Navy_CLEAN_PFAS_FOIA_request_covers.indd

NAVFAC
Naval Facilities Engineering Command

Off-Base Drinking Water Sample Results, Combined Level 2 and Level 4 Laboratory Report, Electronic Data Deliverable, Data Validation Report, and the Sample Location Figure, SDG 1700697

Naval Air Warfare Center Trenton
Trenton, New Jersey

August 2019

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

June 13, 2017

Vista Work Order No. 1700697

Ms. Mary Mang
Tetra Tech
661 Andersen Drive, Foster Plaza 7
Pittsburgh, PA 15220

Dear Ms. Mang,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on June 07, 2017. This sample set was analyzed on a rush turn-around time, under your Project Name 'NAWC Trenton'. The SDG Number is WE08.

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.

SDG Number WE08
Vista Work Order No. 1700697
Case Narrative

Sample Condition on Receipt:

One blank water sample and two drinking 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.

EPA Method 537

The samples were extracted and analyzed for the UCMR list of six PFAS using 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 Laboratory Fortified Blank (LFB) and Laboratory Reagent Blank (LRB) were extracted and analyzed with the preparation batch. No analytes were detected in the LRB above 1/2 the LOQ. The LFB recoveries were within the method acceptance criteria

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

A Laboratory Fortified Sample Matrix (LFSM) and Laboratory Fortified Sample Matrix Duplicate (LFSMD) were prepared and analyzed using sample "RW04-20170606".

In addition, the laboratory QC officer must read and sign a copy of the Quality Assurance Review Form displayed on the next page of this Attachment. Electronic deliverables are not considered to be complete without the accompanying Quality Assurance Review Form.

I Martha Maier, as the designated Quality Assurance Officer, hereby attest that all electronic deliverables have been thoroughly reviewed and are in agreement with the associated hardcopy data. The enclosed electronic files have been reviewed for accuracy (including significant figures), completeness and format. The laboratory will be responsible for any labor time necessary to correct enclosed electronic deliverables that have been found to be in error. I can be reached at (916) 673-1520 If there are any questions or problems with the enclosed electronic deliverables.

Signature: Martha Maier Title: Acting QA Manager Date: 10/13/17

Revision 9
ISG
08/18/16

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID		Sampled	Received	Components/Containers
1700697-01	FRB-04-20170606		06-Jun-17 11:10	07-Jun-17 08:55	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1700697-02	RW04-20170606	MS/MSD	06-Jun-17 11:15	07-Jun-17 08:55	HDPE Bottle, 250 mL
		MS/MSD			HDPE Bottle, 250 mL
		MS/MSD			HDPE Bottle, 250 mL
		MS/MSD			HDPE Bottle, 250 mL
		MS/MSD			HDPE Bottle, 250 mL
		MS/MSD			HDPE Bottle, 250 mL
1700697-03	DUP03-20170606		06-Jun-17 12:00	07-Jun-17 08:55	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL

Correspondence

Kerri L. Chapin

From: Mang, Mary <Mary.Mang@tetratech.com>
Sent: Thursday, June 08, 2017 5:54 AM
To: Karen Lopez; Thomson, Amy; Ritchie, Megan
Cc: Martha Maier
Subject: RE: Vista Work Order #1700697; NAWC Trenton -- Action Needed

Karen,

The 7 day TAT is correct.

Thanks,
Mary

From: Karen Lopez [mailto:klopez@vista-analytical.com]
Sent: Wednesday, June 07, 2017 5:56 PM
To: Thomson, Amy <Amy.Thomson@tetratech.com>; Mang, Mary <Mary.Mang@tetratech.com>; Ritchie, Megan <Megan.Ritchie@tetratech.com>
Cc: mmaier@vista-analytical.com
Subject: Vista Work Order #1700697; NAWC Trenton -- Action Needed

All,

Please find attached the sample receiving acknowledgement for Vista Analytical Work Order: 1700697.

The sample have been logged in as 7 day TAT based on the previous Work Orders we have received for this project. Please confirm that the TAT is correct.

If you have any questions, please contact me or Martha Maier at (916) 673-1520. We appreciate your business.

Best Regards,

Karen P. Lopez
Project Manager

Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
Phone: (916) 673-1520
www.vista-analytical.com
Hours: Monday, Tuesday, & Thursday, 8am-4:30pm

A woman-owned, small business enterprise.

ANALYTICAL RESULTS

Sample ID: LRB

EPA Method 537

Matrix: Drinking Water
Sample Size: 0.250 L

QC Batch: B7F0032
Date Extracted: 08-Jun-2017 8:29

Lab Sample: B7F0032-BLK1
Date Analyzed: 09-Jun-17 17:37 Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers
PFBS	ND	2.51	10.0	20.0	
PFHpA	ND	3.20	10.0	20.0	
PFHxS	ND	1.77	10.0	20.0	
PFOA	ND	4.27	10.0	20.0	
PFNA	ND	3.49	10.0	20.0	
PFOS	ND	1.96	10.0	20.0	

Labeled Standard		%R	LCL-UCL	Qualifiers
SUR	13C2-PFHxA	102	70 - 130	
SUR	13C2-PFDA	102	70 - 130	

DL - Detection limit
RL - Reporting limit

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

Sample ID: LFB

EPA Method 537

Matrix:	Drinking Water	QC Batch:	B7F0032	Lab Sample:	B7F0032-BS1
Sample Size:	0.250 L	Date Extracted:	08-Jun-2017 8:29	Date Analyzed:	09-Jun-17 17:13 Column: BEH C18

Analyte	Amt Found (ng/L)	Spike Amt	%R	Limits
PFBS	8.54	8.84	96.6	70 - 130
PFHpA	11.0	10.0	110	70 - 130
PFHxS	8.86	9.12	97.2	70 - 130
PFOA	10.4	10.0	104	70 - 130
PFNA	11.6	10.0	116	70 - 130
PFOS	8.61	9.24	93.2	70 - 130

	Labeled Standard	%R	LCL-UCL
SUR	13C2-PFHxA	104	70 - 130
SUR	13C2-PFDA	100	70 - 130

LCL-UCL - Lower control limit - upper control limit

Sample ID: FRB-04-20170606

EPA Method 537

Client Data

Name: Tetra Tech
Project: NAWC Trenton
Date Collected: 06-Jun-2017 11:10
Location: Kitchen

Sample Data

Matrix: Blank Water
Sample Size: 0.257 L

Laboratory Data

Lab Sample: 1700697-01 Date Received: 07-Jun-2017 8:55
QC Batch: B7F0032 Date Extracted: 08-Jun-2017 8:29
Date Analyzed: 09-Jun-17 17:50 Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers
PFBS	ND	2.44	9.71	19.4	
PFHpA	ND	3.11	9.71	19.4	
PFHxS	ND	1.72	9.71	19.4	
PFOA	ND	4.15	9.71	19.4	
PFNA	ND	3.39	9.71	19.4	
PFOS	ND	1.90	9.71	19.4	

Labeled Standard	%R	LCL-UCL	Qualifiers
SUR 13C2-PFHxA	109	70 - 130	
SUR 13C2-PFDA	107	70 - 130	

DL - Detection limit
RL - Reporting limit

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

Sample ID: RW04-20170606

EPA Method 537

Client Data		Sample Data		Laboratory Data			
P ame:	. etra . ech	Matrix:	DrinHink Water	Lab Sample:	1700T97-02	Date Received:	07-Jun-2017 8:NN
j r56ect:	P AWC . rent5n	Sample Size:	0K272 L	QC Batch:	B7F0032	Date Extracted:	08-Jun-2017 8:29
Date C5llected:	0T-Jun-2017 11:1N			Date Analyzed:	09-Jun-17 18:02	C5lumn: BEo C18	
L5cati5n:	4 itchen						

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers
j FBS	P D	2K30	9K18	18KO	
j Fo pA	P D	2K9O	9K18	18KO	
j Fo xS	P D	1KT3	9K18	18KO	
j Fg A	NK23	3K92	9K18	18KO	J
j FP A	P D	3K20	9K18	18KO	
j Fg S	7K8O	1K80	9K18	18KO	J

Labeled Standard	%R	LCL-UCL	Qualifiers
SUR 13C2-j Fo xA	91K7	70 - 130	
SUR 13C2-j FDA	87K9	70 - 130	

DL - Detecti5n limit

RL - Rep5rtink limit

LCL-UCL - L5wer c5ntr5l limit - upper c5ntr5l limit

Results rep5rted t5 DLK

When rep5rted, j FBS, j Fo xS, j Fg A and j Fg S include b5th linear and branched is5mersK g nly the linear is5mer is rep5rted f5r all 5ther analytesK

Matrix Spike Results

EPA Method 537

Source Client ID:	RW04-20170606	QC Batch:	B7F0032	Lab Sample:	B7F0032-MS1/B7F0032-MSD1
Source LabNumber:	1700697-02	Date Extracted:	08-Jun-2017 8:29	Date Analyzed:	09-Jun-17 18:14 Column: BEH C18
Matrix:	Drinking Water				09-Jun-17 18:26 Column: BEH C18
Sample Size:	0.269/0.262 L				

Analyte	Spike-MS (ng/L)	MS %R	MS Qual.	Spike-MSD (ng/L)	MSD %R	RPD	MSD Qual.	%R Limit	%RPD Limit
PFBS	8.23	94.1	J	8.43	87.4	7.38	J	70 - 130	30
PFHpA	9.31	96.9	J	9.54	113	15.3	J	70 - 130	30
PFHxS	8.49	88.5	J	8.70	84.5	4.62	J	70 - 130	30
PFOA	9.31	105	J	9.54	112	6.45	J	70 - 130	30
PFNA	9.31	112	J	9.54	114	1.77	J	70 - 130	30
PFOS	8.60	112	J	8.82	85.9	26.4	J	70 - 130	30

Labeled Standard	MS %R	MS Qualifiers	MSD %R	MS Qual.
SUR 13C2-PFHxA	99.7		106	
SUR 13C2-PFDA	102		106	

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

Sample ID: DUP03-20170606

EPA Method 537

Client Data		Sample Data		Laboratory Data			
P ame:	. etra . ech	Matrix:	DrinHink Water	Lab Sample:	1700T97-03	Date Received:	07-Jun-2017 8:NN
j r56ect:	P AWC . rent5n	Sample Size:	0K2TNL	QC Batch:	B7F0032	Date Extracted:	08-Jun-2017 8:29
Date C5llected:	0T-Jun-2017 12:00			Date Analyzed:	09-Jun-17 18:39	C5lumn: BEo C18	
L5cati5n:	4 itchen						

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers
j FBS	P D	2K37	9KCN	18K2	
j Fo pA	P D	3KQ2	9KCN	18K2	
j Fo xS	P D	1K77	9KCN	18K2	
j Fg A	NKN0	CKQO	9KCN	18K2	J
j FP A	P D	3K30	9KCN	18K2	
j Fg S	8K31	1K8N	9KCN	18K2	J

Labeled Standard	%R	LCL-UCL	Qualifiers
SUR 13C2-j Fo xA	9NK8	70 - 130	
SUR 13C2-j FDA	9CK7	70 - 130	

DL - Detecti5n limit

RL - Rep5rtink limit

LCL-UCL - L5wer c5ntr5l limit - upper c5ntr5l limit

Results rep5rted t5 DLK

When rep5rted, j FBS, j Fo xS, j Fg A and j Fg S include b5th linear and branched is5mersK g nly the linear is5mer is rep5rted f5r all 5ther analytesK

DATA QUALIFIERS & ABBREVIATIONS

B	**This compound was also detected in the method blank.**
D	**Dilution**
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.**
M	**Estimated Maximum Possible Concentration. (CA Region 2 projects only)**
*****	**See Cover Letter**
Conc.	**Concentration**
NA	**Not applicable**
ND	**Not Detected**
TEQ	**Toxic Equivalency**

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

CERTIFICATIONS

Accrediting Authority	Certificate Number
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	1175673
Nevada Division of Environmental Protection	CA004132017-1
New Hampshire Environmental Accreditation Program	207716
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	013
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	8621
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

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

NELAP Accredited Test Methods

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

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

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

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

MATRIX: Solids	
Description of Test	**Method**
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope	EPA 1613B

Dilution GC/HRMS	
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Laboratory Project ID: 1700697 Temp: 5.6 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

Project ID: NAWC Trenton PO#: 1135710 Sampler: Seth Oshier (name)

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

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Accounts Payable	Tetra Tech Inc	661 Anderson Drive Foster Plaza 7	Pittsburgh	PA	15220	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Seth Oshier	6/6/17	1400	Marissa Sparks	6/7/17	0924
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

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

ATTN: Sample Custodian

Method of Shipment: Fed Ex

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	EPA 1613 2378-TCDD	EPA 1613 2378 TCDD/TCDF	EPA 1613 PCDD/PCDF	EPA 8290 2378-TCDD	EPA 8290 2378-TCDD/TCDF	EPA 8290 PCDD/PCDF	EPA 8280 2378-TCDD	EPA 8280 2378 TCDD/TCDF	EPA 8280 PCDD/PCDF	EPA 1668 TOTALS	EPA 1668 COPLANAR PCB's	EPA 1668 209 CONGENERS	EPA 1668 PBDE	EPA 1614 PAH	CARB429 WHO-29	CARB429 Mod. EPA 537	CARB429 Unmodified 537	UCMR 3 LIST	Comments
FRB04-20170606	6/6/17	1110	Kitchen	2	P	Blk																	X		
RW04-20170606	6/6/17	1115	Kitchen	6	P	DW																	X		DO MS/MSD
DUP03-20170606	6/6/17	1200	Kitchen	2	P	DW																	X		

Special Instructions/Comments:

FED EX 661219925879

SEND DOCUMENTATION AND RESULTS TO:

Name: Mary Mang
Company: Tetra Tech
Address: 234 Mall Blvd. Suite 260
City: King of Prussia State: PA Zip: 19406
Phone: 610.382.1174 Fax: 610.491.9645
Email: mary.mang@tetratech.com

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

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma: 10 bottles

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:

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1700697 **TAT** 6

Samples Arrival:	**Date/Time** 6/7/17 0855	**Initials:** WMS	**Location:** WR-2 **Shelf/Rack:** N/a
Logged In:	**Date/Time** 06/07/17 1412	**Initials:** CB26 WMS	**Location:** WR-2 **Shelf/Rack:** F6

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

Temp °C: 6.3	(uncorrected)	**Time:** 0927	**Thermometer ID:** ~~IR-4~~ DT-3 WMS 6/7/17
Temp °C: 5.6	(corrected)	**Probe used:** Yes☒ No☐	

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill — Trk # 6612 1992 5879	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓

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

Comments: * ice melted upon arrival

EXTRACTION INFORMATION

Process Sheet

Workorder: 1700697

RUSH

Prep Expiration: 2017-Jun-20
Client: Tetra Tech

Workorder Due: 13-Jun-17 00:00

TAT: 6

Method: **537 PFAS DW DoD Unmodified**
Matrix: **Drinking Water**

Prep Batch: B7F0032

Prep Data Entered: BP 6.9.17
Date and Initials

List of 6

Initial Sequence: _____

LabSampleID	Recon	ClientSampleID	Date Received	Location	Comments
1700697-01(A)	☑	FRB-04-20170606	07-Jun-17 08:55	WR-2 F-6	
1700697-02(A)(B)(C)	☑	RW04-20170606	07-Jun-17 08:55	WR-2 F-6	**MS/MSD**
1700697-03(A)	☑	DUP03-20170606	07-Jun-17 08:55	WR-2 F-6	

WO Comments: **QSM 5.0**
Attach balance check doc * Internal COC *

Vista PM:Martha Maier

Vial Box ID: Wildebeats

Sample Reconciled By: _____ 6/8/17

Page 1 of 1

Internal Chain of Custody

1700697

Vista Analytical Laboratory

Client: Tetra Tech | Project Number: NAWC Trenton | Received: 07-Jun-17 08:55 | Received By: Bettina Benedict

		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
1700697-01	A	~~BdB~~ 06/08/17 2:35pm Prep/chemist	HB 6/8/17 2:56 PrepLab2	BP 6/9/17 0319 Instrument		AC 6/9/17 on instrument	
1700697-02	A-C	↓	↓	↓		↓	
1700697-03	A	↓	↓	↓		↓	

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

Batch: B7F0032

Matrix: Drinking Water

LabNumber	WetWeight (Initial)	% Solids (Extraction Solids)	DryWeight	Final	Extracted	Ext By	Spike	SpikeAmount	ClientMatrix	Analysis
1700697-01	0.25739	NA	NA	1000	08-Jun-17 08:29	BAP			Blank Water	537 PFAS DW DoD Unmo
1700697-02	0.27227			1000	08-Jun-17 08:29	BAP			Drinking Water	537 PFAS DW DoD Unmo
1700697-03	0.26455			1000	08-Jun-17 08:29	BAP			Drinking Water	537 PFAS DW DoD Unmo
B7F0032-BLK1	0.25			1000	08-Jun-17 08:29	BAP				QC
B7F0032-BS1	0.25			1000	08-Jun-17 08:29	BAP	17E1025	10		QC
B7F0032-MS1	0.26851			1000	08-Jun-17 08:29	BAP	17E1025	10		QC
B7F0032-MSD1	0.26204			1000	08-Jun-17 08:29	BAP	17E1025	10		QC

BP 6.9.17

PREPARATION BENCH SHEET

Matrix: Drinking Water

Method: 537 PFAS DW DoD Unmodifie

B7F0032

Chemist: BP

Prep Date/Time: 08-Jun-17 08:29

Prepared using: LCMS - SPE Extraction-LCMS

C	VISTA Sample ID	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	IS/NS CHEM/WIT DATE	SPE C7F0051	RS CHEM/WIT DATE
☐	B7F0032-BLK1 (A)	NA	NA	(0.250) ✓	BP HC 6.8.17	HC 6-8-17	BP HC 6.9.17
☐	B7F0032-BS1 (A')	↓	↓	↓ ✓			
☐	B7F0032-MS1 1700697-02	295.93	27.42 HB 6/9/17	~~0.25~~ 0.26851 ✓			
☐	B7F0032-MSD1 1700697-02	289.50	27.46	0.26204			
☐	1700697-01 HB 6/8/17	~~298.55~~ 284.77	27.38	0.25739 ✓			
☐	1700697-02 HB 6/8/17	~~321.16~~ 299.80	27.53	0.27227 ✓			
☐	1700697-03	292.13	27.58	~~27.~~ 0.26455 ✓			

HB 6/9/17

SS

IS Name: 170/704, 50 µL (A)

NS Name: 17E1025, 10 µL

RS Name: 17D/705 ~~50~~ 6 µL DM 6/13/17 (A) (B)

SPE Chem: Strata X 33µm 500mg 6mL

Ele SOLV: MeOH

Final Volume(s): 1 mL

Check Out: Chemist/Date: HB 6/8/17

Check In: Chemist/Date: NA

Balance ID: HRMS-8

Comments: Assume 1 g = 1 mL (A) 0.625 grams Trizma added. HB 6/8/17

(B) Incorrect vial ID written. DM 6/13/17

Vista Analytical Laboratory

BALANCE CALIBRATION CHECK

Weights # 22370 and 7718

Date	☑ for Weight # verification	Weight 1 1 g (0.9900 – 1.0100)	Weight 2 100 g (99.00 – 101.00)	Weight 3 2000 g (1980 – 2020)	Initials	Acceptable? (Y/N)
5/23/17	✓	0.99	100.00	2000.02	KBF	Y
5/24/17	✓	0.99	99.99	200.02	HB	Y
5/25/17	✓	1.00	100.00	1999.99	KBF	Y
5/25/17	✓	Balance	Calibrated	For 0.50g	INJ	Y
5/26/17	✓	0.99	100.01	2000.02	HB	Y
5/30/17	✓	1.01	100.00	2000.03	JK	Y
5/31/17	✓	1.01	100.01	2000.02	HB	Y
5/31/17Ⓐ	✓	1.00	100.00	2000.11	HB	Y
6/1/17	✓	1.01	100.00	2000.02	HB	Y
6/2/17	✓	1.00	100.00	1999.98	JK	Y
6/5/17	✓	1.00	100.00	1999.98	HB	Y
6/6/17	✓	1.00	99.99	2000.00	KBF	Y
6/7/17	✓	1.00	99.99	1999.99	KBF	Y
6/8/17	✓	1.01	99.99	2000.01	HB	Y
6/9/17	✓	1.00	99.99	2000.02	HB	Y
6/12/17	✓	0.99	100.00	2000.03	JK	Y
6/13/17	✓	1.01	100.00	2000.01	HB	Y

Rev. 04 6/2/2017

Comments: Ⓐ balance recalibrated b/c it was moved to clean a spill

Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762

SAMPLE DATA –EPA METHOD 537

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-15.qld

Last Altered: Tuesday, June 13, 2017 11:48:26 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:48:51 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 14_537_DW.mdb 08 Jun 2017 11:44:34
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

ID: B7F0032-BLK1, Description: LRB, Name: 170609L1_15.wiff, Date: 09-Jun-2017, Time: 17:37:48

	#	Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1	PFBS	79.90		8.597e3		0.250			
2	3	PFHpA	318.90		1.004e4		0.250			
3	4	PFHxS	79.91		8.597e3		0.250			
4	5	PFOA	368.90	2.383e1	1.004e4		0.250	4.79	0.0761	
5	6	PFNA	419.00		1.004e4		0.250			
6	7	PFOS	79.92	3.632e0	8.597e3		0.250	5.16	0.0320	
7	15	13C2-PFHxA	269.90	7.221e3	1.004e4	0.706	0.250	3.93	40.8	102
8	16	13C2-PFDA	470.00	7.426e3	1.004e4	0.727	0.250	5.37	40.7	102
9	18	13C2-PFOA	369.90	1.004e4	1.004e4	1.000	0.250	4.79	40.0	100
10	19	13C4-PFOS	79.93	8.597e3	8.597e3	1.000	0.250	5.16	115	100

Vista Analytical Laboratory Q1

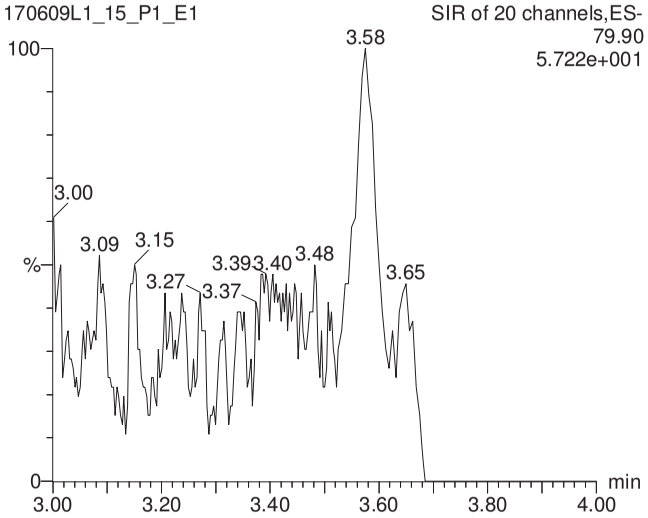
Dataset: U:\Q2.PRO\Results\170609L1\170609L1-15.qld

Last Altered: Tuesday, June 13, 2017 11:48:26 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:48:51 Pacific Daylight Time

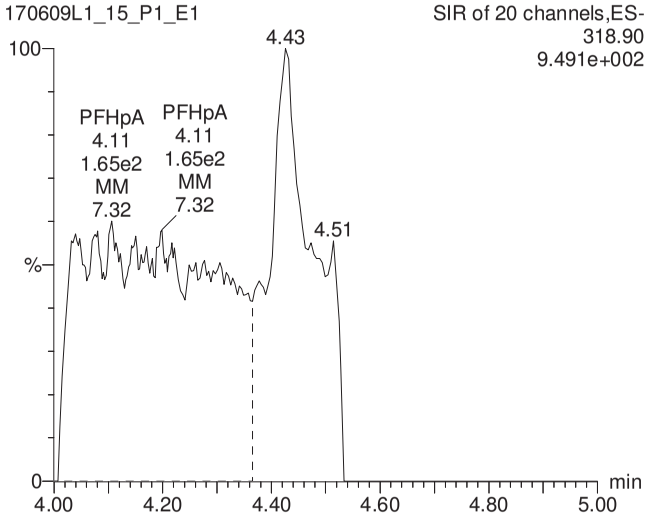
Method: U:\Q2.PRO\MethDB\PFC List 14_537_DW.mdb 08 Jun 2017 11:44:34
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

ID: B7F0032-BLK1, Description: LRB, Name: 170609L1_15.wiff, Date: 09-Jun-2017, Time: 17:37:48, Instrument: , Lab: ©PE-SCIEX, User: sciex

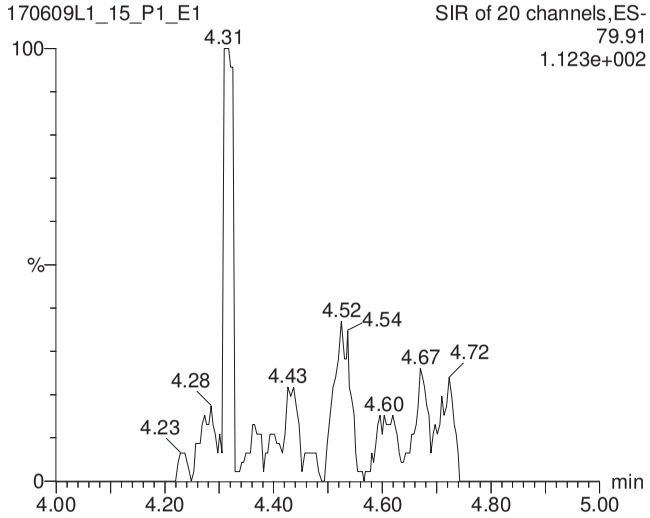
PFBS



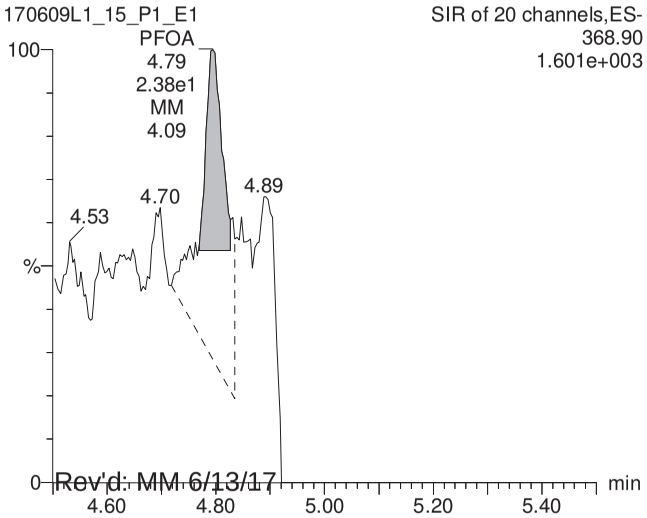
PFHpA



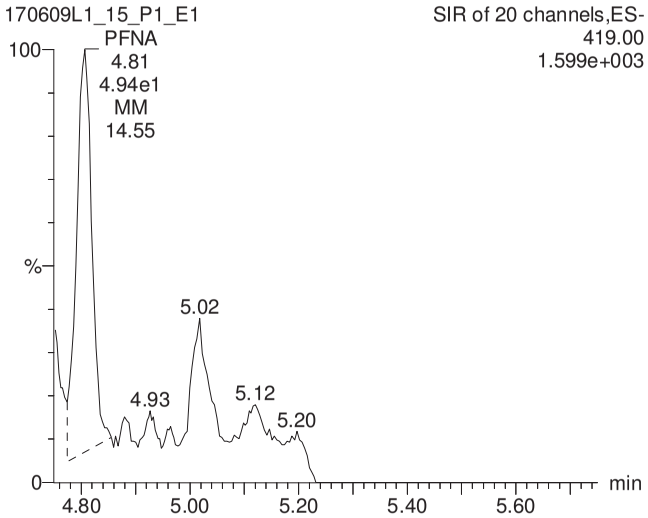
PFHxS



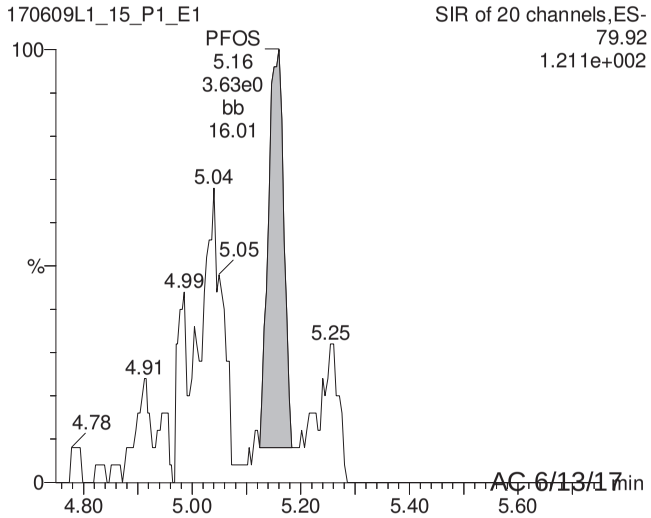
PFOA



PFNA



PFOS



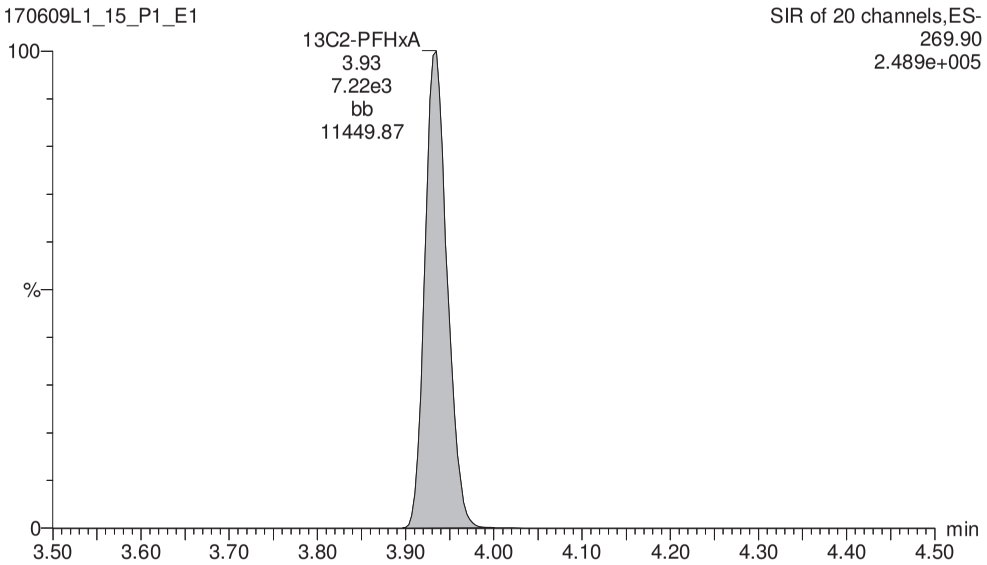
Rev'd: MM 6/13/17 AC 6/13/17

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-15.qld

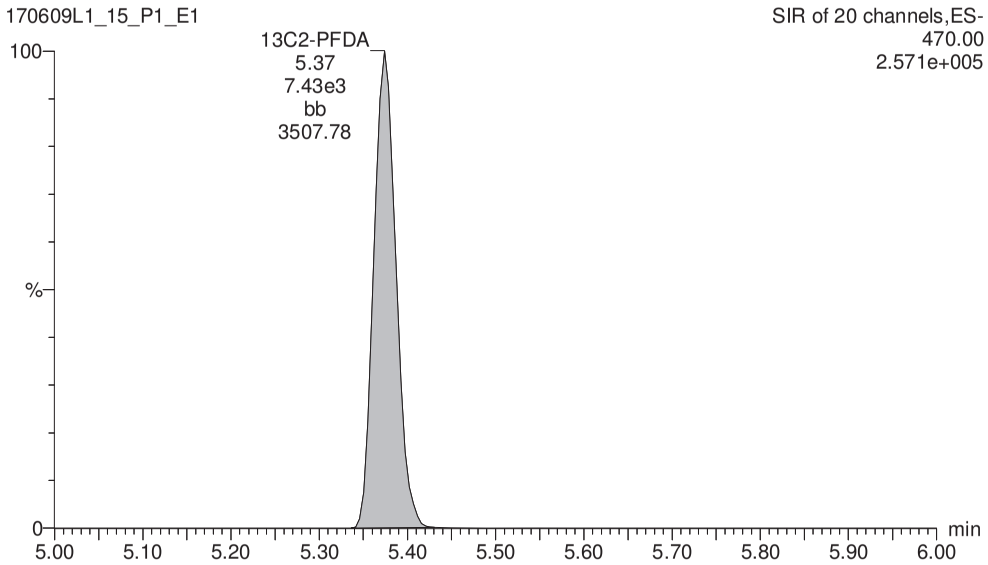
Last Altered: Tuesday, June 13, 2017 11:48:26 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:48:51 Pacific Daylight Time

ID: B7F0032-BLK1, Description: LRB, Name: 170609L1_15.wiff, Date: 09-Jun-2017, Time: 17:37:48, Instrument: , Lab: ©PE-SCIEX, User: sciex

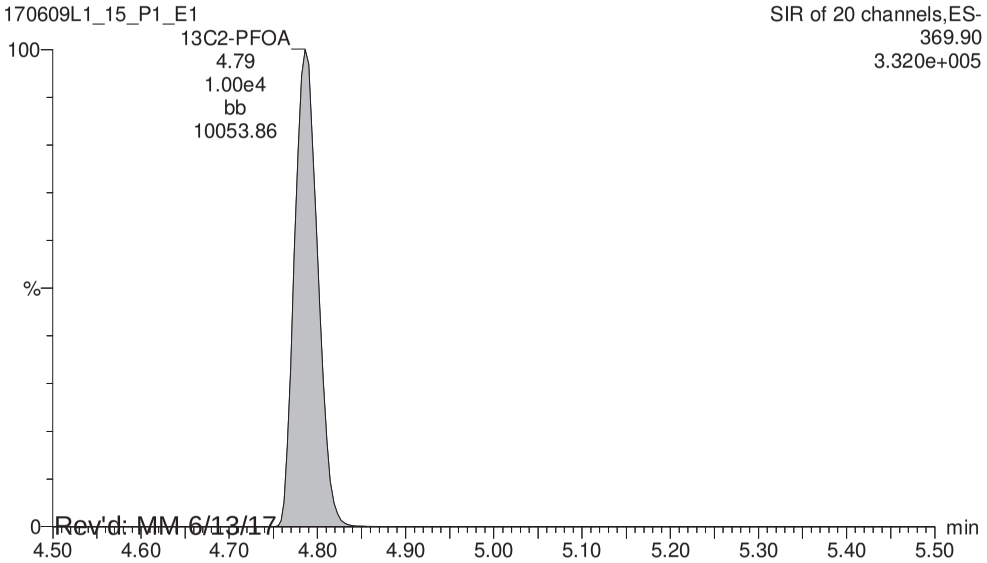
13C2-PFHxA



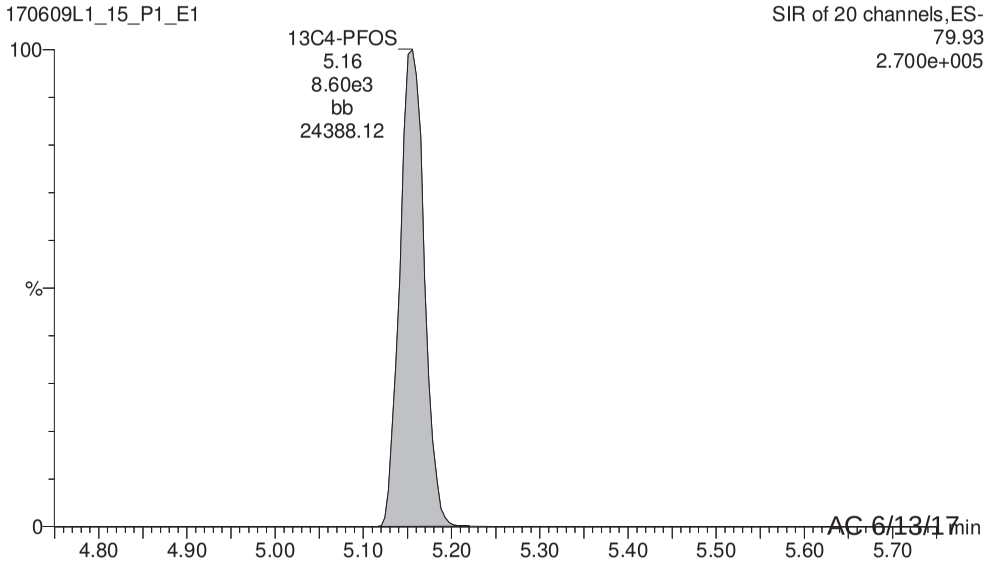
13C2-PFDA



13C2-PFOA



13C4-PFOS



Rev'd: MM 6/13/17 AC 6/13/17

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-13.qld

Last Altered: Tuesday, June 13, 2017 11:46:00 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:46:07 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 14_537_DW.mdb 08 Jun 2017 11:44:34
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

ID: BB7F0032-BS1, Description: LFB, Name: 170609L1_13.wiff, Date: 09-Jun-2017, Time: 17:13:17

	#	Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1	PFBS	79.90	1.337e3	9.181e3		0.250	3.59	8.54	96.6
2	3	PFHpA	318.90	2.984e3	1.063e4		0.250	4.44	11.0	110
3	4	PFHxS	79.91	1.112e3	9.181e3		0.250	4.54	8.86	97.2
4	5	PFOA	368.90	3.414e3	1.063e4		0.250	4.80	10.4	104
5	6	PFNA	419.00	3.119e3	1.063e4		0.250	5.11	11.6	116
6	7	PFOS	79.92	1.034e3	9.181e3		0.250	5.17	8.61	93.2
7	15	13C2-PFHxA	269.90	7.808e3	1.063e4	0.706	0.250	3.95	41.6	104
8	16	13C2-PFDA	470.00	7.746e3	1.063e4	0.727	0.250	5.38	40.1	100
9	18	13C2-PFOA	369.90	1.063e4	1.063e4	1.000	0.250	4.80	40.0	100
10	19	13C4-PFOS	79.93	9.181e3	9.181e3	1.000	0.250	5.16	115	100

Vista Analytical Laboratory Q1

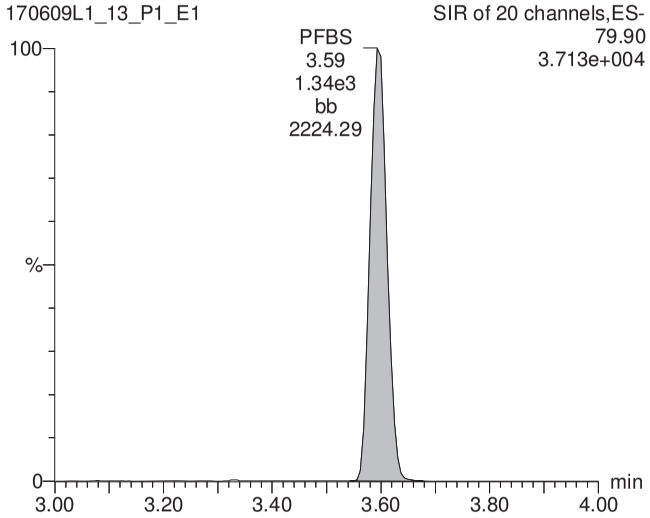
Dataset: U:\Q2.PRO\Results\170609L1\170609L1-13.qld

Last Altered: Tuesday, June 13, 2017 11:46:00 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:46:07 Pacific Daylight Time

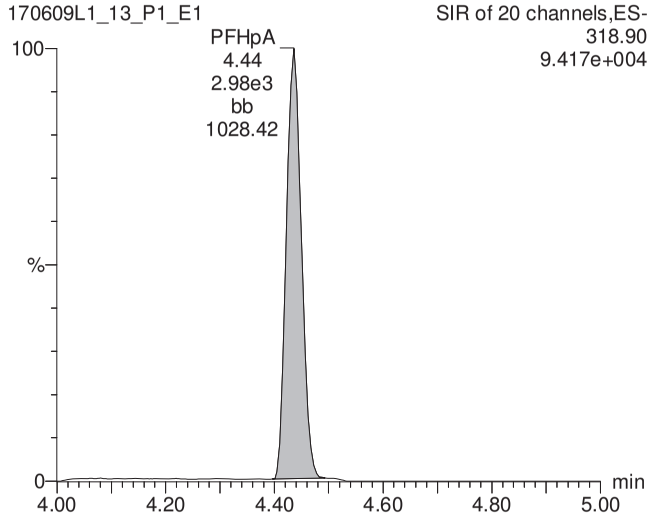
Method: U:\Q2.PRO\MethDB\PFC List 14_537_DW.mdb 08 Jun 2017 11:44:34
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

ID: BB7F0032-BS1, Description: LFB, Name: 170609L1_13.wiff, Date: 09-Jun-2017, Time: 17:13:17, Instrument: , Lab: ©PE-SCIEX, User: sciex

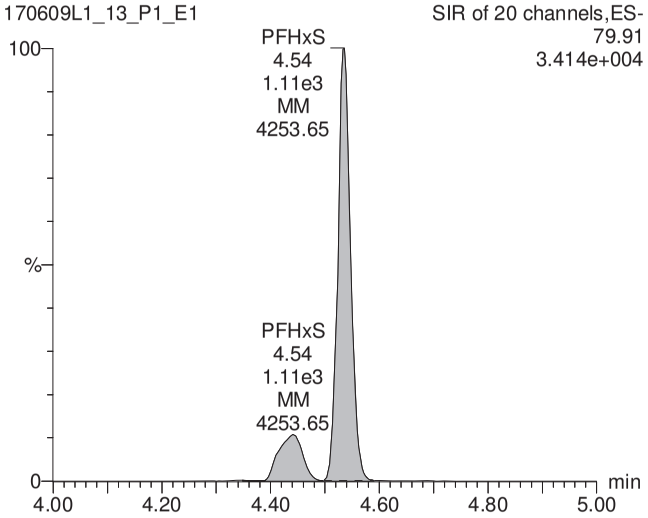
PFBS



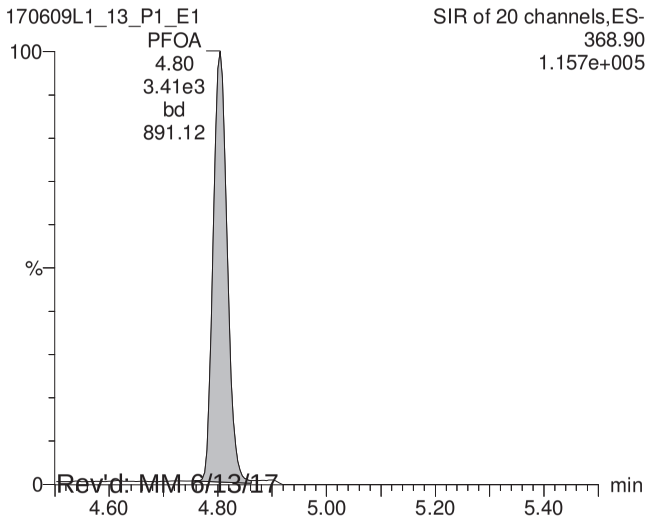
PFHpA



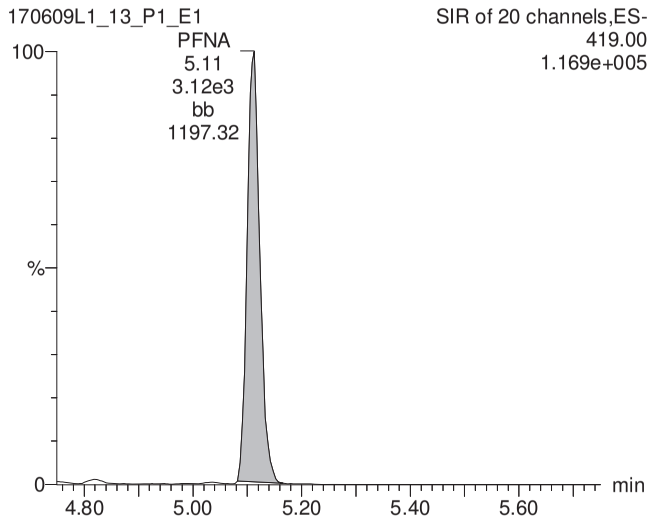
PFHxS



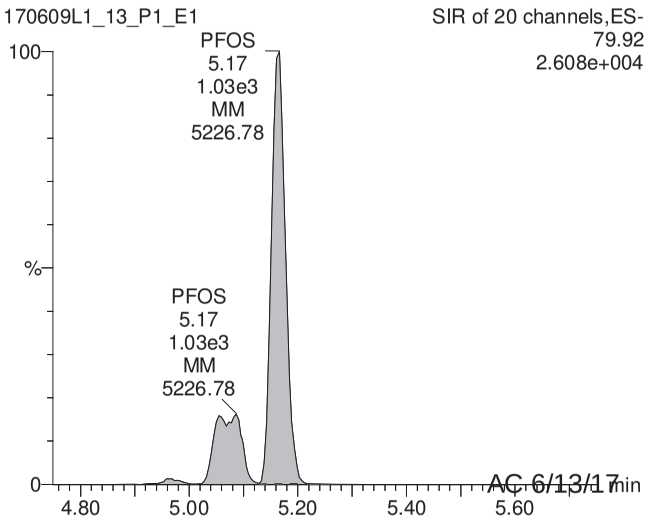
PFOA



PFNA



PFOS



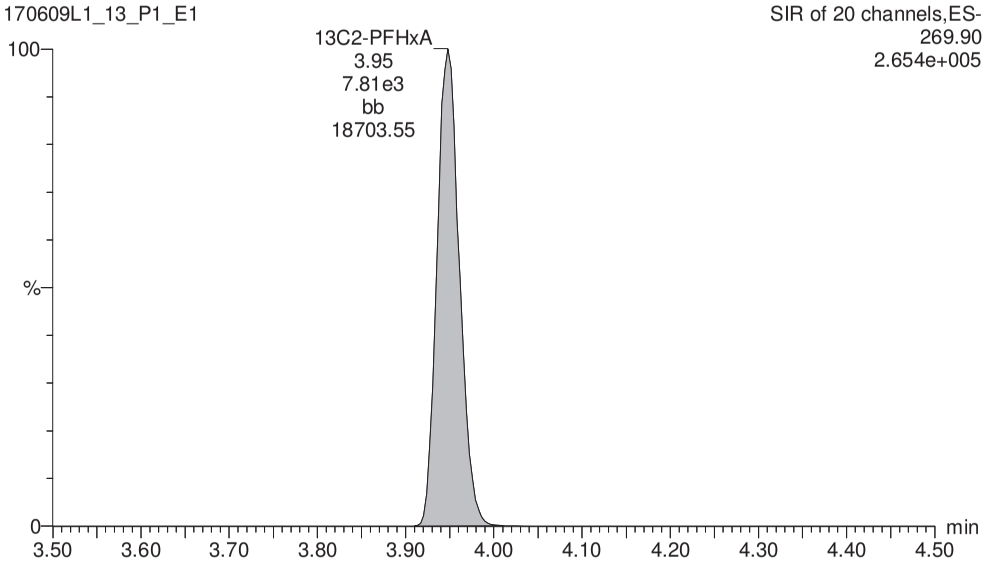
Rev'd: MM 6/13/17 AC 6/13/17

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-13.qld

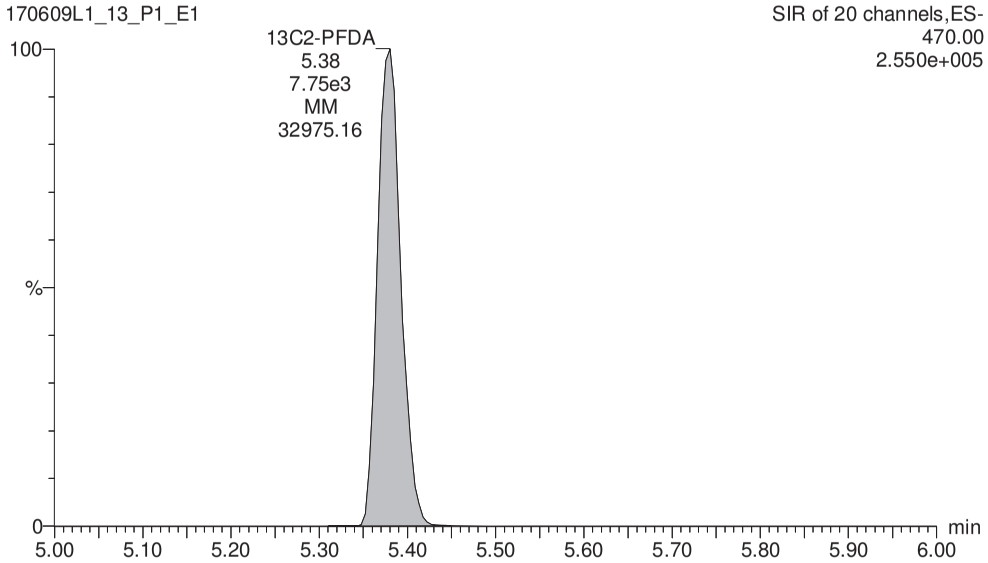
Last Altered: Tuesday, June 13, 2017 11:46:00 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:46:07 Pacific Daylight Time

ID: BB7F0032-BS1, Description: LFB, Name: 170609L1_13.wiff, Date: 09-Jun-2017, Time: 17:13:17, Instrument: , Lab: ©PE-SCIEX, User: sciex

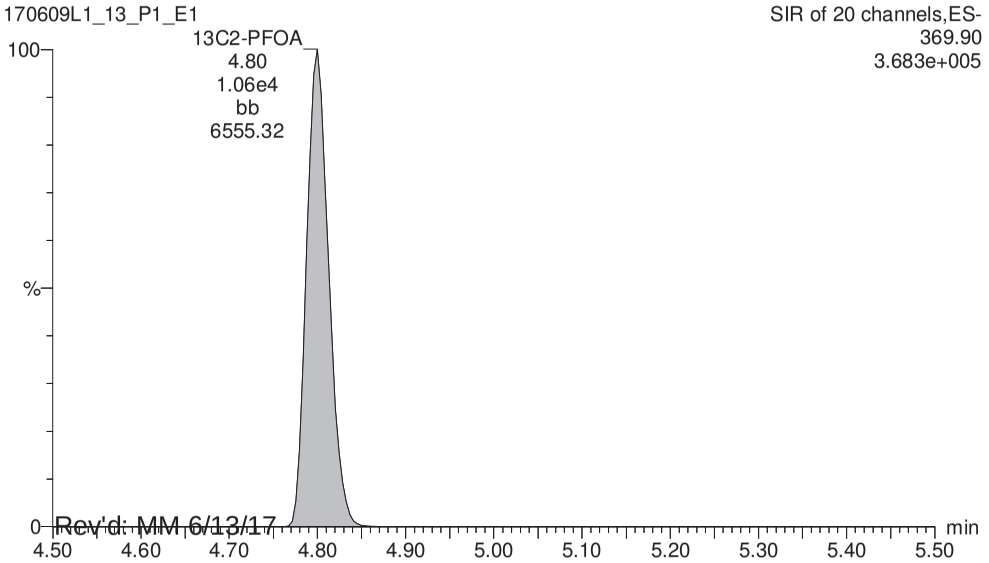
13C2-PFHxA



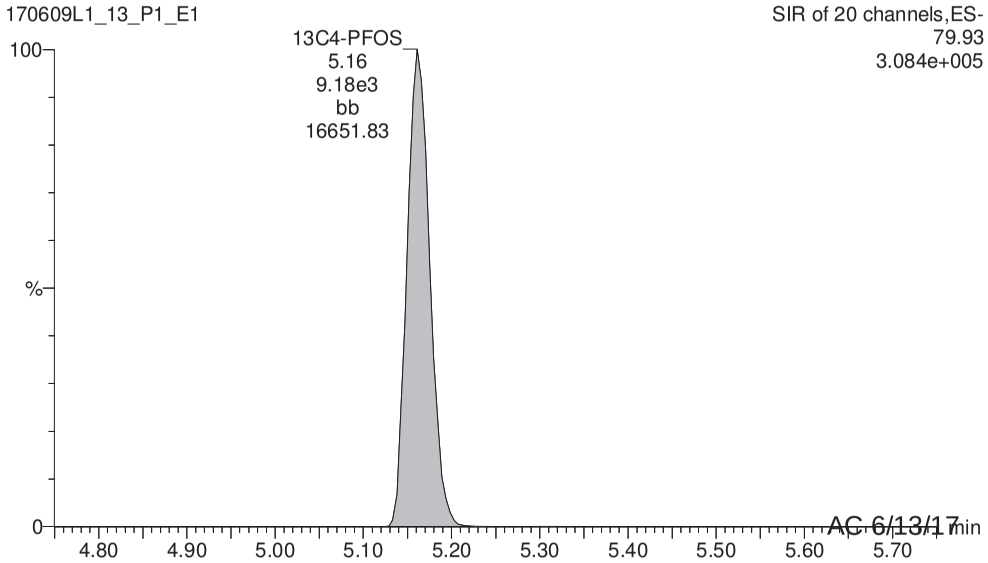
13C2-PFDA



13C2-PFOA



13C4-PFOS



Rev'd: MM 6/13/17 AC 6/13/17

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-16.qld

Last Altered: Tuesday, June 13, 2017 11:50:49 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:51:05 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 14_537_DW.mdb 08 Jun 2017 11:44:34
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

ID: 1700697-01, Description: FRB-04-20170606, Name: 170609L1_16.wiff, Date: 09-Jun-2017, Time: 17:50:05

	#	Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1	PFBS	79.90		9.953e3		0.257			
2	3	PFHpA	318.90		1.021e4		0.257			
3	4	PFHxS	79.91		9.953e3		0.257			
4	5	PFOA	368.90		1.021e4		0.257			
5	6	PFNA	419.00		1.021e4		0.257			
6	7	PFOS	79.92	4.950e0	9.953e3		0.257	5.16	0.0366	
7	15	13C2-PFHxA	269.90	7.813e3	1.021e4	0.706	0.257	3.93	42.1	108
8	16	13C2-PFDA	470.00	7.935e3	1.021e4	0.727	0.257	5.37	41.5	107
9	18	13C2-PFOA	369.90	1.021e4	1.021e4	1.000	0.257	4.79	38.9	100
10	19	13C4-PFOS	79.93	9.953e3	9.953e3	1.000	0.257	5.15	112	100

Rev'd: MM 6/13/17 AC 6/13/17

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-16.qld

Last Altered: Tuesday, June 13, 2017 11:50:49 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:51:05 Pacific Daylight Time

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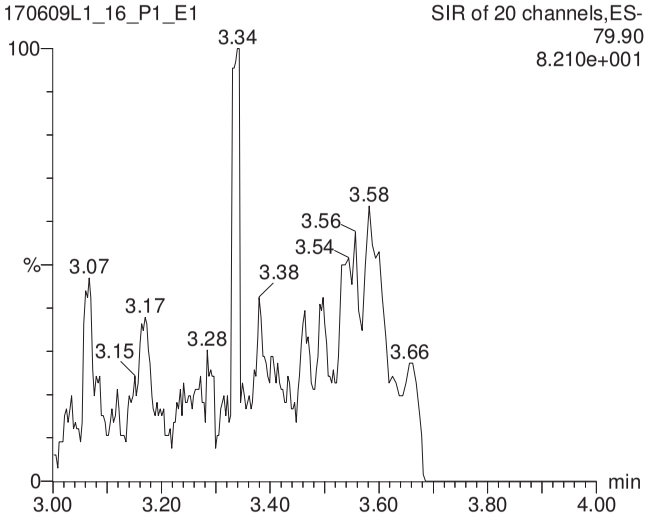
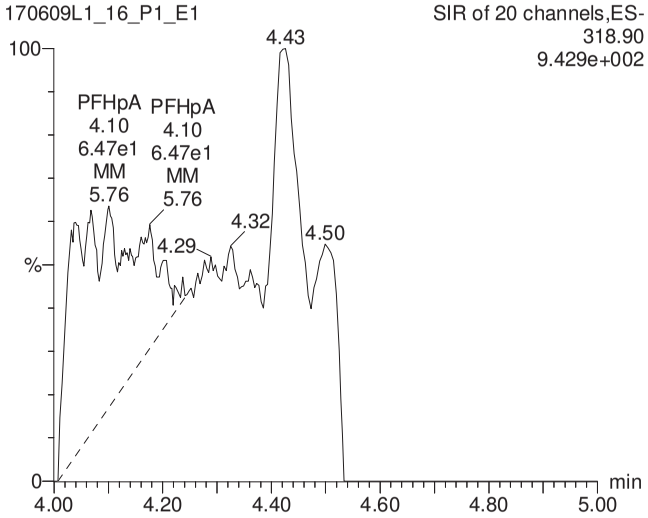
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

ID: 1700697-01, Description: FRB-04-20170606, Name: 170609L1_16.wiff, Date: 09-Jun-2017, Time: 17:50:05, Instrument: , Lab: ©PE-SCIEX, User: sciex

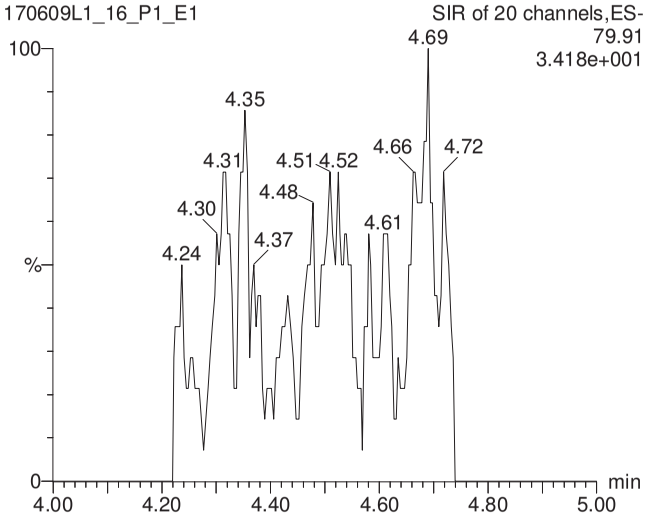
PFBS



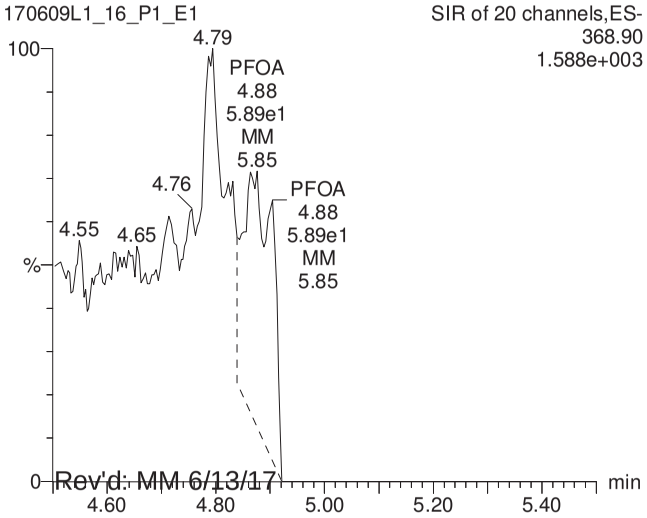
PFHpA



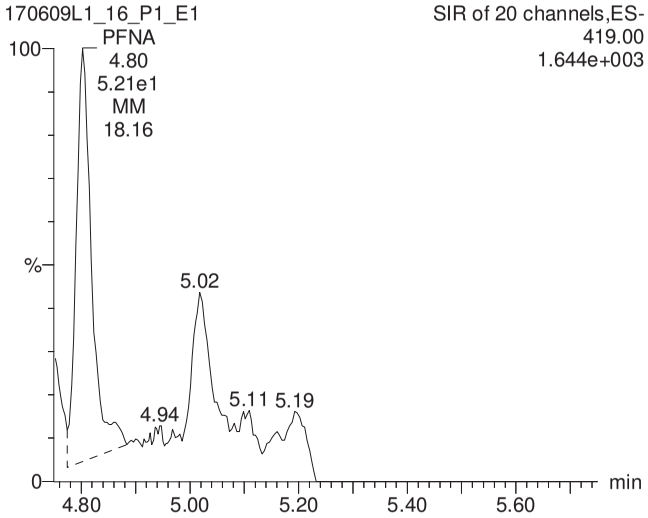
PFHxS



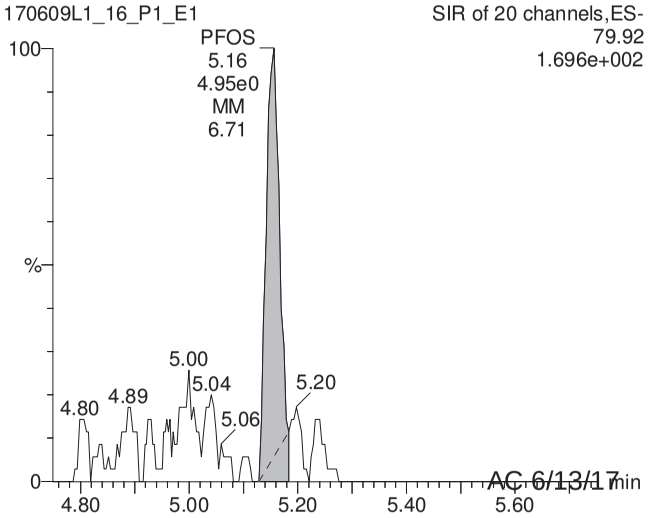
PFOA



PFNA



PFOS



Rev'd: MM 6/13/17 AC 6/13/17

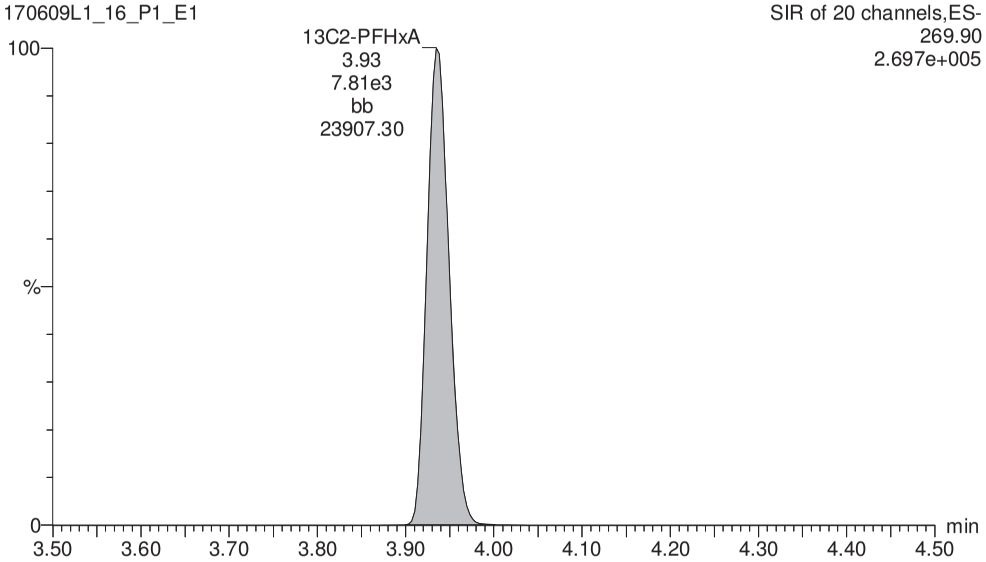
Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-16.qld

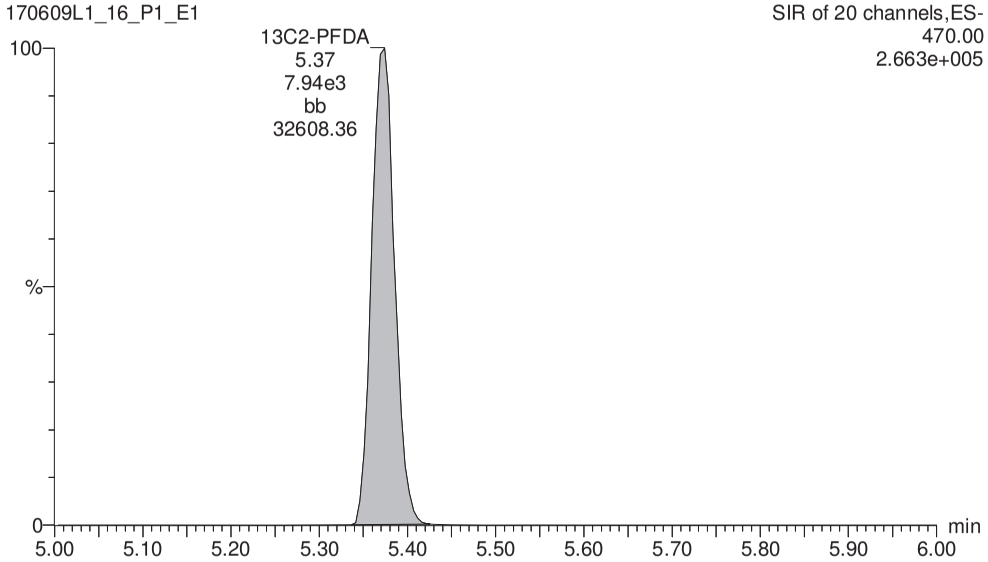
Last Altered: Tuesday, June 13, 2017 11:50:49 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:51:05 Pacific Daylight Time

ID: 1700697-01, Description: FRB-04-20170606, Name: 170609L1_16.wiff, Date: 09-Jun-2017, Time: 17:50:05, Instrument: , Lab: ©PE-SCIEX, User: sciex

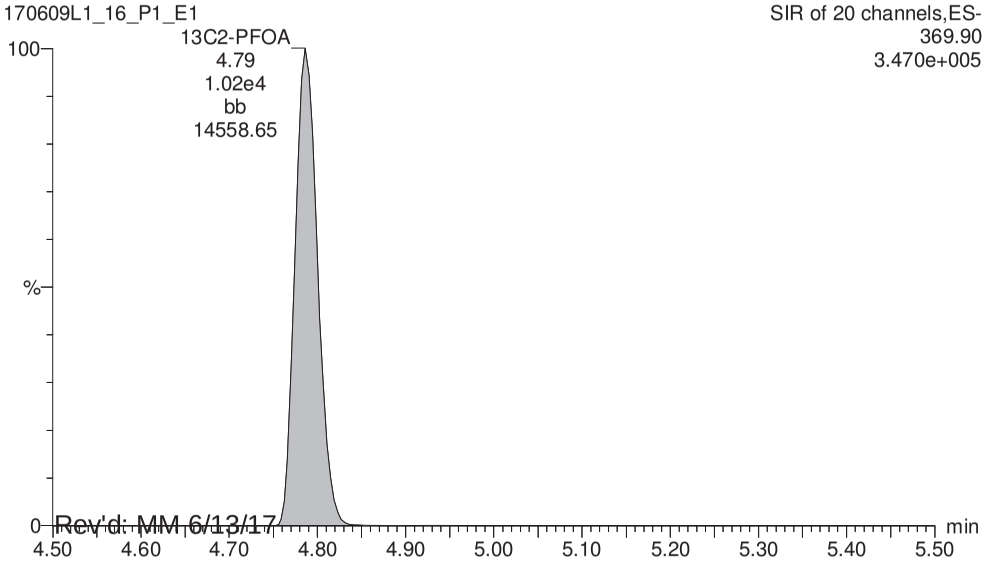
13C2-PFHxA



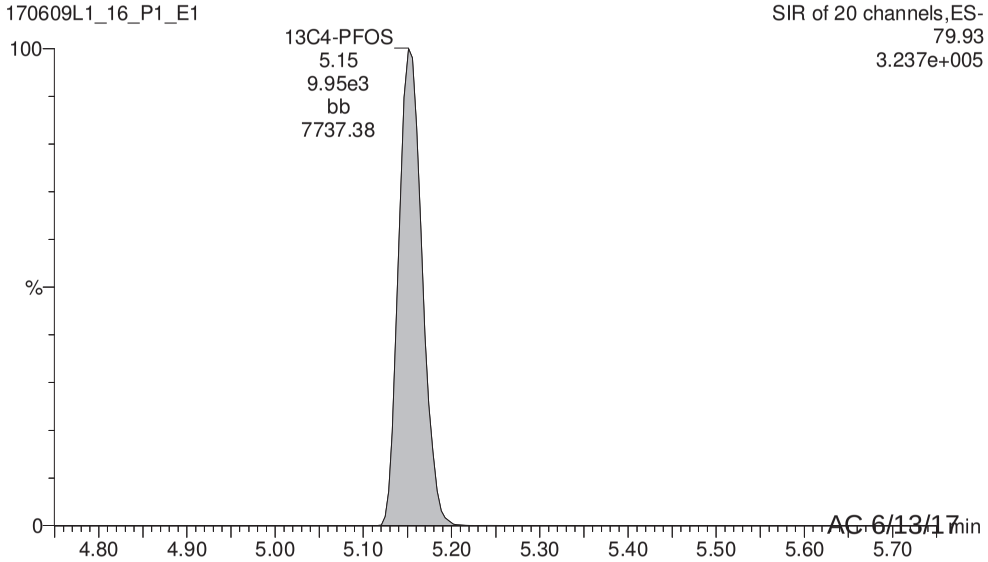
13C2-PFDA



13C2-PFOA



13C4-PFOS



Rev'd: MM 6/13/17 AC 6/13/17

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-17.qld

Last Altered: Tuesday, June 13, 2017 11:52:48 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:53:50 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 14_537_DW.mdb 08 Jun 2017 11:44:34
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

ID: 1700697-02, Description: RW04-20170606, Name: 170609L1_17.wiff, Date: 09-Jun-2017, Time: 18:02:18

	#	Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1	PFBS	79.90	3.931e2	1.023e4		0.272	3.59	2.05	
2	3	PFHpA	318.90	4.720e2	1.254e4		0.272	4.39	1.34	
3	4	PFHxS	79.91	2.151e2	1.023e4		0.272	4.49	1.40	
4	5	PFOA	368.90	2.219e3	1.254e4		0.272	4.76	5.23	
5	6	PFNA	419.00	1.526e2	1.254e4		0.272	5.07	0.437	
6	7	PFOS	79.92	1.143e3	1.023e4		0.272	5.02	7.84	
7	15	13C2-PFHxA	269.90	8.115e3	1.254e4	0.706	0.272	3.92	33.7	91.7
8	16	13C2-PFDA	470.00	8.014e3	1.254e4	0.727	0.272	5.34	32.3	87.9
9	18	13C2-PFOA	369.90	1.254e4	1.254e4	1.000	0.272	4.76	36.7	100
10	19	13C4-PFOS	79.93	1.023e4	1.023e4	1.000	0.272	5.12	105	100

Rev'd: MM 6/13/17 AC 6/13/17

Vista Analytical Laboratory Q1

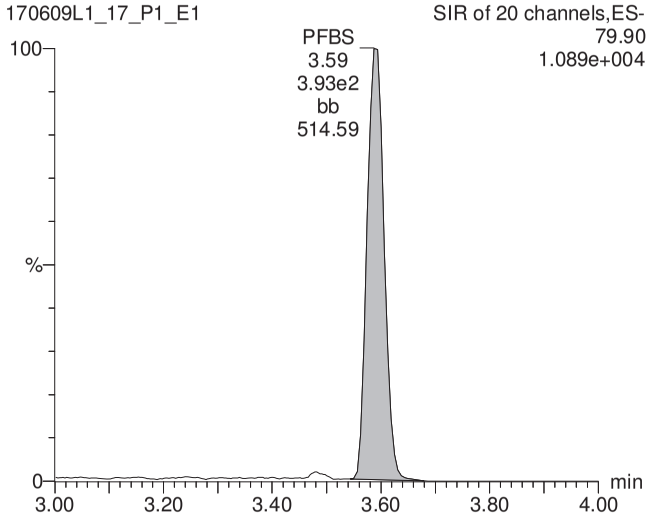
Dataset: U:\Q2.PRO\Results\170609L1\170609L1-17.qld

Last Altered: Tuesday, June 13, 2017 11:52:48 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:53:50 Pacific Daylight Time

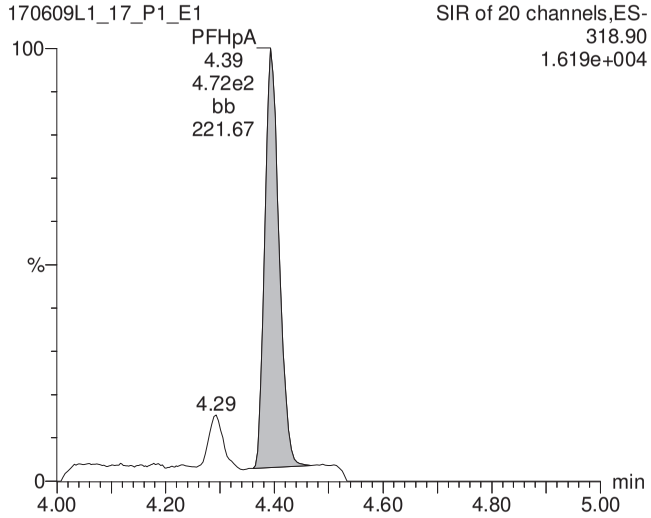
Method: U:\Q2.PRO\MethDB\PFC List 14_537_DW.mdb 08 Jun 2017 11:44:34
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

ID: 1700697-02, Description: RW04-20170606, Name: 170609L1_17.wiff, Date: 09-Jun-2017, Time: 18:02:18, Instrument: , Lab: ©PE-SCIEX, User: sciex

