



**Groundwater Sample Results,
Level 2 Laboratory Report, Level 4 Laboratory Report,
Electronic Data Deliverable, Data Validation Report,
and the Sample Location Report, SDG 1600872**

*Naval Air Station Oceana
Virginia Beach, Virginia*

July 2019



July 21, 2016

Vista Work Order No. 1600872

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 07, 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. 1600872**Case Narrative****Sample Condition on Receipt:**

Four 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.

TABLE OF CONTENTS

Case Narrative.....	1
Table of Contents.....	3
Sample Inventory.....	4
Analytical Results.....	5
Qualifiers.....	12
Certifications.....	13
Sample Receipt.....	16

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1600872-01	OF-MW28-0716	06-Jul-16 11:35	07-Jul-16 08:55	HDPE Bottle, 125 mL HDPE Bottle, 125 mL
1600872-02	OF-MW25-0716	06-Jul-16 12:40	07-Jul-16 08:55	HDPE Bottle, 125 mL HDPE Bottle, 125 mL
1600872-03	OF-MW31-0716	06-Jul-16 15:05	07-Jul-16 08:55	HDPE Bottle, 125 mL HDPE Bottle, 125 mL
1600872-04	OF-FB070616	06-Jul-16 15:30	07-Jul-16 08:55	HDPE Bottle, 125 mL HDPE Bottle, 125 mL

ANALYTICAL RESULTS

Sample ID: Method Blank						Modified EPA Method 537				
Matrix: Aqueous Sample Size: 0.250 L		QC Batch: B6G0056 Date Extracted: 13-Jul-2016 9:21				Lab Sample: B6G0056-BLK1 Date Analyzed: 14-Jul-16 13:56 Column: BEH C18 Analyst: BSR				
Analyte	Conc. (ng/L)	MDL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	0.448	1.00	2.00		IS	13C3-PFBS	83.3	60 - 150	
PFHpA	ND	0.148	1.00	2.00		IS	13C4-PFHpA	90.4	25 - 175	
PFHxS	ND	0.237	1.00	2.00		IS	18O2-PFHxS	88.9	60 - 150	
PFOA	0.198	0.163	1.00	2.00	J	IS	13C2-PFOA	92.1	60 - 150	
PFOS	ND	0.202	1.00	2.00		IS	13C8-PFOS	81.1	60 - 150	
PFNA	ND	0.203	1.00	2.00		IS	13C5-PFNA	87.0	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: 0.250 L		QC Batch: B6G0056 Date Extracted: 13-Jul-2016 9:21			Lab Sample: B6G0056-BS1 Date Analyzed: 14-Jul-16 13:31 Column: BEH C18 Analyst: BSR			
Analyte	Amt Found (ng/L)	Spike Amt	%R	Limits	Labeled Standard		%R	LCL-UCL
PFBS	39.1	40.0	97.7	60 - 130	IS	13C3-PFBS	98.4	60 - 150
PFHpA	41.4	40.0	103	70 - 130	IS	13C4-PFHpA	94.2	25 - 175
PFHxS	40.3	40.0	101	70 - 130	IS	18O2-PFHxS	85.5	60 - 150
PFOA	40.8	40.0	102	70 - 130	IS	13C2-PFOA	93.1	60 - 150
PFOS	46.6	40.0	116	70 - 130	IS	13C8-PFOS	93.6	60 - 150
PFNA	41.4	40.0	103	50 - 130	IS	13C5-PFNA	88.6	50 - 150

LCL-UCL - Lower control limit - upper control limit

Sample ID: OF-MW28-0716							Modified EPA Method 537			
Client Data			Sample Data			Laboratory Data				
Name:	CH2M Hill		Matrix:	Aqueous		Lab Sample:	1600872-01		Date Received:	07-Jul-2016 8:55
Project:	Fentress Phase II PFC Investigation		Sample Size:	0.126 L		QC Batch:	B6G0056		Date Extracted:	13-Jul-2016 9:21
Date Collected:	06-Jul-2016 11:35					Date Analyzed:	14-Jul-16 14:34		Column:	BEH C18 Analyst: BSR
Location:										
Analyte	Conc. (ng/L)	MDL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	1.78	3.97	7.95	J	IS	13C3-PFBS	98.0	60 - 150	
PFHpA	ND	0.587	3.97	7.95		IS	13C4-PFHpA	89.7	25 - 175	
PFHxS	1.09	0.941	3.97	7.95		IS	18O2-PFHxS	87.7	60 - 150	
PFOA	ND	0.647	3.97	7.95		IS	13C2-PFOA	83.4	60 - 150	
PFOS	ND	0.802	3.97	7.95		IS	13C8-PFOS	93.5	60 - 150	
PFNA	ND	0.805	3.97	7.95		IS	13C5-PFNA	86.7	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-MW25-0716						Modified EPA Method 537				
Client Data			Sample Data			Laboratory Data				
Name: CH2M Hill			Matrix: Aqueous			Lab Sample: 1600872-02		Date Received: 07-Jul-2016 8:55		
Project: Fentress Phase II PFC Investigation			Sample Size: 0.121 L			QC Batch: B6G0056		Date Extracted: 13-Jul-2016 9:21		
Date Collected: 06-Jul-2016 12:40						Date Analyzed: 14-Jul-16 14:47 Column: BEH C18 Analyst: BSR				
Location:										
Analyte	Conc. (ng/L)	MDL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	1.85	4.13	8.28		IS	13C3-PFBS	85.5	60 - 150	
PFHpA	ND	0.612	4.13	8.28		IS	13C4-PFHpA	91.2	25 - 175	
PFHxS	4.85	0.980	4.13	8.28	J	IS	18O2-PFHxS	85.9	60 - 150	
PFOA	4.26	0.674	4.13	8.28	J, B	IS	13C2-PFOA	85.6	60 - 150	
PFOS	6.10	0.835	4.13	8.28	J	IS	13C8-PFOS	82.4	60 - 150	
PFNA	ND	0.838	4.13	8.28		IS	13C5-PFNA	85.1	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-MW31-0716						Modified EPA Method 537				
Client Data			Sample Data			Laboratory Data				
Name:	CH2M Hill		Matrix:	Aqueous		Lab Sample:	1600872-03	Date Received:	07-Jul-2016 8:55	
Project:	Fentress Phase II PFC Investigation		Sample Size:	0.119 L		QC Batch:	B6G0056	Date Extracted:	13-Jul-2016 9:21	
Date Collected:	06-Jul-2016 15:05					Date Analyzed:	14-Jul-16 15:00	Column:	BEH C18 Analyst: BSR	
Location:										
Analyte	Conc. (ng/L)	MDL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	1.88	4.20	8.41		IS	13C3-PFBS	79.1	60 - 150	
PFHpA	ND	0.621	4.20	8.41		IS	13C4-PFHpA	78.7	25 - 175	
PFHxS	ND	0.995	4.20	8.41		IS	18O2-PFHxS	76.9	60 - 150	
PFOA	ND	0.684	4.20	8.41		IS	13C2-PFOA	65.6	60 - 150	
PFOS	1.60	0.848	4.20	8.41	J	IS	13C8-PFOS	71.5	60 - 150	
PFNA	ND	0.851	4.20	8.41		IS	13C5-PFNA	70.4	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-FB070616							Modified EPA Method 537					
Client Data			Sample Data			Laboratory Data						
Name:	CH2M Hill		Matrix:	Aqueous		Lab Sample:	1600872-04		Date Received:	07-Jul-2016 8:55		
Project:	Fentress Phase II PFC Investigation		Sample Size:	0.128 L		QC Batch:	B6G0056		Date Extracted:	13-Jul-2016 9:21		
Date Collected:	06-Jul-2016 15:30					Date Analyzed:	14-Jul-16 15:12		Column:	BEH C18 Analyst: BSR		
Location:												
Analyte	Conc. (ng/L)	MDL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers		
PFBS	ND	1.75	3.91	7.81		IS	13C3-PFBS	93.2	60 - 150			
PFHpA	ND	0.577	3.91	7.81		IS	13C4-PFHpA	91.0	25 - 175			
PFHxS	ND	0.924	3.91	7.81		IS	18O2-PFHxS	85.8	60 - 150			
PFOA	ND	0.635	3.91	7.81		IS	13C2-PFOA	86.7	60 - 150			
PFOS	ND	0.788	3.91	7.81		IS	13C8-PFOS	83.5	60 - 150			
PFNA	ND	0.790	3.91	7.81		IS	13C5-PFNA	88.2	50 - 150			

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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

Temp 10.9 °C

☐ 14 days ☐ 7 days Specify:

Page 16 of 17

SAMPLE LOG-IN CHECKLIST



Vista Project #: 1600872 TAT Std

Samples Arrival:	Date/Time <u>7/7/16 0855</u>	Initials: <u>gr</u>	Location: <u>WR-2</u>
			Shelf/Rack: <u>N/A</u>
Logged In:	Date/Time <u>07/07/16 131419</u>	Initials: <u>UPB</u>	Location: <u>WR-2</u>
			Shelf/Rack: <u>F.4</u>
Delivered By:	<u>FedEx</u> <u>UPS</u>	On Trac	DHL
			Hand Delivered
Other			
Preservation:	<u>Ice</u>	Blue Ice	Dry Ice
			None
Temp °C: <u>-0.1</u> (uncorrected)	Time: <u>0930</u>		Thermometer ID: DT-2
Temp °C: <u>-0.9</u> (corrected)			

	YES	NO	NA
Adequate Sample Volume Received? <u>A/B</u>	☒		
Holding Time Acceptable?	☒		
Shipping Container(s) Intact?	☒		
Shipping Custody Seals Intact?	☒		
Shipping Documentation Present?	☒		
Airbill	☒		
Trk # <u>7835 2563 1395</u>			
Sample Container Intact?		☒	
Sample Custody Seals Intact?			☒
Chain of Custody / Sample Documentation Present?	☒		
COC Anomaly/Sample Acceptance Form completed?		☒	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			☒
Na ₂ S ₂ O ₃ Preservation Documented? <u>NA</u>			
COC			
Sample Container			
None			
Shipping Container	<u>Vista</u>	Client	<u>Retain</u>
		Return	Dispose

Comments:



July 21, 2016

Vista Work Order No. 1600872

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

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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.

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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.

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TABLE OF CONTENTS

Case Narrative.....	1
Table of Contents.....	3
Sample Inventory.....	4
Analytical Results.....	5
Qualifiers.....	12
Certifications.....	13
Sample Receipt.....	16
Extraction Information.....	18
Sample Data - Modified EPA Method 537.....	22
Continuing Calibration.....	65
Initial Calibration.....	73

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1600872-01	OF-MW28-0716	06-Jul-16 11:35	07-Jul-16 08:55	HDPE Bottle, 125 mL HDPE Bottle, 125 mL
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1600872-04	OF-FB070616	06-Jul-16 15:30	07-Jul-16 08:55	HDPE Bottle, 125 mL HDPE Bottle, 125 mL

ANALYTICAL RESULTS

Sample ID: Method Blank						Modified EPA Method 537			
Matrix: Aqueous Sample Size: 0.250 L		QC Batch: B6G0056 Date Extracted: 13-Jul-2016 9:21				Lab Sample: B6G0056-BLK1 Date Analyzed: 14-Jul-16 13:56 Column: BEH C18 Analyst: BSR			
Analyte	Conc. (ng/L)	MDL	LOD	LOQ	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
PFBS	ND	0.448	1.00	2.00		IS 13C3-PFBS	83.3	60 - 150	
PFHpA	ND	0.148	1.00	2.00		IS 13C4-PFHpA	90.4	25 - 175	
PFHxS	ND	0.237	1.00	2.00		IS 18O2-PFHxS	88.9	60 - 150	
PFOA	0.198	0.163	1.00	2.00	J	IS 13C2-PFOA	92.1	60 - 150	
PFOS	ND	0.202	1.00	2.00		IS 13C8-PFOS	81.1	60 - 150	
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PFHpA	41.4	40.0	103	70 - 130	IS	13C4-PFHpA	94.2	25 - 175
PFHxS	40.3	40.0	101	70 - 130	IS	18O2-PFHxS	85.5	60 - 150
PFOA	40.8	40.0	102	70 - 130	IS	13C2-PFOA	93.1	60 - 150
PFOS	46.6	40.0	116	70 - 130	IS	13C8-PFOS	93.6	60 - 150
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Location:										
Analyte	Conc. (ng/L)	MDL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	1.78	3.97	7.95	J	IS	13C3-PFBS	98.0	60 - 150	
PFHpA	ND	0.587	3.97	7.95		IS	13C4-PFHpA	89.7	25 - 175	
PFHxS	1.09	0.941	3.97	7.95		IS	18O2-PFHxS	87.7	60 - 150	
PFOA	ND	0.647	3.97	7.95		IS	13C2-PFOA	83.4	60 - 150	
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Name:	CH2M Hill		Matrix:	Aqueous		Lab Sample:	1600872-02		Date Received:	07-Jul-2016	8:55	
Project:	Fentress Phase II PFC Investigation		Sample Size:	0.121 L		QC Batch:	B6G0056		Date Extracted:	13-Jul-2016	9:21	
Date Collected:	06-Jul-2016 12:40					Date Analyzed:	14-Jul-16 14:47		Column:	BEH C18	Analyst: BSR	
Location:												
Analyte	Conc. (ng/L)	MDL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers		
PFBS	ND	1.85	4.13	8.28		IS	13C3-PFBS	85.5	60 - 150			
PFHpA	ND	0.612	4.13	8.28		IS	13C4-PFHpA	91.2	25 - 175			
PFHxS	4.85	0.980	4.13	8.28	J	IS	18O2-PFHxS	85.9	60 - 150			
PFOA	4.26	0.674	4.13	8.28	J, B	IS	13C2-PFOA	85.6	60 - 150			
PFOS	6.10	0.835	4.13	8.28	J	IS	13C8-PFOS	82.4	60 - 150			
PFNA	ND	0.838	4.13	8.28		IS	13C5-PFNA	85.1	50 - 150			

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Client Data			Sample Data			Laboratory Data				
Name:	CH2M Hill		Matrix:	Aqueous		Lab Sample:	1600872-03	Date Received:	07-Jul-2016 8:55	
Project:	Fentress Phase II PFC Investigation		Sample Size:	0.119 L		QC Batch:	B6G0056	Date Extracted:	13-Jul-2016 9:21	
Date Collected:	06-Jul-2016 15:05					Date Analyzed:	14-Jul-16 15:00	Column:	BEH C18 Analyst: BSR	
Location:										
Analyte	Conc. (ng/L)	MDL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	1.88	4.20	8.41		IS	13C3-PFBS	79.1	60 - 150	
PFHpA	ND	0.621	4.20	8.41		IS	13C4-PFHpA	78.7	25 - 175	
PFHxS	ND	0.995	4.20	8.41		IS	18O2-PFHxS	76.9	60 - 150	
PFOA	ND	0.684	4.20	8.41		IS	13C2-PFOA	65.6	60 - 150	
PFOS	1.60	0.848	4.20	8.41	J	IS	13C8-PFOS	71.5	60 - 150	
PFNA	ND	0.851	4.20	8.41		IS	13C5-PFNA	70.4	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-FB070616						Modified EPA Method 537				
Client Data			Sample Data			Laboratory Data				
Name:	CH2M Hill		Matrix:	Aqueous		Lab Sample:	1600872-04		Date Received:	07-Jul-2016 8:55
Project:	Fentress Phase II PFC Investigation		Sample Size:	0.128 L		QC Batch:	B6G0056		Date Extracted:	13-Jul-2016 9:21
Date Collected:	06-Jul-2016 15:30					Date Analyzed:	14-Jul-16 15:12 Column: BEH C18 Analyst: BSR			
Location:										
Analyte	Conc. (ng/L)	MDL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	1.75	3.91	7.81		IS	13C3-PFBS	93.2	60 - 150	
PFHpA	ND	0.577	3.91	7.81		IS	13C4-PFHpA	91.0	25 - 175	
PFHxS	ND	0.924	3.91	7.81		IS	18O2-PFHxS	85.8	60 - 150	
PFOA	ND	0.635	3.91	7.81		IS	13C2-PFOA	86.7	60 - 150	
PFOS	ND	0.788	3.91	7.81		IS	13C8-PFOS	83.5	60 - 150	
PFNA	ND	0.790	3.91	7.81		IS	13C5-PFNA	88.2	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

SAMPLE LOG-IN CHECKLIST



Vista Project #: 1600872 TAT Std

Samples Arrival:	Date/Time <u>7/7/16 0855</u>	Initials: <u>gr</u>	Location: <u>WR-2</u>
			Shelf/Rack: <u>N/A</u>
Logged In:	Date/Time <u>07/07/16 131419</u>	Initials: <u>UPB</u>	Location: <u>WR-2</u>
			Shelf/Rack: <u>F.4</u>
Delivered By:	<u>FedEx</u> <u>UPS</u>	On Trac	DHL
		Hand Delivered	Other
Preservation:	<u>Ice</u>	Blue Ice	Dry Ice
			None
Temp °C: <u>-0.1</u> (uncorrected)	Time: <u>0930</u>		Thermometer ID: DT-2
Temp °C: <u>-0.9</u> (corrected)			

	YES	NO	NA
Adequate Sample Volume Received? <u>A/B</u>	☒		
Holding Time Acceptable?	☒		
Shipping Container(s) Intact?	☒		
Shipping Custody Seals Intact?	☒		
Shipping Documentation Present?	☒		
Airbill Trk # <u>7835 2563 1395</u>	☒		
Sample Container Intact?		☒	
Sample Custody Seals Intact?			☒
Chain of Custody / Sample Documentation Present?	☒		
COC Anomaly/Sample Acceptance Form completed?		☒	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			☒
Na ₂ S ₂ O ₃ Preservation Documented? <u>NA</u>	COC	Sample Container	None
Shipping Container	<u>Vista</u>	Client	<u>Retain</u>
	Return	Dispose	

Comments:

EXTRACTION INFORMATION

Process Sheet
Workorder: 1600872

RX

Prep Expiration: 07/20/2016
Client: CH2M Hill

Workorder Due: 21-Jul-16 00:00

TAT: 14

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

Prep Batch: B6G0056

Prep Data Entered: 7/14/16 NK
Date and Initials

Initial Sequence: SG0021G

LabSampleID	Recon	ClientSampleID	Date Received	Location	Comments
1600872-01	☒	OF-MW28-0716	07-Jul-16 08:55	WR-2 F-6	
1600872-02	☒	OF-MW25-0716	07-Jul-16 08:55	WR-2 F-6	
1600872-03	☒	OF-MW31-0716 "OF-MW315-0716"	07-Jul-16 08:55	WR-2 F-6	
1600872-04	☒	OF-FB070616	07-Jul-16 08:55	WR-2 F-6	

WO Comments: List of 6, include Total PFOA.

Vista PM: Martha Maier

Vial Box ID: 4th

Sample Reconciled By: N. King 7/13/16

Page 1 of 1

Balance ID: N/A

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: (A) Samples adjusted pH 2 with 5 drops HCl (A) Samples adjusted pH 2 with 3 drops HCl (C) Samples adjusted pH 2 with 2 drops HCl. NK 7/16/16 • Methods 8280, 613, 1613, 8290, 1614 - pH < 9 • Methods 1668/PCN - pH 2-3 • NCASI 551 - pH 1
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PREPARATION BENCH SHEET

Matrix: Aqueous

Method: 537 PFAS 6 Analyte List

Method: 537 PFAS 6 DOD (LOO as mR

B6G0056

Chemist:

N. King

Prep Date/Time: 13-Jul-16 09:21

Prepared using: LCMS - SPE Extraction-LCMS

						B6G0055	
C	VISTA Sample ID	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	IS/NS CHEM/WIT DATE	SPE	RS CHEM/WIT DATE
☐	B6G0056-BLK1 (B)	N/A	N/A	(0.250)	NK am 7/13/16	NK 7/13/16	NK am 7/13/16
☐	B6G0056-BS1 (B)			(0.250)			
☐	B6G0056-MS1 1600869-01RE1 (B)	311.82	26.67	0.28515			
☐	B6G0056-MSD1 1600869-01RE1 (B)	314.81	27.49	0.28732			
☐	1600869-01RE1 (B)	314.75	26.86	0.28789			
☐	1600869-01RE3						
☐	1600869-02RE1 (B)	314.77	26.60	0.28817	NK am 7/13/16	NK 7/13/16	NK am 7/13/16
☐	1600872-01RE1 (C)	153.05	27.26	0.12579			
☐	1600872-02RE1 (C)	147.90	27.10	0.12080			
☐	1600872-03RE1 (A)(C)	146.14	27.21	0.11893			
☐	1600872-04RE1 (C)	155.37	27.28	0.12809			

(A) Sample slowly eluted through SPE cartridge. Sample took ~90 minutes longer than other samples to go through cartridge. NK 7/13/16

IS Name (V2) 16E0520, 10 μ L	NS Name (V2) 16E0701, 10 μ L	RS Name (V3) 16F0203, 10 μ L	SPE Chem: Strata XA 33 μ m 200mg/6mL Elu SOLV: 0.5% NH ₄ OH in MeOH + MeOH Final Volume(s): 500 μ L, 1 mL NK 7/13/16 (A)(B)	Check Out: NK 7/13/16 Check In: Empty Chemist/Date: NK 7/13/16 Balance ID: HEMS-9
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Comments: Assume 1 g = 1 mL

SAMPLE DATA – MODIFIED EPA METHOD 537

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_16.qld

Last Altered: Friday, July 15, 2016 09:24:36 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:24:42 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: B6G0056-BLK1 Method Blank 0.125, Description: Method Blank, Name: 160714G3_16, Date: 14-Jul-2016, Time: 13:56:57

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	299 > 79.7		1.001e4		0.250			
2	2 PFHpA	363 > 318.9		3.510e4		0.250			
3	3 PFHxS	398.9 > 79.6	4.398e1	9.865e3		0.250	4.04	0.189	
4	4 PFOA	413 > 368.7	1.344e2	4.713e4		0.250	4.32	0.198	
5	5 PFOS	499 > 79.9	1.885e1	1.252e4		0.250	4.66	0.189	
6	6 PFNA	463 > 418.8		1.864e4		0.250			
7	7 13C3-PFBS	302.0 > 98.8	1.001e4	6.205e4	0.194	0.250	3.04	41.7	83.3
8	8 13C4-PFHpA	367.2 > 321.8	3.510e4	6.205e4	0.625	0.250	3.90	45.2	90.4
9	9 18O2-PFHxS	403 > 102.6	9.865e3	2.131e4	0.521	0.250	4.03	44.4	88.9
10	10 13C2-PFOA	414.9 > 369.7	4.713e4	2.593e4	1.973	0.250	4.32	46.1	92.1
11	11 13C8-PFOS	507 > 79.9	1.252e4	1.559e4	0.990	0.250	4.74	40.6	81.1
12	12 13C5-PFNA	468.2 > 422.9	1.864e4	2.497e4	0.858	0.250	4.68	43.5	87.0
13	13 13C5-PFHxA	318.0 > 272.9	6.205e4	6.205e4	1.000	0.250	3.39	50.0	100
14	14 13C3-PFHxS	401.9 > 79.9	2.131e4	2.131e4	1.000	0.250	4.03	50.0	100
15	15 13C8-PFOA	421.3 > 376	2.593e4	2.593e4	1.000	0.250	4.32	50.0	100
16	16 13C4-PFOS	503 > 79.9	1.559e4	1.559e4	1.000	0.250	4.74	50.0	100
17	17 13C9-PFNA	472.2 > 426.9	2.497e4	2.497e4	1.000	0.250	4.68	50.0	100
18	18 Total PFBS	299 > 79.7		1.001e4		0.250			
19	19 Total PFHxS	398.9 > 79.6		9.865e3		0.250		0.189	
20	20 Total PFOA	413 > 368.7		4.713e4		0.250		0.198	
21	21 Total PFOS	499 > 79.9		1.252e4		0.250		0.189	

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_16.qld

Last Altered: Friday, July 15, 2016 09:24:36 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:24:42 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: B6G0056-BLK1 Method Blank 0.125, Description: Method Blank, Name: 160714G3_16, Date: 14-Jul-2016, Time: 13:56:57

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	4.04	43.980	9864.500	0.2

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	4 PFOA	413 > 368.7	4.32	134.411	47130.926	0.2

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	5 PFOS	499 > 79.9	4.66	18.854	12520.267	0.2

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_16.qld

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Printed: Friday, July 15, 2016 09:24:42 Pacific Daylight Time

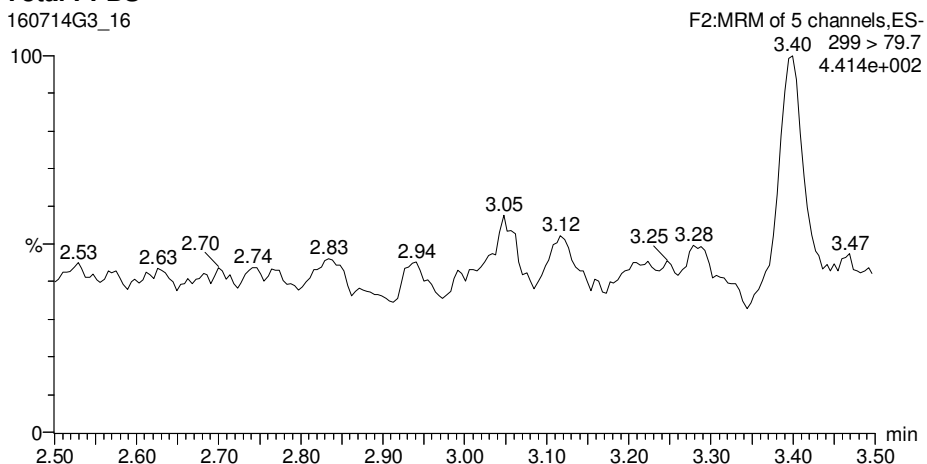
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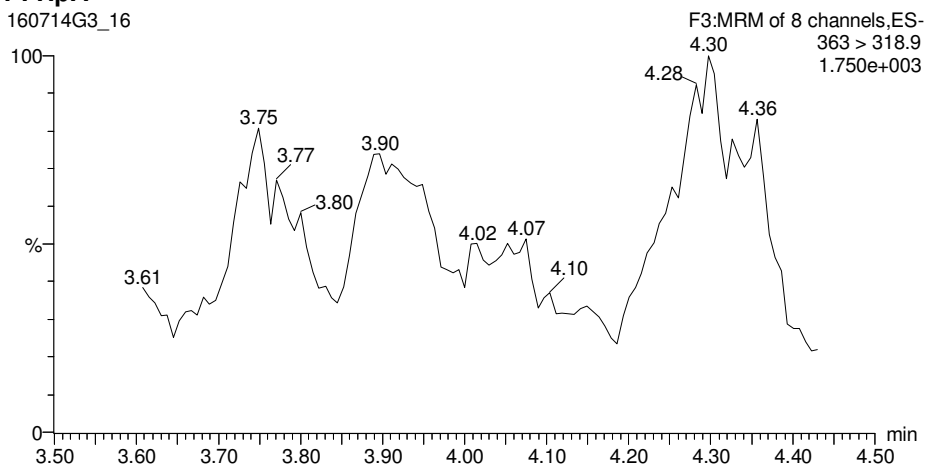
Total PFBS

160714G3_16



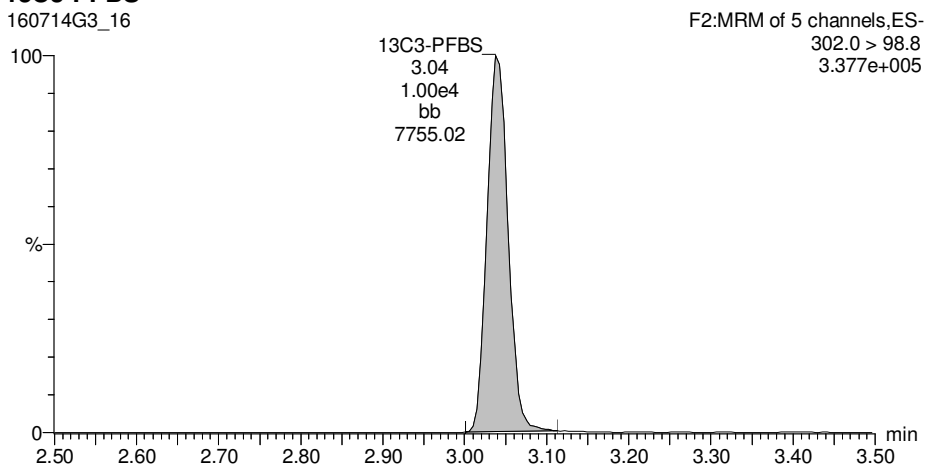
PFHpA

160714G3_16



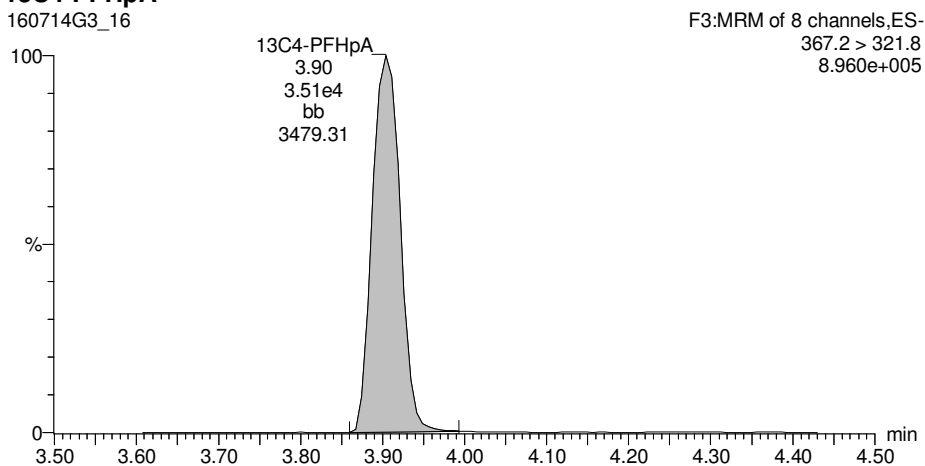
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160714G3_16



13C4-PFHpA

160714G3_16

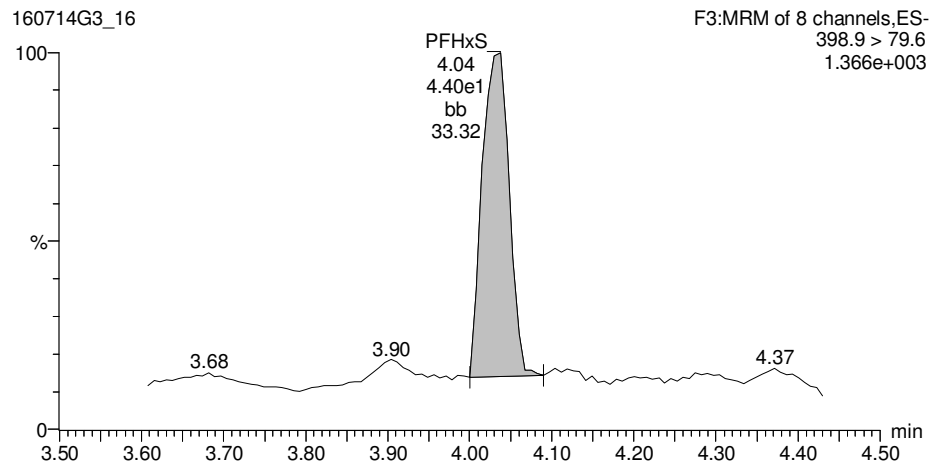


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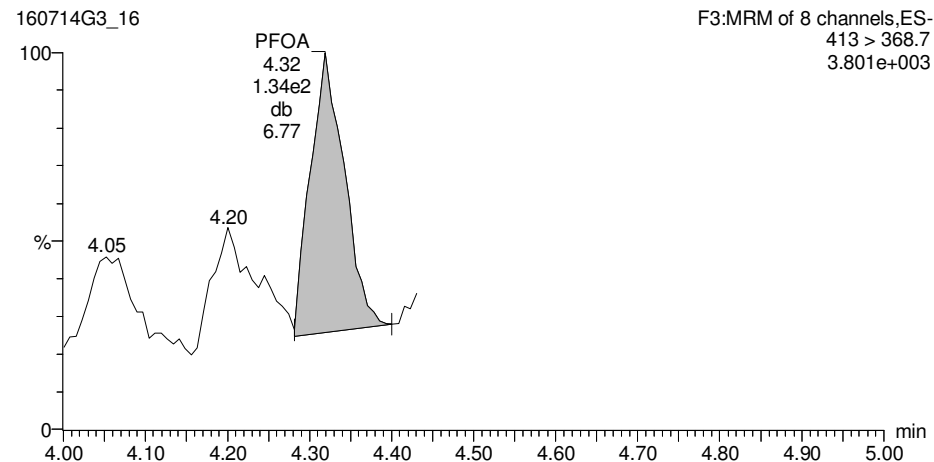
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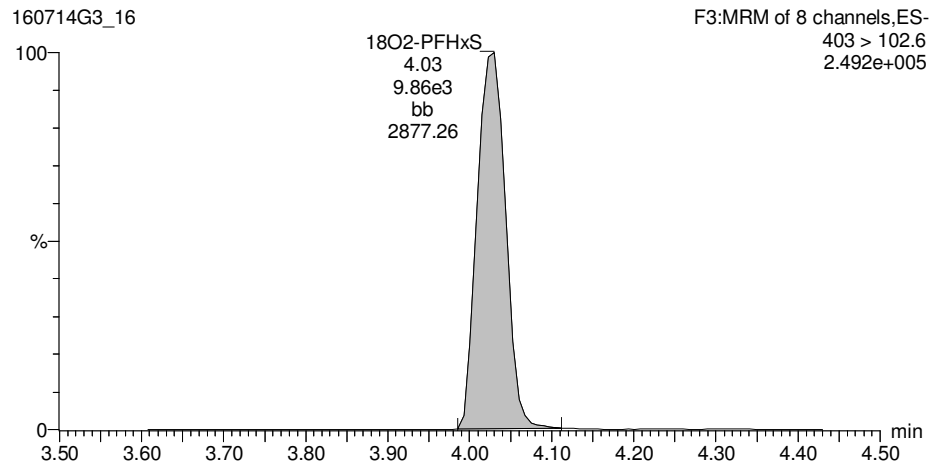
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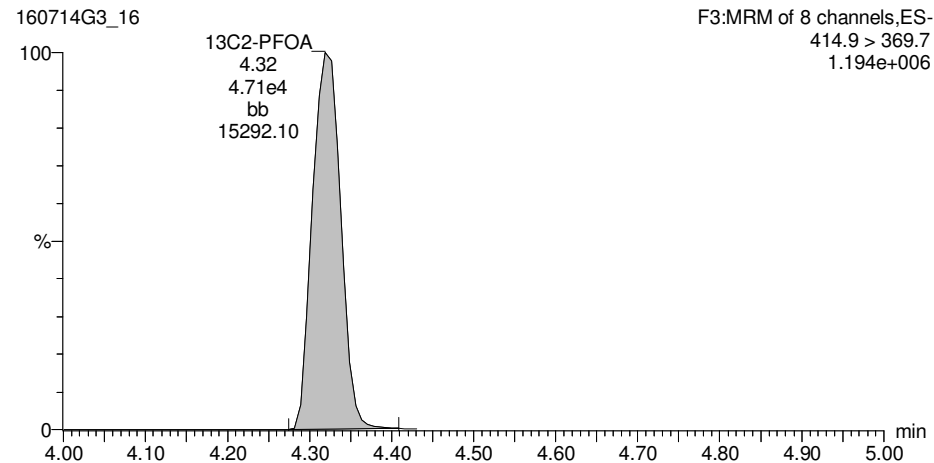
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18O2-PFHxS



13C2-PFOA



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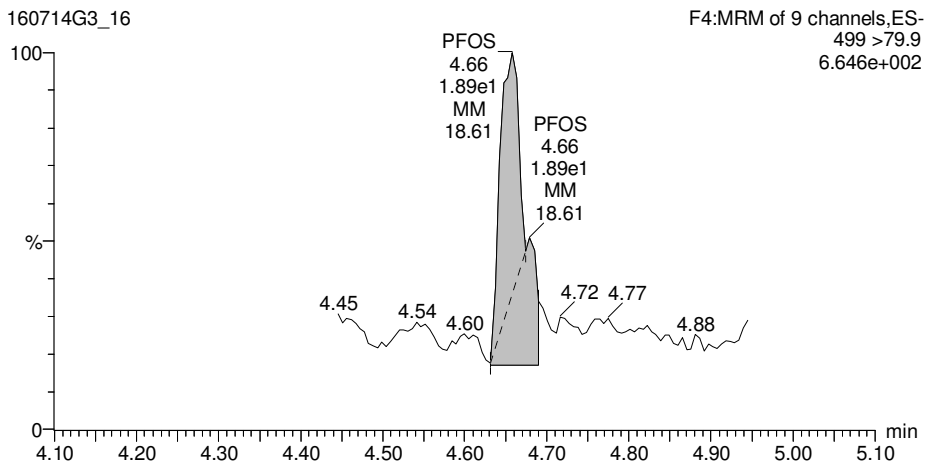
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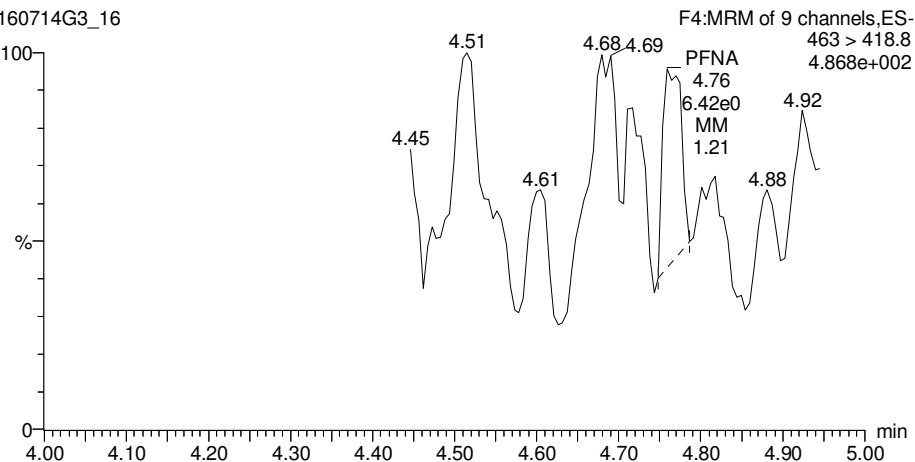
Total PFOS

160714G3_16



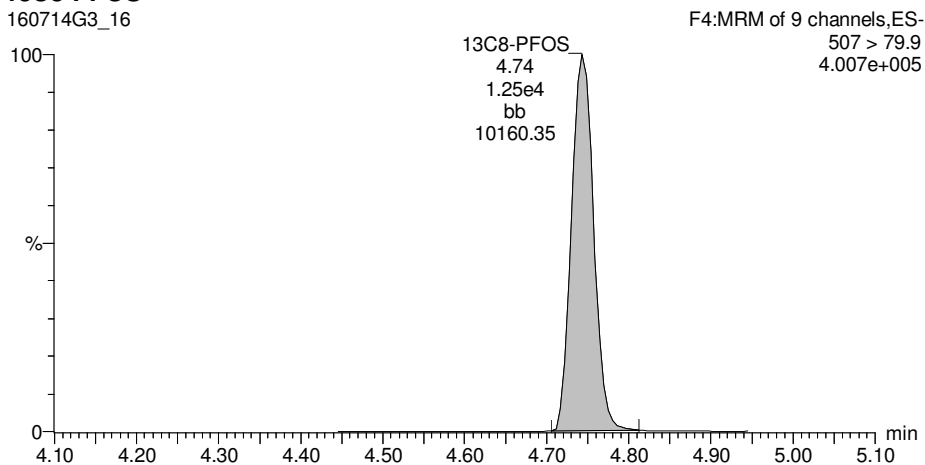
PFNA

160714G3_16



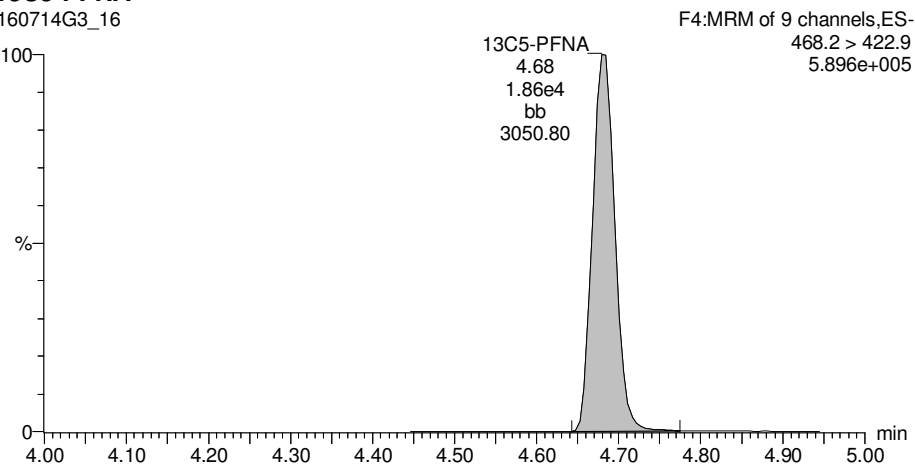
13C8-PFOS

160714G3_16



13C5-PFNA

160714G3_16



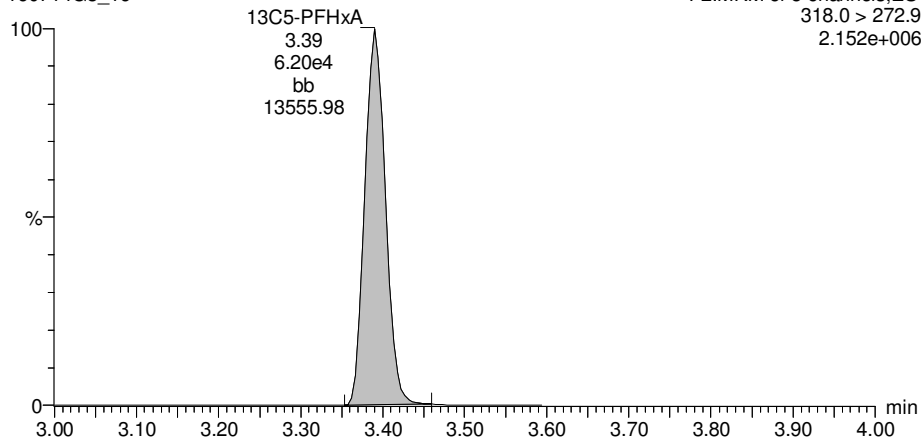
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Printed: Friday, July 15, 2016 09:24:42 Pacific Daylight Time

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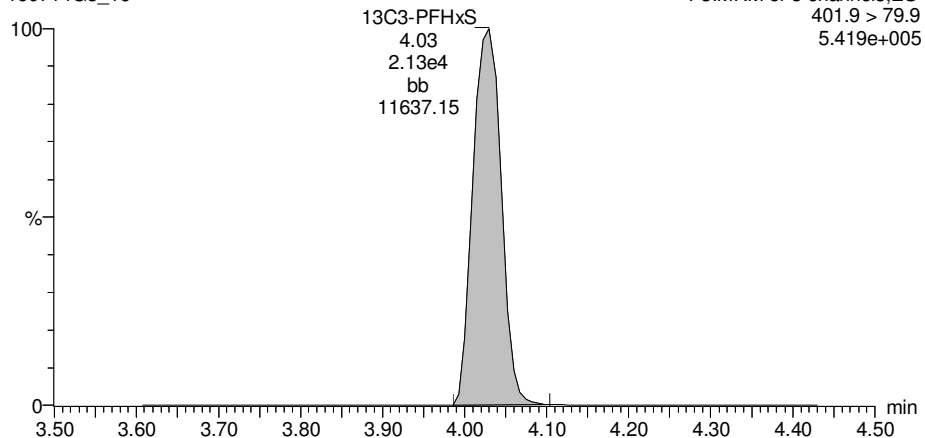
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160714G3_16



