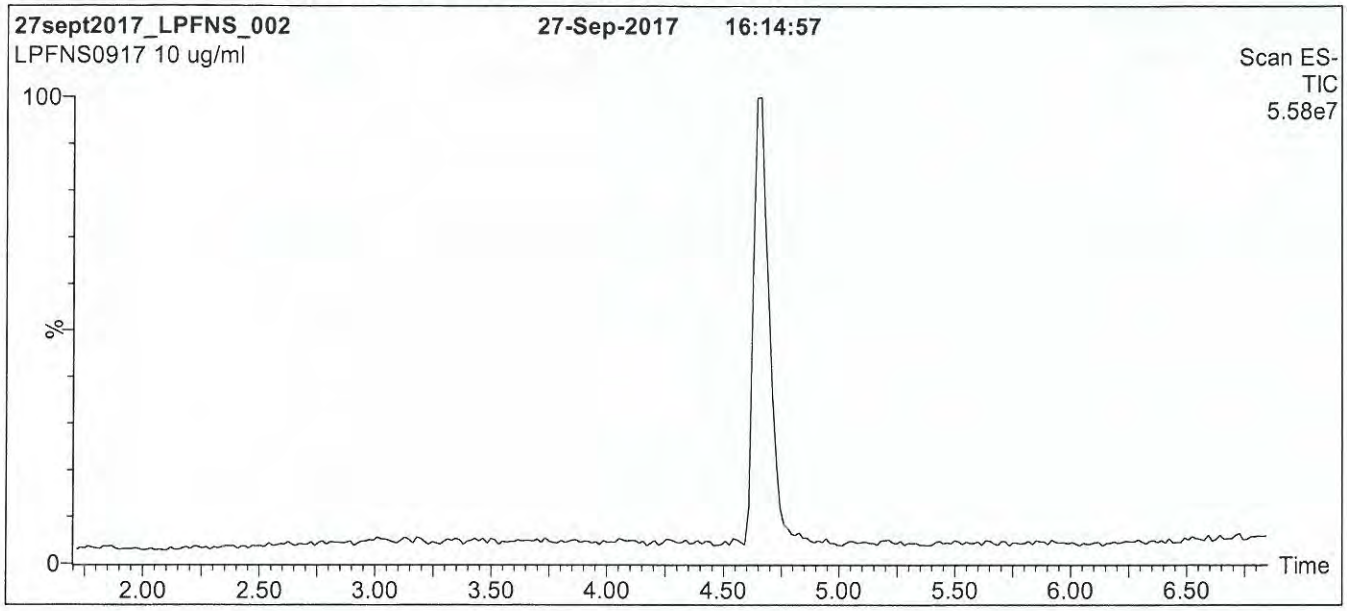
CALA

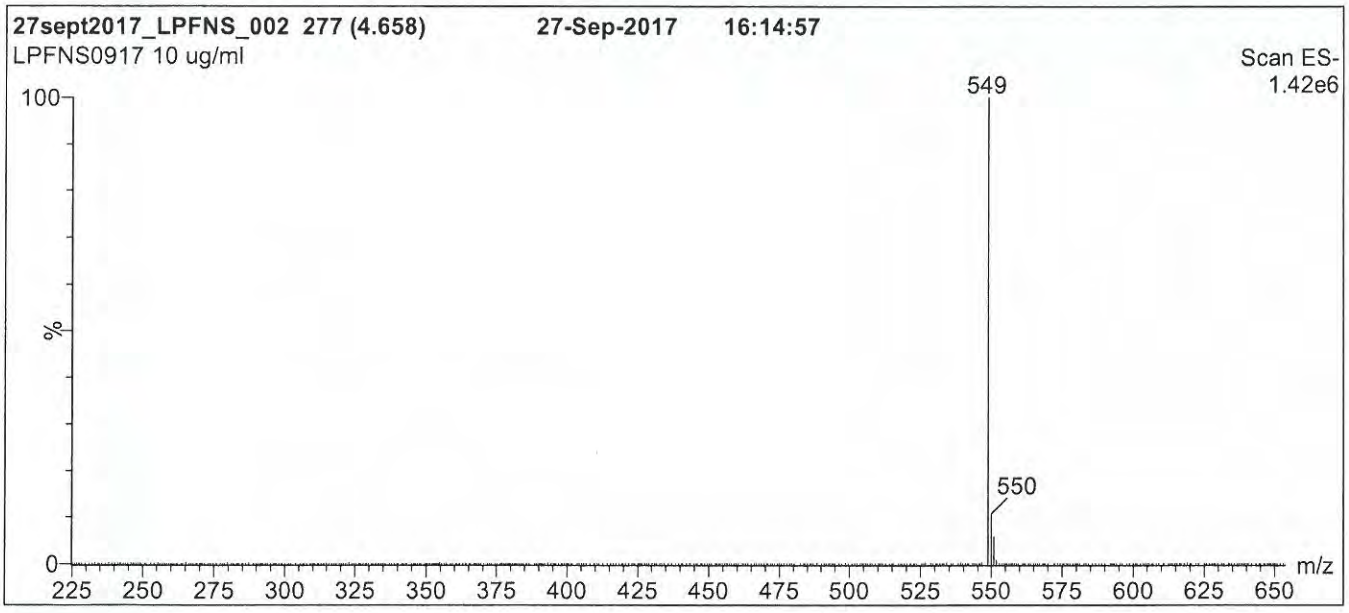
ANAB ACCREDITED

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18C2729

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

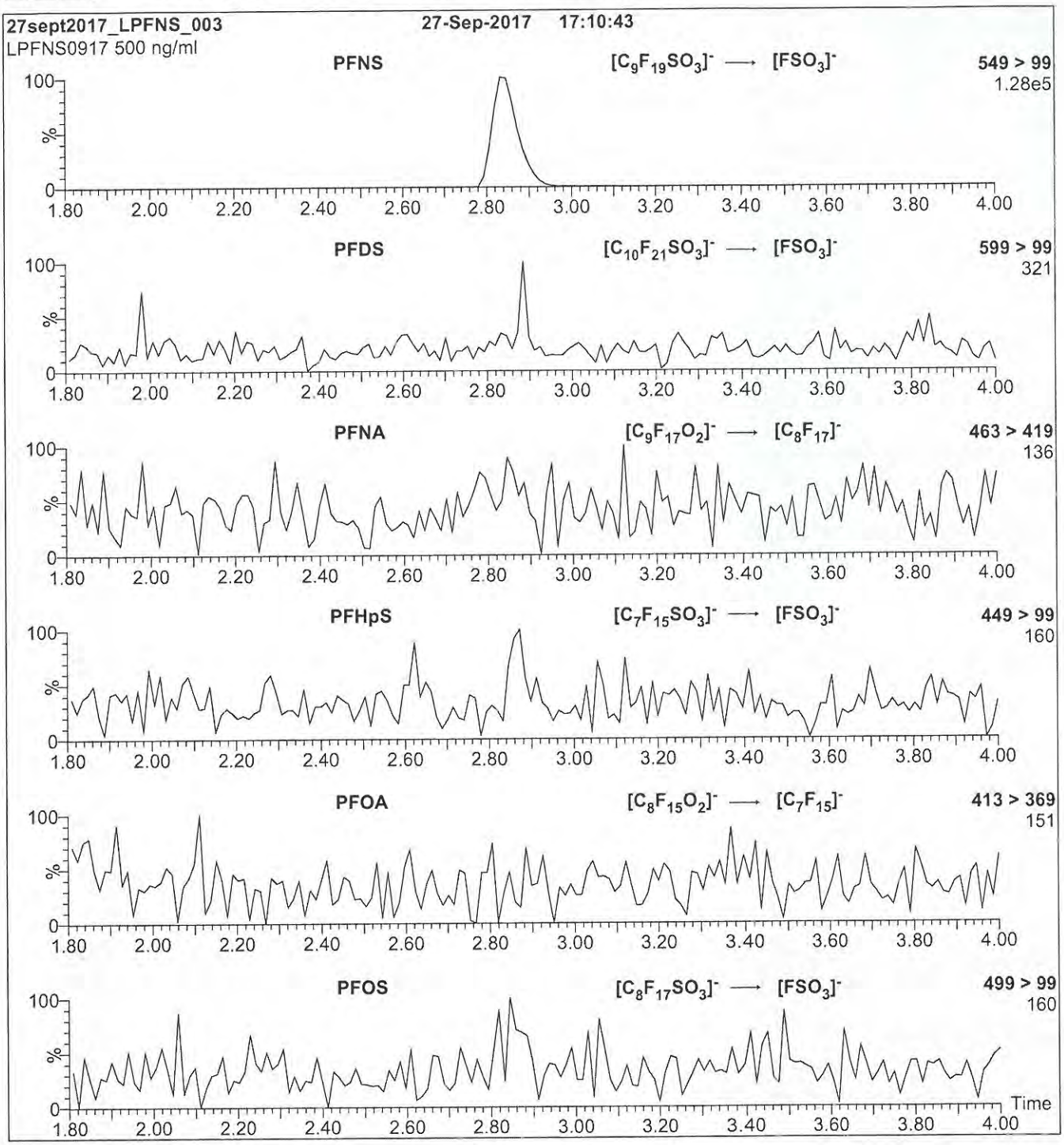
MS Parameters

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

18C2729

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

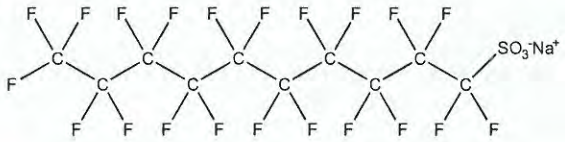
Collision Gas (mbar) = 3.50e-3
Collision Energy (eV) = 45

18C2730

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

18C2730

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.

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EXPIRY DATE / PERIOD OF VALIDITY:

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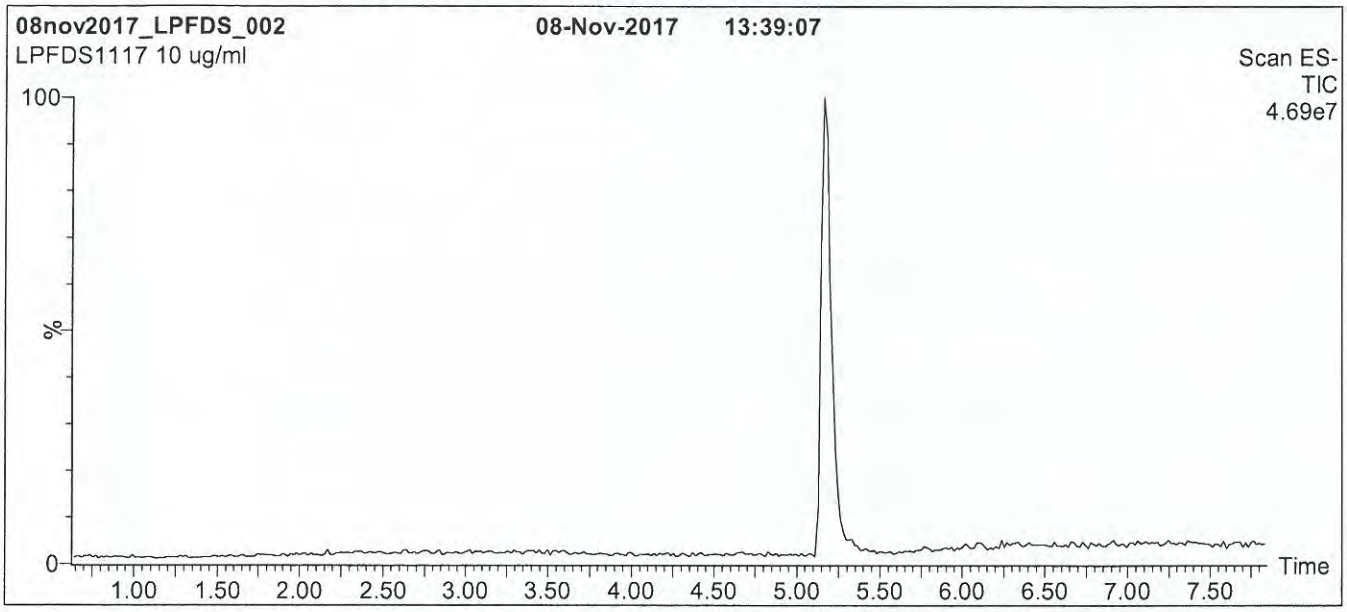
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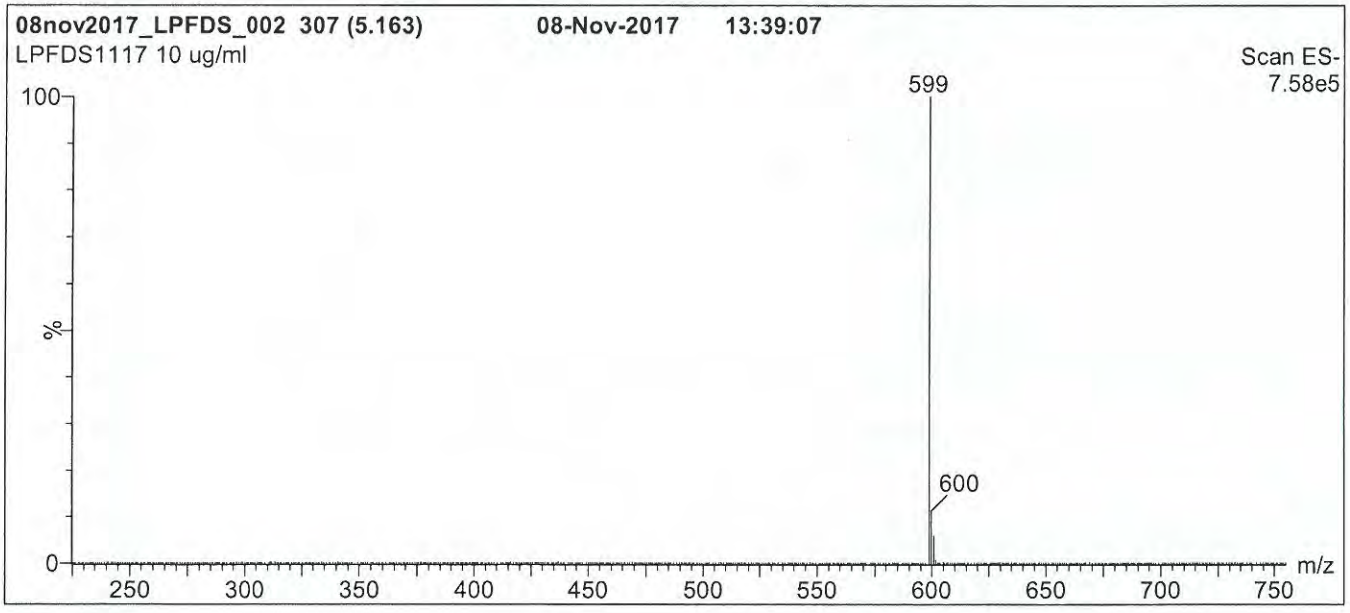
ANAB ACCREDITED

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18C2730

Figure 1: **L-PFDS; 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

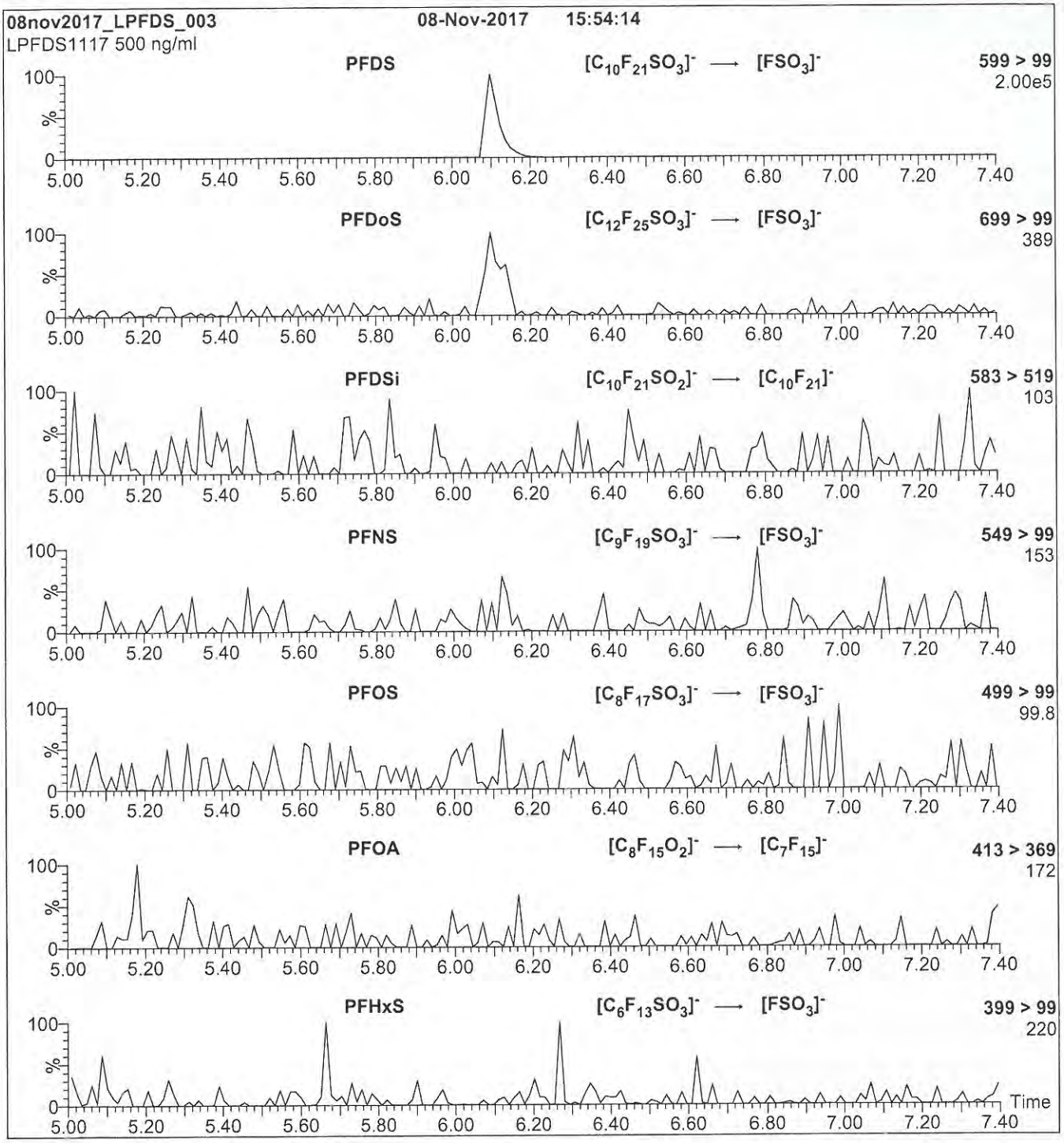
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 70.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

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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

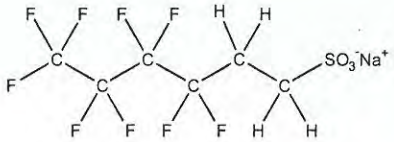
18C2731

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
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

18C2731

INTENDED USE:

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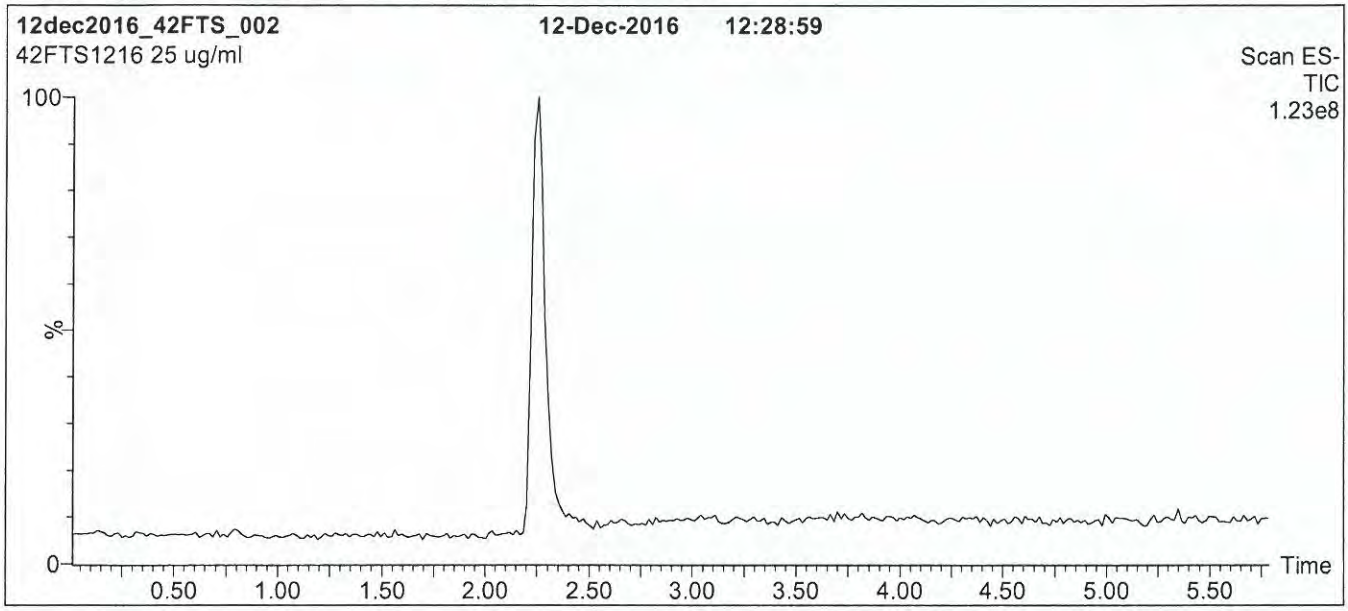
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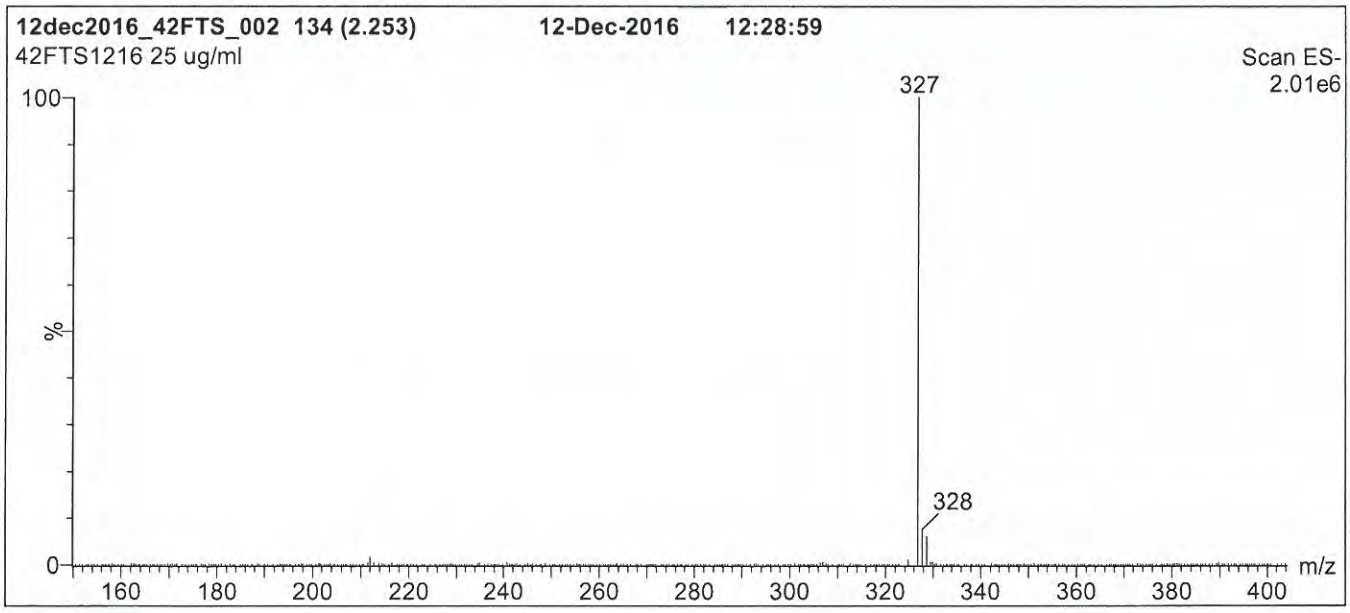
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18C2731

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

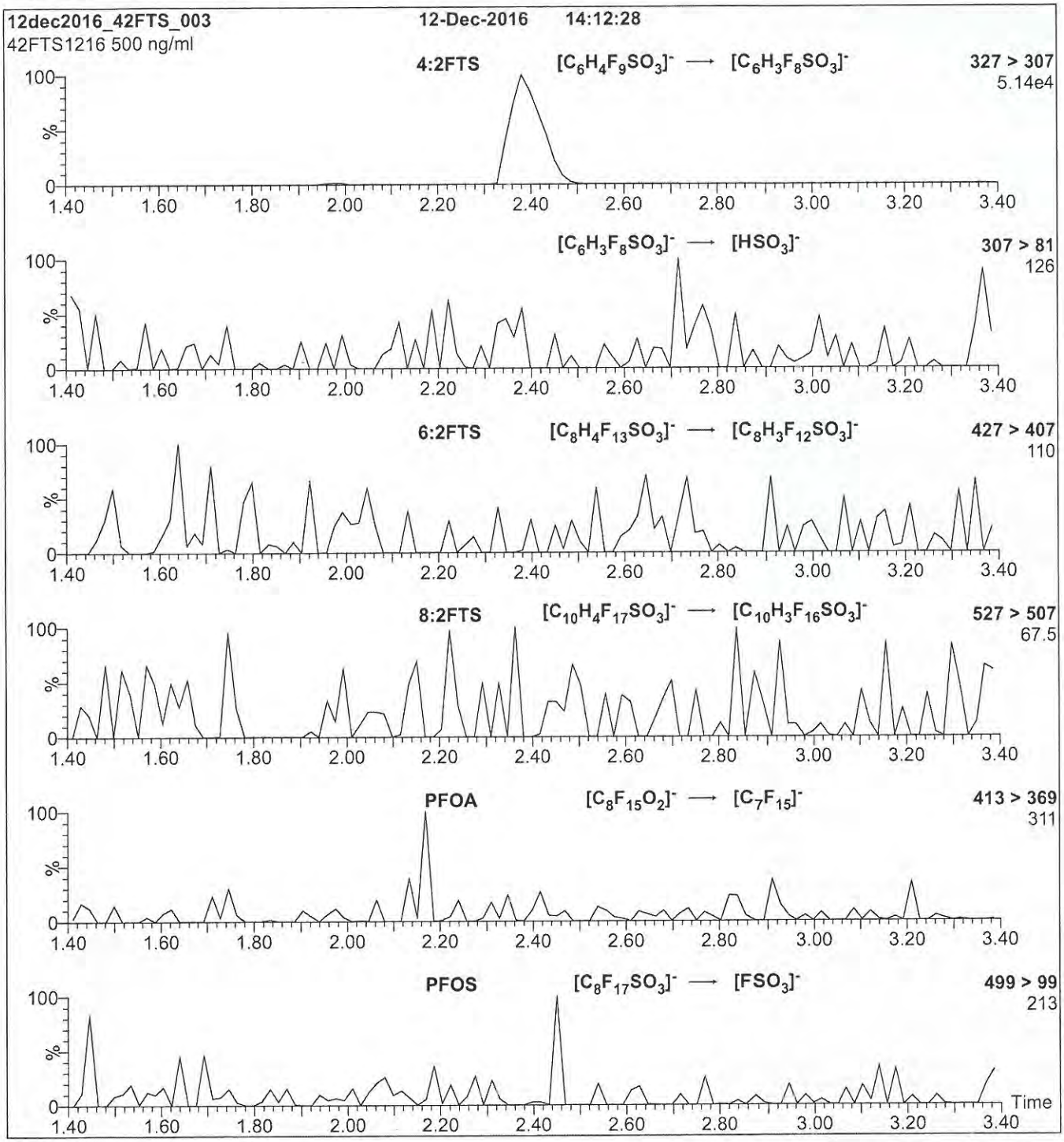
MS Parameters

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

18C2731

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

18C2732

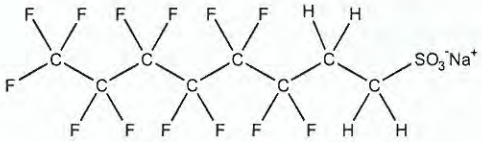
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: 6:2FTS **LOT NUMBER:** 62FTS0417

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)	04/20/2017			
EXPIRY DATE: (mm/dd/yyyy)	04/20/2022			
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:** 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

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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 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).

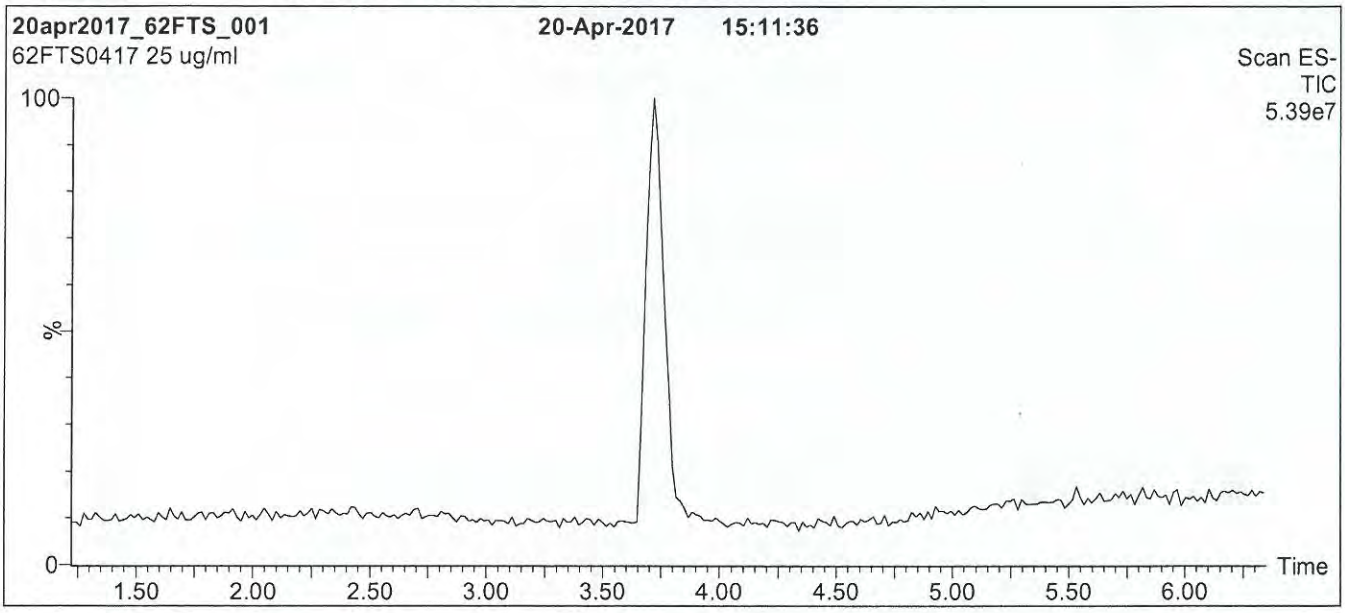
CALA

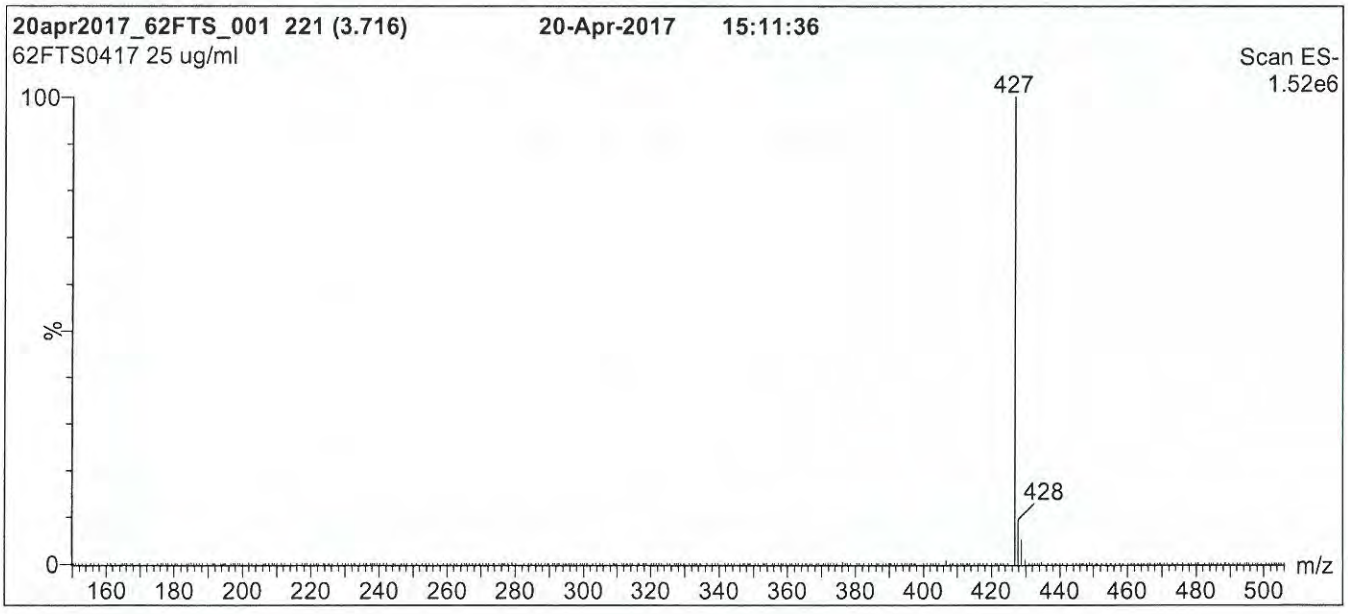
ANAB ACCREDITED

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

18C2732

Figure 1: **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 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

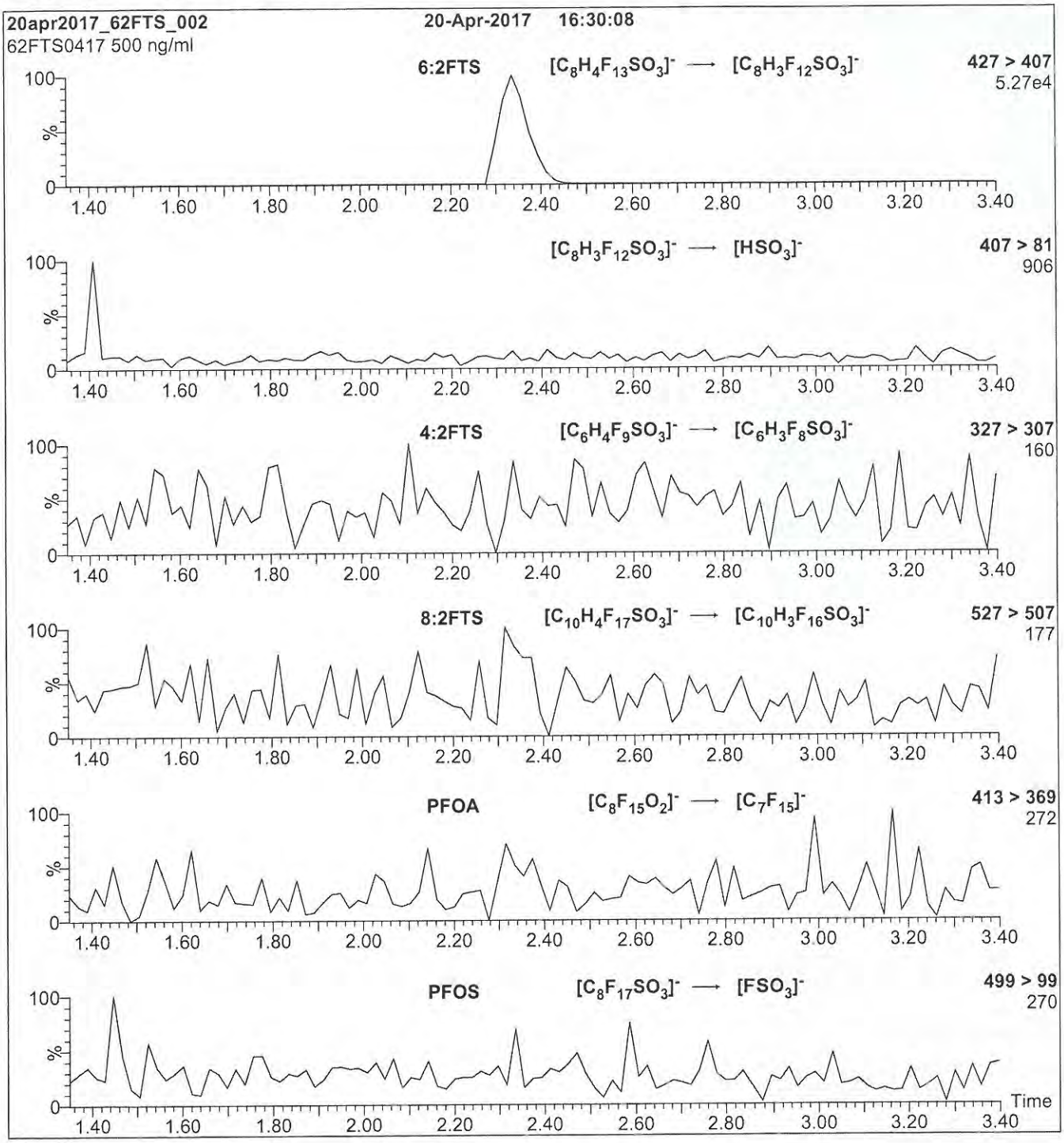
MS Parameters

Experiment: Full Scan (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

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Figure 2: **6:2FTS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml 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) = 3.35e-3
Collision Energy (eV) = 25

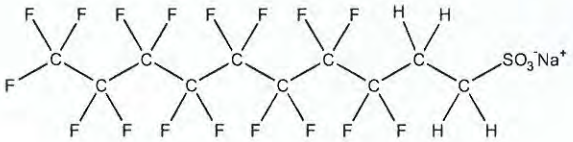
18C2733

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

18C2733

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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.

