



**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 1601587**

*Naval Air Station Oceana
Virginia Beach, Virginia*

July 2019



January 10, 2017

Vista Work Order No. 1601587

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 December 20, 2016. This sample set was analyzed on a standard 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 cursive script that reads "Karen Lopez" followed by the word "for" in a smaller, simpler font.

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. 1601587**Case Narrative****Sample Condition on Receipt:**

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

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 method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above 1/2 the LOQ. The OPR recoveries were within the method acceptance criteria

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

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1601587-01	OC-RW04-1216	19-Dec-16 10:36	20-Dec-16 09:55	HDPE Bottle, 125 mL HDPE Bottle, 125 mL
1601587-02	OC-FB04-121916	19-Dec-16 10:34	20-Dec-16 09:55	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: B6L0144 Date Extracted: 29-Dec-2016 9:08				Lab Sample: B6L0144-BLK1 Date Analyzed: 03-Jan-17 18:43 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	95.5	60 - 150	
PFHpA	ND	0.591	2.00	8.00		IS 13C4-PFHpA	92.5	60 - 150	
PFHxS	ND	0.947	2.00	8.00		IS 18O2-PFHxS	90.8	60 - 150	
PFOA	ND	0.651	2.00	8.00		IS 13C2-PFOA	83.0	60 - 150	
PFOS	ND	0.807	0.900	8.00		IS 13C8-PFOS	91.5	60 - 150	
PFNA	ND	0.810	2.00	8.00		IS 13C5-PFNA	104	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: B6L0144			Lab Sample: B6L0144-BS1			
Sample Size: 0.125 L		Date Extracted: 29-Dec-2016 9:08			Date Analyzed: 03-Jan-17 18:06 Column: BEH C18			
Analyte	Amt Found (ng/L)	Spike Amt	%R	Limits	Labeled Standard		%R	LCL-UCL
PFBS	89.7	80.0	112	60 - 130	IS	13C3-PFBS	95.5	60 - 150
PFHpA	87.0	80.0	109	70 - 130	IS	13C4-PFHpA	85.6	60 - 150
PFHxS	89.1	80.0	111	70 - 130	IS	18O2-PFHxS	83.2	60 - 150
PFOA	98.2	80.0	123	70 - 130	IS	13C2-PFOA	77.1	60 - 150
PFOS	83.3	80.0	104	70 - 130	IS	13C8-PFOS	79.3	60 - 150
PFNA	66.4	80.0	83.0	50 - 130	IS	13C5-PFNA	86.1	50 - 150

LCL-UCL - Lower control limit - upper control limit

Sample ID: OC-RW04-1216						Modified EPA Method 537				
Client Data			Sample Data			Laboratory Data				
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1601587-01		Date Received:	20-Dec-2016 9:55
Project:	Oceana CTO-WE14		Sample Size:	0.127 L		QC Batch:	B6L0144		Date Extracted:	29-Dec-2016 9:08
Date Collected:	19-Dec-2016 10:36					Date Analyzed:	03-Jan-17 19:07 Column: BEH C18			
Location:										
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	1.76	3.94	7.88		IS	13C3-PFBS	92.0	60 - 150	
PFHpA	ND	0.582	1.97	7.88		IS	13C4-PFHpA	82.6	60 - 150	
PFHxS	ND	0.933	1.97	7.88		IS	18O2-PFHxS	86.0	60 - 150	
PFOA	ND	0.641	1.97	7.88		IS	13C2-PFOA	85.7	60 - 150	
PFOS	ND	0.795	0.886	7.88		IS	13C8-PFOS	83.7	60 - 150	
PFNA	ND	0.798	1.97	7.88		IS	13C5-PFNA	75.3	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-FB04-121916							Modified EPA Method 537			
Client Data			Sample Data			Laboratory Data				
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1601587-02		Date Received:	20-Dec-2016 9:55
Project:	Oceana CTO-WE14		Sample Size:	0.127 L		QC Batch:	B6L0144		Date Extracted:	29-Dec-2016 9:08
Date Collected:	19-Dec-2016 10:34					Date Analyzed:	03-Jan-17 19:19		Column:	BEH C18
Location:										
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	1.76	3.94	7.86		IS	13C3-PFBS	87.9	60 - 150	
PFHpA	ND	0.581	1.97	7.86		IS	13C4-PFHpA	79.8	60 - 150	
PFHxS	ND	0.930	1.97	7.86		IS	18O2-PFHxS	75.9	60 - 150	
PFOA	ND	0.640	1.97	7.86		IS	13C2-PFOA	72.6	60 - 150	
PFOS	ND	0.793	0.886	7.86		IS	13C8-PFOS	76.6	60 - 150	
PFNA	ND	0.796	1.97	7.86		IS	13C5-PFNA	81.4	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 #: 1601587 TAT 14

Samples Arrival:	Date/Time <u>12/20/16 0955</u>	Initials: <u>WWS</u>	Location: <u>WR-2</u> Shelf/Rack: <u>N/a</u>
Logged In:	Date/Time <u>12/20/16 1626</u>	Initials: <u>SR</u>	Location: <u>WR-2</u> Shelf/Rack: <u>B6</u>
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
		☐ DHL	☐ Hand Delivered
Other			
Preservation:	☒ Ice	☐ Blue Ice	☐ Dry Ice
	☐ None		
Temp °C: <u>1.4</u> (uncorrected)	Time: <u>1008</u>		Thermometer ID: IR-1
Temp °C: <u>1.1</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>7779 8910 2016</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 ☐ No ☒ NA
Shipping Container	☒ Vista	☐ Client	☐ Retain
	☐ Return	☐ Dispose	

Comments:



January 10, 2017

Vista Work Order No. 1601587

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 December 20, 2016. This sample set was analyzed on a standard turn-around time, under your Project Name 'Oceana CTO-WE14'.

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

Sincerely,

Karen Lopez 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. 1601587

Case Narrative

Sample Condition on Receipt:

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

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 method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with the preparation batch. No analytes were detected in the Method Blank above 1/2 the LOQ. The OPR recoveries were within the method acceptance criteria

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1601587-01	OC-RW04-1216	19-Dec-16 10:36	20-Dec-16 09:55	HDPE Bottle, 125 mL HDPE Bottle, 125 mL
1601587-02	OC-FB04-121916	19-Dec-16 10:34	20-Dec-16 09:55	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: B6L0144 Date Extracted: 29-Dec-2016 9:08				Lab Sample: B6L0144-BLK1 Date Analyzed: 03-Jan-17 18:43 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	95.5	60 - 150	
PFHpA	ND	0.591	2.00	8.00		IS 13C4-PFHpA	92.5	60 - 150	
PFHxS	ND	0.947	2.00	8.00		IS 18O2-PFHxS	90.8	60 - 150	
PFOA	ND	0.651	2.00	8.00		IS 13C2-PFOA	83.0	60 - 150	
PFOS	ND	0.807	0.900	8.00		IS 13C8-PFOS	91.5	60 - 150	
PFNA	ND	0.810	2.00	8.00		IS 13C5-PFNA	104	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 Sample Size: 0.125 L		QC Batch: B6L0144 Date Extracted: 29-Dec-2016 9:08			Lab Sample: B6L0144-BS1 Date Analyzed: 03-Jan-17 18:06 Column: BEH C18			
Analyte	Amt Found (ng/L)	Spike Amt	%R	Limits	Labeled Standard		%R	LCL-UCL
PFBS	89.7	80.0	112	60 - 130	IS	13C3-PFBS	95.5	60 - 150
PFHpA	87.0	80.0	109	70 - 130	IS	13C4-PFHpA	85.6	60 - 150
PFHxS	89.1	80.0	111	70 - 130	IS	18O2-PFHxS	83.2	60 - 150
PFOA	98.2	80.0	123	70 - 130	IS	13C2-PFOA	77.1	60 - 150
PFOS	83.3	80.0	104	70 - 130	IS	13C8-PFOS	79.3	60 - 150
PFNA	66.4	80.0	83.0	50 - 130	IS	13C5-PFNA	86.1	50 - 150

LCL-UCL - Lower control limit - upper control limit

Sample ID: OC-RW04-1216						Modified EPA Method 537				
Client Data			Sample Data			Laboratory Data				
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1601587-01		Date Received:	20-Dec-2016 9:55
Project:	Oceana CTO-WE14		Sample Size:	0.127 L		QC Batch:	B6L0144		Date Extracted:	29-Dec-2016 9:08
Date Collected:	19-Dec-2016 10:36					Date Analyzed:	03-Jan-17 19:07 Column: BEH C18			
Location:										
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	1.76	3.94	7.88		IS	13C3-PFBS	92.0	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-FB04-121916						Modified EPA Method 537				
Client Data Name: CH2M Hill Project: Oceana CTO-WE14 Date Collected: 19-Dec-2016 10:34 Location:			Sample Data Matrix: Drinking Water Sample Size: 0.127 L			Laboratory Data Lab Sample: 1601587-02 Date Received: 20-Dec-2016 9:55 QC Batch: B6L0144 Date Extracted: 29-Dec-2016 9:08 Date Analyzed: 03-Jan-17 19:19 Column: BEH C18				
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	1.76	3.94	7.86		IS	13C3-PFBS	87.9	60 - 150	
PFHpA	ND	0.581	1.97	7.86		IS	13C4-PFHpA	79.8	60 - 150	
PFHxS	ND	0.930	1.97	7.86		IS	18O2-PFHxS	75.9	60 - 150	
PFOA	ND	0.640	1.97	7.86		IS	13C2-PFOA	72.6	60 - 150	
PFOS	ND	0.793	0.886	7.86		IS	13C8-PFOS	76.6	60 - 150	
PFNA	ND	0.796	1.97	7.86		IS	13C5-PFNA	81.4	50 - 150	

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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 #: 1601587 TAT 14

Samples Arrival:	Date/Time <u>12/20/16 0955</u>	Initials: <u>WWS</u>	Location: <u>WR-2</u> Shelf/Rack: <u>N/a</u>
Logged In:	Date/Time <u>12/20/16 1626</u>	Initials: <u>SR</u>	Location: <u>WR-2</u> Shelf/Rack: <u>B6</u>
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
		☐ DHL	☐ Hand Delivered
Other			
Preservation:	☒ Ice	☐ Blue Ice	☐ Dry Ice
		☐ None	
Temp °C: <u>1.4</u>	(uncorrected)	Time: <u>1008</u>	Thermometer ID: IR-1
Temp °C: <u>1.1</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>7779 8910 2016</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 ☐ No ☒ NA
Shipping Container	☒ Vista	☐ Client	☐ Retain
		☐ Return	☐ Dispose

Comments:

EXTRACTION INFORMATION

Process Sheet
Workorder: **1601587**

Prep Expiration: 01/02/2017
Client: CH2M Hill

Workorder Due: 06-Jan-17 00:00

TAT: 17

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

Prep Batch: B6L0144

Prep Data Entered: 12.30.16 BP
Date and Initials

Version: UCMR 3 (6 Analyte)

Initial Sequence: S7A0103

LabSampleID	Recon	ClientSampleID	Date Received	Location	Comments
1601587-01	☒	OC-RW04-1216	20-Dec-16 09:55	WR-2 B-6	
1601587-02	☒	OC-FB04-121916	20-Dec-16 09:55	WR-2 B-6	

WO Comments: List of 6, include Total PFOA.

Vista PM: Martha Maier

Vial Box ID: Dionysus

Sample Reconciled By: Bethan P 12/21/16

Balance ID: NA

%Solids rmh 5/2011

PREPARATION BENCH SHEET

Matrix: Aqueous

Method: 537 PFAS DOD (LOO as mRL)

B6L0144

Chemist: E. Schneider

Prep Date/Time: 29-Dec-16 09:08

Prepared using: LCMS - SPE Extraction-LCMS

C	VISTA Sample ID	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	IS/NS CHEM/WIT DATE	<u>C6L0122</u> SPE	RS CHEM/WIT DATE
☐	B6L0144-BLK1	NA	NA	(0.125)	28 BP 12/29/16	BP 12-29-16	28 BP 12/29/16
☐	B6L0144-BS1	↓	↓	↓	↓	↓	↓
☐	1601587-01	154.02	27.08	0.12694	↓	↓	↓
☐	1601587-02	154.41	27.18	0.12723	↓	↓	↓
☐	1601595-01	152.13	27.05	0.12508	↓	↓	↓
☐	1601595-02	156.36	27.13	0.12423	↓	↓	↓
☐	1601602-01	155.04	27.05	0.12799	↓	↓	↓
☐	1601602-02	157.82	27.10	0.13072	↓	↓	↓

IS Name <u>16L1920, 10mL</u> ①	NS Name <u>16L2405, 10mL</u> ③	RS Name <u>16K1109, 10mL</u> ②	SPE Chem: <u>Stoich 200mg/bml</u> Ele SOLV: <u>0.5% Meth in MeOH/MeOH</u> Final Volume(s) <u>1mL</u>	Check Out: Chemist/Date: <u>12-29-16 BP</u> Check In: Chemist/Date: <u>NA</u> Balance ID: <u>HAMS8</u>
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Comments: Assume 1 g = 1 mL

SAMPLE DATA – MODIFIED EPA METHOD 537

Dataset: U:\Q2.PRO\Results\170103J2\170103J2_07.qld

Last Altered: Thursday, January 05, 2017 14:45:22 Pacific Standard Time

Printed: Thursday, January 05, 2017 16:21:29 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFC List 18_A No4-2FTS_Mixed.mdb 28 Dec 2016 09:59:56

Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12

ID: B6L0144-BLK1, Description: Method Blank, Name: 170103J2_07.wiff, Date: 03-Jan-2017, Time: 18:43:01

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	79.90	2.016e0	4.800e3		0.125	3.61		
2	5 PFHpA	318.90	7.980e0	6.150e3		0.125	4.46		
3	6 PFHxS	79.91	1.443e1	9.432e2		0.125	4.56	0.573	
4	8 PFOA	368.90	4.209e1	5.159e3		0.125	4.83		
5	9 PFNA	419.00		4.186e3		0.125			
6	10 PFOS	79.92	7.669e0	2.987e3		0.125	5.12	0.440	
7	15 13C3-PFBS	79.95	4.800e3	8.831e3	0.569	0.125	3.61	95.5	95.5
8	17 13C4-PFHpA	321.90	6.150e3	8.831e3	0.753	0.125	4.45	92.5	92.5
9	18 18O2-PFHxS	102.90	9.432e2	3.653e3	0.284	0.125	4.56	90.8	90.8
10	20 13C2-PFOA	369.90	5.159e3	9.225e3	0.674	0.125	4.84	83.0	83.0
11	21 13C5-PFNA	422.90	4.186e3	4.163e3	0.970	0.125	5.14	104	104
12	22 13C8-PFOS	79.93	2.987e3	3.361e3	0.971	0.125	5.19	91.5	91.5
13	23 13C2-PFDA	470.00	3.279e3	5.197e3	0.862	0.125	5.40	73.2	73.2
14	24 13C2-8:2 FTS	508.70	9.721e2	5.197e3	0.196	0.125	5.38	95.4	95.4
15	25 13C4-PFBA	171.90	8.341e3	8.341e3	1.000	0.125	2.29	100	100
16	26 13C5-PFHxA	273.00	8.831e3	8.831e3	1.000	0.125	3.97	100	100
17	27 13C3-PFHxS	80.01	3.653e3	3.653e3	1.000	0.125	4.55	100	100
18	28 13C8-PFOA	375.90	9.225e3	9.225e3	1.000	0.125	4.83	100	100
19	29 13C9-PFNA	427.00	4.163e3	4.163e3	1.000	0.125	5.14	100	100
20	30 13C4-PFOS	79.94	3.361e3	3.361e3	1.000	0.125	5.19	100	100
21	31 13C6-PFDA	474.00	5.197e3	5.197e3	1.000	0.125	5.40	100	100
22	32 Total PFBS	79.90		4.800e3		0.125			
23	33 Total PFHxS	79.91		9.432e2		0.125		0.573	
24	34 Total PFOA	368.90		5.159e3		0.125			
25	35 Total PFOS	79.92		2.987e3		0.125		0.440	

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170103J2\170103J2_07.qld

Last Altered: Thursday, January 05, 2017 14:45:22 Pacific Standard Time

Printed: Thursday, January 05, 2017 16:21:29 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFC List 18_A No4-2FTS_Mixed.mdb 28 Dec 2016 09:59:56

Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12

ID: B6L0144-BLK1, Description: Method Blank, Name: 170103J2_07.wiff, Date: 03-Jan-2017, Time: 18:43:01

Total PFBS

	# Name	Trace	RT	Area	IS Area	Conc.
1	3 PFBS	79.90	3.61	2.016	4799.672	

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	6 PFHxS	79.91	4.56	14.432	943.161	0.6

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	8 PFOA	368.90	4.83	42.088	5158.971	

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	10 PFOS	79.92	5.12	7.669	2986.507	0.4

Dataset: U:\Q2.PRO\Results\170103J2\170103J2_07.qld

Last Altered: Thursday, January 05, 2017 14:45:22 Pacific Standard Time

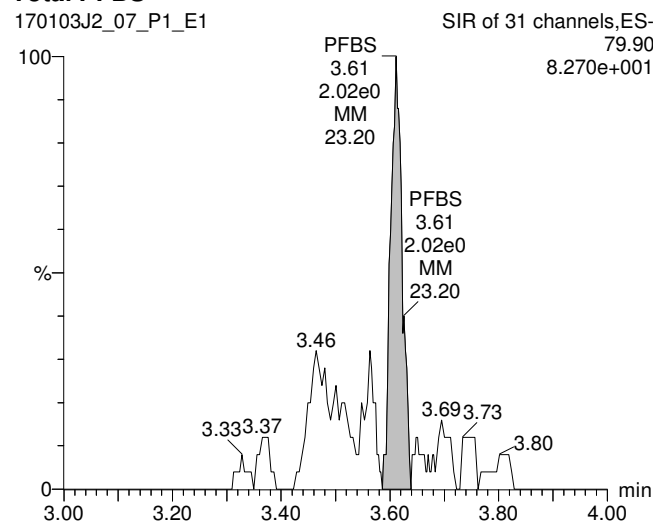
Printed: Thursday, January 05, 2017 16:21:29 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFC List 18_A No4-2FTS_Mixed.mdb 28 Dec 2016 09:59:56

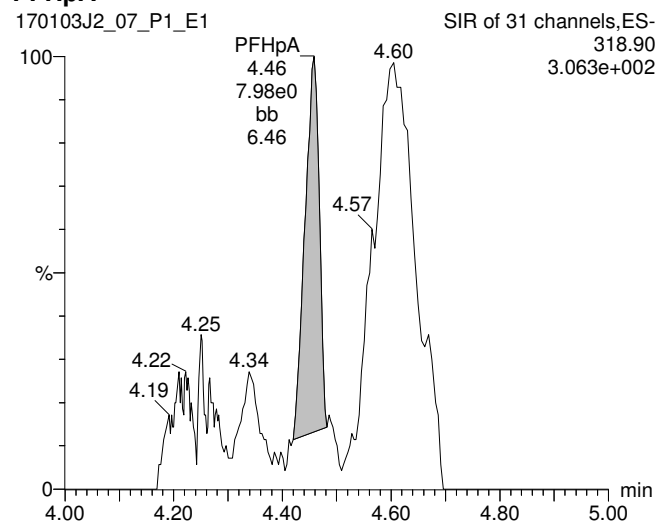
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ID: B6L0144-BLK1, Description: Method Blank, Name: 170103J2_07.wiff, Date: 03-Jan-2017, Time: 18:43:01, Instrument: , Lab: ©PE-SCIEX, User: sciex

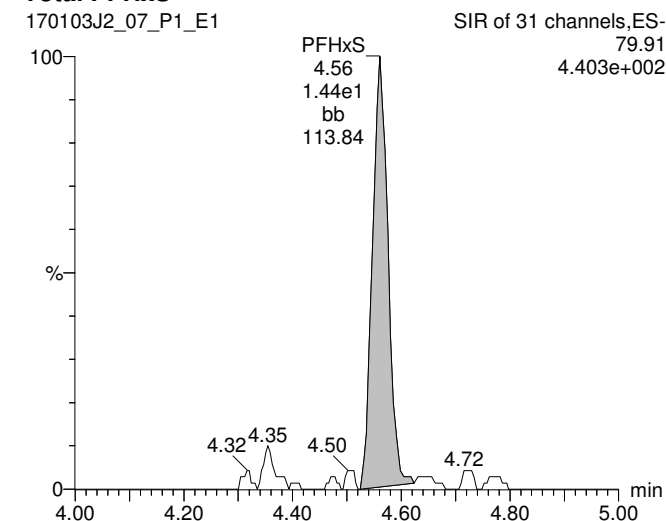
Total PFBS



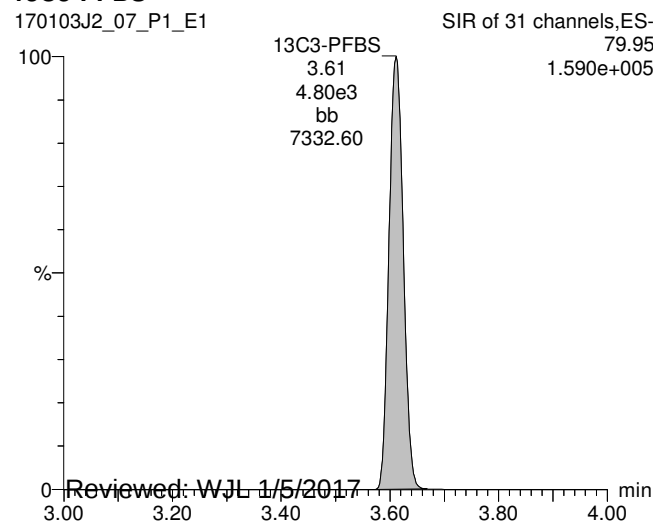
PFHpA



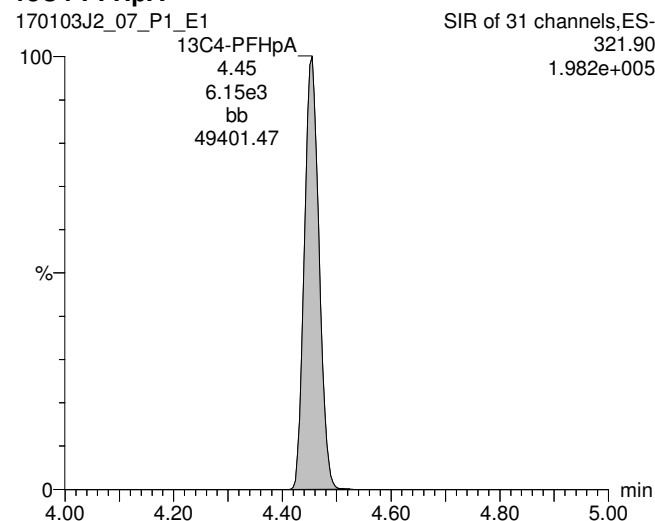
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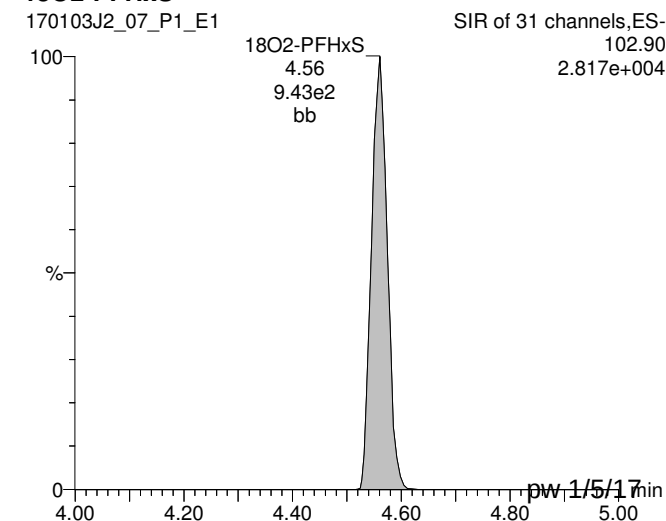
13C3-PFBS



13C4-PFHpA



18O2-PFHxS



Reviewed: WJL 1/5/2017

Work Order 1601587

pw: 1/5/17

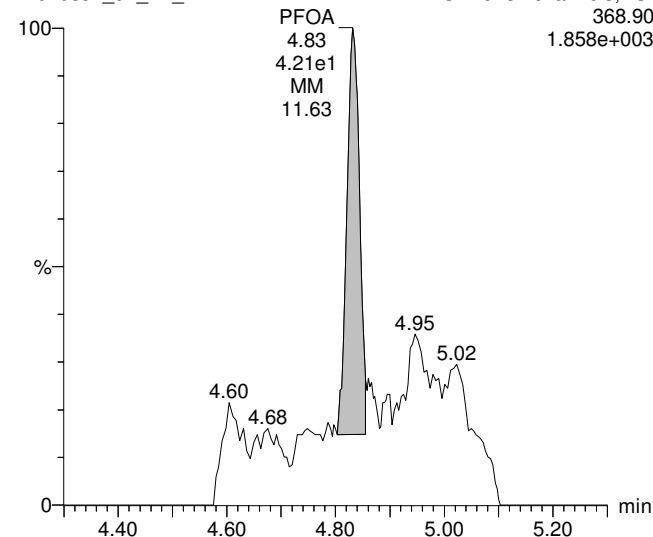
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Last Altered: Thursday, January 05, 2017 14:45:22 Pacific Standard Time
Printed: Thursday, January 05, 2017 16:21:29 Pacific Standard Time

ID: B6L0144-BLK1, Description: Method Blank, Name: 170103J2_07.wiff, Date: 03-Jan-2017, Time: 18:43:01, Instrument: , Lab: ©PE-SCIEX, User: sciex

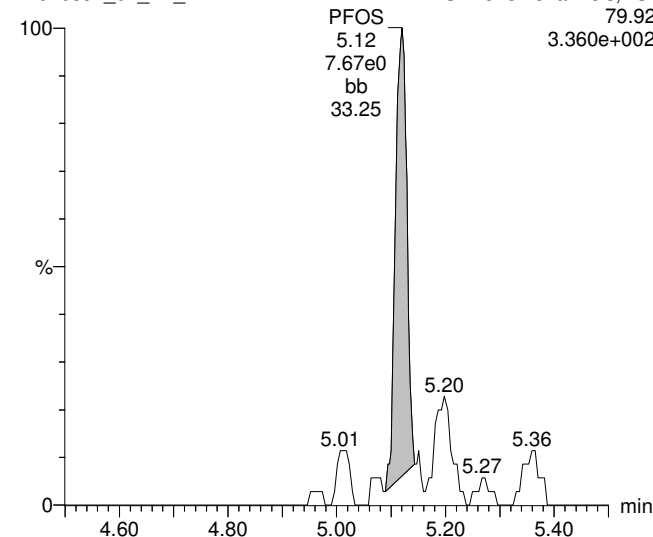
Total PFOA

170103J2_07_P1_E1



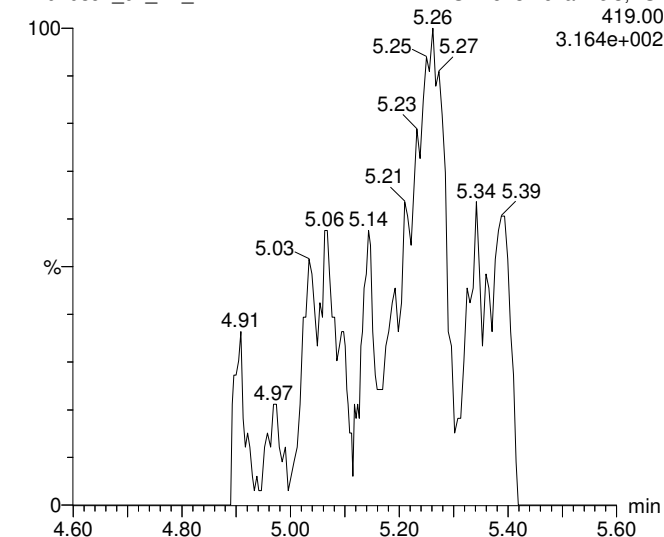
Total PFOS

170103J2_07_P1_E1



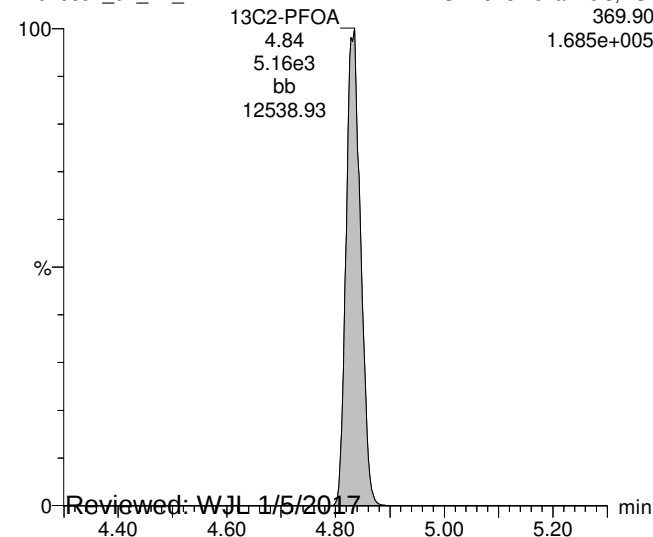
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170103J2_07_P1_E1



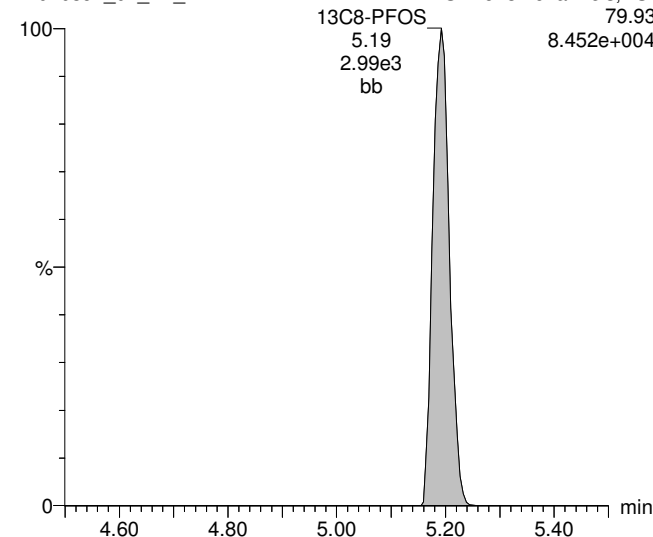
13C2-PFOA

170103J2_07_P1_E1



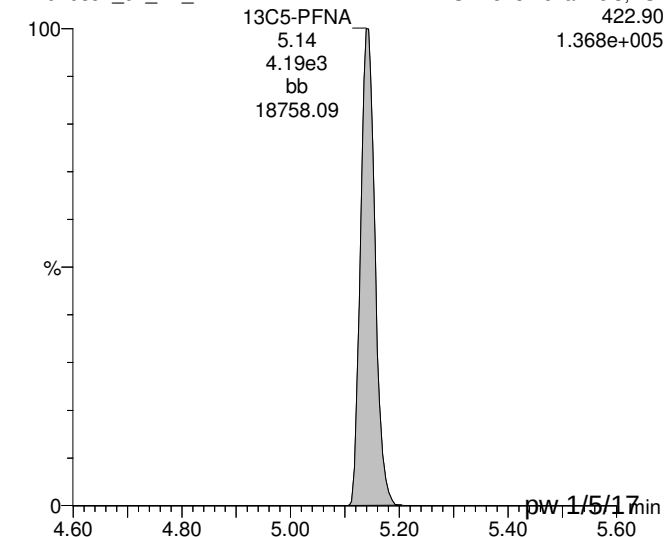
13C8-PFOS

170103J2_07_P1_E1



13C5-PFNA

170103J2_07_P1_E1



Reviewed: WJL 1/5/2017

Work Order 1601587

pw: 1/5/17

Dataset: U:\Q2.PRO\Results\170103J2\170103J2_07.qld

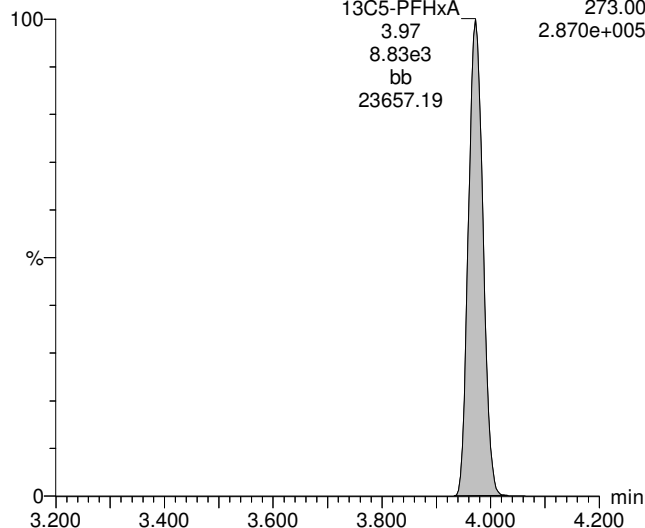
Last Altered: Thursday, January 05, 2017 14:45:22 Pacific Standard Time
Printed: Thursday, January 05, 2017 16:21:29 Pacific Standard Time

ID: B6L0144-BLK1, Description: Method Blank, Name: 170103J2_07.wiff, Date: 03-Jan-2017, Time: 18:43:01, Instrument: , Lab: ©PE-SCIEX, User: sciex

13C5-PFHxA

170103J2_07_P1_E1

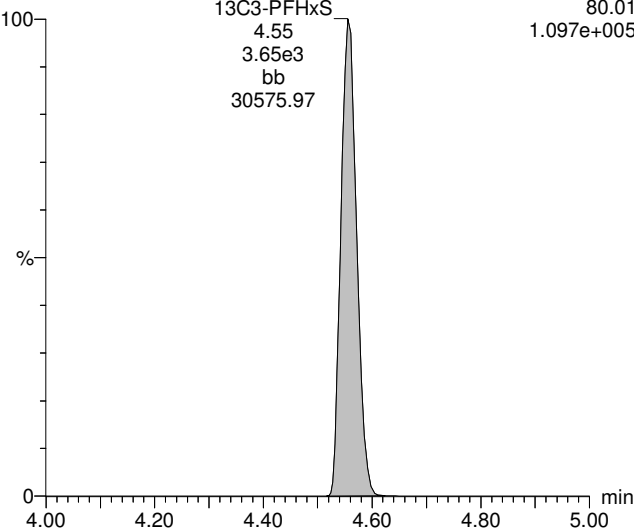
SIR of 31 channels,ES-
13C5-PFHxA
3.97
8.83e3
bb
23657.19
273.00
2.870e+005



13C3-PFHxS

170103J2_07_P1_E1

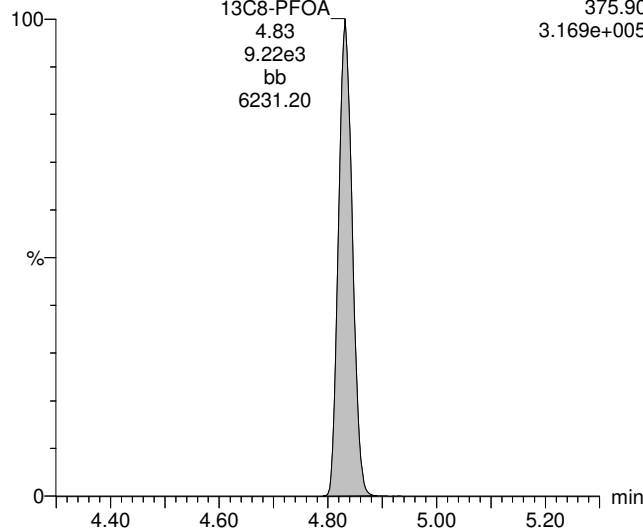
SIR of 31 channels,ES-
13C3-PFHxS
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3.65e3
bb
30575.97
80.01
1.097e+005



13C8-PFOA

170103J2_07_P1_E1

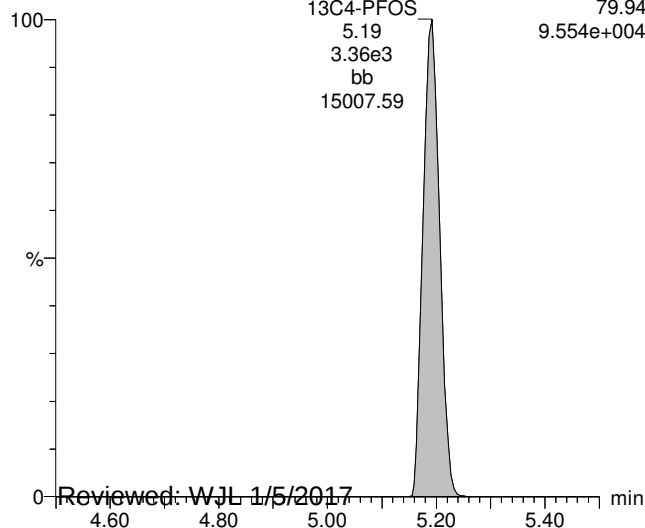
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13C8-PFOA
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bb
6231.20
375.90
3.169e+005



13C4-PFOS

170103J2_07_P1_E1

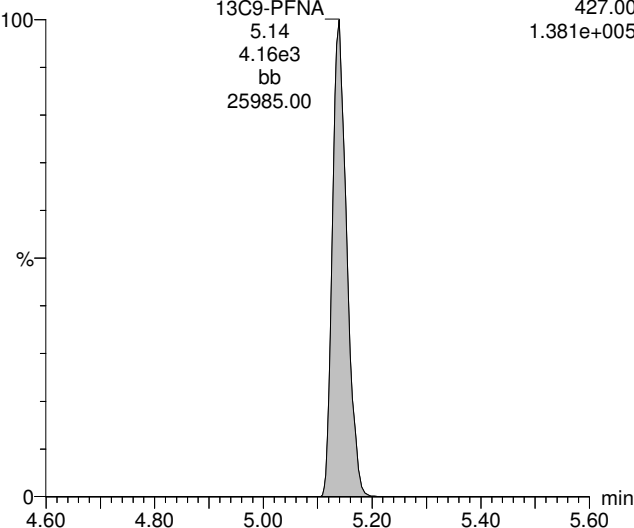
SIR of 31 channels,ES-
13C4-PFOS
5.19
3.36e3
bb
15007.59
79.94
9.554e+004



13C9-PFNA

170103J2_07_P1_E1

SIR of 31 channels,ES-
13C9-PFNA
5.14
4.16e3
bb
25985.00
427.00
1.381e+005



Reviewed: WJL 1/5/2017

Work Order 1601587

pw 1/5/17

Dataset: U:\Q2.PRO\Results\170103J2\170103J2_04.qld

Last Altered: Thursday, January 05, 2017 14:53:00 Pacific Standard Time

Printed: Thursday, January 05, 2017 16:22:40 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFC List 18_A No4-2FTS_Mixed.mdb 28 Dec 2016 09:59:56

Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12

ID: B6L0144-BS1, Description: OPR, Name: 170103J2_04.wiff, Date: 03-Jan-2017, Time: 18:06:13

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	79.90	3.115e3	4.054e3		0.125	3.61	89.7	112
2	5 PFHpA	318.90	3.684e3	4.810e3		0.125	4.45	87.0	109
3	6 PFHxS	79.91	2.242e3	7.734e2		0.125	4.55	89.1	111
4	8 PFOA	368.90	4.491e3	3.969e3		0.125	4.83	98.2	123
5	9 PFNA	419.00	2.684e3	3.024e3		0.125	5.14	66.4	83.0
6	10 PFOS	79.92	2.220e3	2.090e3		0.125	5.20	83.3	104
7	15 13C3-PFBS	79.95	4.054e3	7.461e3	0.569	0.125	3.61	95.5	95.5
8	17 13C4-PFHxA	321.90	4.810e3	7.461e3	0.753	0.125	4.45	85.6	85.6
9	18 18O2-PFHxS	102.90	7.734e2	3.270e3	0.284	0.125	4.55	83.2	83.2
10	20 13C2-PFOA	369.90	3.969e3	7.638e3	0.674	0.125	4.83	77.1	77.1
11	21 13C5-PFNA	422.90	3.024e3	3.623e3	0.970	0.125	5.13	86.1	86.1
12	22 13C8-PFOS	79.93	2.090e3	2.714e3	0.971	0.125	5.19	79.3	79.3
13	23 13C2-PFDA	470.00		1.051e0	0.862	0.125			
14	24 13C2-8:2 FTS	508.70		1.051e0	0.196	0.125			
15	25 13C4-PFBA	171.90	6.783e3	6.783e3	1.000	0.125	2.29	100	100
16	26 13C5-PFHxA	273.00	7.461e3	7.461e3	1.000	0.125	3.97	100	100
17	27 13C3-PFHxS	80.01	3.270e3	3.270e3	1.000	0.125	4.55	100	100
18	28 13C8-PFOA	375.90	7.638e3	7.638e3	1.000	0.125	4.83	100	100
19	29 13C9-PFNA	427.00	3.623e3	3.623e3	1.000	0.125	5.13	100	100
20	30 13C4-PFOS	79.94	2.714e3	2.714e3	1.000	0.125	5.19	100	100
21	31 13C6-PFDA	474.00	1.051e0	1.051e0	1.000	0.125	5.55	100	100
22	32 Total PFBS	79.90		4.054e3		0.125		89.7	
23	33 Total PFHxS	79.91		7.734e2		0.125		89.1	
24	34 Total PFOA	368.90		3.969e3		0.125		98.2	
25	35 Total PFOS	79.92		2.090e3		0.125		83.3	

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170103J2\170103J2_04.qld

Last Altered: Thursday, January 05, 2017 14:53:00 Pacific Standard Time

Printed: Thursday, January 05, 2017 16:22:40 Pacific Standard Time

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Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12

ID: B6L0144-BS1, Description: OPR, Name: 170103J2_04.wiff, Date: 03-Jan-2017, Time: 18:06:13

Total PFBS

	# Name	Trace	RT	Area	IS Area	Conc.
1	3 PFBS	79.90	3.61	3115.437	4054.413	89.7

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	6 PFHxS	79.91	4.55	2241.768	773.428	89.1

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	8 PFOA	368.90	4.83	4490.773	3968.624	98.2

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	10 PFOS	79.92	5.20	2219.594	2090.037	83.3

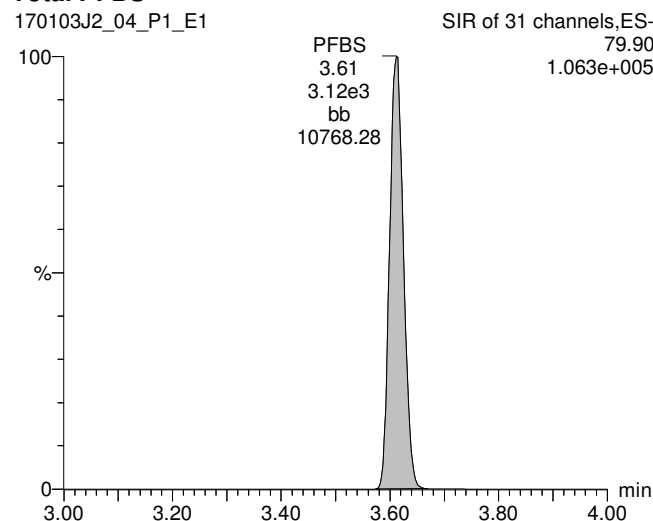
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Printed: Thursday, January 05, 2017 16:22:40 Pacific Standard Time

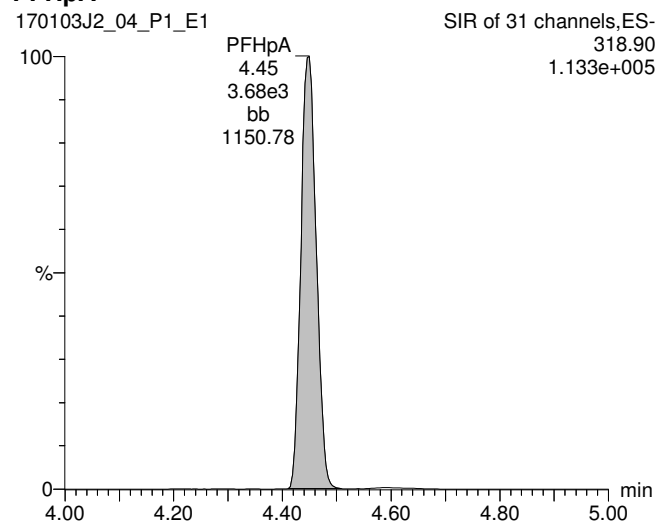
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Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12

ID: B6L0144-BS1, Description: OPR, Name: 170103J2_04.wiff, Date: 03-Jan-2017, Time: 18:06:13, Instrument: , Lab: ©PE-SCIEX, User: sciex

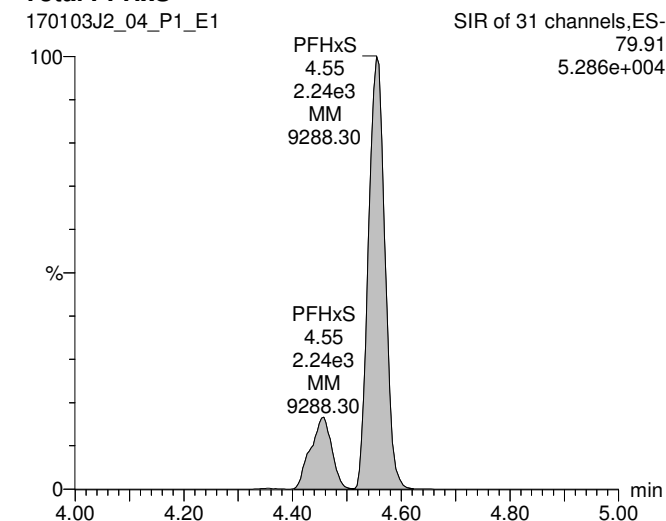
Total PFBS



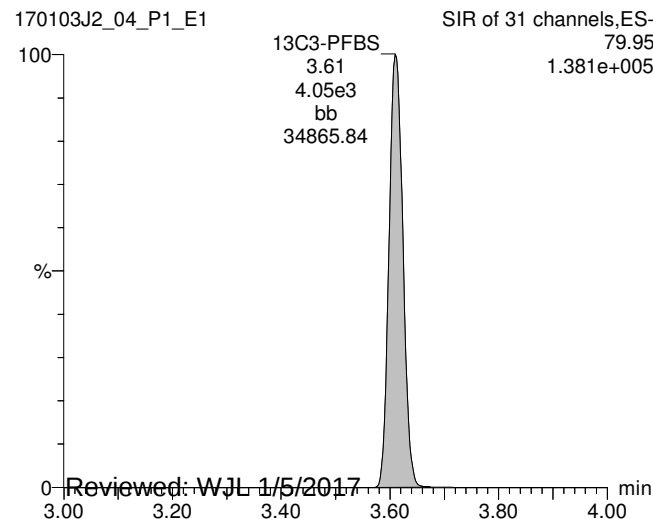
PFHpA



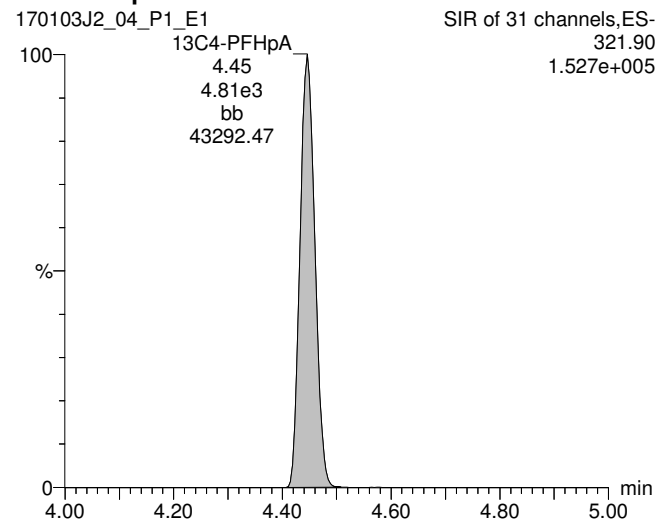
Total PFHxS



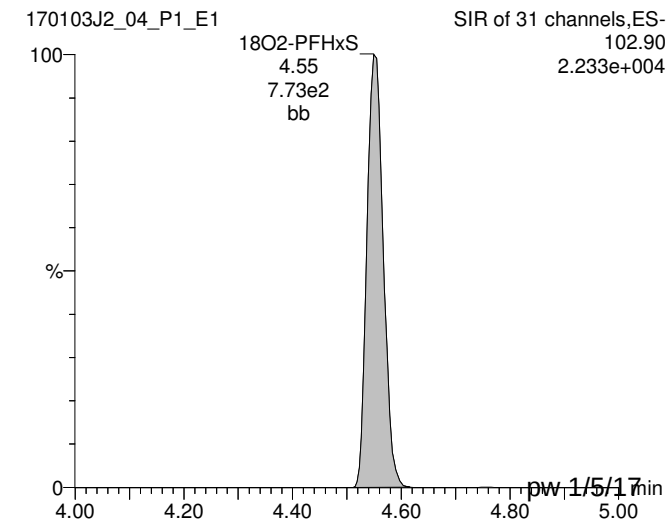
13C3-PFBS



13C4-PFHpA



18O2-PFHxS



Reviewed: WJL 1/5/2017

Work Order 1601587

pw: 1/5/17

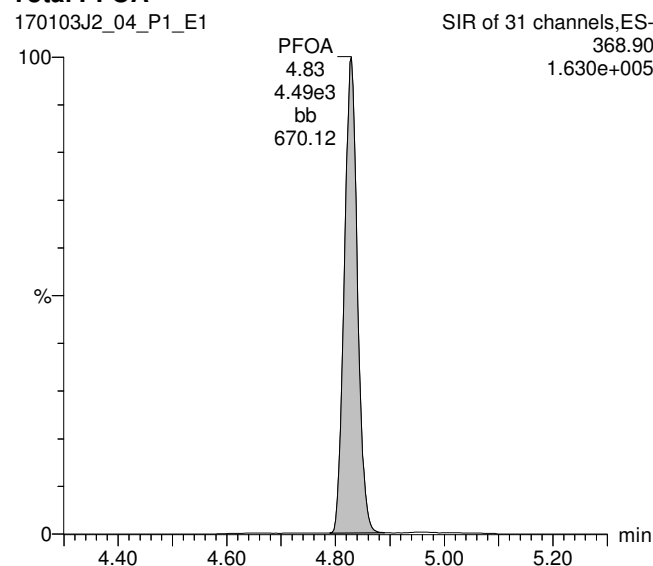
Page 28 of 119

Dataset: U:\Q2.PRO\Results\170103J2\170103J2_04.qld

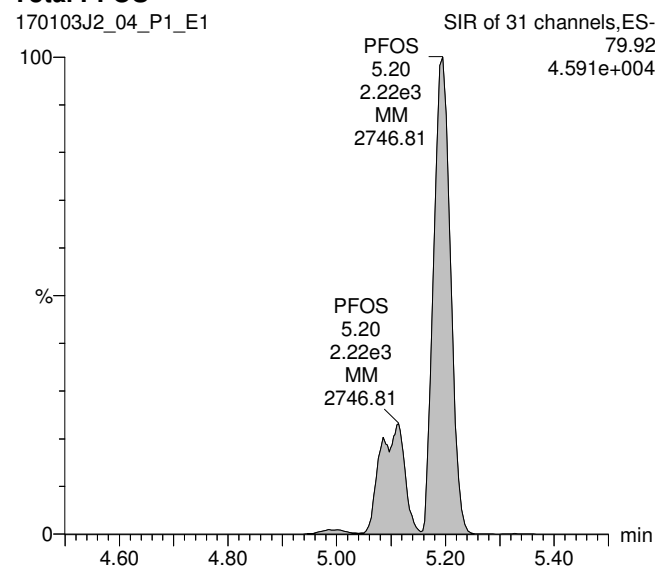
Last Altered: Thursday, January 05, 2017 14:53:00 Pacific Standard Time
Printed: Thursday, January 05, 2017 16:22:40 Pacific Standard Time

