



**Groundwater Sample Results,  
Level 2 Laboratory Report, Level 4 Laboratory Report,  
Electronic Data Deliverable, Data Validation Report,  
and the Sample Location Report, SDG 1700893**

*Marine Corps Air Station Yuma  
Yuma, Arizona*

November 2019



August 01, 2017

**Vista Work Order No. 1700893**

Mr. Curtis Moss  
AMEC Foster Wheeler  
9210 Sky Park Court Suite 200  
San Diego, CA 92123

Dear Mr. Moss,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on July 18, 2017. This sample set was analyzed on a rush turn-around time, under your Project Name 'MCAS Yuma, AZ TO 105'.

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](mailto:mmaier@vista-analytical.com).

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

Sincerely,

*Karen J. Wipend for*

Martha Maier  
Laboratory Director



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

**Vista Work Order No. 1700893****Case Narrative****Sample Condition on Receipt:**

Two blank water samples and three groundwater 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**

Samples "OUA1-MW08-20170717" and "OUA1-HS03A-20170717" contained particulate and were centrifuged prior to extraction.

The samples were extracted and analyzed for PFOA, PFOS, and PFBS using Modified EPA Method 537.

**Holding Times**

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

**Quality Control**

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

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

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

As requested, an MS/MSD was performed on sample "OUA1-HS03-20170717". The percent recovery for PFBS was outside of the method acceptance criteria and is qualified with an "H" flag.

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# Sample Inventory Report

Vista Sample ID	Client Sample ID		Sampled	Received	Components/Containers
1700893-01	SB01-20170717		17-Jul-17 11:00	18-Jul-17 09:23	HDPE Bottle, 125 mL HDPE Bottle, 125 mL
1700893-02	EB01-20170717		17-Jul-17 11:10	18-Jul-17 09:23	HDPE Bottle, 125 mL HDPE Bottle, 125 mL
1700893-03	OUA1-MW08-20170717		17-Jul-17 10:15	18-Jul-17 09:23	HDPE Bottle, 125 mL HDPE Bottle, 125 mL
1700893-04	OUA1-HS03-20170717	MS/MSD	17-Jul-17 11:15	18-Jul-17 09:23	HDPE Bottle, 125 mL
		MS/MSD			HDPE Bottle, 125 mL
		MS/MSD			HDPE Bottle, 125 mL
		MS/MSD			HDPE Bottle, 125 mL
		MS/MSD			HDPE Bottle, 125 mL
		MS/MSD			HDPE Bottle, 125 mL
1700893-05	OUA1-HS03A-20170717		17-Jul-17 11:20	18-Jul-17 09:23	HDPE Bottle, 125 mL HDPE Bottle, 125 mL

## **ANALYTICAL RESULTS**

Sample ID:    Method Blank						Modified EPA Method 537			
Matrix:        Aqueous Sample Size:    0.125 L		QC Batch:        B7G0106 Date Extracted:    25-Jul-2017 10:19				Lab Sample:        B7G0106-BLK1 Date Analyzed:    27-Jul-17 20:34    Column: BEH C18			
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard	%R	LCL-UCL	Qualifiers
PFBS	ND	1.79	5.00	8.00		IS    13C3-PFBS	85.0	50 - 150	
PFOA	ND	0.651	5.00	8.00		IS    13C2-PFOA	107	50 - 150	
PFOS	ND	0.807	5.00	8.00		IS    13C8-PFOS	101	50 - 150	

DL - Detection limit

RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit

Results reported to DL.

When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

Sample ID:    OPR					Modified EPA Method 537			
Matrix:            Aqueous Sample Size:    0.125 L		QC Batch:            B7G0106 Date Extracted:    25-Jul-2017  10:19			Lab Sample:        B7G0106-BS1 Date Analyzed:    27-Jul-17 17:26    Column: BEH C18			
Analyte	Amt Found (ng/L)	Spike Amt	%R	Limits	Labeled Standard		%R	LCL-UCL
PFBS	77.8	80.0	97.2	70 - 130	IS	13C3-PFBS	99.6	50 - 150
PFOA	84.3	80.0	105	70 - 130	IS	13C2-PFOA	110	50 - 150
PFOS	76.5	80.0	95.6	70 - 130	IS	13C8-PFOS	106	50 - 150

LCL-UCL - Lower control limit - upper control limit

Sample ID: SB01-20170717						Modified EPA Method 537				
Client Data  Name: AMEC Foster Wheeler Project: MCAS Yuma, AZ TO 105 Date Collected: 17-Jul-2017 11:00 Location:			Sample Data  Matrix: Blank Water Sample Size: 0.120 L			Laboratory Data  Lab Sample: 1700893-01      Date Received: 18-Jul-2017 9:23 QC Batch: B7G0106      Date Extracted: 25-Jul-2017 10:19 Date Analyzed: 27-Jul-17 22:02    Column: BEH C18				
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	1.87	5.21	8.35		IS	13C3-PFBS	96.8	50 - 150	
PFOA	ND	0.679	5.21	8.35		IS	13C2-PFOA	116	50 - 150	
PFOS	ND	0.842	5.21	8.35		IS	13C8-PFOS	97.2	50 - 150	

DL - Detection limit

RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit

Results reported to DL.

When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

Sample ID: EB01-20170717						Modified EPA Method 537				
Client Data			Sample Data			Laboratory Data				
Name: AMEC Foster Wheeler			Matrix: Blank Water			Lab Sample: 1700893-02		Date Received: 18-Jul-2017 9:23		
Project: MCAS Yuma, AZ TO 105			Sample Size: 0.0975 L			QC Batch: B7G0106		Date Extracted: 25-Jul-2017 10:19		
Date Collected: 17-Jul-2017 11:10						Date Analyzed: 27-Jul-17 22:14 Column: BEH C18				
Location:										
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	2.29	6.41	10.3		IS	13C3-PFBS	92.7	50 - 150	
PFOA	ND	0.835	6.41	10.3		IS	13C2-PFOA	126	50 - 150	
PFOS	ND	1.03	6.41	10.3		IS	13C8-PFOS	103	50 - 150	

DL - Detection limit  
RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit  
Results reported to DL.  
When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.  
Only the linear isomer is reported for all other analytes.

Sample ID: OUA1-MW08-20170717						Modified EPA Method 537				
Client Data			Sample Data			Laboratory Data				
Name:	AMEC Foster Wheeler		Matrix:	Groundwater		Lab Sample:	1700893-03	Date Received:	18-Jul-2017	9:23
Project:	MCAS Yuma, AZ TO 105		Sample Size:	0.118 L		QC Batch:	B7G0106	Date Extracted:	25-Jul-2017	10:19
Date Collected:	17-Jul-2017 10:15					Date Analyzed:	01-Aug-17 01:57 Column: BEH C18			
Location:						27-Jul-17 22:27 Column: BEH C18				
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	1930	9.49	26.5	42.4	D	IS	13C3-PFBS	98.4	50 - 150	D
PFOA	71.5	0.690	5.30	8.48		IS	13C2-PFOA	128	50 - 150	
PFOS	14.1	0.856	5.30	8.48		IS	13C8-PFOS	108	50 - 150	

DL - Detection limit  
 RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit  
 Results reported to DL.  
 When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.  
 Only the linear isomer is reported for all other analytes.

Sample ID: OUA1-HS03-20170717						Modified EPA Method 537					
Client Data			Sample Data			Laboratory Data					
Name:	AMEC Foster Wheeler		Matrix:	Groundwater		Lab Sample:	1700893-04		Date Received:	18-Jul-2017 9:23	
Project:	MCAS Yuma, AZ TO 105		Sample Size:	0.118 L		QC Batch:	B7G0106		Date Extracted:	25-Jul-2017 10:19	
Date Collected:	17-Jul-2017 11:15					Date Analyzed:	01-Aug-17 02:09 Column: BEH C18				
Location:						31-Jul-17 23:38 Column: BEH C18					
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers	
PFBS	745	9.51	26.5	42.5	D	IS	13C3-PFBS	128	50 - 150	D	
PFOA	25.6	0.692	5.30	8.50		IS	13C2-PFOA	125	50 - 150		
PFOS	2.80	0.858	5.30	8.50	J	IS	13C8-PFOS	87.4	50 - 150		



Matrix Spike Results										Modified EPA Method 537					
Source Client ID: OUA1-HS03-20170717 Source LabNumber: 1700893-04 Matrix: Aqueous Sample Size: 0.117/0.125 L				QC Batch: B7G0106 Date Extracted: 25-Jul-2017 10:19						Lab Sample: B7G0106-MS2/B7G0106-MSD2 Date Analyzed: 27-Jul-17 22:52 Column: BEH C18 27-Jul-17 23:04 Column: BEH C18					
Analyte	Spike-MS (ng/L)	MS %R	MS Qual.	Spike-MSD (ng/L)	MSD %R	RPD	MSD Qual.	%R Limit	%RPD Limit	Labeled Standard		MS %R	MS Qualifiers	MSD %R	MS Qual.
PFBS	85.8	322	D, H	80.0	351	8.62	D, H	70 - 130	25	IS	13C3-PFBS	123	D	113	D
PFOA	85.8	111		80.0	107	3.67		70 - 130	25	IS	13C2-PFOA	113		111	
PFOS	85.8	119		80.0	107	10.6		70 - 130	25	IS	13C8-PFOS	90.1		95.0	

When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.  
Only the linear isomer is reported for all other analytes.

Sample ID: OUA1-HS03A-20170717						Modified EPA Method 537				
Client Data			Sample Data			Laboratory Data				
Name:	AMEC Foster Wheeler		Matrix:	Groundwater		Lab Sample:	1700893-05	Date Received:	18-Jul-2017 9:23	
Project:	MCAS Yuma, AZ TO 105		Sample Size:	0.120 L		QC Batch:	B7G0106	Date Extracted:	25-Jul-2017 10:19	
Date Collected:	17-Jul-2017 11:20					Date Analyzed:	01-Aug-17 02:47 Column: BEH C18			
Location:						31-Jul-17 23:51 Column: BEH C18				
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	915	9.32	26.0	41.6	D	IS	13C3-PFBS	111	50 - 150	D
PFOA	22.3	0.678	5.21	8.33		IS	13C2-PFOA	127	50 - 150	
PFOS	2.41	0.840	5.21	8.33	J	IS	13C8-PFOS	96.7	50 - 150	

DL - Detection limit

RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit

Results reported to DL.

When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

## **DATA QUALIFIERS & ABBREVIATIONS**

<b>B</b>	<b>This compound was also detected in the method blank.</b>
<b>D</b>	<b>Dilution</b>
<b>E</b>	<b>The associated compound concentration exceeded the calibration range of the instrument.</b>
<b>H</b>	<b>Recovery and/or RPD was outside laboratory acceptance limits.</b>
<b>I</b>	<b>Chemical Interference</b>
<b>J</b>	<b>The amount detected is below the Reporting Limit/LOQ.</b>
<b>M</b>	<b>Estimated Maximum Possible Concentration. (CA Region 2 projects only)</b>
<b>*</b>	<b>See Cover Letter</b>
<b>Conc.</b>	<b>Concentration</b>
<b>NA</b>	<b>Not applicable</b>
<b>ND</b>	<b>Not Detected</b>
<b>TEQ</b>	<b>Toxic Equivalency</b>

**Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.**

## CERTIFICATIONS

Accrediting Authority	Certificate Number
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1175673
Nevada Division of Environmental Protection	CA004132017-1
New Hampshire Environmental Accreditation Program	207716
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	013
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	8621
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

*Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.*

## NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	Method
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23

MATRIX: Biological Tissue	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	Method
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

MATRIX: Non-Potable Water	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	Method
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope	EPA 1613B

Dilution GC/HRMS	
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

**1104 Windfield Way  
El Dorado Hills, CA 95762  
TEL: 916-673-1520**

Vista PM: Karen Volpendesta

## CHAIN OF CUSTODY RECORD

DATE: 7/17/2017 - B

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[illegible]

# Sample Log-in Checklist

 Vista Work Order #: 1700893 TAT 14

<b>Samples Arrival:</b>	<b>Date/Time</b> 07/18/17 0923	<b>Initials:</b> JBLB	<b>Location:</b> WR-2
			<b>Shelf/Rack:</b> NA
<b>Logged In:</b>	<b>Date/Time</b> 07/18/17 1300	<b>Initials:</b> JBLB WWS	<b>Location:</b> WR-2
			<b>Shelf/Rack:</b> A4
<b>Delivered By:</b>	<input checked="" type="radio"/> FedEx	<input type="radio"/> UPS	<input type="radio"/> On Trac
		<input type="radio"/> GSO	<input type="radio"/> DHL
		<input type="radio"/> Hand Delivered	<input type="radio"/> Other
<b>Preservation:</b>	<input checked="" type="radio"/> Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
	<input type="radio"/> None		
<b>Temp °C:</b> 0.0 (uncorrected)	<b>Time:</b>		<b>Thermometer ID:</b> DT-3
<b>Temp °C:</b> -0.7 (corrected)	<b>Probe used:</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		

		YES	NO	NA
Adequate Sample Volume Received?		<input checked="" type="checkbox"/>		
Holding Time Acceptable?		<input checked="" type="checkbox"/>		
Shipping Container(s) Intact?		<input checked="" type="checkbox"/>		
Shipping Custody Seals Intact?		<input checked="" type="checkbox"/>		
Shipping Documentation Present?		<input checked="" type="checkbox"/>		
Airbill	Trk # 8081 9079 5231	<input checked="" type="checkbox"/>		
Sample Container Intact?		<input checked="" type="checkbox"/>		
Sample Custody Seals Intact?				<input checked="" type="checkbox"/>
Chain of Custody / Sample Documentation Present?		<input checked="" type="checkbox"/>		
COC Anomaly/Sample Acceptance Form completed?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
If Chlorinated or Drinking Water Samples, Acceptable Preservation?				<input checked="" type="checkbox"/>
<b>Preservation Documented:</b>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Trizma	<input checked="" type="radio"/> None	<input checked="" type="radio"/> Yes
			<input type="radio"/> No	<input type="radio"/> NA
<b>Shipping Container</b>	Vista	Client	<input checked="" type="radio"/> Retain	<input type="radio"/> Return
			<input type="radio"/> Dispose	

Comments:





August 01, 2017

**Vista Work Order No. 1700893**

Mr. Curtis Moss  
AMEC Foster Wheeler  
9210 Sky Park Court Suite 200  
San Diego, CA 92123

Dear Mr. Moss,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on July 18, 2017. This sample set was analyzed on a rush turn-around time, under your Project Name 'MCAS Yuma, AZ TO 105'.

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](mailto:mmaier@vista-analytical.com).

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

Sincerely,

*Karoly Volpenek for*

Martha Maier  
Laboratory Director



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

**Vista Work Order No. 1700893****Case Narrative****Sample Condition on Receipt:**

Two blank water samples and three groundwater 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**

Samples "OUA1-MW08-20170717" and "OUA1-HS03A-20170717" contained particulate and were centrifuged prior to extraction.

The samples were extracted and analyzed for PFOA, PFOS, and PFBS using Modified EPA Method 537.

**Holding Times**

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

**Quality Control**

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

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

The labeled standard recoveries outside the acceptance criteria are listed in the table below.

As requested, an MS/MSD was performed on sample "OUA1-HS03-20170717". The percent recovery for PFBS was outside of the method acceptance criteria and is qualified with an "H" flag.

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# Sample Inventory Report

Vista Sample ID	Client Sample ID		Sampled	Received	Components/Containers
1700893-01	SB01-20170717		17-Jul-17 11:00	18-Jul-17 09:23	HDPE Bottle, 125 mL HDPE Bottle, 125 mL
1700893-02	EB01-20170717		17-Jul-17 11:10	18-Jul-17 09:23	HDPE Bottle, 125 mL HDPE Bottle, 125 mL
1700893-03	OUA1-MW08-20170717		17-Jul-17 10:15	18-Jul-17 09:23	HDPE Bottle, 125 mL HDPE Bottle, 125 mL
1700893-04	OUA1-HS03-20170717	MS/MSD	17-Jul-17 11:15	18-Jul-17 09:23	HDPE Bottle, 125 mL
		MS/MSD			HDPE Bottle, 125 mL
		MS/MSD			HDPE Bottle, 125 mL
		MS/MSD			HDPE Bottle, 125 mL
		MS/MSD			HDPE Bottle, 125 mL
		MS/MSD			HDPE Bottle, 125 mL
1700893-05	OUA1-HS03A-20170717		17-Jul-17 11:20	18-Jul-17 09:23	HDPE Bottle, 125 mL HDPE Bottle, 125 mL

## **ANALYTICAL RESULTS**

Sample ID:    Method Blank						Modified EPA Method 537				
Matrix:        Aqueous Sample Size:    0.125 L		QC Batch:        B7G0106 Date Extracted:    25-Jul-2017 10:19				Lab Sample:        B7G0106-BLK1 Date Analyzed:    27-Jul-17 20:34    Column: BEH C18				
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	1.79	5.00	8.00		IS	13C3-PFBS	85.0	50 - 150	
PFOA	ND	0.651	5.00	8.00		IS	13C2-PFOA	107	50 - 150	
PFOS	ND	0.807	5.00	8.00		IS	13C8-PFOS	101	50 - 150	

DL - Detection limit

RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit

Results reported to DL.

When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

Sample ID:    OPR					Modified EPA Method 537			
Matrix:            Aqueous Sample Size:    0.125 L		QC Batch:            B7G0106 Date Extracted:    25-Jul-2017  10:19			Lab Sample:        B7G0106-BS1 Date Analyzed:    27-Jul-17 17:26    Column: BEH C18			
Analyte	Amt Found (ng/L)	Spike Amt	%R	Limits	Labeled Standard		%R	LCL-UCL
PFBS	77.8	80.0	97.2	70 - 130	IS	13C3-PFBS	99.6	50 - 150
PFOA	84.3	80.0	105	70 - 130	IS	13C2-PFOA	110	50 - 150
PFOS	76.5	80.0	95.6	70 - 130	IS	13C8-PFOS	106	50 - 150

LCL-UCL - Lower control limit - upper control limit

Sample ID: SB01-20170717						Modified EPA Method 537				
Client Data  Name: AMEC Foster Wheeler Project: MCAS Yuma, AZ TO 105 Date Collected: 17-Jul-2017 11:00 Location:			Sample Data  Matrix: Blank Water Sample Size: 0.120 L			Laboratory Data  Lab Sample: 1700893-01      Date Received: 18-Jul-2017 9:23 QC Batch: B7G0106      Date Extracted: 25-Jul-2017 10:19 Date Analyzed: 27-Jul-17 22:02    Column: BEH C18				
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	1.87	5.21	8.35		IS	13C3-PFBS	96.8	50 - 150	
PFOA	ND	0.679	5.21	8.35		IS	13C2-PFOA	116	50 - 150	
PFOS	ND	0.842	5.21	8.35		IS	13C8-PFOS	97.2	50 - 150	

DL - Detection limit

RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit

Results reported to DL.

When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.



Sample ID: EB01-20170717						Modified EPA Method 537				
Client Data			Sample Data			Laboratory Data				
Name: AMEC Foster Wheeler			Matrix: Blank Water			Lab Sample: 1700893-02		Date Received: 18-Jul-2017 9:23		
Project: MCAS Yuma, AZ TO 105			Sample Size: 0.0975 L			QC Batch: B7G0106		Date Extracted: 25-Jul-2017 10:19		
Date Collected: 17-Jul-2017 11:10						Date Analyzed: 27-Jul-17 22:14 Column: BEH C18				
Location:										
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	ND	2.29	6.41	10.3		IS	13C3-PFBS	92.7	50 - 150	
PFOA	ND	0.835	6.41	10.3		IS	13C2-PFOA	126	50 - 150	
PFOS	ND	1.03	6.41	10.3		IS	13C8-PFOS	103	50 - 150	

DL - Detection limit  
 RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit  
 Results reported to DL.  
 When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.  
 Only the linear isomer is reported for all other analytes.

Sample ID: OUA1-MW08-20170717						Modified EPA Method 537				
Client Data			Sample Data			Laboratory Data				
Name:	AMEC Foster Wheeler		Matrix:	Groundwater		Lab Sample:	1700893-03	Date Received:	18-Jul-2017 9:23	
Project:	MCAS Yuma, AZ TO 105		Sample Size:	0.118 L		QC Batch:	B7G0106	Date Extracted:	25-Jul-2017 10:19	
Date Collected:	17-Jul-2017 10:15					Date Analyzed:	01-Aug-17 01:57	Column: BEH C18		
Location:						27-Jul-17 22:27 Column: BEH C18				
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	1930	9.49	26.5	42.4	D	IS	13C3-PFBS	98.4	50 - 150	D
PFOA	71.5	0.690	5.30	8.48		IS	13C2-PFOA	128	50 - 150	
PFOS	14.1	0.856	5.30	8.48		IS	13C8-PFOS	108	50 - 150	

DL - Detection limit

RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit

Results reported to DL.

When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

Sample ID: OUA1-HS03-20170717						Modified EPA Method 537				
Client Data			Sample Data			Laboratory Data				
Name: AMEC Foster Wheeler			Matrix: Groundwater			Lab Sample: 1700893-04		Date Received: 18-Jul-2017 9:23		
Project: MCAS Yuma, AZ TO 105			Sample Size: 0.118 L			QC Batch: B7G0106		Date Extracted: 25-Jul-2017 10:19		
Date Collected: 17-Jul-2017 11:15						Date Analyzed: 01-Aug-17 02:09 Column: BEH C18				
Location:						31-Jul-17 23:38 Column: BEH C18				
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	745	9.51	26.5	42.5	D	IS	13C3-PFBS	128	50 - 150	D
PFOA	25.6	0.692	5.30	8.50		IS	13C2-PFOA	125	50 - 150	
PFOS	2.80	0.858	5.30	8.50	J	IS	13C8-PFOS	87.4	50 - 150	

DL - Detection limit  
RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit  
Results reported to DL.  
When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.  
Only the linear isomer is reported for all other analytes.

Matrix Spike Results										Modified EPA Method 537					
Source Client ID: OUA1-HS03-20170717 Source LabNumber: 1700893-04 Matrix: Aqueous Sample Size: 0.117/0.125 L				QC Batch: B7G0106 Date Extracted: 25-Jul-2017 10:19						Lab Sample: B7G0106-MS2/B7G0106-MSD2 Date Analyzed: 27-Jul-17 22:52 Column: BEH C18 27-Jul-17 23:04 Column: BEH C18					
Analyte	Spike-MS (ng/L)	MS %R	MS Qual.	Spike-MSD (ng/L)	MSD %R	MSD RPD	MSD Qual.	%R Limit	%RPD Limit	Labeled Standard		MS %R	MS Qualifiers	MSD %R	MS Qual.
PFBS	85.8	322	D, H	80.0	351	8.62	D, H	70 - 130	25	IS	13C3-PFBS	123	D	113	D
PFOA	85.8	111		80.0	107	3.67		70 - 130	25	IS	13C2-PFOA	113		111	
PFOS	85.8	119		80.0	107	10.6		70 - 130	25	IS	13C8-PFOS	90.1		95.0	

When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.  
Only the linear isomer is reported for all other analytes.

Sample ID: OUA1-HS03A-20170717						Modified EPA Method 537				
Client Data			Sample Data			Laboratory Data				
Name:	AMEC Foster Wheeler		Matrix:	Groundwater		Lab Sample:	1700893-05	Date Received:	18-Jul-2017 9:23	
Project:	MCAS Yuma, AZ TO 105		Sample Size:	0.120 L		QC Batch:	B7G0106	Date Extracted:	25-Jul-2017 10:19	
Date Collected:	17-Jul-2017 11:20					Date Analyzed:	01-Aug-17 02:47 Column: BEH C18			
Location:						31-Jul-17 23:51 Column: BEH C18				
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Labeled Standard		%R	LCL-UCL	Qualifiers
PFBS	915	9.32	26.0	41.6	D	IS	13C3-PFBS	111	50 - 150	D
PFOA	22.3	0.678	5.21	8.33		IS	13C2-PFOA	127	50 - 150	
PFOS	2.41	0.840	5.21	8.33	J	IS	13C8-PFOS	96.7	50 - 150	

DL - Detection limit

RL - Reporting limit

LCL-UCL - Lower control limit - upper control limit

Results reported to DL.

When reported, PFBS, PFHxS, PFOA and PFOS include both linear and branched isomers.

Only the linear isomer is reported for all other analytes.

## **DATA QUALIFIERS & ABBREVIATIONS**

<b>B</b>	<b>This compound was also detected in the method blank.</b>
<b>D</b>	<b>Dilution</b>
<b>E</b>	<b>The associated compound concentration exceeded the calibration range of the instrument.</b>
<b>H</b>	<b>Recovery and/or RPD was outside laboratory acceptance limits.</b>
<b>I</b>	<b>Chemical Interference</b>
<b>J</b>	<b>The amount detected is below the Reporting Limit/LOQ.</b>
<b>M</b>	<b>Estimated Maximum Possible Concentration. (CA Region 2 projects only)</b>
<b>*</b>	<b>See Cover Letter</b>
<b>Conc.</b>	<b>Concentration</b>
<b>NA</b>	<b>Not applicable</b>
<b>ND</b>	<b>Not Detected</b>
<b>TEQ</b>	<b>Toxic Equivalency</b>

**Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.**

## CERTIFICATIONS

<b>Accrediting Authority</b>	<b>Certificate Number</b>
Arkansas Department of Environmental Quality	17-015-0
California Department of Health – ELAP	2892
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Department of Health	E87777-18
Hawaii Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Maine Department of Health	2016026
Minnesota Department of Health	1175673
Nevada Division of Environmental Protection	CA004132017-1
New Hampshire Environmental Accreditation Program	207716
New Jersey Department of Environmental Protection	CA003
New York Department of Health	11411
Oregon Laboratory Accreditation Program	4042-008
Pennsylvania Department of Environmental Protection	013
Texas Commission on Environmental Quality	T104704189-17-8
Virginia Department of General Services	8621
Washington Department of Ecology	C584
Wisconsin Department of Natural Resources	998036160

*Current certificates and lists of licensed parameters are located in the Quality Assurance office and are available upon request.*

## NELAP Accredited Test Methods

MATRIX: Air	
Description of Test	Method
Determination of Polychlorinated p-Dioxins & Polychlorinated Dibenzofurans	EPA 23

MATRIX: Biological Tissue	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Drinking Water	
Description of Test	Method
2,3,7,8-Tetrachlorodibenzo- p-dioxin (2,3,7,8-TCDD) GC/HRMS	EPA 1613
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537

MATRIX: Non-Potable Water	
Description of Test	Method
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613B
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Pesticides in Water, Soil, Sediment, Biosolids, and Tissue by HRGC/HRMS	EPA 1699
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Dioxin by GC/HRMS	EPA 613
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

MATRIX: Solids	
Description of Test	Method
Tetra-Octa Chlorinated Dioxins and Furans by Isotope Dilution GC/HRMS	EPA 1613
Tetra- through Octa-Chlorinated Dioxins and Furans by Isotope	EPA 1613B



Dilution GC/HRMS	
Brominated Diphenyl Ethers by HRGC/HRMS	EPA 1614A
Chlorinated Biphenyl Congeners in Water, Soil, Sediment, and Tissue by GC/HRMS	EPA 1668A/C
Perfluorinated Alkyl Acids in Drinking Water by SPE and LC/MS/MS	EPA 537
Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by GC/HRMS	EPA 8280A/B
Polychlorinated Dibenzodioxins (PCDDs) and Polychlorinated Dibenzofurans (PCDFs) by GC/HRMS	EPA 8290/8290A

## Vista Analytical

1104 Windfield Way  
El Dorado Hills, CA 95762

TEL: 916-673-1520

Vista PM: Karen Volpendesta

## CHAIN OF CUSTODY RECORD

DATE: 7/17/2017 - B

PAGE: 1 OF 1

LABORATORY CLIENT: <b>AMEC Foster Wheeler E &amp; I, Inc.</b>						CLIENT PROJECT NAME / NUMBER: <b>MCAS Yuma, AZ TO 105</b>						P.O. NO.: <b>TO 105</b>											
ADDRESS: <b>9210 Sky Park Court</b>						PROJECT CONTACT: <b>Medora Hackler/Marie Bevier</b>						CONTRACT NO.: <b>N62473-12-D-2012</b>											
CITY: <b>San Diego, CA 92123</b>						SAMPLER(S): (SIGNATURE) <i>Wf Rute</i>						LAB USE ONLY <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>											
TEL: <b>503.639.3400</b>		E-Mail <i>medora.hackler@amecfw.com</i>		E-MAIL <i>marie.bevier@amecfw.com</i>																			
TURNAROUND TIME <input type="checkbox"/> SAME DAY <input type="checkbox"/> 24 HR <input type="checkbox"/> 48HR <input type="checkbox"/> 72 HR <input type="checkbox"/> 5 DAYS <input checked="" type="checkbox"/> 10 DAYS												REQUESTED ANALYSIS											
SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY) <input type="checkbox"/> RWQCB REPORTING <input type="checkbox"/> ARCHIVE SAMPLES UNTIL ____ / ____ / ____																							
SPECIAL INSTRUCTIONS																							
LAB USE ONLY	SAMPLE ID	SAMPLING		Matrix	#Cont	QC Level	PFOA, PFOS, and PFBS (U.S. EPA 537 Mod.)																
		DATE	TIME																				
	SB01-20170717	7/17/17	11:00	BW	2		X																
	EB01-20170717	7/17/17	11:10	"	2		X																
	OUA1-MW08-20170717	7/17/17	10:15	GW	2	IV	X																
	OUA1-HS03-20170717	7/17/17	11:15	"	6		X	MS / MSD															
	OUA1-HS03A-20170717	7/17/17	11:20	"	2		X																
<i>Wf Rute 7/17/17</i>																							
Relinquished by: (Signature) <i>Wf Rute</i>						Received by: (Signature) / Carrier Tracking Number <b>FedEx</b>						Date: <b>7/17/17</b>		Time: <b>13:00</b>									
Relinquished by: (Signature) <i>FedEx</i>						Received by: (Signature) <i>Detta Benedict</i>						Date: <b>7/18/17</b>		Time: <b>0940</b>									
Relinquished by: (Signature)						Received by: (Signature)						Date:		Time:									

# Sample Log-in Checklist

 Vista Work Order #: 1700893 TAT 14

<b>Samples Arrival:</b>	<b>Date/Time</b> 07/18/17 0923	<b>Initials:</b> JBLB	<b>Location:</b> WR-2
			<b>Shelf/Rack:</b> NA
<b>Logged In:</b>	<b>Date/Time</b> 07/18/17 1300	<b>Initials:</b> JBLB WWS	<b>Location:</b> WR-2
			<b>Shelf/Rack:</b> A4
<b>Delivered By:</b>	<input checked="" type="radio"/> FedEx	<input type="radio"/> UPS	<input type="radio"/> On Trac
		<input type="radio"/> GSO	<input type="radio"/> DHL
		<input type="radio"/> Hand Delivered	<input type="radio"/> Other
<b>Preservation:</b>	<input checked="" type="radio"/> Ice	<input type="radio"/> Blue Ice	<input type="radio"/> Dry Ice
	<input type="radio"/> None		
<b>Temp °C:</b> 0.0 (uncorrected)	<b>Time:</b>		<b>Thermometer ID:</b> DT-3
<b>Temp °C:</b> -0.7 (corrected)	<b>Probe used:</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		

		YES	NO	NA
Adequate Sample Volume Received?		<input checked="" type="checkbox"/>		
Holding Time Acceptable?		<input checked="" type="checkbox"/>		
Shipping Container(s) Intact?		<input checked="" type="checkbox"/>		
Shipping Custody Seals Intact?		<input checked="" type="checkbox"/>		
Shipping Documentation Present?		<input checked="" type="checkbox"/>		
Airbill	Trk # 8081 9079 5231	<input checked="" type="checkbox"/>		
Sample Container Intact?		<input checked="" type="checkbox"/>		
Sample Custody Seals Intact?				<input checked="" type="checkbox"/>
Chain of Custody / Sample Documentation Present?		<input checked="" type="checkbox"/>		
COC Anomaly/Sample Acceptance Form completed?			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
If Chlorinated or Drinking Water Samples, Acceptable Preservation?				<input checked="" type="checkbox"/>
<b>Preservation Documented:</b>	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	Trizma	<input checked="" type="radio"/> None	<input checked="" type="radio"/> Yes
			<input type="radio"/> No	<input type="radio"/> NA
<b>Shipping Container</b>	Vista	Client	<input checked="" type="radio"/> Retain	<input type="radio"/> Return
			<input type="radio"/> Dispose	

Comments:

## **EXTRACTION INFORMATION**

Process Sheet  
Workorder: **1700893**

RX

Prep Expiration: 2017-Jul-31  
Client: AMEC Foster Wheeler

Workorder Due: 01-Aug-17 00:00

TAT: 14

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

Prep Batch: **B7G0106**

Prep Data Entered: **MB 7/26/17**  
Date and Initials

Version: PFOA, PFOS, and PFBS only

Initial Sequence: \_\_\_\_\_

LabSampleID	Recon	ClientSampleID	Date Received	Location	Comments
1700893-01	B <input checked="" type="checkbox"/>	SB01-20170717	18-Jul-17 09:23	WR-2 A-4	
1700893-02	B <input checked="" type="checkbox"/>	EB01-20170717	18-Jul-17 09:23	WR-2 A-4	
1700893-03	B <input checked="" type="checkbox"/>	OUA1-MW08-20170717	18-Jul-17 09:23	WR-2 A-4	
1700893-04	B <input checked="" type="checkbox"/>	OUA1-HS03-20170717	18-Jul-17 09:23	WR-2 A-4	MS/MSD
1700893-05	B <input checked="" type="checkbox"/>	OUA1-HS03A-20170717	18-Jul-17 09:23	WR-2 A-4	

Vista PM: Martha Maier

Vial Box ID: **Sofisticated**

Sample Reconciled By: **MB 7/29/17**

Batch: B7G0106

Matrix: Aqueous

LabNumber	WetWeight (Initial)	% Solids (Extraction Solids)	DryWeight	Final	Extracted	Ext By	Spike	SpikeAmount	ClientMatrix	Analysis
1700888-12RE1	0.12052✓	NA	NA	1000	25-Jul-17 10:19	BAP			Aqueous	537M PFAS DOD (LOQ as
1700889-08RE1	0.11784✓			1000	25-Jul-17 10:19	BAP			Aqueous	537M PFAS DOD (LOQ as
1700889-09RE1	0.12224✓			1000	25-Jul-17 10:19	BAP			Aqueous	537M PFAS DOD (LOQ as
1700889-10RE1	0.12026✓			1000	25-Jul-17 10:19	BAP			Aqueous	537M PFAS DOD (LOQ as
1700889-11RE1	0.11669✓			1000	25-Jul-17 10:19	BAP			Aqueous	537M PFAS DOD (LOQ as
1700889-12RE1	0.11681✓			1000	25-Jul-17 10:19	BAP			Aqueous	537M PFAS DOD (LOQ as
1700893-01RE1	0.11977✓			1000	25-Jul-17 10:19	BAP			Blank Water	537M PFAS DOD (LOQ as
1700893-02RE1	0.09751✓			1000	25-Jul-17 10:19	BAP			Blank Water	537M PFAS DOD (LOQ as
1700893-03RE1	0.11787✓			1000	25-Jul-17 10:19	BAP			Groundwater	537M PFAS DOD (LOQ as
1700893-04RE1	0.11763✓			1000	25-Jul-17 10:19	BAP			Groundwater	537M PFAS DOD (LOQ as
1700893-05RE1	0.12006✓			1000	25-Jul-17 10:19	BAP			Groundwater	537M PFAS DOD (LOQ as
1700907-10RE1	0.11283✓			1000	25-Jul-17 10:19	BAP			Water	537M PFAS DOD (LOQ as
B7G0106-BLK1	0.125✓			1000	25-Jul-17 10:19	BAP				QC
B7G0106-BS1	0.125✓			1000	25-Jul-17 10:19	BAP	17D2705✓	10✓		QC
B7G0106-MS1	0.125✓			1000	25-Jul-17 10:19	BAP	17D2705✓	10✓		QC
B7G0106-MS2	0.11657✓			1000	25-Jul-17 10:19	BAP	17D2705✓	10✓		QC
B7G0106-MSD1	0.11989✓			1000	25-Jul-17 10:19	BAP	17D2705✓	10✓		QC
B7G0106-MSD2	0.125✓	✓	✓	1000	25-Jul-17 10:19	BAP	17D2705✓	10✓		QC

HB 7/26/17

## PREPARATION BENCH SHEET

Matrix: Aqueous

Method: 537M PFAS DOD (LOO as mL)

B7G0106

Chemist: BP

Prep Date/Time: 25 Jul-17 10:19  
BP 7-25-17

Prepared using: LCMS - SPE Extraction-LCMS

C	VISTA Sample ID	pH Before	pH After	Chlorine (Cl)	Drops HCl Added	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	IS/NS CHEM/WIT DATE	SPE	RS CHEM/WIT DATE
<input type="checkbox"/>	B7G0106-BLK1	5	2	0	2	NA	NA	(0.125) ✓	BP 7-25-17	HC 7-25-17	BP 7-25-17
<input type="checkbox"/>	B7G0106-BS1	5	2	0	2	↓	↓	↓ ✓	↓	↓	↓
<input type="checkbox"/>	B7G0106-MS1 1700888-12RE1 (B)										
<input type="checkbox"/>	B7G0106-MS2 1700893-04RE1 (C)	8	2	0	4	143.65	27.08	0.11657 ✓	BP 7-25-17	HC 7-25-17	BP 7-25-17
<input type="checkbox"/>	B7G0106-MSD1 1700888-12RE1 (B)										
<input type="checkbox"/>	B7G0106-MSD2 1700893-04RE1 (C)	8	2	0	4	147.01	27.12	0.11989 ✓	BP 7-25-17	HC 7-25-17	BP 7-25-17
<input type="checkbox"/>	1700888-12RE1 (A)	6	2	0	2	147.74	27.22	0.12052	I	I	I
<input type="checkbox"/>	1700889-08RE1	6	2	0	2	145.36	27.52	0.11784			
<input type="checkbox"/>	1700889-09RE1	6	2	0	2	149.68	27.44	0.12224			
<input type="checkbox"/>	1700889-10RE1 (A)	6	2	0	2	147.77	27.51	0.12026			
<input type="checkbox"/>	1700889-11RE1 (A)	6	2	0	2	144.18	27.49	0.11669			
<input type="checkbox"/>	1700889-12RE1	6	2	0	2	143.90	27.09	0.11681			
<input type="checkbox"/>	1700893-01RE1	6	2	0	2	146.88	27.11	0.11977 ✓			
<input type="checkbox"/>	1700893-02RE1	6	2	0	2	144.84	27.04	0.09751 ✓			
<input type="checkbox"/>	1700893-03RE1 (P)	6	2	0	2	141.84	26.97	0.11787 ✓			

(C) Samples took longer for SPE, also eluted the slowest 7-25-17

IS Name <u>1761307, 10.2</u> (VS)	NS Name <u>1702705, 10.2</u> (VI)	RS Name <u>17F3030, 10.2</u> (VD)	SPE Chem: <u>Simula X-100 35µm 100mg</u> Ele SOLV: <u>5% MeOH in MeOH</u> Final Volume(s): <u>10</u>	Check Out: <u>HB 7/24/17</u> Chemist/Date: Check In: <u>HB 7/24/17</u> Chemist/Date: Balance ID: <u>11KRW-8</u> pH Adjusted: Chemist/Date: <u>HB 7/24/17</u>
---	---	---	--	--

Comments: Assume 1 g = 1 mL

(A) samples were centrifuged to remove particulate. HB 7/24/17  
(B) Insufficient volume for MS/MSD BP 7-25-17

## PREPARATION BENCH SHEET

Matrix: Aqueous

Method: 537M PFAS DOD (LOO as mRL)

B7G0106

Chemist: BSPrep Date/Time: 35 Jul-17 10:19  
BP 7-25-17

Prepared using: LCMS - SPE Extraction-LCMS

C	VISTA Sample ID	pH Before	pH After	Chlorine (Cl)	Drops HCl Added	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	IS/NS CHEM/WIT DATE	SPE	RS CHEM/WIT DATE
<input type="checkbox"/>	1700893-04RE1 (C)	8	2	0	4	144.76	27.13	0.11763	BP 7/25/17	7/25/17	BP 7/25/17
<input type="checkbox"/>	1700893-05RE1 (A)	8	2	0	4	147.08	27.02	0.12006	↓	↓	↓
<input type="checkbox"/>	1700907-10RE1 (A)	6	2	0	2	139.78	26.95	0.11283	↓	↓	↓

(A) samples were centrifuged to remove particulate 7/24/17

(C) sample took longer than rest for SPE, also eluted the slowest 7/25/17

IS Name <u>1761307, 10uL</u> (S)	NS Name <u>1702705, 10uL</u> (V1)	RS Name <u>17F3038, 10uL</u> (V2)	SPE Chem: <u>SMA 1.1W 33um 100%</u> Ele SOLV: <u>50% MeCN / 50% H2O</u> Final Volume(s) <u>1uL</u>	Check Out: <u>HB 7/24/17</u> Chemist/Date: Check In: <u>HB 7/24/17</u> Chemist/Date: Balance ID: <u>HRMS-8</u> pH Adjusted: Chemist/Date: <u>HB 7/24</u>
--	---	---	--	--

Comments: Assume 1 g = 1 mL



## **SAMPLE DATA – MODIFIED EPA METHOD 537**

Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-20.qld

Last Altered: Monday, July 31, 2017 10:44:21 Pacific Daylight Time

Printed: Monday, July 31, 2017 10:44:34 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: B7G0106-BLK1 Method Blank 0.125, Description: Method Blank, Name: 170727G5\_20, Date: 27-Jul-2017, Time: 20:34:22

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	299.0 > 79.7		4.275e3		0.125			
2	7 PFOA	413.0 > 368.7	1.297e2	1.830e4		0.125	4.24		
3	9 PFOS	499.0 > 79.9		8.257e3		0.125			
4	12 13C3-PFBS	302.0 > 98.8	4.275e3	1.913e4	0.263	0.125	2.92	85.0	85.0
5	17 13C2-PFOA	414.9 > 369.7	1.830e4	5.996e3	2.843	0.125	4.24	107	107
6	20 13C8-PFOS	507.0 > 79.9	8.257e3	8.852e3	0.927	0.125	4.65	101	101
7	22 13C5-PFHxA	318>272.9	1.913e4	1.913e4	1.000	0.125	3.29	100	100
8	24 13C8-PFOA	421.3 > 376	5.996e3	5.996e3	1.000	0.125	4.24	100	100
9	26 13C4-PFOS	503.0 > 79.9	8.852e3	8.852e3	1.000	0.125	4.65	100	100

Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-20.qld

Last Altered: Monday, July 31, 2017 10:44:21 Pacific Daylight Time

Printed: Monday, July 31, 2017 10:44:50 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: B7G0106-BLK1 Method Blank 0.125, Description: Method Blank, Name: 170727G5\_20, Date: 27-Jul-2017, Time: 20:34:22

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	28 Total PFBS	299.0 > 79.7		4.275e3		0.125			
2	30 Total PFOA	413.0 > 368.7		1.830e4		0.125			
3	31 Total PFOS	499.0 > 79.9		8.257e3		0.125			

Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-20.qld

Last Altered:   Monday, July 31, 2017 10:44:21 Pacific Daylight Time

Printed:        Monday, July 31, 2017 10:44:34 Pacific Daylight Time

Reviewed: CT 08/01/2017

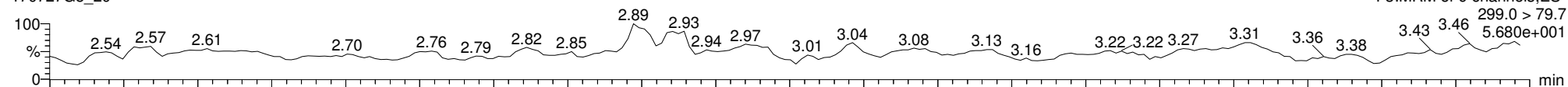
Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

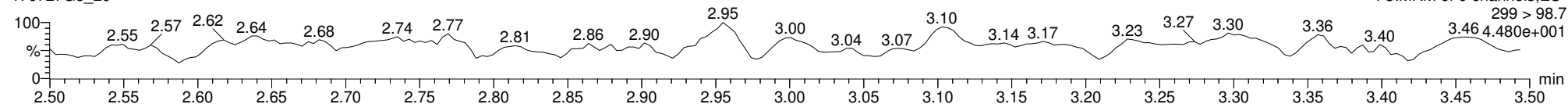
ID: B7G0106-BLK1 Method Blank 0.125, Description: Method Blank, Name: 170727G5\_20, Date: 27-Jul-2017, Time: 20:34:22, Instrument: , Lab: , User:

### Total PFBS

170727G5\_20

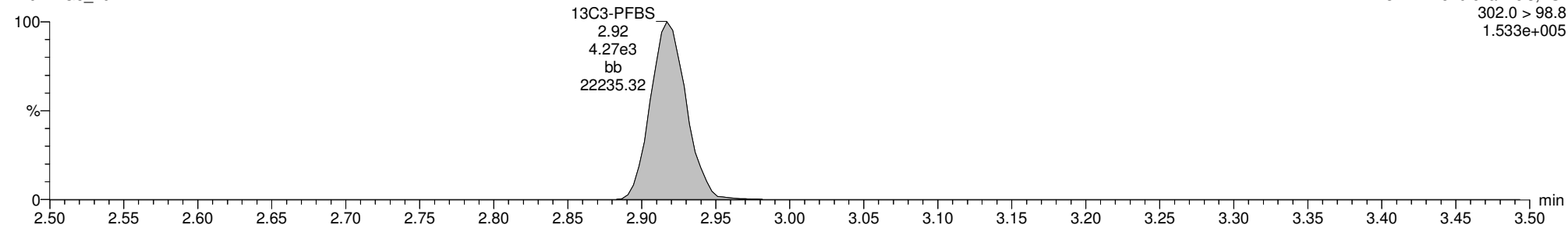


170727G5\_20



### 13C3-PFBS

170727G5\_20



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-20.qld

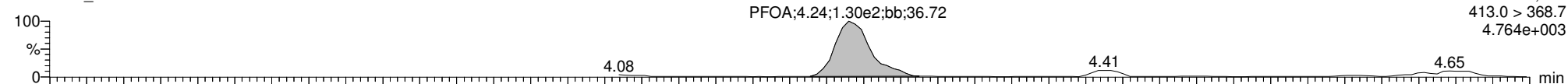
Last Altered:   Monday, July 31, 2017 10:44:21 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 10:44:34 Pacific Daylight Time

Reviewed: CT 08/01/2017

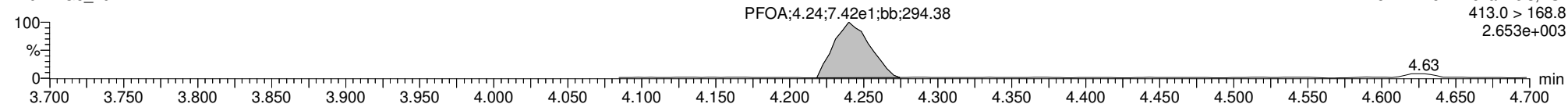
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**Total PFOA**

170727G5\_20

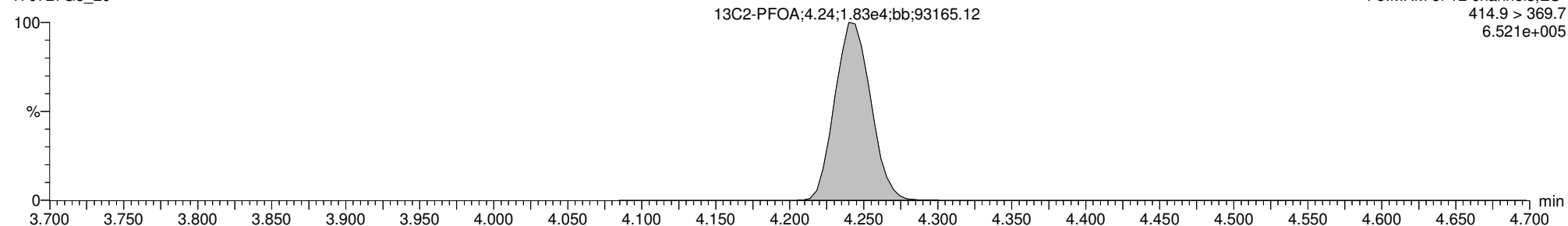


170727G5\_20



**13C2-PFOA**

170727G5\_20



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-20.qld

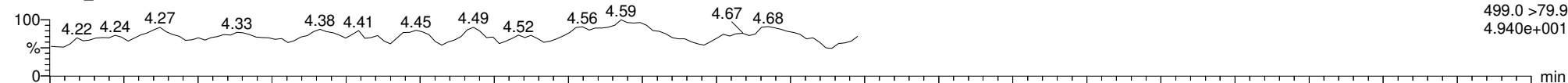
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Printed:        Monday, July 31, 2017 10:44:34 Pacific Daylight Time

Reviewed: CT 08/01/2017

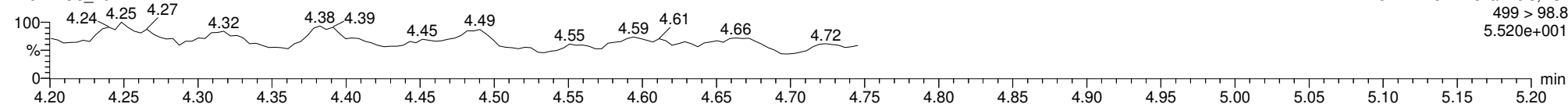
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**Total PFOS**

170727G5\_20

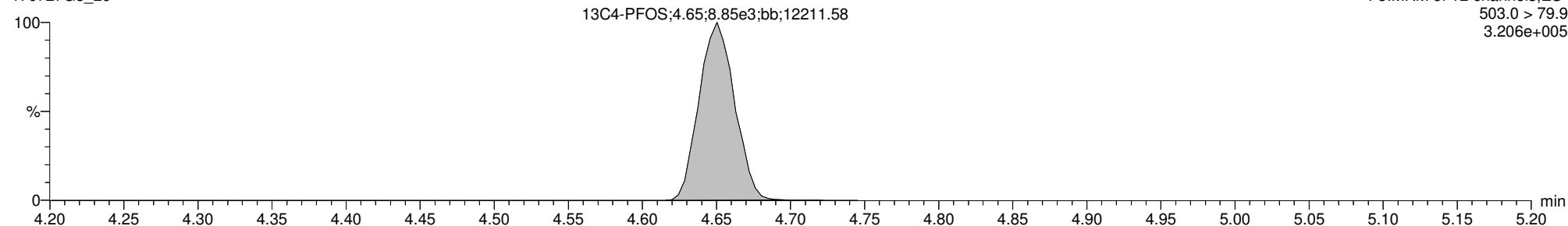


170727G5\_20



**13C4-PFOS**

170727G5\_20



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-20.qld

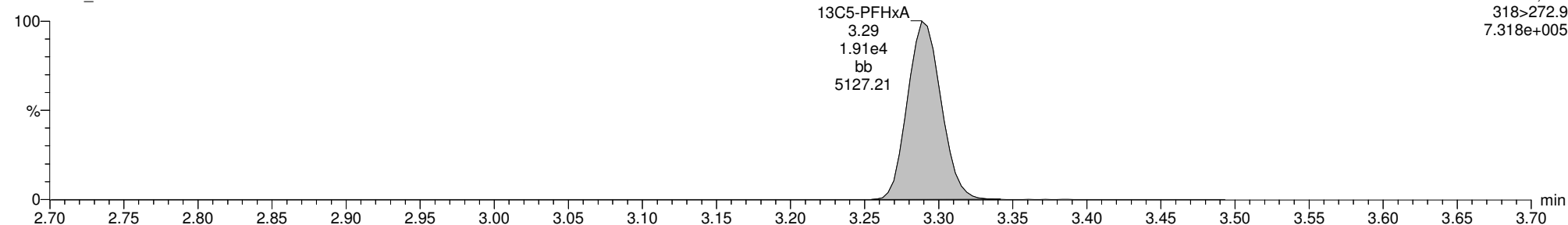
Last Altered:   Monday, July 31, 2017 10:44:21 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 10:44:34 Pacific Daylight Time

Reviewed: CT 08/01/2017

**ID: B7G0106-BLK1 Method Blank 0.125, Description: Method Blank, Name: 170727G5\_20, Date: 27-Jul-2017, Time: 20:34:22, Instrument: , Lab: , User:**

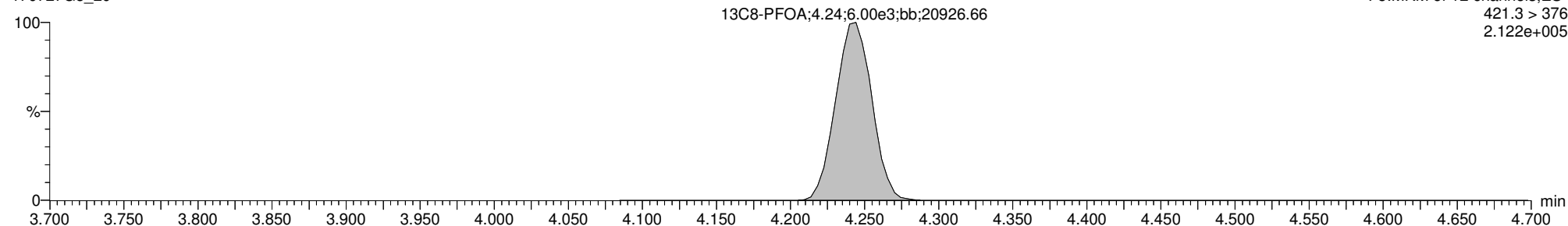
**13C5-PFHxA**

170727G5\_20



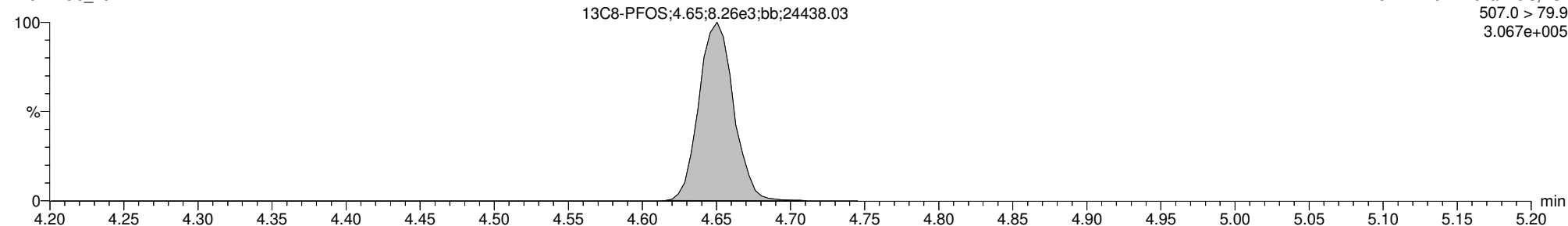
**13C8-PFOA**

170727G5\_20



**13C8-PFOS**

170727G5\_20



LA 7/31/2017

Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-5.qld

Last Altered: Monday, July 31, 2017 10:29:51 Pacific Daylight Time

Printed: Monday, July 31, 2017 10:34:13 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: B7G0106-BS1 OPR 0.125, Description: OPR, Name: 170727G5\_5, Date: 27-Jul-2017, Time: 17:26:02

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	299.0 > 79.7	5.917e3	4.559e3		0.125	2.91	77.8	97.2
2	7 PFOA	413.0 > 368.7	1.128e4	1.661e4		0.125	4.24	84.3	105
3	9 PFOS	499.0 > 79.9	2.025e3	5.599e3		0.125	4.65	76.5	95.6
4	12 13C3-PFBS	302.0 > 98.8	4.559e3	1.743e4	0.263	0.125	2.91	99.6	99.6
5	17 13C2-PFOA	414.9 > 369.7	1.661e4	5.307e3	2.843	0.125	4.24	110	110
6	20 13C8-PFOS	507.0 > 79.9	5.599e3	5.676e3	0.927	0.125	4.64	106	106
7	22 13C5-PFHxA	318>272.9	1.743e4	1.743e4	1.000	0.125	3.28	100	100
8	24 13C8-PFOA	421.3 > 376	5.307e3	5.307e3	1.000	0.125	4.24	100	100
9	26 13C4-PFOS	503.0 > 79.9	5.676e3	5.676e3	1.000	0.125	4.64	100	100



Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-5.qld

Last Altered: Monday, July 31, 2017 10:29:51 Pacific Daylight Time

Printed: Monday, July 31, 2017 10:34:25 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: B7G0106-BS1 OPR 0.125, Description: OPR, Name: 170727G5\_5, Date: 27-Jul-2017, Time: 17:26:02

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	28 Total PFBS	299.0 > 79.7		4.559e3		0.125		77.8	
2	30 Total PFOA	413.0 > 368.7		1.661e4		0.125		84.3	
3	31 Total PFOS	499.0 > 79.9		5.599e3		0.125		76.5	

Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-5.qld

Last Altered:   Monday, July 31, 2017 10:29:51 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 10:34:13 Pacific Daylight Time

Reviewed: CT 08/01/2017

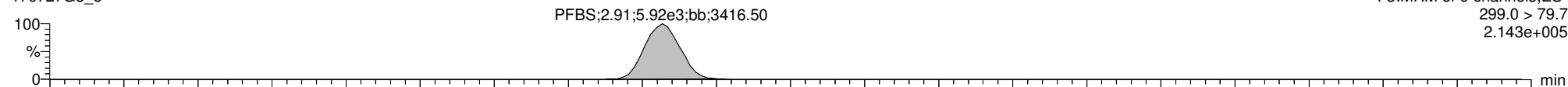
Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: B7G0106-BS1 OPR 0.125, Description: OPR, Name: 170727G5\_5, Date: 27-Jul-2017, Time: 17:26:02, Instrument: , Lab: , User:

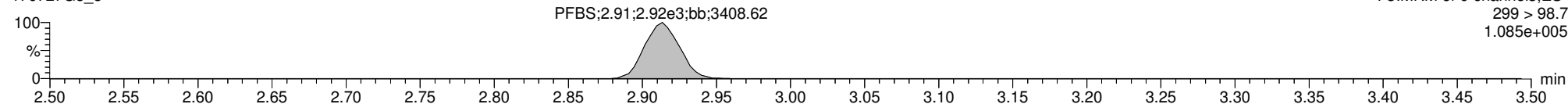
### Total PFBS

170727G5\_5



F3:MRM of 9 channels,ES-  
299.0 > 79.7  
2.143e+005

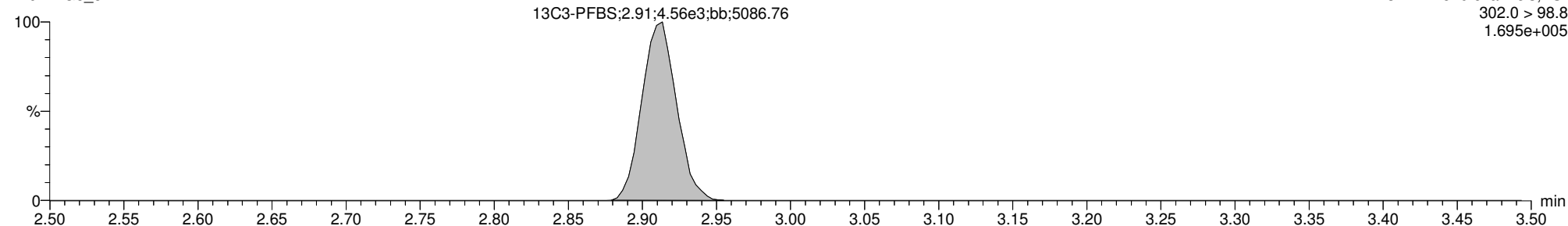
170727G5\_5



F3:MRM of 9 channels,ES-  
299 > 98.7  
1.085e+005

### 13C3-PFBS

170727G5\_5



F3:MRM of 9 channels,ES-  
302.0 > 98.8  
1.695e+005

Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-5.qld

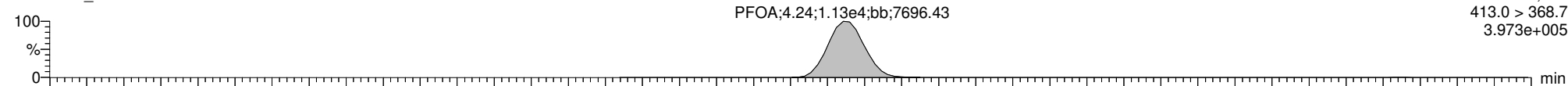
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Printed:        Monday, July 31, 2017 10:34:13 Pacific Daylight Time

