



**Groundwater Sample Results,
Level 2 Laboratory Report, Level 4 Laboratory Report,
Electronic Data Deliverable, Data Validation Report,
and the Sample Location Report, SDG 1600896**

*Naval Air Station Oceana
Virginia Beach, Virginia*

July 2019

July 22, 2016

Vista Work Order No. 1600896

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 July 13, 2016. This sample set was analyzed on a rush turn-around time, under your Project Name 'Fentress Phase II PFC Investigation'.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

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

Sincerely,



Martha Maier
Laboratory Director



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

Vista Work Order No. 1600896

Case Narrative

Sample Condition on Receipt:

Three aqueous 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 six PFAS using Modified EPA Method 537. The results for PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers. Results for PFHpA and PFNA results include the linear isomer only.

Holding Times

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

Quality Control

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

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

The recoveries of all internal standards in the 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
1600896-01	OF-MW24-0716	11-Jul-16 11:45	13-Jul-16 08:56	HDPE Bottle, 125 mL HDPE Bottle, 125 mL
1600896-02	OF-FB071116	11-Jul-16 16:00	13-Jul-16 08:56	HDPE Bottle, 125 mL HDPE Bottle, 125 mL
1600896-03	OF-MW27-0716	12-Jul-16 14:05	13-Jul-16 08:56	HDPE Bottle, 125 mL HDPE Bottle, 125 mL

ANALYTICAL RESULTS

Sample ID: Method Blank						Modified EPA Method 537			
Matrix: Aqueous		QC Batch: B6G0059		Lab Sample: B6G0059-BLK1		Date Analyzed: 14-Jul-16 16:54 Column: BEH C18 Analyst: BSR			
Sample Size: 0.125 L		Date Extracted: 14-Jul-2016 8:36							
Analyte	Conc. (ng/L)	MDL	LOD	LOQ	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
PFBS	ND	1.79	4.00	8.00		IS 13C3-PFBS	93.7	60 - 150	
PFHpA	ND	0.591	4.00	8.00		IS 13C4-PFHpA	95.6	25 - 175	
PFHxS	ND	0.947	4.00	8.00		IS 18O2-PFHxS	86.6	60 - 150	
PFOA	ND	0.651	4.00	8.00		IS 13C2-PFOA	78.3	60 - 150	
PFOS	ND	0.807	4.00	8.00		IS 13C8-PFOS	89.4	60 - 150	
PFNA	ND	0.810	4.00	8.00		IS 13C5-PFNA	82.4	50 - 150	

LCL-UCL - Lower control limit - upper control limit

Results reported to MDL.

The results for PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.

Sample ID: OPR

Modified EPA Method 537

Matrix: Aqueous Sample Size: 0.125 L	QC Batch: B6G0059 Date Extracted: 14-Jul-2016 8:36	Lab Sample: B6G0059-BS1 Date Analyzed: 14-Jul-16 16:28 Column: BEH C18 Analyst: BSR					
Analyte	Amt Found (ng/L)	Spike Amt	%R	Limits	Labeled Standard	%R	LCL-UCL
PFBS	79.9	80.0	99.9	60 - 130	IS 13C3-PFBS	94.0	60 - 150
PFHpA	82.1	80.0	103	70 - 130	IS 13C4-PFHpA	93.0	25 - 175
PFHxS	85.6	80.0	107	70 - 130	IS 18O2-PFHxS	78.3	60 - 150
PFOA	84.5	80.0	106	70 - 130	IS 13C2-PFOA	81.9	60 - 150
PFOS	98.5	80.0	123	70 - 130	IS 13C8-PFOS	83.7	60 - 150
PFNA	88.9	80.0	111	50 - 130	IS 13C5-PFNA	84.8	50 - 150

LCL-UCL - Lower control limit - upper control limit

Sample ID: OF-MW24-0716

Modified EPA Method 537

Client Data		Sample Data		Laboratory Data			
Name:	CH2M Hill	Matrix:	Aqueous	Lab Sample:	1600896-01	Date Received:	13-Jul-2016 8:56
Project:	Fentress Phase II PFC Investigation	Sample Size:	0.112 L	QC Batch:	B6G0059	Date Extracted:	14-Jul-2016 8:36
Date Collected:	11-Jul-2016 11:45			Date Analyzed:	14-Jul-16 17:06	Column:	BEH C18 Analyst: BSR
Location:	MW24						

Analyte	Conc. (ng/L)	MDL	LOD	LOQ	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
PFBS	106	2.00	4.46	8.93		IS 13C3-PFBS	98.7	60 - 150	
PFHpA	57.7	0.660	4.46	8.93		IS 13C4-PFHpA	101	25 - 175	
PFHxS	1650	1.06	4.46	8.93		IS 18O2-PFHxS	81.7	60 - 150	
PFOA	309	0.727	4.46	8.93		IS 13C2-PFOA	76.8	60 - 150	
PFOS	3320	0.901	4.46	8.93		IS 13C8-PFOS	89.6	60 - 150	
PFNA	8.63	0.904	4.46	8.93	J	IS 13C5-PFNA	82.6	50 - 150	

LCL-UCL - Lower control limit - upper control limit

Results reported to MDL.

The results for PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.

Sample ID: OF-FB071116**Modified EPA Method 537**

Client Data		Sample Data		Laboratory Data			
Name:	CH2M Hill	Matrix:	Aqueous	Lab Sample:	1600896-02	Date Received:	13-Jul-2016 8:56
Project:	Fentress Phase II PFC Investigation	Sample Size:	0.123 L	QC Batch:	B6G0059	Date Extracted:	14-Jul-2016 8:36
Date Collected:	11-Jul-2016 16:00			Date Analyzed:	14-Jul-16 17:19	Column:	BEH C18 Analyst: BSR
Location:	Field Blank						

Analyte	Conc. (ng/L)	MDL	LOD	LOQ	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
PFBS	ND	1.82	4.07	8.13		IS 13C3-PFBS	87.2	60 - 150	
PFHpA	ND	0.600	4.07	8.13		IS 13C4-PFHpA	95.6	25 - 175	
PFHxS	ND	0.962	4.07	8.13		IS 18O2-PFHxS	87.9	60 - 150	
PFOA	ND	0.661	4.07	8.13		IS 13C2-PFOA	78.3	60 - 150	
PFOS	ND	0.820	4.07	8.13		IS 13C8-PFOS	85.1	60 - 150	
PFNA	ND	0.823	4.07	8.13		IS 13C5-PFNA	91.4	50 - 150	

LCL-UCL - Lower control limit - upper control limit

Results reported to MDL.

The results for PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.

Sample ID: OF-MW27-0716**Modified EPA Method 537**

Client Data		Sample Data		Laboratory Data			
Name:	CH2M Hill	Matrix:	Aqueous	Lab Sample:	1600896-03	Date Received:	13-Jul-2016 8:56
Project:	Fentress Phase II PFC Investigation	Sample Size:	0.119 L	QC Batch:	B6G0059	Date Extracted:	14-Jul-2016 8:36
Date Collected:	12-Jul-2016 14:05			Date Analyzed:	14-Jul-16 17:32	Column:	BEH C18 Analyst: BSR
Location:	MW27						

Analyte	Conc. (ng/L)	MDL	LOD	LOQ	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
PFBS	ND	1.88	4.20	8.40		IS 13C3-PFBS	95.9	60 - 150	
PFHpA	ND	0.621	4.20	8.40		IS 13C4-PFHpA	96.4	25 - 175	
PFHxS	ND	0.995	4.20	8.40		IS 18O2-PFHxS	98.8	60 - 150	
PFOA	1.33	0.684	4.20	8.40	J	IS 13C2-PFOA	88.4	60 - 150	
PFOS	ND	0.848	4.20	8.40		IS 13C8-PFOS	80.2	60 - 150	
PFNA	ND	0.851	4.20	8.40		IS 13C5-PFNA	86.8	50 - 150	

LCL-UCL - Lower control limit - upper control limit

Results reported to MDL.

The results for PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.

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.
*	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



CHAIN OF CUSTODY

FOR LABORATORY USE ONLY

Storage Secured

Laboratory Project ID: 1600896

Yes No

Storage ID: WR-2

Temp: -1.1 °C

TAT: (Check One): PER CONTRACT

Standard: 21 Days

Rush (surcharge may apply):

14 days 7 days Specify: _____

Project I.D.: FENTRESS PFL P.O.# _____ Sampler: R. McELHANNY

Invoice to: Name CH2M HILL Company _____ Address 5701 CLEVELAND ST City VIRGINIA BEACH State VA Zip 23462 Ph# _____ Fax# _____

Relinquished by: (Signature and Printed Name) ROBERT McELHANNY Date: 7-12-16 Time: 1635 Received by: (Signature and Printed Name) Grace A. Ramo Date: 7/13/16 Time: 0902

Relinquished by: (Signature and Printed Name) _____ Date: _____ Time: _____ Received by: (Signature and Printed Name) _____ Date: _____ Time: _____

See "Sample Log-in Checklist" for additional sample information

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

Method of Shipment: FEDEX

Tracking No.: _____

ATTN: MARTHA MAIER

Add Analysis(es) Requested		Container(s)																							
Quantity	Type	Matrix	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	TOTALS	COPLANAR PCB's	209 CONGENERS	PBDE	PAH	WVH-29	EPA1613	EPA8290	EPA8280	EPA1668	EPA1614	CARB429		
2	0	AQ																							
2	0	AQ																							
2	0	AQ																							
2	0	AQ																							

Sample ID	Date	Time	Location/Sample Description
<u>OF-MW24-0716</u>	<u>7-11-16</u>	<u>1145</u>	<u>MW24</u>
<u>OF-FB071116</u>	<u>7-11-16</u>	<u>1600</u>	<u>FIELD BLANK</u>
<u>OF-MW27-0716</u>	<u>7-11-16</u>		<u>TSM</u>
<u>OF-MW27-0716</u>	<u>7-12-16</u>	<u>1405</u>	<u>MW27</u>

Special Instructions/Comments: _____

SEND DOCUMENTATION AND RESULTS TO:

Name: T. S. S. S.
Company: CH2M HILL
Address: _____
City: _____ State: _____ Zip: _____
Phone: 541-768-3109 Fax: _____
Email: _____
Matrix Types: DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, AQ = Aqueous, O = Other

Container Types: A = 1 Liter Amber, G = Glass Jar
P = PUF, T = MM5 Train, O = Other 125 POLY

*Bottle Preservative Type: T = Thiosulfate, O = Other _____

SAMPLE LOG-IN CHECKLIST



Vista Project #: 1600896 TAT Std

Samples Arrival:	Date/Time 7/13/16 0856	Initials: jfr	Location: WR-2
			Shelf/Rack: N/A
Logged In:	Date/Time 07/13/16 1230	Initials: jfr	Location: WR-2
			Shelf/Rack: E6
Delivered By:	<input checked="" type="checkbox"/> FedEx	<input type="checkbox"/> UPS	<input type="checkbox"/> On Trac
		<input type="checkbox"/> DHL	<input type="checkbox"/> Hand Delivered
	<input type="checkbox"/> Other		
Preservation:	<input checked="" type="checkbox"/> Ice	<input type="checkbox"/> Blue Ice	<input type="checkbox"/> Dry Ice
	<input type="checkbox"/> None		
Temp °C: -0.8 (uncorrected)	Time: 0902	Thermometer ID: IR-1	
Temp °C: -1.1 (corrected)			

		YES	NO	NA
Adequate Sample Volume Received?		✓		
Holding Time Acceptable?		✓		
Shipping Container(s) Intact?		✓		
Shipping Custody Seals Intact?		✓		✓ <i>7/13/16</i>
Shipping Documentation Present?		✓		
Airbill	Trk # 7835 7175 3212	✓		
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?				✓
Na ₂ S ₂ O ₃ Preservation Documented?	COC	Sample Container	None	
Shipping Container	Vista	Client	Retain	Return
				Dispose

Comments:

July 22, 2016

Vista Work Order No. 1600896

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

Dear Ms. Hill,

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Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at mmaier@vista-analytical.com.

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

Sincerely,



Martha Maier
Laboratory Director



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

Vista Work Order No. 1600896

Case Narrative

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Holding Times

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Quality Control

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

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

The recoveries of all internal standards in the 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
1600896-01	OF-MW24-0716	11-Jul-16 11:45	13-Jul-16 08:56	HDPE Bottle, 125 mL HDPE Bottle, 125 mL
1600896-02	OF-FB071116	11-Jul-16 16:00	13-Jul-16 08:56	HDPE Bottle, 125 mL HDPE Bottle, 125 mL
1600896-03	OF-MW27-0716	12-Jul-16 14:05	13-Jul-16 08:56	HDPE Bottle, 125 mL HDPE Bottle, 125 mL

ANALYTICAL RESULTS

Sample ID: Method Blank						Modified EPA Method 537				
Matrix: Aqueous		QC Batch: B6G0059		Lab Sample: B6G0059-BLK1		Date Analyzed: 14-Jul-16 16:54		Column: BEH C18		Analyst: BSR
Sample Size: 0.125 L		Date Extracted: 14-Jul-2016 8:36								
Analyte	Conc. (ng/L)	MDL	LOD	LOQ	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers	
PFBS	ND	1.79	4.00	8.00		IS 13C3-PFBS	93.7	60 - 150		
PFHpA	ND	0.591	4.00	8.00		IS 13C4-PFHpA	95.6	25 - 175		
PFHxS	ND	0.947	4.00	8.00		IS 18O2-PFHxS	86.6	60 - 150		
PFOA	ND	0.651	4.00	8.00		IS 13C2-PFOA	78.3	60 - 150		
PFOS	ND	0.807	4.00	8.00		IS 13C8-PFOS	89.4	60 - 150		
PFNA	ND	0.810	4.00	8.00		IS 13C5-PFNA	82.4	50 - 150		

LCL-UCL - Lower control limit - upper control limit

Results reported to MDL.

The results for PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.

Sample ID: OPR

Modified EPA Method 537

Matrix: Aqueous	QC Batch: B6G0059	Lab Sample: B6G0059-BS1
Sample Size: 0.125 L	Date Extracted: 14-Jul-2016 8:36	Date Analyzed: 14-Jul-16 16:28 Column: BEH C18 Analyst: BSR

Analyte	Amt Found (ng/L)	Spike Amt	%R	Limits	Labeled Standard	%R	LCL-UCL
PFBS	79.9	80.0	99.9	60 - 130	IS 13C3-PFBS	94.0	60 - 150
PFHpA	82.1	80.0	103	70 - 130	IS 13C4-PFHpA	93.0	25 - 175
PFHxS	85.6	80.0	107	70 - 130	IS 18O2-PFHxS	78.3	60 - 150
PFOA	84.5	80.0	106	70 - 130	IS 13C2-PFOA	81.9	60 - 150
PFOS	98.5	80.0	123	70 - 130	IS 13C8-PFOS	83.7	60 - 150
PFNA	88.9	80.0	111	50 - 130	IS 13C5-PFNA	84.8	50 - 150

LCL-UCL - Lower control limit - upper control limit

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Client Data		Sample Data		Laboratory Data			
Name:	CH2M Hill	Matrix:	Aqueous	Lab Sample:	1600896-01	Date Received:	13-Jul-2016 8:56
Project:	Fentress Phase II PFC Investigation	Sample Size:	0.112 L	QC Batch:	B6G0059	Date Extracted:	14-Jul-2016 8:36
Date Collected:	11-Jul-2016 11:45			Date Analyzed:	14-Jul-16 17:06	Column:	BEH C18 Analyst: BSR
Location:	MW24						

Analyte	Conc. (ng/L)	MDL	LOD	LOQ	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
PFBS	106	2.00	4.46	8.93		IS 13C3-PFBS	98.7	60 - 150	
PFHpA	57.7	0.660	4.46	8.93		IS 13C4-PFHpA	101	25 - 175	
PFHxS	1650	1.06	4.46	8.93		IS 18O2-PFHxS	81.7	60 - 150	
PFOA	309	0.727	4.46	8.93		IS 13C2-PFOA	76.8	60 - 150	
PFOS	3320	0.901	4.46	8.93		IS 13C8-PFOS	89.6	60 - 150	
PFNA	8.63	0.904	4.46	8.93	J	IS 13C5-PFNA	82.6	50 - 150	

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Sample ID: OF-FB071116**Modified EPA Method 537**

Client Data		Sample Data		Laboratory Data			
Name:	CH2M Hill	Matrix:	Aqueous	Lab Sample:	1600896-02	Date Received:	13-Jul-2016 8:56
Project:	Fentress Phase II PFC Investigation	Sample Size:	0.123 L	QC Batch:	B6G0059	Date Extracted:	14-Jul-2016 8:36
Date Collected:	11-Jul-2016 16:00			Date Analyzed:	14-Jul-16 17:19	Column:	BEH C18 Analyst: BSR
Location:	Field Blank						

Analyte	Conc. (ng/L)	MDL	LOD	LOQ	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
PFBS	ND	1.82	4.07	8.13		IS 13C3-PFBS	87.2	60 - 150	
PFHpA	ND	0.600	4.07	8.13		IS 13C4-PFHpA	95.6	25 - 175	
PFHxS	ND	0.962	4.07	8.13		IS 18O2-PFHxS	87.9	60 - 150	
PFOA	ND	0.661	4.07	8.13		IS 13C2-PFOA	78.3	60 - 150	
PFOS	ND	0.820	4.07	8.13		IS 13C8-PFOS	85.1	60 - 150	
PFNA	ND	0.823	4.07	8.13		IS 13C5-PFNA	91.4	50 - 150	

LCL-UCL - Lower control limit - upper control limit

Results reported to MDL.

The results for PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.

Sample ID: OF-MW27-0716**Modified EPA Method 537**

Client Data		Sample Data		Laboratory Data			
Name:	CH2M Hill	Matrix:	Aqueous	Lab Sample:	1600896-03	Date Received:	13-Jul-2016 8:56
Project:	Fentress Phase II PFC Investigation	Sample Size:	0.119 L	QC Batch:	B6G0059	Date Extracted:	14-Jul-2016 8:36
Date Collected:	12-Jul-2016 14:05			Date Analyzed:	14-Jul-16 17:32	Column:	BEH C18 Analyst: BSR
Location:	MW27						

Analyte	Conc. (ng/L)	MDL	LOD	LOQ	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
PFBS	ND	1.88	4.20	8.40		IS 13C3-PFBS	95.9	60 - 150	
PFHpA	ND	0.621	4.20	8.40		IS 13C4-PFHpA	96.4	25 - 175	
PFHxS	ND	0.995	4.20	8.40		IS 18O2-PFHxS	98.8	60 - 150	
PFOA	1.33	0.684	4.20	8.40	J	IS 13C2-PFOA	88.4	60 - 150	
PFOS	ND	0.848	4.20	8.40		IS 13C8-PFOS	80.2	60 - 150	
PFNA	ND	0.851	4.20	8.40		IS 13C5-PFNA	86.8	50 - 150	

LCL-UCL - Lower control limit - upper control limit

Results reported to MDL.

The results for PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.

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.
*	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



CHAIN OF CUSTODY

FOR LABORATORY USE ONLY

Storage Secured

Laboratory Project ID: 1600896

Yes No

Storage ID: WR-2

Temp: -1.1 °C

TAT: (Check One): PER CONTRACT

Standard: 21 Days

Rush (surcharge may apply):

14 days 7 days Specify: _____

Project I.D.: FENTRESS PFL P.O.# _____ Sampler: R. McELHANNY

CH2M HILL Company 5701 CLEVELAND ST Address VIRGINIA BEACH City VA State 23462 Zip

Relinquished by: (Signature and Printed Name) ROBERT McELHANNY Date: 7-12-16 Time: 1635 Received by: (Signature and Printed Name) _____ Date: _____ Time: _____

Relinquished by: (Signature and Printed Name) _____ Date: _____ Time: _____ Received by: (Signature and Printed Name) Grace A. Ramo Date: 7/13/16 Time: 0902

See "Sample Log-in Checklist" for additional sample information

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

Method of Shipment: FEDEX

Add Analysis(es) Requested

Container(s)

ATTN: MARTHA MAIER

Tracking No.: _____

Quantity	Type	Matrix	Add Analysis(es) Requested																
			2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	TOTALS	COPLANAR PCB'S	209 CONGENERS	PBDE	PAH	WVH-29	PFL	
2	0	AQ																	2
2	0	AQ																	2
2	0	AQ																	2

Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	TOTALS	COPLANAR PCB'S	209 CONGENERS	PBDE	PAH	WVH-29	PFL	
OF-MW24-0716	7-11-16	1145	MW24	2	0	AQ																	2
OF-FB071116	7-11-16	1600	FIELD BLANK	2	0	AQ																	2
OF-MW27-0716	7-11-16		TSM																				
OF-MW27-0716	7-12-16	1405	MW27	2	0	AQ																	2

Special Instructions/Comments: _____

SEND DOCUMENTATION AND RESULTS TO:

Name: T. S. S. S.
Company: CH2M HILL
Address: _____
City: _____ State: _____ Zip: _____
Phone: 541-768-3109 Fax: _____
Email: _____
Matrix Types: DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, AQ = Aqueous, O = Other

Container Types: A = 1 Liter Amber, G = Glass Jar
P = PUF, T = MM5 Train, O = Other 125 POLY

*Bottle Preservative Type: T = Thiosulfate, O = Other _____

SAMPLE LOG-IN CHECKLIST



Vista Project #: 1600896 TAT Std

Samples Arrival:	Date/Time	0856	Initials:	Location: WR-2		
	7/13/16		gfr	Shelf/Rack: N/A		
Logged In:	Date/Time	1230	Initials:	Location: WR-2		
	07/13/16		gfr	Shelf/Rack: E6		
Delivered By:	<input checked="" type="checkbox"/> FedEx	<input type="checkbox"/> UPS	<input type="checkbox"/> On Trac	<input type="checkbox"/> DHL	<input type="checkbox"/> Hand Delivered	<input type="checkbox"/> Other
Preservation:	<input checked="" type="checkbox"/> Ice	<input type="checkbox"/> Blue Ice	<input type="checkbox"/> Dry Ice	<input type="checkbox"/> None		
Temp °C:	-0.8 (uncorrected)	Time:	0902	Thermometer ID: IR-1		
Temp °C:	-1.1 (corrected)					

		YES	NO	NA
Adequate Sample Volume Received?		✓		
Holding Time Acceptable?		✓		
Shipping Container(s) Intact?		✓		
Shipping Custody Seals Intact?		✓		✓ <i>gfr 7/13/16</i>
Shipping Documentation Present?		✓		
Airbill	Trk # 7835 7175 3212	✓		
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?				✓
Na ₂ S ₂ O ₃ Preservation Documented?	COC	Sample Container	None	
Shipping Container	Vista	Client	Retain	Return
				Dispose

Comments:

EXTRACTION INFORMATION

Process Sheet
Workorder: 1600896

Prep Expiration: 07/25/2016
 Client: CH2M Hill

Workorder Due: 27-Jul-16 00:00

TAT: 14

Method: **537 PFAS 6 DOD (LOQ as mRL)**
 Matrix: **Aqueous**
 Client Matrix: Aqueous

Prep Batch: B660059

Prep Data Entered: 7/15/16 ES
Date and Initials

Initial Sequence: 5660023G

LabSampleID	Recon	ClientSampleID	Date Received	Location	Comments
1600896-01	<input checked="" type="checkbox"/>	OF-MW24-0716	13-Jul-16 08:56	WR-2 E-6	
1600896-02	<input checked="" type="checkbox"/>	OF-FB071116	13-Jul-16 08:56	WR-2 E-6	
1600896-03	<input checked="" type="checkbox"/>	OF-MW27-0716	13-Jul-16 08:56	WR-2 E-6	

WO Comments: List of 6, include Total PFOA.

Vista PM:Martha Maier

Vial Box ID: 4m

Sample Reconciled By: ES 7/14/16

Percent Solids



Project: B66059 Balance ID: HMS-9

Sample ID	Chemist: <u>N/A</u> Date: <u>↓</u> Time: <u>↓</u>		Chemist: <u>N/A</u> Date: <u>↓</u> Time: <u>↓</u>		Chemist/Date <u>ES 7/14/16</u>		
	Boat Wt.	Sample + Boat Wt.	Residue + Boat Wt.	pH before	pH after	CF	
<u>16008916-1 A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>5</u>	<u>2</u>	<u>0</u>	
<u>↓ -2 ↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>6</u>	<u>2</u>	<u>0</u>	
<u>↓ 3 ↓</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>	<u>6</u>	<u>2</u>	<u>0</u>	

Procedure:

- Tare the balance.
- Record Boat Weight.
- Add 2 - 10 g of sample.
- Record Wet Wt. + Boat Wt.
- Dry in oven overnight at 107°C.
- Tare the balance.
- Record Residue + Boat Wt.

Notes:

* 3 drops HCl added ES 7/14/16

- Methods 8280, 613, 1613, 8290, 1614 - pH < 9
- Methods 1668/PCN - pH 2-3
- NCASI 551 - pH 1

%Solids rmh 5/2011

PREPARATION BENCH SHEET

Matrix: Aqueous

Method: 537 PFAS 6 DOD (LOO as mR

B6G0059

Chemist: E. Schmedley

Prep Date/Time: 14-Jul-16 08:36

Prepared using: LCMS - SPE Extraction-LCMS

C	VISTA Sample ID	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	IS/NS CHEM/WIT DATE	SPE	RS CHEM/WIT DATE
<input type="checkbox"/>	B6G0059-BLK1	N/A	N/A	(0.125)	ES On 7/14/16	ES 7/14/16	ES 7/14/16
<input type="checkbox"/>	B6G0059-BS1	N/A	N/A				
<input type="checkbox"/>	1600896-01	139.06	27.06	0.11200 ✓			
<input type="checkbox"/>	1600896-02	150.13	27.07	0.12506 ✓			
<input type="checkbox"/>	1600896-03	145.93	26.93	0.11900 ✓			

IS Name <u>1600896-01, 10µL</u>	NS Name <u>(V2) 1600896-01, 10µL</u>	RS Name <u>(V3) 1600896-01, 10µL</u>	SPE Chem: <u>Stroto XAW 55µm 200µg/mL</u>	Check Out: <u>ES 7/14/16</u>
			Ele SOLV: <u>MeOH + 0.5% NH₄OH in MeOH</u>	Check In: <u>Empty</u>
			Final Volume(s): <u>7mL</u>	Chemist/Date: <u>ES 7/14/16</u>
				Balance ID: <u>HAUS-9</u>

Comments: Assume 1 g = 1 mL

SAMPLE DATA – MODIFIED EPA METHOD 537

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_30.qld

Last Altered: Friday, July 15, 2016 09:33:53 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:34:00 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

ID: B6G0059-BLK1 Method Blank 0.125, Description: Method Blank, Name: 160714G3_30, Date: 14-Jul-2016, Time: 16:54:04

#	Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	299 > 79.7		5.589e3		0.125			
2	2 PFHpA	363 > 318.9	4.160e1	1.840e4		0.125	3.90	0.172	
3	3 PFHxS	398.9 > 79.6	3.112e1	5.557e3		0.125	4.03	0.475	
4	4 PFOA	413 > 368.7	7.202e1	2.529e4		0.125	4.32	0.396	
5	5 PFOS	499 > 79.9	7.594e0	7.741e3		0.125	4.66	0.246	
6	6 PFNA	463 > 418.8	5.238e0	1.023e4		0.125	4.68	0.0482	
7	7 13C3-PFBS	302.0 > 98.8	5.589e3	3.079e4	0.194	0.125	3.04	93.7	93.7
8	8 13C4-PFHpA	367.2 > 321.8	1.840e4	3.079e4	0.625	0.125	3.90	95.6	95.6
9	9 18O2-PFHxS	403 > 102.6	5.557e3	1.233e4	0.521	0.125	4.02	86.6	86.6
10	10 13C2-PFOA	414.9 > 369.7	2.529e4	1.637e4	1.973	0.125	4.32	78.3	78.3
11	11 13C8-PFOS	507 > 79.9	7.741e3	8.749e3	0.990	0.125	4.74	89.4	89.4
12	12 13C5-PFNA	468.2 > 422.9	1.023e4	1.446e4	0.858	0.125	4.68	82.4	82.4
13	13 13C5-PFHxA	318.0 > 272.9	3.079e4	3.079e4	1.000	0.125	3.39	100	100
14	14 13C3-PFHxS	401.9 > 79.9	1.233e4	1.233e4	1.000	0.125	4.02	100	100
15	15 13C8-PFOA	421.3 > 376	1.637e4	1.637e4	1.000	0.125	4.32	100	100
16	16 13C4-PFOS	503 > 79.9	8.749e3	8.749e3	1.000	0.125	4.74	100	100
17	17 13C9-PFNA	472.2 > 426.9	1.446e4	1.446e4	1.000	0.125	4.68	100	100
18	18 Total PFBS	299 > 79.7		5.589e3		0.125			
19	19 Total PFHxS	398.9 > 79.6		5.557e3		0.125		0.475	
20	20 Total PFOA	413 > 368.7		2.529e4		0.125		0.396	
21	21 Total PFOS	499 > 79.9		7.741e3		0.125		0.246	

Quantify Totals Report MassLynx 4.1

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_30.qld

Last Altered: Friday, July 15, 2016 09:33:53 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:34:00 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30**Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03****ID: B6G0059-BLK1 Method Blank 0.125, Description: Method Blank, Name: 160714G3_30, Date: 14-Jul-2016, Time: 16:54:04****Total PFBS**

	# Name	Trace	RT	Area	IS Area	Conc.
1						

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	3 PFHxS	398.9 > 79.6	4.03	31.122	5556.723	0.5

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	4 PFOA	413 > 368.7	4.32	72.022	25290.607	0.4

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	5 PFOS	499 > 79.9	4.66	7.594	7741.351	0.2

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_30.qld

Last Altered: Friday, July 15, 2016 09:33:53 Pacific Daylight Time

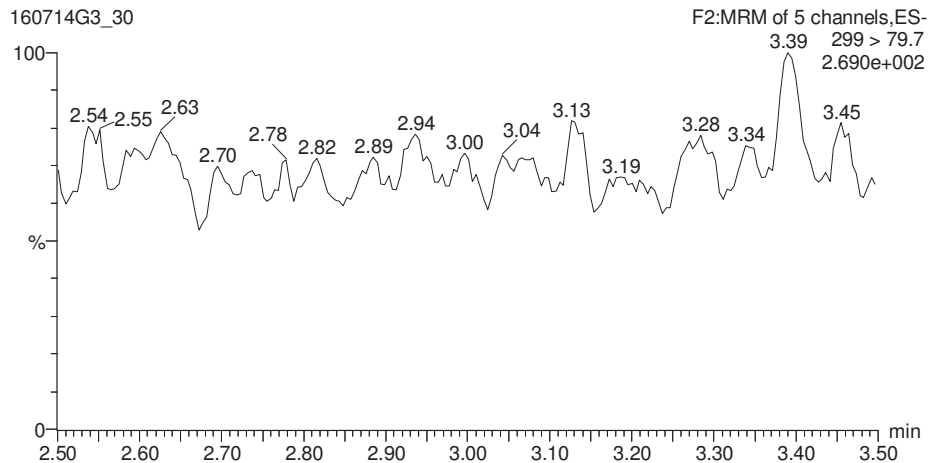
Printed: Friday, July 15, 2016 09:34:00 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

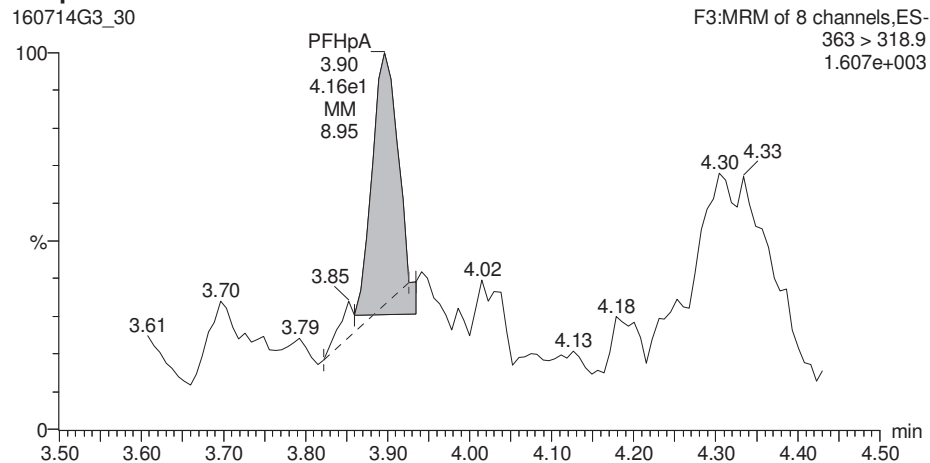
Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

ID: B6G0059-BLK1 Method Blank 0.125, Description: Method Blank, Name: 160714G3_30, Date: 14-Jul-2016, Time: 16:54:04, Instrument: , Lab: , User:

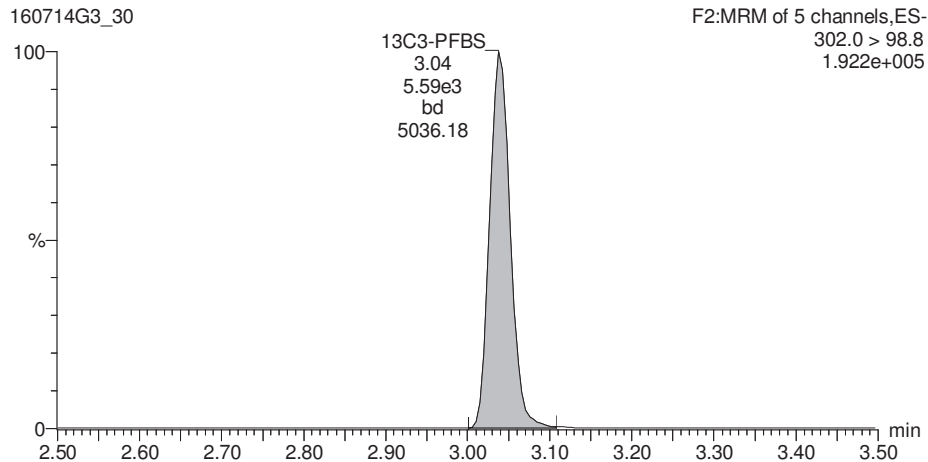
Total PFBS



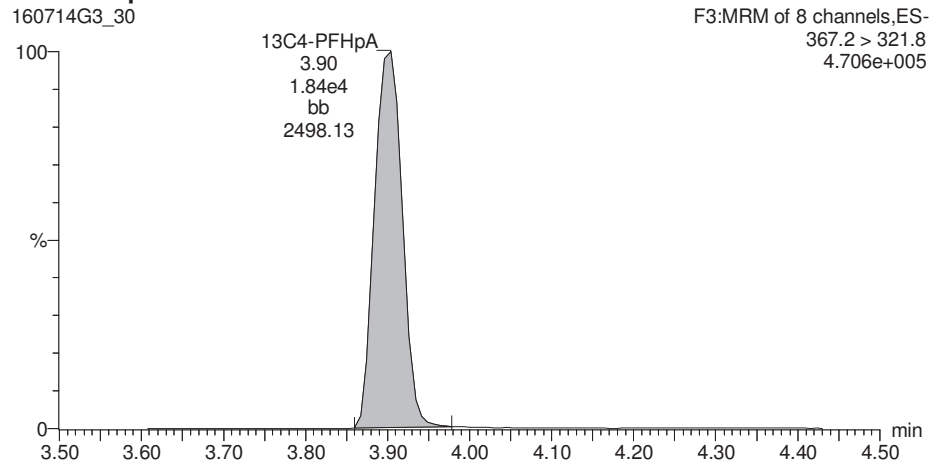
PFHpA



13C3-PFBS



13C4-PFHpA

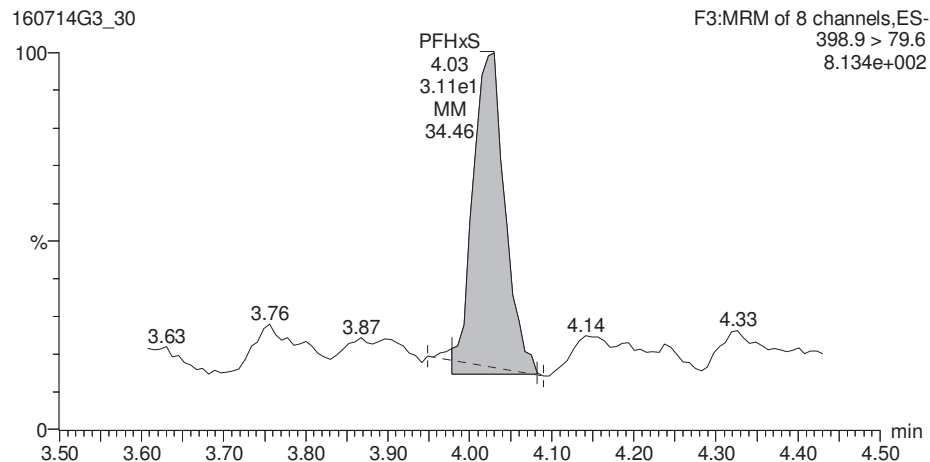


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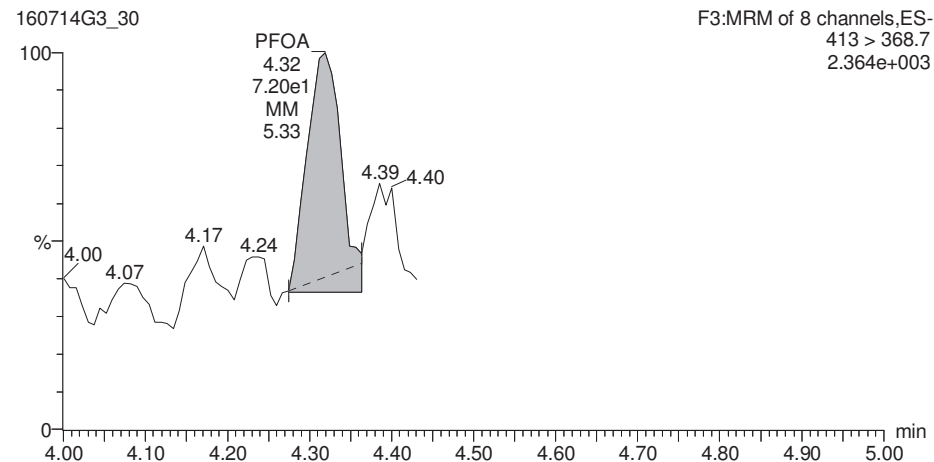
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Printed: Friday, July 15, 2016 09:34:00 Pacific Daylight Time

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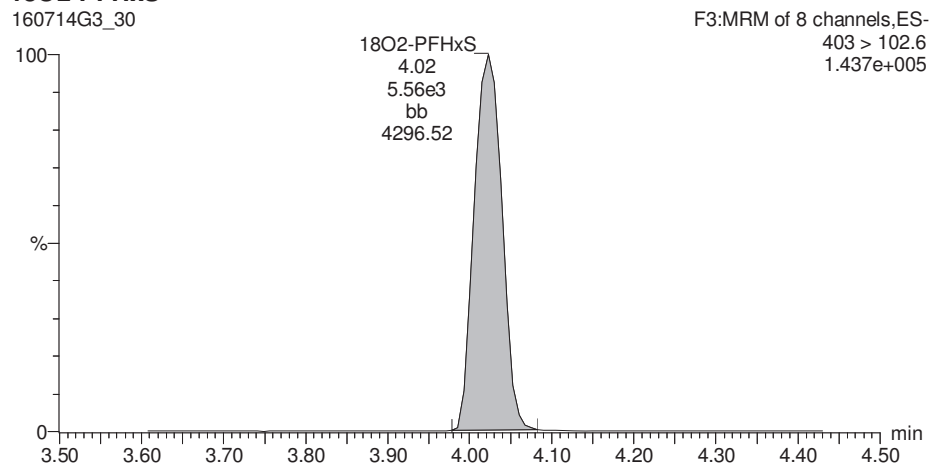
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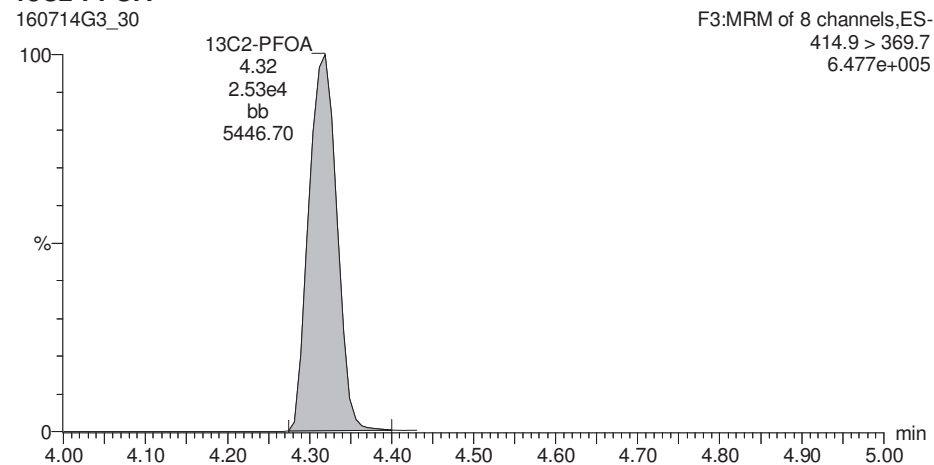
Total PFOA



18O2-PFHxS



13C2-PFOA

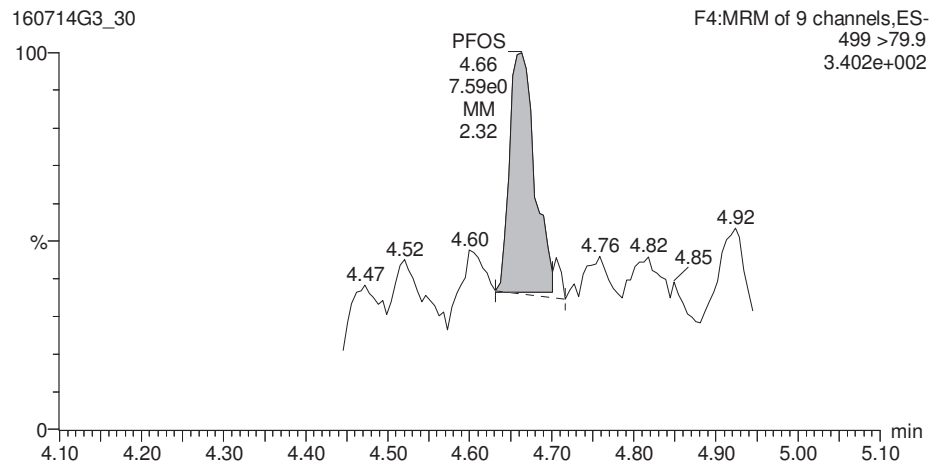


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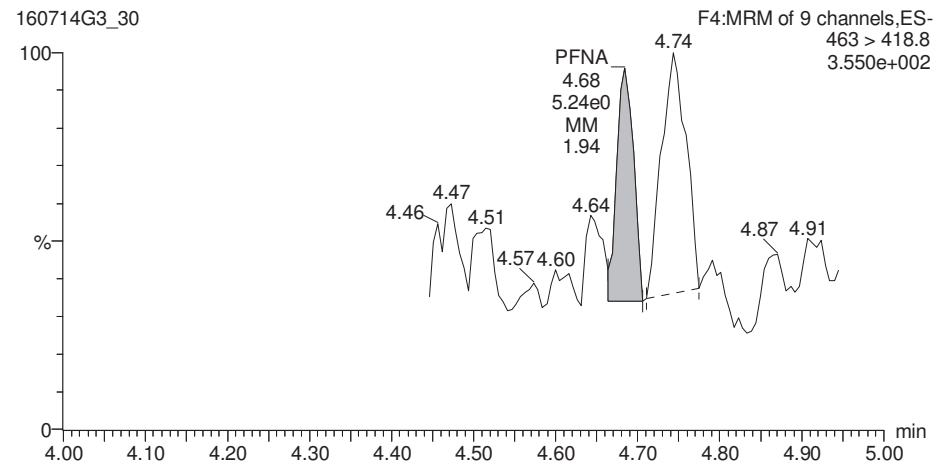
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Printed: Friday, July 15, 2016 09:34:00 Pacific Daylight Time

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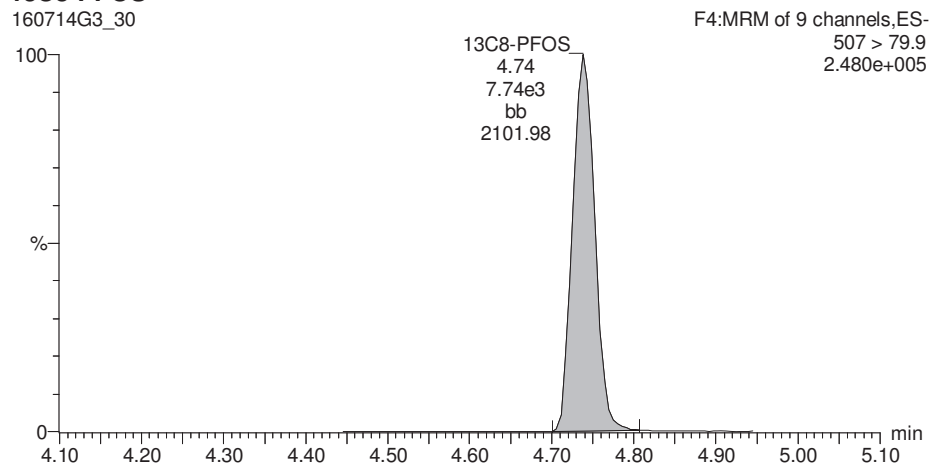
Total PFOS



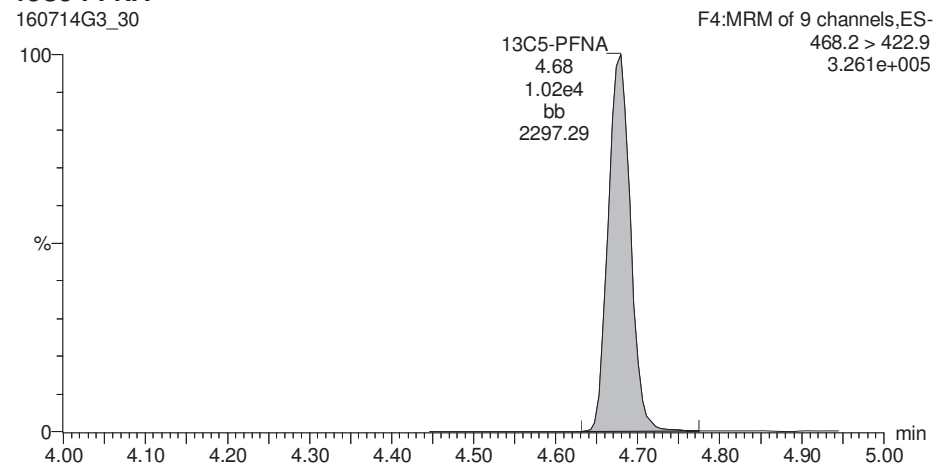
PFNA



13C8-PFOS



13C5-PFNA

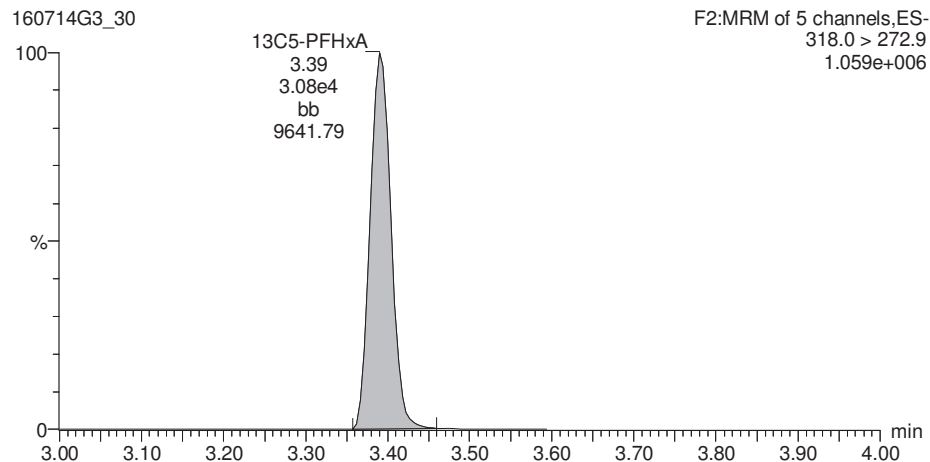


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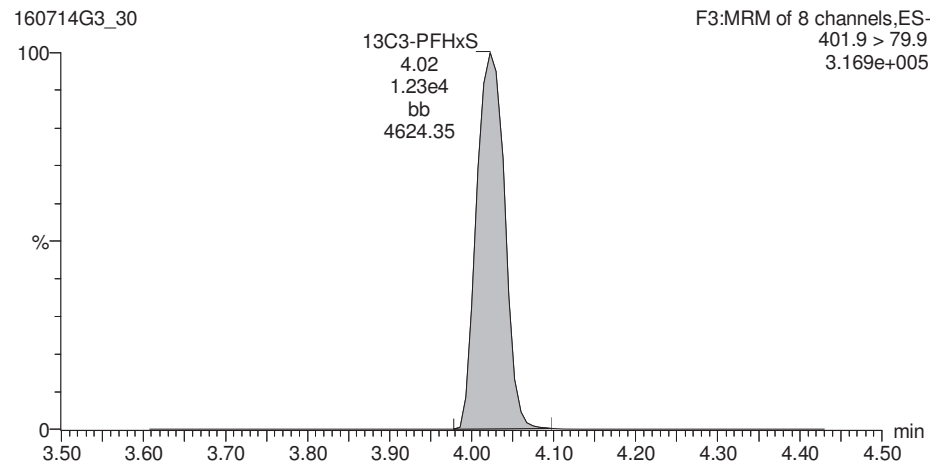
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Printed: Friday, July 15, 2016 09:34:00 Pacific Daylight Time

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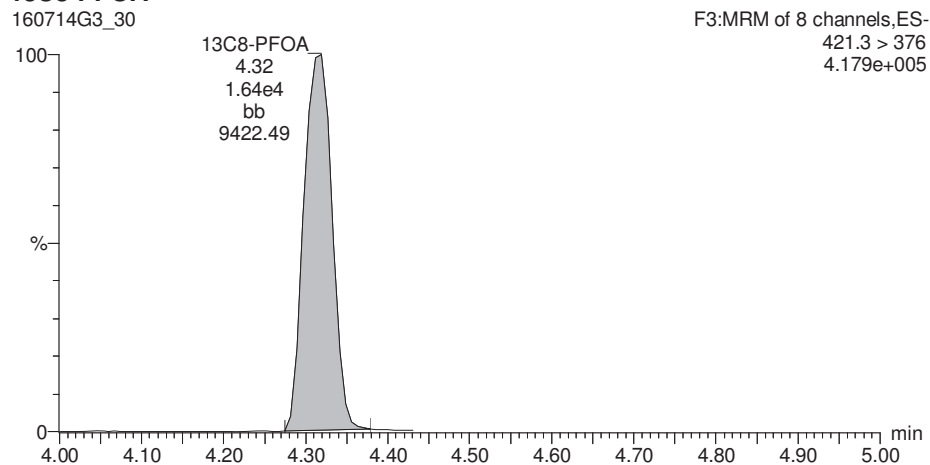
13C5-PFHxA



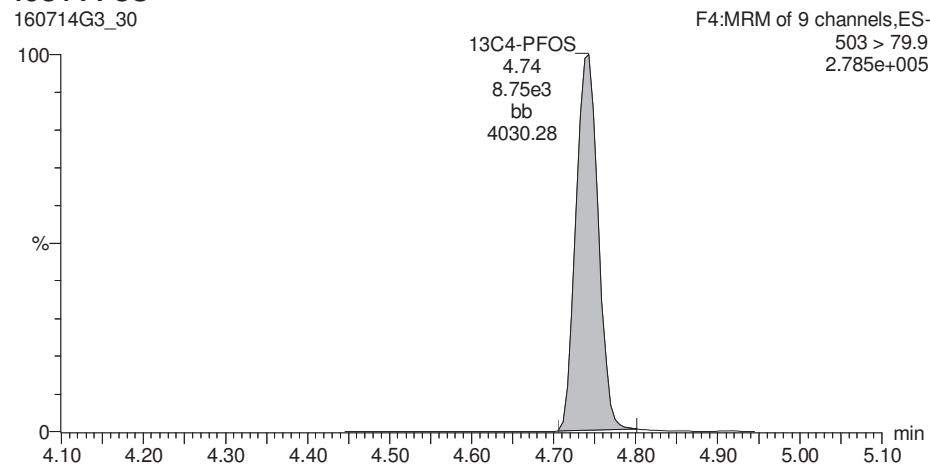
13C3-PFHxS



13C8-PFOA



13C4-PFOS



Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_30.qld

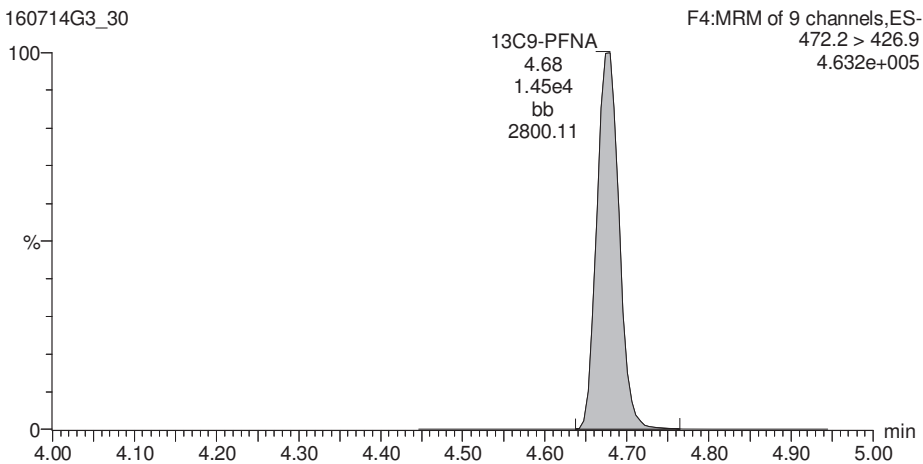
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ID: B6G0059-BLK1 Method Blank 0.125, Description: Method Blank, Name: 160714G3_30, Date: 14-Jul-2016, Time: 16:54:04, Instrument: , Lab: , User:

13C9-PFNA

160714G3_30



Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_28.qld

Last Altered: Friday, July 15, 2016 09:31:00 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:31:13 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

ID: B6G0059-BS1 OPR 0.125, Description: OPR, Name: 160714G3_28, Date: 14-Jul-2016, Time: 16:28:46

#	Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	299 > 79.7	6.534e3	5.791e3		0.125	3.04	79.9	99.9
2	2 PFHpA	363 > 318.9	1.986e4	1.849e4		0.125	3.90	82.1	103
3	3 PFHxS	398.9 > 79.6	5.494e3	5.468e3		0.125	4.03	85.6	107
4	4 PFOA	413 > 368.7	1.639e4	2.708e4		0.125	4.32	84.5	106
5	5 PFOS	499 > 79.9	3.141e3	8.024e3		0.125	4.74	98.5	123
6	6 PFNA	463 > 418.8	9.985e3	1.058e4		0.125	4.68	88.9	111
7	7 13C3-PFBS	302.0 > 98.8	5.791e3	3.178e4	0.194	0.125	3.04	94.0	94.0
8	8 13C4-PFHpA	367.2 > 321.8	1.849e4	3.178e4	0.625	0.125	3.90	93.0	93.0
9	9 18O2-PFHxS	403 > 102.6	5.468e3	1.342e4	0.521	0.125	4.02	78.3	78.3
10	10 13C2-PFOA	414.9 > 369.7	2.708e4	1.676e4	1.973	0.125	4.32	81.9	81.9
11	11 13C8-PFOS	507 > 79.9	8.024e3	9.690e3	0.990	0.125	4.74	83.7	83.7
12	12 13C5-PFNA	468.2 > 422.9	1.058e4	1.455e4	0.858	0.125	4.68	84.8	84.8
13	13 13C5-PFHxA	318.0 > 272.9	3.178e4	3.178e4	1.000	0.125	3.39	100	100
14	14 13C3-PFHxS	401.9 > 79.9	1.342e4	1.342e4	1.000	0.125	4.03	100	100
15	15 13C8-PFOA	421.3 > 376	1.676e4	1.676e4	1.000	0.125	4.32	100	100
16	16 13C4-PFOS	503 > 79.9	9.690e3	9.690e3	1.000	0.125	4.74	100	100
17	17 13C9-PFNA	472.2 > 426.9	1.455e4	1.455e4	1.000	0.125	4.68	100	100

Quantify Totals Report MassLynx 4.1

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_28.qld

Last Altered: Friday, July 15, 2016 09:31:00 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:31:13 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30**Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03****ID: B6G0059-BS1 OPR 0.125, Description: OPR, Name: 160714G3_28, Date: 14-Jul-2016, Time: 16:28:46****Total PFBS**

	# Name	Trace	RT	Area	IS Area	Conc.
1	1 PFBS	299 > 79.7	3.04	6533.921	5791.146	79.9

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	3 PFHxS	398.9 > 79.6	4.03	5494.101	5467.931	85.6

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	4 PFOA	413 > 368.7	4.32	16387.441	27077.773	84.5

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	5 PFOS	499 > 79.9	4.74	3141.002	8023.652	98.5

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_28.qld

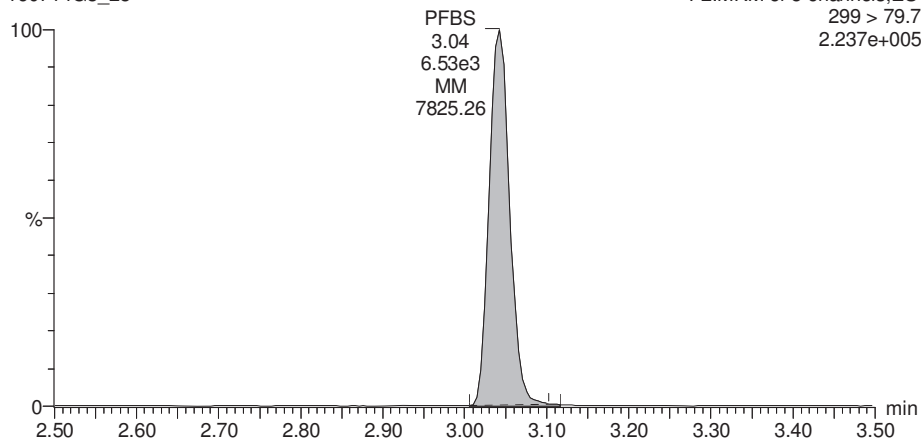
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Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

ID: B6G0059-BS1 OPR 0.125, Description: OPR, Name: 160714G3_28, Date: 14-Jul-2016, Time: 16:28:46, Instrument: , Lab: , User:

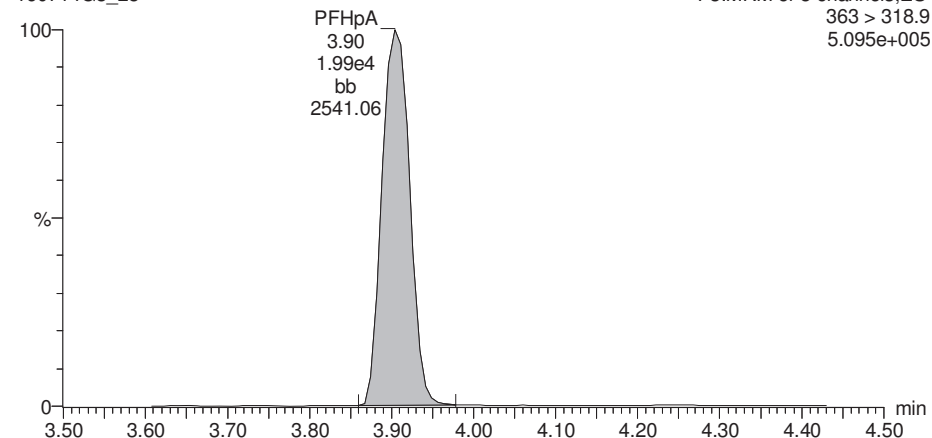
Total PFBS

160714G3_28



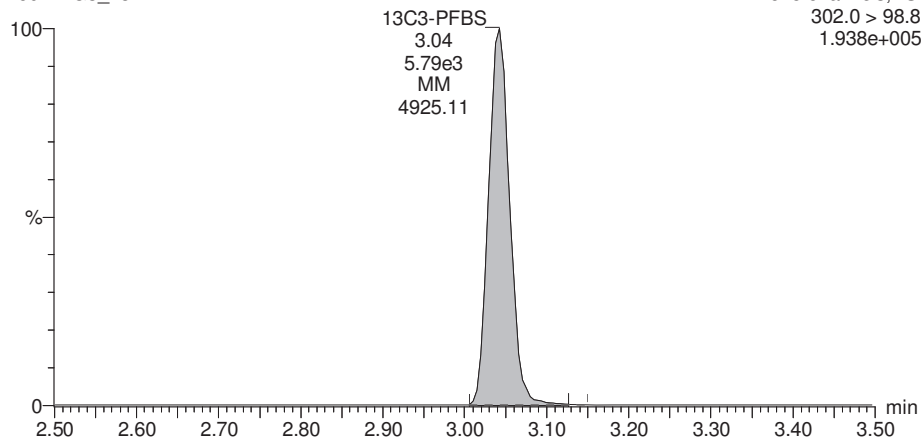
PFHpA

160714G3_28



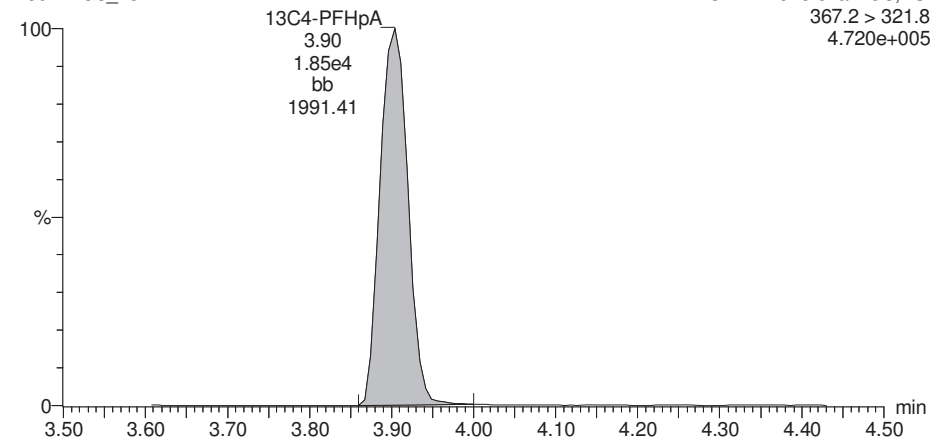
13C3-PFBS

160714G3_28



13C4-PFHpA

160714G3_28

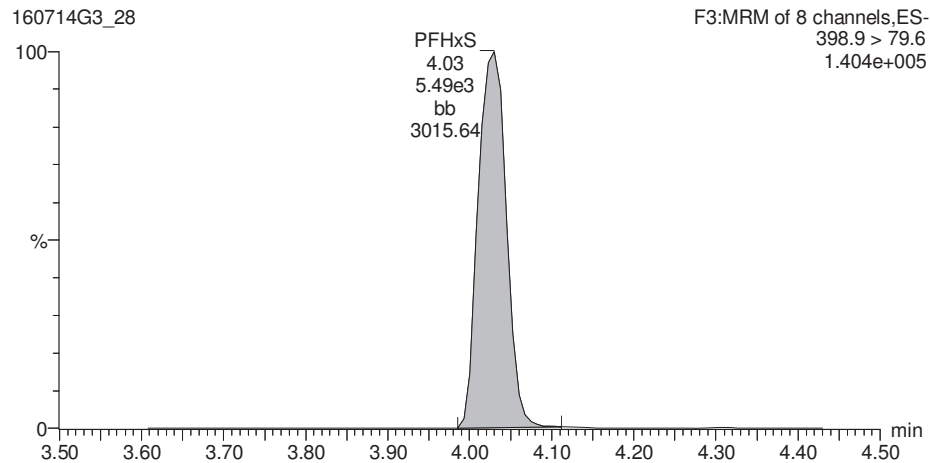


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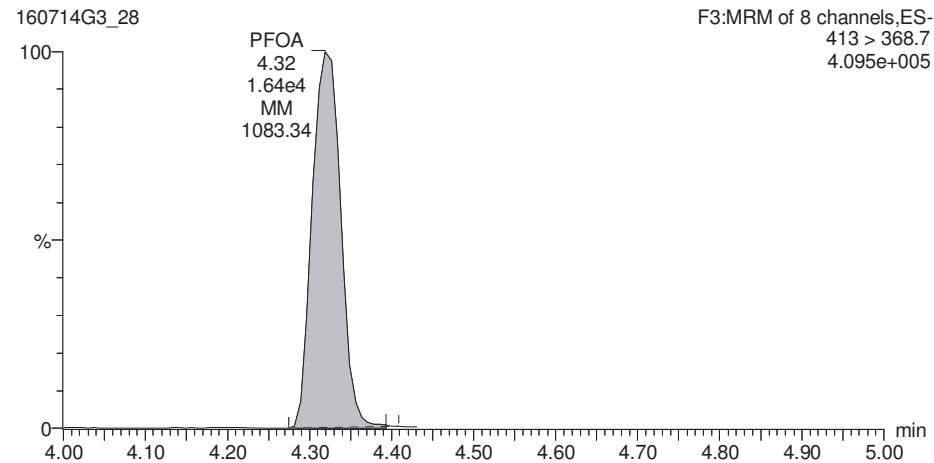
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Printed: Friday, July 15, 2016 09:31:13 Pacific Daylight Time

ID: B6G0059-BS1 OPR 0.125, Description: OPR, Name: 160714G3_28, Date: 14-Jul-2016, Time: 16:28:46, Instrument: , Lab: , User:

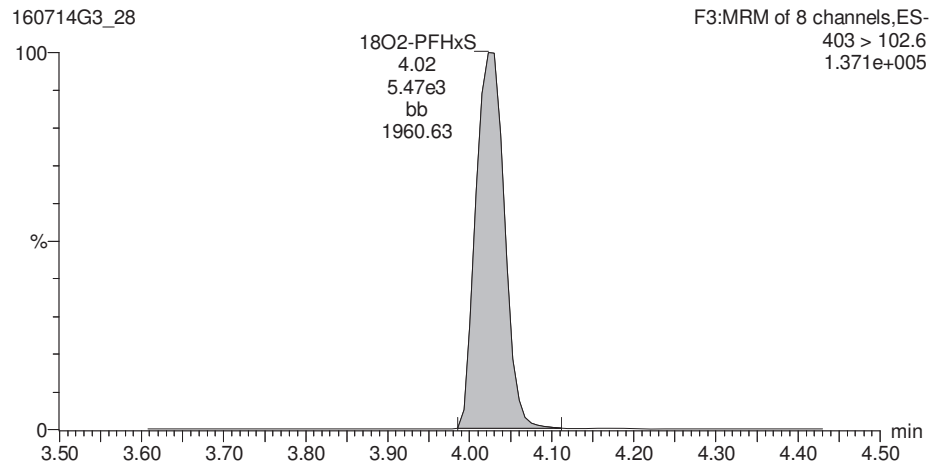
Total PFHxS



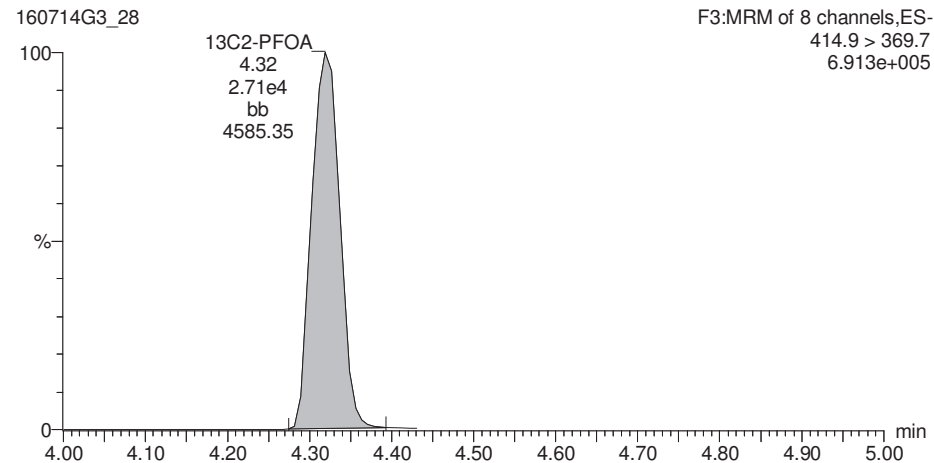
Total PFOA



18O2-PFHxS



13C2-PFOA

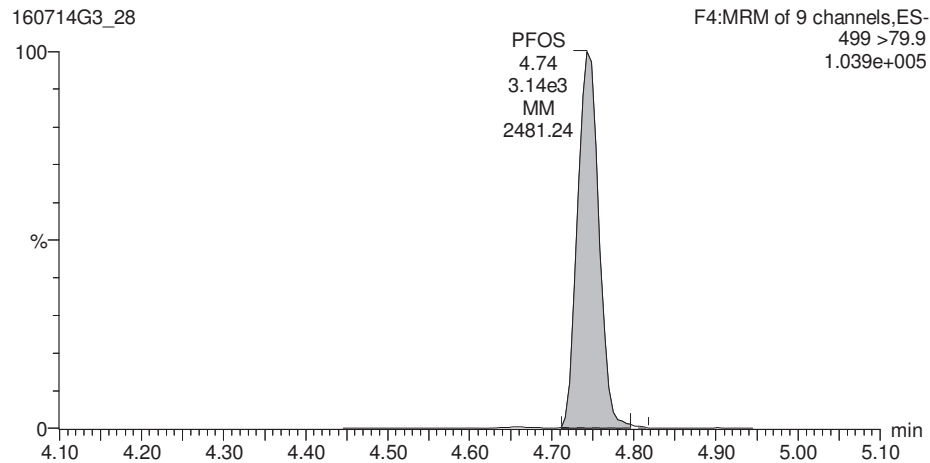


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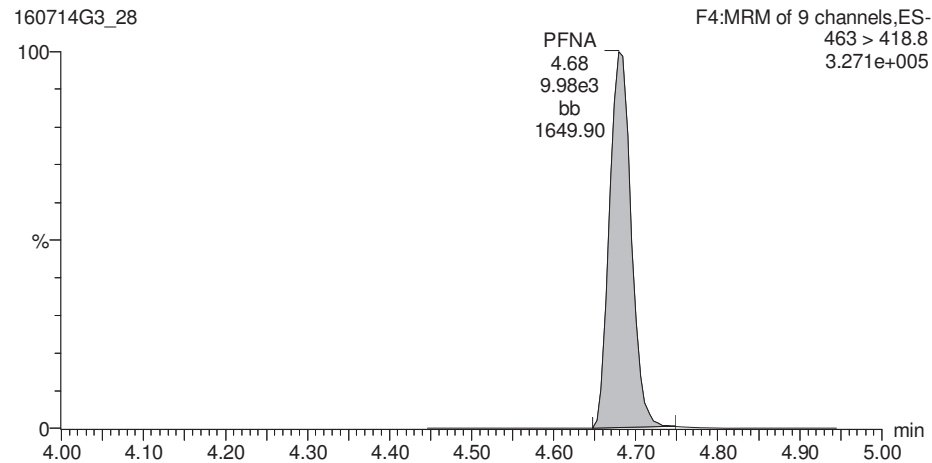
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Printed: Friday, July 15, 2016 09:31:13 Pacific Daylight Time

ID: B6G0059-BS1 OPR 0.125, Description: OPR, Name: 160714G3_28, Date: 14-Jul-2016, Time: 16:28:46, Instrument: , Lab: , User:

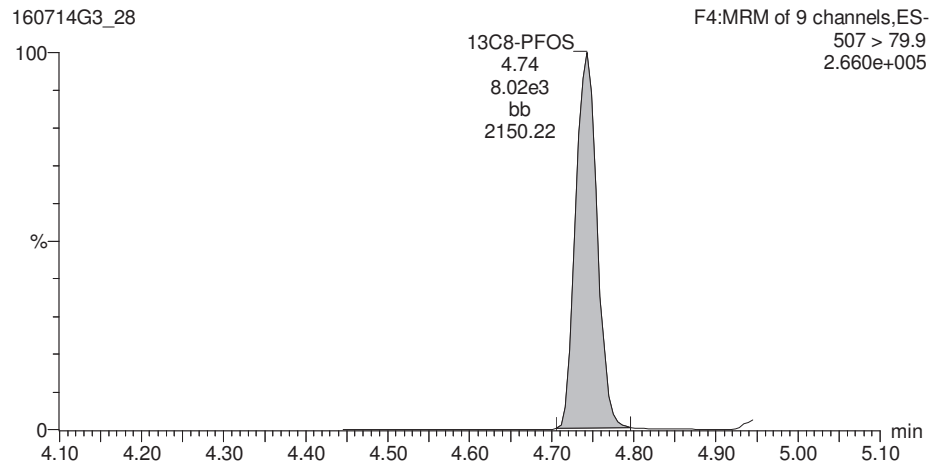
Total PFOS



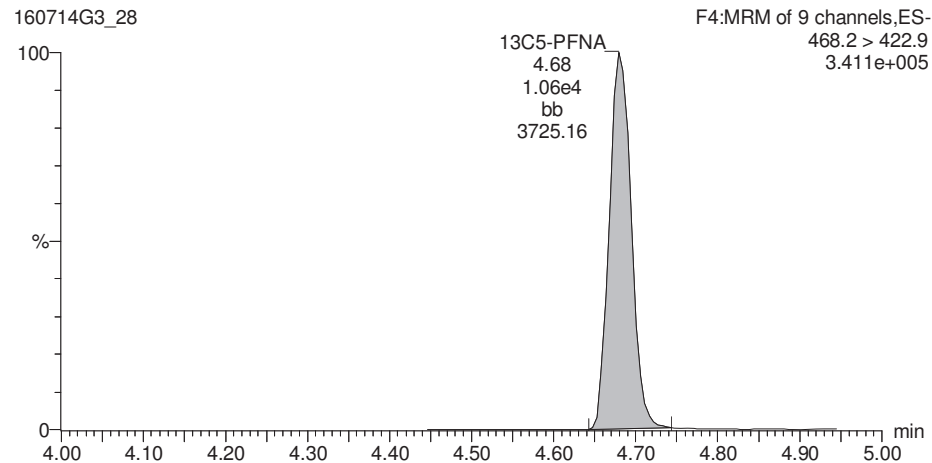
PFNA



13C8-PFOS



13C5-PFNA

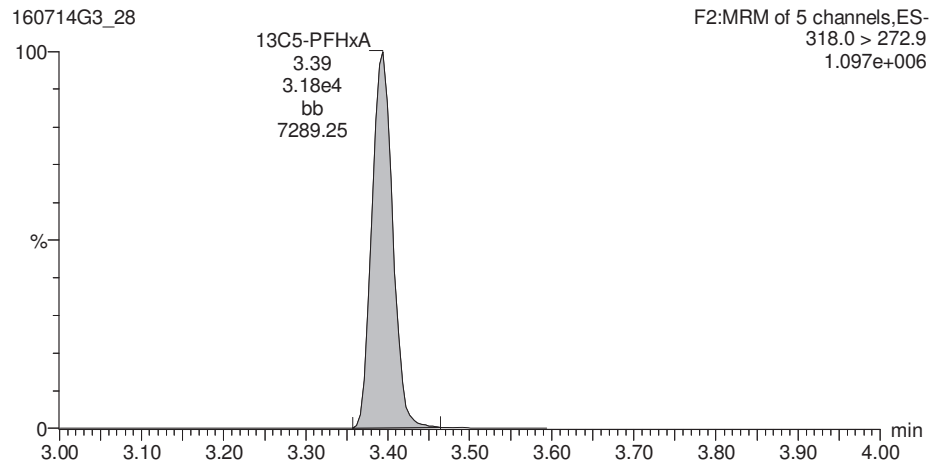


Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_28.qld

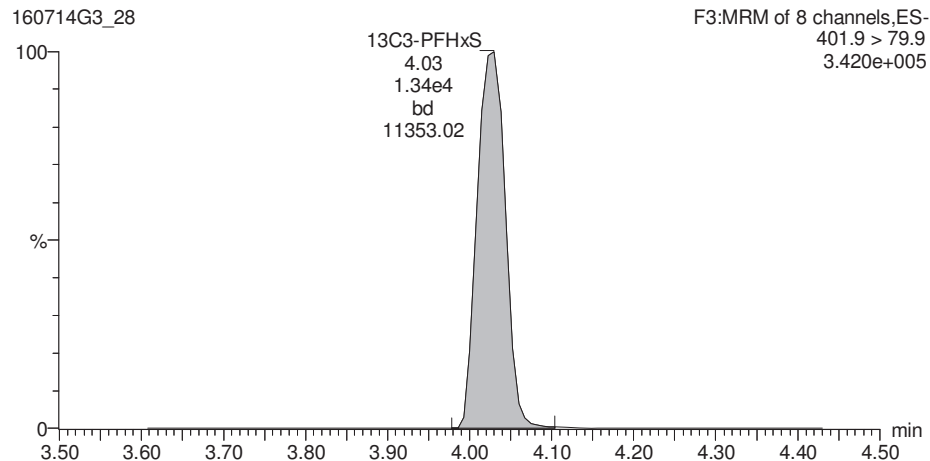
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Printed: Friday, July 15, 2016 09:31:13 Pacific Daylight Time

ID: B6G0059-BS1 OPR 0.125, Description: OPR, Name: 160714G3_28, Date: 14-Jul-2016, Time: 16:28:46, Instrument: , Lab: , User:

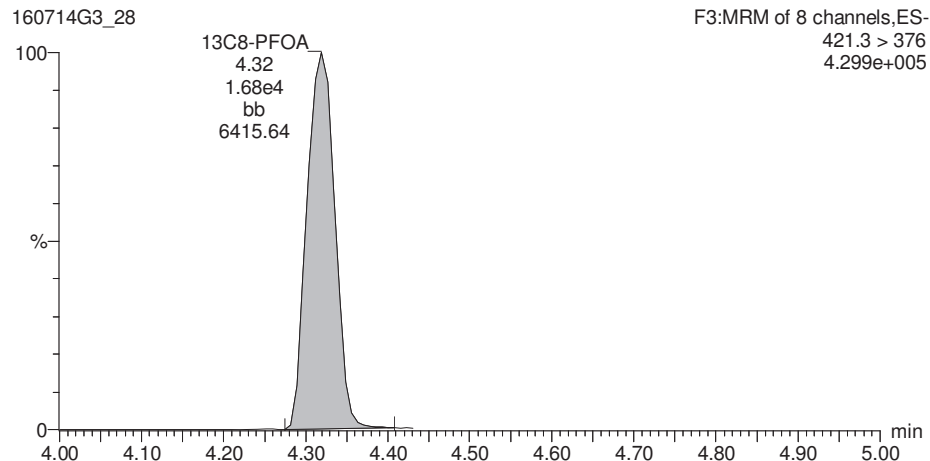
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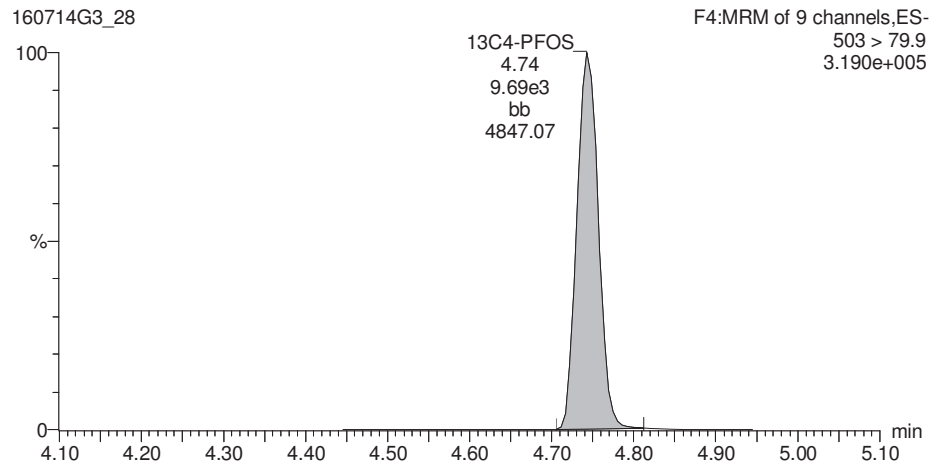
13C3-PFHxS



13C8-PFOA



13C4-PFOS



Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_28.qld

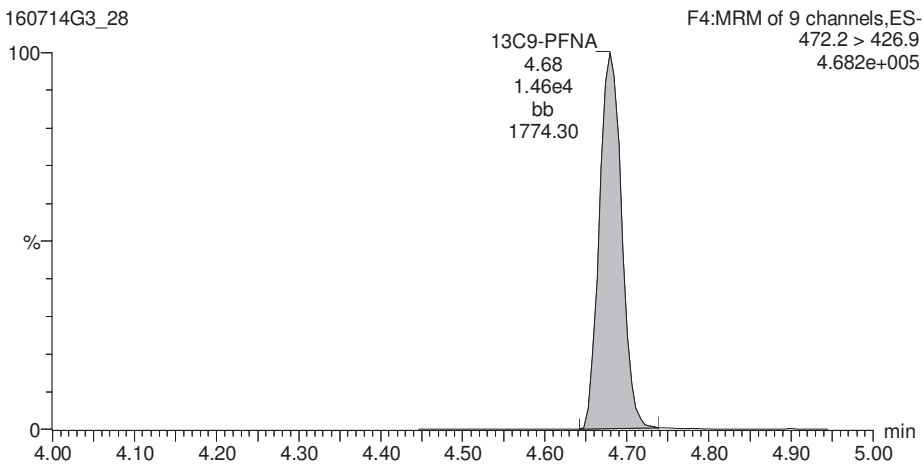
Last Altered: Friday, July 15, 2016 09:31:00 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:31:13 Pacific Daylight Time

ID: B6G0059-BS1 OPR 0.125, Description: OPR, Name: 160714G3_28, Date: 14-Jul-2016, Time: 16:28:46, Instrument: , Lab: , User:

13C9-PFNA

160714G3_28



Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_31.qld

Last Altered: Friday, July 15, 2016 09:36:37 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:36:49 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

ID: 1600896-01 OF-MW24-0716 0.125, Description: OF-MW24-0716, Name: 160714G3_31, Date: 14-Jul-2016, Time: 17:06:44

#	Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	299 > 79.7	7.277e3	5.525e3		0.112	3.04	104	
2	2 PFHpA	363 > 318.9	1.235e4	1.824e4		0.112	3.90	57.7	
3	3 PFHxS	398.9 > 79.6	5.730e4	4.133e3		0.112	4.02	1380	
4	4 PFOA	413 > 368.7	4.163e4	2.493e4		0.112	4.32	262	
5	5 PFOS	499 > 79.9	3.454e4	6.976e3		0.112	4.74	1450	
6	6 PFNA	463 > 418.8	9.190e2	1.118e4		0.112	4.68	8.63	
7	7 13C3-PFBS	302.0 > 98.8	5.525e3	2.889e4	0.194	0.112	3.04	110	98.7
8	8 13C4-PFHpA	367.2 > 321.8	1.824e4	2.889e4	0.625	0.112	3.90	113	101
9	9 18O2-PFHxS	403 > 102.6	4.133e3	9.714e3	0.521	0.112	4.02	91.2	81.7
10	10 13C2-PFOA	414.9 > 369.7	2.493e4	1.645e4	1.973	0.112	4.32	85.7	76.8
11	11 13C8-PFOS	507 > 79.9	6.976e3	7.864e3	0.990	0.112	4.74	100	89.6
12	12 13C5-PFNA	468.2 > 422.9	1.118e4	1.577e4	0.858	0.112	4.68	92.2	82.6
13	13 13C5-PFHxA	318.0 > 272.9	2.889e4	2.889e4	1.000	0.112	3.39	112	100
14	14 13C3-PFHxS	401.9 > 79.9	9.714e3	9.714e3	1.000	0.112	4.02	112	100
15	15 13C8-PFOA	421.3 > 376	1.645e4	1.645e4	1.000	0.112	4.32	112	100
16	16 13C4-PFOS	503 > 79.9	7.864e3	7.864e3	1.000	0.112	4.74	112	100
17	17 13C9-PFNA	472.2 > 426.9	1.577e4	1.577e4	1.000	0.112	4.68	112	100
18	18 Total PFBS	299 > 79.7		5.525e3		0.112		106	
19	19 Total PFHxS	398.9 > 79.6		4.133e3		0.112		1650	
20	20 Total PFOA	413 > 368.7		2.493e4		0.112		309	
21	21 Total PFOS	499 > 79.9		6.976e3		0.112		3320	

Quantify Totals Report MassLynx 4.1

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_31.qld

Last Altered: Friday, July 15, 2016 09:36:37 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:36:49 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30**Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03****ID: 1600896-01 OF-MW24-0716 0.125, Description: OF-MW24-0716, Name: 160714G3_31, Date: 14-Jul-2016, Time: 17:06:44****Total PFBS**

	# Name	Trace	RT	Area	IS Area	Conc.
1	1 PFBS	299 > 79.7	3.04	7277.253	5524.949	104.0
2	18 Total PFBS	299 > 79.7	2.93	135.443	5524.949	1.9

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	19 Total PFHxS	398.9 > 79.6	3.80	44.427	4133.288	1.0
2	3 PFHxS	398.9 > 79.6	4.02	57304.500	4133.288	1378.9
3	19 Total PFHxS	398.9 > 79.6	3.92	11719.224	4133.288	271.1

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	4 PFOA	413 > 368.7	4.32	41632.672	24932.318	262.2
2	20 Total PFOA	413 > 368.7	4.22	7341.213	24932.318	45.8
3	20 Total PFOA	413 > 368.7	4.09	103.956	24932.318	0.6

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	5 PFOS	499 > 79.9	4.74	34538.156	6976.414	1447.2
2	21 Total PFOS	499 > 79.9	4.65	14074.906	6976.414	574.5
3	21 Total PFOS	499 > 79.9	4.62	28169.680	6976.414	1170.4
4	21 Total PFOS	499 > 79.9	4.51	3054.798	6976.414	123.0

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_31.qld

Last Altered: Friday, July 15, 2016 09:36:37 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:36:49 Pacific Daylight Time

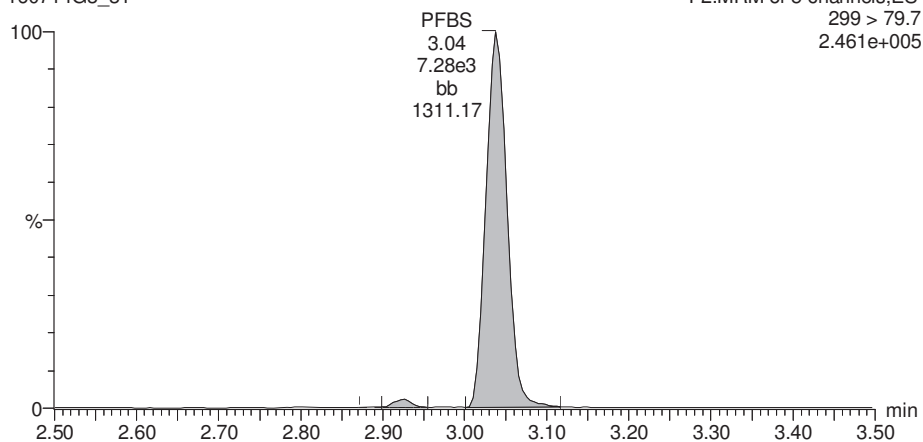
Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

ID: 1600896-01 OF-MW24-0716 0.125, Description: OF-MW24-0716, Name: 160714G3_31, Date: 14-Jul-2016, Time: 17:06:44, Instrument: , Lab: , User:

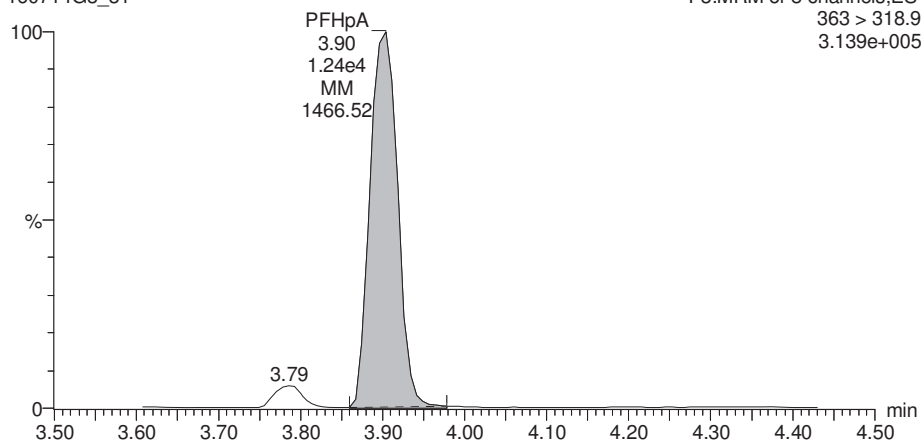
Total PFBS

160714G3_31



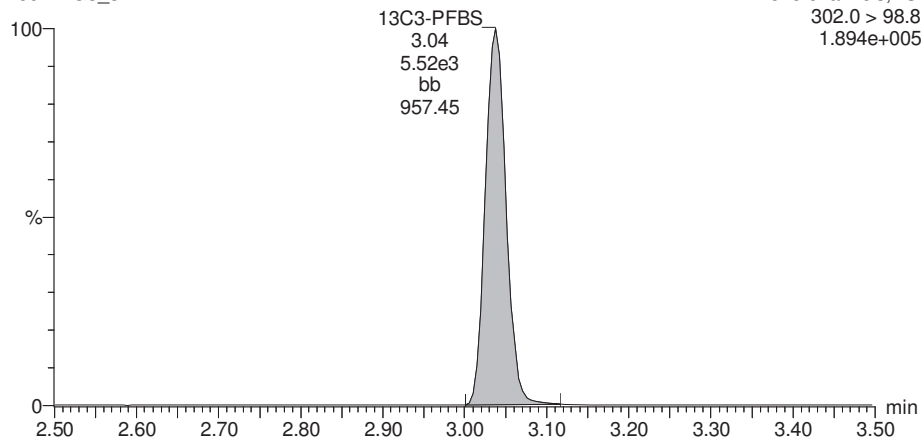
PFHpA

160714G3_31



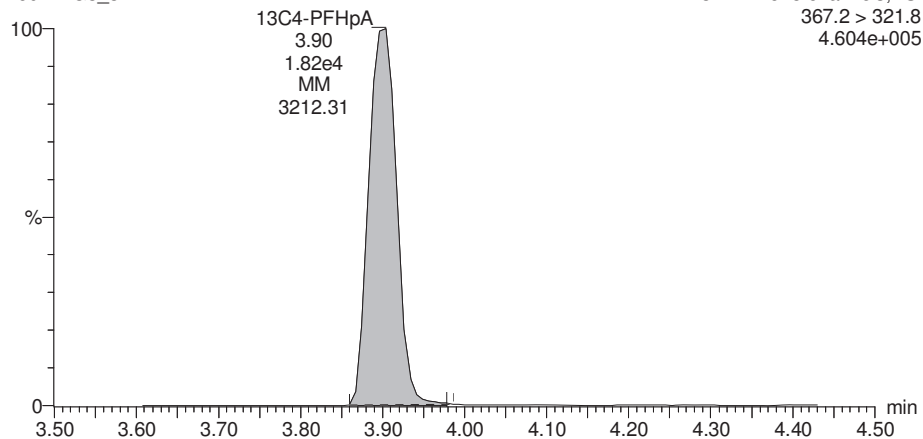
13C3-PFBS

160714G3_31

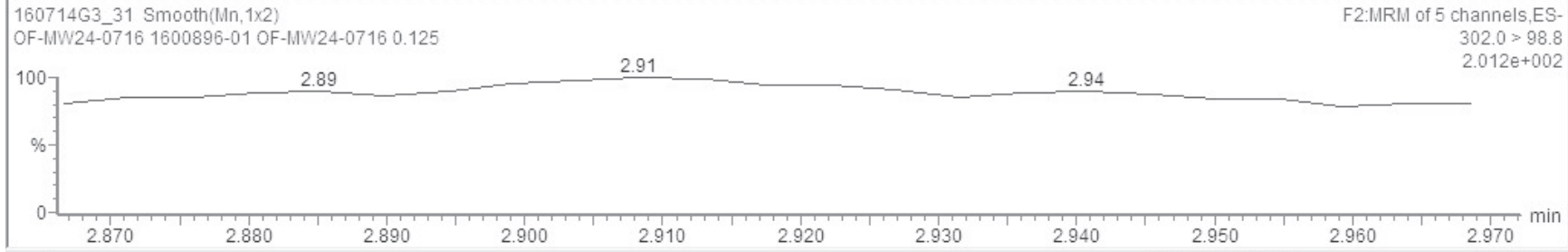
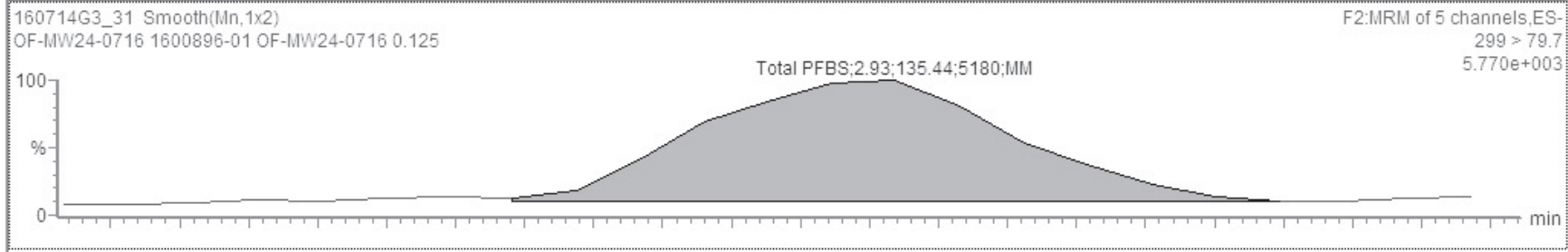


13C4-PFHpA

160714G3_31



Name	Conc.	DL	%Rec	EMPC	Abs.Resp	RRF	RT	#	IS#	RA	Y/N	RRT	Acq.Date	Acq.Time	1° Chr.Noise	ID
7 13C3-PFBS	110.17186	0.286	98.7		5.525e3	0.194	3.04	7	13			0.703	14-Jul-16	17:06:44		1600896-01.
8 13C4-PFHpA	111.71927	0.0644	100.1		1.809e4	0.625	3.90	8	13			0.000	14-Jul-16	17:06:44		1600896-01.
9 18O2-PFHxS	89.774044	0.0935	80.4		4.069e3	0.521	4.02	9	14			0.931	14-Jul-16	17:06:44		1600896-01.
10 13C2-PFOA	85.203035	0.0487	76.3		2.478e4	1.973	4.32	10	15			1.000	14-Jul-16	17:06:44		1600896-01.
11 13C8-PFOS	100.03746	0.185	89.6		6.976e3	0.990	4.74	11	16			1.000	14-Jul-16	17:06:44		1600896-01.
12 13C5-PFNA	92.212982	0.131	82.6		1.118e4	0.858	4.68	12	17			1.000	14-Jul-16	17:06:44		1600896-01.
13 13C5-PFHxA	111.60714	0.0408	100.0		2.889e4	1.000	3.39	13	13			0.000	14-Jul-16	17:06:44		1600896-01.
14 13C3-PFHxS	111.60714	0.0685	100.0		9.714e3	1.000	4.02	14	14			0.000	14-Jul-16	17:06:44		1600896-01.
15 13C8-PFOA	111.60714	0.0535	100.0		1.645e4	1.000	4.32	15	15			0.000	14-Jul-16	17:06:44		1600896-01.
16 13C4-PFOS	111.60714	0.0509	100.0		7.864e3	1.000	4.74	16	16			0.000	14-Jul-16	17:06:44		1600896-01.
17 13C9-PFNA	111.60714	0.232	100.0		1.577e4	1.000	4.68	17	17			0.000	14-Jul-16	17:06:44		1600896-01.
18 Total PFBS	105.98251							18	7				14-Jul-16	17:06:44		1600896-01.
19 Total PFHxS	1678.3851							19	9				14-Jul-16	17:06:44		1600896-01.
20 Total PFOA	299.89075							20	10				14-Jul-16	17:06:44		1600896-01.

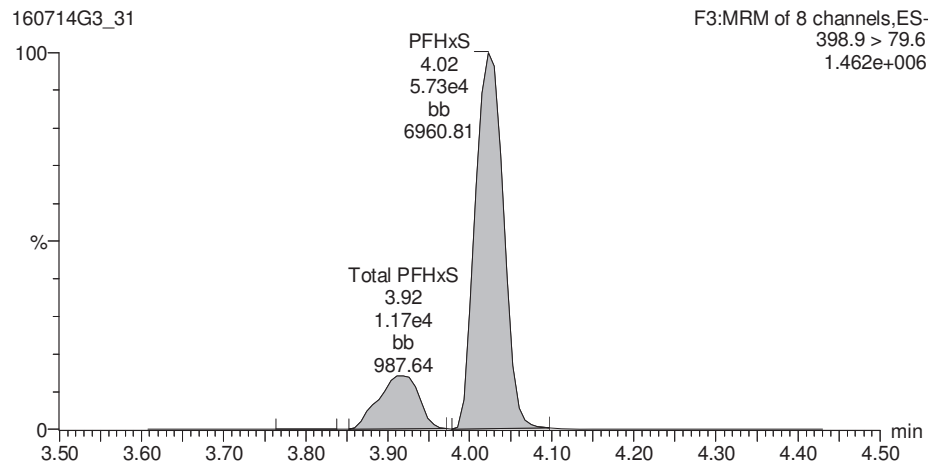


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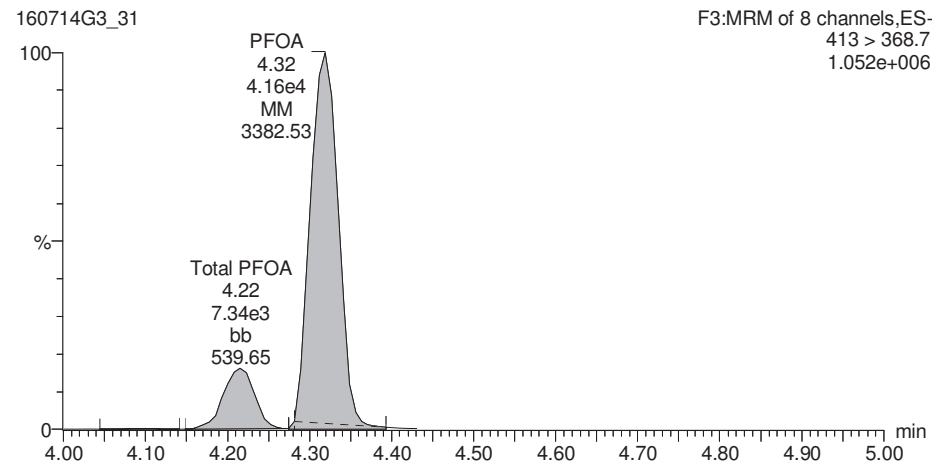
Last Altered: Friday, July 15, 2016 09:36:37 Pacific Daylight Time
Printed: Friday, July 15, 2016 09:36:49 Pacific Daylight Time

ID: 1600896-01 OF-MW24-0716 0.125, Description: OF-MW24-0716, Name: 160714G3_31, Date: 14-Jul-2016, Time: 17:06:44, Instrument: , Lab: , User:

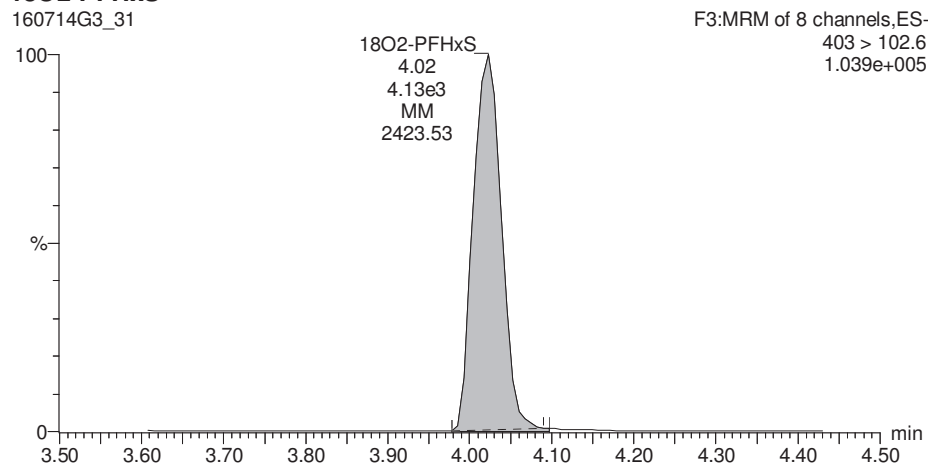
Total PFHxS



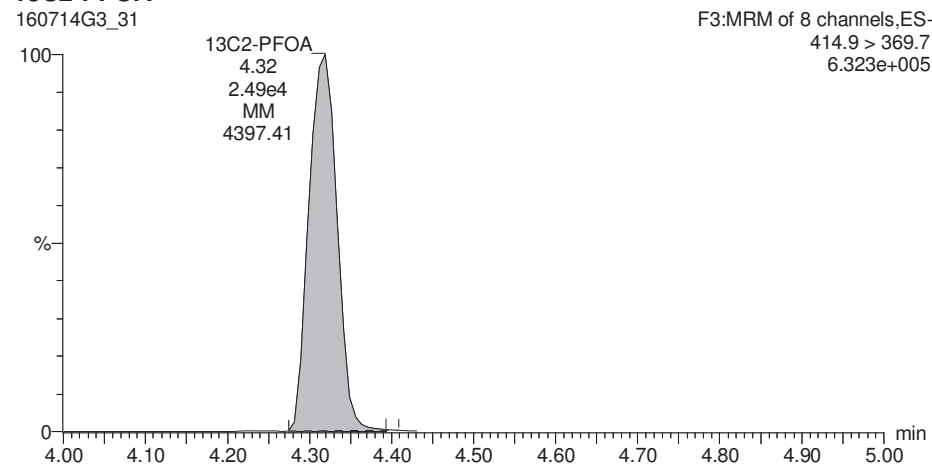
Total PFOA



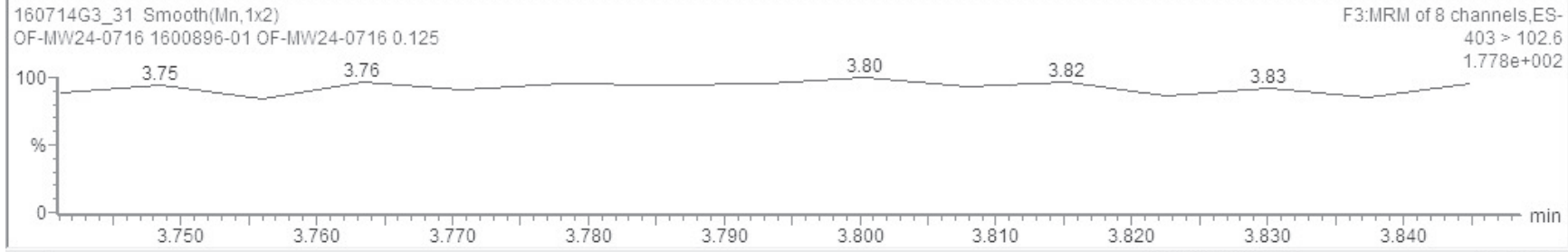
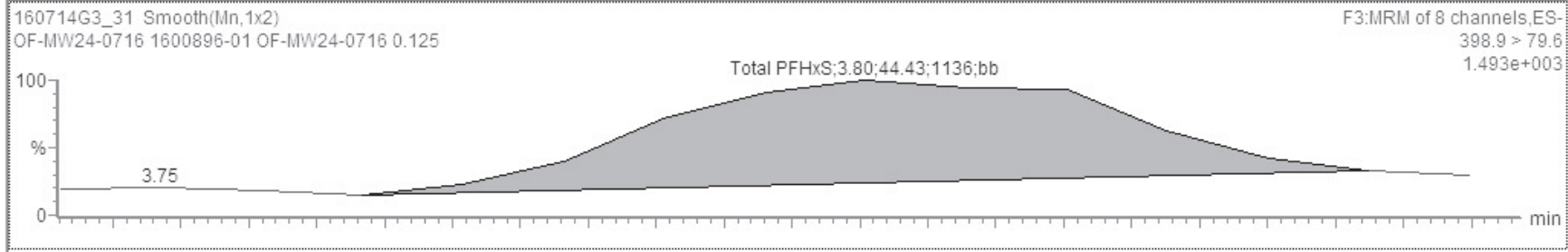
18O2-PFHxS



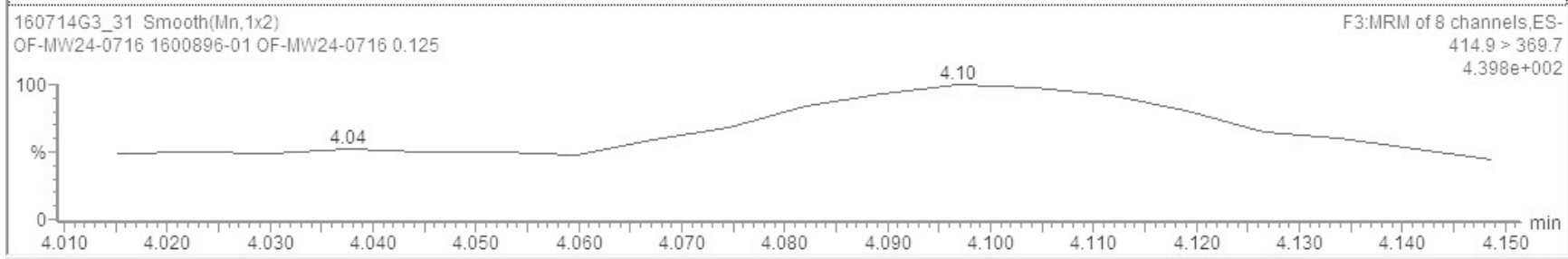
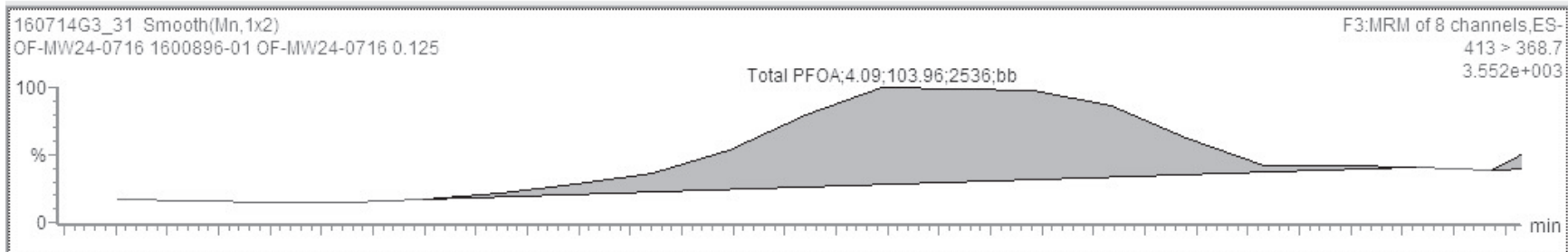
13C2-PFOA



Name	Conc.	DL	%Rec	EMPC	Abs.Resp	RRF	RT	#	IS#	RA	Y/N	RRT	Acq.Date	Acq.Time	1° Chr.Noise	ID
7 13C3-PFBS	110.17186	0.286	98.7		5.525e3	0.194	3.04	7	13			0.703	14-Jul-16	17:06:44		1600896-01.
8 13C4-PFHpA	111.71927	0.0644	100.1		1.809e4	0.625	3.90	8	13			0.000	14-Jul-16	17:06:44		1600896-01.
9 18O2-PFHxS	89.774044	0.0935	80.4		4.069e3	0.521	4.02	9	14			0.931	14-Jul-16	17:06:44		1600896-01.
10 13C2-PFOA	85.203035	0.0487	76.3		2.478e4	1.973	4.32	10	15			1.000	14-Jul-16	17:06:44		1600896-01.
11 13C8-PFOS	100.03746	0.185	89.6		6.976e3	0.990	4.74	11	16			1.000	14-Jul-16	17:06:44		1600896-01.
12 13C5-PFNA	92.212982	0.131	82.6		1.118e4	0.858	4.68	12	17			1.000	14-Jul-16	17:06:44		1600896-01.
13 13C5-PFHxA	111.60714	0.0408	100.0		2.889e4	1.000	3.39	13	13			0.000	14-Jul-16	17:06:44		1600896-01.
14 13C3-PFHxS	111.60714	0.0685	100.0		9.714e3	1.000	4.02	14	14			0.000	14-Jul-16	17:06:44		1600896-01.
15 13C8-PFOA	111.60714	0.0535	100.0		1.645e4	1.000	4.32	15	15			0.000	14-Jul-16	17:06:44		1600896-01.
16 13C4-PFOS	111.60714	0.0509	100.0		7.864e3	1.000	4.74	16	16			0.000	14-Jul-16	17:06:44		1600896-01.
17 13C9-PFNA	111.60714	0.232	100.0		1.577e4	1.000	4.68	17	17			0.000	14-Jul-16	17:06:44		1600896-01.
18 Total PFBS	105.98251							18	7				14-Jul-16	17:06:44		1600896-01.
19 Total PFHxS	1678.3851							19	9				14-Jul-16	17:06:44		1600896-01.
20 Total PFOA	299.89075							20	10				14-Jul-16	17:06:44		1600896-01.