ID: B6L0144-BS1, Description: OPR, Name: 170103J2_04.wiff, Date: 03-Jan-2017, Time: 18:06:13, Instrument: , Lab: ©PE-SCIEX, User: sciex

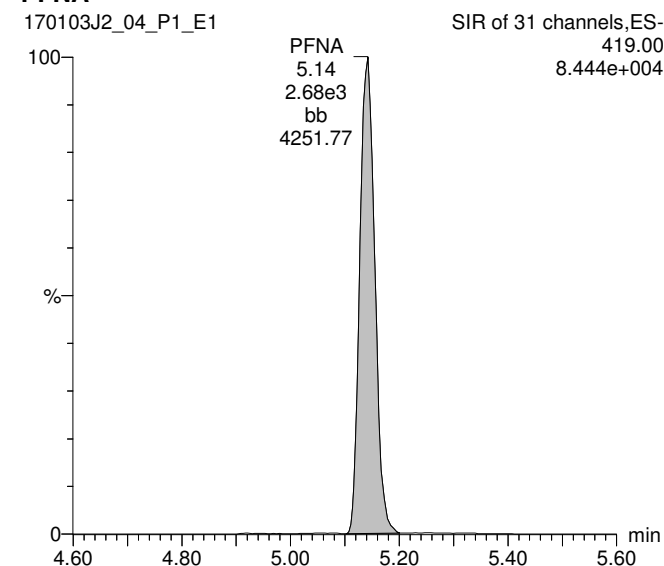
Total PFOA



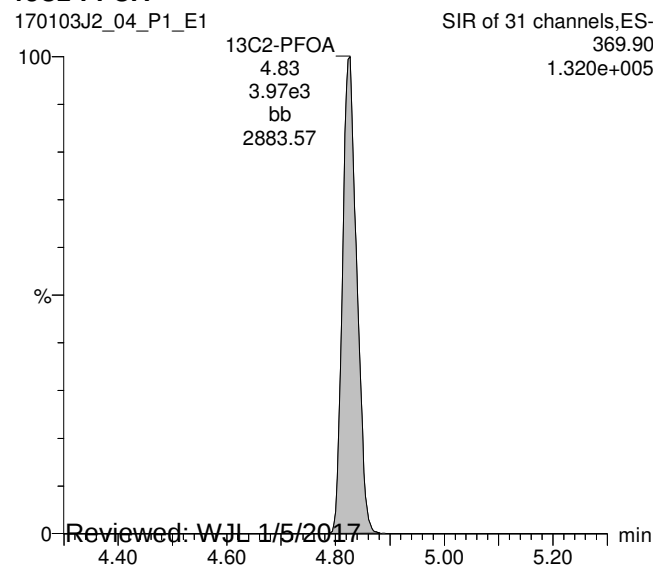
Total PFOS



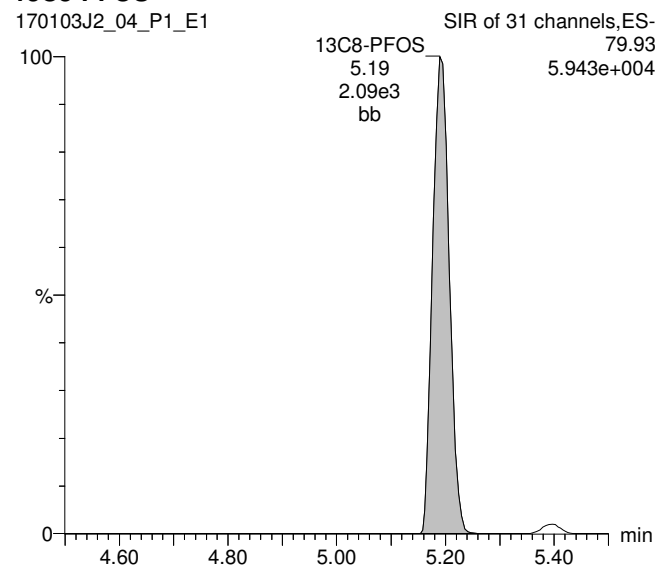
PFNA



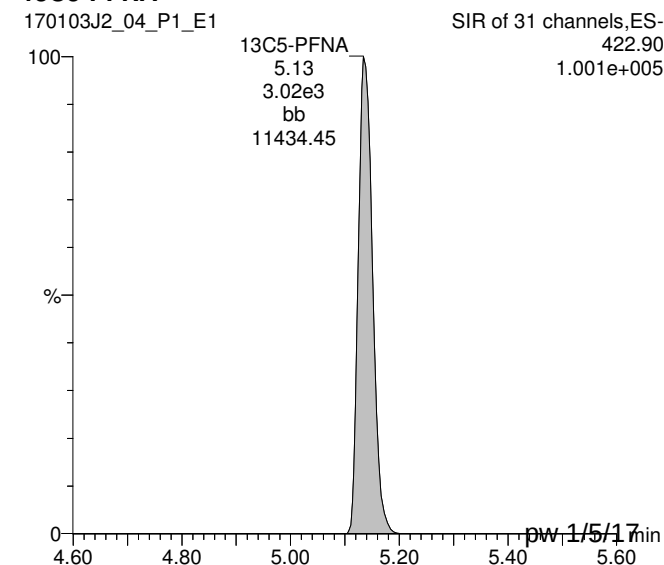
13C2-PFOA



13C8-PFOS



13C5-PFNA



Reviewed: WJL 1/5/2017

Work Order 1601587

pw: 1/5/17

Dataset: U:\Q2.PRO\Results\170103J2\170103J2_04.qld

Last Altered: Thursday, January 05, 2017 14:53:00 Pacific Standard Time

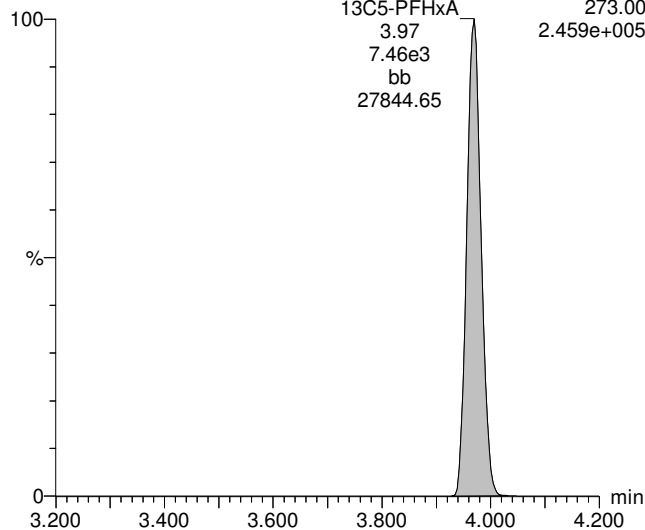
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ID: B6L0144-BS1, Description: OPR, Name: 170103J2_04.wiff, Date: 03-Jan-2017, Time: 18:06:13, Instrument: , Lab: ©PE-SCIEX, User: sciex

13C5-PFHxA

170103J2_04_P1_E1

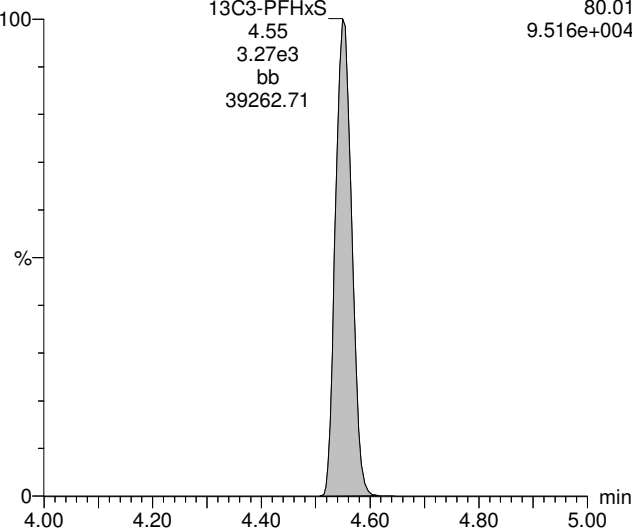
SIR of 31 channels,ES-
13C5-PFHxA
3.97
7.46e3
bb
27844.65
273.00
2.459e+005



13C3-PFHxS

170103J2_04_P1_E1

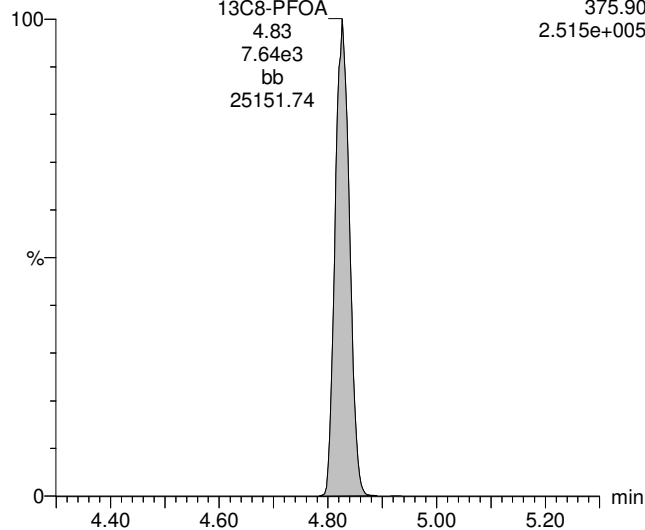
SIR of 31 channels,ES-
13C3-PFHxS
4.55
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9.516e+004



13C8-PFOA

170103J2_04_P1_E1

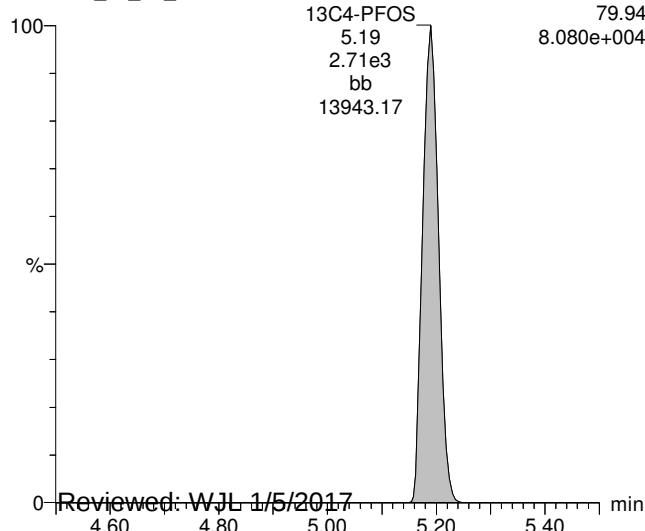
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13C8-PFOA
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bb
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375.90
2.515e+005



13C4-PFOS

170103J2_04_P1_E1

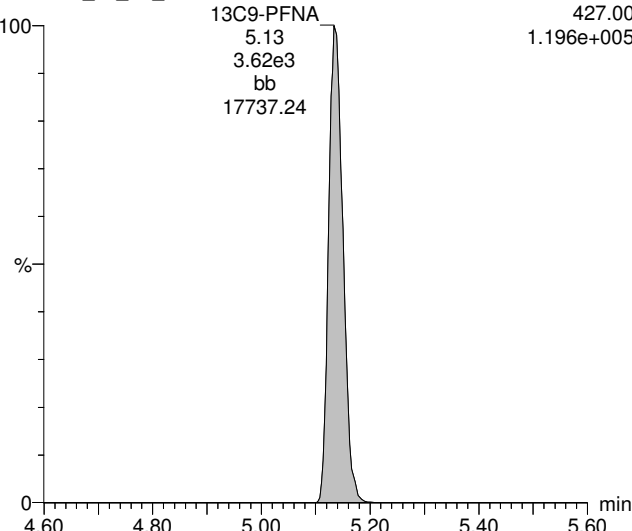
SIR of 31 channels,ES-
13C4-PFOS
5.19
2.71e3
bb
13943.17
79.94
8.080e+004



13C9-PFNA

170103J2_04_P1_E1

SIR of 31 channels,ES-
13C9-PFNA
5.13
3.62e3
bb
17737.24
427.00
1.196e+005



Reviewed: WJL 1/5/2017

Work Order 1601587

pw 1/5/17

Dataset: U:\Q2.PRO\Results\170103J2\170103J2_09.qld

Last Altered: Thursday, January 05, 2017 14:47:49 Pacific Standard Time

Printed: Thursday, January 05, 2017 16:23:46 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFC List 18_A No4-2FTS_Mixed.mdb 28 Dec 2016 09:59:56

Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12

ID: 1601587-01, Description: OC-RW04-1216, Name: 170103J2_09.wiff, Date: 03-Jan-2017, Time: 19:07:31

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	79.90		4.864e3		0.127			
2	5 PFHpA	318.90	1.107e1	5.778e3		0.127	4.46		
3	6 PFHxS	79.91	1.140e1	9.649e2		0.127	4.57	0.459	
4	8 PFOA	368.90	5.572e1	5.236e3		0.127	4.85		
5	9 PFNA	419.00		3.464e3		0.127			
6	10 PFOS	79.92	7.201e0	2.663e3		0.127	5.14	0.444	
7	15 13C3-PFBS	79.95	4.864e3	9.289e3	0.569	0.127	3.61	90.6	92.0
8	17 13C4-PFHpA	321.90	5.778e3	9.289e3	0.753	0.127	4.46	81.3	82.6
9	18 18O2-PFHxS	102.90	9.649e2	3.944e3	0.284	0.127	4.57	84.7	86.0
10	20 13C2-PFOA	369.90	5.236e3	9.065e3	0.674	0.127	4.85	84.4	85.7
11	21 13C5-PFNA	422.90	3.464e3	4.744e3	0.970	0.127	5.17	74.1	75.3
12	22 13C8-PFOS	79.93	2.663e3	3.278e3	0.971	0.127	5.23	82.4	83.7
13	23 13C2-PFDA	470.00	3.054e3	4.920e3	0.862	0.127	5.44	70.9	72.0
14	24 13C2-8:2 FTS	508.70	7.773e2	4.920e3	0.196	0.127	5.43	79.3	80.6
15	25 13C4-PFBA	171.90	8.572e3	8.572e3	1.000	0.127	2.29	98.5	100
16	26 13C5-PFHxA	273.00	9.289e3	9.289e3	1.000	0.127	3.97	98.5	100
17	27 13C3-PFHxS	80.01	3.944e3	3.944e3	1.000	0.127	4.57	98.5	100
18	28 13C8-PFOA	375.90	9.065e3	9.065e3	1.000	0.127	4.85	98.5	100
19	29 13C9-PFNA	427.00	4.744e3	4.744e3	1.000	0.127	5.17	98.5	100
20	30 13C4-PFOS	79.94	3.278e3	3.278e3	1.000	0.127	5.22	98.5	100
21	31 13C6-PFDA	474.00	4.920e3	4.920e3	1.000	0.127	5.44	98.5	100
22	32 Total PFBS	79.90		4.864e3		0.127			
23	33 Total PFHxS	79.91		9.649e2		0.127		0.459	
24	34 Total PFOA	368.90		5.236e3		0.127			
25	35 Total PFOS	79.92		2.663e3		0.127		0.444	

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170103J2\170103J2_09.qld

Last Altered: Thursday, January 05, 2017 14:47:49 Pacific Standard Time

Printed: Thursday, January 05, 2017 16:23:46 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFC List 18_A No4-2FTS_Mixed.mdb 28 Dec 2016 09:59:56

Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12

ID: 1601587-01, Description: OC-RW04-1216, Name: 170103J2_09.wiff, Date: 03-Jan-2017, Time: 19:07:31

Total PFBS

	# Name	Trace	RT	Area	IS Area	Conc.
1						

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	6 PFHxS	79.91	4.57	11.398	964.860	0.5

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	8 PFOA	368.90	4.85	55.718	5235.838	

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	10 PFOS	79.92	5.14	7.201	2663.470	0.4

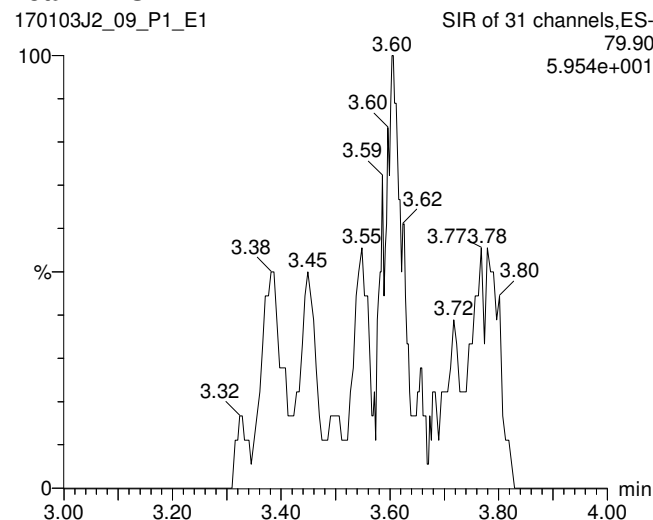
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Last Altered: Thursday, January 05, 2017 14:47:49 Pacific Standard Time
Printed: Thursday, January 05, 2017 16:23:46 Pacific Standard Time

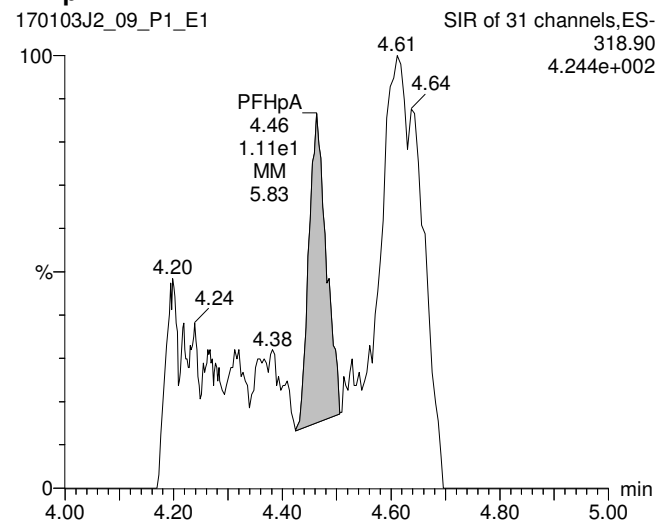
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ID: 1601587-01, Description: OC-RW04-1216, Name: 170103J2_09.wiff, Date: 03-Jan-2017, Time: 19:07:31, Instrument: , Lab: ©PE-SCIEX, User: sciex

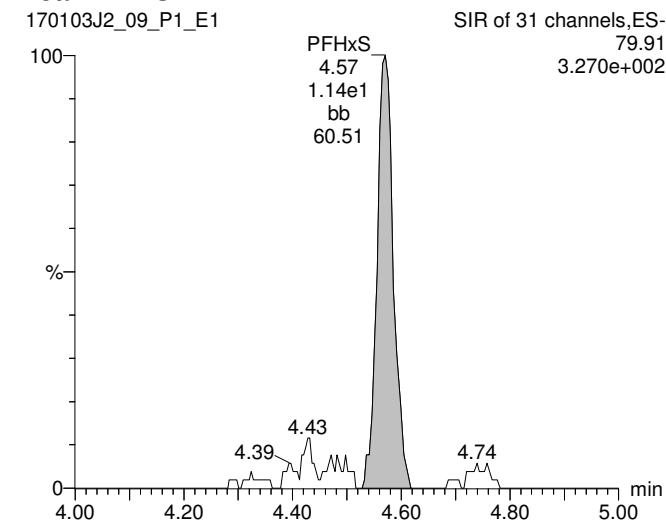
Total PFBS



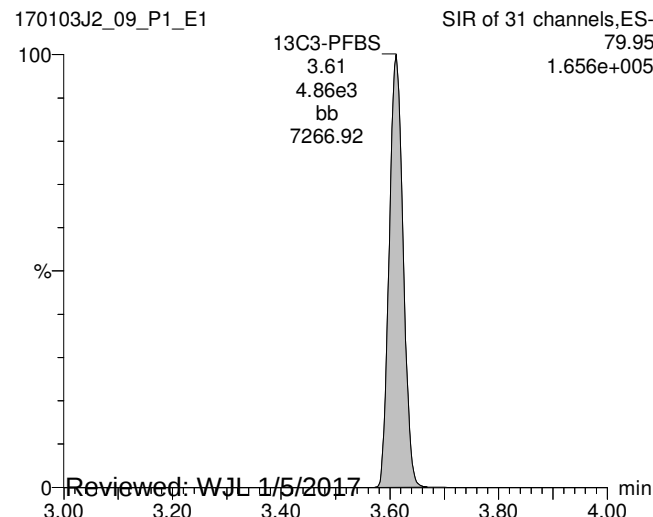
PFHpA



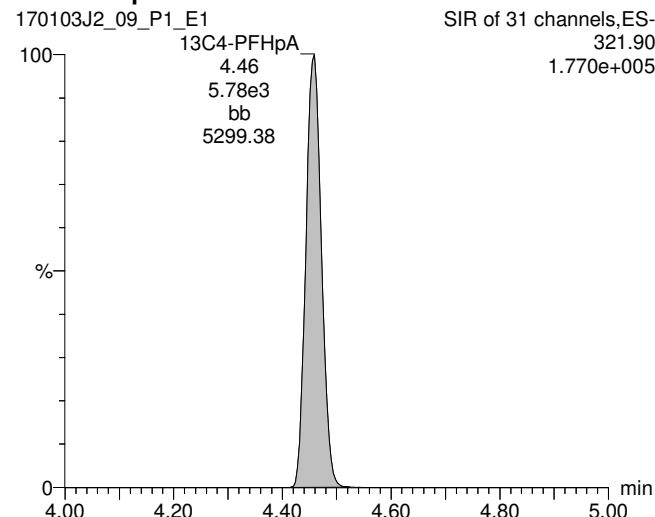
Total PFHxS



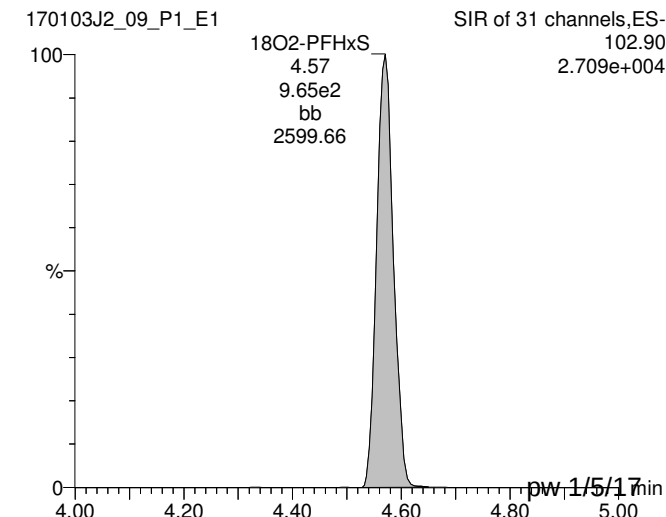
13C3-PFBS



13C4-PFHpA



18O2-PFHxS



Reviewed: WJL 1/5/2017

Work Order 1601587

pw: 1/5/17

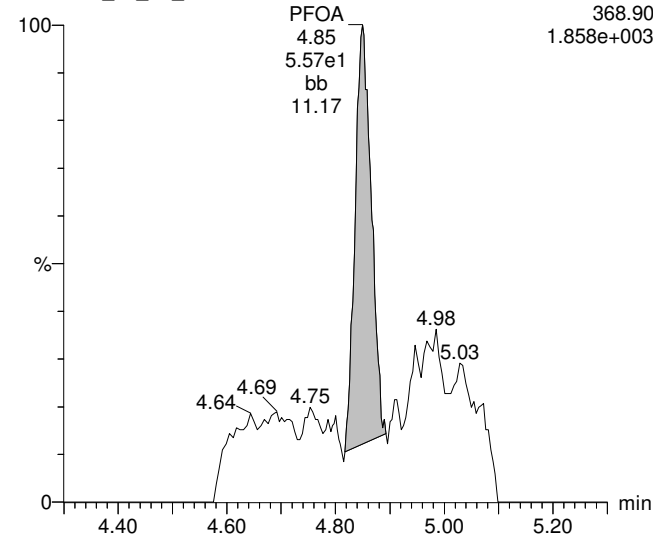
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Last Altered: Thursday, January 05, 2017 14:47:49 Pacific Standard Time
Printed: Thursday, January 05, 2017 16:23:46 Pacific Standard Time

ID: 1601587-01, Description: OC-RW04-1216, Name: 170103J2_09.wiff, Date: 03-Jan-2017, Time: 19:07:31, Instrument: , Lab: ©PE-SCIEX, User: sciex

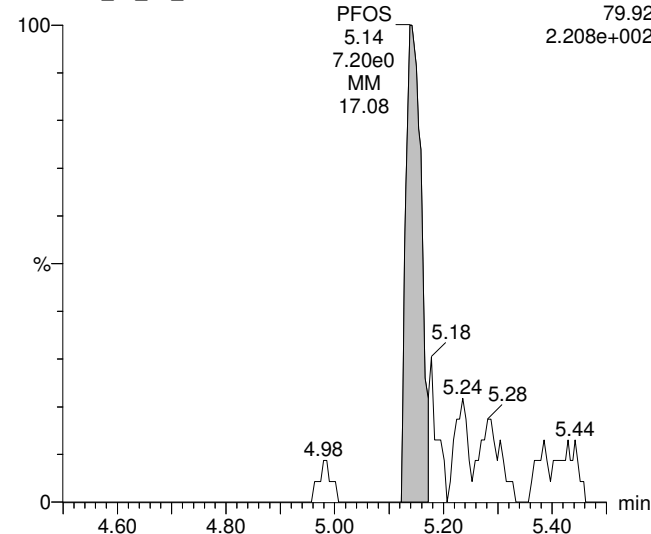
Total PFOA

170103J2_09_P1_E1



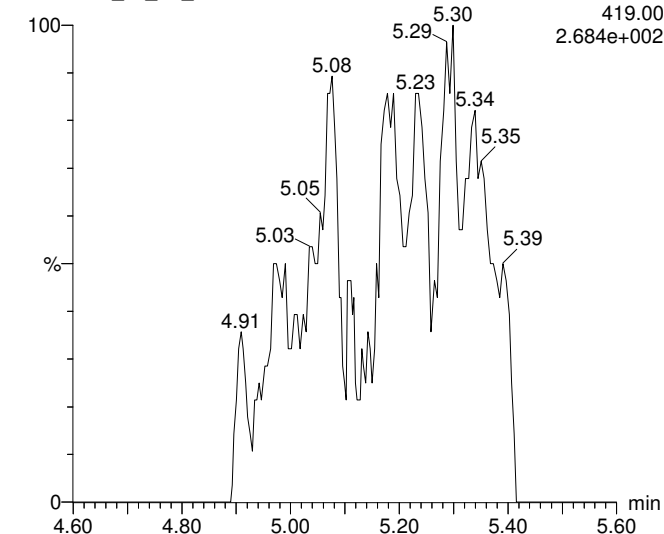
Total PFOS

170103J2_09_P1_E1



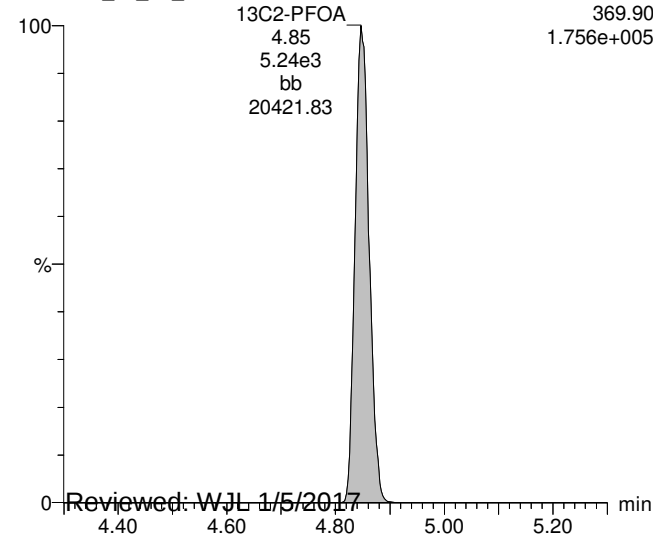
PFNA

170103J2_09_P1_E1



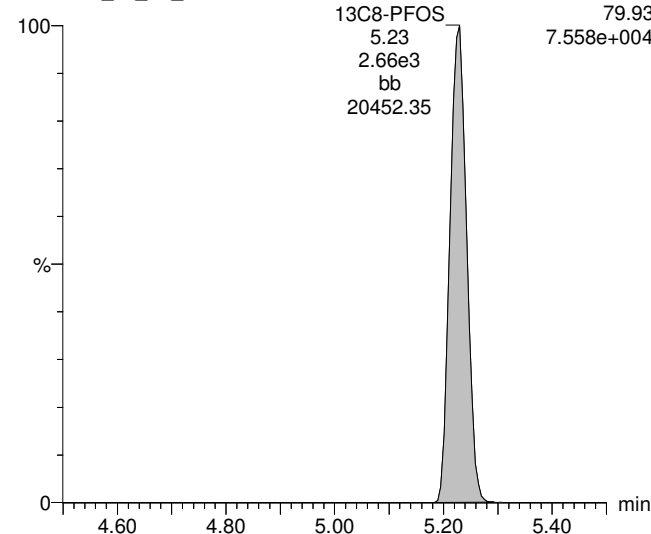
13C2-PFOA

170103J2_09_P1_E1



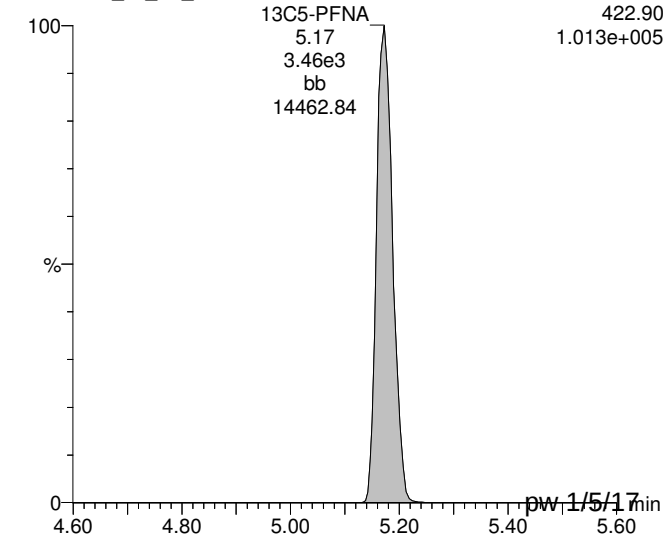
13C8-PFOS

170103J2_09_P1_E1



13C5-PFNA

170103J2_09_P1_E1



Reviewed: WJL 1/5/2017

Work Order 1601587

pw: 1/5/17

Dataset: U:\Q2.PRO\Results\170103J2\170103J2_09.qld

Last Altered: Thursday, January 05, 2017 14:47:49 Pacific Standard Time

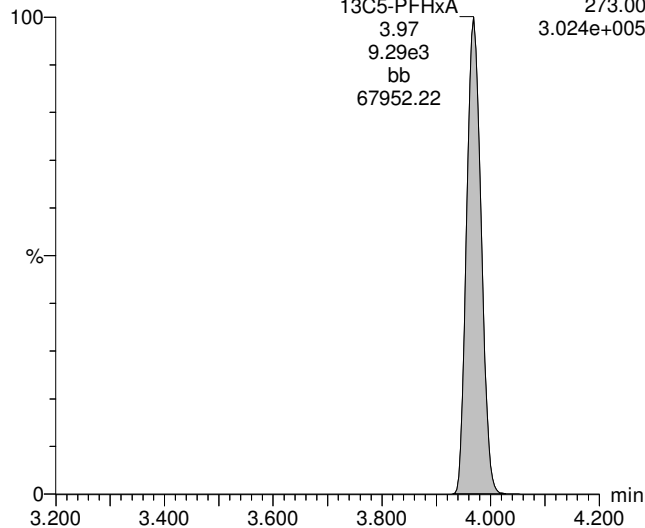
Printed: Thursday, January 05, 2017 16:23:46 Pacific Standard Time

ID: 1601587-01, Description: OC-RW04-1216, Name: 170103J2_09.wiff, Date: 03-Jan-2017, Time: 19:07:31, Instrument: , Lab: ©PE-SCIEX, User: sciex

13C5-PFHxA

170103J2_09_P1_E1

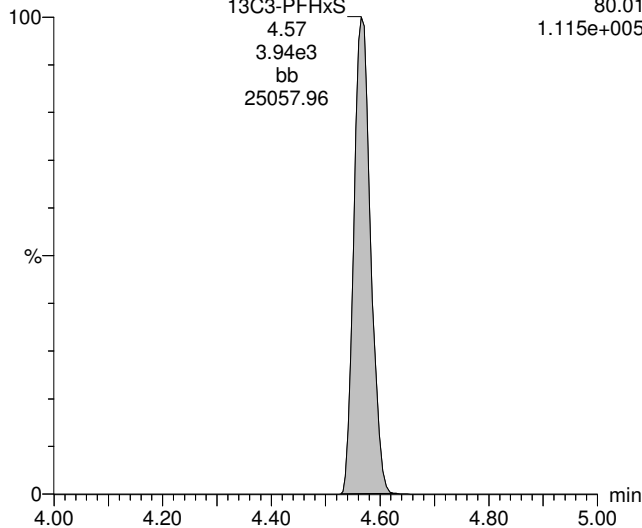
SIR of 31 channels,ES-
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9.29e3
bb
67952.22



13C3-PFHxS

170103J2_09_P1_E1

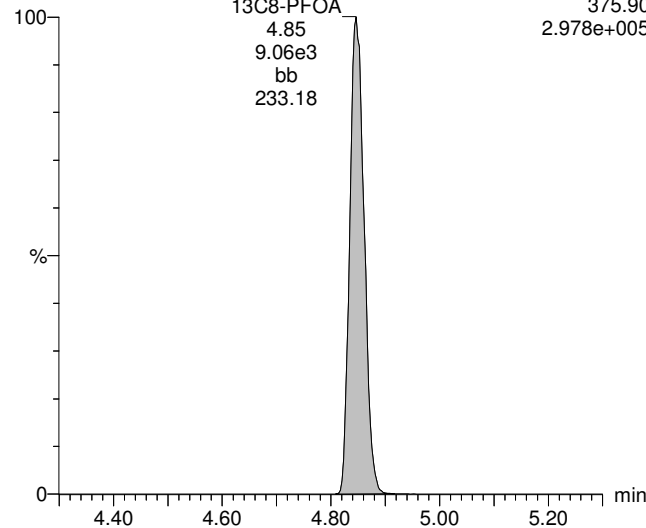
SIR of 31 channels,ES-
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3.94e3
bb
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13C8-PFOA

170103J2_09_P1_E1

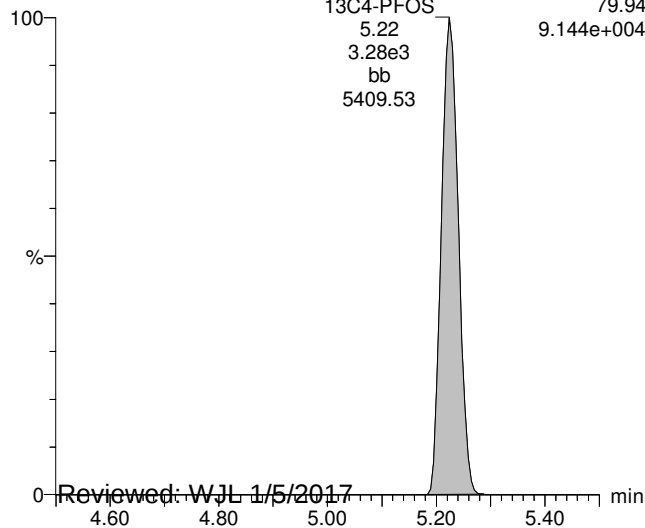
SIR of 31 channels,ES-
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9.06e3
bb
233.18



13C4-PFOS

170103J2_09_P1_E1

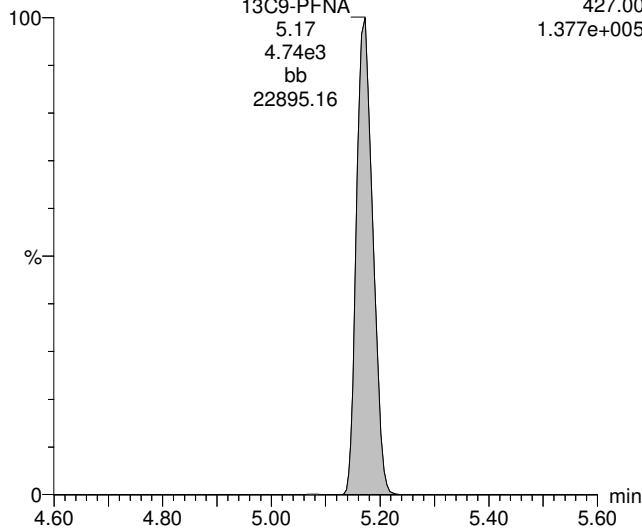
SIR of 31 channels,ES-
13C4-PFOS 79.94
5.22 9.144e+004
3.28e3
bb
5409.53



13C9-PFNA

170103J2_09_P1_E1

SIR of 31 channels,ES-
13C9-PFNA 427.00
5.17 1.377e+005
4.74e3
bb
22895.16



Reviewed: WJL 1/5/2017

Work Order 1601587

pw 1/5/17

Dataset: U:\Q2.PRO\Results\170103J2\170103J2_10.qld

Last Altered: Thursday, January 05, 2017 14:49:55 Pacific Standard Time

Printed: Thursday, January 05, 2017 16:24:38 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFC List 18_A No4-2FTS_Mixed.mdb 28 Dec 2016 09:59:56

Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12

ID: 1601587-02, Description: OC-FB04-121916, Name: 170103J2_10.wiff, Date: 03-Jan-2017, Time: 19:19:48

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	79.90		4.752e3		0.127			
2	5 PFHpA	318.90	6.806e0	5.704e3		0.127	4.46		
3	6 PFHxS	79.91	1.087e1	8.604e2		0.127	4.56	0.482	
4	8 PFOA	368.90	5.773e1	4.454e3		0.127	4.84	0.0166	
5	9 PFNA	419.00		3.835e3		0.127			
6	10 PFOS	79.92	7.244e0	2.453e3		0.127	5.15	0.462	
7	15 13C3-PFBS	79.95	4.752e3	9.494e3	0.569	0.127	3.61	86.4	87.9
8	17 13C4-PFHpA	321.90	5.704e3	9.494e3	0.753	0.127	4.46	78.4	79.8
9	18 18O2-PFHxS	102.90	8.604e2	3.986e3	0.284	0.127	4.57	74.6	75.9
10	20 13C2-PFOA	369.90	4.454e3	9.107e3	0.674	0.127	4.84	71.3	72.6
11	21 13C5-PFNA	422.90	3.835e3	4.858e3	0.970	0.127	5.17	80.0	81.4
12	22 13C8-PFOS	79.93	2.453e3	3.297e3	0.971	0.127	5.22	75.3	76.6
13	23 13C2-PFDA	470.00	3.072e3	5.309e3	0.862	0.127	5.42	65.9	67.1
14	24 13C2-8:2 FTS	508.70	7.660e2	5.309e3	0.196	0.127	5.40	72.3	73.6
15	25 13C4-PFBA	171.90	1.556e0	1.556e0	1.000	0.127	2.44	98.2	100
16	26 13C5-PFHxA	273.00	9.494e3	9.494e3	1.000	0.127	3.97	98.2	100
17	27 13C3-PFHxS	80.01	3.986e3	3.986e3	1.000	0.127	4.56	98.2	100
18	28 13C8-PFOA	375.90	9.107e3	9.107e3	1.000	0.127	4.84	98.2	100
19	29 13C9-PFNA	427.00	4.858e3	4.858e3	1.000	0.127	5.16	98.2	100
20	30 13C4-PFOS	79.94	3.297e3	3.297e3	1.000	0.127	5.22	98.2	100
21	31 13C6-PFDA	474.00	5.309e3	5.309e3	1.000	0.127	5.42	98.2	100
22	32 Total PFBS	79.90		4.752e3		0.127			
23	33 Total PFHxS	79.91		8.604e2		0.127		0.482	
24	34 Total PFOA	368.90		4.454e3		0.127		0.0166	
25	35 Total PFOS	79.92		2.453e3		0.127		0.462	

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170103J2\170103J2_10.qld

Last Altered: Thursday, January 05, 2017 14:49:55 Pacific Standard Time

Printed: Thursday, January 05, 2017 16:24:38 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFC List 18_A No4-2FTS_Mixed.mdb 28 Dec 2016 09:59:56

Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12

ID: 1601587-02, Description: OC-FB04-121916, Name: 170103J2_10.wiff, Date: 03-Jan-2017, Time: 19:19:48

Total PFBS

	# Name	Trace	RT	Area	IS Area	Conc.
1						

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	6 PFHxS	79.91	4.56	10.872	860.437	0.5

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	8 PFOA	368.90	4.84	57.727	4453.881	0.0

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	10 PFOS	79.92	5.15	7.244	2453.163	0.5

Dataset: U:\Q2.PRO\Results\170103J2\170103J2_10.qld

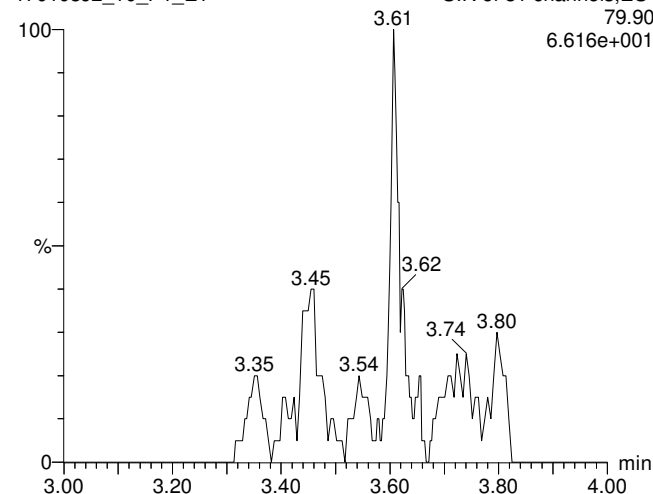
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Method: U:\Q2.pro\MethDB\PFC List 18_A No4-2FTS_Mixed.mdb 28 Dec 2016 09:59:56
Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12

ID: 1601587-02, Description: OC-FB04-121916, Name: 170103J2_10.wiff, Date: 03-Jan-2017, Time: 19:19:48, Instrument: , Lab: ©PE-SCIEX, User: sciex

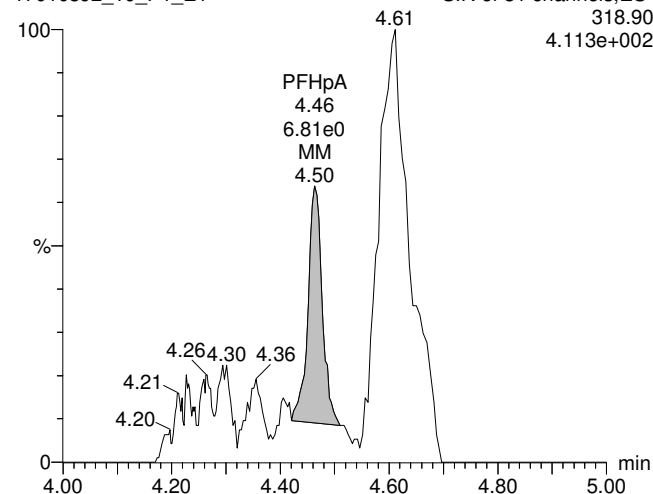
Total PFBS

170103J2_10_P1_E1



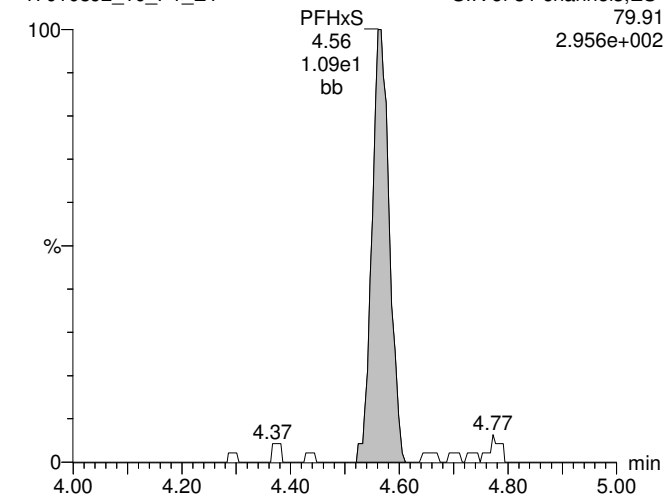
PFHpA

170103J2_10_P1_E1



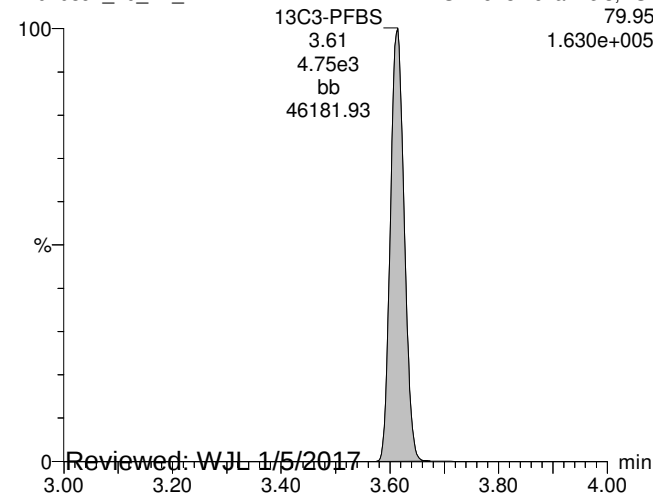
Total PFHxS

170103J2_10_P1_E1



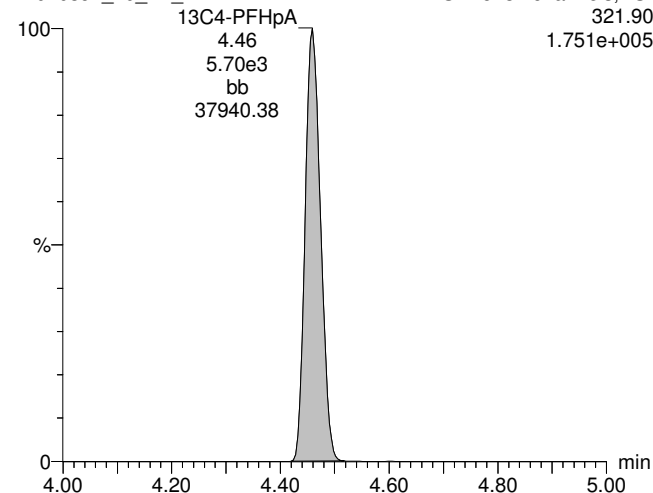
13C3-PFBS

170103J2_10_P1_E1



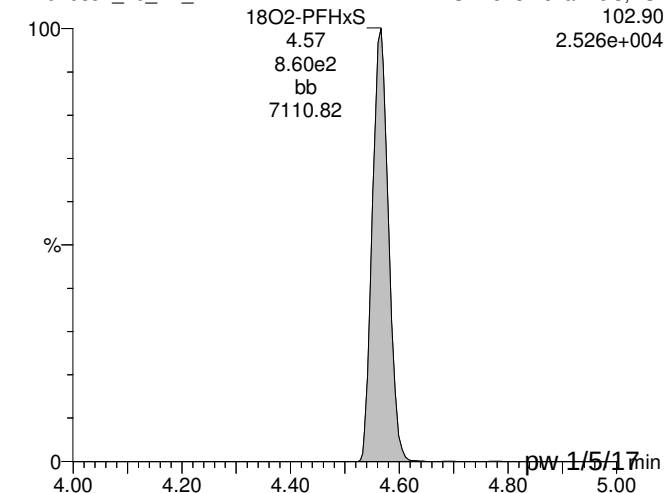
13C4-PFHpA

170103J2_10_P1_E1



18O2-PFHxS

170103J2_10_P1_E1



Reviewed: WJL 1/5/2017

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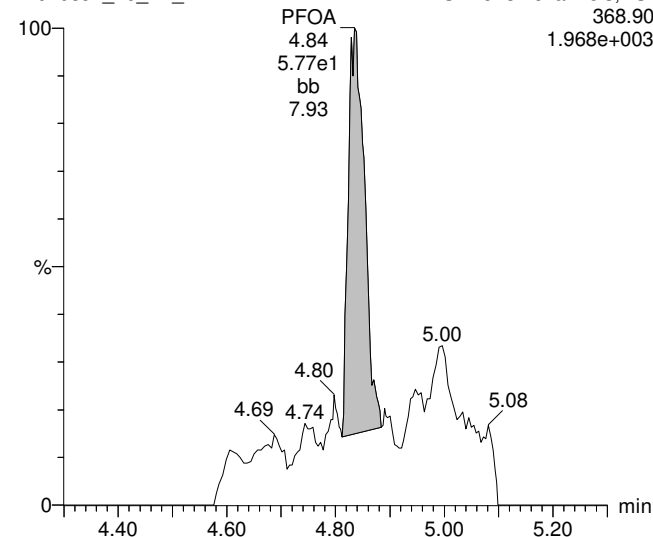
Dataset: U:\Q2.PRO\Results\170103J2\170103J2_10.qld

Last Altered: Thursday, January 05, 2017 14:49:55 Pacific Standard Time
Printed: Thursday, January 05, 2017 16:24:38 Pacific Standard Time

ID: 1601587-02, Description: OC-FB04-121916, Name: 170103J2_10.wiff, Date: 03-Jan-2017, Time: 19:19:48, Instrument: , Lab: ©PE-SCIEX, User: sciex