Reviewed: CT 08/01/2017

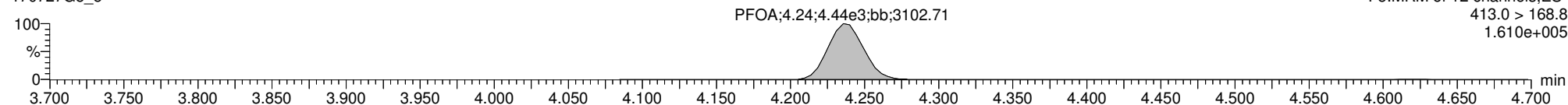
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### Total PFOA

170727G5\_5

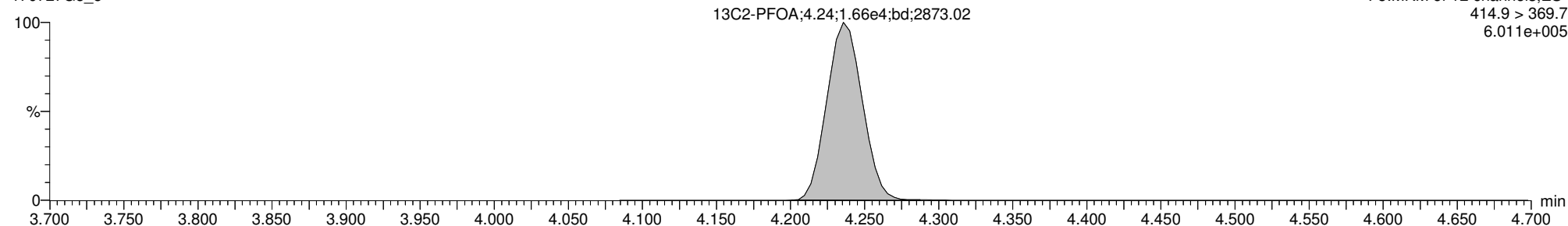


170727G5\_5



### 13C2-PFOA

170727G5\_5



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-5.qld

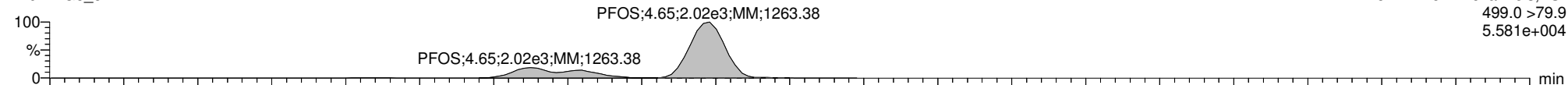
Last Altered:   Monday, July 31, 2017 10:29:51 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 10:34:13 Pacific Daylight Time

Reviewed: CT 08/01/2017

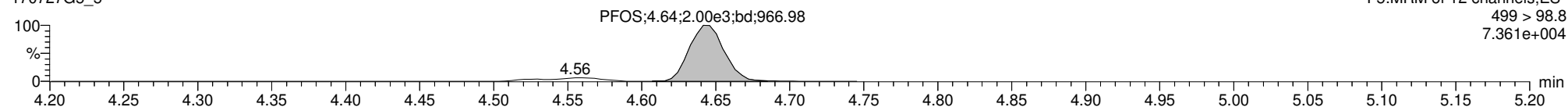
ID: B7G0106-BS1 OPR 0.125, Description: OPR, Name: 170727G5\_5, Date: 27-Jul-2017, Time: 17:26:02, Instrument: , Lab: , User:

### Total PFOS

170727G5\_5

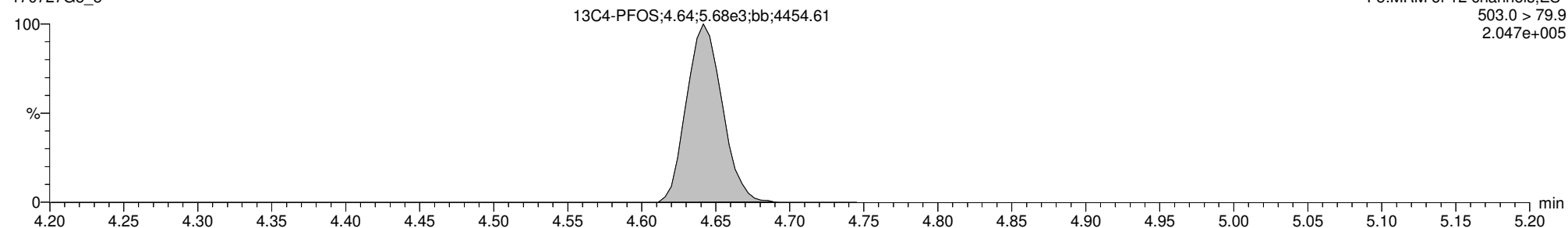


170727G5\_5



### 13C4-PFOS

170727G5\_5



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-5.qld

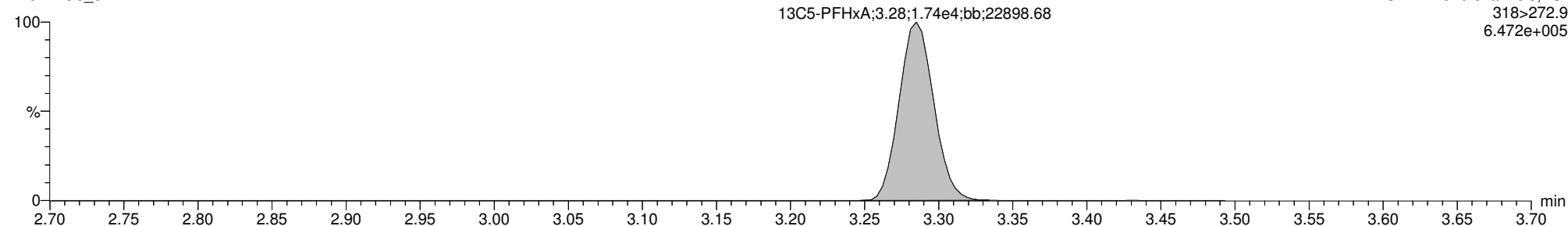
Last Altered:   Monday, July 31, 2017 10:29:51 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 10:34:13 Pacific Daylight Time

Reviewed: CT 08/01/2017

ID: B7G0106-BS1 OPR 0.125, Description: OPR, Name: 170727G5\_5, Date: 27-Jul-2017, Time: 17:26:02, Instrument: , Lab: , User:

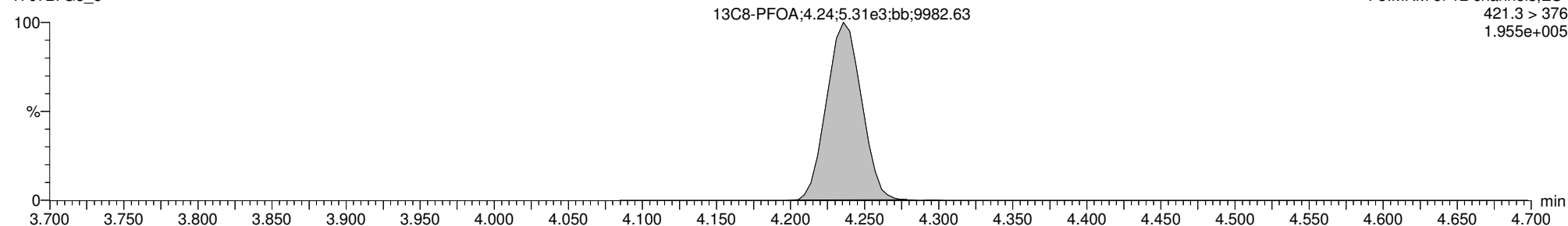
**13C5-PFHxA**

170727G5\_5



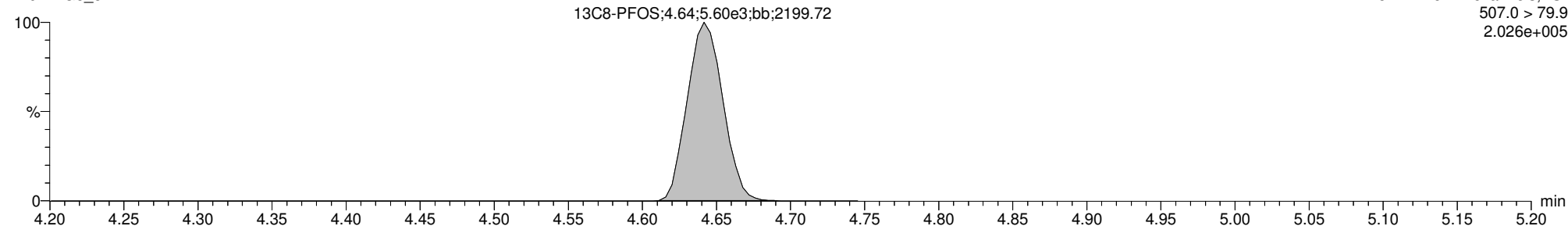
**13C8-PFOA**

170727G5\_5



**13C8-PFOS**

170727G5\_5



LA 7/31/2017

Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-27.qld

Last Altered: Monday, July 31, 2017 10:47:15 Pacific Daylight Time

Printed: Monday, July 31, 2017 10:47:52 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: 1700893-01RE1 SB01-20170717 0.12046, Description: SB01-20170717, Name: 170727G5\_27, Date: 27-Jul-2017, Time: 22:02:11

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	299.0 > 79.7		4.287e3		0.120			
2	7 PFOA	413.0 > 368.7	1.210e2	1.698e4		0.120	4.25		
3	9 PFOS	499.0 > 79.9		6.883e3		0.120			
4	12 13C3-PFBS	302.0 > 98.8	4.287e3	1.685e4	0.263	0.120	2.92	101	96.8
5	17 13C2-PFOA	414.9 > 369.7	1.698e4	5.148e3	2.843	0.120	4.24	121	116
6	20 13C8-PFOS	507.0 > 79.9	6.883e3	7.639e3	0.927	0.120	4.65	101	97.2
7	22 13C5-PFHxA	318>272.9	1.685e4	1.685e4	1.000	0.120	3.29	104	100
8	24 13C8-PFOA	421.3 > 376	5.148e3	5.148e3	1.000	0.120	4.24	104	100
9	26 13C4-PFOS	503.0 > 79.9	7.639e3	7.639e3	1.000	0.120	4.65	104	100

Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-27.qld

Last Altered: Monday, July 31, 2017 10:47:15 Pacific Daylight Time

Printed: Monday, July 31, 2017 10:48:07 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: 1700893-01RE1 SB01-20170717 0.12046, Description: SB01-20170717, Name: 170727G5\_27, Date: 27-Jul-2017, Time: 22:02:11

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	28 Total PFBS	299.0 > 79.7		4.287e3		0.120			
2	30 Total PFOA	413.0 > 368.7		1.698e4		0.120			
3	31 Total PFOS	499.0 > 79.9		6.883e3		0.120			

Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-27.qld

Last Altered:   Monday, July 31, 2017 10:47:15 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 10:47:52 Pacific Daylight Time

Reviewed: CT 08/01/2017

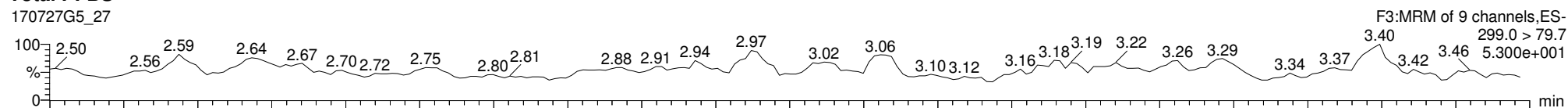
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Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

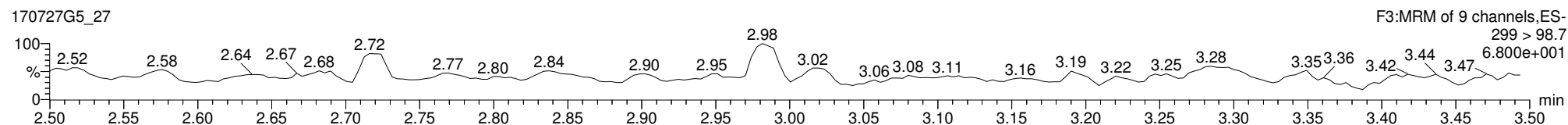
ID: 1700893-01RE1 SB01-20170717 0.12046, Description: SB01-20170717, Name: 170727G5\_27, Date: 27-Jul-2017, Time: 22:02:11, Instrument: , Lab: , User:

### Total PFBS

170727G5\_27

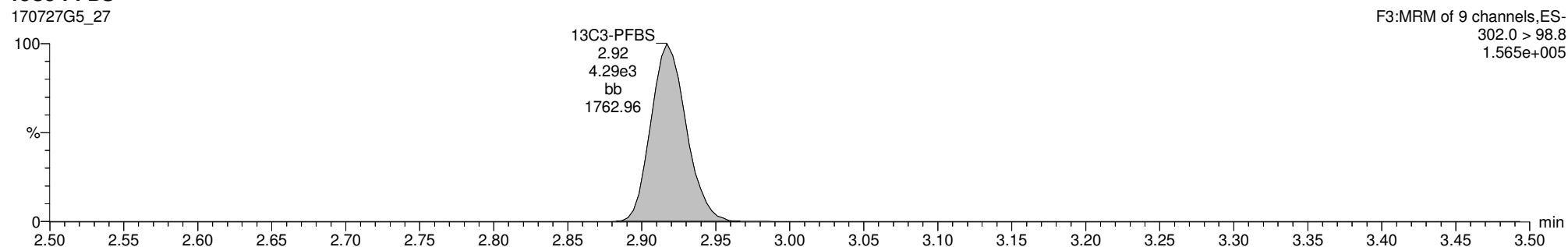


170727G5\_27



### 13C3-PFBS

170727G5\_27





Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-27.qld

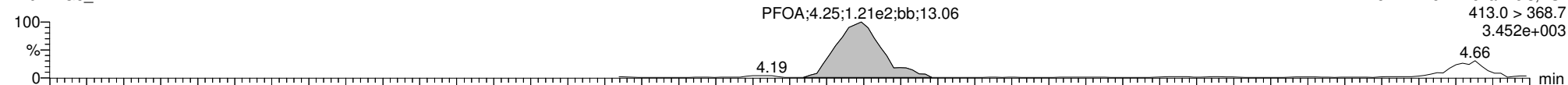
Last Altered:   Monday, July 31, 2017 10:47:15 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 10:47:52 Pacific Daylight Time

Reviewed: CT 08/01/2017

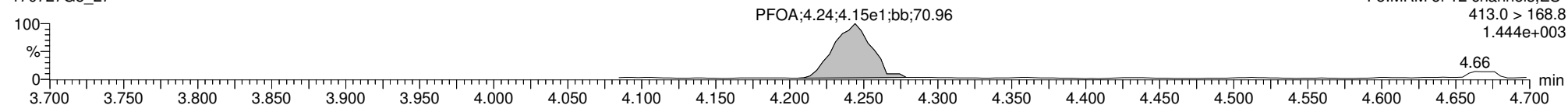
**ID: 1700893-01RE1 SB01-20170717 0.12046, Description: SB01-20170717, Name: 170727G5\_27, Date: 27-Jul-2017, Time: 22:02:11, Instrument: , Lab: , User:**

**Total PFOA**

170727G5\_27

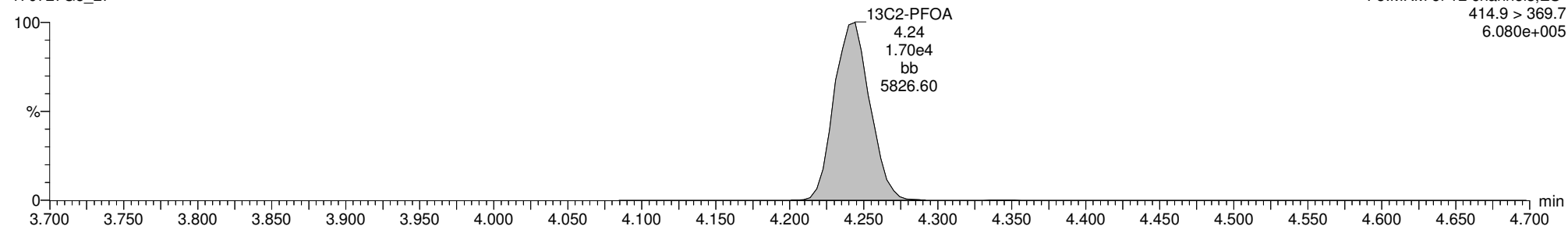


170727G5\_27



**<sup>13</sup>C2-PFOA**

170727G5\_27



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-27.qld

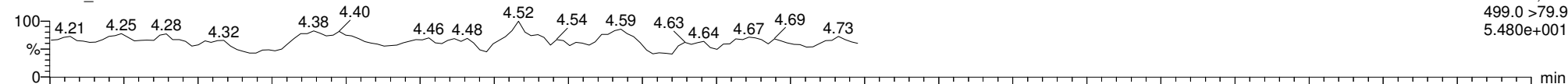
Last Altered:   Monday, July 31, 2017 10:47:15 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 10:47:52 Pacific Daylight Time

Reviewed: CT 08/01/2017

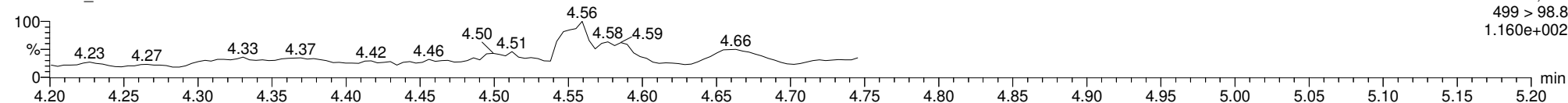
**ID: 1700893-01RE1 SB01-20170717 0.12046, Description: SB01-20170717, Name: 170727G5\_27, Date: 27-Jul-2017, Time: 22:02:11, Instrument: , Lab: , User:**

**Total PFOS**

170727G5\_27

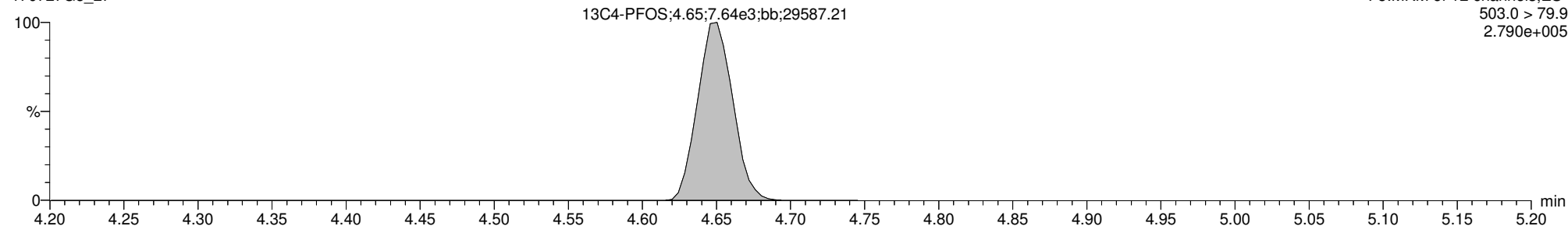


170727G5\_27



**13C4-PFOS**

170727G5\_27



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-27.qld

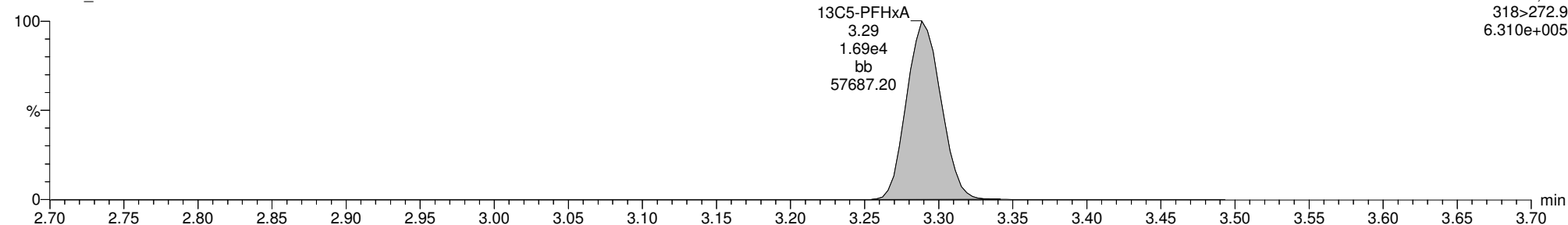
Last Altered:   Monday, July 31, 2017 10:47:15 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 10:47:52 Pacific Daylight Time

Reviewed: CT 08/01/2017

ID: 1700893-01RE1 SB01-20170717 0.12046, Description: SB01-20170717, Name: 170727G5\_27, Date: 27-Jul-2017, Time: 22:02:11, Instrument: , Lab: , User:

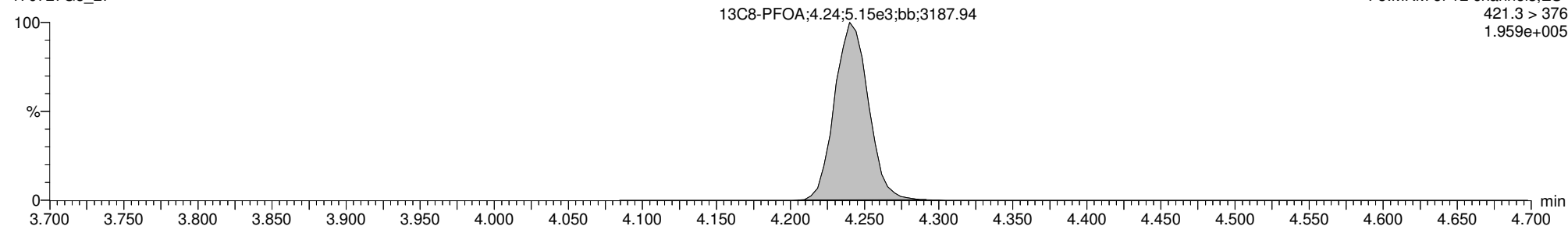
**13C5-PFHxA**

170727G5\_27



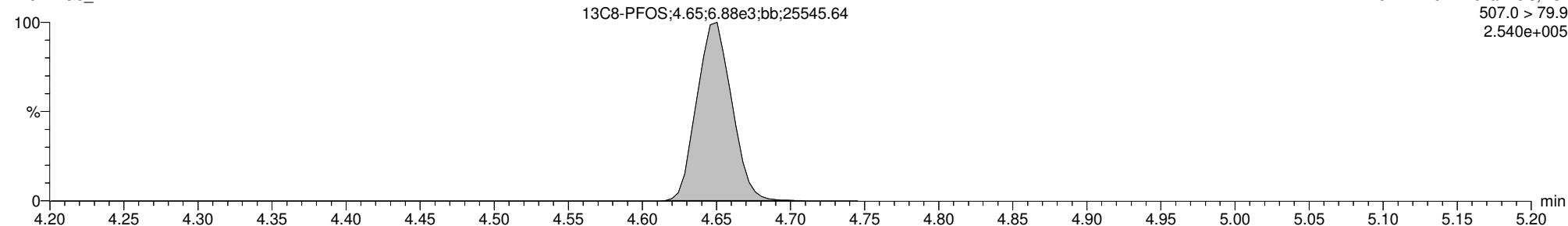
**13C8-PFOA**

170727G5\_27



**13C8-PFOS**

170727G5\_27



LA 7/31/2017

Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-28.qld

Last Altered: Monday, July 31, 2017 10:51:16 Pacific Daylight Time

Printed: Monday, July 31, 2017 10:51:39 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: 1700893-02RE1 EB01-20170717 0.11139, Description: EB01-20170717, Name: 170727G5\_28, Date: 27-Jul-2017, Time: 22:14:45

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	299.0 > 79.7		4.212e3		0.0975			
2	7 PFOA	413.0 > 368.7	1.284e2	1.718e4		0.0975	4.24	0.0120	
3	9 PFOS	499.0 > 79.9		6.985e3		0.0975			
4	12 13C3-PFBS	302.0 > 98.8	4.212e3	1.729e4	0.263	0.0975	2.92	119	92.7
5	17 13C2-PFOA	414.9 > 369.7	1.718e4	4.812e3	2.843	0.0975	4.24	161	126
6	20 13C8-PFOS	507.0 > 79.9	6.985e3	7.350e3	0.927	0.0975	4.65	131	103
7	22 13C5-PFHxA	318>272.9	1.729e4	1.729e4	1.000	0.0975	3.29	128	100
8	24 13C8-PFOA	421.3 > 376	4.812e3	4.812e3	1.000	0.0975	4.24	128	100
9	26 13C4-PFOS	503.0 > 79.9	7.350e3	7.350e3	1.000	0.0975	4.65	128	100

Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-28.qld

Last Altered: Monday, July 31, 2017 10:51:16 Pacific Daylight Time

Printed: Monday, July 31, 2017 10:51:59 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: 1700893-02RE1 EB01-20170717 0.11139, Description: EB01-20170717, Name: 170727G5\_28, Date: 27-Jul-2017, Time: 22:14:45

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	28 Total PFBS	299.0 > 79.7		4.212e3		0.0975			
2	30 Total PFOA	413.0 > 368.7		1.718e4		0.0975		0.0120	
3	31 Total PFOS	499.0 >79.9		6.985e3		0.0975			

Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-28.qld

Last Altered:   Monday, July 31, 2017 10:51:16 Pacific Daylight Time

Printed:        Monday, July 31, 2017 10:51:39 Pacific Daylight Time

Reviewed: CT 08/01/2017

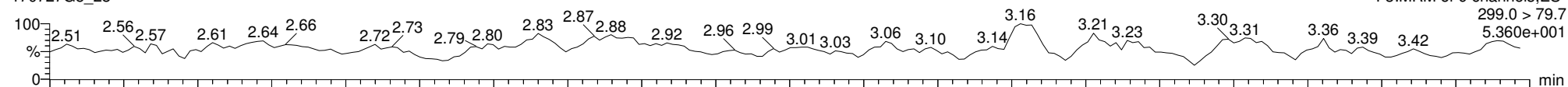
Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

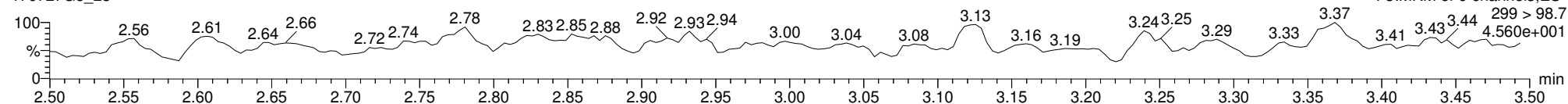
ID: 1700893-02RE1 EB01-20170717 0.11139, Description: EB01-20170717, Name: 170727G5\_28, Date: 27-Jul-2017, Time: 22:14:45, Instrument: , Lab: , User:

### Total PFBS

170727G5\_28

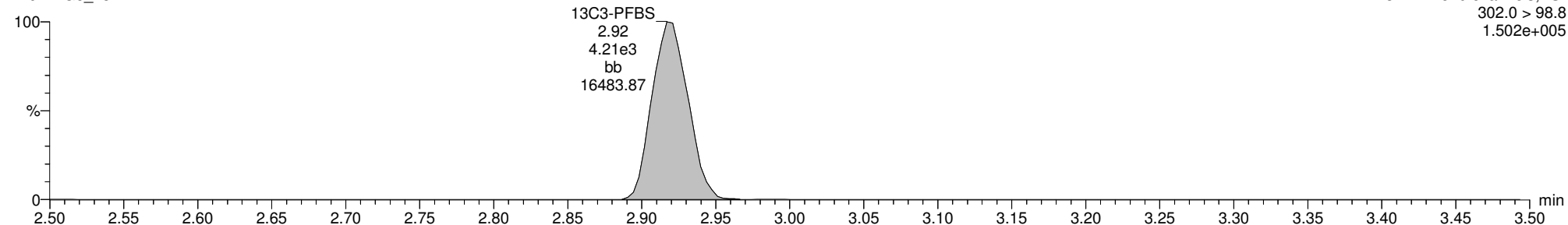


170727G5\_28



### 13C3-PFBS

170727G5\_28



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-28.qld

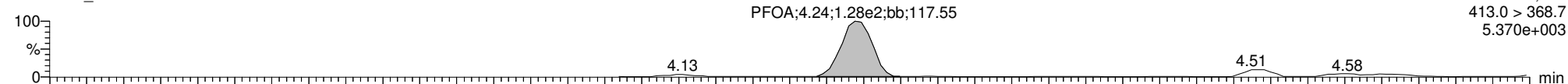
Last Altered:   Monday, July 31, 2017 10:51:16 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 10:51:39 Pacific Daylight Time

Reviewed: CT 08/01/2017

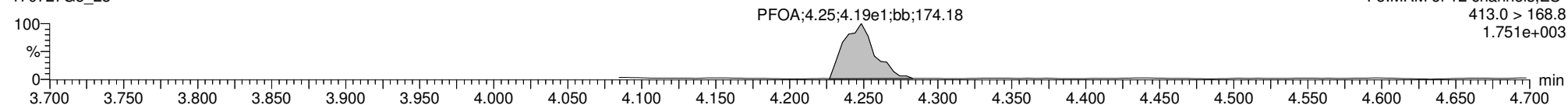
**ID: 1700893-02RE1 EB01-20170717 0.11139, Description: EB01-20170717, Name: 170727G5\_28, Date: 27-Jul-2017, Time: 22:14:45, Instrument: , Lab: , User:**

**Total PFOA**

170727G5\_28

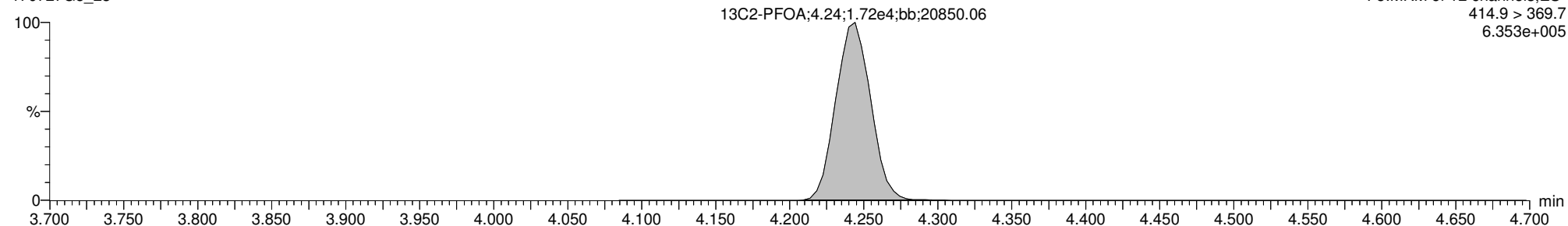


170727G5\_28



**13C2-PFOA**

170727G5\_28



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-28.qld

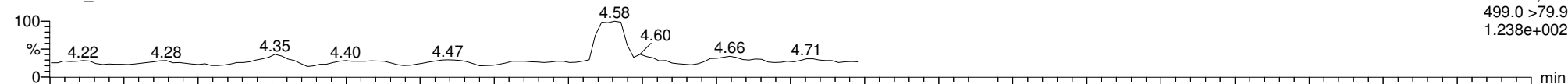
Last Altered:   Monday, July 31, 2017 10:51:16 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 10:51:39 Pacific Daylight Time

Reviewed: CT 08/01/2017

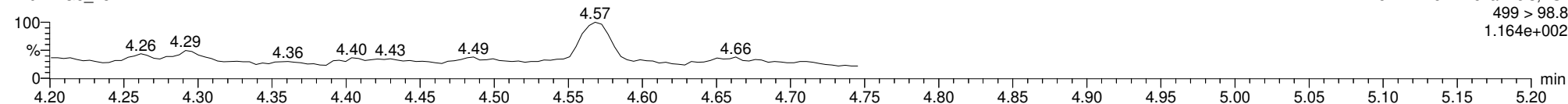
**ID: 1700893-02RE1 EB01-20170717 0.11139, Description: EB01-20170717, Name: 170727G5\_28, Date: 27-Jul-2017, Time: 22:14:45, Instrument: , Lab: , User:**

**Total PFOS**

170727G5\_28

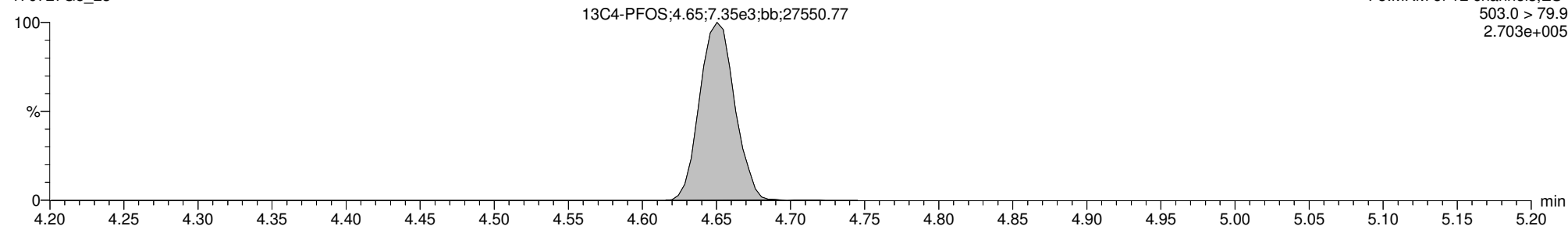


170727G5\_28



**<sup>13</sup>C4-PFOS**

170727G5\_28





Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-28.qld

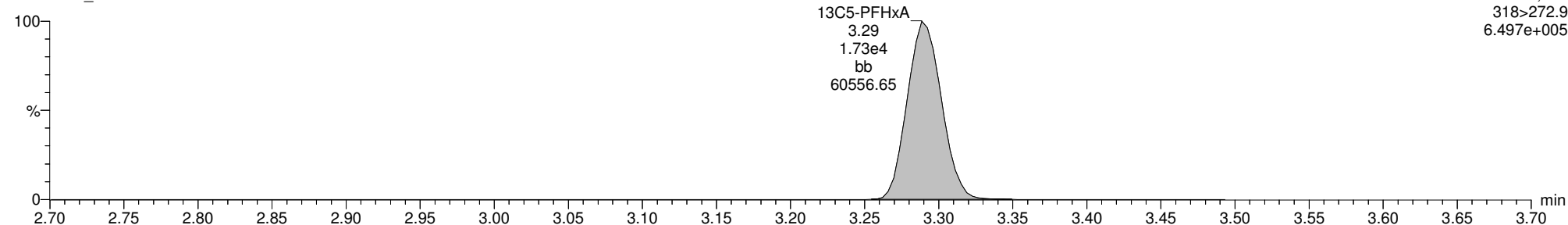
Last Altered:   Monday, July 31, 2017 10:51:16 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 10:51:39 Pacific Daylight Time

Reviewed: CT 08/01/2017

**ID: 1700893-02RE1 EB01-20170717 0.11139, Description: EB01-20170717, Name: 170727G5\_28, Date: 27-Jul-2017, Time: 22:14:45, Instrument: , Lab: , User:**

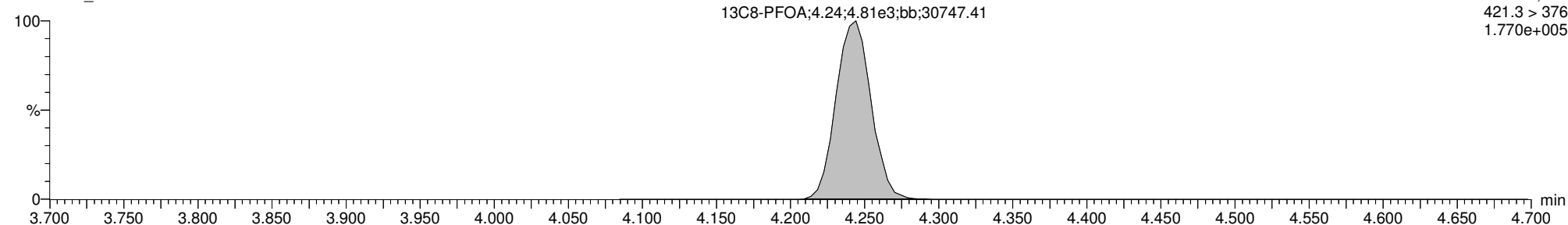
**13C5-PFHxA**

170727G5\_28



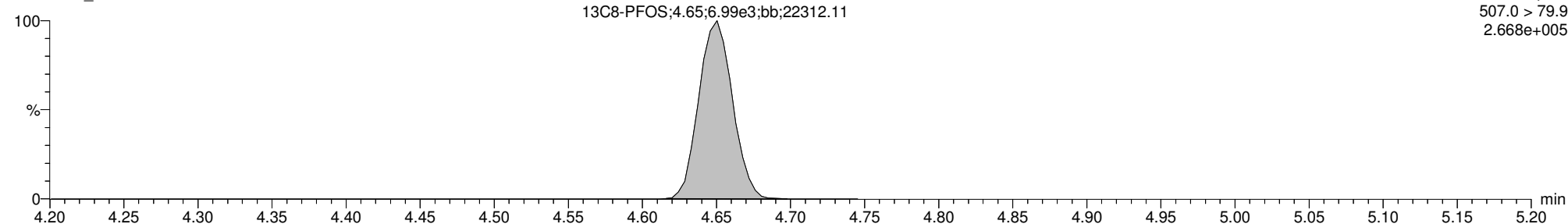
**13C8-PFOA**

170727G5\_28



**13C8-PFOS**

170727G5\_28



LA 7/31/2017

Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-29.qld

Last Altered: Monday, July 31, 2017 10:55:36 Pacific Daylight Time

Printed: Monday, July 31, 2017 10:56:11 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: 1700893-03RE1 OUA1-MW08-20170717 0.11436, Description: OUA1-MW08-20170717, Name: 170727G5\_29, Date: 27-Jul-2017, Time: 22:27:35

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	299.0 > 79.7	8.269e4	3.091e3		0.118	2.92	1760 *	
2	7 PFOA	413.0 > 368.7	8.923e3	1.839e4		0.118	4.24	63.5	
3	9 PFOS	499.0 > 79.9	4.884e2	7.544e3		0.118	4.65	14.1	
4	12 13C3-PFBS	302.0 > 98.8	3.091e3	9.601e3	0.263	0.118	2.92	130	123
5	17 13C2-PFOA	414.9 > 369.7	1.839e4	5.039e3	2.843	0.118	4.24	136	128
6	20 13C8-PFOS	507.0 > 79.9	7.544e3	7.565e3	0.927	0.118	4.65	114	108
7	22 13C5-PFHxA	318>272.9	9.601e3	9.601e3	1.000	0.118	3.28	106	100
8	24 13C8-PFOA	421.3 > 376	5.039e3	5.039e3	1.000	0.118	4.24	106	100
9	26 13C4-PFOS	503.0 > 79.9	7.565e3	7.565e3	1.000	0.118	4.65	106	100

E

\*SEE DILUTION

Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-29.qld

Last Altered: Monday, July 31, 2017 10:55:36 Pacific Daylight Time

Printed: Monday, July 31, 2017 10:56:25 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: 1700893-03RE1 OUA1-MW08-20170717 0.11436, Description: OUA1-MW08-20170717, Name: 170727G5\_29, Date: 27-Jul-2017, Time: 22:27:35

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	28 Total PFBS	299.0 > 79.7		3.091e3		0.118		1760	
2	30 Total PFOA	413.0 > 368.7		1.839e4		0.118		71.5	
3	31 Total PFOS	499.0 > 79.9		7.544e3		0.118		14.1	

Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-29.qld

Last Altered:   Monday, July 31, 2017 10:55:36 Pacific Daylight Time

Printed:        Monday, July 31, 2017 10:56:11 Pacific Daylight Time

Reviewed: CT 08/01/2017

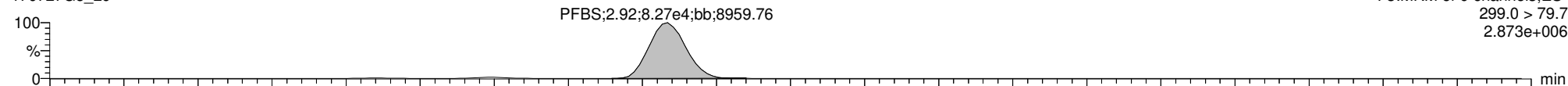
Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

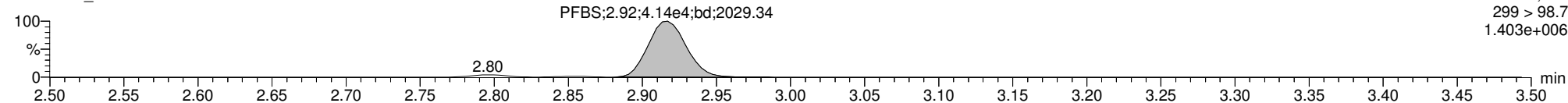
ID: 1700893-03RE1 OUA1-MW08-20170717 0.11436, Description: OUA1-MW08-20170717, Name: 170727G5\_29, Date: 27-Jul-2017, Time: 22:27:35, Instrument: , Lab: , User:

### Total PFBS

170727G5\_29

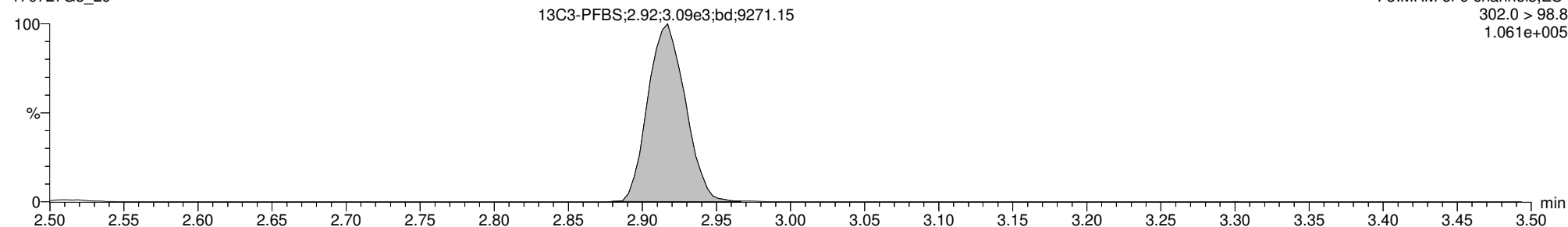


170727G5\_29



### 13C3-PFBS

170727G5\_29



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-29.qld

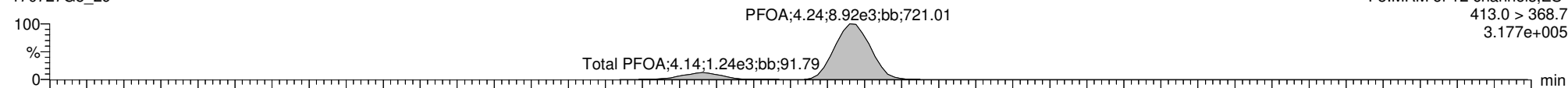
Last Altered:   Monday, July 31, 2017 10:55:36 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 10:56:11 Pacific Daylight Time

Reviewed: CT 08/01/2017

**ID: 1700893-03RE1 OUA1-MW08-20170717 0.11436, Description: OUA1-MW08-20170717, Name: 170727G5\_29, Date: 27-Jul-2017, Time: 22:27:35, Instrument: , Lab: , User:**

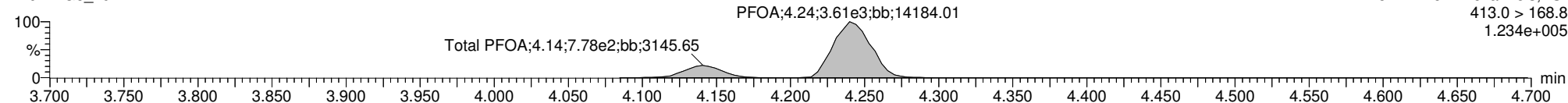
**Total PFOA**

170727G5\_29



F5:MRM of 12 channels,ES-  
413.0 > 368.7  
3.177e+005

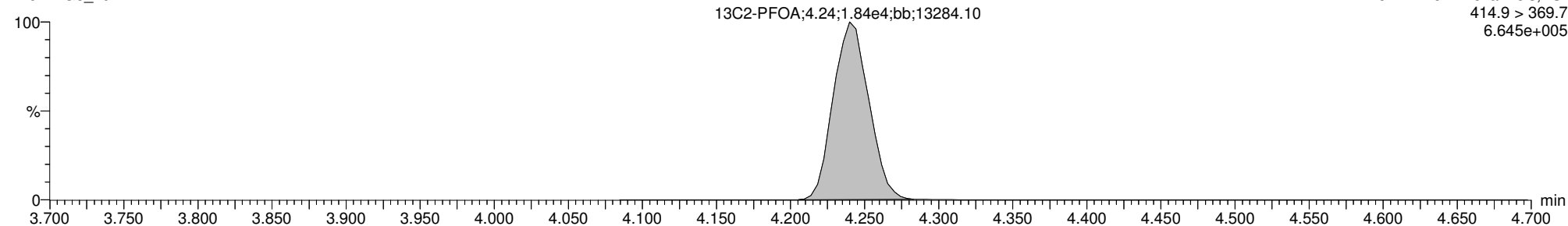
170727G5\_29



F5:MRM of 12 channels,ES-  
413.0 > 168.8  
1.234e+005

**13C2-PFOA**

170727G5\_29



F5:MRM of 12 channels,ES-  
414.9 > 369.7  
6.645e+005

Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-29.qld

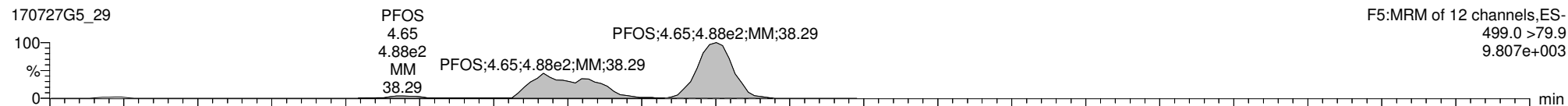
Last Altered:   Monday, July 31, 2017 10:55:36 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 10:56:11 Pacific Daylight Time

Reviewed: CT 08/01/2017

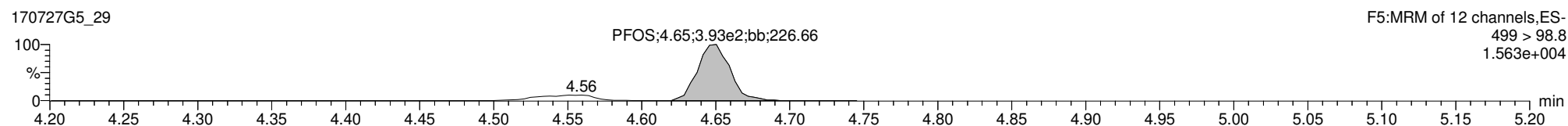
**ID: 1700893-03RE1 OUA1-MW08-20170717 0.11436, Description: OUA1-MW08-20170717, Name: 170727G5\_29, Date: 27-Jul-2017, Time: 22:27:35, Instrument: , Lab: , User:**

**Total PFOS**

170727G5\_29

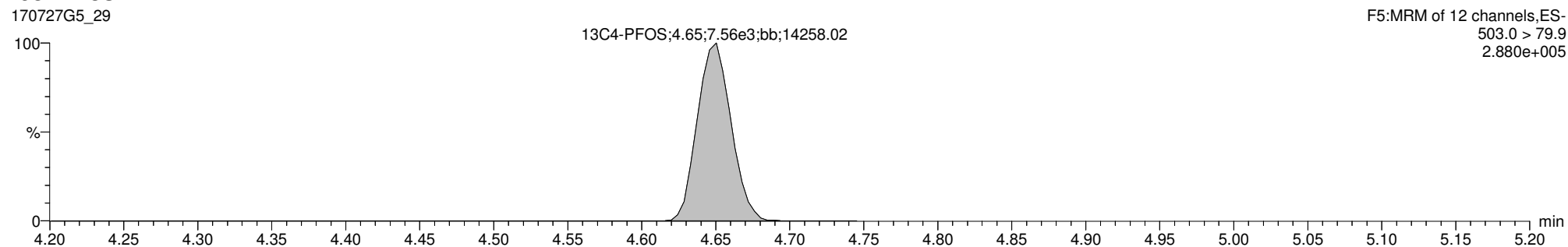


170727G5\_29



**13C4-PFOS**

170727G5\_29



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-29.qld

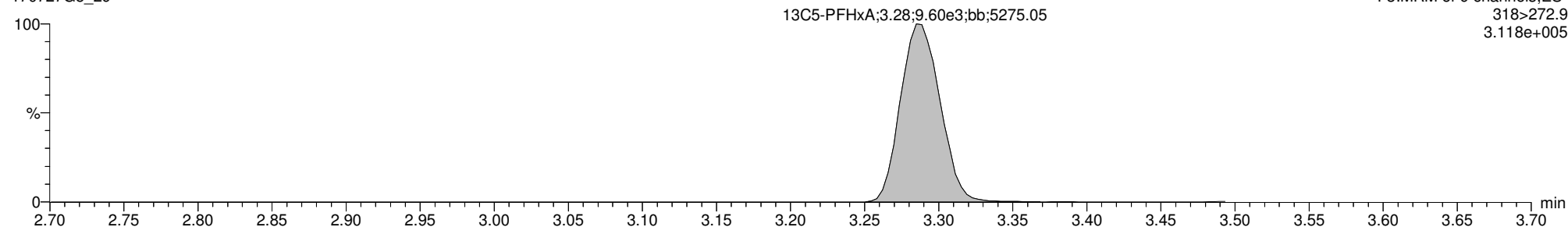
Last Altered:   Monday, July 31, 2017 10:55:36 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 10:56:11 Pacific Daylight Time

Reviewed: CT 08/01/2017

**ID: 1700893-03RE1 OUA1-MW08-20170717 0.11436, Description: OUA1-MW08-20170717, Name: 170727G5\_29, Date: 27-Jul-2017, Time: 22:27:35, Instrument: , Lab: , User:**

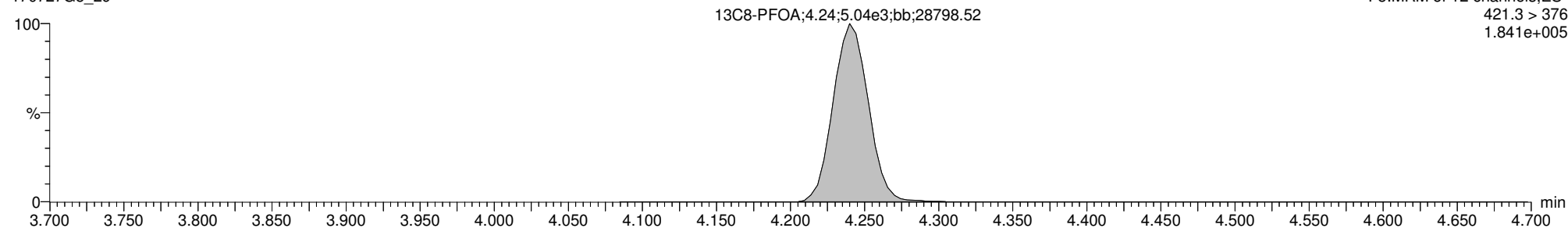
**13C5-PFHxA**

170727G5\_29



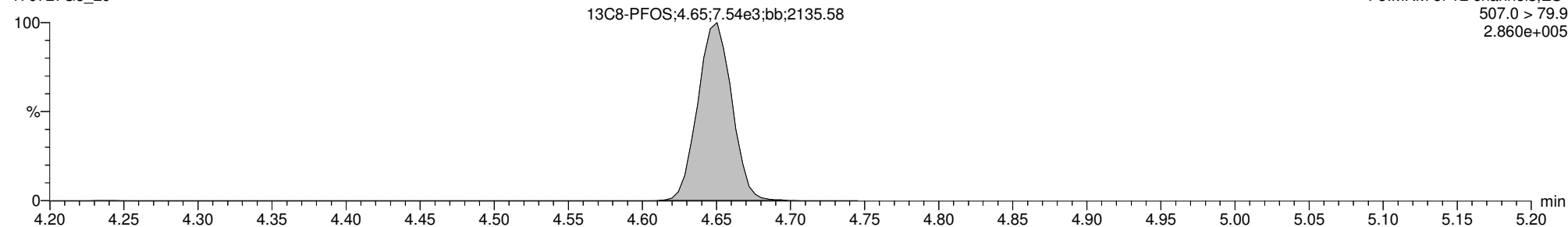
**13C8-PFOA**

170727G5\_29



**13C8-PFOS**

170727G5\_29



LA 7/31/2017

Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-28.qld

Last Altered: Tuesday, August 01, 2017 10:40:16 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 10:40:48 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: 1700893-03RE1@5X OUA1-MW08-20170717 0.11436, Description: OUA1-MW08-20170717, Name: 170731G4\_28, Date: 01-Aug-2017, Time: 01:57:03

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	299.0 > 79.7	2.113e4	7.205e2		0.118	2.91	1930	
2	12 13C3-PFBS	302.0 > 98.8	7.205e2	2.788e3	0.263	0.118	2.91	104	98.4
3	22 13C5-PFHxA	318>272.9	2.788e3	2.788e3	1.000	0.118	3.28	106	100
4	28 Total PFBS	299.0 > 79.7		7.205e2		0.118		1930	



Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-28.qld

Last Altered: Tuesday, August 01, 2017 10:40:16 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 10:40:48 Pacific Daylight Time

Reviewed: CT 08/01/2017

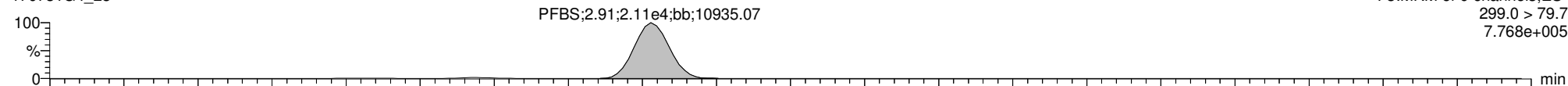
Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: 1700893-03RE1@5X OUA1-MW08-20170717 0.11436, Description: OUA1-MW08-20170717, Name: 170731G4\_28, Date: 01-Aug-2017, Time: 01:57:03, Instrument: , Lab: , User:

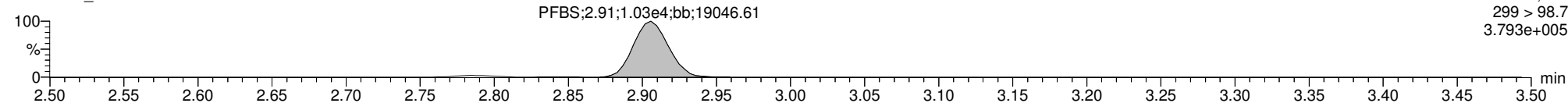
### Total PFBS

170731G4\_28



F3:MRM of 9 channels,ES-  
299.0 > 79.7  
7.768e+005

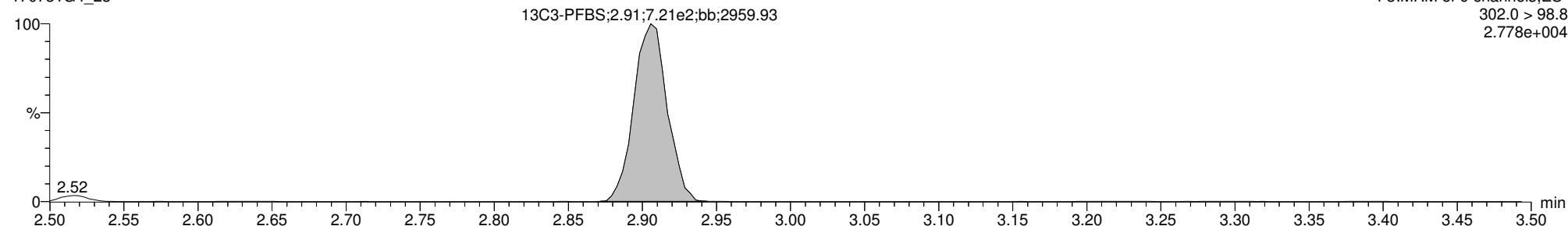
170731G4\_28



F3:MRM of 9 channels,ES-  
299 > 98.7  
3.793e+005

### 13C3-PFBS

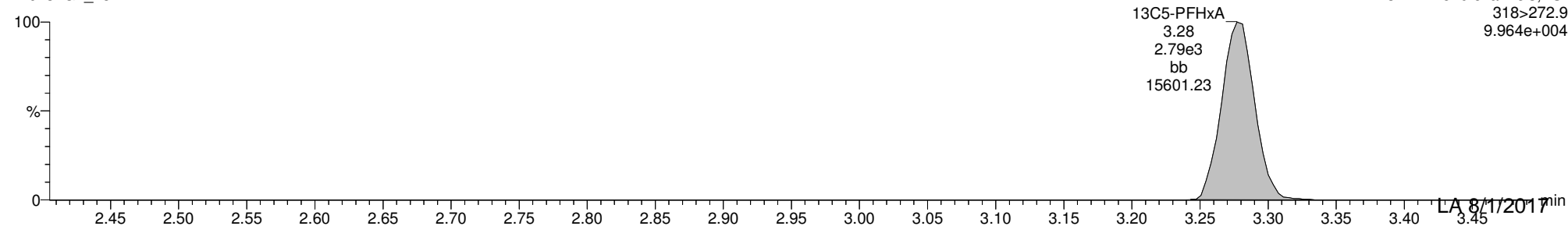
170731G4\_28



F3:MRM of 9 channels,ES-  
302.0 > 98.8  
2.778e+004

### 13C5-PFHxA

170731G4\_28



F3:MRM of 9 channels,ES-  
318>272.9  
9.964e+004

Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-17.qld

Last Altered: Tuesday, August 01, 2017 10:14:48 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 14:34:23 Pacific Daylight Time

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: 1700893-04RE1 OUA1-HS03-20170717 0.10516, Description: OUA1-HS03-20170717, Name: 170731G4\_17, Date: 31-Jul-2017, Time: 23:38:46

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	299.0 > 79.7	4.268e4	3.850e3		0.118	2.91	730	
2	7 PFOA	413.0 > 368.7	2.693e3	1.704e4		0.118	4.24	20.1	
3	9 PFOS	499.0 > 79.9	9.946e1	6.773e3		0.118	4.65	2.80	
4	12 13C3-PFBS	302.0 > 98.8	3.850e3	7.420e3	0.263	0.118	2.90	210	197 *
5	17 13C2-PFOA	414.9 > 369.7	1.704e4	4.804e3	2.843	0.118	4.24	133	125
6	20 13C8-PFOS	507.0 > 79.9	6.773e3	8.355e3	0.927	0.118	4.65	92.9	87.4
7	22 13C5-PFHxA	318>272.9	7.420e3	7.420e3	1.000	0.118	3.27	106	100
8	24 13C8-PFOA	421.3 > 376	4.804e3	4.804e3	1.000	0.118	4.24	106	100
9	26 13C4-PFOS	503.0 > 79.9	8.355e3	8.355e3	1.000	0.118	4.65	106	100

\*SEE DILUTION

Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-17.qld

Last Altered: Tuesday, August 01, 2017 10:14:48 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 14:34:38 Pacific Daylight Time