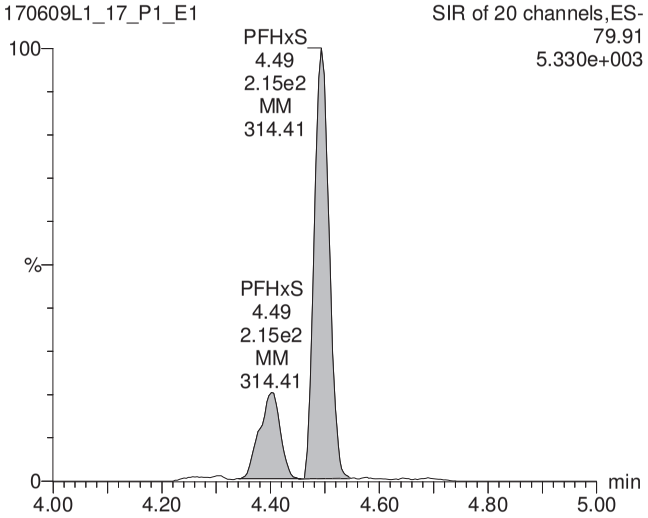
PFBS



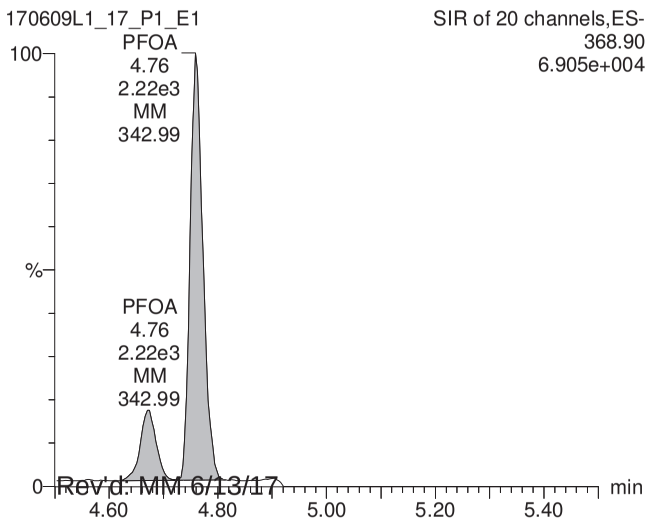
PFHpA



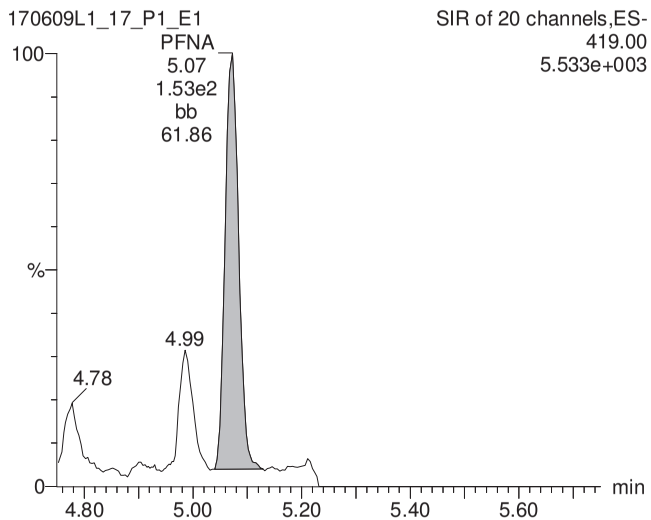
PFHxS



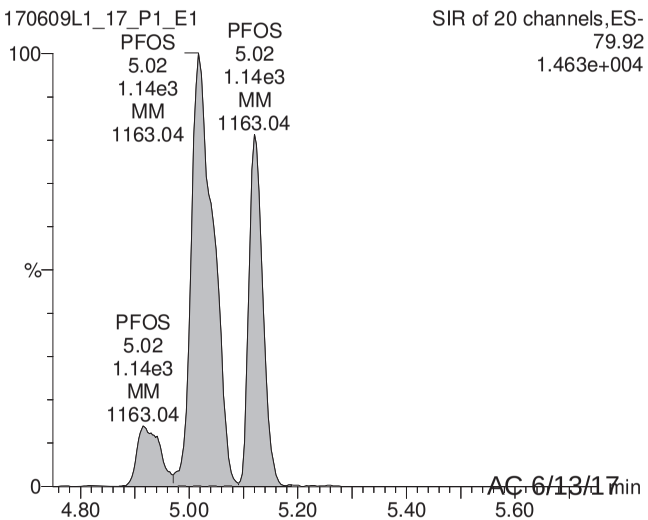
PFOA



PFNA



PFOS



Rev'd: MM 6/13/17 AC 6/13/17

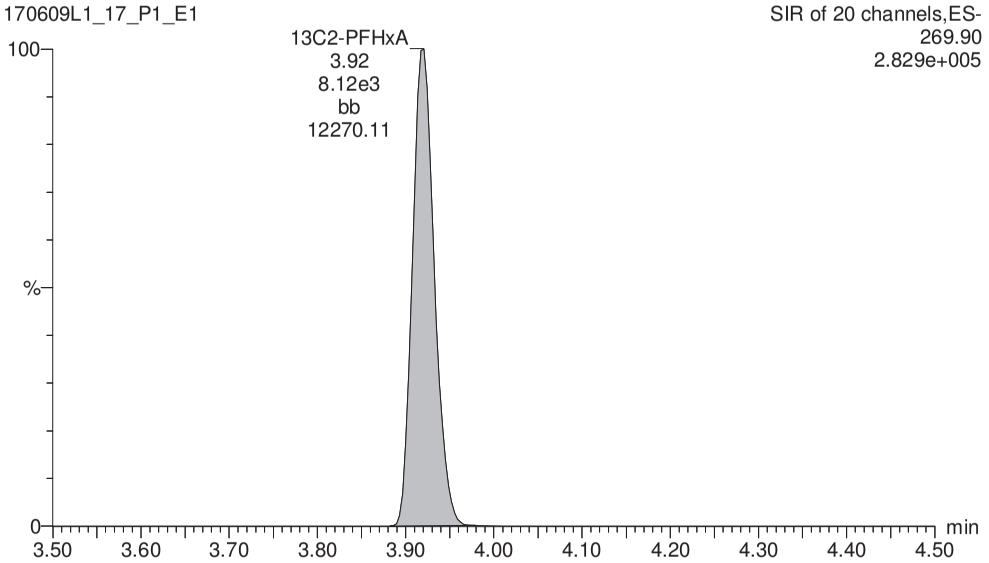
Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-17.qld

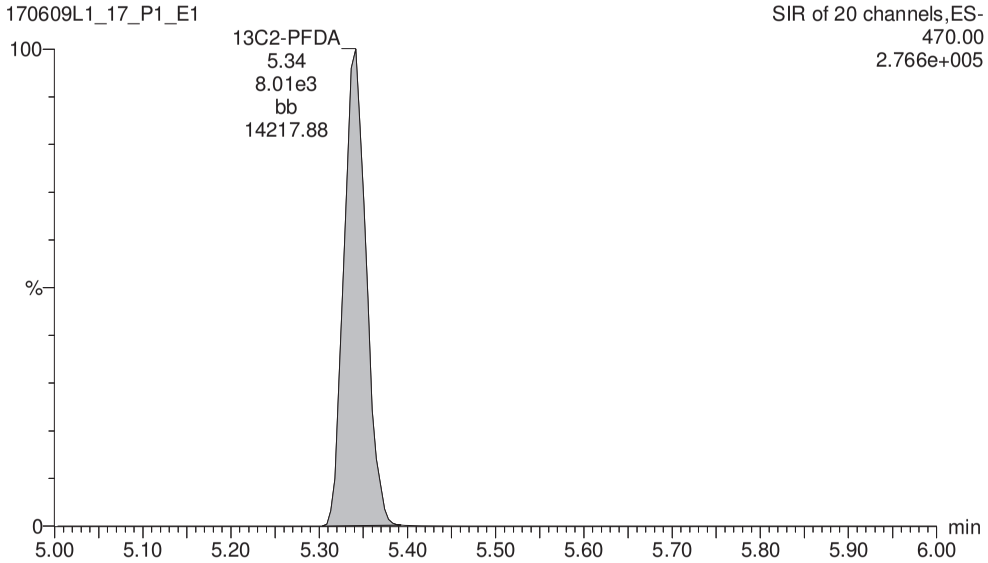
Last Altered: Tuesday, June 13, 2017 11:52:48 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:53:50 Pacific Daylight Time

ID: 1700697-02, Description: RW04-20170606, Name: 170609L1_17.wiff, Date: 09-Jun-2017, Time: 18:02:18, Instrument: , Lab: ©PE-SCIEX, User: sciex

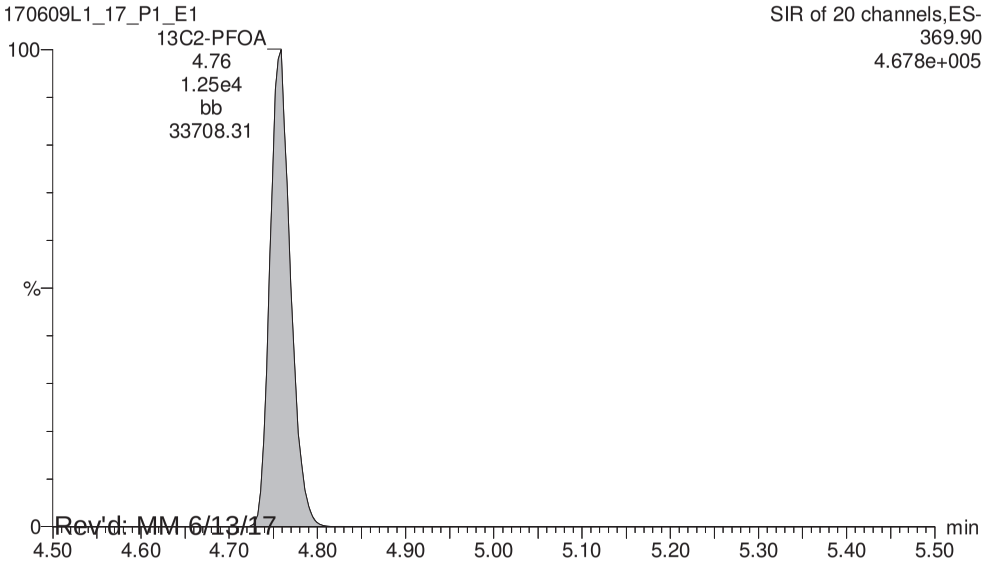
13C2-PFHxA



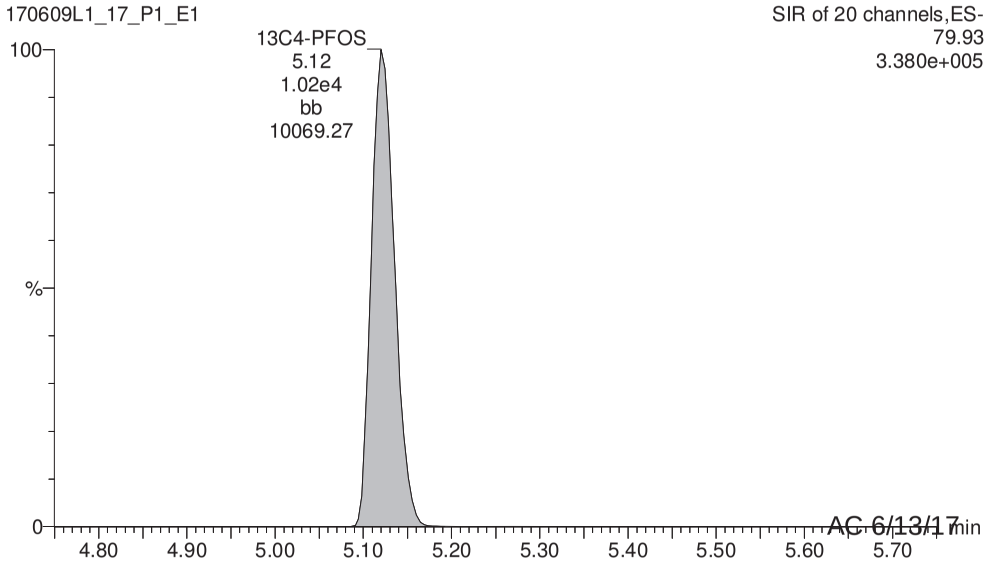
13C2-PFDA



13C2-PFOA



13C4-PFOS



Rev'd: MM 6/13/17 AC 6/13/17

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-18.qld

Last Altered: Tuesday, June 13, 2017 11:57:25 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:58:15 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 14_537_DW.mdb 08 Jun 2017 11:44:34
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

ID: B7F0032-MS1, Description: LFSM, Name: 170609L1_18.wiff, Date: 09-Jun-2017, Time: 18:14:33

	#	Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1	PFBS	79.90	1.568e3	8.761e3		0.269	3.58	9.79	
2	3	PFHpA	318.90	2.998e3	1.057e4		0.269	4.40	10.4	
3	4	PFHxS	79.91	1.145e3	8.761e3		0.269	4.50	8.92	
4	5	PFOA	368.90	5.241e3	1.057e4		0.269	4.77	15.0	
5	6	PFNA	419.00	3.133e3	1.057e4		0.269	5.08	10.9	
6	7	PFOS	79.92	2.125e3	8.761e3		0.269	5.13	17.5	
7	15	13C2-PFHxA	269.90	7.437e3	1.057e4	0.706	0.269	3.92	37.1	99.7
8	16	13C2-PFDA	470.00	7.831e3	1.057e4	0.727	0.269	5.35	37.9	102
9	18	13C2-PFOA	369.90	1.057e4	1.057e4	1.000	0.269	4.77	37.2	100
10	19	13C4-PFOS	79.93	8.761e3	8.761e3	1.000	0.269	5.13	107	100

Rev'd: MM 6/13/17 AC 6/13/17

Vista Analytical Laboratory Q1

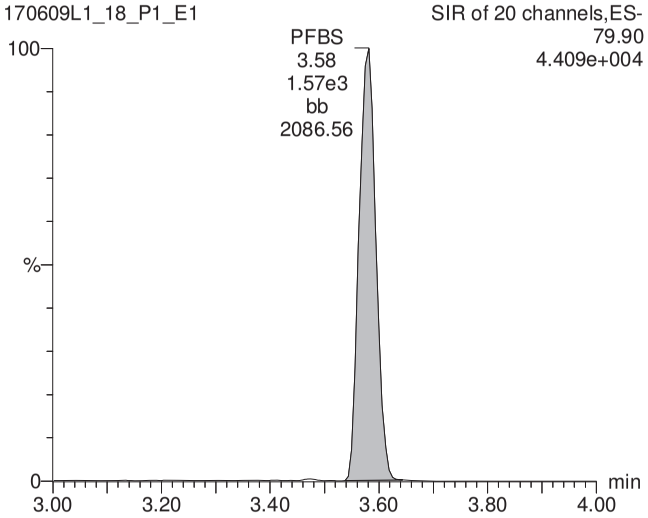
Dataset: U:\Q2.PRO\Results\170609L1\170609L1-18.qld

Last Altered: Tuesday, June 13, 2017 11:57:25 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:58:15 Pacific Daylight Time

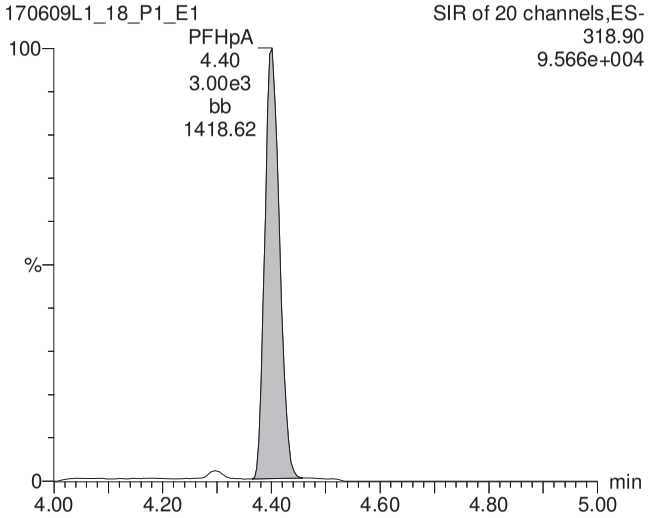
Method: U:\Q2.PRO\MethDB\PFC List 14_537_DW.mdb 08 Jun 2017 11:44:34
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

ID: B7F0032-MS1, Description: LFSM, Name: 170609L1_18.wiff, Date: 09-Jun-2017, Time: 18:14:33, Instrument: , Lab: ©PE-SCIEX, User: sciex

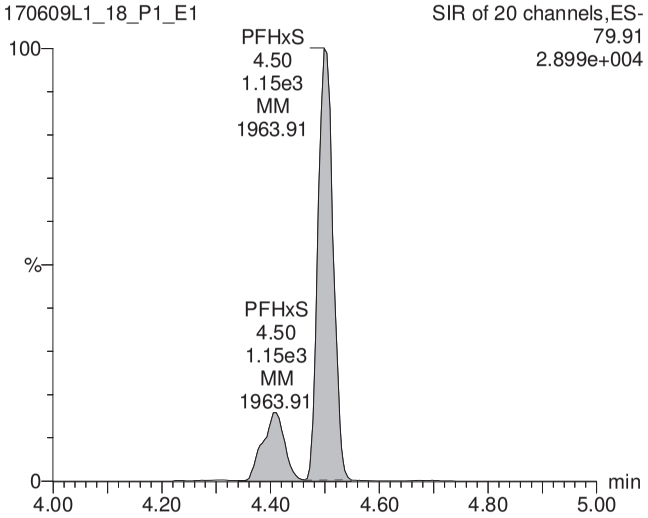
PFBS



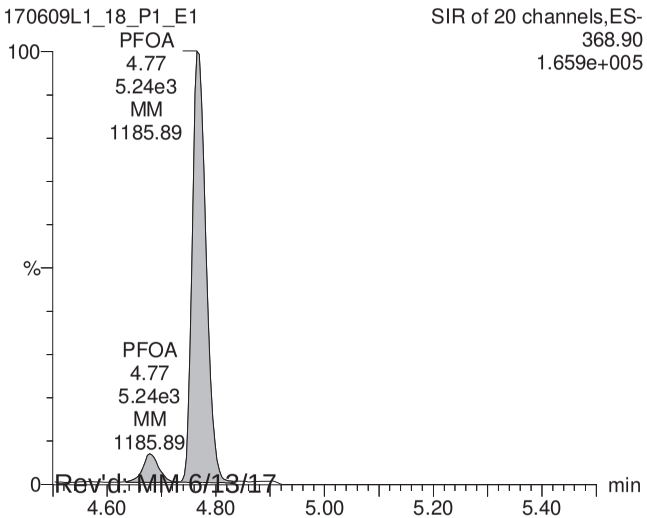
PFHpA



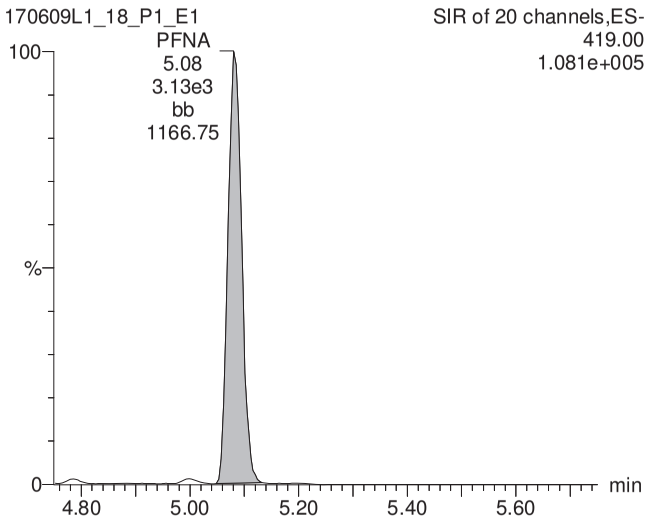
PFHxS



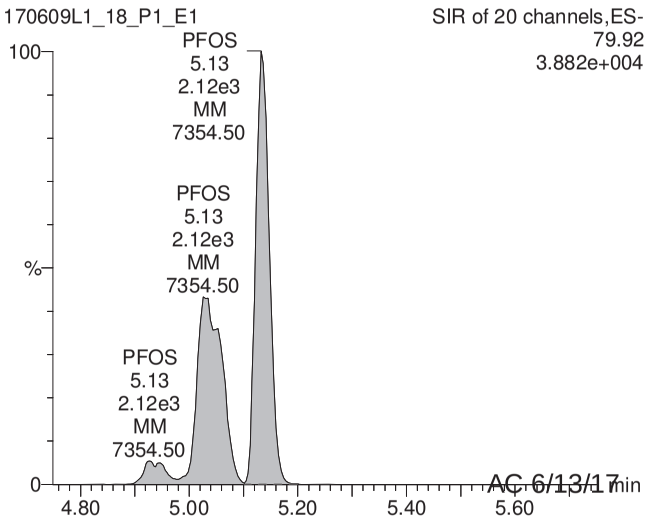
PFOA



PFNA



PFOS



Rev'd: MM 6/13/17 AC 6/13/17

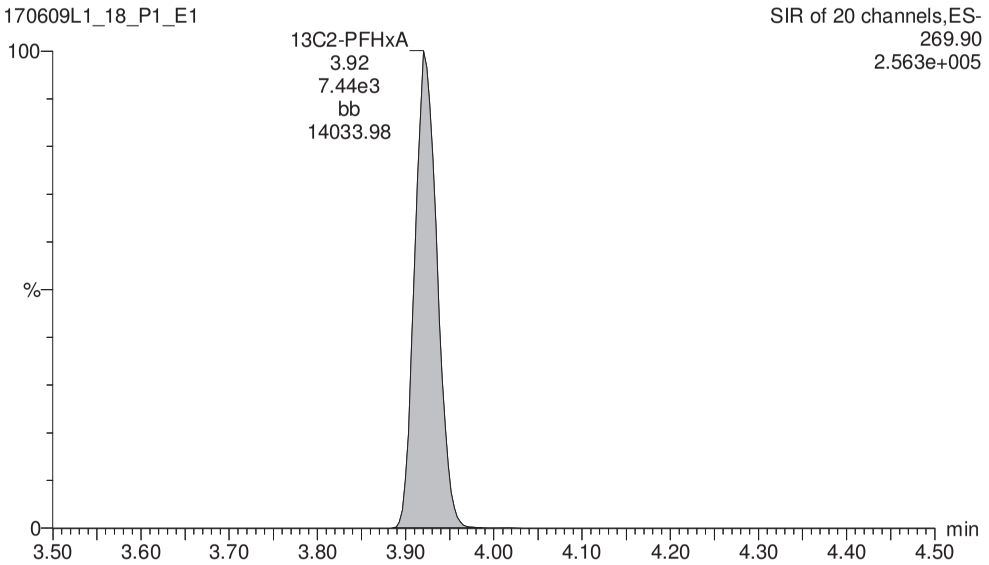
Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-18.qld

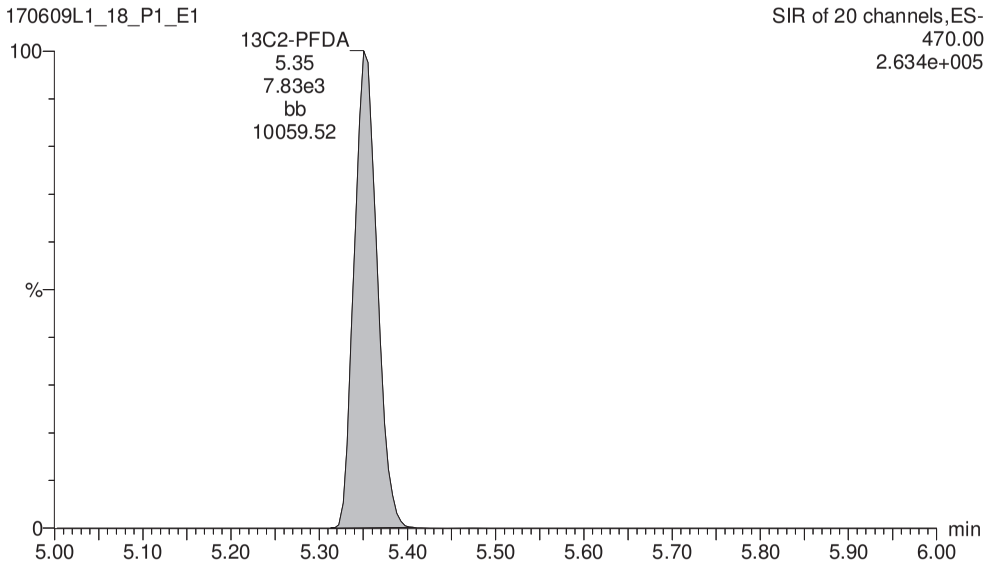
Last Altered: Tuesday, June 13, 2017 11:57:25 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:58:15 Pacific Daylight Time

ID: B7F0032-MS1, Description: LFSM, Name: 170609L1_18.wiff, Date: 09-Jun-2017, Time: 18:14:33, Instrument: , Lab: ©PE-SCIEX, User: sciex

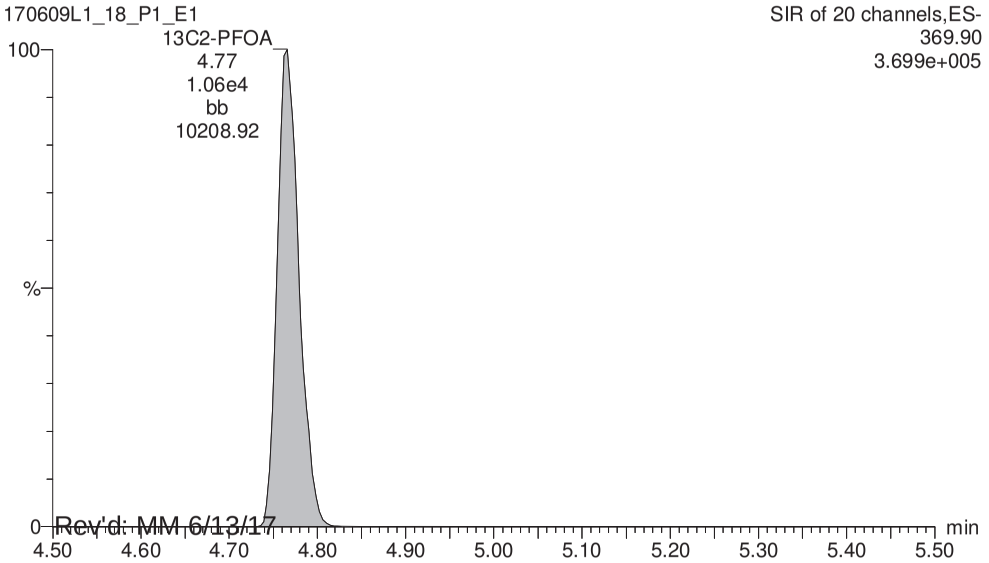
13C2-PFHxA



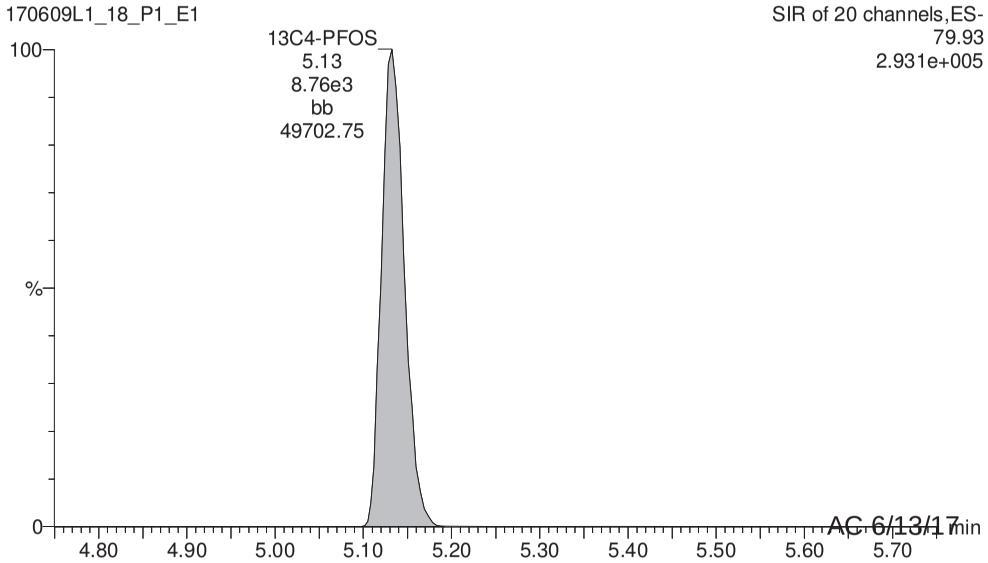
13C2-PFDA



13C2-PFOA



13C4-PFOS



Rev'd: MM 6/13/17 AC 6/13/17

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-19.qld

Last Altered: Tuesday, June 13, 2017 11:59:50 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 12:00:08 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 14_537_DW.mdb 08 Jun 2017 11:44:34
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

ID: B7F0032-MSD1, Description: LFSMD, Name: 170609L1_19.wiff, Date: 09-Jun-2017, Time: 18:26:49

	#	Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1	PFBS	79.90	1.785e3	1.061e4		0.262	3.62	9.42	
2	3	PFHpA	318.90	3.498e3	1.081e4		0.262	4.43	12.1	
3	4	PFHxS	79.91	1.329e3	1.061e4		0.262	4.52	8.75	
4	5	PFOA	368.90	5.522e3	1.081e4		0.262	4.79	15.9	
5	6	PFNA	419.00	3.255e3	1.081e4		0.262	5.09	11.3	
6	7	PFOS	79.92	2.225e3	1.061e4		0.262	5.15	15.4	
7	15	13C2-PFHxA	269.90	8.047e3	1.081e4	0.706	0.262	3.95	40.3	106
8	16	13C2-PFDA	470.00	8.300e3	1.081e4	0.727	0.262	5.36	40.3	106
9	18	13C2-PFOA	369.90	1.081e4	1.081e4	1.000	0.262	4.79	38.2	100
10	19	13C4-PFOS	79.93	1.061e4	1.061e4	1.000	0.262	5.14	110	100

Vista Analytical Laboratory Q1

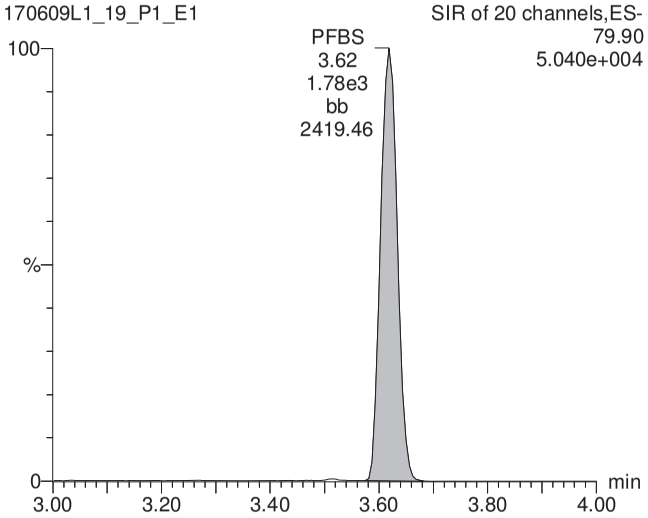
Dataset: U:\Q2.PRO\Results\170609L1\170609L1-19.qld

Last Altered: Tuesday, June 13, 2017 11:59:50 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 12:00:08 Pacific Daylight Time

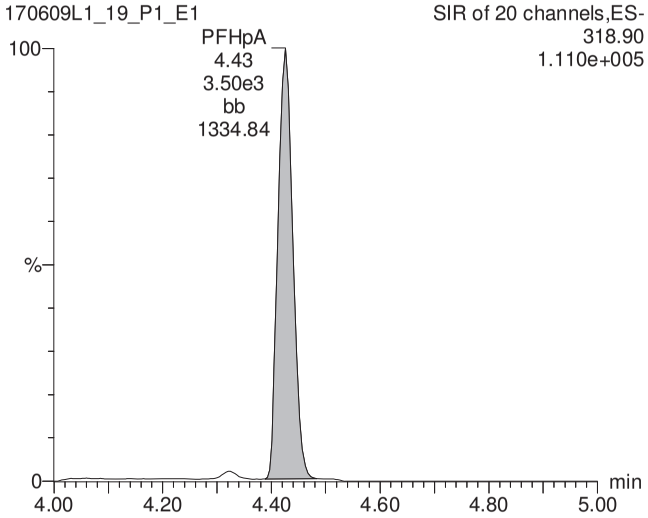
Method: U:\Q2.PRO\MethDB\PFC List 14_537_DW.mdb 08 Jun 2017 11:44:34
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

ID: B7F0032-MSD1, Description: LFSMD, Name: 170609L1_19.wiff, Date: 09-Jun-2017, Time: 18:26:49, Instrument: , Lab: ©PE-SCIEX, User: sciex

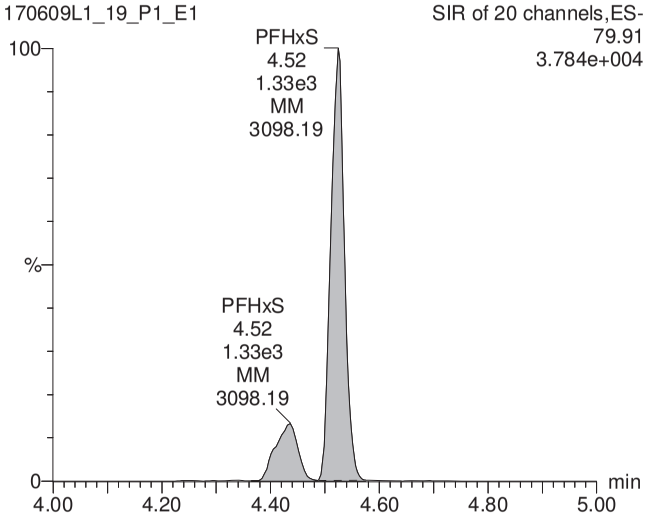
PFBS



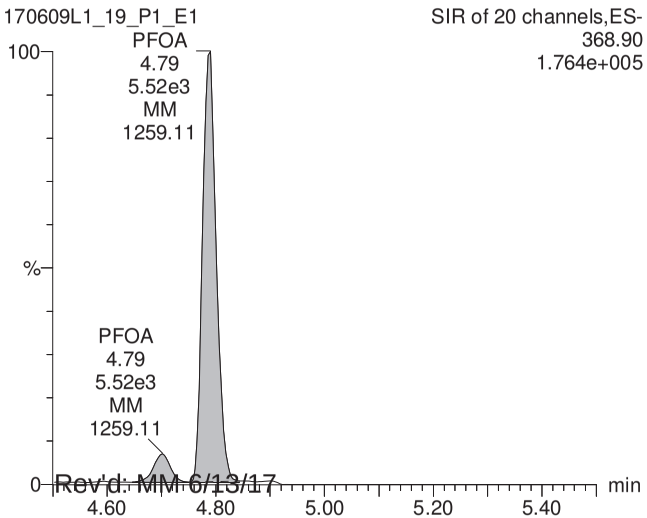
PFHpA



PFHxS

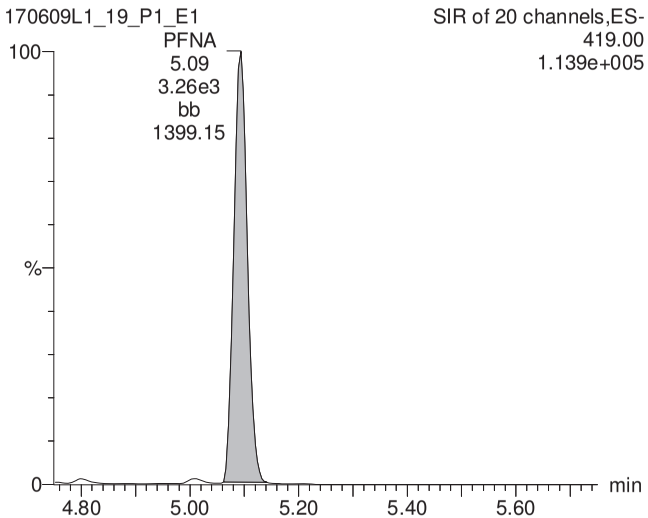


PFOA

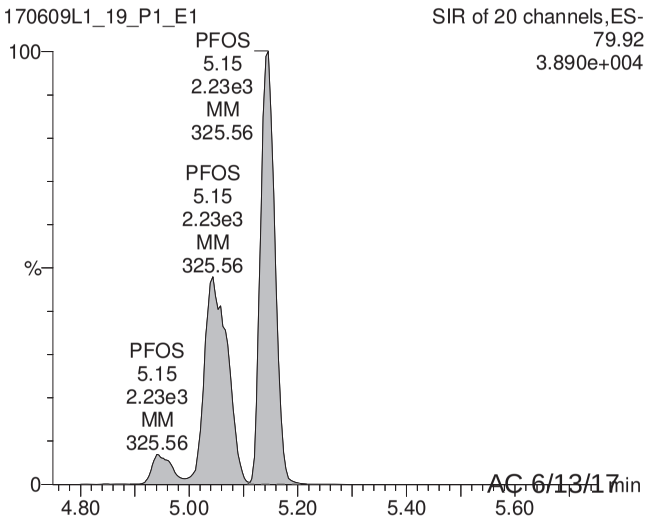


Rev'd: MM 6/13/17

PFNA



PFOS



AC 6/13/17

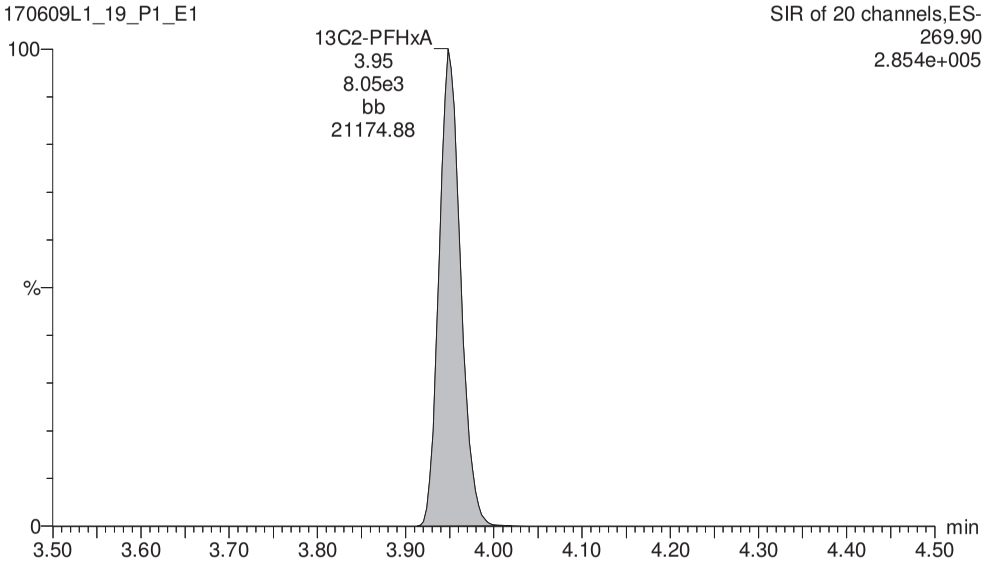
Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-19.qld

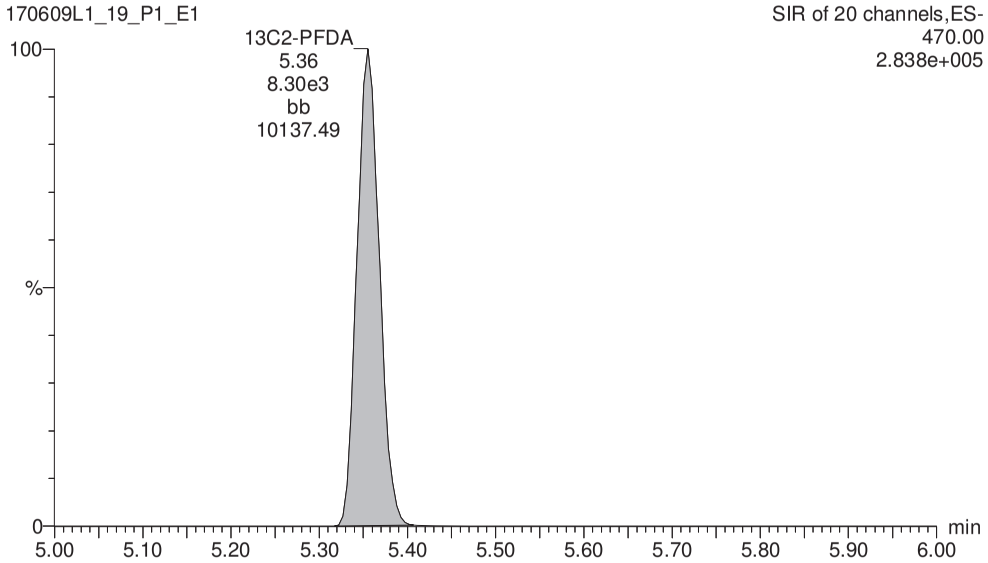
Last Altered: Tuesday, June 13, 2017 11:59:50 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 12:00:08 Pacific Daylight Time

ID: B7F0032-MSD1, Description: LFSMD, Name: 170609L1_19.wiff, Date: 09-Jun-2017, Time: 18:26:49, Instrument: , Lab: ©PE-SCIEX, User: sciex

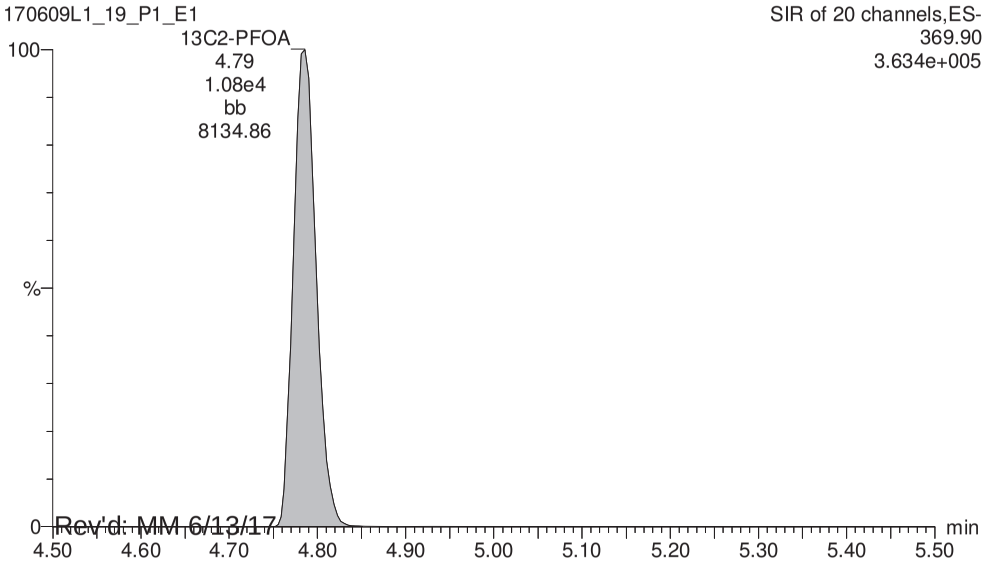
13C2-PFHxA



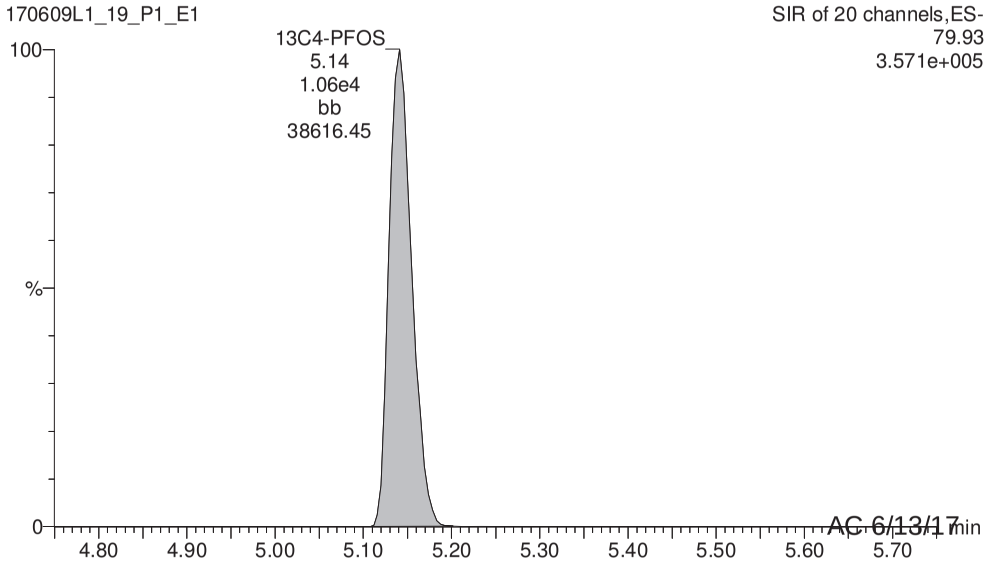
13C2-PFDA



13C2-PFOA



13C4-PFOS



Rev'd: MM 6/13/17 AC 6/13/17

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-20.qld

Last Altered: Tuesday, June 13, 2017 12:19:45 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 12:20:02 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 14_537_DW.mdb 08 Jun 2017 11:44:34
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

ID: 1700697-03, Description: DUP03-20170606, Name: 170609L1_20.wiff, Date: 09-Jun-2017, Time: 18:39:05

	#	Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1	PFBS	79.90	3.501e2	9.442e3		0.265	3.59	2.04	
2	3	PFHpA	318.90	4.339e2	1.096e4		0.265	4.40	1.46	
3	4	PFHxS	79.91	2.068e2	9.442e3		0.265	4.50	1.50	
4	5	PFOA	368.90	1.979e3	1.096e4		0.265	4.77	5.50	
5	6	PFNA	419.00	1.239e2	1.096e4		0.265	5.08	0.418	
6	7	PFOS	79.92	1.086e3	9.442e3		0.265	5.03	8.31	
7	15	13C2-PFHxA	269.90	7.409e3	1.096e4	0.706	0.265	3.92	36.2	95.8
8	16	13C2-PFDA	470.00	7.553e3	1.096e4	0.727	0.265	5.35	35.8	94.7
9	18	13C2-PFOA	369.90	1.096e4	1.096e4	1.000	0.265	4.76	37.8	100
10	19	13C4-PFOS	79.93	9.442e3	9.442e3	1.000	0.265	5.13	108	100

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-20.qld

Last Altered: Tuesday, June 13, 2017 12:19:45 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 12:20:02 Pacific Daylight Time

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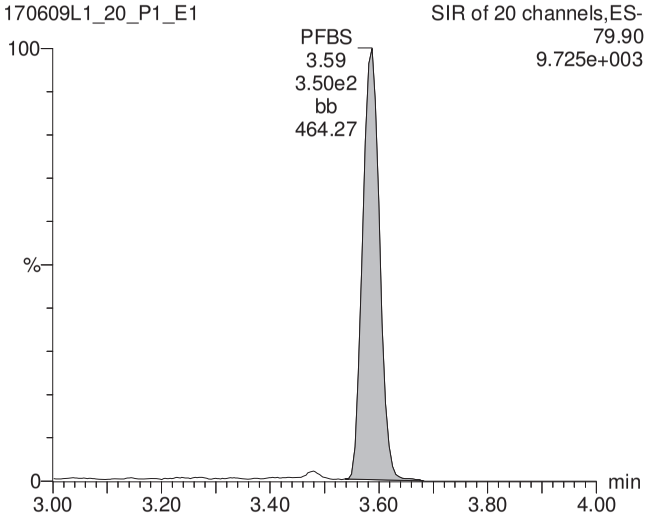
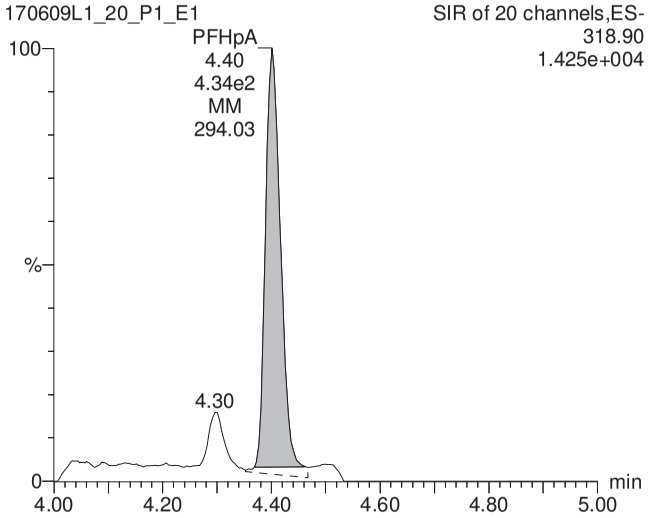
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

ID: 1700697-03, Description: DUP03-20170606, Name: 170609L1_20.wiff, Date: 09-Jun-2017, Time: 18:39:05, Instrument: , Lab: ©PE-SCIEX, User: sciex

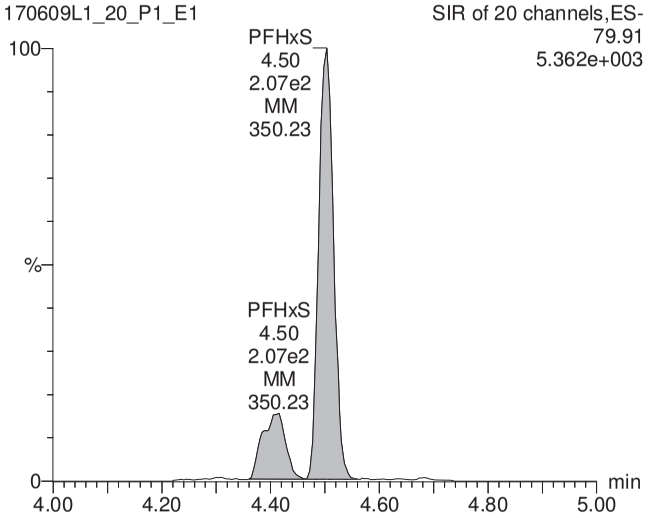
PFBS



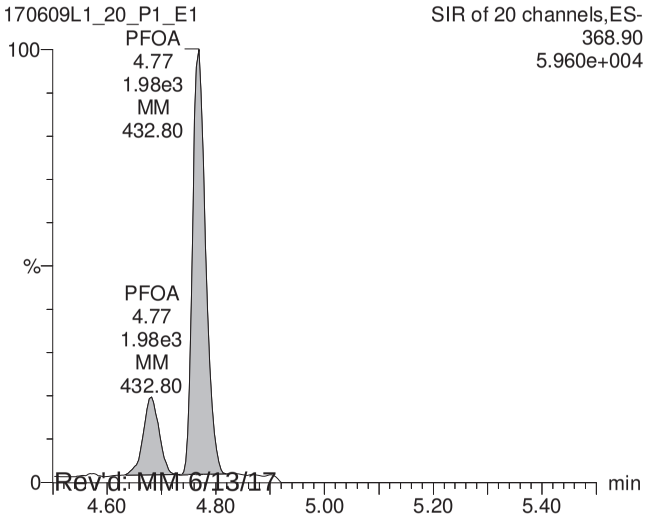
PFHpA



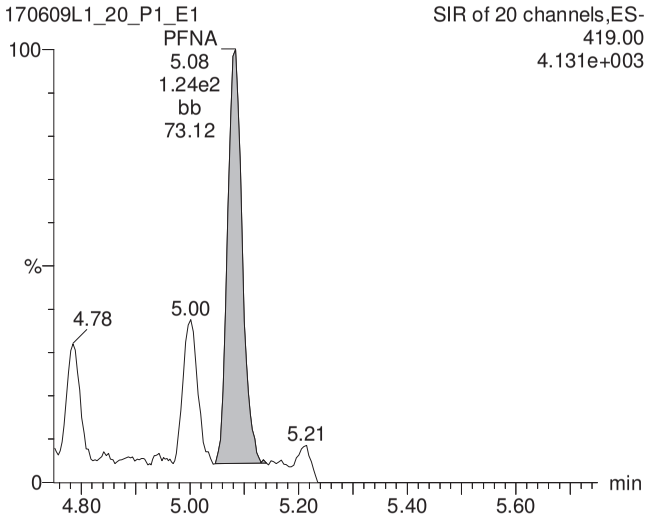
PFHxS



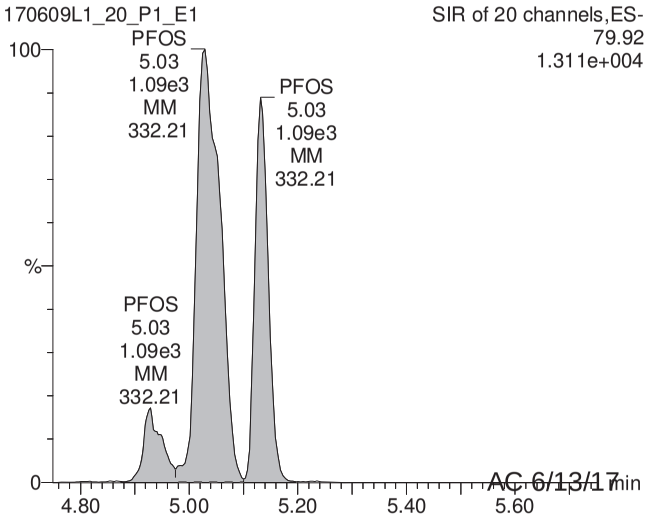
PFOA



PFNA



PFOS



Rev'd: MM 6/13/17 AC 6/13/17

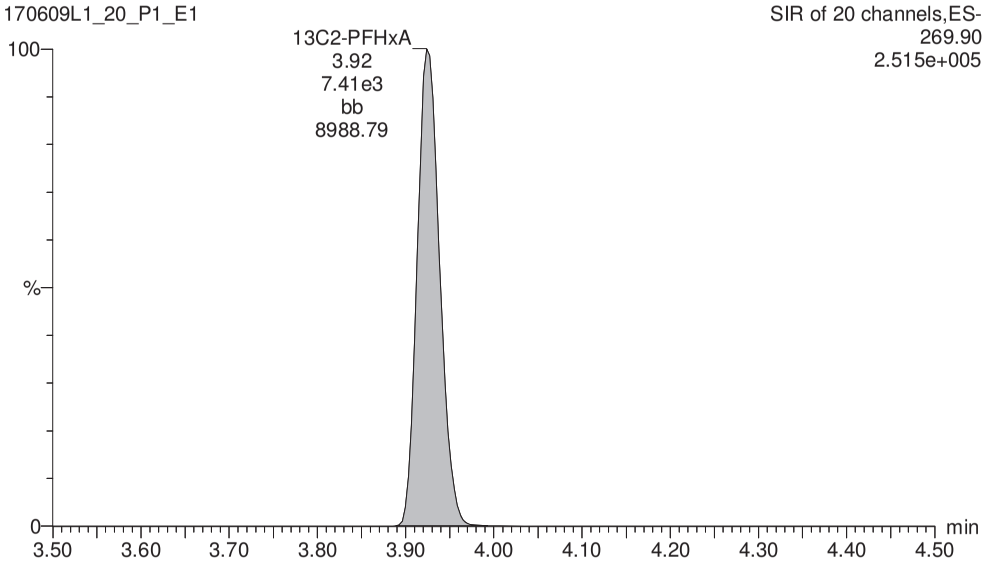
Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-20.qld

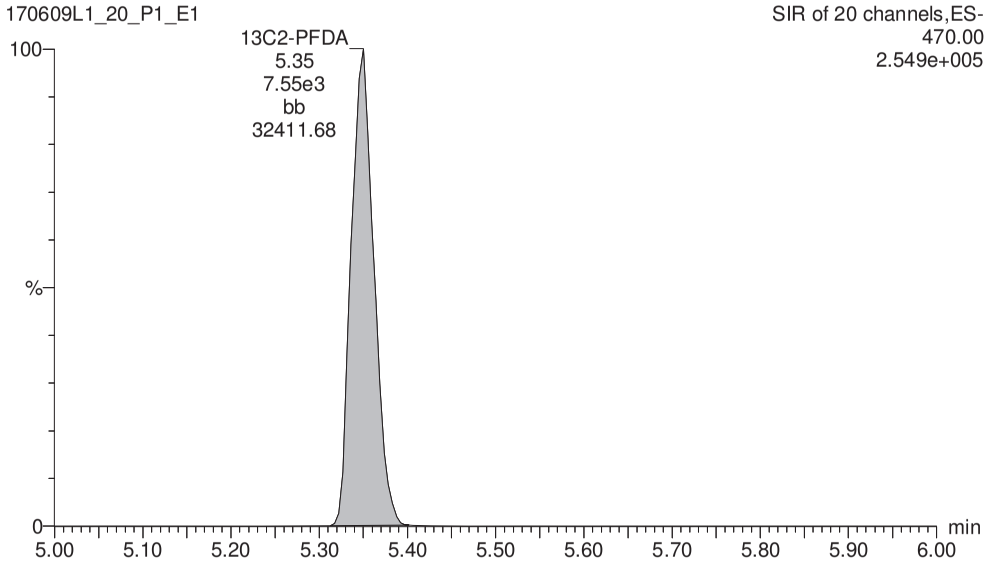
Last Altered: Tuesday, June 13, 2017 12:19:45 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 12:20:02 Pacific Daylight Time

ID: 1700697-03, Description: DUP03-20170606, Name: 170609L1_20.wiff, Date: 09-Jun-2017, Time: 18:39:05, Instrument: , Lab: ©PE-SCIEX, User: sciex

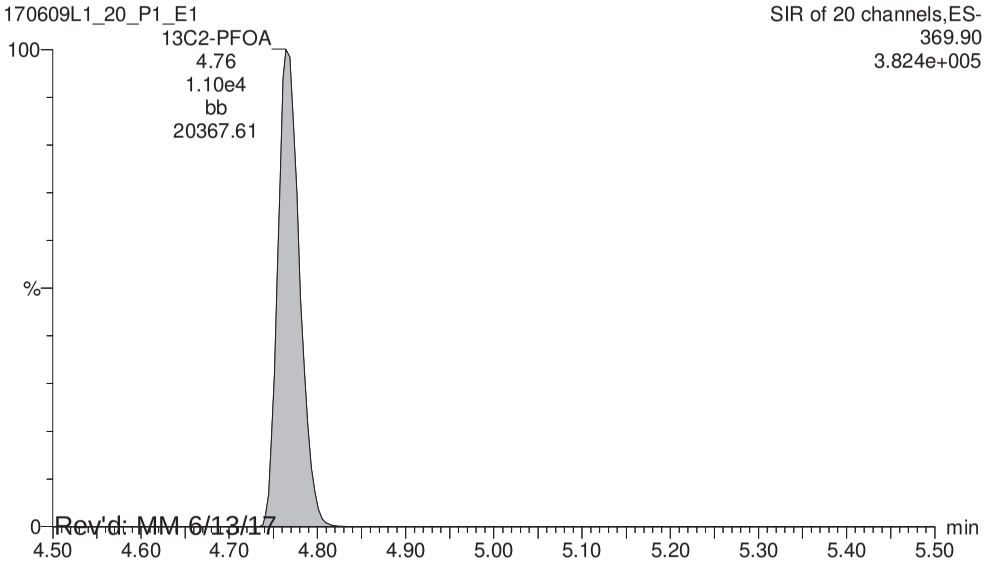
13C2-PFHxA



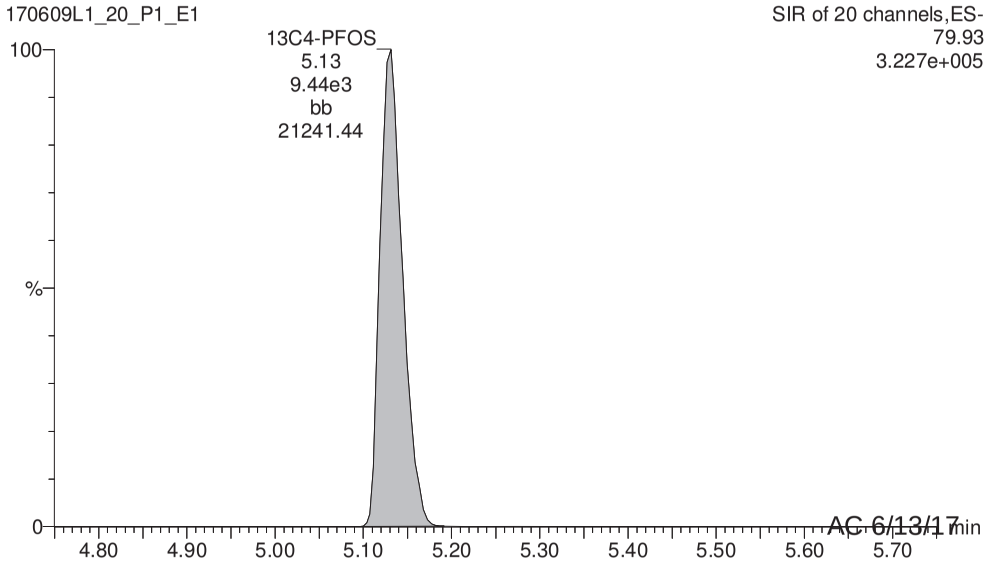
13C2-PFDA



13C2-PFOA



13C4-PFOS



Rev'd: MM 6/13/17 AC 6/13/17

CONTINUING CALIBRATION

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-22.qld

Last Altered: Tuesday, June 13, 2017 11:31:37 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:33:02 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 14_537_DW.mdb 08 Jun 2017 11:44:34
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

Name: 170609L1_22.wiff, Date: 09-Jun-2017, Time: 19:03:35, ID: ST170609L1-10 537 DW CS2 17F0733, Description: 537 DW CS2 17F0733

	#	Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc.	%Rec
1	1	PFBS	79.90	8.67e3	1.15e4		1.000	3.58	11.6	87.2
2	3	PFHpA	318.90	1.79e4	1.49e4		1.000	4.39	12.2	81.5
3	4	PFHxS	79.91	7.65e3	1.15e4		1.000	4.50	12.9	94.1
4	5	PFOA	368.90	2.35e4	1.49e4		1.000	4.76	13.4	89.2
5	6	PFNA	419.00	2.12e4	1.49e4		1.000	5.08	14.5	96.7
6	7	PFOS	79.92	7.95e3	1.15e4		1.000	5.13	13.9	100.0
7	15	13C2-PFHxA	269.90	9.41e3	1.49e4	0.706	1.000	3.91	8.95	89.5
8	16	13C2-PFDA	470.00	9.99e3	1.49e4	0.727	1.000	5.34	9.22	92.2
9	18	13C2-PFOA	369.90	1.49e4	1.49e4	1.000	1.000	4.76	10.0	100.0
10	19	13C4-PFOS	79.93	1.15e4	1.15e4	1.000	1.000	5.13	28.7	100.0

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AC 6/13/17

CT 6/13/17

	Sample Name	Acquisition Date	Sample ID	Sample Comment
1	170609L1_01	6/9/2017 14:45:57	IPA	IPA
2	170609L1_02	6/9/2017 14:58:34	ST170609L1-1 537 DW CS(-3) 17F0	537 DW CS(-3) 17F0726
3	170609L1_03	6/9/2017 15:10:51	ST170609L1-2 537 DW CS(-2) 17F0	537 DW CS(-2) 17F0729
4	170609L1_04	6/9/2017 15:23:04	ST170609L1-3 537 DW CS(-1) 17F0	537 DW CS(-1) 17F0730
5	170609L1_05	6/9/2017 15:35:19	ST170609L1-4 537 DW CS0 17F073	537 DW CS0 17F0731
6	170609L1_06	6/9/2017 15:47:34	ST170609L1-5 537 DW CS1 17F073	537 DW CS1 17F0732
7	170609L1_07	6/9/2017 15:59:49	ST170609L1-6 537 DW CS2 17F073	537 DW CS2 17F0733
8	170609L1_09	6/9/2017 16:24:17	ST170609L1-8 537 DW CS4 17F073	537 DW CS4 17F0734
9	170609L1_08	6/9/2017 16:12:03	ST170609L1-7 537 DW CS3 17F060	537 DW CS3 17F0605
10	170609L1_10	6/9/2017 16:36:32	ST170609L1-9 537 DW CS5 17F073	537 DW CS5 17F0735
11	170609L1_11	6/9/2017 16:48:45	IPA	IPA
12	170609L1_12	6/9/2017 17:01:02	SS170609L1-1 537 DW SSS 17F07	537 DW SSS 17F0736
13	170609L1_13	6/9/2017 17:13:17	BB7F0032-BS1	LFB
14	170609L1_14	6/9/2017 17:25:35	IPA	IPA
15	170609L1_15	6/9/2017 17:37:48	B7F0032-BLK1	LRB
16	170609L1_16	6/9/2017 17:50:05	1700697-01	FRB-04-20170606
17	170609L1_17	6/9/2017 18:02:18	1700697-02	RW04-20170606
18	170609L1_18	6/9/2017 18:14:33	B7F0032-MS1	LFSM
19	170609L1_19	6/9/2017 18:26:49	B7F0032-MSD1	LFSMD
20	170609L1_20	6/9/2017 18:39:05	1700697-03	DUP03-20170606
21	170609L1_21	6/9/2017 18:51:20	IPA	IPA
22	170609L1_22	6/9/2017 19:03:35	ST170609L1-10 537 DW CS2 17F07	537 DW CS2 17F0733
23	170609L1_23	6/9/2017 19:15:48	IPA	IPA

LC Calibration Standards Review Checklist QK (3 AC 6/13/17)

			ION Ratio	Concentration	C-Cals Name	Sign Date	Correct I-Cal	Manual Integrations	N/A
Calibration ID:	ST170609L1-10	L (M) H	N/A	☑	☑	☑	☑	☑	☑
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:		L M H	☐	☐	☐	☐	☐	☐	☐

Full Mass Cal. Date: 2/21/17 (AC 6/13/17)

Run Log Present: ☑

# of Samples per Sequence Checked: ☑

Reviewed By: [signature] 6/13/17
Initials/Date

Comments:

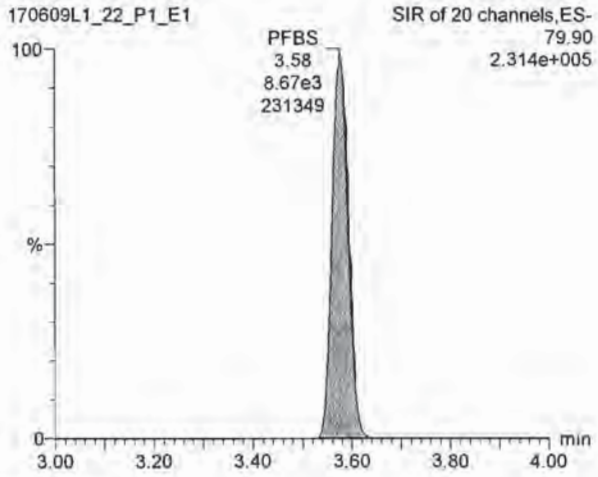
Dataset: Untitled

Last Altered: Tuesday, June 13, 2017 11:16:18 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:16:35 Pacific Daylight Time

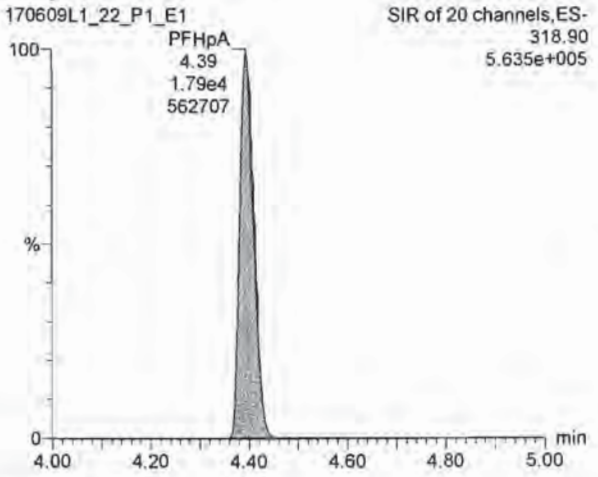
Method: U:\Q2.PRO\MethDB\PFC List 14_537_DW.mdb 08 Jun 2017 11:44:34
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

Name: 170609L1_22.wiff, Date: 09-Jun-2017, Time: 19:03:35, ID: ST170609L1-10 537 DW CS2 17F0733, Description: 537 DW CS2 17F0733

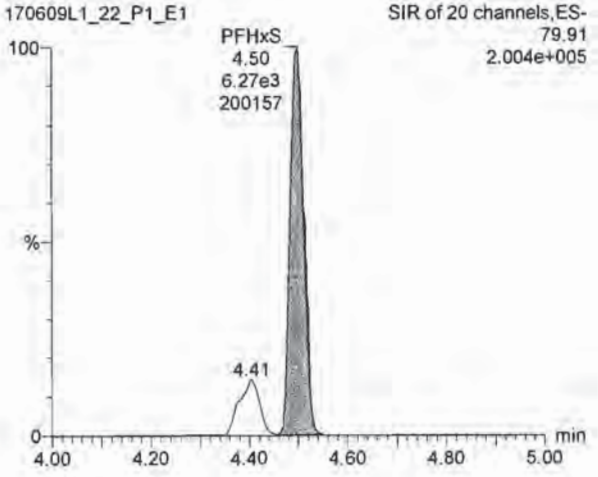
PFBS



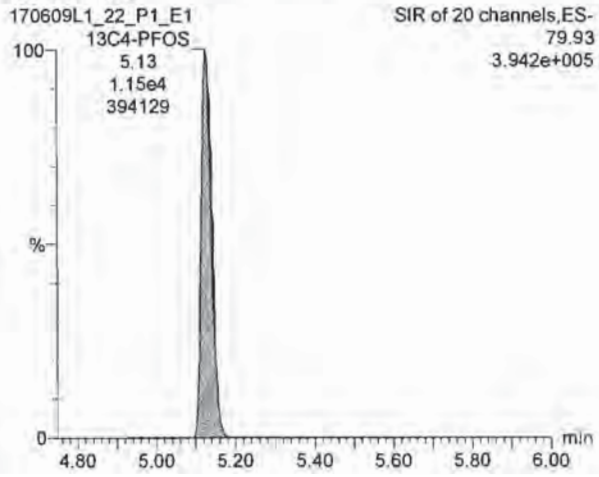
PFHpA



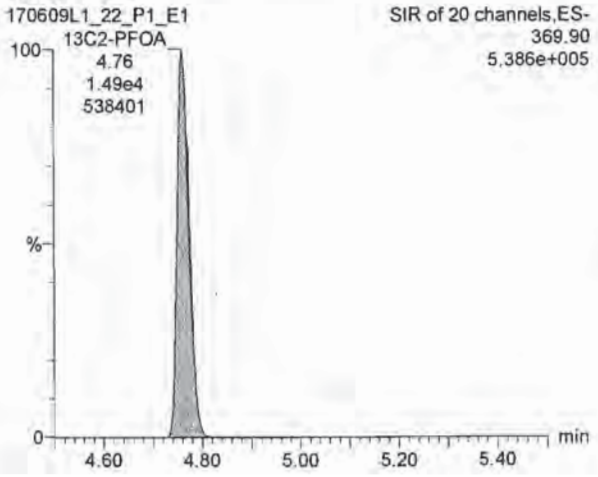
PFHxS



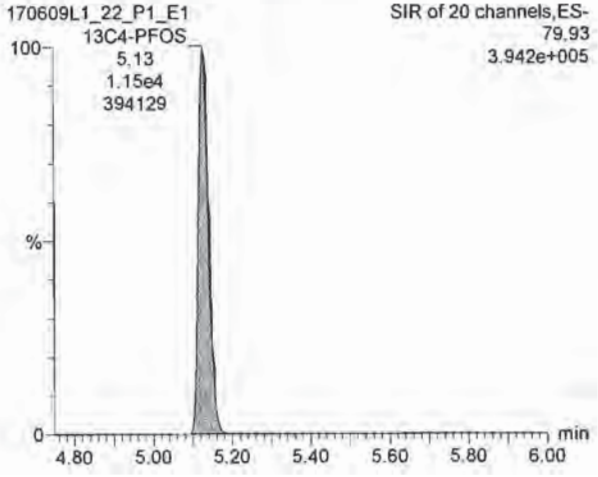
13C4-PFOS

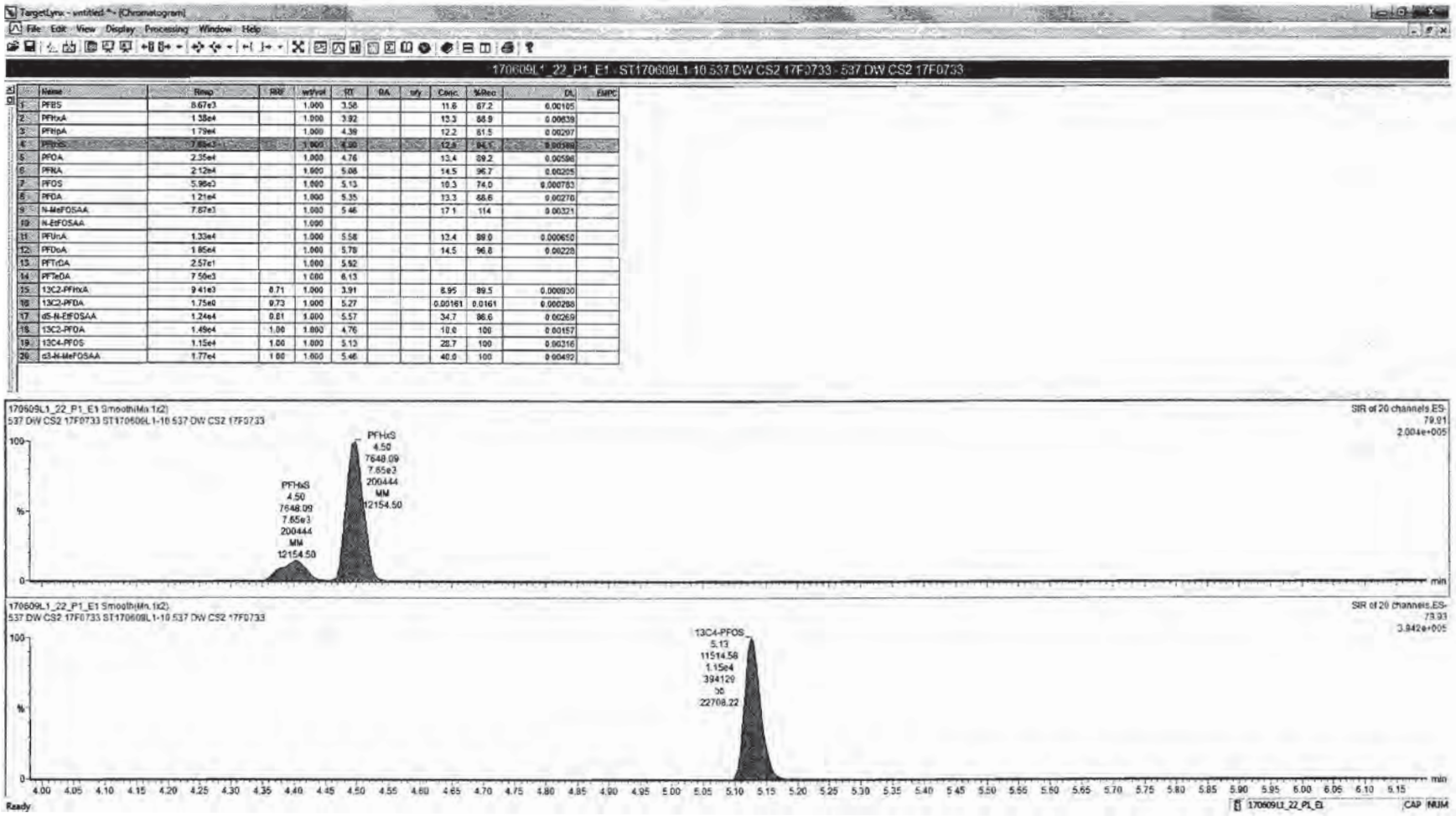


13C2-PFOA



13C4-PFOS





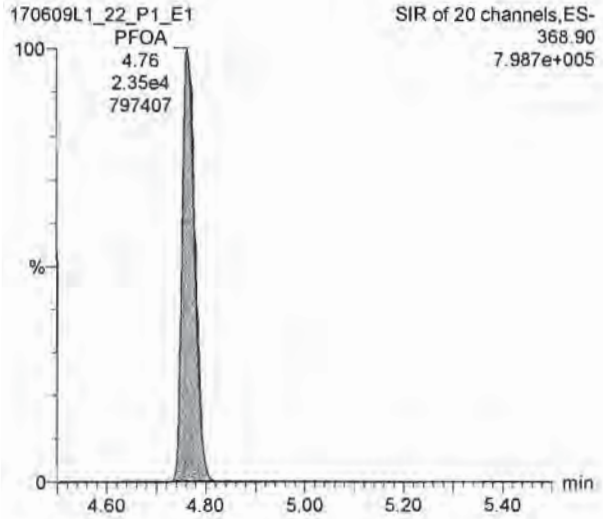
	Name	Resp	RRF	wt/vol	RT	QA	qty	Calc.	%Rec	DL	FMPC
1	PFBS	8.67e3		1.000	3.58			11.6	87.2	0.00165	
2	PFHxA	1.38e4		1.000	3.92			13.3	88.9	0.00639	
3	PFHpA	1.79e4		1.000	4.39			12.2	81.5	0.00297	
4	PFHxS	7.65e3		1.000	4.50			12.8	94.1	0.00388	
5	PFOA	2.35e4		1.000	4.76			13.4	89.2	0.00596	
6	PFNA	2.12e4		1.000	5.08			14.5	96.7	0.00205	
7	PFOS	5.96e3		1.000	5.13			10.3	74.0	0.000783	
8	PFDA	1.21e4		1.000	5.35			13.3	88.6	0.00276	
9	N-MeFOSAA	7.87e3		1.000	5.46			17.1	114	0.00321	
10	N-EtFOSAA			1.000							
11	PFUnA	1.33e4		1.000	5.58			13.4	89.0	0.000650	
12	PFDoA	1.85e4		1.000	5.78			14.5	96.8	0.00228	
13	PFTrDA	2.57e1		1.000	5.92						
14	PFTeDA	7.56e3		1.000	6.13						
15	13C2-PFHxA	9.41e3	0.71	1.000	3.91			8.95	89.5	0.000930	
16	13C2-PFDA	1.75e0	0.73	1.000	5.27			0.00161	0.0161	0.000268	
17	d5-N-EtFOSAA	1.24e4	0.81	1.000	5.57			34.7	86.6	0.00269	
18	13C2-PFDA	1.49e4	1.00	1.000	4.76			10.0	100	0.00157	
19	13C4-PFOS	1.15e4	1.00	1.000	5.13			28.7	100	0.00316	
20	d3-N-MeFOSAA	1.77e4	1.00	1.000	5.46			40.0	100	0.00492	