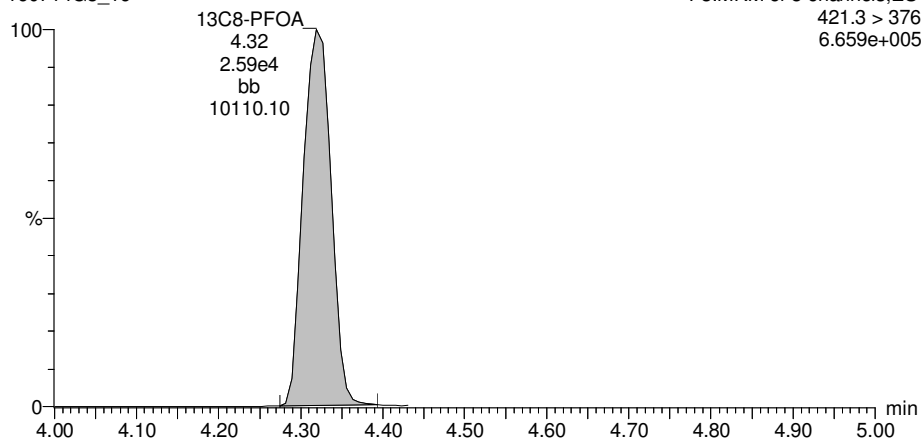
13C3-PFHxS

160714G3_16



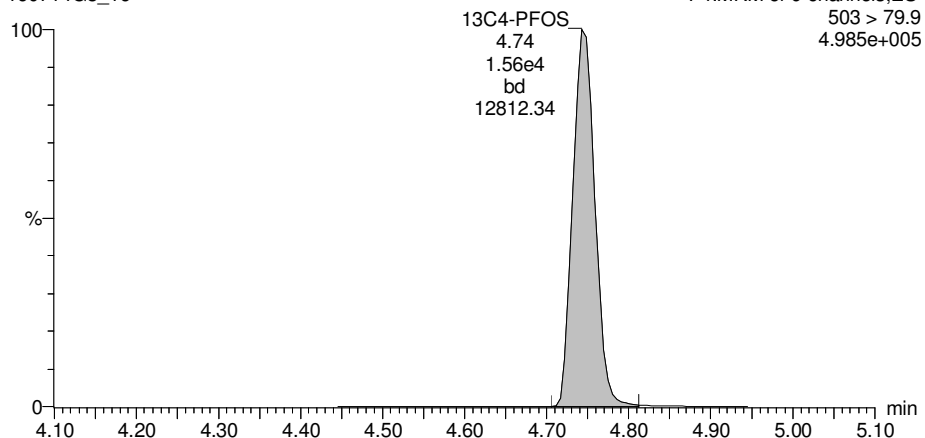
13C8-PFOA

160714G3_16



13C4-PFOS

160714G3_16



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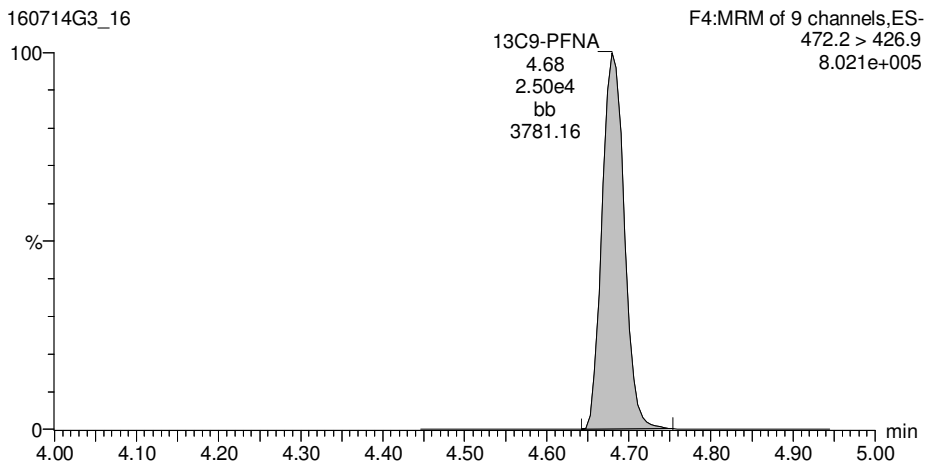
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ID: B6G0056-BLK1 Method Blank 0.125, Description: Method Blank, Name: 160714G3_16, Date: 14-Jul-2016, Time: 13:56:57, Instrument: , Lab: , User:

13C9-PFNA

160714G3_16



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Printed: Friday, July 15, 2016 08:47:16 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: B6G0056-BS1 OPR 0.125, Description: OPR, Name: 160714G3_14, Date: 14-Jul-2016, Time: 13:31:38

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	299 > 79.7	1.036e4	9.386e3		0.250	3.04	39.1	97.7
2	2 PFHpA	363 > 318.9	3.139e4	2.900e4		0.250	3.90	41.4	103
3	3 PFHxS	398.9 > 79.6	7.593e3	8.011e3		0.250	4.03	40.3	101
4	4 PFOA	413 > 368.7	2.142e4	3.668e4		0.250	4.33	40.8	102
5	5 PFOS	499 > 79.9	3.596e3	9.718e3		0.250	4.75	46.6	116
6	6 PFNA	463 > 418.8	1.273e4	1.449e4		0.250	4.68	41.4	103
7	7 13C3-PFBS	302.0 > 98.8	9.386e3	4.921e4	0.194	0.250	3.04	49.2	98.4
8	8 13C4-PFHpA	367.2 > 321.8	2.900e4	4.921e4	0.625	0.250	3.90	47.1	94.2
9	9 18O2-PFHxS	403 > 102.6	8.011e3	1.799e4	0.521	0.250	4.03	42.8	85.5
10	10 13C2-PFOA	414.9 > 369.7	3.668e4	1.996e4	1.973	0.250	4.32	46.6	93.1
11	11 13C8-PFOS	507 > 79.9	9.718e3	1.049e4	0.990	0.250	4.74	46.8	93.6
12	12 13C5-PFNA	468.2 > 422.9	1.449e4	1.906e4	0.858	0.250	4.68	44.3	88.6
13	13 13C5-PFHxA	318.0 > 272.9	4.921e4	4.921e4	1.000	0.250	3.39	50.0	100
14	14 13C3-PFHxS	401.9 > 79.9	1.799e4	1.799e4	1.000	0.250	4.03	50.0	100
15	15 13C8-PFOA	421.3 > 376	1.996e4	1.996e4	1.000	0.250	4.32	50.0	100
16	16 13C4-PFOS	503 > 79.9	1.049e4	1.049e4	1.000	0.250	4.75	50.0	100
17	17 13C9-PFNA	472.2 > 426.9	1.906e4	1.906e4	1.000	0.250	4.68	50.0	100

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_14.qld

Last Altered: Friday, July 15, 2016 08:46:43 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:47:16 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: B6G0056-BS1 OPR 0.125, Description: OPR, Name: 160714G3_14, Date: 14-Jul-2016, Time: 13:31:38

Total PFBS

	# Name	Trace	RT	Area	IS Area	Conc.
1	1 PFBS	299 > 79.7	3.04	10361.402	9385.883	39.1

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	3 PFHxS	398.9 > 79.6	4.03	7593.186	8011.185	40.3

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	4 PFOA	413 > 368.7	4.33	21422.775	36682.738	40.8

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	5 PFOS	499 > 79.9	4.75	3595.895	9718.391	46.6

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_14.qld

Last Altered: Friday, July 15, 2016 08:46:43 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:47:16 Pacific Daylight Time

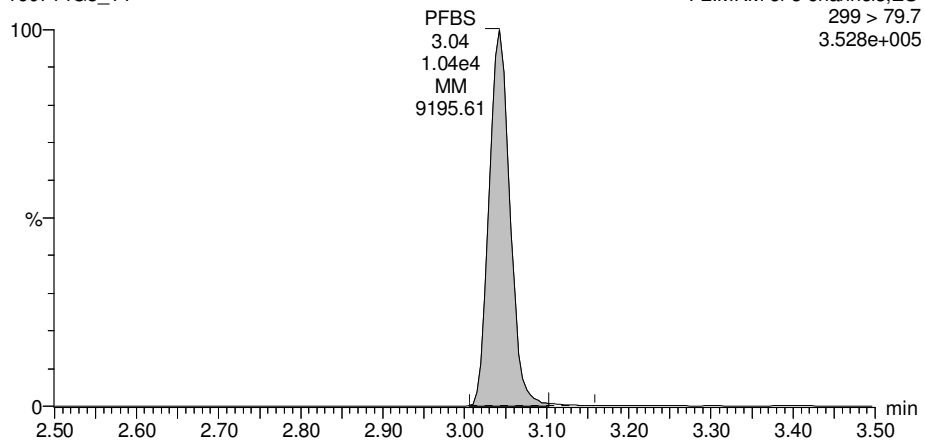
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ID: B6G0056-BS1 OPR 0.125, Description: OPR, Name: 160714G3_14, Date: 14-Jul-2016, Time: 13:31:38, Instrument: , Lab: , User:

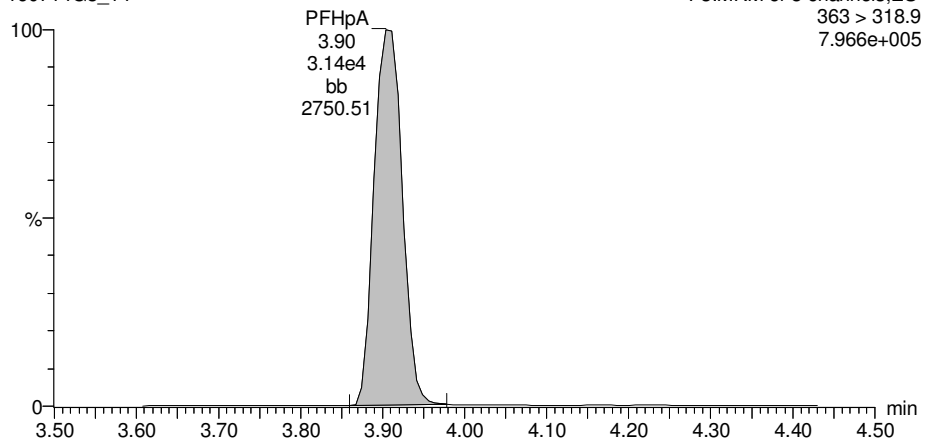
Total PFBS

160714G3_14



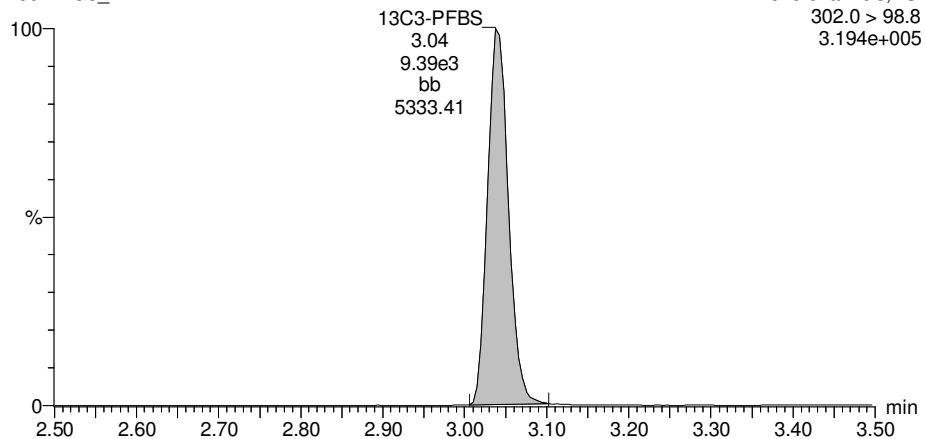
PFHpA

160714G3_14



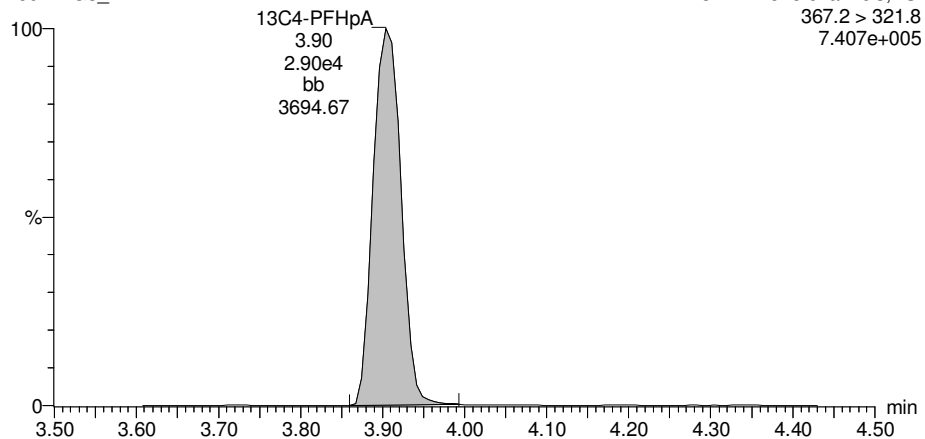
13C3-PFBS

160714G3_14



13C4-PFHpA

160714G3_14



Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_14.qld

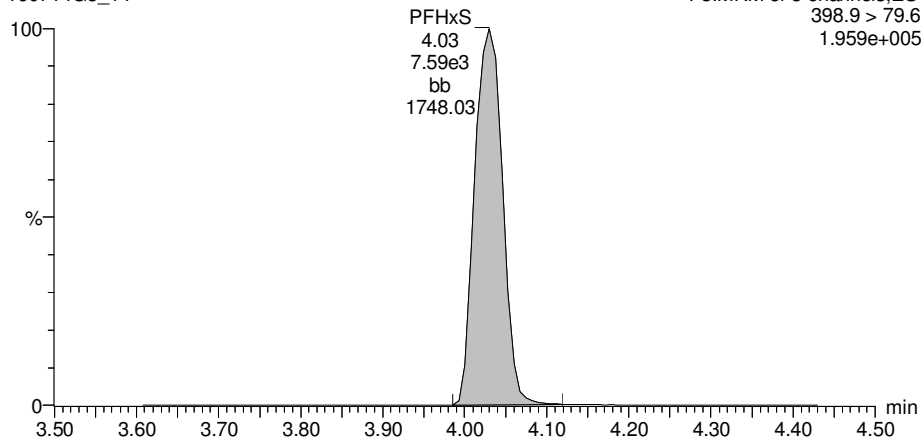
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Printed: Friday, July 15, 2016 08:47:16 Pacific Daylight Time

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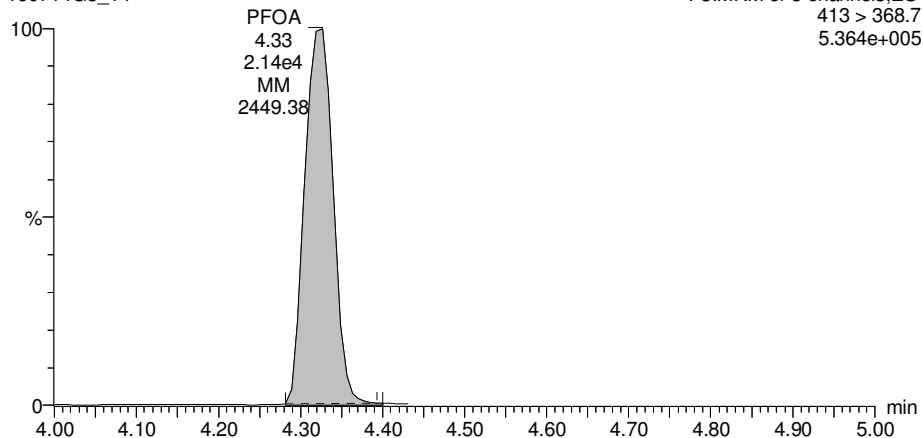
Total PFHxS

160714G3_14



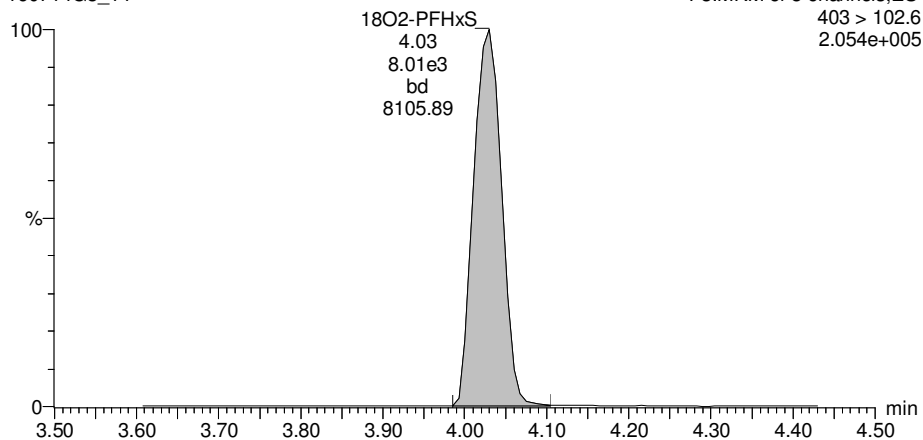
Total PFOA

160714G3_14



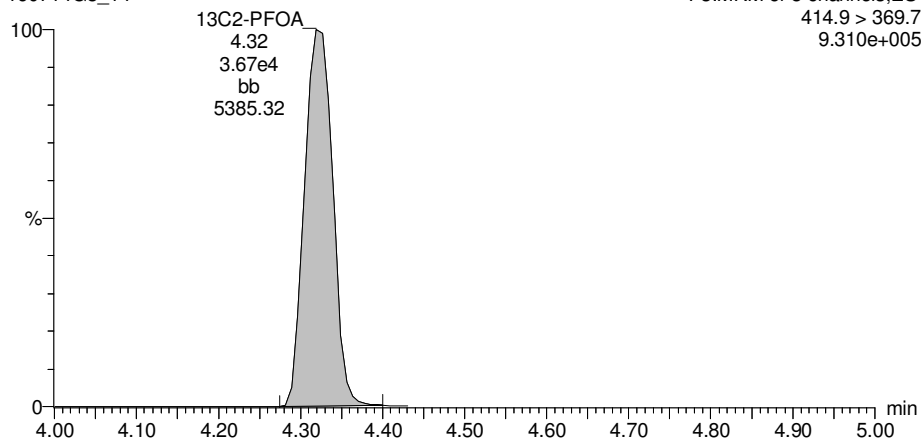
18O2-PFHxS

160714G3_14



13C2-PFOA

160714G3_14



Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_14.qld

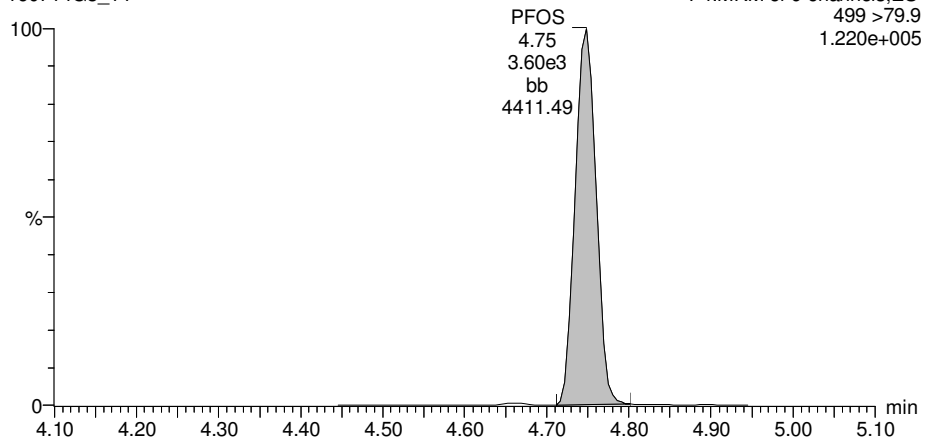
Last Altered: Friday, July 15, 2016 08:46:43 Pacific Daylight Time

Printed: Friday, July 15, 2016 08:47:16 Pacific Daylight Time

ID: B6G0056-BS1 OPR 0.125, Description: OPR, Name: 160714G3_14, Date: 14-Jul-2016, Time: 13:31:38, Instrument: , Lab: , User:

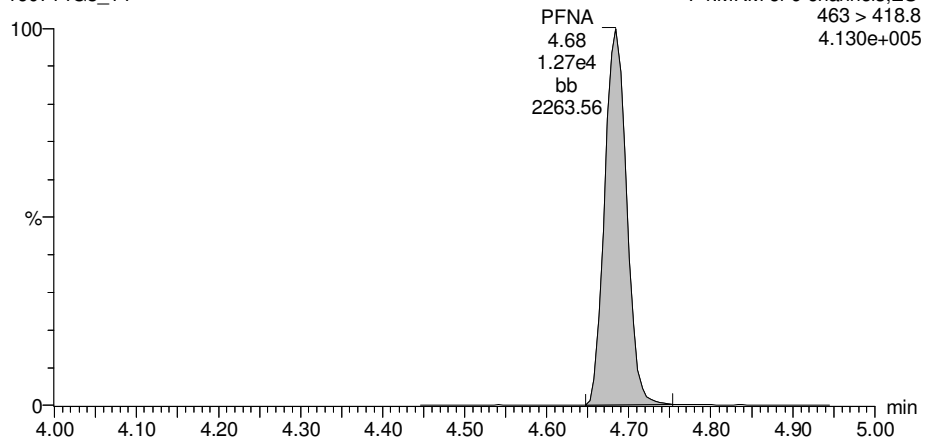
Total PFOS

160714G3_14



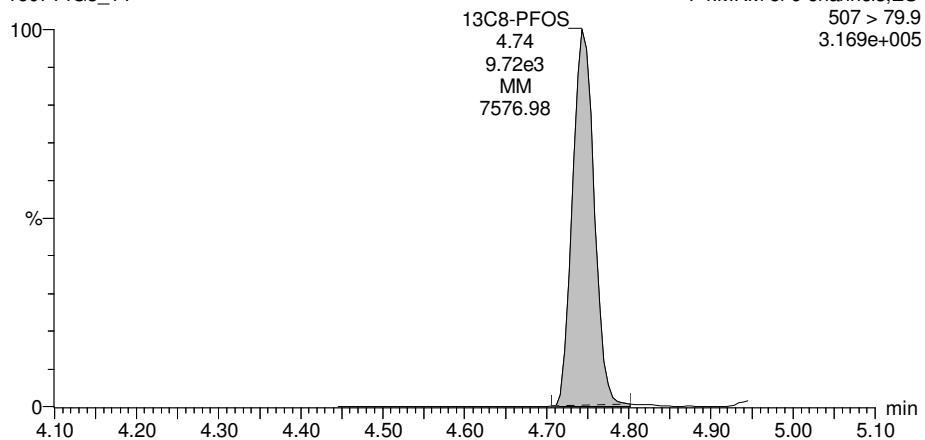
PFNA

160714G3_14



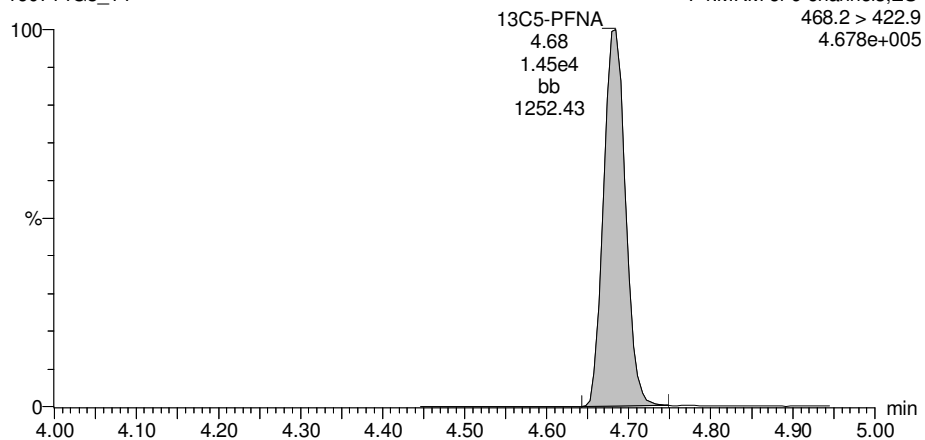
13C8-PFOS

160714G3_14



13C5-PFNA

160714G3_14



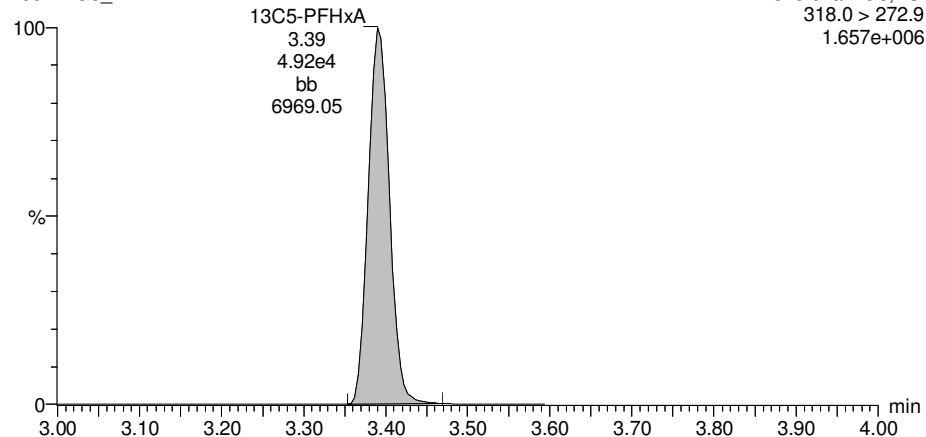
Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_14.qld

Last Altered: Friday, July 15, 2016 08:46:43 Pacific Daylight Time
Printed: Friday, July 15, 2016 08:47:16 Pacific Daylight Time

ID: B6G0056-BS1 OPR 0.125, Description: OPR, Name: 160714G3_14, Date: 14-Jul-2016, Time: 13:31:38, Instrument: , Lab: , User:

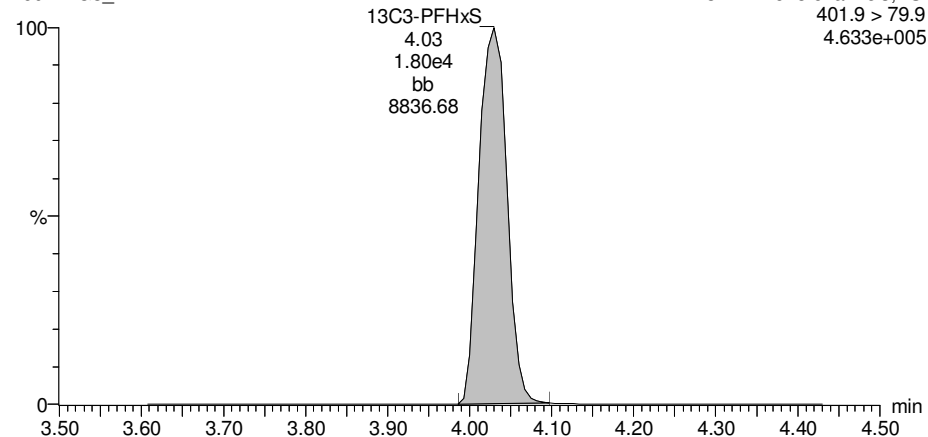
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160714G3_14



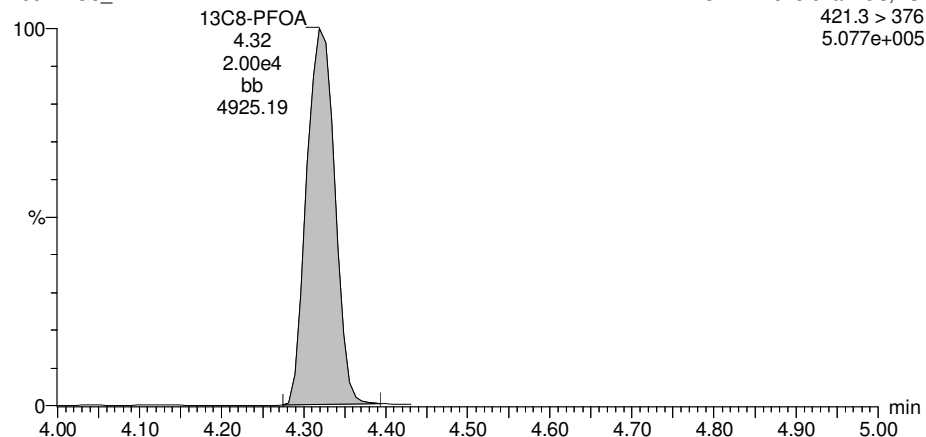
13C3-PFHxS

160714G3_14



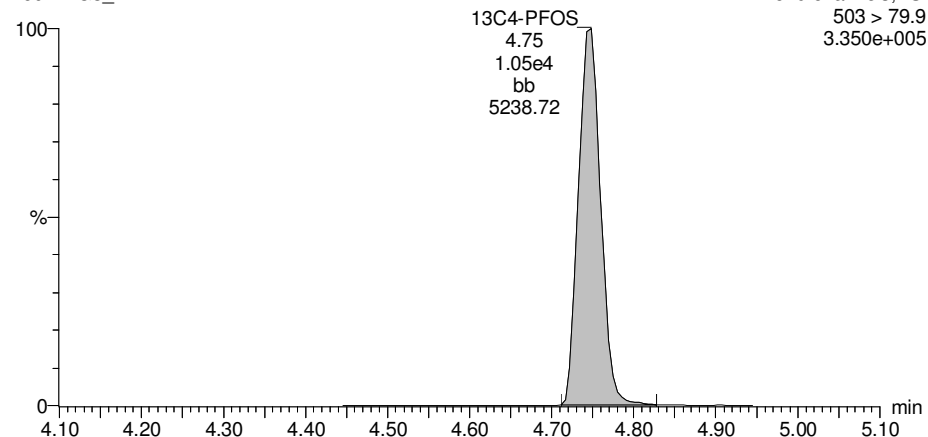
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160714G3_14



13C4-PFOS

160714G3_14



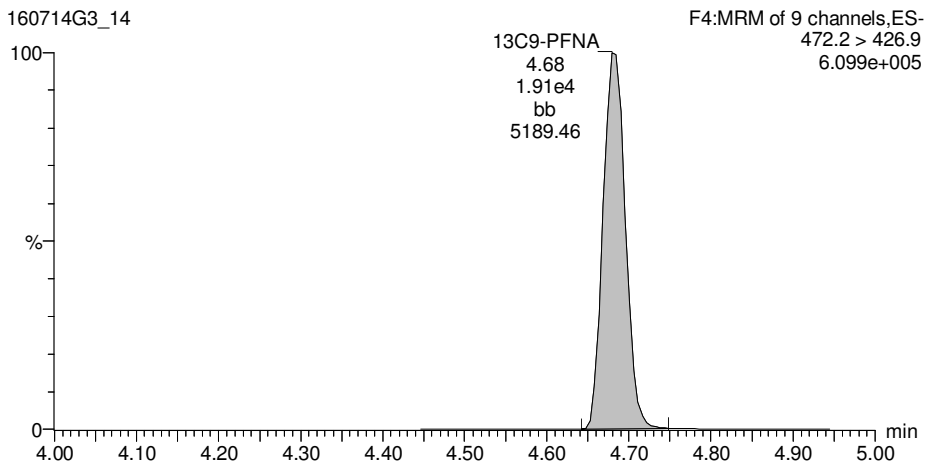
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Last Altered: Friday, July 15, 2016 08:46:43 Pacific Daylight Time
Printed: Friday, July 15, 2016 08:47:16 Pacific Daylight Time

ID: B6G0056-BS1 OPR 0.125, Description: OPR, Name: 160714G3_14, Date: 14-Jul-2016, Time: 13:31:38, Instrument: , Lab: , User:

13C9-PFNA

160714G3_14



Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_19.qld

Last Altered: Friday, July 15, 2016 09:09:25 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:09:32 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: 1600872-01RE1 OF-MW28-0716 0.12231, Description: OF-MW28-0716, Name: 160714G3_19, Date: 14-Jul-2016, Time: 14:34:53

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	299 > 79.7	1.157e1	5.927e3		0.126	3.04	0.138	
2	2 PFHpA	363 > 318.9		1.753e4		0.126			
3	3 PFHxS	398.9 > 79.6	4.332e1	5.184e3		0.126	4.03	0.705	
4	4 PFOA	413 > 368.7	6.966e1	2.228e4		0.126	4.33	0.432	
5	5 PFOS	499 > 79.9	1.880e1	6.667e3		0.126	4.66	0.703	
6	6 PFNA	463 > 418.8		8.643e3		0.126			
7	7 13C3-PFBS	302.0 > 98.8	5.927e3	3.122e4	0.194	0.126	3.04	97.4	98.0
8	8 13C4-PFHpA	367.2 > 321.8	1.753e4	3.122e4	0.625	0.126	3.90	89.2	89.7
9	9 18O2-PFHxS	403 > 102.6	5.184e3	1.135e4	0.521	0.126	4.02	87.1	87.7
10	10 13C2-PFOA	414.9 > 369.7	2.228e4	1.353e4	1.973	0.126	4.32	82.9	83.4
11	11 13C8-PFOS	507 > 79.9	6.667e3	7.204e3	0.990	0.126	4.74	92.9	93.5
12	12 13C5-PFNA	468.2 > 422.9	8.643e3	1.162e4	0.858	0.126	4.68	86.2	86.7
13	13 13C5-PFHxA	318.0 > 272.9	3.122e4	3.122e4	1.000	0.126	3.39	99.4	100
14	14 13C3-PFHxS	401.9 > 79.9	1.135e4	1.135e4	1.000	0.126	4.02	99.4	100
15	15 13C8-PFOA	421.3 > 376	1.353e4	1.353e4	1.000	0.126	4.32	99.4	100
16	16 13C4-PFOS	503 > 79.9	7.204e3	7.204e3	1.000	0.126	4.74	99.4	100
17	17 13C9-PFNA	472.2 > 426.9	1.162e4	1.162e4	1.000	0.126	4.68	99.4	100
18	18 Total PFBS	299 > 79.7		5.927e3		0.126		0.138	
19	19 Total PFHxS	398.9 > 79.6		5.184e3		0.126		1.09	
20	20 Total PFOA	413 > 368.7		2.228e4		0.126		0.432	
21	21 Total PFOS	499 > 79.9		6.667e3		0.126		0.703	

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_19.qld

Last Altered: Friday, July 15, 2016 09:09:25 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:09:32 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: 1600872-01RE1 OF-MW28-0716 0.12231, Description: OF-MW28-0716, Name: 160714G3_19, Date: 14-Jul-2016, Time: 14:34:53

Total PFBS

	# Name	Trace	RT	Area	IS Area	Conc.
1	1 PFBS	299 > 79.7	3.04	11.567	5926.670	0.1

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	3 PFHxS	398.9 > 79.6	4.03	43.319	5184.421	0.7
2	19 Total PFHxS	398.9 > 79.6	3.90	5.624	5184.421	0.1
3	19 Total PFHxS	398.9 > 79.6	3.82	11.095	5184.421	0.2
4	19 Total PFHxS	398.9 > 79.6	3.74	6.953	5184.421	0.1

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	4 PFOA	413 > 368.7	4.33	69.657	22278.002	0.4

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	5 PFOS	499 > 79.9	4.66	18.803	6667.444	0.7

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_19.qld

Last Altered: Friday, July 15, 2016 09:09:25 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:09:32 Pacific Daylight Time

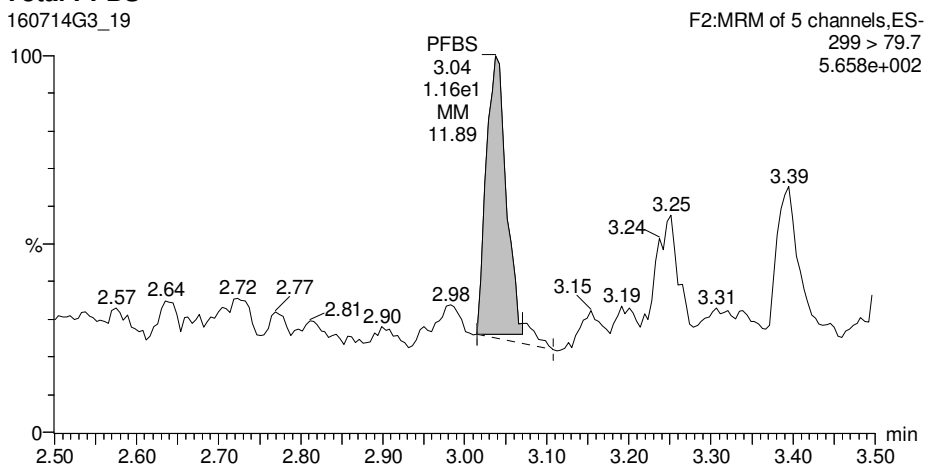
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Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

ID: 1600872-01RE1 OF-MW28-0716 0.12231, Description: OF-MW28-0716, Name: 160714G3_19, Date: 14-Jul-2016, Time: 14:34:53, Instrument: , Lab: , User:

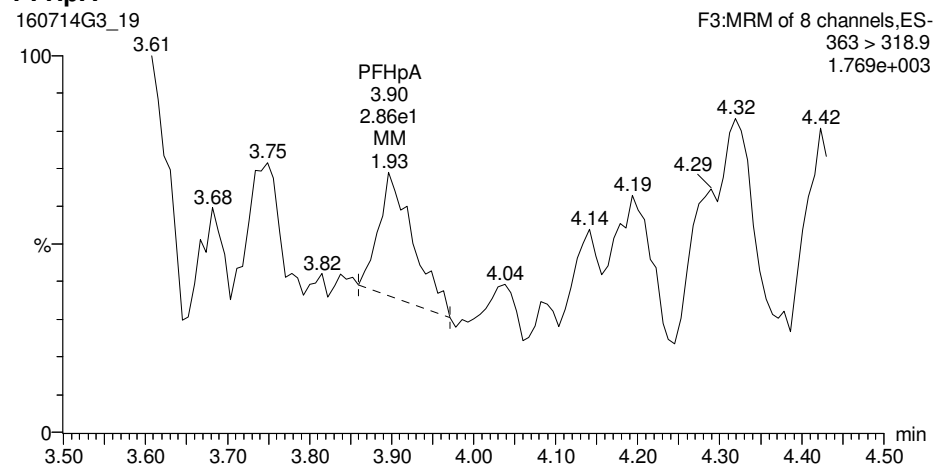
Total PFBS

160714G3_19



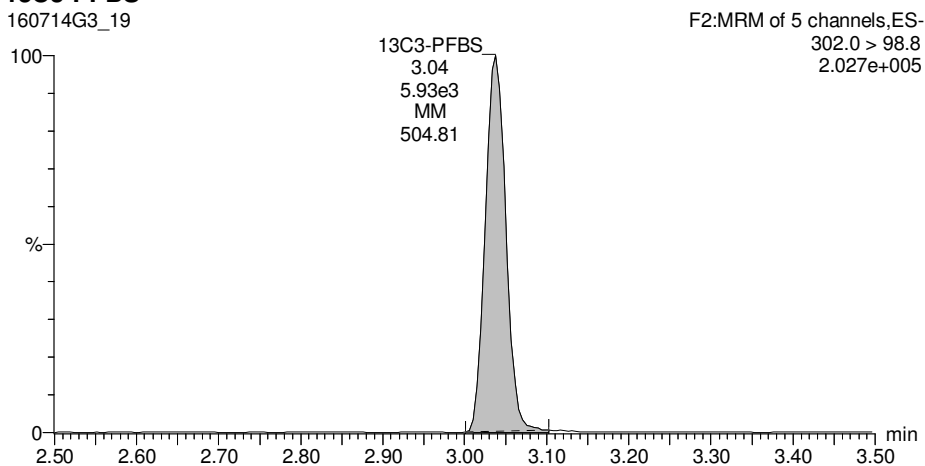
PFHpA

160714G3_19



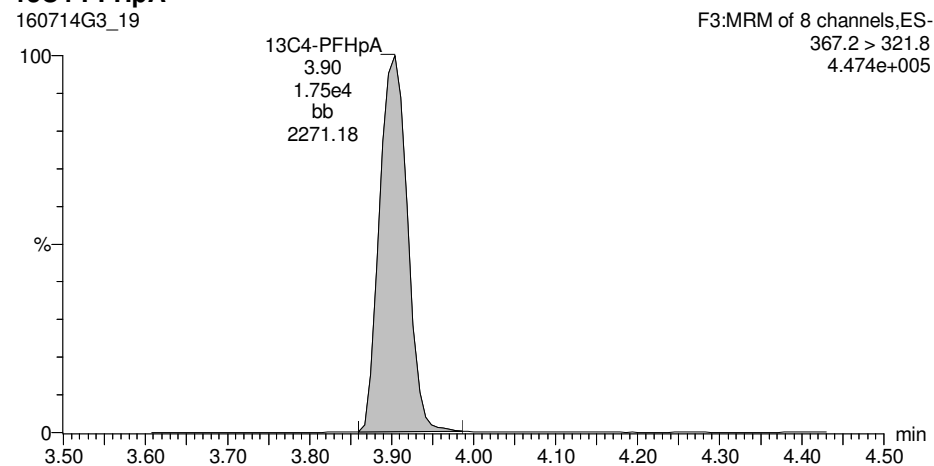
13C3-PFBS

160714G3_19



13C4-PFHpA

160714G3_19

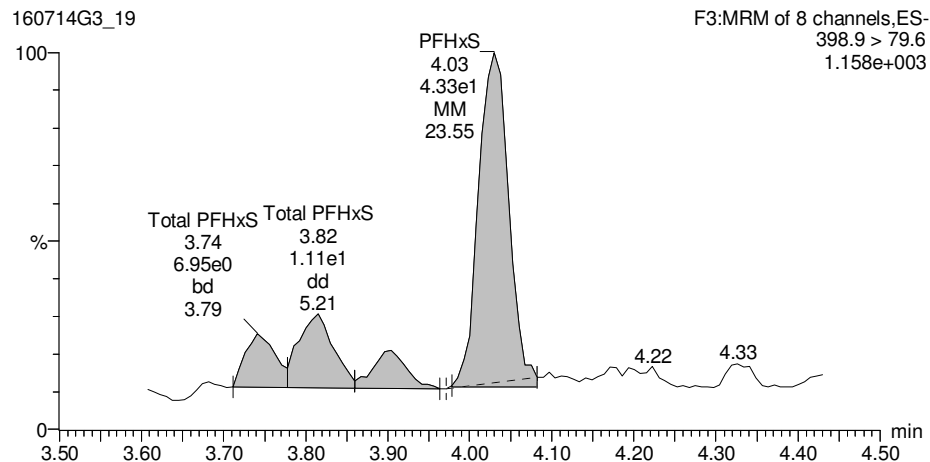


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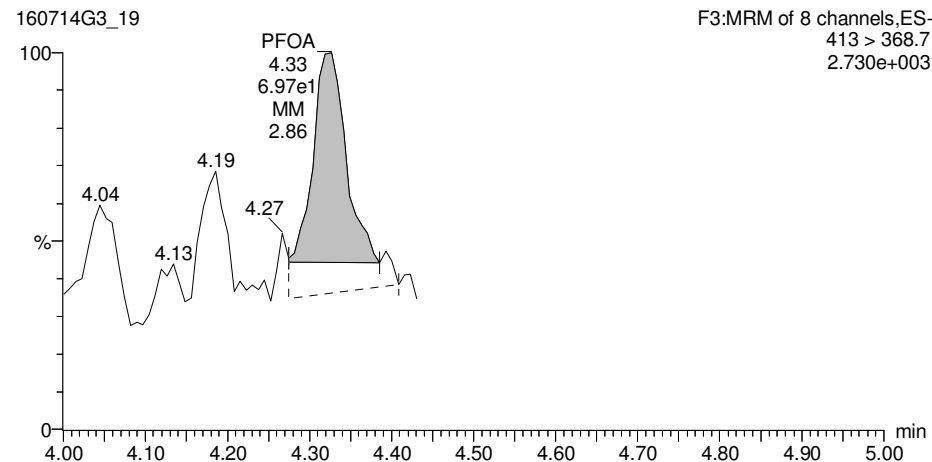
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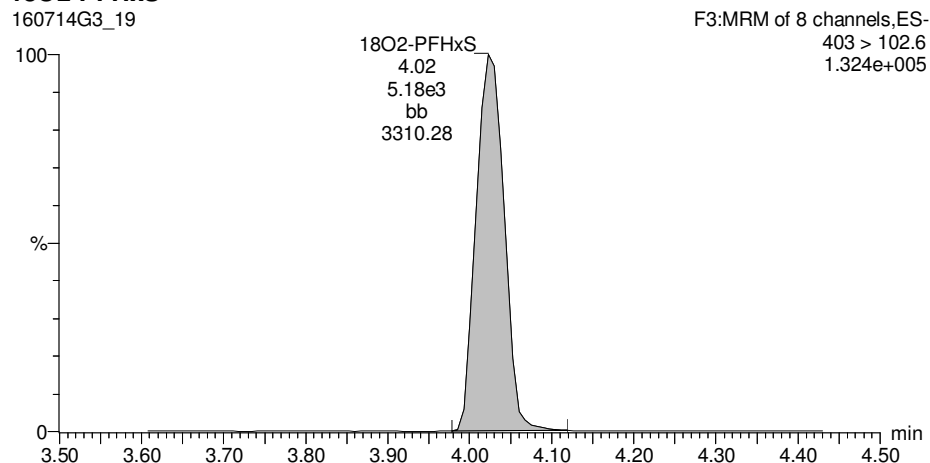
Total PFHxS