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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).

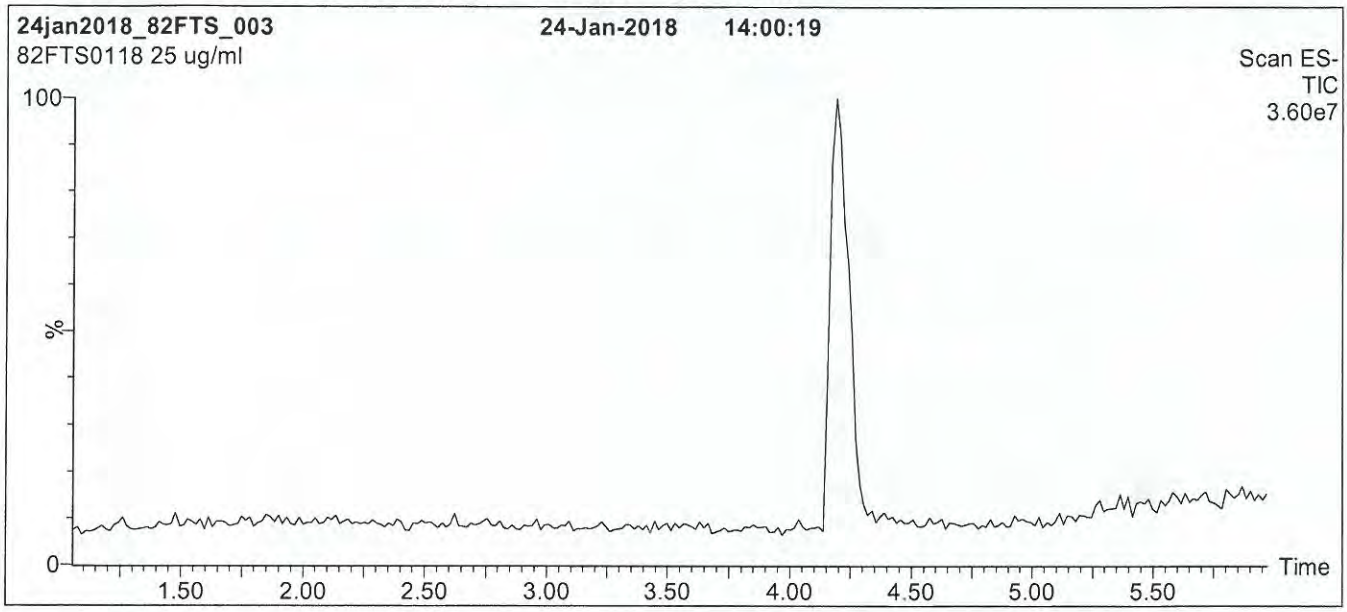
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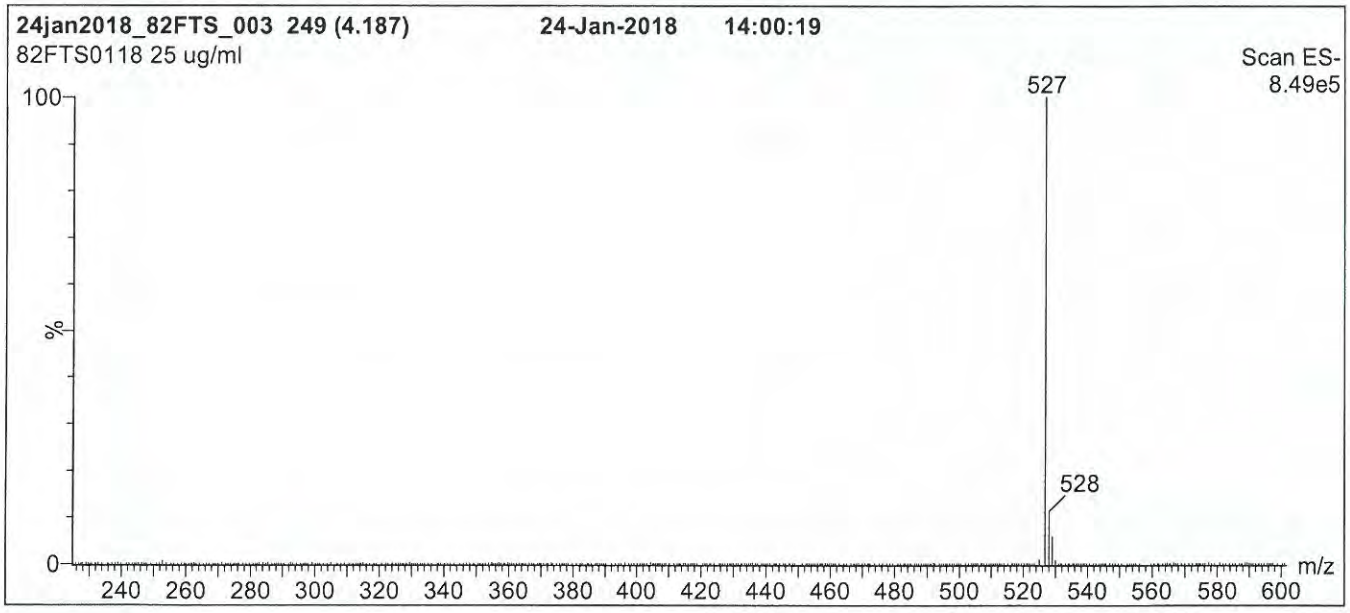
ANAB ACCREDITED 20709 REFERENCE MATERIAL PRODUCER

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18C2733

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

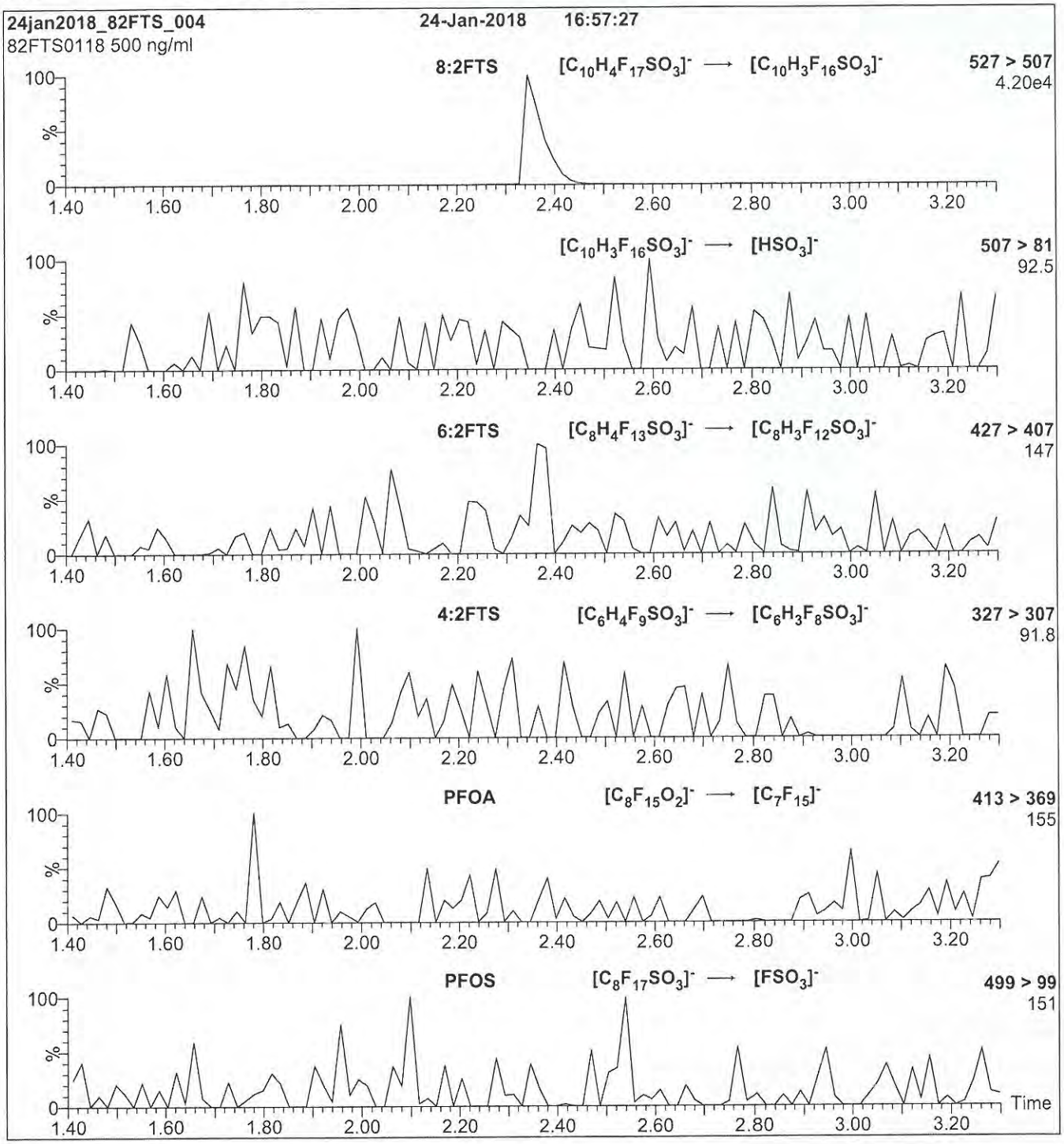
MS Parameters

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

18C2733

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

18C2734

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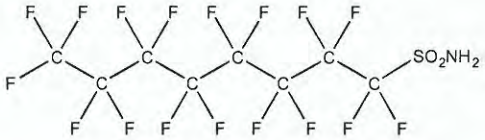
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: FOSA-I
COMPOUND: Perfluoro-1-octanesulfonamide

LOT NUMBER: FOSA0817I

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

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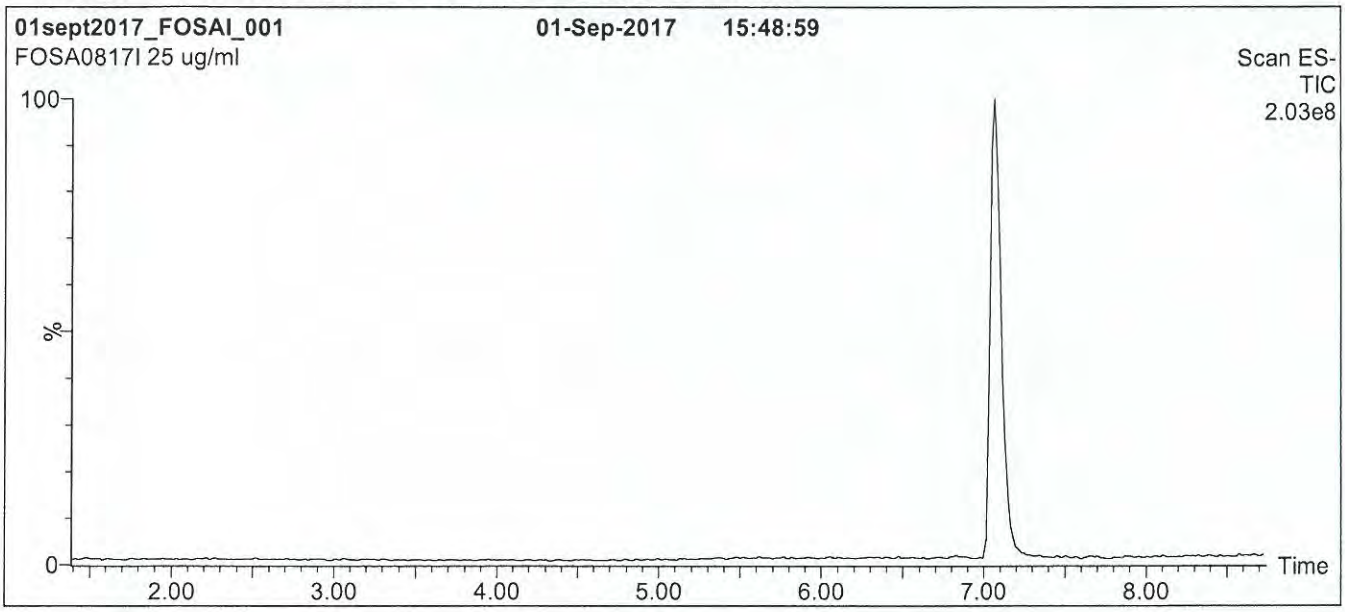
CALA Testing Accreditation No. A 1226

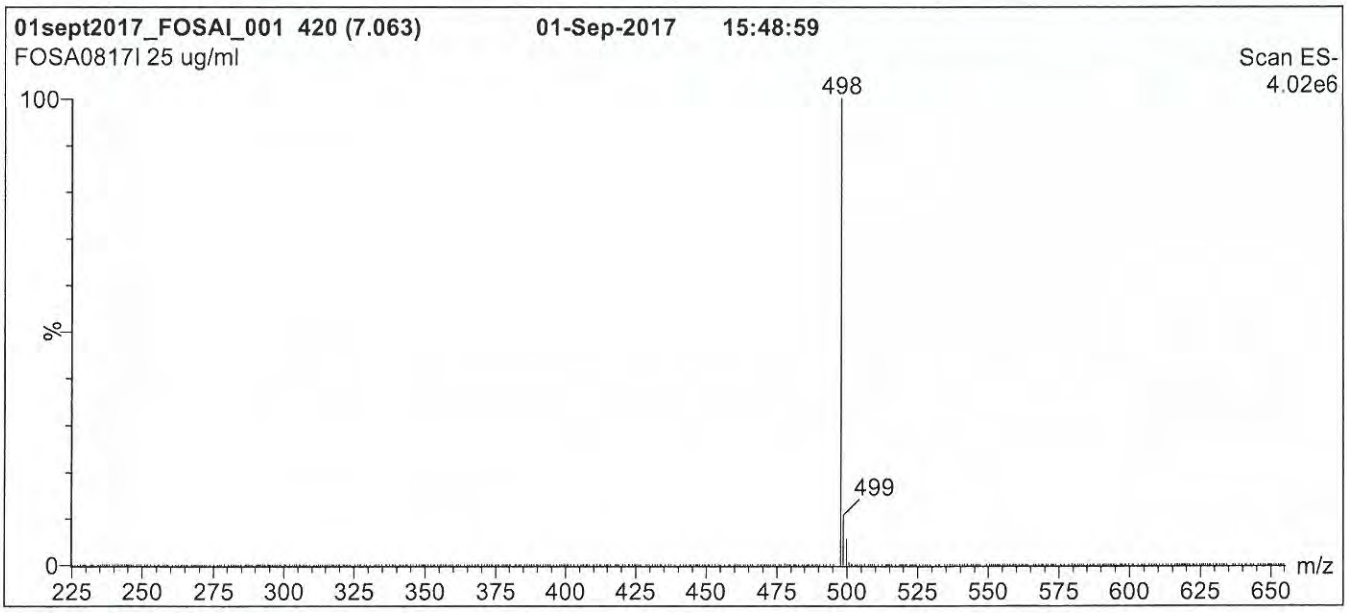
ANAB ACCREDITED REFERENCE MATERIAL PRODUCER

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18C2734

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

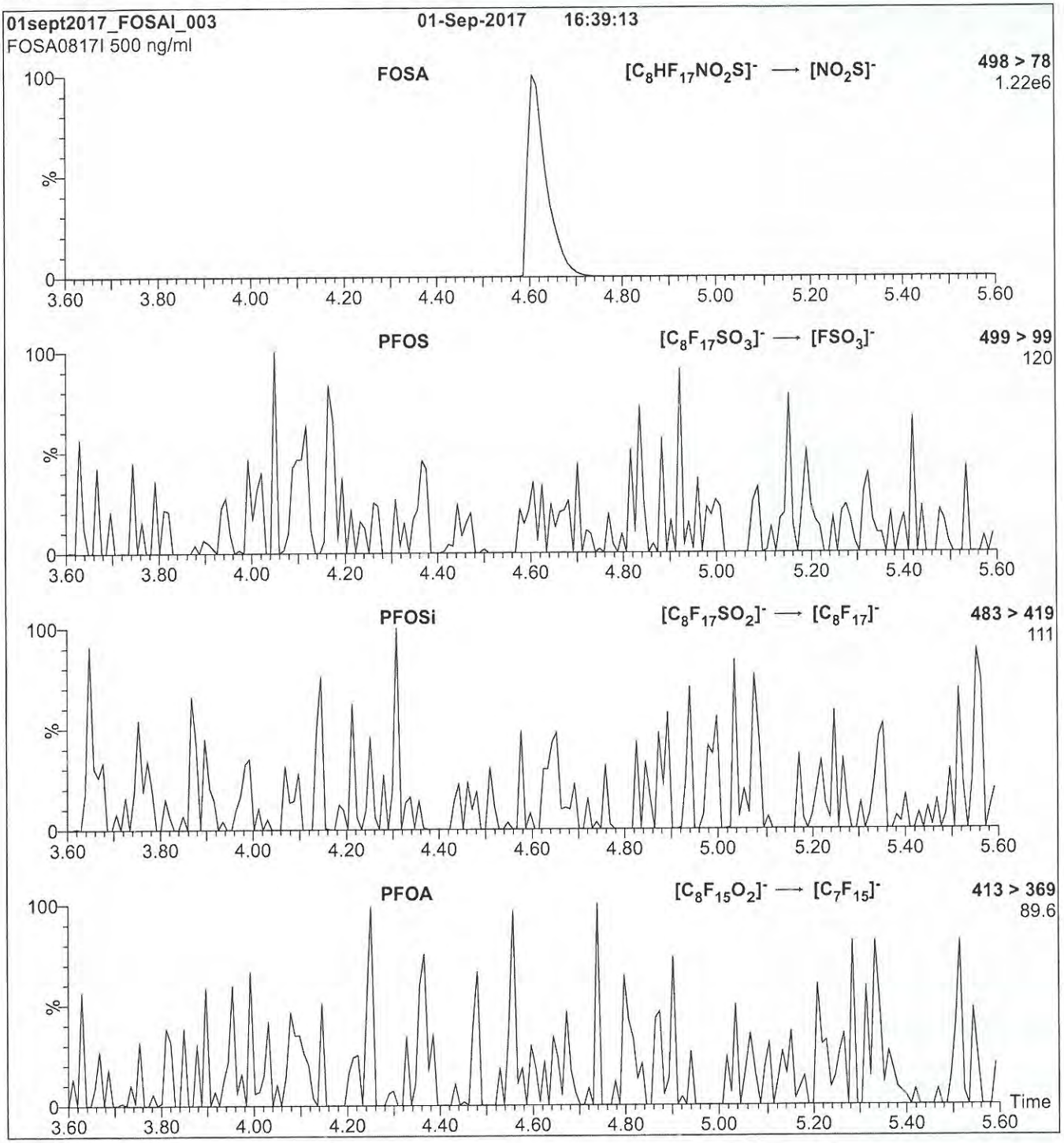
MS Parameters

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

18C2734

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

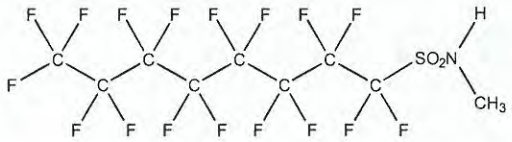
Collision Gas (mbar) = 3.20e-3
Collision Energy (eV) = 30

1802737

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	N-MeFOSA-M	**LOT NUMBER:**	NMeFOSA0717M
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)	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:** 07/10/2017 (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

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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.

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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EXPIRY DATE / PERIOD OF VALIDITY:

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LIMITED WARRANTY:

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QUALITY MANAGEMENT:

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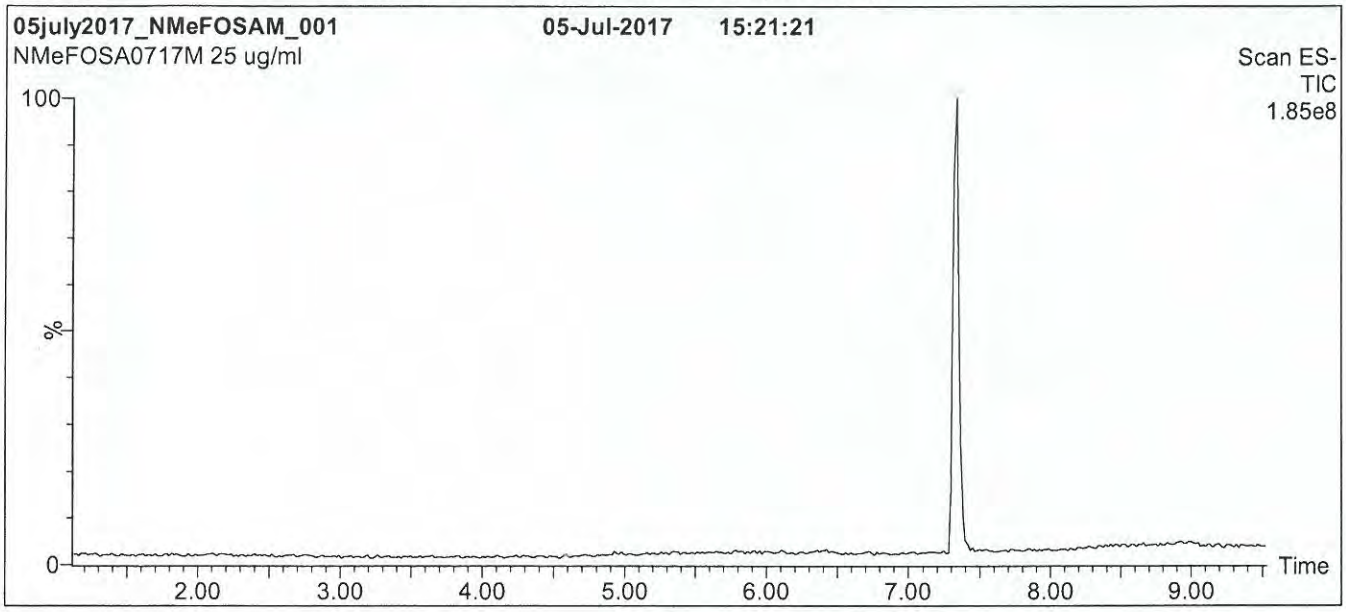
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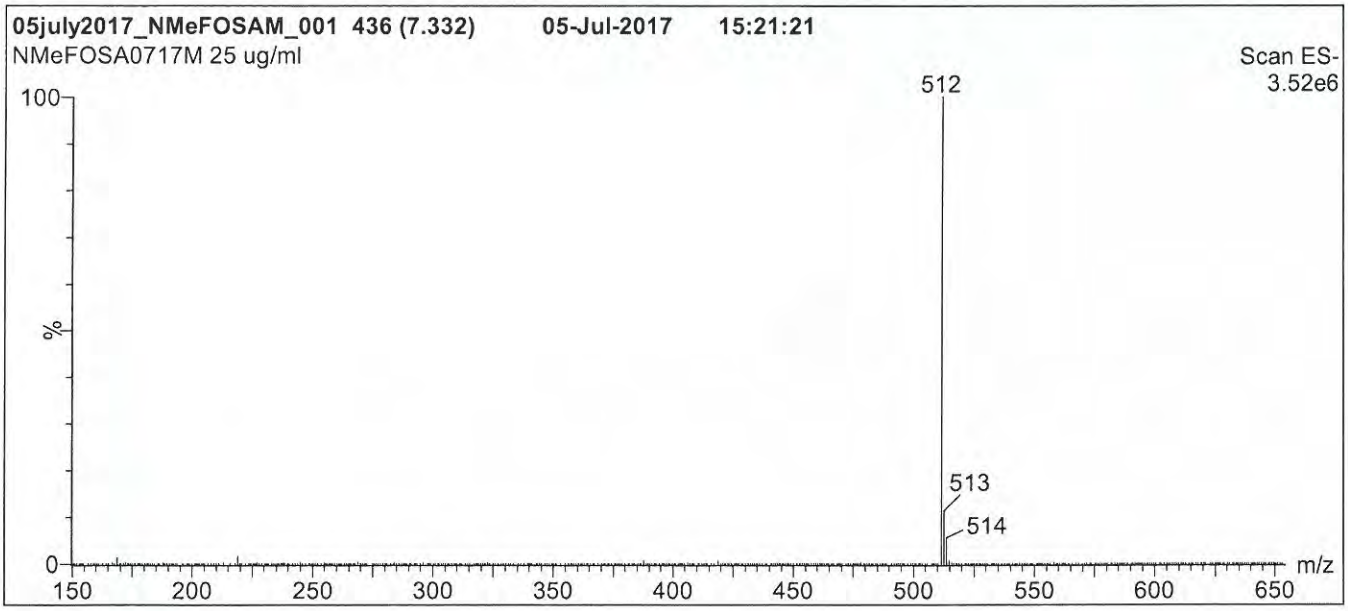
ANAB ACCREDITED Reference Material Producer

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

18C2737

Figure 1: **N-MeFOSA-M; 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% H_2O / 55% (80:20 MeOH:ACN)
(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

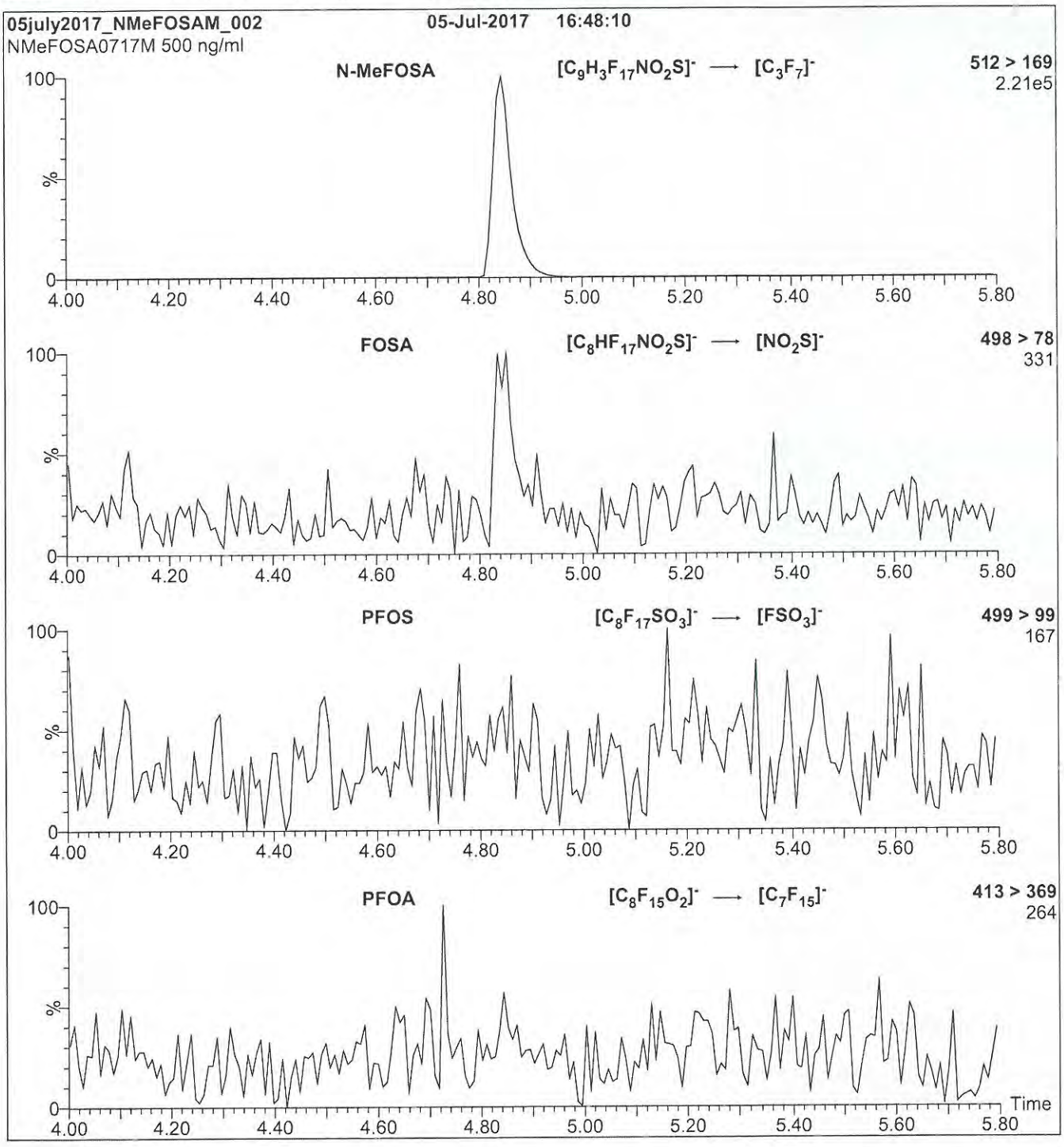
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

1802737

Figure 2: **N-MeFOSA-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml N-MeFOSA-M)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 µl/min

MS Parameters

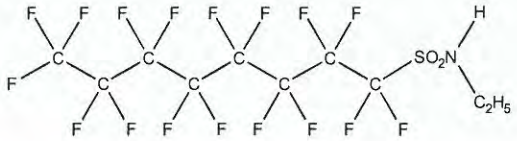
Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 30

18C2738

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	N-EtFOSA-M	**LOT NUMBER:**	NEtFOSA0717M
COMPOUND:	N-ethylperfluoro-1-octanesulfonamide		
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)	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:** 07/18/2017 (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

1802738

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HAZARDS:

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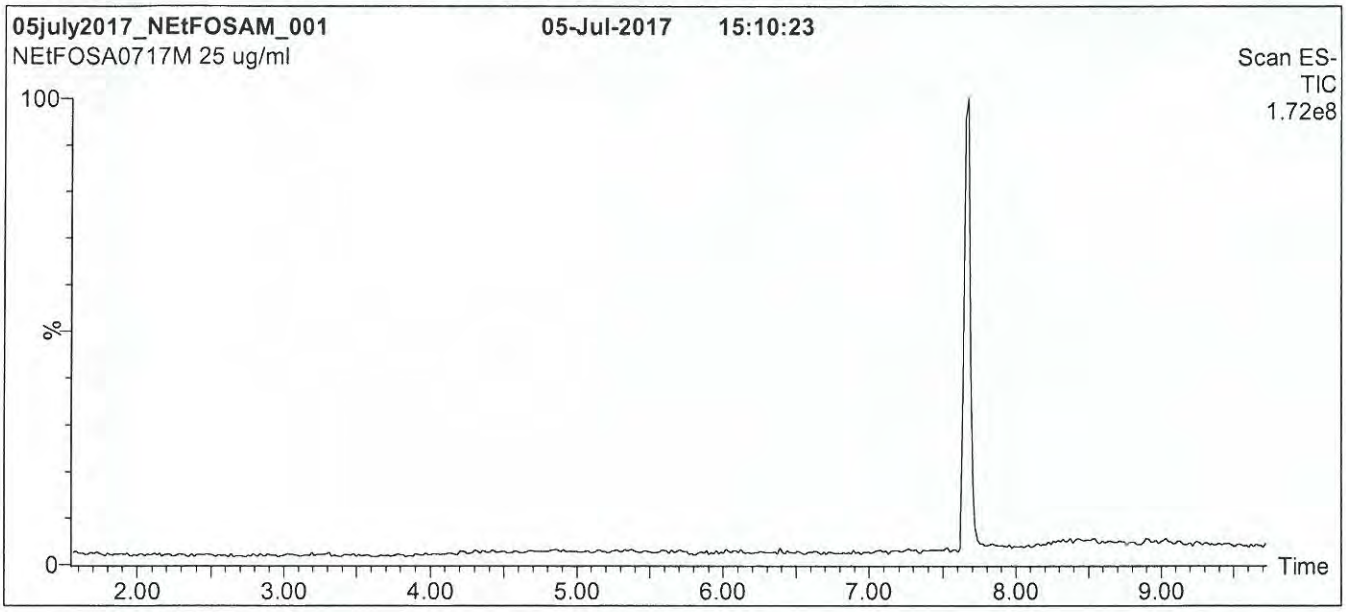
CALA Testing Accreditation No. A 0226

