



**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 1700006**

*Naval Air Station Oceana
Virginia Beach, Virginia*

July 2019



January 12, 2017

Vista Work Order No. 1700006

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

Dear Ms. Hill,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on January 04, 2017. This sample set was analyzed on a rush turn-around time, under your Project Name 'Oceana CTO-WE14'.

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 "Karen Lopez" followed by a small "for" in a smaller script.

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. 1700006

Case Narrative

Sample Condition on Receipt:

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

Analytical Notes:

Modified EPA Method 537

The samples were extracted and analyzed for a selected list of 6 PFAS using Modified EPA Method 537.

Holding Times

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

Quality Control

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

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The OPR recoveries were within the method acceptance criteria.

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

TABLE OF CONTENTS

Case Narrative.....	1
Table of Contents.....	3
Sample Inventory.....	4
Analytical Results.....	5
Qualifiers.....	10
Certifications.....	11
Sample Receipt.....	14

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1700006-01	OC-RW10-0117	03-Jan-17 17:04	04-Jan-17 10:11	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1700006-02	OC-FB10-010317	03-Jan-17 17:00	04-Jan-17 10:11	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL

ANALYTICAL RESULTS

Sample ID: Method Blank						Modified EPA Method 537			
Matrix: Aqueous Sample Size: 0.125 L		QC Batch: B7A0039 Date Extracted: 09-Jan-2017 13:40				Lab Sample: B7A0039-BLK1 Date Analyzed: 11-Jan-17 14:49 Column: BEH C18			
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
PFBS	ND	1.79	4.00	8.00		IS 13C3-PFBS	117	60 - 150	
PFHpA	ND	0.591	2.00	8.00		IS 13C4-PFHpA	94.5	60 - 150	
PFHxS	ND	0.947	2.00	8.00		IS 18O2-PFHxS	101	60 - 150	
PFOA	ND	0.651	2.00	8.00		IS 13C2-PFOA	121	60 - 150	
PFOS	ND	0.807	0.900	8.00		IS 13C8-PFOS	105	60 - 150	
PFNA	ND	0.810	2.00	8.00		IS 13C5-PFNA	93.2	50 - 150	

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: OPR					Modified EPA Method 537			
Matrix: Aqueous		QC Batch: B7A0039			Lab Sample: B7A0039-BS1			
Sample Size: 0.125 L		Date Extracted: 09-Jan-2017 13:40			Date Analyzed: 11-Jan-17 14:12 Column: BEH C18			
Analyte	Amt Found (ng/L)	Spike Amt	%R	Limits	Labeled Standard		%R	LCL-UCL
PFBS	90.0	80.0	113	60 - 130	IS	13C3-PFBS	111	60 - 150
PFHpA	95.4	80.0	119	70 - 130	IS	13C4-PFHpA	98.0	60 - 150
PFHxS	94.8	80.0	119	70 - 130	IS	18O2-PFHxS	99.3	60 - 150
PFOA	95.6	80.0	119	70 - 130	IS	13C2-PFOA	98.7	60 - 150
PFOS	92.4	80.0	115	70 - 130	IS	13C8-PFOS	111	60 - 150
PFNA	103	80.0	128	50 - 130	IS	13C5-PFNA	80.0	50 - 150

LCL-UCL - Lower control limit - upper control limit

Sample ID: OC-RW10-0117						Modified EPA Method 537				
Client Data Name: CH2M Hill Project: Oceana CTO-WE14 Date Collected: 03-Jan-2017 17:04 Location:			Sample Data Matrix: Drinking Water Sample Size: 0.127 L			Laboratory Data Lab Sample: 1700006-01 Date Received: 04-Jan-2017 10:11 QC Batch: B7A0039 Date Extracted: 09-Jan-2017 13:40 Date Analyzed: 11-Jan-17 17:03 Column: BEH C18				
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	1.76	3.94	7.89		IS	13C3-PFBS	107	60 - 150	
PFHpA	ND	0.583	1.97	7.89		IS	13C4-PFHpA	96.4	60 - 150	
PFHxS	ND	0.933	1.97	7.89		IS	18O2-PFHxS	99.1	60 - 150	
PFOA	ND	0.642	1.97	7.89		IS	13C2-PFOA	95.4	60 - 150	
PFOS	ND	0.795	0.886	7.89		IS	13C8-PFOS	103	60 - 150	
PFNA	ND	0.798	1.97	7.89		IS	13C5-PFNA	97.8	50 - 150	

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: OC-FB10-010317						Modified EPA Method 537				
Client Data			Sample Data			Laboratory Data				
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700006-02	Date Received:	04-Jan-2017 10:11	
Project:	Oceana CTO-WE14		Sample Size:	0.126 L		QC Batch:	B7A0039	Date Extracted:	09-Jan-2017 13:40	
Date Collected:	03-Jan-2017 17:00					Date Analyzed:	11-Jan-17 17:16 Column: BEH C18			
Location:										
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	1.78	3.97	7.97		IS	13C3-PFBS	118	60 - 150	
PFHpA	ND	0.589	1.98	7.97		IS	13C4-PFHpA	104	60 - 150	
PFHxS	ND	0.943	1.98	7.97		IS	18O2-PFHxS	97.9	60 - 150	
PFOA	ND	0.648	1.98	7.97		IS	13C2-PFOA	117	60 - 150	
PFOS	ND	0.804	0.893	7.97		IS	13C8-PFOS	107	60 - 150	
PFNA	ND	0.807	1.98	7.97		IS	13C5-PFNA	110	50 - 150	

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
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2014022
Nevada Division of Environmental Protection	CA004132015-1
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-004
Pennsylvania Department of Environmental Protection	012
South Carolina Department of Health	87002001
Texas Commission on Environmental Quality	T104704189-15-6
Virginia Department of General Services	7923
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

SAMPLE LOG-IN CHECKLIST



Vista Project #: 1700006 TAT 14

Samples Arrival:	Date/Time <u>01/04/17 1011</u>	Initials: <u>BSB</u>	Location: <u>WR-2</u> Shelf/Rack: <u>NA</u>
Logged In:	Date/Time <u>01/04/17 1610</u>	Initials: <u>BSB</u>	Location: <u>WR-2</u> Shelf/Rack: <u>A5</u>
Delivered By:	<u>FedEx</u>	UPS	On Trac
Preservation:	<u>Ice</u>	Blue Ice	Dry Ice
Temp °C: <u>0.6</u> (uncorrected)	Time: <u>1014</u>	Thermometer ID: IR-1	
Temp °C: <u>0.3</u> (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 # <u>7780 8821 6477</u>	☒		
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:	<u>Na₂S₂O₃</u> <u>Trizma</u>	Yes	<u>No</u>	NA
Shipping Container	<u>Vista</u> Client <u>Retain</u>	Return	Dispose	

Comments:

January 12, 2017

Vista Work Order No. 1700006

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

Dear Ms. Hill,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on January 04, 2017. This sample set was analyzed on a rush turn-around time, under your Project Name 'Oceana CTO-WE14'.

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,

 for

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. 1700006

Case Narrative

Sample Condition on Receipt:

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

Analytical Notes:

Modified EPA Method 537

The samples were extracted and analyzed for a selected list of 6 PFAS using Modified EPA Method 537.

Holding Times

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

Quality Control

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

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above the Reporting Limit. The OPR recoveries were within the method acceptance criteria.

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

TABLE OF CONTENTS

Case Narrative.....	1
Table of Contents.....	3
Sample Inventory.....	4
Analytical Results.....	5
Qualifiers.....	10
Certifications.....	11
Sample Receipt.....	14
Extraction Information.....	16
Sample Data - Modified EPA Method 537.....	20
Continuing Calibration.....	42
Initial Calibration.....	51

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1700006-01	OC-RW10-0117	03-Jan-17 17:04	04-Jan-17 10:11	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL
1700006-02	OC-FB10-010317	03-Jan-17 17:00	04-Jan-17 10:11	HDPE Bottle, 125 mL
				HDPE Bottle, 125 mL

ANALYTICAL RESULTS

Sample ID: Method Blank						Modified EPA Method 537			
Matrix: Aqueous Sample Size: 0.125 L		QC Batch: B7A0039 Date Extracted: 09-Jan-2017 13:40				Lab Sample: B7A0039-BLK1 Date Analyzed: 11-Jan-17 14:49 Column: BEH C18			
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
PFBS	ND	1.79	4.00	8.00		IS 13C3-PFBS	117	60 - 150	
PFHpA	ND	0.591	2.00	8.00		IS 13C4-PFHpA	94.5	60 - 150	
PFHxS	ND	0.947	2.00	8.00		IS 18O2-PFHxS	101	60 - 150	
PFOA	ND	0.651	2.00	8.00		IS 13C2-PFOA	121	60 - 150	
PFOS	ND	0.807	0.900	8.00		IS 13C8-PFOS	105	60 - 150	
PFNA	ND	0.810	2.00	8.00		IS 13C5-PFNA	93.2	50 - 150	

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: OPR					Modified EPA Method 537			
Matrix: Aqueous		QC Batch: B7A0039			Lab Sample: B7A0039-BS1			
Sample Size: 0.125 L		Date Extracted: 09-Jan-2017 13:40			Date Analyzed: 11-Jan-17 14:12 Column: BEH C18			
Analyte	Amt Found (ng/L)	Spike Amt	%R	Limits	Labeled Standard		%R	LCL-UCL
PFBS	90.0	80.0	113	60 - 130	IS	13C3-PFBS	111	60 - 150
PFHpA	95.4	80.0	119	70 - 130	IS	13C4-PFHpA	98.0	60 - 150
PFHxS	94.8	80.0	119	70 - 130	IS	18O2-PFHxS	99.3	60 - 150
PFOA	95.6	80.0	119	70 - 130	IS	13C2-PFOA	98.7	60 - 150
PFOS	92.4	80.0	115	70 - 130	IS	13C8-PFOS	111	60 - 150
PFNA	103	80.0	128	50 - 130	IS	13C5-PFNA	80.0	50 - 150

LCL-UCL - Lower control limit - upper control limit

Sample ID: OC-RW10-0117						Modified EPA Method 537					
Client Data			Sample Data			Laboratory Data					
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700006-01		Date Received:	04-Jan-2017 10:11	
Project:	Oceana CTO-WE14		Sample Size:	0.127 L		QC Batch:	B7A0039		Date Extracted:	09-Jan-2017 13:40	
Date Collected:	03-Jan-2017 17:04					Date Analyzed:	11-Jan-17 17:03		Column: BEH C18		
Location:											
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers	
PFBS	ND	1.76	3.94	7.89		IS	13C3-PFBS	107	60 - 150		
PFHpA	ND	0.583	1.97	7.89		IS	13C4-PFHpA	96.4	60 - 150		
PFHxS	ND	0.933	1.97	7.89		IS	18O2-PFHxS	99.1	60 - 150		
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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: OC-FB10-010317						Modified EPA Method 537					
Client Data			Sample Data			Laboratory Data					
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1700006-02		Date Received:	04-Jan-2017 10:11	
Project:	Oceana CTO-WE14		Sample Size:	0.126 L		QC Batch:	B7A0039		Date Extracted:	09-Jan-2017 13:40	
Date Collected:	03-Jan-2017 17:00					Date Analyzed:	11-Jan-17 17:16		Column: BEH C18		
Location:											
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers	
PFBS	ND	1.78	3.97	7.97		IS	13C3-PFBS	118	60 - 150		
PFHpA	ND	0.589	1.98	7.97		IS	13C4-PFHpA	104	60 - 150		
PFHxS	ND	0.943	1.98	7.97		IS	18O2-PFHxS	97.9	60 - 150		
PFOA	ND	0.648	1.98	7.97		IS	13C2-PFOA	117	60 - 150		
PFOS	ND	0.804	0.893	7.97		IS	13C8-PFOS	107	60 - 150		
PFNA	ND	0.807	1.98	7.97		IS	13C5-PFNA	110	50 - 150		

LCL-UCL - Lower control limit - upper control limit
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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
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2014022
Nevada Division of Environmental Protection	CA004132015-1
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-004
Pennsylvania Department of Environmental Protection	012
South Carolina Department of Health	87002001
Texas Commission on Environmental Quality	T104704189-15-6
Virginia Department of General Services	7923
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

SAMPLE LOG-IN CHECKLIST



Vista Project #: 1700006 TAT 14

Samples Arrival:	Date/Time <u>01/04/17 1011</u>		Initials: <u>BSB</u>		Location: <u>WR-2</u>	
					Shelf/Rack: <u>NA</u>	
Logged In:	Date/Time <u>01/04/17 1610</u>		Initials: <u>BSB</u>		Location: <u>WR-2</u>	
					Shelf/Rack: <u>A5</u>	
Delivered By:	<u>FedEx</u>	UPS	On Trac	DHL	Hand Delivered	Other
Preservation:	<u>Ice</u>	Blue Ice	Dry Ice	None		
Temp °C: <u>0.6</u> (uncorrected)	Time: <u>1014</u>		Thermometer ID: IR-1			
Temp °C: <u>0.3</u> (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 # <u>7780 8821 6477</u>	☒		
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:	<u>Na₂S₂O₃</u> <u>Trizma</u>	Yes	<u>No</u>	NA
Shipping Container	<u>Vista</u> Client <u>Retain</u>	Return	Dispose	

Comments:

EXTRACTION INFORMATION

Process Sheet
Workorder: 1700006

Prep Expiration: 2017-Jan-17
Client: CH2M Hill

Workorder Due: 18-Jan-17 00:00

TAT: 14

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

Prep Batch: B7A0039

Prep Data Entered: 1-10-17 BP
Date and Initials

Version: UCMR 3 (6 Analyte)

Initial Sequence: SA S7A0019

LabSampleID	Recon	ClientSampleID	Date Received	Location	Comments
1700006-01	☒	OC-RW10-0117	04-Jan-17 10:11	WR-2 A-5	AMSC 1-11-17
1700006-02	☒	OC-FB10-010317	04-Jan-17 10:11	WR-2 A-5	

WO Comments: List of 6, include Total PFOA.

Vista PM: Martha Maier

Vial Box ID: T. Ferguson

Sample Reconciled By: [Signature]

1/9/17

Balance ID: Na

%Solids rmh 5/2011

PREPARATION BENCH SHEET

Matrix: Aqueous

Method: 537 PFAS

Method: 537 PFAS DOD (LOO as mRL)

B7A0039

Chemist: E. Schneider

Prep Date/Time: 09-Jan-17 13:40

Prepared using: LCMS - SPE Extraction-LCMS

C7A0026							
C	VISTA Sample ID	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	IS/NS CHEM/WIT DATE	SPE	RS CHEM/WIT DATE
☐	B7A0039-BLK1	NA	NA	(0.125)	ES BP 1/9/17	BP 1/9/17	ES BP 1/9/17
☐	B7A0039-BS1	↓	↓	↓	↓	↓	↓
☐	1700006-01	154.02	27.21	0.12681	↓	↓	↓
☐	1700006-02	152.49	26.97	0.12552	↓	↓	↓
☐	1700007-01	152.33	27.27	0.12506	↓	↓	↓
☐	1700007-02	152.93	27.30	0.12563	↓	↓	↓

IS Name <u>16L1920, 10mL</u>	NS Name <u>16I2905, 10mL</u>	RS Name <u>16K1105, 10mL</u>	SPE Chem: <u>Strate X-AW 33um 200mg/6mL</u> Ele SOLV: <u>0.5% NH₄OH in MeOH/MeOH</u> Final Volume(s) <u>7mL</u>	Check Out: Chemist/Date: <u>1-9-17 BP</u> Check In: Chemist/Date: <u>NA</u> Balance ID: <u>HRMS-9</u>
---------------------------------	---------------------------------	---------------------------------	--	---

Comments: Assume 1 g = 1 mL

SAMPLE DATA – MODIFIED EPA METHOD 537

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_17.qld

Last Altered: Thursday, January 12, 2017 11:55:51 Pacific Standard Time

Printed: Thursday, January 12, 2017 11:56:36 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFC List 26_A No4-2FTS_Mixed.mdb 12 Jan 2017 08:55:01

Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28

ID: B7A0039-BLK1, Description: Method Blank, Name: 170111J1_17.wiff, Date: 11-Jan-2017, Time: 14:49:11

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	79.90	4.050e0	6.218e3		0.125	3.71	0.496	
2	5 PFHpA	318.90	1.471e1	7.318e3		0.125	4.52	0.465	
3	6 PFHxS	79.91	1.630e1	1.151e3		0.125	4.63	0.220	
4	8 PFOA	368.90	7.386e1	5.519e3		0.125	4.90	0.393	
5	10 PFNA	419.00		4.928e3		0.125			
6	11 PFOS	79.92	1.462e1	3.641e3		0.125	5.19		
7	16 13C3-PFBS	79.95	6.218e3	1.031e4	0.517	0.125	3.71	117	117
8	17 13C2-PFHxA	269.90	3.878e3	1.031e4	0.903	0.125	4.06	41.7	104
9	18 13C4-PFHpA	321.90	7.318e3	1.031e4	0.751	0.125	4.53	94.5	94.5
10	19 18O2-PFHxS	102.90	1.151e3	4.113e3	0.278	0.125	4.63	101	101
11	20 13C2-6:2 FTS	408.90	1.713e3	7.393e3	0.178	0.125	4.86	130	130
12	21 13C2-PFOA	369.90	5.519e3	7.393e3	0.616	0.125	4.90	121	121
13	22 13C5-PFNA	422.90	4.928e3	5.627e3	0.940	0.125	5.21	93.2	93.2
14	23 13C8-PFOS	79.93	3.641e3	3.866e3	0.897	0.125	5.26	105	105
15	24 13C2-PFDA	470.00	4.217e3	5.983e3	0.882	0.125	5.47	79.9	79.9
16	25 13C2-8:2 FTS	508.70	1.070e3	5.983e3	0.201	0.125	5.45	89.0	89.0
17	26 13C4-PFBA	171.90	9.280e3	9.280e3	1.000	0.125	2.39	100	100
18	27 13C5-PFHxA	273.00	1.031e4	1.031e4	1.000	0.125	4.05	100	100
19	28 13C3-PFHxS	80.01	4.113e3	4.113e3	1.000	0.125	4.62	100	100
20	29 13C8-PFOA	375.90	7.393e3	7.393e3	1.000	0.125	4.90	100	100
21	30 13C9-PFNA	427.00	5.627e3	5.627e3	1.000	0.125	5.21	100	100
22	31 13C4-PFOS	79.94	3.866e3	3.866e3	1.000	0.125	5.26	100	100
23	32 13C6-PFDA	474.00	5.983e3	5.983e3	1.000	0.125	5.47	100	100
24	33 Total PFBS	79.90		6.218e3		0.125		0.496	
25	34 Total PFHxS	79.91		1.151e3		0.125		0.220	
26	35 Total PFOA	368.90		5.519e3		0.125		0.393	
27	36 Total PFOS	79.92		3.641e3		0.125			

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_17.qld

Last Altered: Thursday, January 12, 2017 11:55:51 Pacific Standard Time

Printed: Thursday, January 12, 2017 11:56:36 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFC List 26_A No4-2FTS_Mixed.mdb 12 Jan 2017 08:55:01

Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28

ID: B7A0039-BLK1, Description: Method Blank, Name: 170111J1_17.wiff, Date: 11-Jan-2017, Time: 14:49:11

Total PFBS

	# Name	Trace	RT	Area	IS Area	Conc.
1	3 PFBS	79.90	3.71	4.050	6217.762	0.5

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	6 PFHxS	79.91	4.63	16.301	1150.801	0.2

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	8 PFOA	368.90	4.90	73.863	5519.388	0.4

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	11 PFOS	79.92	5.19	14.618	3640.758	

Total PFHpS

	# Name	Trace	RT	Area	IS Area	Conc.
1	37 Total PFHpS	80.00	4.96	3.020	5519.388	1.4
2	9 PFHpS	80.00	4.96	3.020	5519.388	1.4

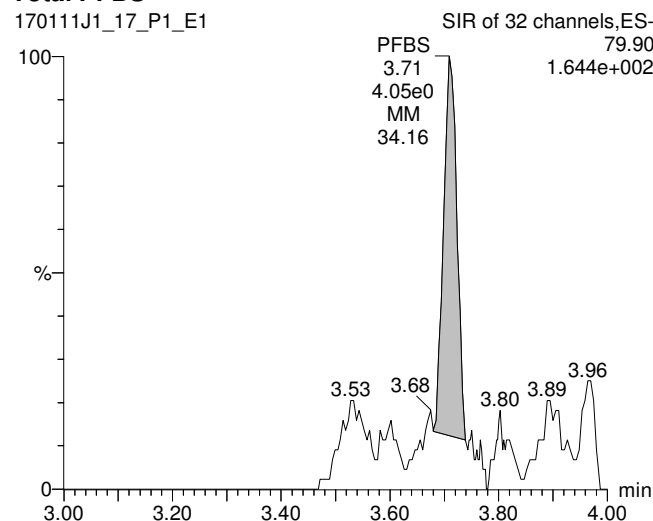
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Printed: Thursday, January 12, 2017 11:56:36 Pacific Standard Time

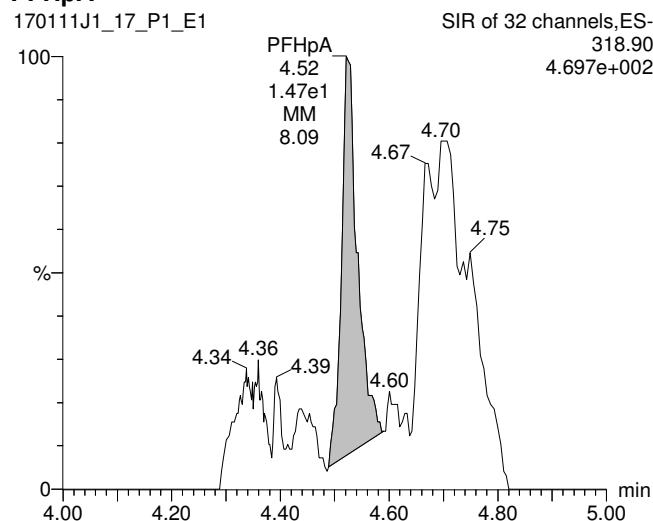
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Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28

ID: B7A0039-BLK1, Description: Method Blank, Name: 170111J1_17.wiff, Date: 11-Jan-2017, Time: 14:49:11, Instrument: , Lab: ©PE-SCIEX, User: sciex

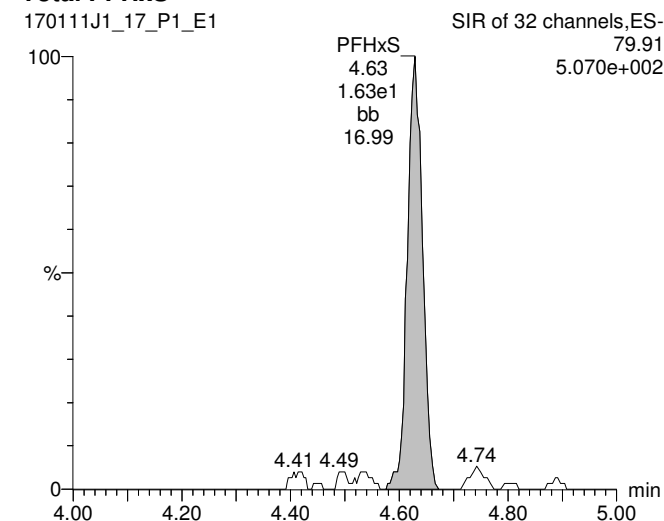
Total PFBS



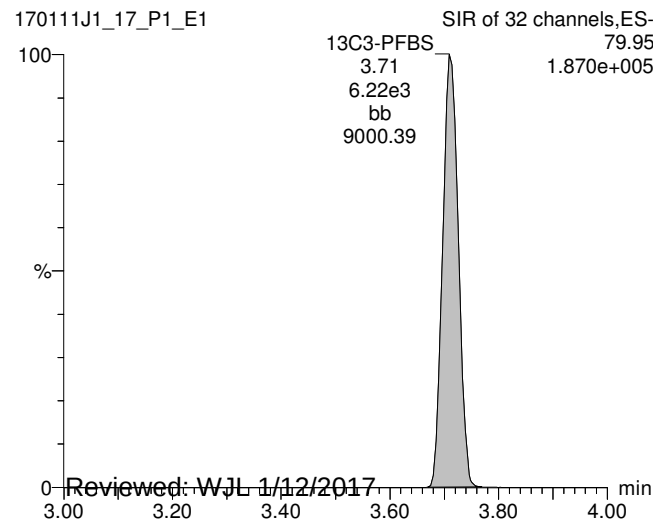
PFHpA



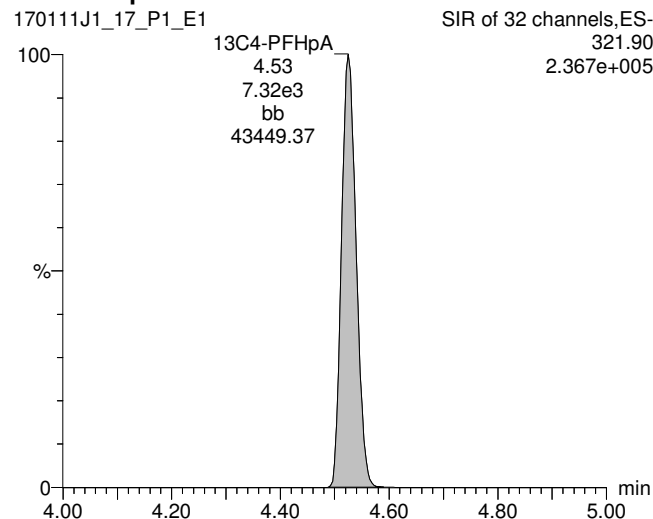
Total PFHxS



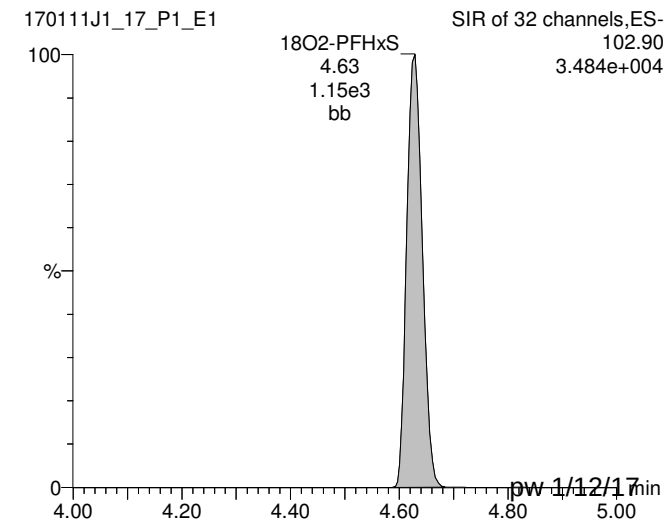
13C3-PFBS



13C4-PFHpA



18O2-PFHxS



Reviewed: WJL 1/12/2017

Work Order 1700006

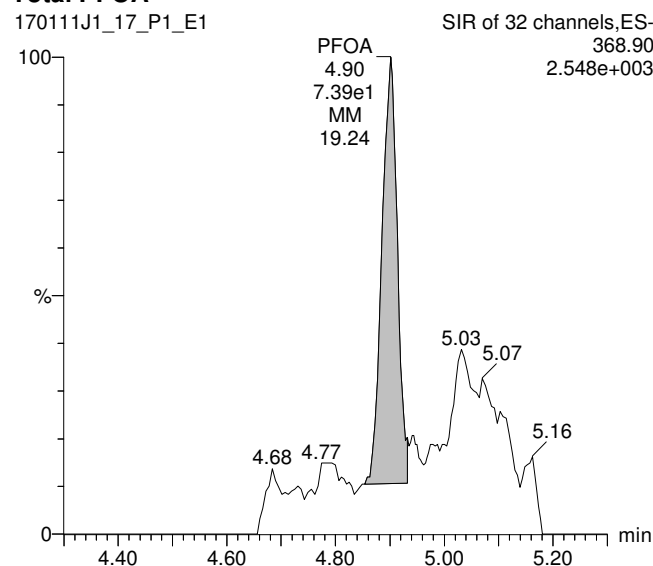
pw 1/12/17

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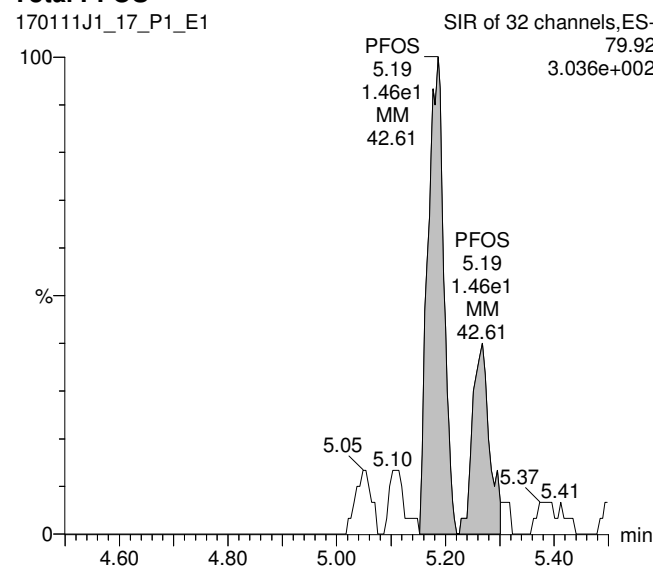
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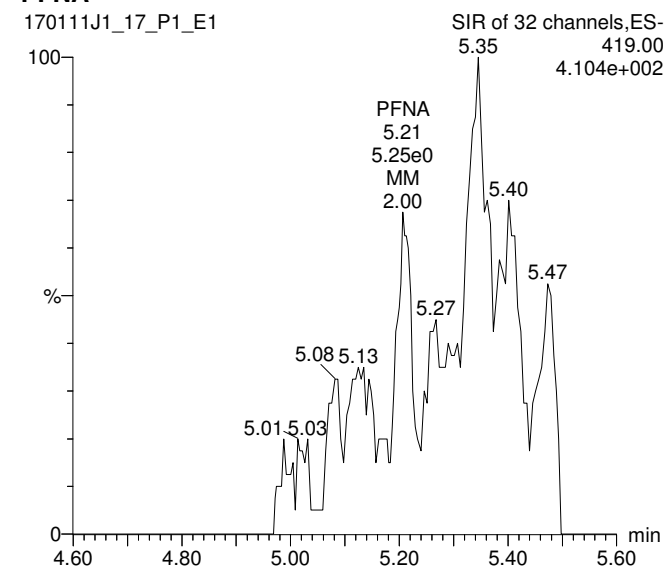
Total PFOA



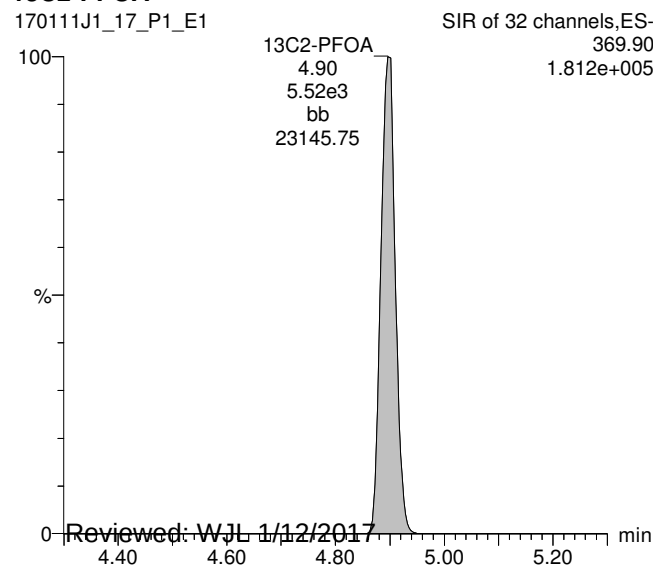
Total PFOS



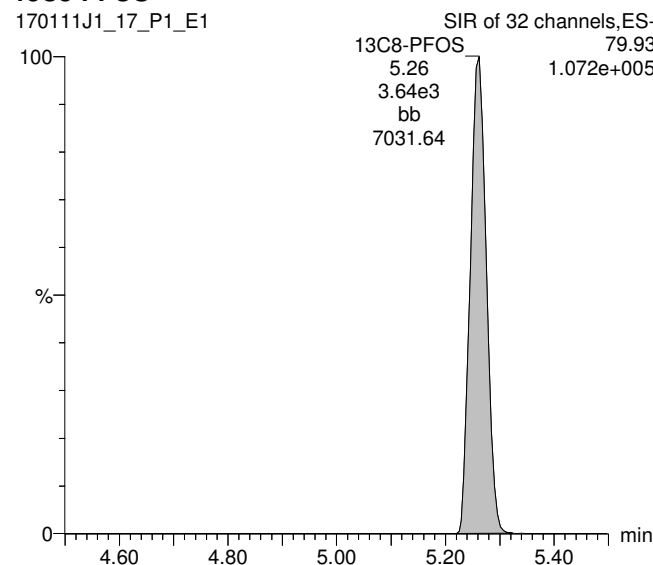
PFNA



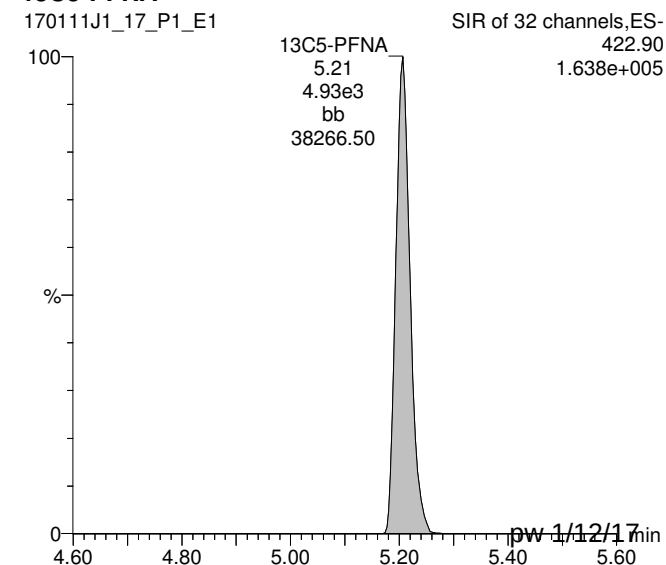
13C2-PFOA



13C8-PFOS



13C5-PFNA



Reviewed: WJL 1/12/2017

Work Order 1700006

pw 1/12/17

Page 24 of 131

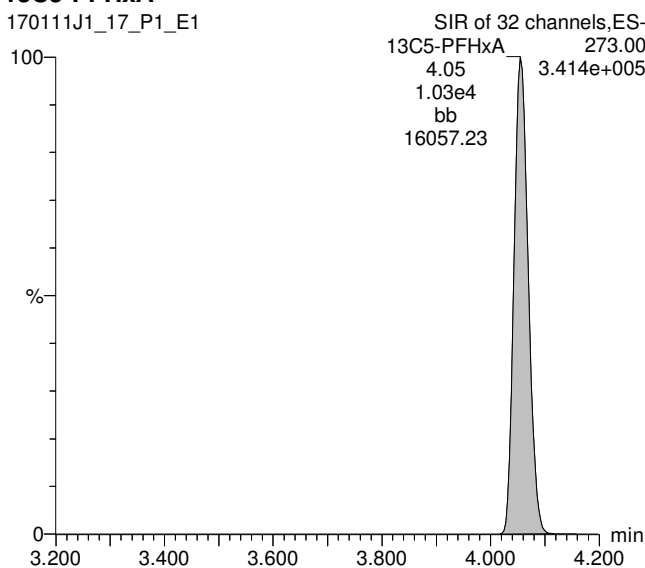
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Printed: Thursday, January 12, 2017 11:56:36 Pacific Standard Time

ID: B7A0039-BLK1, Description: Method Blank, Name: 170111J1_17.wiff, Date: 11-Jan-2017, Time: 14:49:11, Instrument: , Lab: ©PE-SCIEX, User: sciex

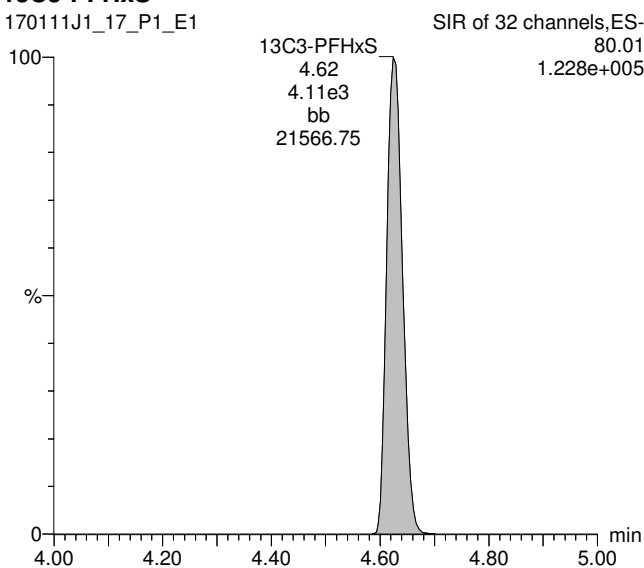
13C5-PFHxA

170111J1_17_P1_E1



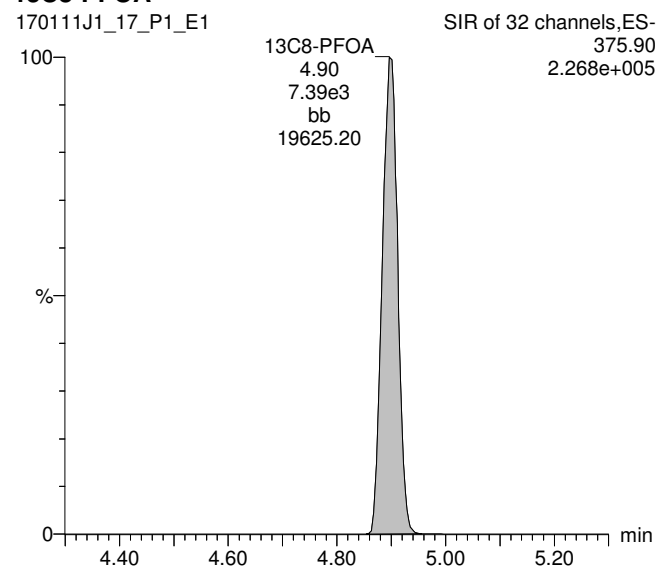
13C3-PFHxS

170111J1_17_P1_E1



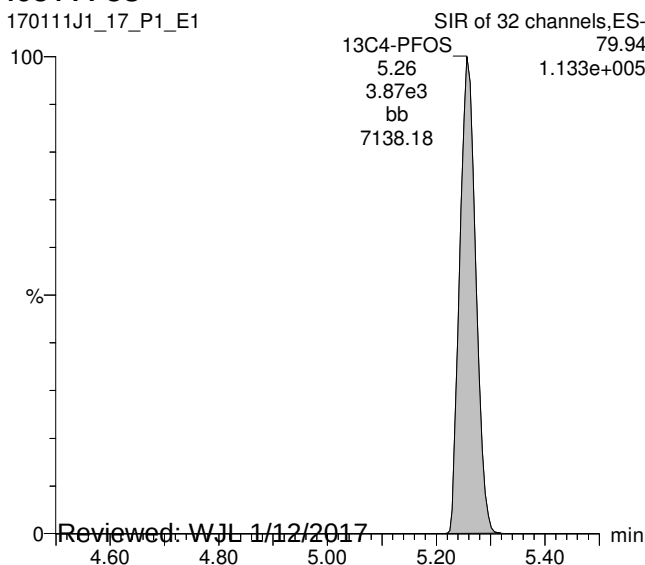
13C8-PFOA

170111J1_17_P1_E1



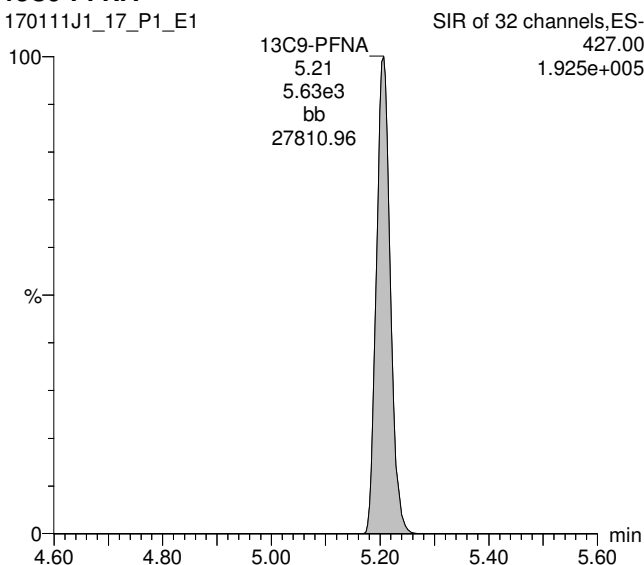
13C4-PFOS

170111J1_17_P1_E1



13C9-PFNA

170111J1_17_P1_E1



Reviewed: WJL 1/12/2017

Work Order 1700006

pw 1/12/17

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_14.qld

Last Altered: Thursday, January 12, 2017 11:45:34 Pacific Standard Time

Printed: Thursday, January 12, 2017 11:49:29 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFC List 26_A No4-2FTS_Mixed.mdb 12 Jan 2017 08:55:01

Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28

ID: B7A0039-BS1, Description: OPR, Name: 170111J1_14.wiff, Date: 11-Jan-2017, Time: 14:12:26

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	79.90	5.464e3	6.942e3		0.125	3.72	90.0	113
2	5 PFHpA	318.90	7.189e3	8.906e3		0.125	4.55	95.4	119
3	6 PFHxS	79.91	3.892e3	1.364e3		0.125	4.65	94.8	119
4	8 PFOA	368.90	7.801e3	6.600e3		0.125	4.92	95.6	119
5	10 PFNA	419.00	6.594e3	4.725e3		0.125	5.24	103	128
6	11 PFOS	79.92	4.316e3	3.924e3		0.125	5.29	92.4	115
7	16 13C3-PFBS	79.95	6.942e3	1.210e4	0.517	0.125	3.71	111	111
8	17 13C2-PFHxA	269.90	4.562e3	1.210e4	0.903	0.125	4.06	41.7	104
9	18 13C4-PFHpA	321.90	8.906e3	1.210e4	0.751	0.125	4.55	98.0	98.0
10	19 18O2-PFHxS	102.90	1.364e3	4.948e3	0.278	0.125	4.65	99.3	99.3
11	20 13C2-6:2 FTS	408.90	2.138e3	1.086e4	0.178	0.125	4.88	111	111
12	21 13C2-PFOA	369.90	6.600e3	1.086e4	0.616	0.125	4.92	98.7	98.7
13	22 13C5-PFNA	422.90	4.725e3	6.280e3	0.940	0.125	5.23	80.0	80.0
14	23 13C8-PFOS	79.93	3.924e3	3.936e3	0.897	0.125	5.28	111	111
15	24 13C2-PFDA	470.00	4.655e3	5.606e3	0.882	0.125	5.50	94.1	94.1
16	25 13C2-8:2 FTS	508.70	1.196e3	5.606e3	0.201	0.125	5.48	106	106
17	26 13C4-PFBA	171.90	1.093e4	1.093e4	1.000	0.125	2.39	100	100
18	27 13C5-PFHxA	273.00	1.210e4	1.210e4	1.000	0.125	4.06	100	100
19	28 13C3-PFHxS	80.01	4.948e3	4.948e3	1.000	0.125	4.64	100	100
20	29 13C8-PFOA	375.90	1.086e4	1.086e4	1.000	0.125	4.92	100	100
21	30 13C9-PFNA	427.00	6.280e3	6.280e3	1.000	0.125	5.23	100	100
22	31 13C4-PFOS	79.94	3.936e3	3.936e3	1.000	0.125	5.28	100	100
23	32 13C6-PFDA	474.00	5.606e3	5.606e3	1.000	0.125	5.50	100	100
24	33 Total PFBS	79.90		6.942e3		0.125		90.0	
25	34 Total PFHxS	79.91		1.364e3		0.125		94.8	
26	35 Total PFOA	368.90		6.600e3		0.125		95.6	
27	36 Total PFOS	79.92		3.924e3		0.125		92.4	

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_14.qld

Last Altered: Thursday, January 12, 2017 11:45:34 Pacific Standard Time

Printed: Thursday, January 12, 2017 11:49:29 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFC List 26_A No4-2FTS_Mixed.mdb 12 Jan 2017 08:55:01

Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28

ID: B7A0039-BS1, Description: OPR, Name: 170111J1_14.wiff, Date: 11-Jan-2017, Time: 14:12:26

Total PFBS

	# Name	Trace	RT	Area	IS Area	Conc.
1	3 PFBS	79.90	3.72	5464.175	6941.884	90.0

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	6 PFHxS	79.91	4.65	3892.453	1364.014	94.8

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	8 PFOA	368.90	4.92	7801.450	6600.182	95.6

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	11 PFOS	79.92	5.29	4316.108	3923.953	92.4

Total PFHpS

	# Name	Trace	RT	Area	IS Area	Conc.
1	9 PFHpS	80.00	5.00	3586.092	6600.182	88.8
2	37 Total PFHpS	80.00	4.90	7.443	6600.182	1.5

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_14.qld

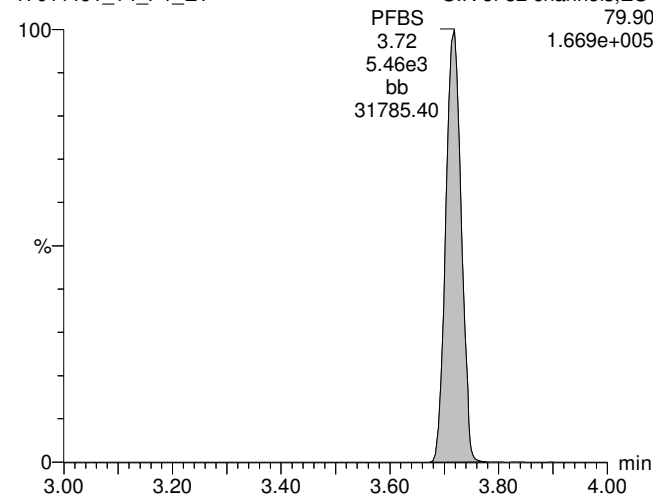
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Printed: Thursday, January 12, 2017 11:49:29 Pacific Standard Time

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Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28

ID: B7A0039-BS1, Description: OPR, Name: 170111J1_14.wiff, Date: 11-Jan-2017, Time: 14:12:26, Instrument: , Lab: ©PE-SCIEX, User: sciex

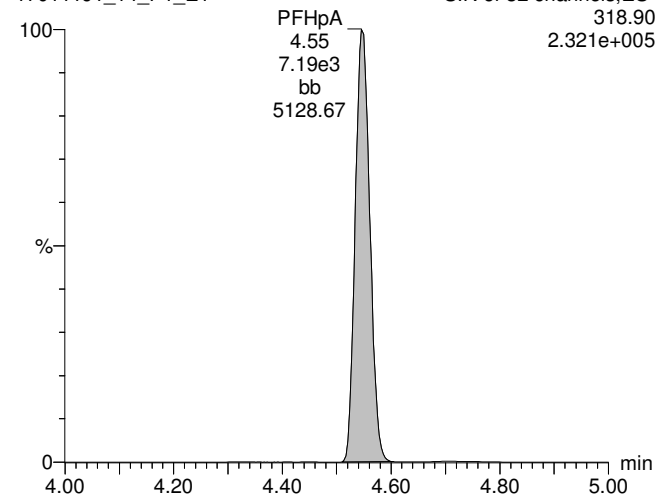
Total PFBS

170111J1_14_P1_E1



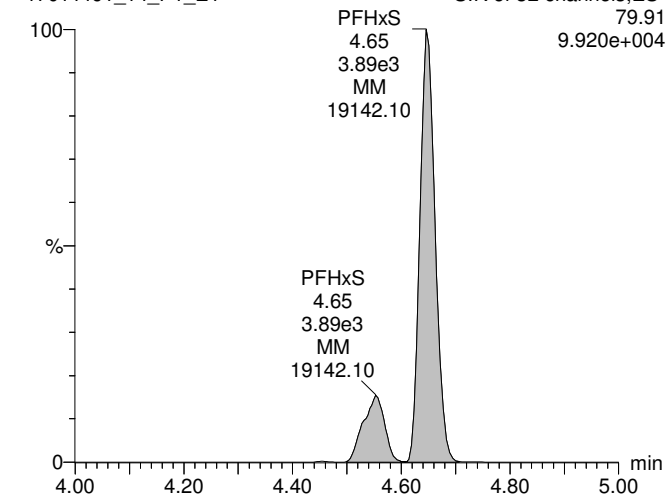
PFHpA

170111J1_14_P1_E1



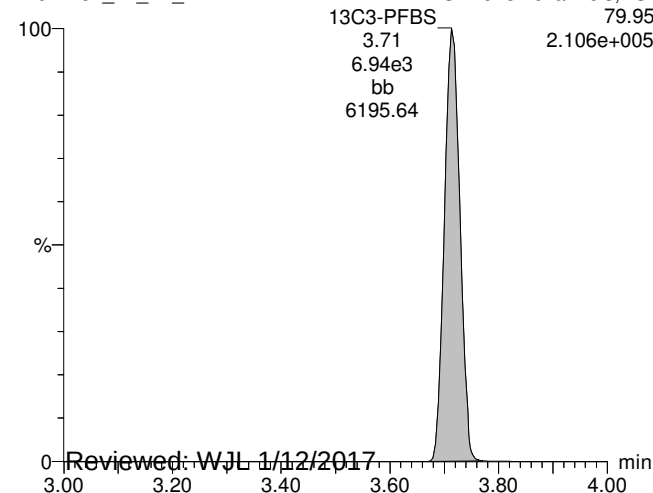
Total PFHxS

170111J1_14_P1_E1



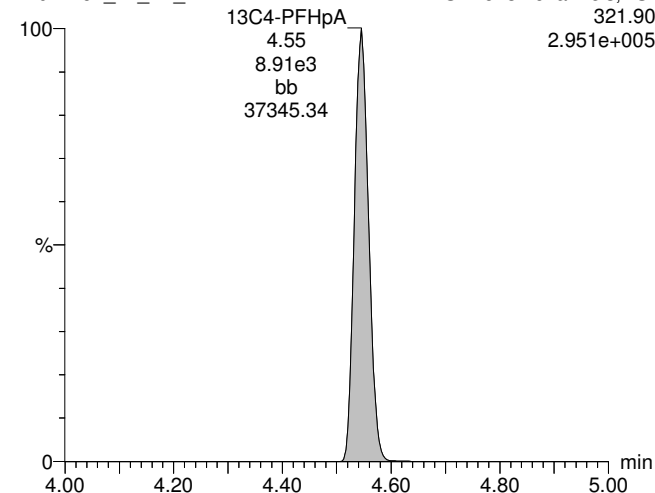
13C3-PFBS

170111J1_14_P1_E1



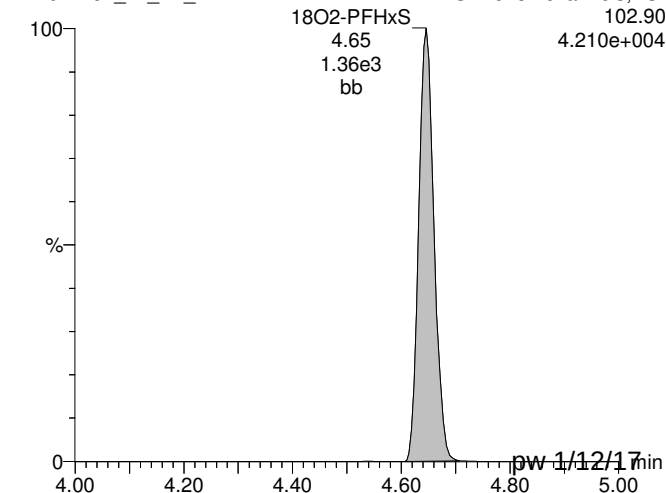
13C4-PFHpA

170111J1_14_P1_E1



18O2-PFHxS

170111J1_14_P1_E1



Reviewed: WJL 1/12/2017

Work Order 1700006

pw 1/12/17

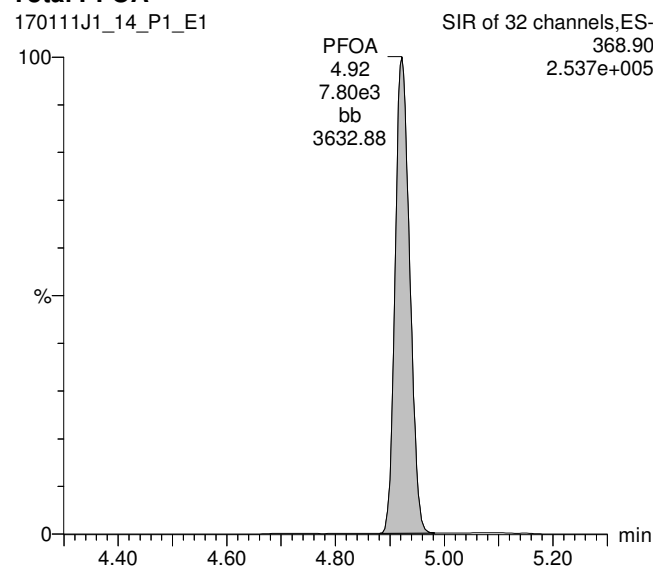
Page 28 of 131

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_14.qld

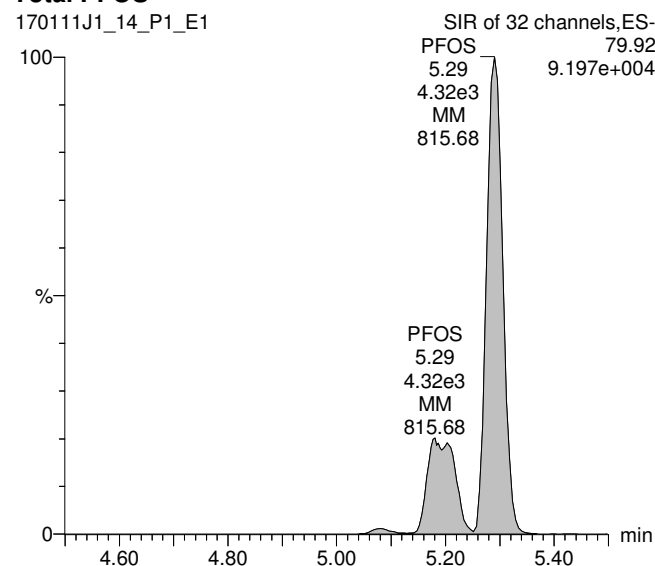
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Printed: Thursday, January 12, 2017 11:49:29 Pacific Standard Time

ID: B7A0039-BS1, Description: OPR, Name: 170111J1_14.wiff, Date: 11-Jan-2017, Time: 14:12:26, Instrument: , Lab: ©PE-SCIEX, User: sciex

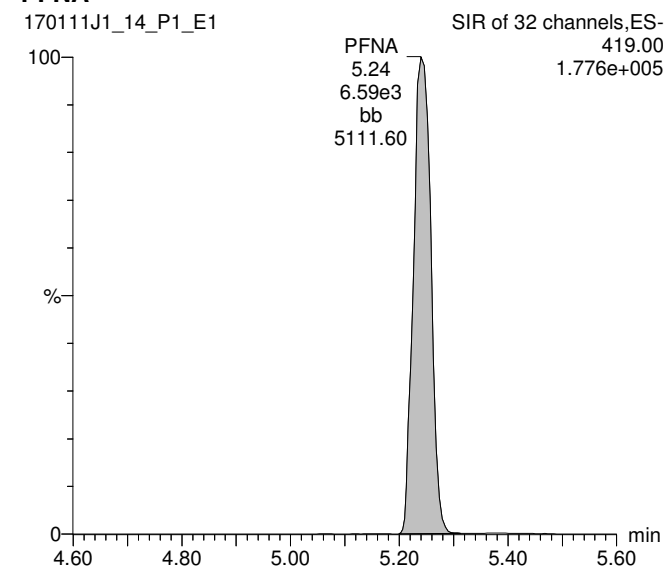
Total PFOA



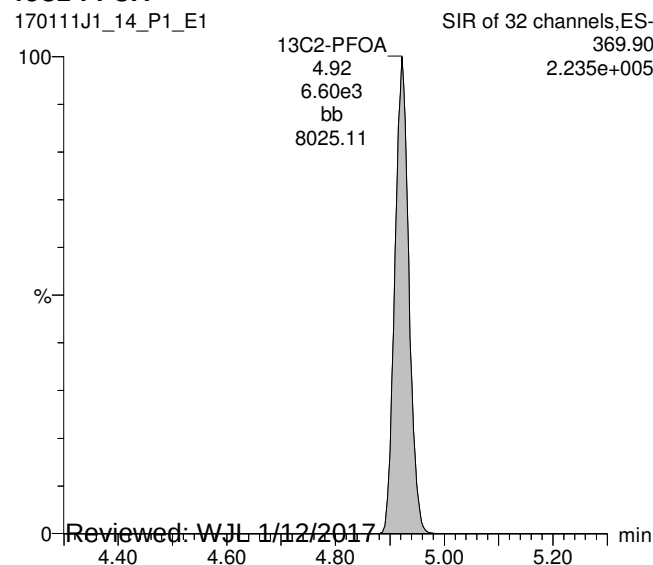
Total PFOS



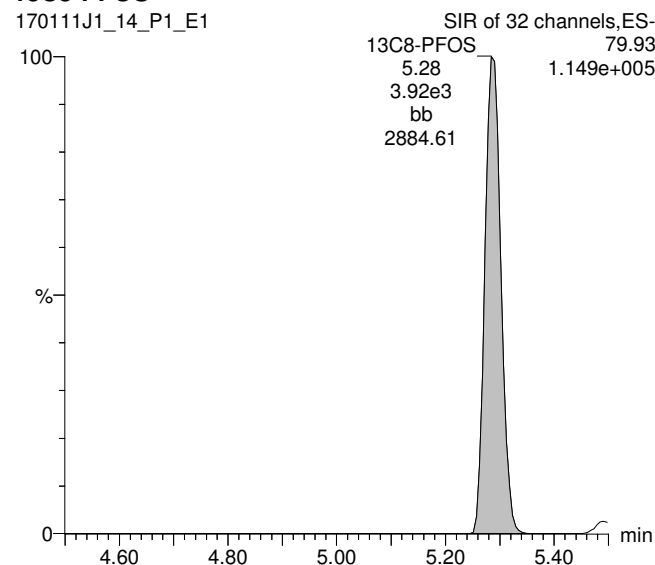
PFNA



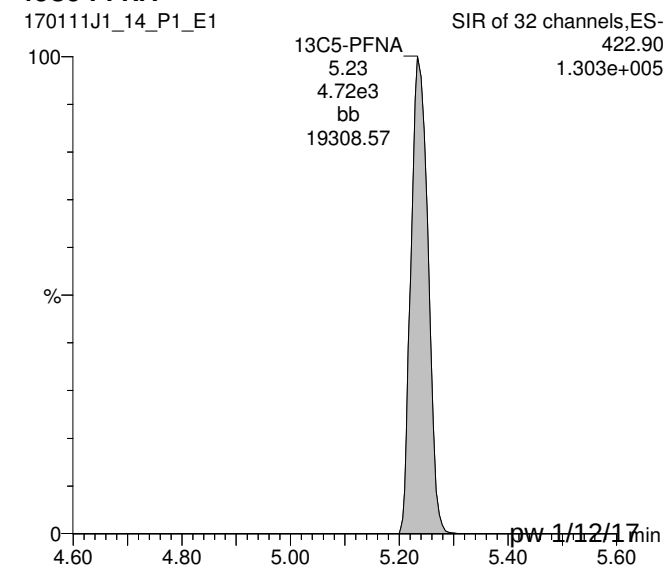
13C2-PFOA



13C8-PFOS



13C5-PFNA

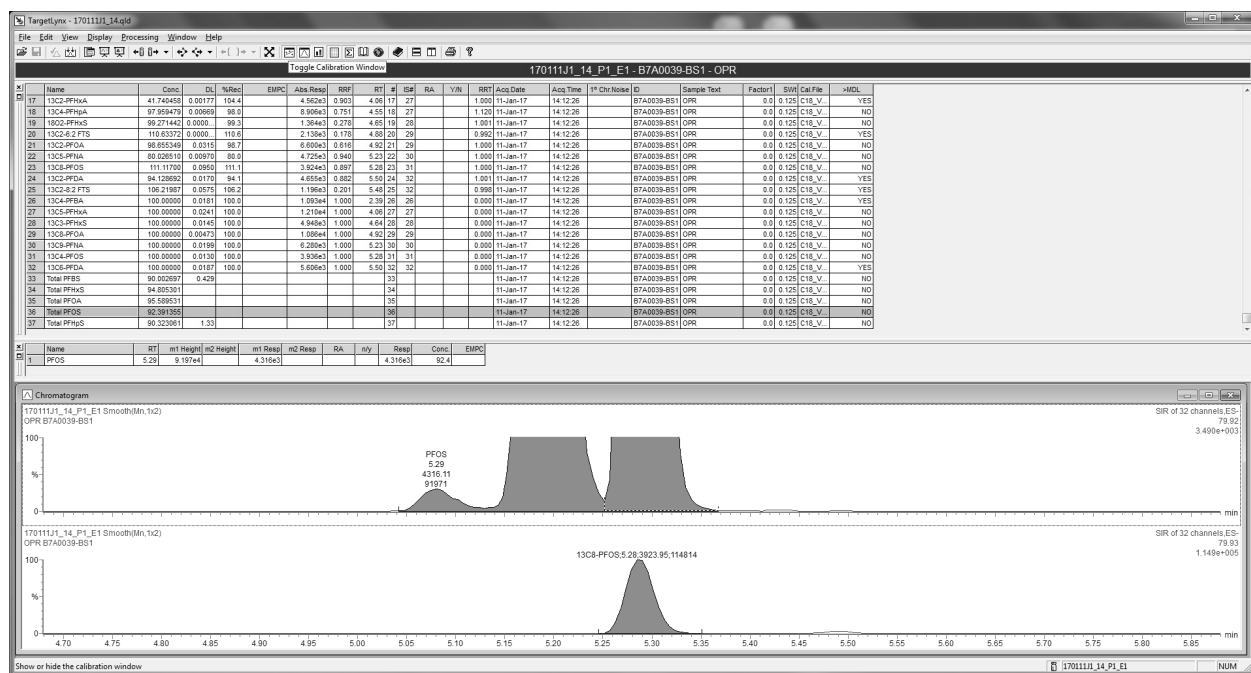


Reviewed: WJL 1/12/2017

Work Order 1700006

pw 1/12/17

Page 29 of 131



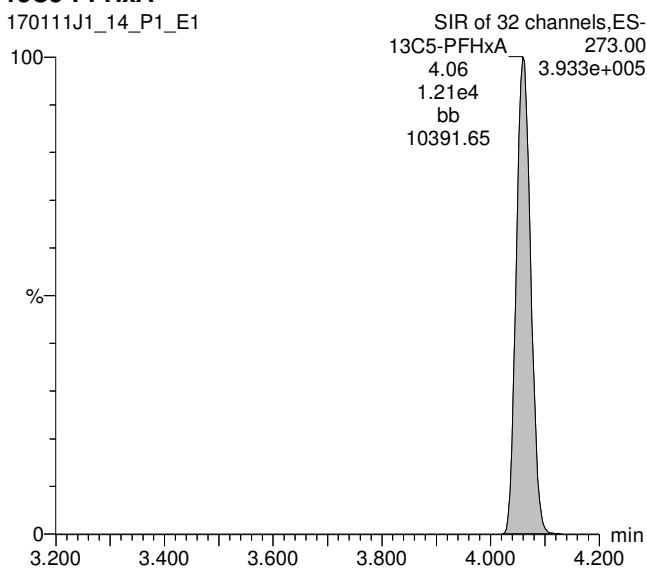
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Printed: Thursday, January 12, 2017 11:49:29 Pacific Standard Time

