



**Off-base Drinking Water Sample Results,
Level 2 Laboratory Report, Level 4 Laboratory Report,
Electronic Data Deliverable, Data Validation Report,
and the Sample Location Figure, SDG 1700923**

*Former Naval Arctic Research Laboratory
Utqiagvik (Barrow), Alaska*

February 2019



July 29, 2017

Vista Work Order No. 1700923

Ms. Tiffany Hill
CH2M Hill
1100 NE Circle Blvd. Suite 300
Corvallis, OR 97330

Dear Ms. Hill,

Enclosed are the amended results for the sample set received at Vista Analytical Laboratory on July 24, 2017. This sample set was analyzed on a rush turn-around time, under your Project Name 'CTO-08'.

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,

A handwritten signature in black ink that reads 'Martha Maier'.

Martha Maier
Laboratory Director



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

Vista Work Order No. 1700923
Case Narrative

Sample Condition on Receipt:

Eleven 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. This report was amended to modify sample IDs as directed in the memo of July 28, 2017, included in the Receipt Documentation section of this report. Please note that the original IDs as noted on the COC, are listed on all raw data.

Sample ID on Login/CoC	Correct Sample ID	Date Collected	Time Collected	SDG/Lab ID
NARLB-SW02-0717	NARLB-FB02-0717	7/18/17	13:05	1700923-04
NARLB-FB02-0717	NARLB-SW02-0717	7/18/17	13:05	1700923-05

Analytical Notes:

EPA Method 537

The drinking water samples were extracted and analyzed for PFBS, PFOA and PFOS 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 "NARLB-SW02-0717".

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Sample Inventory Report

Vista Sample ID	Client Sample ID		Sampled	Received	Components/Containers
1700923-01	NARLB-SW01-0717		18-Jul-17 12:45	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-02	NARLB-FB01-0717		18-Jul-17 12:45	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-03	NARLB-SW01P-0717		18-Jul-17 12:50	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-04	NARLB-FB02-0717		18-Jul-17 13:05	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-05	NARLB-SW02-0717	MS/MSD MS/MSD MS/MSD MS/MSD MS/MSD MS/MSD	18-Jul-17 13:05	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL HDPE Bottle, 250 mL HDPE Bottle, 250 mL HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-06	NARLB-SW03-0717		18-Jul-17 13:25	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-07	NARLB-FB03-0717		18-Jul-17 13:25	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-08	NARLB-SW04-0717		18-Jul-17 13:35	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-09	NARLB-FB04-0717		18-Jul-17 13:35	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-10	NARLB-SW05-0717		18-Jul-17 13:45	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-11	NARLB-FB05-0717		18-Jul-17 13:45	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: LRB						EPA Method 537				
Matrix: Drinking Water Sample Size: 0.250 L		QC Batch: B7G0113 Date Extracted: 25-Jul-2017 7:42				Lab Sample: B7G0113-BLK1 Date Analyzed: 26-Jul-17 20:08 Column: Kinetex C18				
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	0.443	5.00	10.0		SUR	13C2-PFHxA	103	70 - 130	
PFOA	ND	1.08	5.00	10.0		SUR	13C2-PFDA	103	70 - 130	
PFOS	ND	1.04	5.00	10.0						

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 Sample Size: 0.250 L		QC Batch: B7G0113 Date Extracted: 25-Jul-2017 7:42			Lab Sample: B7G0113-BS1 Date Analyzed: 26-Jul-17 19:44 Column: Kinetex C18			
Analyte	Amt Found (ng/L)	Spike Amt	%R	Limits	Labeled Standard		%R	LCL-UCL
PFBS	69.8	70.8	98.6	70 - 130	SUR	13C2-PFHxA	98.2	70 - 130
PFOA	71.6	80.0	89.5	70 - 130	SUR	13C2-PFDA	93.2	70 - 130
PFOS	68.8	74.0	93.0	70 - 130				

LCL-UCL - Lower control limit - upper control limit

Sample ID: NARLB-SW01-0717						EPA Method 537				
Client Data Name: CH2M Hill Project: CTO-08 Date Collected: 18-Jul-2017 12:45 Location:			Sample Data Matrix: Drinking Water Sample Size: 0.251 L			Laboratory Data Lab Sample: 1700923-01 Date Received: 24-Jul-2017 9:59 QC Batch: B7G0113 Date Extracted: 25-Jul-2017 7:42 Date Analyzed: 26-Jul-17 20:20 Column: Kinetex C18				
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	3.08	0.441	4.97	9.95	J	SUR 13C2-PFHxA		104	70 - 130	
PFOA	82.6	1.07	4.97	9.95		SUR 13C2-PFDA		96.0	70 - 130	
PFOS	117	1.03	4.97	9.95						

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: NARLB-FB01-0717							EPA Method 537			
Client Data			Sample Data			Laboratory Data				
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700923-02	Date Received:	24-Jul-2017 9:59	
Project:	CTO-08		Sample Size:	0.254 L		QC Batch:	B7G0113	Date Extracted:	25-Jul-2017 7:42	
Date Collected:	18-Jul-2017 12:45					Date Analyzed:	26-Jul-17 20:33 Column: Kinetex C18			
Location:										
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	0.437	4.93	9.86		SUR 13C2-PFHxA		91.4	70 - 130	
PFOA	ND	1.06	4.93	9.86		SUR 13C2-PFDA		97.8	70 - 130	
PFOS	ND	1.03	4.93	9.86						

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: NARLB-SW01P-0717							EPA Method 537			
Client Data			Sample Data			Laboratory Data				
Name: CH2M Hill			Matrix: Drinking Water			Lab Sample: 1700923-03		Date Received: 24-Jul-2017 9:59		
Project: CTO-08			Sample Size: 0.243 L			QC Batch: B7G0113		Date Extracted: 25-Jul-2017 7:42		
Date Collected: 18-Jul-2017 12:50						Date Analyzed: 26-Jul-17 20:45 Column: Kinetex C18				
Location:										
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	2.94	0.456	5.14	10.3	J	SUR 13C2-PFHxA		99.4	70 - 130	
PFOA	81.9	1.11	5.14	10.3		SUR 13C2-PFDA		99.8	70 - 130	
PFOS	119	1.07	5.14	10.3						

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: NARLB-FB02-0717						EPA Method 537				
Client Data Name: CH2M Hill Project: CTO-08 Date Collected: 18-Jul-2017 13:05 Location:			Sample Data Matrix: Drinking Water Sample Size: 0.240 L		Laboratory Data Lab Sample: 1700923-04 Date Received: 24-Jul-2017 9:59 QC Batch: B7G0113 Date Extracted: 25-Jul-2017 7:42 Date Analyzed: 26-Jul-17 20:57 Column: Kinetex C18					
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	0.462	5.21	10.4		SUR	13C2-PFHxA	103	70 - 130	
PFOA	ND	1.13	5.21	10.4		SUR	13C2-PFDA	114	70 - 130	
PFOS	ND	1.08	5.21	10.4						

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: NARLB-SW02-0717							EPA Method 537				
Client Data			Sample Data			Laboratory Data					
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700923-05		Date Received:	24-Jul-2017 9:59	
Project:	CTO-08		Sample Size:	0.259 L		QC Batch:	B7G0113		Date Extracted:	25-Jul-2017 7:42	
Date Collected:	18-Jul-2017 13:05					Date Analyzed:	26-Jul-17 21:34		Column: Kinetex C18		
Location:											
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers	
PFBS	2.77	0.427	4.82	9.64	J	SUR	13C2-PFHxA	96.8	70 - 130		
PFOA	67.5	1.04	4.82	9.64		SUR	13C2-PFDA	97.8	70 - 130		
PFOS	76.1	1.00	4.82	9.64							

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.

Matrix Spike Results

EPA Method 537

Source Client ID: NARLB-SW02-0717				QC Batch: B7G0113						Lab Sample: B7G0113-MS1/B7G0113-MSD1				
Source LabNumber: 1700923-05				Date Extracted: 25-Jul-2017 7:42						Date Analyzed: 26-Jul-17 21:09 Column: Kinetex C18				
Matrix: Drinking Water										26-Jul-17 21:22 Column: Kinetex C18				
Sample Size: 0.248/0.244 L														
Analyte	Spike-MS (ng/L)	MS %R	MS Qual.	Spike-MSD (ng/L)	MSD %R	RPD	MSD Qual.	%R Limit	%RPD Limit	Labeled Standard	MS %R	MS Qualifiers	MSD %R	MS Qual.
PFBS	71.4	99.9		72.6	93.7	6.40		70 - 130	30	SUR 13C2-PFHxA	101		98.9	
PFOA	80.7	122		82.1	121	0.823		70 - 130	30	SUR 13C2-PFDA	124		92.3	
PFOS	74.7	122		75.9	102	17.9		70 - 130	30					

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: NARLB-SW03-0717							EPA Method 537			
Client Data			Sample Data			Laboratory Data				
Name: CH2M Hill			Matrix: Drinking Water			Lab Sample: 1700923-06		Date Received: 24-Jul-2017 9:59		
Project: CTO-08			Sample Size: 0.247 L			QC Batch: B7G0113		Date Extracted: 25-Jul-2017 7:42		
Date Collected: 18-Jul-2017 13:25						Date Analyzed: 26-Jul-17 21:46 Column: Kinetex C18				
Location:										
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	2.94	0.449	5.07	10.1	J	SUR 13C2-PFHxA		97.1	70 - 130	
PFOA	86.3	1.09	5.07	10.1		SUR 13C2-PFDA		99.7	70 - 130	
PFOS	176	1.05	5.07	10.1						

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: NARLB-FB03-0717						EPA Method 537					
Client Data			Sample Data			Laboratory Data					
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700923-07		Date Received:	24-Jul-2017 9:59	
Project:	CTO-0o		Sample Size:	0.255 L		QC Batch:	B7G0113		Date Extracted:	25-Jul-2017 7:42	
Date Collected:	1o-Jul-2017 13:25					Date Analyzed:	26-Jul-17 21:5o		Column:	8 inetex C1o	
Location:	LKcatiKn:										
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers	
PFBS	ND	0.434	4.90	9.01		SUR 13C2-PFHxA		109	70 - 130		
PFOA	ND	1.06	4.90	9.01		SUR 13C2-PFDA		110	70 - 130		
PFOS	ND	1.02	4.90	9.01							

DL - Detection limit
 RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit
 Results reported to KDL.
 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: NARLB-SW04-0717							EPA Method 537				
Client Data			Sample Data			Laboratory Data					
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700923-08		Date Received:	24-Jul-2017 9:59	
Project:	CTO-08		Sample Size:	0.244 L		QC Batch:	B7G0113		Date Extracted:	25-Jul-2017 7:42	
Date Collected:	18-Jul-2017 13:35					Date Analyzed:	26-Jul-17 22:10		Column: Kinetex C18		
Location:											
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers	
PFBS	3.10	0.455	5.13	10.3	J	SUR	13C2-PFHxA	105	70 - 130		
PFOA	79.0	1.11	5.13	10.3		SUR	13C2-PFDA	109	70 - 130		
PFOS	94.7	1.07	5.13	10.3							

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: NARLB-FB04-0717							EPA Method 537				
Client Data			Sample Data			Laboratory Data					
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700923-09		Date Received:	24-Jul-2017 9:59	
Project:	CTO-08		Sample Size:	0.258 L		QC Batch:	B7G0113		Date Extracted:	25-Jul-2017 7:42	
Date Collected:	18-Jul-2017 13:35					Date Analyzed:	26-Jul-17 22:23		Column:	Kinetex C18	
Location:											
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers	
PFBS	ND	0.430	4.85	9.70		SUR	13C2-PFHxA	102	70 - 130		
PFOA	ND	1.05	4.85	9.70		SUR	13C2-PFDA	101	70 - 130		
PFOS	ND	1.01	4.85	9.70							

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: NARLB-SW05-0717							EPA Method 537				
Client Data			Sample Data			Laboratory Data					
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700923-10		Date Received:	24-Jul-2017 9:59	
Project:	CTO-08		Sample Size:	0.252 L		QC Batch:	B7G0113		Date Extracted:	25-Jul-2017 7:42	
Date Collected:	18-Jul-2017 13:45					Date Analyzed:	26-Jul-17 22:35		Column: Kinetex C18		
Location:											
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers	
PFBS	2.82	0.439	4.96	9.91	J	SUR 13C2-PFHxA		106	70 - 130		
PFOA	80.2	1.07	4.96	9.91		SUR 13C2-PFDA		110	70 - 130		
PFOS	88.6	1.03	4.96	9.91							

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: NARLB-FB05-0717							EPA Method 537				
Client Data			Sample Data			Laboratory Data					
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700923-11		Date Received:	24-Jul-2017 9:59	
Project:	CTO-08		Sample Size:	0.249 L		QC Batch:	B7G0113		Date Extracted:	25-Jul-2017 7:42	
Date Collected:	18-Jul-2017 13:45					Date Analyzed:	26-Jul-17 22:47		Column: Kinetex C18		
Location:											
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers	
PFBS	ND	0.445	5.02	10.0		SUR	13C2-PFHxA	96.8	70 - 130		
PFOA	ND	1.08	5.02	10.0		SUR	13C2-PFDA	94.0	70 - 130		
PFOS	ND	1.04	5.02	10.0							

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.

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



CHAIN OF CUSTODY

For Laboratory Use Only

Work Order #: 1700923 Temp: -0.4 °C
Storage ID: WR-2 Storage Secured: Yes ☒ No ☐

Project ID: CTO-08 PO#: 938 652 Sampler: MAUGIE RADFORD
(name)

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

Invoice to: Name KATIE TIPPIN Company CH2M Address 5701 CLEVELAND ST, SUITE 200 City VIRGINIA BEACH State VA Ph# 757-671-6258 Fax# 541-764-3109
TIFFANY HILL

Relinquished by (printed name and signature) MAUGIE RADFORD Date 7/19/17 Time 1700 Received by (printed name and signature) Annika Seay Date 7/19/17 Time 1700
Relinquished by (printed name and signature) Annika Seay Date 7/20/17 Time 1430 Received by (printed name and signature) Sydney Roughton Date 7/24/17 Time 1013

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

ATTN: MARTHA MAIER

Method of Shipment:
FED-EX

Tracking No.:
787245507868

Add Analysis(es) Requested

Container(s)

Quantity Type Matrix PFOA/PFOS UCMR3 PFAS List 6 537 List 14 Full List of 26 Other: Please List Below

Mod EPA Method 537

EPA Method 537(DW only)

Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	PFOA/PFOS	UCMR3 PFAS List 6	537 List 14	Full List of 26	Other: Please List Below	PFOA/PFOS	UCMR3 PFAS List 6	537 List 14	Comments
NARLB-SW01-0717	7-18-17	1245		2	P	DW						X			PFOA, PFOA, + PFBS
NARLB-FB01-0717	7-18-17	1245		2		DW						X			
NARLB-SW01P-0717	7-18-17	1250		2		DW						X			
NARLB-SW02-0717	7-18-17	1305		2		DW						X			
NARLB-SW02-0717MS	7-18-17	1305		2		DW						X			
NARLB-SW02-0717MD	7-18-17	1305		2		DW						X			
NARLB-FB02-0717	7-18-17	1305		2		DW						X			
NARLB-SW03-0717	7-18-17	1325		2		DW						X			
NARLB-FB03-0717	7-18-17	1325		2		DW						X			
NARLB-SW04-0717	7-18-17	1335		2		DW						X			

Special Instructions/Comments:

SEND DOCUMENTATION AND RESULTS TO:

Name: TIFFANY HILL
Company: CH2M
Address:
City: CORANUS State: OR Zip:
Phone: 541-764-3109 Fax:
Email: TIFFANY.HILL@CH2M.COM

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

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

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



CHAIN OF CUSTODY

For Laboratory Use Only

Work Order #: 1700923 Temp: -0.4 °C
Storage ID: WR-2 Storage Secured: Yes ☒ No ☐

Project ID: CTD-08 PO#: 938652 Sampler: MAGGIE R. DORFORD
(name)

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

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
KATIE TIPPIN	CH2M	5701 CLEVELAND ST, SUITE 200	VIRGINIA BEACH	VA	757-671-6258	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
MAGGIE RADFORD <i>[Signature]</i>	7/19/17	1700	Annika Seay <i>[Signature]</i>	7.19.17	1700
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Annika Seay <i>[Signature]</i>	7-20-17	1430	Sydney Roughton <i>[Signature]</i>	7/24/17	1013

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

Method of Shipment:

ATTN: MARTHA MAIER

Tracking No.:

787245507868

Add Analysis(es) Requested

Container(s)

[illegible]

Special Instructions/Comments:

SEND
DOCUMENTATION
AND RESULTS TO:

Name: _____
 Company: SEE PAGE 1
 Address: _____
 City: _____ State: _____ Zip: _____
 Phone: _____ Fax: _____
 Email: _____

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

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

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

Sample Log-in Checklist

 Vista Work Order #: 1700923 TAT 7

Samples Arrival:	Date/Time 7/24/17 0959	Initials: SR	Location: WR-2
			Shelf/Rack: N/A
Logged In:	Date/Time 7/24/17 1042	Initials: SR WAB	Location: WR-2
			Shelf/Rack: A4
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
		☐ GSO	☐ DHL
		☐ Hand Delivered	☐ Other
Preservation:	☒ Ice *	☐ Blue Ice	☐ Dry Ice
	☐ None		
Temp °C: 0.0 (uncorrected)	Time: 1006	Thermometer ID: IR-2	
Temp °C: -0.4 (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 # 7872 4550 7868	☒	☐
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 ₂ S ₂ O ₃	☒ Trizma	☐ None
	COC	☒ Yes	☐ No
Shipping Container	☒ Vista	☐ Client	☐ Retain
	☐ Return	☐ Dispose	

Comments: * Some ice melted, some ice solid at receiving
SR 7/24/17

Corrections to COC/Reports

TO: Martha Maier, Vista Analytical

COPIES: File
Laboratory Package SDG: 1700923

FROM: Tiffany Hill
Project Chemist

DATE: July 28, 2017

This memo is to document corrections made to entries on the Chains of Custody (COC) and Logins for NARL Barrow, CTO-0008.

The corrections include changes to the sample IDs on the COC and Login:

Sample ID on Login/CoC	Correct Sample ID	Date Collected	Time Collected	SDG
NARLB-SW02-0717	NARLB-FB02-0717	7/18/17	13:05	1700923
NARLB-FB02-0717	NARLB-SW02-0717	7/18/17	13:05	1700923



July 29, 2017

Vista Work Order No. 1700923

Ms. Tiffany Hill
CH2M Hill
1100 NE Circle Blvd. Suite 300
Corvallis, OR 97330

Dear Ms. Hill,

Enclosed are the amended results for the sample set received at Vista Analytical Laboratory on July 24, 2017. This sample set was analyzed on a rush turn-around time, under your Project Name 'CTO-08'.

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,

A handwritten signature in black ink that reads 'Martha Maier'.

Martha Maier
Laboratory Director



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

Vista Work Order No. 1700923
Case Narrative

Sample Condition on Receipt:

Eleven 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. This report was amended to modify sample IDs as directed in the memo of July 28, 2017, included in the Receipt Documentation section of this report. Please note that the original IDs as noted on the COC, are listed on all raw data.

Sample ID on Login/CoC	Correct Sample ID	Date Collected	Time Collected	SDG/Lab ID
NARLB-SW02-0717	NARLB-FB02-0717	7/18/17	13:05	1700923-04
NARLB-FB02-0717	NARLB-SW02-0717	7/18/17	13:05	1700923-05

Analytical Notes:

EPA Method 537

The drinking water samples were extracted and analyzed for PFBS, PFOA and PFOS 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 "NARLB-SW02-0717".

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Sample Inventory Report

Vista Sample ID	Client Sample ID		Sampled	Received	Components/Containers
1700923-01	NARLB-SW01-0717		18-Jul-17 12:45	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-02	NARLB-FB01-0717		18-Jul-17 12:45	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-03	NARLB-SW01P-0717		18-Jul-17 12:50	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-04	NARLB-FB02-0717		18-Jul-17 13:05	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-05	NARLB-SW02-0717	MS/MSD MS/MSD MS/MSD MS/MSD MS/MSD MS/MSD	18-Jul-17 13:05	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL HDPE Bottle, 250 mL HDPE Bottle, 250 mL HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-06	NARLB-SW03-0717		18-Jul-17 13:25	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-07	NARLB-FB03-0717		18-Jul-17 13:25	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-08	NARLB-SW04-0717		18-Jul-17 13:35	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-09	NARLB-FB04-0717		18-Jul-17 13:35	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-10	NARLB-SW05-0717		18-Jul-17 13:45	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL
1700923-11	NARLB-FB05-0717		18-Jul-17 13:45	24-Jul-17 09:59	HDPE Bottle, 250 mL HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: LRB						EPA Method 537				
Matrix: Drinking Water Sample Size: 0.250 L		QC Batch: B7G0113 Date Extracted: 25-Jul-2017 7:42				Lab Sample: B7G0113-BLK1 Date Analyzed: 26-Jul-17 20:08 Column: Kinetex C18				
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	0.443	5.00	10.0		SUR	13C2-PFHxA	103	70 - 130	
PFOA	ND	1.08	5.00	10.0		SUR	13C2-PFDA	103	70 - 130	
PFOS	ND	1.04	5.00	10.0						

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 Sample Size: 0.250 L		QC Batch: B7G0113 Date Extracted: 25-Jul-2017 7:42			Lab Sample: B7G0113-BS1 Date Analyzed: 26-Jul-17 19:44 Column: Kinetex C18			
Analyte	Amt Found (ng/L)	Spike Amt	%R	Limits	Labeled Standard		%R	LCL-UCL
PFBS	69.8	70.8	98.6	70 - 130	SUR	13C2-PFHxA	98.2	70 - 130
PFOA	71.6	80.0	89.5	70 - 130	SUR	13C2-PFDA	93.2	70 - 130
PFOS	68.8	74.0	93.0	70 - 130				

LCL-UCL - Lower control limit - upper control limit

Sample ID: NARLB-SW01-0717							EPA Method 537				
Client Data			Sample Data			Laboratory Data					
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700923-01		Date Received:	24-Jul-2017 9:59	
Project:	CTO-08		Sample Size:	0.251 L		QC Batch:	B7G0113		Date Extracted:	25-Jul-2017 7:42	
Date Collected:	18-Jul-2017 12:45					Date Analyzed:	26-Jul-17 20:20		Column:	Kinetex C18	
Location:											
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers	
PFBS	3.08	0.441	4.97	9.95	J	SUR	13C2-PFHxA	104	70 - 130		
PFOA	82.6	1.07	4.97	9.95		SUR	13C2-PFDA	96.0	70 - 130		
PFOS	117	1.03	4.97	9.95							

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: NARLB-FB01-0717							EPA Method 537				
Client Data			Sample Data			Laboratory Data					
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700923-02		Date Received:	24-Jul-2017 9:59	
Project:	CTO-08		Sample Size:	0.254 L		QC Batch:	B7G0113		Date Extracted:	25-Jul-2017 7:42	
Date Collected:	18-Jul-2017 12:45					Date Analyzed:	26-Jul-17 20:33		Column: Kinetex C18		
Location:											
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers	
PFBS	ND	0.437	4.93	9.86		SUR 13C2-PFHxA		91.4	70 - 130		
PFOA	ND	1.06	4.93	9.86		SUR 13C2-PFDA		97.8	70 - 130		
PFOS	ND	1.03	4.93	9.86							

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: NARLB-SW01P-0717							EPA Method 537			
Client Data			Sample Data			Laboratory Data				
Name: CH2M Hill			Matrix: Drinking Water			Lab Sample: 1700923-03		Date Received: 24-Jul-2017 9:59		
Project: CTO-08			Sample Size: 0.243 L			QC Batch: B7G0113		Date Extracted: 25-Jul-2017 7:42		
Date Collected: 18-Jul-2017 12:50						Date Analyzed: 26-Jul-17 20:45 Column: Kinetex C18				
Location:										
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	2.94	0.456	5.14	10.3	J	SUR 13C2-PFHxA		99.4	70 - 130	
PFOA	81.9	1.11	5.14	10.3		SUR 13C2-PFDA		99.8	70 - 130	
PFOS	119	1.07	5.14	10.3						

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: NARLB-FB02-0717							EPA Method 537			
Client Data			Sample Data			Laboratory Data				
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700923-04	Date Received:	24-Jul-2017 9:59	
Project:	CTO-08		Sample Size:	0.240 L		QC Batch:	B7G0113	Date Extracted:	25-Jul-2017 7:42	
Date Collected:	18-Jul-2017 13:05					Date Analyzed:	26-Jul-17 20:57	Column:	Kinetex C18	
Location:										
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	0.462	5.21	10.4		SUR	13C2-PFHxA	103	70 - 130	
PFOA	ND	1.13	5.21	10.4		SUR	13C2-PFDA	114	70 - 130	
PFOS	ND	1.08	5.21	10.4						

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: NARLB-SW02-0717							EPA Method 537				
Client Data			Sample Data			Laboratory Data					
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700923-05		Date Received:	24-Jul-2017 9:59	
Project:	CTO-08		Sample Size:	0.259 L		QC Batch:	B7G0113		Date Extracted:	25-Jul-2017 7:42	
Date Collected:	18-Jul-2017 13:05					Date Analyzed:	26-Jul-17 21:34		Column: Kinetex C18		
Location:											
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers	
PFBS	2.77	0.427	4.82	9.64	J	SUR	13C2-PFHxA	96.8	70 - 130		
PFOA	67.5	1.04	4.82	9.64		SUR	13C2-PFDA	97.8	70 - 130		
PFOS	76.1	1.00	4.82	9.64							

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.

Matrix Spike Results										EPA Method 537				
Source Client ID: NARLB-SW02-0717 Source LabNumber: 1700923-05 Matrix: Drinking Water Sample Size: 0.248/0.244 L				QC Batch: B7G0113 Date Extracted: 25-Jul-2017 7:42						Lab Sample: B7G0113-MS1/B7G0113-MSD1 Date Analyzed: 26-Jul-17 21:09 Column: Kinetex C18 26-Jul-17 21:22 Column: Kinetex C18				
Analyte	Spike-MS (ng/L)	MS %R	MS Qual.	Spike-MSD (ng/L)	MSD %R	MSD RPD	MSD Qual.	%R Limit	%RPD Limit	Labeled Standard	MS %R	MS Qualifiers	MSD %R	MS Qual.
PFBS	71.4	99.9		72.6	93.7	6.40		70 - 130	30	SUR 13C2-PFHxA	101		98.9	
PFOA	80.7	122		82.1	121	0.823		70 - 130	30	SUR 13C2-PFDA	124		92.3	
PFOS	74.7	122		75.9	102	17.9		70 - 130	30					

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: NARLB-SW03-0717							EPA Method 537			
Client Data			Sample Data			Laboratory Data				
Name: CH2M Hill			Matrix: Drinking Water			Lab Sample: 1700923-06		Date Received: 24-Jul-2017 9:59		
Project: CTO-08			Sample Size: 0.247 L			QC Batch: B7G0113		Date Extracted: 25-Jul-2017 7:42		
Date Collected: 18-Jul-2017 13:25						Date Analyzed: 26-Jul-17 21:46 Column: Kinetex C18				
Location:										
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	2.94	0.449	5.07	10.1	J	SUR 13C2-PFHxA		97.1	70 - 130	
PFOA	86.3	1.09	5.07	10.1		SUR 13C2-PFDA		99.7	70 - 130	
PFOS	176	1.05	5.07	10.1						

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: NARLB-FB03-0717							EPA Method 537			
Client Data			Sample Data			Laboratory Data				
Name: CH2M Hill			Matrix: Drinking Water			Lab Sample: 1700923-07		Date Received: 24-Jul-2017 9:59		
PrKject: CTO-0o			Sample Size: 0.255 L			QC Batch: B7G0113		Date Extracted: 25-Jul-2017 7:42		
Date CKllected: 1o-Jul-2017 13:25						Date Analyzed: 26-Jul-17 21:5o CKlumn: 8 inetex C1o				
LKcatiKn:										
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	0.434	4.90	9.01		SUR	13C2-PFHxA	109	70 - 130	
PFOA	ND	1.06	4.90	9.01		SUR	13C2-PFDA	110	70 - 130	
PFOS	ND	1.02	4.90	9.01						

DL - Detection limit
 RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit
 Results reported to KDL.
 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: NARLB-SW04-0717							EPA Method 537			
Client Data			Sample Data			Laboratory Data				
Name: CH2M Hill			Matrix: Drinking Water			Lab Sample: 1700923-08		Date Received: 24-Jul-2017 9:59		
Project: CTO-08			Sample Size: 0.244 L			QC Batch: B7G0113		Date Extracted: 25-Jul-2017 7:42		
Date Collected: 18-Jul-2017 13:35						Date Analyzed: 26-Jul-17 22:10 Column: Kinetex C18				
Location:										
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	3.10	0.455	5.13	10.3	J	SUR 13C2-PFHxA		105	70 - 130	
PFOA	79.0	1.11	5.13	10.3		SUR 13C2-PFDA		109	70 - 130	
PFOS	94.7	1.07	5.13	10.3						

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: NARLB-FB04-0717							EPA Method 537				
Client Data			Sample Data			Laboratory Data					
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700923-09		Date Received:	24-Jul-2017 9:59	
Project:	CTO-08		Sample Size:	0.258 L		QC Batch:	B7G0113		Date Extracted:	25-Jul-2017 7:42	
Date Collected:	18-Jul-2017 13:35					Date Analyzed:	26-Jul-17 22:23		Column:	Kinetex C18	
Location:											
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers	
PFBS	ND	0.430	4.85	9.70		SUR	13C2-PFHxA	102	70 - 130		
PFOA	ND	1.05	4.85	9.70		SUR	13C2-PFDA	101	70 - 130		
PFOS	ND	1.01	4.85	9.70							

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: NARLB-SW05-0717							EPA Method 537				
Client Data			Sample Data			Laboratory Data					
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700923-10	Date Received:	24-Jul-2017 9:59		
Project:	CTO-08		Sample Size:	0.252 L		QC Batch:	B7G0113	Date Extracted:	25-Jul-2017 7:42		
Date Collected:	18-Jul-2017 13:45					Date Analyzed:	26-Jul-17 22:35	Column: Kinetex C18			
Location:											
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers	
PFBS	2.82	0.439	4.96	9.91	J	SUR 13C2-PFHxA		106	70 - 130		
PFOA	80.2	1.07	4.96	9.91		SUR 13C2-PFDA		110	70 - 130		
PFOS	88.6	1.03	4.96	9.91							

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: NARLB-FB05-0717							EPA Method 537				
Client Data			Sample Data			Laboratory Data					
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700923-11		Date Received:	24-Jul-2017 9:59	
Project:	CTO-08		Sample Size:	0.249 L		QC Batch:	B7G0113		Date Extracted:	25-Jul-2017 7:42	
Date Collected:	18-Jul-2017 13:45					Date Analyzed:	26-Jul-17 22:47		Column:	Kinetex C18	
Location:											
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers	
PFBS	ND	0.445	5.02	10.0		SUR	13C2-PFHxA	96.8	70 - 130		
PFOA	ND	1.08	5.02	10.0		SUR	13C2-PFDA	94.0	70 - 130		
PFOS	ND	1.04	5.02	10.0							

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.

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



CHAIN OF CUSTODY

For Laboratory Use Only

Work Order #: 1700923 Temp: -0.4 °C
Storage ID: WR-2 Storage Secured: Yes ☒ No ☐

Project ID: CTO-08 PO#: 938 652 Sampler: MAUGIE RADFORD
(name)

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

Invoice to: Name KATIE TIPPIN Company CH2M Address 5701 CLEVELAND ST, SUITE 200 City VIRGINIA BEACH State VA Ph# 757-671-6258 Fax# 541-764-3109
TIFFANY HILL

Relinquished by (printed name and signature) MAUGIE RADFORD Date 7/19/17 Time 1700 Received by (printed name and signature) Annika Seay Date 7/19/17 Time 1700
Relinquished by (printed name and signature) Annika Seay Date 7/20/17 Time 1430 Received by (printed name and signature) Sydney Roughton Date 7/24/17 Time 1013

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

ATTN: MARTHA MAIER

Method of Shipment:
FED-EX

Tracking No.:
787245507868

Add Analysis(es) Requested

Container(s)

Quantity Type Matrix PFOA/PFOS UCMR3 PFAS List 6 537 List 14 Full List of 26 Other: Please List Below

Mod EPA Method 537

EPA Method 537(DW only)

Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	PFOA/PFOS	UCMR3 PFAS List 6	537 List 14	Full List of 26	Other: Please List Below	PFOA/PFOS	UCMR3 PFAS List 6	537 List 14	Comments
NARLB-SW01-0717	7-18-17	1245		2	P	DW						X			PFOA, PFOA, & PFBS
NARLB-FB01-0717	7-18-17	1245		2		DW						X			
NARLB-SW01P-0717	7-18-17	1250		2		DW						X			
NARLB-SW02-0717	7-18-17	1305		2		DW						X			
NARLB-SW02-0717MS	7-18-17	1305		2		DW						X			
NARLB-SW02-0717MD	7-18-17	1305		2		DW						X			
NARLB-FB02-0717	7-18-17	1305		2		DW						X			
NARLB-SW03-0717	7-18-17	1325		2		DW						X			
NARLB-FB03-0717	7-18-17	1325		2		DW						X			
NARLB-SW04-0717	7-18-17	1335		2		DW						X			

Special Instructions/Comments:

SEND
DOCUMENTATION
AND RESULTS TO:

Name: TIFFANY HILL
Company: CH2M
Address:
City: CORANUS State: OR Zip:
Phone: 541-764-3109 Fax:
Email: TIFFANY.HILL@CH2M.COM

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

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

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



CHAIN OF CUSTODY

For Laboratory Use Only

Work Order #: 1700923 Temp: -0.4 °C

Storage ID: WR-2 Storage Secured: Yes ☒ No ☐

Project ID: CTD-08 PO#: 938652 Sampler: MAGGIE R. DORFORD
(name)

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

Invoice to: Name	Company	Address	City	State	Ph#	Fax#
KATIE TIPPIN	CH2M	5701 CLEVELAND ST, SUITE 200	VIRGINIA BEACH	VA	757-671-6258	

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
MAGGIE RADFORD <i>[Signature]</i>	7/19/17	1700	Annika Seay <i>[Signature]</i>	7.19.17	1700
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Annika Seay <i>[Signature]</i>	7.20.17	1430	Sydney Roughton <i>[Signature]</i>	7/24/17	1013

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

Method of Shipment:

ATTN: MARTHA MAIER

Tracking No.:

Tracking No.: 787245507868

Add Analysis(es) Requested

Container(s)

Mod. EPA
Method 537EPA Method
821-D (DW only)[illegible]

Special Instructions/Comments:

SEND
DOCUMENTATION
AND RESULTS TO:

Name: _____
Company: SEE PAGE 1
Address: _____
City: _____ State: _____ Zip: _____
Phone: _____ Fax: _____
Email: _____

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

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

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

Sample Log-in Checklist

 Vista Work Order #: 1700923 TAT 7

Samples Arrival:	Date/Time 7/24/17 0959	Initials: SR	Location: WR-2
			Shelf/Rack: N/A
Logged In:	Date/Time 7/24/17 1042	Initials: SR UAB	Location: WR-2
			Shelf/Rack: A4
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
		☐ GSO	☐ DHL
		☐ Hand Delivered	☐ Other
Preservation:	☒ Ice *	☐ Blue Ice	☐ Dry Ice
	☐ None		
Temp °C: 0.0 (uncorrected)	Time: 1006		Thermometer ID: IR-2
Temp °C: -0.4 (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 # 7872 4550 7868	☒	☐
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 ₂ S ₂ O ₃	☒ Trizma	None
	COC	☒ Yes	No
Shipping Container	☒ Vista	☐ Client	☐ Retain
	☐ Return	☐ Dispose	

Comments: * Some ice melted, some ice solid at receiving
SR 7/24/17

Corrections to COC/Reports

TO: Martha Maier, Vista Analytical

COPIES: File
Laboratory Package SDG: 1700923

FROM: Tiffany Hill
Project Chemist

DATE: July 28, 2017

This memo is to document corrections made to entries on the Chains of Custody (COC) and Logins for NARL Barrow, CTO-0008.

The corrections include changes to the sample IDs on the COC and Login:

Sample ID on Login/CoC	Correct Sample ID	Date Collected	Time Collected	SDG
NARLB-SW02-0717	NARLB-FB02-0717	7/18/17	13:05	1700923
NARLB-FB02-0717	NARLB-SW02-0717	7/18/17	13:05	1700923

EXTRACTION INFORMATION

Process Sheet
Workorder: **1700923**



Prep Expiration: 2017-Aug-01
Client: CH2M Hill

Workorder Due: 31-Jul-17 00:00

TAT: 7

Method: 537 PFAS DW DoD Unmodified
Matrix: Drinking Water

Prep Batch: B7G0113

Prep Data Entered: HB 7/26/17
Date and Initials

Version: PFOA, PFOS, & PFBS

Initial Sequence: _____

LabSampleID	Recon	ClientSampleID	Date Received	Location	Comments
1700923-01	"A" ☒	NARLB-SW01-0717	24-Jul-17 09:59	WR-2 A-4	
1700923-02	"A" ☒	NARLB-FB01-0717	24-Jul-17 09:59	WR-2 A-4	
1700923-03	"A" ☒	NARLB-SW01P-0717	24-Jul-17 09:59	WR-2 A-4	
1700923-04	"A" ☒	NARLB-SW02-0717	24-Jul-17 09:59	WR-2 A-4	MS/MSD
1700923-05	"A" ☒	NARLB-FB02-0717	24-Jul-17 09:59	WR-2 A-4	
1700923-06	"A" ☒	NARLB-SW03-0717	24-Jul-17 09:59	WR-2 A-4	
1700923-07	"A" ☒	NARLB-FB03-0717	24-Jul-17 09:59	WR-2 A-4	
1700923-08	"A" ☒	NARLB-SW04-0717	24-Jul-17 09:59	WR-2 A-4	
1700923-09	"A" ☒	NARLB-FB04-0717	24-Jul-17 09:59	WR-2 A-4	
1700923-10	"A" ☒	NARLB-SW05-0717	24-Jul-17 09:59	WR-2 A-4	
1700923-11	"A" ☒	NARLB-FB05-0717	24-Jul-17 09:59	WR-2 A-4	

Vista PM: Martha Maier

Vial Box ID: Sofisht: cated

Sample Reconciled By: IGBF 7/26/17

Batch: B7G0113

Matrix: Drinking Water

LabNumber	WetWeight (Initial)	% Solids (Extraction Solids)	DryWeight	Final	Extracted	Ext By	Spike	SpikeAmount	ClientMatrix	Analysis
1700923-01	0.25134 ✓	NA	NA	1000	25-Jul-17 07:42	KBF			Drinking Water	537 PFAS DW DoD Unmod
1700923-02	0.25362 ✓			1000	25-Jul-17 07:42	KBF			Drinking Water	537 PFAS DW DoD Unmod
1700923-03	0.24311 ✓			1000	25-Jul-17 07:42	KBF			Drinking Water	537 PFAS DW DoD Unmod
1700923-04	0.23993 ✓			1000	25-Jul-17 07:42	KBF			Drinking Water	537 PFAS DW DoD Unmod
1700923-05	0.25943 ✓			1000	25-Jul-17 07:42	KBF			Drinking Water	537 PFAS DW DoD Unmod
1700923-06	0.24678 ✓			1000	25-Jul-17 07:42	KBF			Drinking Water	537 PFAS DW DoD Unmod
1700923-07	0.25491 ✓			1000	25-Jul-17 07:42	KBF			Drinking Water	537 PFAS DW DoD Unmod
1700923-08	0.24356 ✓			1000	25-Jul-17 07:42	KBF			Drinking Water	537 PFAS DW DoD Unmod
1700923-09	0.25783 ✓			1000	25-Jul-17 07:42	KBF			Drinking Water	537 PFAS DW DoD Unmod
1700923-10	0.25227 ✓			1000	25-Jul-17 07:42	KBF			Drinking Water	537 PFAS DW DoD Unmod
1700923-11	0.24887 ✓			1000	25-Jul-17 07:42	KBF			Drinking Water	537 PFAS DW DoD Unmod
B7G0113-BLK1	0.25 ✓			1000	25-Jul-17 07:42	KBF				QC
B7G0113-BS1	0.25 ✓			1000	25-Jul-17 07:42	KBF	17D1705 ✓	20 ✓		QC
B7G0113-MS1	0.24777 ✓			1000	25-Jul-17 07:42	KBF	17D1705 ✓	20 ✓		QC
B7G0113-MSD1	0.24375 ✓			1000	25-Jul-17 07:42	KBF	17D1705 ✓	20 ✓		QC

HB 7/26/17

PREPARATION BENCH SHEET

Matrix: Drinking Water

Method: 537 PFAS DW DoD Unmodified

B7G0113

Chemist: KBF

Prep Date/Time: 25-Jul-17 07:42

Prepared using: LCMS - SPE Extraction-LCMS

C	VISTA Sample ID	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	SS/NS CHEM/WIT DATE	SPE	IS CHEM/WIT DATE
☐	B7G0113-BLK1 (A)	NA	NA	(0.250) ✓	KBF 7/25/17	KBF 7/25/17	KBF 7-25-17
☐	B7G0113-BS1 (A)	↓	↓	↓ ✓	↓	↓	↓
☐	B7G0113-MS1 1700923-04	274.97	27.20	0.24777 ✓	↓	↓	↓
☐	B7G0113-MSD1 1700923-04	271.93	28.18	0.24375 ✓	↓	↓	↓
☐	1700923-01	278.59	27.25	0.25134 ✓	↓	↓	↓
☐	1700923-02 (B)	275.74	26.12	0.25362 ✓	↓	↓	↓
☐	1700923-03	270.33	27.22	0.24311 ✓	↓	↓	↓
☐	1700923-04	KBF 7/25/17 267.14 267.10	27.17	0.23993 ✓	↓	↓	↓
☐	1700923-05	286.25	26.82	0.25943 ✓	↓	↓	↓
☐	1700923-06	274.18	27.40	0.24678 ✓	↓	↓	↓
☐	1700923-07	282.61	27.70	0.25491 ✓	↓	↓	↓
☐	1700923-08	270.94	27.38	0.24356 ✓	↓	↓	↓
☐	1700923-09	285.73	27.90	0.25783 ✓	↓	↓	↓
☐	1700923-10	278.79	26.52	0.25227 ✓	↓	↓	↓
☐	1700923-11	275.15	26.28	0.24887 ✓	↓	↓	↓

SS Name (V4) 17F1415, 50mL	NS Name (V1) 17D1705, 20mL	IS Name (V4) 17F1416, 50mL	SPE Chem: <u>Stm-X-33um 500mg/6mL</u> Lot#: <u>S: 1-001274</u> Ele SOLV: <u>MeOH</u> Lot#: <u>0.513</u> Final Volume(s) <u>1 mL</u>	Check Out: Chemist/Date: <u>KBF 7/25/17</u> Check In: Chemist/Date: <u>NA</u> Balance ID: <u>HRMS-8</u>
----------------------------------	----------------------------------	----------------------------------	---	---

Comments: Assume 1 g = 1 mL

- (A) Trizma added to QC's KBF 7/25/17
 (B) Cartridge separated during extraction KBF 7/25/17

SAMPLE DATA –EPA METHOD 537

Dataset: U:\Q2.PRO\Results\170726L1\170726L1-16.qld

Last Altered: Thursday, July 27, 2017 11:02:02 Pacific Daylight Time

Printed: Thursday, July 27, 2017 11:02:37 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: B7G0113-BLK1, Description: LRB, Name: 170726L1_16.wiff, Date: 26-Jul-2017, Time: 20:08:35

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	79.90		1.132e4		0.250			
2	4 PFOA	368.90		1.381e4		0.250			
3	6 PFOS	79.92	3.368e0	1.132e4		0.250	5.06	0.0274	
4	7 13C2-PFHxA	269.90	9.411e3	1.381e4	0.663	0.250	3.85	41.1	103
5	8 13C2-PFDA	470.00	9.053e3	1.381e4	0.636	0.250	5.28	41.2	103
6	9 13C2-PFOA	369.90	1.381e4	1.381e4	1.000	0.250	4.70	40.0	100
7	10 13C4-PFOS	79.93	1.132e4	1.132e4	1.000	0.250	5.06	115	100

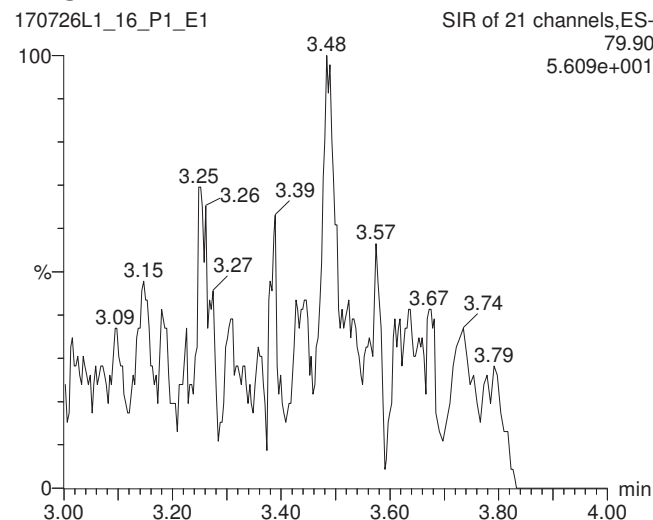
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Last Altered: Thursday, July 27, 2017 11:02:02 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:02:37 Pacific Daylight Time

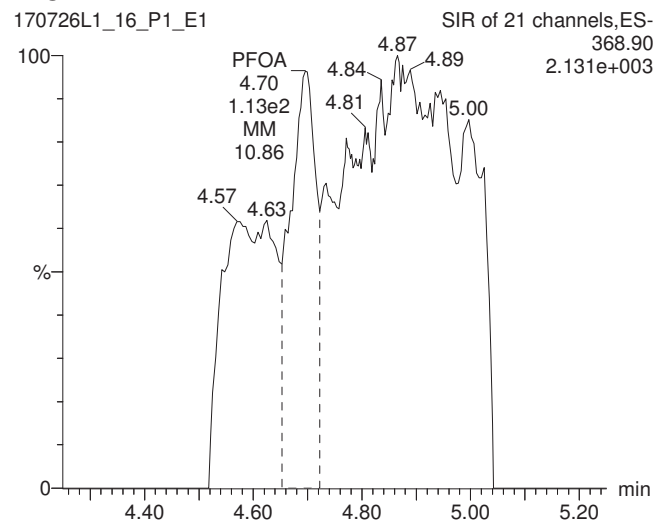
Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: B7G0113-BLK1, Description: LRB, Name: 170726L1_16.wiff, Date: 26-Jul-2017, Time: 20:08:35, Instrument: , Lab: ©PE-SCIEX, User: sciex

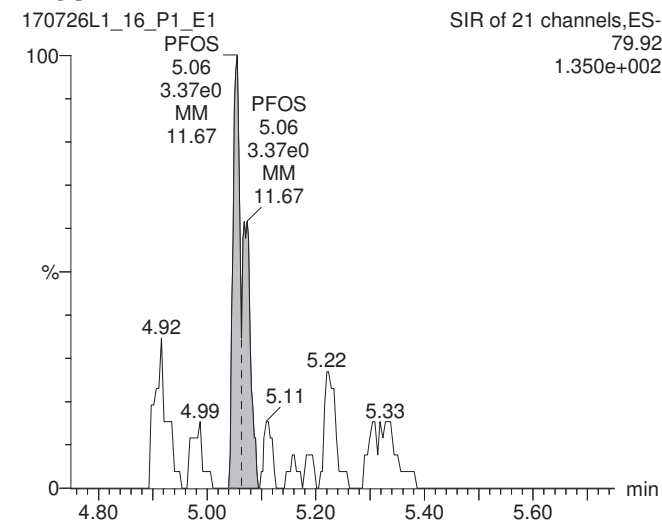
PFBS



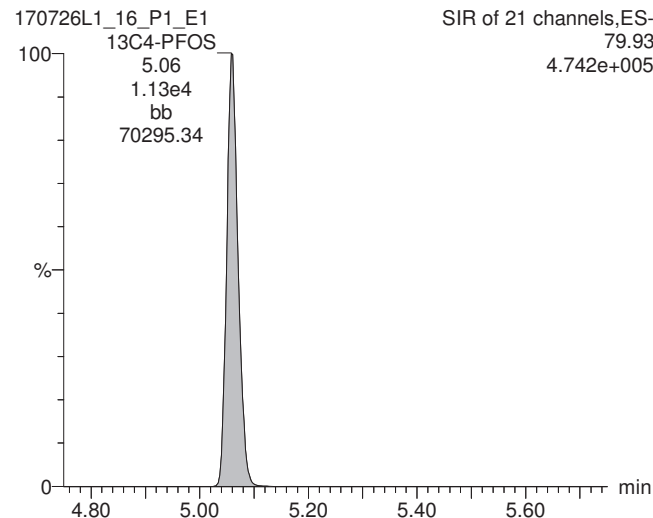
PFOA



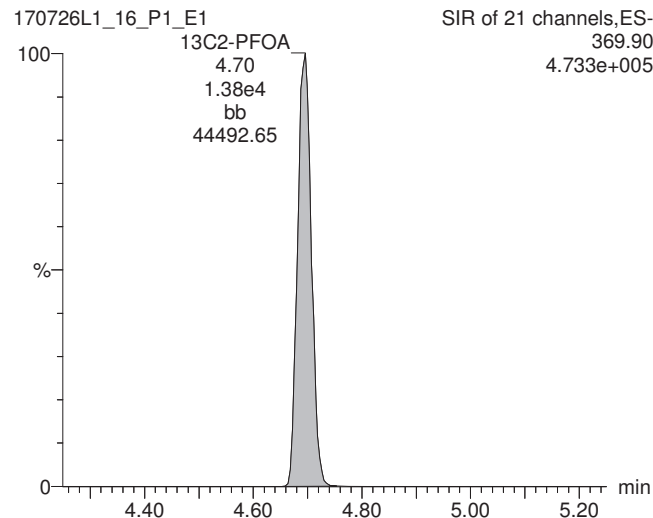
PFOS



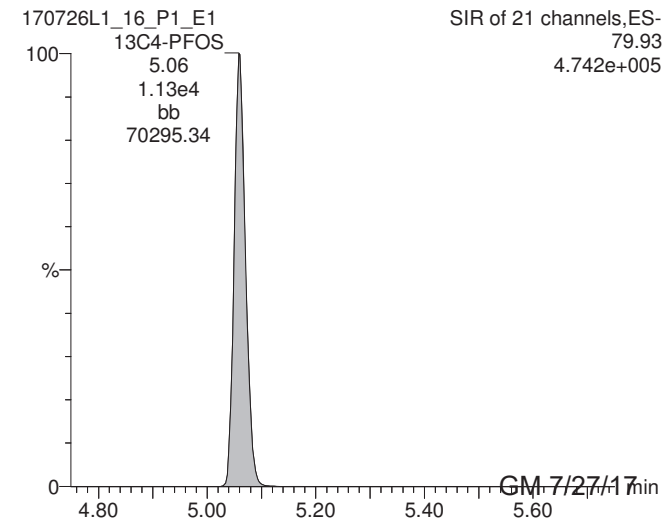
13C4-PFOS



13C2-PFOA



13C4-PFOS



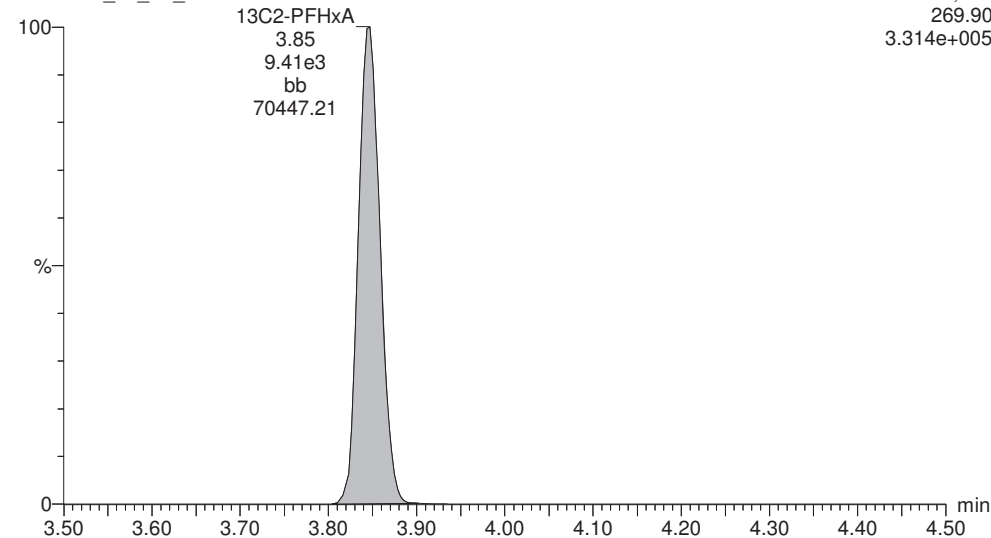
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-16.qld

Last Altered: Thursday, July 27, 2017 11:02:02 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:02:37 Pacific Daylight Time

ID: B7G0113-BLK1, Description: LRB, Name: 170726L1_16.wiff, Date: 26-Jul-2017, Time: 20:08:35, Instrument: , Lab: ©PE-SCIEX, User: sciex

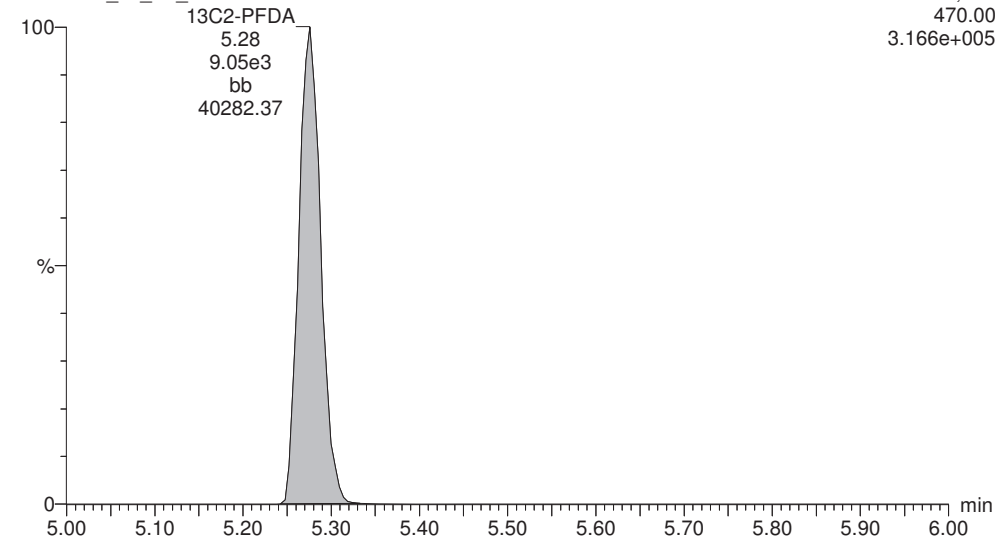
13C2-PFHxA

170726L1_16_P1_E1



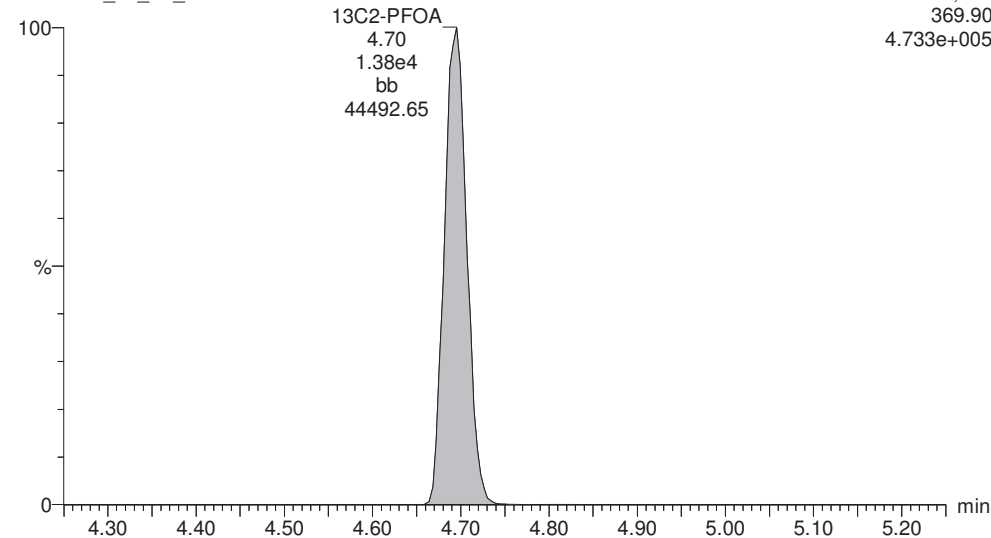
13C2-PFDA

170726L1_16_P1_E1



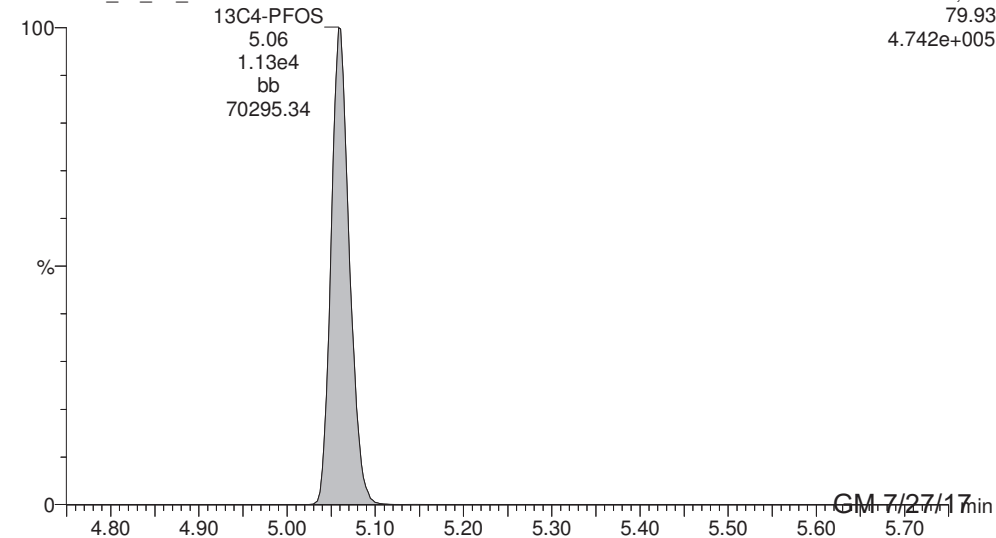
13C2-PFOA

170726L1_16_P1_E1



13C4-PFOS

170726L1_16_P1_E1



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-14.qld

Last Altered: Thursday, July 27, 2017 10:52:40 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:56:15 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: B7G0113-BS1, Description: LFB, Name: 170726L1_14.wiff, Date: 26-Jul-2017, Time: 19:44:05

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	79.90	9.981e3	9.556e3		0.250	3.48	69.8	98.6
2	4 PFOA	368.90	1.991e4	1.305e4		0.250	4.70	71.6	89.5
3	6 PFOS	79.92	7.140e3	9.556e3		0.250	5.06	68.8	93.0
4	7 13C2-PFHxA	269.90	8.501e3	1.305e4	0.663	0.250	3.85	39.3	98.2
5	8 13C2-PFDA	470.00	7.738e3	1.305e4	0.636	0.250	5.28	37.3	93.2
6	9 13C2-PFOA	369.90	1.305e4	1.305e4	1.000	0.250	4.70	40.0	100
7	10 13C4-PFOS	79.93	9.556e3	9.556e3	1.000	0.250	5.06	115	100

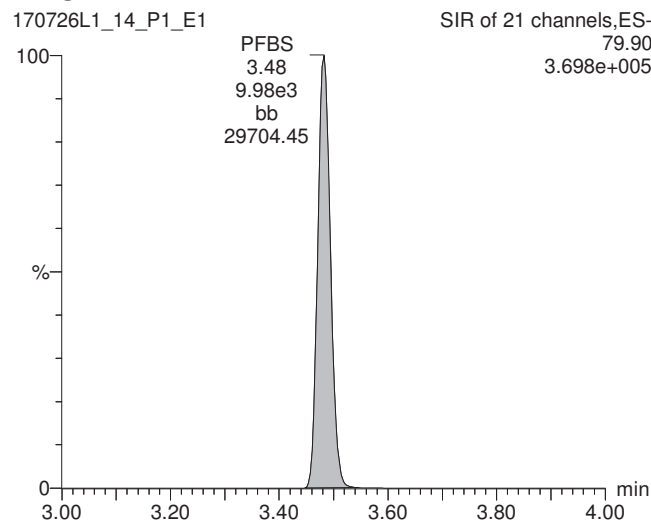
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-14.qld

Last Altered: Thursday, July 27, 2017 10:52:40 Pacific Daylight Time
Printed: Thursday, July 27, 2017 10:56:15 Pacific Daylight Time

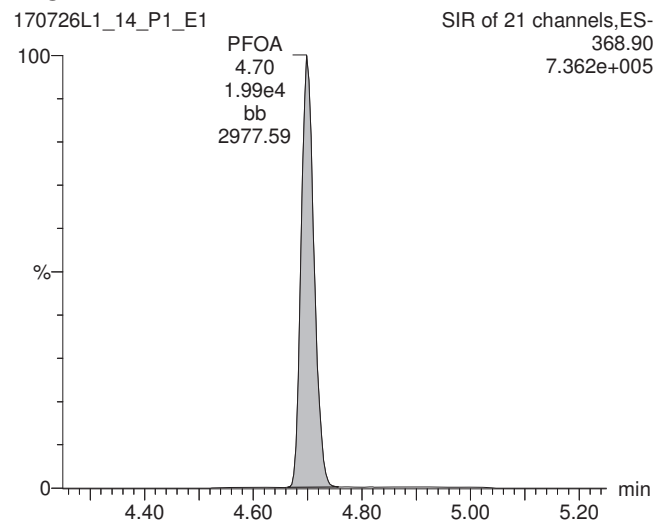
Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: B7G0113-BS1, Description: LFB, Name: 170726L1_14.wiff, Date: 26-Jul-2017, Time: 19:44:05, Instrument: , Lab: ©PE-SCIEX, User: sciex

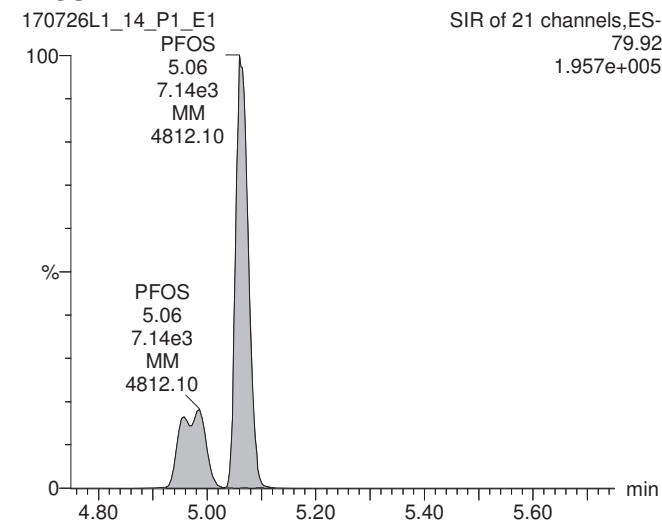
PFBS



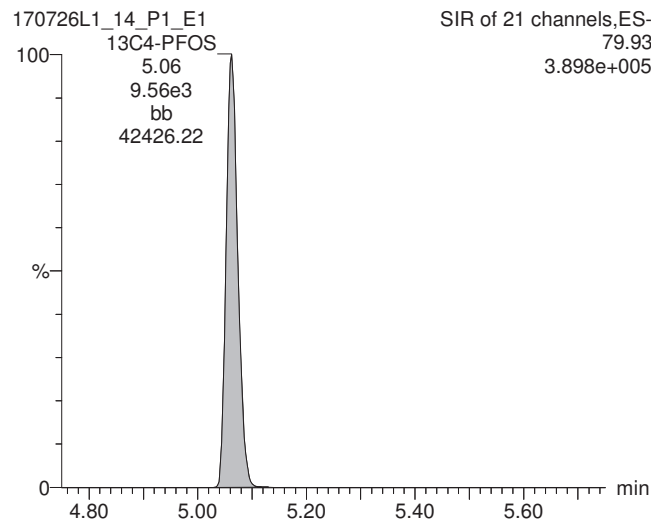
PFOA



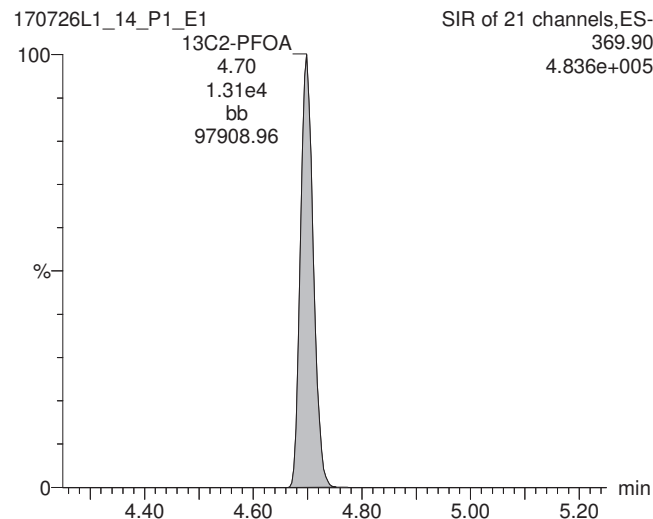
PFOS



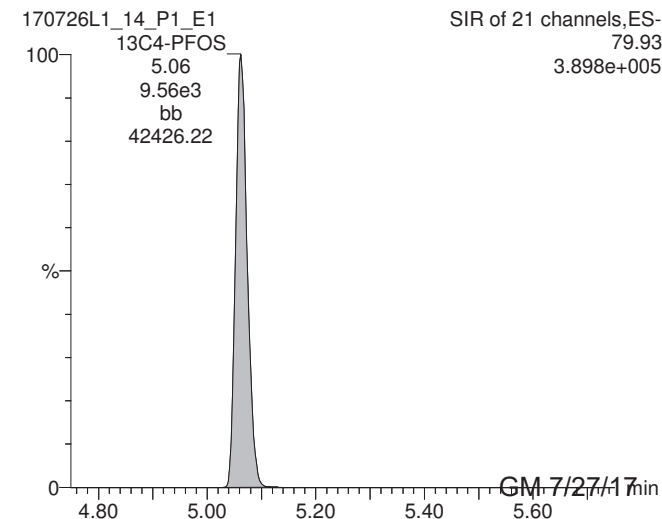
13C4-PFOS



13C2-PFOA



13C4-PFOS



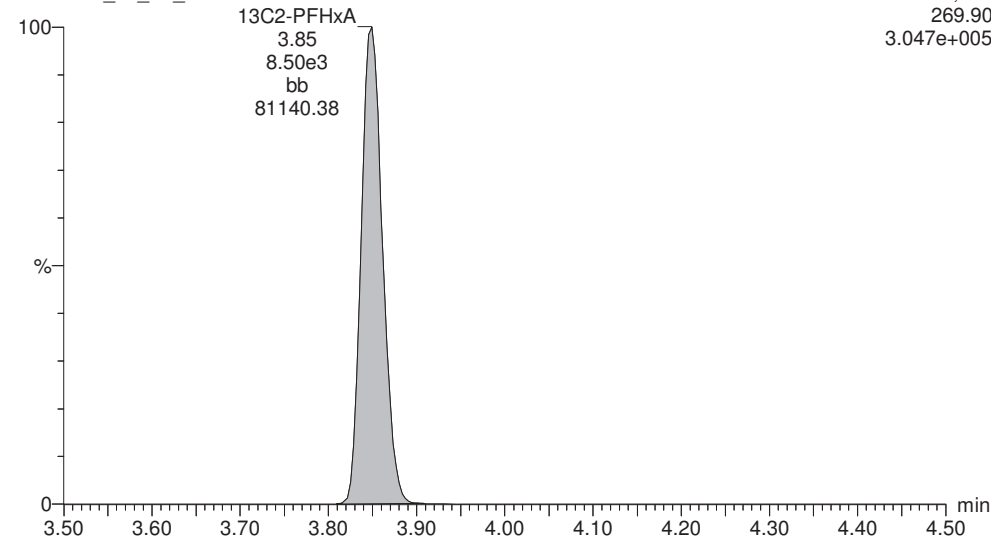
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Last Altered: Thursday, July 27, 2017 10:52:40 Pacific Daylight Time
Printed: Thursday, July 27, 2017 10:56:15 Pacific Daylight Time