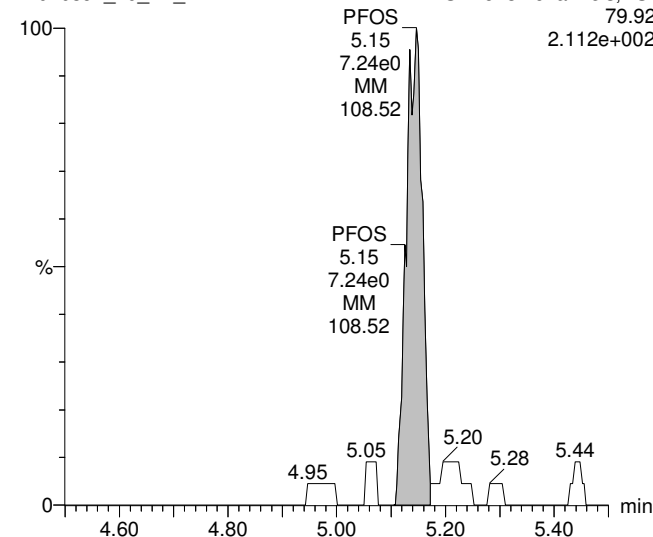
Total PFOA

170103J2_10_P1_E1



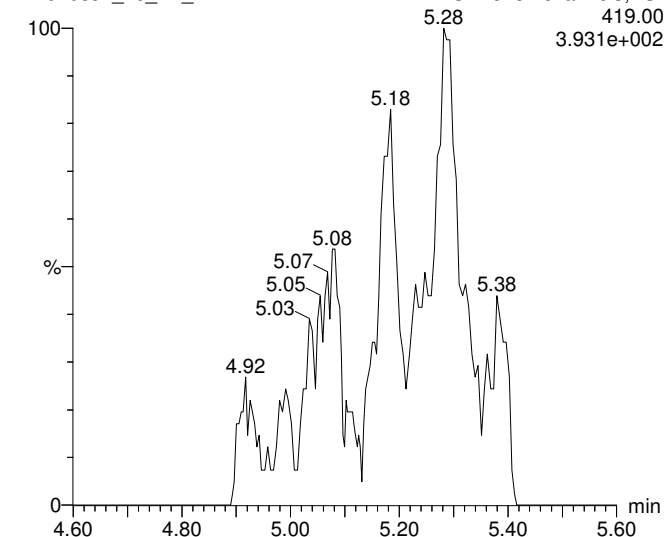
Total PFOS

170103J2_10_P1_E1



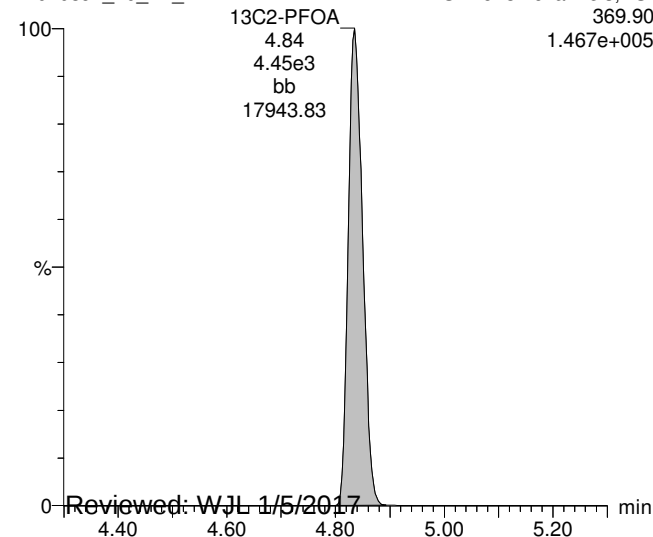
PFNA

170103J2_10_P1_E1



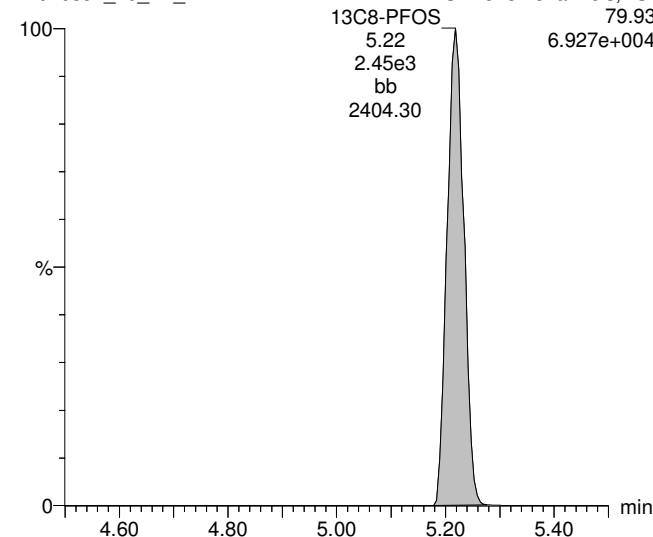
13C2-PFOA

170103J2_10_P1_E1



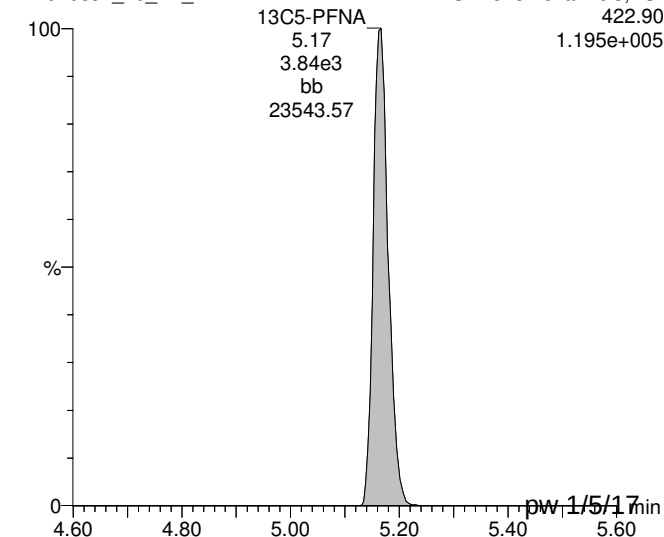
13C8-PFOS

170103J2_10_P1_E1



13C5-PFNA

170103J2_10_P1_E1



Reviewed: WJL 1/5/2017

Work Order 1601587

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Dataset: U:\Q2.PRO\Results\170103J2\170103J2_10.qld

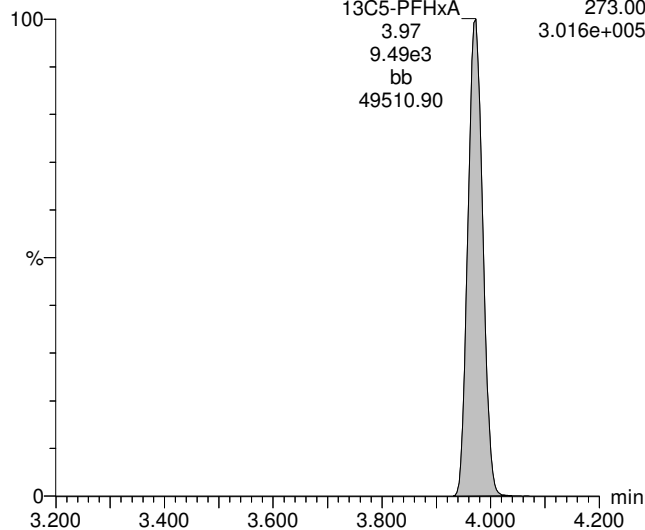
Last Altered: Thursday, January 05, 2017 14:49:55 Pacific Standard Time
Printed: Thursday, January 05, 2017 16:24:38 Pacific Standard Time

ID: 1601587-02, Description: OC-FB04-121916, Name: 170103J2_10.wiff, Date: 03-Jan-2017, Time: 19:19:48, Instrument: , Lab: ©PE-SCIEX, User: sciex

13C5-PFHxA

170103J2_10_P1_E1

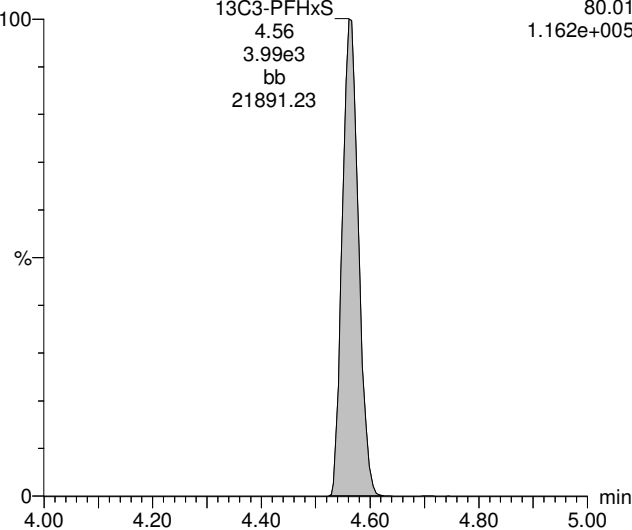
SIR of 31 channels,ES-
13C5-PFHxA 273.00
3.97 3.016e+005
9.49e3
bb
49510.90



13C3-PFHxS

170103J2_10_P1_E1

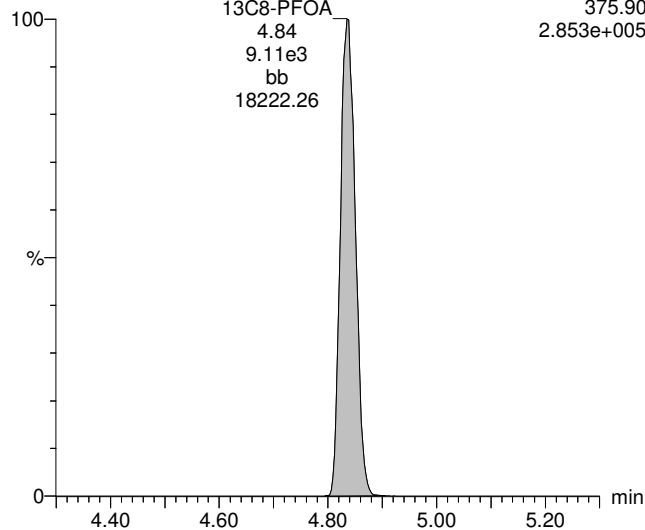
SIR of 31 channels,ES-
13C3-PFHxS 80.01
4.56 1.162e+005
3.99e3
bb
21891.23



13C8-PFOA

170103J2_10_P1_E1

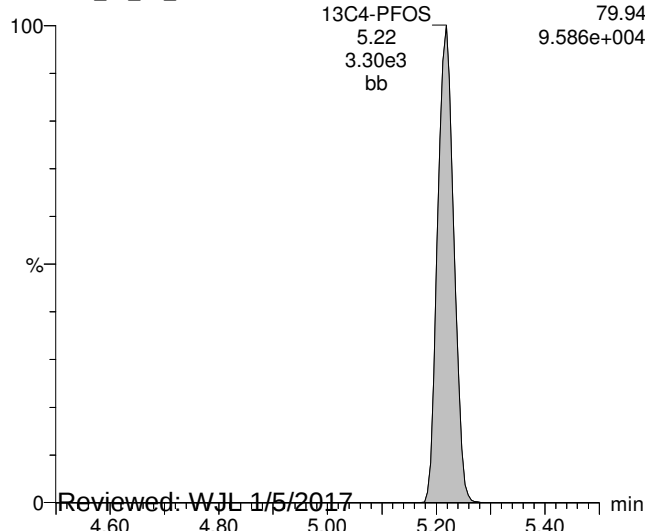
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9.11e3
bb
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13C4-PFOS

170103J2_10_P1_E1

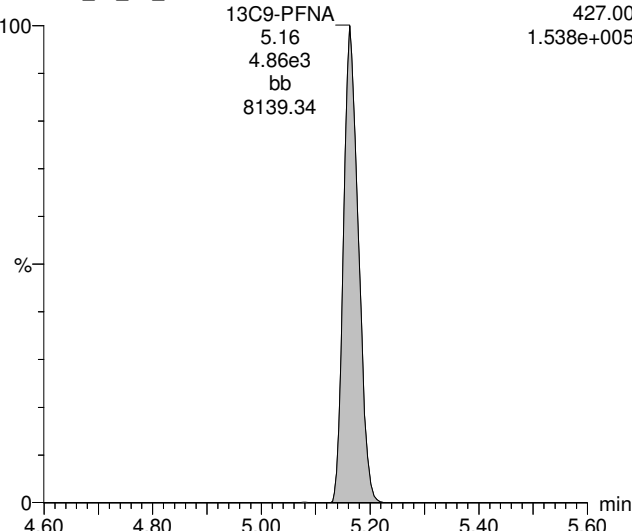
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13C4-PFOS 79.94
5.22 9.586e+004
3.30e3
bb



13C9-PFNA

170103J2_10_P1_E1

SIR of 31 channels,ES-
13C9-PFNA 427.00
5.16 1.538e+005
4.86e3
bb
8139.34



Reviewed: WJL 1/5/2017

Work Order 1601587

pw 1/5/17

CONTINUING CALIBRATION

Dataset: U:\Q2.PRO\Results\170103J2\170103J2_02.qld

Last Altered: Thursday, January 05, 2017 13:27:31 Pacific Standard Time

Printed: Thursday, January 05, 2017 13:43:11 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFC List 18_A No4-2FTS_Mixed.mdb 28 Dec 2016 09:59:56

Calibration: U:\Q2.PRO\CurveDB\C18_VAL-PFC_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12

Name: 170103J2_02.wiff, Date: 03-Jan-2017, Time: 17:41:43, ID: ST170103J2-1 PFC C3 17A0315, Description: PFC C3 17A0315A

	# Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc.	%Rec
1	3 PFBS	79.90	4.67e3	5.99e3		1.000	3.61	11.4	113.8
2	5 PFHpA	318.90	6.46e3	7.78e3		1.000	4.46	11.8	117.9
3	6 PFHxS	79.91	3.57e3	1.13e3		1.000	4.57	12.2	121.5
4	8 PFOA	368.90	7.53e3	6.61e3		1.000	4.85	12.3	123.5
5	9 PFNA	419.00	5.13e3	5.30e3		1.000	5.15	9.07	90.7
6	10 PFOS	79.92	4.09e3	3.58e3		1.000	5.20	11.2	111.9
7	11 PFDA	469.00	3.59e3	4.82e3		1.000	5.40	10.1	101.2
8	15 13C3-PFBS	79.95	5.99e3	1.07e4	0.569	1.000	3.61	12.3	98.1
9	17 13C4-PFHxA	321.90	7.78e3	1.07e4	0.753	1.000	4.46	12.0	96.2
10	18 18O2-PFHxS	102.90	1.13e3	4.07e3	0.284	1.000	4.56	12.2	97.6
11	20 13C2-PFOA	369.90	6.61e3	1.05e4	0.674	1.000	4.85	11.7	93.6
12	21 13C5-PFNA	422.90	5.30e3	5.00e3	0.970	1.000	5.15	13.7	109.3
13	22 13C8-PFOS	79.93	3.58e3	4.13e3	0.971	1.000	5.20	11.2	89.2
14	23 13C2-PFDA	470.00	4.82e3	5.00e3	0.862	1.000	5.40	14.0	111.9
15	24 13C2-8:2 FTS	508.70	1.02e3	5.00e3	0.196	1.000	5.39	13.0	104.0
16	25 13C4-PFBA	171.90	9.50e3	9.50e3	1.000	1.000	2.30	12.5	100.0
17	26 13C5-PFHxA	273.00	1.07e4	1.07e4	1.000	1.000	3.98	12.5	100.0
18	27 13C3-PFHxS	80.01	4.07e3	4.07e3	1.000	1.000	4.56	12.5	100.0
19	28 13C8-PFOA	375.90	1.05e4	1.05e4	1.000	1.000	4.85	12.5	100.0
20	29 13C9-PFNA	427.00	5.00e3	5.00e3	1.000	1.000	5.15	12.5	100.0
21	30 13C4-PFOS	79.94	4.13e3	4.13e3	1.000	1.000	5.20	12.5	100.0
22	31 13C6-PFDA	474.00	5.00e3	5.00e3	1.000	1.000	5.40	12.5	100.0
23	32 Total PFBS	79.90		5.99e3		1.000		11.4	
24	33 Total PFHxS	79.91		1.13e3		1.000		12.2	
25	34 Total PFOA	368.90		6.61e3		1.000		12.3	
26	35 Total PFOS	79.92		3.58e3		1.000		11.2	

75-125

60-150

50-150

60-150

NA

PH
1/5/17

AMSC 1/5/17

Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170103J2\170103J2_02.qld

Last Altered: Thursday, January 05, 2017 13:27:31 Pacific Standard Time

Printed: Thursday, January 05, 2017 13:43:11 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFC List 18_A No4-2FTS_Mixed.mdb 28 Dec 2016 09:59:56

Calibration: U:\Q2.PRO\CurveDB\C18_VAL-PFC_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12

Name: 170103J2_02.wiff, Date: 03-Jan-2017, Time: 17:41:43, ID: ST170103J2-1 PFC C3 17A0315, Description: PFC C3 17A0315A

Total PFBS

	# Name	Trace	RT	Area	IS Area	Conc.
1	3 PFBS	79.90	3.61	4.67e3	5.99e3	11.4

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	6 PFHxS	79.91	4.57	3.57e3	1.13e3	12.2

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	8 PFOA	368.90	4.85	7.53e3	6.61e3	12.3

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	10 PFOS	79.92	5.20	4.09e3	3.58e3	11.2

	Sample Name	Acquisition Date	Sample ID	Sample Comment
1	170103J2_01	1/3/2017 17:29:29	IPA	IPA
2	170103J2_02	1/3/2017 17:41:43	ST170103J2-1 PFC C3 17A0315	PFC C3 17A0315A
3	170103J2_03	1/3/2017 17:53:58	IPA	IPA
4	170103J2_04	1/3/2017 18:06:13	B6L0144-BS1	OPR
5	170103J2_05	1/3/2017 18:18:28	B6L0150-BS1	OPR
6	170103J2_06	1/3/2017 18:30:44	IPA	IPA
7	170103J2_07	1/3/2017 18:43:01	B6L0144-BLK1	Method Blank
8	170103J2_08	1/3/2017 18:55:15	B6L0150-BLK1	Method Blank
9	170103J2_09	1/3/2017 19:07:31	1601587-01	OC-RW04-1216
10	170103J2_10	1/3/2017 19:19:48	1601587-02	OC-FB04-121916
11	170103J2_11	1/3/2017 19:32:04	1601595-01	OC-RW13-1216
12	170103J2_12	1/3/2017 19:44:18	1601595-02	OC-FB13-1216
13	170103J2_13	1/3/2017 19:56:35	1601602-01	OCSTR-WL01-1216
14	170103J2_14	1/3/2017 20:08:49	1601602-02	OCSTR-FB01-122216
15	170103J2_15	1/3/2017 20:21:04	1601606-01	291 TAP BRN
16	170103J2_16	1/3/2017 20:33:19	1601606-02	291 TAP REG
17	170103J2_17	1/3/2017 20:45:30	1601606-03	LANG TAP
18	170103J2_18	1/3/2017 20:57:42	1601606-04	124 TAP
19	170103J2_19	1/3/2017 21:09:59	IPA	IPA
20	170103J2_20	1/3/2017 21:22:13	ST170103J2-2 PFC C3 17A0315	PFC C3 17A0315 A
21	170103J2_21	1/3/2017 21:34:28	IPA	IPA

LC Calibration Standards Review Checklist Q2

Calibration ID:		ION Ratio	Concentration	C-Cals Name	Sign Date	Correct I-Cal	Manual Integrations	
ST170103J2-1	L M H	NA	☒	☒	☒	☒	☒	NA
↓ -2	L M H	↓	☒	☒	☒	☒	☒	↓
	L M H	☐	☐	☐	☐	☐	☐	☐
	L M H	☐	☐	☐	☐	☐	☐	☐
	L M H	☐	☐	☐	☐	☐	☐	☐
	L M H	☐	☐	☐	☐	☐	☐	☐
	L M H	☐	☐	☐	☐	☐	☐	☐
	L M H	☐	☐	☐	☐	☐	☐	☐
	L M H	☐	☐	☐	☐	☐	☐	☐
	L M H	☐	☐	☐	☐	☐	☐	☐

Full Mass Cal. Date: 10/14/16

Run Log Present: ☒

of Samples per Sequence Checked: ☒

Reviewed By: AMSC 1/5/17

Initials/Date

Comments:

PFC List 6 + PFDA

Dataset: U:\Q2.PRO\Results\170103J2\170103J2_02.qld

Last Altered: Thursday, January 05, 2017 1:27:31 PM Pacific Standard Time

Printed: Thursday, January 05, 2017 1:45:20 PM Pacific Standard Time

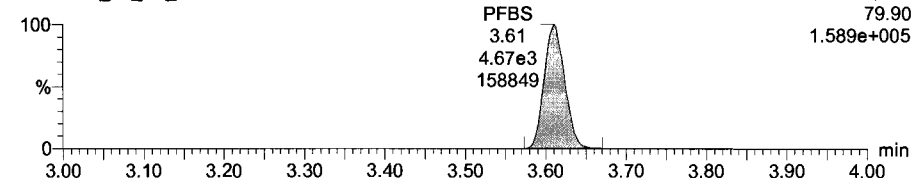
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Calibration: U:\Q2.PRO\CurveDB\C18_VAL-PFC_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12

Name: 170103J2_02.wiff, Date: 03-Jan-2017, Time: 17:41:43, ID: ST170103J2-1 PFC C3 17A0315, Description: PFC C3 17A0315A

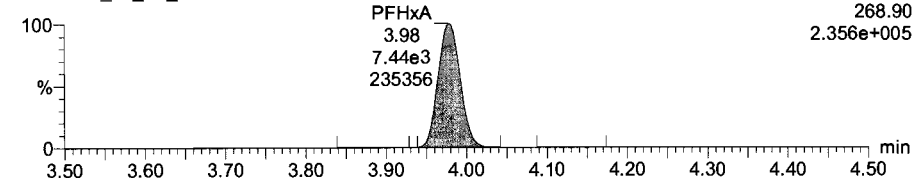
PFBS

170103J2_02_P1_E1



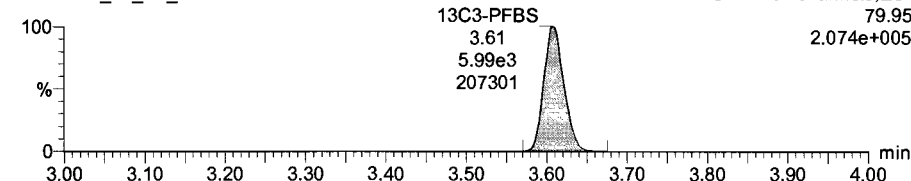
PFHxA

170103J2_02_P1_E1



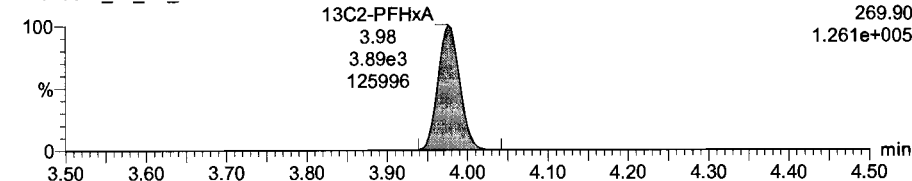
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170103J2_02_P1_E1



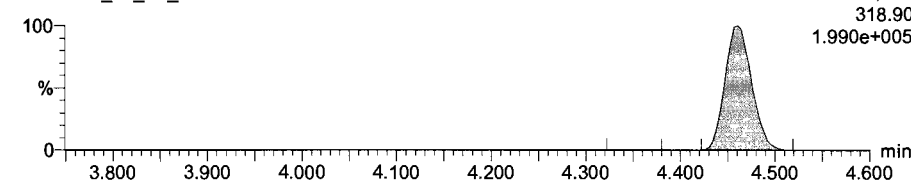
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170103J2_02_P1_E1



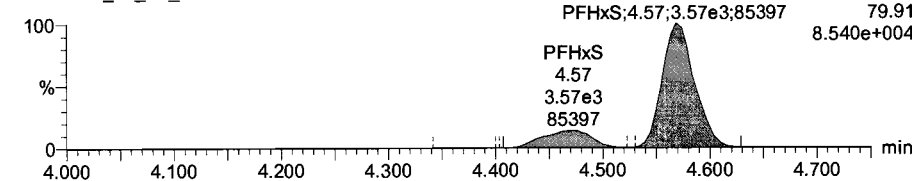
PFHpA

170103J2_02_P1_E1



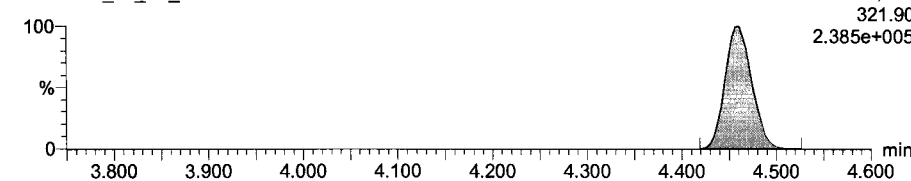
PFHxS

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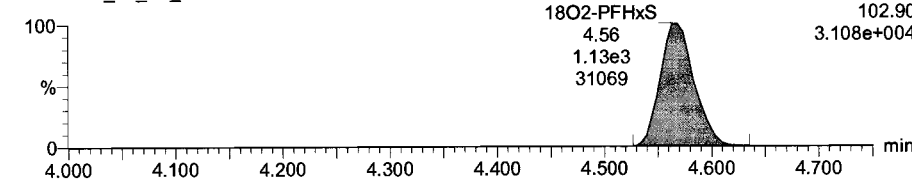
13C4-PFHpA

170103J2_02_P1_E1



18O2-PFHxS

170103J2_02_P1_E1



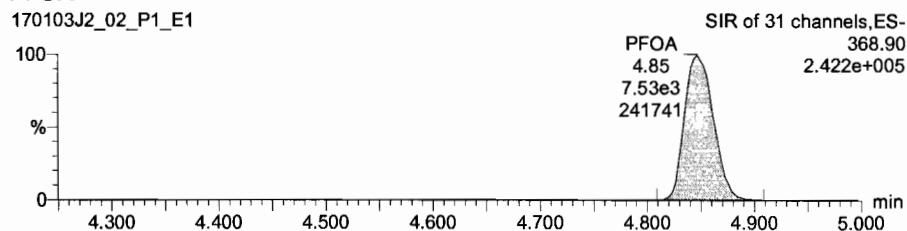
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Last Altered: Thursday, January 05, 2017 1:27:31 PM Pacific Standard Time
Printed: Thursday, January 05, 2017 1:45:20 PM Pacific Standard Time

Name: 170103J2_02.wiff, Date: 03-Jan-2017, Time: 17:41:43, ID: ST170103J2-1 PFC C3 17A0315, Description: PFC C3 17A0315A

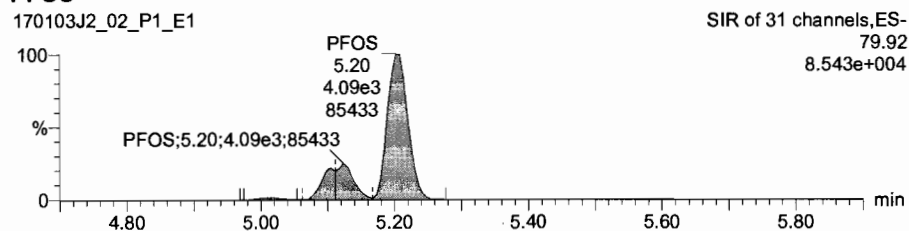
PFOA

170103J2_02_P1_E1



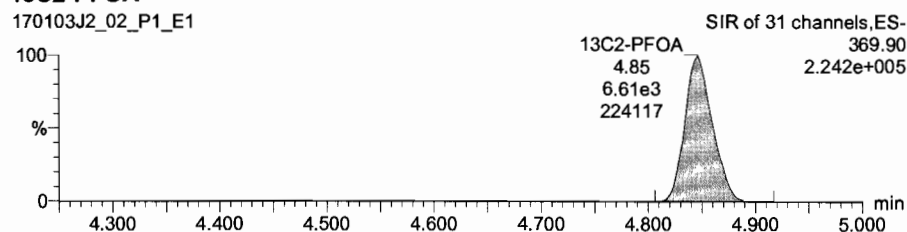
PFOS

170103J2_02_P1_E1



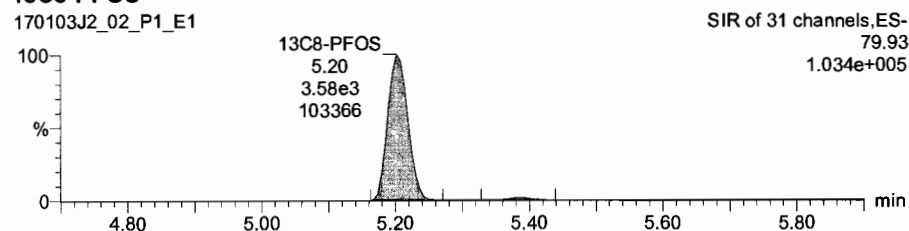
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170103J2_02_P1_E1



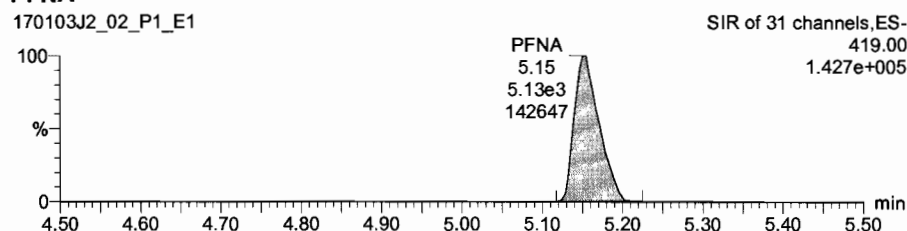
13C8-PFOS

170103J2_02_P1_E1



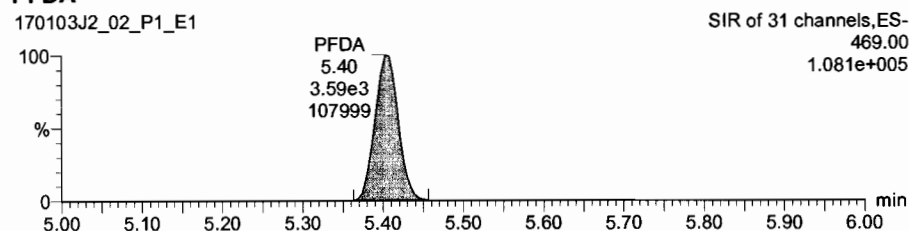
PFNA

170103J2_02_P1_E1



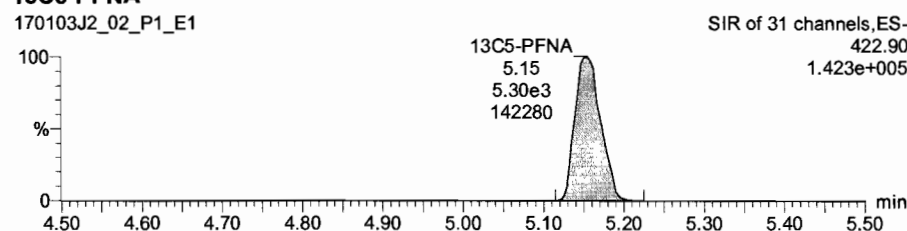
PFDA

170103J2_02_P1_E1



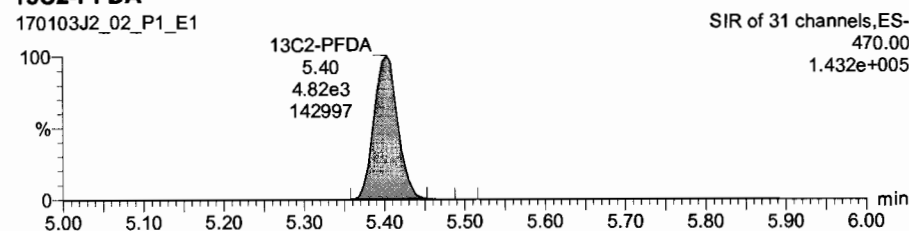
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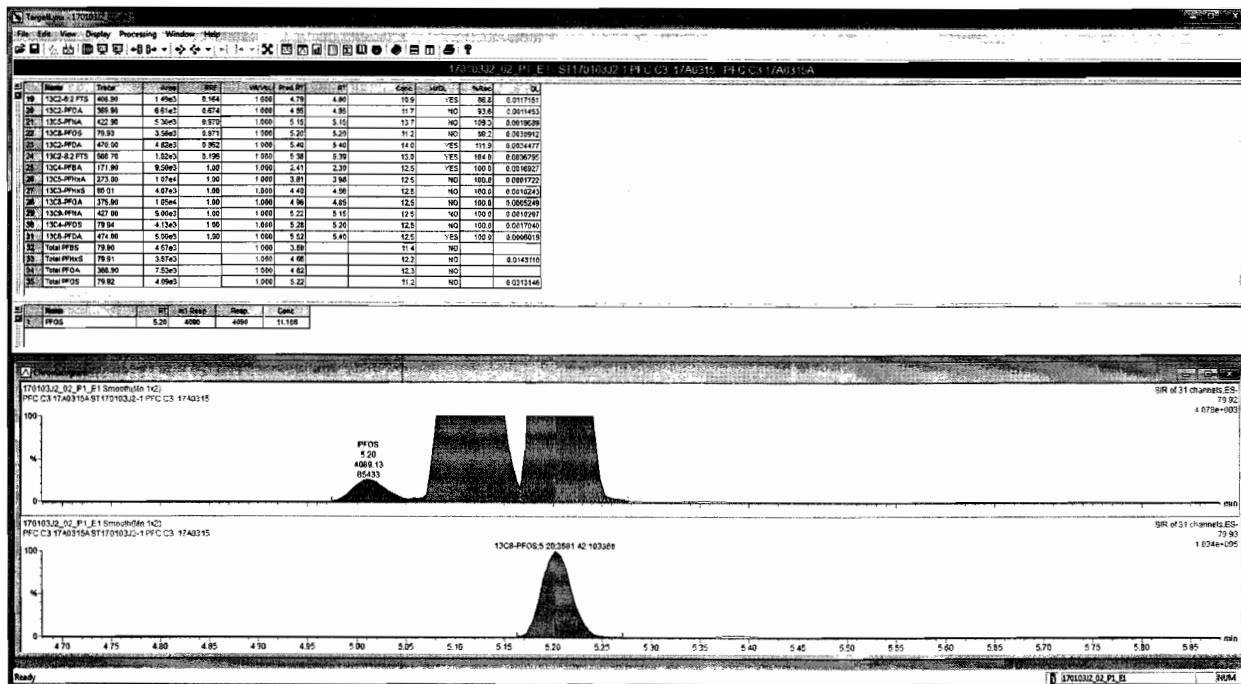
170103J2_02_P1_E1



13C2-PFDA

170103J2_02_P1_E1





Dataset: U:\Q2.PRO\Results\170103J2\170103J2_02.qld

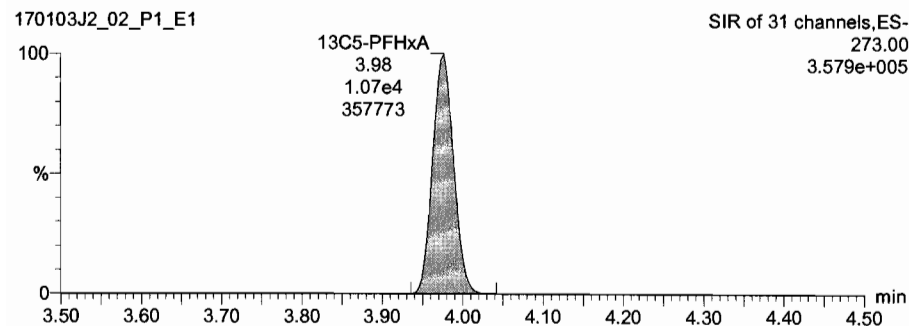
Last Altered: Thursday, January 05, 2017 1:27:31 PM Pacific Standard Time

Printed: Thursday, January 05, 2017 1:45:20 PM Pacific Standard Time

Name: 170103J2_02.wiff, Date: 03-Jan-2017, Time: 17:41:43, ID: ST170103J2-1 PFC C3 17A0315, Description: PFC C3 17A0315A

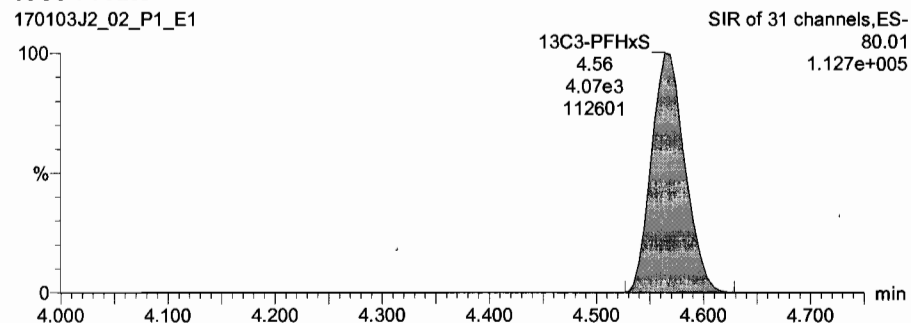
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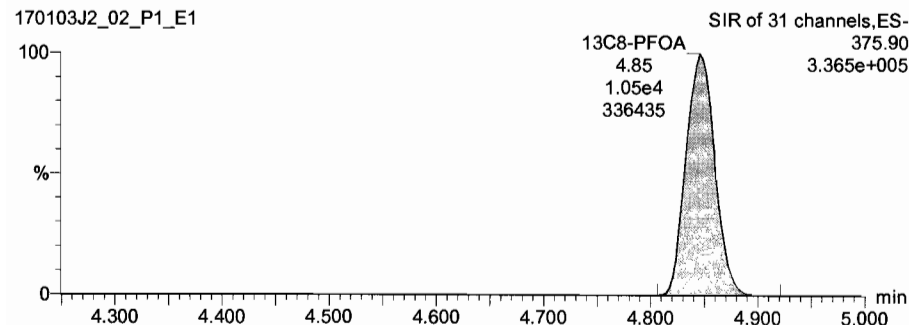
13C3-PFHxS

170103J2_02_P1_E1



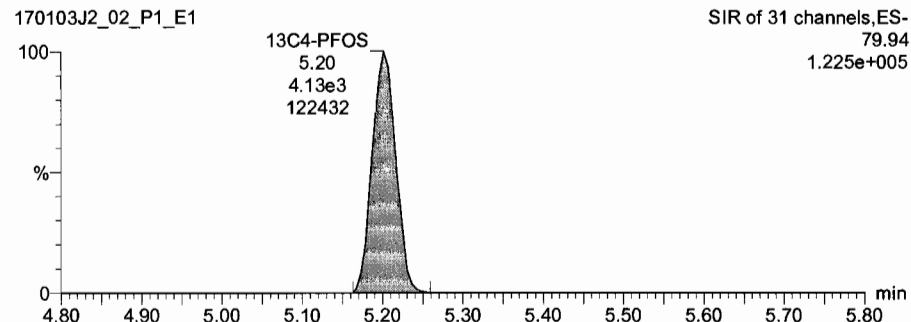
13C8-PFOA

170103J2_02_P1_E1



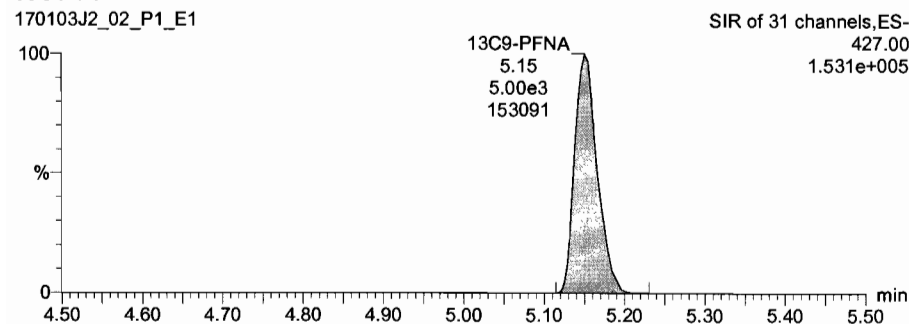
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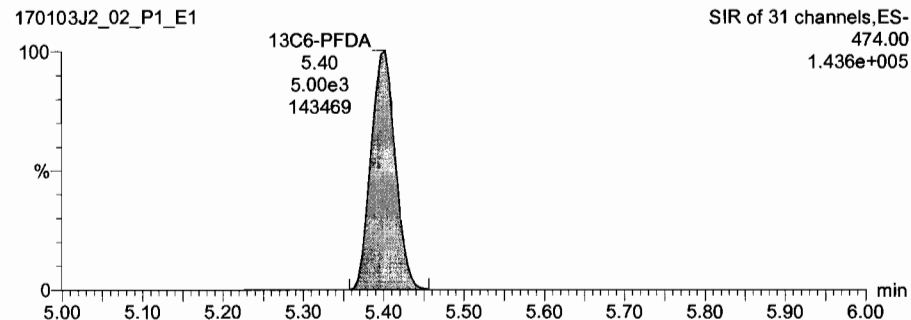
13C9-PFNA

170103J2_02_P1_E1



13C6-PFDA

170103J2_02_P1_E1



Dataset: U:\Q2.PRO\Results\170103J2\170103J2_20.qld

Last Altered: Thursday, January 05, 2017 13:50:17 Pacific Standard Time

Printed: Thursday, January 05, 2017 13:51:01 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFCA List 18_A No4-2FTS_Mixed.mdb 28 Dec 2016 09:59:56

Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFCA_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12

Name: 170103J2_20.wiff, Date: 03-Jan-2017, Time: 21:22:13, ID: ST170103J2-2 PFC C3 17A0315, Description: PFC C3 17A0315 A

#	Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc	%Rec
1	3 PFBS	79.90	4.69e3	5.90e3		1.000	3.62	11.6	116.0
2	5 PFHpA	318.90	5.91e3	7.72e3		1.000	4.46	10.9	108.7
3	6 PFHxS	79.91	3.35e3	1.16e3		1.000	4.56	11.1	111.3
4	8 PFOA	368.90	7.68e3	6.91e3		1.000	4.83	12.1	120.5
5	9 PFNA	419.00	5.45e3	4.75e3		1.000	5.15	10.8	107.7
6	10 PFOS	79.92	4.14e3	3.48e3		1.000	5.21	11.6	116.5
7	11 PFDA	469.00	3.28e3	4.52e3		1.000	5.42	9.86	98.6
8	15 13C3-PFBS	79.95	5.90e3	9.93e3	0.569	1.000	3.62	13.1	104.4
9	17 13C4-PFHpA	321.90	7.72e3	9.93e3	0.753	1.000	4.46	12.9	103.2
10	18 18O2-PFHxS	102.90	1.16e3	4.21e3	0.284	1.000	4.56	12.1	96.7
11	20 13C2-PFOA	369.90	6.91e3	1.05e4	0.674	1.000	4.83	12.2	97.7
12	21 13C5-PFNA	422.90	4.75e3	4.94e3	0.970	1.000	5.15	12.4	99.1
13	22 13C8-PFOS	79.93	3.48e3	3.24e3	0.971	1.000	5.21	13.8	110.7
14	23 13C2-PFDA	470.00	4.52e3	4.26e3	0.862	1.000	5.42	15.4	123.1
15	24 13C2-8:2 FTS	508.70	8.27e2	4.26e3	0.196	1.000	5.40	12.4	99.1
16	25 13C4-PFBA	171.90	9.94e3	9.94e3	1.000	1.000	2.30	12.5	100.0
17	26 13C5-PFHxA	273.00	9.93e3	9.93e3	1.000	1.000	3.97	12.5	100.0
18	27 13C3-PFHxS	80.01	4.21e3	4.21e3	1.000	1.000	4.56	12.5	100.0
19	28 13C8-PFOA	375.90	1.05e4	1.05e4	1.000	1.000	4.83	12.5	100.0
20	29 13C9-PFNA	427.00	4.94e3	4.94e3	1.000	1.000	5.15	12.5	100.0
21	30 13C4-PFOS	79.94	3.24e3	3.24e3	1.000	1.000	5.20	12.5	100.0
22	31 13C6-PFDA	474.00	4.26e3	4.26e3	1.000	1.000	5.42	12.5	100.0
23	32 Total PFBS	79.90		5.90e3		1.000		11.6	
24	33 Total PFHxS	79.91		1.16e3		1.000		11.1	
25	34 Total PFOA	368.90		6.91e3		1.000		12.1	
26	35 Total PFOS	79.92		3.48e3		1.000		11.6	

75 - 125

60 - 150

50 - 150

60 - 150

NA

PW
1/5/17

AMSC
1/5/17

Quantify Totals Report MassLynx 4.1 SCN815

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Vista Analytical Laboratory Q1

Dataset: U:\Q2.PRO\Results\170103J2\170103J2_20.qld

Last Altered: Thursday, January 05, 2017 13:50:17 Pacific Standard Time

Printed: Thursday, January 05, 2017 13:51:01 Pacific Standard Time

Method: U:\Q2.pro\MethDB\PFC List 18_A No4-2FTS_Mixed.mdb 28 Dec 2016 09:59:56

Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12

Name: 170103J2_20.wiff, Date: 03-Jan-2017, Time: 21:22:13, ID: ST170103J2-2 PFC C3 17A0315, Description: PFC C3 17A0315 A

Total PFBS

	# Name	Trace	RT	Area	IS Area	Conc.
1	3 PFBS	79.90	3.62	4.69e3	5.90e3	11.6

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	6 PFHxS	79.91	4.56	3.35e3	1.16e3	11.1

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	8 PFOA	368.90	4.83	7.68e3	6.91e3	12.1

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	10 PFOS	79.92	5.21	4.14e3	3.48e3	11.6

	Sample Name	Acquisition Date	Sample ID	Sample Comment
1	170103J2_01	1/3/2017 17:29:29	IPA	IPA
2	170103J2_02	1/3/2017 17:41:43	ST170103J2-1 PFC C3 17A0315	PFC C3 17A0315A
3	170103J2_03	1/3/2017 17:53:58	IPA	IPA
4	170103J2_04	1/3/2017 18:06:13	B6L0144-BS1	OPR
5	170103J2_05	1/3/2017 18:18:28	B6L0150-BS1	OPR
6	170103J2_06	1/3/2017 18:30:44	IPA	IPA
7	170103J2_07	1/3/2017 18:43:01	B6L0144-BLK1	Method Blank
8	170103J2_08	1/3/2017 18:55:15	B6L0150-BLK1	Method Blank
9	170103J2_09	1/3/2017 19:07:31	1601587-01	OC-RW04-1216
10	170103J2_10	1/3/2017 19:19:48	1601587-02	OC-FB04-121916
11	170103J2_11	1/3/2017 19:32:04	1601595-01	OC-RW13-1216
12	170103J2_12	1/3/2017 19:44:18	1601595-02	OC-FB13-1216
13	170103J2_13	1/3/2017 19:56:35	1601602-01	OCSTR-WL01-1216
14	170103J2_14	1/3/2017 20:08:49	1601602-02	OCSTR-FB01-122216
15	170103J2_15	1/3/2017 20:21:04	1601606-01	291 TAP BRN
16	170103J2_16	1/3/2017 20:33:19	1601606-02	291 TAP REG
17	170103J2_17	1/3/2017 20:45:30	1601606-03	LANG TAP
18	170103J2_18	1/3/2017 20:57:42	1601606-04	124 TAP
19	170103J2_19	1/3/2017 21:09:59	IPA	IPA
20	170103J2_20	1/3/2017 21:22:13	ST170103J2-2 PFC C3 17A0315	PFC C3 17A0315 A
21	170103J2_21	1/3/2017 21:34:28	IPA	IPA

Dataset: U:\Q2.PRO\Results\170103J2\170103J2_20.qld

Last Altered: Thursday, January 05, 2017 1:50:17 PM Pacific Standard Time

Printed: Thursday, January 05, 2017 1:52:40 PM Pacific Standard Time

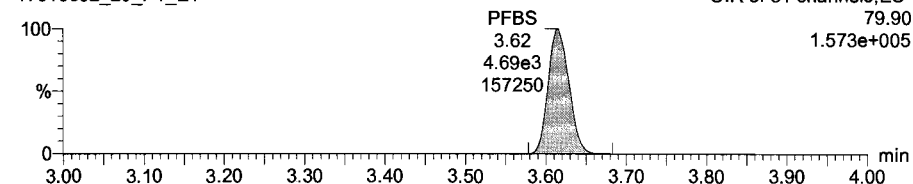
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Calibration: U:\Q2.pro\CurveDB\C18_VAL-PFC_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12

Name: 170103J2_20.wiff, Date: 03-Jan-2017, Time: 21:22:13, ID: ST170103J2-2 PFC C3 17A0315, Description: PFC C3 17A0315 A

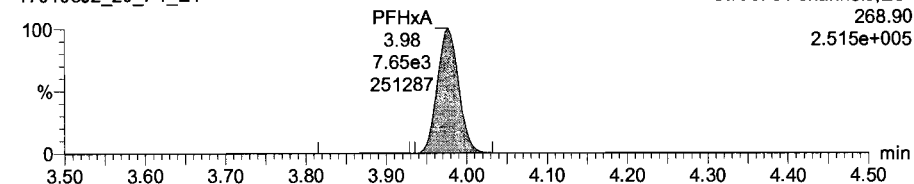
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170103J2_20_P1_E1



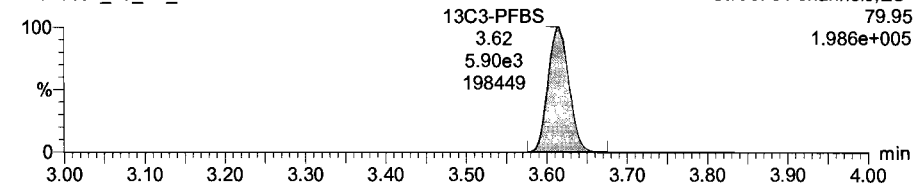
PFHxA

170103J2_20_P1_E1



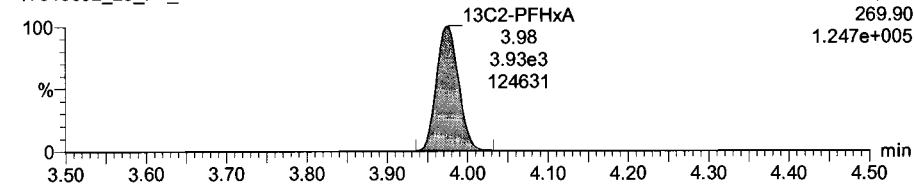
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170103J2_20_P1_E1



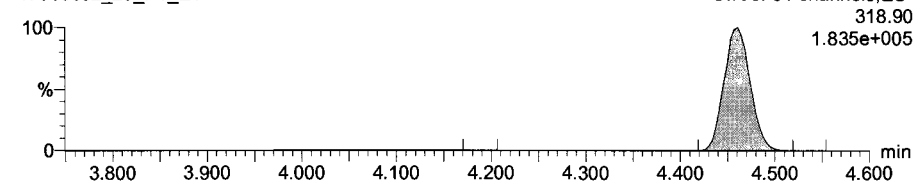
13C2-PFHxA

170103J2_20_P1_E1



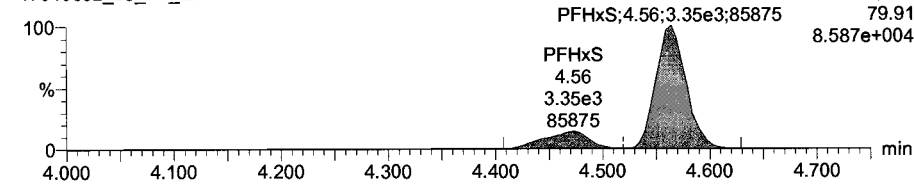
PFHpA

170103J2_20_P1_E1



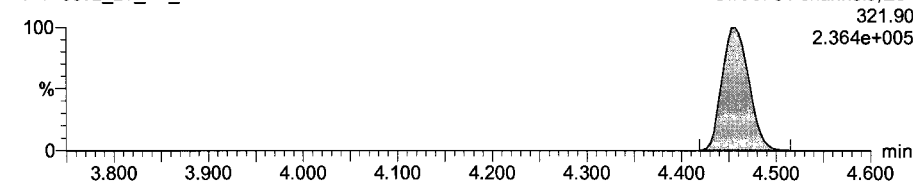
PFHxS

170103J2_20_P1_E1



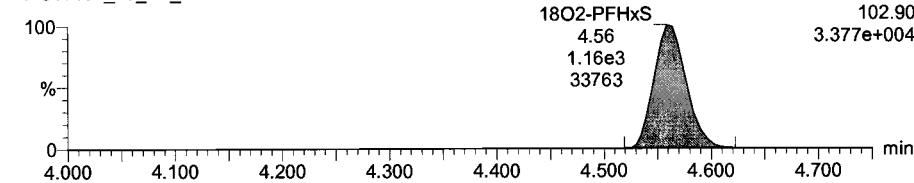
13C4-PFHpA

170103J2_20_P1_E1



18O2-PFHxS

170103J2_20_P1_E1



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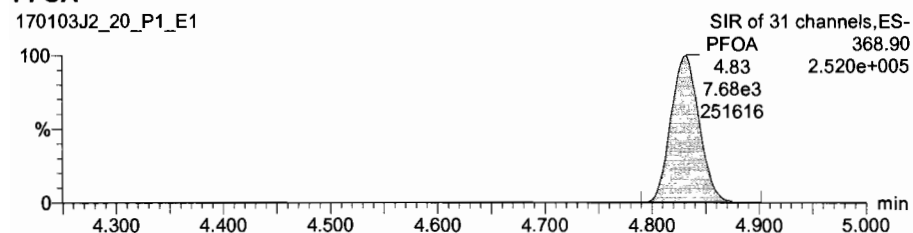
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Printed: Thursday, January 05, 2017 1:52:40 PM Pacific Standard Time