Dataset: Untitled

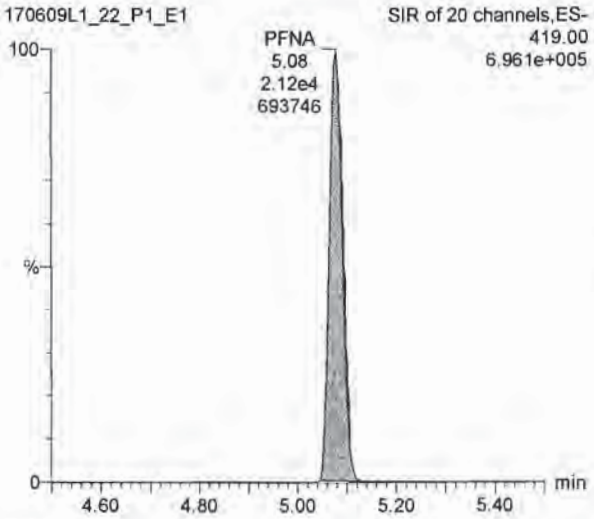
Last Altered: Tuesday, June 13, 2017 11:16:18 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:16:35 Pacific Daylight Time

Name: 170609L1_22.wiff, Date: 09-Jun-2017, Time: 19:03:35, ID: ST170609L1-10 537 DW CS2 17F0733, Description: 537 DW CS2 17F0733

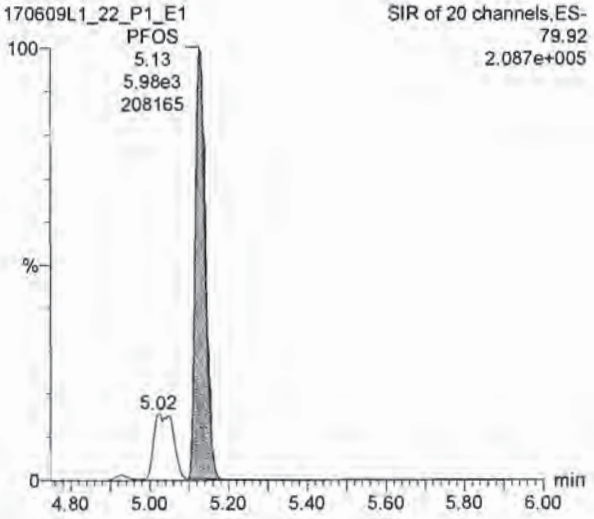
PFOA



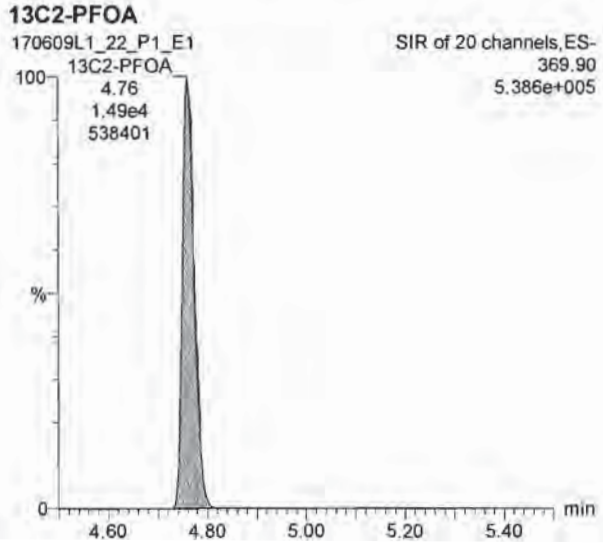
PFNA



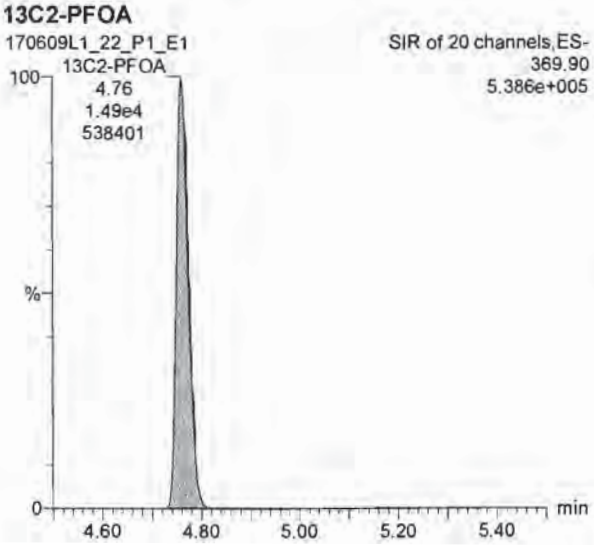
PFOS



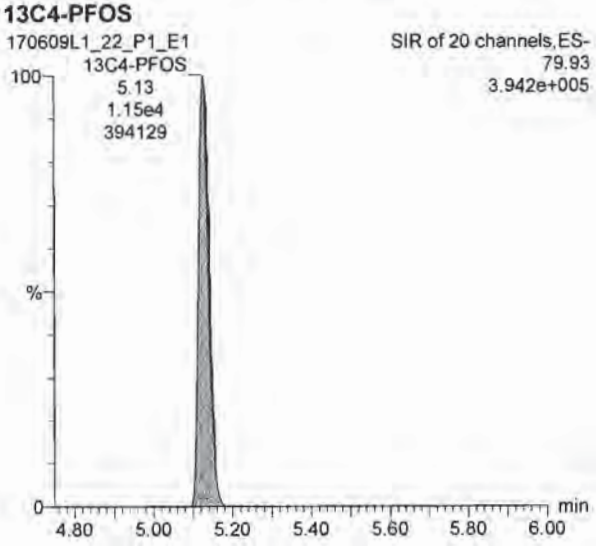
13C2-PFOA

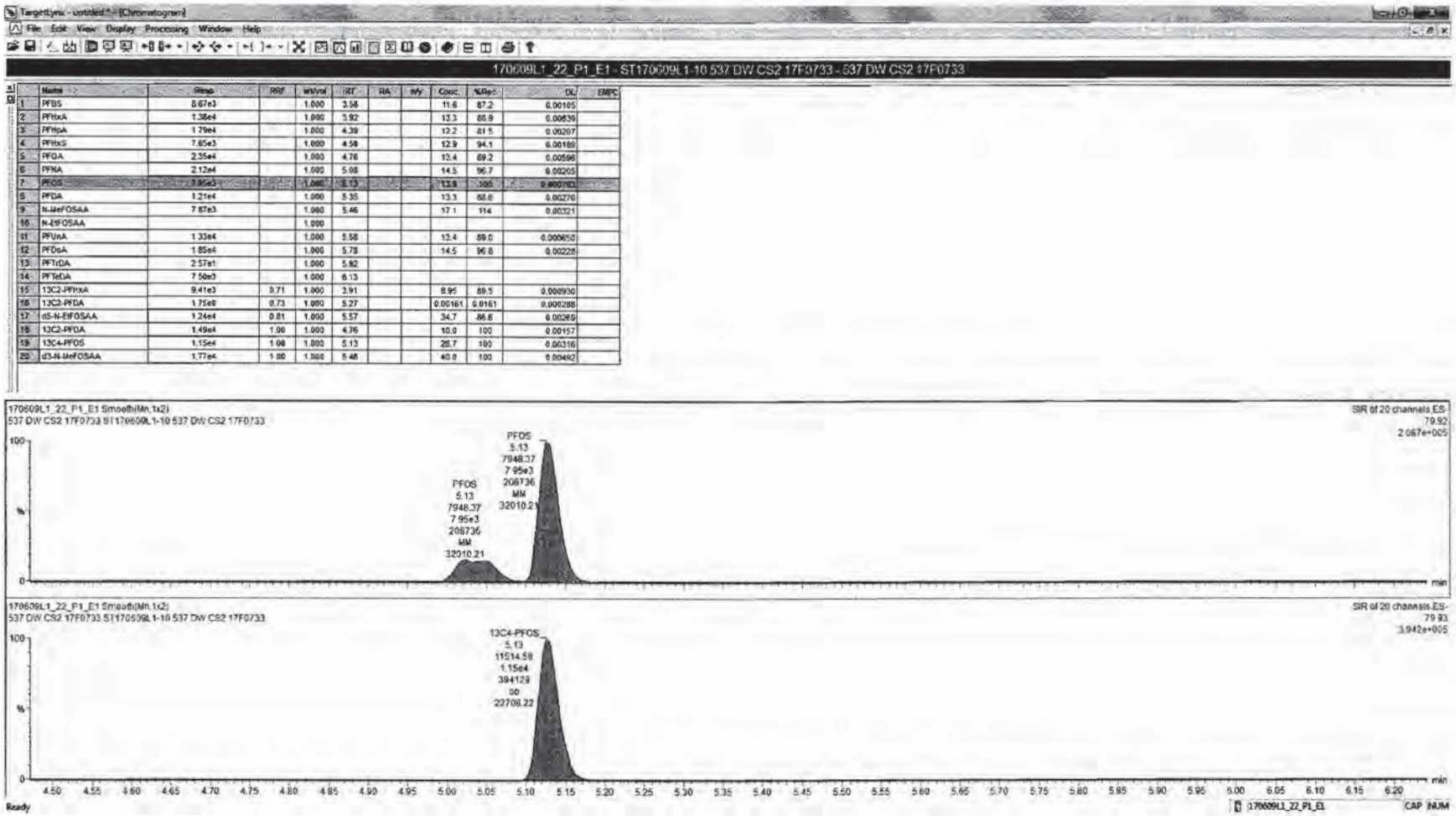


13C2-PFOA



13C4-PFOS





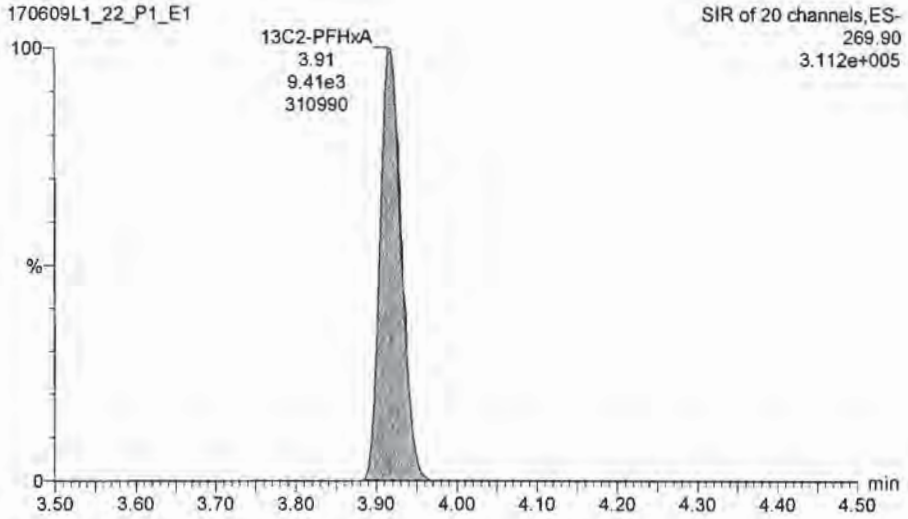
	Name	Area	RRF	wVal	RT	RA	wy	Conc.	%Rec	DL	EMPC
1	PFBS	8.67e3		1.000	3.58			11.6	87.2	0.00165	
2	PFHxA	1.36e4		1.000	3.92			13.3	85.9	0.00839	
3	PFHpA	1.79e4		1.000	4.39			12.2	81.5	0.00207	
4	PFHxS	7.85e3		1.000	4.58			12.9	94.1	0.00189	
5	PFOA	2.35e4		1.000	4.76			13.4	89.2	0.00598	
6	PFNA	2.12e4		1.000	5.08			14.5	96.7	0.00205	
7	PFOS	3.95e3		1.000	5.13			13.9	100	0.000761	
8	PFDA	1.21e4		1.000	5.35			13.3	88.6	0.00270	
9	N-MeFOSAA	7.87e3		1.000	5.46			17.1	114	0.00321	
10	N-EtFOSAA			1.000							
11	PFUnA	1.33e4		1.000	5.58			13.4	89.0	0.000650	
12	PFDoA	1.85e4		1.000	5.78			14.5	96.8	0.00228	
13	PFTrDA	2.57e1		1.000	5.92						
14	PFTeDA	7.56e3		1.000	6.13						
15	13C2-PFHxA	9.41e3	0.71	1.000	3.91			8.95	89.5	0.000930	
16	13C2-PFDA	1.75e3	0.73	1.000	5.27			0.00161	0.0161	0.000288	
17	d5-N-EtFOSAA	1.24e4	0.81	1.000	5.57			34.7	86.8	0.00269	
18	13C2-PFDA	1.49e4	1.00	1.000	4.76			10.0	100	0.00157	
19	13C4-PFOS	1.15e4	1.00	1.000	5.13			28.7	100	0.00316	
20	d3-N-MeFOSAA	1.77e4	1.00	1.000	5.46			40.8	100	0.00492	

Dataset: Untitled

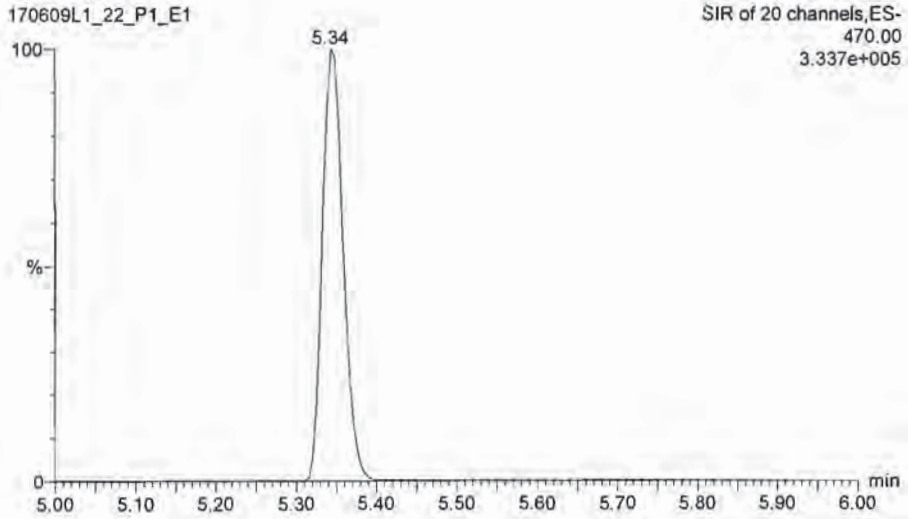
Last Altered: Tuesday, June 13, 2017 11:16:18 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:16:35 Pacific Daylight Time

Name: 170609L1_22.wiff, Date: 09-Jun-2017, Time: 19:03:35, ID: ST170609L1-10 537 DW CS2 17F0733, Description: 537 DW CS2 17F0733

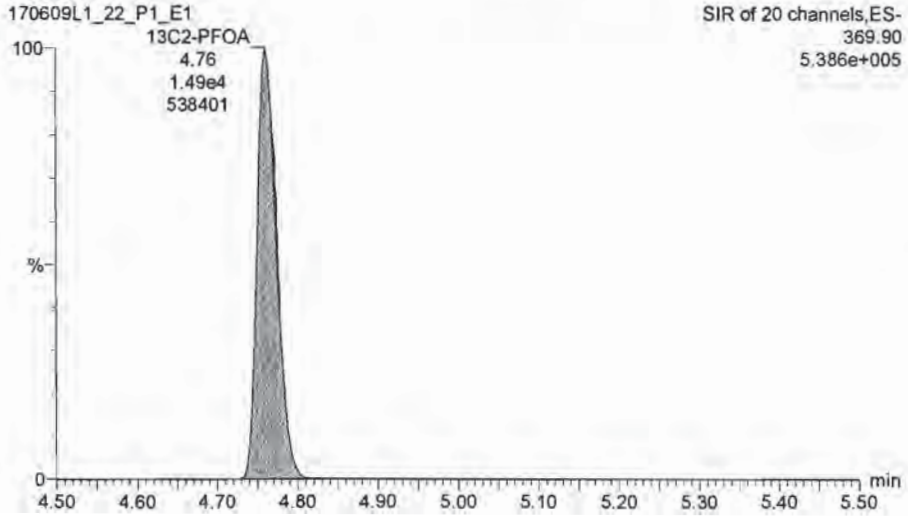
13C2-PFHxA



13C2-PFDA



13C2-PFOA



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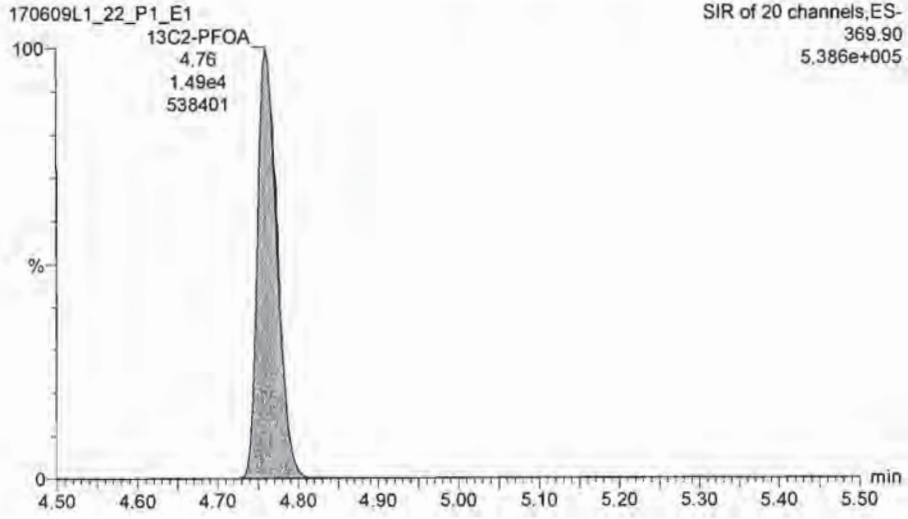
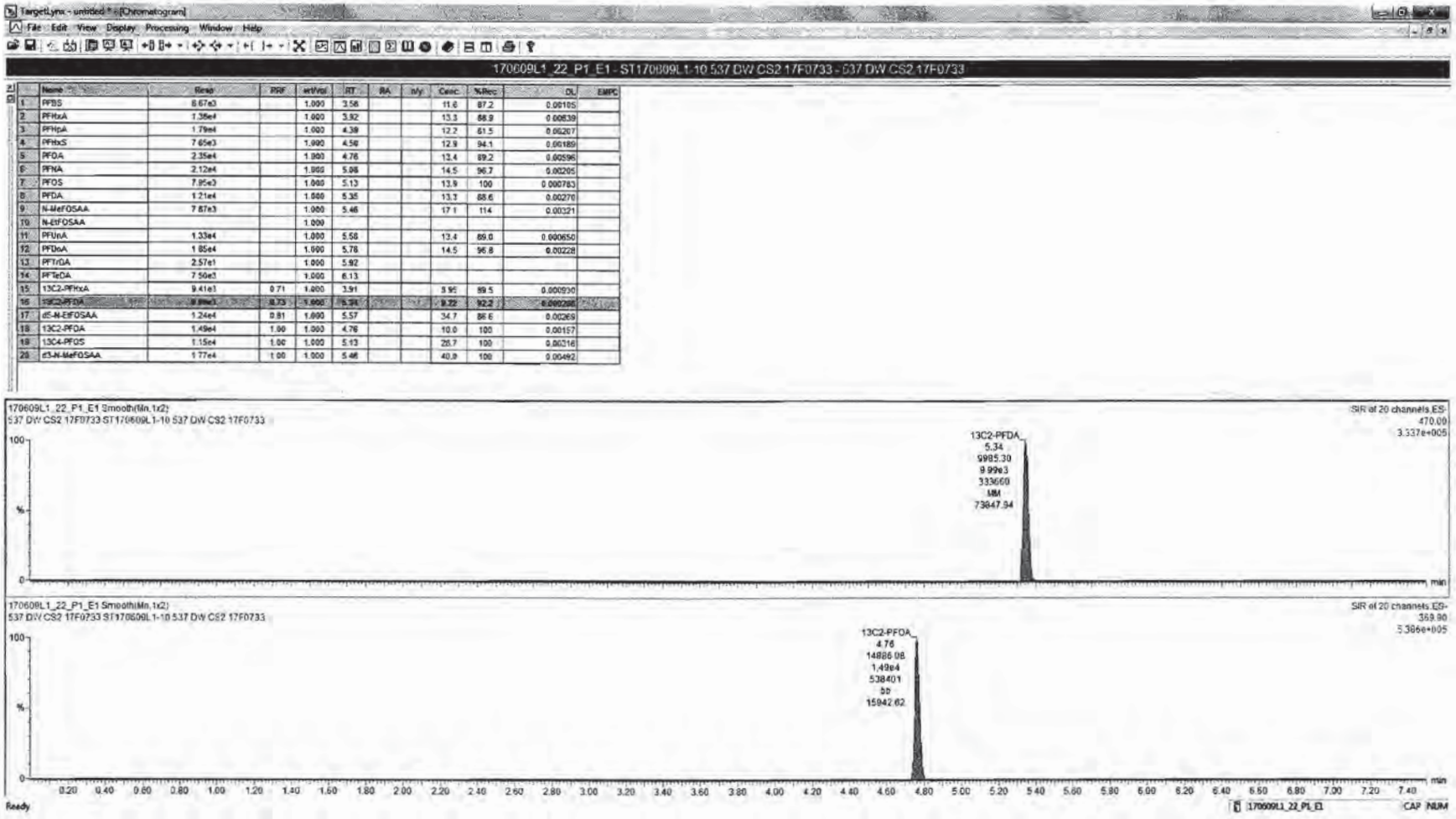




	Name	Resp	RRF	wt/vol	RT	RA	IVy	Conc	%Rec	DL	EMPC
1	PFBS	6.67e3		1.000	3.58			11.6	87.2	0.00105	
2	PFHxA	1.35e4		1.000	3.92			13.3	88.9	0.00839	
3	PFHpA	1.79e4		1.000	4.39			12.2	81.5	0.00207	
4	PFHxS	7.65e3		1.000	4.50			12.9	94.1	0.00189	
5	PFOA	2.35e4		1.000	4.76			13.4	89.2	0.00596	
6	PFNA	2.12e4		1.000	5.06			14.5	96.7	0.00205	
7	PFOS	7.95e3		1.000	5.13			13.9	100	0.000783	
8	PFDA	1.21e4		1.000	5.35			13.3	88.6	0.00270	
9	N-MeFOSAA	7.87e3		1.000	5.46			17.1	114	0.00321	
10	N-EtFOSAA			1.000							
11	PFUnA	1.33e4		1.000	5.58			13.4	89.0	0.000650	
12	PFDoA	1.85e4		1.000	5.78			14.5	96.8	0.00228	
13	PFTrDA	2.57e1		1.000	5.92						
14	PFTeDA	7.50e1		1.000	6.13						
15	13C2-PFHxA	9.41e3	0.71	1.000	3.91			9.95	89.5	0.000930	
16	13C2-PFDA	9.99e3	0.73	1.000	5.34			9.72	92.2	0.000298	
17	d5-N-EtFOSAA	1.24e4	0.81	1.000	5.57			34.7	86.6	0.00269	
18	13C2-PFOA	1.49e4	1.00	1.000	4.76			10.0	100	0.00157	
19	13C4-PFOS	1.15e4	1.00	1.000	5.13			26.7	100	0.00316	
20	d3-N-MeFOSAA	1.77e4	1.00	1.000	5.46			40.9	100	0.00492	

INITIAL CALIBRATION

Vista Analytical Laboratory

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-CRV.qld

Last Altered: Tuesday, June 13, 2017 10:53:57 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:02:01 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 14_537_DW.mdb 08 Jun 2017 11:44:34
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

Compound name: PFBS
Coefficient of Determination: R^2 = 0.987112
Calibration curve: -0.00937719 * x^2 + 1.97826 * x
Response type: Internal Std (Ref 19), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	1.77	3.66	1.13e3	1.08e4	1.54	-12.9	1.71
2	2	170609L1_05_P1_...	4.42	3.65	3.06e3	1.16e4	3.89	-12.1	1.71
3	3	170609L1_06_P1_...	8.85	3.62	5.80e3	1.07e4	8.15	-7.9	1.75
4	4	170609L1_07_P1_...	13.3	3.64	8.64e3	1.04e4	12.8	-3.7	1.79
5	5	170609L1_08_P1_...	17.7	3.61	1.24e4	1.13e4	17.4	-1.5	1.79
6	6	170609L1_09_P1_...	22.1	3.60	1.38e4	8.68e3	26.3	19.1	2.06
7	7	170609L1_10_P1_...	44.2	3.61	2.60e4	1.12e4	42.1	-4.7	1.51

AC 6/13/17

Compound name: PFHpA
Coefficient of Determination: R^2 = 0.998602
Calibration curve: -0.00379388 * x^2 + 1.02946 * x
Response type: Internal Std (Ref 18), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	2.00	4.47	2.66e3	1.20e4	2.16	8.2	1.11
2	2	170609L1_05_P1_...	5.00	4.46	6.59e3	1.21e4	5.40	8.0	1.09
3	3	170609L1_06_P1_...	10.0	4.46	1.24e4	1.23e4	10.2	2.1	1.01
4	4	170609L1_07_P1_...	15.0	4.43	1.69e4	1.21e4	14.3	-4.7	0.930
5	5	170609L1_08_P1_...	20.0	4.45	2.41e4	1.27e4	19.8	-0.9	0.945
6	6	170609L1_09_P1_...	25.0	4.44	2.76e4	1.20e4	24.7	-1.2	0.925
7	7	170609L1_10_P1_...	50.0	4.42	4.89e4	1.16e4	50.5	0.9	0.846

CT 6/13/17

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-CRV.qld

Last Altered: Tuesday, June 13, 2017 10:53:57 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:02:01 Pacific Daylight Time

Compound name: PFHxS
Coefficient of Determination: R^2 = 0.978403
Calibration curve: -0.00820546 * x^2 + 1.58639 * x
Response type: Internal Std (Ref 19), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	1.82	4.56	1.00e3	1.08e4	1.70	-6.5	1.47
2	2	170609L1_05_P1_...	4.56	4.55	2.53e3	1.16e4	4.01	-12.1	1.37
3	3	170609L1_06_P1_...	9.12	4.55	4.45e3	1.07e4	7.81	-14.4	1.30
4	4	170609L1_07_P1_...	13.7	4.53	7.28e3	1.04e4	13.6	-0.9	1.46
5	5	170609L1_08_P1_...	18.2	4.55	9.77e3	1.13e4	17.2	-5.7	1.36
6	6	170609L1_09_P1_...	22.8	4.54	1.17e4	8.68e3	28.6	25.3	1.69
7	7	170609L1_10_P1_...	45.6	4.52	2.06e4	1.12e4	42.9	-5.9	1.16

Compound name: PFOA
Coefficient of Determination: R^2 = 0.996157
Calibration curve: -0.00493088 * x^2 + 1.24838 * x
Response type: Internal Std (Ref 18), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	2.00	4.84	3.63e3	1.20e4	2.44	22.0	1.51
2	2	170609L1_05_P1_...	5.00	4.82	8.25e3	1.21e4	5.59	11.7	1.36
3	3	170609L1_06_P1_...	10.0	4.83	1.44e4	1.23e4	9.76	-2.4	1.17
4	4	170609L1_07_P1_...	15.0	4.79	2.05e4	1.21e4	14.4	-4.1	1.13
5	5	170609L1_08_P1_...	20.0	4.81	2.92e4	1.27e4	19.9	-0.6	1.14
6	6	170609L1_09_P1_...	25.0	4.81	3.27e4	1.20e4	24.3	-3.0	1.10
7	7	170609L1_10_P1_...	50.0	4.79	5.86e4	1.16e4	50.8	1.6	1.01

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-CRV.qld

Last Altered: Tuesday, June 13, 2017 10:53:57 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:02:01 Pacific Daylight Time

Compound name: PFNA
Coefficient of Determination: R^2 = 0.988257
Calibration curve: -0.00283959 * x^2 + 1.023 * x
Response type: Internal Std (Ref 18), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	2.00	5.15	2.67e3	1.20e4	2.18	8.9	1.11
2	2	170609L1_05_P1_...	5.00	5.13	6.96e3	1.21e4	5.71	14.2	1.15
3	3	170609L1_06_P1_...	10.0	5.14	1.09e4	1.23e4	8.87	-11.3	0.885
4	4	170609L1_07_P1_...	15.0	5.10	2.05e4	1.21e4	17.4	15.9	1.13
5	5	170609L1_08_P1_...	20.0	5.13	2.29e4	1.27e4	18.5	-7.5	0.898
6	6	170609L1_09_P1_...	25.0	5.13	2.69e4	1.20e4	23.5	-6.0	0.899
7	7	170609L1_10_P1_...	50.0	5.11	5.18e4	1.16e4	50.9	1.9	0.895

Compound name: PFOS
Coefficient of Determination: R^2 = 0.982947
Calibration curve: -0.00646712 * x^2 + 1.51574 * x
Response type: Internal Std (Ref 19), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	1.85	5.20	9.98e2	1.08e4	1.77	-4.4	1.44
2	2	170609L1_05_P1_...	4.62	5.18	2.35e3	1.16e4	3.88	-16.0	1.25
3	3	170609L1_06_P1_...	9.24	5.19	4.56e3	1.07e4	8.33	-9.8	1.32
4	4	170609L1_07_P1_...	13.9	5.16	6.68e3	1.04e4	12.8	-7.8	1.32
5	5	170609L1_08_P1_...	18.5	5.18	1.03e4	1.13e4	18.8	1.7	1.42
6	6	170609L1_09_P1_...	23.1	5.19	1.13e4	8.68e3	28.0	21.1	1.62
7	7	170609L1_10_P1_...	46.2	5.16	2.10e4	1.12e4	43.8	-5.2	1.17

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-CRV.qld

Last Altered: Tuesday, June 13, 2017 10:53:57 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:02:01 Pacific Daylight Time

Compound name: 13C2-PFHxA
Response Factor: 0.705635
RRF SD: 0.0242863, Relative SD: 3.44176
Response type: Internal Std (Ref 18), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170609L1_04_P1_...	10.0	4.00	9.11e3	1.20e4	10.7	7.1	0.756
2	2 170609L1_05_P1_...	10.0	3.98	8.55e3	1.21e4	10.0	0.1	0.706
3	3 170609L1_06_P1_...	10.0	3.97	8.46e3	1.23e4	9.76	-2.4	0.689
4	4 170609L1_07_P1_...	10.0	3.97	8.35e3	1.21e4	9.77	-2.3	0.689
5	5 170609L1_08_P1_...	10.0	3.96	9.11e3	1.27e4	10.1	1.3	0.715
6	6 170609L1_09_P1_...	10.0	3.94	8.30e3	1.20e4	9.84	-1.6	0.694
7	7 170609L1_10_P1_...	10.0	3.94	7.99e3	1.16e4	9.78	-2.2	0.690

Compound name: 13C2-PFDA
Response Factor: 0.727225
RRF SD: 0.0304621, Relative SD: 4.18882
Response type: Internal Std (Ref 18), Area * (IS Conc. / IS Area)
Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170609L1_04_P1_...	10.0	5.42	8.90e3	1.20e4	10.2	1.6	0.739
2	2 170609L1_05_P1_...	10.0	5.40	9.28e3	1.21e4	10.5	5.4	0.766
3	3 170609L1_06_P1_...	10.0	5.41	8.52e3	1.23e4	9.54	-4.6	0.694
4	4 170609L1_07_P1_...	10.0	5.37	8.28e3	1.21e4	9.40	-6.0	0.684
5	5 170609L1_08_P1_...	10.0	5.40	9.56e3	1.27e4	10.3	3.2	0.750
6	6 170609L1_09_P1_...	10.0	5.41	8.86e3	1.20e4	10.2	2.0	0.742
7	7 170609L1_10_P1_...	10.0	5.38	8.29e3	1.16e4	9.85	-1.5	0.716

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-CRV.qld

Last Altered: Tuesday, June 13, 2017 10:53:57 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:02:01 Pacific Daylight Time

Compound name: 13C2-PFOA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 18), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	10.0	4.83	1.20e4	1.20e4	10.0	0.0	1.00
2	2	170609L1_05_P1_...	10.0	4.82	1.21e4	1.21e4	10.0	0.0	1.00
3	3	170609L1_06_P1_...	10.0	4.82	1.23e4	1.23e4	10.0	0.0	1.00
4	4	170609L1_07_P1_...	10.0	4.79	1.21e4	1.21e4	10.0	0.0	1.00
5	5	170609L1_08_P1_...	10.0	4.81	1.27e4	1.27e4	10.0	0.0	1.00
6	6	170609L1_09_P1_...	10.0	4.81	1.20e4	1.20e4	10.0	0.0	1.00
7	7	170609L1_10_P1_...	10.0	4.79	1.16e4	1.16e4	10.0	0.0	1.00

Compound name: 13C4-PFOS
Response Factor: 1
RRF SD: 9.06493e-017, Relative SD: 9.06493e-015
Response type: Internal Std (Ref 19), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	28.7	5.20	1.08e4	1.08e4	28.7	0.0	1.00
2	2	170609L1_05_P1_...	28.7	5.18	1.16e4	1.16e4	28.7	0.0	1.00
3	3	170609L1_06_P1_...	28.7	5.19	1.07e4	1.07e4	28.7	0.0	1.00
4	4	170609L1_07_P1_...	28.7	5.15	1.04e4	1.04e4	28.7	0.0	1.00
5	5	170609L1_08_P1_...	28.7	5.18	1.13e4	1.13e4	28.7	0.0	1.00
6	6	170609L1_09_P1_...	28.7	5.19	8.68e3	8.68e3	28.7	0.0	1.00
7	7	170609L1_10_P1_...	28.7	5.16	1.12e4	1.12e4	28.7	0.0	1.00

Quantify Compound Summary Report

Printed Tue Jun 13 11:04:36 2017

Compound 18: 13C2-PFOA

	#	Name	Type	Std. Con	RT	Area	IS Area	Respons	Primary	Conc.	%Dev	Acq.Date	Acq.Time	Cal.Date	%Rec	RRF	Divisor1	
1	1	170609L1_04_P1_E	Standard	10	4.83	12045	12045	10	bb	10	0	9-Jun-17	15:23:04	13-Jun-17	100	1	1	
2	2	170609L1_05_P1_E	Standard	10	4.82	12103	12103	10	bb	10	0	9-Jun-17	15:35:19	13-Jun-17	100	1	1	
3	3	170609L1_06_P1_E	Standard	10	4.82	12280	12280	10	bb	10	0	9-Jun-17	15:47:34	13-Jun-17	100	1	1	
4	4	170609L1_07_P1_E	Standard	10	4.79	12114	12114	10	bb	10	0	9-Jun-17	15:59:49	13-Jun-17	100	1	1	
5	5	170609L1_08_P1_E	Standard	10	4.81	12747	12747	10	bb	10	0	9-Jun-17	16:12:03	13-Jun-17	100	1	1	
6	6	170609L1_09_P1_E	Standard	10	4.81	11950	11950	10	bb	10	0	9-Jun-17	16:24:17	13-Jun-17	100	1	1	
7	7	170609L1_10_P1_E	Standard	10	4.79	11572	11572	10	bb	10	0	9-Jun-17	16:36:32	13-Jun-17	100	1	1	

Compound 18: 13C2-PFOA

RPD

HIGH ARE	12747
LOW AREA	11572
RPD %	9.7

INSTRUCTIONS: IN TARGETLYNX, VERIFY YOU ARE USING THE LIST14 DW LAYOUT. RIGHT CLICK ON THE SUMMARY BOX AND SELECT "LIST BY COMPOUND". SELECT 13C2-PFOA, 13C4-PFOS OR D3-NMEFOSAA. CLICK ON EDIT. SELECT COPY CURRENT SUMMARY. PASTE IN CELL A1.

Quantify Compound Summary Report

Printed Tue Jun 13 11:06:43 2017

Compound 19: 13C4-PFOS

	#	Name	Type	Std. Con	RT	Area	IS Area	Respons	Primary	Conc.	%Dev	Acq.Date	Acq.Time	Cal.Date	%Rec	RRF	Divisor1	
1	1	170609L1_04_P1_E	Standard	28.7	5.2	10758	10758	28.7	bb	28.7	0	9-Jun-17	15:23:04	13-Jun-17	100	1	1	
2	2	170609L1_05_P1_E	Standard	28.7	5.18	11640	11640	28.7	bb	28.7	0	9-Jun-17	15:35:19	13-Jun-17	100	1	1	
3	3	170609L1_06_P1_E	Standard	28.7	5.19	10733	10733	28.7	bb	28.7	0	9-Jun-17	15:47:34	13-Jun-17	100	1	1	
4	4	170609L1_07_P1_E	Standard	28.7	5.15	10440	10440	28.7	bb	28.7	0	9-Jun-17	15:59:49	13-Jun-17	100	1	1	
5	5	170609L1_08_P1_E	Standard	28.7	5.18	11280	11280	28.7	bb	28.7	0	9-Jun-17	16:12:03	13-Jun-17	100	1	1	

Compound 19: 13C4-PFOS

RPD

HIGH ARE	11640
LOW AREA	10440
RPD %	10.9

INSTRUCTIONS: IN TARGETLYNX, VERIFY YOU ARE USING THE LIST14 DW LAYOUT. RIGHT CLICK ON THE SUMMARY BOX AND SELECT "LIST BY COMPOUND". SELECT 13C2-PFOA, 13C4-PFOS OR D3-NMEFOSAA. CLICK ON EDIT. SELECT COPY CURRENT SUMMARY. PASTE IN CELL A1.

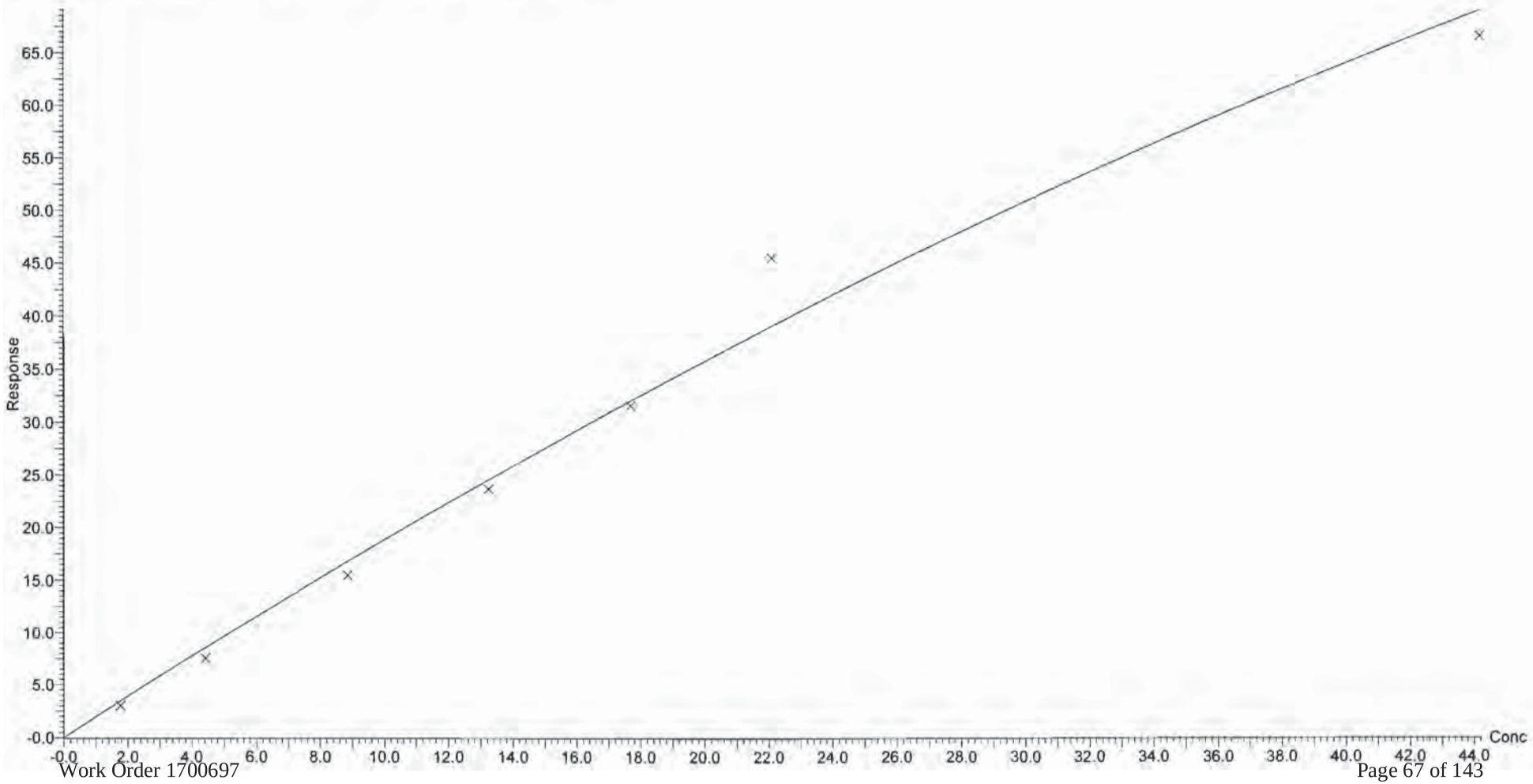
Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-CRV.qld

Last Altered: Tuesday, June 13, 2017 10:53:57 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:02:31 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 14_537_DW.mdb 08 Jun 2017 11:44:34
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

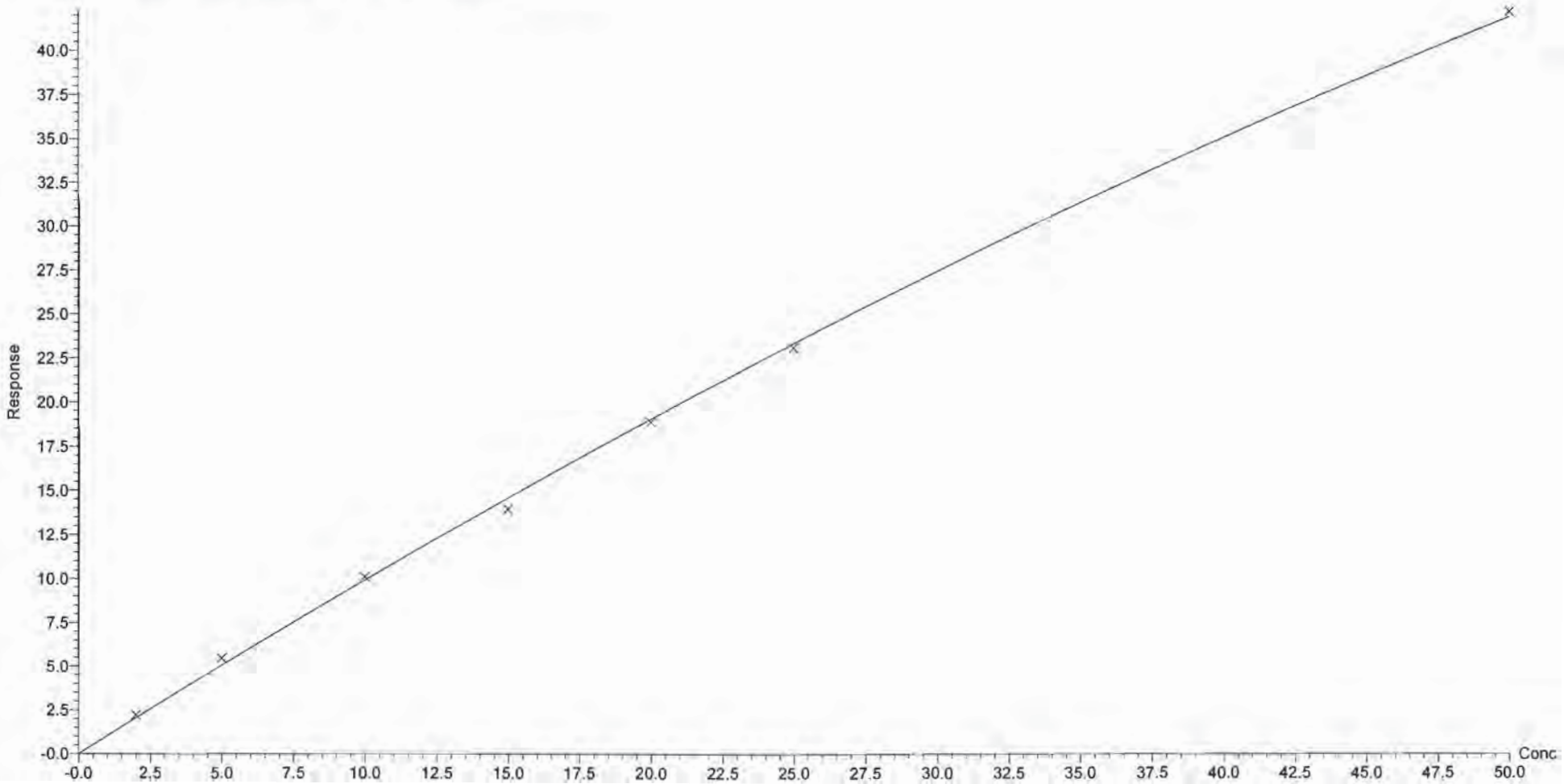
Compound name: PFBS
Coefficient of Determination: R^2 = 0.987112
Calibration curve: -0.00937719 * x^2 + 1.97826 * x
Response type: Internal Std (Ref 19), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None



Dataset: U:\Q2.PRO\Results\170609L1\170609L1-CRV.qld

Last Altered: Tuesday, June 13, 2017 10:53:57 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:02:31 Pacific Daylight Time

Compound name: PFHpA
Coefficient of Determination: R^2 = 0.998602
Calibration curve: -0.00379388 * x^2 + 1.02946 * x
Response type: Internal Std (Ref 18), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None

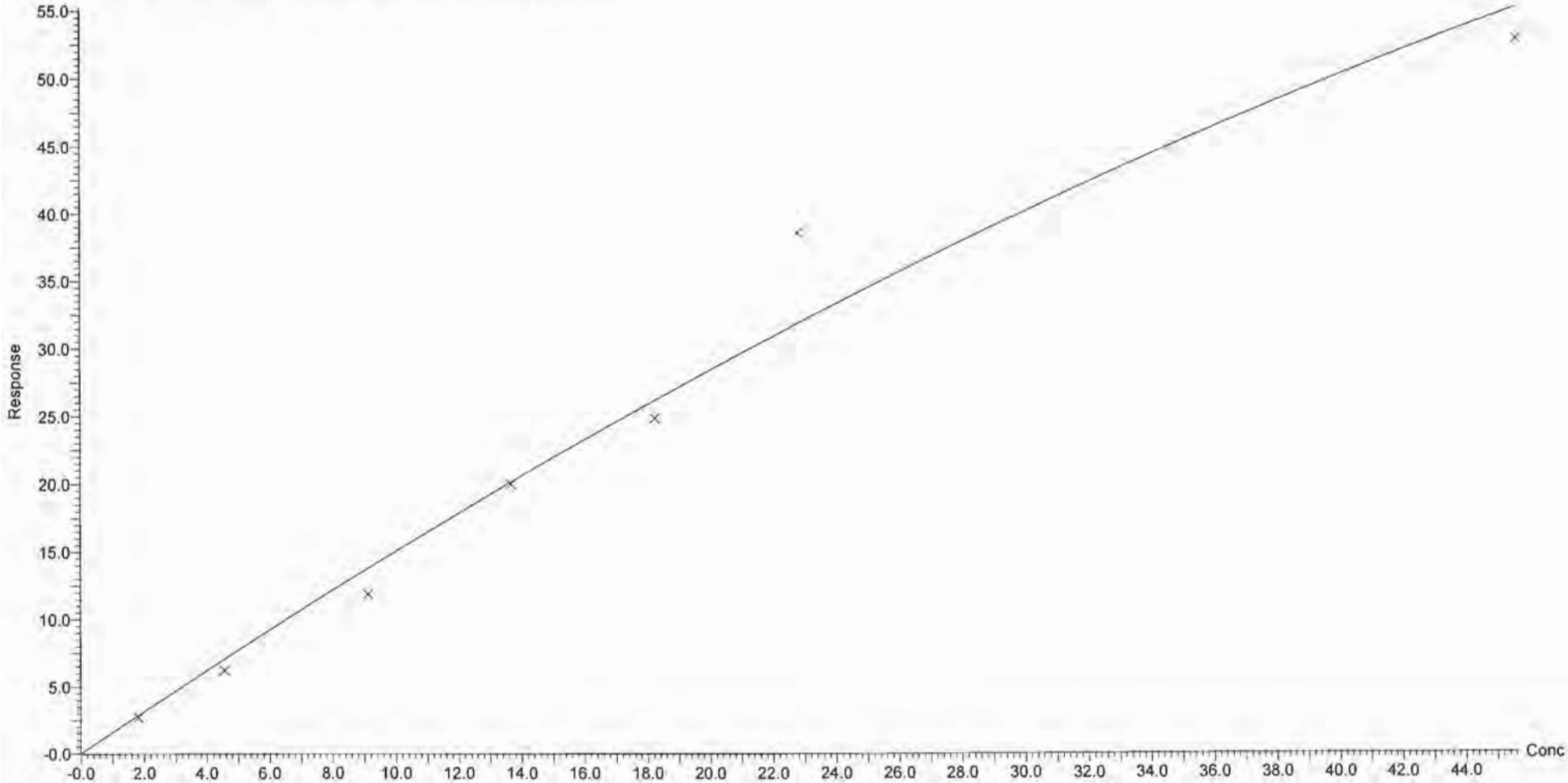


Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-CRV.qld

Last Altered: Tuesday, June 13, 2017 10:53:57 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:02:31 Pacific Daylight Time

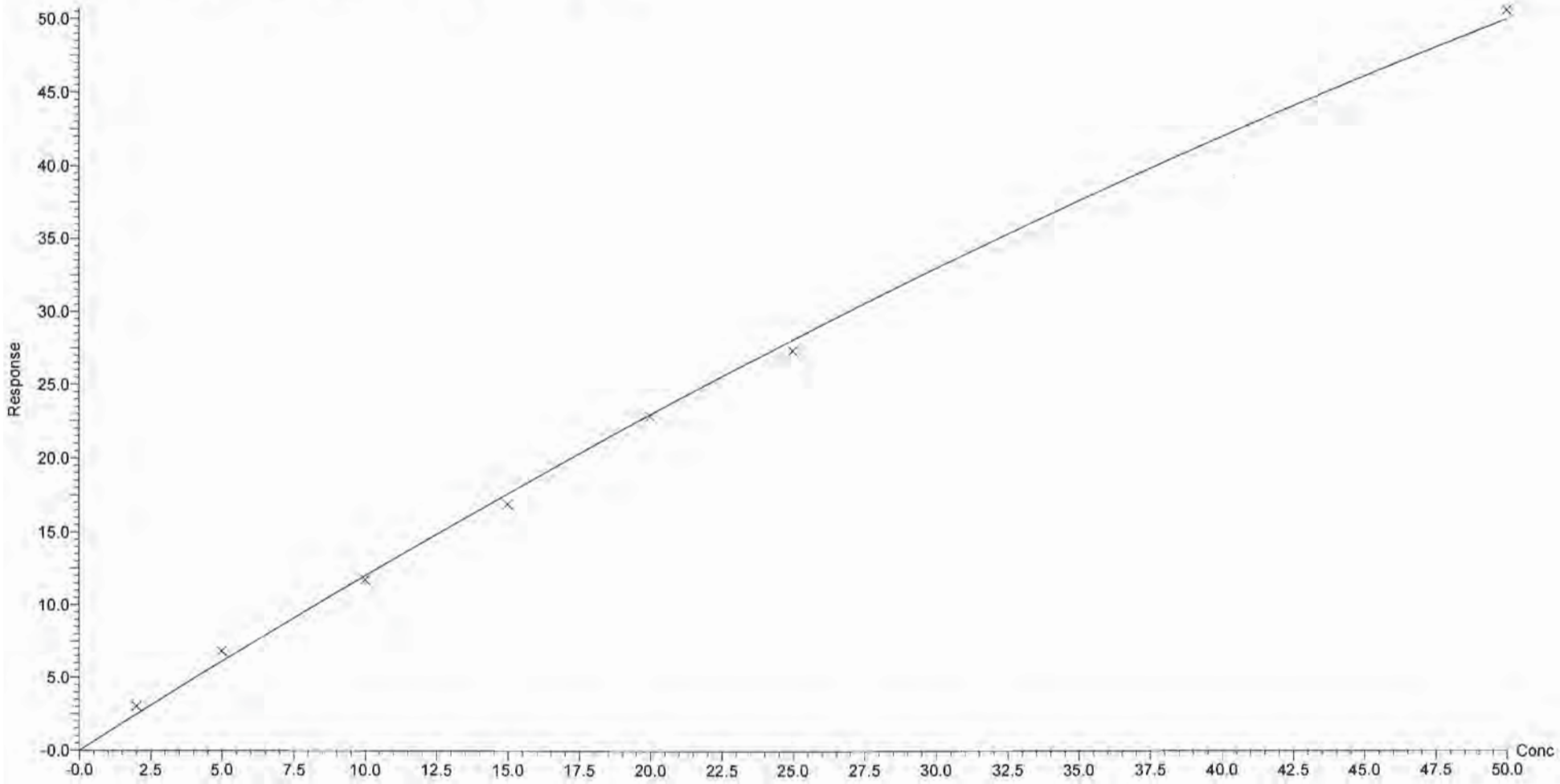
Compound name: PFHxS
Coefficient of Determination: R^2 = 0.978403
Calibration curve: -0.00820546 * x^2 + 1.58639 * x
Response type: Internal Std (Ref 19), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None



Dataset: U:\Q2.PRO\Results\170609L1\170609L1-CRV.qld

Last Altered: Tuesday, June 13, 2017 10:53:57 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:02:31 Pacific Daylight Time

Compound name: PFOA
Coefficient of Determination: R^2 = 0.996157
Calibration curve: -0.00493088 * x^2 + 1.24838 * x
Response type: Internal Std (Ref 18), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None

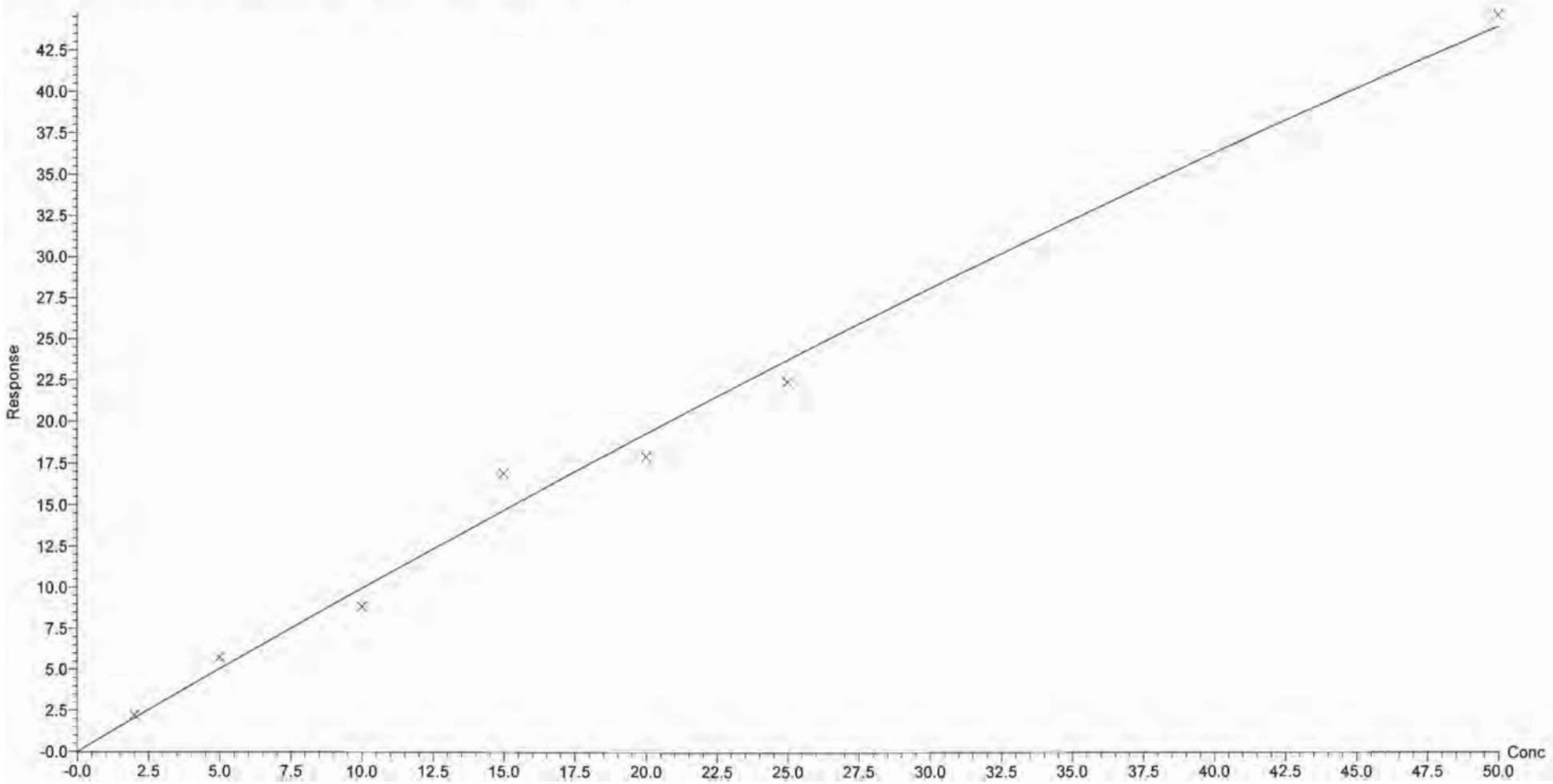


Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-CRV.qld

Last Altered: Tuesday, June 13, 2017 10:53:57 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:02:31 Pacific Daylight Time

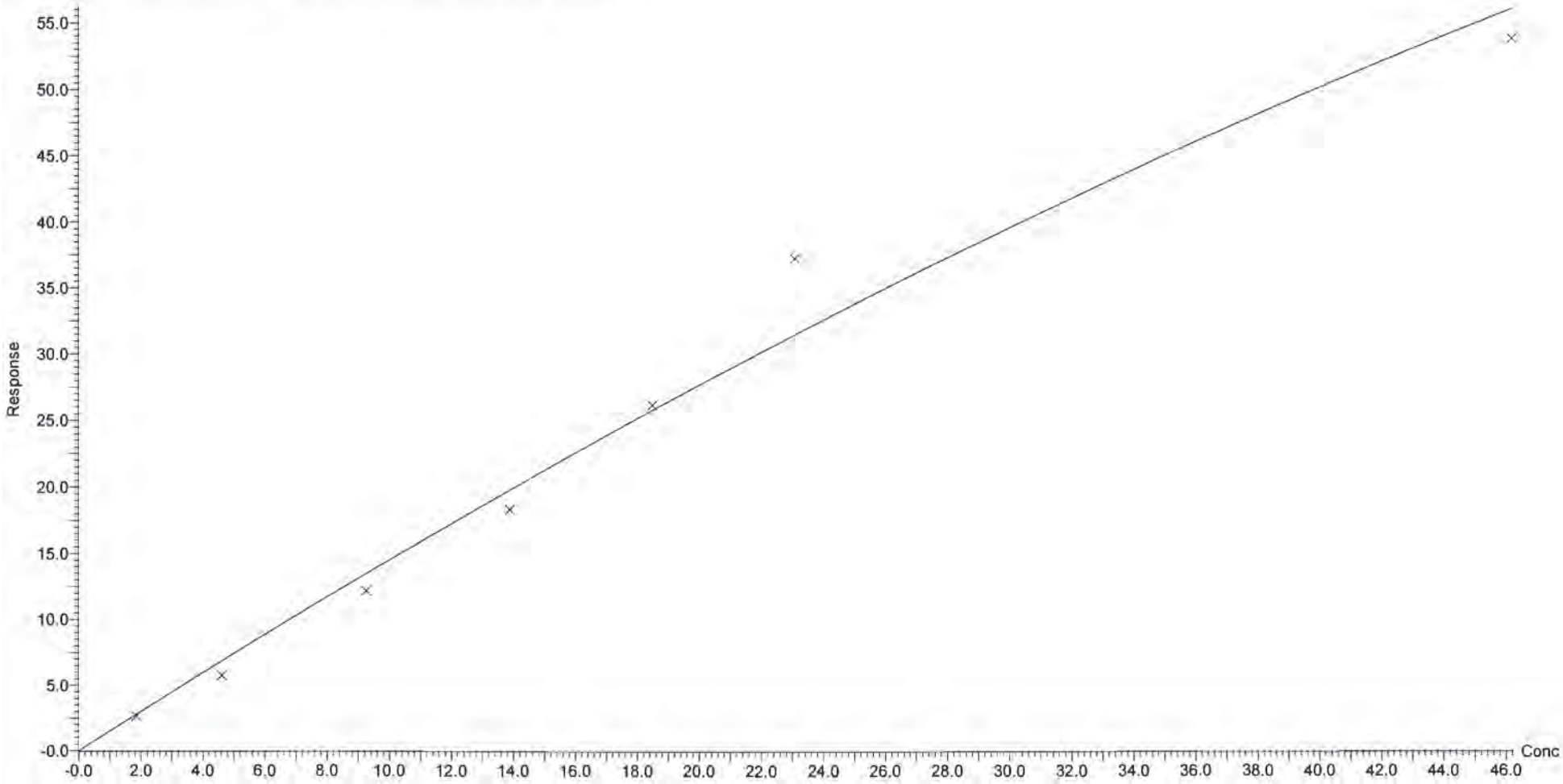
Compound name: PFNA
Coefficient of Determination: R^2 = 0.988257
Calibration curve: -0.00283959 * x^2 + 1.023 * x
Response type: Internal Std (Ref 18), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None

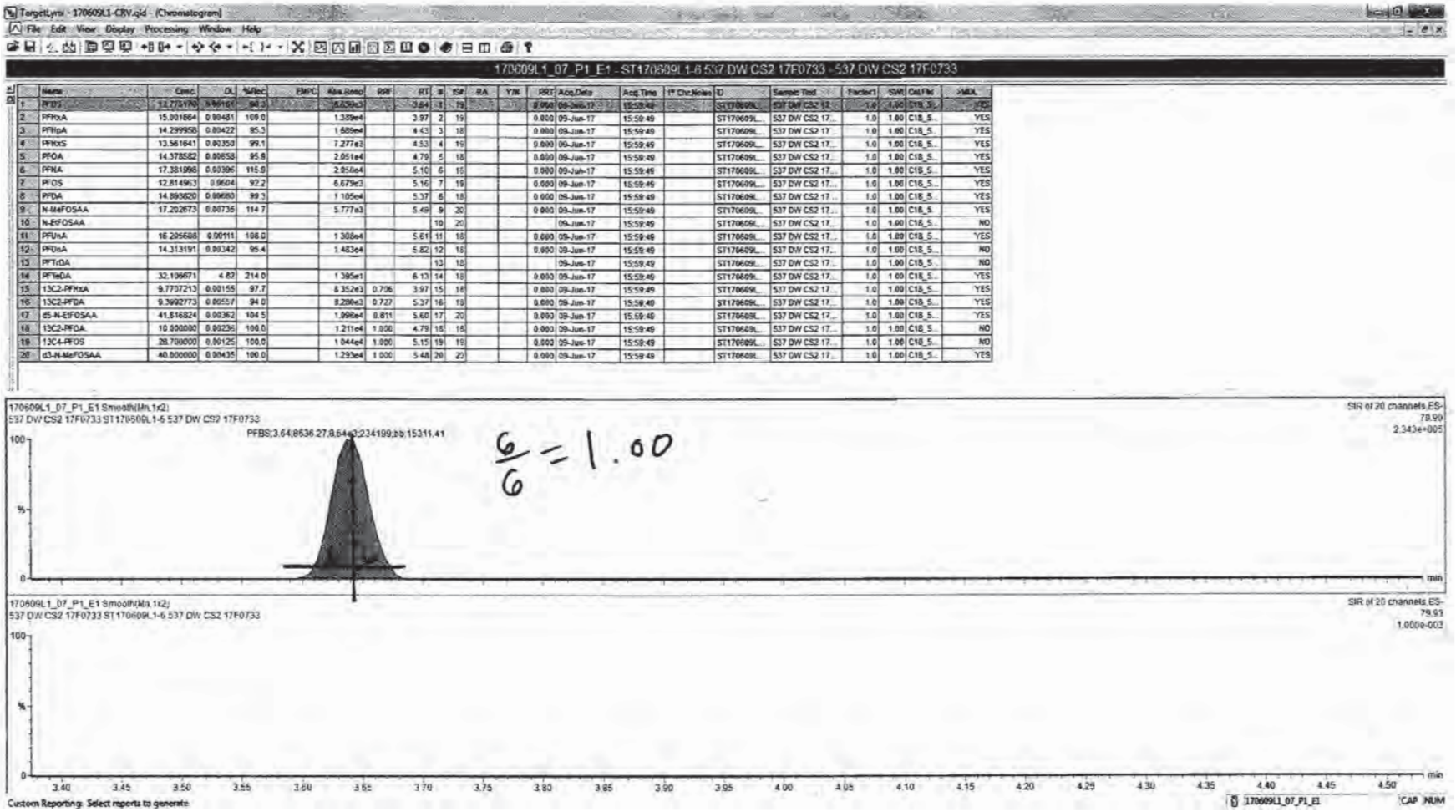


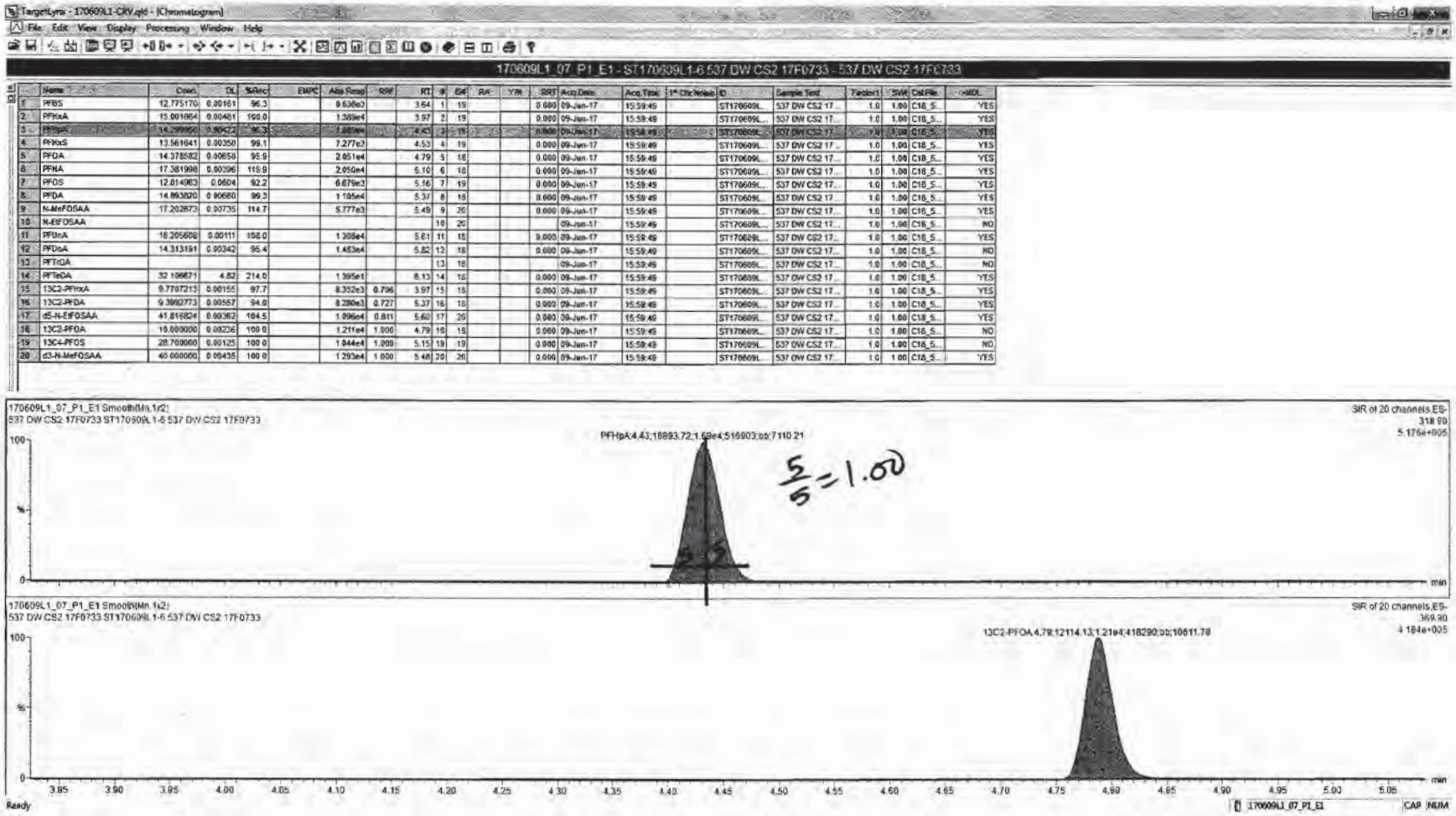
Dataset: U:\Q2.PRO\Results\170609L1\170609L1-CRV.qld