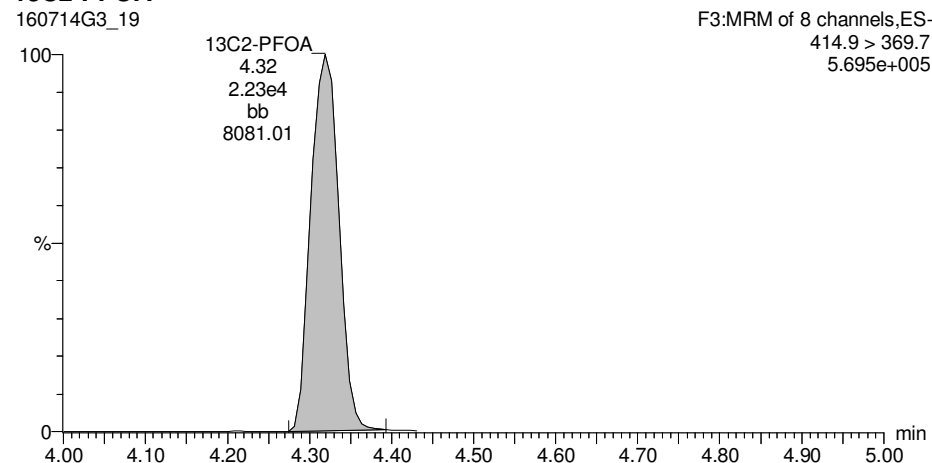
Total PFOA



18O2-PFHxS



13C2-PFOA

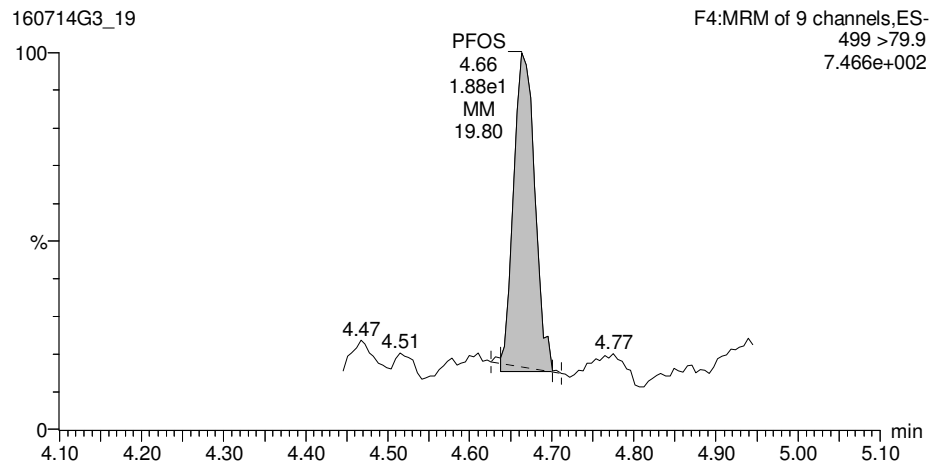


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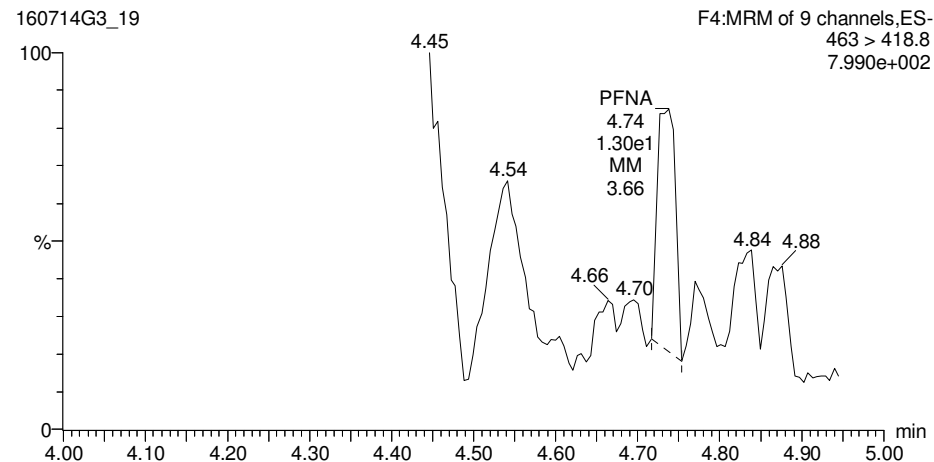
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Printed: Friday, July 15, 2016 09:09:32 Pacific Daylight Time

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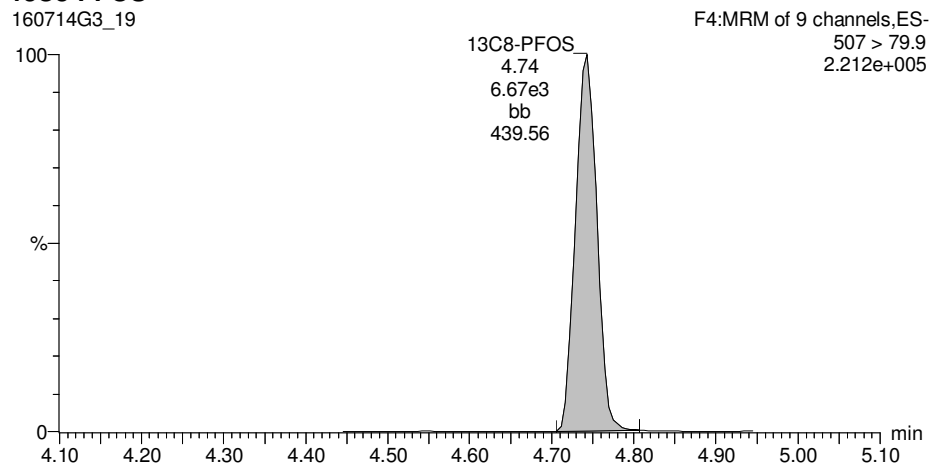
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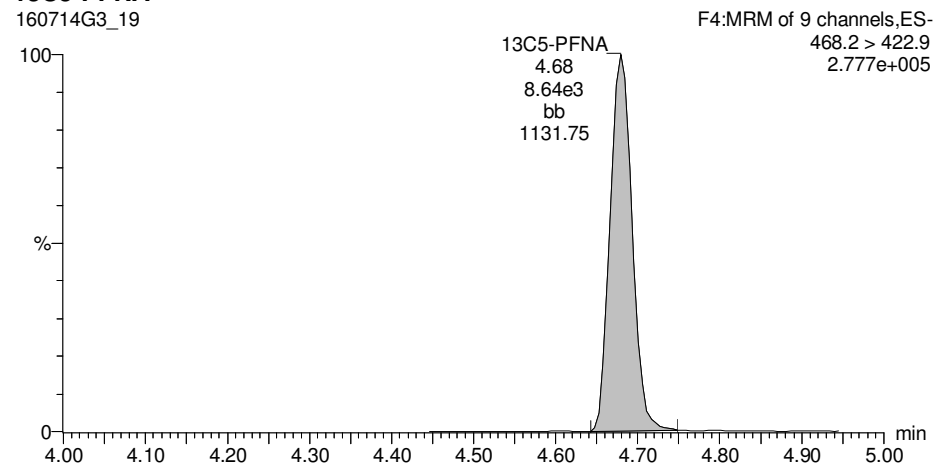
PFNA



13C8-PFOS



13C5-PFNA



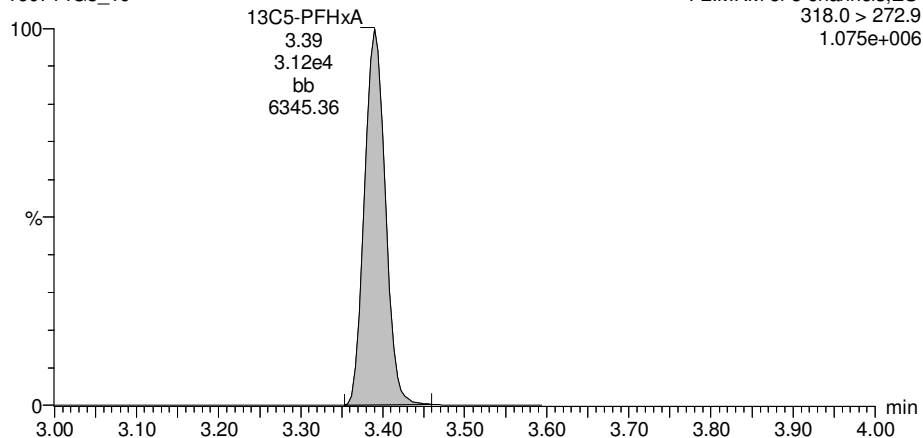
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Printed: Friday, July 15, 2016 09:09:32 Pacific Daylight Time

ID: 1600872-01RE1 OF-MW28-0716 0.12231, Description: OF-MW28-0716, Name: 160714G3_19, Date: 14-Jul-2016, Time: 14:34:53, Instrument: , Lab: , User:

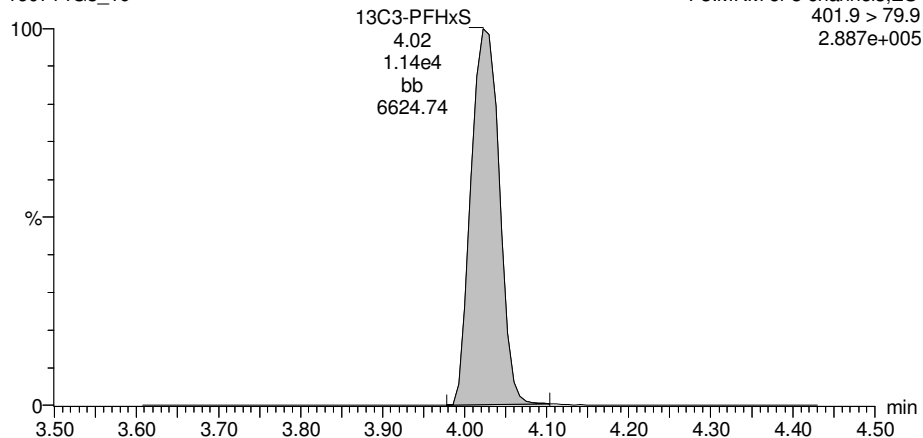
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160714G3_19



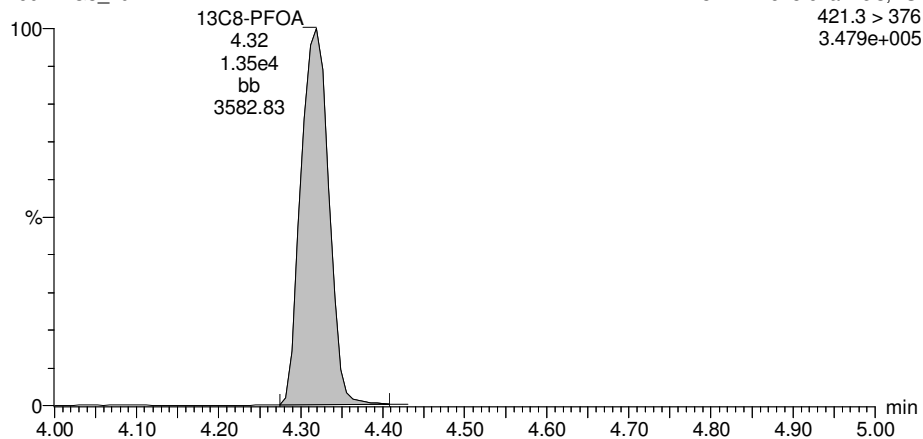
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160714G3_19



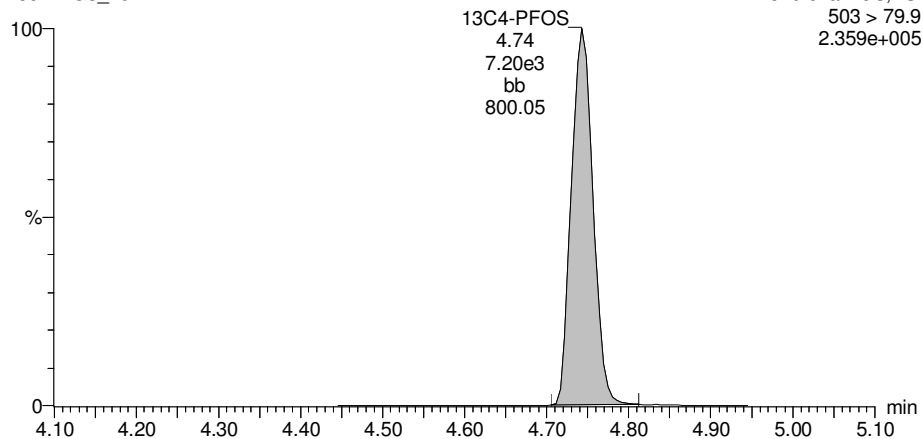
13C8-PFOA

160714G3_19



13C4-PFOS

160714G3_19



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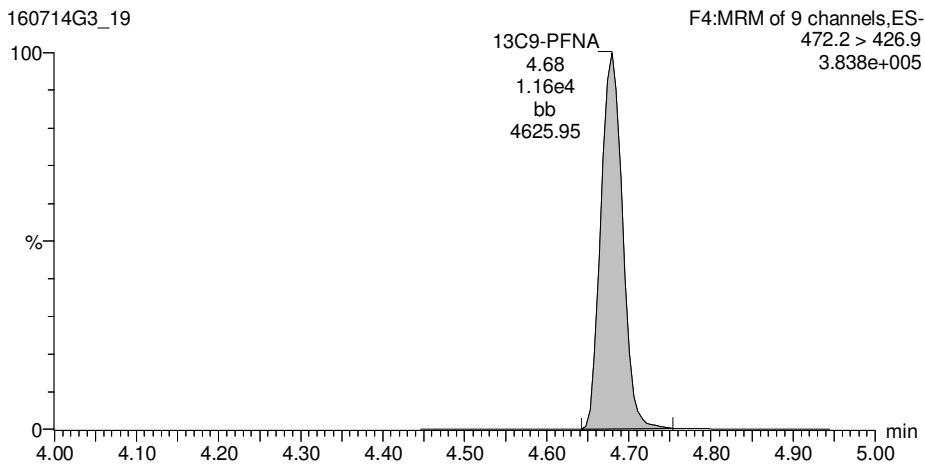
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Printed: Friday, July 15, 2016 09:09:32 Pacific Daylight Time

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13C9-PFNA

160714G3_19



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Printed: Friday, July 15, 2016 09:13:48 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: 1600872-02RE1 OF-MW25-0716 0.12532, Description: OF-MW25-0716, Name: 160714G3_20, Date: 14-Jul-2016, Time: 14:47:33

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	299 > 79.7	6.087e1	4.974e3		0.121	3.05	0.899	
2	2 PFHpA	363 > 318.9	1.290e2	1.712e4		0.121	3.90	0.593	
3	3 PFHxS	398.9 > 79.6	2.229e2	4.629e3		0.121	4.03	4.23	
4	4 PFOA	413 > 368.7	4.897e2	2.031e4		0.121	4.33	3.47	
5	5 PFOS	499 > 79.9	7.007e1	4.809e3		0.121	4.75	3.78	
6	6 PFNA	463 > 418.8	3.018e1	8.145e3		0.121	4.68	0.361	
7	7 13C3-PFBS	302.0 > 98.8	4.974e3	3.001e4	0.194	0.121	3.04	88.5	85.5
8	8 13C4-PFHpA	367.2 > 321.8	1.712e4	3.001e4	0.625	0.121	3.90	94.4	91.2
9	9 18O2-PFHxS	403 > 102.6	4.629e3	1.034e4	0.521	0.121	4.03	88.9	85.9
10	10 13C2-PFOA	414.9 > 369.7	2.031e4	1.202e4	1.973	0.121	4.32	88.6	85.6
11	11 13C8-PFOS	507 > 79.9	4.809e3	5.899e3	0.990	0.121	4.74	85.2	82.4
12	12 13C5-PFNA	468.2 > 422.9	8.145e3	1.115e4	0.858	0.121	4.68	88.1	85.1
13	13 13C5-PFHxA	318.0 > 272.9	3.001e4	3.001e4	1.000	0.121	3.39	103	100
14	14 13C3-PFHxS	401.9 > 79.9	1.034e4	1.034e4	1.000	0.121	4.03	103	100
15	15 13C8-PFOA	421.3 > 376	1.202e4	1.202e4	1.000	0.121	4.32	103	100
16	16 13C4-PFOS	503 > 79.9	5.899e3	5.899e3	1.000	0.121	4.75	103	100
17	17 13C9-PFNA	472.2 > 426.9	1.115e4	1.115e4	1.000	0.121	4.68	103	100
18	18 Total PFBS	299 > 79.7		4.974e3		0.121		0.899	
19	19 Total PFHxS	398.9 > 79.6		4.629e3		0.121		4.85	
20	20 Total PFOA	413 > 368.7		2.031e4		0.121		4.26	
21	21 Total PFOS	499 > 79.9		4.809e3		0.121		6.10	

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_20.qld

Last Altered: Friday, July 15, 2016 09:13:23 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:13:48 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: 1600872-02RE1 OF-MW25-0716 0.12532, Description: OF-MW25-0716, Name: 160714G3_20, Date: 14-Jul-2016, Time: 14:47:33

Total PFBS

	# Name	Trace	RT	Area	IS Area	Conc.
1	1 PFBS	299 > 79.7	3.05	60.868	4973.953	0.9

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	3 PFHxS	398.9 > 79.6	4.03	222.853	4628.773	4.2
2	19 Total PFHxS	398.9 > 79.6	3.93	32.815	4628.773	0.6

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	4 PFOA	413 > 368.7	4.33	489.674	20314.600	3.5
2	20 Total PFOA	413 > 368.7	4.22	110.729	20314.600	0.8

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	21 Total PFOS	499 > 79.9	4.65	9.340	4809.354	0.5
2	21 Total PFOS	499 > 79.9	4.62	28.452	4809.354	1.5
3	5 PFOS	499 > 79.9	4.75	70.066	4809.354	3.8
4	21 Total PFOS	499 > 79.9	4.68	5.077	4809.354	0.3

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_20.qld

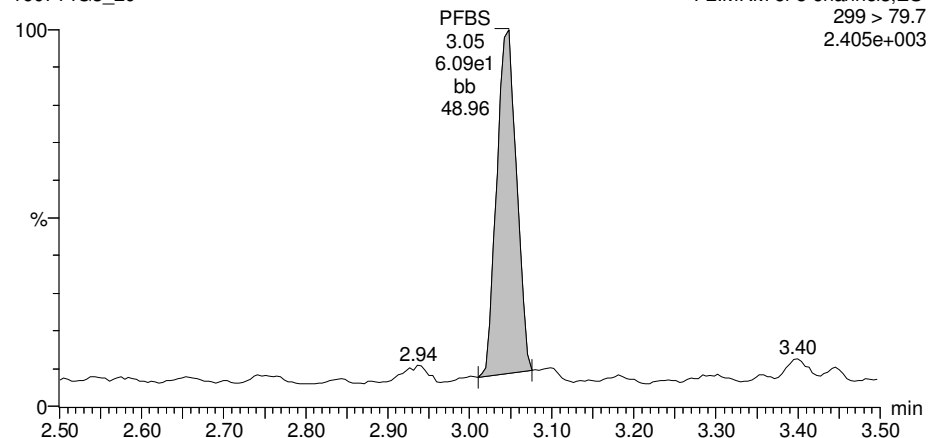
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Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30
Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

ID: 1600872-02RE1 OF-MW25-0716 0.12532, Description: OF-MW25-0716, Name: 160714G3_20, Date: 14-Jul-2016, Time: 14:47:33, Instrument: , Lab: , User:

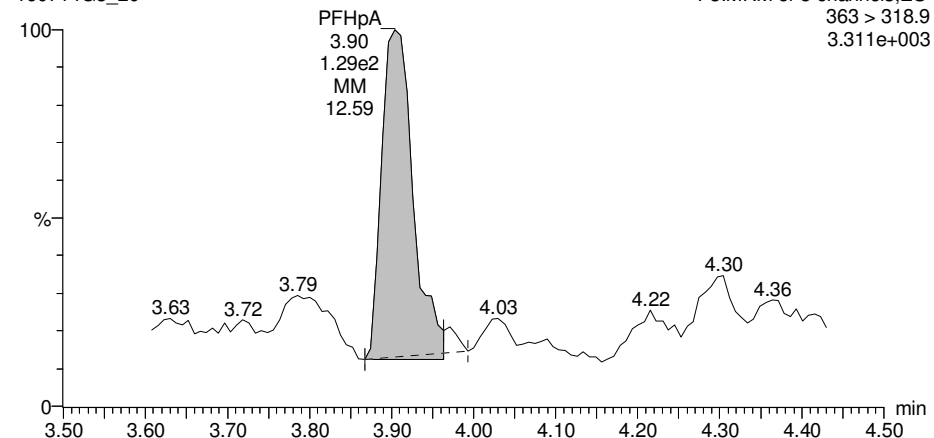
Total PFBS

160714G3_20



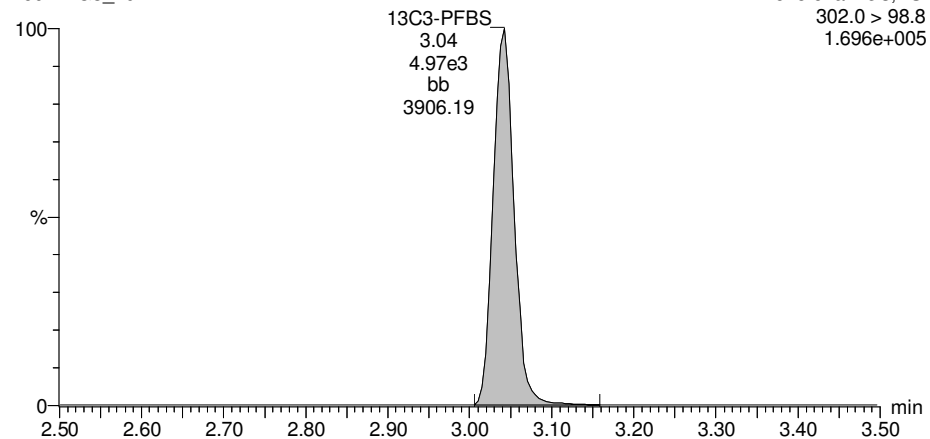
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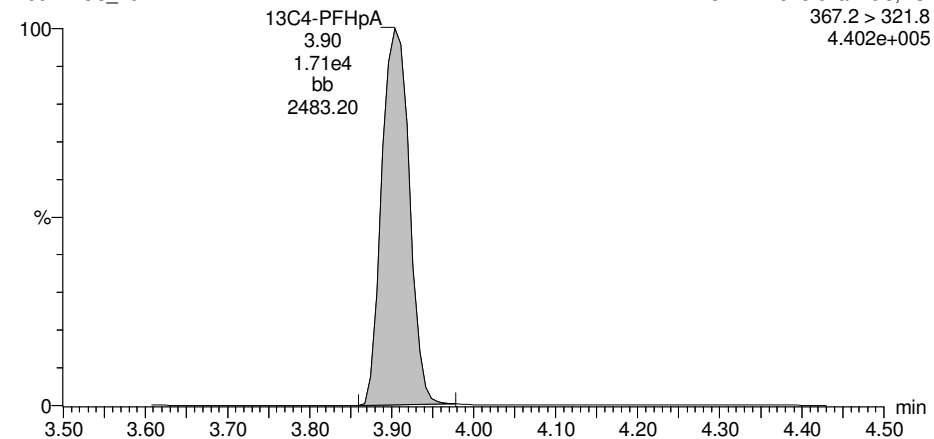
13C3-PFBS

160714G3_20



13C4-PFHpA

160714G3_20



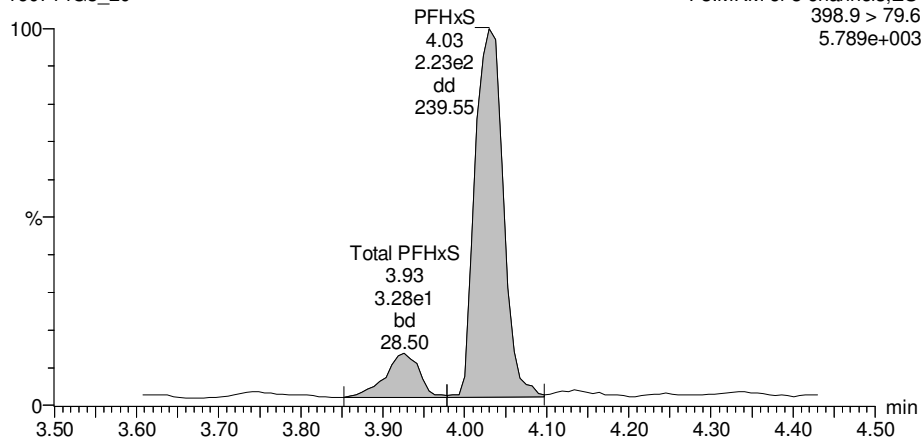
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ID: 1600872-02RE1 OF-MW25-0716 0.12532, Description: OF-MW25-0716, Name: 160714G3_20, Date: 14-Jul-2016, Time: 14:47:33, Instrument: , Lab: , User:

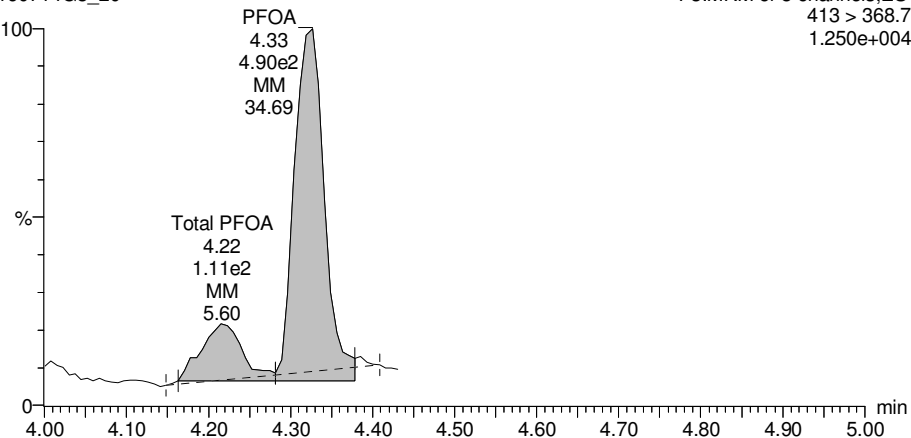
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160714G3_20



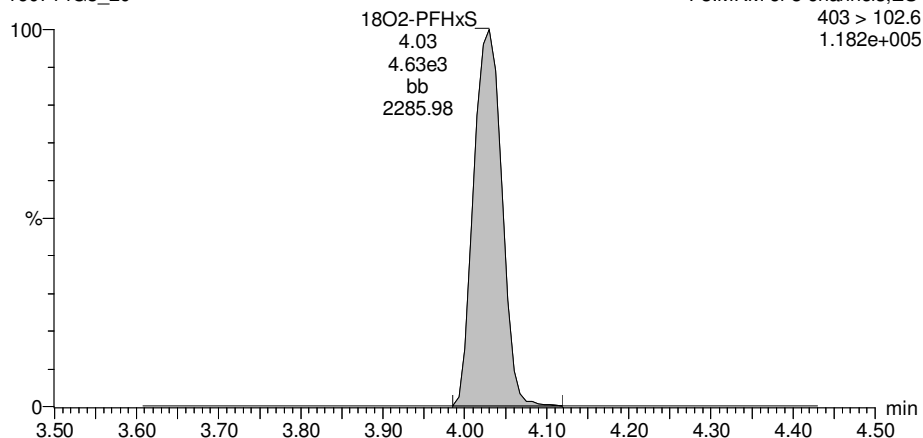
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160714G3_20



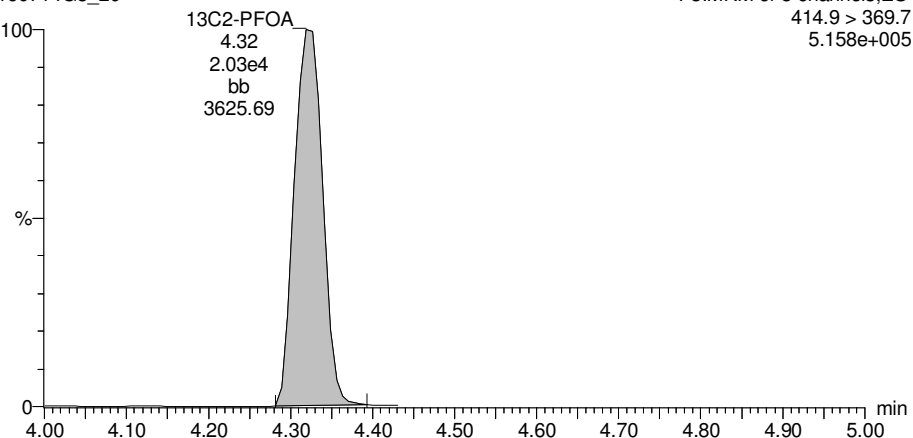
18O2-PFHxS

160714G3_20



13C2-PFOA

160714G3_20



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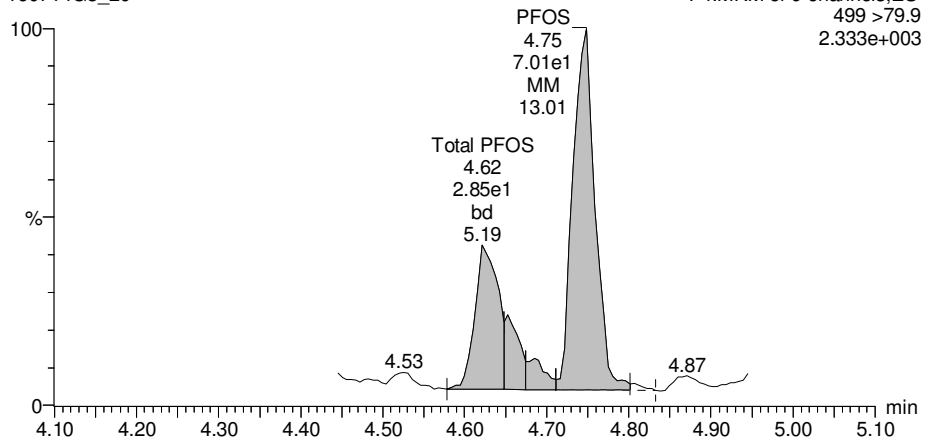
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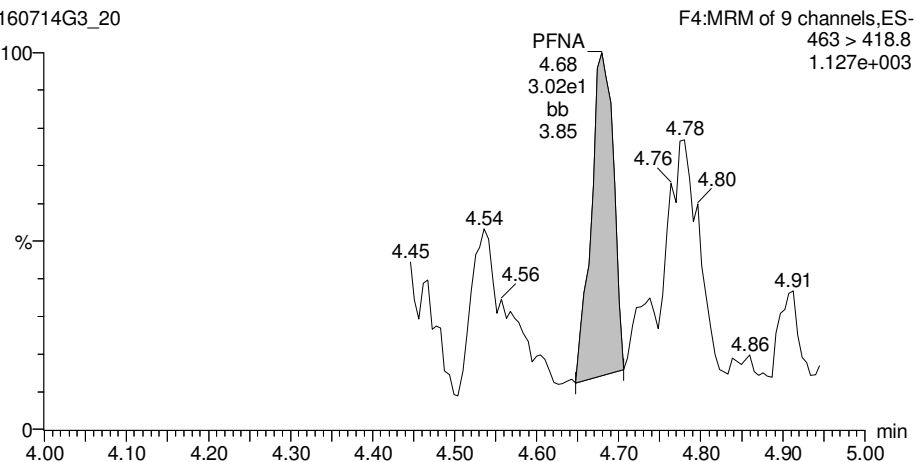
Total PFOS

160714G3_20



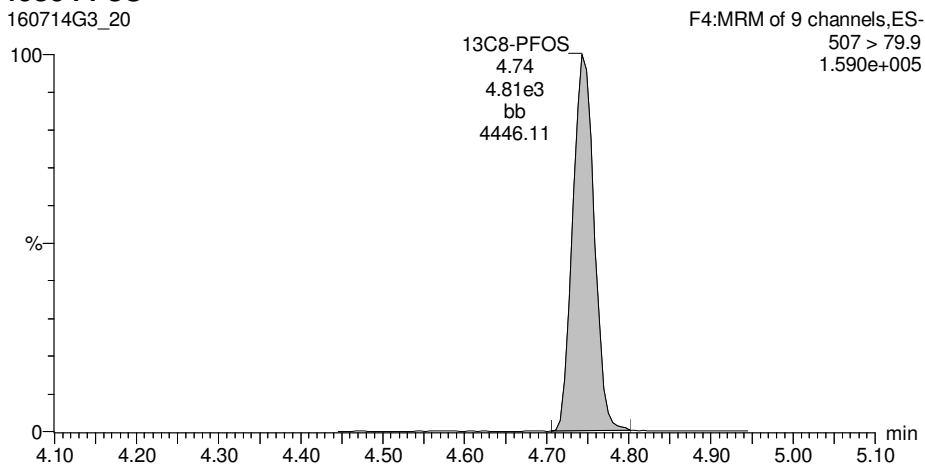
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160714G3_20



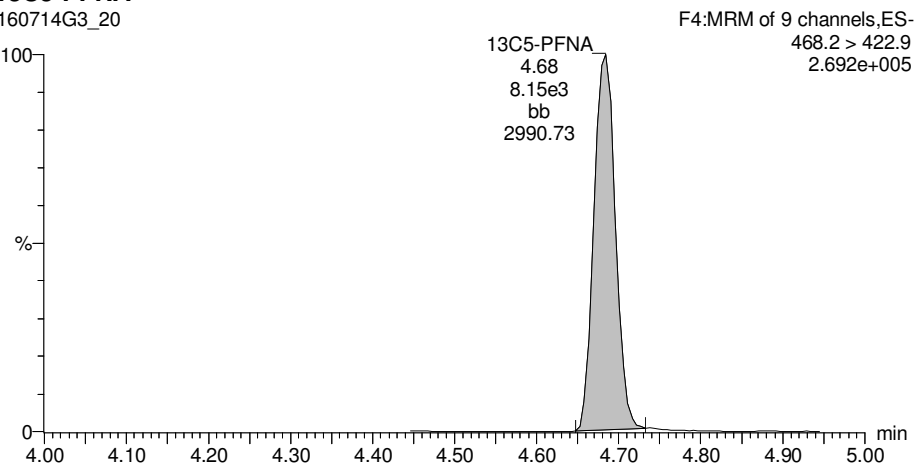
13C8-PFOS

160714G3_20



13C5-PFNA

160714G3_20



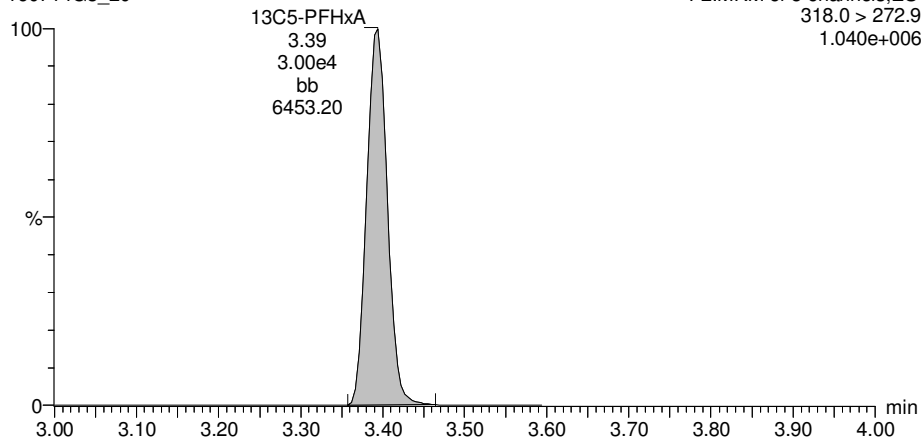
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Printed: Friday, July 15, 2016 09:13:48 Pacific Daylight Time

ID: 1600872-02RE1 OF-MW25-0716 0.12532, Description: OF-MW25-0716, Name: 160714G3_20, Date: 14-Jul-2016, Time: 14:47:33, Instrument: , Lab: , User:

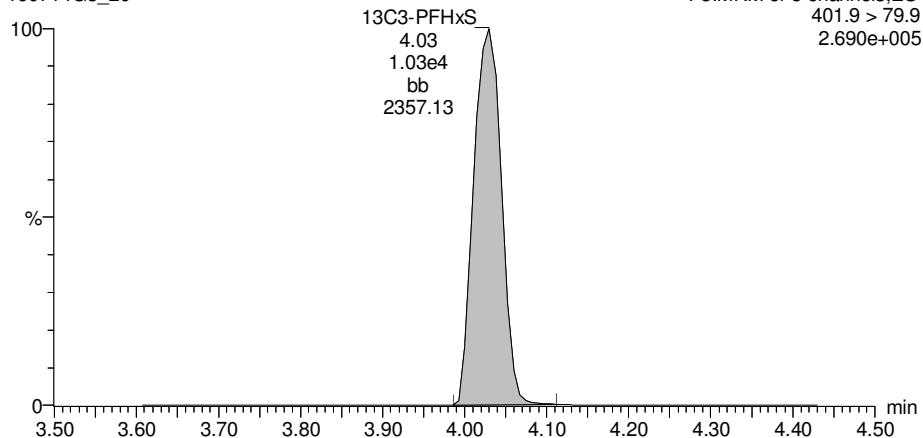
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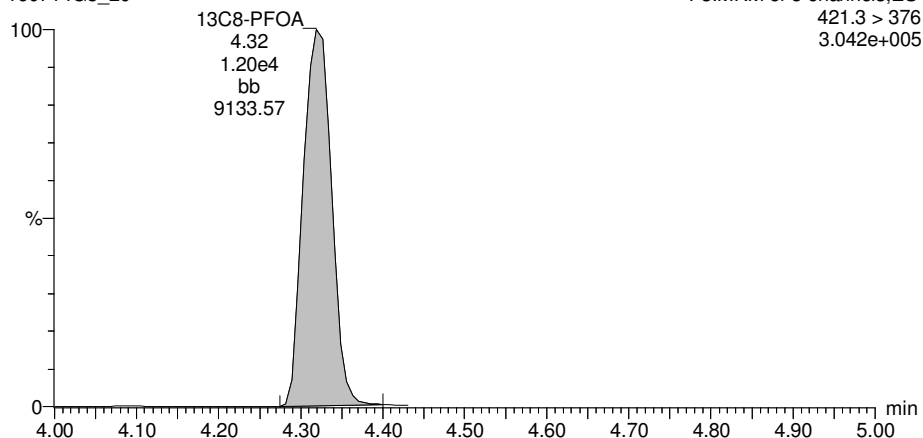
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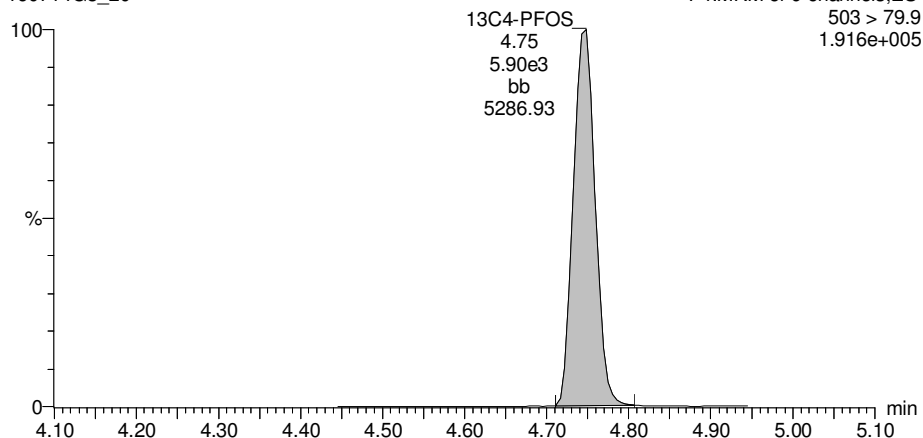
13C8-PFOA

160714G3_20



13C4-PFOS

160714G3_20



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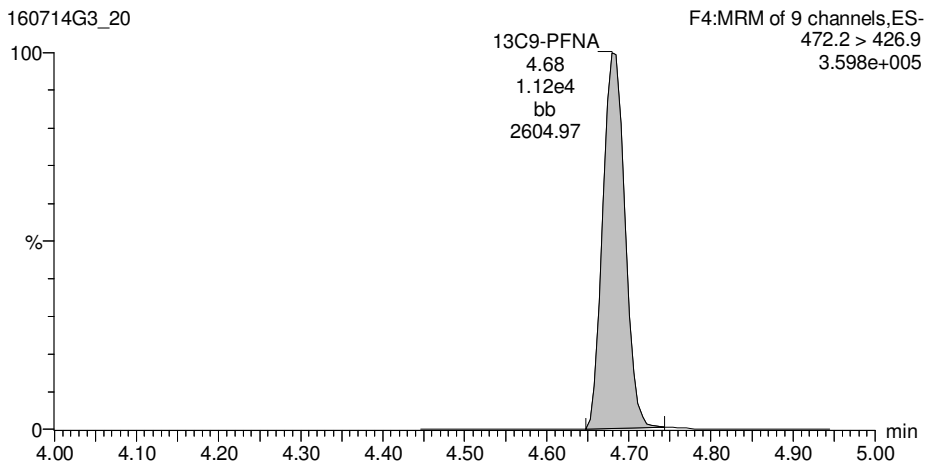
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13C9-PFNA

160714G3_20



Dataset: U:\G1.PRO\Results\2016\160714G3\160714G3_21.qld

Last Altered: Monday, July 18, 2016 13:57:39 Pacific Daylight Time

Printed: Monday, July 18, 2016 13:58:25 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: 1600872-03RE1 OF-MW315-0716 0.12832, Description: OF-MW315-0716, Name: 160714G3_21, Date: 14-Jul-2016, Time: 15:00:13