ID: B7G0113-BS1, Description: LFB, Name: 170726L1_14.wiff, Date: 26-Jul-2017, Time: 19:44:05, Instrument: , Lab: ©PE-SCIEX, User: sciex

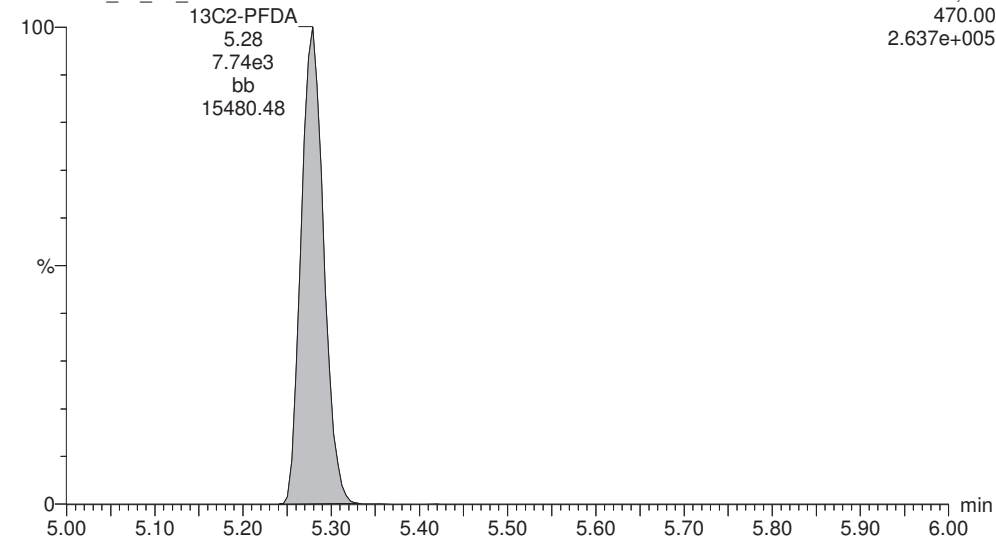
13C2-PFHxA

170726L1_14_P1_E1



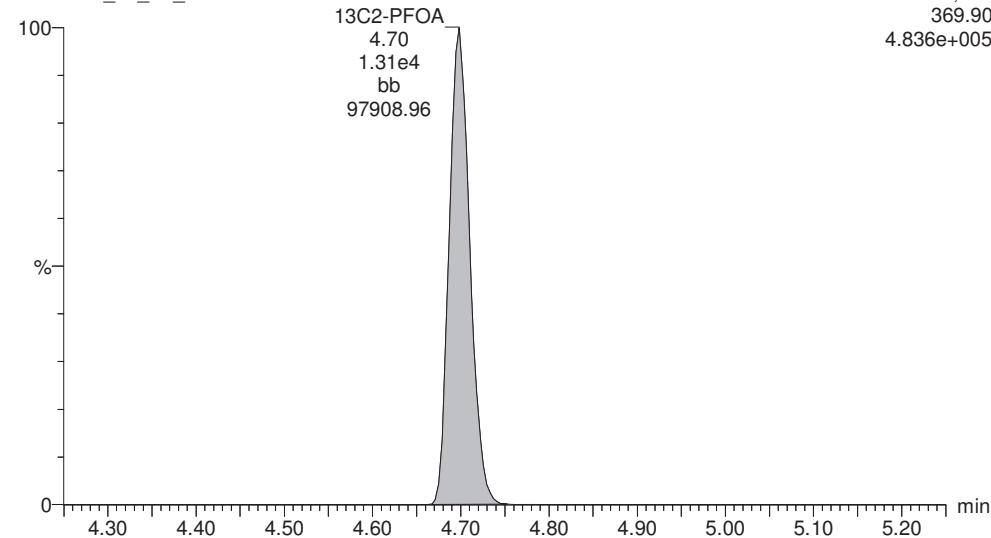
13C2-PFDA

170726L1_14_P1_E1



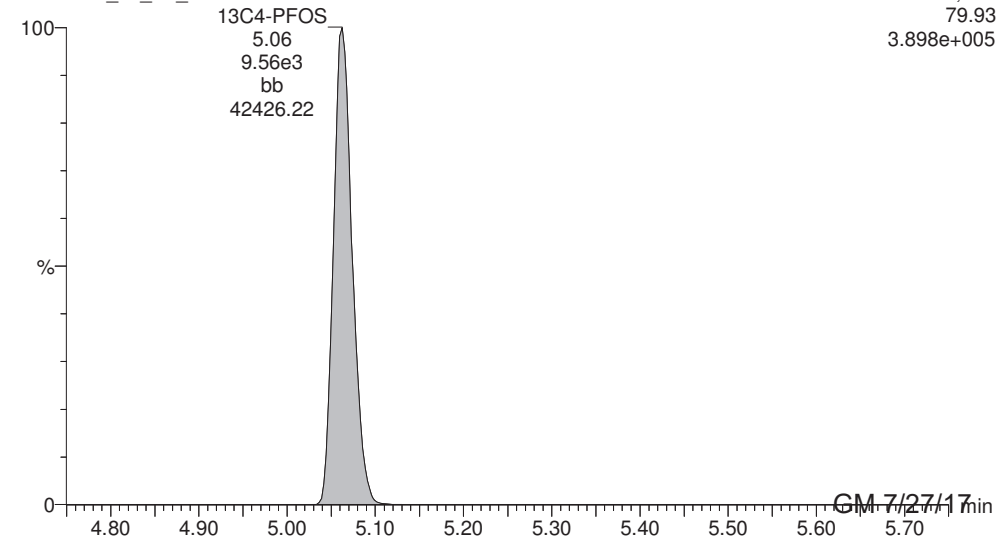
13C2-PFOA

170726L1_14_P1_E1



13C4-PFOS

170726L1_14_P1_E1



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-17.qld

Last Altered: Thursday, July 27, 2017 11:05:03 Pacific Daylight Time

Printed: Thursday, July 27, 2017 11:20:38 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-01, Description: NARLB-SW01-0717, Name: 170726L1_17.wiff, Date: 26-Jul-2017, Time: 20:20:47

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	79.90	4.406e2	9.468e3		0.251	3.53	3.08	
2	4 PFOA	368.90	2.143e4	1.226e4		0.251	4.75	82.6	
3	6 PFOS	79.92	1.207e4	9.468e3		0.251	5.12	117	
4	7 13C2-PFHxA	269.90	8.454e3	1.226e4	0.663	0.251	3.89	41.4	104
5	8 13C2-PFDA	470.00	7.493e3	1.226e4	0.636	0.251	5.34	38.2	96.0
6	9 13C2-PFOA	369.90	1.226e4	1.226e4	1.000	0.251	4.75	39.8	100
7	10 13C4-PFOS	79.93	9.468e3	9.468e3	1.000	0.251	5.12	114	100

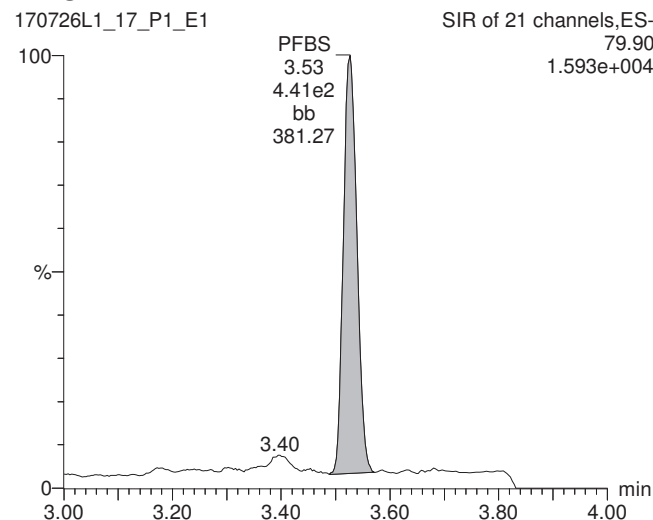
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-17.qld

Last Altered: Thursday, July 27, 2017 11:05:03 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:20:38 Pacific Daylight Time

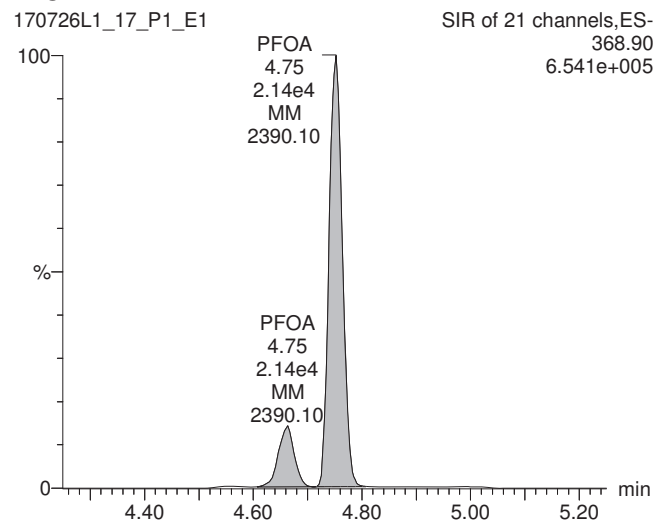
Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-01, Description: NARLB-SW01-0717, Name: 170726L1_17.wiff, Date: 26-Jul-2017, Time: 20:20:47, Instrument: , Lab: ©PE-SCIEX, User: sciex

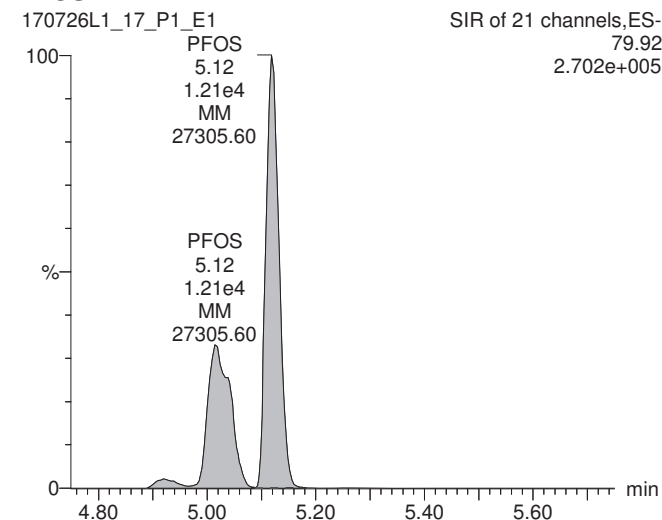
PFBS



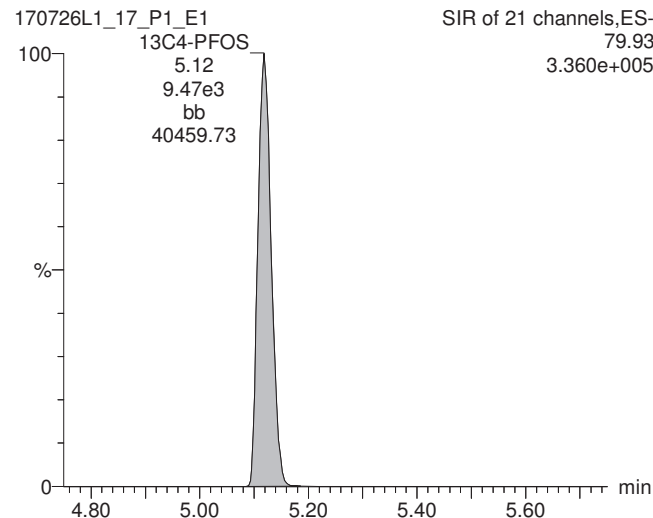
PFOA



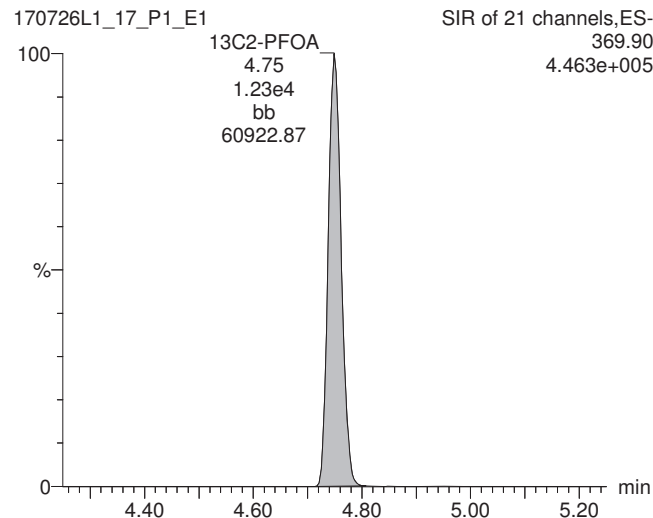
PFOS



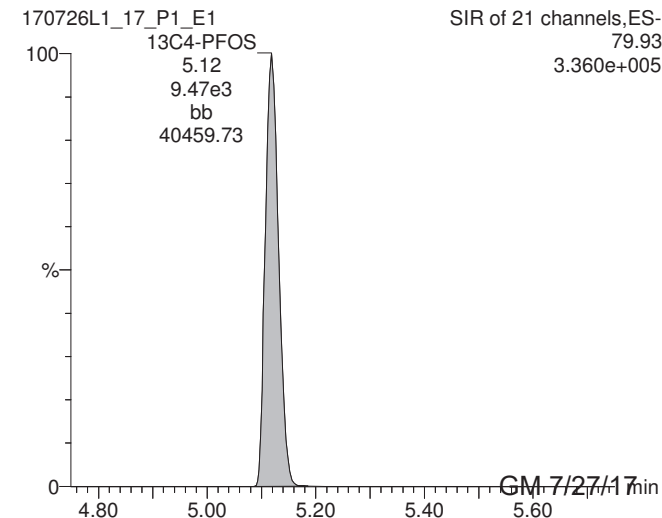
13C4-PFOS



13C2-PFOA



13C4-PFOS



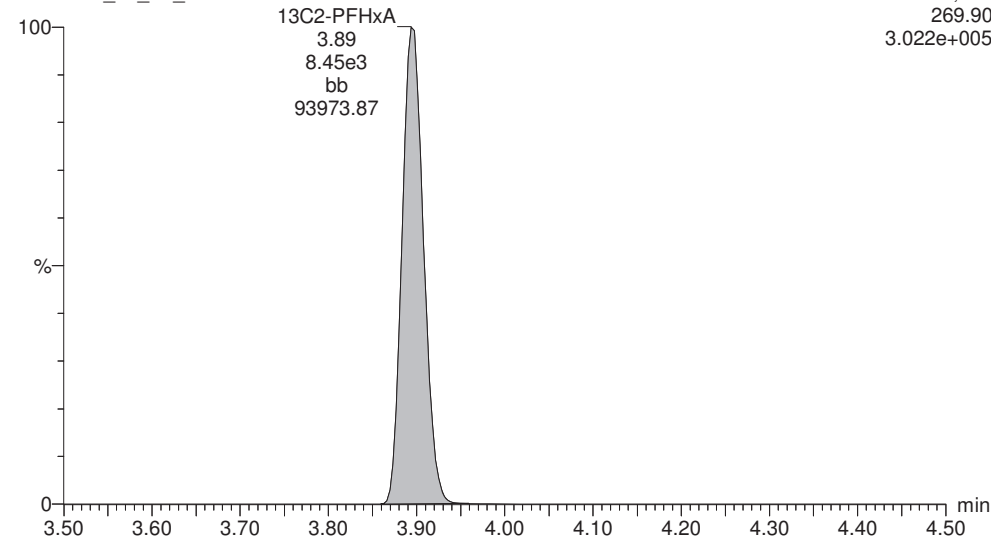
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-17.qld

Last Altered: Thursday, July 27, 2017 11:05:03 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:20:38 Pacific Daylight Time

ID: 1700923-01, Description: NARLB-SW01-0717, Name: 170726L1_17.wiff, Date: 26-Jul-2017, Time: 20:20:47, Instrument: , Lab: ©PE-SCIEX, User: sciex

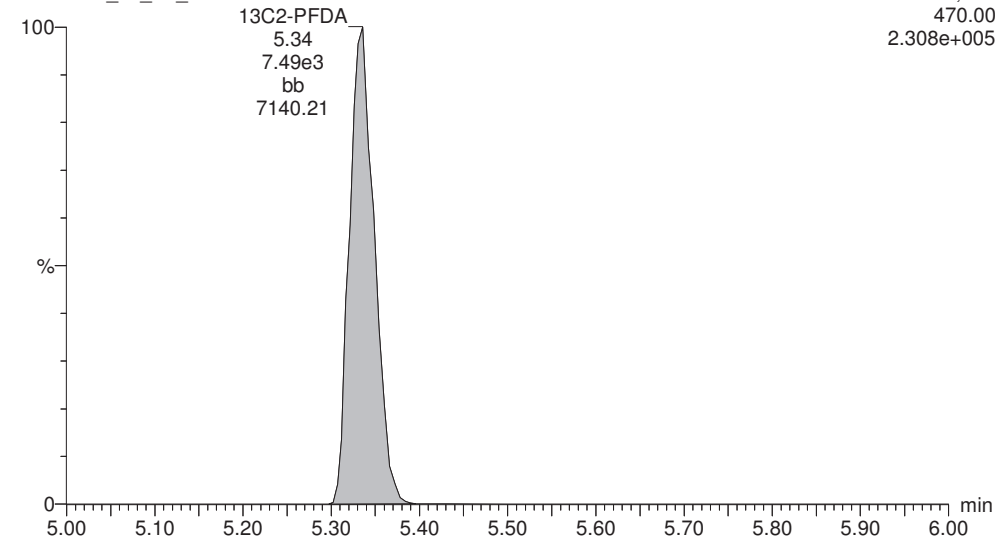
13C2-PFHxA

170726L1_17_P1_E1



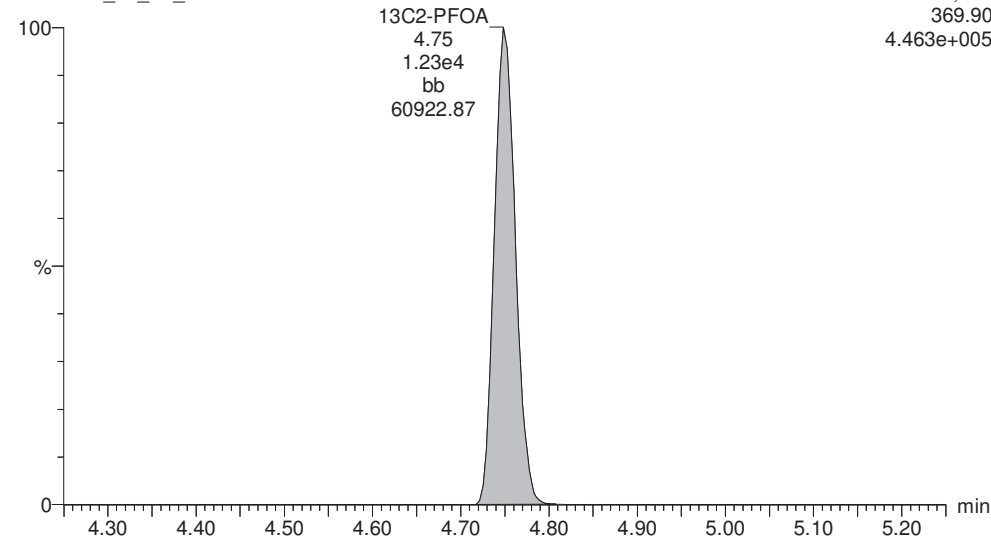
13C2-PFDA

170726L1_17_P1_E1



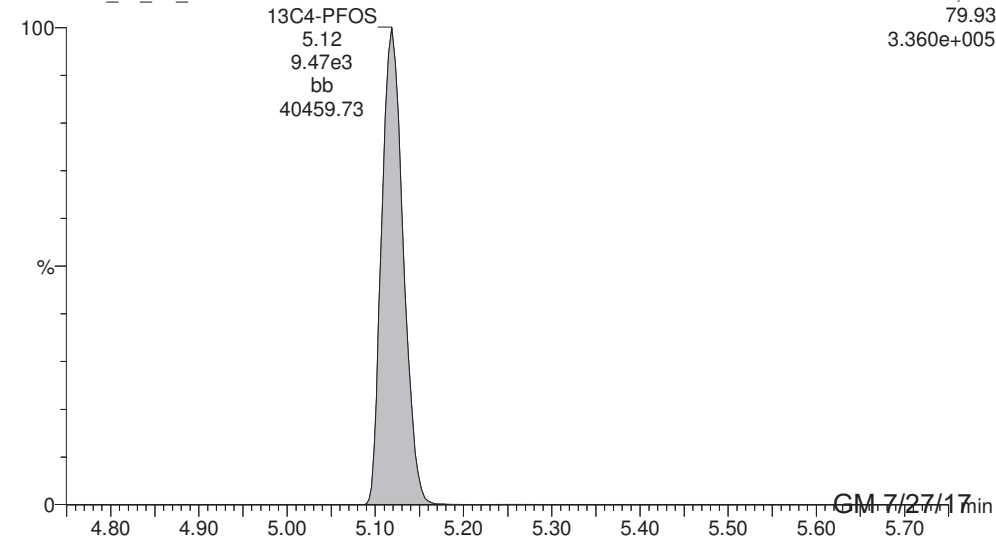
13C2-PFOA

170726L1_17_P1_E1



13C4-PFOS

170726L1_17_P1_E1



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-18.qld

Last Altered: Thursday, July 27, 2017 11:18:56 Pacific Daylight Time

Printed: Thursday, July 27, 2017 11:19:28 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-02, Description: NARLB-FB01-0717, Name: 170726L1_18.wiff, Date: 26-Jul-2017, Time: 20:33:04

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	79.90		1.008e4		0.254			
2	4 PFOA	368.90		1.485e4		0.254			
3	6 PFOS	79.92	1.046e1	1.008e4		0.254	5.10	0.0942	
4	7 13C2-PFHxA	269.90	9.002e3	1.485e4	0.663	0.254	3.88	36.0	91.4
5	8 13C2-PFDA	470.00	9.248e3	1.485e4	0.636	0.254	5.32	38.6	97.8
6	9 13C2-PFOA	369.90	1.485e4	1.485e4	1.000	0.254	4.73	39.4	100
7	10 13C4-PFOS	79.93	1.008e4	1.008e4	1.000	0.254	5.10	113	100

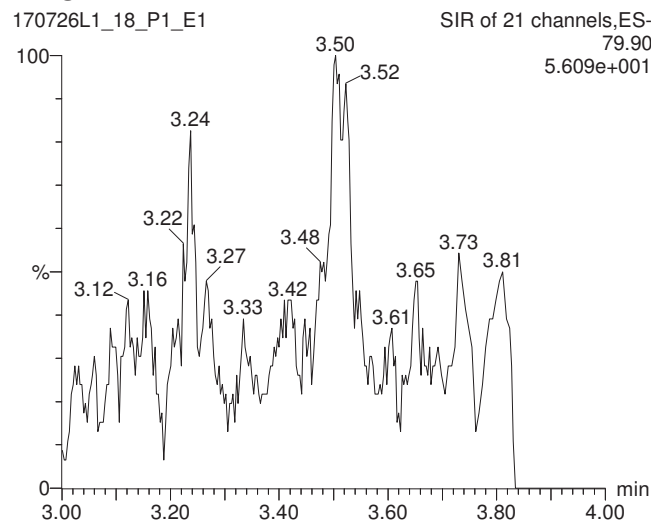
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-18.qld

Last Altered: Thursday, July 27, 2017 11:18:56 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:19:28 Pacific Daylight Time

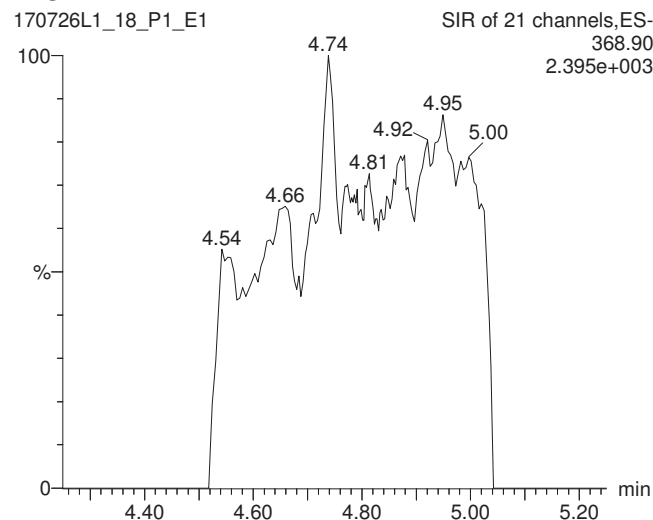
Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-02, Description: NARLB-FB01-0717, Name: 170726L1_18.wiff, Date: 26-Jul-2017, Time: 20:33:04, Instrument: , Lab: ©PE-SCIEX, User: sciex

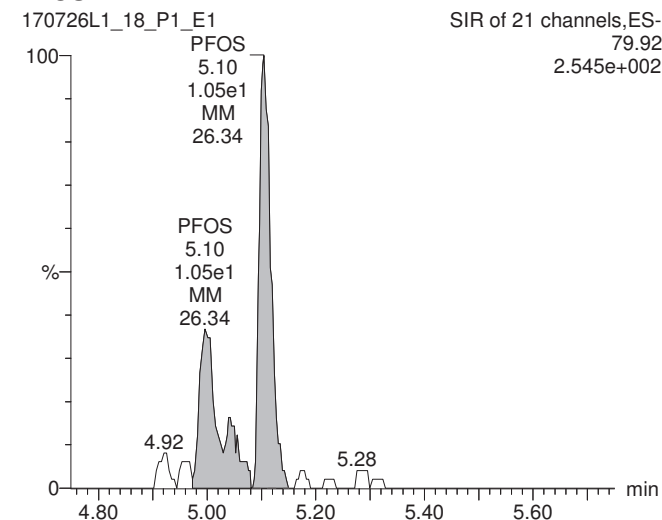
PFBS



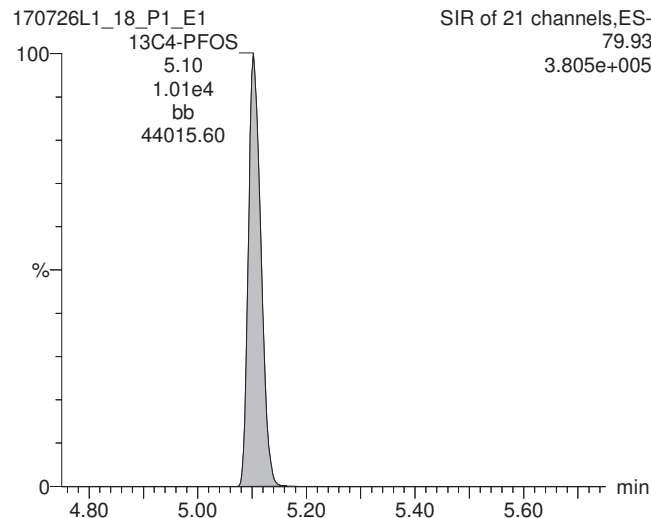
PFOA



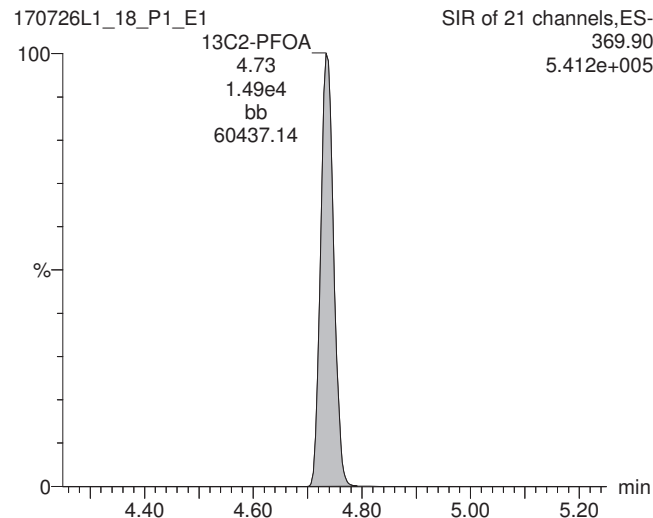
PFOS



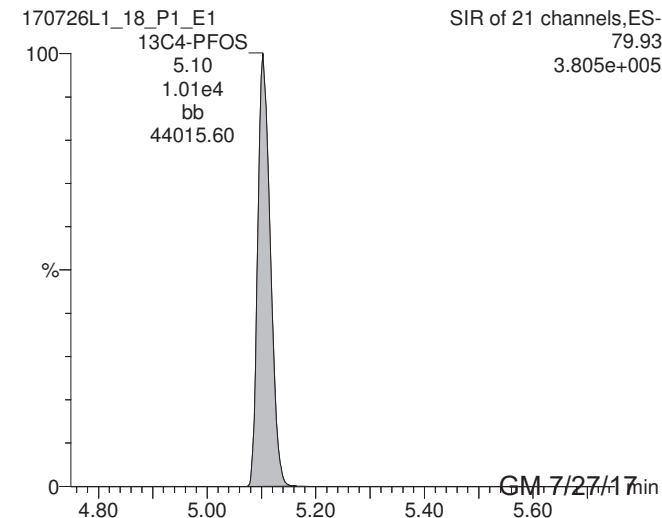
13C4-PFOS



13C2-PFOA



13C4-PFOS



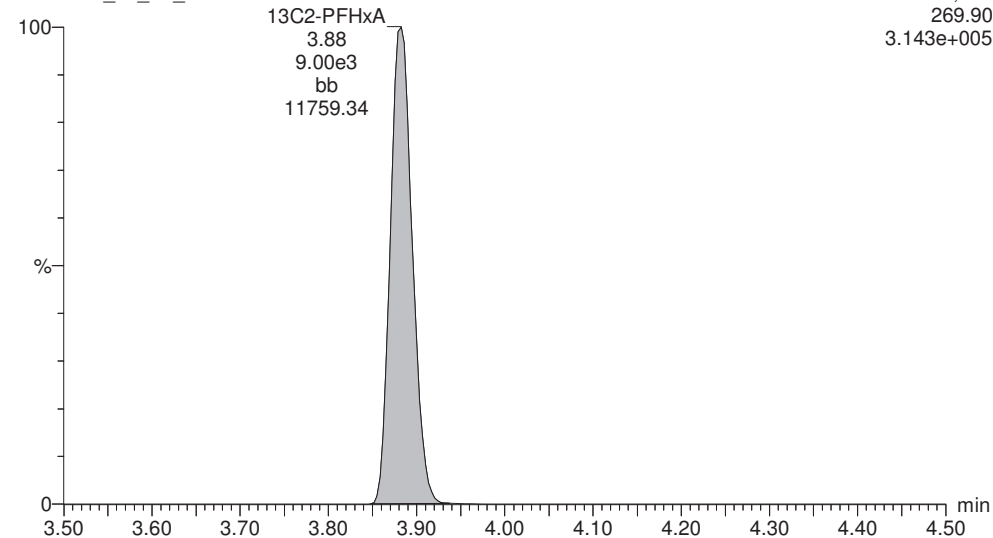
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-18.qld

Last Altered: Thursday, July 27, 2017 11:18:56 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:19:28 Pacific Daylight Time

ID: 1700923-02, Description: NARLB-FB01-0717, Name: 170726L1_18.wiff, Date: 26-Jul-2017, Time: 20:33:04, Instrument: , Lab: ©PE-SCIEX, User: sciex

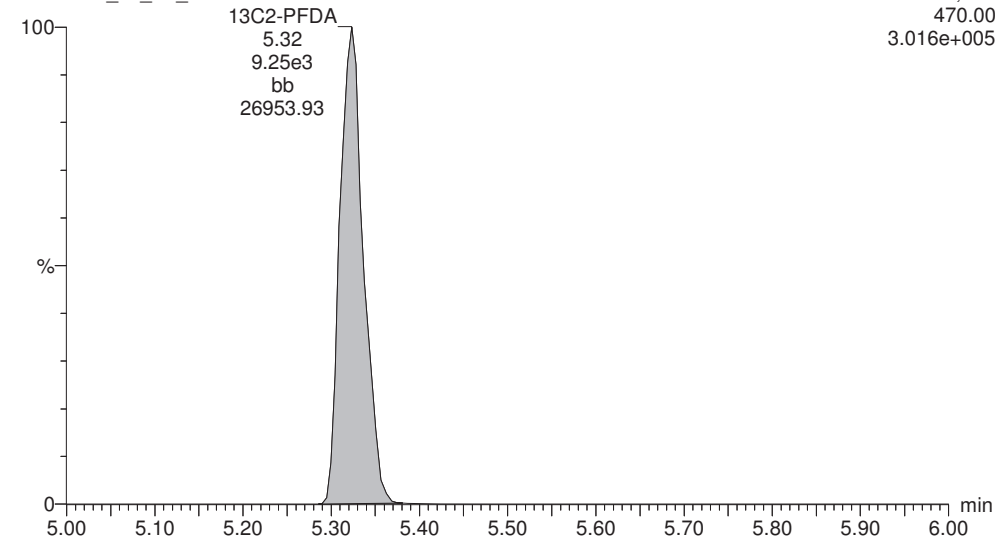
13C2-PFHxA

170726L1_18_P1_E1



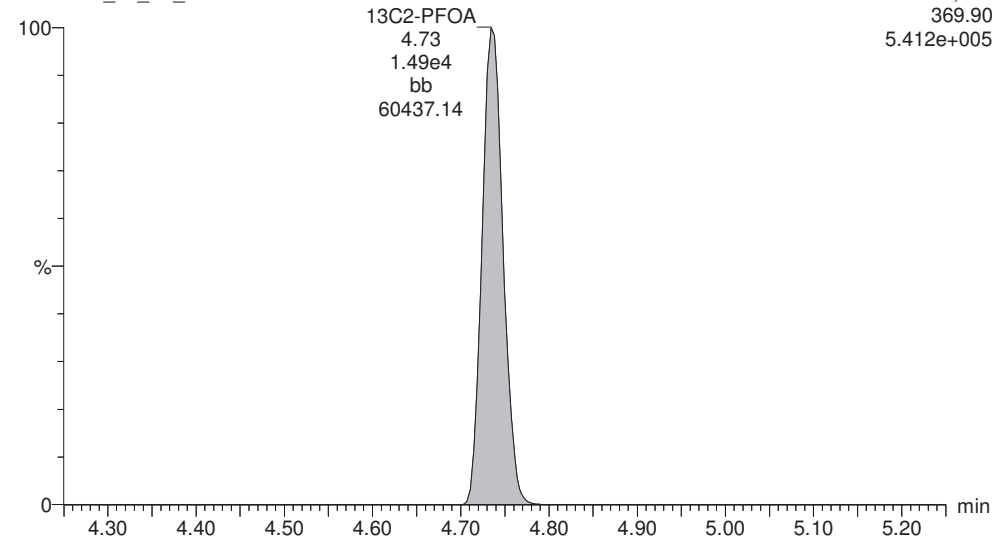
13C2-PFDA

170726L1_18_P1_E1



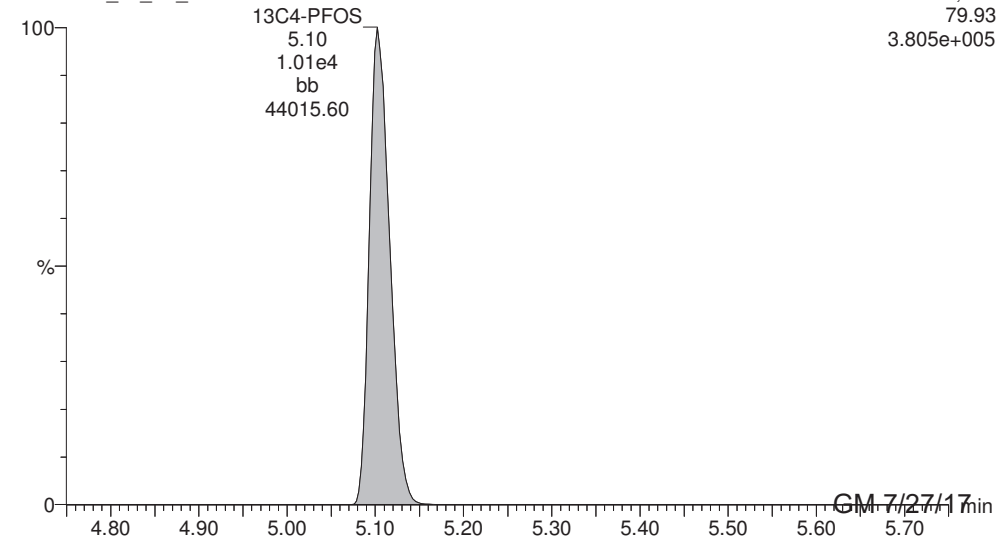
13C2-PFOA

170726L1_18_P1_E1



13C4-PFOS

170726L1_18_P1_E1



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-19.qld

Last Altered: Thursday, July 27, 2017 11:22:04 Pacific Daylight Time

Printed: Thursday, July 27, 2017 11:22:41 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-03, Description: NARLB-SW01P-0717, Name: 170726L1_19.wiff, Date: 26-Jul-2017, Time: 20:45:20

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	79.90	4.385e2	1.021e4		0.243	3.48	2.94	
2	4 PFOA	368.90	2.202e4	1.308e4		0.243	4.69	81.9	
3	6 PFOS	79.92	1.282e4	1.021e4		0.243	5.06	119	
4	7 13C2-PFHxA	269.90	8.622e3	1.308e4	0.663	0.243	3.85	40.9	99.4
5	8 13C2-PFDA	470.00	8.312e3	1.308e4	0.636	0.243	5.28	41.1	99.8
6	9 13C2-PFOA	369.90	1.308e4	1.308e4	1.000	0.243	4.69	41.1	100
7	10 13C4-PFOS	79.93	1.021e4	1.021e4	1.000	0.243	5.06	118	100

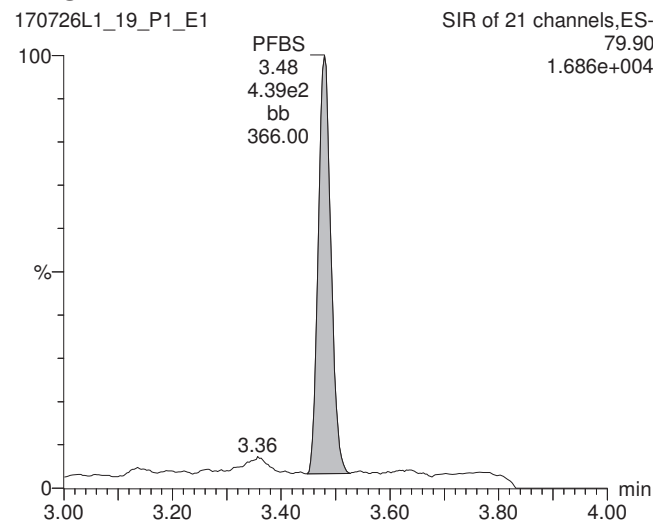
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-19.qld

Last Altered: Thursday, July 27, 2017 11:22:04 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:22:41 Pacific Daylight Time

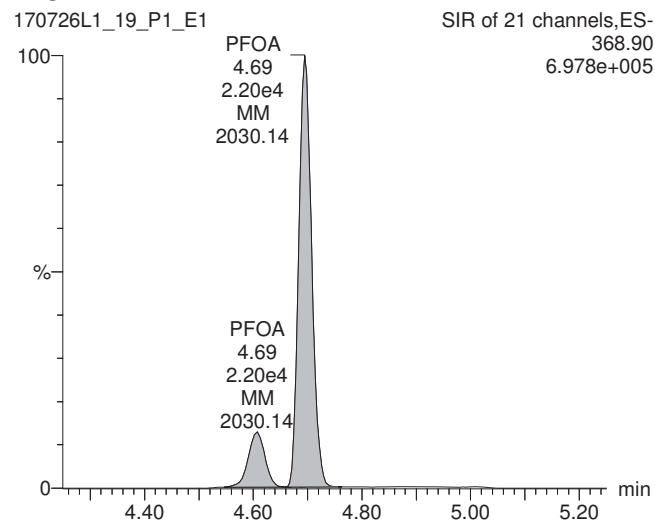
Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-03, Description: NARLB-SW01P-0717, Name: 170726L1_19.wiff, Date: 26-Jul-2017, Time: 20:45:20, Instrument: , Lab: ©PE-SCIEX, User: sciex

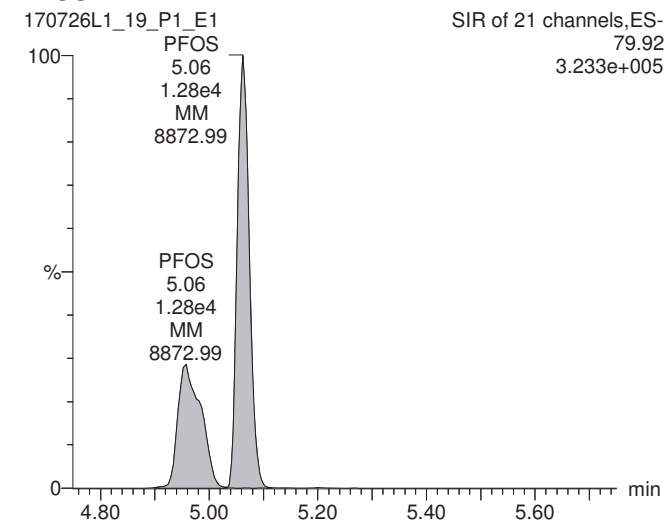
PFBS



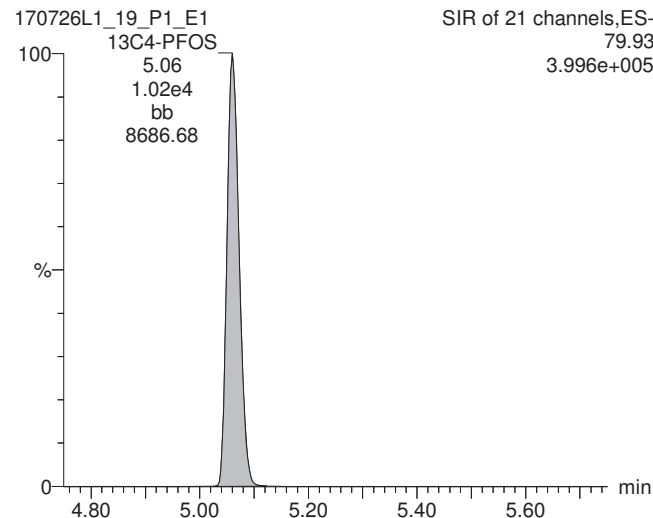
PFOA



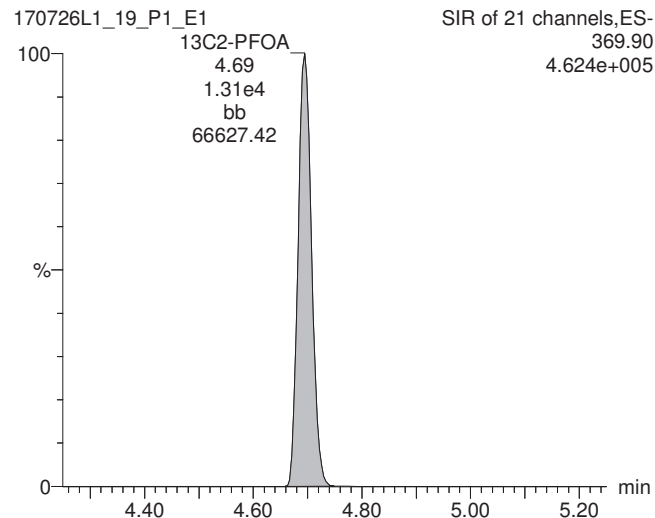
PFOS



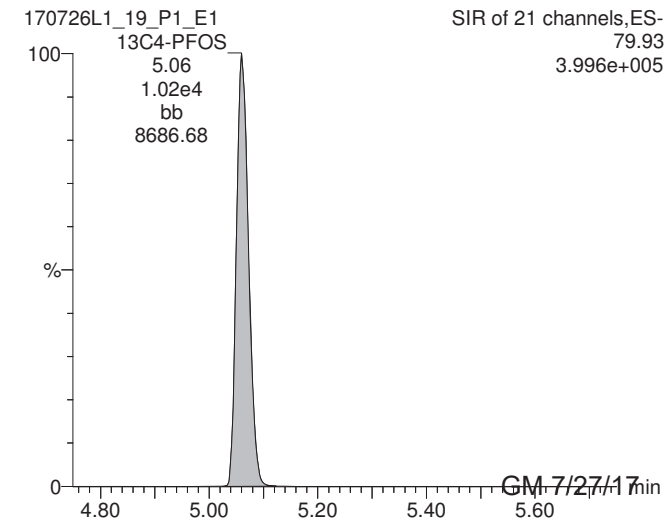
13C4-PFOS



13C2-PFOA



13C4-PFOS



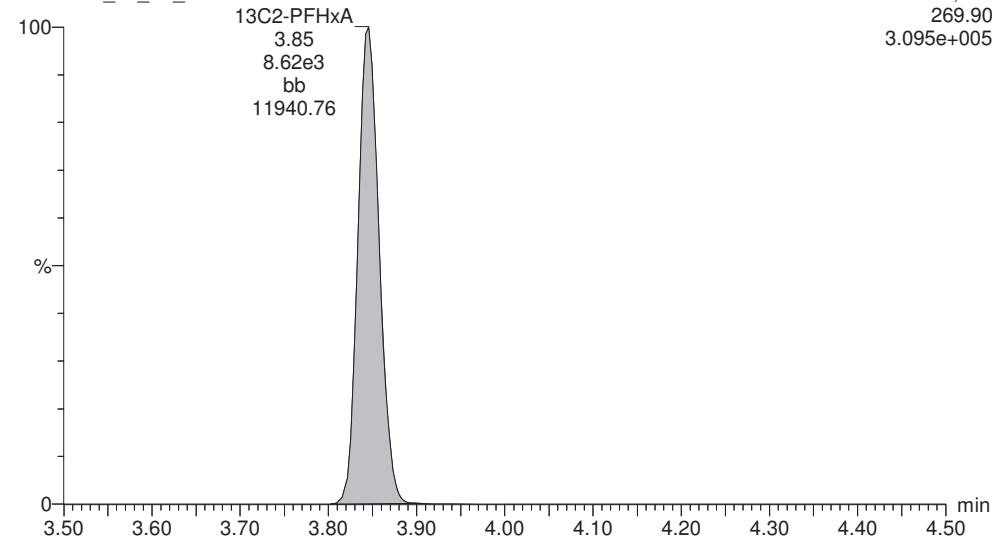
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-19.qld

Last Altered: Thursday, July 27, 2017 11:22:04 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:22:41 Pacific Daylight Time

ID: 1700923-03, Description: NARLB-SW01P-0717, Name: 170726L1_19.wiff, Date: 26-Jul-2017, Time: 20:45:20, Instrument: , Lab: ©PE-SCIEX, User: sciex

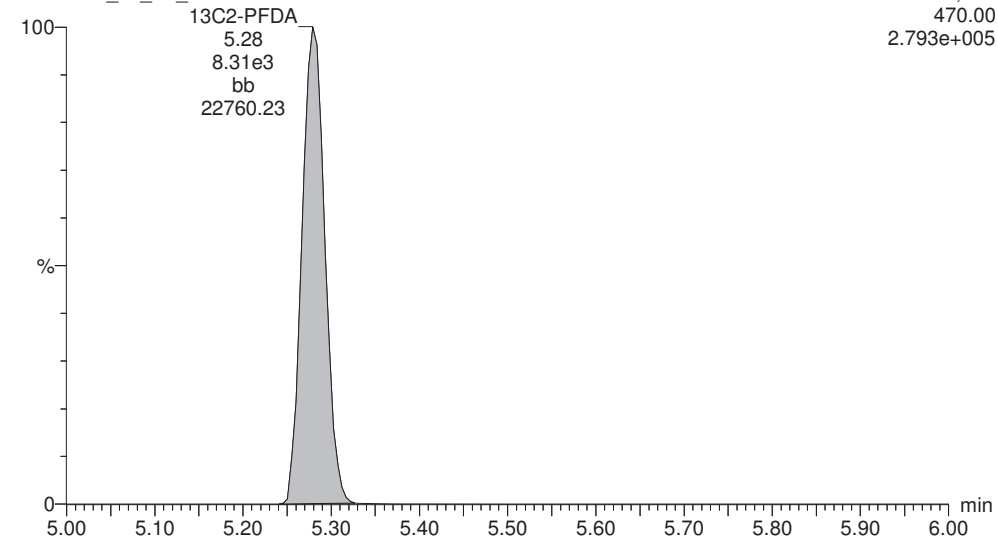
13C2-PFHxA

170726L1_19_P1_E1



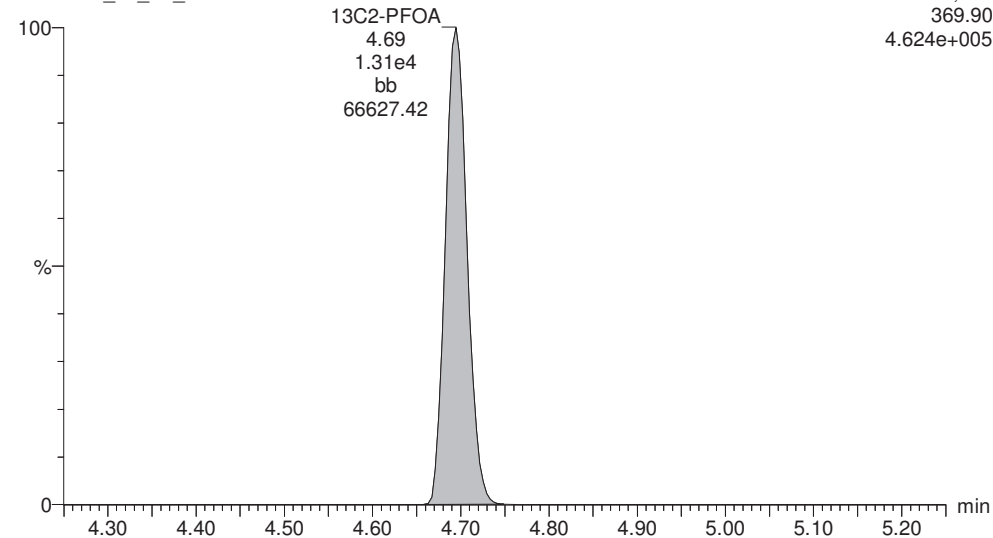
13C2-PFDA

170726L1_19_P1_E1



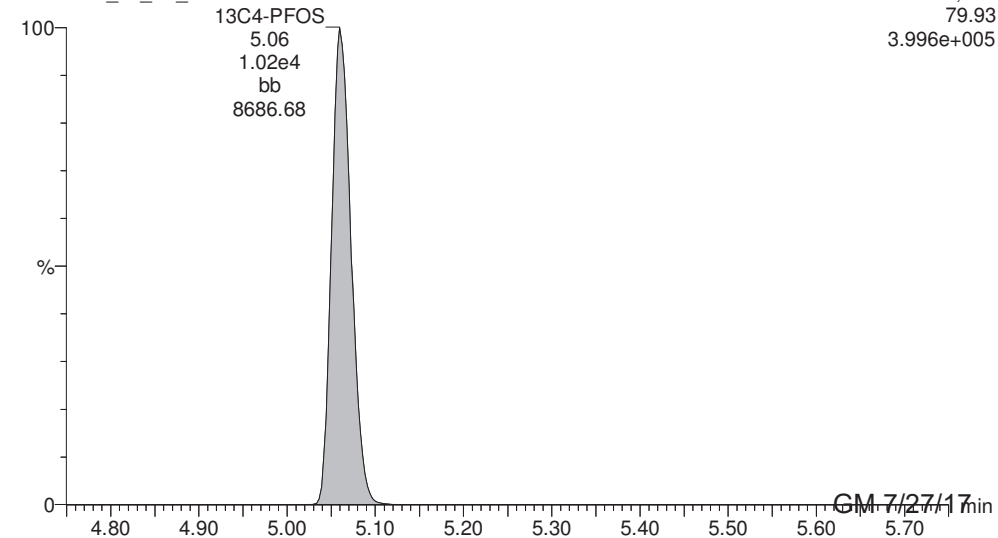
13C2-PFOA

170726L1_19_P1_E1



13C4-PFOS

170726L1_19_P1_E1



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-20.qld

Last Altered: Friday, July 28, 2017 08:25:33 Pacific Daylight Time
Printed: Friday, July 28, 2017 08:25:58 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-04, Description: NARLB-SW02-0717, Name: 170726L1_20.wiff, Date: 26-Jul-2017, Time: 20:57:36

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	79.90		9.793e3		0.240			
2	4 PFOA	368.90		1.429e4		0.240			
3	6 PFOS	79.92	5.466e0	9.793e3		0.240	5.07	0.0536	
4	7 13C2-PFHxA	269.90	9.802e3	1.429e4	0.663	0.240	3.85	43.1	103
5	8 13C2-PFDA	470.00	1.035e4	1.429e4	0.636	0.240	5.28	47.4	114
6	9 13C2-PFOA	369.90	1.429e4	1.429e4	1.000	0.240	4.70	41.7	100
7	10 13C4-PFOS	79.93	9.793e3	9.793e3	1.000	0.240	5.06	120	100

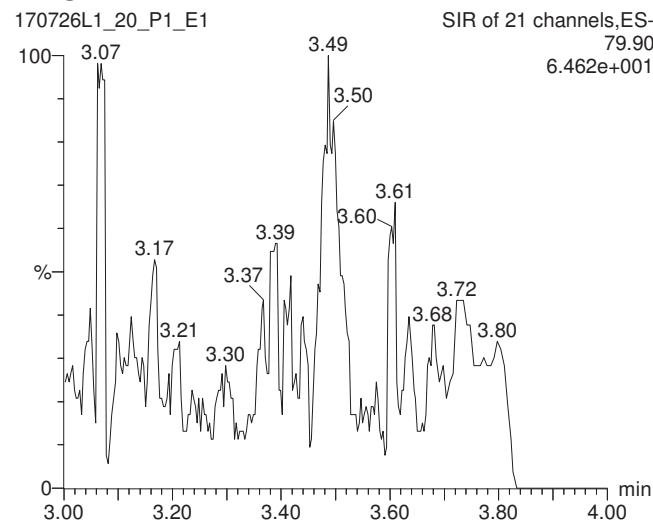
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-20.qld

Last Altered: Friday, July 28, 2017 08:25:33 Pacific Daylight Time
Printed: Friday, July 28, 2017 08:25:58 Pacific Daylight Time

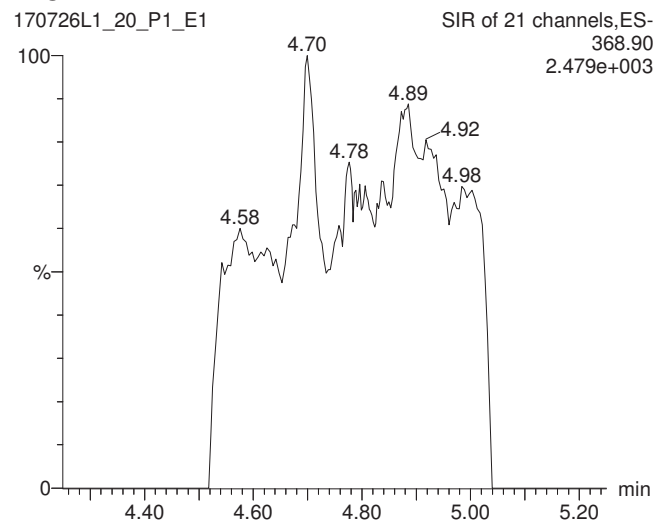
Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-04, Description: NARLB-SW02-0717, Name: 170726L1_20.wiff, Date: 26-Jul-2017, Time: 20:57:36, Instrument: , Lab: ©PE-SCIEX, User: sciex

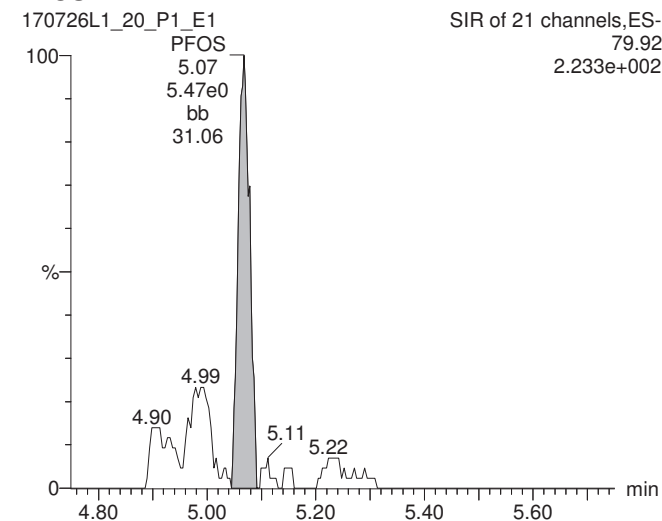
PFBS



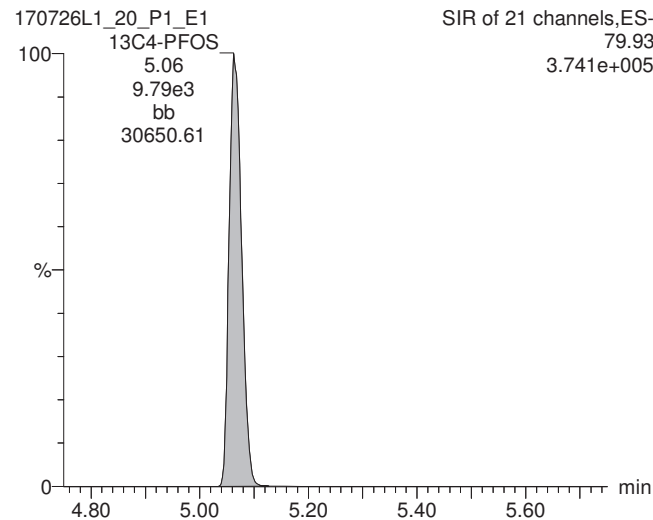
PFOA



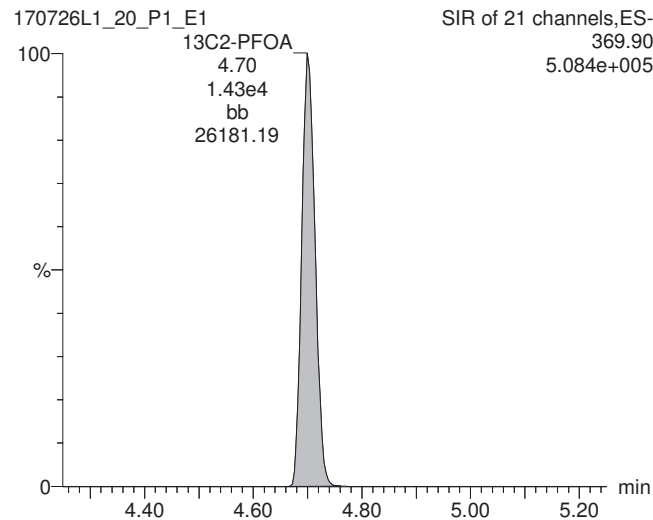
PFOS



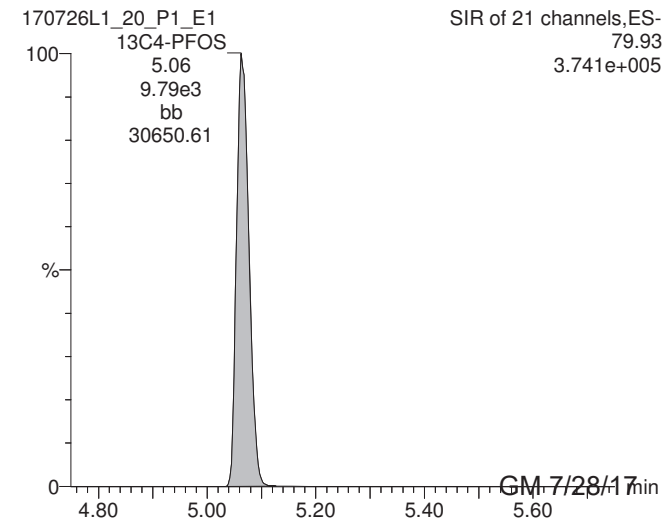
13C4-PFOS



13C2-PFOA



13C4-PFOS



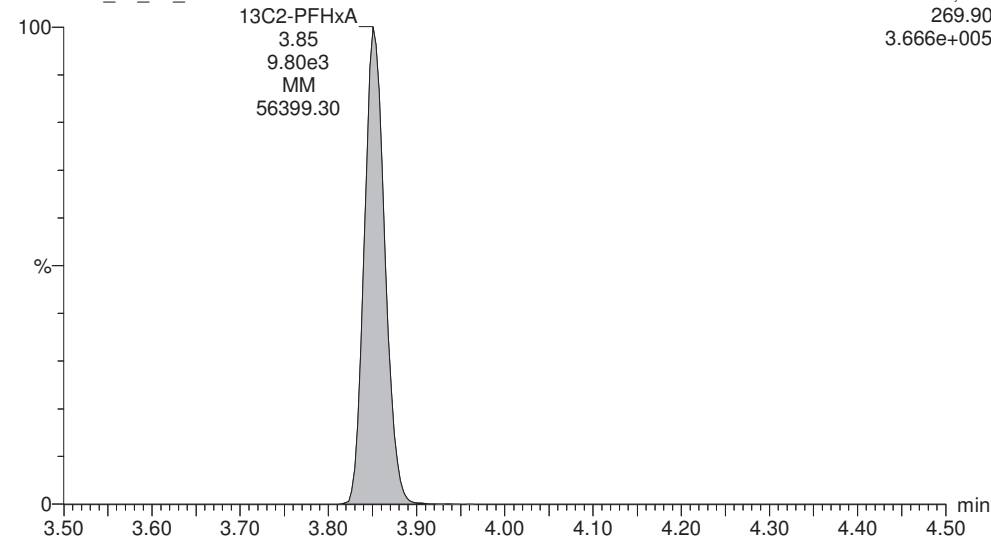
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-20.qld

Last Altered: Friday, July 28, 2017 08:25:33 Pacific Daylight Time
Printed: Friday, July 28, 2017 08:25:58 Pacific Daylight Time

ID: 1700923-04, Description: NARLB-SW02-0717, Name: 170726L1_20.wiff, Date: 26-Jul-2017, Time: 20:57:36, Instrument: , Lab: ©PE-SCIEX, User: sciex