Last Altered: Tuesday, June 13, 2017 10:53:57 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:02:31 Pacific Daylight Time

Compound name: PFOS
Coefficient of Determination: R^2 = 0.982947
Calibration curve: -0.00646712 * x^2 + 1.51574 * x
Response type: Internal Std (Ref 19), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None




TargetLynx - 170609L1-CRV.qld - [Chromatogram]
File Edit View Display Processing Window Help
170609L1_07_P1_E1 - ST170609L1-6 537 DW CS2 17F0733 - 537 DW CS2 17F0733
PFBS;3.64;8636.27;8.64e3;234199;bb;15311.41
6/6 = 1.00
Custom Reporting: Select reports to generate



	Name	Conc.	DL	%Rec	EMPC	Abs Resp	RRF	RT	#	ISd	RA	Y/N	SRT	Acq.Date	Acq.Time	1st Chl Name	ID	Sample Text	Factor1	SW	CalFile	Valid
1	PFBS	12.775170	0.00161	96.3		8.636e3		3.64	1	19			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
2	PFHxA	15.001664	0.00481	100.0		1.389e4		3.97	2	19			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
3	PFHpA	14.299960	0.00422	95.3		1.889e4		4.43	3	19			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
4	PFHxS	13.561641	0.00350	99.1		7.277e3		4.53	4	19			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
5	PFOA	14.378582	0.00858	95.9		2.651e4		4.79	5	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
6	PFNA	17.381998	0.00396	115.9		2.050e4		5.10	6	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
7	PFOS	12.814963	0.0604	92.2		6.679e3		5.16	7	19			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
8	PFDA	14.863820	0.00680	99.3		1.105e4		5.37	8	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
9	N-MeFOSAA	17.202873	0.00735	114.7		5.777e3		5.49	9	20			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C16_5...	YES
10	N-EtFOSAA								10	20				09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	NO
11	PFUnA	16.205608	0.00111	108.0		1.308e4		5.61	11	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
12	PFDoA	14.313191	0.00342	95.4		1.483e4		5.82	12	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	NO
13	PFTrDA								13	18				09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	NO
14	PFTeDA	32.106671	4.82	214.0		1.395e3		6.13	14	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
15	13C2-PFHxA	9.7797213	0.00155	97.7		8.352e3	0.796	3.97	15	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
16	13C2-PFDA	9.3992773	0.00557	94.0		8.280e3	0.727	5.37	16	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
17	d5-N-EtFOSAA	41.816824	0.00362	104.5		1.096e4	0.811	5.60	17	20			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
18	13C2-PFOA	10.000000	0.00236	100.0		1.211e4	1.000	4.79	18	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	NO
19	13C4-PFOS	28.700000	0.00125	100.0		1.844e4	1.000	5.15	19	19			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	NO
20	d3-N-MeFOSAA	40.000000	0.00435	100.0		1.293e4	1.000	5.48	20	20			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES

Vista Analytical Laboratory Q2

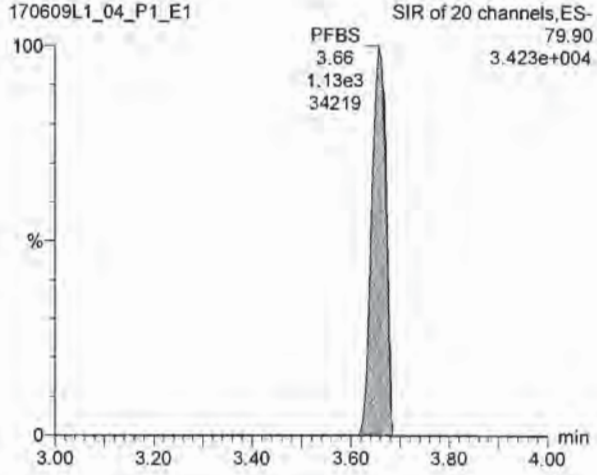
Dataset: Untitled

Last Altered: Tuesday, June 13, 2017 10:43:47 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 10:48:33 Pacific Daylight Time

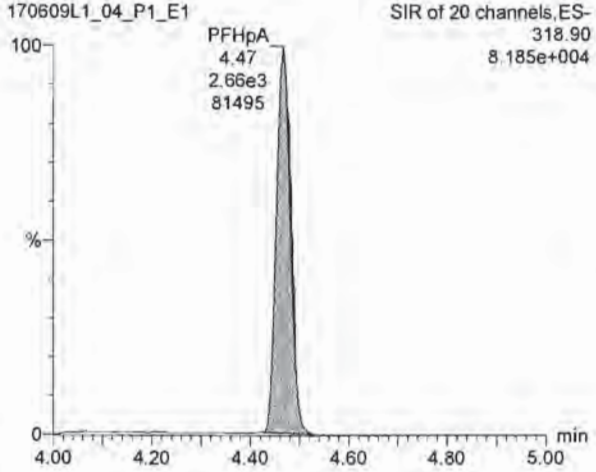
Method: U:\Q2.PRO\MethDB\PFC List 14_537_DW.mdb 08 Jun 2017 11:44:34
Calibration: 13 Jun 2017 10:43:47

Name: 170609L1_04.wiff, Date: 09-Jun-2017, Time: 15:23:04, ID: ST170609L1-3 537 DW CS(-1) 17F0730, Description: 537 DW CS(-1) 17F0730

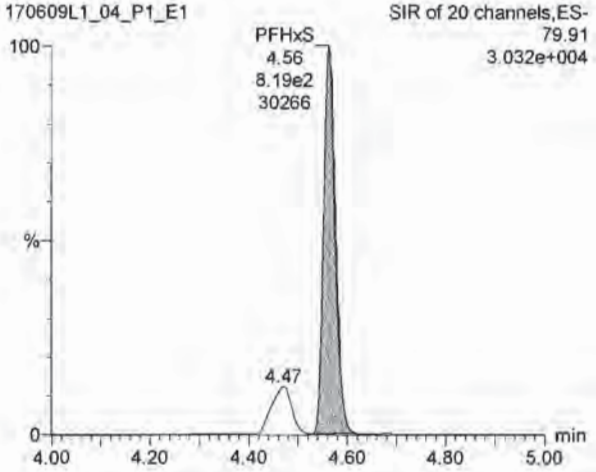
PFBS



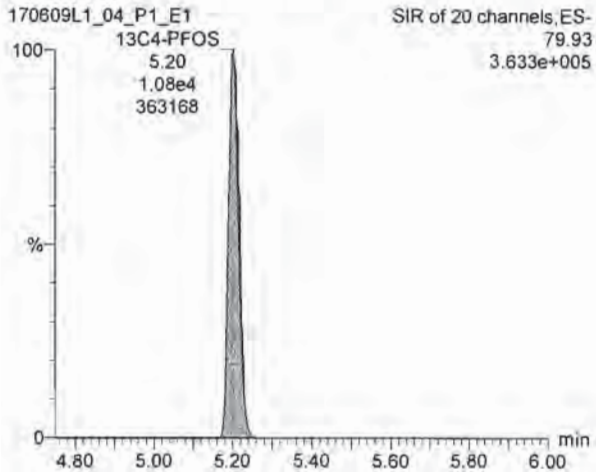
PFHpA



PFHxS



13C4-PFOS



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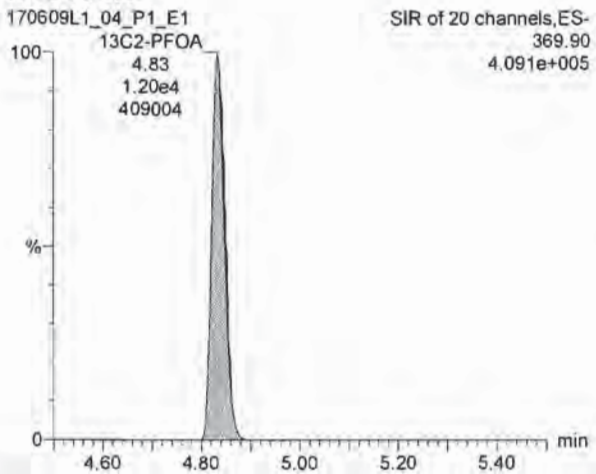
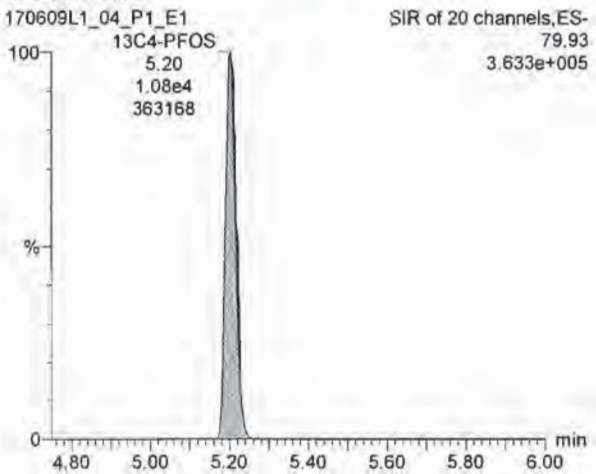
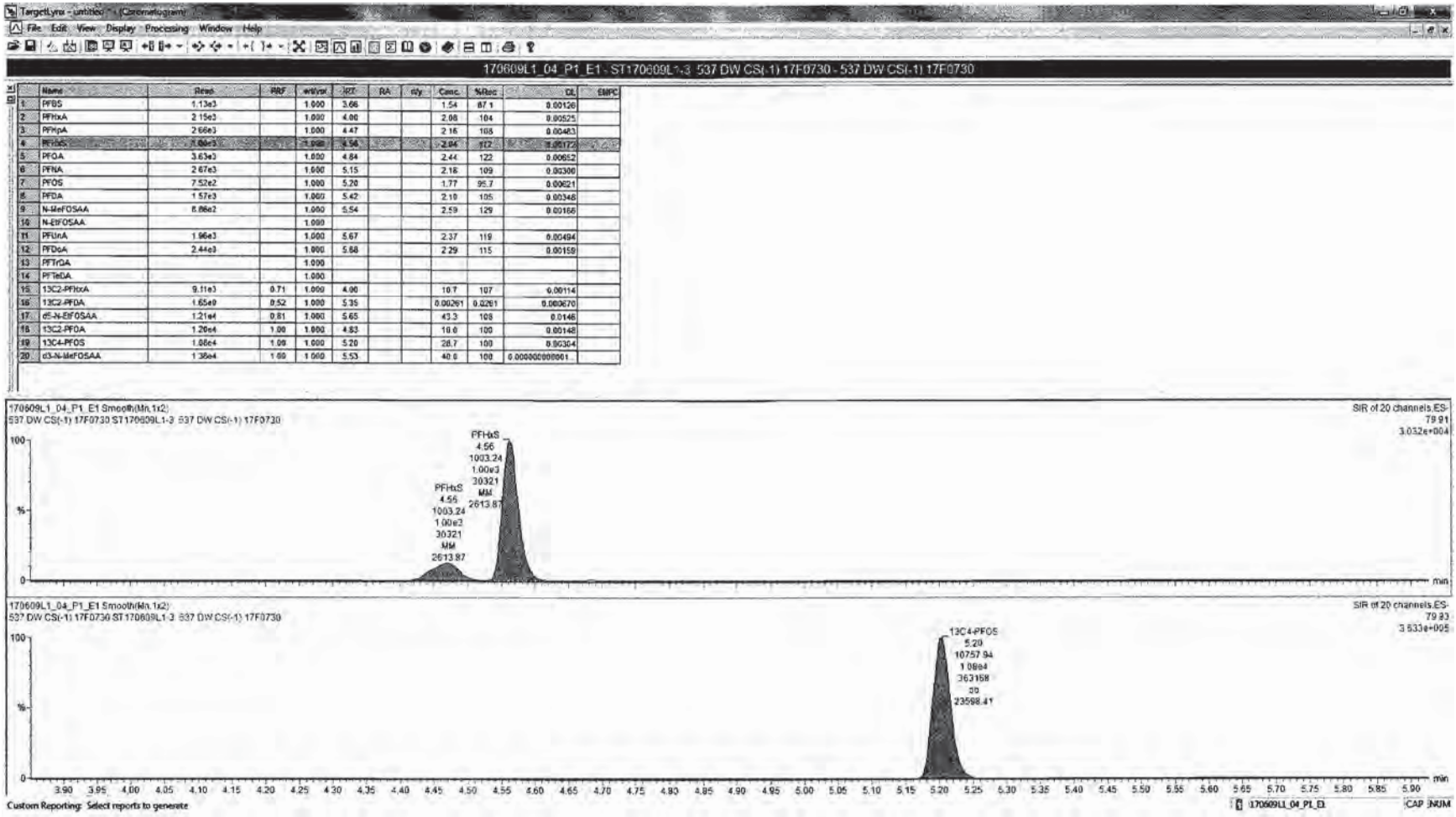


13C4-PFOS





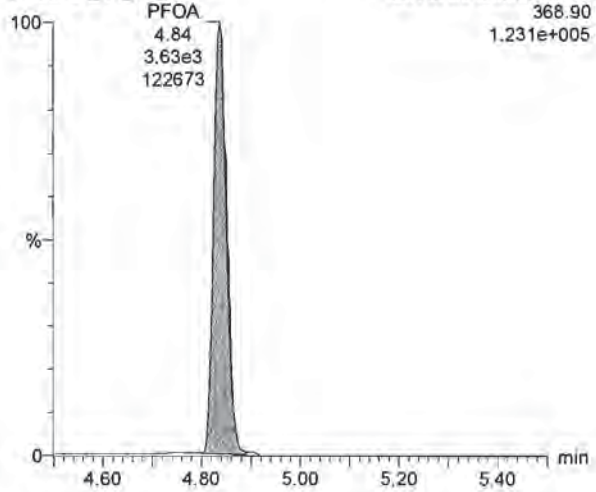
	Name	Resp.	RRF	wt/vol	RT	RA	d/y	Conc.	%Rec	DL	EMPC
1	PFBS	1.13e3		1.000	3.66			1.54	87.1	0.00126	
2	PFHxA	2.15e3		1.000	4.00			2.08	104	0.00525	
3	PFHpA	2.66e3		1.000	4.47			2.16	108	0.00483	
4	PFHxS	7.00e3		1.000	4.56			2.84	142	0.00172	
5	PFOA	3.63e3		1.000	4.84			2.44	122	0.00652	
6	PFNA	2.67e3		1.000	5.15			2.16	109	0.00300	
7	PFOS	7.52e2		1.000	5.20			1.77	95.7	0.00621	
8	PFDA	1.57e3		1.000	5.42			2.10	105	0.00348	
9	N-MeFOSAA	8.86e2		1.000	5.54			2.59	129	0.00166	
10	N-EtFOSAA			1.000							
11	PFUnA	1.96e3		1.000	5.67			2.37	119	0.00494	
12	PFDoA	2.44e3		1.000	5.88			2.29	115	0.00159	
13	PFTrDA			1.000							
14	PFTeDA			1.000							
15	13C2-PFHxA	9.11e3	0.71	1.000	4.00			10.7	107	0.00114	
16	13C2-PFDA	1.65e0	0.52	1.000	5.35			0.00261	0.0261	0.000670	
17	d5-N-EtFOSAA	1.21e4	0.81	1.000	5.65			43.3	108	0.0146	
18	13C2-PFOA	1.26e4	1.00	1.000	4.83			10.0	100	0.00148	
19	13C4-PFOS	1.08e4	1.09	1.000	5.20			28.7	100	0.00304	
20	d3-N-MeFOSAA	1.36e4	1.00	1.000	5.53			40.0	100	0.000000000001	

Dataset: Untitled

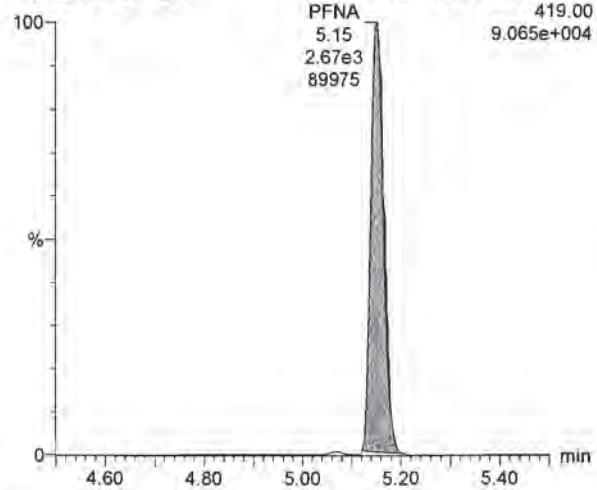
Last Altered: Tuesday, June 13, 2017 10:43:47 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 10:48:33 Pacific Daylight Time

Name: 170609L1_04.wiff, Date: 09-Jun-2017, Time: 15:23:04, ID: ST170609L1-3 537 DW CS(-1) 17F0730, Description: 537 DW CS(-1) 17F0730

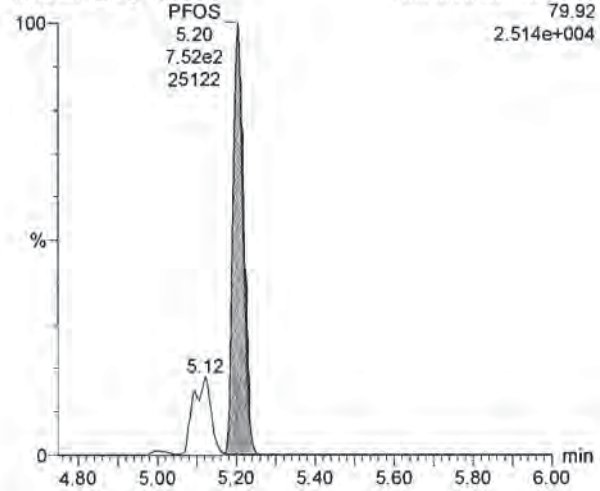
PFOA



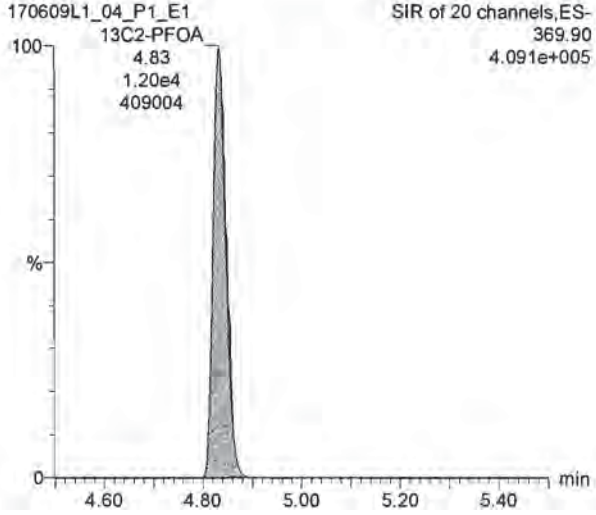
PFNA



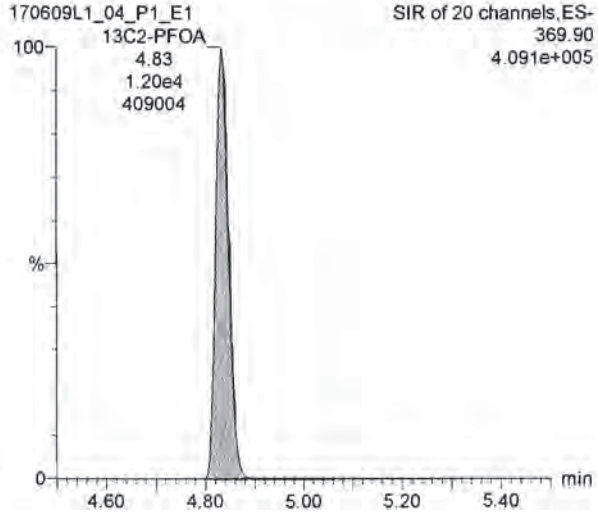
PFOS



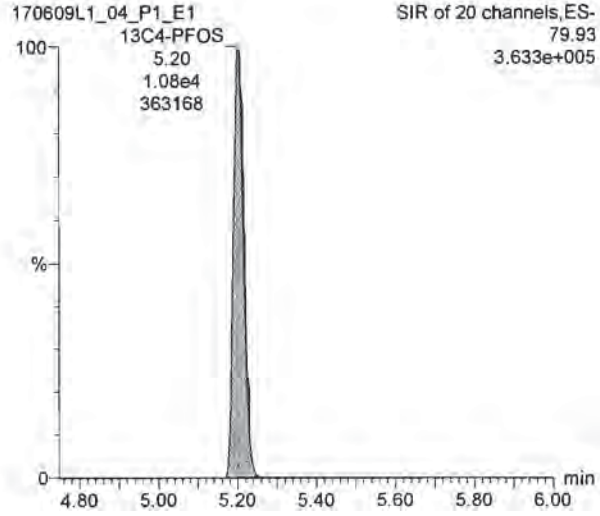
13C2-PFOA

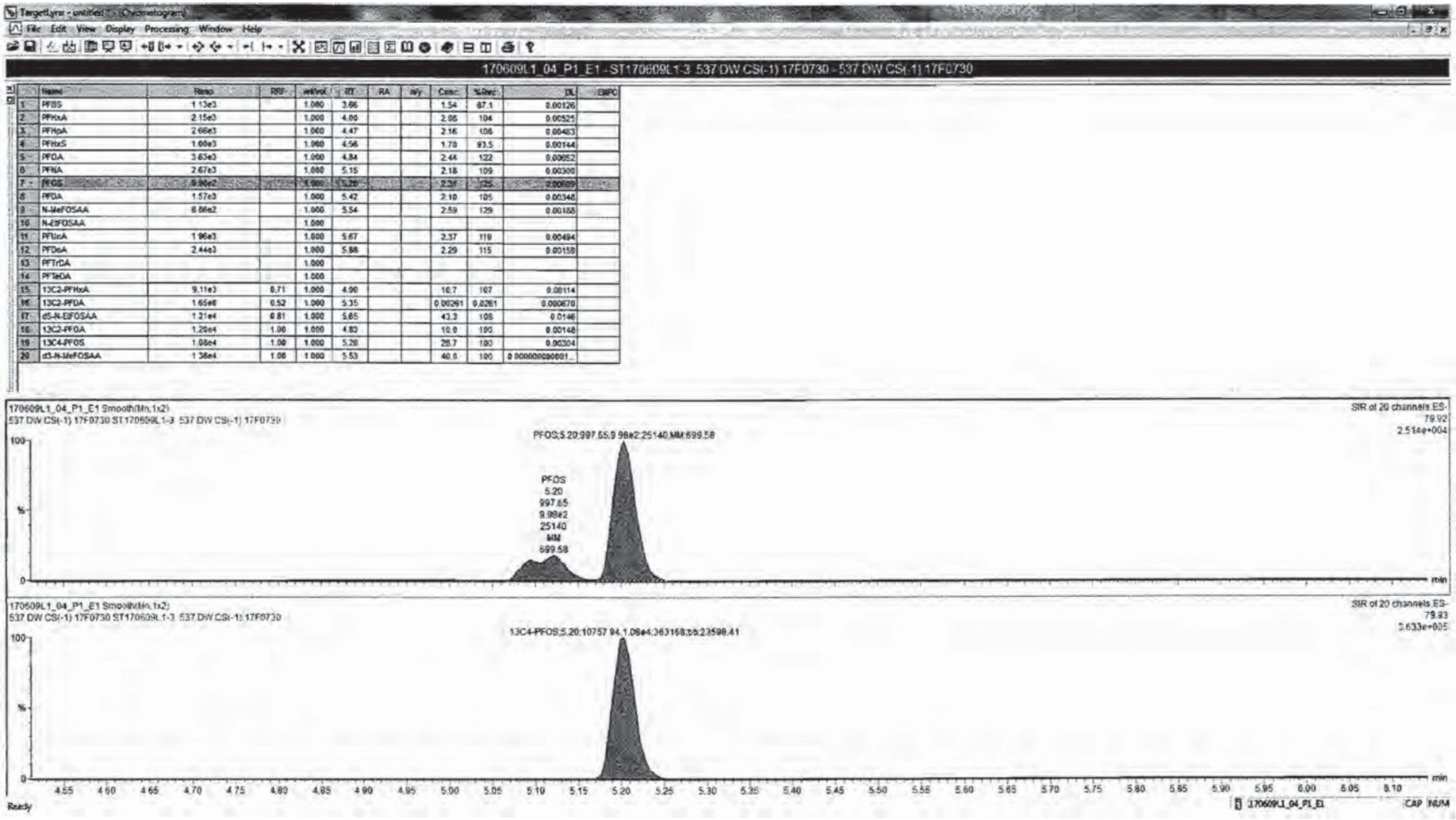


13C2-PFOA



13C4-PFOS





	Name	Resp	RRF	wt/vol	RT	RA	a/y	Conc	%Rec	DL	EMPC
1	PFBS	1.13e3		1.000	3.66			1.54	67.1	0.00126	
2	PFHxA	2.15e3		1.000	4.00			2.66	104	0.00525	
3	PFHpA	2.66e3		1.000	4.47			2.16	108	0.00483	
4	PFHxS	1.00e3		1.000	4.56			1.78	93.5	0.00144	
5	PFOA	3.63e3		1.000	4.84			2.44	122	0.00652	
6	PFNA	2.67e3		1.000	5.15			2.18	109	0.00300	
7	PFOS	9.98e2		1.000	5.20			2.31	125	0.00689	
8	PFDA	1.57e3		1.000	5.42			2.10	105	0.00348	
9	N-MeFOSAA	6.86e2		1.000	5.54			2.59	129	0.00168	
10	N-EtFOSAA			1.000							
11	PFUnA	1.96e3		1.000	5.67			2.37	119	0.00494	
12	PFDoA	2.44e3		1.000	5.88			2.29	115	0.00158	
13	PFTrDA			1.000							
14	PFTeDA			1.000							
15	13C2-PFHxA	9.11e3	0.71	1.000	4.90			10.7	107	0.00114	
16	13C2-PFDA	1.65e6	0.52	1.000	5.35			0.00261	0.0261	0.000670	
17	d5-N-EtFOSAA	1.21e4	0.81	1.000	5.65			43.3	108	0.0146	
18	13C2-PFOA	1.26e4	1.00	1.000	4.83			10.0	100	0.00148	
19	13C4-PFOS	1.08e4	1.00	1.000	5.20			26.7	100	0.00304	
20	d3-N-MeFOSAA	1.36e4	1.00	1.000	5.53			40.6	100	0.000000090691...	

Dataset: Untitled

Last Altered: Tuesday, June 13, 2017 10:43:47 Pacific Daylight Time
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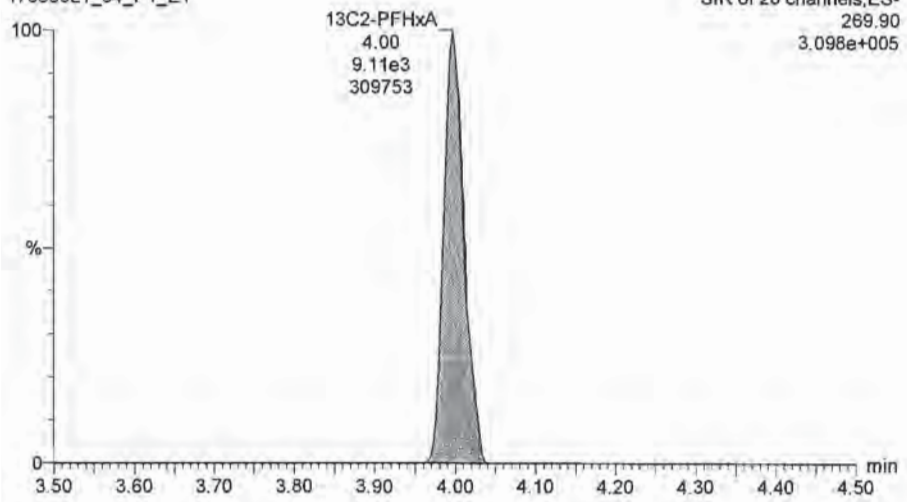
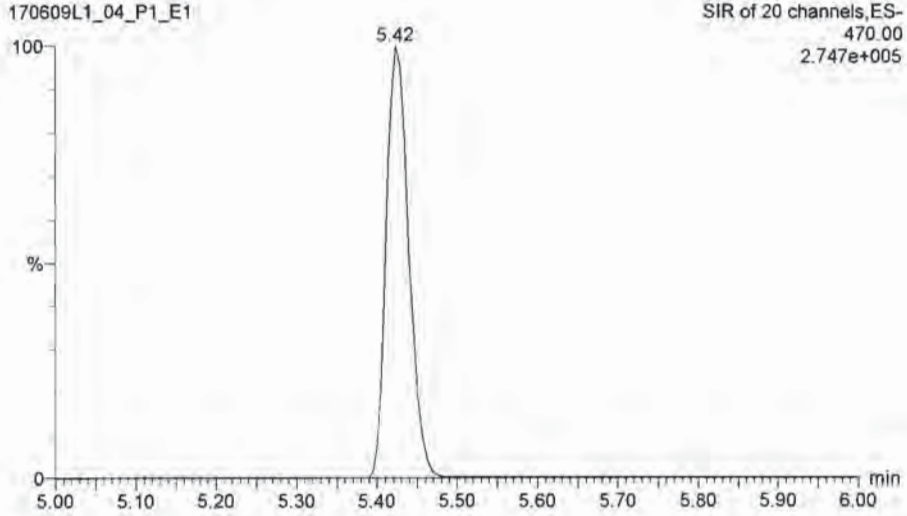
Name: 170609L1_04.wiff, Date: 09-Jun-2017, Time: 15:23:04, ID: ST170609L1-3 537 DW CS(-1) 17F0730, Description: 537 DW CS(-1) 17F0730

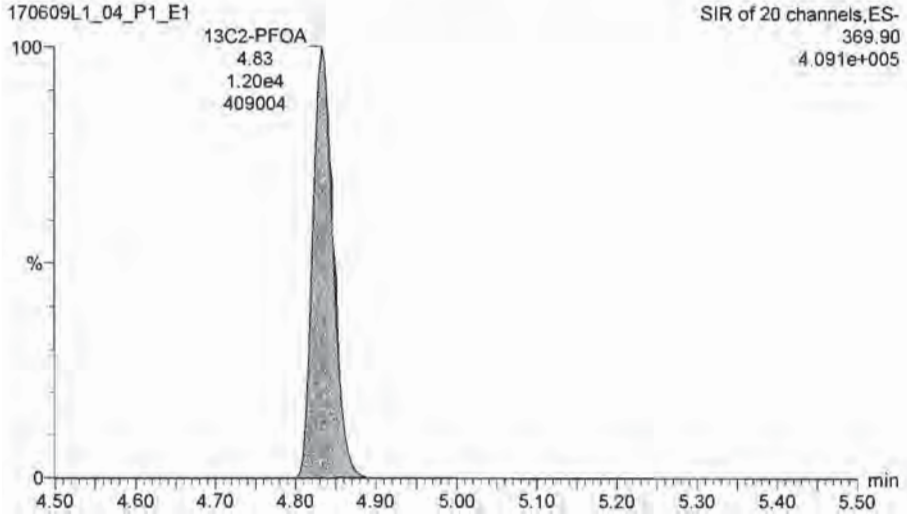
13C2-PFHxA



13C2-PFDA



13C2-PFOA



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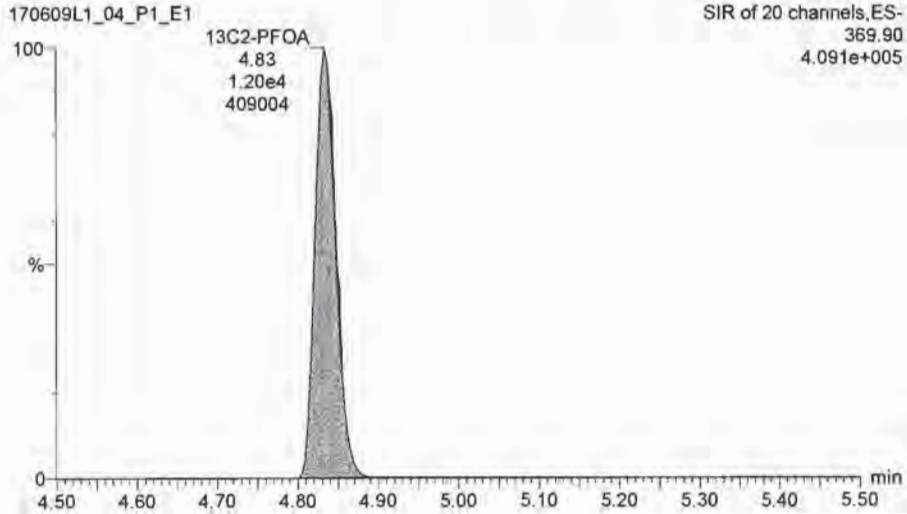

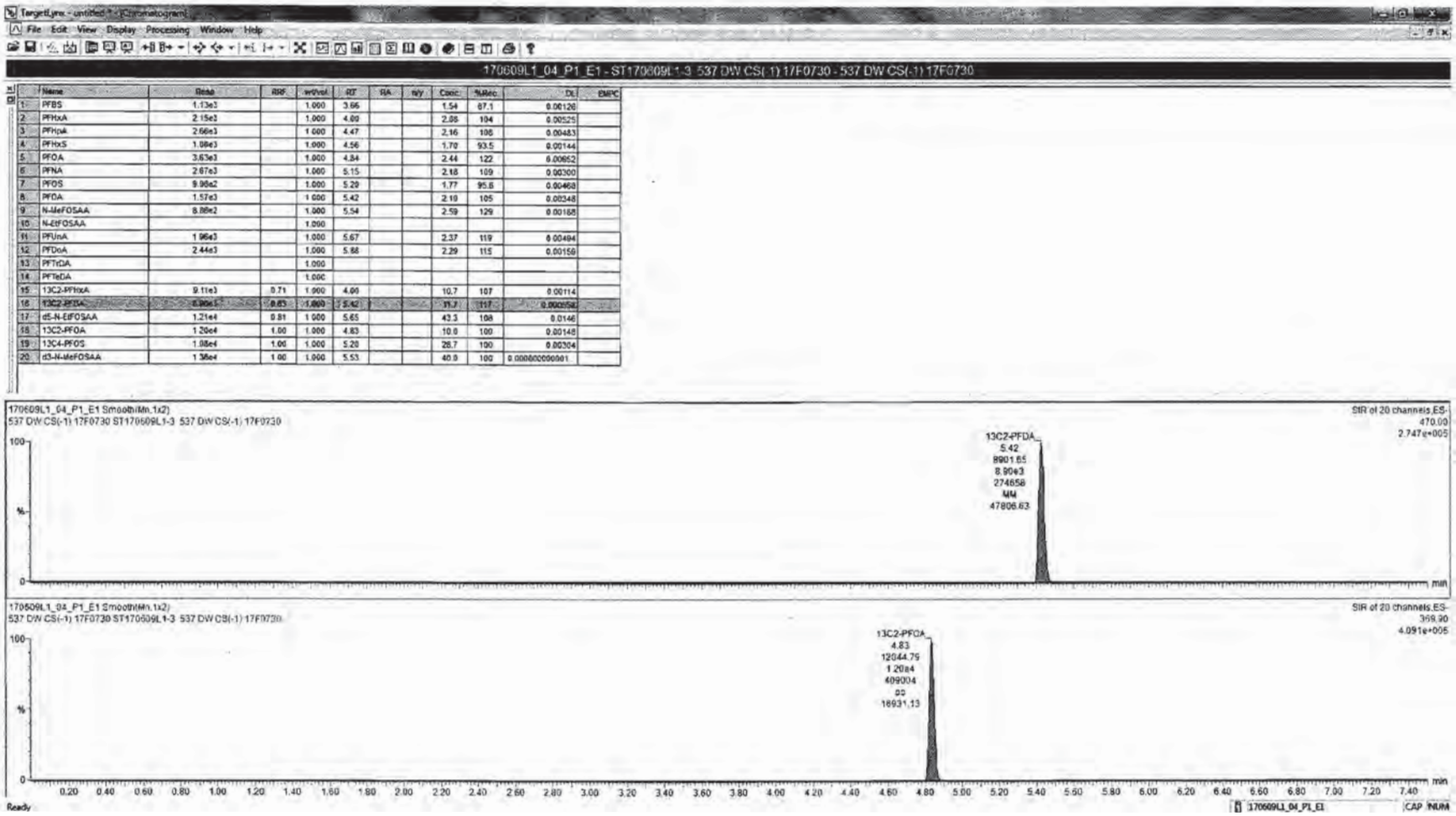

	Name	Area	RRF	wVol	RT	RA	dRT	Conc	%Rec	DL	EMPC
1	PFBS	1.13e3		1.000	3.66			1.54	97.1	0.00126	
2	PFHxA	2.15e3		1.000	4.09			2.06	104	0.00525	
3	PFHpA	2.66e3		1.000	4.47			2.16	108	0.00483	
4	PFHxS	1.08e3		1.000	4.56			1.70	93.5	0.00144	
5	PFOA	3.63e3		1.000	4.84			2.44	122	0.00652	
6	PFNA	2.67e3		1.000	5.15			2.18	109	0.00300	
7	PFOS	9.96e2		1.000	5.29			1.77	95.8	0.00468	
8	PFDA	1.57e3		1.000	5.42			2.10	105	0.00348	
9	N-MeFOSAA	8.86e2		1.000	5.54			2.59	129	0.00165	
10	N-EtFOSAA			1.000							
11	PFUnA	1.96e3		1.000	5.67			2.37	119	0.00494	
12	PFDoA	2.44e3		1.000	5.88			2.29	115	0.00159	
13	PFTrDA			1.000							
14	PFTeDA			1.000							
15	13C2-PFHxA	9.11e3	0.71	1.000	4.09			10.7	107	0.00114	
16	13C2-PFDA	8.90e3	0.83	1.000	5.42			11.7	117	0.000154	
17	d5-N-EtFOSAA	1.21e4	0.81	1.000	5.65			43.3	108	0.0146	
18	13C2-PFOA	1.20e4	1.00	1.000	4.83			10.0	100	0.00148	
19	13C4-PFOS	1.08e4	1.00	1.000	5.28			28.7	100	0.00304	
20	d3-N-MeFOSAA	1.36e4	1.00	1.000	5.53			40.8	102	0.000000000001	

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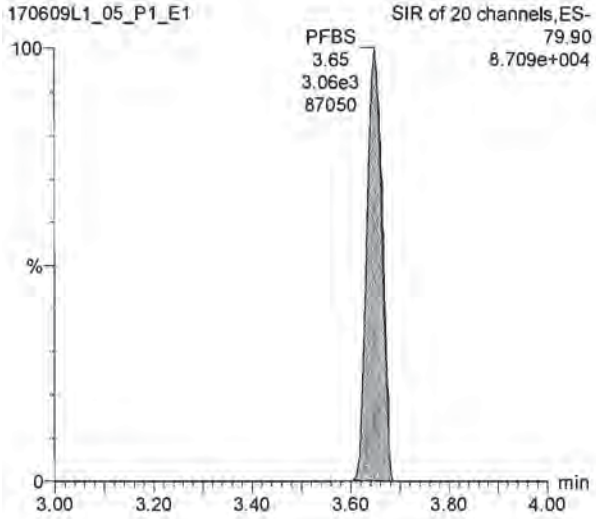
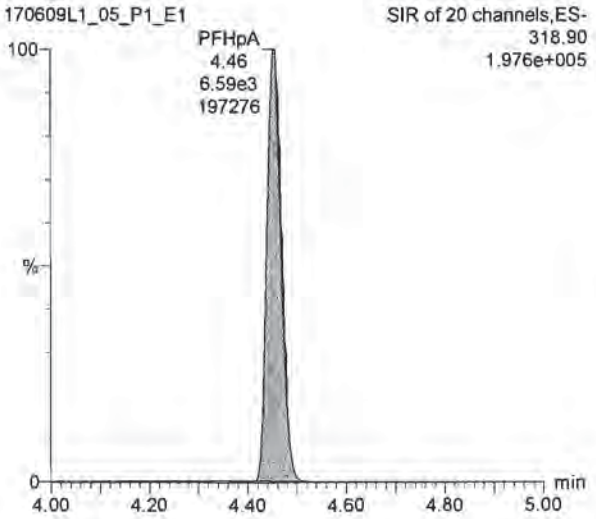
Name: 170609L1_05.wiff, Date: 09-Jun-2017, Time: 15:35:19, ID: ST170609L1-4 537 DW CS0 17F0731, Description: 537 DW CS0 17F0731

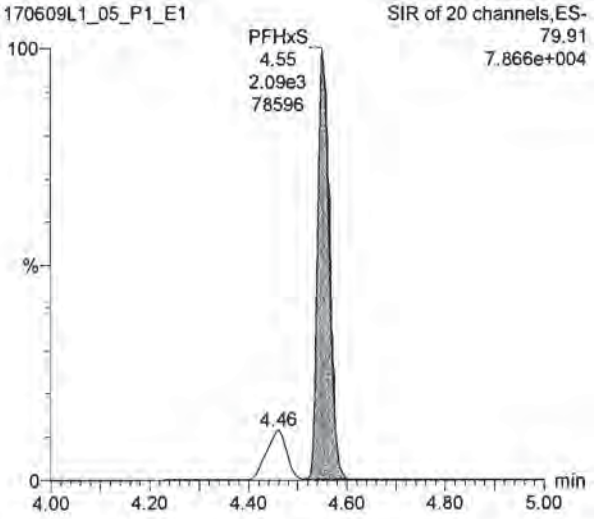
PFBS



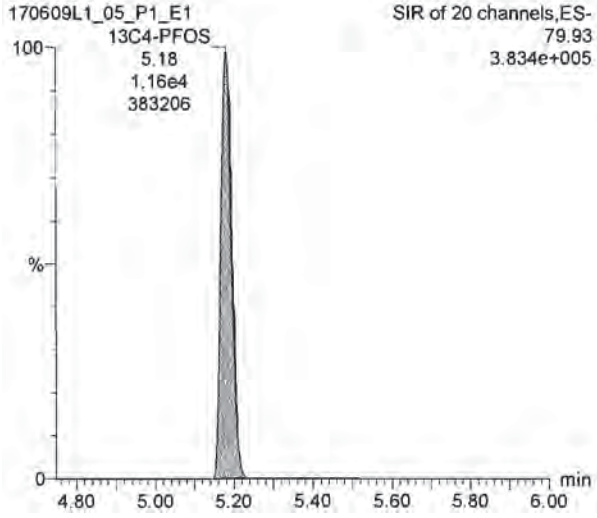
PFHpA



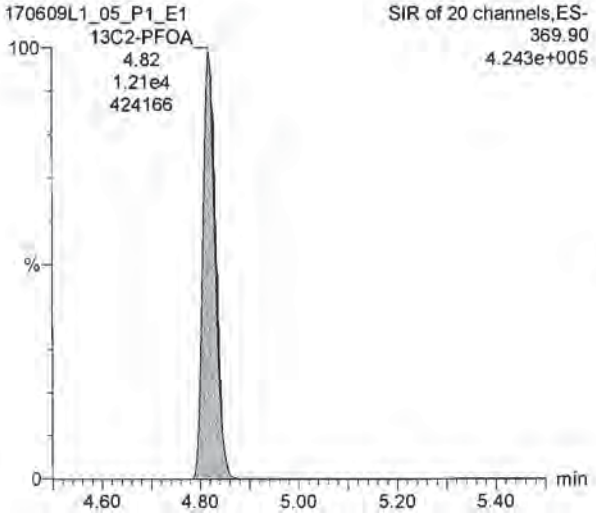
PFHxS



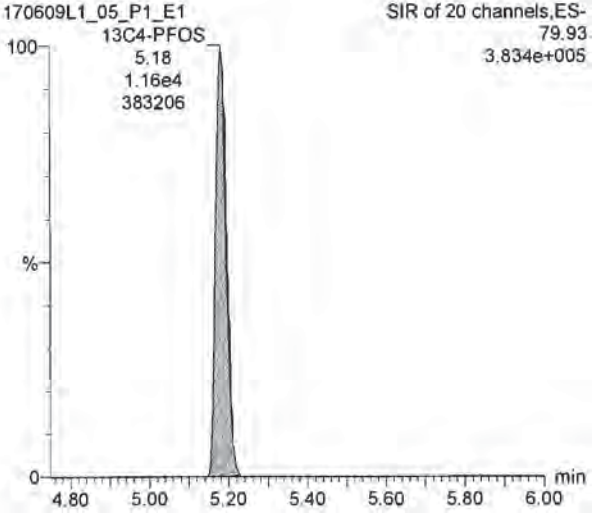
13C4-PFOS

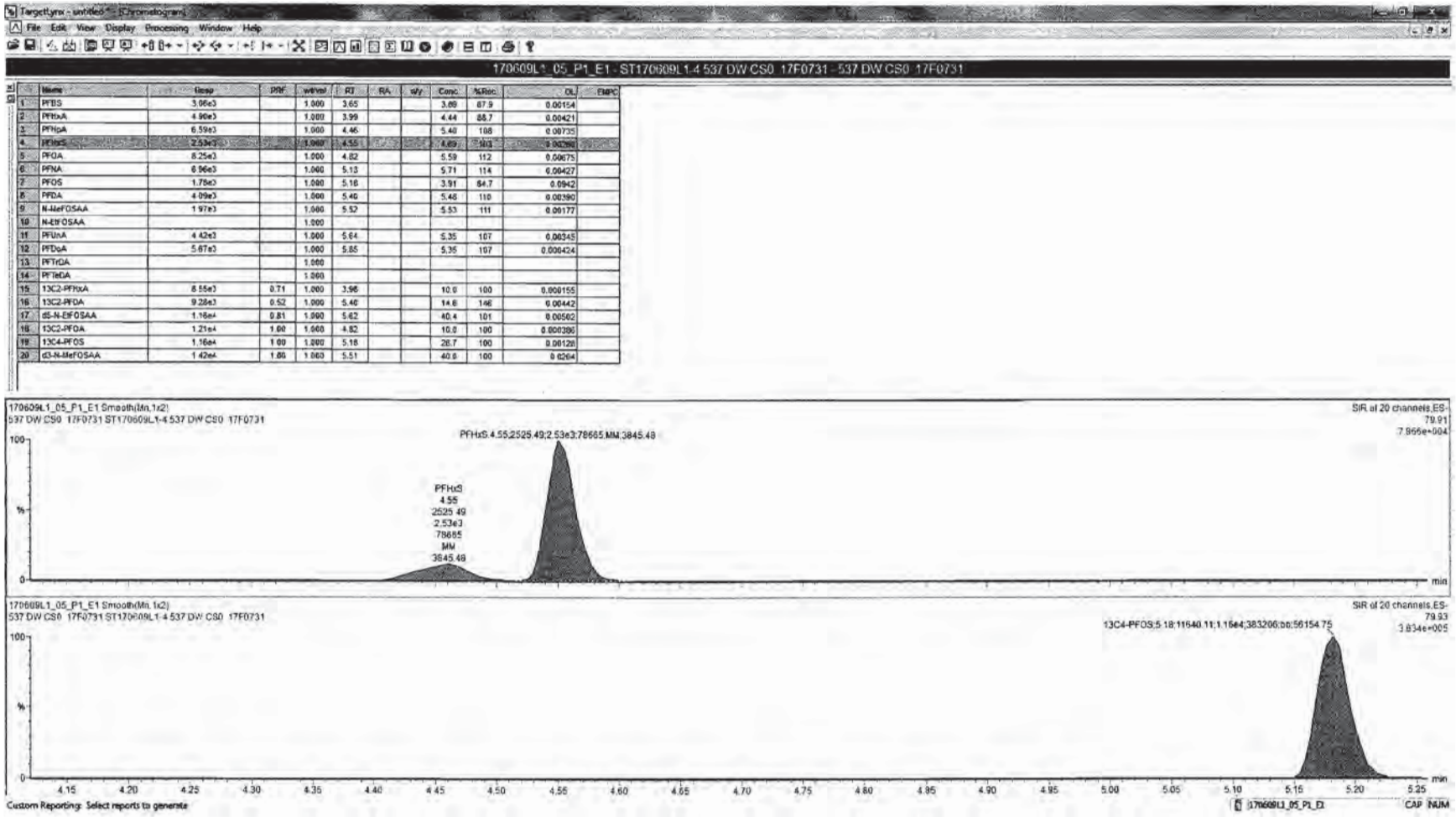


13C2-PFOA



13C4-PFOS





	Name	Resp	PRF	wt/vol	RT	RA	Qty	Conc	%Rec	DL	EMPC
1	PFBS	3.06e3		1.000	3.65			3.89	97.9	0.00154	
2	PFHxA	4.90e3		1.000	3.99			4.44	88.7	0.00421	
3	PFHpA	6.59e3		1.000	4.46			5.40	108	0.00735	
4	PFHxS	2.53e3		1.000	4.55			4.89	103	0.00286	
5	PFOA	8.25e3		1.000	4.82			5.59	112	0.00675	
6	PFNA	6.96e3		1.000	5.13			5.71	114	0.00427	
7	PFOS	1.78e3		1.000	5.18			3.91	84.7	0.0942	
8	PFDA	4.09e3		1.000	5.46			5.46	110	0.00390	
9	N-MeFOSAA	1.97e3		1.000	5.52			5.53	111	0.00177	
10	N-EtFOSAA			1.000							
11	PFUnA	4.42e3		1.000	5.64			5.35	107	0.00345	
12	PFDoA	5.67e3		1.000	5.85			5.35	107	0.000424	
13	PFTrDA			1.000							
14	PFTeDA			1.000							
15	13C2-PFHxA	8.55e3	0.71	1.000	3.98			10.0	100	0.000155	
16	13C2-PFDA	9.28e3	0.52	1.000	5.40			14.6	146	0.00442	
17	d5-N-EtFOSAA	1.16e4	0.81	1.000	5.62			40.4	101	0.00562	
18	13C2-PFOA	1.21e4	1.00	1.000	4.82			10.0	100	0.000386	
19	13C4-PFOS	1.16e4	1.00	1.000	5.18			26.7	100	0.00128	
20	d3-N-MeFOSAA	1.42e4	1.00	1.000	5.51			40.8	100	0.0264	

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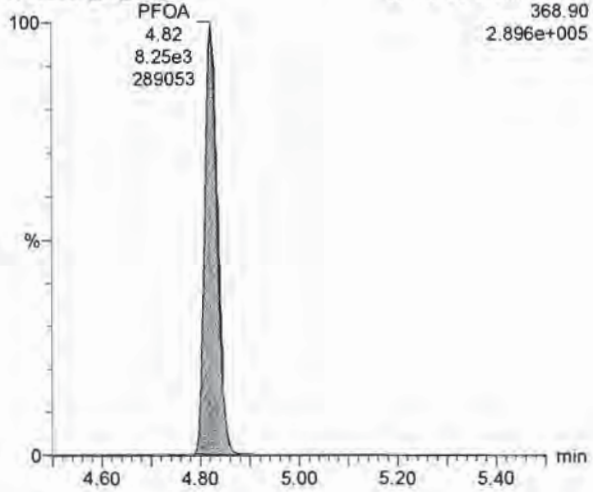
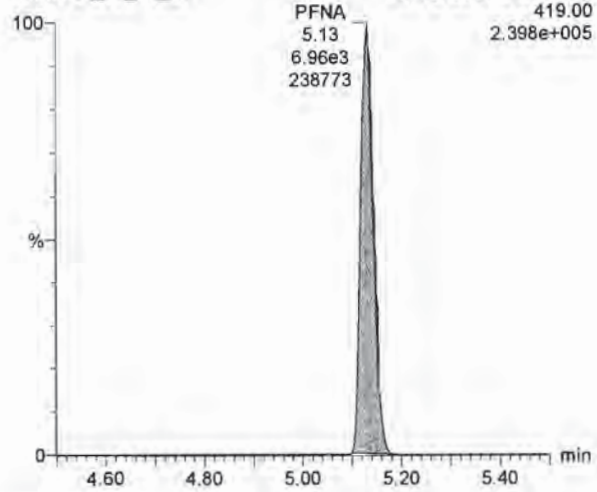
Name: 170609L1_05.wiff, Date: 09-Jun-2017, Time: 15:35:19, ID: ST170609L1-4 537 DW CS0 17F0731, Description: 537 DW CS0 17F0731

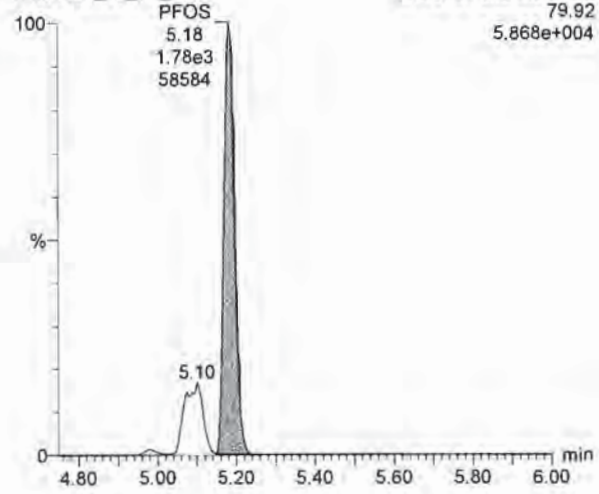
PFOA



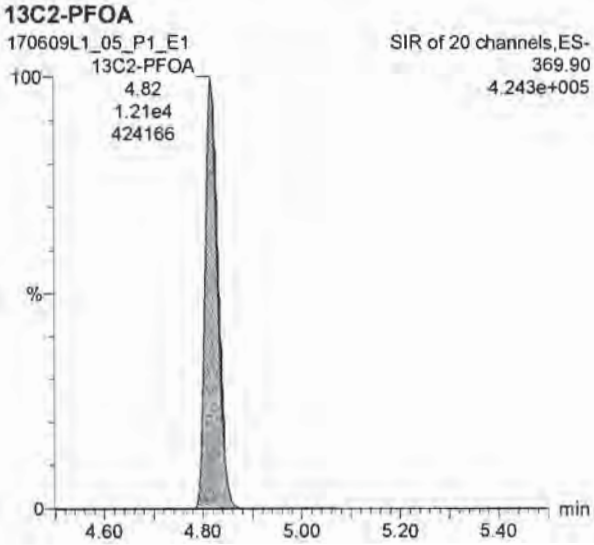
PFNA



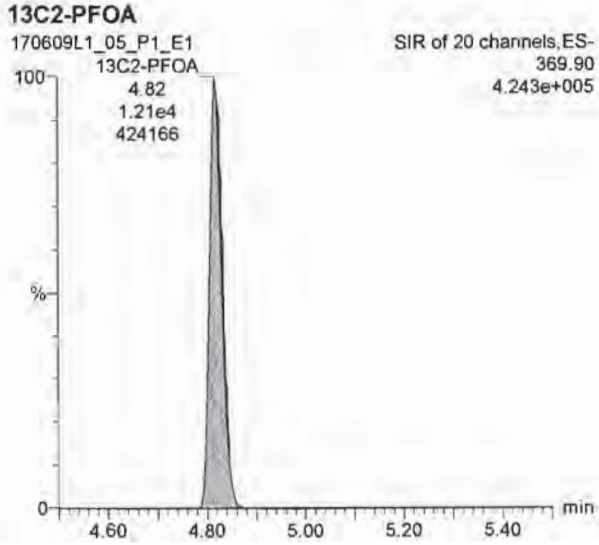
PFOS



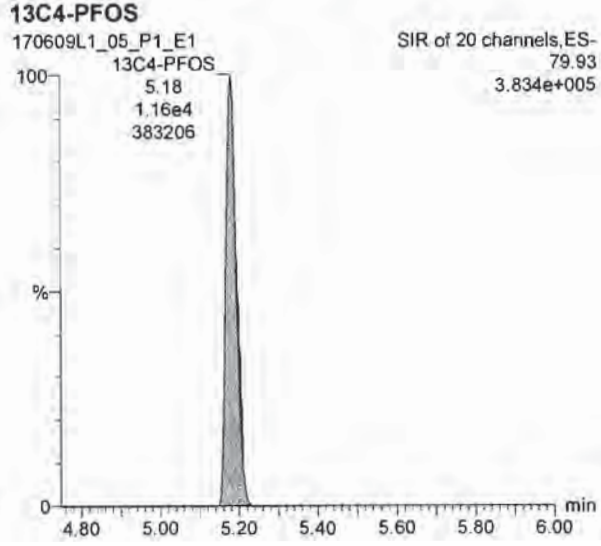
13C2-PFOA

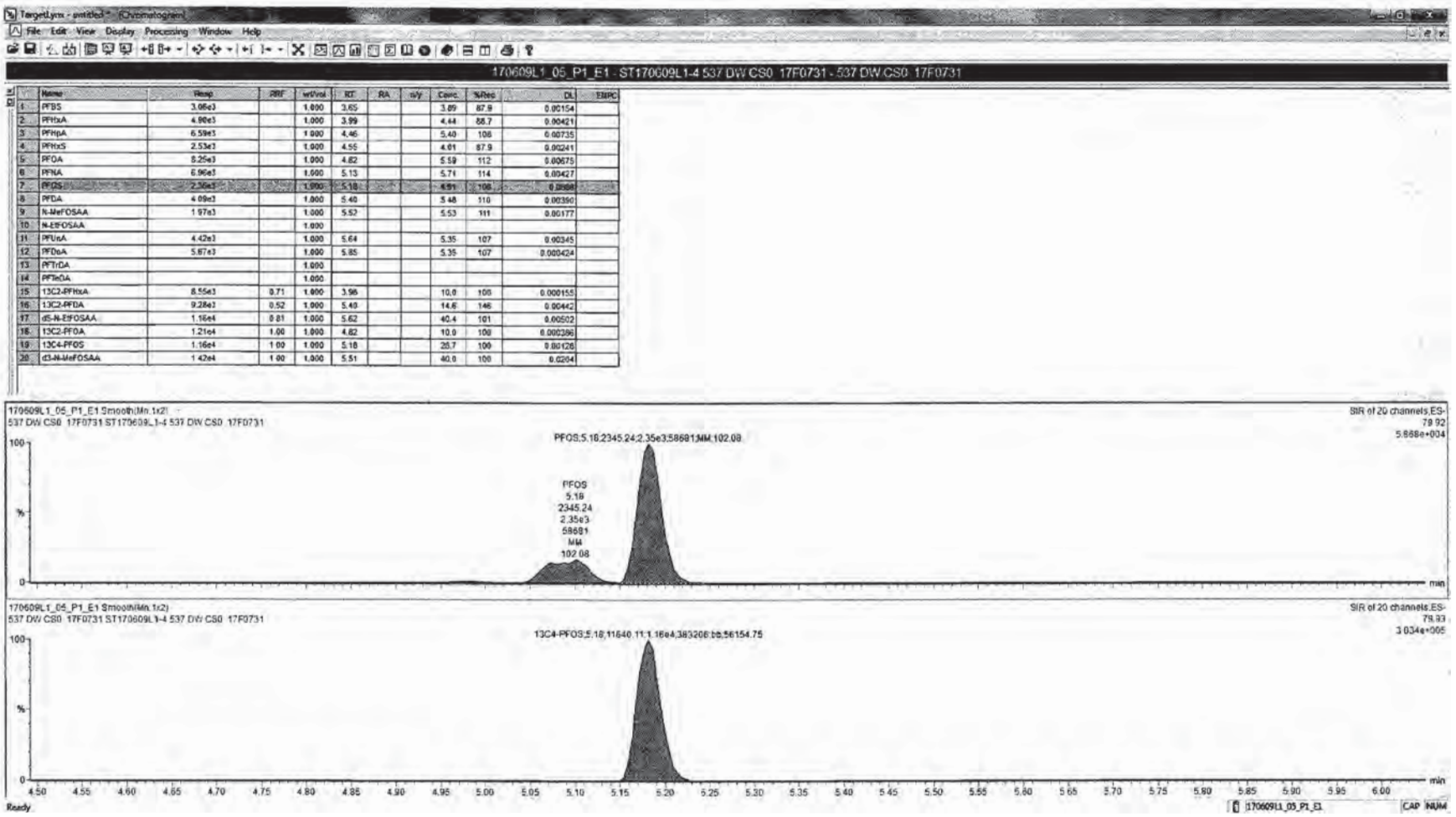


13C2-PFOA



13C4-PFOS





	Name	Resp	RRF	wtVol	RT	RA	d/y	Conc	%Rec	DL	EMPC
1	PFBS	3.06e3		1.000	3.65			3.89	87.9	0.00154	
2	PFHxA	4.90e3		1.000	3.99			4.44	88.7	0.00421	
3	PFHpA	6.59e3		1.000	4.46			5.40	108	0.00735	
4	PFHxS	2.53e3		1.000	4.55			4.01	87.9	0.00241	
5	PFOA	8.25e3		1.000	4.82			5.59	112	0.00675	
6	PFNA	6.96e3		1.000	5.13			5.71	114	0.00427	
7	PFOS	2.56e3		1.000	5.18			4.51	108	0.0868	
8	PFDA	4.09e3		1.000	5.40			5.48	110	0.00390	
9	N-MeFOSAA	1.97e3		1.000	5.52			5.53	111	0.00177	
10	N-EtFOSAA			1.000							
11	PFUnA	4.42e3		1.000	5.64			5.35	107	0.00345	
12	PFDoA	5.87e3		1.000	5.85			5.35	107	0.000424	
13	PFTrDA			1.000							
14	PFTeDA			1.000							
15	13C2-PFHxA	8.55e3	0.71	1.000	3.98			10.0	100	0.000155	
16	13C2-PFDA	9.28e3	0.52	1.000	5.40			14.6	146	0.00442	
17	d5-N-EtFOSAA	1.16e4	0.81	1.000	5.52			40.4	101	0.00502	
18	13C2-PFOA	1.21e4	1.00	1.000	4.82			10.0	100	0.000386	
19	13C4-PFOS	1.16e4	1.00	1.000	5.18			26.7	100	0.00126	
20	d3-N-MeFOSAA	1.42e4	1.00	1.000	5.51			40.0	100	0.0204	

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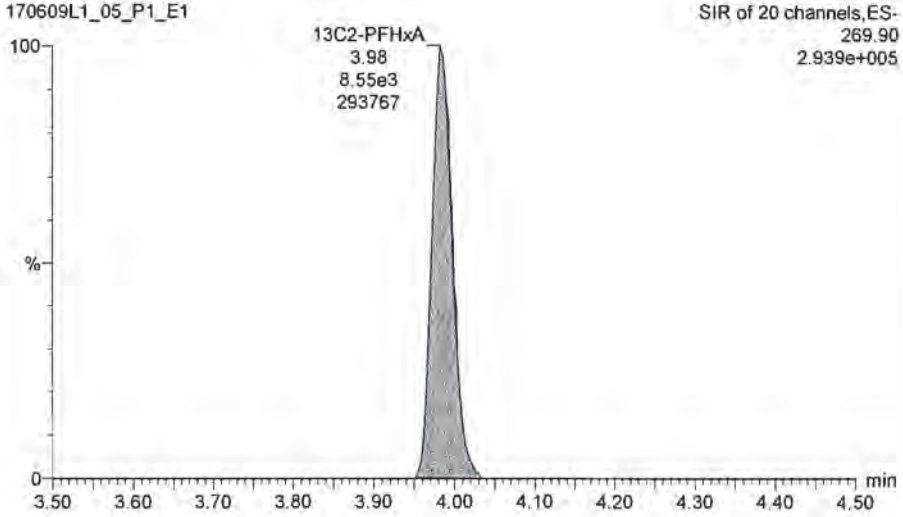
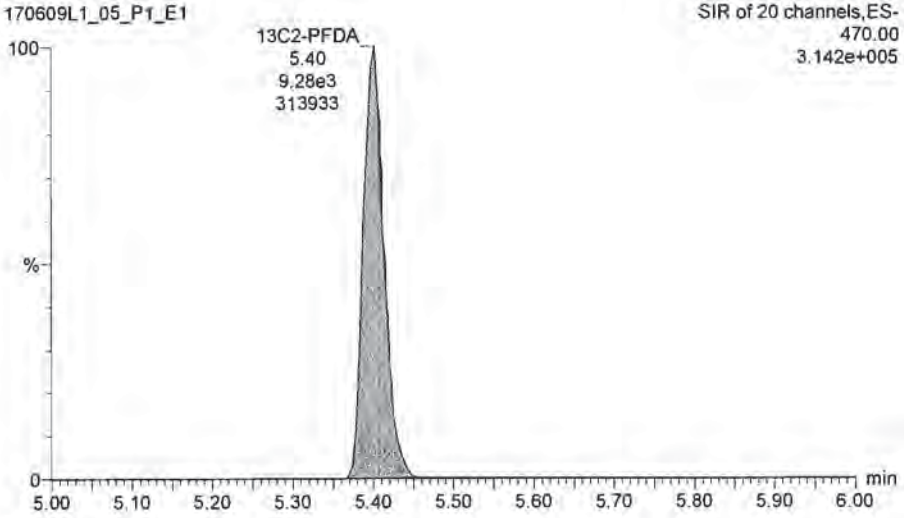
Name: 170609L1_05.wiff, Date: 09-Jun-2017, Time: 15:35:19, ID: ST170609L1-4 537 DW CS0 17F0731, Description: 537 DW CS0 17F0731

13C2-PFHxA



13C2-PFDA



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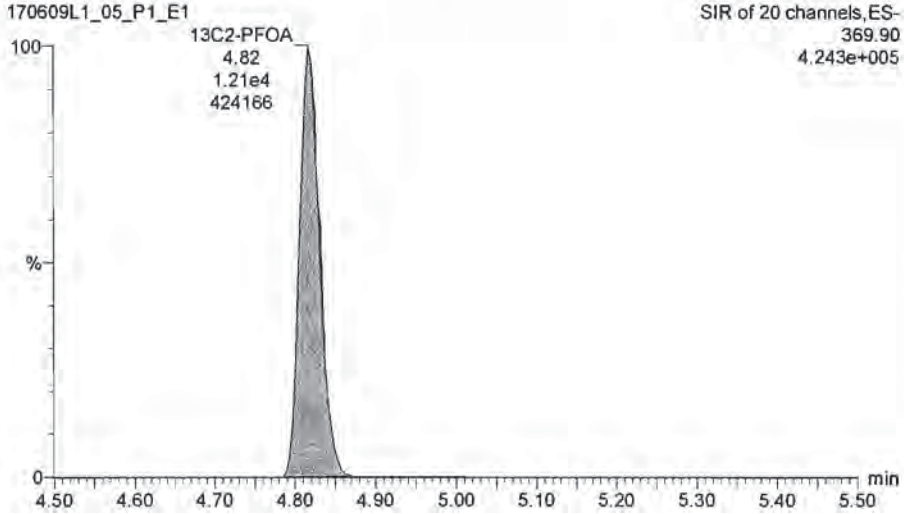

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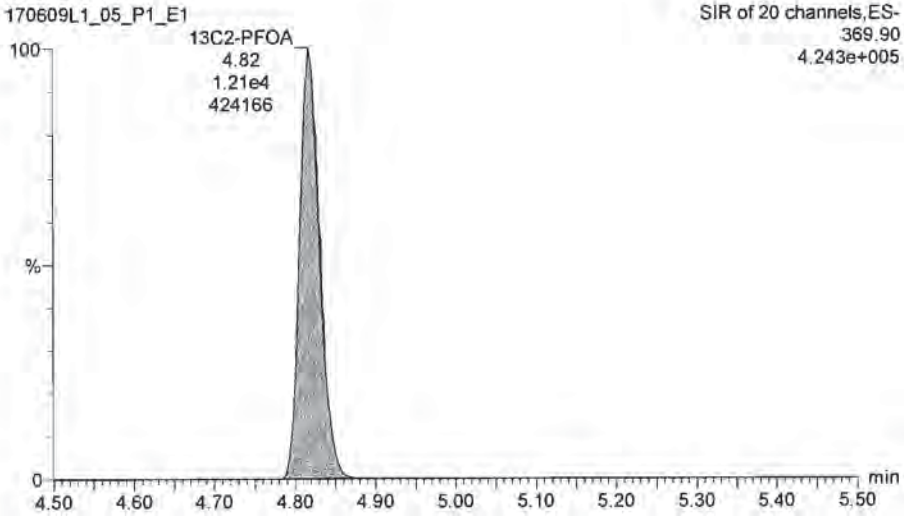

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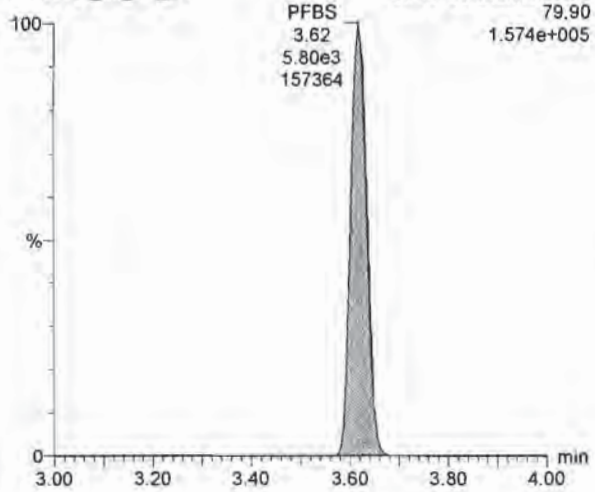
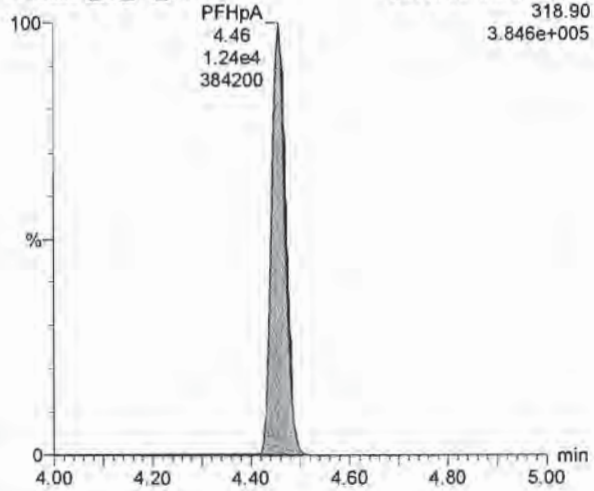
Name: 170609L1_06.wiff, Date: 09-Jun-2017, Time: 15:47:34, ID: ST170609L1-5 537 DW CS1 17F0732, Description: 537 DW CS1 17F0732

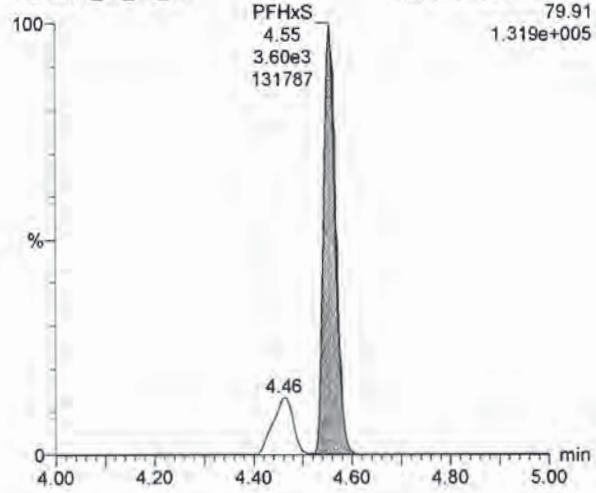
PFBS



PFHpA



PFHxS



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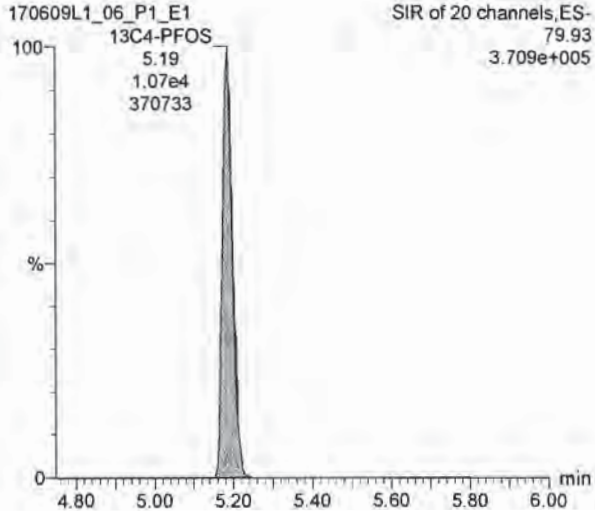
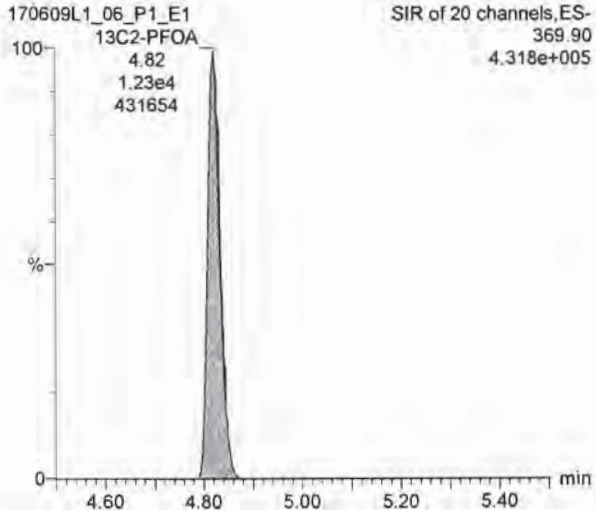