Name	Conc.	DL	%Rec	EMPC	Abs.Resp	RRF	RT	#	IS#	RA	Y/N	RRT	Acq.Date	Acq.Time	1° Chr.Noise	ID
7	13C3-PFBS	110.17186	0.286	98.7		5.525e3	0.194	3.04	7	13		0.703	14-Jul-16	17:06:44		1600896-01.
8	13C4-PFHpA	111.71927	0.0644	100.1		1.809e4	0.625	3.90	8	13		0.000	14-Jul-16	17:06:44		1600896-01.
9	18O2-PFHxS	91.195608	0.0935	81.7		4.133e3	0.521	4.02	9	14		0.931	14-Jul-16	17:06:44		1600896-01.
10	13C2-PFOA	85.726436	0.0487	76.8		2.493e4	1.973	4.32	10	15		1.000	14-Jul-16	17:06:44		1600896-01.
11	13C8-PFOS	100.03746	0.185	89.6		6.976e3	0.990	4.74	11	16		1.000	14-Jul-16	17:06:44		1600896-01.
12	13C5-PFNA	92.212982	0.131	82.6		1.118e4	0.858	4.68	12	17		1.000	14-Jul-16	17:06:44		1600896-01.
13	13C5-PFHxA	111.60714	0.0408	100.0		2.889e4	1.000	3.39	13	13		0.000	14-Jul-16	17:06:44		1600896-01.
14	13C3-PFHxS	111.60714	0.0685	100.0		9.714e3	1.000	4.02	14	14		0.000	14-Jul-16	17:06:44		1600896-01.
15	13C8-PFOA	111.60714	0.0535	100.0		1.645e4	1.000	4.32	15	15		0.000	14-Jul-16	17:06:44		1600896-01.
16	13C4-PFOS	111.60714	0.0509	100.0		7.864e3	1.000	4.74	16	16		0.000	14-Jul-16	17:06:44		1600896-01.
17	13C9-PFNA	111.60714	0.232	100.0		1.577e4	1.000	4.68	17	17		0.000	14-Jul-16	17:06:44		1600896-01.
18	Total PFBS	105.98251							18	7			14-Jul-16	17:06:44		1600896-01.
19	Total PFHxS	1651.0317							19	9			14-Jul-16	17:06:44		1600896-01.
20	Total PFOA	308.60942							20	10			14-Jul-16	17:06:44		1600896-01.

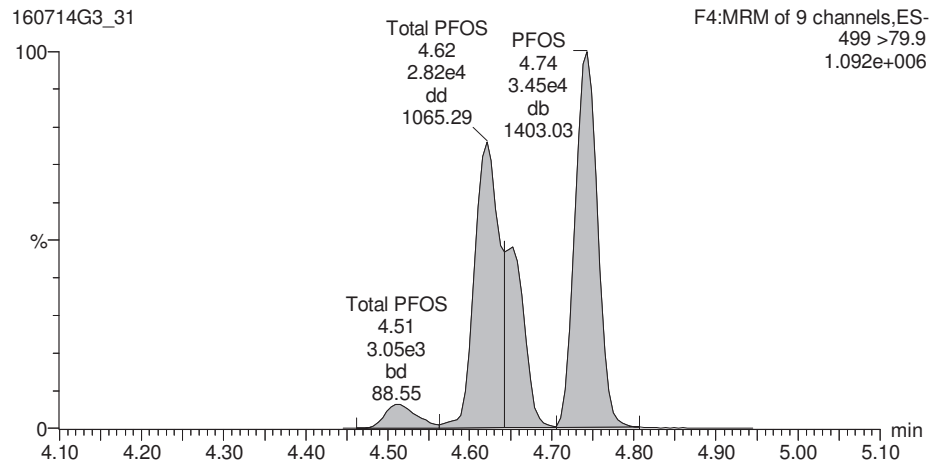


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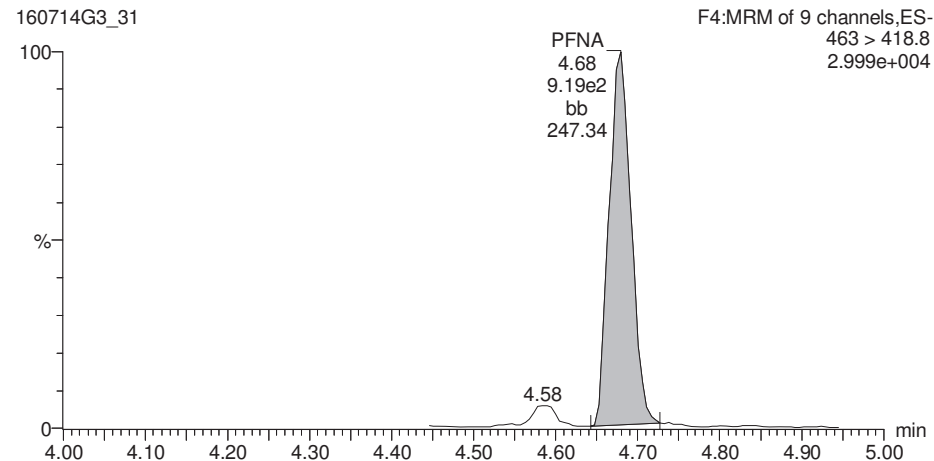
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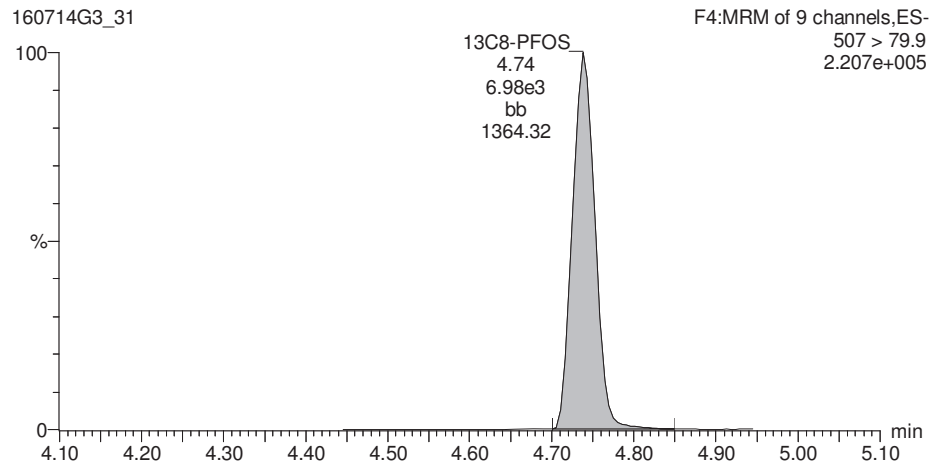
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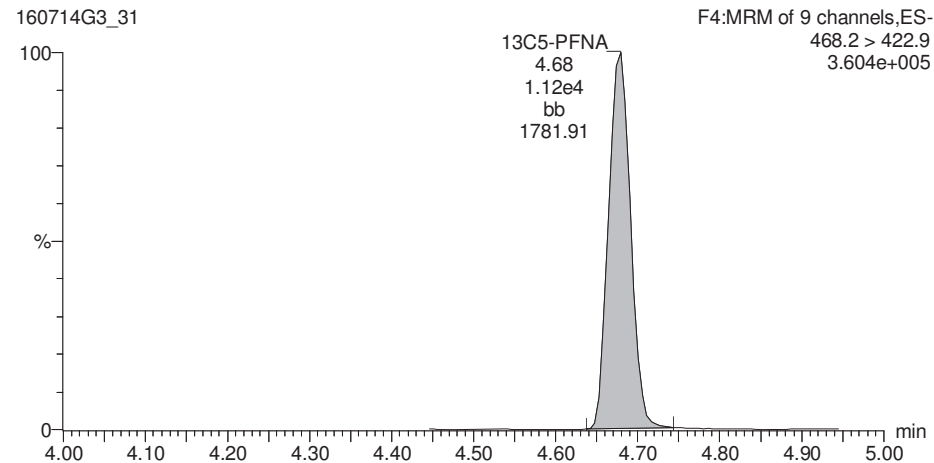
PFNA



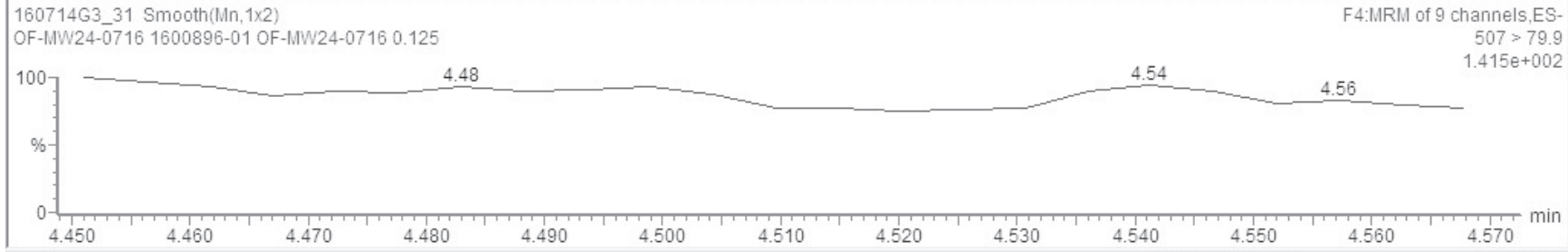
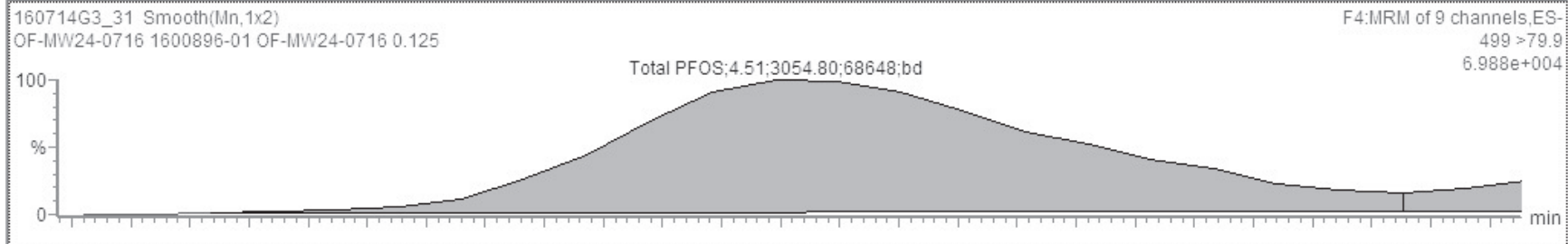
13C8-PFOS



13C5-PFNA



Name	Conc.	DL	%Rec	EMPC	Abs.Resp	RRF	RT	#	IS#	RA	Y/N	RRT	Acq.Date	Acq.Time	1° Chr.Noise	ID
7 13C3-PFBS	110.17186	0.286	98.7		5.525e3	0.194	3.04	7	13			0.703	14-Jul-16	17:06:44		1600896-01.
8 13C4-PFHpA	111.71927	0.0644	100.1		1.809e4	0.625	3.90	8	13			0.000	14-Jul-16	17:06:44		1600896-01.
9 18O2-PFHxS	91.195608	0.0935	81.7		4.133e3	0.521	4.02	9	14			0.931	14-Jul-16	17:06:44		1600896-01.
10 13C2-PFOA	85.726436	0.0487	76.8		2.493e4	1.973	4.32	10	15			1.000	14-Jul-16	17:06:44		1600896-01.
11 13C8-PFOS	100.03746	0.185	89.6		6.976e3	0.990	4.74	11	16			1.000	14-Jul-16	17:06:44		1600896-01.
12 13C5-PFNA	92.212982	0.131	82.6		1.118e4	0.858	4.68	12	17			1.000	14-Jul-16	17:06:44		1600896-01.
13 13C5-PFHxA	111.60714	0.0408	100.0		2.889e4	1.000	3.39	13	13			0.000	14-Jul-16	17:06:44		1600896-01.
14 13C3-PFHxS	111.60714	0.0685	100.0		9.714e3	1.000	4.02	14	14			0.000	14-Jul-16	17:06:44		1600896-01.
15 13C8-PFOA	111.60714	0.0535	100.0		1.645e4	1.000	4.32	15	15			0.000	14-Jul-16	17:06:44		1600896-01.
16 13C4-PFOS	111.60714	0.0509	100.0		7.864e3	1.000	4.74	16	16			0.000	14-Jul-16	17:06:44		1600896-01.
17 13C9-PFNA	111.60714	0.232	100.0		1.577e4	1.000	4.68	17	17			0.000	14-Jul-16	17:06:44		1600896-01.
18 Total PFBS	105.98251							18	7				14-Jul-16	17:06:44		1600896-01.
19 Total PFHxS	1651.0317							19	9				14-Jul-16	17:06:44		1600896-01.
20 Total PFOA	308.60942							20	10				14-Jul-16	17:06:44		1600896-01.

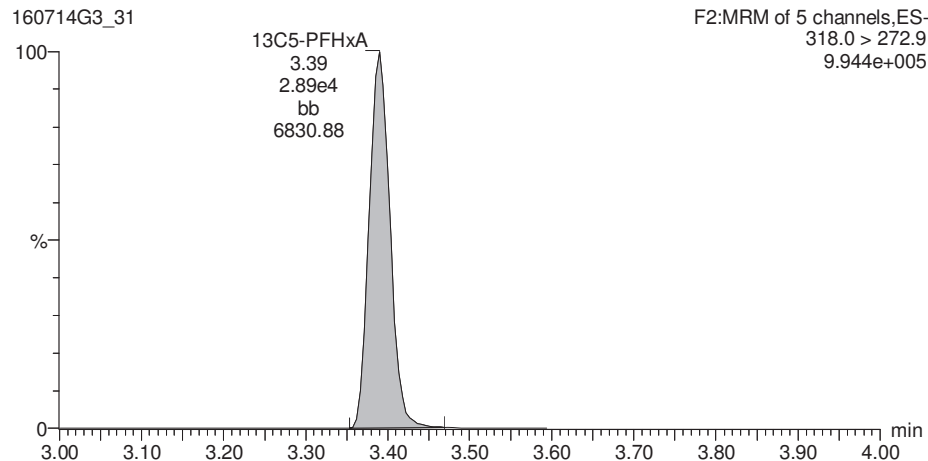


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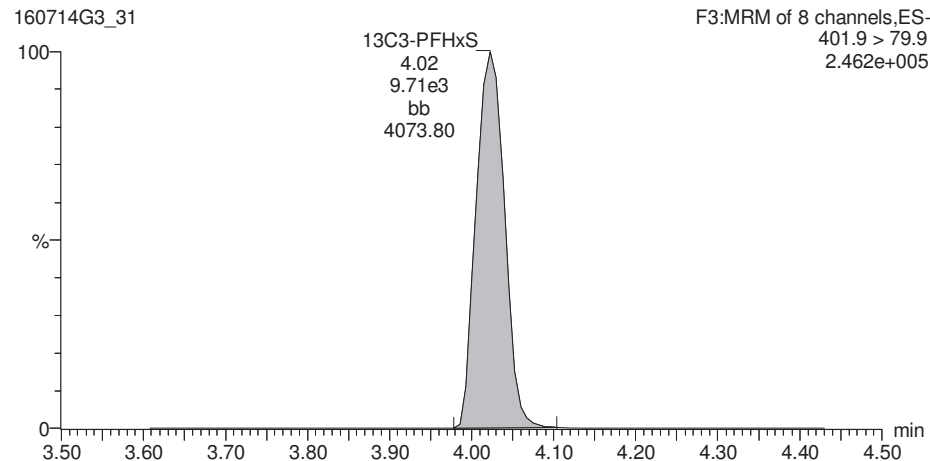
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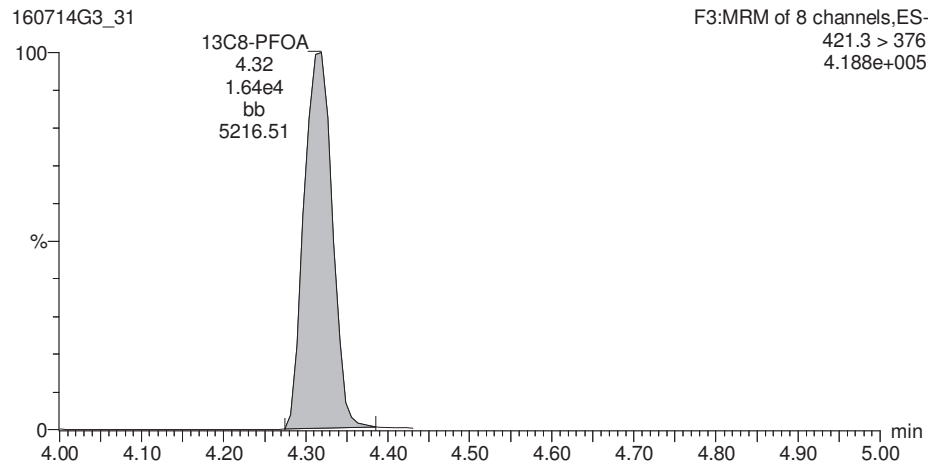
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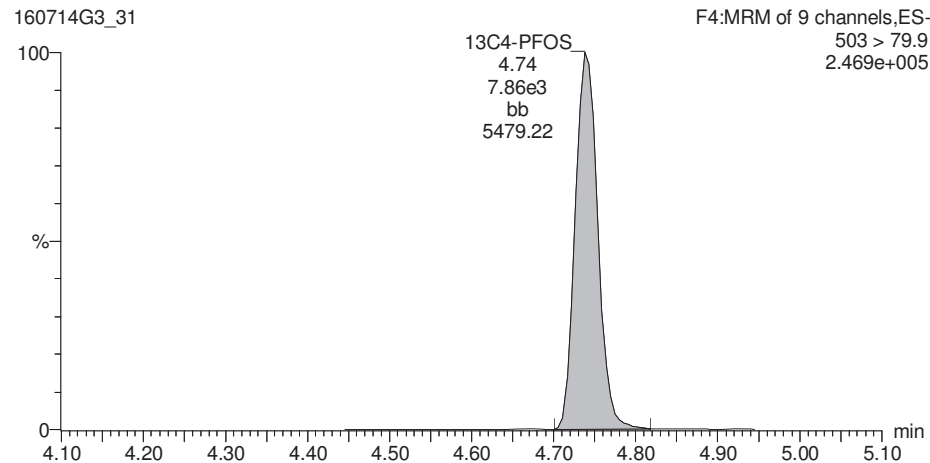
13C3-PFHxS



13C8-PFOA



13C4-PFOS



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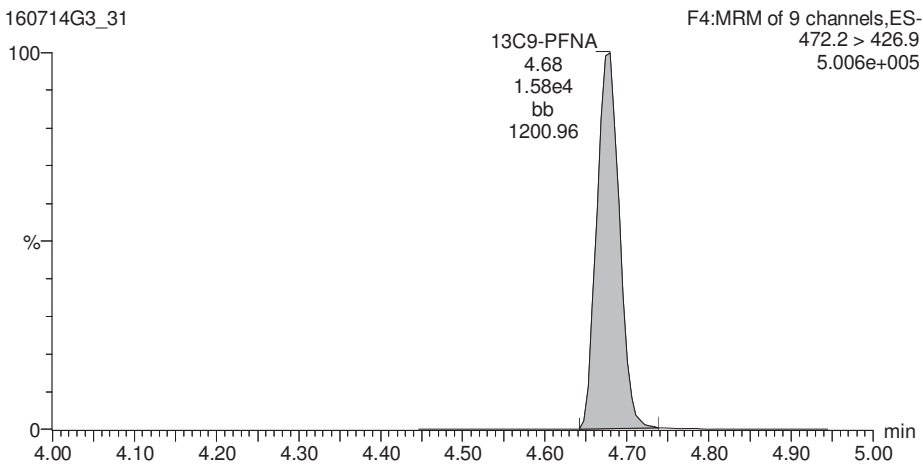
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13C9-PFNA

160714G3_31



Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_32.qld

Last Altered: Friday, July 15, 2016 09:39:15 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:39:25 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

ID: 1600896-02 OF-FB071116 0.125, Description: OF-FB071116, Name: 160714G3_32, Date: 14-Jul-2016, Time: 17:19:26

#	Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	299 > 79.7		5.346e3		0.123			
2	2 PFHpA	363 > 318.9		1.891e4		0.123			
3	3 PFHxS	398.9 > 79.6	3.078e1	5.943e3		0.123	4.03	0.447	
4	4 PFOA	413 > 368.7		2.583e4		0.123			
5	5 PFOS	499 > 79.9	1.962e1	7.396e3		0.123	4.65	0.676	
6	6 PFNA	463 > 418.8		1.161e4		0.123			
7	7 13C3-PFBS	302.0 > 98.8	5.346e3	3.163e4	0.194	0.123	3.04	88.6	87.2
8	8 13C4-PFHpA	367.2 > 321.8	1.891e4	3.163e4	0.625	0.123	3.90	97.1	95.6
9	9 18O2-PFHxS	403 > 102.6	5.943e3	1.299e4	0.521	0.123	4.02	89.2	87.9
10	10 13C2-PFOA	414.9 > 369.7	2.583e4	1.671e4	1.973	0.123	4.32	79.6	78.3
11	11 13C8-PFOS	507 > 79.9	7.396e3	8.785e3	0.990	0.123	4.74	86.4	85.1
12	12 13C5-PFNA	468.2 > 422.9	1.161e4	1.481e4	0.858	0.123	4.68	92.8	91.4
13	13 13C5-PFHxA	318.0 > 272.9	3.163e4	3.163e4	1.000	0.123	3.39	102	100
14	14 13C3-PFHxS	401.9 > 79.9	1.299e4	1.299e4	1.000	0.123	4.02	102	100
15	15 13C8-PFOA	421.3 > 376	1.671e4	1.671e4	1.000	0.123	4.32	102	100
16	16 13C4-PFOS	503 > 79.9	8.785e3	8.785e3	1.000	0.123	4.74	102	100
17	17 13C9-PFNA	472.2 > 426.9	1.481e4	1.481e4	1.000	0.123	4.68	102	100
18	18 Total PFBS	299 > 79.7		5.346e3		0.123			
19	19 Total PFHxS	398.9 > 79.6		5.943e3		0.123		0.447	
20	20 Total PFOA	413 > 368.7		2.583e4		0.123			
21	21 Total PFOS	499 > 79.9		7.396e3		0.123		0.676	

Quantify Totals Report MassLynx 4.1

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_32.qld

Last Altered: Friday, July 15, 2016 09:39:15 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:39:25 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

ID: 1600896-02 OF-FB071116 0.125, Description: OF-FB071116, Name: 160714G3_32, Date: 14-Jul-2016, Time: 17:19:26

Total PFBS

#	Name	Trace	RT	Area	IS Area	Conc.
1						

Total PFHxS

#	Name	Trace	RT	Area	IS Area	Conc.
1	3 PFHxS	398.9 > 79.6	4.03	30.781	5943.285	0.4

Total PFOA

#	Name	Trace	RT	Area	IS Area	Conc.
1						

Total PFOS

#	Name	Trace	RT	Area	IS Area	Conc.
1	5 PFOS	499 > 79.9	4.65	19.623	7395.833	0.7

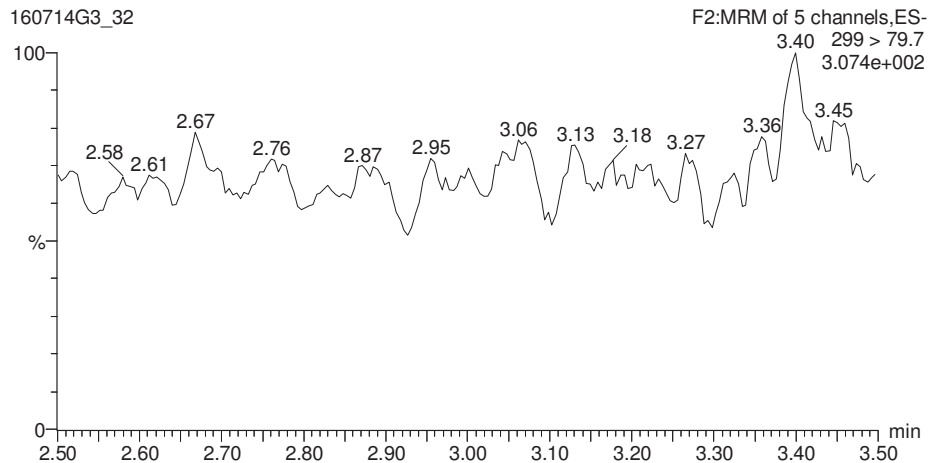
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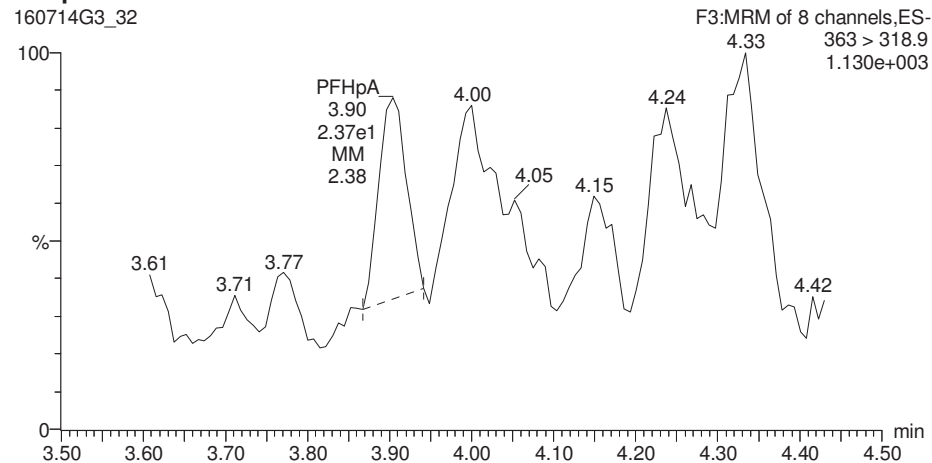
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Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

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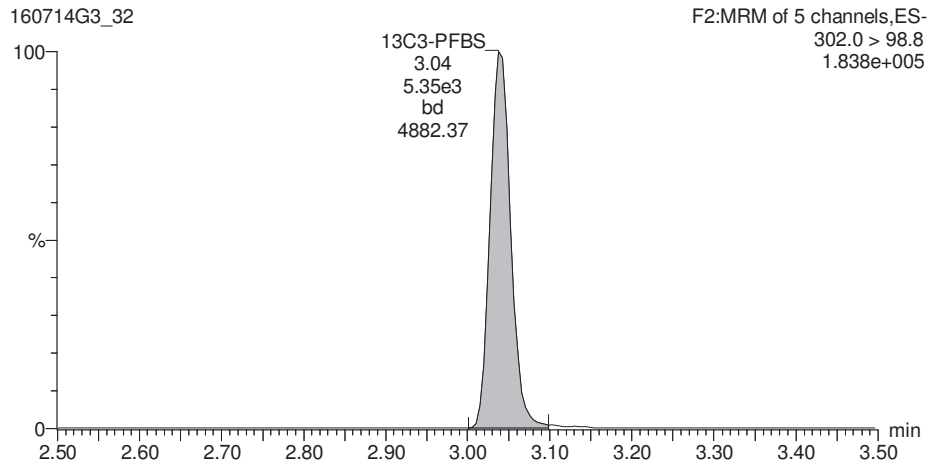
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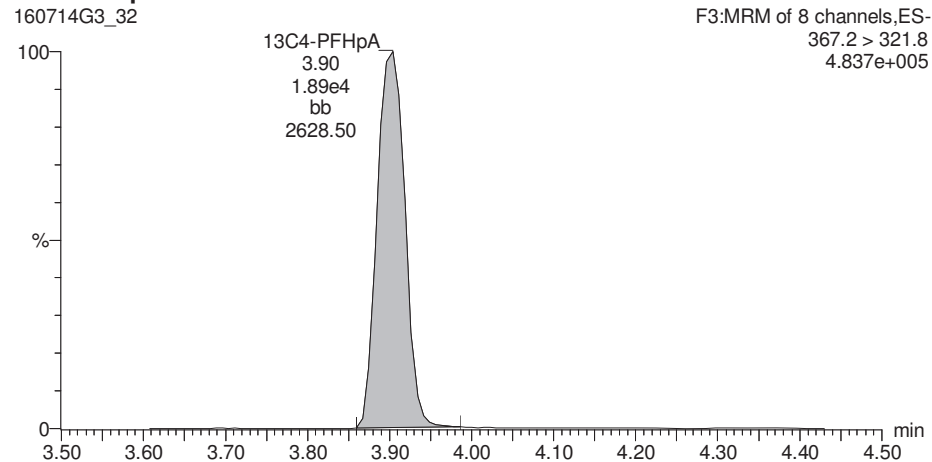
PFHpA



13C3-PFBS



13C4-PFHpA

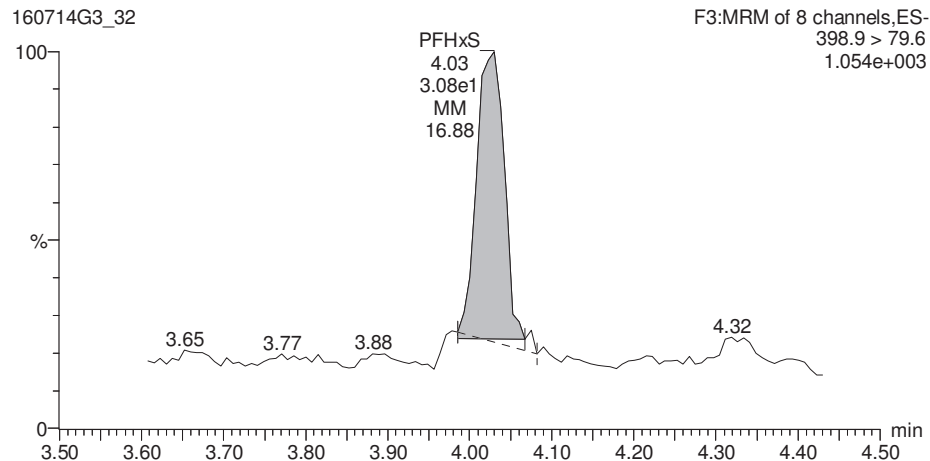


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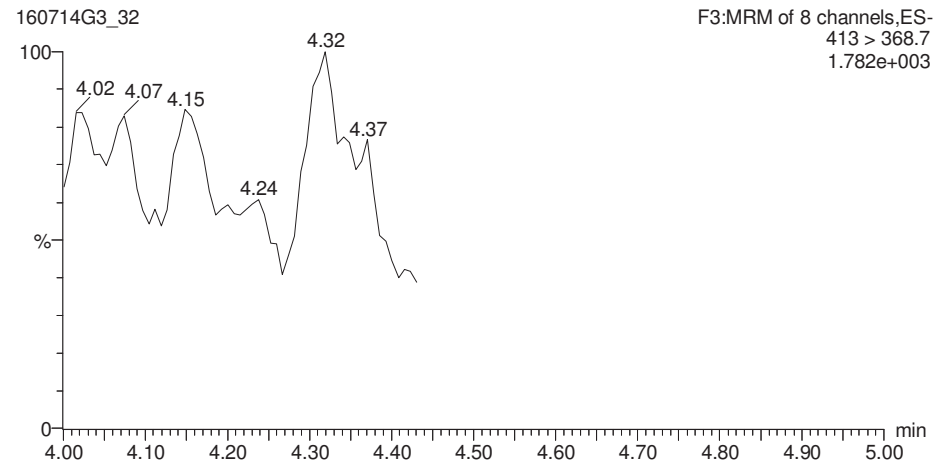
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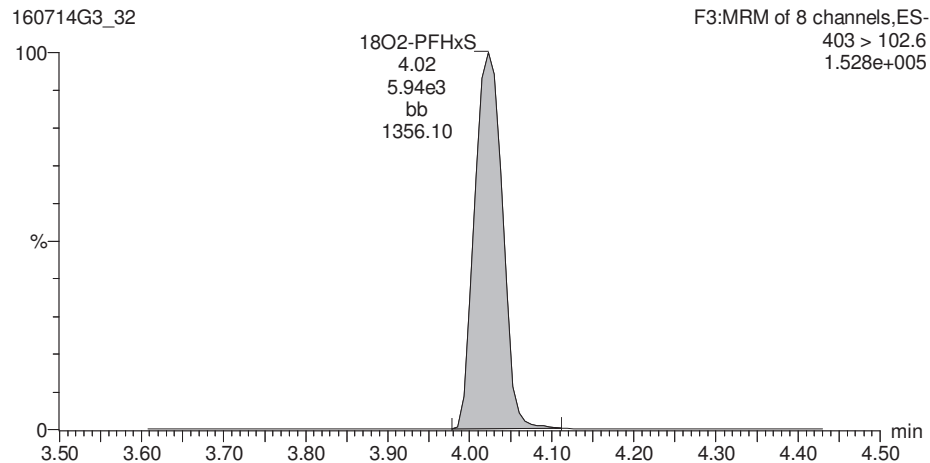
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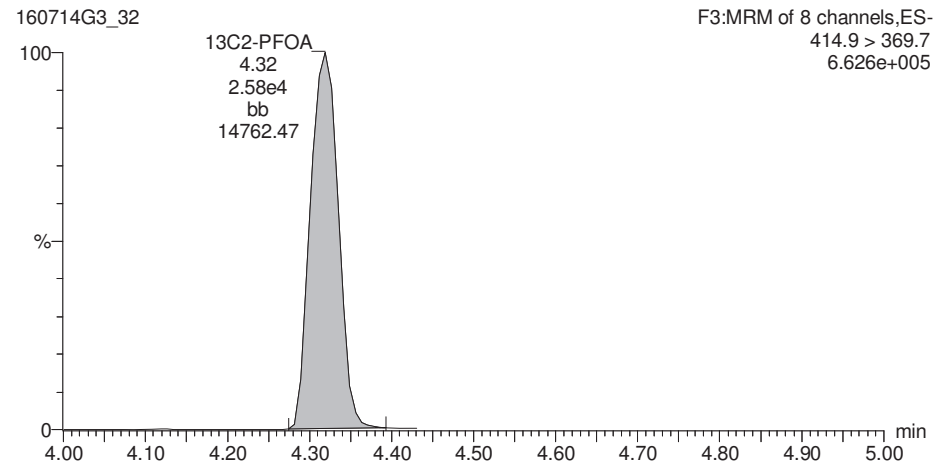
Total PFOA



18O2-PFHxS



13C2-PFOA

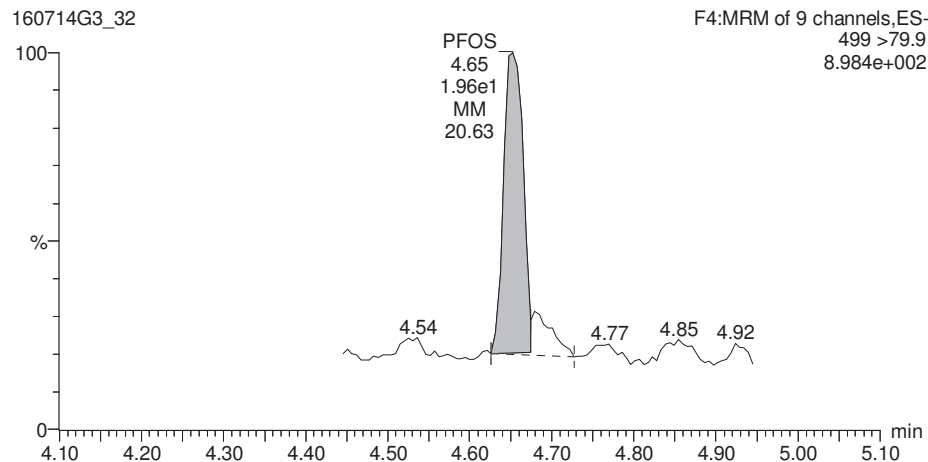


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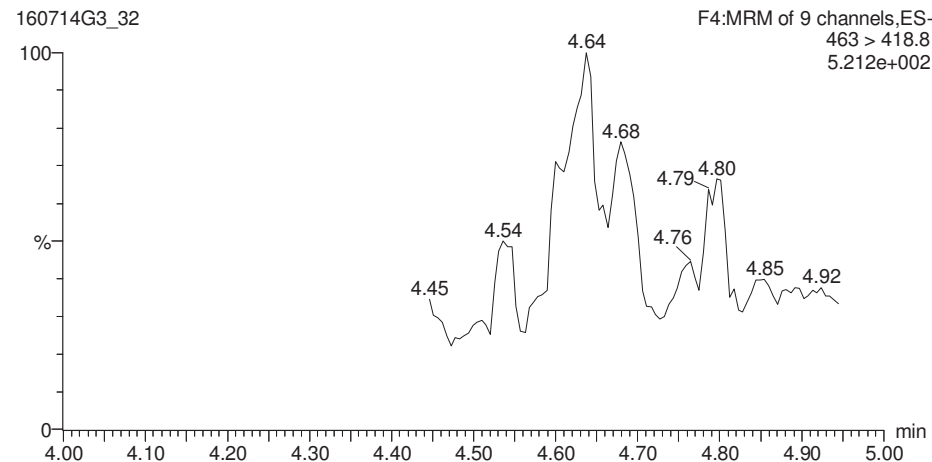
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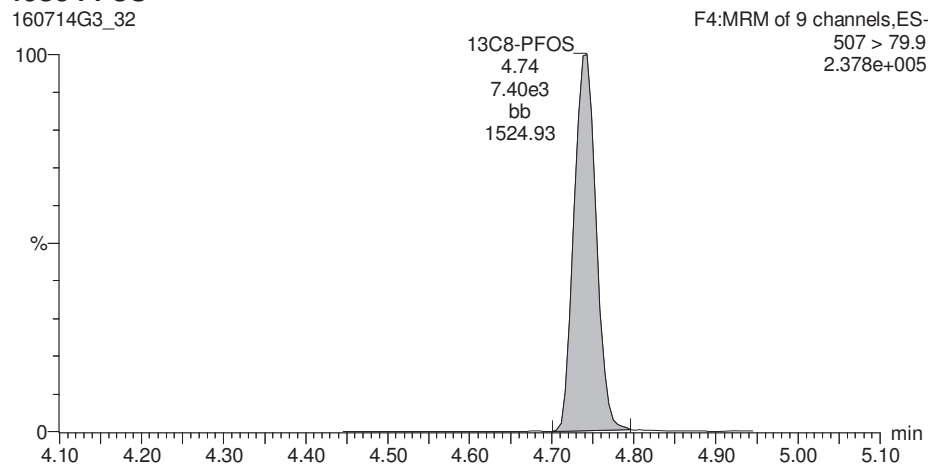
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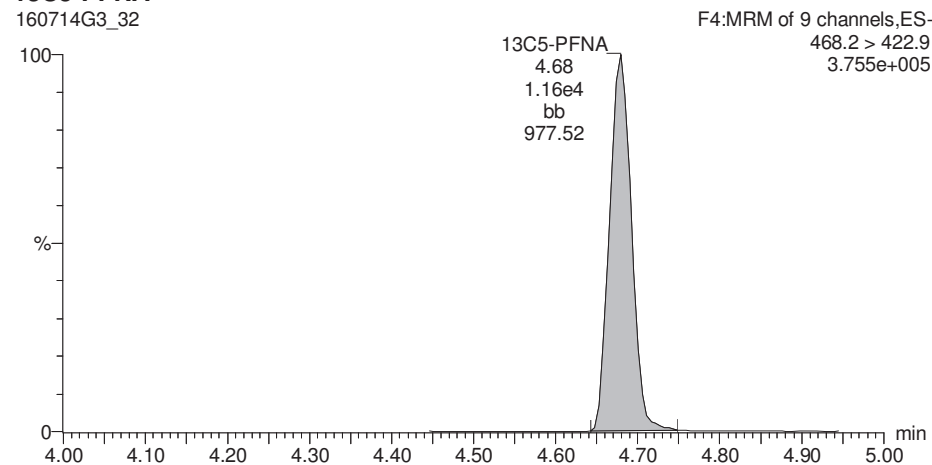
PFNA



13C8-PFOS



13C5-PFNA



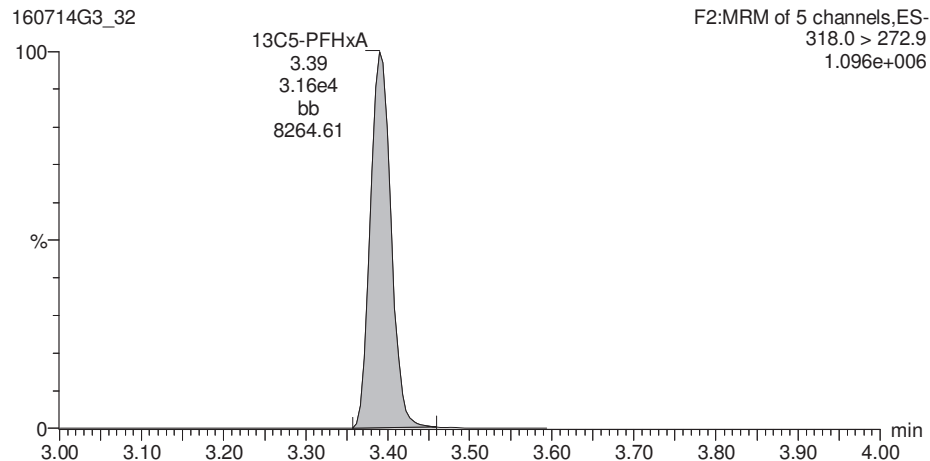
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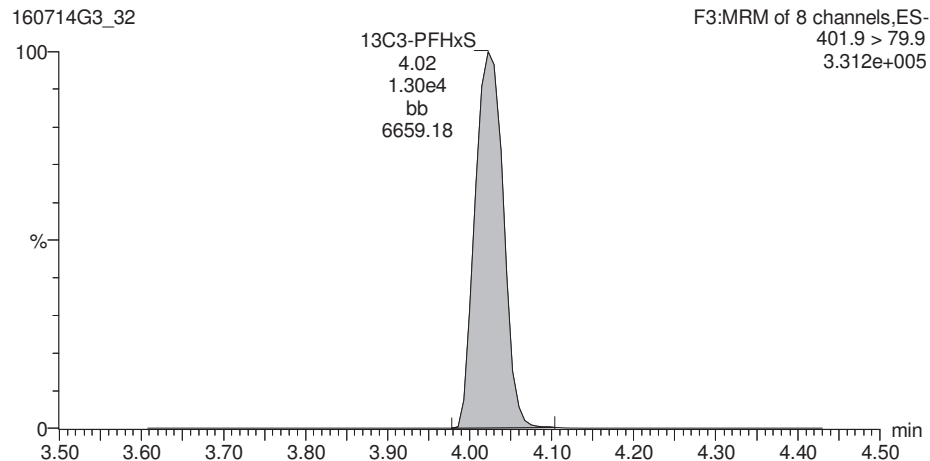
Printed: Friday, July 15, 2016 09:39:25 Pacific Daylight Time

ID: 1600896-02 OF-FB071116 0.125, Description: OF-FB071116, Name: 160714G3_32, Date: 14-Jul-2016, Time: 17:19:26, Instrument: , Lab: , User:

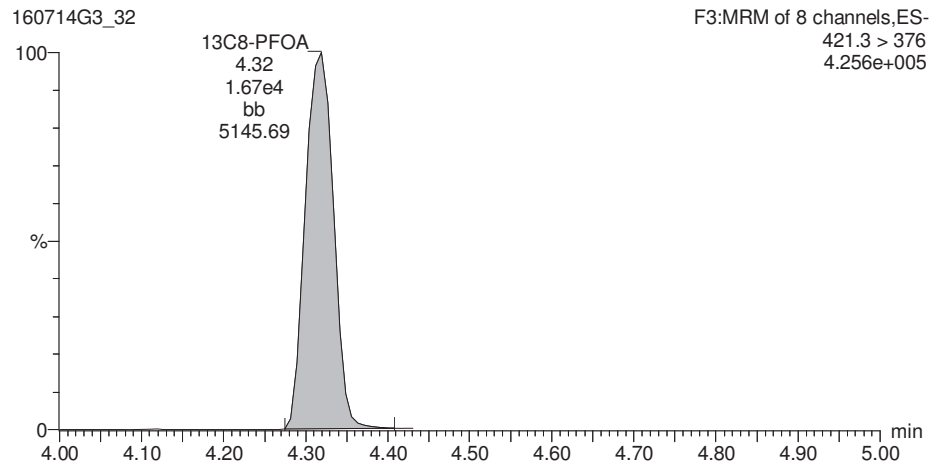
13C5-PFHxA



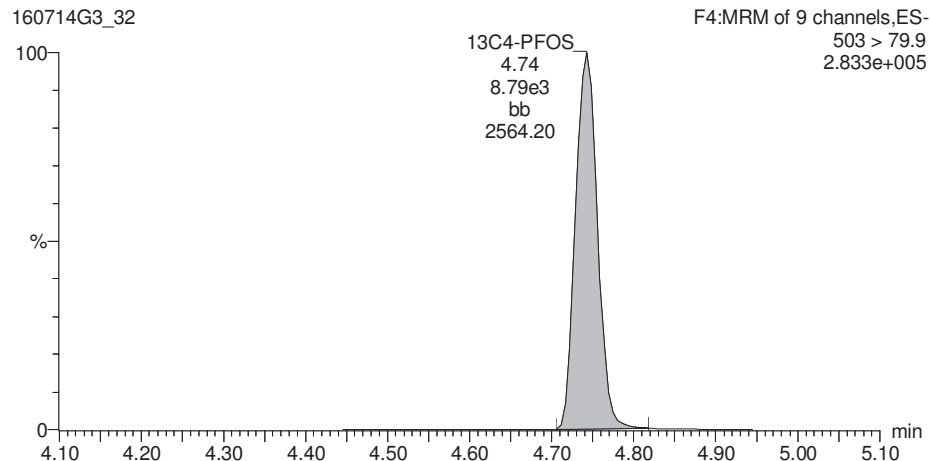
13C3-PFHxS



13C8-PFOA



13C4-PFOS



Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_32.qld

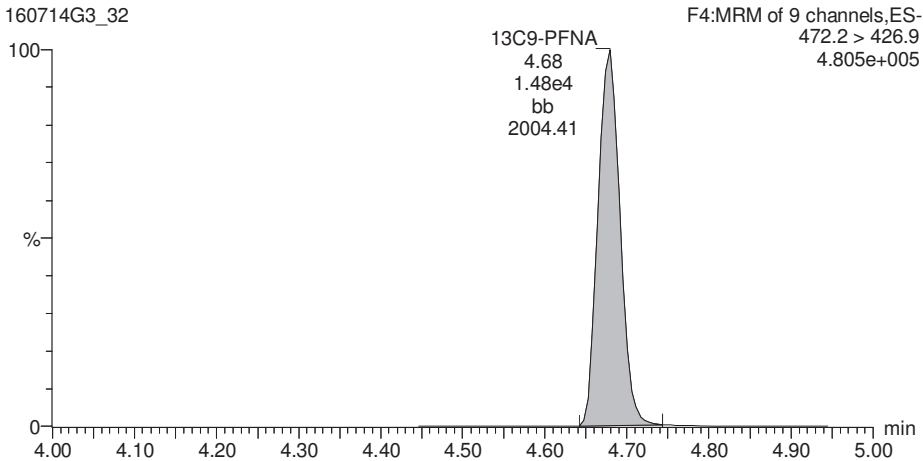
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Printed: Friday, July 15, 2016 09:39:25 Pacific Daylight Time

ID: 1600896-02 OF-FB071116 0.125, Description: OF-FB071116, Name: 160714G3_32, Date: 14-Jul-2016, Time: 17:19:26, Instrument: , Lab: , User:

13C9-PFNA

160714G3_32



Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_33.qld

Last Altered: Friday, July 15, 2016 09:41:21 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:41:31 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

ID: 1600896-03 OF-MW27-0716 0.125, Description: OF-MW27-0716, Name: 160714G3_33, Date: 14-Jul-2016, Time: 17:32:08

#	Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	299 > 79.7		5.615e3		0.119			
2	2 PFHpA	363 > 318.9		1.822e4		0.119			
3	3 PFHxS	398.9 > 79.6	3.213e1	6.070e3		0.119	4.03	0.472	
4	4 PFOA	413 > 368.7	2.376e2	2.603e4		0.119	4.32	1.33	
5	5 PFOS	499 > 79.9	6.781e0	7.447e3		0.119	4.66	0.240	
6	6 PFNA	463 > 418.8		1.104e4		0.119			
7	7 13C3-PFBS	302.0 > 98.8	5.615e3	3.021e4	0.194	0.119	3.04	101	95.9
8	8 13C4-PFHpA	367.2 > 321.8	1.822e4	3.021e4	0.625	0.119	3.90	101	96.4
9	9 18O2-PFHxS	403 > 102.6	6.070e3	1.179e4	0.521	0.119	4.03	104	98.8
10	10 13C2-PFOA	414.9 > 369.7	2.603e4	1.492e4	1.973	0.119	4.32	92.9	88.4
11	11 13C8-PFOS	507 > 79.9	7.447e3	9.380e3	0.990	0.119	4.74	84.3	80.2
12	12 13C5-PFNA	468.2 > 422.9	1.104e4	1.482e4	0.858	0.119	4.68	91.2	86.8
13	13 13C5-PFHxA	318.0 > 272.9	3.021e4	3.021e4	1.000	0.119	3.39	105	100
14	14 13C3-PFHxS	401.9 > 79.9	1.179e4	1.179e4	1.000	0.119	4.03	105	100
15	15 13C8-PFOA	421.3 > 376	1.492e4	1.492e4	1.000	0.119	4.32	105	100
16	16 13C4-PFOS	503 > 79.9	9.380e3	9.380e3	1.000	0.119	4.74	105	100
17	17 13C9-PFNA	472.2 > 426.9	1.482e4	1.482e4	1.000	0.119	4.68	105	100
18	18 Total PFBS	299 > 79.7		5.615e3		0.119			
19	19 Total PFHxS	398.9 > 79.6		6.070e3		0.119		0.472	
20	20 Total PFOA	413 > 368.7		2.603e4		0.119		1.33	
21	21 Total PFOS	499 > 79.9		7.447e3		0.119		0.240	