ID: B7A0039-BS1, Description: OPR, Name: 170111J1_14.wiff, Date: 11-Jan-2017, Time: 14:12:26, Instrument: , Lab: ©PE-SCIEX, User: sciex

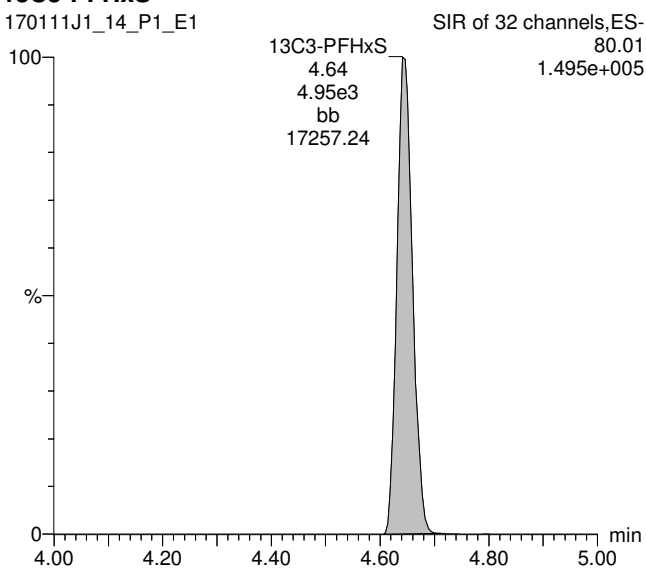
13C5-PFHxA

170111J1_14_P1_E1



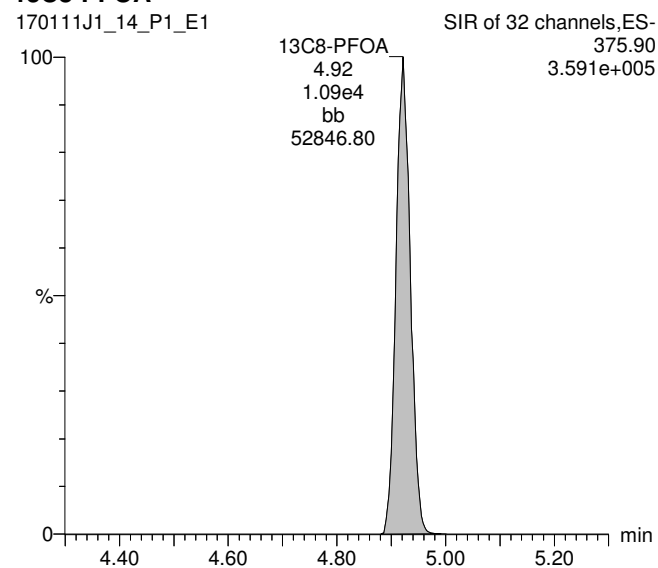
13C3-PFHxS

170111J1_14_P1_E1



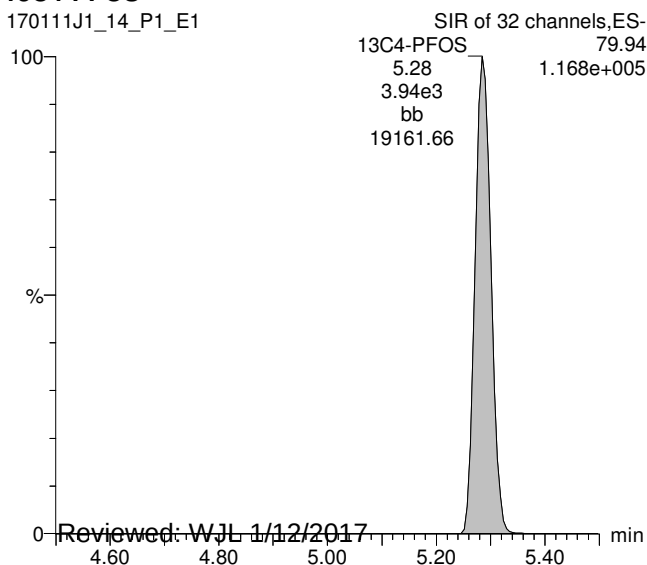
13C8-PFOA

170111J1_14_P1_E1



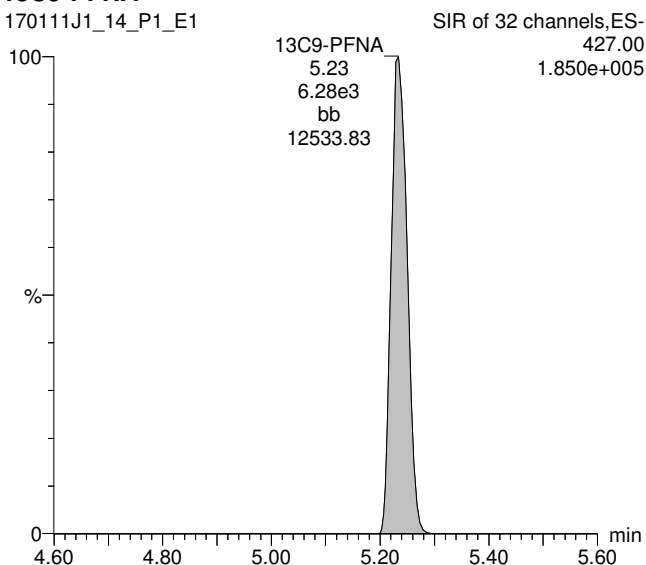
13C4-PFOS

170111J1_14_P1_E1



13C9-PFNA

170111J1_14_P1_E1



Reviewed: WJL 1/12/2017

Work Order 1700006

pw 1/12/17

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_28.qld

Last Altered: Thursday, January 12, 2017 11:59:37 Pacific Standard Time

Printed: Thursday, January 12, 2017 12:00:27 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFC List 26_A No4-2FTS_Mixed.mdb 12 Jan 2017 08:55:01

Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28

ID: 1700006-01, Description: OC-RW10-0117, Name: 170111J1_28.wiff, Date: 11-Jan-2017, Time: 17:03:58

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	79.90	5.530e0	5.681e3		0.127	3.71	0.524	
2	5 PFHpA	318.90		7.443e3		0.127			
3	6 PFHxS	79.91	1.574e1	1.184e3		0.127	4.65	0.189	
4	8 PFOA	368.90	6.166e1	5.351e3		0.127	4.92	0.241	
5	10 PFNA	419.00		4.205e3		0.127			
6	11 PFOS	79.92	8.494e0	2.902e3		0.127	5.21		
7	16 13C3-PFBS	79.95	5.681e3	1.028e4	0.517	0.127	3.72	105	107
8	17 13C2-PFHxA	269.90	3.690e3	1.028e4	0.903	0.127	4.06	39.2	99.4
9	18 13C4-PFHpA	321.90	7.443e3	1.028e4	0.751	0.127	4.54	95.1	96.4
10	19 18O2-PFHxS	102.90	1.184e3	4.301e3	0.278	0.127	4.64	97.7	99.1
11	20 13C2-6:2 FTS	408.90	1.517e3	9.104e3	0.178	0.127	4.88	92.3	93.6
12	21 13C2-PFOA	369.90	5.351e3	9.104e3	0.616	0.127	4.92	94.0	95.4
13	22 13C5-PFNA	422.90	4.205e3	4.572e3	0.940	0.127	5.24	96.4	97.8
14	23 13C8-PFOS	79.93	2.902e3	3.144e3	0.897	0.127	5.30	101	103
15	24 13C2-PFDA	470.00	2.916e3	3.861e3	0.882	0.127	5.51	84.4	85.6
16	25 13C2-8:2 FTS	508.70	7.435e2	3.861e3	0.201	0.127	5.49	94.5	95.8
17	26 13C4-PFBA	171.90	9.716e3	9.716e3	1.000	0.127	2.40	98.6	100
18	27 13C5-PFHxA	273.00	1.028e4	1.028e4	1.000	0.127	4.06	98.6	100
19	28 13C3-PFHxS	80.01	4.301e3	4.301e3	1.000	0.127	4.64	98.6	100
20	29 13C8-PFOA	375.90	9.104e3	9.104e3	1.000	0.127	4.92	98.6	100
21	30 13C9-PFNA	427.00	4.572e3	4.572e3	1.000	0.127	5.24	98.6	100
22	31 13C4-PFOS	79.94	3.144e3	3.144e3	1.000	0.127	5.29	98.6	100
23	32 13C6-PFDA	474.00	3.861e3	3.861e3	1.000	0.127	5.51	98.6	100
24	33 Total PFBS	79.90		5.681e3		0.127		0.524	
25	34 Total PFHxS	79.91		1.184e3		0.127		0.189	
26	35 Total PFOA	368.90		5.351e3		0.127		0.241	
27	36 Total PFOS	79.92		2.902e3		0.127			

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_28.qld

Last Altered: Thursday, January 12, 2017 11:59:37 Pacific Standard Time

Printed: Thursday, January 12, 2017 12:00:27 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFC List 26_A No4-2FTS_Mixed.mdb 12 Jan 2017 08:55:01

Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28

ID: 1700006-01, Description: OC-RW10-0117, Name: 170111J1_28.wiff, Date: 11-Jan-2017, Time: 17:03:58

Total PFBS

	# Name	Trace	RT	Area	IS Area	Conc.
1	3 PFBS	79.90	3.71	5.530	5680.771	0.5

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	6 PFHxS	79.91	4.65	15.743	1183.667	0.2

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	8 PFOA	368.90	4.92	61.657	5350.834	0.2

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	11 PFOS	79.92	5.21	8.494	2901.612	

Total PFHpS

	# Name	Trace	RT	Area	IS Area	Conc.
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Dataset: U:\Q2.PRO\Results\170111J1\170111J1_28.qld

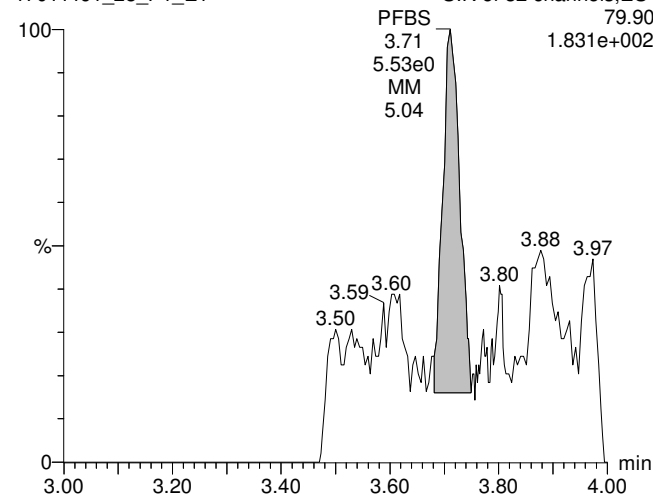
Last Altered: Thursday, January 12, 2017 11:59:37 Pacific Standard Time
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Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28

ID: 1700006-01, Description: OC-RW10-0117, Name: 170111J1_28.wiff, Date: 11-Jan-2017, Time: 17:03:58, Instrument: , Lab: ©PE-SCIEX, User: sciex

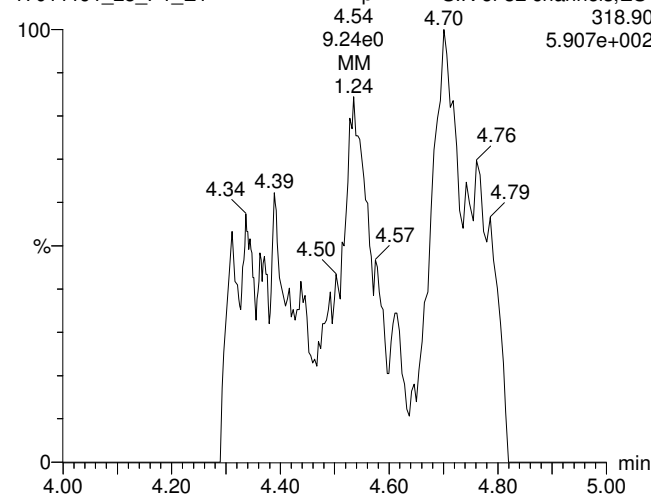
Total PFBS

170111J1_28_P1_E1



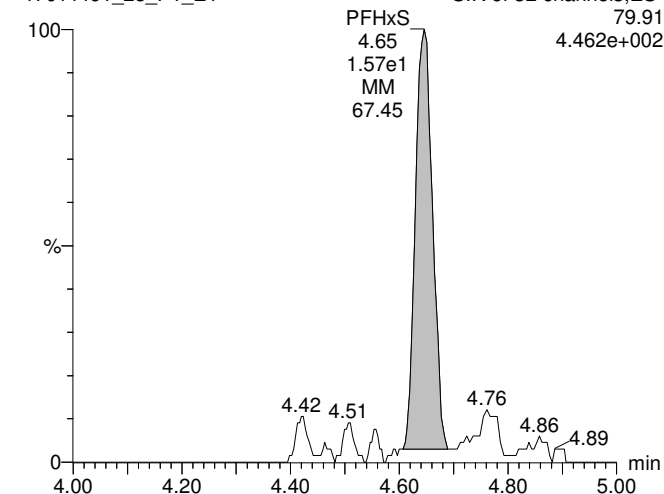
PFHpA

170111J1_28_P1_E1



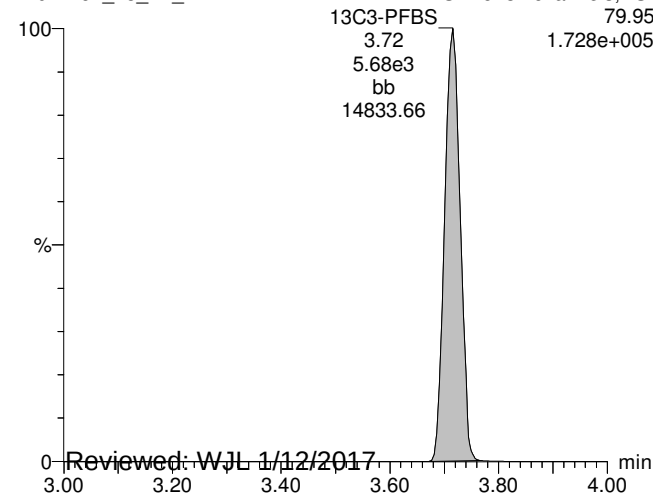
Total PFHxS

170111J1_28_P1_E1



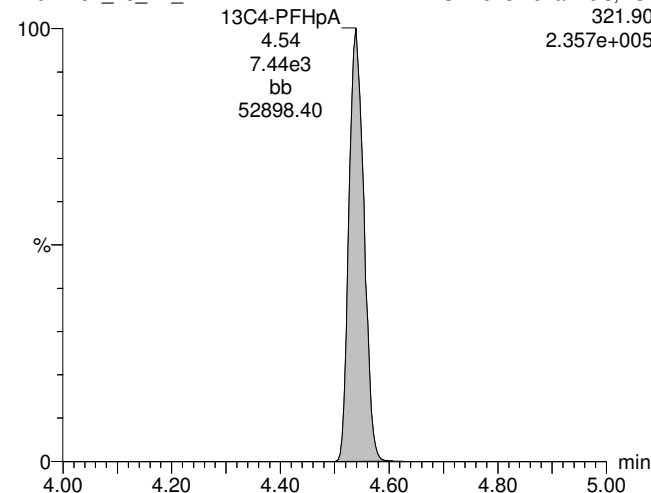
13C3-PFBS

170111J1_28_P1_E1



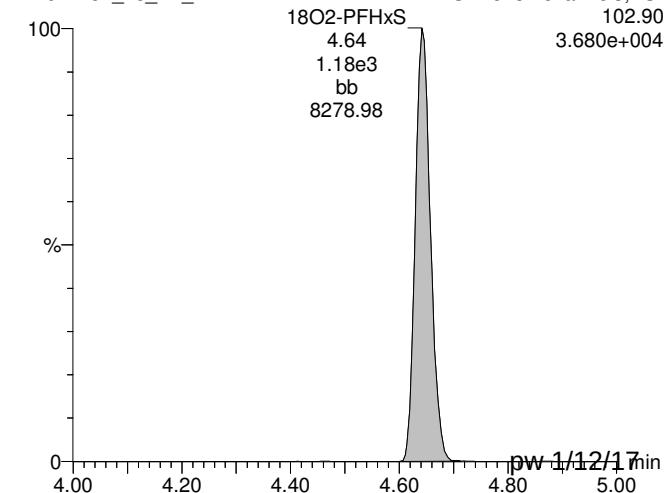
13C4-PFHpA

170111J1_28_P1_E1



18O2-PFHxS

170111J1_28_P1_E1



Reviewed: WJL 1/12/2017

Work Order 1700006

pw 1/12/17

Page 34 of 131

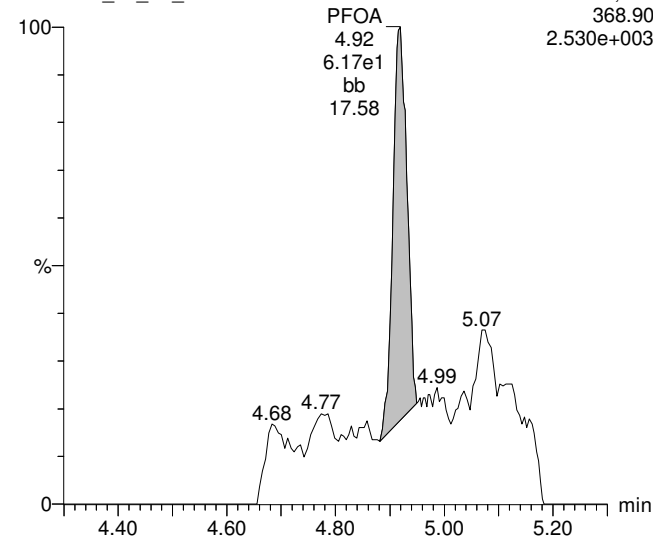
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Last Altered: Thursday, January 12, 2017 11:59:37 Pacific Standard Time
Printed: Thursday, January 12, 2017 12:00:27 Pacific Standard Time

ID: 1700006-01, Description: OC-RW10-0117, Name: 170111J1_28.wiff, Date: 11-Jan-2017, Time: 17:03:58, Instrument: , Lab: ©PE-SCIEX, User: sciex

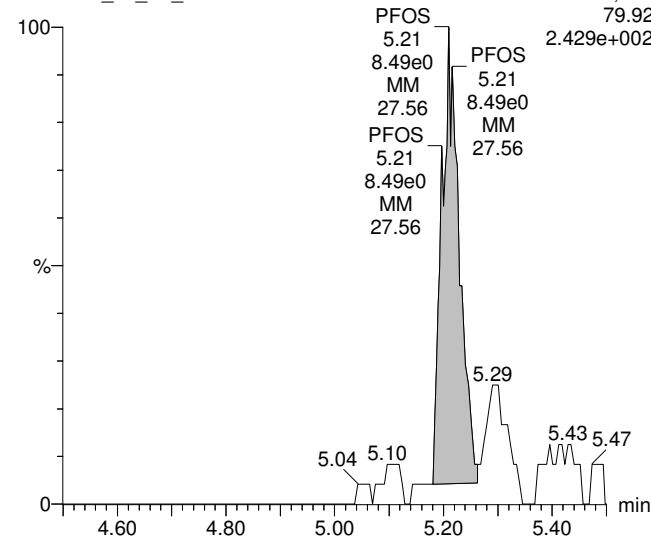
Total PFOA

170111J1_28_P1_E1



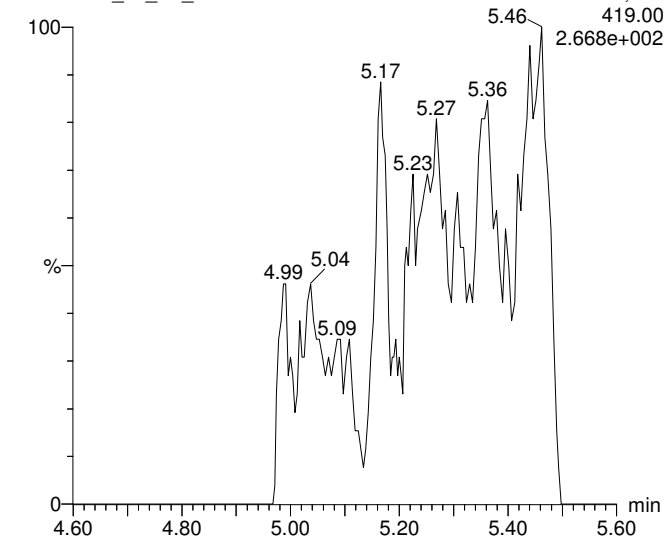
Total PFOS

170111J1_28_P1_E1



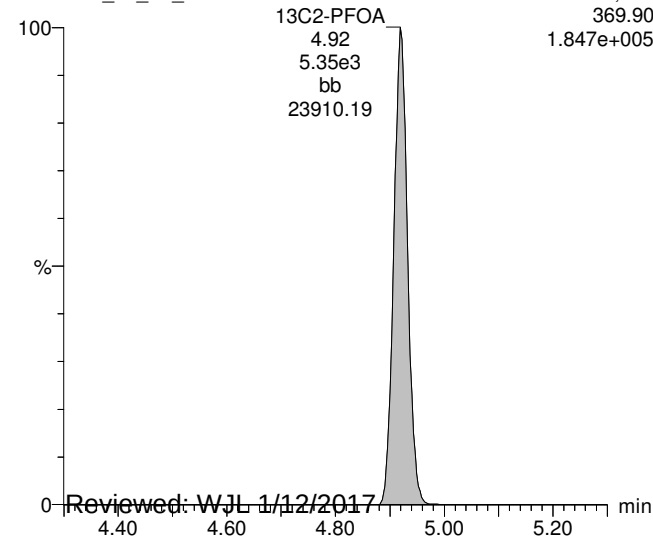
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170111J1_28_P1_E1



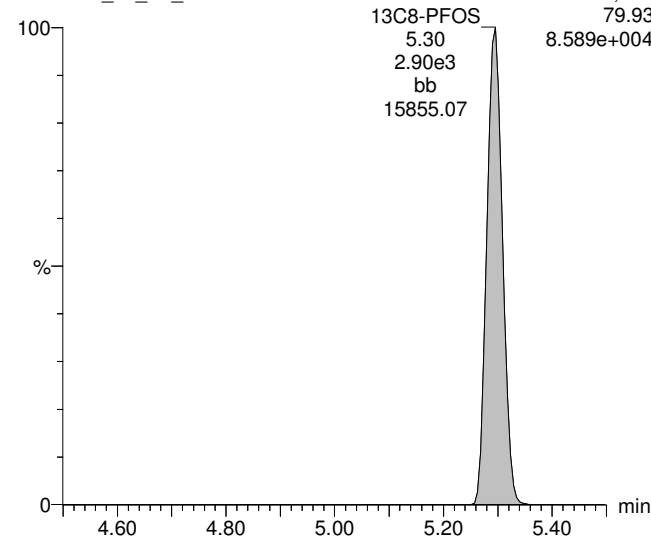
13C2-PFOA

170111J1_28_P1_E1



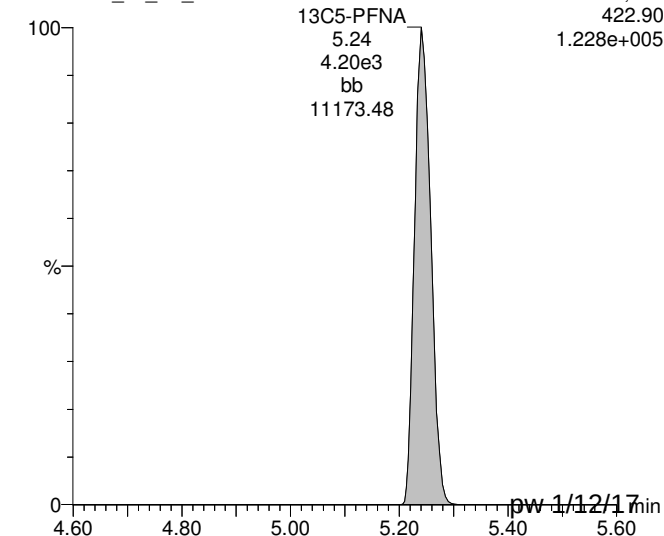
13C8-PFOS

170111J1_28_P1_E1



13C5-PFNA

170111J1_28_P1_E1



Reviewed: WJL 1/12/2017

Work Order 1700006

pw 1/12/17

Page 35 of 131

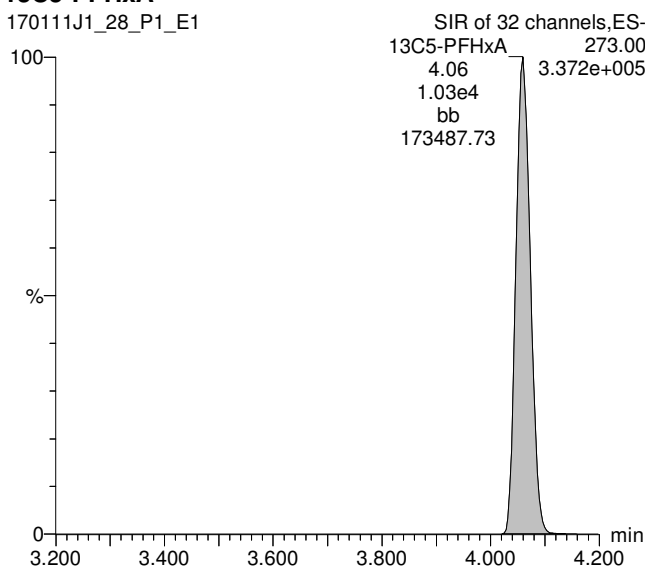
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Last Altered: Thursday, January 12, 2017 11:59:37 Pacific Standard Time
Printed: Thursday, January 12, 2017 12:00:27 Pacific Standard Time

ID: 1700006-01, Description: OC-RW10-0117, Name: 170111J1_28.wiff, Date: 11-Jan-2017, Time: 17:03:58, Instrument: , Lab: ©PE-SCIEX, User: sciex

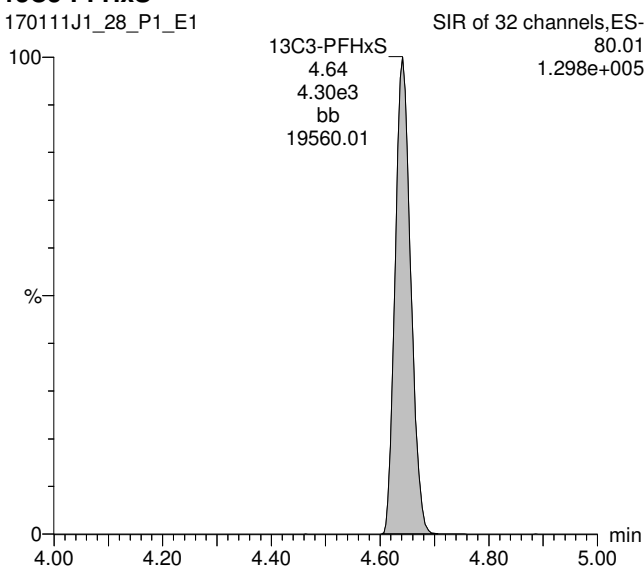
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170111J1_28_P1_E1



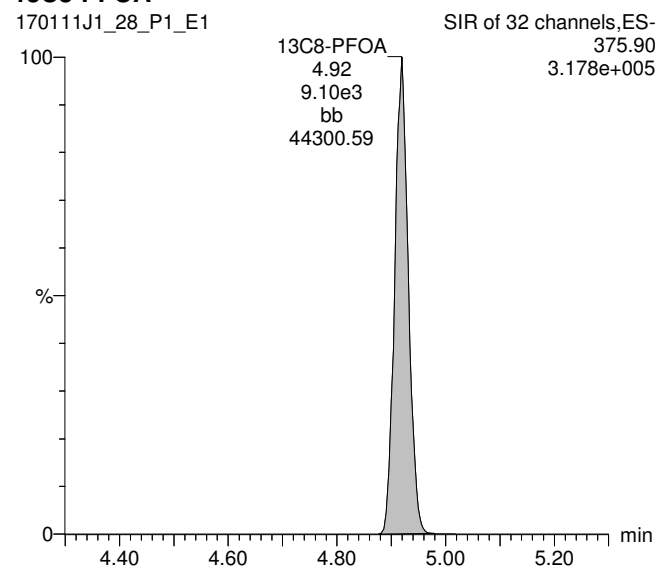
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170111J1_28_P1_E1



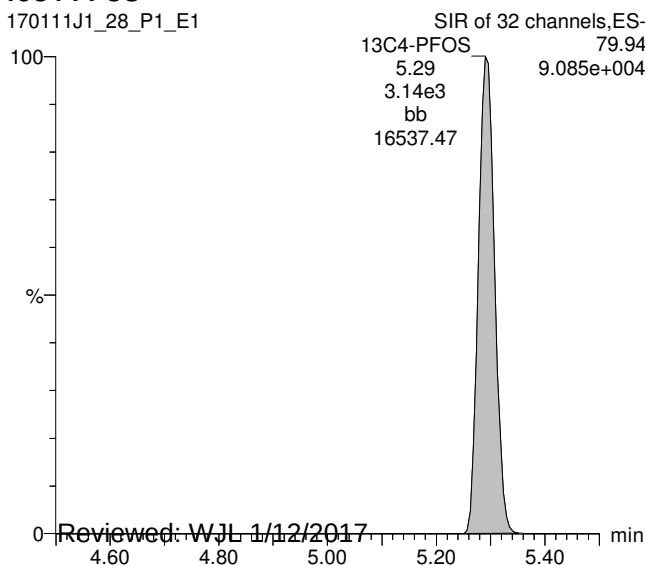
13C8-PFOA

170111J1_28_P1_E1



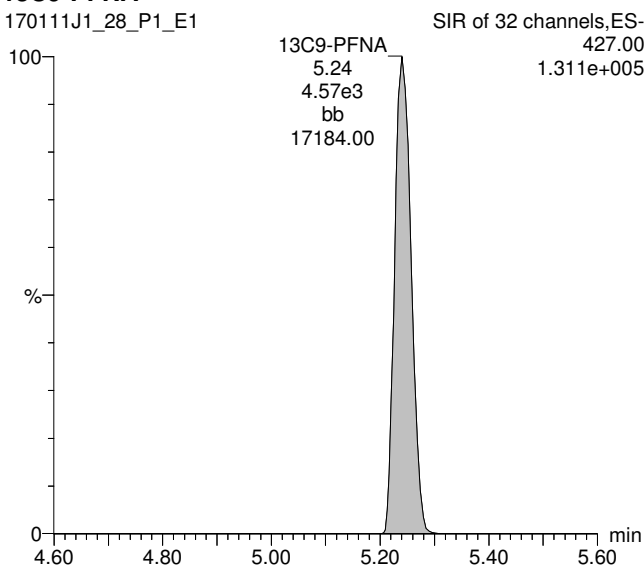
13C4-PFOS

170111J1_28_P1_E1



13C9-PFNA

170111J1_28_P1_E1



Reviewed: WJL 1/12/2017

Work Order 1700006

pw 1/12/17

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_29.qld

Last Altered: Thursday, January 12, 2017 12:06:11 Pacific Standard Time

Printed: Thursday, January 12, 2017 12:06:34 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFC List 26_A No4-2FTS_Mixed.mdb 12 Jan 2017 08:55:01

Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28

ID: 1700006-02, Description: OC-FB10-010317, Name: 170111J1_29.wiff, Date: 11-Jan-2017, Time: 17:16:11

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	79.90	2.815e0	6.277e3		0.126	3.70	0.471	
2	5 PFHpA	318.90	8.435e0	8.053e3		0.126	4.53	0.351	
3	6 PFHxS	79.91	1.556e1	1.188e3		0.126	4.63	0.184	
4	8 PFOA	368.90	6.317e1	5.931e3		0.126	4.91	0.175	
5	10 PFNA	419.00		5.146e3		0.126			
6	11 PFOS	79.92	1.341e1	3.405e3		0.126	5.20		
7	16 13C3-PFBS	79.95	6.277e3	1.033e4	0.517	0.126	3.70	117	118
8	17 13C2-PFHxA	269.90	3.972e3	1.033e4	0.903	0.126	4.05	42.4	106
9	18 13C4-PFHpA	321.90	8.053e3	1.033e4	0.751	0.126	4.53	103	104
10	19 18O2-PFHxS	102.90	1.188e3	4.370e3	0.278	0.126	4.63	97.5	97.9
11	20 13C2-6:2 FTS	408.90	1.710e3	8.199e3	0.178	0.126	4.86	117	117
12	21 13C2-PFOA	369.90	5.931e3	8.199e3	0.616	0.126	4.90	117	117
13	22 13C5-PFNA	422.90	5.146e3	4.982e3	0.940	0.126	5.22	109	110
14	23 13C8-PFOS	79.93	3.405e3	3.541e3	0.897	0.126	5.27	107	107
15	24 13C2-PFDA	470.00	4.021e3	4.481e3	0.882	0.126	5.49	101	102
16	25 13C2-8:2 FTS	508.70	9.854e2	4.481e3	0.201	0.126	5.47	109	109
17	26 13C4-PFBA	171.90	9.728e3	9.728e3	1.000	0.126	2.37	99.6	100
18	27 13C5-PFHxA	273.00	1.033e4	1.033e4	1.000	0.126	4.05	99.6	100
19	28 13C3-PFHxS	80.01	4.370e3	4.370e3	1.000	0.126	4.63	99.6	100
20	29 13C8-PFOA	375.90	8.199e3	8.199e3	1.000	0.126	4.91	99.6	100
21	30 13C9-PFNA	427.00	4.982e3	4.982e3	1.000	0.126	5.22	99.6	100
22	31 13C4-PFOS	79.94	3.541e3	3.541e3	1.000	0.126	5.27	99.6	100
23	32 13C6-PFDA	474.00	4.481e3	4.481e3	1.000	0.126	5.49	99.6	100
24	33 Total PFBS	79.90		6.277e3		0.126		0.471	
25	34 Total PFHxS	79.91		1.188e3		0.126		0.184	
26	35 Total PFOA	368.90		5.931e3		0.126		0.175	
27	36 Total PFOS	79.92		3.405e3		0.126			

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_29.qld

Last Altered: Thursday, January 12, 2017 12:06:11 Pacific Standard Time

Printed: Thursday, January 12, 2017 12:06:34 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFC List 26_A No4-2FTS_Mixed.mdb 12 Jan 2017 08:55:01

Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28

ID: 1700006-02, Description: OC-FB10-010317, Name: 170111J1_29.wiff, Date: 11-Jan-2017, Time: 17:16:11

Total PFBS

	# Name	Trace	RT	Area	IS Area	Conc.
1	3 PFBS	79.90	3.70	2.815	6276.853	0.5

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	6 PFHxS	79.91	4.63	15.561	1188.222	0.2

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	8 PFOA	368.90	4.91	63.167	5930.991	0.2

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	11 PFOS	79.92	5.20	13.414	3405.224	

Total PFHpS

	# Name	Trace	RT	Area	IS Area	Conc.
1						

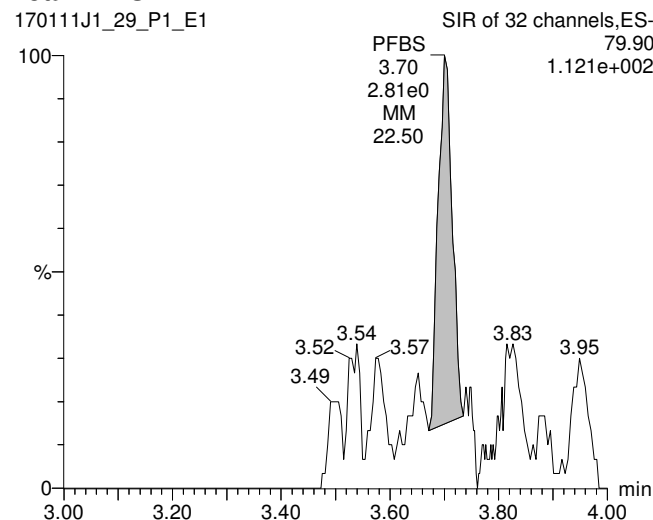
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Last Altered: Thursday, January 12, 2017 12:06:11 Pacific Standard Time
Printed: Thursday, January 12, 2017 12:06:34 Pacific Standard Time

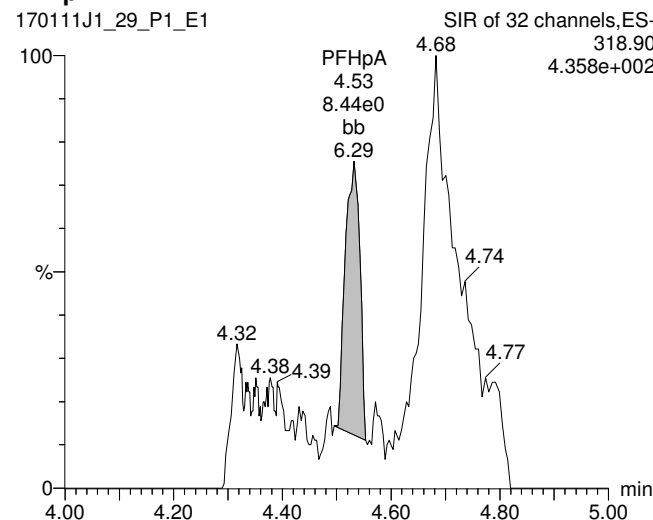
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Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28

ID: 1700006-02, Description: OC-FB10-010317, Name: 170111J1_29.wiff, Date: 11-Jan-2017, Time: 17:16:11, Instrument: , Lab: ©PE-SCIEX, User: sciex

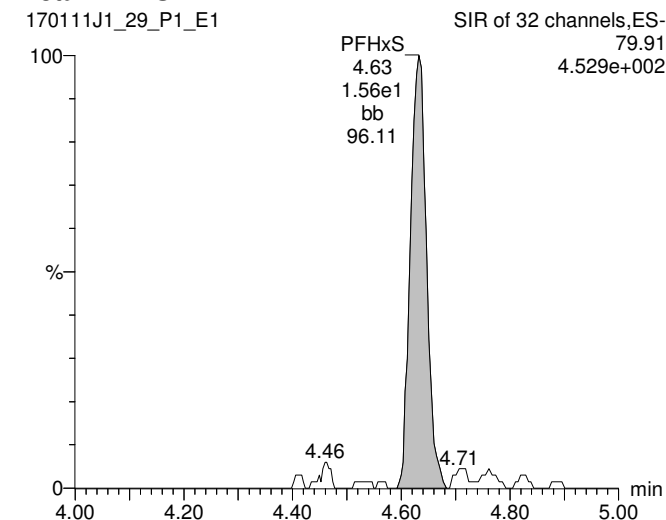
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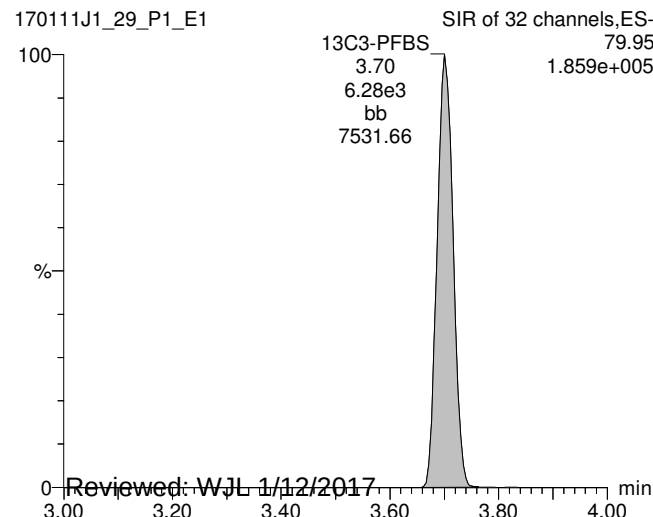
PFHpA



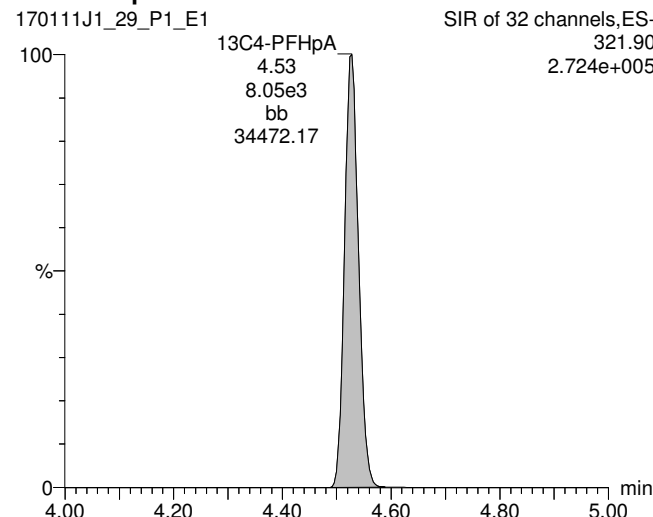
Total PFHxS



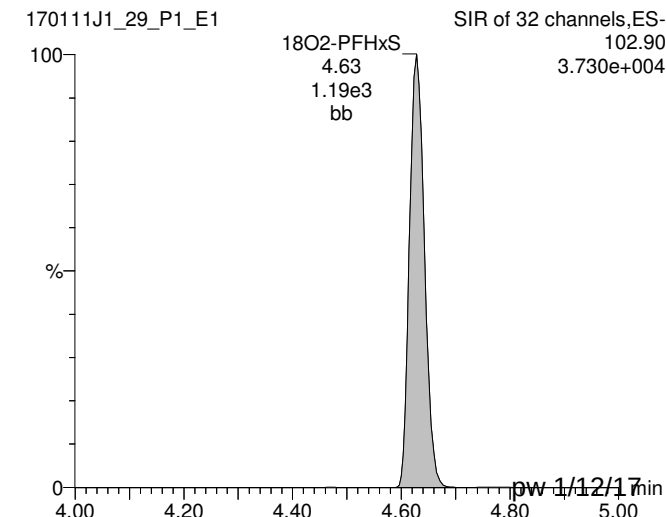
13C3-PFBS



13C4-PFHpA



18O2-PFHxS



Reviewed: WJL 1/12/2017

Work Order 1700006

pw 1/12/17

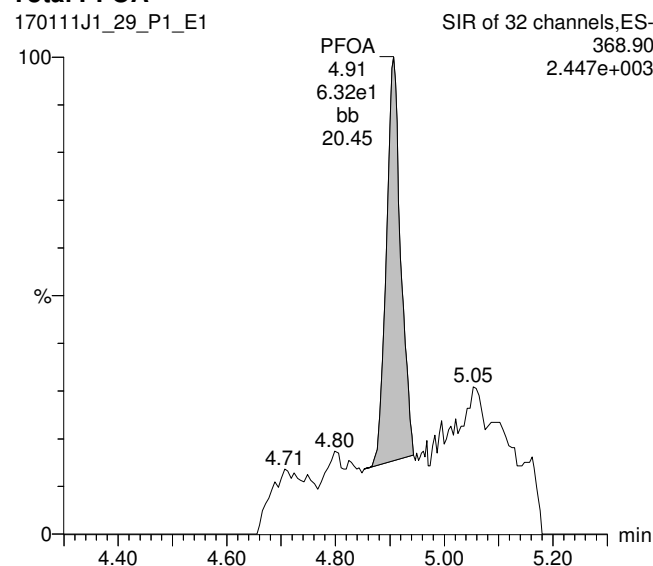
Page 39 of 131

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_29.qld

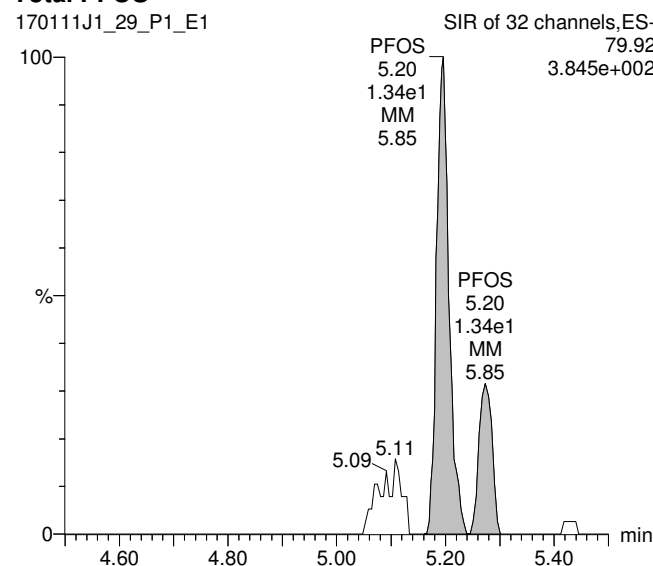
Last Altered: Thursday, January 12, 2017 12:06:11 Pacific Standard Time
Printed: Thursday, January 12, 2017 12:06:34 Pacific Standard Time

ID: 1700006-02, Description: OC-FB10-010317, Name: 170111J1_29.wiff, Date: 11-Jan-2017, Time: 17:16:11, Instrument: , Lab: ©PE-SCIEX, User: sciex

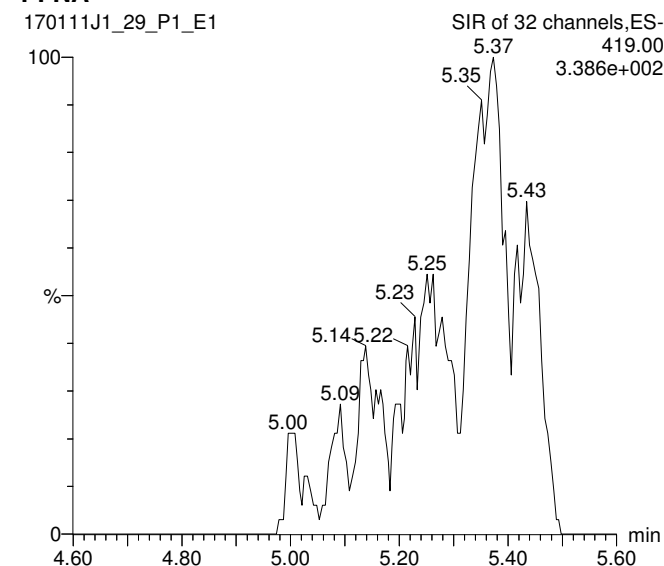
Total PFOA



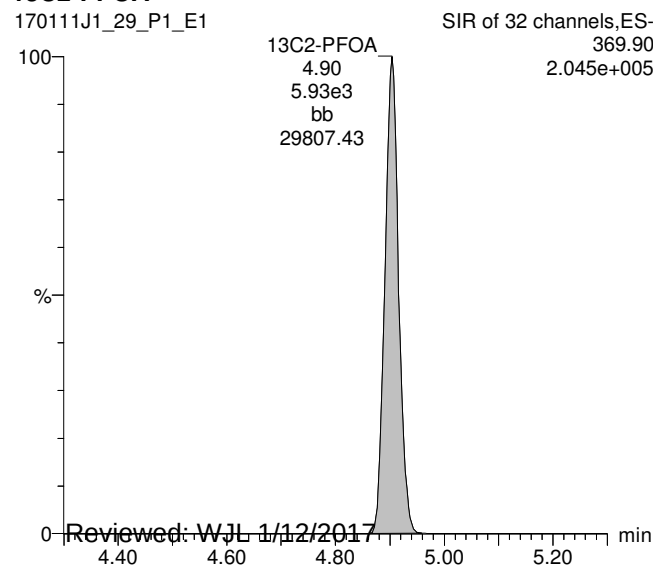
Total PFOS



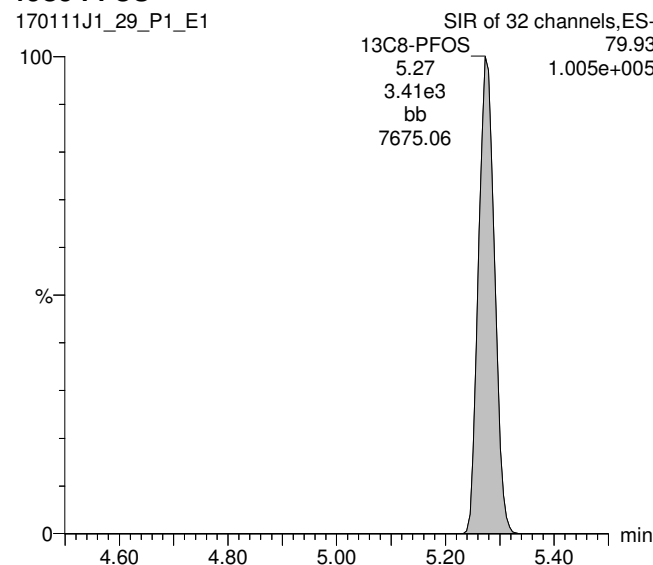
PFNA



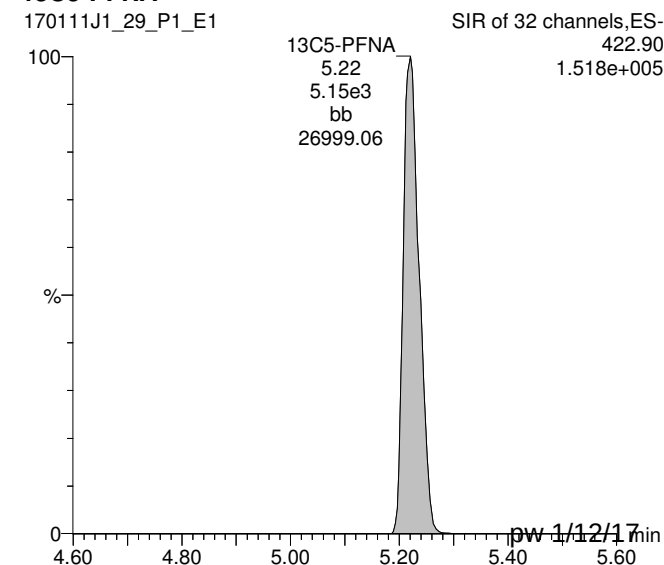
13C2-PFOA



13C8-PFOS



13C5-PFNA



Reviewed: WJL 1/12/2017

Work Order 1700006

pw 1/12/17

Page 40 of 131

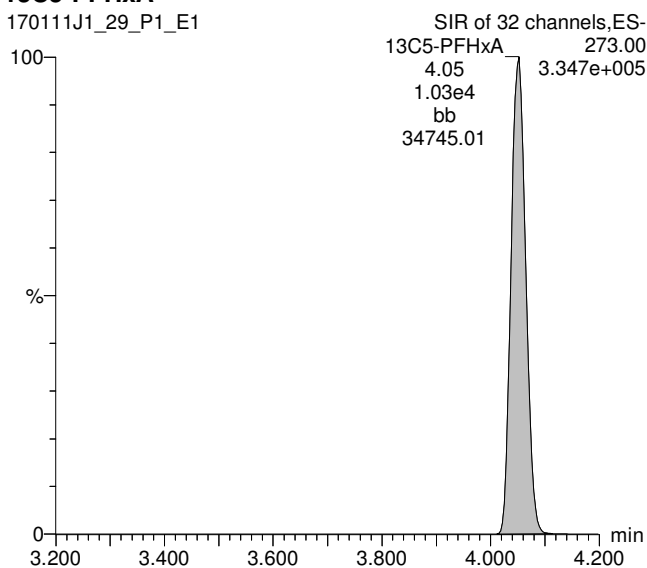
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Last Altered: Thursday, January 12, 2017 12:06:11 Pacific Standard Time
Printed: Thursday, January 12, 2017 12:06:34 Pacific Standard Time

ID: 1700006-02, Description: OC-FB10-010317, Name: 170111J1_29.wiff, Date: 11-Jan-2017, Time: 17:16:11, Instrument: , Lab: ©PE-SCIEX, User: sciex

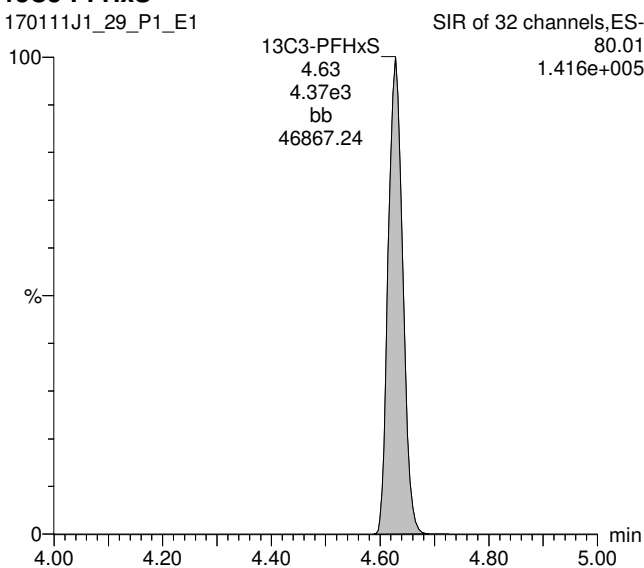
13C5-PFHxA

170111J1_29_P1_E1



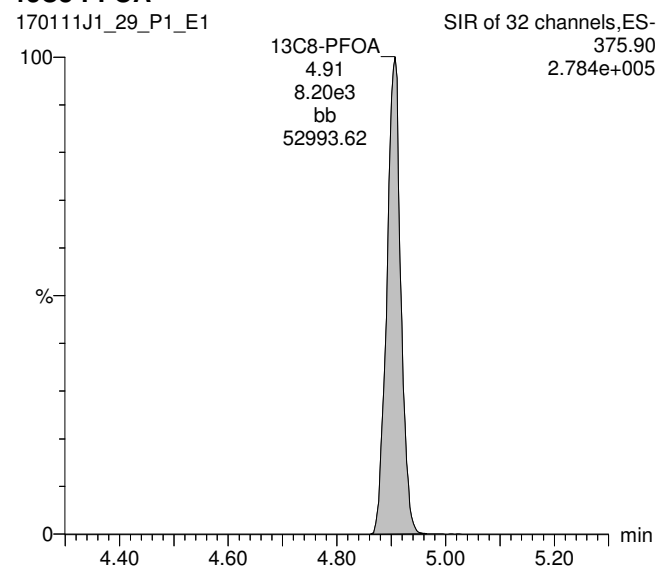
13C3-PFHxS

170111J1_29_P1_E1



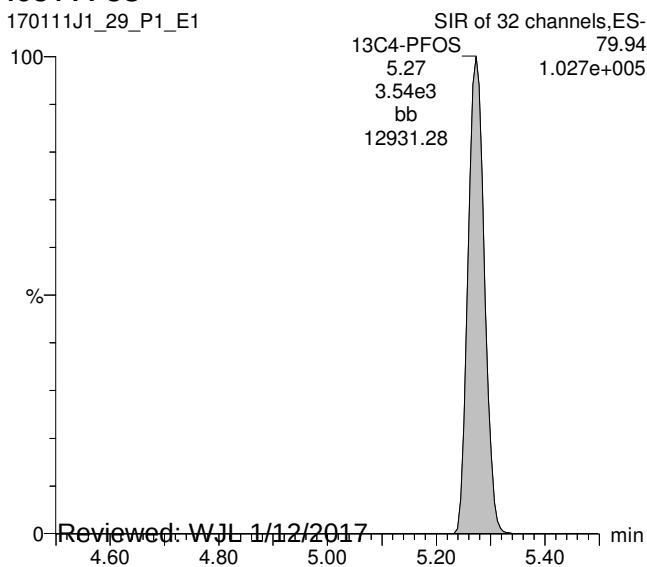
13C8-PFOA

170111J1_29_P1_E1



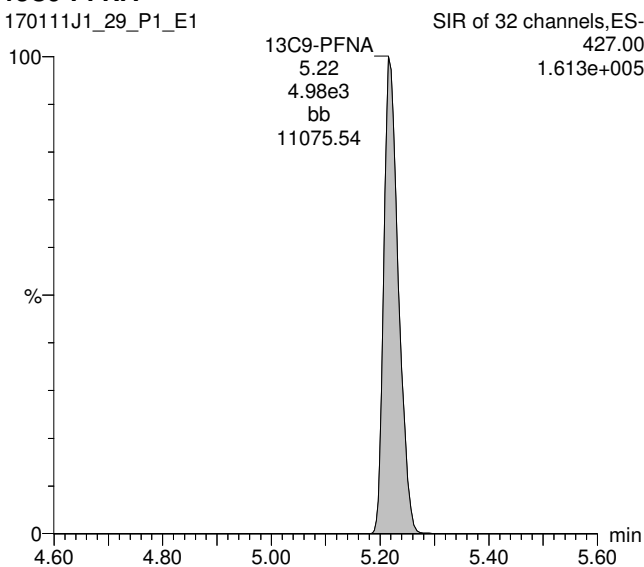
13C4-PFOS

170111J1_29_P1_E1



13C9-PFNA

170111J1_29_P1_E1



Reviewed: WJL 1/12/2017

Work Order 1700006

pw 1/12/17

CONTINUING CALIBRATION

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_32.qld

Last Altered: Thursday, January 12, 2017 09:22:28 Pacific Standard Time
Printed: Thursday, January 12, 2017 09:22:51 Pacific Standard Time

Method: U:\Q2.PRO\MethDB\PFC List 26_A No4-2FTS_Mixed.mdb 12 Jan 2017 08:55:01
Calibration: U:\Q2.PRO\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28

Name: 170111J1_32.wiff, Date: 11-Jan-2017, Time: 17:52:53, ID: ST170111J1-9 PFC CS3 17A1106, Description: PFC CS3 17A1106 A

	# Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc.	%Rec
1	1 PFBA	168.90	1.09e4	1.14e4		1.000	2.41	10.7	107.3
2	2 PFPeA	218.90	1.05e4	1.35e4		1.000	3.46	10.4	104.2
3	3 PFBS	79.90	6.09e3	7.88e3		1.000	3.71	11.0	110.5
4	4 PFHxA	268.90	9.63e3	5.24e3		1.000	4.05	12.1	121.0
5	5 PFHpA	318.90	7.59e3	1.01e4		1.000	4.53	11.1	111.1
6	6 PFHxS	79.91	4.12e3	1.60e3		1.000	4.64	10.7	107.3
7	7 6:2 FTS	406.90	1.77e3	2.37e3		1.000	4.88	9.62	96.2
8	8 PFOA	368.90	8.24e3	7.88e3		1.000	4.92	10.5	105.3
9	9 PFHpS	80.00	4.28e3	7.88e3		1.000	4.99	11.1	111.1
10	10 PFNA	419.00	8.35e3	6.68e3		1.000	5.24	11.5	114.9
11	11 PFOS	79.92	4.58e3	4.05e3		1.000	5.29	11.9	118.5
12	12 PFDA	469.00	3.61e3	4.72e3		1.000	5.50	10.6	106.3
13	13 8:2 FTS	506.90	8.93e2	1.07e3		1.000	5.48	11.0	109.6
14	14 13C3-PFBA	172.00	1.14e4	1.32e4	0.842	1.000	2.41	12.8	102.4
15	15 13C3-PFPeA	221.90	1.35e4	1.41e4	0.846	1.000	3.46	14.2	113.6
16	16 13C3-PFBS	79.95	7.88e3	1.41e4	0.517	1.000	3.71	13.6	108.5
17	17 13C2-PFHxA	269.90	5.24e3	1.41e4	0.903	1.000	4.05	5.16	103.2
18	18 13C4-PFHxA	321.90	1.01e4	1.41e4	0.751	1.000	4.53	11.9	95.5
19	19 18O2-PFHxS	102.90	1.60e3	5.49e3	0.278	1.000	4.64	13.1	104.7
20	20 13C2-6:2 FTS	408.90	2.37e3	1.28e4	0.178	1.000	4.88	12.9	103.5
21	21 13C2-PFOA	369.90	7.88e3	1.28e4	0.616	1.000	4.92	12.4	99.5
22	22 13C5-PFNA	422.90	6.68e3	6.37e3	0.940	1.000	5.23	13.9	111.6
23	23 13C8-PFOS	79.93	4.05e3	4.76e3	0.897	1.000	5.28	11.9	95.0
24	24 13C2-PFDA	470.00	4.72e3	5.58e3	0.882	1.000	5.50	12.0	95.8
25	25 13C2-8:2 FTS	508.70	1.07e3	5.58e3	0.201	1.000	5.48	11.9	95.2
26	26 13C4-PFBA	171.90	1.32e4	1.32e4	1.000	1.000	2.41	12.5	100.0
27	27 13C5-PFHxA	273.00	1.41e4	1.41e4	1.000	1.000	4.05	12.5	100.0
28	28 13C3-PFHxS	80.01	5.49e3	5.49e3	1.000	1.000	4.64	12.5	100.0
29	29 13C8-PFOA	375.90	1.28e4	1.28e4	1.000	1.000	4.91	12.5	100.0
30	30 13C9-PFNA	427.00	6.37e3	6.37e3	1.000	1.000	5.23	12.5	100.0
31	31 13C4-PFOS	79.94	4.76e3	4.76e3	1.000	1.000	5.28	12.5	100.0