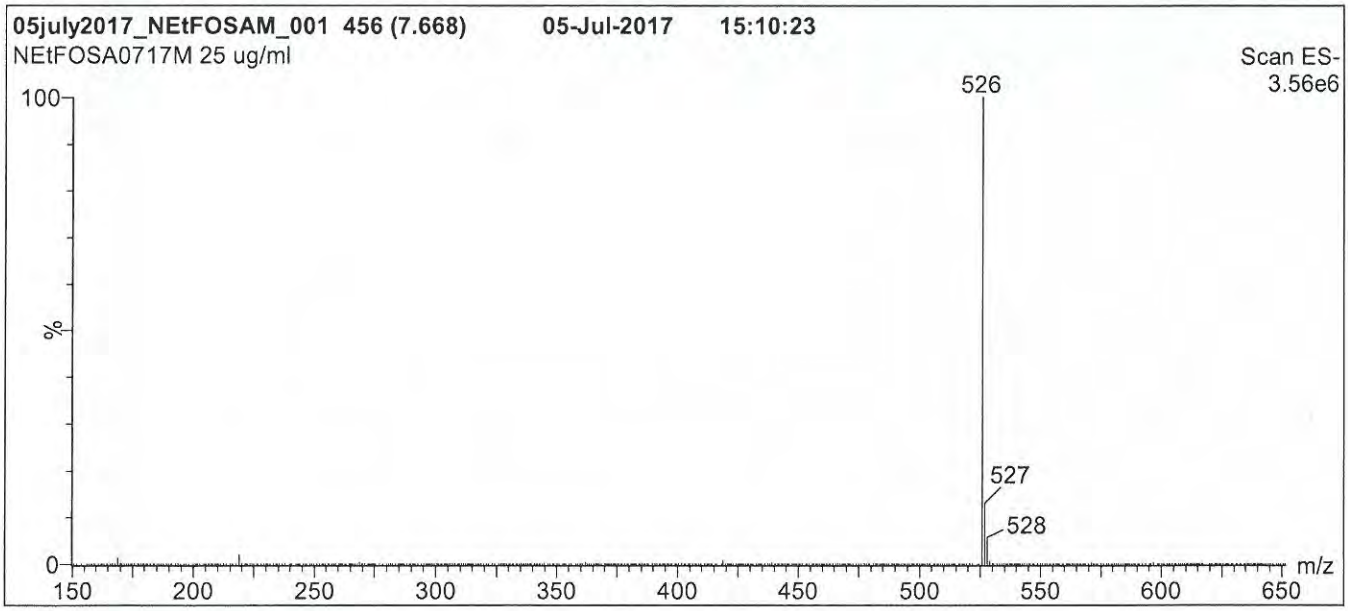
ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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

18C2738

Figure 1: **N-EtFOSA-M; 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% H_2O / 55% (80:20 MeOH:ACN)
(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

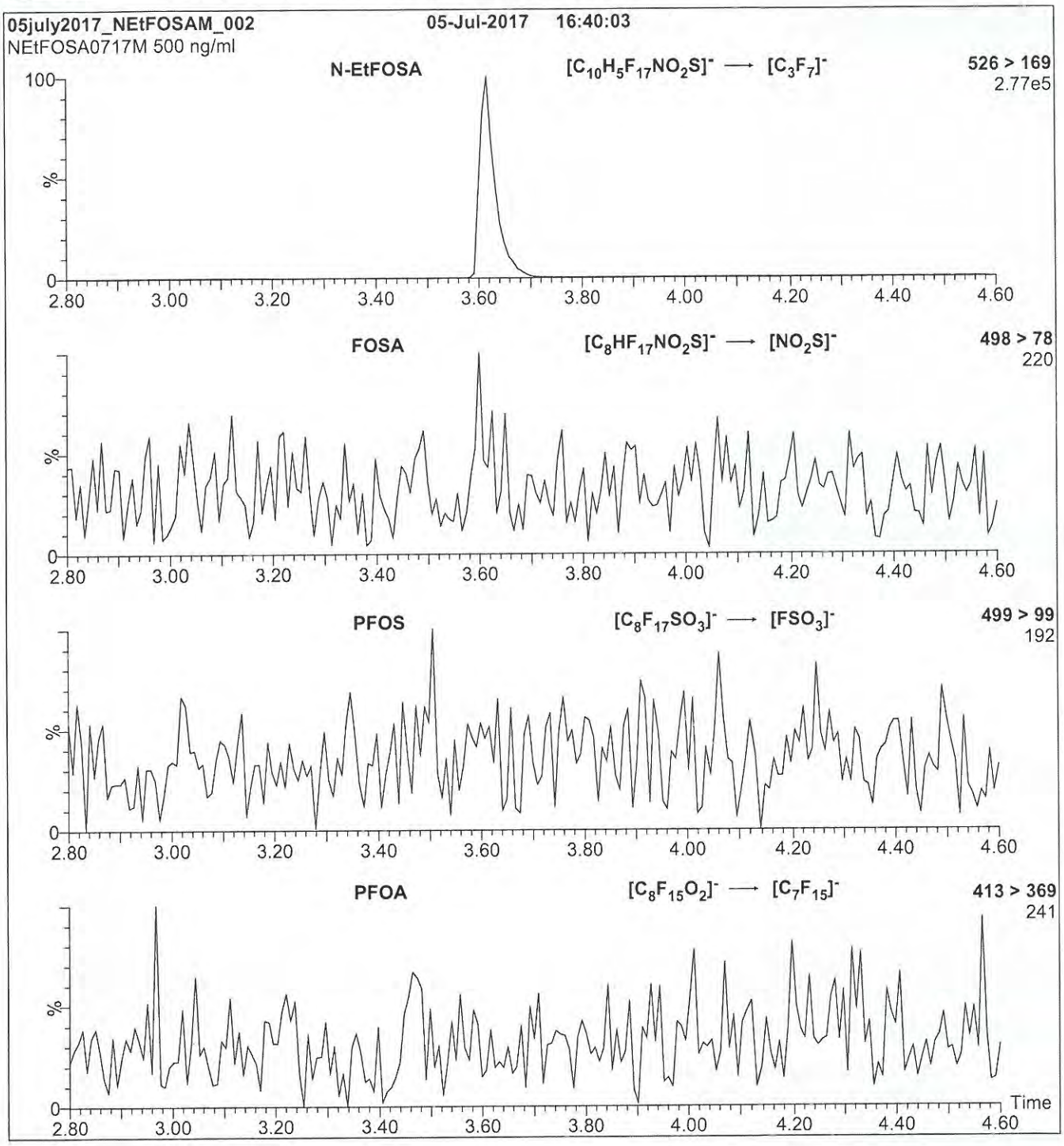
MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.50
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

18C2738

Figure 2: **N-EtFOSA-M; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: Direct loop injection
10 µl (500 ng/ml N-EtFOSA-M)

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

18C2739

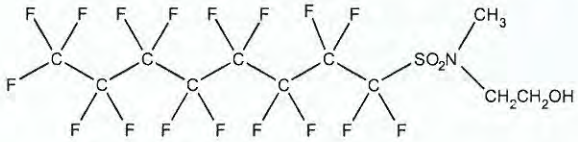
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-MeFOSE-M **LOT NUMBER:** NMeFOSE0417M

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)	04/24/2017 (HRGC/LRMS) 04/21/2017 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	04/24/2022		
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:** 05/05/2017 (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

1802739

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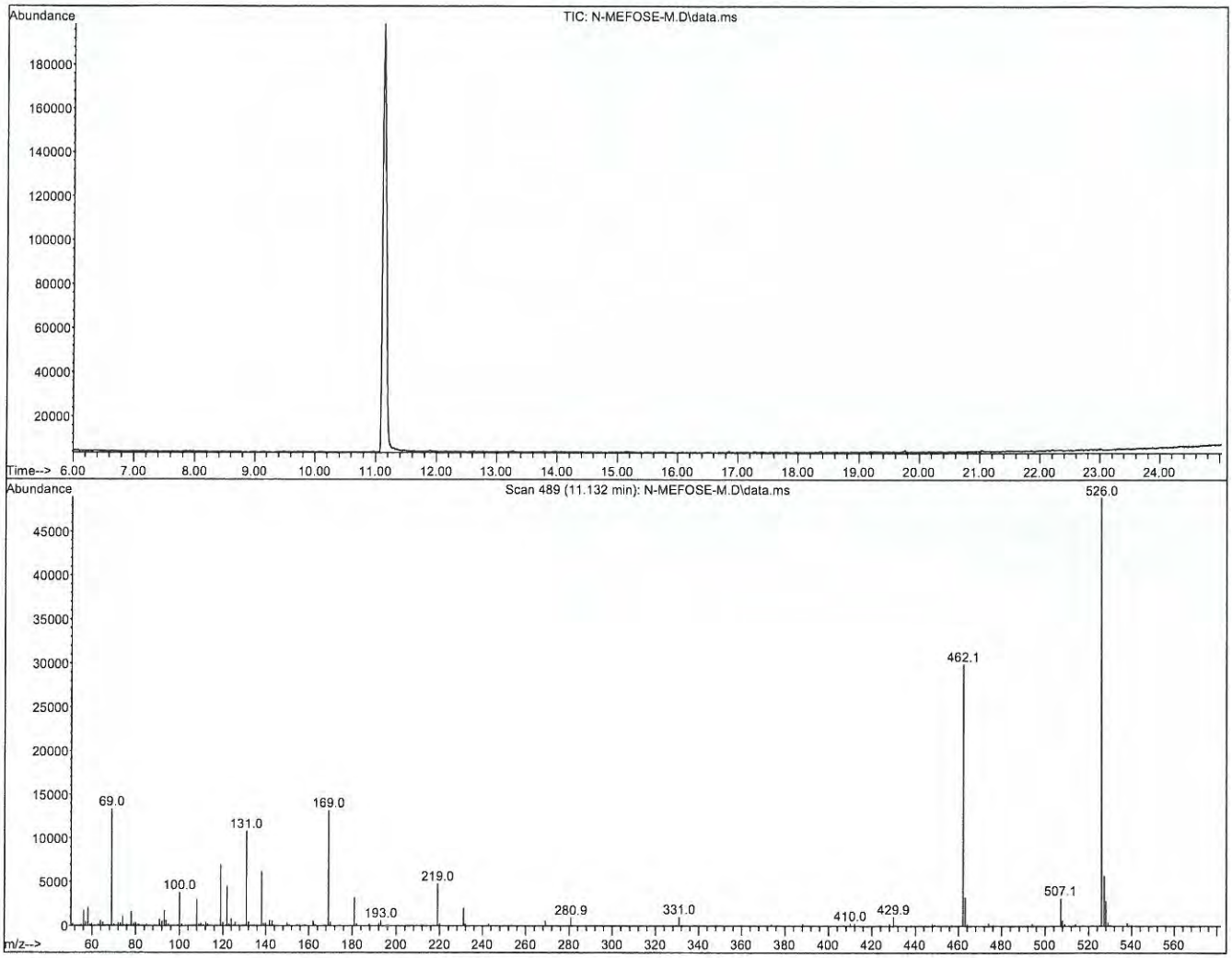
CALA Testing Accreditation No. A1226

ANAB ACCREDITED Reference Material Producer

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18C2739

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



HRGC/LRMS:

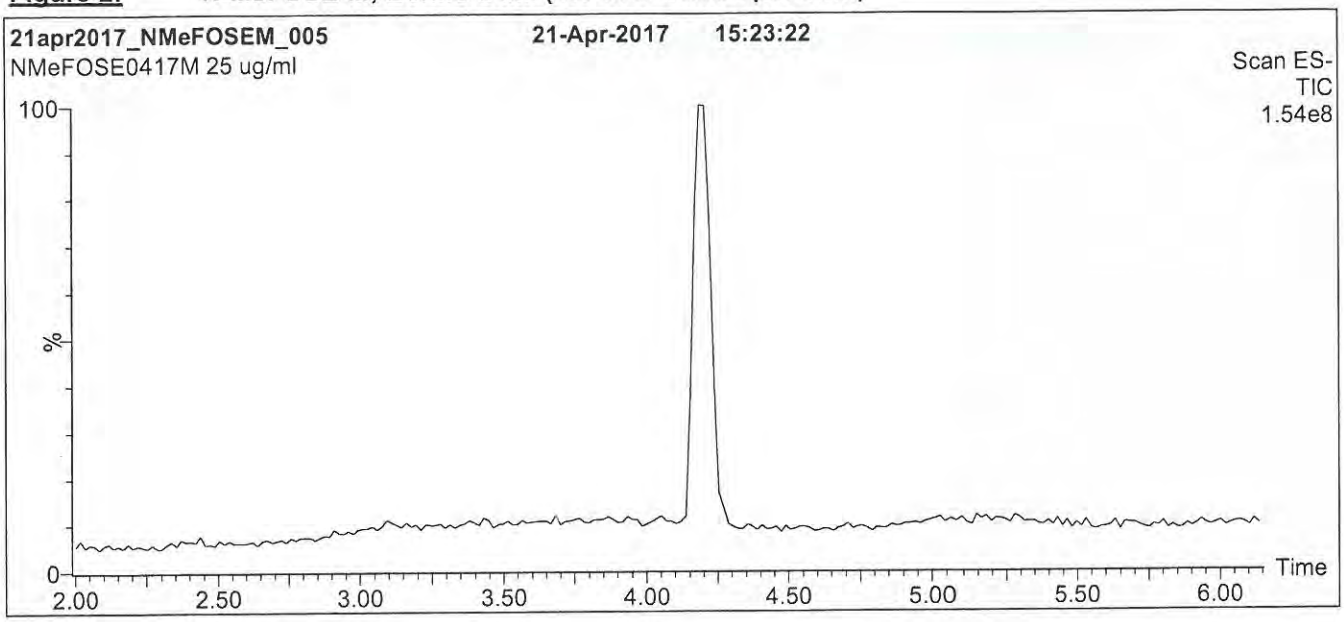
Agilent 7890A (HRGC)
Agilent 5975C (LRMS)

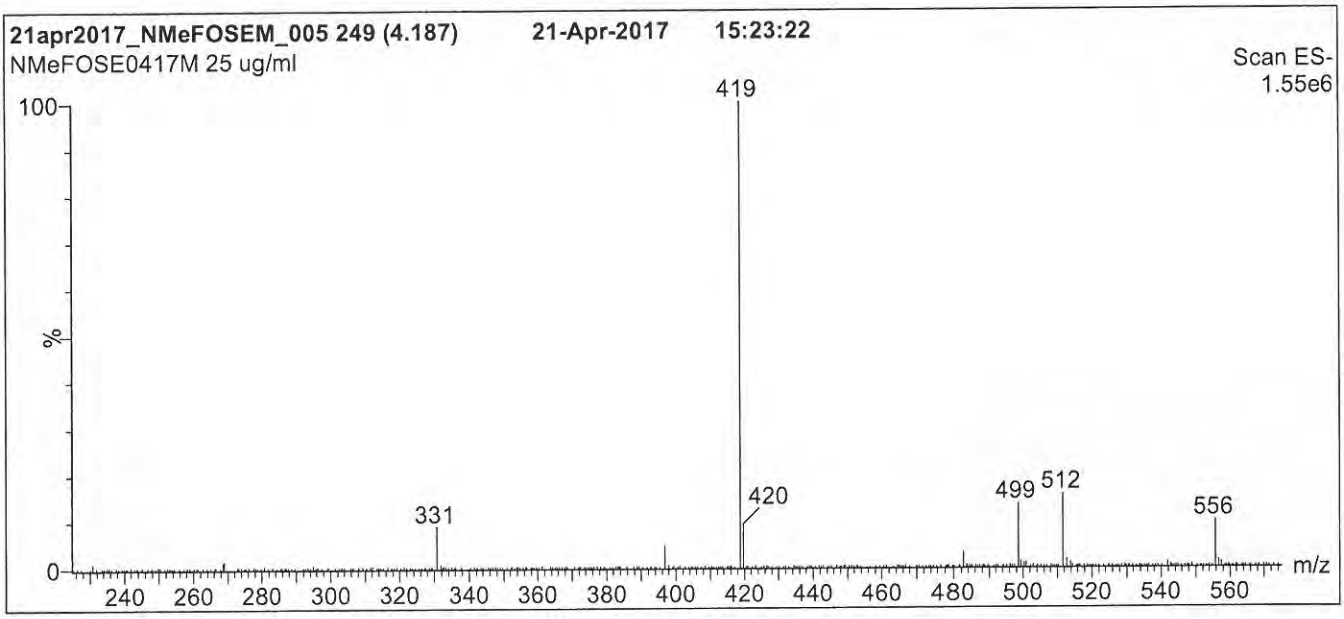
Chromatographic Conditions:

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)

18C2739

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





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: 60% MeOH / 40% H_2O
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

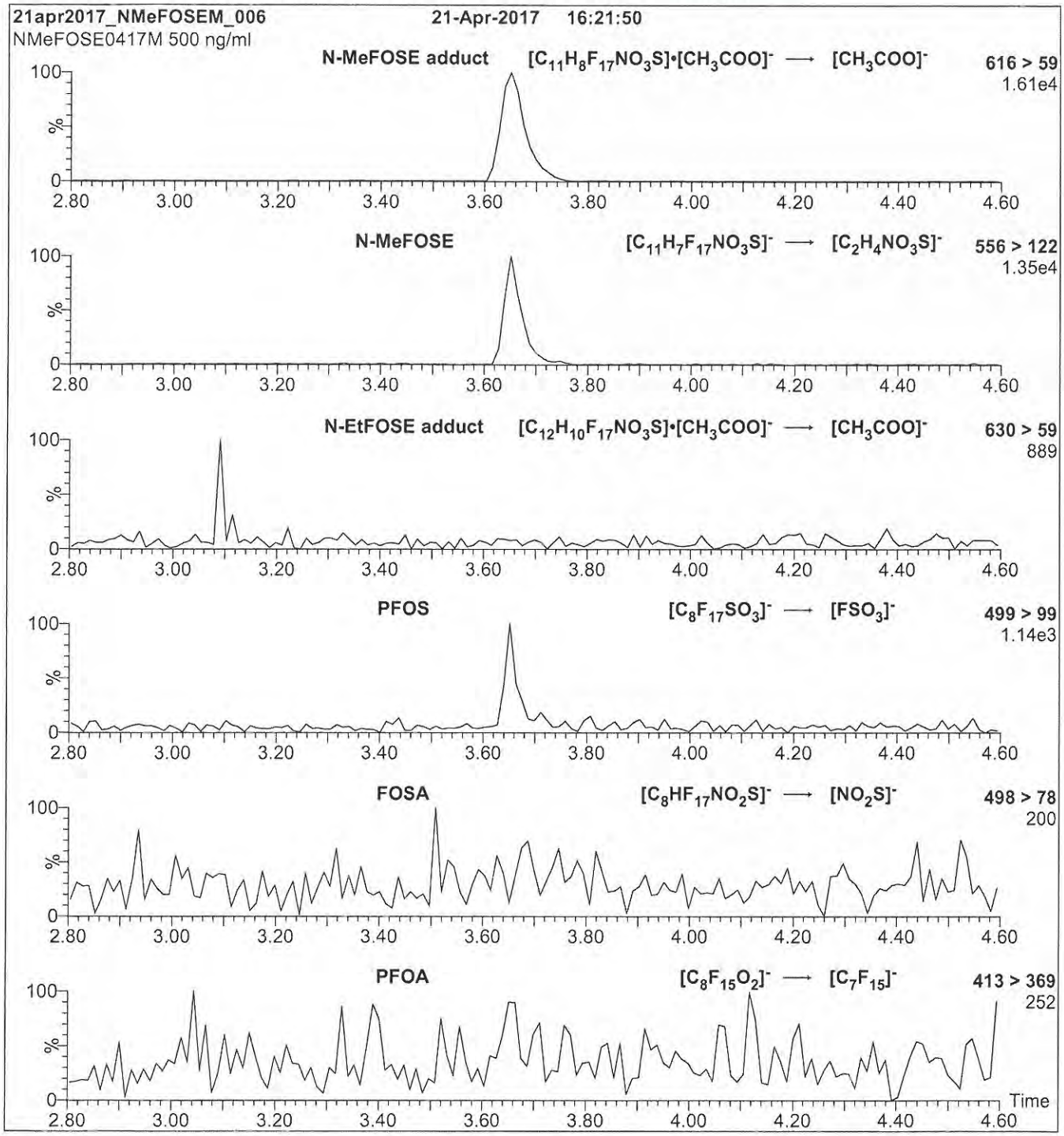
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.50
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 60
Desolvation Gas Flow (l/hr) = 750

18C2739

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



Conditions for Figure 3:

Injection: Direct loop injection
10 µl (500 ng/ml N-MeFOSE-M)

Mobile phase: Isocratic 80% MeOH / 20% H_2O

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 35

18C2740

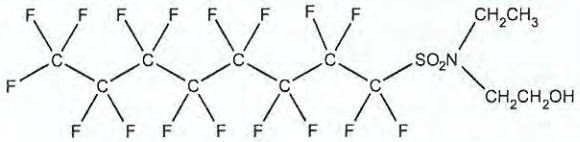
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: N-EtFOSE-M **LOT NUMBER:** NEtFOSE0417M

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)	04/24/2017 (HRGC/LRMS) 04/21/2017 (LC/MS)		
EXPIRY DATE: (mm/dd/yyyy)	04/24/2022		
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:

- 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.

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Certified By: _____ **Date:** 04/26/2017 (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

18C2740

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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.

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).

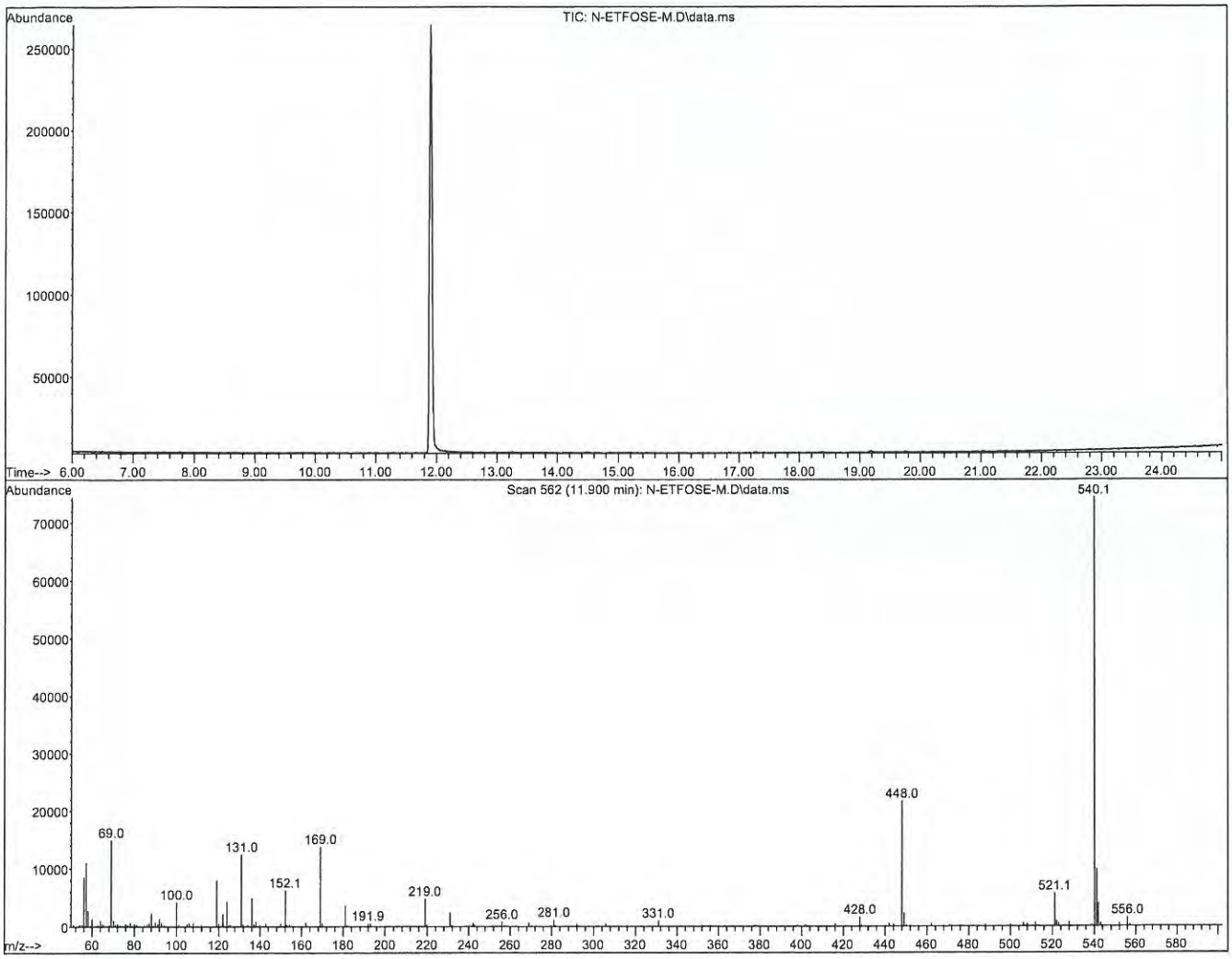
CALA

ANAB ACCREDITED

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18C2740

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



HRGC/LRMS:

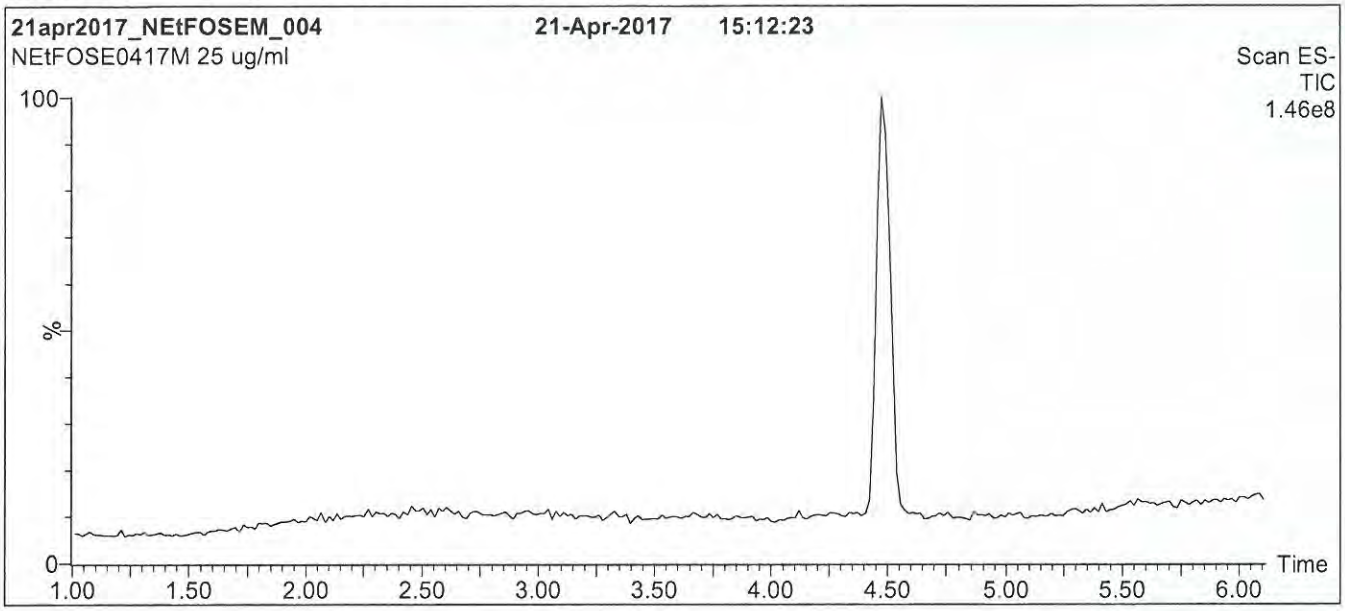
Agilent 7890A (HRGC)
Agilent 5975C (LRMS)

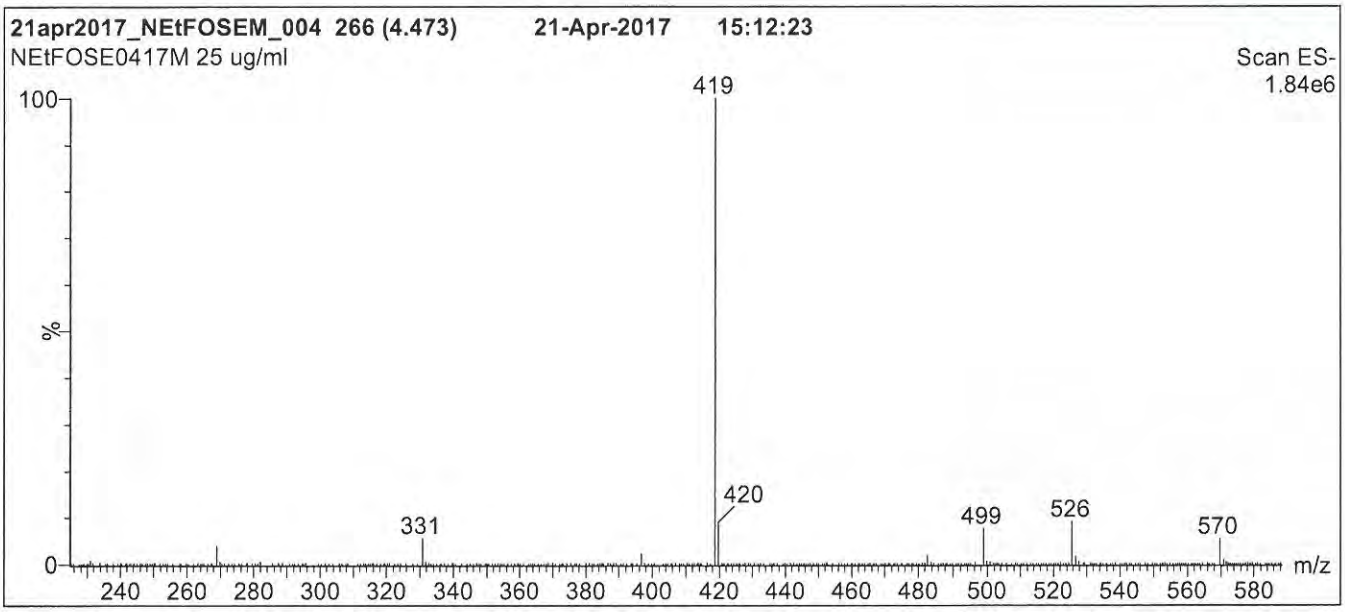
Chromatographic Conditions:

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)

18C2746

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





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: 60% MeOH / 40% H_2O
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

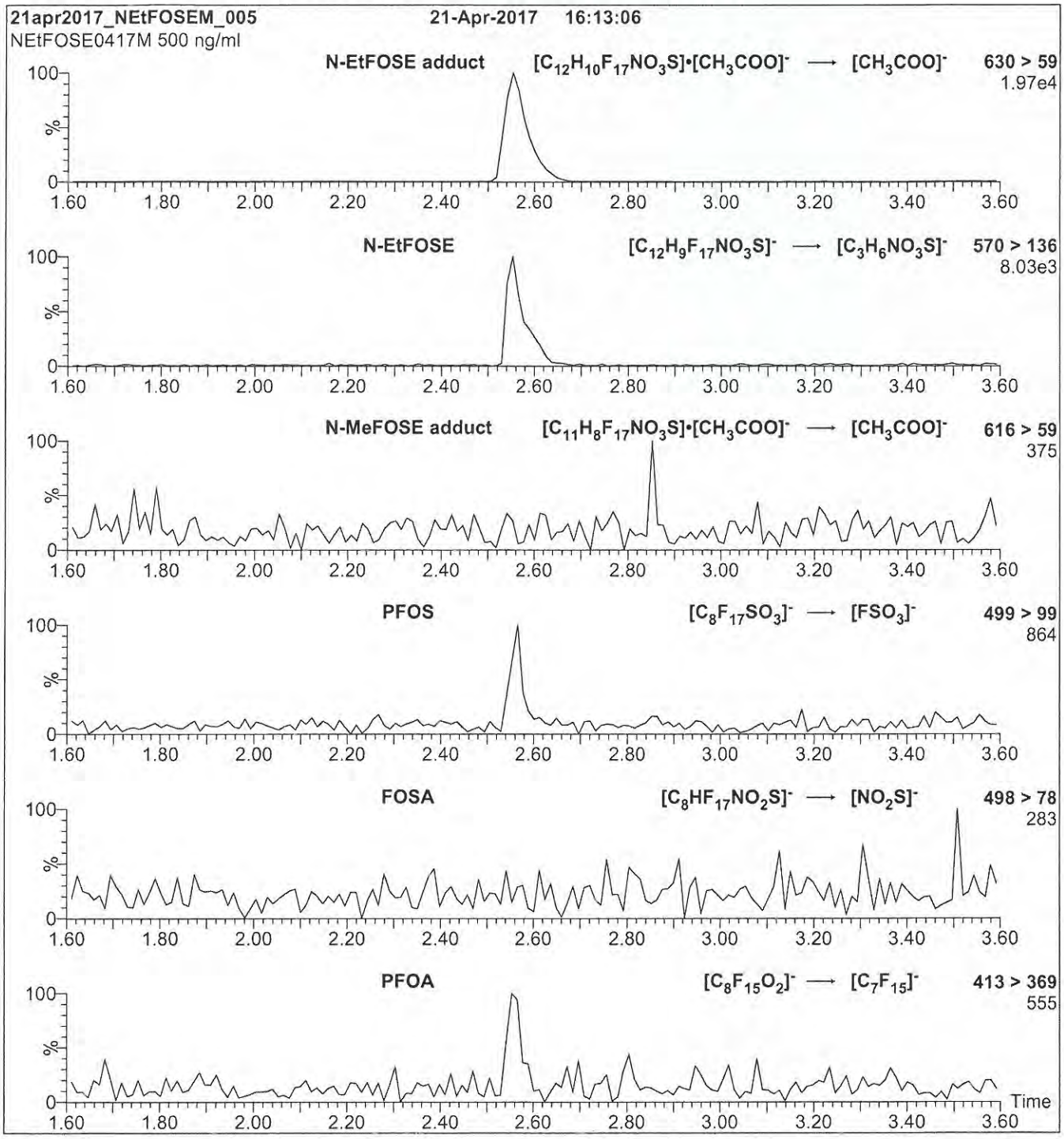
MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 40.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

1802740

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



Conditions for Figure 3:

Injection: Direct loop injection
10 µl (500 ng/ml N-EtFOSE-M)

Mobile phase: Isocratic 80% MeOH / 20% H_2O

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 33

18D1306

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

1801306

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

ANAB ACCREDITED ISO 17034 REFERENCE MATERIAL PRODUCER

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1801306

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

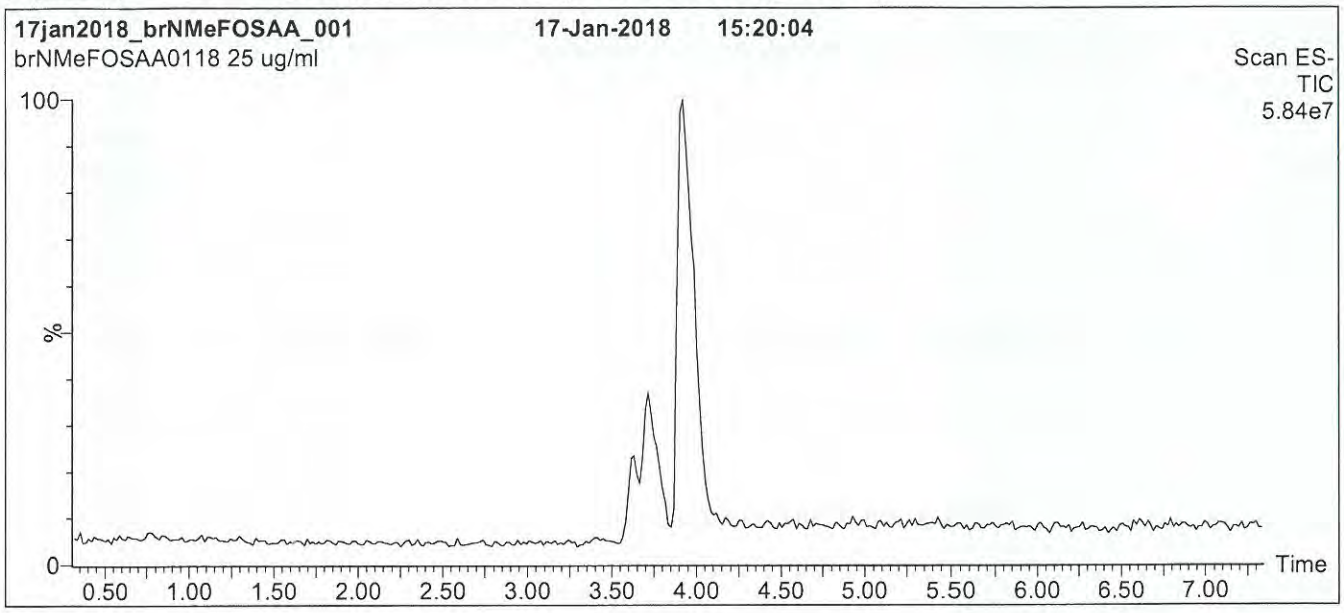
* Percent of total N-methylperfluorooctanesulfonamidoacetic acid isomers only.