Quantify Totals Report MassLynx 4.1

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_33.qld

Last Altered: Friday, July 15, 2016 09:41:21 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:41:31 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30**Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03****ID: 1600896-03 OF-MW27-0716 0.125, Description: OF-MW27-0716, Name: 160714G3_33, Date: 14-Jul-2016, Time: 17:32:08****Total PFBS**

	# Name	Trace	RT	Area	IS Area	Conc.
1						

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	3 PFHxS	398.9 > 79.6	4.03	32.131	6069.784	0.5

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	4 PFOA	413 > 368.7	4.32	237.617	26026.365	1.3

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	5 PFOS	499 > 79.9	4.66	6.781	7447.084	0.2

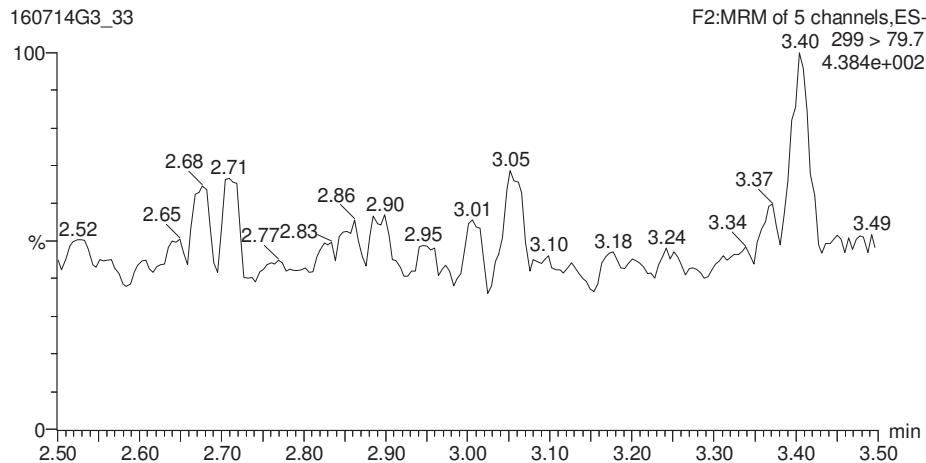
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Last Altered: Friday, July 15, 2016 09:41:21 Pacific Daylight Time
Printed: Friday, July 15, 2016 09:41:31 Pacific Daylight Time

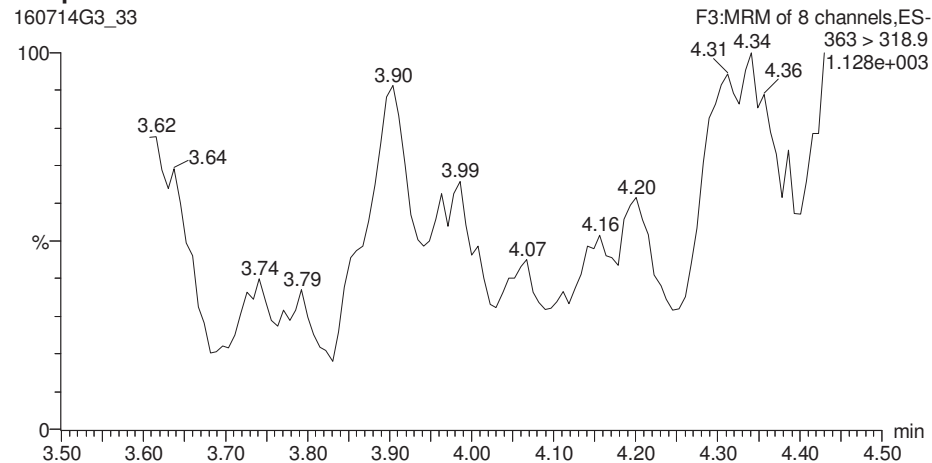
Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30
Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

ID: 1600896-03 OF-MW27-0716 0.125, Description: OF-MW27-0716, Name: 160714G3_33, Date: 14-Jul-2016, Time: 17:32:08, Instrument: , Lab: , User:

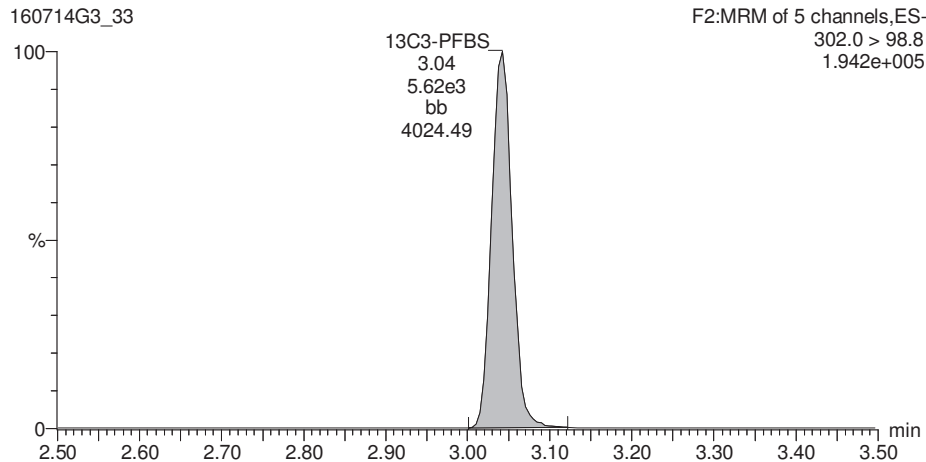
Total PFBS



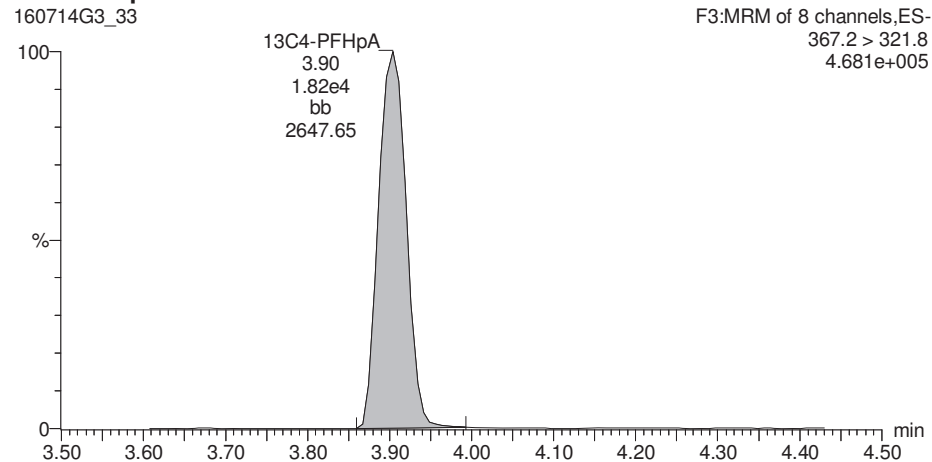
PFHpA



13C3-PFBS



13C4-PFHpA

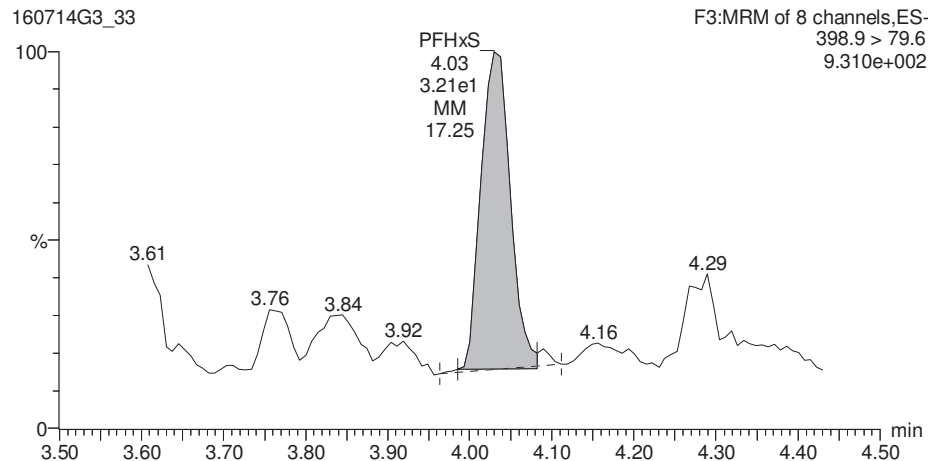


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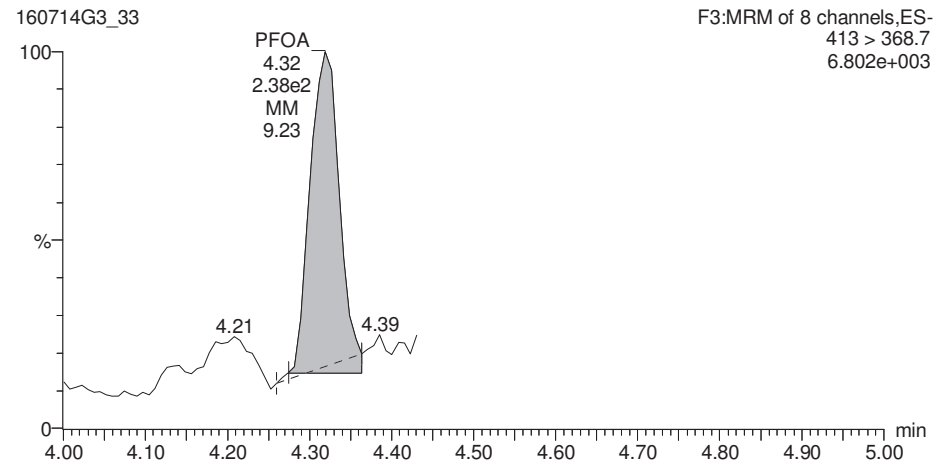
Last Altered: Friday, July 15, 2016 09:41:21 Pacific Daylight Time
Printed: Friday, July 15, 2016 09:41:31 Pacific Daylight Time

ID: 1600896-03 OF-MW27-0716 0.125, Description: OF-MW27-0716, Name: 160714G3_33, Date: 14-Jul-2016, Time: 17:32:08, Instrument: , Lab: , User:

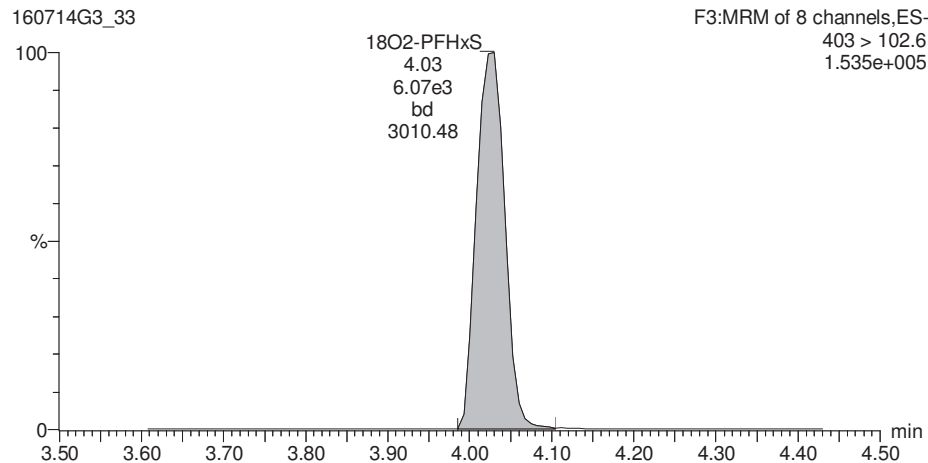
Total PFHxS



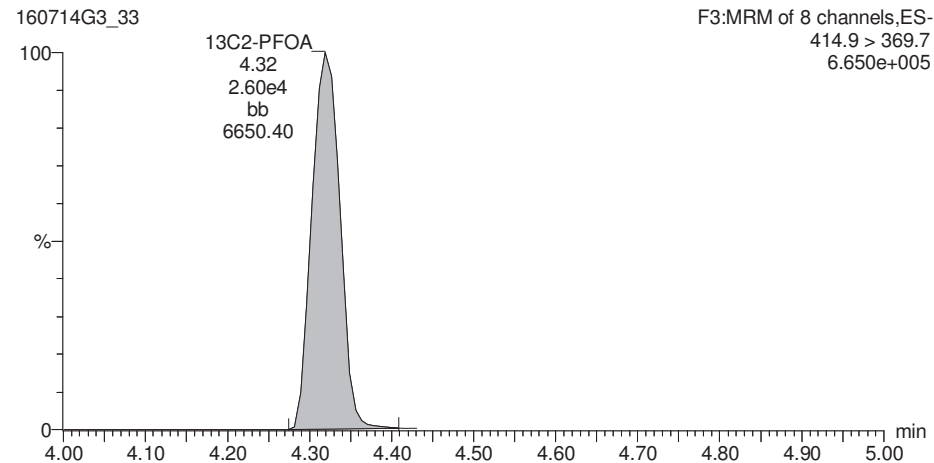
Total PFOA



18O2-PFHxS



13C2-PFOA

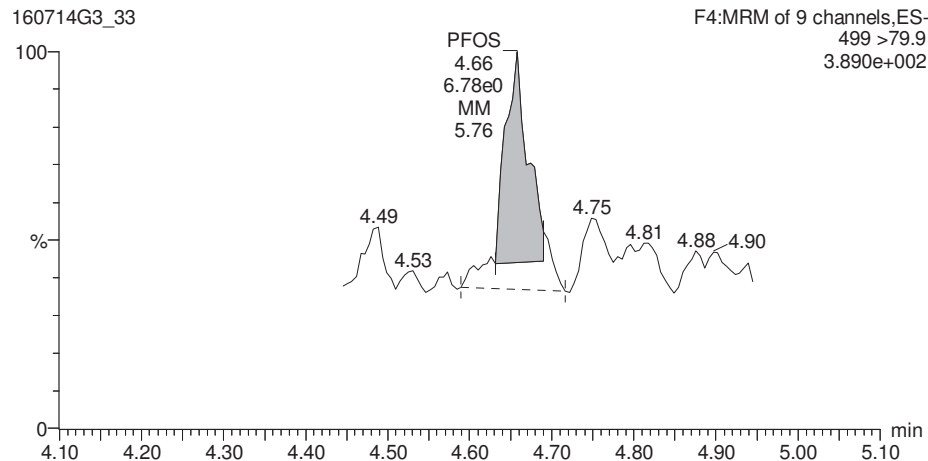


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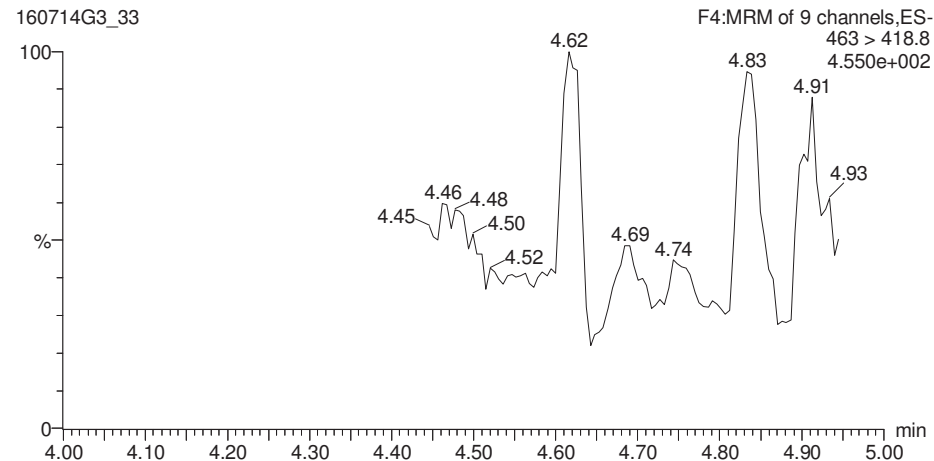
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Printed: Friday, July 15, 2016 09:41:31 Pacific Daylight Time

ID: 1600896-03 OF-MW27-0716 0.125, Description: OF-MW27-0716, Name: 160714G3_33, Date: 14-Jul-2016, Time: 17:32:08, Instrument: , Lab: , User:

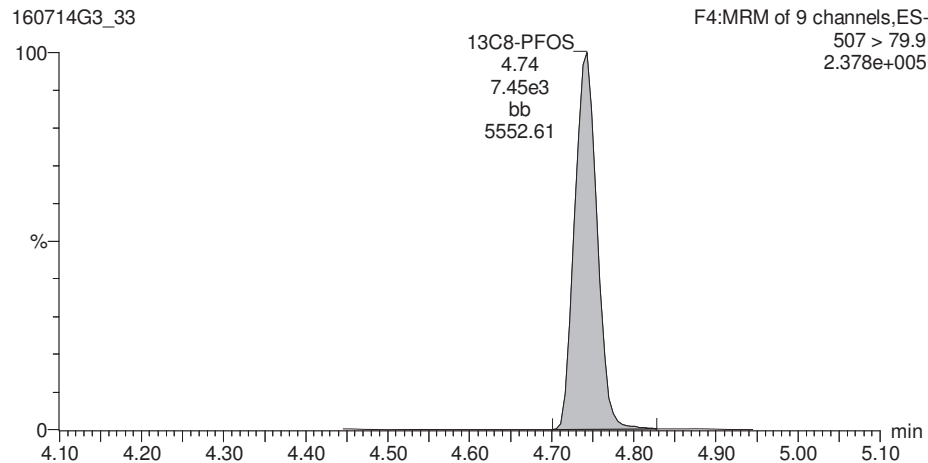
Total PFOS



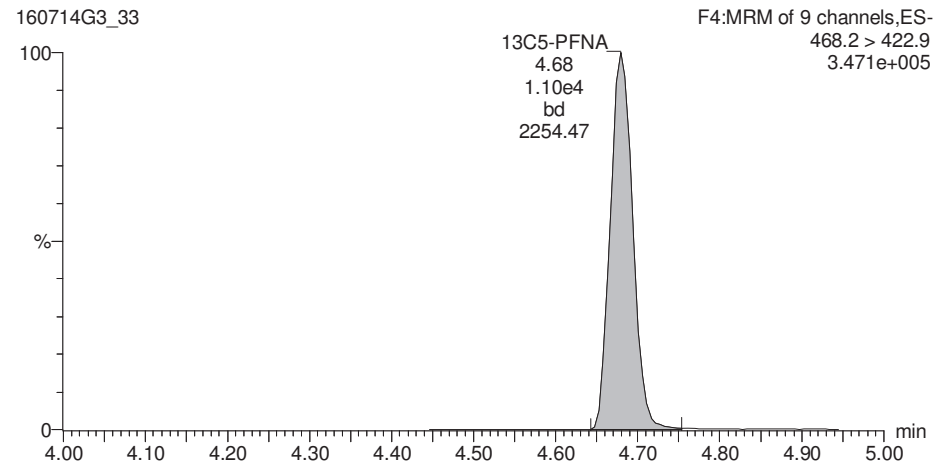
PFNA



13C8-PFOS



13C5-PFNA

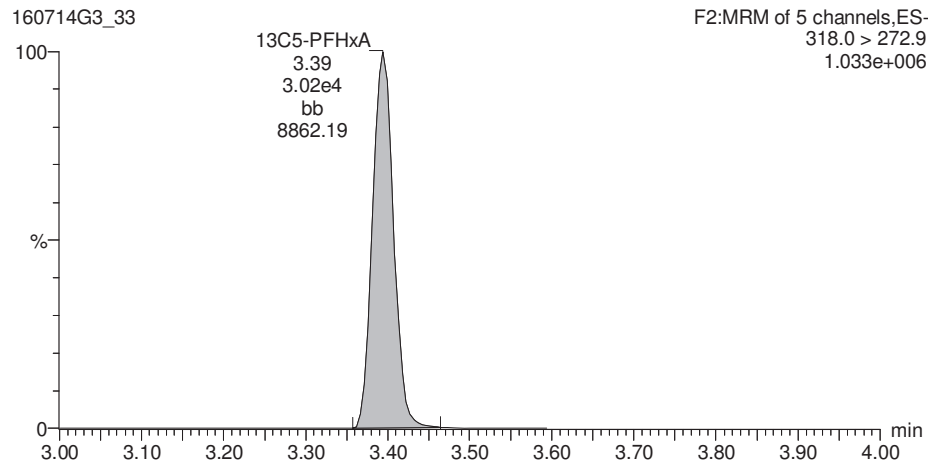


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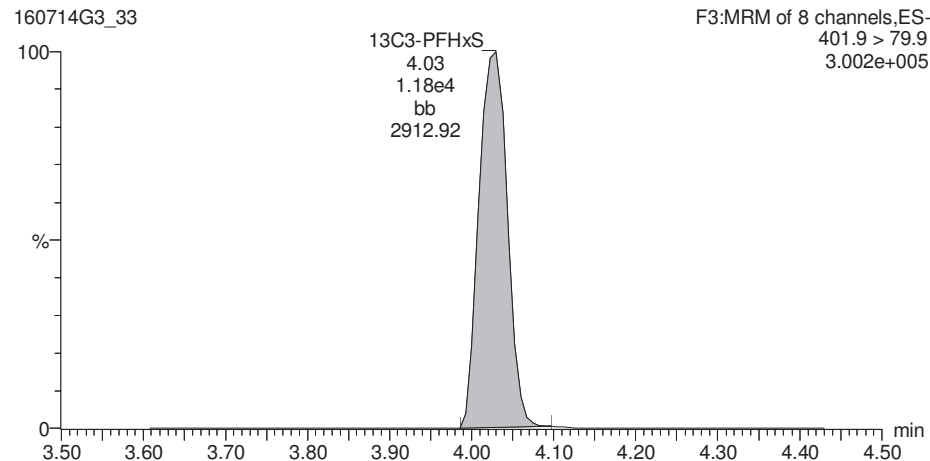
Last Altered: Friday, July 15, 2016 09:41:21 Pacific Daylight Time
Printed: Friday, July 15, 2016 09:41:31 Pacific Daylight Time

ID: 1600896-03 OF-MW27-0716 0.125, Description: OF-MW27-0716, Name: 160714G3_33, Date: 14-Jul-2016, Time: 17:32:08, Instrument: , Lab: , User:

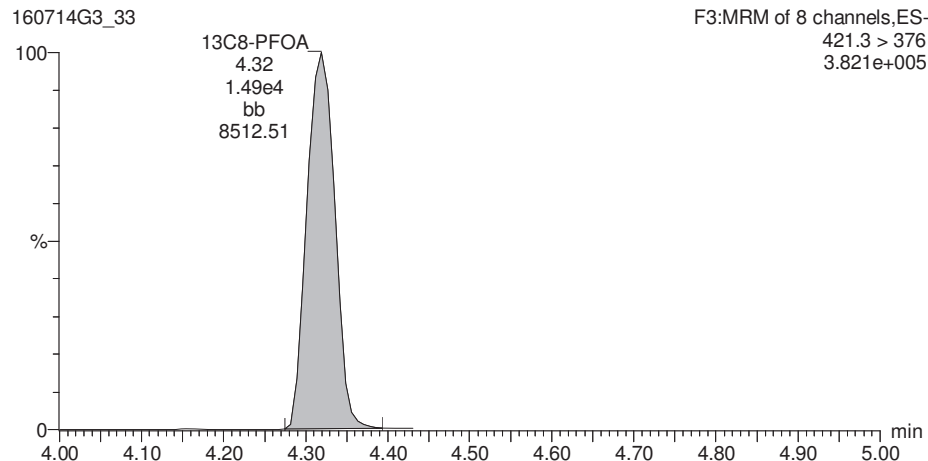
13C5-PFHxA



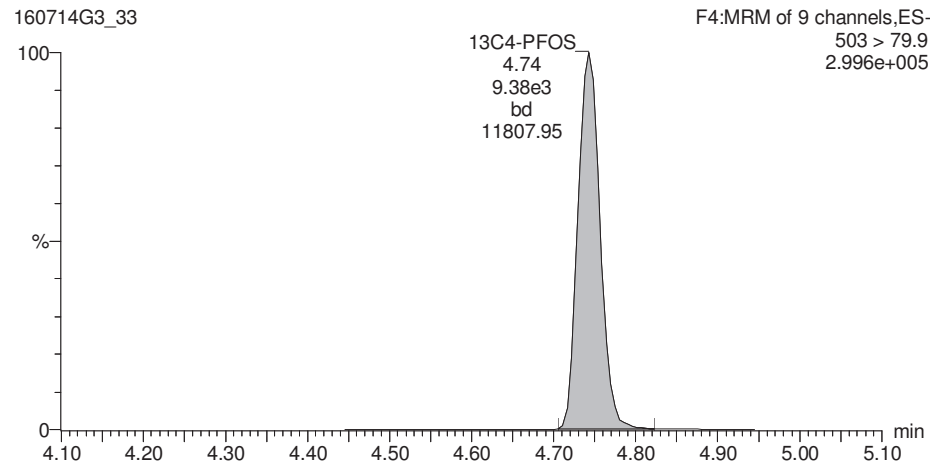
13C3-PFHxS



13C8-PFOA



13C4-PFOS



Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_33.qld

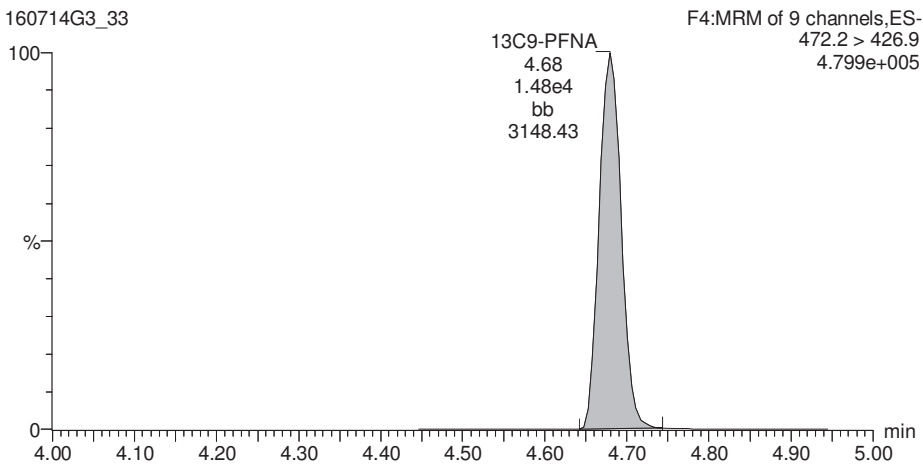
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ID: 1600896-03 OF-MW27-0716 0.125, Description: OF-MW27-0716, Name: 160714G3_33, Date: 14-Jul-2016, Time: 17:32:08, Instrument: , Lab: , User:

13C9-PFNA

160714G3_33



CONTINUING CALIBRATION

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_26.qld

Last Altered: Friday, July 15, 2016 08:32:22 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:33:10 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

Name: 160714G3_26, Date: 14-Jul-2016, Time: 16:03:24, ID: ST160714G3-10 PFC CS3.5 16G1210, Description: PFC CS3.5 16G1210 A

#	Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc	%Rec
1	1 PFBS	299 > 79.7	1.78e4	5.89e3		1.000	3.04	26.6	106.3
2	2 PFHpA	363 > 318.9	5.00e4	2.16e4		1.000	3.90	22.2	88.9
3	3 PFHxS	398.9 > 79.6	1.23e4	5.58e3		1.000	4.03	23.6	94.3
4	4 PFOA	413 > 368.7	3.84e4	2.54e4		1.000	4.32	26.6	106.4
5	5 PFOS	499 > 79.9	6.02e3	6.30e3		1.000	4.75	30.2	120.9
6	6 PFNA	463 > 418.8	2.36e4	1.05e4		1.000	4.68	26.4	105.6
7	7 13C3-PFBS	302.0 > 98.8	5.89e3	3.16e4	0.194	1.000	3.04	12.0	96.1
8	8 13C4-PFHpA	367.2 > 321.8	2.16e4	3.16e4	0.625	1.000	3.90	13.7	109.3
9	9 18O2-PFHxS	403 > 102.6	5.58e3	1.04e4	0.521	1.000	4.03	12.9	103.1
10	10 13C2-PFOA	414.9 > 369.7	2.54e4	1.55e4	1.973	1.000	4.32	10.3	82.8
11	11 13C8-PFOS	507 > 79.9	6.30e3	6.31e3	0.990	1.000	4.74	12.6	101.0
12	12 13C5-PFNA	468.2 > 422.9	1.05e4	1.20e4	0.858	1.000	4.68	12.8	102.5
13	13 13C5-PFHxA	318.0 > 272.9	3.16e4	3.16e4	1.000	1.000	3.39	12.5	100.0
14	14 13C3-PFHxS	401.9 > 79.9	1.04e4	1.04e4	1.000	1.000	4.03	12.5	100.0
15	15 13C8-PFOA	421.3 > 376	1.55e4	1.55e4	1.000	1.000	4.32	12.5	100.0
16	16 13C4-PFOS	503 > 79.9	6.31e3	6.31e3	1.000	1.000	4.74	12.5	100.0
17	17 13C9-PFNA	472.2 > 426.9	1.20e4	1.20e4	1.000	1.000	4.68	12.5	100.0

lim

75-125

60-150

50-150

BR 7/15/16

PV 7/15/16

Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:29:43 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:32:10 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

Compound name: PFBS

Name	ID	Acq.Date	Acq.Time
160714G3_1	IPA	14-Jul-16	10:47:13
160714G3_2	ST160714G3-1 PFC CS0 16G1205	14-Jul-16	10:59:52
160714G3_3	ST160714G3-2 PFC CS1 16G1206	14-Jul-16	11:12:29
160714G3_4	ST160714G3-3 PFC CS2 1G1208	14-Jul-16	11:25:06
160714G3_5	ST160714G3-4 PFC CS3 16G1209	14-Jul-16	11:37:44
160714G3_6	ST160714G3-5 PFC CS3.5 16G1210	14-Jul-16	11:50:23
160714G3_7	ST160714G3-6 PFC CS4 16G1211	14-Jul-16	12:03:03
160714G3_8	ST160714G3-7 PFC CS4.5 16G1212	14-Jul-16	12:15:43
160714G3_9	ST160714G3-8 PFC CS5 16G1213	14-Jul-16	12:28:23
160714G3_10	ST160714G3-9 PFC CS6 1G1214	14-Jul-16	12:41:04
160714G3_11	IPA	14-Jul-16	12:53:41
160714G3_12	SS160714G3-1 PFC SSS 16G1301	14-Jul-16	13:06:20
160714G3_13	IPA	14-Jul-16	13:18:57
160714G3_14	B6G0056-BS1 OPR 0.125	14-Jul-16	13:31:38
160714G3_15	IPA	14-Jul-16	13:44:16
160714G3_16	B6G0056-BLK1 Method Blank 0.125	14-Jul-16	13:56:57
160714G3_17	1600869-01RE1 HF1017070616 POST 0.29047	14-Jul-16	14:09:35
160714G3_18	1600869-02RE1 HF1017070616 PRE 0.29564	14-Jul-16	14:22:14
160714G3_19	1600872-01RE1 OF-MW28-0716 0.12231	14-Jul-16	14:34:53
160714G3_20	1600872-02RE1 OF-MW25-0716 0.12532	14-Jul-16	14:47:33
160714G3_21	1600872-03RE1 OF-MW315-0716 0.12832	14-Jul-16	15:00:13
160714G3_22	1600872-04RE1 OF-FB070616 0.12947	14-Jul-16	15:12:51
160714G3_23	B6G0056-MS1 Matrix Spike 0.125	14-Jul-16	15:25:28
160714G3_24	B6G0056-MSD1 Matrix Spike Dup 0.125	14-Jul-16	15:38:06
160714G3_25	IPA	14-Jul-16	15:50:44
160714G3_26	ST160714G3-10 PFC CS3.5 16G1210	14-Jul-16	16:03:24
160714G3_27	IPA	14-Jul-16	16:16:03
160714G3_28	B6G0059-BS1 OPR 0.125	14-Jul-16	16:28:46
160714G3_29	IPA	14-Jul-16	16:41:25
160714G3_30	B6G0059-BLK1 Method Blank 0.125	14-Jul-16	16:54:04
160714G3_31	1600896-01 OF-MW24-0716 0.125	14-Jul-16	17:06:44

Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:29:43 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:32:10 Pacific Daylight Time

Compound name: PFBS

	Name	ID	Acq Date	Acq Time
32	160714G3_32	1600896-02 OF-FB071116 0.125	14-Jul-16	17:19:26
33	160714G3_33	1600896-03 OF-MW27-0716 0.125	14-Jul-16	17:32:08
34	160714G3_34	IPA	14-Jul-16	17:44:45
35	160714G3_35	ST160714G3-11 PFC CS3.5 16G1210	14-Jul-16	17:57:24
36	160714G3_36	IPA	14-Jul-16	18:10:03

LC Calibration Standards Review Checklist Q1

Calibration ID:	L M H	ION Ratio	Concentration	C-Cals Name	Sign Date	Correct I-Cal	Manual Integrations	<u>NA</u>
<u>ST160714G3-10</u>	LMH	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<u>↓ -11</u>	LMH	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
_____	L M H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
_____	L M H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Full Mass Cal. Date: 6/29/16

Reviewed By: PL 7/15/16
Initials/Date

Comments:

Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:17:47 Pacific Daylight Time

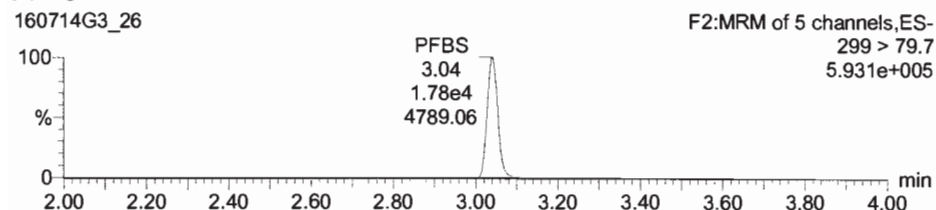
Printed: Friday, July 15, 2016 08:17:48 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

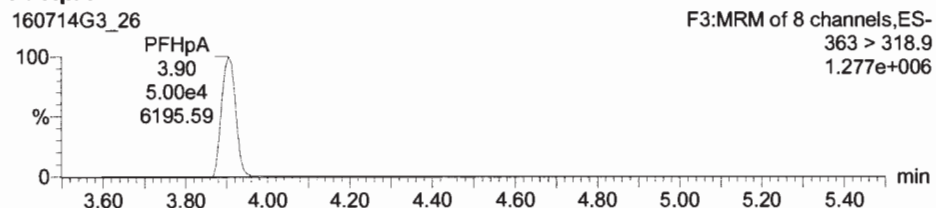
Calibration: 15 Jul 2016 08:17:47

Name: 160714G3_26, Date: 14-Jul-2016, Time: 16:03:24, ID: ST160714G3-10 PFC CS3.5 16G1210, Description: PFC CS3.5 16G1210 A

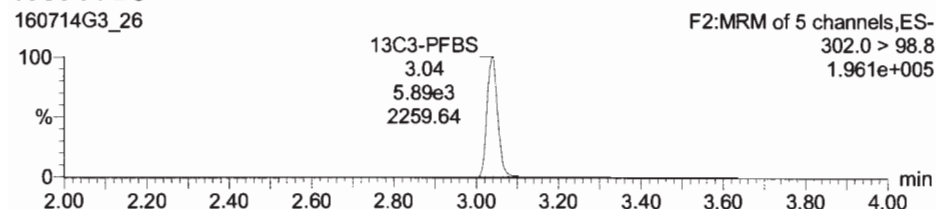
PFBS



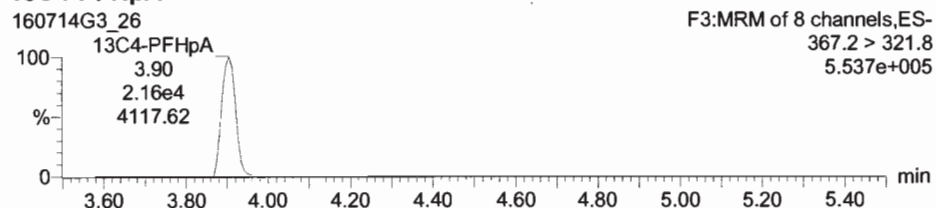
PFHpA



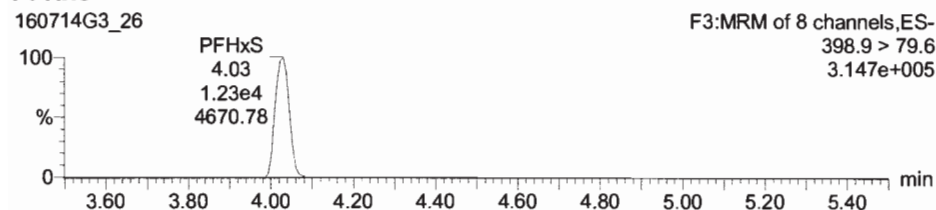
13C3-PFBS



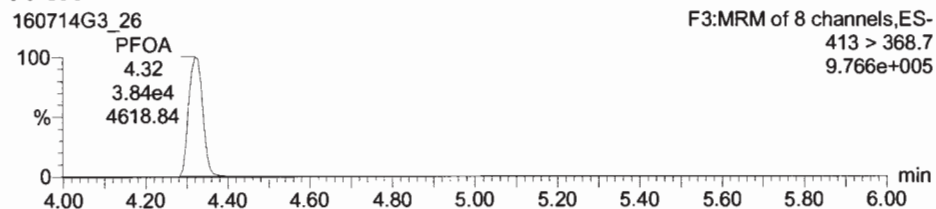
13C4-PFHpA



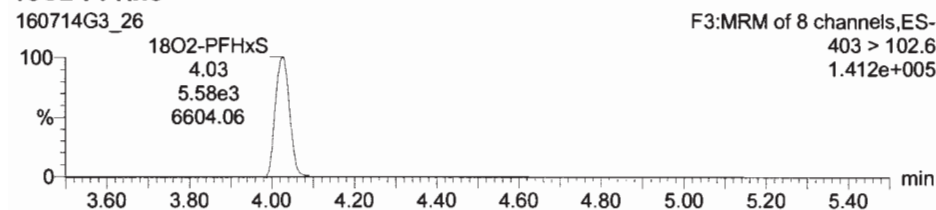
PFHxS



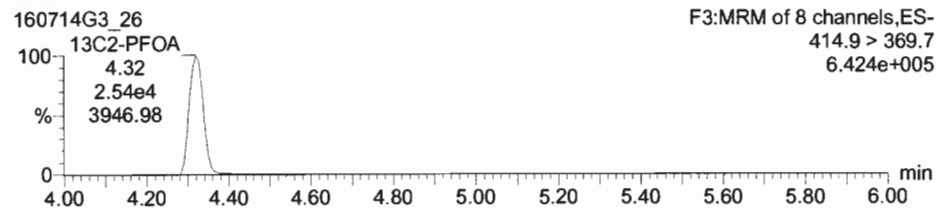
PFOA



18O2-PFHxS



13C2-PFOA

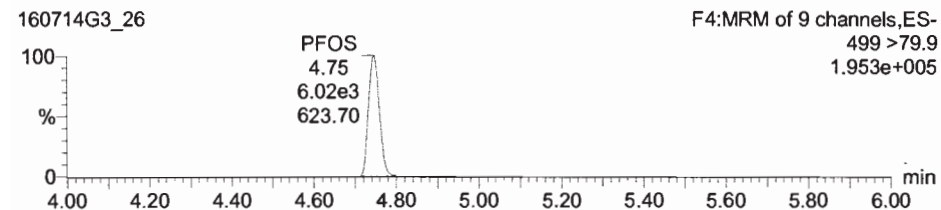


Dataset: Untitled

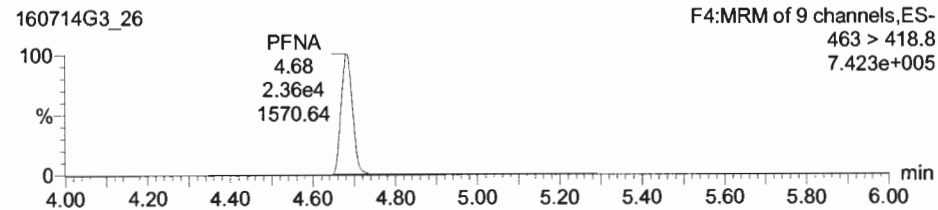
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Printed: Friday, July 15, 2016 08:17:48 Pacific Daylight Time

Name: 160714G3_26, Date: 14-Jul-2016, Time: 16:03:24, ID: ST160714G3-10 PFC CS3.5 16G1210, Description: PFC CS3.5 16G1210 A

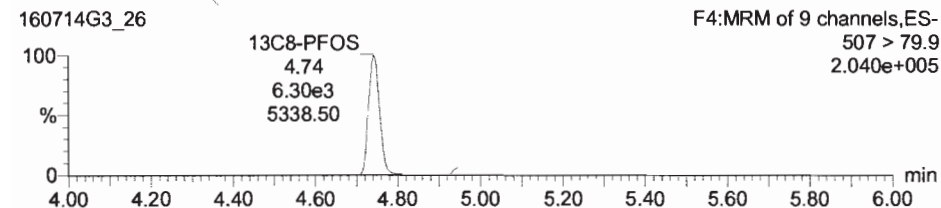
PFOS



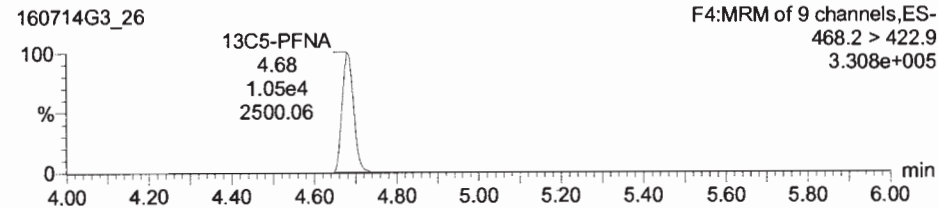
PFNA



13C8-PFOS



13C5-PFNA



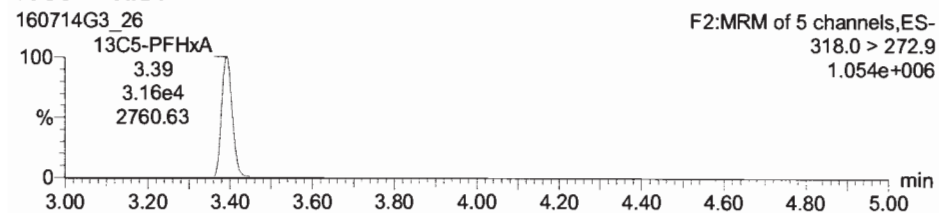
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Last Altered: Friday, July 15, 2016 08:17:47 Pacific Daylight Time

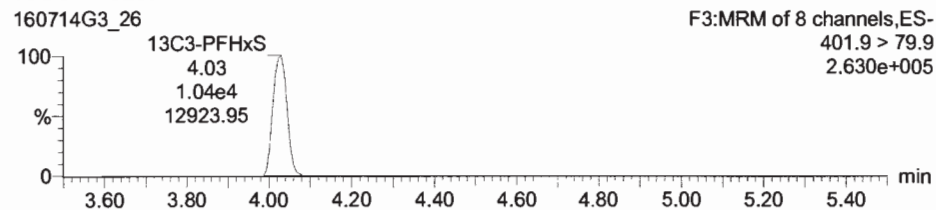
Printed: Friday, July 15, 2016 08:17:48 Pacific Daylight Time

Name: 160714G3_26, Date: 14-Jul-2016, Time: 16:03:24, ID: ST160714G3-10 PFC CS3.5 16G1210, Description: PFC CS3.5 16G1210 A

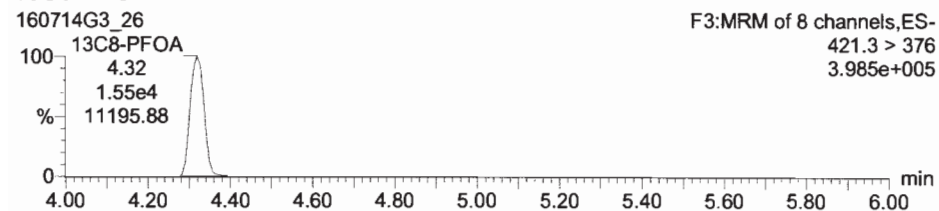
13C5-PFHxA



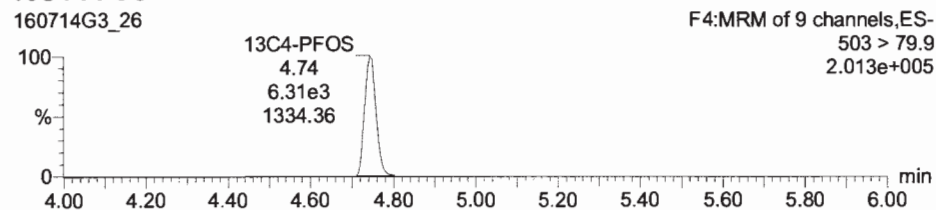
13C3-PFHxS



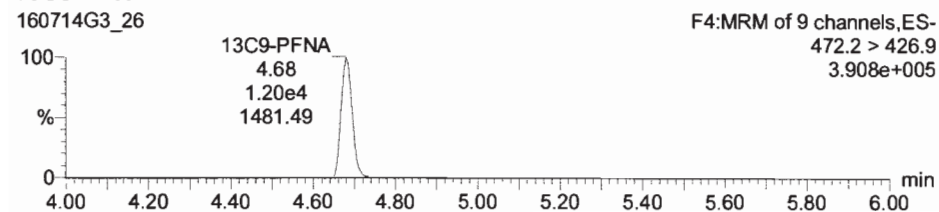
13C8-PFOA



13C4-PFOS



13C9-PFNA



Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_35.qld

Last Altered: Friday, July 15, 2016 08:36:04 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:36:30 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

Name: 160714G3_35, Date: 14-Jul-2016, Time: 17:57:24, ID: ST160714G3-11 PFC CS3.5 16G1210, Description: PFC CS3.5 16G1210 A

#	Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc.	%Rec
1	1 PFBS	299 > 79.7	1.60e4	5.80e3		1.000	3.05	24.3	97.1
2	2 PFHpA	363 > 318.9	5.51e4	2.10e4		1.000	3.91	25.2	100.8
3	3 PFHxS	398.9 > 79.6	1.23e4	5.76e3		1.000	4.03	22.8	91.1
4	4 PFOA	413 > 368.7	3.68e4	2.69e4		1.000	4.33	24.0	96.0
5	5 PFOS	499 > 79.9	5.45e3	6.74e3		1.000	4.75	25.5	102.0
6	6 PFNA	463 > 418.8	2.26e4	1.06e4		1.000	4.68	25.2	100.6
7	7 13C3-PFBS	302.0 > 98.8	5.80e3	3.34e4	0.194	1.000	3.05	11.2	89.7
8	8 13C4-PFHpA	367.2 > 321.8	2.10e4	3.34e4	0.625	1.000	3.91	12.6	100.8
9	9 18O2-PFHxS	403 > 102.6	5.76e3	1.04e4	0.521	1.000	4.03	13.3	106.7
10	10 13C2-PFOA	414.9 > 369.7	2.69e4	1.38e4	1.973	1.000	4.33	12.4	99.1
11	11 13C8-PFOS	507 > 79.9	6.74e3	6.68e3	0.990	1.000	4.75	12.7	102.0
12	12 13C5-PFNA	468.2 > 422.9	1.06e4	1.24e4	0.858	1.000	4.68	12.4	99.1
13	13 13C5-PFHxA	318.0 > 272.9	3.34e4	3.34e4	1.000	1.000	3.40	12.5	100.0
14	14 13C3-PFHxS	401.9 > 79.9	1.04e4	1.04e4	1.000	1.000	4.03	12.5	100.0
15	15 13C8-PFOA	421.3 > 376	1.38e4	1.38e4	1.000	1.000	4.33	12.5	100.0
16	16 13C4-PFOS	503 > 79.9	6.68e3	6.68e3	1.000	1.000	4.75	12.5	100.0
17	17 13C9-PFNA	472.2 > 426.9	1.24e4	1.24e4	1.000	1.000	4.68	12.5	100.0

lim
75-125
↓
60-150
↓
50-150

BR 7/15/16
PW 7/15/16

Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:29:43 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:32:11 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

Compound name: PFBS

	Name	ID	Acq.Date	Acq.Time
1	160714G3_1	IPA	14-Jul-16	10:47:13
2	160714G3_2	ST160714G3-1 PFC CS0 16G1205	14-Jul-16	10:59:52
3	160714G3_3	ST160714G3-2 PFC CS1 16G1206	14-Jul-16	11:12:29
4	160714G3_4	ST160714G3-3 PFC CS2 1G1208	14-Jul-16	11:25:06
5	160714G3_5	ST160714G3-4 PFC CS3 16G1209	14-Jul-16	11:37:44
6	160714G3_6	ST160714G3-5 PFC CS3.5 16G1210	14-Jul-16	11:50:23
7	160714G3_7	ST160714G3-6 PFC CS4 16G1211	14-Jul-16	12:03:03
8	160714G3_8	ST160714G3-7 PFC CS4.5 16G1212	14-Jul-16	12:15:43
9	160714G3_9	ST160714G3-8 PFC CS5 16G1213	14-Jul-16	12:28:23
10	160714G3_10	ST160714G3-9 PFC CS6 1G1214	14-Jul-16	12:41:04
11	160714G3_11	IPA	14-Jul-16	12:53:41
12	160714G3_12	SS160714G3-1 PFC SSS 16G1301	14-Jul-16	13:06:20
13	160714G3_13	IPA	14-Jul-16	13:18:57
14	160714G3_14	B6G0056-BS1 OPR 0.125	14-Jul-16	13:31:38
15	160714G3_15	IPA	14-Jul-16	13:44:16
16	160714G3_16	B6G0056-BLK1 Method Blank 0.125	14-Jul-16	13:56:57
17	160714G3_17	1600869-01RE1 HF1017070616 POST 0.29047	14-Jul-16	14:09:35
18	160714G3_18	1600869-02RE1 HF1017070616 PRE 0.29564	14-Jul-16	14:22:14
19	160714G3_19	1600872-01RE1 OF-MW28-0716 0.12231	14-Jul-16	14:34:53
20	160714G3_20	1600872-02RE1 OF-MW25-0716 0.12532	14-Jul-16	14:47:33
21	160714G3_21	1600872-03RE1 OF-MW315-0716 0.12832	14-Jul-16	15:00:13
22	160714G3_22	1600872-04RE1 OF-FB070616 0.12947	14-Jul-16	15:12:51
23	160714G3_23	B6G0056-MS1 Matrix Spike 0.125	14-Jul-16	15:25:28
24	160714G3_24	B6G0056-MSD1 Matrix Spike Dup 0.125	14-Jul-16	15:38:06
25	160714G3_25	IPA	14-Jul-16	15:50:44
26	160714G3_26	ST160714G3-10 PFC CS3.5 16G1210	14-Jul-16	16:03:24
27	160714G3_27	IPA	14-Jul-16	16:16:03
28	160714G3_28	B6G0059-BS1 OPR 0.125	14-Jul-16	16:28:46
29	160714G3_29	IPA	14-Jul-16	16:41:25
30	160714G3_30	B6G0059-BLK1 Method Blank 0.125	14-Jul-16	16:54:04
31	160714G3_31	1600896-01 OF-MW24-0716 0.125	14-Jul-16	17:06:44

Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:29:43 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:32:11 Pacific Daylight Time

Compound name: PFBS

	Name	ID	Acq.Date	Acq.Time
32	160714G3_32	1600896-02 OF-FB071116 0.125	14-Jul-16	17:19:26
33	160714G3_33	1600896-03 OF-MW27-0716 0.125	14-Jul-16	17:32:08
34	160714G3_34	IPA	14-Jul-16	17:44:45
35	160714G3_35	ST160714G3-11 PFC CS3.5 16G1210	14-Jul-16	17:57:24
36	160714G3_36	IPA	14-Jul-16	18:10:03

Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:17:54 Pacific Daylight Time

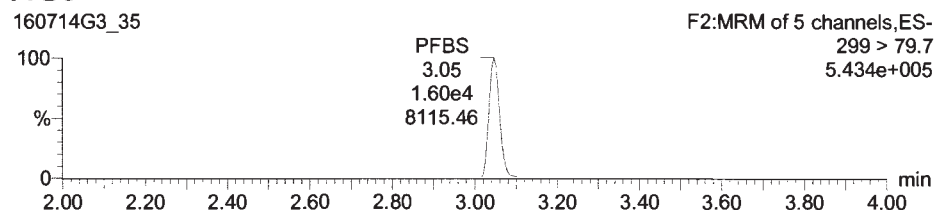
Printed: Friday, July 15, 2016 08:17:55 Pacific Daylight Time

Method: C:\Projects\Q1.PROMethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