Name: 170103J2_20.wiff, Date: 03-Jan-2017, Time: 21:22:13, ID: ST170103J2-2 PFC C3 17A0315, Description: PFC C3 17A0315 A

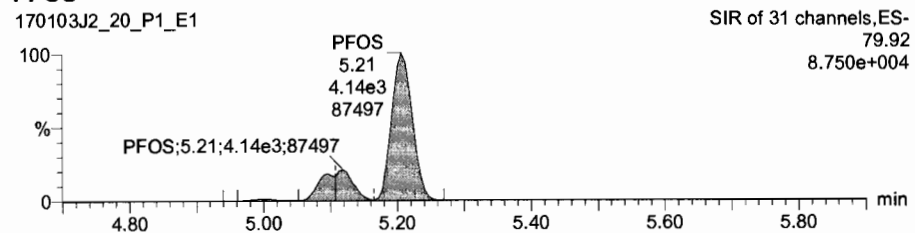
PFOA

170103J2_20_P1_E1



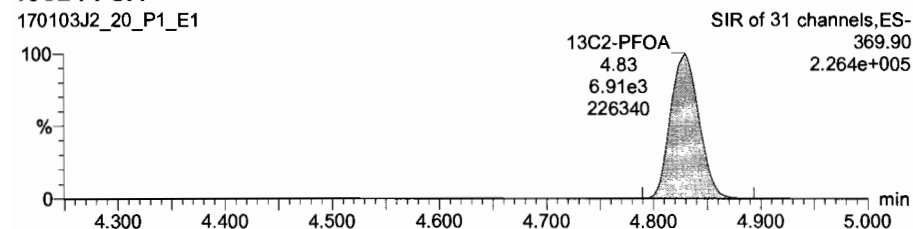
PFOS

170103J2_20_P1_E1



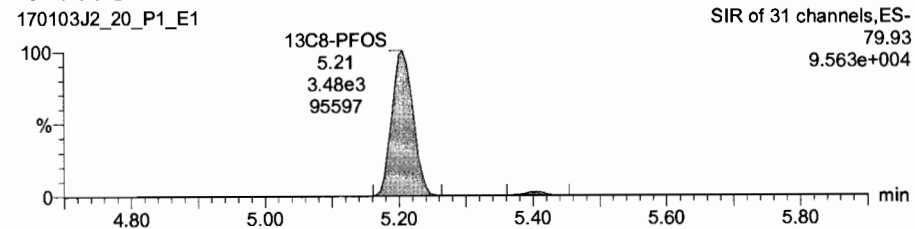
13C2-PFOA

170103J2_20_P1_E1



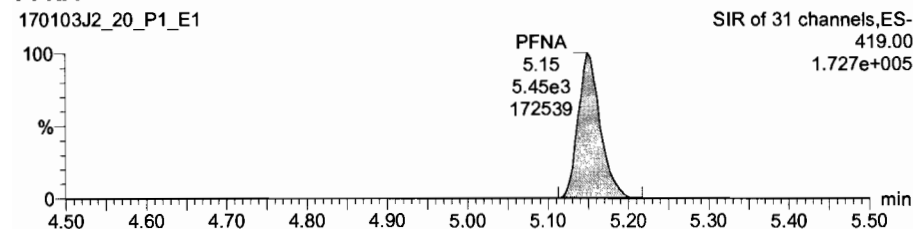
13C8-PFOS

170103J2_20_P1_E1



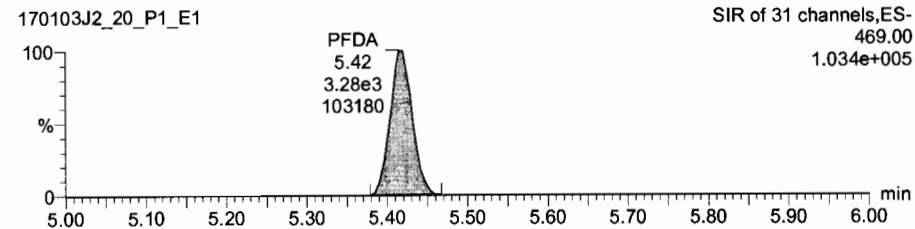
PFNA

170103J2_20_P1_E1



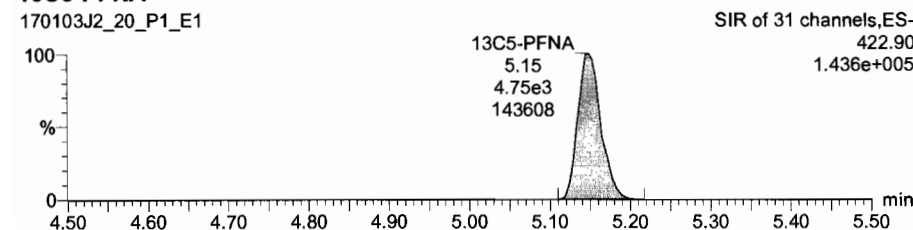
PFDA

170103J2_20_P1_E1



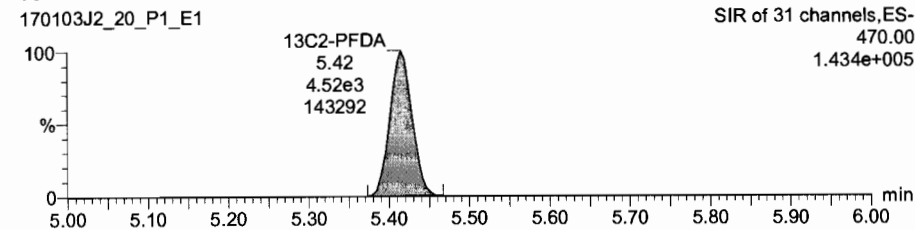
13C5-PFNA

170103J2_20_P1_E1



13C2-PFDA

170103J2_20_P1_E1



Dataset: U:\Q2.PRO\Results\170103J2\170103J2_20.qld

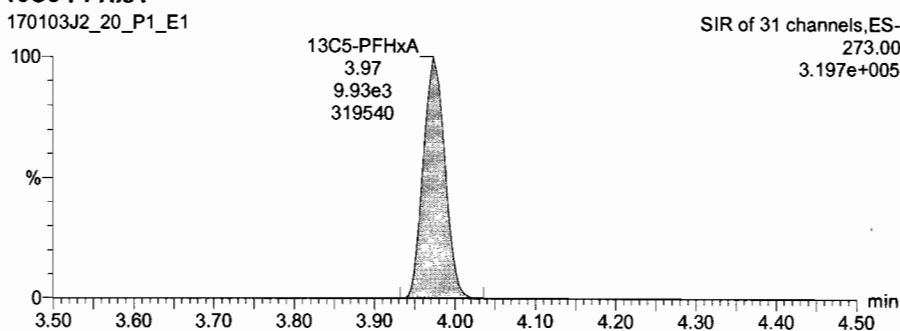
Last Altered: Thursday, January 05, 2017 1:50:17 PM Pacific Standard Time

Printed: Thursday, January 05, 2017 1:52:40 PM Pacific Standard Time

Name: 170103J2_20.wiff, Date: 03-Jan-2017, Time: 21:22:13, ID: ST170103J2-2 PFC C3 17A0315, Description: PFC C3 17A0315 A

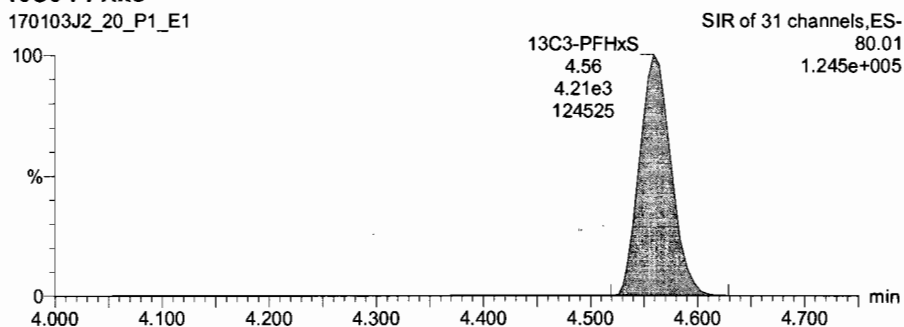
13C5-PFHxA

170103J2_20_P1_E1



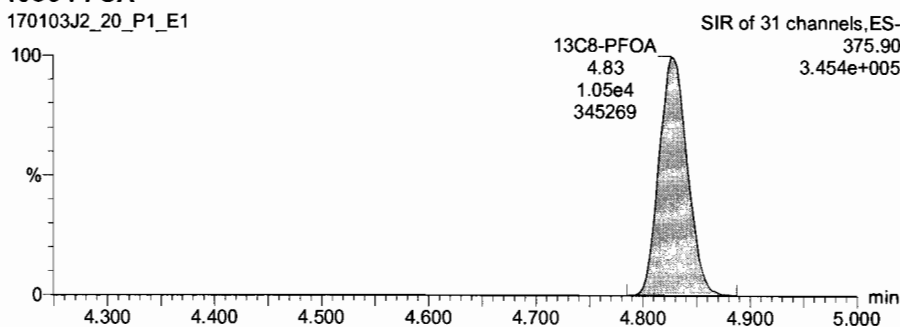
13C3-PFHxS

170103J2_20_P1_E1



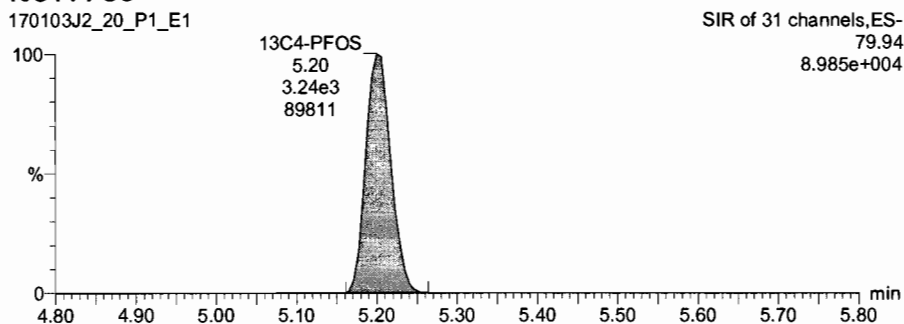
13C8-PFOA

170103J2_20_P1_E1



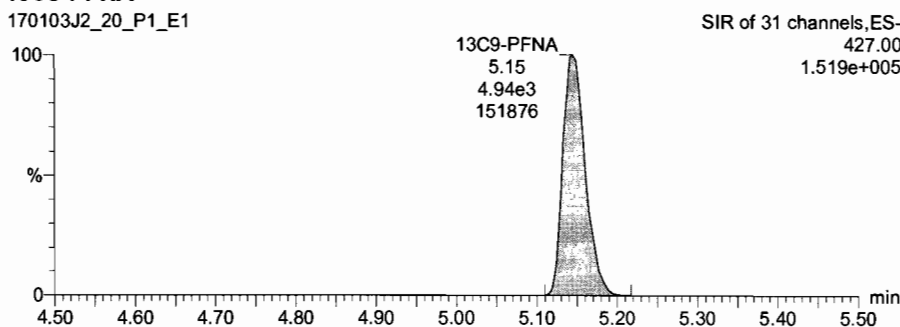
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170103J2_20_P1_E1



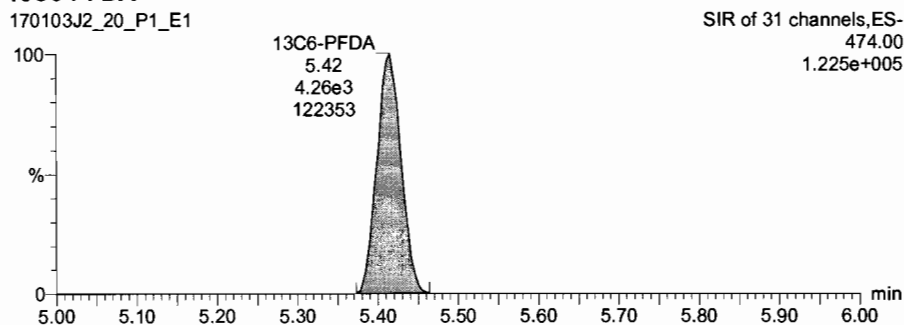
13C9-PFNA

170103J2_20_P1_E1



13C6-PFDA

170103J2_20_P1_E1



INITIAL CALIBRATION

Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

Last Altered: Tuesday, January 03, 2017 12:10:12 Pacific Standard Time
Printed: Tuesday, January 03, 2017 12:15:51 Pacific Standard Time

Method: U:\Q2.PRO\MethDB\PFC List 18_A No4-2FTS_Mixed.mdb 28 Dec 2016 09:59:56

Calibration: U:\Q2.PRO\CurveDB\C18_VAL-PFC_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12

Compound name: PFBS

Correlation coefficient: $r = 0.998927$, $r^2 = 0.997855$

Calibration curve: $0.855623 * x + 0.00992739$

Response type: Internal Std (Ref 15), 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 161230J1_03_P1_...	0.500	3.60	2.24e2	6.36e3	0.503	0.6	0.881
2	2 161230J1_04_P1_...	1.00	3.60	4.62e2	6.45e3	1.04	3.6	0.896
3	3 161230J1_05_P1_...	2.00	3.60	9.09e2	7.07e3	1.87	-6.6	0.804
4	4 161230J1_06_P1_...	5.00	3.60	2.03e3	6.71e3	4.40	-11.9	0.756
5	5 161230J1_07_P1_...	10.0	3.61	5.00e3	6.30e3	11.6	15.7	0.991
6	6 161230J1_08_P1_...	50.0	3.61	2.19e4	6.45e3	49.5	-0.9	0.848
7	7 161230J1_09_P1_...	100	3.60	3.91e4	5.74e3	99.6	-0.4	0.852

Compound name: PFHpA

Correlation coefficient: $r = 0.999132$, $r^2 = 0.998264$

Calibration curve: $0.876647 * x + 0.0429082$

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 161230J1_03_P1_...	0.500	4.44	2.84e2	7.95e3	0.460	-7.9	0.893
2	2 161230J1_04_P1_...	1.00	4.43	6.66e2	8.43e3	1.08	7.8	0.988
3	3 161230J1_05_P1_...	2.00	4.45	1.26e3	9.02e3	1.94	-2.8	0.873
4	4 161230J1_06_P1_...	5.00	4.45	2.77e3	8.70e3	4.48	-10.4	0.794
5	5 161230J1_07_P1_...	10.0	4.46	6.90e3	8.60e3	11.4	13.9	1.00
6	6 161230J1_08_P1_...	50.0	4.46	3.11e4	8.81e3	50.3	0.5	0.882
7	7 161230J1_09_P1_...	100	4.46	5.63e4	8.11e3	98.9	-1.1	0.867

AMSC 1/4/17

AMSC 1/4/17

PFNA
A curve is only for 16 and
PFDA - AMSC 1/3/17

B will not use for list of 6
AMSC 1/4/17

AMSC 1/3/17

PW
1/3/17

A curve is only for 16
and PFDA - AMSC 1/4/17

PW
1/4/17

Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

Last Altered: Tuesday, January 03, 2017 12:10:12 Pacific Standard Time

Printed: Tuesday, January 03, 2017 12:15:51 Pacific Standard Time

Compound name: PFHxS

Correlation coefficient: $r = 0.997665$, $r^2 = 0.995335$

Calibration curve: $3.25854 * x + -0.0420521$

Response type: Internal Std (Ref 18), 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 161230J1_03_P1_...	0.500	4.55	1.79e2	1.36e3	0.518	3.6	3.29
2	2 161230J1_04_P1_...	1.00	4.54	3.45e2	1.40e3	0.955	-4.5	3.07
3	3 161230J1_05_P1_...	2.00	4.56	6.78e2	1.49e3	1.76	-12.0	2.85
4	4 161230J1_06_P1_...	5.00	4.57	1.60e3	1.35e3	4.56	-8.8	2.96
5	5 161230J1_07_P1_...	10.0	4.57	4.03e3	1.24e3	12.5	24.9	4.06
6	6 161230J1_08_P1_...	50.0	4.57	1.68e4	1.33e3	48.6	-2.8	3.17
7	7 161230J1_09_P1_...	100	4.57	3.15e4	1.21e3	99.6	-0.4	3.25

Compound name: PFOA

Correlation coefficient: $r = 0.989405$, $r^2 = 0.978922$

Calibration curve: $1.13962 * x + 0.159608$

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

Curve type: Linear, Origin: Exclude, Weighting: 1/x^2, Axis trans: None

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 161230J1_03_P1_...	0.500	4.83	4.12e2	7.34e3	0.476	-4.8	1.40
2	2 161230J1_04_P1_...	1.00	4.83	7.85e2	6.99e3	1.09	9.0	1.40
3	3 161230J1_05_P1_...	2.00	4.84	1.55e3	7.90e3	2.01	0.7	1.23
4	4 161230J1_06_P1_...	5.00	4.85	3.24e3	7.55e3	4.56	-8.8	1.07
5	5 161230J1_07_P1_...	10.0	4.85	8.06e3	7.10e3	12.3	23.2	1.42
6	6 161230J1_08_P1_...	50.0	4.84	3.48e4	8.25e3	46.1	-7.9	1.05
7	7 161230J1_09_P1_...	100	4.85	6.22e4	7.69e3	88.6	-11.4	1.01

Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

Last Altered: Tuesday, January 03, 2017 12:10:12 Pacific Standard Time

Printed: Tuesday, January 03, 2017 12:15:51 Pacific Standard Time

Compound name: PFNA

Coefficient of Determination: $R^2 = 0.981997$

Calibration curve: $-0.00296671 * x^2 + 1.37252 * x + -0.0977715$

Response type: Internal Std (Ref 21), 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 161230J1_03_P1_...	0.500	5.15	2.58e2	4.99e3	0.543	8.5	1.29
2	2 161230J1_04_P1_...	1.00	5.16	4.99e2	5.87e3	0.846	-15.4	1.06
3	3 161230J1_05_P1_...	2.00	5.16	1.04e3	5.33e3	1.86	-7.0	1.22
4	4 161230J1_06_P1_...	5.00	5.17	2.75e3	5.09e3	5.05	1.1	1.35
5	5 161230J1_07_P1_...	10.0	5.17	7.15e3	5.72e3	11.7	17.4	1.56
6	6 161230J1_08_P1_...	50.0	5.17	2.76e4	5.98e3	46.9	-6.2	1.16
7	7 161230J1_09_P1_...	100	5.15	5.09e4	5.85e3	102	1.7	1.09

Compound name: PFOS

Correlation coefficient: $r = 0.991898$, $r^2 = 0.983862$

Calibration curve: $1.27905 * x + -0.0382753$

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

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 161230J1_03_P1_...	0.500	5.21	1.74e2	3.55e3	0.510	2.0	1.23
2	2 161230J1_04_P1_...	1.00	5.21	3.47e2	3.56e3	0.983	-1.7	1.22
3	3 161230J1_05_P1_...	2.00	5.22	7.01e2	3.58e3	1.94	-2.8	1.22
4	4 161230J1_06_P1_...	5.00	5.22	1.51e3	3.47e3	4.27	-14.6	1.08
5	5 161230J1_07_P1_...	10.0	5.23	4.55e3	3.67e3	12.1	21.4	1.55
6	6 161230J1_08_P1_...	50.0	5.22	1.89e4	3.76e3	49.3	-1.5	1.26
7	7 161230J1_09_P1_...	100	5.19	3.92e4	3.94e3	97.2	-2.8	1.24

Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

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Compound name: PFDA

Correlation coefficient: $r = 0.993155$, $r^2 = 0.986357$

Calibration curve: $0.913037 * x + 0.0647081$

Response type: Internal Std (Ref 23), 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 161230J1_03_P1_...	0.500	5.43	1.35e2	3.67e3	0.432	-13.7	0.917
2	2 161230J1_04_P1_...	1.00	5.43	2.80e2	3.43e3	1.04	4.5	1.02
3	3 161230J1_05_P1_...	2.00	5.43	5.48e2	3.79e3	1.91	-4.4	0.905
4	4 161230J1_06_P1_...	5.00	5.43	1.23e3	3.86e3	4.28	-14.4	0.794
5	5 161230J1_07_P1_...	10.0	5.45	3.85e3	4.26e3	12.3	22.9	1.13
6	6 161230J1_08_P1_...	50.0	5.45	2.03e4	4.91e3	56.6	13.1	1.03
7	7 161230J1_09_P1_...	100	5.39	3.00e4	4.47e3	92.0	-8.0	0.840

Compound name: 13C3-PFBS

Response Factor: 0.569117

RRF SD: 0.0223932, Relative SD: 3.93474

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 161230J1_03_P1_...	12.5	3.60	6.36e3	1.11e4	12.6	0.7	0.573
2	2 161230J1_04_P1_...	12.5	3.60	6.45e3	1.17e4	12.1	-3.1	0.551
3	3 161230J1_05_P1_...	12.5	3.60	7.07e3	1.18e4	13.2	5.3	0.599
4	4 161230J1_06_P1_...	12.5	3.60	6.71e3	1.16e4	12.7	1.9	0.580
5	5 161230J1_07_P1_...	12.5	3.61	6.30e3	1.10e4	12.6	0.5	0.572
6	6 161230J1_08_P1_...	12.5	3.61	6.45e3	1.11e4	12.7	1.7	0.579
7	7 161230J1_09_P1_...	12.5	3.60	5.74e3	1.08e4	11.6	-6.9	0.530

Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

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Compound name: 13C4-PFHpA

Response Factor: 0.753233

RRF SD: 0.0280332, Relative SD: 3.72172

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 161230J1_03_P1_...	12.5	4.43	7.95e3	1.11e4	11.9	-4.9	0.716
2	2 161230J1_04_P1_...	12.5	4.44	8.43e3	1.17e4	12.0	-4.4	0.720
3	3 161230J1_05_P1_...	12.5	4.45	9.02e3	1.18e4	12.7	1.6	0.765
4	4 161230J1_06_P1_...	12.5	4.45	8.70e3	1.16e4	12.5	-0.1	0.752
5	5 161230J1_07_P1_...	12.5	4.45	8.60e3	1.10e4	12.9	3.5	0.780
6	6 161230J1_08_P1_...	12.5	4.46	8.81e3	1.11e4	13.1	4.9	0.790
7	7 161230J1_09_P1_...	12.5	4.46	8.11e3	1.08e4	12.4	-0.6	0.749

Compound name: 18O2-PFHxS

Response Factor: 0.284439

RRF SD: 0.0141005, Relative SD: 4.95731

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 161230J1_03_P1_...	12.5	4.55	1.36e3	4.48e3	13.3	6.6	0.303
2	2 161230J1_04_P1_...	12.5	4.54	1.40e3	4.75e3	13.0	3.8	0.295
3	3 161230J1_05_P1_...	12.5	4.56	1.49e3	5.10e3	12.8	2.6	0.292
4	4 161230J1_06_P1_...	12.5	4.56	1.35e3	4.81e3	12.4	-1.1	0.281
5	5 161230J1_07_P1_...	12.5	4.56	1.24e3	4.65e3	11.7	-6.2	0.267
6	6 161230J1_08_P1_...	12.5	4.56	1.33e3	4.63e3	12.6	0.8	0.287
7	7 161230J1_09_P1_...	12.5	4.57	1.21e3	4.56e3	11.7	-6.5	0.266

Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

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Compound name: 13C2-6:2 FTS

Response Factor: 0.163763

RRF SD: 0.0199789, Relative SD: 12.1999

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 161230J1_03_P1_...	12.5	4.79	1.69e3	1.10e4	11.7	-6.0	0.154
2	2 161230J1_04_P1_...	12.5	4.78	1.80e3	1.15e4	11.9	-4.7	0.156
3	3 161230J1_05_P1_...	12.5	4.80	1.75e3	1.18e4	11.3	-9.6	0.148
4	4 161230J1_06_P1_...	12.5	4.80	1.72e3	1.15e4	11.4	-8.9	0.149
5	5 161230J1_07_P1_...	12.5	4.81	1.63e3	1.03e4	12.1	-3.4	0.158
6	6 161230J1_08_P1_...	12.5	4.79	2.04e3	1.15e4	13.6	8.5	0.178
7	7 161230J1_09_P1_...	12.5	4.80	2.19e3	1.08e4	15.5	24.1	0.203

Compound name: 13C2-PFOA

Response Factor: 0.674074

RRF SD: 0.0379258, Relative SD: 5.62635

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 161230J1_03_P1_...	12.5	4.83	7.34e3	1.10e4	12.4	-1.0	0.667
2	2 161230J1_04_P1_...	12.5	4.83	6.99e3	1.15e4	11.2	-10.0	0.607
3	3 161230J1_05_P1_...	12.5	4.84	7.90e3	1.18e4	12.4	-0.8	0.669
4	4 161230J1_06_P1_...	12.5	4.85	7.55e3	1.15e4	12.2	-2.6	0.657
5	5 161230J1_07_P1_...	12.5	4.85	7.10e3	1.03e4	12.8	2.1	0.688
6	6 161230J1_08_P1_...	12.5	4.84	8.25e3	1.15e4	13.3	6.5	0.718
7	7 161230J1_09_P1_...	12.5	4.84	7.69e3	1.08e4	13.2	5.8	0.713

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Compound name: 13C5-PFNA

Response Factor: 0.969763

RRF SD: 0.0425412, Relative SD: 4.38677

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 161230J1_03_P1_...	12.5	5.15	4.99e3	5.23e3	12.3	-1.6	0.954
2	2 161230J1_04_P1_...	12.5	5.15	5.87e3	5.58e3	13.6	8.5	1.05
3	3 161230J1_05_P1_...	12.5	5.16	5.33e3	5.68e3	12.1	-3.2	0.939
4	4 161230J1_06_P1_...	12.5	5.17	5.09e3	5.54e3	11.8	-5.3	0.919
5	5 161230J1_07_P1_...	12.5	5.17	5.72e3	5.88e3	12.6	0.4	0.974
6	6 161230J1_08_P1_...	12.5	5.16	5.98e3	6.19e3	12.4	-0.4	0.966
7	7 161230J1_09_P1_...	12.5	5.15	5.85e3	5.94e3	12.7	1.5	0.985

Compound name: 13C8-PFOS

Response Factor: 0.970752

RRF SD: 0.0318775, Relative SD: 3.28379

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 161230J1_03_P1_...	12.5	5.21	3.55e3	3.60e3	12.7	1.5	0.986
2	2 161230J1_04_P1_...	12.5	5.21	3.56e3	3.81e3	12.0	-3.9	0.933
3	3 161230J1_05_P1_...	12.5	5.22	3.58e3	3.83e3	12.0	-3.7	0.935
4	4 161230J1_06_P1_...	12.5	5.22	3.47e3	3.62e3	12.4	-1.1	0.961
5	5 161230J1_07_P1_...	12.5	5.23	3.67e3	3.80e3	12.4	-0.4	0.967
6	6 161230J1_08_P1_...	12.5	5.22	3.76e3	3.78e3	12.8	2.3	0.993
7	7 161230J1_09_P1_...	12.5	5.19	3.94e3	3.86e3	13.1	5.2	1.02

Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

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Compound name: 13C2-PFDA

Response Factor: 0.862089

RRF SD: 0.0772216, Relative SD: 8.95749

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 161230J1_03_P1_...	12.5	5.43	3.67e3	4.57e3	11.6	-6.9	0.802
2	2 161230J1_04_P1_...	12.5	5.42	3.43e3	4.57e3	10.9	-12.9	0.751
3	3 161230J1_05_P1_...	12.5	5.43	3.79e3	4.22e3	13.0	4.0	0.897
4	4 161230J1_06_P1_...	12.5	5.43	3.86e3	4.12e3	13.6	8.8	0.938
5	5 161230J1_07_P1_...	12.5	5.45	4.26e3	4.67e3	13.2	5.8	0.912
6	6 161230J1_08_P1_...	12.5	5.45	4.91e3	5.23e3	13.6	9.0	0.939
7	7 161230J1_09_P1_...	12.5	5.39	4.47e3	5.62e3	11.5	-7.8	0.795

Compound name: 13C2-8:2 FTS

Response Factor: 0.196109

RRF SD: 0.0139248, Relative SD: 7.10056

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 161230J1_03_P1_...	12.5	5.41	8.18e2	4.57e3	11.4	-8.7	0.179
2	2 161230J1_04_P1_...	12.5	5.41	8.42e2	4.57e3	11.8	-5.9	0.184
3	3 161230J1_05_P1_...	12.5	5.41	8.41e2	4.22e3	12.7	1.6	0.199
4	4 161230J1_06_P1_...	12.5	5.41	8.72e2	4.12e3	13.5	7.9	0.212
5	5 161230J1_07_P1_...	12.5	5.42	8.76e2	4.67e3	12.0	-4.3	0.188
6	6 161230J1_08_P1_...	12.5	5.42	1.13e3	5.23e3	13.8	10.3	0.216
7	7 161230J1_09_P1_...	12.5	5.37	1.09e3	5.62e3	12.4	-0.9	0.194

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Compound name: 13C4-PFBA

Response Factor: 1

RRF SD: 0, Relative SD: 0

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

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 161230J1_03_P1_...	12.5	2.26	1.16e4	1.16e4	12.5	0.0	1.00
2	2 161230J1_04_P1_...	12.5	2.27	1.16e4	1.16e4	12.5	0.0	1.00
3	3 161230J1_05_P1_...	12.5	2.26	1.24e4	1.24e4	12.5	0.0	1.00
4	4 161230J1_06_P1_...	12.5	2.27	1.14e4	1.14e4	12.5	0.0	1.00
5	5 161230J1_07_P1_...	12.5	2.27	1.13e4	1.13e4	12.5	0.0	1.00
6	6 161230J1_08_P1_...	12.5	2.27	1.13e4	1.13e4	12.5	0.0	1.00
7	7 161230J1_09_P1_...	12.5	2.27	1.09e4	1.09e4	12.5	0.0	1.00

Compound name: 13C5-PFHxA

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 161230J1_03_P1_...	12.5	3.96	1.11e4	1.11e4	12.5	0.0	1.00
2	2 161230J1_04_P1_...	12.5	3.96	1.17e4	1.17e4	12.5	0.0	1.00
3	3 161230J1_05_P1_...	12.5	3.95	1.18e4	1.18e4	12.5	0.0	1.00
4	4 161230J1_06_P1_...	12.5	3.96	1.16e4	1.16e4	12.5	0.0	1.00
5	5 161230J1_07_P1_...	12.5	3.96	1.10e4	1.10e4	12.5	0.0	1.00
6	6 161230J1_08_P1_...	12.5	3.97	1.11e4	1.11e4	12.5	0.0	1.00
7	7 161230J1_09_P1_...	12.5	3.96	1.08e4	1.08e4	12.5	0.0	1.00

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Compound name: 13C3-PFHxS

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 161230J1_03_P1_...	12.5	4.55	4.48e3	4.48e3	12.5	0.0	1.00
2	2 161230J1_04_P1_...	12.5	4.54	4.75e3	4.75e3	12.5	0.0	1.00
3	3 161230J1_05_P1_...	12.5	4.56	5.10e3	5.10e3	12.5	0.0	1.00
4	4 161230J1_06_P1_...	12.5	4.56	4.81e3	4.81e3	12.5	0.0	1.00
5	5 161230J1_07_P1_...	12.5	4.56	4.65e3	4.65e3	12.5	0.0	1.00
6	6 161230J1_08_P1_...	12.5	4.56	4.63e3	4.63e3	12.5	0.0	1.00
7	7 161230J1_09_P1_...	12.5	4.56	4.56e3	4.56e3	12.5	0.0	1.00

Compound name: 13C8-PFOA

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 161230J1_03_P1_...	12.5	4.83	1.10e4	1.10e4	12.5	0.0	1.00
2	2 161230J1_04_P1_...	12.5	4.83	1.15e4	1.15e4	12.5	0.0	1.00
3	3 161230J1_05_P1_...	12.5	4.85	1.18e4	1.18e4	12.5	0.0	1.00
4	4 161230J1_06_P1_...	12.5	4.85	1.15e4	1.15e4	12.5	0.0	1.00
5	5 161230J1_07_P1_...	12.5	4.84	1.03e4	1.03e4	12.5	0.0	1.00
6	6 161230J1_08_P1_...	12.5	4.84	1.15e4	1.15e4	12.5	0.0	1.00
7	7 161230J1_09_P1_...	12.5	4.84	1.08e4	1.08e4	12.5	0.0	1.00

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Compound name: 13C9-PFNA

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 161230J1_03_P1_...	12.5	5.15	5.23e3	5.23e3	12.5	0.0	1.00
2	2 161230J1_04_P1_...	12.5	5.15	5.58e3	5.58e3	12.5	0.0	1.00
3	3 161230J1_05_P1_...	12.5	5.16	5.68e3	5.68e3	12.5	0.0	1.00
4	4 161230J1_06_P1_...	12.5	5.16	5.54e3	5.54e3	12.5	0.0	1.00
5	5 161230J1_07_P1_...	12.5	5.17	5.88e3	5.88e3	12.5	0.0	1.00
6	6 161230J1_08_P1_...	12.5	5.16	6.19e3	6.19e3	12.5	0.0	1.00
7	7 161230J1_09_P1_...	12.5	5.15	5.94e3	5.94e3	12.5	0.0	1.00

Compound name: 13C4-PFOS

Response Factor: 1

RRF SD: 1.28198e-016, Relative SD: 1.28198e-014

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 161230J1_03_P1_...	12.5	5.21	3.60e3	3.60e3	12.5	0.0	1.00
2	2 161230J1_04_P1_...	12.5	5.21	3.81e3	3.81e3	12.5	0.0	1.00
3	3 161230J1_05_P1_...	12.5	5.21	3.83e3	3.83e3	12.5	0.0	1.00
4	4 161230J1_06_P1_...	12.5	5.22	3.62e3	3.62e3	12.5	0.0	1.00
5	5 161230J1_07_P1_...	12.5	5.22	3.80e3	3.80e3	12.5	0.0	1.00
6	6 161230J1_08_P1_...	12.5	5.22	3.78e3	3.78e3	12.5	0.0	1.00
7	7 161230J1_09_P1_...	12.5	5.19	3.86e3	3.86e3	12.5	0.0	1.00

Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

Last Altered: Tuesday, January 03, 2017 12:10:12 Pacific Standard Time

Printed: Tuesday, January 03, 2017 12:15:51 Pacific Standard Time

Compound name: 13C6-PFDA

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 161230J1_03_P1_...	12.5	5.42	4.57e3	4.57e3	12.5	0.0	1.00
2	2 161230J1_04_P1_...	12.5	5.42	4.57e3	4.57e3	12.5	0.0	1.00
3	3 161230J1_05_P1_...	12.5	5.43	4.22e3	4.22e3	12.5	0.0	1.00
4	4 161230J1_06_P1_...	12.5	5.43	4.12e3	4.12e3	12.5	0.0	1.00
5	5 161230J1_07_P1_...	12.5	5.44	4.67e3	4.67e3	12.5	0.0	1.00
6	6 161230J1_08_P1_...	12.5	5.44	5.23e3	5.23e3	12.5	0.0	1.00
7	7 161230J1_09_P1_...	12.5	5.38	5.62e3	5.62e3	12.5	0.0	1.00

	Sample Name	Acquisition Date	Sample ID	Sample Comment
1	161230J1_01	12/30/2016 16:14:56	IPA	IPA
2	161230J1_02	12/30/2016 16:27:10	ST161230J1-1 PFC CS(-2) 16L3002	PFC CS(-2)16L3002 A
3	161230J1_03	12/30/2016 16:39:22	ST161230J1-2 PFC CS(-1) 16L3003	PFC CS(-1) 16L3003 A
4	161230J1_04	12/30/2016 16:51:36	ST161230J1-3 PFC CS0 16L3004	PFC CS0 16L3004 A
5	161230J1_05	12/30/2016 17:03:50	ST161230J1-4 PFC CS1 16L3005	PFC CS1 16L3005 A
6	161230J1_06	12/30/2016 17:16:05	ST161230J1-5 PFC CS2 16L3006	PFC CS2 16L3006 A
7	161230J1_07	12/30/2016 17:28:18	ST161230J1-6 PFC CS3 16L3007	PFC CS3 16L3007 A
8	161230J1_08	12/30/2016 17:40:32	ST161230J1-7 PFC CS4 16L3008	PFC CS4 16L3008 A
9	161230J1_09	12/30/2016 17:52:47	ST161230J1-8 PFC CS5 16L3009	PFC CS5 16L3009 A
10	161230J1_10	12/30/2016 18:05:03	IPA	IPA
11	161230J1_11	12/30/2016 18:17:17	SS161230J1-1 SSS PFC 16L2233	PFC SSS 16L2233 A
12	161230J1_12	12/30/2016 18:29:32	IPA	IPA
13	161230J1_13	12/30/2016 18:41:43	B6L0135-BS1	OPR
14	161230J1_14	12/30/2016 18:53:59	B6L0136-BS1	OPR
15	161230J1_15	12/30/2016 19:06:16	B6L0139-BS1	OPR
16	161230J1_16	12/30/2016 19:18:28	B6L0139-BSD1	LCS Dup
17	161230J1_17	12/30/2016 19:30:43	IPA	IPA
18	161230J1_18	12/30/2016 19:43:00	B6L0135-BLK1	Method Blank
19	161230J1_19	12/30/2016 19:55:13	B6L0136-BLK1	Method Blank
20	161230J1_20	12/30/2016 20:07:32	B6L0139-BLK1	Method Blank
21	161230J1_21	12/30/2016 20:19:47	1601580-01	BERPCA098
22	161230J1_22	12/30/2016 20:32:02	1601580-02	BERPCA097
23	161230J1_23	12/30/2016 20:44:15	1601580-03	BERPCA005
24	161230J1_24	12/30/2016 20:56:29	B6L0135-MS1	Matrix Spike
25	161230J1_25	12/30/2016 21:08:42	B6L0135-MSD1	Matrix Spike Dup
26	161230J1_26	12/30/2016 21:20:57	1601580-04	BERPCA096
27	161230J1_27	12/30/2016 21:33:11	1601572-01	MW-1002M
28	161230J1_28	12/30/2016 21:45:23	1601572-02	MW-1002D
29	161230J1_29	12/30/2016 21:57:38	1601572-03	MW-1003D
30	161230J1_30	12/30/2016 22:09:53	1601572-04	SW-205
31	161230J1_31	12/30/2016 22:22:05	1601572-05	MW-1005DD
32	161230J1_32	12/30/2016 22:34:20	1601572-06	MW-1001S
33	161230J1_33	12/30/2016 22:46:40	IPA	IPA
34	161230J1_34	12/30/2016 22:58:54	ST161230J1-9 PFC C3 16L3007	PFC C3 16L3007 A
35	161230J1_35	12/30/2016 23:11:08	IPA	IPA
36	161230J1_36	12/30/2016 23:23:22	1601572-07	MW-1004S
37	161230J1_37	12/30/2016 23:35:38	1601572-08	B-102D
38	161230J1_38	12/30/2016 23:47:50	1601572-09	PW-105
39	161230J1_39	12/31/2016 00:00:06	1601572-10	Field Blank
40	161230J1_40	12/31/2016 00:12:21	1601592-01	PFAS-SW10-121516
41	161230J1_41	12/31/2016 00:24:33	1601592-02	PFAS-SW11-121516
42	161230J1_42	12/31/2016 00:36:49	1601592-03	PFAS-SW12-121516
43	161230J1_43	12/31/2016 00:49:04	B6L0139-MS1	Matrix Spike
44	161230J1_44	12/31/2016 01:01:15	B6L0139-MSD1	Matrix Spike Dup
45	161230J1_45	12/31/2016 01:13:32	1601592-04	PFAS-SW13-121516
46	161230J1_46	12/31/2016 01:25:46	1601592-05	PFAS-SW18-121516
47	161230J1_47	12/31/2016 01:38:01	1601592-06	PFAS-WS-DUP5-121516
48	161230J1_48	12/31/2016 01:50:13	1601592-07	EB5-WS-121516
49	161230J1_49	12/31/2016 02:02:28	IPA	IPA
50	161230J1_50	12/31/2016 02:14:42	ST161230J1-10 PFC C3 16L3007	PFC C3 16L3007 A
51	161230J1_51	12/31/2016 02:26:56	IPA	IPA
52	161230J1_52	12/31/2016 02:39:11	1601592-08	PFAS-SRA-MW10-601S-121916
53	161230J1_53	12/31/2016 02:51:26	1601592-09	PFAS-SRA-OMW-09S-121916
54	161230J1_54	12/31/2016 03:03:42	B6L0139-MS2	Matrix Spike
55	161230J1_55	12/31/2016 03:15:57	B6L0139-MSD2	Matrix Spike Dup
56	161230J1_56	12/31/2016 03:28:10	1601592-10	PFAS-WG-DUP5-121916
57	161230J1_57	12/31/2016 03:40:24	1601592-11	PFAS-CH-108-MW02-121916

	Sample Name	Acquisition Date	Sample ID	Sample Comment
58	161230J1_58	12/31/2016 03:52:39	1601592-12	EB5-WG-121916
59	161230J1_59	12/31/2016 04:04:56	1601592-13	PFAS-SL-MW-25-122016
60	161230J1_60	12/31/2016 04:17:07	1601592-14	EB6-WG-122016
61	161230J1_61	12/31/2016 04:29:23	IPA	IPA
62	161230J1_62	12/31/2016 04:41:39	ST161230J1-11 PFC C3 16L3007	PFC C3 16L3007 A
63	161230J1_63	12/31/2016 04:53:52	IPA	IPA

Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

Last Altered: Tuesday, January 03, 2017 12:10:12 Pacific Standard Time

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Method: U:\Q2.PRO\MethDB\PFC List 18_A No4-2FTS_Mixed.mdb 28 Dec 2016 09:59:56

Calibration: U:\Q2.PRO\CurveDB\C18_VAL-PFC_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12