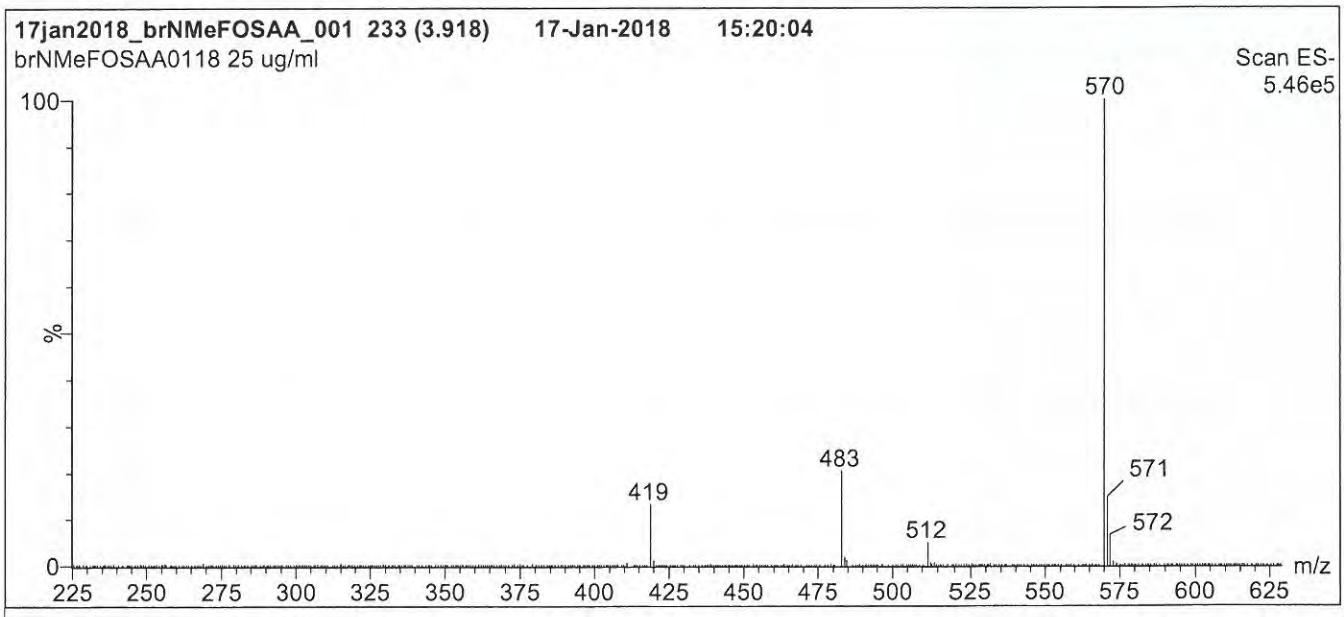
Certified By: _____ **Date:** 03/22/2018 (mm/dd/yyyy)

B.G. Chittim, General Manager

1801306

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

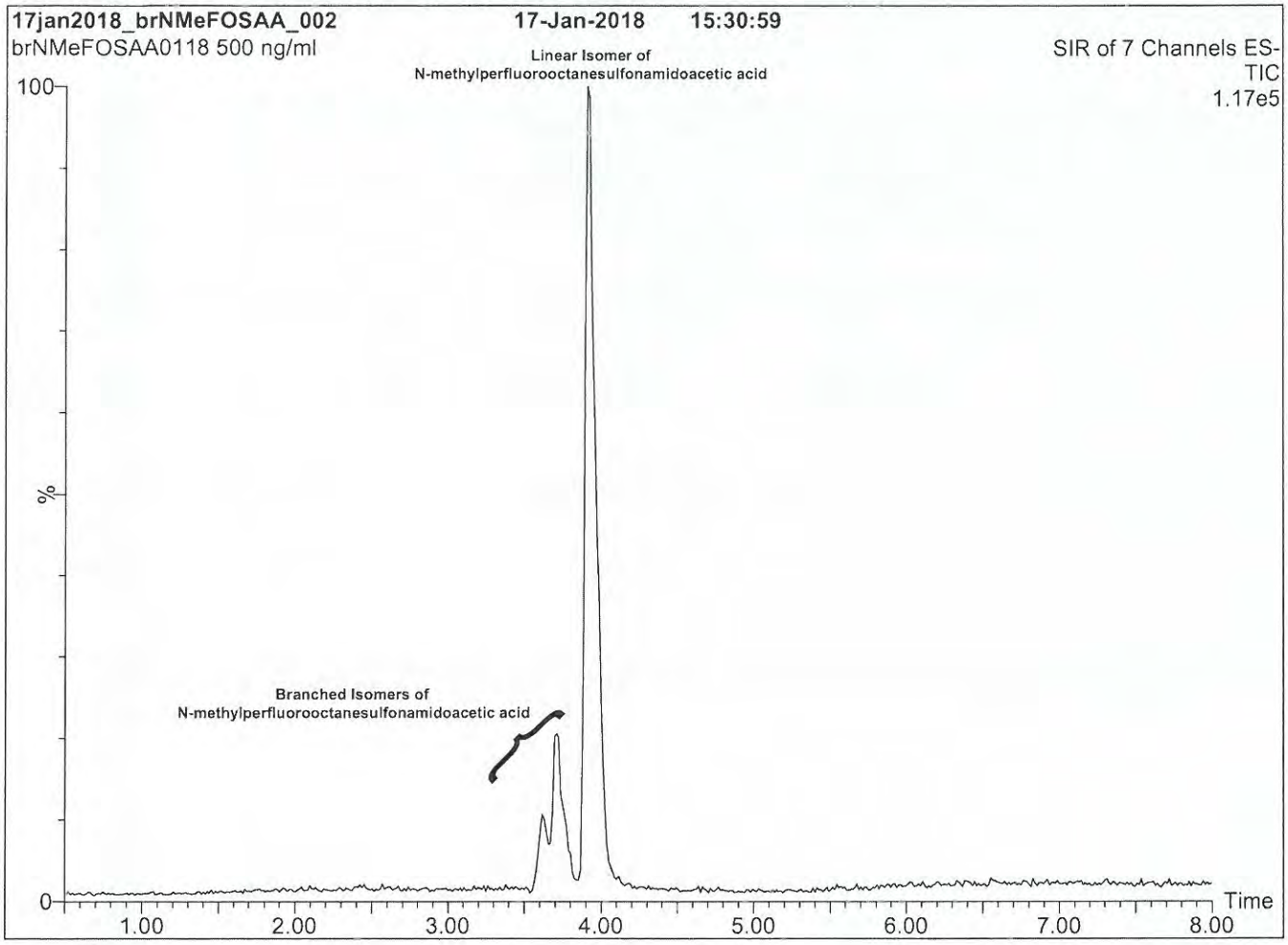
MS Parameters

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

1801306

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

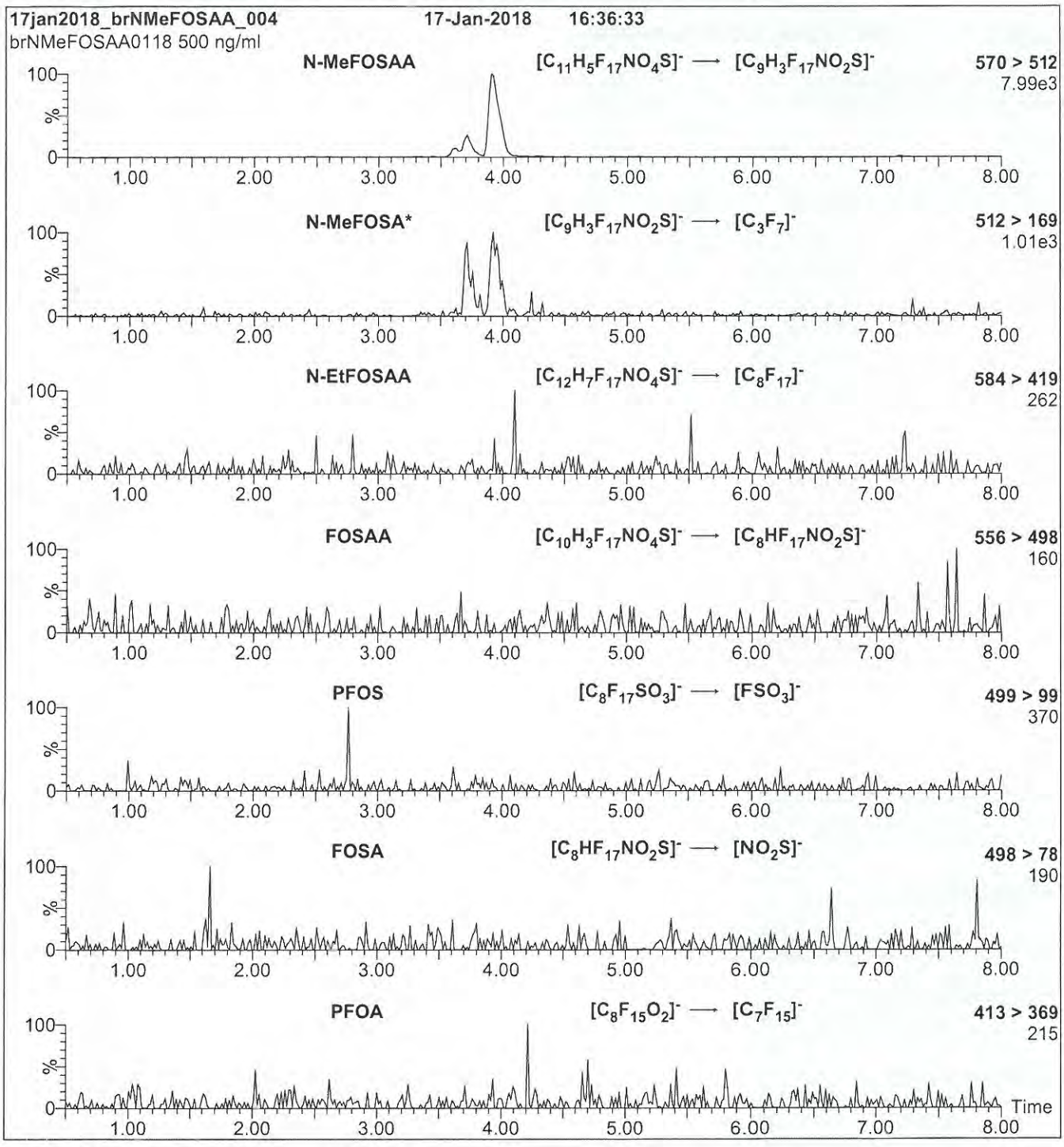
MS Parameters

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

18D1306

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)

18D1307

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.

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

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

18D1307

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

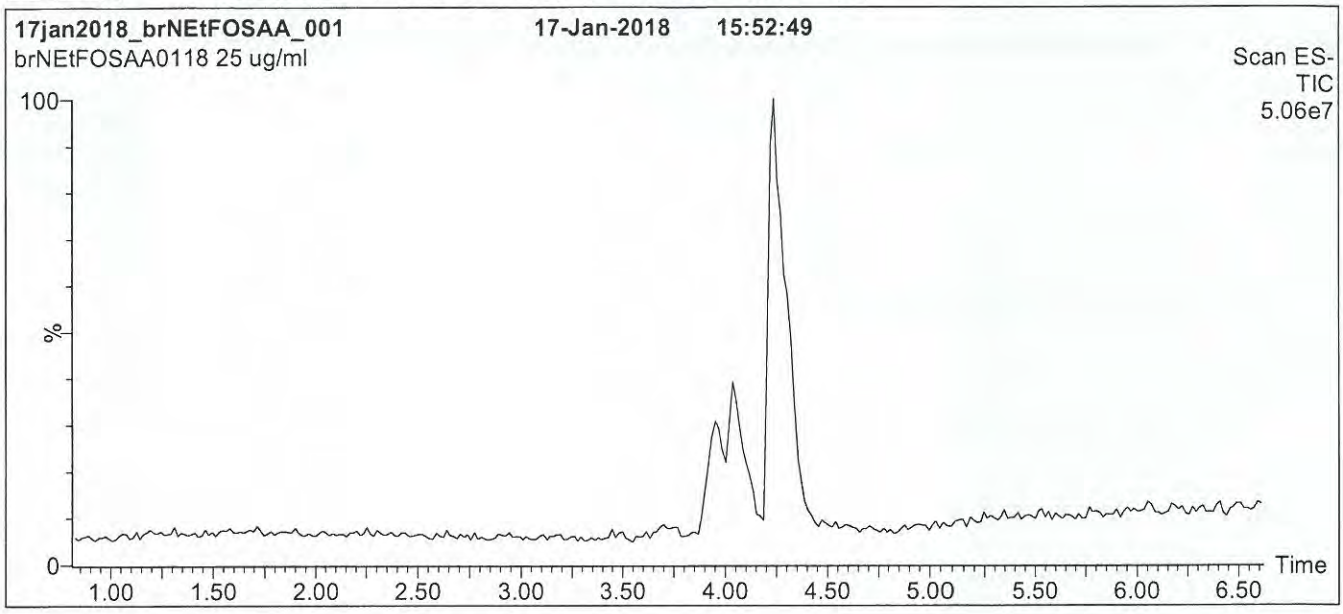
* Percent of total N-ethylperfluorooctanesulfonamidoacetic acid isomers only.

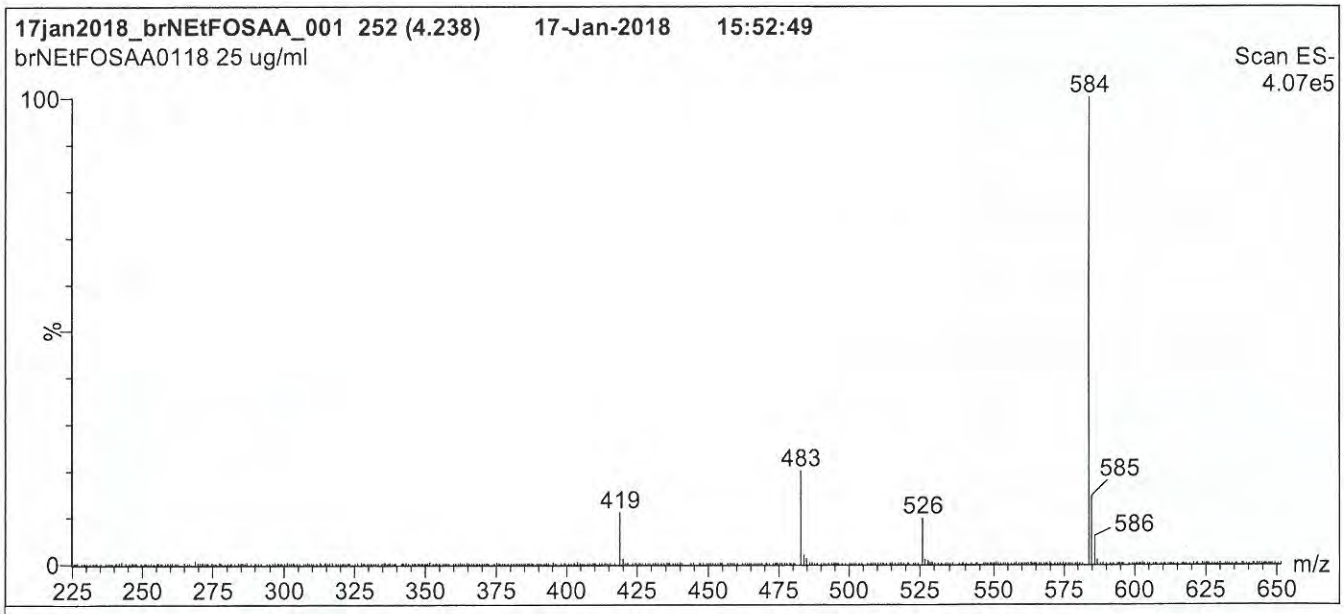
Certified By: _____ **Date:** 03/22/2018
(mm/dd/yyyy)

B.G. Chittim, General Manager

1801307

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

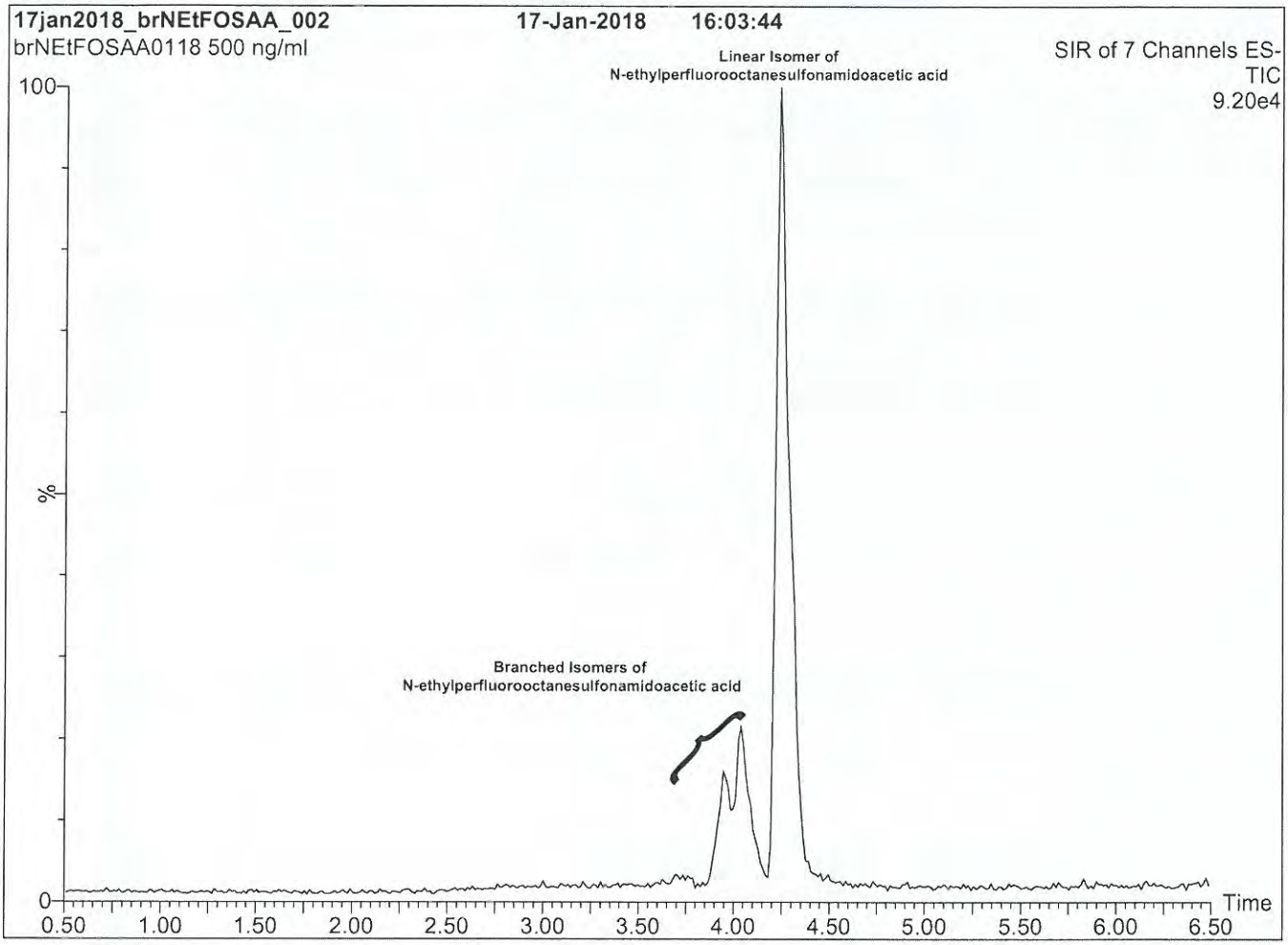
MS Parameters

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

1801307

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

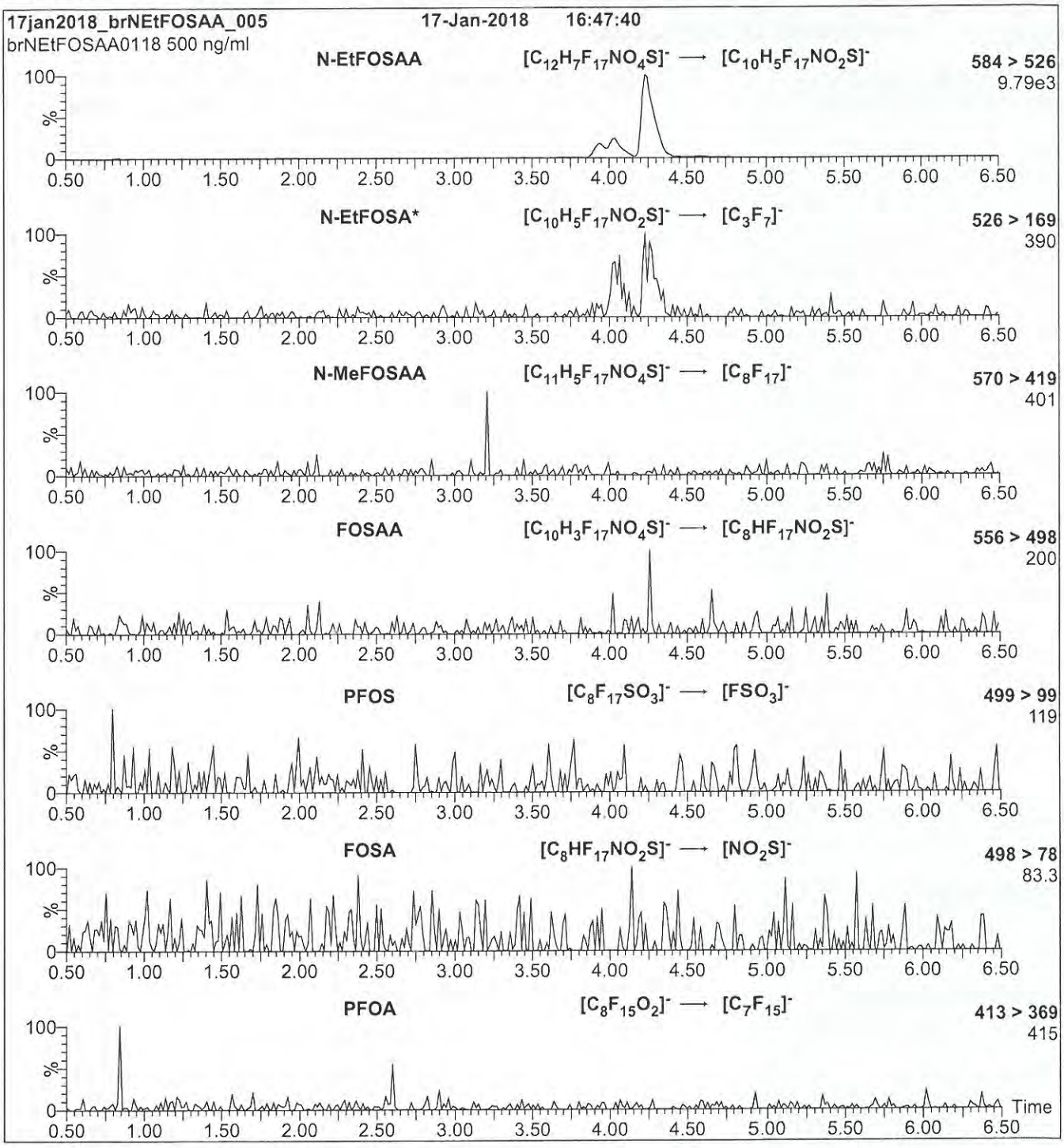
MS Parameters

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

1801307

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)

Analytical Standard Record

Vista Analytical Laboratory

18D2005

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	(mls)
18B1530	13C2-FOUEA	15-Feb-18	** Vendor **	14-Nov-19	1
18B1531	13C3-PFHxS	15-Feb-18	** Vendor **	05-Jul-22	1.06
18B1532	13C4-PFOS	15-Feb-18	** Vendor **	17-Oct-22	1.05
18B1533	13C7-PFUdA	15-Feb-18	** Vendor **	13-Jul-22	1
18B1534	13C5-PFHxA	15-Feb-18	** Vendor **	17-Oct-22	1
18B1535	13C6-PFDA	15-Feb-18	** Vendor **	17-Oct-22	1
18B1536	13C8-PFOA	15-Feb-18	** Vendor **	05-Jul-22	1.02
18B1537	13C4-PFBA	15-Feb-18	** Vendor **	12-Apr-22	1
18B1538	13C9-PFNA	15-Feb-18	** Vendor **	23-May-22	1

Description:	PFC-RS	Expires:	20-Apr-20
Standard Type:	Reagent	Prepared:	20-Apr-18
Solvent:	MeOH	Prepared By:	Giana R. Bilotta
Final Volume (mls):	40	Department:	LCMS
Vials:	1	Last Edit:	20-Apr-18 10:41 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

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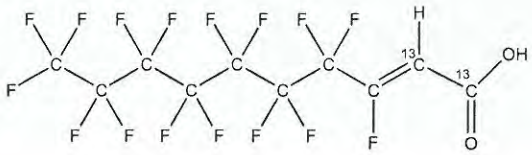
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MFOUEA
COMPOUND: 2H-Perfluoro-[1,2-$^{13}C_2$]-2-decenoic acid

LOT NUMBER: MFOUEA1117

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

18B1530

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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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 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).

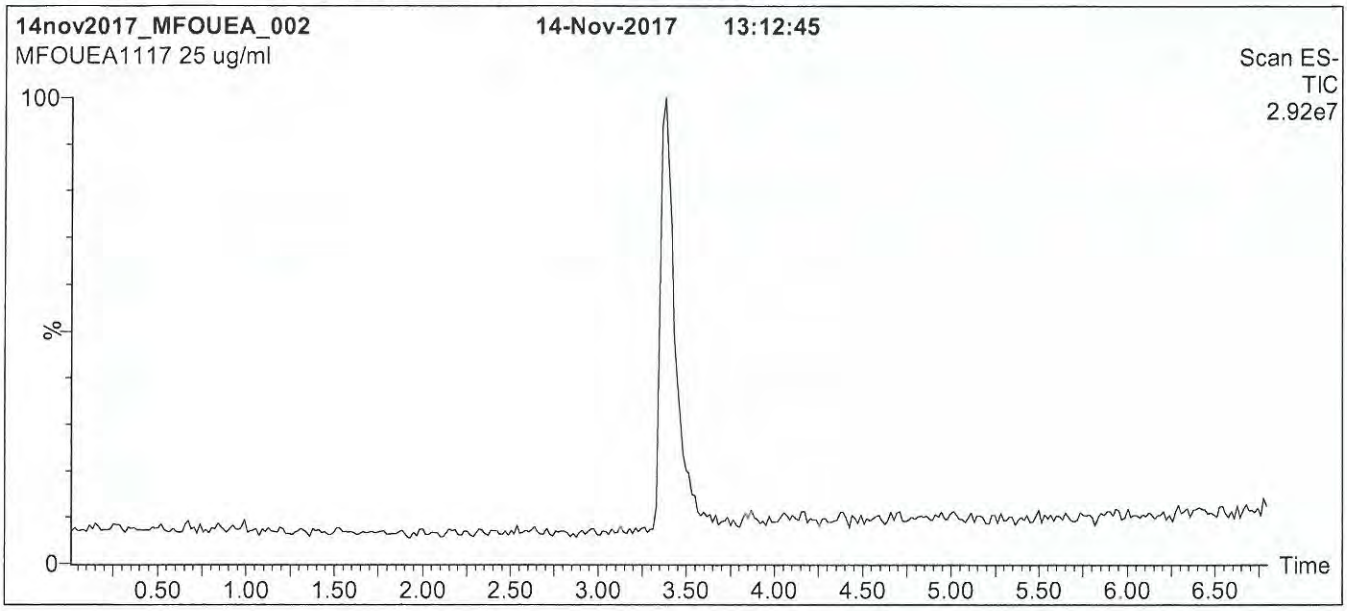
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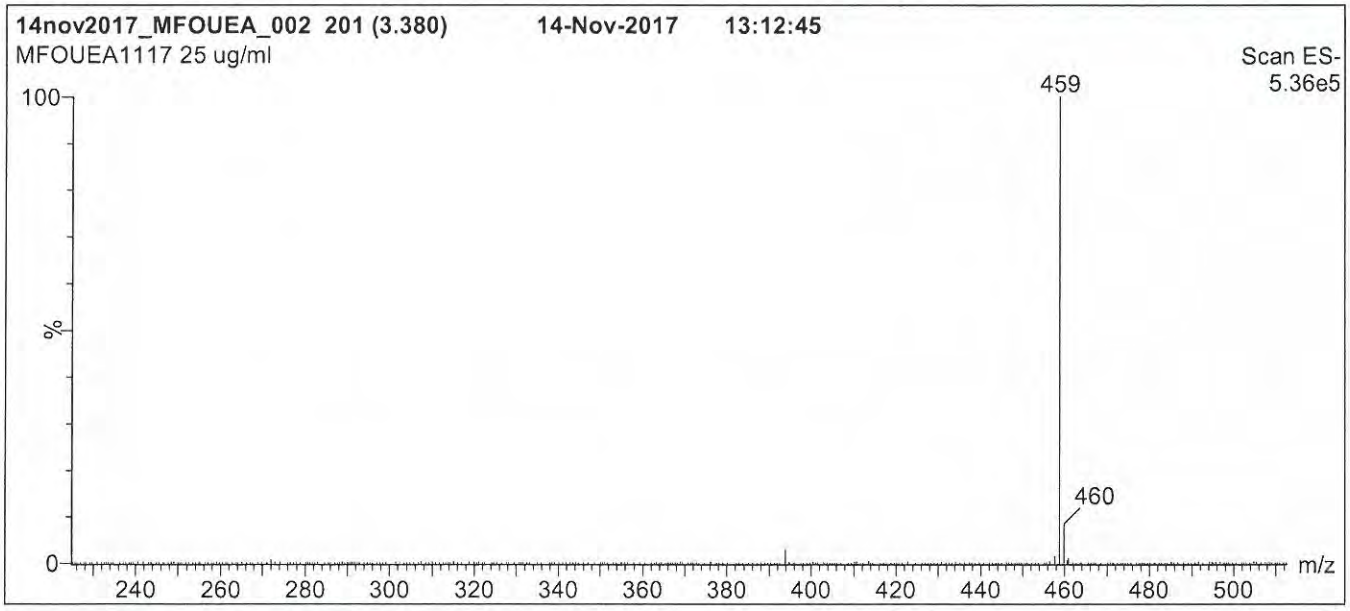
ANAB ACCREDITED