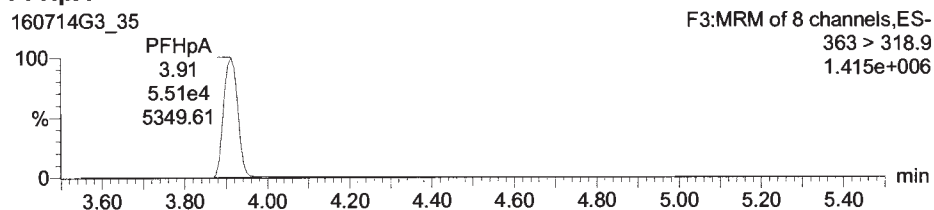
Calibration: 15 Jul 2016 08:17:54

Name: 160714G3_35, Date: 14-Jul-2016, Time: 17:57:24, ID: ST160714G3-11 PFC CS3.5 16G1210, Description: PFC CS3.5 16G1210 A

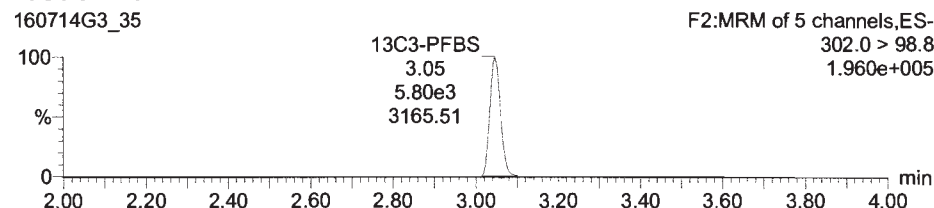
PFBS



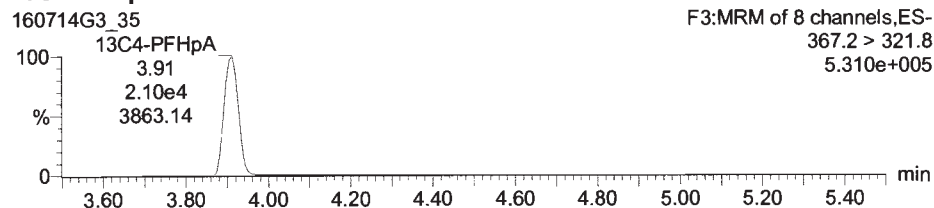
PFHpA



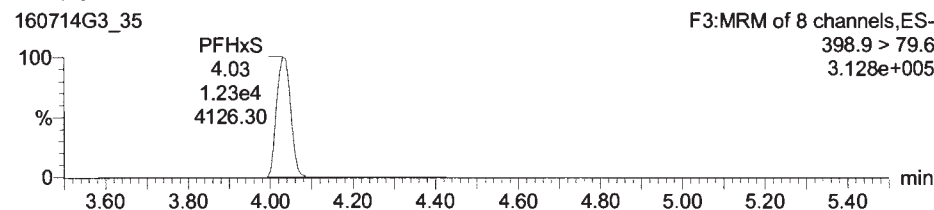
13C3-PFBS



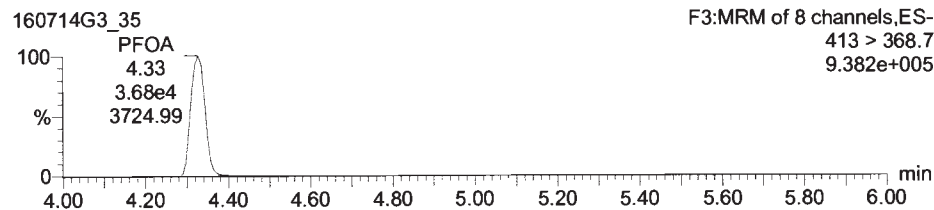
13C4-PFHpA



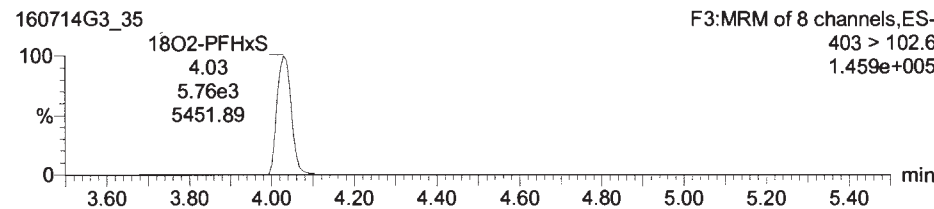
PFHxS



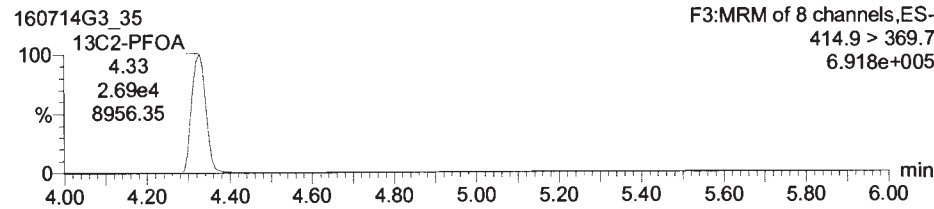
PFOA



18O2-PFHxS



13C2-PFOA



Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:17:54 Pacific Daylight Time

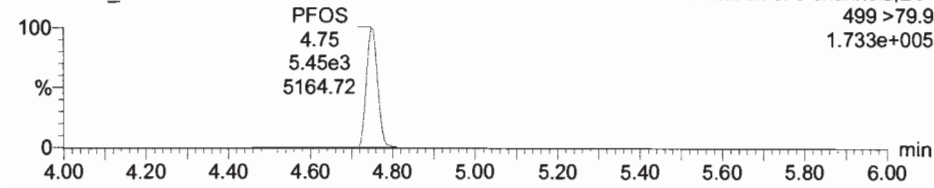
Printed: Friday, July 15, 2016 08:17:55 Pacific Daylight Time

Name: 160714G3_35, Date: 14-Jul-2016, Time: 17:57:24, ID: ST160714G3-11 PFC CS3.5 16G1210, Description: PFC CS3.5 16G1210 A

PFOS

160714G3_35

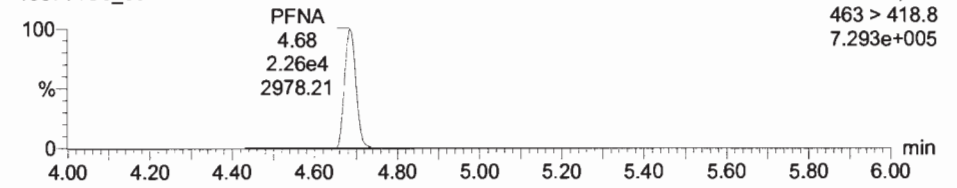
F4:MRM of 9 channels,ES-
499 >79.9
1.733e+005



PFNA

160714G3_35

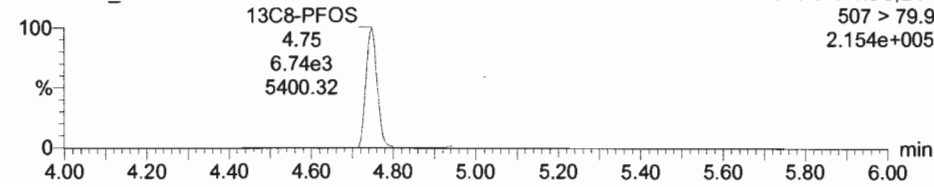
F4:MRM of 9 channels,ES-
463 > 418.8
7.293e+005



13C8-PFOS

160714G3_35

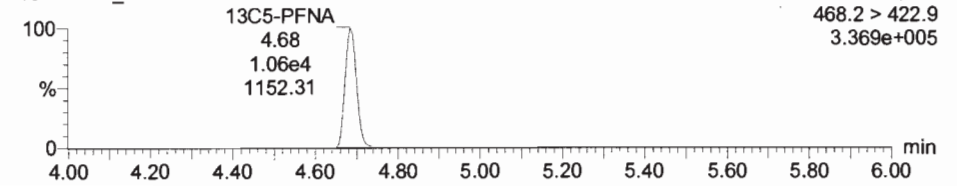
F4:MRM of 9 channels,ES-
507 > 79.9
2.154e+005



13C5-PFNA

160714G3_35

F4:MRM of 9 channels,ES-
468.2 > 422.9
3.369e+005



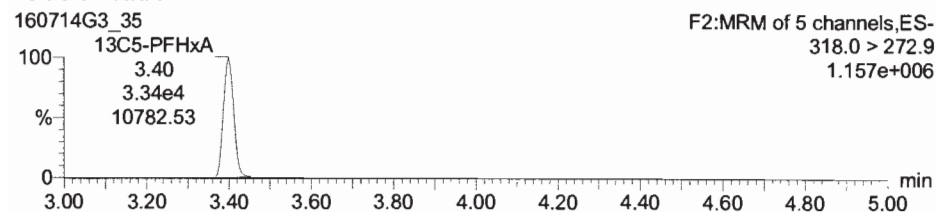
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Last Altered: Friday, July 15, 2016 08:17:54 Pacific Daylight Time

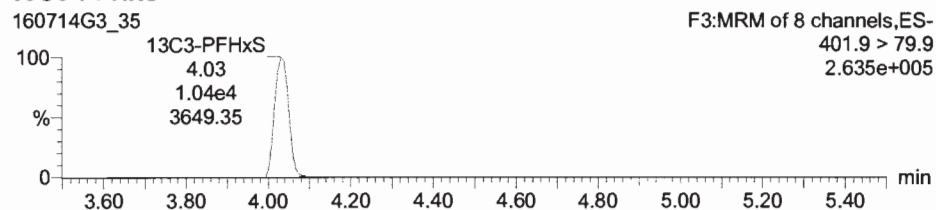
Printed: Friday, July 15, 2016 08:17:55 Pacific Daylight Time

Name: 160714G3_35, Date: 14-Jul-2016, Time: 17:57:24, ID: ST160714G3-11 PFC CS3.5 16G1210, Description: PFC CS3.5 16G1210 A

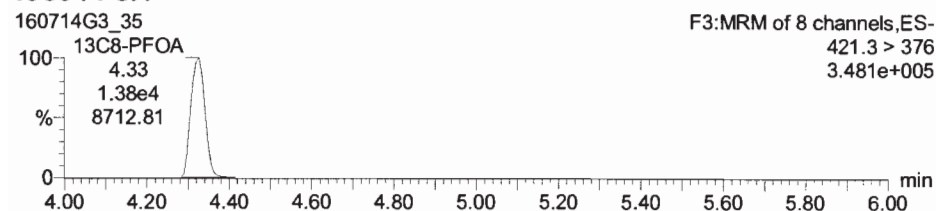
13C5-PFHxA



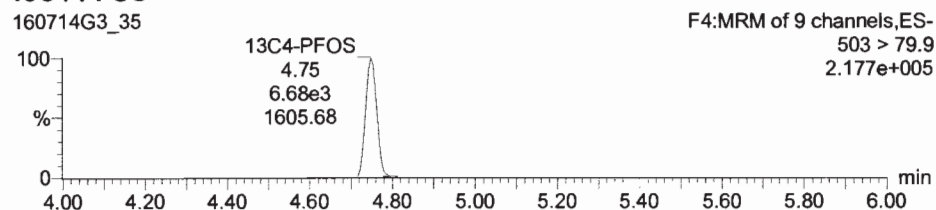
13C3-PFHxS



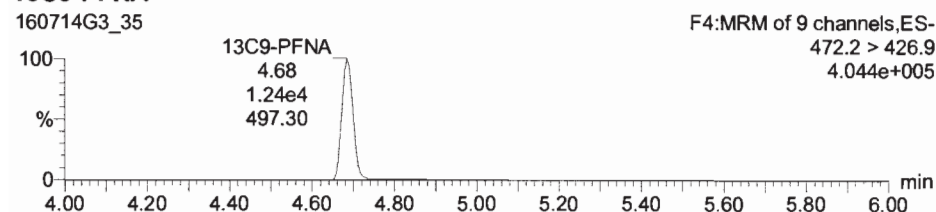
13C8-PFOA



13C4-PFOS



13C9-PFNA



INITIAL CALIBRATION

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_CRV.qld

Last Altered: Friday, July 15, 2016 08:19:03 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:22:38 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

Compound name: PFBS

Coefficient of Determination: $R^2 = 0.994869$

Calibration curve: $0.00038327 * x^2 + 1.4085 * x$

Response type: Internal Std (Ref 7), Area * (IS Conc. / IS Area)

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

#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	Coeff. Of D...
1	1 160714G3_2	1.00	3.04	8.80e2	6.33e3	1.23	0.9949
2	2 160714G3_3	2.00	3.04	1.70e3	6.31e3	2.39	0.9949
3	3 160714G3_4	5.00	3.04	4.26e3	6.02e3	6.28	0.9949
4	4 160714G3_5	10.0	3.04	8.36e3	6.68e3	11.1	0.9949
5	5 160714G3_6	25.0	3.04	1.85e4	6.83e3	23.9	0.9949
6	6 160714G3_7	50.0	3.04	3.32e4	5.72e3	50.9	0.9949
7	7 160714G3_8	75.0	3.04	4.61e4	5.02e3	79.7	0.9949
8	8 160714G3_9	100	3.03	5.46e4	5.31e3	89.2	0.9949
9	9 160714G3_10	200	3.03	1.01e5	4.19e3	203	0.9949

BR 7/15/16

PLU
7/15/16

Compound name: PFHpA

Coefficient of Determination: $R^2 = 0.998237$

Calibration curve: $-0.000689906 * x^2 + 1.31511 * x$

Response type: Internal Std (Ref 8), Area * (IS Conc. / IS Area)

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

#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	Coeff. Of D...
1	1 160714G3_2	1.00	3.91	2.30e3	2.00e4	1.10	0.9982
2	2 160714G3_3	2.00	3.90	4.99e3	2.21e4	2.15	0.9982
3	3 160714G3_4	5.00	3.91	1.12e4	1.87e4	5.72	0.9982
4	4 160714G3_5	10.0	3.90	2.50e4	2.18e4	11.0	0.9982
5	5 160714G3_6	25.0	3.90	5.37e4	2.02e4	25.6	0.9982
6	6 160714G3_7	50.0	3.90	9.48e4	1.88e4	49.1	0.9982
7	7 160714G3_8	75.0	3.90	1.34e5	1.72e4	76.9	0.9982
8	8 160714G3_9	100	3.90	1.59e5	1.70e4	93.6	0.9982
9	9 160714G3_10	200	3.90	2.55e5	1.34e4	203	0.9982

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_CRV.qld

Last Altered: Friday, July 15, 2016 08:19:03 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:22:38 Pacific Daylight Time

Compound name: PFHxS

Coefficient of Determination: R^2 = 0.999466

Calibration curve: $-0.000362852 * x^2 + 1.17819 * x$

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

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

#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	Coeff. Of D...
1	1 160714G3_2	1.00	4.03	6.33e2	6.47e3	1.04	0.9995
2	2 160714G3_3	2.00	4.03	1.37e3	6.21e3	2.35	0.9995
3	3 160714G3_4	5.00	4.03	3.01e3	5.79e3	5.53	0.9995
4	4 160714G3_5	10.0	4.03	6.35e3	6.42e3	10.5	0.9995
5	5 160714G3_6	25.0	4.03	1.38e4	6.09e3	24.2	0.9995
6	6 160714G3_7	50.0	4.03	2.72e4	5.81e3	50.5	0.9995
7	7 160714G3_8	75.0	4.03	3.63e4	5.28e3	74.7	0.9995
8	8 160714G3_9	100	4.02	4.75e4	5.30e3	98.2	0.9995
9	9 160714G3_10	200	4.02	8.38e4	4.72e3	201	0.9995

Compound name: PFOA

Coefficient of Determination: R^2 = 0.999169

Calibration curve: $-0.000267481 * x^2 + 0.718753 * x$

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

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

#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	Coeff. Of D...
1	1 160714G3_2	1.00	4.32	1.66e3	2.49e4	1.16	0.9992
2	2 160714G3_3	2.00	4.32	3.56e3	2.72e4	2.28	0.9992
3	3 160714G3_4	5.00	4.32	8.40e3	2.64e4	5.55	0.9992
4	4 160714G3_5	10.0	4.32	1.71e4	2.99e4	10.0	0.9992
5	5 160714G3_6	25.0	4.32	3.74e4	2.70e4	24.3	0.9992
6	6 160714G3_7	50.0	4.32	7.21e4	2.65e4	48.2	0.9992
7	7 160714G3_8	75.0	4.32	1.02e5	2.46e4	74.0	0.9992
8	8 160714G3_9	100	4.32	1.39e5	2.44e4	103	0.9992
9	9 160714G3_10	200	4.32	2.23e5	2.11e4	199	0.9992

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_CRV.qld

Last Altered: Friday, July 15, 2016 08:19:03 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:22:38 Pacific Daylight Time

Compound name: PFOS

Coefficient of Determination: R² = 0.997407

Calibration curve: -0.000103852 * x² + 0.398639 * x

Response type: Internal Std (Ref 11), Area * (IS Conc. / IS Area)

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

#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	Coeff. Of D...
1	1 160714G3_2	1.00	4.75	2.56e2	7.00e3	1.15	0.9974
2	2 160714G3_3	2.00	4.74	5.31e2	7.76e3	2.15	0.9974
3	3 160714G3_4	5.00	4.75	1.36e3	7.08e3	6.06	0.9974
4	4 160714G3_5	10.0	4.74	2.85e3	8.29e3	10.8	0.9974
5	5 160714G3_6	25.0	4.74	5.79e3	7.47e3	24.5	0.9974
6	6 160714G3_7	50.0	4.74	1.24e4	7.86e3	50.1	0.9974
7	7 160714G3_8	75.0	4.74	1.75e4	7.15e3	78.2	0.9974
8	8 160714G3_9	100	4.74	2.08e4	7.24e3	92.3	0.9974
9	9 160714G3_10	200	4.74	4.23e4	6.90e3	203	0.9974

Compound name: PFNA

Coefficient of Determination: R² = 0.997296

Calibration curve: -0.000144559 * x² + 1.06269 * x

Response type: Internal Std (Ref 12), Area * (IS Conc. / IS Area)

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

#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	Coeff. Of D...
1	1 160714G3_2	1.00	4.68	9.79e2	1.00e4	1.15	0.9973
2	2 160714G3_3	2.00	4.68	1.94e3	1.08e4	2.12	0.9973
3	3 160714G3_4	5.00	4.68	4.96e3	1.05e4	5.57	0.9973
4	4 160714G3_5	10.0	4.68	1.10e4	1.20e4	10.9	0.9973
5	5 160714G3_6	25.0	4.68	2.23e4	1.01e4	26.2	0.9973
6	6 160714G3_7	50.0	4.68	4.53e4	1.06e4	50.7	0.9973
7	7 160714G3_8	75.0	4.68	6.87e4	1.06e4	76.9	0.9973
8	8 160714G3_9	100	4.68	7.87e4	1.03e4	91.0	0.9973
9	9 160714G3_10	200	4.68	1.57e5	9.35e3	203	0.9973

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_CRV.qld

Last Altered: Friday, July 15, 2016 08:19:03 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:22:52 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

Compound name: 13C3-PFBS

Response Factor: 0.193747

RRF SD: 0.00911271, Relative SD: 4.70339

Response type: Internal Std (Ref 13), Area * (IS Conc. / IS Area)

Curve type: RF

#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	RRF
1	1 160714G3_2	12.5	3.04	6.33e3	3.08e4	13.3	0.206
2	2 160714G3_3	12.5	3.03	6.31e3	3.38e4	12.1	0.187
3	3 160714G3_4	12.5	3.04	6.02e3	3.26e4	11.9	0.185
4	4 160714G3_5	12.5	3.04	6.68e3	3.31e4	13.0	0.202
5	5 160714G3_6	12.5	3.04	6.83e3	3.29e4	13.4	0.207
6	6 160714G3_7	12.5	3.04	5.72e3	2.94e4	12.5	0.194
7	7 160714G3_8	12.5	3.03	5.02e3	2.73e4	11.9	0.184
8	8 160714G3_9	12.5	3.03	5.31e3	2.77e4	12.4	0.192
9	9 160714G3_10	12.5	3.03	4.19e3	2.24e4	12.1	0.187

Compound name: 13C4-PFHpA

Response Factor: 0.625485

RRF SD: 0.0280845, Relative SD: 4.49004

Response type: Internal Std (Ref 13), Area * (IS Conc. / IS Area)

Curve type: RF

#	Name	Std. Conc	RT	Resp	IS Resp	Conc.	RRF
1	1 160714G3_2	12.5	3.90	2.00e4	3.08e4	13.0	0.649
2	2 160714G3_3	12.5	3.90	2.21e4	3.38e4	13.0	0.653
3	3 160714G3_4	12.5	3.90	1.87e4	3.26e4	11.5	0.575
4	4 160714G3_5	12.5	3.90	2.18e4	3.31e4	13.2	0.659
5	5 160714G3_6	12.5	3.90	2.02e4	3.29e4	12.2	0.612
6	6 160714G3_7	12.5	3.90	1.88e4	2.94e4	12.8	0.640
7	7 160714G3_8	12.5	3.90	1.72e4	2.73e4	12.6	0.631
8	8 160714G3_9	12.5	3.90	1.70e4	2.77e4	12.3	0.614
9	9 160714G3_10	12.5	3.90	1.34e4	2.24e4	11.9	0.597

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_CRV.qld

Last Altered: Friday, July 15, 2016 08:19:03 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:22:52 Pacific Daylight Time

Compound name: 18O2-PFHxS

Response Factor: 0.520756

RRF SD: 0.0406973, Relative SD: 7.81503

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

Curve type: RF

#	Name	Std. Conc	RT	Resp	IS Resp	Conc	RRF
1	1 160714G3_2	12.5	4.03	6.47e3	1.17e4	13.2	0.551
2	2 160714G3_3	12.5	4.02	6.21e3	1.24e4	12.0	0.501
3	3 160714G3_4	12.5	4.03	5.79e3	1.19e4	11.7	0.487
4	4 160714G3_5	12.5	4.02	6.42e3	1.28e4	12.0	0.502
5	5 160714G3_6	12.5	4.02	6.09e3	1.20e4	12.1	0.506
6	6 160714G3_7	12.5	4.02	5.81e3	1.14e4	12.2	0.510
7	7 160714G3_8	12.5	4.02	5.28e3	1.07e4	11.9	0.495
8	8 160714G3_9	12.5	4.02	5.30e3	1.02e4	12.4	0.517
9	9 160714G3_10	12.5	4.02	4.72e3	7.63e3	14.8	0.618

Compound name: 13C2-PFOA

Response Factor: 1.97342

RRF SD: 0.0779124, Relative SD: 3.9481

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

Curve type: RF

#	Name	Std. Conc	RT	Resp	IS Resp	Conc	RRF
1	1 160714G3_2	12.5	4.32	2.49e4	1.22e4	13.0	2.05
2	2 160714G3_3	12.5	4.32	2.72e4	1.44e4	12.0	1.90
3	3 160714G3_4	12.5	4.32	2.64e4	1.31e4	12.7	2.01
4	4 160714G3_5	12.5	4.32	2.99e4	1.42e4	13.3	2.10
5	5 160714G3_6	12.5	4.32	2.70e4	1.33e4	12.9	2.04
6	6 160714G3_7	12.5	4.32	2.65e4	1.38e4	12.2	1.93
7	7 160714G3_8	12.5	4.32	2.46e4	1.29e4	12.1	1.91
8	8 160714G3_9	12.5	4.31	2.44e4	1.26e4	12.3	1.94
9	9 160714G3_10	12.5	4.31	2.11e4	1.11e4	12.0	1.89

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_CRV.qld

Last Altered: Friday, July 15, 2016 08:19:03 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:22:52 Pacific Daylight Time

Compound name: 13C8-PFOS

Response Factor: 0.989749

RRF SD: 0.0343077, Relative SD: 3.4663

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

Curve type: RF

#	Name	Std. Conc	RT	Resp	IS Resp	Conc	RRF
1	1 160714G3_2	12.5	4.74	7.00e3	6.94e3	12.7	1.01
2	2 160714G3_3	12.5	4.74	7.76e3	7.90e3	12.4	0.982
3	3 160714G3_4	12.5	4.74	7.08e3	6.92e3	12.9	1.02
4	4 160714G3_5	12.5	4.74	8.29e3	8.58e3	12.2	0.966
5	5 160714G3_6	12.5	4.74	7.47e3	7.14e3	13.2	1.05
6	6 160714G3_7	12.5	4.74	7.86e3	7.98e3	12.4	0.985
7	7 160714G3_8	12.5	4.74	7.15e3	7.69e3	11.7	0.929
8	8 160714G3_9	12.5	4.74	7.24e3	7.26e3	12.6	0.997
9	9 160714G3_10	12.5	4.74	6.90e3	7.12e3	12.3	0.970

Compound name: 13C5-PFNA

Response Factor: 0.858092

RRF SD: 0.0394676, Relative SD: 4.59946

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

Curve type: RF

#	Name	Std. Conc	RT	Resp	IS Resp	Conc	RRF
1	1 160714G3_2	12.5	4.68	1.00e4	1.25e4	11.7	0.801
2	2 160714G3_3	12.5	4.68	1.08e4	1.29e4	12.1	0.832
3	3 160714G3_4	12.5	4.68	1.05e4	1.18e4	13.0	0.892
4	4 160714G3_5	12.5	4.68	1.20e4	1.41e4	12.4	0.852
5	5 160714G3_6	12.5	4.68	1.01e4	1.12e4	13.0	0.896
6	6 160714G3_7	12.5	4.68	1.06e4	1.26e4	12.3	0.844
7	7 160714G3_8	12.5	4.68	1.06e4	1.19e4	13.0	0.894
8	8 160714G3_9	12.5	4.68	1.03e4	1.14e4	13.2	0.904
9	9 160714G3_10	12.5	4.68	9.35e3	1.16e4	11.8	0.809

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_CRV.qld

Last Altered: Friday, July 15, 2016 08:19:03 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:22:52 Pacific Daylight Time

Compound name: 13C5-PFHxA

Response Factor: 1

RRF SD: 0, Relative SD: 0

Response type: Internal Std (Ref 13), Area * (IS Conc. / IS Area)

Curve type: RF

#	Name	Std. Conc	RT	Resp	IS Resp	Conc	RRF
1	1 160714G3_2	12.5	3.39	3.08e4	3.08e4	12.5	1.00
2	2 160714G3_3	12.5	3.39	3.38e4	3.38e4	12.5	1.00
3	3 160714G3_4	12.5	3.39	3.26e4	3.26e4	12.5	1.00
4	4 160714G3_5	12.5	3.39	3.31e4	3.31e4	12.5	1.00
5	5 160714G3_6	12.5	3.39	3.29e4	3.29e4	12.5	1.00
6	6 160714G3_7	12.5	3.39	2.94e4	2.94e4	12.5	1.00
7	7 160714G3_8	12.5	3.39	2.73e4	2.73e4	12.5	1.00
8	8 160714G3_9	12.5	3.39	2.77e4	2.77e4	12.5	1.00
9	9 160714G3_10	12.5	3.39	2.24e4	2.24e4	12.5	1.00

Compound name: 13C3-PFHxS

Response Factor: 1

RRF SD: 0, Relative SD: 0

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

Curve type: RF

#	Name	Std. Conc	RT	Resp	IS Resp	Conc	RRF
1	1 160714G3_2	12.5	4.03	1.17e4	1.17e4	12.5	1.00
2	2 160714G3_3	12.5	4.02	1.24e4	1.24e4	12.5	1.00
3	3 160714G3_4	12.5	4.03	1.19e4	1.19e4	12.5	1.00
4	4 160714G3_5	12.5	4.03	1.28e4	1.28e4	12.5	1.00
5	5 160714G3_6	12.5	4.03	1.20e4	1.20e4	12.5	1.00
6	6 160714G3_7	12.5	4.03	1.14e4	1.14e4	12.5	1.00
7	7 160714G3_8	12.5	4.03	1.07e4	1.07e4	12.5	1.00
8	8 160714G3_9	12.5	4.02	1.02e4	1.02e4	12.5	1.00
9	9 160714G3_10	12.5	4.02	7.63e3	7.63e3	12.5	1.00

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_CRV.qld

Last Altered: Friday, July 15, 2016 08:19:03 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:22:52 Pacific Daylight Time

Compound name: 13C8-PFOA

Response Factor: 1

RRF SD: 5.55112e-017, Relative SD: 5.55112e-015

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

Curve type: RF

#	Name	Std. Conc	RT	Resp	IS Resp	Conc	RRF
1	1 160714G3_2	12.5	4.32	1.22e4	1.22e4	12.5	1.00
2	2 160714G3_3	12.5	4.31	1.44e4	1.44e4	12.5	1.00
3	3 160714G3_4	12.5	4.32	1.31e4	1.31e4	12.5	1.00
4	4 160714G3_5	12.5	4.32	1.42e4	1.42e4	12.5	1.00
5	5 160714G3_6	12.5	4.32	1.33e4	1.33e4	12.5	1.00
6	6 160714G3_7	12.5	4.32	1.38e4	1.38e4	12.5	1.00
7	7 160714G3_8	12.5	4.32	1.29e4	1.29e4	12.5	1.00
8	8 160714G3_9	12.5	4.31	1.26e4	1.26e4	12.5	1.00
9	9 160714G3_10	12.5	4.31	1.11e4	1.11e4	12.5	1.00

Compound name: 13C4-PFOS

Response Factor: 1

RRF SD: 1.30185e-016, Relative SD: 1.30185e-014

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

Curve type: RF

#	Name	Std. Conc	RT	Resp	IS Resp	Conc	RRF
1	1 160714G3_2	12.5	4.74	6.94e3	6.94e3	12.5	1.00
2	2 160714G3_3	12.5	4.74	7.90e3	7.90e3	12.5	1.00
3	3 160714G3_4	12.5	4.74	6.92e3	6.92e3	12.5	1.00
4	4 160714G3_5	12.5	4.74	8.58e3	8.58e3	12.5	1.00
5	5 160714G3_6	12.5	4.74	7.14e3	7.14e3	12.5	1.00
6	6 160714G3_7	12.5	4.74	7.98e3	7.98e3	12.5	1.00
7	7 160714G3_8	12.5	4.74	7.69e3	7.69e3	12.5	1.00
8	8 160714G3_9	12.5	4.74	7.26e3	7.26e3	12.5	1.00
9	9 160714G3_10	12.5	4.74	7.12e3	7.12e3	12.5	1.00

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_CRV.qld

Last Altered: Friday, July 15, 2016 08:19:03 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:22:52 Pacific Daylight Time

Compound name: 13C9-PFNA

Response Factor: 1

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

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

Curve type: RF

	#.Name	Std. Conc	RT	Resp	IS Resp	Conc.	RRF
1	1 160714G3_2	12.5	4.68	1.25e4	1.25e4	12.5	1.00
2	2 160714G3_3	12.5	4.68	1.29e4	1.29e4	12.5	1.00
3	3 160714G3_4	12.5	4.68	1.18e4	1.18e4	12.5	1.00
4	4 160714G3_5	12.5	4.68	1.41e4	1.41e4	12.5	1.00
5	5 160714G3_6	12.5	4.68	1.12e4	1.12e4	12.5	1.00
6	6 160714G3_7	12.5	4.68	1.26e4	1.26e4	12.5	1.00
7	7 160714G3_8	12.5	4.68	1.19e4	1.19e4	12.5	1.00
8	8 160714G3_9	12.5	4.67	1.14e4	1.14e4	12.5	1.00
9	9 160714G3_10	12.5	4.68	1.16e4	1.16e4	12.5	1.00

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_CRV.qld

Last Altered: Friday, July 15, 2016 08:19:03 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:23:03 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

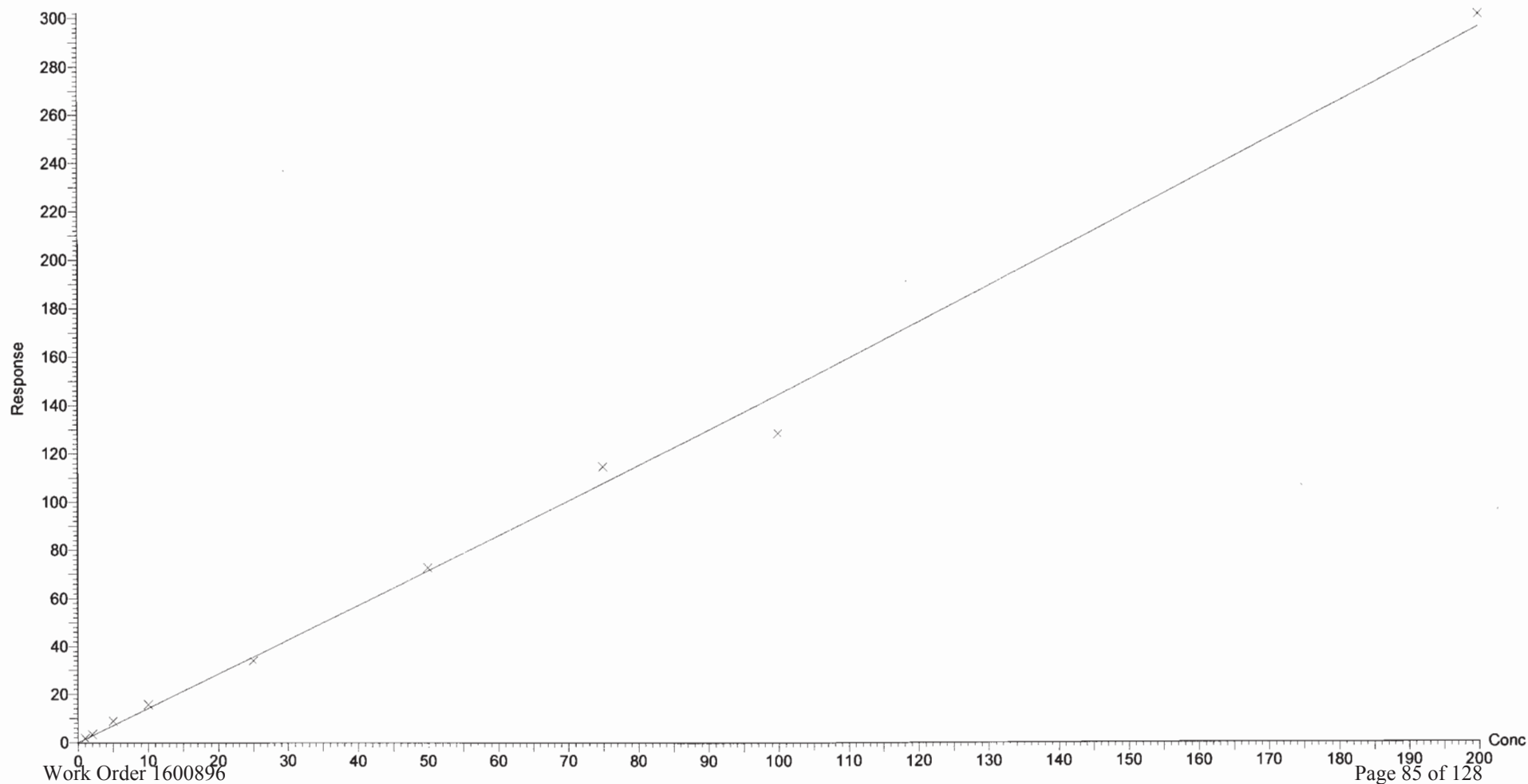
Compound name: PFBS

Coefficient of Determination: $R^2 = 0.994869$

Calibration curve: $0.00038327 * x^2 + 1.4085 * x$

Response type: Internal Std (Ref 7), Area * (IS Conc. / IS Area)

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



Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_CRV.qld

Last Altered: Friday, July 15, 2016 08:19:03 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:23:03 Pacific Daylight Time

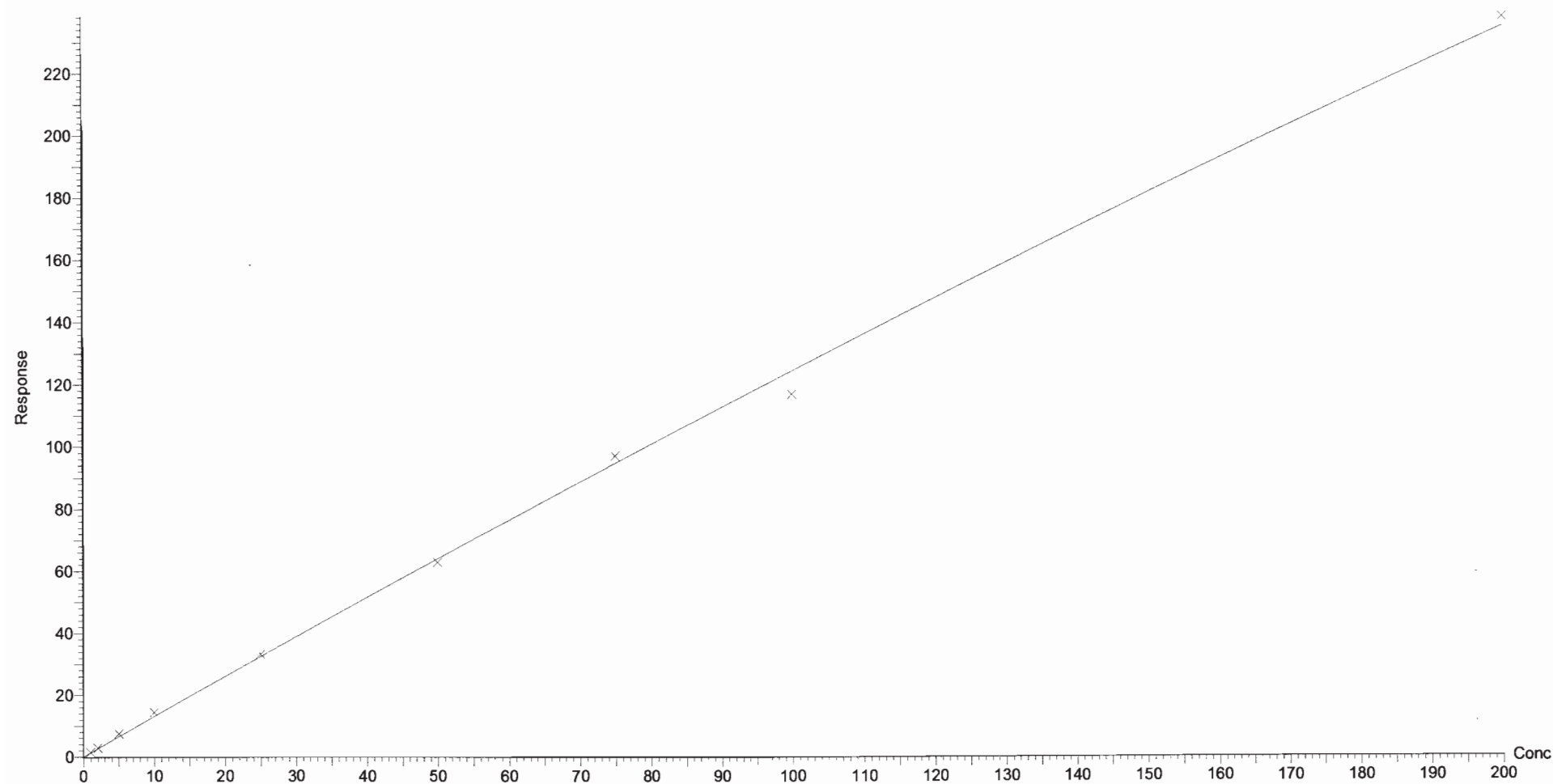
Compound name: PFHpA

Coefficient of Determination: $R^2 = 0.998237$

Calibration curve: $-0.000689906 * x^2 + 1.31511 * x$

Response type: Internal Std (Ref 8), Area * (IS Conc. / IS Area)

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



Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_CRV.qld

Last Altered: Friday, July 15, 2016 08:19:03 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:23:03 Pacific Daylight Time

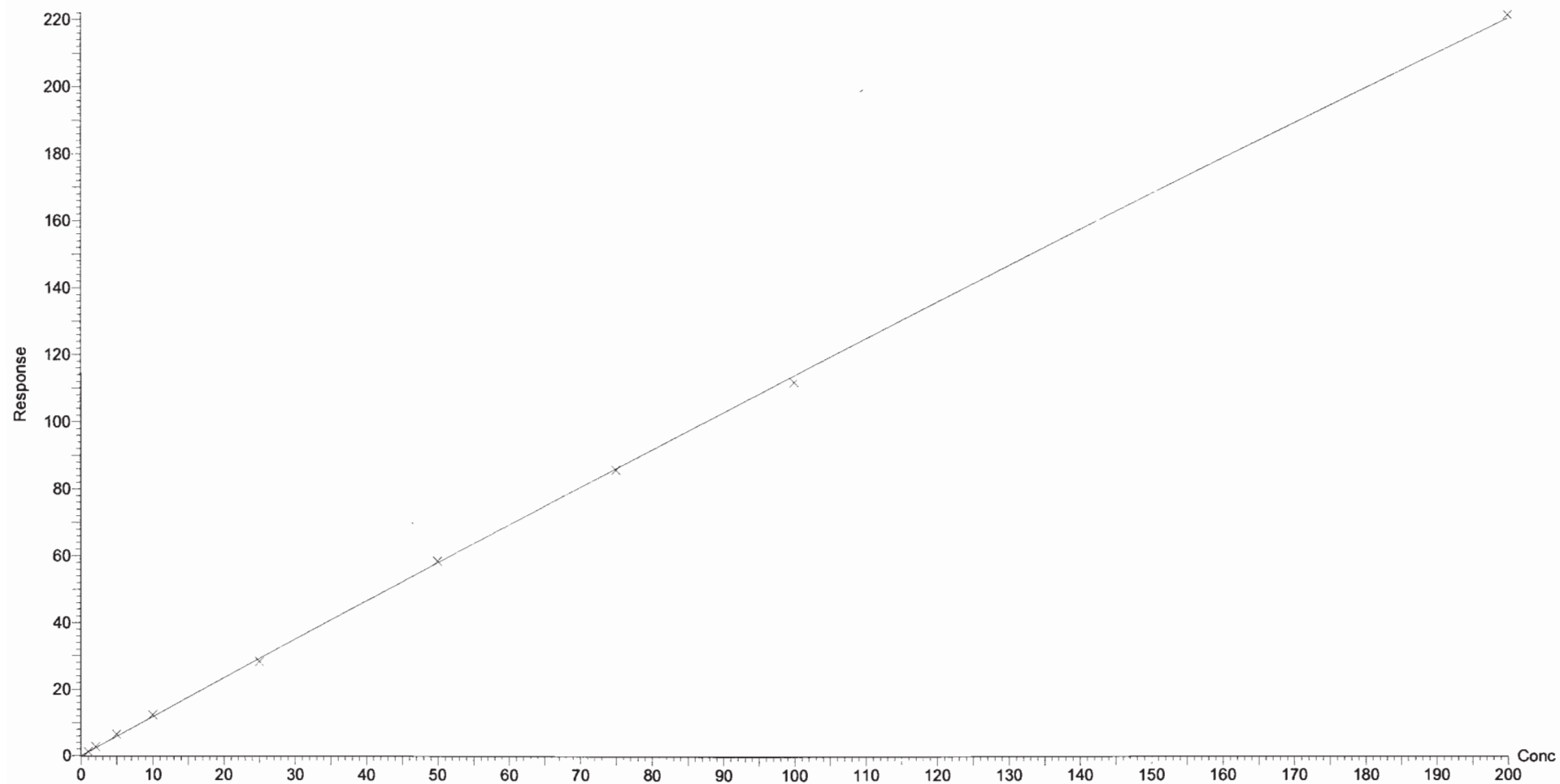
Compound name: PFHxS

Coefficient of Determination: $R^2 = 0.999466$

Calibration curve: $-0.000362852 * x^2 + 1.17819 * x$

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

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



Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_CRV.qld

Last Altered: Friday, July 15, 2016 08:19:03 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:23:03 Pacific Daylight Time

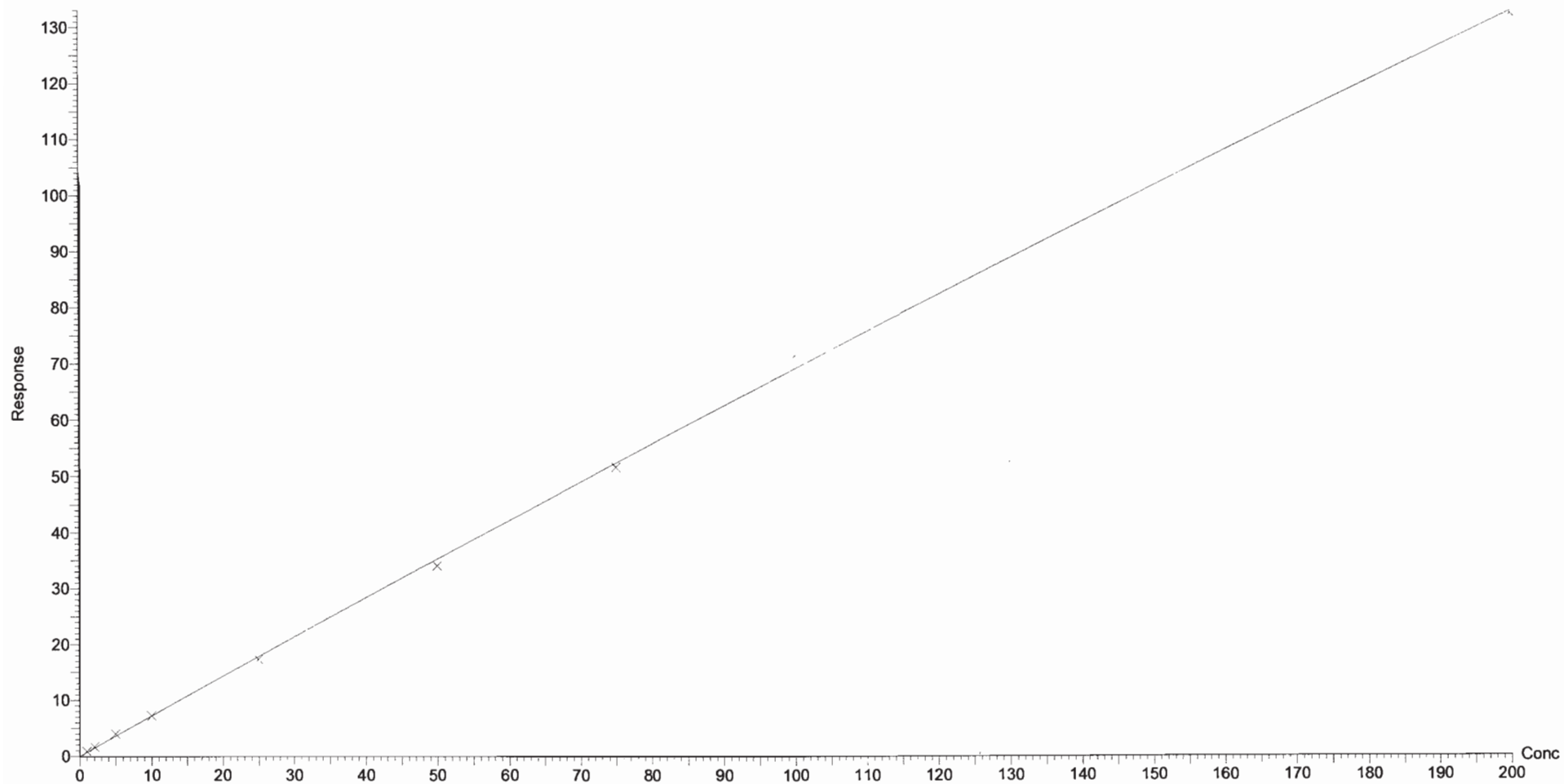
Compound name: PFOA

Coefficient of Determination: $R^2 = 0.999169$

Calibration curve: $-0.000267481 * x^2 + 0.718753 * x$

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

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



Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_CRV.qld

Last Altered: Friday, July 15, 2016 08:19:03 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:23:03 Pacific Daylight Time

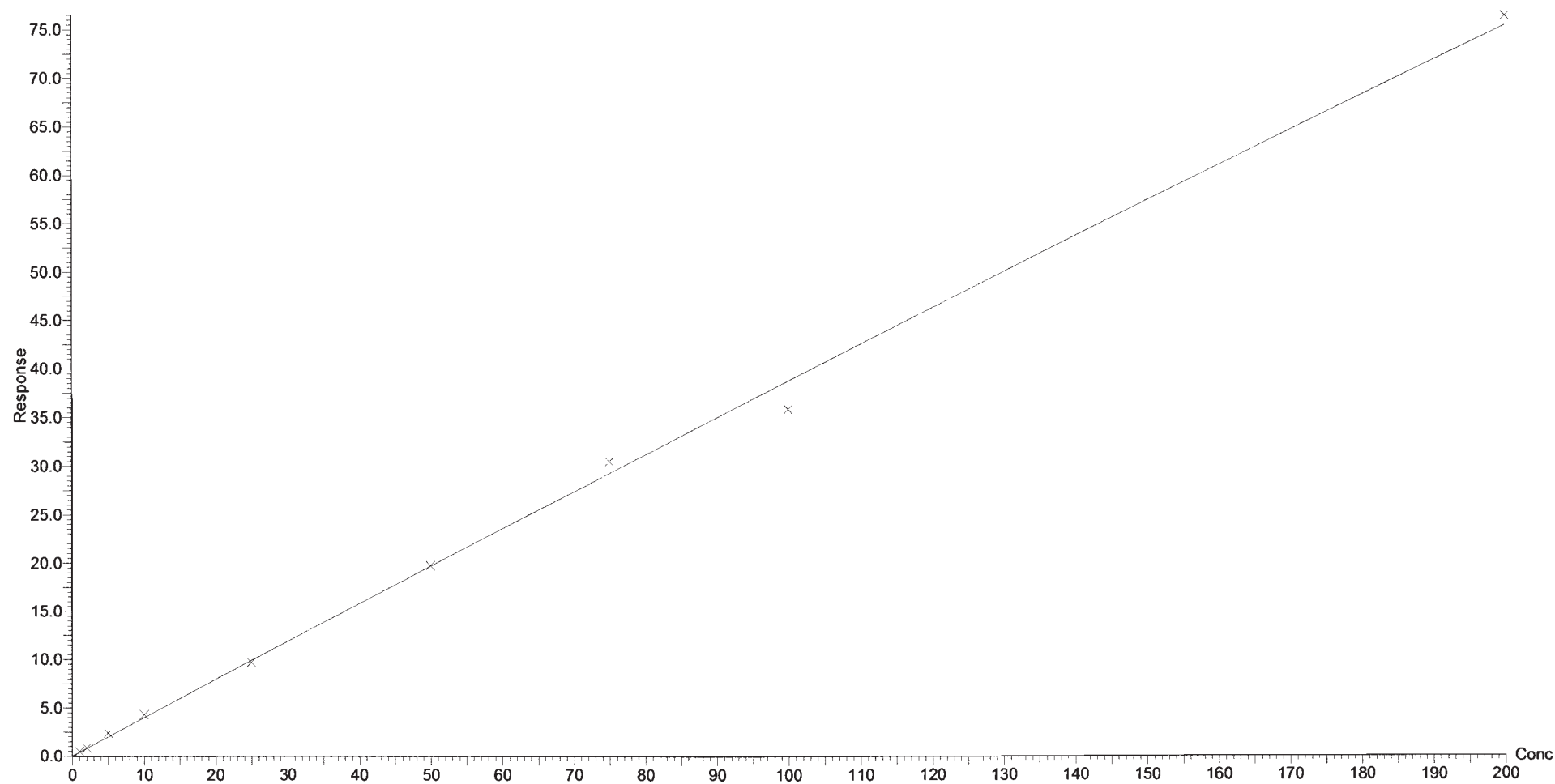
Compound name: PFOS

Coefficient of Determination: $R^2 = 0.997407$

Calibration curve: $-0.000103852 * x^2 + 0.398639 * x$

Response type: Internal Std (Ref 11), Area * (IS Conc. / IS Area)

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



Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_CRV.qld

Last Altered: Friday, July 15, 2016 08:19:03 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:23:03 Pacific Daylight Time