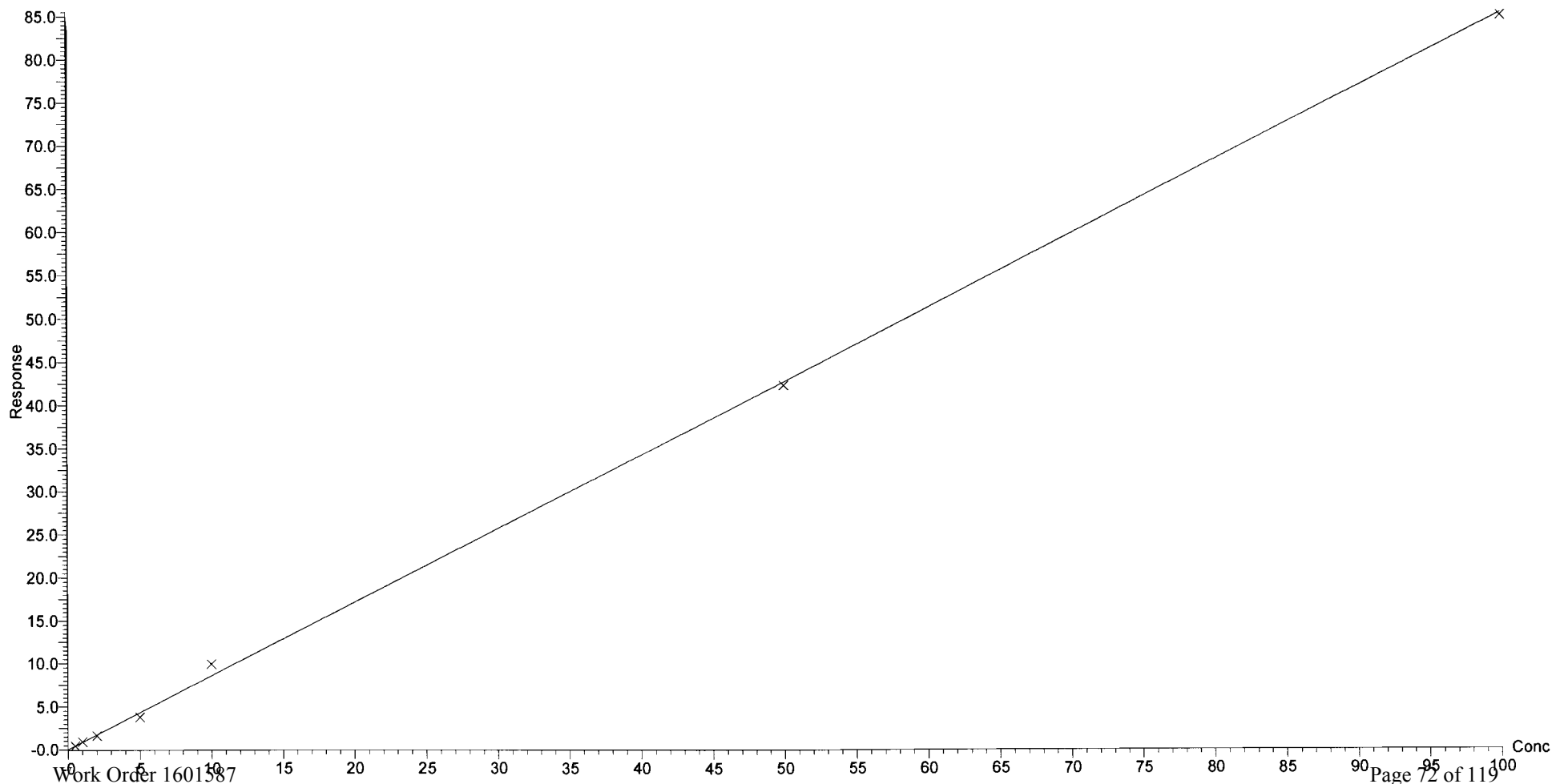
Compound name: PFBS

Correlation coefficient: $r = 0.998927$, $r^2 = 0.997855$

Calibration curve: $0.855623 * x + 0.00992739$

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

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



Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

Last Altered: Tuesday, January 03, 2017 12:10:12 Pacific Standard Time

Printed: Tuesday, January 03, 2017 12:18:28 Pacific Standard Time

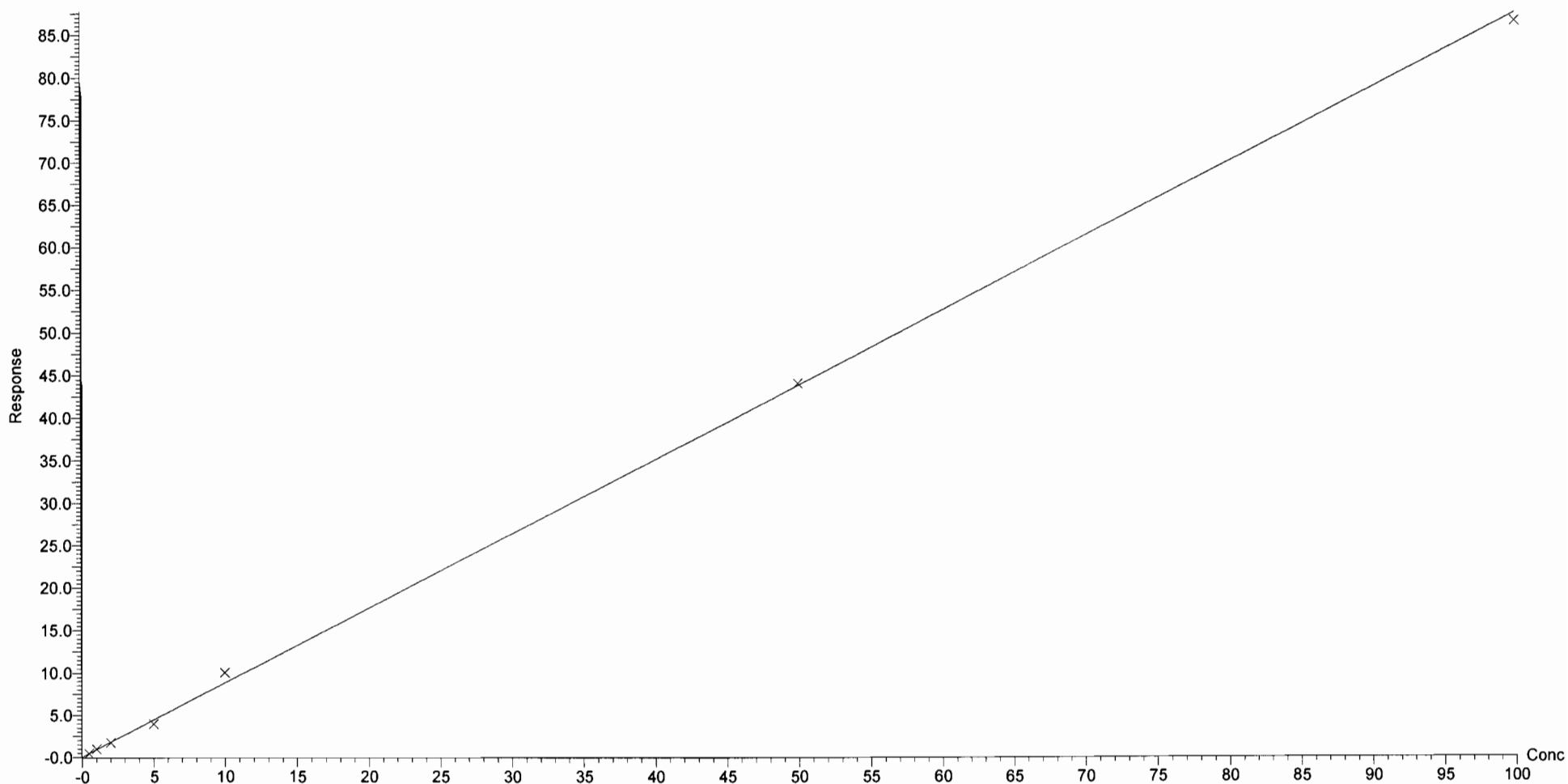
Compound name: PFHpA

Correlation coefficient: $r = 0.999132$, $r^2 = 0.998264$

Calibration curve: $0.876647 * x + 0.0429082$

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\161230J1\161230J1_crv.qld

Last Altered: Tuesday, January 03, 2017 12:10:12 Pacific Standard Time

Printed: Tuesday, January 03, 2017 12:18:28 Pacific Standard Time

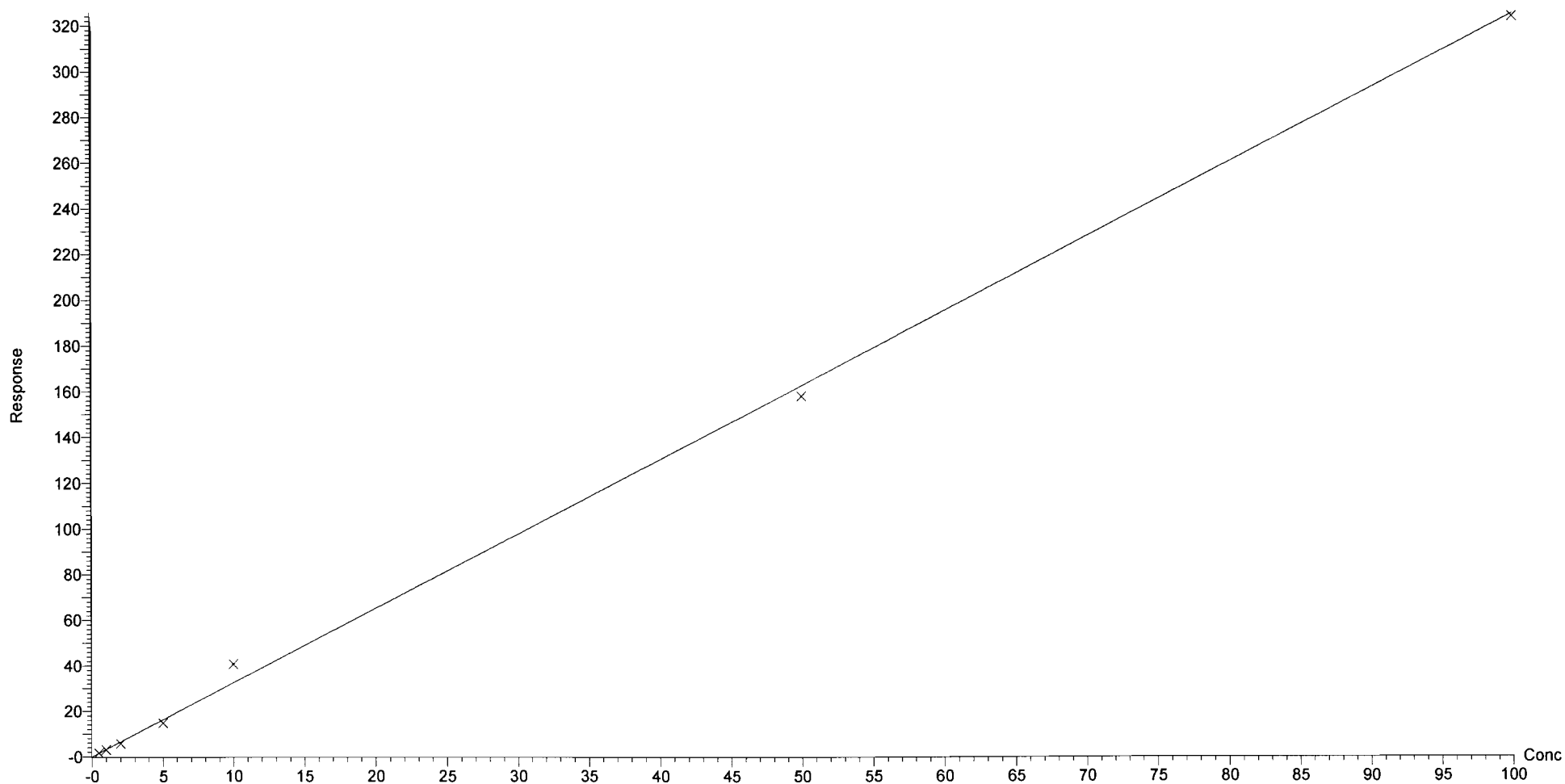
Compound name: PFHxS

Correlation coefficient: $r = 0.997665$, $r^2 = 0.995335$

Calibration curve: $3.25854 * x + -0.0420521$

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

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



Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

Last Altered: Tuesday, January 03, 2017 12:10:12 Pacific Standard Time

Printed: Tuesday, January 03, 2017 12:18:28 Pacific Standard Time

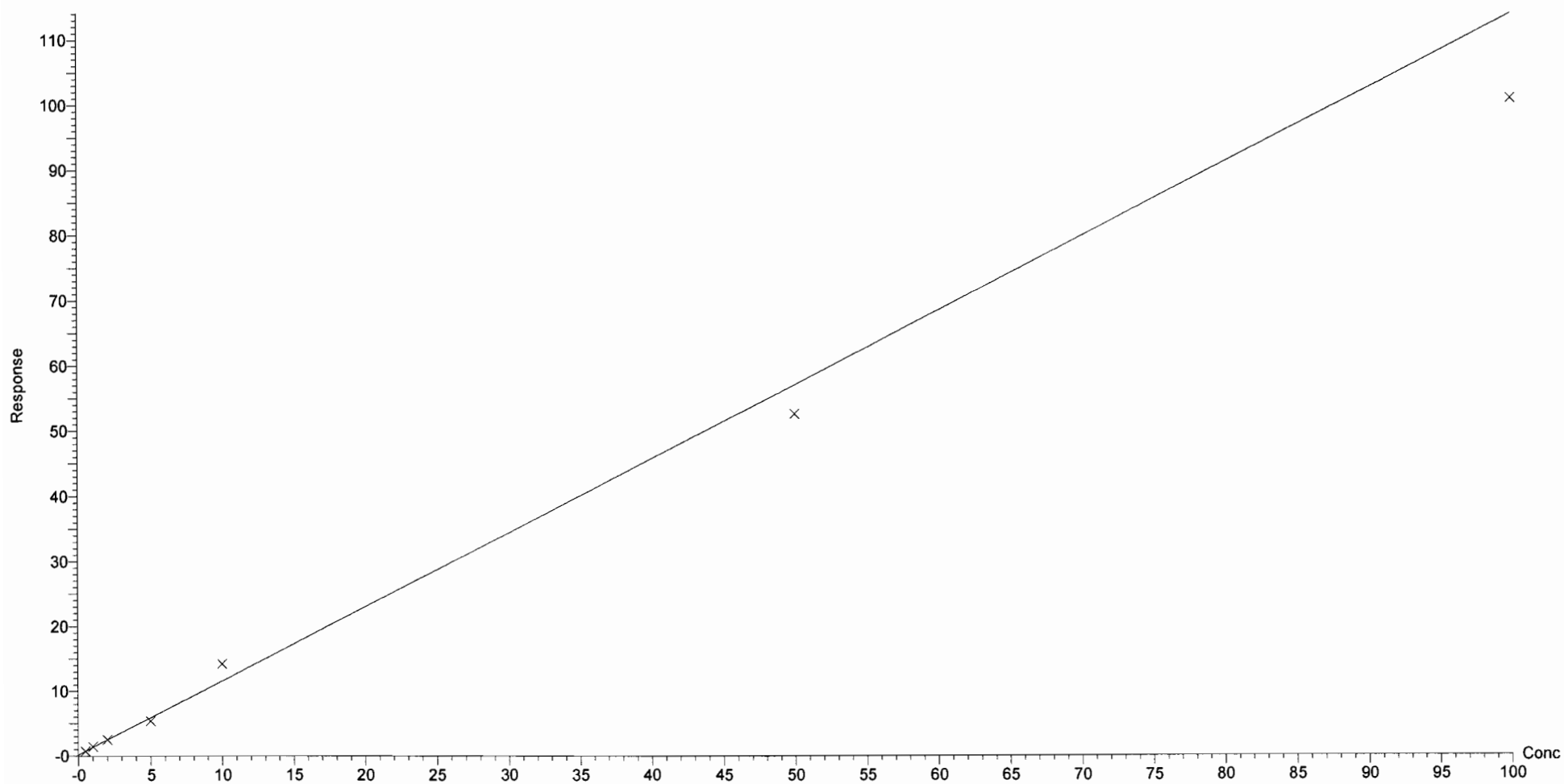
Compound name: PFOA

Correlation coefficient: $r = 0.989405$, $r^2 = 0.978922$

Calibration curve: $1.13962 * x + 0.159608$

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

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



Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

Last Altered: Tuesday, January 03, 2017 12:10:12 Pacific Standard Time

Printed: Tuesday, January 03, 2017 12:18:28 Pacific Standard Time

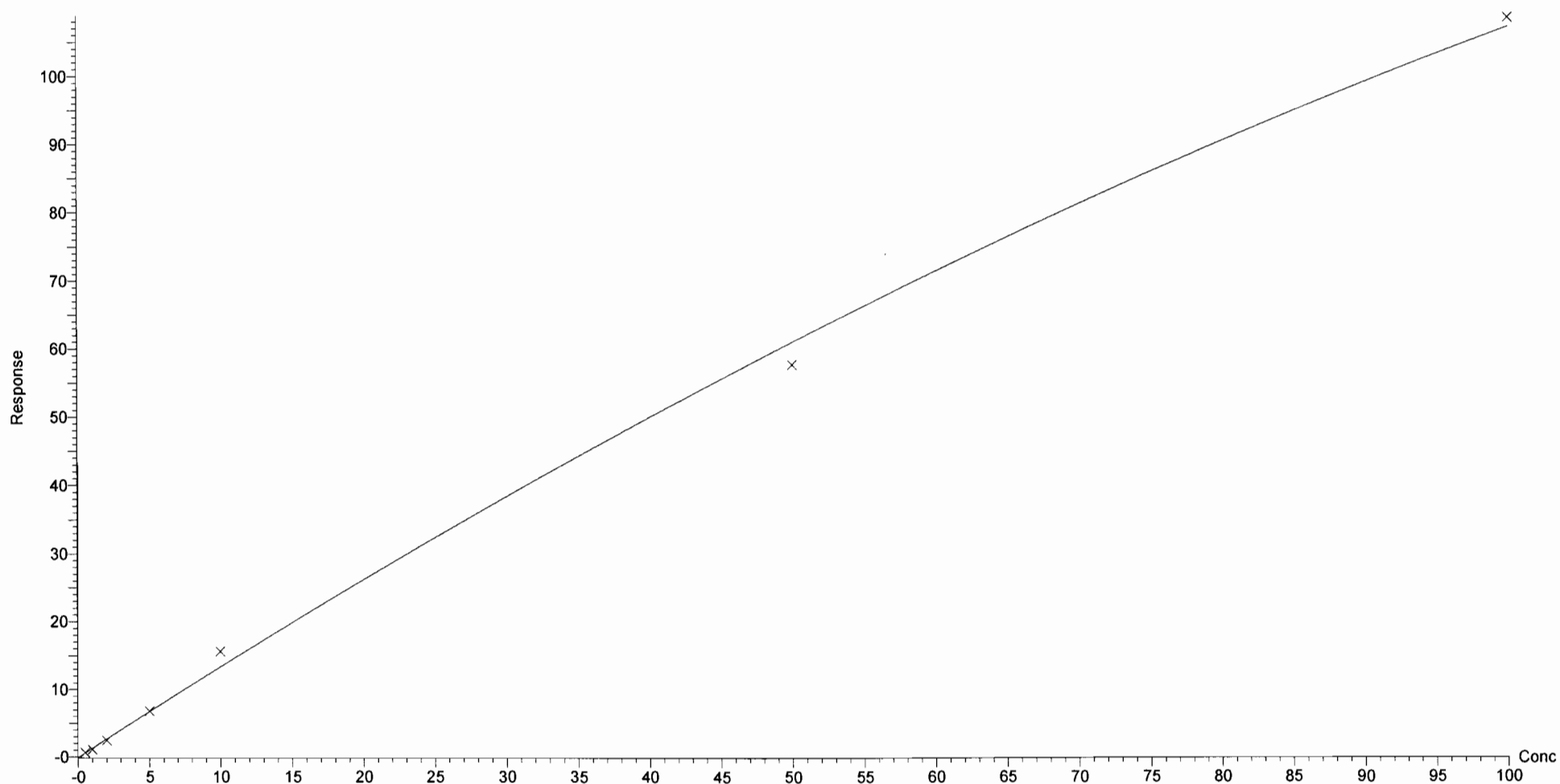
Compound name: PFNA

Coefficient of Determination: $R^2 = 0.981997$

Calibration curve: $-0.00296671 * x^2 + 1.37252 * x + -0.0977715$

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

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



Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

Last Altered: Tuesday, January 03, 2017 12:10:12 Pacific Standard Time

Printed: Tuesday, January 03, 2017 12:18:28 Pacific Standard Time

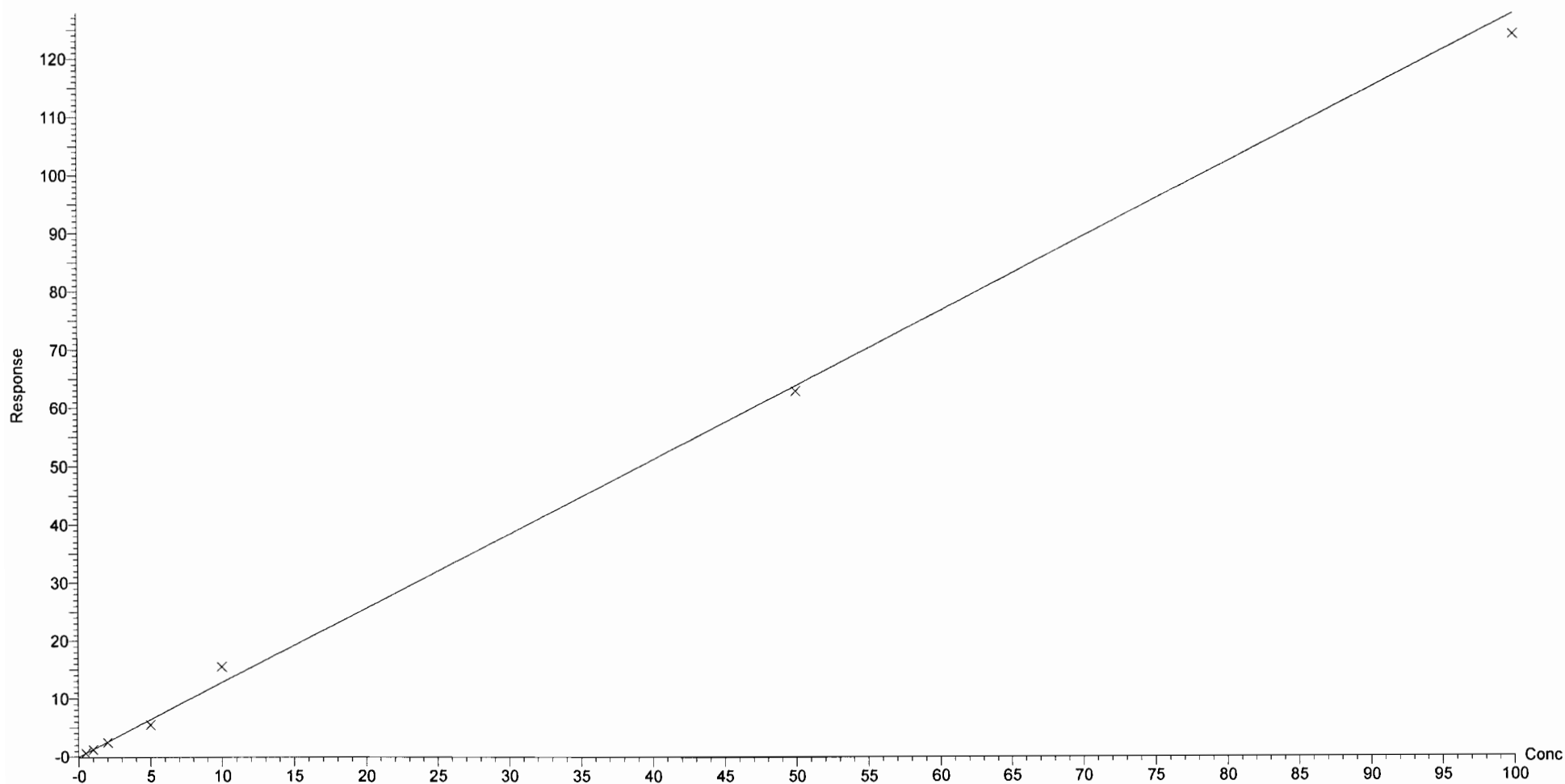
Compound name: PFOS

Correlation coefficient: $r = 0.991898$, $r^2 = 0.983862$

Calibration curve: $1.27905 * x + -0.0382753$

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

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



Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

Last Altered: Tuesday, January 03, 2017 12:10:12 Pacific Standard Time

Printed: Tuesday, January 03, 2017 12:18:28 Pacific Standard Time

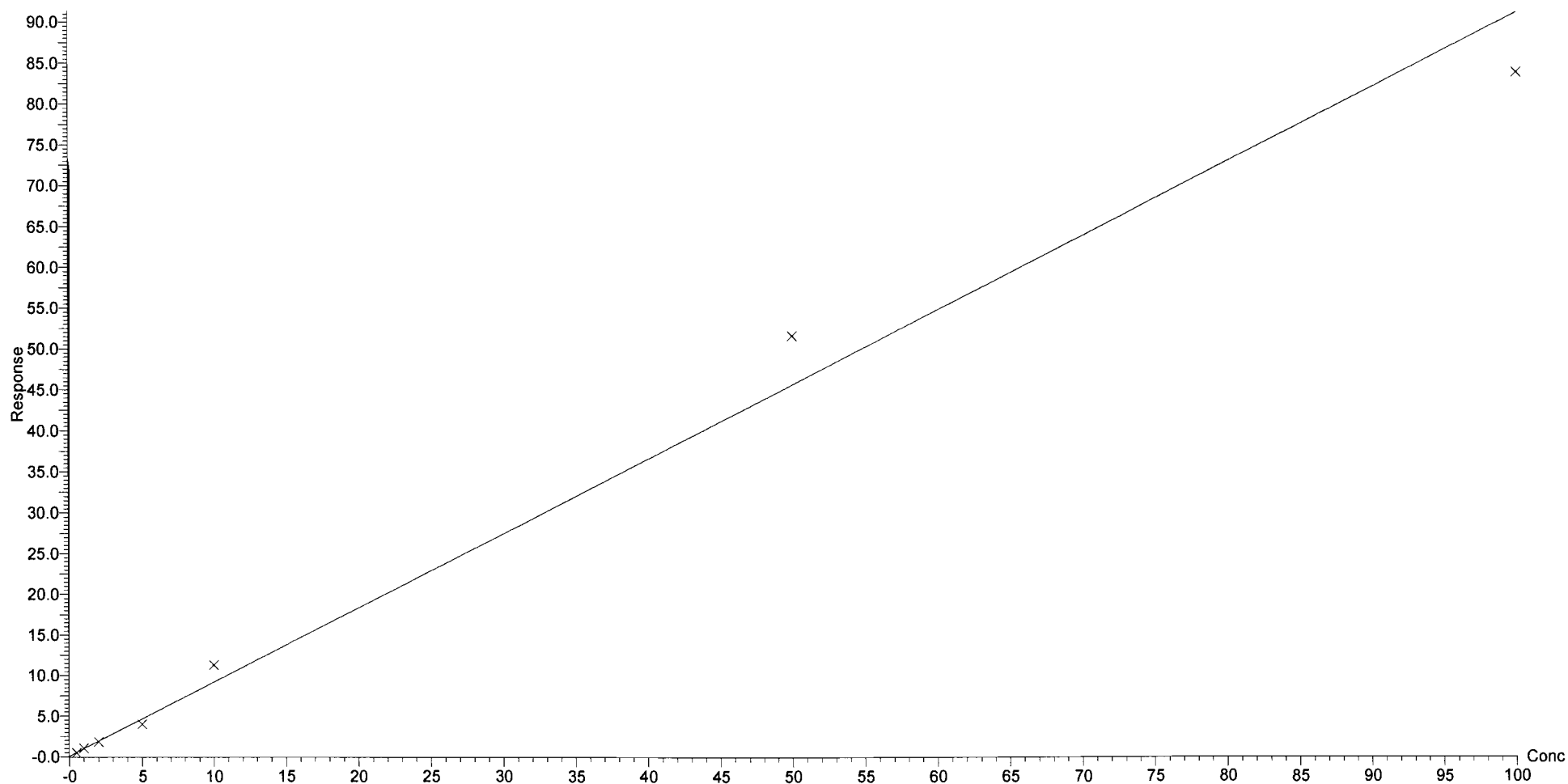
Compound name: PFDA

Correlation coefficient: $r = 0.993155$, $r^2 = 0.986357$

Calibration curve: $0.913037 * x + 0.0647081$

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

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



Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

Last Altered: Tuesday, January 03, 2017 12:10:12 Pacific Standard Time

Printed: Tuesday, January 03, 2017 12:12:01 Pacific Standard Time

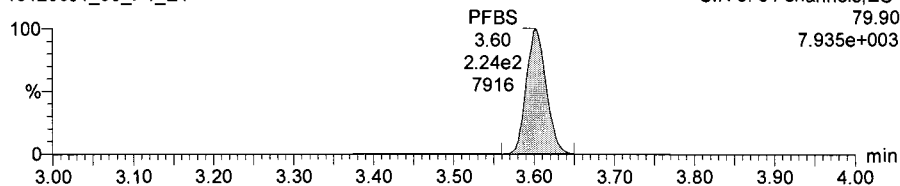
Method: U:\Q2.PRO\MethDB\PFC List 18_A No4-2FTS_Mixed.mdb 28 Dec 2016 09:59:56

Calibration: U:\Q2.PRO\CurveDB\C18_VAL-PFC_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12

Name: 161230J1_03.wiff, Date: 30-Dec-2016, Time: 08:39:22, ID: , Description:

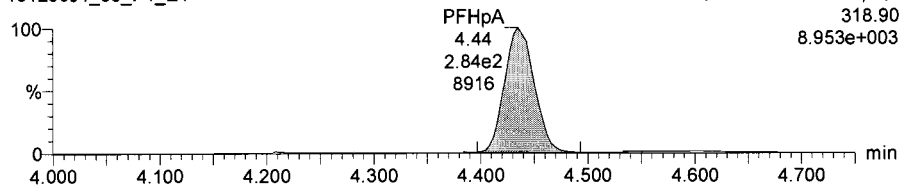
PFBS

161230J1_03_P1_E1



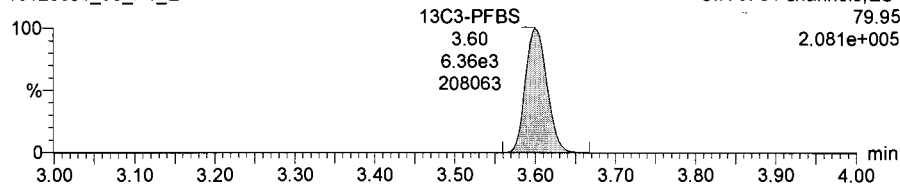
PFHpA

161230J1_03_P1_E1



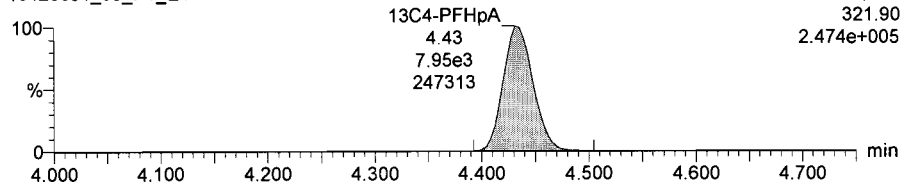
13C3-PFBS

161230J1_03_P1_E1



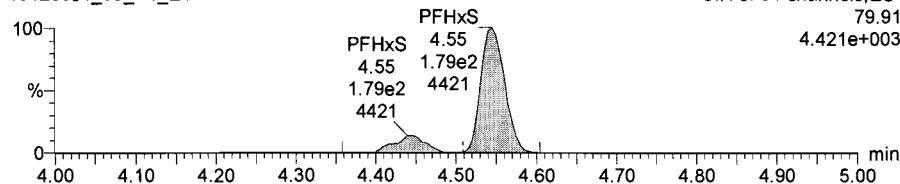
13C4-PFHpA

161230J1_03_P1_E1



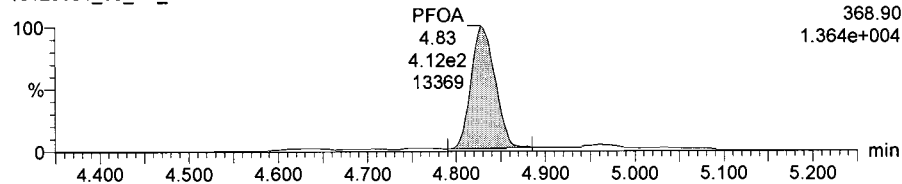
PFHxS

161230J1_03_P1_E1



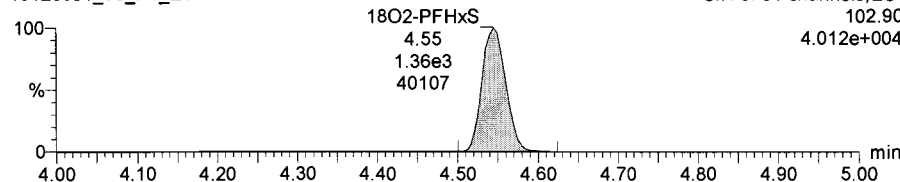
PFOA

161230J1_03_P1_E1



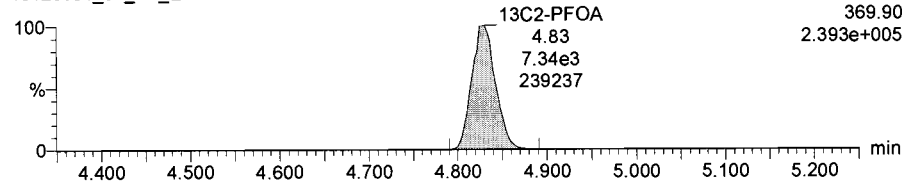
18O2-PFHxS

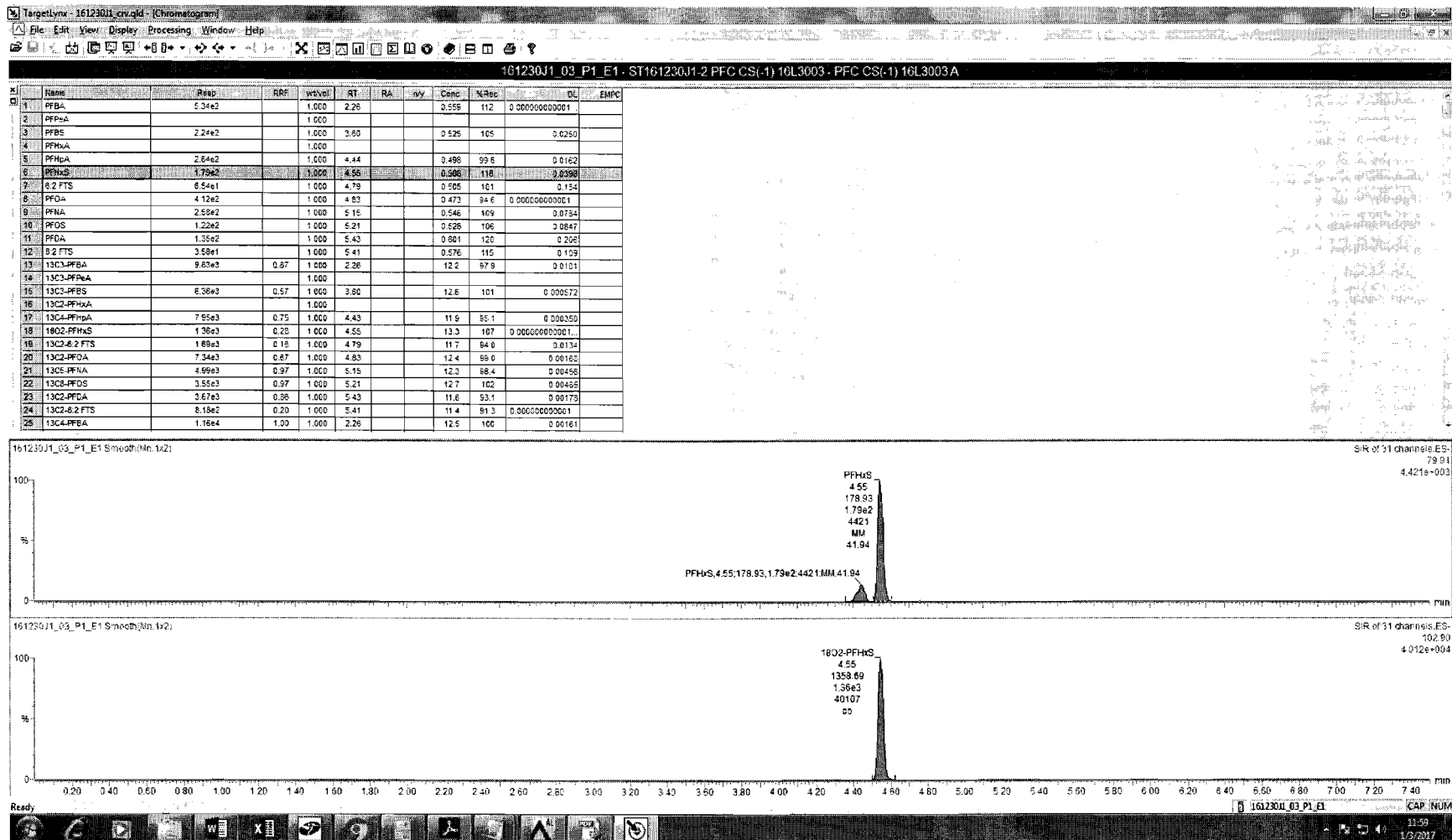
161230J1_03_P1_E1



13C2-PFOA

161230J1_03_P1_E1





Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

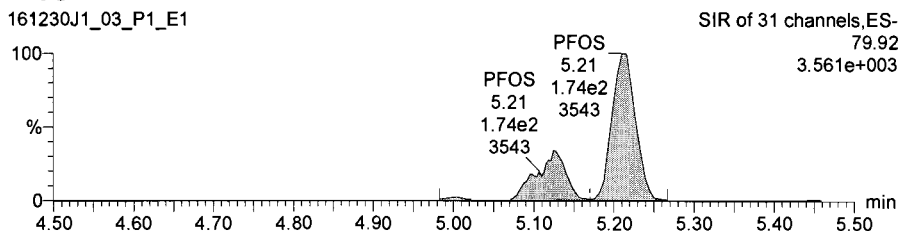
Last Altered: Tuesday, January 03, 2017 12:10:12 Pacific Standard Time

Printed: Tuesday, January 03, 2017 12:12:01 Pacific Standard Time

Name: 161230J1_03.wiff, Date: 30-Dec-2016, Time: 08:39:22, ID: , Description:

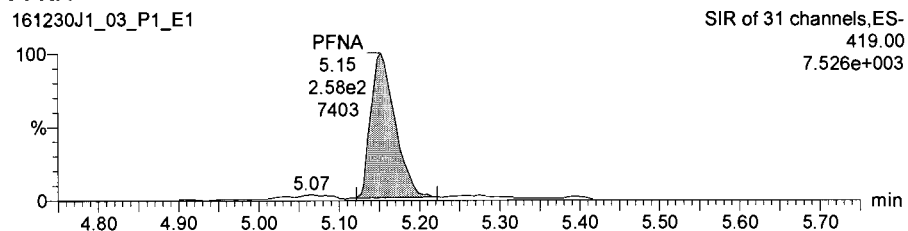
PFOS

161230J1_03_P1_E1



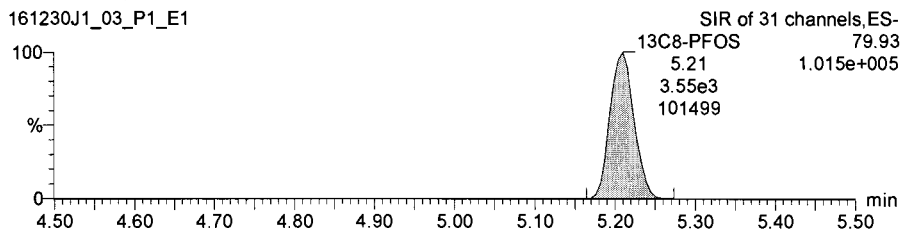
PFNA

161230J1_03_P1_E1



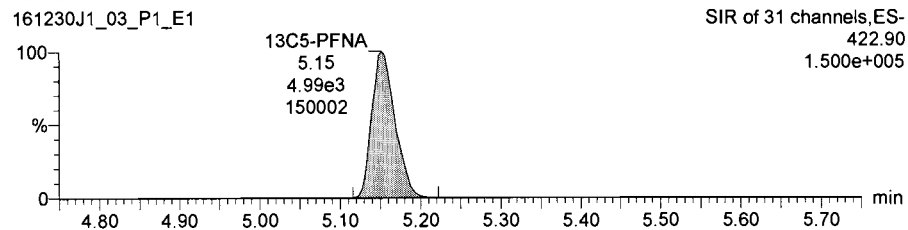
13C8-PFOS

161230J1_03_P1_E1



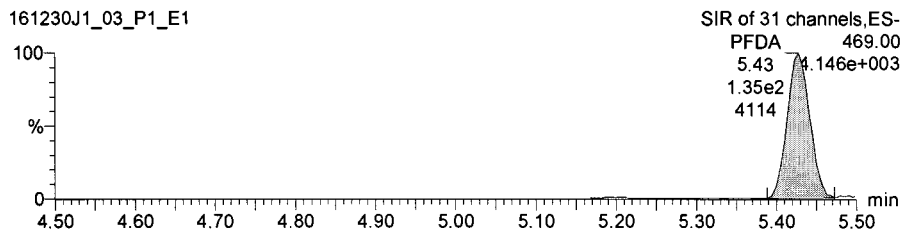
13C5-PFNA

161230J1_03_P1_E1



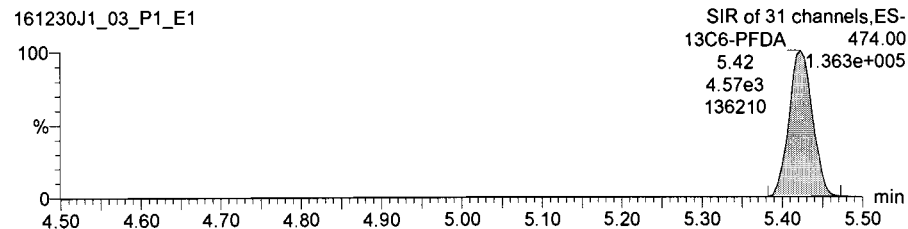
PFDA

161230J1_03_P1_E1



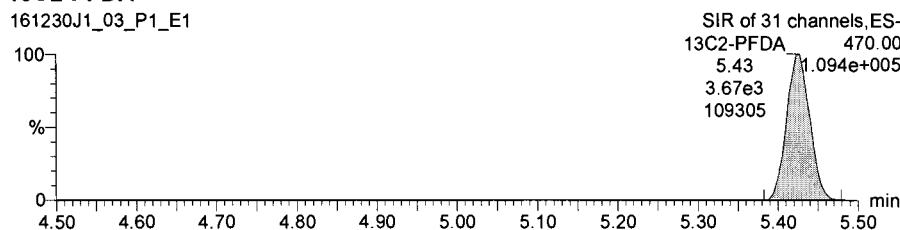
13C6-PFDA

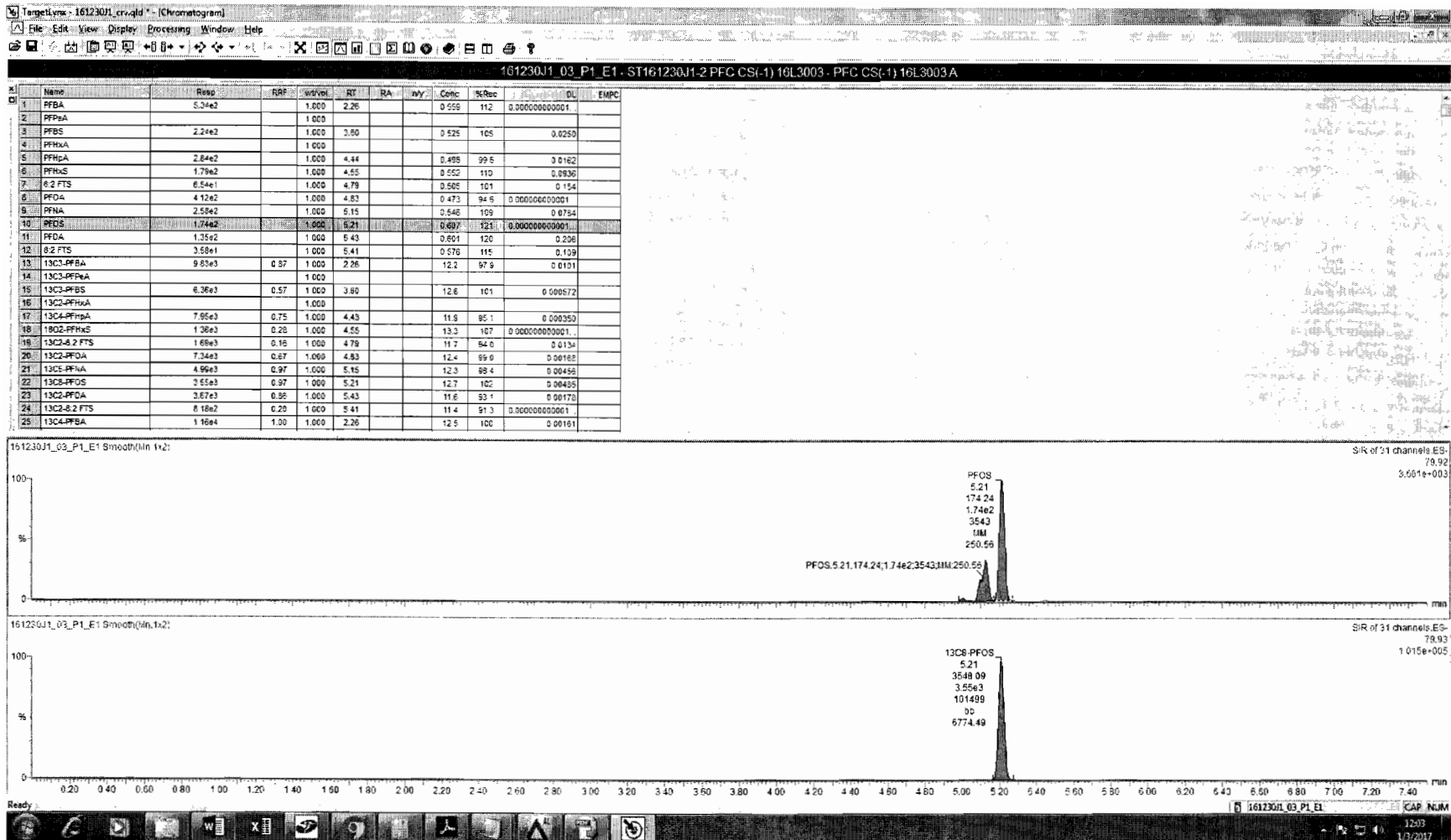
161230J1_03_P1_E1



13C2-PFDA

161230J1_03_P1_E1





Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

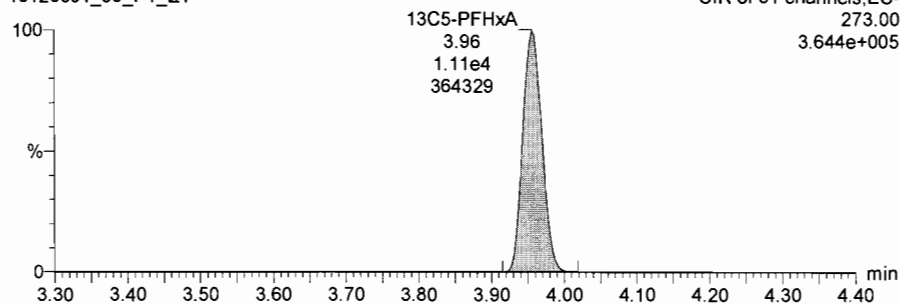
Last Altered: Tuesday, January 03, 2017 12:10:12 Pacific Standard Time

Printed: Tuesday, January 03, 2017 12:12:01 Pacific Standard Time

Name: 161230J1_03.wiff, Date: 30-Dec-2016, Time: 08:39:22, ID: , Description:

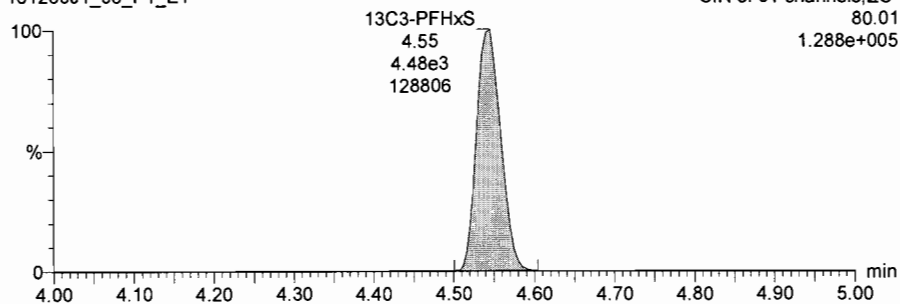
13C5-PFHxA

161230J1_03_P1_E1



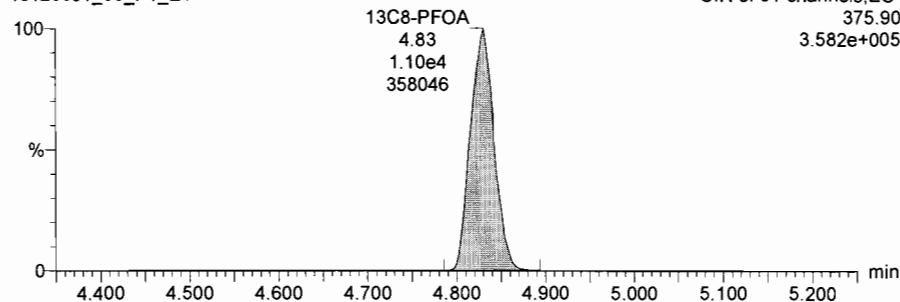
13C3-PFHxS

161230J1_03_P1_E1



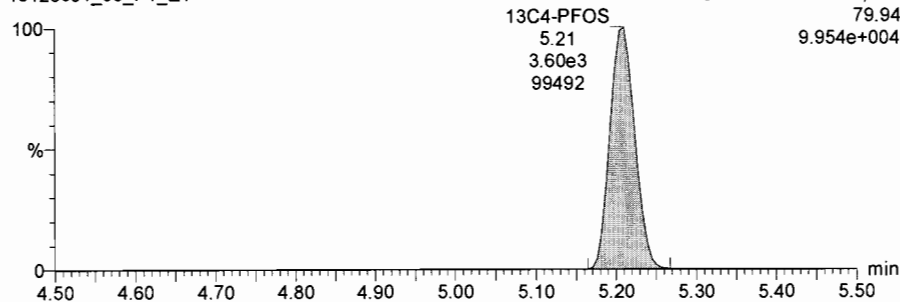
13C8-PFOA

161230J1_03_P1_E1



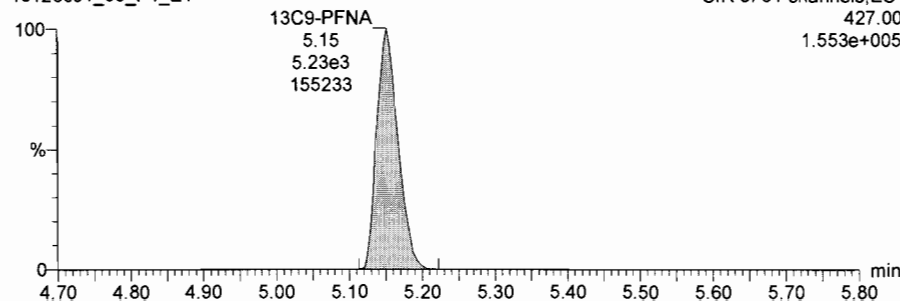
13C4-PFOS

161230J1_03_P1_E1



13C9-PFNA

161230J1_03_P1_E1



Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

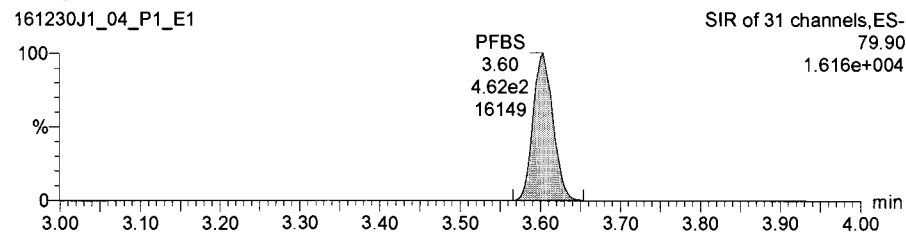
Last Altered: Tuesday, January 03, 2017 12:10:12 Pacific Standard Time

Printed: Tuesday, January 03, 2017 12:12:01 Pacific Standard Time

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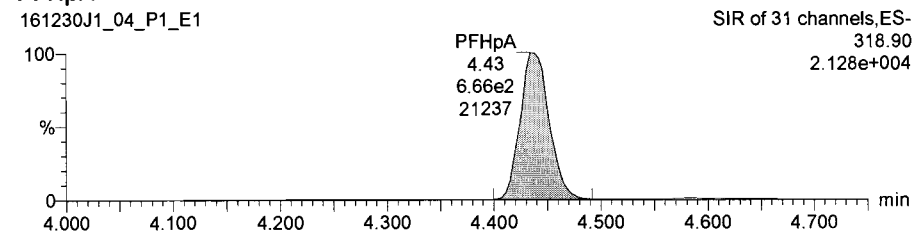
PFBS

161230J1_04_P1_E1



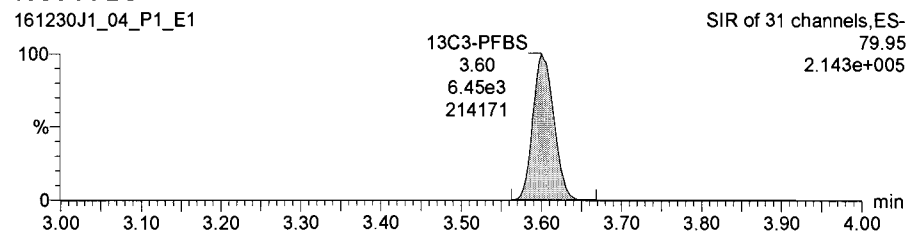
PFHpA

161230J1_04_P1_E1



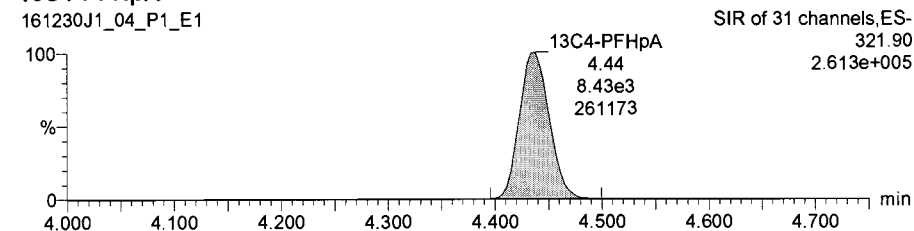
13C3-PFBS

161230J1_04_P1_E1



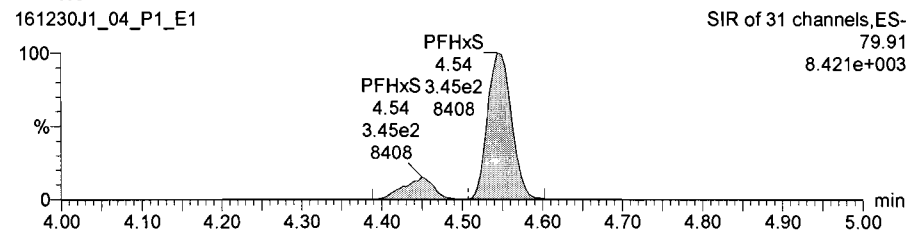
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161230J1_04_P1_E1



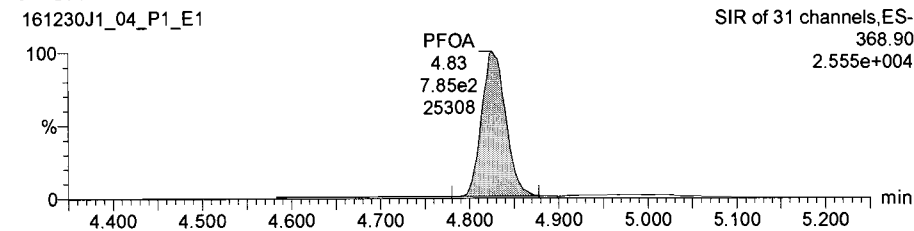
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161230J1_04_P1_E1



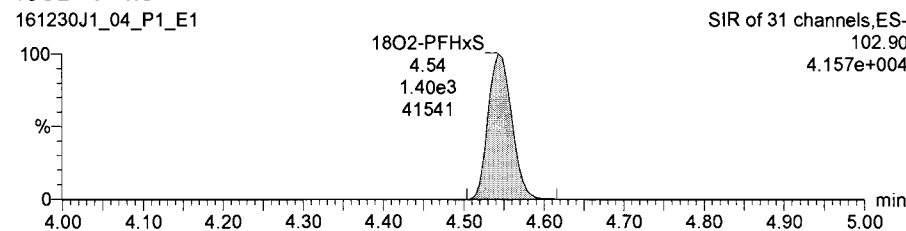
PFOA

161230J1_04_P1_E1



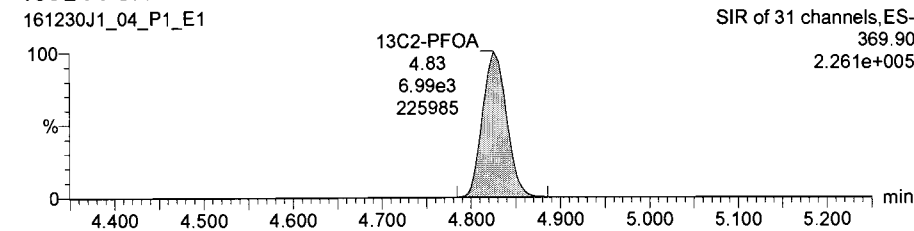
18O2-PFHxS

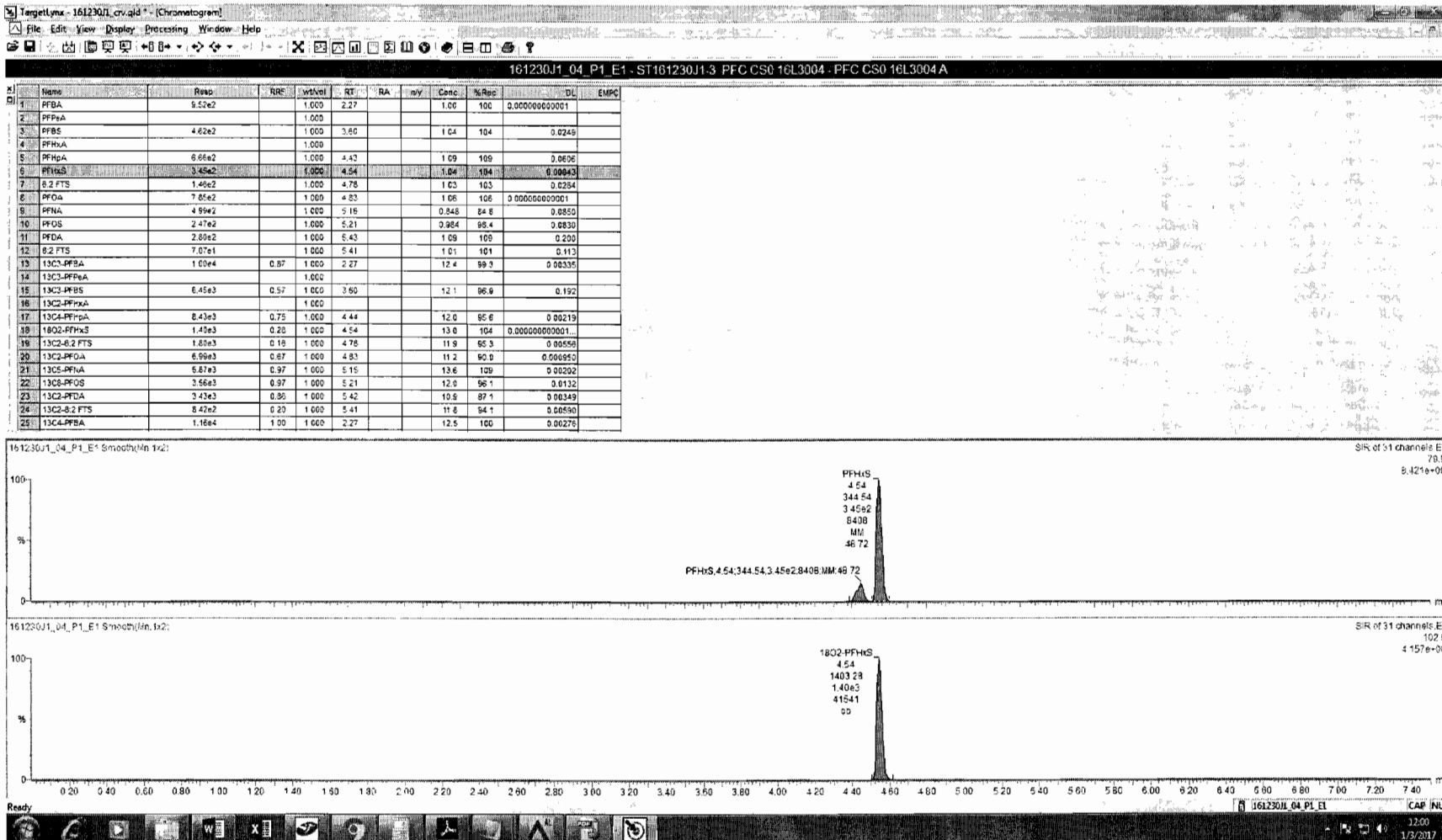
161230J1_04_P1_E1



13C2-PFOA

161230J1_04_P1_E1





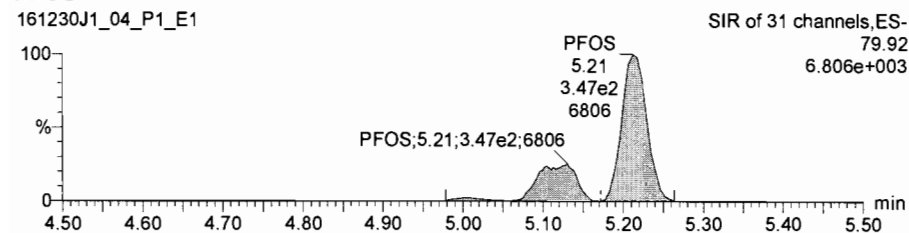
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Last Altered: Tuesday, January 03, 2017 12:10:12 Pacific Standard Time