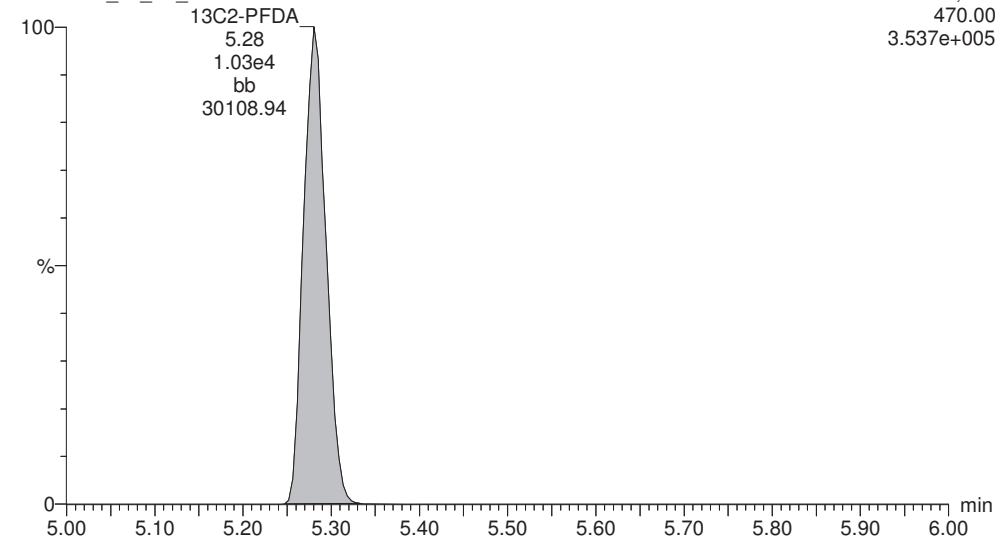
13C2-PFHxA

170726L1_20_P1_E1



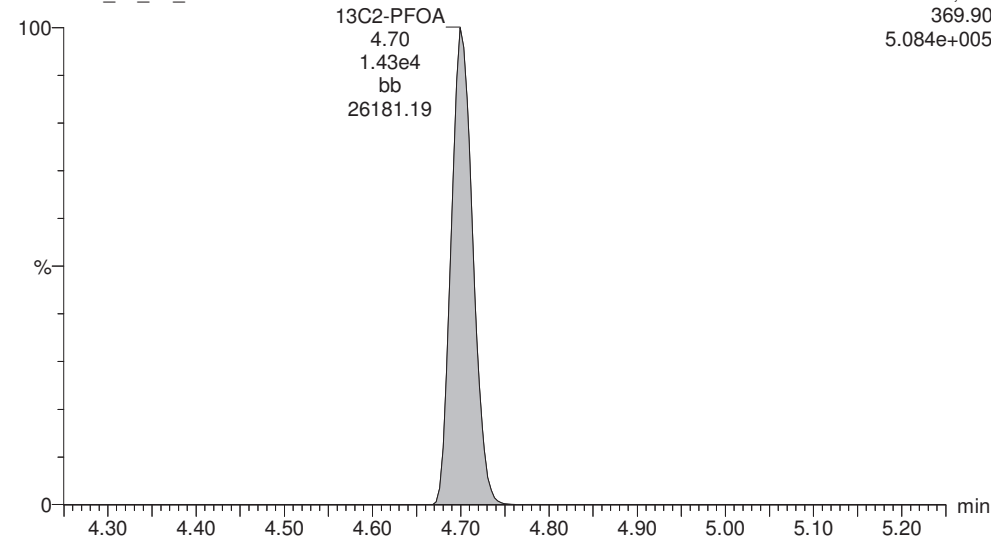
13C2-PFDA

170726L1_20_P1_E1



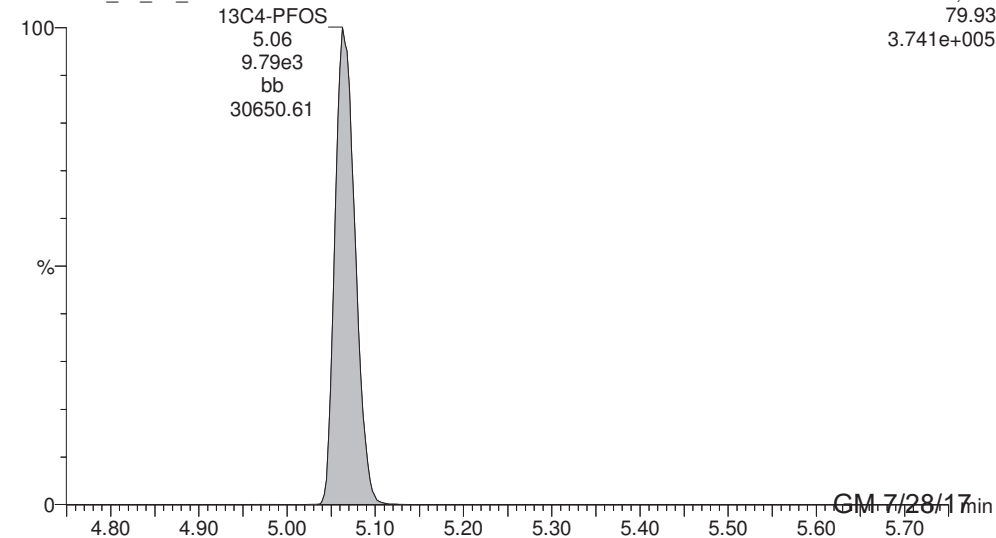
13C2-PFOA

170726L1_20_P1_E1



13C4-PFOS

170726L1_20_P1_E1



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-23.qld

Last Altered: Thursday, July 27, 2017 11:32:24 Pacific Daylight Time

Printed: Thursday, July 27, 2017 11:32:51 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-05, Description: NARLB-FB02-0717, Name: 170726L1_23.wiff, Date: 26-Jul-2017, Time: 21:34:22

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	79.90	4.420e2	1.023e4		0.259	3.49	2.77	
2	4 PFOA	368.90	1.998e4	1.335e4		0.259	4.70	67.5	
3	6 PFOS	79.92	8.765e3	1.023e4		0.259	4.98	76.1	
4	7 13C2-PFHxA	269.90	8.573e3	1.335e4	0.663	0.259	3.86	37.3	96.8
5	8 13C2-PFDA	470.00	8.310e3	1.335e4	0.636	0.259	5.16	37.7	97.8
6	9 13C2-PFOA	369.90	1.335e4	1.335e4	1.000	0.259	4.70	38.5	100
7	10 13C4-PFOS	79.93	1.023e4	1.023e4	1.000	0.259	4.98	111	100

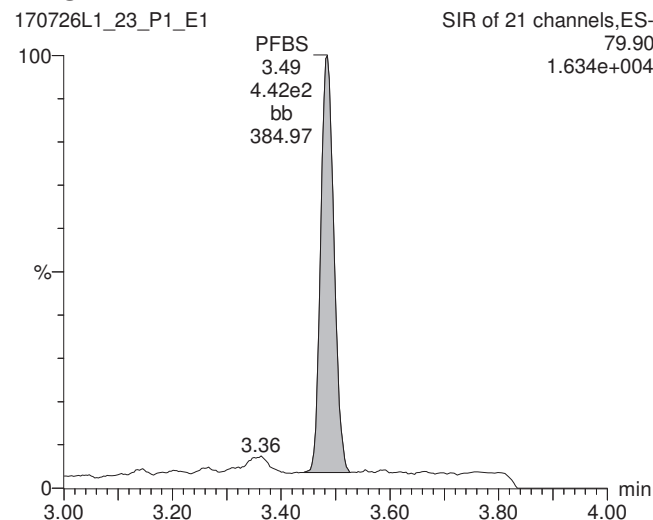
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-23.qld

Last Altered: Thursday, July 27, 2017 11:32:24 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:32:51 Pacific Daylight Time

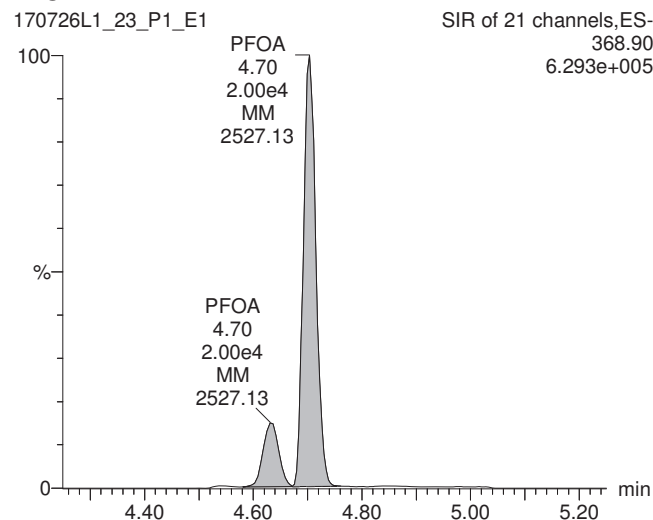
Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-05, Description: NARLB-FB02-0717, Name: 170726L1_23.wiff, Date: 26-Jul-2017, Time: 21:34:22, Instrument: , Lab: ©PE-SCIEX, User: sciex

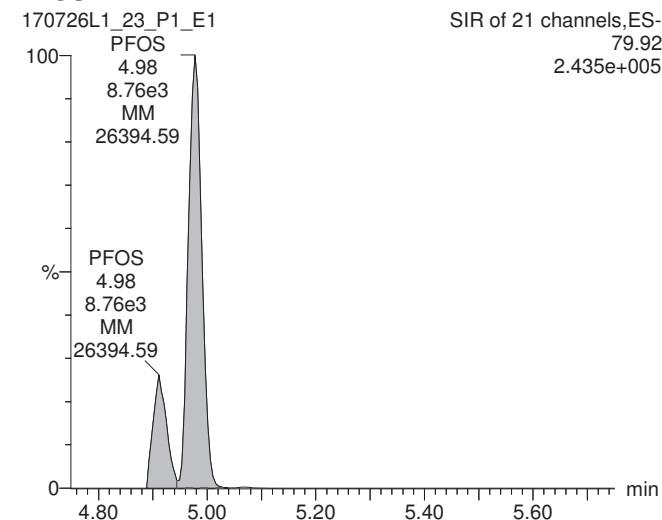
PFBS



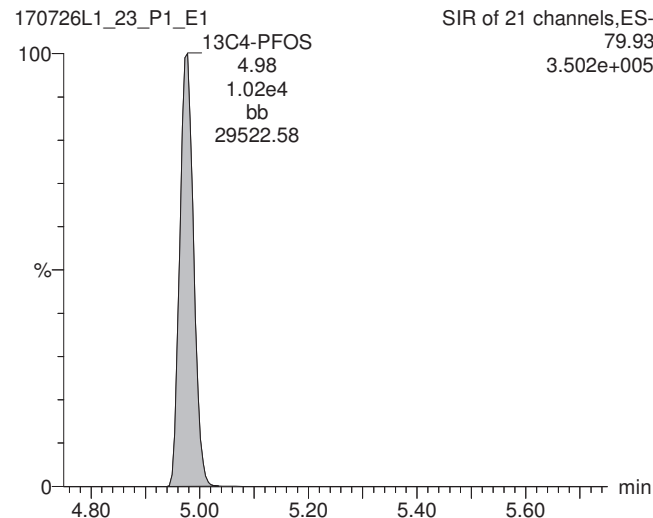
PFOA



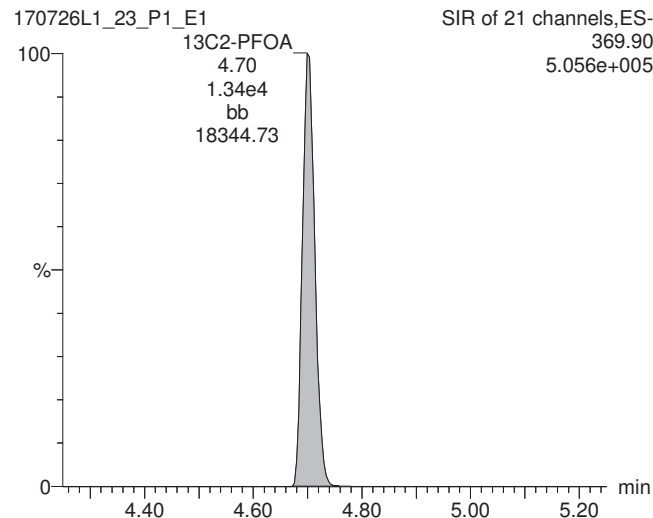
PFOS



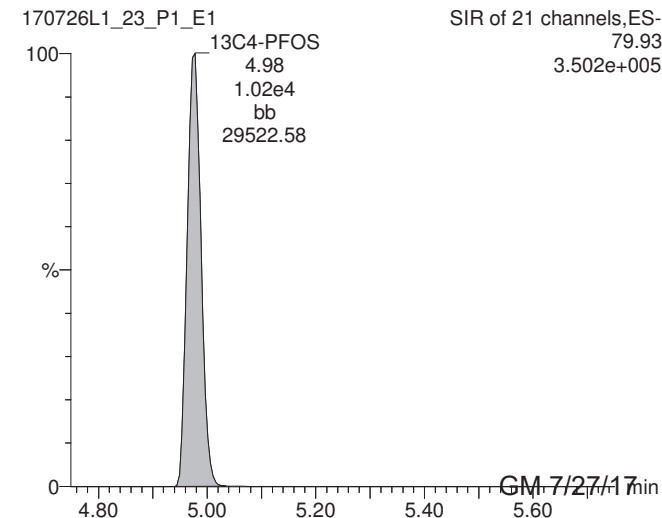
13C4-PFOS



13C2-PFOA



13C4-PFOS



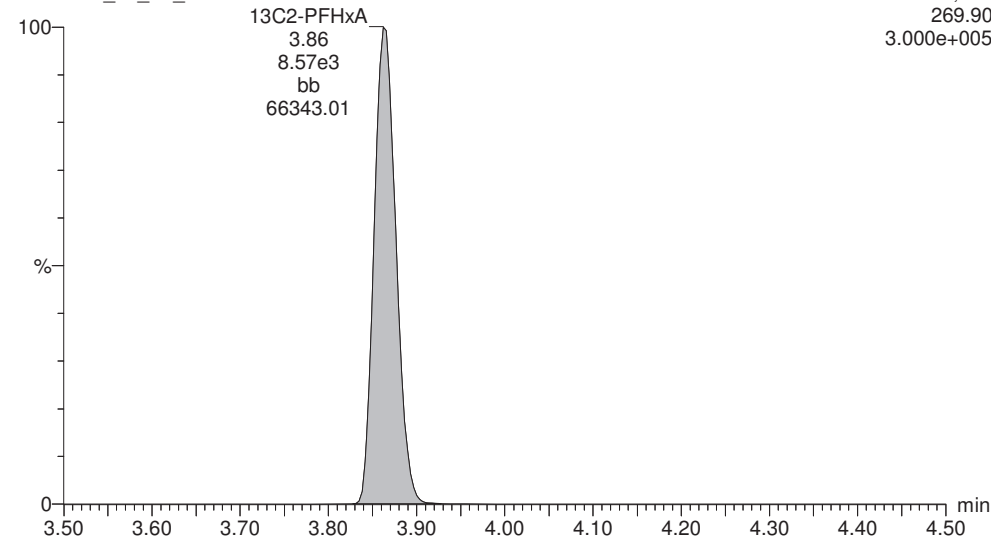
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-23.qld

Last Altered: Thursday, July 27, 2017 11:32:24 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:32:51 Pacific Daylight Time

ID: 1700923-05, Description: NARLB-FB02-0717, Name: 170726L1_23.wiff, Date: 26-Jul-2017, Time: 21:34:22, Instrument: , Lab: ©PE-SCIEX, User: sciex

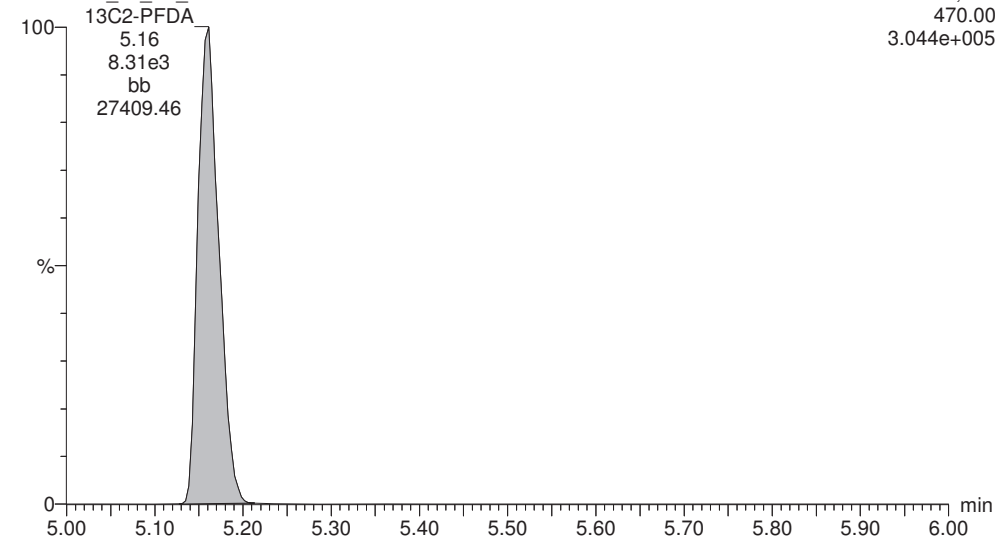
13C2-PFHxA

170726L1_23_P1_E1



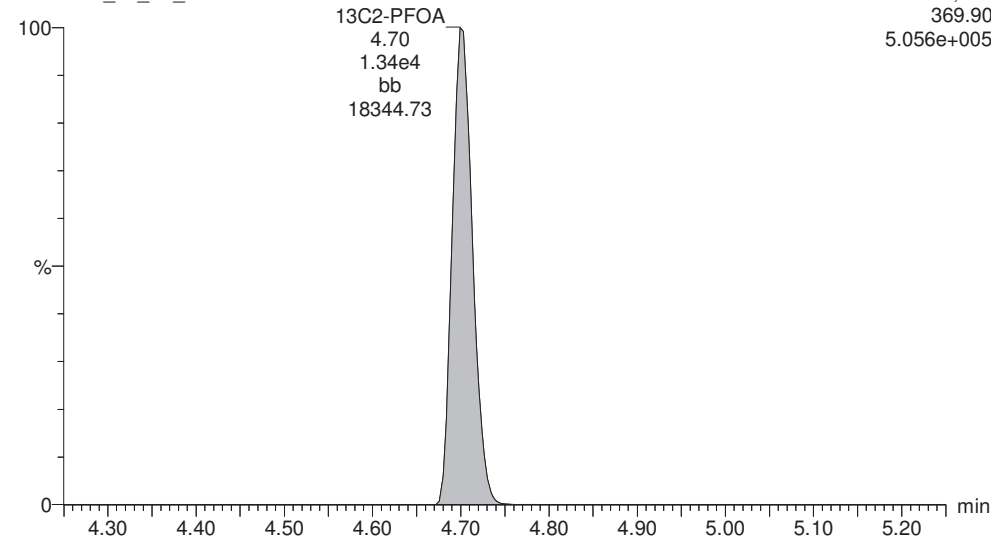
13C2-PFDA

170726L1_23_P1_E1



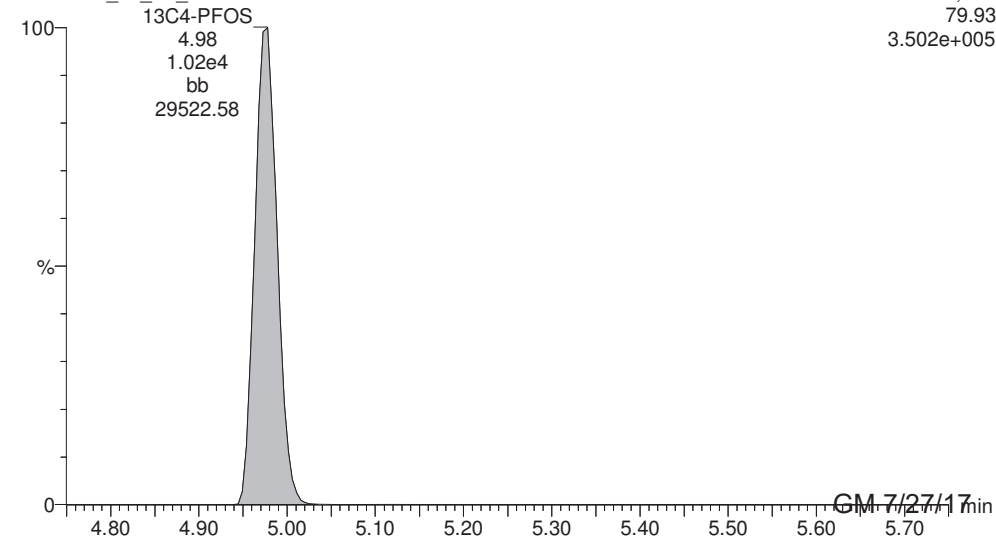
13C2-PFOA

170726L1_23_P1_E1



13C4-PFOS

170726L1_23_P1_E1



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-21.qld

Last Altered: Thursday, July 27, 2017 11:27:33 Pacific Daylight Time

Printed: Thursday, July 27, 2017 11:28:27 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: B7G0113-MS1, Description: LFSM, Name: 170726L1_21.wiff, Date: 26-Jul-2017, Time: 21:09:50

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	79.90	9.322e3	8.481e3		0.248	3.49	74.1	
2	4 PFOA	368.90	3.621e4	1.155e4		0.248	4.70	166	
3	6 PFOS	79.92	1.528e4	8.481e3		0.248	5.06	168	
4	7 13C2-PFHxA	269.90	7.740e3	1.155e4	0.663	0.248	3.85	40.8	101
5	8 13C2-PFDA	470.00	9.082e3	1.155e4	0.636	0.248	5.28	49.9	124
6	9 13C2-PFOA	369.90	1.155e4	1.155e4	1.000	0.248	4.70	40.4	100
7	10 13C4-PFOS	79.93	8.481e3	8.481e3	1.000	0.248	5.06	116	100

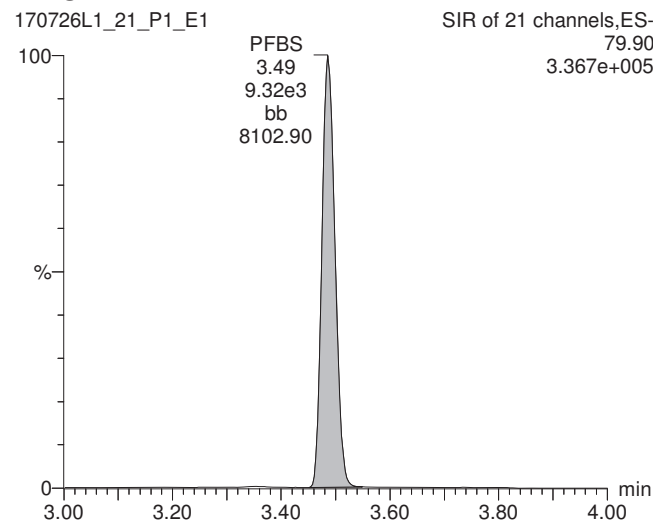
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-21.qld

Last Altered: Thursday, July 27, 2017 11:27:33 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:28:27 Pacific Daylight Time

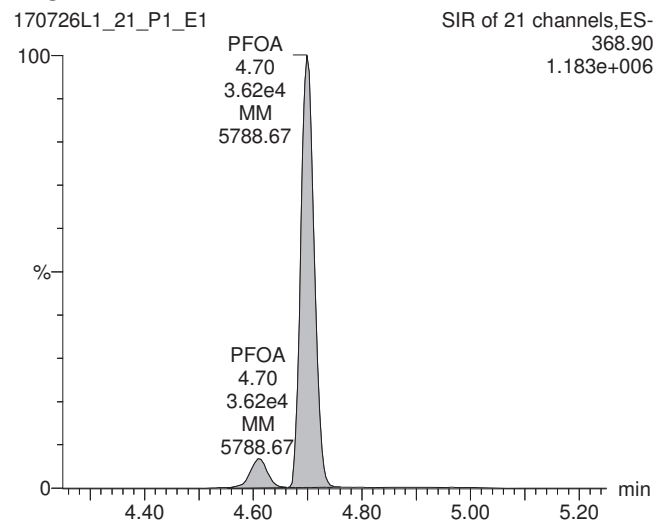
Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: B7G0113-MS1, Description: LFSM, Name: 170726L1_21.wiff, Date: 26-Jul-2017, Time: 21:09:50, Instrument: , Lab: ©PE-SCIEX, User: sciex

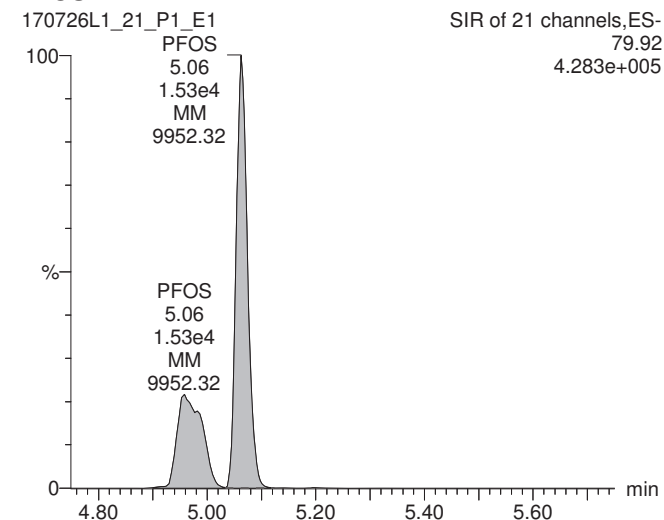
PFBS



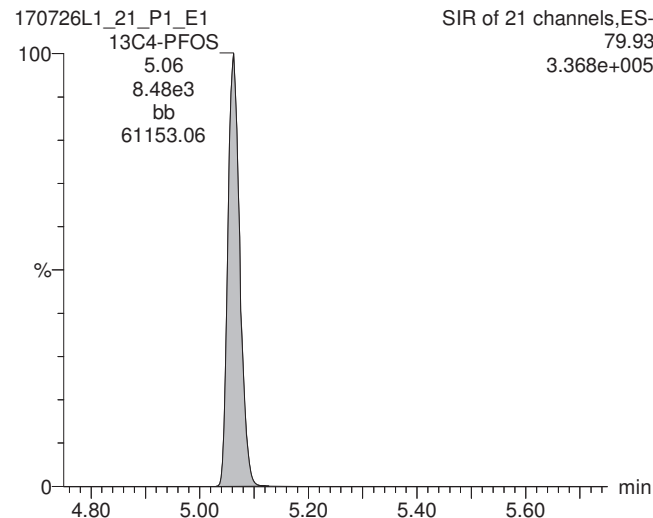
PFOA



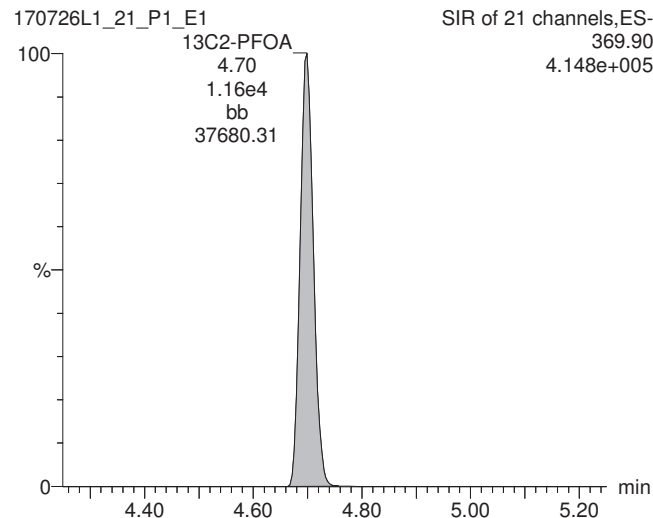
PFOS



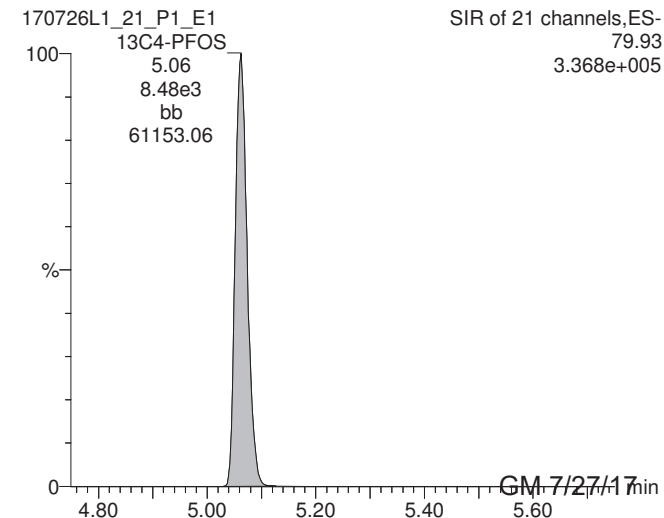
13C4-PFOS



13C2-PFOA



13C4-PFOS



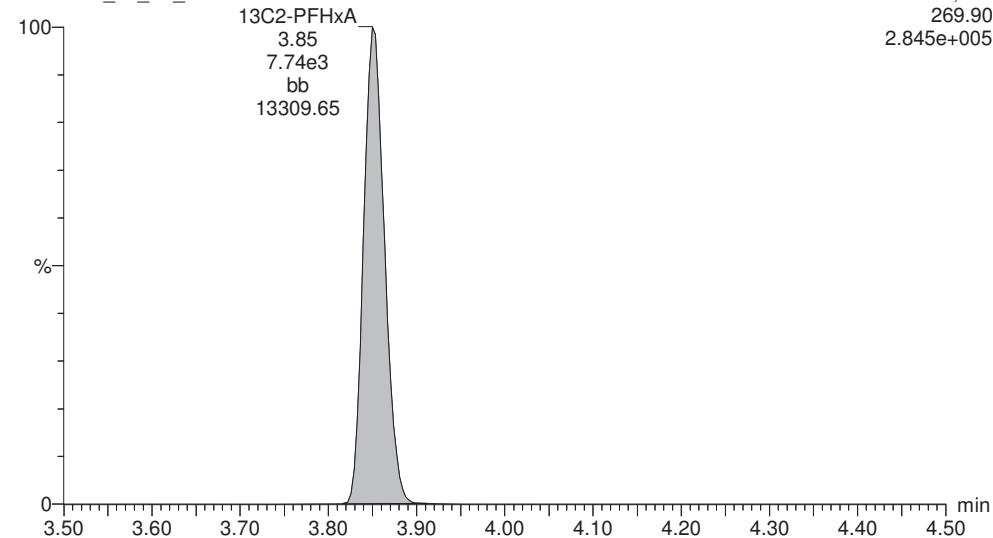
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-21.qld

Last Altered: Thursday, July 27, 2017 11:27:33 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:28:27 Pacific Daylight Time

ID: B7G0113-MS1, Description: LFSM, Name: 170726L1_21.wiff, Date: 26-Jul-2017, Time: 21:09:50, Instrument: , Lab: ©PE-SCIEX, User: sciex

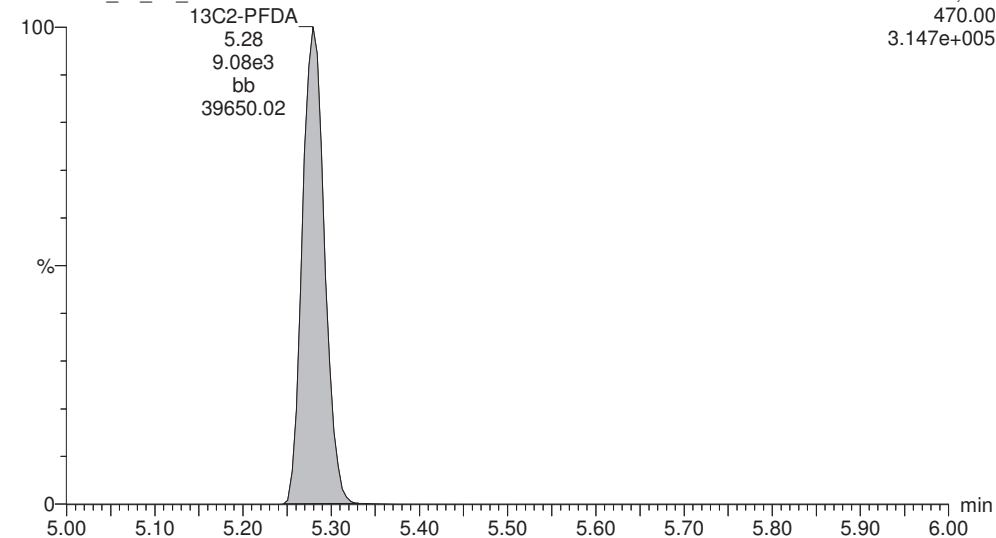
13C2-PFHxA

170726L1_21_P1_E1



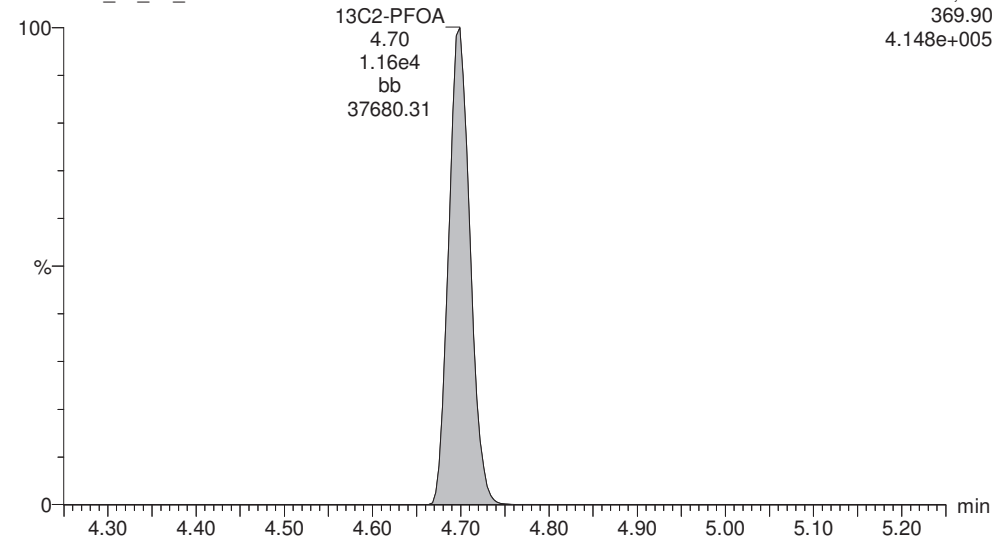
13C2-PFDA

170726L1_21_P1_E1



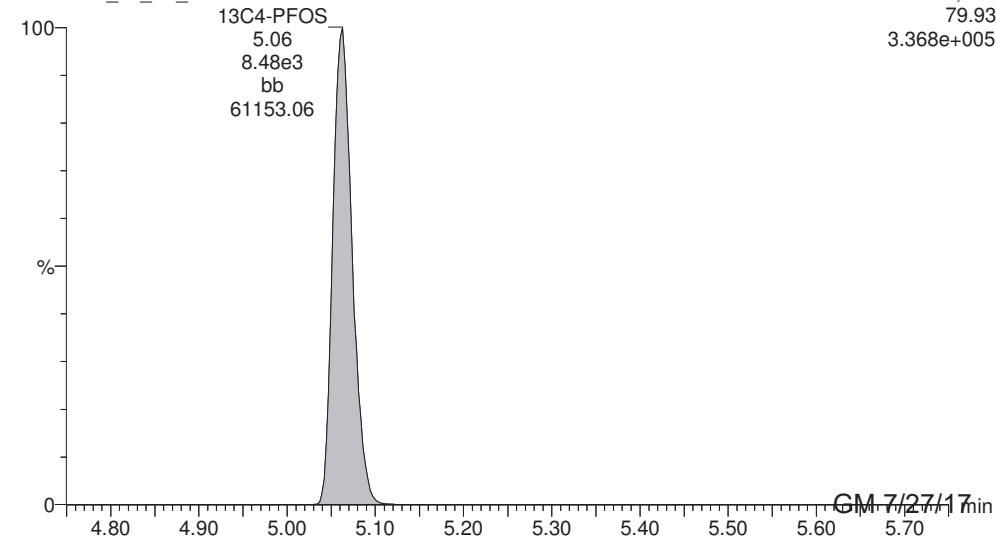
13C2-PFOA

170726L1_21_P1_E1



13C4-PFOS

170726L1_21_P1_E1



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-22.qld

Last Altered: Thursday, July 27, 2017 11:30:44 Pacific Daylight Time

Printed: Thursday, July 27, 2017 11:31:10 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: B7G0113-MSD1, Description: LFSMD, Name: 170726L1_22.wiff, Date: 26-Jul-2017, Time: 21:22:06

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	79.90	9.633e3	9.328e3		0.244	3.48	70.8	
2	4 PFOA	368.90	3.817e4	1.226e4		0.244	4.69	167	
3	6 PFOS	79.92	1.516e4	9.328e3		0.244	5.06	154	
4	7 13C2-PFHxA	269.90	8.035e3	1.226e4	0.663	0.244	3.85	40.6	98.9
5	8 13C2-PFDA	470.00	7.198e3	1.226e4	0.636	0.244	5.28	37.9	92.3
6	9 13C2-PFOA	369.90	1.226e4	1.226e4	1.000	0.244	4.69	41.0	100
7	10 13C4-PFOS	79.93	9.328e3	9.328e3	1.000	0.244	5.06	118	100

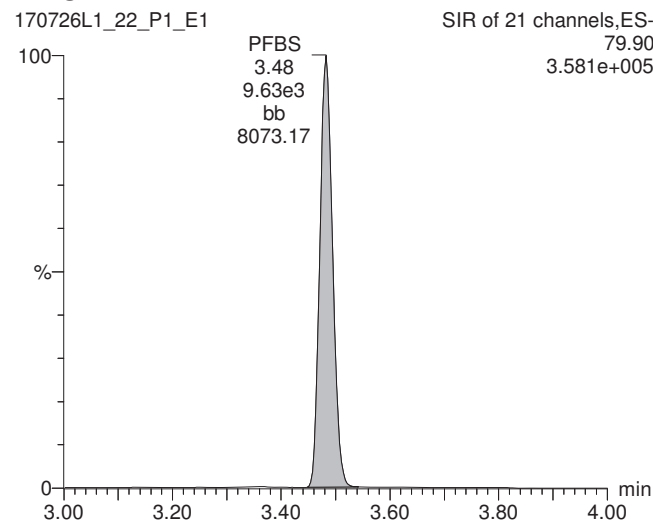
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-22.qld

Last Altered: Thursday, July 27, 2017 11:30:44 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:31:10 Pacific Daylight Time

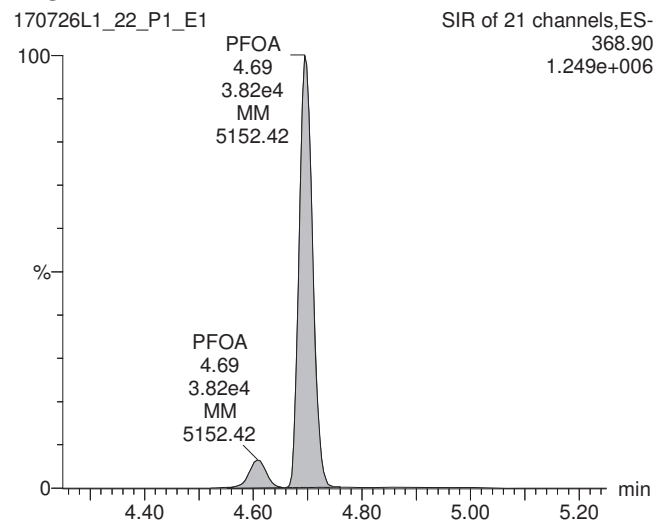
Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: B7G0113-MSD1, Description: LFSMD, Name: 170726L1_22.wiff, Date: 26-Jul-2017, Time: 21:22:06, Instrument: , Lab: ©PE-SCIEX, User: sciex

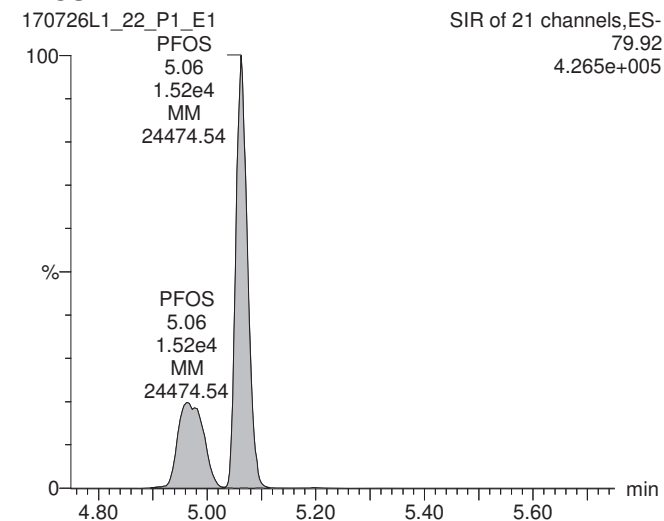
PFBS



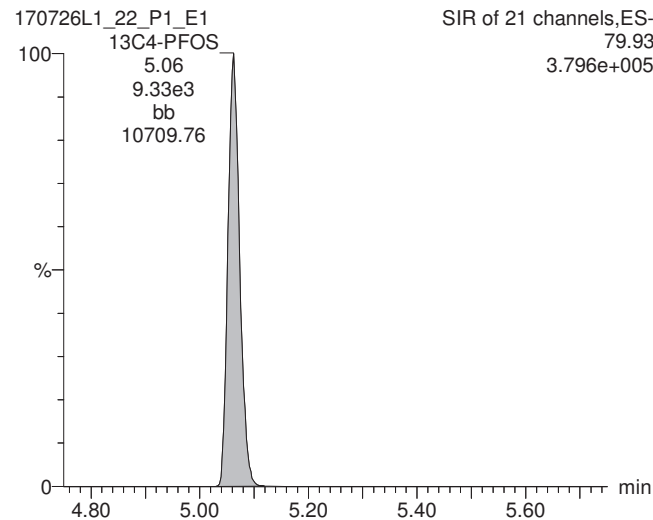
PFOA



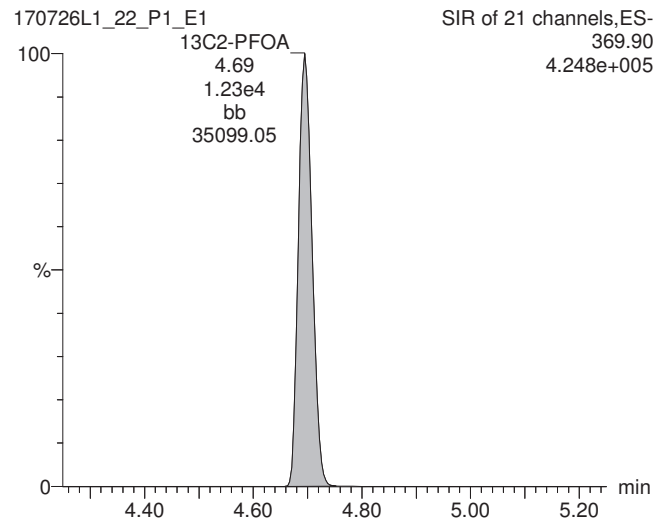
PFOS



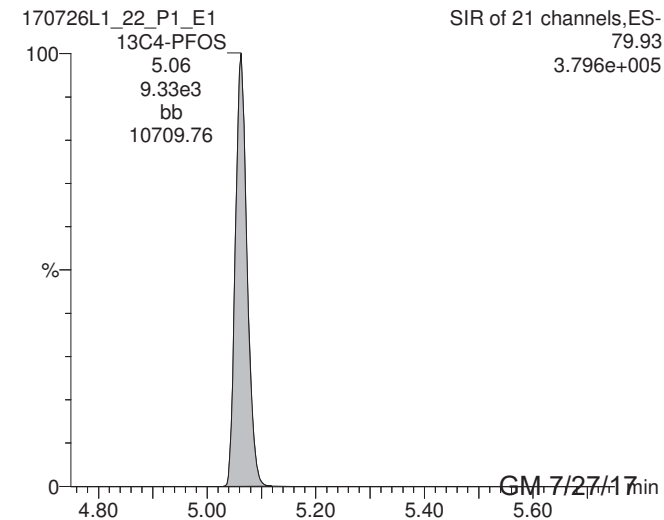
13C4-PFOS



13C2-PFOA



13C4-PFOS



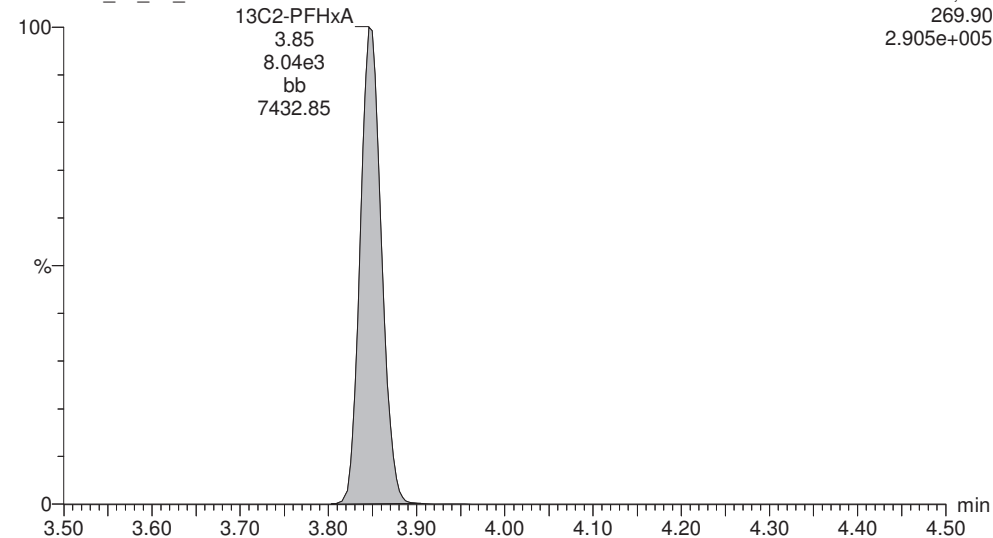
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-22.qld

Last Altered: Thursday, July 27, 2017 11:30:44 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:31:10 Pacific Daylight Time

ID: B7G0113-MSD1, Description: LFSMD, Name: 170726L1_22.wiff, Date: 26-Jul-2017, Time: 21:22:06, Instrument: , Lab: ©PE-SCIEX, User: sciex

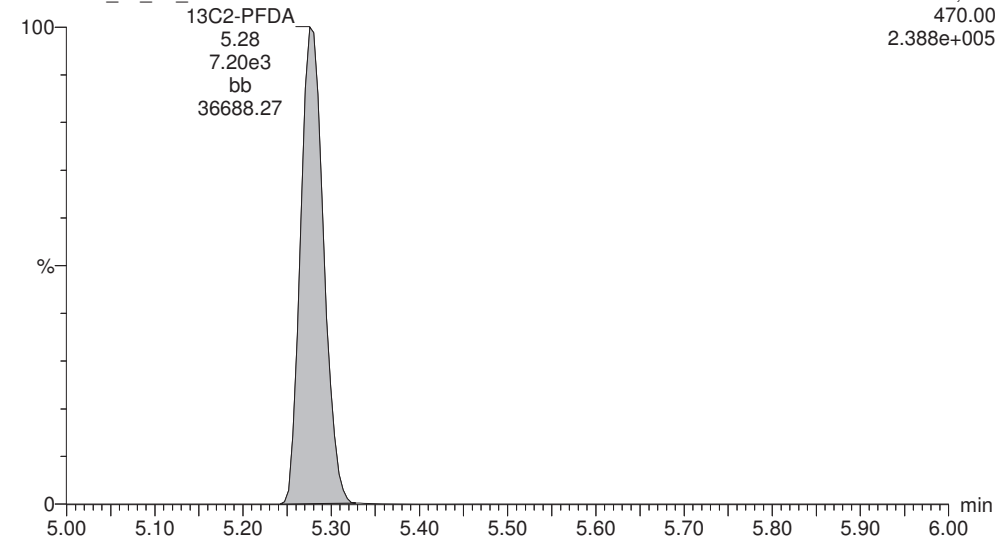
13C2-PFHxA

170726L1_22_P1_E1



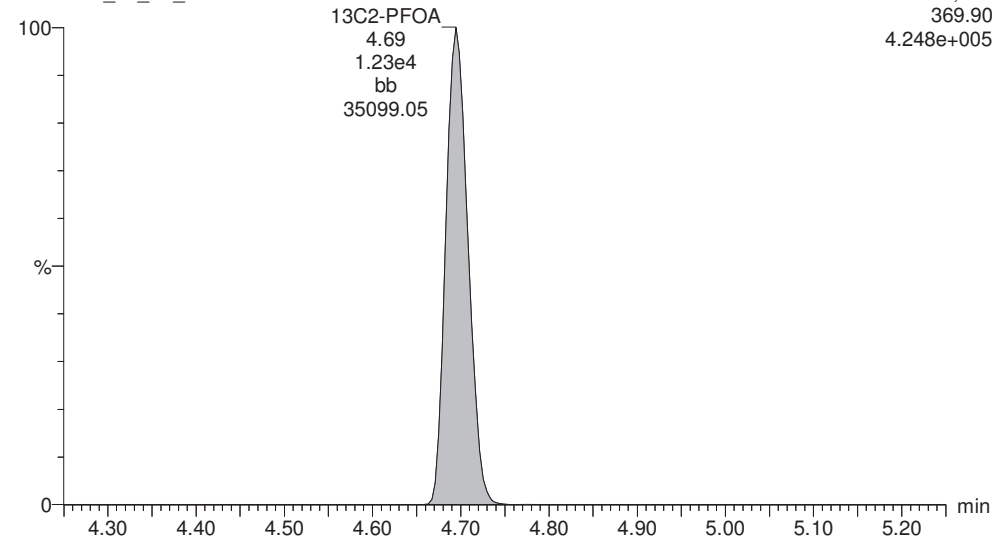
13C2-PFDA

170726L1_22_P1_E1



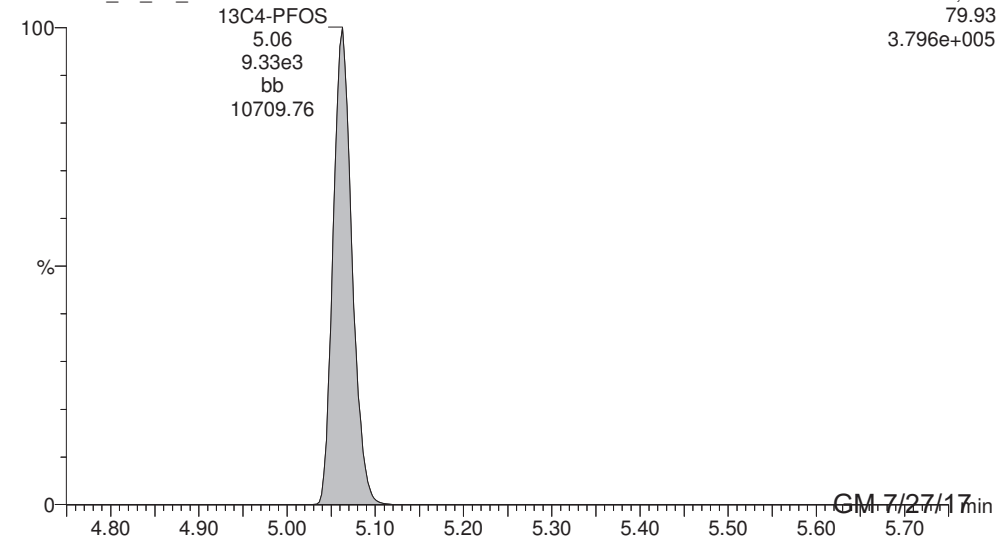
13C2-PFOA

170726L1_22_P1_E1



13C4-PFOS

170726L1_22_P1_E1



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-24.qld

Last Altered: Thursday, July 27, 2017 11:33:56 Pacific Daylight Time

Printed: Thursday, July 27, 2017 11:34:26 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-06, Description: NARLB-SW03-0717, Name: 170726L1_24.wiff, Date: 26-Jul-2017, Time: 21:46:36

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	79.90	4.457e2	1.023e4		0.247	3.48	2.94	
2	4 PFOA	368.90	2.449e4	1.370e4		0.247	4.68	86.3	
3	6 PFOS	79.92	1.926e4	1.023e4		0.247	5.05	176	
4	7 13C2-PFHxA	269.90	8.822e3	1.370e4	0.663	0.247	3.84	39.4	97.1
5	8 13C2-PFDA	470.00	8.689e3	1.370e4	0.636	0.247	5.27	40.4	99.7
6	9 13C2-PFOA	369.90	1.370e4	1.370e4	1.000	0.247	4.68	40.5	100
7	10 13C4-PFOS	79.93	1.023e4	1.023e4	1.000	0.247	5.04	116	100

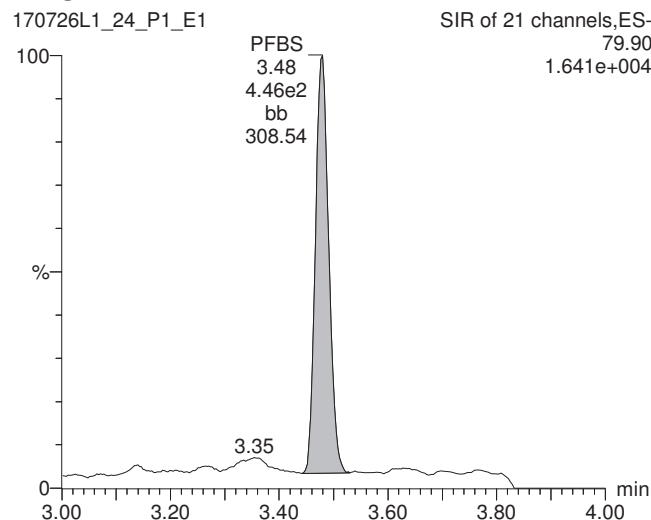
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-24.qld

Last Altered: Thursday, July 27, 2017 11:33:56 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:34:26 Pacific Daylight Time

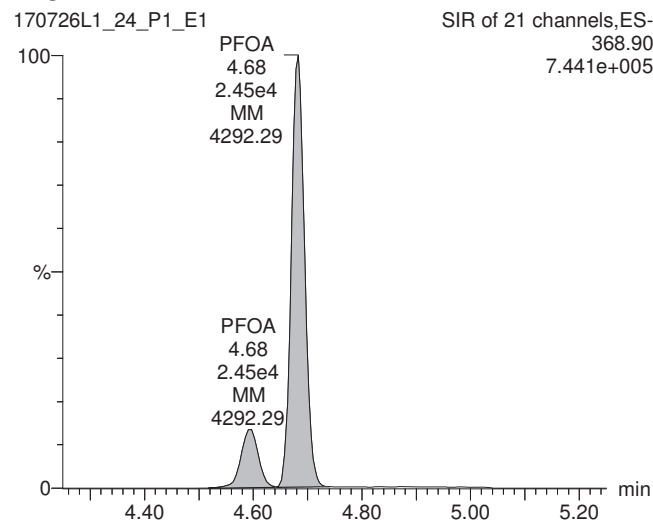
Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-06, Description: NARLB-SW03-0717, Name: 170726L1_24.wiff, Date: 26-Jul-2017, Time: 21:46:36, Instrument: , Lab: ©PE-SCIEX, User: sciex

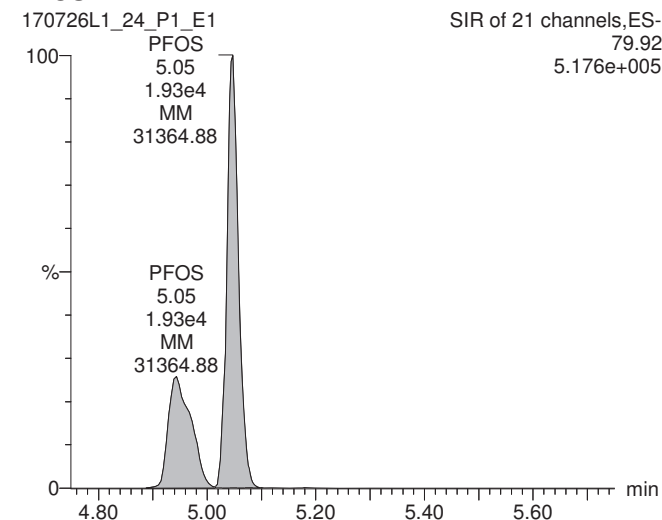
PFBS



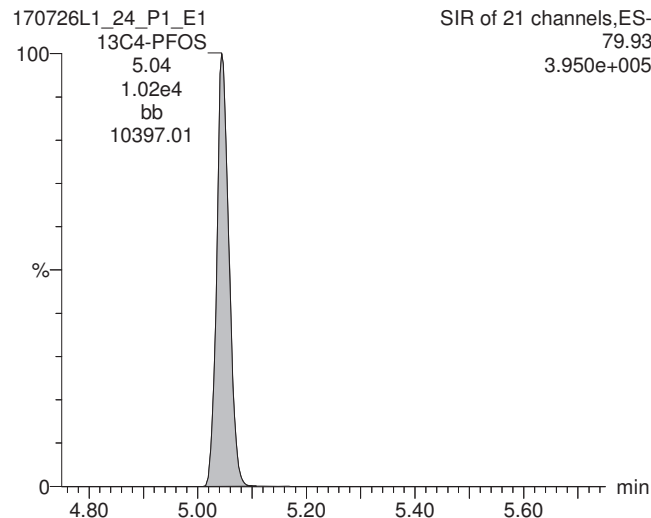
PFOA



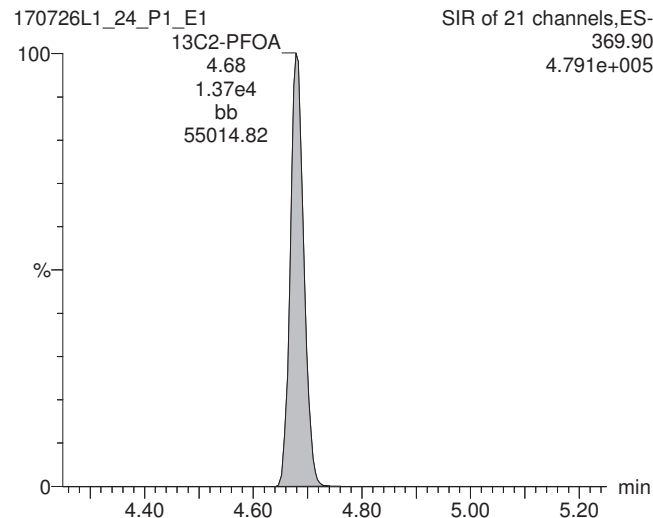
PFOS



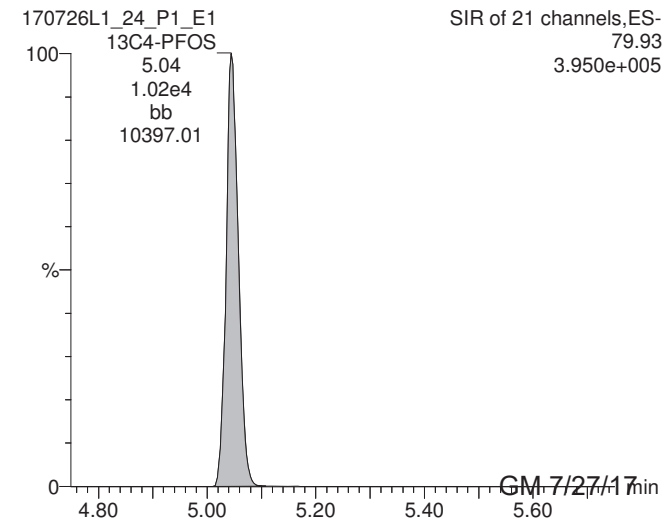
13C4-PFOS



13C2-PFOA



13C4-PFOS



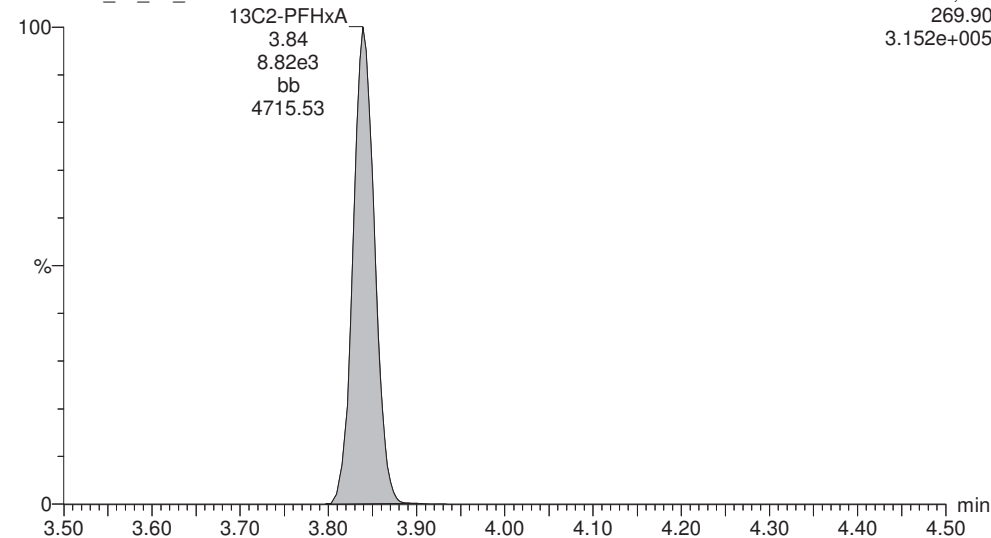
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-24.qld

Last Altered: Thursday, July 27, 2017 11:33:56 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:34:26 Pacific Daylight Time

ID: 1700923-06, Description: NARLB-SW03-0717, Name: 170726L1_24.wiff, Date: 26-Jul-2017, Time: 21:46:36, Instrument: , Lab: ©PE-SCIEX, User: sciex

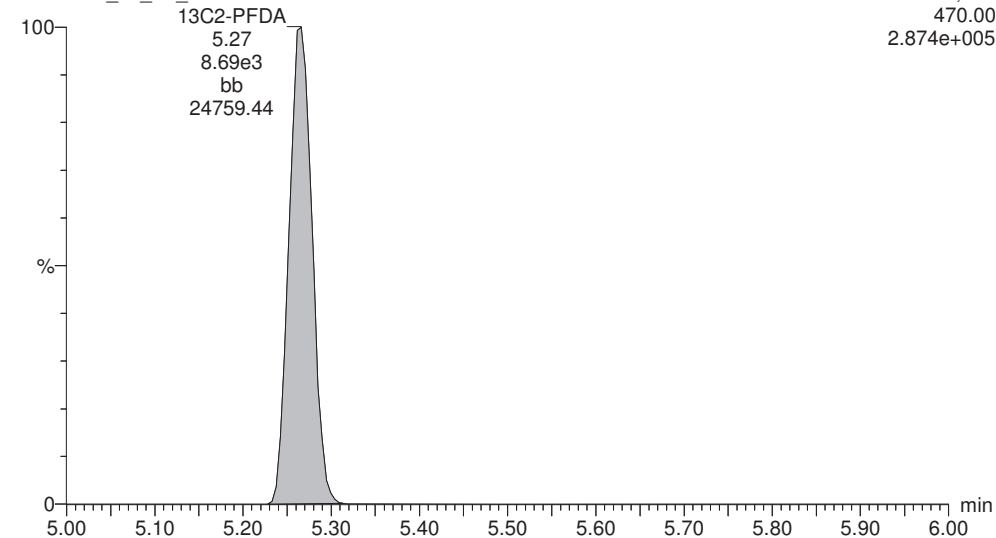
13C2-PFHxA

170726L1_24_P1_E1



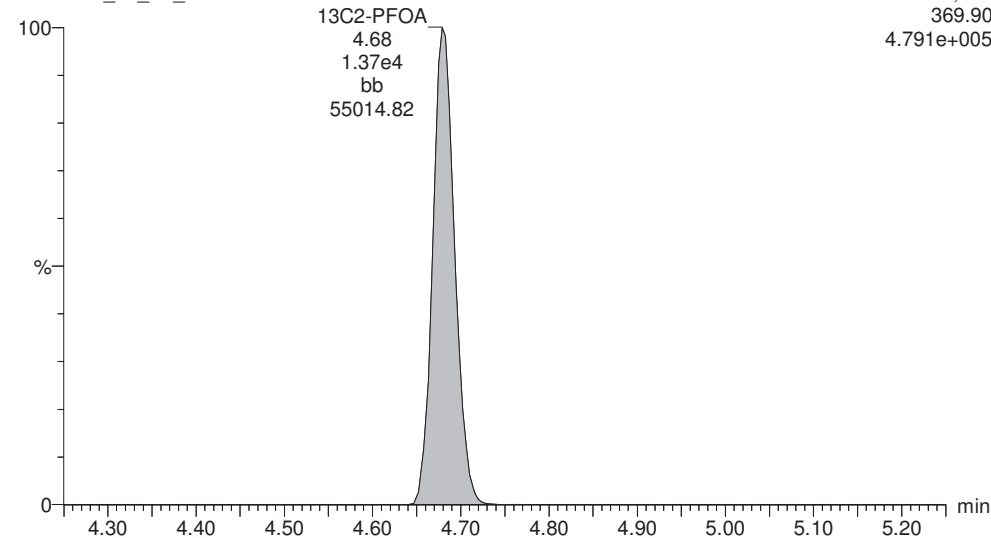
13C2-PFDA

170726L1_24_P1_E1



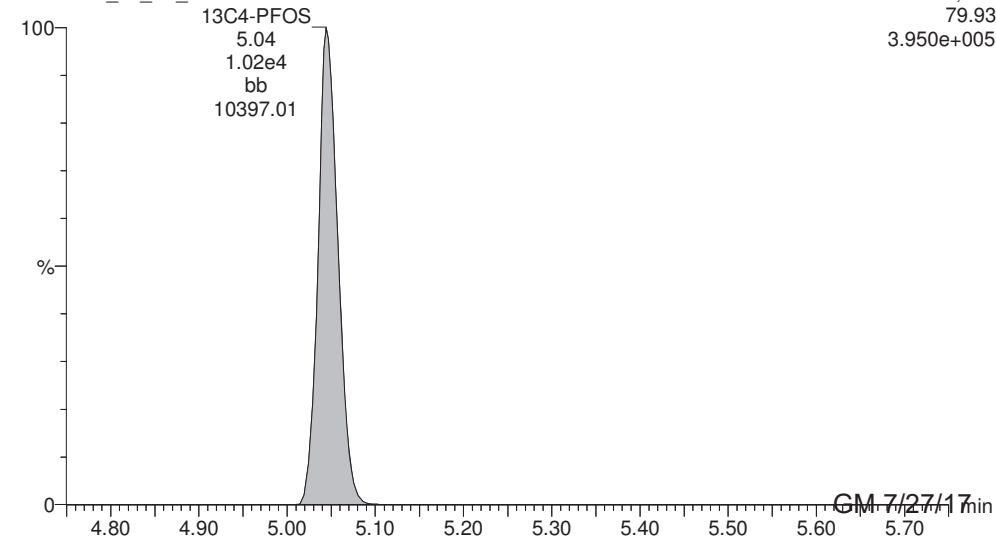
13C2-PFOA

170726L1_24_P1_E1



13C4-PFOS

170726L1_24_P1_E1



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-25.qld

Last Altered: Thursday, July 27, 2017 11:35:18 Pacific Daylight Time

Printed: Thursday, July 27, 2017 11:35:50 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-07, Description: NARLB-FB03-0717, Name: 170726L1_25.wiff, Date: 26-Jul-2017, Time: 21:58:47

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	79.90		9.935e3		0.255			
2	4 PFOA	368.90		1.318e4		0.255			
3	6 PFOS	79.92	1.140e1	9.935e3		0.255	5.04	0.104	
4	7 13C2-PFHxA	269.90	9.532e3	1.318e4	0.663	0.255	3.84	42.8	109
5	8 13C2-PFDA	470.00	9.220e3	1.318e4	0.636	0.255	5.26	43.1	110
6	9 13C2-PFOA	369.90	1.318e4	1.318e4	1.000	0.255	4.68	39.2	100
7	10 13C4-PFOS	79.93	9.935e3	9.935e3	1.000	0.255	5.04	113	100