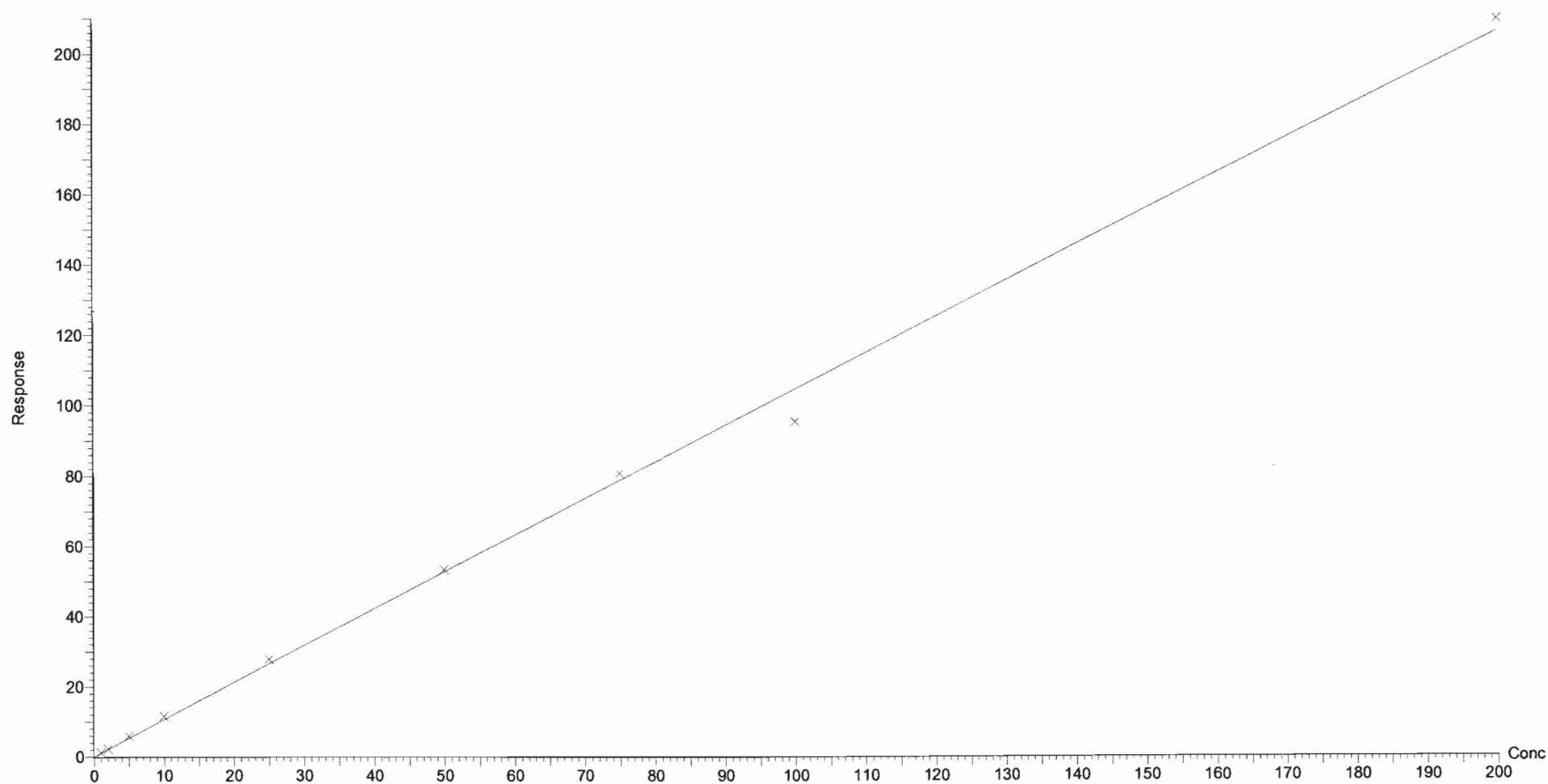
Compound name: PFNA

Coefficient of Determination: $R^2 = 0.997296$

Calibration curve: $-0.000144559 * x^2 + 1.06269 * x$

Response type: Internal Std (Ref 12), Area * (IS Conc. / IS Area)

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



Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:23:25 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:23:38 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

Compound name: PFBS

	Name	ID	Acq.Date	Acq.Time
1	160714G3_1	IPA	14-Jul-16	10:47:13
2	160714G3_2	ST160714G3-1 PFC CS0 16G1205	14-Jul-16	10:59:52
3	160714G3_3	ST160714G3-2 PFC CS1 16G1206	14-Jul-16	11:12:29
4	160714G3_4	ST160714G3-3 PFC CS2 1G1208	14-Jul-16	11:25:06
5	160714G3_5	ST160714G3-4 PFC CS3 16G1209	14-Jul-16	11:37:44
6	160714G3_6	ST160714G3-5 PFC CS3.5 16G1210	14-Jul-16	11:50:23
7	160714G3_7	ST160714G3-6 PFC CS4 16G1211	14-Jul-16	12:03:03
8	160714G3_8	ST160714G3-7 PFC CS4.5 16G1212	14-Jul-16	12:15:43
9	160714G3_9	ST160714G3-8 PFC CS5 16G1213	14-Jul-16	12:28:23
10	160714G3_10	ST160714G3-9 PFC CS6 1G1214	14-Jul-16	12:41:04
11	160714G3_11	IPA	14-Jul-16	12:53:41
12	160714G3_12	SS160714G3-1 PFC SSS 16G1301	14-Jul-16	13:06:20
13	160714G3_13	IPA	14-Jul-16	13:18:57
14	160714G3_14	B6G0056-BS1 OPR 0.125	14-Jul-16	13:31:38
15	160714G3_15	IPA	14-Jul-16	13:44:16
16	160714G3_16	B6G0056-BLK1 Method Blank 0.125	14-Jul-16	13:56:57
17	160714G3_17	1600869-01RE1 HF1017070616 POST 0.29047	14-Jul-16	14:09:35
18	160714G3_18	1600869-02RE1 HF1017070616 PRE 0.29564	14-Jul-16	14:22:14
19	160714G3_19	1600872-01RE1 OF-MW28-0716 0.12231	14-Jul-16	14:34:53
20	160714G3_20	1600872-02RE1 OF-MW25-0716 0.12532	14-Jul-16	14:47:33
21	160714G3_21	1600872-03RE1 OF-MW315-0716 0.12832	14-Jul-16	15:00:13
22	160714G3_22	1600872-04RE1 OF-FB070616 0.12947	14-Jul-16	15:12:51
23	160714G3_23	B6G0056-MS1 Matrix Spike 0.125	14-Jul-16	15:25:28
24	160714G3_24	B6G0056-MSD1 Matrix Spike Dup 0.125	14-Jul-16	15:38:06
25	160714G3_25	IPA	14-Jul-16	15:50:44
26	160714G3_26	ST160714G3-10 PFC CS3.5 16G1210	14-Jul-16	16:03:24
27	160714G3_27	IPA	14-Jul-16	16:16:03
28	160714G3_28	B6G0059-BS1 OPR 0.125	14-Jul-16	16:28:46
29	160714G3_29	IPA	14-Jul-16	16:41:25
30	160714G3_30	B6G0059-BLK1 Method Blank 0.125	14-Jul-16	16:54:04
31	160714G3_31	1600896-01 OF-MW24-0716 0.125	14-Jul-16	17:06:44

Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:23:25 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:23:38 Pacific Daylight Time

Compound name: PFBS

	Name	ID	Acq.Date	Acq.Time
32	160714G3_32	1600896-02 OF-FB071116 0.125	14-Jul-16	17:19:26
33	160714G3_33	1600896-03 OF-MW27-0716 0.125	14-Jul-16	17:32:08
34	160714G3_34	IPA	14-Jul-16	17:44:45
35	160714G3_35	ST160714G3-11 PFC CS3.5 16G1210	14-Jul-16	17:57:24
36	160714G3_36	IPA	14-Jul-16	18:10:03

Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

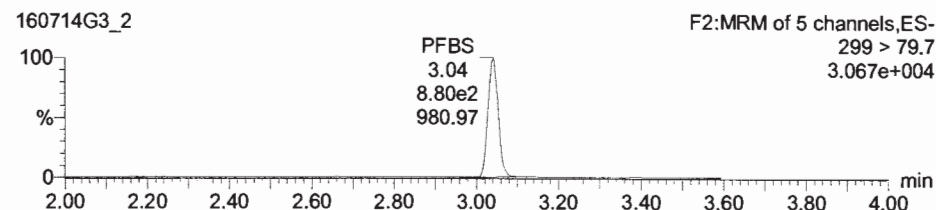
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

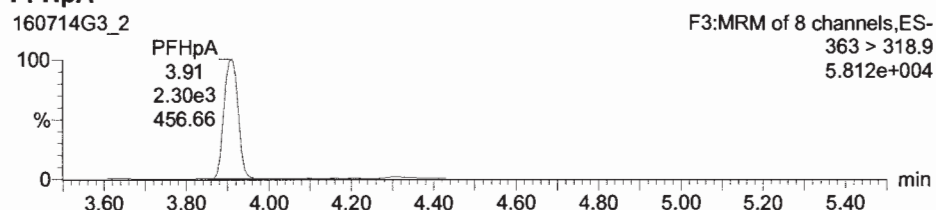
Calibration: 15 Jul 2016 08:17:00

Name: 160714G3_2, Date: 14-Jul-2016, Time: 10:59:52, ID: ST160714G3-1 PFC CS0 16G1205, Description: PFC CS0 16G1205 A

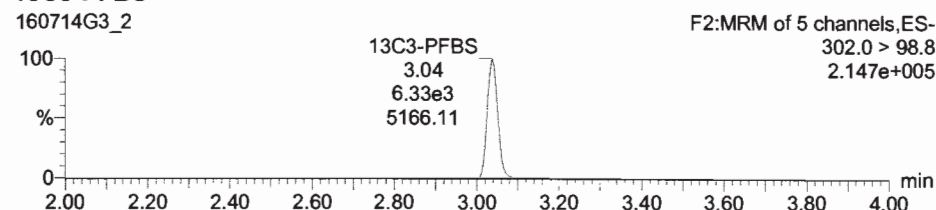
PFBS



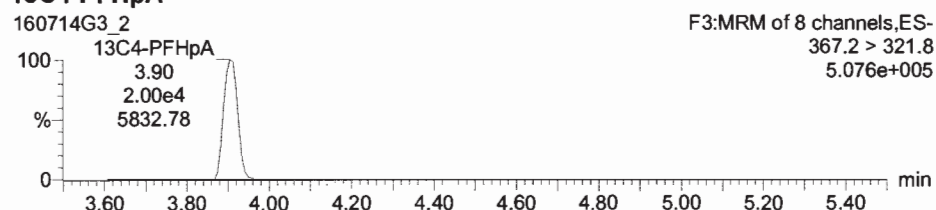
PFHpA



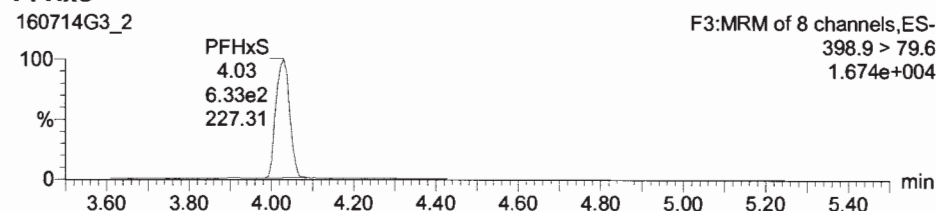
13C3-PFBS



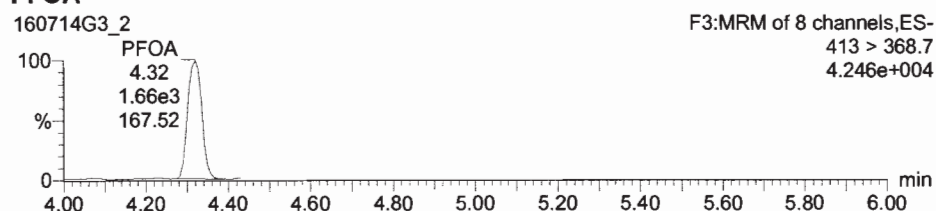
13C4-PFHpA



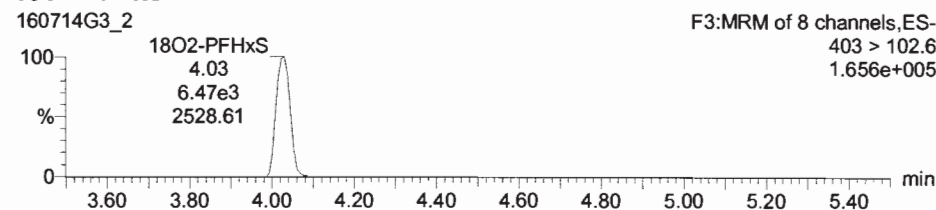
PFHxS



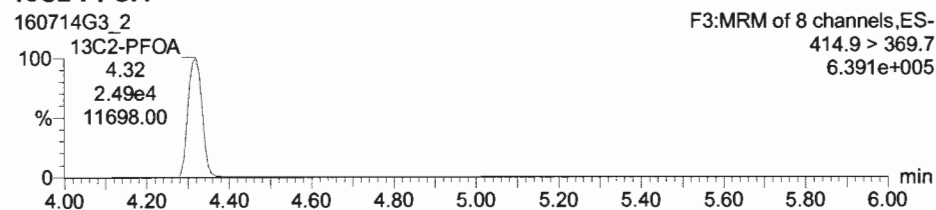
PFOA



18O2-PFHxS



13C2-PFOA



Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

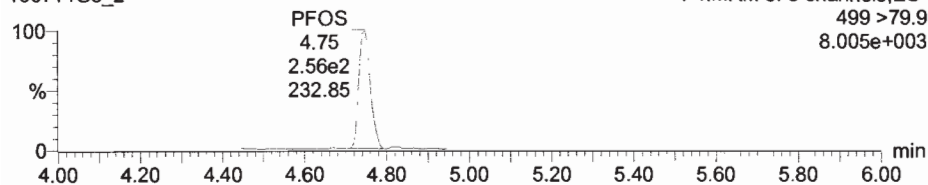
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

Name: 160714G3_2, Date: 14-Jul-2016, Time: 10:59:52, ID: ST160714G3-1 PFC CS0 16G1205, Description: PFC CS0 16G1205 A

PFOS

160714G3_2

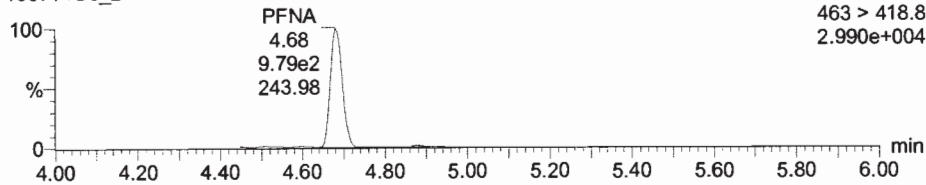
F4:MRM of 9 channels,ES-
499 >79.9
8.005e+003



PFNA

160714G3_2

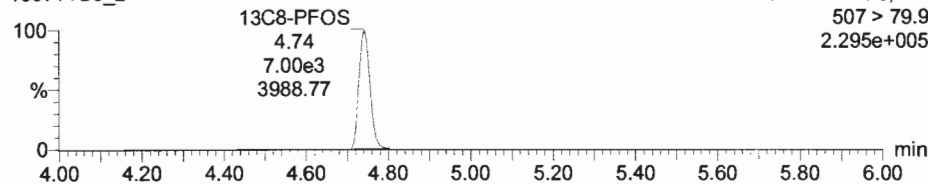
F4:MRM of 9 channels,ES-
463 > 418.8
2.990e+004



13C8-PFOS

160714G3_2

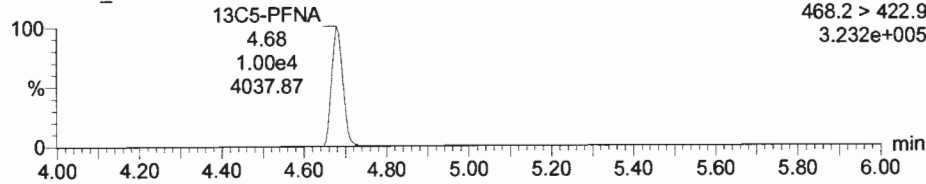
F4:MRM of 9 channels,ES-
507 > 79.9
2.295e+005



13C5-PFNA

160714G3_2

F4:MRM of 9 channels,ES-
468.2 > 422.9
3.232e+005



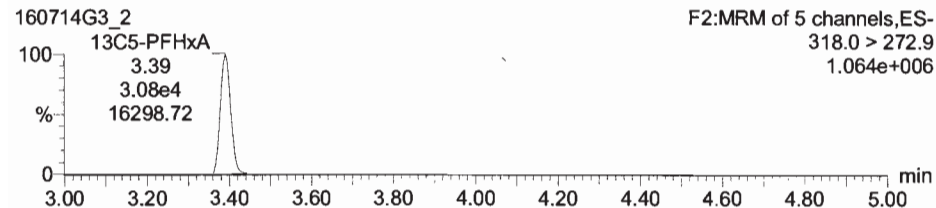
Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

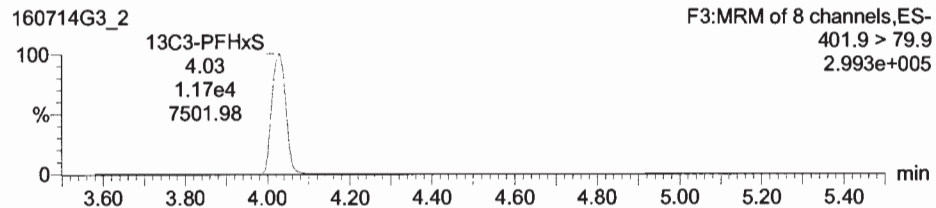
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

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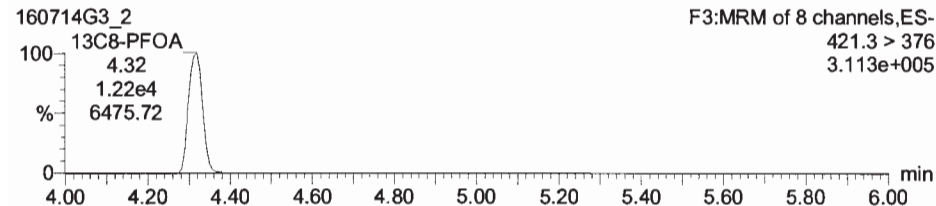
13C5-PFHxA



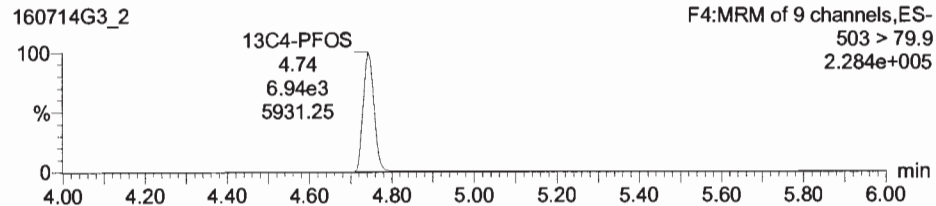
13C3-PFHxS



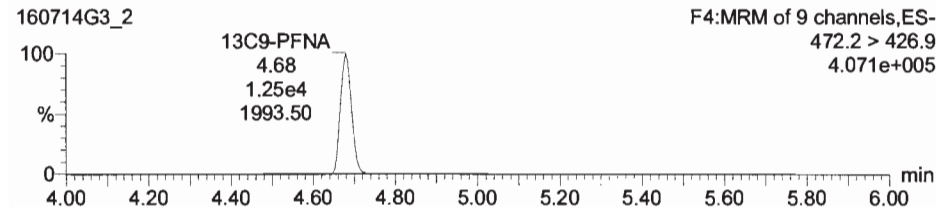
13C8-PFOA



13C4-PFOS



13C9-PFNA



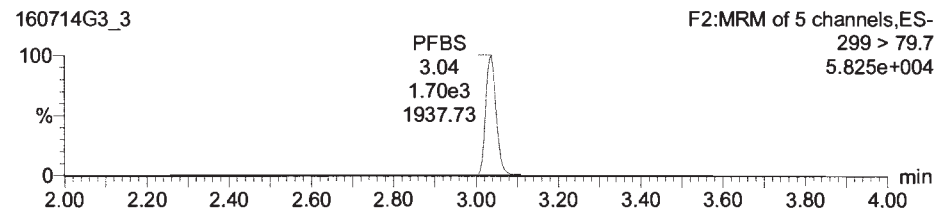
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Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

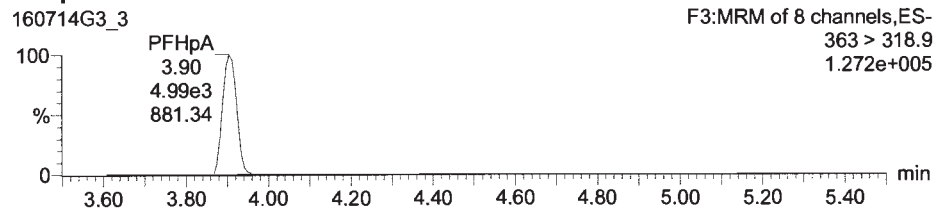
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

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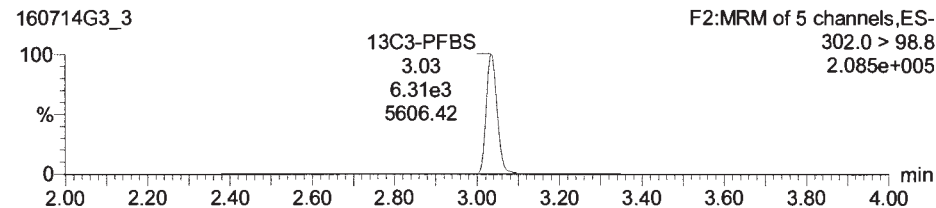
PFBS



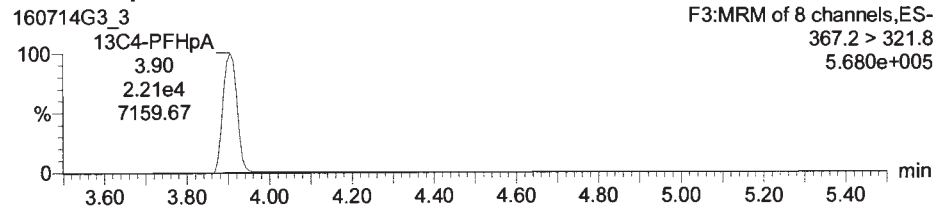
PFHpA



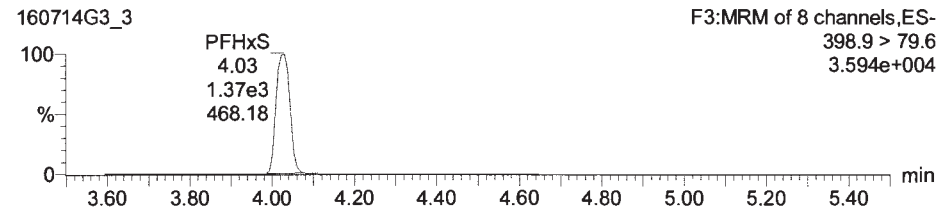
13C3-PFBS



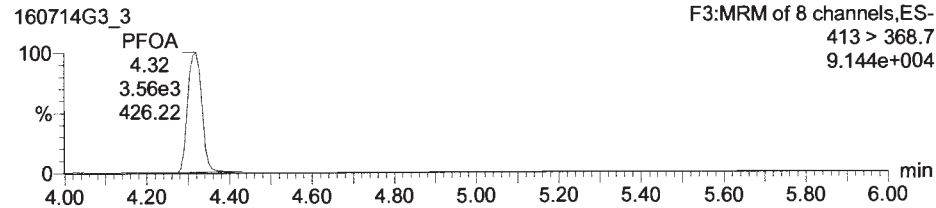
13C4-PFHpA



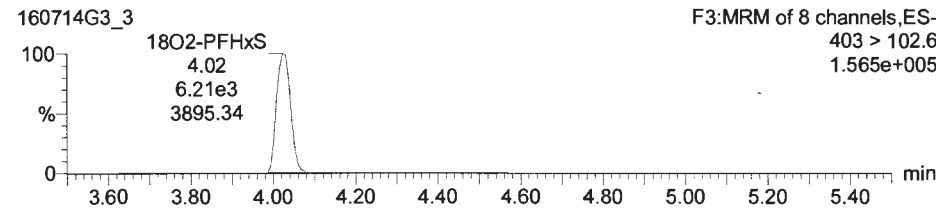
PFHxS



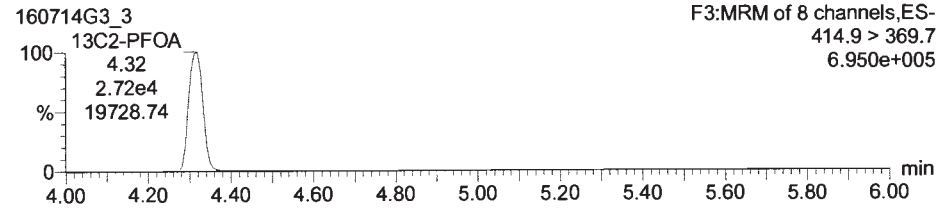
PFOA



18O2-PFHxS



13C2-PFOA



Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

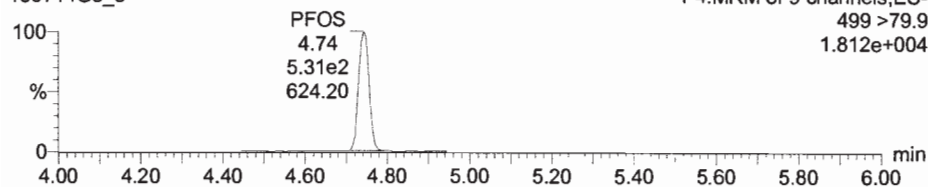
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

Name: 160714G3_3, Date: 14-Jul-2016, Time: 11:12:29, ID: ST160714G3-2 PFC CS1 16G1206, Description: PFC CS1 16G1206 A

PFOS

160714G3_3

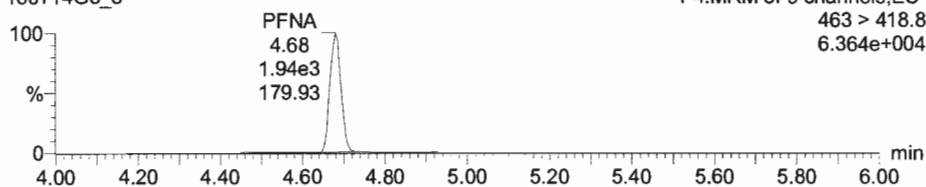
F4:MRM of 9 channels,ES-
499 >79.9
1.812e+004



PFNA

160714G3_3

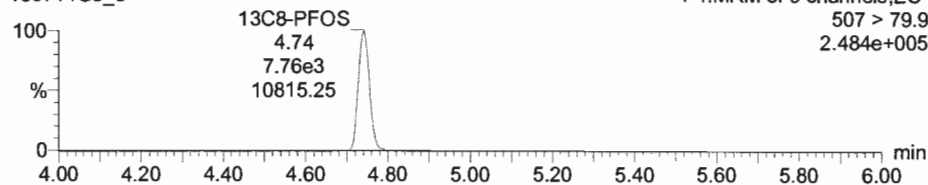
F4:MRM of 9 channels,ES-
463 > 418.8
6.364e+004



13C8-PFOS

160714G3_3

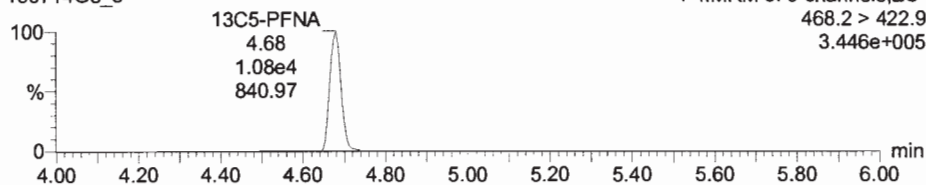
F4:MRM of 9 channels,ES-
507 > 79.9
2.484e+005



13C5-PFNA

160714G3_3

F4:MRM of 9 channels,ES-
468.2 > 422.9
3.446e+005

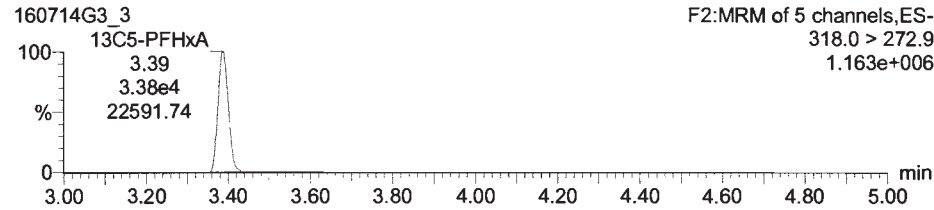


Dataset: Untitled

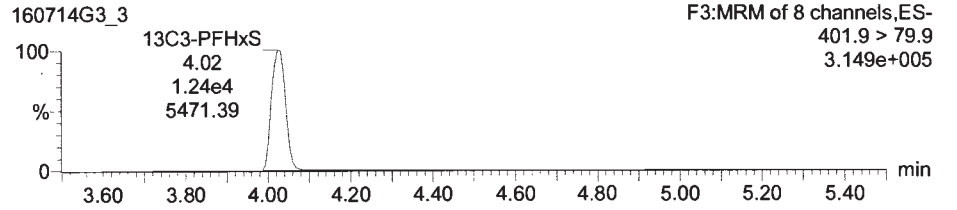
Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

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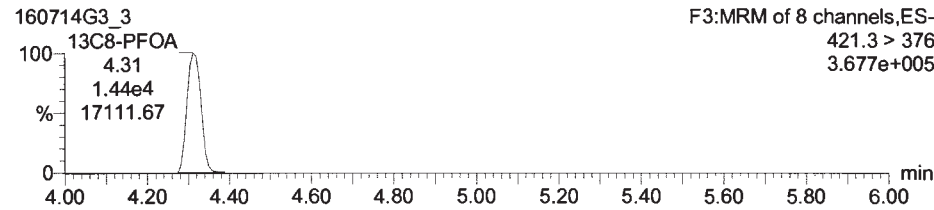
13C5-PFHxA



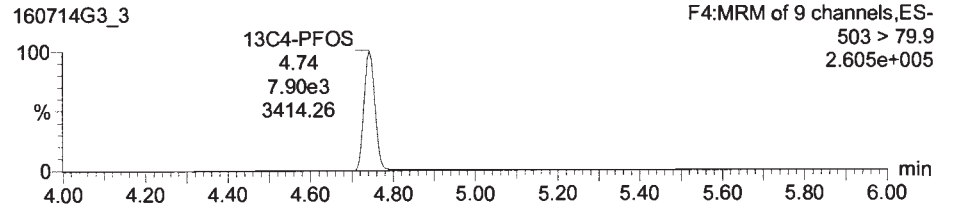
13C3-PFHxS



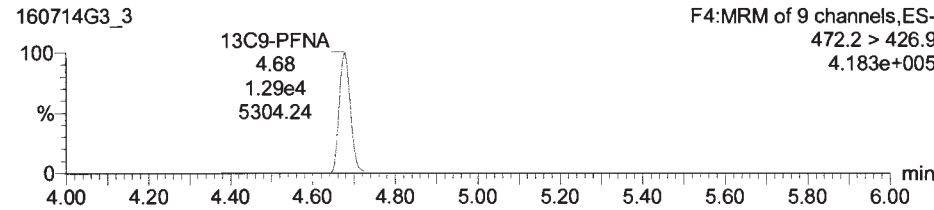
13C8-PFOA



13C4-PFOS



13C9-PFNA



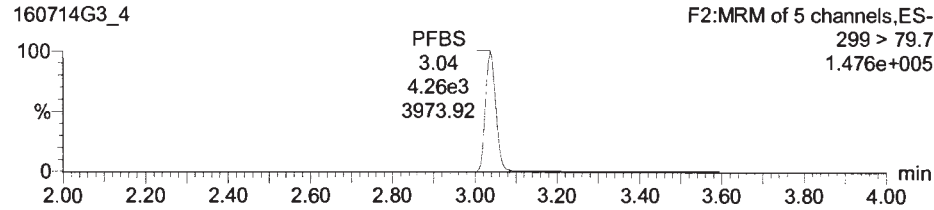
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Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

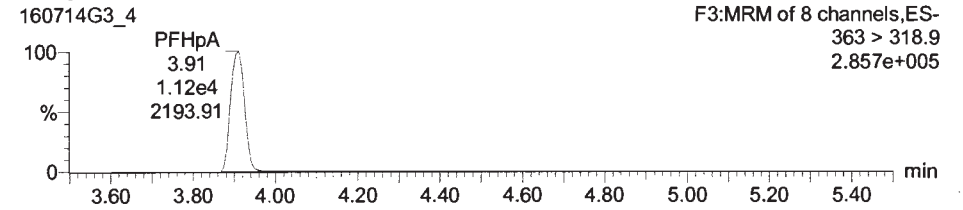
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

Name: 160714G3_4, Date: 14-Jul-2016, Time: 11:25:06, ID: ST160714G3-3 PFC CS2 1G1208, Description: PFC CS2 16G1208 A

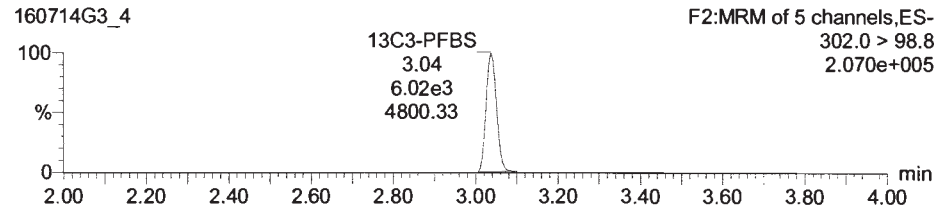
PFBS



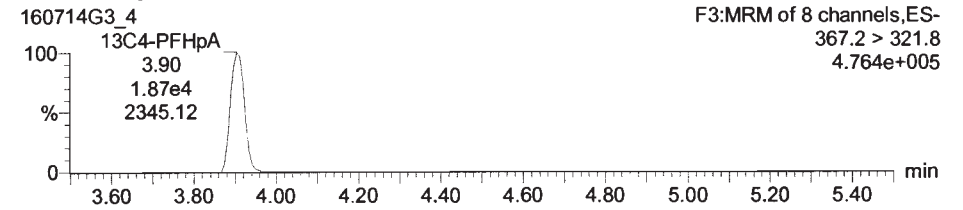
PFHpA



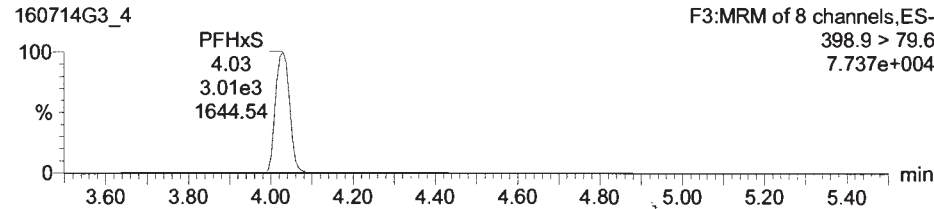
13C3-PFBS



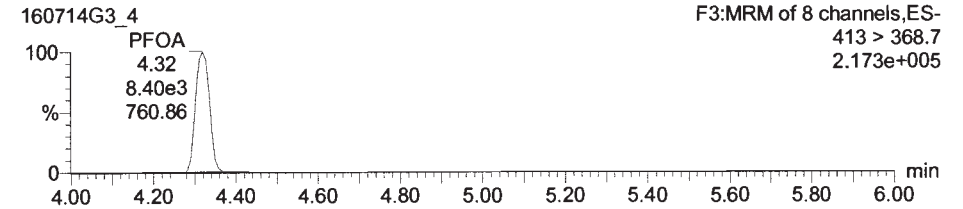
13C4-PFHpA



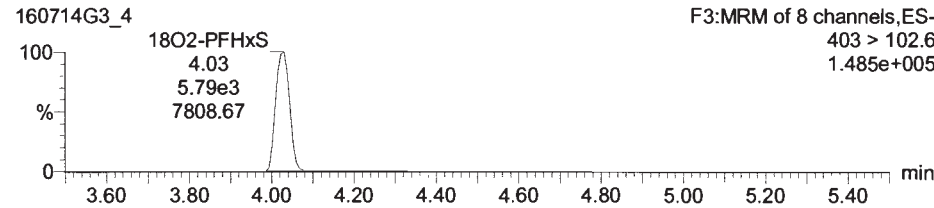
PFHxS



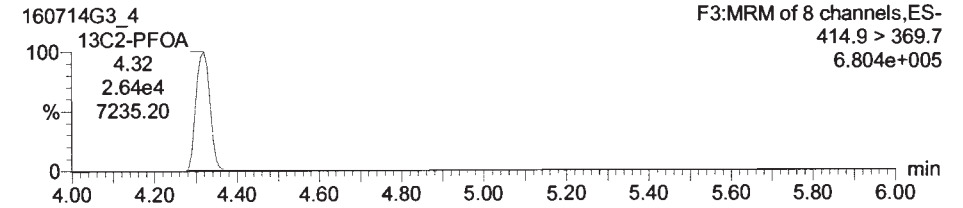
PFOA



18O2-PFHxS



13C2-PFOA



Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

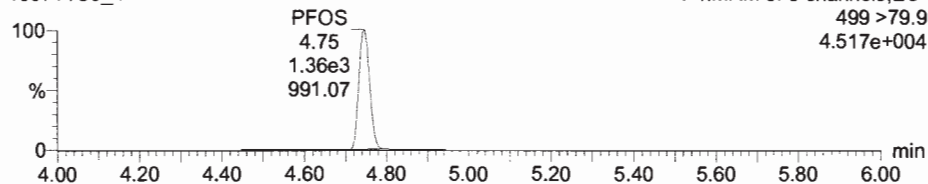
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

Name: 160714G3_4, Date: 14-Jul-2016, Time: 11:25:06, ID: ST160714G3-3 PFC CS2 1G1208, Description: PFC CS2 16G1208 A

PFOS

160714G3_4

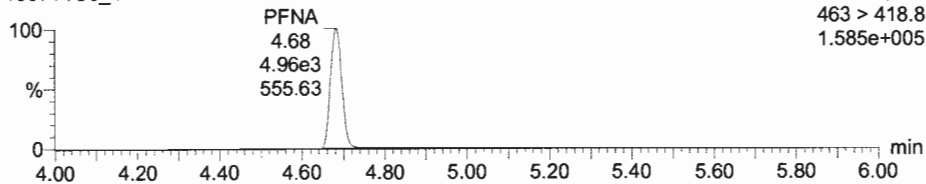
F4:MRM of 9 channels,ES-
499 >79.9
4.517e+004



PFNA

160714G3_4

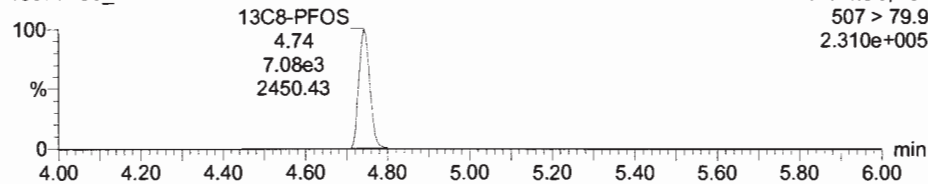
F4:MRM of 9 channels,ES-
463 > 418.8
1.585e+005



13C8-PFOS

160714G3_4

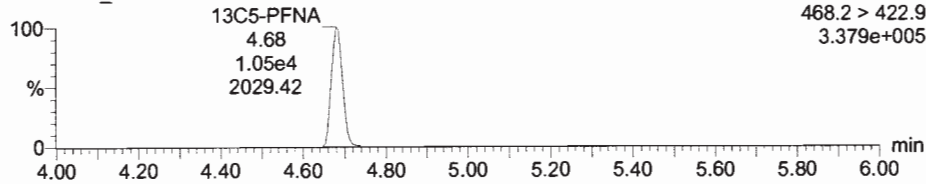
F4:MRM of 9 channels,ES-
507 > 79.9
2.310e+005



13C5-PFNA

160714G3_4

F4:MRM of 9 channels,ES-
468.2 > 422.9
3.379e+005



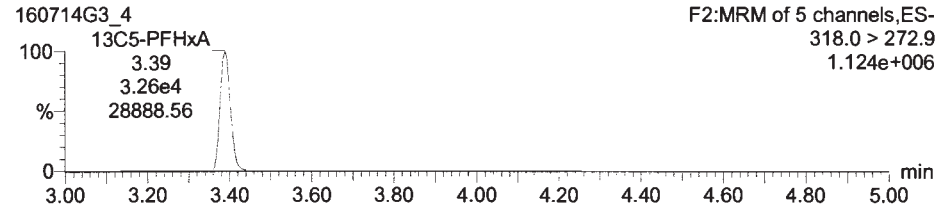
Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

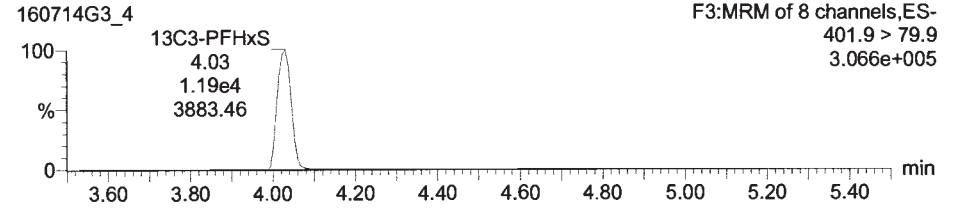
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

Name: 160714G3_4, Date: 14-Jul-2016, Time: 11:25:06, ID: ST160714G3-3 PFC CS2 1G1208, Description: PFC CS2 16G1208 A

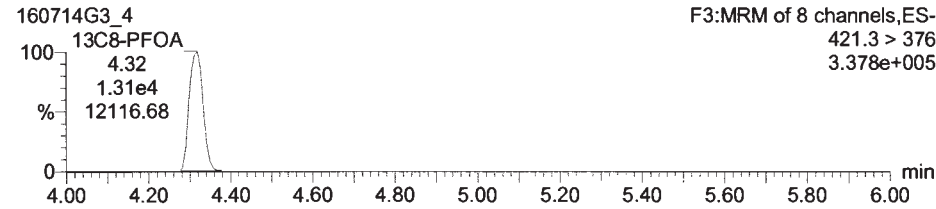
13C5-PFHxA



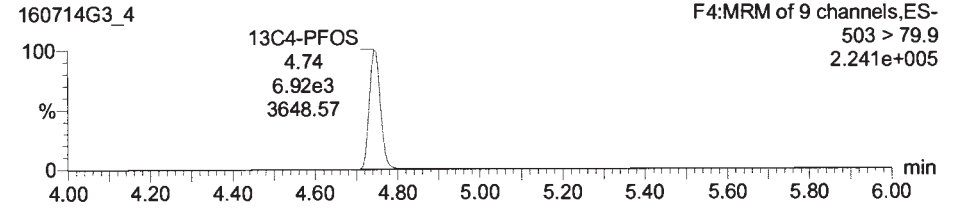
13C3-PFHxS



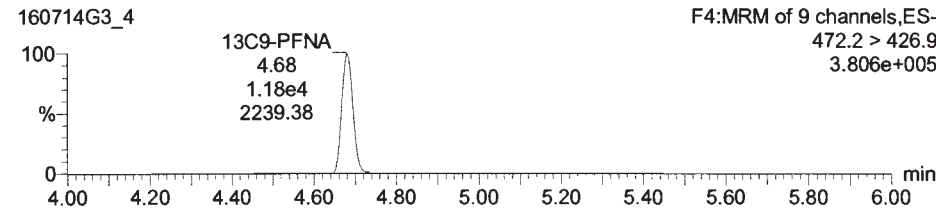
13C8-PFOA



13C4-PFOS



13C9-PFNA



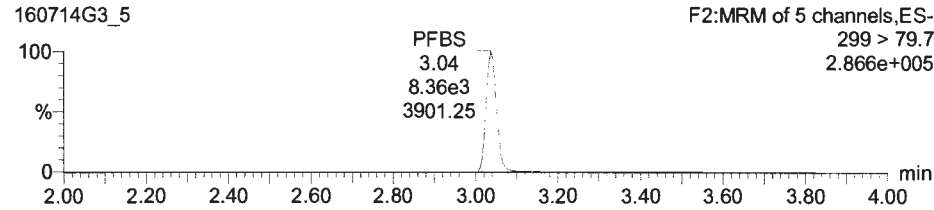
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Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

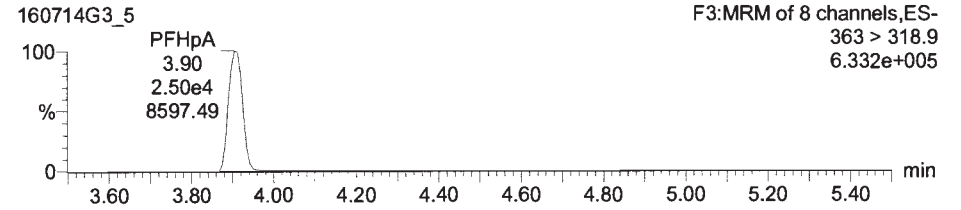
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

Name: 160714G3_5, Date: 14-Jul-2016, Time: 11:37:44, ID: ST160714G3-4 PFC CS3 16G1209, Description: PFC CS3 16G1209 A

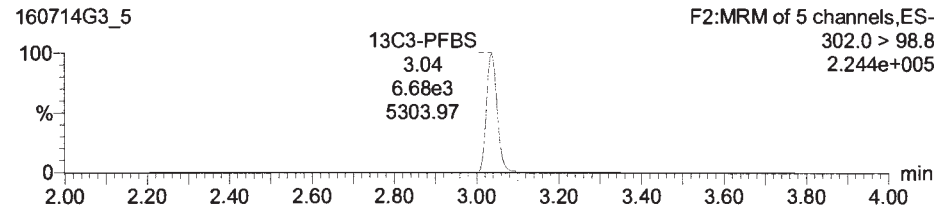
PFBS



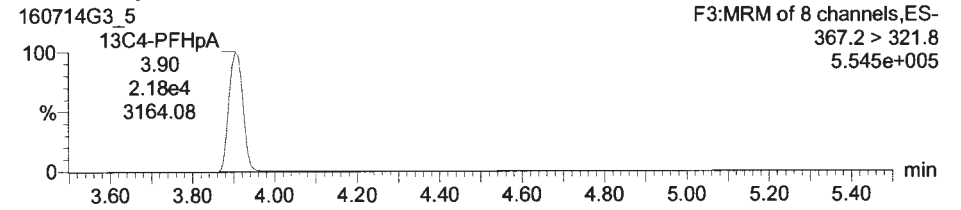
PFHpA



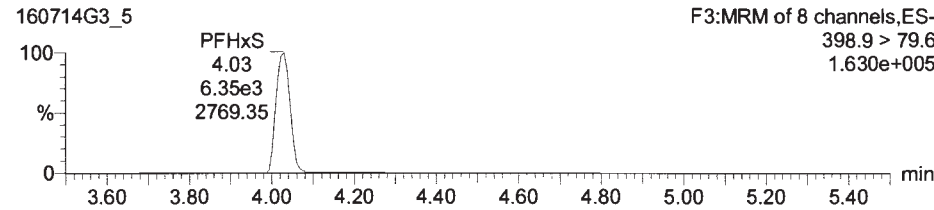
13C3-PFBS



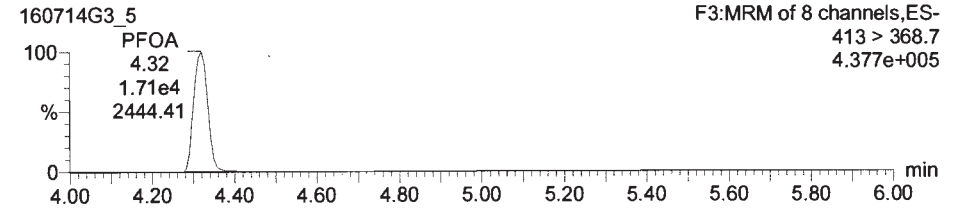
13C4-PFHpA



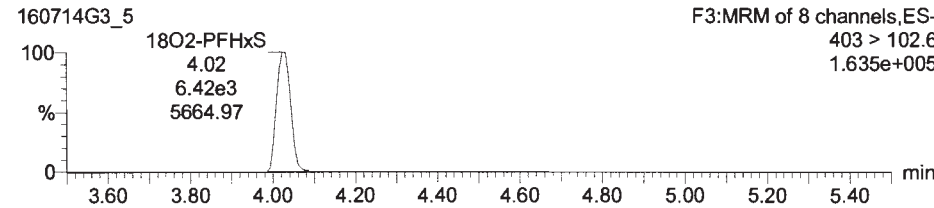
PFHxS



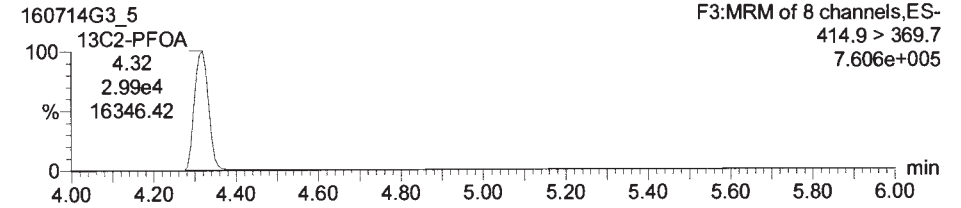
PFOA



18O2-PFHxS



13C2-PFOA



Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

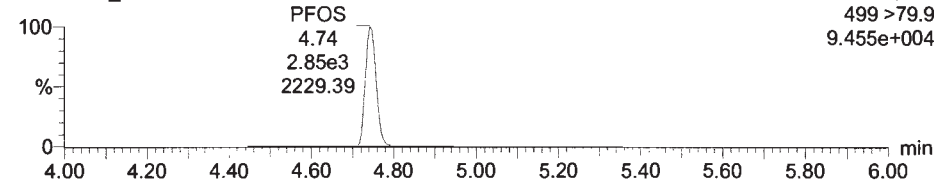
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

Name: 160714G3_5, Date: 14-Jul-2016, Time: 11:37:44, ID: ST160714G3-4 PFC CS3 16G1209, Description: PFC CS3 16G1209 A

PFOS

160714G3_5

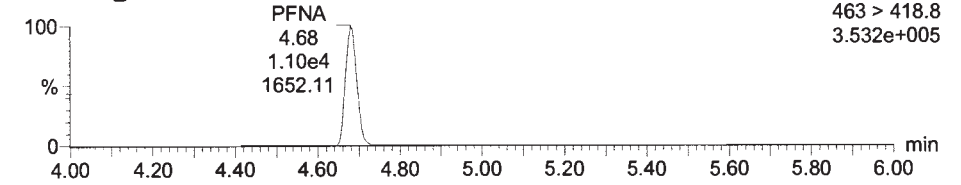
F4:MRM of 9 channels,ES-
499 > 79.9
9.455e+004



PFNA

160714G3_5

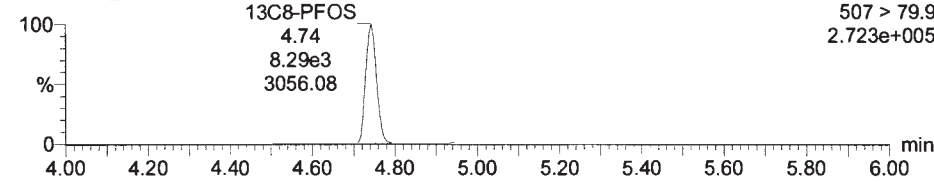
F4:MRM of 9 channels,ES-
463 > 418.8
3.532e+005



13C8-PFOS

160714G3_5

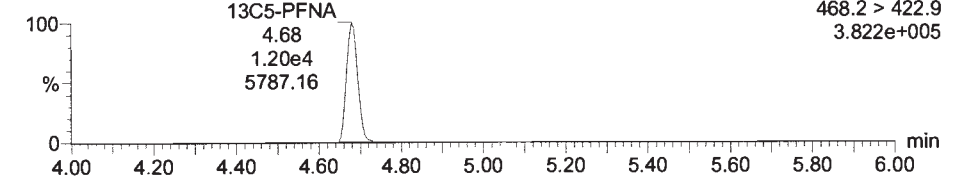
F4:MRM of 9 channels,ES-
507 > 79.9
2.723e+005



13C5-PFNA

160714G3_5

F4:MRM of 9 channels,ES-
468.2 > 422.9
3.822e+005



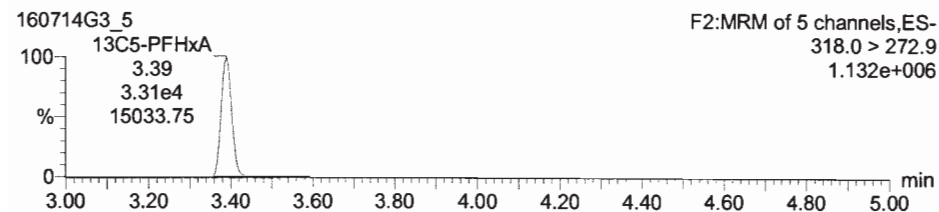
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Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

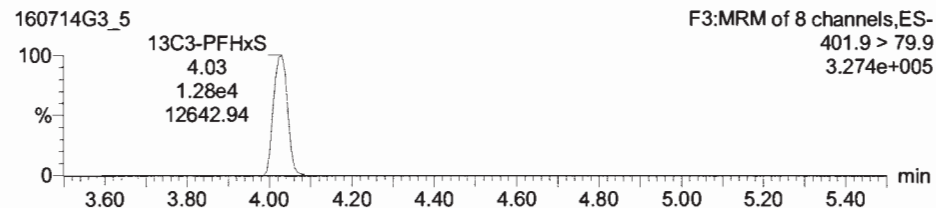
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

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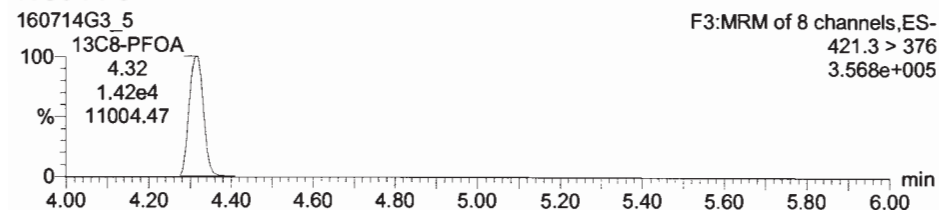
13C5-PFHxA