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: 1700893-04RE1 OUA1-HS03-20170717 0.10516, Description: OUA1-HS03-20170717, Name: 170731G4\_17, Date: 31-Jul-2017, Time: 23:38:46

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	28 Total PFBS	299.0 > 79.7		3.850e3		0.118		730	
2	30 Total PFOA	413.0 > 368.7		1.704e4		0.118		25.6	
3	31 Total PFOS	499.0 > 79.9		6.773e3		0.118		2.80	

Dataset:        U:\G1.PRO\Results\2017\170731G4\170731G4-17.qld

Last Altered:   Tuesday, August 01, 2017 10:14:48 Pacific Daylight Time

Printed:        Tuesday, August 01, 2017 14:34:23 Pacific Daylight Time

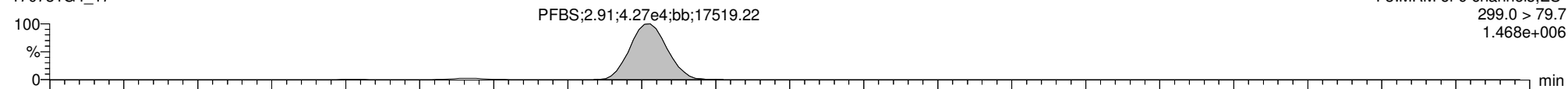
Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

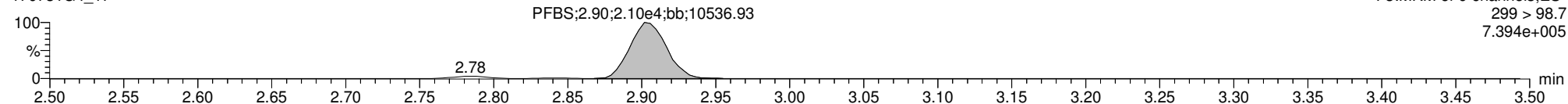
ID: 1700893-04RE1 OUA1-HS03-20170717 0.10516, Description: OUA1-HS03-20170717, Name: 170731G4\_17, Date: 31-Jul-2017, Time: 23:38:46, Instrument: , Lab: , User:

### Total PFBS

170731G4\_17

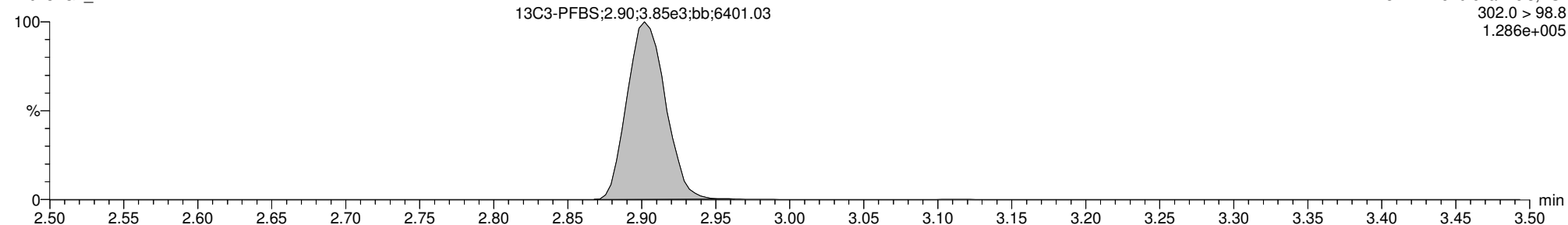


170731G4\_17



### 13C3-PFBS

170731G4\_17



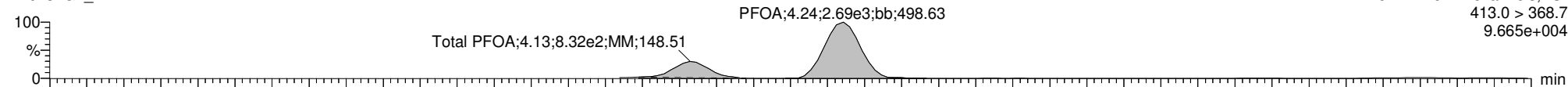
Dataset:        U:\G1.PRO\Results\2017\170731G4\170731G4-17.qld

Last Altered:   Tuesday, August 01, 2017 10:14:48 Pacific Daylight Time  
Printed:        Tuesday, August 01, 2017 14:34:23 Pacific Daylight Time

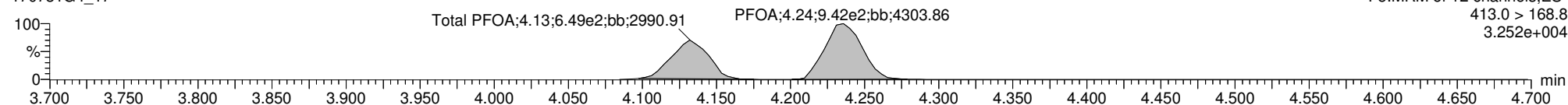
**ID: 1700893-04RE1 OUA1-HS03-20170717 0.10516, Description: OUA1-HS03-20170717, Name: 170731G4\_17, Date: 31-Jul-2017, Time: 23:38:46, Instrument: , Lab: , User:**

**Total PFOA**

170731G4\_17

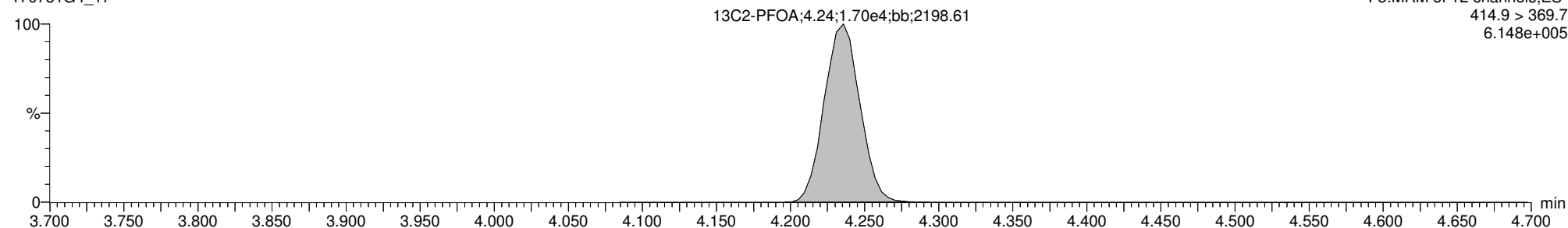


170731G4\_17



**13C2-PFOA**

170731G4\_17



Dataset:        U:\G1.PRO\Results\2017\170731G4\170731G4-17.qld

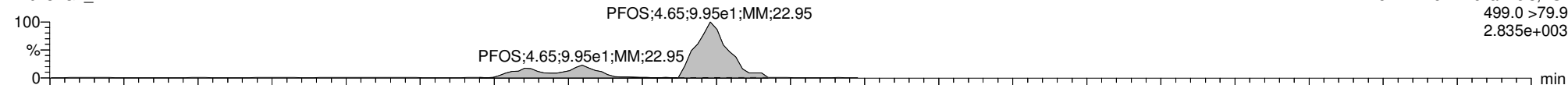
Last Altered:   Tuesday, August 01, 2017 10:14:48 Pacific Daylight Time

Printed:        Tuesday, August 01, 2017 14:34:23 Pacific Daylight Time

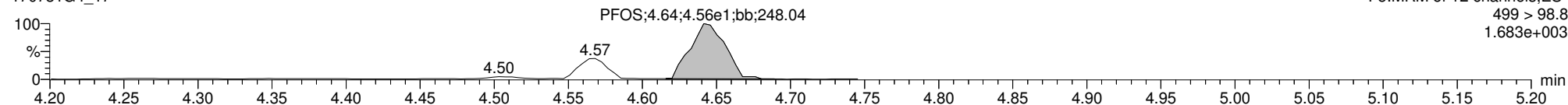
**ID: 1700893-04RE1 OUA1-HS03-20170717 0.10516, Description: OUA1-HS03-20170717, Name: 170731G4\_17, Date: 31-Jul-2017, Time: 23:38:46, Instrument: , Lab: , User:**

**Total PFOS**

170731G4\_17

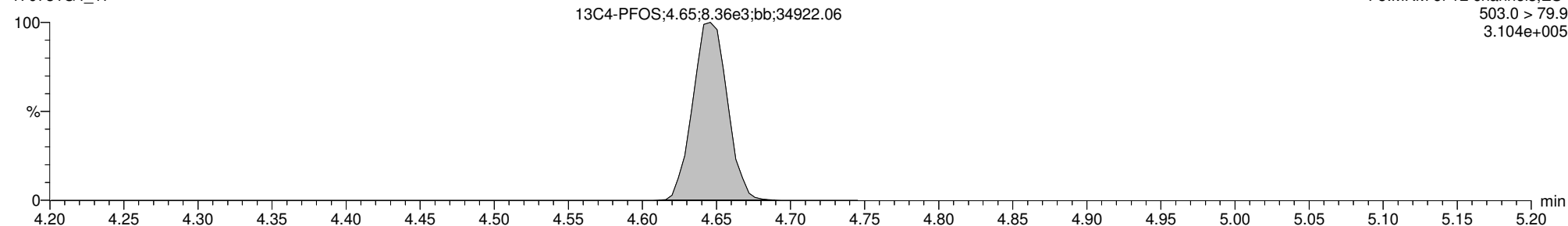


170731G4\_17



**13C4-PFOS**

170731G4\_17



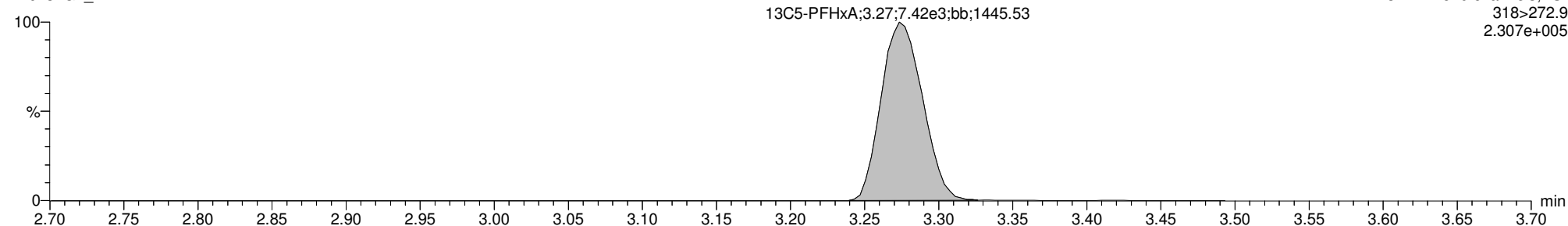
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Last Altered:   Tuesday, August 01, 2017 10:14:48 Pacific Daylight Time  
Printed:        Tuesday, August 01, 2017 14:34:23 Pacific Daylight Time

ID: 1700893-04RE1 OUA1-HS03-20170717 0.10516, Description: OUA1-HS03-20170717, Name: 170731G4\_17, Date: 31-Jul-2017, Time: 23:38:46, Instrument: , Lab: , User:

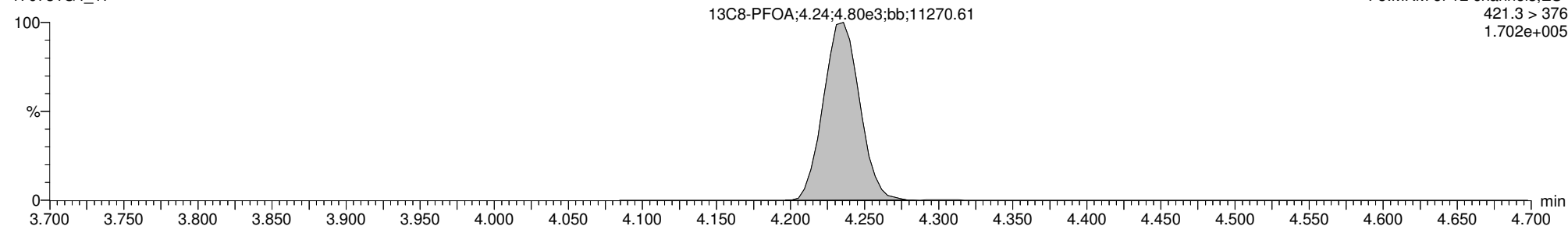
**13C5-PFHxA**

170731G4\_17



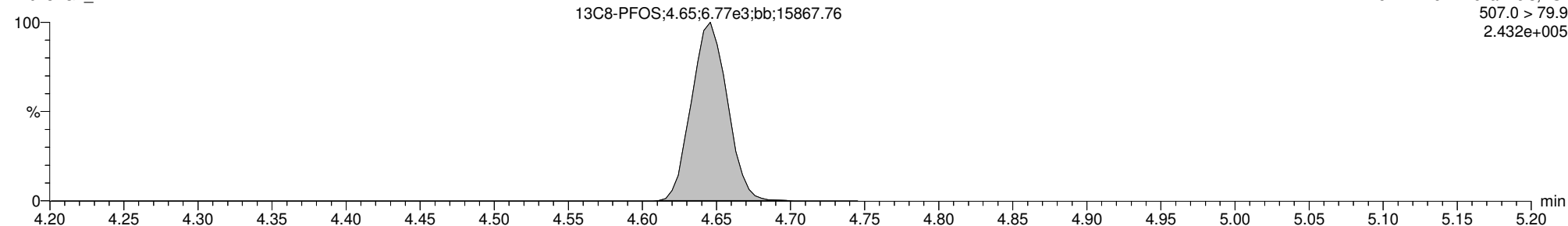
**13C8-PFOA**

170731G4\_17



**13C8-PFOS**

170731G4\_17



Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-29.qld

Last Altered: Tuesday, August 01, 2017 10:20:38 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 10:25:22 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: 1700893-04RE1@5X OUA1-HS03-20170717 0.10516, Description: OUA1-HS03-20170717, Name: 170731G4\_29, Date: 01-Aug-2017, Time: 02:09:24

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	299.0 > 79.7	9.472e3	8.373e2		0.118	2.91	745	
2	12 13C3-PFBS	302.0 > 98.8	8.373e2	2.484e3	0.263	0.118	2.91	136	128
3	22 13C5-PFHxA	318>272.9	2.484e3	2.484e3	1.000	0.118	3.28	106	100
4	28 Total PFBS	299.0 > 79.7		8.373e2		0.118		745	



Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-29.qld

Last Altered: Tuesday, August 01, 2017 10:20:38 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 10:25:22 Pacific Daylight Time

Reviewed: CT 08/01/2017

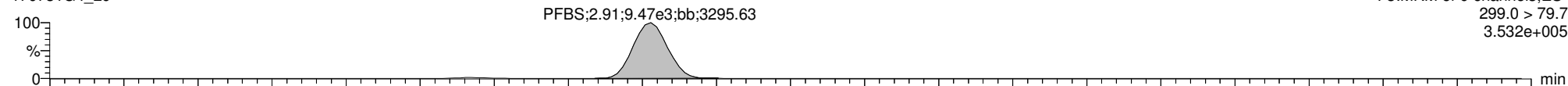
Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: 1700893-04RE1@5X OUA1-HS03-20170717 0.10516, Description: OUA1-HS03-20170717, Name: 170731G4\_29, Date: 01-Aug-2017, Time: 02:09:24, Instrument: , Lab: , User:

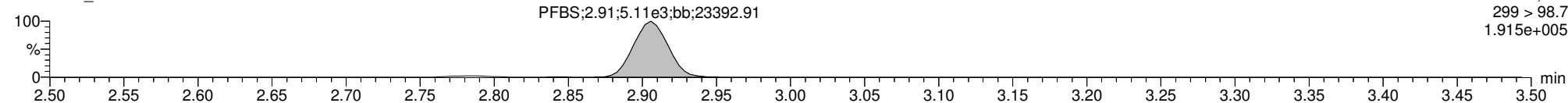
### Total PFBS

170731G4\_29



F3:MRM of 9 channels,ES-  
299.0 > 79.7  
3.532e+005

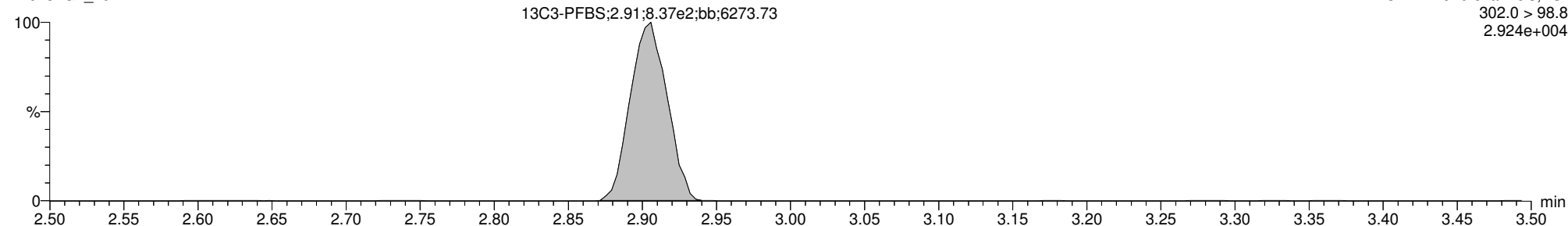
170731G4\_29



F3:MRM of 9 channels,ES-  
299 > 98.7  
1.915e+005

### 13C3-PFBS

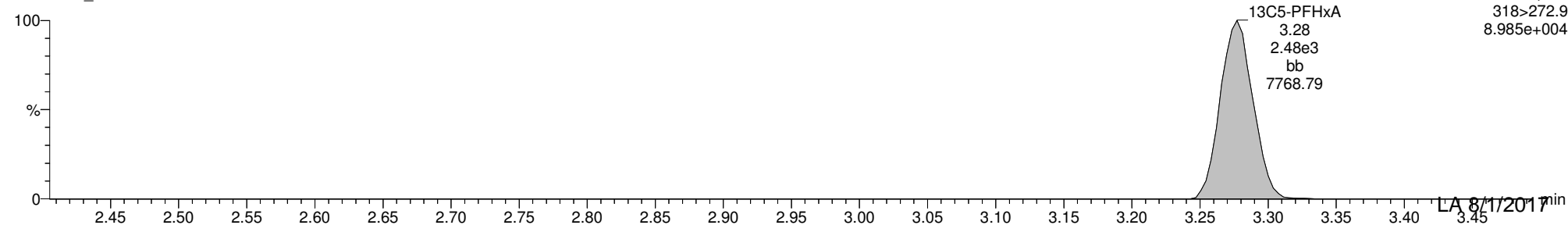
170731G4\_29



F3:MRM of 9 channels,ES-  
302.0 > 98.8  
2.924e+004

### 13C5-PFHxA

170731G4\_29



F3:MRM of 9 channels,ES-  
318>272.9  
8.985e+004

Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-31.qld

Last Altered: Monday, July 31, 2017 11:26:07 Pacific Daylight Time

Printed: Monday, July 31, 2017 11:28:24 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: B7G0106-MS2 Matrix Spike 0.125, Description: Matrix Spike, Name: 170727G5\_31, Date: 27-Jul-2017, Time: 22:52:20

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	299.0 > 79.7	4.238e4	3.325e3		0.117	2.92	847	
2	7 PFOA	413.0 > 368.7	1.153e4	1.359e4		0.117	4.24	113	
3	9 PFOS	499.0 > 79.9	2.728e3	5.916e3		0.117	4.65	105	
4	12 13C3-PFBS	302.0 > 98.8	3.325e3	7.753e3	0.263	0.117	2.92	175	163 E*
5	17 13C2-PFOA	414.9 > 369.7	1.359e4	4.216e3	2.843	0.117	4.24	122	113
6	20 13C8-PFOS	507.0 > 79.9	5.916e3	7.082e3	0.927	0.117	4.65	96.6	90.1
7	22 13C5-PFHxA	318>272.9	7.753e3	7.753e3	1.000	0.117	3.29	107	100
8	24 13C8-PFOA	421.3 > 376	4.216e3	4.216e3	1.000	0.117	4.24	107	100
9	26 13C4-PFOS	503.0 > 79.9	7.082e3	7.082e3	1.000	0.117	4.65	107	100

\*SEE DILUTION

Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-31.qld

Last Altered: Monday, July 31, 2017 11:26:07 Pacific Daylight Time

Printed: Monday, July 31, 2017 11:28:48 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: B7G0106-MS2 Matrix Spike 0.125, Description: Matrix Spike, Name: 170727G5\_31, Date: 27-Jul-2017, Time: 22:52:20

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	28 Total PFBS	299.0 > 79.7		3.325e3		0.117		847	
2	30 Total PFOA	413.0 > 368.7		1.359e4		0.117		121	
3	31 Total PFOS	499.0 > 79.9		5.916e3		0.117		105	

Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-31.qld

Last Altered:   Monday, July 31, 2017 11:26:07 Pacific Daylight Time

Printed:        Monday, July 31, 2017 11:28:24 Pacific Daylight Time

Reviewed: CT 08/01/2017

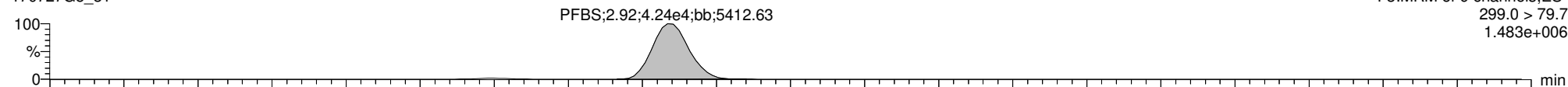
Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

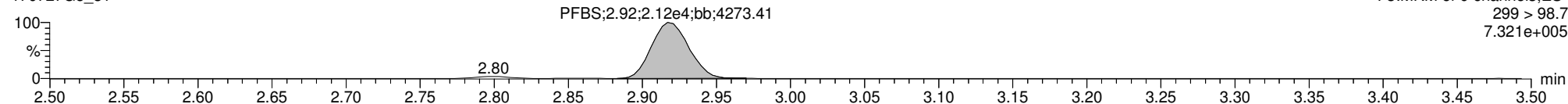
ID: B7G0106-MS2 Matrix Spike 0.125, Description: Matrix Spike, Name: 170727G5\_31, Date: 27-Jul-2017, Time: 22:52:20, Instrument: , Lab: , User:

### Total PFBS

170727G5\_31

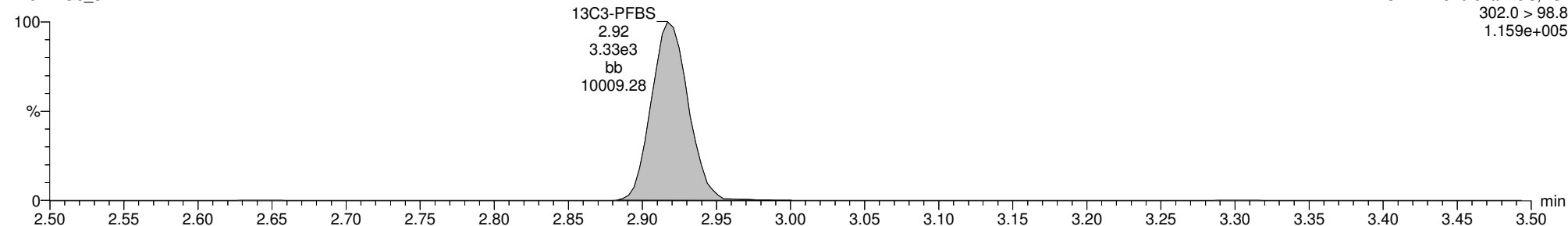


170727G5\_31



### 13C3-PFBS

170727G5\_31



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-31.qld

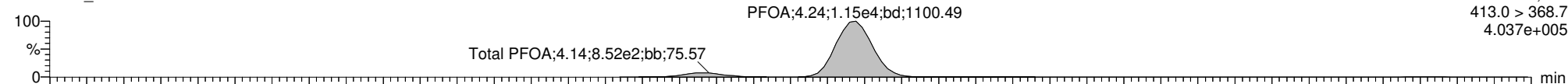
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Printed:        Monday, July 31, 2017 11:28:24 Pacific Daylight Time

Reviewed: CT 08/01/2017

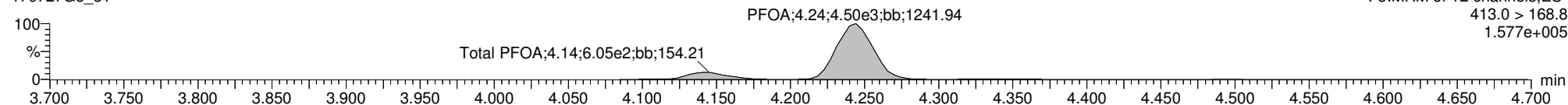
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**Total PFOA**

170727G5\_31

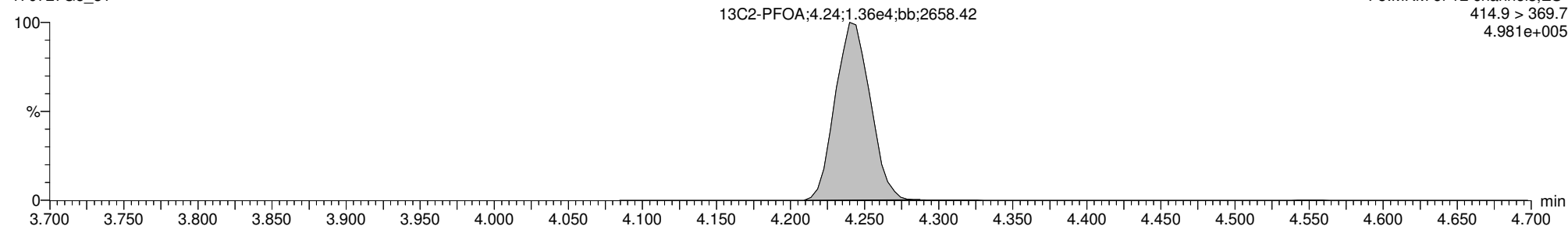


170727G5\_31



**13C2-PFOA**

170727G5\_31



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-31.qld

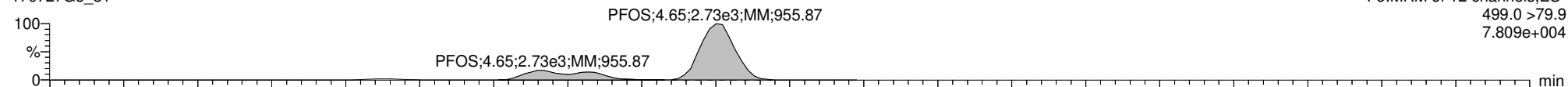
Last Altered:   Monday, July 31, 2017 11:26:07 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 11:28:24 Pacific Daylight Time

Reviewed: CT 08/01/2017

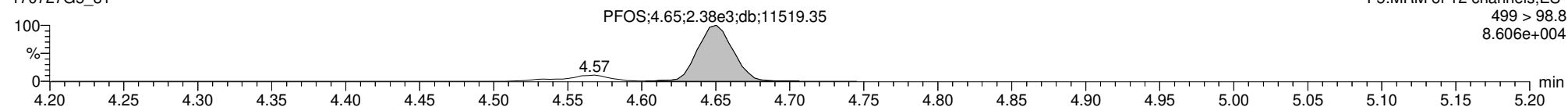
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**Total PFOS**

170727G5\_31

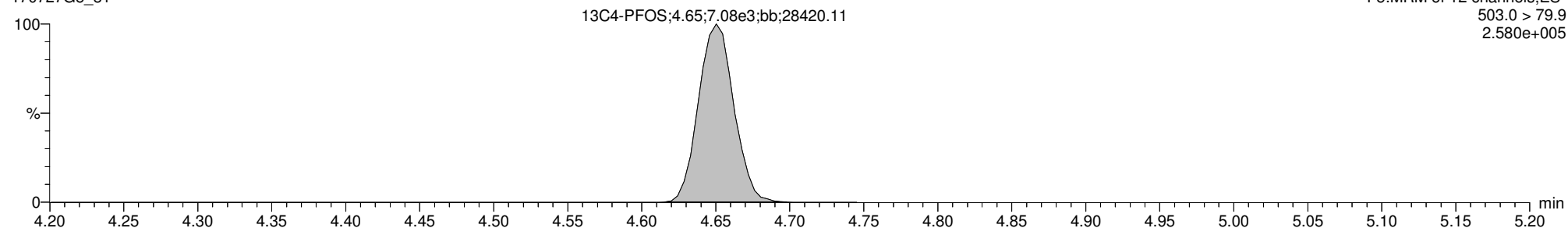


170727G5\_31



**<sup>13</sup>C4-PFOS**

170727G5\_31



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-31.qld

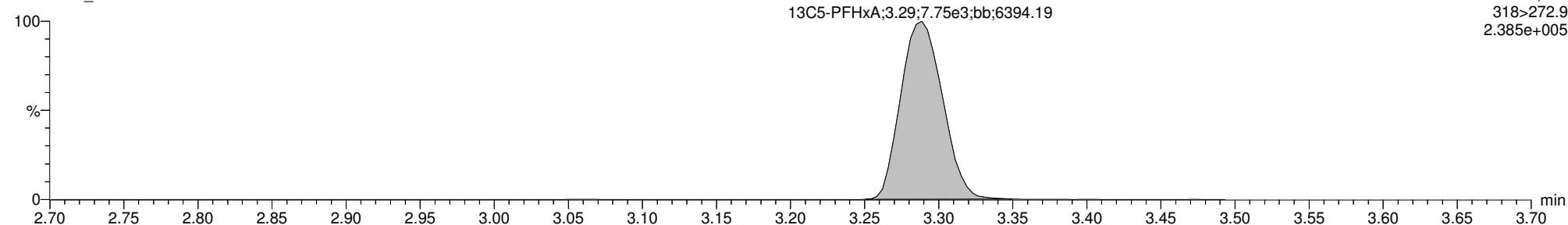
Last Altered:   Monday, July 31, 2017 11:26:07 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 11:28:24 Pacific Daylight Time

Reviewed: CT 08/01/2017

**ID: B7G0106-MS2 Matrix Spike 0.125, Description: Matrix Spike, Name: 170727G5\_31, Date: 27-Jul-2017, Time: 22:52:20, Instrument: , Lab: , User:**

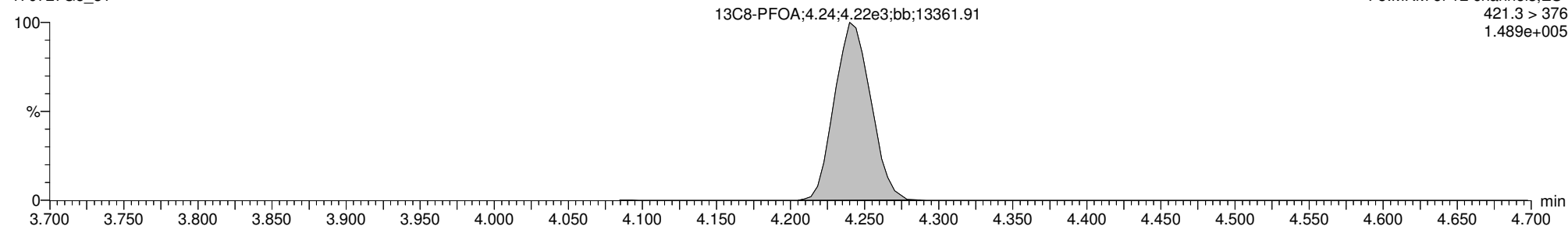
**13C5-PFHxA**

170727G5\_31



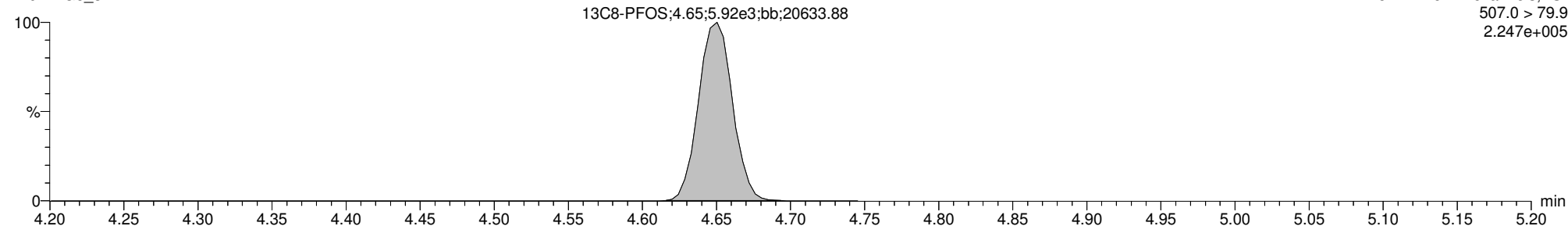
**13C8-PFOA**

170727G5\_31



**13C8-PFOS**

170727G5\_31



LA 7/31/2017

Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-30.qld

Last Altered: Tuesday, August 01, 2017 10:44:57 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 10:45:18 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: B7G0106-MS2@5X Matrix Spike 0.125, Description: Matrix Spike, Name: 170731G4\_30, Date: 01-Aug-2017, Time: 02:21:59

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	299.0 > 79.7	1.246e4	8.119e2		0.117	2.91	1020	
2	12 13C3-PFBS	302.0 > 98.8	8.119e2	2.509e3	0.263	0.117	2.91	132	123
3	22 13C5-PFHxA	318>272.9	2.509e3	2.509e3	1.000	0.117	3.28	107	100
4	28 Total PFBS	299.0 > 79.7		8.119e2		0.117		1020	



Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-30.qld

Last Altered: Tuesday, August 01, 2017 10:44:57 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 10:45:18 Pacific Daylight Time

Reviewed: CT 08/01/2017

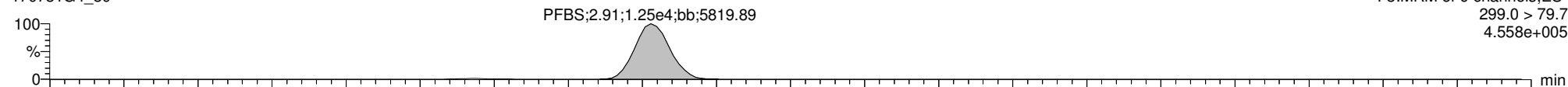
Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: B7G0106-MS2@5X Matrix Spike 0.125, Description: Matrix Spike, Name: 170731G4\_30, Date: 01-Aug-2017, Time: 02:21:59, Instrument: , Lab: , User:

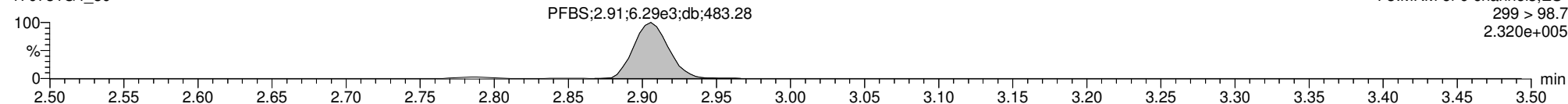
### Total PFBS

170731G4\_30



F3:MRM of 9 channels,ES-  
299.0 > 79.7  
4.558e+005

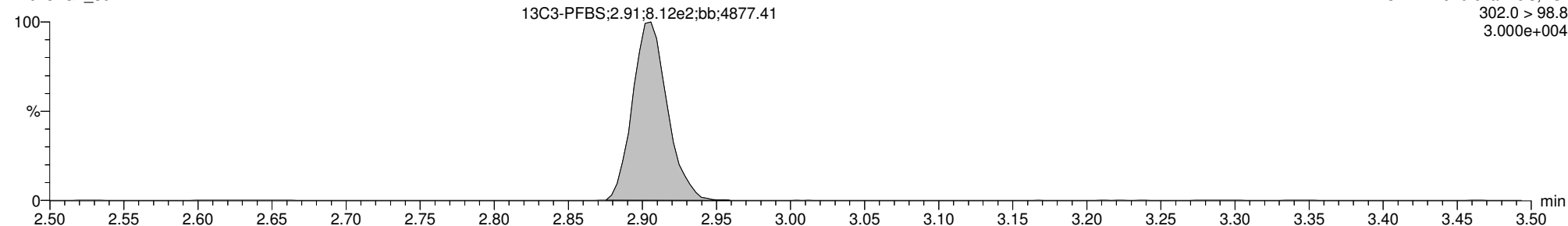
170731G4\_30



F3:MRM of 9 channels,ES-  
299 > 98.7  
2.320e+005

### 13C3-PFBS

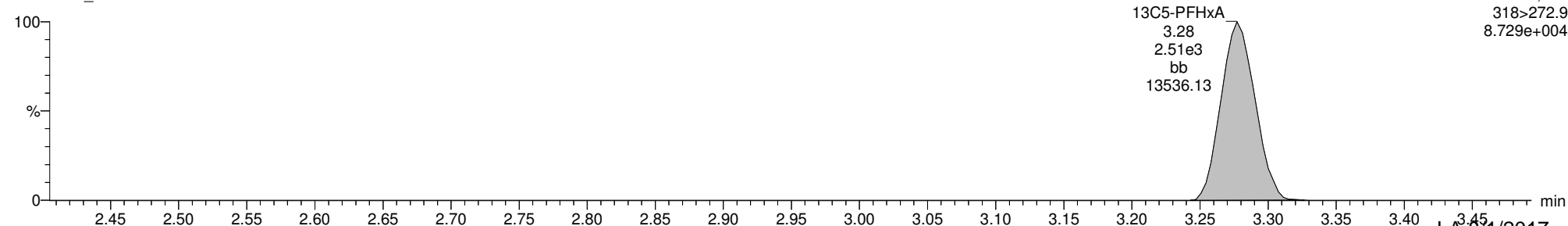
170731G4\_30



F3:MRM of 9 channels,ES-  
302.0 > 98.8  
3.000e+004

### 13C5-PFHxA

170731G4\_30



F3:MRM of 9 channels,ES-  
318>272.9  
8.729e+004

Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-32.qld

Last Altered: Monday, July 31, 2017 11:34:33 Pacific Daylight Time

Printed: Monday, July 31, 2017 11:35:25 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: B7G0106-MSD2 Matrix Spike Dup 0.125, Description: Matrix Spike Dup, Name: 170727G5\_32, Date: 27-Jul-2017, Time: 23:04:53

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec	
1	3 PFBS	299.0 > 79.7	4.277e4	3.239e3		0.120	2.92	853 *		E
2	7 PFOA	413.0 > 368.7	1.110e4	1.361e4		0.120	4.24	106		
3	9 PFOS	499.0 > 79.9	2.572e3	6.399e3		0.120	4.65	88.6		
4	12 13C3-PFBS	302.0 > 98.8	3.239e3	7.616e3	0.263	0.120	2.92	169	162	E
5	17 13C2-PFOA	414.9 > 369.7	1.361e4	4.317e3	2.843	0.120	4.24	116	111	
6	20 13C8-PFOS	507.0 > 79.9	6.399e3	7.264e3	0.927	0.120	4.65	99.1	95.0	
7	22 13C5-PFHxA	318>272.9	7.616e3	7.616e3	1.000	0.120	3.29	104	100	
8	24 13C8-PFOA	421.3 > 376	4.317e3	4.317e3	1.000	0.120	4.24	104	100	
9	26 13C4-PFOS	503.0 > 79.9	7.264e3	7.264e3	1.000	0.120	4.65	104	100	

\*SEE DILUTION

Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-32.qld

Last Altered: Monday, July 31, 2017 11:34:33 Pacific Daylight Time

Printed: Monday, July 31, 2017 11:35:36 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: B7G0106-MSD2 Matrix Spike Dup 0.125, Description: Matrix Spike Dup, Name: 170727G5\_32, Date: 27-Jul-2017, Time: 23:04:53

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	28 Total PFBS	299.0 > 79.7		3.239e3		0.120		853	
2	30 Total PFOA	413.0 > 368.7		1.361e4		0.120		111	
3	31 Total PFOS	499.0 > 79.9		6.399e3		0.120		88.6	

Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-32.qld

Last Altered: Monday, July 31, 2017 11:34:33 Pacific Daylight Time

Printed: Monday, July 31, 2017 11:35:25 Pacific Daylight Time

Reviewed: CT 08/01/2017

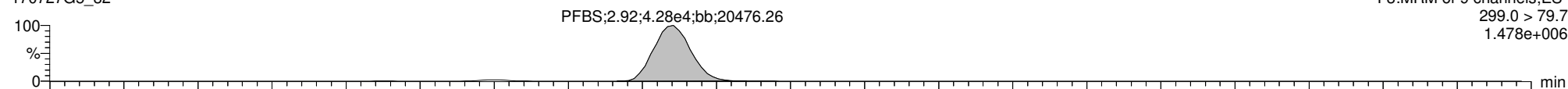
Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

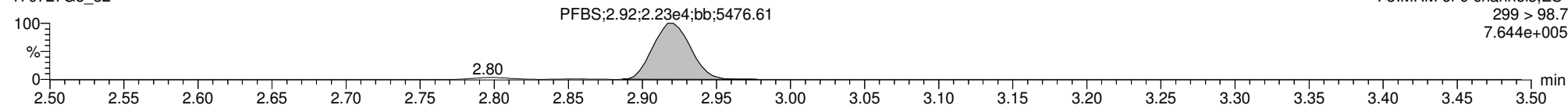
ID: B7G0106-MSD2 Matrix Spike Dup 0.125, Description: Matrix Spike Dup, Name: 170727G5\_32, Date: 27-Jul-2017, Time: 23:04:53, Instrument: , Lab: , User:

### Total PFBS

170727G5\_32

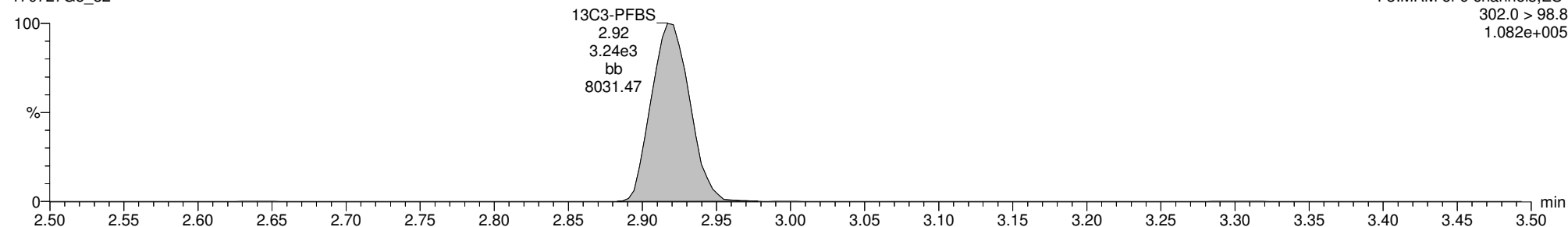


170727G5\_32



### 13C3-PFBS

170727G5\_32



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-32.qld

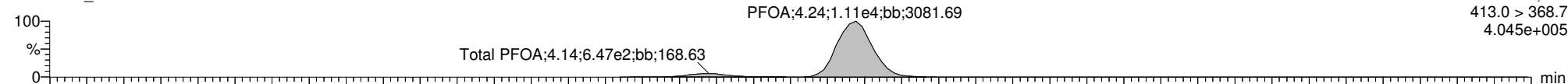
Last Altered:   Monday, July 31, 2017 11:34:33 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 11:35:25 Pacific Daylight Time

Reviewed: CT 08/01/2017

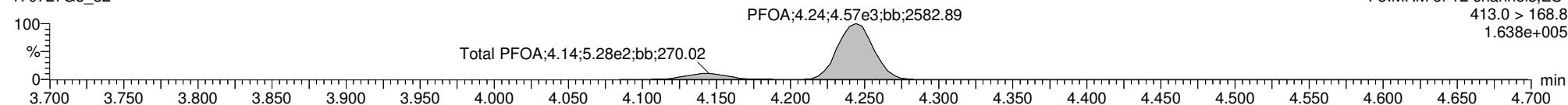
**ID: B7G0106-MSD2 Matrix Spike Dup 0.125, Description: Matrix Spike Dup, Name: 170727G5\_32, Date: 27-Jul-2017, Time: 23:04:53, Instrument: , Lab: , User:**

**Total PFOA**

170727G5\_32

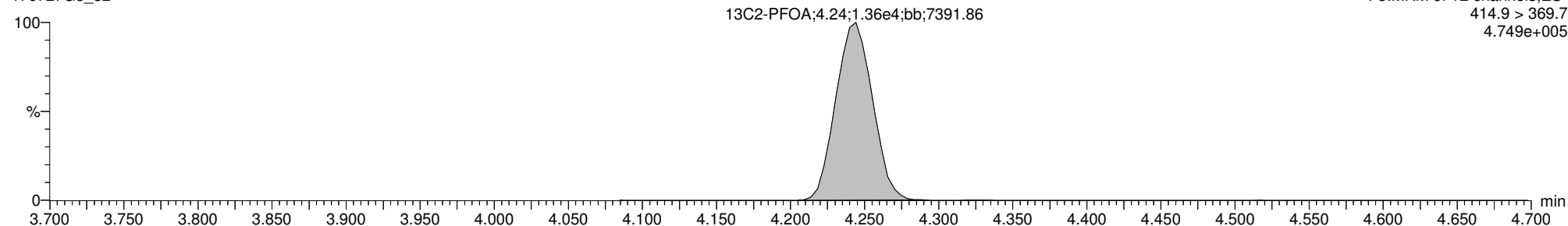


170727G5\_32



**13C2-PFOA**

170727G5\_32



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-32.qld

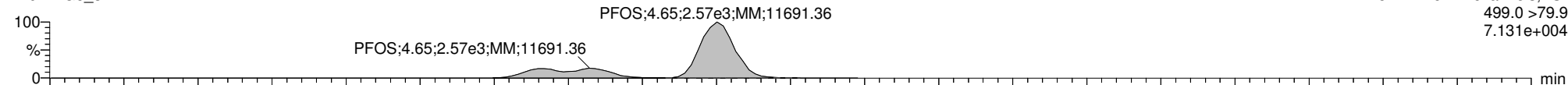
Last Altered:   Monday, July 31, 2017 11:34:33 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 11:35:25 Pacific Daylight Time

Reviewed: CT 08/01/2017

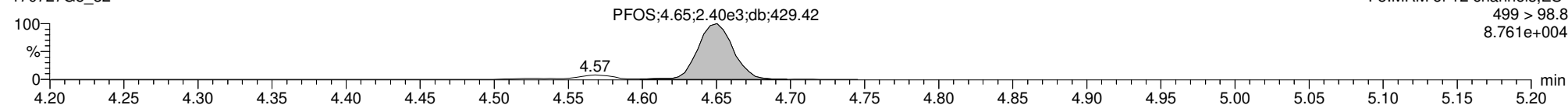
**ID: B7G0106-MSD2 Matrix Spike Dup 0.125, Description: Matrix Spike Dup, Name: 170727G5\_32, Date: 27-Jul-2017, Time: 23:04:53, Instrument: , Lab: , User:**

**Total PFOS**

170727G5\_32

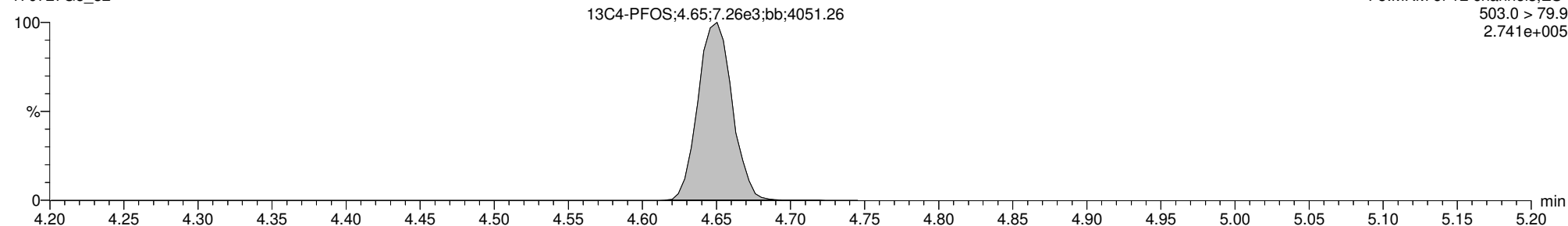


170727G5\_32



**13C4-PFOS**

170727G5\_32



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-32.qld

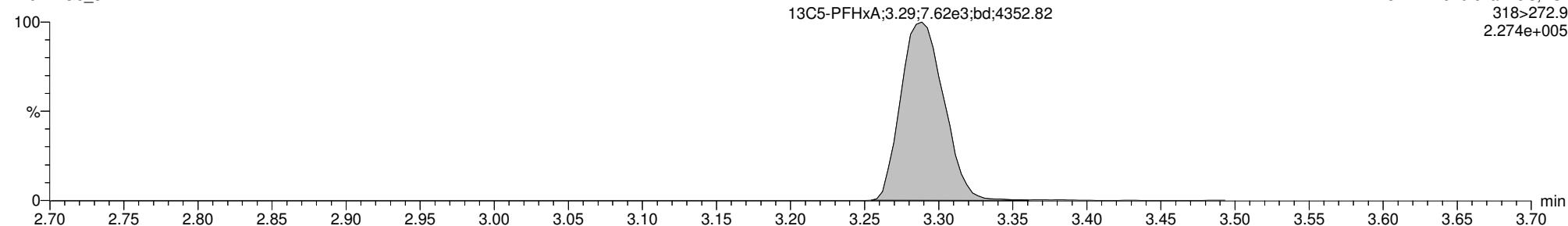
Last Altered:   Monday, July 31, 2017 11:34:33 Pacific Daylight Time  
Printed:        Monday, July 31, 2017 11:35:25 Pacific Daylight Time

Reviewed: CT 08/01/2017

**ID: B7G0106-MSD2 Matrix Spike Dup 0.125, Description: Matrix Spike Dup, Name: 170727G5\_32, Date: 27-Jul-2017, Time: 23:04:53, Instrument: , Lab: , User:**

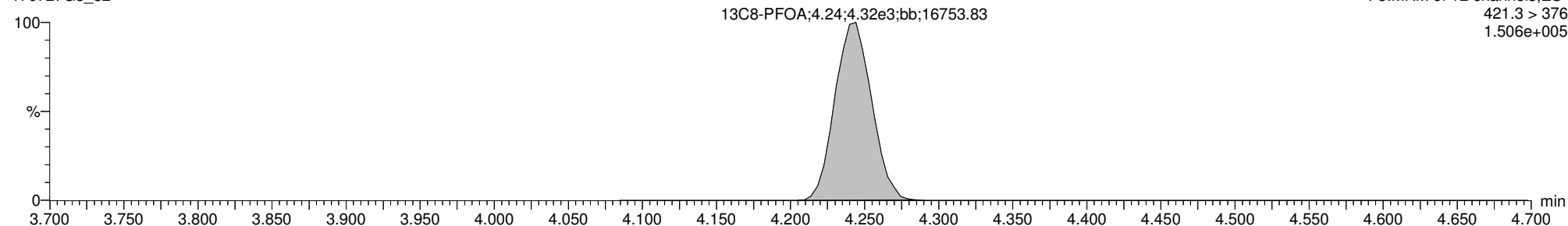
**13C5-PFHxA**

170727G5\_32



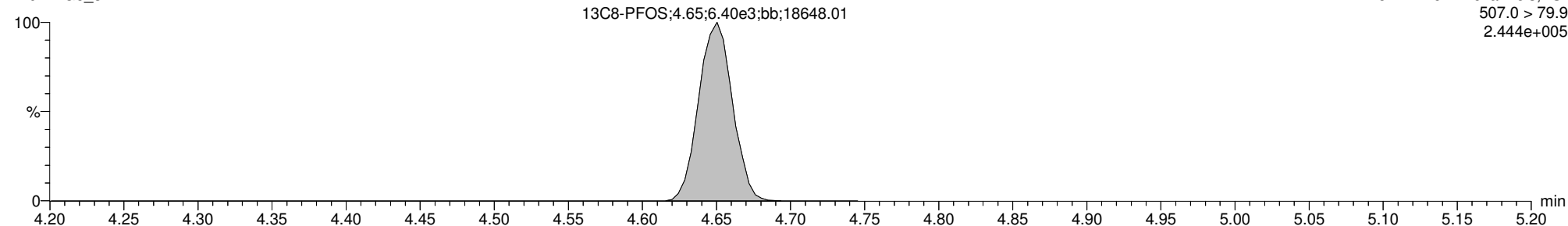
**13C8-PFOA**

170727G5\_32



**13C8-PFOS**

170727G5\_32



LA 7/31/2017

Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-31.qld

Last Altered: Tuesday, August 01, 2017 10:46:23 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 10:47:04 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: B7G0106-MSD2@5X Matrix Spike Dup 0.125, Description: Matrix Spike Dup, Name: 170731G4\_31, Date: 01-Aug-2017, Time: 02:34:34

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	299.0 > 79.7	1.093e4	6.892e2		0.120	2.91	1030	
2	12 13C3-PFBS	302.0 > 98.8	6.892e2	2.323e3	0.263	0.120	2.90	118	113
3	22 13C5-PFHxA	318>272.9	2.323e3	2.323e3	1.000	0.120	3.28	104	100
4	28 Total PFBS	299.0 > 79.7		6.892e2		0.120		1030	



Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-31.qld

Last Altered: Tuesday, August 01, 2017 10:46:23 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 10:47:04 Pacific Daylight Time

Reviewed: CT 08/01/2017

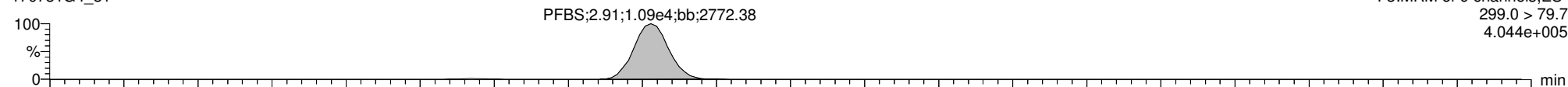
Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: B7G0106-MSD2@5X Matrix Spike Dup 0.125, Description: Matrix Spike Dup, Name: 170731G4\_31, Date: 01-Aug-2017, Time: 02:34:34, Instrument: , Lab: , User:

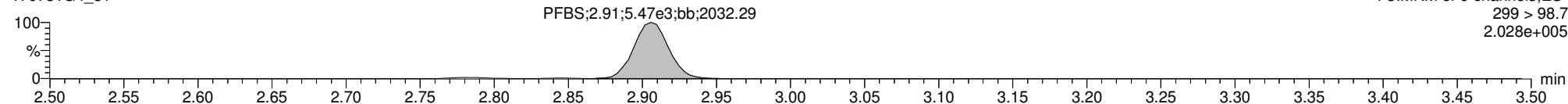
### Total PFBS

170731G4\_31



F3:MRM of 9 channels,ES-  
299.0 > 79.7  
4.044e+005

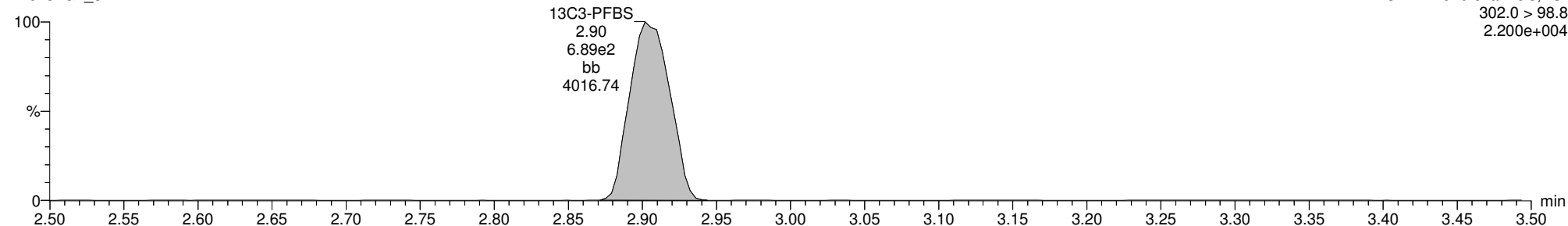
170731G4\_31



F3:MRM of 9 channels,ES-  
299 > 98.7  
2.028e+005

### 13C3-PFBS

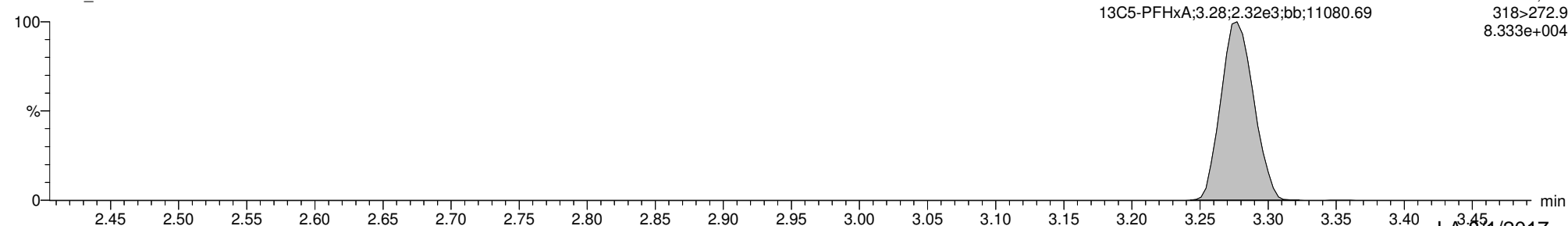
170731G4\_31



F3:MRM of 9 channels,ES-  
302.0 > 98.8  
2.200e+004

### 13C5-PFHxA

170731G4\_31



F3:MRM of 9 channels,ES-  
318>272.9  
8.333e+004

LA 8/1/2017

Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-18.qld

Last Altered: Tuesday, August 01, 2017 10:30:10 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 10:32:03 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: 1700893-05RE1 OUA1-HS03A-20170717 0.1187, Description: OUA1-HS03A-20170717, Name: 170731G4\_18, Date: 31-Jul-2017, Time: 23:51:19

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	299.0 > 79.7	3.891e4	3.050e3		0.120	2.91	823	
2	7 PFOA	413.0 > 368.7	2.046e3	1.502e4		0.120	4.24	16.8	
3	9 PFOS	499.0 > 79.9	8.003e1	6.083e3		0.120	4.65	2.41	
4	12 13C3-PFBS	302.0 > 98.8	3.050e3	7.047e3	0.263	0.120	2.91	172	165 E*
5	17 13C2-PFOA	414.9 > 369.7	1.502e4	4.161e3	2.843	0.120	4.23	132	127
6	20 13C8-PFOS	507.0 > 79.9	6.083e3	6.782e3	0.927	0.120	4.65	101	96.7
7	22 13C5-PFHxA	318>272.9	7.047e3	7.047e3	1.000	0.120	3.27	104	100
8	24 13C8-PFOA	421.3 > 376	4.161e3	4.161e3	1.000	0.120	4.23	104	100
9	26 13C4-PFOS	503.0 > 79.9	6.782e3	6.782e3	1.000	0.120	4.65	104	100

\*SEE DILUTION

Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-18.qld

Last Altered: Tuesday, August 01, 2017 10:30:10 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 10:32:14 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: 1700893-05RE1 OUA1-HS03A-20170717 0.1187, Description: OUA1-HS03A-20170717, Name: 170731G4\_18, Date: 31-Jul-2017, Time: 23:51:19

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	28 Total PFBS	299.0 > 79.7		3.050e3		0.120		1650	
2	30 Total PFOA	413.0 > 368.7		1.502e4		0.120		22.3	
3	31 Total PFOS	499.0 > 79.9		6.083e3		0.120		2.41	

Dataset:        U:\G1.PRO\Results\2017\170731G4\170731G4-18.qld

Last Altered:   Tuesday, August 01, 2017 10:30:10 Pacific Daylight Time

Printed:        Tuesday, August 01, 2017 10:32:03 Pacific Daylight Time

Reviewed: CT 08/01/2017

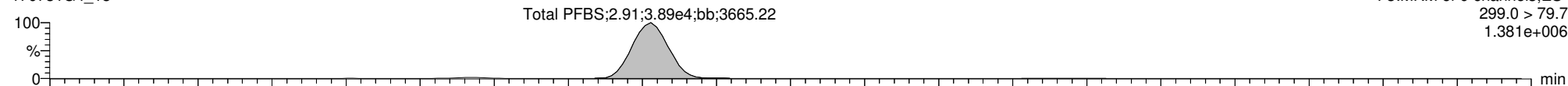
Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