75-125

AMSC 1/12/17

PW
1/12/17

AMSC 1/12/17

40-150
60-150

40-150

60-150

50-150

60-150

40-150

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_32.qld

Last Altered: Thursday, January 12, 2017 09:22:28 Pacific Standard Time
Printed: Thursday, January 12, 2017 09:22:51 Pacific Standard Time

Name: 170111J1_32.wiff, Date: 11-Jan-2017, Time: 17:52:53, ID: ST170111J1-9 PFC CS3 17A1106, Description: PFC CS3 17A1106 A

	# Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc.	%Rec
32	32 13C6-PFDA	474.00	5.58e3	5.58e3	1.000	1.000	5.49	12.5	100.0

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_32.qld

Last Altered: Thursday, January 12, 2017 09:22:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:22:51 Pacific Standard Time

Method: U:\Q2.PRO\MethDB\PFC List 26_A No4-2FTS_Mixed.mdb 12 Jan 2017 08:55:01

Calibration: U:\Q2.PRO\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28

Name: 170111J1_32.wiff, Date: 11-Jan-2017, Time: 17:52:53, ID: ST170111J1-9 PFC CS3 17A1106, Description: PFC CS3 17A1106 A

Total PFBS

	# Name	Trace	RT	Area	IS Area	Conc.
1	3 PFBS	79.90	3.71	6.09e3	7.88e3	11.0

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	6 PFHxS	79.91	4.64	4.12e3	1.60e3	10.7

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	8 PFOA	368.90	4.92	8.24e3	7.88e3	10.5

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	11 PFOS	79.92	5.29	4.58e3	4.05e3	11.9

Total PFHpS

	# Name	Trace	RT	Area	IS Area	Conc.
1	9 PFHpS	80.00	4.99	4.28e3	7.88e3	11.1

	Sample Name	Acquisition Date	Sample ID	Sample Comment
1	170111J1_01	1/11/2017 11:33:20	IPA	IPA
2	170111J1_02	1/11/2017 11:45:32	ST170111J1-1 PFC CS(-2) 17A1101	PFC CS(-2) 17A1101 A
3	170111J1_03	1/11/2017 11:57:49	ST170111J1-2 PFC CS(-1) 17A1102	PFC CS(-1) 17A1102 A
4	170111J1_04	1/11/2017 12:10:03	ST170111J1-3 PFC CS0 17A1103	PFC CS0 17A1103 A
5	170111J1_05	1/11/2017 12:22:18	ST170111J1-4 PFC CS1 17A1104	PFC CS1 17A1104 A
6	170111J1_06	1/11/2017 12:34:29	ST170111J1-5 PFC CS2 17A1105	PFC CS2 17A1105 A
7	170111J1_07	1/11/2017 12:46:46	ST170111J1-6 PFC CS3 17A1106	PFC CS3 17A1106 A
8	170111J1_08	1/11/2017 12:59:00	ST170111J1-7 PFC CS4 17A1107	PFC CS4 17A1107 A
9	170111J1_09	1/11/2017 13:11:14	ST170111J1-8 PFC CS5 17A1108	PFC CS5 17A1108 A
10	170111J1_10	1/11/2017 13:23:28	IPA	IPA
11	170111J1_11	1/11/2017 13:35:43	SS170111J1-1 SSS PFC 17A1109	PFC SSS 17A1109 A
12	170111J1_12	1/11/2017 13:47:58	IPA	IPA
13	170111J1_13	1/11/2017 14:00:11	B7A0028-BS1	OPR
14	170111J1_14	1/11/2017 14:12:26	B7A0039-BS1	OPR
15	170111J1_15	1/11/2017 14:24:41	IPA	IPA
16	170111J1_16	1/11/2017 14:36:56	B7A0028-BLK1	Method Blank
17	170111J1_17	1/11/2017 14:49:11	B7A0039-BLK1	Method Blank
18	170111J1_18	1/11/2017 15:01:27	1601580-03RE1@10X	BERPCA005
19	170111J1_19	1/11/2017 15:13:44	B7A0022-MS1@10X	Matrix Spike
20	170111J1_20	1/11/2017 15:26:01	B7A0022-MSD1@10X	Matrix Spike Dup
21	170111J1_21	1/11/2017 15:38:16	1601580-04RE1@10X	BERPCA096
22	170111J1_22	1/11/2017 15:50:30	1700025-01	Field Blank (420-115299-1)
23	170111J1_23	1/11/2017 16:02:45	1700025-02	B-101-0S (420-115299-2)
24	170111J1_24	1/11/2017 16:15:00	1700025-03	B-104-0S Hyd (420-115299-3)
25	170111J1_25	1/11/2017 16:27:14	1700025-04	B-106-0S Hyd 3 (420-115299-4)
26	170111J1_26	1/11/2017 16:39:28	1700025-05	B-208-0S Hyd 8 (420-115299-5)
27	170111J1_27	1/11/2017 16:51:43	1700025-06	B-304-0S Hyd 15 (420-115299-6)
28	170111J1_28	1/11/2017 17:03:58	1700006-01	OC-RW10-0117
29	170111J1_29	1/11/2017 17:16:11	1700006-02	OC-FB10-010317
30	170111J1_30	1/11/2017 17:28:27	1700007-01	Sayegh -14 Stella's Way, New Winds
31	170111J1_31	1/11/2017 17:40:42	IPA	IPA
32	170111J1_32	1/11/2017 17:52:53	ST170111J1-9 PFC CS3 17A1106	PFC CS3 17A1106 A
33	170111J1_33	1/11/2017 18:05:10	IPA	IPA

LC Calibration Standards Review Checklist Q2

Calibration ID:		ION Ratio	Concentration	C-Cals Name	Sign Date	Correct I-Cal	Manual Integrations	
ST170111J1-4	<u>LMH</u>	☒	☒	☒	☒	☒	☒	<u>N/A</u> ☒
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: 10/14/16

Run Log Present: ☒

of Samples per Sequence Checked: ☒

Reviewed By: PW 1/12/17
Initials/Date

Comments:

PFC List 26A

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_32.qld

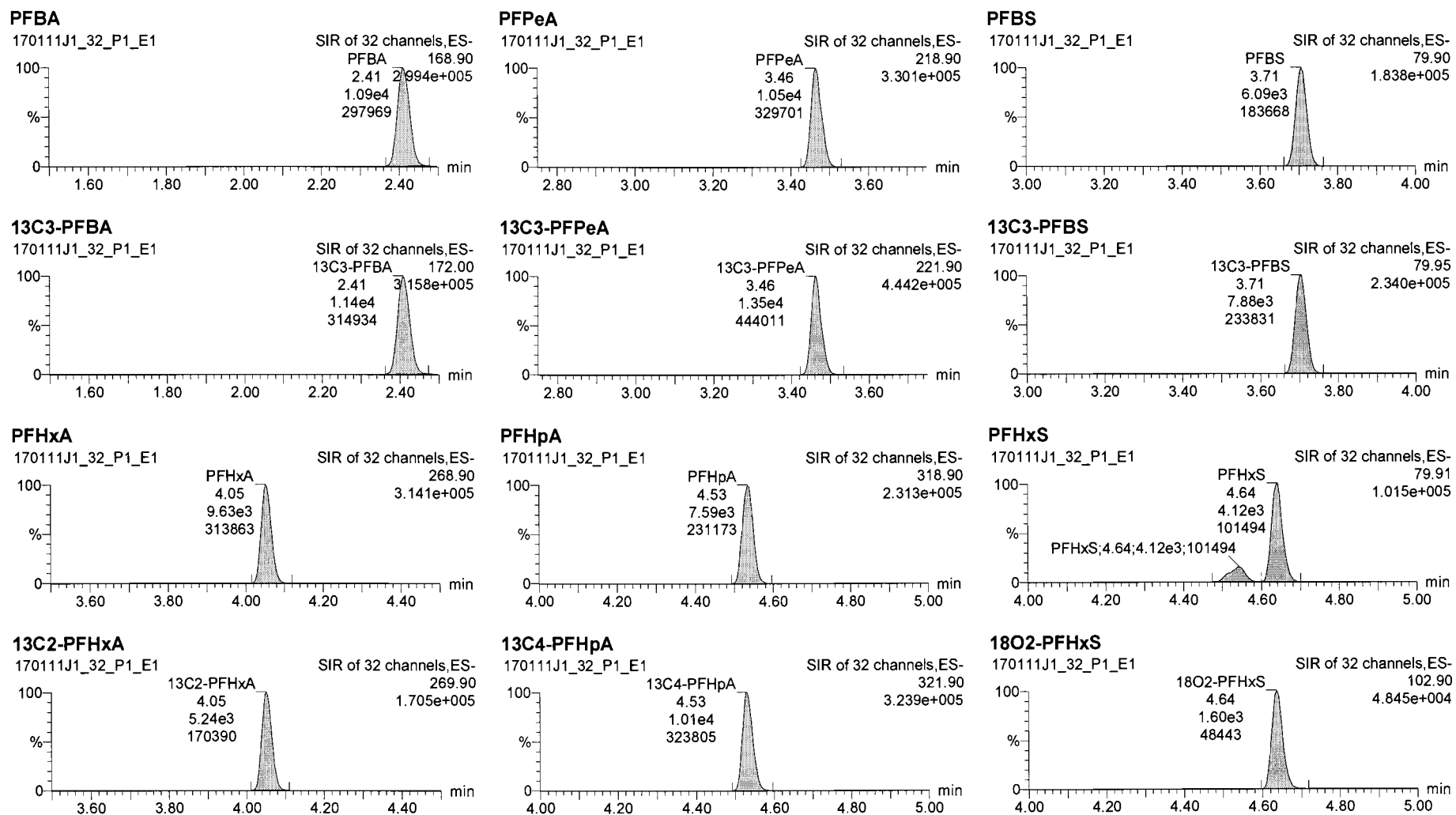
Last Altered: Thursday, January 12, 2017 09:22:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:23:05 Pacific Standard Time

Method: U:\Q2.PRO\MethDB\PFC List 26_A No4-2FTS_Mixed.mdb 12 Jan 2017 08:55:01

Calibration: U:\Q2.PRO\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28

Name: 170111J1_32.wiff, Date: 11-Jan-2017, Time: 17:52:53, ID: ST170111J1-9 PFC CS3 17A1106, Description: PFC CS3 17A1106 A



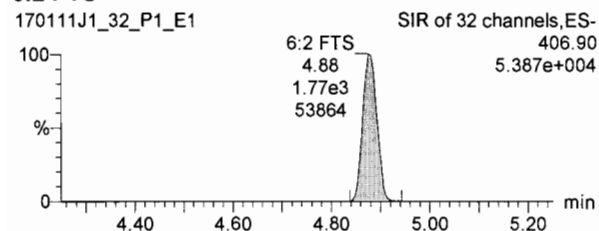
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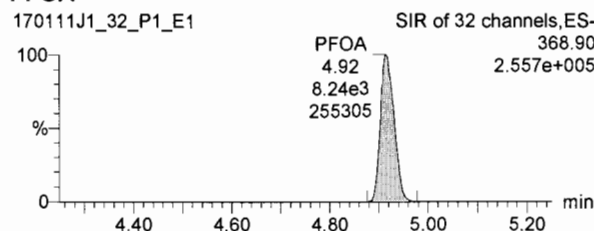
Printed: Thursday, January 12, 2017 09:23:05 Pacific Standard Time

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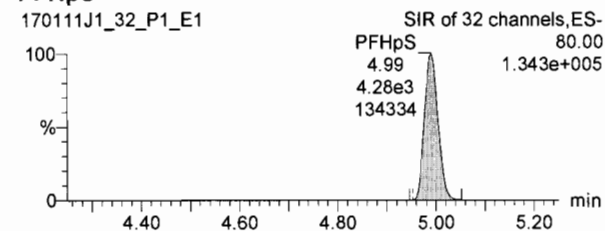
6:2 FTS



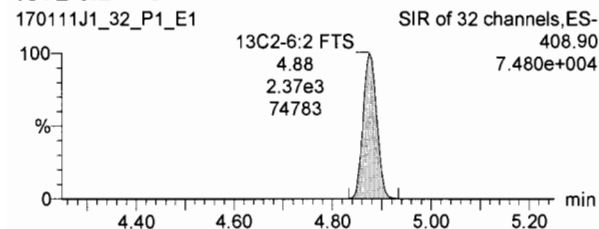
PFOA



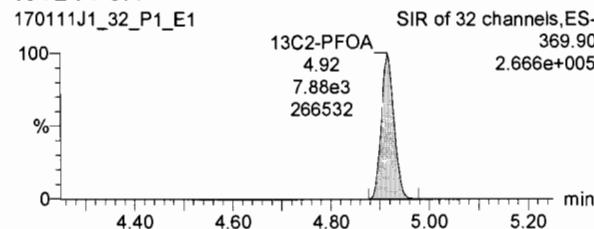
PFHpS



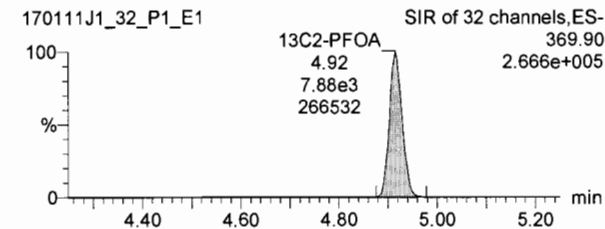
13C2-6:2 FTS



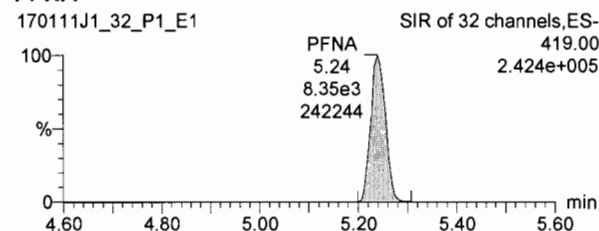
13C2-PFOA



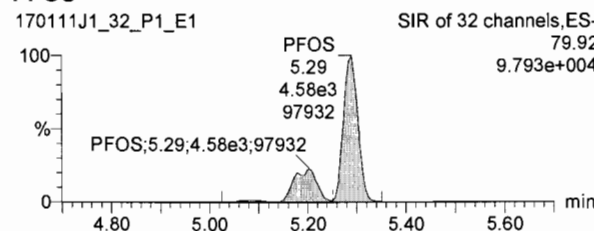
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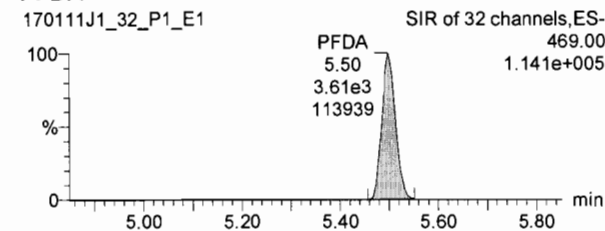
PFNA



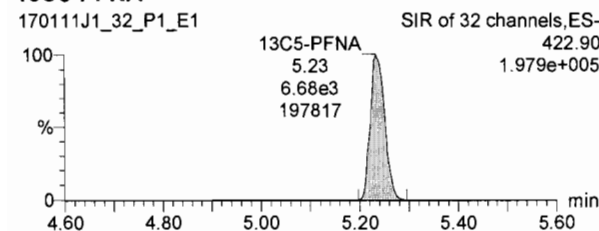
PFOS



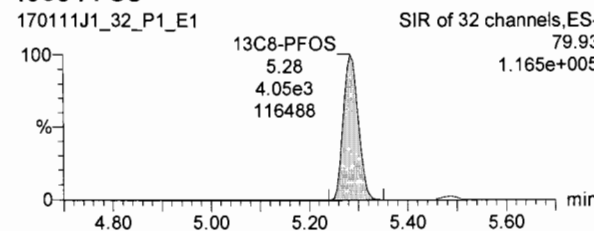
PFDA



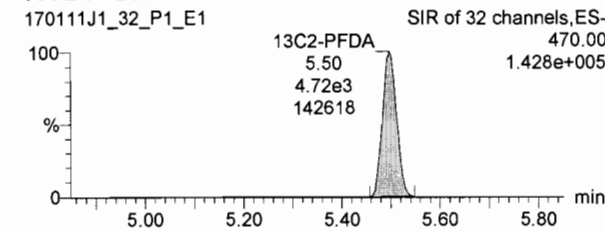
13C5-PFNA



13C8-PFOS



13C2-PFDA



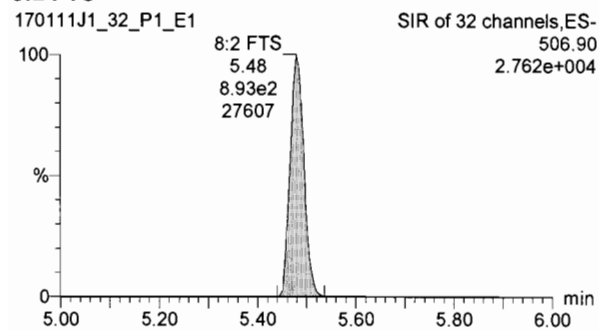
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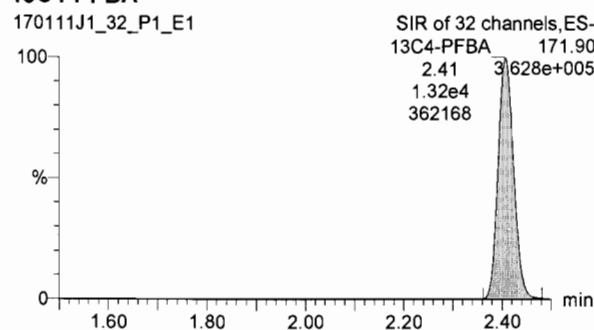
Printed: Thursday, January 12, 2017 09:23:05 Pacific Standard Time

Name: 170111J1_32.wiff, Date: 11-Jan-2017, Time: 17:52:53, ID: ST170111J1-9 PFC CS3 17A1106, Description: PFC CS3 17A1106 A

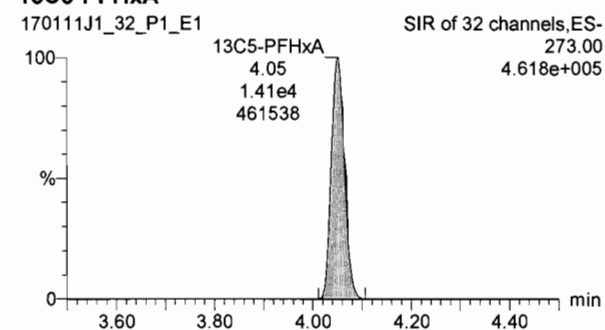
8:2 FTS



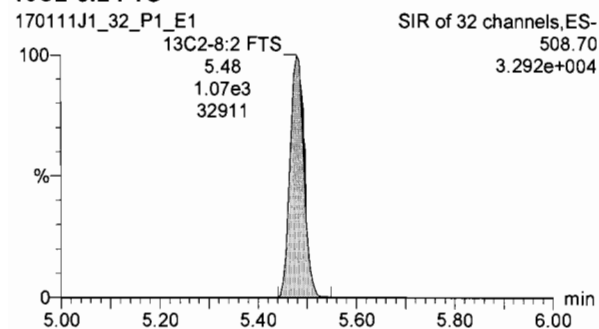
13C4-PFBA



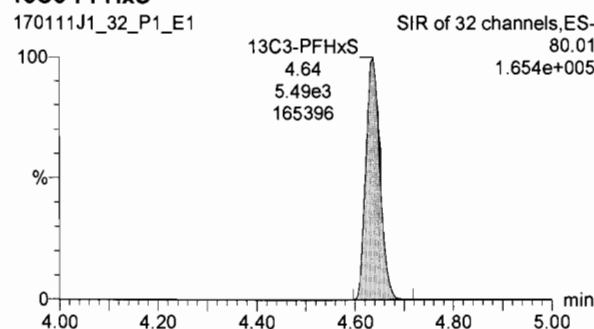
13C5-PFHxA



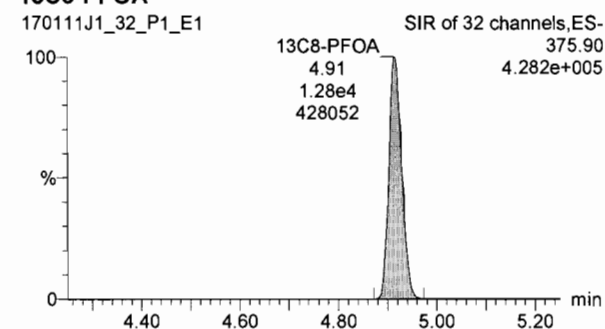
13C2-8:2 FTS



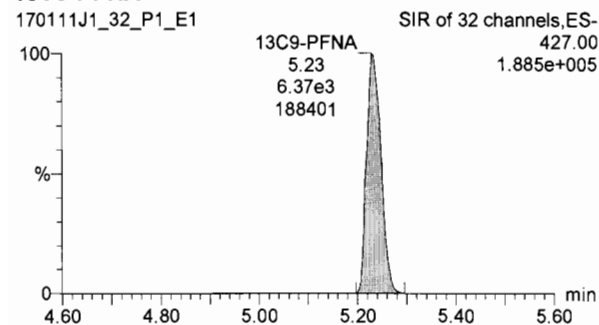
13C3-PFHxS



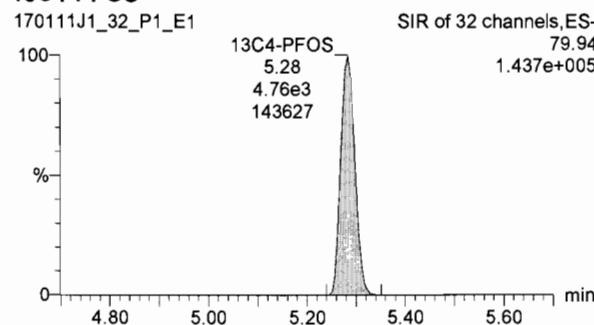
13C8-PFOA



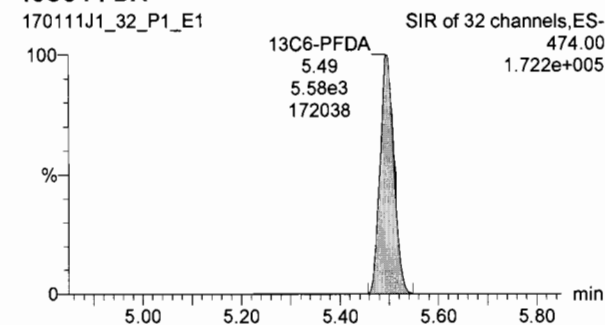
13C9-PFNA



13C4-PFOS



13C6-PFDA



INITIAL CALIBRATION

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:51 Pacific Standard Time

Method: U:\Q2.PRO\MethDB\PFC List 26_A No4-2FTS_Mixed.mdb 12 Jan 2017 08:10:21

Calibration: U:\Q2.PRO\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28 (A)

Compound name: PFBA

Coefficient of Determination: $R^2 = 0.997490$

Calibration curve: $-0.0018787 * x^2 + 1.14494 * x + -0.0766886$

Response type: Internal Std (Ref 14), Area * (IS Conc. / IS Area)

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	0.125	2.42	3.05e2	1.14e4	0.359	187.3	2.67
2	2 170111J1_03_P1_E1	0.500	2.43	5.54e2	1.21e4	0.567	13.3	1.14
3	3 170111J1_04_P1_E1	1.00	2.42	1.03e3	1.14e4	1.06	5.9	1.13
4	4 170111J1_05_P1_E1	2.00	2.43	1.84e3	1.14e4	1.83	-8.3	1.01
5	5 170111J1_06_P1_E1	5.00	2.44	3.98e3	1.11e4	3.99	-20.2	0.892
6	6 170111J1_07_P1_E1	10.0	2.41	1.14e4	1.17e4	10.9	8.5	1.21
7	7 170111J1_08_P1_E1	50.0	2.42	4.66e4	1.10e4	50.6	1.1	1.06
8	8 170111J1_09_P1_E1	100	2.42	8.78e4	1.15e4	99.6	-0.4	0.953

(A) CS(-2) excluded from all except PPOS.
CS 5 excluded from PPOS, PFNA and 0:2
FTS.

CS(-1) excluded from 6:2 FTS.
AMSC 1/12/17

AMSC 1/12/17

Compound name: PFPeA

Coefficient of Determination: $R^2 = 0.997439$

Calibration curve: $-0.00162009 * x^2 + 0.954638 * x + -0.0385581$

Response type: Internal Std (Ref 15), Area * (IS Conc. / IS Area)

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	0.125	3.47	2.80e2	1.25e4	0.332	166.0	2.23
2	2 170111J1_03_P1_E1	0.500	3.49	4.83e2	1.23e4	0.554	10.9	0.980
3	3 170111J1_04_P1_E1	1.00	3.49	9.48e2	1.19e4	1.08	8.4	0.994
4	4 170111J1_05_P1_E1	2.00	3.48	1.74e3	1.28e4	1.83	-8.6	0.850
5	5 170111J1_06_P1_E1	5.00	3.50	3.41e3	1.14e4	4.00	-20.1	0.750
6	6 170111J1_07_P1_E1	10.0	3.48	1.07e4	1.32e4	10.9	8.9	1.02
7	7 170111J1_08_P1_E1	50.0	3.48	4.42e4	1.26e4	50.5	0.9	0.880
8	8 170111J1_09_P1_E1	100	3.48	8.22e4	1.30e4	99.7	-0.3	0.790

PW

1/12/17

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time
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Compound name: PFBS

Coefficient of Determination: $R^2 = 0.997242$

Calibration curve: $-0.00092171 * x^2 + 0.889107 * x + -0.0469508$

Response type: Internal Std (Ref 16), Area * (IS Conc. / IS Area)

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	0.125	3.72	1.41e2	7.57e3	0.314	151.4	1.86
2	2 170111J1_03_P1_E1	0.500	3.73	2.70e2	7.61e3	0.553	10.5	0.888
3	3 170111J1_04_P1_E1	1.00	3.73	5.70e2	8.02e3	1.05	5.3	0.889
4	4 170111J1_05_P1_E1	2.00	3.72	9.93e2	7.67e3	1.88	-6.2	0.809
5	5 170111J1_06_P1_E1	5.00	3.74	2.10e3	7.60e3	3.94	-21.1	0.689
6	6 170111J1_07_P1_E1	10.0	3.72	6.15e3	7.88e3	11.2	11.6	0.976
7	7 170111J1_08_P1_E1	50.0	3.72	2.41e4	7.16e3	50.0	-0.1	0.842
8	8 170111J1_09_P1_E1	100	3.72	4.71e4	7.40e3	99.9	-0.1	0.796

Compound name: PFHxA

Correlation coefficient: $r = 0.996218$, $r^2 = 0.992451$

Calibration curve: $0.75118 * x + 0.103015$

Response type: Internal Std (Ref 17), Area * (IS Conc. / IS Area)

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	0.125	4.07	2.67e2	5.32e3	0.198	58.1	2.01
2	2 170111J1_03_P1_E1	0.500	4.07	4.39e2	5.13e3	0.432	-13.5	0.856
3	3 170111J1_04_P1_E1	1.00	4.08	9.46e2	5.45e3	1.02	1.9	0.868
4	4 170111J1_05_P1_E1	2.00	4.07	1.63e3	5.21e3	1.95	-2.5	0.784
5	5 170111J1_06_P1_E1	5.00	4.08	3.57e3	5.22e3	4.42	-11.6	0.685
6	6 170111J1_07_P1_E1	10.0	4.07	1.04e4	5.52e3	12.4	23.9	0.941
7	7 170111J1_08_P1_E1	50.0	4.07	4.24e4	5.25e3	53.6	7.2	0.807
8	8 170111J1_09_P1_E1	100	4.07	7.80e4	5.48e3	94.7	-5.3	0.712

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:51 Pacific Standard Time

Compound name: PFHpA

Coefficient of Determination: $R^2 = 0.997845$

Calibration curve: $-0.00053182 * x^2 + 0.854856 * x + -0.0245536$

Response type: Internal Std (Ref 18), Area * (IS Conc. / IS Area)

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	0.125	4.54	2.25e2	1.12e4	0.323	158.5	2.01
2	2 170111J1_03_P1_E1	0.500	4.56	3.53e2	9.95e3	0.547	9.4	0.886
3	3 170111J1_04_P1_E1	1.00	4.55	8.45e2	1.15e4	1.11	10.6	0.921
4	4 170111J1_05_P1_E1	2.00	4.54	1.28e3	1.10e4	1.73	-13.3	0.728
5	5 170111J1_06_P1_E1	5.00	4.56	3.13e3	1.12e4	4.14	-17.1	0.702
6	6 170111J1_07_P1_E1	10.0	4.54	8.79e3	1.17e4	11.1	10.5	0.936
7	7 170111J1_08_P1_E1	50.0	4.55	3.60e4	1.09e4	50.0	-0.1	0.827
8	8 170111J1_09_P1_E1	100	4.55	7.16e4	1.12e4	100	-0.0	0.801

Compound name: PFHxS

Coefficient of Determination: $R^2 = 0.999394$

Calibration curve: $0.00251587 * x^2 + 2.97219 * x + 0.0951693$

Response type: Internal Std (Ref 19), Area * (IS Conc. / IS Area)

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	0.125	4.64	1.37e2	1.66e3	0.314	151.6	8.24
2	2 170111J1_03_P1_E1	0.500	4.66	2.05e2	1.50e3	0.544	8.9	3.43
3	3 170111J1_04_P1_E1	1.00	4.65	4.39e2	1.72e3	1.04	4.2	3.20
4	4 170111J1_05_P1_E1	2.00	4.64	7.64e2	1.74e3	1.82	-9.2	2.75
5	5 170111J1_06_P1_E1	5.00	4.67	1.74e3	1.60e3	4.51	-9.9	2.71
6	6 170111J1_07_P1_E1	10.0	4.65	4.83e3	1.90e3	10.6	5.8	3.18
7	7 170111J1_08_P1_E1	50.0	4.65	2.09e4	1.68e3	50.1	0.1	3.10
8	8 170111J1_09_P1_E1	100	4.64	4.13e4	1.60e3	99.9	-0.1	3.22

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time
Printed: Thursday, January 12, 2017 09:13:51 Pacific Standard Time

Compound name: 6:2 FTS

Coefficient of Determination: $R^2 = 0.963362$

Calibration curve: $-0.00301625 * x^2 + 1.01912 * x + -0.168578$

Response type: Internal Std (Ref 20), Area * (IS Conc. / IS Area)

Curve type: 2nd Order, Origin: Exclude, Weighting: $1/x^2$, Axis trans: None

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	0.125	4.88	5.11e1	2.32e3	0.437	249.3	2.21
2	2 170111J1_03_P1_E1	0.500	4.89	7.48e1	1.89e3	0.653	30.6	0.992
3	3 170111J1_04_P1_E1	1.00	4.88	1.88e2	2.63e3	1.05	4.5	0.893
4	4 170111J1_05_P1_E1	2.00	4.88	2.99e2	2.13e3	1.90	-5.0	0.879
5	5 170111J1_06_P1_E1	5.00	4.90	6.65e2	2.21e3	3.91	-21.8	0.754
6	6 170111J1_07_P1_E1	10.0	4.88	2.32e3	2.42e3	12.4	23.6	1.20
7	7 170111J1_08_P1_E1	50.0	4.89	8.81e3	2.51e3	50.9	1.9	0.878
8	8 170111J1_09_P1_E1	100	4.88	1.78e4	3.20e3	95.8	-4.2	0.698

Compound name: PFOA

Coefficient of Determination: $R^2 = 0.996253$

Calibration curve: $-0.0026347 * x^2 + 1.2592 * x + 0.105486$

Response type: Internal Std (Ref 21), Area * (IS Conc. / IS Area)

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	0.125	4.91	3.27e2	8.32e3	0.306	144.9	3.93
2	2 170111J1_03_P1_E1	0.500	4.93	4.12e2	6.51e3	0.545	8.9	1.58
3	3 170111J1_04_P1_E1	1.00	4.91	9.82e2	8.19e3	1.11	11.0	1.50
4	4 170111J1_05_P1_E1	2.00	4.92	1.56e3	8.86e3	1.67	-16.4	1.10
5	5 170111J1_06_P1_E1	5.00	4.94	3.42e3	8.07e3	4.16	-16.8	1.06
6	6 170111J1_07_P1_E1	10.0	4.92	9.79e3	8.61e3	11.5	14.7	1.42
7	7 170111J1_08_P1_E1	50.0	4.93	4.01e4	9.01e3	49.2	-1.6	1.11
8	8 170111J1_09_P1_E1	100	4.92	7.40e4	9.26e3	100	0.4	1.00

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:51 Pacific Standard Time

Compound name: PFHpS

Coefficient of Determination: $R^2 = 0.997495$

Calibration curve: $-0.00133799 * x^2 + 0.635919 * x + -0.1045$

Response type: Internal Std (Ref 21), Area * (IS Conc. / IS Area)

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	0.125	4.99	1.01e2	8.32e3	0.402	221.8	1.21
2	2 170111J1_03_P1_E1	0.500	5.01	1.30e2	6.51e3	0.557	11.4	0.499
3	3 170111J1_04_P1_E1	1.00	4.98	3.99e2	8.19e3	1.12	12.5	0.609
4	4 170111J1_05_P1_E1	2.00	4.99	6.48e2	8.86e3	1.61	-19.6	0.457
5	5 170111J1_06_P1_E1	5.00	5.02	1.69e3	8.07e3	4.31	-13.8	0.522
6	6 170111J1_07_P1_E1	10.0	4.99	4.62e3	8.61e3	11.0	9.6	0.670
7	7 170111J1_08_P1_E1	50.0	5.01	2.04e4	9.01e3	50.1	0.1	0.567
8	8 170111J1_09_P1_E1	100	4.99	3.71e4	9.26e3	99.9	-0.1	0.501

Compound name: PFNA

Correlation coefficient: $r = 0.998728$, $r^2 = 0.997458$

Calibration curve: $1.37008 * x + -0.110822$

Response type: Internal Std (Ref 22), Area * (IS Conc. / IS Area)

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	0.125	5.22	1.69e2	6.46e3	0.320	155.7	2.62
2	2 170111J1_03_P1_E1	0.500	5.25	2.43e2	3.96e3	0.641	28.1	1.53
3	3 170111J1_04_P1_E1	1.00	5.22	6.29e2	6.78e3	0.927	-7.3	1.16
4	4 170111J1_05_P1_E1	2.00	5.25	1.24e3	6.74e3	1.75	-12.3	1.15
5	5 170111J1_06_P1_E1	5.00	5.26	3.26e3	6.29e3	4.81	-3.9	1.29
6	6 170111J1_07_P1_E1	10.0	5.24	7.81e3	7.71e3	9.32	-6.8	1.27
7	7 170111J1_08_P1_E1	50.0	5.25	3.50e4	6.27e3	51.1	2.1	1.40
8	8 170111J1_09_P1_E1	100	5.23	6.22e4	8.05e3	70.6	-29.4	0.966

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time
Printed: Thursday, January 12, 2017 09:13:51 Pacific Standard Time

Compound name: PFOS

Coefficient of Determination: $R^2 = 0.997759$

Calibration curve: $0.00342804 * x^2 + 1.1298 * x + 0.24407$

Response type: Internal Std (Ref 23), Area * (IS Conc. / IS Area)

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	0.125	5.27	1.18e2	3.51e3	0.156	24.7	3.36
2	2 170111J1_03_P1_E1	0.500	5.30	1.04e2	1.79e3	0.422	-15.6	1.44
3	3 170111J1_04_P1_E1	1.00	5.28	4.46e2	4.14e3	0.972	-2.8	1.35
4	4 170111J1_05_P1_E1	2.00	5.29	7.61e2	3.84e3	1.97	-1.7	1.24
5	5 170111J1_06_P1_E1	5.00	5.31	1.55e3	3.70e3	4.36	-12.7	1.05
6	6 170111J1_07_P1_E1	10.0	5.29	4.81e3	4.67e3	10.8	8.2	1.29
7	7 170111J1_08_P1_E1	50.0	5.30	1.97e4	3.78e3	49.9	-0.2	1.30
8	8 170111J1_09_P1_E1	100	5.28	4.21e4	4.28e3	86.2	-13.8	1.23

Compound name: PFDA

Coefficient of Determination: $R^2 = 0.997875$

Calibration curve: $-0.00214019 * x^2 + 0.932591 * x + -0.0912794$

Response type: Internal Std (Ref 24), Area * (IS Conc. / IS Area)

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	0.125	5.49	7.97e1	4.40e3	0.341	172.7	1.81
2	2 170111J1_03_P1_E1	0.500	5.51	6.98e1	2.02e3	0.562	12.5	0.865
3	3 170111J1_04_P1_E1	1.00	5.49	3.92e2	5.17e3	1.12	11.8	0.948
4	4 170111J1_05_P1_E1	2.00	5.51	5.37e2	4.38e3	1.75	-12.5	0.767
5	5 170111J1_06_P1_E1	5.00	5.53	1.38e3	4.58e3	4.17	-16.6	0.752
6	6 170111J1_07_P1_E1	10.0	5.50	4.27e3	5.74e3	10.3	3.0	0.928
7	7 170111J1_08_P1_E1	50.0	5.51	1.47e4	4.35e3	51.5	3.1	0.846
8	8 170111J1_09_P1_E1	100	5.50	3.09e4	5.42e3	99.0	-1.0	0.712

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time
Printed: Thursday, January 12, 2017 09:13:51 Pacific Standard Time

Compound name: 8:2 FTS

Correlation coefficient: $r = 0.992418$, $r^2 = 0.984893$

Calibration curve: $0.955916 * x + -0.0174241$

Response type: Internal Std (Ref 25), Area * (IS Conc. / IS Area)

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	0.125	5.47	2.40e1	9.29e2	0.357	185.3	2.59
2	2 170111J1_03_P1_E1	0.500	5.49	1.96e1	5.06e2	0.526	5.1	0.970
3	3 170111J1_04_P1_E1	1.00	5.48	8.40e1	1.06e3	1.06	5.7	0.993
4	4 170111J1_05_P1_E1	2.00	5.49	1.43e2	1.03e3	1.84	-8.0	0.871
5	5 170111J1_06_P1_E1	5.00	5.51	3.19e2	1.11e3	3.78	-24.5	0.718
6	6 170111J1_07_P1_E1	10.0	5.48	1.06e3	1.12e3	12.4	23.8	1.18
7	7 170111J1_08_P1_E1	50.0	5.49	3.74e3	1.00e3	48.9	-2.2	0.935
8	8 170111J1_09_P1_E1	100	5.48	7.58e3	1.36e3	72.7	-27.3	0.694

Compound name: 13C3-PFBA

Response Factor: 0.841824

RRF SD: 0.0191235, Relative SD: 2.27167

Response type: Internal Std (Ref 26), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	12.5	2.42	1.14e4	1.39e4	12.2	-2.5	0.820
2	2 170111J1_03_P1_E1	12.5	2.43	1.21e4	1.46e4	12.3	-1.4	0.830
3	3 170111J1_04_P1_E1	12.5	2.42	1.14e4	1.37e4	12.4	-1.0	0.833
4	4 170111J1_05_P1_E1	12.5	2.42	1.14e4	1.36e4	12.5	-0.3	0.840
5	5 170111J1_06_P1_E1	12.5	2.44	1.11e4	1.32e4	12.5	0.3	0.844
6	6 170111J1_07_P1_E1	12.5	2.41	1.17e4	1.34e4	13.0	3.8	0.874
7	7 170111J1_08_P1_E1	12.5	2.41	1.10e4	1.33e4	12.3	-1.9	0.826
8	8 170111J1_09_P1_E1	12.5	2.41	1.15e4	1.33e4	12.9	2.9	0.866

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time
Printed: Thursday, January 12, 2017 09:13:51 Pacific Standard Time

Compound name: 13C3-PFPeA

Response Factor: 0.846465

RRF SD: 0.0505036, Relative SD: 5.96641

Response type: Internal Std (Ref 27), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	12.5	3.47	1.25e4	1.52e4	12.2	-2.4	0.826
2	2 170111J1_03_P1_E1	12.5	3.48	1.23e4	1.36e4	13.4	6.9	0.905
3	3 170111J1_04_P1_E1	12.5	3.48	1.19e4	1.57e4	11.2	-10.1	0.761
4	4 170111J1_05_P1_E1	12.5	3.47	1.28e4	1.50e4	12.6	1.0	0.855
5	5 170111J1_06_P1_E1	12.5	3.50	1.14e4	1.43e4	11.7	-6.3	0.793
6	6 170111J1_07_P1_E1	12.5	3.47	1.32e4	1.50e4	13.0	4.0	0.880
7	7 170111J1_08_P1_E1	12.5	3.48	1.26e4	1.47e4	12.6	0.9	0.854
8	8 170111J1_09_P1_E1	12.5	3.47	1.30e4	1.45e4	13.3	6.0	0.898

Compound name: 13C3-PFBS

Response Factor: 0.516707

RRF SD: 0.0218338, Relative SD: 4.22557

Response type: Internal Std (Ref 27), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	12.5	3.72	7.57e3	1.52e4	12.1	-3.5	0.498
2	2 170111J1_03_P1_E1	12.5	3.72	7.61e3	1.36e4	13.5	8.2	0.559
3	3 170111J1_04_P1_E1	12.5	3.73	8.02e3	1.57e4	12.4	-1.0	0.512
4	4 170111J1_05_P1_E1	12.5	3.72	7.67e3	1.50e4	12.4	-1.0	0.512
5	5 170111J1_06_P1_E1	12.5	3.73	7.60e3	1.43e4	12.8	2.6	0.530
6	6 170111J1_07_P1_E1	12.5	3.72	7.88e3	1.50e4	12.7	1.6	0.525
7	7 170111J1_08_P1_E1	12.5	3.72	7.16e3	1.47e4	11.8	-5.7	0.487
8	8 170111J1_09_P1_E1	12.5	3.72	7.40e3	1.45e4	12.4	-1.2	0.511

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time
Printed: Thursday, January 12, 2017 09:13:51 Pacific Standard Time

Compound name: 13C2-PFHxA

Response Factor: 0.902881

RRF SD: 0.031043, Relative SD: 3.43822

Response type: Internal Std (Ref 27), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	5.00	4.07	5.32e3	1.52e4	4.85	-3.1	0.875
2	2 170111J1_03_P1_E1	5.00	4.07	5.13e3	1.36e4	5.22	4.4	0.942
3	3 170111J1_04_P1_E1	5.00	4.08	5.45e3	1.57e4	4.82	-3.7	0.869
4	4 170111J1_05_P1_E1	5.00	4.07	5.21e3	1.50e4	4.81	-3.7	0.869
5	5 170111J1_06_P1_E1	5.00	4.08	5.22e3	1.43e4	5.03	0.7	0.909
6	6 170111J1_07_P1_E1	5.00	4.07	5.52e3	1.50e4	5.09	1.8	0.919
7	7 170111J1_08_P1_E1	5.00	4.07	5.25e3	1.47e4	4.95	-1.0	0.893
8	8 170111J1_09_P1_E1	5.00	4.07	5.48e3	1.45e4	5.23	4.7	0.945

Compound name: 13C4-PFHpA

Response Factor: 0.751031

RRF SD: 0.0221247, Relative SD: 2.94591

Response type: Internal Std (Ref 27), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	12.5	4.54	1.12e4	1.52e4	12.3	-1.8	0.738
2	2 170111J1_03_P1_E1	12.5	4.56	9.95e3	1.36e4	12.2	-2.7	0.731
3	3 170111J1_04_P1_E1	12.5	4.55	1.15e4	1.57e4	12.2	-2.4	0.733
4	4 170111J1_05_P1_E1	12.5	4.54	1.10e4	1.50e4	12.2	-2.1	0.736
5	5 170111J1_06_P1_E1	12.5	4.56	1.12e4	1.43e4	12.9	3.6	0.778
6	6 170111J1_07_P1_E1	12.5	4.54	1.17e4	1.50e4	13.0	4.2	0.783
7	7 170111J1_08_P1_E1	12.5	4.55	1.09e4	1.47e4	12.3	-1.5	0.740
8	8 170111J1_09_P1_E1	12.5	4.55	1.12e4	1.45e4	12.8	2.7	0.771

Vista Analytical Laboratory Q2

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

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Compound name: 18O2-PFHxS

Response Factor: 0.277721

RRF SD: 0.0208827, Relative SD: 7.51932

Response type: Internal Std (Ref 28), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	12.5	4.64	1.66e3	6.34e3	11.8	-5.6	0.262
2	2 170111J1_03_P1_E1	12.5	4.66	1.50e3	5.42e3	12.4	-0.6	0.276
3	3 170111J1_04_P1_E1	12.5	4.65	1.72e3	6.08e3	12.7	1.6	0.282
4	4 170111J1_05_P1_E1	12.5	4.64	1.74e3	5.99e3	13.0	4.3	0.290
5	5 170111J1_06_P1_E1	12.5	4.66	1.60e3	5.98e3	12.1	-3.5	0.268
6	6 170111J1_07_P1_E1	12.5	4.64	1.90e3	5.96e3	14.3	14.7	0.319
7	7 170111J1_08_P1_E1	12.5	4.65	1.68e3	6.08e3	12.5	-0.3	0.277
8	8 170111J1_09_P1_E1	12.5	4.64	1.60e3	6.45e3	11.2	-10.6	0.248

Compound name: 13C2-6:2 FTS

Response Factor: 0.178028

RRF SD: 0.0251633, Relative SD: 14.1345

Response type: Internal Std (Ref 29), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	12.5	4.88	2.32e3	1.37e4	11.9	-4.7	0.170
2	2 170111J1_03_P1_E1	12.5	4.89	1.89e3	1.18e4	11.3	-10.0	0.160
3	3 170111J1_04_P1_E1	12.5	4.87	2.63e3	1.37e4	13.5	8.3	0.193
4	4 170111J1_05_P1_E1	12.5	4.88	2.13e3	1.44e4	10.4	-16.8	0.148
5	5 170111J1_06_P1_E1	12.5	4.90	2.21e3	1.33e4	11.6	-7.2	0.165
6	6 170111J1_07_P1_E1	12.5	4.87	2.42e3	1.37e4	12.4	-0.7	0.177
7	7 170111J1_08_P1_E1	12.5	4.89	2.51e3	1.39e4	12.7	1.5	0.181
8	8 170111J1_09_P1_E1	12.5	4.87	3.20e3	1.39e4	16.2	29.5	0.231

Vista Analytical Laboratory Q2

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:51 Pacific Standard Time

Compound name: 13C2-PFOA

Response Factor: 0.616204

RRF SD: 0.0346424, Relative SD: 5.62191

Response type: Internal Std (Ref 29), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	12.5	4.91	8.32e3	1.37e4	12.4	-1.1	0.610
2	2 170111J1_03_P1_E1	12.5	4.93	6.51e3	1.18e4	11.2	-10.3	0.553
3	3 170111J1_04_P1_E1	12.5	4.91	8.19e3	1.37e4	12.2	-2.7	0.600
4	4 170111J1_05_P1_E1	12.5	4.92	8.86e3	1.44e4	12.5	-0.0	0.616
5	5 170111J1_06_P1_E1	12.5	4.94	8.07e3	1.33e4	12.3	-1.9	0.605
6	6 170111J1_07_P1_E1	12.5	4.92	8.61e3	1.37e4	12.8	2.1	0.629
7	7 170111J1_08_P1_E1	12.5	4.93	9.01e3	1.39e4	13.2	5.4	0.649
8	8 170111J1_09_P1_E1	12.5	4.91	9.26e3	1.39e4	13.6	8.4	0.668

Compound name: 13C5-PFNA

Response Factor: 0.940159

RRF SD: 0.0710328, Relative SD: 7.5554

Response type: Internal Std (Ref 30), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	12.5	5.22	6.46e3	7.51e3	11.4	-8.5	0.860
2	2 170111J1_03_P1_E1	12.5	5.25	3.96e3	4.65e3	11.3	-9.4	0.852
3	3 170111J1_04_P1_E1	12.5	5.22	6.78e3	7.31e3	12.3	-1.4	0.927
4	4 170111J1_05_P1_E1	12.5	5.23	6.74e3	6.70e3	13.4	7.0	1.01
5	5 170111J1_06_P1_E1	12.5	5.26	6.29e3	6.27e3	13.3	6.6	1.00
6	6 170111J1_07_P1_E1	12.5	5.23	7.71e3	7.37e3	13.9	11.2	1.05
7	7 170111J1_08_P1_E1	12.5	5.24	6.27e3	6.98e3	12.0	-4.4	0.899
8	8 170111J1_09_P1_E1	12.5	5.22	8.05e3	8.66e3	12.4	-1.2	0.929

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

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Compound name: 13C8-PFOS

Response Factor: 0.897296

RRF SD: 0.0443055, Relative SD: 4.93766

Response type: Internal Std (Ref 31), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	12.5	5.27	3.51e3	4.18e3	11.7	-6.4	0.840
2	2 170111J1_03_P1_E1	12.5	5.30	1.79e3	1.91e3	13.1	4.6	0.939
3	3 170111J1_04_P1_E1	12.5	5.27	4.14e3	4.92e3	11.7	-6.2	0.842
4	4 170111J1_05_P1_E1	12.5	5.29	3.84e3	4.39e3	12.2	-2.6	0.874
5	5 170111J1_06_P1_E1	12.5	5.31	3.70e3	3.92e3	13.2	5.2	0.944
6	6 170111J1_07_P1_E1	12.5	5.28	4.67e3	4.93e3	13.2	5.6	0.948
7	7 170111J1_08_P1_E1	12.5	5.30	3.78e3	4.15e3	12.7	1.3	0.909
8	8 170111J1_09_P1_E1	12.5	5.28	4.28e3	4.84e3	12.3	-1.6	0.883

Compound name: 13C2-PFDA

Response Factor: 0.882099

RRF SD: 0.0633219, Relative SD: 7.17855

Response type: Internal Std (Ref 32), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	12.5	5.49	4.40e3	4.88e3	12.8	2.2	0.902
2	2 170111J1_03_P1_E1	12.5	5.50	2.02e3	2.30e3	12.4	-0.5	0.878
3	3 170111J1_04_P1_E1	12.5	5.49	5.17e3	6.52e3	11.3	-10.0	0.794
4	4 170111J1_05_P1_E1	12.5	5.51	4.38e3	5.54e3	11.2	-10.3	0.791
5	5 170111J1_06_P1_E1	12.5	5.52	4.58e3	4.69e3	13.8	10.8	0.977
6	6 170111J1_07_P1_E1	12.5	5.50	5.74e3	6.31e3	12.9	3.3	0.911
7	7 170111J1_08_P1_E1	12.5	5.51	4.35e3	4.94e3	12.5	-0.2	0.880
8	8 170111J1_09_P1_E1	12.5	5.50	5.42e3	5.87e3	13.1	4.7	0.924

Vista Analytical Laboratory Q2

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:51 Pacific Standard Time

Compound name: 13C2-8:2 FTS

Response Factor: 0.200935

RRF SD: 0.0269444, Relative SD: 13.4095

Response type: Internal Std (Ref 32), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	12.5	5.47	9.29e2	4.88e3	11.8	-5.3	0.190
2	2 170111J1_03_P1_E1	12.5	5.49	5.06e2	2.30e3	13.7	9.7	0.220
3	3 170111J1_04_P1_E1	12.5	5.47	1.06e3	6.52e3	10.1	-19.3	0.162
4	4 170111J1_05_P1_E1	12.5	5.49	1.03e3	5.54e3	11.5	-7.6	0.186
5	5 170111J1_06_P1_E1	12.5	5.50	1.11e3	4.69e3	14.7	17.9	0.237
6	6 170111J1_07_P1_E1	12.5	5.48	1.12e3	6.31e3	11.0	-11.8	0.177
7	7 170111J1_08_P1_E1	12.5	5.49	1.00e3	4.94e3	12.6	0.8	0.203
8	8 170111J1_09_P1_E1	12.5	5.48	1.36e3	5.87e3	14.5	15.7	0.233

Compound name: 13C4-PFBA

Response Factor: 1

RRF SD: 0, Relative SD: 0

Response type: Internal Std (Ref 26), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	12.5	2.41	1.39e4	1.39e4	12.5	0.0	1.00
2	2 170111J1_03_P1_E1	12.5	2.43	1.46e4	1.46e4	12.5	0.0	1.00
3	3 170111J1_04_P1_E1	12.5	2.41	1.37e4	1.37e4	12.5	0.0	1.00
4	4 170111J1_05_P1_E1	12.5	2.42	1.36e4	1.36e4	12.5	0.0	1.00
5	5 170111J1_06_P1_E1	12.5	2.43	1.32e4	1.32e4	12.5	0.0	1.00
6	6 170111J1_07_P1_E1	12.5	2.41	1.34e4	1.34e4	12.5	0.0	1.00
7	7 170111J1_08_P1_E1	12.5	2.41	1.33e4	1.33e4	12.5	0.0	1.00
8	8 170111J1_09_P1_E1	12.5	2.41	1.33e4	1.33e4	12.5	0.0	1.00

Vista Analytical Laboratory Q2

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:51 Pacific Standard Time

Compound name: 13C5-PFHxA

Response Factor: 1

RRF SD: 0, Relative SD: 0

Response type: Internal Std (Ref 27), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	12.5	4.06	1.52e4	1.52e4	12.5	0.0	1.00
2	2 170111J1_03_P1_E1	12.5	4.07	1.36e4	1.36e4	12.5	0.0	1.00
3	3 170111J1_04_P1_E1	12.5	4.07	1.57e4	1.57e4	12.5	0.0	1.00
4	4 170111J1_05_P1_E1	12.5	4.07	1.50e4	1.50e4	12.5	0.0	1.00
5	5 170111J1_06_P1_E1	12.5	4.07	1.43e4	1.43e4	12.5	0.0	1.00
6	6 170111J1_07_P1_E1	12.5	4.06	1.50e4	1.50e4	12.5	0.0	1.00
7	7 170111J1_08_P1_E1	12.5	4.07	1.47e4	1.47e4	12.5	0.0	1.00
8	8 170111J1_09_P1_E1	12.5	4.07	1.45e4	1.45e4	12.5	0.0	1.00

Compound name: 13C3-PFHxS

Response Factor: 1

RRF SD: 0, Relative SD: 0

Response type: Internal Std (Ref 28), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	12.5	4.64	6.34e3	6.34e3	12.5	0.0	1.00
2	2 170111J1_03_P1_E1	12.5	4.66	5.42e3	5.42e3	12.5	0.0	1.00
3	3 170111J1_04_P1_E1	12.5	4.65	6.08e3	6.08e3	12.5	0.0	1.00
4	4 170111J1_05_P1_E1	12.5	4.64	5.99e3	5.99e3	12.5	0.0	1.00
5	5 170111J1_06_P1_E1	12.5	4.66	5.98e3	5.98e3	12.5	0.0	1.00
6	6 170111J1_07_P1_E1	12.5	4.64	5.96e3	5.96e3	12.5	0.0	1.00
7	7 170111J1_08_P1_E1	12.5	4.65	6.08e3	6.08e3	12.5	0.0	1.00
8	8 170111J1_09_P1_E1	12.5	4.64	6.45e3	6.45e3	12.5	0.0	1.00

Vista Analytical Laboratory Q2

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:51 Pacific Standard Time

Compound name: 13C8-PFOA

Response Factor: 1

RRF SD: 0, Relative SD: 0

Response type: Internal Std (Ref 29), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	12.5	4.91	1.37e4	1.37e4	12.5	0.0	1.00
2	2 170111J1_03_P1_E1	12.5	4.93	1.18e4	1.18e4	12.5	0.0	1.00
3	3 170111J1_04_P1_E1	12.5	4.91	1.37e4	1.37e4	12.5	0.0	1.00
4	4 170111J1_05_P1_E1	12.5	4.92	1.44e4	1.44e4	12.5	0.0	1.00
5	5 170111J1_06_P1_E1	12.5	4.94	1.33e4	1.33e4	12.5	0.0	1.00
6	6 170111J1_07_P1_E1	12.5	4.91	1.37e4	1.37e4	12.5	0.0	1.00
7	7 170111J1_08_P1_E1	12.5	4.93	1.39e4	1.39e4	12.5	0.0	1.00
8	8 170111J1_09_P1_E1	12.5	4.91	1.39e4	1.39e4	12.5	0.0	1.00

Compound name: 13C9-PFNA

Response Factor: 1

RRF SD: 0, Relative SD: 0

Response type: Internal Std (Ref 30), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	12.5	5.22	7.51e3	7.51e3	12.5	0.0	1.00
2	2 170111J1_03_P1_E1	12.5	5.24	4.65e3	4.65e3	12.5	0.0	1.00
3	3 170111J1_04_P1_E1	12.5	5.22	7.31e3	7.31e3	12.5	0.0	1.00
4	4 170111J1_05_P1_E1	12.5	5.23	6.70e3	6.70e3	12.5	0.0	1.00
5	5 170111J1_06_P1_E1	12.5	5.26	6.27e3	6.27e3	12.5	0.0	1.00
6	6 170111J1_07_P1_E1	12.5	5.23	7.37e3	7.37e3	12.5	0.0	1.00
7	7 170111J1_08_P1_E1	12.5	5.24	6.98e3	6.98e3	12.5	0.0	1.00
8	8 170111J1_09_P1_E1	12.5	5.22	8.66e3	8.66e3	12.5	0.0	1.00

Vista Analytical Laboratory Q2

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:51 Pacific Standard Time

Compound name: 13C4-PFOS

Response Factor: 1

RRF SD: 0, Relative SD: 0

Response type: Internal Std (Ref 31), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	12.5	5.27	4.18e3	4.18e3	12.5	0.0	1.00
2	2 170111J1_03_P1_E1	12.5	5.30	1.91e3	1.91e3	12.5	0.0	1.00
3	3 170111J1_04_P1_E1	12.5	5.27	4.92e3	4.92e3	12.5	0.0	1.00
4	4 170111J1_05_P1_E1	12.5	5.28	4.39e3	4.39e3	12.5	0.0	1.00
5	5 170111J1_06_P1_E1	12.5	5.31	3.92e3	3.92e3	12.5	0.0	1.00
6	6 170111J1_07_P1_E1	12.5	5.28	4.93e3	4.93e3	12.5	0.0	1.00
7	7 170111J1_08_P1_E1	12.5	5.29	4.15e3	4.15e3	12.5	0.0	1.00
8	8 170111J1_09_P1_E1	12.5	5.28	4.84e3	4.84e3	12.5	0.0	1.00

Compound name: 13C6-PFDA

Response Factor: 1

RRF SD: 0, Relative SD: 0

Response type: Internal Std (Ref 32), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170111J1_02_P1_E1	12.5	5.48	4.88e3	4.88e3	12.5	0.0	1.00
2	2 170111J1_03_P1_E1	12.5	5.50	2.30e3	2.30e3	12.5	0.0	1.00
3	3 170111J1_04_P1_E1	12.5	5.49	6.52e3	6.52e3	12.5	0.0	1.00
4	4 170111J1_05_P1_E1	12.5	5.51	5.54e3	5.54e3	12.5	0.0	1.00
5	5 170111J1_06_P1_E1	12.5	5.52	4.69e3	4.69e3	12.5	0.0	1.00
6	6 170111J1_07_P1_E1	12.5	5.50	6.31e3	6.31e3	12.5	0.0	1.00
7	7 170111J1_08_P1_E1	12.5	5.51	4.94e3	4.94e3	12.5	0.0	1.00
8	8 170111J1_09_P1_E1	12.5	5.49	5.87e3	5.87e3	12.5	0.0	1.00