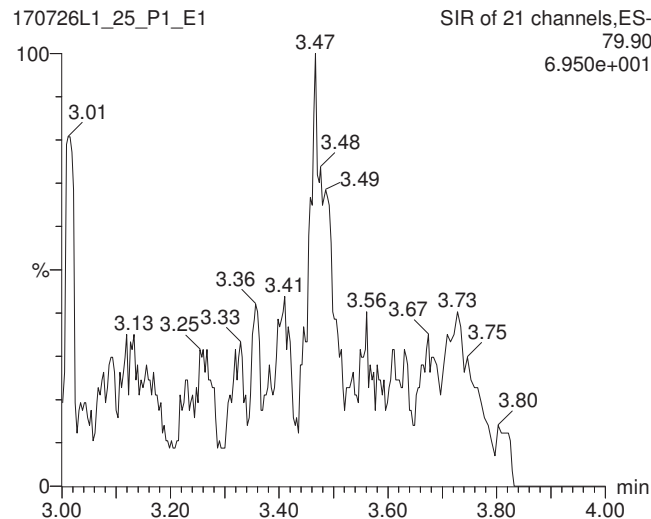
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-25.qld

Last Altered: Thursday, July 27, 2017 11:35:18 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:35:50 Pacific Daylight Time

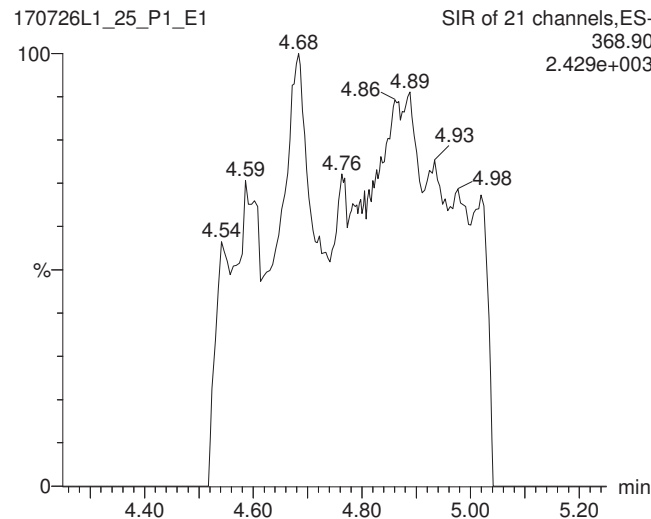
Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-07, Description: NARLB-FB03-0717, Name: 170726L1_25.wiff, Date: 26-Jul-2017, Time: 21:58:47, Instrument: , Lab: ©PE-SCIEX, User: sciex

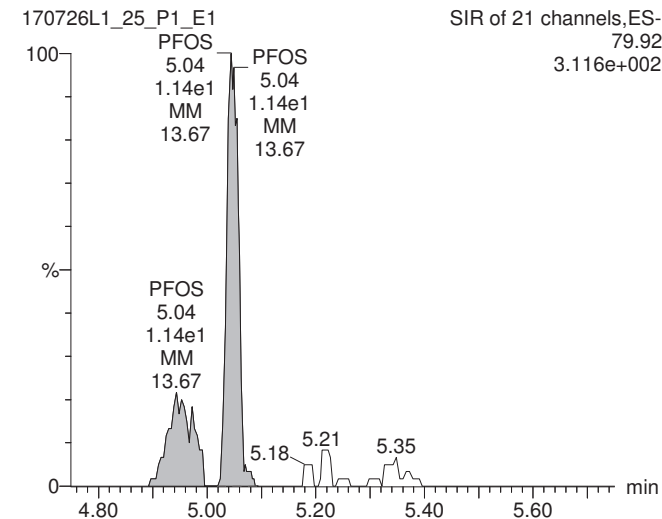
PFBS



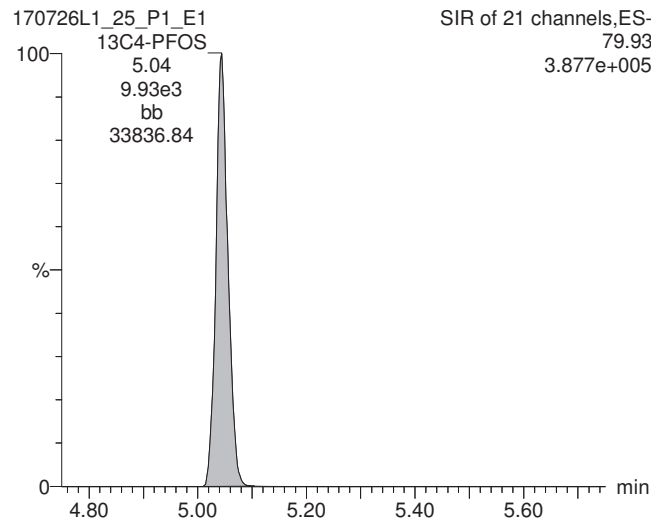
PFOA



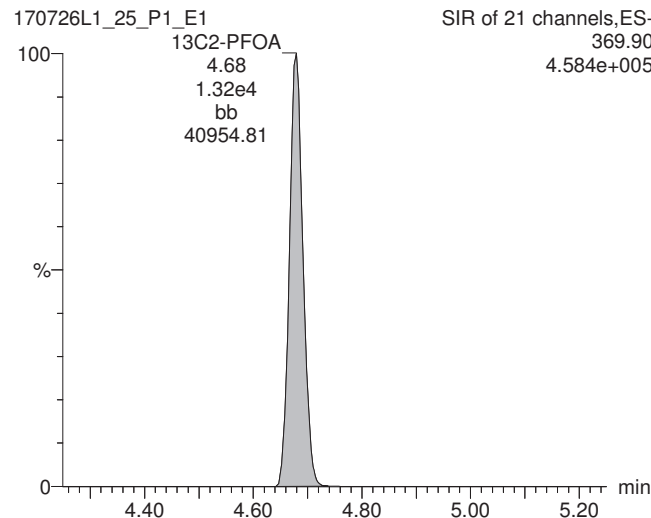
PFOS



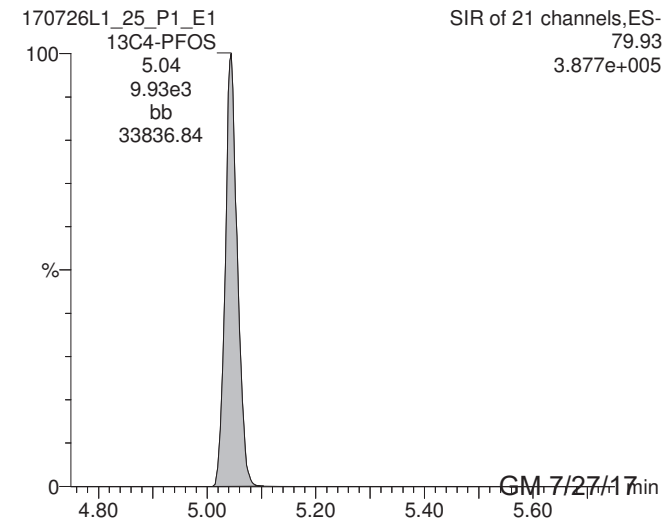
13C4-PFOS



13C2-PFOA



13C4-PFOS



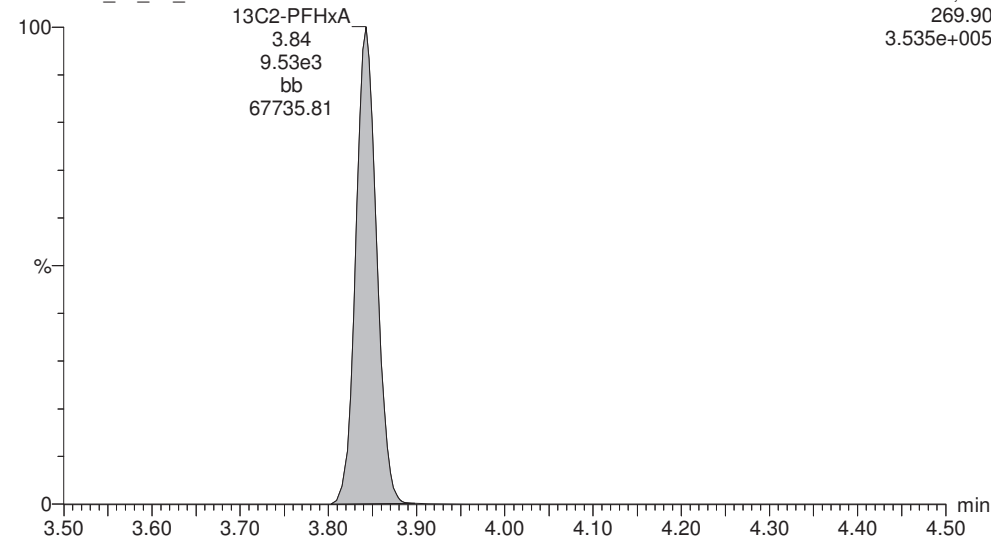
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-25.qld

Last Altered: Thursday, July 27, 2017 11:35:18 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:35:50 Pacific Daylight Time

ID: 1700923-07, Description: NARLB-FB03-0717, Name: 170726L1_25.wiff, Date: 26-Jul-2017, Time: 21:58:47, Instrument: , Lab: ©PE-SCIEX, User: sciex

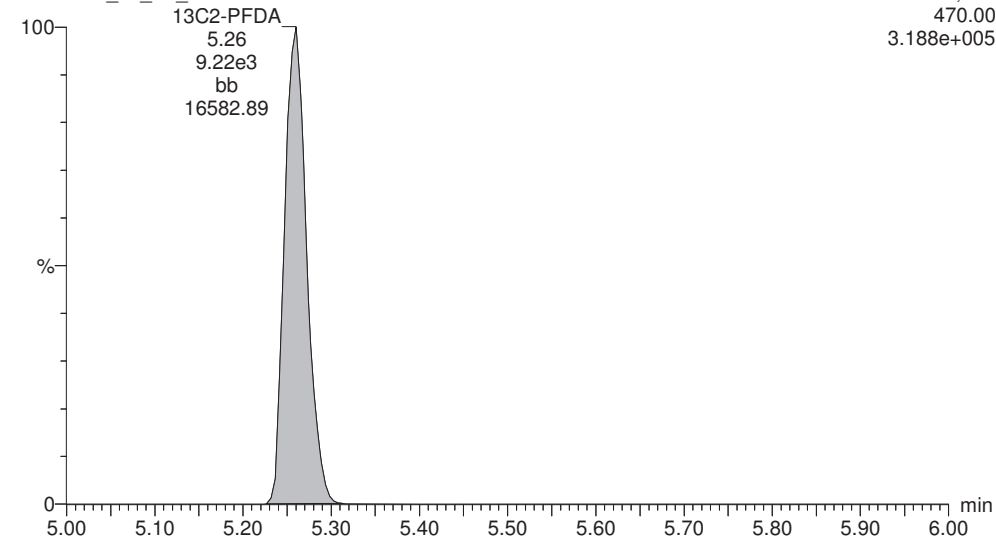
13C2-PFHxA

170726L1_25_P1_E1



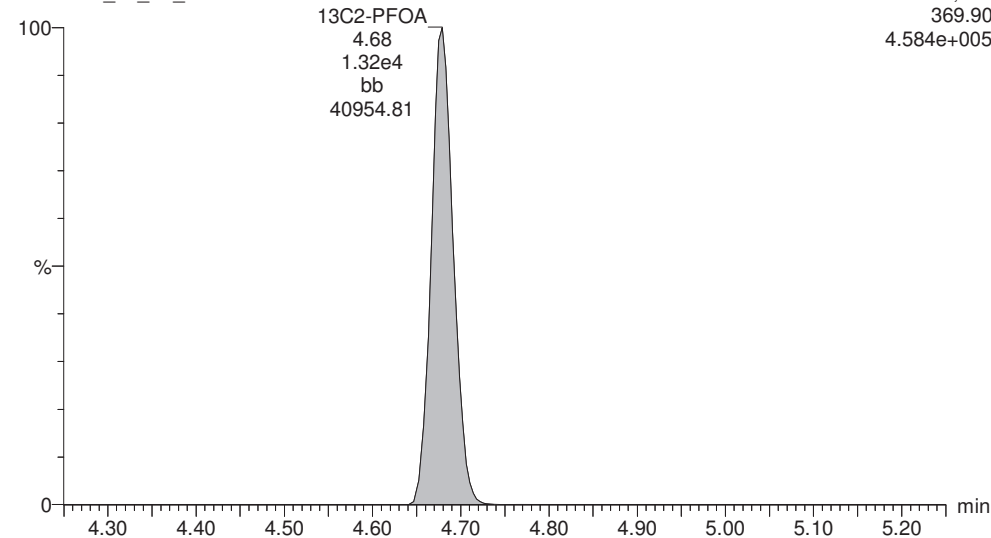
13C2-PFDA

170726L1_25_P1_E1



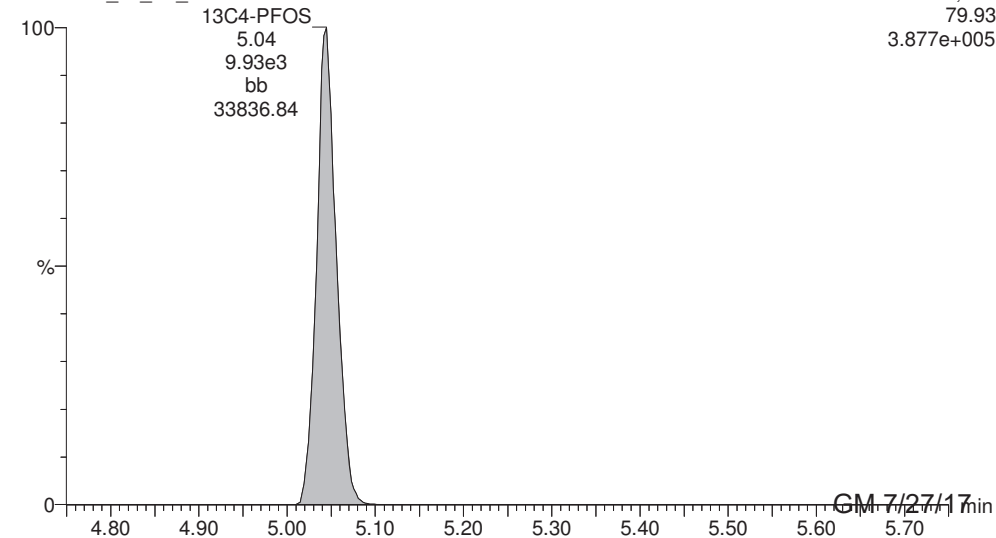
13C2-PFOA

170726L1_25_P1_E1



13C4-PFOS

170726L1_25_P1_E1



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-26.qld

Last Altered: Thursday, July 27, 2017 11:37:33 Pacific Daylight Time

Printed: Thursday, July 27, 2017 11:38:00 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-08, Description: NARLB-SW04-0717, Name: 170726L1_26.wiff, Date: 26-Jul-2017, Time: 22:10:59

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	79.90	4.225e2	9.320e3		0.244	3.48	3.10	
2	4 PFOA	368.90	1.948e4	1.194e4		0.244	4.68	79.0	
3	6 PFOS	79.92	9.336e3	9.320e3		0.244	5.05	94.7	
4	7 13C2-PFHxA	269.90	8.338e3	1.194e4	0.663	0.244	3.84	43.2	105
5	8 13C2-PFDA	470.00	8.299e3	1.194e4	0.636	0.244	5.26	44.8	109
6	9 13C2-PFOA	369.90	1.194e4	1.194e4	1.000	0.244	4.68	41.1	100
7	10 13C4-PFOS	79.93	9.320e3	9.320e3	1.000	0.244	5.04	118	100

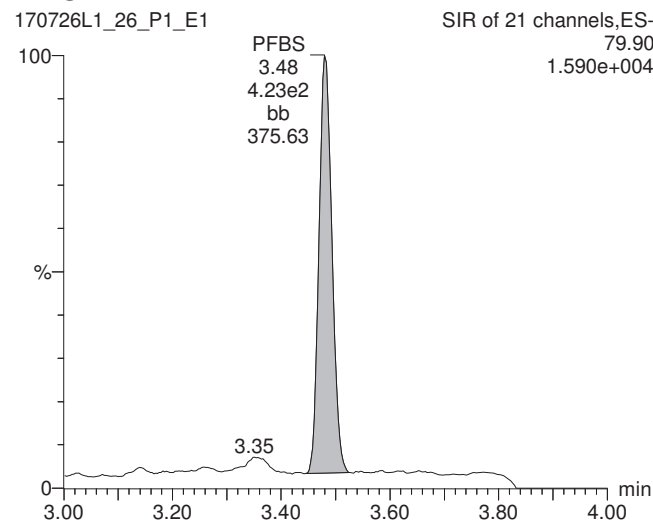
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-26.qld

Last Altered: Thursday, July 27, 2017 11:37:33 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:38:00 Pacific Daylight Time

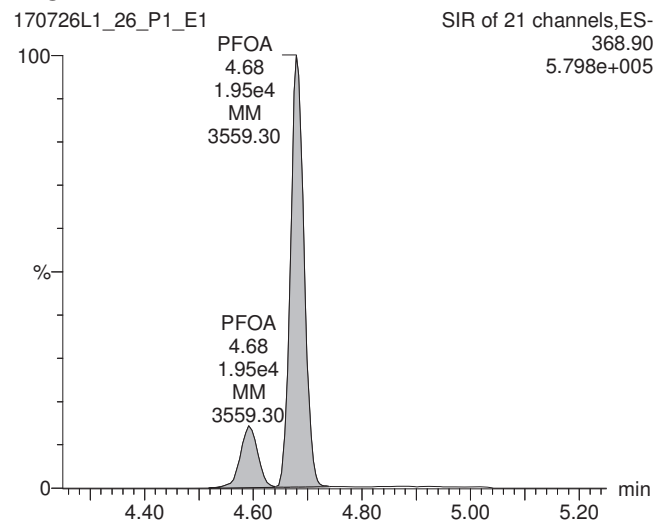
Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-08, Description: NARLB-SW04-0717, Name: 170726L1_26.wiff, Date: 26-Jul-2017, Time: 22:10:59, Instrument: , Lab: ©PE-SCIEX, User: sciex

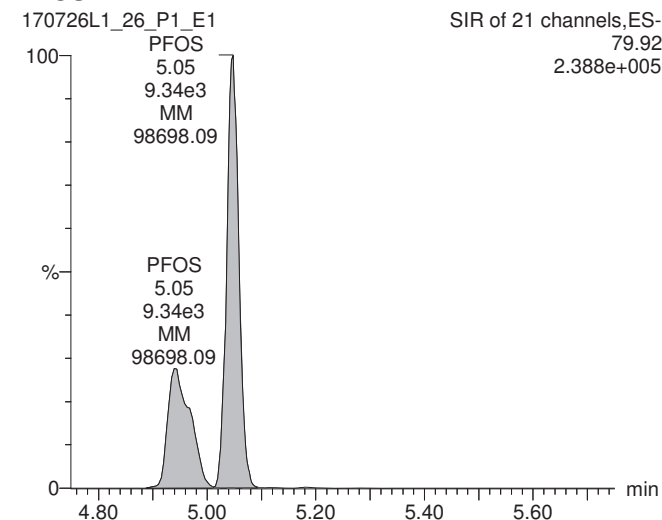
PFBS



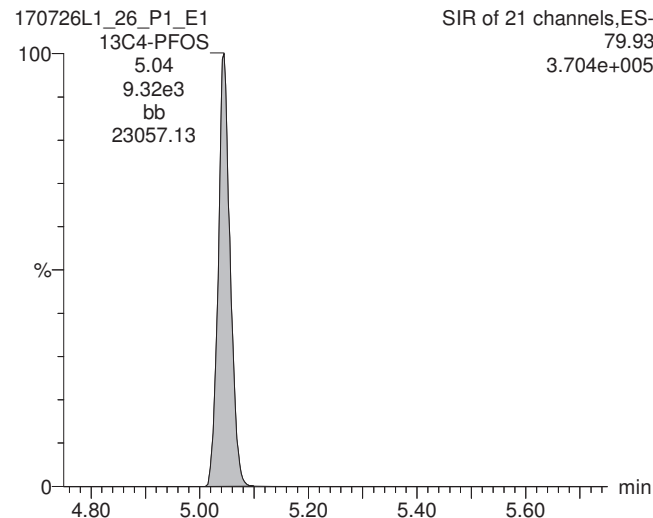
PFOA



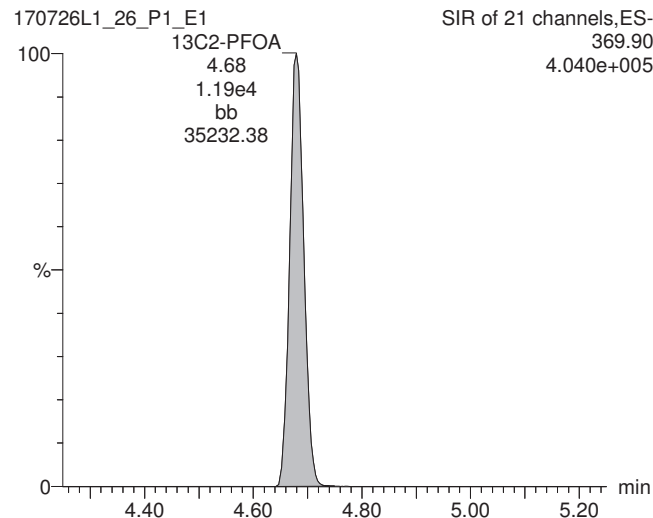
PFOS



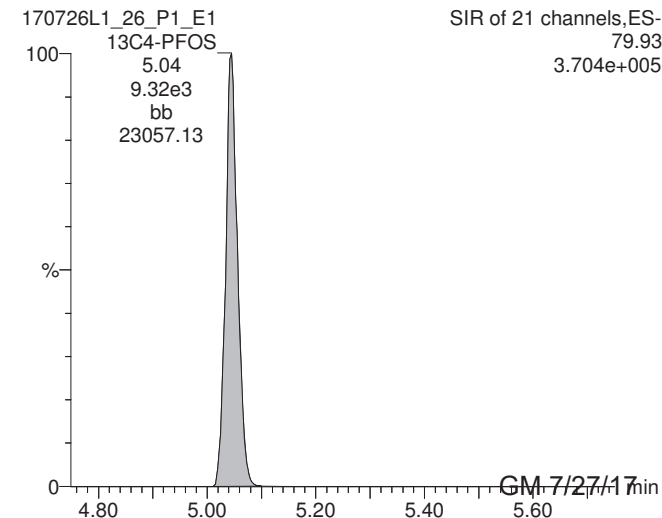
13C4-PFOS



13C2-PFOA



13C4-PFOS



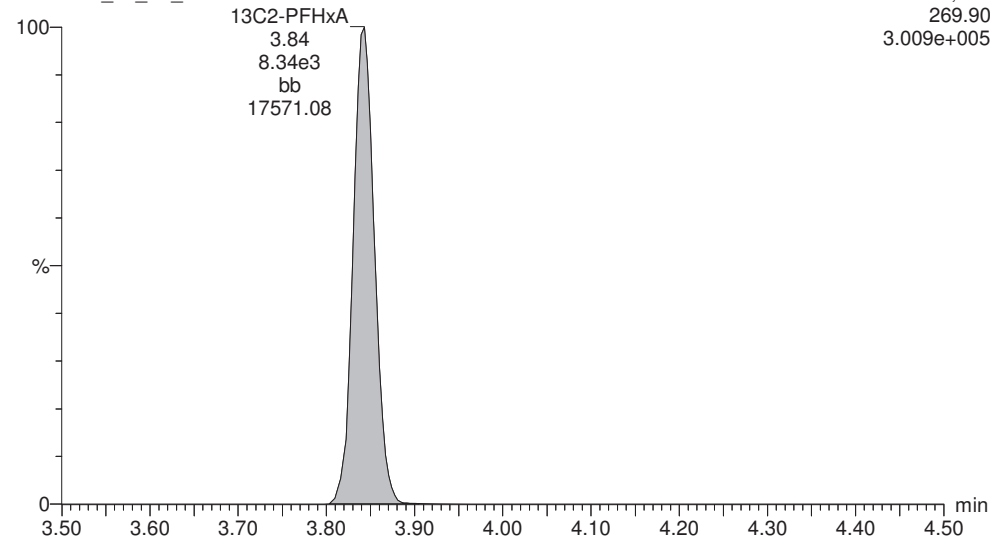
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-26.qld

Last Altered: Thursday, July 27, 2017 11:37:33 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:38:00 Pacific Daylight Time

ID: 1700923-08, Description: NARLB-SW04-0717, Name: 170726L1_26.wiff, Date: 26-Jul-2017, Time: 22:10:59, Instrument: , Lab: ©PE-SCIEX, User: sciex

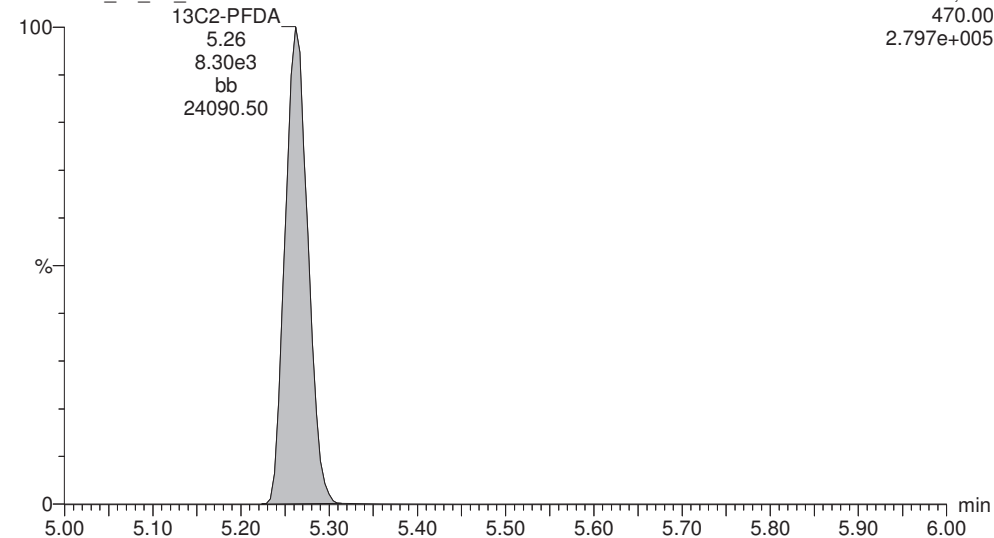
13C2-PFHxA

170726L1_26_P1_E1



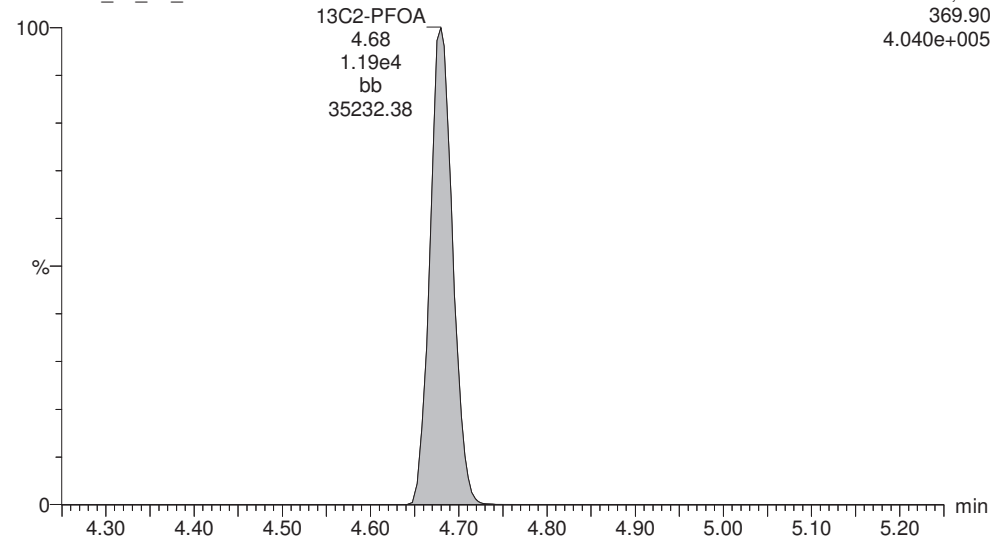
13C2-PFDA

170726L1_26_P1_E1



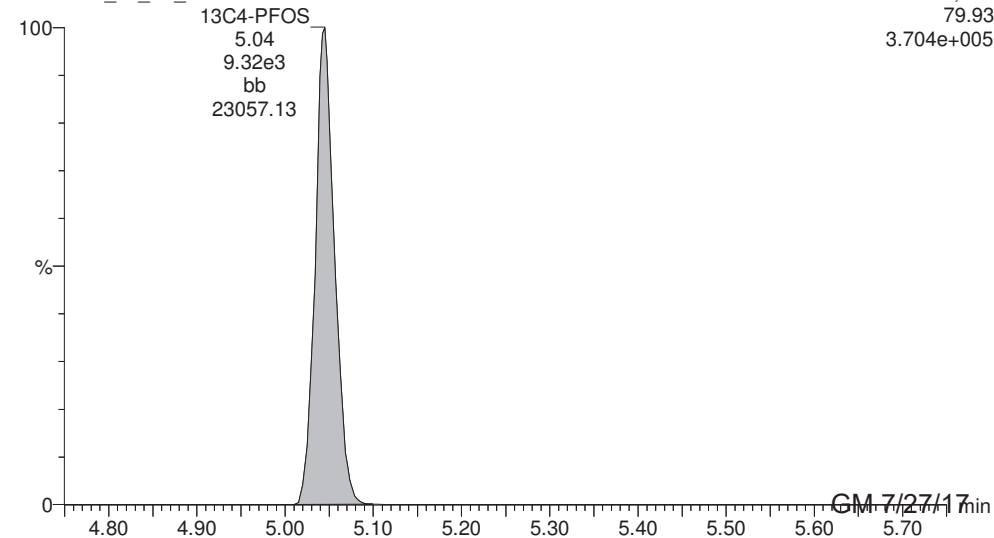
13C2-PFOA

170726L1_26_P1_E1



13C4-PFOS

170726L1_26_P1_E1



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-27.qld

Last Altered: Thursday, July 27, 2017 11:38:56 Pacific Daylight Time

Printed: Thursday, July 27, 2017 11:39:37 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-09, Description: NARLB-FB04-0717, Name: 170726L1_27.wiff, Date: 26-Jul-2017, Time: 22:23:16

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	79.90		9.885e3		0.258			
2	4 PFOA	368.90		1.324e4		0.258			
3	6 PFOS	79.92	6.018e0	9.885e3		0.258	5.10	0.0544	
4	7 13C2-PFHxA	269.90	8.992e3	1.324e4	0.663	0.258	3.88	39.7	102
5	8 13C2-PFDA	470.00	8.482e3	1.324e4	0.636	0.258	5.31	39.1	101
6	9 13C2-PFOA	369.90	1.324e4	1.324e4	1.000	0.258	4.73	38.8	100
7	10 13C4-PFOS	79.93	9.885e3	9.885e3	1.000	0.258	5.09	111	100

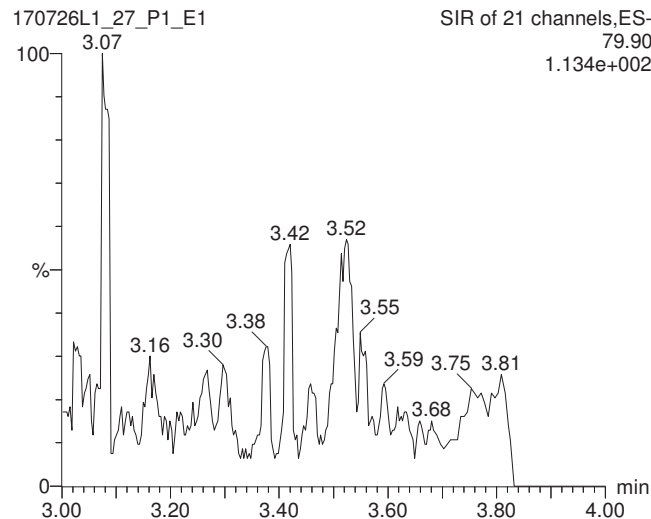
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-27.qld

Last Altered: Thursday, July 27, 2017 11:38:56 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:39:37 Pacific Daylight Time

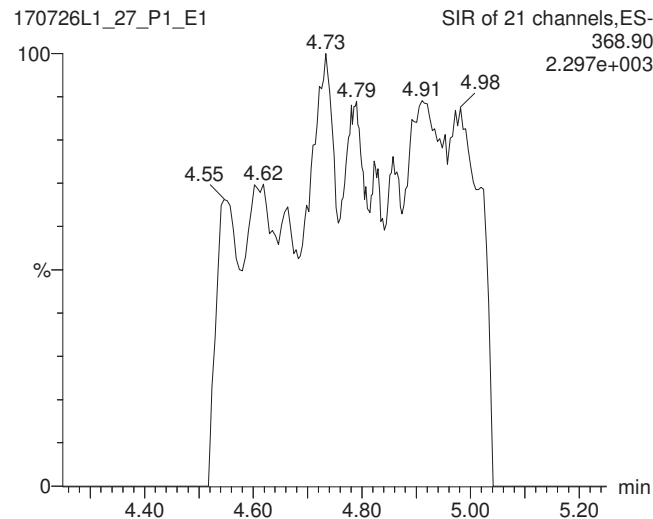
Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-09, Description: NARLB-FB04-0717, Name: 170726L1_27.wiff, Date: 26-Jul-2017, Time: 22:23:16, Instrument: , Lab: ©PE-SCIEX, User: sciex

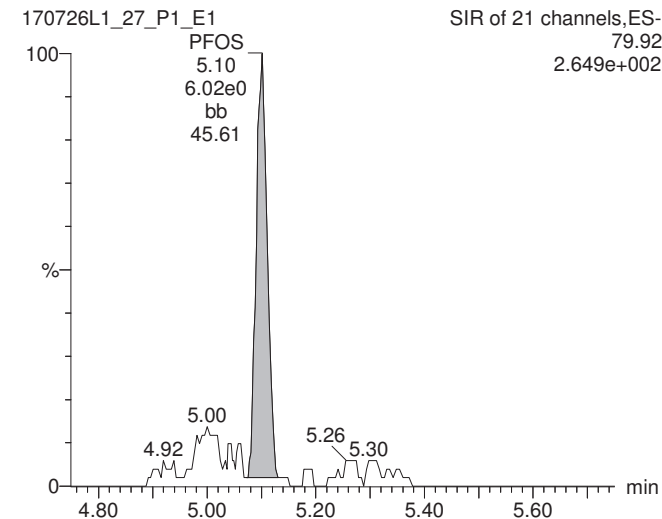
PFBS



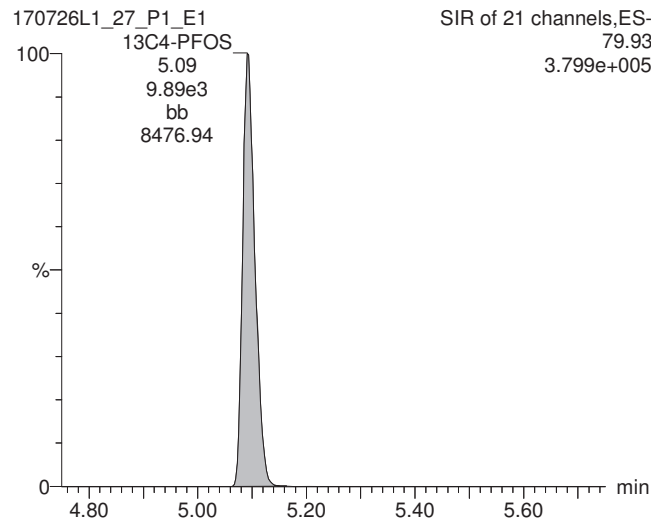
PFOA



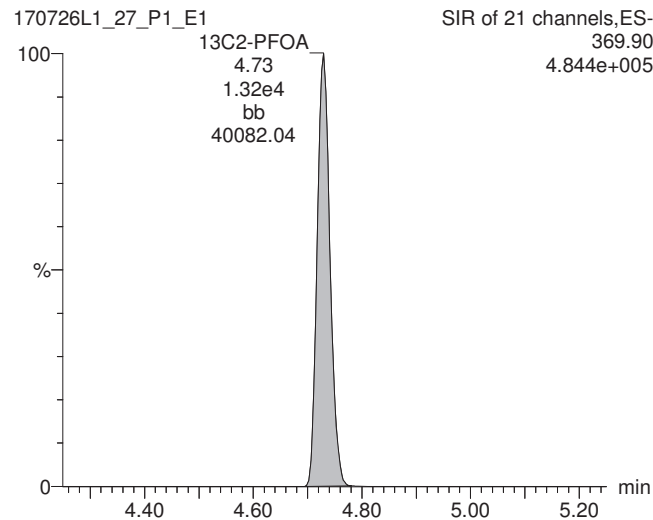
PFOS



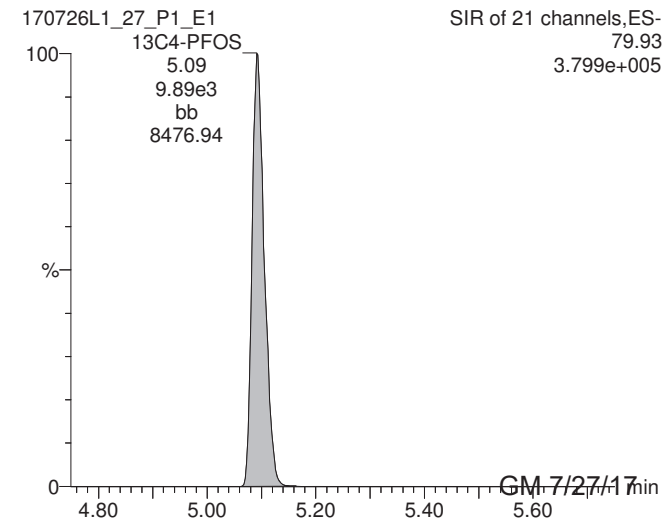
13C4-PFOS



13C2-PFOA



13C4-PFOS



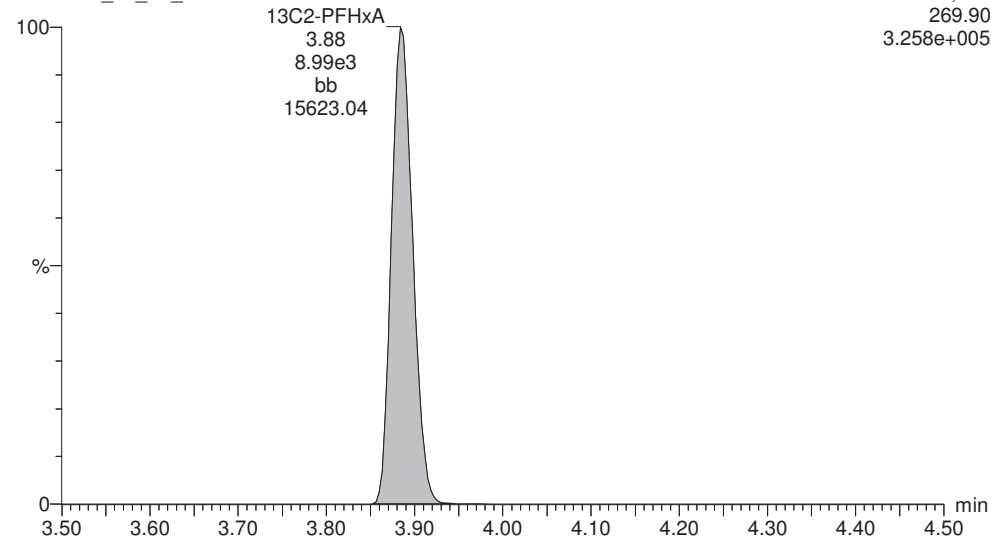
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-27.qld

Last Altered: Thursday, July 27, 2017 11:38:56 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:39:37 Pacific Daylight Time

ID: 1700923-09, Description: NARLB-FB04-0717, Name: 170726L1_27.wiff, Date: 26-Jul-2017, Time: 22:23:16, Instrument: , Lab: ©PE-SCIEX, User: sciex

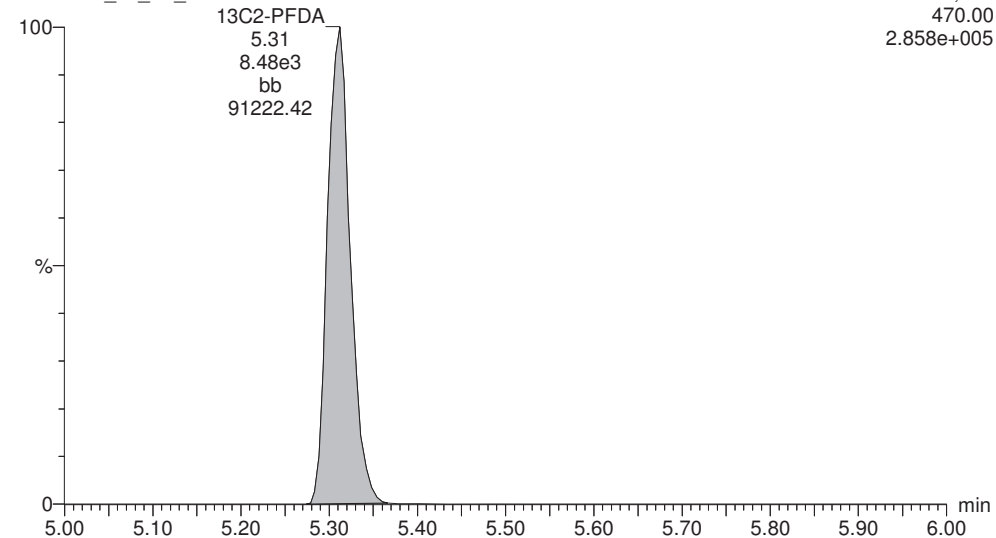
13C2-PFHxA

170726L1_27_P1_E1



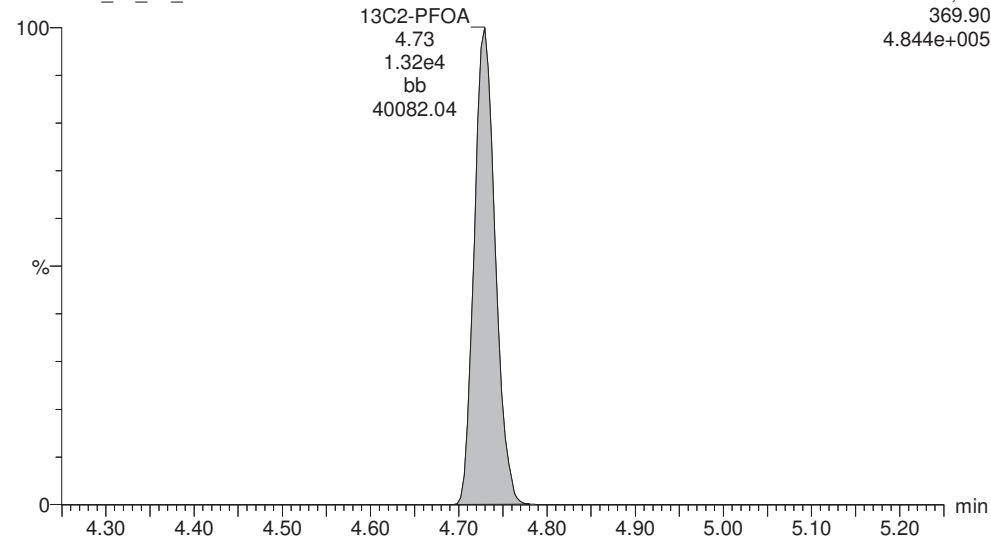
13C2-PFDA

170726L1_27_P1_E1



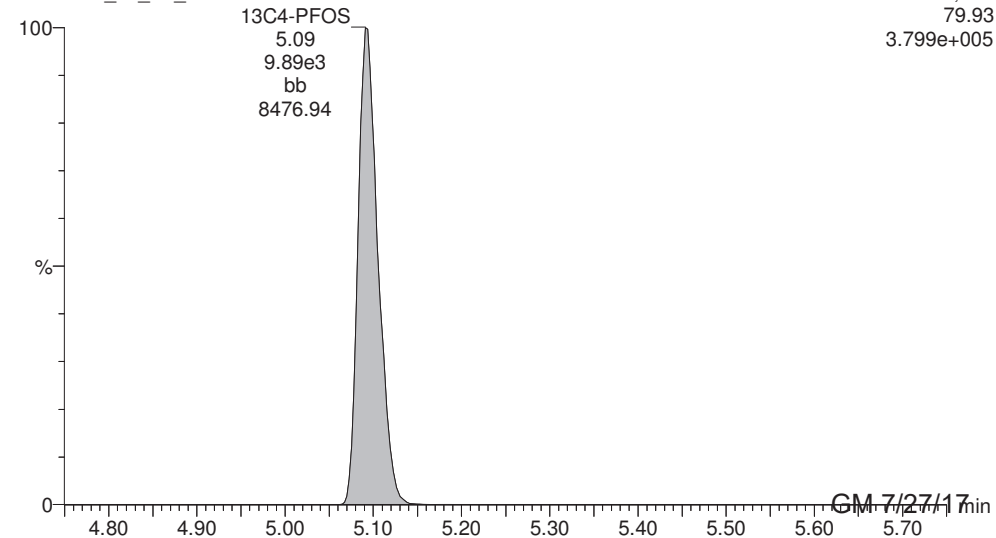
13C2-PFOA

170726L1_27_P1_E1



13C4-PFOS

170726L1_27_P1_E1



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-28.qld

Last Altered: Thursday, July 27, 2017 11:40:58 Pacific Daylight Time

Printed: Thursday, July 27, 2017 11:52:37 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-10, Description: NARLB-SW05-0717, Name: 170726L1_28.wiff, Date: 26-Jul-2017, Time: 22:35:30

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	79.90	4.368e2	1.023e4		0.252	3.48	2.82	
2	4 PFOA	368.90	2.078e4	1.217e4		0.252	4.68	80.2	
3	6 PFOS	79.92	9.921e3	1.023e4		0.252	5.04	88.6	
4	7 13C2-PFHxA	269.90	8.571e3	1.217e4	0.663	0.252	3.84	42.1	106
5	8 13C2-PFDA	470.00	8.537e3	1.217e4	0.636	0.252	5.26	43.7	110
6	9 13C2-PFOA	369.90	1.217e4	1.217e4	1.000	0.252	4.68	39.6	100
7	10 13C4-PFOS	79.93	1.023e4	1.023e4	1.000	0.252	5.05	114	100

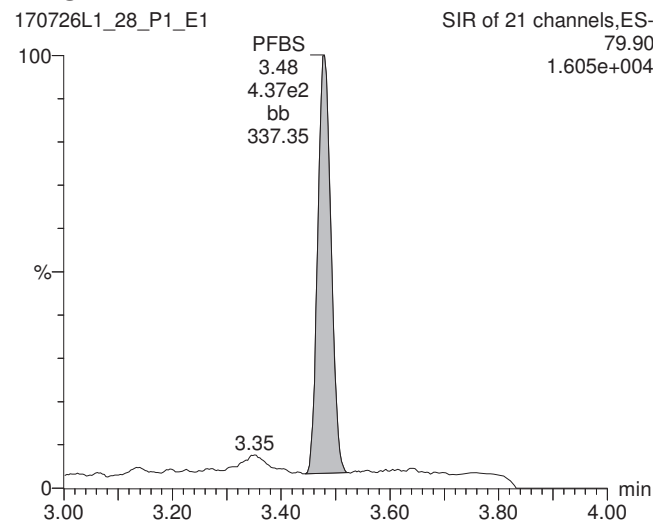
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-28.qld

Last Altered: Thursday, July 27, 2017 11:40:58 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:52:37 Pacific Daylight Time

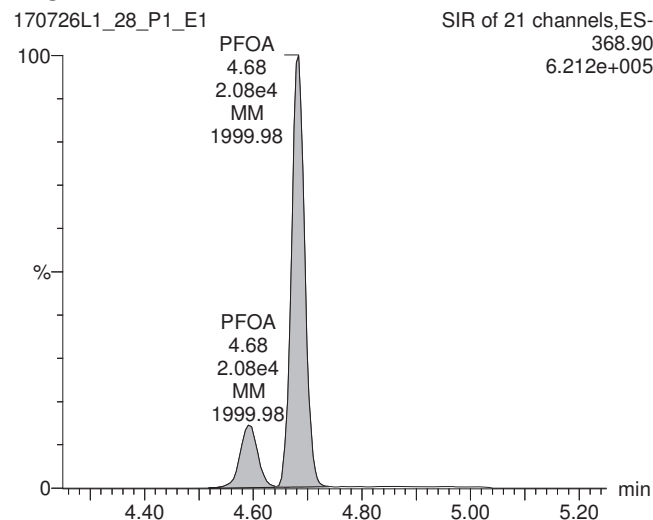
Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-10, Description: NARLB-SW05-0717, Name: 170726L1_28.wiff, Date: 26-Jul-2017, Time: 22:35:30, Instrument: , Lab: ©PE-SCIEX, User: sciex

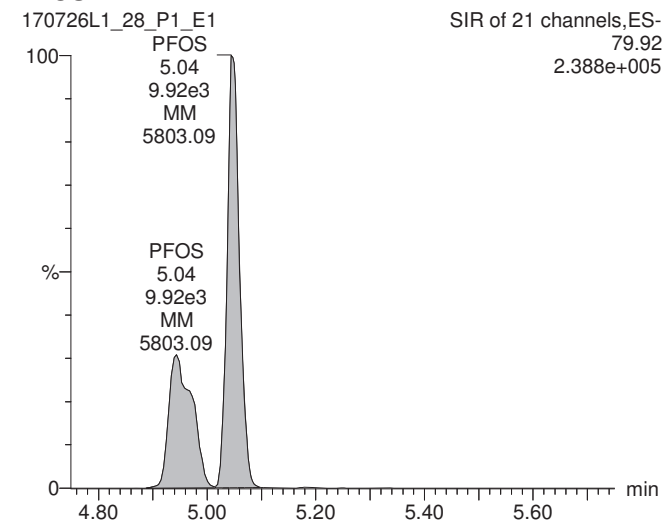
PFBS



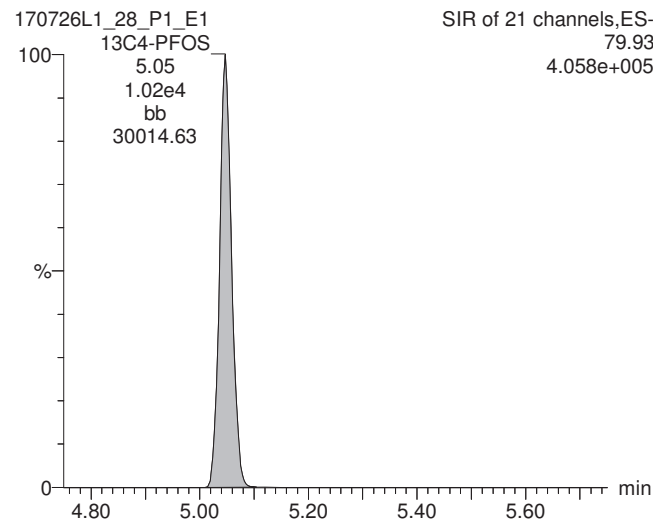
PFOA



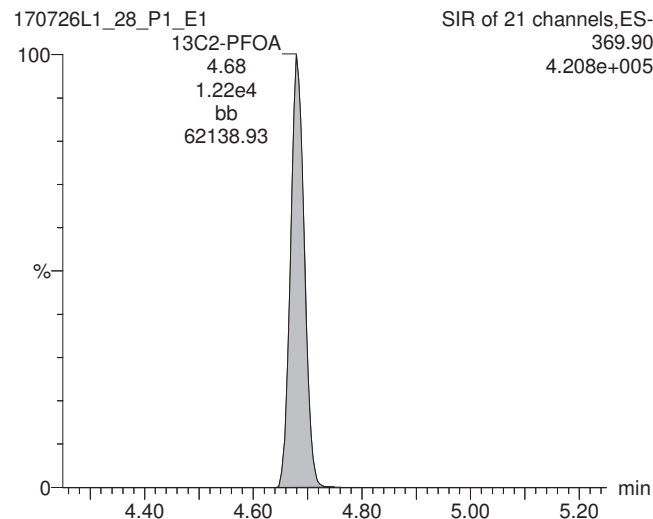
PFOS



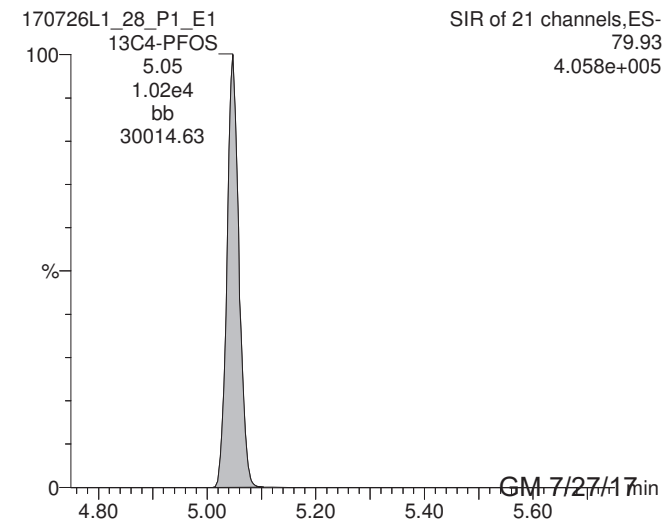
13C4-PFOS



13C2-PFOA



13C4-PFOS



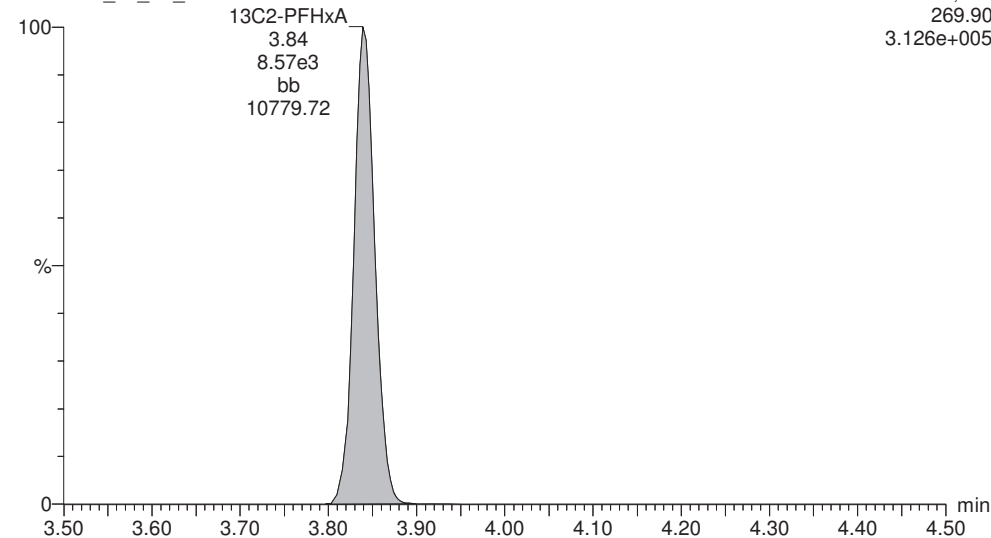
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-28.qld

Last Altered: Thursday, July 27, 2017 11:40:58 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:52:37 Pacific Daylight Time

ID: 1700923-10, Description: NARLB-SW05-0717, Name: 170726L1_28.wiff, Date: 26-Jul-2017, Time: 22:35:30, Instrument: , Lab: ©PE-SCIEX, User: sciex

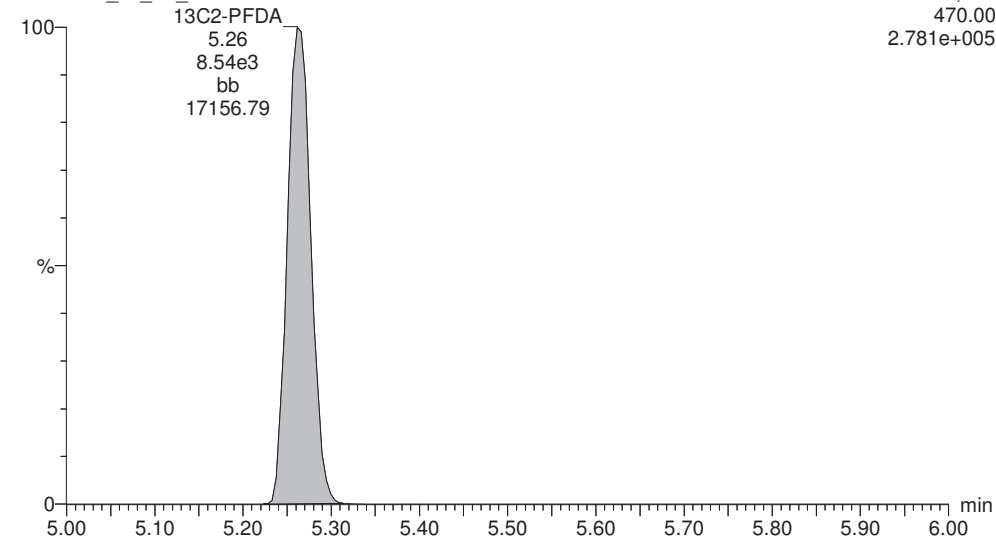
13C2-PFHxA

170726L1_28_P1_E1



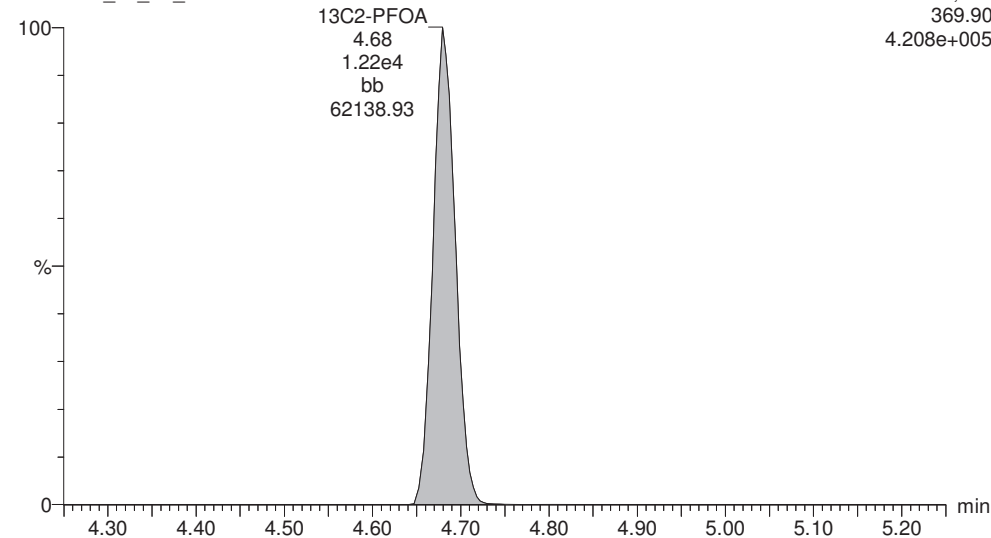
13C2-PFDA

170726L1_28_P1_E1



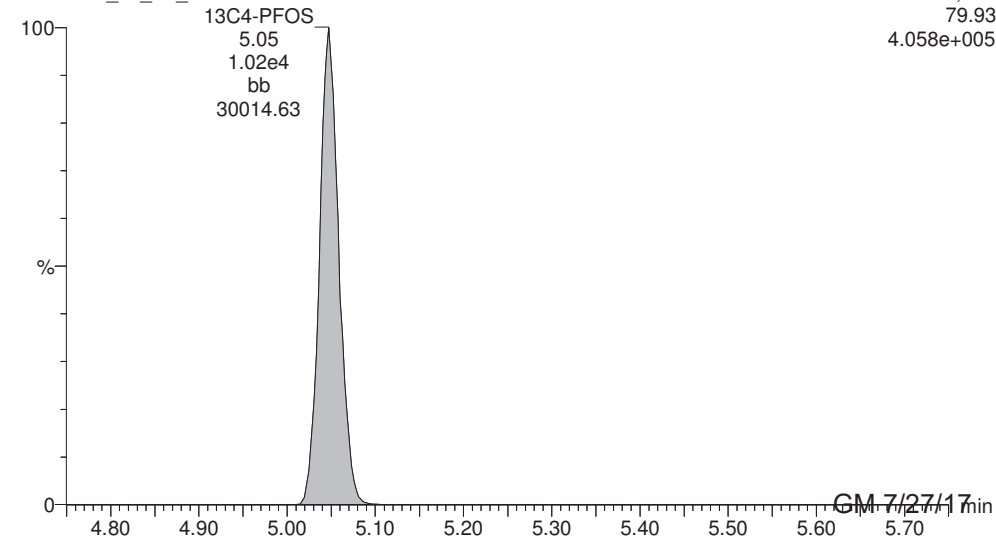
13C2-PFOA

170726L1_28_P1_E1



13C4-PFOS

170726L1_28_P1_E1



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-29.qld

Last Altered: Thursday, July 27, 2017 11:53:15 Pacific Daylight Time

Printed: Thursday, July 27, 2017 11:53:50 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-11, Description: NARLB-FB05-0717, Name: 170726L1_29.wiff, Date: 26-Jul-2017, Time: 22:47:47

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	79.90		9.998e3		0.249			
2	4 PFOA	368.90		1.371e4		0.249			
3	6 PFOS	79.92	5.270e0	9.998e3		0.249	5.07	0.0488	
4	7 13C2-PFHxA	269.90	8.798e3	1.371e4	0.663	0.249	3.85	38.9	96.8
5	8 13C2-PFDA	470.00	8.204e3	1.371e4	0.636	0.249	5.28	37.8	94.0
6	9 13C2-PFOA	369.90	1.371e4	1.371e4	1.000	0.249	4.69	40.2	100
7	10 13C4-PFOS	79.93	9.998e3	9.998e3	1.000	0.249	5.06	115	100

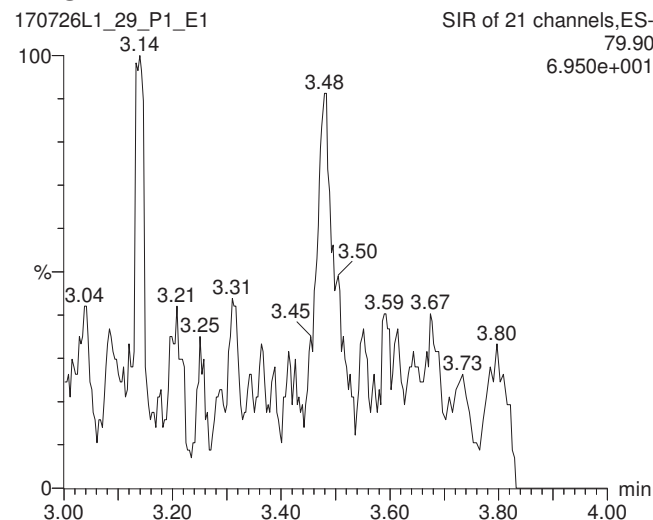
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-29.qld

Last Altered: Thursday, July 27, 2017 11:53:15 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:53:50 Pacific Daylight Time

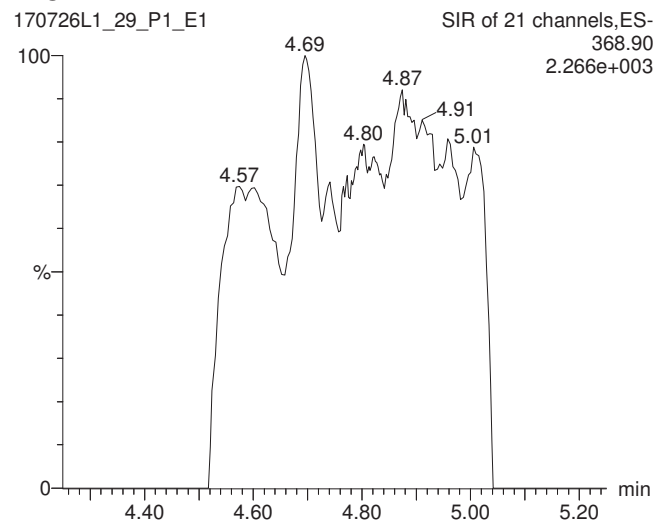
Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: 1700923-11, Description: NARLB-FB05-0717, Name: 170726L1_29.wiff, Date: 26-Jul-2017, Time: 22:47:47, Instrument: , Lab: ©PE-SCIEX, User: sciex