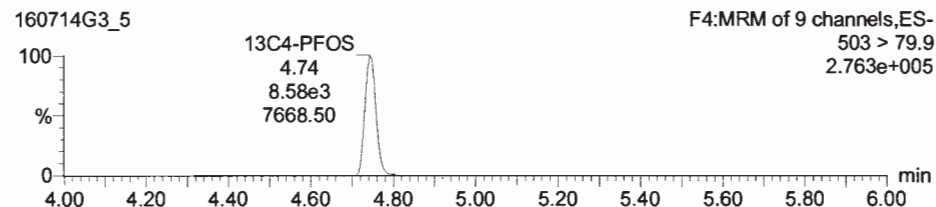
13C3-PFHxS



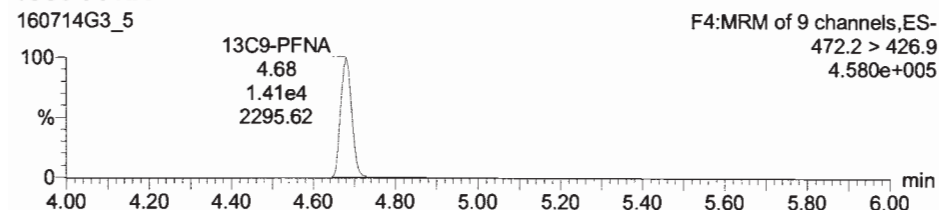
13C8-PFOA



13C4-PFOS



13C9-PFNA



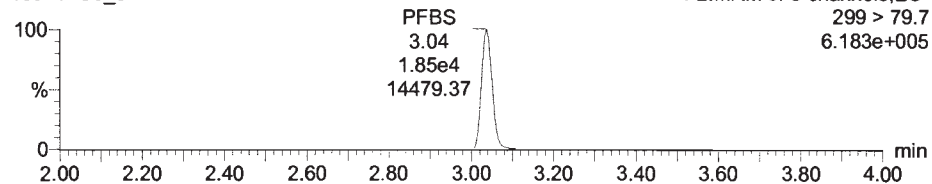
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Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

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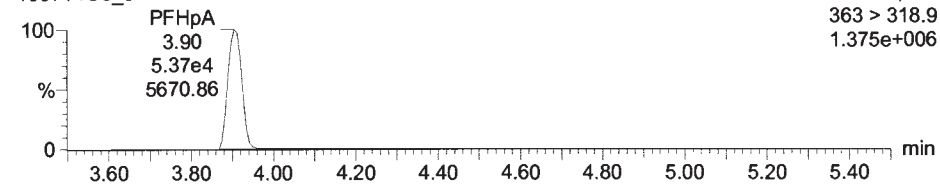
PFBS

160714G3_6



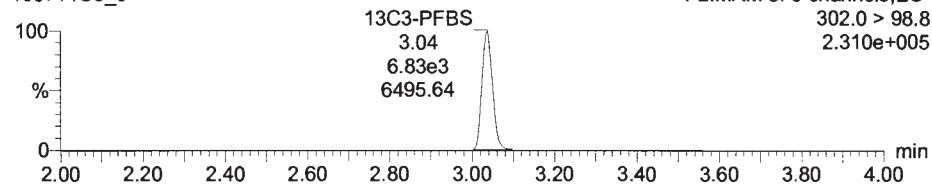
PFHpA

160714G3_6



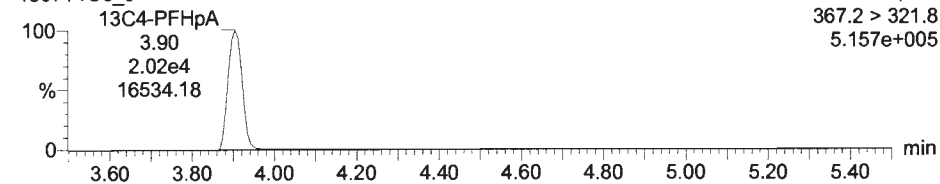
13C3-PFBS

160714G3_6



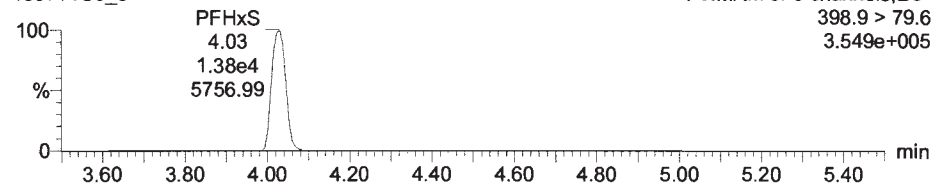
13C4-PFHpA

160714G3_6



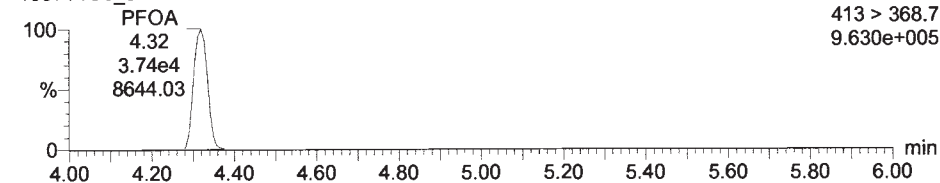
PFHxS

160714G3_6



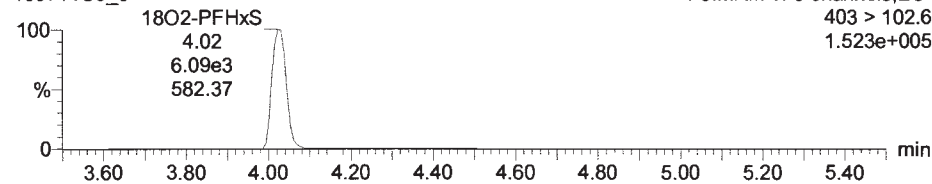
PFOA

160714G3_6



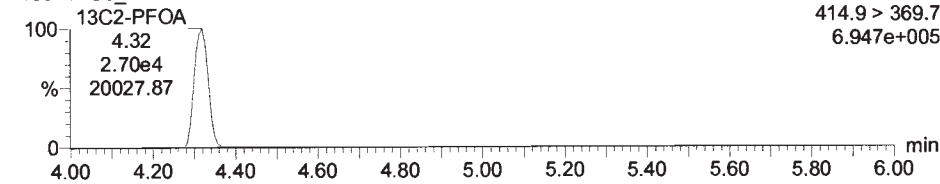
18O2-PFHxS

160714G3_6



13C2-PFOA

160714G3_6



Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

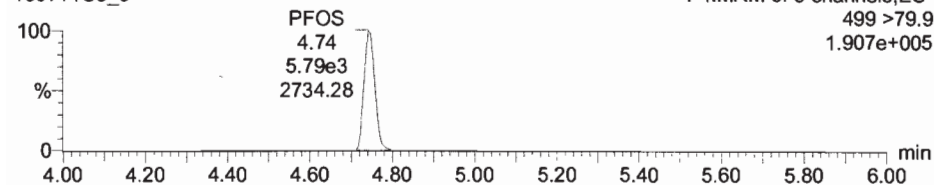
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

Name: 160714G3_6, Date: 14-Jul-2016, Time: 11:50:23, ID: ST160714G3-5 PFC CS3.5 16G1210, Description: PFC CS3.5 16G1210 A

PFOS

160714G3_6

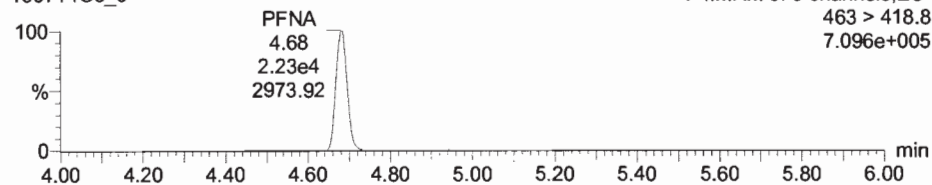
F4:MRM of 9 channels,ES-
499 >79.9
1.907e+005



PFNA

160714G3_6

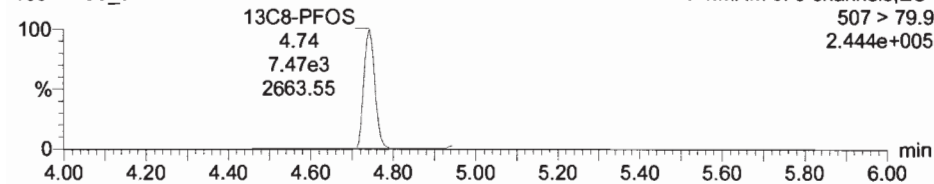
F4:MRM of 9 channels,ES-
463 > 418.8
7.096e+005



13C8-PFOS

160714G3_6

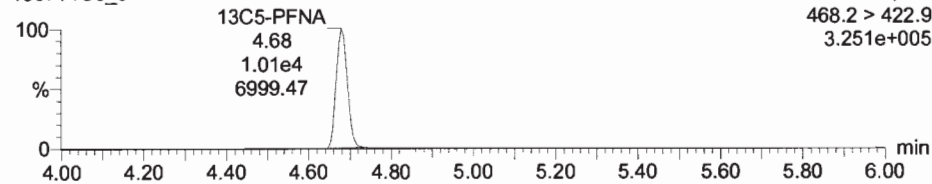
F4:MRM of 9 channels,ES-
507 > 79.9
2.444e+005



13C5-PFNA

160714G3_6

F4:MRM of 9 channels,ES-
468.2 > 422.9
3.251e+005



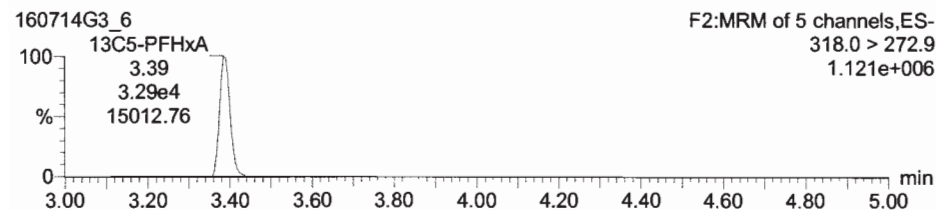
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Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

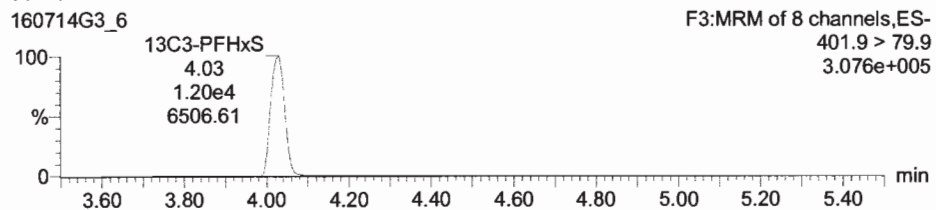
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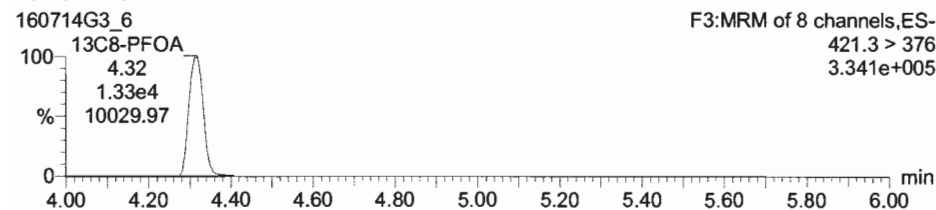
13C5-PFHxA



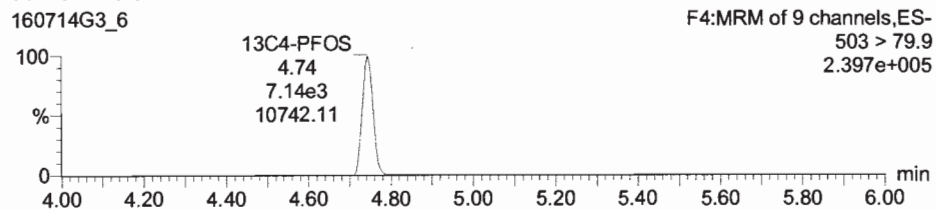
13C3-PFHxS



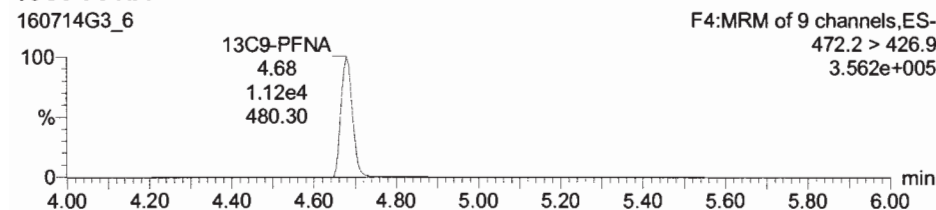
13C8-PFOA



13C4-PFOS



13C9-PFNA



Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

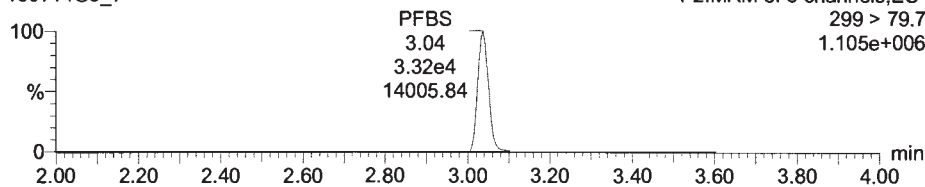
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PFBS

160714G3_7

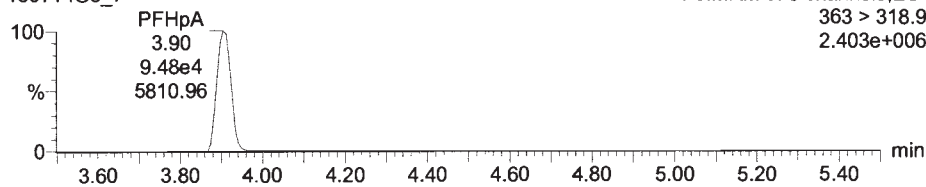
F2:MRM of 5 channels,ES-
299 > 79.7
1.105e+006



PFHpA

160714G3_7

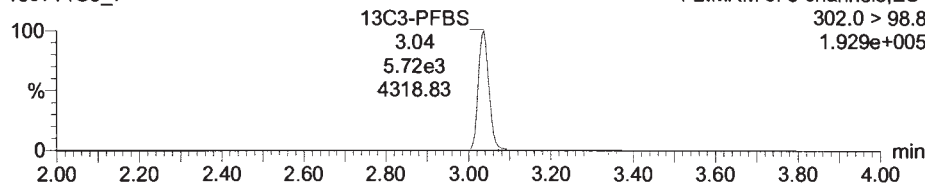
F3:MRM of 8 channels,ES-
363 > 318.9
2.403e+006



13C3-PFBS

160714G3_7

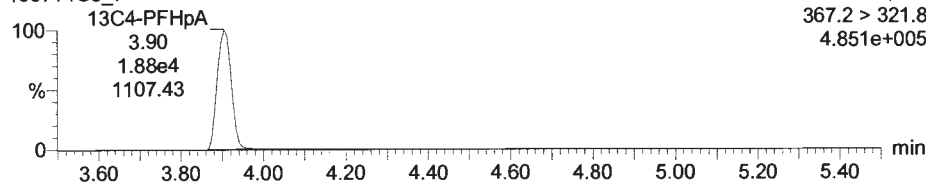
F2:MRM of 5 channels,ES-
302.0 > 98.8
1.929e+005



13C4-PFHpA

160714G3_7

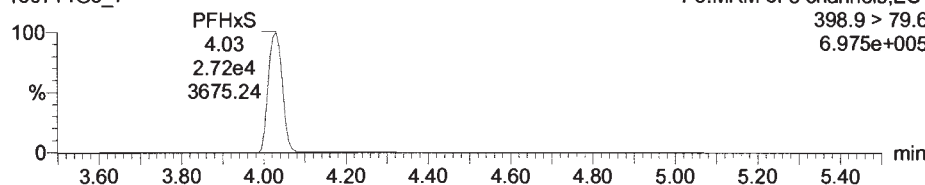
F3:MRM of 8 channels,ES-
367.2 > 321.8
4.851e+005



PFHxS

160714G3_7

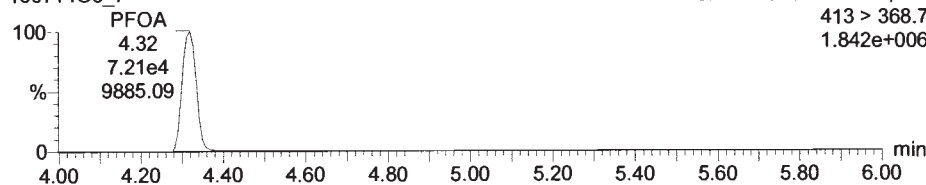
F3:MRM of 8 channels,ES-
398.9 > 79.6
6.975e+005



PFOA

160714G3_7

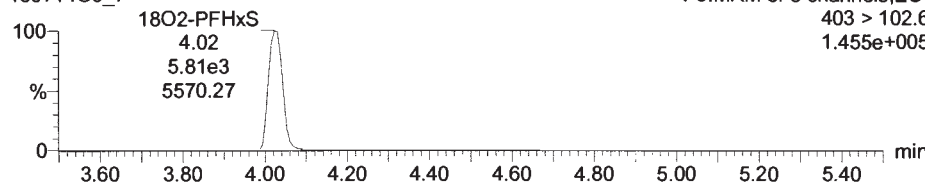
F3:MRM of 8 channels,ES-
413 > 368.7
1.842e+006



18O2-PFHxS

160714G3_7

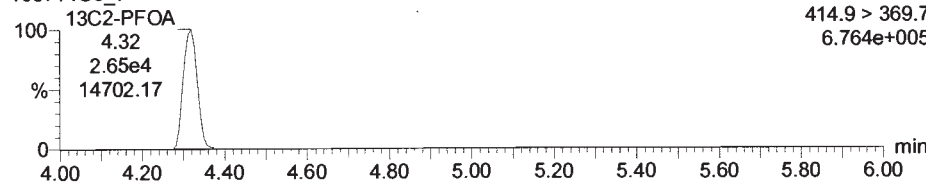
F3:MRM of 8 channels,ES-
403 > 102.6
1.455e+005



13C2-PFOA

160714G3_7

F3:MRM of 8 channels,ES-
414.9 > 369.7
6.764e+005



Dataset: Untitled

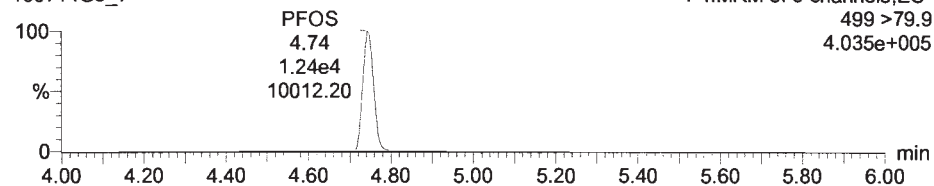
Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

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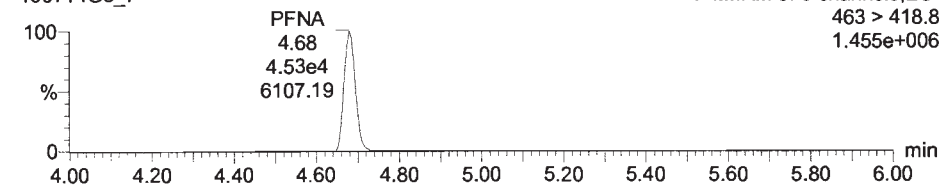
PFOS

160714G3_7



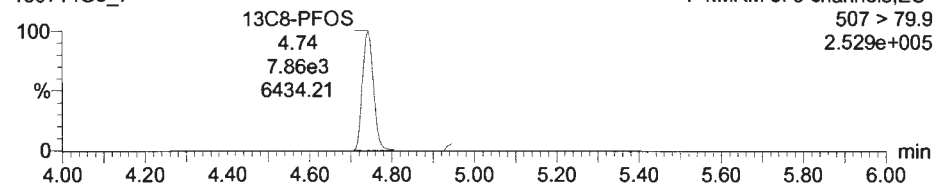
PFNA

160714G3_7



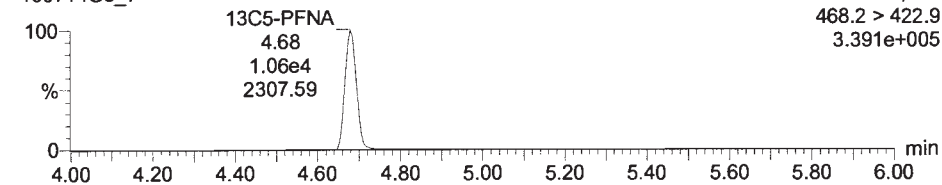
13C8-PFOS

160714G3_7



13C5-PFNA

160714G3_7



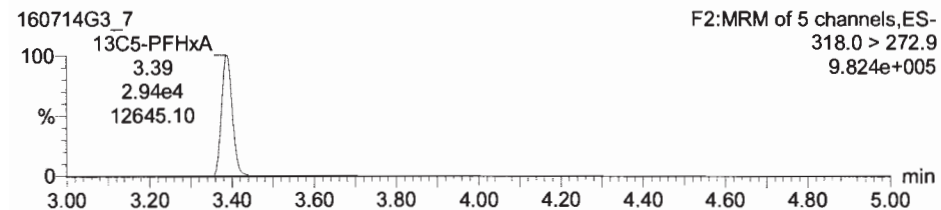
Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

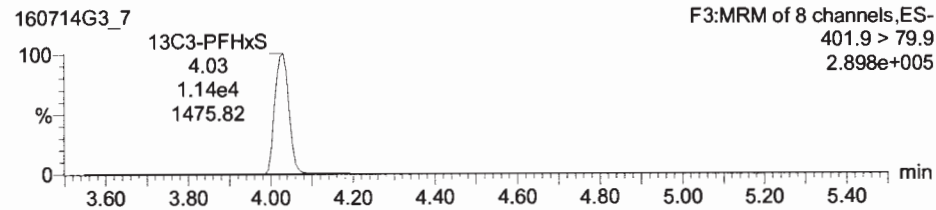
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

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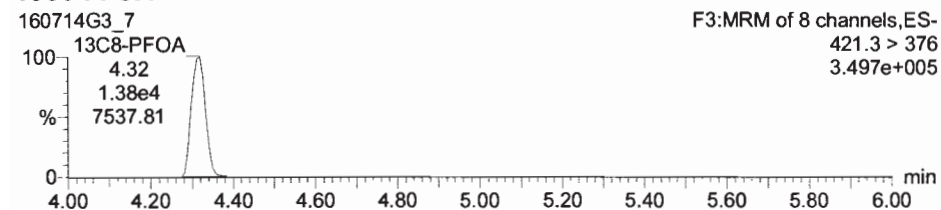
13C5-PFHxA



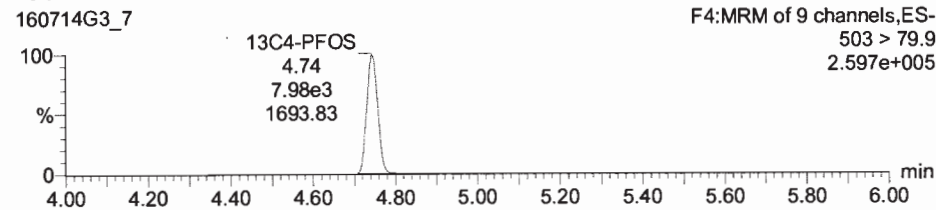
13C3-PFHxS



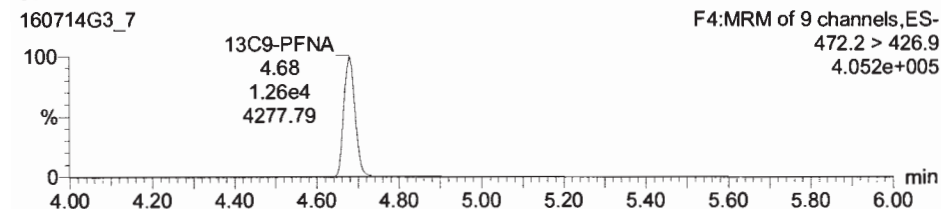
13C8-PFOA



13C4-PFOS



13C9-PFNA

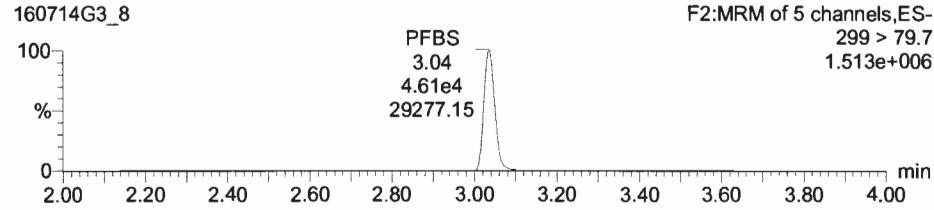


Dataset: Untitled

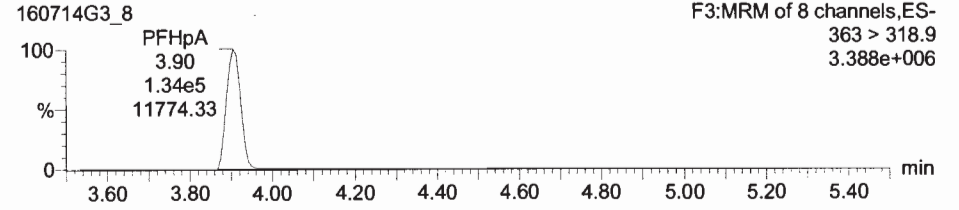
Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

Name: 160714G3_8, Date: 14-Jul-2016, Time: 12:15:43, ID: ST160714G3-7 PFC CS4.5 16G1212, Description: PFC CS4.5 16G1212 A

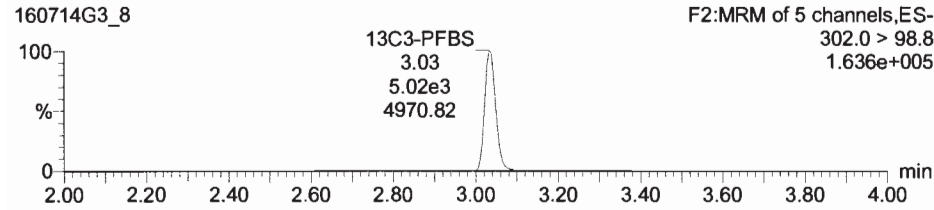
PFBS



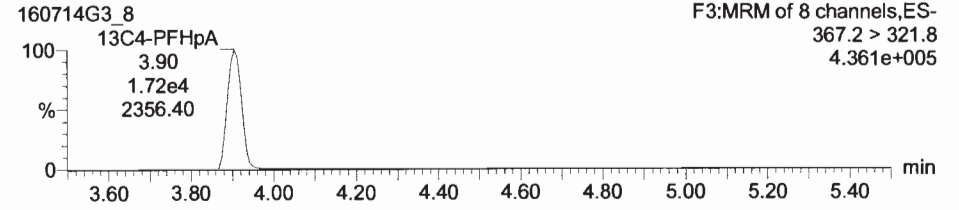
PFHpA



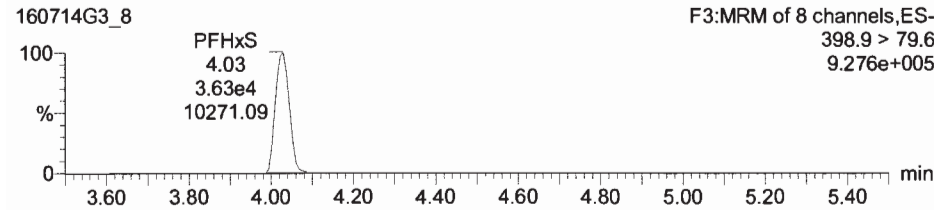
13C3-PFBS



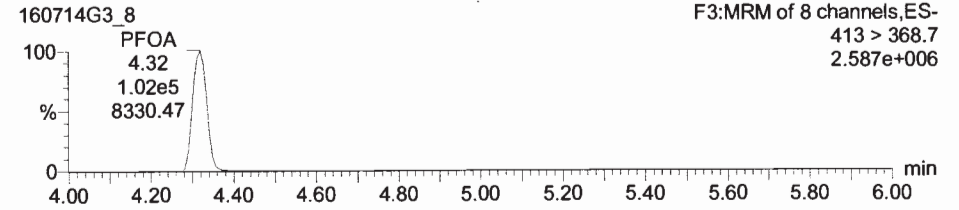
13C4-PFHpA



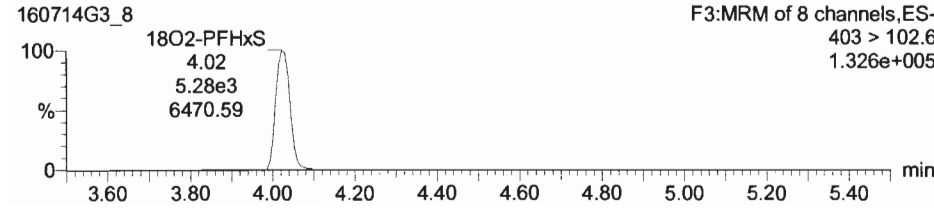
PFHxS



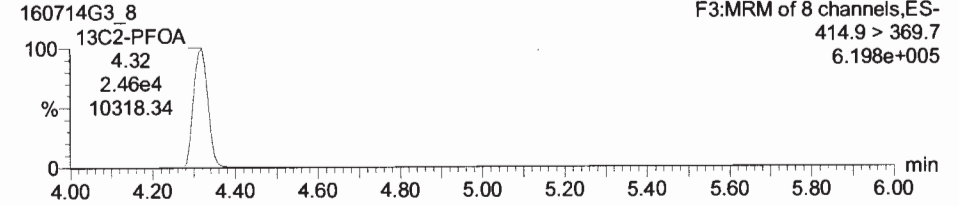
PFOA



18O2-PFHxS



13C2-PFOA



Dataset: Untitled

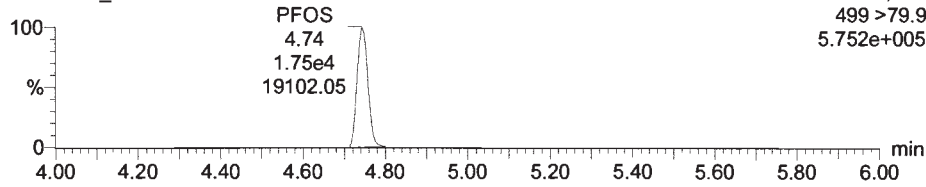
Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

Name: 160714G3_8, Date: 14-Jul-2016, Time: 12:15:43, ID: ST160714G3-7 PFC CS4.5 16G1212, Description: PFC CS4.5 16G1212 A

PFOS

160714G3_8

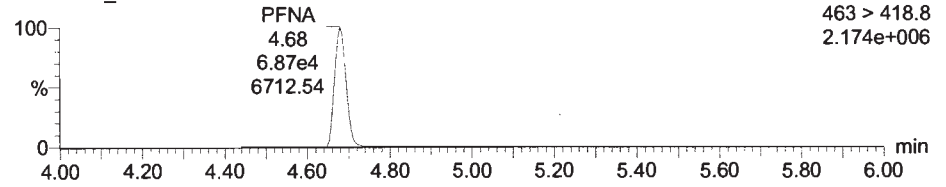
F4:MRM of 9 channels,ES-
499 > 79.9
5.752e+005



PFNA

160714G3_8

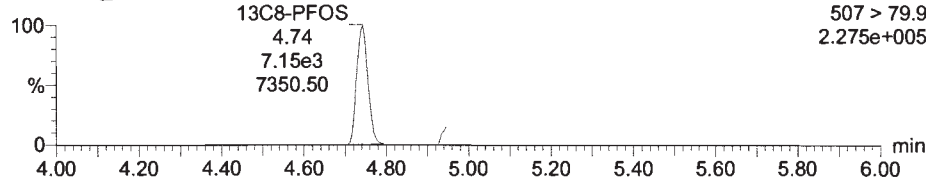
F4:MRM of 9 channels,ES-
463 > 418.8
2.174e+006



13C8-PFOS

160714G3_8

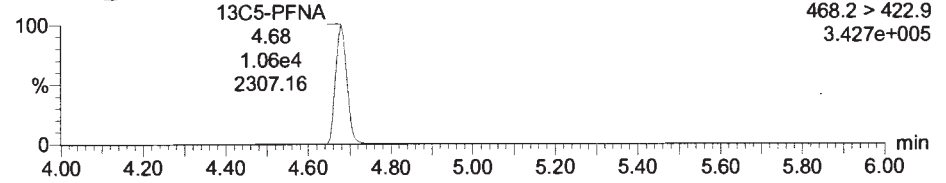
F4:MRM of 9 channels,ES-
507 > 79.9
2.275e+005



13C5-PFNA

160714G3_8

F4:MRM of 9 channels,ES-
468.2 > 422.9
3.427e+005



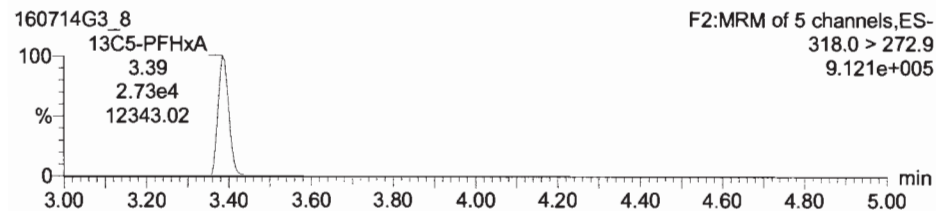
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Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

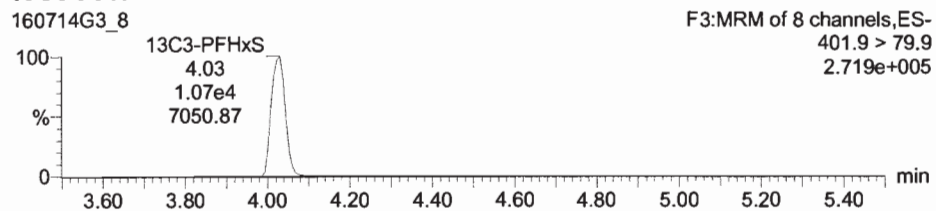
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

Name: 160714G3_8, Date: 14-Jul-2016, Time: 12:15:43, ID: ST160714G3-7 PFC CS4.5 16G1212, Description: PFC CS4.5 16G1212 A

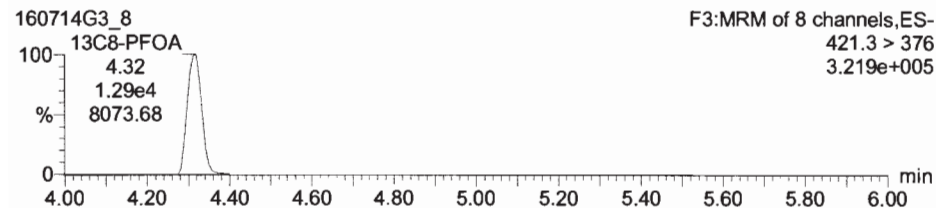
13C5-PFHxA



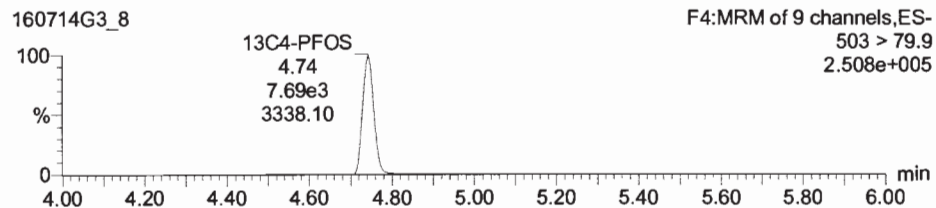
13C3-PFHxS



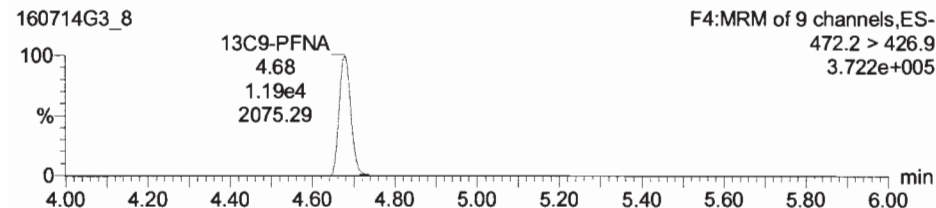
13C8-PFOA



13C4-PFOS



13C9-PFNA



Dataset: Untitled

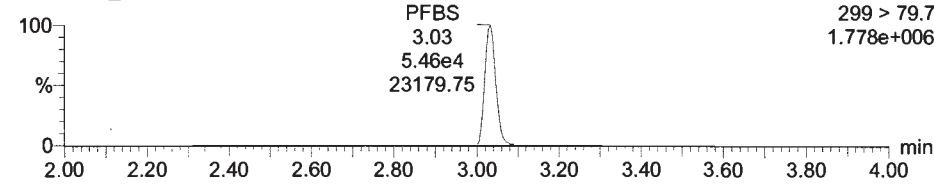
Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

Name: 160714G3_9, Date: 14-Jul-2016, Time: 12:28:23, ID: ST160714G3-8 PFC CS5 16G1213, Description: PFC CS5 16G1213 A

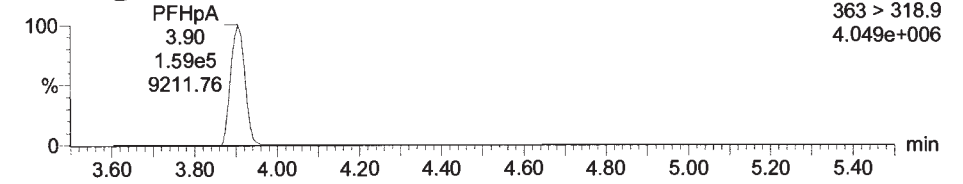
PFBS

160714G3_9



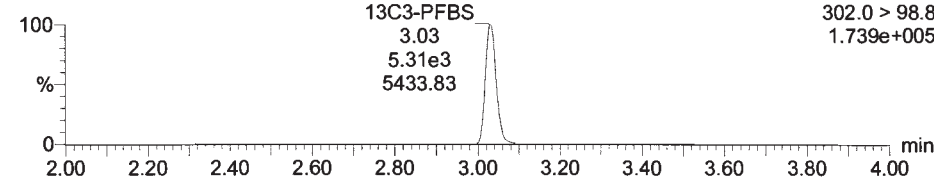
PFHpA

160714G3_9



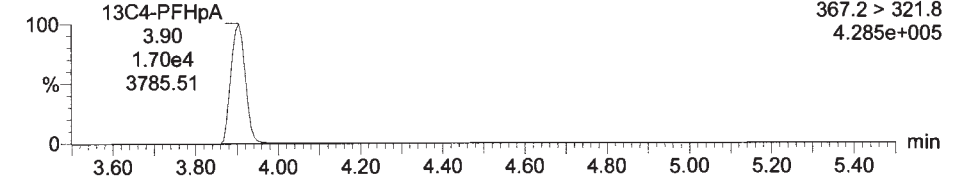
13C3-PFBS

160714G3_9



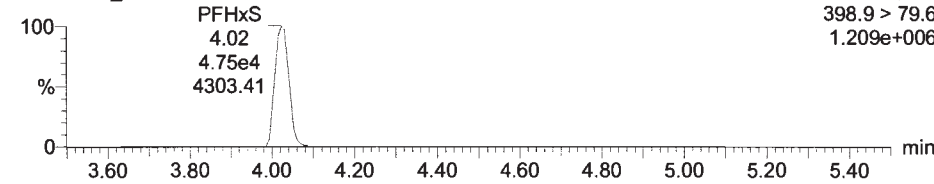
13C4-PFHpA

160714G3_9



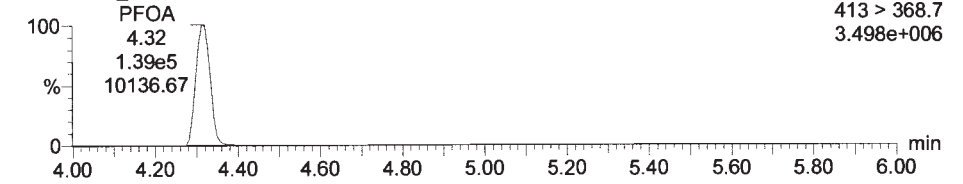
PFHxS

160714G3_9



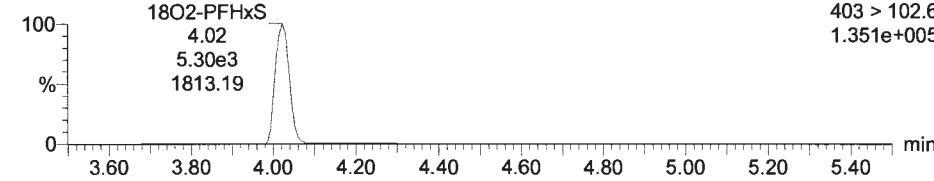
PFOA

160714G3_9



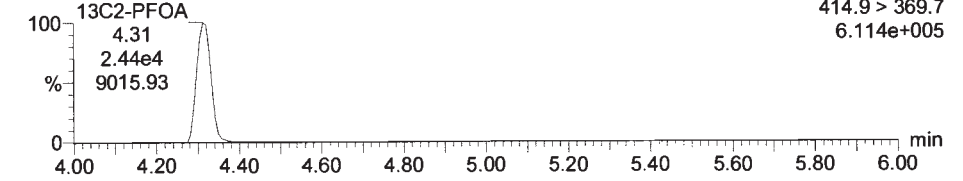
18O2-PFHxS

160714G3_9



13C2-PFOA

160714G3_9



Dataset: Untitled

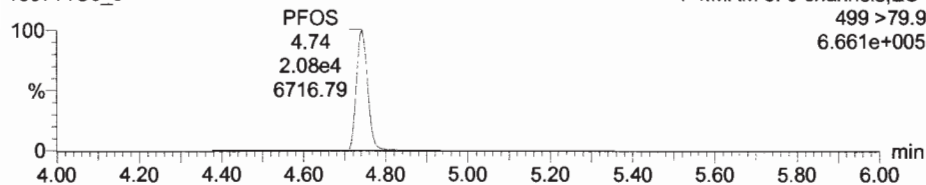
Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

Name: 160714G3_9, Date: 14-Jul-2016, Time: 12:28:23, ID: ST160714G3-8 PFC CS5 16G1213, Description: PFC CS5 16G1213 A

PFOS

160714G3_9

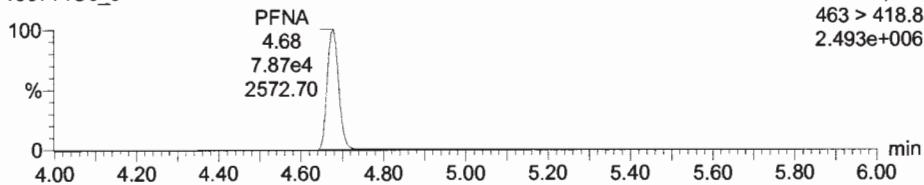
F4:MRM of 9 channels,ES-
499 > 79.9
6.661e+005



PFNA

160714G3_9

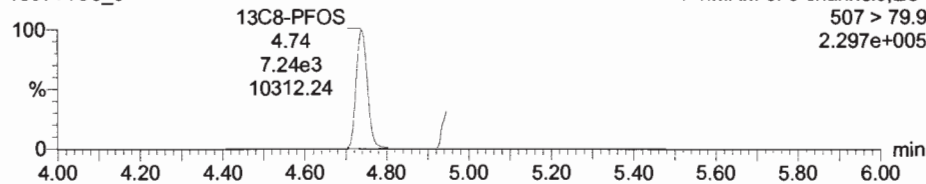
F4:MRM of 9 channels,ES-
463 > 418.8
2.493e+006



13C8-PFOS

160714G3_9

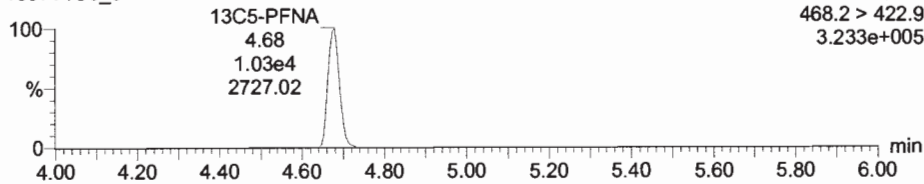
F4:MRM of 9 channels,ES-
507 > 79.9
2.297e+005



13C5-PFNA

160714G3_9

F4:MRM of 9 channels,ES-
468.2 > 422.9
3.233e+005



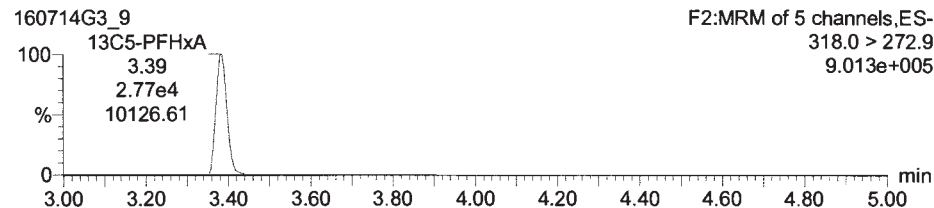
Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

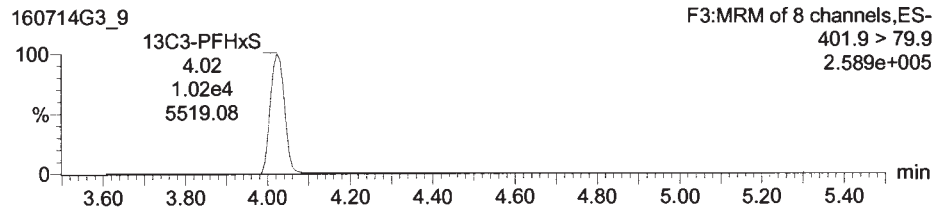
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

Name: 160714G3_9, Date: 14-Jul-2016, Time: 12:28:23, ID: ST160714G3-8 PFC CS5 16G1213, Description: PFC CS5 16G1213 A

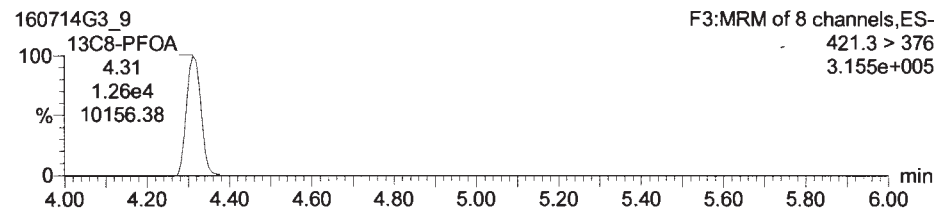
13C5-PFHxA



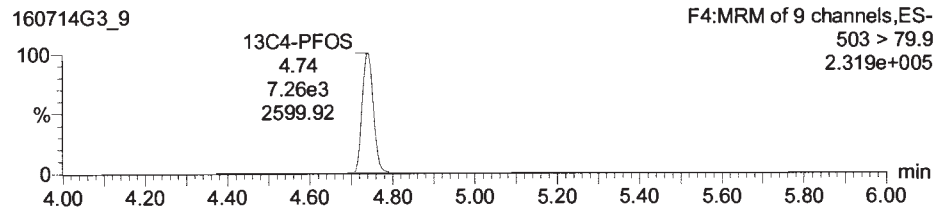
13C3-PFHxS



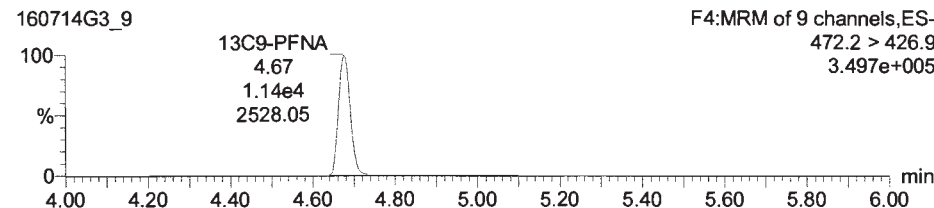
13C8-PFOA



13C4-PFOS



13C9-PFNA



Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

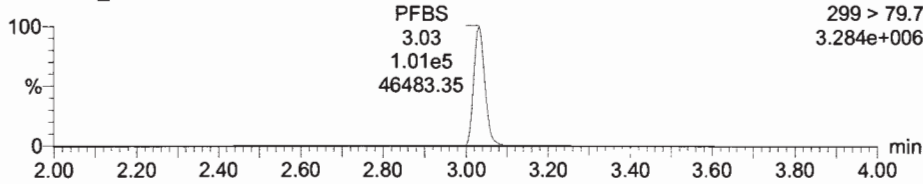
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

Name: 160714G3_10, Date: 14-Jul-2016, Time: 12:41:04, ID: ST160714G3-9 PFC CS6 1G1214, Description: PFC CS6 16G1214 A

PFBS

160714G3_10

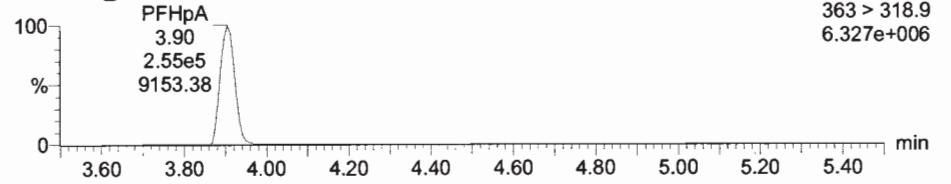
F2:MRM of 5 channels,ES-
299 > 79.7
3.284e+006



PFHpA

160714G3_10

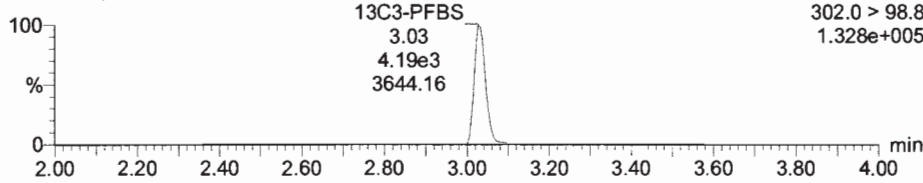
F3:MRM of 8 channels,ES-
363 > 318.9
6.327e+006



13C3-PFBS

160714G3_10

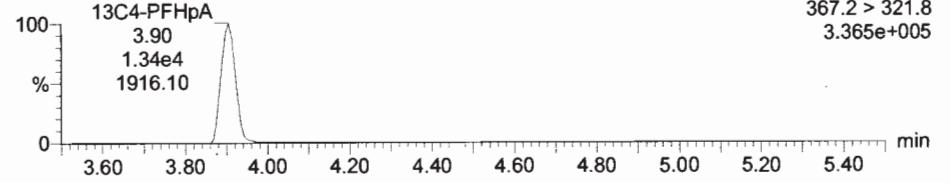
F2:MRM of 5 channels,ES-
302.0 > 98.8
1.328e+005



13C4-PFHpA

160714G3_10

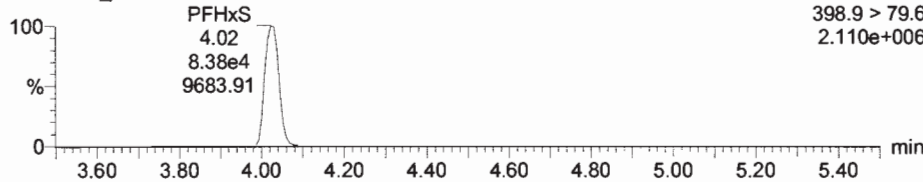
F3:MRM of 8 channels,ES-
367.2 > 321.8
3.365e+005



PFHxS

160714G3_10

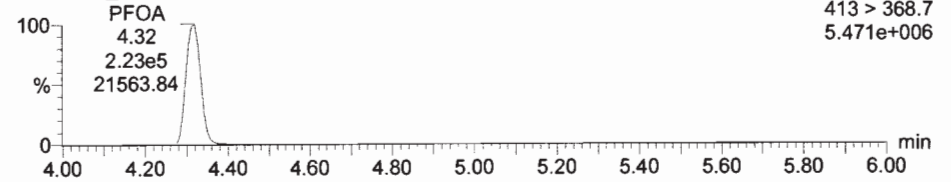
F3:MRM of 8 channels,ES-
398.9 > 79.6
2.110e+006



PFOA

160714G3_10

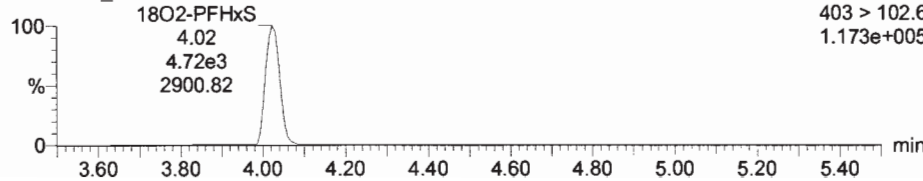
F3:MRM of 8 channels,ES-
413 > 368.7
5.471e+006