	Sample Name	Acquisition Date	Sample ID	Sample Comment
1	170111J1_01	1/11/2017 11:33:20	IPA	IPA
2	170111J1_02	1/11/2017 11:45:32	ST170111J1-1 PFC CS(-2) 17A1101	PFC CS(-2) 17A1101 A
3	170111J1_03	1/11/2017 11:57:49	ST170111J1-2 PFC CS(-1) 17A1102	PFC CS(-1) 17A1102 A
4	170111J1_04	1/11/2017 12:10:03	ST170111J1-3 PFC CS0 17A1103	PFC CS0 17A1103 A
5	170111J1_05	1/11/2017 12:22:18	ST170111J1-4 PFC CS1 17A1104	PFC CS1 17A1104 A
6	170111J1_06	1/11/2017 12:34:29	ST170111J1-5 PFC CS2 17A1105	PFC CS2 17A1105 A
7	170111J1_07	1/11/2017 12:46:46	ST170111J1-6 PFC CS3 17A1106	PFC CS3 17A1106 A
8	170111J1_08	1/11/2017 12:59:00	ST170111J1-7 PFC CS4 17A1107	PFC CS4 17A1107 A
9	170111J1_09	1/11/2017 13:11:14	ST170111J1-8 PFC CS5 17A1108	PFC CS5 17A1108 A
10	170111J1_10	1/11/2017 13:23:28	IPA	IPA
11	170111J1_11	1/11/2017 13:35:43	SS170111J1-1 SSS PFC 17A1109	PFC SSS 17A1109 A
12	170111J1_12	1/11/2017 13:47:58	IPA	IPA
13	170111J1_13	1/11/2017 14:00:11	B7A0028-BS1	OPR
14	170111J1_14	1/11/2017 14:12:26	B7A0039-BS1	OPR
15	170111J1_15	1/11/2017 14:24:41	IPA	IPA
16	170111J1_16	1/11/2017 14:36:56	B7A0028-BLK1	Method Blank
17	170111J1_17	1/11/2017 14:49:11	B7A0039-BLK1	Method Blank
18	170111J1_18	1/11/2017 15:01:27	1601580-03RE1@10X	BERPCA005
19	170111J1_19	1/11/2017 15:13:44	B7A0022-MS1@10X	Matrix Spike
20	170111J1_20	1/11/2017 15:26:01	B7A0022-MSD1@10X	Matrix Spike Dup
21	170111J1_21	1/11/2017 15:38:16	1601580-04RE1@10X	BERPCA096
22	170111J1_22	1/11/2017 15:50:30	1700025-01	Field Blank (420-115299-1)
23	170111J1_23	1/11/2017 16:02:45	1700025-02	B-101-0S (420-115299-2)
24	170111J1_24	1/11/2017 16:15:00	1700025-03	B-104-0S Hyd (420-115299-3)
25	170111J1_25	1/11/2017 16:27:14	1700025-04	B-106-0S Hyd 3 (420-115299-4)
26	170111J1_26	1/11/2017 16:39:28	1700025-05	B-208-0S Hyd 8 (420-115299-5)
27	170111J1_27	1/11/2017 16:51:43	1700025-06	B-304-0S Hyd 15 (420-115299-6)
28	170111J1_28	1/11/2017 17:03:58	1700006-01	OC-RW10-0117
29	170111J1_29	1/11/2017 17:16:11	1700006-02	OC-FB10-010317
30	170111J1_30	1/11/2017 17:28:27	1700007-01	Sayegh -14 Stella's Way, New Winds
31	170111J1_31	1/11/2017 17:40:42	IPA	IPA
32	170111J1_32	1/11/2017 17:52:53	ST170111J1-9 PFC CS3 17A1106	PFC CS3 17A1106 A
33	170111J1_33	1/11/2017 18:05:10	IPA	IPA

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:23 Pacific Standard Time

Method: U:\Q2.PRO\MethDB\PFC List 26_A No4-2FTS_Mixed.mdb 12 Jan 2017 08:10:21

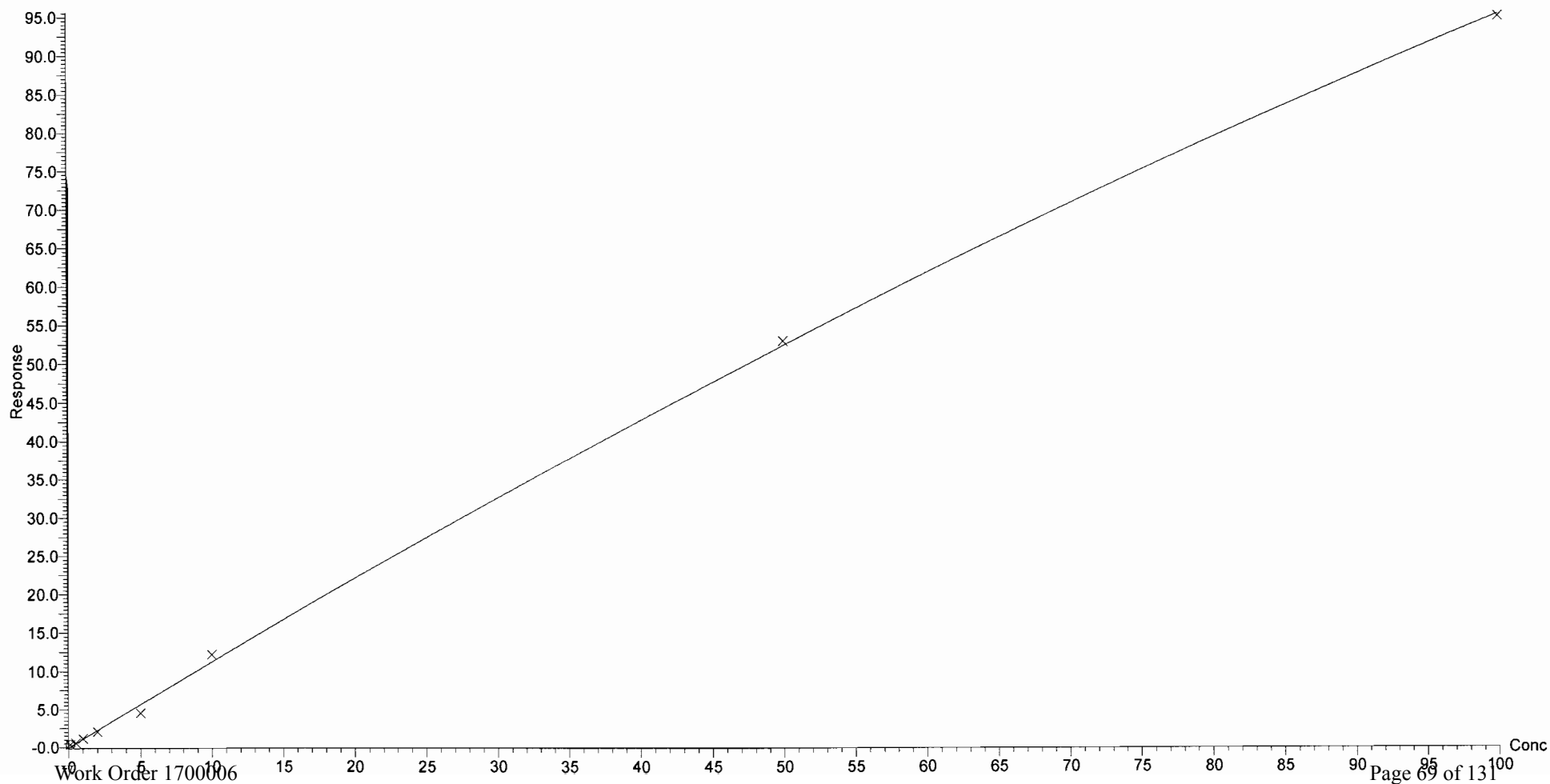
Calibration: U:\Q2.PRO\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28

Compound name: PFBA

Coefficient of Determination: $R^2 = 0.997490$ Calibration curve: $-0.0018787 * x^2 + 1.14494 * x + -0.0766886$

Response type: Internal Std (Ref 14), Area * (IS Conc. / IS Area)

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



Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:23 Pacific Standard Time

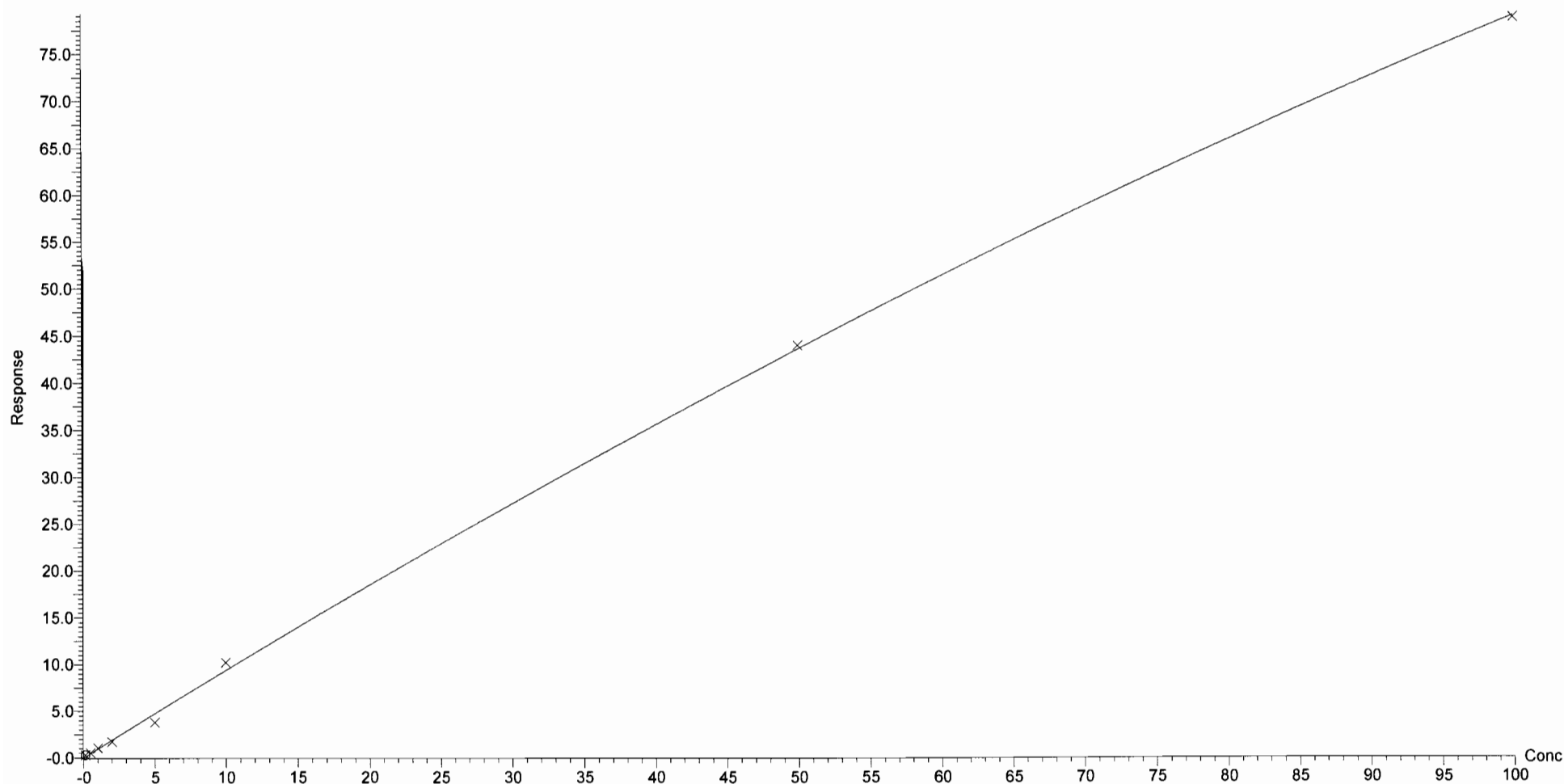
Compound name: PFPeA

Coefficient of Determination: $R^2 = 0.997439$

Calibration curve: $-0.00162009 * x^2 + 0.954638 * x + -0.0385581$

Response type: Internal Std (Ref 15), Area * (IS Conc. / IS Area)

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



Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:23 Pacific Standard Time

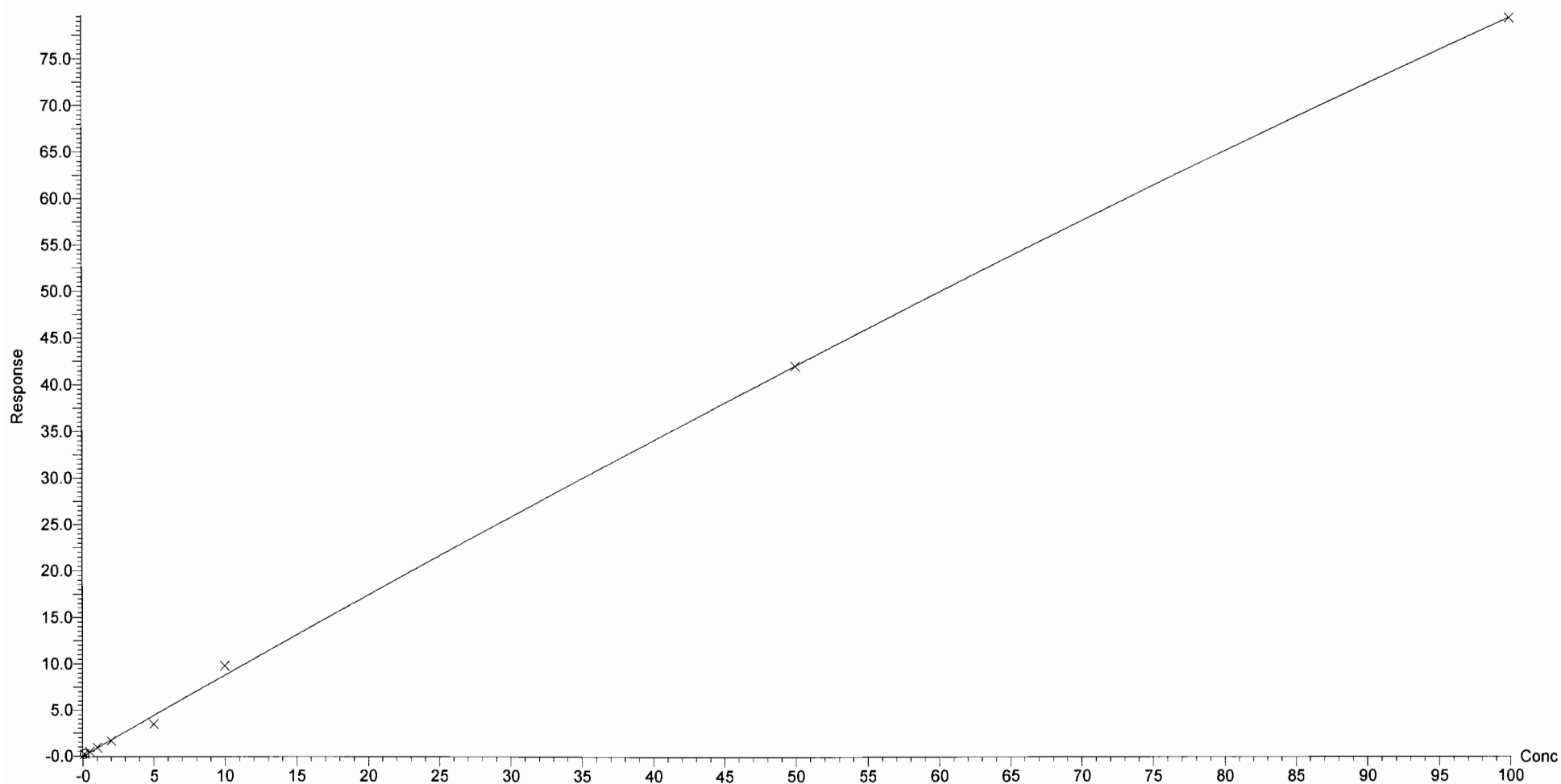
Compound name: PFBS

Coefficient of Determination: $R^2 = 0.997242$

Calibration curve: $-0.00092171 * x^2 + 0.889107 * x + -0.0469508$

Response type: Internal Std (Ref 16), Area * (IS Conc. / IS Area)

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



Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:23 Pacific Standard Time

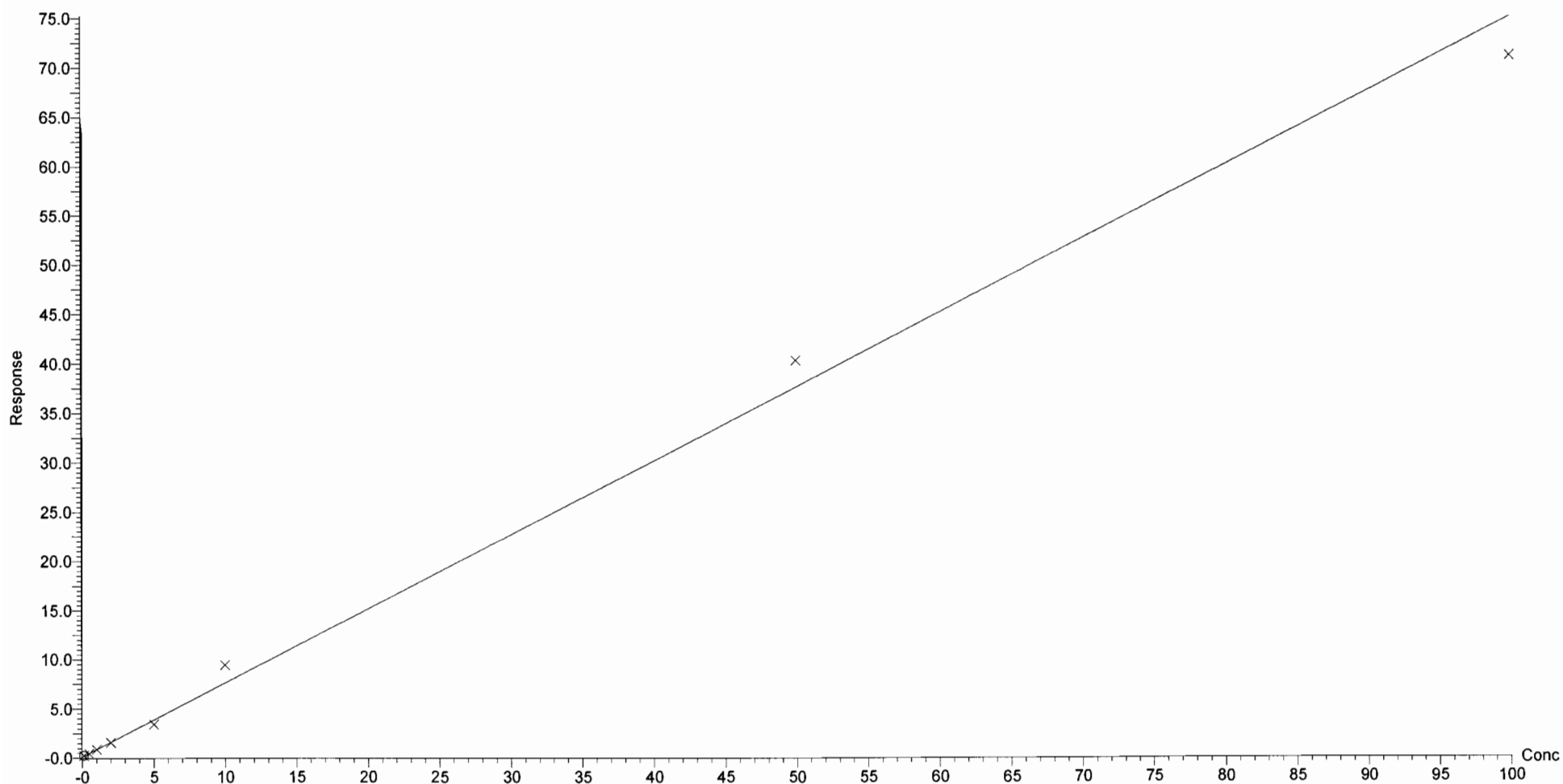
Compound name: PFHxA

Correlation coefficient: $r = 0.996218$, $r^2 = 0.992451$

Calibration curve: $0.75118 * x + 0.103015$

Response type: Internal Std (Ref 17), Area * (IS Conc. / IS Area)

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



Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:23 Pacific Standard Time

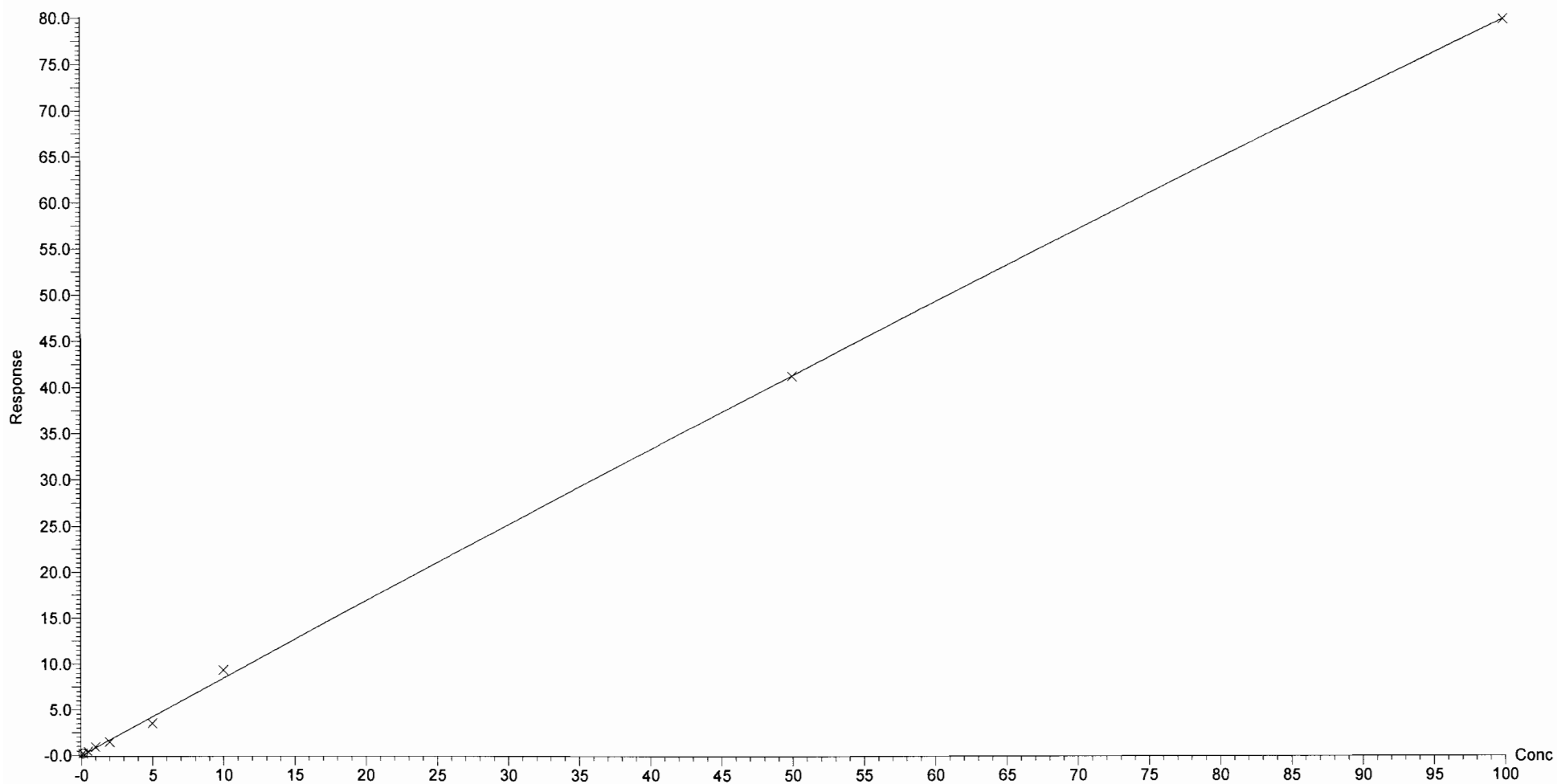
Compound name: PFHpA

Coefficient of Determination: $R^2 = 0.997845$

Calibration curve: $-0.00053182 * x^2 + 0.854856 * x + -0.0245536$

Response type: Internal Std (Ref 18), Area * (IS Conc. / IS Area)

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



Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:23 Pacific Standard Time

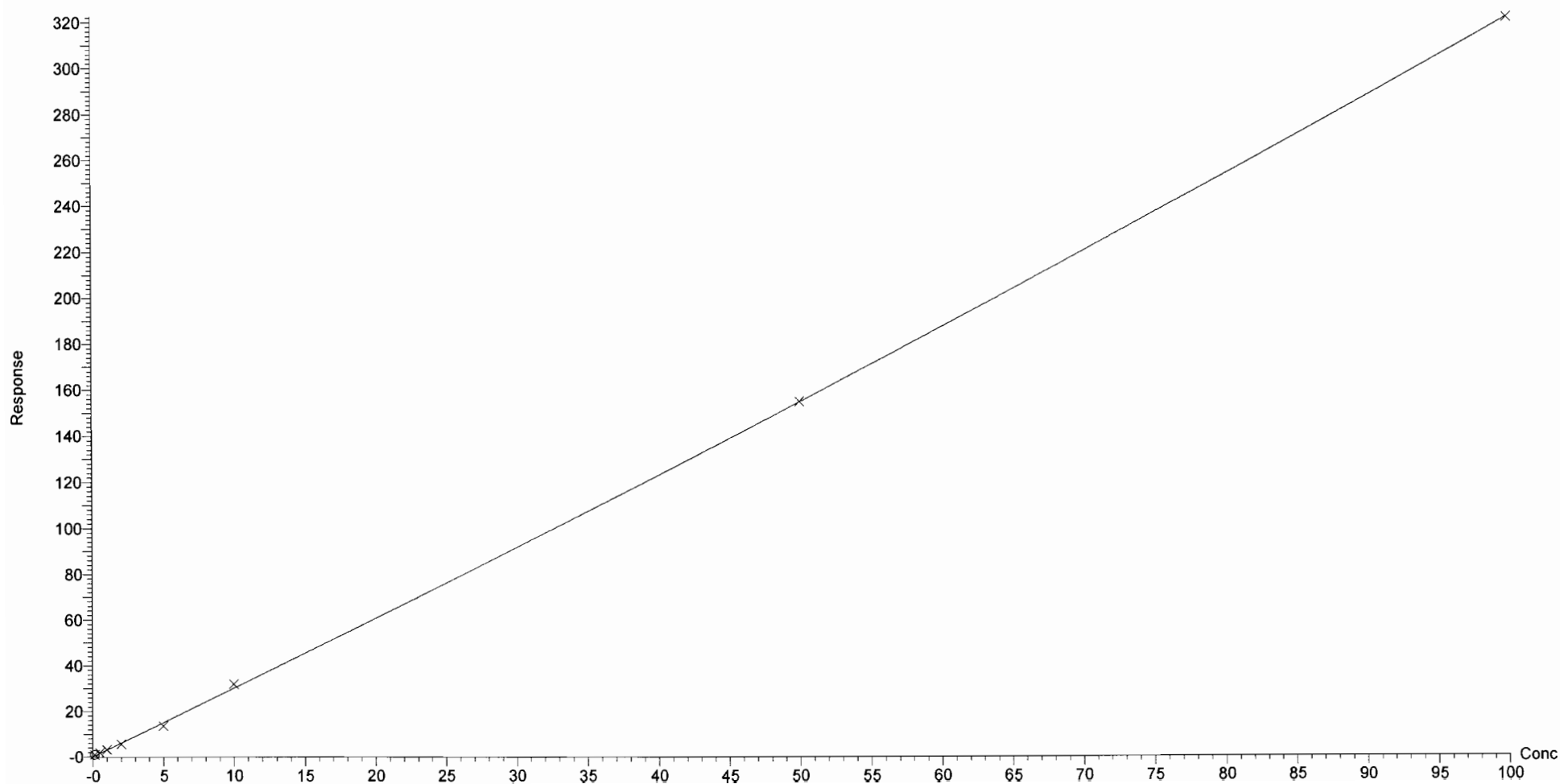
Compound name: PFHxS

Coefficient of Determination: $R^2 = 0.999394$

Calibration curve: $0.00251587 * x^2 + 2.97219 * x + 0.0951693$

Response type: Internal Std (Ref 19), Area * (IS Conc. / IS Area)

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



Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:23 Pacific Standard Time

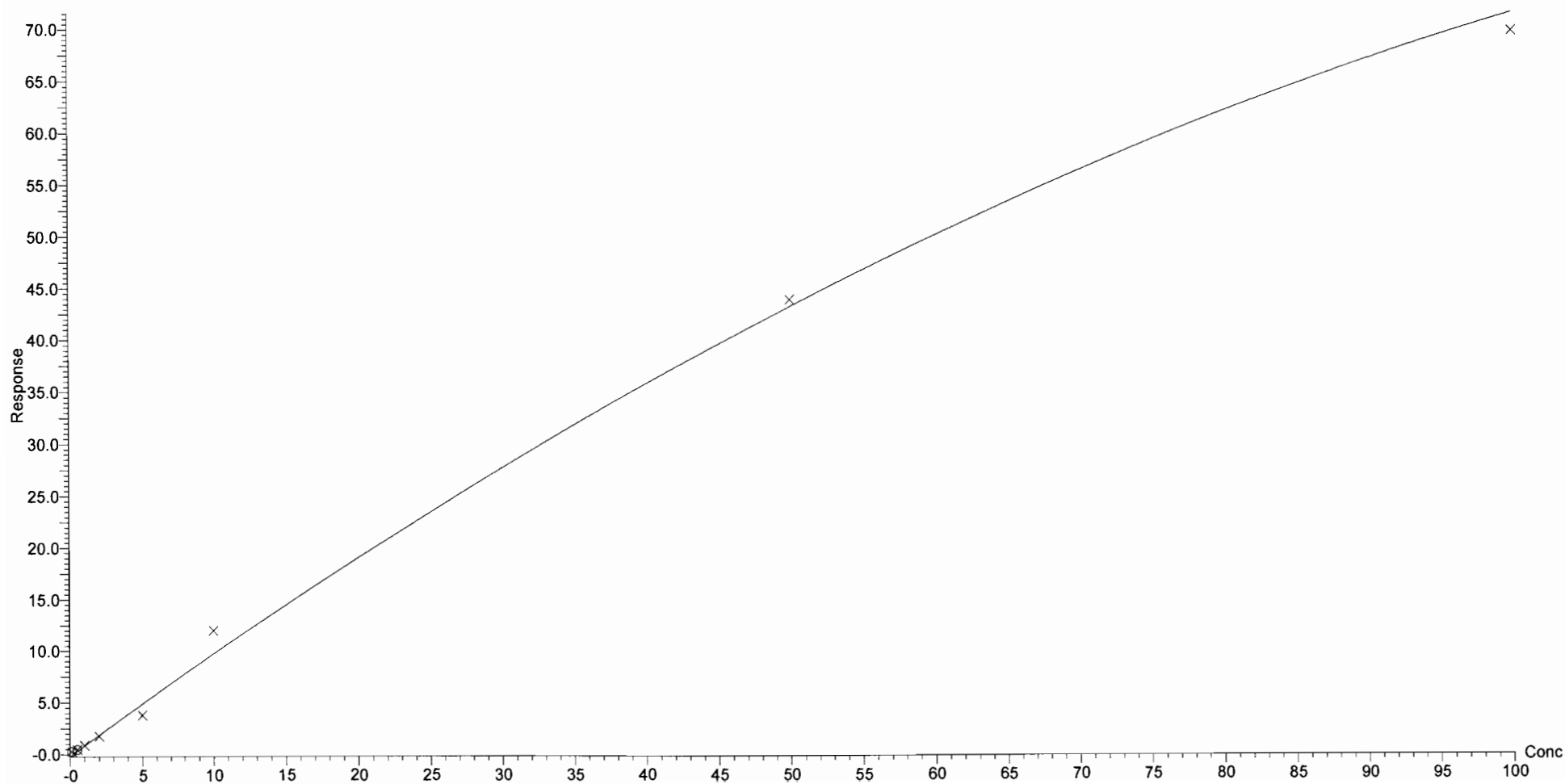
Compound name: 6:2 FTS

Coefficient of Determination: $R^2 = 0.963362$

Calibration curve: $-0.00301625 * x^2 + 1.01912 * x + -0.168578$

Response type: Internal Std (Ref 20), Area * (IS Conc. / IS Area)

Curve type: 2nd Order, Origin: Exclude, Weighting: $1/x^2$, Axis trans: None



Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:23 Pacific Standard Time

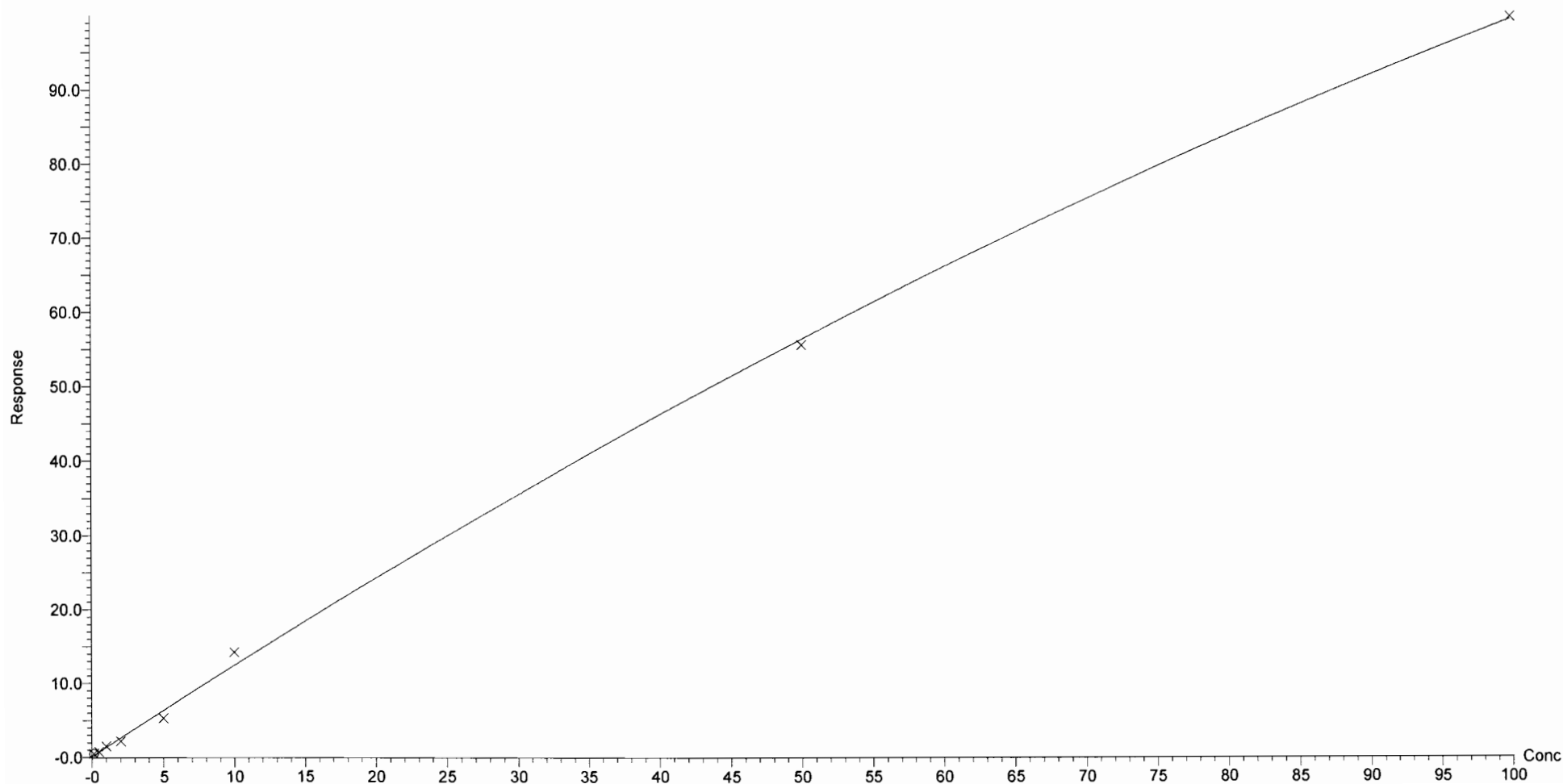
Compound name: PFOA

Coefficient of Determination: $R^2 = 0.996253$

Calibration curve: $-0.0026347 * x^2 + 1.2592 * x + 0.105486$

Response type: Internal Std (Ref 21), Area * (IS Conc. / IS Area)

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



Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:23 Pacific Standard Time

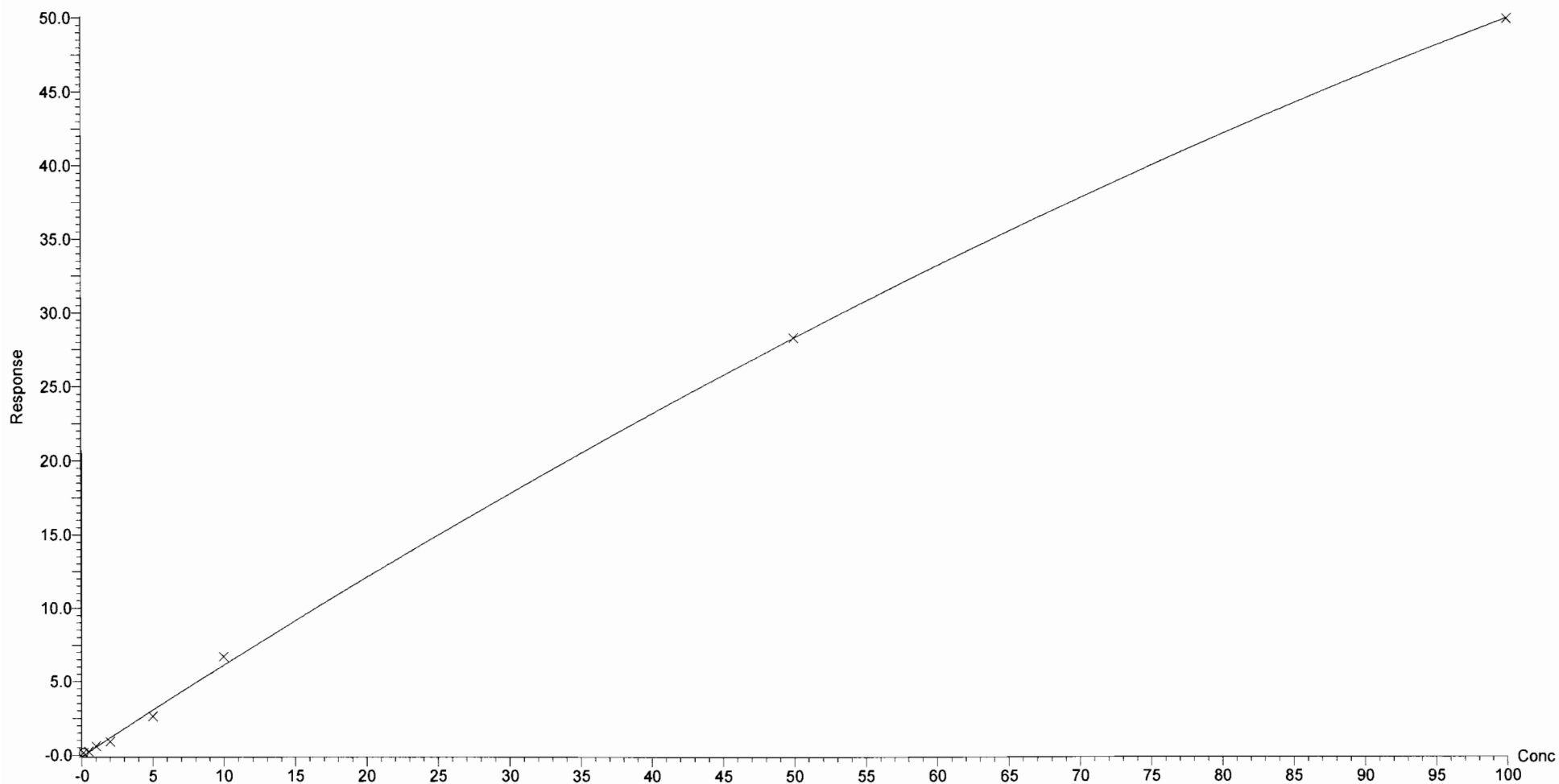
Compound name: PFHpS

Coefficient of Determination: $R^2 = 0.997495$

Calibration curve: $-0.00133799 * x^2 + 0.635919 * x + -0.1045$

Response type: Internal Std (Ref 21), Area * (IS Conc. / IS Area)

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



Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:23 Pacific Standard Time

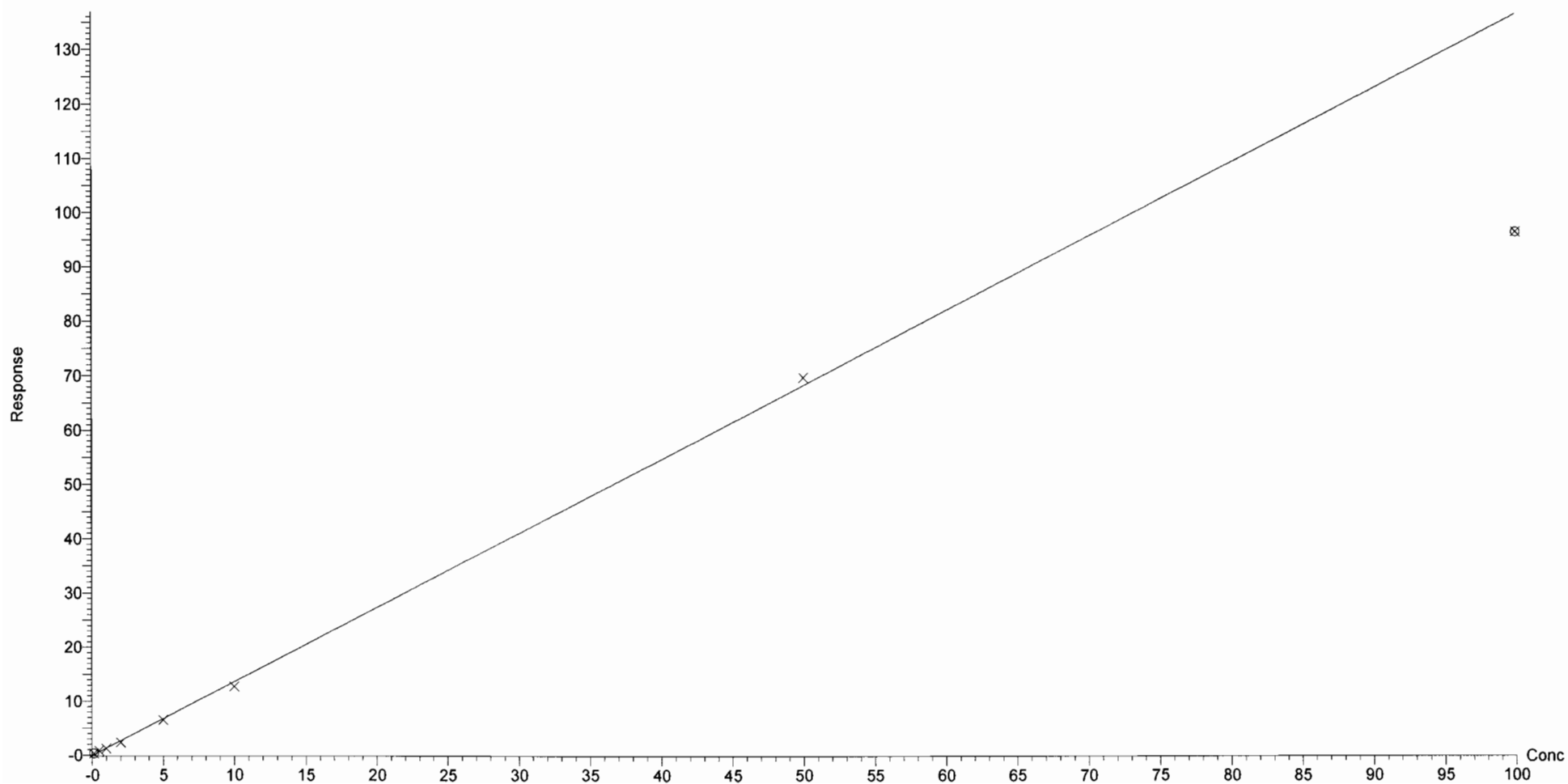
Compound name: PFNA

Correlation coefficient: $r = 0.998728$, $r^2 = 0.997458$

Calibration curve: $1.37008 * x + -0.110822$

Response type: Internal Std (Ref 22), Area * (IS Conc. / IS Area)

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



Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:23 Pacific Standard Time

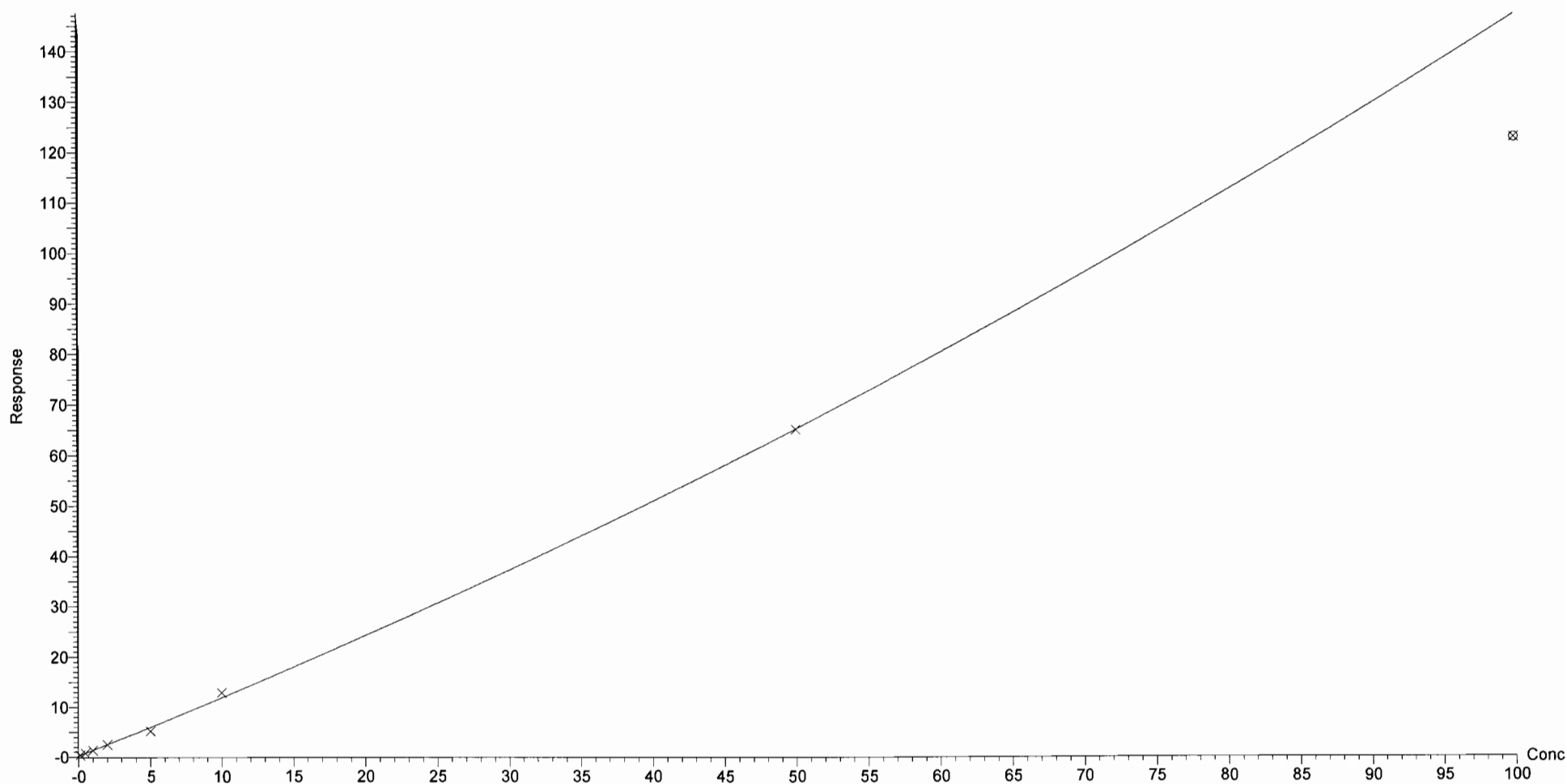
Compound name: PFOS

Coefficient of Determination: $R^2 = 0.997759$

Calibration curve: $0.00342804 * x^2 + 1.1298 * x + 0.24407$

Response type: Internal Std (Ref 23), Area * (IS Conc. / IS Area)

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



Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:23 Pacific Standard Time

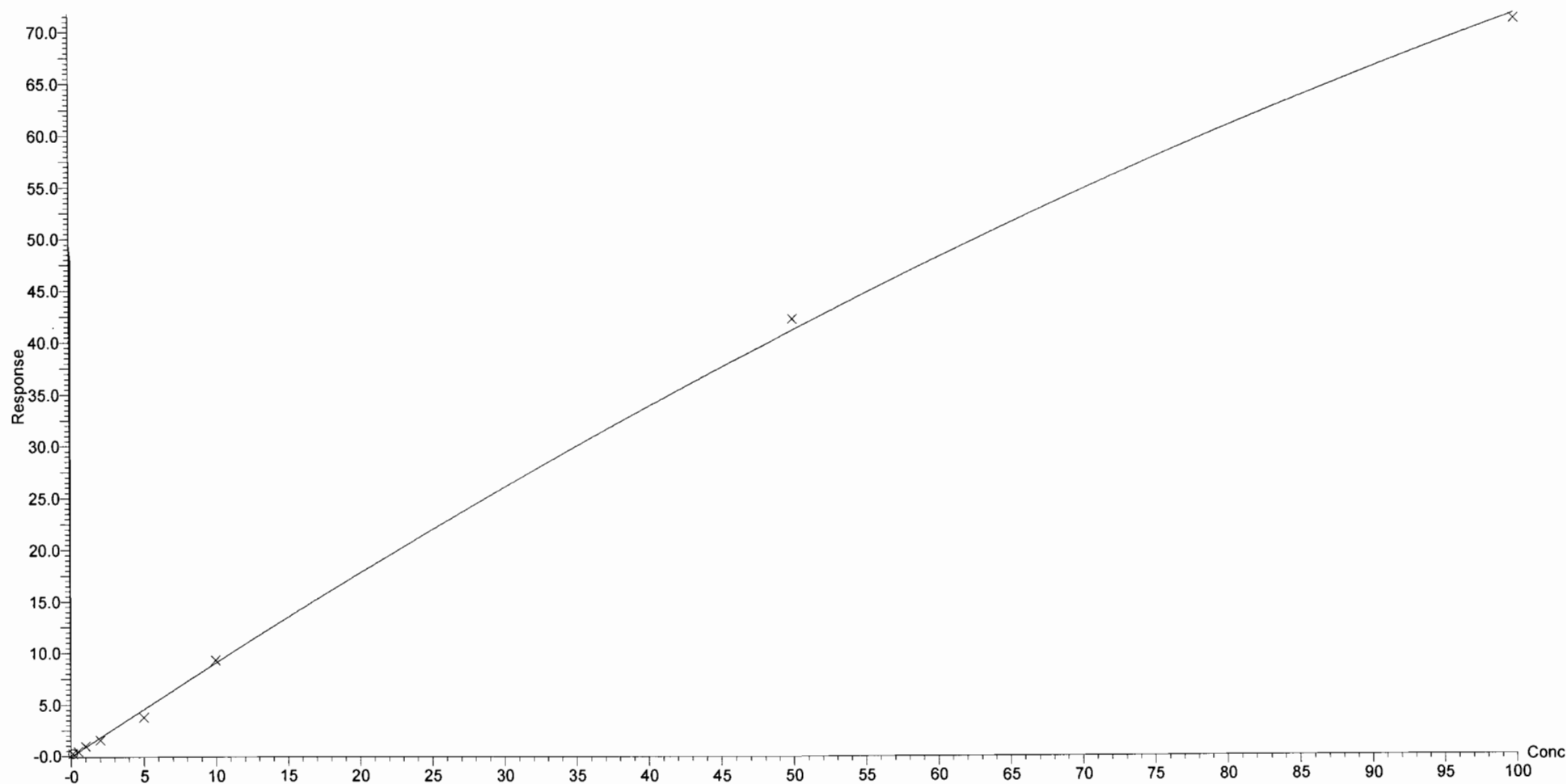
Compound name: PFDA

Coefficient of Determination: $R^2 = 0.997875$

Calibration curve: $-0.00214019 * x^2 + 0.932591 * x + -0.0912794$

Response type: Internal Std (Ref 24), Area * (IS Conc. / IS Area)

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



Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

Last Altered: Thursday, January 12, 2017 09:12:28 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:13:23 Pacific Standard Time

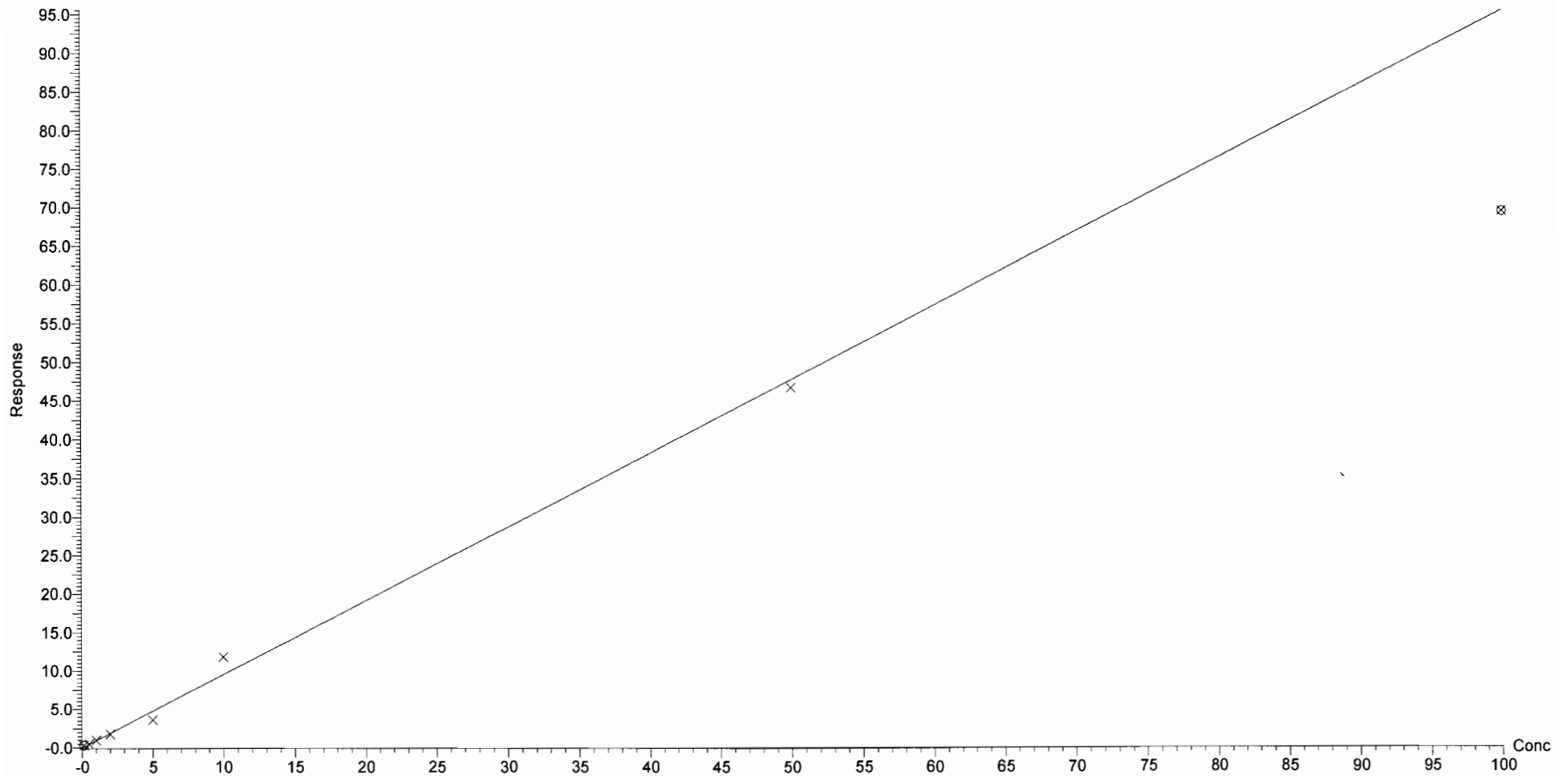
Compound name: 8:2 FTS

Correlation coefficient: $r = 0.992418$, $r^2 = 0.984893$

Calibration curve: $0.955916 * x + -0.0174241$

Response type: Internal Std (Ref 25), Area * (IS Conc. / IS Area)

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



Dataset: U:\Q2.PRO\Results\170111J1\170111J1_crv.qld

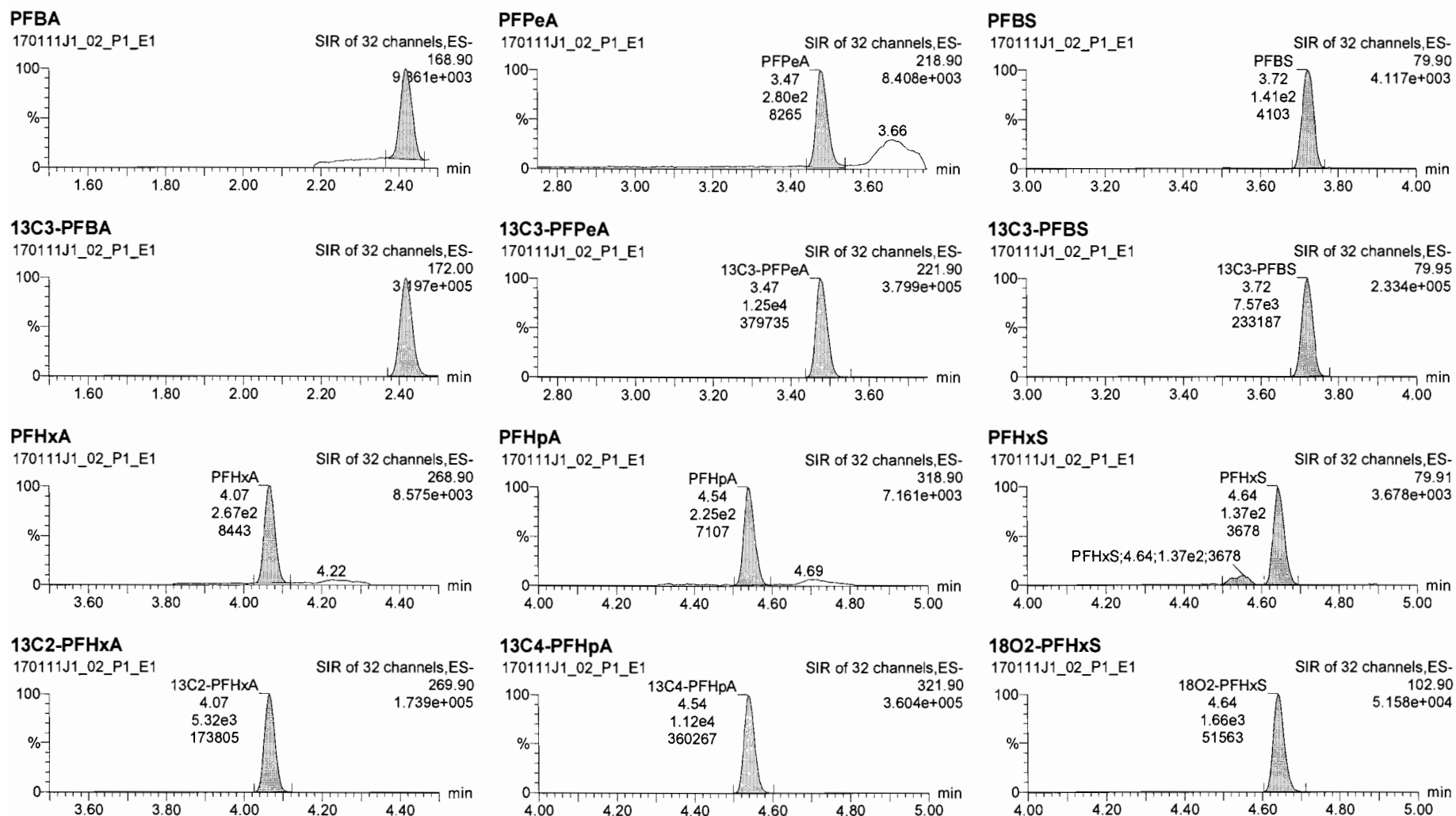
Last Altered: Thursday, January 12, 2017 08:45:09 Pacific Standard Time

Printed: Thursday, January 12, 2017 08:55:21 Pacific Standard Time

Method: U:\Q2.PRO\MethDB\PFC List 26_A No4-2FTS_Mixed.mdb 12 Jan 2017 08:10:21

Calibration: U:\Q2.PRO\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 08:45:09

Name: 170111J1_02.wiff, Date: 11-Jan-2017, Time: 11:45:32, ID: ST170111J1-1 PFC CS(-2) 17A1101, Description: PFC CS(-2) 17A1101 A



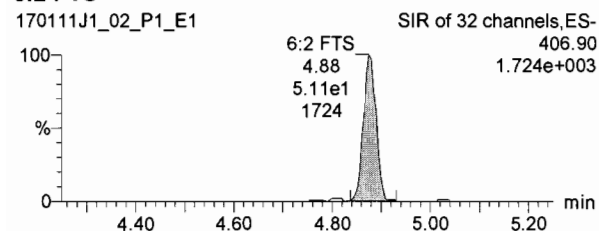
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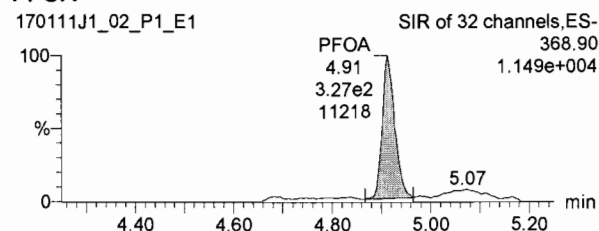
Printed: Thursday, January 12, 2017 08:55:21 Pacific Standard Time

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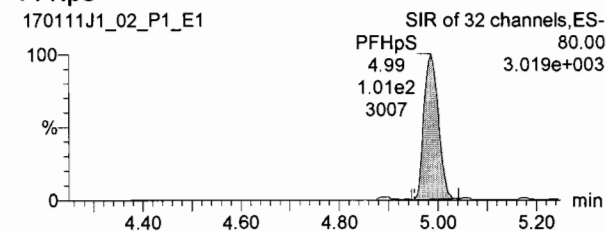
6:2 FTS