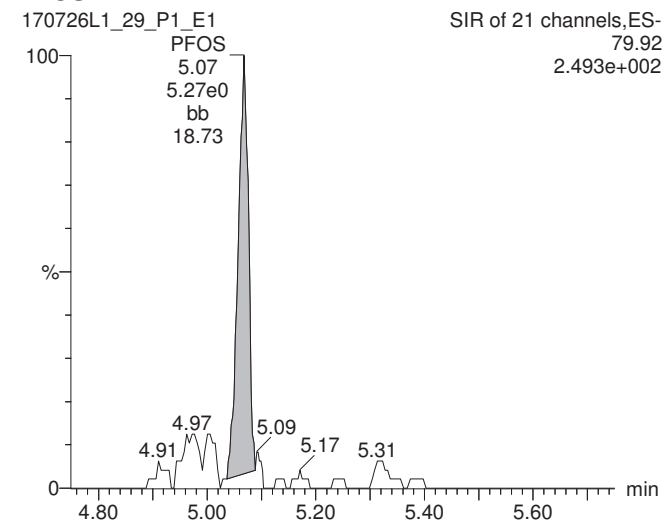
PFBS



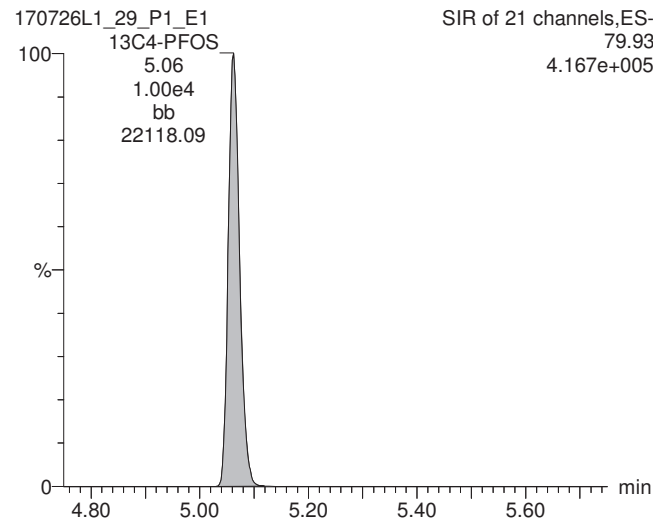
PFOA



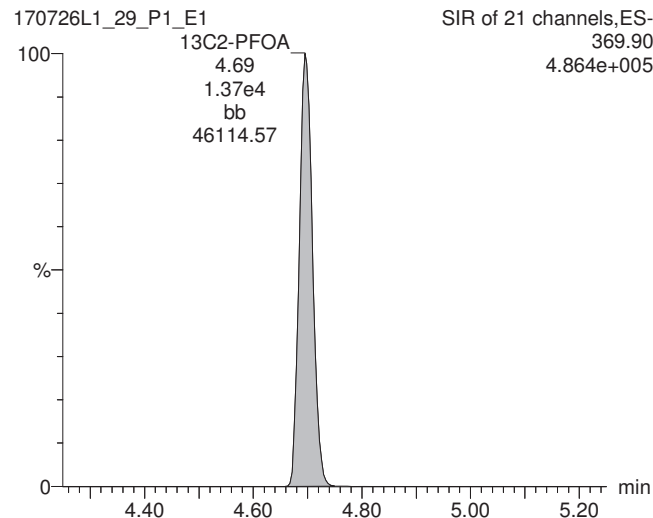
PFOS



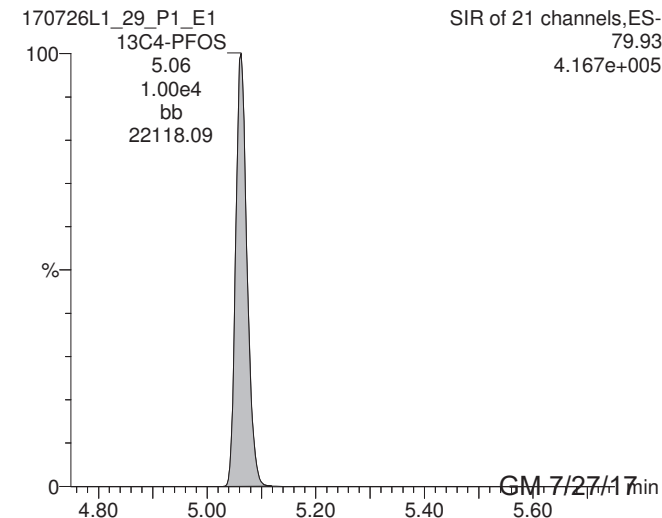
13C4-PFOS



13C2-PFOA



13C4-PFOS



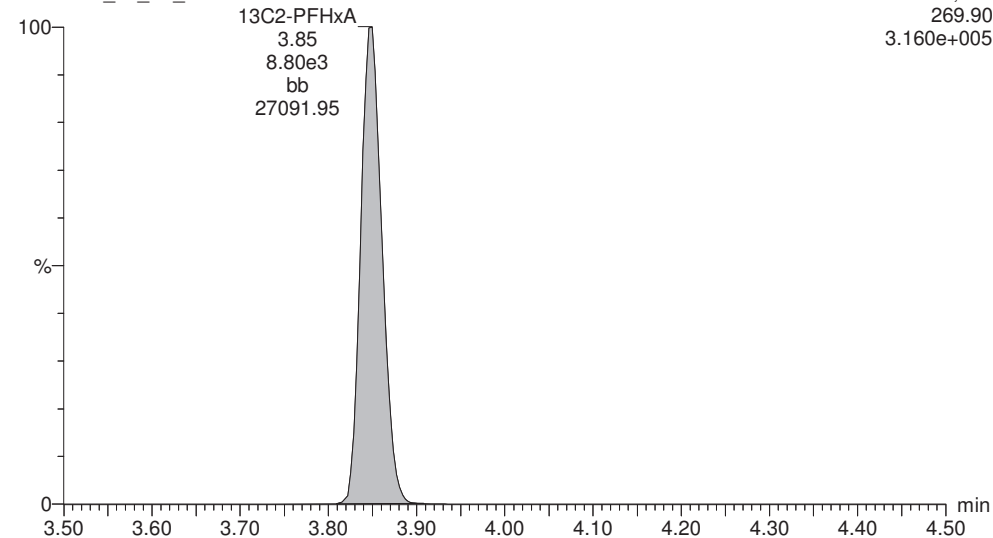
Dataset: U:\Q2.PRO\Results\170726L1\170726L1-29.qld

Last Altered: Thursday, July 27, 2017 11:53:15 Pacific Daylight Time
Printed: Thursday, July 27, 2017 11:53:50 Pacific Daylight Time

ID: 1700923-11, Description: NARLB-FB05-0717, Name: 170726L1_29.wiff, Date: 26-Jul-2017, Time: 22:47:47, Instrument: , Lab: ©PE-SCIEX, User: sciex

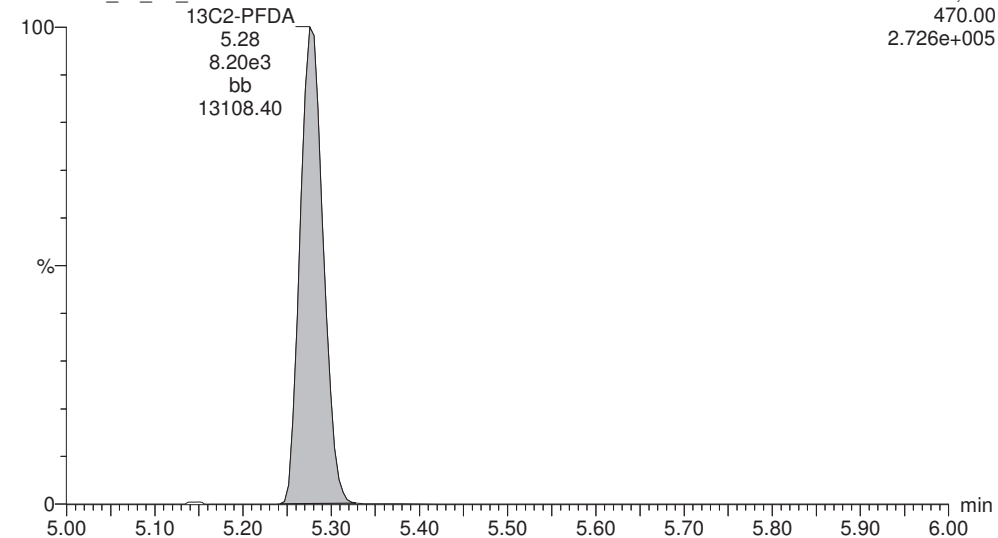
13C2-PFHxA

170726L1_29_P1_E1



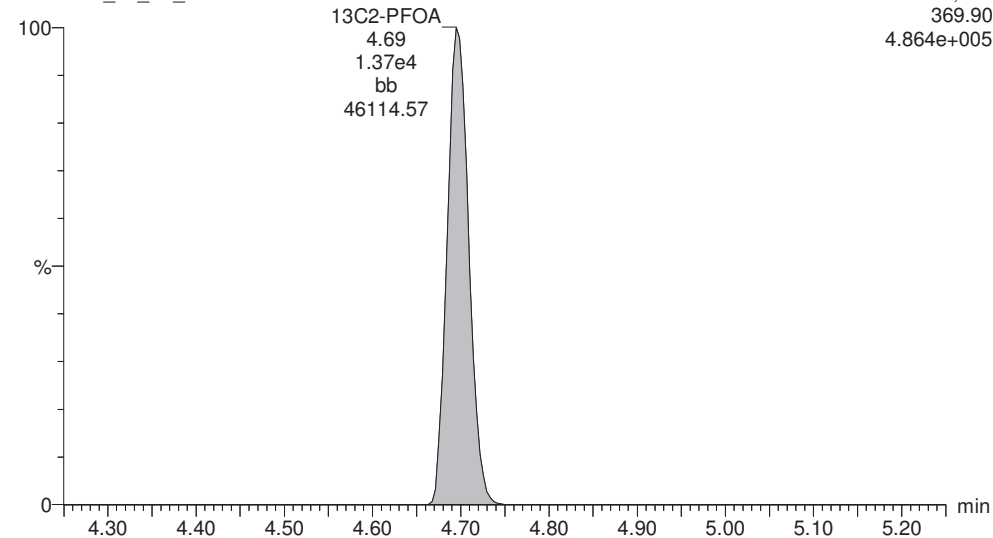
13C2-PFDA

170726L1_29_P1_E1



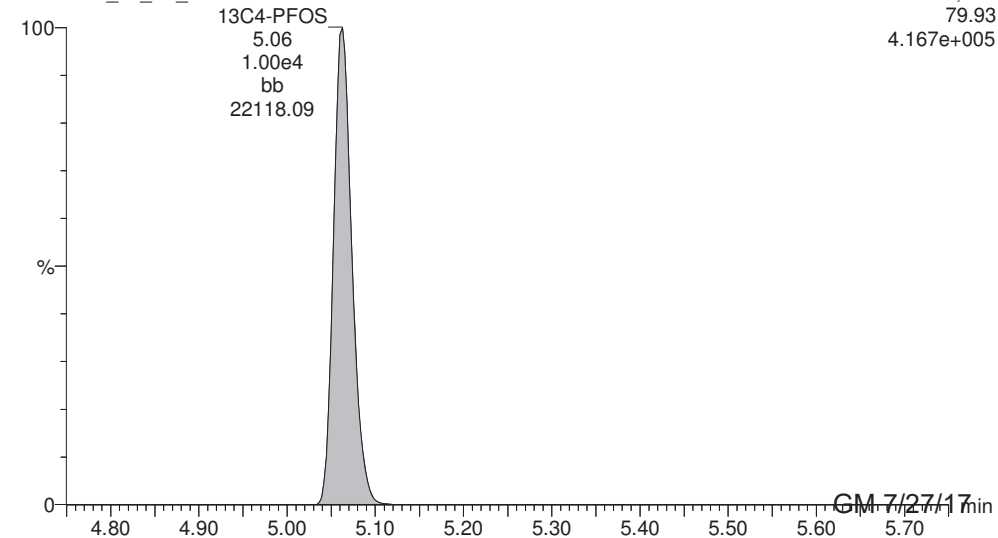
13C2-PFOA

170726L1_29_P1_E1



13C4-PFOS

170726L1_29_P1_E1



CONTINUING CALIBRATION

Dataset: U:\Q2.PRO\Results\170726L1\170726L1-31.qld

Last Altered: Thursday, July 27, 2017 10:40:31 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:40:50 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: ST170726L1-10 537 DW CS2 17G1919, Description: 537 DW CS2 17G1919, Name: 170726L1_31.wiff, Date: 26-Jul-2017, Time: 23:12:15

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	79.90	9.778e3	1.271e4		0.000	3.49	12.8	96.8
2	2 PFHpA	318.90	1.971e4	1.524e4		0.000	4.33	17.8	119
3	3 PFHxS	79.91	7.460e3	1.271e4		0.000	4.43	13.0	95.3
4	4 PFOA	368.90	2.050e4	1.524e4		0.000	4.70	15.6	104
5	5 PFNA	419.00	1.980e4	1.524e4		0.000	5.01	15.3	102
6	6 PFOS	79.92	7.366e3	1.271e4		0.000	5.07	13.4	96.1
7	7 13C2-PFHxA	269.90	1.109e4	1.524e4	0.663	0.000	3.85	11.0	110
8	8 13C2-PFDA	470.00	1.126e4	1.524e4	0.636	0.000	5.29	11.6	116
9	9 13C2-PFOA	369.90	1.524e4	1.524e4	1.000	0.000	4.70	10.0	100
10	10 13C4-PFOS	79.93	1.271e4	1.271e4	1.000	0.000	5.07	28.7	100

70-180

✓ AC
7/27/17

AM
7/27/17

Dataset: Untitled

Last Altered: Thursday, July 27, 2017 12:25:35 Pacific Daylight Time
Printed: Thursday, July 27, 2017 14:37:11 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFList 6_537_DW_NEW.mdb 27 Jul 2017 10:40:03
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

Compound name: PFBS

	Name	ID	Sample Text	Acq.Date	Acq.Time
1	170726L1_01_P...	IPA	IPA	26-Jul-17	16:58:44
2	170726L1_02_P...	ST170726L1-1 537 DW CS(-3) 17G2611	537 DW CS(-3) 17G2611	26-Jul-17	17:17:05
3	170726L1_03_P...	ST170726L1-2 537 DW CS(-2) 17G1915	537 DW CS(-2) 17G1915	26-Jul-17	17:29:22
4	170726L1_04_P...	ST170726L1-3 537 DW CS(-1) 17G2612	537 DW CS(-1) 17G2612	26-Jul-17	17:41:36
5	170726L1_05_P...	ST170726L1-4 537 DW CS(0) 17G1917	537 DW CS0 17G1917	26-Jul-17	17:53:52
6	170726L1_06_P...	ST170726L1-5 537 DW CS1 17G2613	537 DW CS1 17G2613	26-Jul-17	18:06:06
7	170726L1_07_P...	ST170726L1-6 537 DW CS2 17G1919	537 DW CS2 17G1919	26-Jul-17	18:18:22
8	170726L1_08_P...	ST170726L1-7 537 DW CS3 17G1920	537 DW CS3 17G1920	26-Jul-17	18:30:37
9	170726L1_09_P...	ST170726L1-8 537 DW CS4 17G2614	537 DW CS4 17G2614	26-Jul-17	18:42:51
10	170726L1_10_P...	ST170726L1-9 537 DW CS5 17G2615	537 DW CS5 17G2615	26-Jul-17	18:55:07
11	170726L1_11_P...	IPA	IPA	26-Jul-17	19:07:22
12	170726L1_12_P...	SS170726L1-1 537 DW SSS 17G1923	537 DW SSS 17G1923	26-Jul-17	19:19:36
13	170726L1_13_P...	IPA	IPA	26-Jul-17	19:31:51
14	170726L1_14_P...	B7G0113-BS1	LFB	26-Jul-17	19:44:05
15	170726L1_15_P...	IPA	IPA	26-Jul-17	19:56:17
16	170726L1_16_P...	B7G0113-BLK1	LRB	26-Jul-17	20:08:35
17	170726L1_17_P...	1700923-01	NARLB-SW01-0717	26-Jul-17	20:20:47
18	170726L1_18_P...	1700923-02	NARLB-FB01-0717	26-Jul-17	20:33:04
19	170726L1_19_P...	1700923-03	NARLB-SW01P-0717	26-Jul-17	20:45:20
20	170726L1_20_P...	1700923-04	NARLB-SW02-0717	26-Jul-17	20:57:36
21	170726L1_21_P...	B7G0113-MS1	LFSM	26-Jul-17	21:09:50
22	170726L1_22_P...	B7G0113-MSD1	LFSMD	26-Jul-17	21:22:06
23	170726L1_23_P...	1700923-05	NARLB-FB02-0717	26-Jul-17	21:34:22
24	170726L1_24_P...	1700923-06	NARLB-SW03-0717	26-Jul-17	21:46:36
25	170726L1_25_P...	1700923-07	NARLB-FB03-0717	26-Jul-17	21:58:47
26	170726L1_26_P...	1700923-08	NARLB-SW04-0717	26-Jul-17	22:10:59
27	170726L1_27_P...	1700923-09	NARLB-FB04-0717	26-Jul-17	22:23:16
28	170726L1_28_P...	1700923-10	NARLB-SW05-0717	26-Jul-17	22:35:30
29	170726L1_29_P...	1700923-11	NARLB-FB05-0717	26-Jul-17	22:47:47
30	170726L1_30_P...	IPA	IPA	26-Jul-17	22:59:59
31	170726L1_31_P...	ST170726L1-10 537 DW CS2 17G1919	537 DW CS2 17G1919	26-Jul-17	23:12:15

Dataset: Untitled

Last Altered: Thursday, July 27, 2017 12:25:35 Pacific Daylight Time

Printed: Thursday, July 27, 2017 14:37:11 Pacific Daylight Time

Compound name: PFBS

	Name	ID	Sample Text	Acq.Date	Acq.Time
32	170726L1_32_P...	IPA	IPA	26-Jul-17	23:24:29

LC Calibration Standards Review Checklist

Q3

Calibration ID:	ION Ratio	Concentration	C-Cals Name	Sign Date	Correct I-Cal	Manual Integrations	
ST170726L1-10	LMH	NA	☒	☒	☒	☒	NA
Calibration ID:	LMH	☐	☐	☐	☐	☐	☐
Calibration ID:	LMH	☐	☐	☐	☐	☐	☐
Calibration ID:	LMH	☐	☐	☐	☐	☐	☐
Calibration ID:	LMH	☐	☐	☐	☐	☐	☐
Calibration ID:	LMH	☐	☐	☐	☐	☐	☐
Calibration ID:	LMH	☐	☐	☐	☐	☐	☐
Calibration ID:	LMH	☐	☐	☐	☐	☐	☐
Calibration ID:	LMH	☐	☐	☐	☐	☐	☐
Calibration ID:	LMH	☐	☐	☐	☐	☐	☐

Full Mass Cal. Date: 2/21/17

Run Log Present: ☒

of Samples per Sequence Checked: ☒

Reviewed By:

AC 7/27/17

Initials/Date

Comments:

Dataset: U:\Q2.PRO\Results\170726L1\170726L1-31.qld

Last Altered: Thursday, July 27, 2017 10:40:31 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:40:50 Pacific Daylight Time

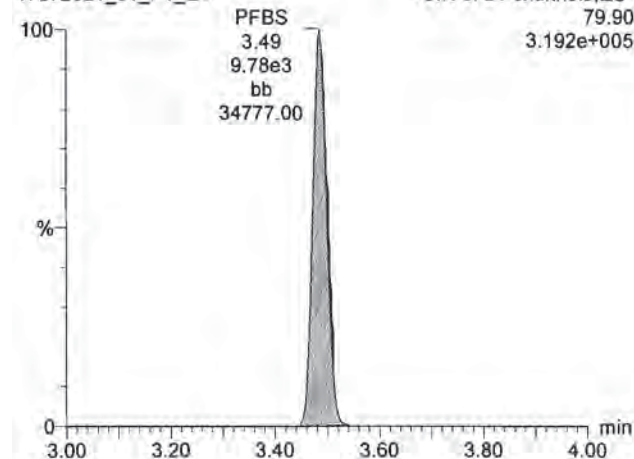
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Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: ST170726L1-10 537 DW CS2 17G1919, Description: 537 DW CS2 17G1919, Name: 170726L1_31.wiff, Date: 26-Jul-2017, Time: 23:12:15, Instrument: ,
Lab: ©PE-SCIEX, User: sciex

PFBS

170726L1_31_P1_E1

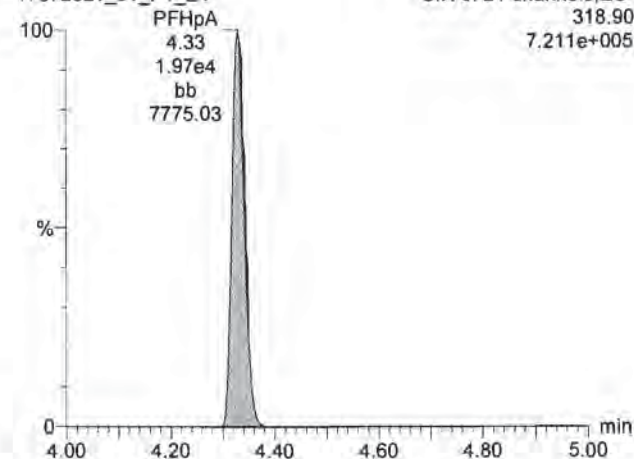
SIR of 21 channels, ES-
79.90
3.192e+005



PFHpA

170726L1_31_P1_E1

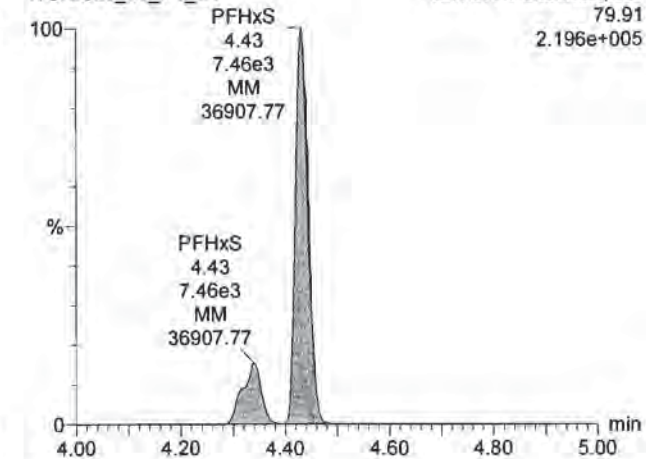
SIR of 21 channels, ES-
318.90
7.211e+005



PFHxS

170726L1_31_P1_E1

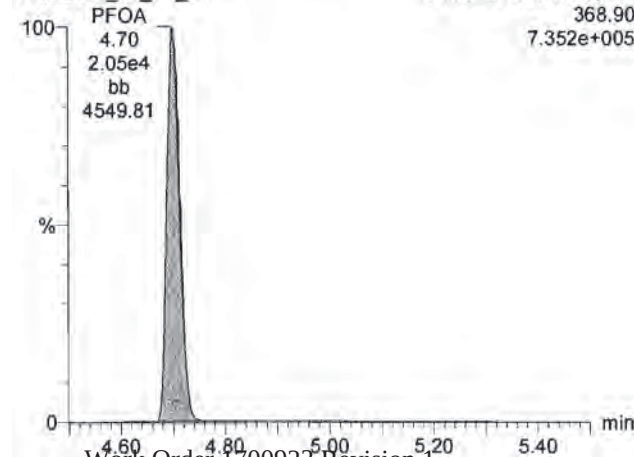
SIR of 21 channels, ES-
79.91
2.196e+005



PFOA

170726L1_31_P1_E1

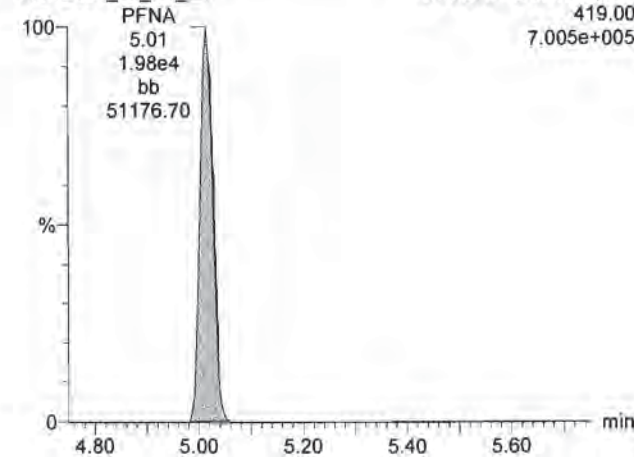
SIR of 21 channels, ES-
368.90
7.352e+005



PFNA

170726L1_31_P1_E1

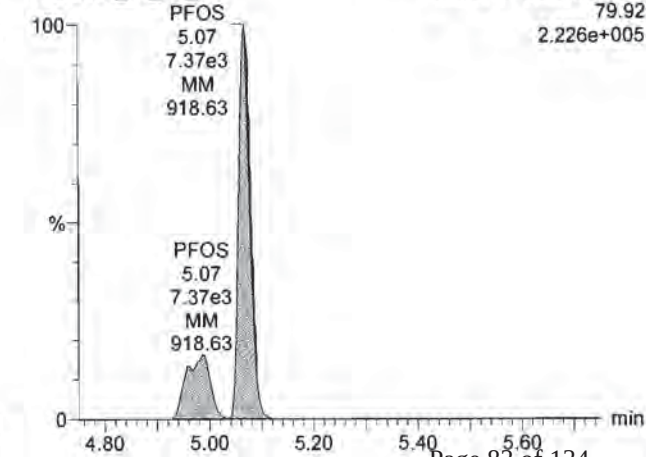
SIR of 21 channels, ES-
419.00
7.005e+005



PFOS

170726L1_31_P1_E1

SIR of 21 channels, ES-
79.92
2.226e+005



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-31.qld

Last Altered: Thursday, July 27, 2017 10:40:31 Pacific Daylight Time

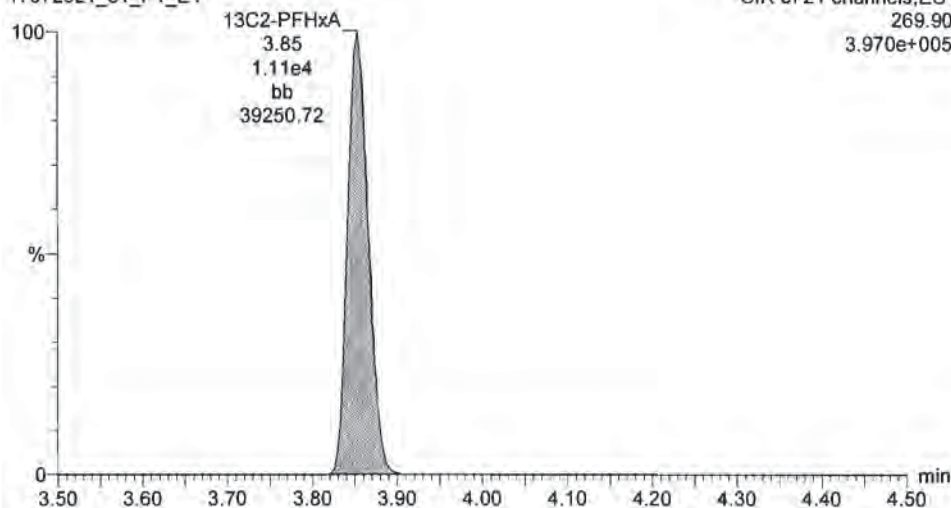
Printed: Thursday, July 27, 2017 10:40:50 Pacific Daylight Time

ID: ST170726L1-10 537 DW CS2 17G1919, Description: 537 DW CS2 17G1919, Name: 170726L1_31.wiff, Date: 26-Jul-2017, Time: 23:12:15, Instrument: ,
Lab: ©PE-SCIEX, User: sciex

13C2-PFHxA

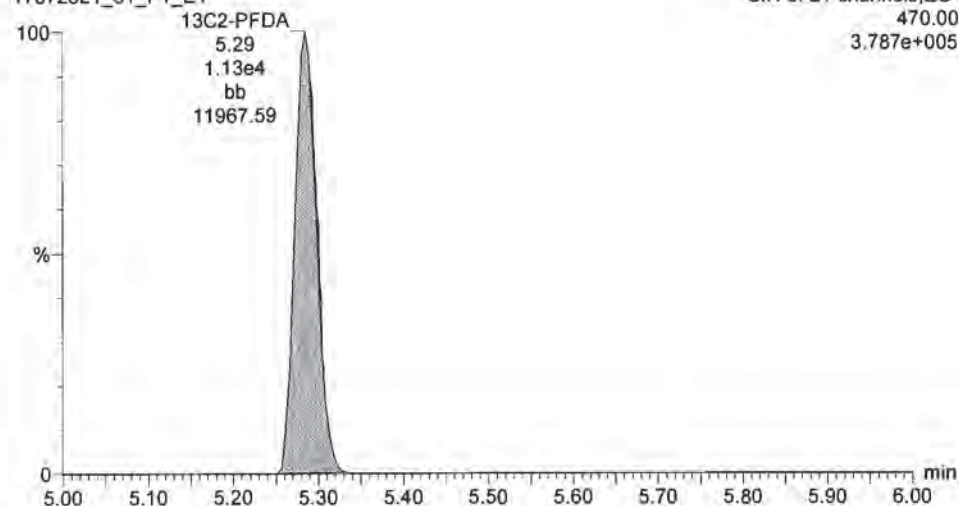
170726L1_31_P1_E1

SIR of 21 channels, ES-
269.90
3.970e+005

**13C2-PFDA**

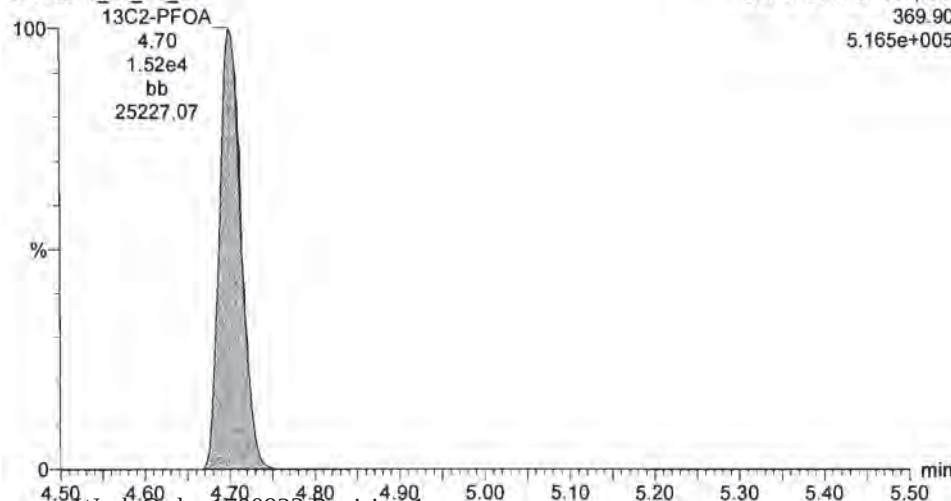
170726L1_31_P1_E1

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470.00
3.787e+005

**13C2-PFOA**

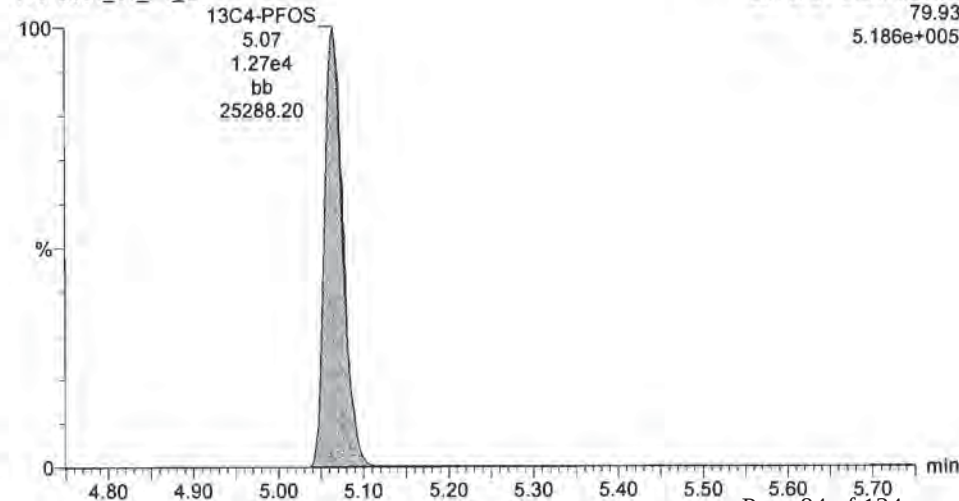
170726L1_31_P1_E1

SIR of 21 channels, ES-
369.90
5.165e+005

**13C4-PFOS**

170726L1_31_P1_E1

SIR of 21 channels, ES-
79.93
5.186e+005



INITIAL CALIBRATION

Vista Analytical Laboratory Q2

Dataset: U:\Q2.PRO\Results\170726L1\170726L1-CRV.qld

Last Altered: Thursday, July 27, 2017 09:54:10 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:10:39 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 09:46:40
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

Compound name: PFBSCoefficient of Determination: $R^2 = 0.997542$ Calibration curve: $-0.000419487 * x^2 + 1.72525 * x$

Response type: Internal Std (Ref 10), 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 170726L1_02_P1_...	0.443	3.51	3.42e2	9.85e3	0.577	30.5	2.25
2	2 170726L1_03_P1_...	0.885	3.48	6.48e2	9.86e3	1.09	23.7	2.13
3	3 170726L1_04_P1_...	1.77	3.48	1.23e3	1.02e4	2.02	14.2	1.97
4	4 170726L1_05_P1_...	4.42	3.49	3.03e3	1.18e4	4.30	-2.8	1.68
5	5 170726L1_06_P1_...	8.85	3.49	5.79e3	1.08e4	8.97	1.4	1.75
6	6 170726L1_07_P1_...	13.3	3.48	8.54e3	1.07e4	13.3	0.4	1.73
7	7 170726L1_08_P1_...	17.7	3.49	1.10e4	1.11e4	16.4	-7.1	1.60
8	8 170726L1_09_P1_...	22.1	3.52	1.41e4	1.05e4	22.4	1.3	1.74
9	9 170726L1_10_P1_...	44.2	3.48	2.67e4	1.01e4	44.5	0.7	1.72

Compound name: PFHpACoefficient of Determination: $R^2 = 0.980342$ Calibration curve: $0.727497 * x$

Response type: Internal Std (Ref 9), Area * (IS Conc. / IS Area)

Curve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170726L1_02_P1_...	0.500	4.35	7.08e2	1.25e4	0.778	55.6	1.13
2	2 170726L1_03_P1_...	1.00	4.33	1.37e3	1.34e4	1.40	40.4	1.02
3	3 170726L1_04_P1_...	2.00	4.33	2.54e3	1.43e4	2.44	22.1	0.888
4	4 170726L1_05_P1_...	5.00	4.33	6.23e3	1.37e4	6.24	24.7	0.907
5	5 170726L1_06_P1_...	10.0	4.33	1.18e4	1.45e4	11.1	11.4	0.810
6	6 170726L1_07_P1_...	15.0	4.33	1.60e4	1.33e4	16.6	10.5	0.804
7	7 170726L1_08_P1_...	20.0	4.33	2.12e4	1.52e4	19.2	-3.9	0.699
8	8 170726L1_09_P1_...	25.0	4.37	2.62e4	1.34e4	26.9	7.7	0.783
9	9 170726L1_10_P1_...	50.0	4.33	4.63e4	1.45e4	44.1	-11.9	0.641

DM
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✓ AC 7/27/17

④ point was excluded.

Dataset: U:\Q2.PRO\Results\170726L1\170726L1-CRV.qld

Last Altered: Thursday, July 27, 2017 09:54:10 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:10:39 Pacific Daylight Time

Compound name: PFHxS

Coefficient of Determination: $R^2 = 0.997055$

Calibration curve: $1.29274 * x$

Response type: Internal Std (Ref 10), Area * (IS Conc. / IS Area)

Curve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170726L1_02_P1_...	0.455	4.45	2.67e2	9.85e3	0.601	32.1	1.71
2	2 170726L1_03_P1_...	0.910	4.42	5.09e2	9.86e3	1.15	26.1	1.63
3	3 170726L1_04_P1_...	1.82	4.43	9.60e2	1.02e4	2.10	15.3	1.49
4	4 170726L1_05_P1_...	4.56	4.44	2.48e3	1.18e4	4.68	2.7	1.33
5	5 170726L1_06_P1_...	9.12	4.43	4.63e3	1.08e4	9.55	4.7	1.35
6	6 170726L1_07_P1_...	13.7	4.43	6.41e3	1.07e4	13.3	-2.8	1.26
7	7 170726L1_08_P1_...	18.2	4.44	8.57e3	1.11e4	17.1	-6.3	1.21
8	8 170726L1_09_P1_...	22.8	4.47	1.11e4	1.05e4	23.5	3.0	1.33
9	9 170726L1_10_P1_...	45.6	4.43	2.06e4	1.01e4	45.2	-0.8	1.28

Compound name: PFOA

Coefficient of Determination: $R^2 = 0.994318$

Calibration curve: $-0.00384573 * x^2 + 0.921385 * x$

Response type: Internal Std (Ref 9), 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 170726L1_02_P1_...	0.500	4.71	8.21e2	1.25e4	0.714	42.8	1.31
2	2 170726L1_03_P1_...	1.00	4.70	1.48e3	1.34e4	1.21	20.6	1.11
3	3 170726L1_04_P1_...	2.00	4.70	2.72e3	1.43e4	2.08	4.2	0.952
4	4 170726L1_05_P1_...	5.00	4.71	7.13e3	1.37e4	5.77	15.5	1.04
5	5 170726L1_06_P1_...	10.0	4.70	1.31e4	1.45e4	10.3	2.7	0.906
6	6 170726L1_07_P1_...	15.0	4.70	1.65e4	1.33e4	14.4	-4.2	0.830
7	7 170726L1_08_P1_...	20.0	4.71	2.31e4	1.52e4	17.9	-10.7	0.762
8	8 170726L1_09_P1_...	25.0	4.74	2.79e4	1.34e4	25.3	1.1	0.833
9	9 170726L1_10_P1_...	50.0	4.69	5.35e4	1.45e4	51.1	2.2	0.741

Vista Analytical Laboratory Q2

Dataset: U:\Q2.PRO\Results\170726L1\170726L1-CRV.qld

Last Altered: Thursday, July 27, 2017 09:54:10 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:10:39 Pacific Daylight Time

Compound name: PFNACoefficient of Determination: $R^2 = 0.994788$ Calibration curve: $-0.00501004 * x^2 + 0.928274 * x$

Response type: Internal Std (Ref 9), 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 170726L1_02_P1_...	0.500	5.02	6.25e2	1.25e4	0.540	7.9	0.999
2	2 170726L1_03_P1_...	1.00	5.01	1.40e3	1.34e4	1.13	13.3	1.05
3	3 170726L1_04_P1_...	2.00	5.01	2.72e3	1.43e4	2.07	3.6	0.951
4	4 170726L1_05_P1_...	5.00	5.01	7.46e3	1.37e4	6.05	21.0	1.09
5	5 170726L1_06_P1_...	10.0	5.02	1.18e4	1.45e4	9.20	-8.0	0.812
6	6 170726L1_07_P1_...	15.0	5.01	1.71e4	1.33e4	15.1	0.8	0.860
7	7 170726L1_08_P1_...	20.0	5.02	2.31e4	1.52e4	18.2	-8.9	0.763
8	8 170726L1_09_P1_...	25.0	5.06	2.75e4	1.34e4	25.6	2.4	0.820
9	9 170726L1_10_P1_...	50.0	5.01	4.94e4	1.45e4	50.8	1.5	0.684

Compound name: PFOSCoefficient of Determination: $R^2 = 0.996373$ Calibration curve: $1.24594 * x$

Response type: Internal Std (Ref 10), Area * (IS Conc. / IS Area)

Curve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170726L1_02_P1_...	0.464	5.07	2.60e2	9.85e3	0.609	31.2	1.63
2	2 170726L1_03_P1_...	0.924	5.06	4.83e2	9.86e3	1.13	22.2	1.52
3	3 170726L1_04_P1_...	1.85	5.07	8.98e2	1.02e4	2.04	10.0	1.37
4	4 170726L1_05_P1_...	4.62	5.07	2.32e3	1.18e4	4.54	-1.6	1.23
5	5 170726L1_06_P1_...	9.24	5.07	4.20e3	1.08e4	8.98	-2.8	1.21
6	6 170726L1_07_P1_...	13.9	5.07	6.17e3	1.07e4	13.3	-4.4	1.19
7	7 170726L1_08_P1_...	18.5	5.07	8.32e3	1.11e4	17.2	-6.9	1.16
8	8 170726L1_09_P1_...	23.1	5.11	1.13e4	1.05e4	24.8	7.3	1.34
9	9 170726L1_10_P1_...	46.2	5.06	2.03e4	1.01e4	46.2	0.0	1.25

Dataset: U:\Q2.PRO\Results\170726L1\170726L1-CRV.qld

Last Altered: Thursday, July 27, 2017 09:54:10 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:10:39 Pacific Daylight Time

Compound name: 13C2-PFHxA

Response Factor: 0.663161

RRF SD: 0.0422235, Relative SD: 6.367

Response type: Internal Std (Ref 9), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170726L1_02_P1_...	10.0	3.88	7.88e3	1.25e4	9.50	-5.0	0.630
2	2 170726L1_03_P1_...	10.0	3.85	9.52e3	1.34e4	10.7	7.3	0.712
3	3 170726L1_04_P1_...	10.0	3.85	9.50e3	1.43e4	10.0	0.3	0.665
4	4 170726L1_05_P1_...	10.0	3.85	9.45e3	1.37e4	10.4	3.8	0.688
5	5 170726L1_06_P1_...	10.0	3.85	9.33e3	1.45e4	9.70	-3.0	0.643
6	6 170726L1_07_P1_...	10.0	3.85	9.40e3	1.33e4	10.7	7.0	0.709
7	7 170726L1_08_P1_...	10.0	3.85	9.31e3	1.52e4	9.25	-7.5	0.613
8	8 170726L1_09_P1_...	10.0	3.89	9.43e3	1.34e4	10.6	6.1	0.704
9	9 170726L1_10_P1_...	10.0	3.85	8.73e3	1.45e4	9.11	-8.9	0.604

Compound name: 13C2-PFDA

Response Factor: 0.636412

RRF SD: 0.0557216, Relative SD: 8.75558

Response type: Internal Std (Ref 9), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170726L1_02_P1_...	10.0	5.29	8.12e3	1.25e4	10.2	2.0	0.649
2	2 170726L1_03_P1_...	10.0	5.28	8.99e3	1.34e4	10.6	5.6	0.672
3	3 170726L1_04_P1_...	10.0	5.28	8.76e3	1.43e4	9.64	-3.6	0.613
4	4 170726L1_05_P1_...	10.0	5.28	9.28e3	1.37e4	10.6	6.3	0.676
5	5 170726L1_06_P1_...	10.0	5.28	8.49e3	1.45e4	9.19	-8.1	0.585
6	6 170726L1_07_P1_...	10.0	5.28	9.82e3	1.33e4	11.6	16.5	0.741
7	7 170726L1_08_P1_...	10.0	5.29	9.15e3	1.52e4	9.48	-5.2	0.603
8	8 170726L1_09_P1_...	10.0	5.33	8.46e3	1.34e4	9.92	-0.8	0.631
9	9 170726L1_10_P1_...	10.0	5.28	8.03e3	1.45e4	8.73	-12.7	0.556

Dataset: U:\Q2.PRO\Results\170726L1\170726L1-CRV.qld

Last Altered: Thursday, July 27, 2017 09:54:10 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:10:39 Pacific Daylight Time

Compound name: 13C2-PFOA

Response Factor: 1

RRF SD: 0, Relative SD: 0

Response type: Internal Std (Ref 9), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170726L1_02_P1_...	10.0	4.71	1.25e4	1.25e4	10.0	0.0	1.00
2	2 170726L1_03_P1_...	10.0	4.70	1.34e4	1.34e4	10.0	0.0	1.00
3	3 170726L1_04_P1_...	10.0	4.70	1.43e4	1.43e4	10.0	0.0	1.00
4	4 170726L1_05_P1_...	10.0	4.70	1.37e4	1.37e4	10.0	0.0	1.00
5	5 170726L1_06_P1_...	10.0	4.70	1.45e4	1.45e4	10.0	0.0	1.00
6	6 170726L1_07_P1_...	10.0	4.70	1.33e4	1.33e4	10.0	0.0	1.00
7	7 170726L1_08_P1_...	10.0	4.70	1.52e4	1.52e4	10.0	0.0	1.00
8	8 170726L1_09_P1_...	10.0	4.74	1.34e4	1.34e4	10.0	0.0	1.00
9	9 170726L1_10_P1_...	10.0	4.69	1.45e4	1.45e4	10.0	0.0	1.00

Compound name: 13C4-PFOS

Response Factor: 1

RRF SD: 7.85046e-017, Relative SD: 7.85046e-015

Response type: Internal Std (Ref 10), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170726L1_02_P1_...	28.7	5.08	9.85e3	9.85e3	28.7	0.0	1.00
2	2 170726L1_03_P1_...	28.7	5.06	9.86e3	9.86e3	28.7	0.0	1.00
3	3 170726L1_04_P1_...	28.7	5.06	1.02e4	1.02e4	28.7	0.0	1.00
4	4 170726L1_05_P1_...	28.7	5.07	1.18e4	1.18e4	28.7	0.0	1.00
5	5 170726L1_06_P1_...	28.7	5.06	1.08e4	1.08e4	28.7	0.0	1.00
6	6 170726L1_07_P1_...	28.7	5.06	1.07e4	1.07e4	28.7	0.0	1.00
7	7 170726L1_08_P1_...	28.7	5.07	1.11e4	1.11e4	28.7	0.0	1.00
8	8 170726L1_09_P1_...	28.7	5.10	1.05e4	1.05e4	28.7	0.0	1.00
9	9 170726L1_10_P1_...	28.7	5.06	1.01e4	1.01e4	28.7	0.0	1.00

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Thursday, July 27, 2017 10:17:26 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:18:23 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 09:46:40

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

Compound name: PFBS

	Name	ID	Acq.Date	Acq.Time
1	170726L1_01_P...	IPA	26-Jul-17	16:58:44
2	170726L1_02_P...	ST170726L1-1 537 DW CS(-3) 17G2611	26-Jul-17	17:17:05
3	170726L1_03_P...	ST170726L1-2 537 DW CS(-2) 17G1915	26-Jul-17	17:29:22
4	170726L1_04_P...	ST170726L1-3 537 DW CS(-1) 17G2612	26-Jul-17	17:41:36
5	170726L1_05_P...	ST170726L1-4 537 DW CS(0) 17G1917	26-Jul-17	17:53:52
6	170726L1_06_P...	ST170726L1-5 537 DW CS1 17G2613	26-Jul-17	18:06:06
7	170726L1_07_P...	ST170726L1-6 537 DW CS2 17G1919	26-Jul-17	18:18:22
8	170726L1_08_P...	ST170726L1-7 537 DW CS3 17G1920	26-Jul-17	18:30:37
9	170726L1_09_P...	ST170726L1-8 537 DW CS4 17G2614	26-Jul-17	18:42:51
10	170726L1_10_P...	ST170726L1-9 537 DW CS5 17G2615	26-Jul-17	18:55:07
11	170726L1_11_P...	IPA	26-Jul-17	19:07:22
12	170726L1_12_P...	SS170726L1-1 537 DW SSS 17G1923	26-Jul-17	19:19:36
13	170726L1_13_P...	IPA	26-Jul-17	19:31:51
14	170726L1_14_P...	B7G0113-BS1	26-Jul-17	19:44:05
15	170726L1_15_P...	IPA	26-Jul-17	19:56:17
16	170726L1_16_P...	B7G0113-BLK1	26-Jul-17	20:08:35
17	170726L1_17_P...	1700923-01	26-Jul-17	20:20:47
18	170726L1_18_P...	1700923-02	26-Jul-17	20:33:04
19	170726L1_19_P...	1700923-03	26-Jul-17	20:45:20
20	170726L1_20_P...	1700923-04	26-Jul-17	20:57:36
21	170726L1_21_P...	B7G0113-MS1	26-Jul-17	21:09:50
22	170726L1_22_P...	B7G0113-MSD1	26-Jul-17	21:22:06
23	170726L1_23_P...	1700923-05	26-Jul-17	21:34:22
24	170726L1_24_P...	1700923-06	26-Jul-17	21:46:36
25	170726L1_25_P...	1700923-07	26-Jul-17	21:58:47
26	170726L1_26_P...	1700923-08	26-Jul-17	22:10:59
27	170726L1_27_P...	1700923-09	26-Jul-17	22:23:16
28	170726L1_28_P...	1700923-10	26-Jul-17	22:35:30
29	170726L1_29_P...	1700923-11	26-Jul-17	22:47:47
30	170726L1_30_P...	IPA	26-Jul-17	22:59:59
31	170726L1_31_P...	ST170726L1-10 537 DW CS2 17G1919	26-Jul-17	23:12:15

Dataset: Untitled

Last Altered: Thursday, July 27, 2017 10:17:26 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:18:23 Pacific Daylight Time

Compound name: PFBS

	Name	ID	Acq.Date	Acq.Time
32	170726L1_32_P...	IPA	26-Jul-17	23:24:29

Dataset: U:\Q2.PRO\Results\170726L1\170726L1-CRV.qld

Last Altered: Thursday, July 27, 2017 09:54:10 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:10:56 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 09:46:40
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

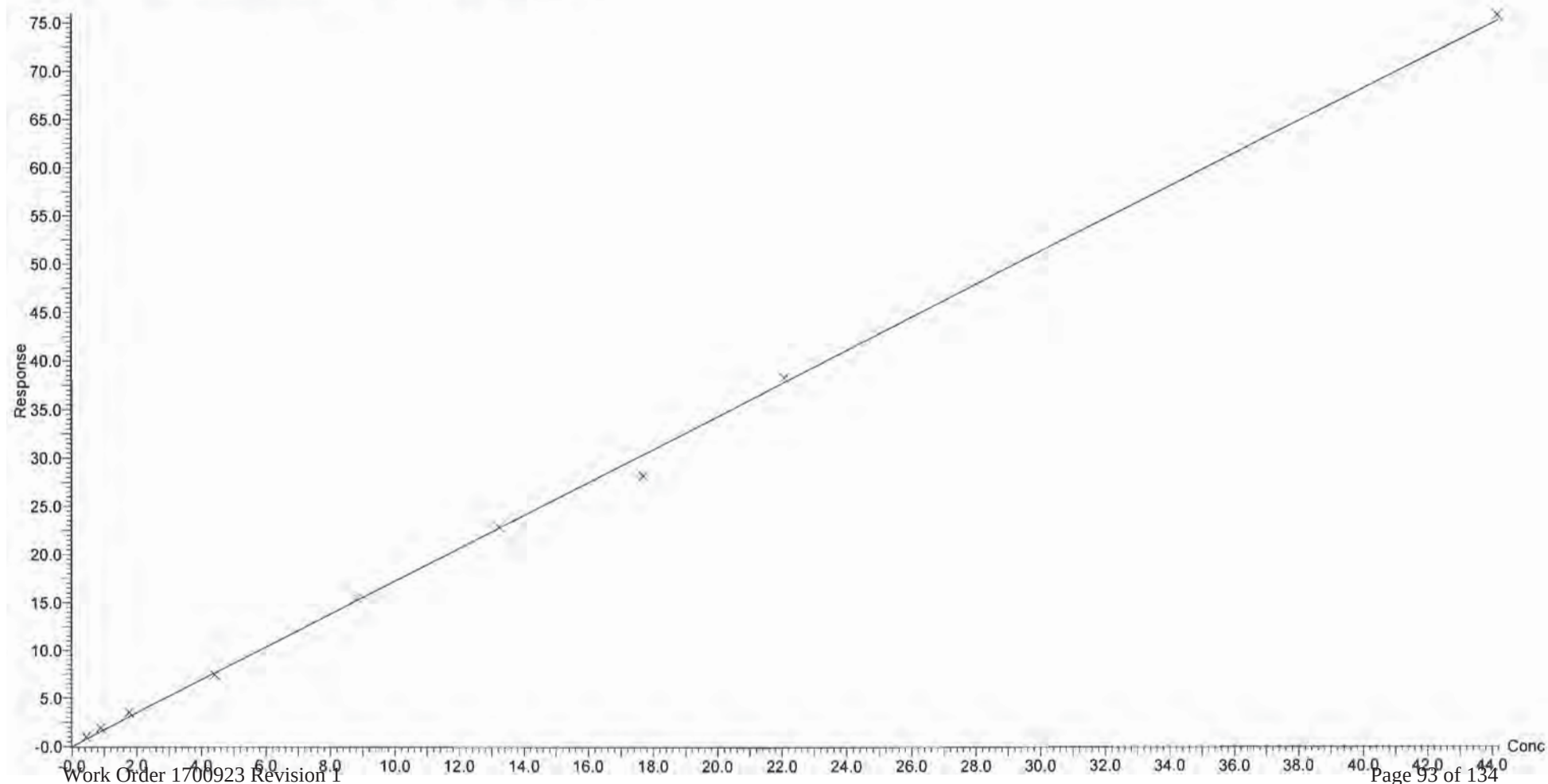
Compound name: PFBS

Coefficient of Determination: $R^2 = 0.997542$

Calibration curve: $-0.000419487 * x^2 + 1.72525 * x$

Response type: Internal Std (Ref 10), Area * (IS Conc. / IS Area)

Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-CRV.qld

Last Altered: Thursday, July 27, 2017 09:54:10 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:12:04 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 09:46:40

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

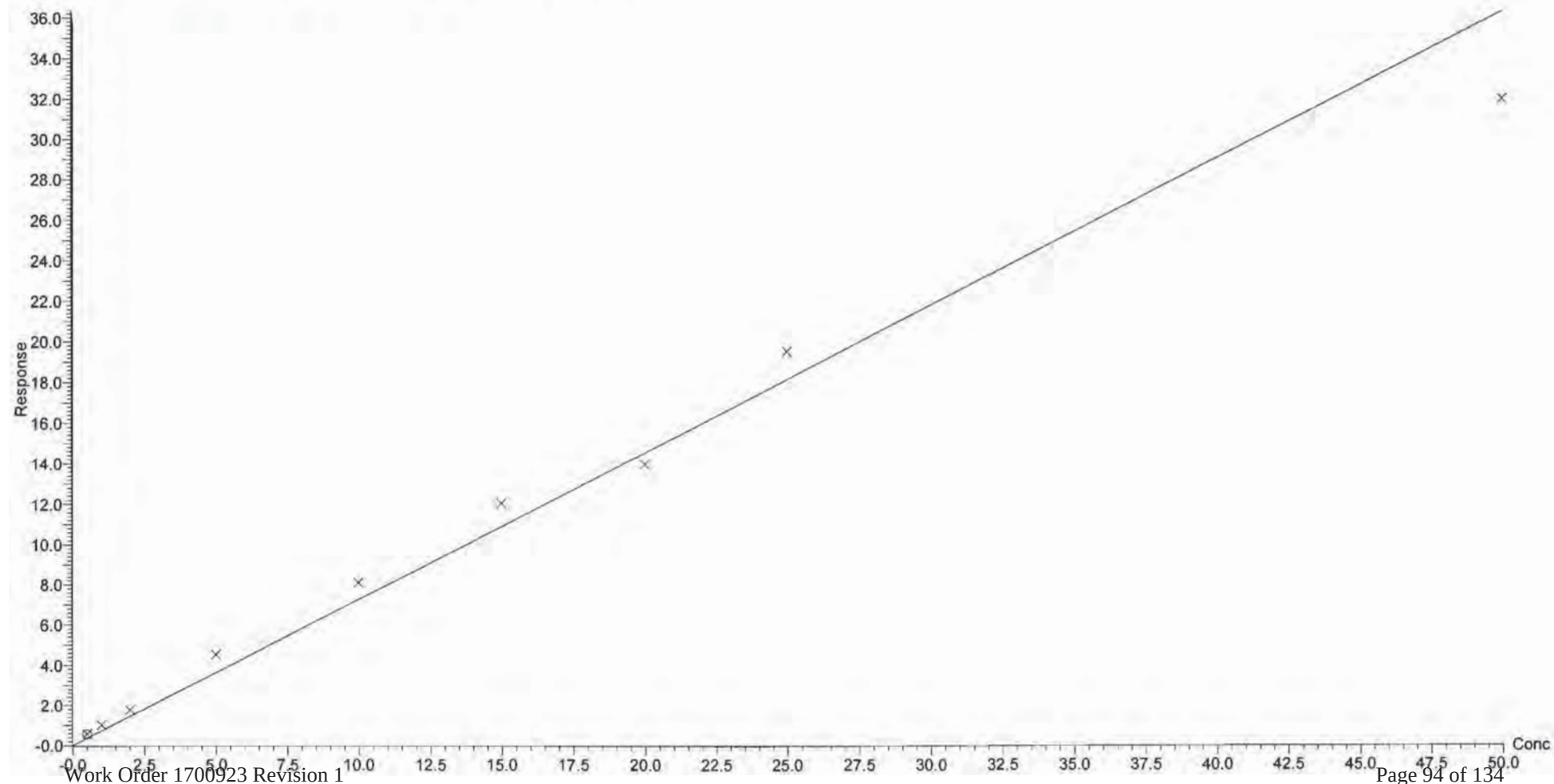
Compound name: PFHpA

Coefficient of Determination: $R^2 = 0.980342$

Calibration curve: $0.727497 * x$

Response type: Internal Std (Ref 9), Area * (IS Conc. / IS Area)

Curve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-CRV.qld

Last Altered: Thursday, July 27, 2017 09:54:10 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:12:04 Pacific Daylight Time

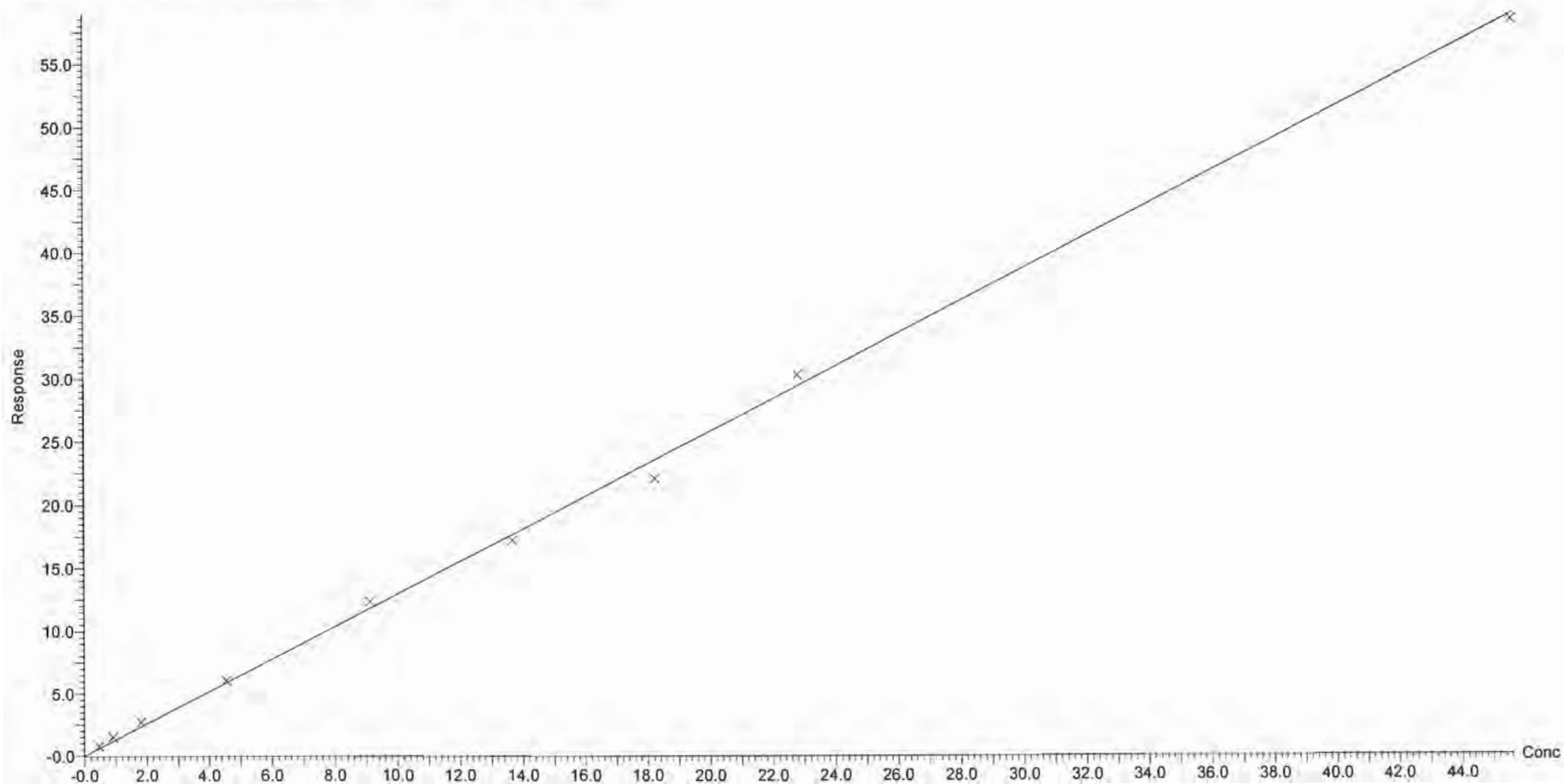
Compound name: PFHxS

Coefficient of Determination: $R^2 = 0.997055$

Calibration curve: $1.29274 * x$

Response type: Internal Std (Ref 10), Area * (IS Conc. / IS Area)

Curve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-CRV.qld

Last Altered: Thursday, July 27, 2017 09:54:10 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:12:04 Pacific Daylight Time

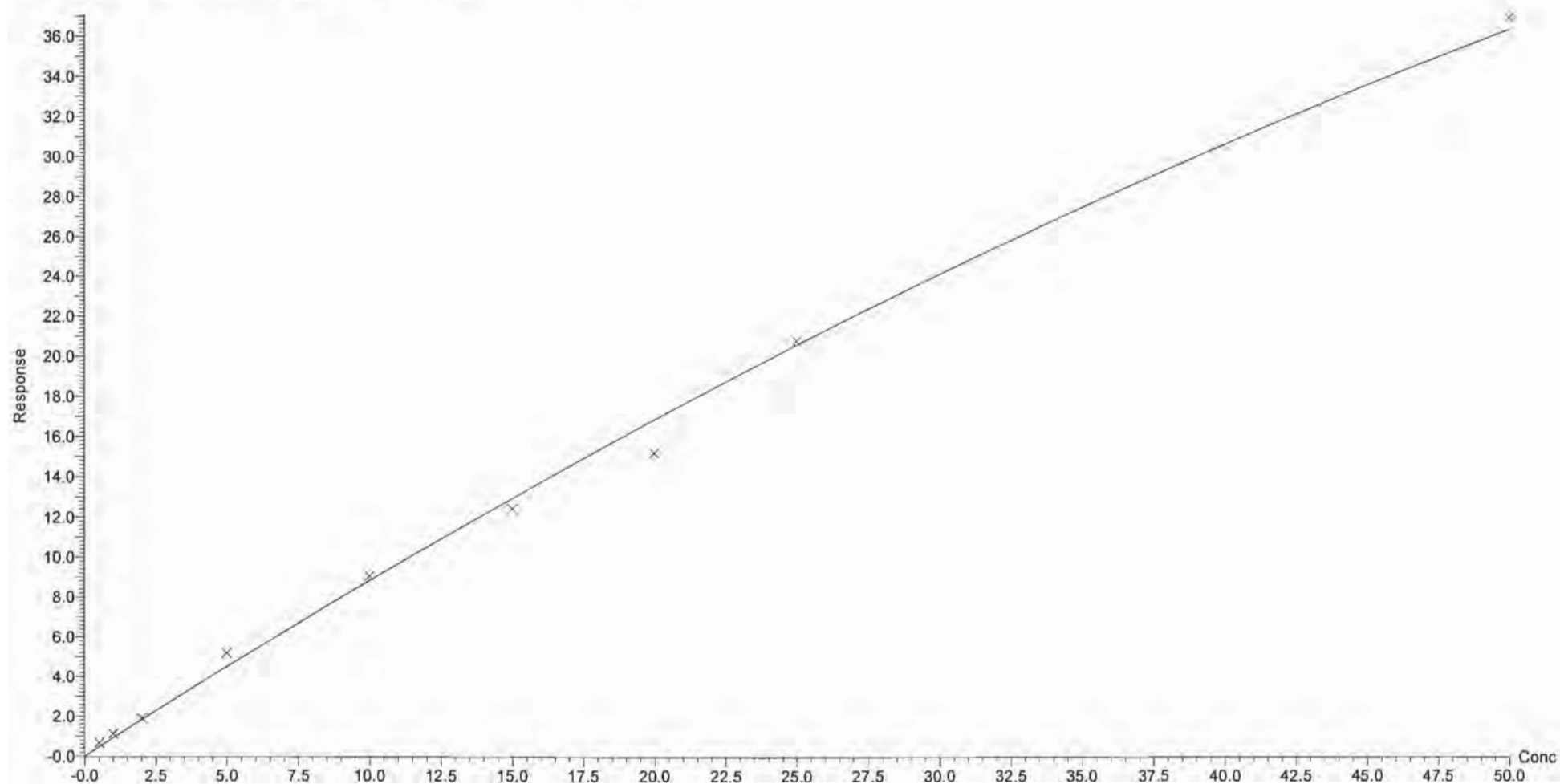
Compound name: PFOA

Coefficient of Determination: $R^2 = 0.994318$

Calibration curve: $-0.00384573 * x^2 + 0.921385 * x$

Response type: Internal Std (Ref 9), Area * (IS Conc. / IS Area)

Curve type: 2nd Order, Origin: Force, Weighting: 1/x, Axis trans: None



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-CRV.qld

Last Altered: Thursday, July 27, 2017 09:54:10 Pacific Daylight Time
Printed: Thursday, July 27, 2017 10:12:04 Pacific Daylight Time

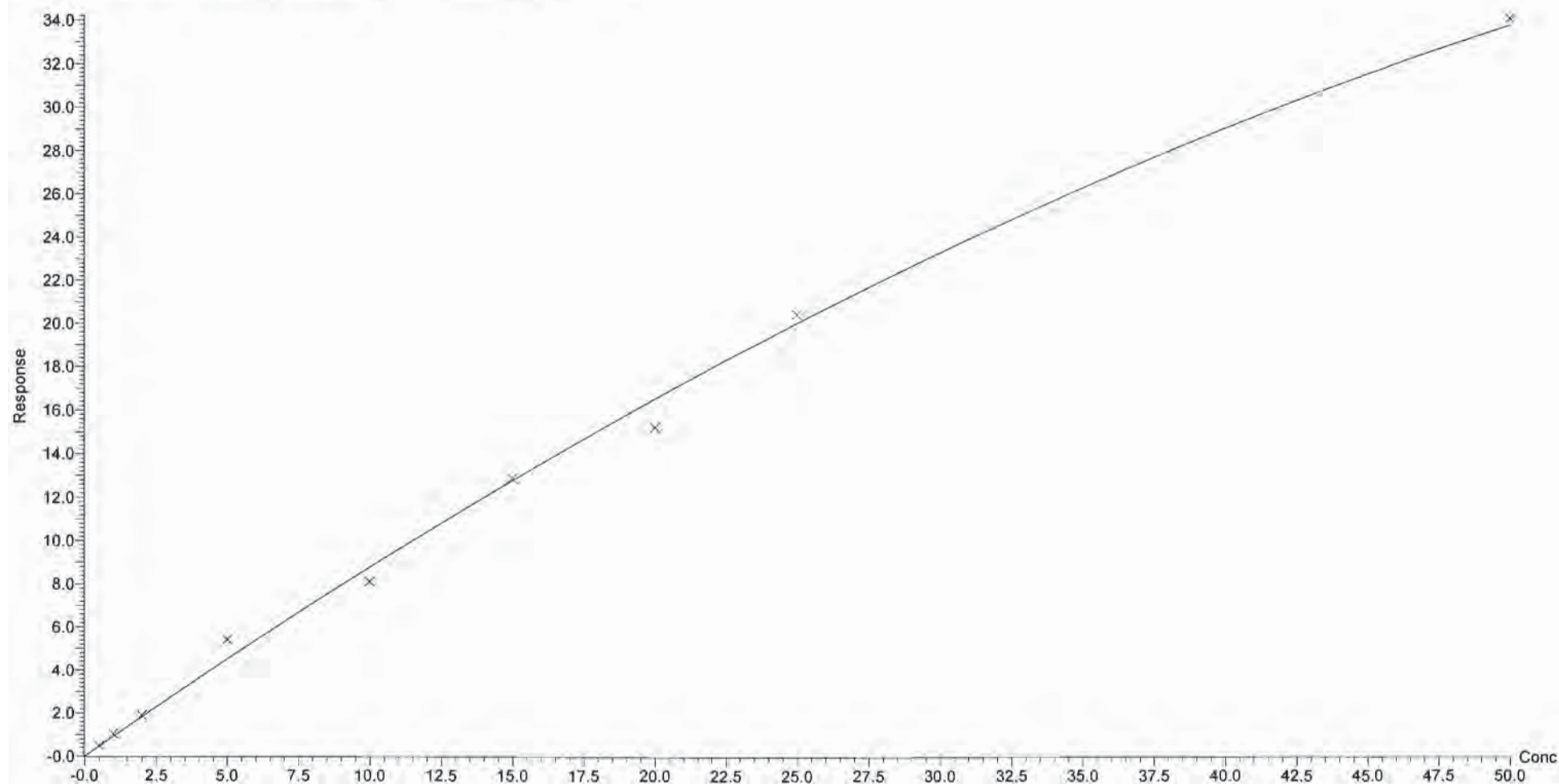
Compound name: PFNA

Coefficient of Determination: $R^2 = 0.994788$

Calibration curve: $-0.00501004 * x^2 + 0.928274 * x$

Response type: Internal Std (Ref 9), 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\170726L1\170726L1-CRV.qld