13C2-PFOA



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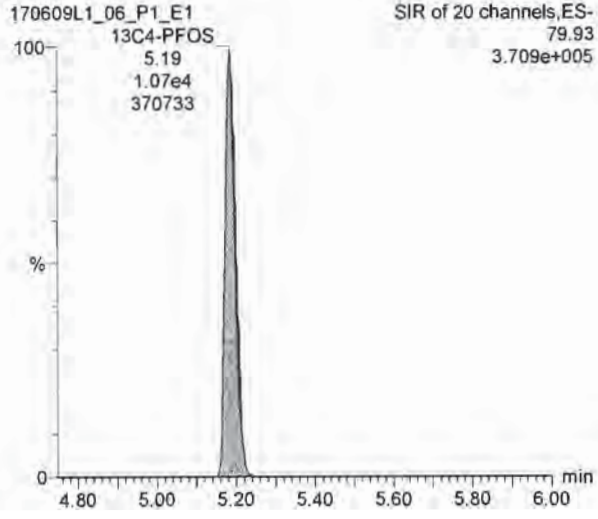

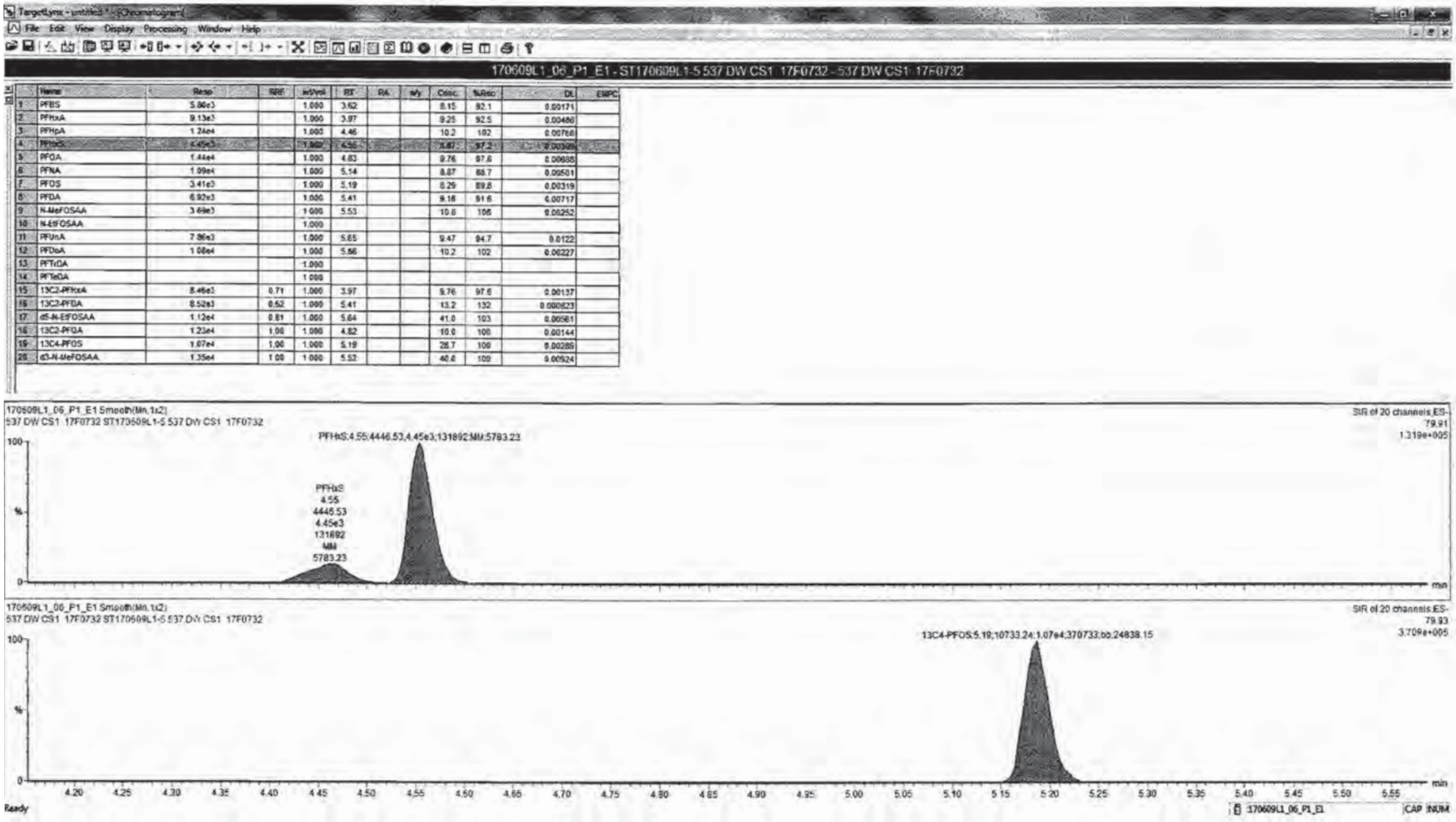
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170609L1_06_P1_E1 - ST170609L1-5 537 DW CS1 17F0732 - 537 DW CS1 17F0732
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13C4-PFOS:5.19;10733.24;1.07e4;370733;bb;24838.15
Ready

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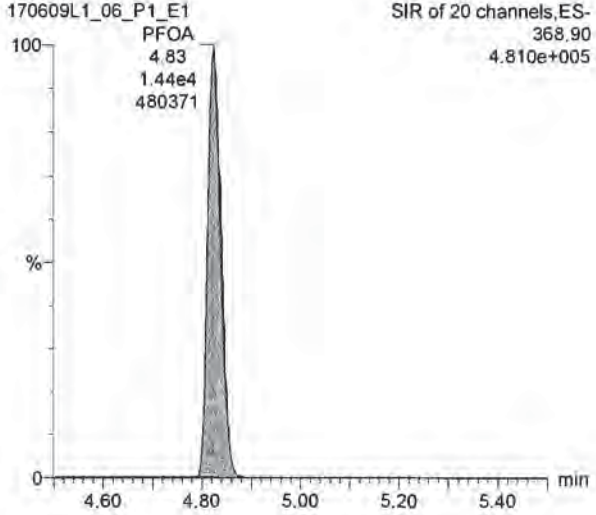
Name: 170609L1_06.wiff, Date: 09-Jun-2017, Time: 15:47:34, ID: ST170609L1-5 537 DW CS1 17F0732, Description: 537 DW CS1 17F0732

PFOA



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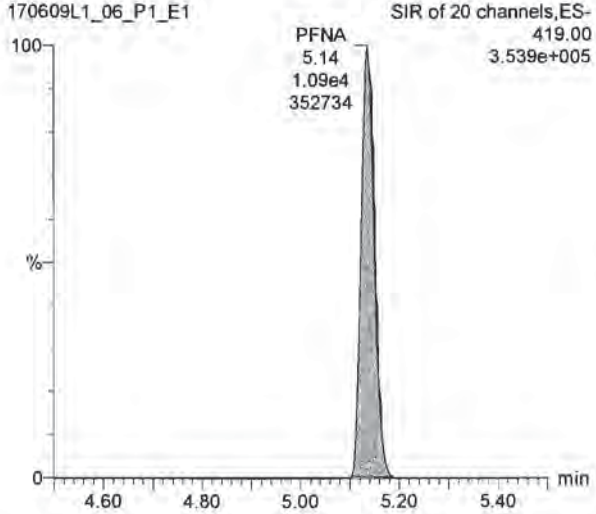

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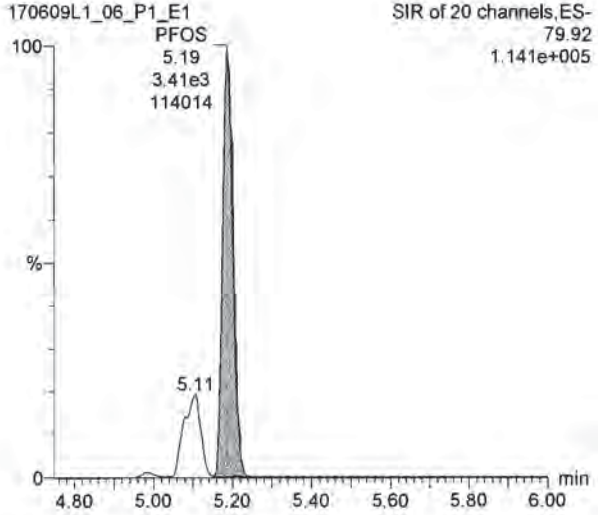

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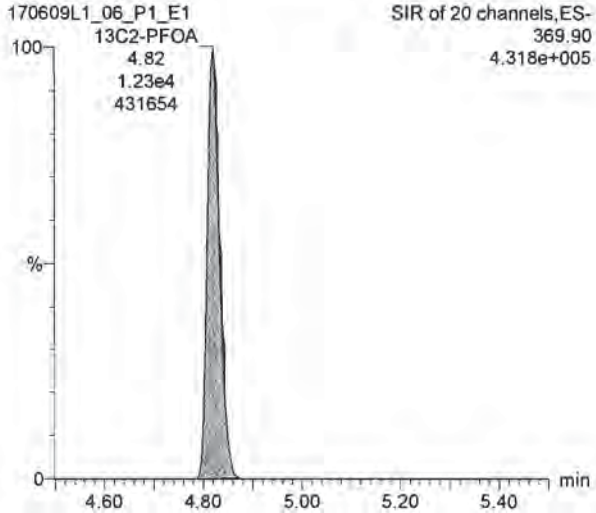

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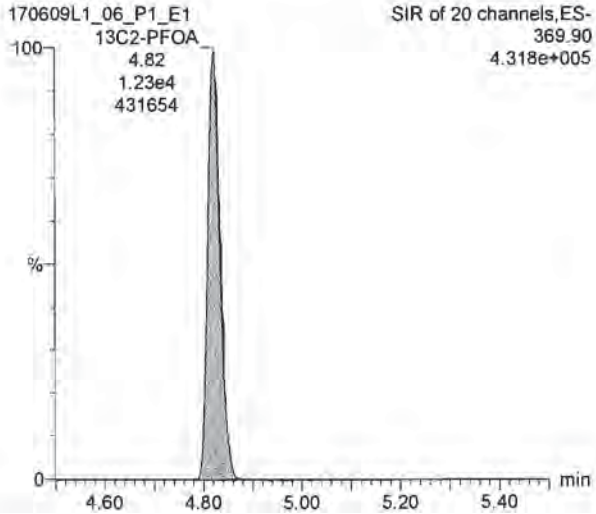

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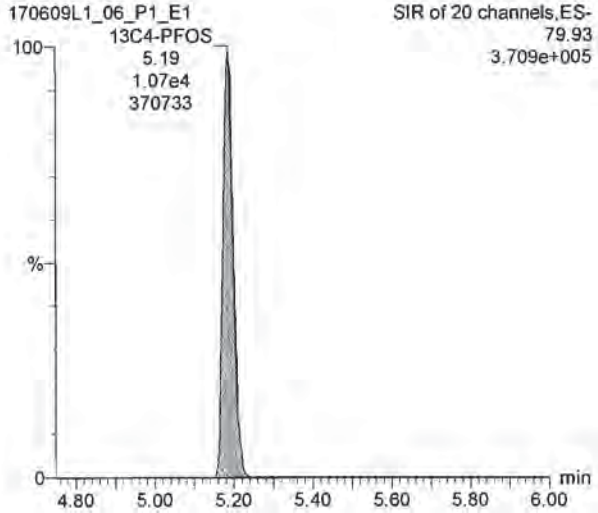

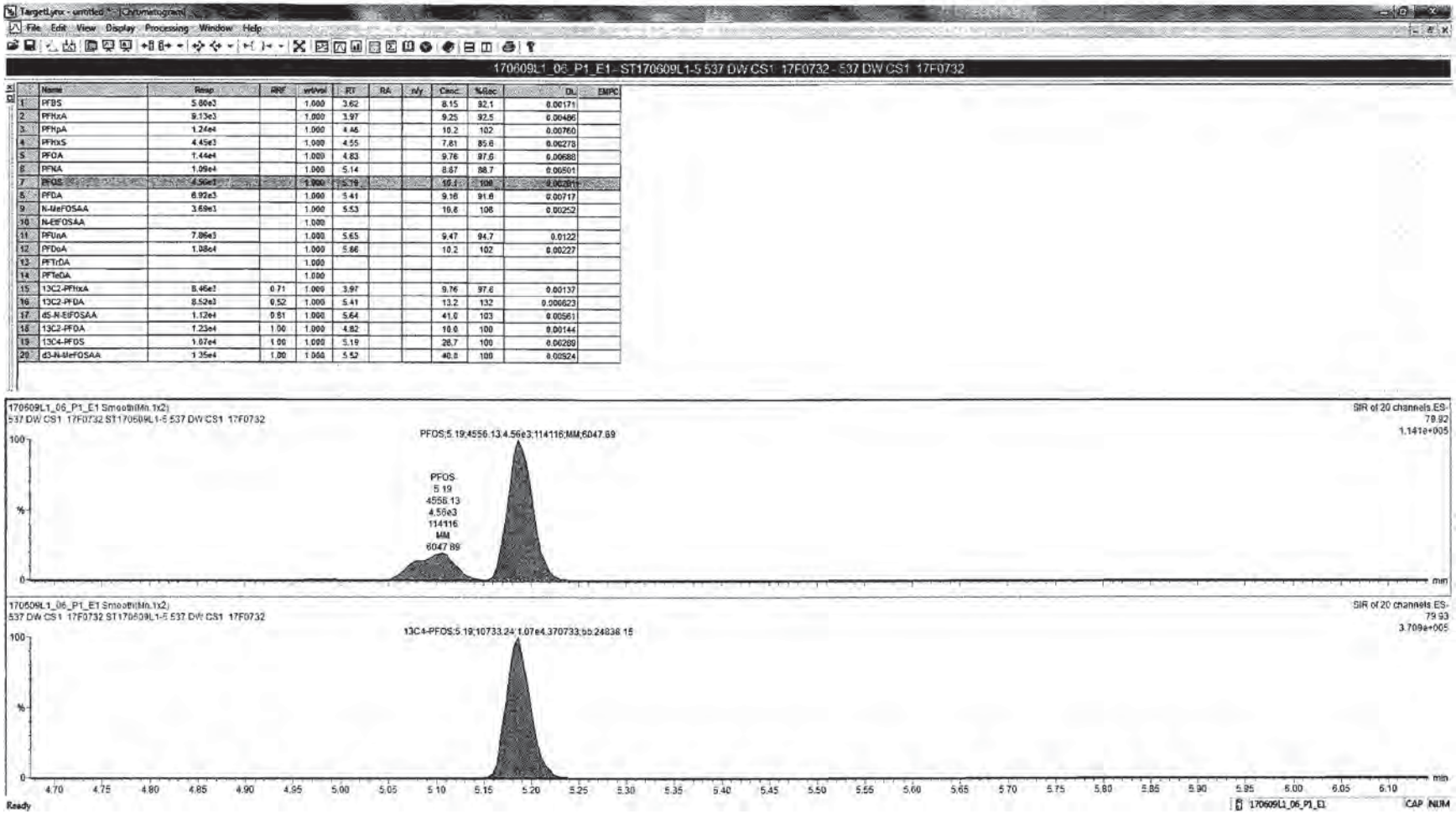

	Name	Resp	RRF	wt/vol	RT	RA	∆y	Calc	%Rec	DL	EMPC
1	PFBS	5.66e3		1.000	3.62			8.15	92.1	0.00171	
2	PFHxA	9.13e3		1.000	3.97			9.25	92.5	0.00486	
3	PFHpA	1.24e4		1.000	4.46			10.2	102	0.00760	
4	PFHxS	4.45e3		1.000	4.55			7.81	85.8	0.00278	
5	PFOA	1.44e4		1.000	4.83			9.76	97.6	0.00688	
6	PFNA	1.09e4		1.000	5.14			8.87	88.7	0.00501	
7	PFOS	4.56e3		1.000	5.19			10.1	100	0.00281	
8	PFDA	8.92e3		1.000	5.41			9.16	91.6	0.00717	
9	N-MeFOSAA	3.69e3		1.000	5.53			10.8	108	0.00252	
10	N-EtFOSAA			1.000							
11	PFUnA	7.86e3		1.000	5.65			9.47	94.7	0.0122	
12	PFDoA	1.08e4		1.000	5.86			10.2	102	0.00227	
13	PFTrDA			1.000							
14	PFTeDA			1.000							
15	13C2-PFHxA	8.46e3	0.71	1.000	3.97			9.76	97.6	0.00137	
16	13C2-PFDA	8.52e3	0.52	1.000	5.41			13.2	132	0.000623	
17	d5-N-EtFOSAA	1.12e4	0.61	1.000	5.64			41.0	103	0.00561	
18	13C2-PFDA	1.23e4	1.00	1.000	4.82			10.0	100	0.00144	
19	13C4-PFOS	1.07e4	1.00	1.000	5.19			26.7	100	0.00269	
20	d3-N-MeFOSAA	1.35e4	1.00	1.000	5.52			40.8	108	0.00524	

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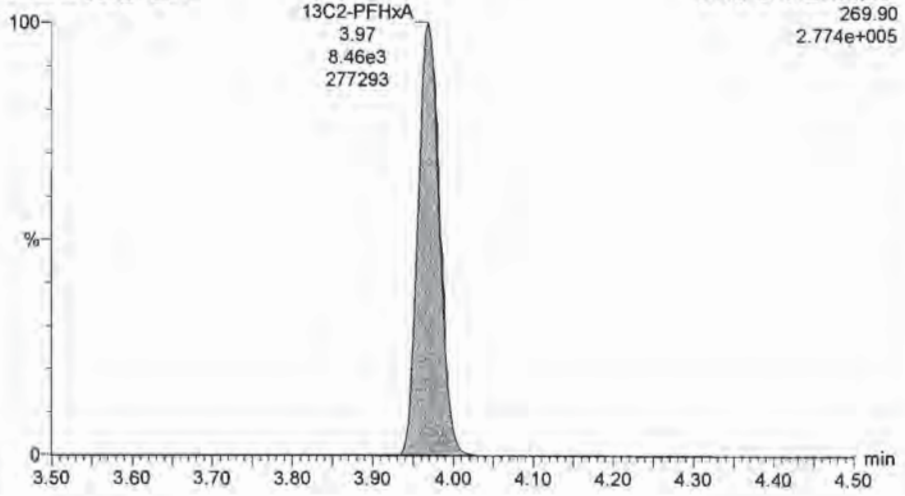
Name: 170609L1_06.wiff, Date: 09-Jun-2017, Time: 15:47:34, ID: ST170609L1-5 537 DW CS1 17F0732, Description: 537 DW CS1 17F0732

13C2-PFHxA



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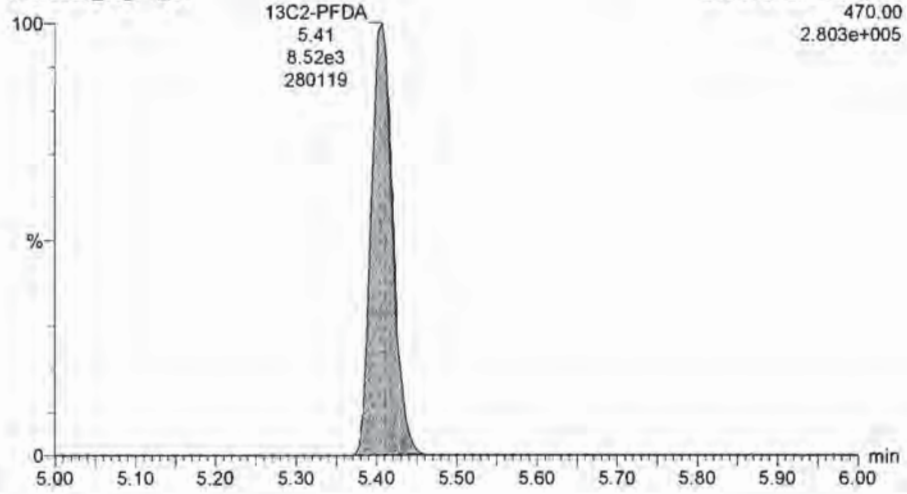

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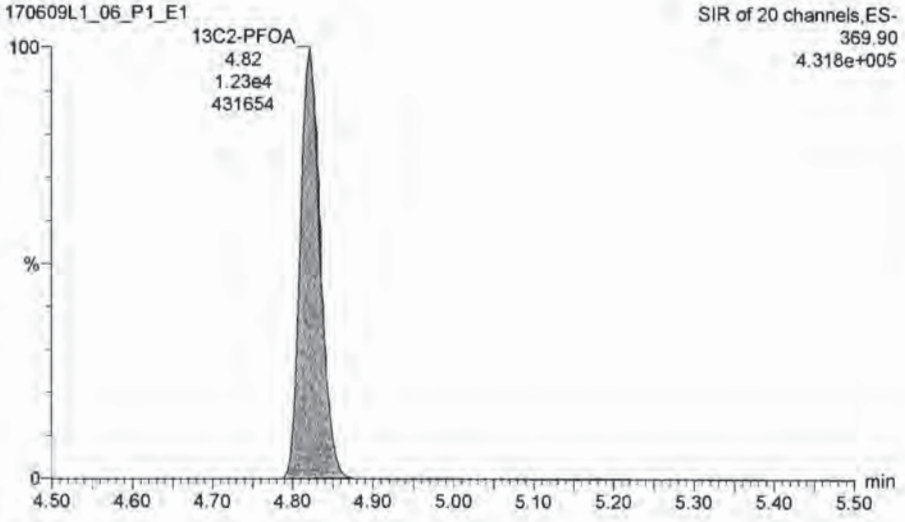
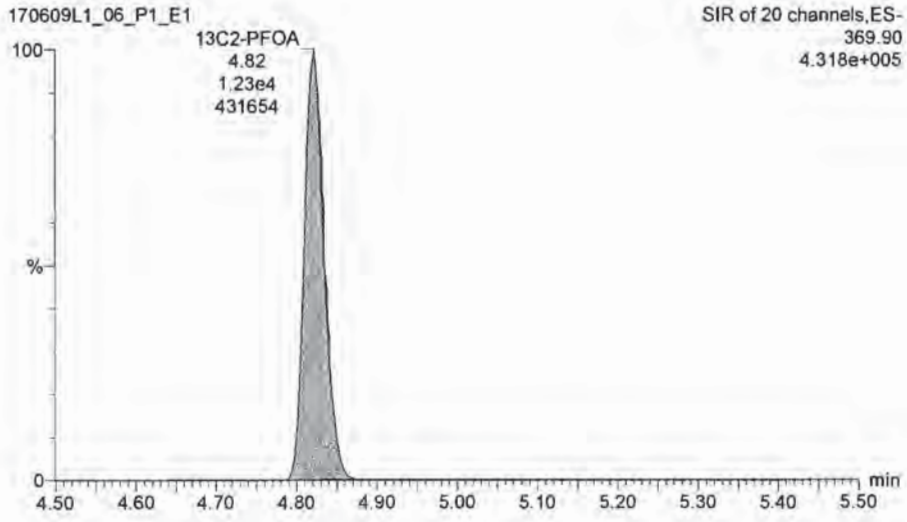


13C2-PFOA



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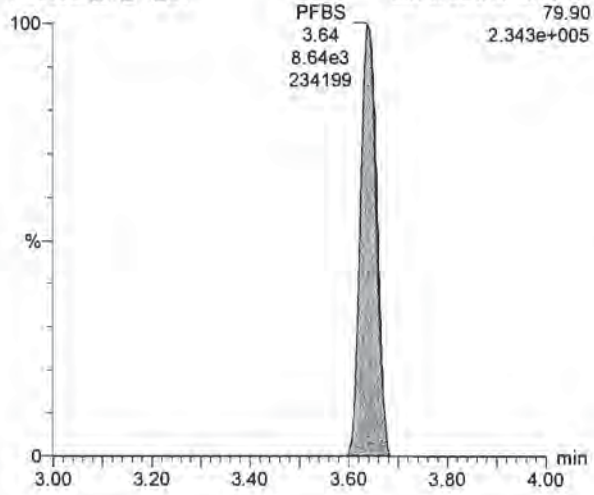
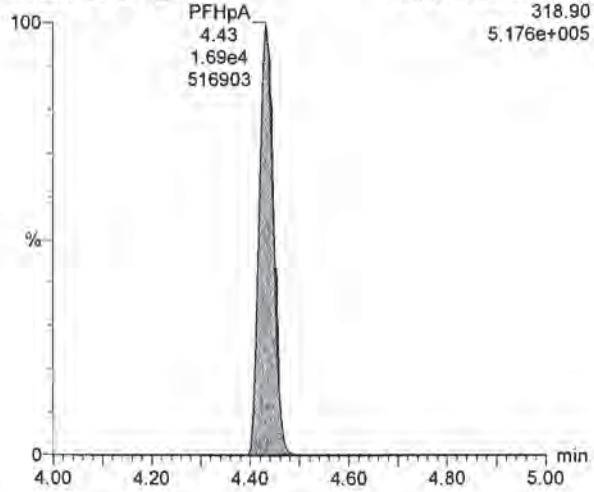
Name: 170609L1_07.wiff, Date: 09-Jun-2017, Time: 15:59:49, ID: ST170609L1-6 537 DW CS2 17F0733, Description: 537 DW CS2 17F0733

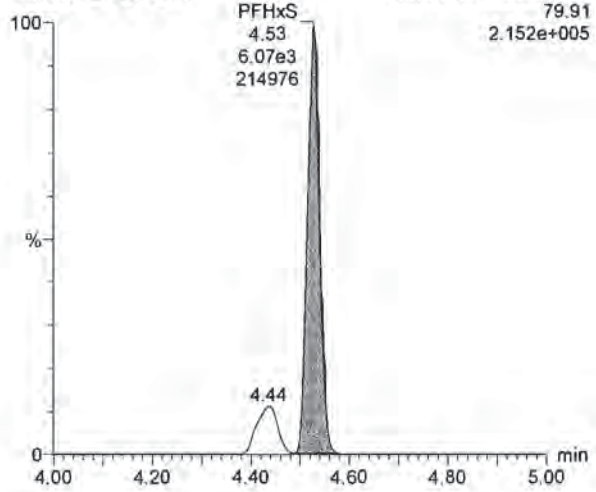
PFBS



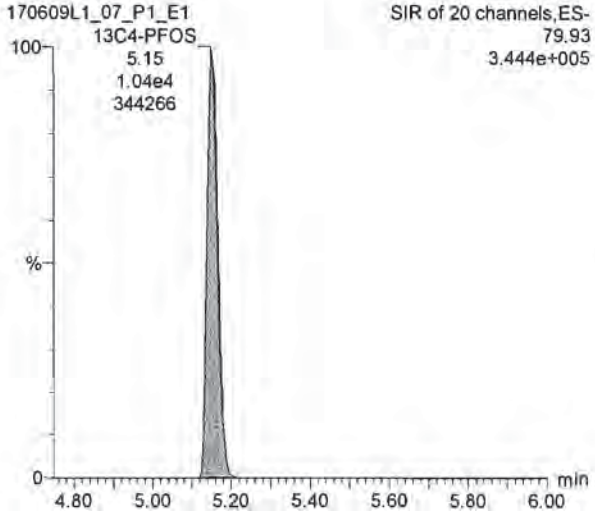
PFHpA



PFHxS



13C4-PFOS



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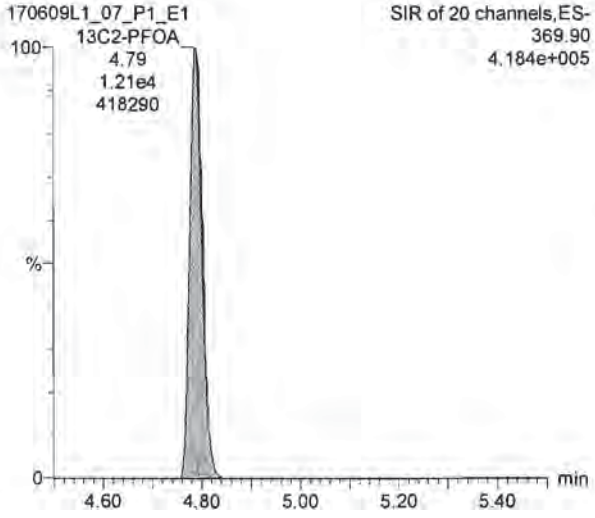
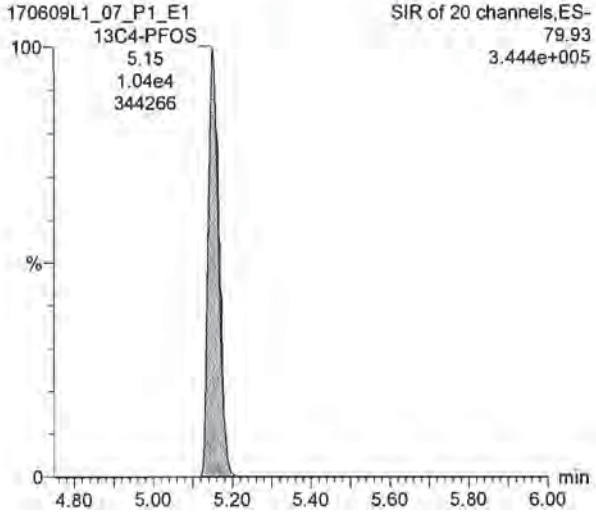
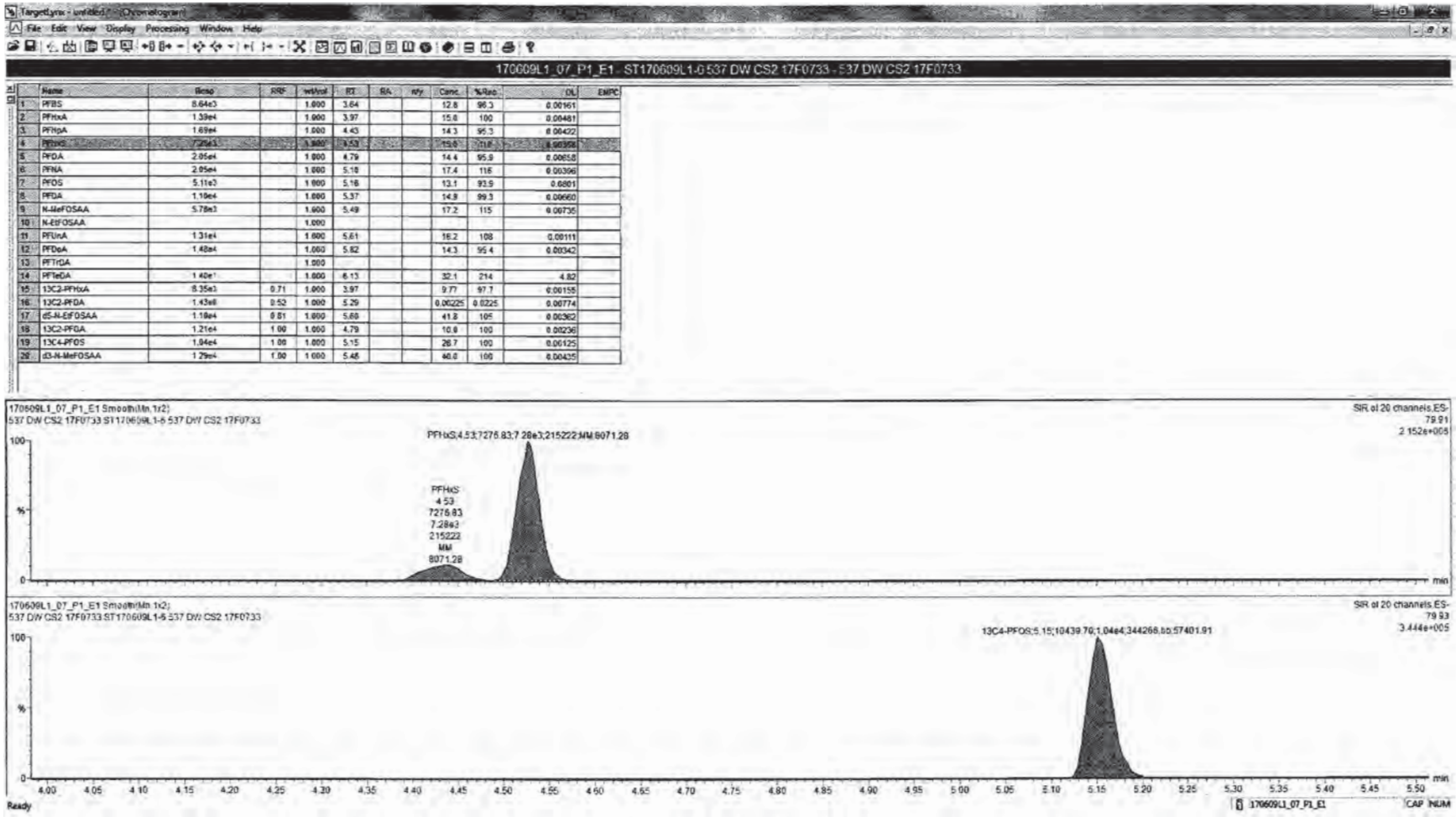


13C4-PFOS




TargetLynx - unitled1 - [Chromatogram]
File Edit View Display Processing Window Help
170609L1_07_P1_E1 - ST170609L1-6 537 DW CS2 17F0733 - 537 DW CS2 17F0733
Name | Resp | RRF | wt/vol | RT | RA | rty | Conc. | %Rec | OL | EMPC
1 PFBS 8.64e3 1.000 3.64 12.8 98.3 0.00161
2 PFHxA 1.39e4 1.000 3.97 15.8 100 0.00481
3 PFHpA 1.69e4 1.000 4.43 14.3 95.3 0.00422
4 PFHxS 7.28e3 1.000 4.53 15.6 118 0.00358
5 PFDA 2.05e4 1.000 4.79 14.4 95.9 0.00658
6 PFNA 2.05e4 1.000 5.18 17.4 116 0.00396
7 PFOS 5.11e3 1.000 5.18 13.1 93.9 0.0801
8 PFDA 1.10e4 1.000 5.37 14.9 99.3 0.00660
9 N-MeFOSAA 5.78e3 1.000 5.49 17.2 115 0.00735
10 N-EtFOSAA 1.000
11 PFUnA 1.31e4 1.000 5.61 16.2 108 0.00111
12 PFDoA 1.48e4 1.000 5.82 14.3 95.4 0.00342
13 PFTrDA 1.000
14 PFTeDA 1.40e1 1.000 6.13 32.1 214 4.82
15 13C2-PFHxA 8.35e3 0.71 1.000 3.97 9.77 97.7 0.00155
16 13C2-PFDA 1.43e8 0.52 1.000 5.29 0.00225 0.0225 0.00774
17 d5-N-EtFOSAA 1.18e4 0.81 1.000 5.60 41.8 105 0.00362
18 13C2-PFDA 1.21e4 1.00 1.000 4.79 10.9 100 0.00236
19 13C4-PFOS 1.84e4 1.00 1.000 5.15 26.7 100 0.00125
20 d3-N-MeFOSAA 1.29e4 1.00 1.000 5.48 40.8 100 0.00425
170609L1_07_P1_E1 Smooth(Mn,1x2)
537 DW CS2 17F0733 ST170609L1-6 537 DW CS2 17F0733
PFHxS,4.53,7276.83,7.28e3,215222,MM,8071.28
PFHxS
4.53
7276.83
7.28e3
215222
MM
8071.28
SIR of 20 channels ES-
79.91
2.152e+005
100
%
0
min
170609L1_07_P1_E1 Smooth(Mn,1x2)
537 DW CS2 17F0733 ST170609L1-6 537 DW CS2 17F0733
13C4-PFOS,5.15,10439.79,1.04e4,344266.50,57401.91
SIR of 20 channels ES-
79.93
3.444e+005
100
%
0
min
4.00 4.05 4.10 4.15 4.20 4.25 4.30 4.35 4.40 4.45 4.50 4.55 4.60 4.65 4.70 4.75 4.80 4.85 4.90 4.95 5.00 5.05 5.10 5.15 5.20 5.25 5.30 5.35 5.40 5.45 5.50
Ready
170609L1_07_P1_E1
CAP NUM

Dataset: Untitled

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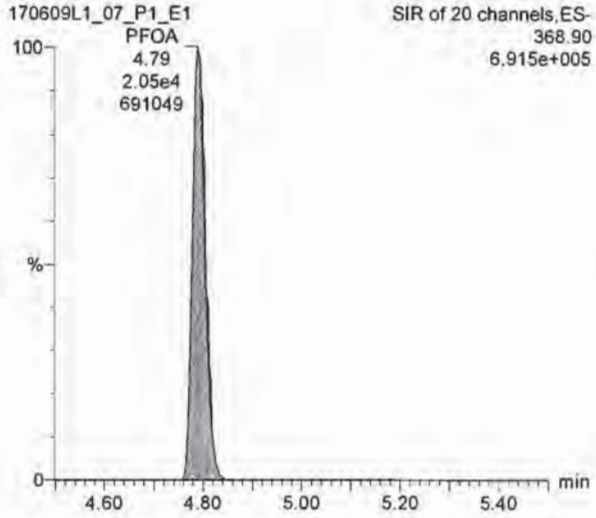
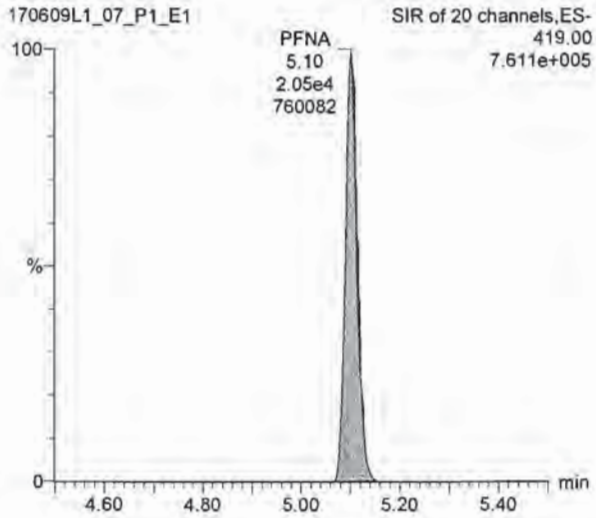
Name: 170609L1_07.wiff, Date: 09-Jun-2017, Time: 15:59:49, ID: ST170609L1-6 537 DW CS2 17F0733, Description: 537 DW CS2 17F0733

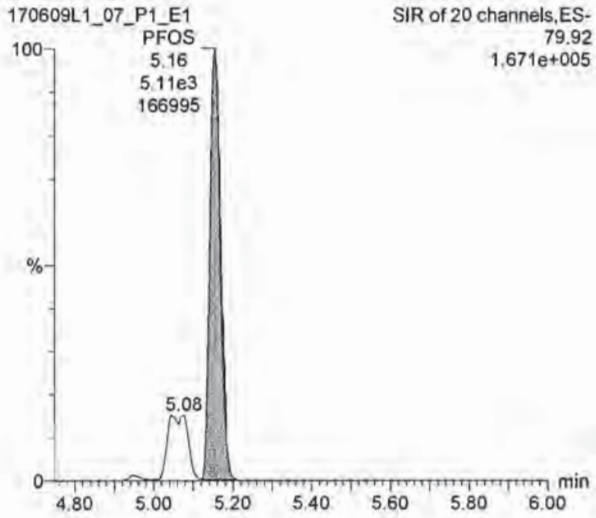
PFOA



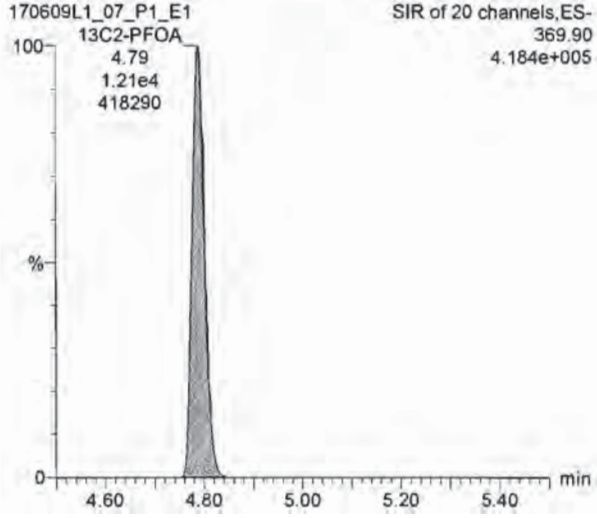
PFNA



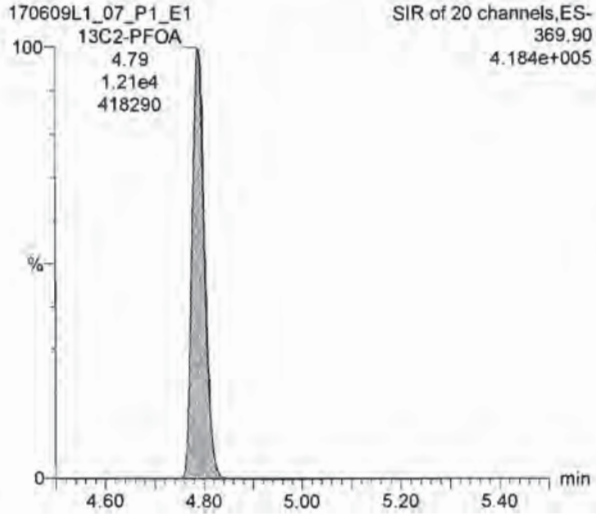
PFOS



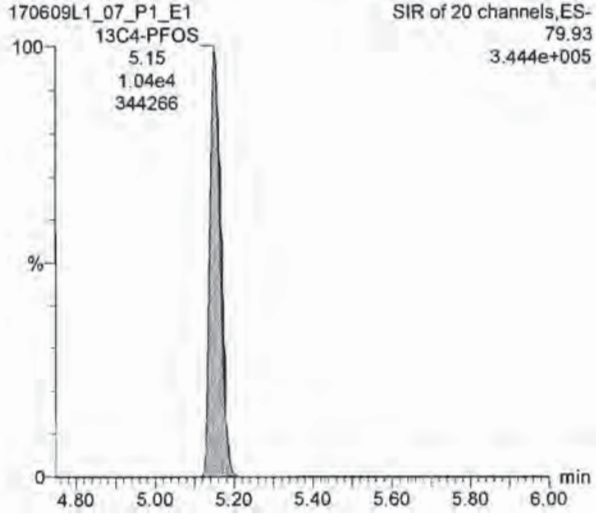
13C2-PFOA

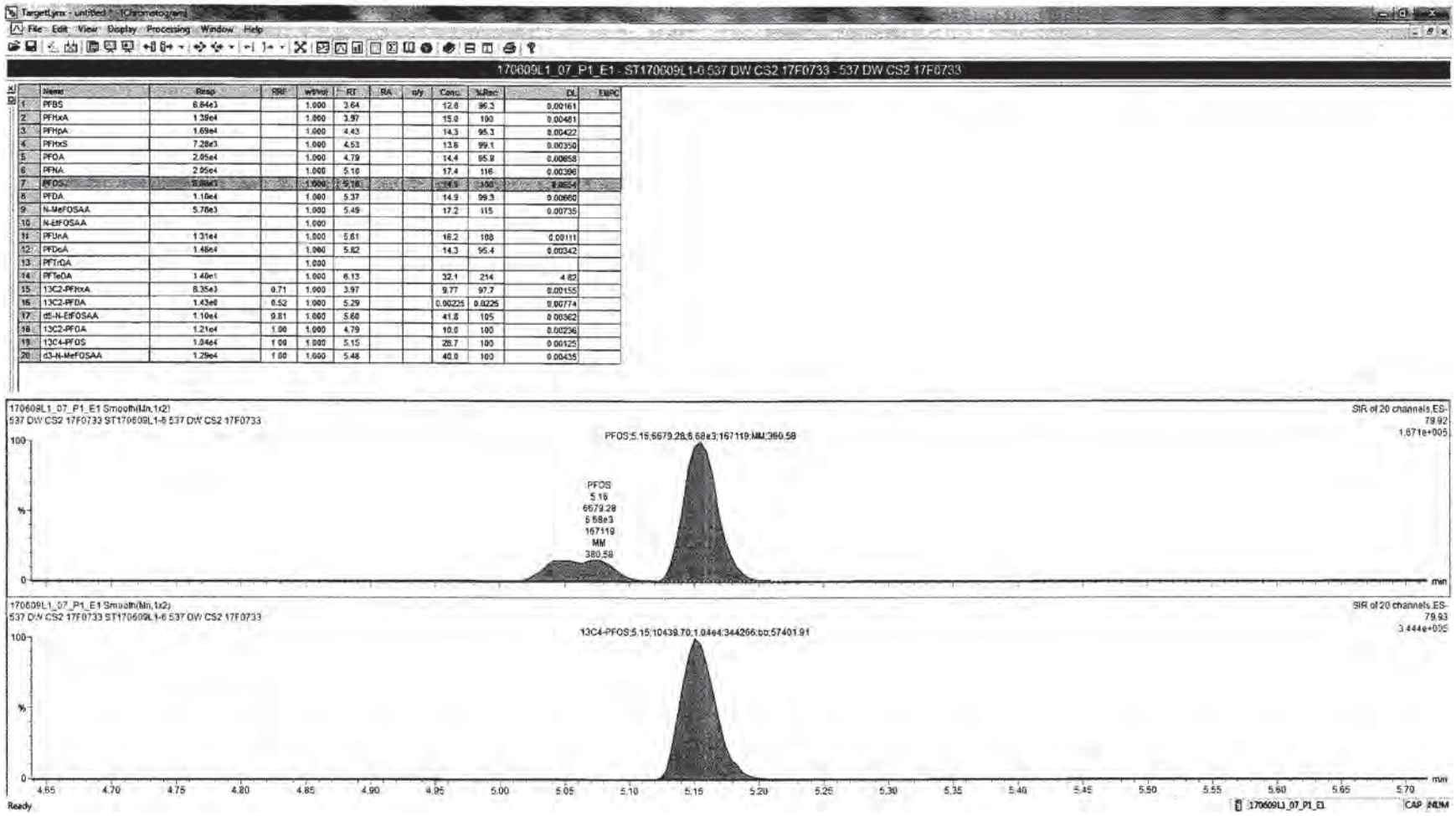


13C2-PFOA



13C4-PFOS





	Name	Resp	RRF	wt/vol	RT	RA	d/y	Conc	%Rec	DL	EMPC
1	PFBS	6.84e3		1.000	3.64			12.8	96.3	0.00161	
2	PFHxA	1.38e4		1.000	3.97			15.0	100	0.00481	
3	PFHpA	1.69e4		1.000	4.43			14.3	95.3	0.00422	
4	PFHxS	7.28e3		1.000	4.53			13.8	99.1	0.00350	
5	PFOA	2.05e4		1.000	4.79			14.4	95.9	0.00858	
6	PFNA	2.95e4		1.000	5.10			17.4	116	0.00396	
7	PFOS	6.68e3		1.000	5.16			14.9	100	0.0054	
8	PFDA	1.10e4		1.000	5.37			14.9	99.3	0.00660	
9	N-MeFOSAA	5.76e3		1.000	5.49			17.2	115	0.00735	
10	N-EtFOSAA			1.000							
11	PFUnA	1.31e4		1.000	5.81			16.2	108	0.00111	
12	PFDoA	1.48e4		1.000	5.82			14.3	95.4	0.00342	
13	PFTrDA			1.000							
14	PFTeDA	1.40e1		1.000	6.13			32.1	214	4.80	
15	13C2-PFHxA	8.35e3	0.71	1.000	3.97			9.77	97.7	0.00155	
16	13C2-PFDA	1.43e6	0.52	1.000	5.29			0.00225	0.0225	0.00774	
17	d5-N-EtFOSAA	1.10e4	0.81	1.000	5.60			41.8	105	0.00362	
18	13C2-PFOA	1.21e4	1.00	1.000	4.79			10.0	100	0.00236	
19	13C4-PFOS	1.04e4	1.00	1.000	5.15			28.7	100	0.00125	
20	d3-N-MeFOSAA	1.29e4	1.00	1.000	5.48			40.0	100	0.00435	

Dataset: Untitled

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Name: 170609L1_07.wiff, Date: 09-Jun-2017, Time: 15:59:49, ID: ST170609L1-6 537 DW CS2 17F0733, Description: 537 DW CS2 17F0733

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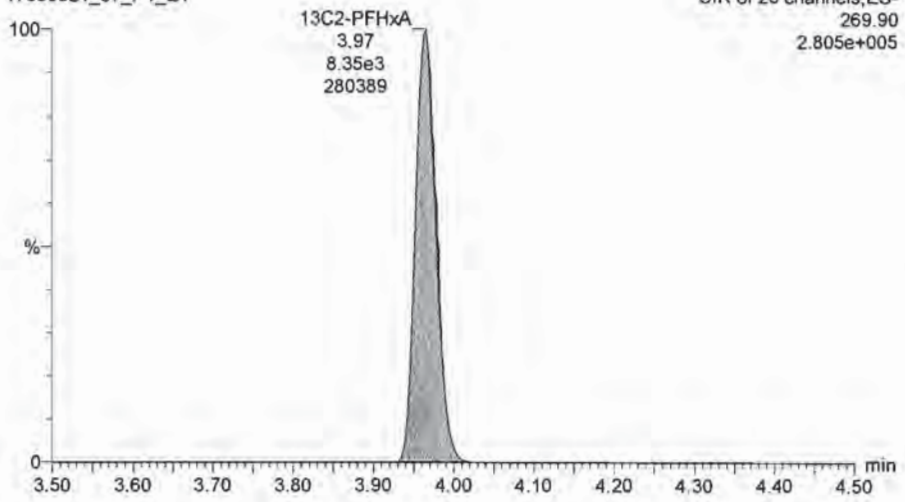
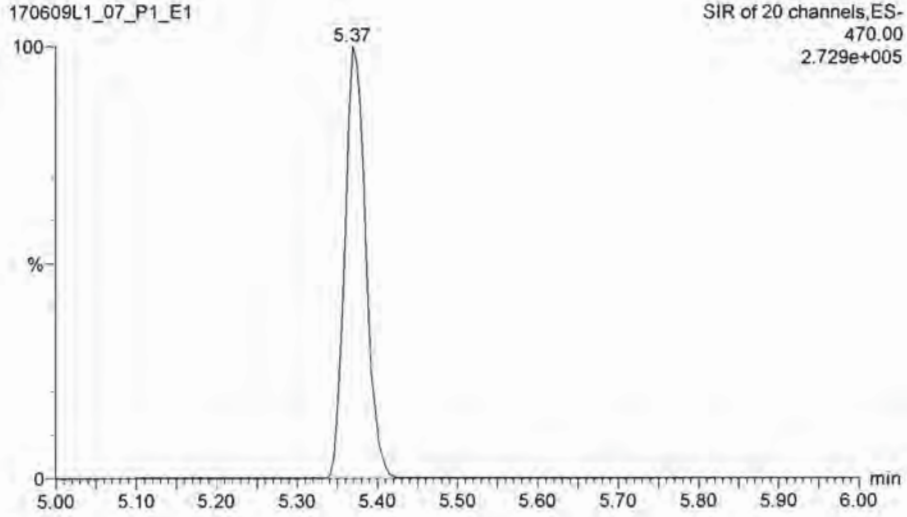
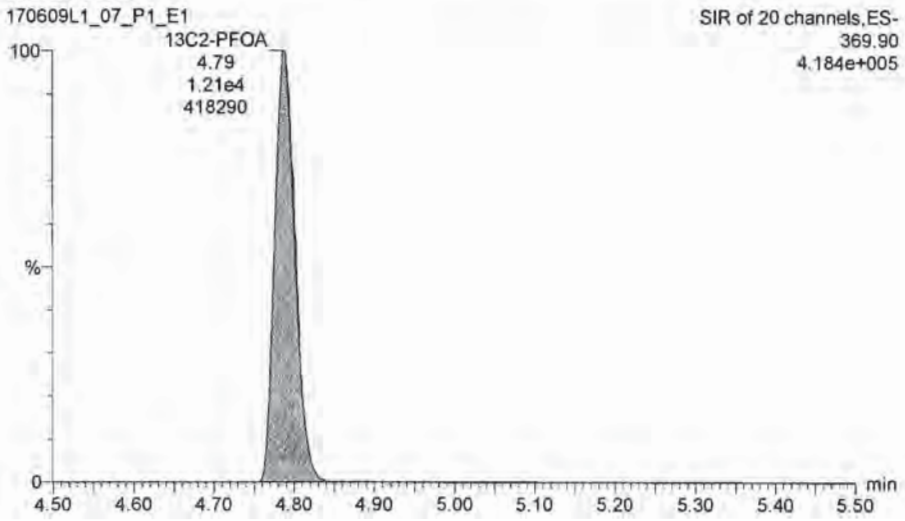


13C2-PFDA



13C2-PFOA



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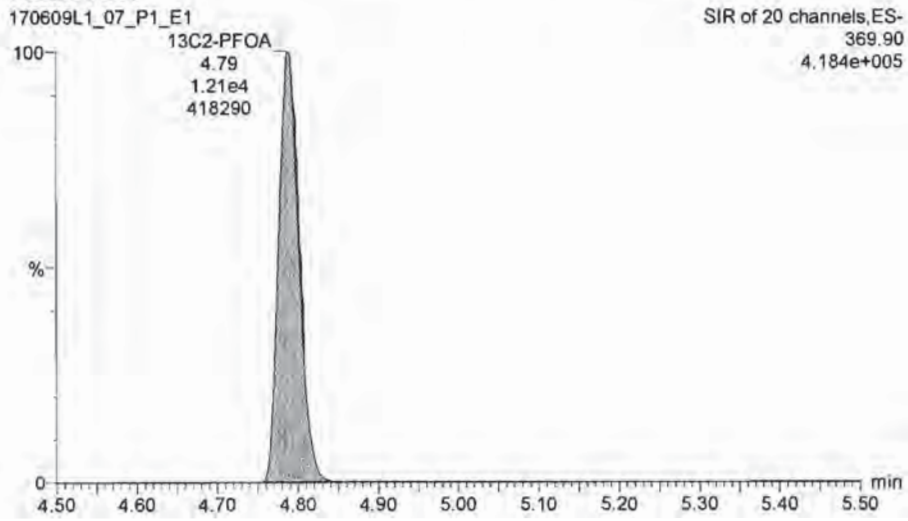

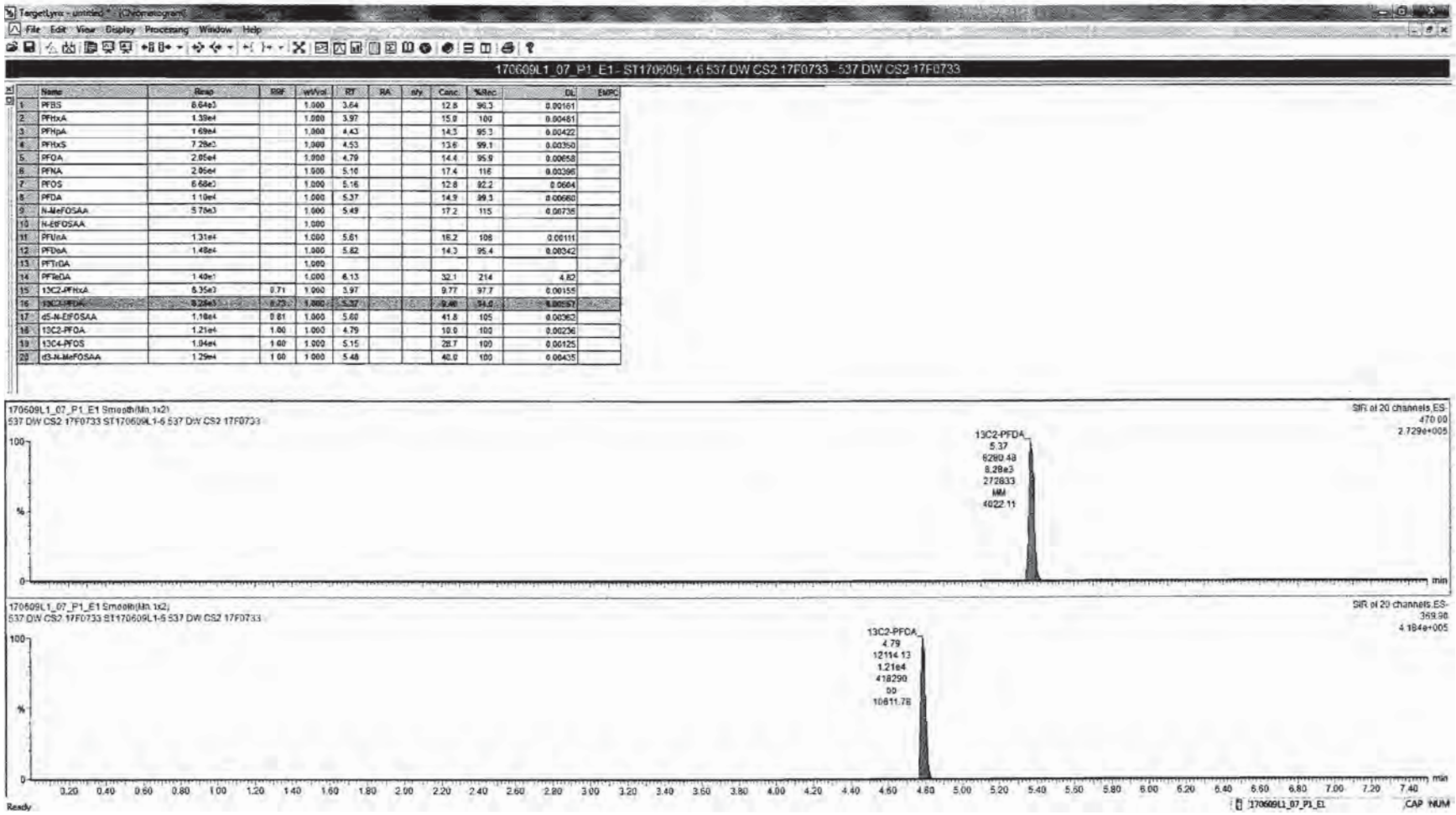

	Name	Resp	RSF	wtVol	RT	RA	qty	Conc	%Rec	DL	EMPC
1	PFBS	8.64e3		1.000	3.64			12.8	96.3	0.00161	
2	PFHxA	1.39e4		1.000	3.97			15.0	100	0.00481	
3	PFHpA	1.69e4		1.000	4.43			14.5	95.3	0.00422	
4	PFHxS	7.28e3		1.000	4.53			13.6	99.1	0.00350	
5	PFOA	2.05e4		1.000	4.79			14.4	95.9	0.00658	
6	PFNA	2.05e4		1.000	5.16			17.4	116	0.00396	
7	PFOS	6.68e3		1.000	5.16			12.8	92.2	0.0664	
8	PFDA	1.10e4		1.000	5.37			14.9	99.3	0.00660	
9	N-MeFOSAA	5.76e3		1.000	5.49			17.2	115	0.00735	
10	N-EtFOSAA			1.000							
11	PFUnA	1.31e4		1.000	5.61			16.2	108	0.00111	
12	PFDoA	1.48e4		1.000	5.82			14.3	95.4	0.00342	
13	PFTrDA			1.000							
14	PFTeDA	1.40e1		1.000	6.13			32.1	214	4.82	
15	13C2-PFHxA	8.35e3	0.71	1.000	3.97			9.77	97.7	0.00155	
16	13C2-PFDA	8.28e3	0.73	1.000	5.37			9.40	94.0	0.00557	
17	d5-N-EtFOSAA	1.18e4	0.81	1.000	5.60			41.8	105	0.00362	
18	13C2-PFOA	1.21e4	1.00	1.000	4.79			10.0	100	0.00236	
19	13C4-PFOS	1.84e4	1.60	1.000	5.15			28.7	100	0.00125	
20	d3-N-MeFOSAA	1.29e4	1.00	1.000	5.48			40.0	100	0.00435	

Dataset: Untitled

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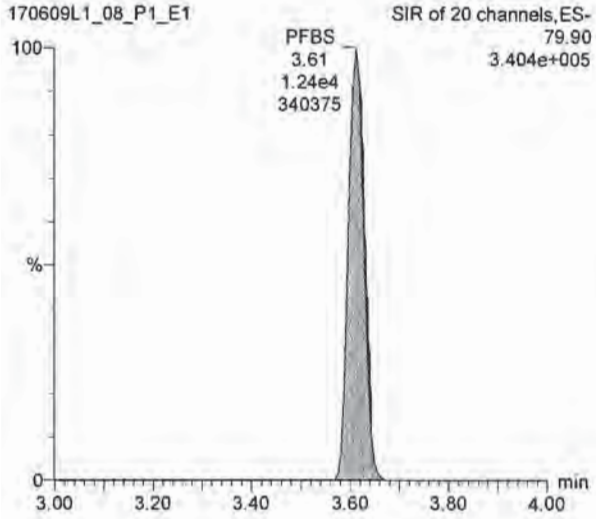
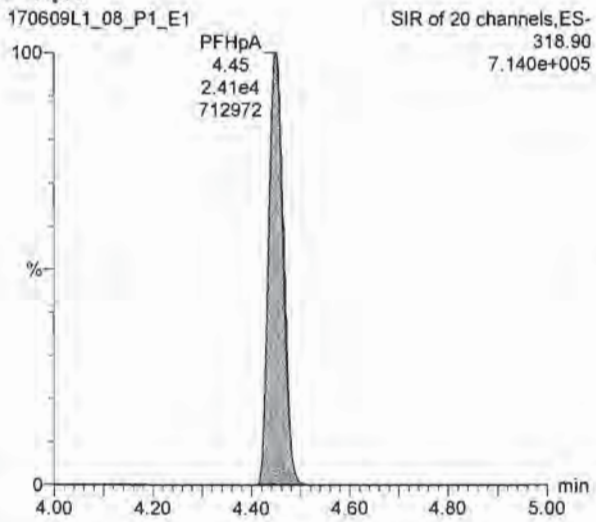
Name: 170609L1_08.wiff, Date: 09-Jun-2017, Time: 16:12:03, ID: ST170609L1-7 537 DW CS3 17F0605, Description: 537 DW CS3 17F0605

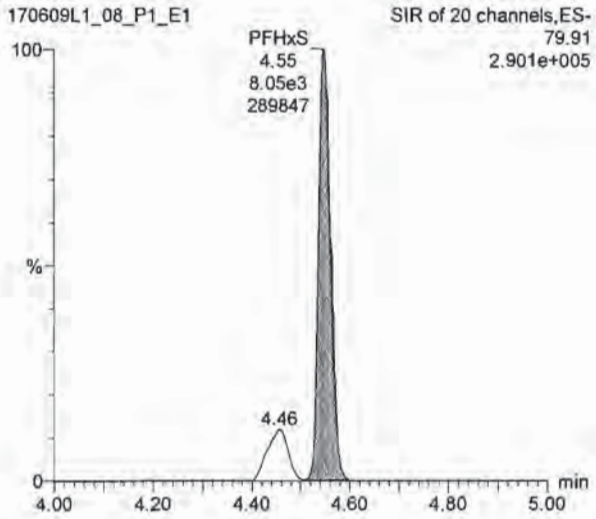
PFBS



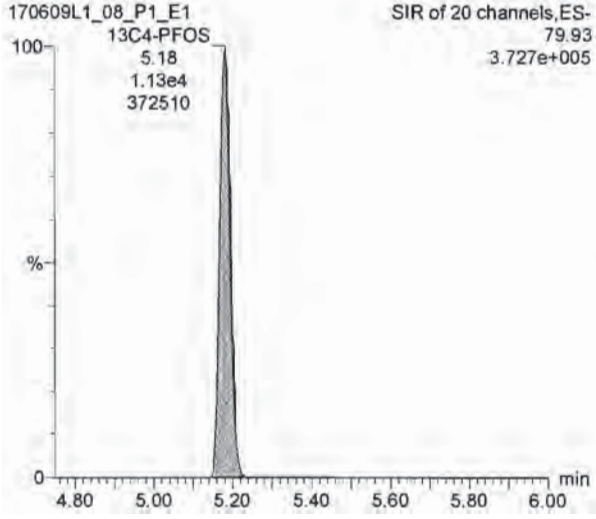
PFHpA



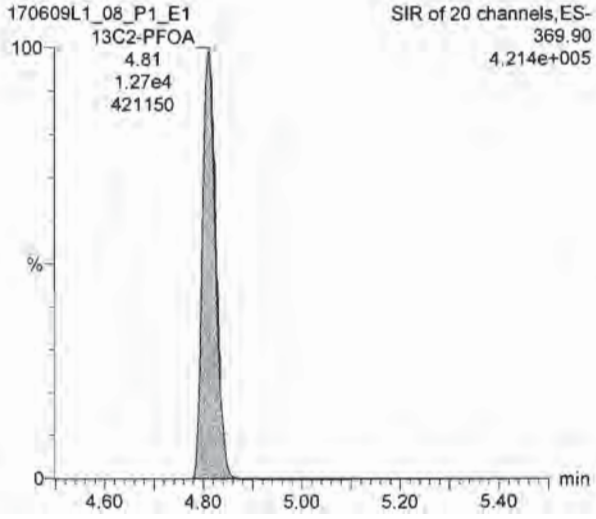
PFHxS



13C4-PFOS



13C2-PFOA



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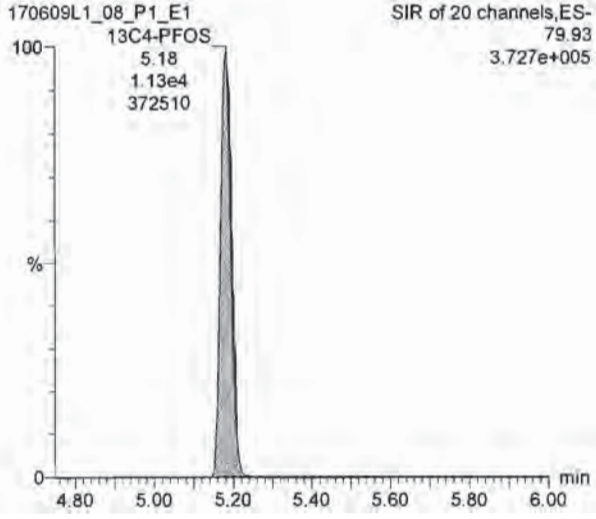

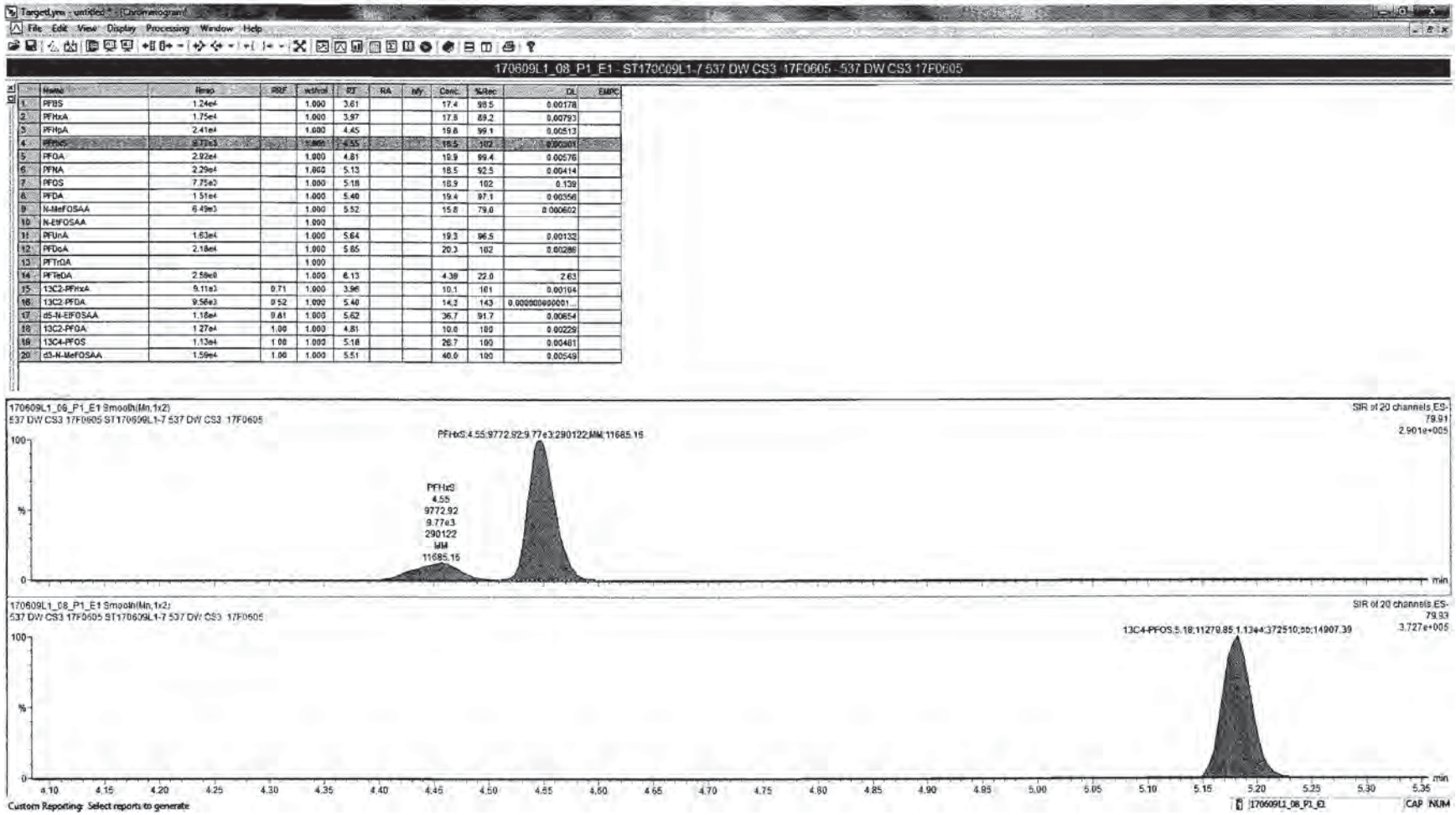

	Name	Resp	PRF	IstAmt	RT	RA	Mfy	Conc.	%Rec	DL	EMPC
1	PFBS	1.24e4		1.000	3.61			17.4	98.5	0.00178	
2	PFHxA	1.75e4		1.000	3.97			17.8	89.2	0.00793	
3	PFHpA	2.41e4		1.000	4.45			19.8	99.1	0.00513	
4	PFHxS	9.77e3		1.000	4.55			18.5	102	0.00301	
5	PFOA	2.92e4		1.000	4.81			19.9	99.4	0.00576	
6	PFNA	2.29e4		1.000	5.13			18.5	92.5	0.00414	
7	PFOS	7.75e2		1.000	5.18			18.9	102	0.139	
8	PFDA	1.51e4		1.000	5.40			19.4	97.1	0.00356	
9	N-MeFOSAA	6.49e3		1.000	5.52			15.8	79.0	0.000602	
10	N-EtFOSAA			1.000							
11	PFUnA	1.63e4		1.000	5.64			19.3	96.5	0.00132	
12	PFDoA	2.18e4		1.000	5.85			20.3	102	0.00286	
13	PFTrDA			1.000							
14	PFTeDA	2.58e0		1.000	6.13			4.39	22.0	2.63	
15	13C2-PFHxA	9.11e3	0.71	1.000	3.96			10.1	101	0.00164	
16	13C2-PFDA	9.56e3	0.52	1.000	5.40			14.3	143	0.000000000001...	
17	d5-N-EtFOSAA	1.18e4	0.61	1.000	5.62			36.7	91.7	0.00654	
18	13C2-PFOA	1.27e4	1.00	1.000	4.81			10.0	100	0.00229	
19	13C4-PFOS	1.13e4	1.00	1.000	5.18			26.7	100	0.00481	
20	d3-N-MeFOSAA	1.59e4	1.00	1.000	5.51			40.0	100	0.00549	

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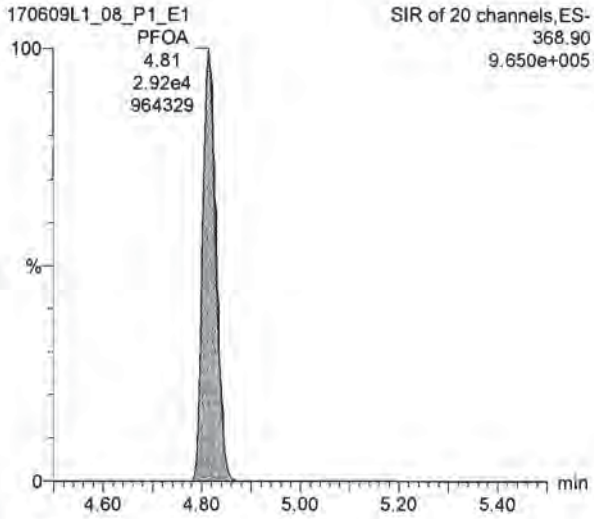
Name: 170609L1_08.wiff, Date: 09-Jun-2017, Time: 16:12:03, ID: ST170609L1-7 537 DW CS3 17F0605, Description: 537 DW CS3 17F0605