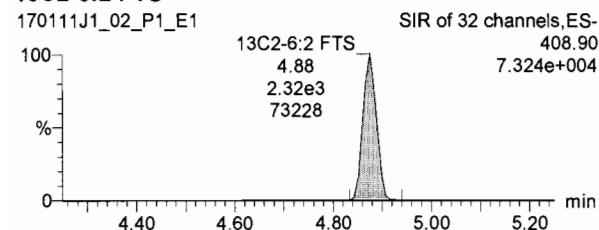
PFOA



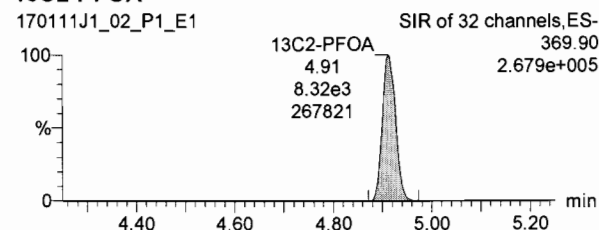
PFHpS



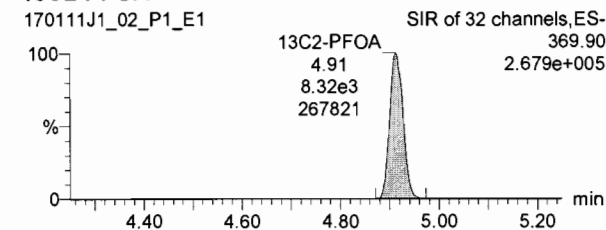
13C2-6:2 FTS



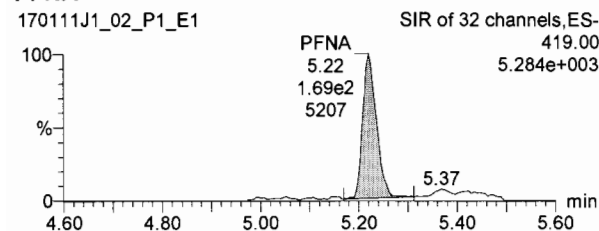
13C2-PFOA



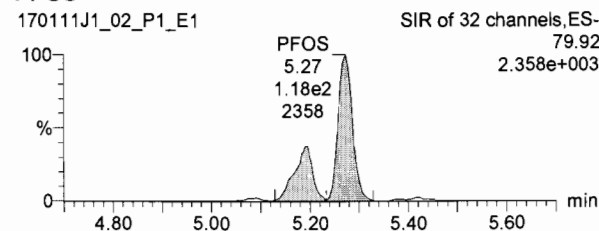
13C2-PFOA



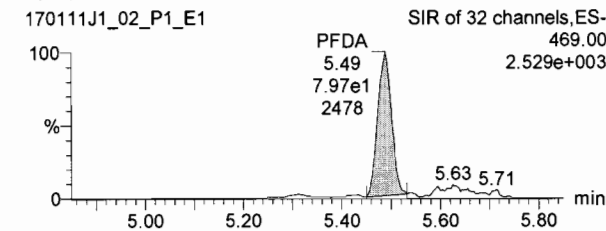
PFNA



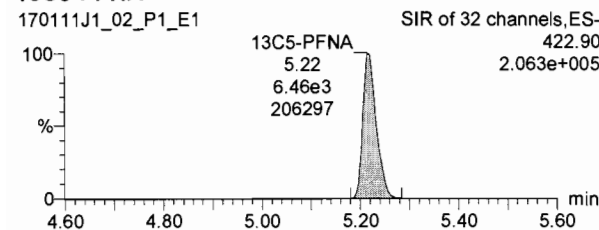
PFOS



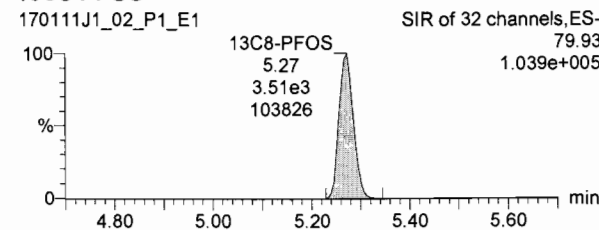
PFDA



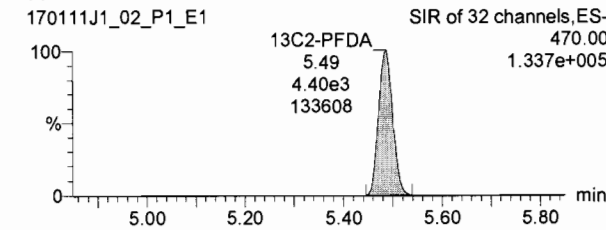
13C5-PFNA



13C8-PFOS



13C2-PFDA



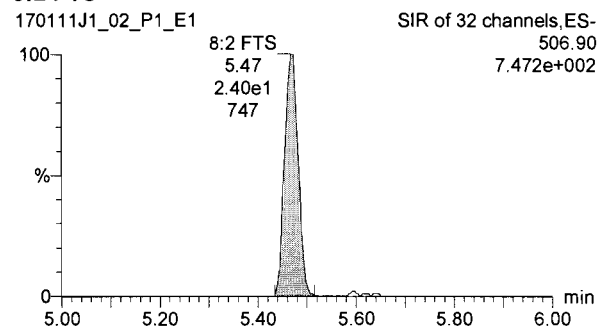
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Last Altered: Thursday, January 12, 2017 08:45:09 Pacific Standard Time

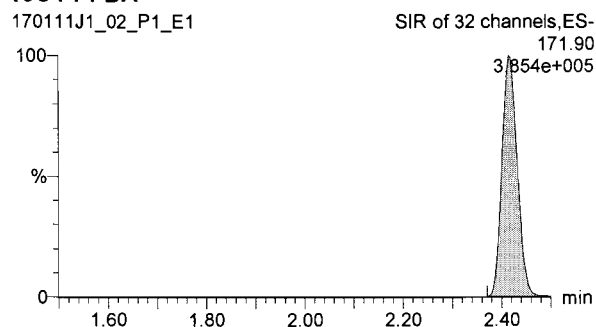
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Name: 170111J1_02.wiff, Date: 11-Jan-2017, Time: 11:45:32, ID: ST170111J1-1 PFC CS(-2) 17A1101, Description: PFC CS(-2) 17A1101 A

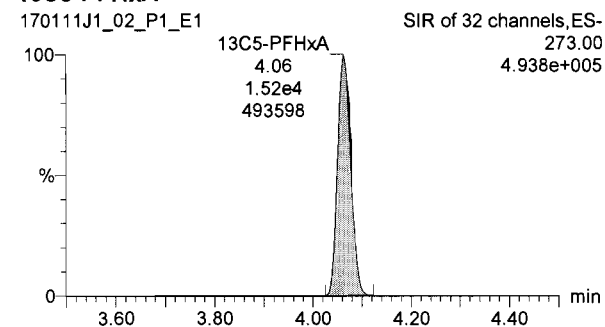
8:2 FTS



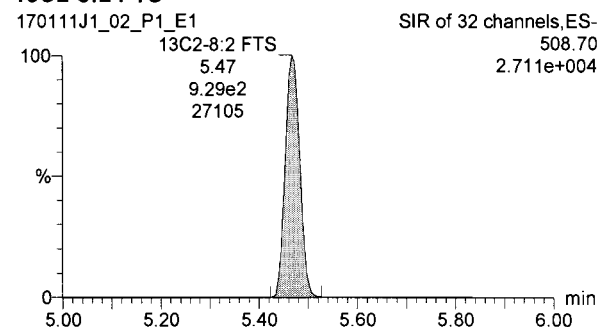
13C4-PFBA



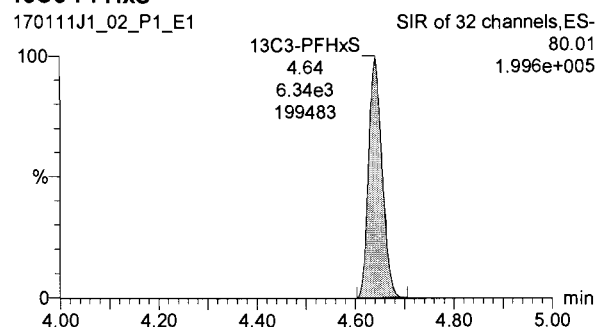
13C5-PFHxA



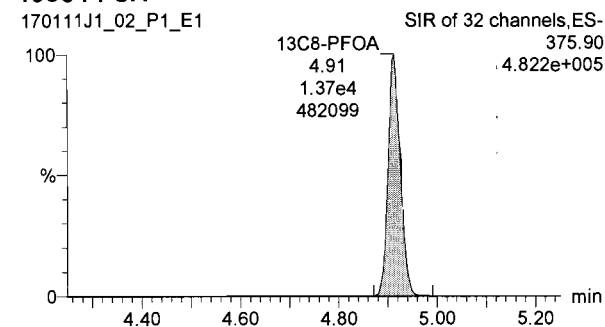
13C2-8:2 FTS



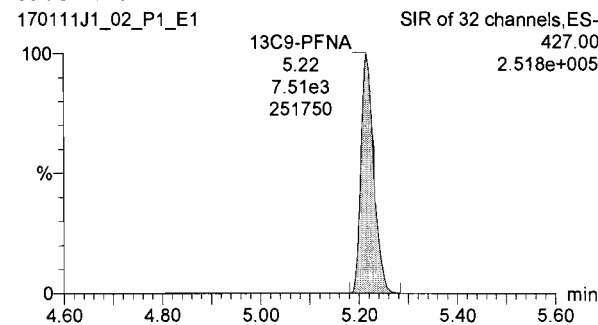
13C3-PFHxS



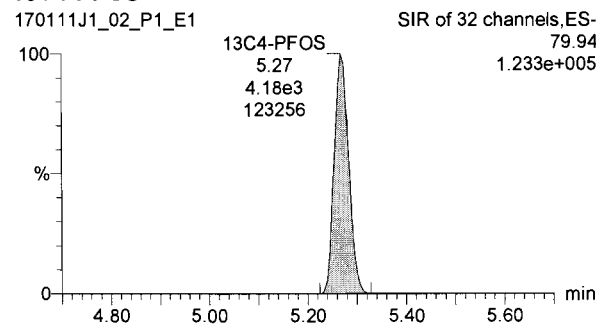
13C8-PFOA



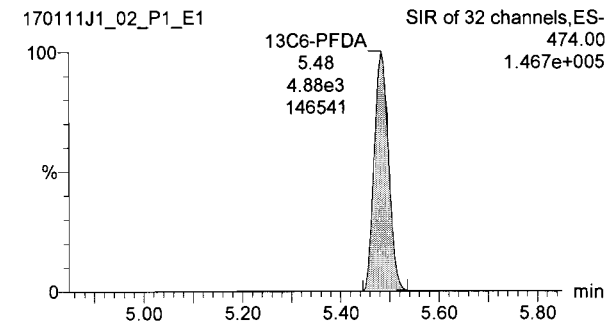
13C9-PFNA



13C4-PFOS



13C6-PFDA

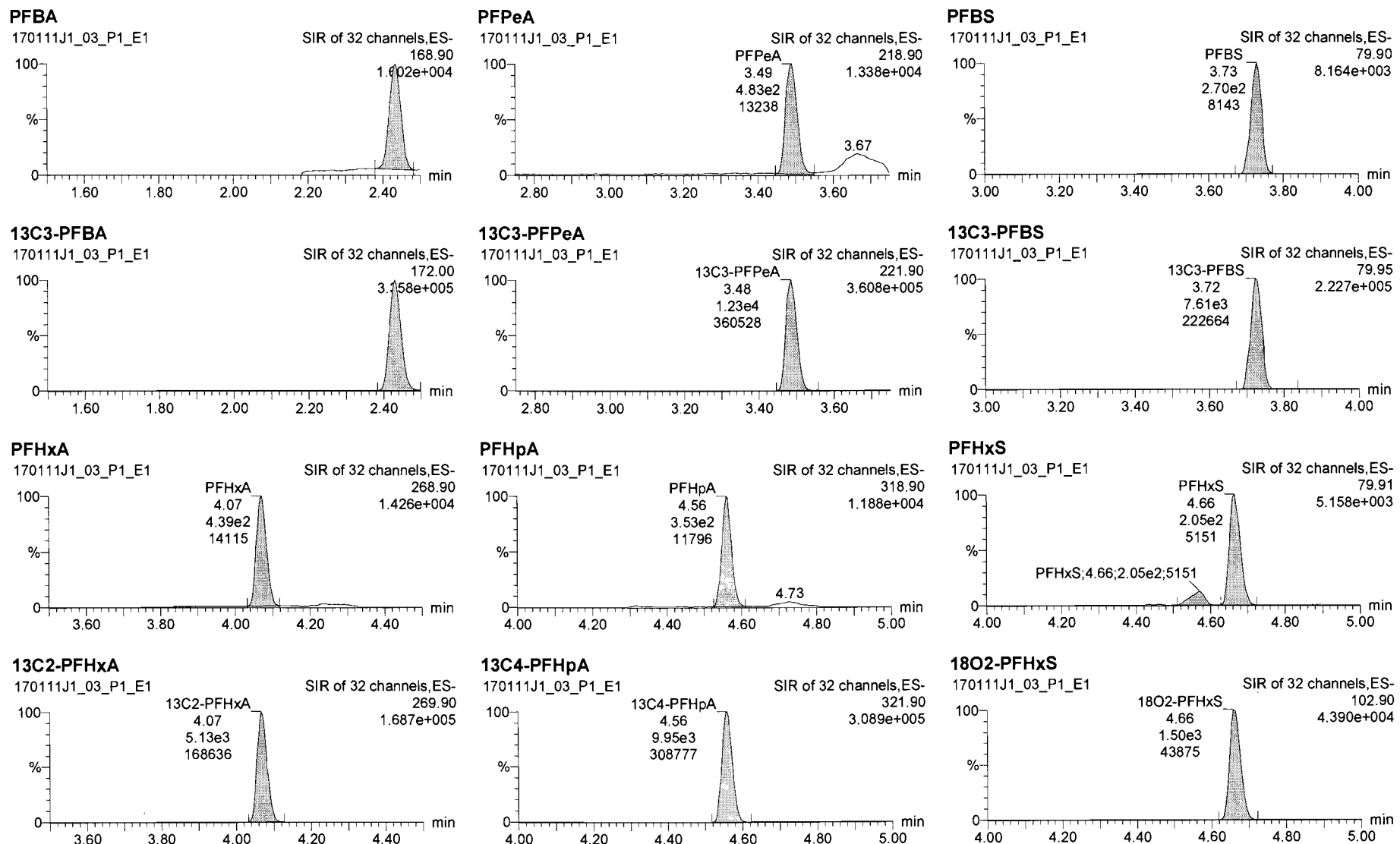


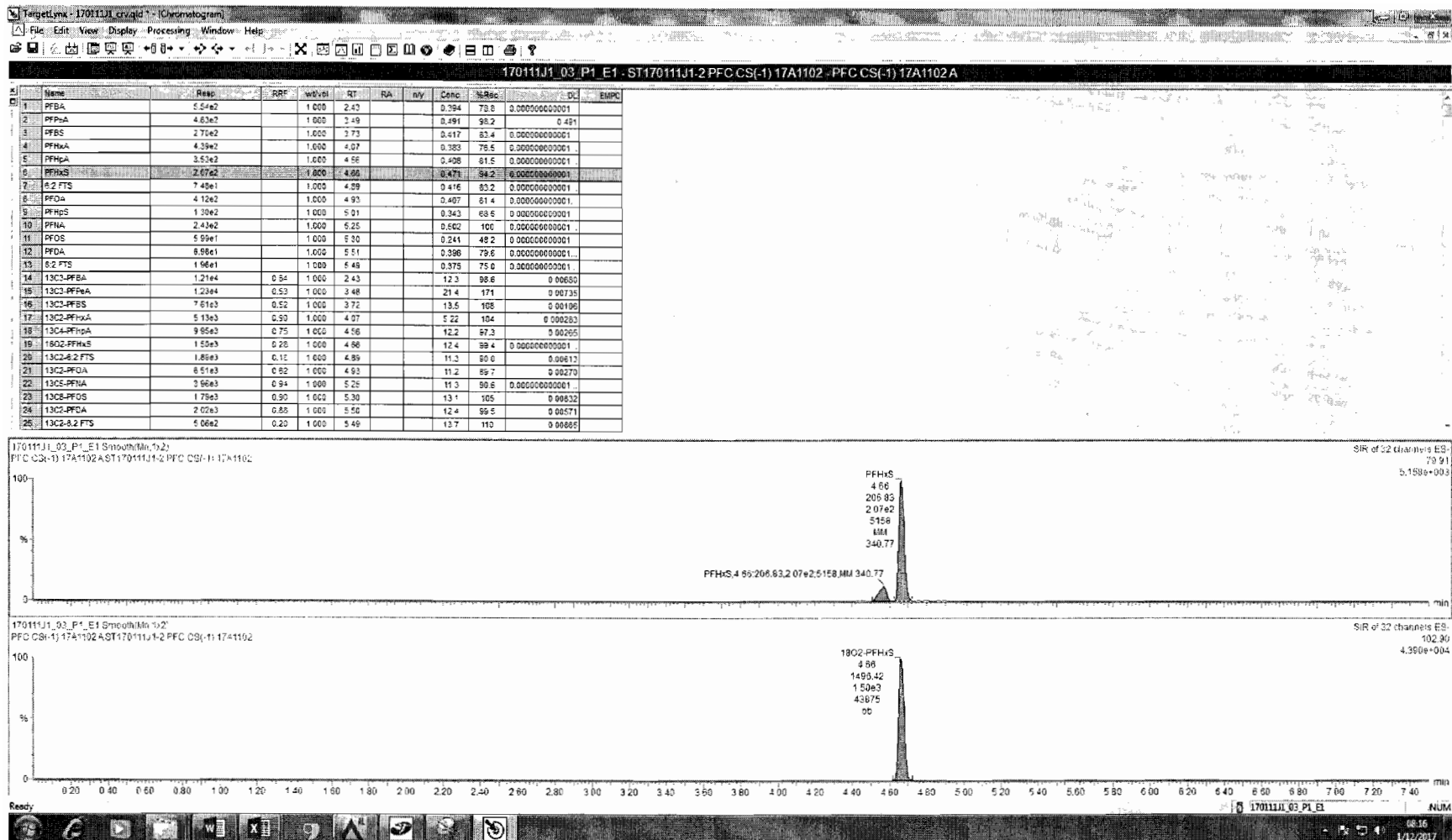
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Last Altered: Thursday, January 12, 2017 08:45:09 Pacific Standard Time

Printed: Thursday, January 12, 2017 08:55:21 Pacific Standard Time

Name: 170111J1_03.wiff, Date: 11-Jan-2017, Time: 11:57:49, ID: ST170111J1-2 PFC CS(-1) 17A1102, Description: PFC CS(-1) 17A1102 A





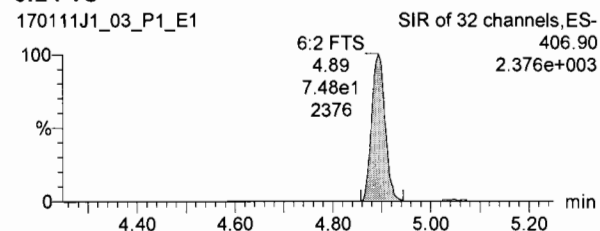
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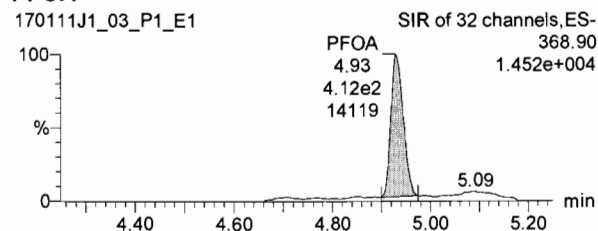
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Name: 170111J1_03.wiff, Date: 11-Jan-2017, Time: 11:57:49, ID: ST170111J1-2 PFC CS(-1) 17A1102, Description: PFC CS(-1) 17A1102 A

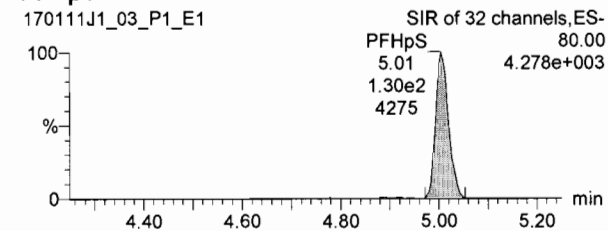
6:2 FTS



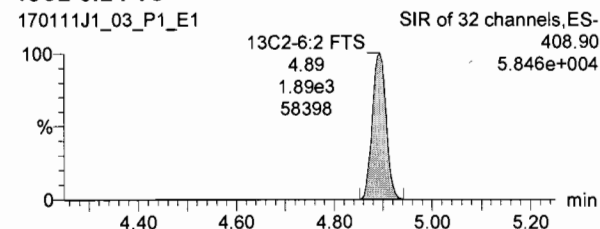
PFOA



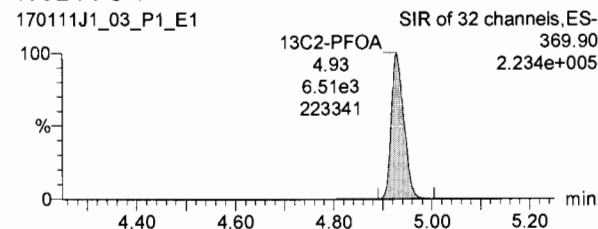
PFHpS



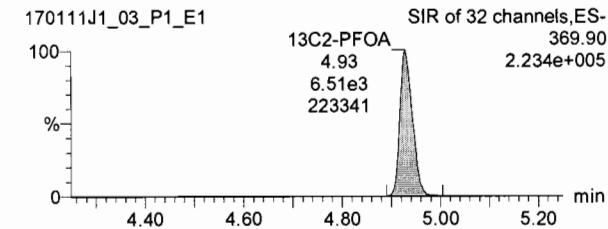
13C2-6:2 FTS



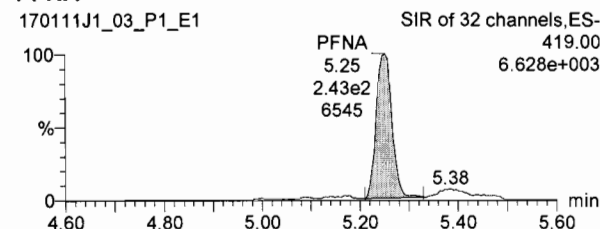
13C2-PFOA



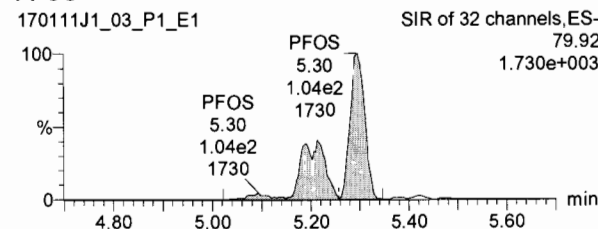
13C2-PFOA



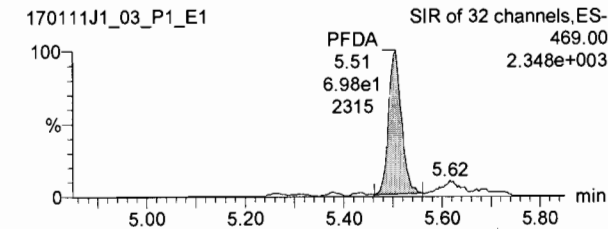
PFNA



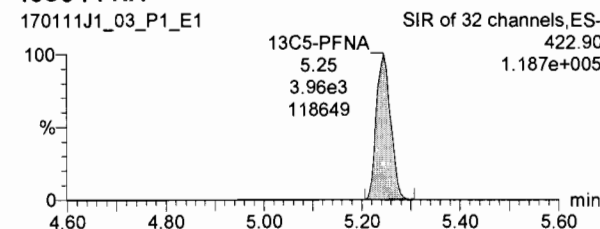
PFOS



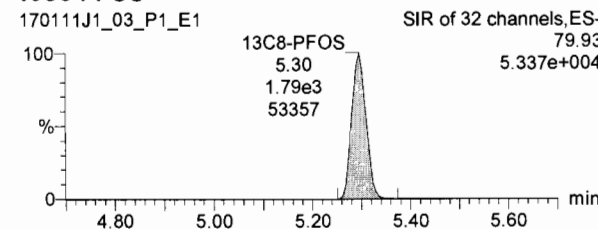
PFDA



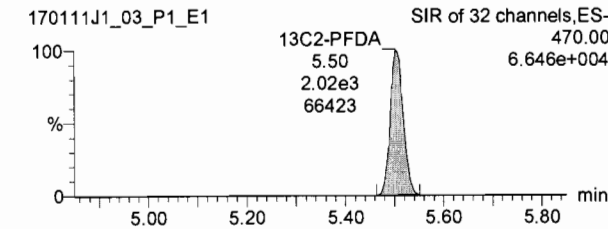
13C5-PFNA

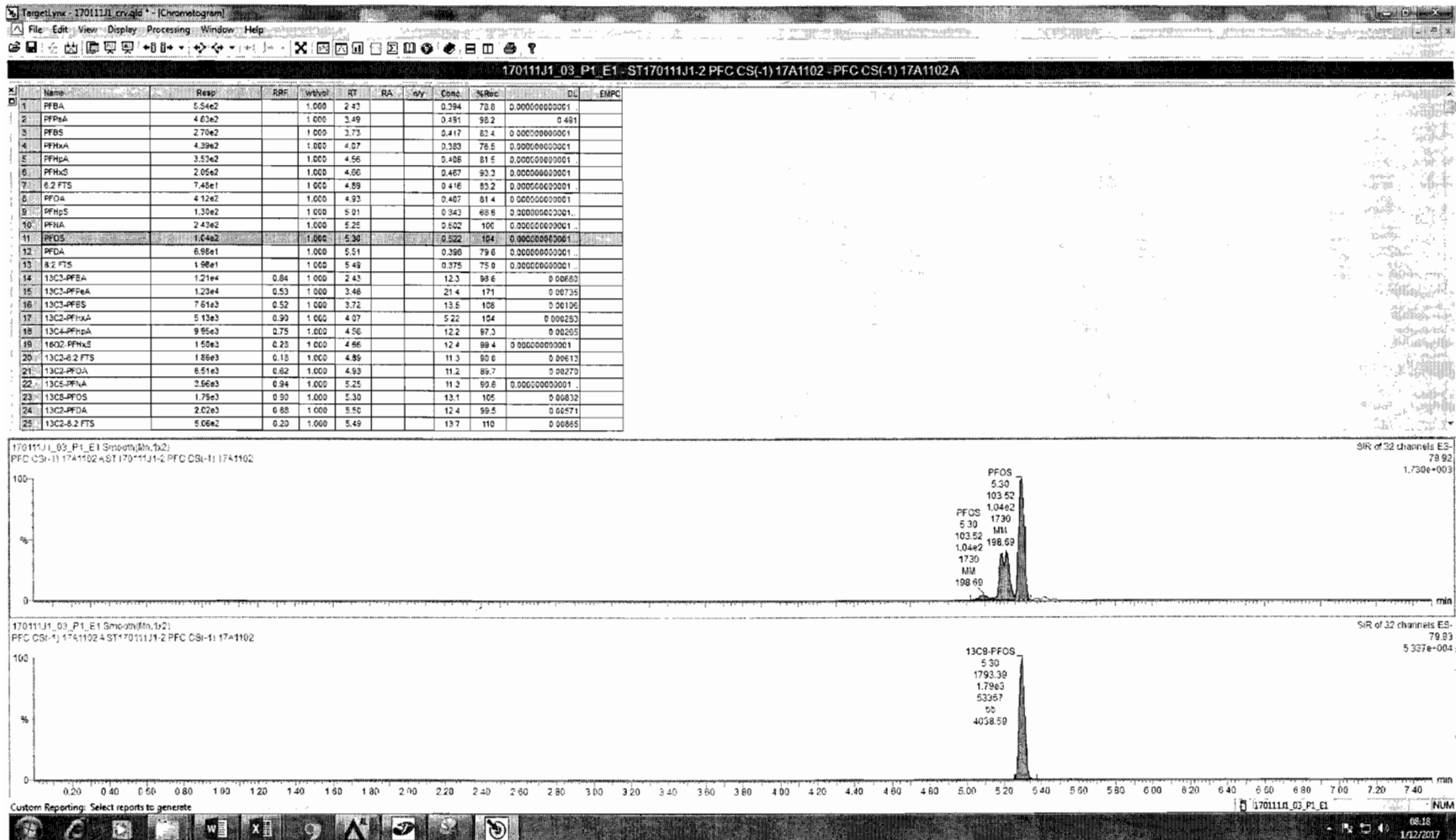


13C8-PFOS



13C2-PFDA





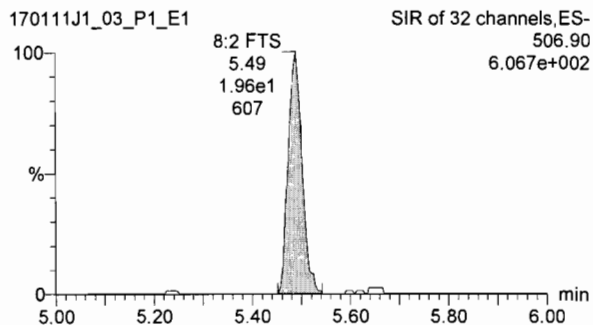
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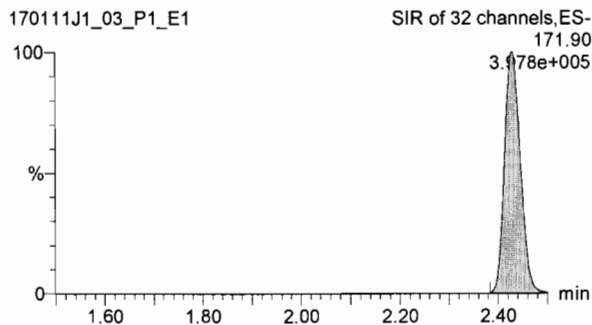
Printed: Thursday, January 12, 2017 08:55:21 Pacific Standard Time

Name: 170111J1_03.wiff, Date: 11-Jan-2017, Time: 11:57:49, ID: ST170111J1-2 PFC CS(-1) 17A1102, Description: PFC CS(-1) 17A1102 A

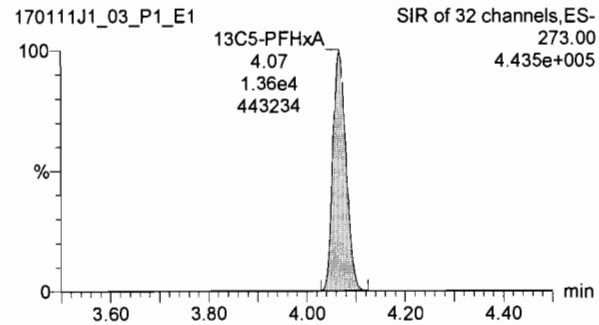
8:2 FTS



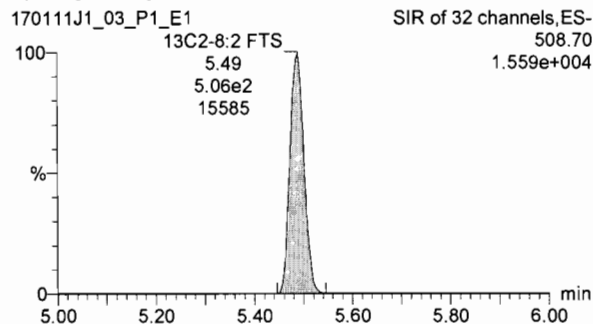
13C4-PFBA



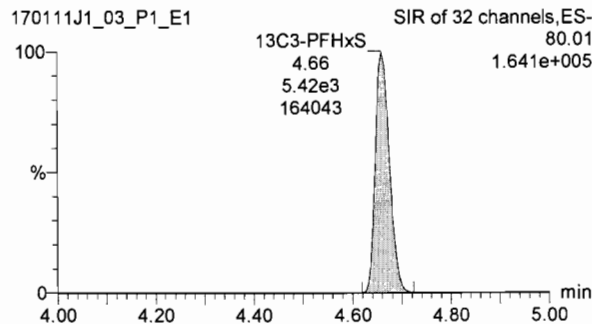
13C5-PFHxA



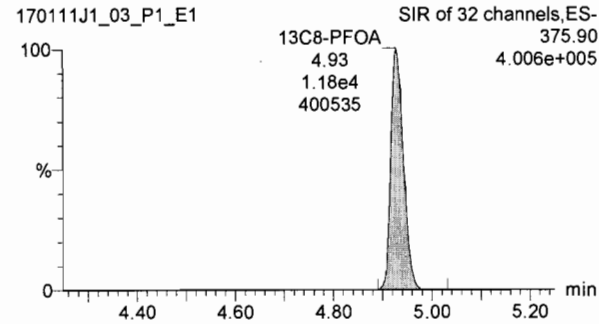
13C2-8:2 FTS



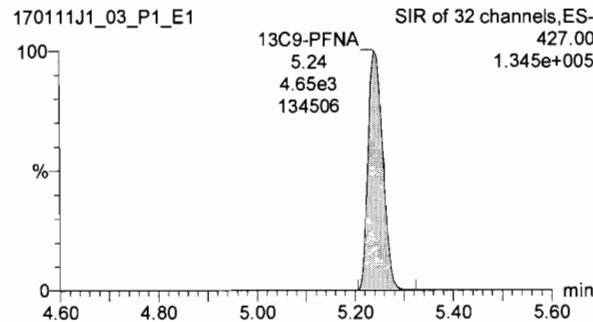
13C3-PFHxS



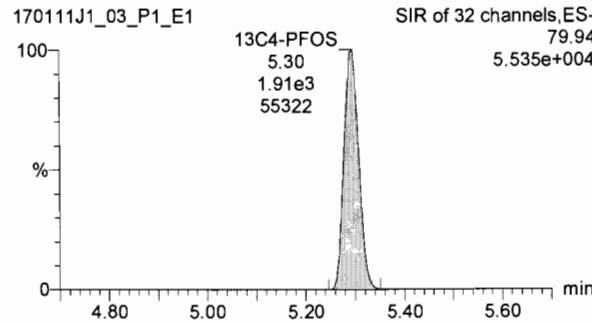
13C8-PFOA



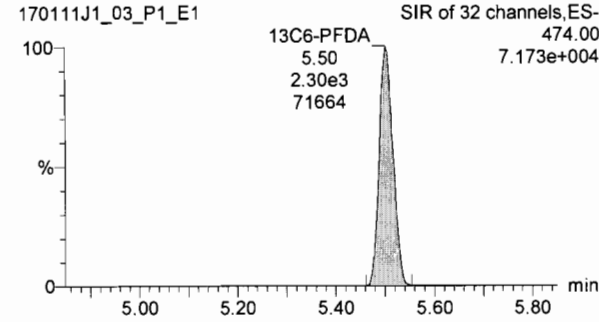
13C9-PFNA



13C4-PFOS



13C6-PFDA



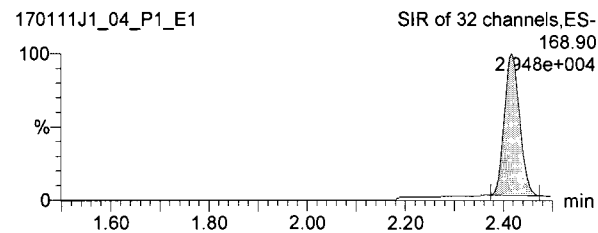
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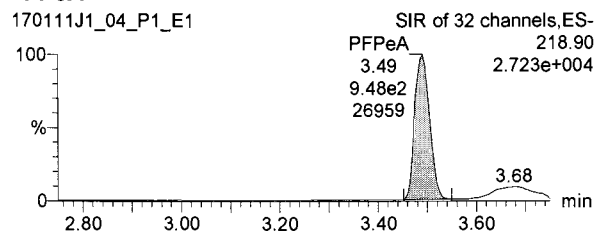
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Name: 170111J1_04.wiff, Date: 11-Jan-2017, Time: 12:10:03, ID: ST170111J1-3 PFC CS0 17A1103, Description: PFC CS0 17A1103 A

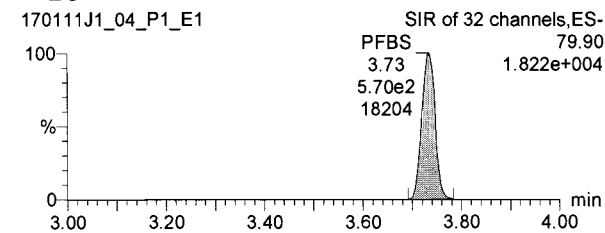
PFBA



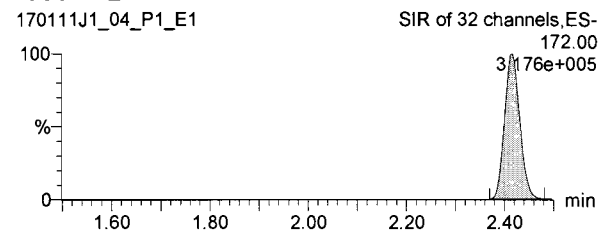
PFPeA



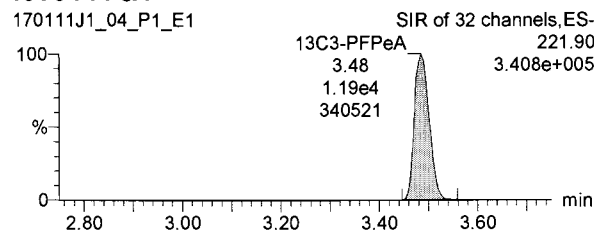
PFBS



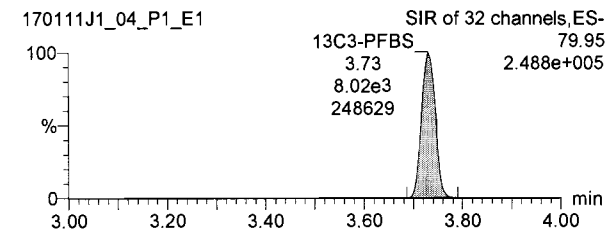
13C3-PFBA



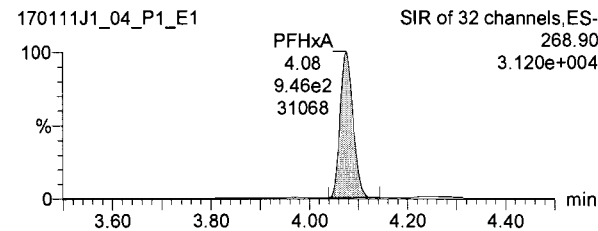
13C3-PFPeA



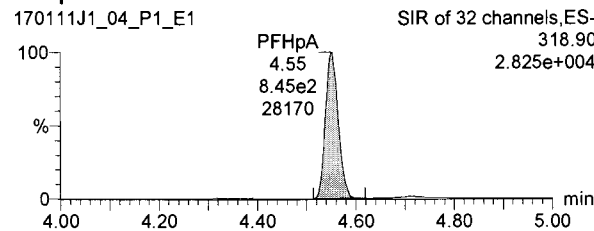
13C3-PFBS



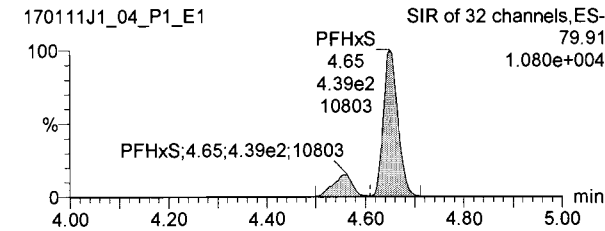
PFHxA



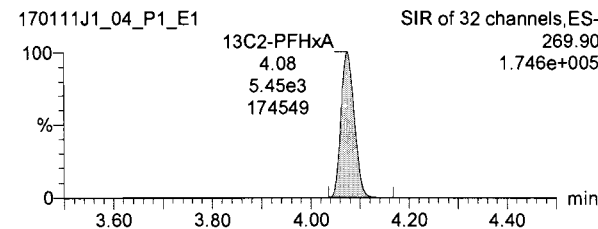
PFHpA



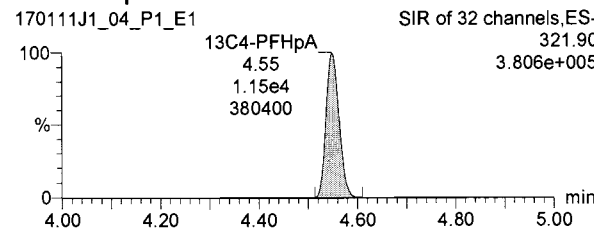
PFHxS



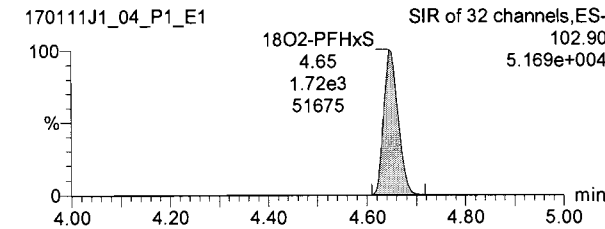
13C2-PFHxA

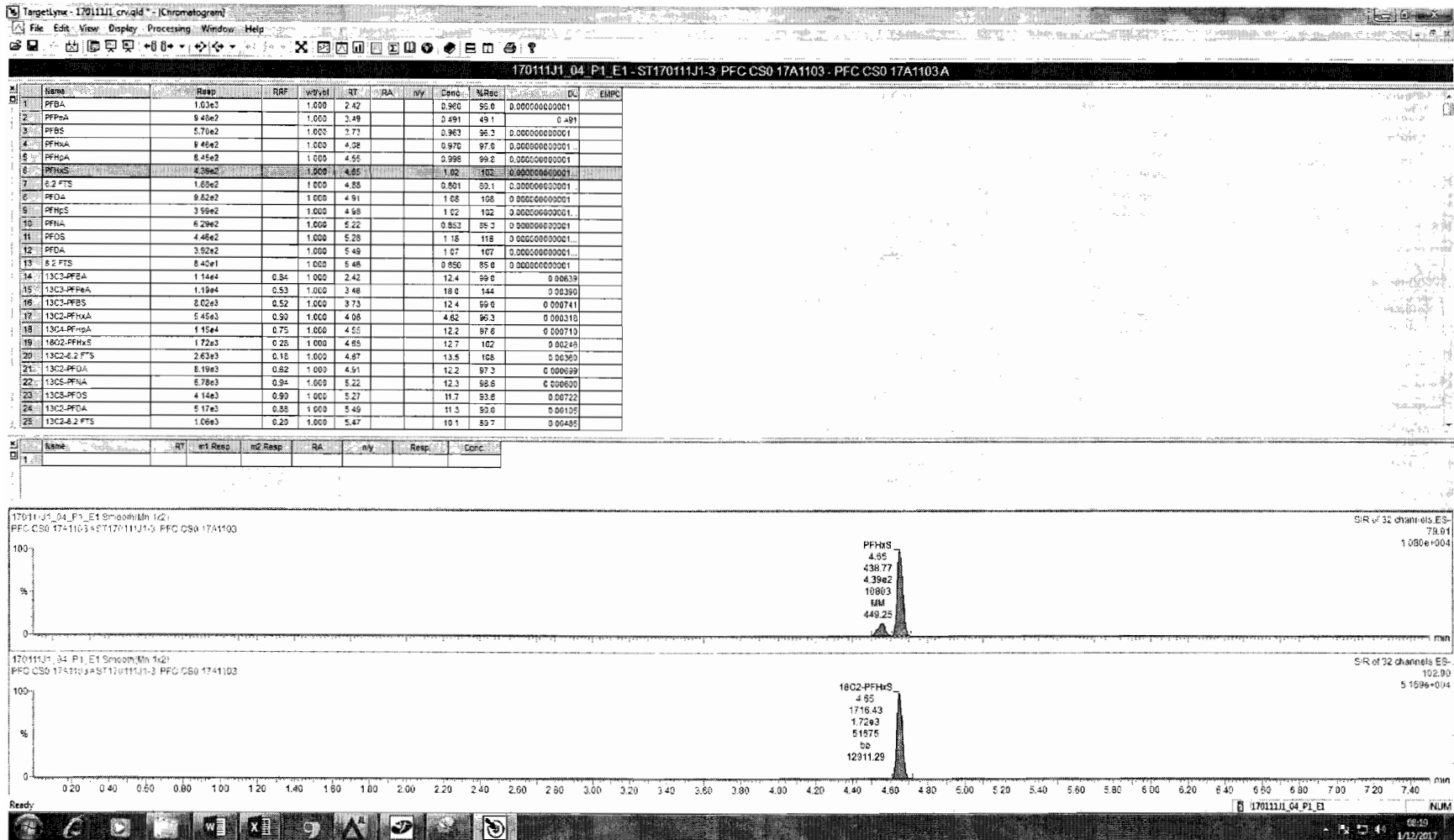


13C4-PFHpA



18O2-PFHxS





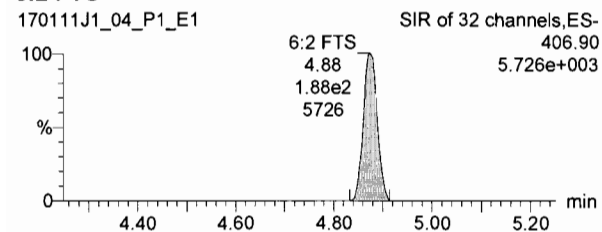
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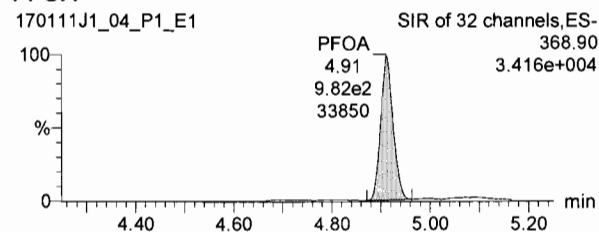
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Name: 170111J1_04.wiff, Date: 11-Jan-2017, Time: 12:10:03, ID: ST170111J1-3 PFC CS0 17A1103, Description: PFC CS0 17A1103 A

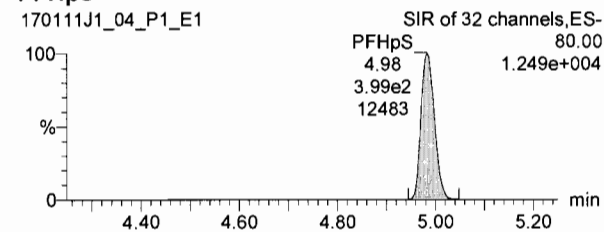
6:2 FTS



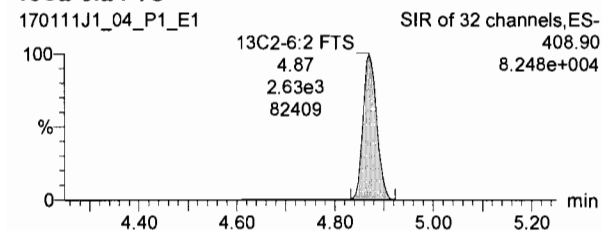
PFOA



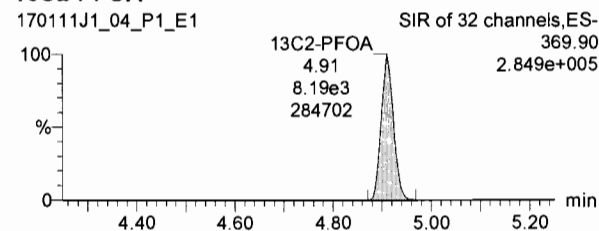
PFHpS



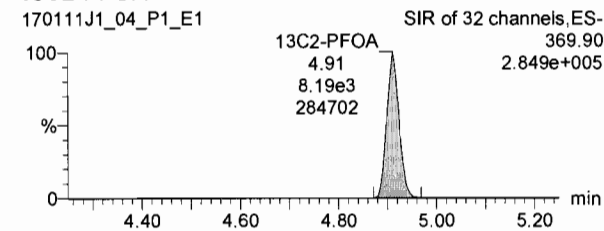
13C2-6:2 FTS



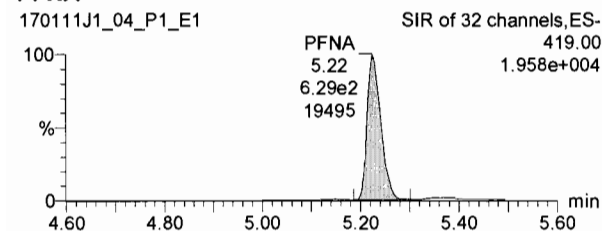
13C2-PFOA



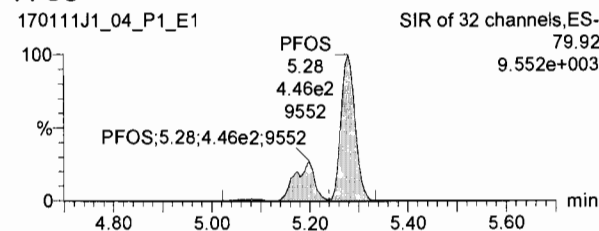
13C2-PFOA



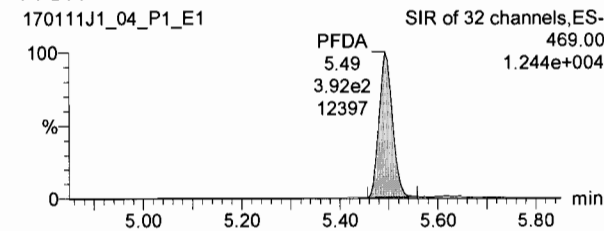
PFNA



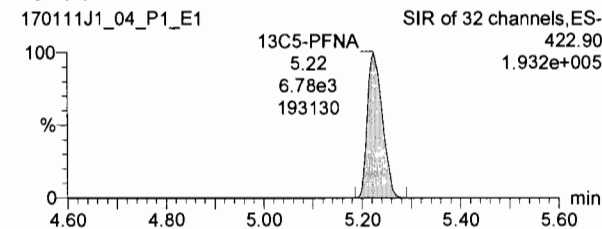
PFOS



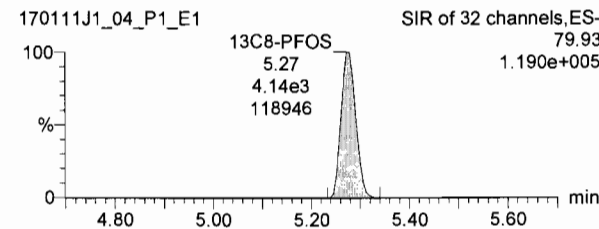
PFDA



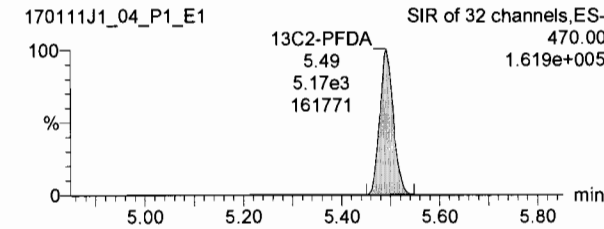
13C5-PFNA

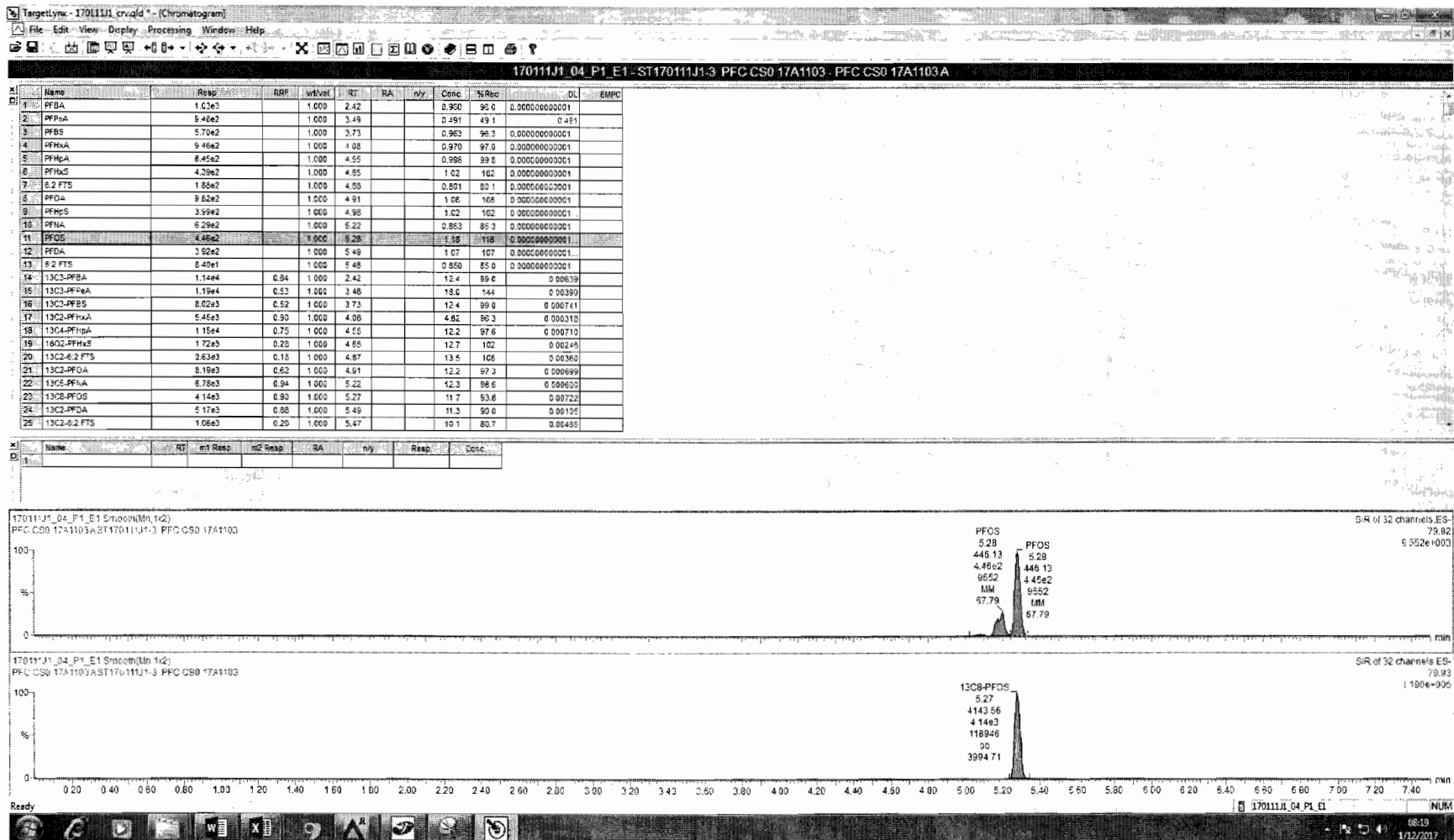


13C8-PFOS



13C2-PFDA





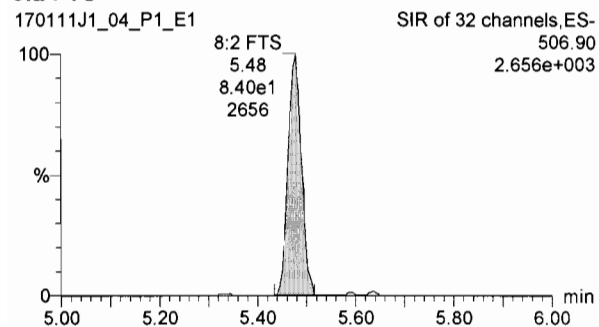
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Last Altered: Thursday, January 12, 2017 08:45:09 Pacific Standard Time

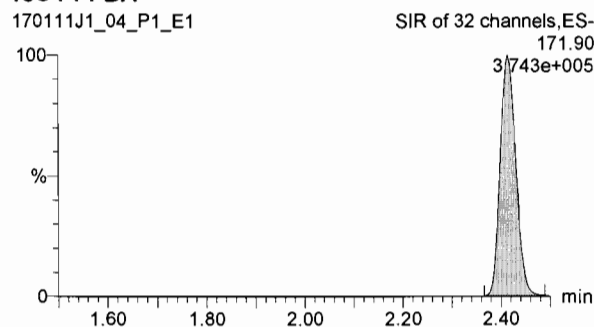
Printed: Thursday, January 12, 2017 08:55:21 Pacific Standard Time

Name: 170111J1_04.wiff, Date: 11-Jan-2017, Time: 12:10:03, ID: ST170111J1-3 PFC CS0 17A1103, Description: PFC CS0 17A1103 A

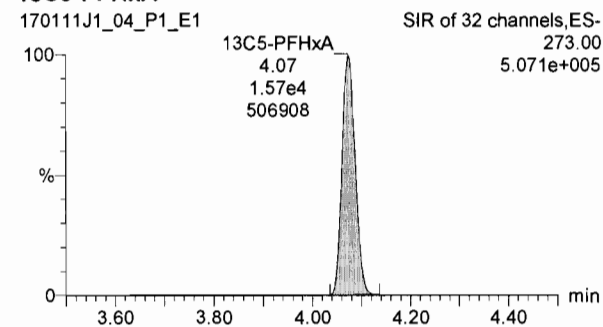
8:2 FTS



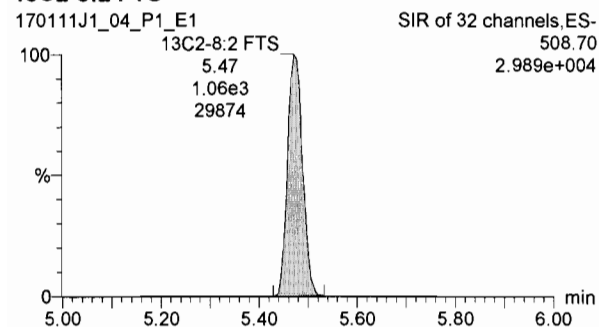
13C4-PFBA



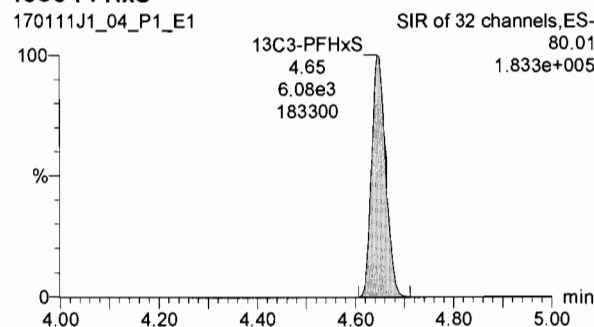
13C5-PFHxA



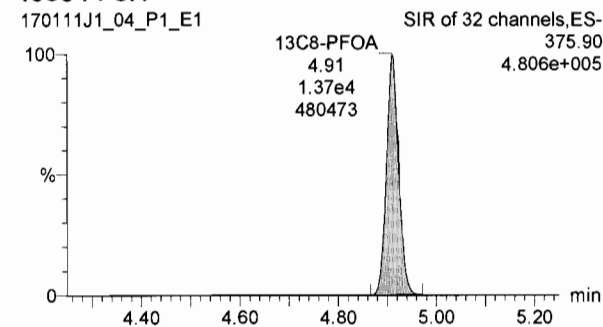
13C2-8:2 FTS



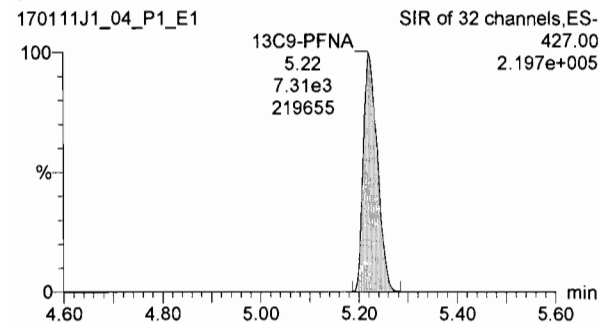
13C3-PFHxS



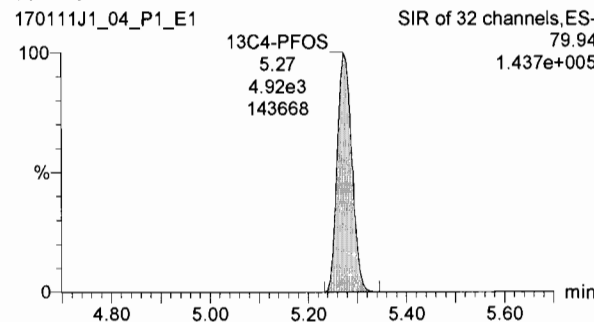
13C8-PFOA



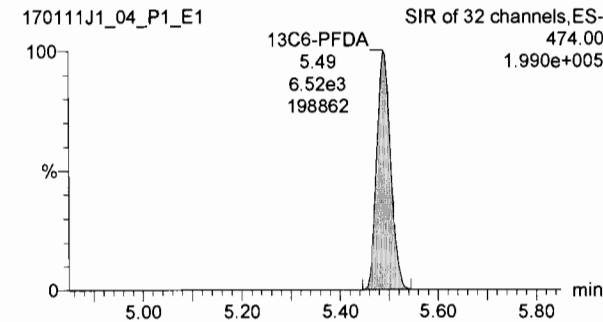
13C9-PFNA



13C4-PFOS



13C6-PFDA



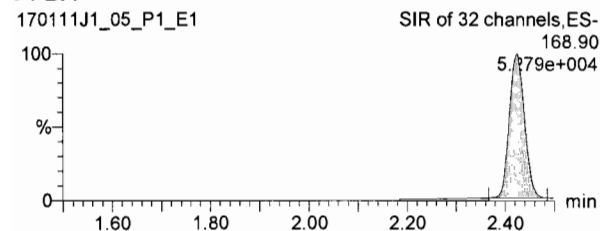
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Last Altered: Thursday, January 12, 2017 08:45:09 Pacific Standard Time

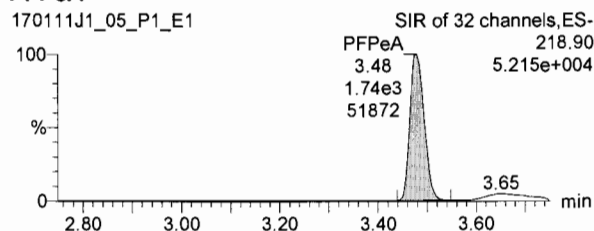
Printed: Thursday, January 12, 2017 08:55:21 Pacific Standard Time

Name: 170111J1_05.wiff, Date: 11-Jan-2017, Time: 12:22:18, ID: ST170111J1-4 PFC CS1 17A1104, Description: PFC CS1 17A1104 A