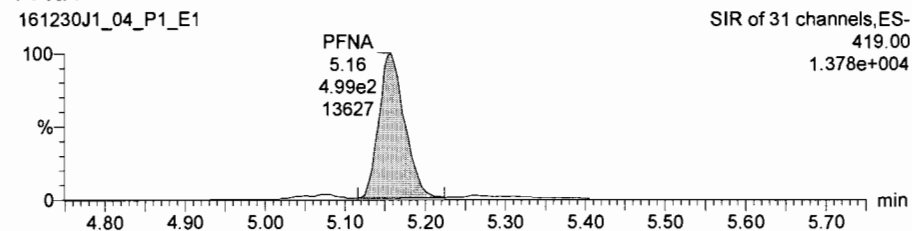
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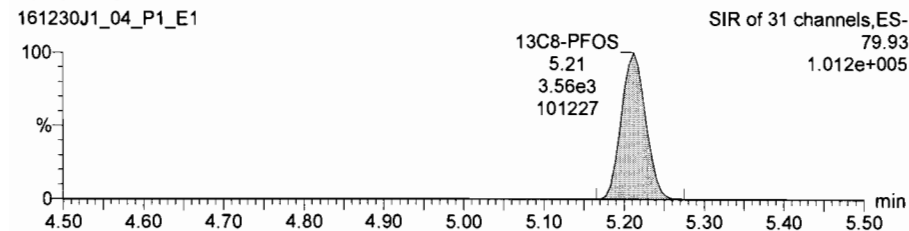
PFOS



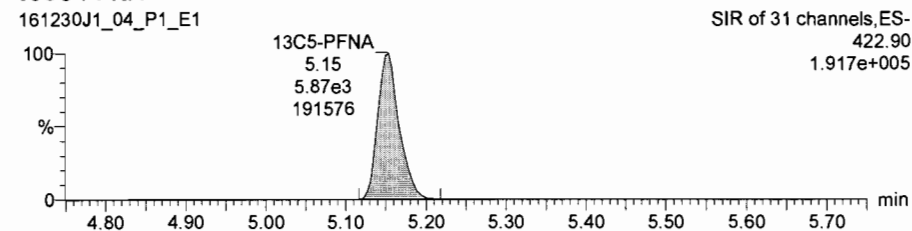
PFNA



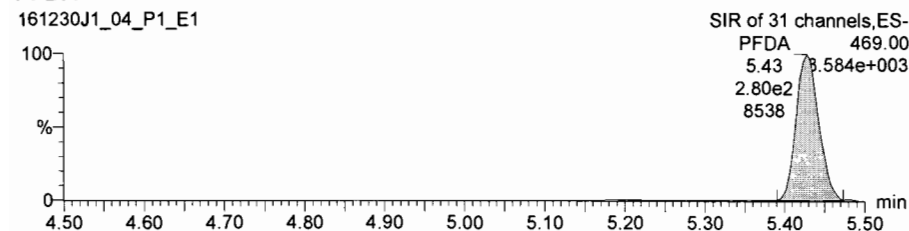
13C8-PFOS



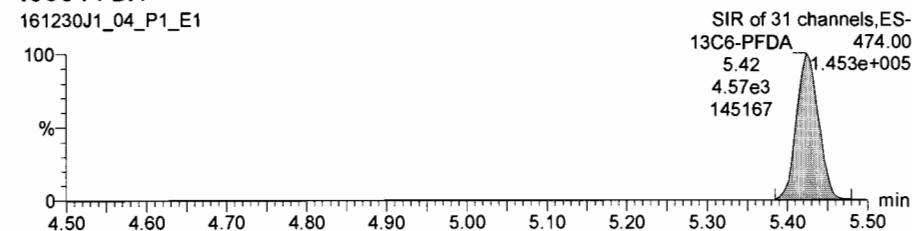
13C5-PFNA



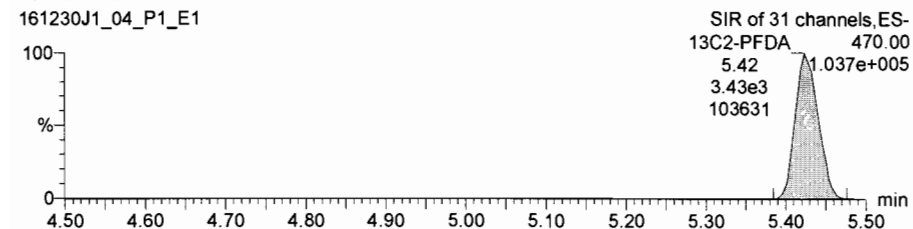
PFDA

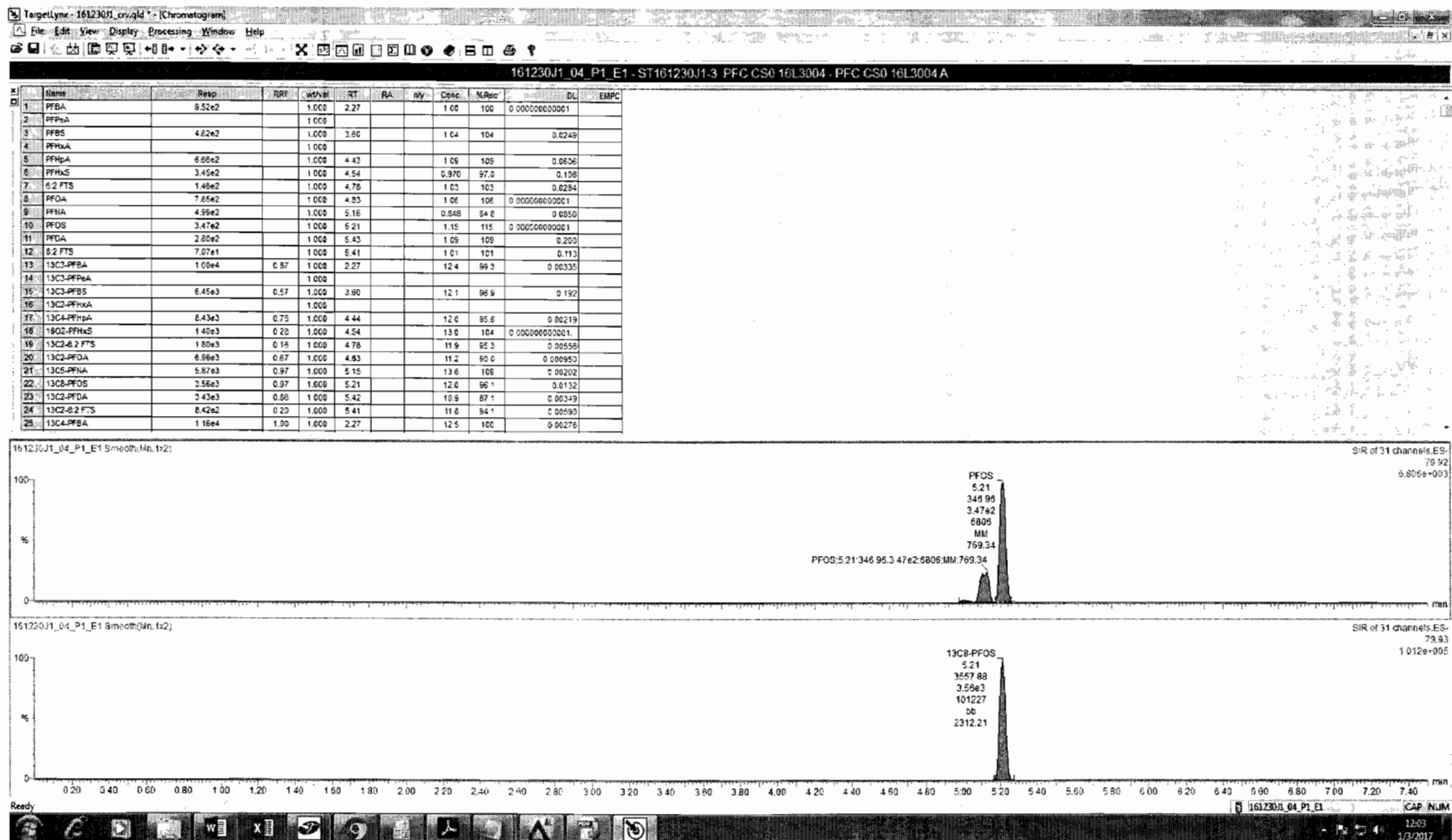


13C6-PFDA



13C2-PFDA





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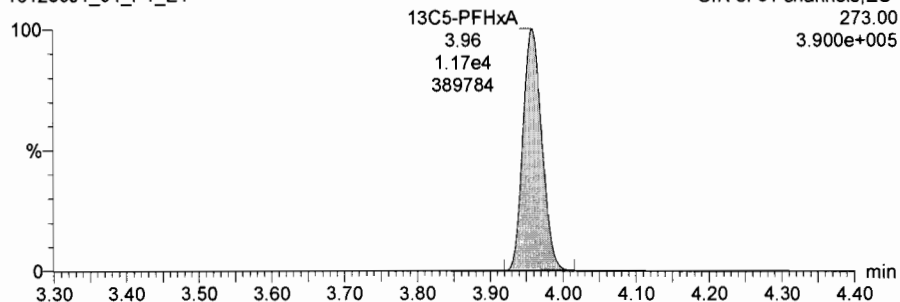
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13C5-PFHxA

161230J1_04_P1_E1

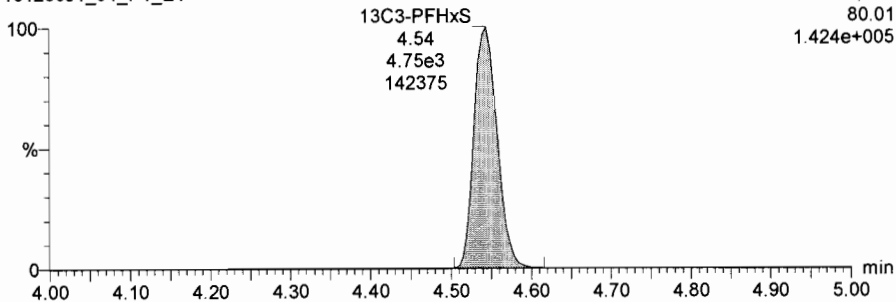
SIR of 31 channels, ES-
273.00
3.900e+005



13C3-PFHxS

161230J1_04_P1_E1

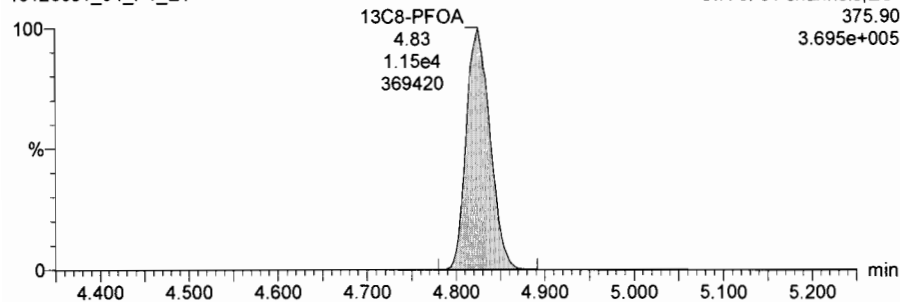
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1.424e+005



13C8-PFOA

161230J1_04_P1_E1

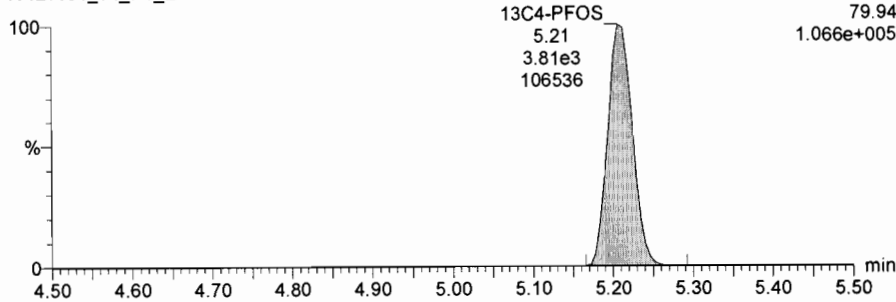
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3.695e+005



13C4-PFOS

161230J1_04_P1_E1

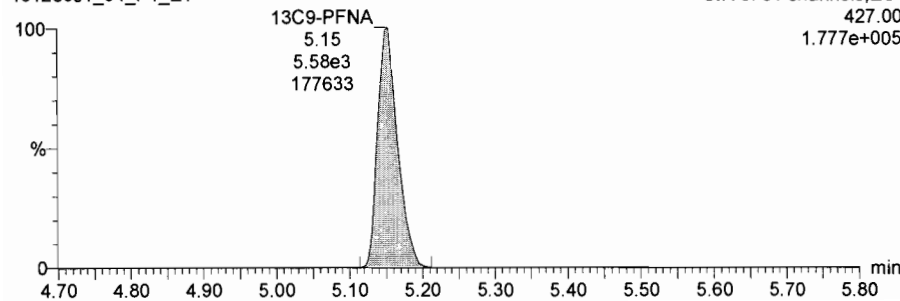
SIR of 31 channels, ES-
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1.066e+005



13C9-PFNA

161230J1_04_P1_E1

SIR of 31 channels, ES-
427.00
1.777e+005



Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

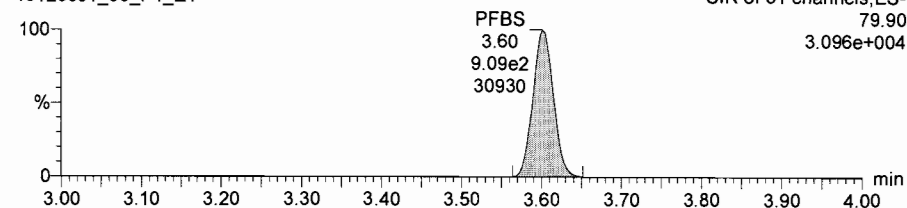
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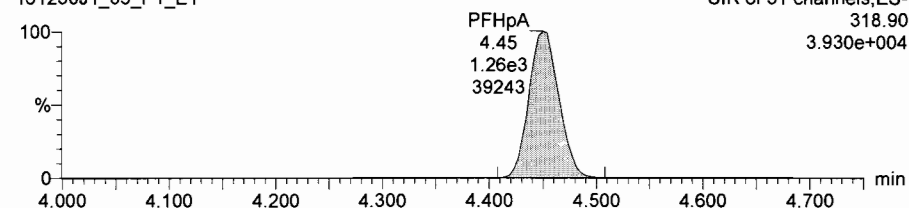
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161230J1_05_P1_E1



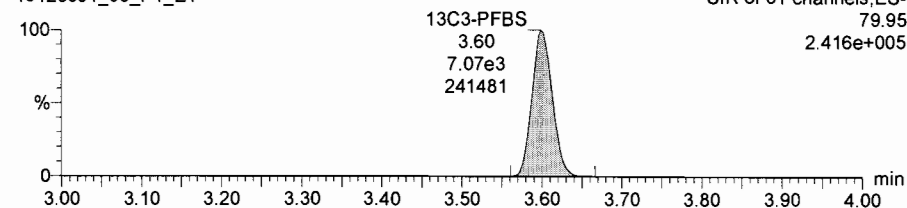
PFHpA

161230J1_05_P1_E1



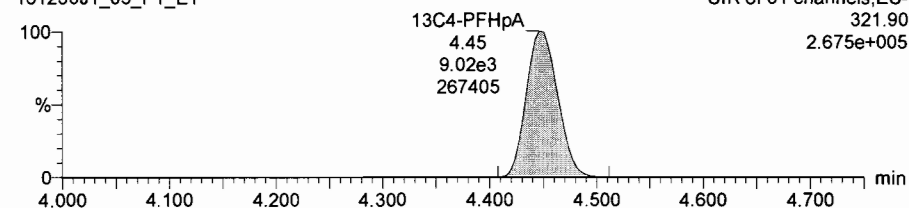
13C3-PFBS

161230J1_05_P1_E1



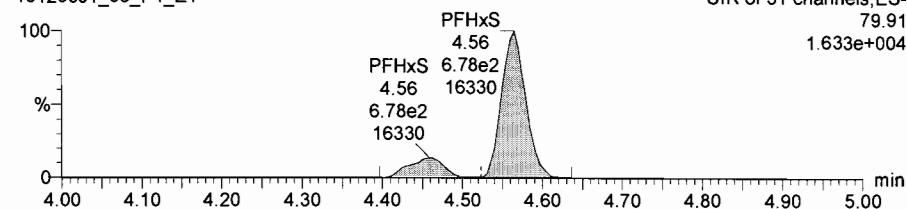
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161230J1_05_P1_E1



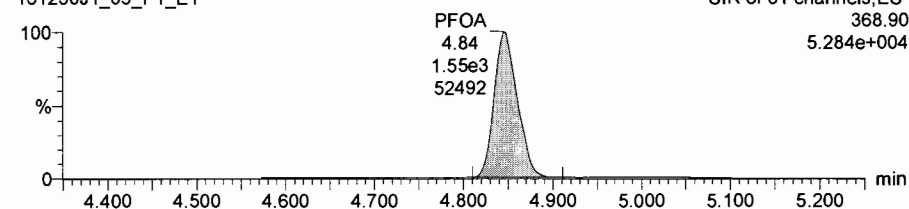
PFHxS

161230J1_05_P1_E1



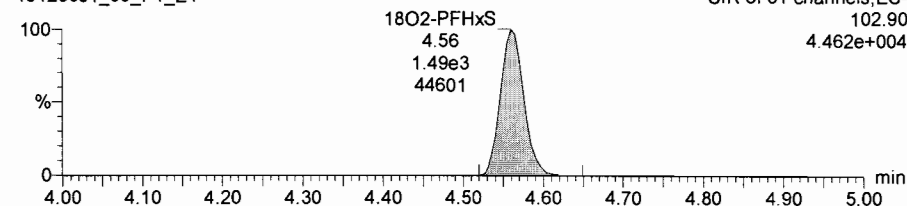
PFOA

161230J1_05_P1_E1



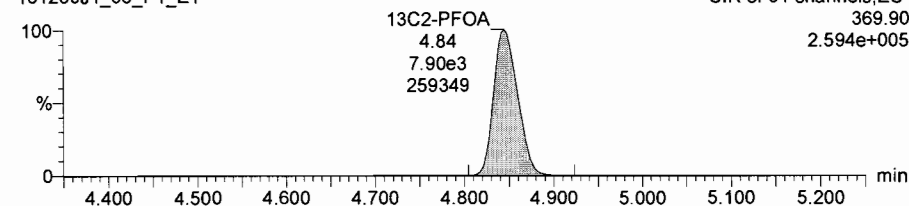
18O2-PFHxS

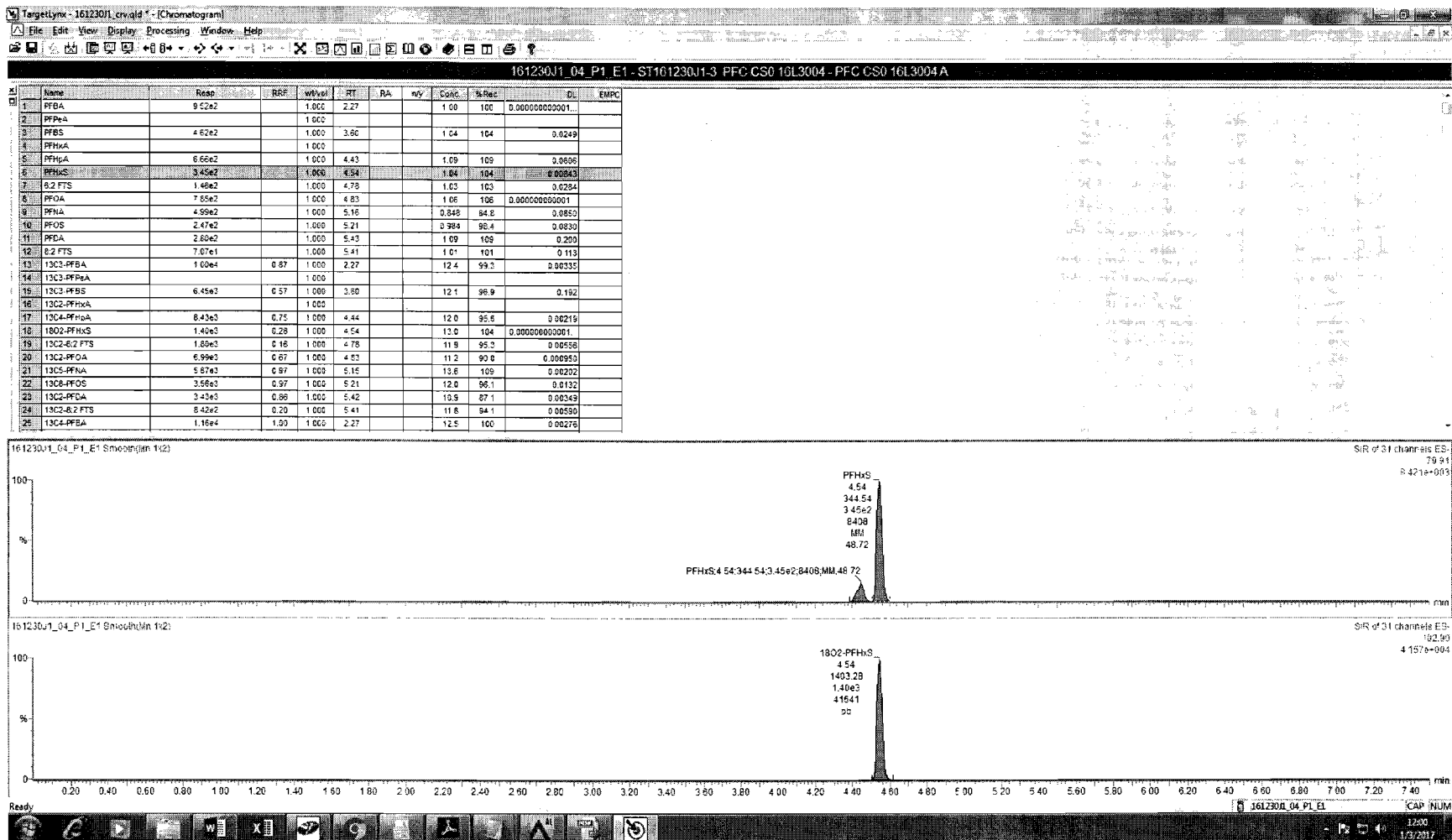
161230J1_05_P1_E1



13C2-PFOA

161230J1_05_P1_E1





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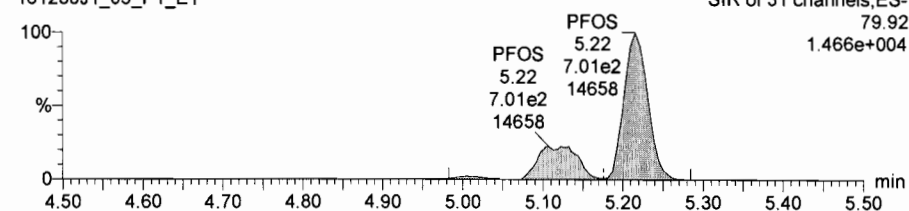
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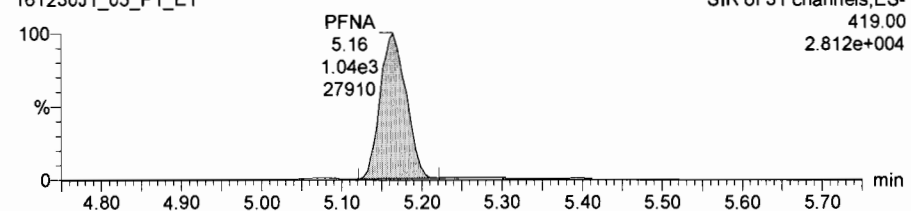
PFOS

161230J1_05_P1_E1



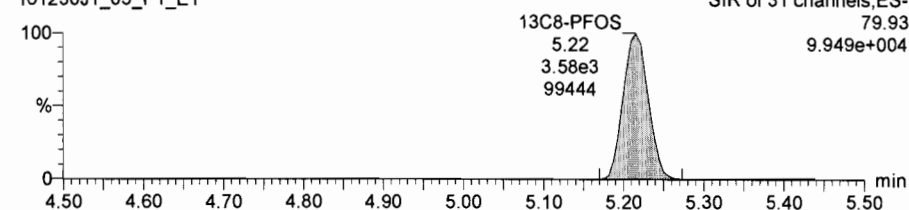
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161230J1_05_P1_E1



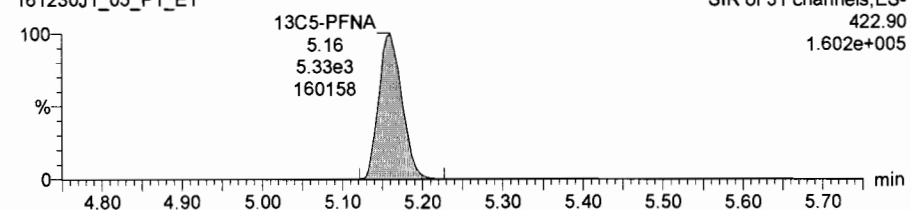
13C8-PFOS

161230J1_05_P1_E1



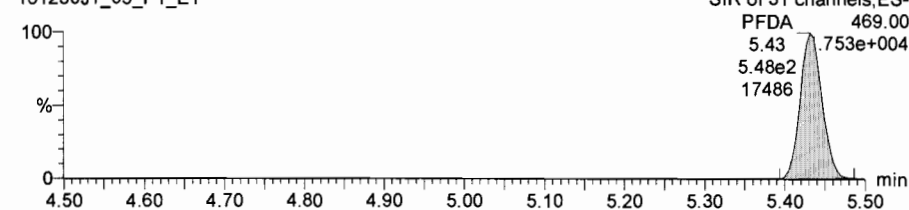
13C5-PFNA

161230J1_05_P1_E1



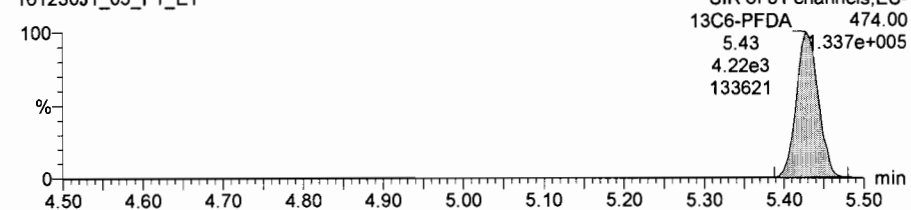
PFDA

161230J1_05_P1_E1



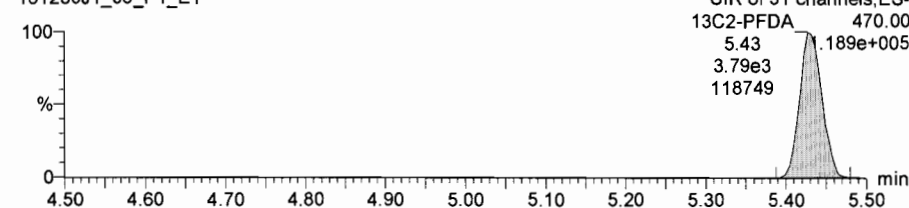
13C6-PFDA

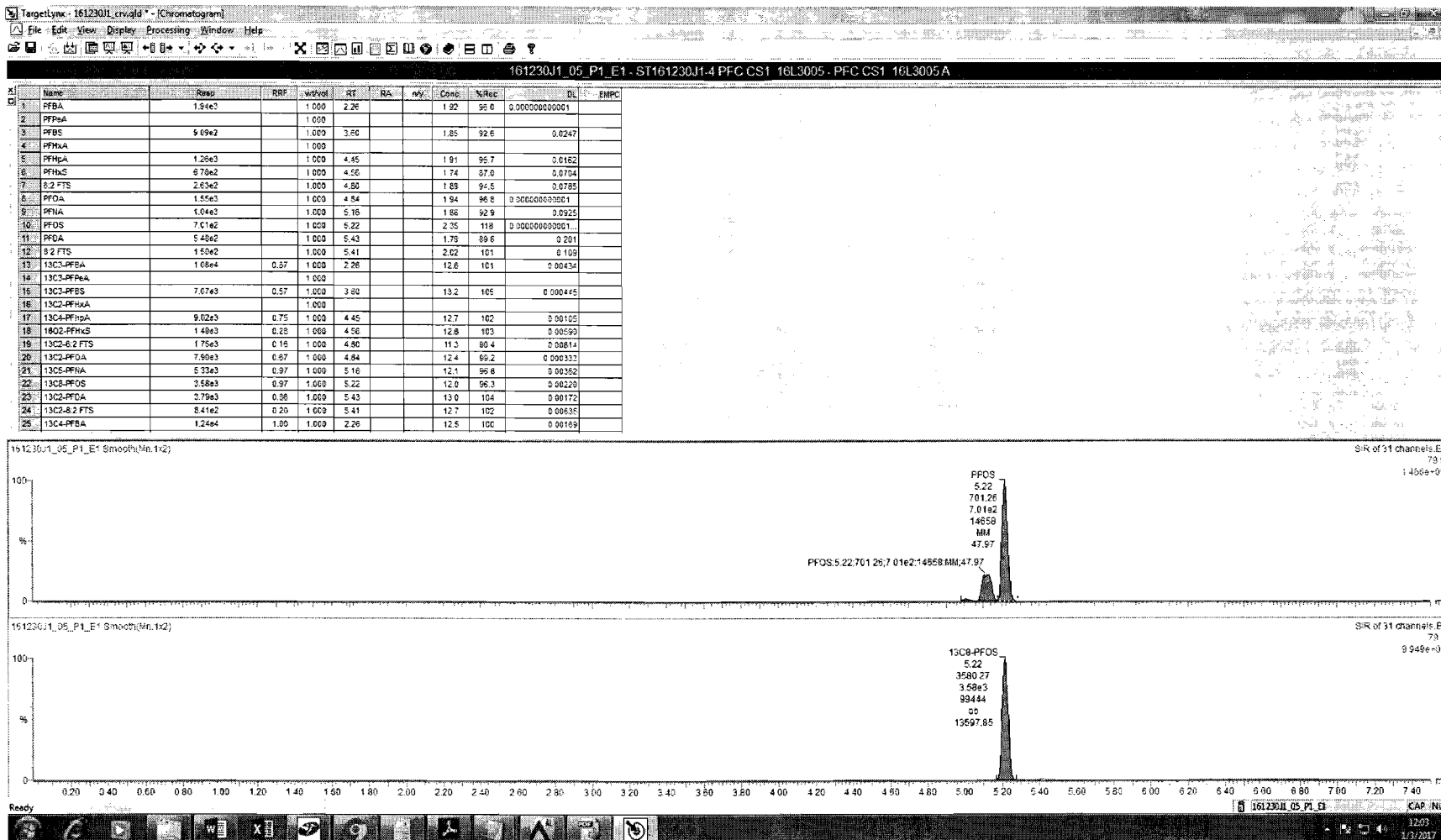
161230J1_05_P1_E1



13C2-PFDA

161230J1_05_P1_E1





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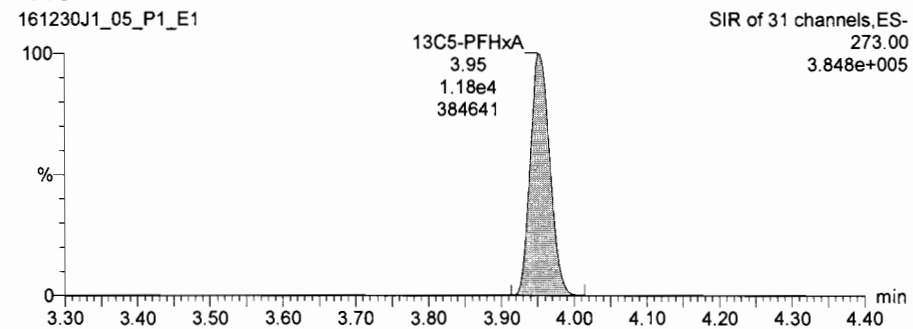
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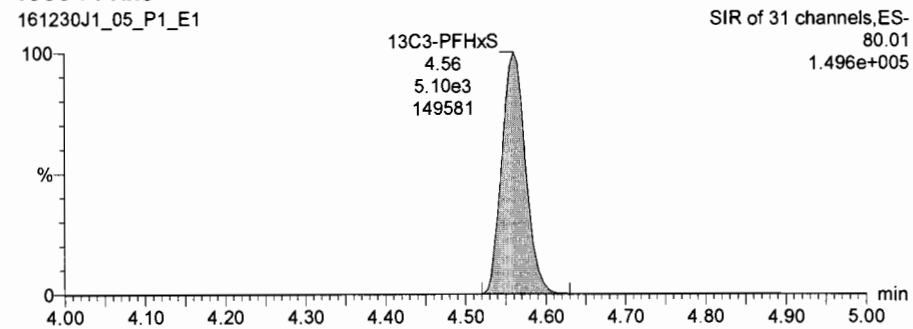
13C5-PFHxA

161230J1_05_P1_E1



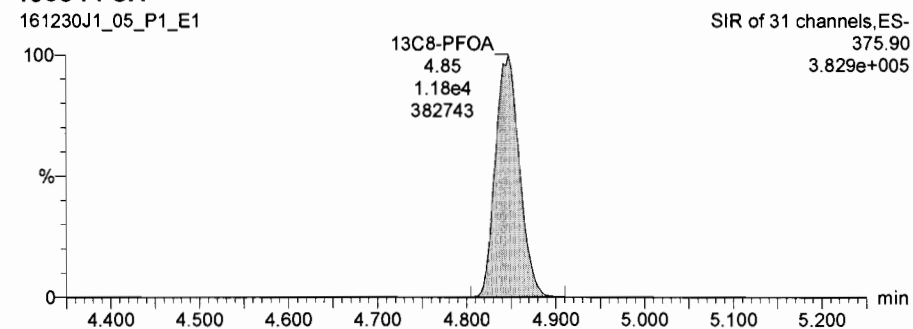
13C3-PFHxS

161230J1_05_P1_E1



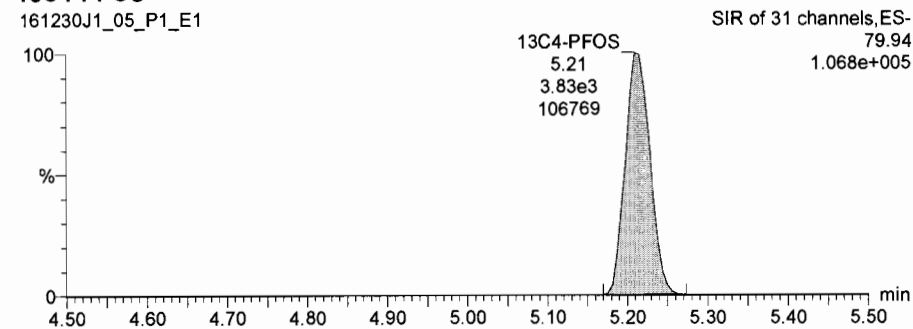
13C8-PFOA

161230J1_05_P1_E1



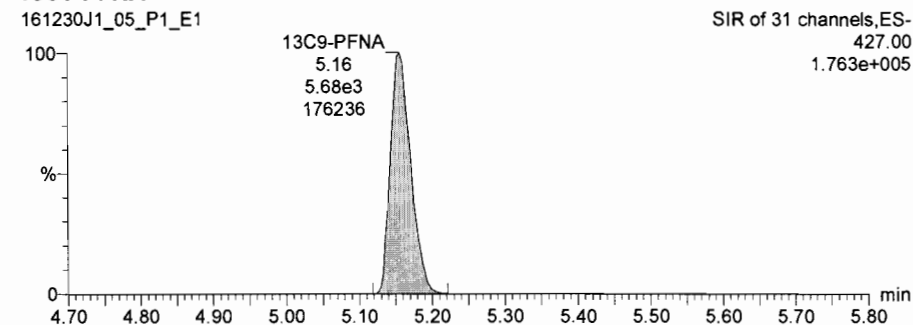
13C4-PFOS

161230J1_05_P1_E1



13C9-PFNA

161230J1_05_P1_E1

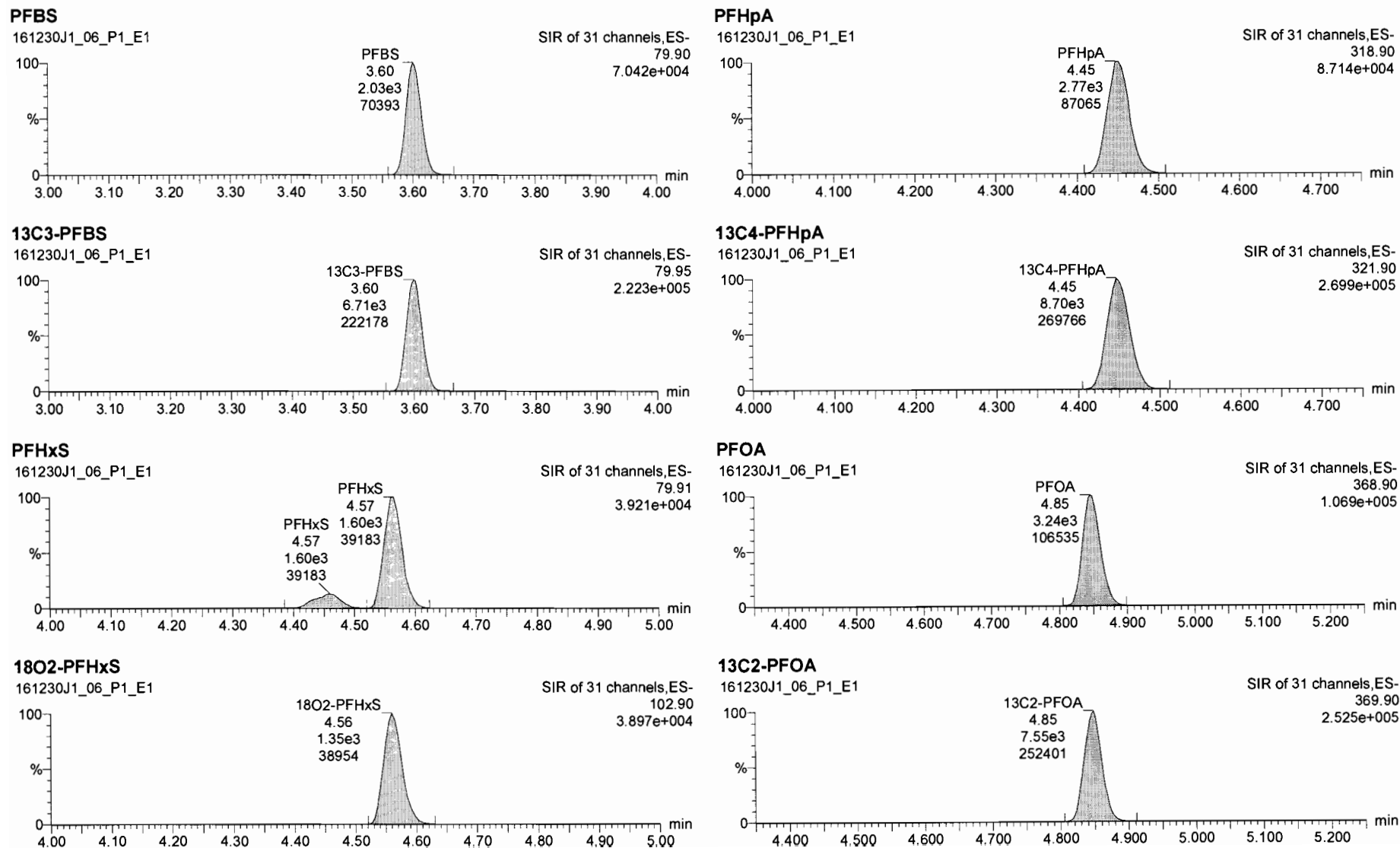


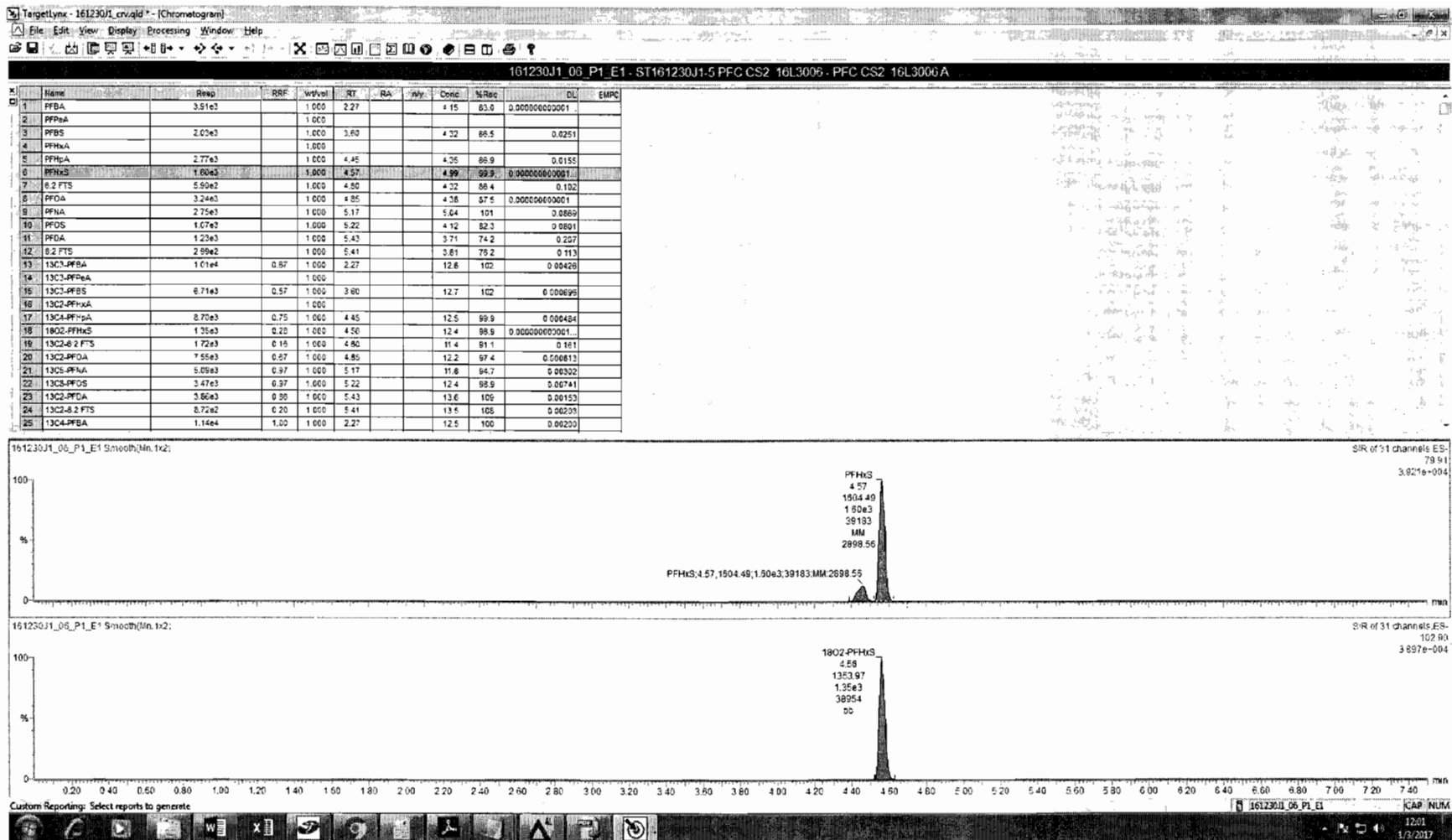
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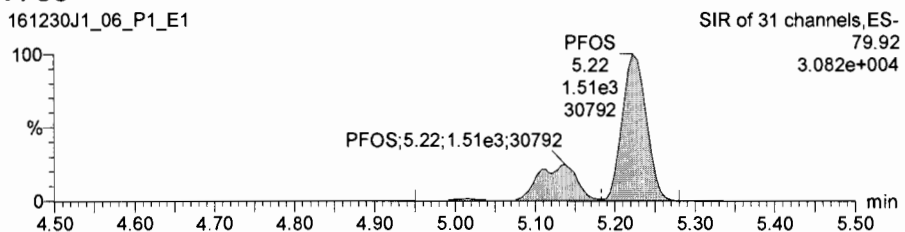
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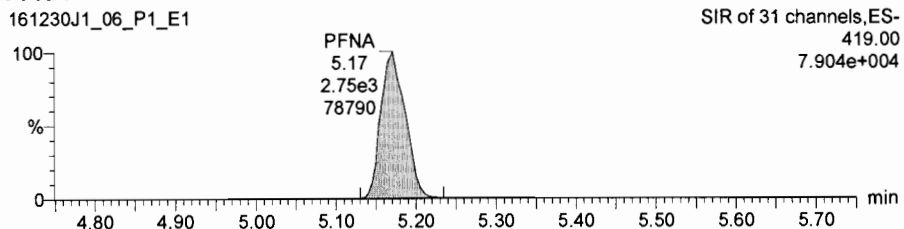
PFOS

161230J1_06_P1_E1



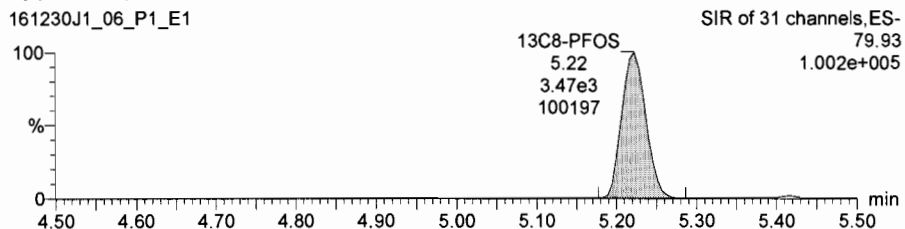
PFNA

161230J1_06_P1_E1



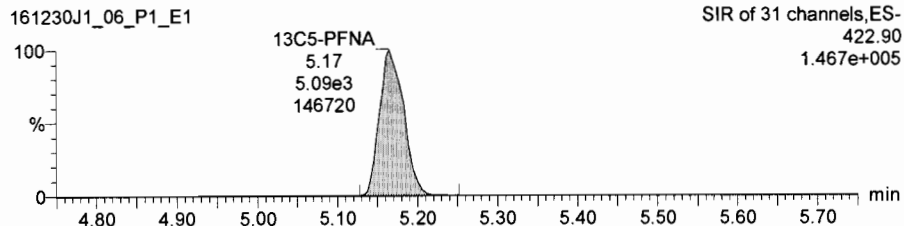
13C8-PFOS

161230J1_06_P1_E1



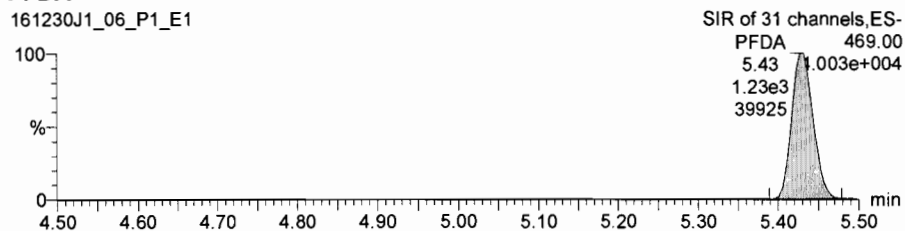
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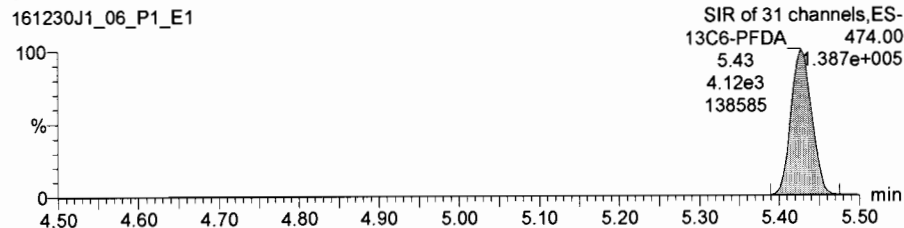
PFDA