PFOA



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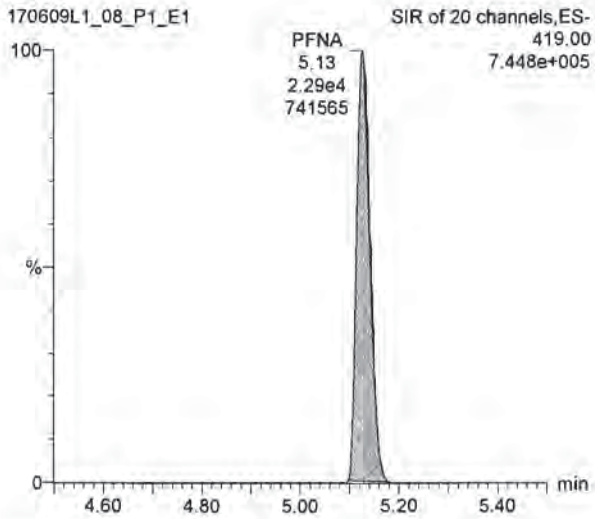
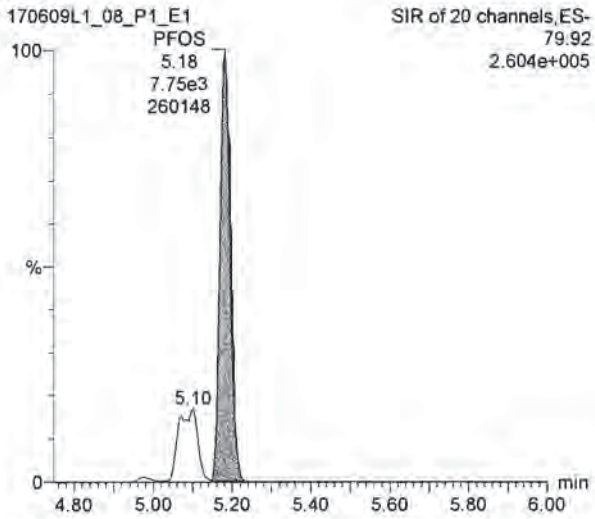
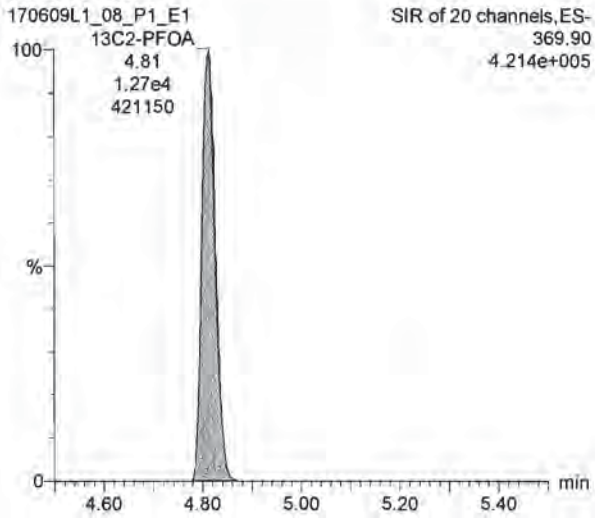


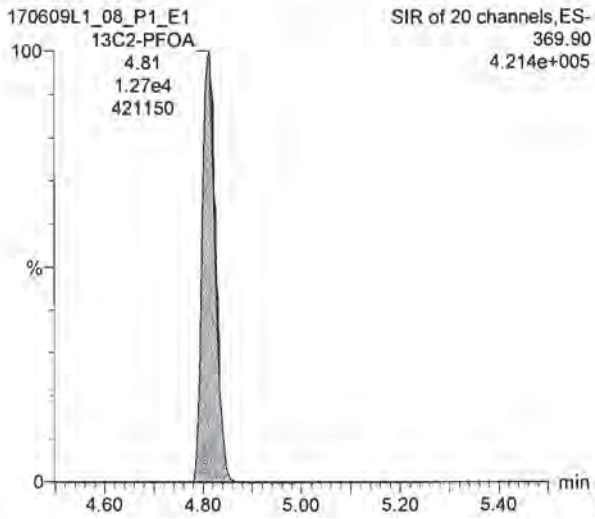
PFOS



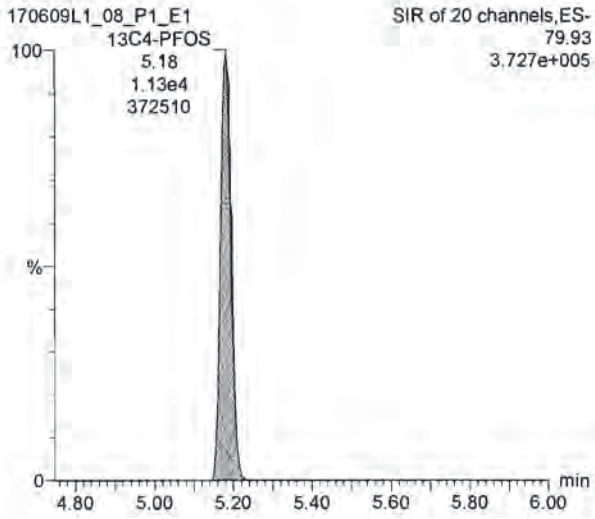
13C2-PFOA

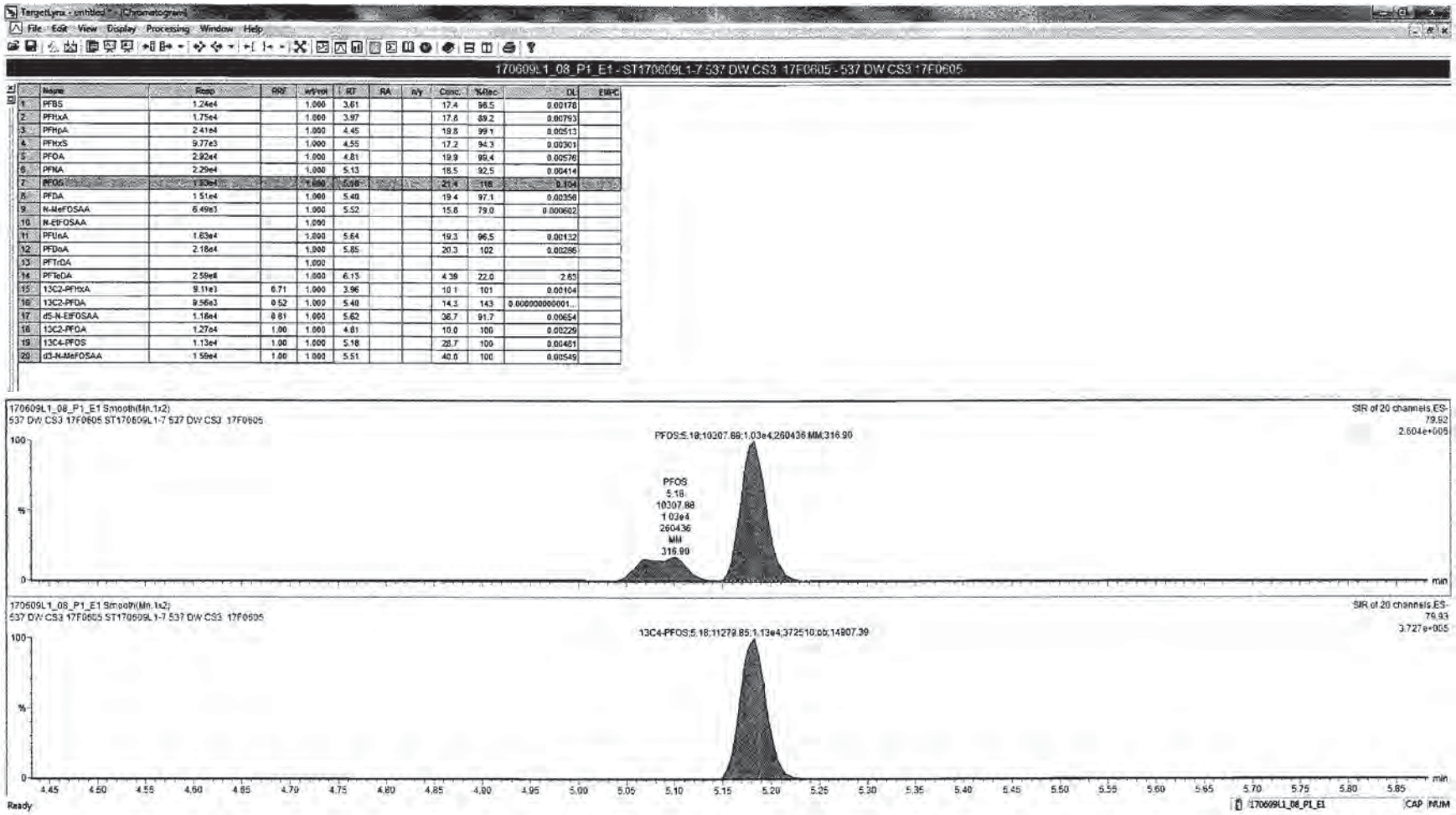


13C2-PFOA



13C4-PFOS





	Name	Resp	ORT	w/v vol	RT	RA	w/v	Conc.	%Rec	DL	EMPC
1	PFBS	1.24e4		1.000	3.61			17.4	98.5	0.00178	
2	PFHxA	1.75e4		1.000	3.97			17.6	89.2	0.00793	
3	PFHpA	2.41e4		1.000	4.45			19.8	99.1	0.00513	
4	PFHxS	9.77e3		1.000	4.55			17.2	94.3	0.00301	
5	PFOA	2.92e4		1.000	4.81			19.9	99.4	0.00576	
6	PFNA	2.29e4		1.000	5.13			18.5	92.5	0.00414	
7	PFOS	1.03e4		1.000	5.18			21.4	118	0.104	
8	PFDA	1.51e4		1.000	5.48			19.4	97.1	0.00356	
9	N-MeFOSAA	6.49e3		1.000	5.52			15.8	79.0	0.000602	
10	N-EtFOSAA			1.000							
11	PFUnA	1.83e4		1.000	5.64			19.3	96.5	0.00132	
12	PFDoA	2.18e4		1.000	5.85			20.3	102	0.00286	
13	PFTrDA			1.000							
14	PFTeDA	2.59e8		1.000	6.13			4.39	22.0	2.83	
15	13C2-PFHxA	9.11e3	0.71	1.000	3.96			10.1	101	0.00104	
16	13C2-PFDA	9.56e3	0.52	1.000	5.48			14.3	143	0.000000000001...	
17	d5-N-EtFOSAA	1.18e4	0.81	1.000	5.62			36.7	91.7	0.00654	
18	13C2-PFOA	1.27e4	1.00	1.000	4.81			10.0	100	0.00229	
19	13C4-PFOS	1.13e4	1.00	1.000	5.18			28.7	109	0.00481	
20	d3-N-MeFOSAA	1.56e4	1.00	1.000	5.51			40.0	100	0.00549	

Dataset: Untitled

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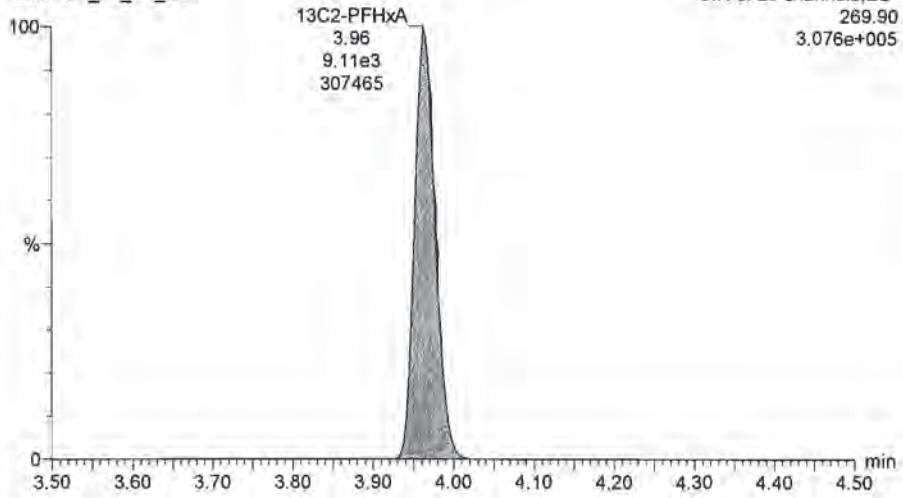
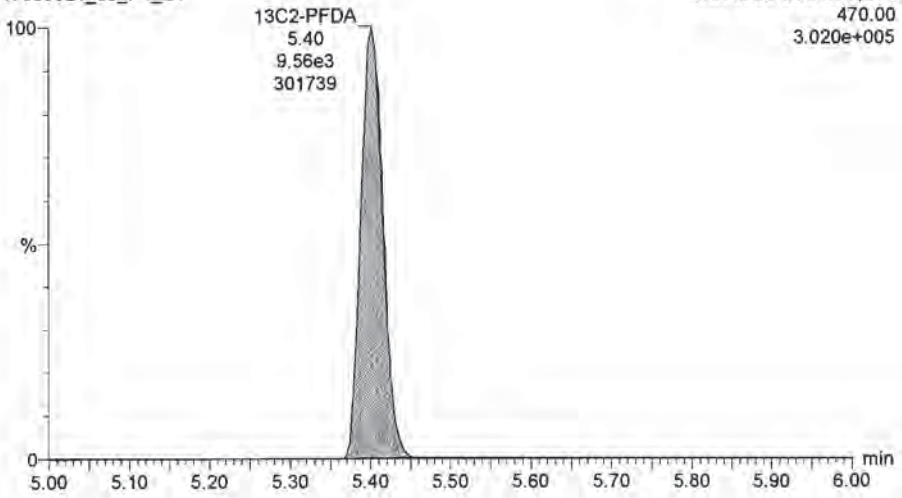
Name: 170609L1_08.wiff, Date: 09-Jun-2017, Time: 16:12:03, ID: ST170609L1-7 537 DW CS3 17F0605, Description: 537 DW CS3 17F0605

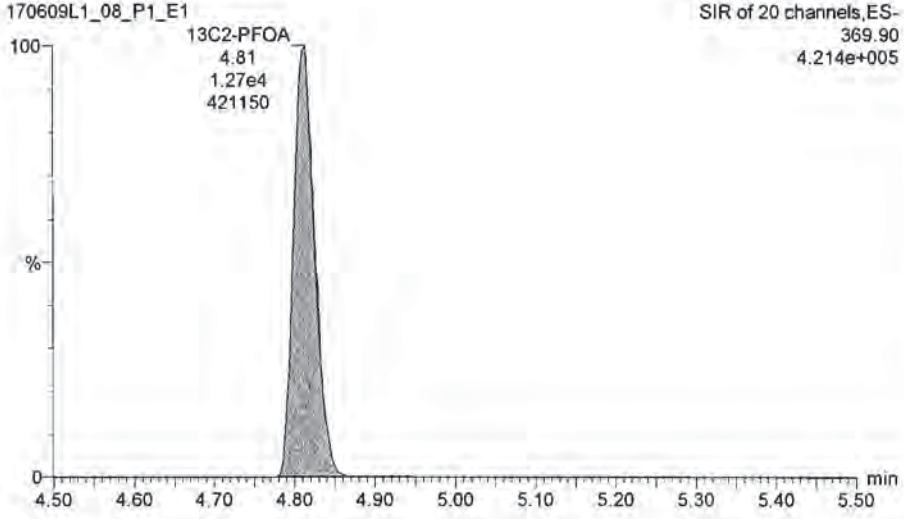
13C2-PFHxA



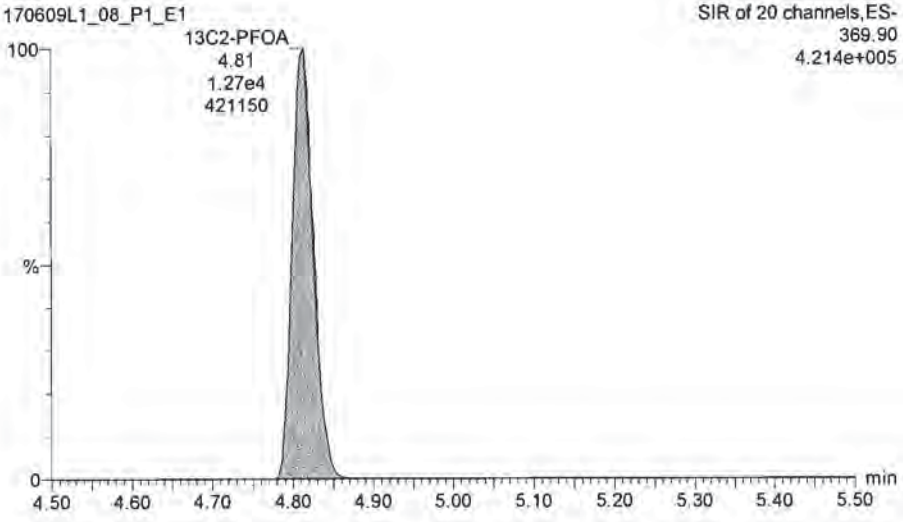
13C2-PFDA



13C2-PFOA



13C2-PFOA



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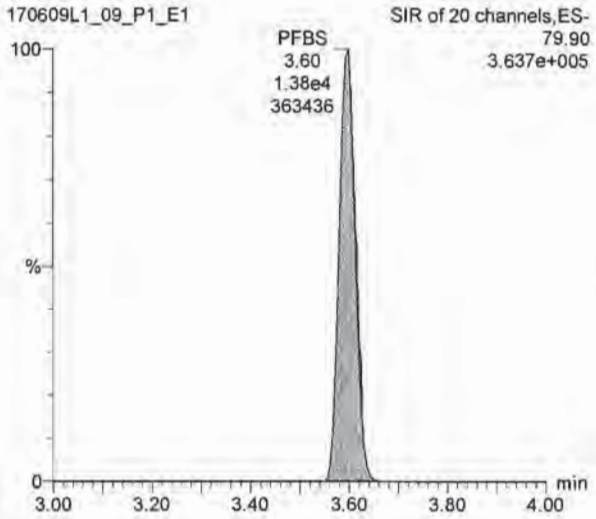
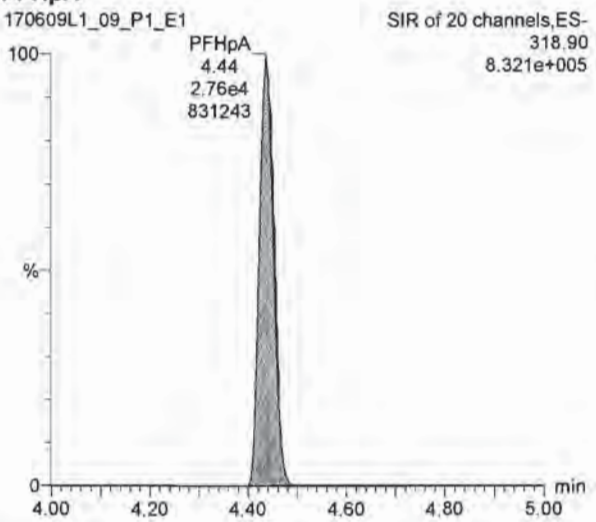
Name: 170609L1_09.wiff, Date: 09-Jun-2017, Time: 16:24:17, ID: ST170609L1-8 537 DW CS4 17F0734, Description: 537 DW CS4 17F0734

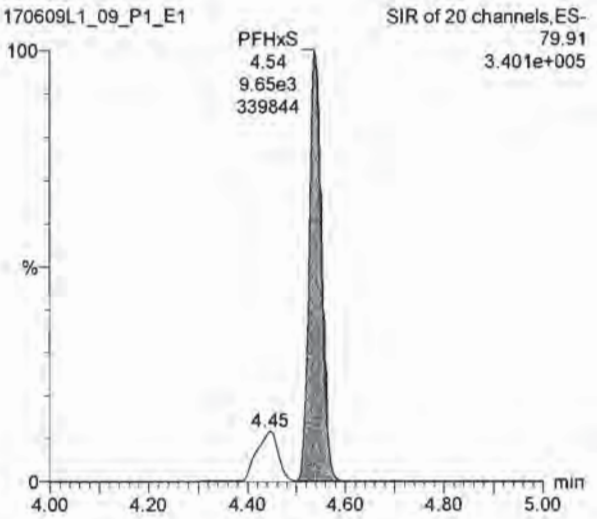
PFBS



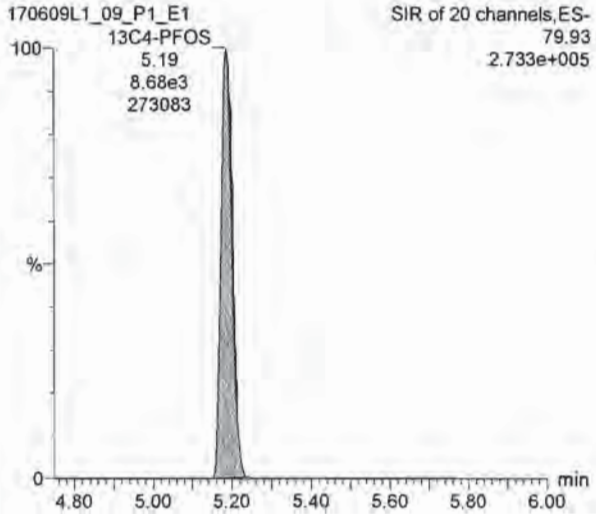
PFHpA



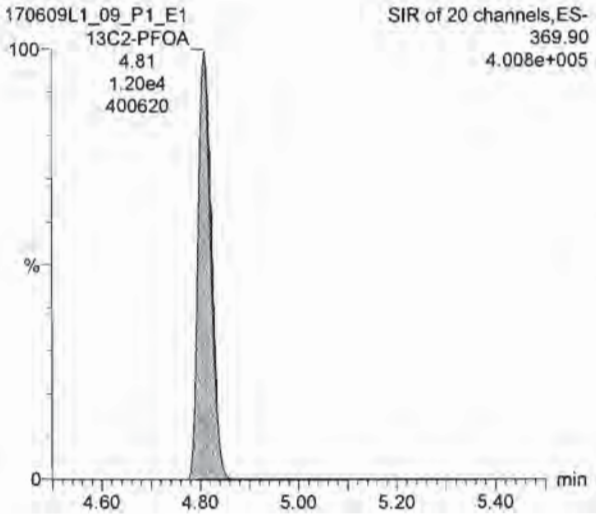
PFHxS



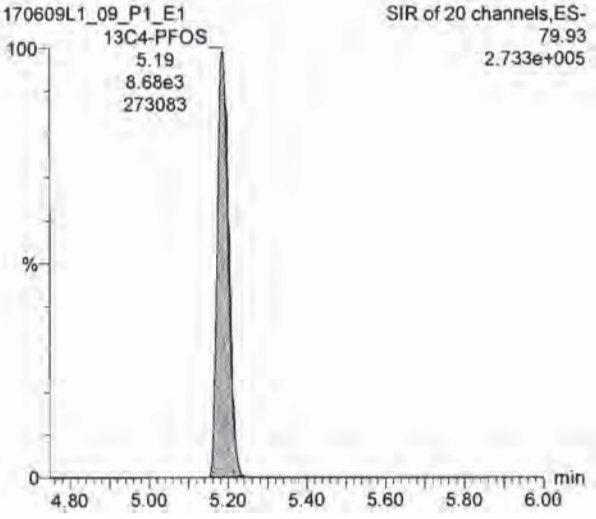
13C4-PFOS

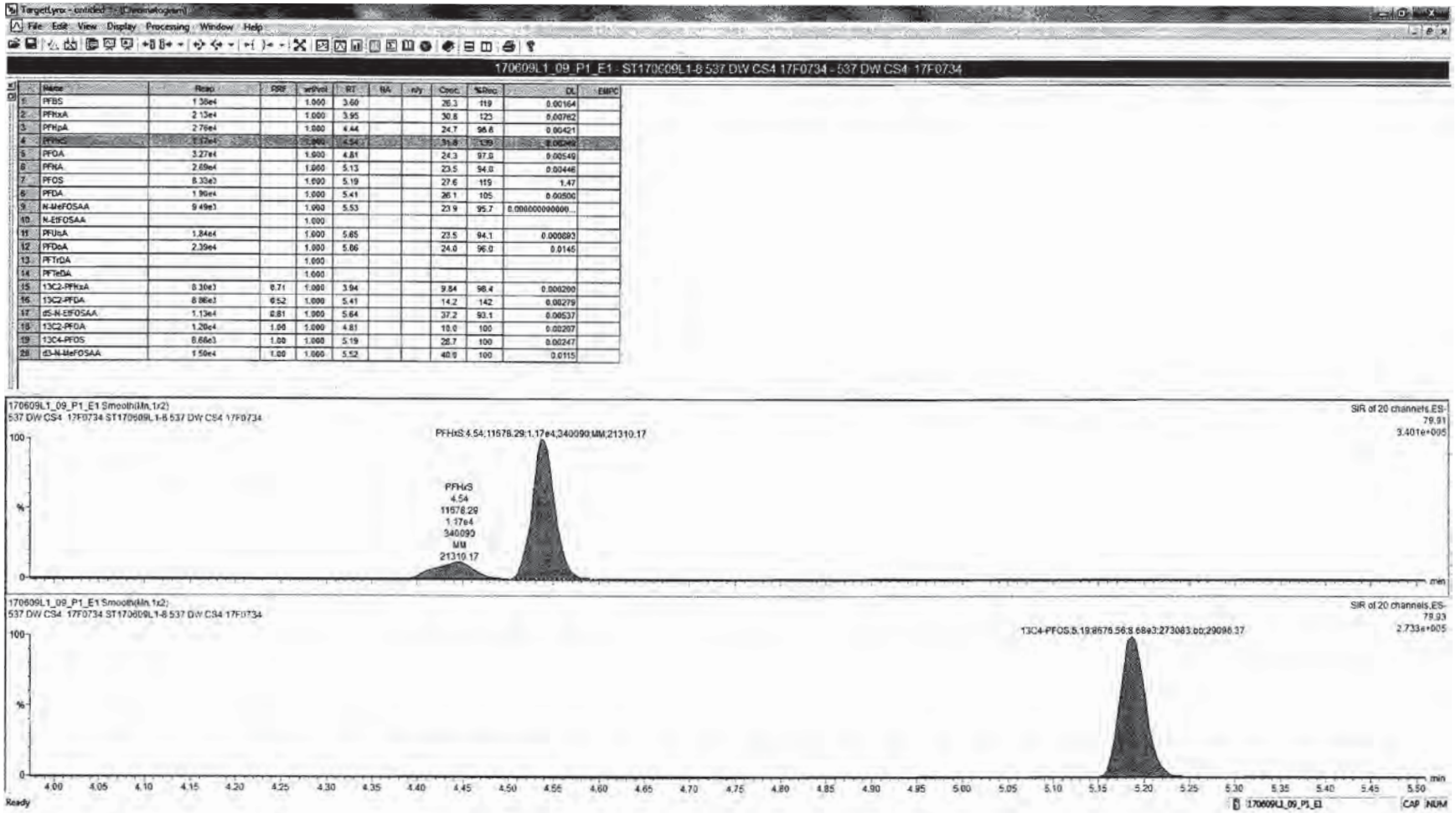


13C2-PFOA



13C4-PFOS





	Name	Resp	RRF	wtVol	RT	RA	rrly	Conc	%Rec	DL	EMPC
1	PFBS	1.36e4		1.000	3.60			26.3	119	0.00164	
2	PFHxA	2.13e4		1.000	3.95			30.8	123	0.00762	
3	PFHpA	2.76e4		1.000	4.44			24.7	98.8	0.00421	
4	PFHxS	1.17e4		1.000	4.54			31.8	139	0.00349	
5	PFOA	3.27e4		1.000	4.81			24.3	97.0	0.00549	
6	PFNA	2.69e4		1.000	5.13			23.5	94.0	0.00446	
7	PFOS	8.33e3		1.000	5.19			27.6	119	1.47	
8	PFDA	1.90e4		1.000	5.41			26.1	105	0.00500	
9	N-MeFOSAA	9.49e3		1.000	5.53			23.9	95.7	0.000000000000...	
10	N-EtFOSAA			1.000							
11	PFUnA	1.84e4		1.000	5.65			23.5	94.1	0.000893	
12	PFDoA	2.39e4		1.000	5.86			24.0	96.0	0.0145	
13	PFTrDA			1.000							
14	PFTeDA			1.000							
15	13C2-PFHxA	8.30e3	0.71	1.000	3.94			9.84	98.4	0.000200	
16	13C2-PFDA	8.86e3	0.52	1.000	5.41			14.2	142	0.00279	
17	d5-N-EtFOSAA	1.13e4	0.81	1.000	5.64			37.2	93.1	0.00537	
18	13C2-PFOA	1.20e4	1.00	1.000	4.81			10.0	100	0.00207	
19	13C4-PFOS	8.66e3	1.00	1.000	5.19			28.7	100	0.00247	
20	d3-N-MeFOSAA	1.50e4	1.00	1.000	5.52			40.0	100	0.0115	

Dataset: Untitled

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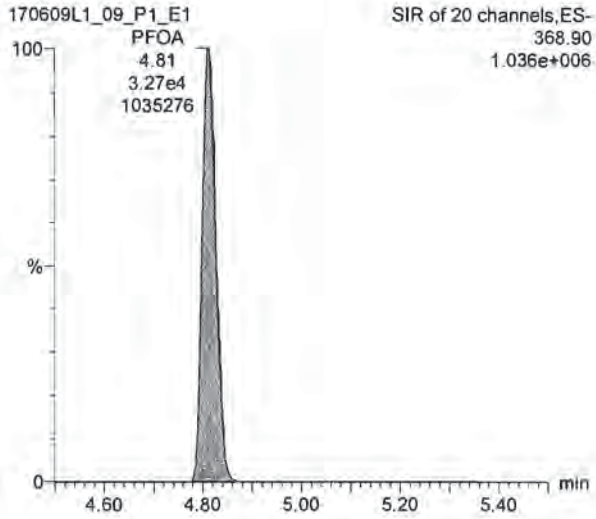
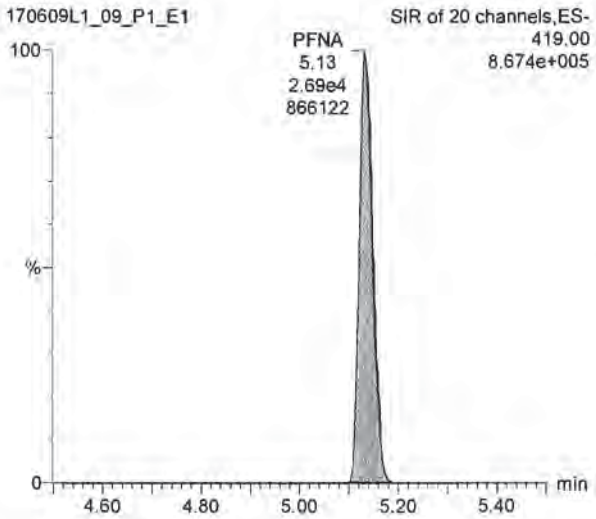
Name: 170609L1_09.wiff, Date: 09-Jun-2017, Time: 16:24:17, ID: ST170609L1-8 537 DW CS4 17F0734, Description: 537 DW CS4 17F0734

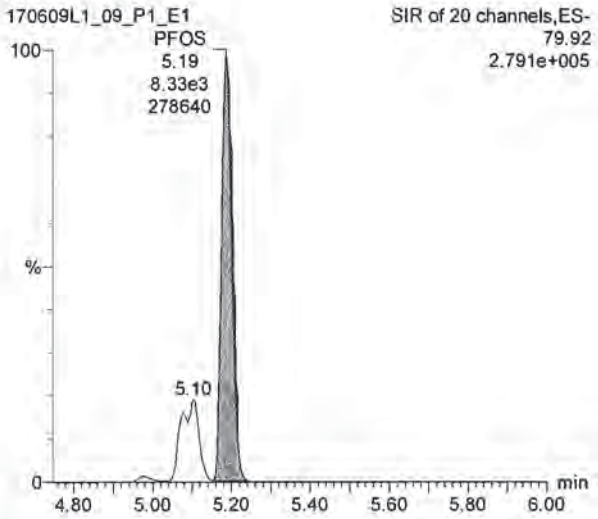
PFOA



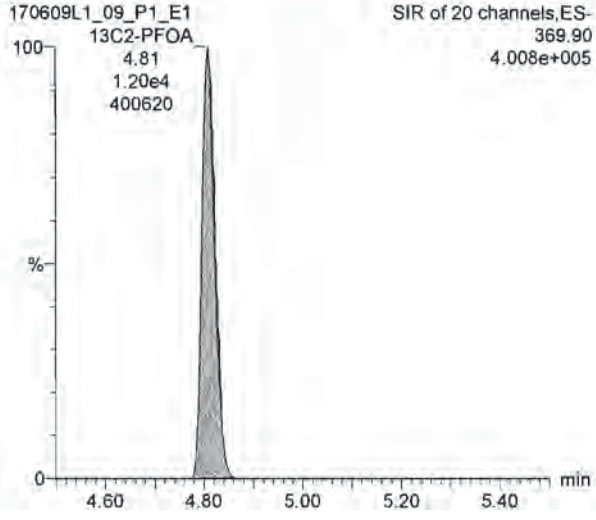
PFNA



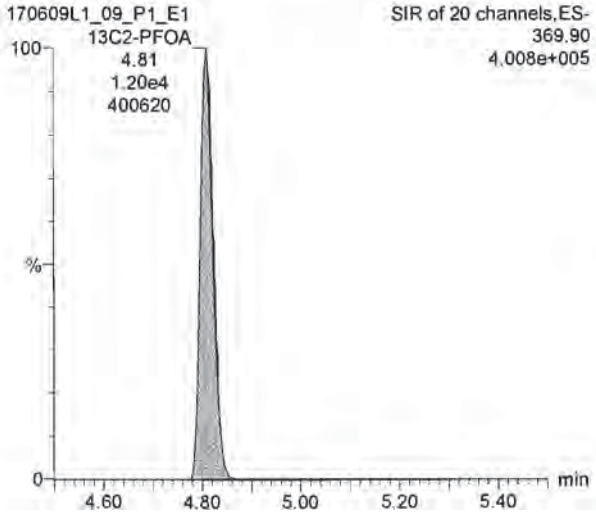
PFOS



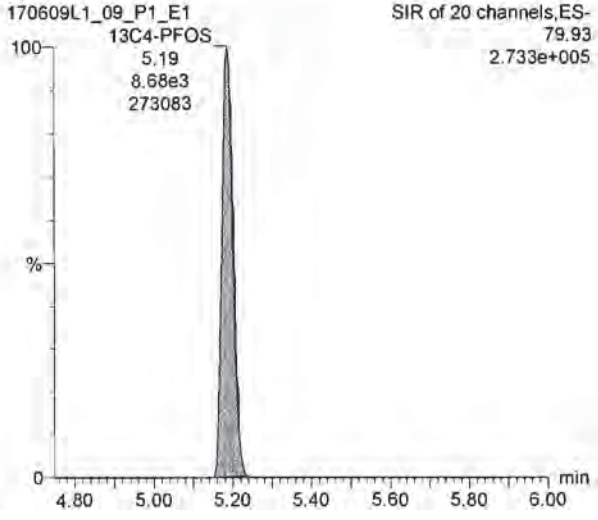
13C2-PFOA

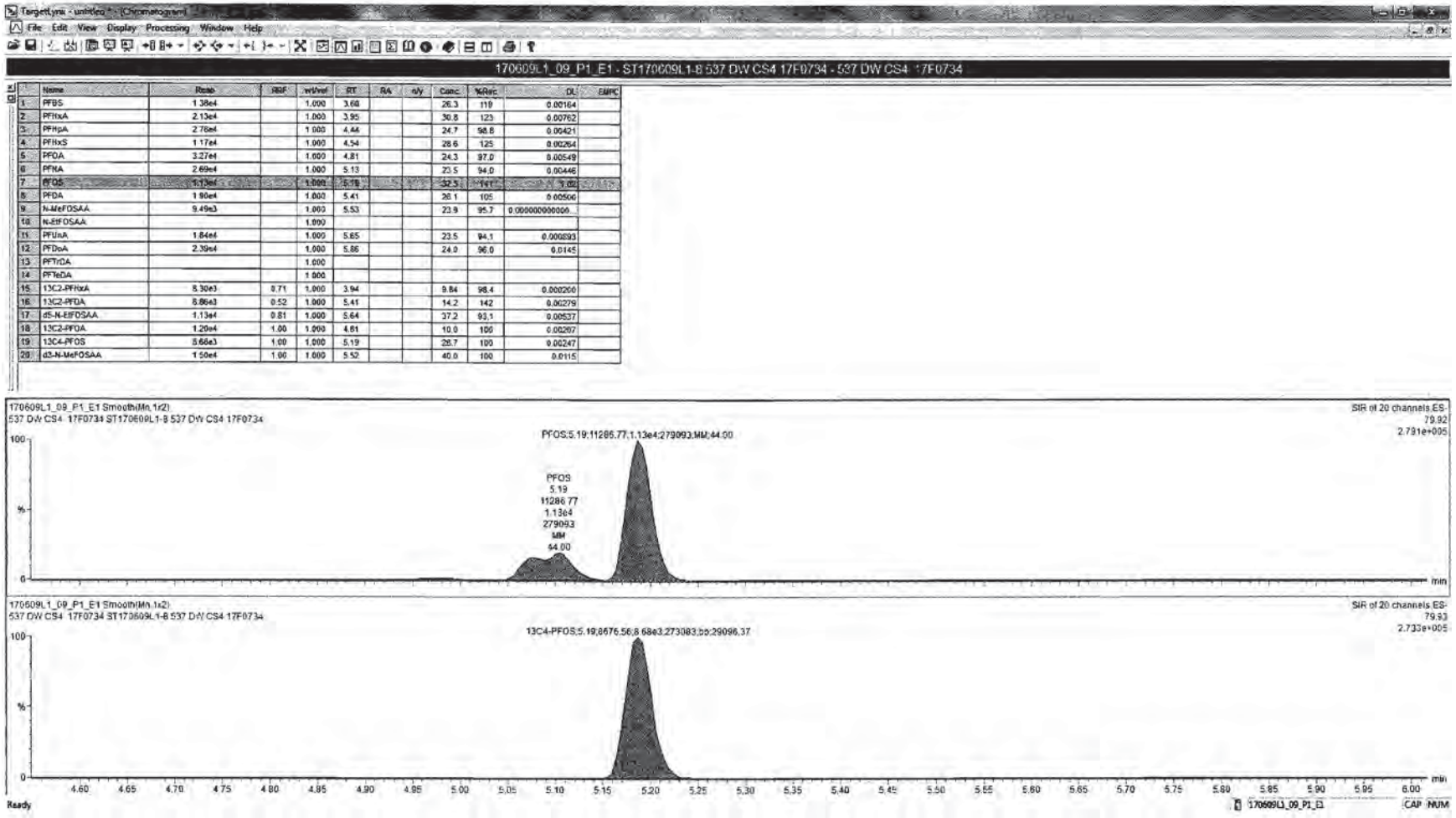


13C2-PFOA



13C4-PFOS





	Name	Resp	ISTD	wt/vol	RT	RA	dy	Conc	%Rec	DL	EMPC
1	PFBS	1.38e4		1.000	3.68			26.3	119	0.00164	
2	PFHxA	2.13e4		1.000	3.95			30.8	123	0.00762	
3	PFHpA	2.76e4		1.000	4.44			24.7	98.8	0.00421	
4	PFHxS	1.17e4		1.000	4.54			28.6	125	0.00264	
5	PFOA	3.27e4		1.000	4.81			24.3	97.0	0.00549	
6	PFNA	2.69e4		1.000	5.13			23.5	94.0	0.00446	
7	PFOS	1.13e4		1.000	5.19			32.5	141	0.02	
8	PFDA	1.90e4		1.000	5.41			26.1	105	0.00500	
9	N-MeFOSAA	9.49e3		1.000	5.53			23.9	95.7	0.0000000000000	
10	N-EtFOSAA			1.000							
11	PFUnA	1.84e4		1.000	5.85			23.5	94.1	0.000893	
12	PFDoA	2.39e4		1.000	5.86			24.0	96.0	0.0145	
13	PFTrDA			1.000							
14	PFTeDA			1.000							
15	13C2-PFHxA	5.30e3	0.71	1.000	3.94			9.84	98.4	0.000200	
16	13C2-PFDA	8.86e3	0.52	1.000	5.41			14.2	142	0.00279	
17	d5-N-EtFOSAA	1.13e4	0.81	1.000	5.64			37.2	93.1	0.00537	
18	13C2-PFOA	1.29e4	1.00	1.000	4.81			10.0	100	0.00267	
19	13C4-PFOS	8.66e3	1.00	1.000	5.19			28.7	100	0.00247	
20	d3-N-MeFOSAA	1.50e4	1.00	1.000	5.52			40.0	100	0.0115	

Dataset: Untitled

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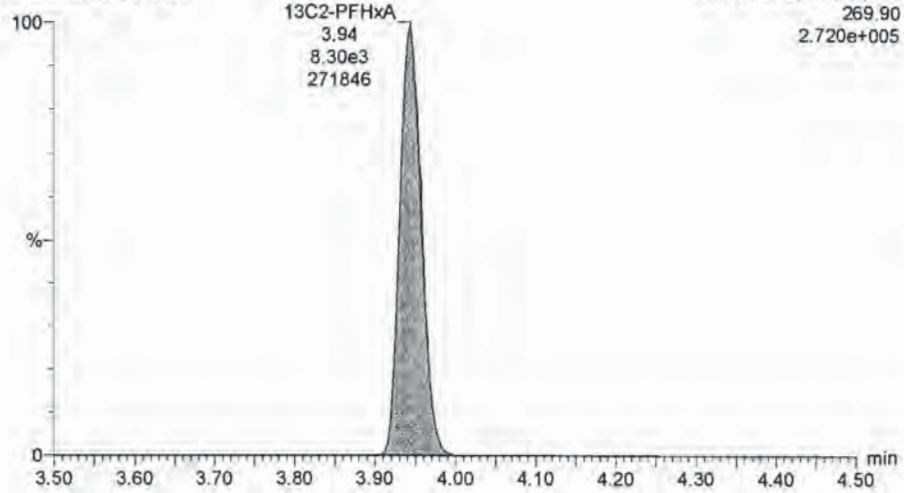
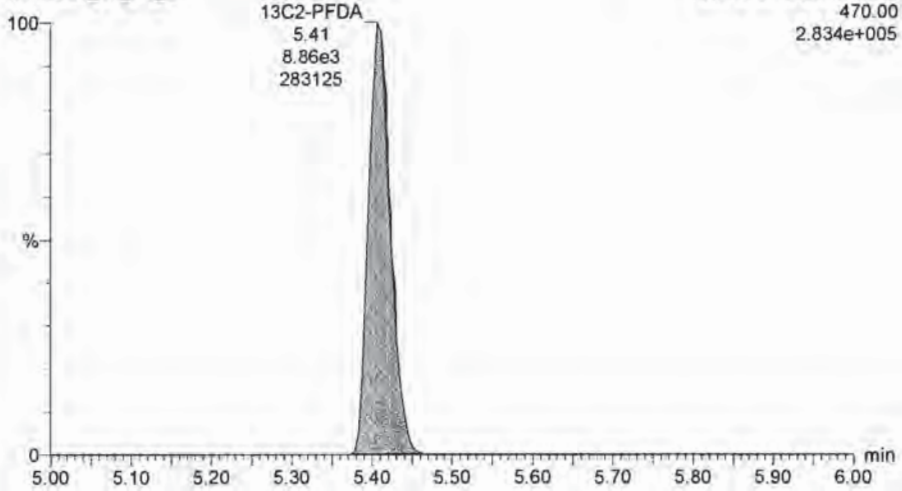
Name: 170609L1_09.wiff, Date: 09-Jun-2017, Time: 16:24:17, ID: ST170609L1-8 537 DW CS4 17F0734, Description: 537 DW CS4 17F0734

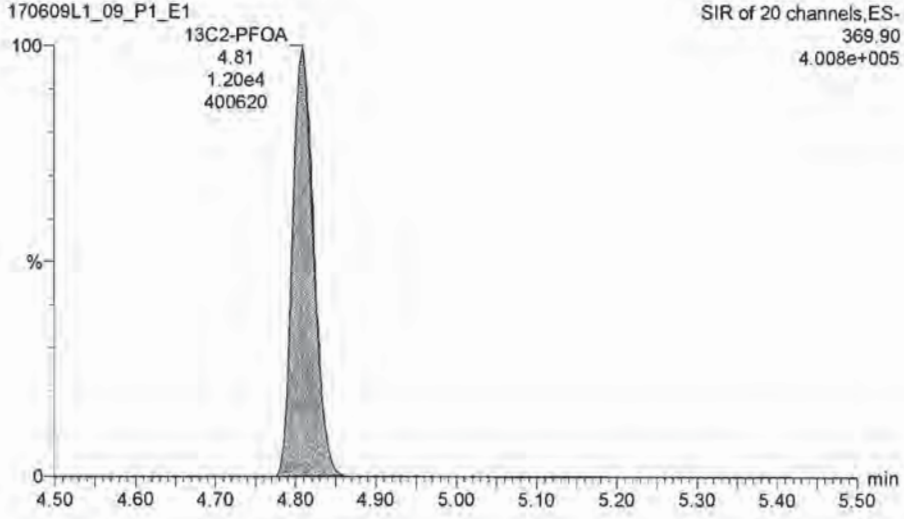
13C2-PFHxA



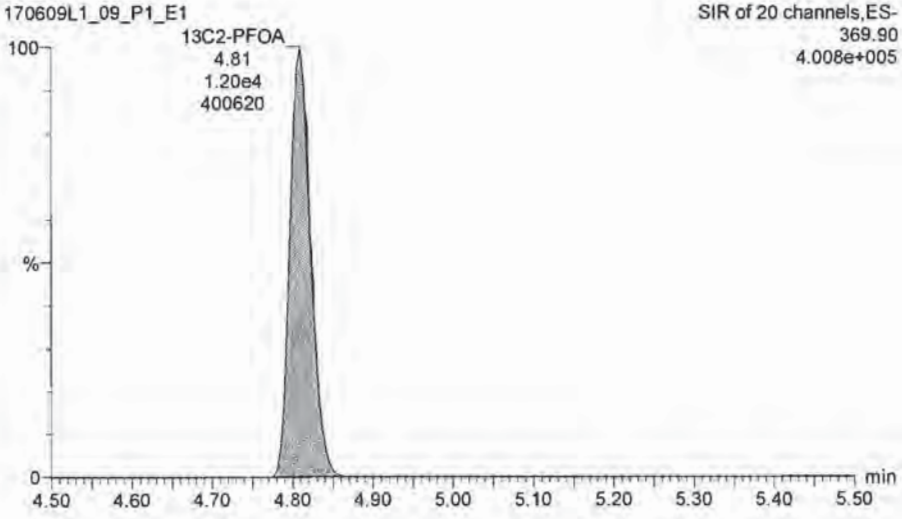
13C2-PFDA



13C2-PFOA



13C2-PFOA



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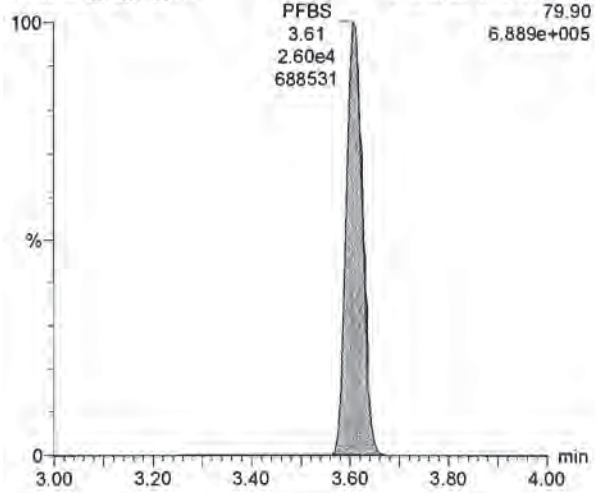
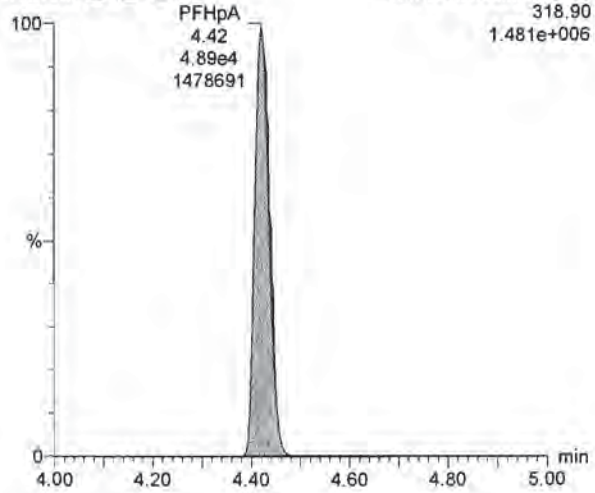
Name: 170609L1_10.wiff, Date: 09-Jun-2017, Time: 16:36:32, ID: ST170609L1-9 537 DW CS5 17F0735, Description: 537 DW CS5 17F0735

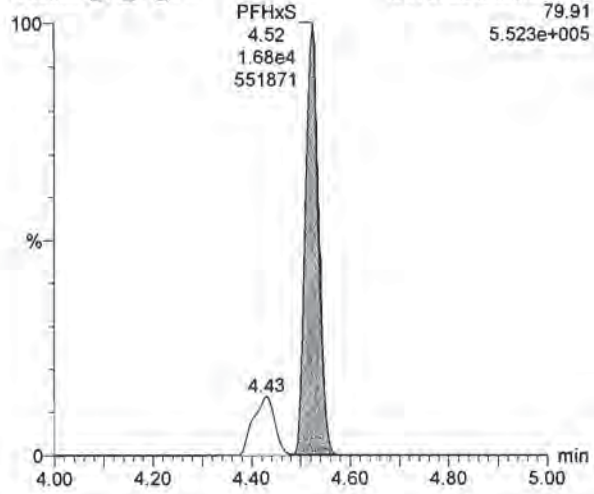
PFBS



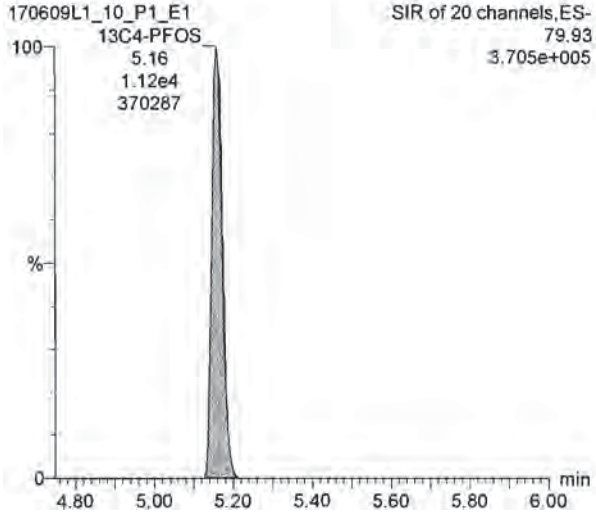
PFHpA



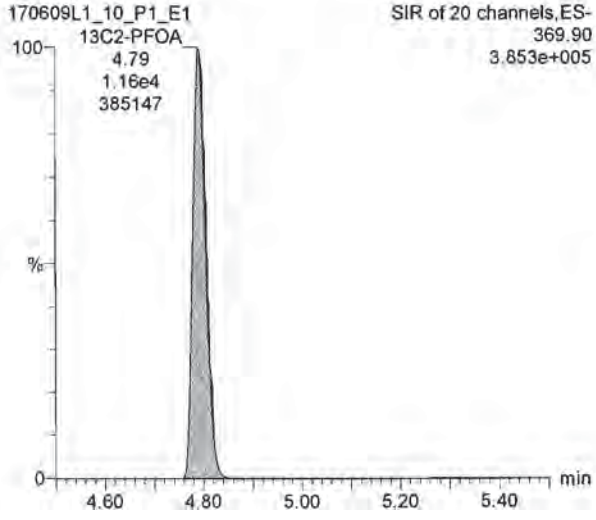
PFHxS



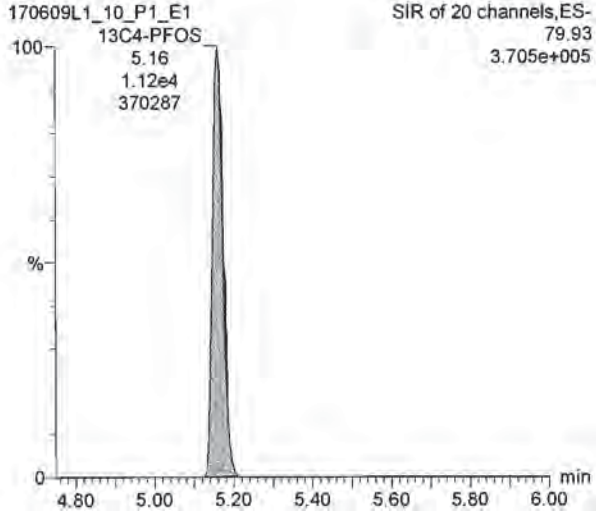
13C4-PFOS

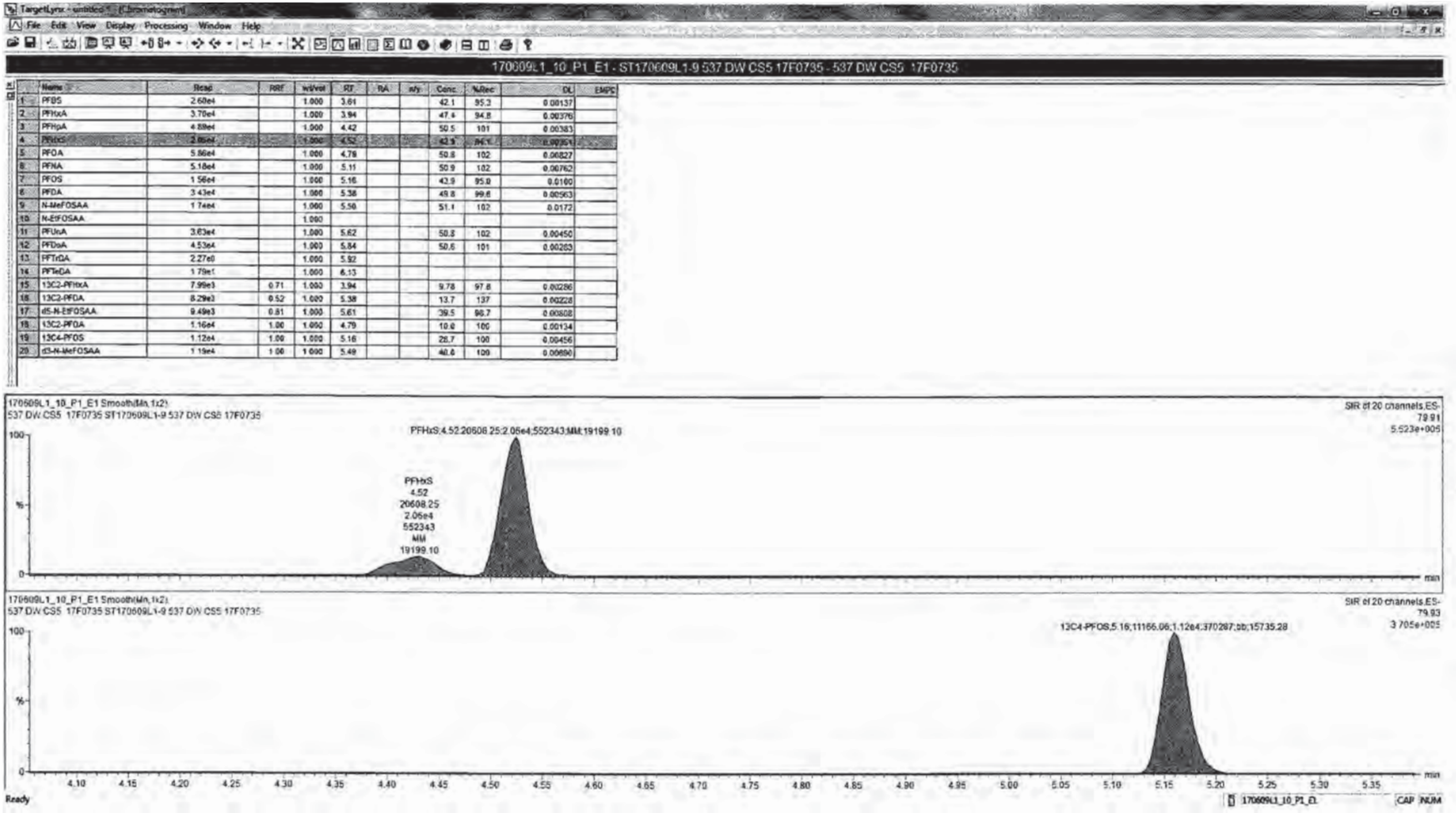


13C2-PFOA



13C4-PFOS





	Name	Read	RRF	wt/vol	RT	RA	n/y	Conc.	%Rec	DL	EMPC
1	PFBS	2.68e4		1.000	3.61			42.1	95.3	0.00137	
2	PFHxA	3.78e4		1.000	3.94			47.4	94.8	0.00376	
3	PFHpA	4.88e4		1.000	4.42			50.5	101	0.00383	
4	PFHxS	2.06e4		1.000	4.52			42.5	84.1	0.00751	
5	PFOA	5.86e4		1.000	4.79			50.8	102	0.00827	
6	PFNA	5.18e4		1.000	5.11			50.9	102	0.00762	
7	PFOS	1.56e4		1.000	5.16			43.9	95.0	0.0100	
8	PFDA	3.43e4		1.000	5.38			49.8	99.6	0.00563	
9	N-MeFOSAA	1.74e4		1.000	5.56			51.1	102	0.0172	
10	N-EtFOSAA			1.000							
11	PFUnA	3.83e4		1.000	5.62			50.3	102	0.00450	
12	PFDoA	4.53e4		1.000	5.84			50.6	101	0.00263	
13	PFTrDA	2.27e0		1.000	5.92						
14	PFTeDA	1.79e1		1.000	6.13						
15	13C2-PFHxA	7.99e3	0.71	1.000	3.94			9.78	97.8	0.00286	
16	13C2-PFDA	8.29e3	0.52	1.000	5.38			13.7	137	0.00228	
17	d5-N-EtFOSAA	9.49e3	0.81	1.000	5.61			39.5	98.7	0.00808	
18	13C2-PFDA	1.16e4	1.00	1.000	4.79			10.0	100	0.00134	
19	13C4-PFOS	1.12e4	1.00	1.000	5.16			28.7	100	0.00456	
20	d3-N-MeFOSAA	1.19e4	1.00	1.000	5.49			40.6	100	0.00690	

Dataset: Untitled

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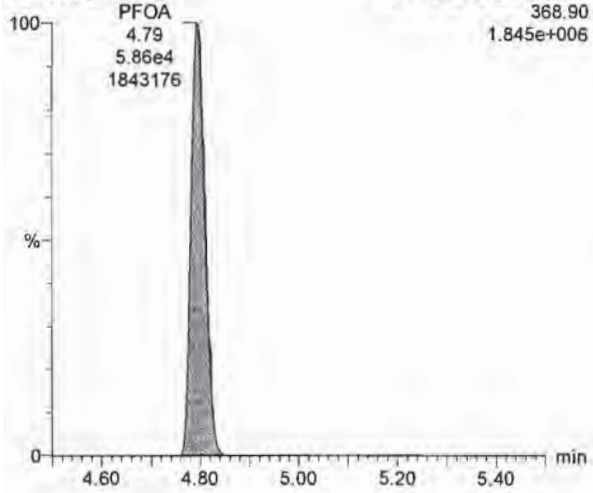
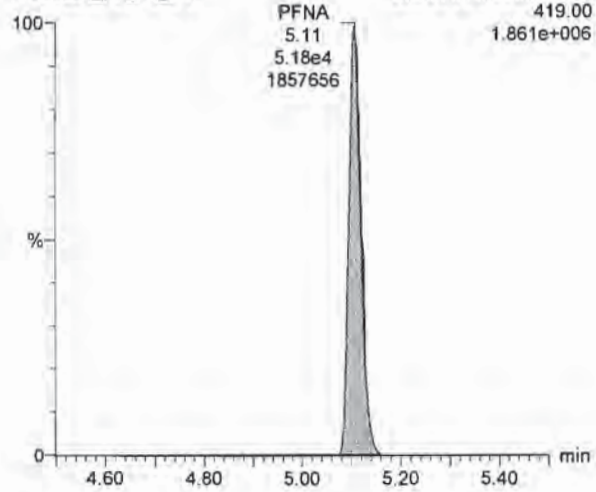
Name: 170609L1_10.wiff, Date: 09-Jun-2017, Time: 16:36:32, ID: ST170609L1-9 537 DW CS5 17F0735, Description: 537 DW CS5 17F0735

PFOA



PFNA



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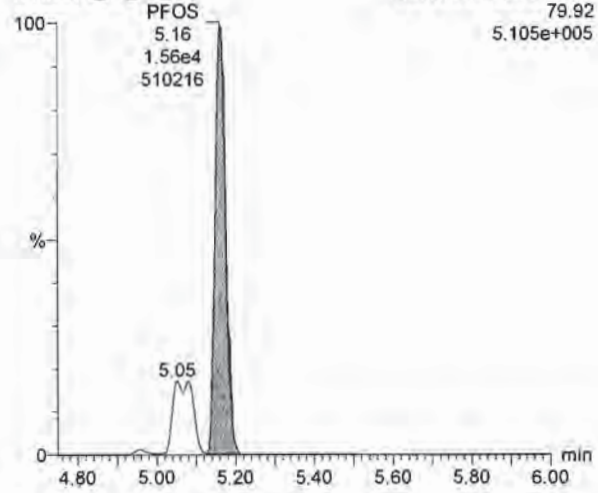
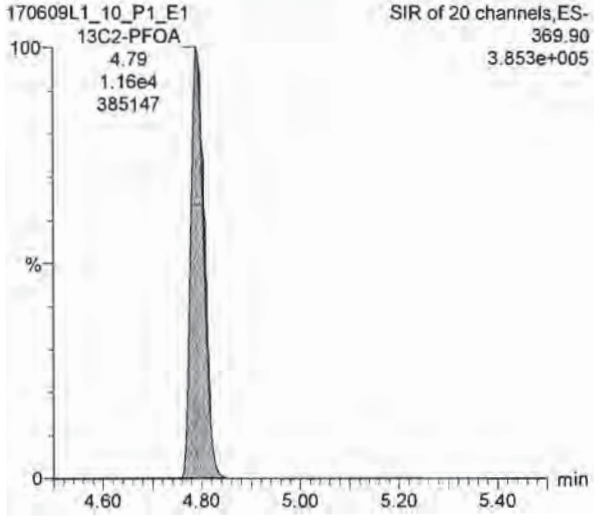


13C2-PFOA



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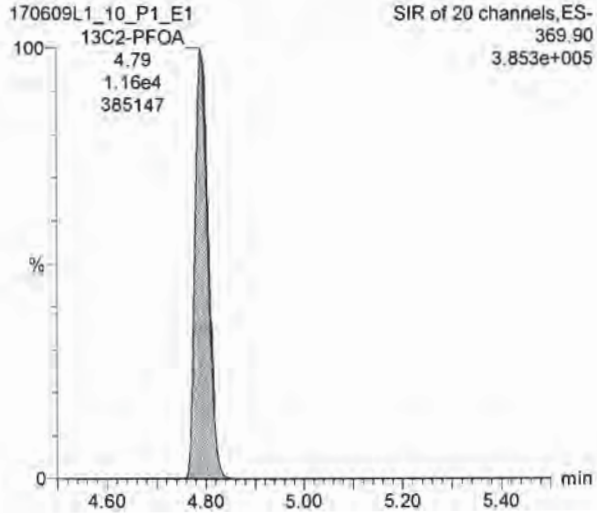
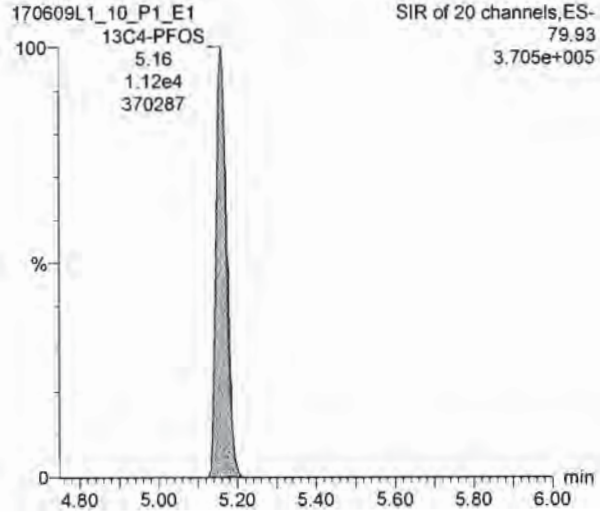
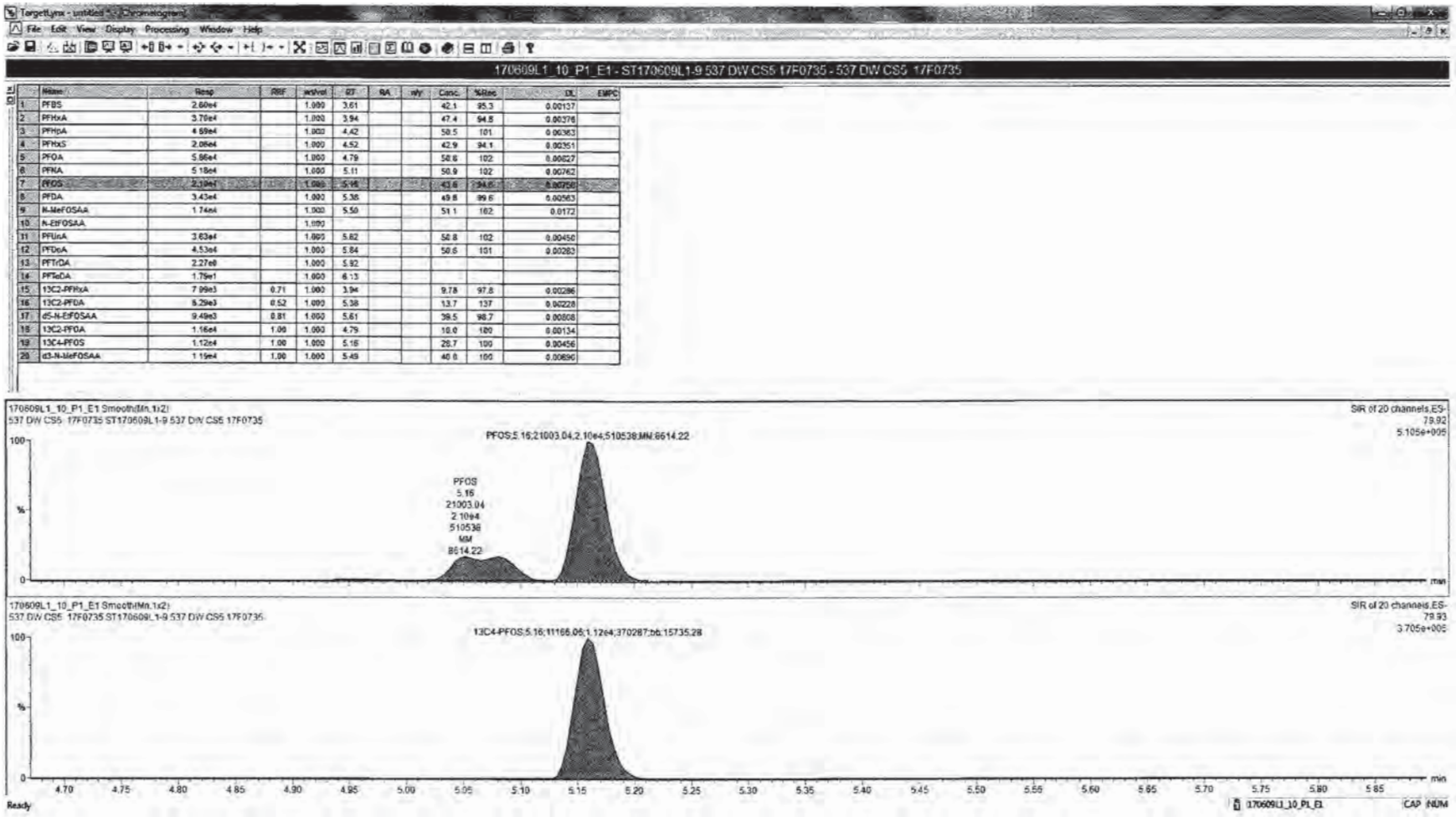


13C4-PFOS





	Name	Resp	RRF	wtVol	RT	RA	dY	Conc.	%Rec	DL	EMPC
1	PFBS	2.60e4		1.000	3.61			42.1	95.3	0.00137	
2	PFHxA	3.76e4		1.000	3.94			47.4	94.8	0.00376	
3	PFHpA	4.69e4		1.000	4.42			50.5	101	0.00363	
4	PFHxS	2.06e4		1.000	4.52			42.9	94.1	0.00351	
5	PFOA	5.86e4		1.000	4.79			50.6	102	0.00627	
6	PFNA	5.18e4		1.000	5.11			50.9	102	0.00762	
7	PFOS	2.10e4		1.000	5.16			43.6	94.6	0.00750	
8	PFDA	3.43e4		1.000	5.36			49.8	99.6	0.00563	
9	N-MeFOSAA	1.74e4		1.000	5.50			51.1	102	0.0172	
10	N-EtFOSAA			1.000							
11	PFUnA	3.63e4		1.000	5.82			52.8	102	0.00450	
12	PFDoA	4.53e4		1.000	5.84			50.6	101	0.00283	
13	PFTrDA	2.27e0		1.000	5.92						
14	PFTeDA	1.79e1		1.000	6.13						
15	13C2-PFHxA	7.99e3	0.71	1.000	3.94			9.78	97.8	0.00286	
16	13C2-PFDA	5.29e3	0.52	1.000	5.38			13.7	137	0.00228	
17	d5-N-EtFOSAA	9.49e3	0.81	1.000	5.61			39.5	98.7	0.00808	
18	13C2-PFOA	1.16e4	1.00	1.000	4.79			10.0	100	0.00134	
19	13C4-PFOS	1.12e4	1.00	1.000	5.16			28.7	100	0.00456	
20	d3-N-MeFOSAA	1.19e4	1.00	1.000	5.49			40.0	100	0.00696	

Dataset: Untitled

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Printed: Tuesday, June 13, 2017 10:48:33 Pacific Daylight Time

Name: 170609L1_10.wiff, Date: 09-Jun-2017, Time: 16:36:32, ID: ST170609L1-9 537 DW CS5 17F0735, Description: 537 DW CS5 17F0735

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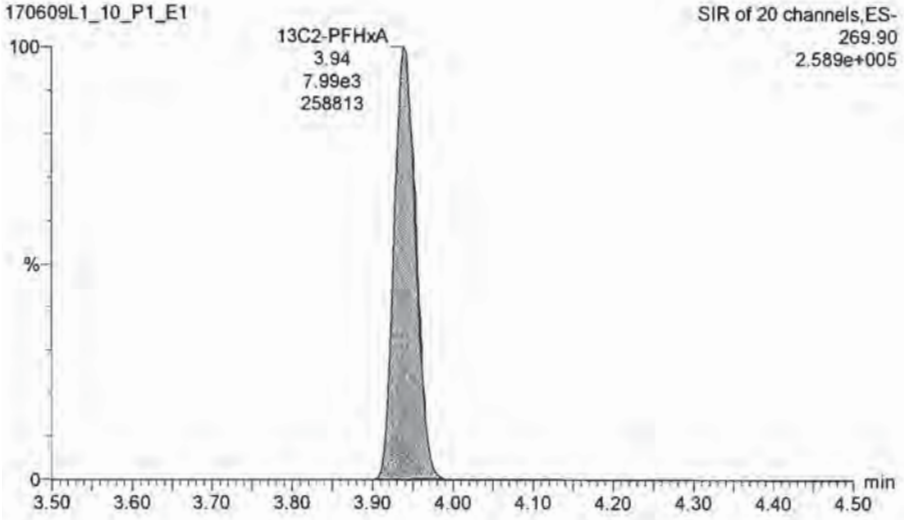

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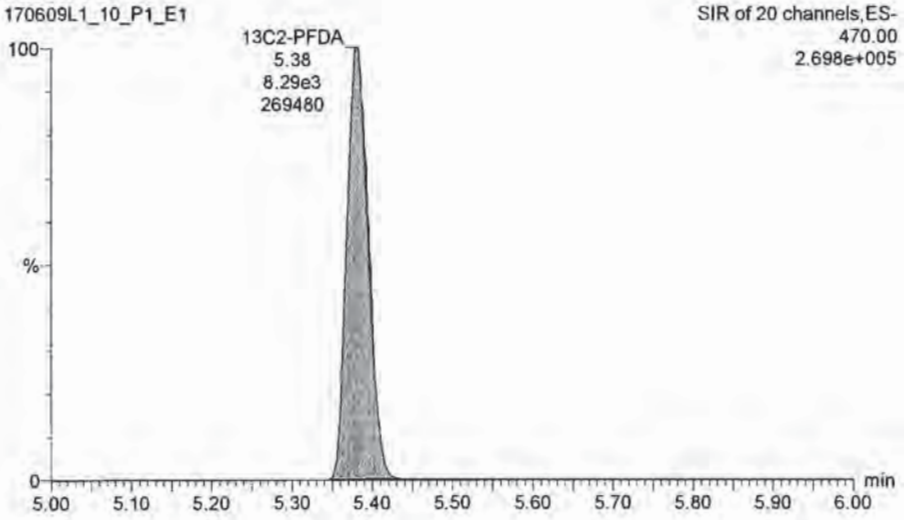