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	299 > 79.7	1.130e1	4.662e3		0.119	3.03	0.181	
2	2 PFHpA	363 > 318.9	4.499e1	1.498e4		0.119	3.91	0.240	
3	3 PFHxS	398.9 > 79.6	3.987e1	4.135e3		0.119	4.03	0.860	
4	4 PFOA	413 > 368.7	7.516e1	1.720e4		0.119	4.31	0.639	
5	5 PFOS	499 > 79.9	1.417e1	4.140e3		0.119	4.66	0.902	
6	6 PFNA	463 > 418.8		6.439e3		0.119			
7	7 13C3-PFBS	302.0 > 98.8	4.662e3	3.043e4	0.194	0.119	3.03	83.1	79.1
8	8 13C4-PFHpA	367.2 > 321.8	1.498e4	3.043e4	0.625	0.119	3.90	82.7	78.7
9	9 18O2-PFHxS	403 > 102.6	4.135e3	1.033e4	0.521	0.119	4.02	80.8	76.9
10	10 13C2-PFOA	414.9 > 369.7	1.720e4	1.327e4	1.973	0.119	4.32	69.0	65.6
11	11 13C8-PFOS	507 > 79.9	4.140e3	5.849e3	0.990	0.119	4.74	75.2	71.5
12	12 13C5-PFNA	468.2 > 422.9	6.439e3	1.066e4	0.858	0.119	4.68	74.0	70.4
13	13 13C5-PFHxA	318.0 > 272.9	3.043e4	3.043e4	1.000	0.119	3.39	105	100
14	14 13C3-PFHxS	401.9 > 79.9	1.033e4	1.033e4	1.000	0.119	4.02	105	100
15	15 13C8-PFOA	421.3 > 376	1.327e4	1.327e4	1.000	0.119	4.31	105	100
16	16 13C4-PFOS	503 > 79.9	5.849e3	5.849e3	1.000	0.119	4.74	105	100
17	17 13C9-PFNA	472.2 > 426.9	1.066e4	1.066e4	1.000	0.119	4.67	105	100
18	18 Total PFBS	299 > 79.7		4.662e3		0.119		0.181	
19	19 Total PFHxS	398.9 > 79.6		4.135e3		0.119		0.860	
20	20 Total PFOA	413 > 368.7		1.720e4		0.119		0.639	
21	21 Total PFOS	499 > 79.9		4.140e3		0.119		1.60	

Vista Analytical Laboratory Q1

Dataset: U:\G1.PRO\Results\2016\160714G3\160714G3_21.qld

Last Altered: Monday, July 18, 2016 13:57:39 Pacific Daylight Time

Printed: Monday, July 18, 2016 13:58:25 Pacific Daylight Time

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ID: 1600872-03RE1 OF-MW315-0716 0.12832, Description: OF-MW315-0716, Name: 160714G3_21, Date: 14-Jul-2016, Time: 15:00:13

Total PFBS

	# Name	Trace	RT	Area	IS Area	Conc.
1	1 PFBS	299 > 79.7	3.03	11.303	4662.492	0.2

Total PFHxS

	# Name	Trace	RT	Area	IS Area	Conc.
1	3 PFHxS	398.9 > 79.6	4.03	39.865	4134.795	0.9

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	4 PFOA	413 > 368.7	4.31	75.162	17195.574	0.6

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	5 PFOS	499 > 79.9	4.66	14.167	4139.693	0.9
2	21 Total PFOS	499 > 79.9	4.61	10.939	4139.693	0.7

Dataset: U:\G1.PRO\Results\2016\160714G3\160714G3_21.qld

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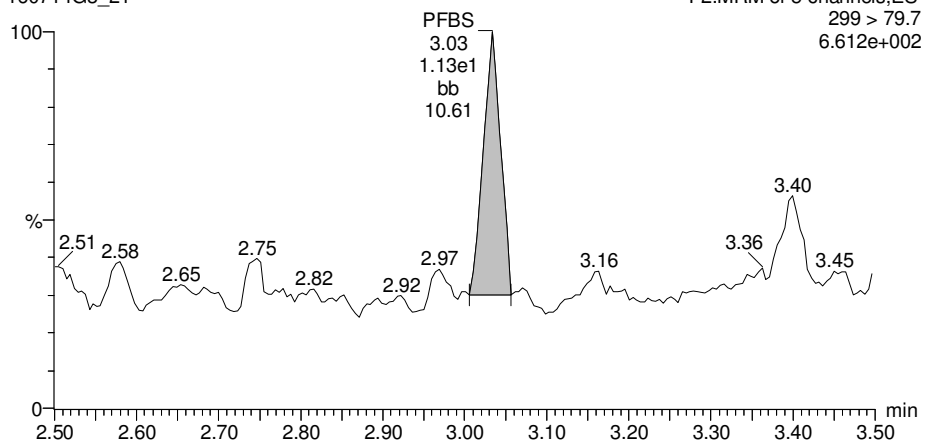
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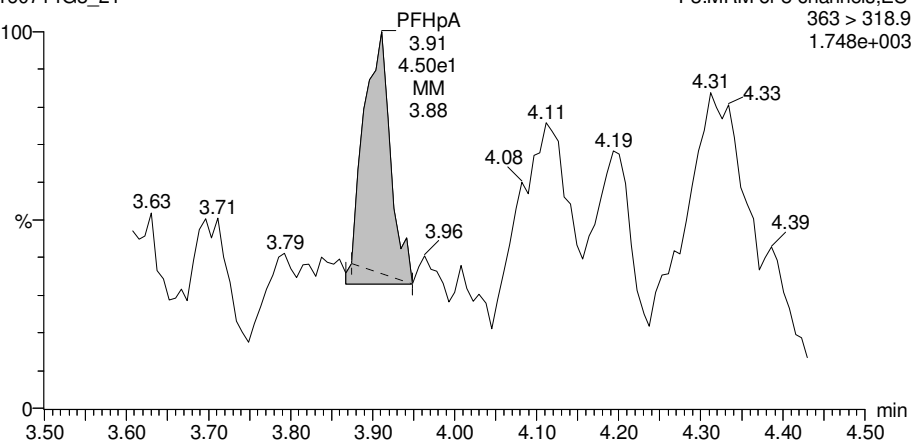
Total PFBS

160714G3_21



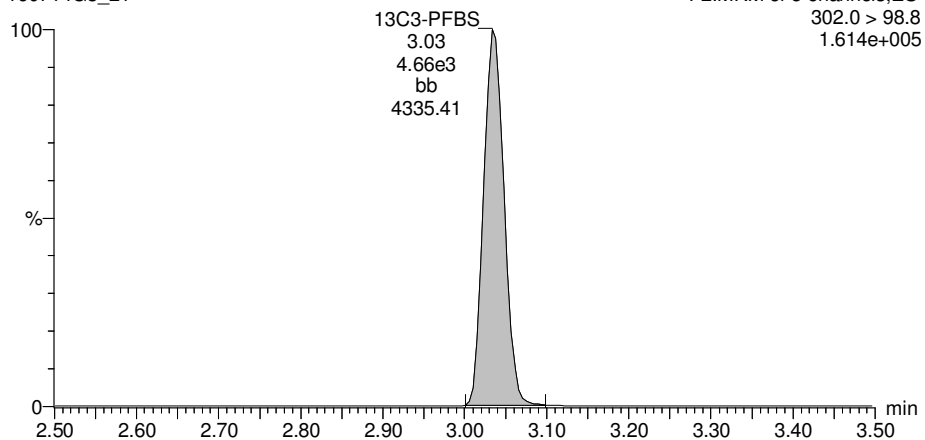
PFHpA

160714G3_21



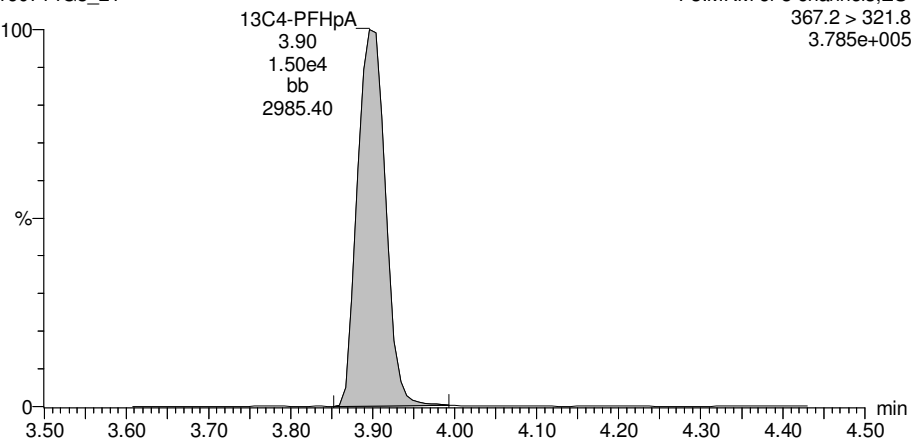
13C3-PFBS

160714G3_21



13C4-PFHpA

160714G3_21



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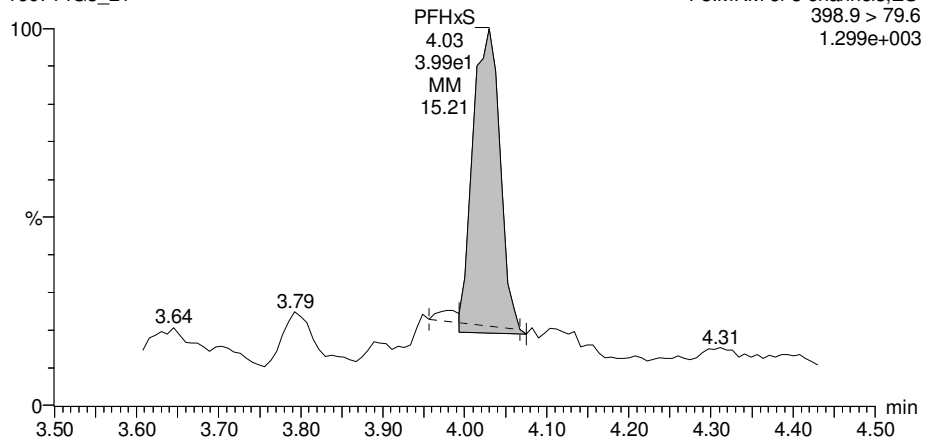
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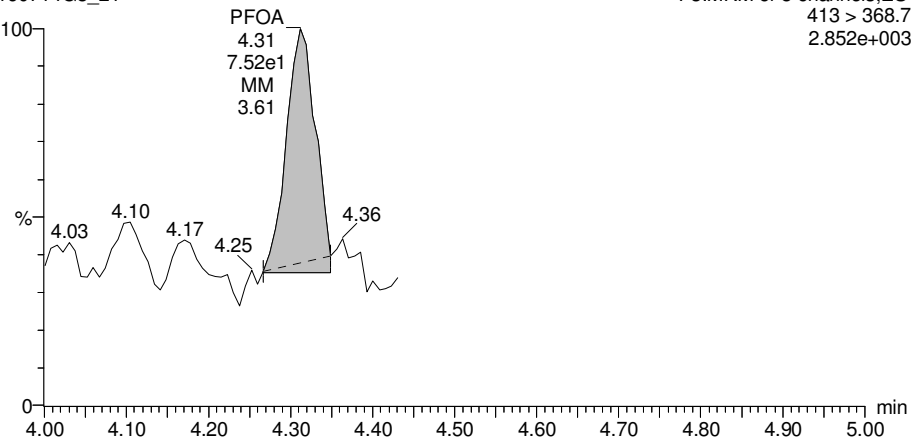
Total PFHxS

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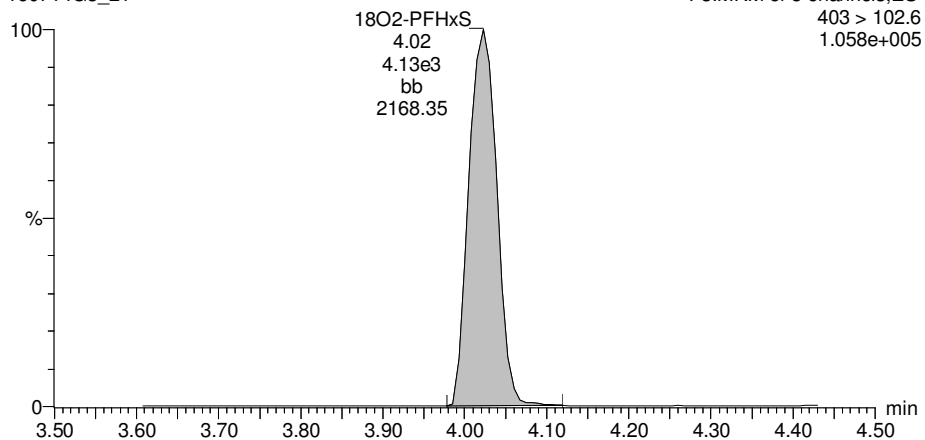
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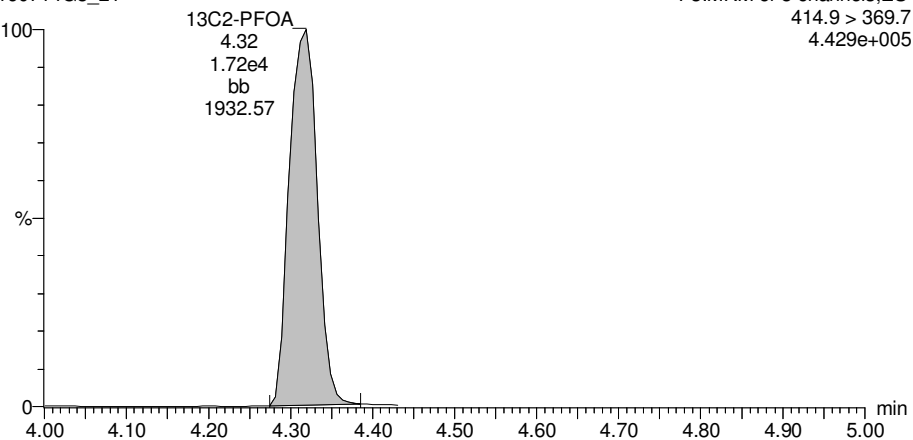
18O2-PFHxS

160714G3_21



13C2-PFOA

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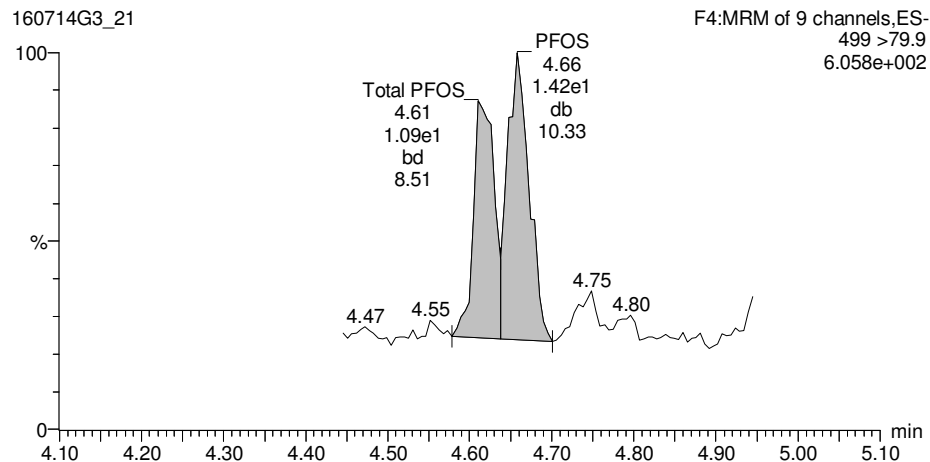


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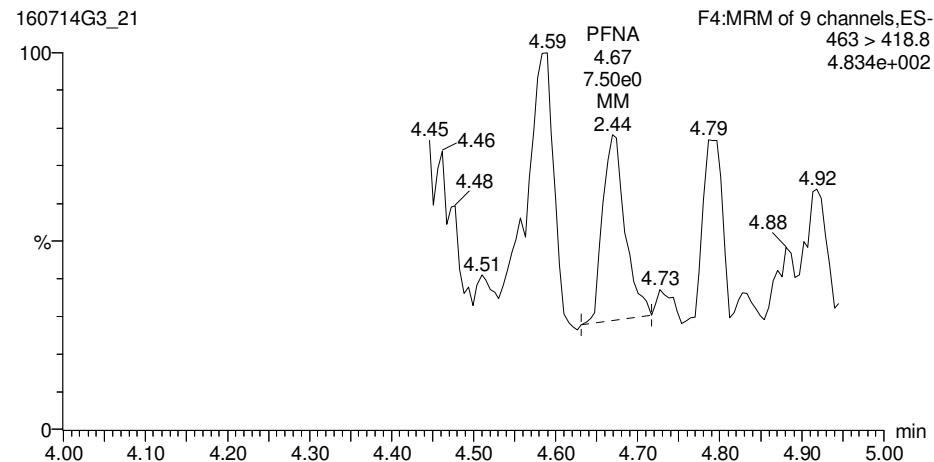
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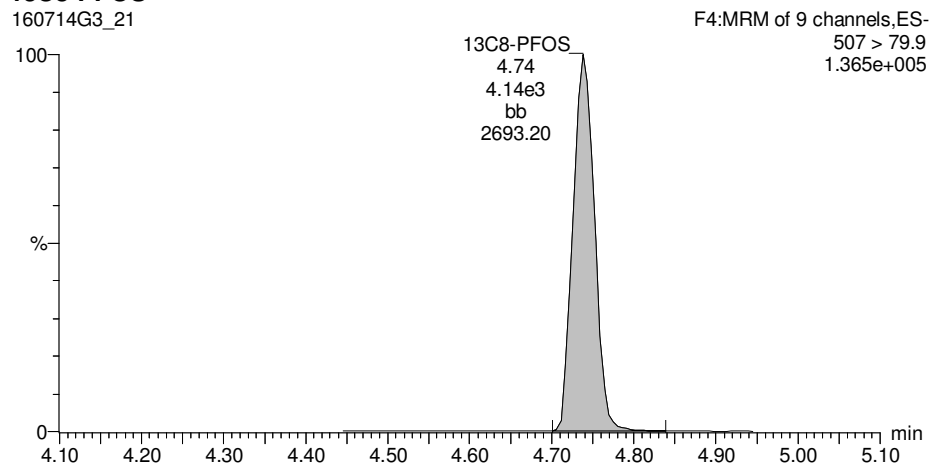
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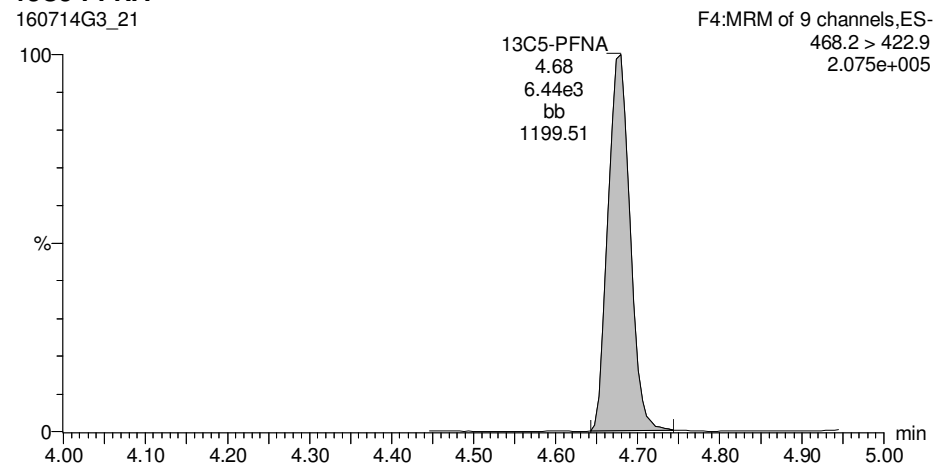
PFNA



13C8-PFOS



13C5-PFNA



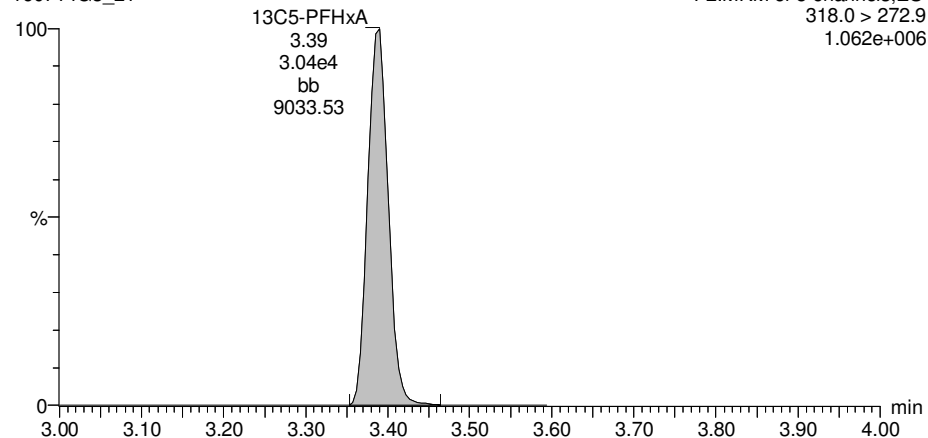
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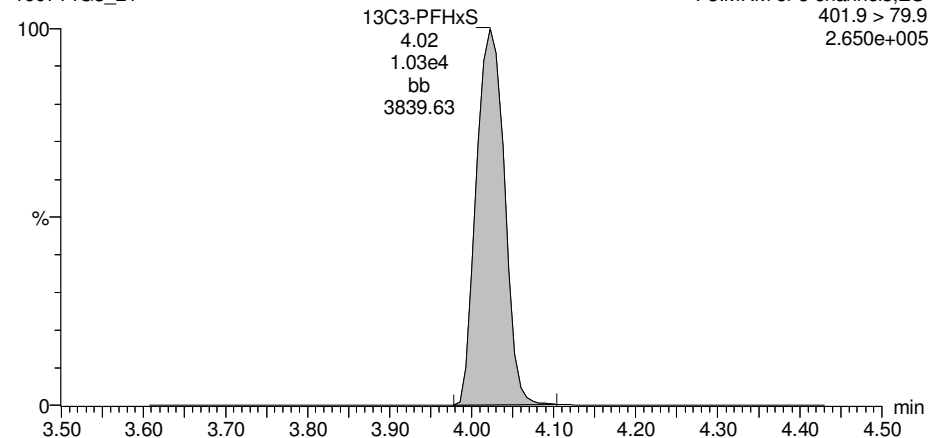
13C5-PFHxA

160714G3_21



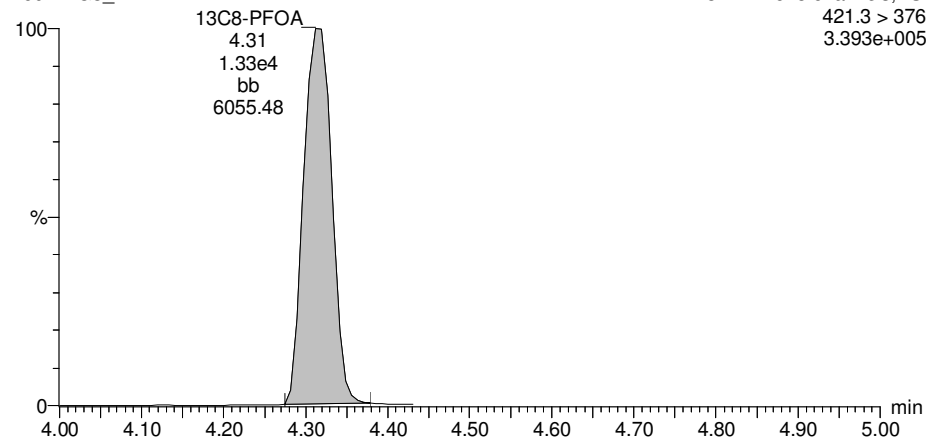
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160714G3_21



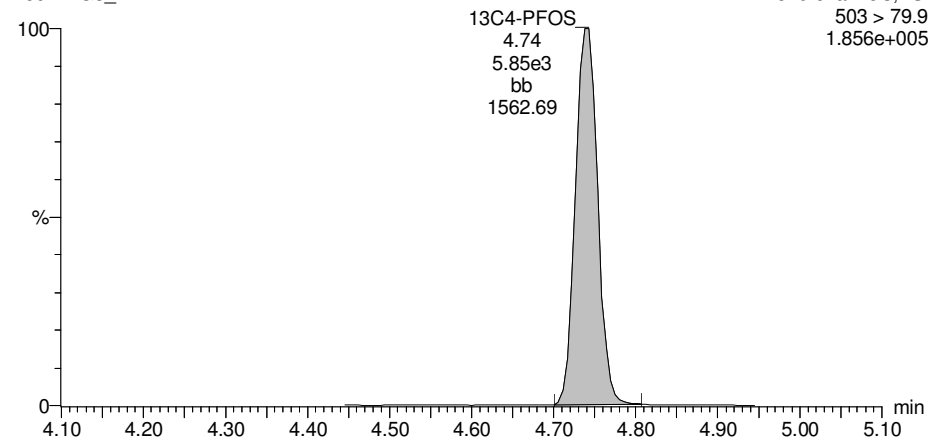
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160714G3_21



13C4-PFOS

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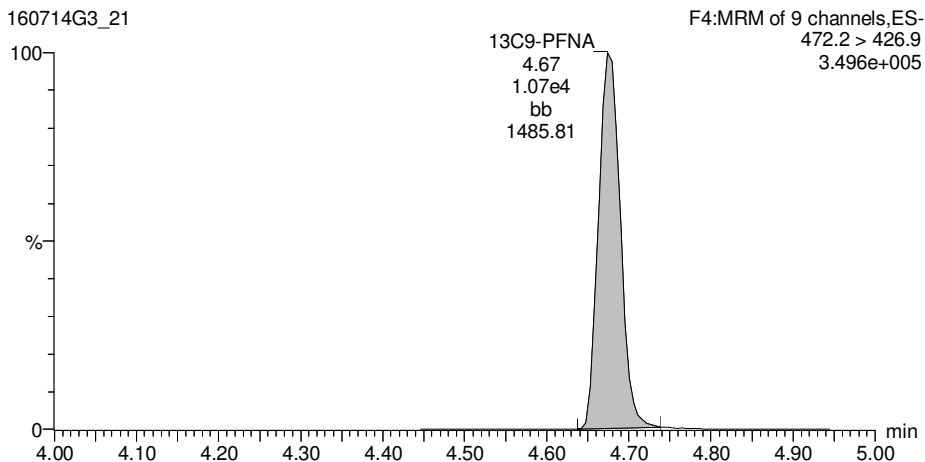
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13C9-PFNA

160714G3_21



Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_22.qld

Last Altered: Friday, July 15, 2016 09:23:15 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:23:21 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: 1600872-04RE1 OF-FB070616 0.12947, Description: OF-FB070616, Name: 160714G3_22, Date: 14-Jul-2016, Time: 15:12:51

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	1 PFBS	299 > 79.7		5.832e3		0.128			
2	2 PFHpA	363 > 318.9	2.840e1	1.839e4		0.128	3.90	0.115	
3	3 PFHxS	398.9 > 79.6	1.065e1	5.005e3		0.128	4.02	0.176	
4	4 PFOA	413 > 368.7	6.451e1	2.460e4		0.128	4.32	0.356	
5	5 PFOS	499 > 79.9		5.892e3		0.128			
6	6 PFNA	463 > 418.8		8.757e3		0.128			
7	7 13C3-PFBS	302.0 > 98.8	5.832e3	3.230e4	0.194	0.128	3.04	90.9	93.2
8	8 13C4-PFHpA	367.2 > 321.8	1.839e4	3.230e4	0.625	0.128	3.90	88.9	91.0
9	9 18O2-PFHxS	403 > 102.6	5.005e3	1.121e4	0.521	0.128	4.02	83.7	85.8
10	10 13C2-PFOA	414.9 > 369.7	2.460e4	1.439e4	1.973	0.128	4.32	84.6	86.7
11	11 13C8-PFOS	507 > 79.9	5.892e3	7.129e3	0.990	0.128	4.74	81.5	83.5
12	12 13C5-PFNA	468.2 > 422.9	8.757e3	1.157e4	0.858	0.128	4.68	86.1	88.2
13	13 13C5-PFHxA	318.0 > 272.9	3.230e4	3.230e4	1.000	0.128	3.39	97.6	100
14	14 13C3-PFHxS	401.9 > 79.9	1.121e4	1.121e4	1.000	0.128	4.02	97.6	100
15	15 13C8-PFOA	421.3 > 376	1.439e4	1.439e4	1.000	0.128	4.32	97.6	100
16	16 13C4-PFOS	503 > 79.9	7.129e3	7.129e3	1.000	0.128	4.74	97.6	100
17	17 13C9-PFNA	472.2 > 426.9	1.157e4	1.157e4	1.000	0.128	4.67	97.6	100
18	18 Total PFBS	299 > 79.7		5.832e3		0.128			
19	19 Total PFHxS	398.9 > 79.6		5.005e3		0.128		0.176	
20	20 Total PFOA	413 > 368.7		2.460e4		0.128		0.356	
21	21 Total PFOS	499 > 79.9		5.892e3		0.128			

Vista Analytical Laboratory Q1

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_22.qld

Last Altered: Friday, July 15, 2016 09:23:15 Pacific Daylight Time

Printed: Friday, July 15, 2016 09:23:21 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: 1600872-04RE1 OF-FB070616 0.12947, Description: OF-FB070616, Name: 160714G3_22, Date: 14-Jul-2016, Time: 15:12:51

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	4.02	10.646	5005.076	0.2

Total PFOA

	# Name	Trace	RT	Area	IS Area	Conc.
1	4 PFOA	413 > 368.7	4.32	64.514	24599.988	0.4

Total PFOS

	# Name	Trace	RT	Area	IS Area	Conc.
1	5 PFOS	499 > 79.9			5891.920	

Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_22.qld

Last Altered: Friday, July 15, 2016 09:23:15 Pacific Daylight Time
Printed: Friday, July 15, 2016 09:23:21 Pacific Daylight Time

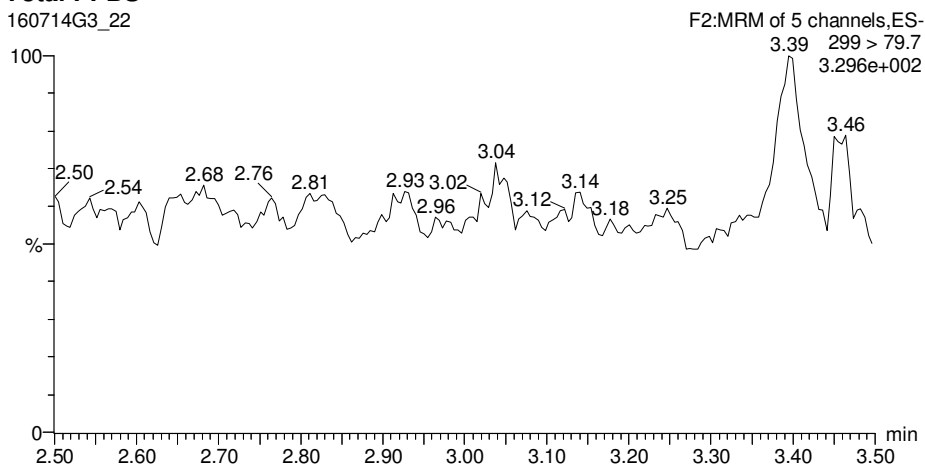
Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

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

ID: 1600872-04RE1 OF-FB070616 0.12947, Description: OF-FB070616, Name: 160714G3_22, Date: 14-Jul-2016, Time: 15:12:51, Instrument: , Lab: , User:

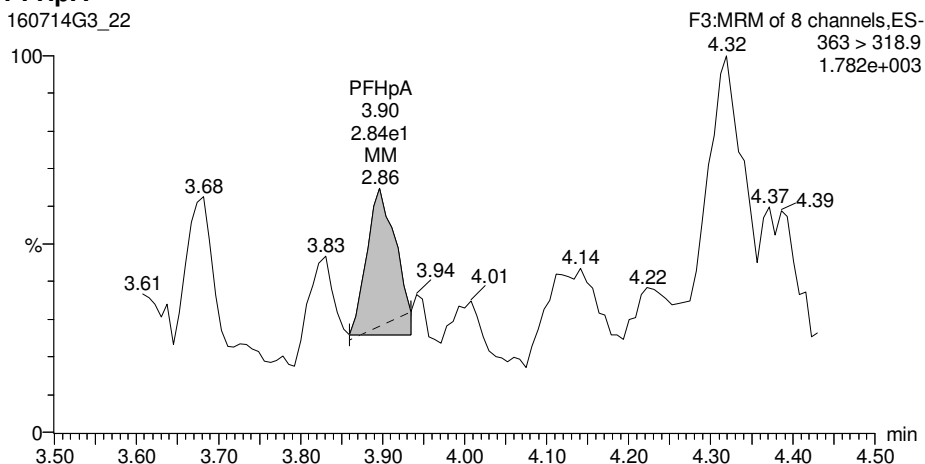
Total PFBS

160714G3_22



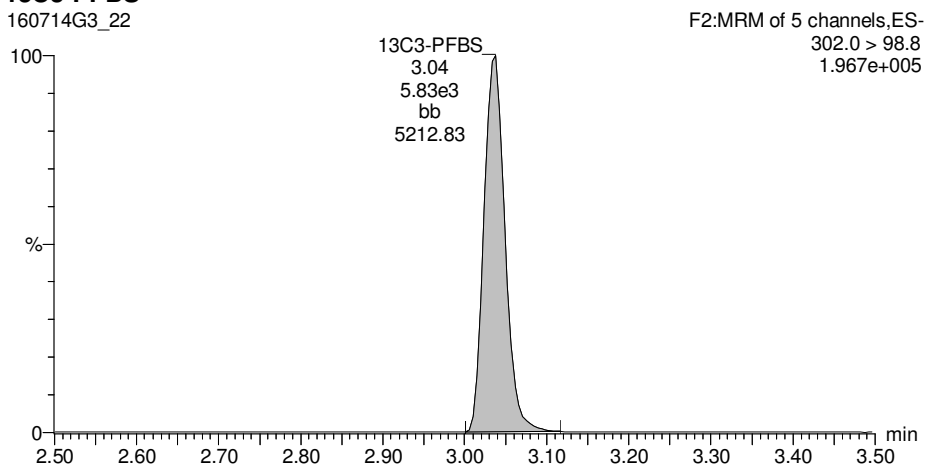
PFHpA

160714G3_22



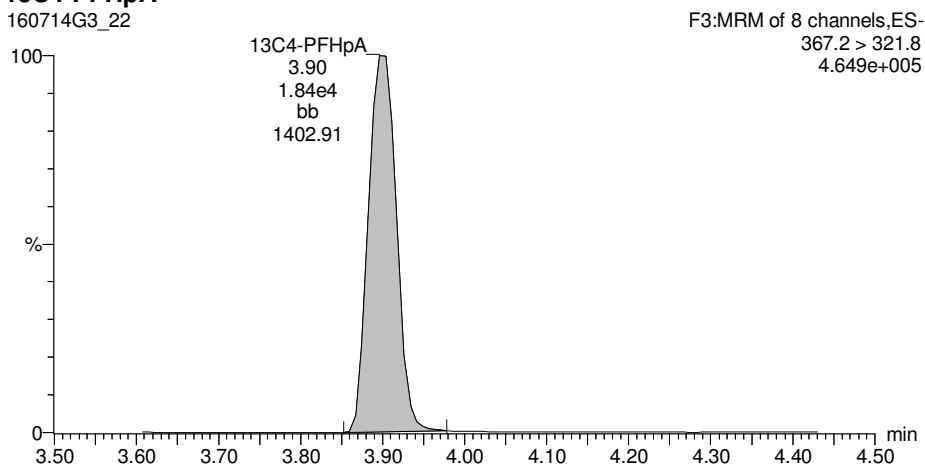
13C3-PFBS

160714G3_22



13C4-PFHpA

160714G3_22

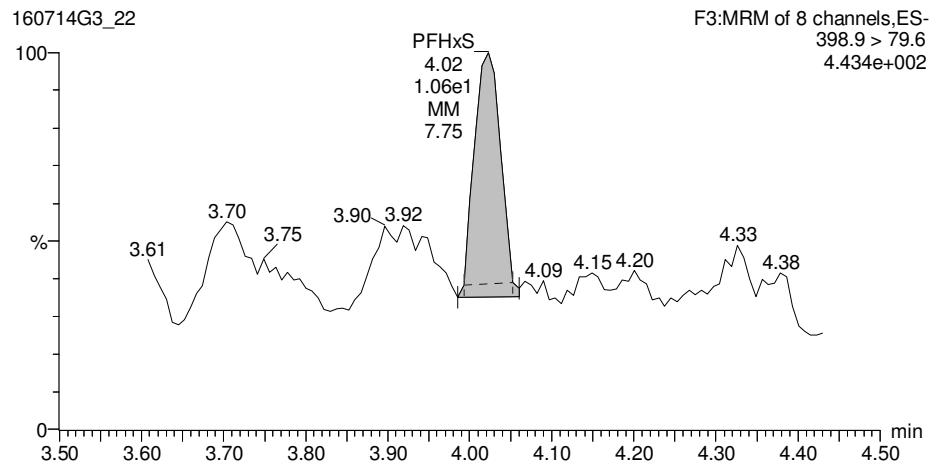


Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_22.qld

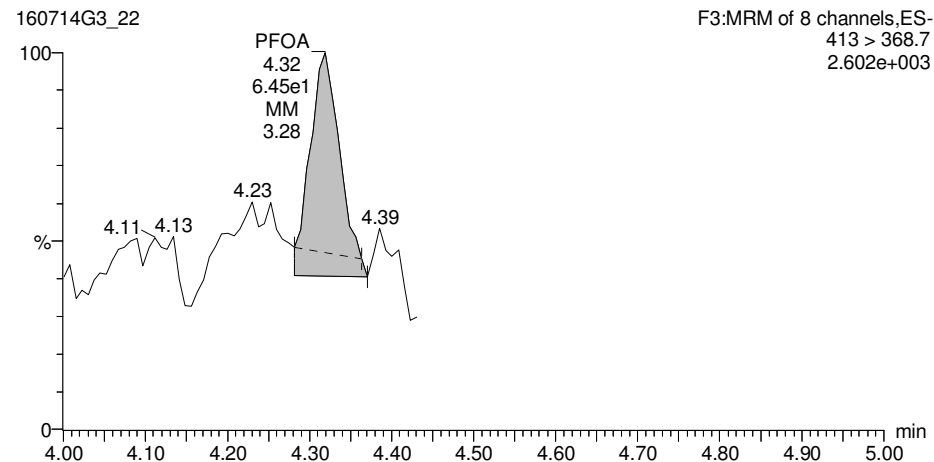
Last Altered: Friday, July 15, 2016 09:23:15 Pacific Daylight Time
Printed: Friday, July 15, 2016 09:23:21 Pacific Daylight Time

ID: 1600872-04RE1 OF-FB070616 0.12947, Description: OF-FB070616, Name: 160714G3_22, Date: 14-Jul-2016, Time: 15:12:51, Instrument: , Lab: , User:

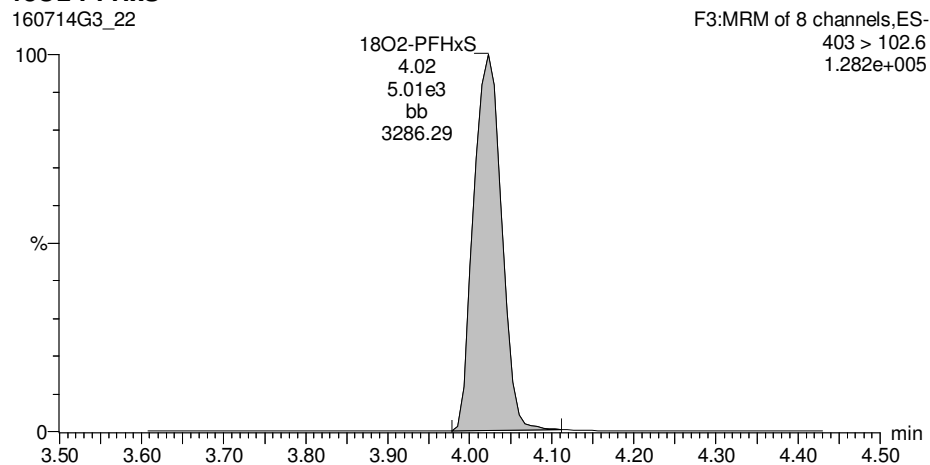
Total PFHxS



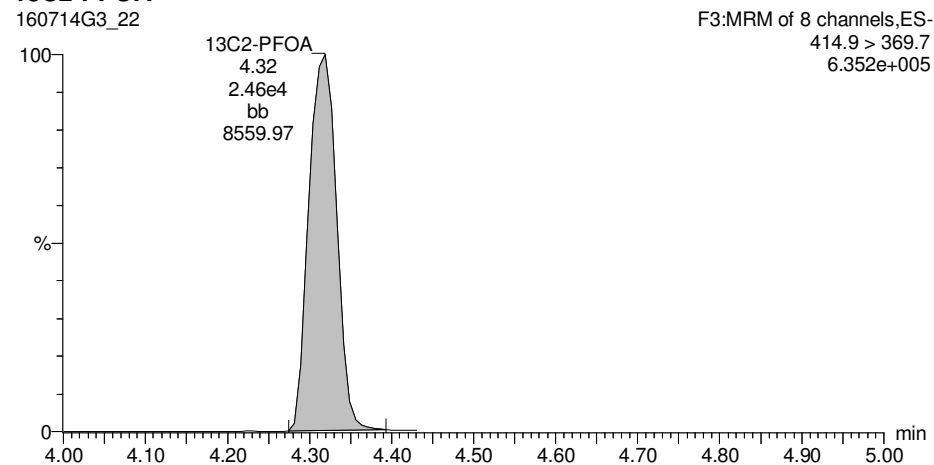
Total PFOA



18O2-PFHxS



13C2-PFOA

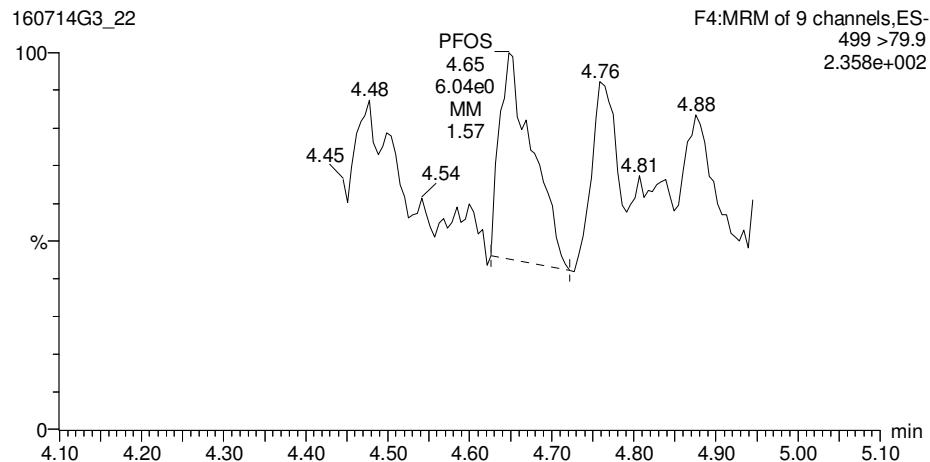


Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_22.qld

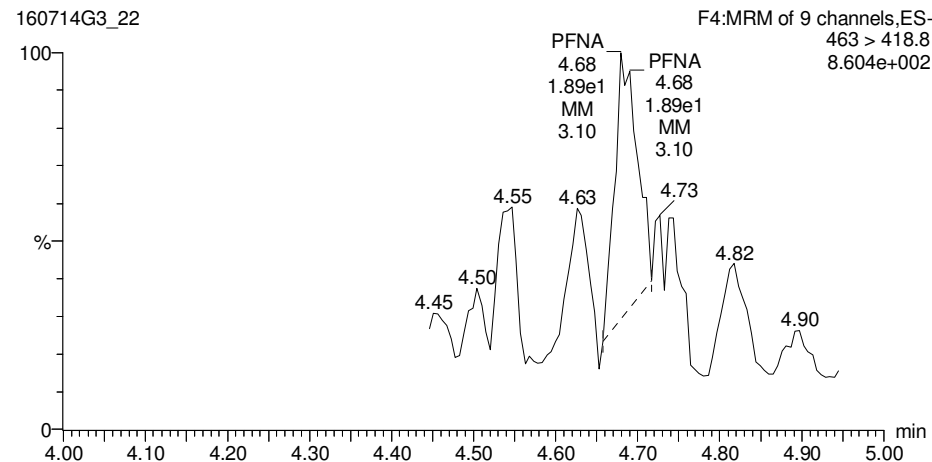
Last Altered: Friday, July 15, 2016 09:23:15 Pacific Daylight Time
Printed: Friday, July 15, 2016 09:23:21 Pacific Daylight Time