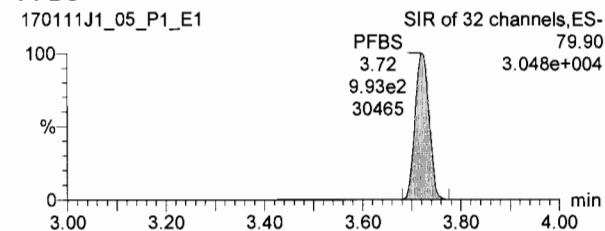
PFBA



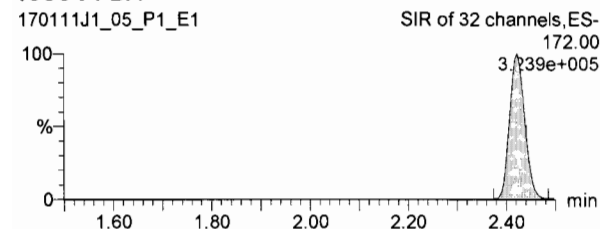
PFPeA



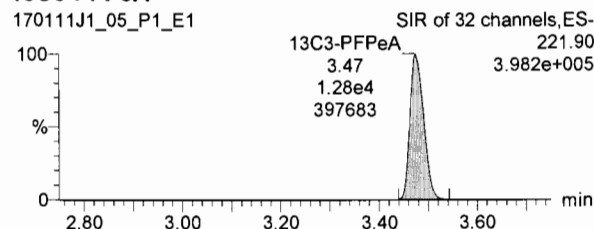
PFBS



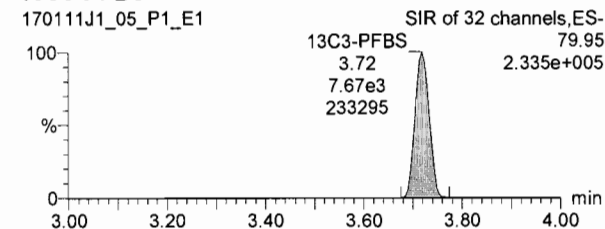
13C3-PFBA



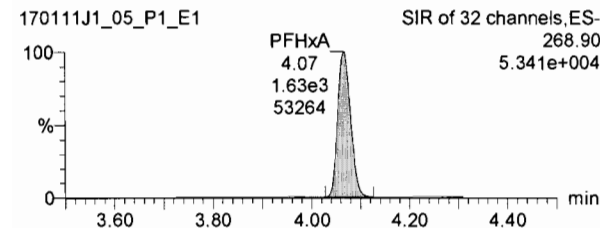
13C3-PFPeA



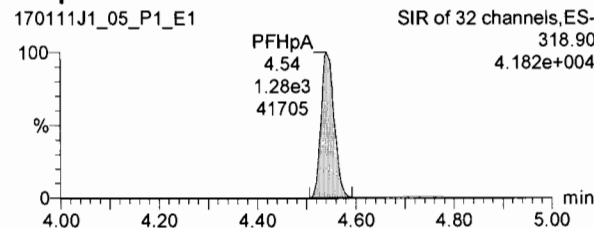
13C3-PFBS



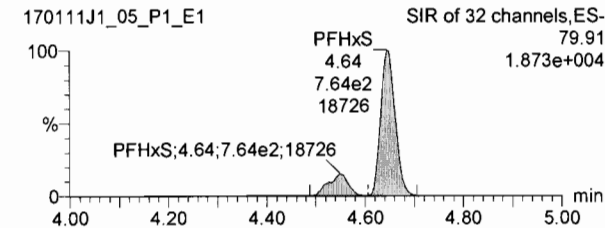
PFHxA



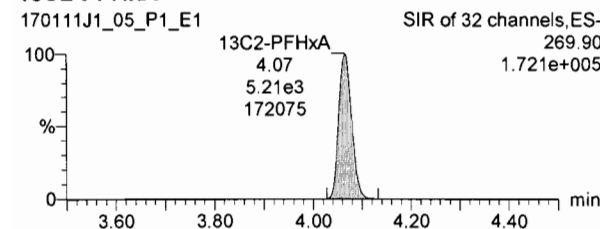
PFHpA



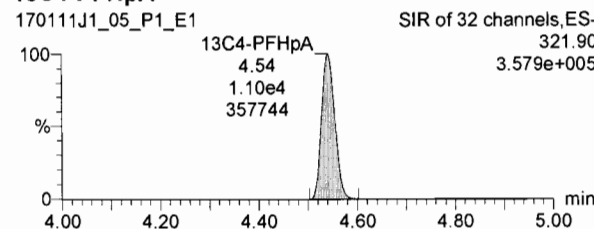
PFHxS



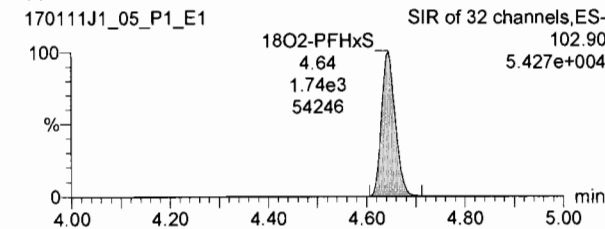
13C2-PFHxA

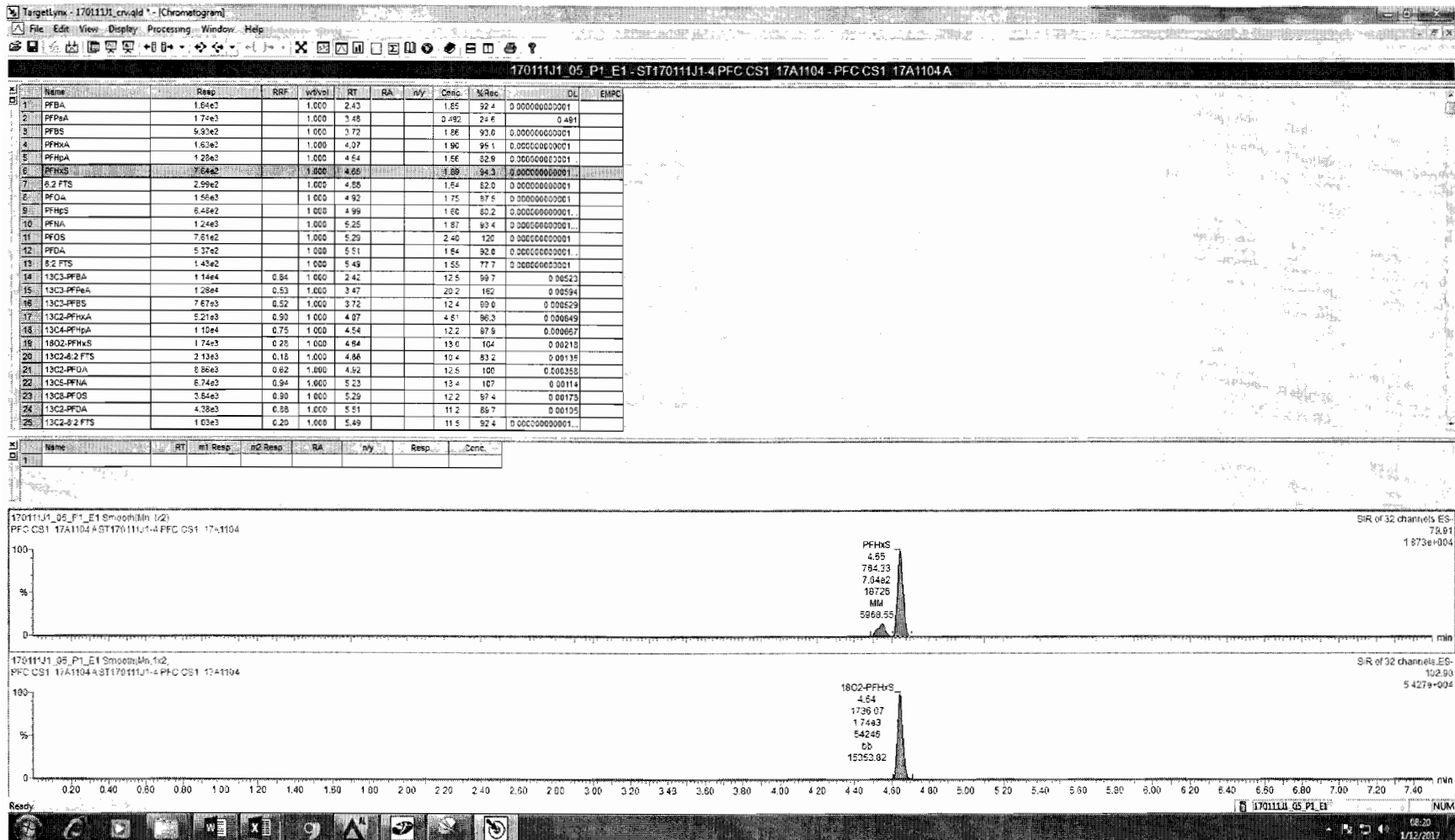


13C4-PFHpA



18O2-PFHxS





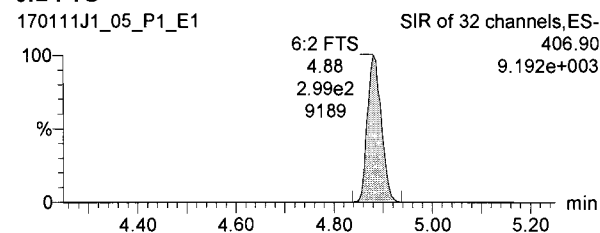
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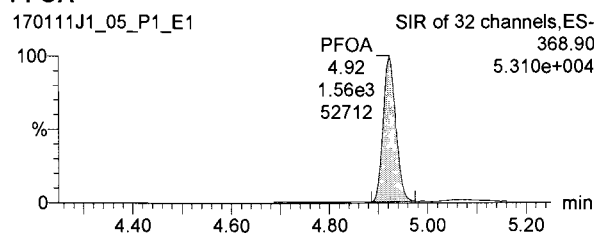
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Name: 170111J1_05.wiff, Date: 11-Jan-2017, Time: 12:22:18, ID: ST170111J1-4 PFC CS1 17A1104, Description: PFC CS1 17A1104 A

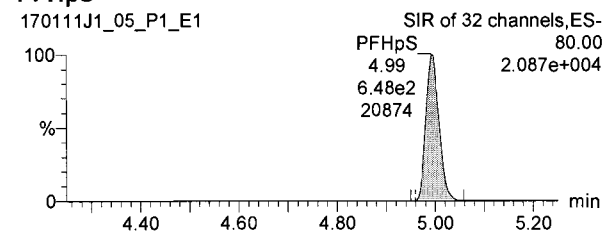
6:2 FTS



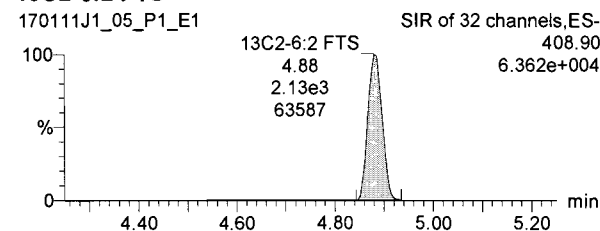
PFOA



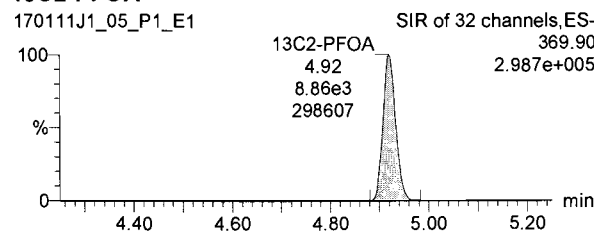
PFHpS



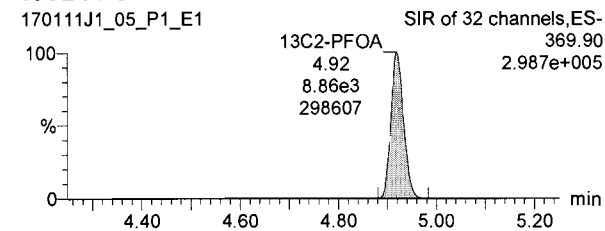
13C2-6:2 FTS



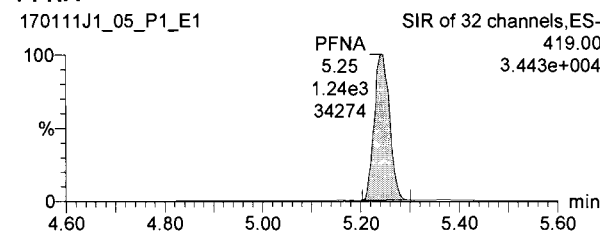
13C2-PFOA



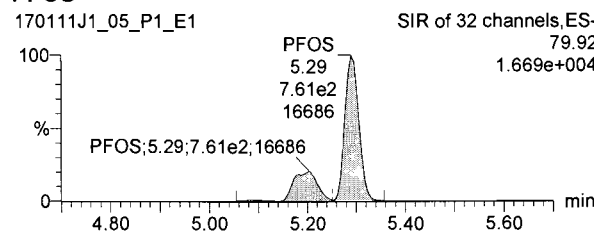
13C2-PFOA



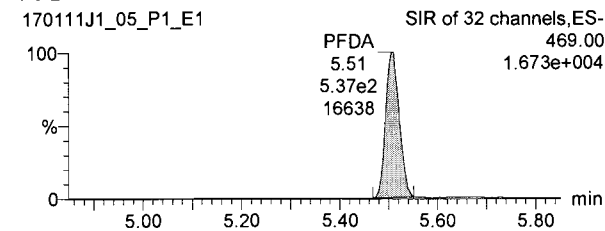
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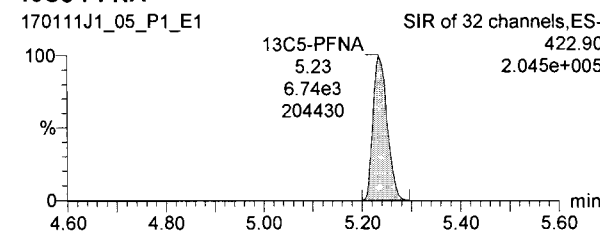
PFOS



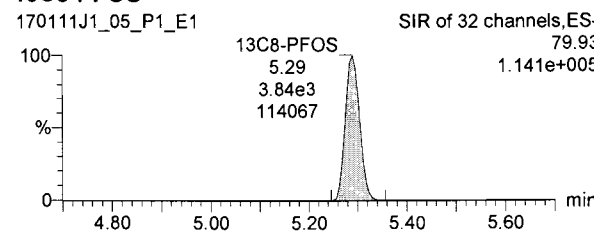
PFDA



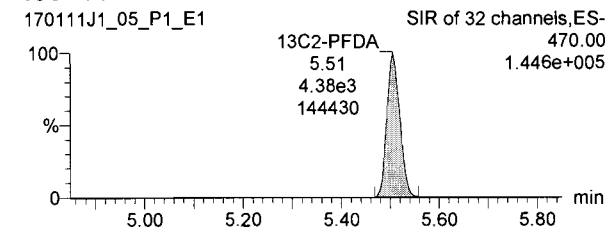
13C5-PFNA

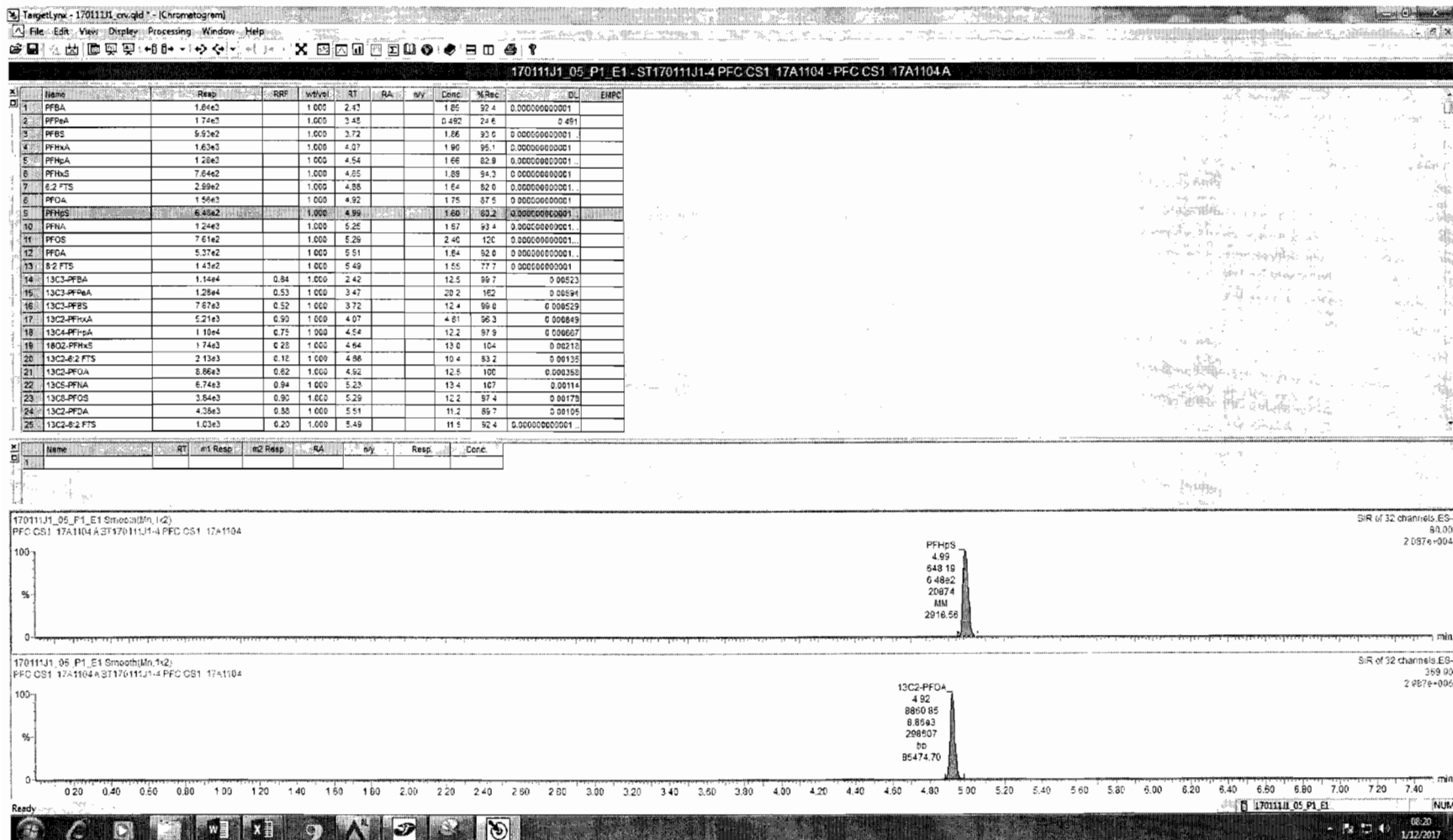


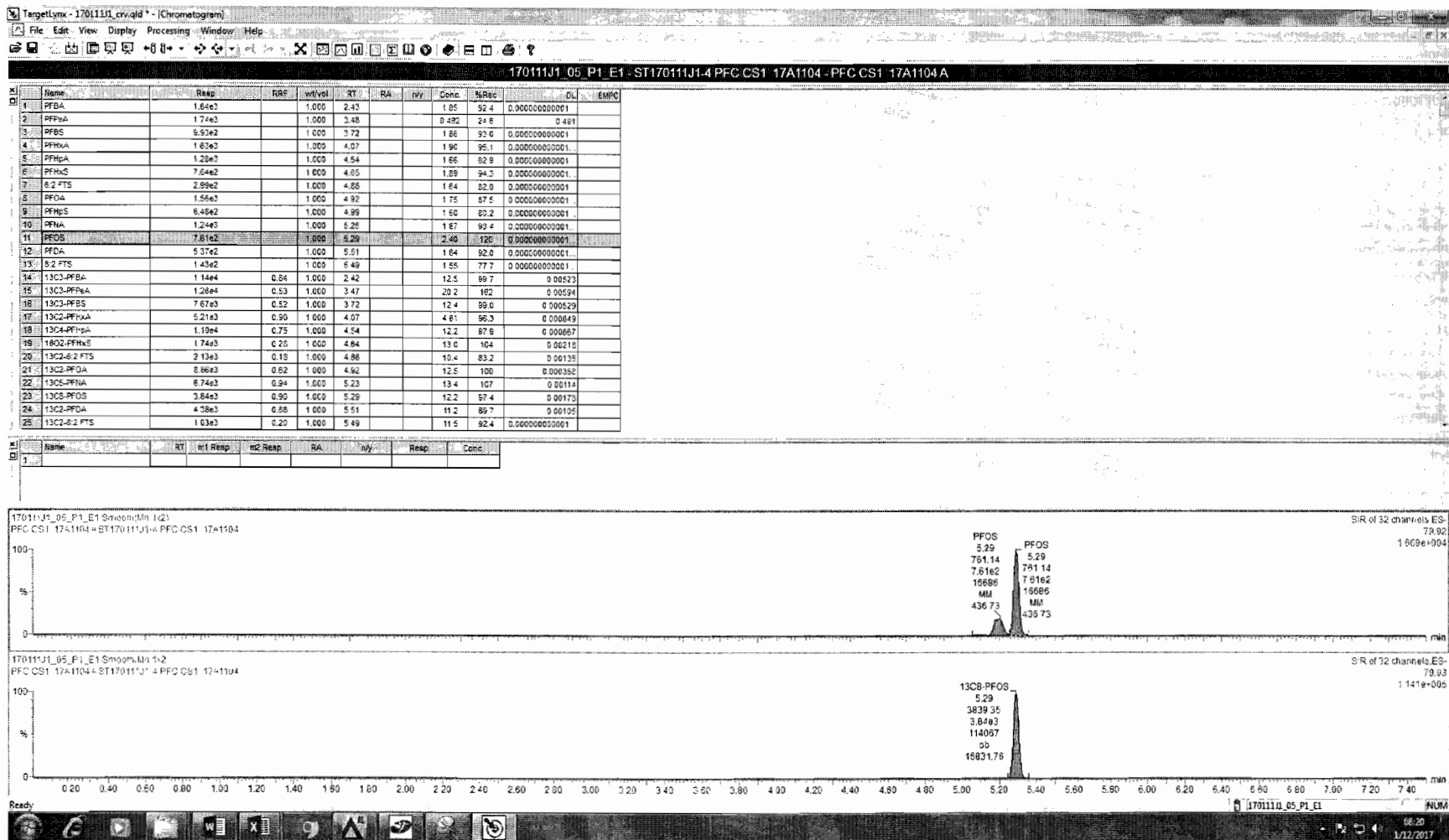
13C8-PFOS



13C2-PFDA







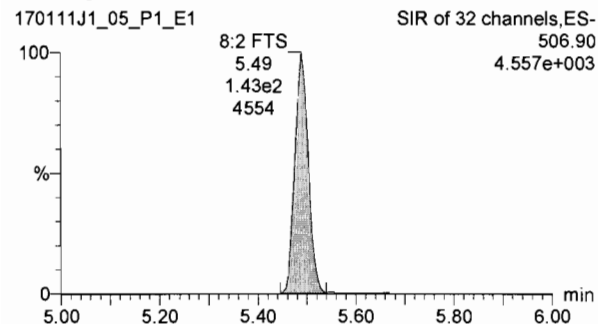
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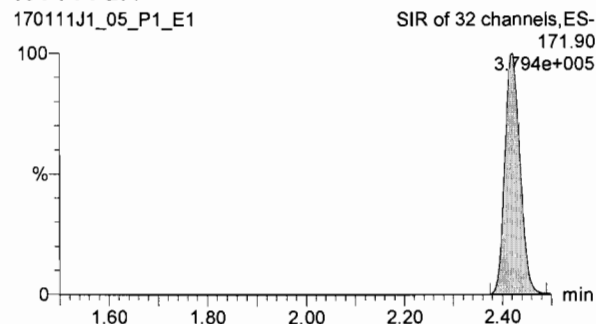
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Name: 170111J1_05.wiff, Date: 11-Jan-2017, Time: 12:22:18, ID: ST170111J1-4 PFC CS1 17A1104, Description: PFC CS1 17A1104 A

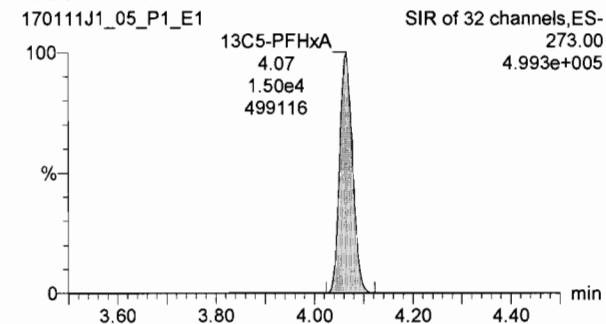
8:2 FTS



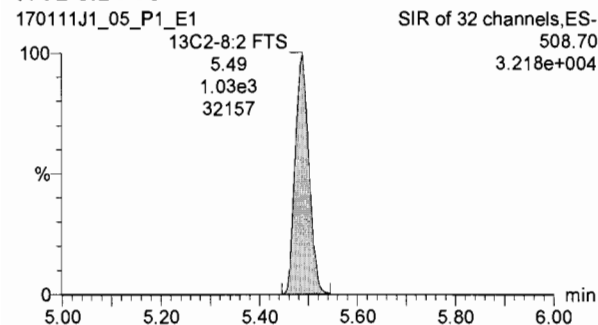
13C4-PFBA



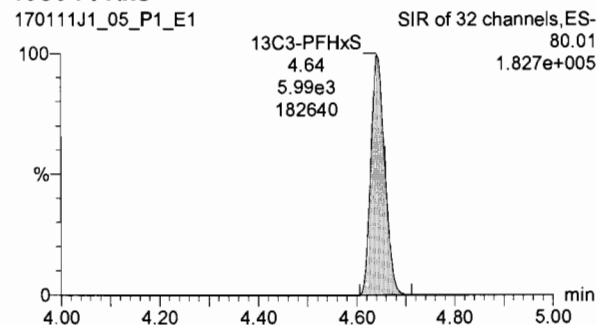
13C5-PFHxA



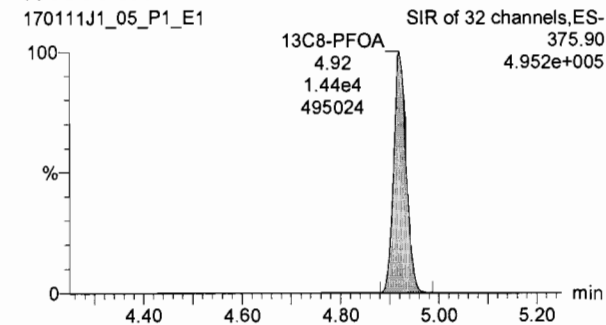
13C2-8:2 FTS



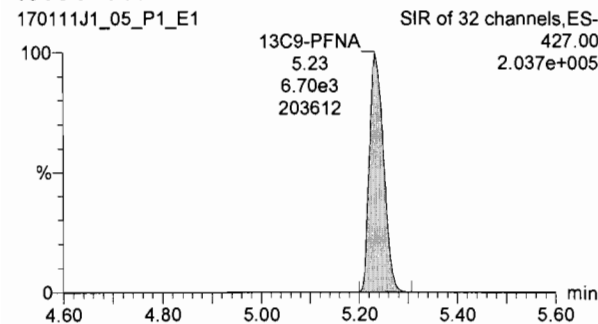
13C3-PFHxS



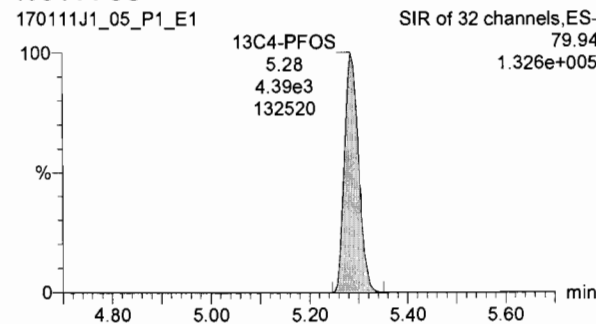
13C8-PFOA



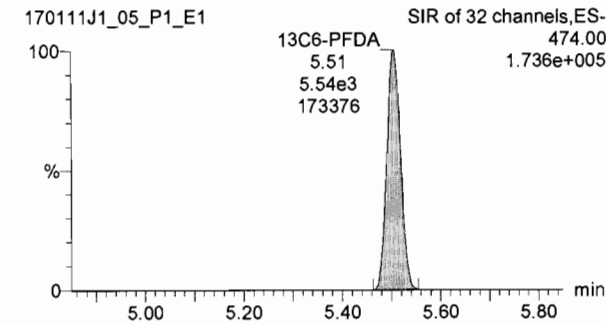
13C9-PFNA



13C4-PFOS



13C6-PFDA



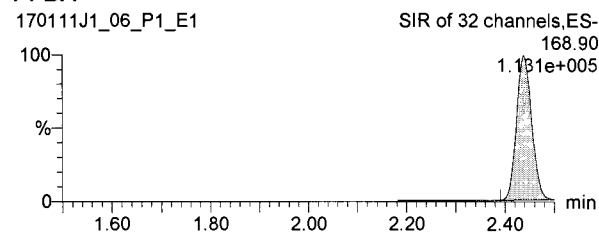
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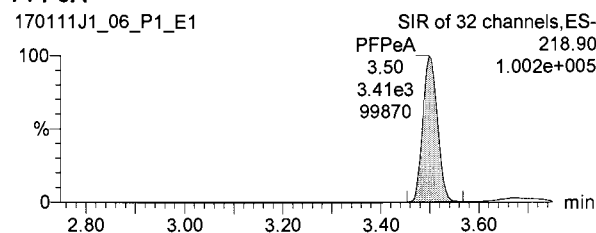
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Name: 170111J1_06.wiff, Date: 11-Jan-2017, Time: 12:34:29, ID: ST170111J1-5 PFC CS2 17A1105, Description: PFC CS2 17A1105 A

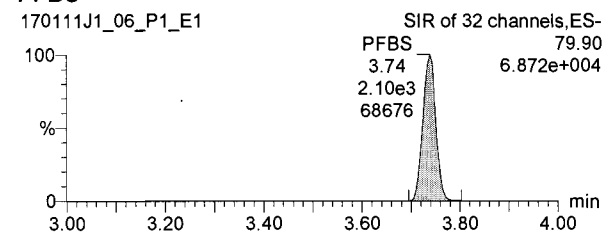
PFBA



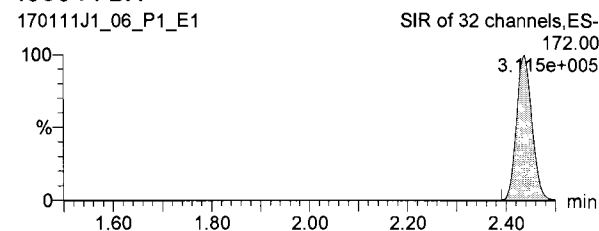
PFPeA



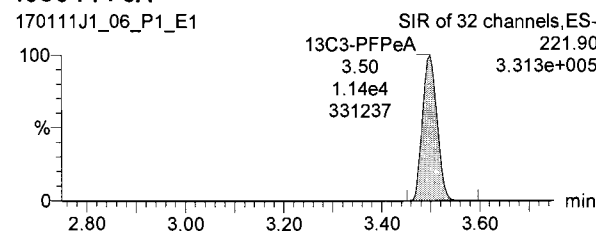
PFBS



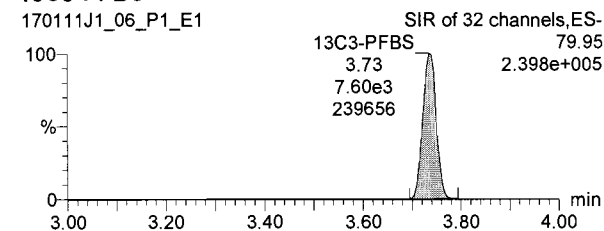
13C3-PFBA



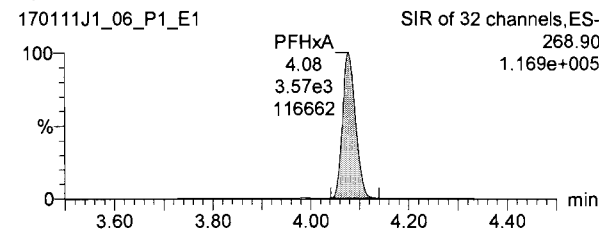
13C3-PFPeA



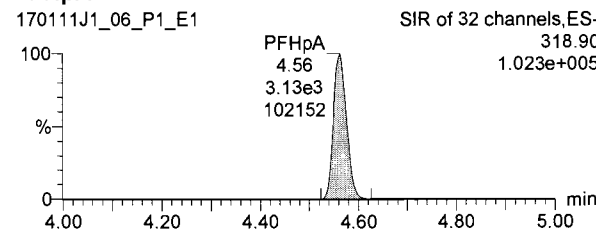
13C3-PFBS



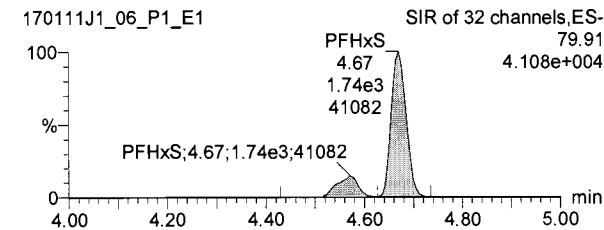
PFHxA



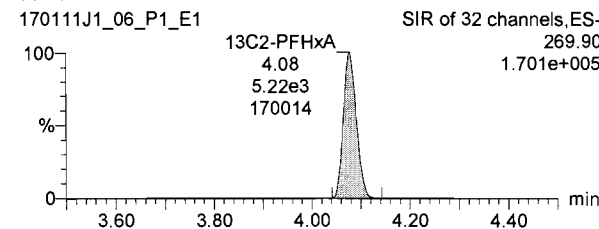
PFHpA



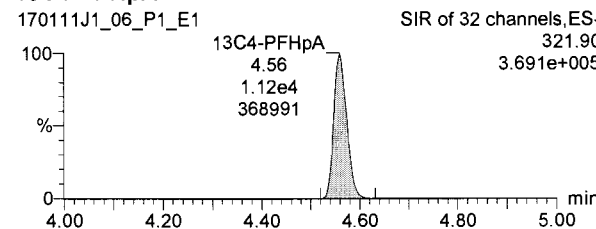
PFHxS



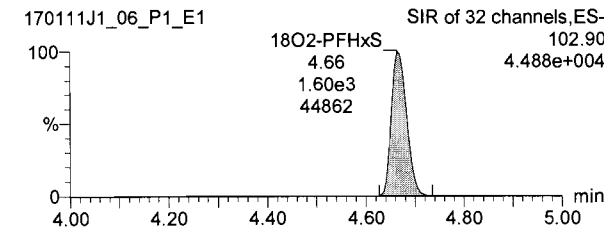
13C2-PFHxA

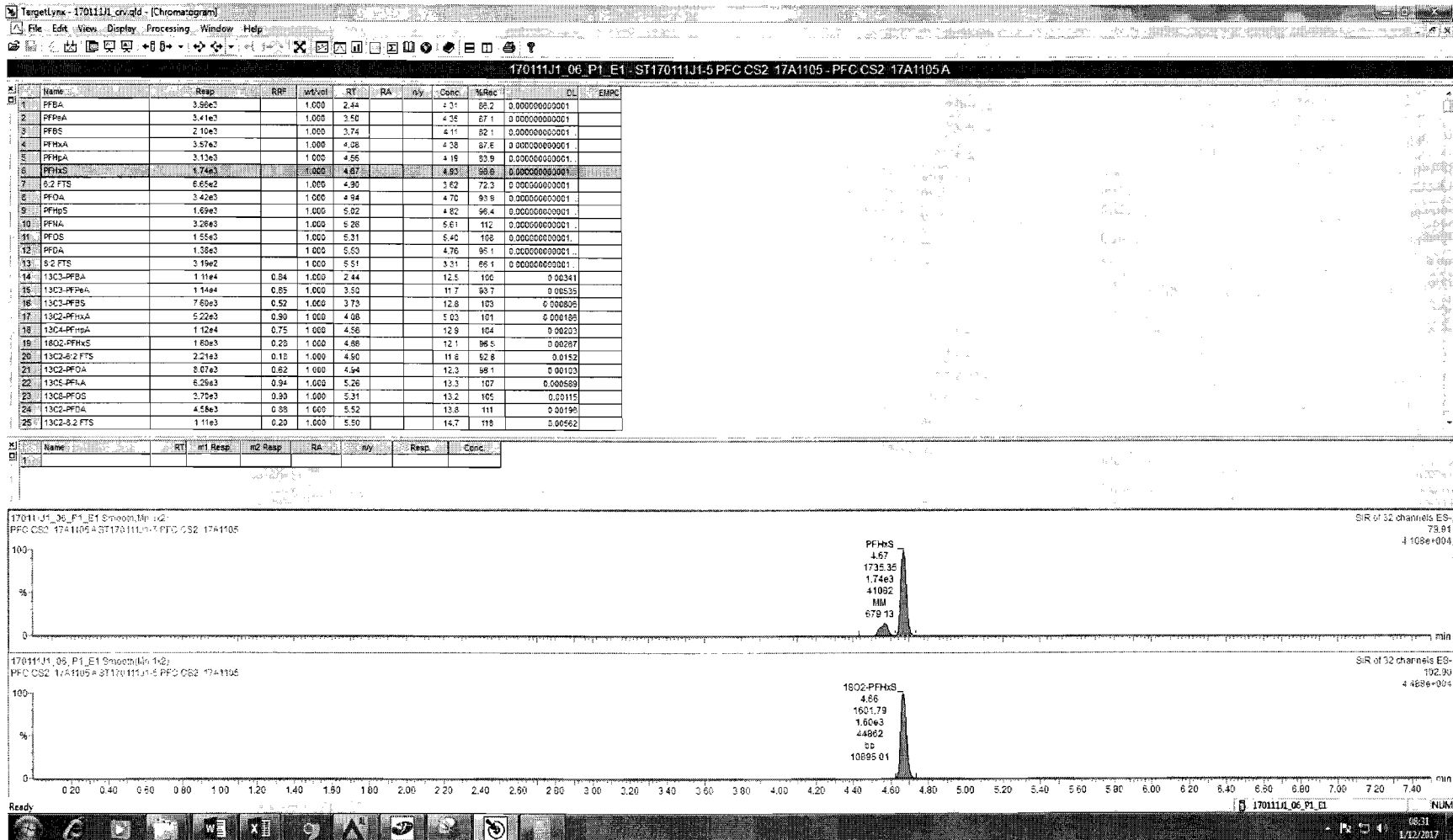


13C4-PFHpA



18O2-PFHxS





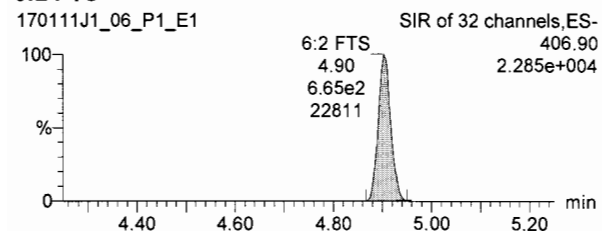
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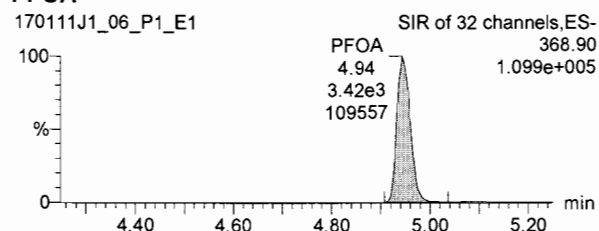
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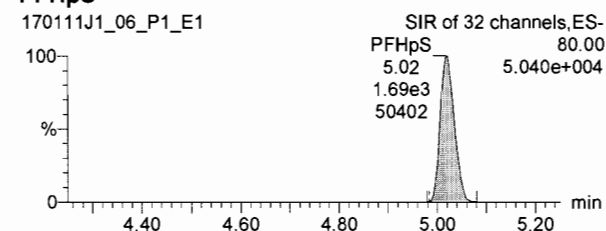
6:2 FTS



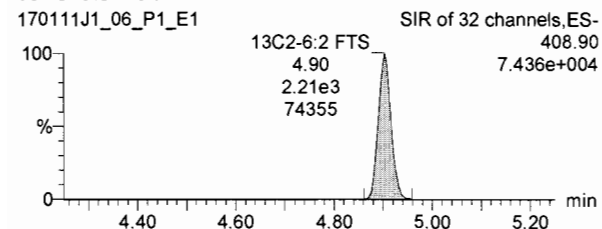
PFOA



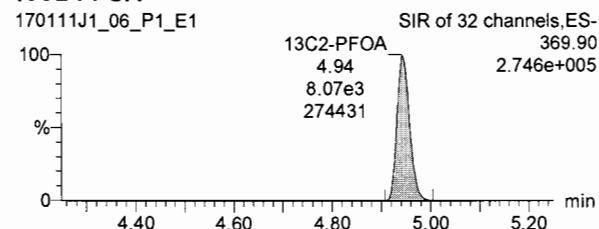
PFHpS



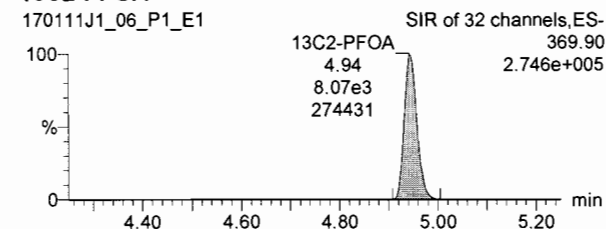
13C2-6:2 FTS



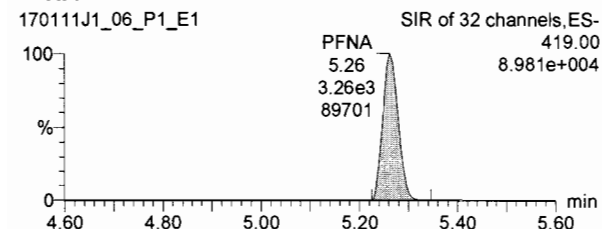
13C2-PFOA



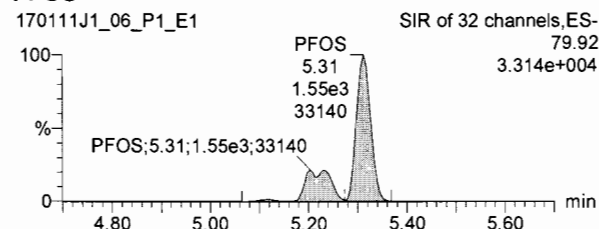
13C2-PFOA



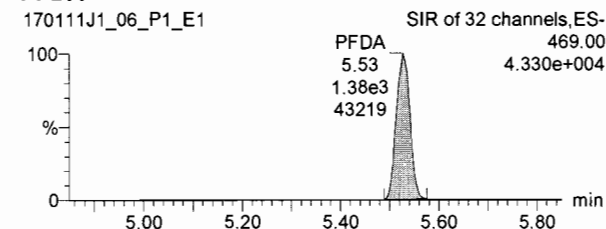
PFNA



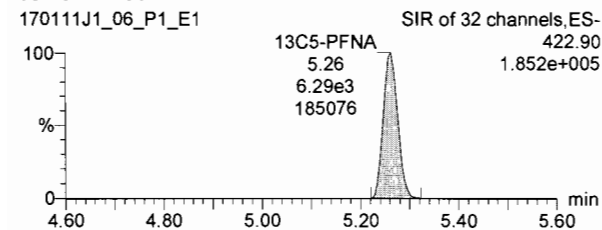
PFOS



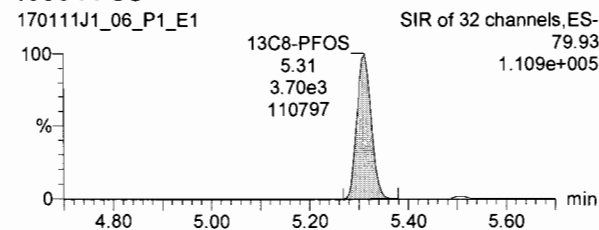
PFDA



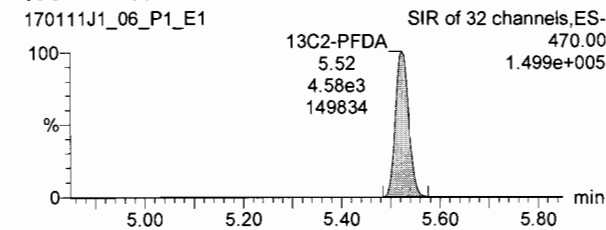
13C5-PFNA

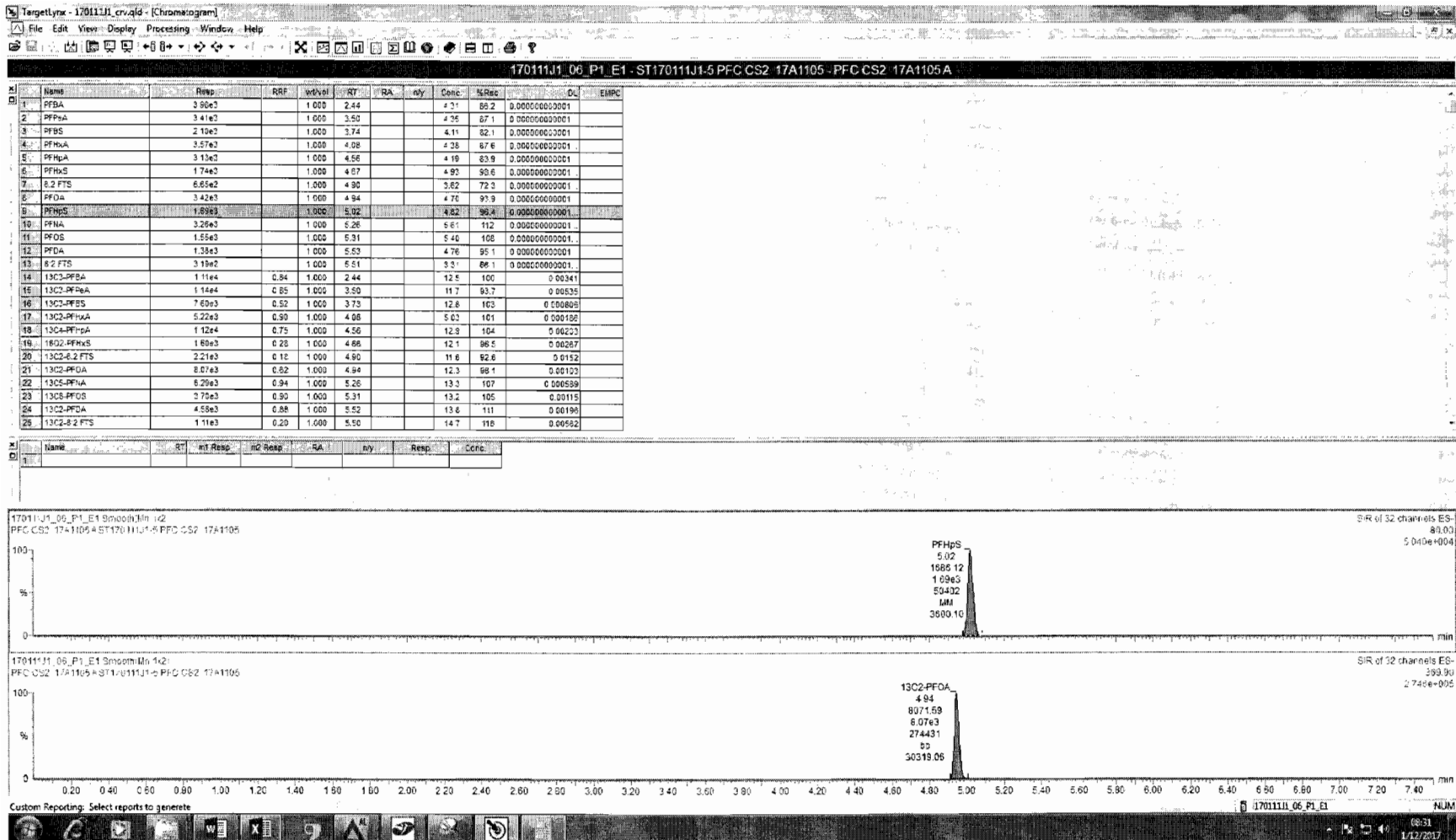


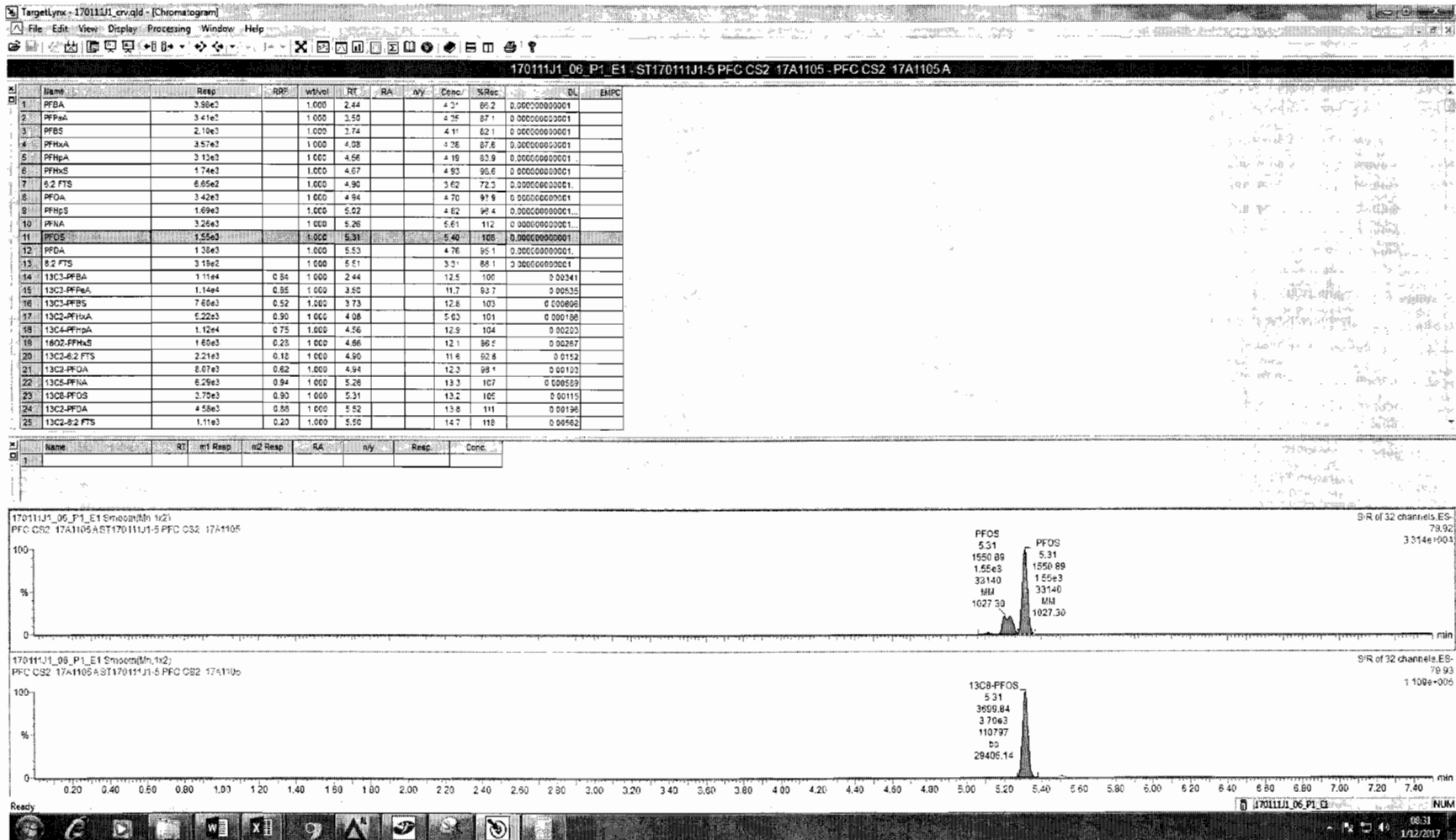
13C8-PFOS



13C2-PFDA







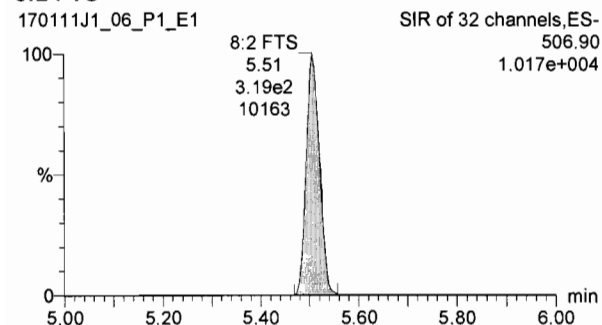
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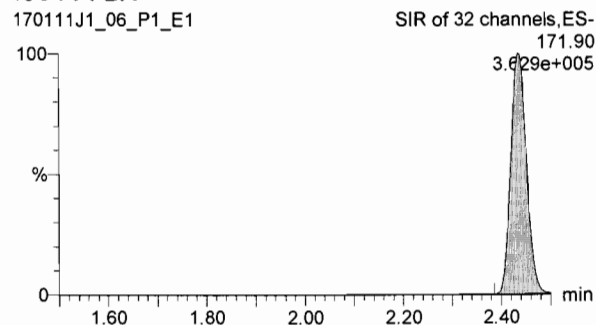
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Name: 170111J1_06.wiff, Date: 11-Jan-2017, Time: 12:34:29, ID: ST170111J1-5 PFC CS2 17A1105, Description: PFC CS2 17A1105 A

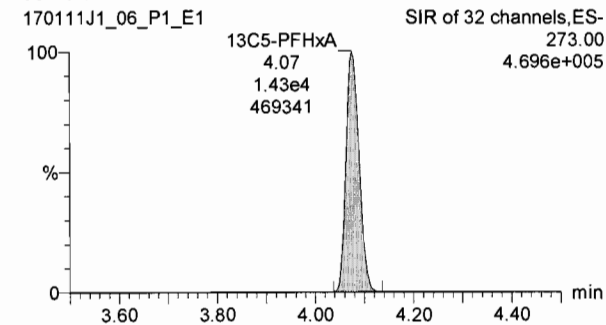
8:2 FTS



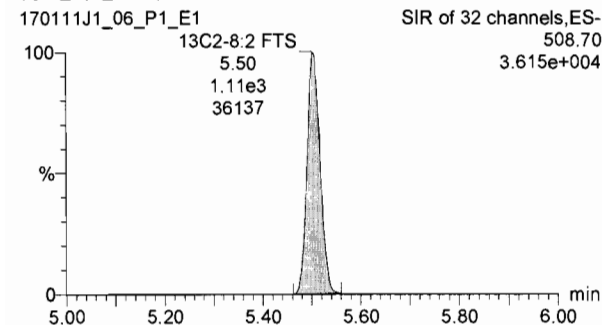
13C4-PFBA



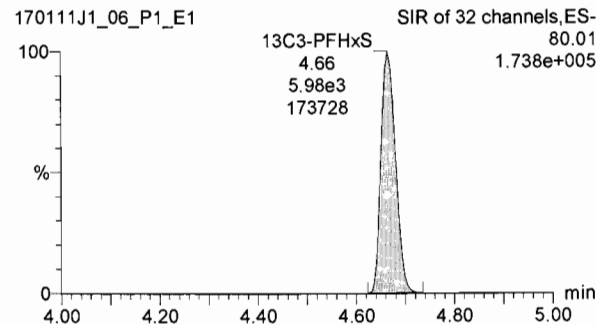
13C5-PFHxA



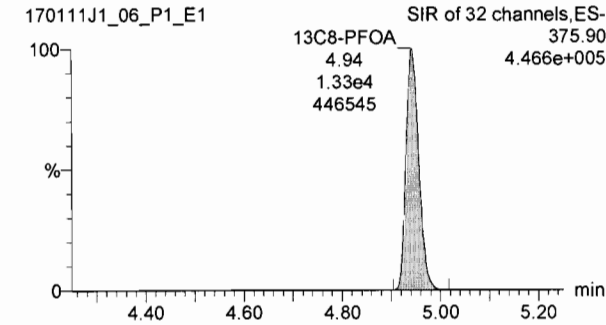
13C2-8:2 FTS



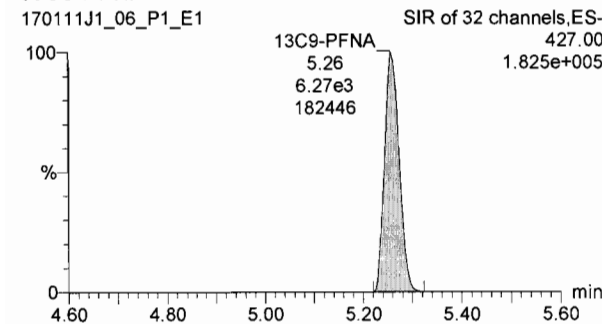
13C3-PFHxS



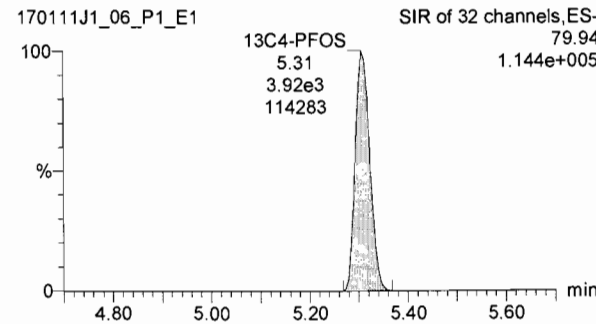
13C8-PFOA



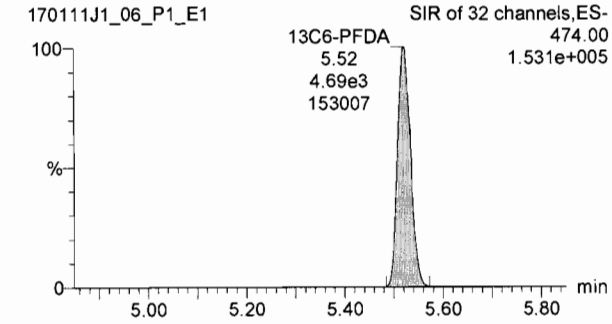
13C9-PFNA



13C4-PFOS



13C6-PFDA



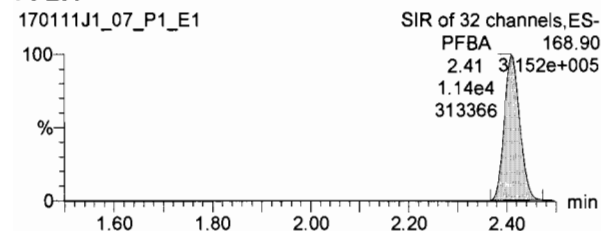
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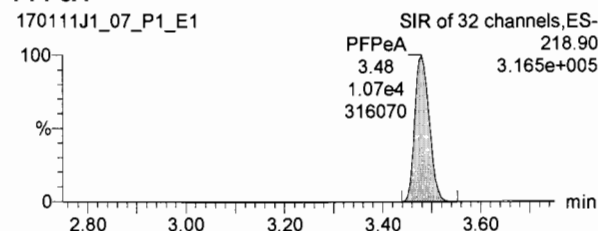
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Name: 170111J1_07.wiff, Date: 11-Jan-2017, Time: 12:46:46, ID: ST170111J1-6 PFC CS3 17A1106, Description: PFC CS3 17A1106 A