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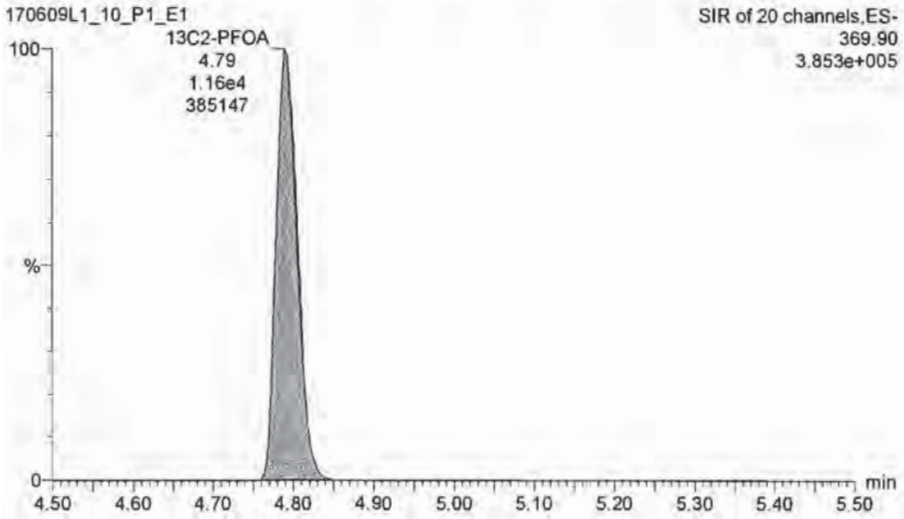

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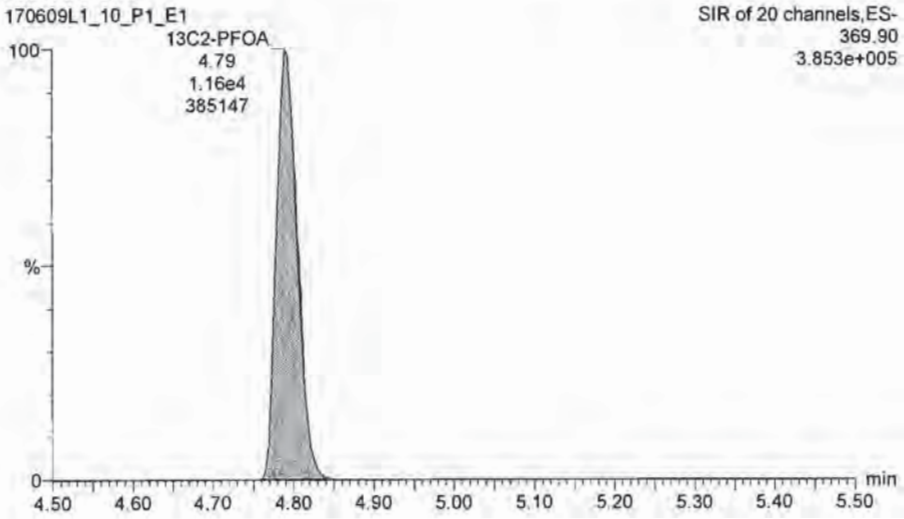

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-12.qld

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Printed: Tuesday, June 13, 2017 11:15:38 Pacific Daylight Time

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Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

Name: 170609L1_12.wiff, Date: 09-Jun-2017, Time: 17:01:02, ID: SS170609L1-1 537 DW SSS 17F0736, Description: 537 DW SSS 17F0736

	#	Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc.	%Rec
1	1	PFBS	79.90	7.35e3	1.15e4		1.000	3.59	9.73	97.3
2	3	PFHpA	318.90	1.32e4	1.20e4		1.000	4.43	11.2	112.2
3	4	PFHxS	79.91	5.46e3	1.15e4		1.000	4.53	9.00	90.0
4	5	PFOA	368.90	1.68e4	1.20e4		1.000	4.80	11.8	118.1
5	6	PFNA	419.00	1.48e4	1.20e4		1.000	5.11	12.5	125.2
6	7	PFOS	79.92	5.61e3	1.15e4		1.000	5.16	9.63	96.3
7	15	13C2-PFHxA	269.90	8.73e3	1.20e4	0.706	1.000	3.94	10.3	103.5
8	16	13C2-PFDA	470.00	8.51e3	1.20e4	0.727	1.000	5.37	9.79	97.9
9	18	13C2-PFOA	369.90	1.20e4	1.20e4	1.000	1.000	4.80	10.0	100.0
10	19	13C4-PFOS	79.93	1.15e4	1.15e4	1.000	1.000	5.16	28.7	100.0

70-130

AC 6/13/17 CT 6/13/17

Vista Analytical Laboratory Q2

Dataset: Untitled

Last Altered: Tuesday, June 13, 2017 11:13:40 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:13:52 Pacific Daylight Time

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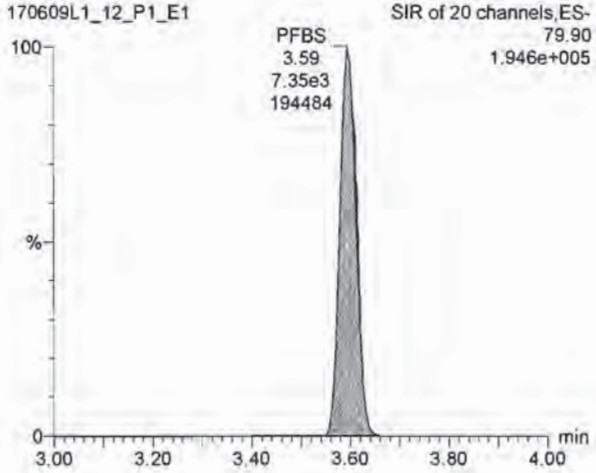
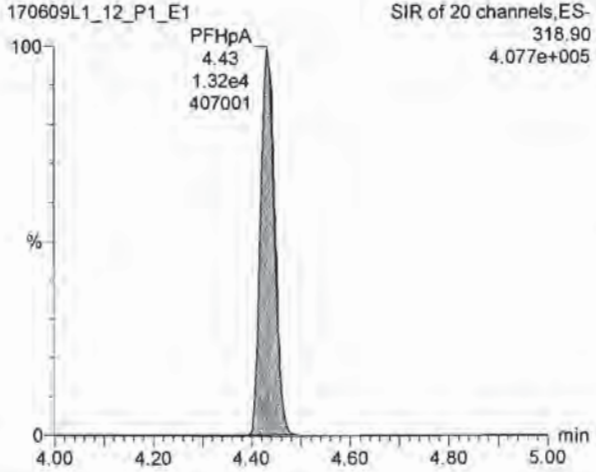
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

Name: 170609L1_12.wiff, Date: 09-Jun-2017, Time: 17:01:02, ID: SS170609L1-1 537 DW SSS 17F0736, Description: 537 DW SSS 17F0736

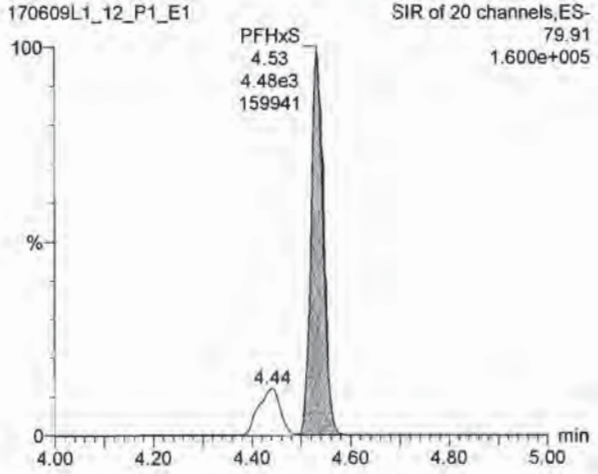
PFBS



PFHpA



PFHxS



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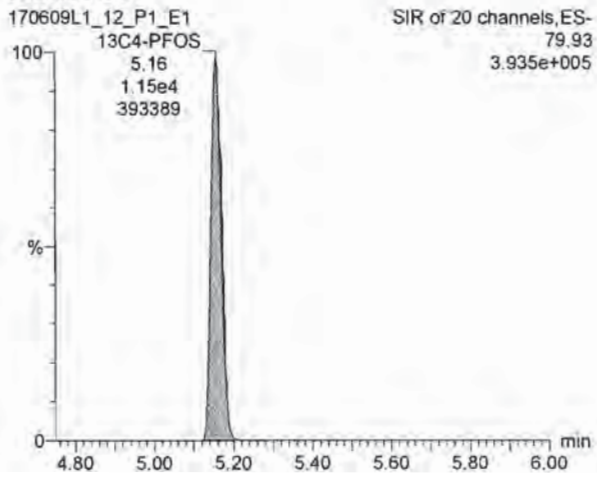

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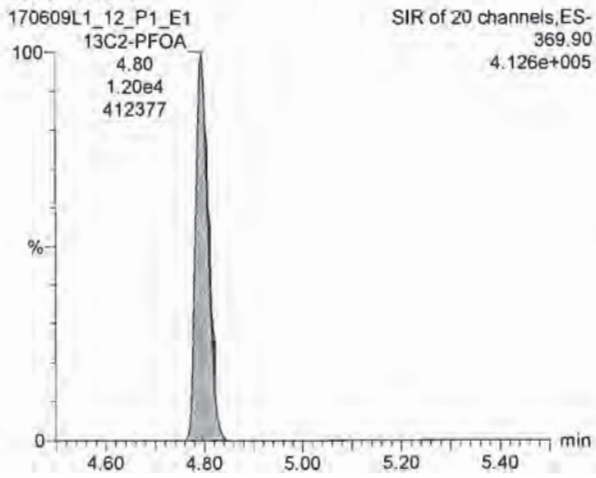

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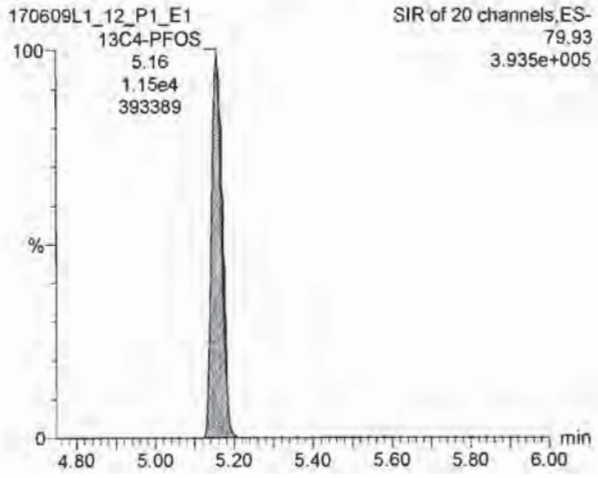

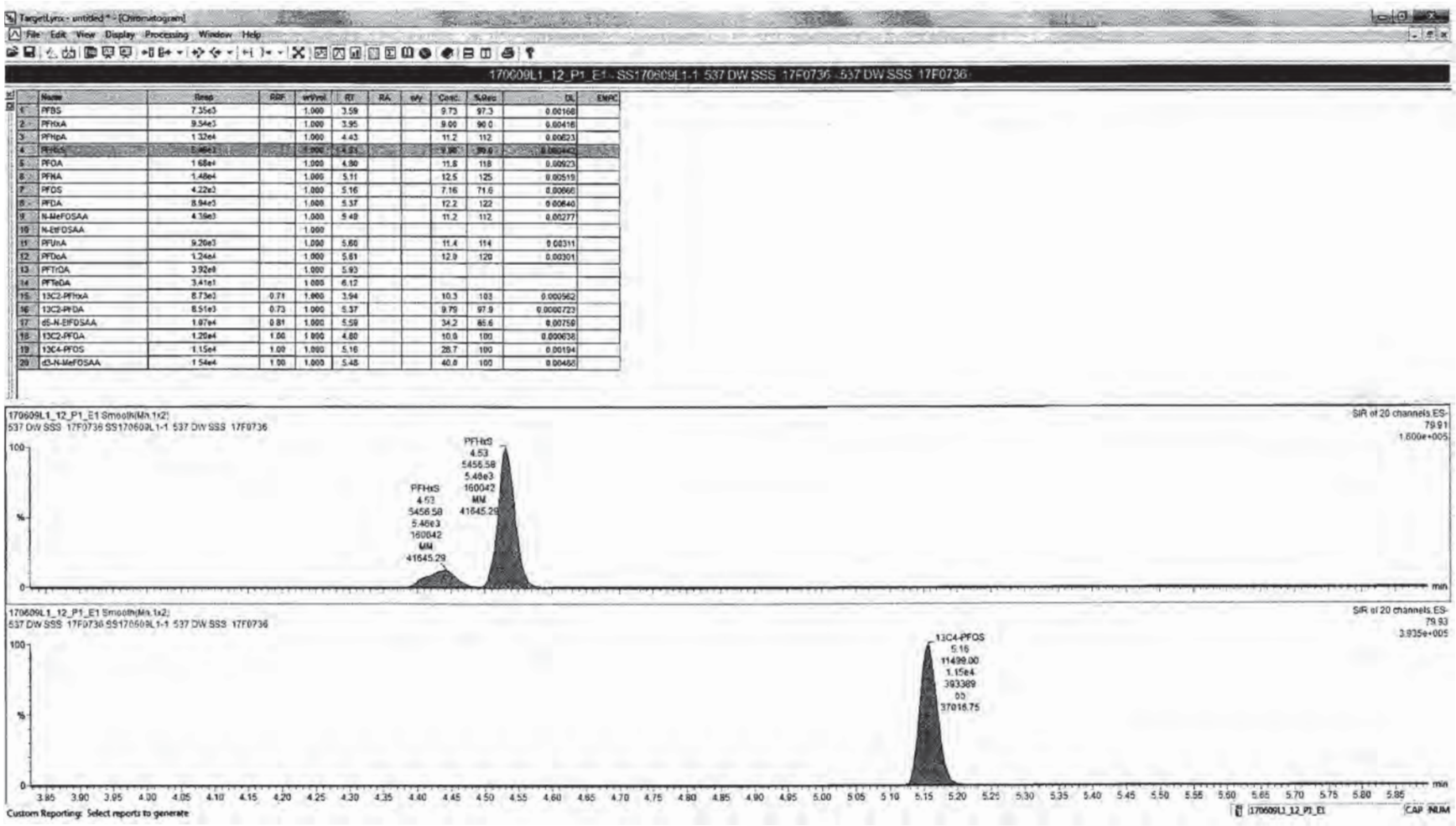

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1	PFBS	7.35e3		1.000	3.59			9.73	97.3	0.00168	
2	PFHxA	9.54e3		1.000	3.95			9.00	90.0	0.00418	
3	PFHpA	1.32e4		1.000	4.43			11.2	112	0.00823	
4	PFHxS	5.46e3		1.000	4.53			9.90	99.0	0.000442	
5	PFOA	1.68e4		1.000	4.80			11.8	118	0.00923	
6	PFNA	1.48e4		1.000	5.11			12.5	125	0.00515	
7	PFOS	4.22e2		1.000	5.16			7.16	71.6	0.00666	
8	PFDA	8.94e3		1.000	5.37			12.2	122	0.00840	
9	N-MeFOSAA	4.38e3		1.000	5.49			11.2	112	0.00277	
10	N-EtFOSAA			1.000							
11	PFUnA	9.26e3		1.000	5.60			11.4	114	0.00311	
12	PFDoA	1.24e4		1.000	5.81			12.9	129	0.00301	
13	PFTrDA	3.92e8		1.000	5.93						
14	PFTeDA	3.41e1		1.000	6.12						
15	13C2-PFHxA	8.73e3	0.71	1.000	3.94			10.3	103	0.000562	
16	13C2-PFDA	8.51e3	0.73	1.000	5.37			9.79	97.9	0.0000723	
17	d5-N-EtFOSAA	1.97e4	0.81	1.000	5.59			34.2	85.6	0.00750	
18	13C2-PFOA	1.20e4	1.00	1.000	4.80			10.0	100	0.000636	
19	13C4-PFOS	1.15e4	1.00	1.000	5.16			28.7	100	0.00194	
20	d3-N-MeFOSAA	1.54e4	1.00	1.000	5.48			40.0	100	0.00450	

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Printed: Tuesday, June 13, 2017 11:13:52 Pacific Daylight Time

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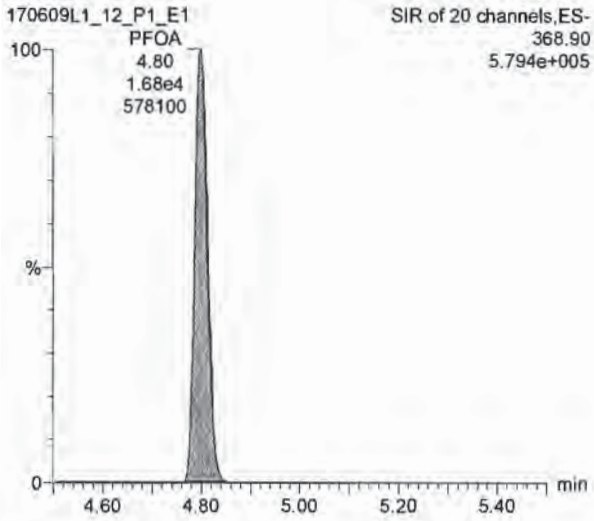
PFOA



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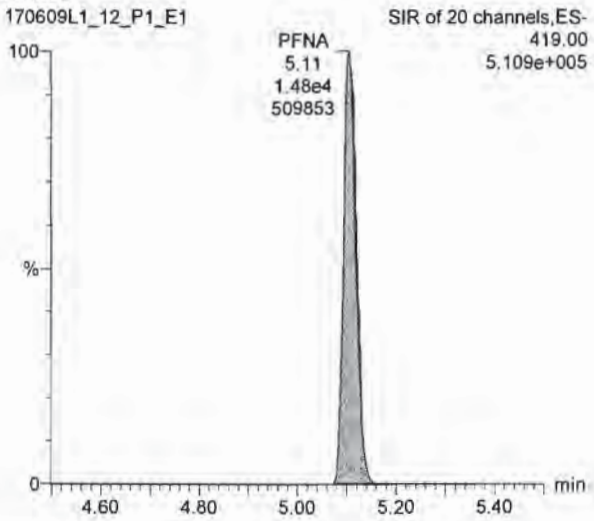

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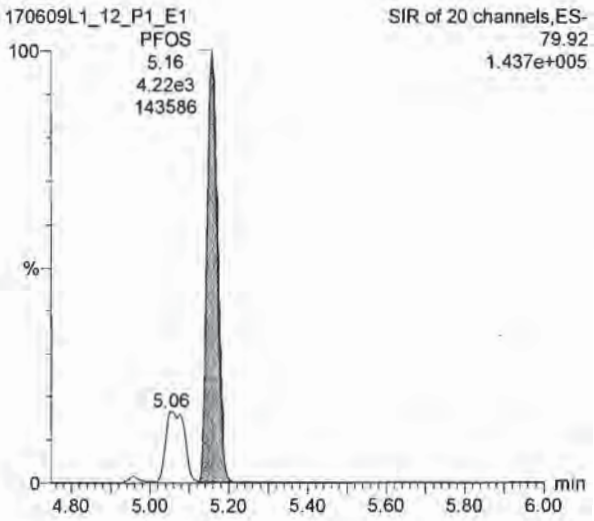

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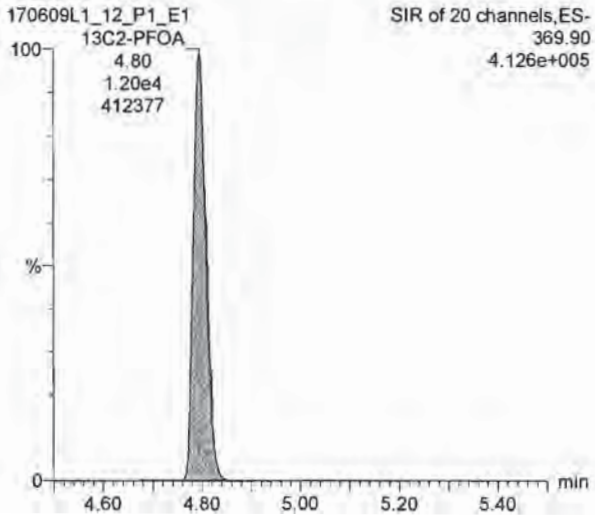

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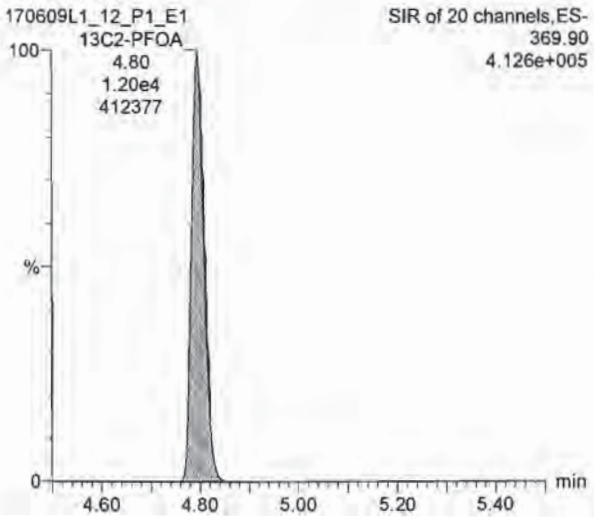

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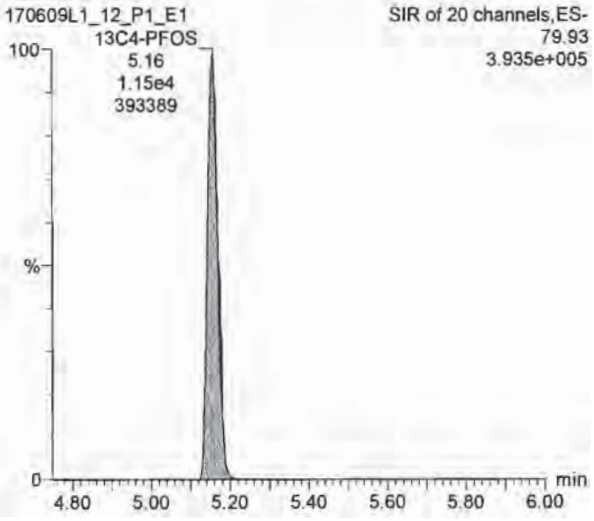

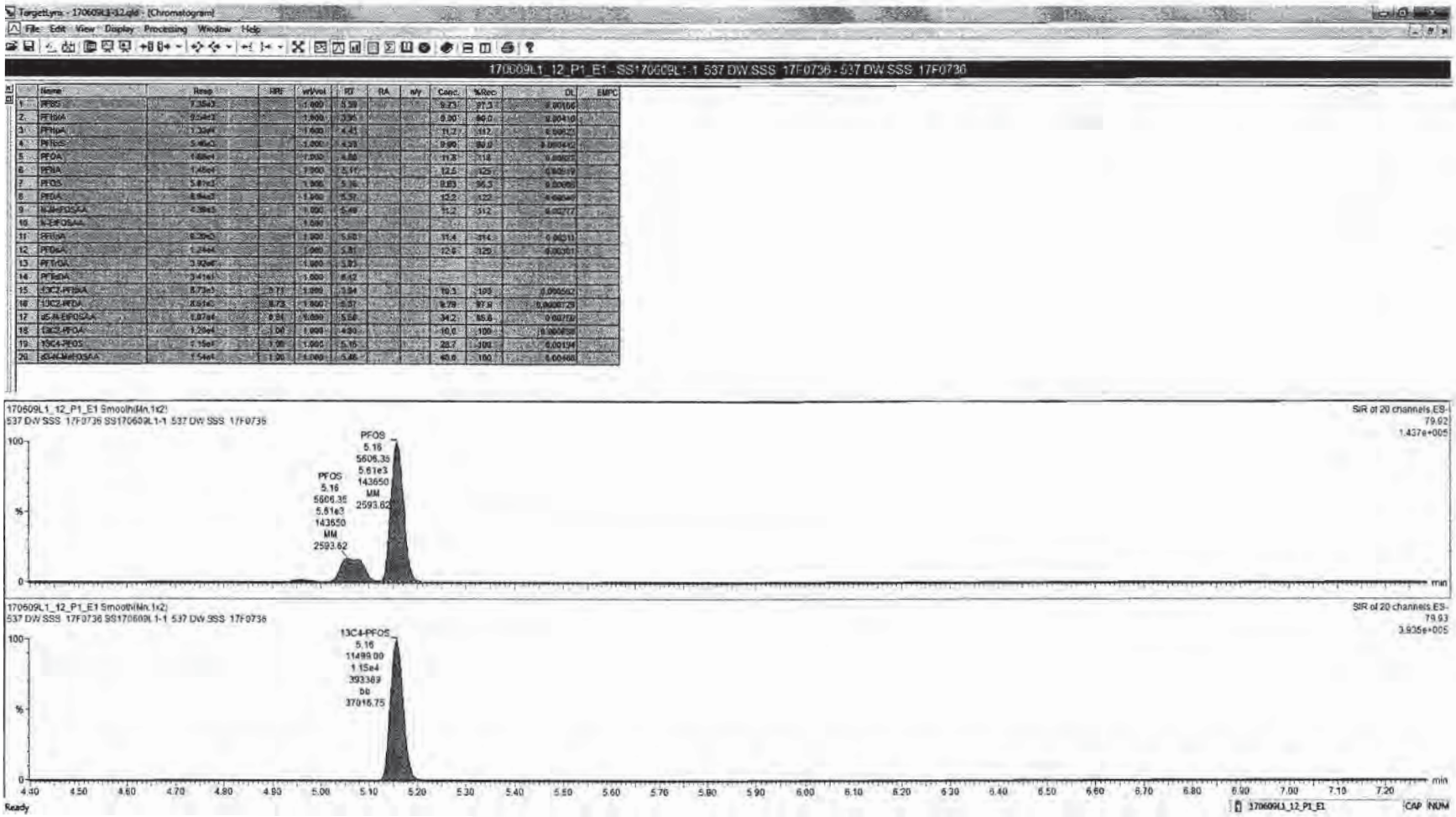
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Name
Resp
RRF
wVol
RT
RA
aY
Calc.
%Rec
DL
EMPC
170609L1_12_P1_E1 Smooth(Mn,1x2)
537 DW SSS 17F0736 SS170609L1-1 537 DW SSS 17F0736
SIR of 20 channels ES-
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PFOS
5.16
5606.35
5.61e3
143650
MM
2593.62
PFOS
5.16
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5.61e3
143650
MM
2593.62
100
%
0
min
170609L1_12_P1_E1 Smooth(Mn,1x2)
537 DW SSS 17F0736 SS170609L1-1 537 DW SSS 17F0736
SIR of 20 channels ES-
79.63
3.935e+005
13C4-PFOS
5.16
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bb
37016.75
100
%
0
min
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Name: 170609L1_12.wiff, Date: 09-Jun-2017, Time: 17:01:02, ID: SS170609L1-1 537 DW SSS 17F0736, Description: 537 DW SSS 17F0736

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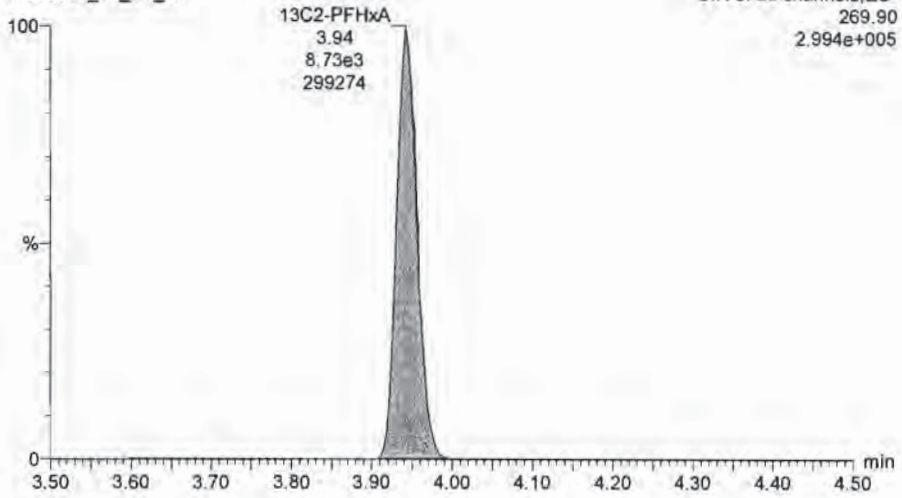

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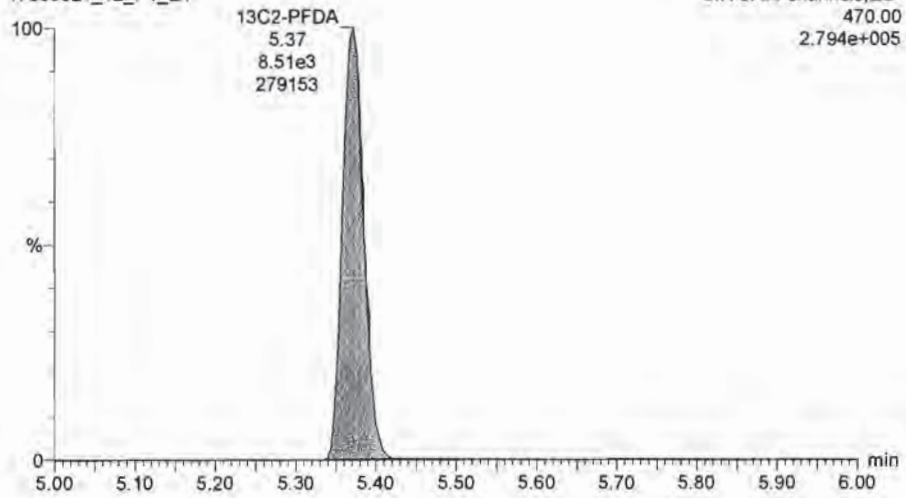

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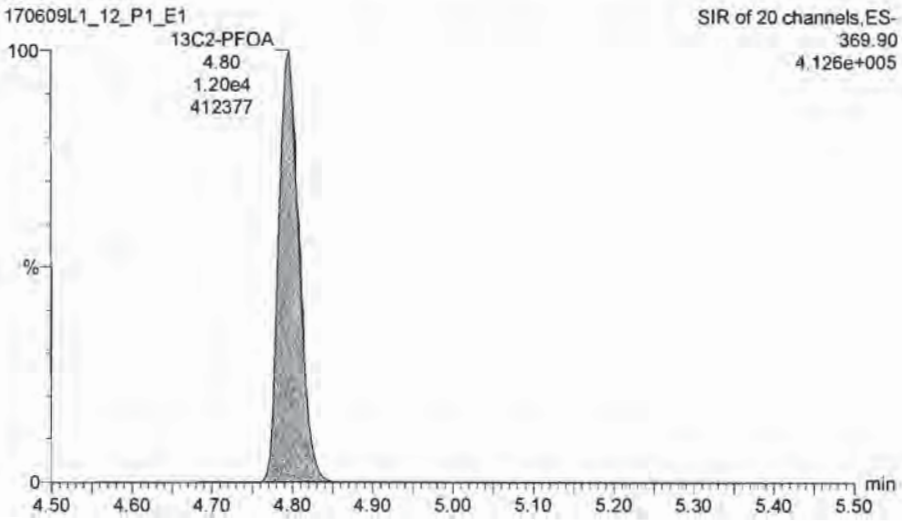

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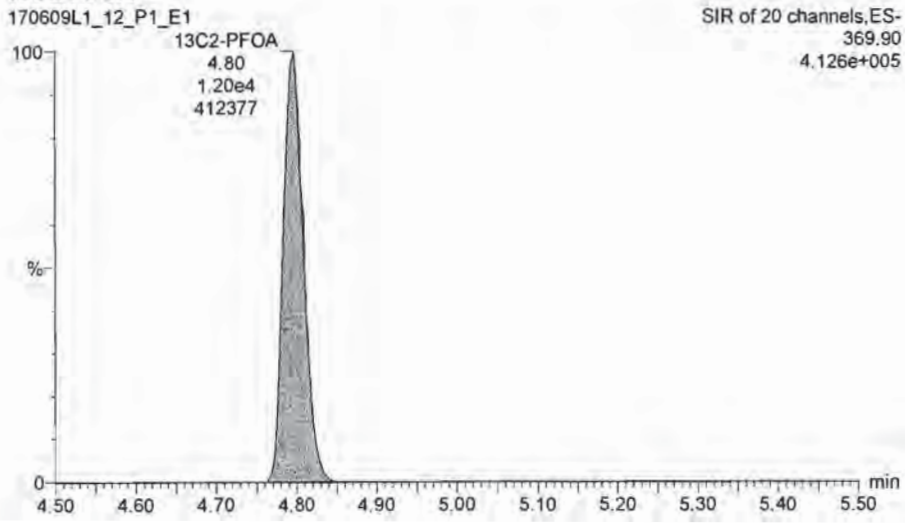


Analytical Standard Record

Vista Analytical Laboratory

17D1704

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
17D1701	EPA-537SS (IS)	17-Apr-17	Jamie C. Stockman	01-Mar-22	17-Apr-17 10:17 by JCS	3

Description:	537 SS (Surrogate)	Expires:	17-Apr-18
Standard Type:	Reagent	Prepared:	19-Apr-17
Solvent:	1%H2)/MeOH	Prepared By:	Jamie C. Stockman
Final Volume (mls):	15	Department:	LCMS
Vials:	1	Last Edit:	27-Apr-17 14:41 by AEW

Analyte	CAS Number	Concentration	Units
d5-EtFOSAA		0.8	ug/mL
13C2-PFHxA		0.2	ug/mL
13C2-PFDA		0.2	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

17D1701

EPA-537SS x3 1

Surrogate Primary Dilution Standard

PRODUCT CODE:	EPA-537SS
LOT NUMBER:	537SS0217
SOLVENT(S):	Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	02/28/2017
LAST TESTED: (mm/dd/yyyy)	03/01/2017
EXPIRY DATE: (mm/dd/yyyy)	03/01/2022
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

EPA-537SS is a solution/mixture of two mass-labelled (^{13}C) perfluoroalkylcarboxylic acids and a mass-labelled (^{2}H) perfluorooctanesulfonamidoacetic acid. The components and their concentrations are given in Table A.

The mass-labelled perfluoroalkylcarboxylic acids both have chemical purities of >98% and isotopic purities of ≥99%. The mass-labelled perfluorooctanesulfonamidoacetic acid has a chemical purity of >98% and an isotopic purity of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (TIC)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

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, as well as mixtures and calibration solutions, are compared to older lots in a similar 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

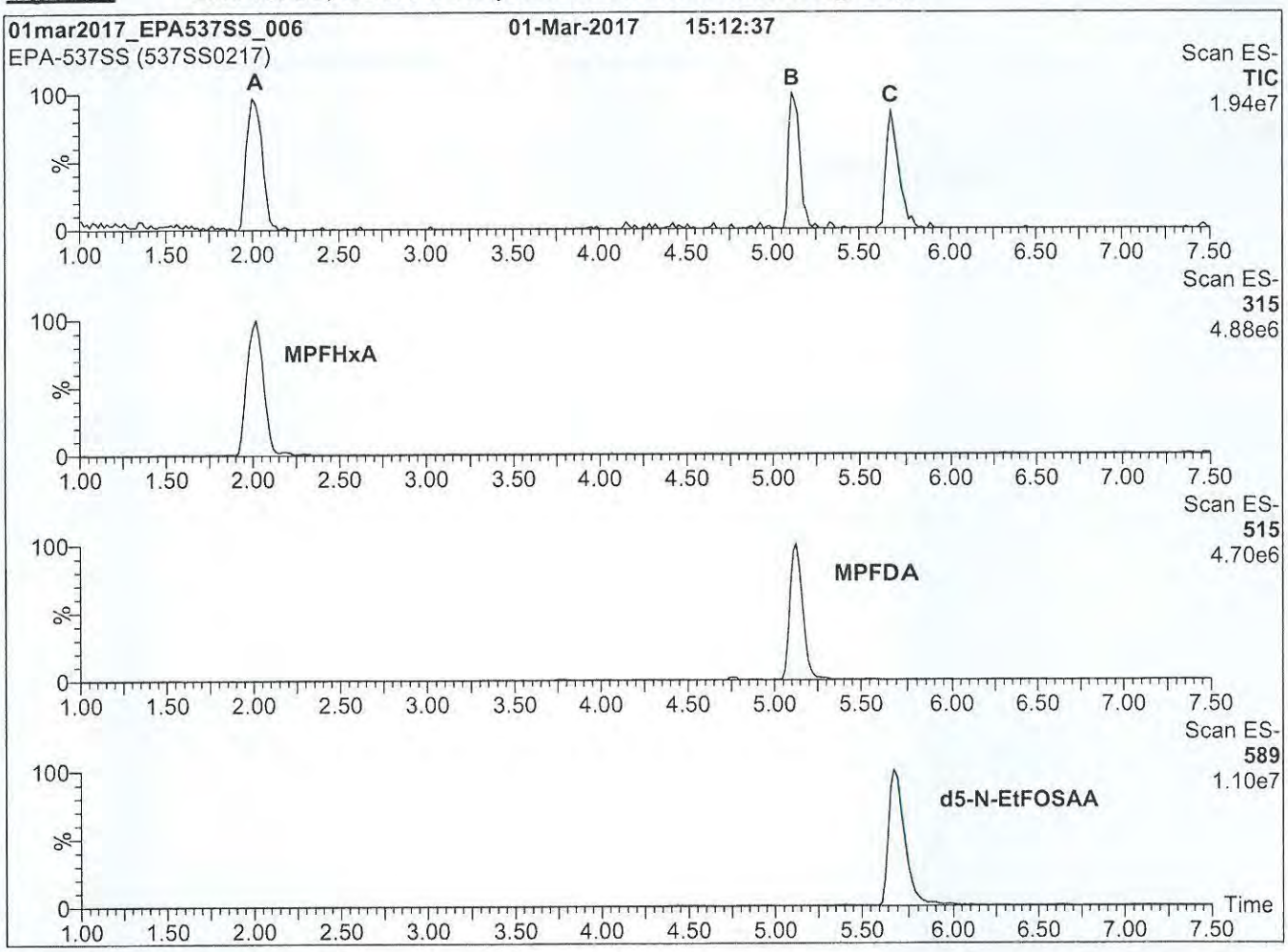
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-537SS; Components and Concentrations (ng/ml; ± 5% in Methanol / Water (<1%))**

Compound	Abbreviation	Concentration (ng/ml)	Peak Assignment in Figure 1
Perfluoro-n-[1,2-$^{13}C_2$]hexanoic acid	MPFHxA	1000	A
Perfluoro-n-[1,2-$^{13}C_2$]decanoic acid	MPFDA	1000	B
N-ethyl-d_5-perfluoro-1-octanesulfonamidoacetic acid	d5-N-EtFOSAA	4000	C

Certified By: _____ **Date:** 03/20/2017
(mm/dd/yyyy)
B.G. Chittim, General Manager

Figure 1: **EPA-537SS; LC/MS Data (Total Ion Current Chromatogram)**



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

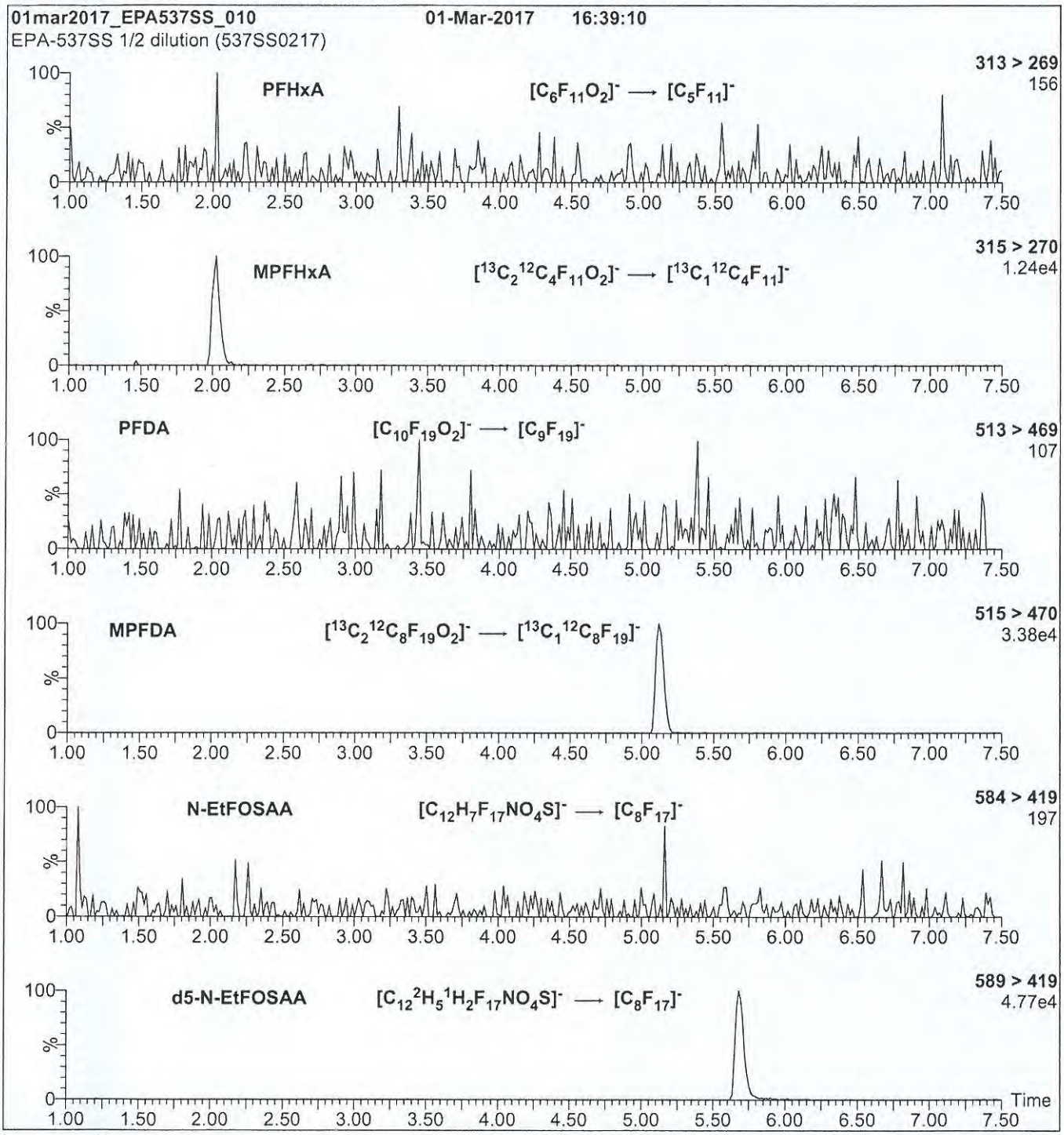
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **EPA-537SS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (EPA-537SS)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.20e-3

Collision Energy (eV) = 9-40 (variable)

Analytical Standard Record

Vista Analytical Laboratory

17E1025

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
17D1705	537 DW NS	19-Apr-17	Jamie C. Stockman	17-Apr-18	19-Apr-17 09:11 by JCS	0.5

Description:	537 DW NS Dil	Expires:	17-Apr-18
Standard Type:	Analyte Spike	Prepared:	10-May-17
Solvent:	1%h20/meoh	Prepared By:	Isaac N. Johnson
Final Volume (mls):	2	Department:	LCMS
Vials:	1	Last Edit:	10-May-17 13:42 by INJ

Analyte	CAS Number	Concentration	Units
PFHpS	375-92-8	0.238	ug/mL
6:2 FTS	27619-97-2	0.238	ug/mL
8:2 FTS	70887-84-2	0.24	ug/mL
EtFOSAA		0.25	ug/mL
MeFOSAA		0.25	ug/mL
PFBA	375-22-4	0.25	ug/mL
PFBS	375-73-5	0.221	ug/mL
PFDA	335-76-2	0.25	ug/mL
PFDoA	307-55-1	0.25	ug/mL
4:2 FTS		0.234	ug/mL
PFHpA	375-85-9	0.25	ug/mL
PFUnA	2058-94-8	0.25	ug/mL
PFHxA	307-24-4	0.25	ug/mL
PFHxS	355-46-4	0.228	ug/mL
PFNA	375-95-1	0.25	ug/mL
PFOA	335-67-1	0.25	ug/mL
PFOS	1763-23-1	0.231	ug/mL
PFOSA	754-91-6	0.25	ug/mL
PFPeA	2706-90-3	0.25	ug/mL
PFTeDA		0.25	ug/mL
PFTrDA	72629-94-8	0.25	ug/mL
PFDS	335-77-3	0.241	ug/mL

Analytical Standard Record

Vista Analytical Laboratory

17D1705

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
17D1702	PFAC-24PAR Natives	17-Apr-17	Jamie C. Stockman	11-Dec-21	17-Apr-17 10:23 by JCS	4

Description:	537 DW NS	Expires:	17-Apr-18
Standard Type:	Analyte Spike	Prepared:	19-Apr-17
Solvent:	1%H2O in MeOH	Prepared By:	Jamie C. Stockman
Final Volume (mls):	8	Department:	LCMS
Vials:	1	Last Edit:	19-Apr-17 09:11 by JCS

Analyte	CAS Number	Concentration	Units
PFHpS	375-92-8	0.95	ug/mL
6:2 FTS	27619-97-2	0.95	ug/mL
8:2 FTS	70887-84-2	0.96	ug/mL
EtFOSAA		1	ug/mL
MeFOSAA		1	ug/mL
PFBA	375-22-4	1	ug/mL
PFBS	375-73-5	0.885	ug/mL
PFDA	335-76-2	1	ug/mL
PFDoA	307-55-1	1	ug/mL
4:2 FTS		0.935	ug/mL
PFHpA	375-85-9	1	ug/mL
PFUnA	2058-94-8	1	ug/mL
PFHxA	307-24-4	1	ug/mL
PFHxS	355-46-4	0.91	ug/mL
PFNA	375-95-1	1	ug/mL
PFOA	335-67-1	1	ug/mL
PFOS	1763-23-1	0.925	ug/mL
PFOSA	754-91-6	1	ug/mL
PFPeA	2706-90-3	1	ug/mL
PFTeDA		1	ug/mL
PFTrDA	72629-94-8	1	ug/mL
PFDS	335-77-3	0.965	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS
DOCUMENTATION

17D1702

PFAC-24PAR x4

Native Per- and Poly-fluoroalkyl Substance
Precision and Recovery Standard Solution

PRODUCT CODE:	PFAC-24PAR
LOT NUMBER:	PFAC24PAR1216
SOLVENT(S):	Methanol / Isopropanol (4%) / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	12/09/2016
LAST TESTED: (mm/dd/yyyy)	12/11/2016
EXPIRY DATE: (mm/dd/yyyy)	12/11/2021
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

PFAC-24PAR is a solution/mixture of eleven native linear perfluoroalkylcarboxylic acids (C_4-C_{14}), seven native perfluoroalkylsulfonates (C_4, C_5, C_7, C_9, and C_{10} linear; C_6 and C_8 linear and branched), three native telomer sulfonates (4:2, 6:2, and 8:2), two native perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide. The components and their concentrations are given in Table A.

The individual native perfluoroalkylcarboxylic acids, native perfluoroalkylsulfonates, native telomer sulfonates, native perfluorooctanesulfonamidoacetic acids, and perfluoro-1-octanesulfonamide all have chemical purities of >98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Table B: Isomeric Components and Percent Composition of PFHxSK
Table C: Isomeric Components and Percent Composition of PFOSK
Figure 1: LC/MS Data (SIR)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acids to their respective methyl esters.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

INTENDED USE:

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HAZARDS:

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

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CALA Testing Accreditation No. A 1226

ANAB ACCREDITED Accreditation for Reference Material Production

For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **PFAC-24PAR; Components and Concentrations (ng/ml, ± 5% in Methanol / Isopropanol (4%) / Water (<1%))**

Compound	Abbreviation	Concentration (ng/ml)	Peak Assignment in Figure 1
Perfluoro-n-butanoic acid	PFBA	2000	A
Perfluoro-n-pentanoic acid	PFPeA	2000	B
Perfluoro-n-hexanoic acid	PFHxA	2000	E
Perfluoro-n-heptanoic acid	PFHpA	2000	G
Perfluoro-n-octanoic acid	PFOA	2000	K
Perfluoro-n-nonanoic acid	PFNA	2000	M
Perfluoro-n-decanoic acid	PFDA	2000	Q
Perfluoro-n-undecanoic acid	PFUdA	2000	U
Perfluoro-n-dodecanoic acid	PFDoA	2000	X
Perfluoro-n-tridecanoic acid	PFTrDA	2000	Y
Perfluoro-n-tetradecanoic acid	PFTeDA	2000	Z
Perfluoro-1-octanesulfonamide	FOSA	2000	V
N-methylperfluoro-1-octanesulfonamidoacetic acid	N-MeFOSAA	2000	S
N-ethylperfluoro-1-octanesulfonamidoacetic acid	N-EtFOSAA	2000	T

Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
		as the salt	as the anion	
Potassium perfluoro-1-butanesulfonate	L-PFBS	2000	1770	C
Sodium perfluoro-1-pentanesulfonate	L-PFPeS	2000	1880	F
Potassium perfluorohexanesulfonate*	PFHxSK: linear isomer	1620	1480	I
	PFHxSK: ∑ branched isomers	378	344	H
Sodium perfluoro-1-heptanesulfonate	L-PFHpS	2000	1900	L
Potassium perfluorooctanesulfonate**	PFOSK: linear isomer	1580	1460	O
	PFOSK: ∑ branched isomers	422	391	N
Sodium perfluoro-1-nonanesulfonate	L-PFNS	2000	1920	R
Sodium perfluoro-1-decanesulfonate	L-PFDS	2000	1930	W
Sodium 1H,1H,2H,2H-perfluoro-1-hexanesulfonate	4:2FTS	2000	1870	D
Sodium 1H,1H,2H,2H-perfluoro-1-octanesulfonate	6:2FTS	2000	1900	J
Sodium 1H,1H,2H,2H-perfluoro-1-decanesulfonate	8:2FTS	2000	1920	P

* See Table B for percent composition of linear and branched PFHxSK isomers.
** See Table C for percent composition of linear and branched PFOSK isomers.

Table B: **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	81.1
2	Potassium 1-trifluoromethylperfluoropentanesulfonate**	$CF_3CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	2.9	18.9
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.

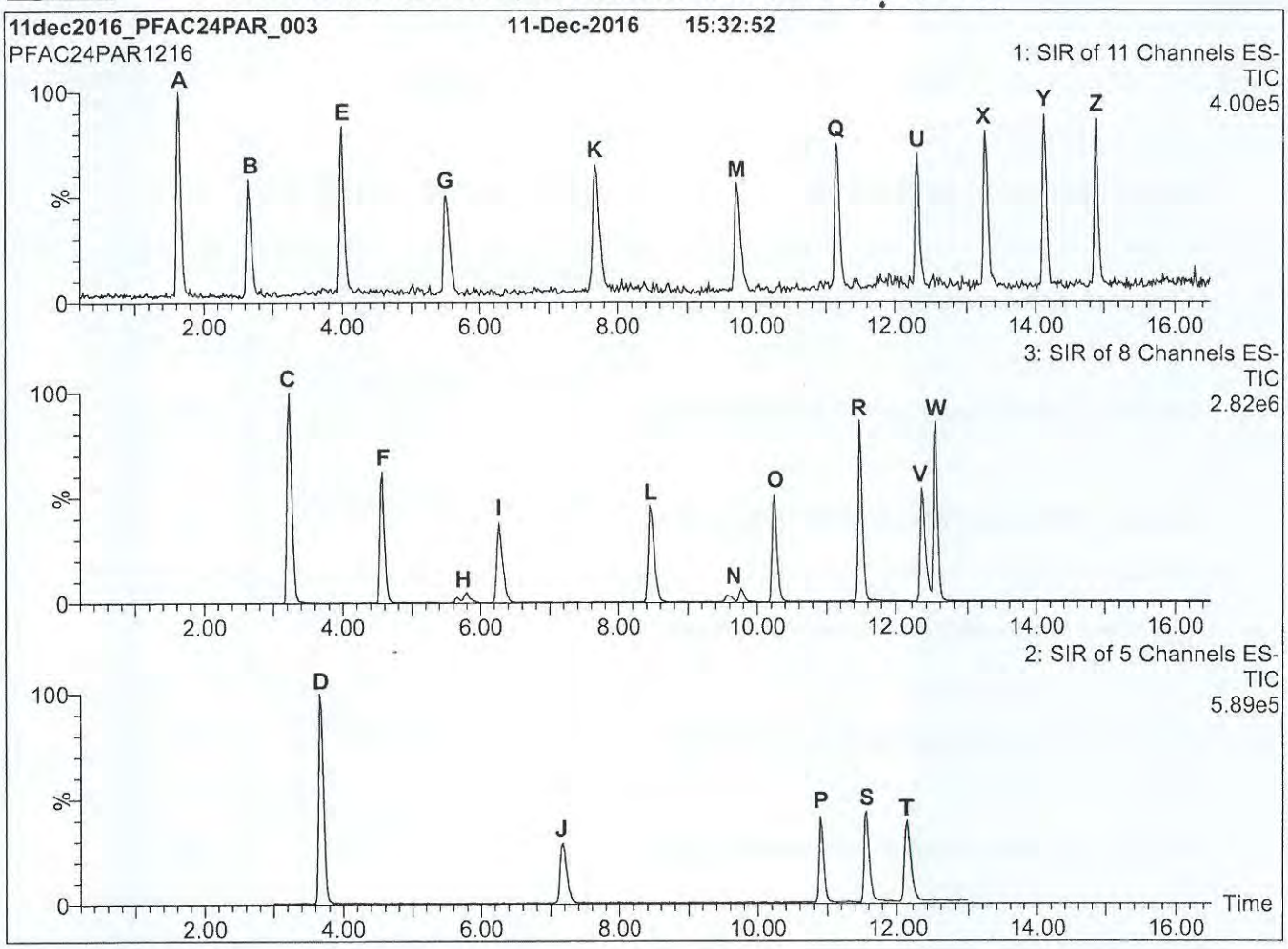
Table C: **PFOSK; Isomeric Components and Percent Composition (by ^{19}F-NMR)***

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	78.8
2	Potassium 1-trifluoromethylperfluoroheptanesulfonate**	$CF_3CF_2CF_2CF_2CF_2CF_2CF(CF_3)SO_3^-K^+$	1.2	21.1
3	Potassium 2-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF_2CF(CF_3)CF_2SO_3^-K^+$	0.6	
4	Potassium 3-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	1.9	
5	Potassium 4-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF_2CF(CF_3)CF_2CF_2CF_2SO_3^-K^+$	2.2	
6	Potassium 5-trifluoromethylperfluoroheptanesulfonate	$CF_3CF_2CF(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	4.5	
7	Potassium 6-trifluoromethylperfluoroheptanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2CF_2CF_2SO_3^-K^+$	10.0	
8	Potassium 5,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3C(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	0.2	
9	Potassium 4,4-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF_2C(CF_3)CF_2CF_2CF_2SO_3^-K^+$	0.03	
10	Potassium 4,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF_2CF_2CF_2CF_2SO_3^-K^+$	0.4	
11	Potassium 3,5-di(trifluoromethyl)perfluorohexanesulfonate	$CF_3CF(CF_3)CF_2CF(CF_3)CF_2CF_2SO_3^-K^+$	0.07	

* Percent of total perfluorooctanesulfonate isomers only.
** Systematic Name: Potassium perfluorooctane-2-sulfonate.

Certified By: B.G. Chittim **Date:** 12/13/2016 (mm/dd/yyyy)

Figure 1: **PFAC-24PAR; LC/MS Data (Total Ion Current Chromatogram; SIR)**



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 55% organic over 3.5 min.
Ramp to 70% organic over 6.5 min.
Ramp to 85% organic over 5 min and hold for
1 min before returning to initial conditions in 0.5 min.
Time: 17 min

Flow: 300 µl/min

MS Parameters

Experiment: SIR

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = variable (10-70)
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **PFAC-24PAR; LC/MS/MS Data (Selected MRM Transitions)**

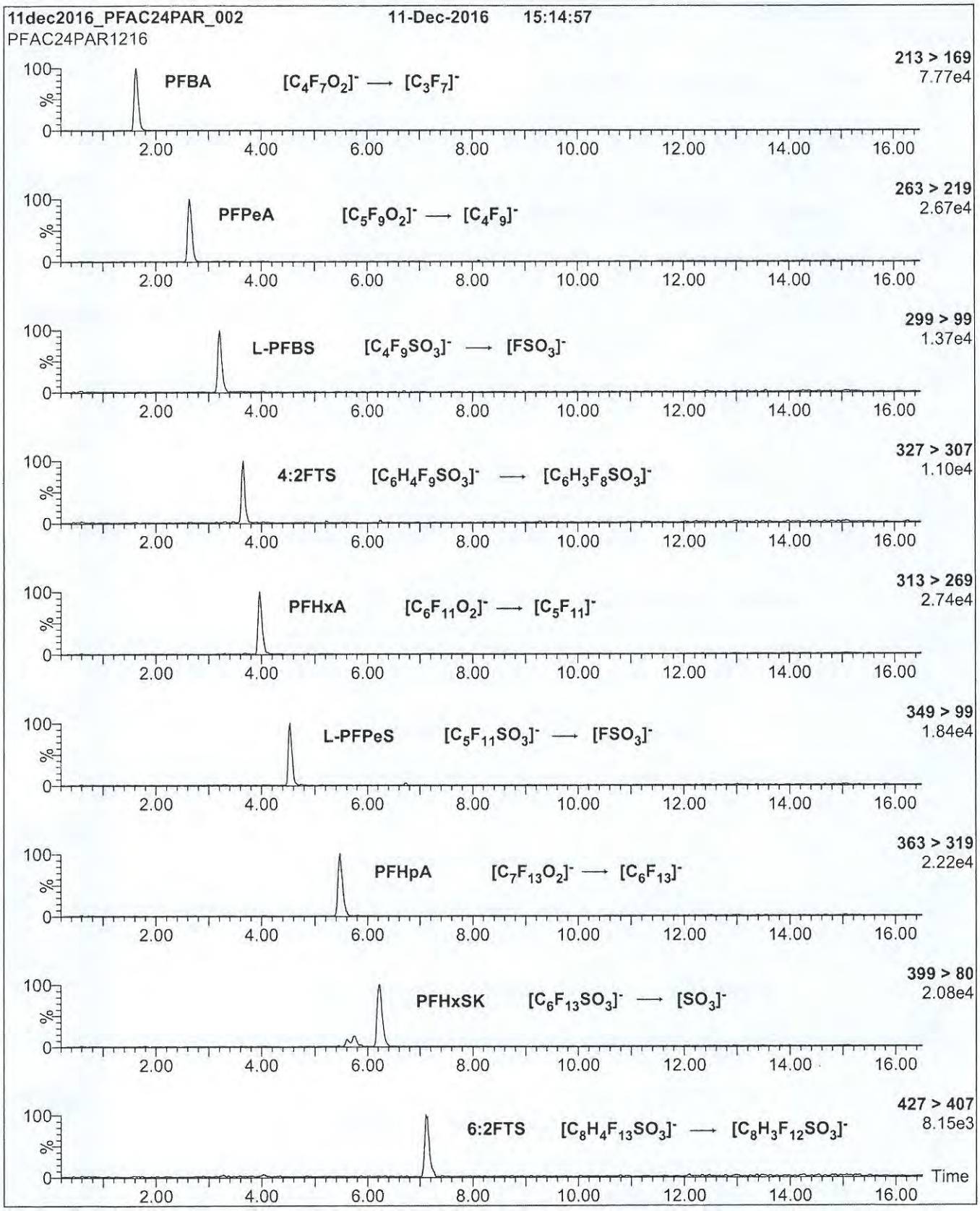


Figure 2: **PFAC-24PAR; LC/MS/MS Data (Selected MRM Transitions)**

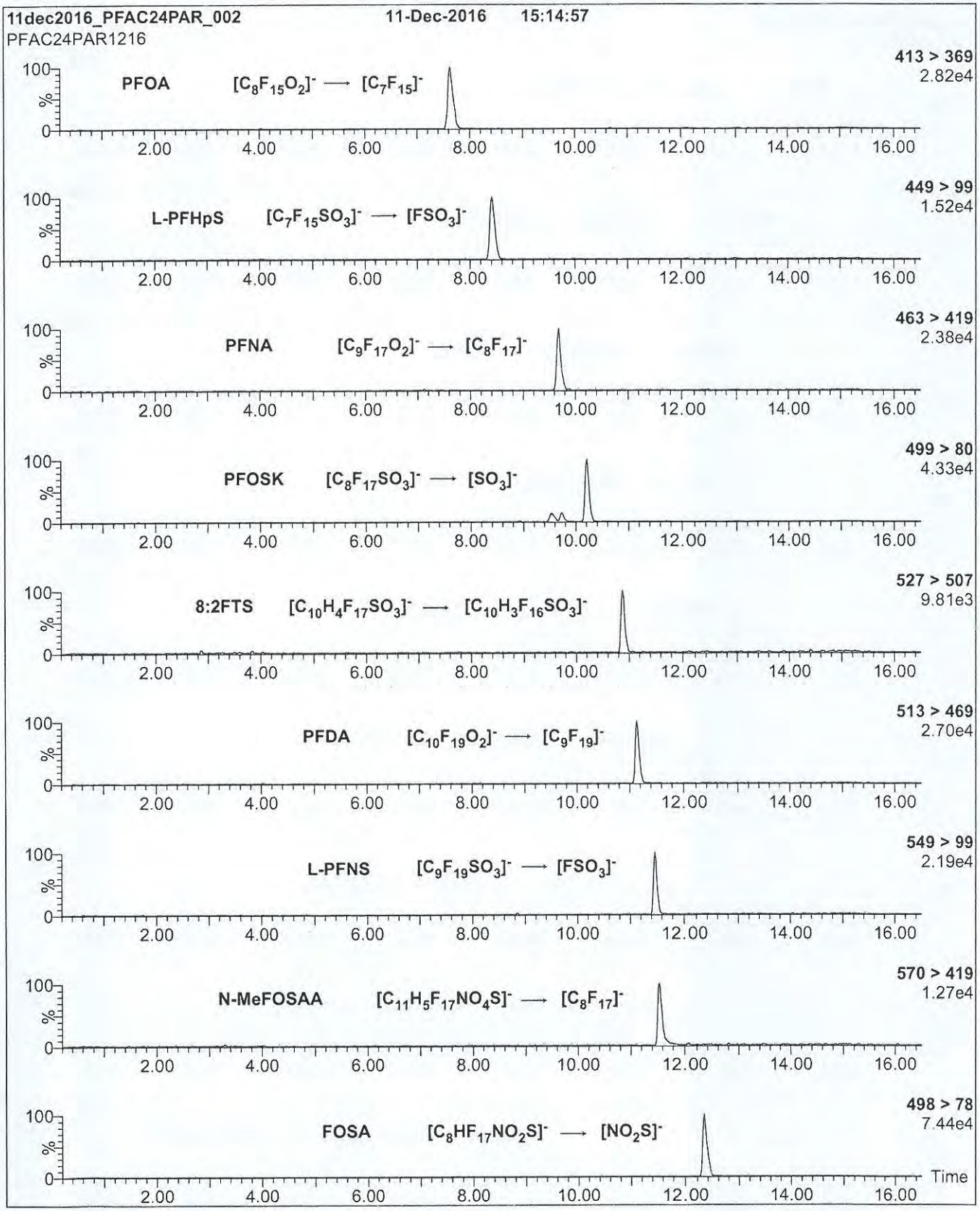
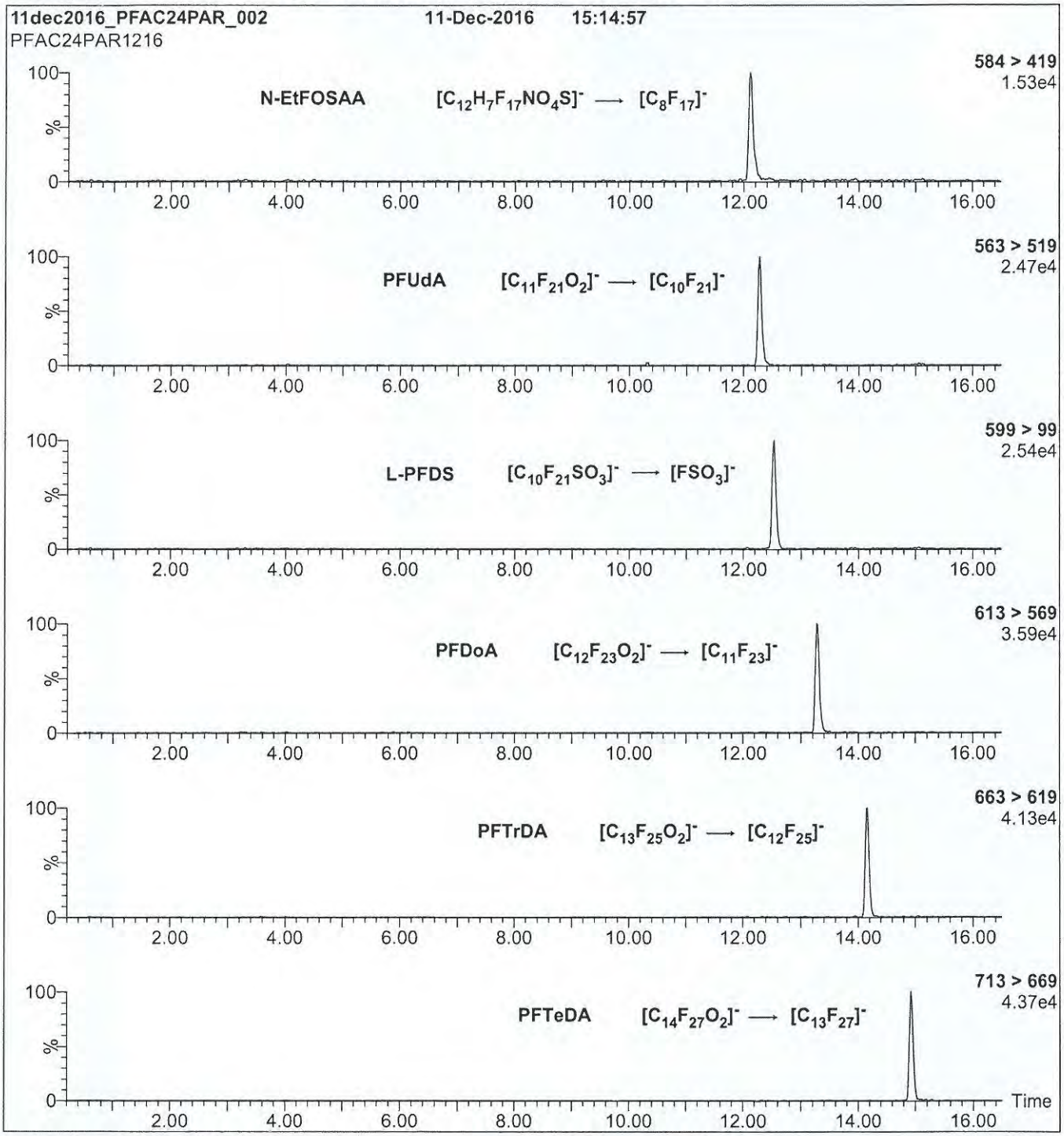


Figure 2: **PFAC-24PAR; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (PFAC-24PAR)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.43e-3

Collision Energy (eV) = 8-50 (variable)

Analytical Standard Record

Vista Analytical Laboratory

17D1706

Parent Standards used in this standard:

Standard	Description	Prepared	Prepared By	Expires	Last Edit	(mls)
17D1703	EPA-537IS (RS)	17-Apr-17	Jamie C. Stockman	29-Oct-21	17-Apr-17 11:07 by JCS	3

Description:	537 IS (RS)	Expires:	17-Apr-18
Standard Type:	Reagent	Prepared:	19-Apr-17
Solvent:	1%H2O/MeOH	Prepared By:	Jamie C. Stockman
Final Volume (mls):	15	Department:	LCMS
Vials:	1	Last Edit:	19-Apr-17 09:11 by JCS

Analyte	CAS Number	Concentration	Units
d3-MeFOSAA		0.8	ug/mL
13C4-PFOS		0.574	ug/mL
13C2-PFOA		0.2	ug/mL

WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

EPA-537IS x3

17D1703

Internal Standard
Primary Dilution Standard

PRODUCT CODE:	EPA-537IS
LOT NUMBER:	537IS1016
SOLVENT(S):	Methanol / Water (<1%)
DATE PREPARED: (mm/dd/yyyy)	10/25/2016
LAST TESTED: (mm/dd/yyyy)	10/29/2016
EXPIRY DATE: (mm/dd/yyyy)	10/29/2021
RECOMMENDED STORAGE:	Refrigerate ampoule

DESCRIPTION:

EPA-537IS is a solution/mixture of a mass-labelled (^{13}C) perfluoroalkylcarboxylic acid, a mass-labelled (^{13}C) perfluoroalkylsulfonate, and a mass-labelled (^{2}H) perfluorooctanesulfonamidoacetic acid. The components and their concentrations are given in Table A.

The mass-labelled perfluoroalkylcarboxylic acid and the mass-labelled perfluoroalkylsulfonate both have chemical purities of >98% and isotopic purities of ≥99%. The mass-labelled perfluorooctanesulfonamidoacetic acid has a chemical purity of >98% and an isotopic purity of ≥98%.

DOCUMENTATION/ DATA ATTACHED:

Table A: Components and Concentrations of the Solution/Mixture
Figure 1: LC/MS Data (TIC)
Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

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

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compounds it contains.