Last Altered: Thursday, July 27, 2017 09:54:10 Pacific Daylight Time

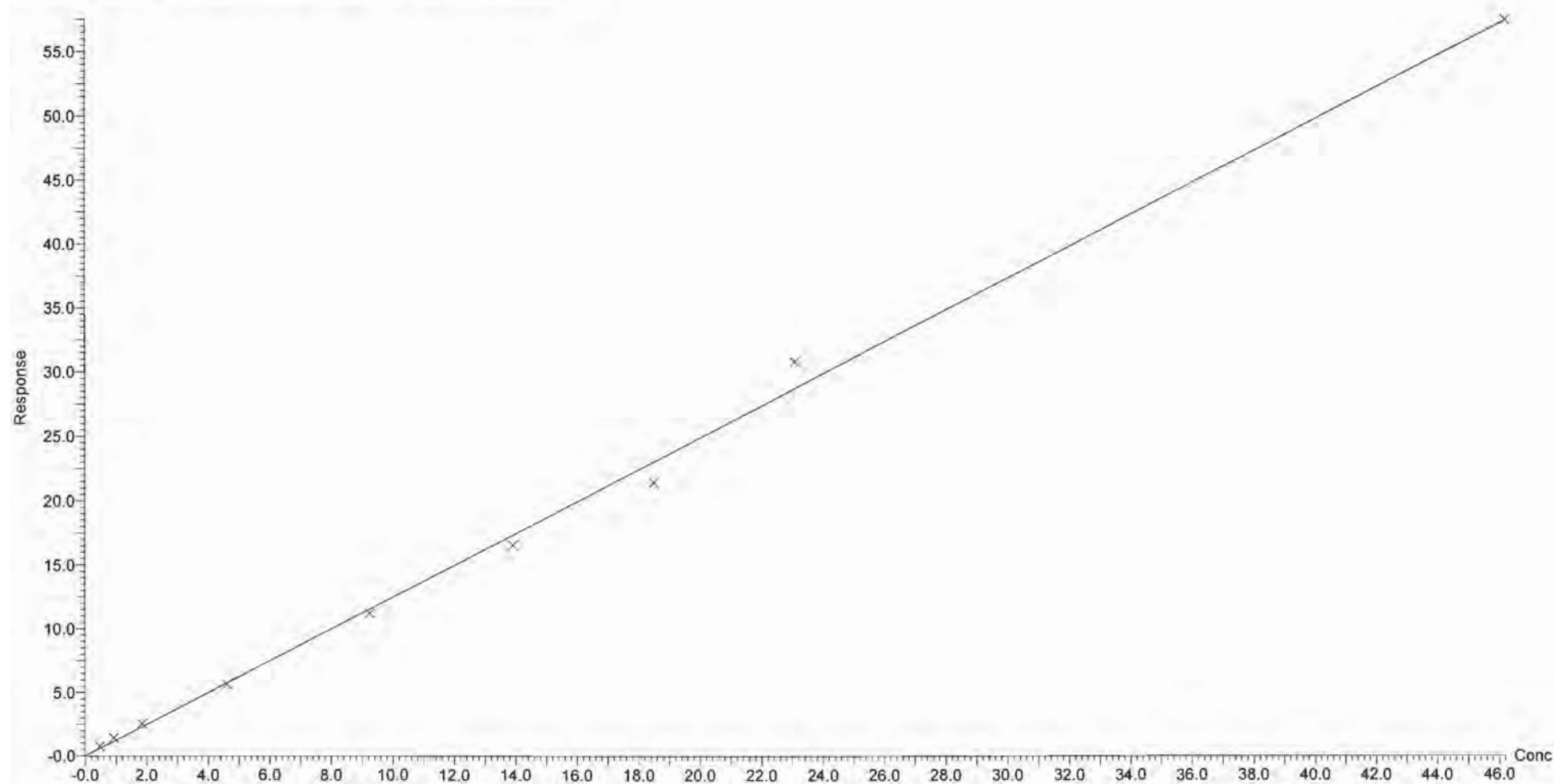
Printed: Thursday, July 27, 2017 10:12:04 Pacific Daylight Time

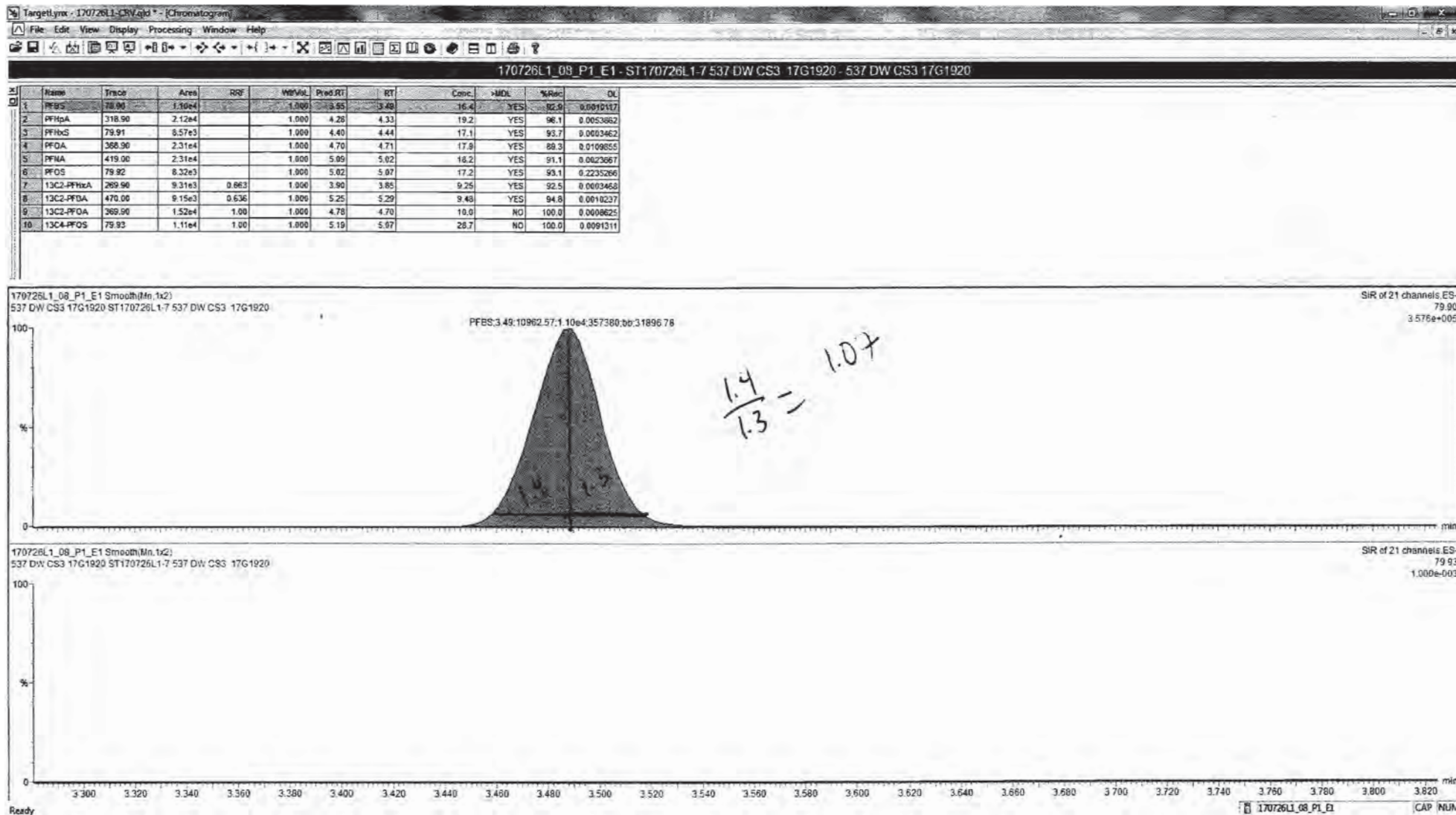
Compound name: PFOS

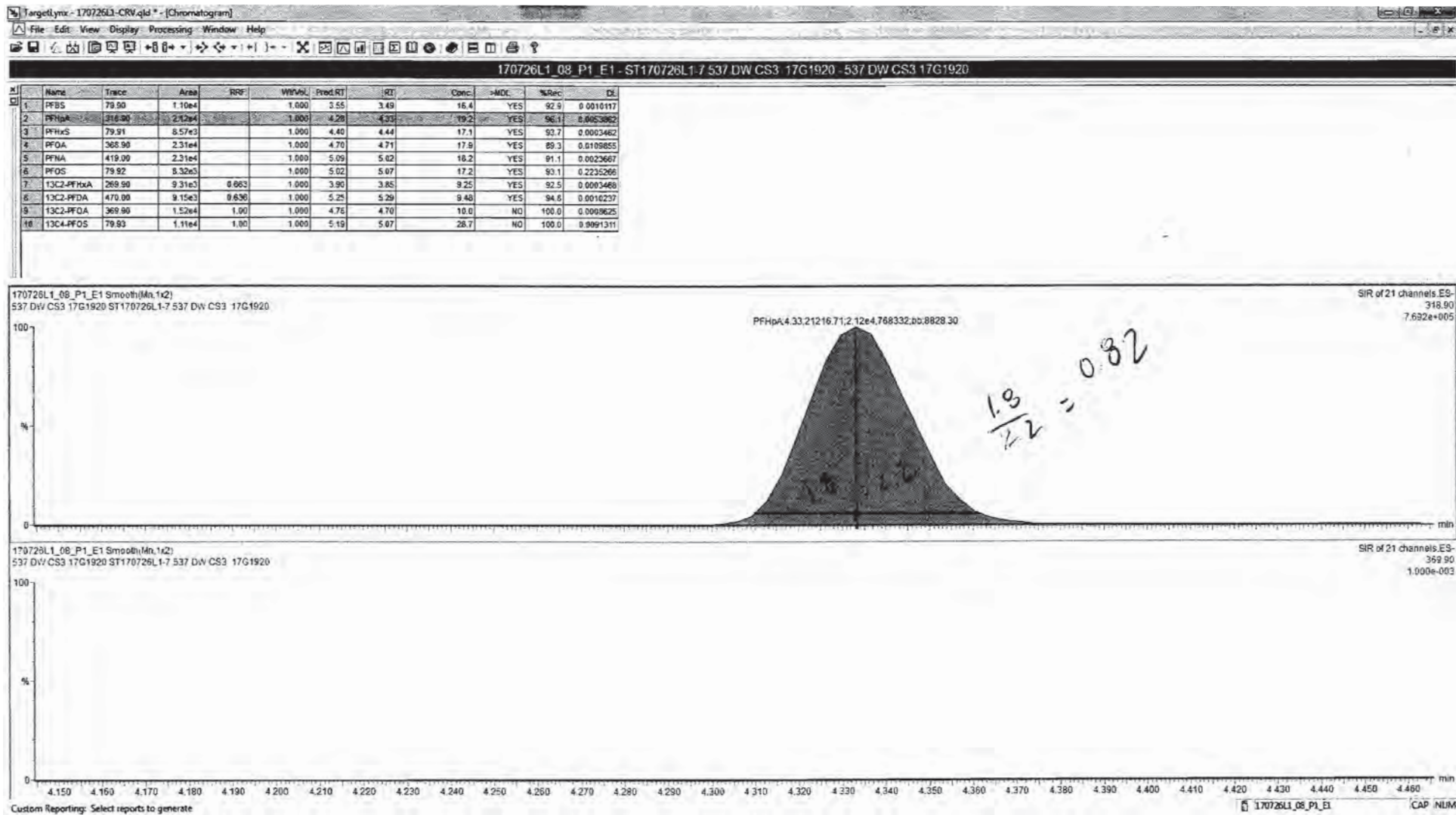
Coefficient of Determination: $R^2 = 0.996373$ Calibration curve: $1.24594 * x$

Response type: Internal Std (Ref 10), Area * (IS Conc. / IS Area)

Curve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None







Quantify Compound Summary Report

Printed Thu Jul 27 09:23:37 2017

Compound 18: 13C2-PFOA

ID	Name	Type	Std. Conc	RT	Area	IS Area	Response	Primary FI Conc.	%Dev	Acq.Date	Acq.Time
1	ST170726L1-1 537 DW CS(-3) 17G2611	170726L1_02_P1_E1	Standard	10	4.71	12513.739	12513.739	10 bb	10	0	26-Jul-17 17:17:05
2	ST170726L1-2 537 DW CS(-2) 17G1915	170726L1_03_P1_E1	Standard	10	4.7	13376.119	13376.119	10 bb	10	0	26-Jul-17 17:29:22
3	ST170726L1-3 537 DW CS(-1) 17G2612	170726L1_04_P1_E1	Standard	10	4.7	14286.887	14286.887	10 bb	10	0	26-Jul-17 17:41:36
4	ST170726L1-4 537 DW CS(0) 17G1917	170726L1_05_P1_E1	Standard	10	4.7	13725.814	13725.814	10 bb	10	0	26-Jul-17 17:53:52
5	ST170726L1-5 537 DW CS1 17G2613	170726L1_06_P1_E1	Standard	10	4.7	14506.844	14506.844	10 bb	10	0	26-Jul-17 18:06:06
6	ST170726L1-6 537 DW CS2 17G1919	170726L1_07_P1_E1	Standard	10	4.7	13251.583	13251.583	10 bb	10	0	26-Jul-17 18:18:22
7	ST170726L1-7 537 DW CS3 17G1920	170726L1_08_P1_E1	Standard	10	4.7	15173.739	15173.739	10 bb	10	0	26-Jul-17 18:30:37
8	ST170726L1-8 537 DW CS4 17G2614	170726L1_09_P1_E1	Standard	10	4.74	13403.574	13403.574	10 bb	10	0	26-Jul-17 18:42:51
9	ST170726L1-9 537 DW CS5 17G2615	170726L1_10_P1_E1	Standard	10	4.69	14450.642	14450.642	10 bb	10	0	26-Jul-17 18:55:07

Compound 18: 13C2-PFOA

HIGH AREA	15173.739
LOW AREA	12513.739
RPD %	19.2

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 SUMMA

Quantify Compound Summary Report

Printed Thu Jul 27 09:17:41 2017

Compound 19: 13C4-PFOS

	ID	Name	Type	Std. Conc.	RT	Area	IS Area	Response	Primary FI Conc.	%Dev	Acq.Date	Acq.Time	
1	ST170726L1-1 537 DW CS(-3) 17G2611	170726L1_02_P1_E1	Standard	28.7	5.08	9845.757	9845.757	28.7	bb	28.7	0	26-Jul-17	17:17:05
2	ST170726L1-2 537 DW CS(-2) 17G1915	170726L1_03_P1_E1	Standard	28.7	5.06	9856.394	9856.394	28.7	bb	28.7	0	26-Jul-17	17:29:22
3	ST170726L1-3 537 DW CS(-1) 17G2612	170726L1_04_P1_E1	Standard	28.7	5.06	10156.662	10156.662	28.7	bb	28.7	0	26-Jul-17	17:41:36
4	ST170726L1-4 537 DW CS(0) 17G1917	170726L1_05_P1_E1	Standard	28.7	5.07	11751.335	11751.335	28.7	bb	28.7	0	26-Jul-17	17:53:52
5	ST170726L1-5 537 DW CS1 17G2613	170726L1_06_P1_E1	Standard	28.7	5.06	10764.016	10764.016	28.7	bb	28.7	0	26-Jul-17	18:06:06
6	ST170726L1-6 537 DW CS2 17G1919	170726L1_07_P1_E1	Standard	28.7	5.06	10700.74	10700.74	28.7	bb	28.7	0	26-Jul-17	18:18:22
7	ST170726L1-7 537 DW CS3 17G1920	170726L1_08_P1_E1	Standard	28.7	5.07	11136.509	11136.509	28.7	bb	28.7	0	26-Jul-17	18:30:37
8	ST170726L1-8 537 DW CS4 17G2614	170726L1_09_P1_E1	Standard	28.7	5.1	10511.702	10511.702	28.7	bb	28.7	0	26-Jul-17	18:42:51
9	ST170726L1-9 537 DW CS5 17G2615	170726L1_10_P1_E1	Standard	28.7	5.06	10094.84	10094.84	28.7	bb	28.7	0	26-Jul-17	18:55:07

Compound 19: 13C4-PFOS

HIGH AREA	11751.335
LOW AREA	9845.757
RPD %	17.6

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 SUMMA

Dataset: U:\Q2.PRO\Results\170726L1\170726L1-CRV.qld

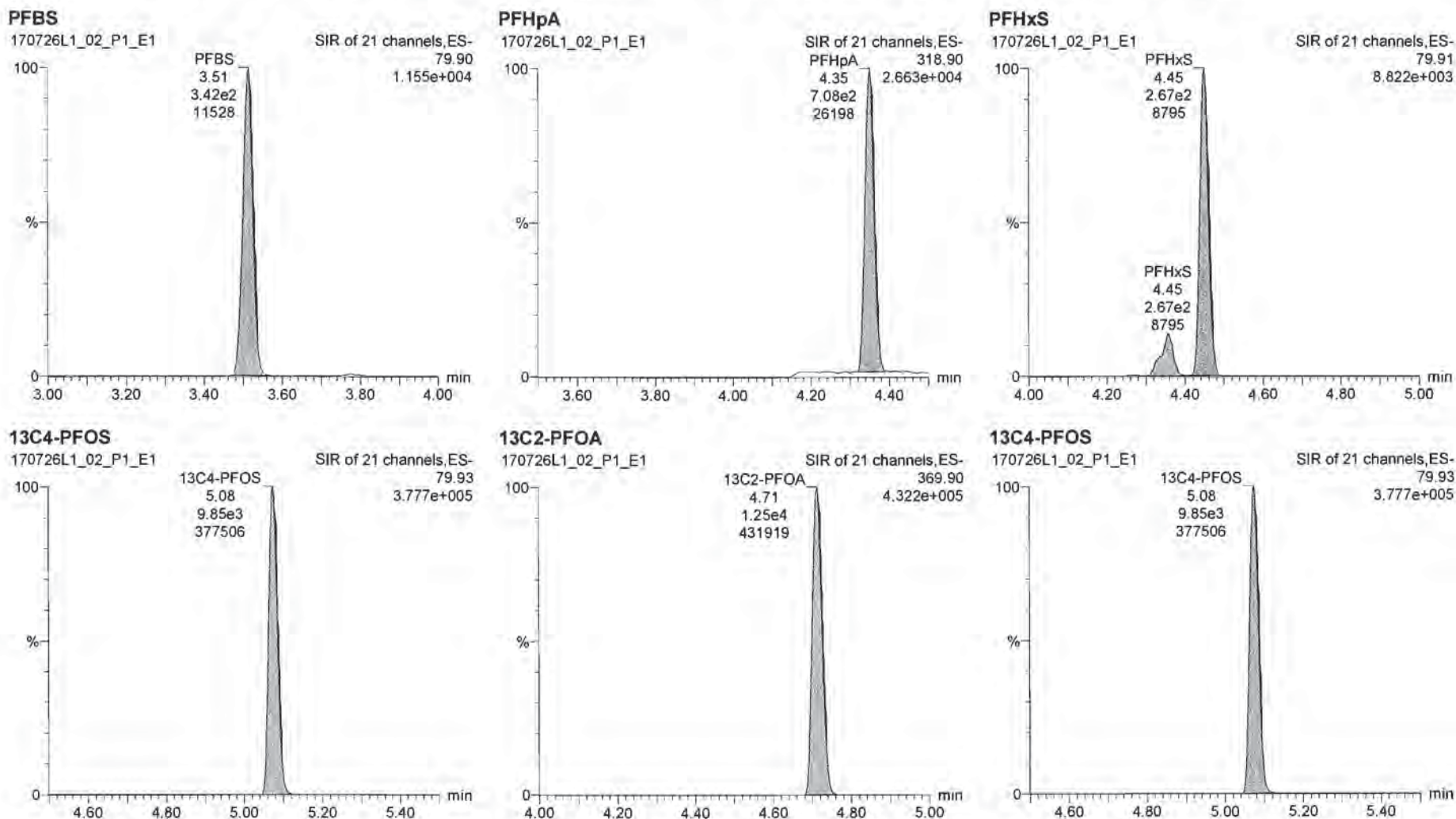
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Printed: Thursday, July 27, 2017 10:09:41 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 09:46:40

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

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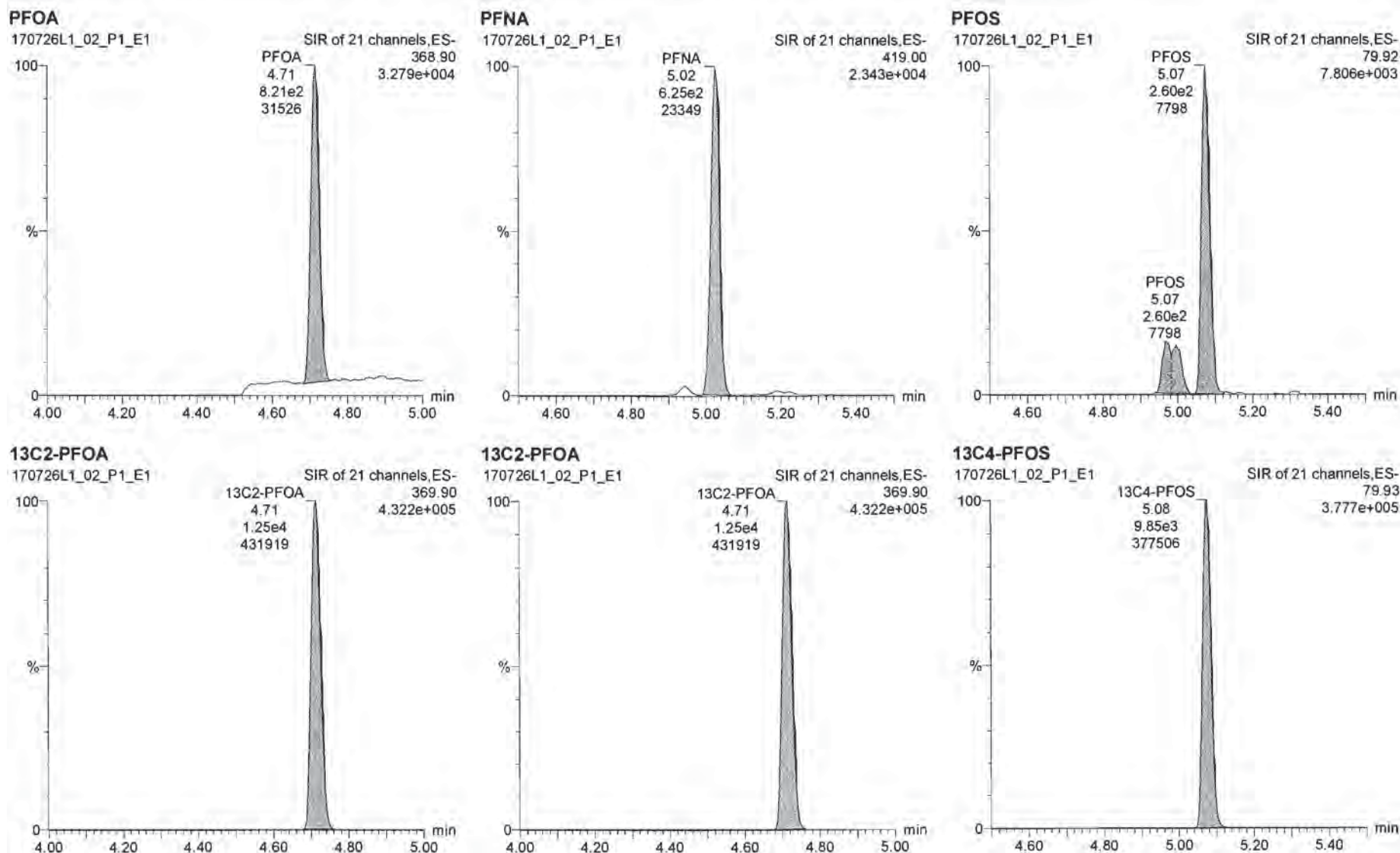


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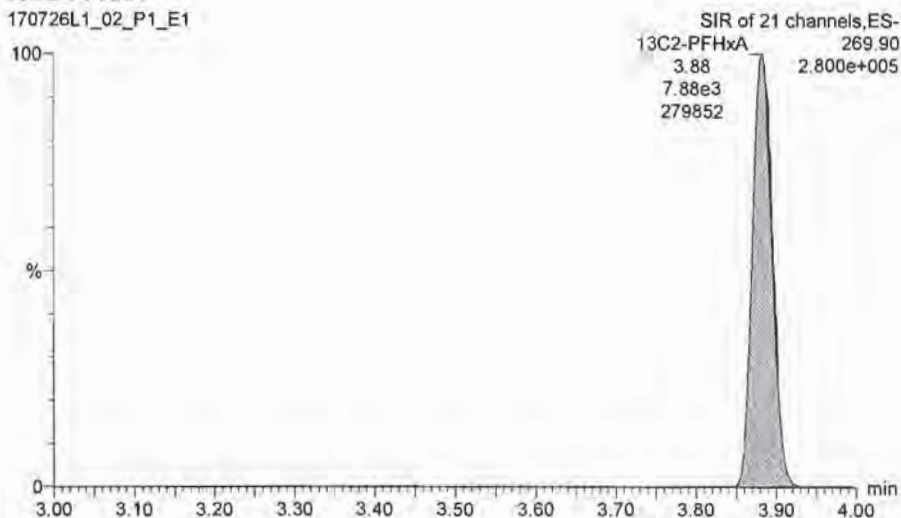
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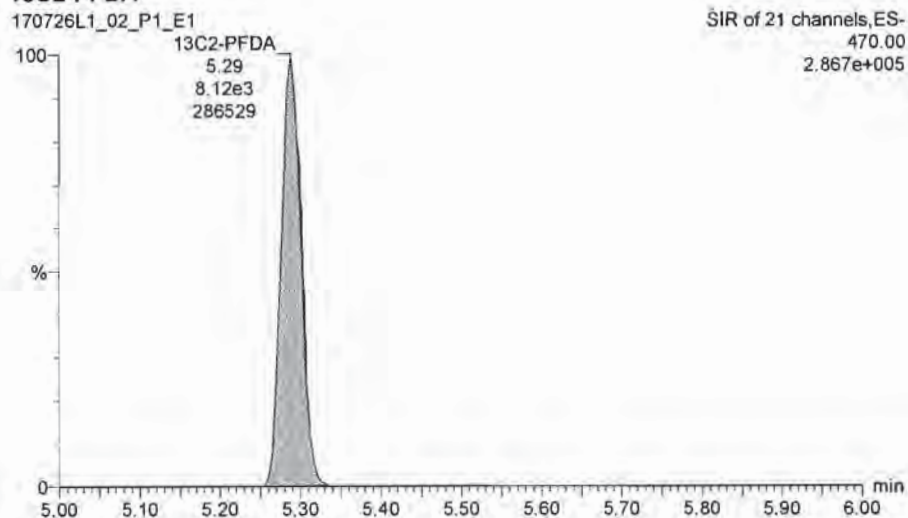
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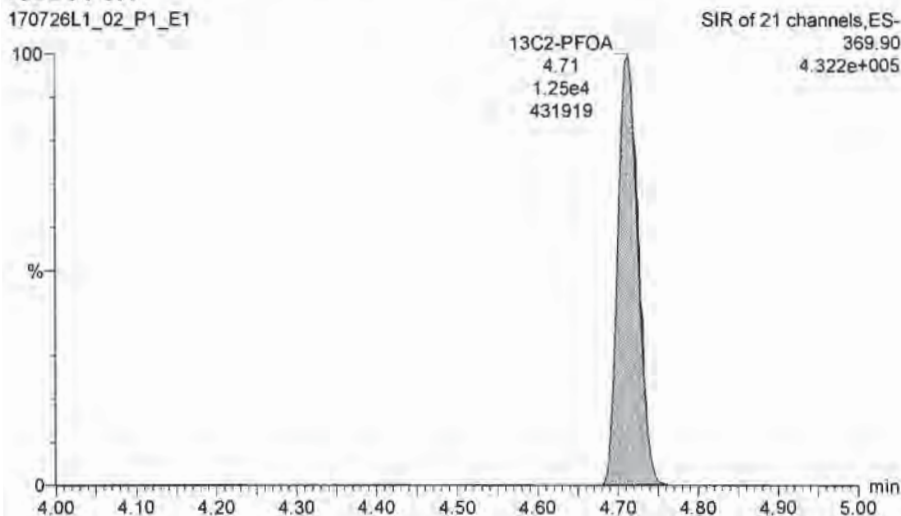
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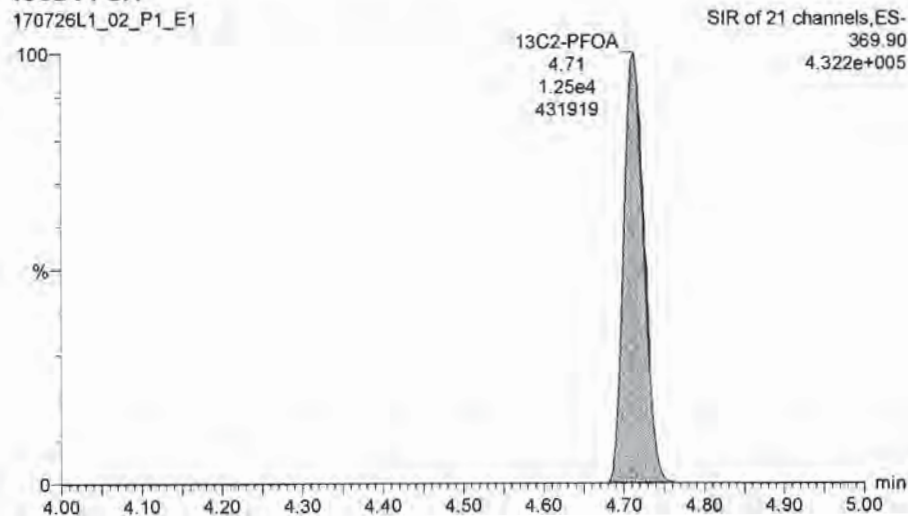
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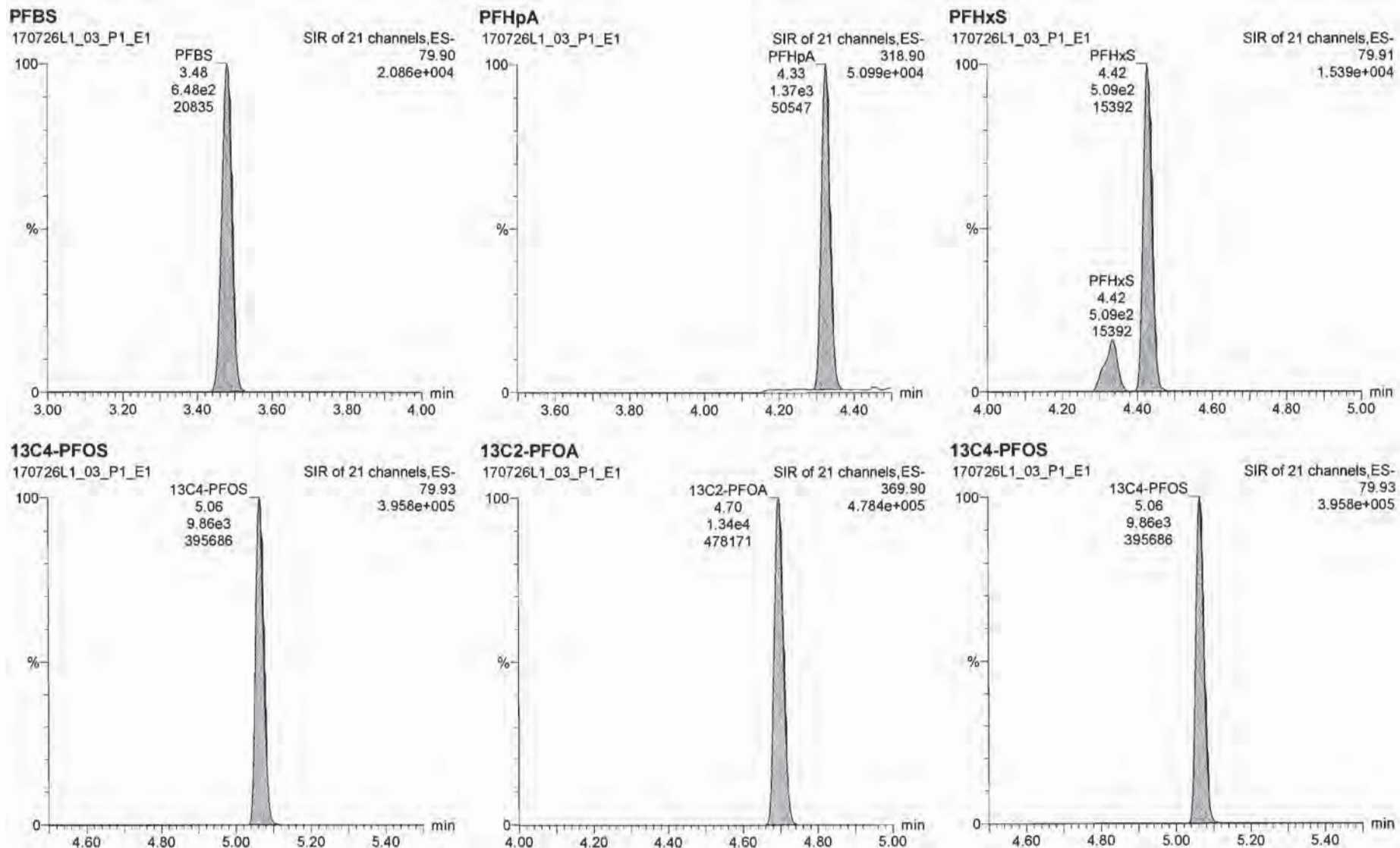


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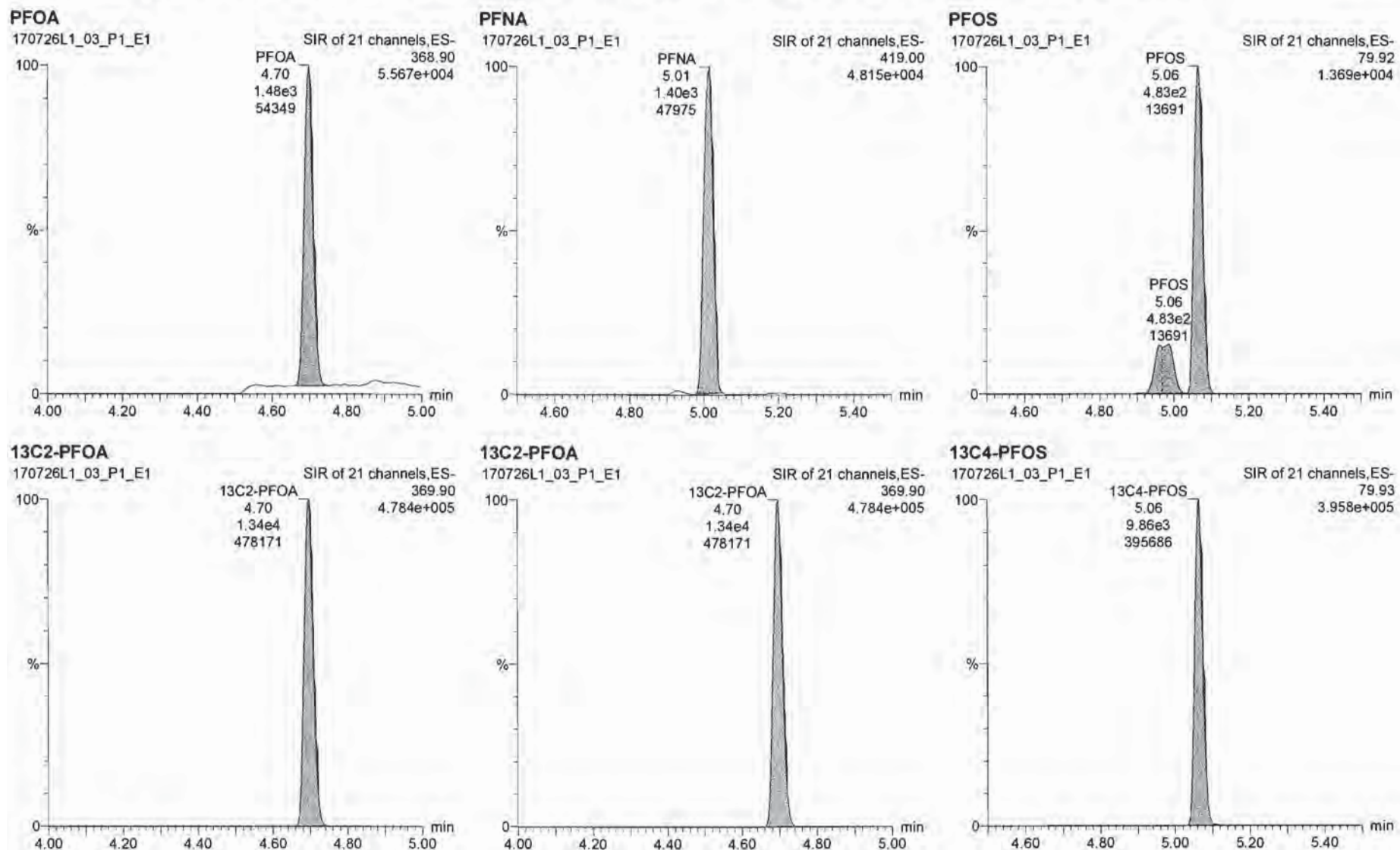


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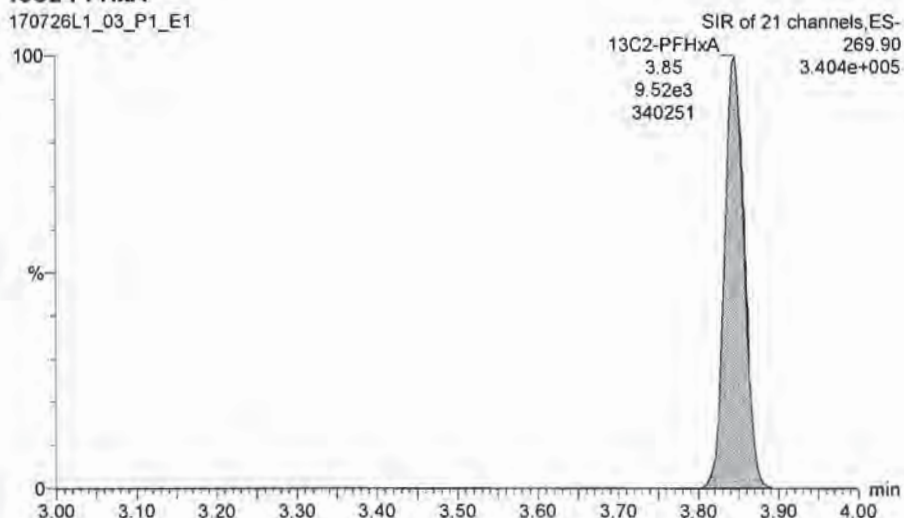
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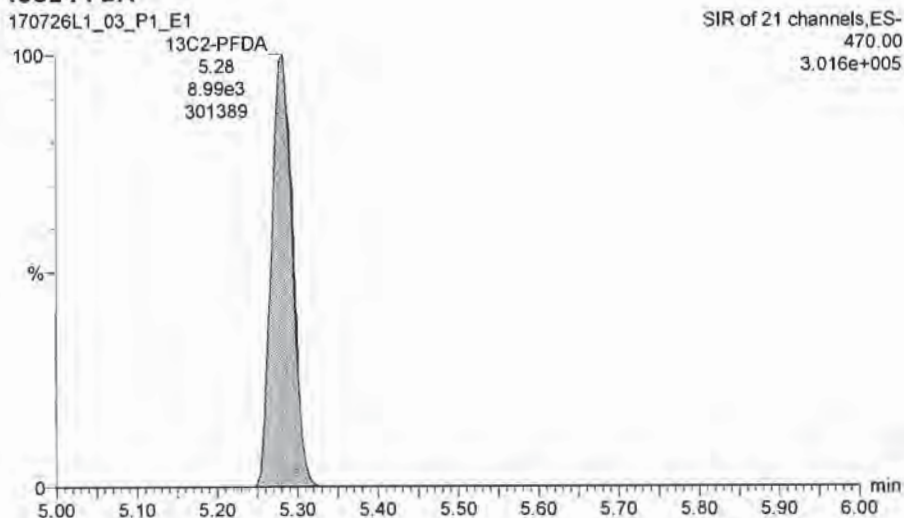
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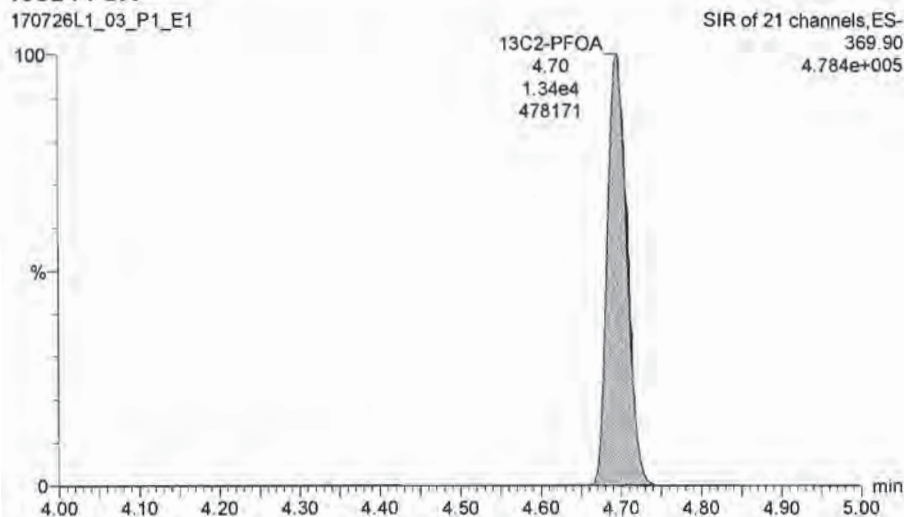
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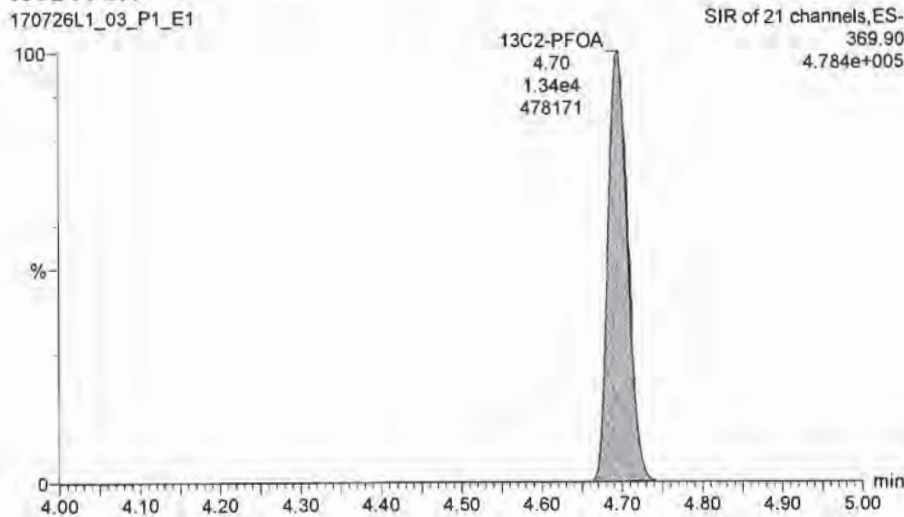
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13C2-PFOA

170726L1_03_P1_E1

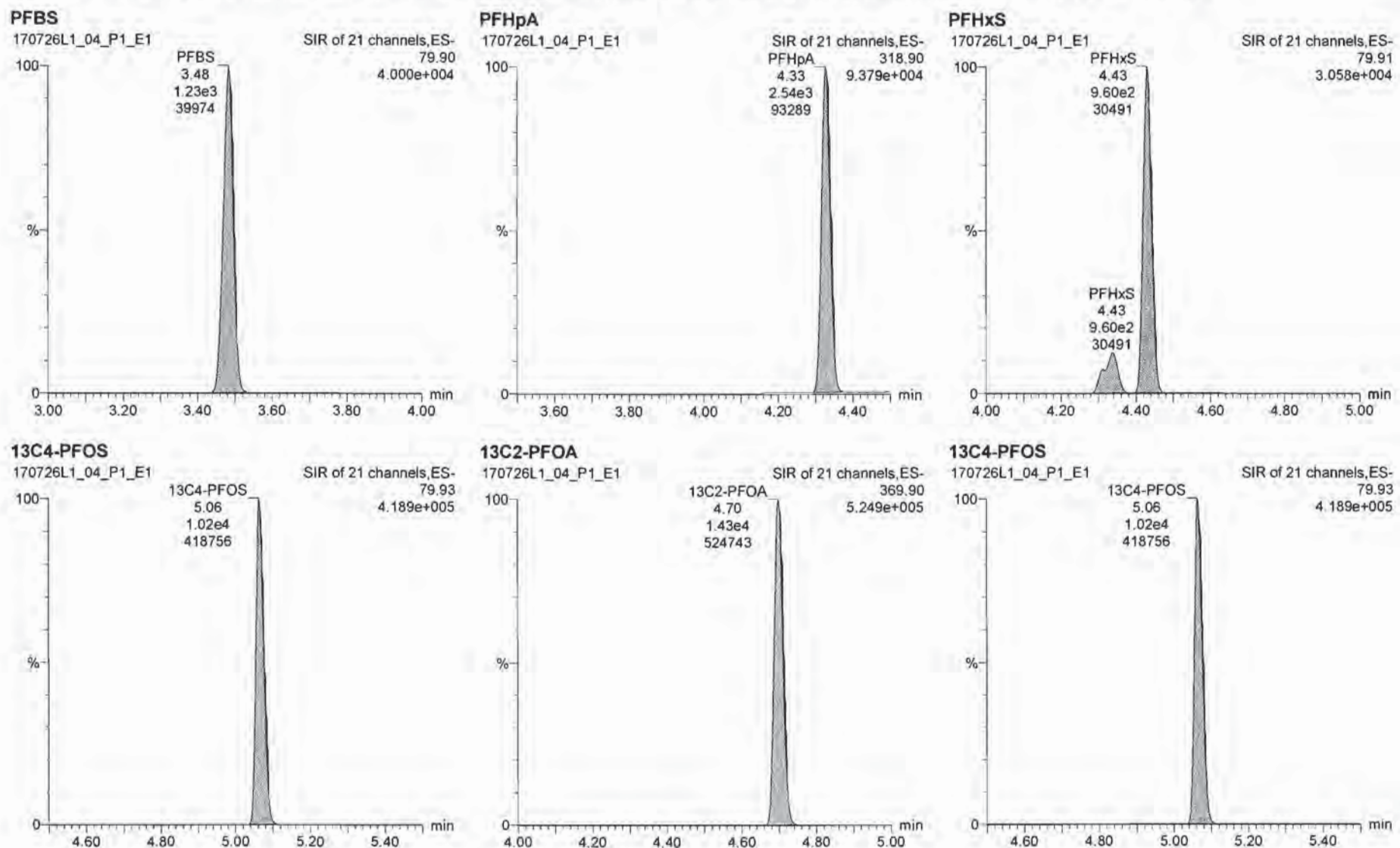


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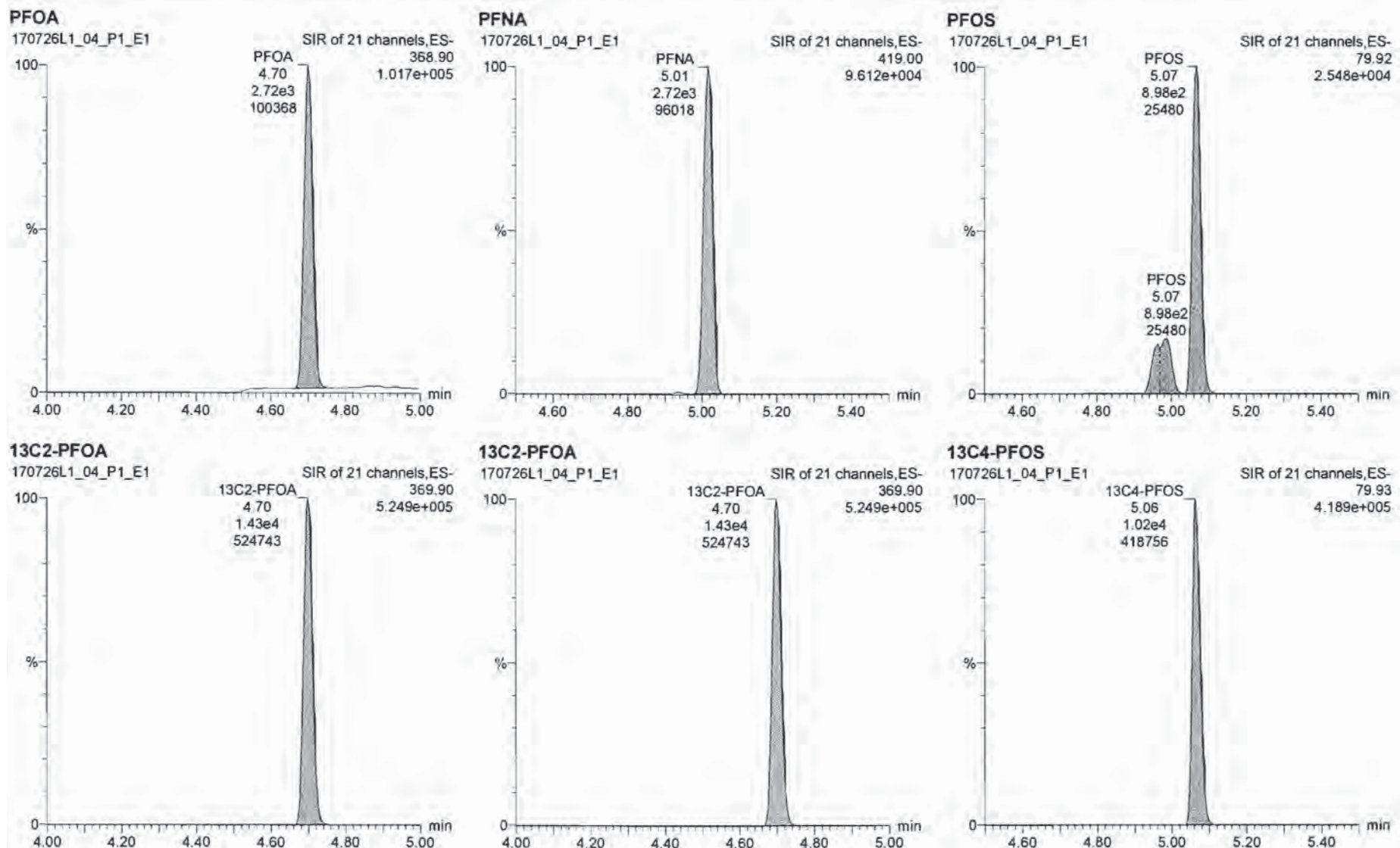


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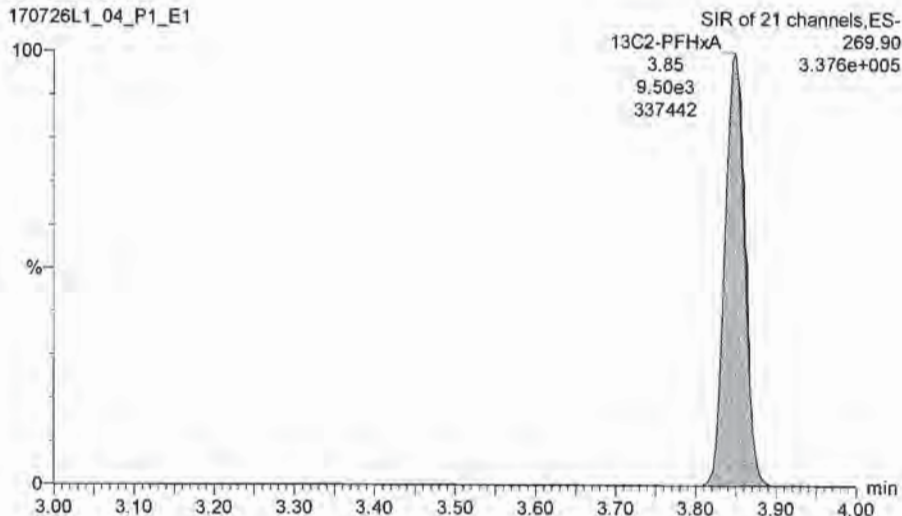
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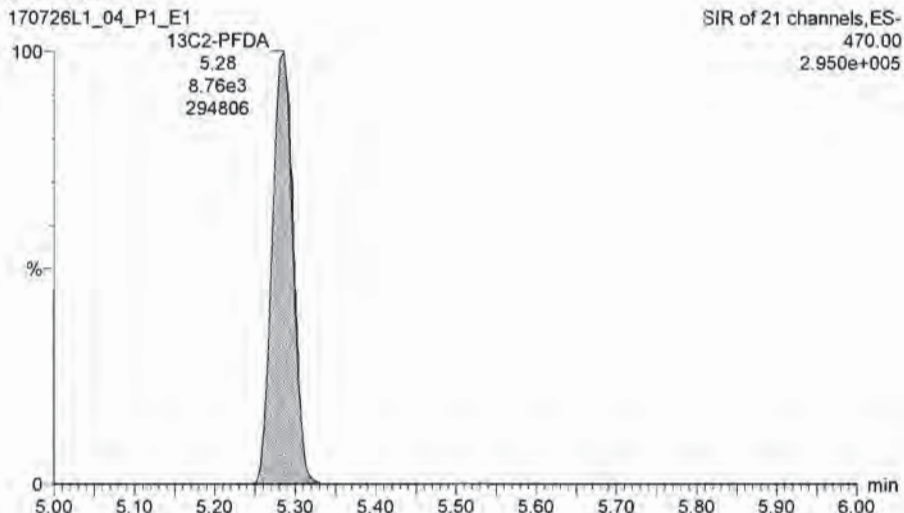
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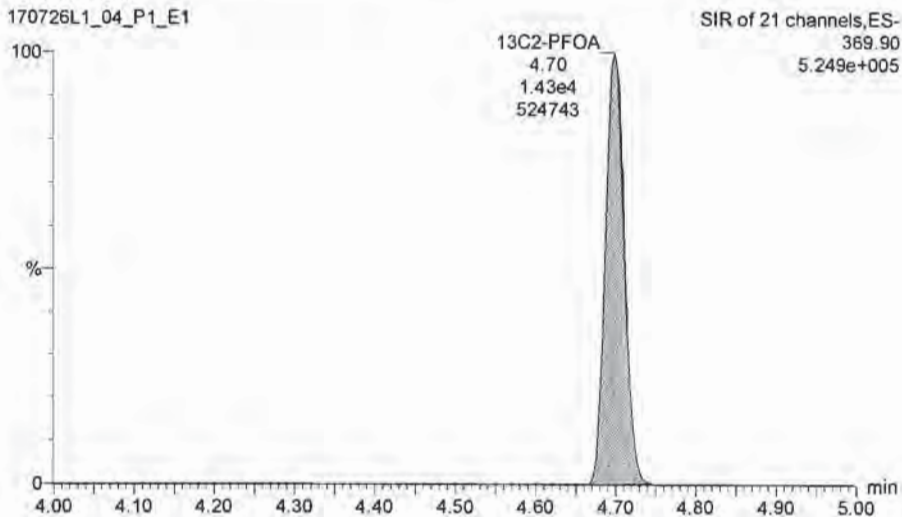
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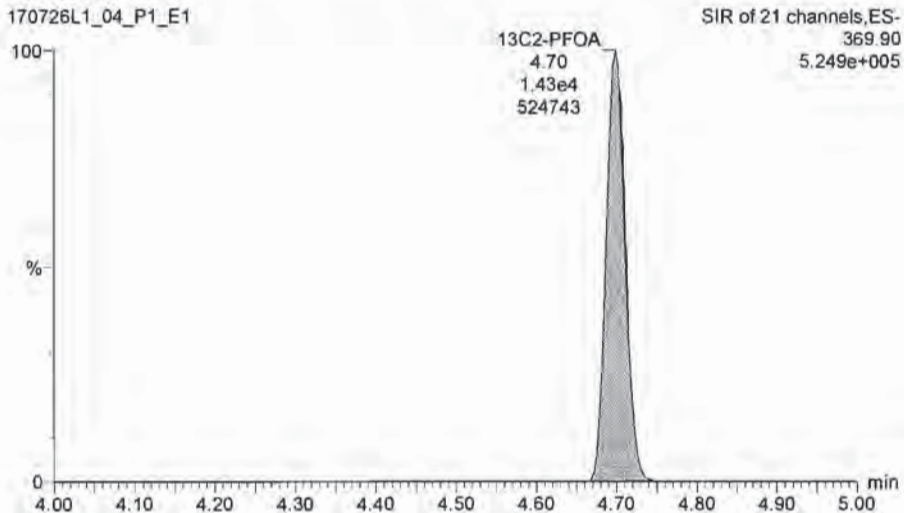
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13C2-PFOA

170726L1_04_P1_E1

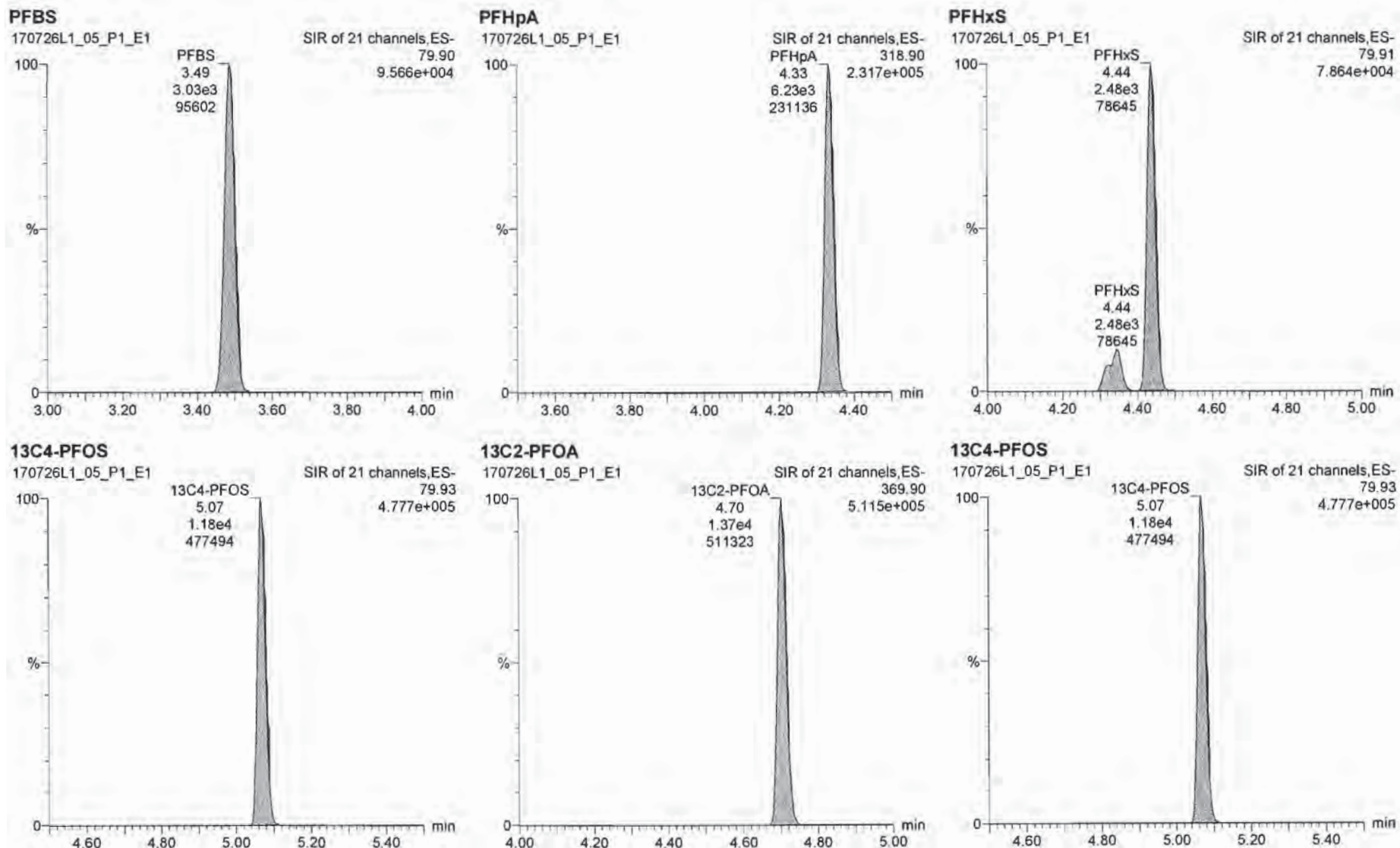


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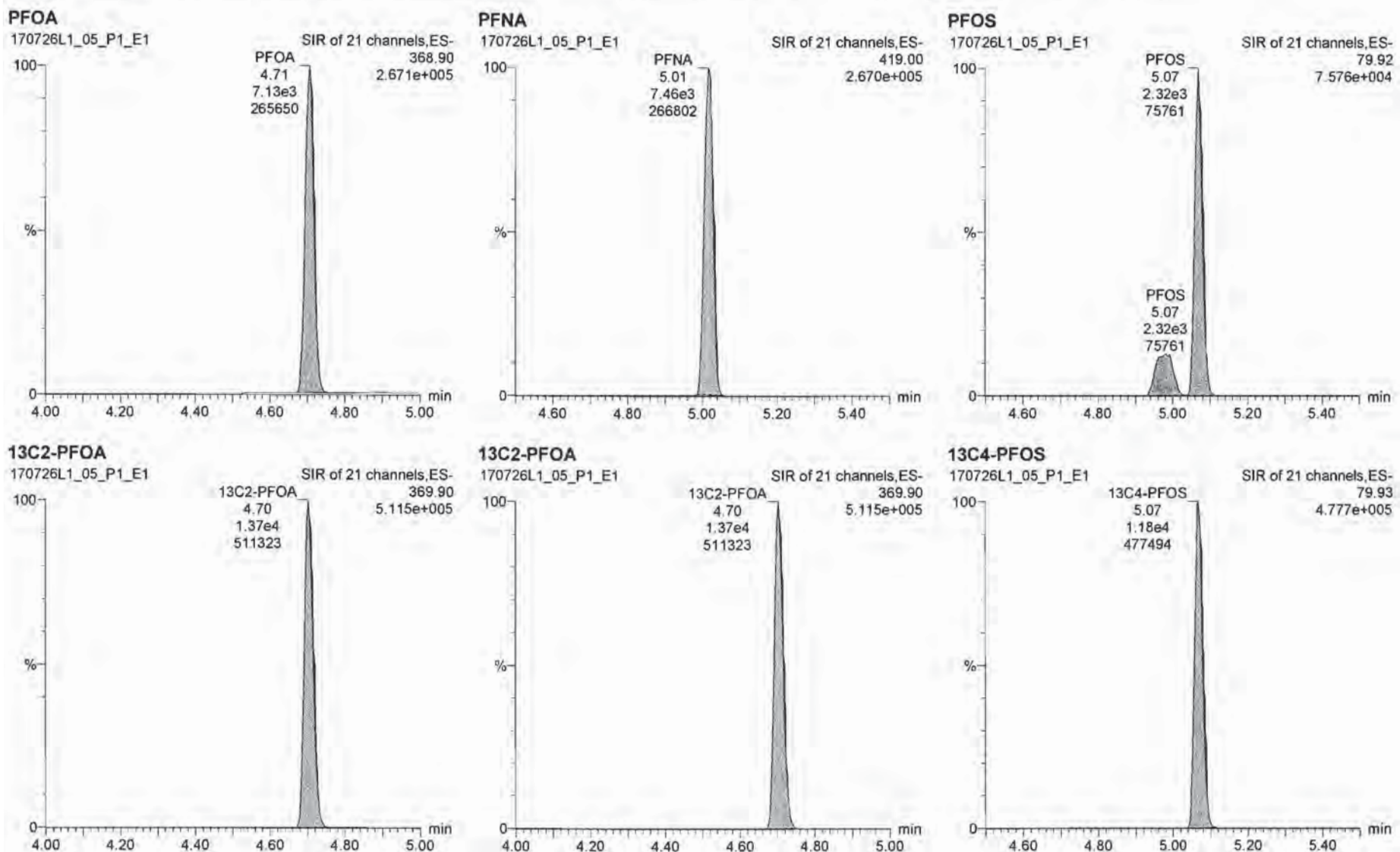