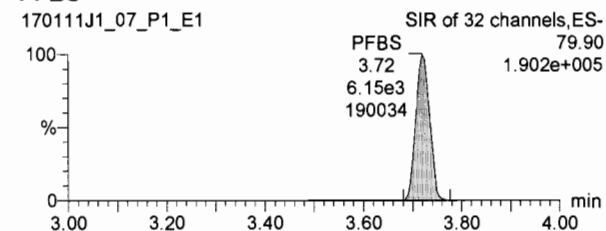
PFBA



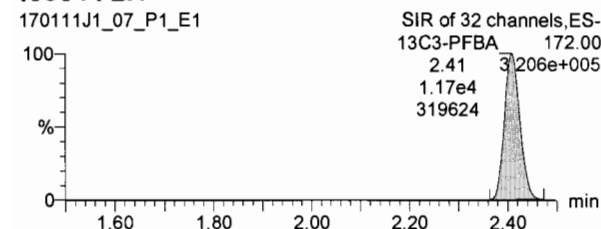
PFPeA



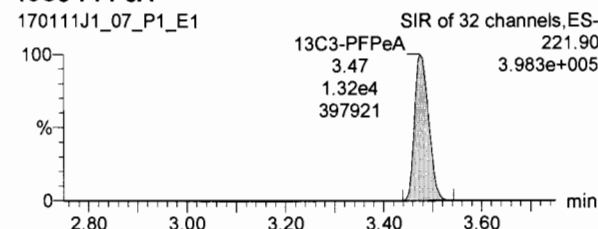
PFBS



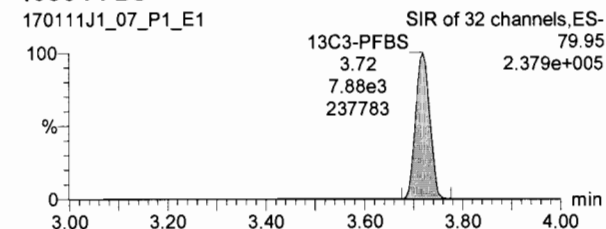
13C3-PFBA



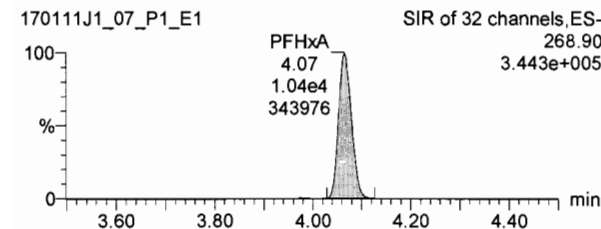
13C3-PFPeA



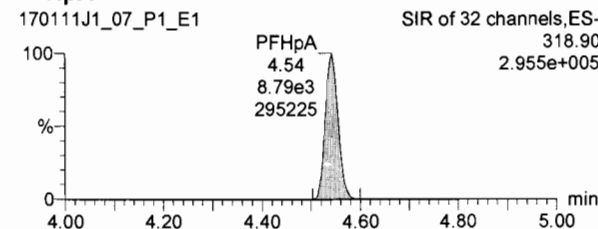
13C3-PFBS



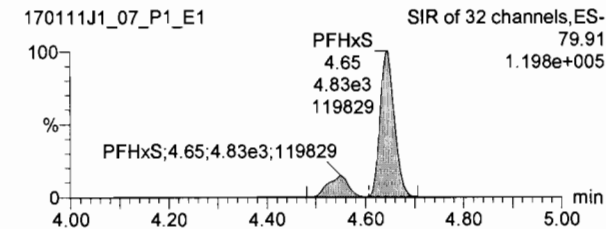
PFHxA



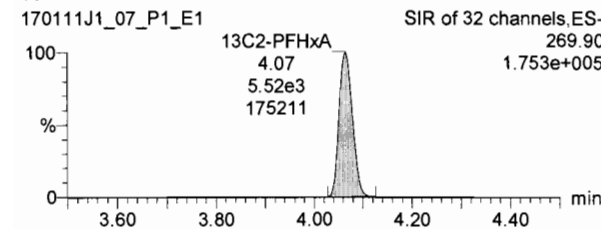
PFHpA



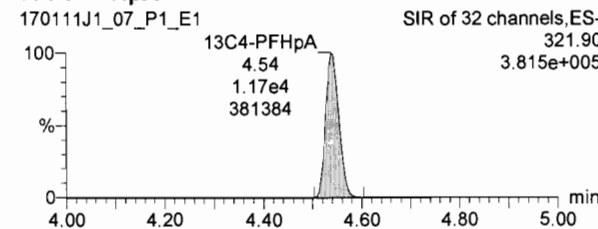
PFHxS



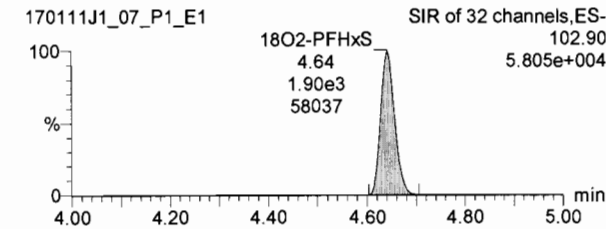
13C2-PFHxA

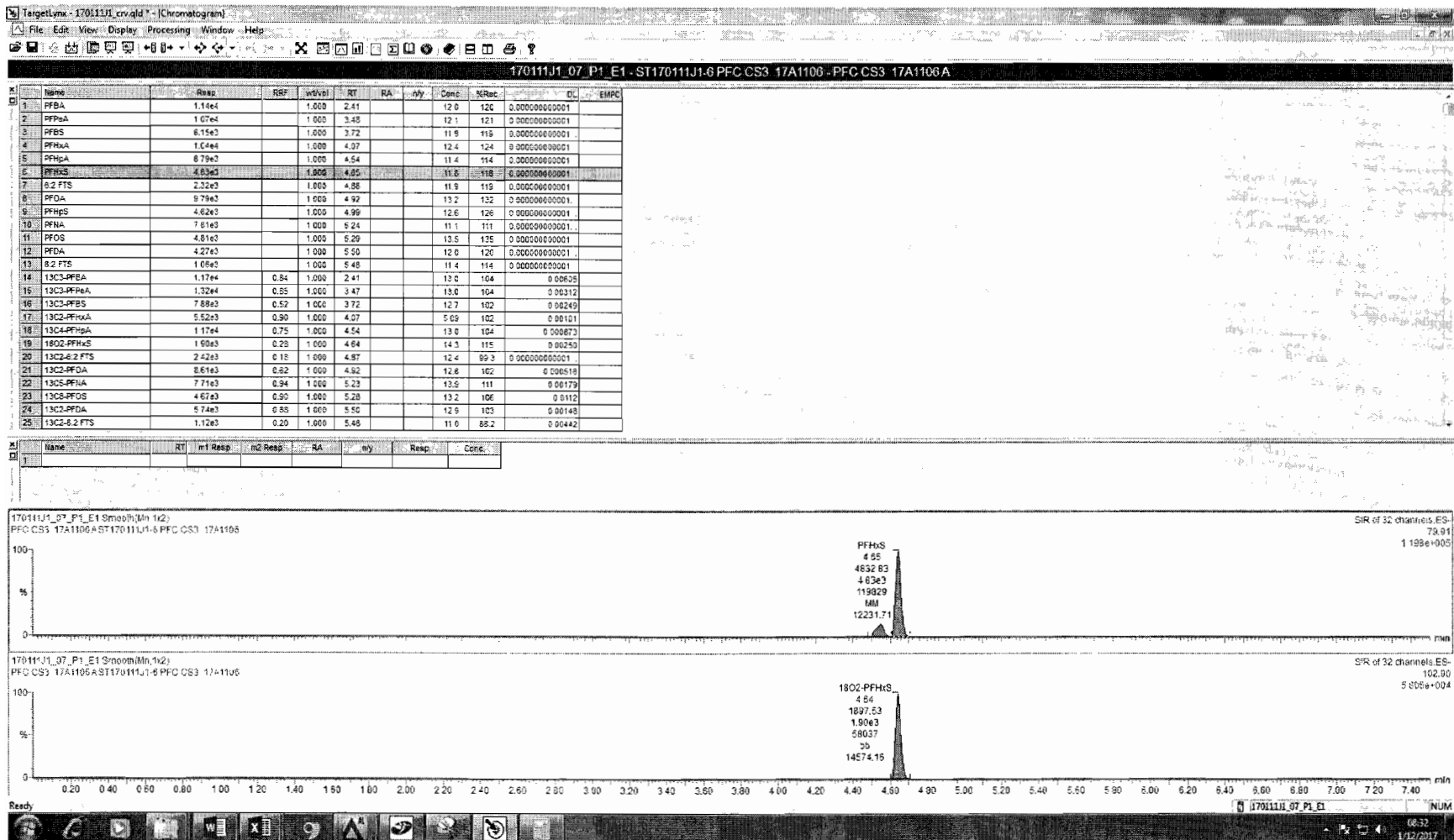


13C4-PFHpA



18O2-PFHxS





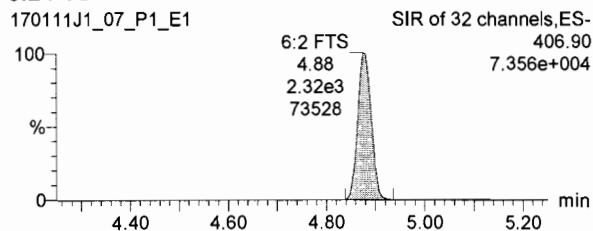
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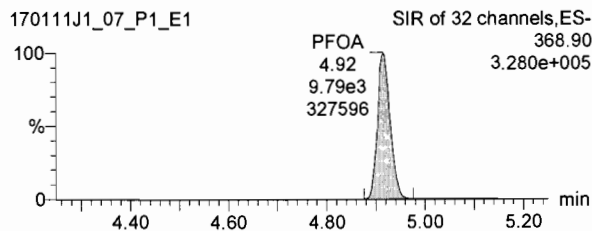
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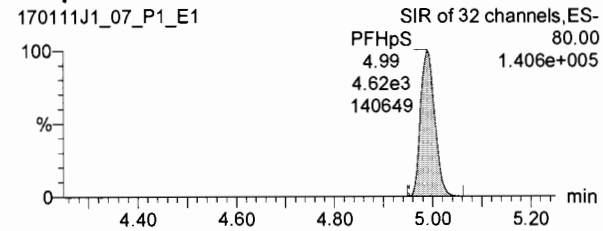
6:2 FTS



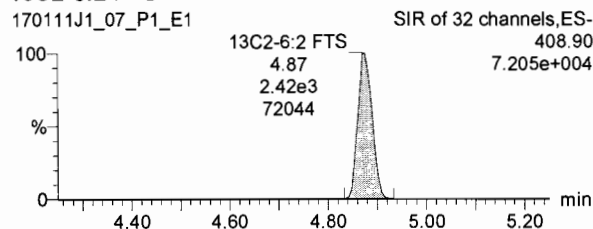
PFOA



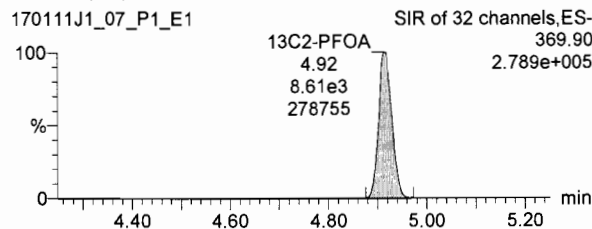
PFHpS



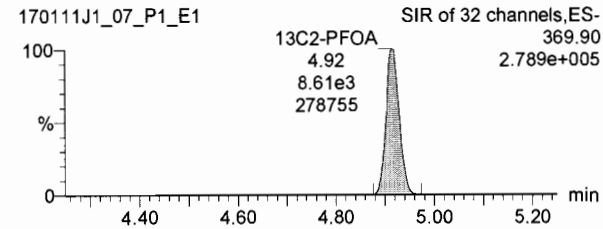
13C2-6:2 FTS



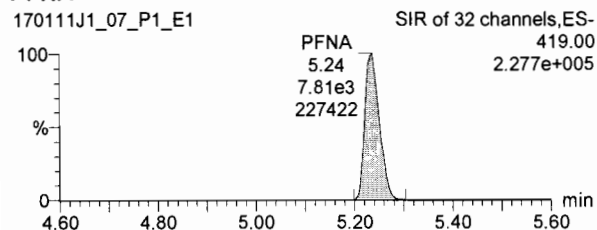
13C2-PFOA



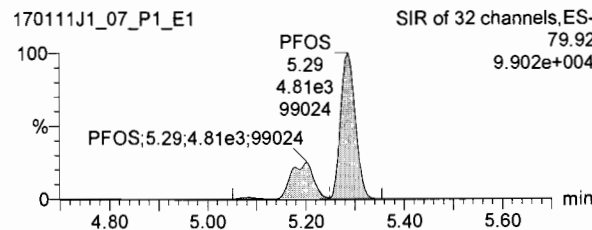
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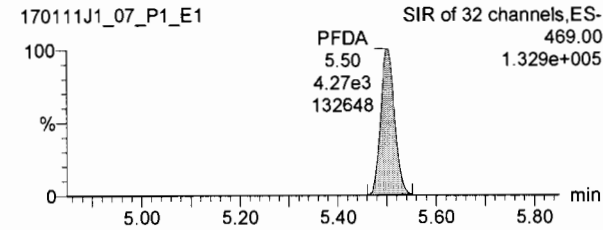
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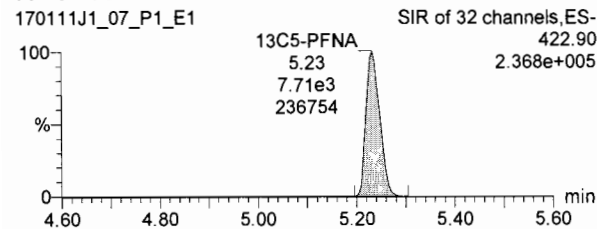
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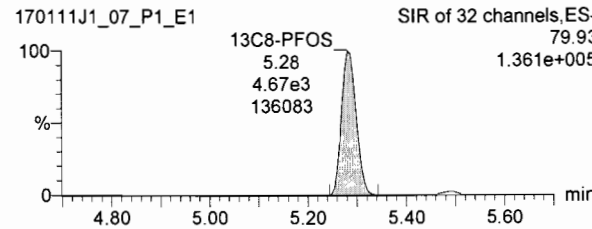
PFDA



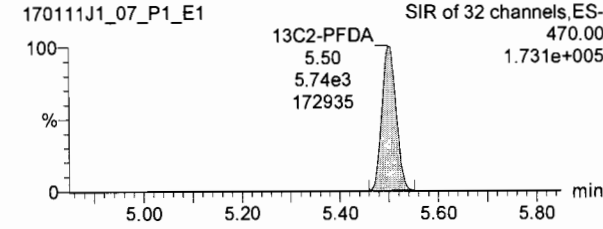
13C5-PFNA

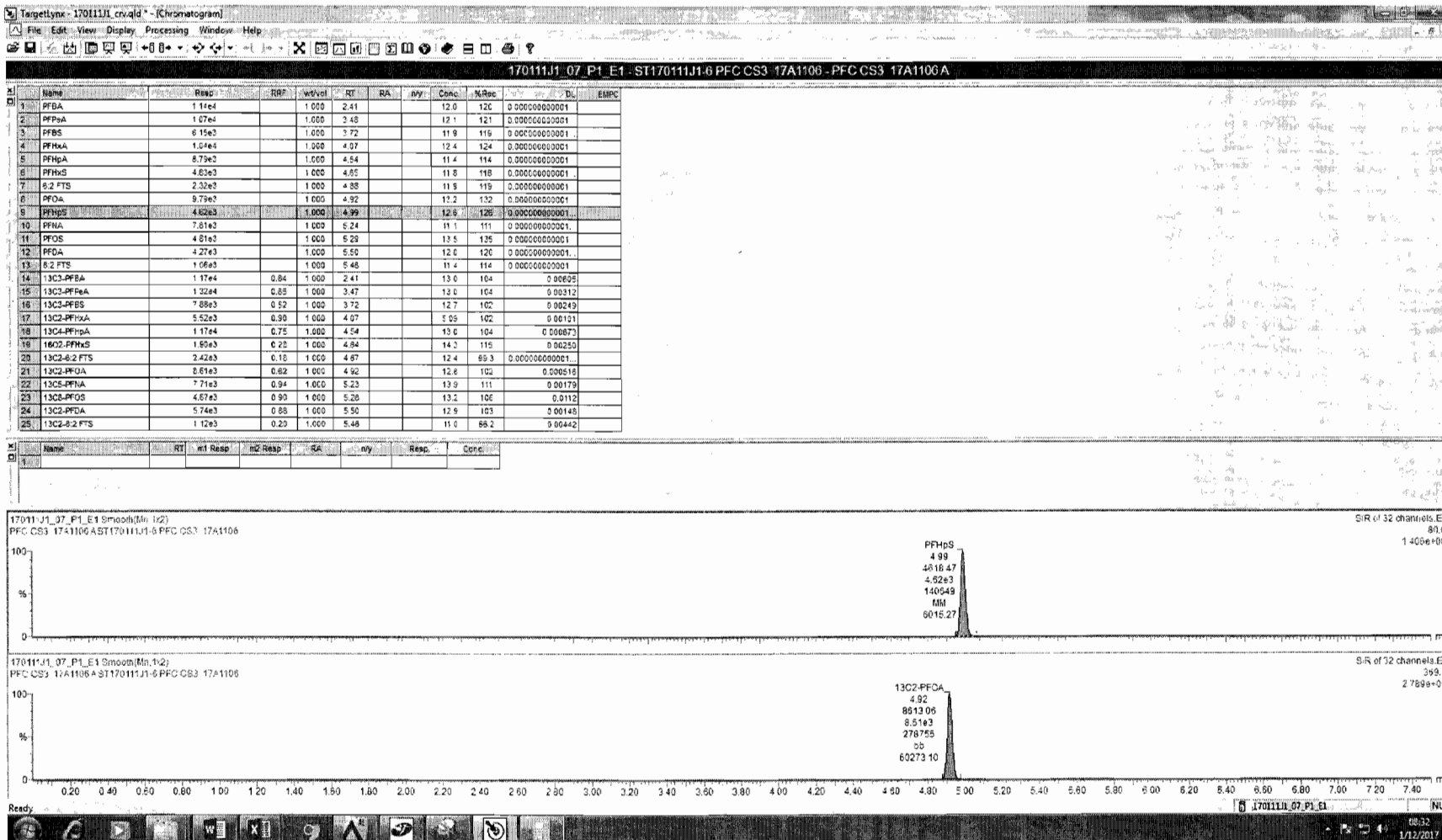


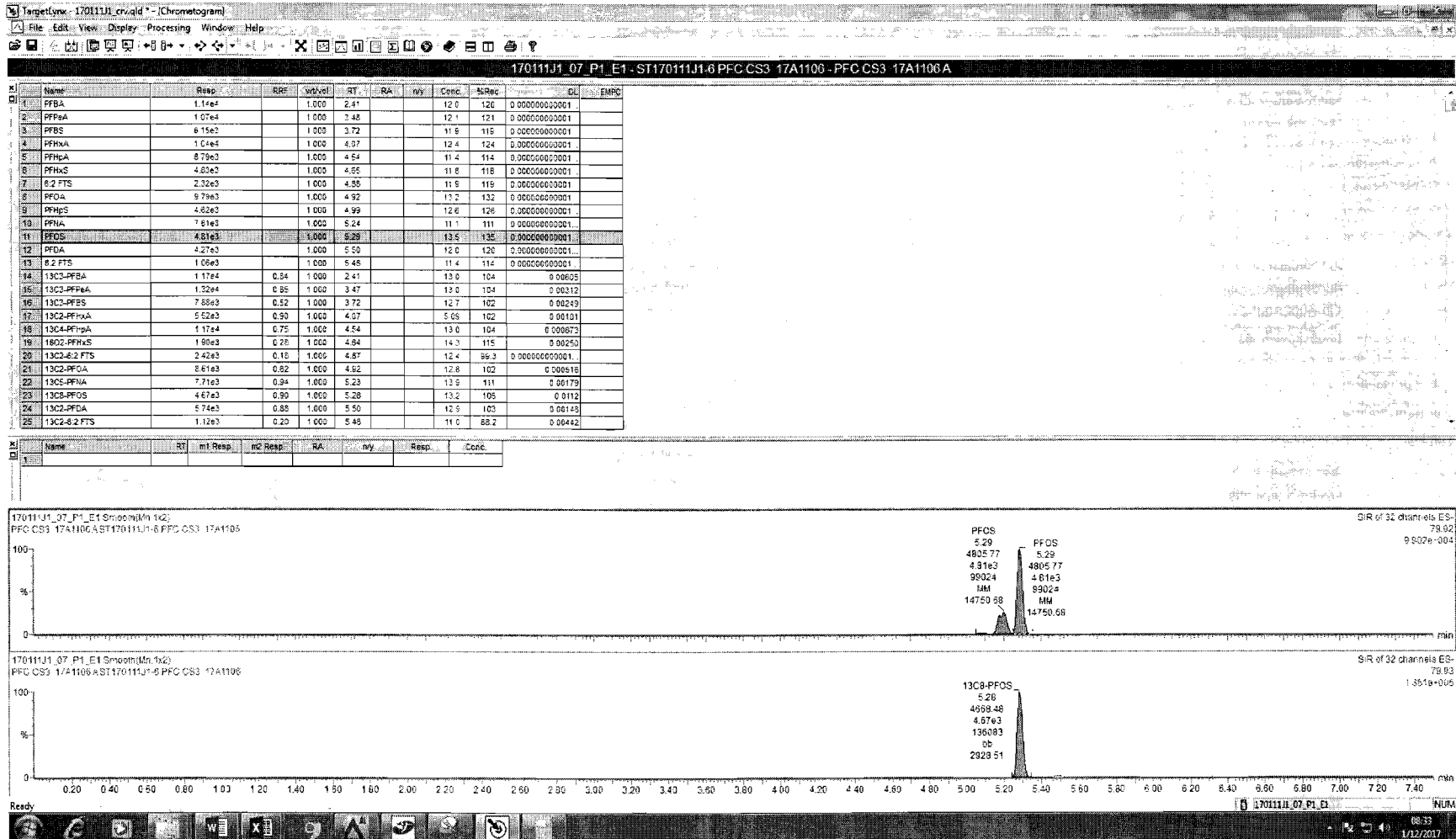
13C8-PFOS



13C2-PFDA







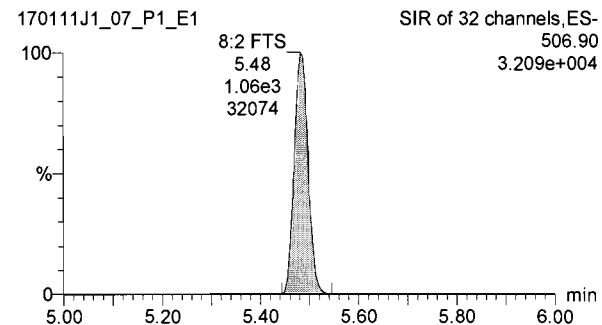
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Last Altered: Thursday, January 12, 2017 08:45:09 Pacific Standard Time

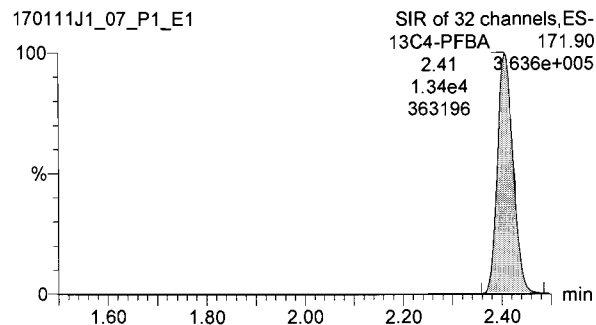
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Name: 170111J1_07.wiff, Date: 11-Jan-2017, Time: 12:46:46, ID: ST170111J1-6 PFC CS3 17A1106, Description: PFC CS3 17A1106 A

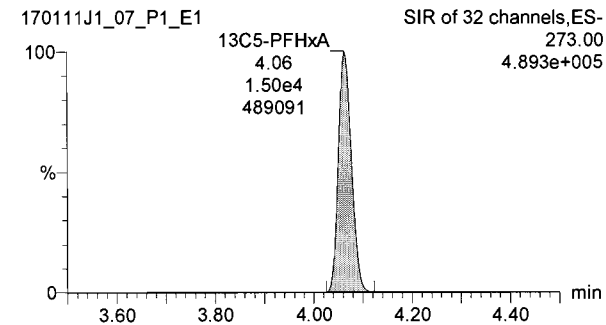
8:2 FTS



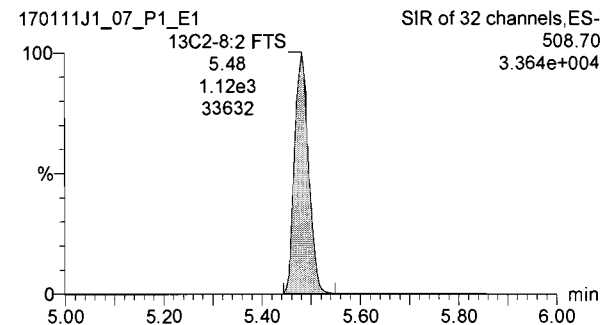
13C4-PFBA



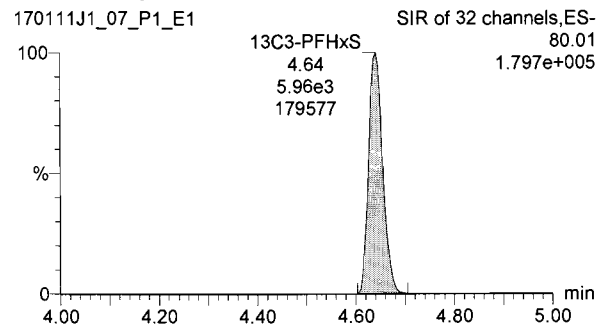
13C5-PFHxA



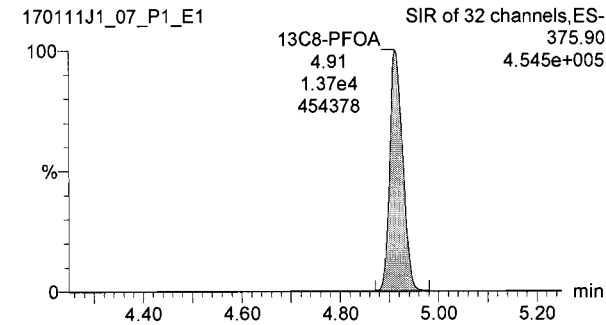
13C2-8:2 FTS



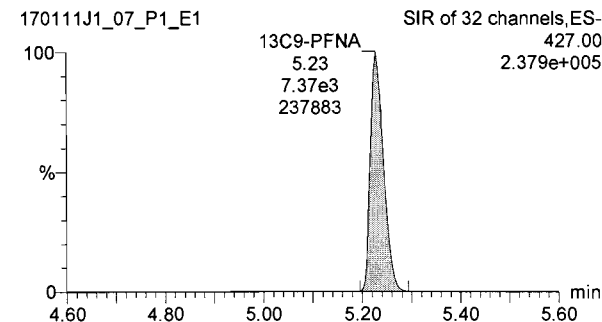
13C3-PFHxS



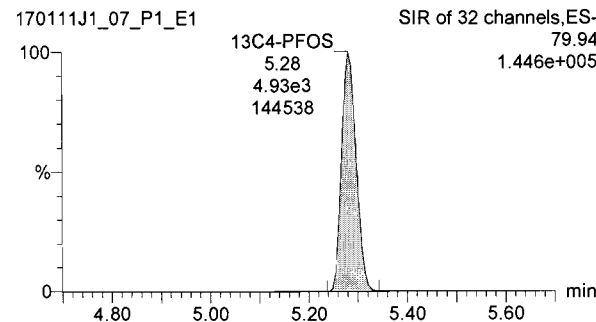
13C8-PFOA



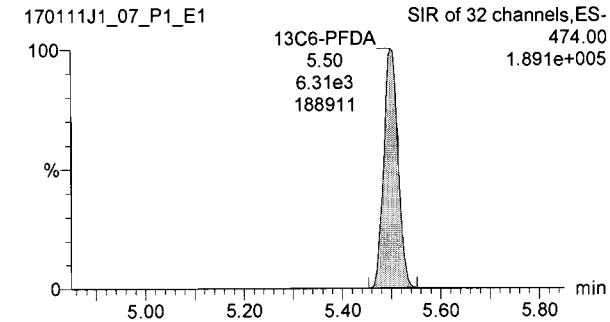
13C9-PFNA



13C4-PFOS



13C6-PFDA



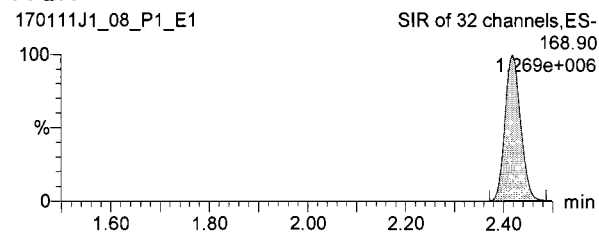
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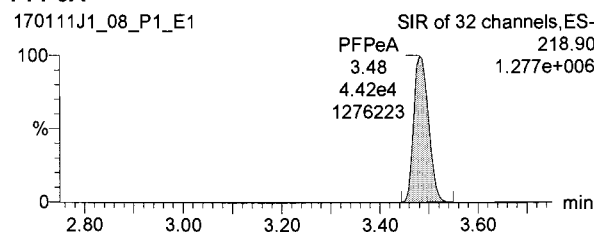
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Name: 170111J1_08.wiff, Date: 11-Jan-2017, Time: 12:59:00, ID: ST170111J1-7 PFC CS4 17A1107, Description: PFC CS4 17A1107 A

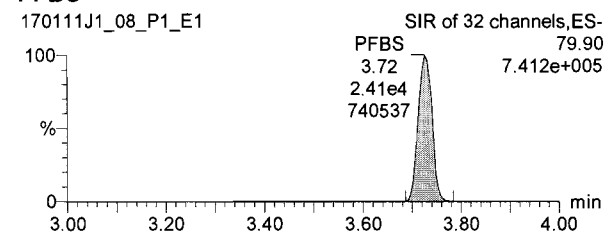
PFBA



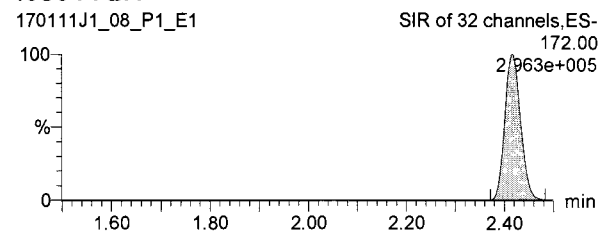
PFPeA



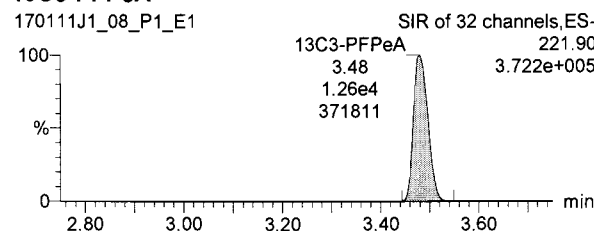
PFBS



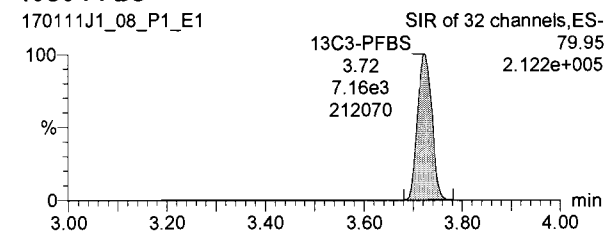
13C3-PFBA



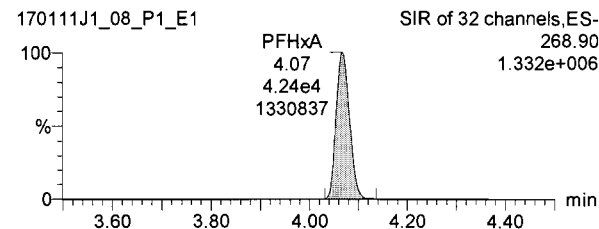
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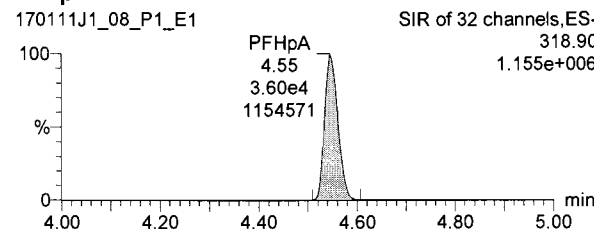
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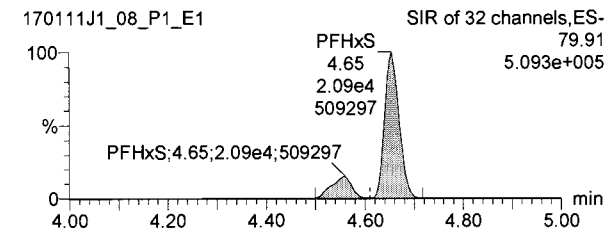
PFHxA



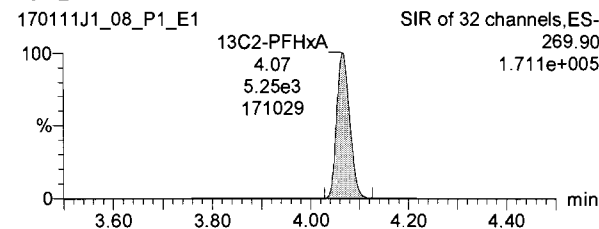
PFHpA



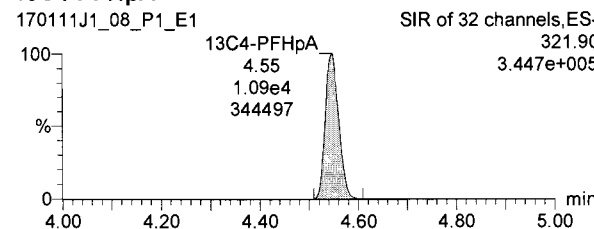
PFHxS



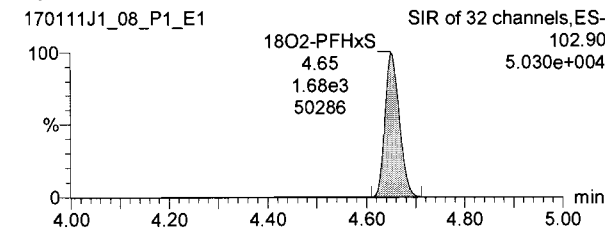
13C2-PFHxA

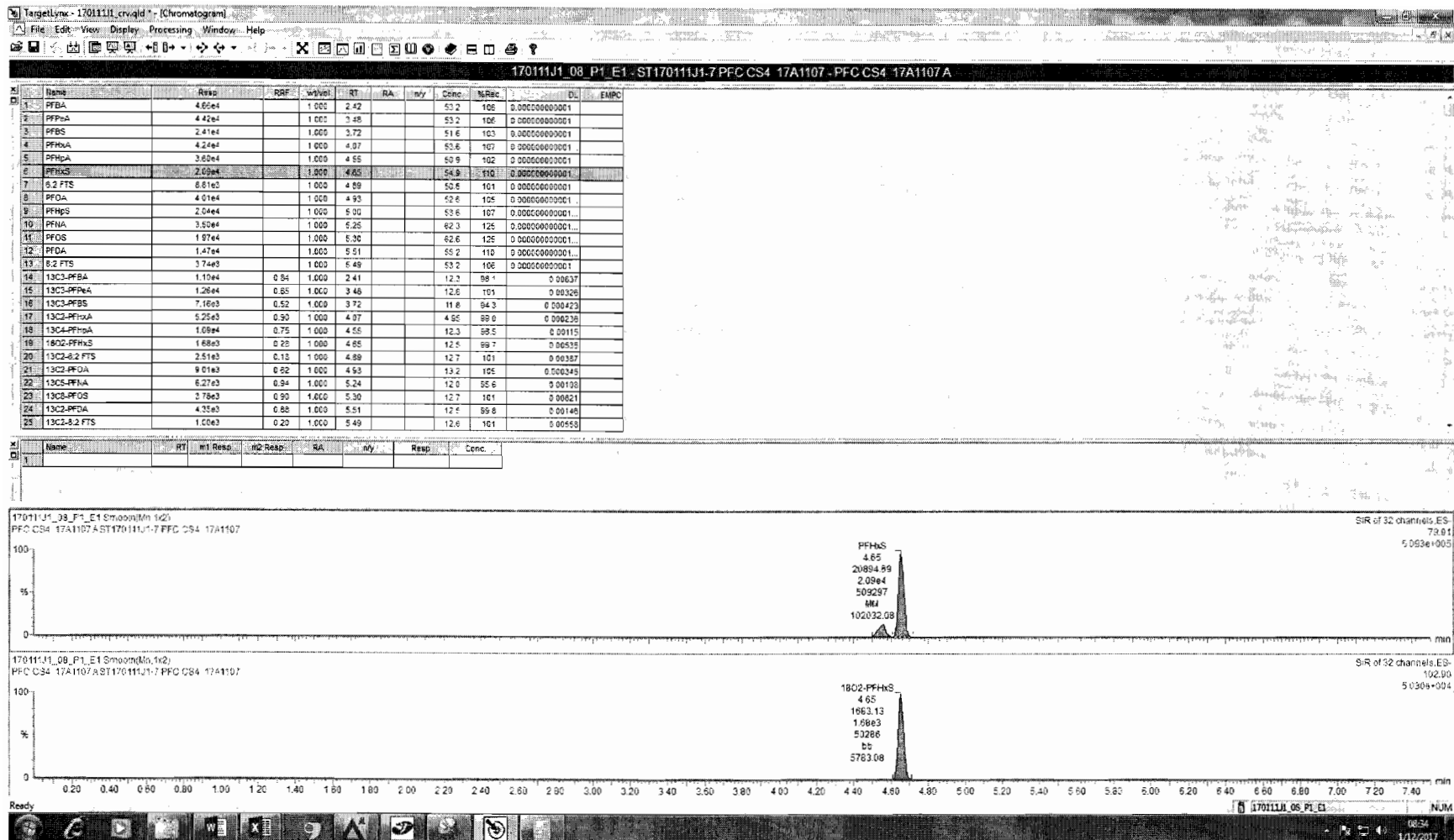


13C4-PFHpA



18O2-PFHxS





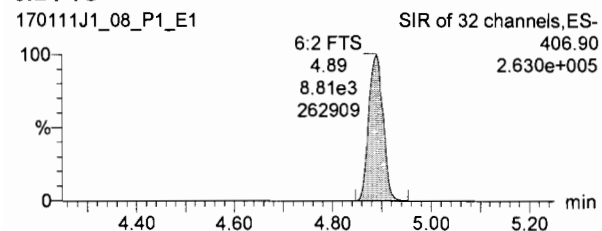
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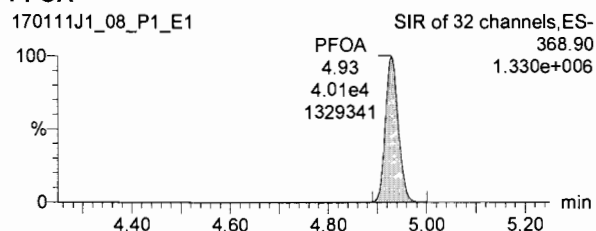
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Name: 170111J1_08.wiff, Date: 11-Jan-2017, Time: 12:59:00, ID: ST170111J1-7 PFC CS4 17A1107, Description: PFC CS4 17A1107 A

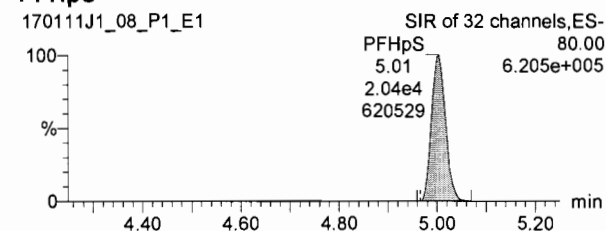
6:2 FTS



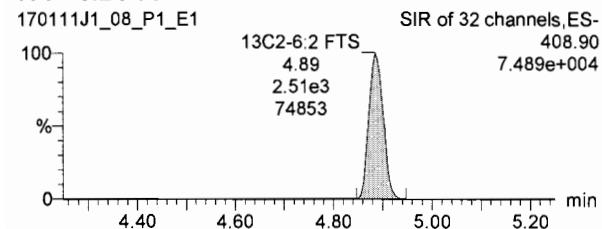
PFOA



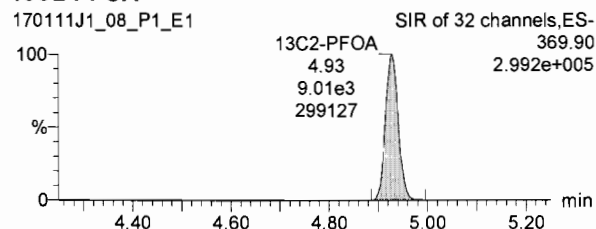
PFHpS



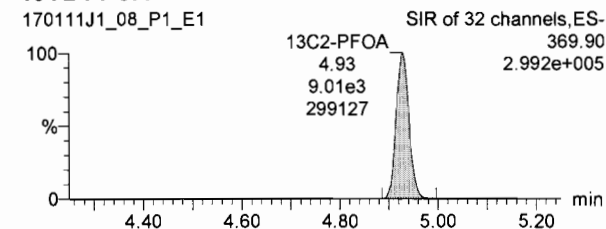
13C2-6:2 FTS



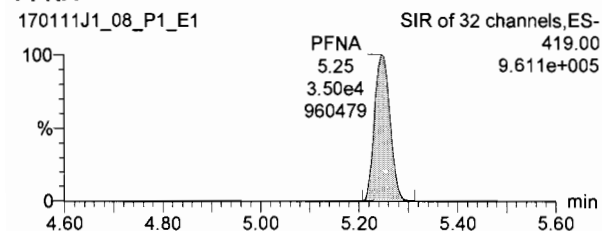
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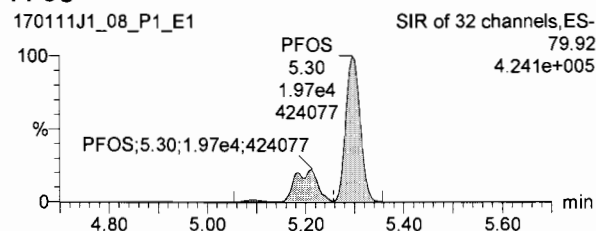
13C2-PFOA



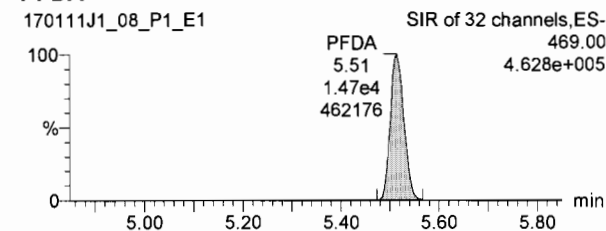
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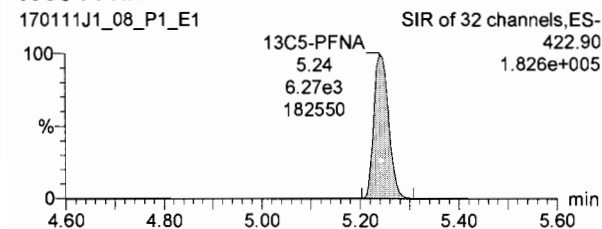
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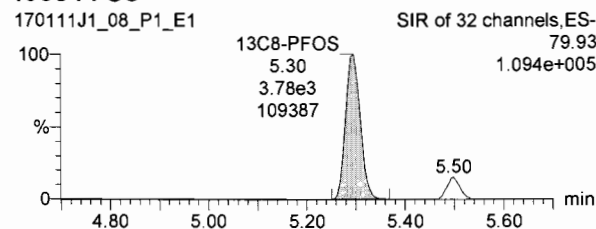
PFDA



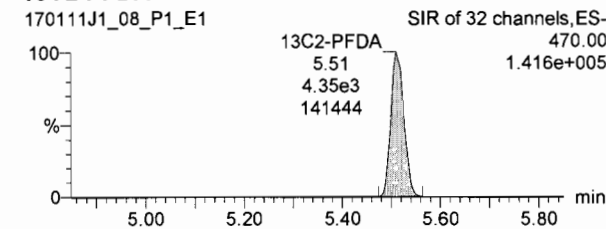
13C5-PFNA

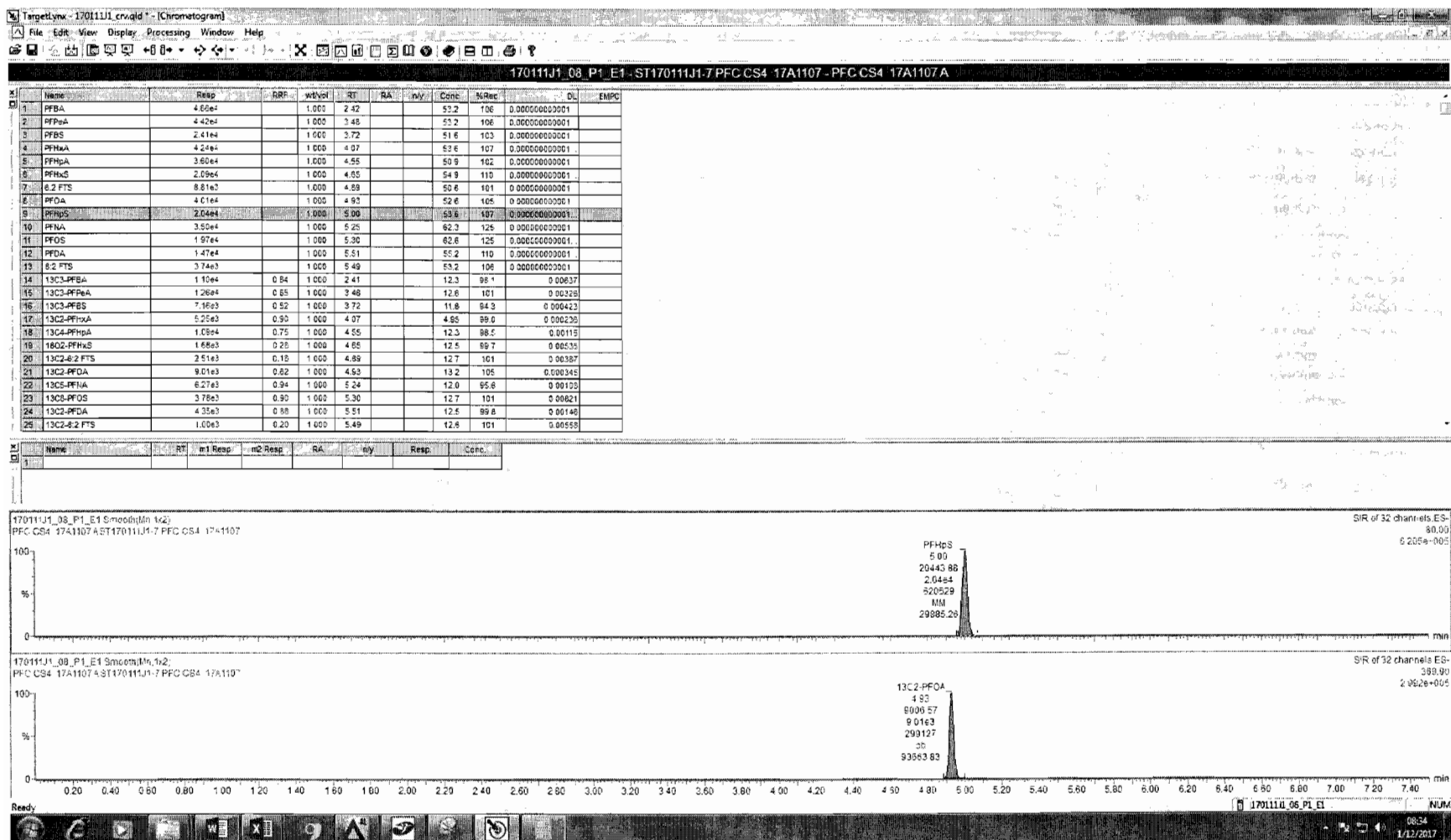


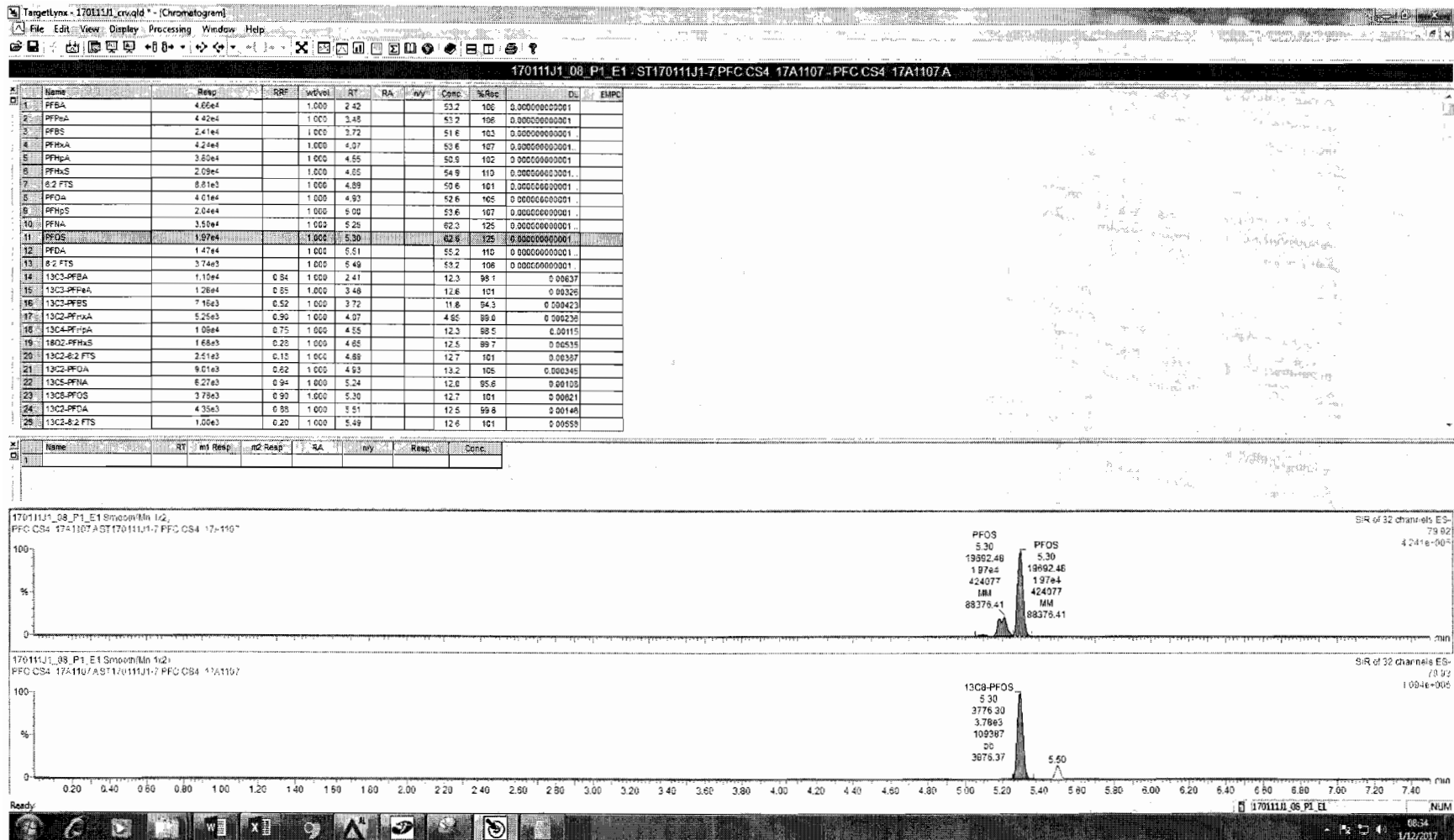
13C8-PFOS



13C2-PFDA







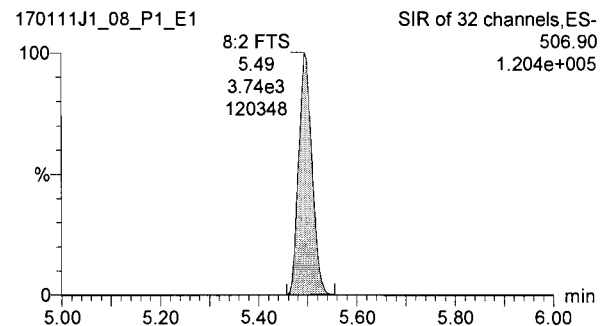
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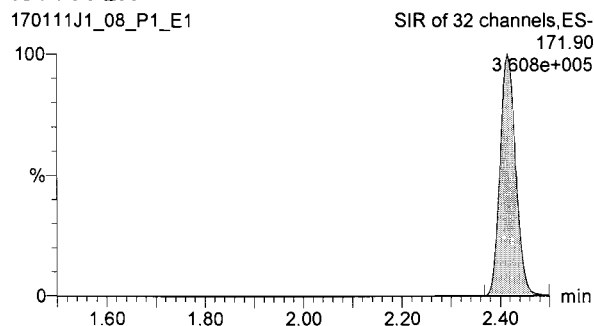
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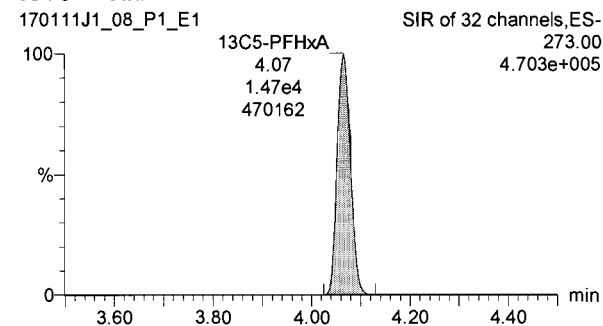
8:2 FTS



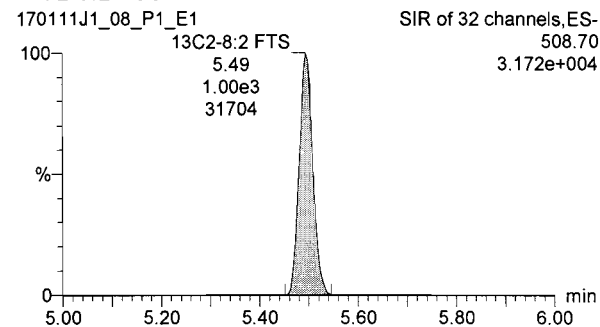
13C4-PFBA



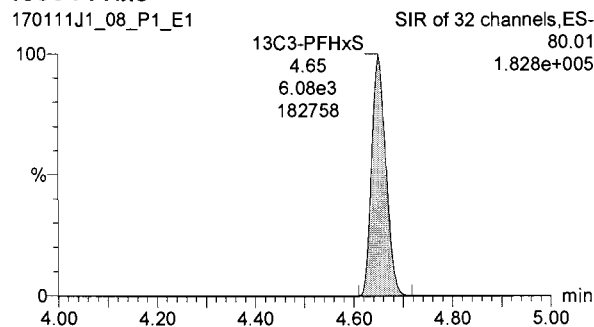
13C5-PFHxA



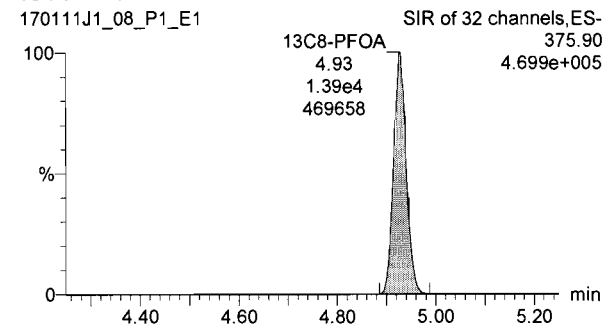
13C2-8:2 FTS



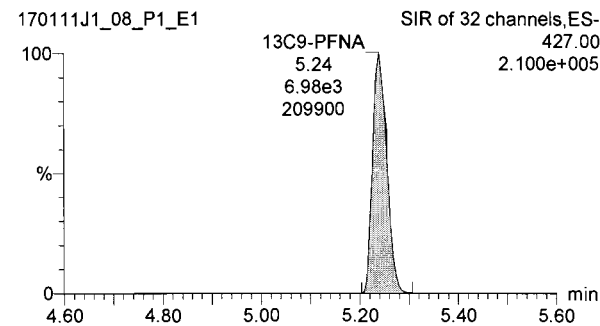
13C3-PFHxS



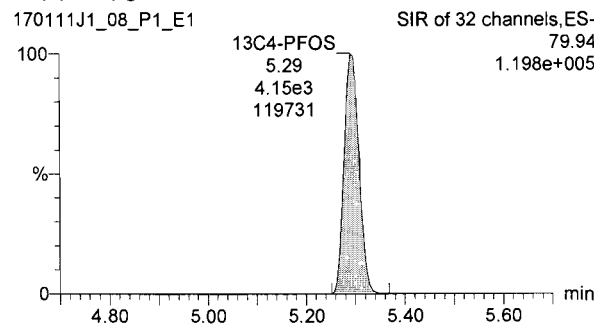
13C8-PFOA



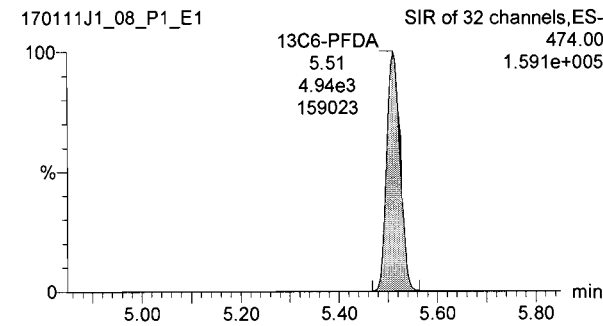
13C9-PFNA



13C4-PFOS



13C6-PFDA



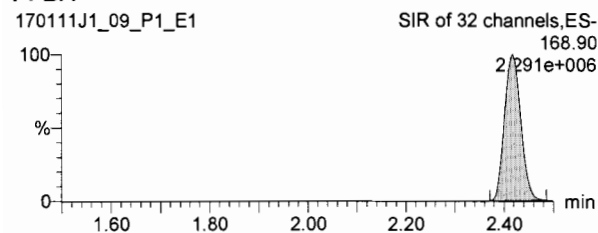
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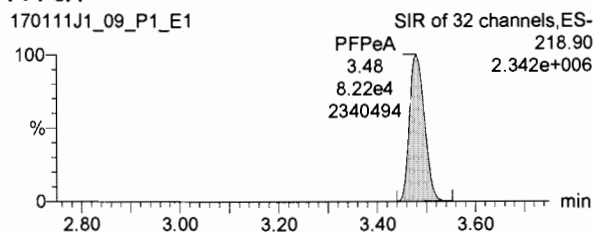
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Name: 170111J1_09.wiff, Date: 11-Jan-2017, Time: 13:11:14, ID: ST170111J1-8 PFC CS5 17A1108, Description: PFC CS5 17A1108 A

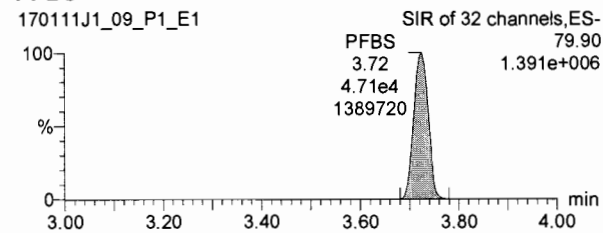
PFBA



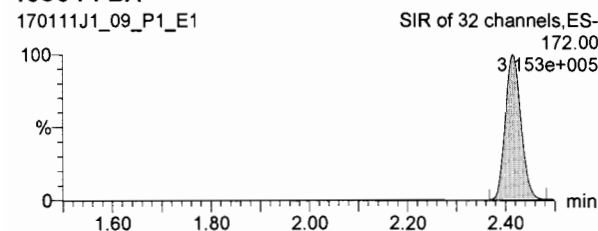
PFPeA



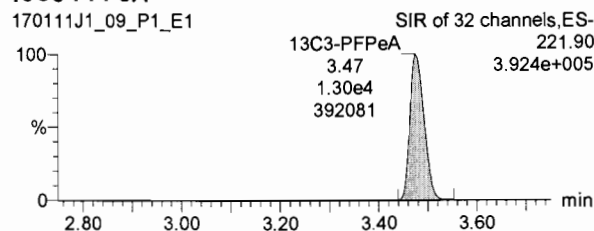
PFBS



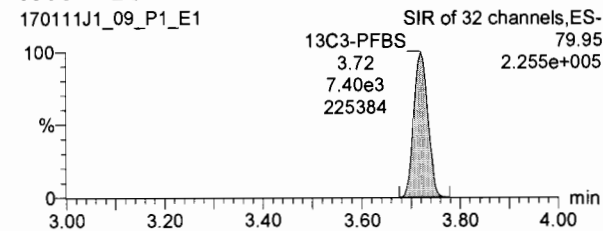
13C3-PFBA



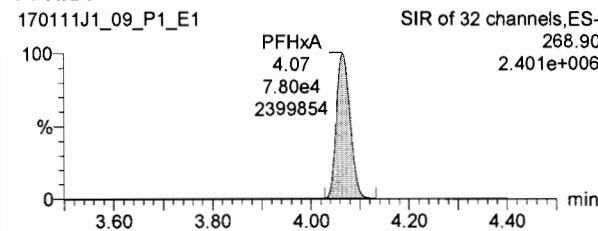
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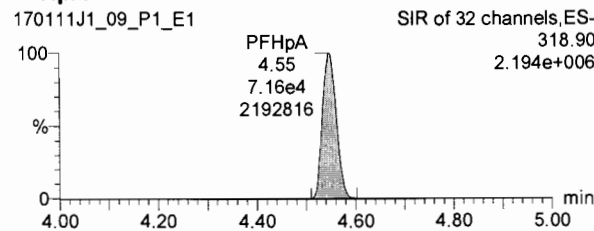
13C3-PFBS



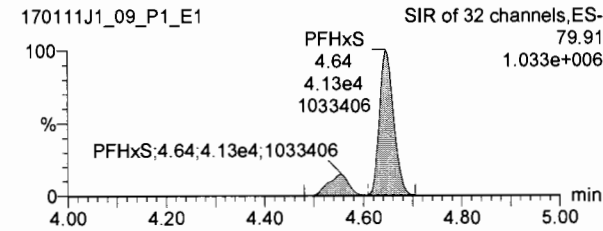
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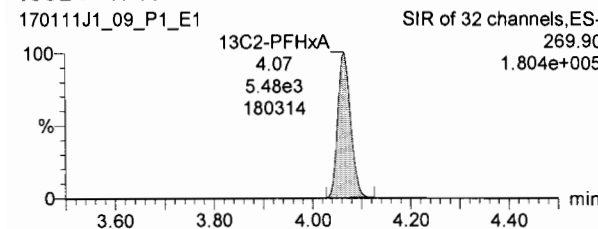
PFHpA