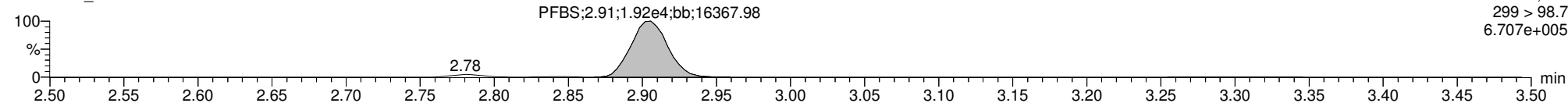
ID: 1700893-05RE1 OUA1-HS03A-20170717 0.1187, Description: OUA1-HS03A-20170717, Name: 170731G4\_18, Date: 31-Jul-2017, Time: 23:51:19, Instrument: , Lab: , User:

### Total PFBS

170731G4\_18

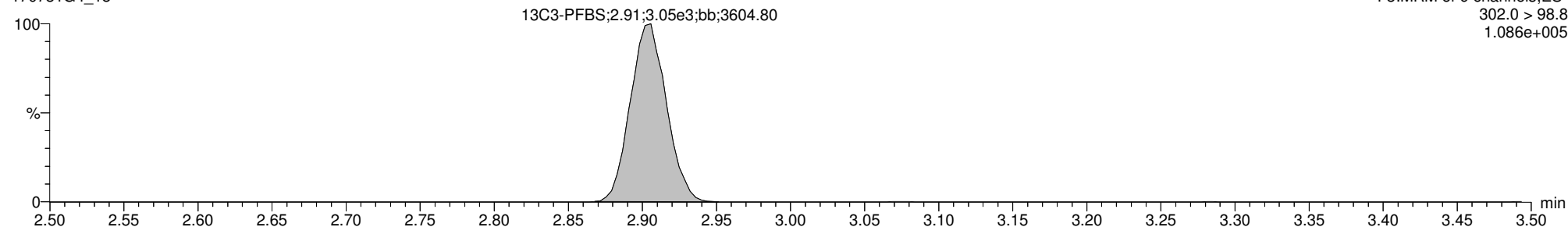


170731G4\_18



### 13C3-PFBS

170731G4\_18



Dataset:        U:\G1.PRO\Results\2017\170731G4\170731G4-18.qld

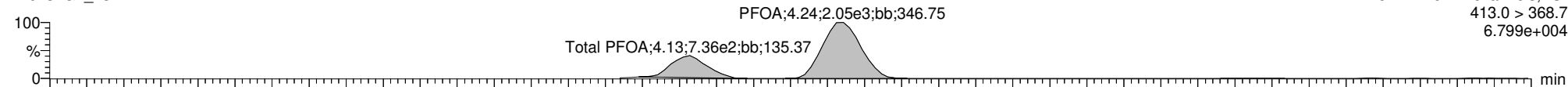
Last Altered:   Tuesday, August 01, 2017 10:30:10 Pacific Daylight Time  
Printed:        Tuesday, August 01, 2017 10:32:03 Pacific Daylight Time

Reviewed: CT 08/01/2017

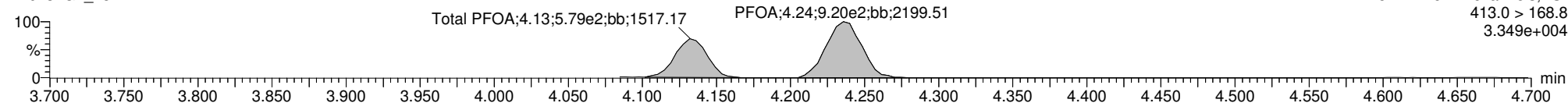
**ID: 1700893-05RE1 OUA1-HS03A-20170717 0.1187, Description: OUA1-HS03A-20170717, Name: 170731G4\_18, Date: 31-Jul-2017, Time: 23:51:19, Instrument: , Lab: , User:**

**Total PFOA**

170731G4\_18

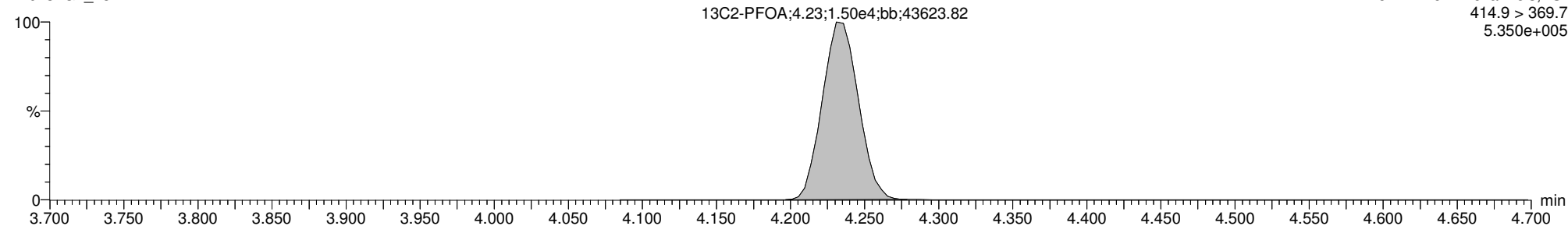


170731G4\_18



**13C2-PFOA**

170731G4\_18



Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-18.qld

Last Altered: Tuesday, August 01, 2017 10:30:10 Pacific Daylight Time

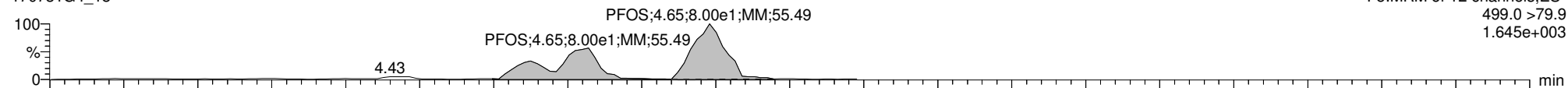
Printed: Tuesday, August 01, 2017 10:32:03 Pacific Daylight Time

Reviewed: CT 08/01/2017

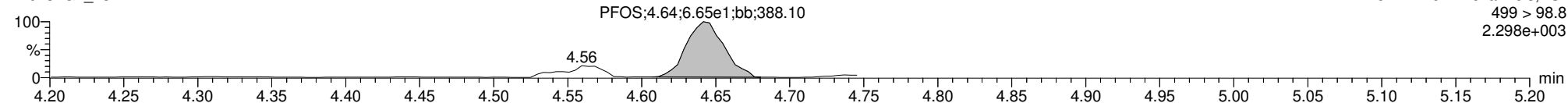
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### Total PFOS

170731G4\_18

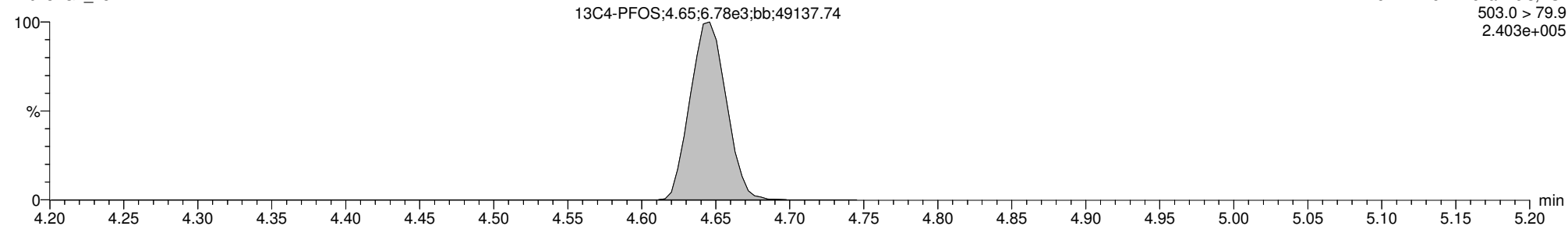


170731G4\_18



### 13C4-PFOS

170731G4\_18



Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-18.qld

Last Altered: Tuesday, August 01, 2017 10:30:10 Pacific Daylight Time

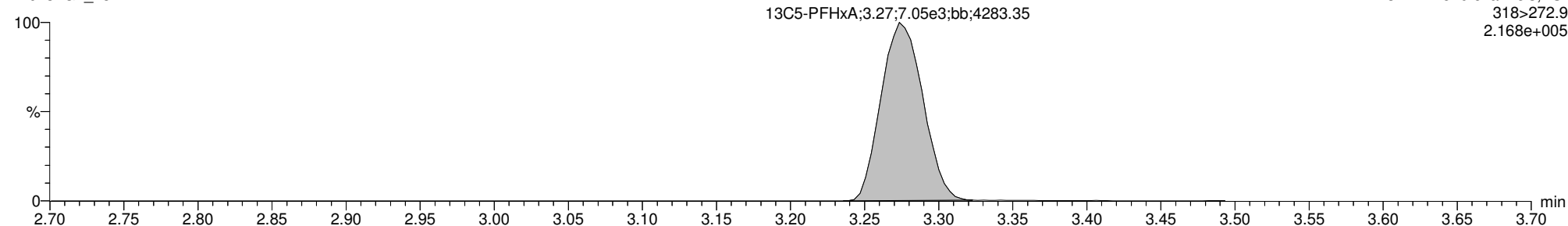
Printed: Tuesday, August 01, 2017 10:32:03 Pacific Daylight Time

Reviewed: CT 08/01/2017

ID: 1700893-05RE1 OUA1-HS03A-20170717 0.1187, Description: OUA1-HS03A-20170717, Name: 170731G4\_18, Date: 31-Jul-2017, Time: 23:51:19, Instrument: , Lab: , User:

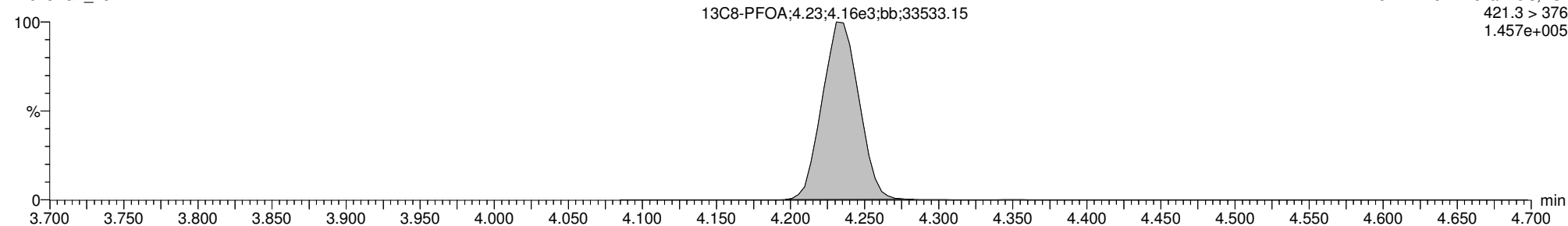
**13C5-PFHxA**

170731G4\_18



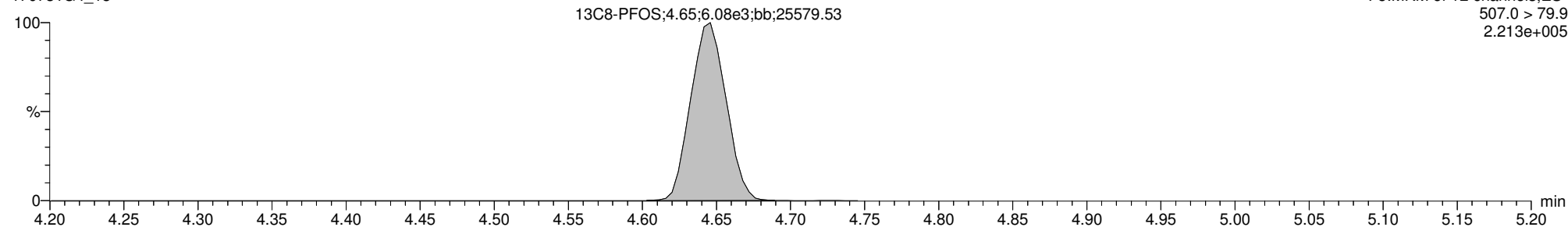
**13C8-PFOA**

170731G4\_18



**13C8-PFOS**

170731G4\_18



LA 8/1/2017

Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-32.qld

Last Altered: Tuesday, August 01, 2017 10:34:41 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 10:35:48 Pacific Daylight Time

Reviewed: CT 08/01/2017

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: 1700893-05RE1@5X OUA1-HS03A-20170717 0.1187, Description: OUA1-HS03A-20170717, Name: 170731G4\_32, Date: 01-Aug-2017, Time: 02:47:03

	# Name	Trace	Peak Area	IS Resp	RRF Mean	wt/vol	RT	Conc.	%Rec
1	3 PFBS	299.0 > 79.7	9.775e3	6.901e2		0.120	2.91	915	
2	12 13C3-PFBS	302.0 > 98.8	6.901e2	2.375e3	0.263	0.120	2.91	115	111
3	22 13C5-PFHxA	318>272.9	2.375e3	2.375e3	1.000	0.120	3.28	104	100
4	28 Total PFBS	299.0 > 79.7		6.901e2		0.120		915	



Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-32.qld

Last Altered: Tuesday, August 01, 2017 10:34:41 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 10:35:48 Pacific Daylight Time

Reviewed: CT 08/01/2017

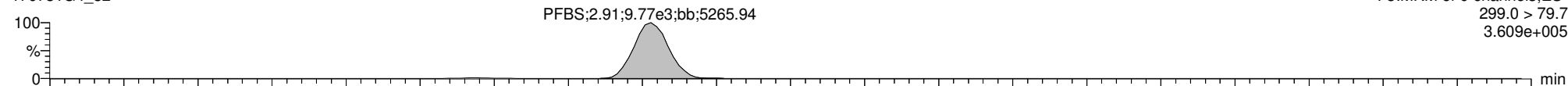
Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: 1700893-05RE1@5X OUA1-HS03A-20170717 0.1187, Description: OUA1-HS03A-20170717, Name: 170731G4\_32, Date: 01-Aug-2017, Time: 02:47:03, Instrument: , Lab: , User:

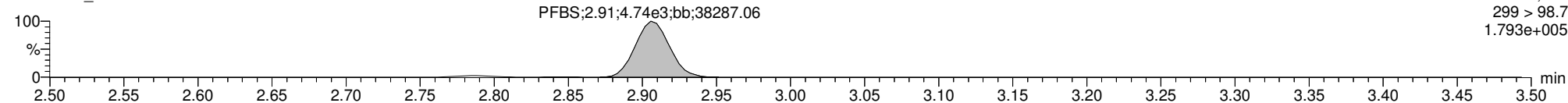
### Total PFBS

170731G4\_32



F3:MRM of 9 channels,ES-  
299.0 > 79.7  
3.609e+005

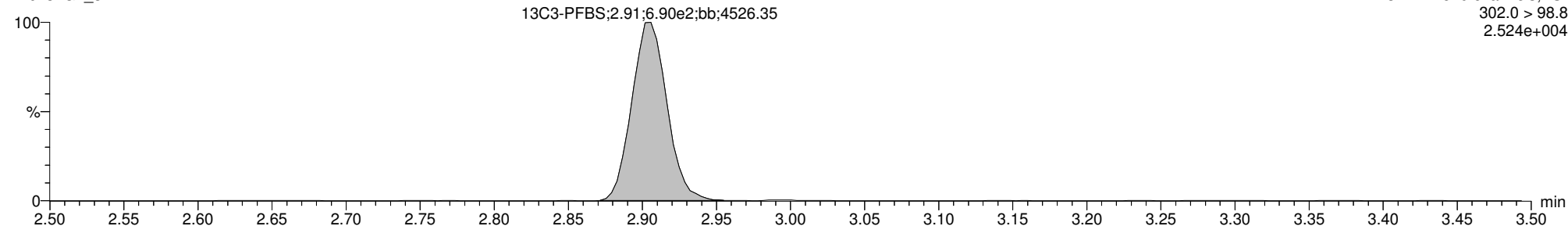
170731G4\_32



F3:MRM of 9 channels,ES-  
299 > 98.7  
1.793e+005

### 13C3-PFBS

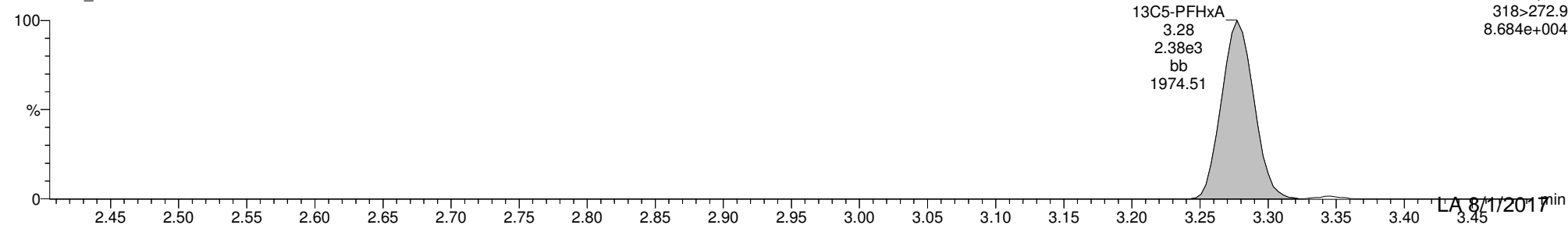
170731G4\_32



F3:MRM of 9 channels,ES-  
302.0 > 98.8  
2.524e+004

### 13C5-PFHxA

170731G4\_32



F3:MRM of 9 channels,ES-  
318>272.9  
8.684e+004

## **CONTINUING CALIBRATION**

Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-2.qld

Last Altered: Friday, July 28, 2017 08:56:32 Pacific Daylight Time

Printed: Friday, July 28, 2017 10:18:48 Pacific Daylight Time

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

Name: 170727G5\_2, Date: 27-Jul-2017, Time: 16:48:22, ID: ST170727G5-1 PFC CS3 17G2719, Description: PFC CS3 17G2719 A

	# Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc	%Rec
1	3 PFBS	299.0 > 79.7	7.39e3	5.54e3		1.000	2.91	10.0	100.1
2	4 PFHxA	312.9 > 268.9	1.21e4	8.31e3		1.000	3.29	9.47	94.7
3	5 PFHpA	363 > 318.9	1.81e4	1.17e4		1.000	3.82	9.79	97.9
4	6 PFHxS	398.9 > 79.6	8.35e3	5.99e3		1.000	3.95	9.73	97.3
5	7 PFOA	413.0 > 368.7	1.60e4	2.52e4		1.000	4.24	9.86	98.6
6	8 PFNA	463.0 > 418.8	1.65e4	9.61e3		1.000	4.58	9.30	93.0
7	9 PFOS	499.0 > 79.9	4.14e3	1.04e4		1.000	4.64	10.5	104.8
8	10 PFDA	512.7 > 219.0	2.36e3	1.67e4		1.000	4.87	8.82	88.2
9	12 13C3-PFBS	302.0 > 98.8	5.54e3	2.27e4	0.263	1.000	2.91	11.6	92.9
10	14 13C2-PFHxA	315.0 > 269.8	8.31e3	2.27e4	0.361	1.000	3.29	12.7	101.5
11	15 13C4-PFHpA	367.2 > 321.8	1.17e4	2.27e4	0.475	1.000	3.82	13.5	108.3
12	16 18O2-PFHxS	403 > 102.6	5.99e3	1.43e4	0.411	1.000	3.94	12.7	101.9
13	17 13C2-PFOA	414.9 > 369.7	2.52e4	9.09e3	2.843	1.000	4.24	12.2	97.4
14	18 13C5-PFNA	468.2 > 422.9	9.61e3	1.13e4	0.854	1.000	4.58	12.5	99.7
15	19 13C2-PFDA	514.8 > 469.7	1.67e4	9.26e3	1.742	1.000	4.87	13.0	103.7
16	20 13C8-PFOS	507.0 > 79.9	1.04e4	1.09e4	0.927	1.000	4.64	12.9	103.3
17	22 13C5-PFHxA	318 > 272.9	2.27e4	2.27e4	1.000	1.000	3.29	12.5	100.0
18	23 13C3-PFHxS	401.9 > 79.9	1.43e4	1.43e4	1.000	1.000	3.94	12.5	100.0
19	24 13C8-PFOA	421.3 > 376	9.09e3	9.09e3	1.000	1.000	4.24	12.5	100.0
20	25 13C9-PFNA	472.2 > 426.9	1.13e4	1.13e4	1.000	1.000	4.58	12.5	100.0
21	26 13C4-PFOS	503.0 > 79.9	1.09e4	1.09e4	1.000	1.000	4.64	12.5	100.0
22	27 13C6-PFDA	519.10 > 47...	9.26e3	9.26e3	1.000	1.000	4.87	12.5	100.0

70-130

50-150

7/28/17

✓ AC

7/31/17

Dataset: Untitled

Last Altered: Friday, July 28, 2017 10:21:47 Pacific Daylight Time

Printed: Friday, July 28, 2017 10:23:54 Pacific Daylight Time

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

Compound name: PFBA

	Name	ID	Acq.Date	Acq.Time
1	170727G5_1	IPA	27-Jul-17	16:36:08
2	170727G5_2	ST170727G5-1 PFC CS3 17G2719	27-Jul-17	16:48:22
3	170727G5_3	IPA	27-Jul-17	17:00:57
4	170727G5_4	Ⓐ B7G0079-BS1 OPR 0.125	27-Jul-17	17:13:30
5	170727G5_5	B7G0106-BS1 OPR 0.125	27-Jul-17	17:26:02
6	170727G5_6	IPA	27-Jul-17	17:38:35
7	170727G5_7	Ⓐ 1700875-01@5X MW-42S-20170713 0.11821	27-Jul-17	17:51:09
8	170727G5_8	1700875-02 MW-14BR-20170713 0.11912	27-Jul-17	18:03:42
9	170727G5_9	1700875-03@5X MW-51BR-20170713 0.11822	27-Jul-17	18:16:15
10	170727G5_10	1700875-04@5X DUP-06-20170713 0.11793	27-Jul-17	18:28:49
11	170727G5_11	1700875-05@30X MW-11S-20170713 0.11994	27-Jul-17	18:41:17
12	170727G5_12	1700884-01 MW-37BR-20170714 0.11935	27-Jul-17	18:53:50
13	170727G5_13	1700884-04 FRB-02-20170714 0.11984	27-Jul-17	19:06:24
14	170727G5_14	1700887-01 IRPSite 6-GW-06GW01-2017071...	27-Jul-17	19:19:25
15	170727G5_15	1700887-05@5X Building 110-GW-110GW01-...	27-Jul-17	19:31:37
16	170727G5_16	1700887-06 IRPSite 6-GW-06FD01-20170712...	27-Jul-17	19:44:12
17	170727G5_17	IPA	27-Jul-17	19:56:45
18	170727G5_18	ST170727G5-2 PFC CS3 17G2719	27-Jul-17	20:09:21
19	170727G5_19	IPA	27-Jul-17	20:21:49
20	170727G5_20	B7G0106-BLK1 Method Blank 0.125	27-Jul-17	20:34:22
21	170727G5_21	1700888-12RE1 HARRI-02-GW-TW01-01000...	27-Jul-17	20:46:56
22	170727G5_22	1700889-08RE1 EWTU07-01000 0.12104	27-Jul-17	20:59:32
23	170727G5_23	1700889-09RE1 HARRI-03-GW-Dup01-01000...	27-Jul-17	21:11:59
24	170727G5_24	1700889-10RE1 HARRI-GW-TW02-010000 0...	27-Jul-17	21:24:31
25	170727G5_25	1700889-11RE1 HARRI-GW-TW03-010000 0....	27-Jul-17	21:37:05
26	170727G5_26	1700889-12RE1 HARRI-EB-01 0.11746	27-Jul-17	21:49:39
27	170727G5_27	1700893-01RE1 SB01-20170717 0.12046	27-Jul-17	22:02:11
28	170727G5_28	1700893-02RE1 EB01-20170717 0.11139	27-Jul-17	22:14:45
29	170727G5_29	1700893-03RE1 OUA1-MW08-20170717 0.11...	27-Jul-17	22:27:35
30	170727G5_30	1700893-04RE1 OUA1-HS03-20170717 0.105...	27-Jul-17	22:39:52
31	170727G5_31	B7G0106-MS2 Matrix Spike 0.125	27-Jul-17	22:52:20

Ⓐ INJECTIONS WERE NOT USED. JUL 7/28/17

Dataset:        Untitled

Last Altered:    Friday, July 28, 2017 10:21:47 Pacific Daylight Time

Printed:         Friday, July 28, 2017 10:23:54 Pacific Daylight Time

Compound name: PFBA

	Name	ID	Acq. Date	Acq. Time
32	170727G5_32	B7G0106-MSD2 Matrix Spike Dup 0.125	27-Jul-17	23:04:53
33	170727G5_33	1700893-05RE1 OUA1-HS03A-20170717 0.11...	27-Jul-17	23:17:45
34	170727G5_34	IPA	27-Jul-17	23:30:36
35	170727G5_35	ST170727G5-3 PFC CS3 17G2719	27-Jul-17	23:43:15
36	170727G5_36	IPA	27-Jul-17	23:55:44
37	170727G5_37	1700907-10RE1 AT028-DUP-01-071717-1200...	28-Jul-17	00:08:41
38	170727G5_38	IPA	28-Jul-17	00:20:54
39	170727G5_39	ST170727G5-4 PFC CS3 17G2719	28-Jul-17	00:33:28
40	170727G5_40	IPA	28-Jul-17	00:46:15

# LC Calibration Standards Review Checklist Q1

Calibration ID:		ION Ratio	Concentration	C-Cals Name	Sign Date	Correct I-Cal	Manual Integrations	
ST170727G5 - 1	L <u>M</u> H	<u>NA</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
-2	L <u>M</u> H	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
-3	L <u>M</u> H	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
-4	L <u>M</u> H	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	L M H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	L M H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	L M H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	L M H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	L M H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	L M H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Full Mass Cal. Date: 4/5/17

Run Log Present: ☒

# of Samples per Sequence Checked: ☒

Reviewed By: AC 1/31/17  
Initials/Date

Comments:

A L14 - 2Trans

Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-2.qld

Last Altered:   Friday, July 28, 2017 08:56:32 Pacific Daylight Time

Printed:        Friday, July 28, 2017 10:19:40 Pacific Daylight Time

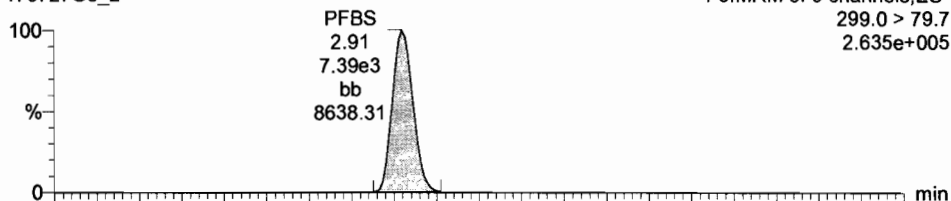
Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: ST170727G5-1 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G5\_2, Date: 27-Jul-2017, Time: 16:48:22, Instrument: , Lab: , User:

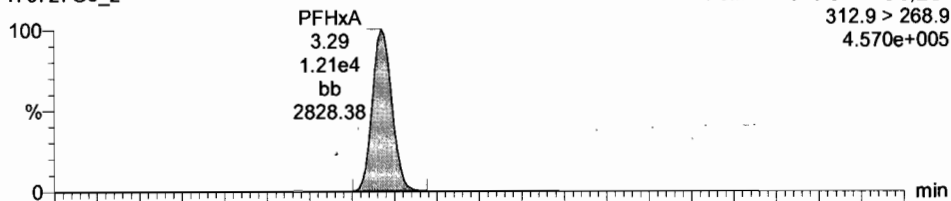
**Total PFBS**

170727G5\_2

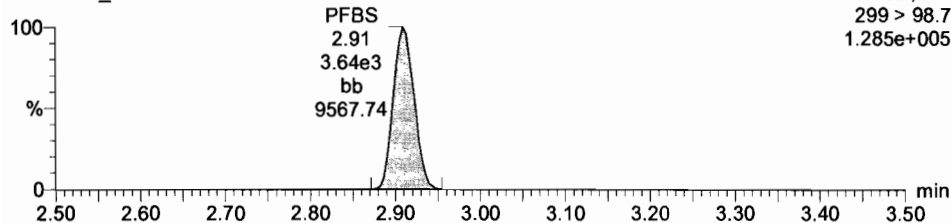


**PFHxA**

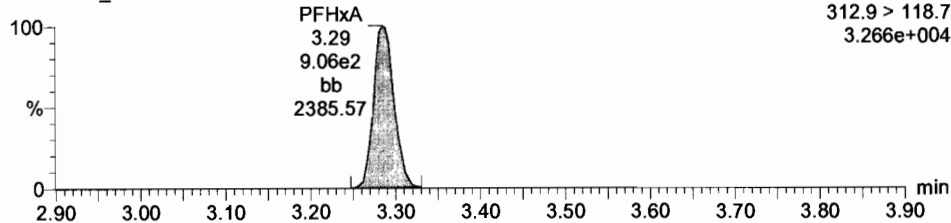
170727G5\_2



170727G5\_2

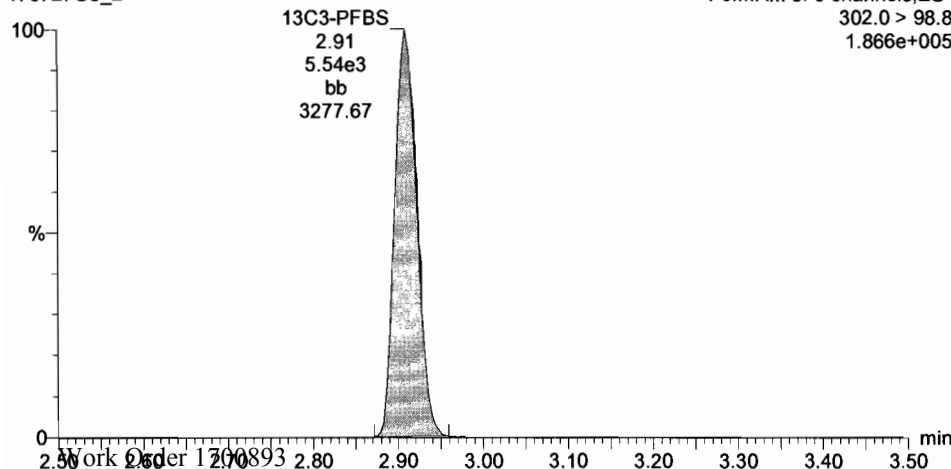


170727G5\_2



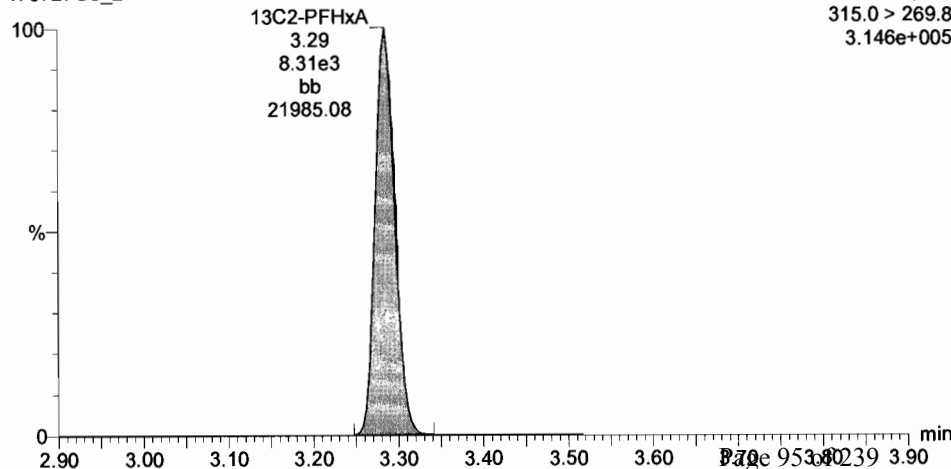
**13C3-PFBS**

170727G5\_2



**13C2-PFHxA**

170727G5\_2



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-2.qld

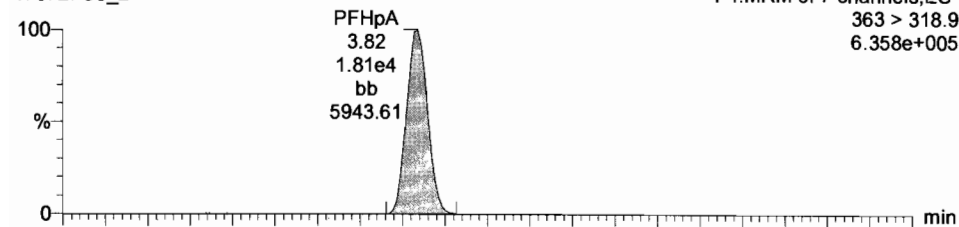
Last Altered:   Friday, July 28, 2017 08:56:32 Pacific Daylight Time

Printed:        Friday, July 28, 2017 10:19:40 Pacific Daylight Time

ID: ST170727G5-1 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G5\_2, Date: 27-Jul-2017, Time: 16:48:22, Instrument: , Lab: , User:

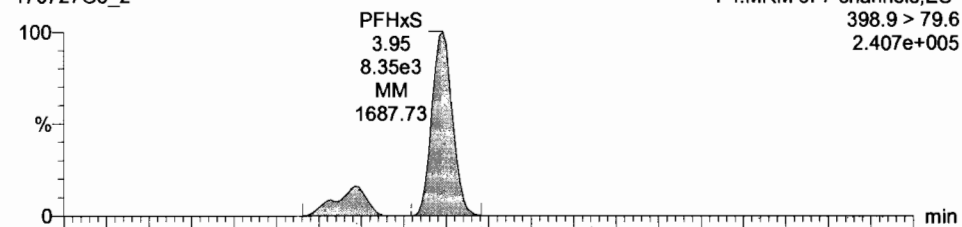
**PFHpA**

170727G5\_2

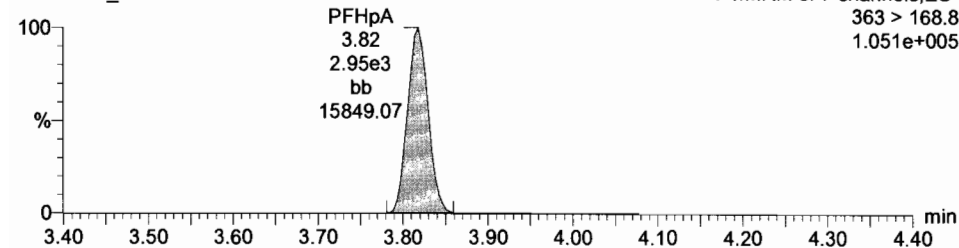


**Total PFHxS**

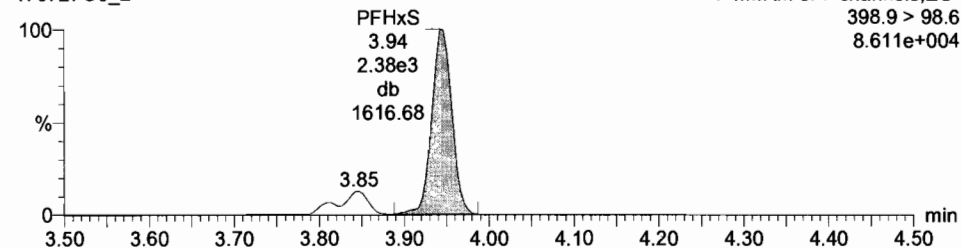
170727G5\_2



170727G5\_2

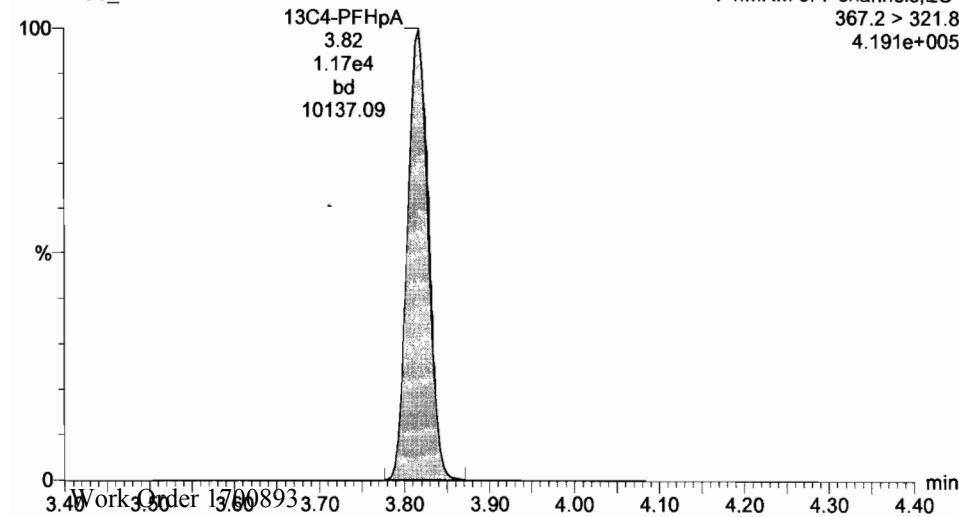


170727G5\_2



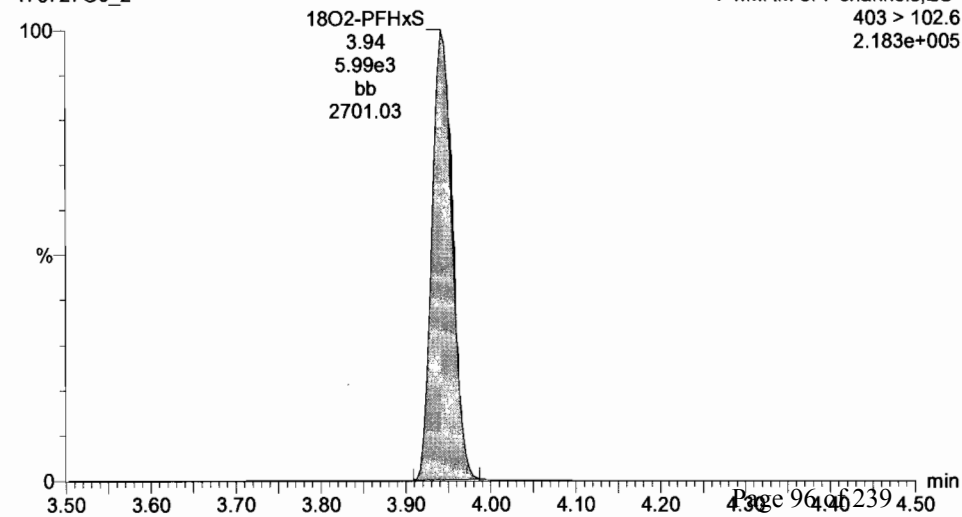
**13C4-PFHpA**

170727G5\_2



**18O2-PFHxS**

170727G5\_2





Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-2.qld

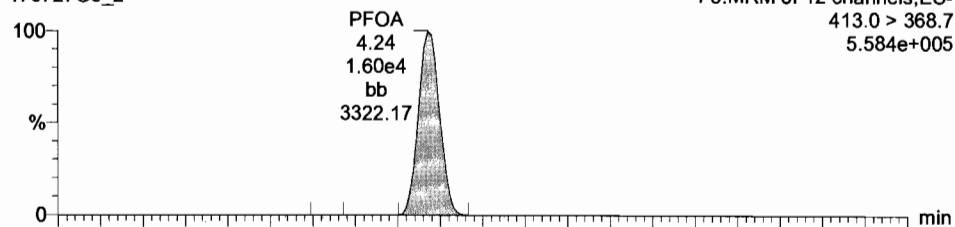
Last Altered: Friday, July 28, 2017 08:56:32 Pacific Daylight Time

Printed: Friday, July 28, 2017 10:19:40 Pacific Daylight Time

ID: ST170727G5-1 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G5\_2, Date: 27-Jul-2017, Time: 16:48:22, Instrument: , Lab: , User:

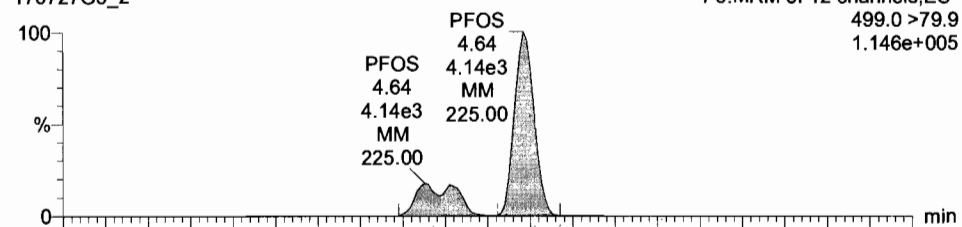
**Total PFOA**

170727G5\_2

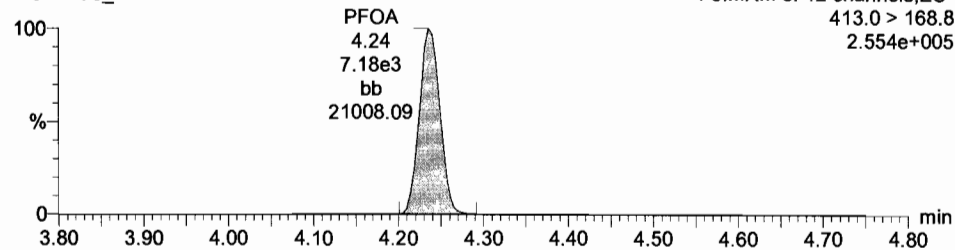


**Total PFOS**

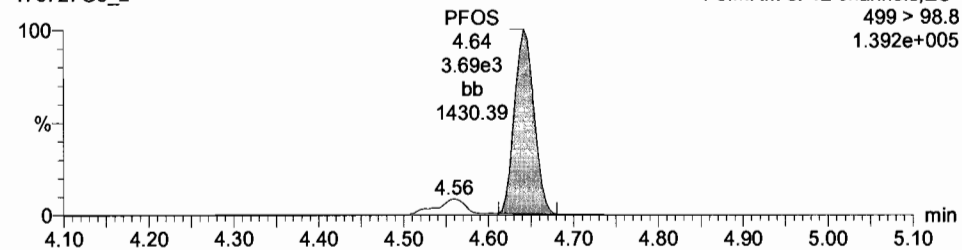
170727G5\_2



170727G5\_2

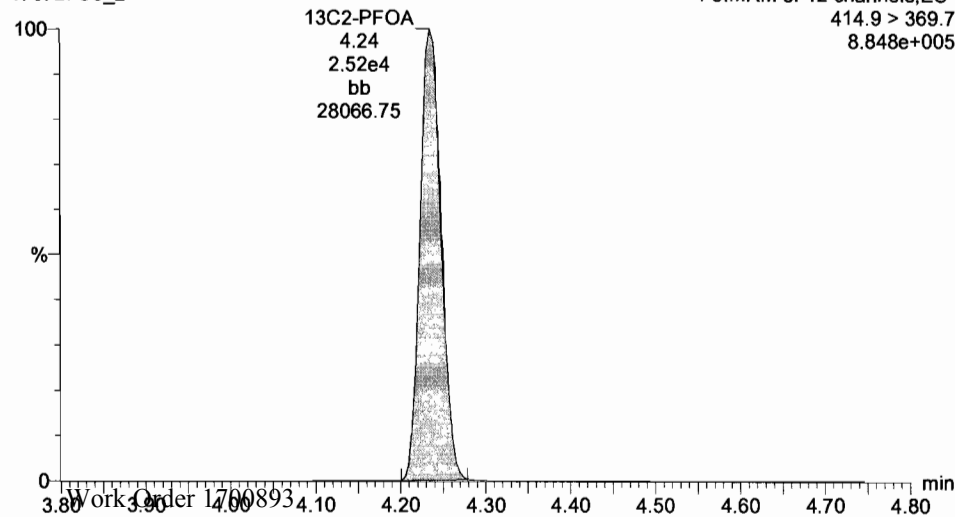


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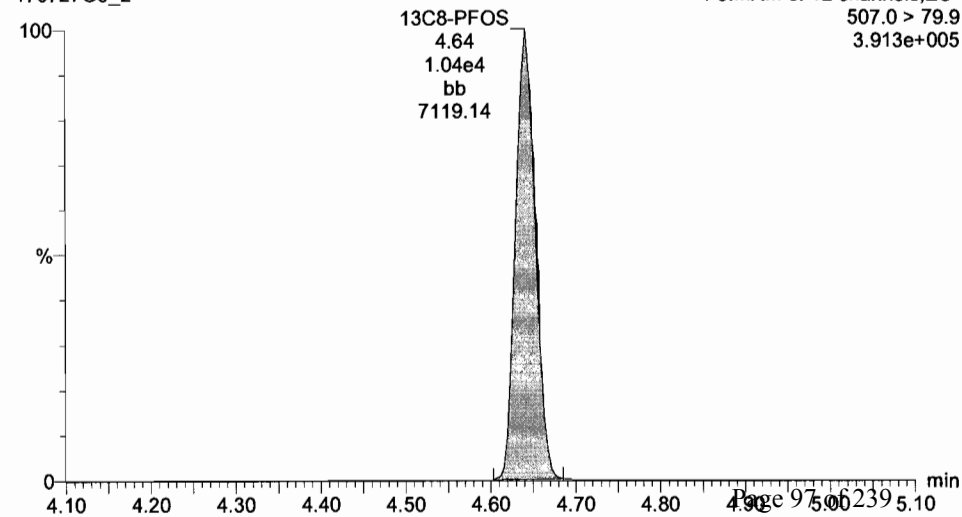
**13C2-PFOA**

170727G5\_2



**13C8-PFOS**

170727G5\_2



Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-2.qld

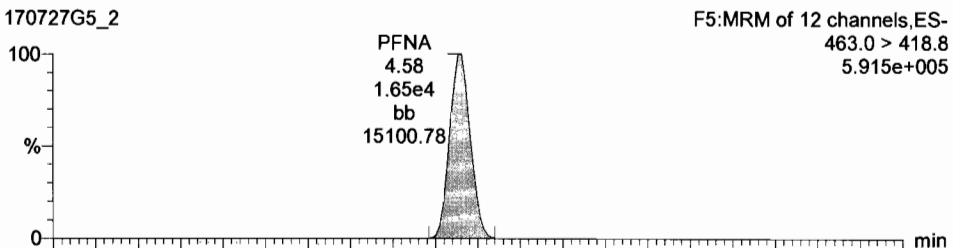
Last Altered: Friday, July 28, 2017 08:56:32 Pacific Daylight Time

Printed: Friday, July 28, 2017 10:19:40 Pacific Daylight Time

ID: ST170727G5-1 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G5\_2, Date: 27-Jul-2017, Time: 16:48:22, Instrument: , Lab: , User:

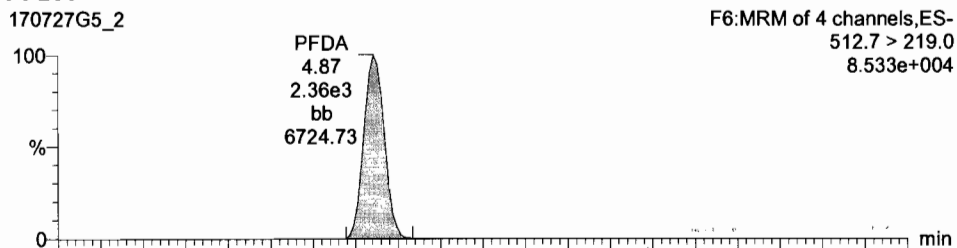
**PFNA**

170727G5\_2

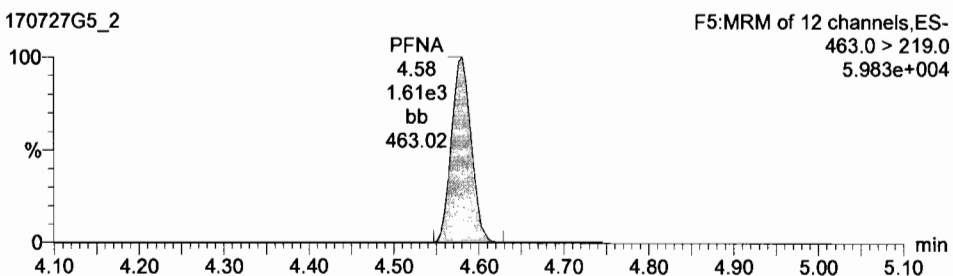


**PFDA**

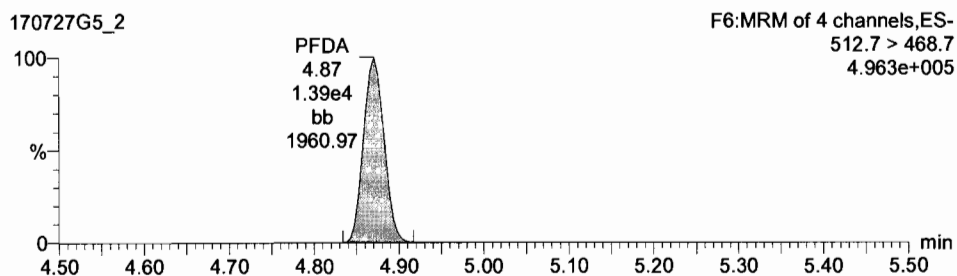
170727G5\_2



170727G5\_2

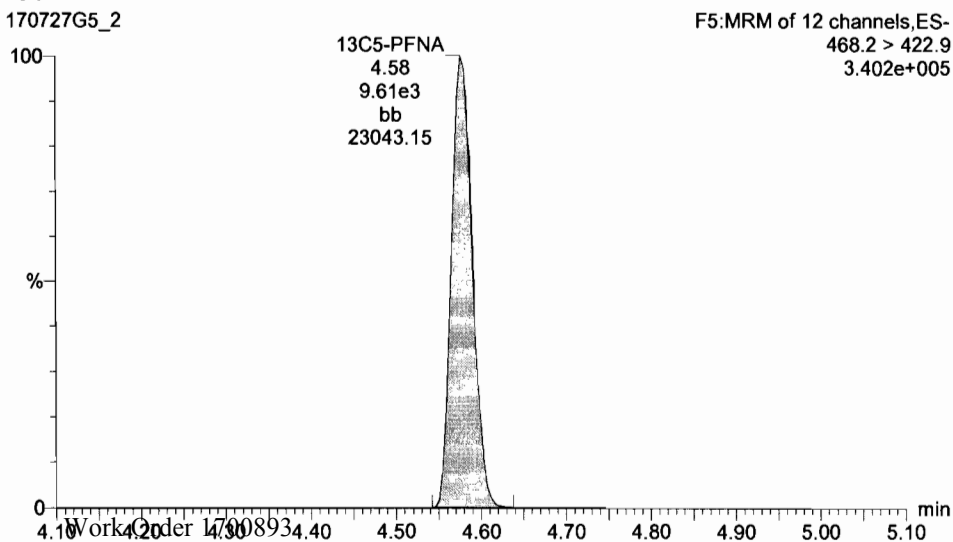


170727G5\_2



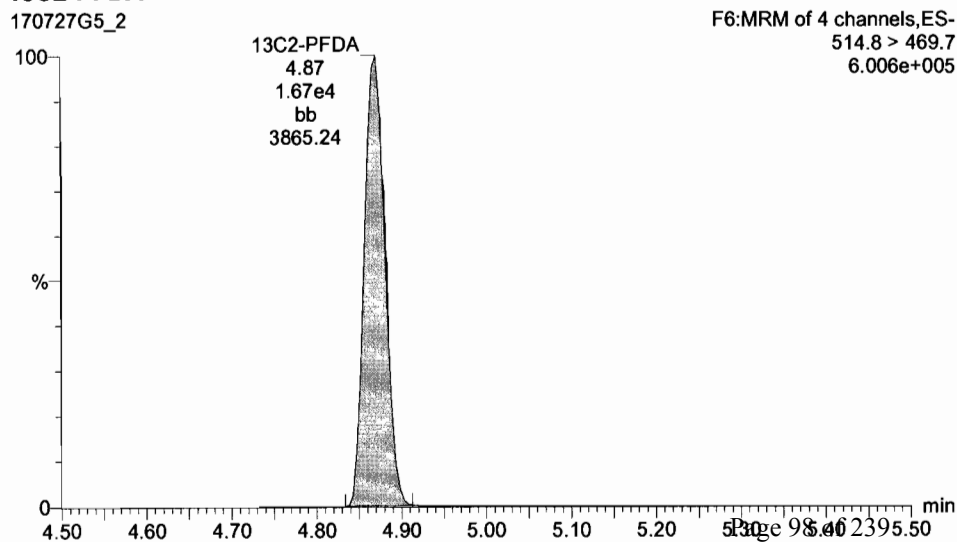
**13C5-PFNA**

170727G5\_2



**13C2-PFDA**

170727G5\_2



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-2.qld

Last Altered:   Friday, July 28, 2017 08:56:32 Pacific Daylight Time

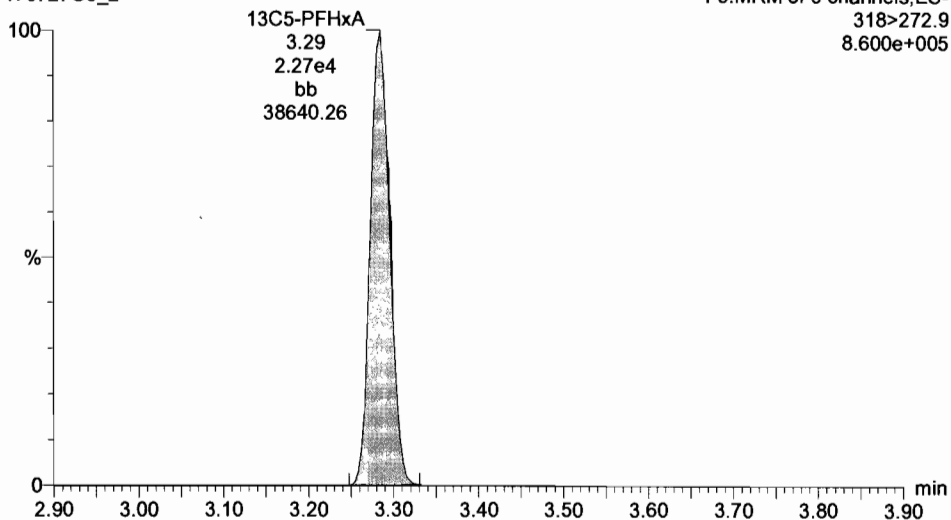
Printed:        Friday, July 28, 2017 10:19:40 Pacific Daylight Time

ID: ST170727G5-1 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G5\_2, Date: 27-Jul-2017, Time: 16:48:22, Instrument: , Lab: , User:

**13C5-PFHxA**

170727G5\_2

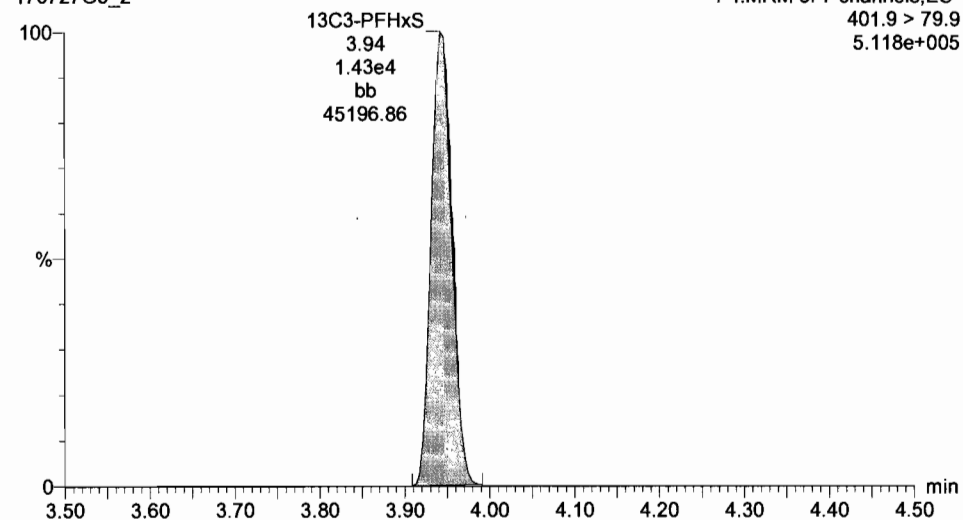
F3:MRM of 9 channels,ES-  
318>272.9  
8.600e+005



**13C3-PFHxS**

170727G5\_2

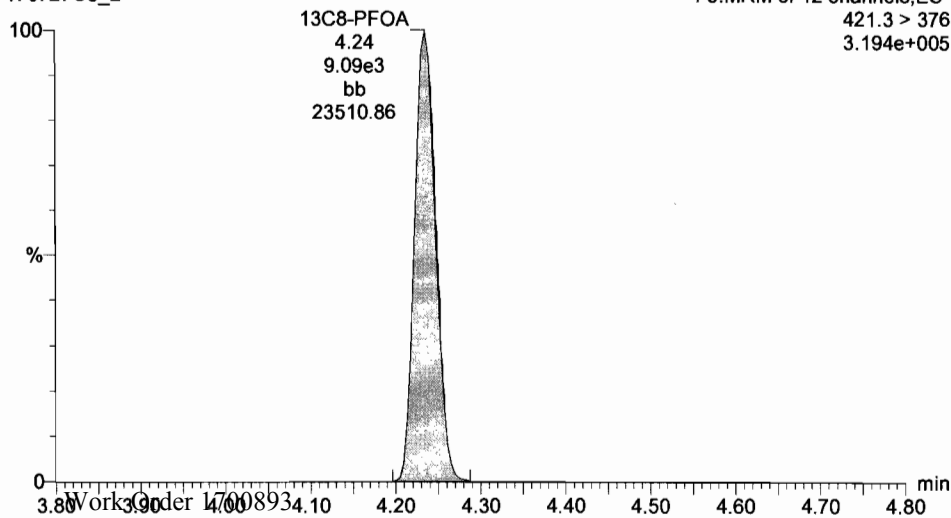
F4:MRM of 7 channels,ES-  
401.9 > 79.9  
5.118e+005



**13C8-PFOA**

170727G5\_2

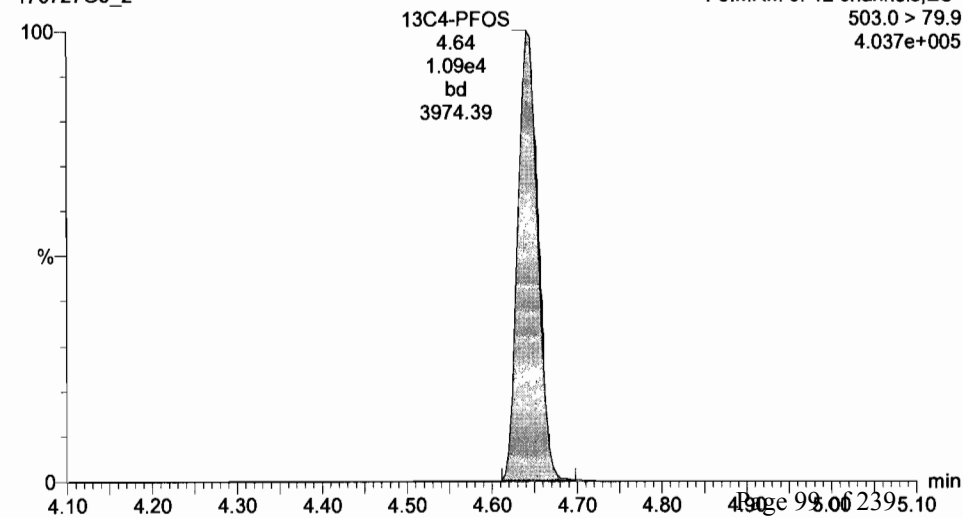
F5:MRM of 12 channels,ES-  
421.3 > 376  
3.194e+005