ID: 1600872-04RE1 OF-FB070616 0.12947, Description: OF-FB070616, Name: 160714G3_22, Date: 14-Jul-2016, Time: 15:12:51, Instrument: , Lab: , User:

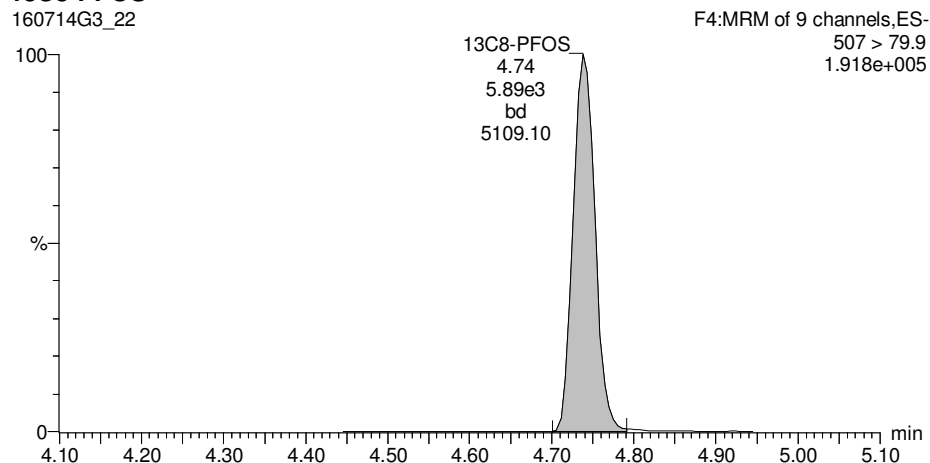
Total PFOS



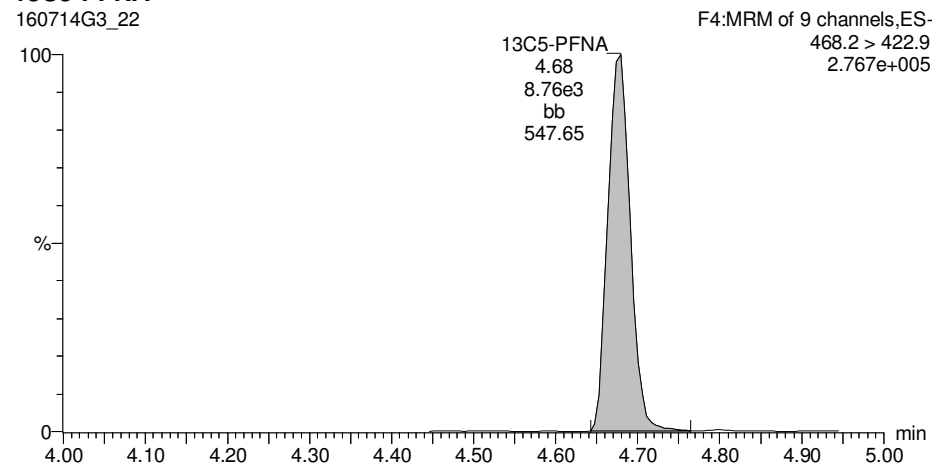
PFNA



13C8-PFOS



13C5-PFNA



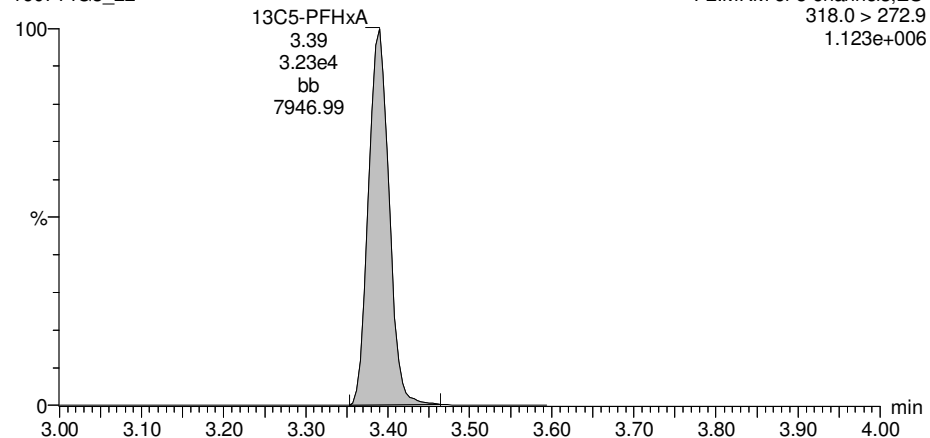
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Last Altered: Friday, July 15, 2016 09:23:15 Pacific Daylight Time
Printed: Friday, July 15, 2016 09:23:21 Pacific Daylight Time

ID: 1600872-04RE1 OF-FB070616 0.12947, Description: OF-FB070616, Name: 160714G3_22, Date: 14-Jul-2016, Time: 15:12:51, Instrument: , Lab: , User:

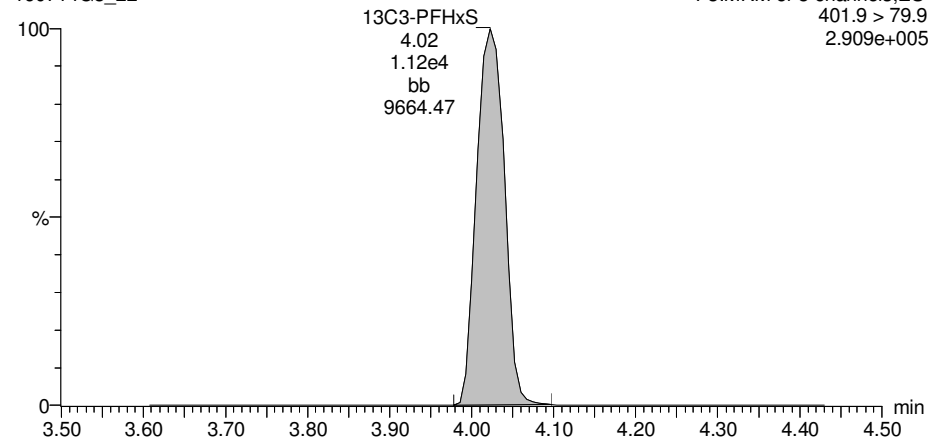
13C5-PFHxA

160714G3_22



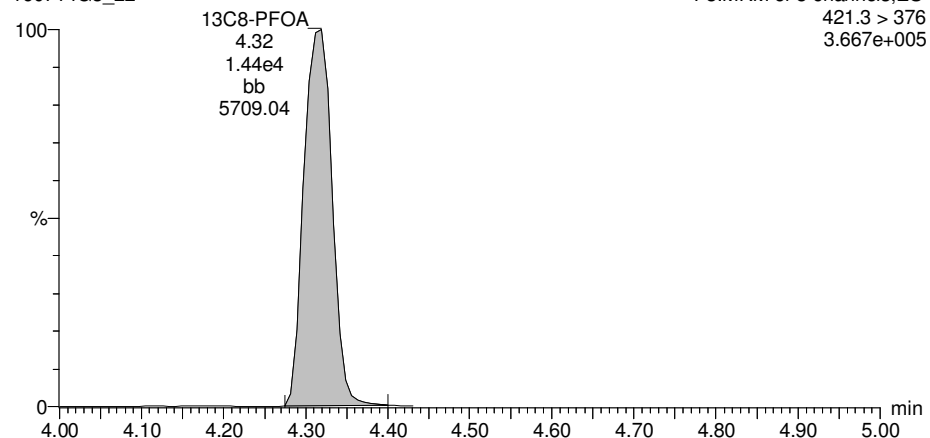
13C3-PFHxS

160714G3_22



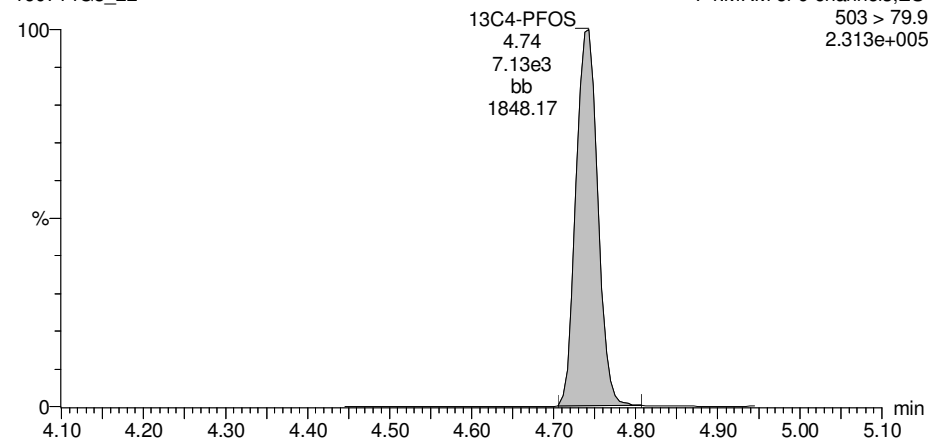
13C8-PFOA

160714G3_22



13C4-PFOS

160714G3_22



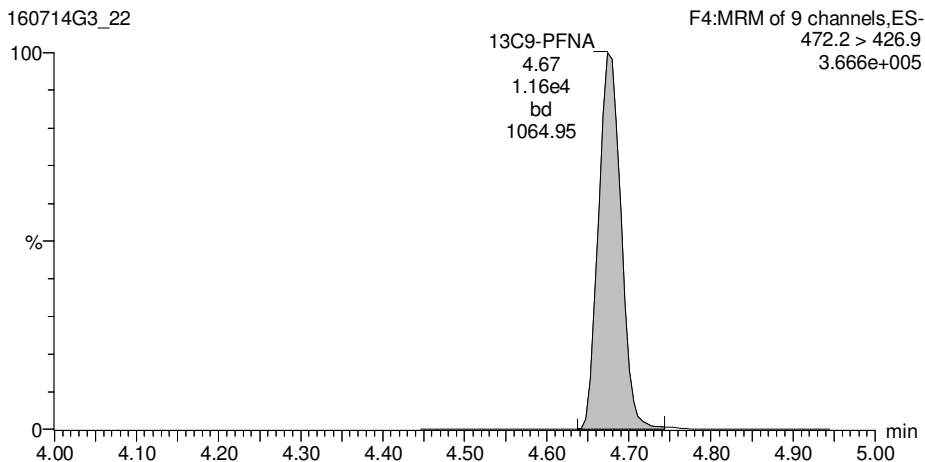
Dataset: C:\Projects\Q1.PRO\Results\160714G3\160714G3_22.qld

Last Altered: Friday, July 15, 2016 09:23:15 Pacific Daylight Time
Printed: Friday, July 15, 2016 09:23:21 Pacific Daylight Time

ID: 1600872-04RE1 OF-FB070616 0.12947, Description: OF-FB070616, Name: 160714G3_22, Date: 14-Jul-2016, Time: 15:12:51, Instrument: , Lab: , User:

13C9-PFNA

160714G3_22



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
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 08:32:10 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:		ION Ratio	Concentration	C-Cals Name	Sign Date	Correct I-Cal	Manual Integrations	NA
ST160714G3-10	<u>LMH</u>	☒	☒	☒	☒	☒	☒	☒
<u>↓ -11</u>	<u>LMH</u>	☒	☒	☒	☒	☒	☒	☒
Calibration ID:	LMH	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	LMH	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	LMH	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	LMH	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	LMH	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	LMH	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	LMH	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	LMH	☐	☐	☐	☐	☐	☐	☐

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

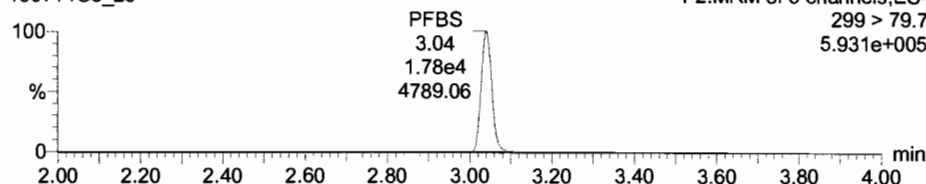
Calibration: 15 Jul 2016 08:17:47

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

160714G3_26

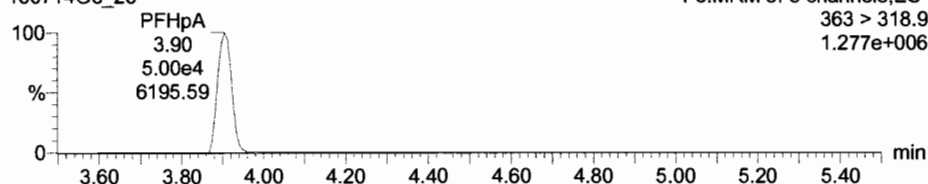
F2:MRM of 5 channels,ES-
299 > 79.7
5.931e+005



PFHpA

160714G3_26

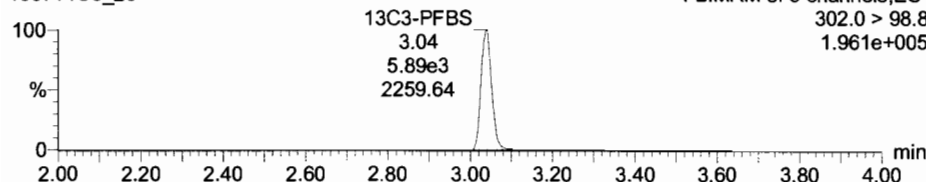
F3:MRM of 8 channels,ES-
363 > 318.9
1.277e+006



13C3-PFBS

160714G3_26

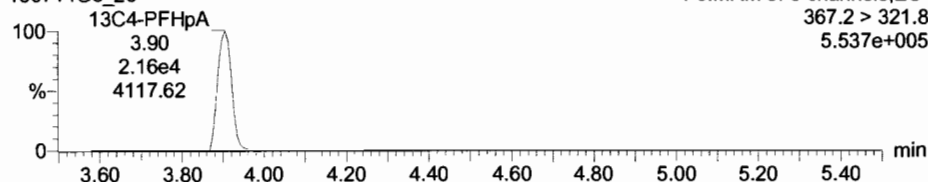
F2:MRM of 5 channels,ES-
302.0 > 98.8
1.961e+005



13C4-PFHpA

160714G3_26

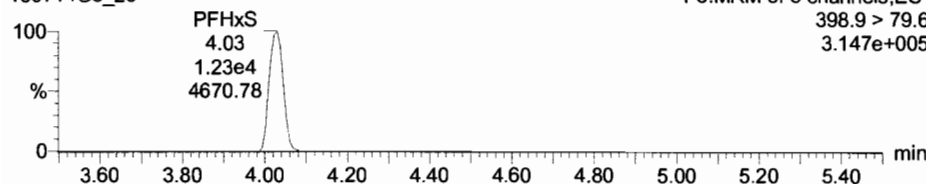
F3:MRM of 8 channels,ES-
367.2 > 321.8
5.537e+005



PFHxS

160714G3_26

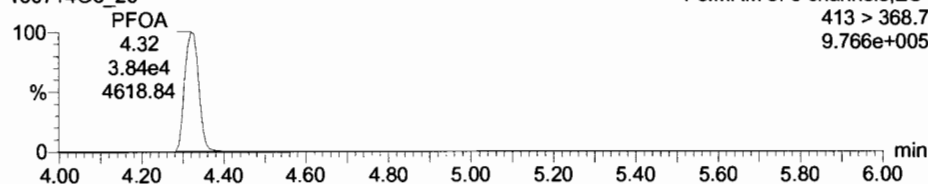
F3:MRM of 8 channels,ES-
398.9 > 79.6
3.147e+005



PFOA

160714G3_26

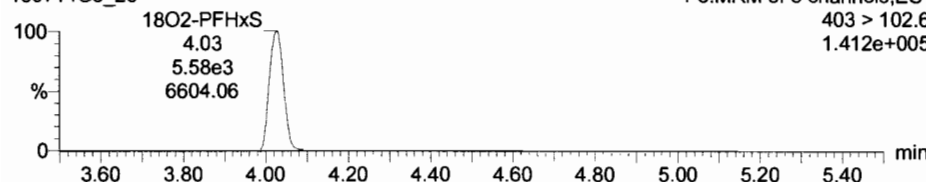
F3:MRM of 8 channels,ES-
413 > 368.7
9.766e+005



18O2-PFHxS

160714G3_26

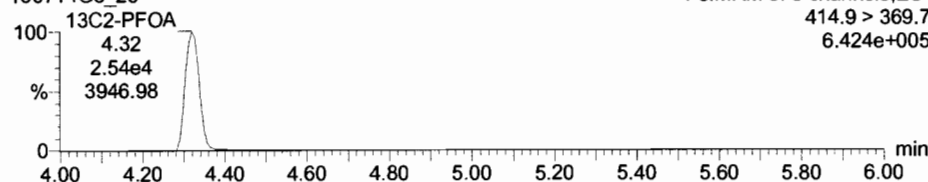
F3:MRM of 8 channels,ES-
403 > 102.6
1.412e+005



13C2-PFOA

160714G3_26

F3:MRM of 8 channels,ES-
414.9 > 369.7
6.424e+005



Dataset: Untitled

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

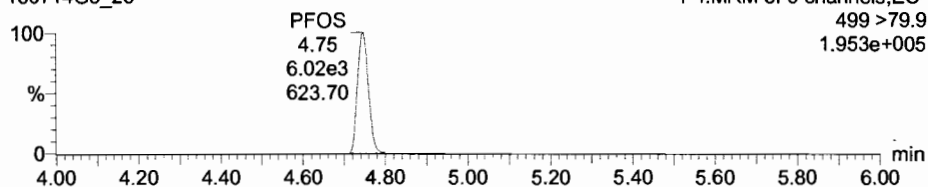
Printed: Friday, July 15, 2016 08:17:48 Pacific Daylight Time

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

160714G3_26

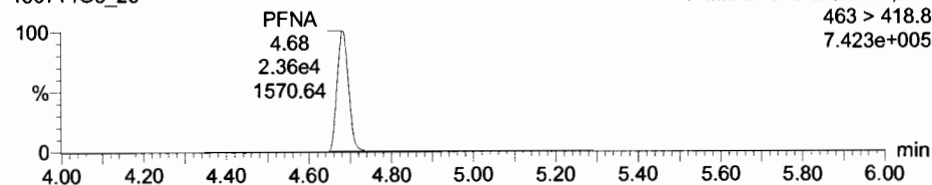
F4:MRM of 9 channels,ES-
499 > 79.9
1.953e+005



PFNA

160714G3_26

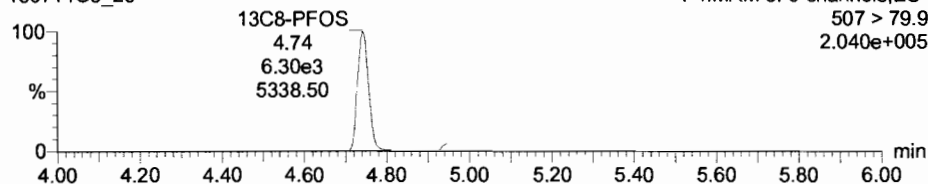
F4:MRM of 9 channels,ES-
463 > 418.8
7.423e+005



13C8-PFOS

160714G3_26

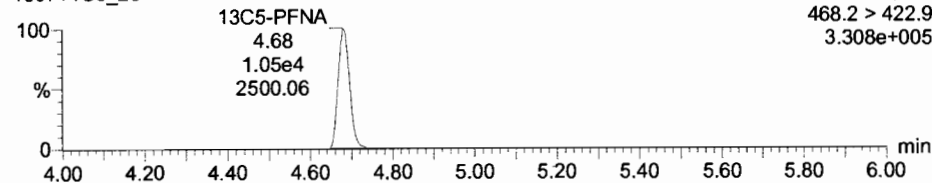
F4:MRM of 9 channels,ES-
507 > 79.9
2.040e+005



13C5-PFNA

160714G3_26

F4:MRM of 9 channels,ES-
468.2 > 422.9
3.308e+005



Dataset: Untitled

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

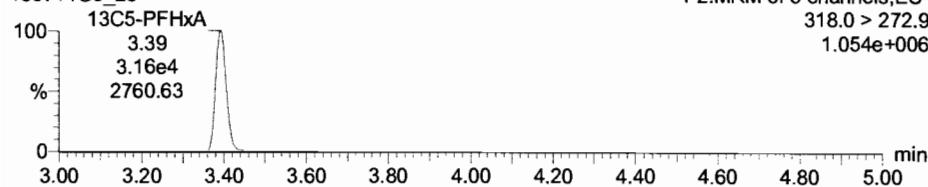
Printed: Friday, July 15, 2016 08:17:48 Pacific Daylight Time

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

160714G3_26

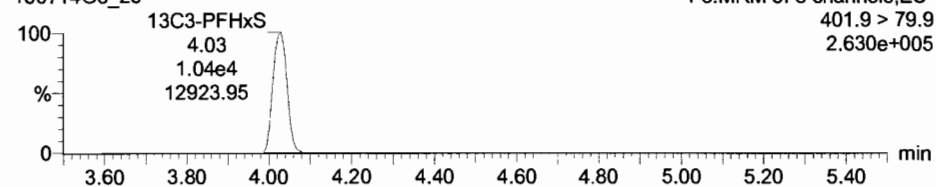
F2:MRM of 5 channels,ES-
318.0 > 272.9
1.054e+006



13C3-PFHxS

160714G3_26

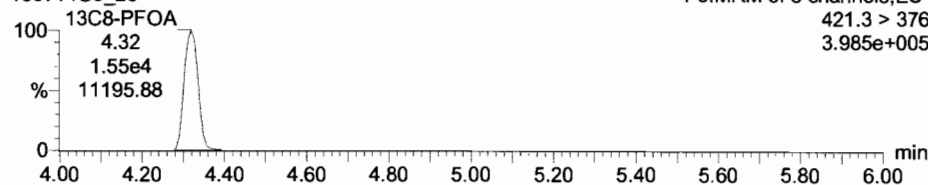
F3:MRM of 8 channels,ES-
401.9 > 79.9
2.630e+005



13C8-PFOA

160714G3_26

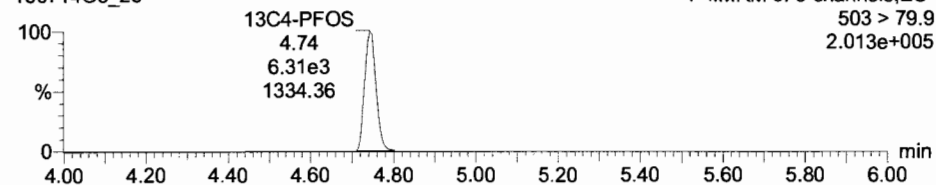
F3:MRM of 8 channels,ES-
421.3 > 376
3.985e+005



13C4-PFOS

160714G3_26

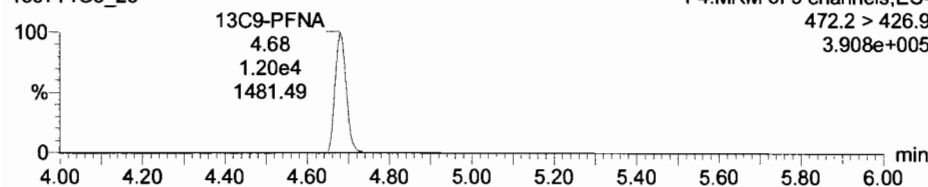
F4:MRM of 9 channels,ES-
503 > 79.9
2.013e+005



13C9-PFNA

160714G3_26

F4:MRM of 9 channels,ES-
472.2 > 426.9
3.908e+005



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

PW
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

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: $R^2 = 0.997407$

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

	# 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: $R^2 = 0.997296$

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

	# 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

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

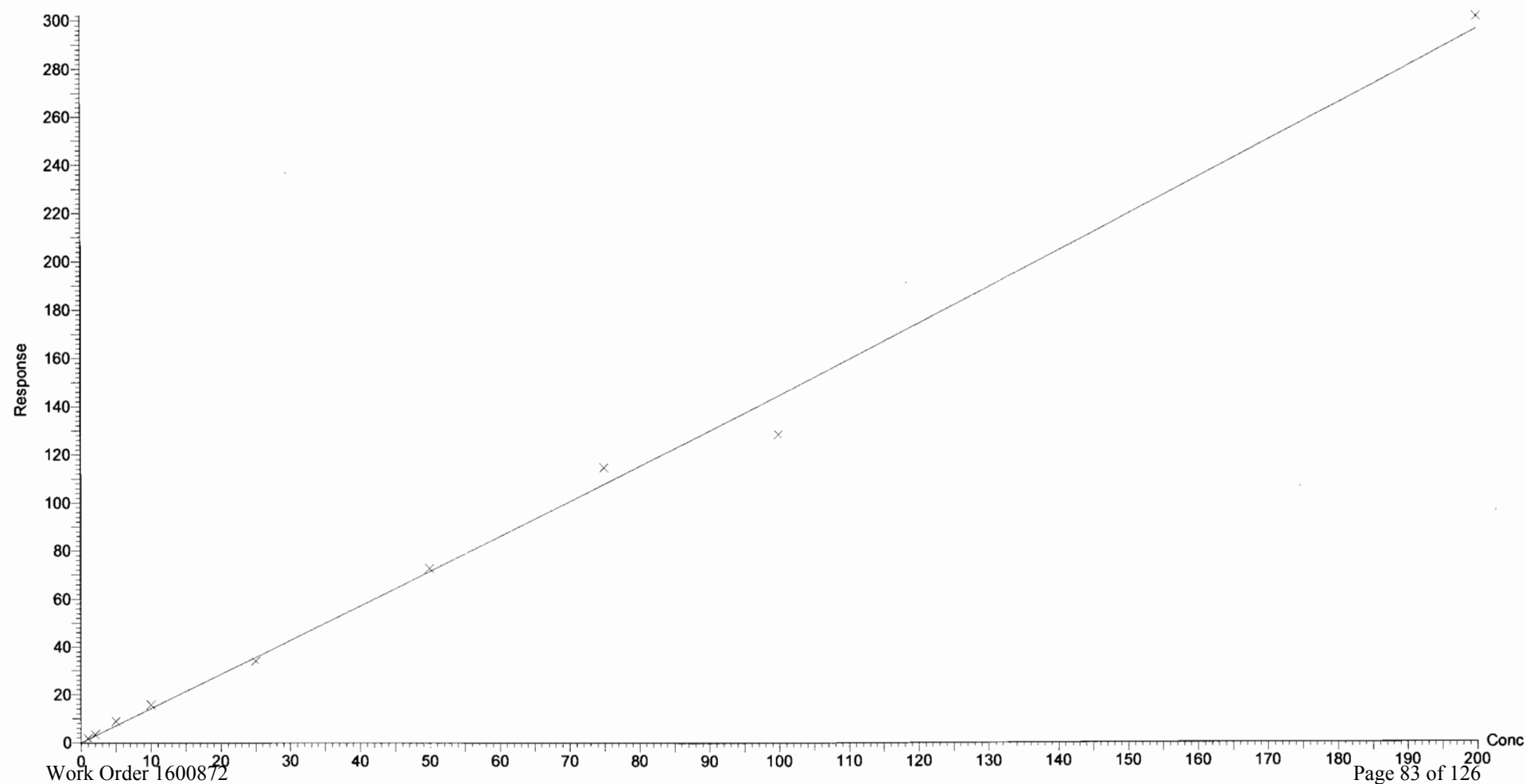
Calibration: C:\Projects\Q1.PRO\CurveDB\C18_VAL-PFC_Q1_07-14-16_L6.cdb 15 Jul 2016 08:19:03

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

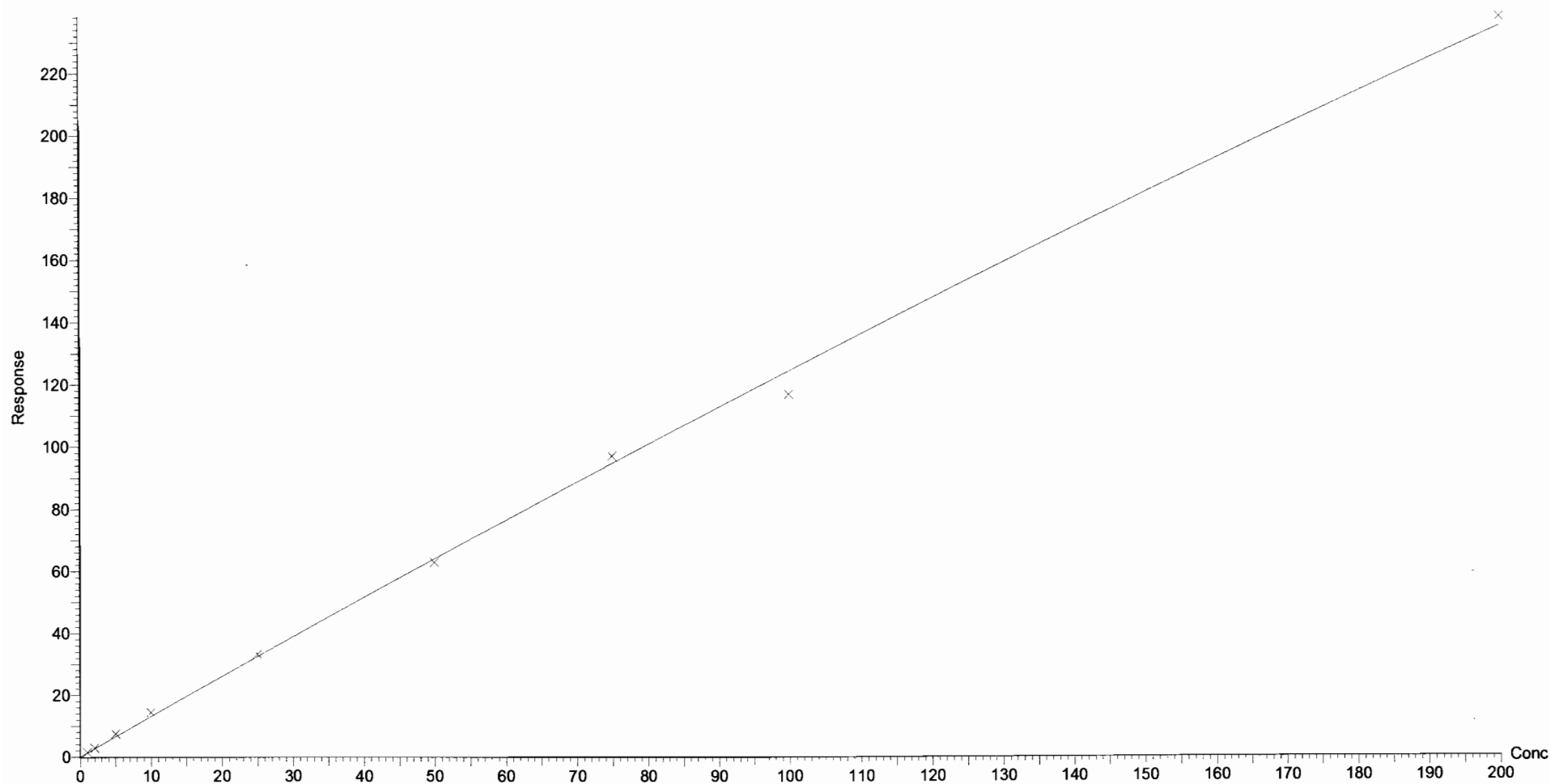
Printed: Friday, July 15, 2016 08:23:03 Pacific Daylight Time

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

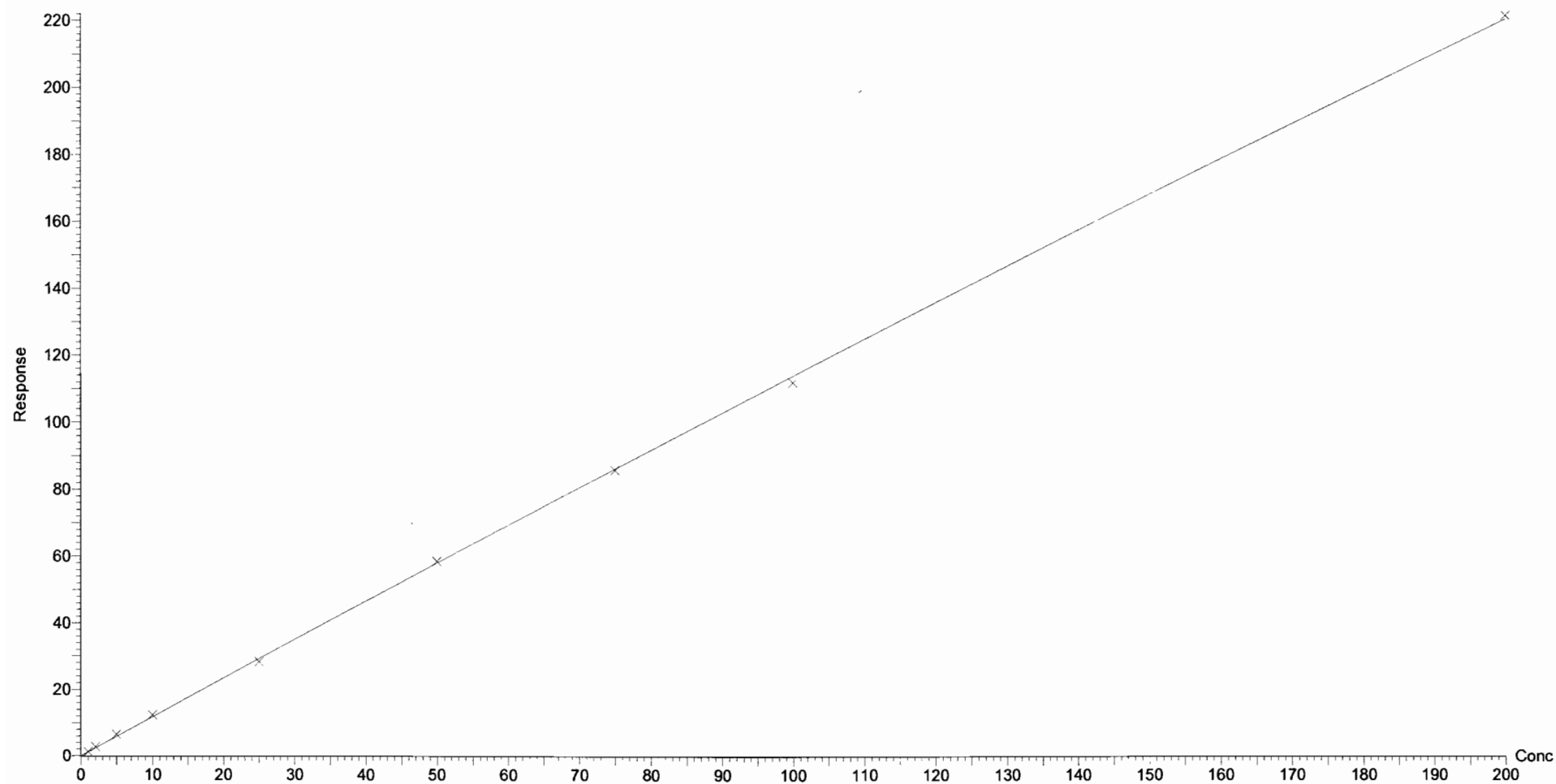
Printed: Friday, July 15, 2016 08:23:03 Pacific Daylight Time

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



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

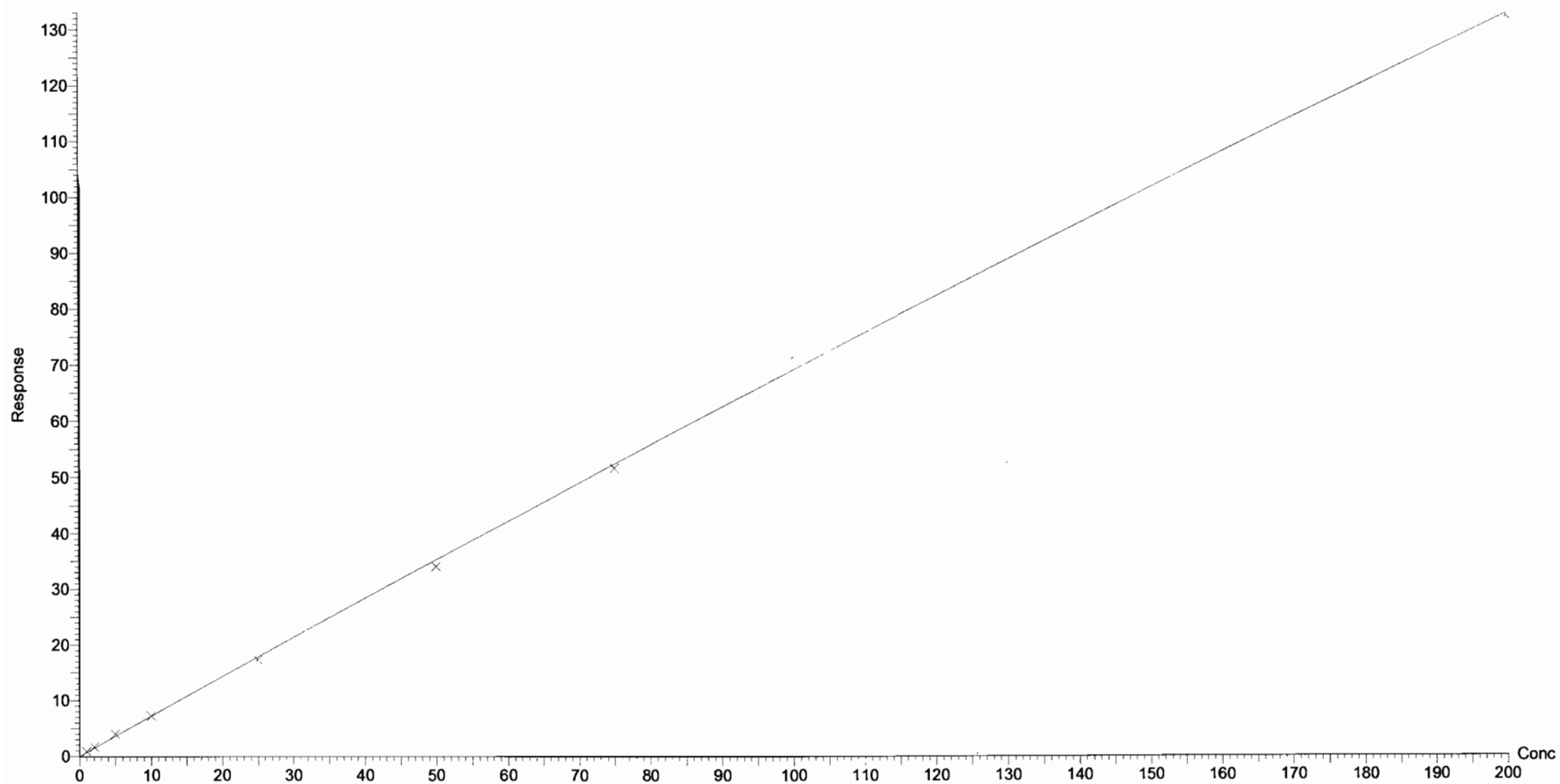
Printed: Friday, July 15, 2016 08:23:03 Pacific Daylight Time

Compound name: 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

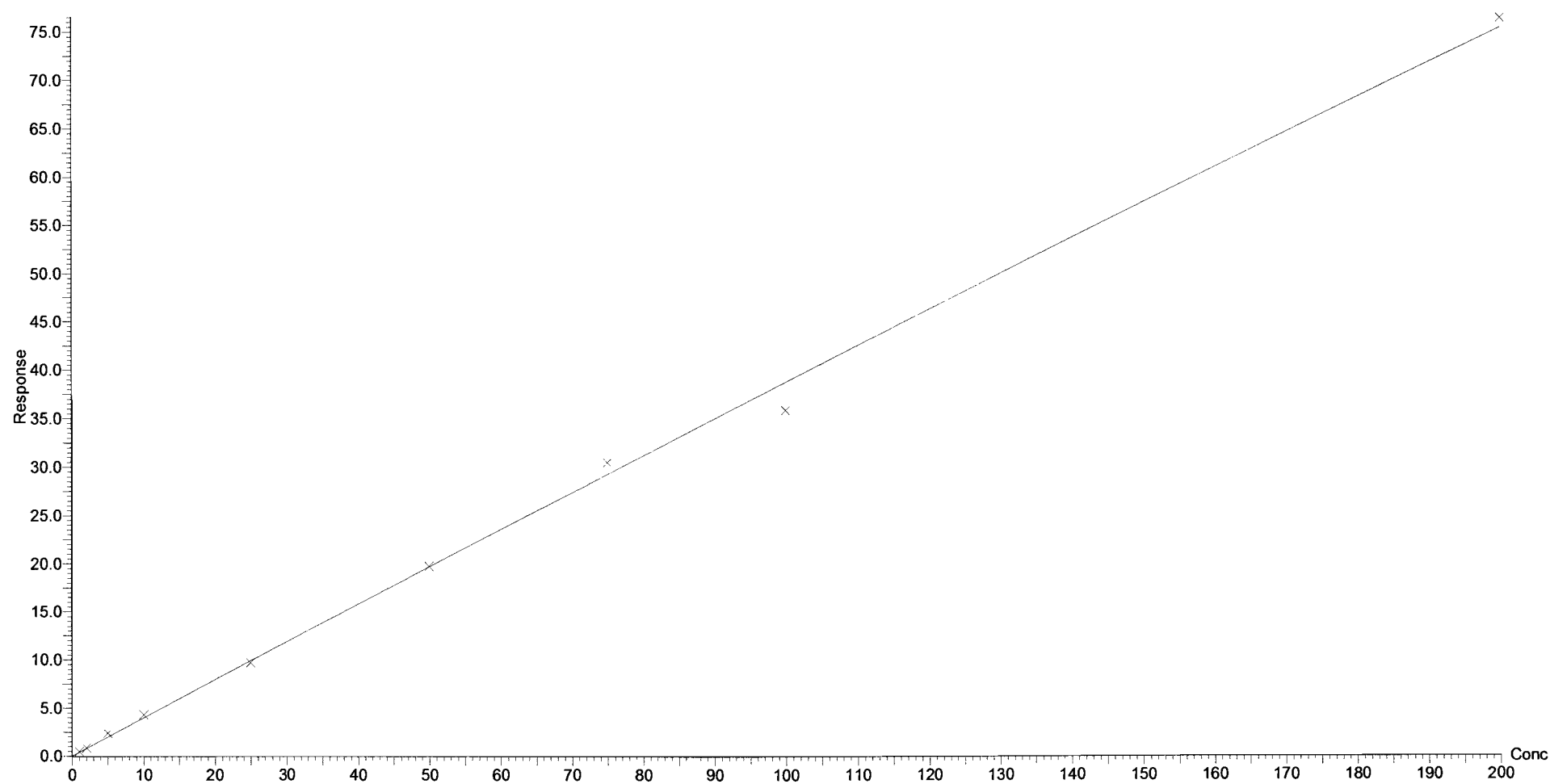
Compound name: PFOS

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

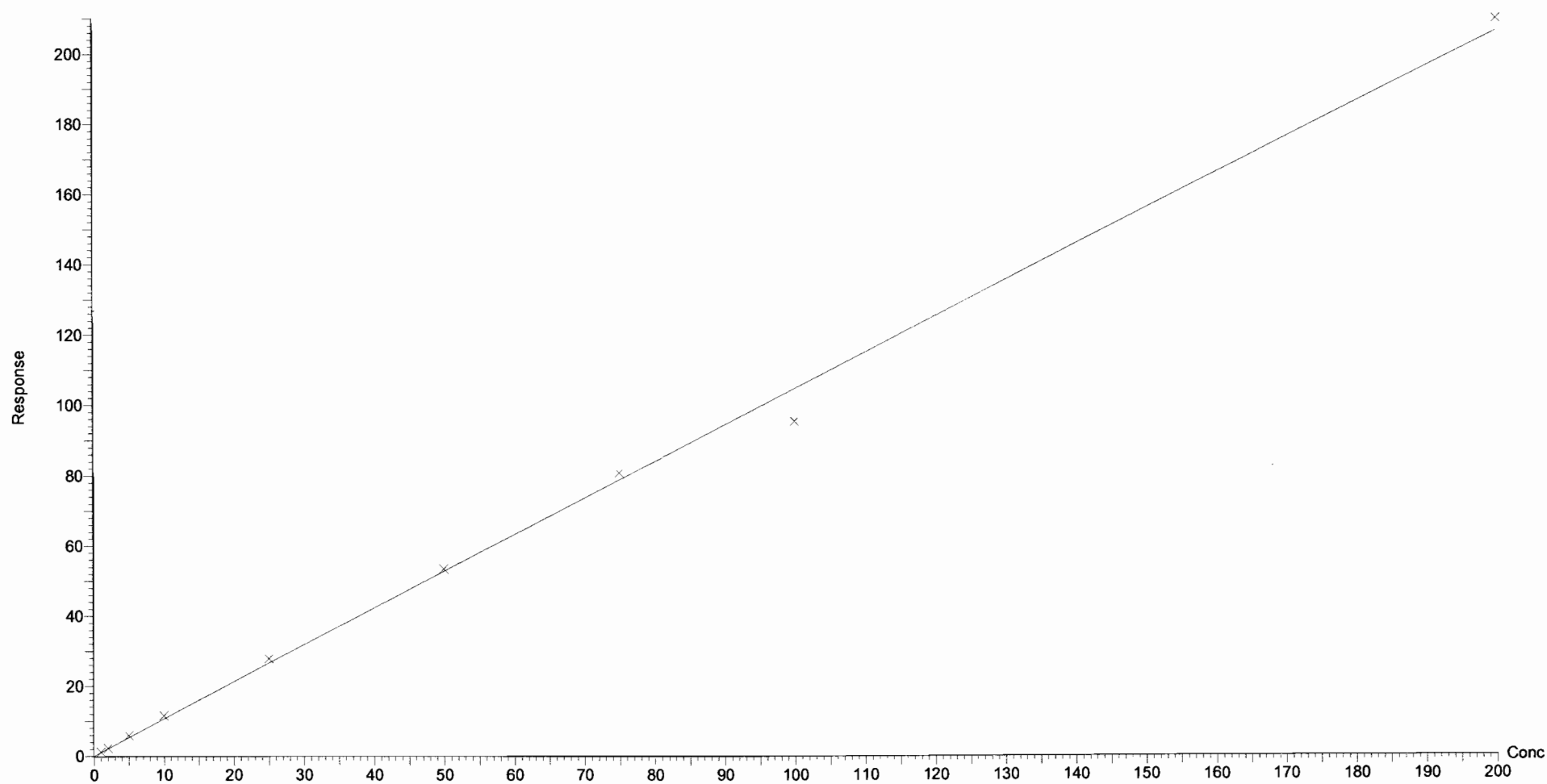
Compound name: PFNA

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

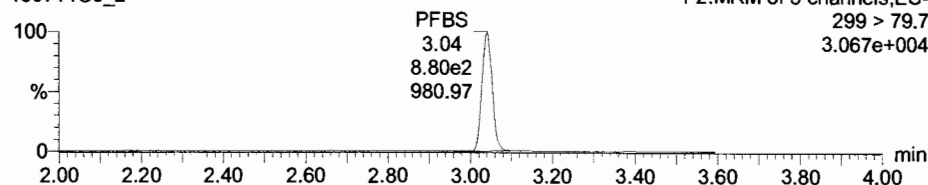
Calibration: 15 Jul 2016 08:17:00

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

PFBS

160714G3_2

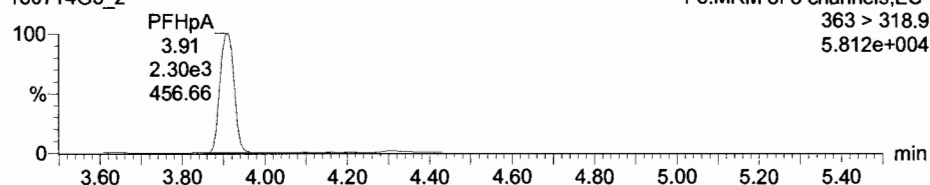
F2:MRM of 5 channels,ES-
299 > 79.7
3.067e+004