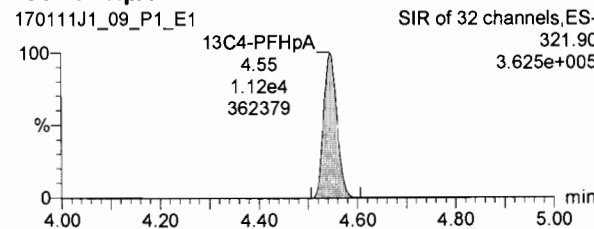
PFHxS



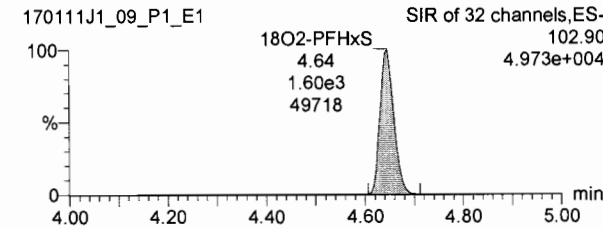
13C2-PFHxA

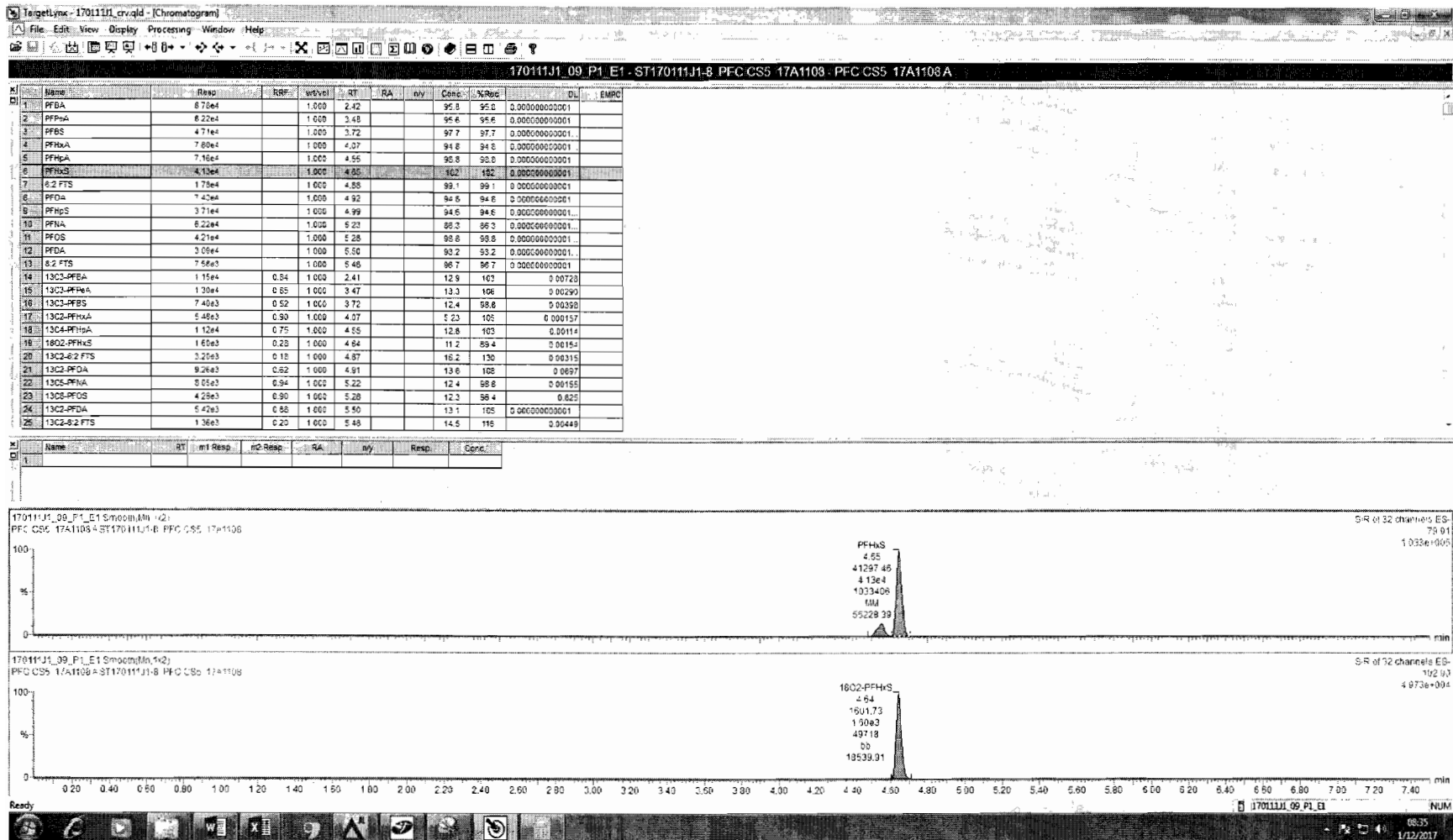


13C4-PFHpA



18O2-PFHxS





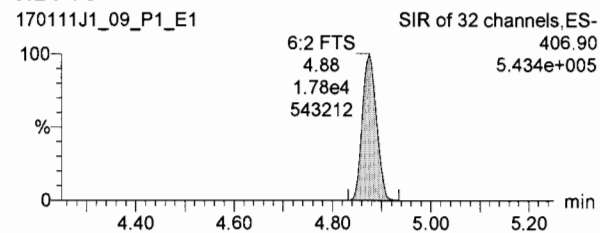
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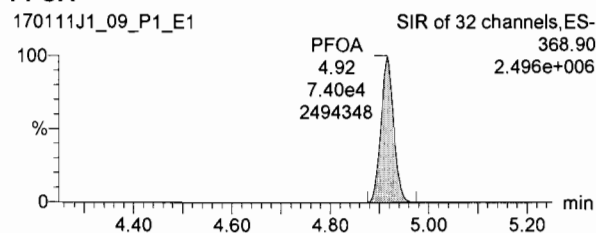
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Name: 170111J1_09.wiff, Date: 11-Jan-2017, Time: 13:11:14, ID: ST170111J1-8 PFC CS5 17A1108, Description: PFC CS5 17A1108 A

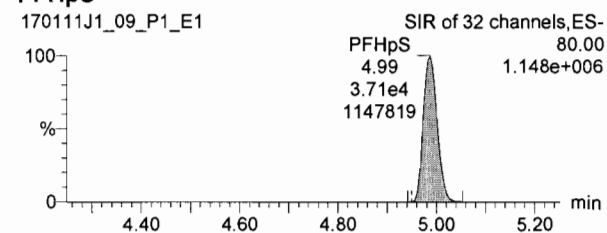
6:2 FTS



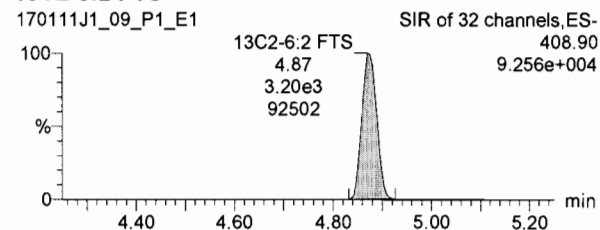
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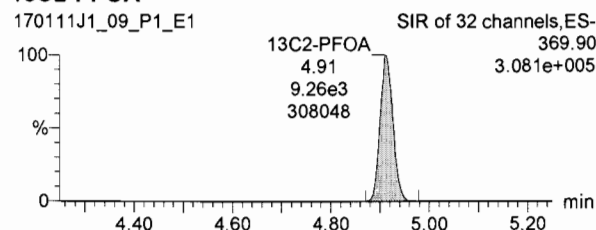
PFHpS



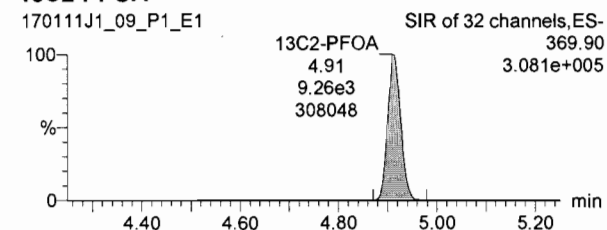
13C2-6:2 FTS



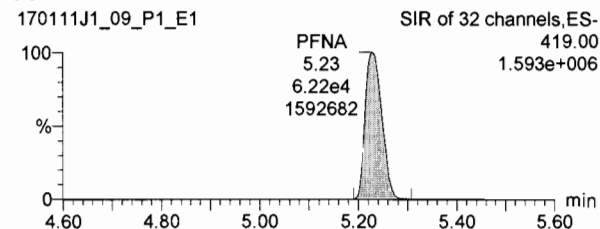
13C2-PFOA



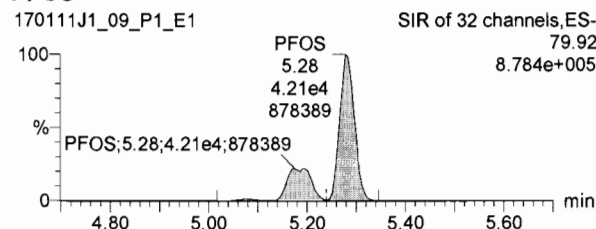
13C2-PFOA



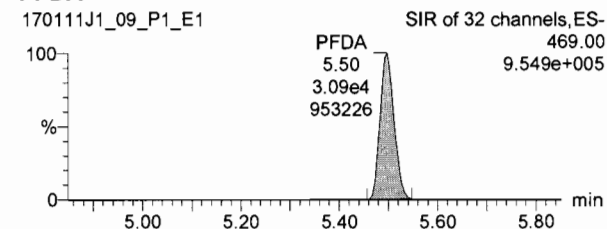
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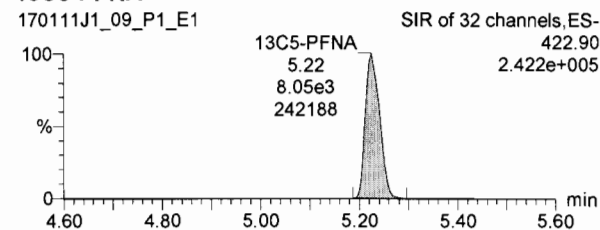
PFOS



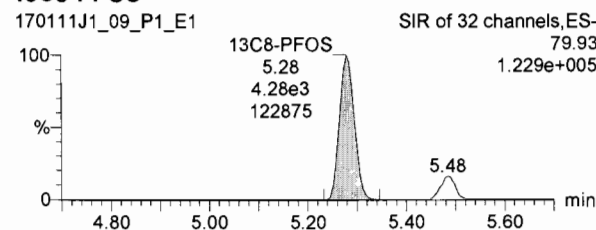
PFDA



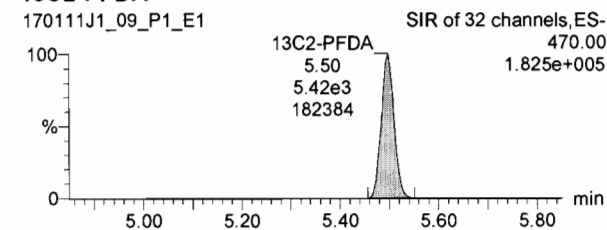
13C5-PFNA

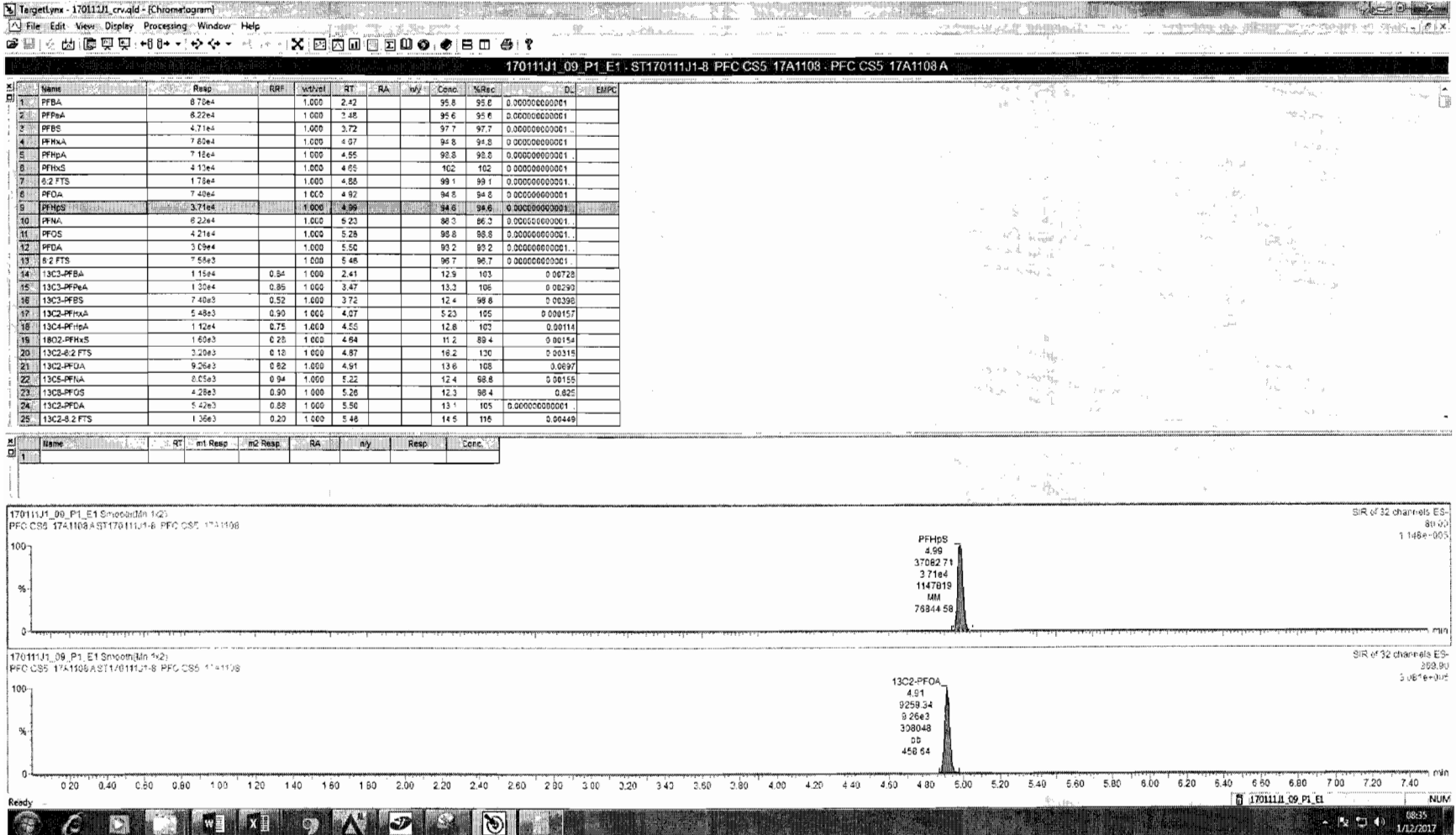


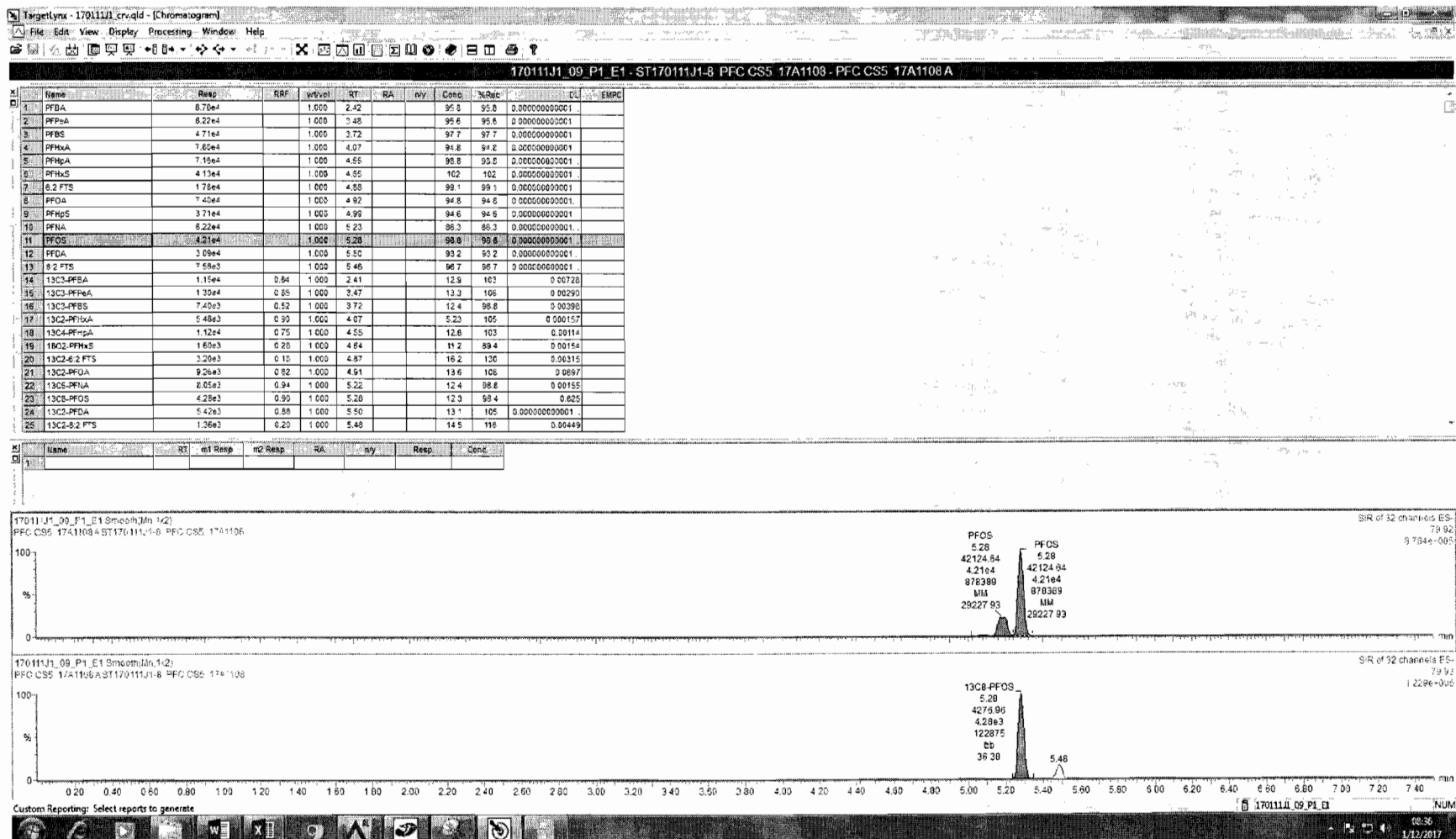
13C8-PFOS



13C2-PFDA







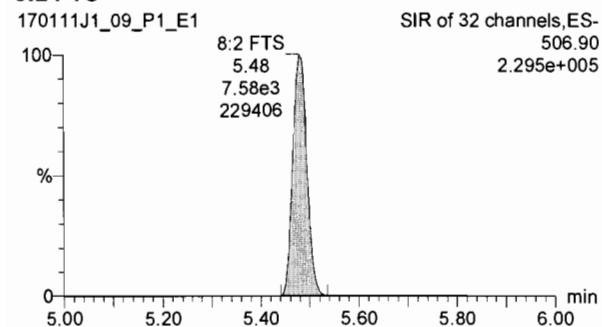
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Last Altered: Thursday, January 12, 2017 08:45:09 Pacific Standard Time

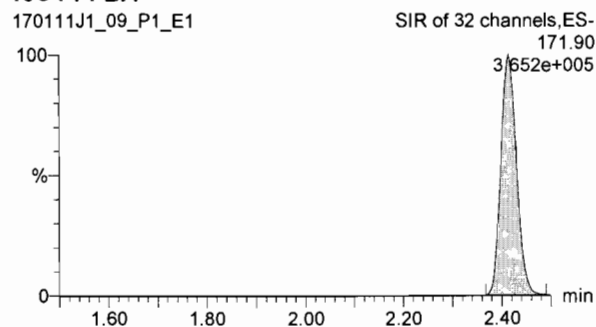
Printed: Thursday, January 12, 2017 08:55:21 Pacific Standard Time

Name: 170111J1_09.wiff, Date: 11-Jan-2017, Time: 13:11:14, ID: ST170111J1-8 PFC CS5 17A1108, Description: PFC CS5 17A1108 A

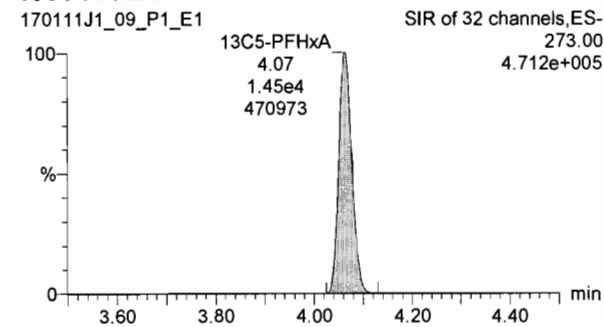
8:2 FTS



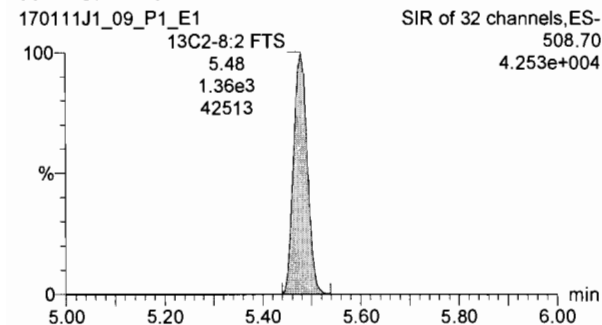
13C4-PFBA



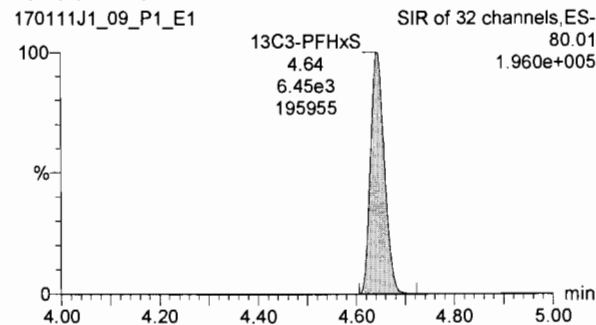
13C5-PFHxA



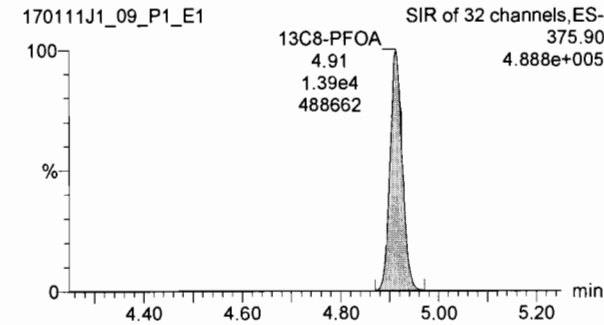
13C2-8:2 FTS



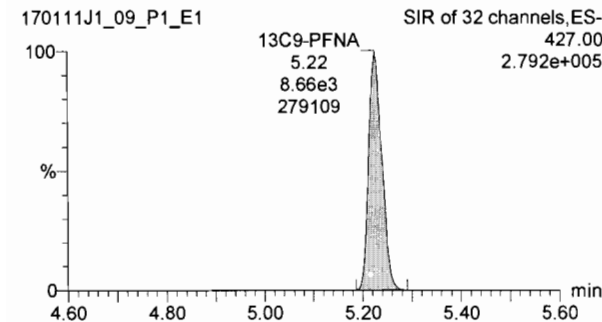
13C3-PFHxS



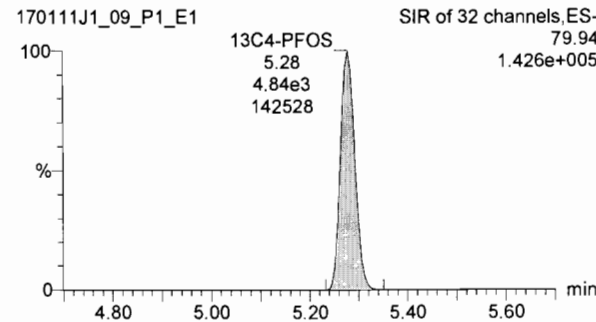
13C8-PFOA



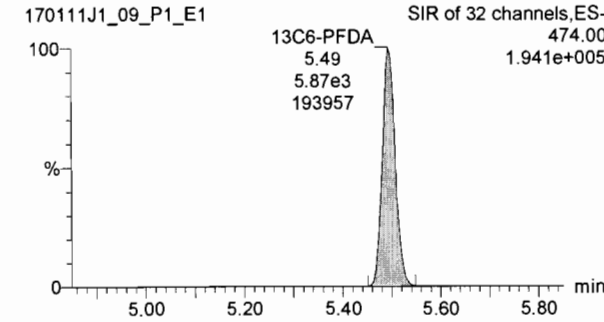
13C9-PFNA



13C4-PFOS



13C6-PFDA



Dataset: U:\Q2.PRO\Results\170111J1\170111J1_11.qld

Last Altered: Thursday, January 12, 2017 09:19:51 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:20:23 Pacific Standard Time

Method: U:\Q2.PRO\MethDB\PFC List 26_A No4-2FTS_Mixed.mdb 12 Jan 2017 08:55:01

Calibration: U:\Q2.PRO\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28

Name: 170111J1_11.wiff, Date: 11-Jan-2017, Time: 13:35:43, ID: SS170111J1-1 SSS PFC 17A1109, Description: PFC SSS 17A1109 A

	# Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc.	%Rec
1	1 PFBA	168.90	1.10e4	1.05e4		1.000	2.41	11.7	116.6
2	2 PFPeA	218.90	8.05e3	1.26e4		1.000	3.47	8.52	85.2
3	3 PFBS	79.90	5.19e3	7.33e3		1.000	3.72	10.1	101.1
4	4 PFHxA	268.90	9.21e3	4.95e3		1.000	4.06	12.3	122.6
5	5 PFHpA	318.90	8.33e3	1.05e4		1.000	4.54	11.7	116.7
6	6 PFHxS	79.91	4.24e3	1.58e3		1.000	4.64	11.1	111.1
7	7 6:2 FTS	406.90	1.80e3	2.30e3		1.000	4.87	10.0	100.5
8	8 PFOA	368.90	6.62e3	8.14e3		1.000	4.91	8.12	81.2
9	9 PFHpS	80.00	4.06e3	8.14e3		1.000	4.99	10.2	101.9
10	10 PFNA	419.00	7.41e3	7.01e3		1.000	5.23	9.72	97.2
11	11 PFOS	79.92	3.94e3	4.14e3		1.000	5.28	10.0	100.1
12	12 PFDA	469.00	3.76e3	5.11e3		1.000	5.49	10.2	102.1
13	13 8:2 FTS	506.90	9.54e2	1.12e3		1.000	5.47	11.2	111.8
14	14 13C3-PFBA	172.00	1.05e4	1.21e4	0.842	1.000	2.40	12.9	103.3
15	15 13C3-PFPeA	221.90	1.26e4	1.36e4	0.846	1.000	3.47	13.7	109.3
16	16 13C3-PFBS	79.95	7.33e3	1.36e4	0.517	1.000	3.71	13.0	104.0
17	17 13C2-PFHxA	269.90	4.95e3	1.36e4	0.903	1.000	4.06	5.02	100.4
18	18 13C4-PFHpA	321.90	1.05e4	1.36e4	0.751	1.000	4.54	12.9	102.8
19	19 18O2-PFHxS	102.90	1.58e3	5.58e3	0.278	1.000	4.64	12.8	102.2
20	20 13C2-6:2 FTS	408.90	2.30e3	1.35e4	0.178	1.000	4.87	11.9	95.6
21	21 13C2-PFOA	369.90	8.14e3	1.35e4	0.616	1.000	4.91	12.2	97.7
22	22 13C5-PFNA	422.90	7.01e3	7.00e3	0.940	1.000	5.23	13.3	106.5
23	23 13C8-PFOS	79.93	4.14e3	4.40e3	0.897	1.000	5.27	13.1	104.8
24	24 13C2-PFDA	470.00	5.11e3	5.80e3	0.882	1.000	5.49	12.5	99.9
25	25 13C2-8:2 FTS	508.70	1.12e3	5.80e3	0.201	1.000	5.47	12.0	95.9
26	26 13C4-PFBA	171.90	1.21e4	1.21e4	1.000	1.000	2.40	12.5	100.0
27	27 13C5-PFHxA	273.00	1.36e4	1.36e4	1.000	1.000	4.06	12.5	100.0
28	28 13C3-PFHxS	80.01	5.58e3	5.58e3	1.000	1.000	4.64	12.5	100.0
29	29 13C8-PFOA	375.90	1.35e4	1.35e4	1.000	1.000	4.91	12.5	100.0
30	30 13C9-PFNA	427.00	7.00e3	7.00e3	1.000	1.000	5.22	12.5	100.0
31	31 13C4-PFOS	79.94	4.40e3	4.40e3	1.000	1.000	5.27	12.5	100.0

75-125

AMSC 1/12/17

PW

1/12/17

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_11.qld

Last Altered: Thursday, January 12, 2017 09:19:51 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:20:23 Pacific Standard Time

Name: 170111J1_11.wiff, Date: 11-Jan-2017, Time: 13:35:43, ID: SS170111J1-1 SSS PFC 17A1109, Description: PFC SSS 17A1109 A

	# Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc.	%Rec
32	32 13C6-PFDA	474.00	5.80e3	5.80e3	1.000	1.000	5.49	12.5	100.0

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_11.qld

Last Altered: Thursday, January 12, 2017 09:19:51 Pacific Standard Time

Printed: Thursday, January 12, 2017 09:20:23 Pacific Standard Time

Method: U:\Q2.PRO\MethDB\PFC List 26_A No4-2FTS_Mixed.mdb 12 Jan 2017 08:55:01

Calibration: U:\Q2.PRO\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28

Name: 170111J1_11.wiff, Date: 11-Jan-2017, Time: 13:35:43, ID: SS170111J1-1 SSS PFC 17A1109, Description: PFC SSS 17A1109 A

Total PFBS

	# Name	Trace	RT	Area	IS Area	Conc.
1	3 PFBS	79.90	3.72	5.19e3	7.33e3	10.1

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	6 PFHxS	79.91	4.64	4.24e3	1.58e3	11.1

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	8 PFOA	368.90	4.91	6.62e3	8.14e3	8.12

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	11 PFOS	79.92	5.28	3.94e3	4.14e3	10.0

Total PFHpS

	# Name	Trace	RT	Area	IS Area	Conc.
1	9 PFHpS	80.00	4.99	4.06e3	8.14e3	10.2

	Sample Name	Acquisition Date	Sample ID	Sample Comment
1	170111J1_01	1/11/2017 11:33:20	IPA	IPA
2	170111J1_02	1/11/2017 11:45:32	ST170111J1-1 PFC CS(-2) 17A1101	PFC CS(-2) 17A1101 A
3	170111J1_03	1/11/2017 11:57:49	ST170111J1-2 PFC CS(-1) 17A1102	PFC CS(-1) 17A1102 A
4	170111J1_04	1/11/2017 12:10:03	ST170111J1-3 PFC CS0 17A1103	PFC CS0 17A1103 A
5	170111J1_05	1/11/2017 12:22:18	ST170111J1-4 PFC CS1 17A1104	PFC CS1 17A1104 A
6	170111J1_06	1/11/2017 12:34:29	ST170111J1-5 PFC CS2 17A1105	PFC CS2 17A1105 A
7	170111J1_07	1/11/2017 12:46:46	ST170111J1-6 PFC CS3 17A1106	PFC CS3 17A1106 A
8	170111J1_08	1/11/2017 12:59:00	ST170111J1-7 PFC CS4 17A1107	PFC CS4 17A1107 A
9	170111J1_09	1/11/2017 13:11:14	ST170111J1-8 PFC CS5 17A1108	PFC CS5 17A1108 A
10	170111J1_10	1/11/2017 13:23:28	IPA	IPA
11	170111J1_11	1/11/2017 13:35:43	SS170111J1-1 SSS PFC 17A1109	PFC SSS 17A1109 A
12	170111J1_12	1/11/2017 13:47:58	IPA	IPA
13	170111J1_13	1/11/2017 14:00:11	B7A0028-BS1	OPR
14	170111J1_14	1/11/2017 14:12:26	B7A0039-BS1	OPR
15	170111J1_15	1/11/2017 14:24:41	IPA	IPA
16	170111J1_16	1/11/2017 14:36:56	B7A0028-BLK1	Method Blank
17	170111J1_17	1/11/2017 14:49:11	B7A0039-BLK1	Method Blank
18	170111J1_18	1/11/2017 15:01:27	1601580-03RE1@10X	BERPCA005
19	170111J1_19	1/11/2017 15:13:44	B7A0022-MS1@10X	Matrix Spike
20	170111J1_20	1/11/2017 15:26:01	B7A0022-MSD1@10X	Matrix Spike Dup
21	170111J1_21	1/11/2017 15:38:16	1601580-04RE1@10X	BERPCA096
22	170111J1_22	1/11/2017 15:50:30	1700025-01	Field Blank (420-115299-1)
23	170111J1_23	1/11/2017 16:02:45	1700025-02	B-101-0S (420-115299-2)
24	170111J1_24	1/11/2017 16:15:00	1700025-03	B-104-0S Hyd (420-115299-3)
25	170111J1_25	1/11/2017 16:27:14	1700025-04	B-106-0S Hyd 3 (420-115299-4)
26	170111J1_26	1/11/2017 16:39:28	1700025-05	B-208-0S Hyd 8 (420-115299-5)
27	170111J1_27	1/11/2017 16:51:43	1700025-06	B-304-0S Hyd 15 (420-115299-6)
28	170111J1_28	1/11/2017 17:03:58	1700006-01	OC-RW10-0117
29	170111J1_29	1/11/2017 17:16:11	1700006-02	OC-FB10-010317
30	170111J1_30	1/11/2017 17:28:27	1700007-01	Sayegh -14 Stella's Way, New Winds
31	170111J1_31	1/11/2017 17:40:42	IPA	IPA
32	170111J1_32	1/11/2017 17:52:53	ST170111J1-9 PFC CS3 17A1106	PFC CS3 17A1106 A
33	170111J1_33	1/11/2017 18:05:10	IPA	IPA

Dataset: U:\Q2.PRO\Results\170111J1\170111J1_11.qld

Last Altered: Thursday, January 12, 2017 09:19:51 Pacific Standard Time

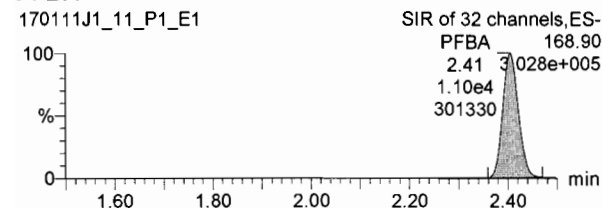
Printed: Thursday, January 12, 2017 09:20:11 Pacific Standard Time

Method: U:\Q2.PRO\MethDB\PFC List 26_A No4-2FTS_Mixed.mdb 12 Jan 2017 08:55:01

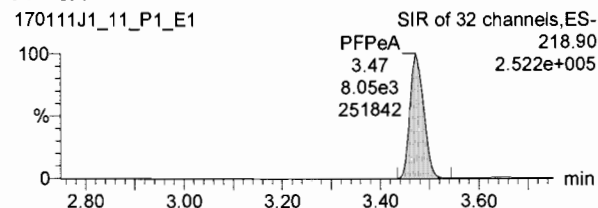
Calibration: U:\Q2.PRO\CurveDB\C18_VAL-PFC_Q2_01-11-17_L26_A.cdb 12 Jan 2017 09:12:28

Name: 170111J1_11.wiff, Date: 11-Jan-2017, Time: 13:35:43, ID: SS170111J1-1 SSS PFC 17A1109, Description: PFC SSS 17A1109 A

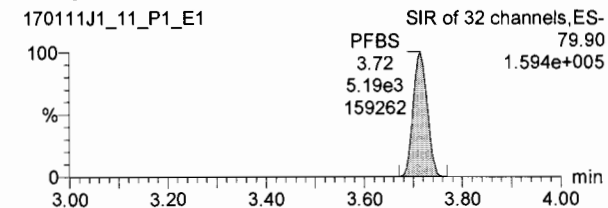
PFBA



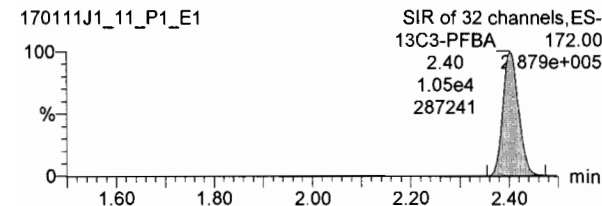
PFPeA



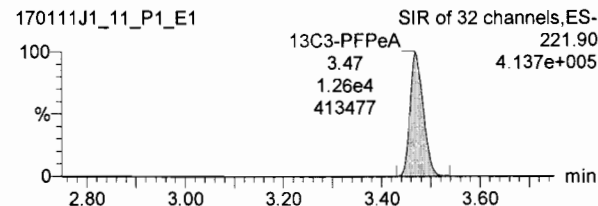
PFBS



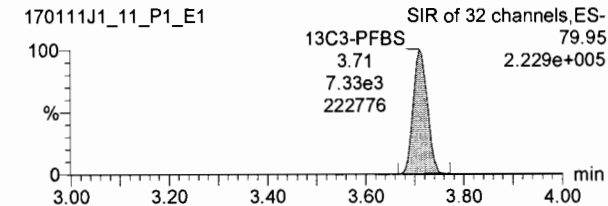
13C3-PFBA



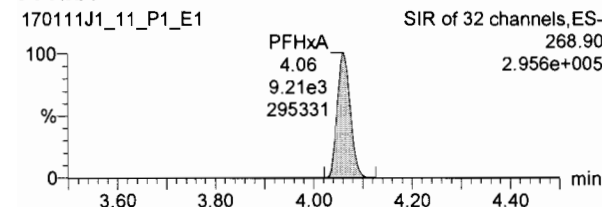
13C3-PFPeA



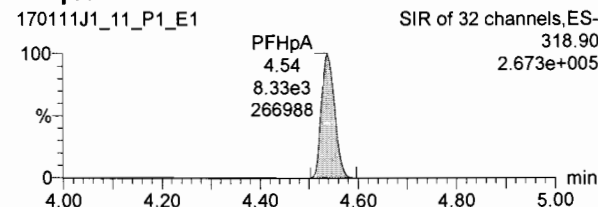
13C3-PFBS



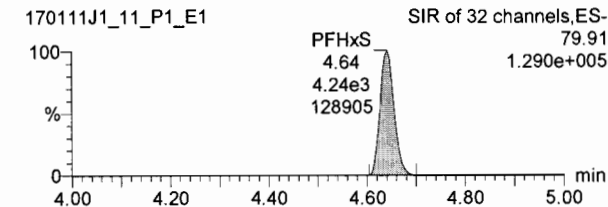
PFHxA



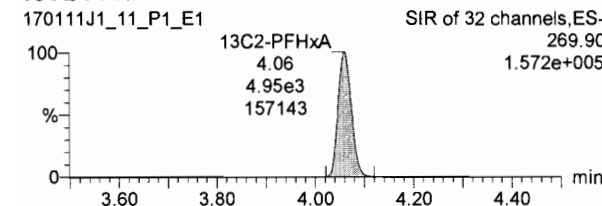
PFHpA



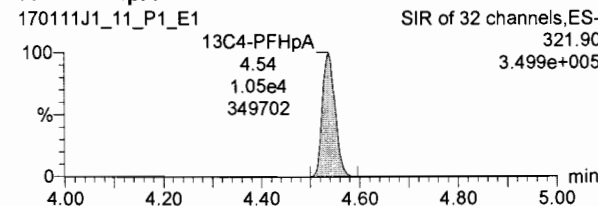
PFHxS



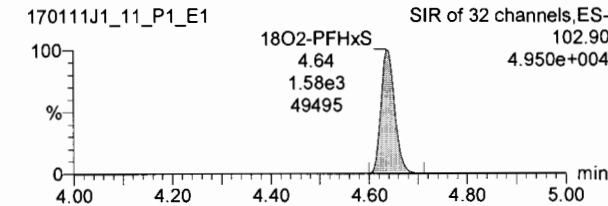
13C2-PFHxA



13C4-PFHpA



18O2-PFHxS



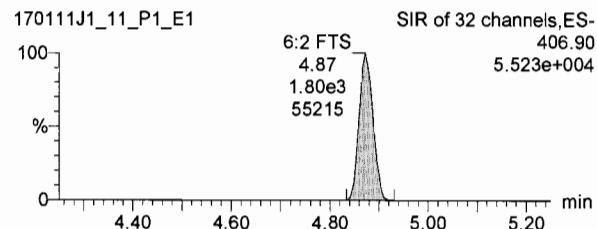
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Last Altered: Thursday, January 12, 2017 09:19:51 Pacific Standard Time

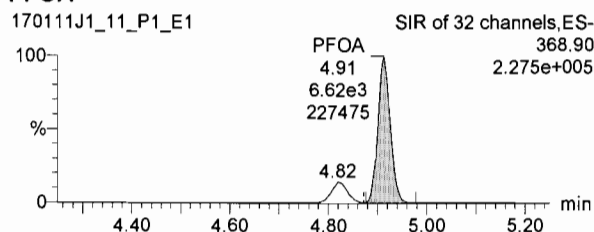
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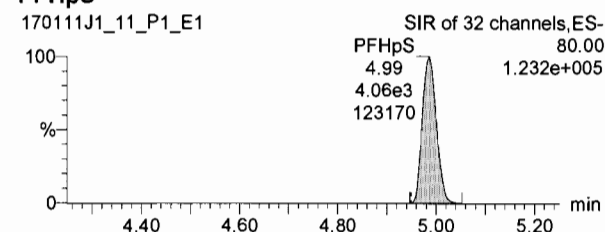
6:2 FTS



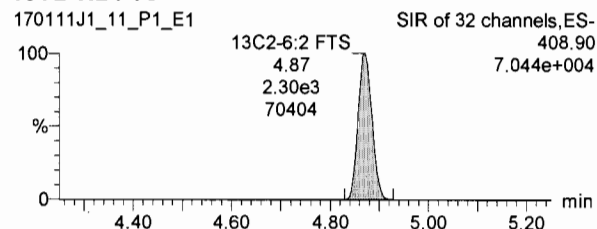
PFOA



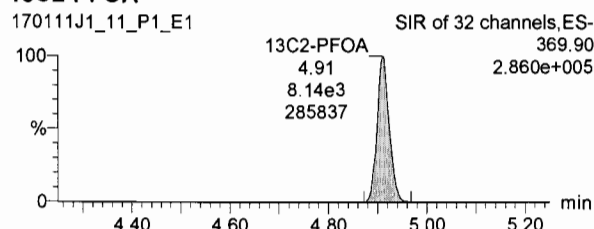
PFHpS



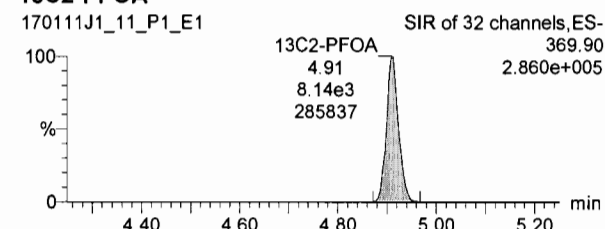
13C2-6:2 FTS



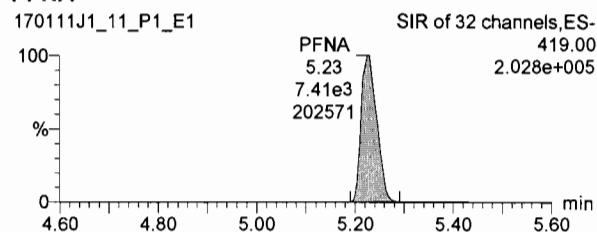
13C2-PFOA



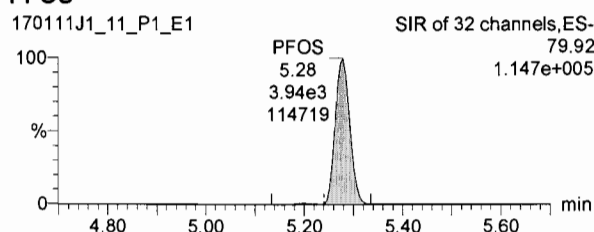
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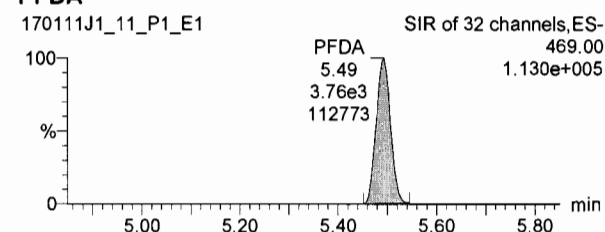
PFNA



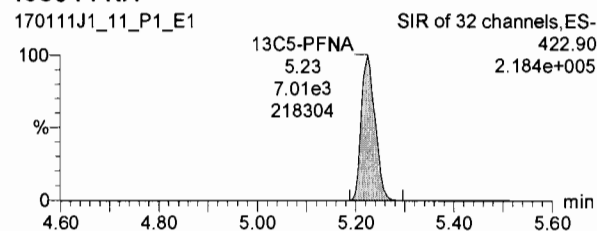
PFOS



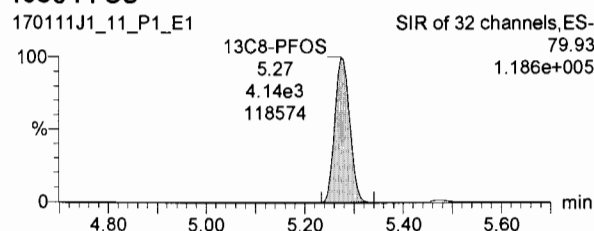
PFDA



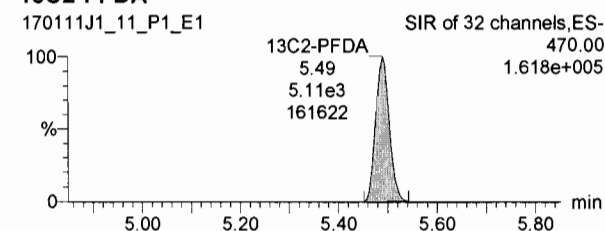
13C5-PFNA



13C8-PFOS



13C2-PFDA



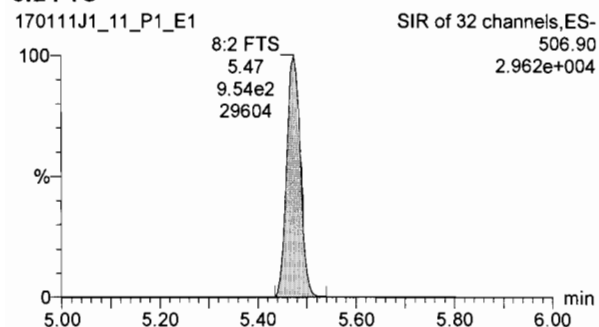
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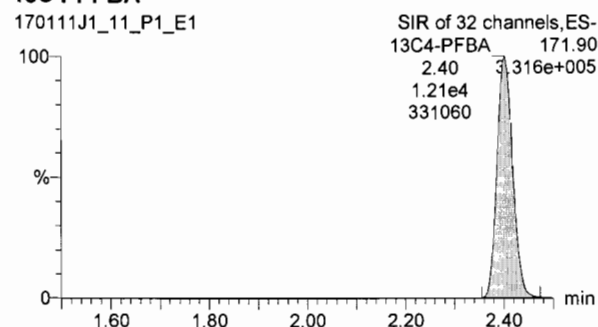
Printed: Thursday, January 12, 2017 09:20:11 Pacific Standard Time

Name: 170111J1_11.wiff, Date: 11-Jan-2017, Time: 13:35:43, ID: SS170111J1-1 SSS PFC 17A1109, Description: PFC SSS 17A1109 A

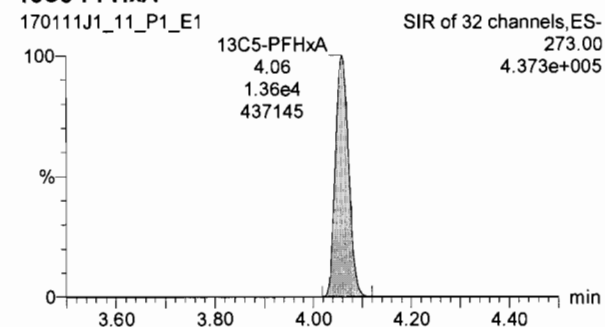
8:2 FTS



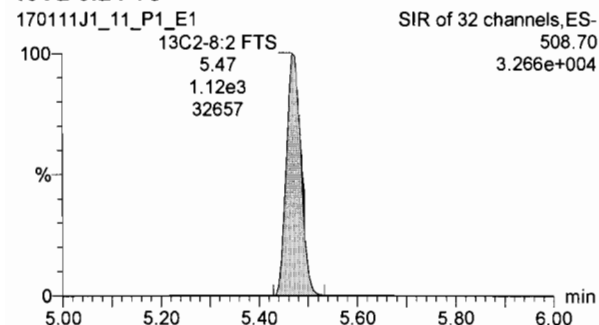
13C4-PFBA



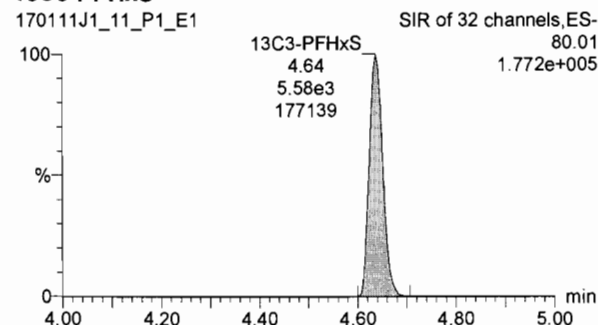
13C5-PFHxA



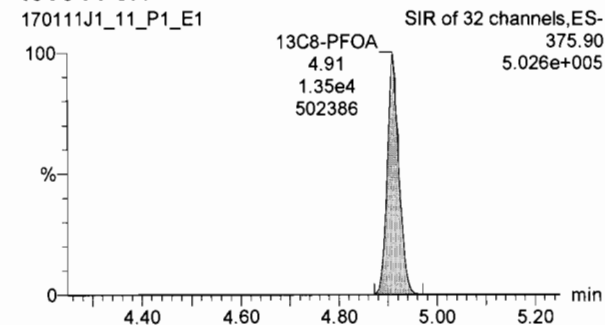
13C2-8:2 FTS



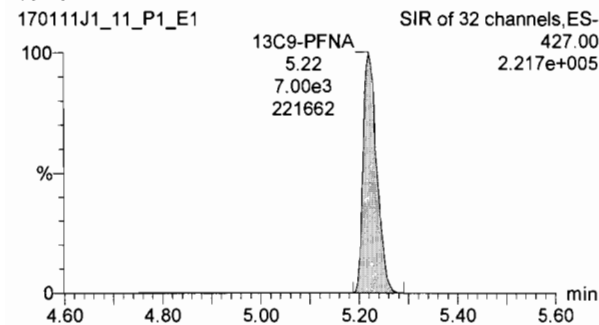
13C3-PFHxS



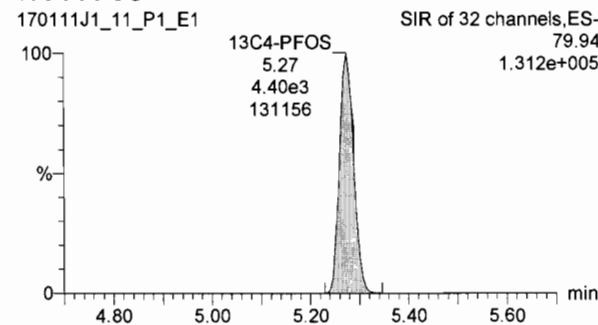
13C8-PFOA



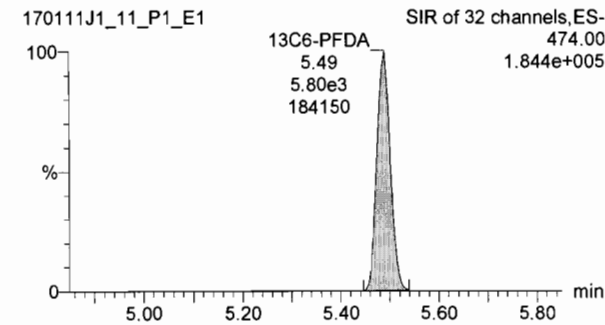
13C9-PFNA



13C4-PFOS



13C6-PFDA



[illegible]

Data Validation Summary

Oceana CTO-WE44, NALF Fentress

TO: Tiffany Hill/CVO
Anita Dodson/VBO

FROM: Tiffany McGlynn/GNV

CC: Herb Kelly/GNV

DATE: January 19, 2017

Introduction

The following data validation report discusses the data validation process and findings for Vista Analytical in the Sample Delivery Groups (SDGs) listed in the table below.

Samples were analyzed using the following analytical methods:

- 537 MOD Perfluorinated Hydrocarbons

The samples included in these SDGs are listed in the table below.

SDG	Sample Name	Matrix
1601579	OC-RW12-1216	Water
1601579	OC-FB12-121616	Water
1601579	OC-RW01-1216	Water
1601579	OC-FB01-121616	Water
1601579	OC-RW03-1216	Water
1601579	OC-FB03-121616	Water
1601579	OC-RW03P-1216	Water
1601587	OC-RW04-1216	Water
1601587	OC-FB04-121916	Water
1601595	OC-RW13-1216	Water
1601595	OC-FB13-122116	Water
1601602	OCSTR-WL01-1216	Water

SDG	Sample Name	Matrix
1601602	OCSTR-FB01-122216	Water
1700006	OC-RW10-0117	Water
1700006	OC-FB10-010317	Water

Data Evaluation

Data was evaluated in accordance with the analytical methods and with the criteria found in the following guidance documents: Sampling and Analysis Plan Basewide Site Inspection for Perfluorinated Compounds Naval Air Station Oceana Virginia Beach, Virginia CTO-WE44 (October 2016) and National Functional Guidelines for Organic Data Review (August 2016), as applicable. The samples were evaluated based on the following criteria:

- Data Completeness
- Technical Holding Times
- Tuning Instrument
- Initial/Continuing Calibrations
- Blanks
- Internal Standards
- Laboratory Control Samples
- Isotope Dilution Analyte
- Field Duplicates
- Identification/Quantitation
- Reporting Limits

Overall Evaluation of Data/Potential Usability Issues

Specific details regarding qualification of the data are addressed in the sections below. If an issue is not addressed there were no actions required based on unmet quality criteria. When more than one qualifier is associated with a compound/analyte, the validator has chosen the qualifier that best indicates possible bias in the results and qualified these data accordingly.

Data Completeness

The SDG was received complete and intact.

Technical Holding Times

According to the chain of custody records, sampling was performed on 12/16/16 through 1/03/17. Samples were received at the laboratory 12/17/16 through 1/4/17. All sample preparation and analyses were performed within holding time requirements.

Blanks

Target compounds were detected in the method blanks for SDG 1601579 as listed in the table below. Affected data are summarized in **Attachment 1**.

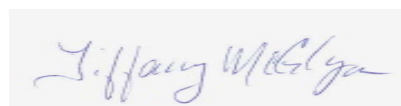
Blank ID	Compound	Conc.	Units
B6L0115-BLK1	Perfluorooctanoic acid (PFOA)	0.816	NG_L

Conclusion

These data can be used in the project decision-making process as qualified by the data quality evaluation process.

Please do not hesitate to contact us about this validation report.

Sincerely,

A handwritten signature in blue ink that reads "Tiffany McGlynn". The signature is written in a cursive, flowing style.

Tiffany McGlynn

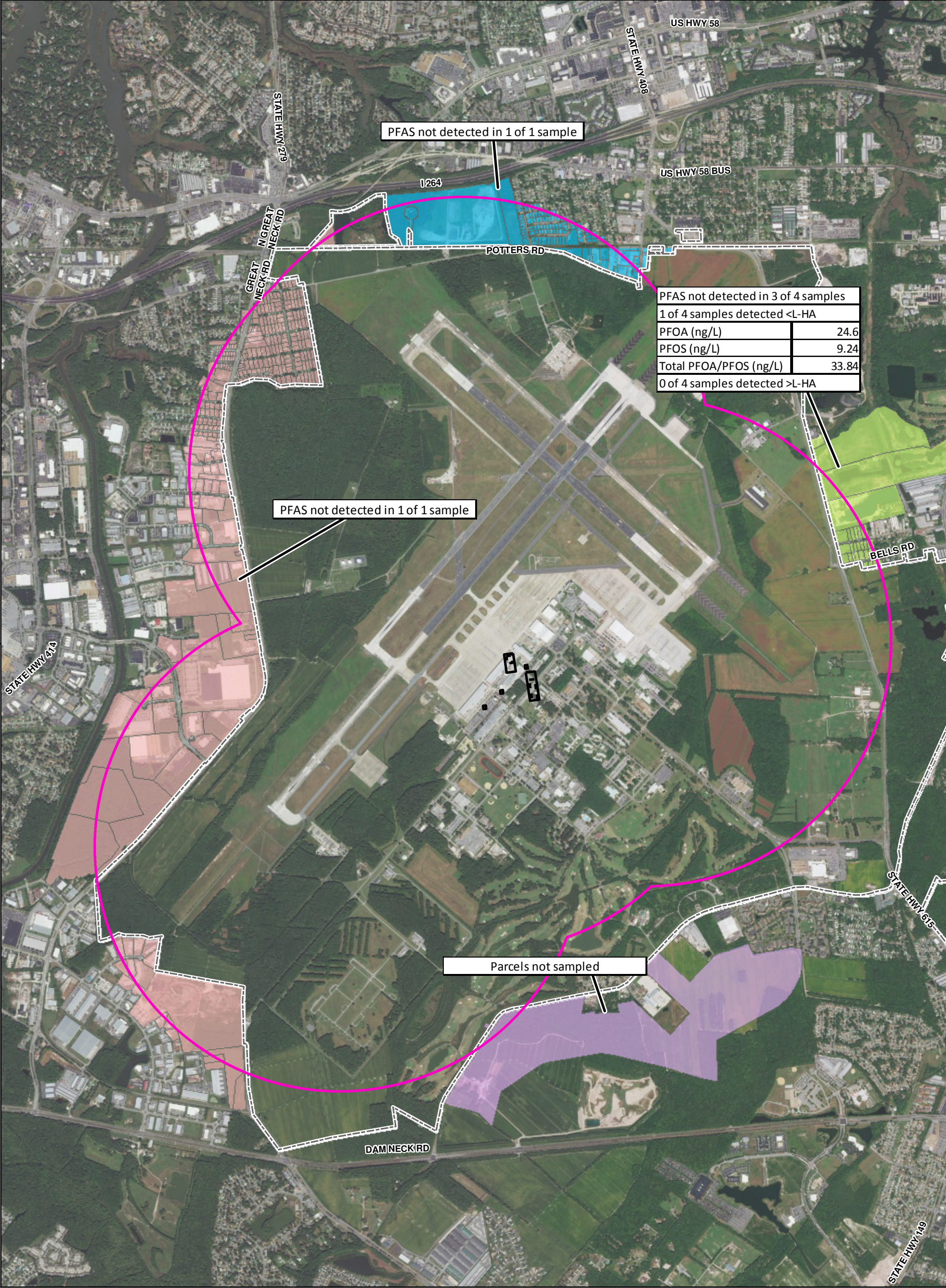
Qualification Flags

Exclude	More appropriate data exist for this analyte.
R	Data were rejected for use.
UL	Analyte not detected, quantitation limit is potentially biased low.
UJ	Analyte not detected, estimated quantitation limit.
U	Analyte not detected.
B	Not detected substantially above the level reported in laboratory or field blanks.
L	Analyte present, estimated value potentially biased low.
K	Analyte present, estimated value potentially biased high.
N	Analyte identification presumptive; no second column analysis performed or GC/MS tentative identification.
J	Analyte present, estimated value.
NJ	Analysis indicates the presence of an analyte that was "tentatively identified" and the associated value represents its approximate concentration.
None	Placeholder for calculating quality control issues that do not require flagging.
=	Analyte was detected at a concentration greater than the quantitation limit.

Qualifier Code Reference

Value	Description
%SOL	High Moisture content
2C	Second Column – Poor Dual Column Reproducibility
2S	Second Source – Bad reproducibility between tandem detectors
BD	Blank Spike/Blank Spike Duplicate(LCS/LCSD) Precision
BRL	Below Reporting Limit
BSH	Blank Spike/LCS – High Recovery
BSL	Blank Spike/LCS – Low Recovery
CC	Continuing Calibration
CCBL	Continuing Calibration Blank Contamination
CCH	Continuing Calibration Verification – High Recovery
CCL	Continuing Calibration Verification – Low Recovery
DL	Redundant Result – due to Dilution
EBL	Equipment Blank Contamination
EMPC	Estimated Possible Maximum Concentration
ESH	Extraction Standard - High Recovery
ESL	Extraction Standard - Low Recovery
FBL	Field Blank Contamination
FD	Field Duplicate
HT	Holding Time
ICB	Initial Calibration – Bad Linearity or Curve Function
ICH	Initial Calibration – High Relative Response Factors
ICL	Initial Calibration – Low Relative Response Factors
IR15	Ion ratio exceeds +/- 15% difference
ISH	Internal Standard – High Recovery
ISL	Internal Standard – Low Recovery
LD	Lab Duplicate Reproducibility
LR	Concentration Exceeds Linear Range
MBL	Method Blank Contamination
MDP	Matrix Spike/Matrix Spike Duplicate Precision
MI	Matrix interference obscuring the raw data

Value	Description
MSH	Matrix Spike and/or Matrix Spike Duplicate – High Recovery
MSL	Matrix Spike and/or Matrix Spike Duplicate – Low Recovery
OT	Other
PD	Pesticide Degradation
RE	Redundant Result - due to Reanalysis or Re-extraction
SD	Serial Dilution Reproducibility
SSH	Spiked Surrogate – High Recovery
SSL	Spiked Surrogate – Low Recovery
TBL	Trip Blank Contamination
TN	Tune



Legend

- Non-Core Target Treatment Area (2004)
- - Core Target Treatment Area (2004) (Core)
- Sampling Area
- Installation Boundary
- Off-Base Parcels**
- East
- North
- South
- West

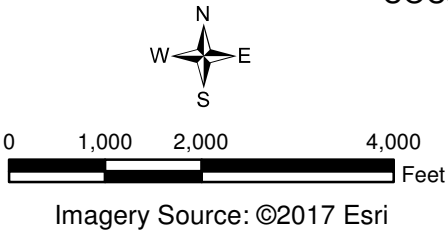


Figure 4-3
COCs Detections in Potable Wells Sampled from Parcels Located Off-Base
Basewide Per- and Polyfluoroalkyl Substances Site Inspection Report
NAS Oceana, Virginia Beach, Virginia