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18B1530

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

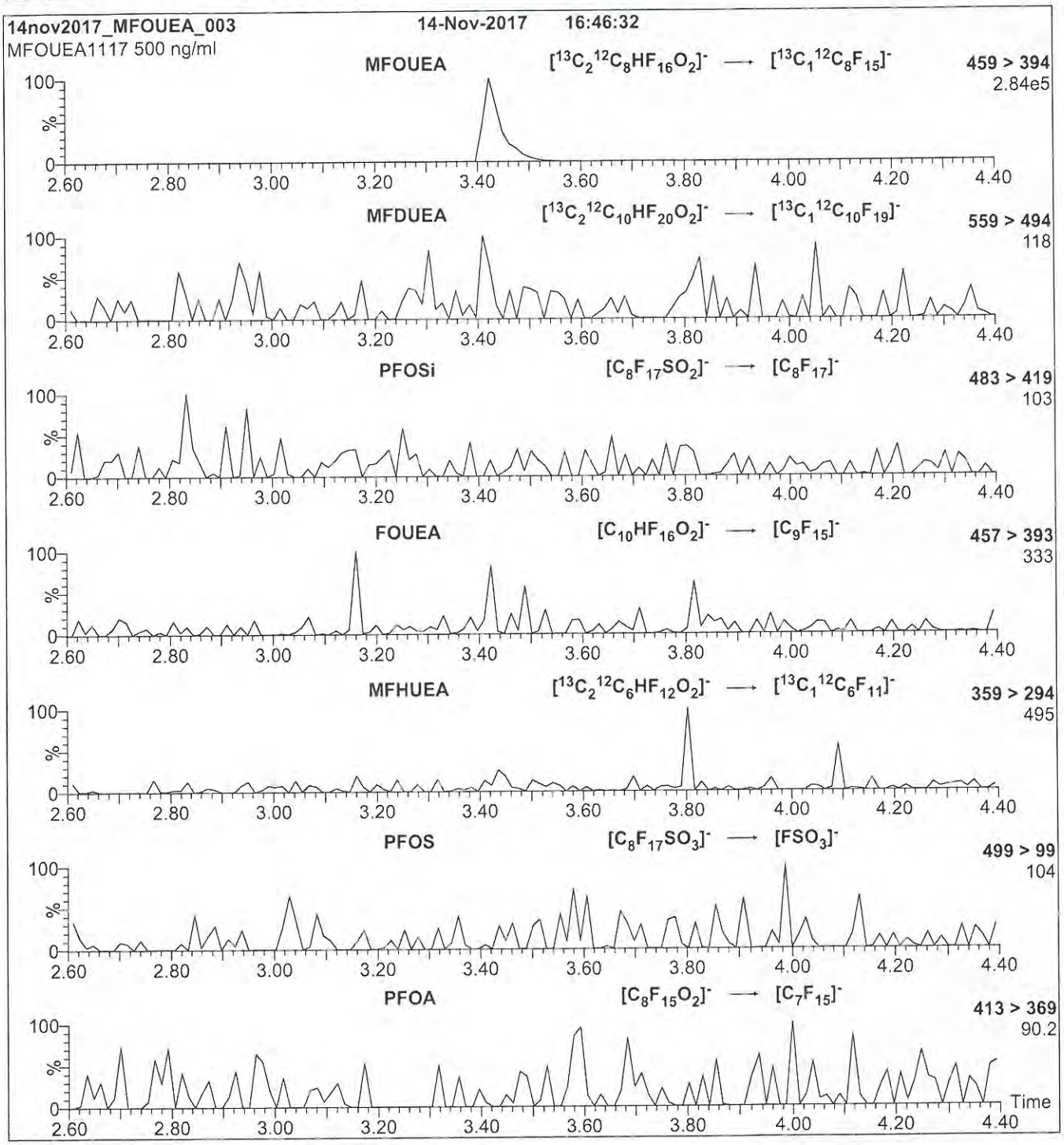
MS Parameters

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

18B1530

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

18B1531

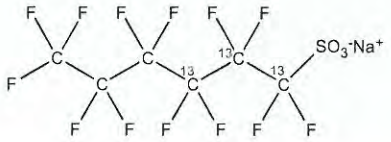
WELLINGTON LABORATORIES

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

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INTENDED USE:

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HAZARDS:

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SYNTHESIS / CHARACTERIZATION:

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HOMOGENEITY:

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LIMITED WARRANTY:

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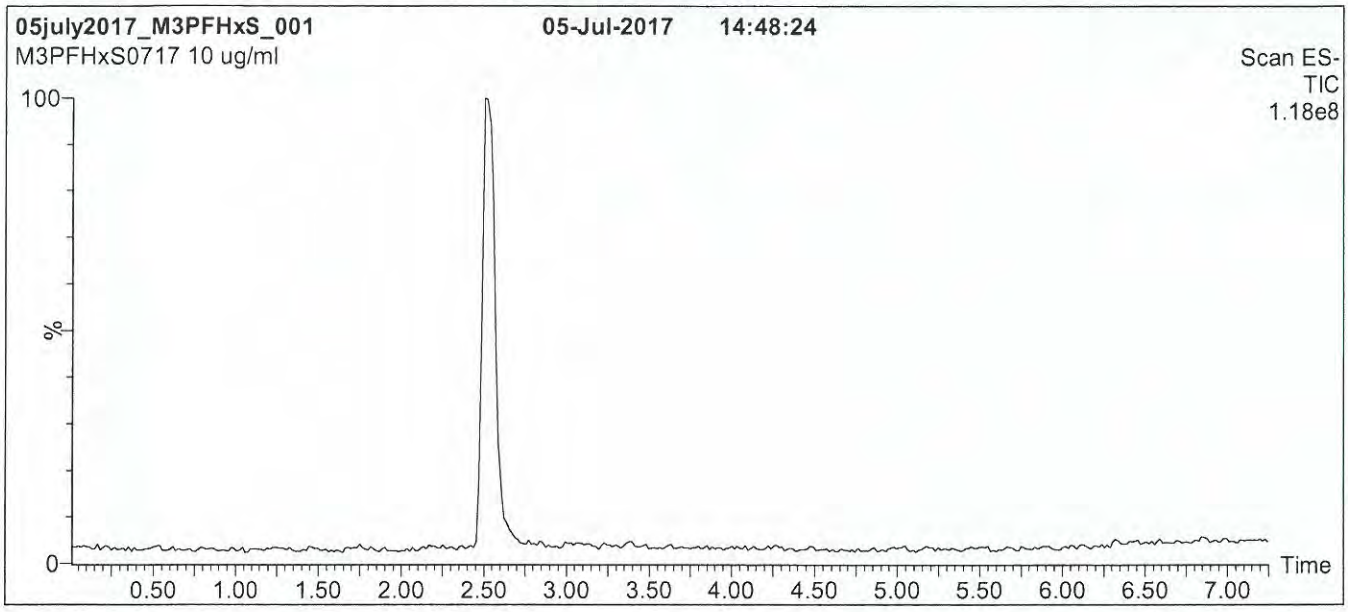
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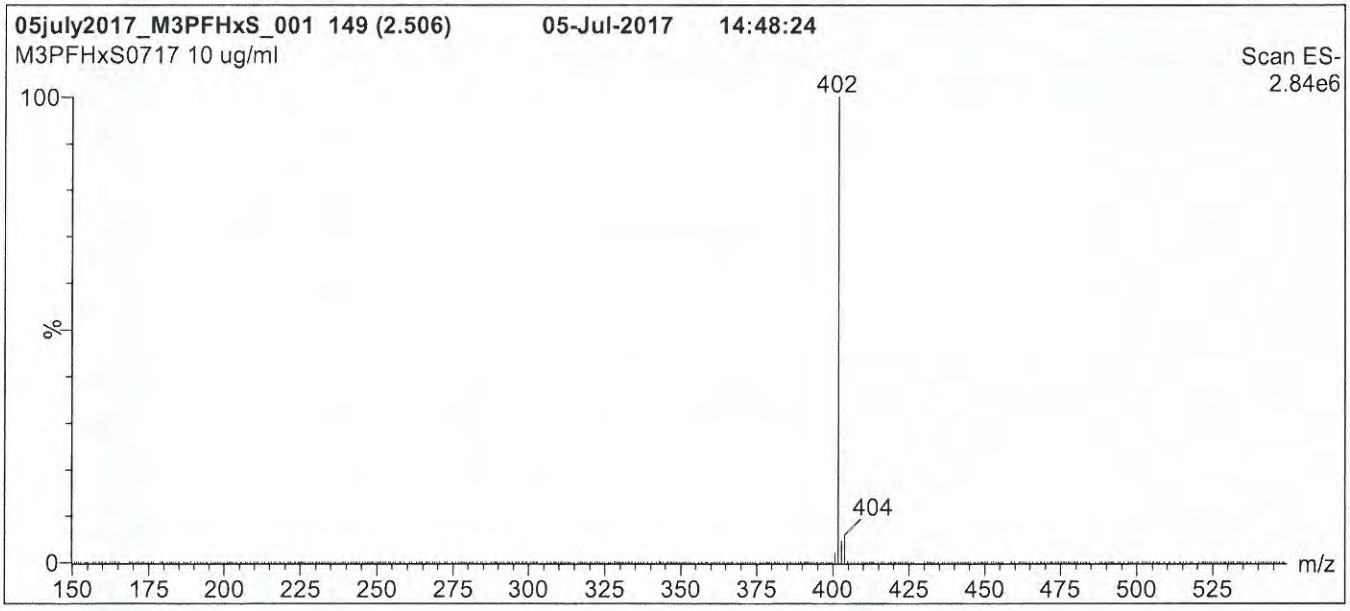
ANAB ACCREDITED

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18B1531

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

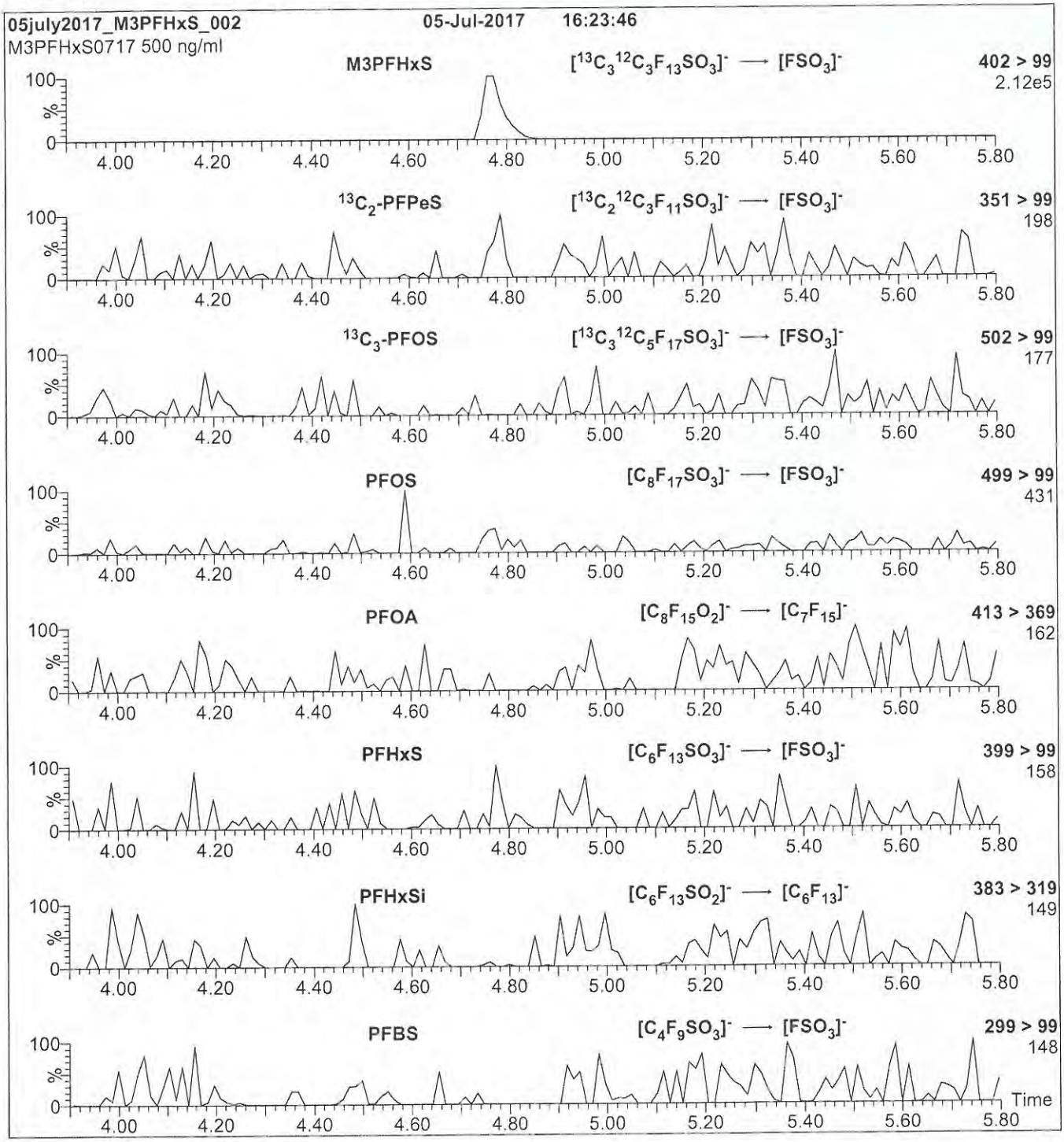
MS Parameters

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

18B1531

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

18B1532

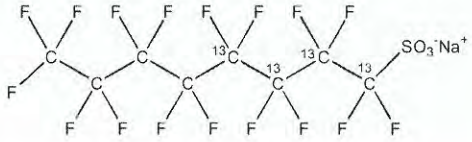
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFOS **LOT NUMBER:** MPFOS1017

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)	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 ~ 0.4% Sodium perfluoro-1-[1,2,3-$^{13}C_3$]heptanesulfonate.

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
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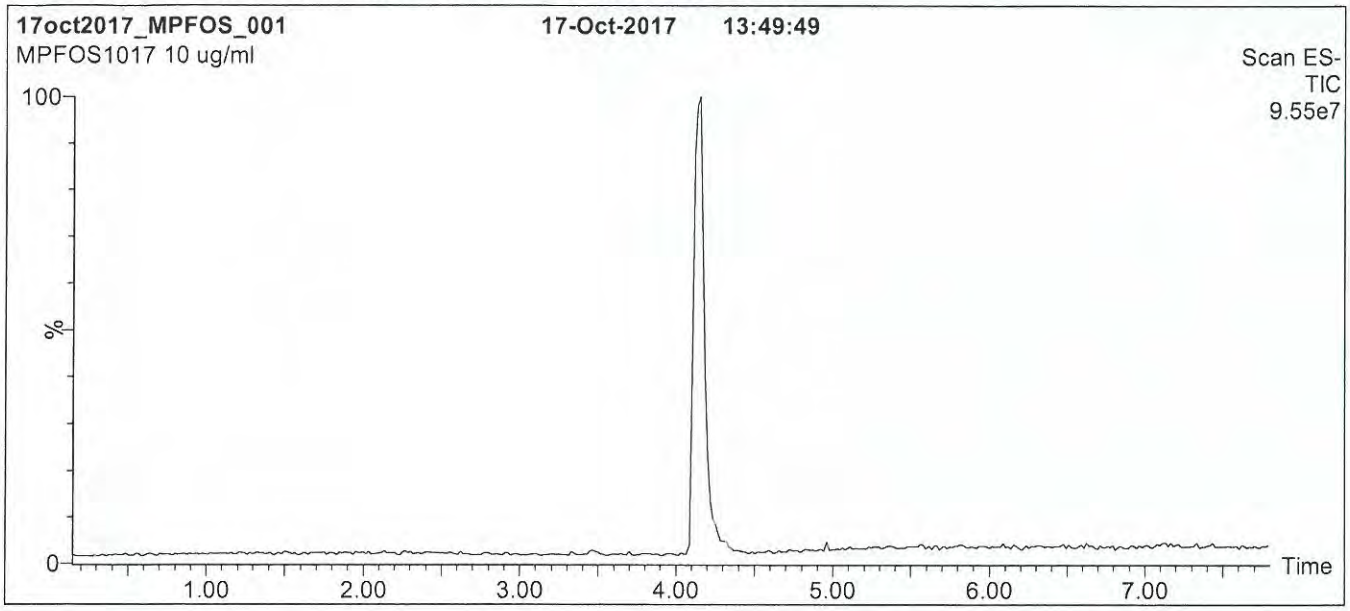
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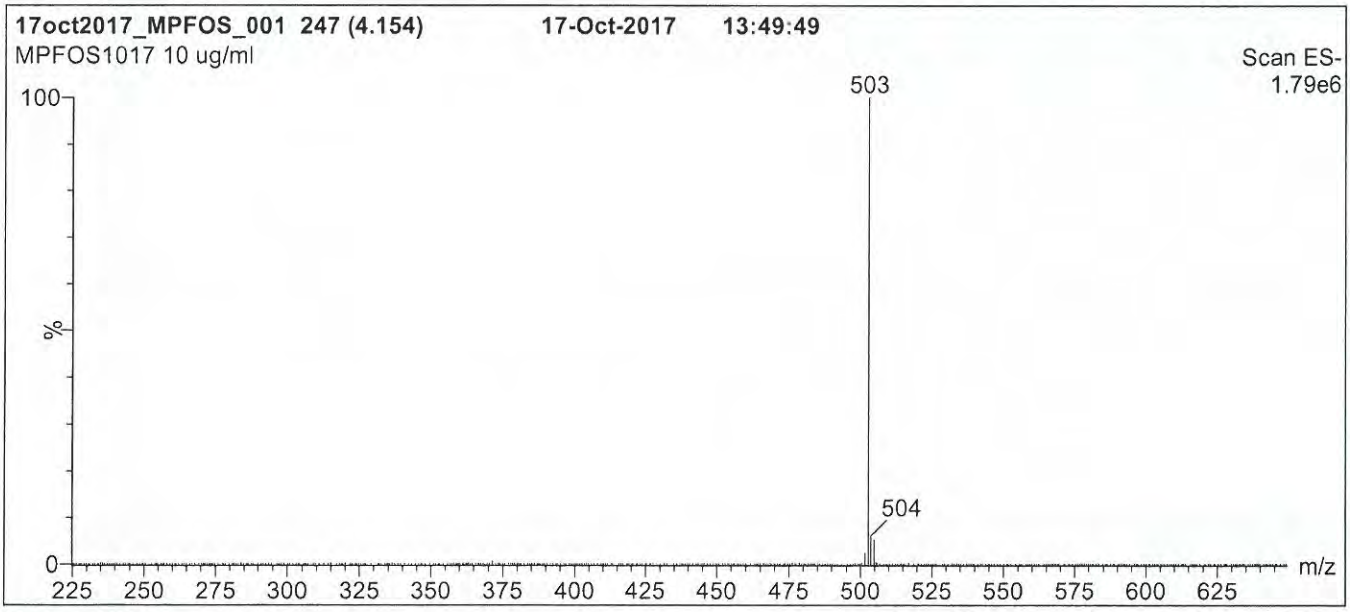
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18B1532

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

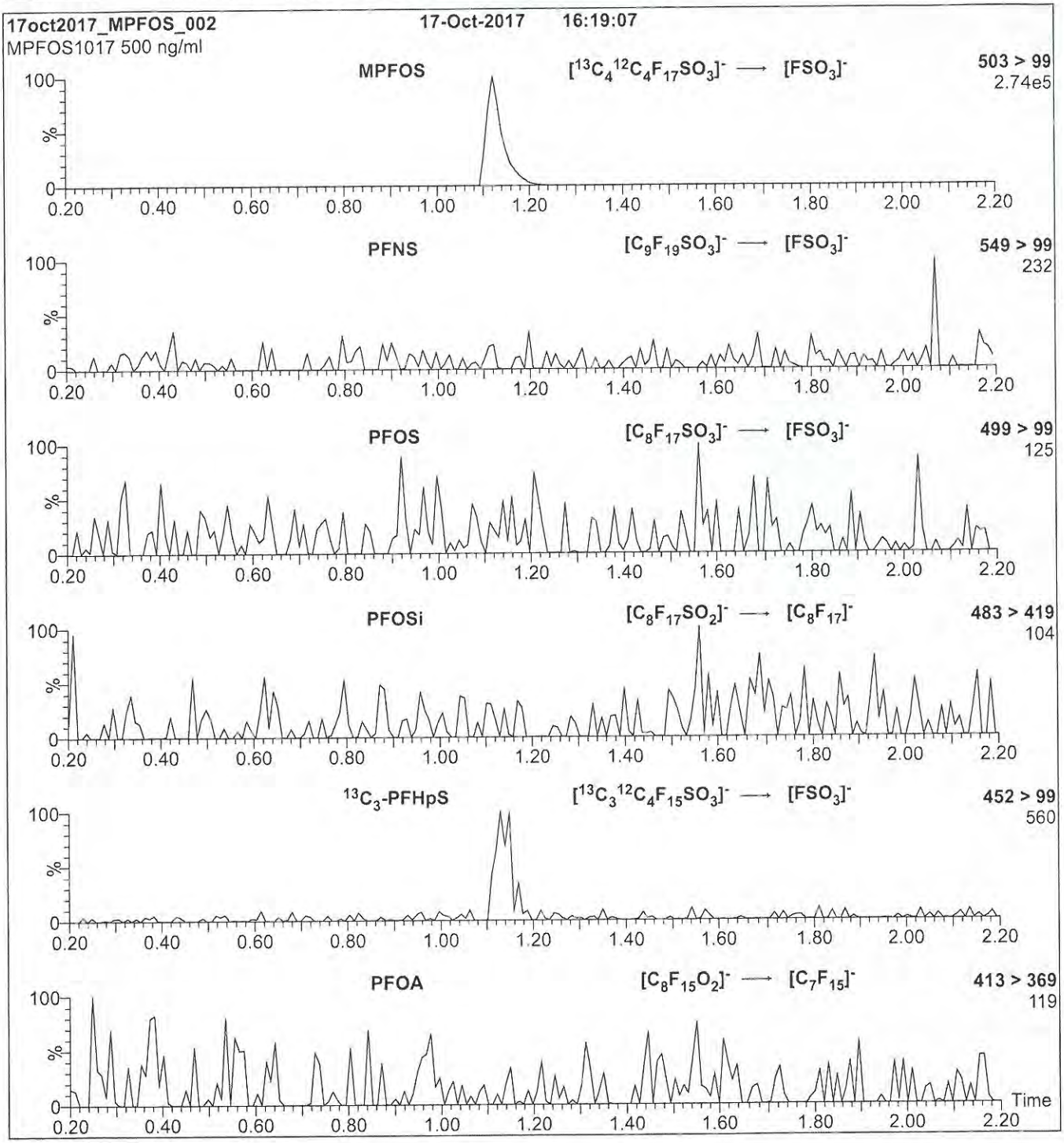
MS Parameters

Experiment: Full Scan (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

18B1532

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

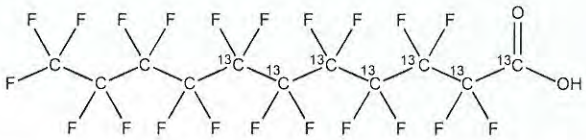
Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 40

18B1533

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
LAST TESTED: (mm/dd/yyyy)	07/13/2017		(1,2,3,4,5,6,7-$^{13}C_7$)
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

18B1533

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).

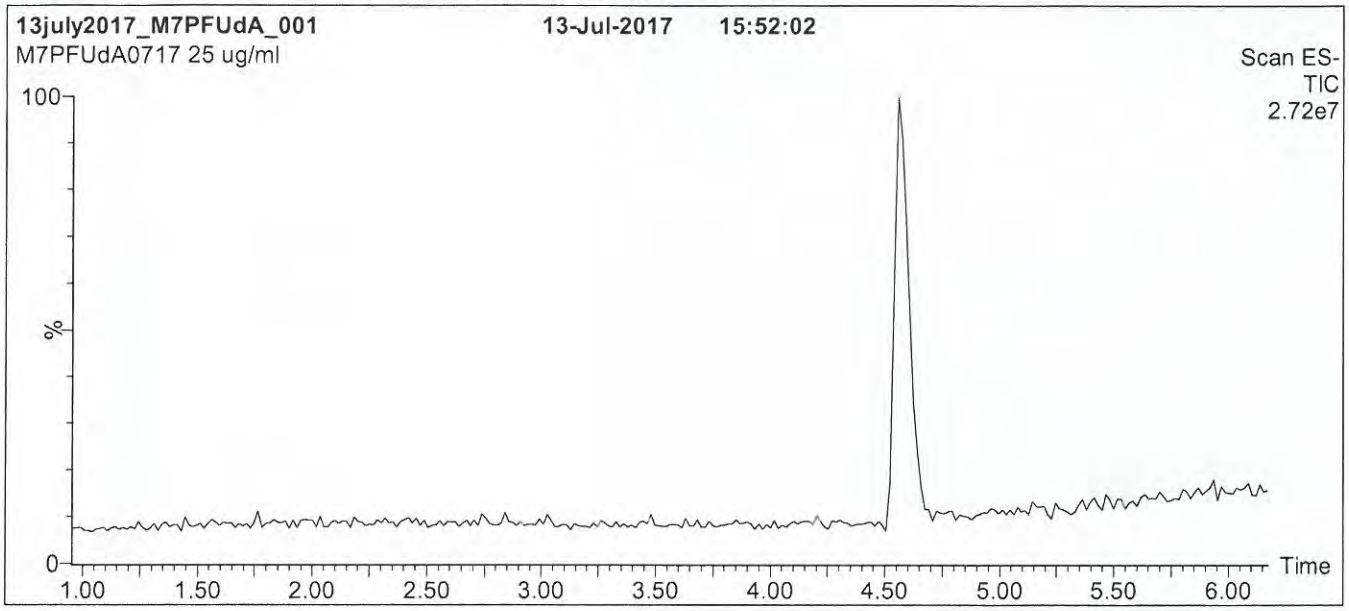
CALA

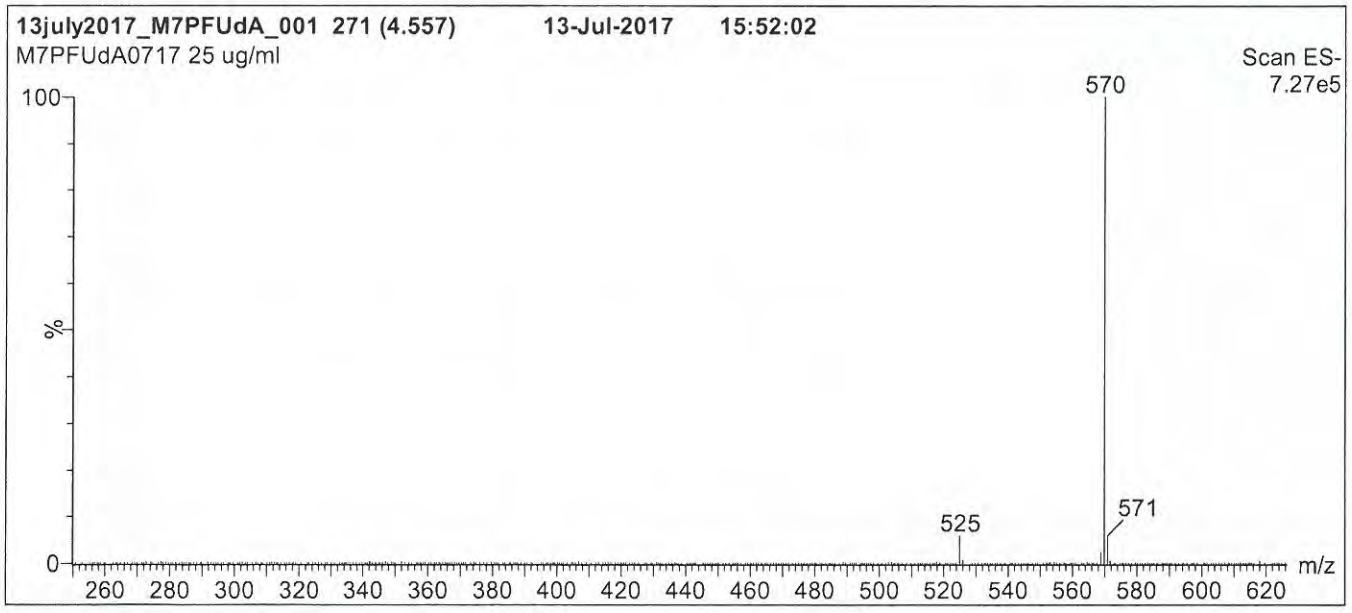
ANAB ACCREDITED

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

18B1533

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

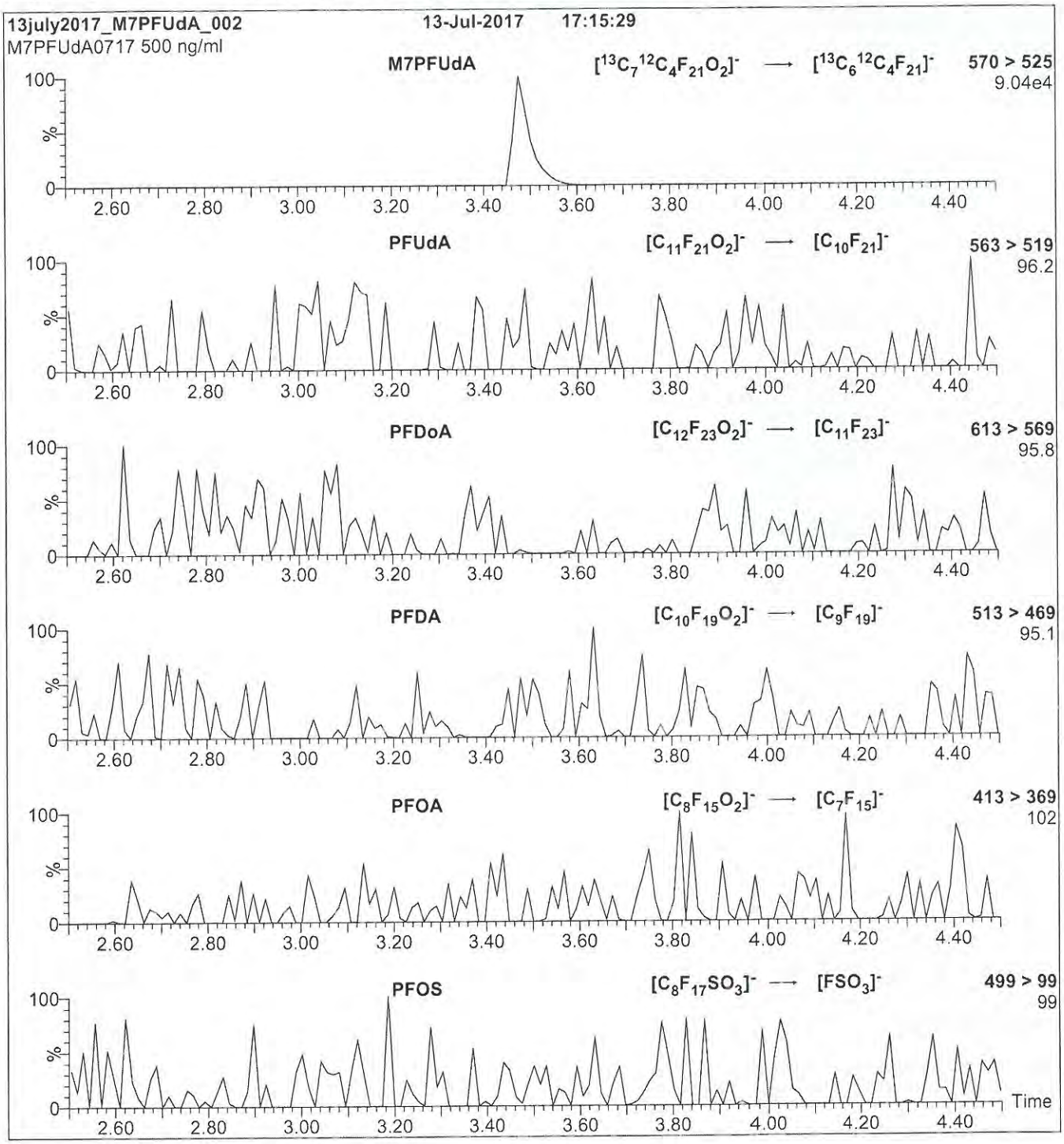
MS Parameters

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

18B1533

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

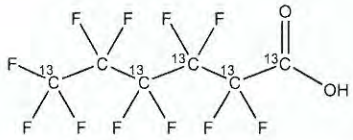
Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 11

18B1534

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	M5PFHxA	**LOT NUMBER:**	M5PFHxA1017
COMPOUND:	Perfluoro-n-[1,2,3,4,6-$^{13}C_5$]hexanoic acid		
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 ($1,2,3,4,6\text{-}^{13}C_5$)
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

18B1534

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.