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 Accreditation No. A 1226

ANAB ACCREDITED ISO GUIDE 34 REFERENCE MATERIAL PRODUCER

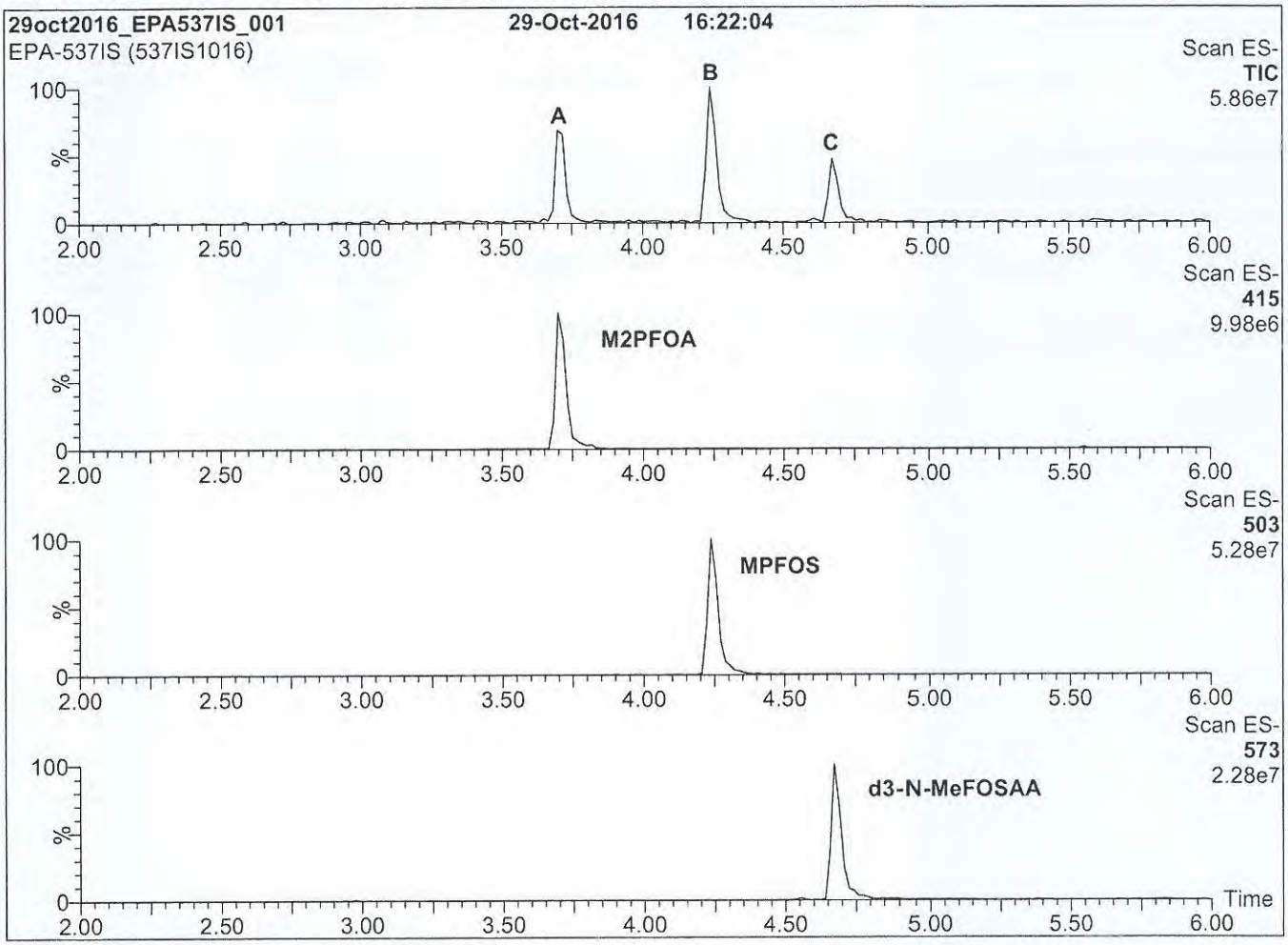
For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com

Table A: **EPA-537IS; Components and Concentrations (ng/ml; ± 5% in Methanol / Water (<1%))**

Compound	Abbreviation	Concentration (ng/ml)		Peak Assignment in Figure 1
Perfluoro-n-[1,2-$^{13}C_2$]octanoic acid	M2PFOA	1000		A
N-methyl-d_3-perfluoro-1-octanesulfonamidoacetic acid	d3-N-MeFOSAA	4000		C
Compound	**Abbreviation**	**Concentration (ng/ml)**		**Peak Assignment in Figure 1**
		as the salt	**as the anion**	
Sodium perfluoro-1-[1,2,3,4-$^{13}C_4$]octanesulfonate	MPFOS	3000	2870	B

Certified By: B.G. Chittim **Date:** 11/14/2016 (mm/dd/yyyy)

Figure 1: **EPA-537IS; LC/MS Data (Total Ion Current Chromatogram)**



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

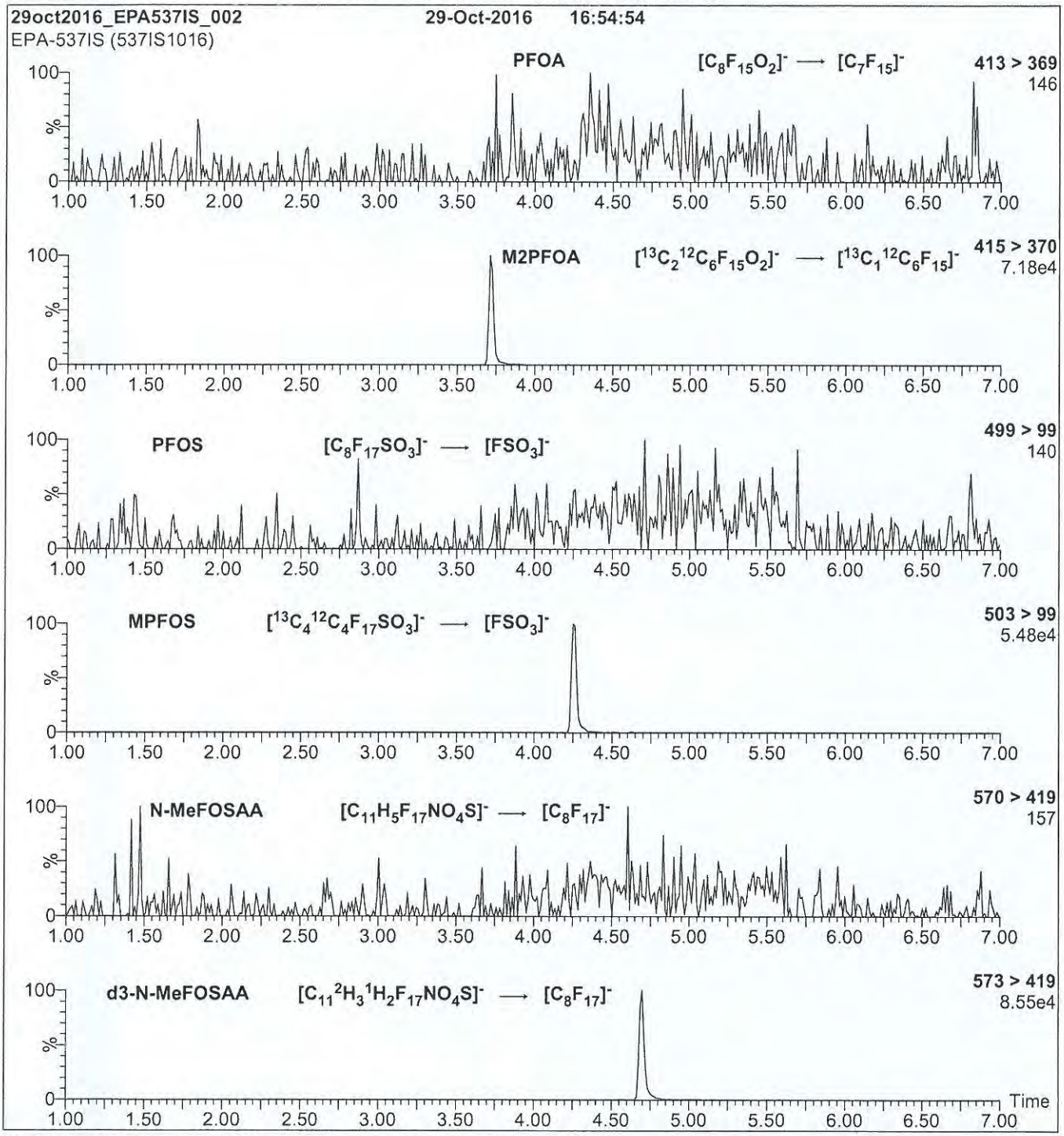
Flow: 300 µl/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 25.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: **EPA-537IS; LC/MS/MS Data (Selected MRM Transitions)**



Conditions for Figure 2:

Injection: On-column (EPA-537IS)

Mobile phase: Same as Figure 1

Flow: 300 µl/min

MS Parameters

Collision Gas (mbar) = 3.20e-3

Collision Energy (eV) = 11-40 (variable)

"FRB-04-20170606","EPA Method 537","Initial","1700697-01","Vista","375-73-5","PFBS","9.71","ng/L","U","2.44","LOD","","TRG","","","19.4","LOQ","YES","-99","","0.257","0.001","9.71",""
"FRB-04-20170606","EPA Method 537","Initial","1700697-01","Vista","375-85-9","PFHpA","9.71","ng/L","U","3.11","LOD","","TRG","","","19.4","LOQ","YES","-99","","0.257","0.001","9.71",""
"FRB-04-20170606","EPA Method 537","Initial","1700697-01","Vista","355-46-4","PFHxS","9.71","ng/L","U","1.72","LOD","","TRG","","","19.4","LOQ","YES","-99","","0.257","0.001","9.71",""
"FRB-04-20170606","EPA Method 537","Initial","1700697-01","Vista","335-67-1","PFOA","9.71","ng/L","U","4.15","LOD","","TRG","","","19.4","LOQ","YES","-99","","0.257","0.001","9.71",""
"FRB-04-20170606","EPA Method 537","Initial","1700697-01","Vista","375-95-1","PFNA","9.71","ng/L","U","3.39","LOD","","TRG","","","19.4","LOQ","YES","-99","","0.257","0.001","9.71",""
"FRB-04-20170606","EPA Method 537","Initial","1700697-01","Vista","1763-23-1","PFOS","9.71","ng/L","U","1.90","LOD","","TRG","","","19.4","LOQ","YES","-99","","0.257","0.001","9.71",""
"FRB-04-20170606","EPA Method 537","Initial","1700697-01","Vista","13C2-PFHxA","13C2-PFHxA","109","%R","","-99","NA","","SURR","109","","-99","NA","YES","100","","0.257","0.001","-99",""
"FRB-04-20170606","EPA Method 537","Initial","1700697-01","Vista","13C2-PFDA","13C2-PFDA","107","%R","","-99","NA","","SURR","107","","-99","NA","YES","100","","0.257","0.001","-99",""
"RW04-20170606","EPA Method 537","Initial","1700697-02","Vista","375-73-5","PFBS","9.18","ng/L","U","2.30","LOD","","TRG","","","18.4","LOQ","YES","-99","","0.272","0.001","9.18",""
"RW04-20170606","EPA Method 537","Initial","1700697-02","Vista","375-85-9","PFHpA","9.18","ng/L","U","2.94","LOD","","TRG","","","18.4","LOQ","YES","-99","","0.272","0.001","9.18",""
"RW04-20170606","EPA Method 537","Initial","1700697-02","Vista","355-46-4","PFHxS","9.18","ng/L","U","1.63","LOD","","TRG","","","18.4","LOQ","YES","-99","","0.272","0.001","9.18",""
"RW04-20170606","EPA Method 537","Initial","1700697-02","Vista","335-67-1","PFOA","5.23","ng/L","J","3.92","LOD","","TRG","","","18.4","LOQ","YES","-99","","0.272","0.001","9.18",""
"RW04-20170606","EPA Method 537","Initial","1700697-02","Vista","375-95-1","PFNA","9.18","ng/L","U","3.20","LOD","","TRG","","","18.4","LOQ","YES","-99","","0.272","0.001","9.18",""
"RW04-20170606","EPA Method 537","Initial","1700697-02","Vista","1763-23-1","PFOS","7.84","ng/L","J","1.80","LOD","","TRG","","","18.4","LOQ","YES","-99","","0.272","0.001","9.18",""
"RW04-20170606","EPA Method 537","Initial","1700697-02","Vista","13C2-PFHxA","13C2-PFHxA","91.7","%R","","-99","NA","","SURR","91.7","","-99","NA","YES","100","","0.272","0.001","-99",""
"RW04-20170606","EPA Method 537","Initial","1700697-02","Vista","13C2-PFDA","13C2-PFDA","87.9","%R","","-99","NA","","SURR","87.9","","-99","NA","YES","100","","0.272","0.001","-99",""
"DUP03-20170606","EPA Method 537","Initial","1700697-03","Vista","375-73-5","PFBS","9.45","ng/L","U","2.37","LOD","","TRG","","","18.9","LOQ","YES","-99","","0.265","0.001","9.45",""
"DUP03-20170606","EPA Method 537","Initial","1700697-03","Vista","375-85-9","PFHpA","9.45","ng/L","U","3.02","LOD","","TRG","","","18.9","LOQ","YES","-99","","0.265","0.001","9.45",""
"DUP03-20170606","EPA Method 537","Initial","1700697-03","Vista","355-46-4","PFHxS","9.45","ng/L","U","1.67","LOD","","TRG","","","18.9","LOQ","YES","-99","","0.265","0.001","9.45",""
"DUP03-20170606","EPA Method 537","Initial","1700697-03","Vista","335-67-1","PFOA","5.50","ng/L","J","4.04","LOD","","TRG","","","18.9","LOQ","YES","-99","","0.265","0.001","9.45",""
"DUP03-20170606","EPA Method 537","Initial","1700697-03","Vista","375-95-1","PFNA","9.45","ng/L","U","3.30","LOD","","TRG","","","18.9","LOQ","YES","-99","","0.265","0.001","9.45",""
"DUP03-20170606","EPA Method 537","Initial","1700697-03","Vista","1763-23-1","PFOS","8.31","ng/L","J","1.85","LOD","","TRG","","","18.9","LOQ","YES","-99","","0.265","0.001","9.45",""
"DUP03-20170606","EPA Method 537","Initial","1700697-03","Vista","13C2-PFHxA","13C2-PFHxA","95.8","%R","","-99","NA","","SURR","95.8","","-99","NA","YES","100","","0.265","0.001","-99",""
"DUP03-20170606","EPA Method 537","Initial","1700697-03","Vista","13C2-PFDA","13C2-PFDA","94.7","%R","","-99","NA","","SURR","94.7","","-99","NA","YES","100","","0.265","0.001","-99",""
"B7F0032-BLK1","EPA Method 537","Initial","B7F0032-BLK1","Vista","375-73-5","PFBS","10.0","ng/L","U","2.51","LOD","","TRG","","","20.0","LOQ","YES","-99","","0.250","0.001","10.0",""
"B7F0032-BLK1","EPA Method 537","Initial","B7F0032-BLK1","Vista","375-85-9","PFHpA","10.0","ng/L","U","3.20","LOD","","TRG","","","20.0","LOQ","YES","-99","","0.250","0.001","10.0",""
"B7F0032-BLK1","EPA Method 537","Initial","B7F0032-BLK1","Vista","355-46-

4","PFHxS","10.0","ng/L","U","1.77","LOD","","TRG","","","20.0","LOQ","YES","-99","","0.250","0.001","10.0",""
"B7F0032-BLK1","EPA Method 537","Initial","B7F0032-BLK1","Vista","335-67-
1","PFOA","10.0","ng/L","U","4.27","LOD","","TRG","","","20.0","LOQ","YES","-99","","0.250","0.001","10.0",""
"B7F0032-BLK1","EPA Method 537","Initial","B7F0032-BLK1","Vista","375-95-
1","PFNA","10.0","ng/L","U","3.49","LOD","","TRG","","","20.0","LOQ","YES","-99","","0.250","0.001","10.0",""
"B7F0032-BLK1","EPA Method 537","Initial","B7F0032-BLK1","Vista","1763-23-
1","PFOS","10.0","ng/L","U","1.96","LOD","","TRG","","","20.0","LOQ","YES","-99","","0.250","0.001","10.0",""
"B7F0032-BLK1","EPA Method 537","Initial","B7F0032-BLK1","Vista","13C2-PFHxA","13C2-
PFHxA","102","%R","","-99","NA","","SUR","102","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7F0032-BLK1","EPA Method 537","Initial","B7F0032-BLK1","Vista","13C2-PFDA","13C2-
PFDA","102","%R","","-99","NA","","SUR","102","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7F0032-BS1","EPA Method 537","Initial","B7F0032-BS1","Vista","375-73-
5","PFBS","8.54","ng/L","J","2.51","LOD","","TRG","96.6","","20.0","LOQ","YES","8.84","","0.250","0.001","10.0",
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"B7F0032-BS1","EPA Method 537","Initial","B7F0032-BS1","Vista","375-85-
9","PFHpA","11.0","ng/L","J","3.20","LOD","","TRG","110","","20.0","LOQ","YES","10.0","","0.250","0.001","10.0"
,""
"B7F0032-BS1","EPA Method 537","Initial","B7F0032-BS1","Vista","355-46-
4","PFHxS","8.86","ng/L","J","1.77","LOD","","TRG","97.2","","20.0","LOQ","YES","9.12","","0.250","0.001","10.0"
,""
"B7F0032-BS1","EPA Method 537","Initial","B7F0032-BS1","Vista","335-67-
1","PFOA","10.4","ng/L","J","4.27","LOD","","TRG","104","","20.0","LOQ","YES","10.0","","0.250","0.001","10.0",
""
"B7F0032-BS1","EPA Method 537","Initial","B7F0032-BS1","Vista","375-95-
1","PFNA","11.6","ng/L","J","3.49","LOD","","TRG","116","","20.0","LOQ","YES","10.0","","0.250","0.001","10.0",
""
"B7F0032-BS1","EPA Method 537","Initial","B7F0032-BS1","Vista","1763-23-
1","PFOS","8.61","ng/L","J","1.96","LOD","","TRG","93.2","","20.0","LOQ","YES","9.24","","0.250","0.001","10.0",
""
"B7F0032-BS1","EPA Method 537","Initial","B7F0032-BS1","Vista","13C2-PFHxA","13C2-
PFHxA","104","%R","","-99","NA","","SUR","104","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7F0032-BS1","EPA Method 537","Initial","B7F0032-BS1","Vista","13C2-PFDA","13C2-
PFDA","100","%R","","-99","NA","","SUR","100","","-99","NA","YES","100","","0.250","0.001","-99",""
"B7F0032-MS1","EPA Method 537","Initial","B7F0032-MS1","Vista","375-73-
5","PFBS","9.79","ng/L","J","2.34","LOD","","TRG","94.1","","18.6","LOQ","YES","8.23","RW04-
20170606","0.269","0.001","9.31",""
"B7F0032-MS1","EPA Method 537","Initial","B7F0032-MS1","Vista","375-85-
9","PFHpA","10.4","ng/L","J","2.98","LOD","","TRG","96.9","","18.6","LOQ","YES","9.31","RW04-
20170606","0.269","0.001","9.31",""
"B7F0032-MS1","EPA Method 537","Initial","B7F0032-MS1","Vista","355-46-
4","PFHxS","8.92","ng/L","J","1.65","LOD","","TRG","88.5","","18.6","LOQ","YES","8.49","RW04-
20170606","0.269","0.001","9.31",""
"B7F0032-MS1","EPA Method 537","Initial","B7F0032-MS1","Vista","335-67-
1","PFOA","15.0","ng/L","J","3.98","LOD","","TRG","105","","18.6","LOQ","YES","9.31","RW04-
20170606","0.269","0.001","9.31",""
"B7F0032-MS1","EPA Method 537","Initial","B7F0032-MS1","Vista","375-95-
1","PFNA","10.9","ng/L","J","3.25","LOD","","TRG","112","","18.6","LOQ","YES","9.31","RW04-
20170606","0.269","0.001","9.31",""
"B7F0032-MS1","EPA Method 537","Initial","B7F0032-MS1","Vista","1763-23-
1","PFOS","17.5","ng/L","J","1.82","LOD","","TRG","112","","18.6","LOQ","YES","8.60","RW04-
20170606","0.269","0.001","9.31",""
"B7F0032-MS1","EPA Method 537","Initial","B7F0032-MS1","Vista","13C2-PFHxA","13C2-
PFHxA","99.7","%R","","-99","NA","","SUR","99.7","","-99","NA","YES","100","RW04-
20170606","0.269","0.001","-99",""

"B7F0032-MS1","EPA Method 537","Initial","B7F0032-MS1","Vista","13C2-PFDA","13C2-PFDA","102","%R","","-99","NA","","SUR","102","","-99","NA","YES","100","RW04-20170606","0.269","0.001","-99",""
"B7F0032-MSD1","EPA Method 537","Initial","B7F0032-MSD1","Vista","375-73-5","PFBS","9.42","ng/L","J","2.39","LOD","","TRG","87.4","7.38","19.1","LOQ","YES","8.43","RW04-20170606","0.262","0.001","9.54",""
"B7F0032-MSD1","EPA Method 537","Initial","B7F0032-MSD1","Vista","375-85-9","PFHpA","12.1","ng/L","J","3.05","LOD","","TRG","113","15.3","19.1","LOQ","YES","9.54","RW04-20170606","0.262","0.001","9.54",""
"B7F0032-MSD1","EPA Method 537","Initial","B7F0032-MSD1","Vista","355-46-4","PFHxS","8.75","ng/L","J","1.69","LOD","","TRG","84.5","4.62","19.1","LOQ","YES","8.70","RW04-20170606","0.262","0.001","9.54",""
"B7F0032-MSD1","EPA Method 537","Initial","B7F0032-MSD1","Vista","335-67-1","PFOA","15.9","ng/L","J","4.07","LOD","","TRG","112","6.45","19.1","LOQ","YES","9.54","RW04-20170606","0.262","0.001","9.54",""
"B7F0032-MSD1","EPA Method 537","Initial","B7F0032-MSD1","Vista","375-95-1","PFNA","11.3","ng/L","J","3.33","LOD","","TRG","114","1.77","19.1","LOQ","YES","9.54","RW04-20170606","0.262","0.001","9.54",""
"B7F0032-MSD1","EPA Method 537","Initial","B7F0032-MSD1","Vista","1763-23-1","PFOS","15.4","ng/L","J","1.87","LOD","","TRG","85.9","26.4","19.1","LOQ","YES","8.82","RW04-20170606","0.262","0.001","9.54",""
"B7F0032-MSD1","EPA Method 537","Initial","B7F0032-MSD1","Vista","13C2-PFHxA","13C2-PFHxA","106","%R","","-99","NA","","SUR","106","","-99","NA","YES","100","RW04-20170606","0.262","0.001","-99",""
"B7F0032-MSD1","EPA Method 537","Initial","B7F0032-MSD1","Vista","13C2-PFDA","13C2-PFDA","106","%R","","-99","NA","","SUR","106","","-99","NA","YES","100","RW04-20170606","0.262","0.001","-99",""
"NAWC Trenton","NAWC Trenton","FRB-04-20170606","06/06/2017 11:10","DW","1700697-01","NM","","5.60","EPA Method 537","METHOD","Initial","06/08/2017 08:29","06/09/2017 17:50","Vista","COA","WET","NA","1","NA","NA","01/01/1900 00:00","100","B7F0032","B7F0032","NA","S7F0021","1700697","06/07/2017 08:55","01/01/1900 00:00",""
"NAWC Trenton","NAWC Trenton","RW04-20170606","06/06/2017 11:15","DW","1700697-02","NM","","5.60","EPA Method 537","METHOD","Initial","06/08/2017 08:29","06/09/2017 18:02","Vista","COA","WET","NA","1","NA","NA","01/01/1900 00:00","100","B7F0032","B7F0032","NA","S7F0021","1700697","06/07/2017 08:55","01/01/1900 00:00",""
"NAWC Trenton","NAWC Trenton","DUP03-20170606","06/06/2017 12:00","DW","1700697-03","NM","","5.60","EPA Method 537","METHOD","Initial","06/08/2017 08:29","06/09/2017 18:39","Vista","COA","WET","NA","1","NA","NA","01/01/1900 00:00","100","B7F0032","B7F0032","NA","S7F0021","1700697","06/07/2017 08:55","01/01/1900 00:00",""
"NAWC Trenton","NAWC Trenton","B7F0032-BLK1","01/01/1900 00:00","DW","B7F0032-BLK1","MB","","-99","EPA Method 537","METHOD","Initial","06/08/2017 08:29","06/09/2017 17:37","Vista","COA","WET","NA","1","NA","NA","01/01/1900 00:00","100","B7F0032","B7F0032","NA","S7F0021","1700697","01/01/1900 00:00","01/01/1900 00:00",""
"NAWC Trenton","NAWC Trenton","B7F0032-BS1","01/01/1900 00:00","DW","B7F0032-BS1","LCS","","-99","EPA Method 537","METHOD","Initial","06/08/2017 08:29","06/09/2017 17:13","Vista","COA","WET","NA","1","NA","NA","01/01/1900 00:00","100","B7F0032","B7F0032","NA","S7F0021","1700697","01/01/1900 00:00","01/01/1900 00:00",""
"NAWC Trenton","NAWC Trenton","B7F0032-MS1","01/01/1900 00:00","DW","B7F0032-MS1","MS","","-99","EPA Method 537","METHOD","Initial","06/08/2017 08:29","06/09/2017 18:14","Vista","COA","WET","NA","1","NA","NA","01/01/1900 00:00","100","B7F0032","B7F0032","NA","S7F0021","1700697","01/01/1900 00:00","01/01/1900 00:00",""
"NAWC Trenton","NAWC Trenton","B7F0032-MSD1","01/01/1900 00:00","DW","B7F0032-MSD1","MSD","","-99","EPA Method 537","METHOD","Initial","06/08/2017 08:29","06/09/2017 18:26","Vista","COA","WET","NA","1","NA","NA","01/01/1900

00:00","100","B7F0032","B7F0032","NA","S7F0021","1700697","01/01/1900 00:00","01/01/1900 00:00",""

TETRA TECH

INTERNAL CORRESPONDENCE

TO: **M. MANG** **DATE:** **JUNE 26, 2017**

FROM: **TERRI L. SOLOMON** **COPIES:** **DV FILE**

SUBJECT: **ORGANIC DATA VALIDATION – POLYFLUORALKYL SUBSTANCES (PFAS)**
NAWC TRENTON
SAMPLE DELIVERY GROUP (SDG) 1700697

SAMPLES: 1/Field Reagent Blank (FRB)
FRB-04-20170606

2/Drinking Water
RW04-20170606 DUP03-20170606

Overview

The sample set for NAWC Trenton, SDG 1700697, consisted of two (2) drinking water samples and one (1) FRB sample. All samples were analyzed for select perfluorinated alkyl acids including pentadecafluorooctanoic acid (PFOA), perfluorobutane sulfonate (PFBS), perfluoroheptanoic acid (PFHpA), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA) and perfluorooctane sulfonic acid (PFOS). One (1) field duplicate pair (RW04-20170606 / DUP03-20170606) was included in this SDG.

The samples were collected by Tetra Tech, Inc. on June 6, 2017 and analyzed by Vista Analytical Laboratory. Analyses were conducted in accordance with EPA method 537 Version1.1 analytical and reporting protocols.

The data contained in these SDGs were validated with regard to the following parameters: data completeness, holding times, initial/continuing calibrations, laboratory method/field reagent blanks, surrogate spike recoveries, laboratory control sample results, matrix spike/matrix spike duplicate results, chromatographic resolution, analyte identification, analyte quantitation, and detection limits. Areas of concern are listed below.

PFAS

Detected results reported below the limit of quantitation (LOQ) but above the detection limit (DL) were qualified as estimated, (J).

.

Notes

Samples with detections and their associated FRBs are summarized below. No detected results were present in the FRB.

Sample	Associated FRB
RW04-20170606	FRB-04-20170606
DUP03-20170606	FRB-04-20170606

The buffering agent Trizma was added to all drinking water samples.

Non-detected results were reported to the Limit of Detection (LOD).

Executive Summary

Laboratory Performance: None.

Other Factors Affecting Data Quality: None.

The data for these analyses were reviewed with reference to the Environmental Protection Agency document EPA/600/R-08/092, Method 537, "Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)", (September 2009) and the US EPA National Functional Guidelines for Organic Data Review (January 2017) as applicable. The text of this report has been formulated to address only those areas affecting data quality.

Tetra Tech, Inc.
Terri L. Solomon
Chemist/Data Validator

Tetra Tech, Inc.
Joseph A. Samchuck
Data Validation Manager

Attachments:
Appendix A – Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Data Qualifier Definitions

The following definitions provide brief explanations of the validation qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted method detection limit for sample and method.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the reporting limit).
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported detection limit is approximate and may be inaccurate or imprecise.
R	The sample result (detected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
UR	The sample result (nondetected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

Appendix A

Qualified Analytical Results

Qualifier Codes:

A = Lab Blank Contamination
B = Field Blank Contamination
C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
C01 = GC/MS Tuning Noncompliance
D = MS/MSD Recovery Noncompliance
E = LCS/LCSD Recovery Noncompliance
F = Lab Duplicate Imprecision
G = Field Duplicate Imprecision
H = Holding Time Exceedance
I = ICP Serial Dilution Noncompliance
J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
K = ICP Interference - includes ICS % R Noncompliance
L = Instrument Calibration Range Exceedance
M = Sample Preservation Noncompliance
N = Internal Standard Noncompliance
N01 = Internal Standard Recovery Noncompliance Dioxins
N02 = Recovery Standard Noncompliance Dioxins
N03 = Clean-up Standard Noncompliance Dioxins
O = Poor Instrument Performance (i.e., base-time drifting)
P = Uncertainty near detection limit (< 2 x IDL for inorganics and <CRQL for organics)
Q = Other problems (can encompass a number of issues; i.e.chromatography,interferences, etc.)
R = Surrogates Recovery Noncompliance
S = Pesticide/PCB Resolution
T = % Breakdown Noncompliance for DDT and Endrin
U = RPD between columns/detectors >40% for positive results determined via GC/HPLC
V = Non-linear calibrations; correlation coefficient $r < 0.995$
W = EMPC result
X = Signal to noise response drop
Y = Percent solids <30%
Z = Uncertainty at 2 standard deviations is greater than sample activity
Z1 = Tentatively Identified Compound considered presumptively present
Z2 = Tentatively Identified Compound column bleed
Z3 = Tentatively Identified Compound aldol condensate
Z4 = Sample activity is less than the at uncertainty at 3 standard deviations and greater than the MDC
Z5 = Sample activity is less than the at uncertainty at 3 standard deviations and less than the MDC

PROJ_NO: 08005-WE08	NSAMPLE	DUP03-20170606			FRB-04-20170606			RW04-20170606		
SDG: 1700697	LAB_ID	1700697-03			1700697-01			1700697-02		
FRACTION: OS	SAMP_DATE	6/6/2017			6/6/2017			6/6/2017		
MEDIA: WATER	QC_TYPE	NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF	RW04-20170606								
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		5.5	J	P	9.71	U		5.23	J	P
PERFLUOROBUTANE SULFONATE		9.45	U		9.71	U		9.18	U	
PERFLUOROHEPTANOIC ACID		9.45	U		9.71	U		9.18	U	
PERFLUOROHEXANESULFONIC ACID		9.45	U		9.71	U		9.18	U	
PERFLUORONONANOIC ACID		9.45	U		9.71	U		9.18	U	
PERFLUOROOCTANE SULFONIC ACID		8.31	J	P	9.71	U		7.84	J	P

Appendix B

Results as Reported by the Laboratory

Sample ID: FRB-04-20170606

EPA Method 537

Client Data

Name:	Tetra Tech
Project:	NAWC Trenton
Date Collected:	06-Jun-2017 11:10
Location:	Kitchen

Sample Data

Matrix:	Blank Water
Sample Size:	0.257 L

Laboratory Data

Lab Sample:	1700697-01	Date Received:	07-Jun-2017 8:55
QC Batch:	B7F0032	Date Extracted:	08-Jun-2017 8:29
Date Analyzed:	09-Jun-17 17:50 Column: BEH C18		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers
PFBS	ND	2.44	9.71	19.4	
PFHpA	ND	3.11	9.71	19.4	
PFHxS	ND	1.72	9.71	19.4	
PFOA	ND	4.15	9.71	19.4	
PFNA	ND	3.39	9.71	19.4	
PFOS	ND	1.90	9.71	19.4	

Labeled Standard	%R	LCL-UCL	Qualifiers
SUR 13C2-PFHxA	109	70 - 130	
SUR 13C2-PFDA	107	70 - 130	

DL - Detection limit

RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit

Results reported to DL.

When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

Sample ID: RW04-20170606

EPA Method 537

Client Data

Name: Tetra Tech
Project: NAWC Trenton
Date Collected: 06-Jun-2017 11:15
Location: Kitchen

Sample Data

Matrix: Drinking Water
Sample Size: 0.272 L

Laboratory Data

Lab Sample: 1700697-02 Date Received: 07-Jun-2017 8:55
QC Batch: B7F0032 Date Extracted: 08-Jun-2017 8:29
Date Analyzed: 09-Jun-17 18:02 Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers
PFBS	ND	2.30	9.18	18.4	
PFHpA	ND	2.94	9.18	18.4	
PFHxS	ND	1.63	9.18	18.4	
PFOA	5.23	3.92	9.18	18.4	J
PFNA	ND	3.20	9.18	18.4	
PFOS	7.84	1.80	9.18	18.4	J

Labeled Standard	%R	LCL-UCL	Qualifiers
SUR 13C2-PFHxA	91.7	70 - 130	
SUR 13C2-PFDA	87.9	70 - 130	

DL - Detection limit
RL - Reporting limit

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

Sample ID: DUP03-20170606

EPA Method 537

Client Data

Name: Tetra Tech
Project: NAWC Trenton
Date Collected: 06-Jun-2017 12:00
Location: Kitchen

Sample Data

Matrix: Drinking Water
Sample Size: 0.265 L

Laboratory Data

Lab Sample: 1700697-03 Date Received: 07-Jun-2017 8:55
QC Batch: B7F0032 Date Extracted: 08-Jun-2017 8:29
Date Analyzed: 09-Jun-17 18:39 Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers
PFBS	ND	2.37	9.45	18.9	
PFHpA	ND	3.02	9.45	18.9	
PFHxS	ND	1.67	9.45	18.9	
PFOA	5.50	4.04	9.45	18.9	J
PFNA	ND	3.30	9.45	18.9	
PFOS	8.31	1.85	9.45	18.9	J

Labeled Standard	%R	LCL-UCL	Qualifiers
SUR 13C2-PFHxA	95.8	70 - 130	
SUR 13C2-PFDA	94.7	70 - 130	

DL - Detection limit
RL - Reporting limit

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

Appendix C

Support Documentation

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Laboratory Project ID: 1700697 Temp: 5.6 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

Project ID: NAWC Trenton PO#: 1135710 Sampler: Seth Oshier (name)

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

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
Accounts Payable	Tetra Tech Inc	661 Anderson Drive Foster Plaza 7	Pittsburgh	PA	15220	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Seth Oshier	6.6.17	1400	Marissa Sparks MSparks	6/7/17	0924
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

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

Method of Shipment: Fed EX

ATTN: Sample Custodian

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	EPA 1613 2378-TCDD	EPA 1613 2378 TCDD/TCDF	EPA 1613 PCDD/PCDF	EPA 8290 2378-TCDD	EPA 8290 2378-TCDD/TCDF	EPA 8290 PCDD/PCDF	EPA 8280 2378-TCDD	EPA 8280 2378 TCDD/TCDF	EPA 8280 PCDD/PCDF	EPA 1668 TOTALS	EPA 1668 COPLANAR PCB's	EPA 1668 209 CONGENERS	EPA 1668 PBDE	EPA 1614 PAH	CARB429 WHO-29	CARB429 Mod. EPA 537	CARB429 Unmodified 537	UCMR 3 LIST	Comments
FRB04-20170606	6/6/17	1110	Kitchen	2	P	Blk																	X		
RW04-20170606	6/6/17	1115	Kitchen	6	P	DW																	X		DO MS/MSD
DUP03-20170606	6/6/17	1200	Kitchen	2	P	DW																	X		

Special Instructions/Comments:

FED EX 661219925879

SEND DOCUMENTATION AND RESULTS TO:

Name: Mary Maruca
Company: Tetra Tech
Address: 234 Mall Blvd. Suite 260
City: King of Prussia State: PA Zip: 19406
Phone: 610.382.1174 Fax: 610.491.9645
Email: mary.maruca@tetratech.com

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

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma: 10 bottles

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:

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1700697 **TAT** 6

Samples Arrival:	**Date/Time** 6/7/17 0855	**Initials:** WMS	**Location:** WR-2 **Shelf/Rack:** N/a
Logged In:	**Date/Time** 06/07/17 1412	**Initials:** CB26 WMS	**Location:** WR-2 **Shelf/Rack:** F6

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

Temp °C: 6.3 (uncorrected)	**Time:** 0927	**Thermometer ID:** ~~IR-1~~ DT-3 WMS 6/7/17
Temp °C: 5.6 (corrected)	**Probe used:** Yes☒ No☐	

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill — Trk # 6612 1992 5879	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓

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

Comments: * ice melted upon arrival

SDG Number WE08
Vista Work Order No. 1700697
Case Narrative

Sample Condition on Receipt:

One blank water sample and two drinking 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.

EPA Method 537

The samples were extracted and analyzed for the UCMR list of six PFAS using 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 Laboratory Fortified Blank (LFB) and Laboratory Reagent Blank (LRB) were extracted and analyzed with the preparation batch. No analytes were detected in the LRB above 1/2 the LOQ. The LFB recoveries were within the method acceptance criteria

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

A Laboratory Fortified Sample Matrix (LFSM) and Laboratory Fortified Sample Matrix Duplicate (LFSMD) were prepared and analyzed using sample "RW04-20170606".

Sample Inventory Report

Vista Sample ID	Client Sample ID		Sampled	Received	Components/Containers
1700697-01	FRB-04-20170606		06-Jun-17 11:10	07-Jun-17 08:55	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1700697-02	RW04-20170606	MS/MSD	06-Jun-17 11:15	07-Jun-17 08:55	HDPE Bottle, 250 mL
		MS/MSD			HDPE Bottle, 250 mL
		MS/MSD			HDPE Bottle, 250 mL
		MS/MSD			HDPE Bottle, 250 mL
		MS/MSD			HDPE Bottle, 250 mL
		MS/MSD			HDPE Bottle, 250 mL
1700697-03	DUP03-20170606		06-Jun-17 12:00	07-Jun-17 08:55	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL

ANALYTE	ORIGINAL	DUPLICATE	RL	RPD	RPD > 50%	ORIGINAL SAMPLE CONC >2xRL	DUPLICATE SAMPLE CONC >2xRL	DIFFERENCE >2XRL
PENTADECAFLUOROOCTANOIC ACID	5.23	5.5	18.4	5.033	FALSE	FALSE	FALSE	FALSE
PERFLUOROOCTANE SULFONIC ACID	7.84	8.31	18.4	5.820	FALSE	FALSE	FALSE	FALSE

Sample ID: LRB

EPA Method 537

Matrix:	Drinking Water	QC Batch:	B7F0032	Lab Sample:	B7F0032-BLK1
Sample Size:	0.250 L	Date Extracted:	08-Jun-2017 8:29	Date Analyzed:	09-Jun-17 17:37 Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers
PFBS	ND	2.51	10.0	20.0	
PFHpA	ND	3.20	10.0	20.0	
PFHxS	ND	1.77	10.0	20.0	
PFOA	ND	4.27	10.0	20.0	
PFNA	ND	3.49	10.0	20.0	
PFOS	ND	1.96	10.0	20.0	

Labeled Standard		%R	LCL-UCL	Qualifiers
SUR	13C2-PFHxA	102	70 - 130	
SUR	13C2-PFDA	102	70 - 130	

DL - Detection limit

RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit

Results reported to DL.

When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

Sample ID: LFB

EPA Method 537

Matrix:	Drinking Water	QC Batch:	B7F0032	Lab Sample:	B7F0032-BS1
Sample Size:	0.250 L	Date Extracted:	08-Jun-2017 8:29	Date Analyzed:	09-Jun-17 17:13 Column: BEH C18

Analyte	Amt Found (ng/L)	Spike Amt	%R	Limits
PFBS	8.54	8.84	96.6	70 - 130
PFHpA	11.0	10.0	110	70 - 130
PFHxS	8.86	9.12	97.2	70 - 130
PFOA	10.4	10.0	104	70 - 130
PFNA	11.6	10.0	116	70 - 130
PFOS	8.61	9.24	93.2	70 - 130

	Labeled Standard	%R	LCL-UCL
SUR	13C2-PFHxA	104	70 - 130
SUR	13C2-PFDA	100	70 - 130

LCL-UCL - Lower control limit - upper control limit

Matrix Spike Results

EPA Method 537

Source Client ID: RW04-20170606
Source LabNumber: 1700697-02
Matrix: Drinking Water
Sample Size: 0.269/0.262 L

QC Batch: B7F0032
Date Extracted: 08-Jun-2017 8:29

Lab Sample: B7F0032-MS1/B7F0032-MSD1
Date Analyzed: 09-Jun-17 18:14 Column: BEH C18
09-Jun-17 18:26 Column: BEH C18

Analyte	Spike-MS (ng/L)	MS %R	MS Qual.	Spike-MSD (ng/L)	MSD %R	RPD	MSD Qual.	%R Limit	%RPD Limit
PFBS	8.23	94.1	J	8.43	87.4	7.38	J	70 - 130	30
PFHpA	9.31	96.9	J	9.54	113	15.3	J	70 - 130	30
PFHxS	8.49	88.5	J	8.70	84.5	4.62	J	70 - 130	30
PFOA	9.31	105	J	9.54	112	6.45	J	70 - 130	30
PFNA	9.31	112	J	9.54	114	1.77	J	70 - 130	30
PFOS	8.60	112	J	8.82	85.9	26.4	J	70 - 130	30

Labeled Standard	MS %R	MS Qualifiers	MSD %R	MS Qual.
SUR 13C2-PFHxA	99.7		106	
SUR 13C2-PFDA	102		106	

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

Vista Analytical Laboratory

Initial calibration

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-CRV.qld

Last Altered: Tuesday, June 13, 2017 10:53:57 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:02:01 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 14_537_DW.mdb 08 Jun 2017 11:44:34
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

Compound name: PFBS
Coefficient of Determination: R^2 = 0.987112
Calibration curve: -0.00937719 * x^2 + 1.97826 * x
Response type: Internal Std (Ref 19), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	1.77	3.66	1.13e3	1.08e4	1.54	-12.9	1.71
2	2	170609L1_05_P1_...	4.42	3.65	3.06e3	1.16e4	3.89	-12.1	1.71
3	3	170609L1_06_P1_...	8.85	3.62	5.80e3	1.07e4	8.15	-7.9	1.75
4	4	170609L1_07_P1_...	13.3	3.64	8.64e3	1.04e4	12.8	-3.7	1.79
5	5	170609L1_08_P1_...	17.7	3.61	1.24e4	1.13e4	17.4	-1.5	1.79
6	6	170609L1_09_P1_...	22.1	3.60	1.38e4	8.68e3	26.3	19.1	2.06
7	7	170609L1_10_P1_...	44.2	3.61	2.60e4	1.12e4	42.1	-4.7	1.51

AC 6/13/17

Compound name: PFHpA
Coefficient of Determination: R^2 = 0.998602
Calibration curve: -0.00379388 * x^2 + 1.02946 * x
Response type: Internal Std (Ref 18), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	2.00	4.47	2.66e3	1.20e4	2.16	8.2	1.11
2	2	170609L1_05_P1_...	5.00	4.46	6.59e3	1.21e4	5.40	8.0	1.09
3	3	170609L1_06_P1_...	10.0	4.46	1.24e4	1.23e4	10.2	2.1	1.01
4	4	170609L1_07_P1_...	15.0	4.43	1.69e4	1.21e4	14.3	-4.7	0.930
5	5	170609L1_08_P1_...	20.0	4.45	2.41e4	1.27e4	19.8	-0.9	0.945
6	6	170609L1_09_P1_...	25.0	4.44	2.76e4	1.20e4	24.7	-1.2	0.925
7	7	170609L1_10_P1_...	50.0	4.42	4.89e4	1.16e4	50.5	0.9	0.846

CT 6/13/17

Vista Analytical Laboratory

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-CRV.qld

Last Altered: Tuesday, June 13, 2017 10:53:57 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:02:01 Pacific Daylight Time

Compound name: PFHxS
Coefficient of Determination: R^2 = 0.978403
Calibration curve: -0.00820546 * x^2 + 1.58639 * x
Response type: Internal Std (Ref 19), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	1.82	4.56	1.00e3	1.08e4	1.70	-6.5	1.47
2	2	170609L1_05_P1_...	4.56	4.55	2.53e3	1.16e4	4.01	-12.1	1.37
3	3	170609L1_06_P1_...	9.12	4.55	4.45e3	1.07e4	7.81	-14.4	1.30
4	4	170609L1_07_P1_...	13.7	4.53	7.28e3	1.04e4	13.6	-0.9	1.46
5	5	170609L1_08_P1_...	18.2	4.55	9.77e3	1.13e4	17.2	-5.7	1.36
6	6	170609L1_09_P1_...	22.8	4.54	1.17e4	8.68e3	28.6	25.3	1.69
7	7	170609L1_10_P1_...	45.6	4.52	2.06e4	1.12e4	42.9	-5.9	1.16

Compound name: PFOA
Coefficient of Determination: R^2 = 0.996157
Calibration curve: -0.00493088 * x^2 + 1.24838 * x
Response type: Internal Std (Ref 18), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	2.00	4.84	3.63e3	1.20e4	2.44	22.0	1.51
2	2	170609L1_05_P1_...	5.00	4.82	8.25e3	1.21e4	5.59	11.7	1.36
3	3	170609L1_06_P1_...	10.0	4.83	1.44e4	1.23e4	9.76	-2.4	1.17
4	4	170609L1_07_P1_...	15.0	4.79	2.05e4	1.21e4	14.4	-4.1	1.13
5	5	170609L1_08_P1_...	20.0	4.81	2.92e4	1.27e4	19.9	-0.6	1.14
6	6	170609L1_09_P1_...	25.0	4.81	3.27e4	1.20e4	24.3	-3.0	1.10
7	7	170609L1_10_P1_...	50.0	4.79	5.86e4	1.16e4	50.8	1.6	1.01

Vista Analytical Laboratory

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-CRV.qld

Last Altered: Tuesday, June 13, 2017 10:53:57 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:02:01 Pacific Daylight Time

Compound name: PFNA
Coefficient of Determination: R^2 = 0.988257
Calibration curve: -0.00283959 * x^2 + 1.023 * x
Response type: Internal Std (Ref 18), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	2.00	5.15	2.67e3	1.20e4	2.18	8.9	1.11
2	2	170609L1_05_P1_...	5.00	5.13	6.96e3	1.21e4	5.71	14.2	1.15
3	3	170609L1_06_P1_...	10.0	5.14	1.09e4	1.23e4	8.87	-11.3	0.885
4	4	170609L1_07_P1_...	15.0	5.10	2.05e4	1.21e4	17.4	15.9	1.13
5	5	170609L1_08_P1_...	20.0	5.13	2.29e4	1.27e4	18.5	-7.5	0.898
6	6	170609L1_09_P1_...	25.0	5.13	2.69e4	1.20e4	23.5	-6.0	0.899
7	7	170609L1_10_P1_...	50.0	5.11	5.18e4	1.16e4	50.9	1.9	0.895

Compound name: PFOS
Coefficient of Determination: R^2 = 0.982947
Calibration curve: -0.00646712 * x^2 + 1.51574 * x
Response type: Internal Std (Ref 19), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	1.85	5.20	9.98e2	1.08e4	1.77	-4.4	1.44
2	2	170609L1_05_P1_...	4.62	5.18	2.35e3	1.16e4	3.88	-16.0	1.25
3	3	170609L1_06_P1_...	9.24	5.19	4.56e3	1.07e4	8.33	-9.8	1.32
4	4	170609L1_07_P1_...	13.9	5.16	6.68e3	1.04e4	12.8	-7.8	1.32
5	5	170609L1_08_P1_...	18.5	5.18	1.03e4	1.13e4	18.8	1.7	1.42
6	6	170609L1_09_P1_...	23.1	5.19	1.13e4	8.68e3	28.0	21.1	1.62
7	7	170609L1_10_P1_...	46.2	5.16	2.10e4	1.12e4	43.8	-5.2	1.17

Vista Analytical Laboratory

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-CRV.qld

Last Altered: Tuesday, June 13, 2017 10:53:57 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:02:01 Pacific Daylight Time

Compound name: 13C2-PFHxA
Response Factor: 0.705635
RRF SD: 0.0242863, Relative SD: 3.44176
Response type: Internal Std (Ref 18), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	10.0	4.00	9.11e3	1.20e4	10.7	7.1	0.756
2	2	170609L1_05_P1_...	10.0	3.98	8.55e3	1.21e4	10.0	0.1	0.706
3	3	170609L1_06_P1_...	10.0	3.97	8.46e3	1.23e4	9.76	-2.4	0.689
4	4	170609L1_07_P1_...	10.0	3.97	8.35e3	1.21e4	9.77	-2.3	0.689
5	5	170609L1_08_P1_...	10.0	3.96	9.11e3	1.27e4	10.1	1.3	0.715
6	6	170609L1_09_P1_...	10.0	3.94	8.30e3	1.20e4	9.84	-1.6	0.694
7	7	170609L1_10_P1_...	10.0	3.94	7.99e3	1.16e4	9.78	-2.2	0.690

Compound name: 13C2-PFDA
Response Factor: 0.727225
RRF SD: 0.0304621, Relative SD: 4.18882
Response type: Internal Std (Ref 18), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	10.0	5.42	8.90e3	1.20e4	10.2	1.6	0.739
2	2	170609L1_05_P1_...	10.0	5.40	9.28e3	1.21e4	10.5	5.4	0.766
3	3	170609L1_06_P1_...	10.0	5.41	8.52e3	1.23e4	9.54	-4.6	0.694
4	4	170609L1_07_P1_...	10.0	5.37	8.28e3	1.21e4	9.40	-6.0	0.684
5	5	170609L1_08_P1_...	10.0	5.40	9.56e3	1.27e4	10.3	3.2	0.750
6	6	170609L1_09_P1_...	10.0	5.41	8.86e3	1.20e4	10.2	2.0	0.742
7	7	170609L1_10_P1_...	10.0	5.38	8.29e3	1.16e4	9.85	-1.5	0.716

Vista Analytical Laboratory

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-CRV.qld

Last Altered: Tuesday, June 13, 2017 10:53:57 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:02:01 Pacific Daylight Time

Compound name: 13C2-PFOA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 18), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	10.0	4.83	1.20e4	1.20e4	10.0	0.0	1.00
2	2	170609L1_05_P1_...	10.0	4.82	1.21e4	1.21e4	10.0	0.0	1.00
3	3	170609L1_06_P1_...	10.0	4.82	1.23e4	1.23e4	10.0	0.0	1.00
4	4	170609L1_07_P1_...	10.0	4.79	1.21e4	1.21e4	10.0	0.0	1.00
5	5	170609L1_08_P1_...	10.0	4.81	1.27e4	1.27e4	10.0	0.0	1.00
6	6	170609L1_09_P1_...	10.0	4.81	1.20e4	1.20e4	10.0	0.0	1.00
7	7	170609L1_10_P1_...	10.0	4.79	1.16e4	1.16e4	10.0	0.0	1.00

Compound name: 13C4-PFOS
Response Factor: 1
RRF SD: 9.06493e-017, Relative SD: 9.06493e-015
Response type: Internal Std (Ref 19), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	28.7	5.20	1.08e4	1.08e4	28.7	0.0	1.00
2	2	170609L1_05_P1_...	28.7	5.18	1.16e4	1.16e4	28.7	0.0	1.00
3	3	170609L1_06_P1_...	28.7	5.19	1.07e4	1.07e4	28.7	0.0	1.00
4	4	170609L1_07_P1_...	28.7	5.15	1.04e4	1.04e4	28.7	0.0	1.00
5	5	170609L1_08_P1_...	28.7	5.18	1.13e4	1.13e4	28.7	0.0	1.00
6	6	170609L1_09_P1_...	28.7	5.19	8.68e3	8.68e3	28.7	0.0	1.00
7	7	170609L1_10_P1_...	28.7	5.16	1.12e4	1.12e4	28.7	0.0	1.00

Quantify Compound Summary Report

Printed Tue Jun 13 11:04:36 2017

Compound 18: 13C2-PFOA

	#	Name	Type	Std. Con	RT	Area	IS Area	Respons	Primary	Conc.	%Dev	Acq.Date	Acq.Time	Cal.Date	%Rec	RRF	Divisor1	
1	1	170609L1_04_P1_E	Standard	10	4.83	12045	12045	10	bb	10	0	9-Jun-17	15:23:04	13-Jun-17	100	1	1	
2	2	170609L1_05_P1_E	Standard	10	4.82	12103	12103	10	bb	10	0	9-Jun-17	15:35:19	13-Jun-17	100	1	1	
3	3	170609L1_06_P1_E	Standard	10	4.82	12280	12280	10	bb	10	0	9-Jun-17	15:47:34	13-Jun-17	100	1	1	
4	4	170609L1_07_P1_E	Standard	10	4.79	12114	12114	10	bb	10	0	9-Jun-17	15:59:49	13-Jun-17	100	1	1	
5	5	170609L1_08_P1_E	Standard	10	4.81	12747	12747	10	bb	10	0	9-Jun-17	16:12:03	13-Jun-17	100	1	1	
6	6	170609L1_09_P1_E	Standard	10	4.81	11950	11950	10	bb	10	0	9-Jun-17	16:24:17	13-Jun-17	100	1	1	
7	7	170609L1_10_P1_E	Standard	10	4.79	11572	11572	10	bb	10	0	9-Jun-17	16:36:32	13-Jun-17	100	1	1	

Compound 18: 13C2-PFOA

RPD

HIGH ARE	12747
LOW AREA	11572
RPD %	9.7

INSTRUCTIONS: IN TARGETLYNX, VERIFY YOU ARE USING THE LIST14 DW LAYOUT. RIGHT CLICK ON THE SUMMARY BOX AND SELECT "LIST BY COMPOUND". SELECT 13C2-PFOA, 13C4-PFOS OR D3-NMEFOSAA. CLICK ON EDIT. SELECT COPY CURRENT SUMMARY. PASTE IN CELL A1.

Quantify Compound Summary Report

Printed Tue Jun 13 11:06:43 2017

Compound 19: 13C4-PFOS

	#	Name	Type	Std. Con	RT	Area	IS Area	Respons	Primary	Conc.	%Dev	Acq.Date	Acq.Time	Cal.Date	%Rec	RRF	Divisor1	
1	1	170609L1_04_P1_E	Standard	28.7	5.2	10758	10758	28.7	bb	28.7	0	9-Jun-17	15:23:04	13-Jun-17	100	1	1	
2	2	170609L1_05_P1_E	Standard	28.7	5.18	11640	11640	28.7	bb	28.7	0	9-Jun-17	15:35:19	13-Jun-17	100	1	1	
3	3	170609L1_06_P1_E	Standard	28.7	5.19	10733	10733	28.7	bb	28.7	0	9-Jun-17	15:47:34	13-Jun-17	100	1	1	
4	4	170609L1_07_P1_E	Standard	28.7	5.15	10440	10440	28.7	bb	28.7	0	9-Jun-17	15:59:49	13-Jun-17	100	1	1	
5	5	170609L1_08_P1_E	Standard	28.7	5.18	11280	11280	28.7	bb	28.7	0	9-Jun-17	16:12:03	13-Jun-17	100	1	1	

Compound 19: 13C4-PFOS

RPD

HIGH AREA	11640
LOW AREA	10440
RPD %	10.9

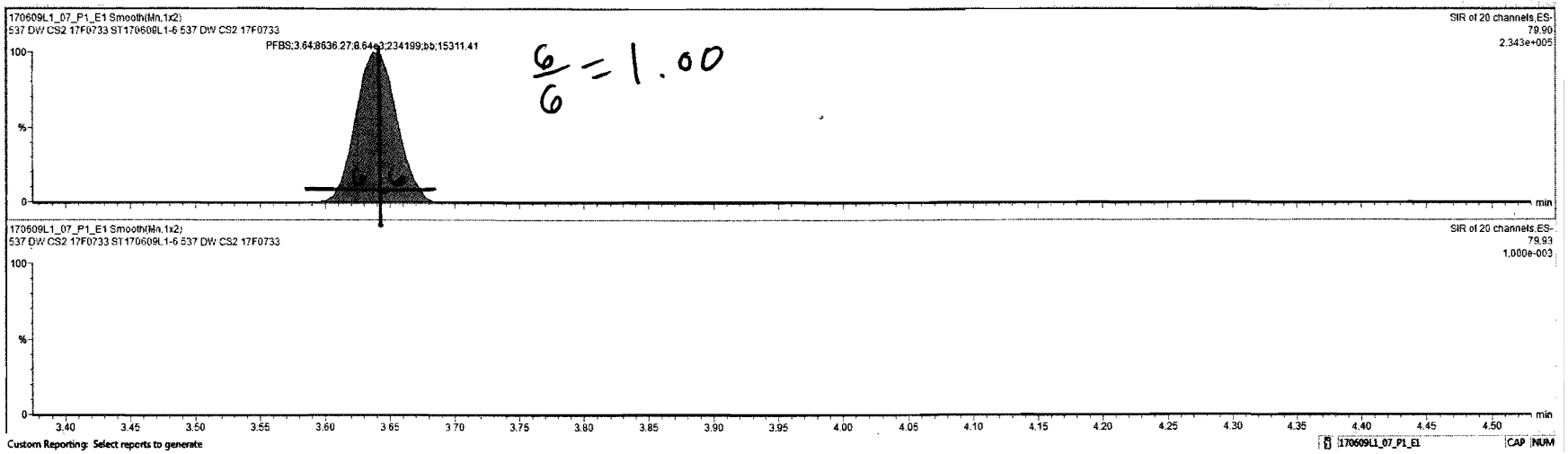
INSTRUCTIONS: IN TARGETLYNX, VERIFY YOU ARE USING THE LIST14 DW LAYOUT. RIGHT CLICK ON THE SUMMARY BOX AND SELECT "LIST BY COMPOUND". SELECT 13C2-PFOA, 13C4-PFOS OR D3-NMEFOSAA. CLICK ON EDIT. SELECT COPY CURRENT SUMMARY. PASTE IN CELL A1.

TargetLynx - 170609L1-CRV.qld - [Chromatogram]

File Edit View Display Processing Window Help

170609L1_07_P1_E1 - ST170609L1-6 537 DW CS2 17F0733 - 537 DW CS2 17F0733

	Name	Conc.	DL	%Rec.	EMPC	Abs.Resp.	RRF	RT	#	IS#	RA	Y/N	RRT	Acq.Date	Acq.Time	1st Chr.Noise	ID	Sample Text	Factor1	SVR	Cal.File	>MDL
1	PFBS	12.77e+00	0.00161	98.3		8.636e3		3.64	1	19			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
2	PFHxA	15.001664	0.00481	100.0		1.389e4		3.97	2	19			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
3	PFHpA	14.299958	0.00422	95.3		1.689e4		4.43	3	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
4	PFHxS	13.561641	0.00350	99.1		7.277e3		4.53	4	19			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
5	PFOA	14.378582	0.00658	95.9		2.051e4		4.79	5	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
6	PFNA	17.381998	0.00396	115.9		2.050e4		5.10	6	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
7	PFOS	12.814963	0.0604	92.2		6.679e3		5.16	7	19			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
8	PFDA	14.893820	0.00660	99.3		1.105e4		5.37	8	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
9	N-MeFOSAA	17.202673	0.00735	114.7		5.777e3		5.49	9	20			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
10	N-EtFOSAA								10	20				09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	NO
11	PFUnA	16.205608	0.00111	108.0		1.308e4		5.61	11	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
12	PFDoA	14.313191	0.00342	95.4		1.483e4		5.82	12	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	NO
13	PFTrDA								13	18				09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	NO
14	PFTeDA	32.106671	4.82	214.0		1.395e1		6.13	14	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
15	13C2-PFHxA	9.7707213	0.00155	97.7		8.352e3	0.706	3.97	15	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
16	13C2-PFDA	9.3992773	0.00557	94.0		8.280e3	0.727	5.37	16	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
17	d5-N-EtFOSAA	41.616824	0.00362	104.5		1.096e4	0.811	5.60	17	20			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
18	13C2-PFOA	10.000000	0.00236	100.0		1.211e4	1.000	4.79	18	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	NO
19	13C4-PFOS	28.700000	0.00125	100.0		1.044e4	1.000	5.15	19	19			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	NO
20	d3-N-MeFOSAA	40.000000	0.00435	100.0		1.293e4	1.000	5.48	20	20			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES

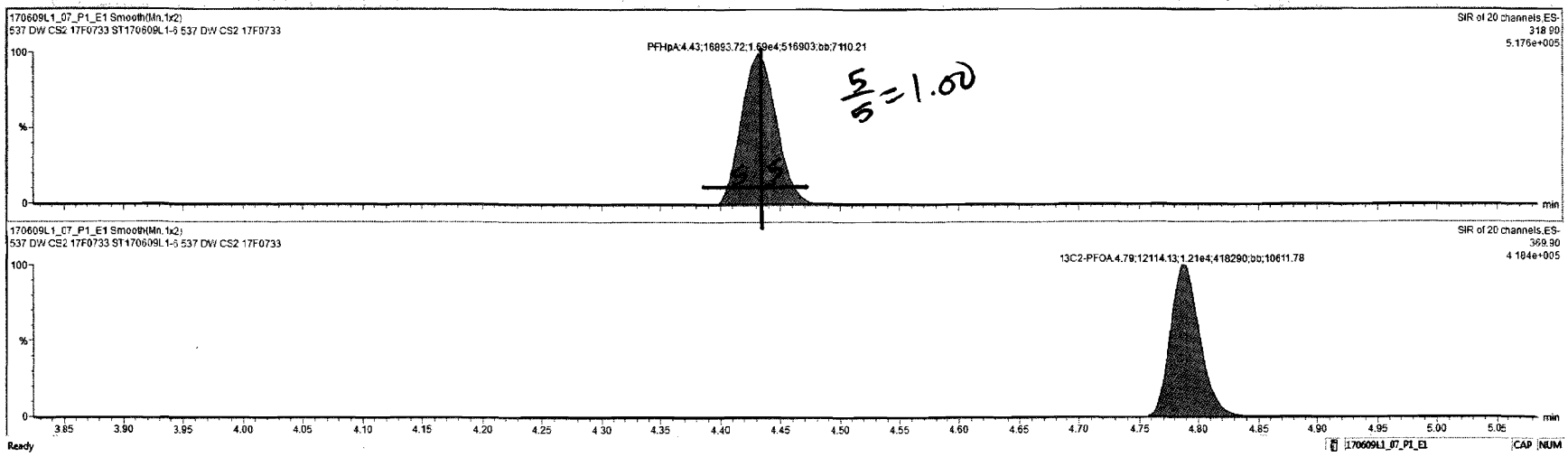


TargetLynx - 170609L1-CRV.qld - [Chromatogram]

File Edit View Display Processing Window Help

170609L1_07_P1_E1 - ST170609L1-6 537 DW CS2 17F0733 - 537 DW CS2 17F0733

	Name	Conc.	DL	%Rec.	EMPC	Abs.Resp	RNF	RT	#	IS#	RA	Y/N	RRT	Acq.Date	Acq.Time	1st Chr.Noise	ID	Sample Text	Factor	SWI	Cal.File	MDL
1	PFBS	12.775170	0.00161	96.3		8.636e3		3.64	1	19			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
2	PFHxA	15.001664	0.00481	100.0		1.389e4		3.97	2	19			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
3	PFHpA	14.999650	0.00422	99.9		1.689e4		4.43	3	19			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
4	PFHxS	13.561641	0.00350	99.1		7.277e3		4.53	4	19			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
5	PFOA	14.378582	0.00658	95.9		2.051e4		4.79	5	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
6	PFNA	17.381998	0.00396	115.9		2.050e4		5.10	6	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
7	PFOS	12.814963	0.0604	92.2		6.679e3		5.16	7	19			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
8	PFDA	14.893820	0.00660	99.3		1.105e4		5.37	8	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
9	N-MeFOSAA	17.202673	0.00735	114.7		5.777e3		5.49	9	20			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
10	N-EtFOSAA								10	20				09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	NO
11	PFUnA	16.205608	0.00111	108.0		1.308e4		5.61	11	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
12	PFDoA	14.313191	0.00342	95.4		1.483e4		5.82	12	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	NO
13	PFTrDA								13	18				09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	NO
14	PFTeDA	32.106671	4.82	214.0		1.395e1		6.13	14	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
15	13C2-PFHxA	9.7707213	0.00155	97.7		8.352e3	0.706	3.97	15	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
16	13C2-PFDA	9.3992773	0.00557	94.0		8.280e3	0.727	5.37	16	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
17	d5-N-EtFOSAA	41.816824	0.00362	104.5		1.096e4	0.811	5.60	17	20			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES
18	13C2-PFOA	10.000000	0.00236	100.0		1.211e4	1.000	4.79	18	18			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	NO
19	13C4-PFOS	28.700000	0.00125	100.0		1.044e4	1.000	5.15	19	19			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	NO
20	d3-N-MeFOSAA	40.000000	0.00435	100.0		1.293e4	1.000	5.48	20	20			0.000	09-Jun-17	15:59:49		ST170609L...	537 DW CS2 17...	1.0	1.00	C18_5...	YES



Quantify Sample Summary Report **MassLynx 4.1 SCN815**
Vista Analytical Laboratory Q1

Continuing Calibration

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-22.qld

Last Altered: Tuesday, June 13, 2017 11:31:37 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:33:02 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 14_537_DW.mdb 08 Jun 2017 11:44:34
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q3_6-9-17_L6.cdb 13 Jun 2017 10:53:57

Name: 170609L1_22.wiff, Date: 09-Jun-2017, Time: 19:03:35, ID: ST170609L1-10 537 DW CS2 17F0733, Description: 537 DW CS2 17F0733

	#	Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc.	%Rec
1	1	PFBS	79.90	8.67e3	1.15e4		1.000	3.58	11.6	87.2
2	3	PFHpA	318.90	1.79e4	1.49e4		1.000	4.39	12.2	81.5
3	4	PFHxS	79.91	7.65e3	1.15e4		1.000	4.50	12.9	94.1
4	5	PFOA	368.90	2.35e4	1.49e4		1.000	4.76	13.4	89.2
5	6	PFNA	419.00	2.12e4	1.49e4		1.000	5.08	14.5	96.7
6	7	PFOS	79.92	7.95e3	1.15e4		1.000	5.13	13.9	100.0
7	15	13C2-PFHxA	269.90	9.41e3	1.49e4	0.706	1.000	3.91	8.95	89.5
8	16	13C2-PFDA	470.00	9.99e3	1.49e4	0.727	1.000	5.34	9.22	92.2
9	18	13C2-PFOA	369.90	1.49e4	1.49e4	1.000	1.000	4.76	10.0	100.0
10	19	13C4-PFOS	79.93	1.15e4	1.15e4	1.000	1.000	5.13	28.7	100.0

70-130

AC 6/13/17 CT 6/13/17

	Sample Name	Acquisition Date	Sample ID	Sample Comment
1	170609L1_01	6/9/2017 14:45:57	IPA	IPA
2	170609L1_02	6/9/2017 14:58:34	ST170609L1-1 537 DW CS(-3) 17F0	537 DW CS(-3) 17F0726
3	170609L1_03	6/9/2017 15:10:51	ST170609L1-2 537 DW CS(-2) 17F0	537 DW CS(-2) 17F0729
4	170609L1_04	6/9/2017 15:23:04	ST170609L1-3 537 DW CS(-1) 17F0	537 DW CS(-1) 17F0730
5	170609L1_05	6/9/2017 15:35:19	ST170609L1-4 537 DW CS0 17F073	537 DW CS0 17F0731
6	170609L1_06	6/9/2017 15:47:34	ST170609L1-5 537 DW CS1 17F073	537 DW CS1 17F0732
7	170609L1_07	6/9/2017 15:59:49	ST170609L1-6 537 DW CS2 17F073	537 DW CS2 17F0733
8	170609L1_09	6/9/2017 16:24:17	ST170609L1-8 537 DW CS4 17F073	537 DW CS4 17F0734
9	170609L1_08	6/9/2017 16:12:03	ST170609L1-7 537 DW CS3 17F060	537 DW CS3 17F0605
10	170609L1_10	6/9/2017 16:36:32	ST170609L1-9 537 DW CS5 17F073	537 DW CS5 17F0735
11	170609L1_11	6/9/2017 16:48:45	IPA	IPA
12	170609L1_12	6/9/2017 17:01:02	SS170609L1-1 537 DW SSS 17F07	537 DW SSS 17F0736
13	170609L1_13	6/9/2017 17:13:17	BB7F0032-BS1	LFB
14	170609L1_14	6/9/2017 17:25:35	IPA	IPA
15	170609L1_15	6/9/2017 17:37:48	B7F0032-BLK1	LRB
16	170609L1_16	6/9/2017 17:50:05	1700697-01	FRB-04-20170606
17	170609L1_17	6/9/2017 18:02:18	1700697-02	RW04-20170606
18	170609L1_18	6/9/2017 18:14:33	B7F0032-MS1	LFSM
19	170609L1_19	6/9/2017 18:26:49	B7F0032-MSD1	LFSMD
20	170609L1_20	6/9/2017 18:39:05	1700697-03	DUP03-20170606
21	170609L1_21	6/9/2017 18:51:20	IPA	IPA
22	170609L1_22	6/9/2017 19:03:35	ST170609L1-10 537 DW CS2 17F07	537 DW CS2 17F0733
23	170609L1_23	6/9/2017 19:15:48	IPA	IPA

Trenton
SDG 1700697

Sample Identification	RW04-20170606		
Compound	PERFLUOROOCTANE SULFONIC ACID (PFOS)		
Sample volume (L)		0.27227	pg 25
Internal standard concentration		12.5	(50ul = 1.25 ng/L=amount added 12.5 ng) pg 25
Concentration using quadratic/calibration curve			pg 62
	Area*(IS concentration/IS area)	1.396628	
	1143*(12.5/10230)		
Curve		2.10431	
	-0.00646712*1.396628^2+1.51574*1.396628		
PFOS result		7.728762	

1700697-02 Calculation for PFOS

Inputs provided to the software to calculate the concentration:

A. Sample Amount in (L), found on page 25 of this data package. It can be verified that the correct weight was input by checking page 37.

B. Spike Concentration

a. To find the spike concentration, reference the standard ID and amount added on the bench sheet (page 25).

b. For PFOS, 50µL was added of 17D1704, which is a concentration of 1.25ng/L, giving an amount added of 12.5ng. It can be verified that the correct amount was input into the software by checking page 50.

C. The quadratic regression for PFOS is included on pg. 62 of the data package. The response can also be calculated by inputting the concentration in to the calibration curve.

PREPARATION BENCH SHEET

Matrix: Drinking Water

Method: 537 PFAS DW DoD Unmodifie

B7F0032

Chemist: BP

Prep Date/Time: 08-Jun-17 08:29

Prepared using: LCMS - SPE Extraction-LCMS

C	VISTA Sample ID	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	~~IS~~/NS CHEM/WIT DATE	SPE C7F0051	RS CHEM/WIT DATE
☐	B7F0032-BLK1 (A)	NA	NA	(1.250) ✓	BP HC 6.8.17	HC 6.8.17	BP HC 6.9.17
☐	B7F0032-BS1 (A)	↓	↓	↓ ✓			
☐	B7F0032-MS1 1700697-02	295.93	27.42 HB 6/9	~~0.25~~ 0.26851 ✓			
☐	B7F0032-MSD1 1700697-02	289.50	27.46	0.26204			
☐	1700697-01 HB 6/8/17	~~298.55~~ 284.77	27.38	0.25739 ✓			
☐	1700697-02 HB 6/8/17	~~321.16~~ 299.80	27.53	0.27227 ✓			
☐	1700697-03	292.13	27.58	~~27.~~ 0.26455 ✓			

HB 6/9/17

IS Name: 170/704, 50 uL (VI)

NS Name: 17E1025, 10 uL

RS Name: 17D/708 ~~50~~ 6 uL (VII) (B) DM 6/13/17 (DM 6/13/17)

SPE Chem: Strata X 33 µm 500mg 6mL

Ele SOLV: MeOH

Final Volume(s): 1 mL

Check Out: Chemist/Date: HB 6/8/17

Check In: Chemist/Date: NA

Balance ID: HRMS-8

Comments: Assume 1 g = 1 mL (A) 0.625 grams Trizma added. HB 6/8/17

(B) Incorrect vial ID written. DM 6/13/17

Vista Analytical Laboratory

Dataset: U:\Q2.PRO\Results\170609L1\170609L1-CRV.qld

Last Altered: Tuesday, June 13, 2017 10:53:57 Pacific Daylight Time
Printed: Tuesday, June 13, 2017 11:02:01 Pacific Daylight Time

Compound name: PFNA
Coefficient of Determination: R^2 = 0.988257
Calibration curve: -0.00283959 * x^2 + 1.023 * x
Response type: Internal Std (Ref 18), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	2.00	5.15	2.67e3	1.20e4	2.18	8.9	1.11
2	2	170609L1_05_P1_...	5.00	5.13	6.96e3	1.21e4	5.71	14.2	1.15
3	3	170609L1_06_P1_...	10.0	5.14	1.09e4	1.23e4	8.87	-11.3	0.885
4	4	170609L1_07_P1_...	15.0	5.10	2.05e4	1.21e4	17.4	15.9	1.13
5	5	170609L1_08_P1_...	20.0	5.13	2.29e4	1.27e4	18.5	-7.5	0.898
6	6	170609L1_09_P1_...	25.0	5.13	2.69e4	1.20e4	23.5	-6.0	0.899
7	7	170609L1_10_P1_...	50.0	5.11	5.18e4	1.16e4	50.9	1.9	0.895

Compound name: PFOS
Coefficient of Determination: R^2 = 0.982947
Calibration curve: -0.00646712 * x^2 + 1.51574 * x
Response type: Internal Std (Ref 19), Area * (IS Conc. / IS Area)
Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None

	#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1	170609L1_04_P1_...	1.85	5.20	9.98e2	1.08e4	1.77	-4.4	1.44
2	2	170609L1_05_P1_...	4.62	5.18	2.35e3	1.16e4	3.88	-16.0	1.25
3	3	170609L1_06_P1_...	9.24	5.19	4.56e3	1.07e4	8.33	-9.8	1.32
4	4	170609L1_07_P1_...	13.9	5.16	6.68e3	1.04e4	12.8	-7.8	1.32
5	5	170609L1_08_P1_...	18.5	5.18	1.03e4	1.13e4	18.8	1.7	1.42
6	6	170609L1_09_P1_...	23.1	5.19	1.13e4	8.68e3	28.0	21.1	1.62
7	7	170609L1_10_P1_...	46.2	5.16	2.10e4	1.12e4	43.8	-5.2	1.17

C:\ALL_PROJECTS\112G08005\WE08\FIGURE 10-2 CSM AND FLOW.MXD MKB 12/22/2016

INSET
SCALE 1" = 600'

NAWC
TRENTON

MW-48BR

1

2

3

Altura

634

N

611

Scotch Rd

Merrill Lynch Dr

Diverty R

Sheffield Ln

Reed Rd

Ewing Creek Tributary

Capital Way

Capital Health Medical Center

Reading

95

Ewing Creek

Charles Ewing Blvd

Timberlake Dr

200 ft

Mountain View Golf Course

228 ft

Mansfield Rd

Star Dr

Bedford Dr

Westwood Dr

579

Bear Tavern Rd

237 ft

Sam Weinroth Rd

S Olessna Ave

197 ft

Trenton Mercer Airport

601

Terminal Circle Dr

Willis Dr

Scenic Dr

Schwarzkopf Dr

Sunset Ave

Howell Ave

Decou Ave

Parkway Ave

Graphics Dr

Municipal Dr

Upper Ferry Rd

636

Rambling Creek Park

Kyle Way

Ewing

Carlton Ave

Main Blvd

Shelton Ave

Albans Ave

Acton Ave

Chelmsford Dr

Dixmont Ave

Conway Ave

Dixfield Ave

Brandon Ave

Lanning

Fireside Stratford Ave

Rutledge Ave

Dunmore Ave

Walton Ave

Farrell Ave

Glen Manor Dr

Fernwood

Parkw

Villa

Lower Ferry Rd

Phillips Blvd

Van Saun Dr

Currier Way

Bywood Ln

Rockleigh Dr

Corey Dr

Hickory Hill Dr

Bayberry Rd

Van Duyn Dr

West Branch Shabakunk Creek Tributary

Scudders Falls

W Upper Ferry Rd

Diane Dr

175

Wilburtha

Wilburtha Rd

Blackwood Dr

Riverview Dr

Country Ln

Delaware River Tributary

River Rd

Jacob Ct

Brown St

State Police Dr

E State Police Dr

Lafayette Ave

Summit Ave

Washington Ave

Trenton Ave

New Ave

Railroad Ave

Grand Ave

Walker Ave

Gold Run Tributary

Yorkshire Cir

Silvia St

Wynnewood Rd

Franklyn Rd

Gilmore Rd

Downing Rd

Clarke Rd

Ferry Road Manor

643

Esther Ave

Palmer Ln

133 ft

Lincoln Dr

Drake Cir

E Drake Dr

Sullivan Way

Gold Run

Trenton Country Club

McGray Dr

Paton Ln

Abernethy Dr

Morningside Dr

Santhican Dr

Delaware River

NAWC
TRENTON

SEE INSET

PRIVATE WELL LOCATIONS

PRIVATE WELL LOCATIONS

0 750 1,500 3,000
Feet

LEGEND
- (2) IR SITE LOCATION
- GROUNDWATER TREATMENT PLANT
- SHALLOW GROUNDWATER FLOW DIRECTION
- DEEP GROUNDWATER FLOW DIRECTION
- ONE MILE RADIUS

TETRA TECH

CONCEPTUAL SITE MODEL AND GROUNDWATER FLOW DIRECTIONS FORMER NAVAL AIR WARFARE CENTER TRENTON, NEW JERSEY

FILE	SCALE
FIGURE 10-2 CSM AND FLOW	PER SCALE BAR
FIGURE NUMBER **FIGURE 10-2**	REV 0 / DATE 12/22/16