PFHpA

160714G3_2

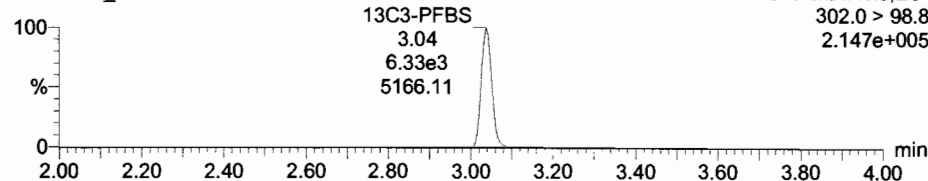
F3:MRM of 8 channels,ES-
363 > 318.9
5.812e+004



13C3-PFBS

160714G3_2

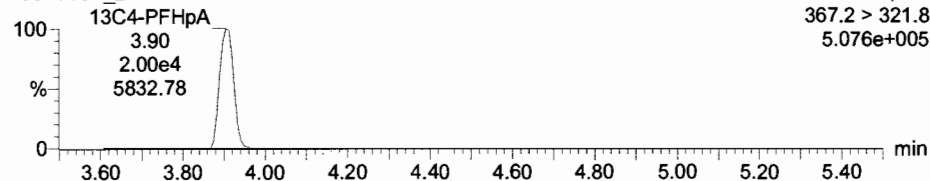
F2:MRM of 5 channels,ES-
302.0 > 98.8
2.147e+005



13C4-PFHpA

160714G3_2

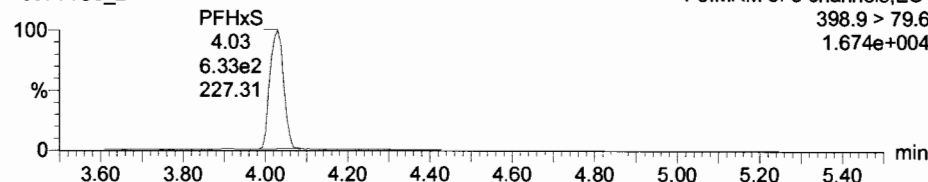
F3:MRM of 8 channels,ES-
367.2 > 321.8
5.076e+005



PFHxS

160714G3_2

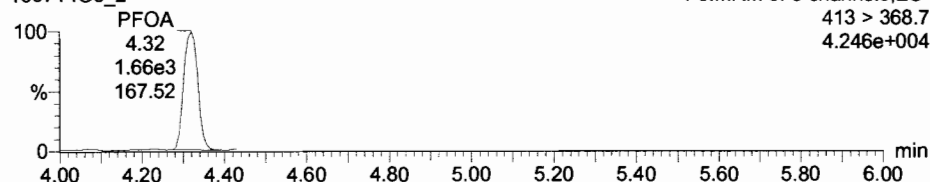
F3:MRM of 8 channels,ES-
398.9 > 79.6
1.674e+004



PFOA

160714G3_2

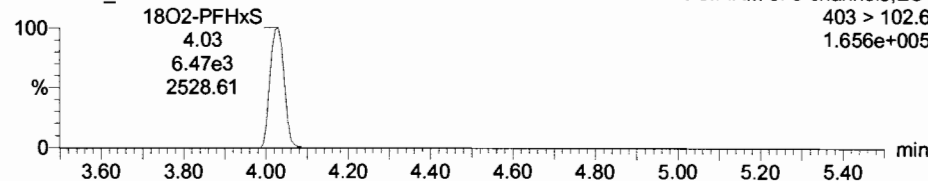
F3:MRM of 8 channels,ES-
413 > 368.7
4.246e+004



18O2-PFHxS

160714G3_2

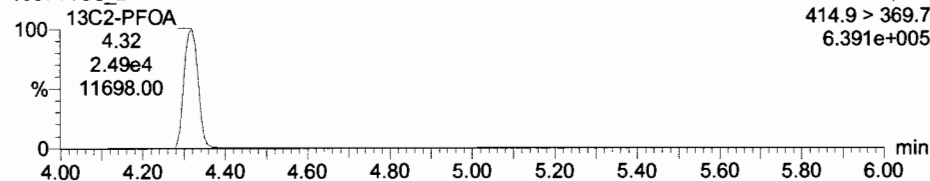
F3:MRM of 8 channels,ES-
403 > 102.6
1.656e+005



13C2-PFOA

160714G3_2

F3:MRM of 8 channels,ES-
414.9 > 369.7
6.391e+005



Dataset: Untitled

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

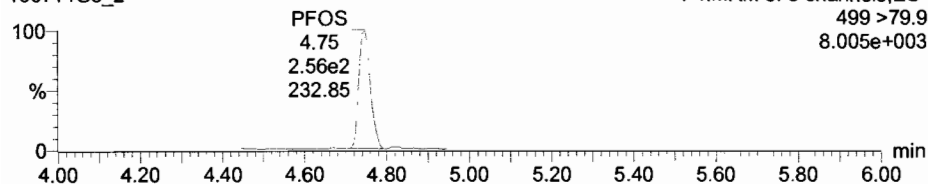
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

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

PFOS

160714G3_2

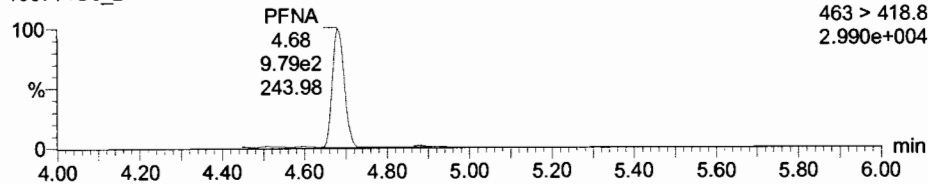
F4:MRM of 9 channels,ES-
499 > 79.9
8.005e+003



PFNA

160714G3_2

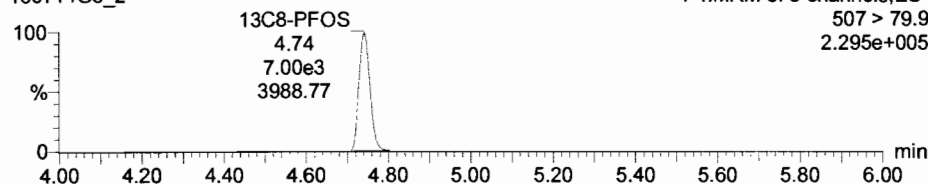
F4:MRM of 9 channels,ES-
463 > 418.8
2.990e+004



13C8-PFOS

160714G3_2

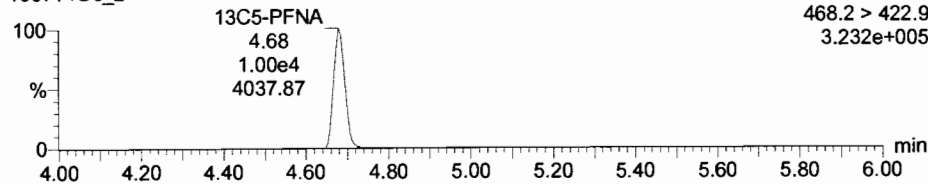
F4:MRM of 9 channels,ES-
507 > 79.9
2.295e+005



13C5-PFNA

160714G3_2

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



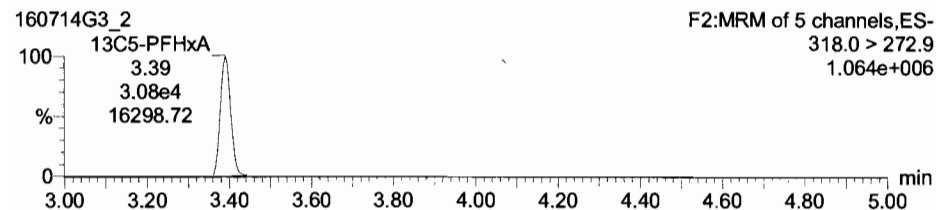
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Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

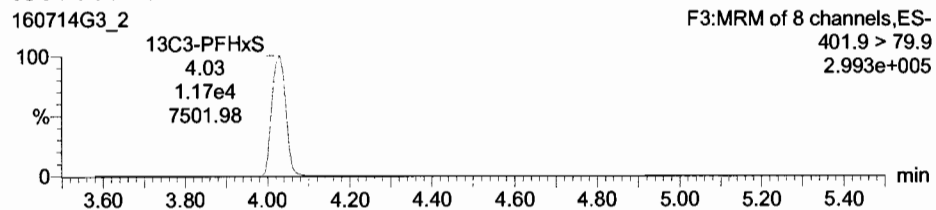
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

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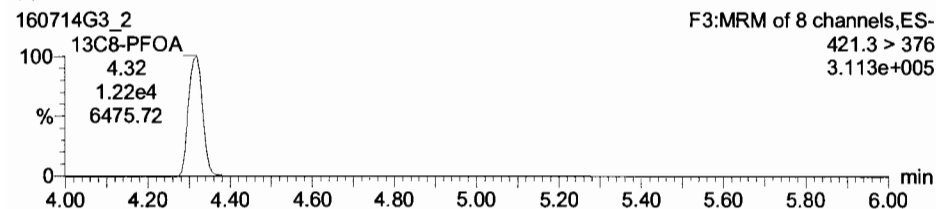
13C5-PFHxA



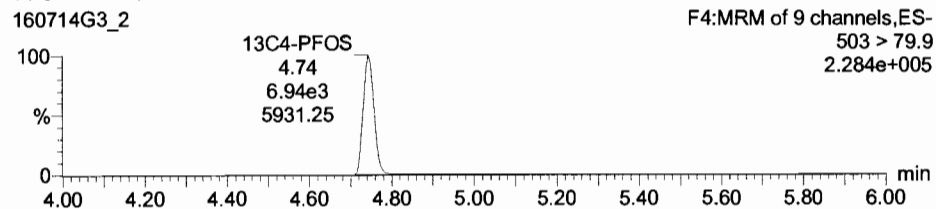
13C3-PFHxS



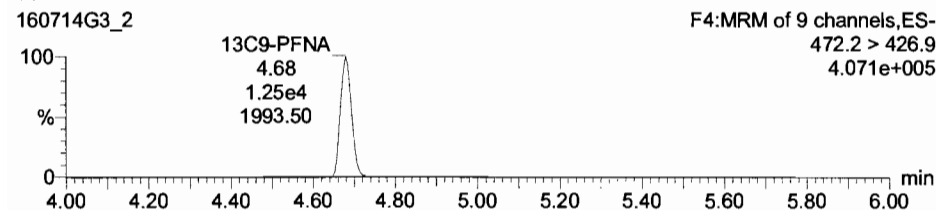
13C8-PFOA



13C4-PFOS



13C9-PFNA



Dataset: Untitled

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

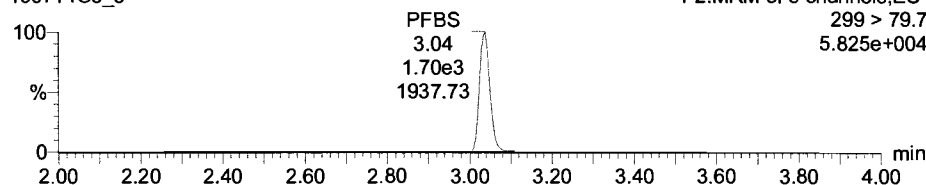
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

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

PFBS

160714G3_3

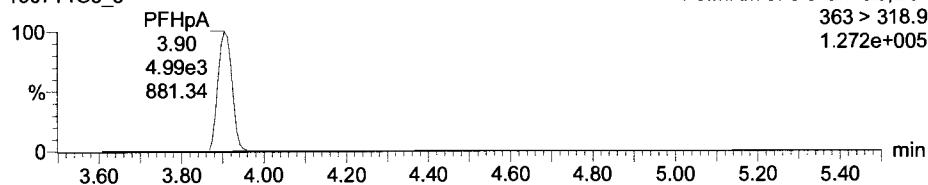
F2:MRM of 5 channels,ES-
299 > 79.7
5.825e+004



PFHpA

160714G3_3

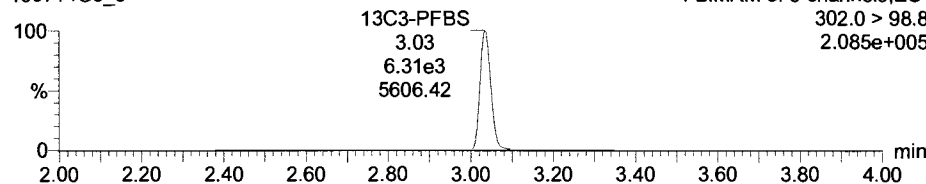
F3:MRM of 8 channels,ES-
363 > 318.9
1.272e+005



13C3-PFBS

160714G3_3

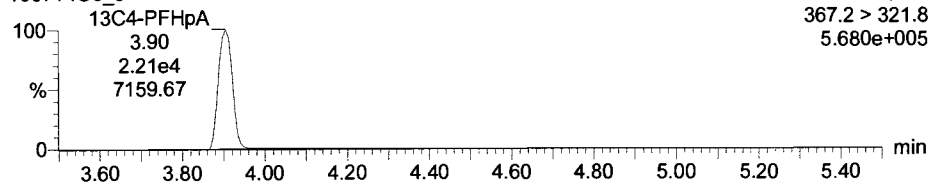
F2:MRM of 5 channels,ES-
302.0 > 98.8
2.085e+005



13C4-PFHpA

160714G3_3

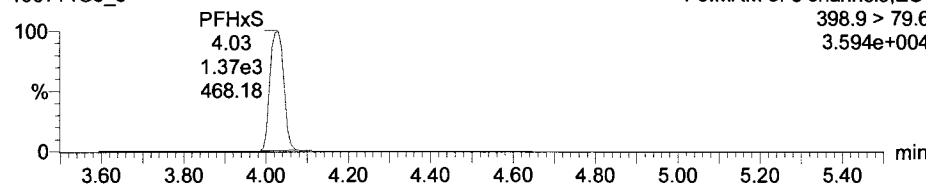
F3:MRM of 8 channels,ES-
367.2 > 321.8
5.680e+005



PFHxS

160714G3_3

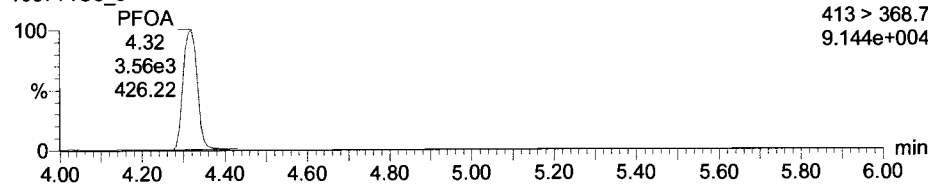
F3:MRM of 8 channels,ES-
398.9 > 79.6
3.594e+004



PFOA

160714G3_3

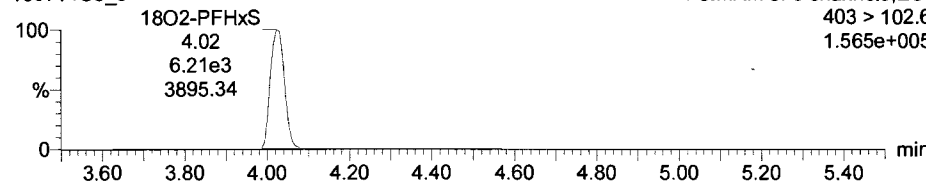
F3:MRM of 8 channels,ES-
413 > 368.7
9.144e+004



18O2-PFHxS

160714G3_3

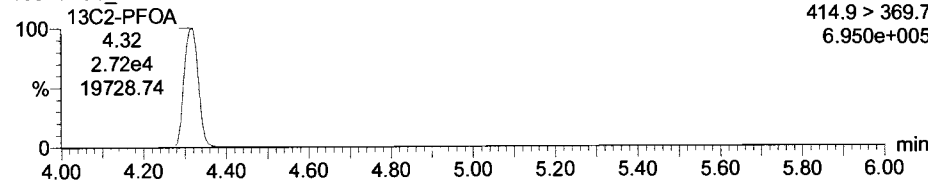
F3:MRM of 8 channels,ES-
403 > 102.6
1.565e+005



13C2-PFOA

160714G3_3

F3:MRM of 8 channels,ES-
414.9 > 369.7
6.950e+005



Dataset: Untitled

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

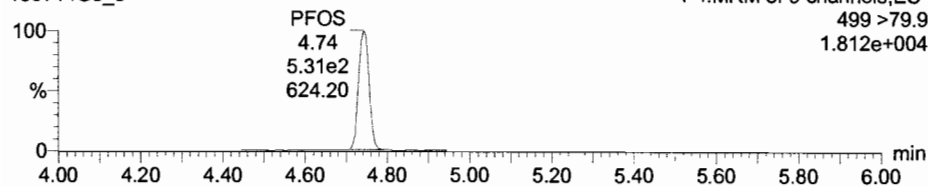
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

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

PFOS

160714G3_3

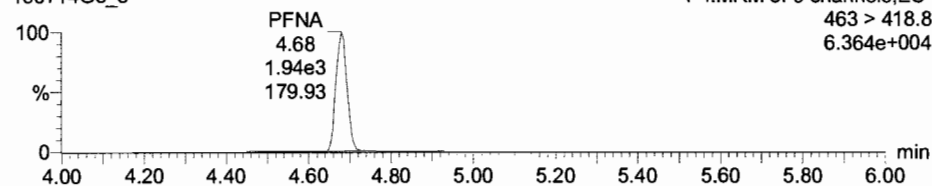
F4:MRM of 9 channels,ES-
499 > 79.9
1.812e+004



PFNA

160714G3_3

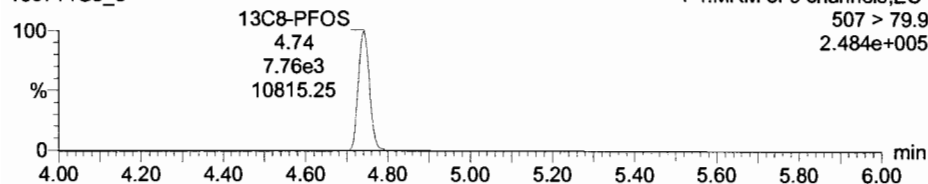
F4:MRM of 9 channels,ES-
463 > 418.8
6.364e+004



13C8-PFOS

160714G3_3

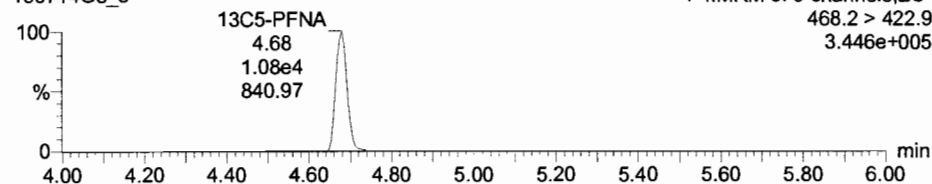
F4:MRM of 9 channels,ES-
507 > 79.9
2.484e+005



13C5-PFNA

160714G3_3

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

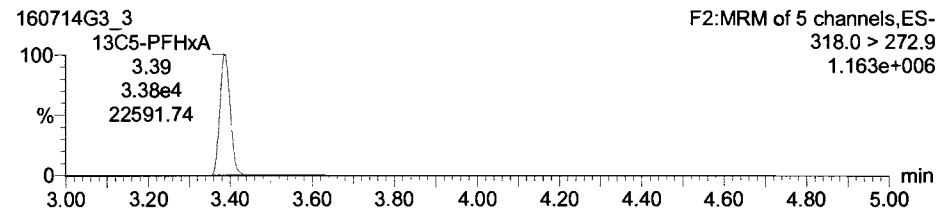


Dataset: Untitled

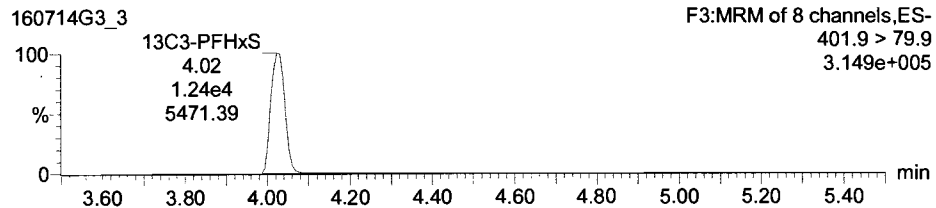
Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

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

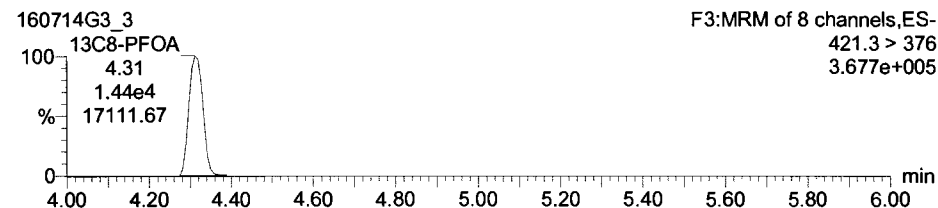
13C5-PFHxA



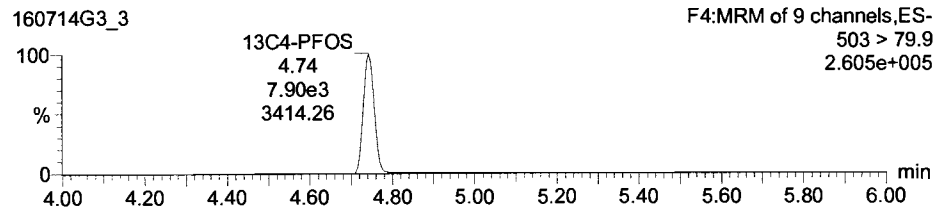
13C3-PFHxS



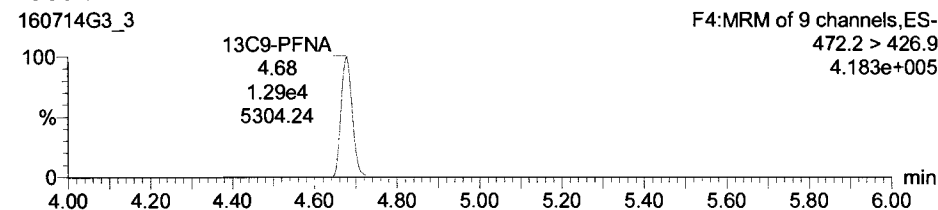
13C8-PFOA



13C4-PFOS



13C9-PFNA



Dataset: Untitled

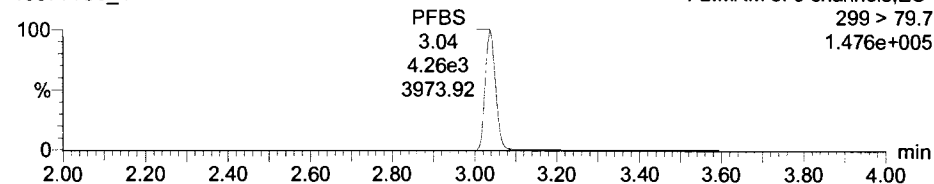
Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

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

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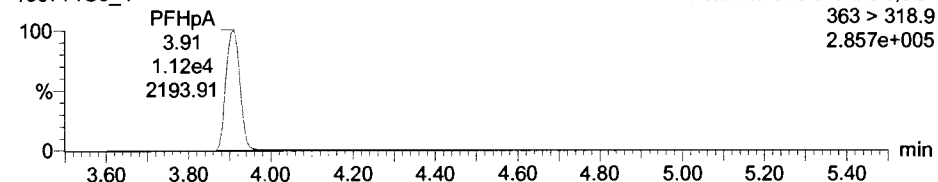
PFBS

160714G3_4



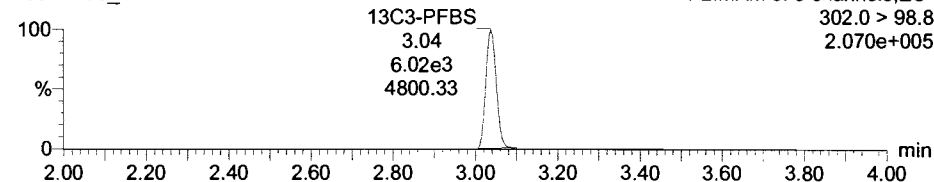
PFHpA

160714G3_4



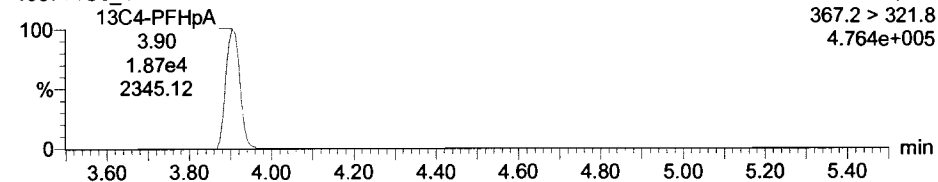
13C3-PFBS

160714G3_4



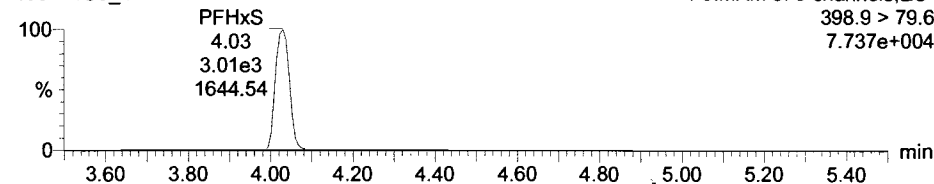
13C4-PFHpA

160714G3_4



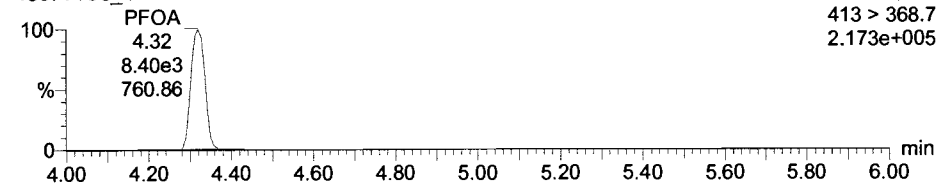
PFHxS

160714G3_4



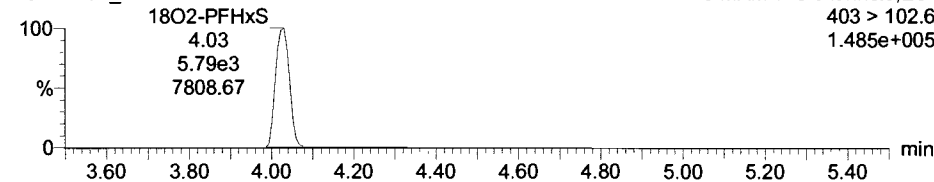
PFOA

160714G3_4



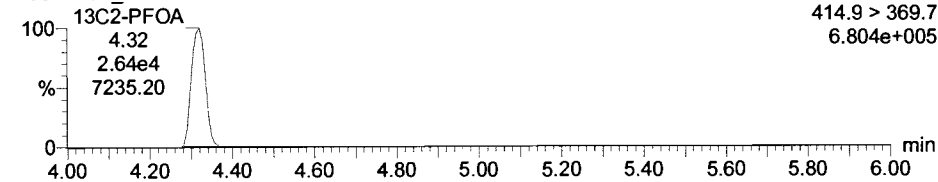
18O2-PFHxS

160714G3_4



13C2-PFOA

160714G3_4



Dataset: Untitled

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

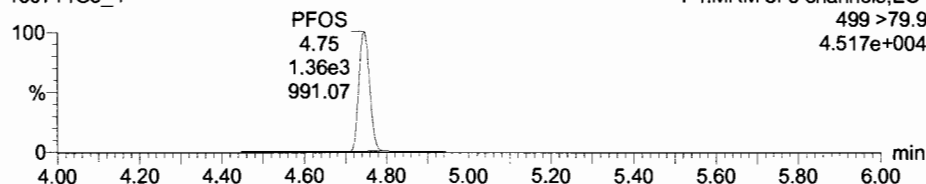
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Name: 160714G3_4, Date: 14-Jul-2016, Time: 11:25:06, ID: ST160714G3-3 PFC CS2 1G1208, Description: PFC CS2 16G1208 A

PFOS

160714G3_4

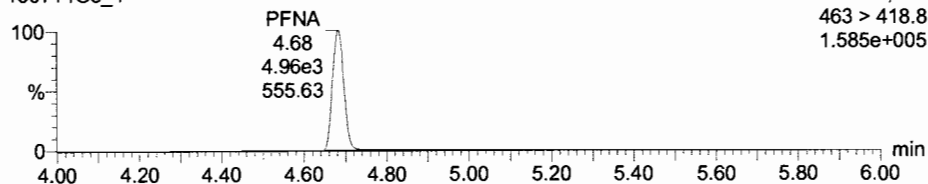
F4:MRM of 9 channels,ES-
499 > 79.9
4.517e+004



PFNA

160714G3_4

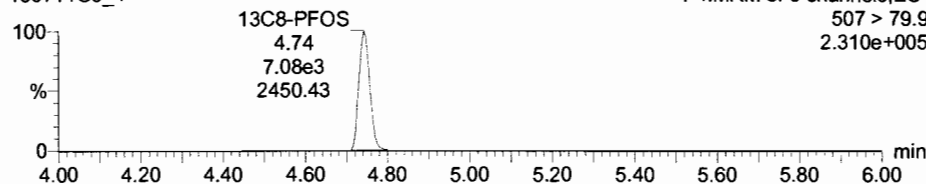
F4:MRM of 9 channels,ES-
463 > 418.8
1.585e+005



13C8-PFOS

160714G3_4

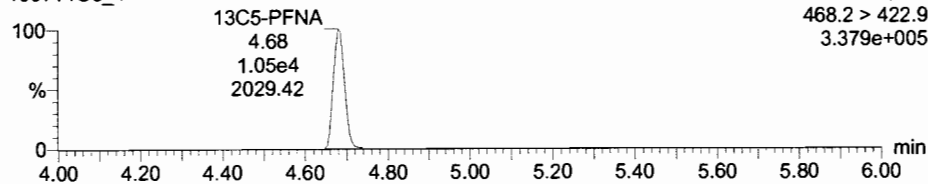
F4:MRM of 9 channels,ES-
507 > 79.9
2.310e+005



13C5-PFNA

160714G3_4

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



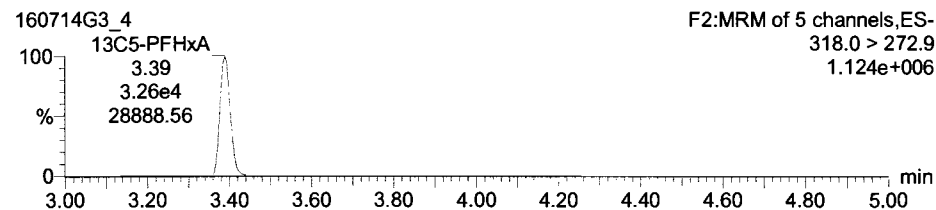
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Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

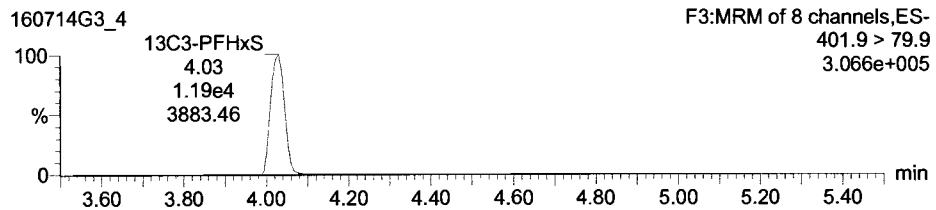
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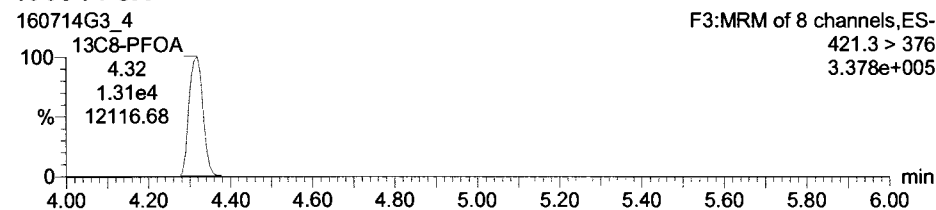
13C5-PFHxA



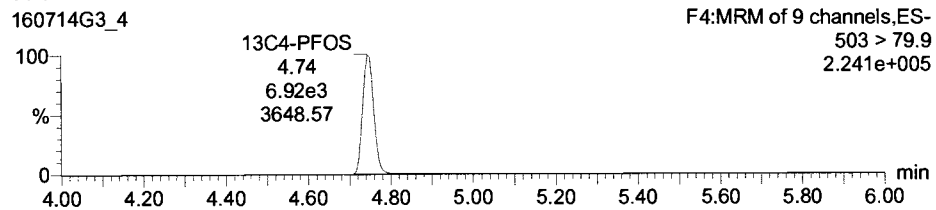
13C3-PFHxS



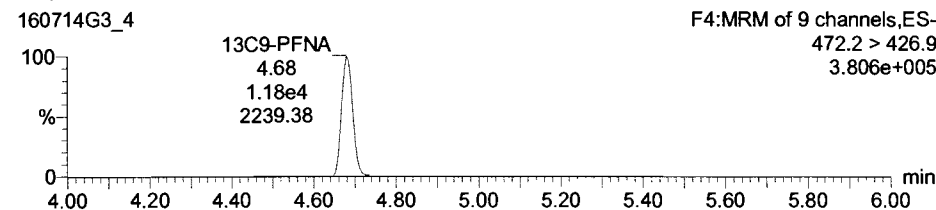
13C8-PFOA



13C4-PFOS



13C9-PFNA



Dataset: Untitled

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

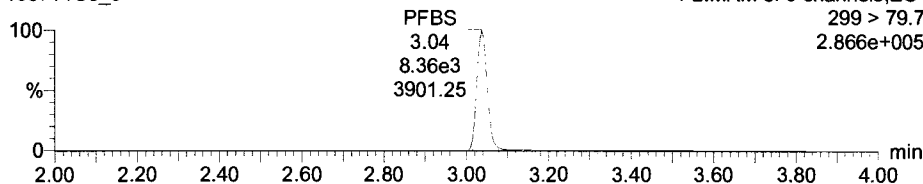
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

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PFBS

160714G3_5

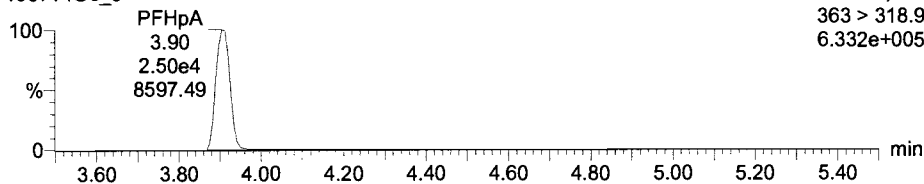
F2:MRM of 5 channels,ES-
299 > 79.7
2.866e+005



PFHpA

160714G3_5

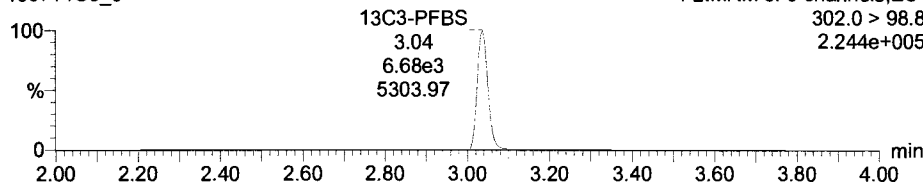
F3:MRM of 8 channels,ES-
363 > 318.9
6.332e+005



13C3-PFBS

160714G3_5

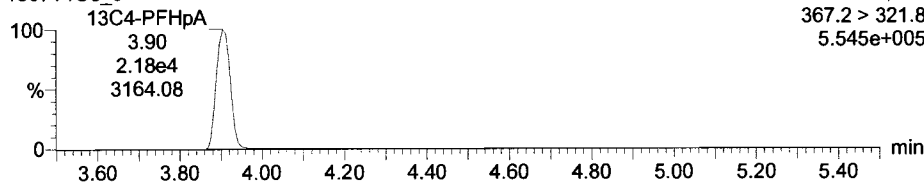
F2:MRM of 5 channels,ES-
302.0 > 98.8
2.244e+005



13C4-PFHpA

160714G3_5

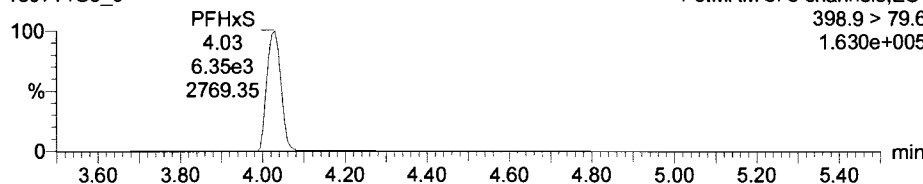
F3:MRM of 8 channels,ES-
367.2 > 321.8
5.545e+005



PFHxS

160714G3_5

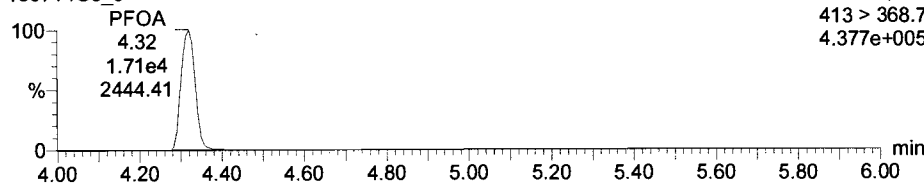
F3:MRM of 8 channels,ES-
398.9 > 79.6
1.630e+005



PFOA

160714G3_5

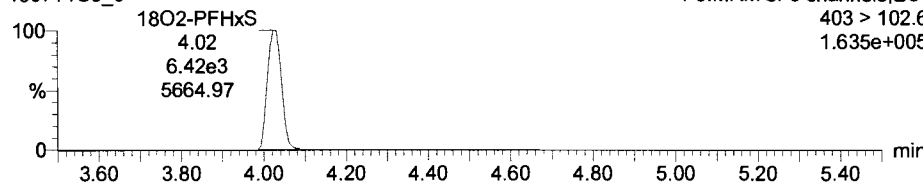
F3:MRM of 8 channels,ES-
413 > 368.7
4.377e+005



18O2-PFHxS

160714G3_5

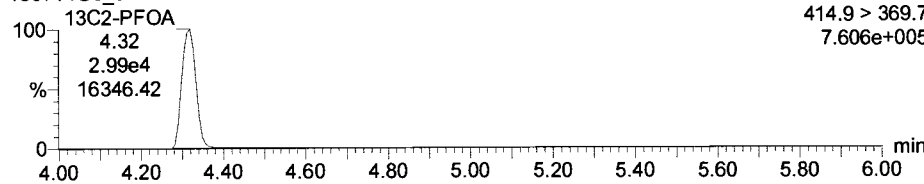
F3:MRM of 8 channels,ES-
403 > 102.6
1.635e+005



13C2-PFOA

160714G3_5

F3:MRM of 8 channels,ES-
414.9 > 369.7
7.606e+005



Dataset: Untitled

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

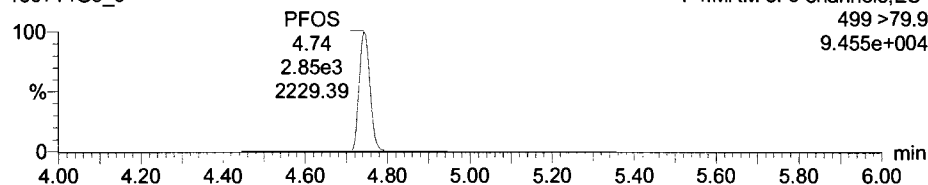
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PFOS