18O2-PFHxS

160714G3_10

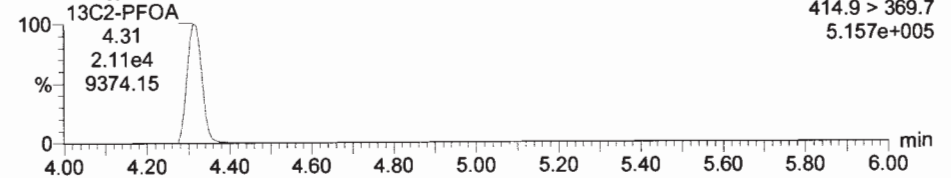
F3:MRM of 8 channels,ES-
403 > 102.6
1.173e+005



13C2-PFOA

160714G3_10

F3:MRM of 8 channels,ES-
414.9 > 369.7
5.157e+005



Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

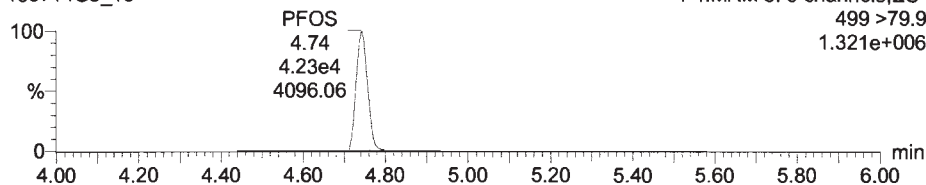
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

Name: 160714G3_10, Date: 14-Jul-2016, Time: 12:41:04, ID: ST160714G3-9 PFC CS6 1G1214, Description: PFC CS6 16G1214 A

PFOS

160714G3_10

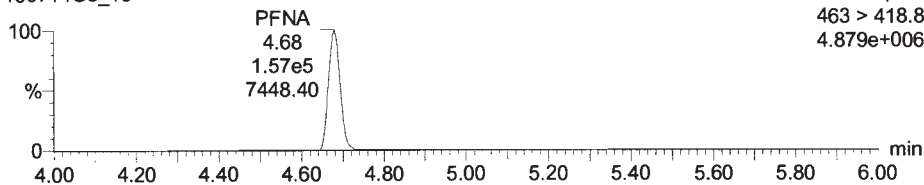
F4:MRM of 9 channels,ES-
499 > 79.9
1.321e+006



PFNA

160714G3_10

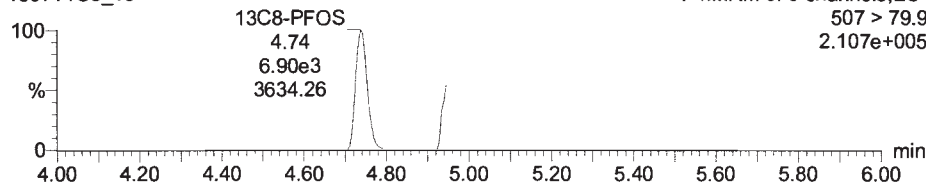
F4:MRM of 9 channels,ES-
463 > 418.8
4.879e+006



13C8-PFOS

160714G3_10

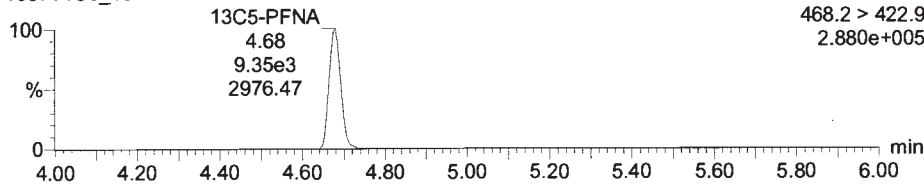
F4:MRM of 9 channels,ES-
507 > 79.9
2.107e+005



13C5-PFNA

160714G3_10

F4:MRM of 9 channels,ES-
468.2 > 422.9
2.880e+005



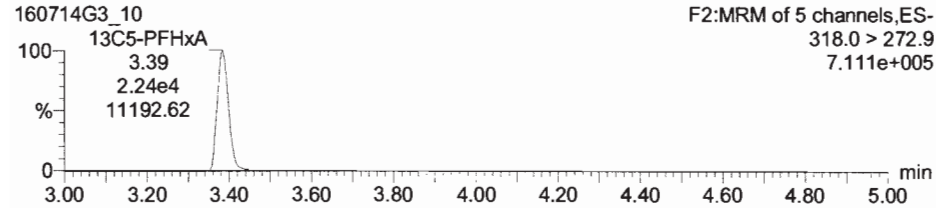
Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

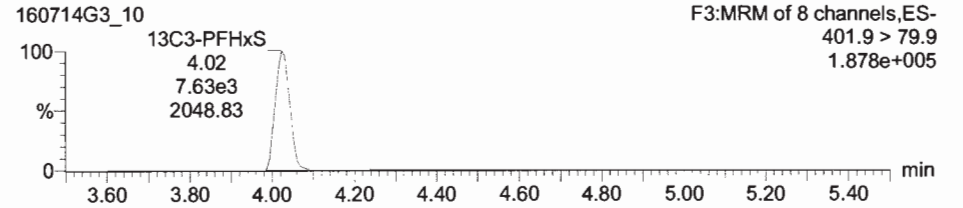
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

Name: 160714G3_10, Date: 14-Jul-2016, Time: 12:41:04, ID: ST160714G3-9 PFC CS6 1G1214, Description: PFC CS6 16G1214 A

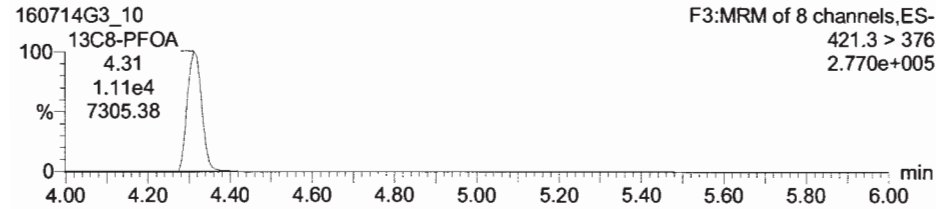
13C5-PFHxA



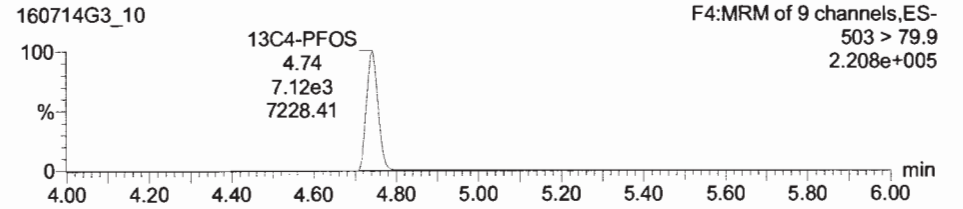
13C3-PFHxS



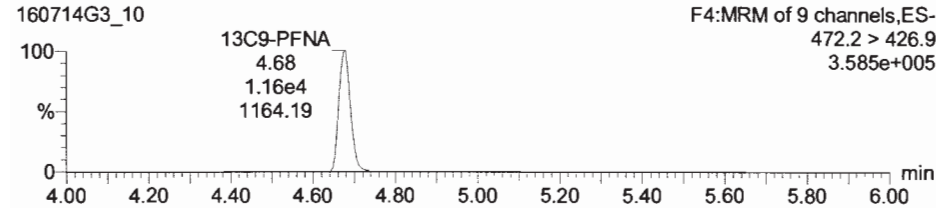
13C8-PFOA



13C4-PFOS



13C9-PFNA



Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_12.qld

Last Altered: Friday, July 15, 2016 08:26:12 Pacific Daylight Time
 Printed: Friday, July 15, 2016 08:26:43 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30
 Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

Name: 160714G3_12, Date: 14-Jul-2016, Time: 13:06:20, ID: SS160714G3-1 PFC SSS 16G1301, Description: PFC SSS 16G1301 A

#	Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc.	%Rec
1	1 PFBS	299 > 79.7	1.58e4	5.97e3		1.000	3.04	23.3	93.1
2	2 PFHpA	363 > 318.9	5.69e4	1.92e4		1.000	3.91	28.6	114.3
3	3 PFHxS	398.9 > 79.6	1.14e4	5.96e3		1.000	4.03	20.5	82.0
4	4 PFOA	413 > 368.7	3.32e4	2.62e4		1.000	4.32	22.2	88.8
5	5 PFOS	499 > 79.9	4.50e3	7.50e3		1.000	4.75	18.9	75.6
6	6 PFNA	463 > 418.8	2.42e4	1.04e4		1.000	4.68	27.5	110.1
7	7 13C3-PFBS	302.0 > 98.8	5.97e3	3.15e4	0.194	1.000	3.04	12.2	97.9
8	8 13C4-PFHpA	367.2 > 321.8	1.92e4	3.15e4	0.625	1.000	3.91	12.2	97.6
9	9 18O2-PFHxS	403 > 102.6	5.96e3	1.15e4	0.521	1.000	4.03	12.4	99.4
10	10 13C2-PFOA	414.9 > 369.7	2.62e4	1.46e4	1.973	1.000	4.32	11.4	90.9
11	11 13C8-PFOS	507 > 79.9	7.50e3	8.28e3	0.990	1.000	4.74	11.4	91.4
12	12 13C5-PFNA	468.2 > 422.9	1.04e4	1.28e4	0.858	1.000	4.68	11.8	94.7
13	13 13C5-PFHxA	318.0 > 272.9	3.15e4	3.15e4	1.000	1.000	3.39	12.5	100.0
14	14 13C3-PFHxS	401.9 > 79.9	1.15e4	1.15e4	1.000	1.000	4.03	12.5	100.0
15	15 13C8-PFOA	421.3 > 376	1.46e4	1.46e4	1.000	1.000	4.32	12.5	100.0
16	16 13C4-PFOS	503 > 79.9	8.28e3	8.28e3	1.000	1.000	4.74	12.5	100.0
17	17 13C9-PFNA	472.2 > 426.9	1.28e4	1.28e4	1.000	1.000	4.68	12.5	100.0
18	18 Total PFBS	299 > 79.7		5.97e3		1.000		23.3	
19	19 Total PFHxS	398.9 > 79.6		5.96e3		1.000		25.1	
20	20 Total PFOA	413 > 368.7		2.62e4		1.000		26.4	
21	21 Total PFOS	499 > 79.9		7.50e3		1.000		31.8	

lin
 75-125
 ↓
 101.1%
 112.4%
 110.7%
 ⊕ Branched and technical mix
 used. ∴ recovery based on
 linear isomer
 BR 7/15/16
 PW
 7/15/16

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_12.qld

Last Altered: Friday, July 15, 2016 08:26:12 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:26:43 Pacific Daylight Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

Name: 160714G3_12, Date: 14-Jul-2016, Time: 13:06:20, ID: SS160714G3-1 PFC SSS 16G1301, Description: PFC SSS 16G1301 A

Total PFBS

#	Name	Trace	RT	Area	IS Area	Conc.
1	1 PFBS	299 > 79.7	3.04	1.58e4	5.97e3	23.3

Total PFHxS

#	Name	Trace	RT	Area	IS Area	Conc.
1	19 Total PFHxS	398.9 > 79.6	3.82	7.60e0	5.96e3	0.0135
2	19 Total PFHxS	398.9 > 79.6	3.93	2.55e3	5.96e3	4.55
3	3 PFHxS	398.9 > 79.6	4.03	1.14e4	5.96e3	20.5

Total PFOA

#	Name	Trace	RT	Area	IS Area	Conc.
1	20 Total PFOA	413 > 368.7	4.09	1.19e2	2.62e4	0.0788
2	20 Total PFOA	413 > 368.7	4.22	6.16e3	2.62e4	4.09
3	4 PFOA	413 > 368.7	4.32	3.32e4	2.62e4	22.2

Total PFOS

#	Name	Trace	RT	Area	IS Area	Conc.
1	21 Total PFOS	499 > 79.9	4.52	2.07e2	7.50e3	0.865
2	21 Total PFOS	499 > 79.9	4.62	2.86e3	7.50e3	12.0
3	5 PFOS	499 > 79.9	4.75	4.50e3	7.50e3	18.9

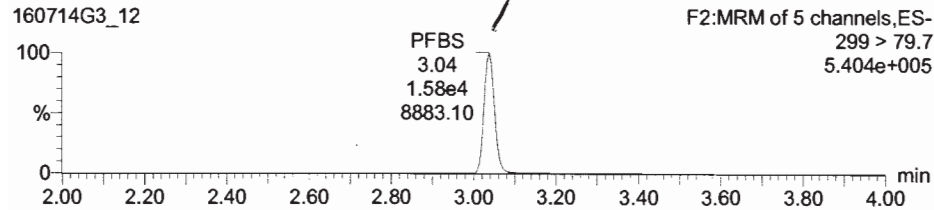
Dataset: Untitled

Last Altered: Friday, July 15, 2016 08:17:39 Pacific Daylight Time
Printed: Friday, July 15, 2016 08:17:42 Pacific Daylight Time

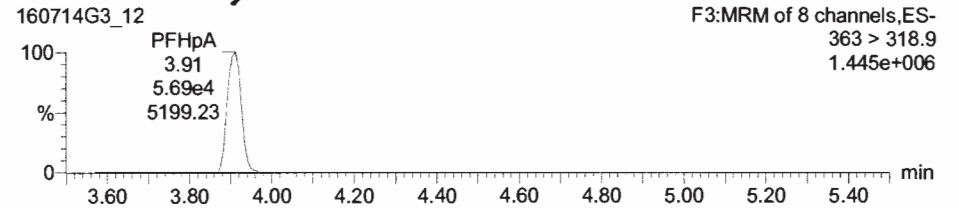
Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30
Calibration: 15 Jul 2016 08:17:39

Name: 160714G3_12, Date: 14-Jul-2016, Time: 13:06:20, ID: SS160714G3-1 PFC SSS 16G1301, Description: PFC SSS 16G1301 A

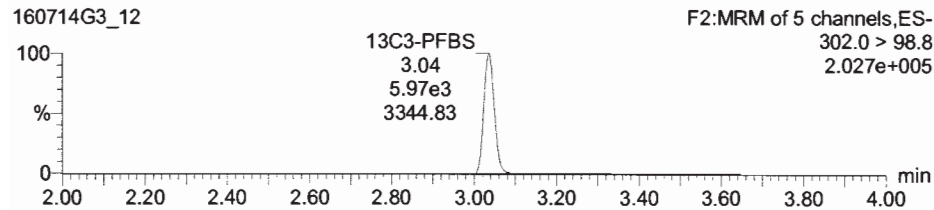
PFBS



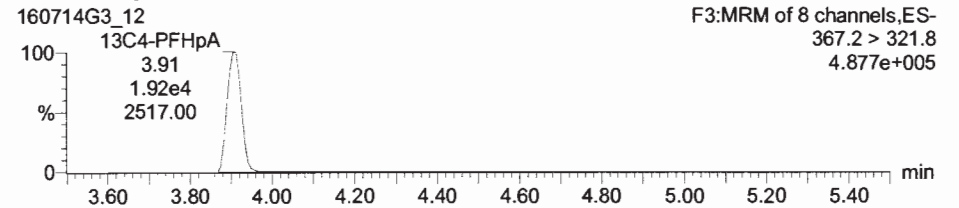
PFHpA



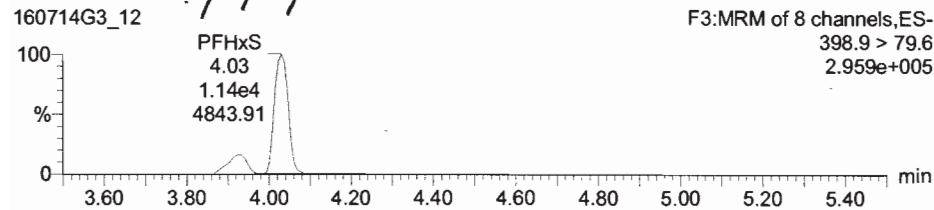
13C3-PFBS



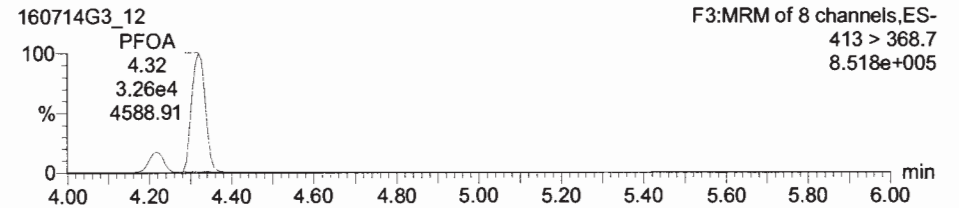
13C4-PFHpA



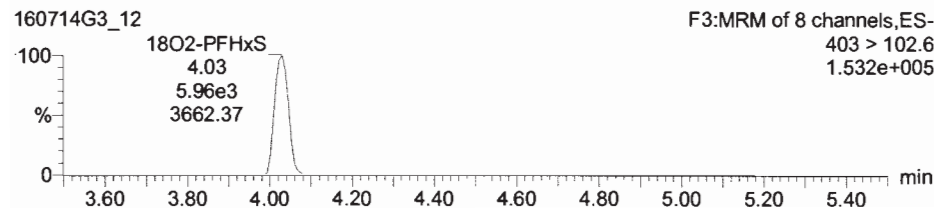
PFHxS



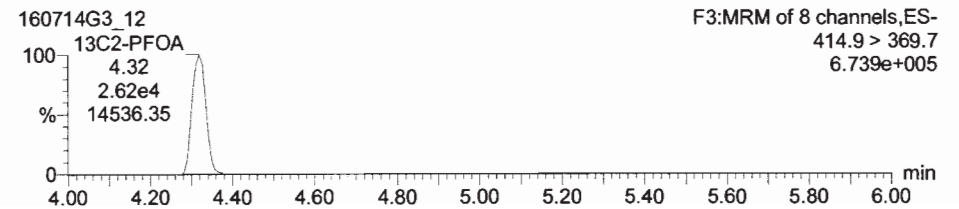
PFOA



18O2-PFHxS



13C2-PFOA

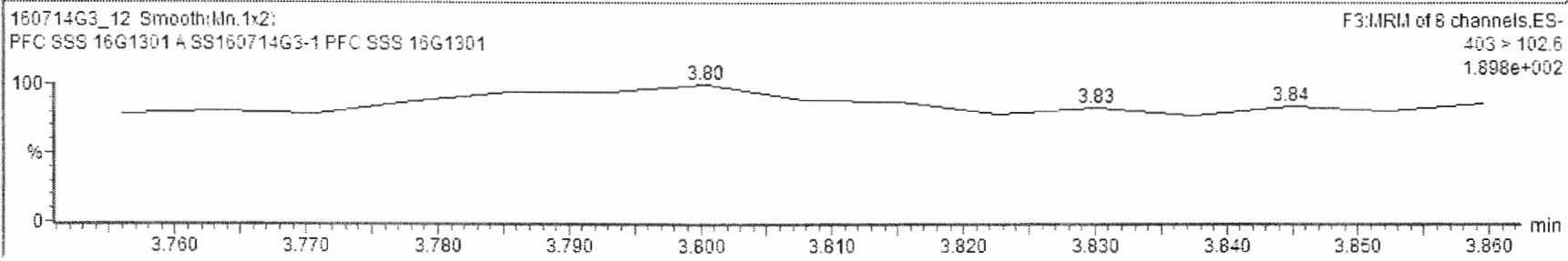
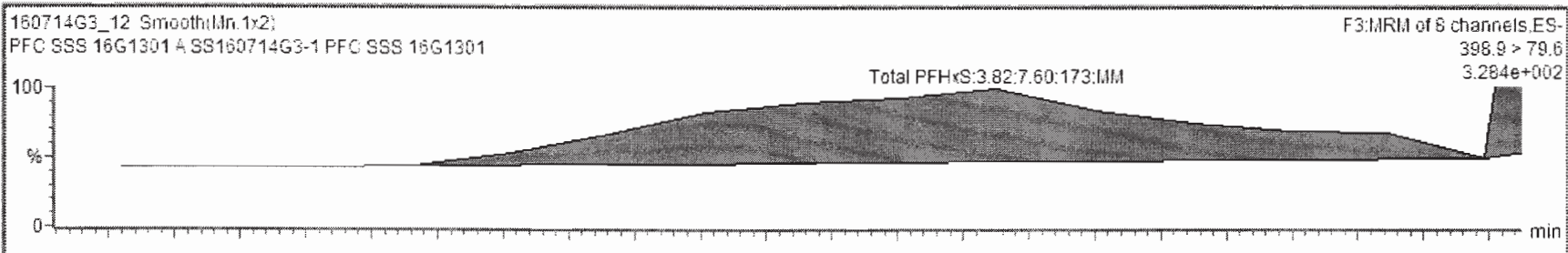


TargetLynx - 160714G3_12.qld * - [Chromatogram]

File Edit View Display Processing Window Help

160714G3_12 - SS160714G3-1 PFC SSS 16G1301 - PFC SSS 16G1301 A

Name	Trace	Area	RRF	WtVol	Pred.RT	RT	Conc.	>MDL	%Rec	DL	
7	13C3-PFBS	302.0 > 98.8	5.97e3	0.194	1.000	3.06	3.04	12.2	NO	97.9	0.00913E4
8	13C4-PFHpA	367.2 > 321.8	1.92e4	0.625	1.000	3.90	3.91	12.2	NO	97.6	0.009036E
9	16O2-PFHxS	403 > 102.6	5.98e2	0.521	1.000	4.03	4.03	12.4	NO	99.4	0.008482E
10	13C2-PFOA	414.9 > 369.7	2.62e4	1.97	1.000	4.32	4.32	11.4	NO	90.9	0.0019504
11	13C6-PFOS	507 > 79.9	7.50e3	0.590	1.000	4.74	4.74	11.4	NO	91.4	0.0034579
12	13C5-PFNA	468.2 > 422.9	1.04e4	0.858	1.000	4.68	4.68	11.6	NO	94.7	0.0063083
13	13C5-PFHxA	318.0 > 272.9	3.15e4	1.00	1.000	3.53	3.59	12.5	NO	100.0	0.0036918
14	13C3-PFHxS	401.9 > 79.9	1.15e4	1.00	1.000	4.20	4.03	12.5	NO	100.0	0.0126118
15	13C8-PFOA	421.3 > 376	1.46e4	1.00	1.000	4.49	4.32	12.5	NO	100.0	0.0050089
16	13C4-PFOS	503 > 79.9	8.28e3	1.00	1.000	4.74	4.74	12.5	NO	100.0	0.0030076
17	13C9-PFNA	472.2 > 426.9	1.28e4	1.00	1.000	4.63	4.68	12.5	NO	100.0	0.0119615
18	Total PFBS	299 > 79.7	1.58e4		1.000	3.21		23.3	NO		
19	Total PFHxS	398.9 > 79.6	1.40e4		1.000	4.24		25.1	NO		
20	Total PFOA	413 > 368.7	3.89e4		1.000	4.54		26.0	NO		
21	Total PFOS	499 > 79.9	7.57e3		1.000	4.93		31.6	NO		

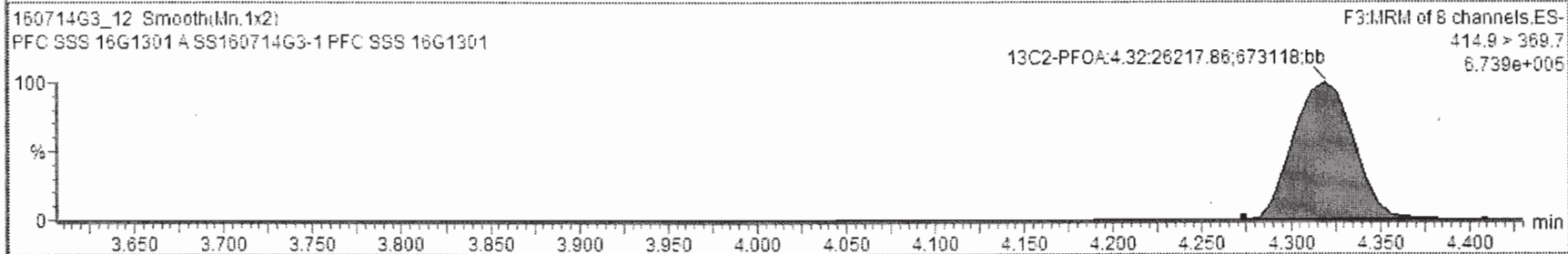
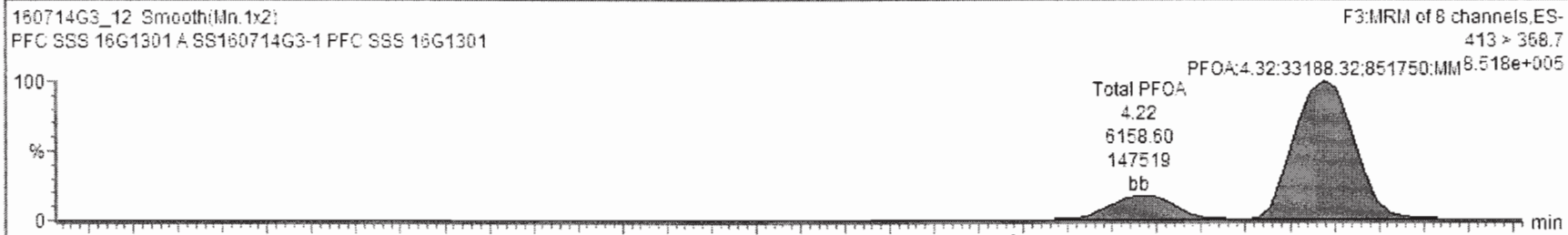


TargetLynx - 160714G3_12.qld * - [Chromatogram]

File Edit View Display Processing Window Help

160714G3_12 - SS160714G3-1 PFC SSS 16G1301 - PFC SSS 16G1301 A

	Name	Trace	Area	RRF	WtVol	Pred.RT	RT	Conc.	>MDL	%Rec	DL
7	13C3-PFBS	202.0 > 98.8	5.97e3	0.194	1.000	3.06	3.04	12.2	NO	97.9	0.0091354
8	13C4-PFHxA	367.2 > 321.8	1.92e4	0.625	1.000	3.90	3.91	12.2	NO	97.6	0.0090385
9	18O2-PFHxS	403 > 102.6	5.95e3	0.521	1.000	4.03	4.03	12.4	NO	99.4	0.0084826
10	13C2-PFOA	414.9 > 369.7	2.62e4	1.97	1.000	4.32	4.32	11.4	NO	90.9	0.0019504
11	13C3-PFOS	507 > 79.9	7.50e3	0.990	1.000	4.74	4.74	11.4	NO	91.4	0.0034579
12	13C5-PFNA	468.2 > 422.9	1.04e4	0.858	1.000	4.68	4.68	11.8	NO	94.7	0.0063083
13	13C5-PFHxA	318.0 > 272.9	3.15e4	1.00	1.000	3.53	3.39	12.5	NO	100.0	0.0038918
14	13C2-PFHxS	401.9 > 79.9	1.15e4	1.00	1.000	4.20	4.03	12.5	NO	100.0	0.0126118
15	13C3-PFOA	421.3 > 376	1.46e4	1.00	1.000	4.49	4.32	12.5	NO	100.0	0.0050089
16	13C4-PFOS	503 > 79.9	8.28e3	1.00	1.000	4.74	4.74	12.5	NO	100.0	0.0030076
17	13C9-PFNA	472.2 > 426.9	1.28e4	1.00	1.000	4.83	4.68	12.5	NO	100.0	0.0119615
18	Total PFBS	299 > 79.7	1.58e4		1.000	3.21		23.3	NO		
19	Total PFHxS	398.9 > 79.6	1.40e4		1.000	4.24		25.1	NO		
20	Total PFOA	413 > 368.7	3.95e4		1.000	4.54		26.4	NO		
21	Total PFOS	499 > 79.9	7.57e3		1.000	4.93		31.8	NO		



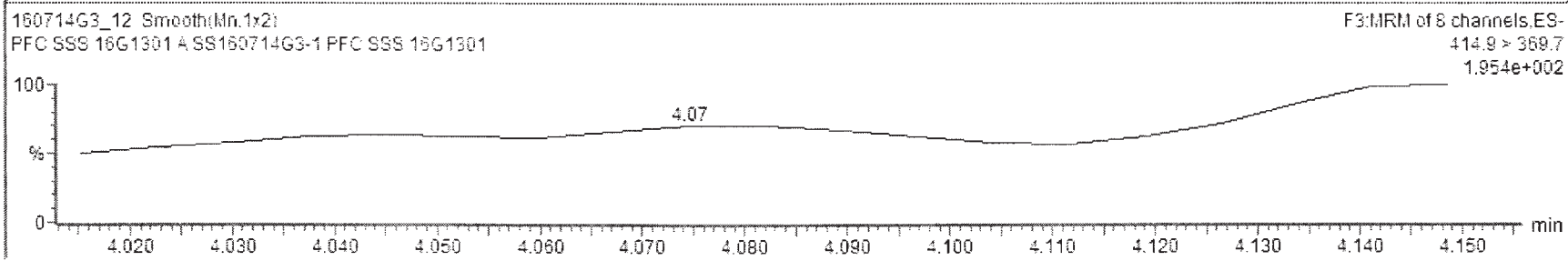
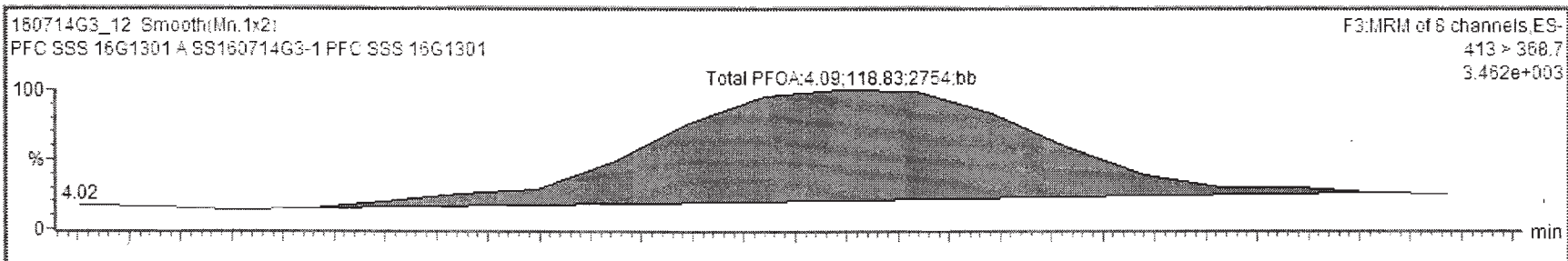
TargetLynx - 160714G3_12.qld * - [Chromatogram]

File Edit View Display Processing Window Help

TargetLynx toolbar icons: Save, Print, Zoom, etc.

160714G3_12 - SS160714G3-1 PFC SSS 16G1301 - PFC SSS 16G1301 A

Name	Trace	Area	RRF	WtVol	Pred.RT	RT	Conc.	>MDL	%Rec	DL	
7	13C3-PFBS	302.0 > 98.6	5.97e3	0.194	1.000	3.08	3.04	12.2	NO	97.9	0.0091354
8	13C4-PFHxA	367.2 > 321.8	1.92e4	0.625	1.000	3.90	3.91	12.2	NO	97.6	0.0090385
9	18O2-PFHxS	403 > 102.6	5.95e3	0.521	1.000	4.03	4.03	12.4	NO	99.4	0.0084826
10	13C2-PFOA	414.9 > 368.7	2.62e4	1.97	1.000	4.32	4.32	11.4	NO	90.9	0.0019504
11	13C8-PFOS	507 > 79.9	7.50e3	0.990	1.000	4.74	4.74	11.4	NO	91.4	0.0034579
12	13C5-PFNA	468.2 > 422.9	1.04e4	0.858	1.000	4.68	4.68	11.8	NO	94.7	0.0063083
13	13C5-PFHxA	318.0 > 272.9	3.15e4	1.00	1.000	3.53	3.39	12.5	NO	100.0	0.0036918
14	13C3-PFHxS	401.9 > 79.9	1.15e4	1.00	1.000	4.20	4.03	12.5	NO	100.0	0.0125118
15	13C8-PFOA	421.3 > 376	1.46e4	1.00	1.000	4.48	4.32	12.5	NO	100.0	0.0050089
16	13C4-PFOS	503 > 79.9	8.28e3	1.00	1.000	4.74	4.74	12.5	NO	100.0	0.0030078
17	13C8-PFNA	472.2 > 426.9	1.28e4	1.00	1.000	4.83	4.68	12.5	NO	100.0	0.0119615
18	Total PFBS	299 > 79.7	1.58e4		1.000	3.21		23.3	NO		
19	Total PFHxS	398.9 > 79.6	1.40e4		1.000	4.24		25.1	NO		
20	Total PFOA	413 > 368.7	3.95e4		1.000	4.64		26.4	NO		
21	Total PFOS	499 > 79.9	7.57e3		1.000	4.93		31.6	NO		

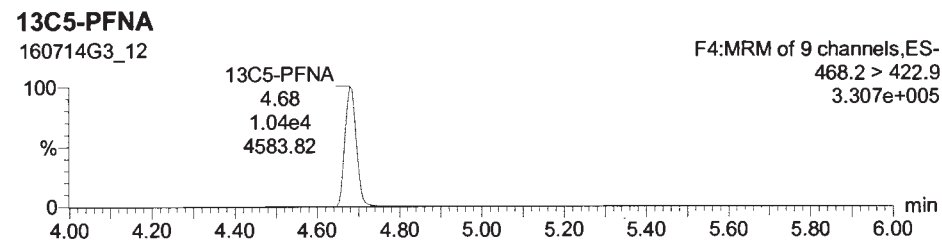
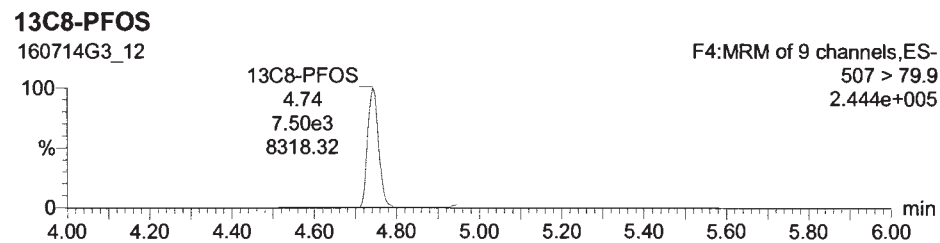
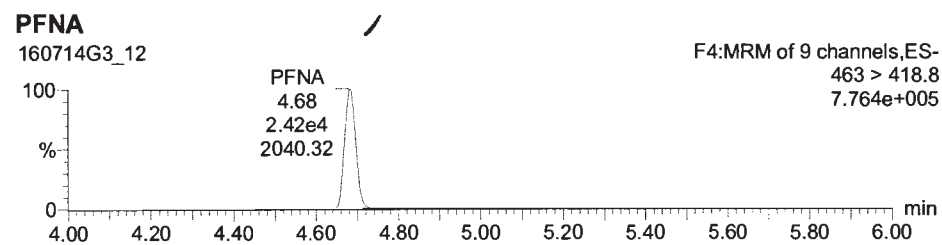
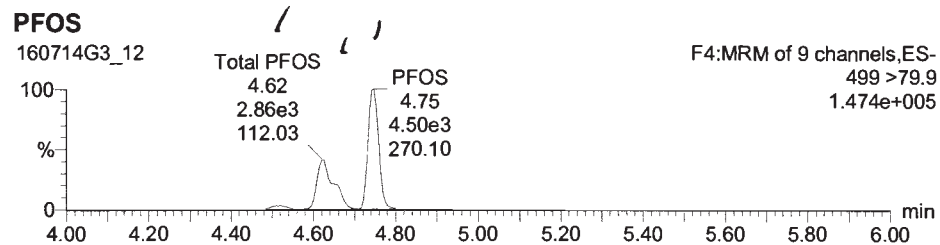


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Printed: Friday, July 15, 2016 08:17:42 Pacific Daylight Time

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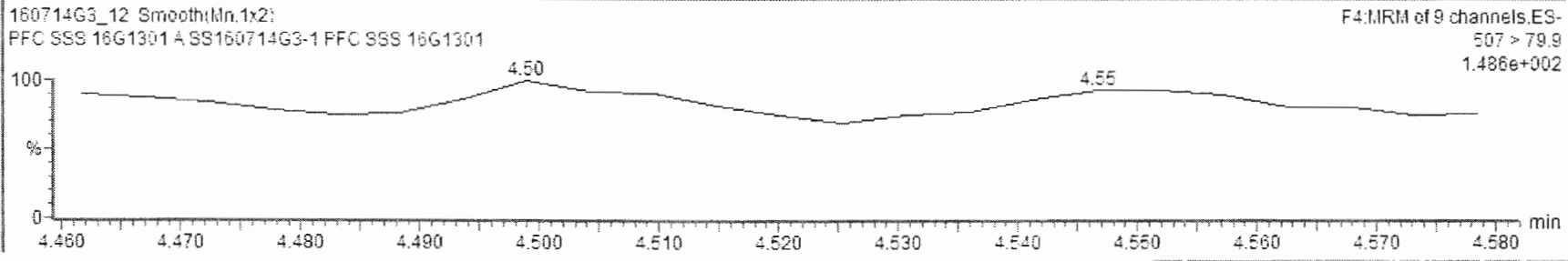
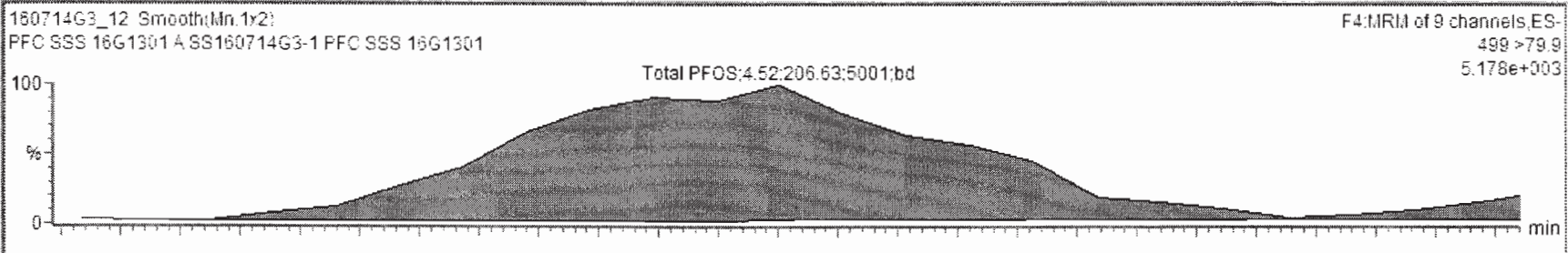


TargetLynx - 160714G3_12.qld * - [Chromatogram]

File Edit View Display Processing Window Help

160714G3_12 - SS160714G3-1 PFC SSS 16G1301 - PFC SSS 16G1301 A

	Name	Trace	Area	RRF	Wt/Vol	Pred. RT	RT	Conc.	>MDL	%Rec	DL
7	13C3-PFBS	302.0 > 98.8	5.97e3	0.194	1.000	3.06	3.04	12.2	NO	97.9	0.0091354
8	13C4-PFHxA	367.2 > 321.8	1.92e4	0.625	1.000	3.90	3.91	12.2	NO	97.6	0.0090385
9	18O2-PFHxS	403 > 102.6	5.96e3	0.521	1.000	4.03	4.03	12.4	NO	99.4	0.0084826
10	13C2-PFOA	414.9 > 369.7	2.62e4	1.97	1.000	4.32	4.32	11.4	NO	90.9	0.0019504
11	13C8-PFOS	507 > 79.9	7.50e3	0.990	1.000	4.74	4.74	11.4	NO	91.4	0.0034579
12	13C5-PFNA	468.2 > 422.9	1.04e4	0.858	1.000	4.68	4.68	11.8	NO	94.7	0.0063063
13	13C5-PFHxA	318.0 > 272.9	3.15e4	1.00	1.000	3.53	3.39	12.5	NO	100.0	0.0036918
14	13C3-PFHxS	401.9 > 79.9	1.15e4	1.00	1.000	4.20	4.03	12.5	NO	100.0	0.0126118
15	13C8-PFOA	421.3 > 376	1.46e4	1.00	1.000	4.49	4.32	12.5	NO	100.0	0.0050089
16	13C4-PFOS	503 > 79.9	8.28e3	1.00	1.000	4.74	4.74	12.5	NO	100.0	0.0030076
17	13C9-PFNA	472.2 > 426.9	1.28e4	1.00	1.000	4.83	4.68	12.5	NO	100.0	0.0119615
18	Total PFBS	299 > 79.7	1.58e4		1.000	3.21		23.3	NO		
19	Total PFHxS	398.9 > 79.6	1.40e4		1.000	4.24		25.1	NO		
20	Total PFOA	413 > 368.7	3.95e4		1.000	4.54		26.4	NO		
21	Total PFOS	499 > 79.9	7.57e3		1.000	4.93		31.8	NO		



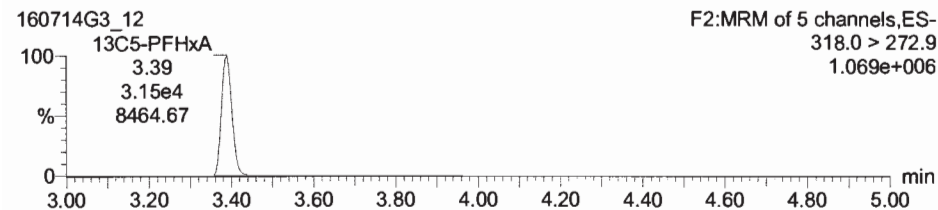
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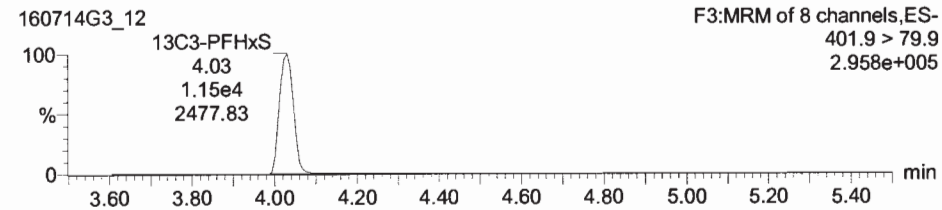
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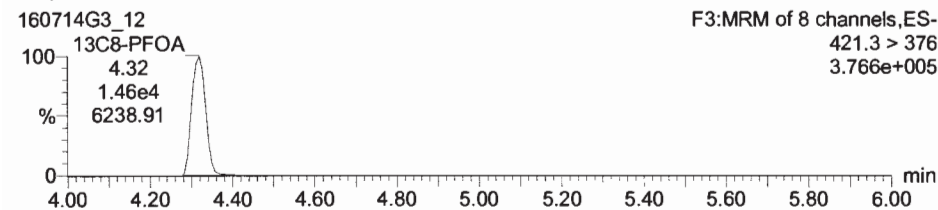
13C5-PFHxA



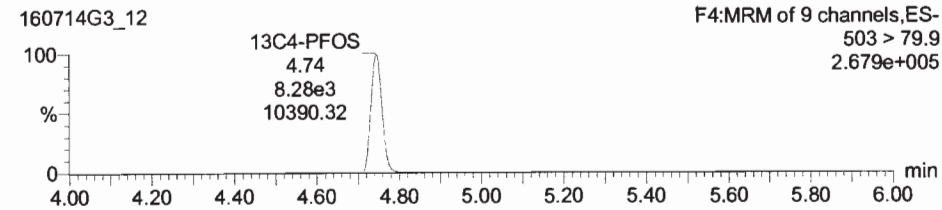
13C3-PFHxS



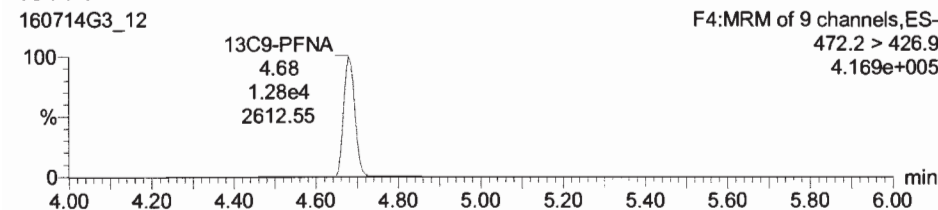
13C8-PFOA



13C4-PFOS



13C9-PFNA



Year	Month	Day	Time	Location	Activity	Personnel	Equipment	Material	Notes
2019	01	01	08:00	Lab 1	Calibration	John Doe	Calibrator	Standard	Initial setup
2019	01	01	08:30	Lab 1	Measurement	Jane Smith	Analyzer	Sample A	First reading
2019	01	01	09:00	Lab 1	Measurement	John Doe	Analyzer	Sample B	Second reading
2019	01	01	09:30	Lab 1	Measurement	Jane Smith	Analyzer	Sample C	Third reading
2019	01	01	10:00	Lab 1	Measurement	John Doe	Analyzer	Sample D	Fourth reading
2019	01	01	10:30	Lab 1	Measurement	Jane Smith	Analyzer	Sample E	Fifth reading
2019	01	01	11:00	Lab 1	Measurement	John Doe	Analyzer	Sample F	Sixth reading
2019	01	01	11:30	Lab 1	Measurement	Jane Smith	Analyzer	Sample G	Seventh reading
2019	01	01	12:00	Lab 1	Measurement	John Doe	Analyzer	Sample H	Eighth reading
2019	01	01	12:30	Lab 1	Measurement	Jane Smith	Analyzer	Sample I	Ninth reading
2019	01	01	13:00	Lab 1	Measurement	John Doe	Analyzer	Sample J	Tenth reading
2019	01	01	13:30	Lab 1	Measurement	Jane Smith	Analyzer	Sample K	Eleventh reading
2019	01	01	14:00	Lab 1	Measurement	John Doe	Analyzer	Sample L	Twelfth reading
2019	01	01	14:30	Lab 1	Measurement	Jane Smith	Analyzer	Sample M	Thirteenth reading
2019	01	01	15:00	Lab 1	Measurement	John Doe	Analyzer	Sample N	Fourteenth reading
2019	01	01	15:30	Lab 1	Measurement	Jane Smith	Analyzer	Sample O	Fifteenth reading
2019	01	01	16:00	Lab 1	Measurement	John Doe	Analyzer	Sample P	Sixteenth reading
2019	01	01	16:30	Lab 1	Measurement	Jane Smith	Analyzer	Sample Q	Seventeenth reading
2019	01	01	17:00	Lab 1	Measurement	John Doe	Analyzer	Sample R	Eighteenth reading
2019	01	01	17:30	Lab 1	Measurement	Jane Smith	Analyzer	Sample S	Nineteenth reading
2019	01	01	18:00	Lab 1	Measurement	John Doe	Analyzer	Sample T	Twentieth reading
2019	01	01	18:30	Lab 1	Measurement	Jane Smith	Analyzer	Sample U	Twenty-first reading
2019	01	01	19:00	Lab 1	Measurement	John Doe	Analyzer	Sample V	Twenty-second reading
2019	01	01	19:30	Lab 1	Measurement	Jane Smith	Analyzer	Sample W	Twenty-third reading
2019	01	01	20:00	Lab 1	Measurement	John Doe	Analyzer	Sample X	Twenty-fourth reading
2019	01	01	20:30	Lab 1	Measurement	Jane Smith	Analyzer	Sample Y	Twenty-fifth reading
2019	01	01	21:00	Lab 1	Measurement	John Doe	Analyzer	Sample Z	Final reading

Data Validation Summary

Oceana CTO-WE44, NALF Fentress

TO: Tiffany Hill/CVO
Anita Dodson/VBO

FROM: Tiffany McGlynn/GNV

CC: Herb Kelly/GNV

DATE: September 9, 2016

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
1600783	OFPOL-MW-7-0616	Water
1600783	OFPOL-MW-4-0616	Water
1600783	OFPOL-MW-8-0616	Water
1600783	OFPOL-MW-6-0616	Water
1600783	OFPOL-MW-3-0616	Water
1600783	OFPOL-MW-3P-0616	Water
1600783	OFPOL-MW-2-0616	Water
1600783	OF-MW13-0616	Water
1600783	OF-MW11-0616	Water
1600818	OF14-MW07S-0616	Water
1600818	OF14-MW07D-0616	Water
1600818	OF-MW14-0616	Water

SDG	Sample_Name	Matrix
1600818	OF-MW16-0616	Water
1600818	OF-FB062016	Water
1600818	OF-EB062016	Water
1600818	OF-MW15-0616	Water
1600818	OF-MW15D-0616	Water
1600818	OF14-MW06-0616	Water
1600818	OF14-MW06D-0616	Water
1600818	OF-MW17-0616	Water
1600818	OF-MW12D-0616	Water
1600818	OF-MW12-0616	Water
1600818	OF-MW13D-0616	Water
1600818	OF-MW13DP-0616	Water
1600818	OF-MW11D-0616	Water
1600820	OF-MW10-0616	Water
1600820	OF-MW08-0616	Water
1600820	OF-MW08P-0616	Water
1600820	OF-MW10D-0616	Water
1600820	OF-MW09-0616	Water
1600820	OF-MW09D-0616	Water
1600872	OF-MW28-0716	Water
1600872	OF-MW25-0716	Water
1600872	OF-MW31-0716	Water
1600872	OF-FB070616	Water
1600896	OF-MW24-0716	Water
1600896	OF-FB071116	Water
1600896	OF-MW27-0716	Water
1600903	OF-MW30-0716	Water
1600903	OF-MW30P-0716	Water
1600903	OF-MW30D-0716	Water
1600903	OF-MW28D-0716	Water
1600903	OF-MW32-0716	Water
1600903	OF-MW29-0716	Water
1600903	OF-MW08D-0716	Water
1600903	OF-MW34-0716	Water
1600903	OF-MW31D-0716	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 Perfluorinated Compound Site Investigation, Naval Auxiliary Landing Field Fentress, Chesapeake, Virginia

Contract Task Order WE44 (August 2016) and National Functional Guidelines for Organic Data Review (August 2014) with Region 3 Modification (Use of 'B' qualifier) 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

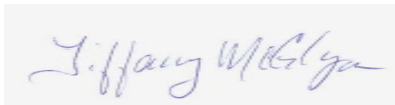
According to the chain of custody records, sampling was performed on 6/17/16 through 7/14/16. Samples were received at the laboratory 6/18/16 through 7/15/16. All sample preparation and analyses were performed within holding time requirements.

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, reading "Tiffany McGlynn", is displayed within a light gray rectangular box.

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

LOCATION_NAME	SITE_NAME	INSTALLATION_ID	LOCATION_TYPE	LOCATION_TYPE_DESC	SDG	COORD_X	COORD_Y	ANALYTICAL_METHOD_GRP_DESC	SAMPLE_NAME	SAMPLE_MATRIX	SAMPLE_MATRIX_DESC	COLLECT_DATE
OF-MW27	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600896	12180265.8	3423491.9	Perfluoroalkyl Compounds	OF-MW27-0716	WG	Ground water	12-Jul-16
OF-MW27	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600896	12180265.8	3423491.9	Perfluoroalkyl Compounds	OF-MW27-0716	WG	Ground water	12-Jul-16
OF-MW27	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600896	12180265.8	3423491.9	Perfluoroalkyl Compounds	OF-MW27-0716	WG	Ground water	12-Jul-16
OF-MW24	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600896	12178801.5	3424931.4	Perfluoroalkyl Compounds	OF-MW24-0716	WG	Ground water	11-Jul-16
OF-MW24	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600896	12178801.5	3424931.4	Perfluoroalkyl Compounds	OF-MW24-0716	WG	Ground water	11-Jul-16
OF-MW24	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600896	12178801.5	3424931.4	Perfluoroalkyl Compounds	OF-MW24-0716	WG	Ground water	11-Jul-16
OF-MW27	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600896	12180265.8	3423491.9	Perfluoroalkyl Compounds	OF-MW27-0716	WG	Ground water	12-Jul-16
		OCEANA_NAS			1600896			Perfluoroalkyl Compounds	OF-FB071116	WQ	Water for QC samples	11-Jul-16
OF-MW24	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600896	12178801.5	3424931.4	Perfluoroalkyl Compounds	OF-MW24-0716	WG	Ground water	11-Jul-16
		OCEANA_NAS			1600896			Perfluoroalkyl Compounds	OF-FB071116	WQ	Water for QC samples	11-Jul-16
		OCEANA_NAS			1600896			Perfluoroalkyl Compounds	OF-FB071116	WQ	Water for QC samples	11-Jul-16
		OCEANA_NAS			1600896			Perfluoroalkyl Compounds	OF-FB071116	WQ	Water for QC samples	11-Jul-16
OF-MW27	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600896	12180265.8	3423491.9	Perfluoroalkyl Compounds	OF-MW27-0716	WG	Ground water	12-Jul-16
		OCEANA_NAS			1600896			Perfluoroalkyl Compounds	OF-FB071116	WQ	Water for QC samples	11-Jul-16
OF-MW24	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600896	12178801.5	3424931.4	Perfluoroalkyl Compounds	OF-MW24-0716	WG	Ground water	11-Jul-16
OF-MW27	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600896	12180265.8	3423491.9	Perfluoroalkyl Compounds	OF-MW27-0716	WG	Ground water	12-Jul-16
OF-MW24	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600896	12178801.5	3424931.4	Perfluoroalkyl Compounds	OF-MW24-0716	WG	Ground water	11-Jul-16
		OCEANA_NAS			1600896			Perfluoroalkyl Compounds	OF-FB071116	WQ	Water for QC samples	11-Jul-16