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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:

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QUALITY MANAGEMENT:

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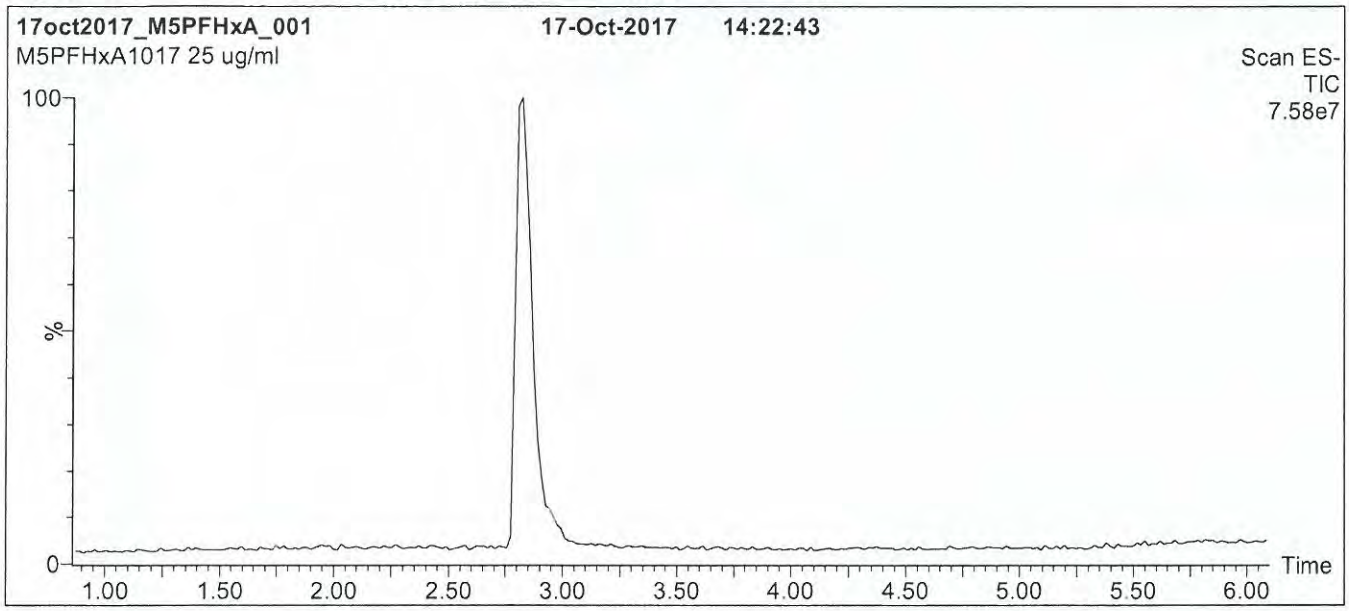
CALA

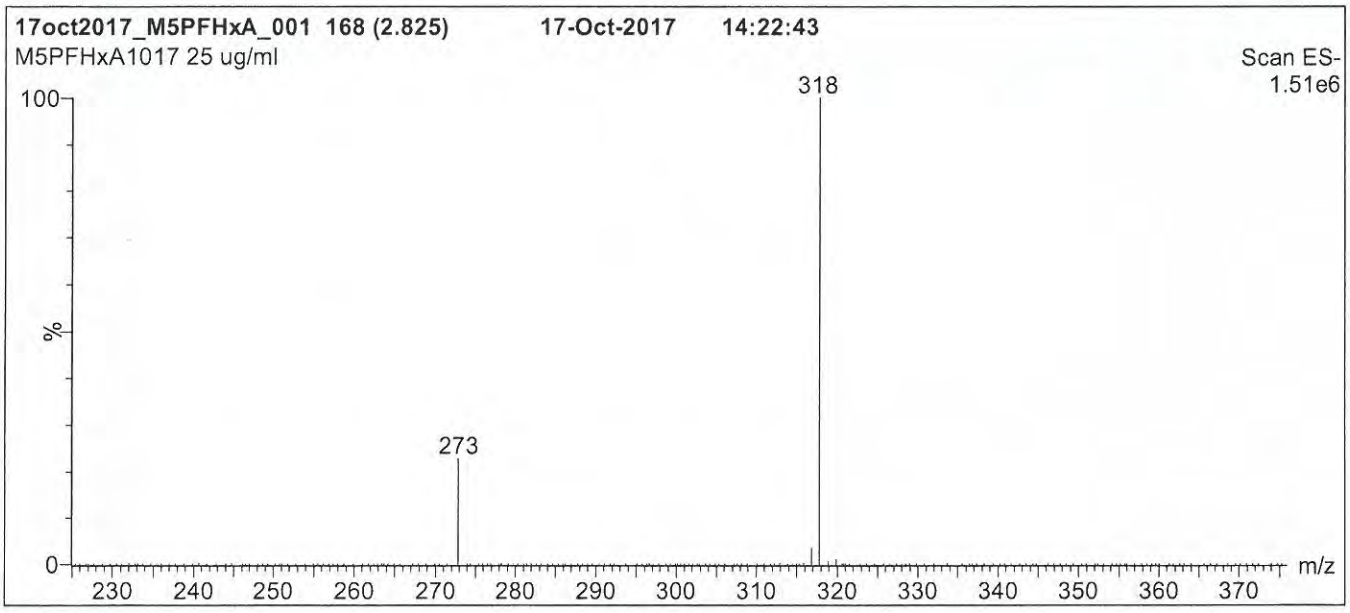
ANAB ACCREDITED

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18B1534

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

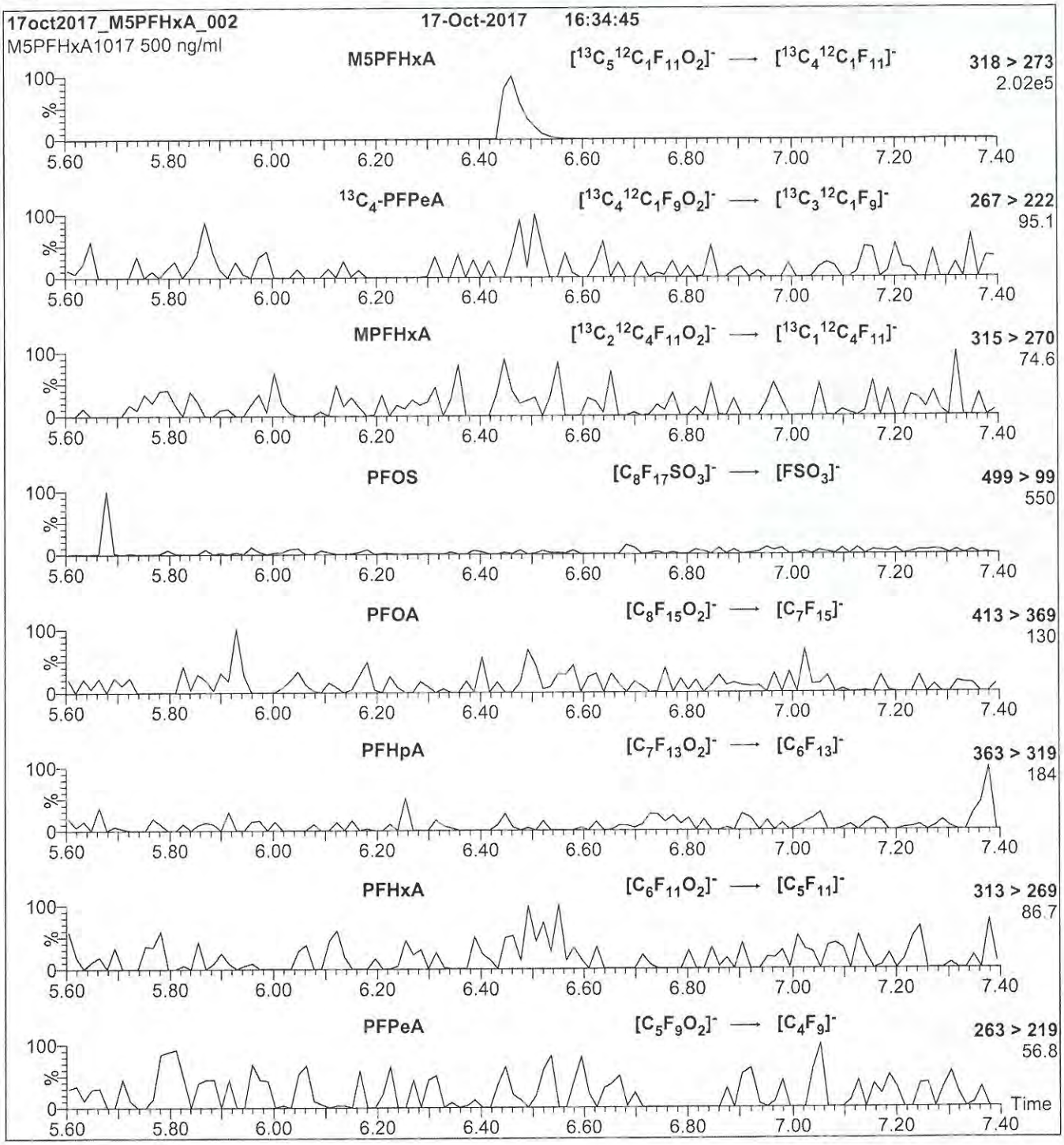
MS Parameters

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

18B1534

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

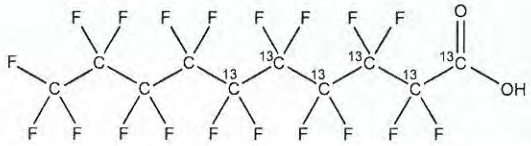
Collision Gas (mbar) = 3.31e-3
Collision Energy (eV) = 9

18B1535

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:	M6PFDA	**LOT NUMBER:**	M6PFDA1017
COMPOUND:	Perfluoro-n-[1,2,3,4,5,6-$^{13}C_6$]decanoic acid		
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:

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:** 10/20/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

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18B1535

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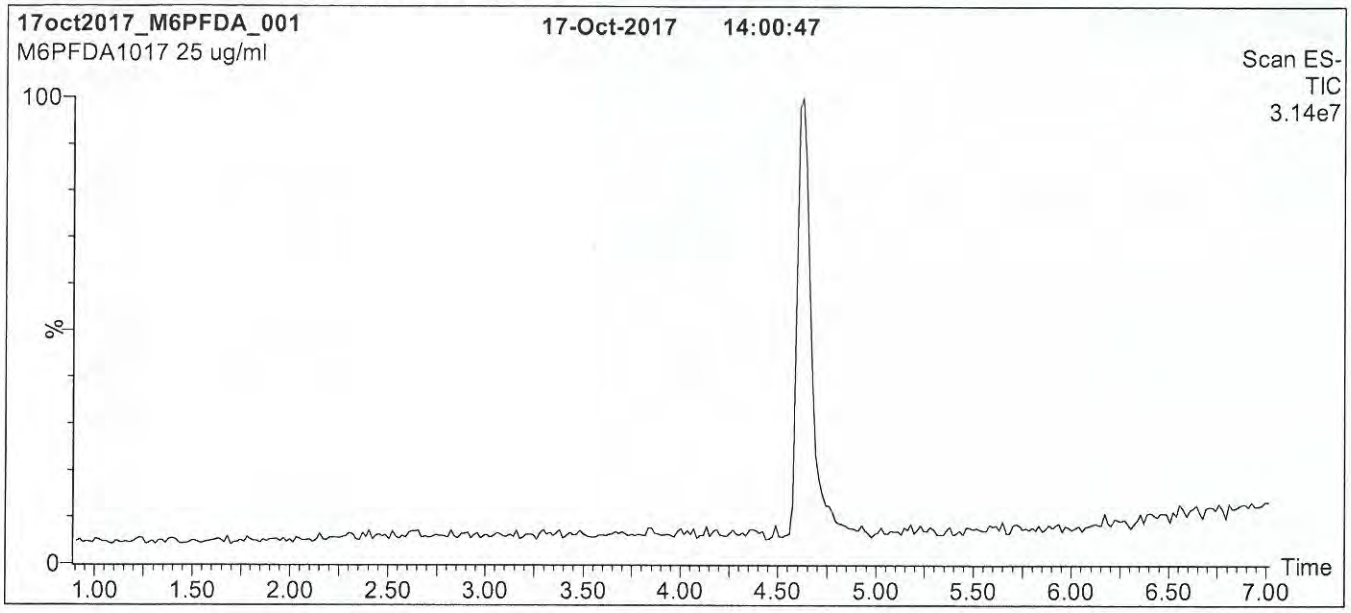
CALA

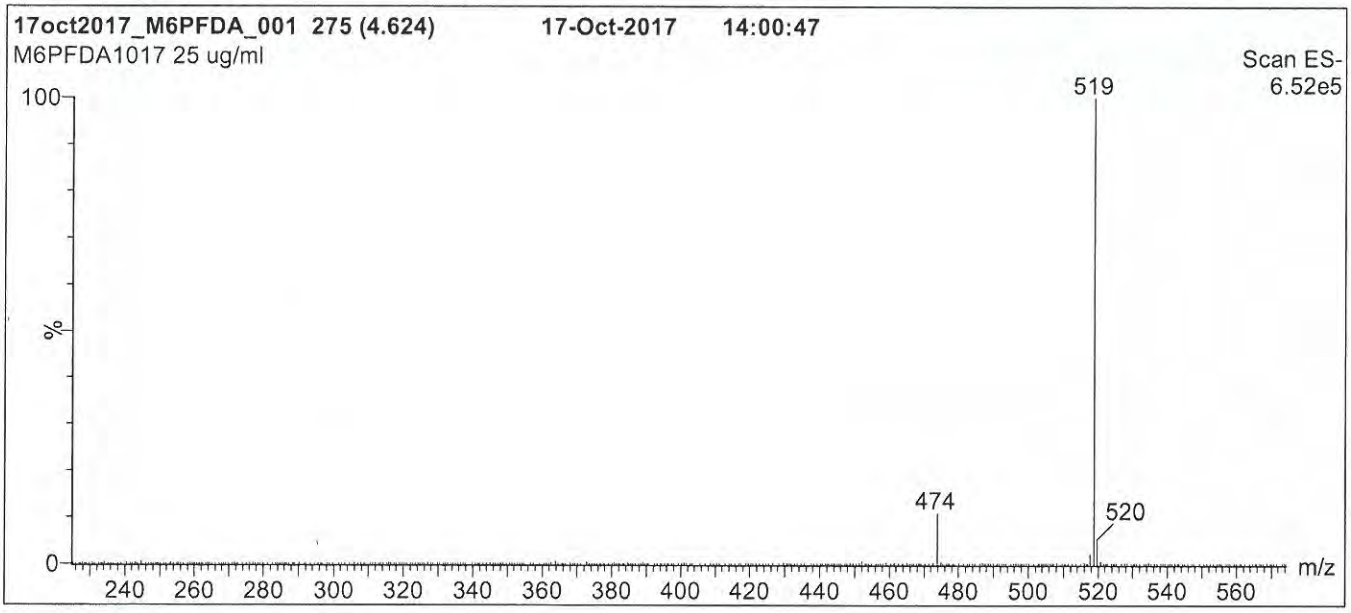
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18B1535

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

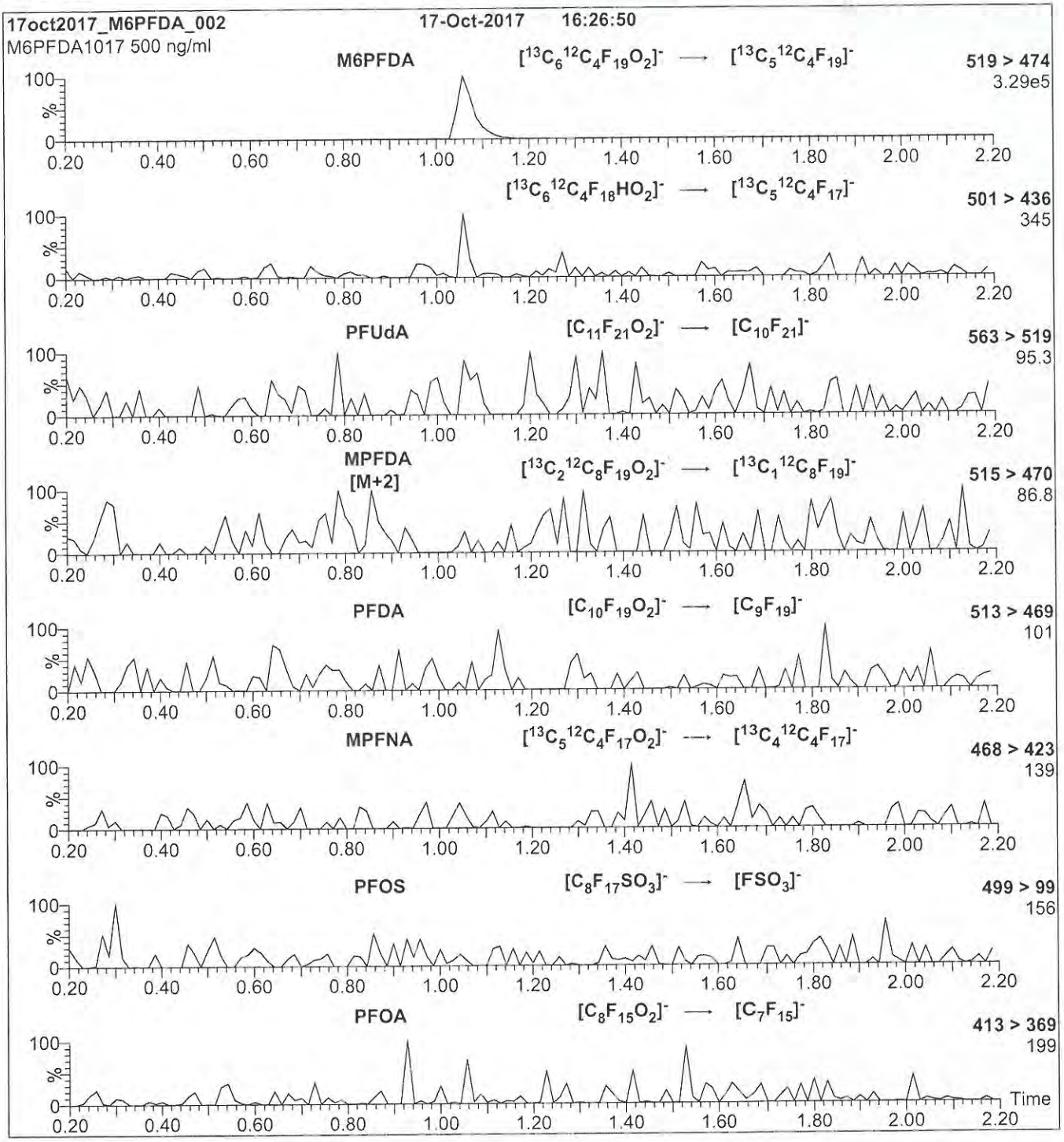
MS Parameters

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

18B1535

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

18B1536

WELLINGTON LABORATORIES

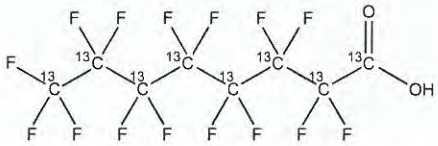
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M8PFOA
COMPOUND: Perfluoro-n-[$^{13}C_8$]octanoic acid

LOT NUMBER: M8PFOA0717

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
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

18B536

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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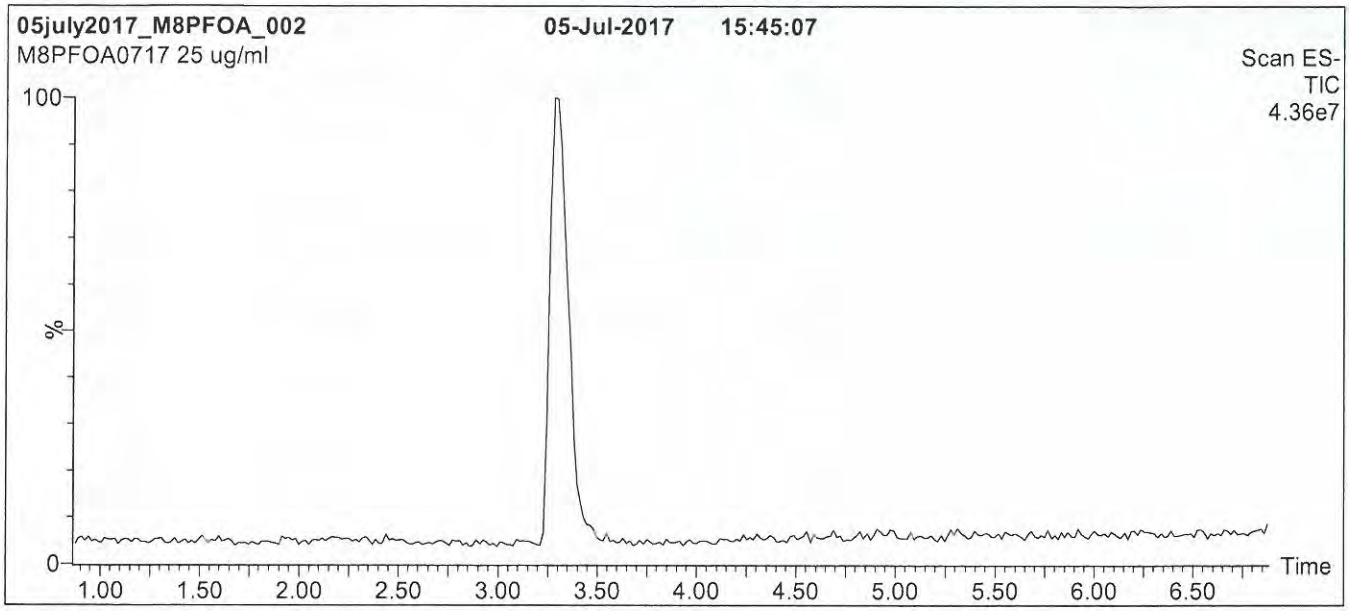
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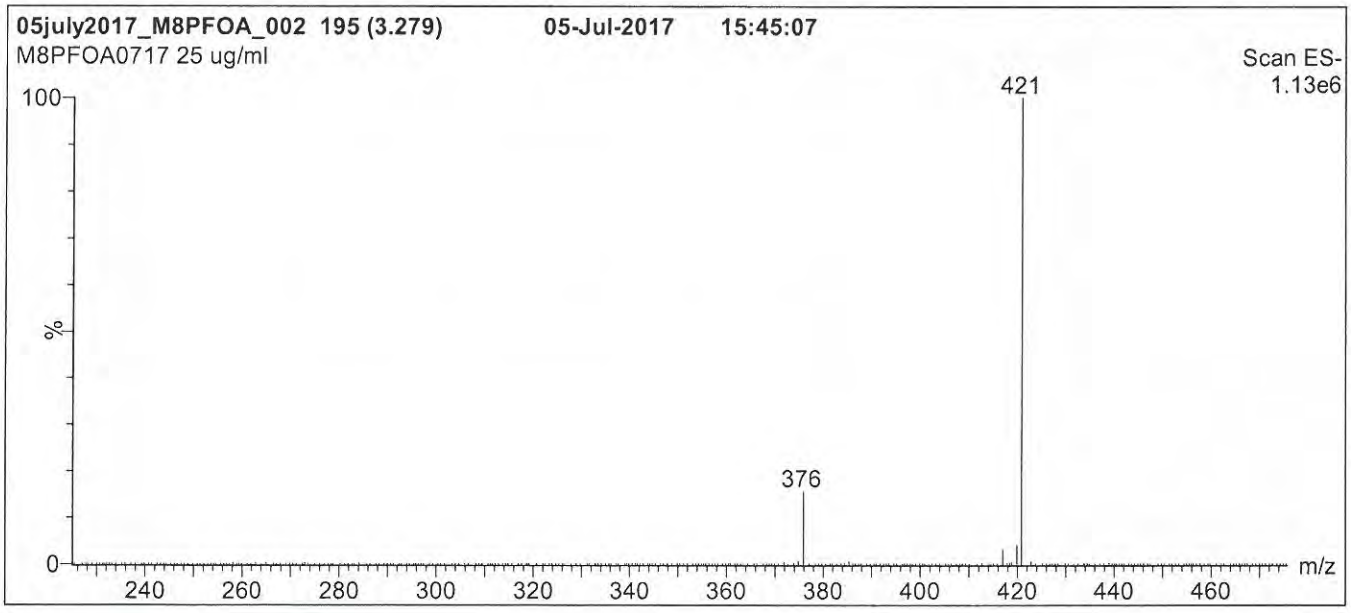
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18B1536

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

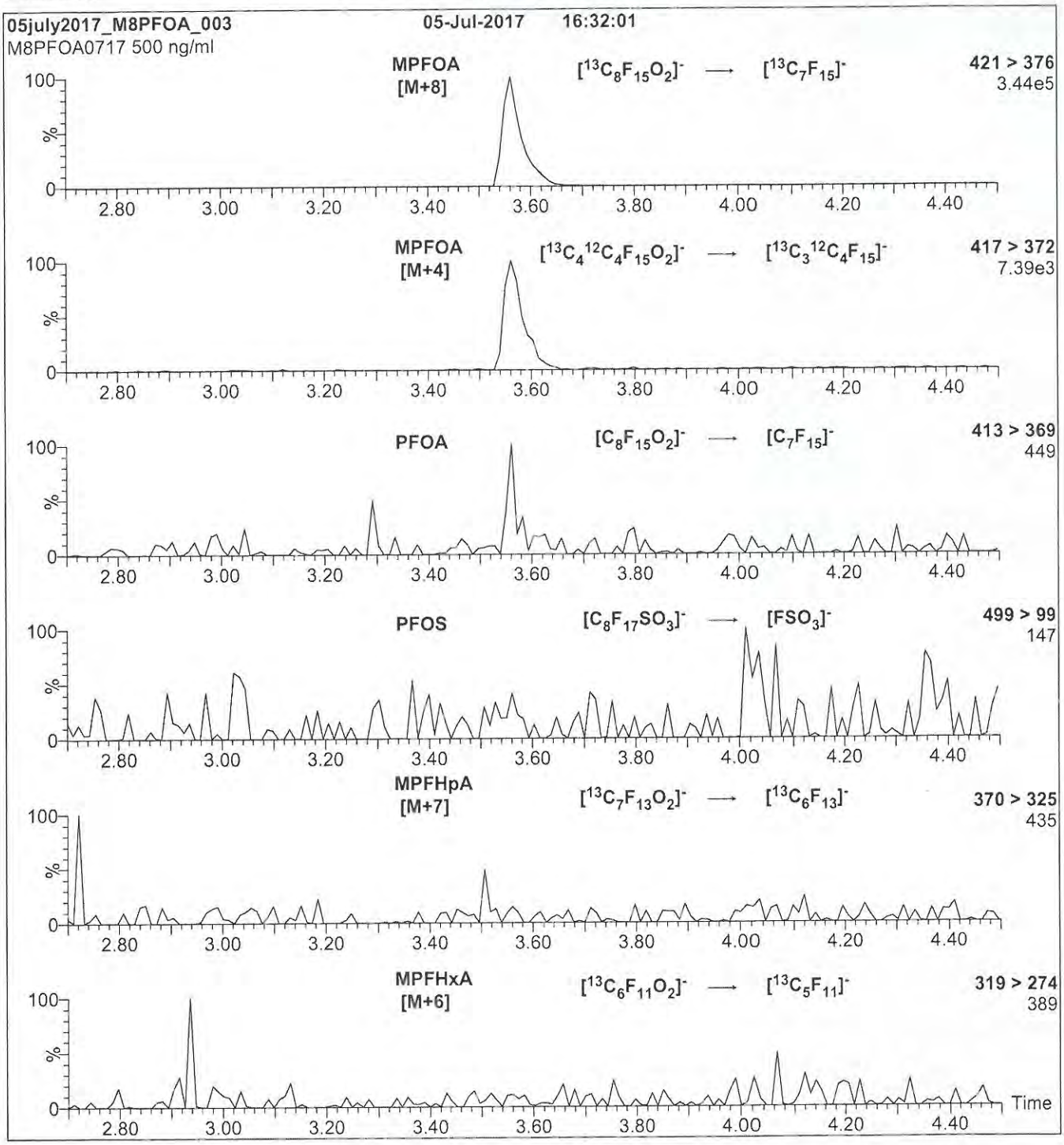
MS Parameters

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

18B1536

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

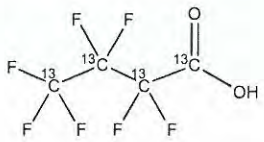
Collision Gas (mbar) = 3.28e-3
Collision Energy (eV) = 10

18B1537

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CERTIFICATE OF ANALYSIS
DOCUMENTATION

PRODUCT CODE:	MPFBA	**LOT NUMBER:**	MPFBA0417
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)	04/12/2017		
EXPIRY DATE: (mm/dd/yyyy)	04/12/2022		
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:** 04/20/2017 (mm/dd/yyyy)
B.G. Chittim, General Manager

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

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EXPIRY DATE / PERIOD OF VALIDITY:

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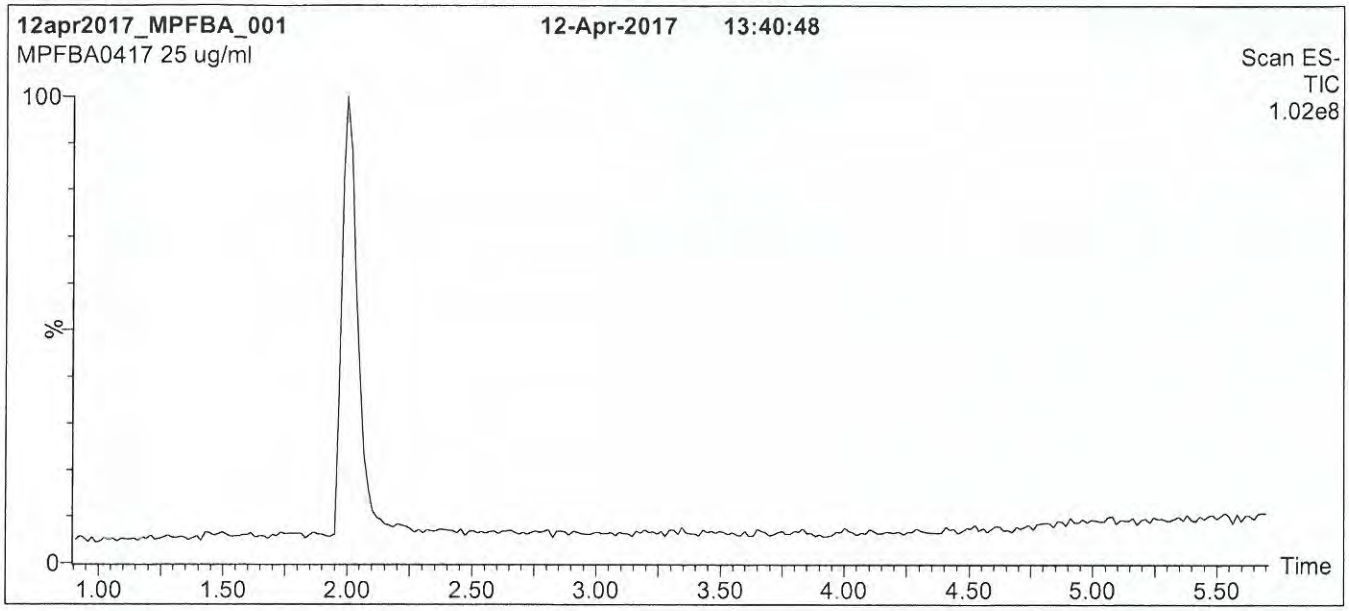
CALA

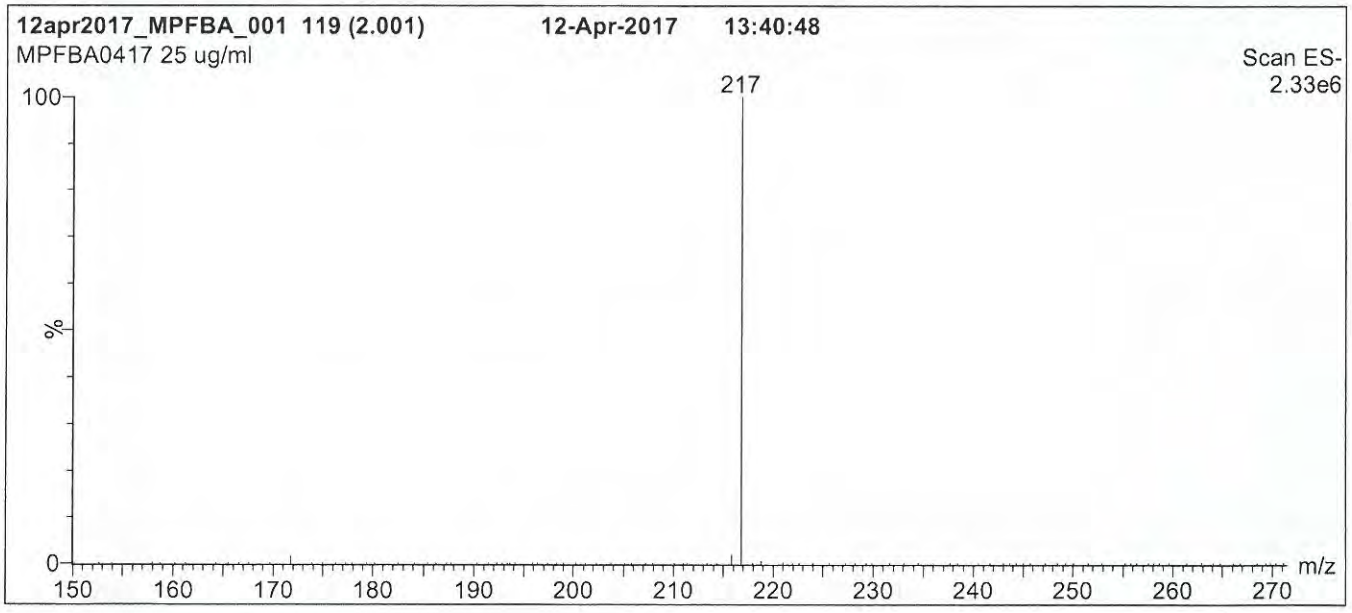
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18B1537

Figure 1: **MPFBA; 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

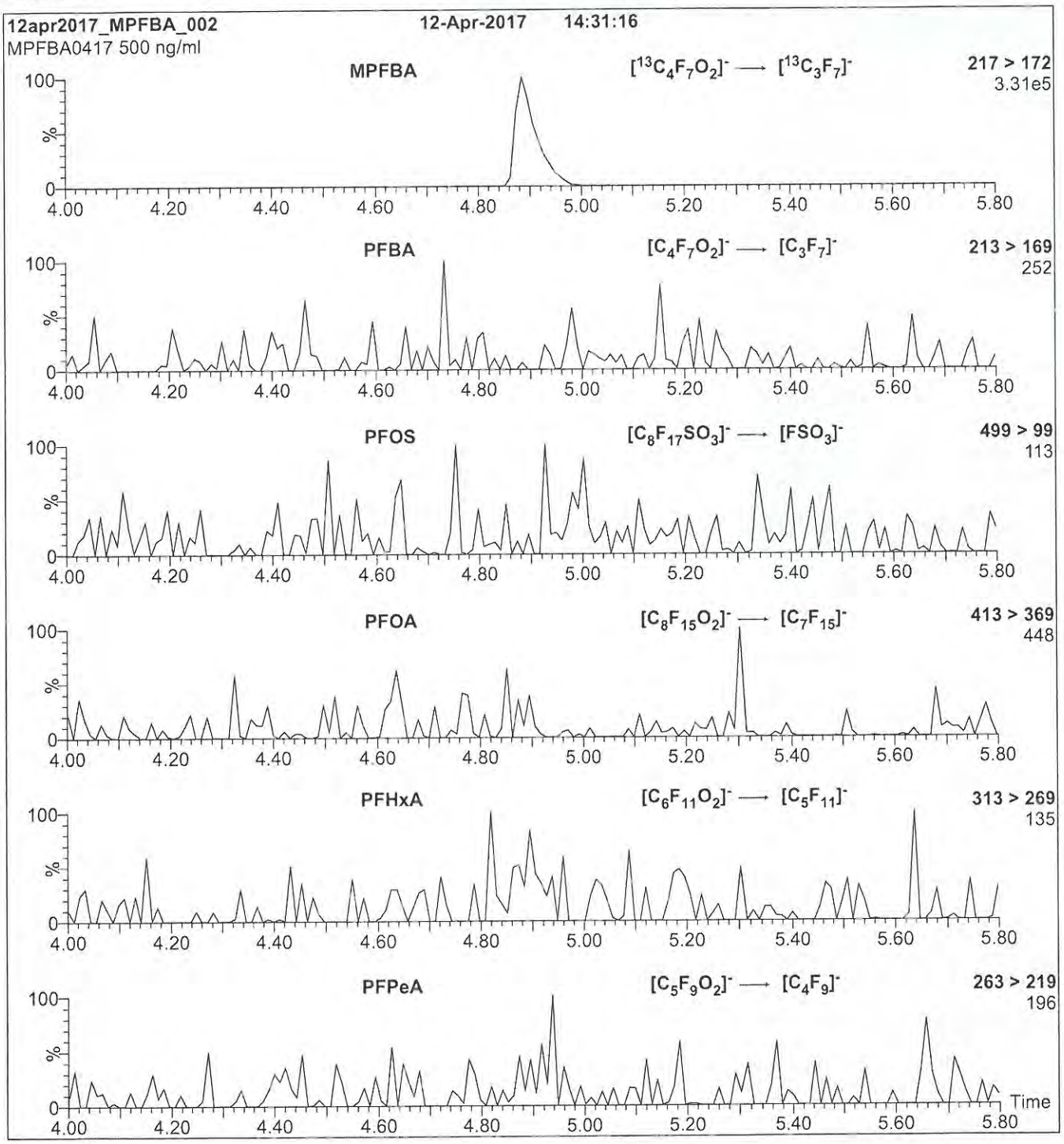
MS Parameters

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

18B1537

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) = 3.35e-3
Collision Energy (eV) = 10