161230J1_06_P1_E1



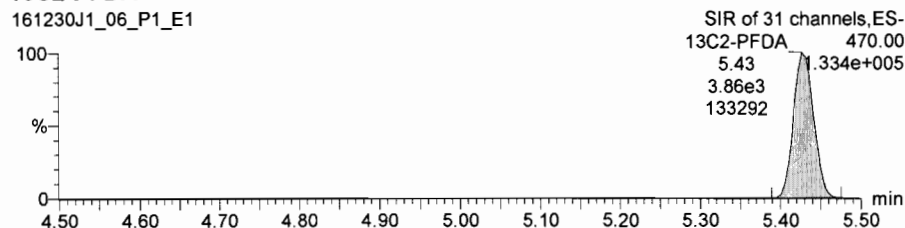
13C6-PFDA

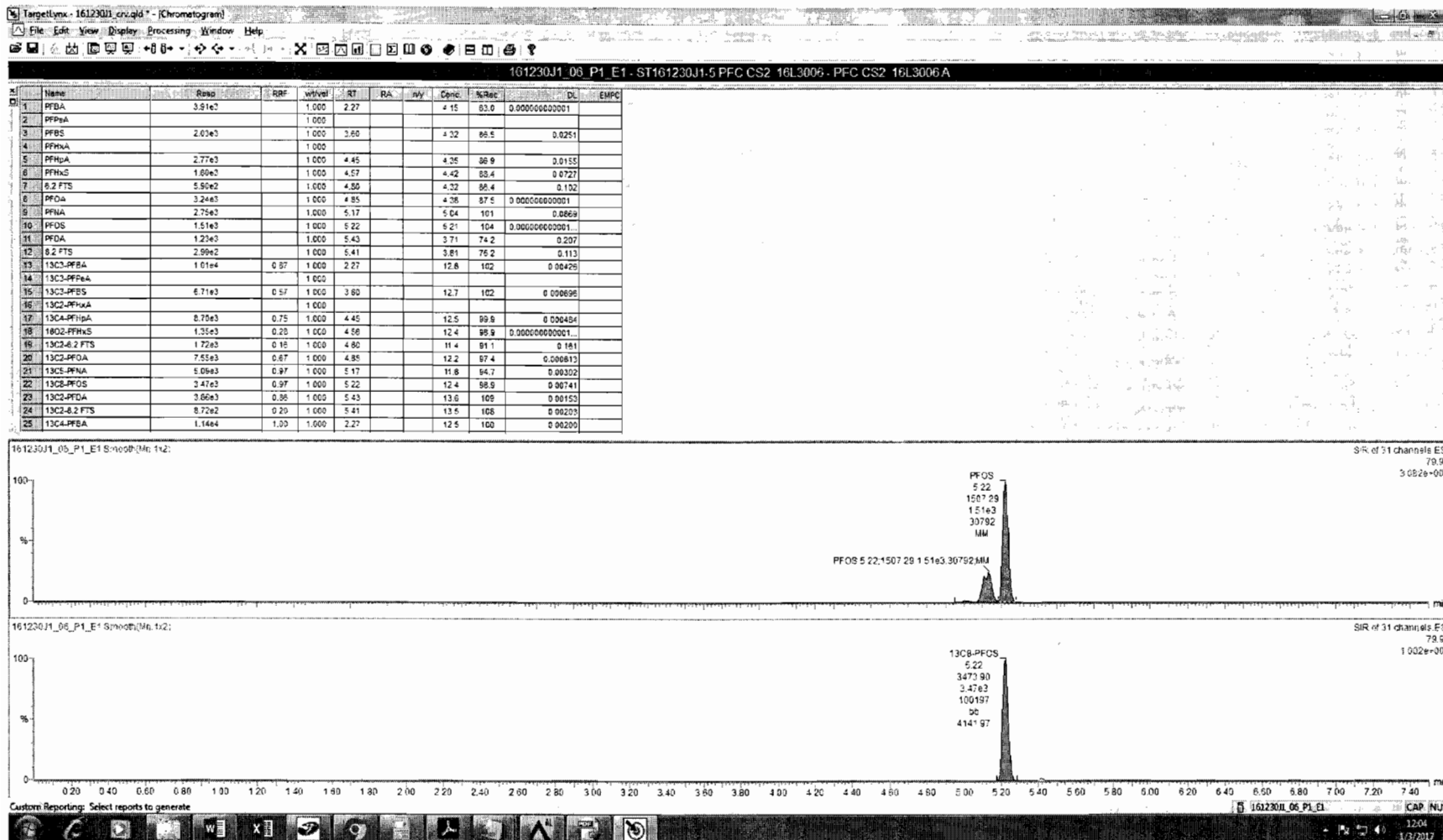
161230J1_06_P1_E1



13C2-PFDA

161230J1_06_P1_E1





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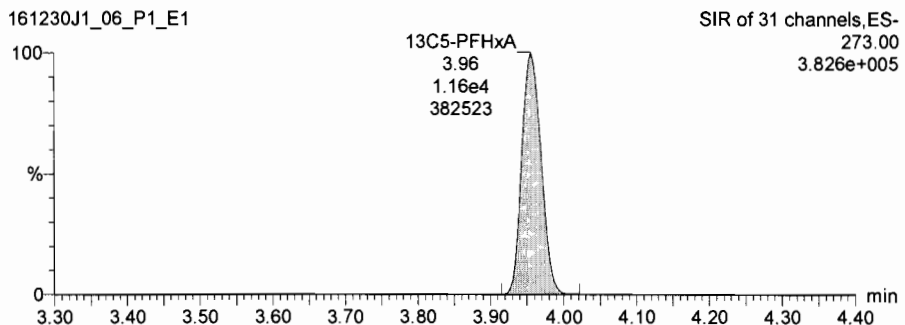
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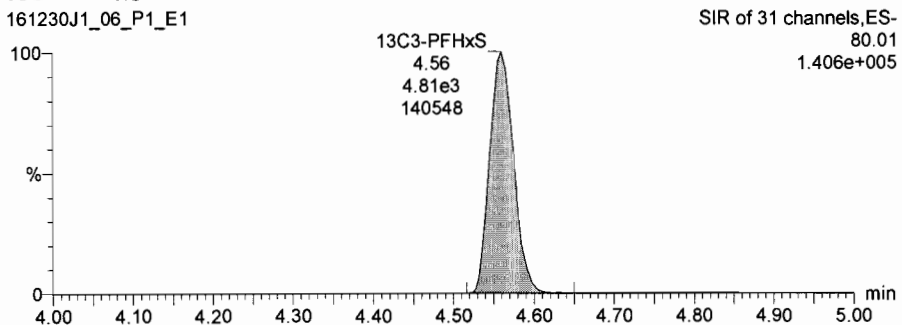
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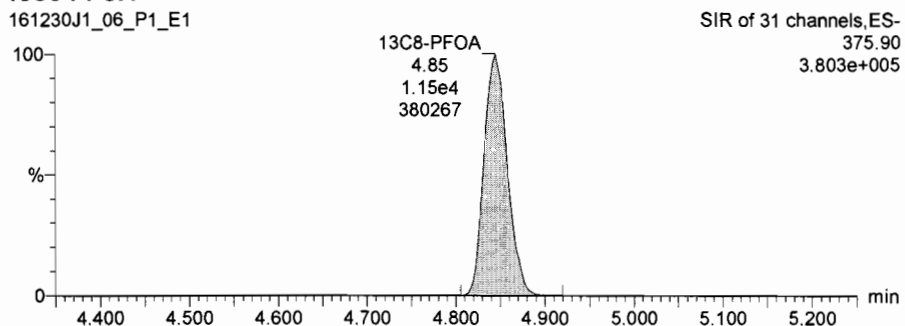
13C3-PFHxS

161230J1_06_P1_E1



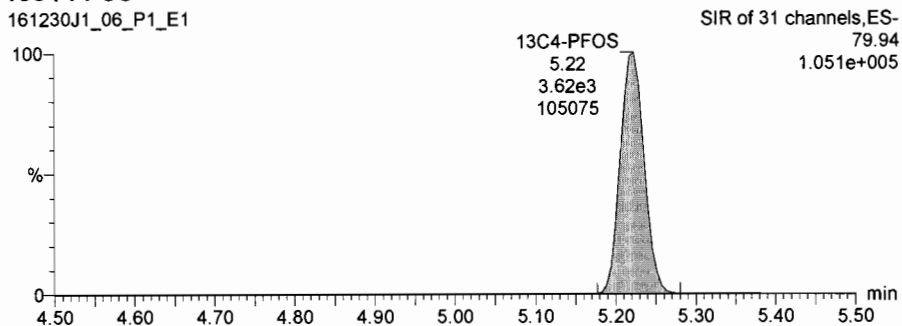
13C8-PFOA

161230J1_06_P1_E1



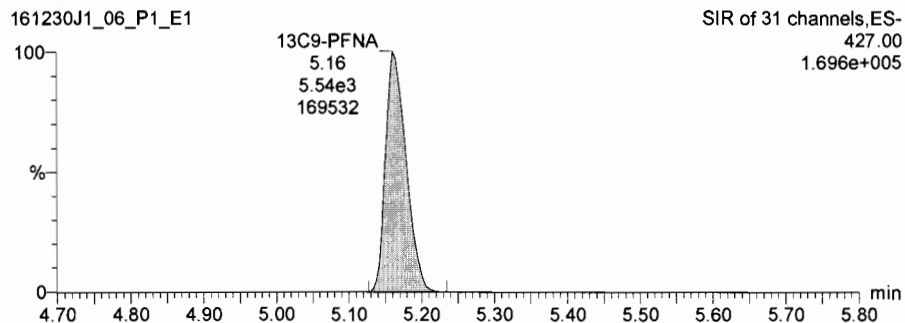
13C4-PFOS

161230J1_06_P1_E1



13C9-PFNA

161230J1_06_P1_E1



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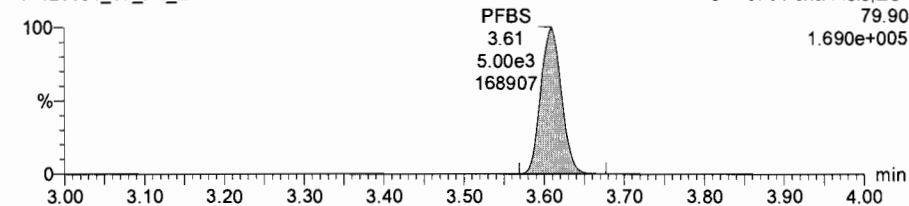
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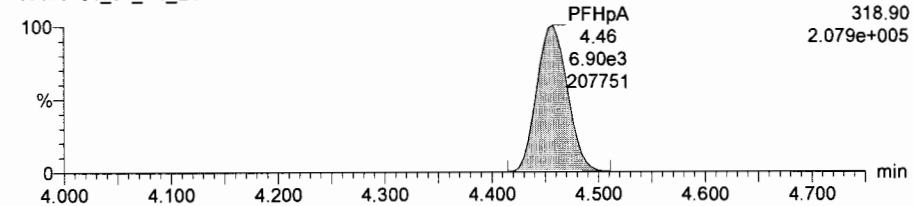
PFBS

161230J1_07_P1_E1



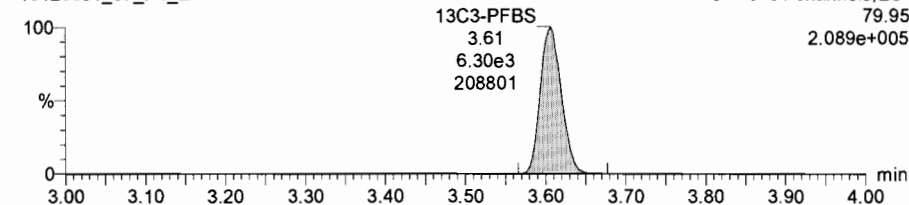
PFHpA

161230J1_07_P1_E1



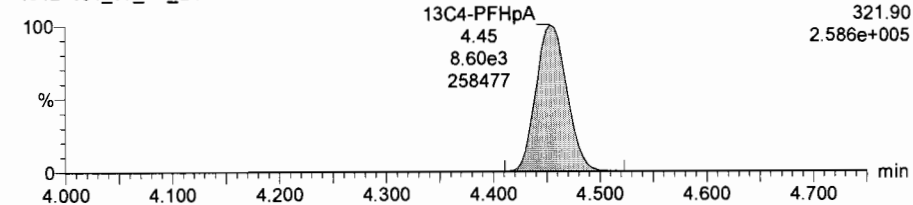
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161230J1_07_P1_E1



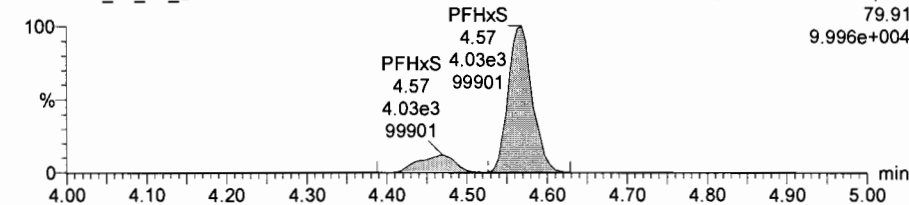
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161230J1_07_P1_E1



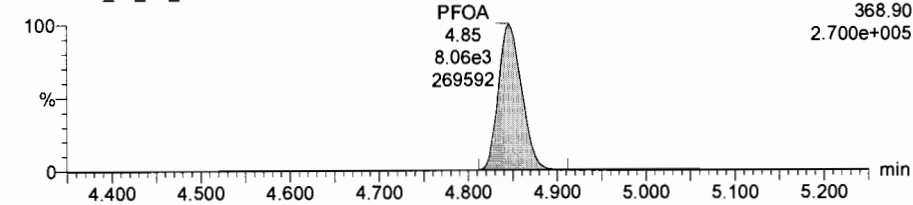
PFHxS

161230J1_07_P1_E1



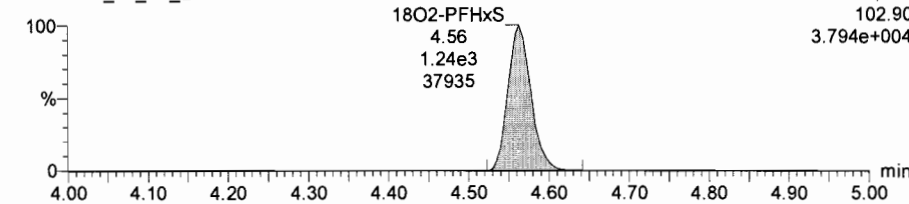
PFOA

161230J1_07_P1_E1



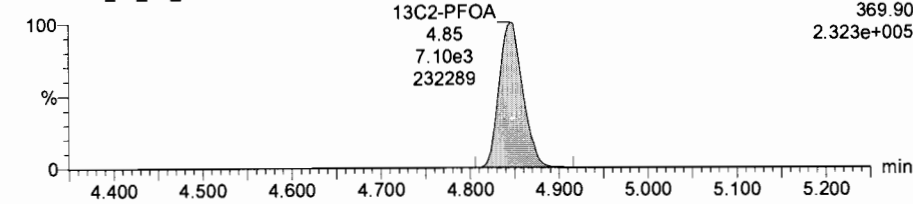
18O2-PFHxS

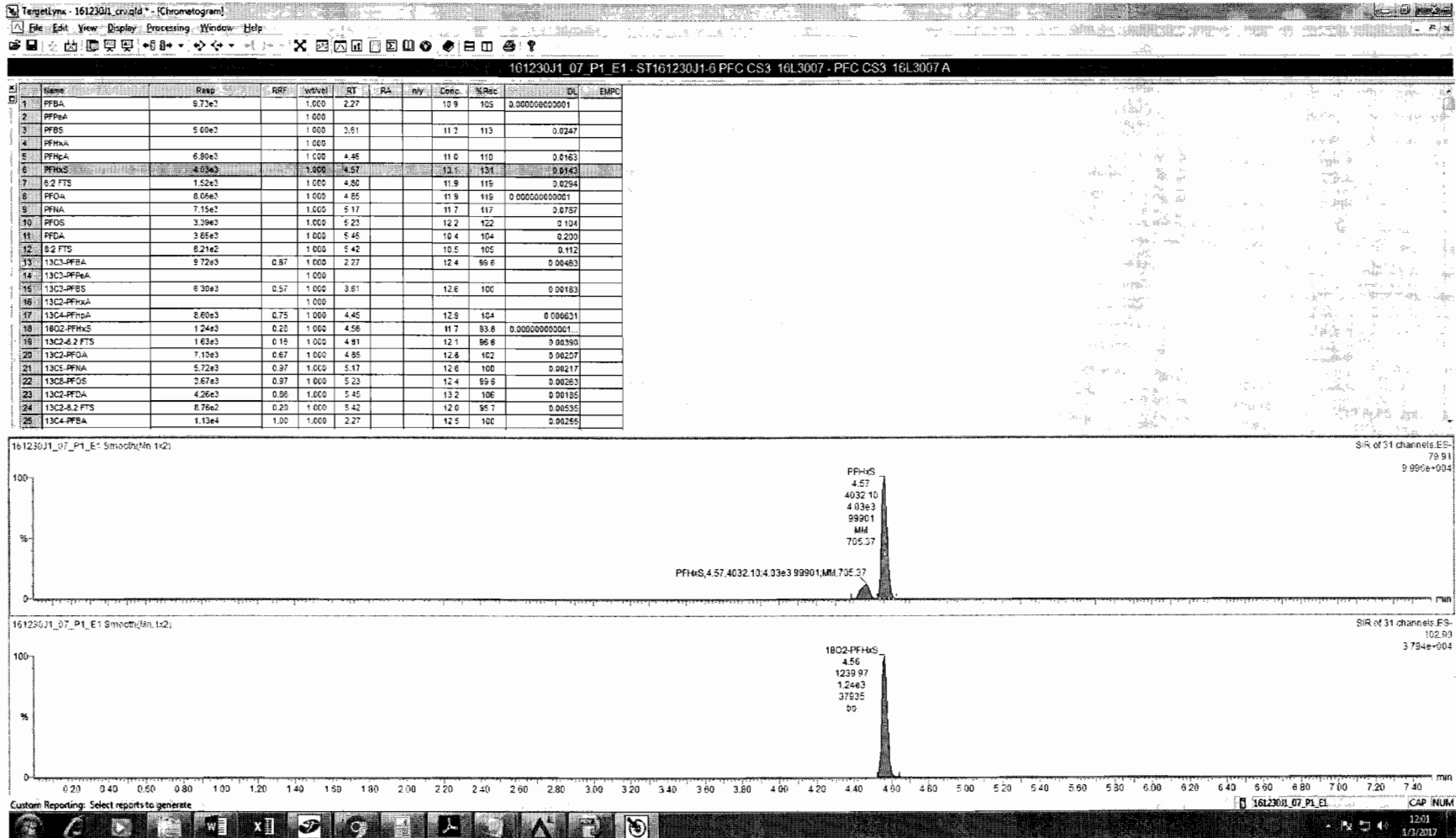
161230J1_07_P1_E1



13C2-PFOA

161230J1_07_P1_E1





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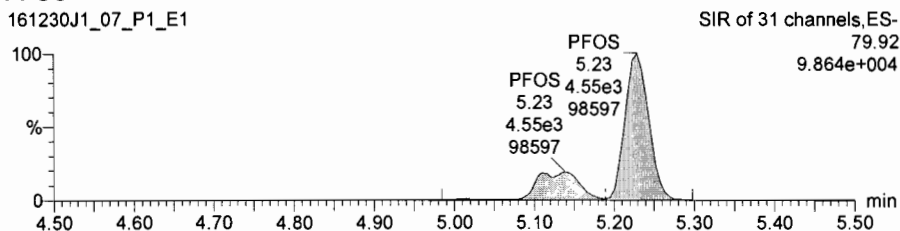
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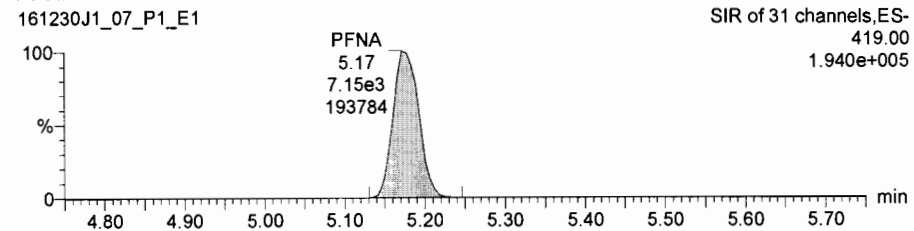
PFOS

161230J1_07_P1_E1



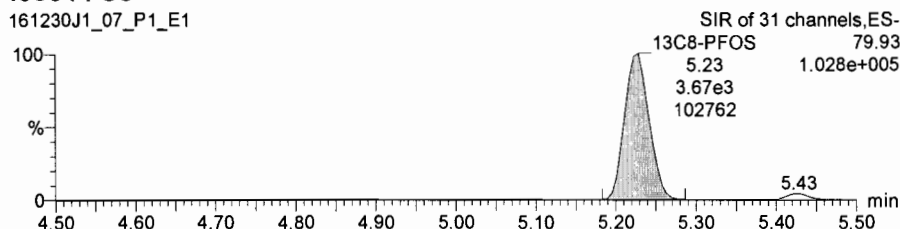
PFNA

161230J1_07_P1_E1



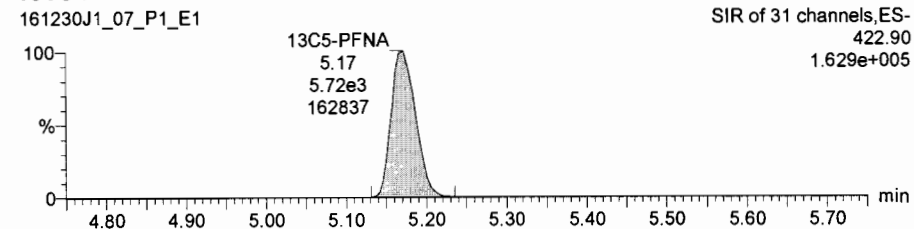
13C8-PFOS

161230J1_07_P1_E1



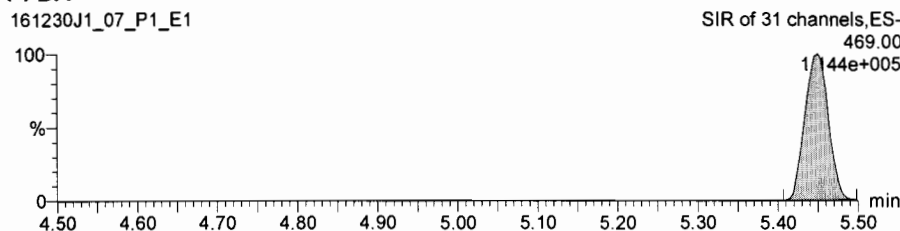
13C5-PFNA

161230J1_07_P1_E1



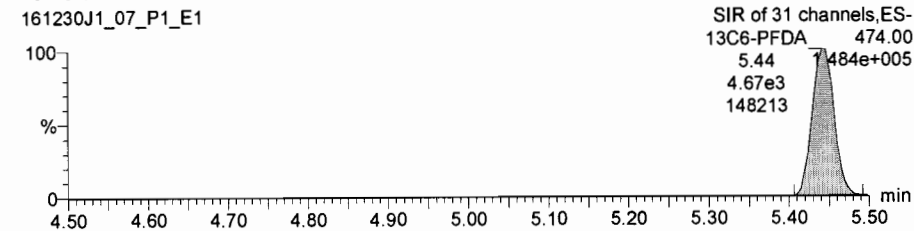
PFDA

161230J1_07_P1_E1



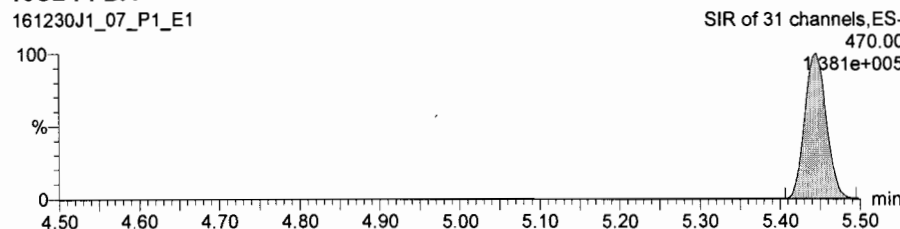
13C6-PFDA

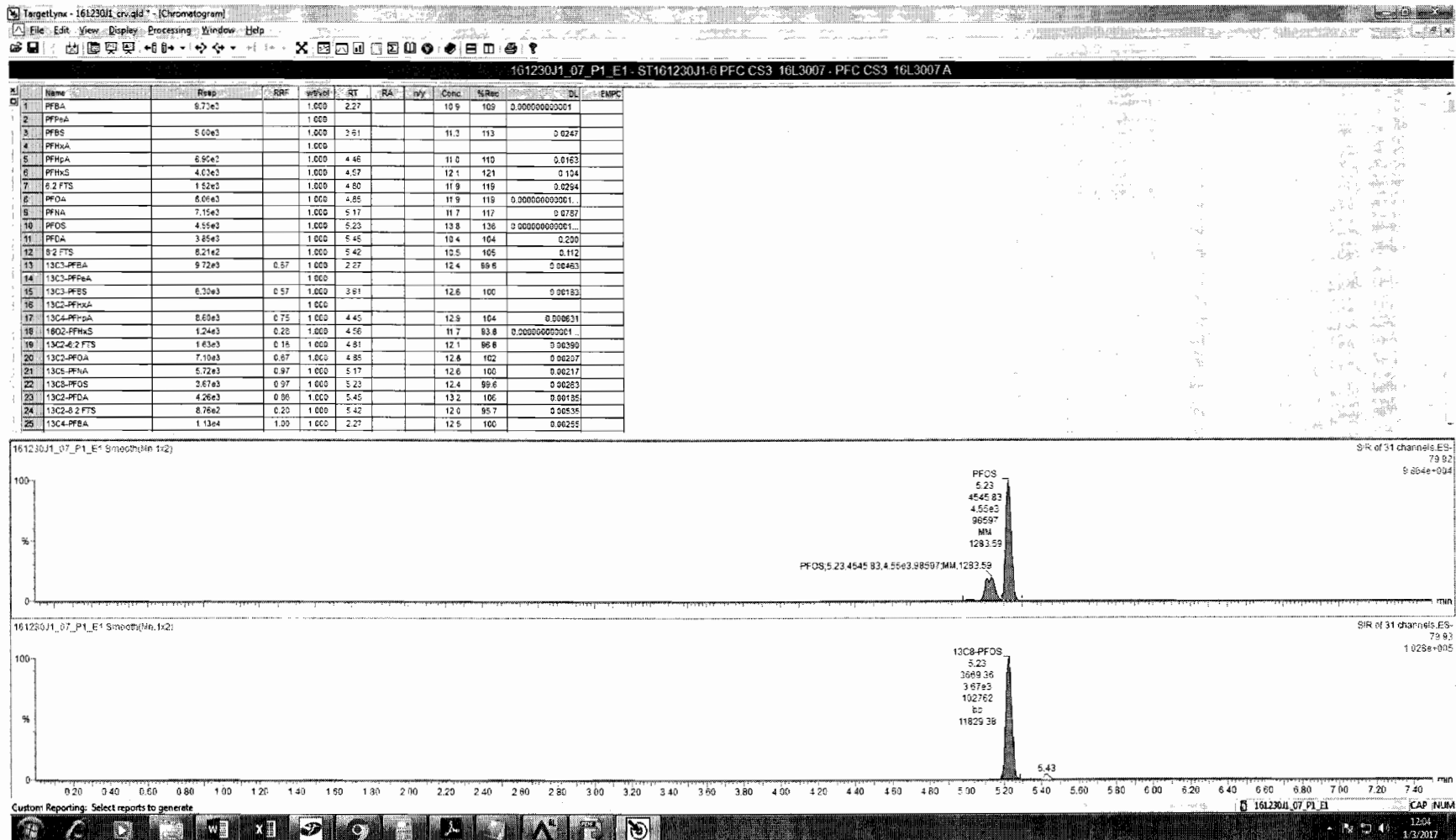
161230J1_07_P1_E1



13C2-PFDA

161230J1_07_P1_E1





Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

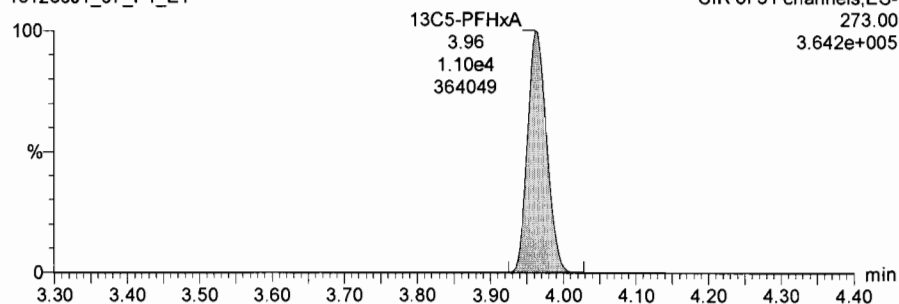
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Printed: Tuesday, January 03, 2017 12:12:01 Pacific Standard Time

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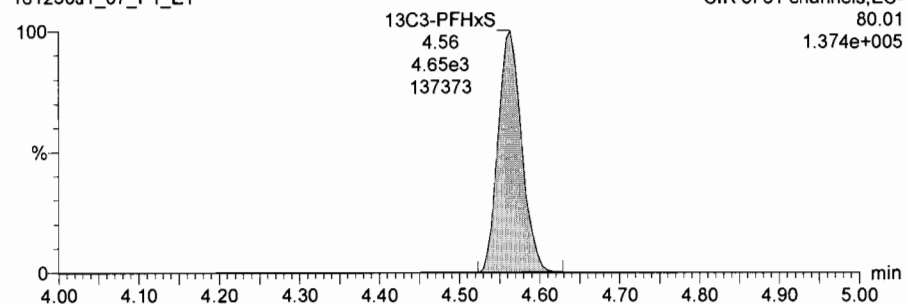
13C5-PFHxA

161230J1_07_P1_E1



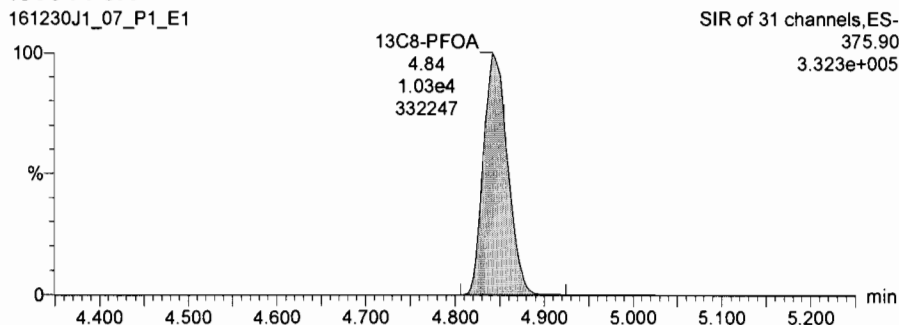
13C3-PFHxS

161230J1_07_P1_E1



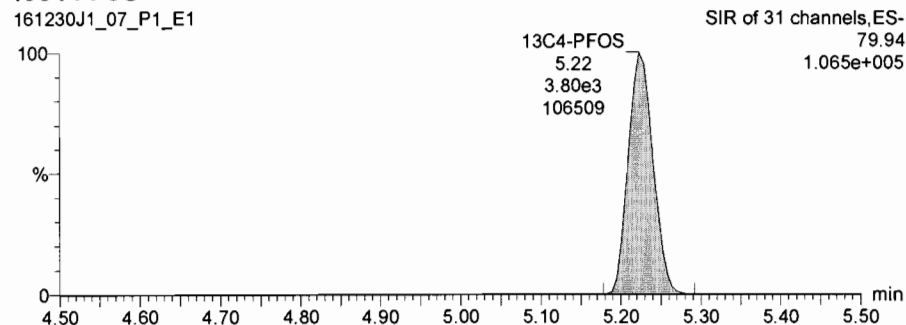
13C8-PFOA

161230J1_07_P1_E1



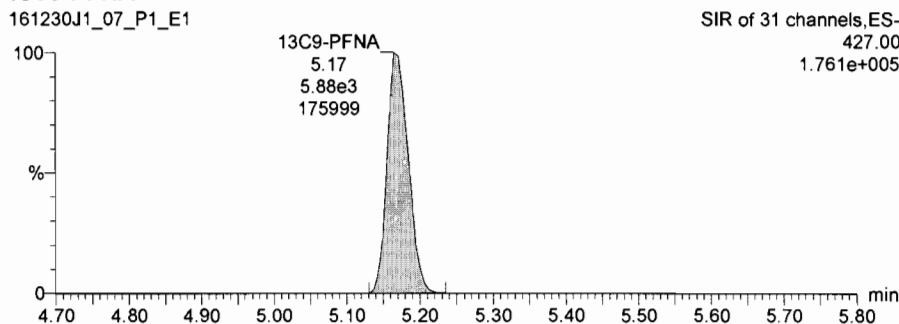
13C4-PFOS

161230J1_07_P1_E1



13C9-PFNA

161230J1_07_P1_E1



Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

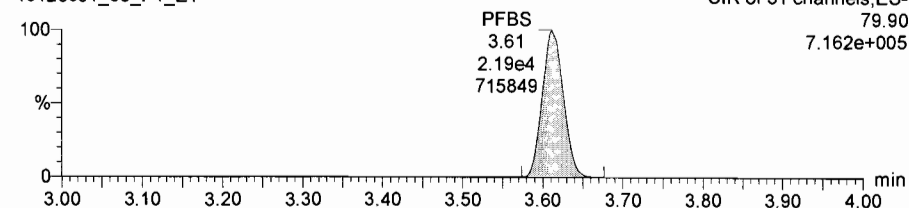
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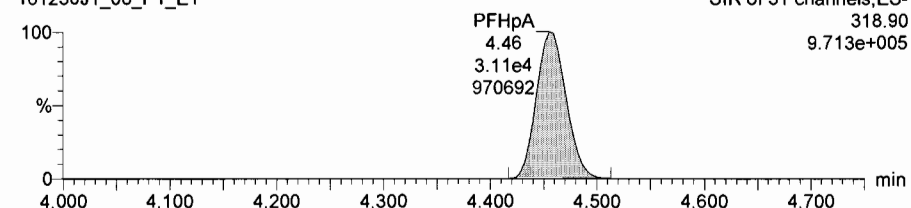
PFBS

161230J1_08_P1_E1



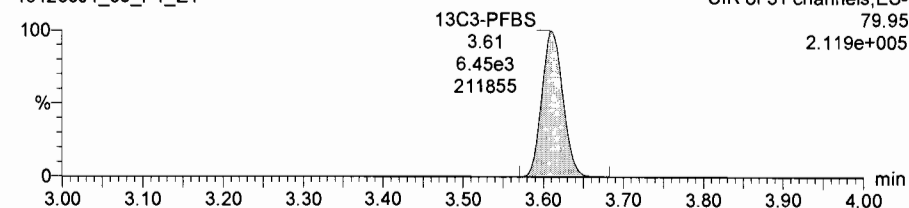
PFHpA

161230J1_08_P1_E1



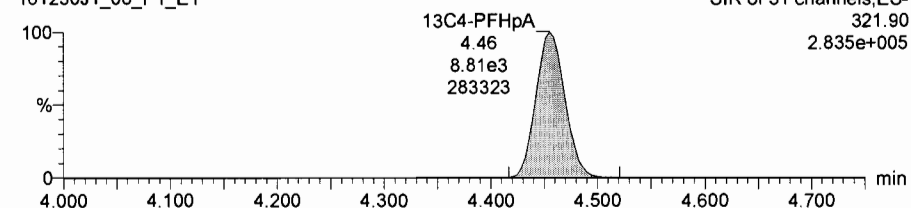
13C3-PFBS

161230J1_08_P1_E1



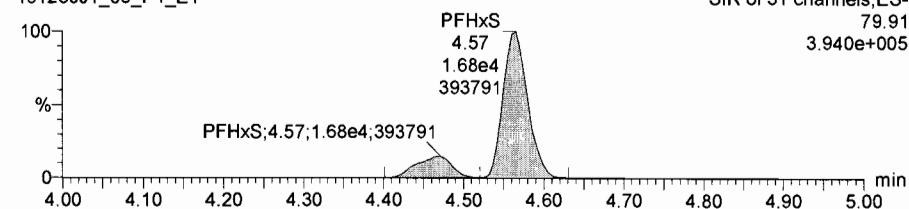
13C4-PFHpA

161230J1_08_P1_E1



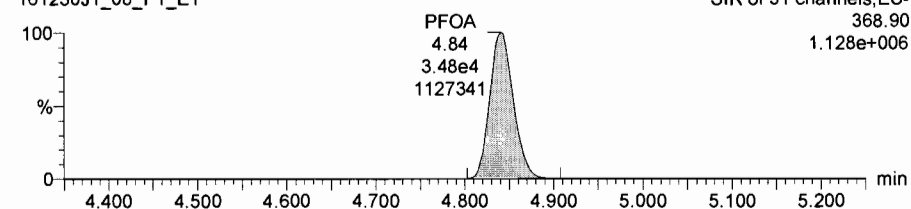
PFHxS

161230J1_08_P1_E1



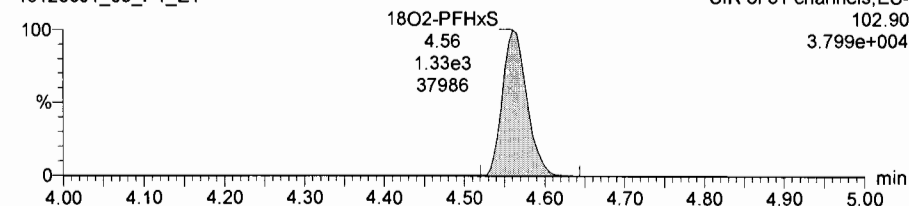
PFOA

161230J1_08_P1_E1



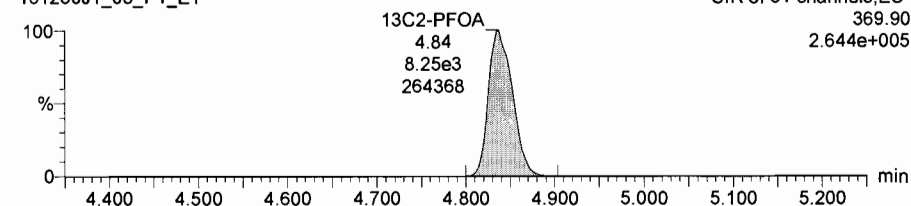
18O2-PFHxS

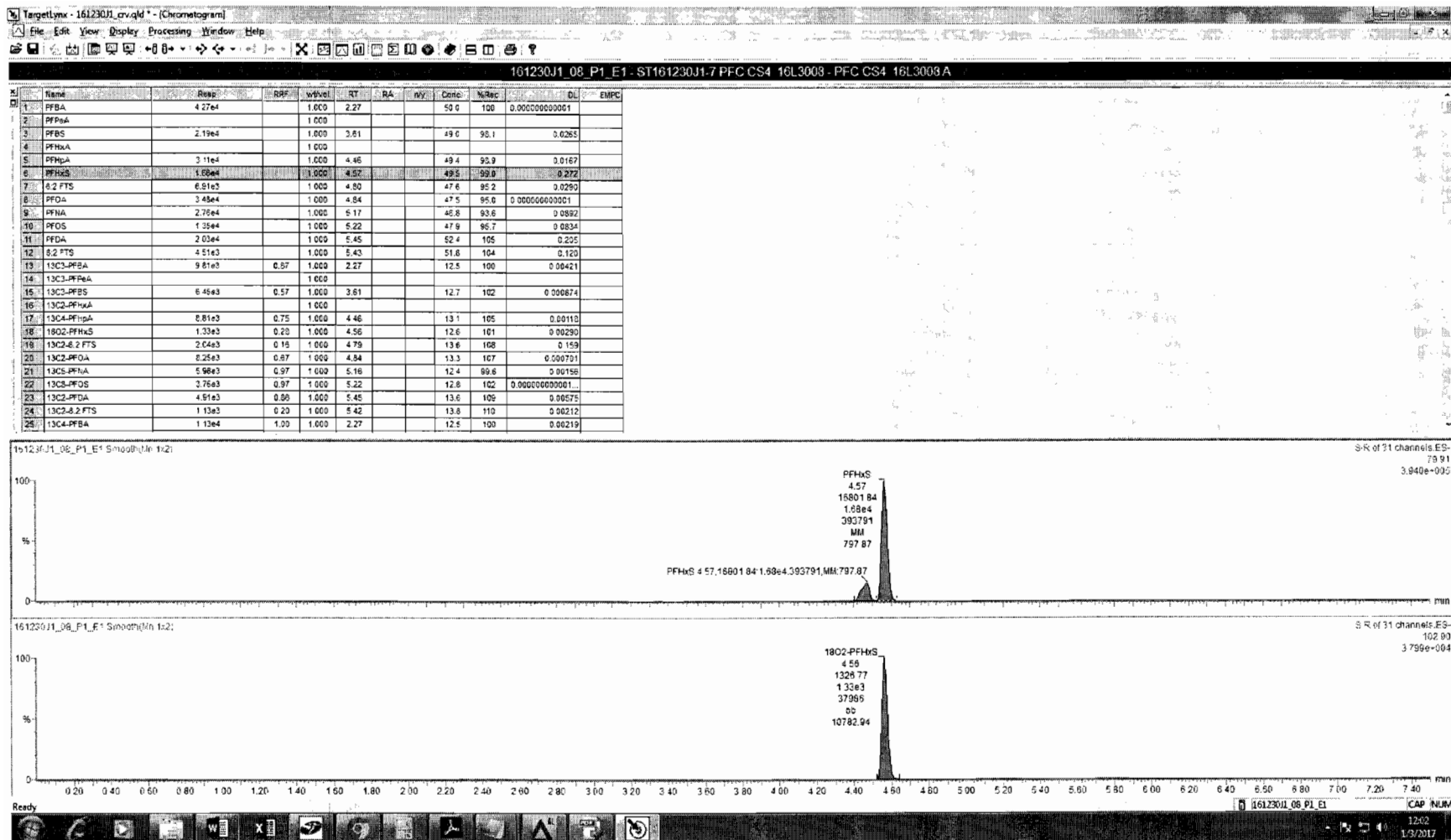
161230J1_08_P1_E1



13C2-PFOA

161230J1_08_P1_E1



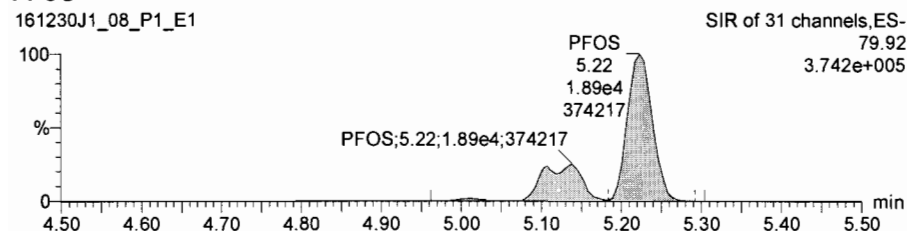


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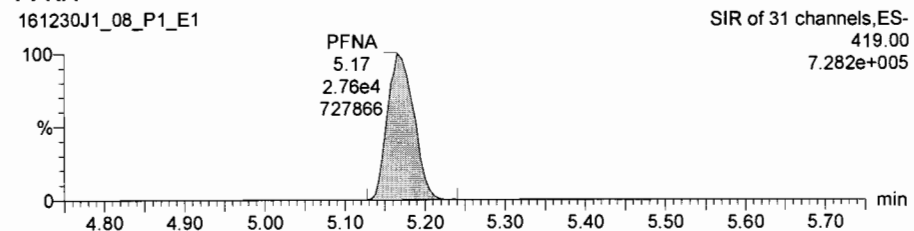
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Printed: Tuesday, January 03, 2017 12:12:01 Pacific Standard Time

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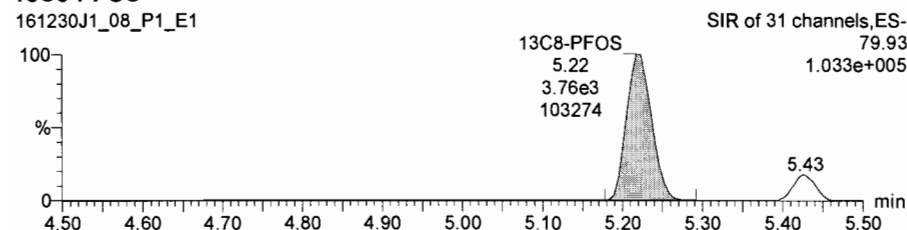
PFOS



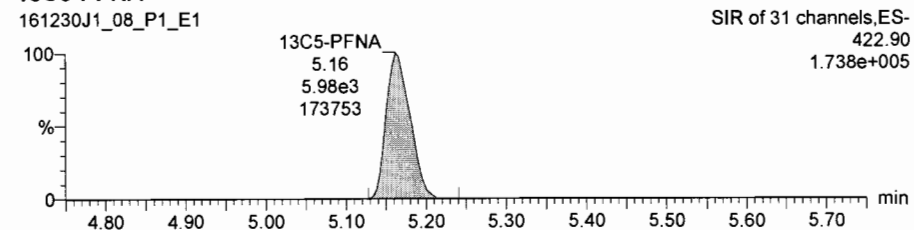
PFNA



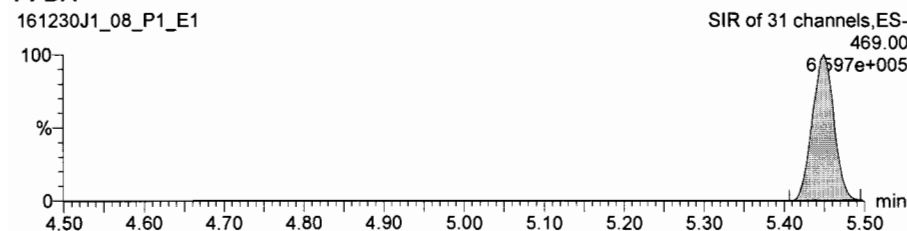
13C8-PFOS



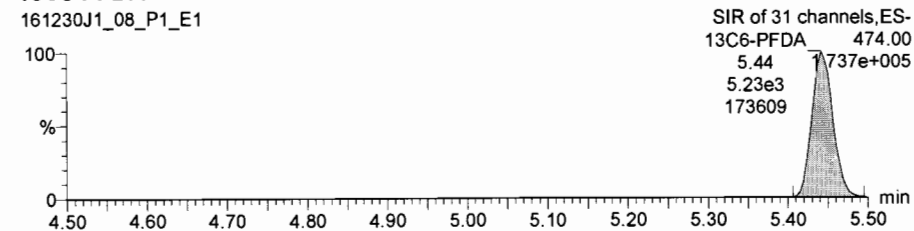
13C5-PFNA



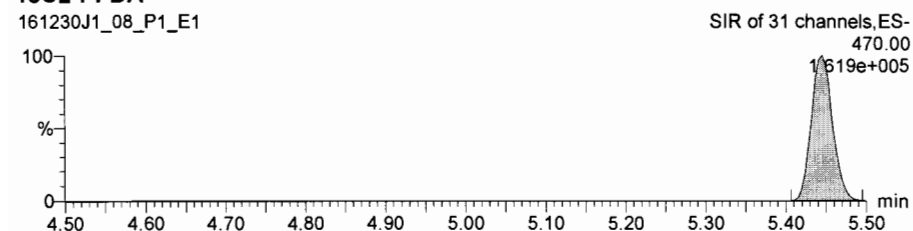
PFDA

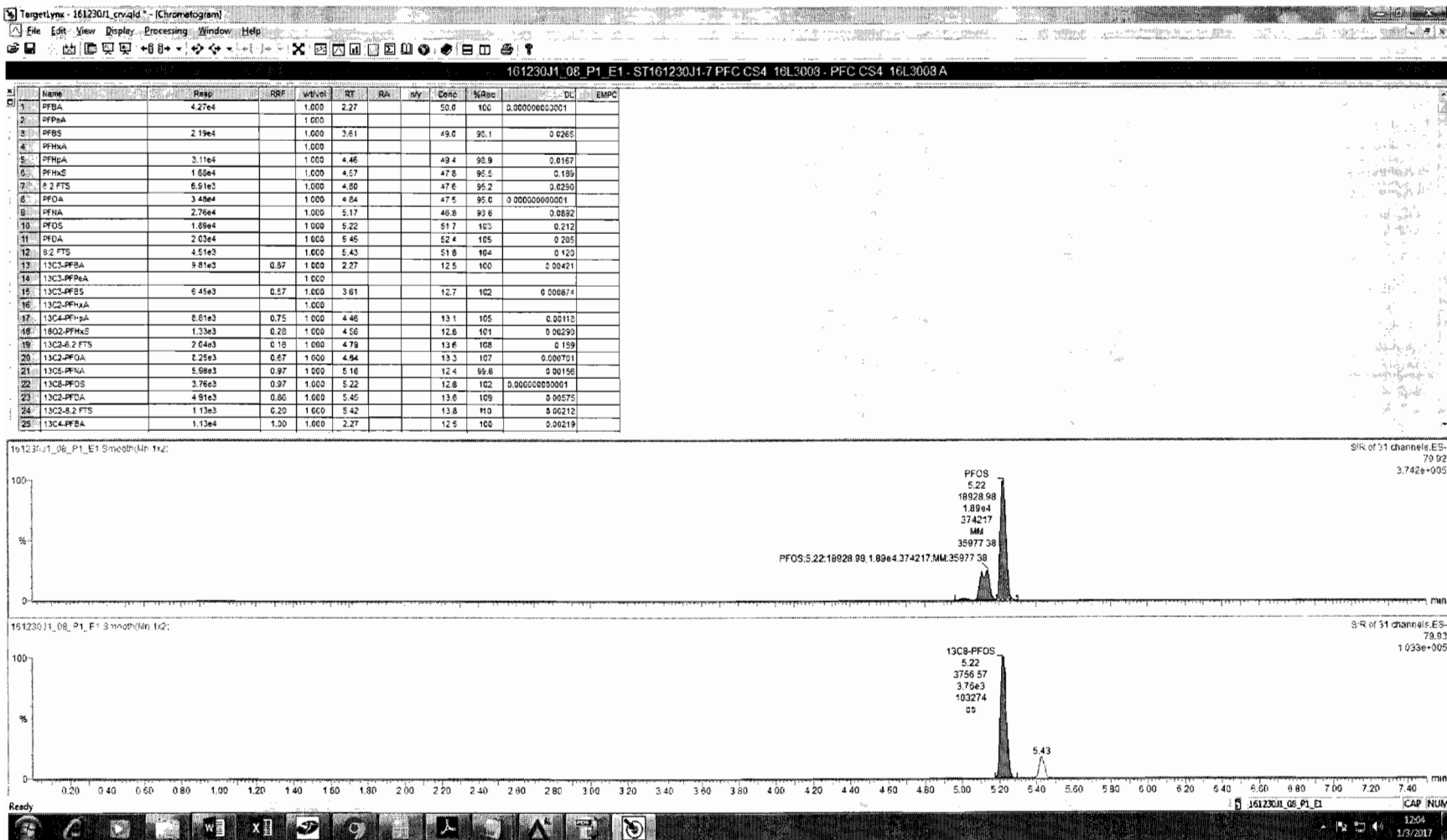


13C6-PFDA



13C2-PFDA





Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

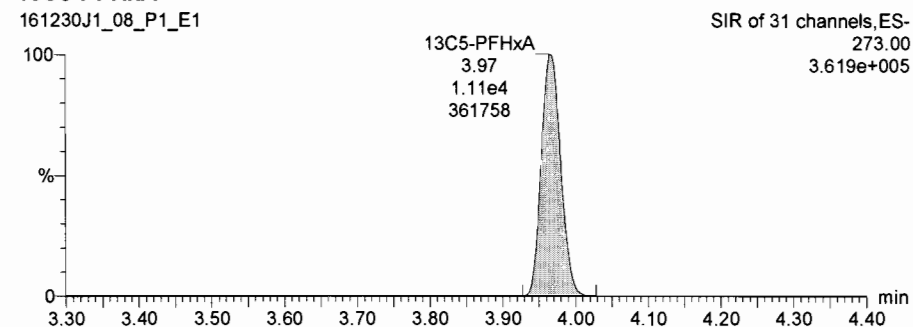
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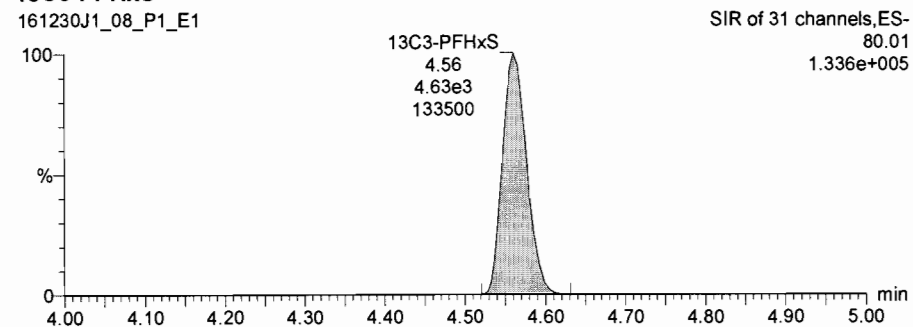
13C5-PFHxA