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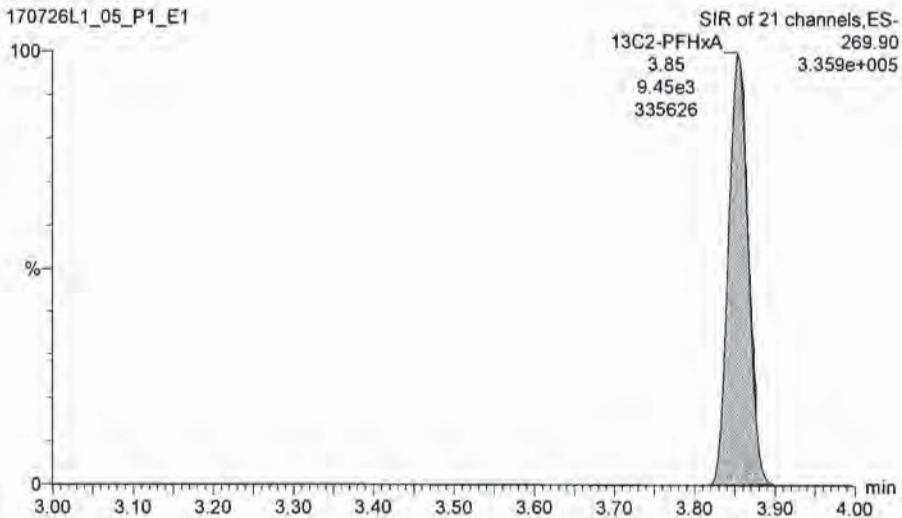
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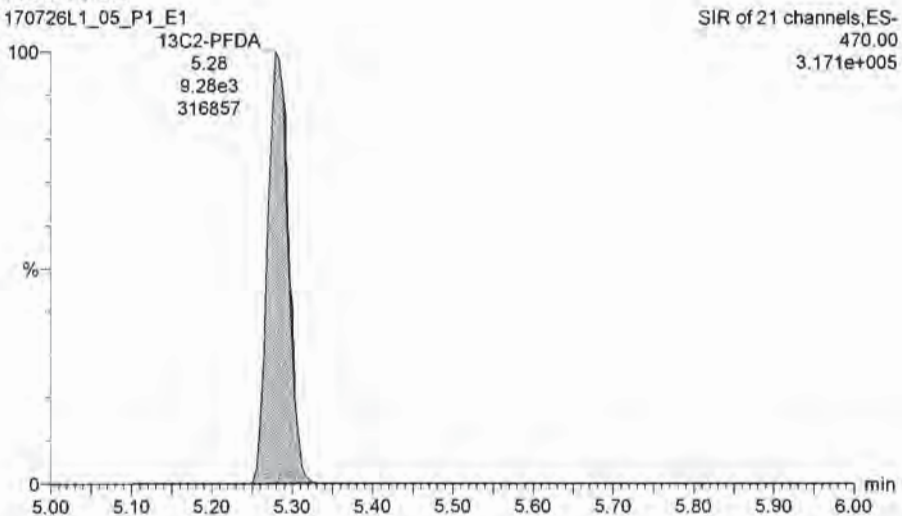
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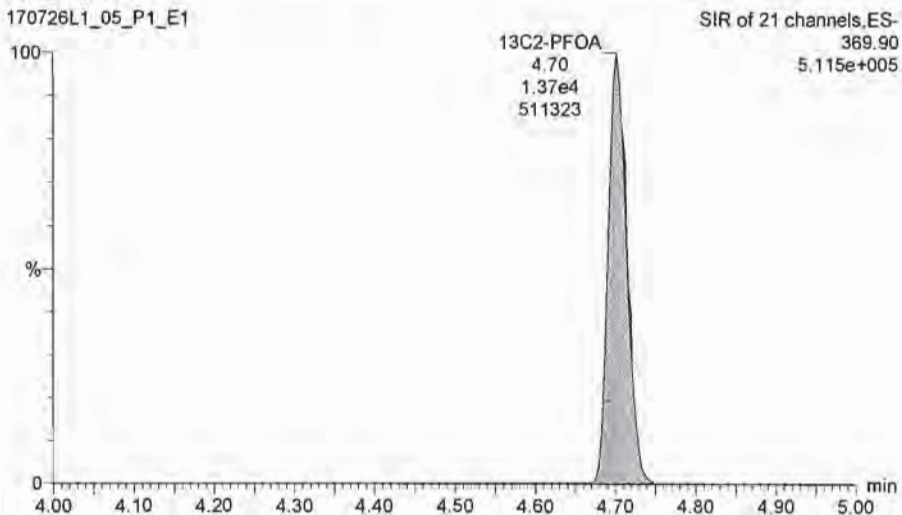
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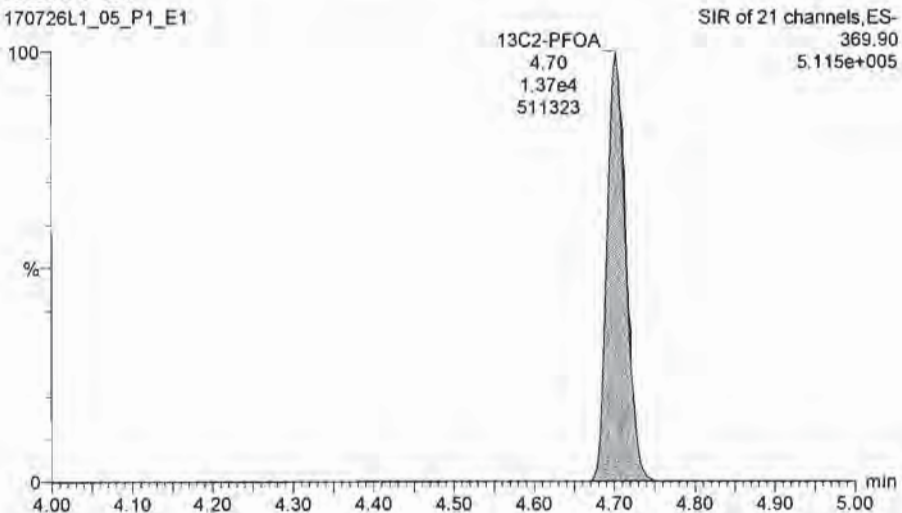
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13C2-PFOA

170726L1_05_P1_E1

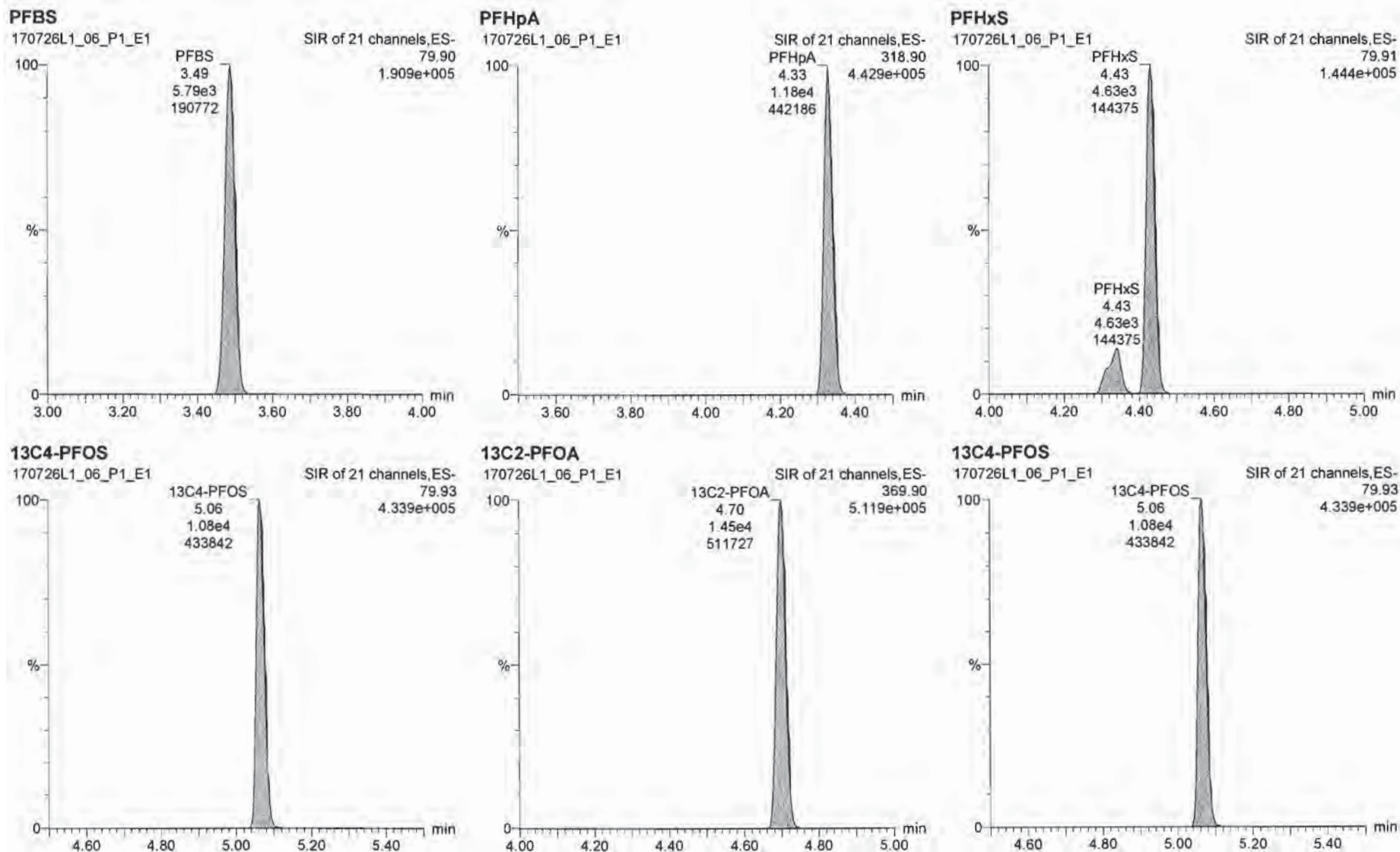


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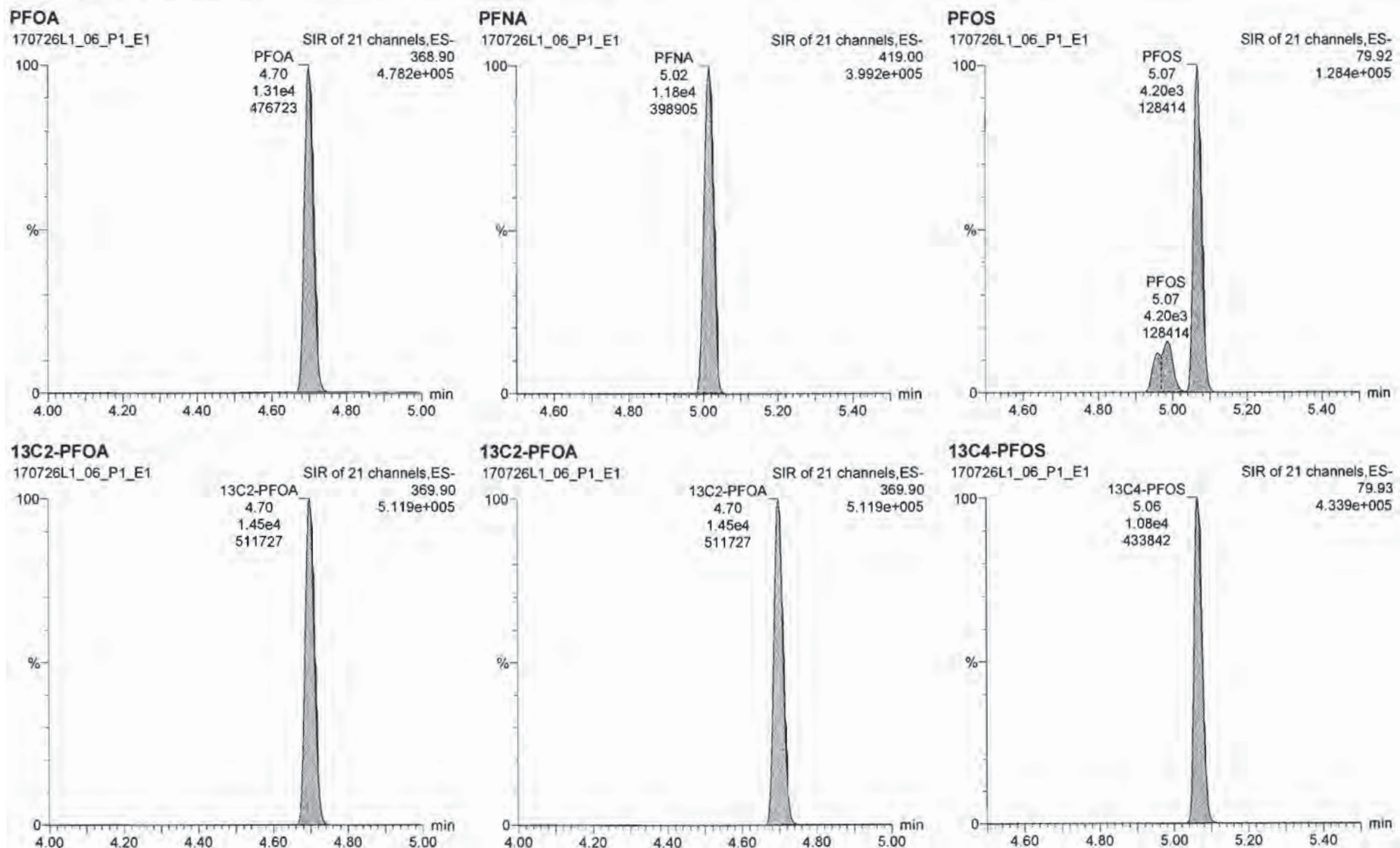


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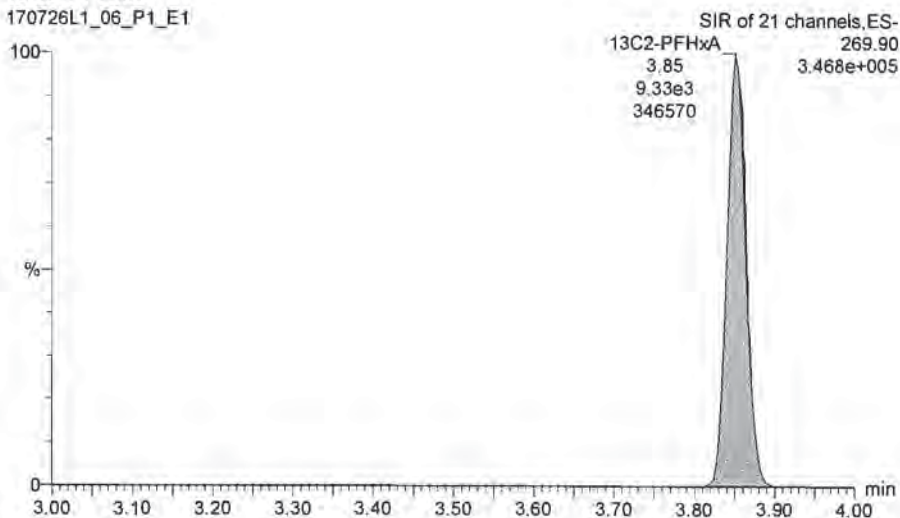
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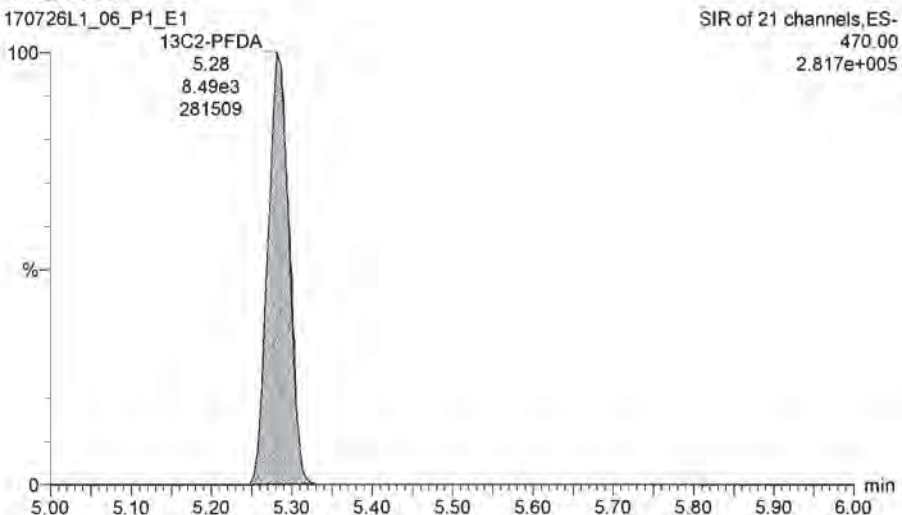
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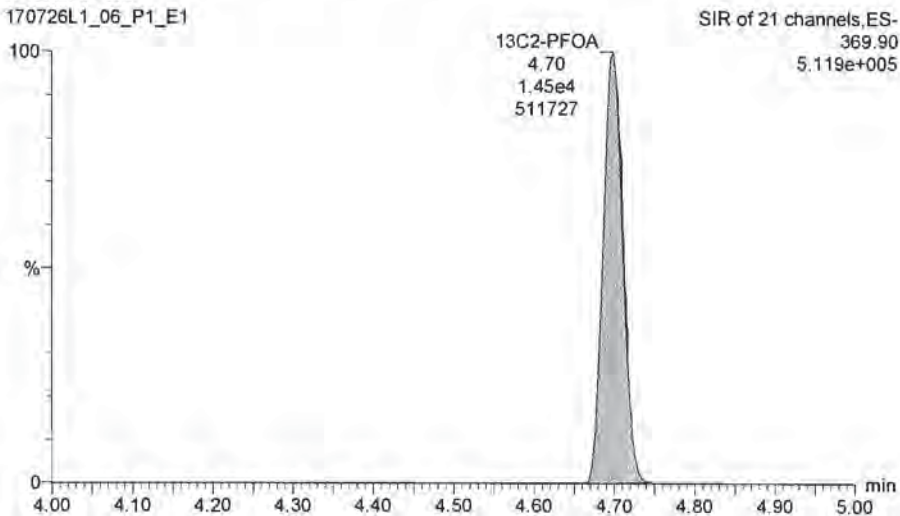
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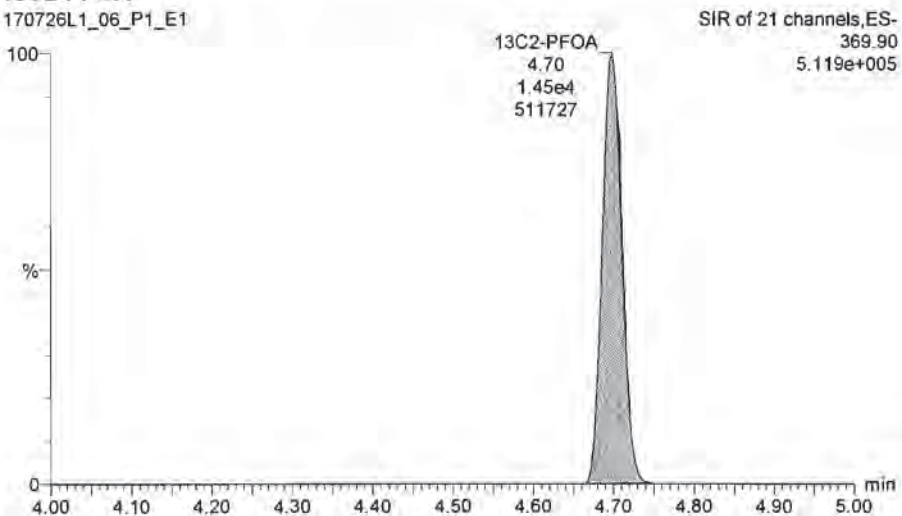
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13C2-PFOA

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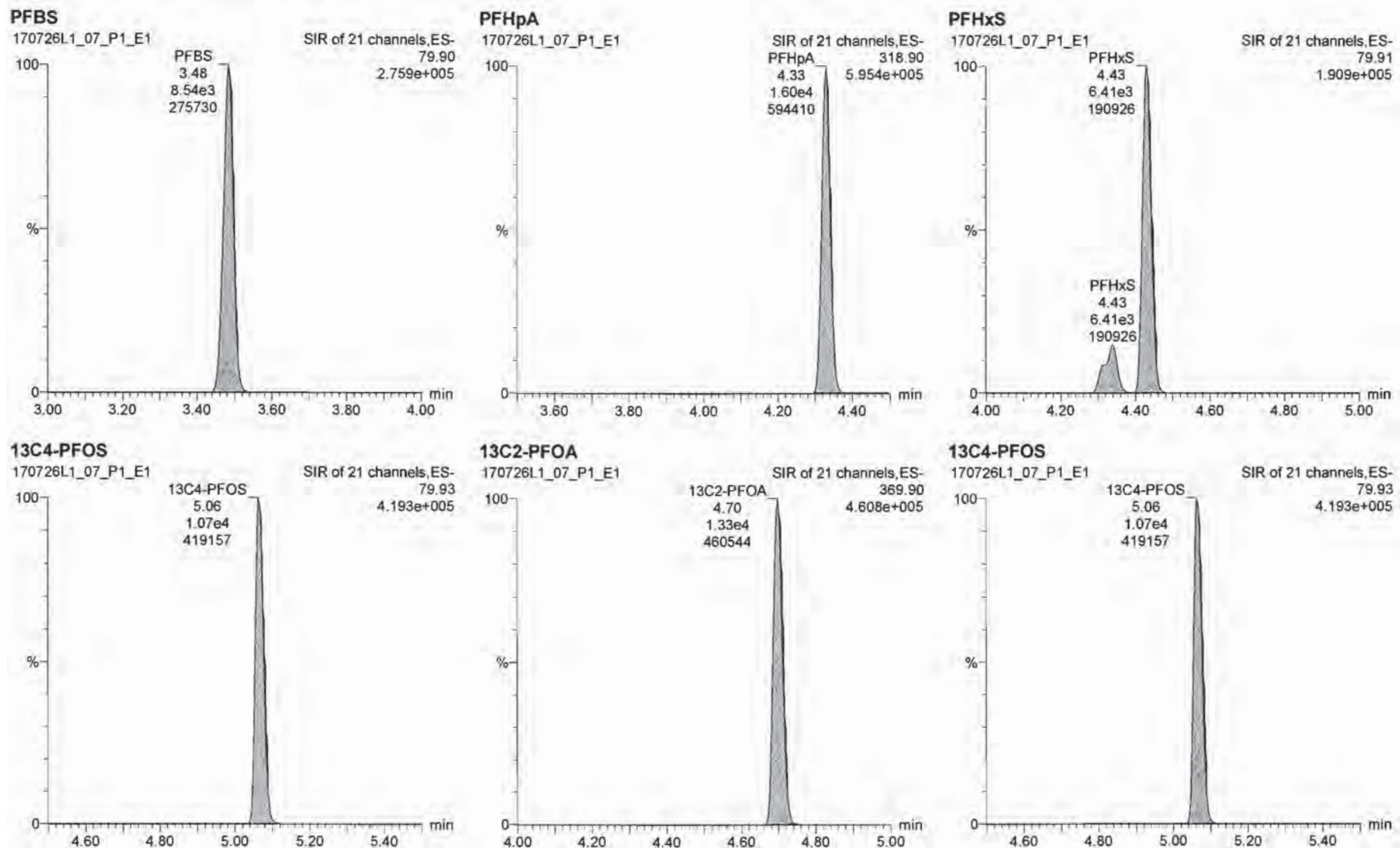


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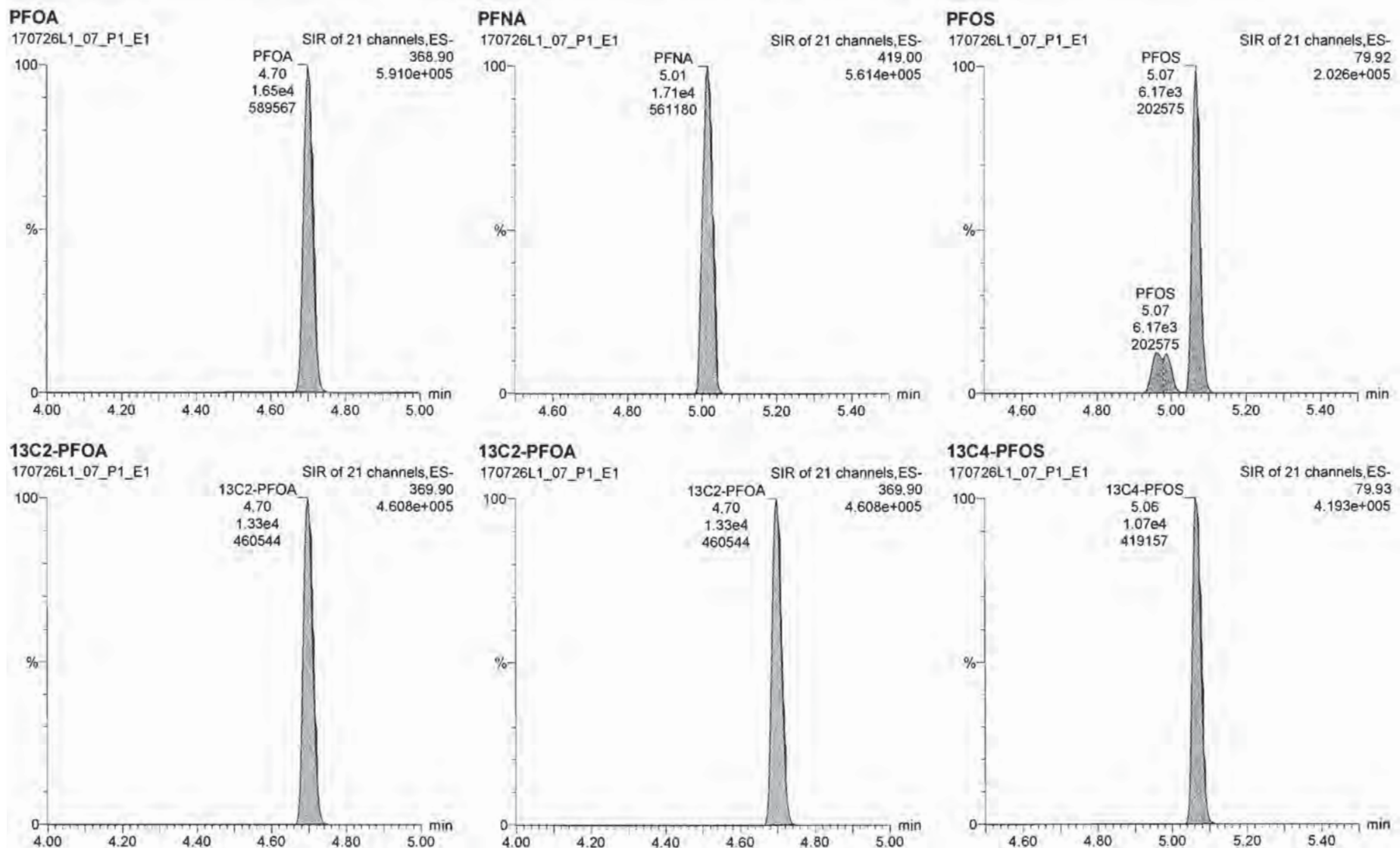


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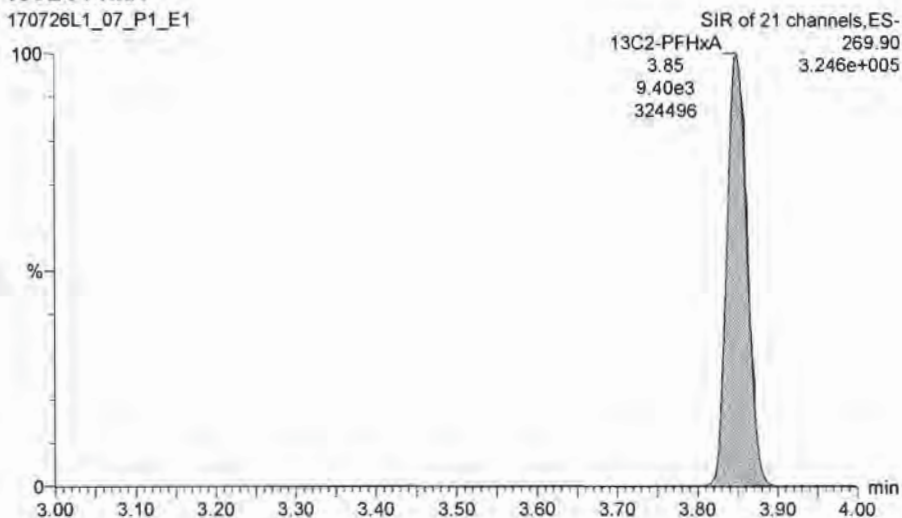
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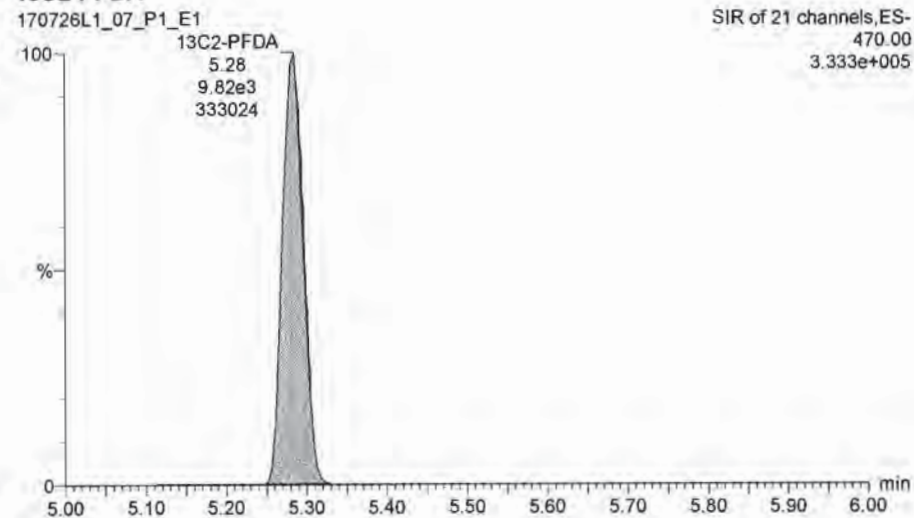
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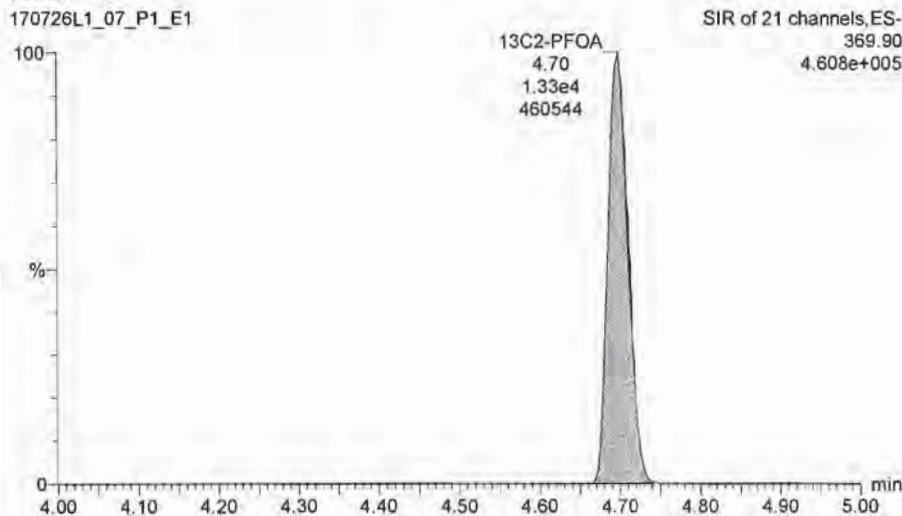
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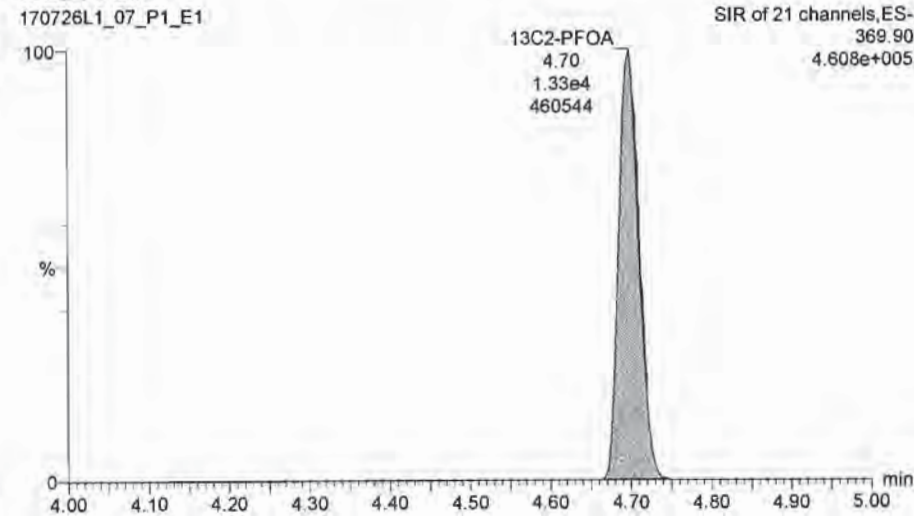
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13C2-PFOA

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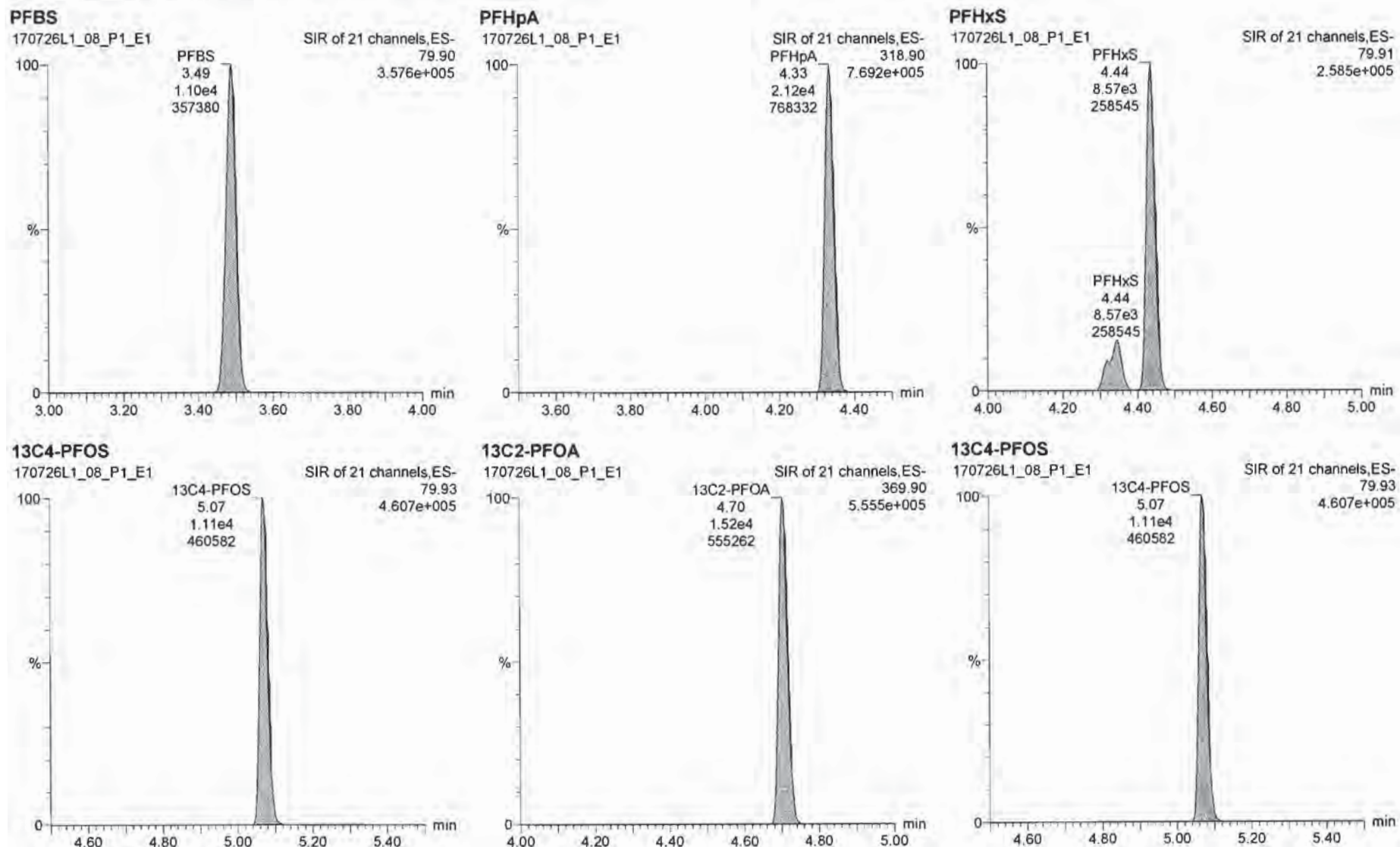


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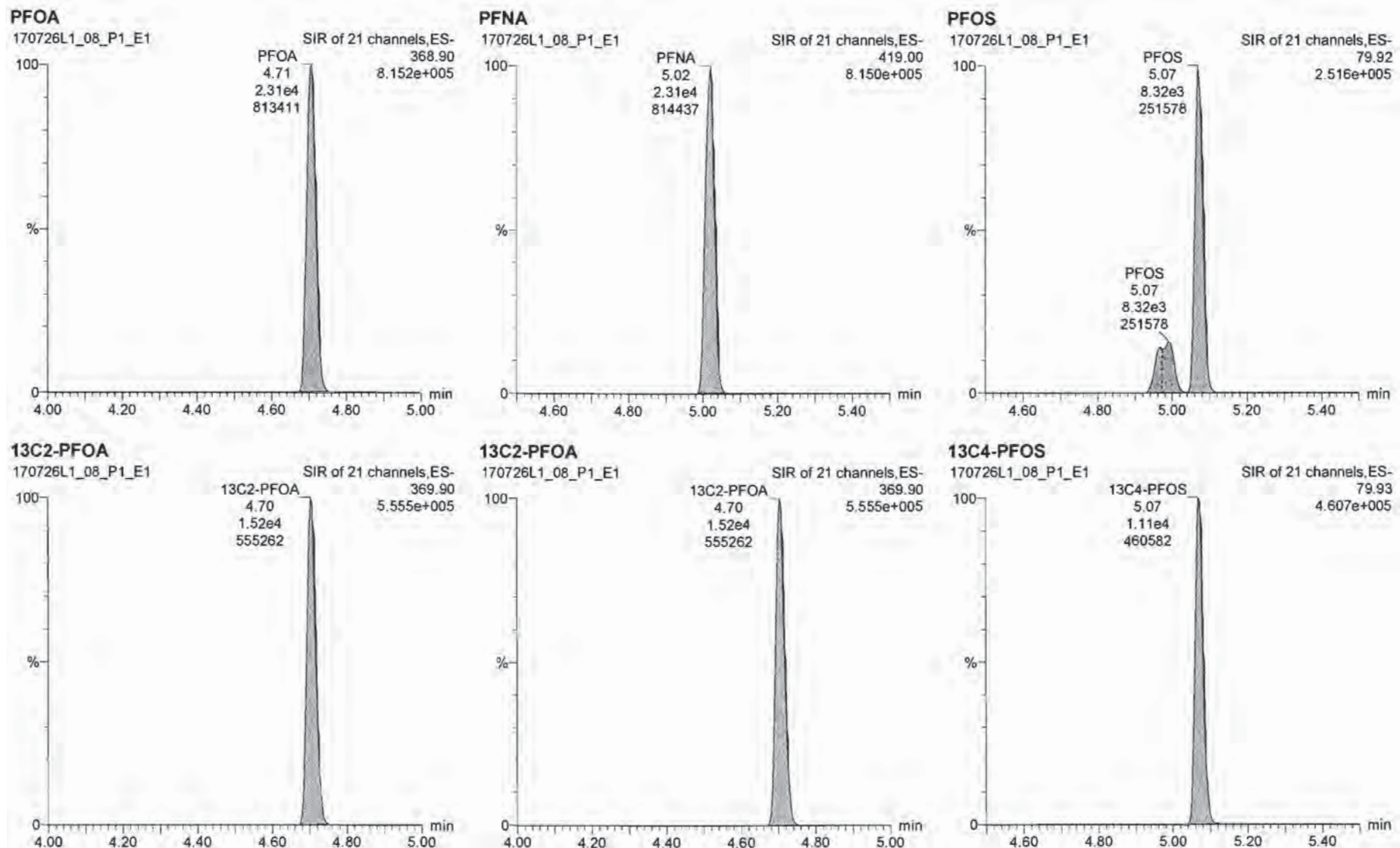


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Printed: Thursday, July 27, 2017 10:09:41 Pacific Daylight Time

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Dataset: U:\Q2.PRO\Results\170726L1\170726L1-CRV.qld

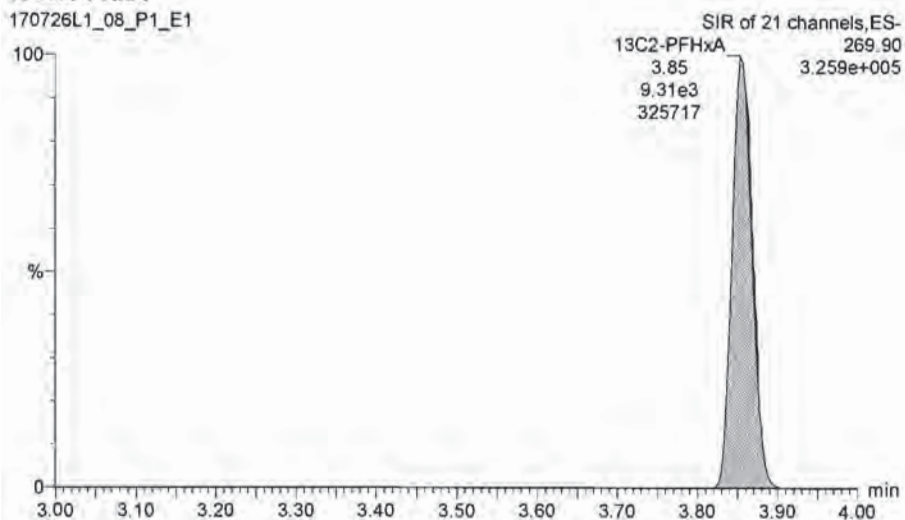
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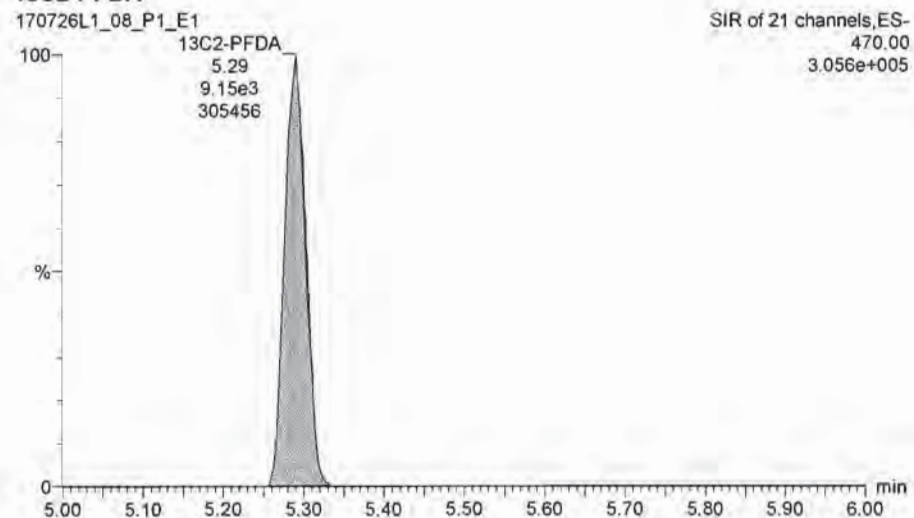
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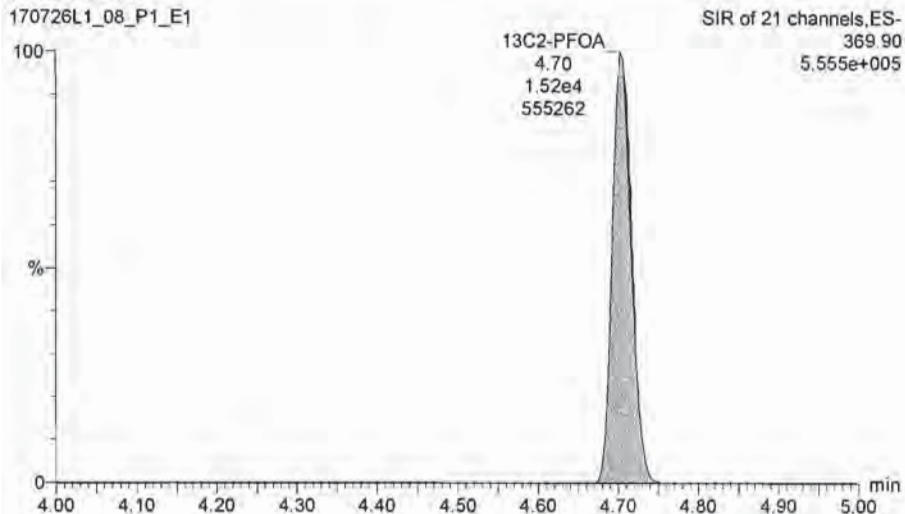
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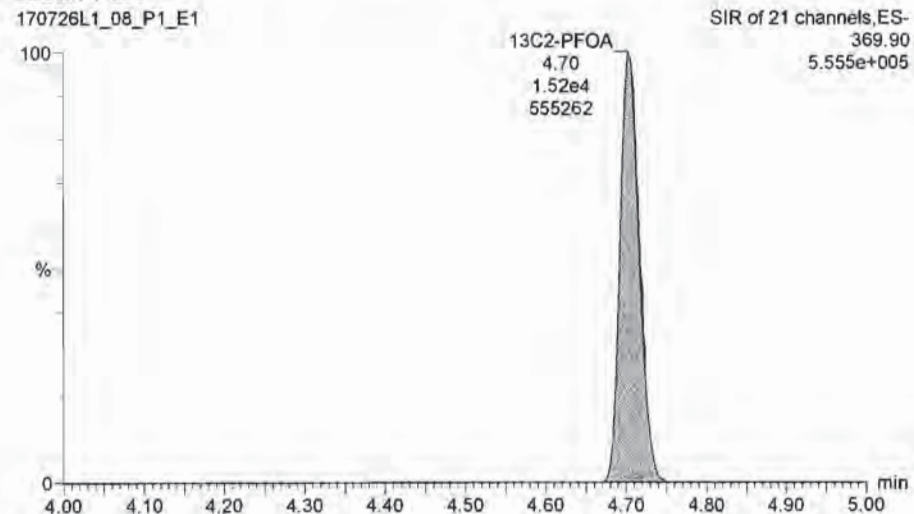
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170726L1_08_P1_E1



13C2-PFOA

170726L1_08_P1_E1

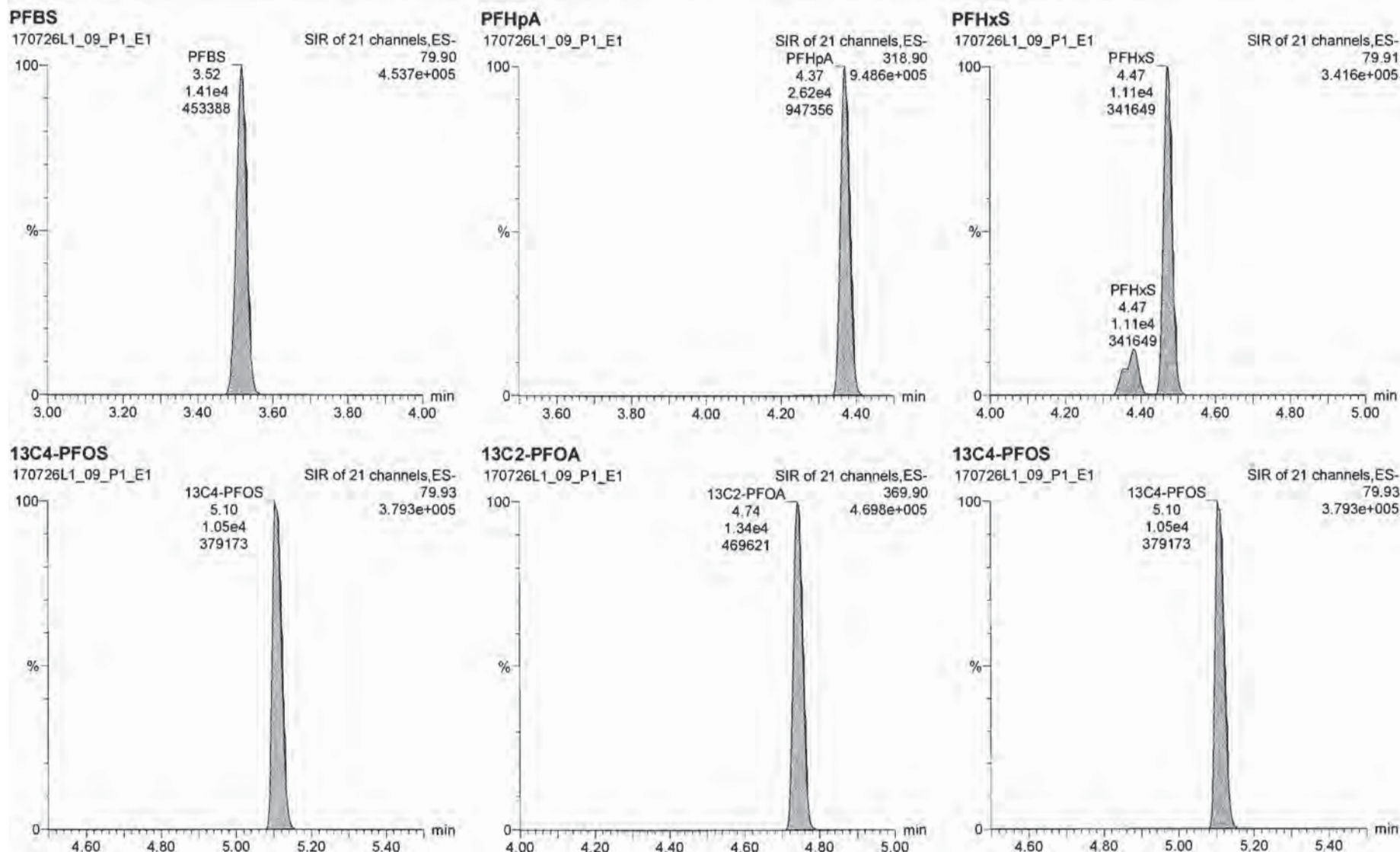


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Printed: Thursday, July 27, 2017 10:09:41 Pacific Daylight Time

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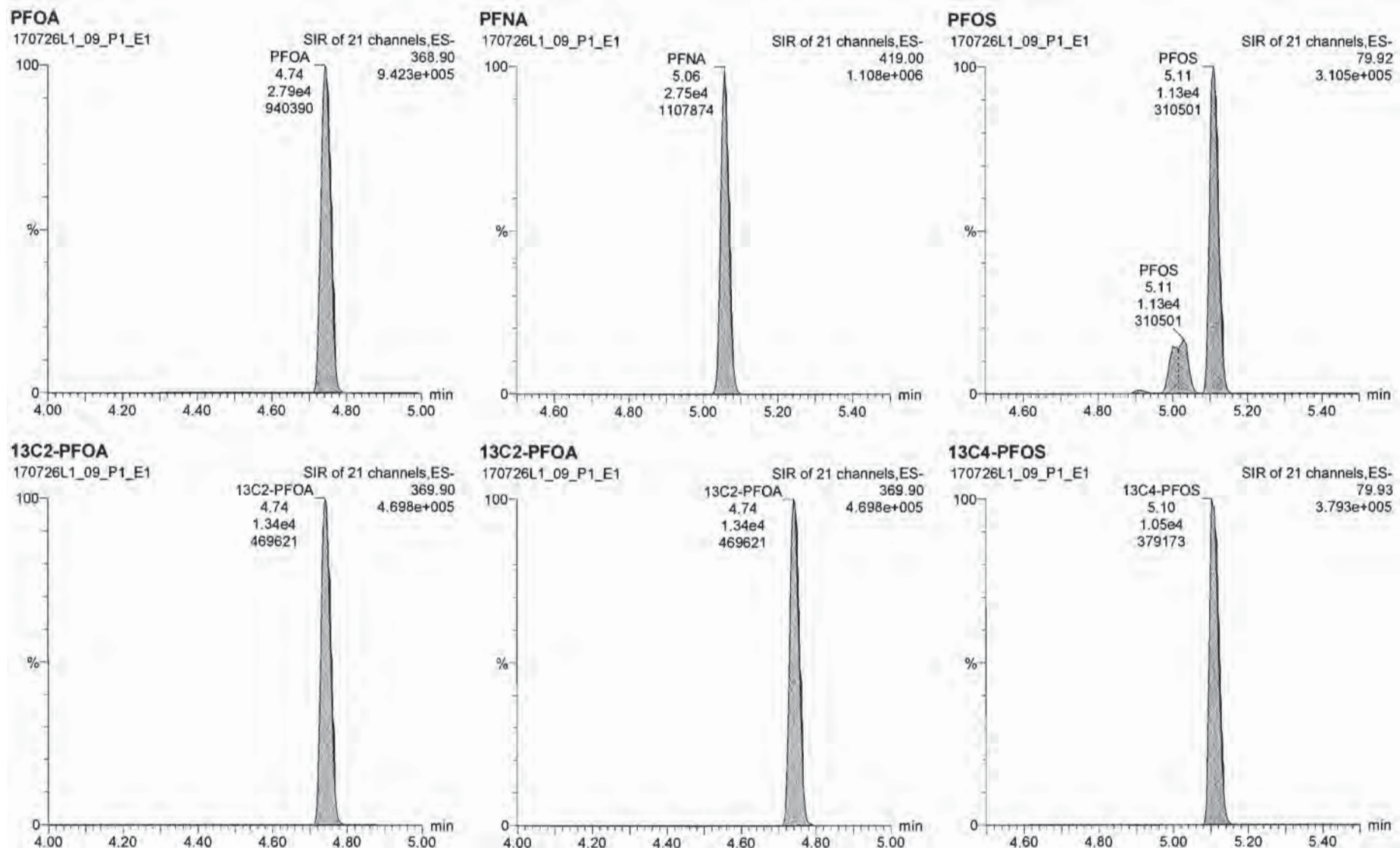


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Last Altered: Thursday, July 27, 2017 09:54:10 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:09:41 Pacific Daylight Time

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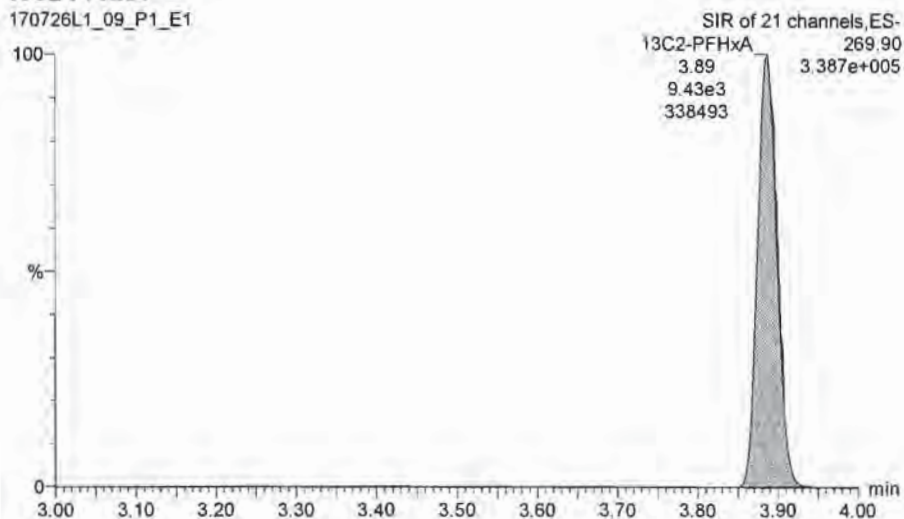
Last Altered: Thursday, July 27, 2017 09:54:10 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:09:41 Pacific Daylight Time

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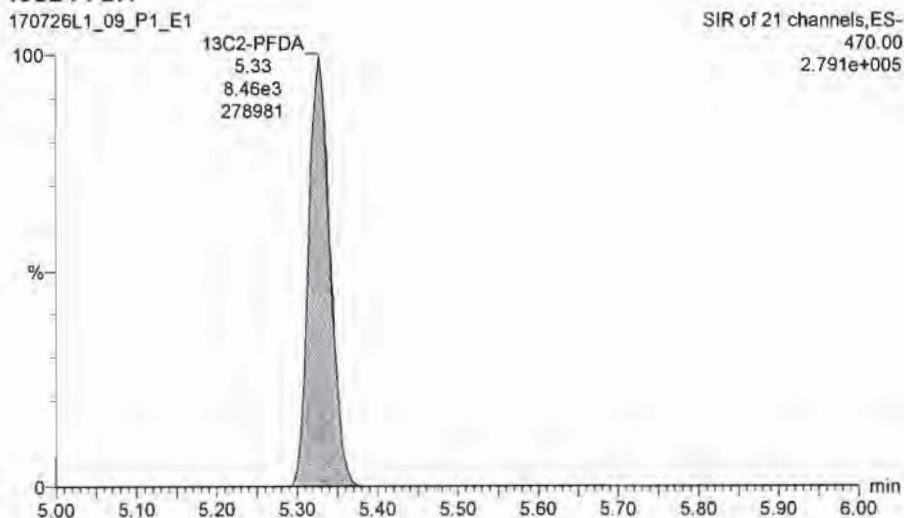
13C2-PFHxA

170726L1_09_P1_E1



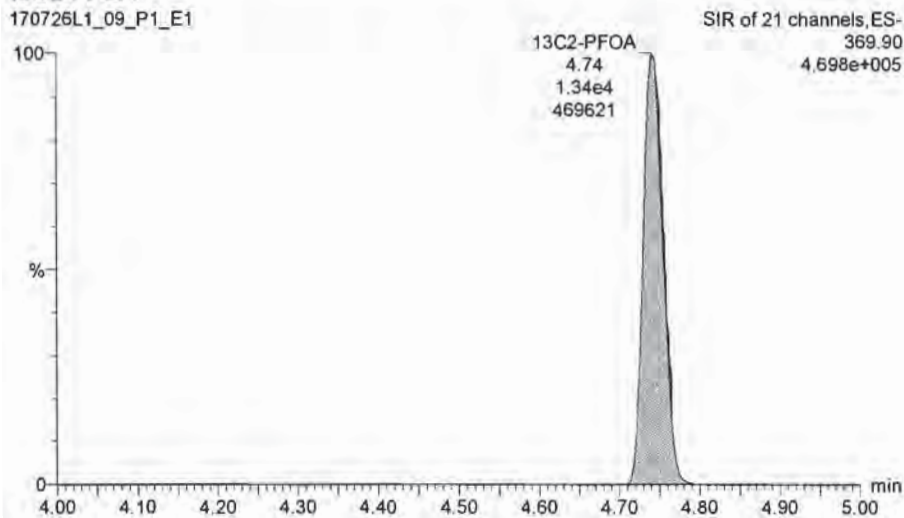
13C2-PFDA

170726L1_09_P1_E1



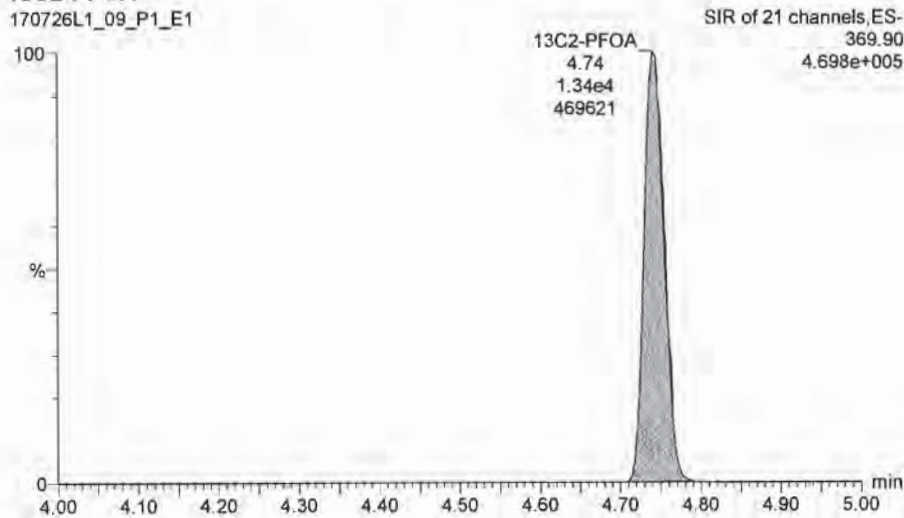
13C2-PFOA

170726L1_09_P1_E1



13C2-PFOA

170726L1_09_P1_E1



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-CRV.qld

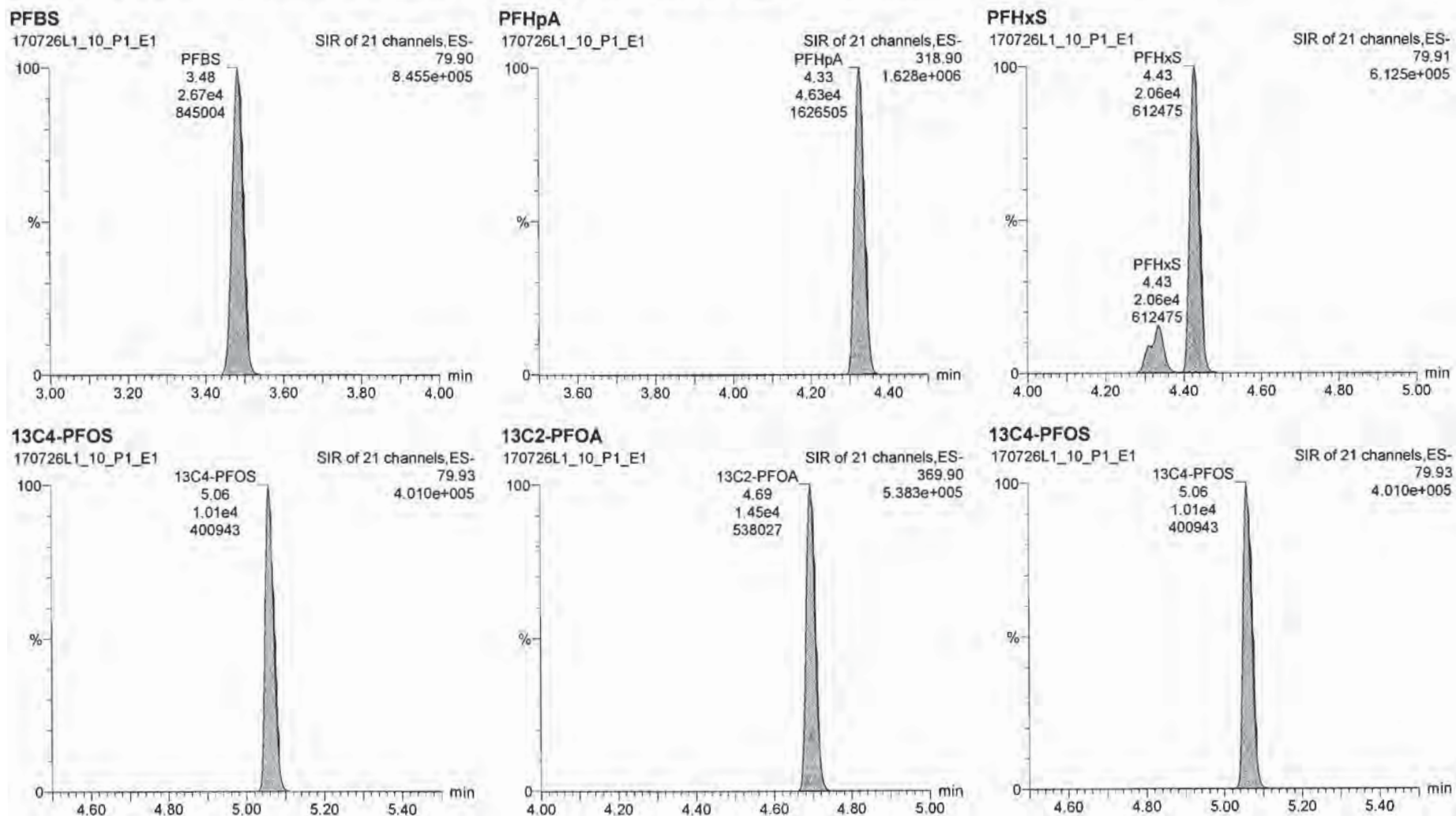
Last Altered: Thursday, July 27, 2017 09:54:10 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:09:56 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 09:46:40

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

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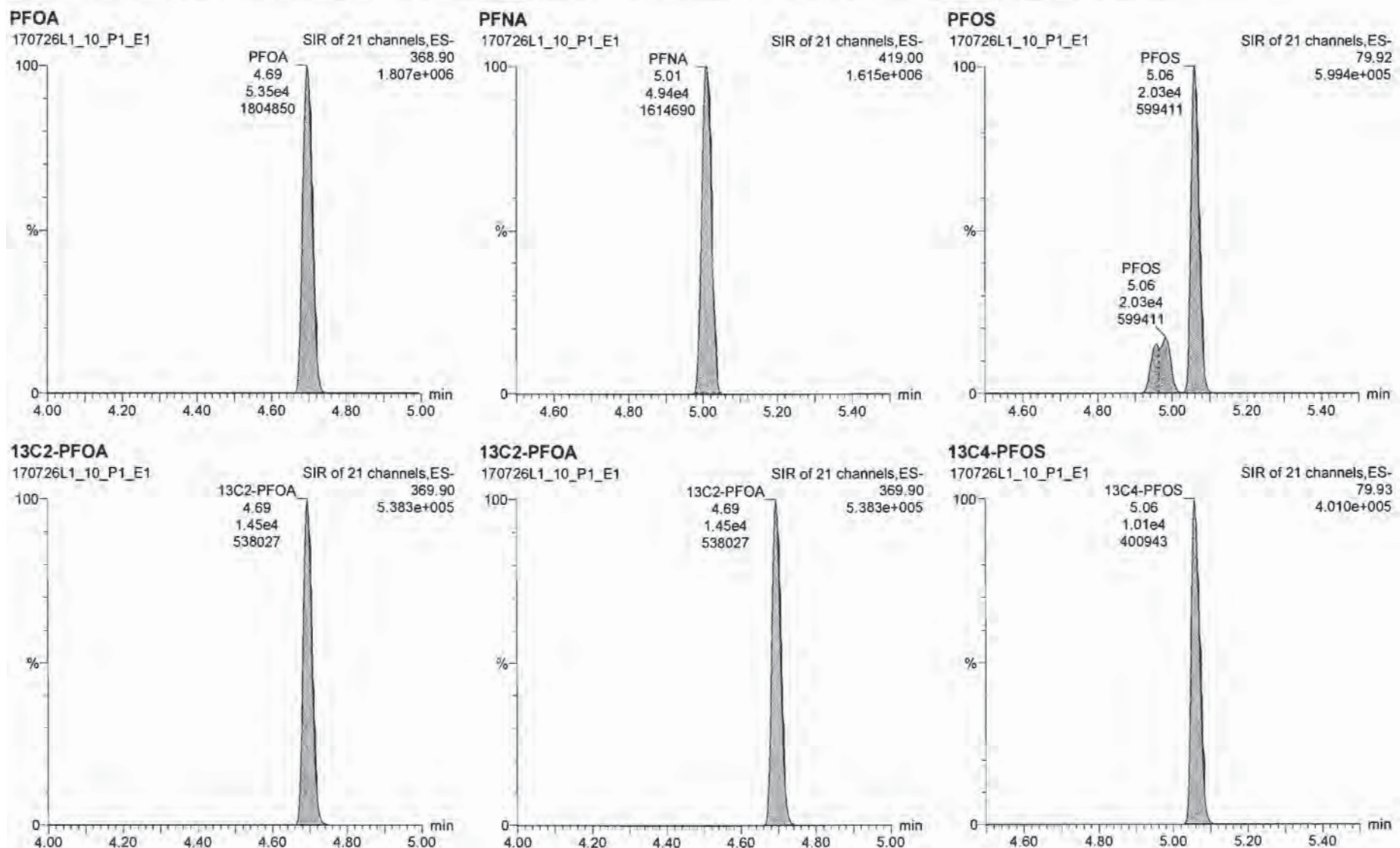