18B1538

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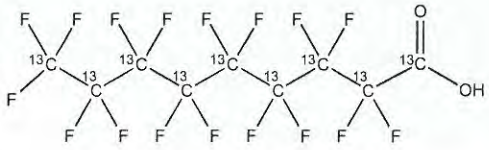
CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M9PFNA
COMPOUND: Perfluoro-n-[$^{13}C_9$]nonanoic acid

LOT NUMBER: M9PFNA0517

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)
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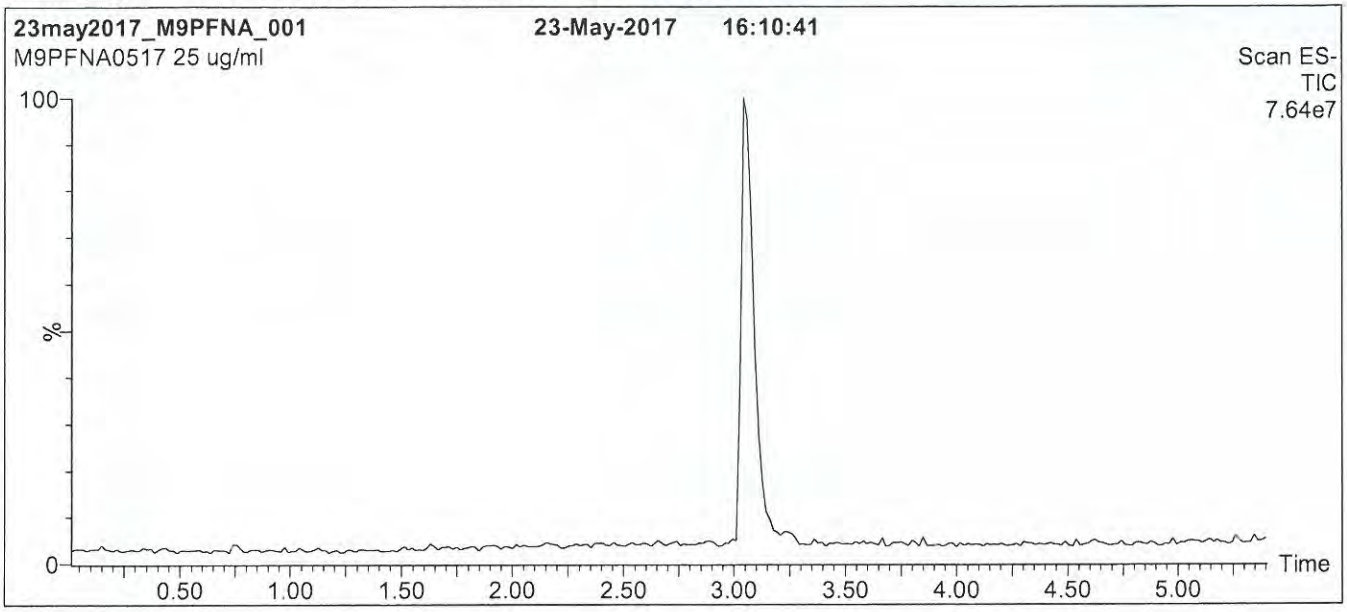
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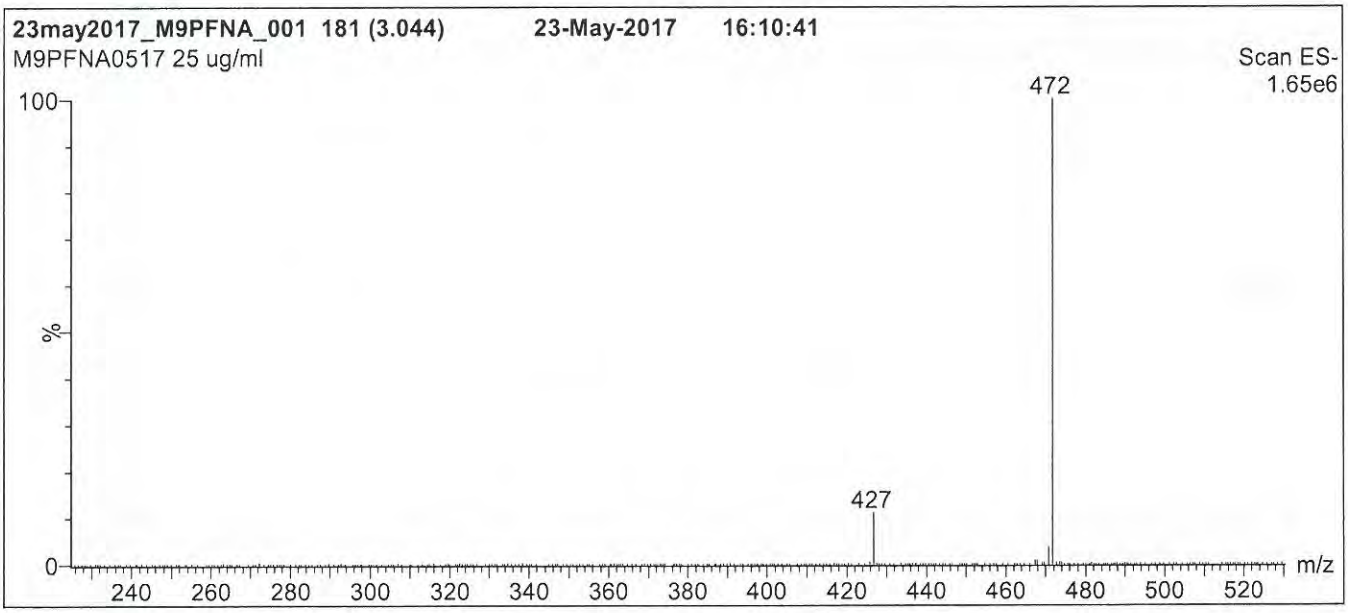
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18B1538

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

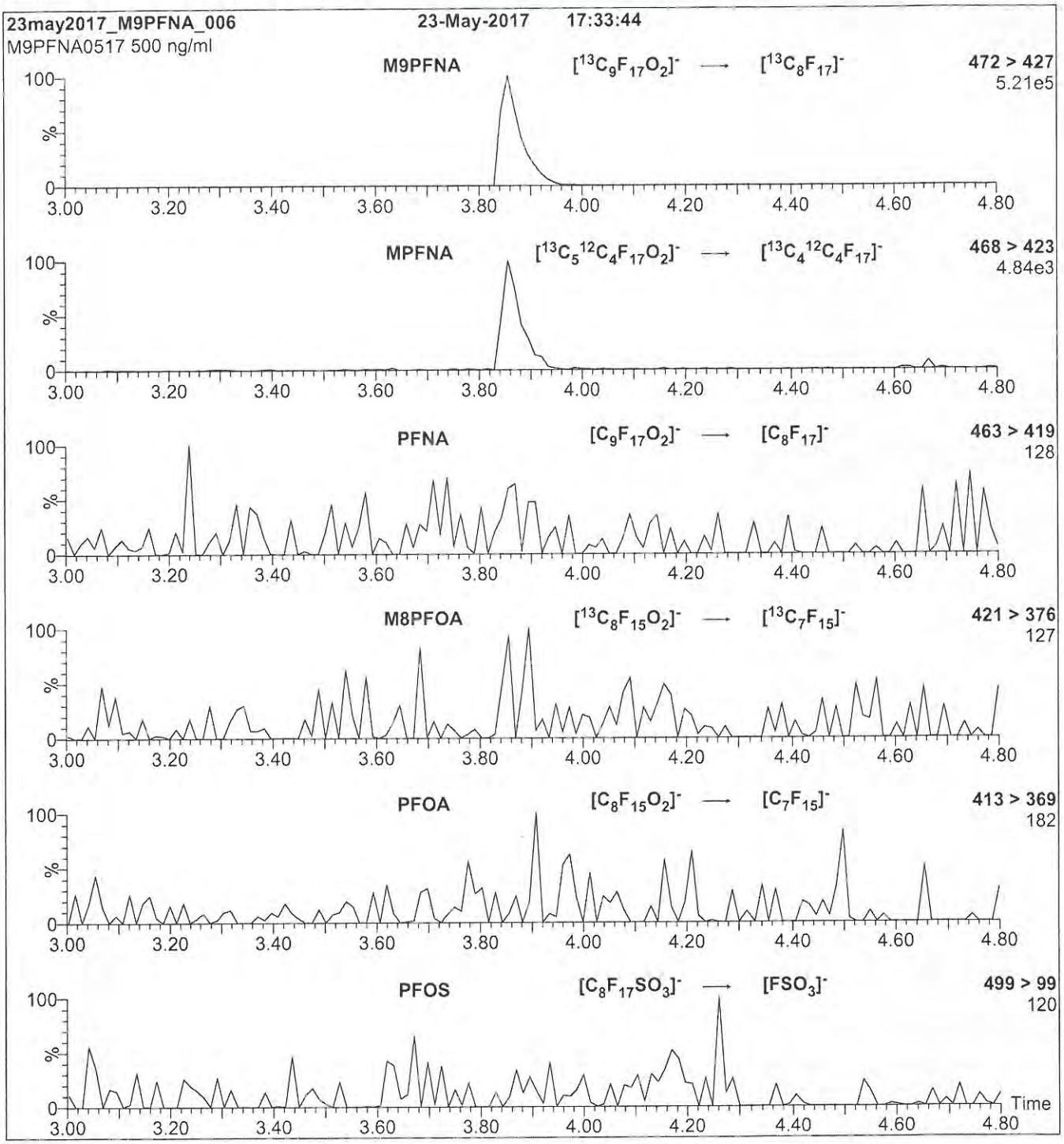
MS Parameters

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

18B1538

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

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"A1-MW-42-SA1","537 MOD","RES","1801054-01","Vista","13C2-PFHxA","13C2-
PFHxA","97.8","%R","","","CRDL","","IS","97.8","","","CRDL","",""
"A1-MW-42-SA1","537 MOD","RES","1801054-01","Vista","13C4-PFHpA","13C4-
PFHpA","100","%R","","","CRDL","","IS","100","","","CRDL","",""
"A1-MW-42-SA1","537 MOD","RES","1801054-01","Vista","18O2-PFHxS","18O2-
PFHxS","101","%R","","","CRDL","","IS","101","","","CRDL","",""
"A1-MW-42-SA1","537 MOD","RES","1801054-01","Vista","13C2-PFOA","13C2-
PFOA","81.4","%R","","","CRDL","","IS","81.4","","","CRDL","",""
"A1-MW-42-SA1","537 MOD","RES","1801054-01","Vista","13C5-PFNA","13C5-
PFNA","90.3","%R","","","CRDL","","IS","90.3","","","CRDL","",""
"A1-MW-42-SA1","537 MOD","RES","1801054-01","Vista","13C8-PFOS","13C8-
PFOS","83.4","%R","","","CRDL","","IS","83.4","","","CRDL","",""
"A1-MW-42-SA1","537 MOD","RES","1801054-01","Vista","13C2-PFDA","13C2-
PFDA","83.4","%R","","","CRDL","","IS","83.4","","","CRDL","",""
"A1-MW-42-SA1","537 MOD","RES","1801054-01","Vista","d3-MeFOSAA","d3-
MeFOSAA","141","%R","","","CRDL","","IS","141","","","CRDL","",""
"A1-MW-42-SA1","537 MOD","RES","1801054-01","Vista","d5-EtFOSAA","d5-
EtFOSAA","126","%R","","","CRDL","","IS","126","","","CRDL","",""
"A1-MW-42-SA1","537 MOD","RES","1801054-01","Vista","13C2-PFUnA","13C2-
PFUnA","63.6","%R","","","CRDL","","IS","63.6","","","CRDL","",""
"A1-MW-42-SA1","537 MOD","RES","1801054-01","Vista","13C2-PFDoA","13C2-
PFDoA","117","%R","","","CRDL","","IS","117","","","CRDL","",""
"A1-MW-42-SA1","537 MOD","RES","1801054-01","Vista","13C2-PFTeDA","13C2-

PFTeDA","139","%R","","","CRDL","","IS","139","","","CRDL","",""
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","375-73-
5","PFBS","0.536","ug/L","","0.00558","CRDL","","TRG","","","0.00892","CRDL","YES","0.00200"
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","307-24-
4","PFHxA","1.50","ug/L","","0.00558","CRDL","","TRG","","","0.00892","CRDL","YES","0.00243"
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","375-85-
9","PFHpA","0.0638","ug/L","","0.00558","CRDL","","TRG","","","0.00892","CRDL","YES","0.000659"
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","355-46-
4","PFHxS","0.606","ug/L","","0.00558","CRDL","","TRG","","","0.00892","CRDL","YES","0.00106"
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","335-67-
1","PFOA","0.0715","ug/L","","0.00558","CRDL","","TRG","","","0.00892","CRDL","YES","0.000726"
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","375-95-
1","PFNA","0.00892","ug/L","U","0.00558","CRDL","","TRG","","","0.00892","CRDL","YES","0.000903"
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","1763-23-
1","PFOS","0.00652","ug/L","J","0.00558","CRDL","","TRG","","","0.00892","CRDL","YES","0.000900"
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","335-76-
2","PFDA","0.00892","ug/L","U","0.00558","CRDL","","TRG","","","0.00892","CRDL","YES","0.00166"
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","2355-31-
9","NMeFOSAA","0.00892","ug/L","U","0.00558","CRDL","","TRG","","","0.00892","CRDL","YES","0.00184"
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","2991-50-
6","NEtFOSAA","0.00892","ug/L","U","0.00558","CRDL","","TRG","","","0.00892","CRDL","YES","0.00153"
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","2058-94-
8","PFUnA","0.00892","ug/L","U","0.00558","CRDL","","TRG","","","0.00892","CRDL","YES","0.00117"
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","307-55-
1","PFDoA","0.00892","ug/L","U","0.00558","CRDL","","TRG","","","0.00892","CRDL","YES","0.000883"
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","72629-94-
8","PFTrDA","0.00892","ug/L","U","0.00558","CRDL","","TRG","","","0.00892","CRDL","YES","0.000551"
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","376-06-
7","PFTeDA","0.00892","ug/L","U","0.00558","CRDL","","TRG","","","0.00892","CRDL","YES","0.000842"
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","13C3-PFBS","13C3-
PFBS","175","%R","H","","CRDL","","IS","175","","","CRDL","",""
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","13C2-PFHxA","13C2-
PFHxA","93.1","%R","","","CRDL","","IS","93.1","","","CRDL","",""
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","13C4-PFHpA","13C4-
PFHpA","96.6","%R","","","CRDL","","IS","96.6","","","CRDL","",""
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","18O2-PFHxS","18O2-
PFHxS","101","%R","","","CRDL","","IS","101","","","CRDL","",""
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","13C2-PFOA","13C2-
PFOA","81.2","%R","","","CRDL","","IS","81.2","","","CRDL","",""
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","13C5-PFNA","13C5-
PFNA","87.1","%R","","","CRDL","","IS","87.1","","","CRDL","",""
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","13C8-PFOS","13C8-
PFOS","83.3","%R","","","CRDL","","IS","83.3","","","CRDL","",""
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","13C2-PFDA","13C2-
PFDA","95.2","%R","","","CRDL","","IS","95.2","","","CRDL","",""
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","d3-MeFOSAA","d3-
MeFOSAA","97.9","%R","","","CRDL","","IS","97.9","","","CRDL","",""
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","d5-EtFOSAA","d5-
EtFOSAA","117","%R","","","CRDL","","IS","117","","","CRDL","",""
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","13C2-PFUnA","13C2-
PFUnA","78.8","%R","","","CRDL","","IS","78.8","","","CRDL","",""
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","13C2-PFDoA","13C2-
PFDoA","102","%R","","","CRDL","","IS","102","","","CRDL","",""
"A1-MW-54-SA1","537 MOD","RES","1801054-02","Vista","13C2-PFTeDA","13C2-

PFTeDA","113","%R","","","CRDL","","IS","113","","","CRDL","",""
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","375-73-
5","PFBS","0.551","ug/L","","0.00548","CRDL","","TRG","","","0.00878","CRDL","YES","0.00196"
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","307-24-
4","PFHxA","1.46","ug/L","","0.00548","CRDL","","TRG","","","0.00878","CRDL","YES","0.00239"
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","375-85-
9","PFHpA","0.0606","ug/L","","0.00548","CRDL","","TRG","","","0.00878","CRDL","YES","0.000649"
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","355-46-
4","PFHxS","0.505","ug/L","","0.00548","CRDL","","TRG","","","0.00878","CRDL","YES","0.00104"
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","335-67-
1","PFOA","0.0616","ug/L","","0.00548","CRDL","","TRG","","","0.00878","CRDL","YES","0.000714"
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","375-95-
1","PFNA","0.00878","ug/L","U","0.00548","CRDL","","TRG","","","0.00878","CRDL","YES","0.000889"
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","1763-23-
1","PFOS","0.00188","ug/L","J","0.00548","CRDL","","TRG","","","0.00878","CRDL","YES","0.000886"
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","335-76-
2","PFDA","0.00878","ug/L","U","0.00548","CRDL","","TRG","","","0.00878","CRDL","YES","0.00164"
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","2355-31-
9","NMeFOSAA","0.00878","ug/L","U","0.00548","CRDL","","TRG","","","0.00878","CRDL","YES","0.00181"
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","2991-50-
6","NEtFOSAA","0.00878","ug/L","U","0.00548","CRDL","","TRG","","","0.00878","CRDL","YES","0.00150"
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","2058-94-
8","PFUnA","0.00878","ug/L","U","0.00548","CRDL","","TRG","","","0.00878","CRDL","YES","0.00115"
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","307-55-
1","PFDoA","0.00878","ug/L","U","0.00548","CRDL","","TRG","","","0.00878","CRDL","YES","0.000869"
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","72629-94-
8","PFTrDA","0.00878","ug/L","U","0.00548","CRDL","","TRG","","","0.00878","CRDL","YES","0.000542"
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","376-06-
7","PFTeDA","0.00878","ug/L","U","0.00548","CRDL","","TRG","","","0.00878","CRDL","YES","0.000829"
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","13C3-PFBS","13C3-
PFBS","154","%R","H","","CRDL","","IS","154","","","CRDL","",""
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","13C2-PFHxA","13C2-
PFHxA","94.9","%R","","","CRDL","","IS","94.9","","","CRDL","",""
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","13C4-PFHpA","13C4-
PFHpA","101","%R","","","CRDL","","IS","101","","","CRDL","",""
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","18O2-PFHxS","18O2-
PFHxS","93.3","%R","","","CRDL","","IS","93.3","","","CRDL","",""
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","13C2-PFOA","13C2-
PFOA","82.7","%R","","","CRDL","","IS","82.7","","","CRDL","",""
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","13C5-PFNA","13C5-
PFNA","81.4","%R","","","CRDL","","IS","81.4","","","CRDL","",""
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","13C8-PFOS","13C8-
PFOS","90.0","%R","","","CRDL","","IS","90.0","","","CRDL","",""
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","13C2-PFDA","13C2-
PFDA","76.1","%R","","","CRDL","","IS","76.1","","","CRDL","",""
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","d3-MeFOSAA","d3-
MeFOSAA","90.1","%R","","","CRDL","","IS","90.1","","","CRDL","",""
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","d5-EtFOSAA","d5-
EtFOSAA","94.7","%R","","","CRDL","","IS","94.7","","","CRDL","",""
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","13C2-PFUnA","13C2-
PFUnA","66.9","%R","","","CRDL","","IS","66.9","","","CRDL","",""
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","13C2-PFDoA","13C2-
PFDoA","76.4","%R","","","CRDL","","IS","76.4","","","CRDL","",""
"A1-MW-53-SA1","537 MOD","RES","1801054-03","Vista","13C2-PFTeDA","13C2-

PFTeDA","97.7","%R","","","CRDL","","IS","97.7","","","CRDL","",""
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","375-73-
5","PFBS","0.0152","ug/L","","0.00534","CRDL","","TRG","","","0.00852","CRDL","YES","0.00191"
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","307-24-
4","PFHxA","0.0403","ug/L","","0.00534","CRDL","","TRG","","","0.00852","CRDL","YES","0.00232"
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","375-85-
9","PFHpA","0.00326","ug/L","J","0.00534","CRDL","","TRG","","","0.00852","CRDL","YES","0.000629"
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","355-46-
4","PFHxS","0.0114","ug/L","","0.00534","CRDL","","TRG","","","0.00852","CRDL","YES","0.00101"
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","335-67-
1","PFOA","0.00756","ug/L","J","0.00534","CRDL","","TRG","","","0.00852","CRDL","YES","0.000693"
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","375-95-
1","PFNA","0.00852","ug/L","U","0.00534","CRDL","","TRG","","","0.00852","CRDL","YES","0.000863"
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","1763-23-
1","PFOS","0.00115","ug/L","J","0.00534","CRDL","","TRG","","","0.00852","CRDL","YES","0.000860"
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","335-76-
2","PFDA","0.00852","ug/L","U","0.00534","CRDL","","TRG","","","0.00852","CRDL","YES","0.00159"
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","2355-31-
9","NMeFOSAA","0.00852","ug/L","U","0.00534","CRDL","","TRG","","","0.00852","CRDL","YES","0.00176"
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","2991-50-
6","NEtFOSAA","0.00852","ug/L","U","0.00534","CRDL","","TRG","","","0.00852","CRDL","YES","0.00146"
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","2058-94-
8","PFUnA","0.00852","ug/L","U","0.00534","CRDL","","TRG","","","0.00852","CRDL","YES","0.00112"
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","307-55-
1","PFDoA","0.00852","ug/L","U","0.00534","CRDL","","TRG","","","0.00852","CRDL","YES","0.000844"
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","72629-94-
8","PFTrDA","0.00852","ug/L","U","0.00534","CRDL","","TRG","","","0.00852","CRDL","YES","0.000526"
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","376-06-
7","PFTeDA","0.00852","ug/L","U","0.00534","CRDL","","TRG","","","0.00852","CRDL","YES","0.000804"
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","13C3-PFBS","13C3-
PFBS","182","%R","H","","CRDL","","IS","182","","","CRDL","",""
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","13C2-PFHxA","13C2-
PFHxA","96.9","%R","","","CRDL","","IS","96.9","","","CRDL","",""
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","13C4-PFHpA","13C4-
PFHpA","91.3","%R","","","CRDL","","IS","91.3","","","CRDL","",""
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","18O2-PFHxS","18O2-
PFHxS","92.7","%R","","","CRDL","","IS","92.7","","","CRDL","",""
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","13C2-PFOA","13C2-
PFOA","81.8","%R","","","CRDL","","IS","81.8","","","CRDL","",""
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","13C5-PFNA","13C5-
PFNA","87.3","%R","","","CRDL","","IS","87.3","","","CRDL","",""
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","13C8-PFOS","13C8-
PFOS","84.8","%R","","","CRDL","","IS","84.8","","","CRDL","",""
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","13C2-PFDA","13C2-
PFDA","79.8","%R","","","CRDL","","IS","79.8","","","CRDL","",""
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","d3-MeFOSAA","d3-
MeFOSAA","95.1","%R","","","CRDL","","IS","95.1","","","CRDL","",""
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","d5-EtFOSAA","d5-
EtFOSAA","100","%R","","","CRDL","","IS","100","","","CRDL","",""
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","13C2-PFUnA","13C2-
PFUnA","65.9","%R","","","CRDL","","IS","65.9","","","CRDL","",""
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","13C2-PFDoA","13C2-
PFDoA","98.8","%R","","","CRDL","","IS","98.8","","","CRDL","",""
"A1-PZ-19-SA1","537 MOD","RES","1801054-04","Vista","13C2-PFTeDA","13C2-

PFTeDA","117","%R","","","CRDL","","IS","117","","","CRDL","",""
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","375-73-
5","PFBS","0.146","ug/L","","0.00543","CRDL","","TRG","","","0.00869","CRDL","YES","0.00194"
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","307-24-
4","PFHxA","0.421","ug/L","","0.00543","CRDL","","TRG","","","0.00869","CRDL","YES","0.00237"
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","375-85-
9","PFHpA","0.0175","ug/L","","0.00543","CRDL","","TRG","","","0.00869","CRDL","YES","0.000642"
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","355-46-
4","PFHxS","0.101","ug/L","","0.00543","CRDL","","TRG","","","0.00869","CRDL","YES","0.00103"
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","335-67-
1","PFOA","0.0299","ug/L","","0.00543","CRDL","","TRG","","","0.00869","CRDL","YES","0.000707"
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","375-95-
1","PFNA","0.00869","ug/L","U","0.00543","CRDL","","TRG","","","0.00869","CRDL","YES","0.000880"
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","1763-23-
1","PFOS","0.00869","ug/L","U","0.00543","CRDL","","TRG","","","0.00869","CRDL","YES","0.000876"
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","335-76-
2","PFDA","0.00869","ug/L","U","0.00543","CRDL","","TRG","","","0.00869","CRDL","YES","0.00162"
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","2355-31-
9","NMeFOSAA","0.00869","ug/L","U","0.00543","CRDL","","TRG","","","0.00869","CRDL","YES","0.00179"
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","2991-50-
6","NEtFOSAA","0.00869","ug/L","U","0.00543","CRDL","","TRG","","","0.00869","CRDL","YES","0.00149"
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","2058-94-
8","PFUnA","0.00869","ug/L","U","0.00543","CRDL","","TRG","","","0.00869","CRDL","YES","0.00114"
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","307-55-
1","PFDoA","0.00869","ug/L","U","0.00543","CRDL","","TRG","","","0.00869","CRDL","YES","0.000860"
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","72629-94-
8","PFTrDA","0.00869","ug/L","U","0.00543","CRDL","","TRG","","","0.00869","CRDL","YES","0.000537"
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","376-06-
7","PFTeDA","0.00869","ug/L","U","0.00543","CRDL","","TRG","","","0.00869","CRDL","YES","0.000820"
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","13C3-PFBS","13C3-
PFBS","211","%R","H","","CRDL","","IS","211","","","CRDL","",""
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","13C2-PFHxA","13C2-
PFHxA","97.0","%R","","","CRDL","","IS","97.0","","","CRDL","",""
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","13C4-PFHpA","13C4-
PFHpA","98.3","%R","","","CRDL","","IS","98.3","","","CRDL","",""
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","18O2-PFHxS","18O2-
PFHxS","104","%R","","","CRDL","","IS","104","","","CRDL","",""
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","13C2-PFOA","13C2-
PFOA","82.2","%R","","","CRDL","","IS","82.2","","","CRDL","",""
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","13C5-PFNA","13C5-
PFNA","91.3","%R","","","CRDL","","IS","91.3","","","CRDL","",""
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","13C8-PFOS","13C8-
PFOS","89.6","%R","","","CRDL","","IS","89.6","","","CRDL","",""
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","13C2-PFDA","13C2-
PFDA","96.5","%R","","","CRDL","","IS","96.5","","","CRDL","",""
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","d3-MeFOSAA","d3-
MeFOSAA","97.1","%R","","","CRDL","","IS","97.1","","","CRDL","",""
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","d5-EtFOSAA","d5-
EtFOSAA","111","%R","","","CRDL","","IS","111","","","CRDL","",""
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","13C2-PFUnA","13C2-
PFUnA","70.2","%R","","","CRDL","","IS","70.2","","","CRDL","",""
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","13C2-PFDoA","13C2-
PFDoA","109","%R","","","CRDL","","IS","109","","","CRDL","",""
"A1-MW-52-SA1","537 MOD","RES","1801054-05","Vista","13C2-PFTeDA","13C2-

PFTeDA","123","%R","","","CRDL","","IS","123","","","CRDL","",""
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","375-73-
5","PFBS","0.0524","ug/L","","0.00568","CRDL","","TRG","","","0.00907","CRDL","YES","0.00203"
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","307-24-
4","PFHxA","0.101","ug/L","","0.00568","CRDL","","TRG","","","0.00907","CRDL","YES","0.00247"
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","375-85-
9","PFHpA","0.00225","ug/L","J","0.00568","CRDL","","TRG","","","0.00907","CRDL","YES","0.000670"
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","355-46-
4","PFHxS","0.0230","ug/L","","0.00568","CRDL","","TRG","","","0.00907","CRDL","YES","0.00107"
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","335-67-
1","PFOA","0.00907","ug/L","U","0.00568","CRDL","","TRG","","","0.00907","CRDL","YES","0.000738"
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","375-95-
1","PFNA","0.00907","ug/L","U","0.00568","CRDL","","TRG","","","0.00907","CRDL","YES","0.000919"
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","1763-23-
1","PFOS","0.00907","ug/L","U","0.00568","CRDL","","TRG","","","0.00907","CRDL","YES","0.000915"
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","335-76-
2","PFDA","0.00907","ug/L","U","0.00568","CRDL","","TRG","","","0.00907","CRDL","YES","0.00169"
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","2355-31-
9","NMeFOSAA","0.00907","ug/L","U","0.00568","CRDL","","TRG","","","0.00907","CRDL","YES","0.00187"
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","2991-50-
6","NEtFOSAA","0.00907","ug/L","U","0.00568","CRDL","","TRG","","","0.00907","CRDL","YES","0.00155"
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","2058-94-
8","PFUnA","0.00907","ug/L","U","0.00568","CRDL","","TRG","","","0.00907","CRDL","YES","0.00119"
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","307-55-
1","PFDoA","0.00907","ug/L","U","0.00568","CRDL","","TRG","","","0.00907","CRDL","YES","0.000898"
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","72629-94-
8","PFTrDA","0.00907","ug/L","U","0.00568","CRDL","","TRG","","","0.00907","CRDL","YES","0.000560"
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","376-06-
7","PFTeDA","0.00907","ug/L","U","0.00568","CRDL","","TRG","","","0.00907","CRDL","YES","0.000856"
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","13C3-PFBS","13C3-
PFBS","192","%R","H","","CRDL","","IS","192","","","CRDL","",""
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","13C2-PFHxA","13C2-
PFHxA","99.2","%R","","","CRDL","","IS","99.2","","","CRDL","",""
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","13C4-PFHpA","13C4-
PFHpA","101","%R","","","CRDL","","IS","101","","","CRDL","",""
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","18O2-PFHxS","18O2-
PFHxS","99.4","%R","","","CRDL","","IS","99.4","","","CRDL","",""
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","13C2-PFOA","13C2-
PFOA","81.1","%R","","","CRDL","","IS","81.1","","","CRDL","",""
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","13C5-PFNA","13C5-
PFNA","82.3","%R","","","CRDL","","IS","82.3","","","CRDL","",""
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","13C8-PFOS","13C8-
PFOS","87.2","%R","","","CRDL","","IS","87.2","","","CRDL","",""
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","13C2-PFDA","13C2-
PFDA","76.4","%R","","","CRDL","","IS","76.4","","","CRDL","",""
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","d3-MeFOSAA","d3-
MeFOSAA","90.2","%R","","","CRDL","","IS","90.2","","","CRDL","",""
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","d5-EtFOSAA","d5-
EtFOSAA","115","%R","","","CRDL","","IS","115","","","CRDL","",""
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","13C2-PFUnA","13C2-
PFUnA","66.1","%R","","","CRDL","","IS","66.1","","","CRDL","",""
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","13C2-PFDoA","13C2-
PFDoA","96.2","%R","","","CRDL","","IS","96.2","","","CRDL","",""
"A1-MW-01-SA1","537 MOD","RES","1801054-06","Vista","13C2-PFTeDA","13C2-