160714G3_5

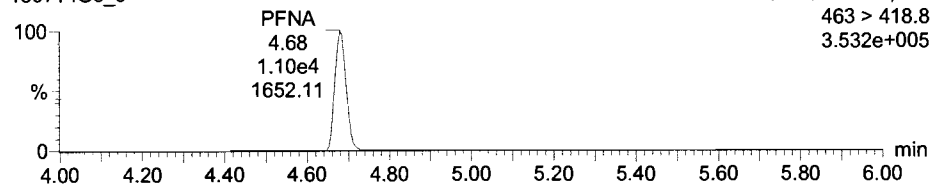
F4:MRM of 9 channels,ES-
499 > 79.9
9.455e+004



PFNA

160714G3_5

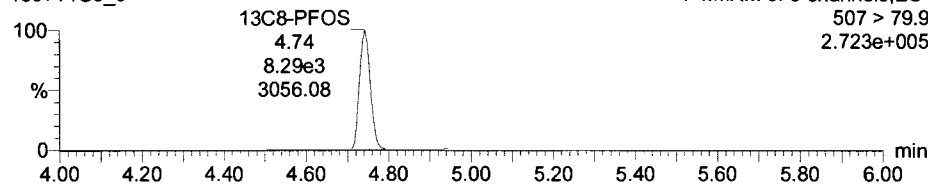
F4:MRM of 9 channels,ES-
463 > 418.8
3.532e+005



13C8-PFOS

160714G3_5

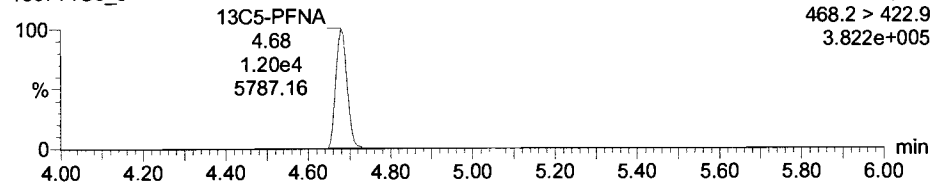
F4:MRM of 9 channels,ES-
507 > 79.9
2.723e+005



13C5-PFNA

160714G3_5

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



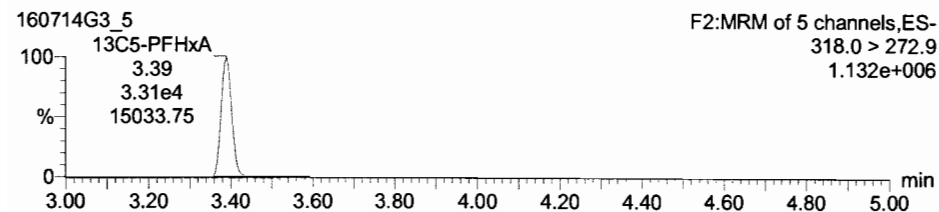
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Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

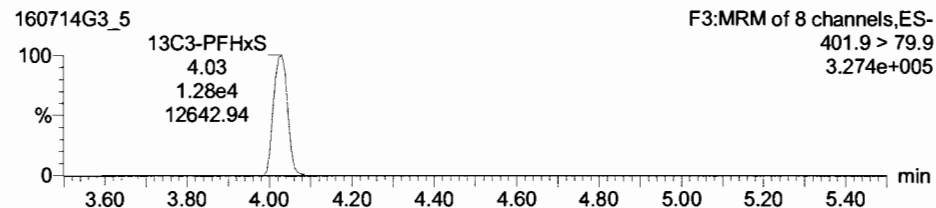
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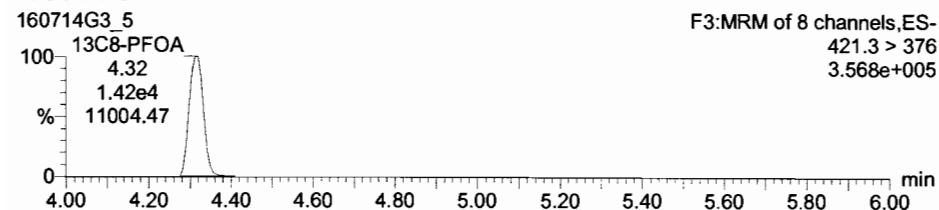
13C5-PFHxA



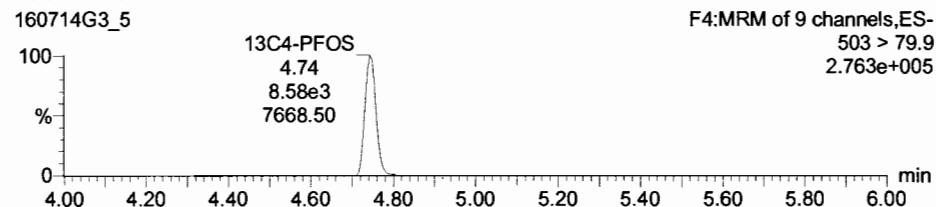
13C3-PFHxS



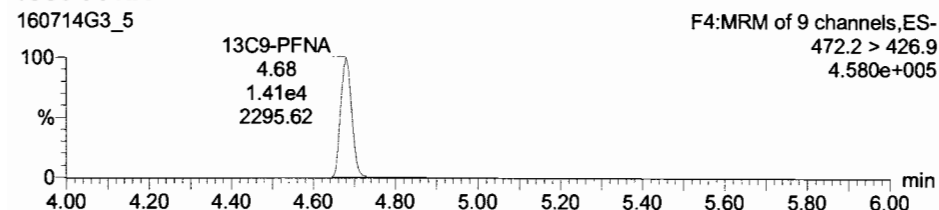
13C8-PFOA



13C4-PFOS



13C9-PFNA



Dataset: Untitled

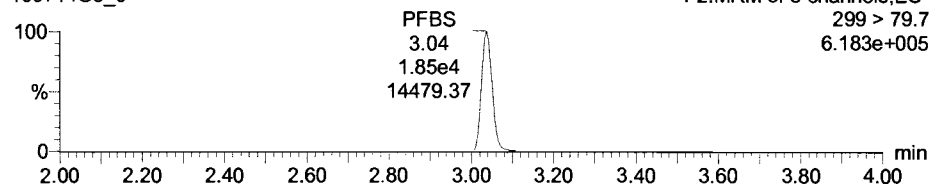
Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

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

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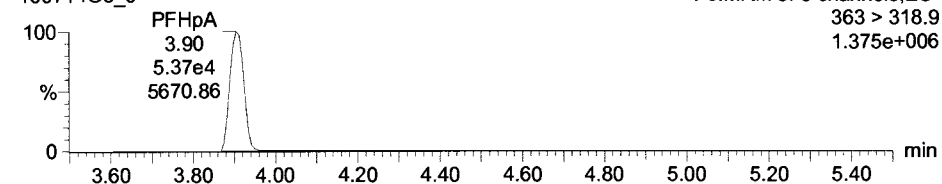
PFBS

160714G3_6



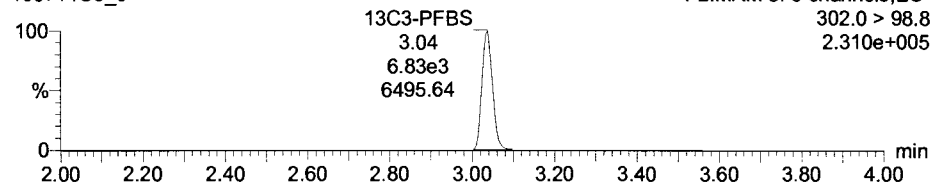
PFHpA

160714G3_6



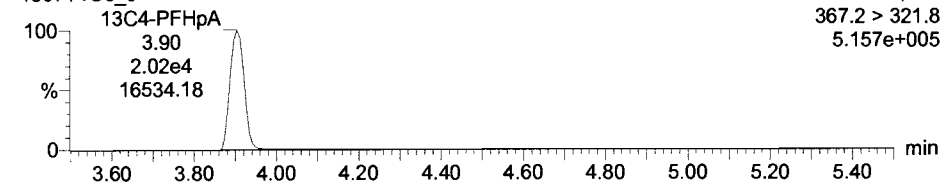
13C3-PFBS

160714G3_6



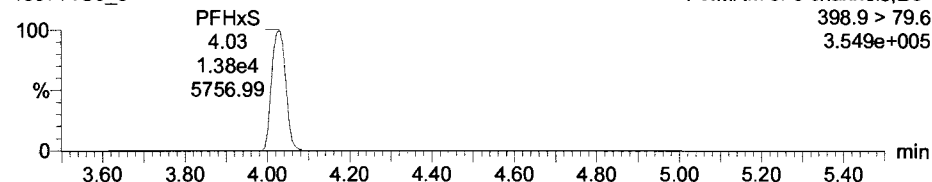
13C4-PFHpA

160714G3_6



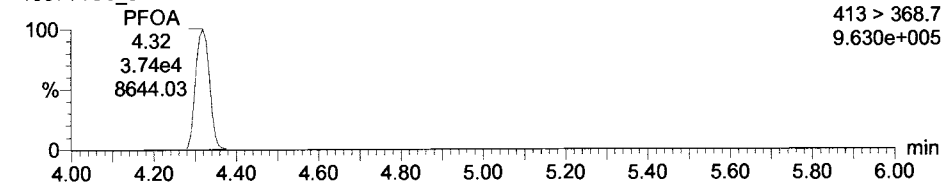
PFHxS

160714G3_6



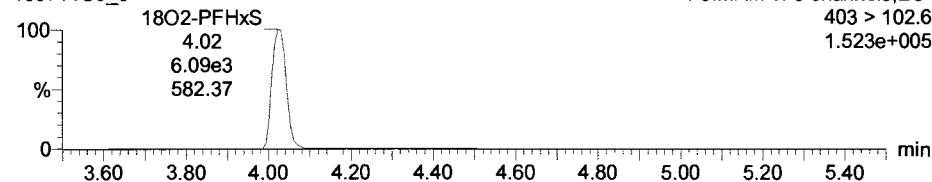
PFOA

160714G3_6



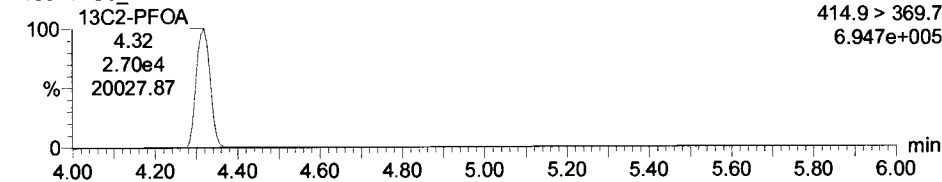
18O2-PFHxS

160714G3_6



13C2-PFOA

160714G3_6



Dataset: Untitled

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

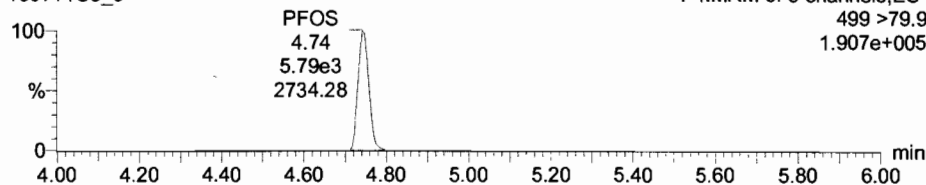
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PFOS

160714G3_6

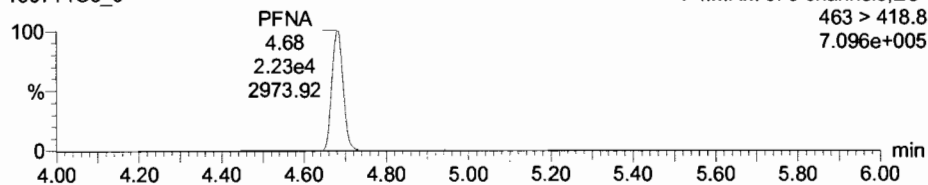
F4:MRM of 9 channels,ES-
499 > 79.9
1.907e+005



PFNA

160714G3_6

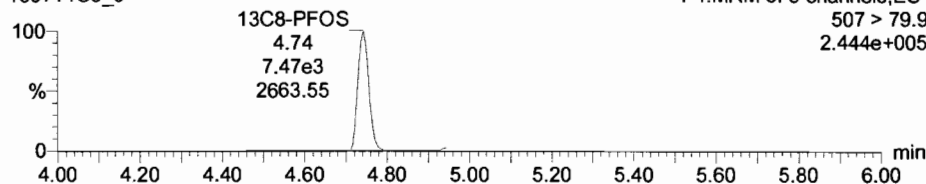
F4:MRM of 9 channels,ES-
463 > 418.8
7.096e+005



13C8-PFOS

160714G3_6

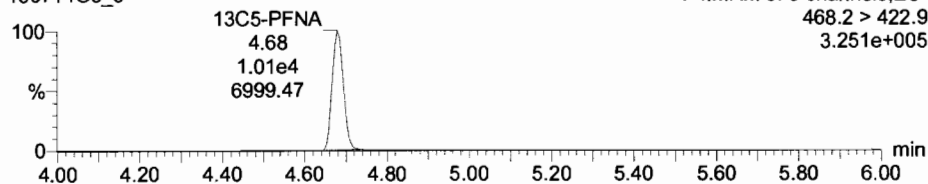
F4:MRM of 9 channels,ES-
507 > 79.9
2.444e+005



13C5-PFNA

160714G3_6

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



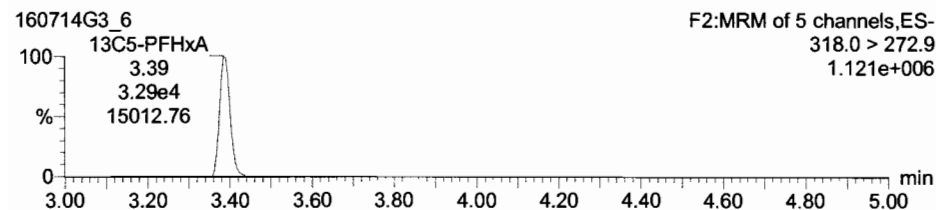
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Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

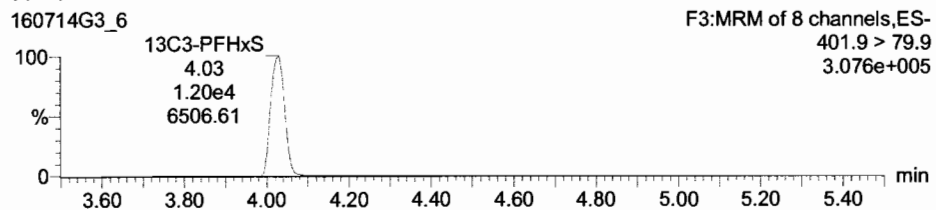
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

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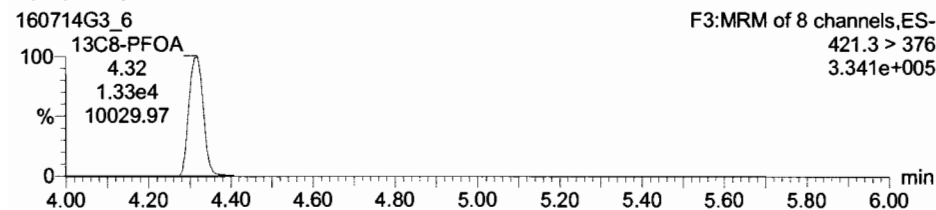
13C5-PFHxA



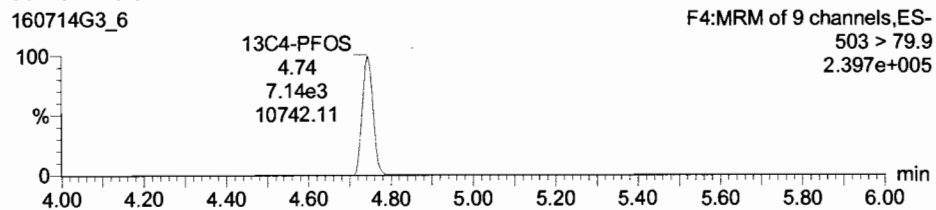
13C3-PFHxS



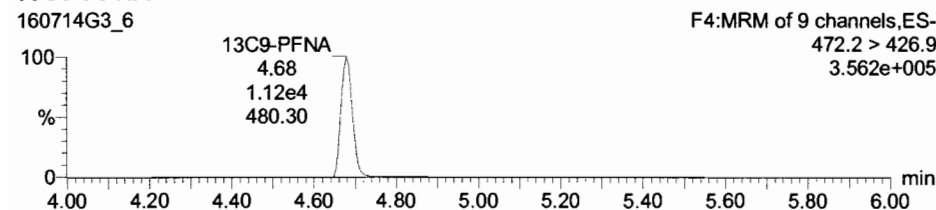
13C8-PFOA



13C4-PFOS



13C9-PFNA



Dataset: Untitled

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

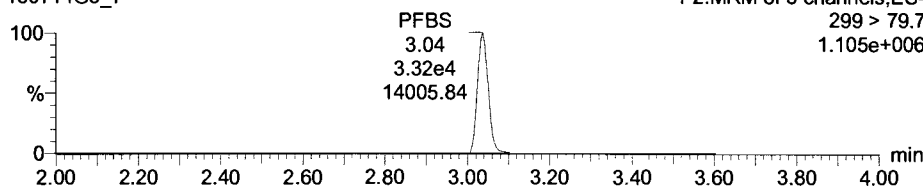
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Name: 160714G3_7, Date: 14-Jul-2016, Time: 12:03:03, ID: ST160714G3-6 PFC CS4 16G1211, Description: PFC CS4 16G1211 A

PFBS

160714G3_7

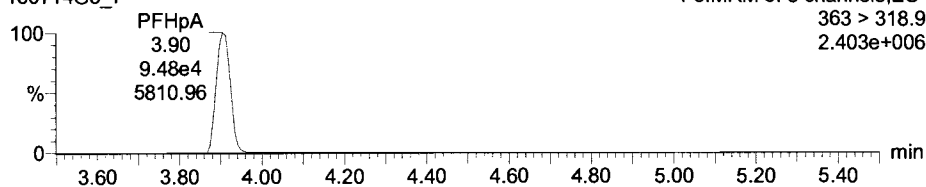
F2:MRM of 5 channels,ES-
299 > 79.7
1.105e+006



PFHpA

160714G3_7

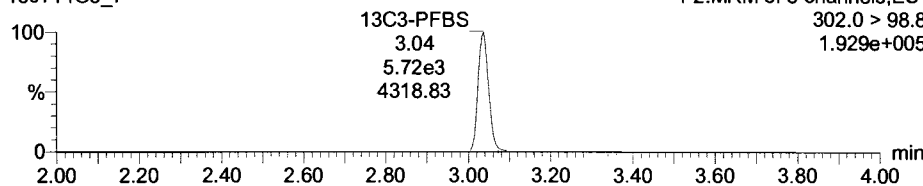
F3:MRM of 8 channels,ES-
363 > 318.9
2.403e+006



13C3-PFBS

160714G3_7

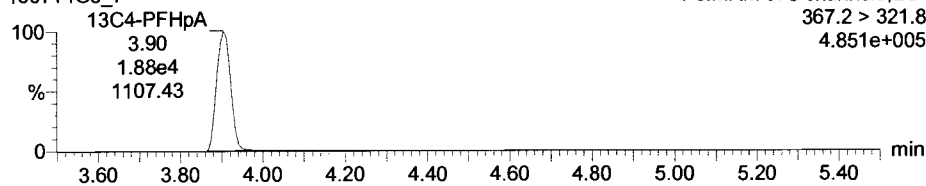
F2:MRM of 5 channels,ES-
302.0 > 98.8
1.929e+005



13C4-PFHpA

160714G3_7

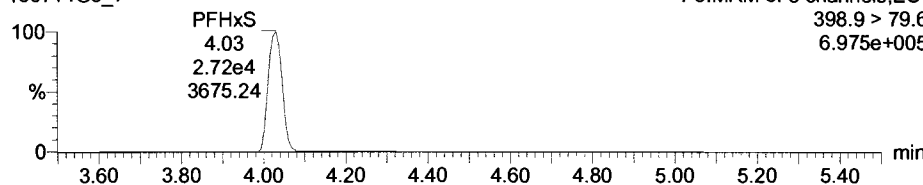
F3:MRM of 8 channels,ES-
367.2 > 321.8
4.851e+005



PFHxS

160714G3_7

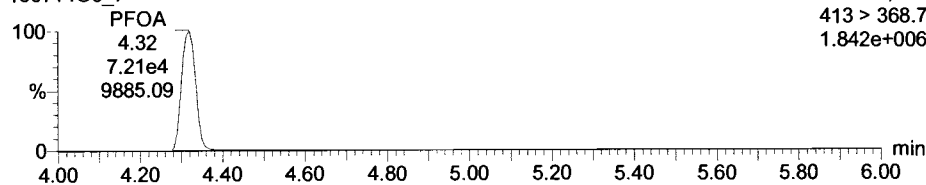
F3:MRM of 8 channels,ES-
398.9 > 79.6
6.975e+005



PFOA

160714G3_7

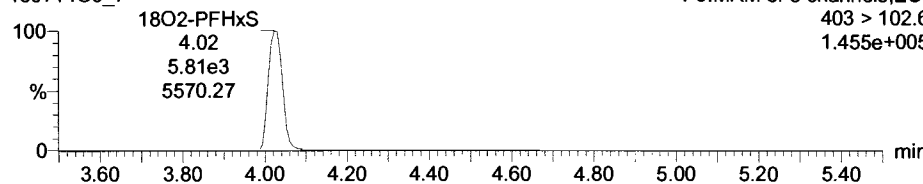
F3:MRM of 8 channels,ES-
413 > 368.7
1.842e+006



18O2-PFHxS

160714G3_7

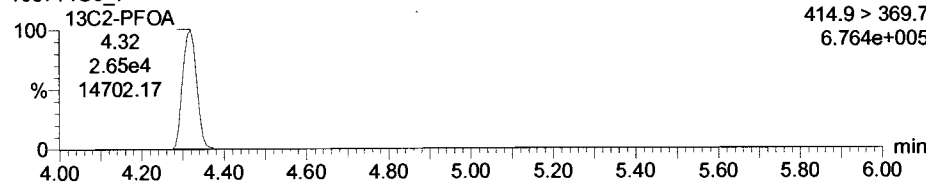
F3:MRM of 8 channels,ES-
403 > 102.6
1.455e+005



13C2-PFOA

160714G3_7

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



Dataset: Untitled

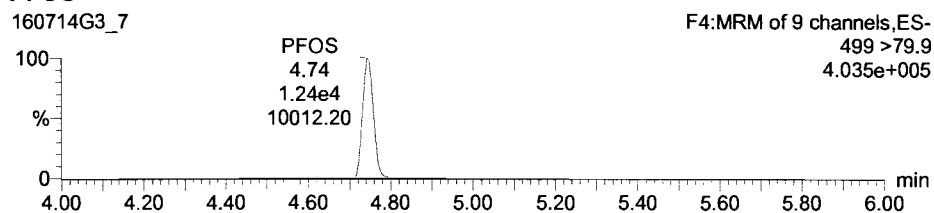
Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

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

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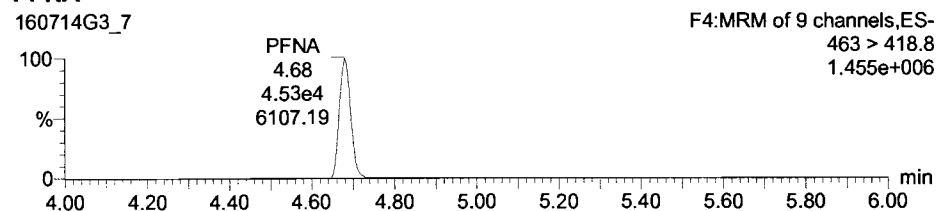
PFOS

160714G3_7



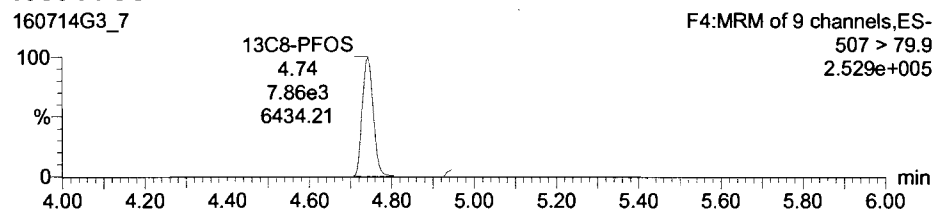
PFNA

160714G3_7



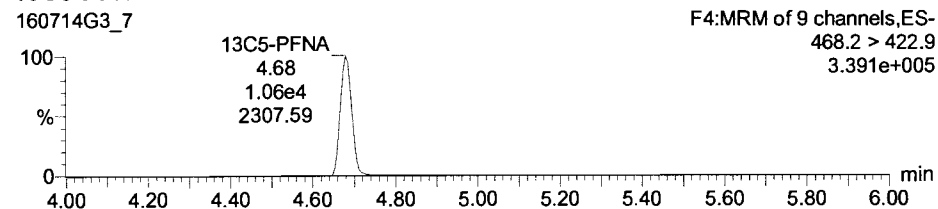
13C8-PFOS

160714G3_7



13C5-PFNA

160714G3_7



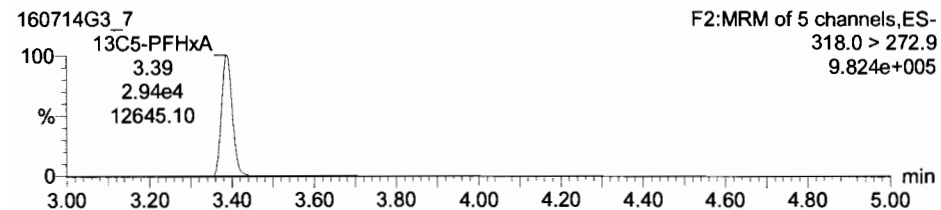
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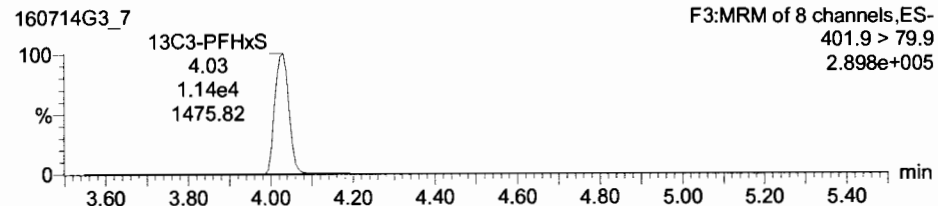
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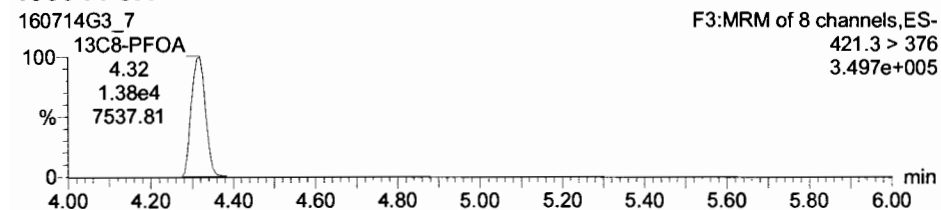
13C5-PFHxA



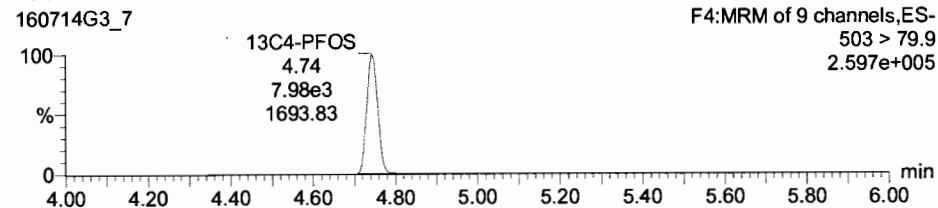
13C3-PFHxS



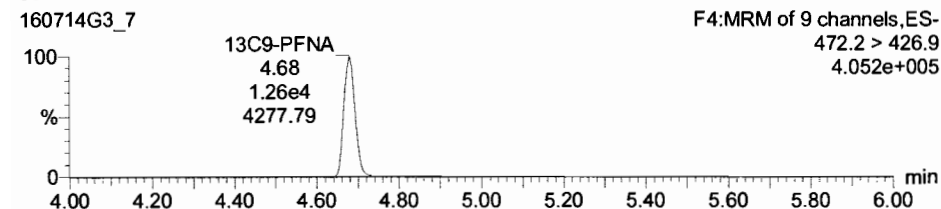
13C8-PFOA



13C4-PFOS



13C9-PFNA



Dataset: Untitled

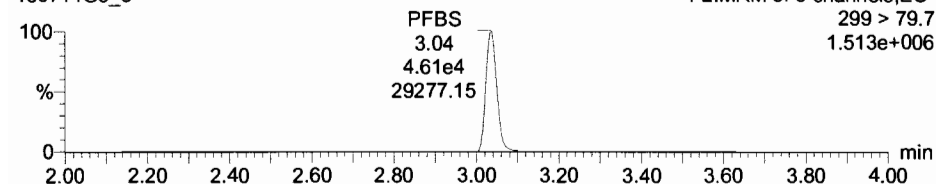
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Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

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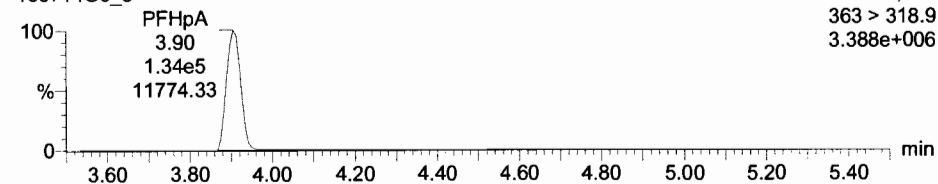
PFBS

160714G3_8



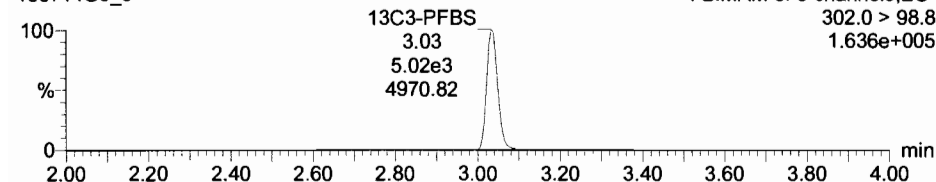
PFHpA

160714G3_8



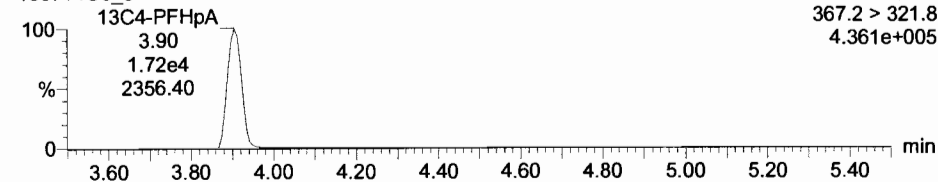
13C3-PFBS

160714G3_8



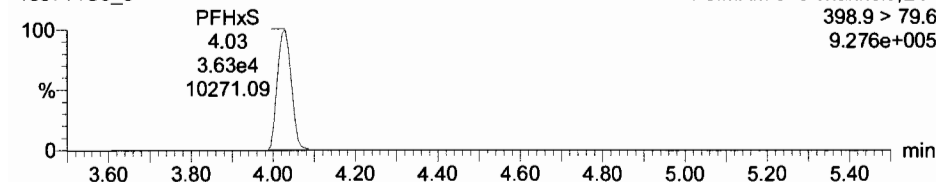
13C4-PFHpA

160714G3_8



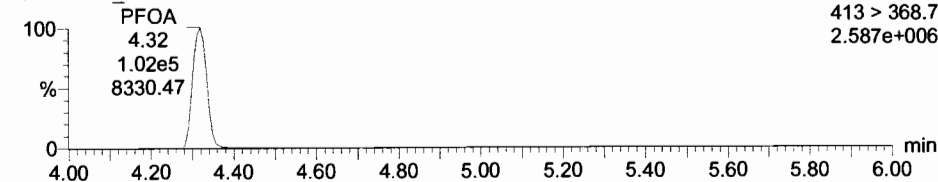
PFHxS

160714G3_8



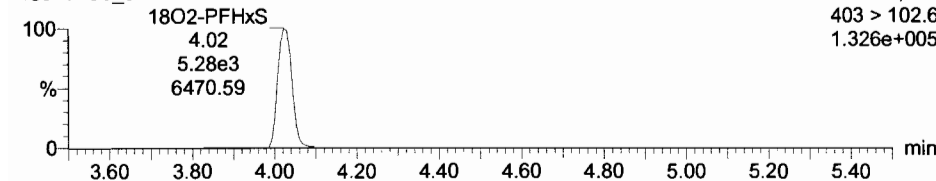
PFOA

160714G3_8



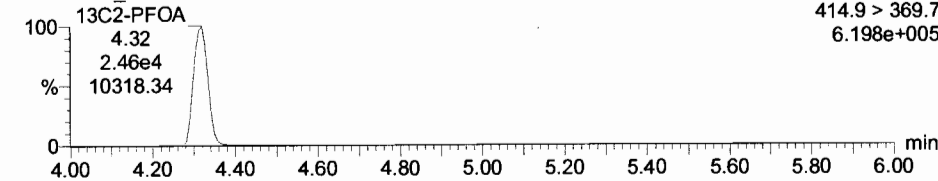
18O2-PFHxS

160714G3_8



13C2-PFOA

160714G3_8



Dataset: Untitled

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

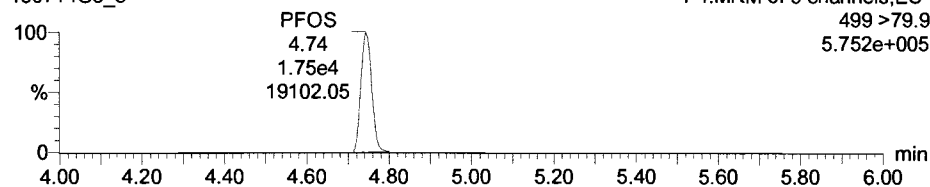
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

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

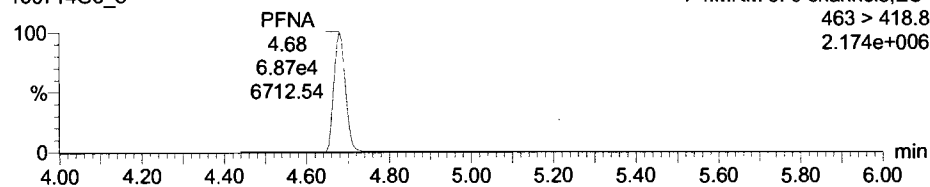
F4:MRM of 9 channels,ES-
499 > 79.9
5.752e+005



PFNA

160714G3_8

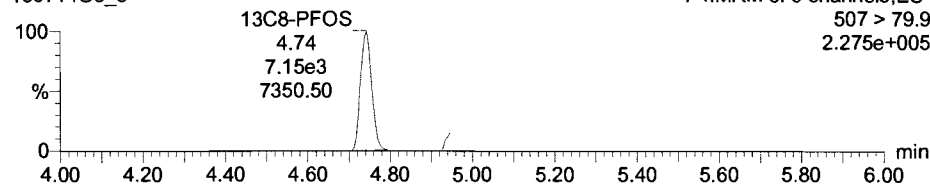
F4:MRM of 9 channels,ES-
463 > 418.8
2.174e+006



13C8-PFOS

160714G3_8

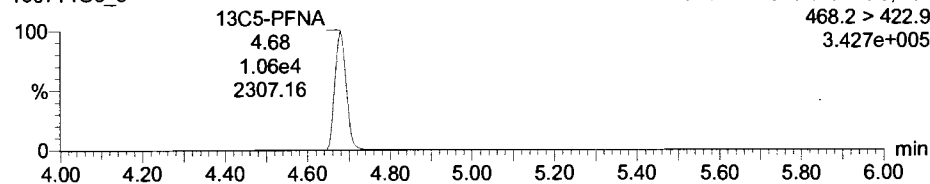
F4:MRM of 9 channels,ES-
507 > 79.9
2.275e+005



13C5-PFNA

160714G3_8

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



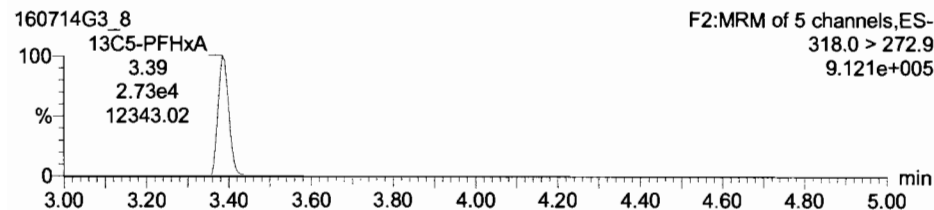
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Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

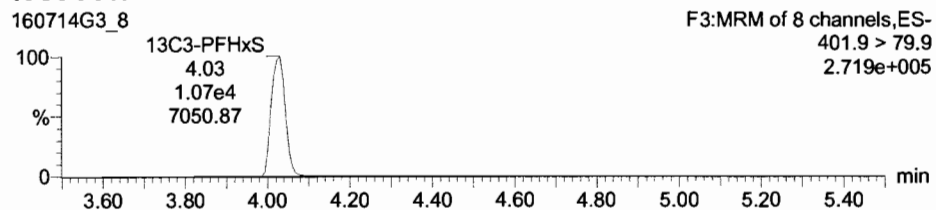
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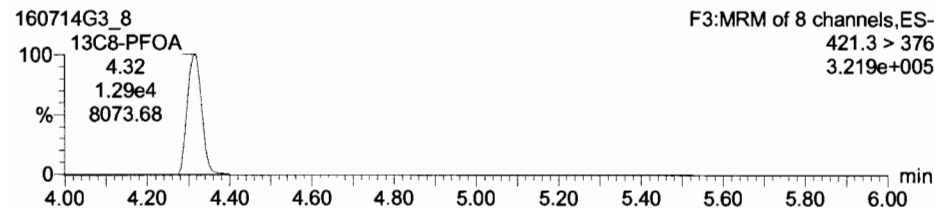
13C5-PFHxA



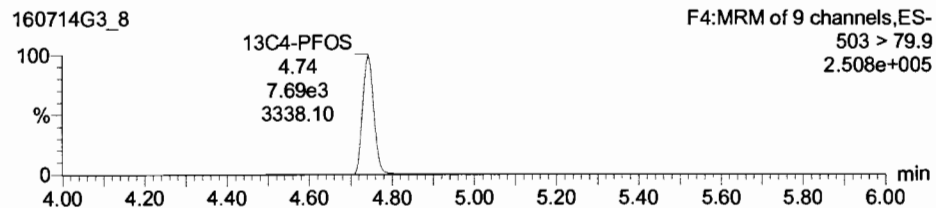
13C3-PFHxS



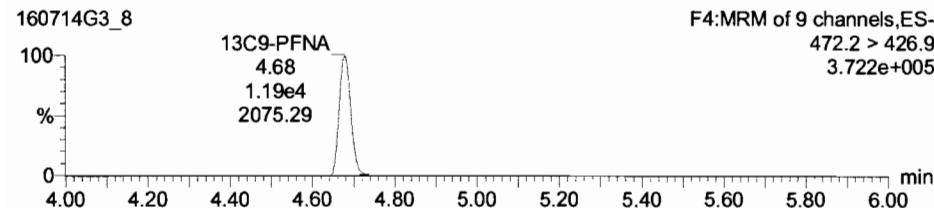
13C8-PFOA



13C4-PFOS



13C9-PFNA



Dataset: Untitled

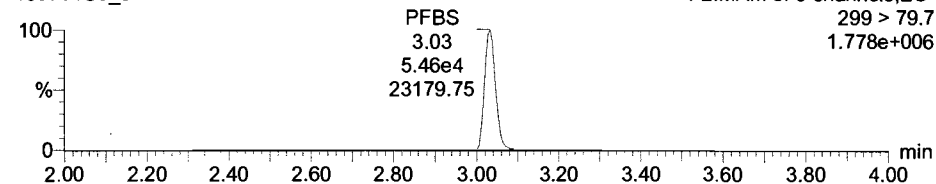
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Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

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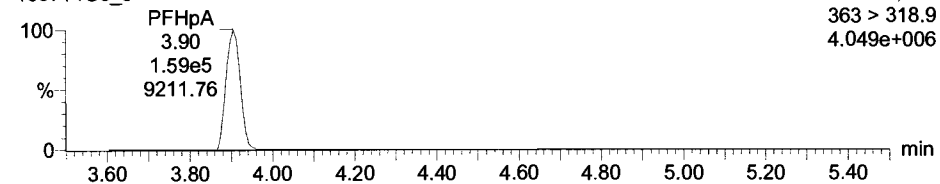
PFBS

160714G3_9



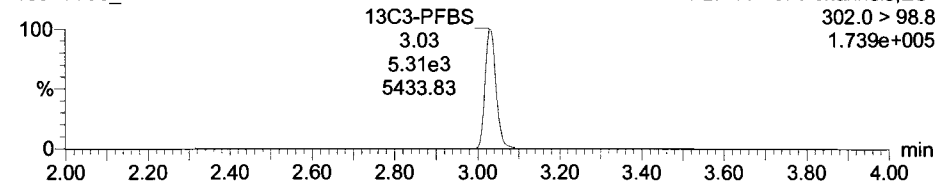
PFHpA

160714G3_9



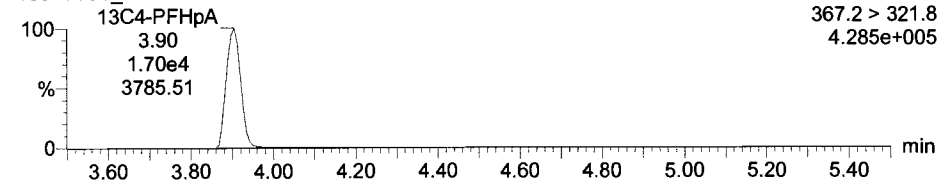
13C3-PFBS

160714G3_9



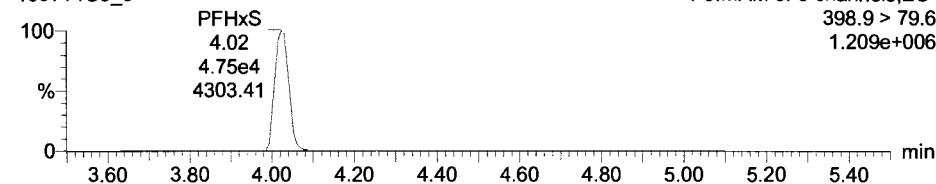
13C4-PFHpA

160714G3_9



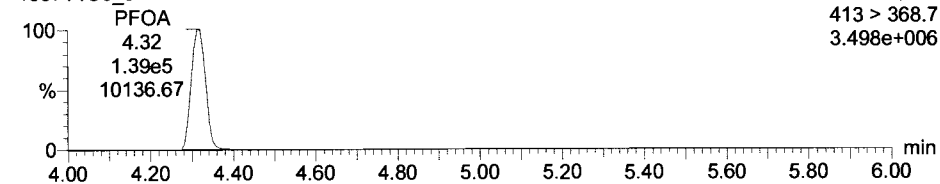
PFHxS

160714G3_9



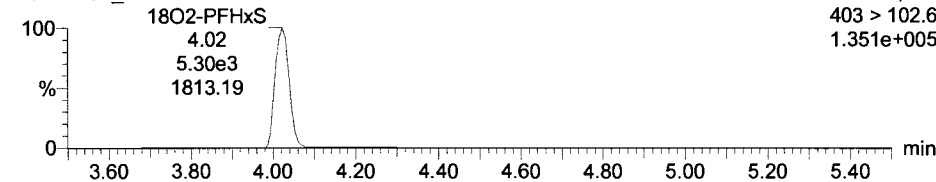
PFOA

160714G3_9



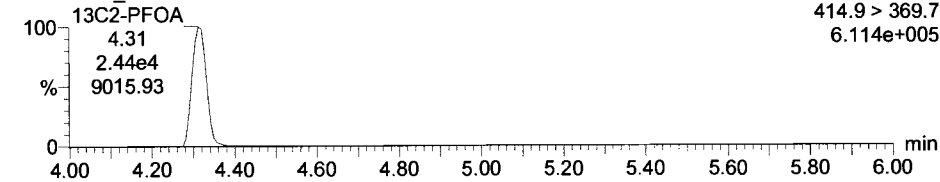
18O2-PFHxS

160714G3_9



13C2-PFOA

160714G3_9



Dataset: Untitled

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

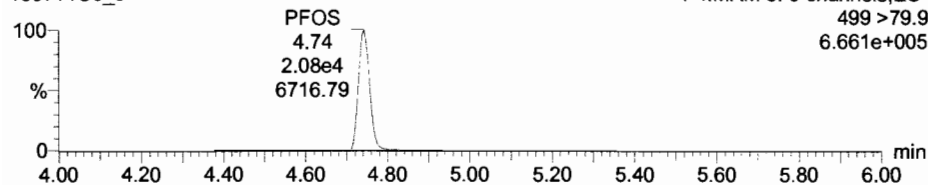
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Name: 160714G3_9, Date: 14-Jul-2016, Time: 12:28:23, ID: ST160714G3-8 PFC CS5 16G1213, Description: PFC CS5 16G1213 A