161230J1_08_P1_E1



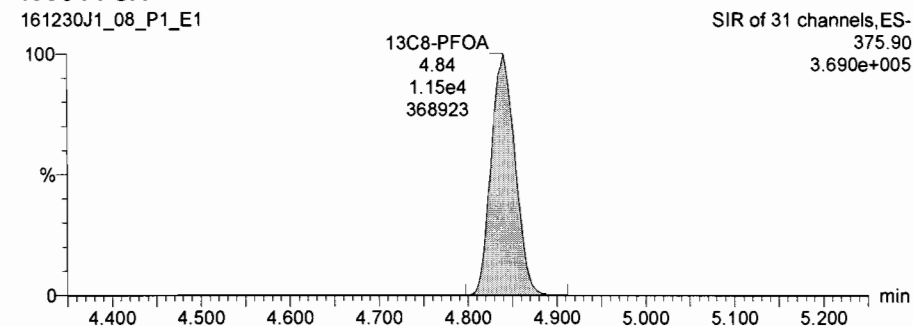
13C3-PFHxS

161230J1_08_P1_E1



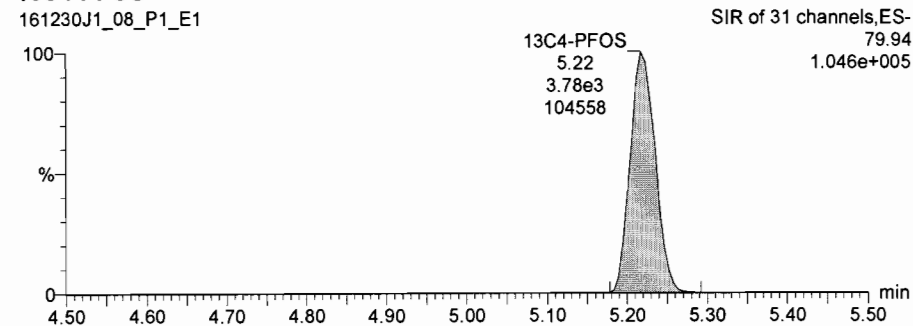
13C8-PFOA

161230J1_08_P1_E1



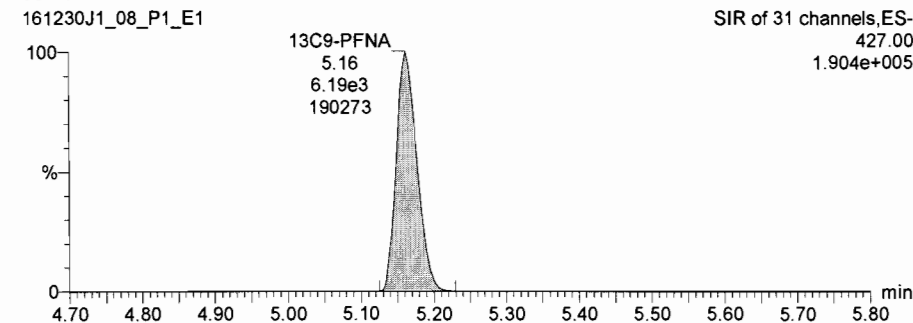
13C4-PFOS

161230J1_08_P1_E1



13C9-PFNA

161230J1_08_P1_E1

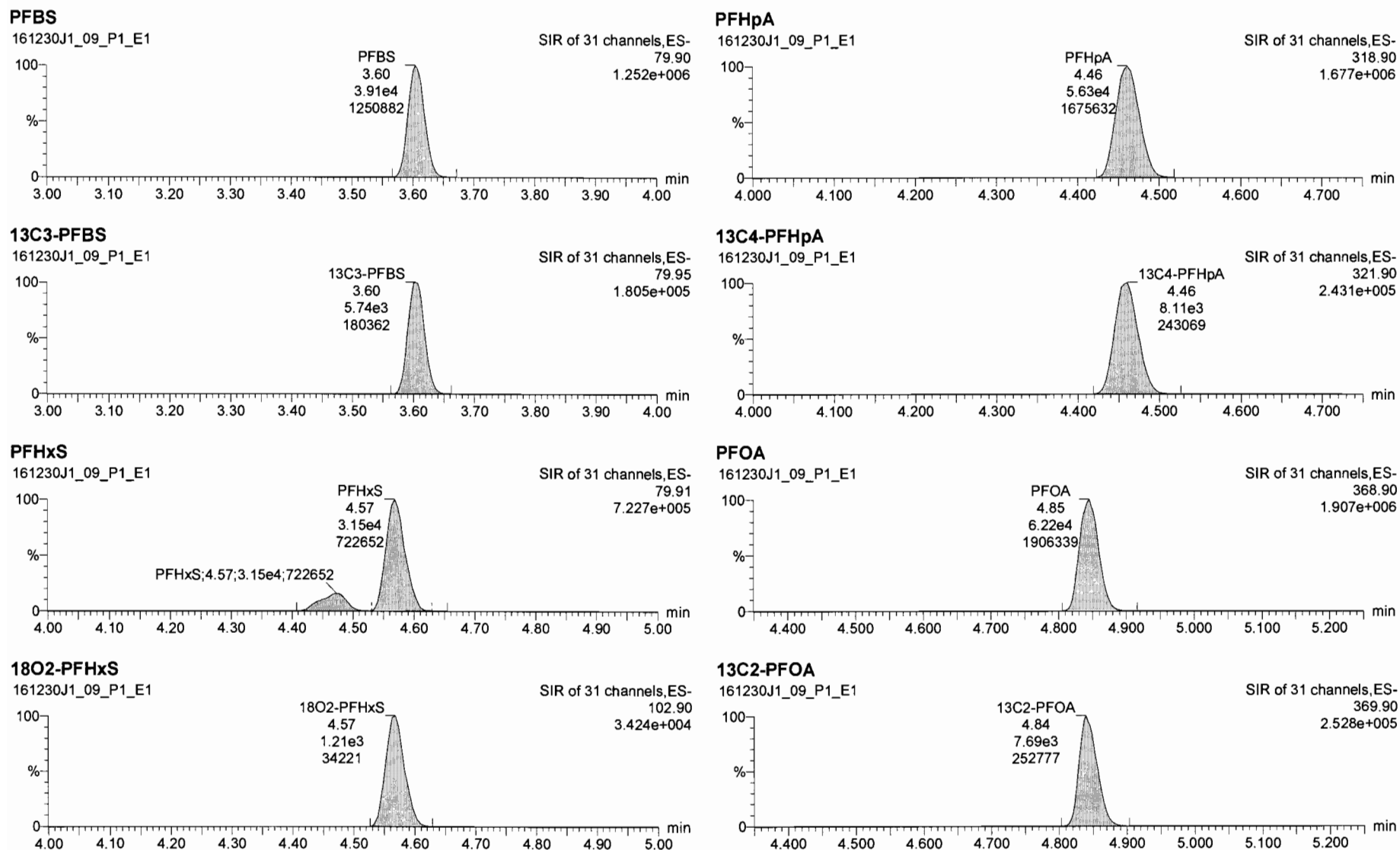


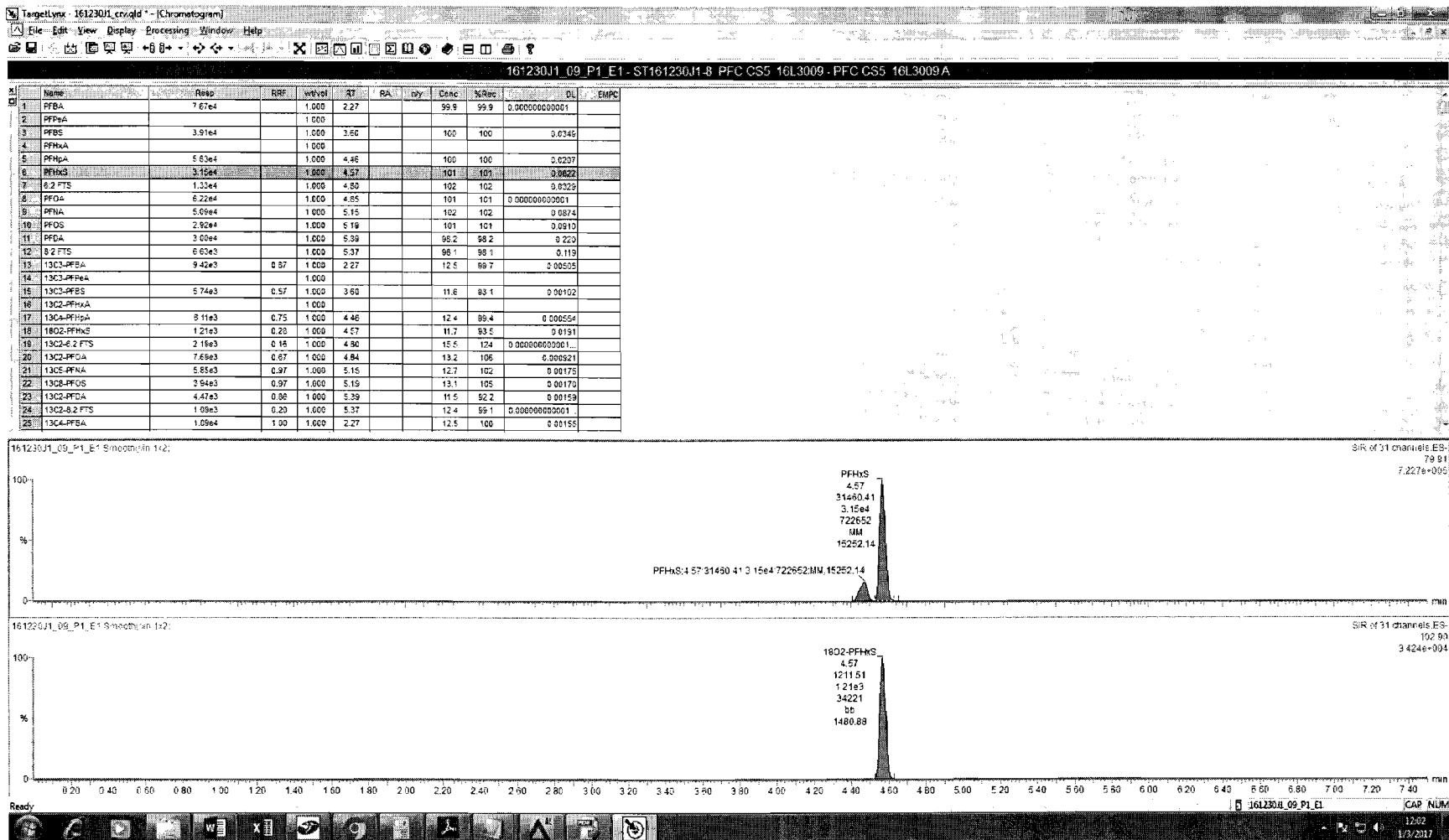
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Printed: Tuesday, January 03, 2017 12:12:01 Pacific Standard Time

Name: 161230J1_09.wiff, Date: 30-Dec-2016, Time: 09:52:47, ID: , Description:



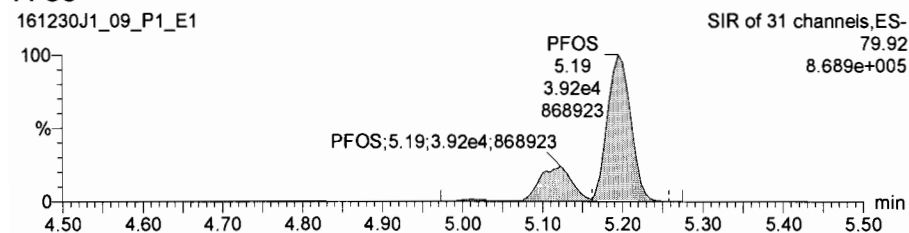


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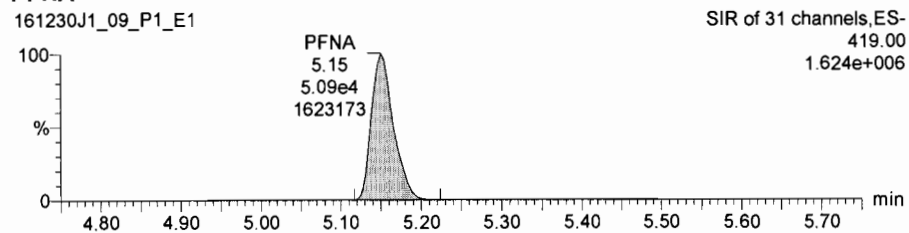
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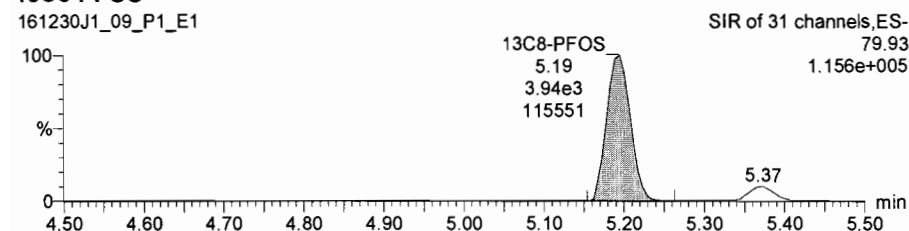
PFOS



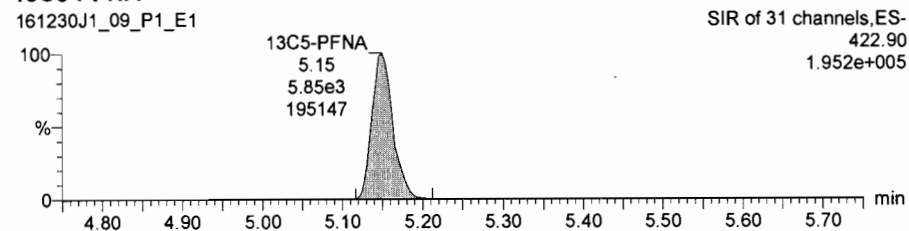
PFNA



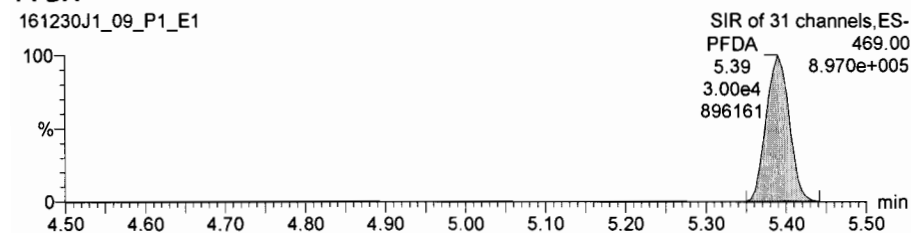
13C8-PFOS



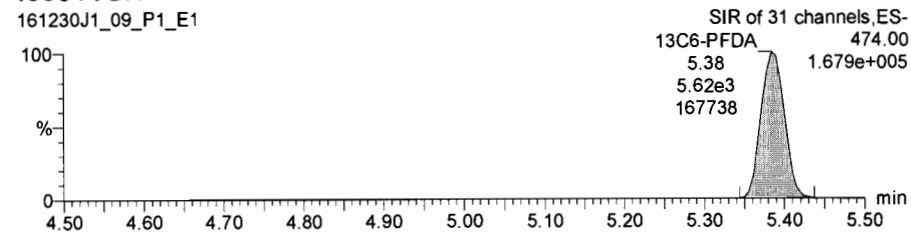
13C5-PFNA



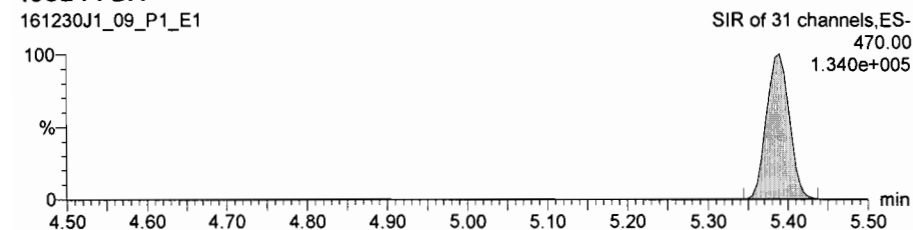
PFDA

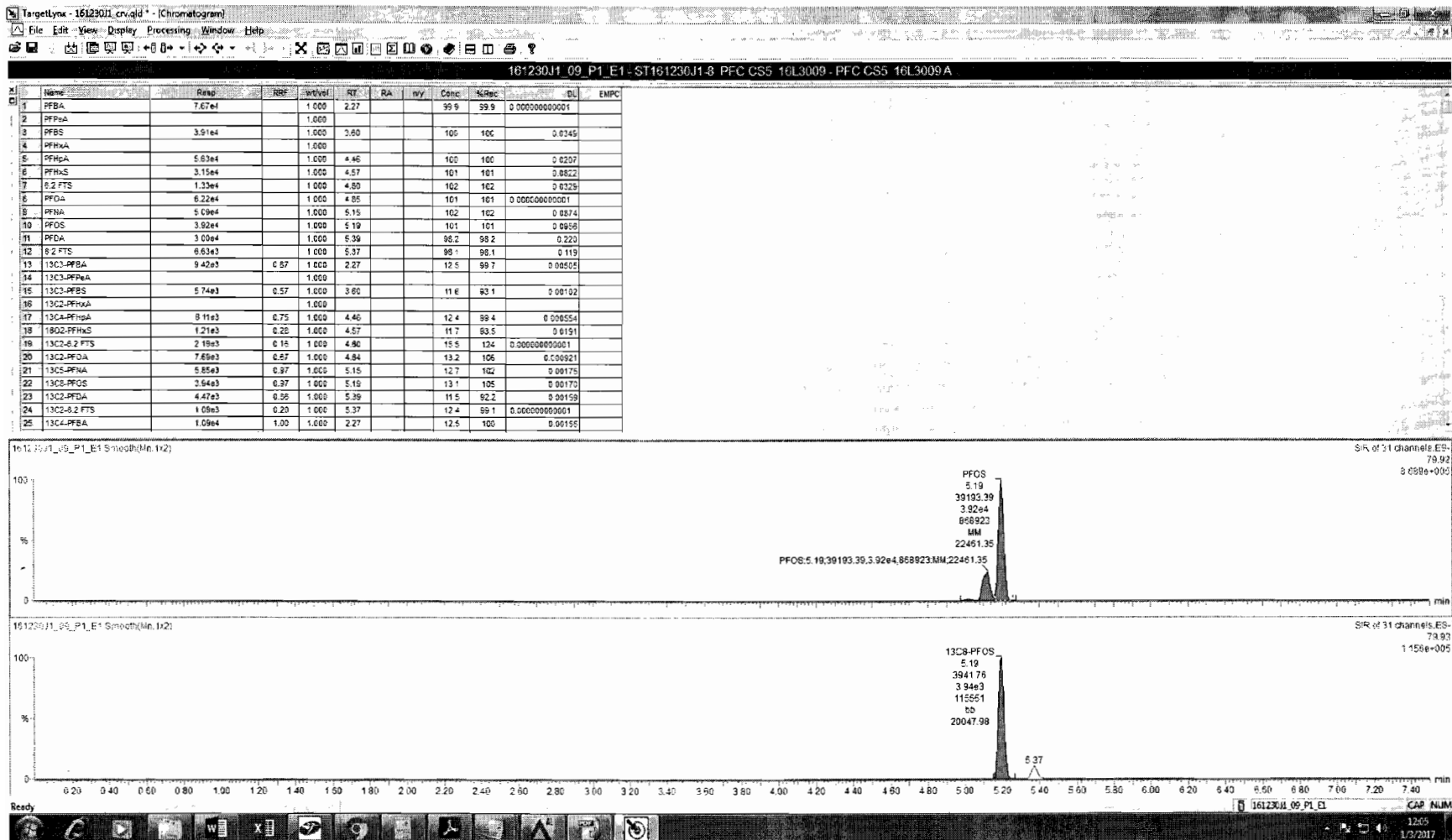


13C6-PFDA



13C2-PFDA





Dataset: U:\Q2.PRO\Results\161230J1\161230J1_crv.qld

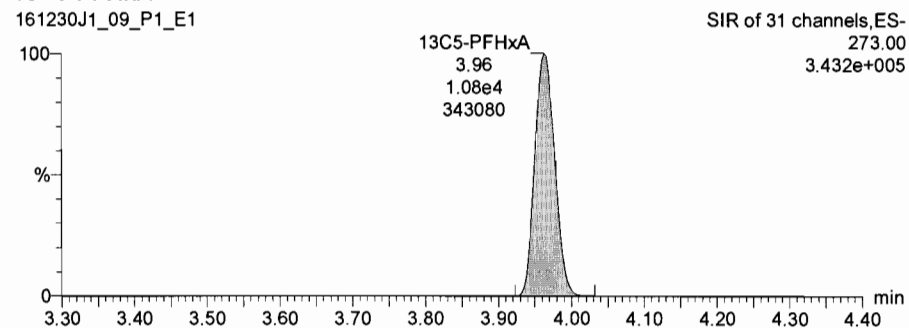
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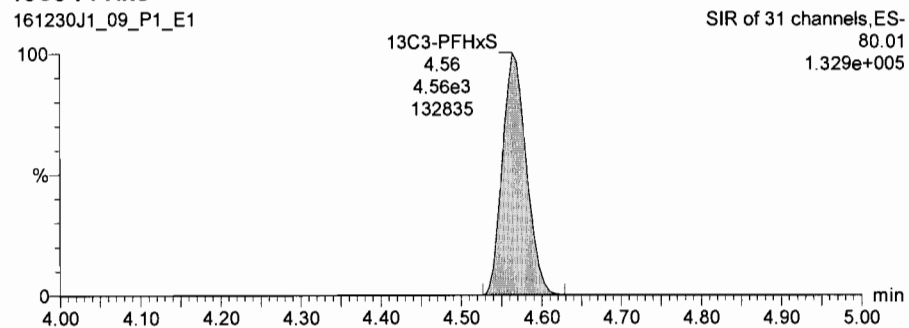
13C5-PFHxA

161230J1_09_P1_E1



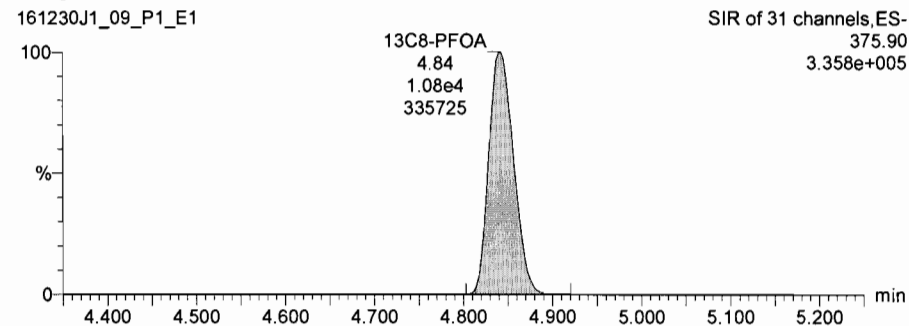
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161230J1_09_P1_E1



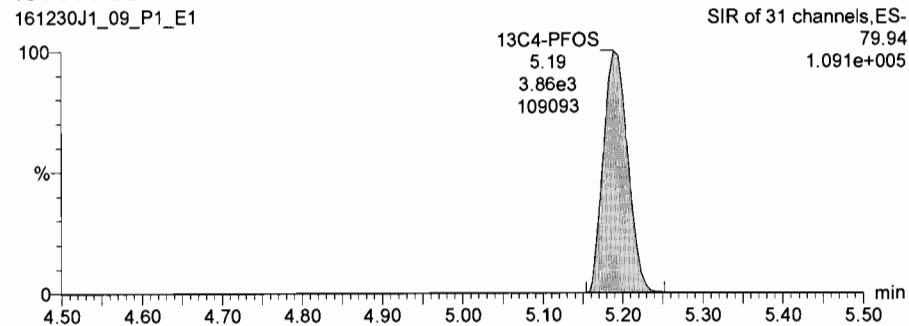
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161230J1_09_P1_E1



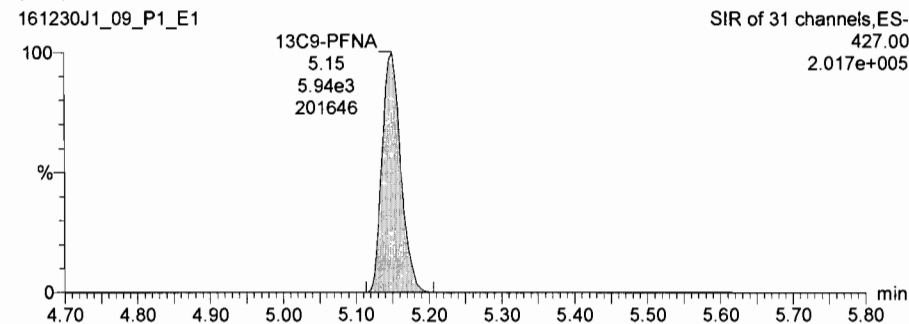
13C4-PFOS

161230J1_09_P1_E1



13C9-PFNA

161230J1_09_P1_E1



Dataset: U:\Q2.PRO\Results\161230J1\161230J1_11.qld

Last Altered: Wednesday, January 04, 2017 08:37:51 Pacific Standard Time

Printed: Wednesday, January 04, 2017 08:39:45 Pacific Standard Time

Method: U:\Q2.PRO\MethDB\PFC List 18_A No4-2FTS_Mixed.mdb 28 Dec 2016 09:59:56

Calibration: U:\Q2.PRO\CurveDB\C18_VAL-PFC_Q2_12-3016_L6_A_PFDA.cdb 03 Jan 2017 12:10:12 ^(A)

Name: 161230J1_11.wiff, Date: 30-Dec-2016, Time: 18:17:17, ID: SS161230J1-1 SSS PFC 16L2233, Description: PFC SSS 16L2233 A

	# Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc.	%Rec
1	3 PFBS	79.90	4.03e3	5.73e3		1.000	3.60	10.3	102.5
2	5 PFHpA	318.90	6.40e3	7.60e3		1.000	4.45	12.0	119.5
3	6 PFHxS	79.91	3.26e3	1.09e3		1.000	4.56	11.5	115.2
4	8 PFOA	368.90	5.41e3	6.41e3		1.000	4.85	9.12	115.2
5	9 PFNA	419.00	6.39e3	5.00e3		1.000	5.17	12.0	120.3
6	10 PFOS	79.92	3.03e3	3.02e3		1.000	5.23	9.84	98.4
7	11 PFDA	469.00	2.29e3	2.89e3		1.000	5.43	10.8	107.7
8	15 13C3-PFBS	79.95	5.73e3	1.00e4	0.569	1.000	3.60	12.6	100.7
9	17 13C4-PFHpA	321.90	7.60e3	1.00e4	0.753	1.000	4.45	12.6	100.9
10	18 18O2-PFHxS	102.90	1.09e3	4.18e3	0.284	1.000	4.56	11.4	91.4
11	19 13C2-6:2 FTS	408.90	1.46e3	9.51e3	0.164	1.000	4.80	11.7	93.6
12	20 13C2-PFOA	369.90	6.41e3	9.51e3	0.674	1.000	4.85	12.5	100.0
13	21 13C5-PFNA	422.90	5.00e3	5.01e3	0.970	1.000	5.17	12.9	102.9
14	22 13C8-PFOS	79.93	3.02e3	2.93e3	0.971	1.000	5.22	13.3	106.2
15	23 13C2-PFDA	470.00	2.89e3	3.06e3	0.862	1.000	5.42	13.7	109.8
16	24 13C2-8:2 FTS	508.70	5.62e2	3.06e3	0.196	1.000	5.41	11.7	93.7
17	25 13C4-PFBA	171.90	9.94e3	9.94e3	1.000	1.000	2.27	12.5	100.0
18	26 13C5-PFHxA	273.00	1.00e4	1.00e4	1.000	1.000	3.96	12.5	100.0
19	27 13C3-PFHxS	80.01	4.18e3	4.18e3	1.000	1.000	4.55	12.5	100.0
20	28 13C8-PFOA	375.90	9.51e3	9.51e3	1.000	1.000	4.84	12.5	100.0
21	29 13C9-PFNA	427.00	5.01e3	5.01e3	1.000	1.000	5.17	12.5	100.0
22	30 13C4-PFOS	79.94	2.93e3	2.93e3	1.000	1.000	5.22	12.5	100.0
23	31 13C6-PFDA	474.00	3.06e3	3.06e3	1.000	1.000	5.42	12.5	100.0

75-125

(B)



(A) curve is for L6
and PFDA
- AMSC 1/4/17

(B) rec % calculation
based on linear.
AMSC 1/4/17

AMSC 1/4/17

PW
1/4/17

	Sample Name	Acquisition Date	Sample ID	Sample Comment
1	161230J1_01	12/30/2016 16:14:56	IPA	IPA
2	161230J1_02	12/30/2016 16:27:10	ST161230J1-1 PFC CS(-2) 16L3002	PFC CS(-2)16L3002 A
3	161230J1_03	12/30/2016 16:39:22	ST161230J1-2 PFC CS(-1) 16L3003	PFC CS(-1) 16L3003 A
4	161230J1_04	12/30/2016 16:51:36	ST161230J1-3 PFC CS0 16L3004	PFC CS0 16L3004 A
5	161230J1_05	12/30/2016 17:03:50	ST161230J1-4 PFC CS1 16L3005	PFC CS1 16L3005 A
6	161230J1_06	12/30/2016 17:16:05	ST161230J1-5 PFC CS2 16L3006	PFC CS2 16L3006 A
7	161230J1_07	12/30/2016 17:28:18	ST161230J1-6 PFC CS3 16L3007	PFC CS3 16L3007 A
8	161230J1_08	12/30/2016 17:40:32	ST161230J1-7 PFC CS4 16L3008	PFC CS4 16L3008 A
9	161230J1_09	12/30/2016 17:52:47	ST161230J1-8 PFC CS5 16L3009	PFC CS5 16L3009 A
10	161230J1_10	12/30/2016 18:05:03	IPA	IPA
11	161230J1_11	12/30/2016 18:17:17	SS161230J1-1 SSS PFC 16L2233	PFC SSS 16L2233 A
12	161230J1_12	12/30/2016 18:29:32	IPA	IPA
13	161230J1_13	12/30/2016 18:41:43	B6L0135-BS1	OPR
14	161230J1_14	12/30/2016 18:53:59	B6L0136-BS1	OPR
15	161230J1_15	12/30/2016 19:06:16	B6L0139-BS1	OPR
16	161230J1_16	12/30/2016 19:18:28	B6L0139-BSD1	LCS Dup
17	161230J1_17	12/30/2016 19:30:43	IPA	IPA
18	161230J1_18	12/30/2016 19:43:00	B6L0135-BLK1	Method Blank
19	161230J1_19	12/30/2016 19:55:13	B6L0136-BLK1	Method Blank
20	161230J1_20	12/30/2016 20:07:32	B6L0139-BLK1	Method Blank
21	161230J1_21	12/30/2016 20:19:47	1601580-01	BERPCA098
22	161230J1_22	12/30/2016 20:32:02	1601580-02	BERPCA097
23	161230J1_23	12/30/2016 20:44:15	1601580-03	BERPCA005
24	161230J1_24	12/30/2016 20:56:29	B6L0135-MS1	Matrix Spike
25	161230J1_25	12/30/2016 21:08:42	B6L0135-MSD1	Matrix Spike Dup
26	161230J1_26	12/30/2016 21:20:57	1601580-04	BERPCA096
27	161230J1_27	12/30/2016 21:33:11	1601572-01	MW-1002M
28	161230J1_28	12/30/2016 21:45:23	1601572-02	MW-1002D
29	161230J1_29	12/30/2016 21:57:38	1601572-03	MW-1003D
30	161230J1_30	12/30/2016 22:09:53	1601572-04	SW-205
31	161230J1_31	12/30/2016 22:22:05	1601572-05	MW-1005DD
32	161230J1_32	12/30/2016 22:34:20	1601572-06	MW-1001S
33	161230J1_33	12/30/2016 22:46:40	IPA	IPA
34	161230J1_34	12/30/2016 22:58:54	ST161230J1-9 PFC C3 16L3007	PFC C3 16L3007 A
35	161230J1_35	12/30/2016 23:11:08	IPA	IPA
36	161230J1_36	12/30/2016 23:23:22	1601572-07	MW-1004S
37	161230J1_37	12/30/2016 23:35:38	1601572-08	B-102D
38	161230J1_38	12/30/2016 23:47:50	1601572-09	PW-105
39	161230J1_39	12/31/2016 00:00:06	1601572-10	Field Blank
40	161230J1_40	12/31/2016 00:12:21	1601592-01	PFAS-SW10-121516
41	161230J1_41	12/31/2016 00:24:33	1601592-02	PFAS-SW11-121516
42	161230J1_42	12/31/2016 00:36:49	1601592-03	PFAS-SW12-121516
43	161230J1_43	12/31/2016 00:49:04	B6L0139-MS1	Matrix Spike
44	161230J1_44	12/31/2016 01:01:15	B6L0139-MSD1	Matrix Spike Dup
45	161230J1_45	12/31/2016 01:13:32	1601592-04	PFAS-SW13-121516
46	161230J1_46	12/31/2016 01:25:46	1601592-05	PFAS-SW18-121516
47	161230J1_47	12/31/2016 01:38:01	1601592-06	PFAS-WS-DUP5-121516
48	161230J1_48	12/31/2016 01:50:13	1601592-07	EB5-WS-121516
49	161230J1_49	12/31/2016 02:02:28	IPA	IPA
50	161230J1_50	12/31/2016 02:14:42	ST161230J1-10 PFC C3 16L3007	PFC C3 16L3007 A
51	161230J1_51	12/31/2016 02:26:56	IPA	IPA
52	161230J1_52	12/31/2016 02:39:11	1601592-08	PFAS-SRA-MW10-601S-121916
53	161230J1_53	12/31/2016 02:51:26	1601592-09	PFAS-SRA-OMW-09S-121916
54	161230J1_54	12/31/2016 03:03:42	B6L0139-MS2	Matrix Spike
55	161230J1_55	12/31/2016 03:15:57	B6L0139-MSD2	Matrix Spike Dup
56	161230J1_56	12/31/2016 03:28:10	1601592-10	PFAS-WG-DUP5-121916
57	161230J1_57	12/31/2016 03:40:24	1601592-11	PFAS-CH-108-MW02-121916

	Sample Name	Acquisition Date	Sample ID	Sample Comment
58	161230J1_58	12/31/2016 03:52:39	1601592-12	EB5-WG-121916
59	161230J1_59	12/31/2016 04:04:56	1601592-13	PFAS-SL-MW-25-122016
60	161230J1_60	12/31/2016 04:17:07	1601592-14	EB6-WG-122016
61	161230J1_61	12/31/2016 04:29:23	IPA	IPA
62	161230J1_62	12/31/2016 04:41:39	ST161230J1-11 PFC C3 16L3007	PFC C3 16L3007 A
63	161230J1_63	12/31/2016 04:53:52	IPA	IPA

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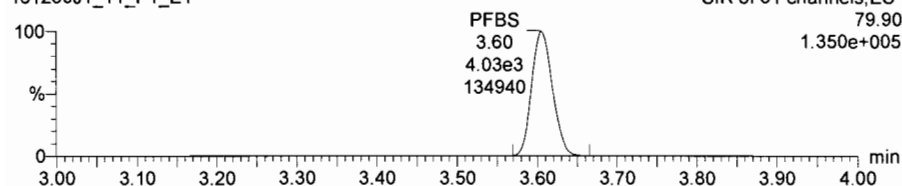
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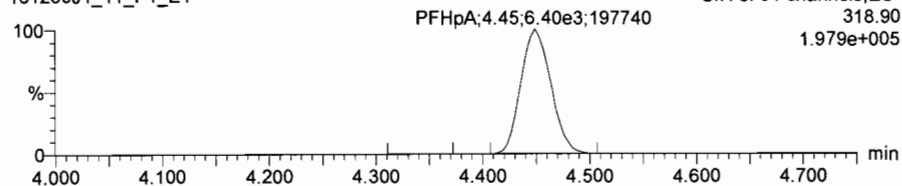
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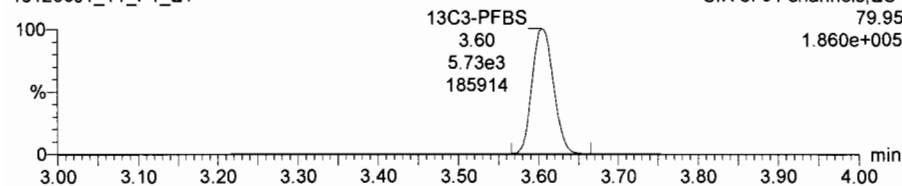
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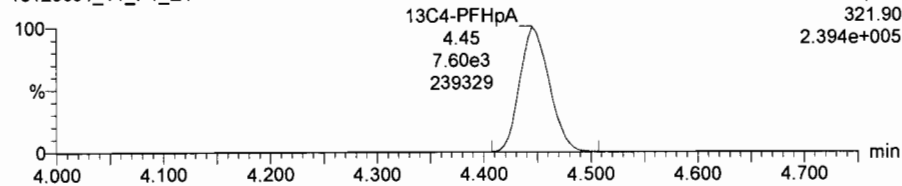
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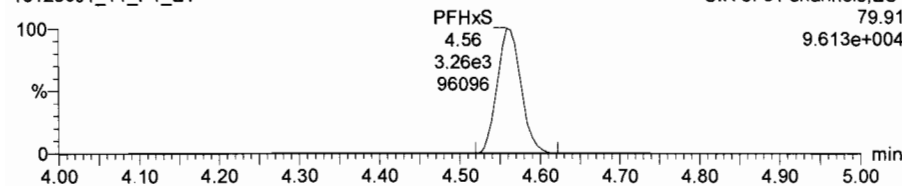
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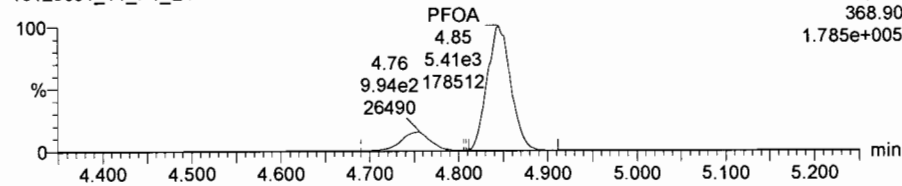
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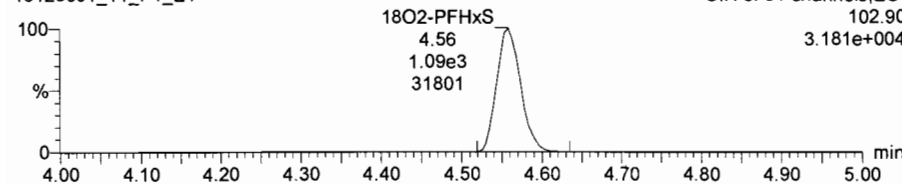
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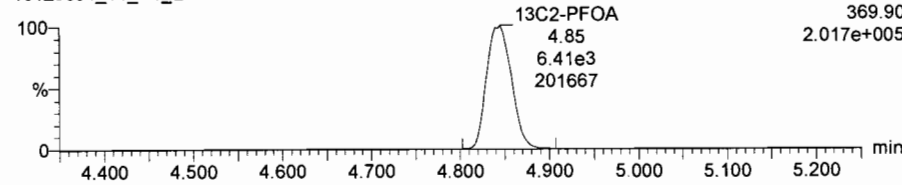
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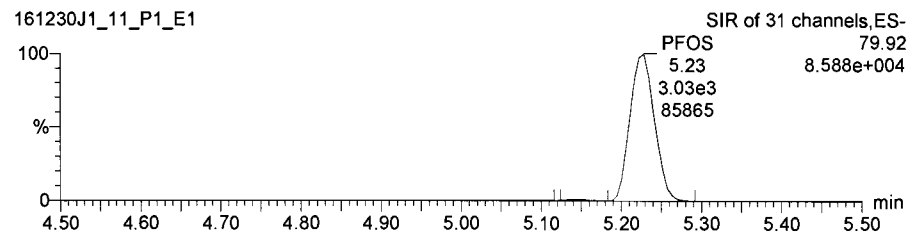
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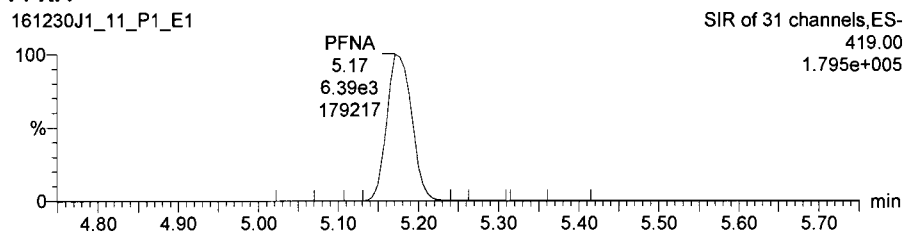
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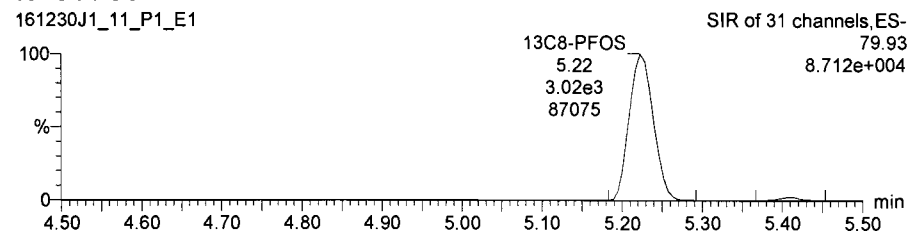
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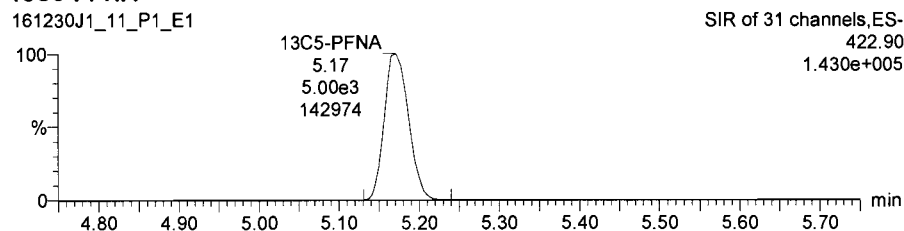
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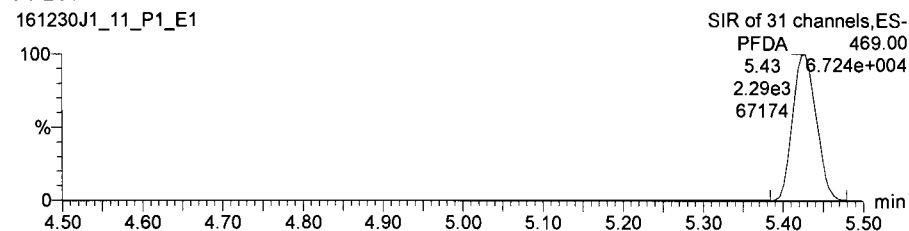
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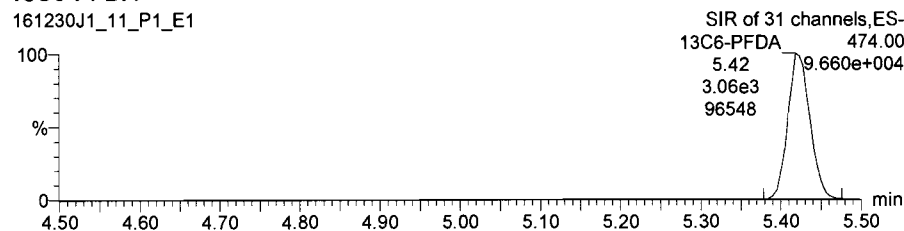
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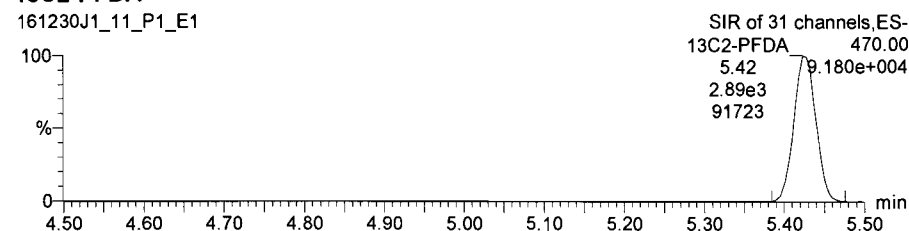
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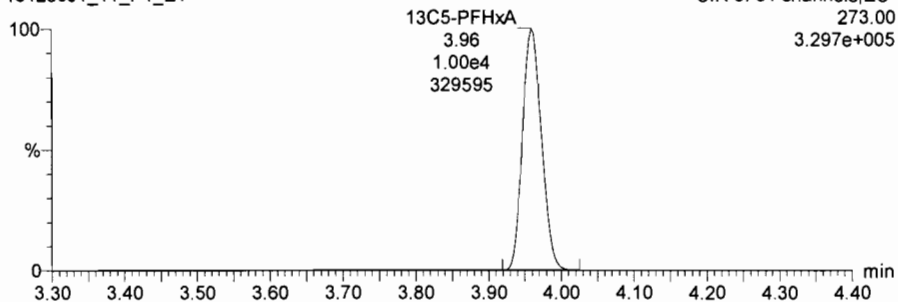
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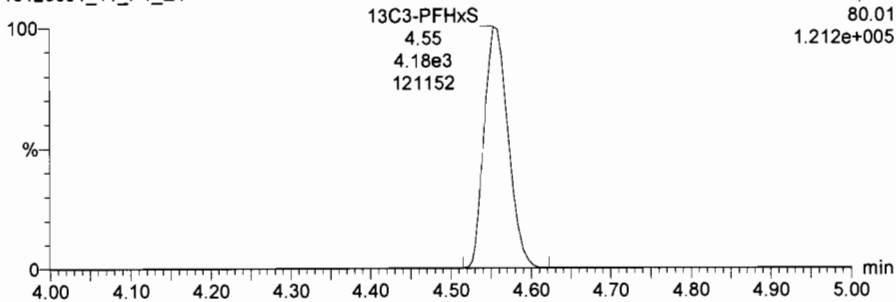
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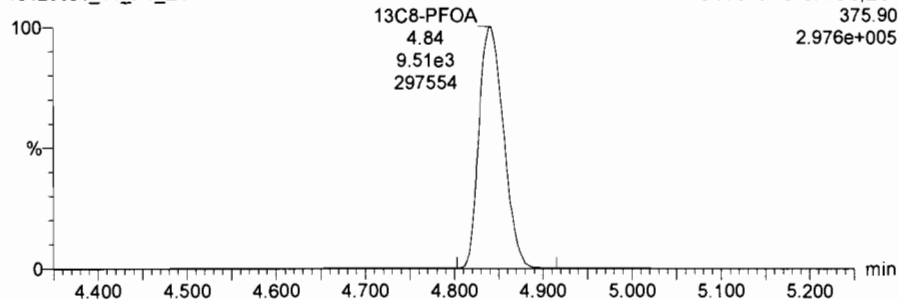
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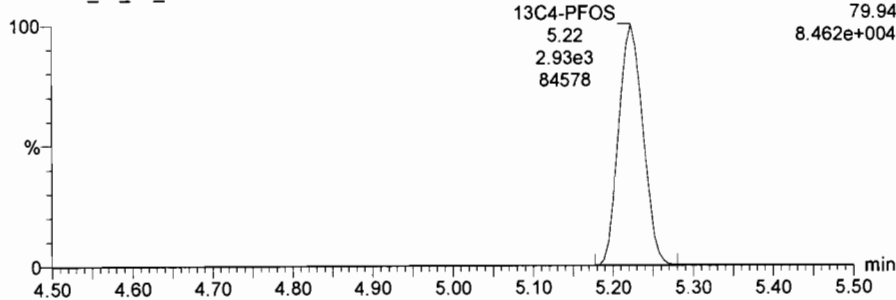
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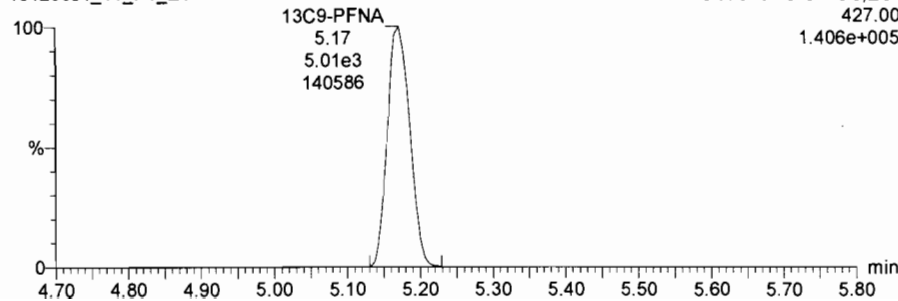
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13C9-PFNA

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SIR of 31 channels, ES-
427.00
1.406e+005

[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**.

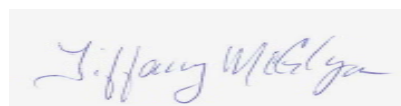
Blank ID	Compound	Conc.	Units
B6L0115-BLK1	Perfluorooctanoic acid (PFOA)	0.816	NG_L

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

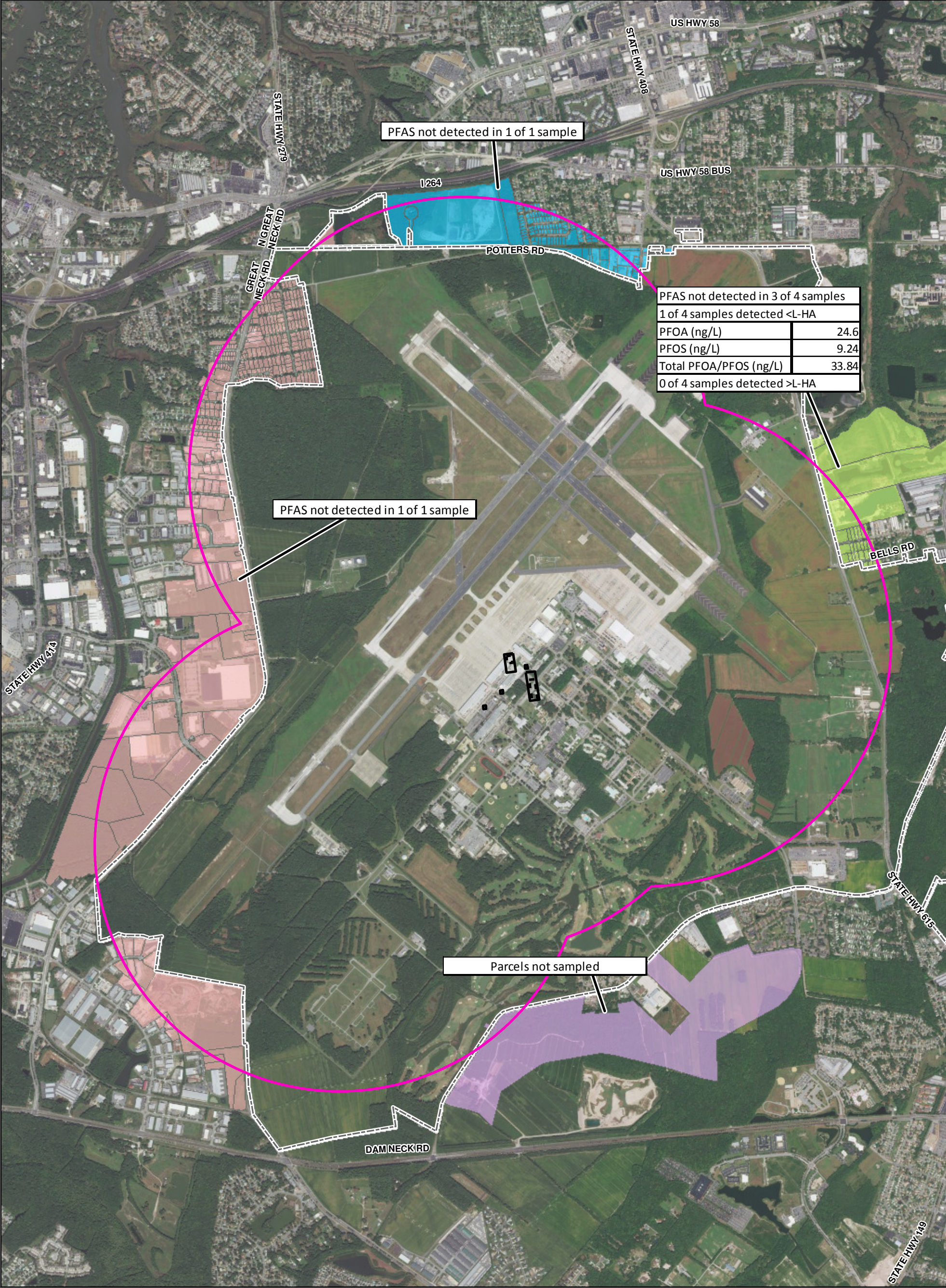
Qualification Flags

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

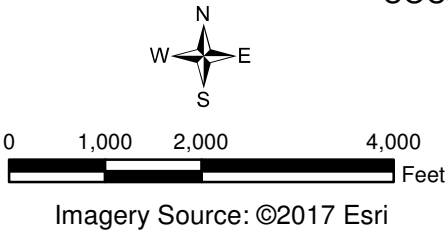


Figure 4-3
COCs Detections in Potable Wells Sampled from Parcels Located Off-Base
Basewide Per- and Polyfluoroalkyl Substances Site Inspection Report
NAS Oceana, Virginia Beach, Virginia