PFTeDA","116","%R","","","CRDL","","IS","116","","","CRDL","",""
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","375-73-
5","PFBS","0.0557","ug/L","","0.00534","CRDL","","TRG","","","0.00854","CRDL","YES","0.00191"
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","307-24-
4","PFHxA","0.0971","ug/L","","0.00534","CRDL","","TRG","","","0.00854","CRDL","YES","0.00233"
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","375-85-
9","PFHpA","0.00273","ug/L","J","0.00534","CRDL","","TRG","","","0.00854","CRDL","YES","0.000631"
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","355-46-
4","PFHxS","0.0238","ug/L","","0.00534","CRDL","","TRG","","","0.00854","CRDL","YES","0.00101"
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","335-67-
1","PFOA","0.00854","ug/L","U","0.00534","CRDL","","TRG","","","0.00854","CRDL","YES","0.000695"
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","375-95-
1","PFNA","0.00854","ug/L","U","0.00534","CRDL","","TRG","","","0.00854","CRDL","YES","0.000864"
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","1763-23-
1","PFOS","0.00854","ug/L","U","0.00534","CRDL","","TRG","","","0.00854","CRDL","YES","0.000861"
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","335-76-
2","PFDA","0.00854","ug/L","U","0.00534","CRDL","","TRG","","","0.00854","CRDL","YES","0.00159"
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","2355-31-
9","NMeFOSAA","0.00854","ug/L","U","0.00534","CRDL","","TRG","","","0.00854","CRDL","YES","0.00176"
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","2991-50-
6","NEtFOSAA","0.00854","ug/L","U","0.00534","CRDL","","TRG","","","0.00854","CRDL","YES","0.00146"
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","2058-94-
8","PFUnA","0.00854","ug/L","U","0.00534","CRDL","","TRG","","","0.00854","CRDL","YES","0.00112"
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","307-55-
1","PFDoA","0.00854","ug/L","U","0.00534","CRDL","","TRG","","","0.00854","CRDL","YES","0.000845"
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","72629-94-
8","PFTrDA","0.00854","ug/L","U","0.00534","CRDL","","TRG","","","0.00854","CRDL","YES","0.000527"
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","376-06-
7","PFTeDA","0.00854","ug/L","U","0.00534","CRDL","","TRG","","","0.00854","CRDL","YES","0.000806"
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","13C3-PFBS","13C3-
PFBS","204","%R","H","","CRDL","","IS","204","","","CRDL","",""
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","13C2-PFHxA","13C2-
PFHxA","94.4","%R","","","CRDL","","IS","94.4","","","CRDL","",""
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","13C4-PFHpA","13C4-
PFHpA","93.7","%R","","","CRDL","","IS","93.7","","","CRDL","",""
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","18O2-PFHxS","18O2-
PFHxS","90.9","%R","","","CRDL","","IS","90.9","","","CRDL","",""
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","13C2-PFOA","13C2-
PFOA","84.5","%R","","","CRDL","","IS","84.5","","","CRDL","",""
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","13C5-PFNA","13C5-
PFNA","91.7","%R","","","CRDL","","IS","91.7","","","CRDL","",""
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","13C8-PFOS","13C8-
PFOS","95.0","%R","","","CRDL","","IS","95.0","","","CRDL","",""
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","13C2-PFDA","13C2-
PFDA","77.7","%R","","","CRDL","","IS","77.7","","","CRDL","",""
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","d3-MeFOSAA","d3-
MeFOSAA","109","%R","","","CRDL","","IS","109","","","CRDL","",""
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","d5-EtFOSAA","d5-
EtFOSAA","126","%R","","","CRDL","","IS","126","","","CRDL","",""
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","13C2-PFUnA","13C2-
PFUnA","69.8","%R","","","CRDL","","IS","69.8","","","CRDL","",""
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","13C2-PFDoA","13C2-
PFDoA","87.5","%R","","","CRDL","","IS","87.5","","","CRDL","",""
"A1-MW-01-SA1D","537 MOD","RES","1801054-07","Vista","13C2-PFTeDA","13C2-

PFTeDA","113","%R","","","CRDL","","IS","113","","","CRDL","",""
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","375-73-
5","PFBS","0.0634","ug/L","","0.00553","CRDL","","TRG","","","0.00887","CRDL","YES","0.00198"
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","307-24-
4","PFHxA","0.182","ug/L","","0.00553","CRDL","","TRG","","","0.00887","CRDL","YES","0.00242"
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","375-85-
9","PFHpA","0.00851","ug/L","J","0.00553","CRDL","","TRG","","","0.00887","CRDL","YES","0.000655"
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","355-46-
4","PFHxS","0.0448","ug/L","","0.00553","CRDL","","TRG","","","0.00887","CRDL","YES","0.00105"
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","335-67-
1","PFOA","0.0111","ug/L","","0.00553","CRDL","","TRG","","","0.00887","CRDL","YES","0.000722"
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","375-95-
1","PFNA","0.00887","ug/L","U","0.00553","CRDL","","TRG","","","0.00887","CRDL","YES","0.000898"
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","1763-23-
1","PFOS","0.00887","ug/L","U","0.00553","CRDL","","TRG","","","0.00887","CRDL","YES","0.000895"
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","335-76-
2","PFDA","0.00887","ug/L","U","0.00553","CRDL","","TRG","","","0.00887","CRDL","YES","0.00165"
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","2355-31-
9","NMeFOSAA","0.00887","ug/L","U","0.00553","CRDL","","TRG","","","0.00887","CRDL","YES","0.00183"
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","2991-50-
6","NEtFOSAA","0.00887","ug/L","U","0.00553","CRDL","","TRG","","","0.00887","CRDL","YES","0.00152"
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","2058-94-
8","PFUnA","0.00887","ug/L","U","0.00553","CRDL","","TRG","","","0.00887","CRDL","YES","0.00116"
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","307-55-
1","PFDoA","0.00887","ug/L","U","0.00553","CRDL","","TRG","","","0.00887","CRDL","YES","0.000878"
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","72629-94-
8","PFTrDA","0.00887","ug/L","U","0.00553","CRDL","","TRG","","","0.00887","CRDL","YES","0.000548"
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","376-06-
7","PFTeDA","0.00887","ug/L","U","0.00553","CRDL","","TRG","","","0.00887","CRDL","YES","0.000837"
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","13C3-PFBS","13C3-
PFBS","254","%R","H","","CRDL","","IS","254","","","CRDL","",""
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","13C2-PFHxA","13C2-
PFHxA","110","%R","","","CRDL","","IS","110","","","CRDL","",""
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","13C4-PFHpA","13C4-
PFHpA","110","%R","","","CRDL","","IS","110","","","CRDL","",""
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","18O2-PFHxS","18O2-
PFHxS","98.5","%R","","","CRDL","","IS","98.5","","","CRDL","",""
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","13C2-PFOA","13C2-
PFOA","79.4","%R","","","CRDL","","IS","79.4","","","CRDL","",""
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","13C5-PFNA","13C5-
PFNA","87.9","%R","","","CRDL","","IS","87.9","","","CRDL","",""
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","13C8-PFOS","13C8-
PFOS","92.1","%R","","","CRDL","","IS","92.1","","","CRDL","",""
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","13C2-PFDA","13C2-
PFDA","87.8","%R","","","CRDL","","IS","87.8","","","CRDL","",""
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","d3-MeFOSAA","d3-
MeFOSAA","126","%R","","","CRDL","","IS","126","","","CRDL","",""
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","d5-EtFOSAA","d5-
EtFOSAA","140","%R","","","CRDL","","IS","140","","","CRDL","",""
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","13C2-PFUnA","13C2-
PFUnA","65.1","%R","","","CRDL","","IS","65.1","","","CRDL","",""
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","13C2-PFDoA","13C2-
PFDoA","109","%R","","","CRDL","","IS","109","","","CRDL","",""
"A1-MW-31-SA1","537 MOD","RES","1801054-08","Vista","13C2-PFTeDA","13C2-

PFTeDA","122","%R","","","CRDL","","IS","122","","","CRDL","",""
"FRB-20180525","537 MOD","RES","1801054-09","Vista","375-73-
5","PFBS","0.00857","ug/L","U","0.00534","CRDL","","TRG","","","0.00857","CRDL","YES","0.00192"
"FRB-20180525","537 MOD","RES","1801054-09","Vista","307-24-
4","PFHxA","0.00857","ug/L","U","0.00534","CRDL","","TRG","","","0.00857","CRDL","YES","0.00234"
"FRB-20180525","537 MOD","RES","1801054-09","Vista","375-85-
9","PFHpA","0.00857","ug/L","U","0.00534","CRDL","","TRG","","","0.00857","CRDL","YES","0.000633"
"FRB-20180525","537 MOD","RES","1801054-09","Vista","355-46-
4","PFHxS","0.00857","ug/L","U","0.00534","CRDL","","TRG","","","0.00857","CRDL","YES","0.00101"
"FRB-20180525","537 MOD","RES","1801054-09","Vista","335-67-
1","PFOA","0.00857","ug/L","U","0.00534","CRDL","","TRG","","","0.00857","CRDL","YES","0.000698"
"FRB-20180525","537 MOD","RES","1801054-09","Vista","375-95-
1","PFNA","0.00857","ug/L","U","0.00534","CRDL","","TRG","","","0.00857","CRDL","YES","0.000868"
"FRB-20180525","537 MOD","RES","1801054-09","Vista","1763-23-
1","PFOS","0.00857","ug/L","U","0.00534","CRDL","","TRG","","","0.00857","CRDL","YES","0.000865"
"FRB-20180525","537 MOD","RES","1801054-09","Vista","335-76-
2","PFDA","0.00857","ug/L","U","0.00534","CRDL","","TRG","","","0.00857","CRDL","YES","0.00160"
"FRB-20180525","537 MOD","RES","1801054-09","Vista","2355-31-
9","NMeFOSAA","0.00857","ug/L","U","0.00534","CRDL","","TRG","","","0.00857","CRDL","YES","0.00177"
"FRB-20180525","537 MOD","RES","1801054-09","Vista","2991-50-
6","NEtFOSAA","0.00857","ug/L","U","0.00534","CRDL","","TRG","","","0.00857","CRDL","YES","0.00147"
"FRB-20180525","537 MOD","RES","1801054-09","Vista","2058-94-
8","PFUnA","0.00857","ug/L","U","0.00534","CRDL","","TRG","","","0.00857","CRDL","YES","0.00113"
"FRB-20180525","537 MOD","RES","1801054-09","Vista","307-55-
1","PFDoA","0.00857","ug/L","U","0.00534","CRDL","","TRG","","","0.00857","CRDL","YES","0.000849"
"FRB-20180525","537 MOD","RES","1801054-09","Vista","72629-94-
8","PFTrDA","0.00857","ug/L","U","0.00534","CRDL","","TRG","","","0.00857","CRDL","YES","0.000529"
"FRB-20180525","537 MOD","RES","1801054-09","Vista","376-06-
7","PFTeDA","0.00857","ug/L","U","0.00534","CRDL","","TRG","","","0.00857","CRDL","YES","0.000809"
"FRB-20180525","537 MOD","RES","1801054-09","Vista","13C3-PFBS","13C3-
PFBS","139","%R","","","CRDL","","IS","139","","","CRDL","",""
"FRB-20180525","537 MOD","RES","1801054-09","Vista","13C2-PFHxA","13C2-
PFHxA","94.2","%R","","","CRDL","","IS","94.2","","","CRDL","",""
"FRB-20180525","537 MOD","RES","1801054-09","Vista","13C4-PFHpA","13C4-
PFHpA","100","%R","","","CRDL","","IS","100","","","CRDL","",""
"FRB-20180525","537 MOD","RES","1801054-09","Vista","18O2-PFHxS","18O2-
PFHxS","99.3","%R","","","CRDL","","IS","99.3","","","CRDL","",""
"FRB-20180525","537 MOD","RES","1801054-09","Vista","13C2-PFOA","13C2-
PFOA","82.3","%R","","","CRDL","","IS","82.3","","","CRDL","",""
"FRB-20180525","537 MOD","RES","1801054-09","Vista","13C5-PFNA","13C5-
PFNA","81.9","%R","","","CRDL","","IS","81.9","","","CRDL","",""
"FRB-20180525","537 MOD","RES","1801054-09","Vista","13C8-PFOS","13C8-
PFOS","89.9","%R","","","CRDL","","IS","89.9","","","CRDL","",""
"FRB-20180525","537 MOD","RES","1801054-09","Vista","13C2-PFDA","13C2-
PFDA","76.2","%R","","","CRDL","","IS","76.2","","","CRDL","",""
"FRB-20180525","537 MOD","RES","1801054-09","Vista","d3-MeFOSAA","d3-
MeFOSAA","62.0","%R","","","CRDL","","IS","62.0","","","CRDL","",""
"FRB-20180525","537 MOD","RES","1801054-09","Vista","d5-EtFOSAA","d5-
EtFOSAA","62.6","%R","","","CRDL","","IS","62.6","","","CRDL","",""
"FRB-20180525","537 MOD","RES","1801054-09","Vista","13C2-PFUnA","13C2-
PFUnA","56.6","%R","","","CRDL","","IS","56.6","","","CRDL","",""
"FRB-20180525","537 MOD","RES","1801054-09","Vista","13C2-PFDoA","13C2-
PFDoA","72.9","%R","","","CRDL","","IS","72.9","","","CRDL","",""
"FRB-20180525","537 MOD","RES","1801054-09","Vista","13C2-PFTeDA","13C2-

PFTeDA","89.6","%R","","","CRDL","","IS","89.6","","","CRDL","",""
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","375-73-
5","PFBS","0.00800","ug/L","U","0.00500","CRDL","","TRG","","","0.00800","CRDL","YES","0.00179"
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","307-24-
4","PFHxA","0.00800","ug/L","U","0.00500","CRDL","","TRG","","","0.00800","CRDL","YES","0.00218"
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","375-85-
9","PFHpA","0.00800","ug/L","U","0.00500","CRDL","","TRG","","","0.00800","CRDL","YES","0.000591"
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","355-46-
4","PFHxS","0.00800","ug/L","U","0.00500","CRDL","","TRG","","","0.00800","CRDL","YES","0.000947"
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","335-67-
1","PFOA","0.00800","ug/L","U","0.00500","CRDL","","TRG","","","0.00800","CRDL","YES","0.000651"
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","375-95-
1","PFNA","0.00800","ug/L","U","0.00500","CRDL","","TRG","","","0.00800","CRDL","YES","0.000810"
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","1763-23-
1","PFOS","0.00800","ug/L","U","0.00500","CRDL","","TRG","","","0.00800","CRDL","YES","0.000807"
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","335-76-
2","PFDA","0.00800","ug/L","U","0.00500","CRDL","","TRG","","","0.00800","CRDL","YES","0.00149"
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","2355-31-
9","NMeFOSAA","0.00800","ug/L","U","0.00500","CRDL","","TRG","","","0.00800","CRDL","YES","0.00165"
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","2991-50-
6","NEtFOSAA","0.00800","ug/L","U","0.00500","CRDL","","TRG","","","0.00800","CRDL","YES","0.00137"
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","2058-94-
8","PFUnA","0.00800","ug/L","U","0.00500","CRDL","","TRG","","","0.00800","CRDL","YES","0.00105"
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","307-55-
1","PFDoA","0.00800","ug/L","U","0.00500","CRDL","","TRG","","","0.00800","CRDL","YES","0.000792"
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","72629-94-
8","PFTrDA","0.00800","ug/L","U","0.00500","CRDL","","TRG","","","0.00800","CRDL","YES","0.000494"
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","376-06-
7","PFTeDA","0.00800","ug/L","U","0.00500","CRDL","","TRG","","","0.00800","CRDL","YES","0.000755"
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","13C3-PFBS","13C3-
PFBS","104","%R","","","CRDL","","IS","104","","","CRDL","",""
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","13C2-PFHxA","13C2-
PFHxA","93.6","%R","","","CRDL","","IS","93.6","","","CRDL","",""
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","13C4-PFHpA","13C4-
PFHpA","99.6","%R","","","CRDL","","IS","99.6","","","CRDL","",""
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","18O2-PFHxS","18O2-
PFHxS","90.8","%R","","","CRDL","","IS","90.8","","","CRDL","",""
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","13C2-PFOA","13C2-
PFOA","83.7","%R","","","CRDL","","IS","83.7","","","CRDL","",""
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","13C5-PFNA","13C5-
PFNA","84.2","%R","","","CRDL","","IS","84.2","","","CRDL","",""
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","13C8-PFOS","13C8-
PFOS","102","%R","","","CRDL","","IS","102","","","CRDL","",""
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","13C2-PFDA","13C2-
PFDA","72.9","%R","","","CRDL","","IS","72.9","","","CRDL","",""
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","d3-MeFOSAA","d3-
MeFOSAA","50.6","%R","","","CRDL","","IS","50.6","","","CRDL","",""
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","d5-EtFOSAA","d5-
EtFOSAA","62.6","%R","","","CRDL","","IS","62.6","","","CRDL","",""
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","13C2-PFUnA","13C2-
PFUnA","65.3","%R","","","CRDL","","IS","65.3","","","CRDL","",""
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","13C2-PFDoA","13C2-
PFDoA","91.4","%R","","","CRDL","","IS","91.4","","","CRDL","",""
"B8E0244-BLK1","537 MOD","RES","B8E0244-BLK1","Vista","13C2-PFTeDA","13C2-

PFTeDA","91.8","%R","","","CRDL","","IS","91.8","","","CRDL","",""
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","375-73-
5","PFBS","0.0918","ug/L","","0.00500","CRDL","","SPK","115","","0.00800","CRDL","YES","0.00179"
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","307-24-
4","PFHxA","0.0944","ug/L","","0.00500","CRDL","","SPK","118","","0.00800","CRDL","YES","0.00218"
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","375-85-
9","PFHpA","0.0843","ug/L","","0.00500","CRDL","","SPK","105","","0.00800","CRDL","YES","0.000591"
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","355-46-
4","PFHxS","0.0883","ug/L","","0.00500","CRDL","","SPK","110","","0.00800","CRDL","YES","0.000947"
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","335-67-
1","PFOA","0.0941","ug/L","","0.00500","CRDL","","SPK","118","","0.00800","CRDL","YES","0.000651"
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","375-95-
1","PFNA","0.0850","ug/L","","0.00500","CRDL","","SPK","106","","0.00800","CRDL","YES","0.000810"
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","1763-23-
1","PFOS","0.0880","ug/L","","0.00500","CRDL","","SPK","110","","0.00800","CRDL","YES","0.000807"
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","335-76-
2","PFDA","0.0850","ug/L","","0.00500","CRDL","","SPK","106","","0.00800","CRDL","YES","0.00149"
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","2355-31-
9","NMeFOSAA","0.0993","ug/L","","0.00500","CRDL","","SPK","124","","0.00800","CRDL","YES","0.00165"
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","2991-50-
6","NEtFOSAA","0.0885","ug/L","","0.00500","CRDL","","SPK","111","","0.00800","CRDL","YES","0.00137"
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","2058-94-
8","PFUnA","0.0836","ug/L","","0.00500","CRDL","","SPK","105","","0.00800","CRDL","YES","0.00105"
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","307-55-
1","PFDoA","0.100","ug/L","","0.00500","CRDL","","SPK","125","","0.00800","CRDL","YES","0.000792"
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","72629-94-
8","PFTrDA","0.122","ug/L","H","0.00500","CRDL","","SPK","153","","0.00800","CRDL","YES","0.000494"
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","376-06-
7","PFTeDA","0.0926","ug/L","","0.00500","CRDL","","SPK","116","","0.00800","CRDL","YES","0.000755"
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","13C3-PFBS","13C3-
PFBS","115","%R","","","CRDL","","IS","115","","","CRDL","",""
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","13C2-PFHxA","13C2-
PFHxA","94.9","%R","","","CRDL","","IS","94.9","","","CRDL","",""
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","13C4-PFHpA","13C4-
PFHpA","103","%R","","","CRDL","","IS","103","","","CRDL","",""
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","18O2-PFHxS","18O2-
PFHxS","92.1","%R","","","CRDL","","IS","92.1","","","CRDL","",""
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","13C2-PFOA","13C2-
PFOA","84.6","%R","","","CRDL","","IS","84.6","","","CRDL","",""
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","13C5-PFNA","13C5-
PFNA","89.9","%R","","","CRDL","","IS","89.9","","","CRDL","",""
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","13C8-PFOS","13C8-
PFOS","83.6","%R","","","CRDL","","IS","83.6","","","CRDL","",""
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","13C2-PFDA","13C2-
PFDA","84.3","%R","","","CRDL","","IS","84.3","","","CRDL","",""
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","d3-MeFOSAA","d3-
MeFOSAA","63.3","%R","","","CRDL","","IS","63.3","","","CRDL","",""
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","d5-EtFOSAA","d5-
EtFOSAA","62.7","%R","","","CRDL","","IS","62.7","","","CRDL","",""
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","13C2-PFUnA","13C2-
PFUnA","76.2","%R","","","CRDL","","IS","76.2","","","CRDL","",""
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","13C2-PFDoA","13C2-
PFDoA","90.4","%R","","","CRDL","","IS","90.4","","","CRDL","",""
"B8E0244-BS1","537 MOD","RES","B8E0244-BS1","Vista","13C2-PFTeDA","13C2-

PFTeDA","92.7","%R","","","CRDL","","IS","92.7","","","CRDL","",""
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","375-73-
5","PFBS","0.648","ug/L","","0.00563","CRDL","","SPK","108","","0.00899","CRDL","YES","0.00201"
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","307-24-
4","PFHxA","1.67","ug/L","H","0.00563","CRDL","","SPK","232","","0.00899","CRDL","YES","0.00245"
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","375-85-
9","PFHpA","0.159","ug/L","","0.00563","CRDL","","SPK","109","","0.00899","CRDL","YES","0.000664"
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","355-46-
4","PFHxS","0.631","ug/L","H","0.00563","CRDL","","SPK","141","","0.00899","CRDL","YES","0.00106"
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","335-67-
1","PFOA","0.164","ug/L","","0.00563","CRDL","","SPK","114","","0.00899","CRDL","YES","0.000732"
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","375-95-
1","PFNA","0.0933","ug/L","","0.00563","CRDL","","SPK","104","","0.00899","CRDL","YES","0.000910"
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","1763-23-
1","PFOS","0.0963","ug/L","","0.00563","CRDL","","SPK","105","","0.00899","CRDL","YES","0.000907"
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","335-76-
2","PFDA","0.114","ug/L","","0.00563","CRDL","","SPK","127","","0.00899","CRDL","YES","0.00167"
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","2355-31-
9","NMeFOSAA","0.104","ug/L","","0.00563","CRDL","","SPK","115","","0.00899","CRDL","YES","0.00185"
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","2991-50-
6","NEtFOSAA","0.0889","ug/L","","0.00563","CRDL","","SPK","98.9","","0.00899","CRDL","YES","0.00154"
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","2058-94-
8","PFUnA","0.105","ug/L","","0.00563","CRDL","","SPK","117","","0.00899","CRDL","YES","0.00118"
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","307-55-
1","PFDoA","0.106","ug/L","","0.00563","CRDL","","SPK","118","","0.00899","CRDL","YES","0.000890"
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","72629-94-
8","PFTrDA","0.127","ug/L","H","0.00563","CRDL","","SPK","141","","0.00899","CRDL","YES","0.000555"
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","376-06-
7","PFTeDA","0.103","ug/L","","0.00563","CRDL","","SPK","115","","0.00899","CRDL","YES","0.000849"
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","13C3-PFBS","13C3-
PFBS","169","%R","H","","CRDL","","IS","169","","","CRDL","",""
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","13C2-PFHxA","13C2-
PFHxA","94.8","%R","","","CRDL","","IS","94.8","","","CRDL","",""
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","13C4-PFHpA","13C4-
PFHpA","106","%R","","","CRDL","","IS","106","","","CRDL","",""
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","18O2-PFHxS","18O2-
PFHxS","90.1","%R","","","CRDL","","IS","90.1","","","CRDL","",""
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","13C2-PFOA","13C2-
PFOA","78.3","%R","","","CRDL","","IS","78.3","","","CRDL","",""
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","13C5-PFNA","13C5-
PFNA","83.4","%R","","","CRDL","","IS","83.4","","","CRDL","",""
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","13C8-PFOS","13C8-
PFOS","101","%R","","","CRDL","","IS","101","","","CRDL","",""
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","13C2-PFDA","13C2-
PFDA","69.9","%R","","","CRDL","","IS","69.9","","","CRDL","",""
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","d3-MeFOSAA","d3-
MeFOSAA","74.4","%R","","","CRDL","","IS","74.4","","","CRDL","",""
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","d5-EtFOSAA","d5-
EtFOSAA","80.4","%R","","","CRDL","","IS","80.4","","","CRDL","",""
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","13C2-PFUnA","13C2-
PFUnA","72.6","%R","","","CRDL","","IS","72.6","","","CRDL","",""
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","13C2-PFDoA","13C2-
PFDoA","87.8","%R","","","CRDL","","IS","87.8","","","CRDL","",""
"A1-MW-53-SA1MS","537 MOD","RES","B8E0244-MS2","Vista","13C2-PFTeDA","13C2-

PFTeDA","109","%R","","","CRDL","","IS","109","","","CRDL","",""
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","375-73-
5","PFBS","0.583","ug/L","H","0.00543","CRDL","","SPK","37.7","96.5","0.00869","CRDL","YES","0.00194"
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","307-24-
4","PFHxA","1.61","ug/L","H","0.00543","CRDL","","SPK","175","28.0","0.00869","CRDL","YES","0.00237"
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","375-85-
9","PFHpA","0.158","ug/L","","0.00543","CRDL","","SPK","112","2.71","0.00869","CRDL","YES","0.000642"
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","355-46-
4","PFHxS","0.555","ug/L","H","0.00543","CRDL","","SPK","58.4","82.8","0.00869","CRDL","YES","0.00103"
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","335-67-
1","PFOA","0.159","ug/L","","0.00543","CRDL","","SPK","112","1.77","0.00869","CRDL","YES","0.000707"
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","375-95-
1","PFNA","0.0908","ug/L","","0.00543","CRDL","","SPK","104","0","0.00869","CRDL","YES","0.000880"
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","1763-23-
1","PFOS","0.0939","ug/L","","0.00543","CRDL","","SPK","106","0.948","0.00869","CRDL","YES","0.000876"
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","335-76-
2","PFDA","0.0907","ug/L","","0.00543","CRDL","","SPK","104","19.9","0.00869","CRDL","YES","0.00162"
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","2355-31-
9","NMeFOSAA","0.0717","ug/L","H","0.00543","CRDL","","SPK","82.5","32.9","0.00869","CRDL","YES","0.0017
9"
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","2991-50-
6","NEtFOSAA","0.0746","ug/L","","0.00543","CRDL","","SPK","85.9","14.1","0.00869","CRDL","YES","0.00149"
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","2058-94-
8","PFUnA","0.0957","ug/L","","0.00543","CRDL","","SPK","110","6.17","0.00869","CRDL","YES","0.00114"
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","307-55-
1","PFDoA","0.105","ug/L","","0.00543","CRDL","","SPK","121","2.51","0.00869","CRDL","YES","0.000860"
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","72629-94-
8","PFTrDA","0.128","ug/L","H","0.00543","CRDL","","SPK","148","4.84","0.00869","CRDL","YES","0.000536"
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","376-06-
7","PFTeDA","0.100","ug/L","","0.00543","CRDL","","SPK","115","0","0.00869","CRDL","YES","0.000820"
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","13C3-PFBS","13C3-
PFBS","161","%R","H","","CRDL","","IS","161","","","CRDL","",""
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","13C2-PFHxA","13C2-
PFHxA","97.5","%R","","","CRDL","","IS","97.5","","","CRDL","",""
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","13C4-PFHpA","13C4-
PFHpA","99.1","%R","","","CRDL","","IS","99.1","","","CRDL","",""
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","18O2-PFHxS","18O2-
PFHxS","98.4","%R","","","CRDL","","IS","98.4","","","CRDL","",""
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","13C2-PFOA","13C2-
PFOA","80.2","%R","","","CRDL","","IS","80.2","","","CRDL","",""
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","13C5-PFNA","13C5-
PFNA","89.7","%R","","","CRDL","","IS","89.7","","","CRDL","",""
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","13C8-PFOS","13C8-
PFOS","90.1","%R","","","CRDL","","IS","90.1","","","CRDL","",""
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","13C2-PFDA","13C2-
PFDA","73.2","%R","","","CRDL","","IS","73.2","","","CRDL","",""
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","d3-MeFOSAA","d3-
MeFOSAA","97.4","%R","","","CRDL","","IS","97.4","","","CRDL","",""
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","d5-EtFOSAA","d5-
EtFOSAA","104","%R","","","CRDL","","IS","104","","","CRDL","",""
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","13C2-PFUnA","13C2-
PFUnA","68.4","%R","","","CRDL","","IS","68.4","","","CRDL","",""
"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","13C2-PFDoA","13C2-
PFDoA","63.0","%R","","","CRDL","","IS","63.0","","","CRDL","",""

"A1-MW-53-SA1MSD","537 MOD","RES","B8E0244-MSD2","Vista","13C2-PFTeDA","13C2-PFTeDA","83.0","%R","","","CRDL","","IS","83.0","","","CRDL","",""
"4663.3803","CTO 17F3803 Yuma","A1-MW-42-SA1","05/25/2018 07:56","AQ","1801054-01","","","","537 MOD","Gen Prep","RES","05/31/2018 10:30","06/07/2018 22:34","Vista","COA","","","1","","","","","B8E0244","B8E0244","S8F0019","S8F0019","1801054","05/26/2018 09:54","06/12/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","A1-MW-54-SA1","05/25/2018 09:09","AQ","1801054-02","","","","537 MOD","Gen Prep","RES","05/31/2018 10:30","06/07/2018 22:44","Vista","COA","","","1","","","","","B8E0244","B8E0244","S8F0019","S8F0019","1801054","05/26/2018 09:54","06/12/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","A1-MW-53-SA1","05/25/2018 10:14","AQ","1801054-03","","","","537 MOD","Gen Prep","RES","05/31/2018 10:30","06/07/2018 22:55","Vista","COA","","","1","","","","","B8E0244","B8E0244","S8F0019","S8F0019","1801054","05/26/2018 09:54","06/12/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","A1-PZ-19-SA1","05/25/2018 11:59","AQ","1801054-04","","","","537 MOD","Gen Prep","RES","05/31/2018 10:30","06/07/2018 23:05","Vista","COA","","","1","","","","","B8E0244","B8E0244","S8F0019","S8F0019","1801054","05/26/2018 09:54","06/12/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","A1-MW-52-SA1","05/25/2018 13:00","AQ","1801054-05","","","","537 MOD","Gen Prep","RES","05/31/2018 10:30","06/07/2018 23:16","Vista","COA","","","1","","","","","B8E0244","B8E0244","S8F0019","S8F0019","1801054","05/26/2018 09:54","06/12/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","A1-MW-01-SA1","05/25/2018 13:56","AQ","1801054-06","","","","537 MOD","Gen Prep","RES","05/31/2018 10:30","06/07/2018 23:26","Vista","COA","","","1","","","","","B8E0244","B8E0244","S8F0019","S8F0019","1801054","05/26/2018 09:54","06/12/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","A1-MW-01-SA1D","05/25/2018 14:06","AQ","1801054-07","","","","537 MOD","Gen Prep","RES","05/31/2018 10:30","06/07/2018 23:37","Vista","COA","","","1","","","","","B8E0244","B8E0244","S8F0019","S8F0019","1801054","05/26/2018 09:54","06/12/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","A1-MW-31-SA1","05/25/2018 14:49","AQ","1801054-08","","","","537 MOD","Gen Prep","RES","05/31/2018 10:30","06/07/2018 23:47","Vista","COA","","","1","","","","","B8E0244","B8E0244","S8F0019","S8F0019","1801054","05/26/2018 09:54","06/12/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","FRB-20180525","05/25/2018 15:30","AQ","1801054-09","","","","537 MOD","Gen Prep","RES","05/31/2018 10:30","06/07/2018 23:57","Vista","COA","","","1","","","","","B8E0244","B8E0244","S8F0019","S8F0019","1801054","05/26/2018 09:54","06/12/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","B8E0244-BLK1","","AQ","B8E0244-BLK1","MB","","","537 MOD","Gen Prep","RES","05/31/2018 10:30","06/07/2018 17:41","Vista","COA","","","1","","","","","B8E0244","B8E0244","S8F0019","S8F0019","1801054","","06/12/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","B8E0244-BS1","","AQ","B8E0244-BS1","LCS","","","537 MOD","Gen Prep","RES","05/31/2018 10:30","06/07/2018 17:30","Vista","COA","","","1","","","","","B8E0244","B8E0244","S8F0019","S8F0019","1801054","","06/12/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","A1-MW-53-SA1MS","05/31/2018 10:30","AQ","B8E0244-MS2","MS","","","537 MOD","Gen Prep","RES","05/31/2018 10:30","06/07/2018 18:12","Vista","COA","","","1","","","","","B8E0244","B8E0244","S8F0019","S8F0019","1801054","","06/12/2018 00:00"
"4663.3803","CTO 17F3803 Yuma","A1-MW-53-SA1MSD","05/31/2018 10:30","AQ","B8E0244-MSD2","MSD","","","537 MOD","Gen Prep","RES","05/31/2018 10:30","06/06/2018 02:45","Vista","COA","","","1","","","","","B8E0244","B8E0244","S8F0019","S8F0019","1801054","","06/12/2018 00:00"

LABORATORY DATA CONSULTANTS, INC.
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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
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
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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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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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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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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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
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		

Privileged and Confidential

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		↓

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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	180617L1-10	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 = 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 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. = $\frac{(0.964(06) + \sqrt{(0.964(06)^2 - 4 \times (-0.000132)(0)}}{(2)(-0.000132)(2)} \frac{(180 \times 10^3)}{9070} + 0.0448)(0.113)$

= 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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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
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

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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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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

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
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	

V:\Josephine\FIELD DUPLICATES\43888A1a ttech yuma.wpd

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	

V:\Josephine\FIELD DUPLICATES\43888K96 ttech yuma.wpd

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
A1-MW-01	SITE 00019	YUMA_MCAS	WLM	Monitoring well	1801054	436397.4025	607204.2176	Perfluoroalkyl Compounds	A1-MW-01-SA1	WG	GROUNDWATER	5/25/2018
A1-MW-31	SITE 00019	YUMA_MCAS	WLM	Monitoring well	1801054	436610.1639	607254.3576	Perfluoroalkyl Compounds	A1-MW-31-SA1	WG	GROUNDWATER	5/25/2018
A1-MW-42	SITE 00019	YUMA_MCAS	WLM	Monitoring well	1801054	436422.6597	607084.7952	Perfluoroalkyl Compounds	A1-MW-42-SA1	WG	GROUNDWATER	5/25/2018
A1-MW-52	OU 0000001 AREA 1	YUMA_MCAS	WLM	Monitoring well	1801054	436320.115	607239.298	Perfluoroalkyl Compounds	A1-MW-52-SA1	WG	GROUNDWATER	5/25/2018
A1-MW-53	OU 0000001 AREA 1	YUMA_MCAS	WLM	Monitoring well	1801054	436340.185	606920.256	Perfluoroalkyl Compounds	A1-MW-53-SA1	WG	GROUNDWATER	5/25/2018
A1-MW-54	OU 0000001 AREA 1	YUMA_MCAS	WLM	Monitoring well	1801054	436340.456	606933.323	Perfluoroalkyl Compounds	A1-MW-54-SA1	WG	GROUNDWATER	5/25/2018
A1-PZ-19	SITE 00019	YUMA_MCAS	WLM	Monitoring well	1801054	436357.6995	607259.7175	Perfluoroalkyl Compounds	A1-PZ-19-SA1	WG	GROUNDWATER	5/25/2018