PFOS

160714G3_9

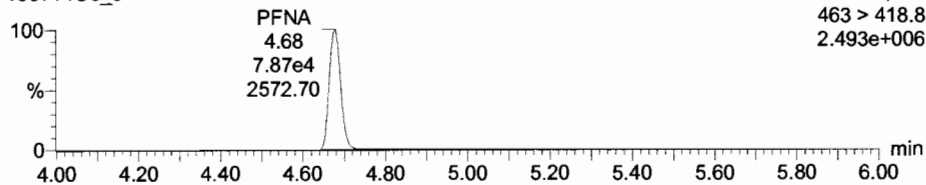
F4:MRM of 9 channels,ES-
499 > 79.9
6.661e+005



PFNA

160714G3_9

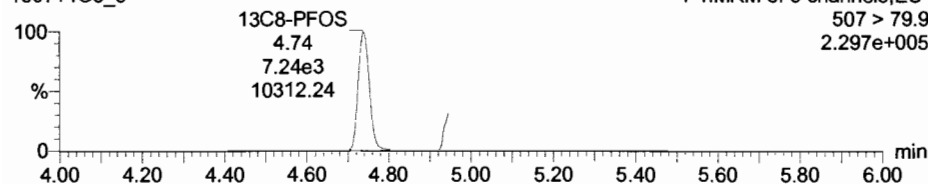
F4:MRM of 9 channels,ES-
463 > 418.8
2.493e+006



13C8-PFOS

160714G3_9

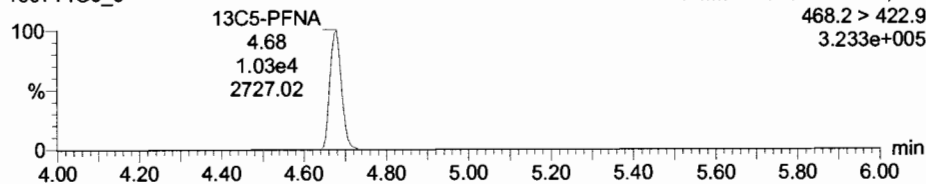
F4:MRM of 9 channels,ES-
507 > 79.9
2.297e+005



13C5-PFNA

160714G3_9

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



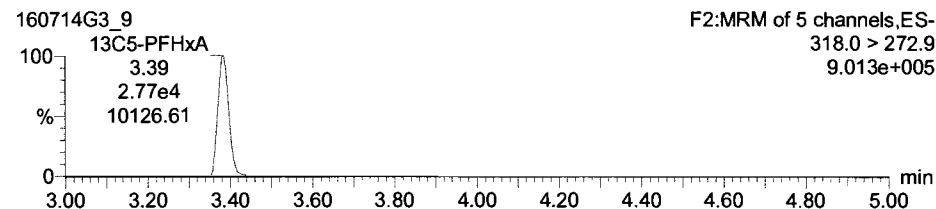
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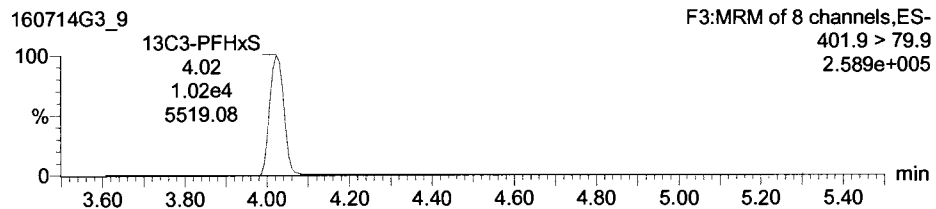
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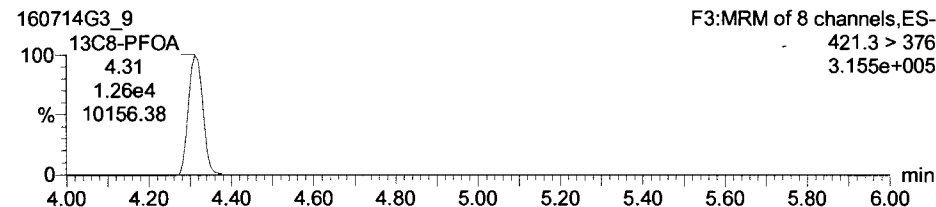
13C5-PFHxA



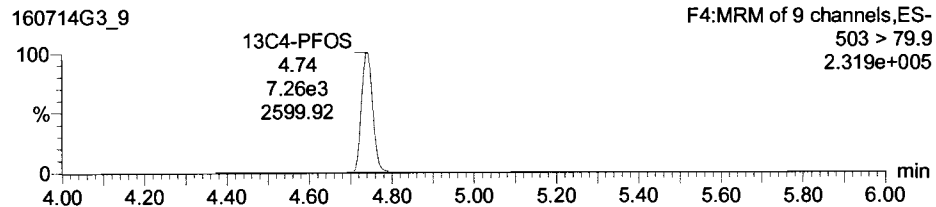
13C3-PFHxS



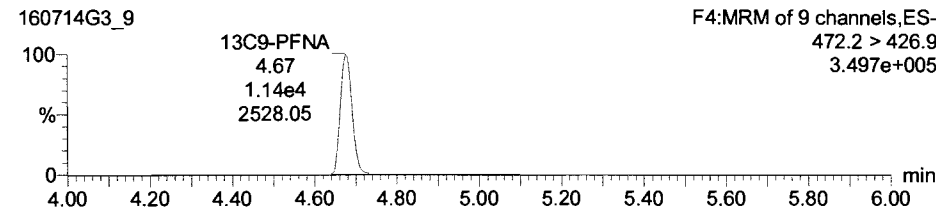
13C8-PFOA



13C4-PFOS



13C9-PFNA



Dataset: Untitled

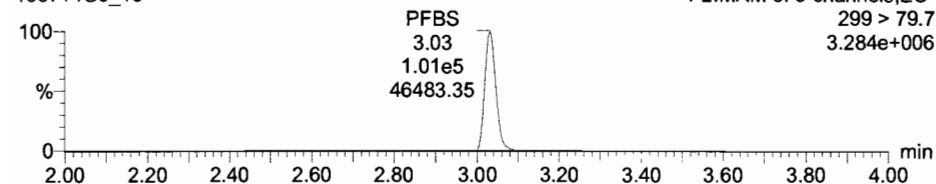
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Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

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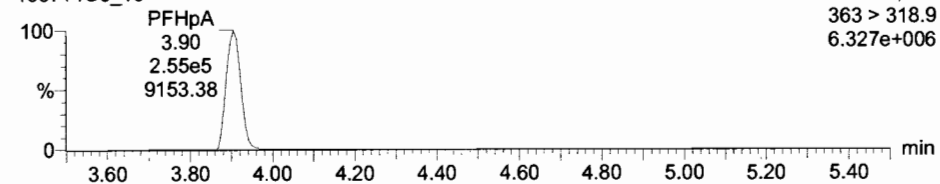
PFBS

160714G3_10



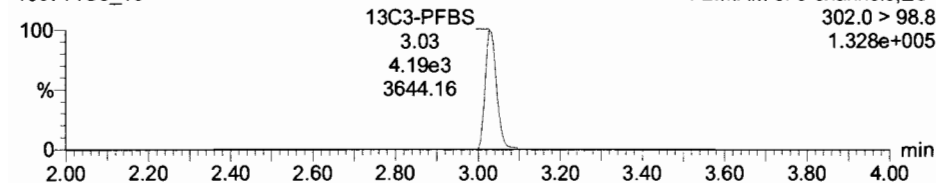
PFHpA

160714G3_10



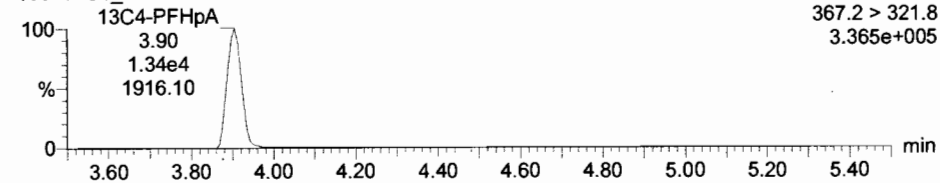
13C3-PFBS

160714G3_10



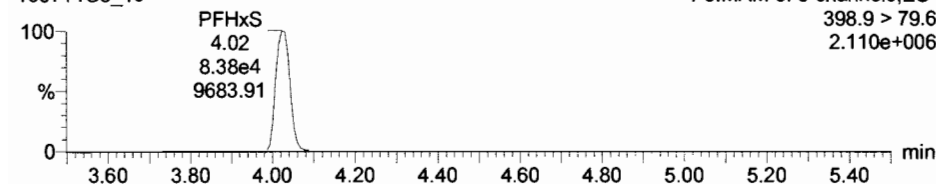
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160714G3_10



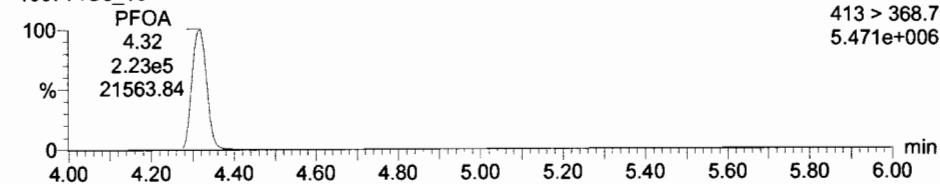
PFHxS

160714G3_10



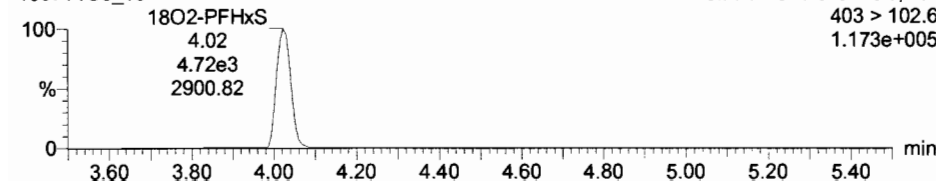
PFOA

160714G3_10



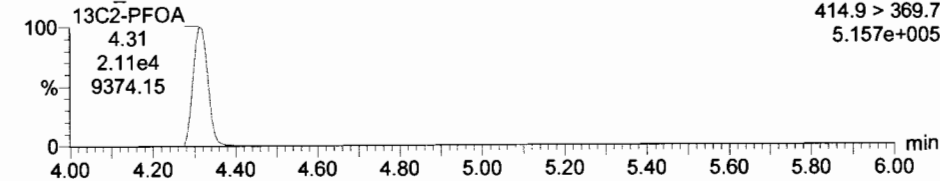
18O2-PFHxS

160714G3_10



13C2-PFOA

160714G3_10



Dataset: Untitled

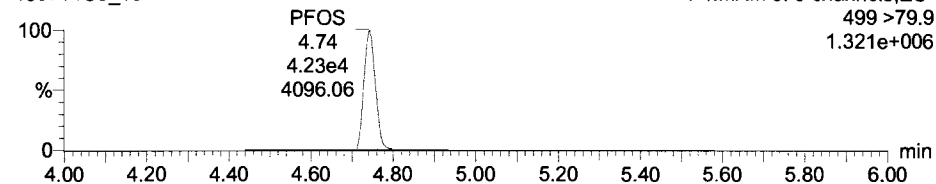
Last Altered: Friday, July 15, 2016 08:17:00 Pacific Daylight Time

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

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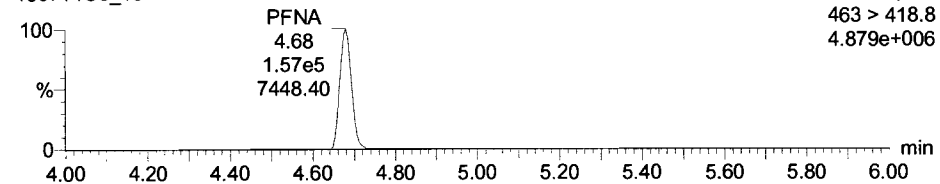
PFOS

160714G3_10



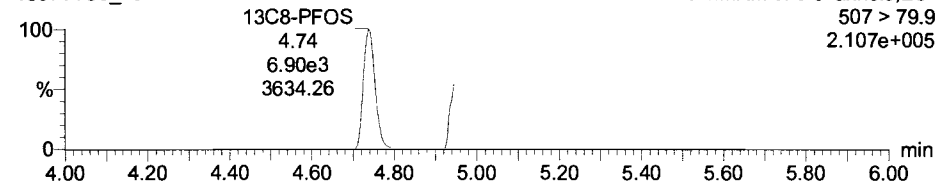
PFNA

160714G3_10



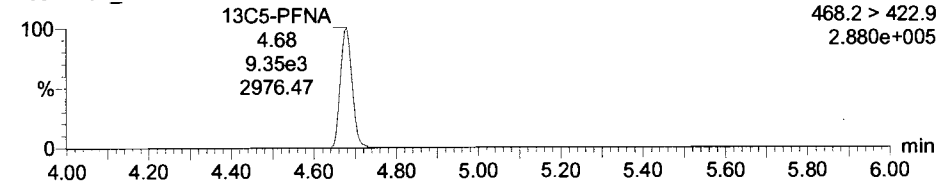
13C8-PFOS

160714G3_10



13C5-PFNA

160714G3_10



Dataset: Untitled

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

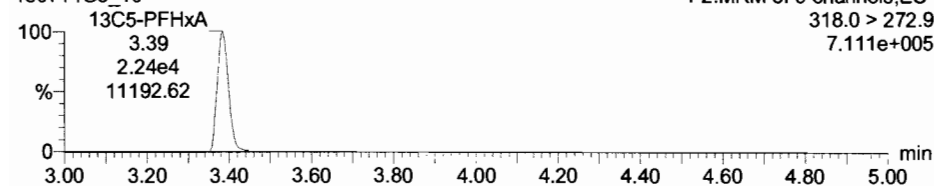
Printed: Friday, July 15, 2016 08:17:23 Pacific Daylight Time

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

13C5-PFHxA

160714G3_10

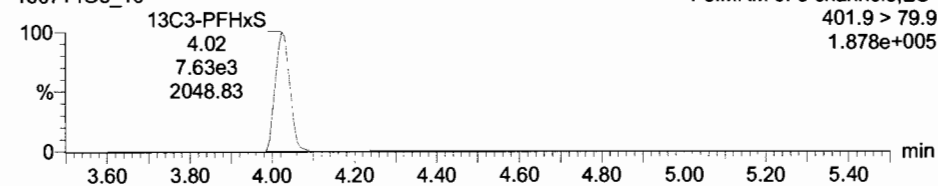
F2:MRM of 5 channels,ES-
318.0 > 272.9
7.111e+005



13C3-PFHxS

160714G3_10

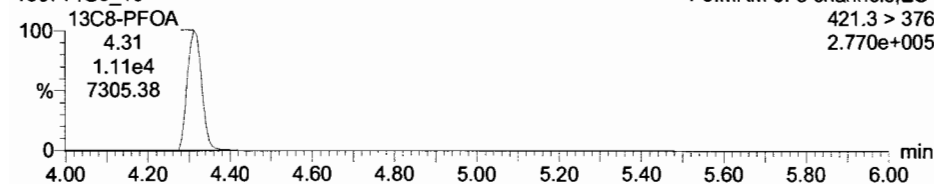
F3:MRM of 8 channels,ES-
401.9 > 79.9
1.878e+005



13C8-PFOA

160714G3_10

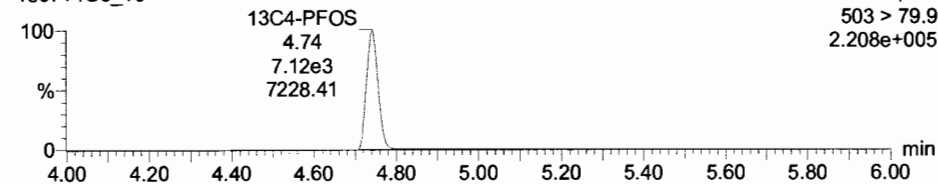
F3:MRM of 8 channels,ES-
421.3 > 376
2.770e+005



13C4-PFOS

160714G3_10

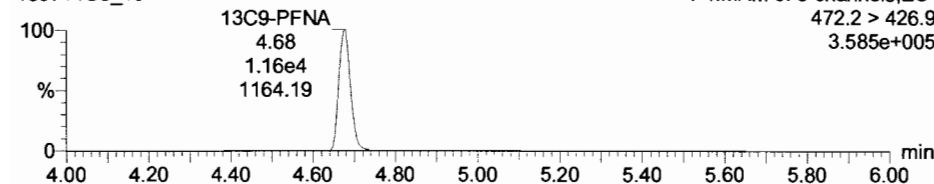
F4:MRM of 9 channels,ES-
503 > 79.9
2.208e+005



13C9-PFNA

160714G3_10

F4:MRM of 9 channels,ES-
472.2 > 426.9
3.585e+005



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%

④ Branched and technical mix
used; recovery based on
linear isomer

DR 7/15/16

PW
7/15/16

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

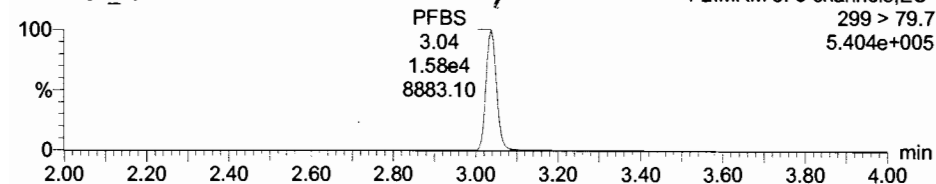
Method: C:\Projects\Q1.PRO\MethDB\PFAS_LIST6_3.mdb 14 Jul 2016 11:06:30

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

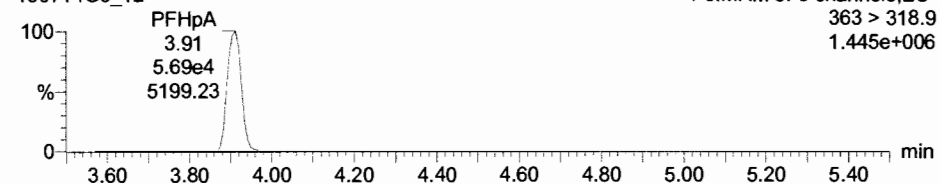
PFBS

160714G3_12



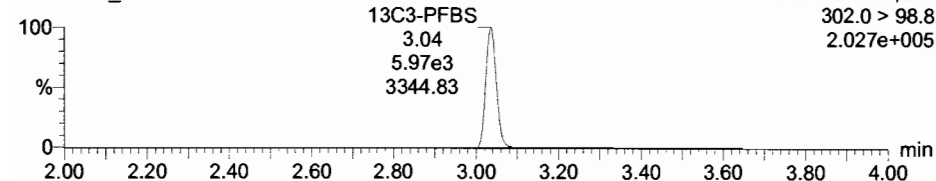
PFHpA

160714G3_12



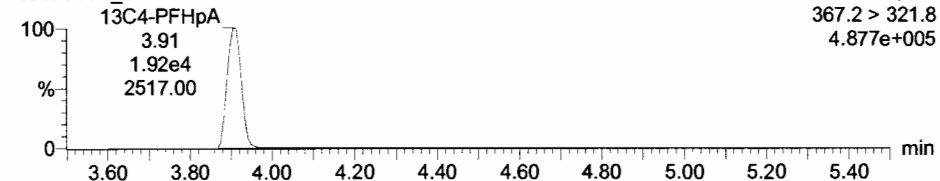
13C3-PFBS

160714G3_12



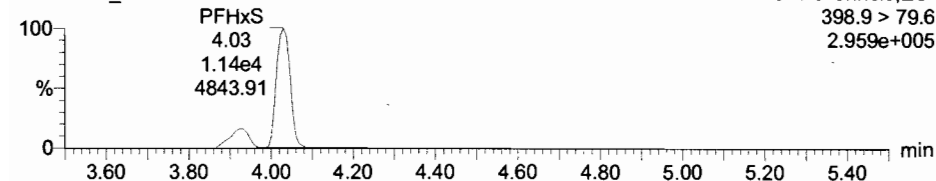
13C4-PFHpA

160714G3_12



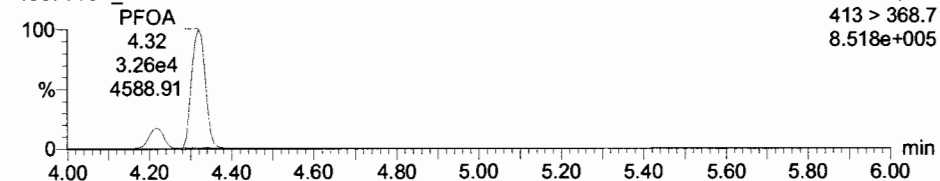
PFHxS

160714G3_12



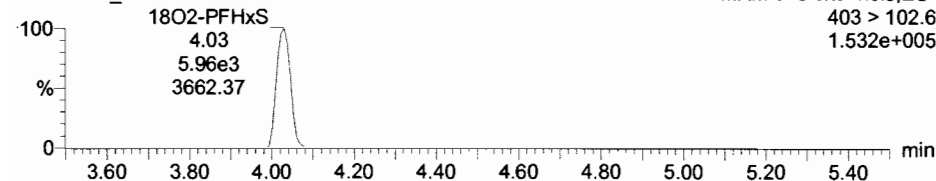
PFOA

160714G3_12



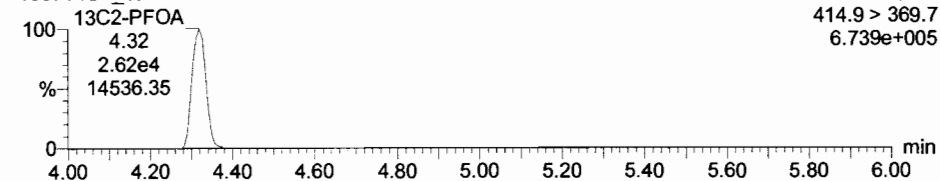
18O2-PFHxS

160714G3_12



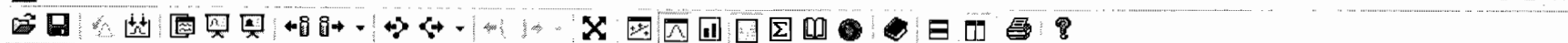
13C2-PFOA

160714G3_12



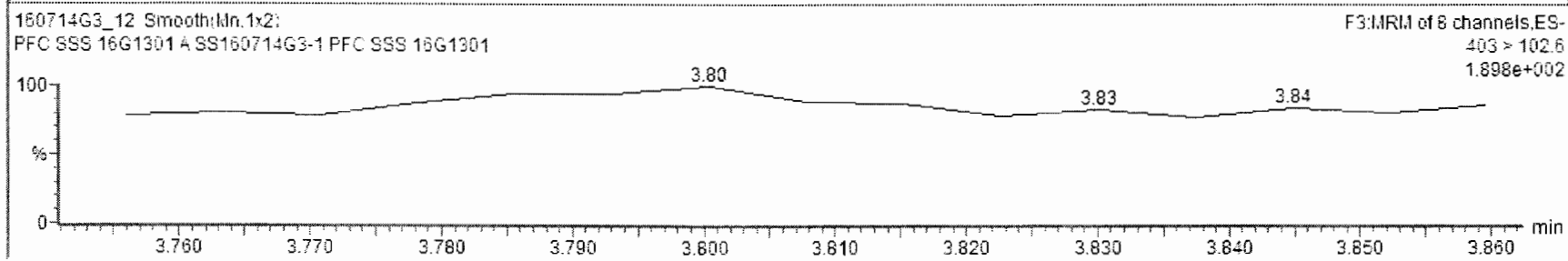
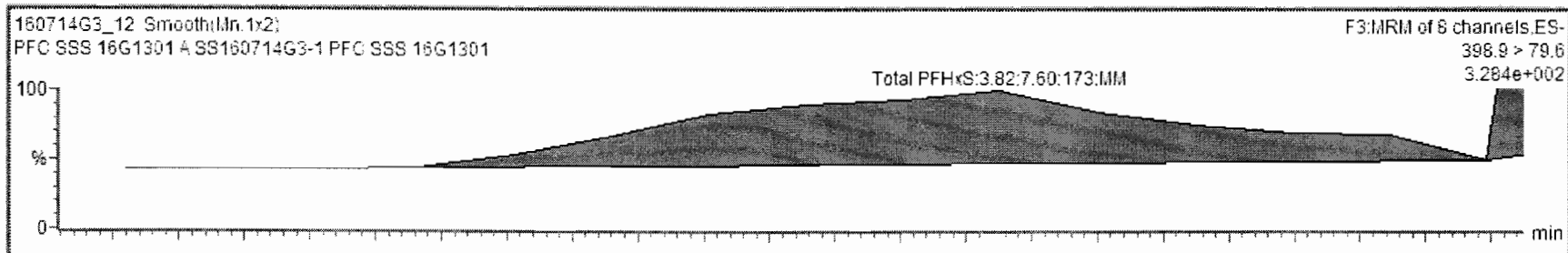
TargetLynx - 160714G3_12.qld * - [Chromatogram]

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	0.0090365
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	13C6-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	0.0126118
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		31.8	NO		



TargetLynx - 160714G3_12.qld * - [Chromatogram]

File Edit View Display Processing Window Help

Icons: [Save] [Print] [Zoom In] [Zoom Out] [Full Screen] [Refresh] [Home] [Back] [Forward] [Find] [Help] [Exit]

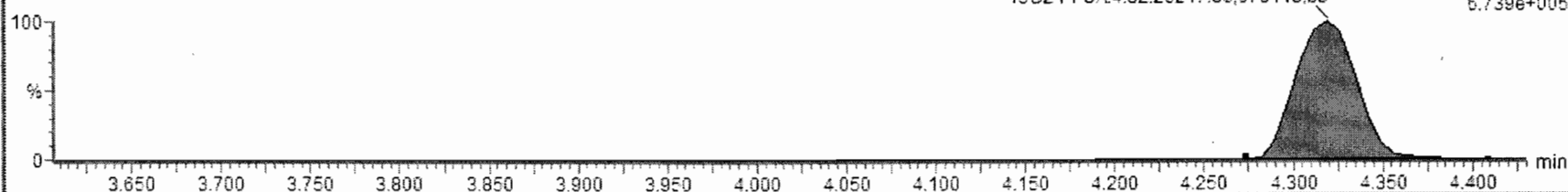
160714G3_12 - SS160714G3-1 PFC SSS 16G1301 - PFC SSS 16G1301 A

	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	0.0062083
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	13C3-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		

160714G3_12 Smooth(Mn.1x2)
PFC SSS 16G1301 A SS160714G3-1 PFC SSS 16G1301



160714G3_12 Smooth(Mn.1x2)
PFC SSS 16G1301 A SS160714G3-1 PFC SSS 16G1301



Ready

160714G3_12

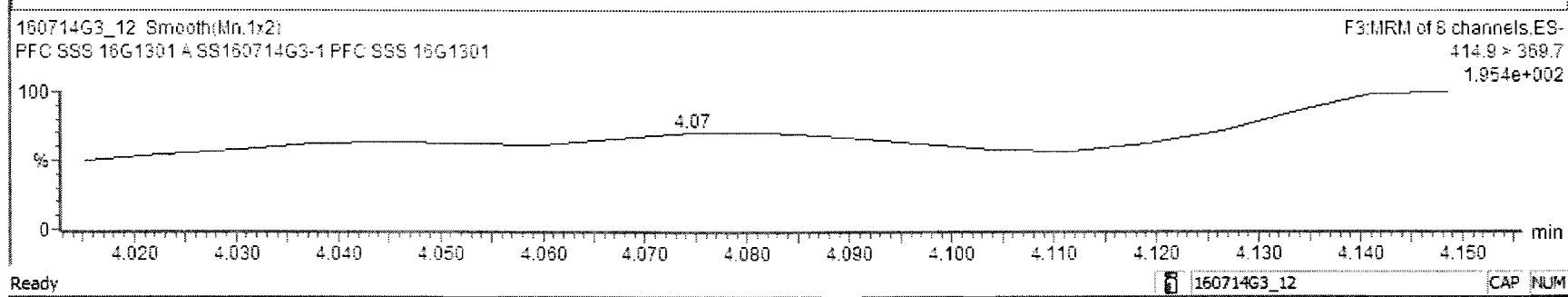
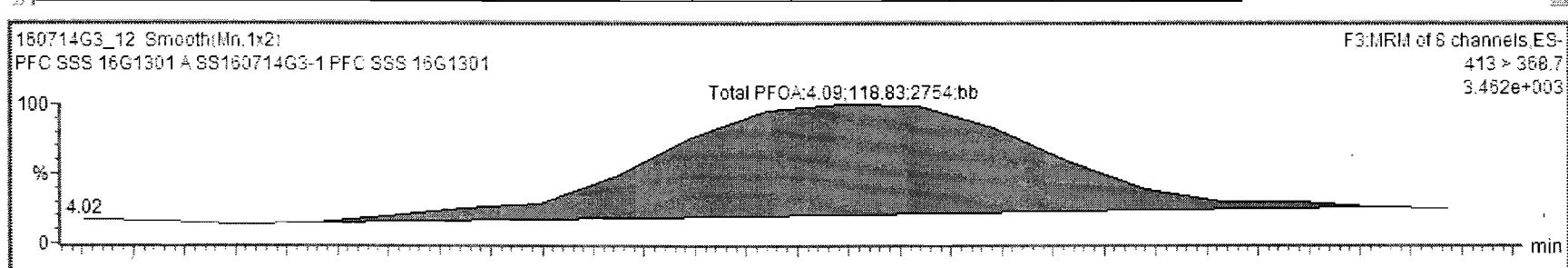
CAP NUM

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	3.08	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	13O2-PFHxS	403 > 102.8	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	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	0.0126118
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	1.26e4	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		31.8	NO		



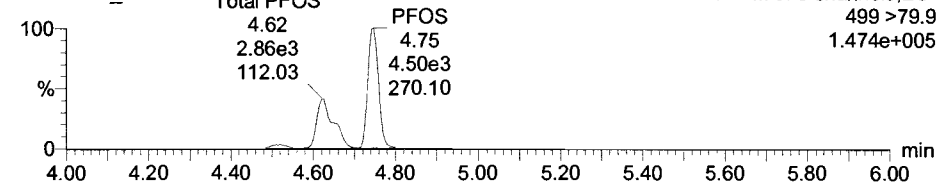
Dataset: Untitled

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

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

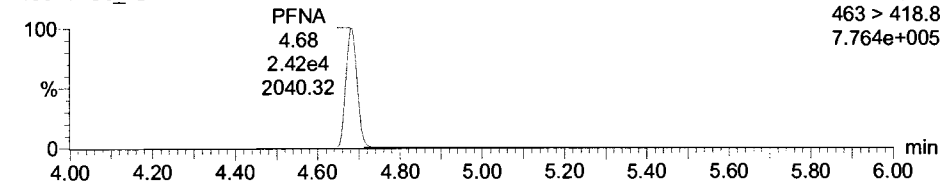
PFOS

160714G3_12



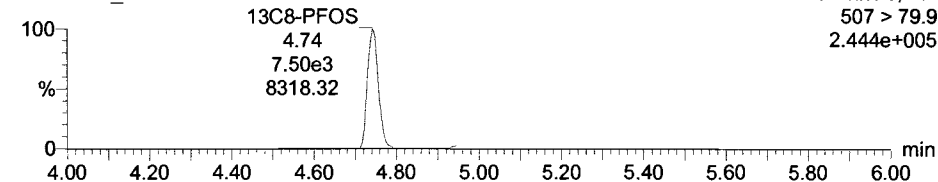
PFNA

160714G3_12



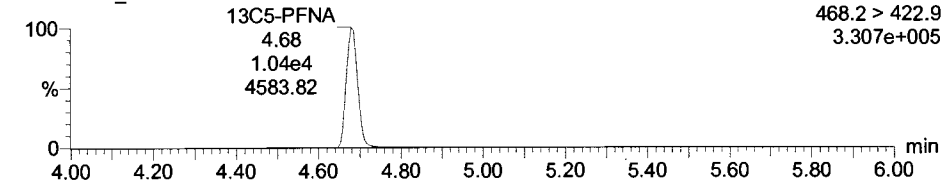
13C8-PFOS

160714G3_12



13C5-PFNA

160714G3_12



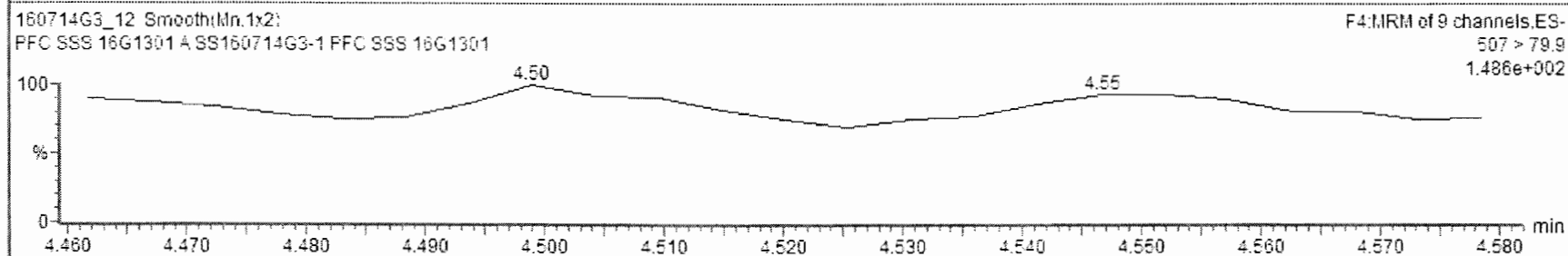
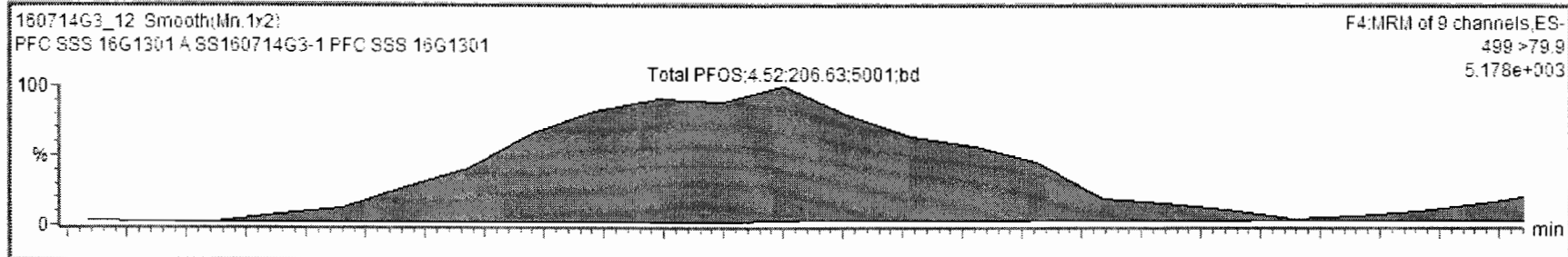
TargetLynx - 160714G3_12.qld * - [Chromatogram]

File Edit View Display Processing Window Help

Icons: Print, Save, Open, Zoom, etc.

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	13C2-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	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	396.9 > 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		



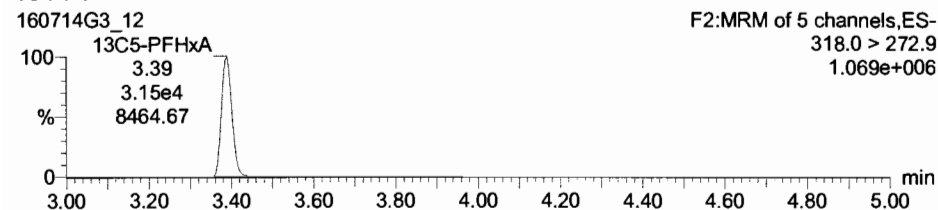
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Last Altered: Friday, July 15, 2016 08:17:39 Pacific Daylight Time

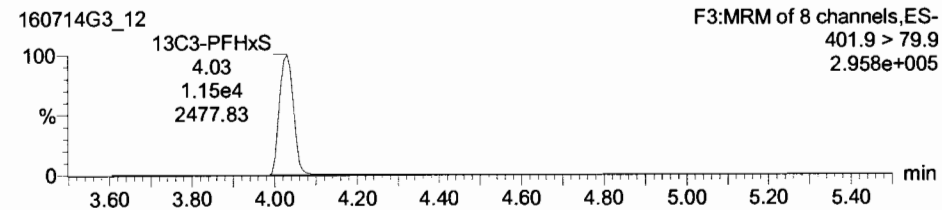
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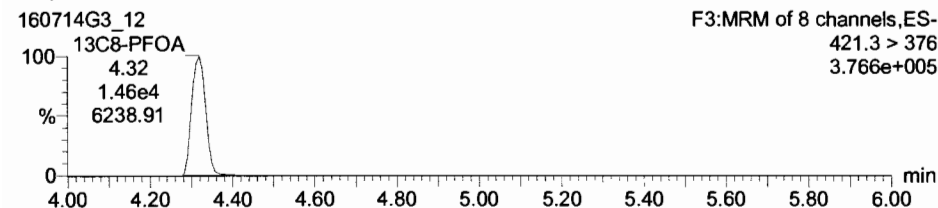
13C5-PFHxA



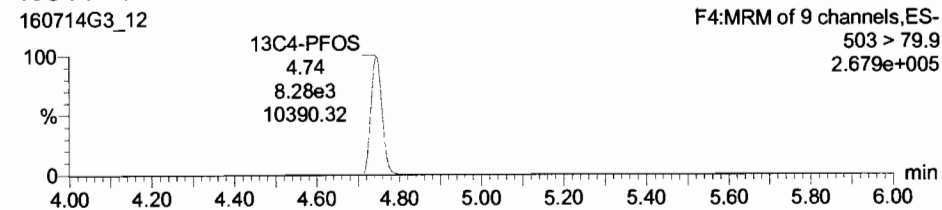
13C3-PFHxS



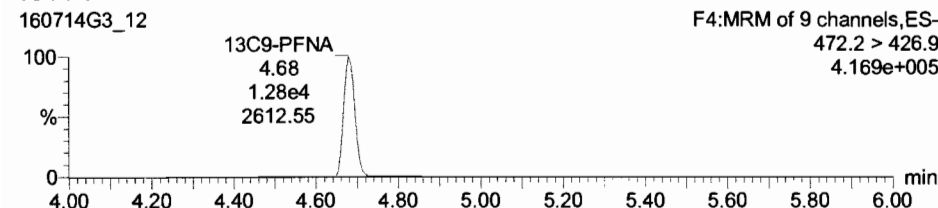
13C8-PFOA



13C4-PFOS



13C9-PFNA



[illegible]

Data Validation Summary

Oceana CTO-WE44, NALF Fentress

TO: Tiffany Hill/CVO
Anita Dodson/VBO

FROM: Tiffany McGlynn/GNV

CC: Herb Kelly/GNV

DATE: 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

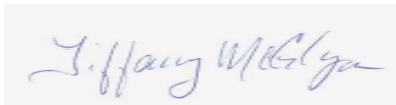
According to the chain of custody records, sampling was performed on 6/17/16 through 7/14/16. Samples were received at the laboratory 6/18/16 through 7/15/16. All sample preparation and analyses were performed within holding time requirements.

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-MW31	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600872	12177522.1	3420309.7	Perfluoroalkyl Compounds	OF-MW31-0716	WG	Ground water	06-Jul-16
		OCEANA_NAS			1600872			Perfluoroalkyl Compounds	OF-FB070616	WQ	Water for QC samples	06-Jul-16
		OCEANA_NAS			1600872			Perfluoroalkyl Compounds	OF-FB070616	WQ	Water for QC samples	06-Jul-16
OF-MW31	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600872	12177522.1	3420309.7	Perfluoroalkyl Compounds	OF-MW31-0716	WG	Ground water	06-Jul-16
OF-MW25	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600872	12181596.8	3425150.3	Perfluoroalkyl Compounds	OF-MW25-0716	WG	Ground water	06-Jul-16
		OCEANA_NAS			1600872			Perfluoroalkyl Compounds	OF-FB070616	WQ	Water for QC samples	06-Jul-16
OF-MW25	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600872	12181596.8	3425150.3	Perfluoroalkyl Compounds	OF-MW25-0716	WG	Ground water	06-Jul-16
OF-MW28	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600872	12184238.2	3425001	Perfluoroalkyl Compounds	OF-MW28-0716	WG	Ground water	06-Jul-16
OF-MW28	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600872	12184238.2	3425001	Perfluoroalkyl Compounds	OF-MW28-0716	WG	Ground water	06-Jul-16
OF-MW28	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600872	12184238.2	3425001	Perfluoroalkyl Compounds	OF-MW28-0716	WG	Ground water	06-Jul-16
OF-MW25	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600872	12181596.8	3425150.3	Perfluoroalkyl Compounds	OF-MW25-0716	WG	Ground water	06-Jul-16
OF-MW31	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600872	12177522.1	3420309.7	Perfluoroalkyl Compounds	OF-MW31-0716	WG	Ground water	06-Jul-16
OF-MW31	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600872	12177522.1	3420309.7	Perfluoroalkyl Compounds	OF-MW31-0716	WG	Ground water	06-Jul-16
OF-MW28	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600872	12184238.2	3425001	Perfluoroalkyl Compounds	OF-MW28-0716	WG	Ground water	06-Jul-16
		OCEANA_NAS			1600872			Perfluoroalkyl Compounds	OF-FB070616	WQ	Water for QC samples	06-Jul-16
OF-MW28	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600872	12184238.2	3425001	Perfluoroalkyl Compounds	OF-MW28-0716	WG	Ground water	06-Jul-16
OF-MW31	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600872	12177522.1	3420309.7	Perfluoroalkyl Compounds	OF-MW31-0716	WG	Ground water	06-Jul-16
		OCEANA_NAS			1600872			Perfluoroalkyl Compounds	OF-FB070616	WQ	Water for QC samples	06-Jul-16
OF-MW25	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600872	12181596.8	3425150.3	Perfluoroalkyl Compounds	OF-MW25-0716	WG	Ground water	06-Jul-16
OF-MW28	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600872	12184238.2	3425001	Perfluoroalkyl Compounds	OF-MW28-0716	WG	Ground water	06-Jul-16
OF-MW25	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600872	12181596.8	3425150.3	Perfluoroalkyl Compounds	OF-MW25-0716	WG	Ground water	06-Jul-16
OF-MW31	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600872	12177522.1	3420309.7	Perfluoroalkyl Compounds	OF-MW31-0716	WG	Ground water	06-Jul-16
OF-MW25	SITE 00017	OCEANA_NAS	WLM	Monitoring well	1600872	12181596.8	3425150.3	Perfluoroalkyl Compounds	OF-MW25-0716	WG	Ground water	06-Jul-16
		OCEANA_NAS			1600872			Perfluoroalkyl Compounds	OF-FB070616	WQ	Water for QC samples	06-Jul-16