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Last Altered: Thursday, July 27, 2017 09:54:10 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:09:56 Pacific Daylight Time

Name: 170726L1_10.wiff, Date: 26-Jul-2017, Time: 18:55:07, ID: ST170726L1-9 537 DW CS5 17G2615, Description: 537 DW CS5 17G2615



Dataset: U:\Q2.PRO\Results\170726L1\170726L1-CRV.qld

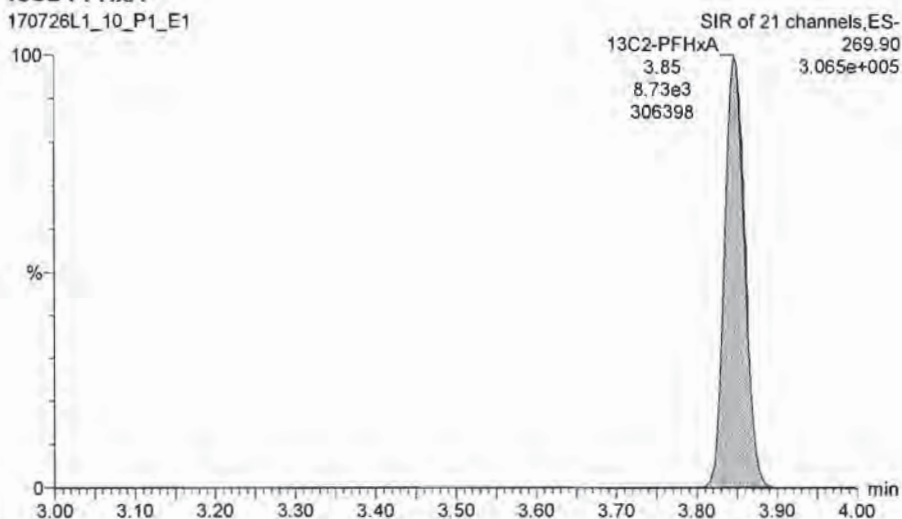
Last Altered: Thursday, July 27, 2017 09:54:10 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:09:56 Pacific Daylight Time

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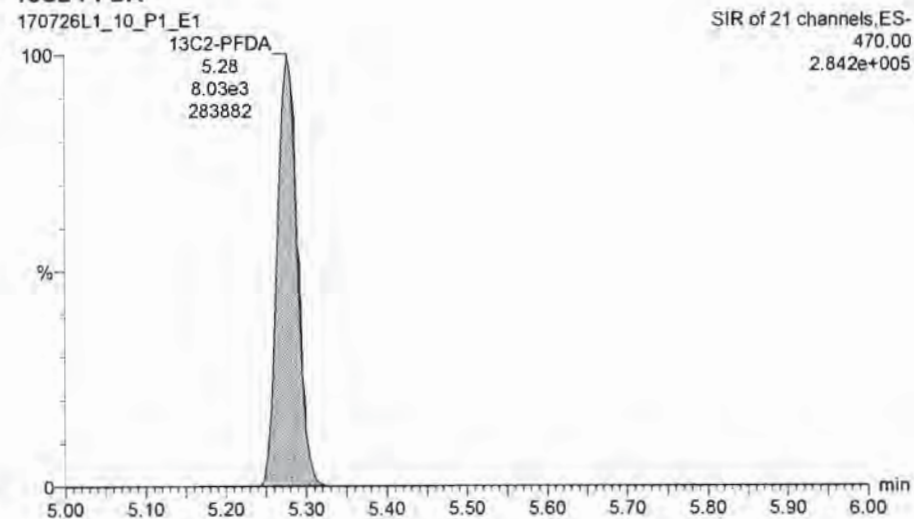
13C2-PFHxA

170726L1_10_P1_E1



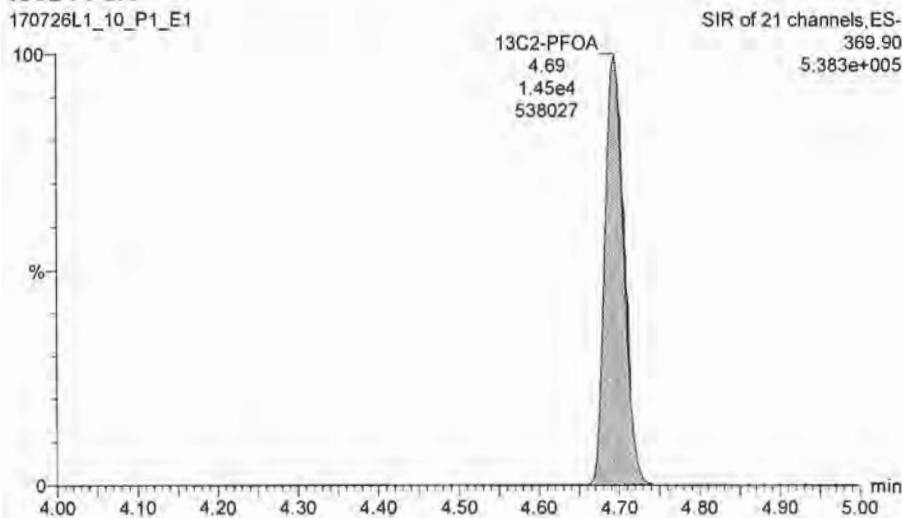
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170726L1_10_P1_E1



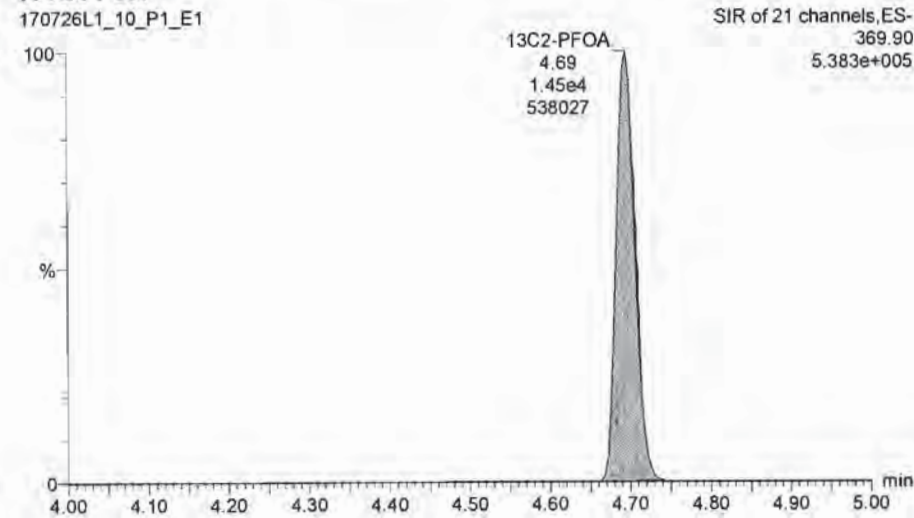
13C2-PFOA

170726L1_10_P1_E1



13C2-PFOA

170726L1_10_P1_E1



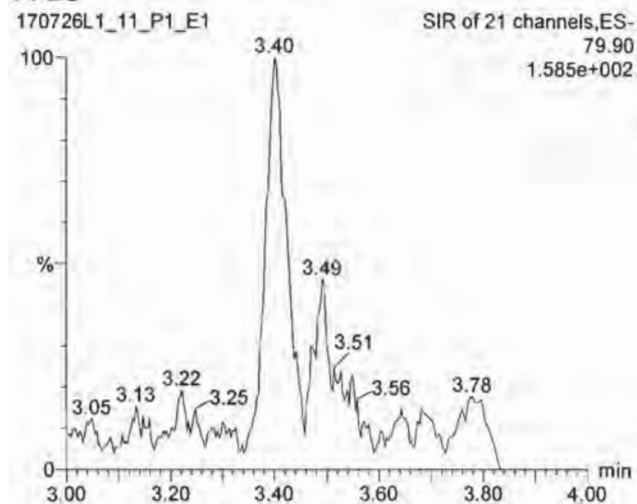
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Last Altered: Thursday, July 27, 2017 10:24:52 Pacific Daylight Time
Printed: Thursday, July 27, 2017 10:25:58 Pacific Daylight Time

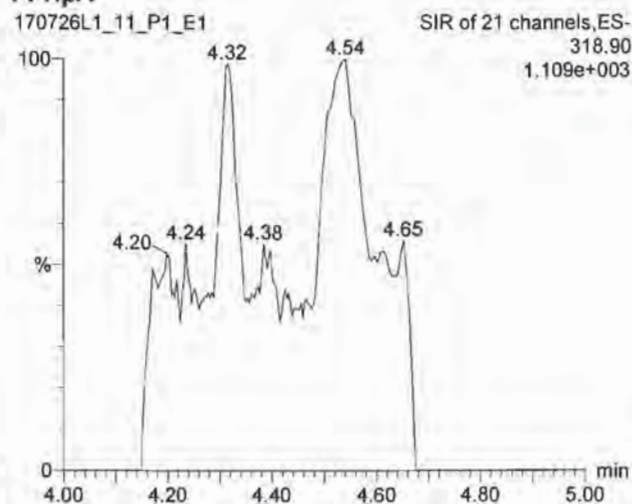
Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 09:46:40
Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: IPA, Description: IPA, Name: 170726L1_11.wiff, Date: 26-Jul-2017, Time: 19:07:22, Instrument: , Lab: ©PE-SCIEX, User: sciex

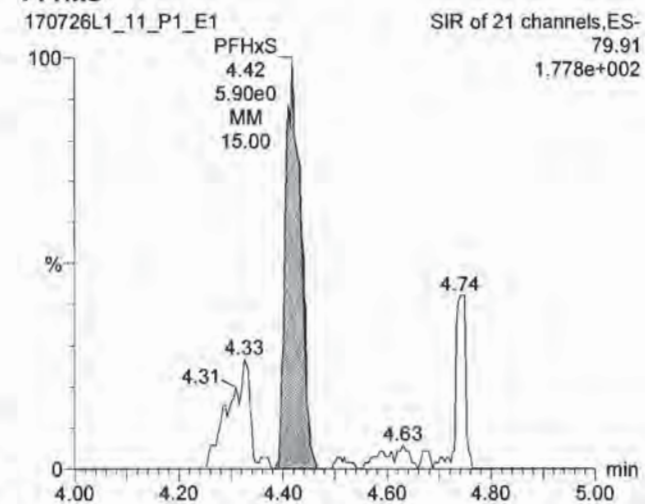
PFBS



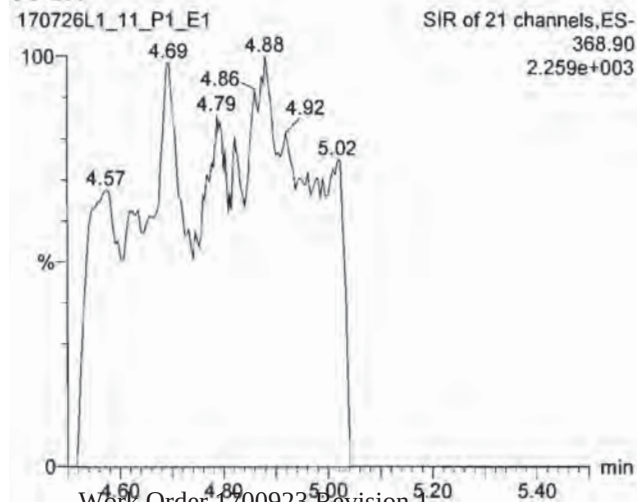
PFHpA



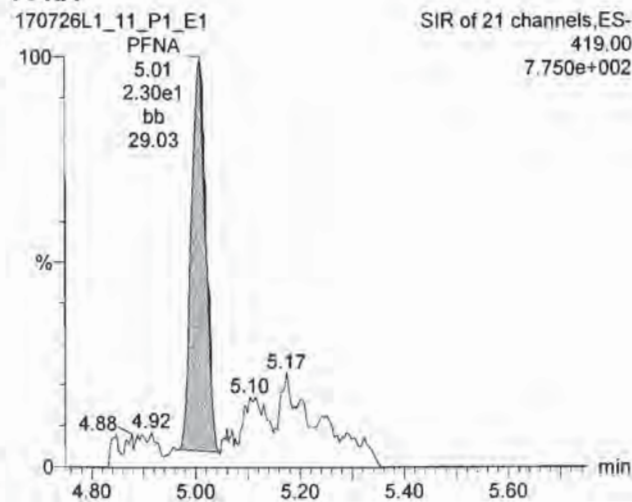
PFHxS



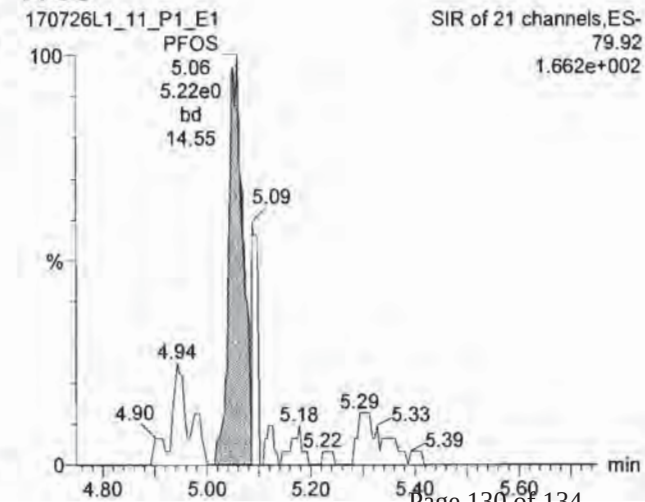
PFOA



PFNA



PFOS



Dataset: Untitled

Last Altered: Thursday, July 27, 2017 10:24:52 Pacific Daylight Time

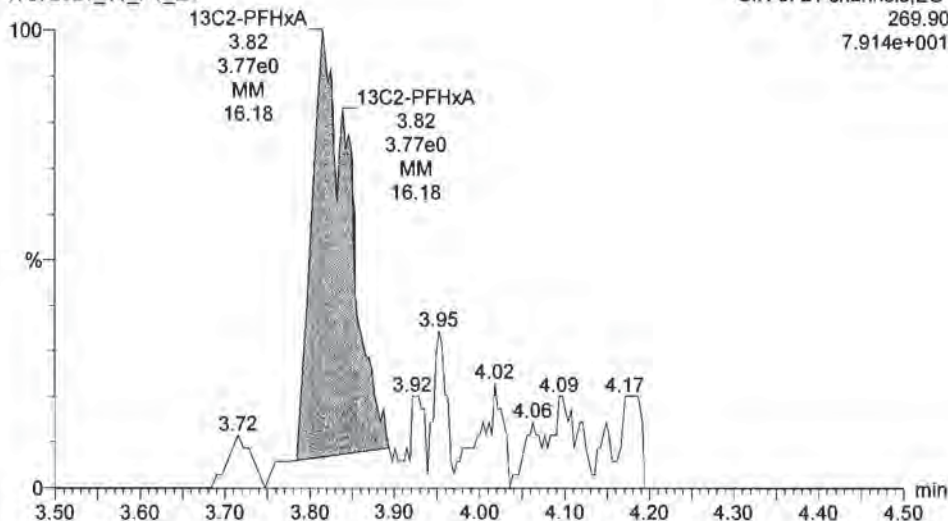
Printed: Thursday, July 27, 2017 10:25:58 Pacific Daylight Time

ID: IPA, Description: IPA, Name: 170726L1_11.wiff, Date: 26-Jul-2017, Time: 19:07:22, Instrument: , Lab: ©PE-SCIEX, User: sciex

13C2-PFHxA

170726L1_11_P1_E1

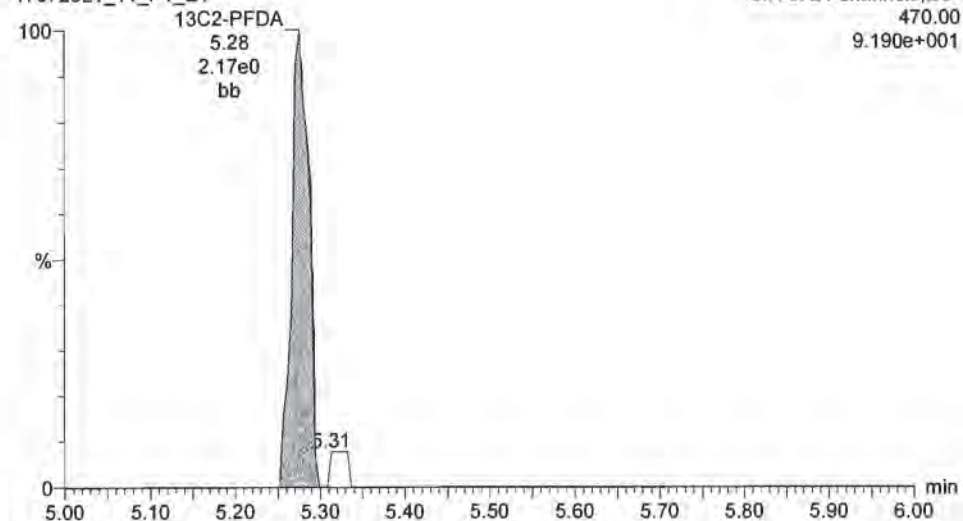
SIR of 21 channels, ES-
269.90
7.914e+001



13C2-PFDA

170726L1 11 P1 E1

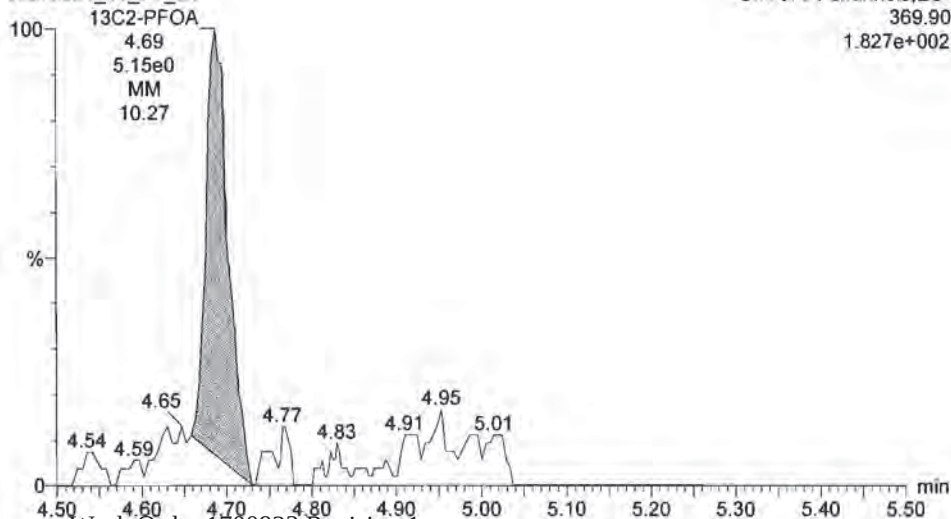
SIR of 21 channels, ES-
470.00
9.190e+001



13C2-PFOA

170726L1 11 P1 E1

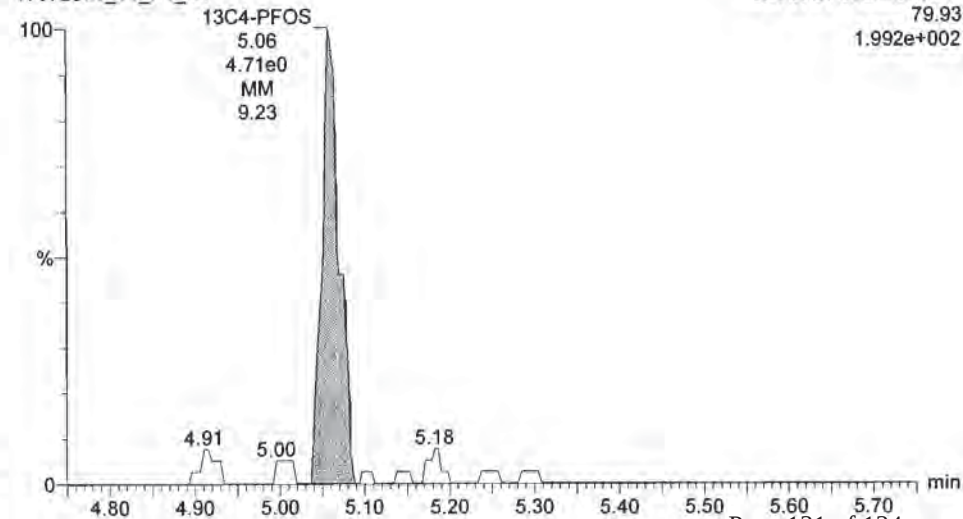
SIR of 21 channels, ES-
369.90
1.827e+002



13C4-PFOS

170726L1 11 P1 E1

SIR of 21 channels, ES-
79.93
1.992e+002



Dataset: Untitled

Last Altered: Thursday, July 27, 2017 10:20:57 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:21:12 Pacific Daylight Time

Method: U:\Q2.PRO\MethDB\PFC List 6_537_DW_NEW.mdb 27 Jul 2017 09:46:40

Calibration: U:\Q2.PRO\CurveDB\C18_537_Q2_7-26-17_L6.cdb 27 Jul 2017 09:54:10

ID: SS170726L1-1 537 DW SSS 17G1923, Description: 537 DW SSS 17G1923, Name: 170726L1_12.wiff, Date: 26-Jul-2017, Time: 19:19:36

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	79.90	7.407e3	1.029e4		1.00	3.47	12.0	120
2	2 PFHpA	318.90	1.303e4	1.392e4		1.00	4.29	12.9	129
3	3 PFHxS	79.91	5.448e3	1.029e4		1.00	4.39	11.8	118
4	4 PFOA	368.90	1.446e4	1.392e4		1.00	4.66	11.9	119
5	5 PFNA	419.00	1.516e4	1.392e4		1.00	4.97	12.6	126
6	6 PFOS	79.92	5.300e3	1.029e4		1.00	5.02	11.9	119
7	7 13C2-PFHxA	269.90	1.006e4	1.392e4	0.663	1.00	3.83	10.9	109
8	8 13C2-PFDA	470.00	1.000e4	1.392e4	0.636	1.00	5.24	11.3	113
9	9 13C2-PFOA	369.90	1.392e4	1.392e4	1.000	1.00	4.66	10.0	100
10	10 13C4-PFOS	79.93	1.029e4	1.029e4	1.000	1.00	5.02	28.7	100

20-130



AM

7/27/17

✓ AC

7/27/17

Dataset: Untitled

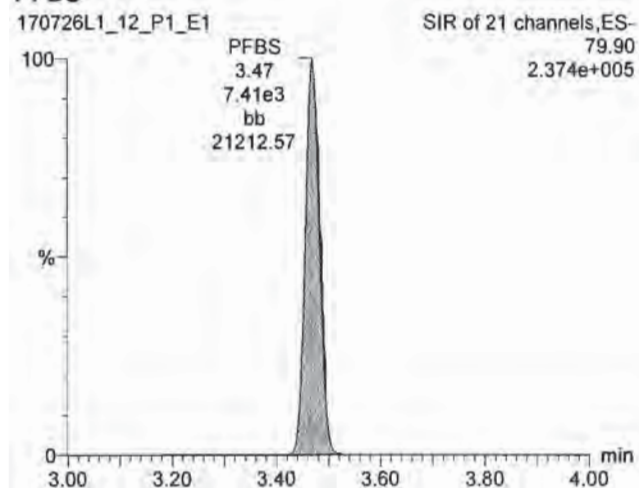
Last Altered: Thursday, July 27, 2017 10:20:57 Pacific Daylight Time

Printed: Thursday, July 27, 2017 10:21:12 Pacific Daylight Time

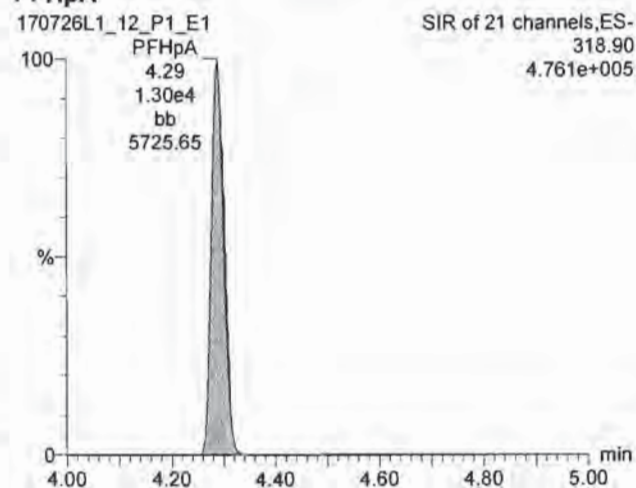
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ID: SS170726L1-1 537 DW SSS 17G1923, Description: 537 DW SSS 17G1923, Name: 170726L1_12.wiff, Date: 26-Jul-2017, Time: 19:19:36, Instrument: ,
Lab: ©PE-SCIEX, User: sciex

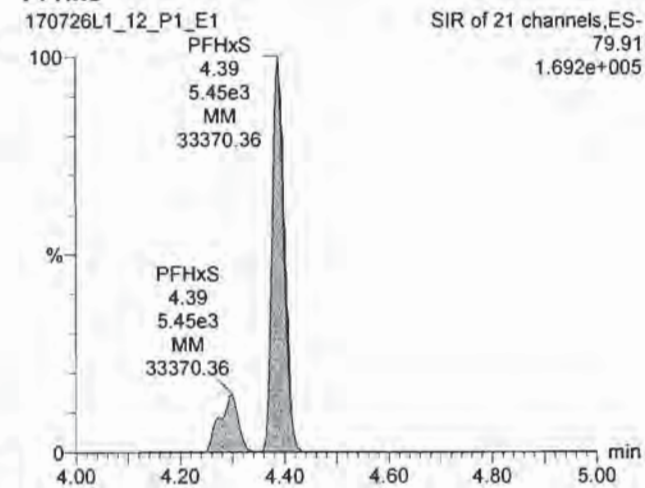
PFBS



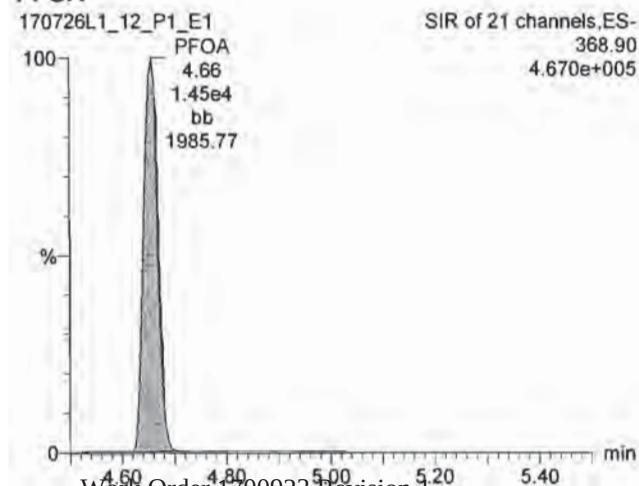
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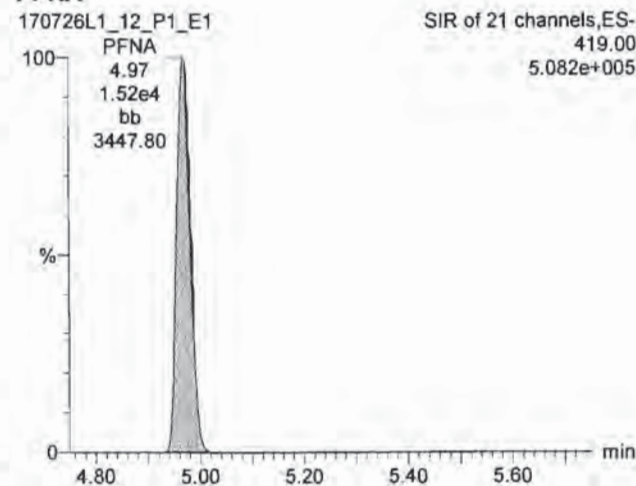
PFHxS



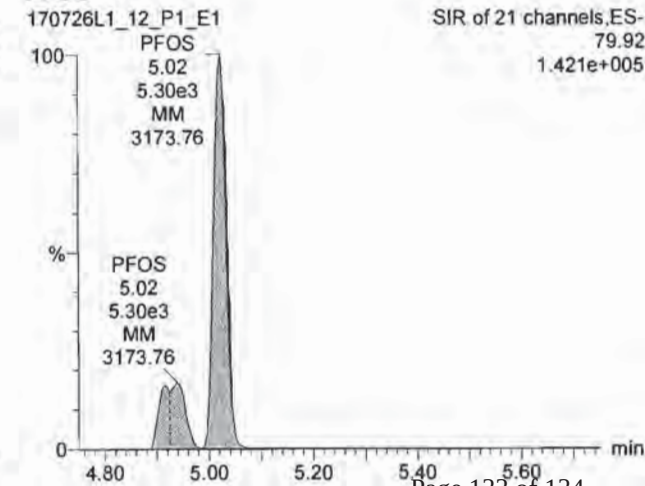
PFOA



PFNA



PFOS



Dataset: Untitled

Last Altered: Thursday, July 27, 2017 10:20:57 Pacific Daylight Time

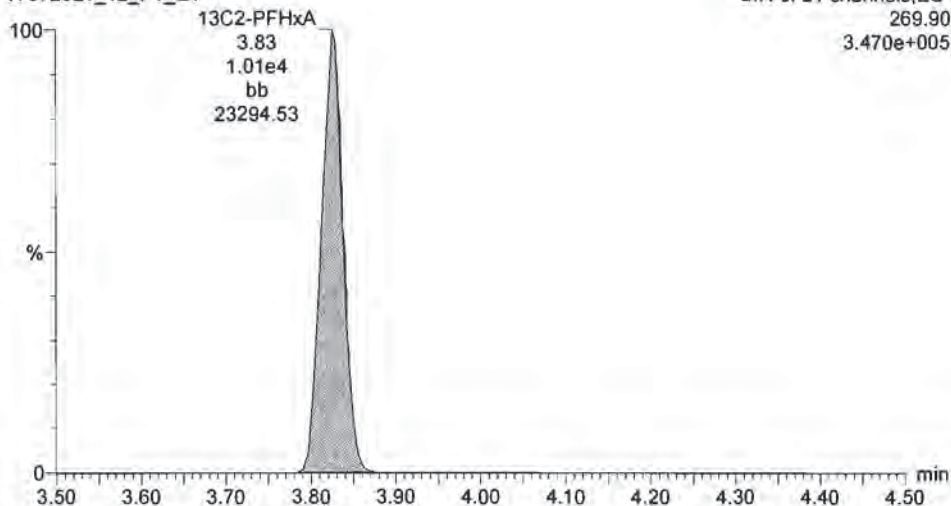
Printed: Thursday, July 27, 2017 10:21:12 Pacific Daylight Time

ID: SS170726L1-1 537 DW SSS 17G1923, Description: 537 DW SSS 17G1923, Name: 170726L1_12.wiff, Date: 26-Jul-2017, Time: 19:19:36, Instrument: , Lab: ©PE-SCIEX, User: sciex

13C2-PFHxA

170726L1_12_P1_E1

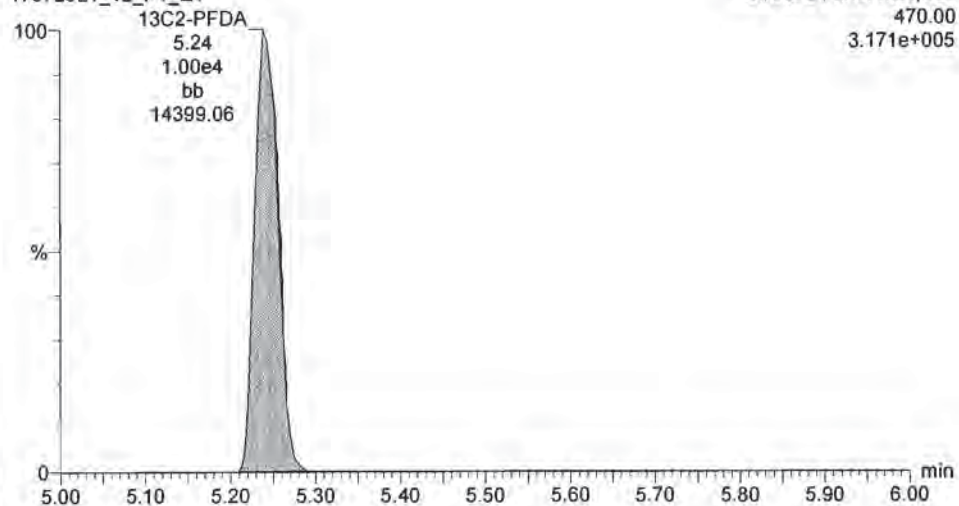
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269.90
3.470e+005



13C2-PFDA

170726L1_12_P1_E1

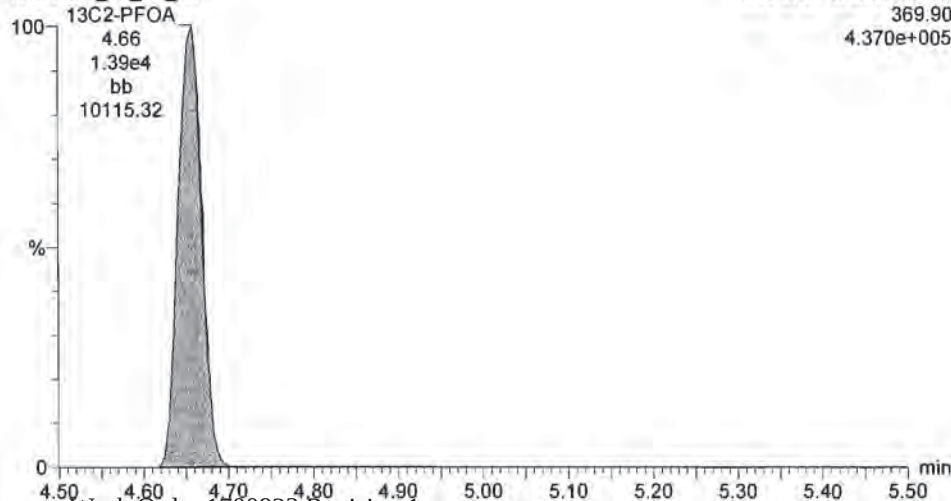
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3.171e+005



13C2-PFOA

170726L1_12_P1_E1

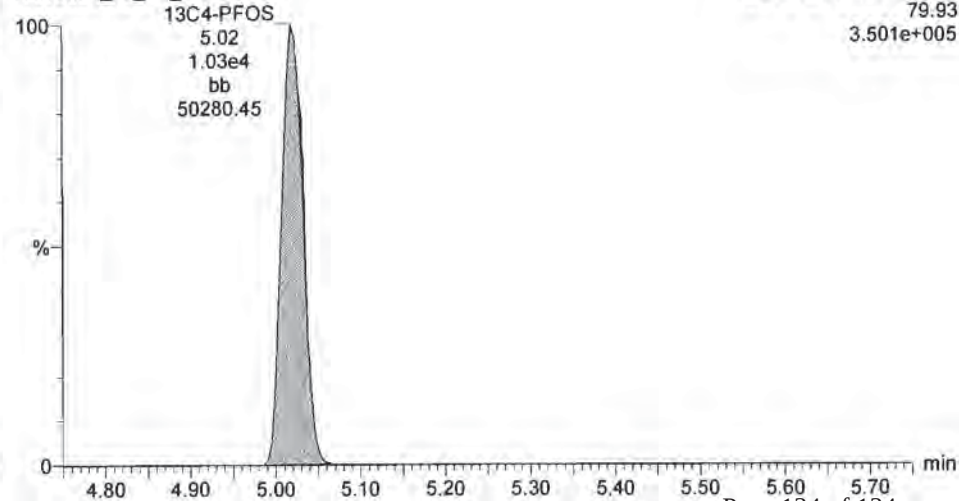
SIR of 21 channels,ES-
369.90
4.370e+005



13C4-PFOS

170726L1_12_P1_E1

SIR of 21 channels,ES-
79.93
3.501e+005



Contract_ID	DO_CTO_Number	Phase	Installation_ID	Sample_Name	CH2M_Code	Analysis_Group	Analytical_Method	PRC_Code	Lab_Code	Lab_Name	Leachate_Method	Sample_Basis	Extraction_Method	Result_Type	Lab_QC_Type	Sample_Medium	QC_Level
N6247016D9000	0008		BARROW_NARL	Matrix Spike	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	NA	METHOD	000	MS	W	4
N6247016D9000	0008		BARROW_NARL	Matrix Spike	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	NA	METHOD	000	MS	W	4
N6247016D9000	0008		BARROW_NARL	Matrix Spike	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	NA	METHOD	000	MS	W	4
N6247016D9000	0008		BARROW_NARL	Matrix Spike	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	NA	METHOD	000	MS	W	4
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	NA	METHOD	000	MSD	W	4
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	NA	METHOD	000	MSD	W	4
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	NA	METHOD	000	MSD	W	4
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	NA	METHOD	000	MSD	W	4
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	NA	METHOD	000	MSD	W	4

Contract_ID	DO_CTO_ Number	Phase	Installation_ID	Sample_Name	DateTime_Collected	Date_Received	Leachate_ Date	Leachate_Time	Extraction_Date	Extraction_Time	Analysis_Date	Analysis_Time	Lab_Sample_ID	Dilution	Run_ Number	Percent_ Moisture
N6247016D9000	0008		BARROW_NARL	Matrix Spike	07/25/2017 07:42	07/25/2017			20170725	07:42:00	20170726	21:09:00	B7G0113-MS1	1	1	
N6247016D9000	0008		BARROW_NARL	Matrix Spike	07/25/2017 07:42	07/25/2017			20170725	07:42:00	20170726	21:09:00	B7G0113-MS1	1	1	
N6247016D9000	0008		BARROW_NARL	Matrix Spike	07/25/2017 07:42	07/25/2017			20170725	07:42:00	20170726	21:09:00	B7G0113-MS1	1	1	
N6247016D9000	0008		BARROW_NARL	Matrix Spike	07/25/2017 07:42	07/25/2017			20170725	07:42:00	20170726	21:09:00	B7G0113-MS1	1	1	
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup	07/25/2017 07:42	07/25/2017			20170725	07:42:00	20170726	21:22:00	B7G0113-MSD1	1	1	
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup	07/25/2017 07:42	07/25/2017			20170725	07:42:00	20170726	21:22:00	B7G0113-MSD1	1	1	
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup	07/25/2017 07:42	07/25/2017			20170725	07:42:00	20170726	21:22:00	B7G0113-MSD1	1	1	
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup	07/25/2017 07:42	07/25/2017			20170725	07:42:00	20170726	21:22:00	B7G0113-MSD1	1	1	
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup	07/25/2017 07:42	07/25/2017			20170725	07:42:00	20170726	21:22:00	B7G0113-MSD1	1	1	

Contract_ID	DO_CTO_Number	Phase	Installation_ID	Sample_Name	Percent_Lipid	Chem_Name	Analyte_ID	Analyte_Value	Original_Analyte_Value	Result_Units	Lab_Qualifier	Validator_Qualifier	GC_Column_Type	Analysis_Result_Type	Result_Narrative	QC_Control_Limit_Code
N6247016D9000	0008		BARROW_NARL	NARLB-SW01-0717		Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.00308	0.00308	UG_L	J	J	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-SW01-0717		Perfluorooctanoic acid (PFOA)	335-67-1	0.0826	0.0826	UG_L			PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-SW01-0717		Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.117	0.117	UG_L			PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-SW01-0717		13C2-PFHxA	13C2-PFHxA	104	104	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-SW01-0717		13C2-PFDA	13C2-PFDA	96.0	96.0	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-FB01-0717		Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.00493	0.00493	UG_L	U	U	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-FB01-0717		Perfluorooctanoic acid (PFOA)	335-67-1	0.00493	0.00493	UG_L	U	U	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-FB01-0717		Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.00493	0.00493	UG_L	U	U	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-FB01-0717		13C2-PFHxA	13C2-PFHxA	91.4	91.4	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-FB01-0717		13C2-PFDA	13C2-PFDA	97.8	97.8	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-SW01P-0717		Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.00294	0.00294	UG_L	J	J	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-SW01P-0717		Perfluorooctanoic acid (PFOA)	335-67-1	0.0819	0.0819	UG_L			PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-SW01P-0717		Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.119	0.119	UG_L			PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-SW01P-0717		13C2-PFHxA	13C2-PFHxA	99.4	99.4	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-SW01P-0717		13C2-PFDA	13C2-PFDA	99.8	99.8	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-FB02-0717		Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.00521	0.00521	UG_L	U	U	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-FB02-0717		Perfluorooctanoic acid (PFOA)	335-67-1	0.00521	0.00521	UG_L	U	U	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-FB02-0717		Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.00521	0.00521	UG_L	U	U	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-FB02-0717		13C2-PFHxA	13C2-PFHxA	103	103	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-FB02-0717		13C2-PFDA	13C2-PFDA	114	114	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-SW02-0717		Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.00277	0.00277	UG_L	J	J	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-SW02-0717		Perfluorooctanoic acid (PFOA)	335-67-1	0.0675	0.0675	UG_L			PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-SW02-0717		Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.0761	0.0761	UG_L			PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-SW02-0717		13C2-PFHxA	13C2-PFHxA	96.8	96.8	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-SW02-0717		13C2-PFDA	13C2-PFDA	97.8	97.8	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-SW03-0717		Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.00294	0.00294	UG_L	J	J	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-SW03-0717		Perfluorooctanoic acid (PFOA)	335-67-1	0.0863	0.0863	UG_L			PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-SW03-0717		Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.176	0.176	UG_L			PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-SW03-0717		13C2-PFHxA	13C2-PFHxA	97.1	97.1	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-SW03-0717		13C2-PFDA	13C2-PFDA	99.7	99.7	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-FB03-0717		Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.0049	0.0049	UG_L	U	U	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-FB03-0717		Perfluorooctanoic acid (PFOA)	335-67-1	0.0049	0.0049	UG_L	U	U	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-FB03-0717		Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.0049	0.0049	UG_L	U	U	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-FB03-0717		13C2-PFHxA	13C2-PFHxA	109	109	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-FB03-0717		13C2-PFDA	13C2-PFDA	110	110	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-SW04-0717		Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.0031	0.0031	UG_L	J	J	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-SW04-0717		Perfluorooctanoic acid (PFOA)	335-67-1	0.079	0.079	UG_L			PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-SW04-0717		Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.0947	0.0947	UG_L			PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-SW04-0717		13C2-PFHxA	13C2-PFHxA	105	105	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-SW04-0717		13C2-PFDA	13C2-PFDA	109	109	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-FB04-0717		Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.00485	0.00485	UG_L	U	U	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-FB04-0717		Perfluorooctanoic acid (PFOA)	335-67-1	0.00485	0.00485	UG_L	U	U	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-FB04-0717		Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.00485	0.00485	UG_L	U	U	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-FB04-0717		13C2-PFHxA	13C2-PFHxA	102	102	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-FB04-0717		13C2-PFDA	13C2-PFDA	101	101	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-SW05-0717		Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.00282	0.00282	UG_L	J	J	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-SW05-0717		Perfluorooctanoic acid (PFOA)	335-67-1	0.0802	0.0802	UG_L			PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-SW05-0717		Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.0886	0.0886	UG_L			PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-SW05-0717		13C2-PFHxA	13C2-PFHxA	106	106	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-SW05-0717		13C2-PFDA	13C2-PFDA	110	110	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-FB05-0717		Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.00502	0.00502	UG_L	U	U	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-FB05-0717		Perfluorooctanoic acid (PFOA)	335-67-1	0.00502	0.00502	UG_L	U	U	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-FB05-0717		Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.00502	0.00502	UG_L	U	U	PR	TRG		
N6247016D9000	0008		BARROW_NARL	NARLB-FB05-0717		13C2-PFHxA	13C2-PFHxA	96.8	96.8	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	NARLB-FB05-0717		13C2-PFDA	13C2-PFDA	94.0	94.0	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	Blank		Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.005	0.005	UG_L	U	U	PR	TRG		
N6247016D9000	0008		BARROW_NARL	Blank		Perfluorooctanoic acid (PFOA)	335-67-1	0.005	0.005	UG_L	U	U	PR	TRG		
N6247016D9000	0008		BARROW_NARL	Blank		Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.005	0.005	UG_L	U	U	PR	TRG		
N6247016D9000	0008		BARROW_NARL	Blank		13C2-PFHxA	13C2-PFHxA	103	103	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	Blank		13C2-PFDA	13C2-PFDA	103	103	PCT_REC			PR	SURR		SLSA
N6247016D9000	0008		BARROW_NARL	LCS		Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.0698	0.0698	UG_L			PR	TRG		LSA
N6247016D9000	0008		BARROW_NARL	LCS		Perfluorooctanoic acid (PFOA)	335-67-1	0.0716	0.0716	UG_L			PR	TRG		LSA
N6247016D9000	0008		BARROW_NARL	LCS		Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.0688	0.0688	UG_L			PR	TRG		LSA
N6247016D9000	0008		BARROW_NARL	LCS		13C2-PFHxA	13C2-PFHxA	98.2	98.2	PCT_REC			PR	SURR		LSA
N6247016D9000	0008		BARROW_NARL	LCS		13C2-PFDA	13C2-PFDA	93.2	93.2	PCT_REC			PR	SURR		LSA
N6247016D9000	0008		BARROW_NARL	Matrix Spike		Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.0741	0.0741	UG_L			PR	TRG		LSA

Contract_ID	DO_CTO_Number	Phase	Installation_ID	Sample_Name	Percent_Lipid	Chem_Name	Analyte_ID	Analyte_Value	Original_Analyte_Value	Result_Units	Lab_Qualifier	Validator_Qualifier	GC_Column_Type	Analysis_Result_Type	Result_Narrative	QC_Control_Limit_Code
N6247016D9000	0008		BARROW_NARL	Matrix Spike		Perfluorooctanoic acid (PFOA)	335-67-1	0.166	0.166	UG_L			PR	TRG		LSA
N6247016D9000	0008		BARROW_NARL	Matrix Spike		Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.168	0.168	UG_L			PR	TRG		LSA
N6247016D9000	0008		BARROW_NARL	Matrix Spike		13C2-PFHxA	13C2-PFHxA	101	101	PCT_REC			PR	SURR		LSA
N6247016D9000	0008		BARROW_NARL	Matrix Spike		13C2-PFDA	13C2-PFDA	124	124	PCT_REC			PR	SURR		LSA
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup		Perfluorobutanesulfonic acid (PFBS)	375-73-5	0.0708	0.0708	UG_L			PR	TRG		LSA
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup		Perfluorooctanoic acid (PFOA)	335-67-1	0.167	0.167	UG_L			PR	TRG		LSA
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup		Perfluorooctane Sulfonate (PFOS)	1763-23-1	0.154	0.154	UG_L			PR	TRG		LSA
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup		13C2-PFHxA	13C2-PFHxA	98.9	98.9	PCT_REC			PR	SURR		LSA
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup		13C2-PFDA	13C2-PFDA	92.3	92.3	PCT_REC			PR	SURR		LSA

Contract_ID	DO_CTO_Number	Phase	Installation_ID	Sample_Name	QC_Accuracy_Upper	QC_Accuracy_Lower	Control_Limit_Date	QC_Narrative	MDL	Detection_Limit	QSM_Version	DL	LOD	LOQ	SDG	Analysis_Batch	Validator_Name	Val_Date
N6247016D9000	0008		BARROW_NARL	Matrix Spike	130	70					5.0	0.00109	0.00505	0.0101	1700923	S7G0067	Environmental Data Services Inc	20170822
N6247016D9000	0008		BARROW_NARL	Matrix Spike	130	70					5.0	0.00105	0.00505	0.0101	1700923	S7G0067	Environmental Data Services Inc	20170822
N6247016D9000	0008		BARROW_NARL	Matrix Spike	130	130					5.0				1700923	S7G0067	Environmental Data Services Inc	20170822
N6247016D9000	0008		BARROW_NARL	Matrix Spike	130	130					5.0				1700923	S7G0067	Environmental Data Services Inc	20170822
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup	130	70					5.0	0.00045	0.00513	0.0103	1700923	S7G0067	Environmental Data Services Inc	20170822
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup	130	70					5.0	0.00111	0.00513	0.0103	1700923	S7G0067	Environmental Data Services Inc	20170822
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup	130	70					5.0	0.00107	0.00513	0.0103	1700923	S7G0067	Environmental Data Services Inc	20170822
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup	130	130					5.0				1700923	S7G0067	Environmental Data Services Inc	20170822
N6247016D9000	0008		BARROW_NARL	Matrix Spike Dup	130	130					5.0				1700923	S7G0067	Environmental Data Services Inc	20170822

**DATA VALIDATION SUMMARY REPORT
NARL BARROW, ALASKA**

Client: CH2M HILL, Inc., Corvallis, Oregon
SDG: 1700923
Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
Site: NARL Barrow, CTO-0008, Alaska
Date: August 16, 2017

PFCs			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	NARLB-SW01-0717	1700923-01	Water
2	NARLB-FB01-0717	1700923-02	Water
3	NARLB-SW01P-0717	1700923-03	Water
4*	NARLB-FB02-0717	1700923-04	Water
5*	NARLB-SW02-0717	1700923-05	Water
5MS	NARLB-SW02-0717MS	1700923-05MS	Water
5MSD	NARLB-SW02-0717MSD	1700923-05MSD	Water
6	NARLB-SW03-0717	1700923-06	Water
7	NARLB-FB03-0717	1700923-07	Water
8	NARLB-SW04-0717	1700923-08	Water
9	NARLB-FB04-0717	1700923-09	Water
10	NARLB-SW05-0717	1700923-10	Water
11	NARLB-FB05-0717	1700923-11	Water

* - These samples were incorrectly identified on the COC and per client request were switched.

A full data validation was performed on the analytical data for six water samples and five aqueous field blank samples collected on July 18, 2017 by CH2M HILL at the NARL Barrow site in Alaska. The samples were analyzed under the EPA Method "Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)".

Specific method references are as follows:

Analysis
PFCs

Method References
USEPA Method 537

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM), Version 5.0 (July 2013) and the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA “Contract Laboratories Program National Functional Guidelines for Superfund Organic Methods Data Review,” August 2014;
- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Date Completeness, Case Narrative & Custody Documentation
- Holding times
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A full (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Data Usability Assessment

There were no rejections of data.

Overall the data is acceptable for the intended purposes. There were no qualifications.

Perfluorinated Compounds (PFCs)

Data Completeness, Case Narrative & Custody Documentation

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

Holding Times

- All samples were extracted within 14 days for water samples and analyzed within 28 days.

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- The field blank samples were free of contamination.

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- The MS/MSD samples exhibited acceptable %R and RPD values.

Laboratory Control Samples

- The LCS samples exhibited acceptable percent recoveries (%R).

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- All criteria were met.

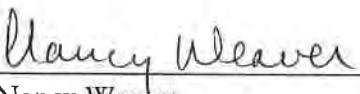
Field Duplicate Sample Precision

- Field duplicate results are summarized below. The precision was acceptable.

Compound	NARL-SW01-0717 ng/L	NARL-SW01P-0717 ng/L	RPD	Qualifier
PFBS	3.08	2.94	5%	None
PFOA	82.6	81.9	1%	
PFOS	117	119	2%	

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:


Nancy Weaver
Senior Chemist

Dated: 8/17/17

Data Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
J	The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
NJ	The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples.

Sample ID: NARLB-SW01-0717

EPA Method 537

Client Data			Sample Data			Laboratory Data				
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700923-01	Date Received:	24-Jul-2017 9:59	
Project:	CTO-08		Sample Size:	0.251 L		QC Batch:	B7G0113	Date Extracted:	25-Jul-2017 7:42	
Date Collected:	18-Jul-2017 12:45					Date Analyzed:	26-Jul-17 20:20	Column: Kinetex C18		
Location:										
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	3.08	0.441	4.97	9.95	J	SUR	13C2-PFHxA	104	70 - 130	
PFOA	82.6	1.07	4.97	9.95		SUR	13C2-PFDA	96.0	70 - 130	
PFOS	117	1.03	4.97	9.95						

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: NARLB-FB01-0717						EPA Method 537				
Client Data Name: CH2M Hill Project: CTO-08 Date Collected: 18-Jul-2017 12:45 Location:			Sample Data Matrix: Drinking Water Sample Size: 0.254 L		Laboratory Data Lab Sample: 1700923-02 Date Received: 24-Jul-2017 9:59 QC Batch: B7G0113 Date Extracted: 25-Jul-2017 7:42 Date Analyzed: 26-Jul-17 20:33 Column: Kinetex C18					
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	0.437	4.93	9.86		SUR 13C2-PFHxA		91.4	70 - 130	
PFOA	ND	1.06	4.93	9.86		SUR 13C2-PFDA		97.8	70 - 130	
PFOS	ND	1.03	4.93	9.86						

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: NARLB-SW01P-0717							EPA Method 537			
Client Data			Sample Data			Laboratory Data				
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700923-03	Date Received:	24-Jul-2017 9:59	
Project:	CTO-08		Sample Size:	0.243 L		QC Batch:	B7G0113	Date Extracted:	25-Jul-2017 7:42	
Date Collected:	18-Jul-2017 12:50		Date Analyzed: 26-Jul-17 20:45 Column: Kinetex C18							
Location:										
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	2.94	0.456	5.14	10.3	J	SUR 13C2-PFHxA		99.4	70 - 130	
PFOA	81.9	1.11	5.14	10.3		SUR 13C2-PFDA		99.8	70 - 130	
PFOS	119	1.07	5.14	10.3						

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: NARLB-FB02-0717						EPA Method 537			
Client Data			Sample Data			Laboratory Data			
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700923-04	Date Received:	24-Jul-2017 9:59
Project:	CTO-08		Sample Size:	0.240 L		QC Batch:	B7G0113	Date Extracted:	25-Jul-2017 7:42
Date Collected:	18-Jul-2017 13:05		Date Analyzed: 26-Jul-17 20:57 Column: Kinetex C18						
Location:									
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
PFBS	ND	0.462	5.21	10.4		SUR 13C2-PFHxA	103	70 - 130	
PFOA	ND	1.13	5.21	10.4		SUR 13C2-PFDA	114	70 - 130	
PFOS	ND	1.08	5.21	10.4					

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

rev 8/16/17

Sample ID: NARLB-SW02-0717							EPA Method 537			
Client Data Name: CH2M Hill Project: CTO-08 Date Collected: 18-Jul-2017 13:05 Location:			Sample Data Matrix: Drinking Water Sample Size: 0.259 L		Laboratory Data Lab Sample: 1700923-05 Date Received: 24-Jul-2017 9:59 QC Batch: B7G0113 Date Extracted: 25-Jul-2017 7:42 Date Analyzed: 26-Jul-17 21:34 Column: Kinetex C18					
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	2.77	0.427	4.82	9.64	J	SUR 13C2-PFHxA		96.8	70 - 130	
PFOA	67.5	1.04	4.82	9.64		SUR 13C2-PFDA		97.8	70 - 130	
PFOS	76.1	1.00	4.82	9.64						

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

nw 8/16/17

Sample ID: NARLB-SW03-0717

EPA Method 537

Client Data			Sample Data			Laboratory Data				
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700923-06	Date Received:	24-Jul-2017 9:59	
Project:	CTO-08		Sample Size:	0.247 L		QC Batch:	B7G0113	Date Extracted:	25-Jul-2017 7:42	
Date Collected:	18-Jul-2017 13:25					Date Analyzed:	26-Jul-17 21:46	Column: Kinetex C18		
Location:										
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	2.94	0.449	5.07	10.1	J	SUR	13C2-PFHxA	97.1	70 - 130	
PFOA	86.3	1.09	5.07	10.1		SUR	13C2-PFDA	99.7	70 - 130	
PFOS	176	1.05	5.07	10.1						

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

~ 81.6/1.7

Sample ID: NARLB-FB03-0717							EPA Method 537		
Client Data			Sample Data		Laboratory Data				
Name:	CH2M Hill		Matrix:	Drinking Water	Lab Sample:	1700923-07	Date Received:	24-Jul-2017	9:59
Project:	CTO-08		Sample Size:	0.255 L	QC Batch:	B7G0113	Date Extracted:	25-Jul-2017	7:42
Date Collected:	18-Jul-2017 13:25				Date Analyzed:	26-Jul-17 21:58	Column:	Kinetex C18	
Location:									
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
PFBS	ND	0.434	4.90	9.81		SUR 13C2-PFHxA	109	70 - 130	
PFOA	ND	1.06	4.90	9.81		SUR 13C2-PFDA	110	70 - 130	
PFOS	ND	1.02	4.90	9.81					

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

W 811617

Sample ID: NARLB-SW04-0717							EPA Method 537			
Client Data Name: CH2M Hill Project: CTO-08 Date Collected: 18-Jul-2017 13:35 Location:			Sample Data Matrix: Drinking Water Sample Size: 0.244 L		Laboratory Data Lab Sample: 1700923-08 Date Received: 24-Jul-2017 9:59 QC Batch: B7G0113 Date Extracted: 25-Jul-2017 7:42 Date Analyzed: 26-Jul-17 22:10 Column: Kinetex C18					
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	3.10	0.455	5.13	10.3	J	SUR 13C2-PFHxA		105	70 - 130	
PFOA	79.0	1.11	5.13	10.3		SUR 13C2-PFDA		109	70 - 130	
PFOS	94.7	1.07	5.13	10.3						

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

SW 81161.7

Sample ID: NARLB-FB04-0717							EPA Method 537			
Client Data Name: CH2M Hill Project: CTO-08 Date Collected: 18-Jul-2017 13:35 Location:			Sample Data Matrix: Drinking Water Sample Size: 0.258 L		Laboratory Data Lab Sample: 1700923-09 Date Received: 24-Jul-2017 9:59 QC Batch: B7G0113 Date Extracted: 25-Jul-2017 7:42 Date Analyzed: 26-Jul-17 22:23 Column: Kinetex C18					
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	0.430	4.85	9.70		SUR 13C2-PFHxA		102	70 - 130	
PFOA	ND	1.05	4.85	9.70		SUR 13C2-PFDA		101	70 - 130	
PFOS	ND	1.01	4.85	9.70						

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

rw 81161.7

Sample ID: NARLB-SW05-0717						EPA Method 537				
Client Data			Sample Data			Laboratory Data				
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700923-10		Date Received:	24-Jul-2017 9:59
Project:	CTO-08		Sample Size:	0.252 L		QC Batch:	B7G0113		Date Extracted:	25-Jul-2017 7:42
Date Collected:	18-Jul-2017 13:45					Date Analyzed:	26-Jul-17 22:35 Column: Kinetex C18			
Location:										
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	2.82	0.439	4.96	9.91	J	SUR 13C2-PFHxA		106	70 - 130	
PFOA	80.2	1.07	4.96	9.91		SUR 13C2-PFDA		110	70 - 130	
PFOS	88.6	1.03	4.96	9.91						

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

rev 8/16/17

Sample ID: NARLB-FB05-0717					EPA Method 537				
Client Data			Sample Data		Laboratory Data				
Name:	CH2M Hill		Matrix:	Drinking Water	Lab Sample:	1700923-11	Date Received:	24-Jul-2017	9:59
Project:	CTO-08		Sample Size:	0.249 L	QC Batch:	B7G0113	Date Extracted:	25-Jul-2017	7:42
Date Collected:	18-Jul-2017 13:45		Date Analyzed: 26-Jul-17 22:47 Column: Kinetex C18						
Location:									
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
PFBS	ND	0.445	5.02	10.0		SUR 13C2-PFHxA	96.8	70 - 130	
PFOA	ND	1.08	5.02	10.0		SUR 13C2-PFDA	94.0	70 - 130	
PFOS	ND	1.04	5.02	10.0					

DL - Detection limit

RL - Reporting limit

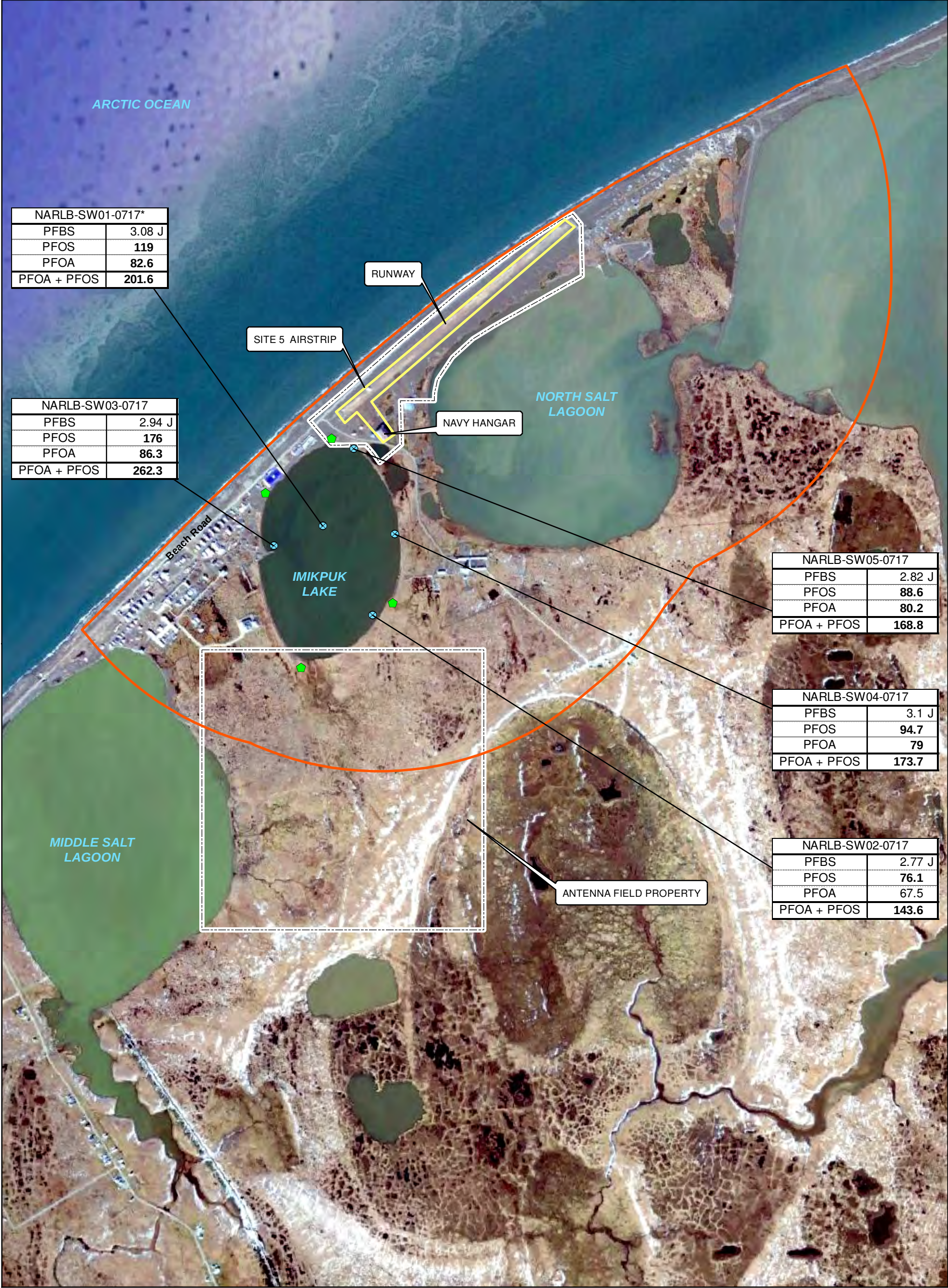
LCL-UCL - Lower control limit - upper control limit

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.

81161.7



NARLB-SW01-0717*	
PFBS	3.08 J
PFOS	119
PFOA	82.6
PFOA + PFOS	201.6

NARLB-SW03-0717	
PFBS	2.94 J
PFOS	176
PFOA	86.3
PFOA + PFOS	262.3

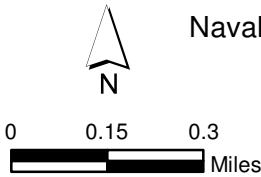
NARLB-SW05-0717	
PFBS	2.82 J
PFOS	88.6
PFOA	80.2
PFOA + PFOS	168.8

NARLB-SW04-0717	
PFBS	3.1 J
PFOS	94.7
PFOA	79
PFOA + PFOS	173.7

NARLB-SW02-0717	
PFBS	2.77 J
PFOS	76.1
PFOA	67.5
PFOA + PFOS	143.6

- Legend**
- ⊗ Surface Water Sampling Location
 - ★ Sign Location
 - ▭ Site Boundary (suspected source)
 - ▭ Site 5 - 1-mile zone
 - ▭ Navy Property Boundary

Notes:
* - Duplicate sample collected and higher of two values is reported
J - Analyte present. Value may or may not be accurate or precise
Units are nanograms/liter (ng/L)
Bolded text indicated exceedance of USEPA Lifetime Health Advisory (70 ng/L)
Perfluorobutanesulfonic acid = PFBS
Perfluorooctane Sulfonate = PFOS
Perfluorooctanoic acid = PFOA



1 inch equals 0.3 mile
Imagery Source: ©2017, Google

Figure 2
Site Map
Naval Arctic Research Laboratory Barrow
Utqiagvik, Alaska