**13C4-PFOS**

170727G5\_2

F5:MRM of 12 channels,ES-  
503.0 > 79.9  
4.037e+005



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-2.qld

Last Altered:   Friday, July 28, 2017 08:56:32 Pacific Daylight Time

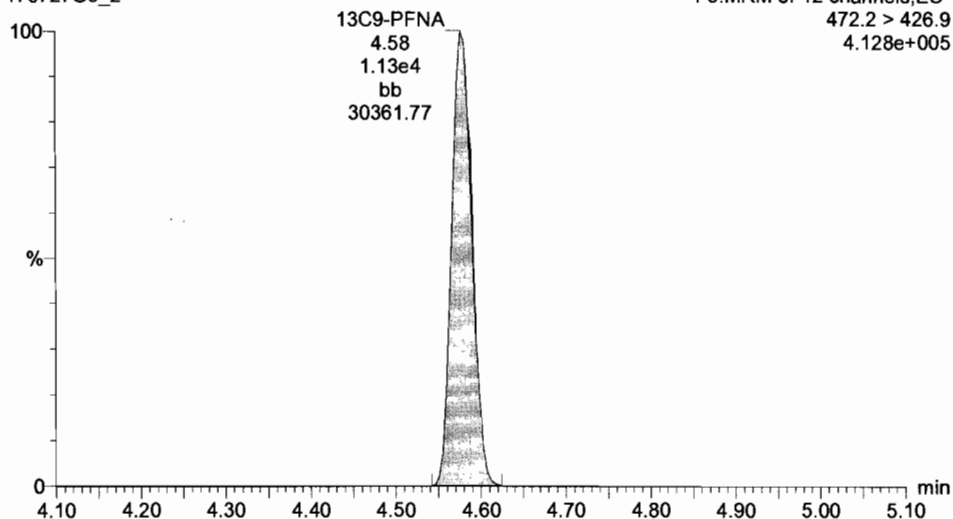
Printed:        Friday, July 28, 2017 10:19:40 Pacific Daylight Time

ID: ST170727G5-1 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G5\_2, Date: 27-Jul-2017, Time: 16:48:22, Instrument: , Lab: , User:

**13C9-PFNA**

170727G5\_2

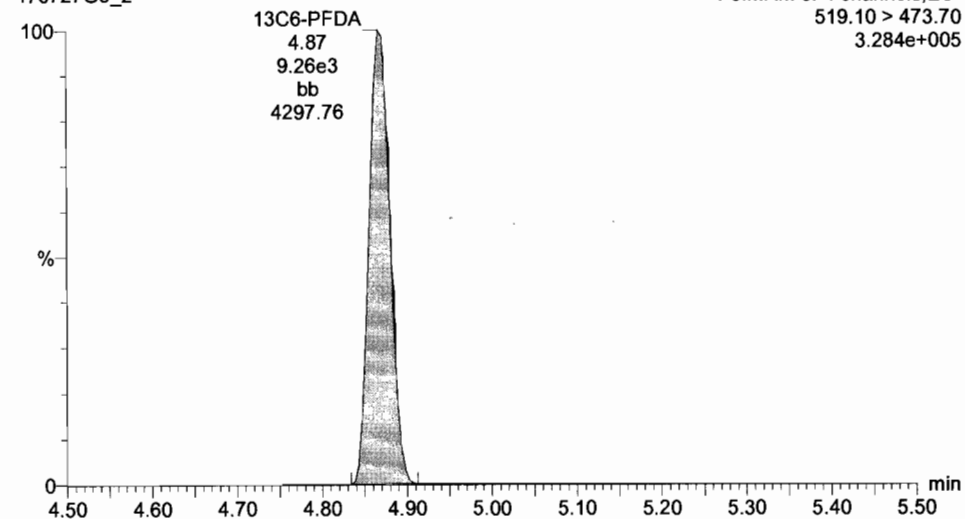
F5:MRM of 12 channels,ES-  
472.2 > 426.9  
4.128e+005



**13C6-PFDA**

170727G5\_2

F6:MRM of 4 channels,ES-  
519.10 > 473.70  
3.284e+005



Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-18.qld

Last Altered: Friday, July 28, 2017 09:35:44 Pacific Daylight Time

Printed: Friday, July 28, 2017 10:18:58 Pacific Daylight Time

Method: U:\G1.PRO\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.PRO\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

Name: 170727G5\_18, Date: 27-Jul-2017, Time: 20:09:21, ID: ST170727G5-2 PFC CS3 17G2719, Description: PFC CS3 17G2719 A

	# Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc.	%Rec
1	3 PFBS	299.0 > 79.7	7.83e3	6.11e3		1.000	2.91	9.59	95.9
2	4 PFHxA	312.9 > 268.9	1.19e4	9.34e3		1.000	3.29	8.27	82.7
3	5 PFHpA	363 > 318.9	1.90e4	1.15e4		1.000	3.82	10.4	104.1
4	6 PFHxS	398.9 > 79.6	8.49e3	5.65e3		1.000	3.95	10.5	104.9
5	7 PFOA	413.0 > 368.7	1.76e4	2.73e4		1.000	4.24	10.0	100.0
6	8 PFNA	463.0 > 418.8	1.73e4	9.00e3		1.000	4.59	10.4	104.0
7	9 PFOS	499.0 > 79.9	3.38e3	9.89e3		1.000	4.65	9.02	90.2
8	10 PFDA	512.7 > 219.0	2.62e3	1.66e4		1.000	4.88	9.92	99.2
9	12 13C3-PFBS	302.0 > 98.8	6.11e3	2.50e4	0.263	1.000	2.91	11.6	93.2
10	14 13C2-PFHxA	315.0 > 269.8	9.34e3	2.50e4	0.361	1.000	3.29	13.0	103.7
11	15 13C4-PFHpA	367.2 > 321.8	1.15e4	2.50e4	0.475	1.000	3.82	12.2	97.3
12	16 18O2-PFHxS	403 > 102.6	5.65e3	1.48e4	0.411	1.000	3.95	11.6	93.2
13	17 13C2-PFOA	414.9 > 369.7	2.73e4	7.58e3	2.843	1.000	4.24	15.8	126.6
14	18 13C5-PFNA	468.2 > 422.9	9.00e3	9.63e3	0.854	1.000	4.58	13.7	109.5
15	19 13C2-PFDA	514.8 > 469.7	1.66e4	8.30e3	1.742	1.000	4.88	14.4	114.8
16	20 13C8-PFOS	507.0 > 79.9	9.89e3	1.09e4	0.927	1.000	4.65	12.3	98.2
17	22 13C5-PFHxA	318 > 272.9	2.50e4	2.50e4	1.000	1.000	3.29	12.5	100.0
18	23 13C3-PFHxS	401.9 > 79.9	1.48e4	1.48e4	1.000	1.000	3.95	12.5	100.0
19	24 13C8-PFOA	421.3 > 376	7.58e3	7.58e3	1.000	1.000	4.24	12.5	100.0
20	25 13C9-PFNA	472.2 > 426.9	9.63e3	9.63e3	1.000	1.000	4.58	12.5	100.0
21	26 13C4-PFOS	503.0 > 79.9	1.09e4	1.09e4	1.000	1.000	4.65	12.5	100.0
22	27 13C6-PFDA	519.10 > 47...	8.30e3	8.30e3	1.000	1.000	4.87	12.5	100.0

70-130

50-150

7/28/17

✓ AC 7/31/17

Dataset: Untitled

Last Altered: Friday, July 28, 2017 10:21:47 Pacific Daylight Time

Printed: Friday, July 28, 2017 10:23:54 Pacific Daylight Time

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

Compound name: PFBA

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1	170727G5_1	IPA	27-Jul-17	16:36:08
2	170727G5_2	ST170727G5-1 PFC CS3 17G2719	27-Jul-17	16:48:22
3	170727G5_3	IPA	27-Jul-17	17:00:57
4	170727G5_4	(A) B7G0079-BS1 OPR 0.125	27-Jul-17	17:13:30
5	170727G5_5	B7G0106-BS1 OPR 0.125	27-Jul-17	17:26:02
6	170727G5_6	IPA	27-Jul-17	17:38:35
7	170727G5_7	(A) 1700875-01@5X MW-42S-20170713 0.11821	27-Jul-17	17:51:09
8	170727G5_8	1700875-02 MW-14BR-20170713 0.11912	27-Jul-17	18:03:42
9	170727G5_9	1700875-03@5X MW-51BR-20170713 0.11822	27-Jul-17	18:16:15
10	170727G5_10	1700875-04@5X DUP-06-20170713 0.11793	27-Jul-17	18:28:49
11	170727G5_11	1700875-05@30X MW-11S-20170713 0.11994	27-Jul-17	18:41:17
12	170727G5_12	1700884-01 MW-37BR-20170714 0.11935	27-Jul-17	18:53:50
13	170727G5_13	1700884-04 FRB-02-20170714 0.11984	27-Jul-17	19:06:24
14	170727G5_14	1700887-01 IRPSite 6-GW-06GW01-2017071...	27-Jul-17	19:19:25
15	170727G5_15	1700887-05@5X Building 110-GW-110GW01-...	27-Jul-17	19:31:37
16	170727G5_16	1700887-06 IRPSite 6-GW-06FD01-20170712...	27-Jul-17	19:44:12
17	170727G5_17	IPA	27-Jul-17	19:56:45
18	170727G5_18	ST170727G5-2 PFC CS3 17G2719	27-Jul-17	20:09:21
19	170727G5_19	IPA	27-Jul-17	20:21:49
20	170727G5_20	B7G0106-BLK1 Method Blank 0.125	27-Jul-17	20:34:22
21	170727G5_21	1700888-12RE1 HARRI-02-GW-TW01-01000...	27-Jul-17	20:46:56
22	170727G5_22	1700889-08RE1 EWU07-01000 0.12104	27-Jul-17	20:59:32
23	170727G5_23	1700889-09RE1 HARRI-03-GW-Dup01-01000...	27-Jul-17	21:11:59
24	170727G5_24	1700889-10RE1 HARRI-GW-TW02--010000 0...	27-Jul-17	21:24:31
25	170727G5_25	1700889-11RE1 HARRI-GW-TW03-010000 0....	27-Jul-17	21:37:05
26	170727G5_26	1700889-12RE1 HARRI-EB-01 0.11746	27-Jul-17	21:49:39
27	170727G5_27	1700893-01RE1 SB01-20170717 0.12046	27-Jul-17	22:02:11
28	170727G5_28	1700893-02RE1 EB01-20170717 0.11139	27-Jul-17	22:14:45
29	170727G5_29	1700893-03RE1 OUA1-MW08-20170717 0.11...	27-Jul-17	22:27:35
30	170727G5_30	1700893-04RE1 OUA1-HS03-20170717 0.105...	27-Jul-17	22:39:52
31	170727G5_31	B7G0106-MS2 Matrix Spike 0.125	27-Jul-17	22:52:20

(A) INJECTIONS WERE NOT USED. JUL 28/17

Dataset:        Untitled

Last Altered:    Friday, July 28, 2017 10:21:47 Pacific Daylight Time  
Printed:        Friday, July 28, 2017 10:23:54 Pacific Daylight Time

**Compound name: PFBA**

	Name	ID	Acq.Date	Acq.Time
32	170727G5_32	B7G0106-MSD2 Matrix Spike Dup 0.125	27-Jul-17	23:04:53
33	170727G5_33	1700893-05RE1 OUA1-HS03A-20170717 0.11...	27-Jul-17	23:17:45
34	170727G5_34	IPA	27-Jul-17	23:30:36
35	170727G5_35	ST170727G5-3 PFC CS3 17G2719	27-Jul-17	23:43:15
36	170727G5_36	IPA	27-Jul-17	23:55:44
37	170727G5_37	1700907-10RE1 AT028-DUP-01-071717-1200...	28-Jul-17	00:08:41
38	170727G5_38	IPA	28-Jul-17	00:20:54
39	170727G5_39	ST170727G5-4 PFC CS3 17G2719	28-Jul-17	00:33:28
40	170727G5_40	IPA	28-Jul-17	00:46:15

Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-18.qld

Last Altered:   Friday, July 28, 2017 09:35:44 Pacific Daylight Time

Printed:        Friday, July 28, 2017 09:59:05 Pacific Daylight Time

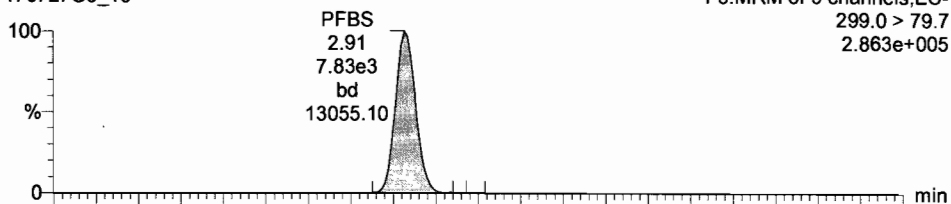
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ID: ST170727G5-2 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G5\_18, Date: 27-Jul-2017, Time: 20:09:21, Instrument: , Lab: , User:

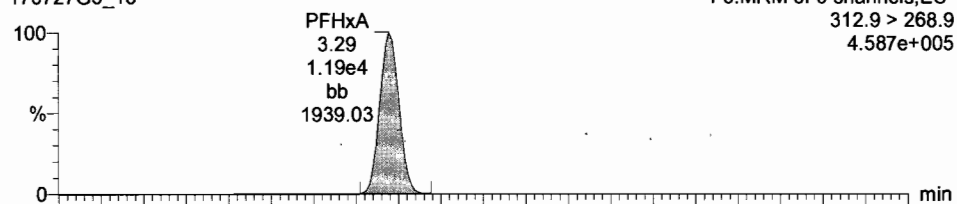
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170727G5\_18

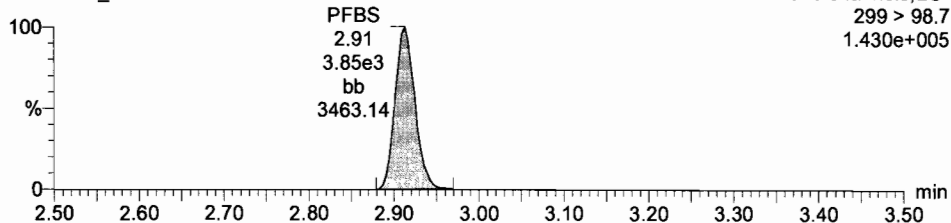


**PFHxA**

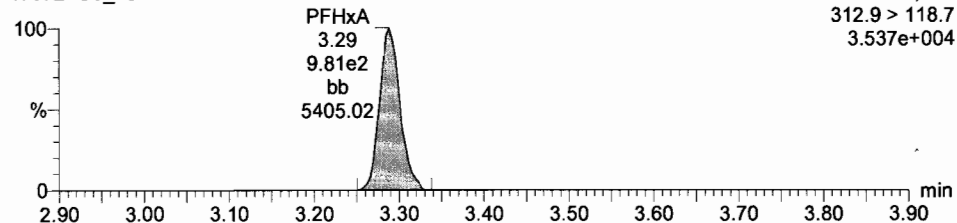
170727G5\_18



170727G5\_18

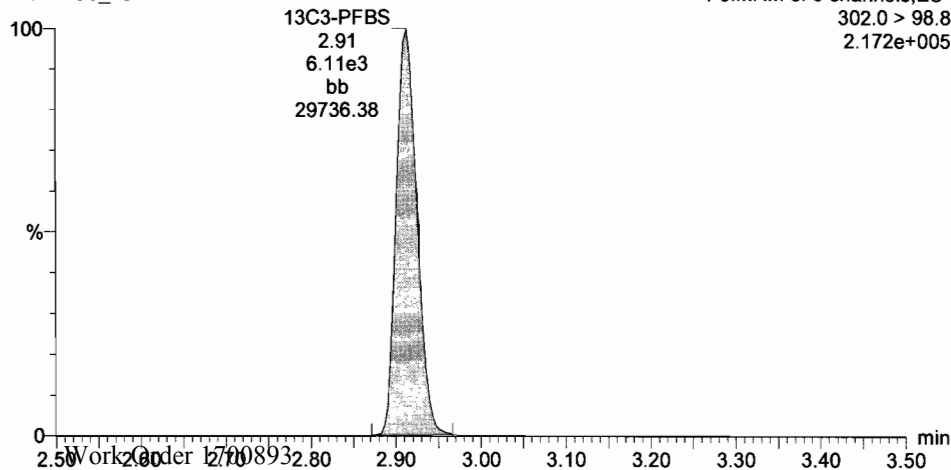


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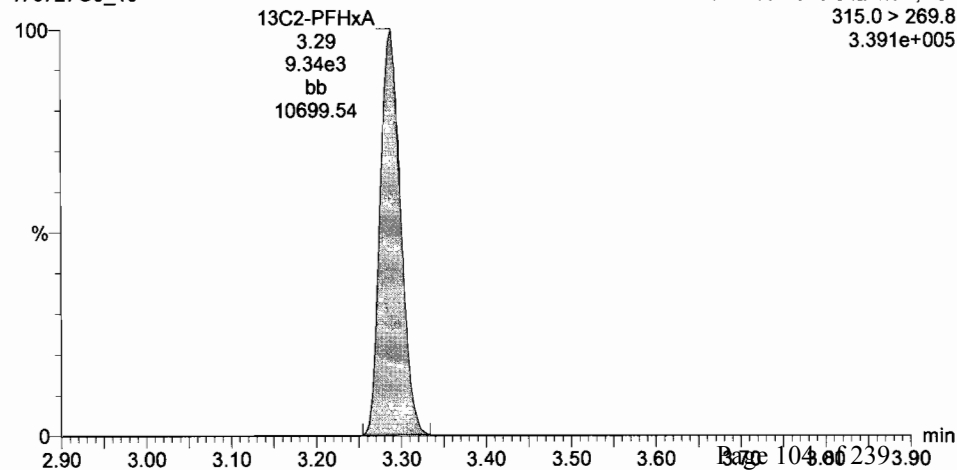
**13C3-PFBS**

170727G5\_18



**13C2-PFHxA**

170727G5\_18





Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-18.qld

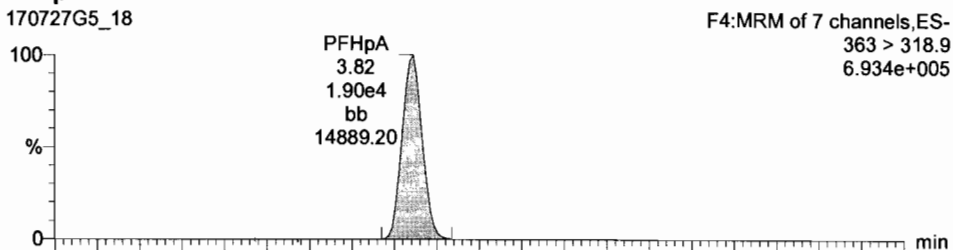
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Printed: Friday, July 28, 2017 09:59:05 Pacific Daylight Time

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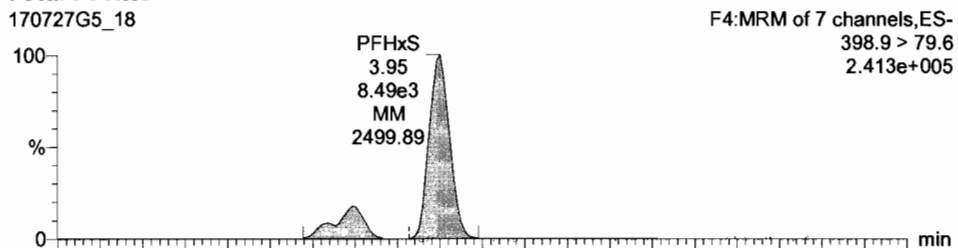
**PFHpA**

170727G5\_18

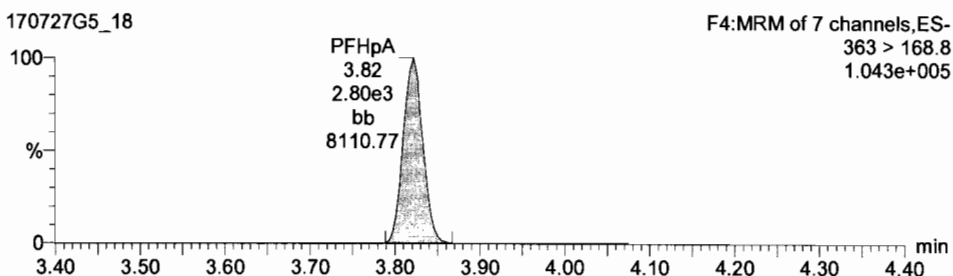


**Total PFHxS**

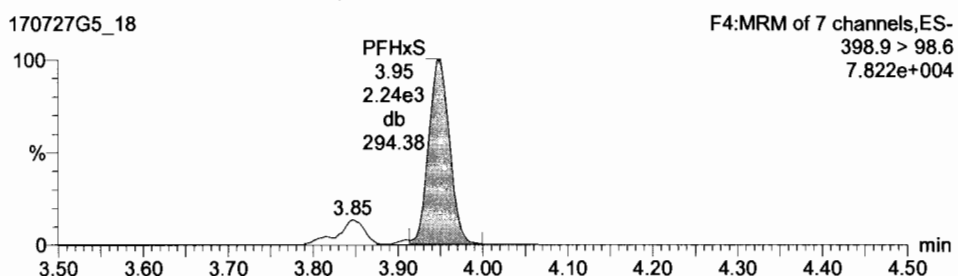
170727G5\_18



170727G5\_18

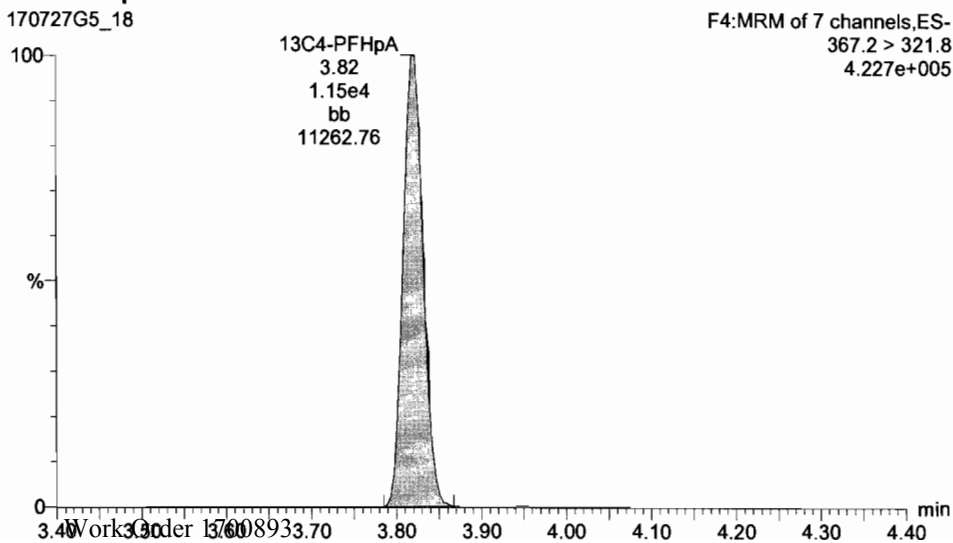


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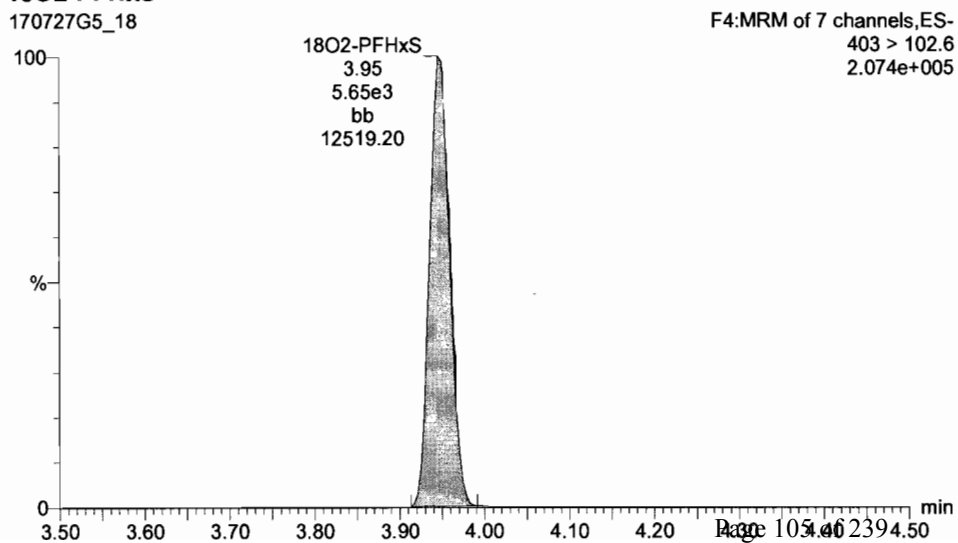
**13C4-PFHpA**

170727G5\_18



**18O2-PFHxS**

170727G5\_18



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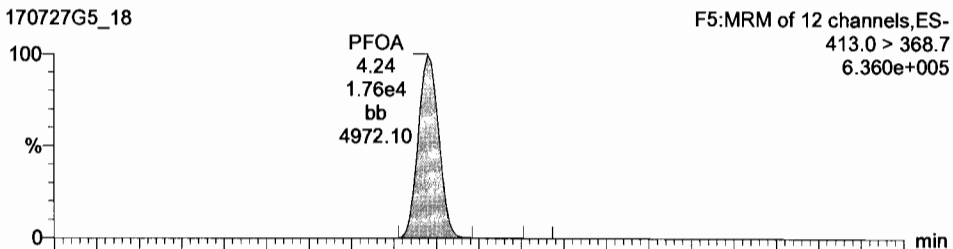
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Printed:        Friday, July 28, 2017 09:59:05 Pacific Daylight Time

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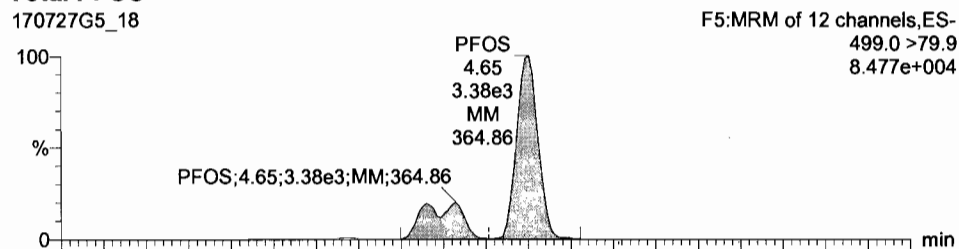
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170727G5\_18

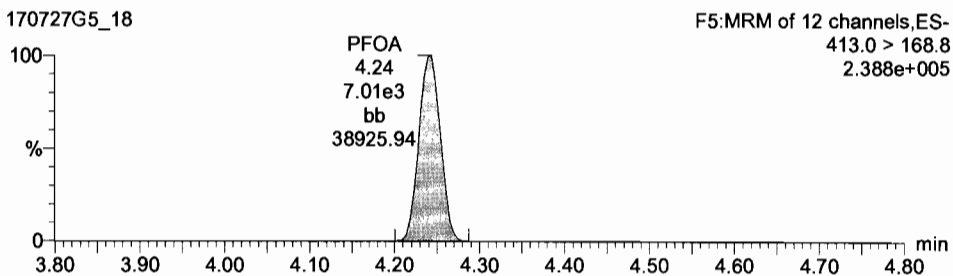


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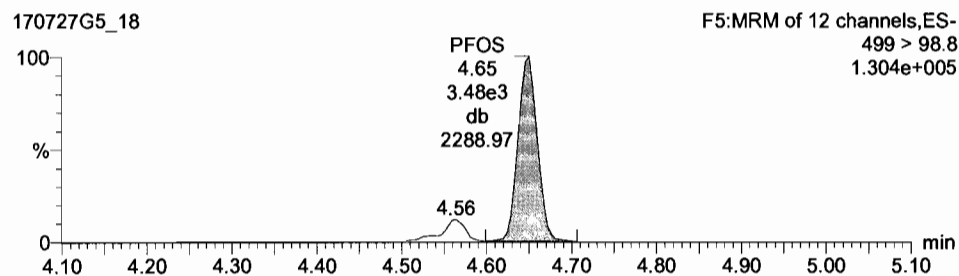
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170727G5\_18

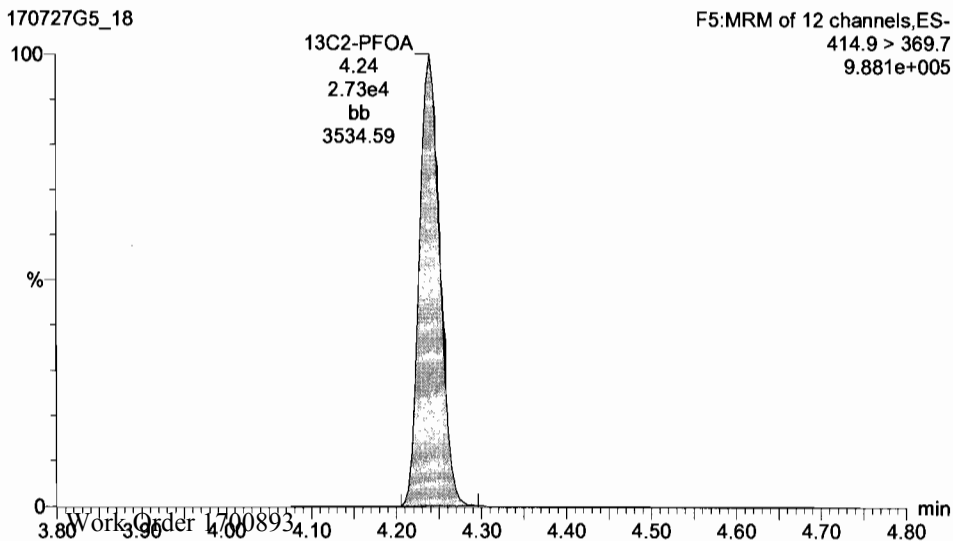


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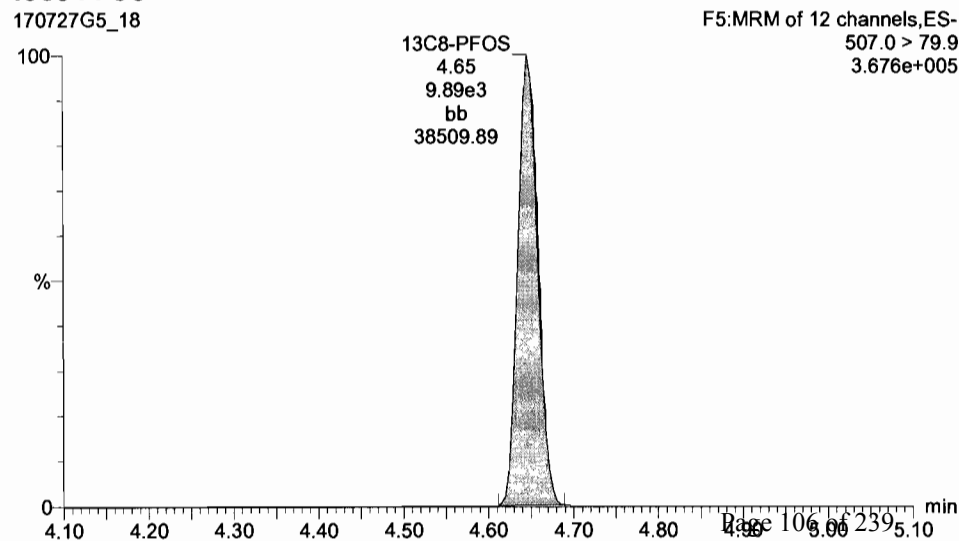
**13C2-PFOA**

170727G5\_18



**13C8-PFOS**

170727G5\_18



Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-18.qld

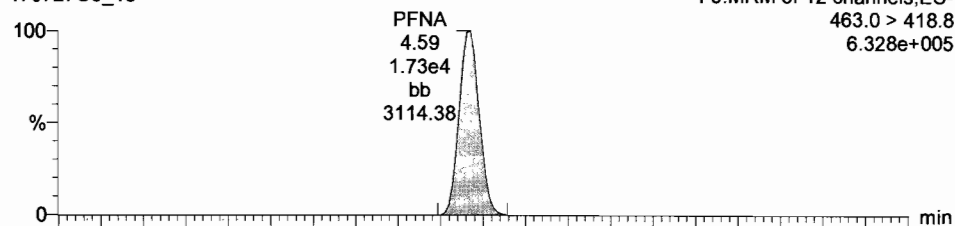
Last Altered: Friday, July 28, 2017 09:35:44 Pacific Daylight Time

Printed: Friday, July 28, 2017 09:59:05 Pacific Daylight Time

ID: ST170727G5-2 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G5\_18, Date: 27-Jul-2017, Time: 20:09:21, Instrument: , Lab: , User:

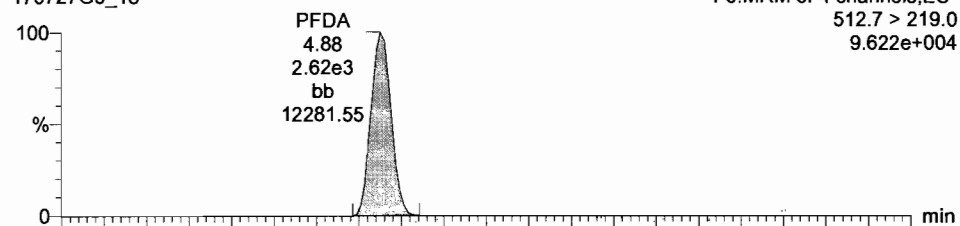
PFNA

170727G5\_18

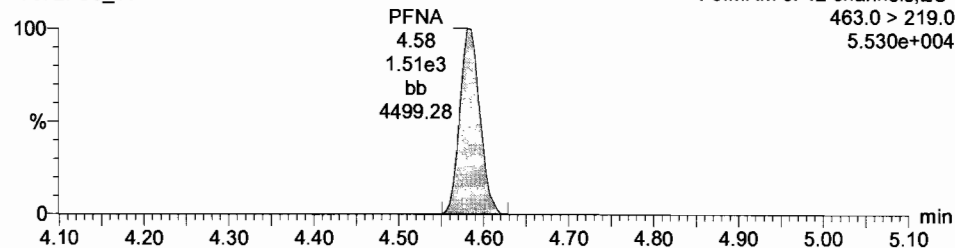


PFDA

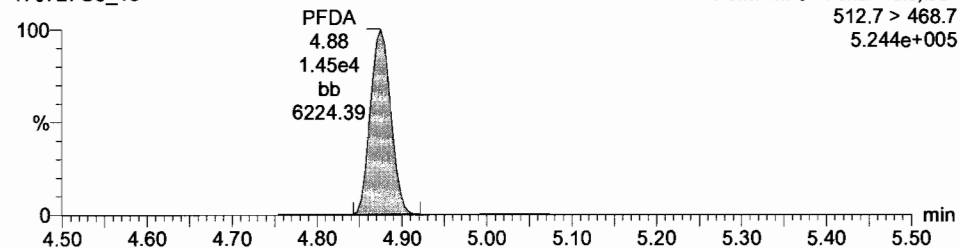
170727G5\_18



170727G5\_18

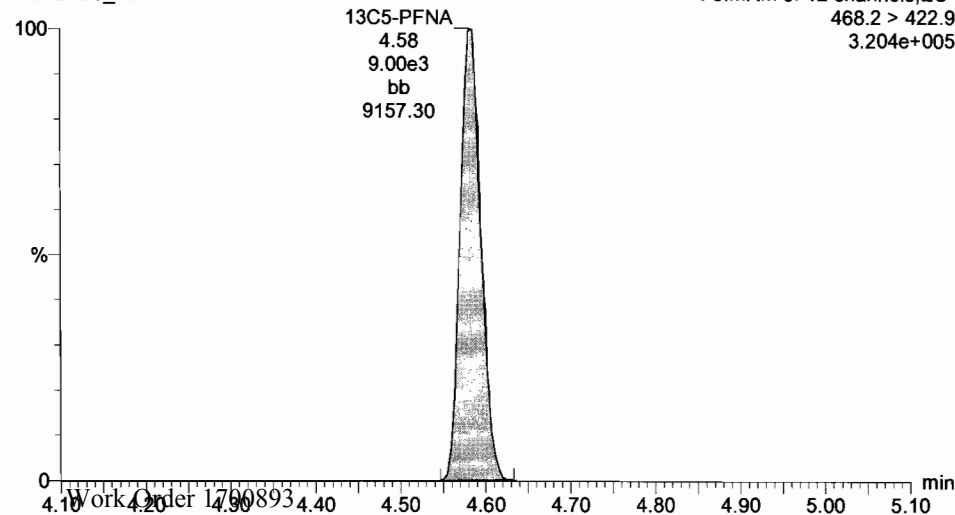


170727G5\_18



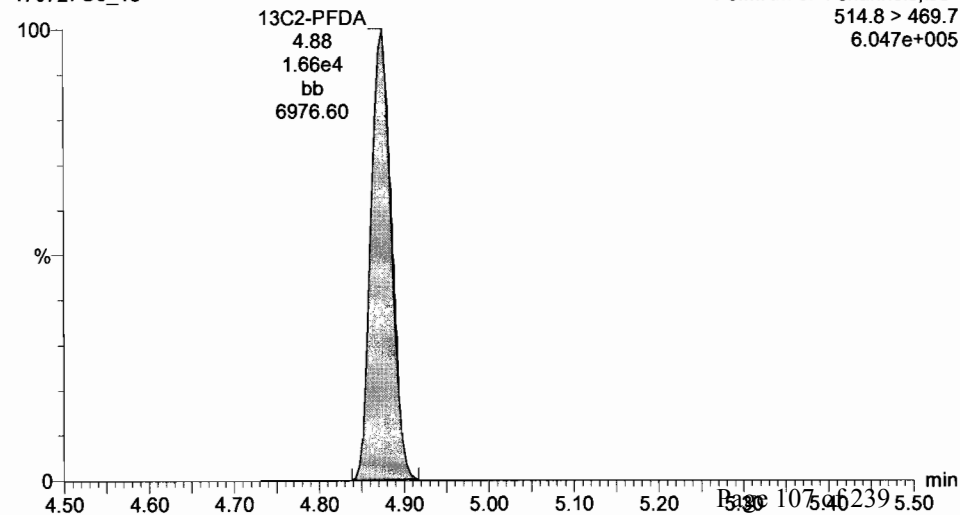
13C5-PFNA

170727G5\_18



13C2-PFDA

170727G5\_18



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Last Altered:   Friday, July 28, 2017 09:35:44 Pacific Daylight Time

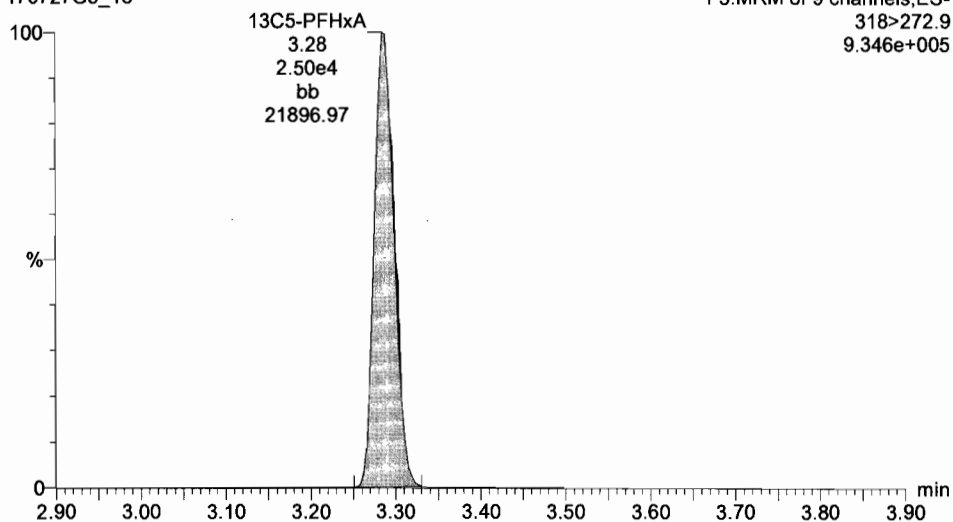
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ID: ST170727G5-2 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G5\_18, Date: 27-Jul-2017, Time: 20:09:21, Instrument: , Lab: , User:

**13C5-PFHxA**

170727G5\_18

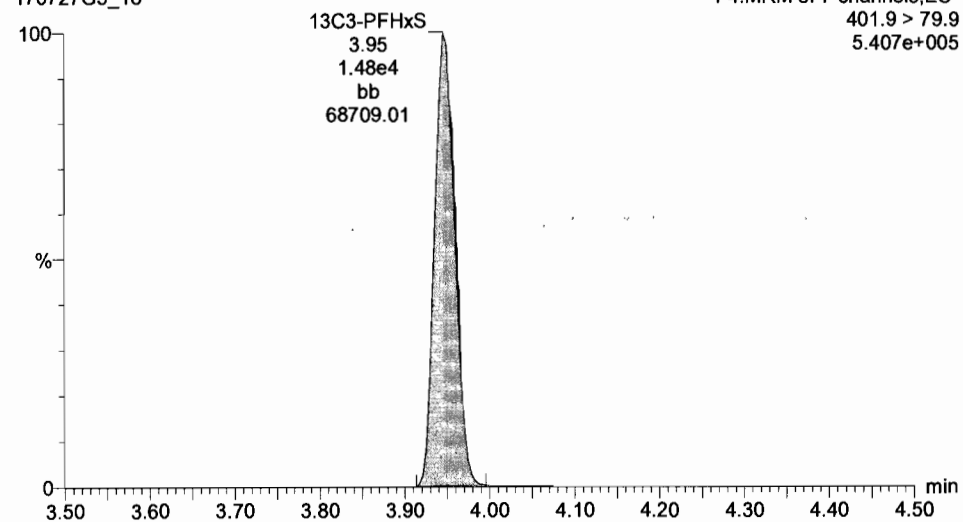
F3:MRM of 9 channels,ES-  
318>272.9  
9.346e+005



**13C3-PFHxS**

170727G5\_18

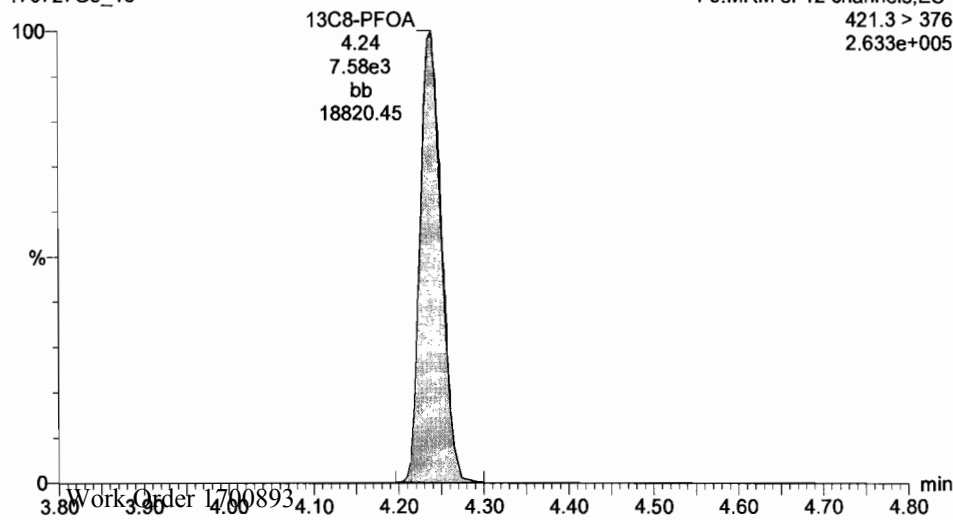
F4:MRM of 7 channels,ES-  
401.9 > 79.9  
5.407e+005



**13C8-PFOA**

170727G5\_18

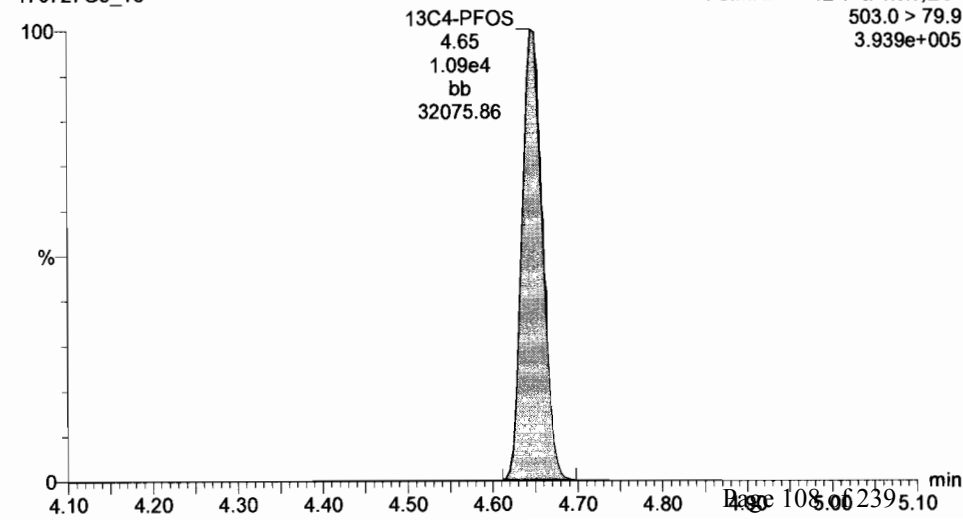
F5:MRM of 12 channels,ES-  
421.3 > 376  
2.633e+005



**13C4-PFOS**

170727G5\_18

F5:MRM of 12 channels,ES-  
503.0 > 79.9  
3.939e+005



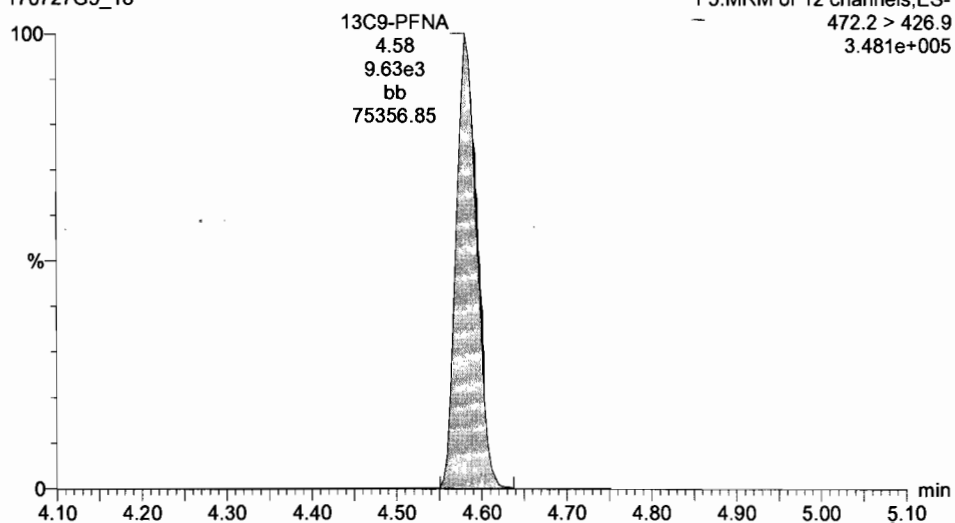
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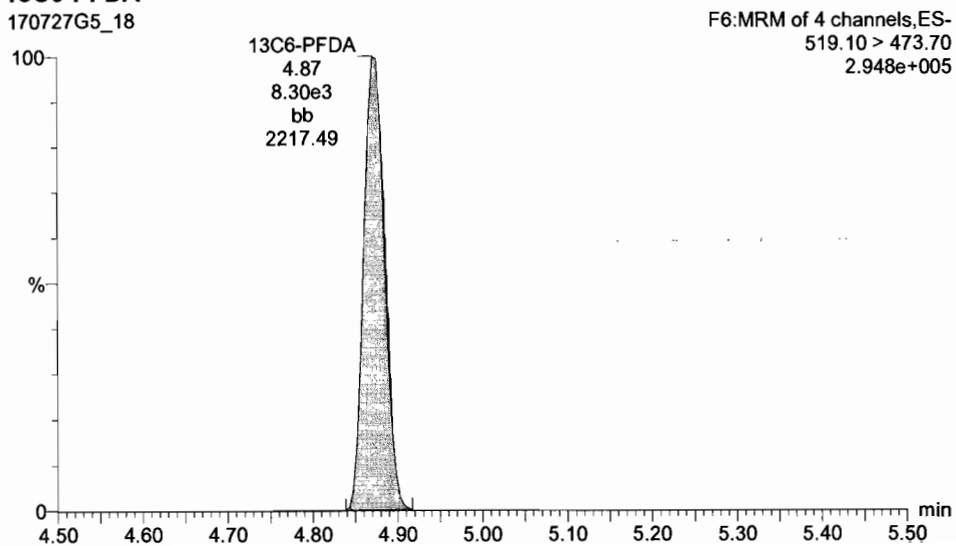
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ID: ST170727G5-2 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G5\_18, Date: 27-Jul-2017, Time: 20:09:21, Instrument: , Lab: , User:

**13C9-PFNA**  
170727G5\_18



**13C6-PFDA**  
170727G5\_18



Dataset: U:\G1.PRO\Results\2017\170727G5\170727G5-35.qld

Last Altered: Friday, July 28, 2017 10:06:30 Pacific Daylight Time

Printed: Friday, July 28, 2017 10:19:09 Pacific Daylight Time

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

Name: 170727G5\_35, Date: 27-Jul-2017, Time: 23:43:15, ID: ST170727G5-3 PFC CS3 17G2719, Description: PFC CS3 17G2719 A

	# Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc	%Rec
1	3 PFBS	299.0 > 79.7	7.58e3	5.75e3		1.000	2.92	9.88	98.8
2	4 PFHxA	312.9 > 268.9	1.16e4	8.75e3		1.000	3.29	8.68	86.8
3	5 PFHpA	363 > 318.9	1.81e4	1.10e4		1.000	3.82	10.4	103.9
4	6 PFHxS	398.9 > 79.6	8.14e3	6.21e3		1.000	3.95	9.16	91.6
5	7 PFOA	413.0 > 368.7	1.65e4	2.54e4		1.000	4.24	10.0	100.4
6	8 PFNA	463.0 > 418.8	1.55e4	7.78e3		1.000	4.59	10.8	107.7
7	9 PFOS	499.0 > 79.9	3.46e3	8.76e3		1.000	4.65	10.4	104.4
8	10 PFDA	512.7 > 219.0	2.13e3	1.48e4		1.000	4.88	8.98	89.8
9	12 13C3-PFBS	302.0 > 98.8	5.75e3	2.36e4	0.263	1.000	2.92	11.6	92.6
10	14 13C2-PFHxA	315.0 > 269.8	8.75e3	2.36e4	0.361	1.000	3.29	12.8	102.8
11	15 13C4-PFHpA	367.2 > 321.8	1.10e4	2.36e4	0.475	1.000	3.82	12.3	98.3
12	16 18O2-PFHxS	403 > 102.6	6.21e3	1.43e4	0.411	1.000	3.95	13.2	105.9
13	17 13C2-PFOA	414.9 > 369.7	2.54e4	7.52e3	2.843	1.000	4.24	14.9	119.0
14	18 13C5-PFNA	468.2 > 422.9	7.78e3	8.41e3	0.854	1.000	4.59	13.5	108.3
15	19 13C2-PFDA	514.8 > 469.7	1.48e4	7.73e3	1.742	1.000	4.88	13.8	110.2
16	20 13C8-PFOS	507.0 > 79.9	8.76e3	9.51e3	0.927	1.000	4.65	12.4	99.4
17	22 13C5-PFHxA	318 > 272.9	2.36e4	2.36e4	1.000	1.000	3.29	12.5	100.0
18	23 13C3-PFHxS	401.9 > 79.9	1.43e4	1.43e4	1.000	1.000	3.95	12.5	100.0
19	24 13C8-PFOA	421.3 > 376	7.52e3	7.52e3	1.000	1.000	4.24	12.5	100.0
20	25 13C9-PFNA	472.2 > 426.9	8.41e3	8.41e3	1.000	1.000	4.59	12.5	100.0
21	26 13C4-PFOS	503.0 > 79.9	9.51e3	9.51e3	1.000	1.000	4.65	12.5	100.0
22	27 13C6-PFDA	519.10 > 47...	7.73e3	7.73e3	1.000	1.000	4.88	12.5	100.0

70-130

50-150

See 7/28/17

✓ AC 7/31/17

Dataset: Untitled

Last Altered: Friday, July 28, 2017 10:21:47 Pacific Daylight Time

Printed: Friday, July 28, 2017 10:23:54 Pacific Daylight Time

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

Compound name: PFBA

	Name	ID	Acq.Date	Acq.Time
1	170727G5_1	IPA	27-Jul-17	16:36:08
2	170727G5_2	ST170727G5-1 PFC CS3 17G2719	27-Jul-17	16:48:22
3	170727G5_3	IPA	27-Jul-17	17:00:57
4	170727G5_4	(A) B7G0079-BS1 OPR 0.125	27-Jul-17	17:13:30
5	170727G5_5	B7G0106-BS1 OPR 0.125	27-Jul-17	17:26:02
6	170727G5_6	IPA	27-Jul-17	17:38:35
7	170727G5_7	(A) 1700875-01@5X MW-42S-20170713 0.11821	27-Jul-17	17:51:09
8	170727G5_8	1700875-02 MW-14BR-20170713 0.11912	27-Jul-17	18:03:42
9	170727G5_9	1700875-03@5X MW-51BR-20170713 0.11822	27-Jul-17	18:16:15
10	170727G5_10	1700875-04@5X DUP-06-20170713 0.11793	27-Jul-17	18:28:49
11	170727G5_11	1700875-05@30X MW-11S-20170713 0.11994	27-Jul-17	18:41:17
12	170727G5_12	1700884-01 MW-37BR-20170714 0.11935	27-Jul-17	18:53:50
13	170727G5_13	1700884-04 FRB-02-20170714 0.11984	27-Jul-17	19:06:24
14	170727G5_14	1700887-01 IRPSite 6-GW-06GW01-2017071...	27-Jul-17	19:19:25
15	170727G5_15	1700887-05@5X Building 110-GW-110GW01-...	27-Jul-17	19:31:37
16	170727G5_16	1700887-06 IRPSite 6-GW-06FD01-20170712...	27-Jul-17	19:44:12
17	170727G5_17	IPA	27-Jul-17	19:56:45
18	170727G5_18	ST170727G5-2 PFC CS3 17G2719	27-Jul-17	20:09:21
19	170727G5_19	IPA	27-Jul-17	20:21:49
20	170727G5_20	B7G0106-BLK1 Method Blank 0.125	27-Jul-17	20:34:22
21	170727G5_21	1700888-12RE1 HARRI-02-GW-TW01-01000...	27-Jul-17	20:46:56
22	170727G5_22	1700889-08RE1 EWTU07-01000 0.12104	27-Jul-17	20:59:32
23	170727G5_23	1700889-09RE1 HARRI-03-GW-Dup01-01000...	27-Jul-17	21:11:59
24	170727G5_24	1700889-10RE1 HARRI-GW-TW02-010000 0...	27-Jul-17	21:24:31
25	170727G5_25	1700889-11RE1 HARRI-GW-TW03-010000 0....	27-Jul-17	21:37:05
26	170727G5_26	1700889-12RE1 HARRI-EB-01 0.11746	27-Jul-17	21:49:39
27	170727G5_27	1700893-01RE1 SB01-20170717 0.12046	27-Jul-17	22:02:11
28	170727G5_28	1700893-02RE1 EB01-20170717 0.11139	27-Jul-17	22:14:45
29	170727G5_29	1700893-03RE1 OUA1-MW08-20170717 0.11...	27-Jul-17	22:27:35
30	170727G5_30	1700893-04RE1 OUA1-HS03-20170717 0.105...	27-Jul-17	22:39:52
31	170727G5_31	B7G0106-MS2 Matrix Spike 0.125	27-Jul-17	22:52:20

(A) INJECTIONS WERE NOT USED. JUL 7/28/17

Dataset:        Untitled

Last Altered:    Friday, July 28, 2017 10:21:47 Pacific Daylight Time  
Printed:        Friday, July 28, 2017 10:23:54 Pacific Daylight Time

Compound name: PFBA

	Name	ID	Acq.Date	Acq.Time
32	170727G5_32	B7G0106-MSD2 Matrix Spike Dup 0.125	27-Jul-17	23:04:53
33	170727G5_33	1700893-05RE1 OUA1-HS03A-20170717 0.11...	27-Jul-17	23:17:45
34	170727G5_34	IPA	27-Jul-17	23:30:36
35	170727G5_35	ST170727G5-3 PFC CS3 17G2719	27-Jul-17	23:43:15
36	170727G5_36	IPA	27-Jul-17	23:55:44
37	170727G5_37	1700907-10RE1 AT028-DUP-01-071717-1200...	28-Jul-17	00:08:41
38	170727G5_38	IPA	28-Jul-17	00:20:54
39	170727G5_39	ST170727G5-4 PFC CS3 17G2719	28-Jul-17	00:33:28
40	170727G5_40	IPA	28-Jul-17	00:46:15



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-35.qld

Last Altered:   Friday, July 28, 2017 10:06:30 Pacific Daylight Time

Printed:        Friday, July 28, 2017 10:07:42 Pacific Daylight Time

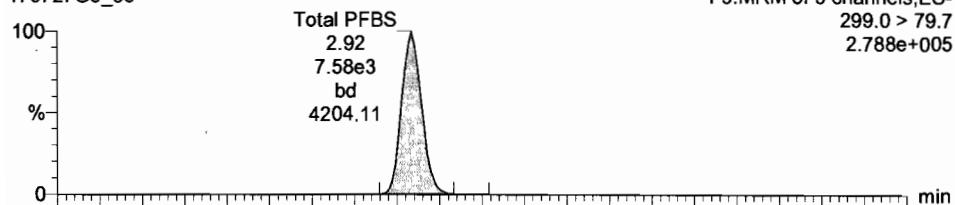
Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: ST170727G5-3 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G5\_35, Date: 27-Jul-2017, Time: 23:43:15, Instrument: , Lab: , User:

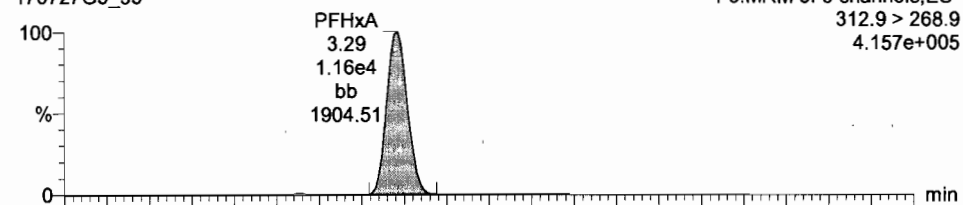
**Total PFBS**

170727G5\_35

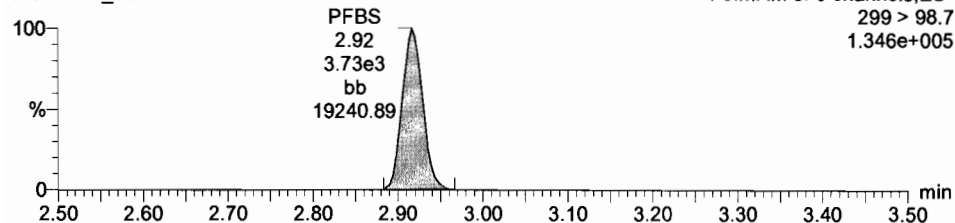


**PFHxA**

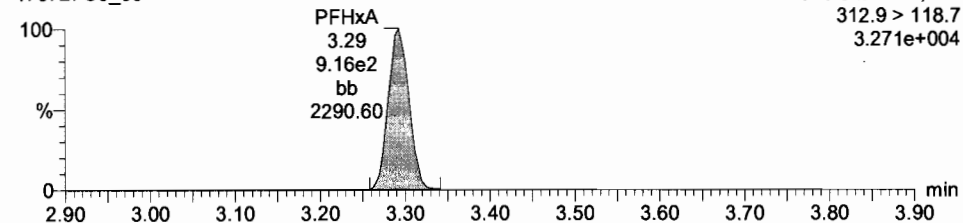
170727G5\_35



170727G5\_35

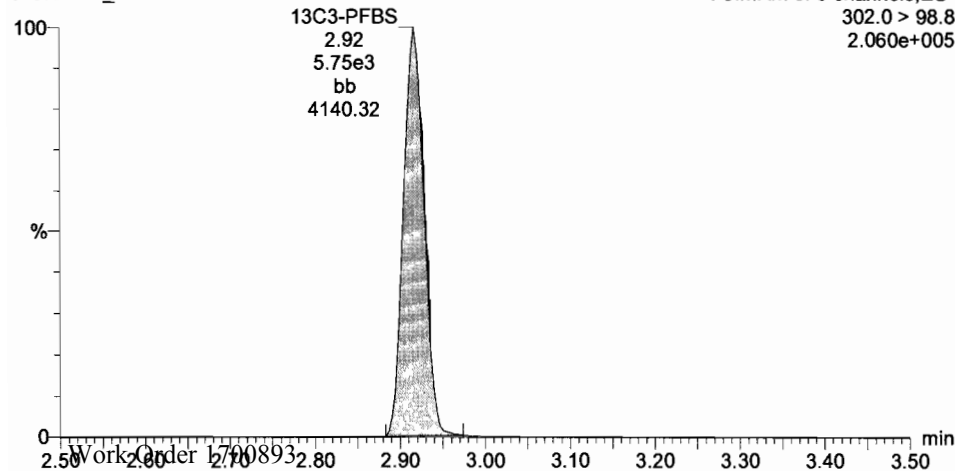


170727G5\_35



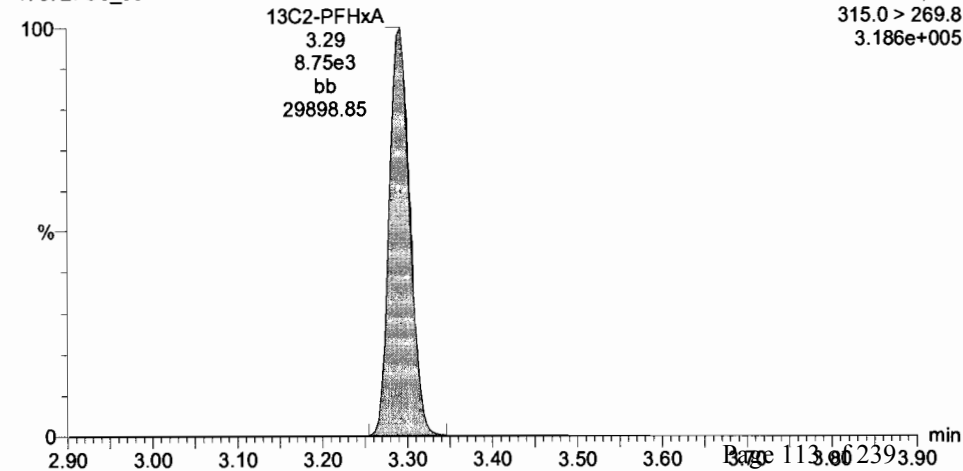
**13C3-PFBS**

170727G5\_35



**13C2-PFHxA**

170727G5\_35



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-35.qld

Last Altered:   Friday, July 28, 2017 10:06:30 Pacific Daylight Time

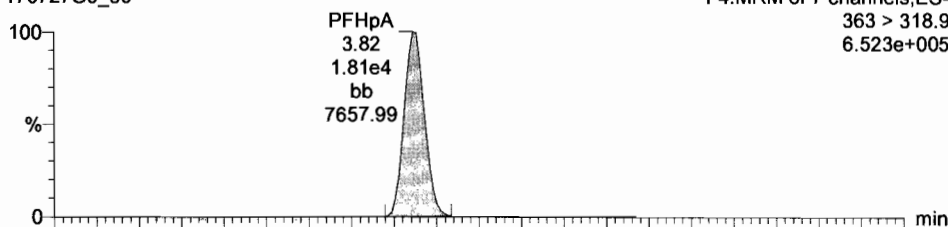
Printed:        Friday, July 28, 2017 10:07:42 Pacific Daylight Time

ID: ST170727G5-3 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G5\_35, Date: 27-Jul-2017, Time: 23:43:15, Instrument: , Lab: , User:

**PFHpA**

170727G5\_35

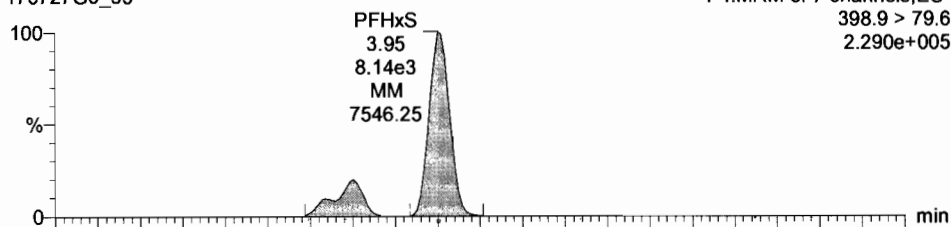
F4:MRM of 7 channels,ES-  
363 > 318.9  
6.523e+005



**Total PFHxS**

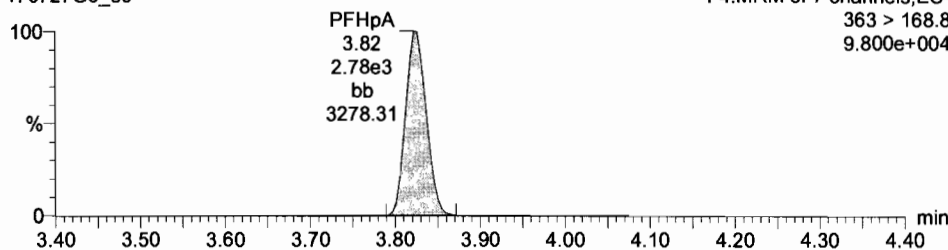
170727G5\_35

F4:MRM of 7 channels,ES-  
398.9 > 79.6  
2.290e+005



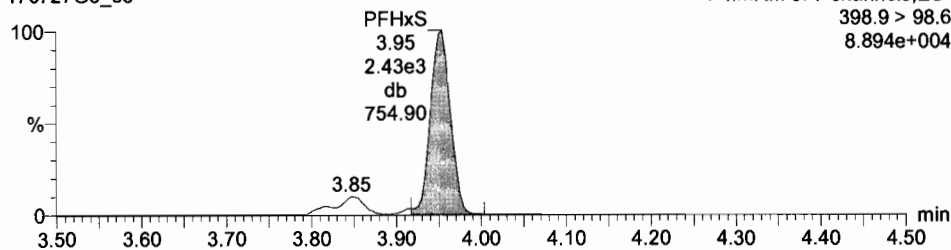
170727G5\_35

F4:MRM of 7 channels,ES-  
363 > 168.8  
9.800e+004



170727G5\_35

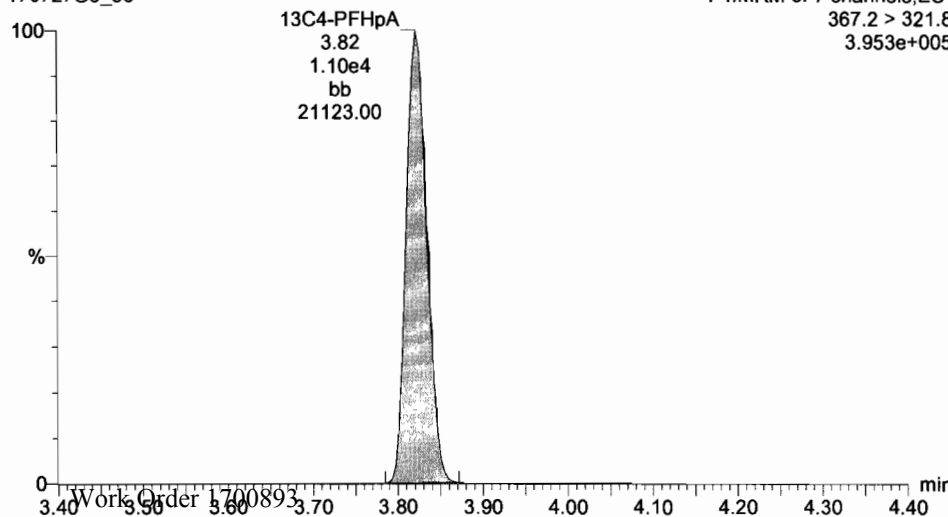
F4:MRM of 7 channels,ES-  
398.9 > 98.6  
8.894e+004



**13C4-PFHpA**

170727G5\_35

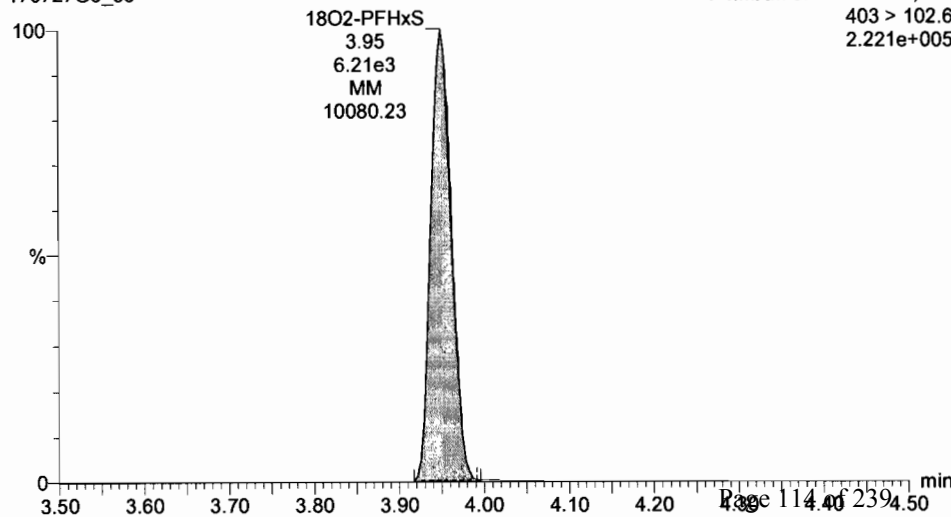
F4:MRM of 7 channels,ES-  
367.2 > 321.8  
3.953e+005



**18O2-PFHxS**

170727G5\_35

F4:MRM of 7 channels,ES-  
403 > 102.6  
2.221e+005



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-35.qld

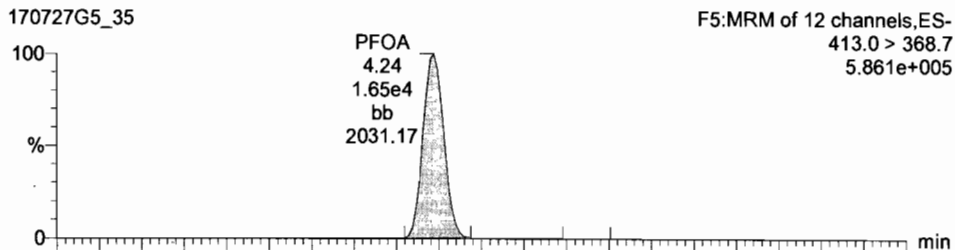
Last Altered:    Friday, July 28, 2017 10:06:30 Pacific Daylight Time

Printed:        Friday, July 28, 2017 10:07:42 Pacific Daylight Time

ID: ST170727G5-3 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G5\_35, Date: 27-Jul-2017, Time: 23:43:15, Instrument: , Lab: , User:

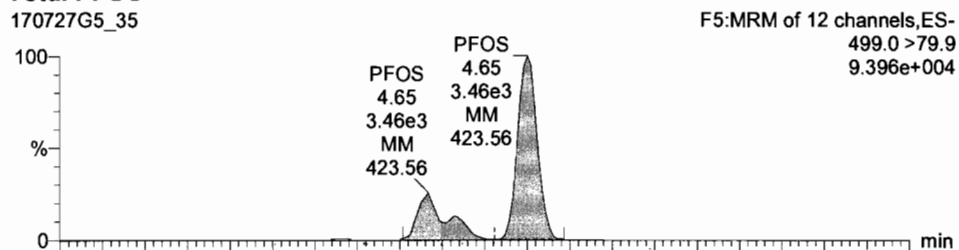
**Total PFOA**

170727G5\_35

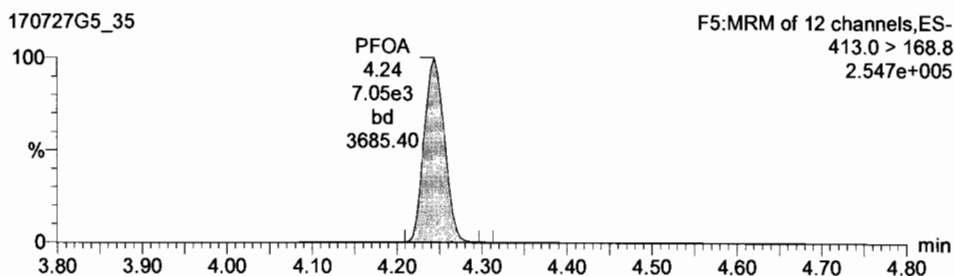


**Total PFOS**

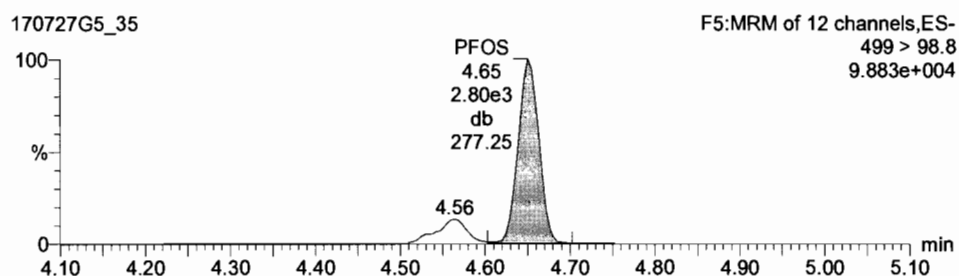
170727G5\_35



170727G5\_35

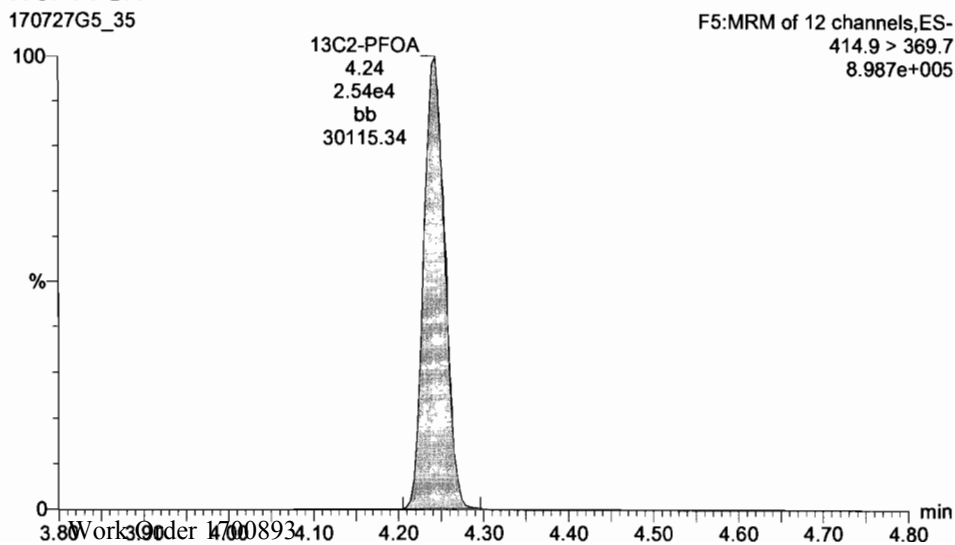


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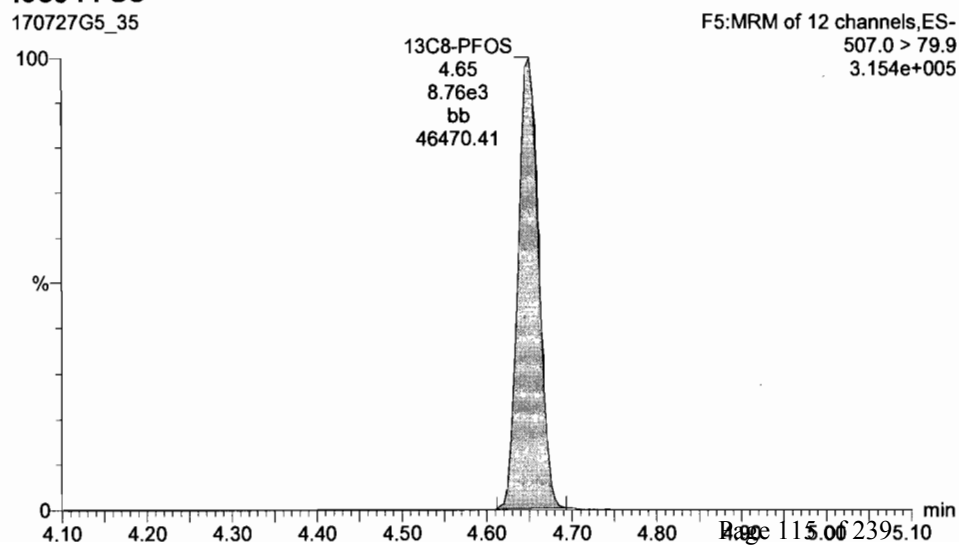
**13C2-PFOA**

170727G5\_35



**13C8-PFOS**

170727G5\_35



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-35.qld

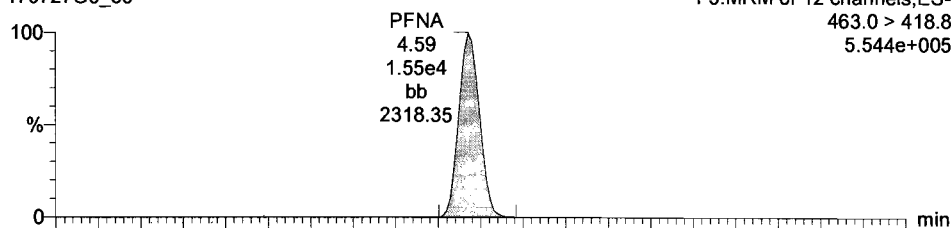
Last Altered:   Friday, July 28, 2017 10:06:30 Pacific Daylight Time  
Printed:        Friday, July 28, 2017 10:07:42 Pacific Daylight Time

ID: ST170727G5-3 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G5\_35, Date: 27-Jul-2017, Time: 23:43:15, Instrument: , Lab: , User:

**PFNA**

170727G5\_35

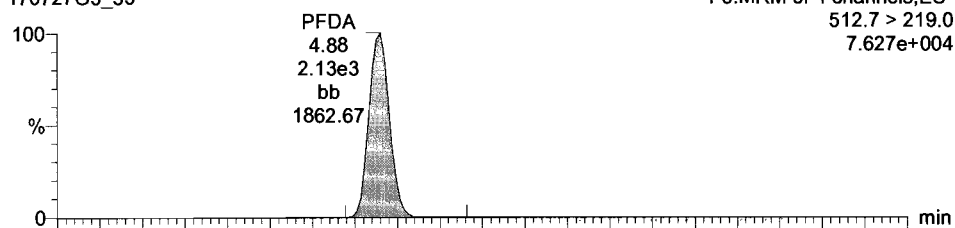
F5:MRM of 12 channels,ES-  
463.0 > 418.8  
5.544e+005



**PFDA**

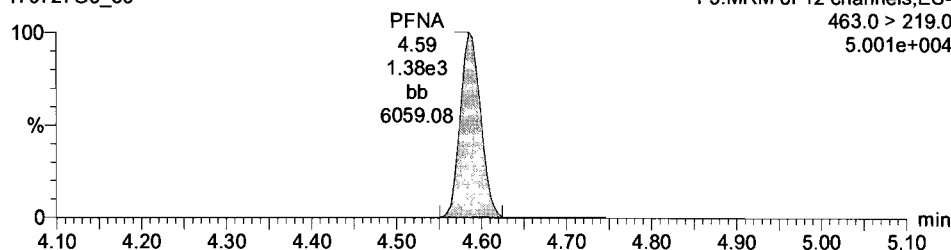
170727G5\_35

F6:MRM of 4 channels,ES-  
512.7 > 219.0  
7.627e+004



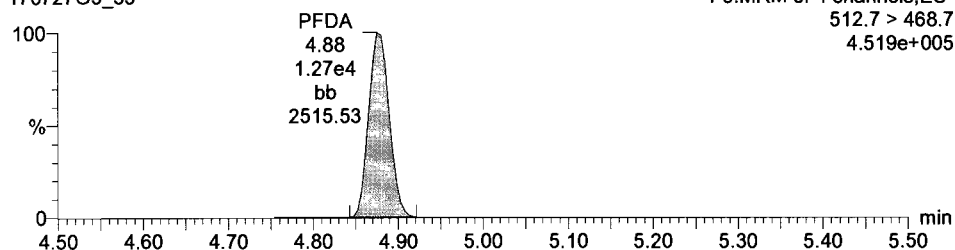
170727G5\_35

F5:MRM of 12 channels,ES-  
463.0 > 219.0  
5.001e+004



170727G5\_35

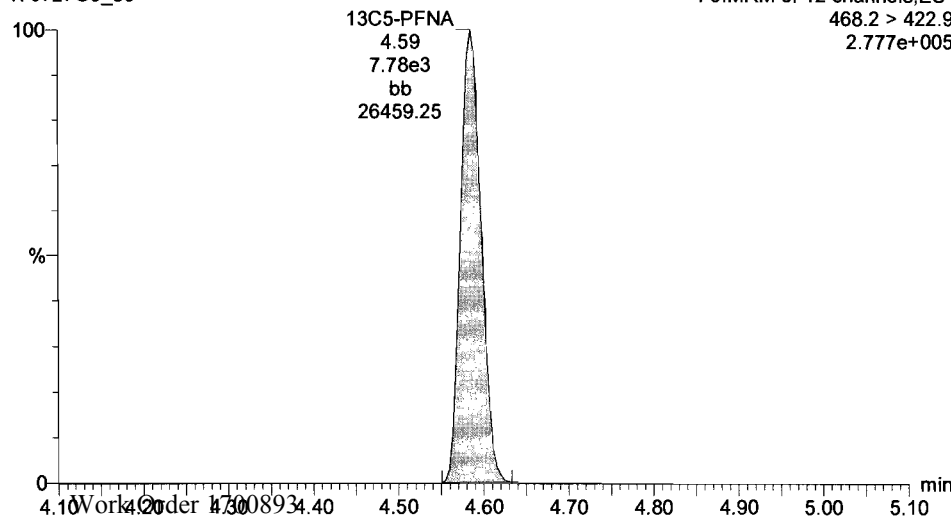
F6:MRM of 4 channels,ES-  
512.7 > 468.7  
4.519e+005



**13C5-PFNA**

170727G5\_35

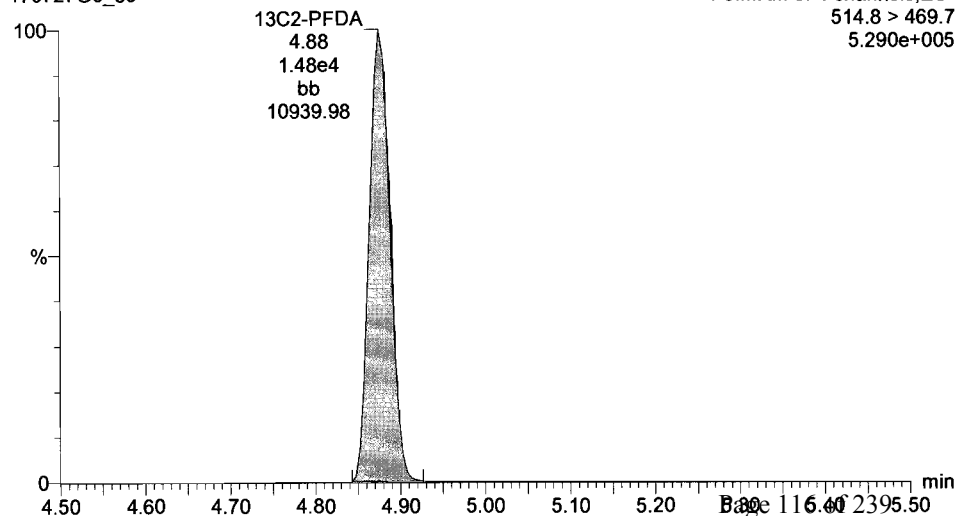
F5:MRM of 12 channels,ES-  
468.2 > 422.9  
2.777e+005



**13C2-PFDA**

170727G5\_35

F6:MRM of 4 channels,ES-  
514.8 > 469.7  
5.290e+005



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-35.qld

Last Altered:   Friday, July 28, 2017 10:06:30 Pacific Daylight Time

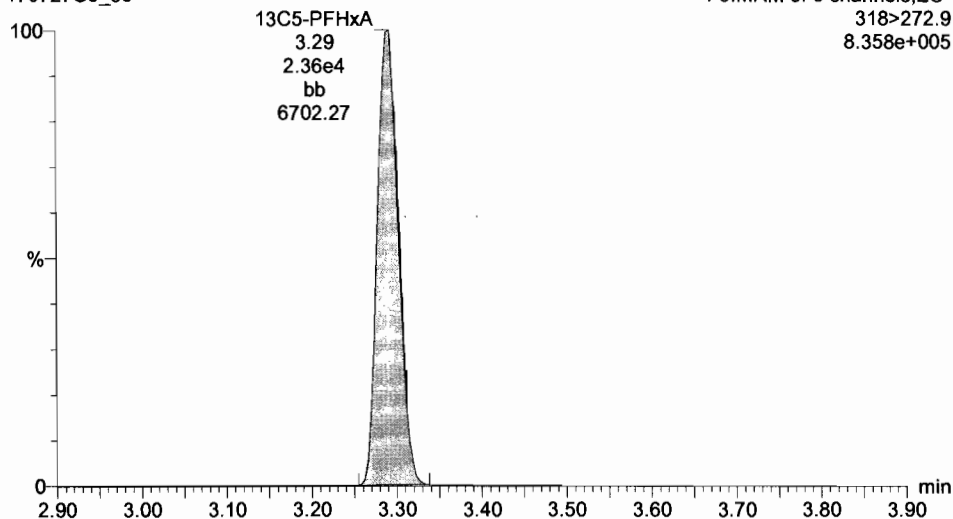
Printed:        Friday, July 28, 2017 10:07:42 Pacific Daylight Time

ID: ST170727G5-3 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G5\_35, Date: 27-Jul-2017, Time: 23:43:15, Instrument: , Lab: , User:

**13C5-PFHxA**

170727G5\_35

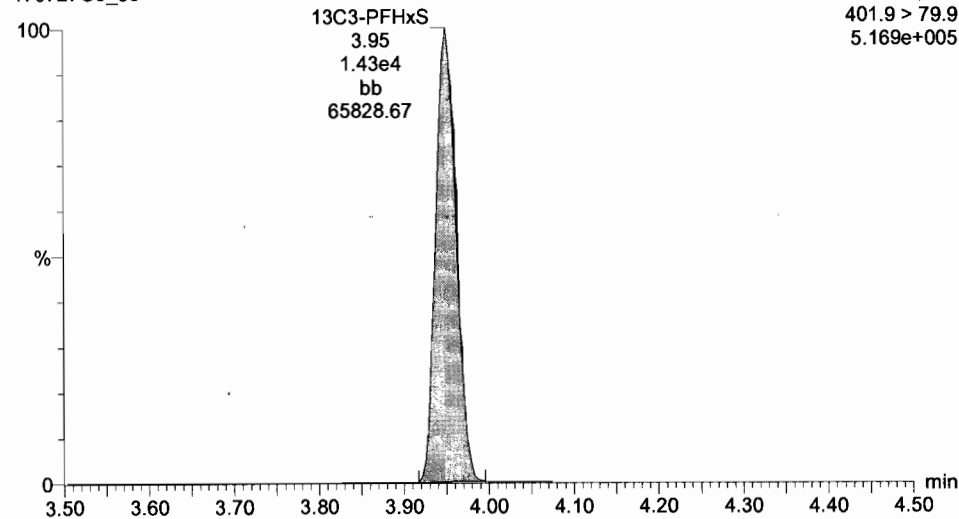
F3:MRM of 9 channels,ES-  
318>272.9  
8.358e+005



**13C3-PFHxS**

170727G5\_35

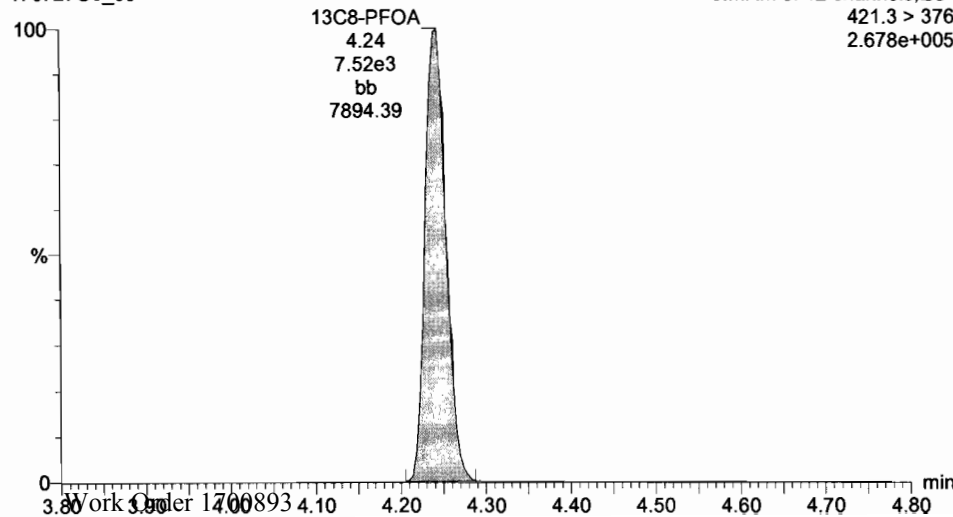
F4:MRM of 7 channels,ES-  
401.9 > 79.9  
5.169e+005



**13C8-PFOA**

170727G5\_35

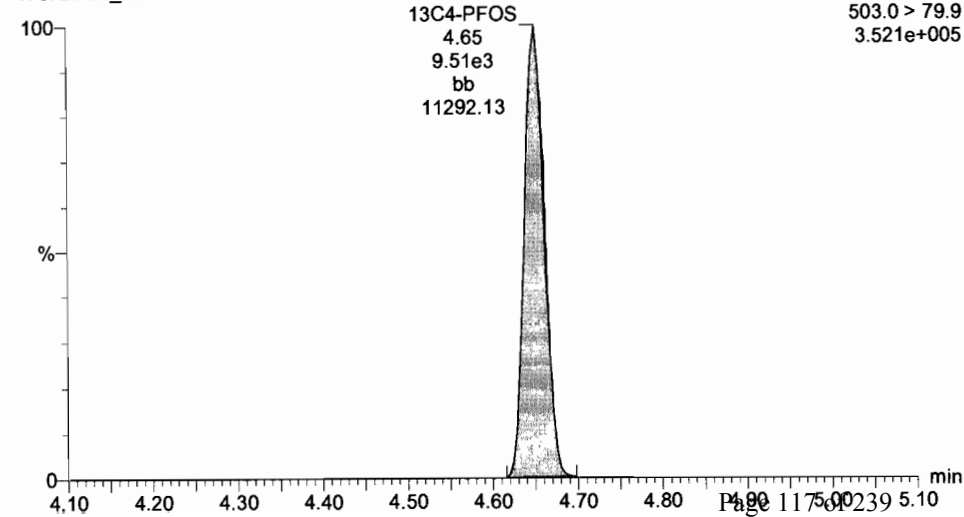
F5:MRM of 12 channels,ES-  
421.3 > 376  
2.678e+005



**13C4-PFOS**

170727G5\_35

F5:MRM of 12 channels,ES-  
503.0 > 79.9  
3.521e+005



Dataset:        U:\G1.PRO\Results\2017\170727G5\170727G5-35.qld

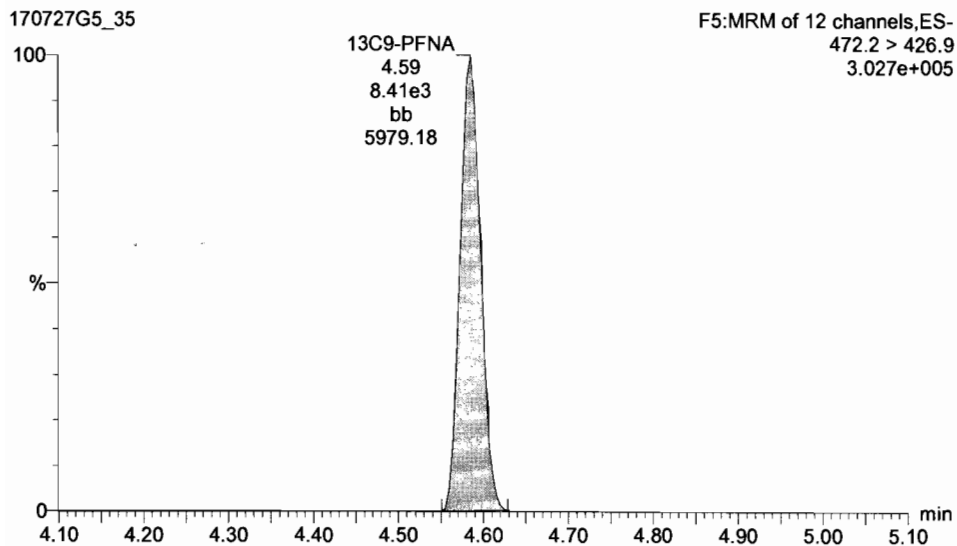
Last Altered:   Friday, July 28, 2017 10:06:30 Pacific Daylight Time

Printed:        Friday, July 28, 2017 10:07:42 Pacific Daylight Time

ID: ST170727G5-3 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G5\_35, Date: 27-Jul-2017, Time: 23:43:15, Instrument: , Lab: , User:

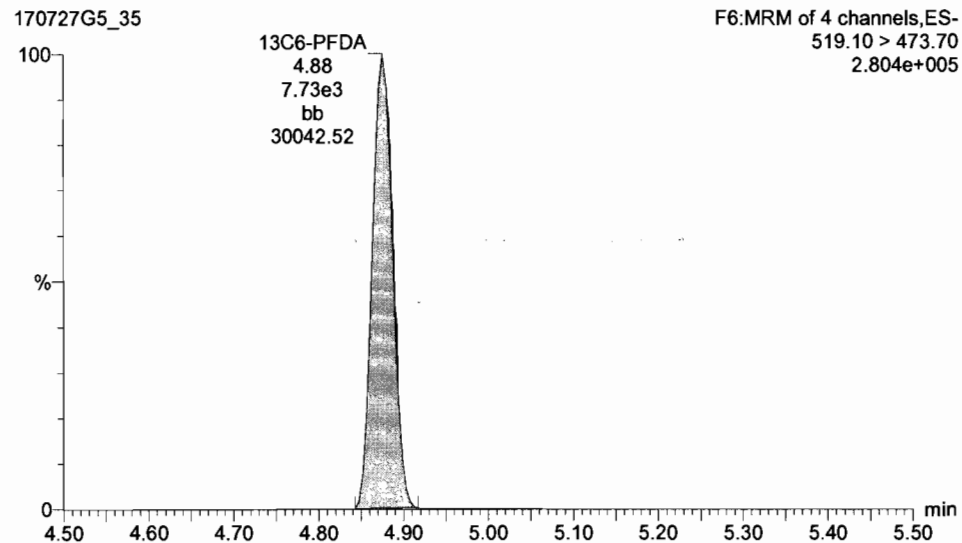
**13C9-PFNA**

170727G5\_35



**13C6-PFDA**

170727G5\_35



Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-2.qld

Last Altered: Tuesday, August 01, 2017 08:24:24 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 08:32:15 Pacific Daylight Time

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

Name: 170731G4\_2, Date: 31-Jul-2017, Time: 20:30:39, ID: ST170731G4-1 PFC CS3 17G3104, Description: PFC CS3 17G3104 A

	#	Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc.	%Rec
1	1	PFBA	212.9 > 168.9	1.49e4	3.00e4		1.000	1.65	8.23	82.3
2	2	PFPeA	263.0 > 218.8	8.53e3	1.05e4		1.000	2.61	9.19	91.9
3	3	PFBS	299.0 > 79.7	7.56e3	6.15e3		1.000	2.90	9.19	91.9
4	4	PFHxA	312.9 > 268.9	1.24e4	8.50e3		1.000	3.28	9.55	95.5
5	5	PFHpA	363 > 318.9	1.78e4	1.13e4		1.000	3.81	9.95	99.5
6	6	PFHxS	398.9 > 79.6	8.01e3	6.01e3		1.000	3.94	9.31	93.1
7	7	PFOA	413.0 > 368.7	1.59e4	2.51e4		1.000	4.24	9.80	98.0
8	8	PFNA	463.0 > 418.8	1.69e4	9.05e3		1.000	4.58	10.1	101.0
9	9	PFOS	499.0 > 79.9	4.41e3	1.15e4		1.000	4.64	10.2	101.7
10	10	PFDA	512.7 > 219.0	2.91e3	2.14e4		1.000	4.87	8.53	85.3
11	11	13C3-PFBA	215.9 > 171.8	3.00e4	1.90e4	1.183	1.000	1.65	16.7	133.8
12	12	13C3-PFBS	302.0 > 98.8	6.15e3	1.94e4	0.263	1.000	2.90	15.0	120.3
13	13	13C3-PFPeA	266.0 > 221.8	1.05e4	1.94e4	0.446	1.000	2.61	15.1	120.7
14	14	13C2-PFHxA	315.0 > 269.8	8.50e3	1.94e4	0.361	1.000	3.28	15.2	121.2
15	15	13C4-PFHpA	367.2 > 321.8	1.13e4	1.94e4	0.475	1.000	3.81	15.3	122.3
16	16	18O2-PFHxS	403 > 102.6	6.01e3	1.18e4	0.411	1.000	3.94	15.5	123.8
17	17	13C2-PFOA	414.9 > 369.7	2.51e4	6.05e3	2.843	1.000	4.24	18.3	146.0
18	18	13C5-PFNA	468.2 > 422.9	9.05e3	9.20e3	0.854	1.000	4.58	14.4	115.2
19	19	13C2-PFDA	514.8 > 469.7	2.14e4	1.00e4	1.742	1.000	4.87	15.3	122.5
20	20	13C8-PFOS	507.0 > 79.9	1.15e4	1.01e4	0.927	1.000	4.64	15.4	122.8
21	21	13C4-PFBA	216.9 > 171.8	1.90e4	1.90e4	1.000	1.000	1.64	12.5	100.0
22	22	13C5-PFHxA	318 > 272.9	1.94e4	1.94e4	1.000	1.000	3.28	12.5	100.0
23	23	13C3-PFHxS	401.9 > 79.9	1.18e4	1.18e4	1.000	1.000	3.94	12.5	100.0
24	24	13C8-PFOA	421.3 > 376	6.05e3	6.05e3	1.000	1.000	4.24	12.5	100.0
25	25	13C9-PFNA	472.2 > 426.9	9.20e3	9.20e3	1.000	1.000	4.58	12.5	100.0
26	26	13C4-PFOS	503.0 > 79.9	1.01e4	1.01e4	1.000	1.000	4.64	12.5	100.0
27	27	13C6-PFDA	519.10 > 47...	1.00e4	1.00e4	1.000	1.000	4.87	12.5	100.0

70-130

50-150

for 8/1/17

Dataset: Untitled

Last Altered: Tuesday, August 01, 2017 10:54:29 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 10:55:12 Pacific Daylight Time

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

Compound name: PFBA

	Name	ID	Acq.Date	Acq.Time
1	170731G4_1	IPA	31-Jul-17	20:18:27
2	170731G4_2	ST170731G4-1 PFC CS3 17G3104	31-Jul-17	20:30:39
3	170731G4_3	IPA	31-Jul-17	20:43:08
4	170731G4_4	1700875-01 MW-42S-20170713 0.11821	31-Jul-17	20:55:44
5	170731G4_5	IPA	31-Jul-17	21:08:14
6	170731G4_6	1700875-02 MW-14BR-20170713 0.11912	31-Jul-17	21:20:49
7	170731G4_7	1700875-03 MW-51BR-20170713 0.11822	31-Jul-17	21:33:19
8	170731G4_8	IPA	31-Jul-17	21:45:53
9	170731G4_9	1700875-04 DUP-06-20170713 0.11793	31-Jul-17	21:58:27
10	170731G4_10	IPA	31-Jul-17	22:11:00
11	170731G4_11	1700875-05 MW-11S-20170713 0.11994	31-Jul-17	22:23:32
12	170731G4_12	IPA	31-Jul-17	22:36:12
13	170731G4_13	1700884-01 MW-37BR-20170714 0.11935	31-Jul-17	22:48:39
14	170731G4_14	1700884-02 MW-32BR-20170714 0.11989	31-Jul-17	23:01:11
15	170731G4_15	1700884-03 MW-35S-20170714 0.11984	31-Jul-17	23:13:44
16	170731G4_16	1700884-04 FRB-02-20170714 0.11984	31-Jul-17	23:26:13
17	170731G4_17	1700893-04RE1 OUA1-HS03-20170717 0.105...	31-Jul-17	23:38:46
18	170731G4_18	1700893-05RE1 OUA1-HS03A-20170717 0.11...	31-Jul-17	23:51:19
19	170731G4_19	IPA	01-Aug-17	00:03:53
20	170731G4_20	ST170731G4-2 PFC CS3 17G3104	01-Aug-17	00:16:27
21	170731G4_21	IPA	01-Aug-17	00:28:57
22	170731G4_22	1700889-08RE1 EWTU07-01000 0.12104	01-Aug-17	00:41:39
23	170731G4_23	1700875-01@5X MW-42S-20170713 0.11821	01-Aug-17	00:54:06
24	170731G4_24	1700875-03@5X MW-51BR-20170713 0.11822	01-Aug-17	01:06:41
25	170731G4_25	1700875-04@5X DUP-06-20170713 0.11793	01-Aug-17	01:19:15
26	170731G4_26	1700875-05@30X MW-11S-20170713 0.11994	01-Aug-17	01:31:48
27	170731G4_27	1700888-12RE1@10X HARRI-02-GW-TW01-...	01-Aug-17	01:44:16
28	170731G4_28	1700893-03RE1@5X OUA1-MW08-20170717...	01-Aug-17	01:57:03
29	170731G4_29	1700893-04RE1@5X OUA1-HS03-20170717 ...	01-Aug-17	02:09:24
30	170731G4_30	B7G0106-MS2@5X Matrix Spike 0.125	01-Aug-17	02:21:59
31	170731G4_31	B7G0106-MSD2@5X Matrix Spike Dup 0.125	01-Aug-17	02:34:34



Dataset:        Untitled

Last Altered:    Tuesday, August 01, 2017 10:54:29 Pacific Daylight Time

Printed:        Tuesday, August 01, 2017 10:55:12 Pacific Daylight Time

Compound name: PFBA

	Name	ID	Acq.Date	Acq.Time
32	170731G4_32	1700893-05RE1@5X OUA1-HS03A-20170717...	01-Aug-17	02:47:03
33	170731G4_33	1700907-10RE1@20X AT028-DUP-01-071717...	01-Aug-17	02:59:36
34	170731G4_34	IPA	01-Aug-17	03:12:10
35	170731G4_35	ST170731G4-3 PFC CS3 17G3104	01-Aug-17	03:24:41
36	170731G4_36	IPA	01-Aug-17	03:37:12

# LC Calibration Standards Review Checklist 01

Calibration ID:		ION Ratio	Concentration	C-Cals Name	Sign Date	Correct I-Cal	Manual Integrations	
ST17073164-1	<u>(M)</u> H	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>NA</u>
↓ -2	<u>(M)</u> H	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
↓ -3	<u>(M)</u> H	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Calibration ID:	L M H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Calibration ID:	L M H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Calibration ID:	L M H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Calibration ID:	L M H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Calibration ID:	L M H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Calibration ID:	L M H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Calibration ID:	L M H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Calibration ID:	L M H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Full Mass Cal. Date: 4/5/17

Run Log Present: ☒

# of Samples per Sequence Checked: ☒

Reviewed By: dm 8/1/17  
Initials/Date

**Comments:**

A

L16 2trans

Ⓐ 13C2-PEOA out of limit criteria. dm 8/1/17

Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-2.qld

Last Altered: Tuesday, August 01, 2017 08:24:24 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 08:31:55 Pacific Daylight Time

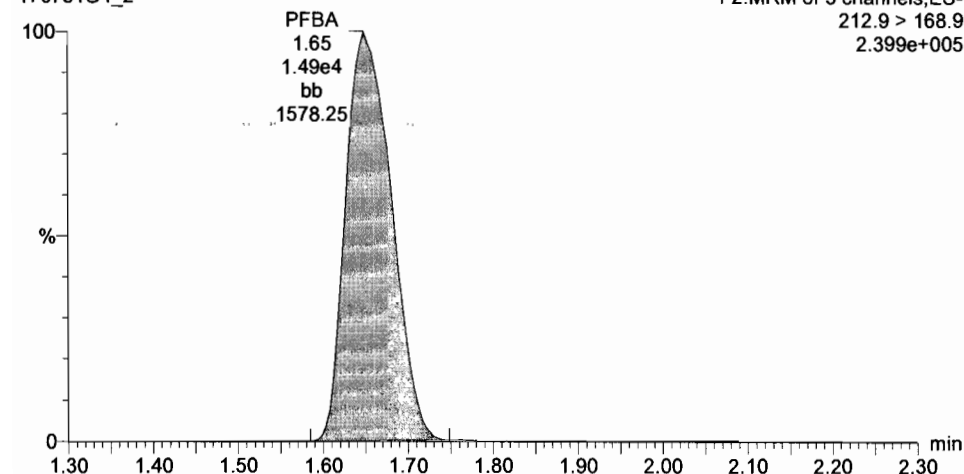
Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: ST170731G4-1 PFC CS3 17G3104, Description: PFC CS3 17G3104 A, Name: 170731G4\_2, Date: 31-Jul-2017, Time: 20:30:39, Instrument: , Lab: , User:

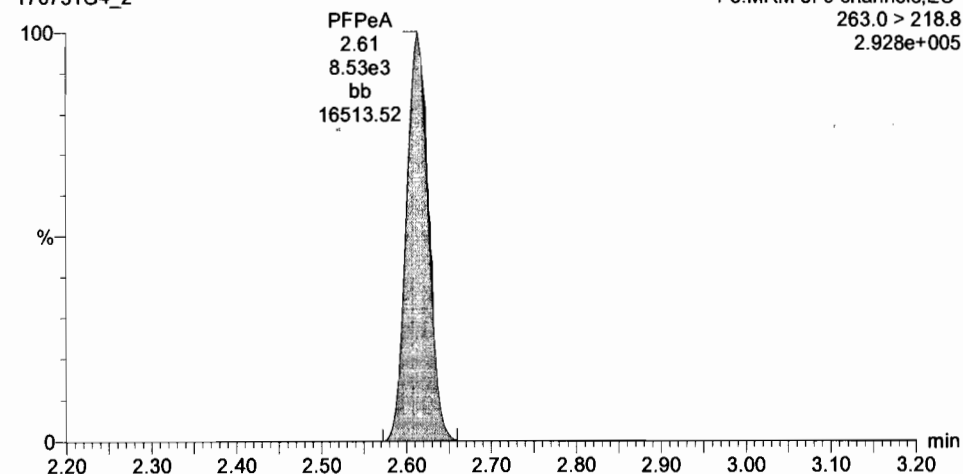
**PFBA**

170731G4\_2



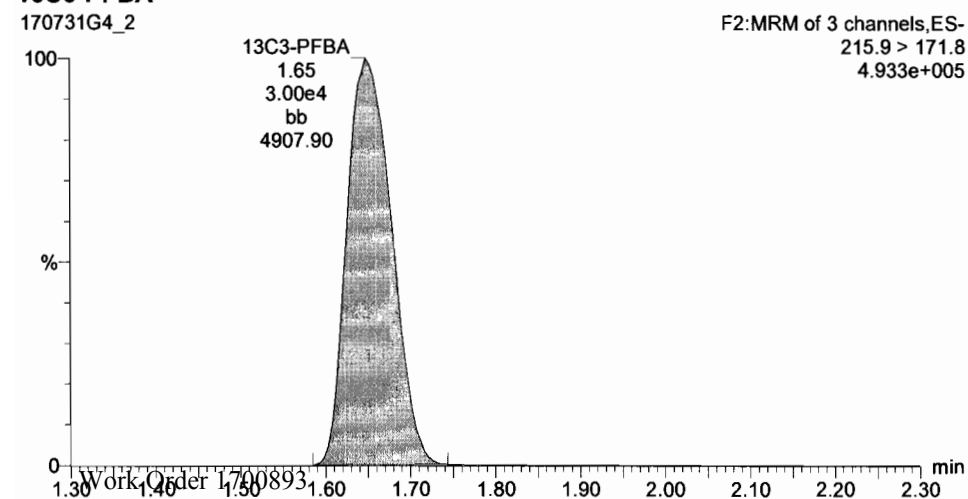
**PFPeA**

170731G4\_2



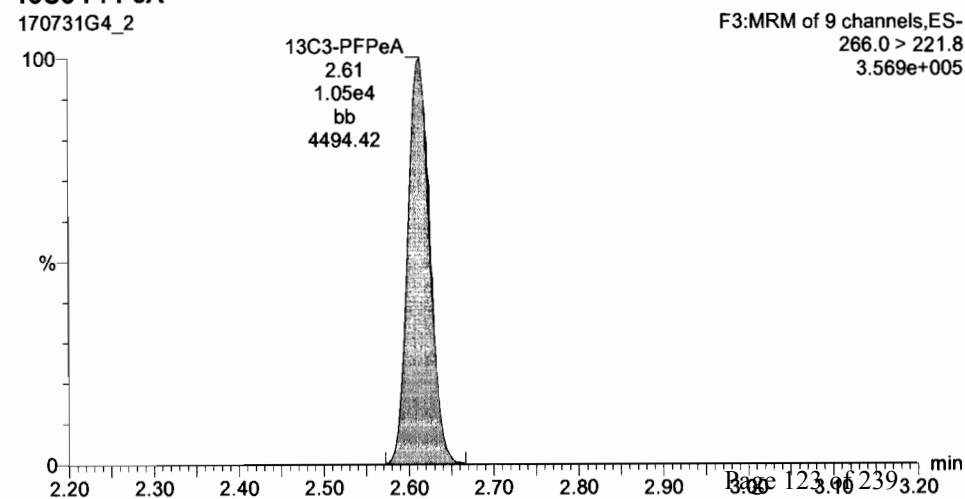
**13C3-PFBA**

170731G4\_2



**13C3-PFPeA**

170731G4\_2



Dataset:      U:\G1.PRO\Results\2017\170731G4\170731G4-2.qld

Last Altered:    Tuesday, August 01, 2017 08:24:24 Pacific Daylight Time

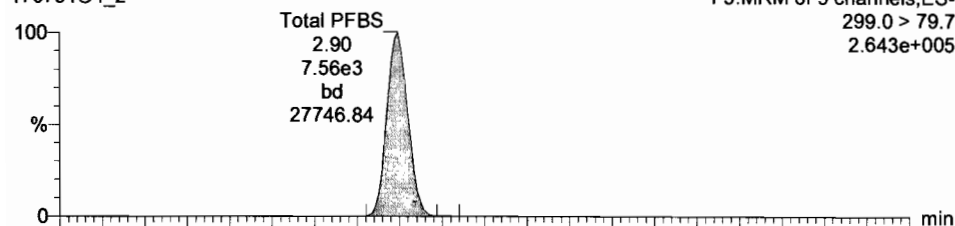
Printed:        Tuesday, August 01, 2017 08:31:55 Pacific Daylight Time

ID: ST170731G4-1 PFC CS3 17G3104, Description: PFC CS3 17G3104 A, Name: 170731G4\_2, Date: 31-Jul-2017, Time: 20:30:39, Instrument: , Lab: , User:

**Total PFBS**

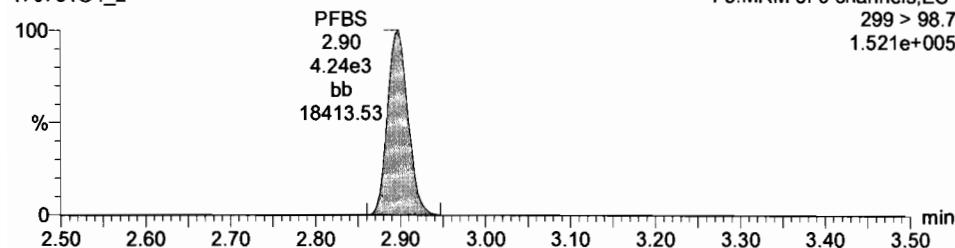
170731G4\_2

F3:MRM of 9 channels,ES-  
299.0 > 79.7  
2.643e+005



170731G4\_2

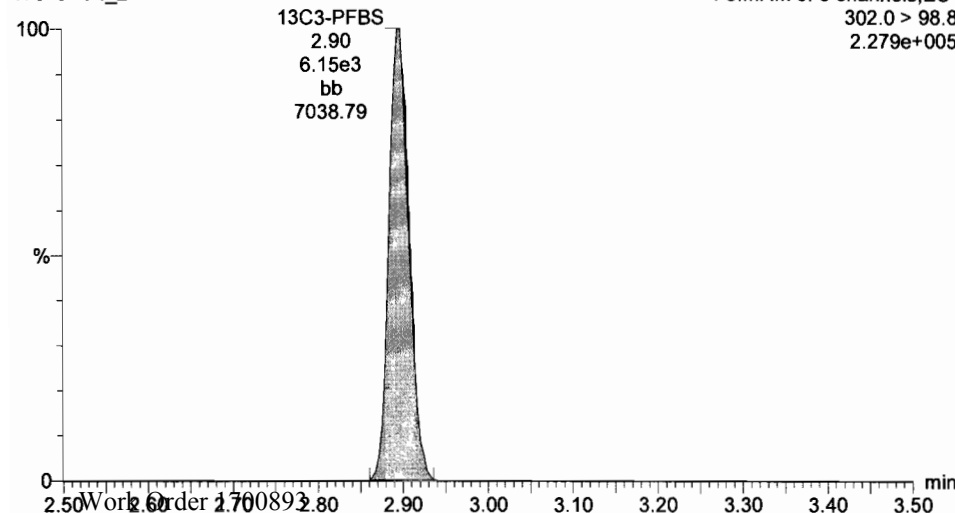
F3:MRM of 9 channels,ES-  
299 > 98.7  
1.521e+005



**13C3-PFBS**

170731G4\_2

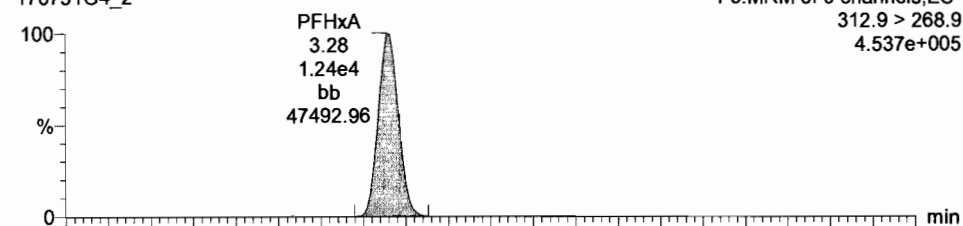
F3:MRM of 9 channels,ES-  
302.0 > 98.8  
2.279e+005



**PFHxA**

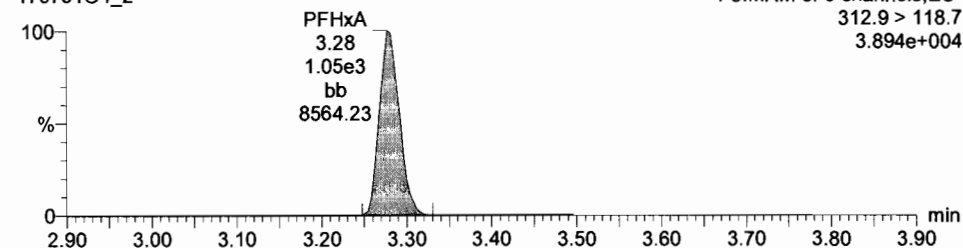
170731G4\_2

F3:MRM of 9 channels,ES-  
312.9 > 268.9  
4.537e+005



170731G4\_2

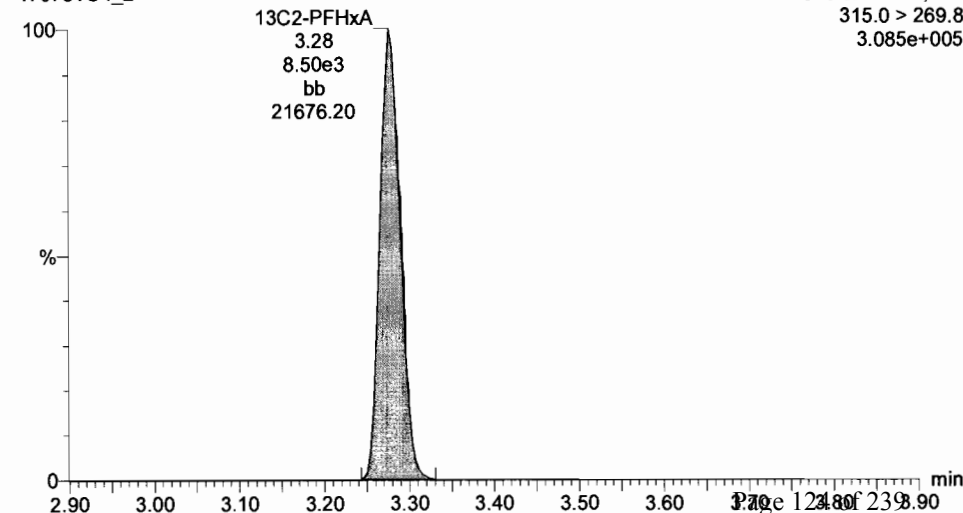
F3:MRM of 9 channels,ES-  
312.9 > 118.7  
3.894e+004



**13C2-PFHxA**

170731G4\_2

F3:MRM of 9 channels,ES-  
315.0 > 269.8  
3.085e+005



Dataset:      U:\G1.PRO\Results\2017\170731G4\170731G4-2.qld

Last Altered:    Tuesday, August 01, 2017 08:24:24 Pacific Daylight Time

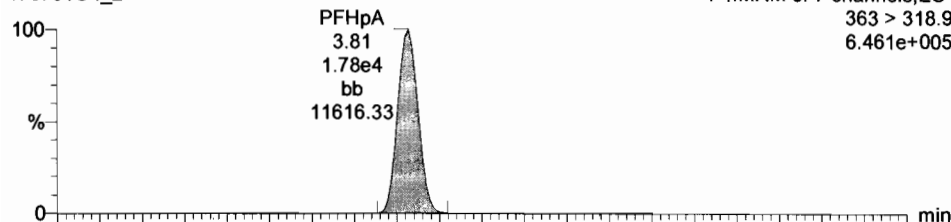
Printed:        Tuesday, August 01, 2017 08:31:55 Pacific Daylight Time

ID: ST170731G4-1 PFC CS3 17G3104, Description: PFC CS3 17G3104 A, Name: 170731G4\_2, Date: 31-Jul-2017, Time: 20:30:39, Instrument: , Lab: , User:

**PFHpA**

170731G4\_2

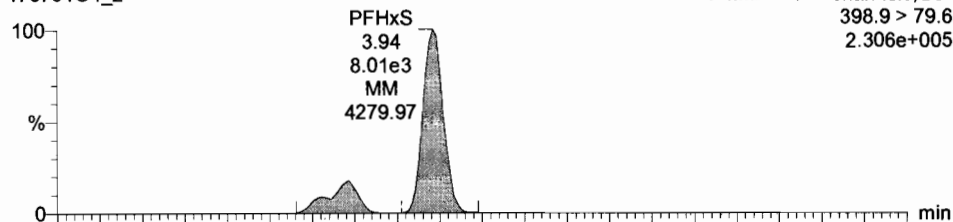
F4:MRM of 7 channels,ES-  
363 > 318.9  
6.461e+005



**Total PFHxS**

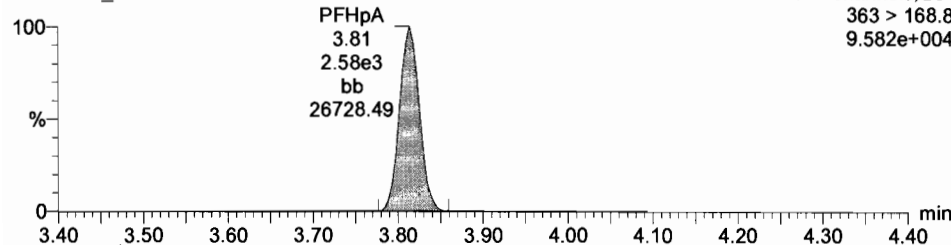
170731G4\_2

F4:MRM of 7 channels,ES-  
398.9 > 79.6  
2.306e+005



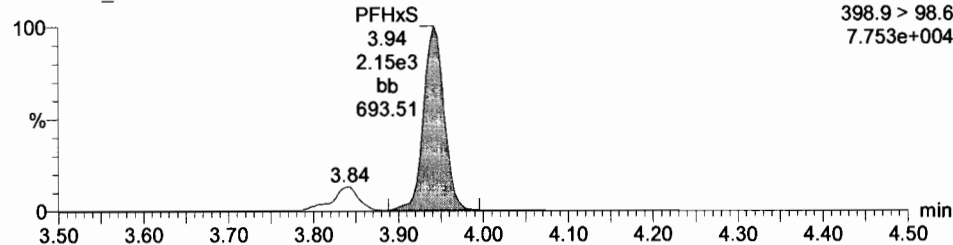
170731G4\_2

F4:MRM of 7 channels,ES-  
363 > 168.8  
9.582e+004



170731G4\_2

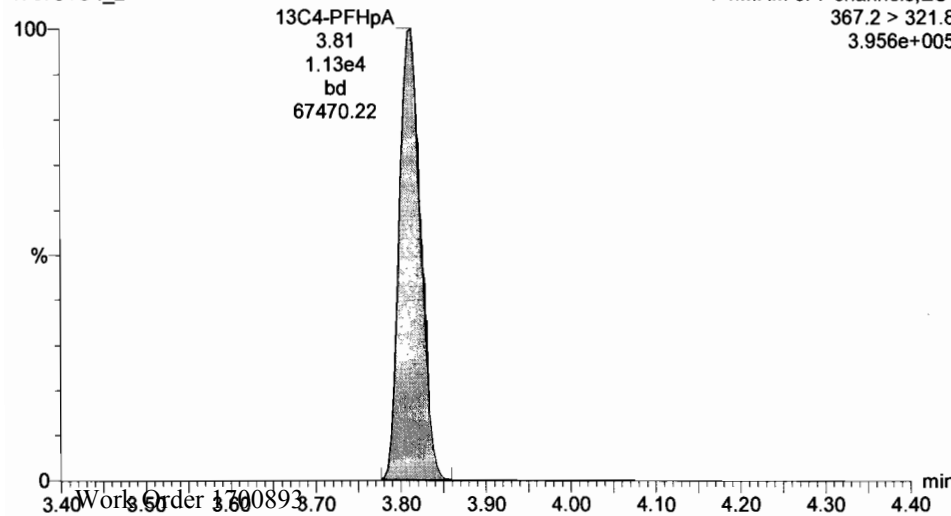
F4:MRM of 7 channels,ES-  
398.9 > 98.6  
7.753e+004



**13C4-PFHpA**

170731G4\_2

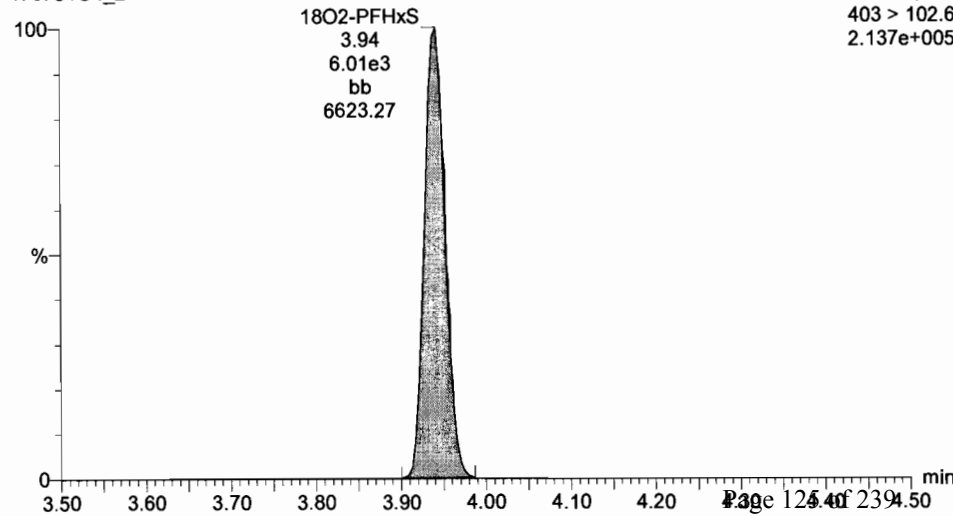
F4:MRM of 7 channels,ES-  
367.2 > 321.8  
3.956e+005



**18O2-PFHxS**

170731G4\_2

F4:MRM of 7 channels,ES-  
403 > 102.6  
2.137e+005



Dataset:      U:\G1.PRO\Results\2017\170731G4\170731G4-2.qld

Last Altered:    Tuesday, August 01, 2017 08:24:24 Pacific Daylight Time

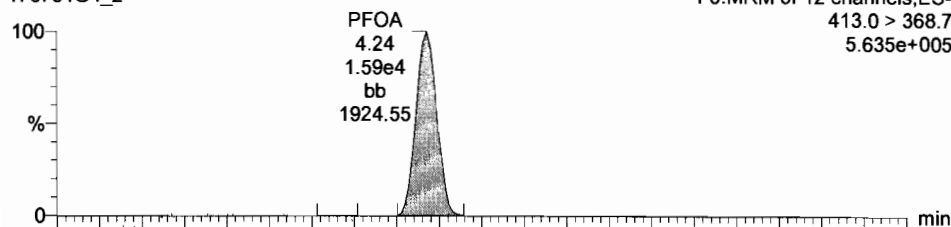
Printed:        Tuesday, August 01, 2017 08:31:55 Pacific Daylight Time

ID: ST170731G4-1 PFC CS3 17G3104, Description: PFC CS3 17G3104 A, Name: 170731G4\_2, Date: 31-Jul-2017, Time: 20:30:39, Instrument: , Lab: , User:

**Total PFOA**

170731G4\_2

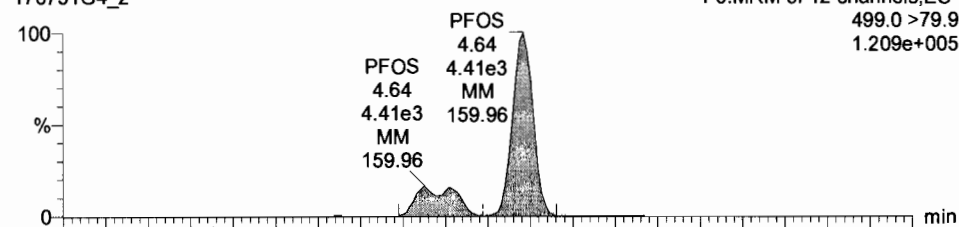
F5:MRM of 12 channels,ES-  
413.0 > 368.7  
5.635e+005



**Total PFOS**

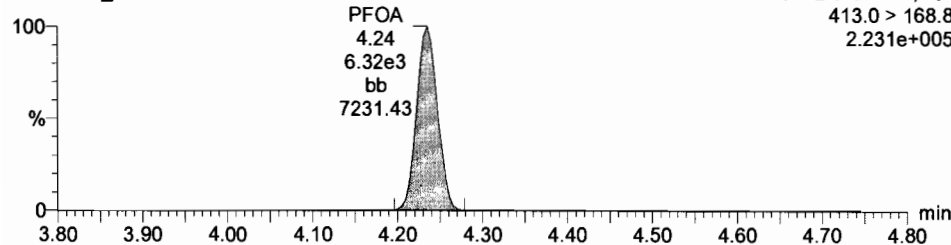
170731G4\_2

F5:MRM of 12 channels,ES-  
499.0 > 79.9  
1.209e+005



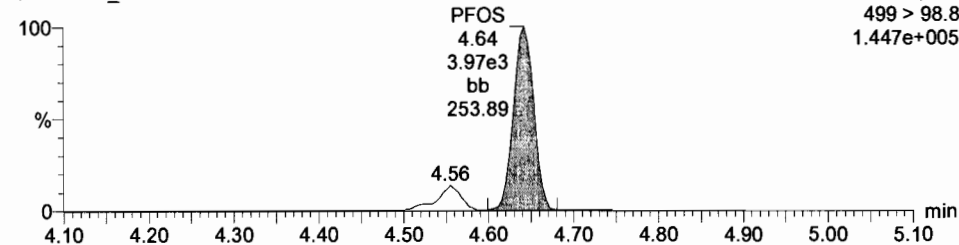
170731G4\_2

F5:MRM of 12 channels,ES-  
413.0 > 168.8  
2.231e+005



170731G4\_2

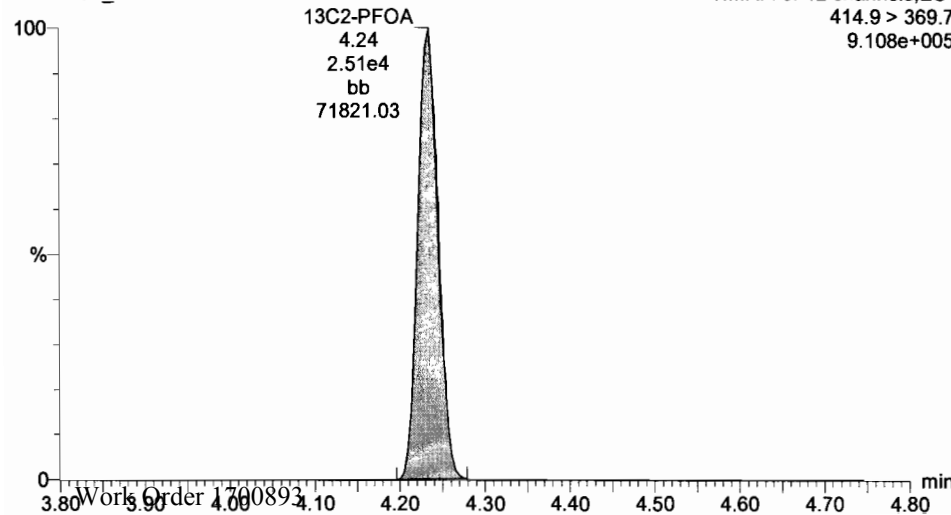
F5:MRM of 12 channels,ES-  
499 > 98.8  
1.447e+005



**13C2-PFOA**

170731G4\_2

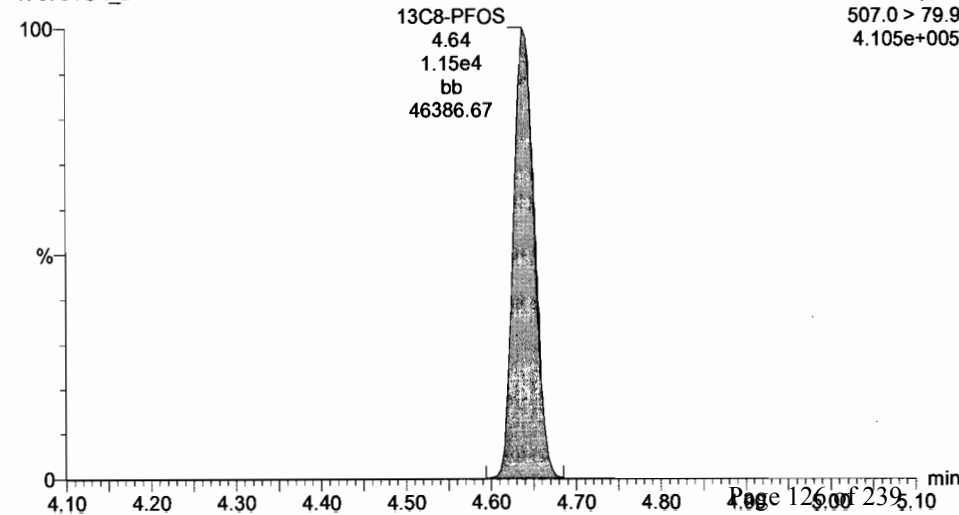
F5:MRM of 12 channels,ES-  
414.9 > 369.7  
9.108e+005



**13C8-PFOS**

170731G4\_2

F5:MRM of 12 channels,ES-  
507.0 > 79.9  
4.105e+005



Dataset:        U:\G1.PRO\Results\2017\170731G4\170731G4-2.qld

Last Altered:   Tuesday, August 01, 2017 08:24:24 Pacific Daylight Time

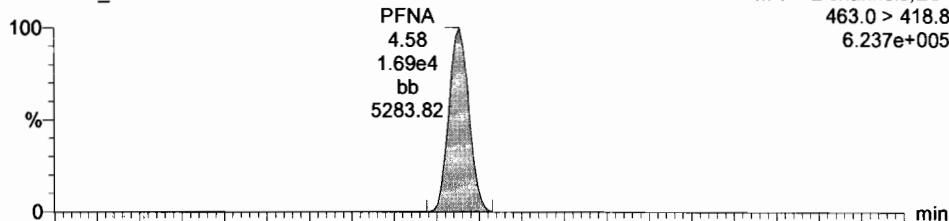
Printed:        Tuesday, August 01, 2017 08:31:55 Pacific Daylight Time

ID: ST170731G4-1 PFC CS3 17G3104, Description: PFC CS3 17G3104 A, Name: 170731G4\_2, Date: 31-Jul-2017, Time: 20:30:39, Instrument: , Lab: , User:

**PFNA**

170731G4\_2

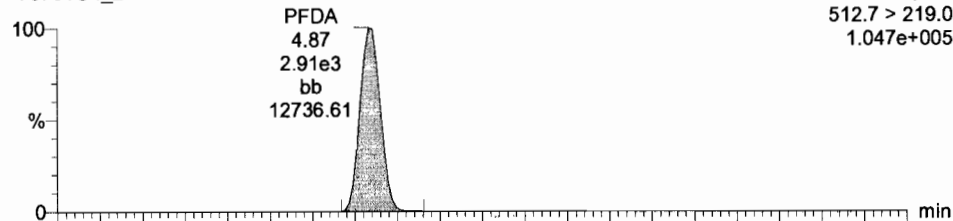
F5:MRM of 12 channels,ES-  
463.0 > 418.8  
6.237e+005



**PFDA**

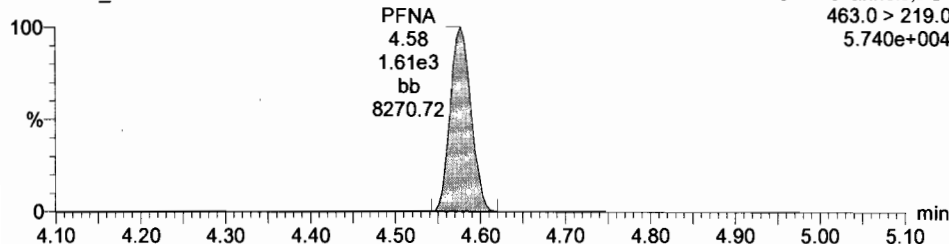
170731G4\_2

F6:MRM of 4 channels,ES-  
512.7 > 219.0  
1.047e+005



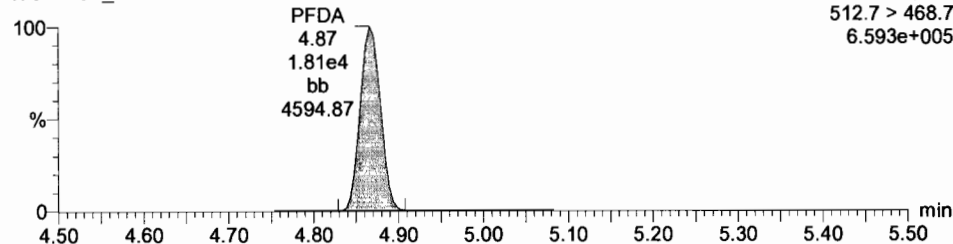
170731G4\_2

F5:MRM of 12 channels,ES-  
463.0 > 219.0  
5.740e+004



170731G4\_2

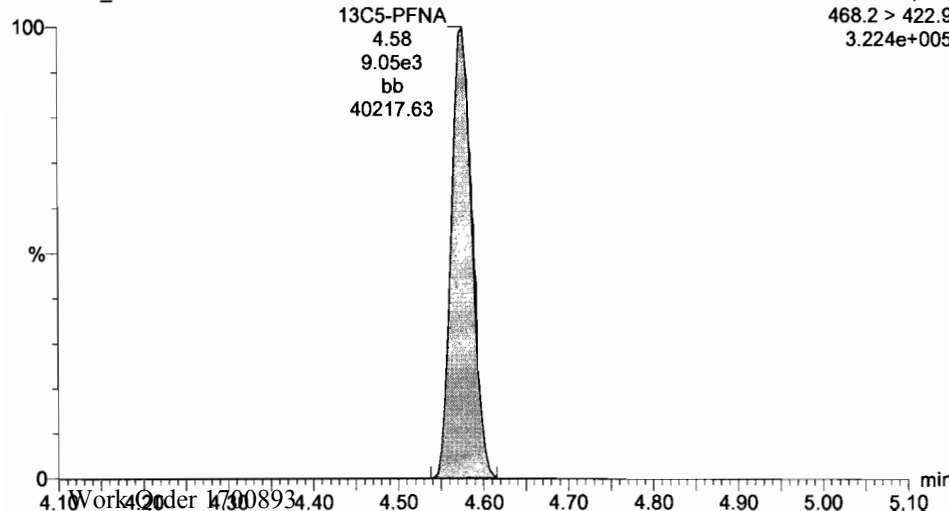
F6:MRM of 4 channels,ES-  
512.7 > 468.7  
6.593e+005



**13C5-PFNA**

170731G4\_2

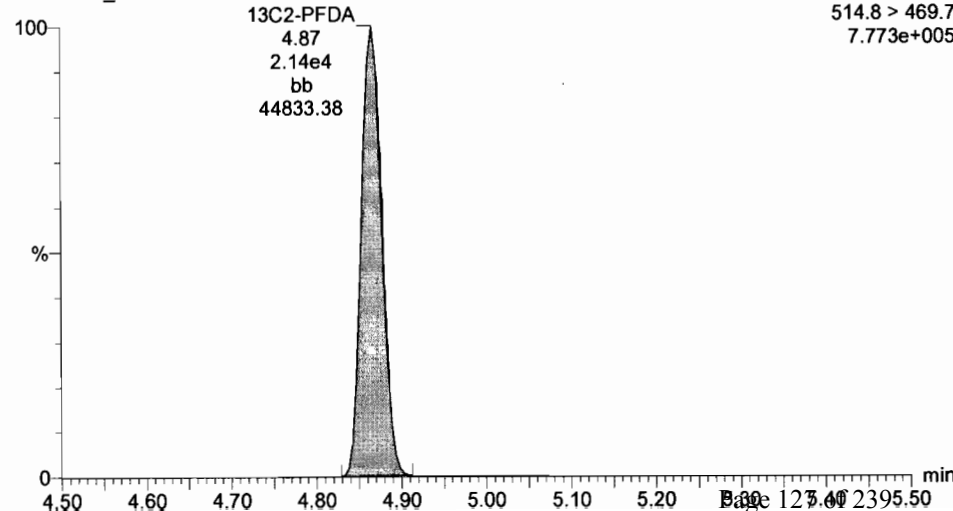
F5:MRM of 12 channels,ES-  
468.2 > 422.9  
3.224e+005



**13C2-PFDA**

170731G4\_2

F6:MRM of 4 channels,ES-  
514.8 > 469.7  
7.773e+005



Dataset:      U:\G1.PRO\Results\2017\170731G4\170731G4-2.qld

Last Altered:    Tuesday, August 01, 2017 08:24:24 Pacific Daylight Time

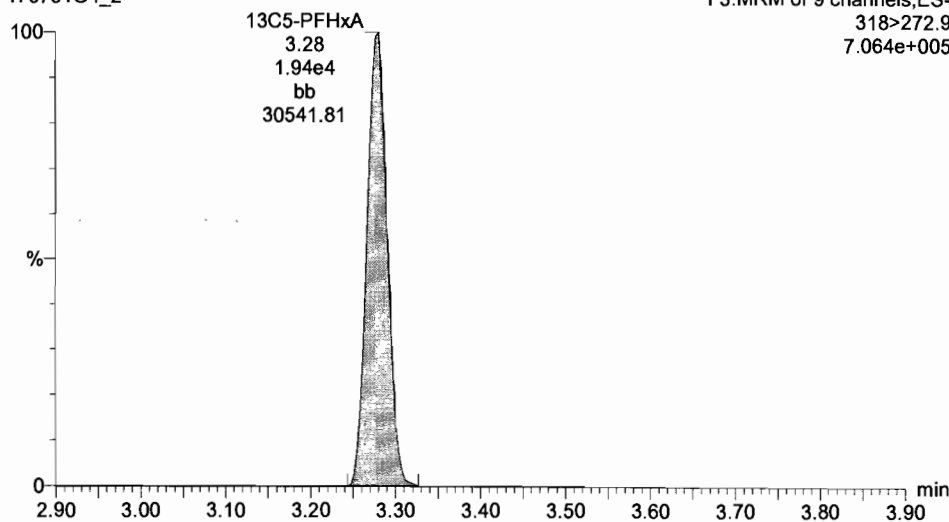
Printed:        Tuesday, August 01, 2017 08:31:55 Pacific Daylight Time

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**13C5-PFHxA**

170731G4\_2

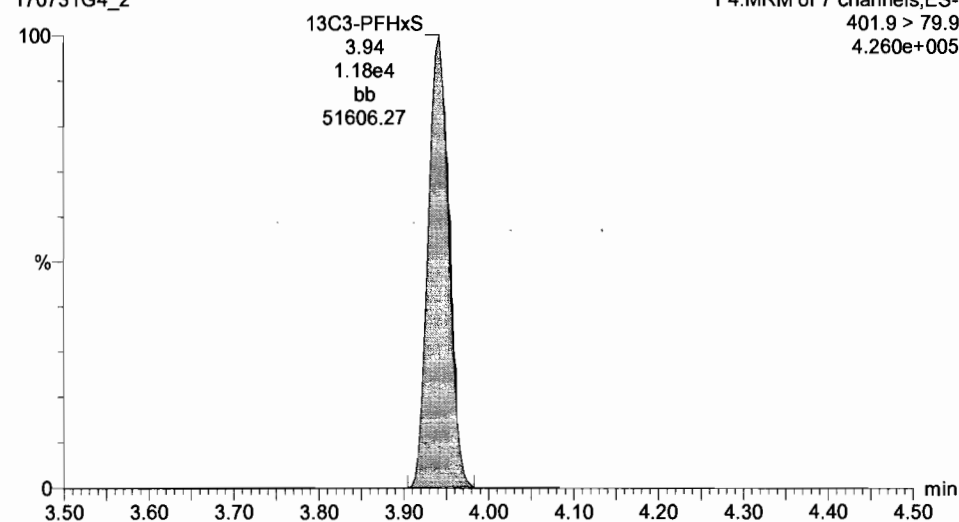
F3:MRM of 9 channels,ES-  
318>272.9  
7.064e+005



**13C3-PFHxS**

170731G4\_2

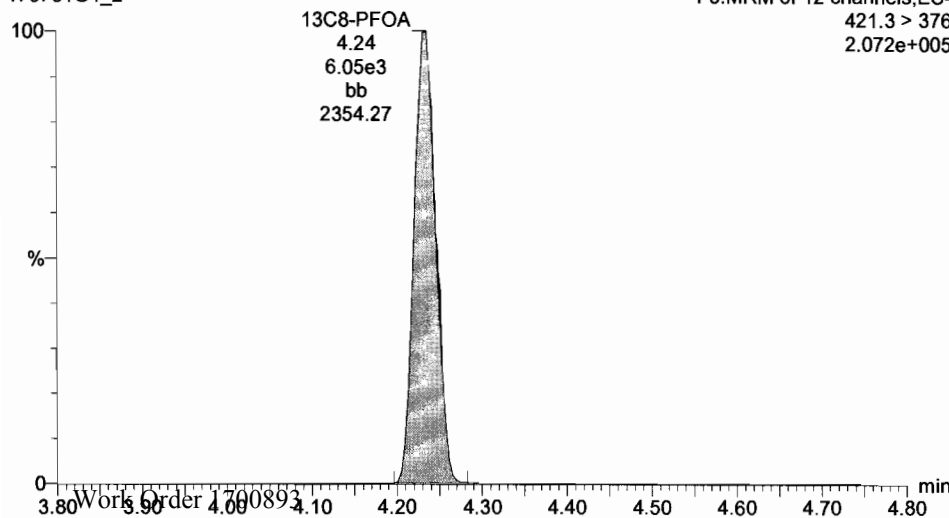
F4:MRM of 7 channels,ES-  
401.9 > 79.9  
4.260e+005



**13C8-PFOA**

170731G4\_2

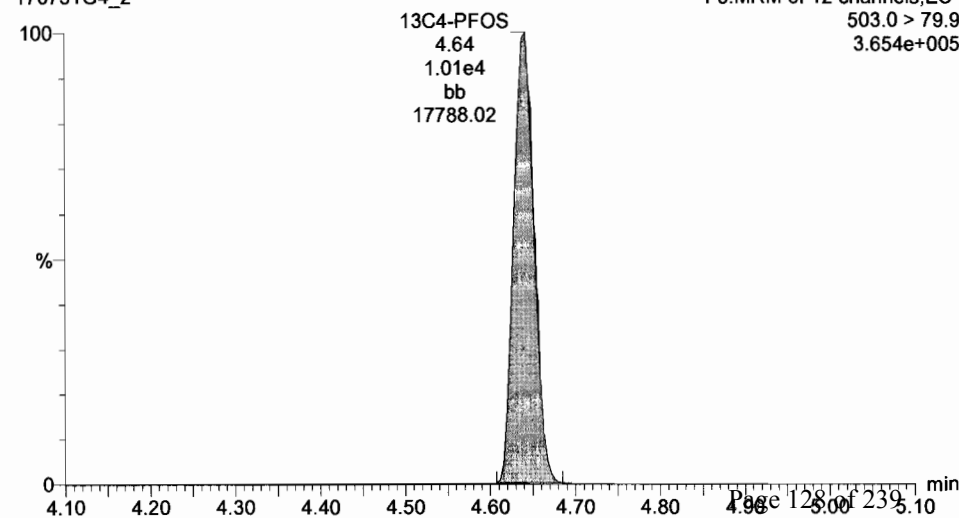
F5:MRM of 12 channels,ES-  
421.3 > 376  
2.072e+005



**13C4-PFOS**

170731G4\_2

F5:MRM of 12 channels,ES-  
503.0 > 79.9  
3.654e+005





Dataset:        U:\G1.PRO\Results\2017\170731G4\170731G4-2.qld

Last Altered:   Tuesday, August 01, 2017 08:24:24 Pacific Daylight Time

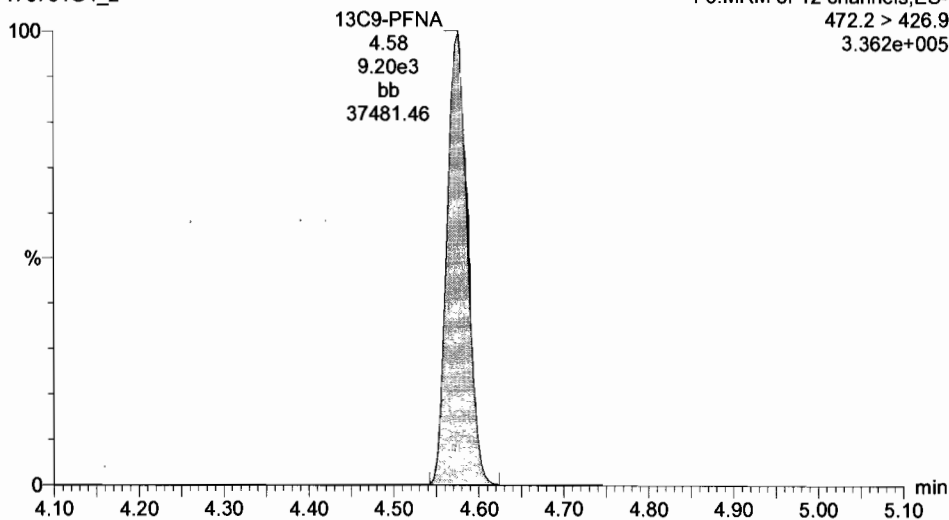
Printed:        Tuesday, August 01, 2017 08:31:55 Pacific Daylight Time

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**13C9-PFNA**

170731G4\_2

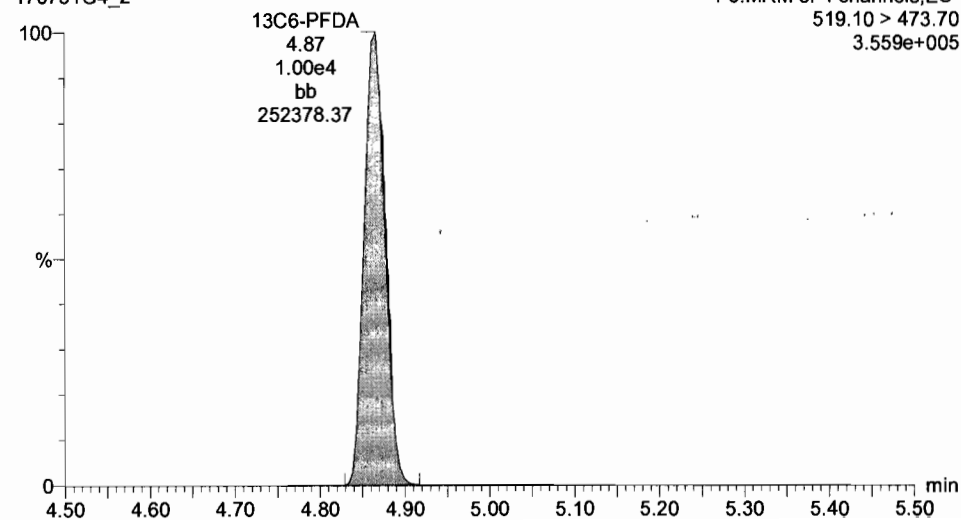
F5:MRM of 12 channels,ES-  
472.2 > 426.9  
3.362e+005



**13C6-PFDA**

170731G4\_2

F6:MRM of 4 channels,ES-  
519.10 > 473.70  
3.559e+005



Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-20.qld

Last Altered: Tuesday, August 01, 2017 08:32:52 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 08:33:37 Pacific Daylight Time

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

Name: 170731G4\_20, Date: 01-Aug-2017, Time: 00:16:27, ID: ST170731G4-2 PFC CS3 17G3104, Description: PFC CS3 17G3104 A

	# Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc.	%Rec
1	1 PFBA	212.9 > 168.9	1.44e4	3.11e4		1.000	1.66	7.69	76.9
2	2 PFPeA	263.0 > 218.8	8.38e3	1.01e4		1.000	2.62	9.41	94.1
3	3 PFBS	299.0 > 79.7	7.40e3	6.04e3		1.000	2.90	9.16	91.6
4	4 PFHxA	312.9 > 268.9	1.22e4	9.06e3		1.000	3.28	8.80	88.0
5	5 PFHpA	363 > 318.9	1.77e4	1.09e4		1.000	3.81	10.3	103.1
6	6 PFHxS	398.9 > 79.6	8.04e3	5.66e3		1.000	3.94	9.92	99.2
7	7 PFOA	413.0 > 368.7	1.50e4	2.55e4		1.000	4.24	9.10	91.0
8	8 PFNA	463.0 > 418.8	1.57e4	9.02e3		1.000	4.58	9.39	93.9
9	9 PFOS	499.0 > 79.9	4.14e3	1.07e4		1.000	4.65	10.2	102.3
10	10 PFDA	512.7 > 219.0	2.84e3	2.08e4		1.000	4.88	8.55	85.5
11	11 13C3-PFBA	215.9 > 171.8	3.11e4	1.93e4	1.183	1.000	1.66	17.0	136.1
12	12 13C3-PFBS	302.0 > 98.8	6.04e3	1.97e4	0.263	1.000	2.90	14.6	116.9
13	13 13C3-PFPeA	266.0 > 221.8	1.01e4	1.97e4	0.446	1.000	2.62	14.4	114.8
14	14 13C2-PFHxA	315.0 > 269.8	9.06e3	1.97e4	0.361	1.000	3.28	16.0	127.8
15	15 13C4-PFHpA	367.2 > 321.8	1.09e4	1.97e4	0.475	1.000	3.81	14.6	116.6
16	16 18O2-PFHxS	403 > 102.6	5.66e3	1.09e4	0.411	1.000	3.94	15.8	126.8
17	17 13C2-PFOA	414.9 > 369.7	2.55e4	6.21e3	2.843	1.000	4.24	18.1	144.6
18	18 13C5-PFNA	468.2 > 422.9	9.02e3	8.42e3	0.854	1.000	4.58	15.7	125.6
19	19 13C2-PFDA	514.8 > 469.7	2.08e4	9.12e3	1.742	1.000	4.87	16.4	130.8
20	20 13C8-PFOS	507.0 > 79.9	1.07e4	9.64e3	0.927	1.000	4.65	15.0	119.8
21	21 13C4-PFBA	216.9 > 171.8	1.93e4	1.93e4	1.000	1.000	1.66	12.5	100.0
22	22 13C5-PFHxA	318 > 272.9	1.97e4	1.97e4	1.000	1.000	3.28	12.5	100.0
23	23 13C3-PFHxS	401.9 > 79.9	1.09e4	1.09e4	1.000	1.000	3.94	12.5	100.0
24	24 13C8-PFOA	421.3 > 376	6.21e3	6.21e3	1.000	1.000	4.24	12.5	100.0
25	25 13C9-PFNA	472.2 > 426.9	8.42e3	8.42e3	1.000	1.000	4.58	12.5	100.0
26	26 13C4-PFOS	503.0 > 79.9	9.64e3	9.64e3	1.000	1.000	4.65	12.5	100.0
27	27 13C6-PFDA	519.10 > 47...	9.12e3	9.12e3	1.000	1.000	4.87	12.5	100.0

70-130

50-150

8/1/17

Dataset: Untitled

Last Altered: Tuesday, August 01, 2017 10:54:29 Pacific Daylight Time  
Printed: Tuesday, August 01, 2017 10:55:12 Pacific Daylight Time

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17  
Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

Compound name: PFBA

Name	ID	Acq.Date	Acq.Time
170731G4_1	IPA	31-Jul-17	20:18:27
170731G4_2	ST170731G4-1 PFC CS3 17G3104	31-Jul-17	20:30:39
170731G4_3	IPA	31-Jul-17	20:43:08
170731G4_4	1700875-01 MW-42S-20170713 0.11821	31-Jul-17	20:55:44
170731G4_5	IPA	31-Jul-17	21:08:14
170731G4_6	1700875-02 MW-14BR-20170713 0.11912	31-Jul-17	21:20:49
170731G4_7	1700875-03 MW-51BR-20170713 0.11822	31-Jul-17	21:33:19
170731G4_8	IPA	31-Jul-17	21:45:53
170731G4_9	1700875-04 DUP-06-20170713 0.11793	31-Jul-17	21:58:27
170731G4_10	IPA	31-Jul-17	22:11:00
170731G4_11	1700875-05 MW-11S-20170713 0.11994	31-Jul-17	22:23:32
170731G4_12	IPA	31-Jul-17	22:36:12
170731G4_13	1700884-01 MW-37BR-20170714 0.11935	31-Jul-17	22:48:39
170731G4_14	1700884-02 MW-32BR-20170714 0.11989	31-Jul-17	23:01:11
170731G4_15	1700884-03 MW-35S-20170714 0.11984	31-Jul-17	23:13:44
170731G4_16	1700884-04 FRB-02-20170714 0.11984	31-Jul-17	23:26:13
170731G4_17	1700893-04RE1 OUA1-HS03-20170717 0.105...	31-Jul-17	23:38:46
170731G4_18	1700893-05RE1 OUA1-HS03A-20170717 0.11...	31-Jul-17	23:51:19
170731G4_19	IPA	01-Aug-17	00:03:53
170731G4_20	ST170731G4-2 PFC CS3 17G3104	01-Aug-17	00:16:27
170731G4_21	IPA	01-Aug-17	00:28:57
170731G4_22	1700889-08RE1 EWTU07-01000 0.12104	01-Aug-17	00:41:39
170731G4_23	1700875-01@5X MW-42S-20170713 0.11821	01-Aug-17	00:54:06
170731G4_24	1700875-03@5X MW-51BR-20170713 0.11822	01-Aug-17	01:06:41
170731G4_25	1700875-04@5X DUP-06-20170713 0.11793	01-Aug-17	01:19:15
170731G4_26	1700875-05@30X MW-11S-20170713 0.11994	01-Aug-17	01:31:48
170731G4_27	1700888-12RE1@10X HARRI-02-GW-TW01-...	01-Aug-17	01:44:16
170731G4_28	1700893-03RE1@5X OUA1-MW08-20170717...	01-Aug-17	01:57:03
170731G4_29	1700893-04RE1@5X OUA1-HS03-20170717 ...	01-Aug-17	02:09:24
170731G4_30	B7G0106-MS2@5X Matrix Spike 0.125	01-Aug-17	02:21:59
170731G4_31	B7G0106-MSD2@5X Matrix Spike Dup 0.125	01-Aug-17	02:34:34

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Last Altered:    Tuesday, August 01, 2017 10:54:29 Pacific Daylight Time

Printed:        Tuesday, August 01, 2017 10:55:12 Pacific Daylight Time

**Compound name: PFBA**

	Name	ID	Acq.Date	Acq.Time
32	170731G4_32	1700893-05RE1@5X OUA1-HS03A-20170717...	01-Aug-17	02:47:03
33	170731G4_33	1700907-10RE1@20X AT028-DUP-01-071717...	01-Aug-17	02:59:36
34	170731G4_34	IPA	01-Aug-17	03:12:10
35	170731G4_35	ST170731G4-3 PFC CS3 17G3104	01-Aug-17	03:24:41
36	170731G4_36	IPA	01-Aug-17	03:37:12

Dataset:      U:\G1.PRO\Results\2017\170731G4\170731G4-20.qld

Last Altered:    Tuesday, August 01, 2017 08:32:52 Pacific Daylight Time

Printed:        Tuesday, August 01, 2017 08:33:47 Pacific Daylight Time

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

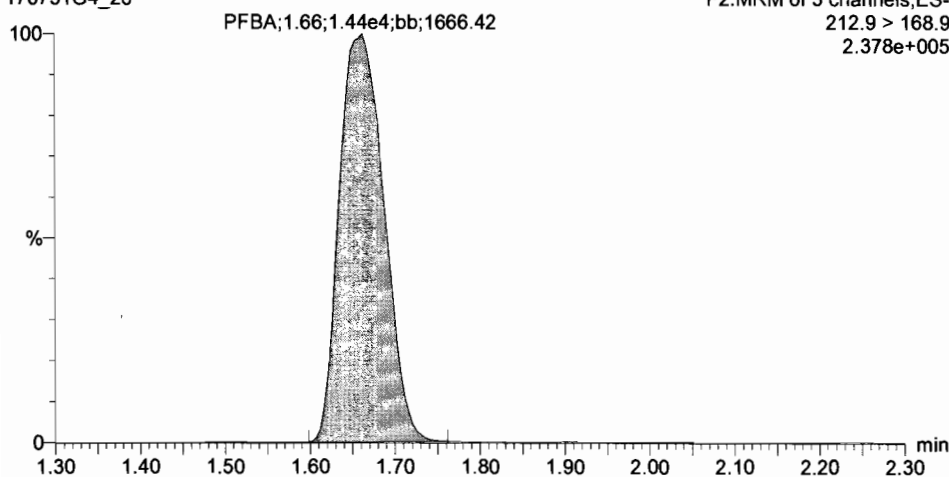
Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: ST170731G4-2 PFC CS3 17G3104, Description: PFC CS3 17G3104 A, Name: 170731G4\_20, Date: 01-Aug-2017, Time: 00:16:27, Instrument: , Lab: , User:

**PFBA**

170731G4\_20

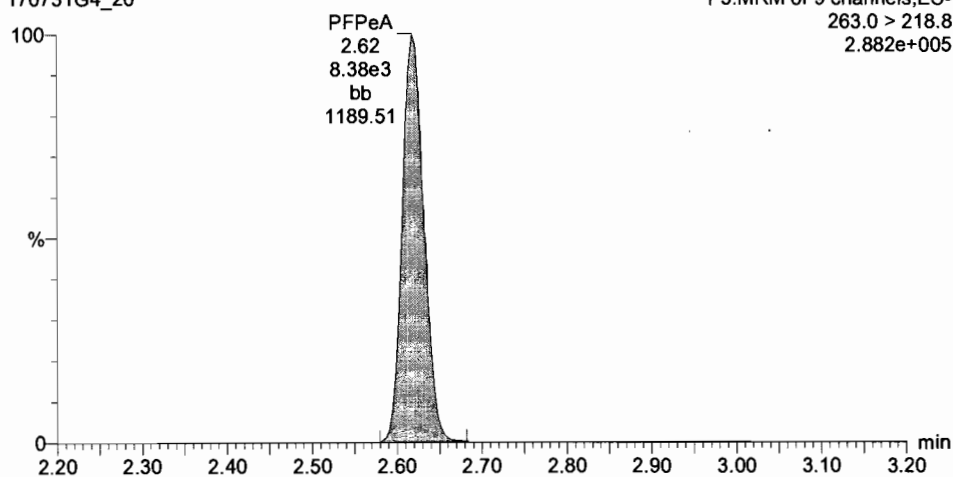
F2:MRM of 3 channels,ES-  
212.9 > 168.9  
2.378e+005



**PFPeA**

170731G4\_20

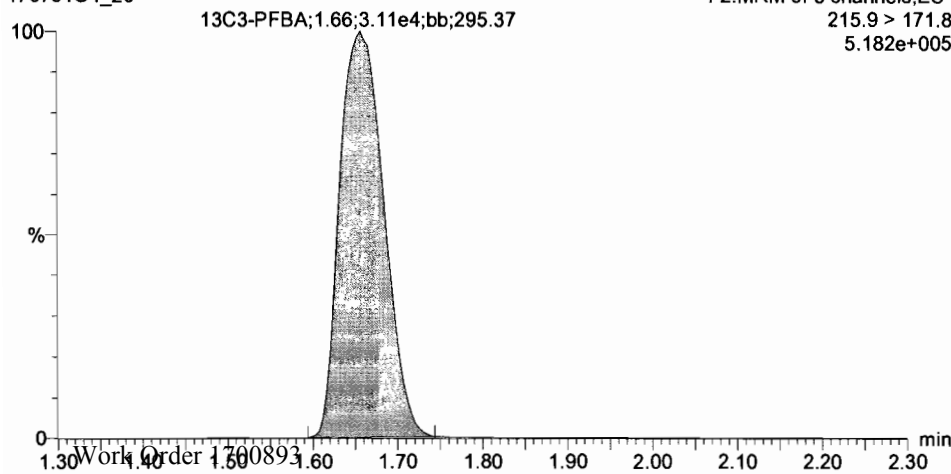
F3:MRM of 9 channels,ES-  
263.0 > 218.8  
2.882e+005



**13C3-PFBA**

170731G4\_20

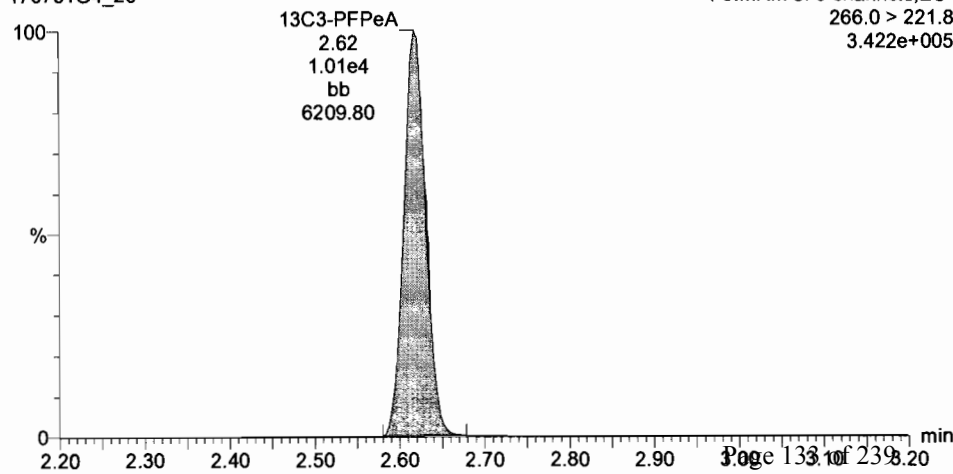
F2:MRM of 3 channels,ES-  
215.9 > 171.8  
5.182e+005



**13C3-PFPeA**

170731G4\_20

F3:MRM of 9 channels,ES-  
266.0 > 221.8  
3.422e+005



Dataset:        U:\G1.PRO\Results\2017\170731G4\170731G4-20.qld

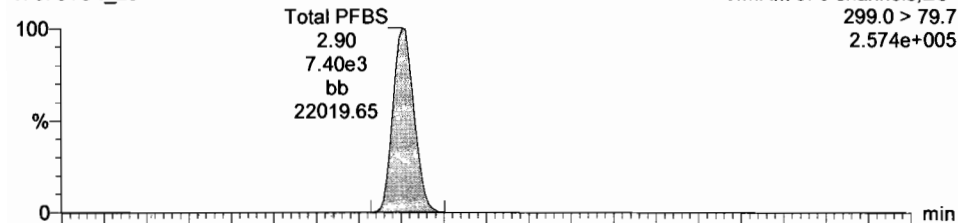
Last Altered:   Tuesday, August 01, 2017 08:32:52 Pacific Daylight Time

Printed:        Tuesday, August 01, 2017 08:33:47 Pacific Daylight Time

ID: ST170731G4-2 PFC CS3 17G3104, Description: PFC CS3 17G3104 A, Name: 170731G4\_20, Date: 01-Aug-2017, Time: 00:16:27, Instrument: , Lab: , User:

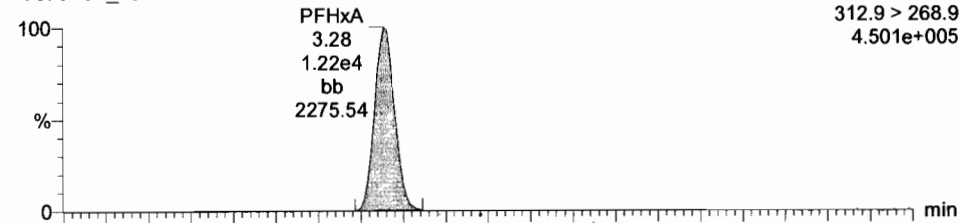
**Total PFBS**

170731G4\_20

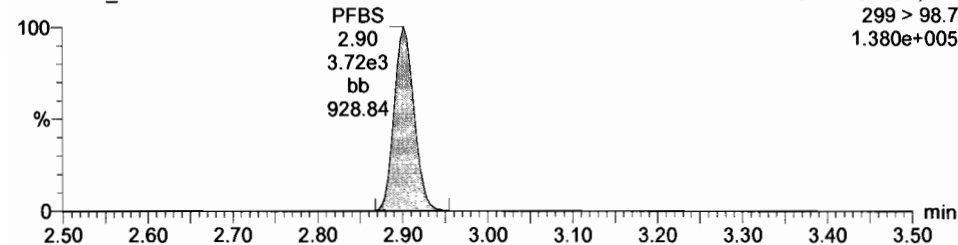


**PFHxA**

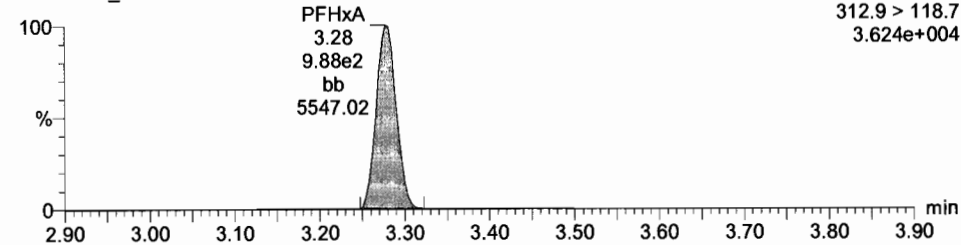
170731G4\_20



170731G4\_20

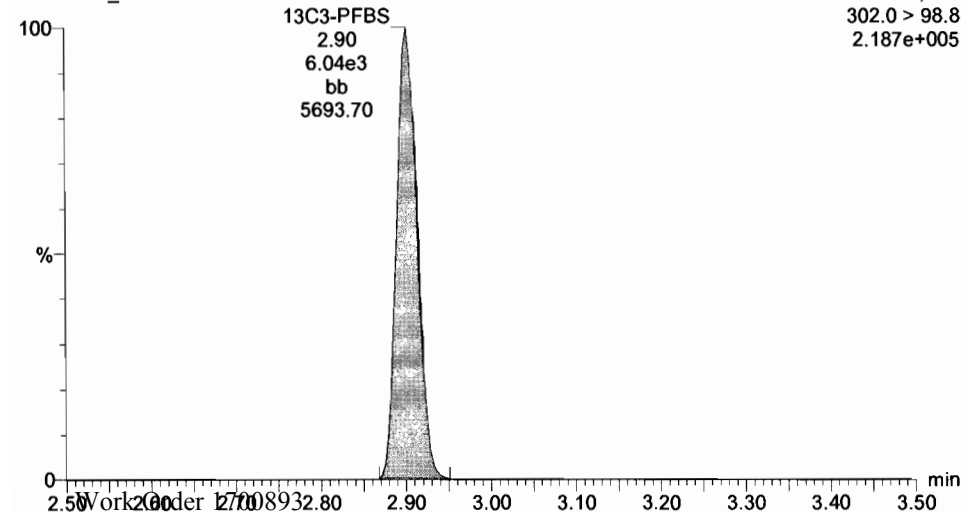


170731G4\_20



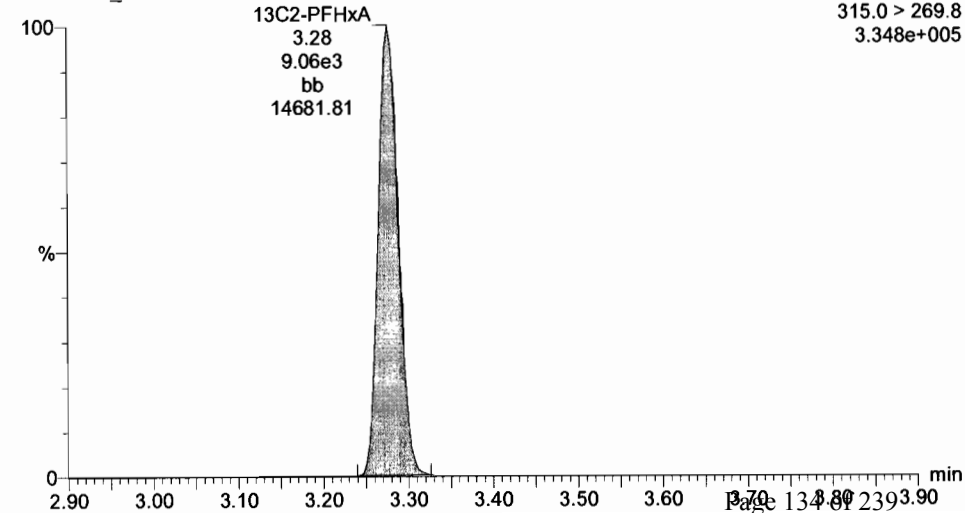
**13C3-PFBS**

170731G4\_20



**13C2-PFHxA**

170731G4\_20



Dataset:        U:\G1.PRO\Results\2017\170731G4\170731G4-20.qld

Last Altered:   Tuesday, August 01, 2017 08:32:52 Pacific Daylight Time

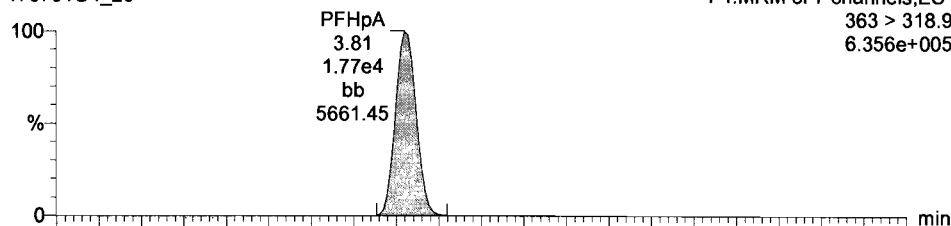
Printed:        Tuesday, August 01, 2017 08:33:47 Pacific Daylight Time

ID: ST170731G4-2 PFC CS3 17G3104, Description: PFC CS3 17G3104 A, Name: 170731G4\_20, Date: 01-Aug-2017, Time: 00:16:27, Instrument: , Lab: , User:

**PFHpA**

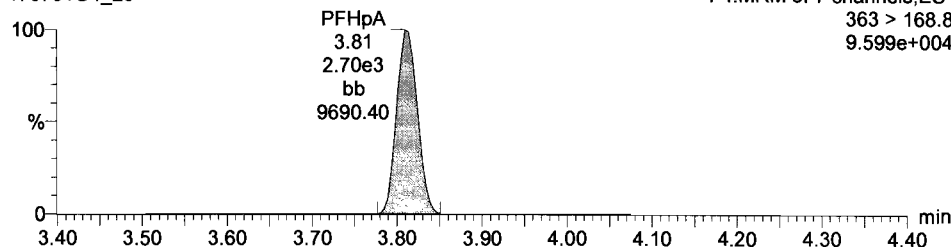
170731G4\_20

F4:MRM of 7 channels,ES-  
363 > 318.9  
6.356e+005



170731G4\_20

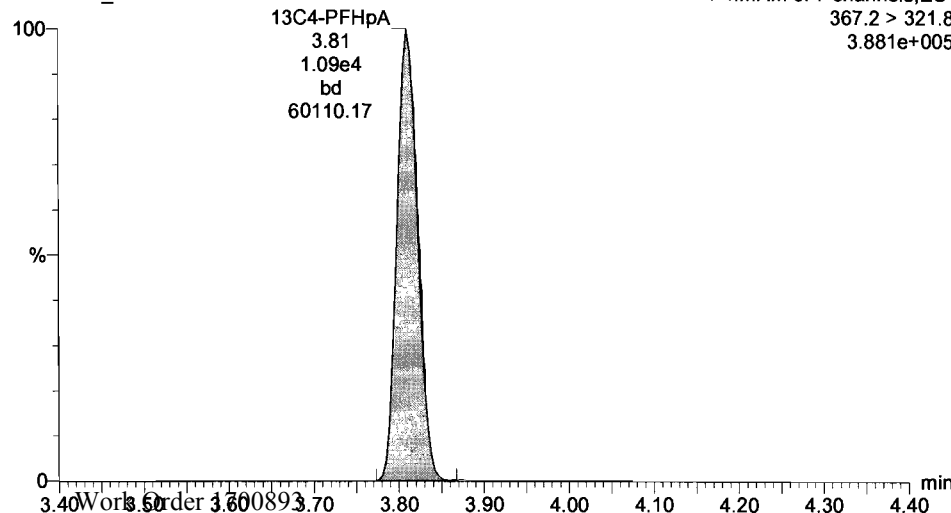
F4:MRM of 7 channels,ES-  
363 > 168.8  
9.599e+004



**13C4-PFHpA**

170731G4\_20

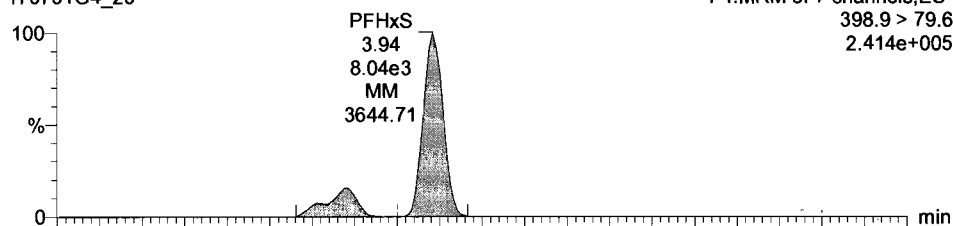
F4:MRM of 7 channels,ES-  
367.2 > 321.8  
3.881e+005



**Total PFHxS**

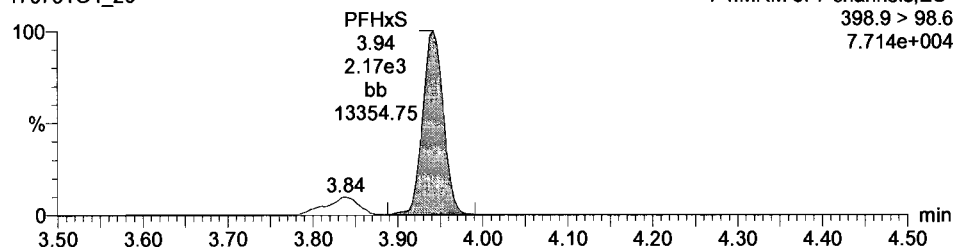
170731G4\_20

F4:MRM of 7 channels,ES-  
398.9 > 79.6  
2.414e+005



170731G4\_20

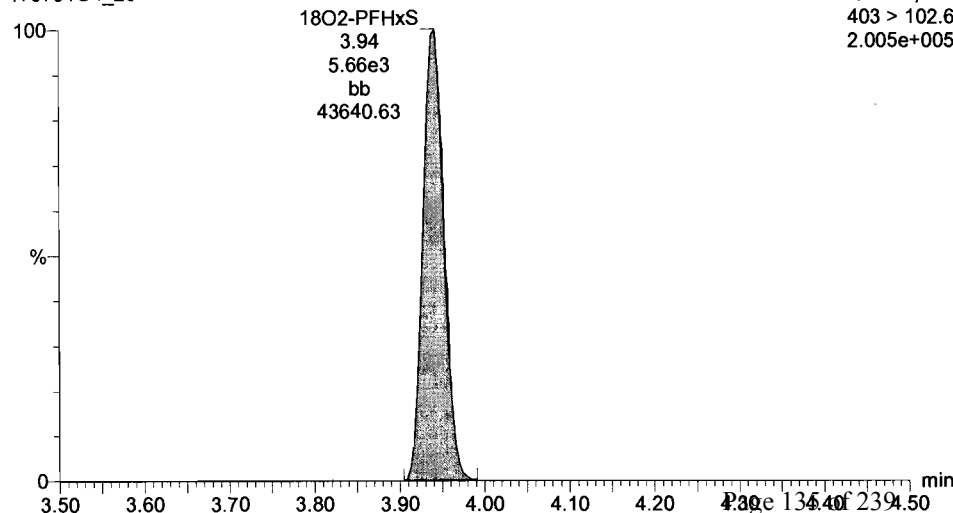
F4:MRM of 7 channels,ES-  
398.9 > 98.6  
7.714e+004



**18O2-PFHxS**

170731G4\_20

F4:MRM of 7 channels,ES-  
403 > 102.6  
2.005e+005



Dataset:      U:\G1.PRO\Results\2017\170731G4\170731G4-20.qld

Last Altered:    Tuesday, August 01, 2017 08:32:52 Pacific Daylight Time

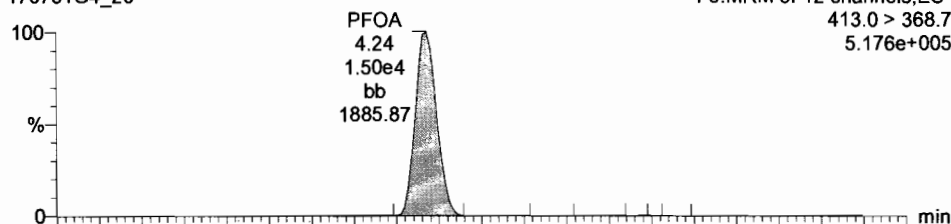
Printed:        Tuesday, August 01, 2017 08:33:47 Pacific Daylight Time

ID: ST170731G4-2 PFC CS3 17G3104, Description: PFC CS3 17G3104 A, Name: 170731G4\_20, Date: 01-Aug-2017, Time: 00:16:27, Instrument: , Lab: , User:

### Total PFOA

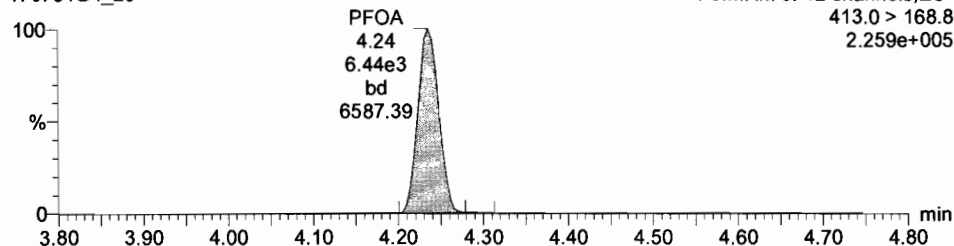
170731G4\_20

F5:MRM of 12 channels,ES-  
413.0 > 368.7  
5.176e+005



170731G4\_20

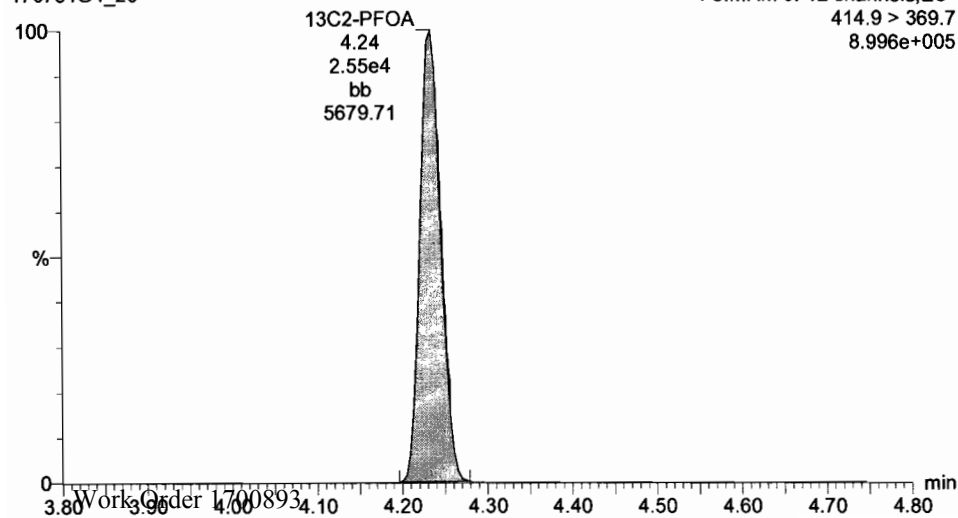
F5:MRM of 12 channels,ES-  
413.0 > 168.8  
2.259e+005



### 13C2-PFOA

170731G4\_20

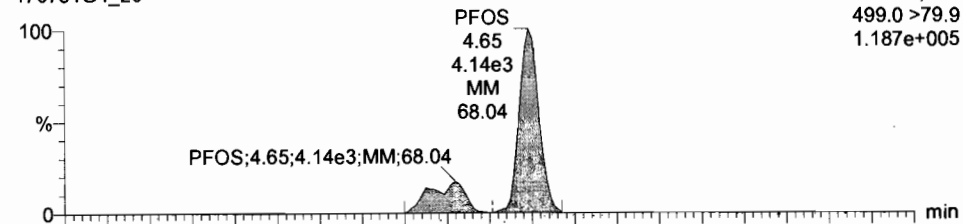
F5:MRM of 12 channels,ES-  
414.9 > 369.7  
8.996e+005



### Total PFOS

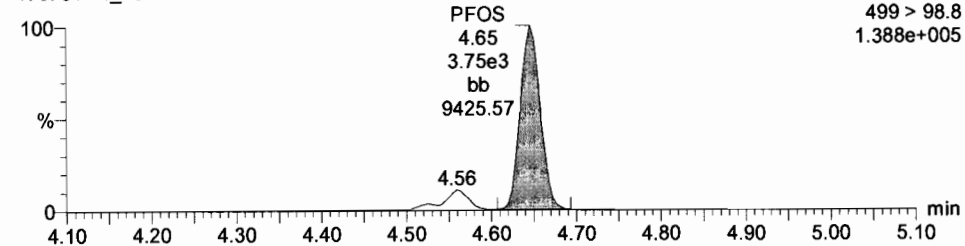
170731G4\_20

F5:MRM of 12 channels,ES-  
499.0 > 79.9  
1.187e+005



170731G4\_20

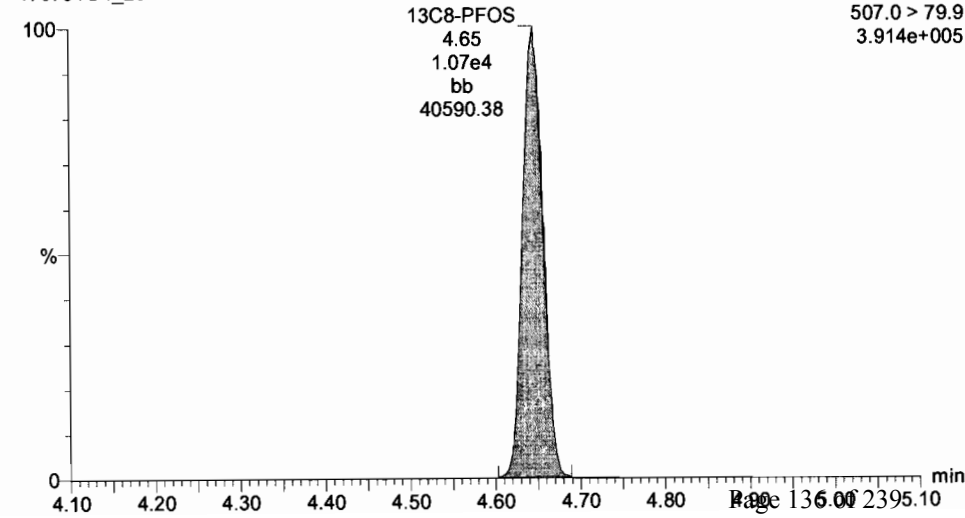
F5:MRM of 12 channels,ES-  
499 > 98.8  
1.388e+005



### 13C8-PFOS

170731G4\_20

F5:MRM of 12 channels,ES-  
507.0 > 79.9  
3.914e+005





Dataset:      U:\G1.PRO\Results\2017\170731G4\170731G4-20.qld

Last Altered:    Tuesday, August 01, 2017 08:32:52 Pacific Daylight Time

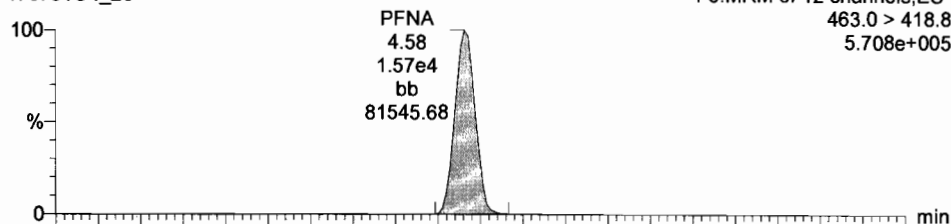
Printed:        Tuesday, August 01, 2017 08:33:47 Pacific Daylight Time

ID: ST170731G4-2 PFC CS3 17G3104, Description: PFC CS3 17G3104 A, Name: 170731G4\_20, Date: 01-Aug-2017, Time: 00:16:27, Instrument: , Lab: , User:

**PFNA**

170731G4\_20

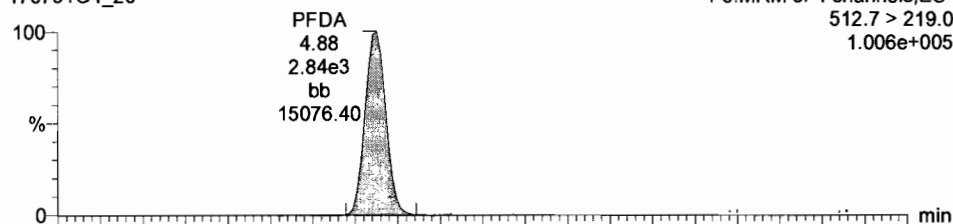
F5:MRM of 12 channels,ES-  
463.0 > 418.8  
5.708e+005



**PFDA**

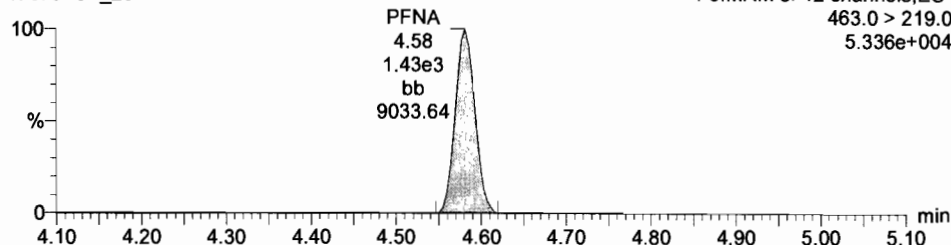
170731G4\_20

F6:MRM of 4 channels,ES-  
512.7 > 219.0  
1.006e+005



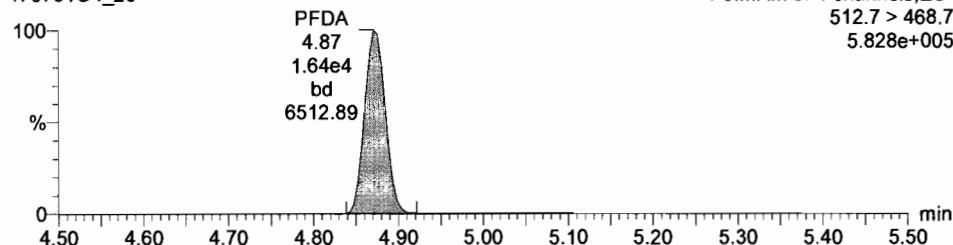
170731G4\_20

F5:MRM of 12 channels,ES-  
463.0 > 219.0  
5.336e+004



170731G4\_20

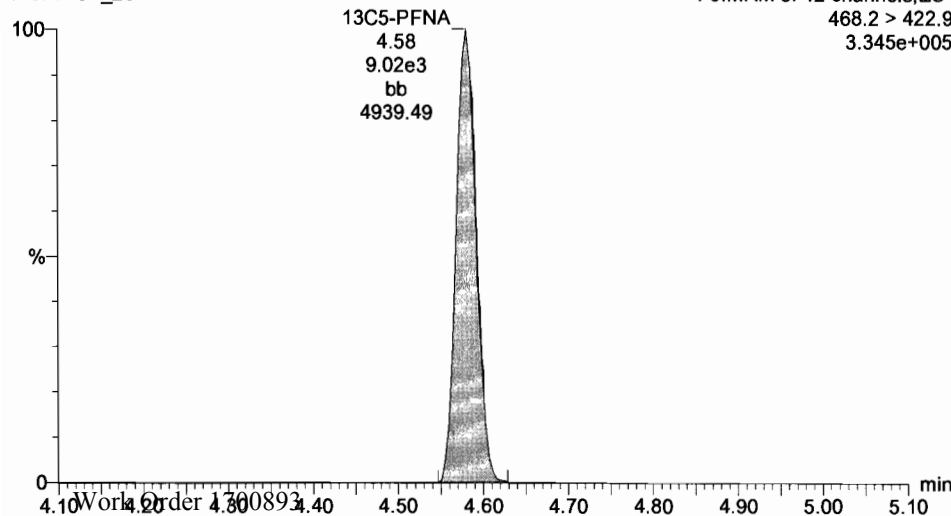
F6:MRM of 4 channels,ES-  
512.7 > 468.7  
5.828e+005



**13C5-PFNA**

170731G4\_20

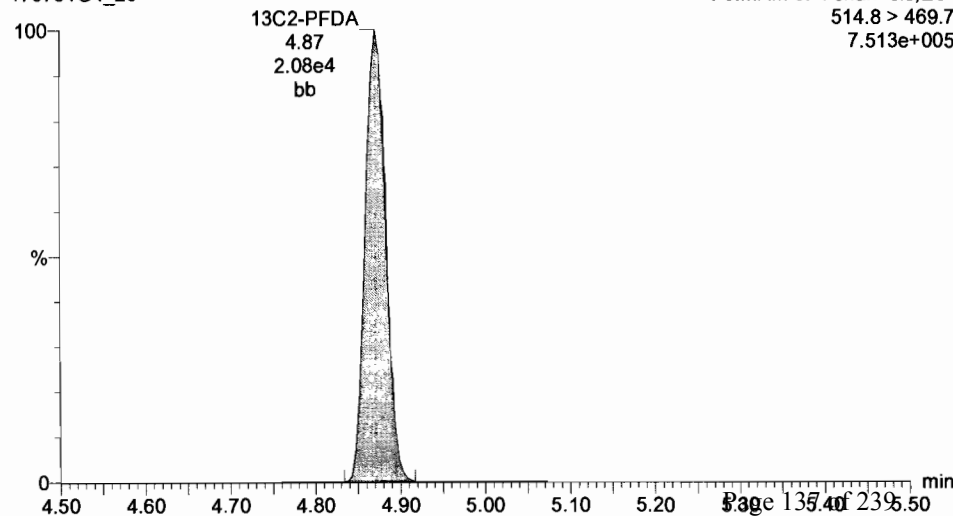
F5:MRM of 12 channels,ES-  
468.2 > 422.9  
3.345e+005



**13C2-PFDA**

170731G4\_20

F6:MRM of 4 channels,ES-  
514.8 > 469.7  
7.513e+005



Dataset:      U:\G1.PRO\Results\2017\170731G4\170731G4-20.qld

Last Altered:    Tuesday, August 01, 2017 08:32:52 Pacific Daylight Time

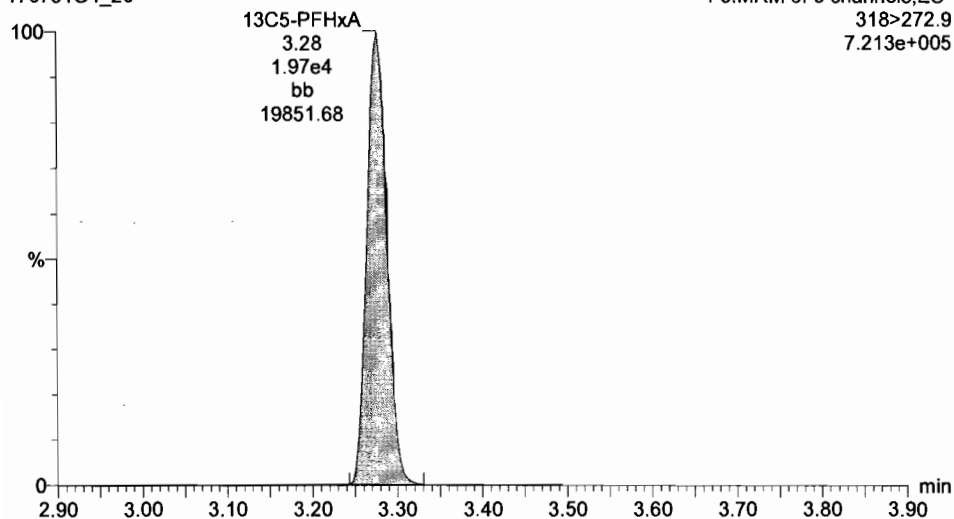
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**13C5-PFHxA**

170731G4\_20

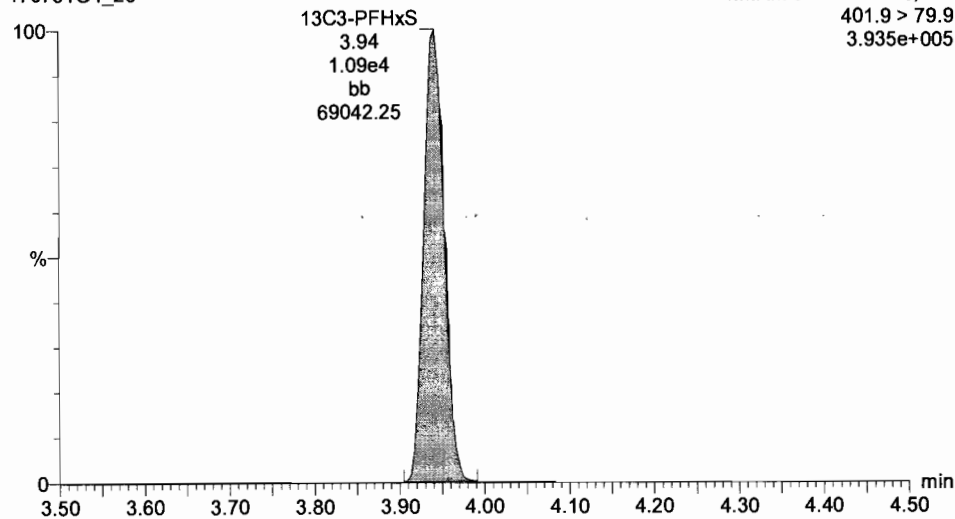
F3:MRM of 9 channels,ES-  
318>272.9  
7.213e+005



**13C3-PFHxS**

170731G4\_20

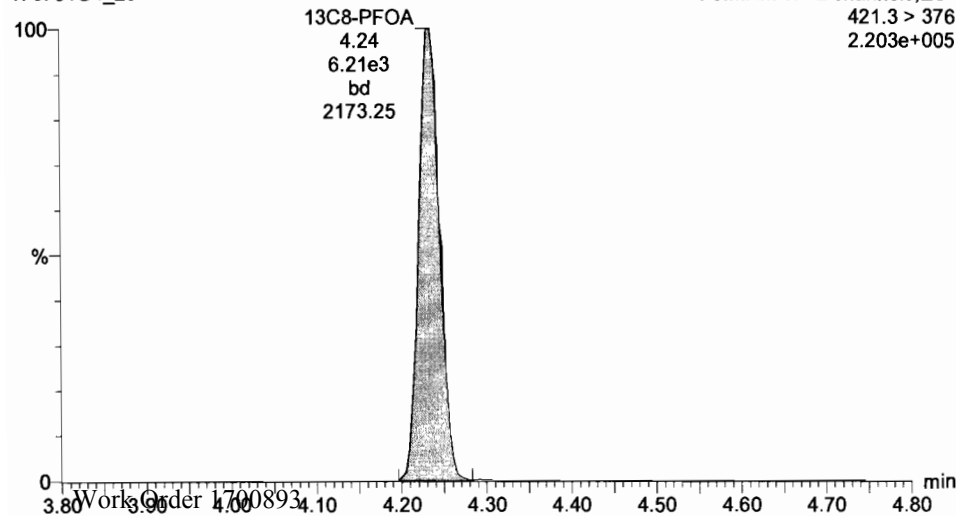
F4:MRM of 7 channels,ES-  
401.9 > 79.9  
3.935e+005



**13C8-PFOA**

170731G4\_20

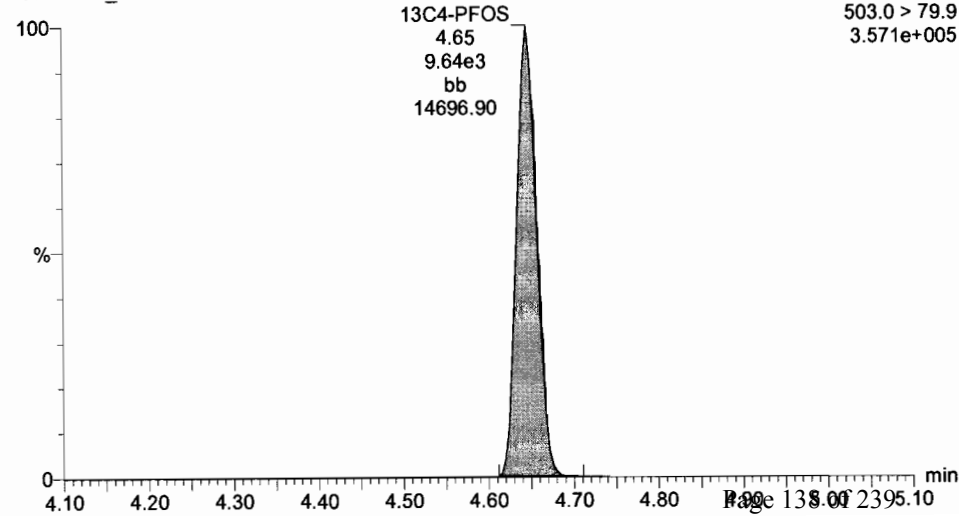
F5:MRM of 12 channels,ES-  
421.3 > 376  
2.203e+005



**13C4-PFOS**

170731G4\_20

F5:MRM of 12 channels,ES-  
503.0 > 79.9  
3.571e+005



Dataset:        U:\G1.PRO\Results\2017\170731G4\170731G4-20.qld

Last Altered:   Tuesday, August 01, 2017 08:32:52 Pacific Daylight Time

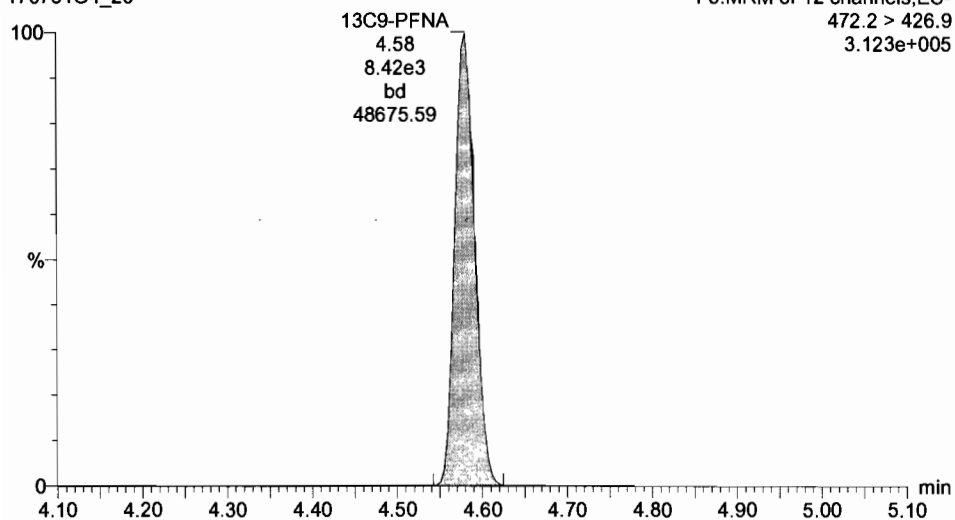
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ID: ST170731G4-2 PFC CS3 17G3104, Description: PFC CS3 17G3104 A, Name: 170731G4\_20, Date: 01-Aug-2017, Time: 00:16:27, Instrument: , Lab: , User:

**13C9-PFNA**

170731G4\_20

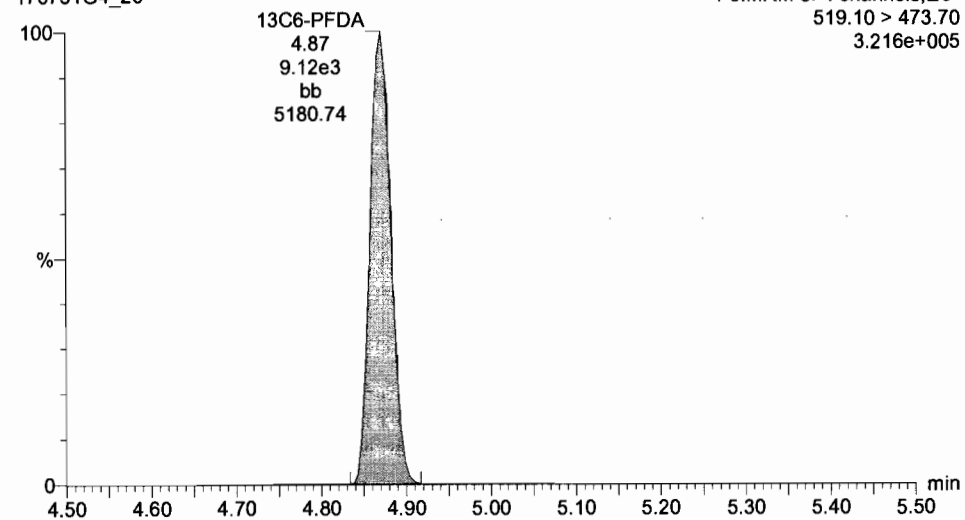
F5:MRM of 12 channels,ES-  
472.2 > 426.9  
3.123e+005



**13C6-PFDA**

170731G4\_20

F6:MRM of 4 channels,ES-  
519.10 > 473.70  
3.216e+005



Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-35.qld

Last Altered: Tuesday, August 01, 2017 08:34:35 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 08:42:27 Pacific Daylight Time

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

Name: 170731G4\_35, Date: 01-Aug-2017, Time: 03:24:41, ID: ST170731G4-3 PFC CS3 17G3104, Description: PFC CS3 17G3104 A

	# Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc.	%Rec
1	1 PFBA	212.9 > 168.9	1.55e4	3.01e4		1.000	1.66	8.53	85.3
2	2 PFPeA	263.0 > 218.8	8.41e3	1.03e4		1.000	2.62	9.21	92.1
3	3 PFBS	299.0 > 79.7	7.53e3	5.45e3		1.000	2.91	10.4	103.7
4	4 PFHxA	312.9 > 268.9	1.28e4	9.66e3		1.000	3.28	8.62	86.2
5	5 PFHpA	363 > 318.9	1.76e4	1.15e4		1.000	3.81	9.75	97.5
6	6 PFHxS	398.9 > 79.6	7.59e3	5.59e3		1.000	3.95	9.47	94.7
7	7 PFOA	413.0 > 368.7	1.61e4	2.48e4		1.000	4.24	10.1	101.0
8	8 PFNA	463.0 > 418.8	1.63e4	8.63e3		1.000	4.58	10.2	102.3
9	9 PFOS	499.0 > 79.9	4.05e3	1.23e4		1.000	4.65	8.69	86.9
10	10 PFDA	512.7 > 219.0	2.99e3	2.00e4		1.000	4.88	9.38	93.8
11	11 13C3-PFBA	215.9 > 171.8	3.01e4	1.94e4	1.183	1.000	1.66	16.4	131.4
12	12 13C3-PFBS	302.0 > 98.8	5.45e3	1.96e4	0.263	1.000	2.90	13.2	105.9
13	13 13C3-PFPeA	266.0 > 221.8	1.03e4	1.96e4	0.446	1.000	2.62	14.7	118.0
14	14 13C2-PFHxA	315.0 > 269.8	9.66e3	1.96e4	0.361	1.000	3.28	17.1	136.8
15	15 13C4-PFHpA	367.2 > 321.8	1.15e4	1.96e4	0.475	1.000	3.81	15.4	123.0
16	16 18O2-PFHxS	403 > 102.6	5.59e3	1.18e4	0.411	1.000	3.94	14.5	115.9
17	17 13C2-PFOA	414.9 > 369.7	2.48e4	5.68e3	2.843	1.000	4.24	19.2	153.5
18	18 13C5-PFNA	468.2 > 422.9	8.63e3	8.52e3	0.854	1.000	4.58	14.8	118.6
19	19 13C2-PFDA	514.8 > 469.7	2.00e4	8.99e3	1.742	1.000	4.87	16.0	127.7
20	20 13C8-PFOS	507.0 > 79.9	1.23e4	9.51e3	0.927	1.000	4.65	17.4	139.5
21	21 13C4-PFBA	216.9 > 171.8	1.94e4	1.94e4	1.000	1.000	1.66	12.5	100.0
22	22 13C5-PFHxA	318 > 272.9	1.96e4	1.96e4	1.000	1.000	3.28	12.5	100.0
23	23 13C3-PFHxS	401.9 > 79.9	1.18e4	1.18e4	1.000	1.000	3.94	12.5	100.0
24	24 13C8-PFOA	421.3 > 376	5.68e3	5.68e3	1.000	1.000	4.24	12.5	100.0
25	25 13C9-PFNA	472.2 > 426.9	8.52e3	8.52e3	1.000	1.000	4.58	12.5	100.0
26	26 13C4-PFOS	503.0 > 79.9	9.51e3	9.51e3	1.000	1.000	4.65	12.5	100.0
27	27 13C6-PFDA	519.10 > 47...	8.99e3	8.99e3	1.000	1.000	4.87	12.5	100.0

70-130

Ⓐ out of limit criteria.

for 8/1/17

50-150

Ⓐ

↓

Dataset: Untitled

Last Altered: Tuesday, August 01, 2017 10:54:29 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 10:55:12 Pacific Daylight Time

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

Compound name: PFBA

	Name	ID	Acq.Date	Acq.Time
1	170731G4_1	IPA	31-Jul-17	20:18:27
2	170731G4_2	ST170731G4-1 PFC CS3 17G3104	31-Jul-17	20:30:39
3	170731G4_3	IPA	31-Jul-17	20:43:08
4	170731G4_4	1700875-01 MW-42S-20170713 0.11821	31-Jul-17	20:55:44
5	170731G4_5	IPA	31-Jul-17	21:08:14
6	170731G4_6	1700875-02 MW-14BR-20170713 0.11912	31-Jul-17	21:20:49
7	170731G4_7	1700875-03 MW-51BR-20170713 0.11822	31-Jul-17	21:33:19
8	170731G4_8	IPA	31-Jul-17	21:45:53
9	170731G4_9	1700875-04 DUP-06-20170713 0.11793	31-Jul-17	21:58:27
10	170731G4_10	IPA	31-Jul-17	22:11:00
11	170731G4_11	1700875-05 MW-11S-20170713 0.11994	31-Jul-17	22:23:32
12	170731G4_12	IPA	31-Jul-17	22:36:12
13	170731G4_13	1700884-01 MW-37BR-20170714 0.11935	31-Jul-17	22:48:39
14	170731G4_14	1700884-02 MW-32BR-20170714 0.11989	31-Jul-17	23:01:11
15	170731G4_15	1700884-03 MW-35S-20170714 0.11984	31-Jul-17	23:13:44
16	170731G4_16	1700884-04 FRB-02-20170714 0.11984	31-Jul-17	23:26:13
17	170731G4_17	1700893-04RE1 OUA1-HS03-20170717 0.105...	31-Jul-17	23:38:46
18	170731G4_18	1700893-05RE1 OUA1-HS03A-20170717 0.11...	31-Jul-17	23:51:19
19	170731G4_19	IPA	01-Aug-17	00:03:53
20	170731G4_20	ST170731G4-2 PFC CS3 17G3104	01-Aug-17	00:16:27
21	170731G4_21	IPA	01-Aug-17	00:28:57
22	170731G4_22	1700889-08RE1 EWTU07-01000 0.12104	01-Aug-17	00:41:39
23	170731G4_23	1700875-01@5X MW-42S-20170713 0.11821	01-Aug-17	00:54:06
24	170731G4_24	1700875-03@5X MW-51BR-20170713 0.11822	01-Aug-17	01:06:41
25	170731G4_25	1700875-04@5X DUP-06-20170713 0.11793	01-Aug-17	01:19:15
26	170731G4_26	1700875-05@30X MW-11S-20170713 0.11994	01-Aug-17	01:31:48
27	170731G4_27	1700888-12RE1@10X HARRI-02-GW-TW01-...	01-Aug-17	01:44:16
28	170731G4_28	1700893-03RE1@5X OUA1-MW08-20170717...	01-Aug-17	01:57:03
29	170731G4_29	1700893-04RE1@5X OUA1-HS03-20170717 ...	01-Aug-17	02:09:24
30	170731G4_30	B7G0106-MS2@5X Matrix Spike 0.125	01-Aug-17	02:21:59
31	170731G4_31	B7G0106-MSD2@5X Matrix Spike Dup 0.125	01-Aug-17	02:34:34

Dataset:        Untitled

Last Altered:    Tuesday, August 01, 2017 10:54:29 Pacific Daylight Time

Printed:        Tuesday, August 01, 2017 10:55:12 Pacific Daylight Time

Compound name: PFBA

	Name	ID	Acq.Date	Acq.Time
32	170731G4_32	1700893-05RE1@5X OUA1-HS03A-20170717...	01-Aug-17	02:47:03
33	170731G4_33	1700907-10RE1@20X AT028-DUP-01-071717...	01-Aug-17	02:59:36
34	170731G4_34	IPA	01-Aug-17	03:12:10
35	170731G4_35	ST170731G4-3 PFC CS3 17G3104	01-Aug-17	03:24:41
36	170731G4_36	IPA	01-Aug-17	03:37:12

Dataset:        U:\G1.PRO\Results\2017\170731G4\170731G4-35.qld

Last Altered:   Tuesday, August 01, 2017 08:34:35 Pacific Daylight Time

Printed:        Tuesday, August 01, 2017 08:42:00 Pacific Daylight Time

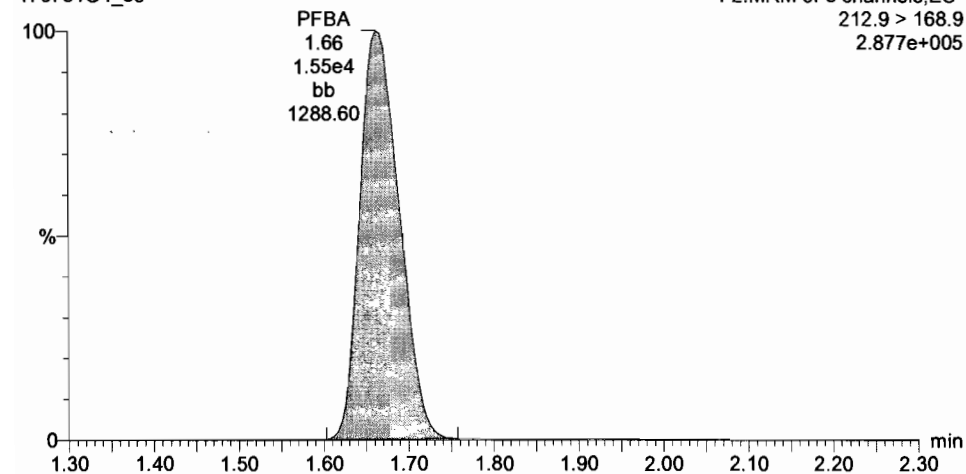
Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: ST170731G4-3 PFC CS3 17G3104, Description: PFC CS3 17G3104 A, Name: 170731G4\_35, Date: 01-Aug-2017, Time: 03:24:41, Instrument: , Lab: , User:

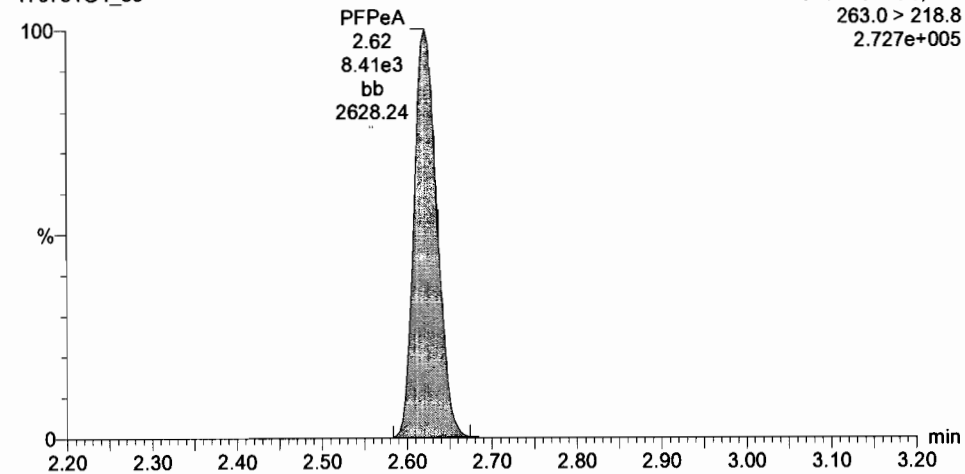
**PFBA**

170731G4\_35



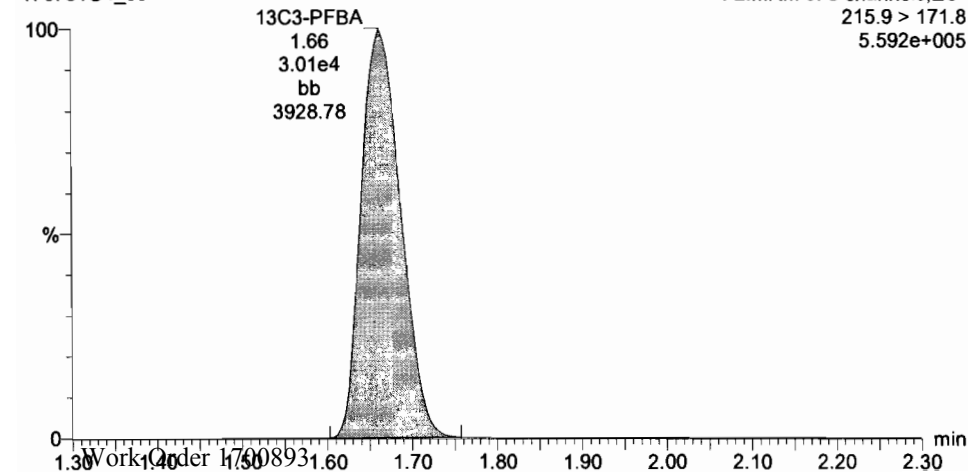
**PFPeA**

170731G4\_35



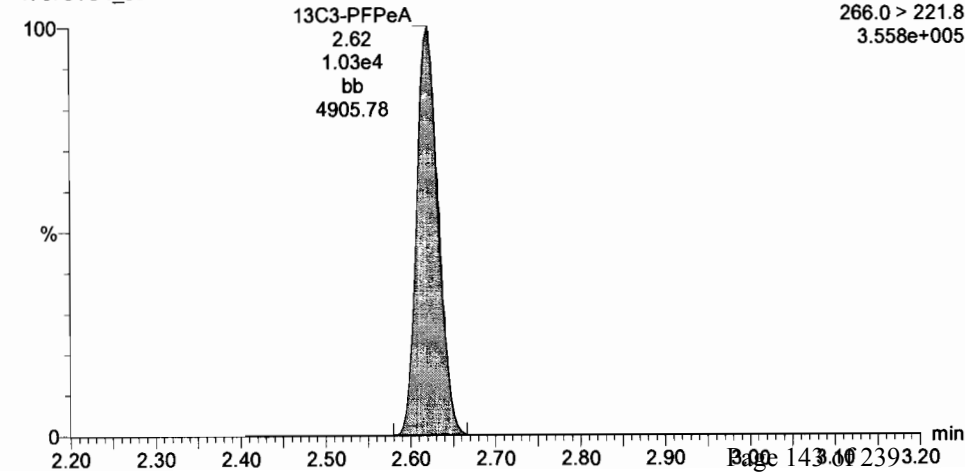
**13C3-PFBA**

170731G4\_35



**13C3-PFPeA**

170731G4\_35



Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-35.qld

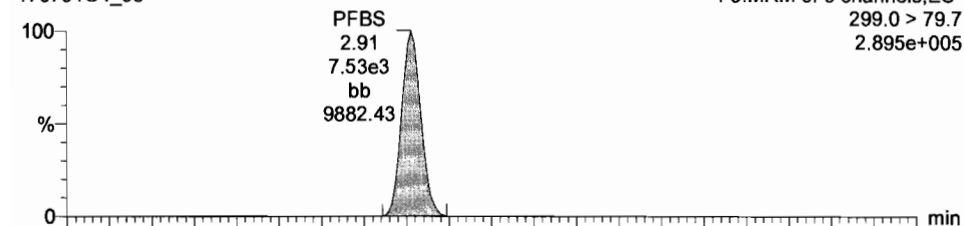
Last Altered: Tuesday, August 01, 2017 08:34:35 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 08:42:00 Pacific Daylight Time

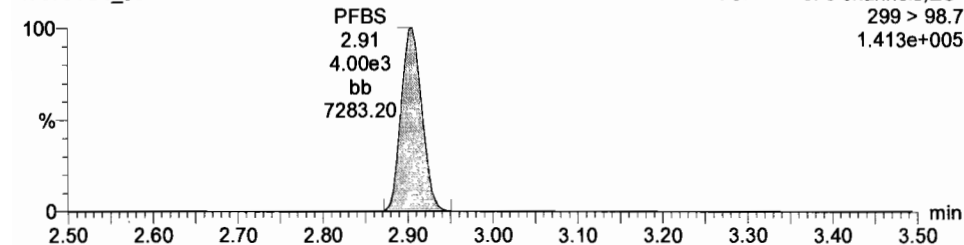
ID: ST170731G4-3 PFC CS3 17G3104, Description: PFC CS3 17G3104 A, Name: 170731G4\_35, Date: 01-Aug-2017, Time: 03:24:41, Instrument: , Lab: , User:

### Total PFBS

170731G4\_35

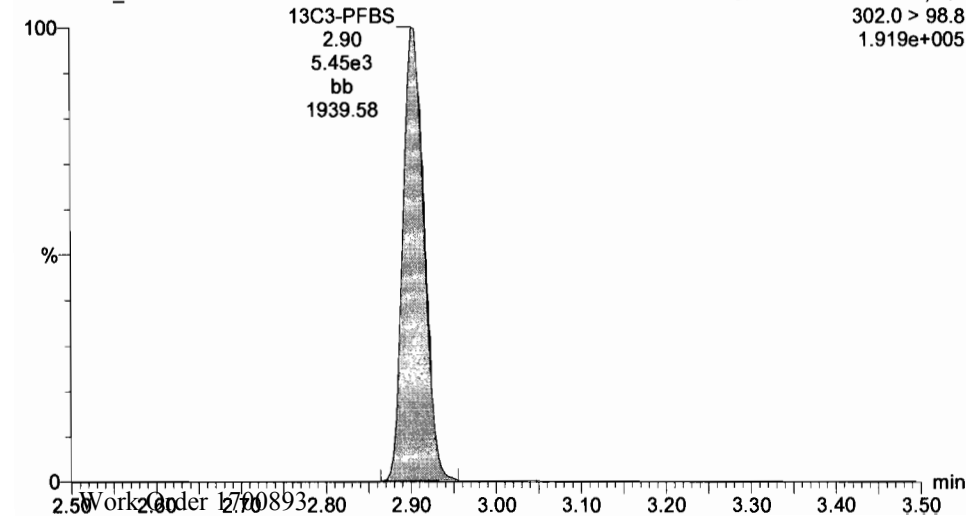


170731G4\_35



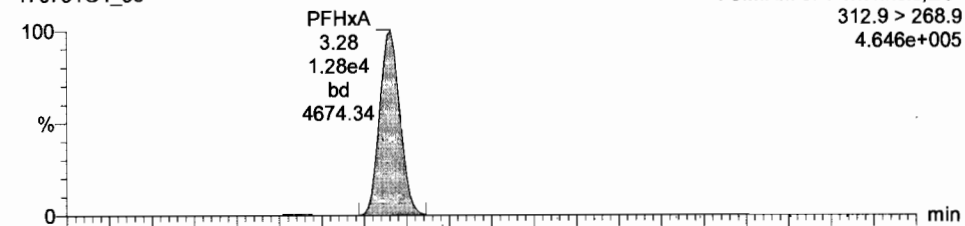
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170731G4\_35

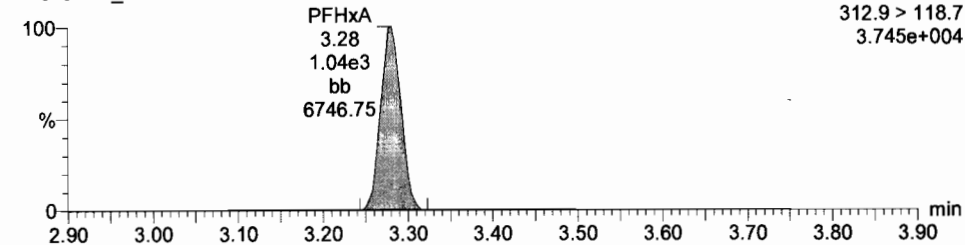


### PFHxA

170731G4\_35

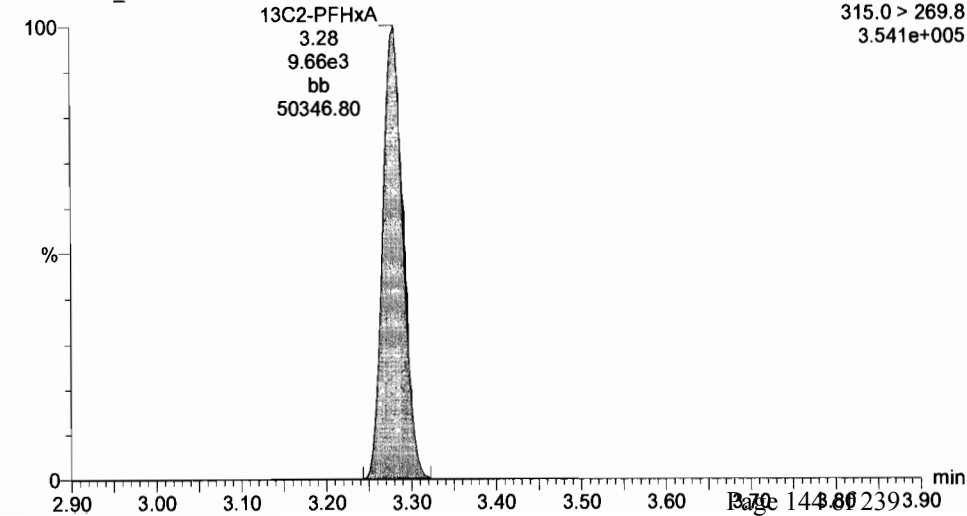


170731G4\_35



### 13C2-PFHxA

170731G4\_35





Dataset:      U:\G1.PRO\Results\2017\170731G4\170731G4-35.qld

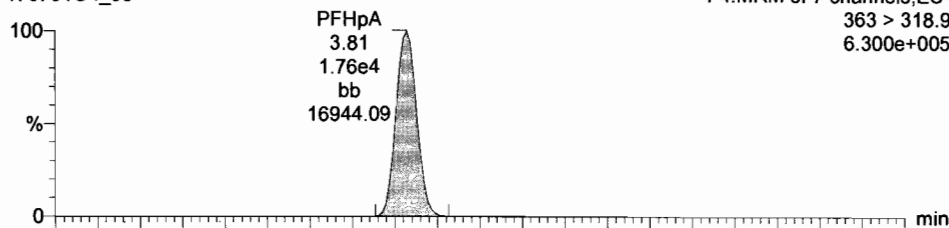
Last Altered:    Tuesday, August 01, 2017 08:34:35 Pacific Daylight Time  
Printed:          Tuesday, August 01, 2017 08:42:00 Pacific Daylight Time

ID: ST170731G4-3 PFC CS3 17G3104, Description: PFC CS3 17G3104 A, Name: 170731G4\_35, Date: 01-Aug-2017, Time: 03:24:41, Instrument: , Lab: , User:

**PFHpA**

170731G4\_35

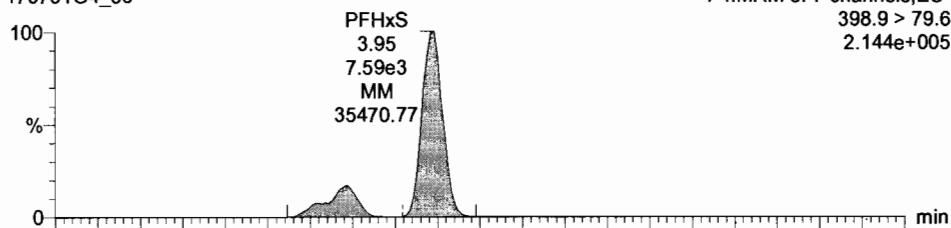
F4:MRM of 7 channels,ES-  
363 > 318.9  
6.300e+005



**Total PFHxS**

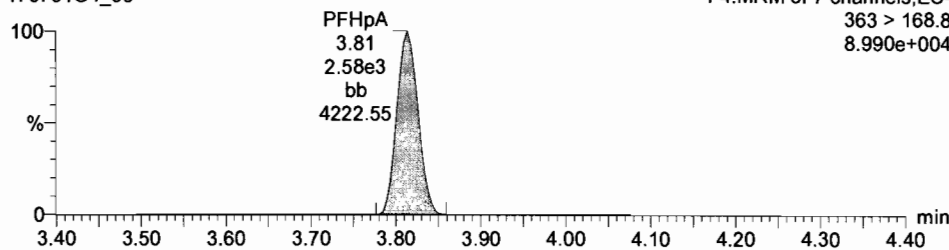
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F4:MRM of 7 channels,ES-  
398.9 > 79.6  
2.144e+005



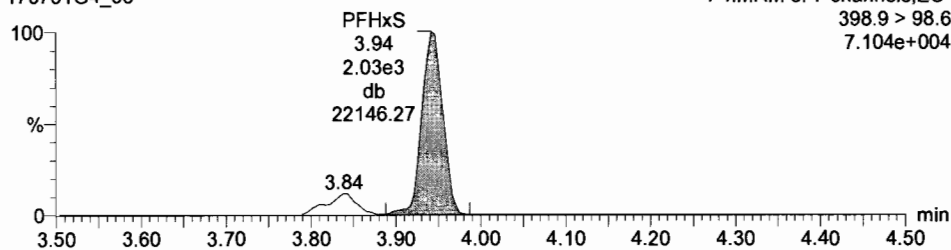
170731G4\_35

F4:MRM of 7 channels,ES-  
363 > 168.8  
8.990e+004



170731G4\_35

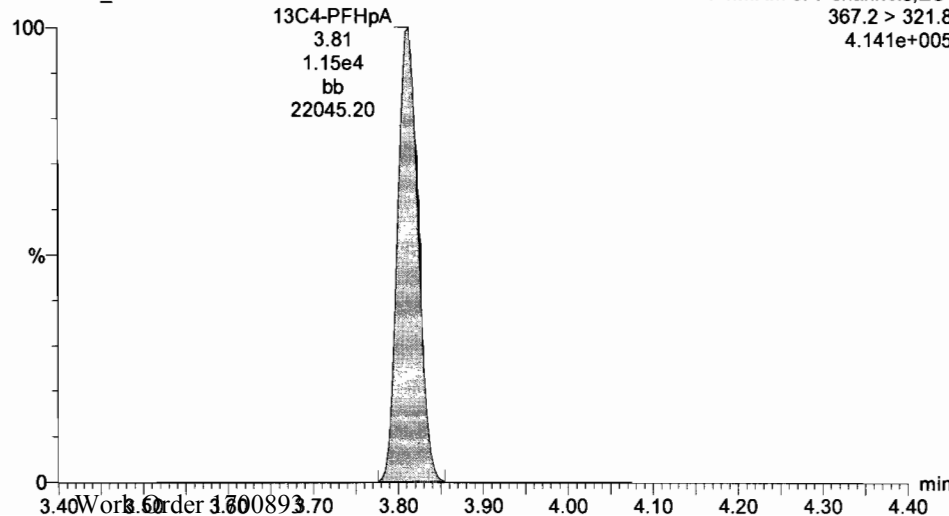
F4:MRM of 7 channels,ES-  
398.9 > 98.6  
7.104e+004



**13C4-PFHpA**

170731G4\_35

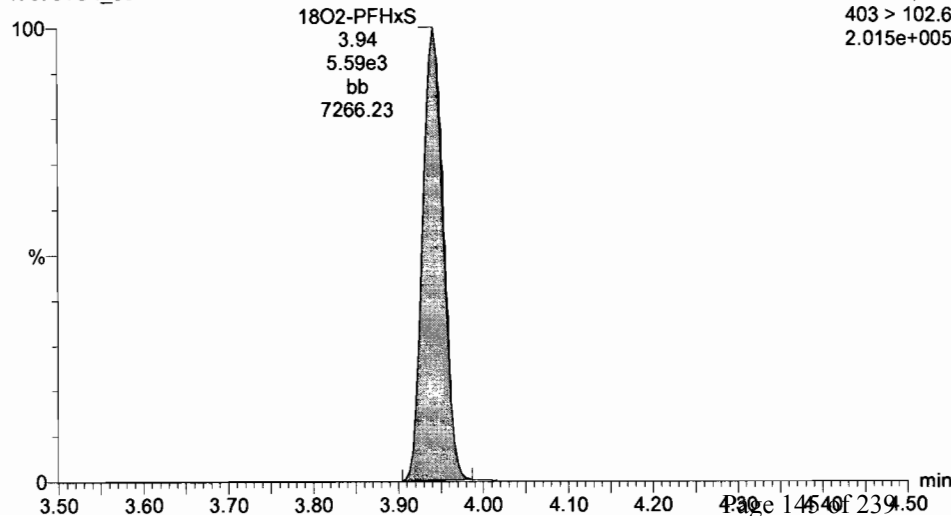
F4:MRM of 7 channels,ES-  
367.2 > 321.8  
4.141e+005



**18O2-PFHxS**

170731G4\_35

F4:MRM of 7 channels,ES-  
403 > 102.6  
2.015e+005



Dataset:      U:\G1.PRO\Results\2017\170731G4\170731G4-35.qld

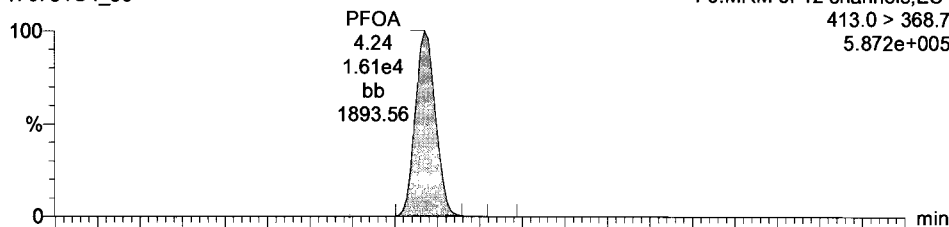
Last Altered:    Tuesday, August 01, 2017 08:34:35 Pacific Daylight Time  
Printed:        Tuesday, August 01, 2017 08:42:00 Pacific Daylight Time

ID: ST170731G4-3 PFC CS3 17G3104, Description: PFC CS3 17G3104 A, Name: 170731G4\_35, Date: 01-Aug-2017, Time: 03:24:41, Instrument: , Lab: , User:

### Total PFOA

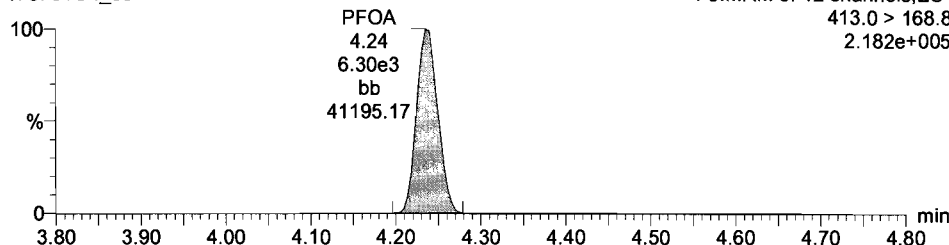
170731G4\_35

F5:MRM of 12 channels,ES-  
413.0 > 368.7  
5.872e+005



170731G4\_35

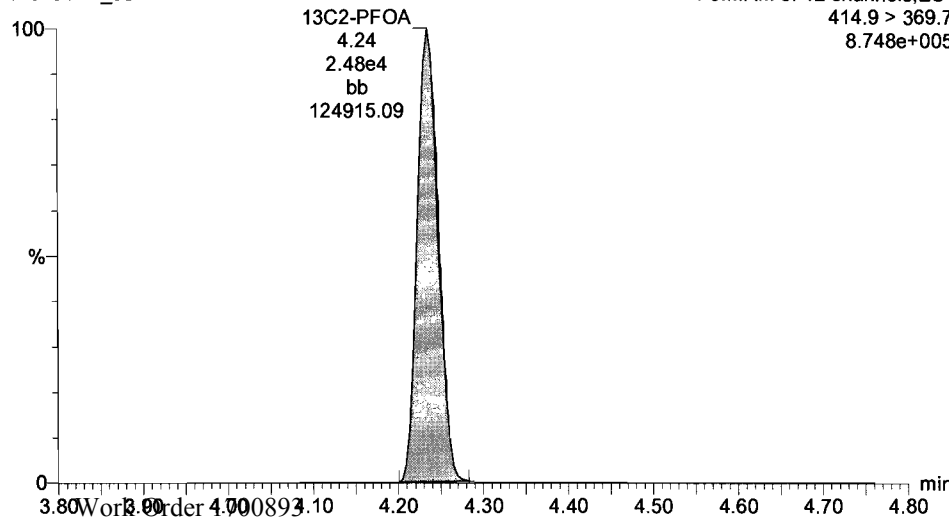
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413.0 > 168.8  
2.182e+005



### 13C2-PFOA

170731G4\_35

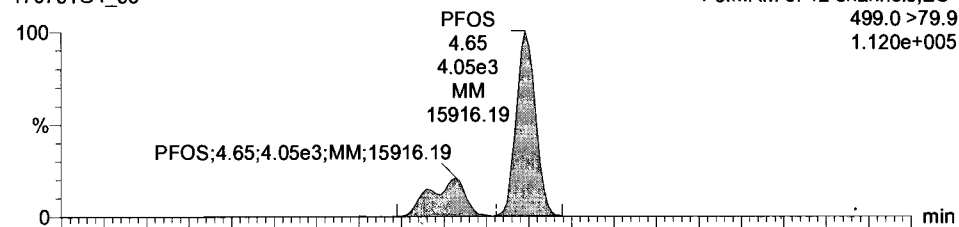
F5:MRM of 12 channels,ES-  
414.9 > 369.7  
8.748e+005



### Total PFOS

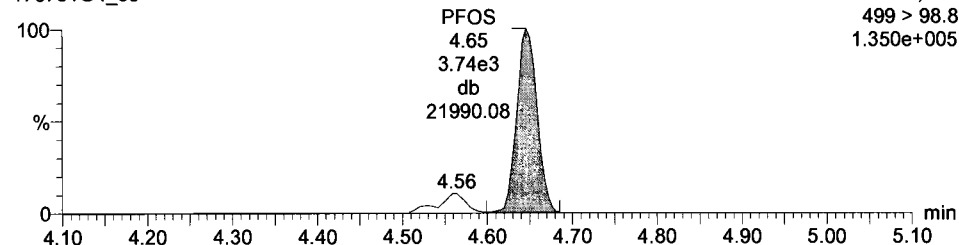
170731G4\_35

F5:MRM of 12 channels,ES-  
499.0 > 79.9  
1.120e+005



170731G4\_35

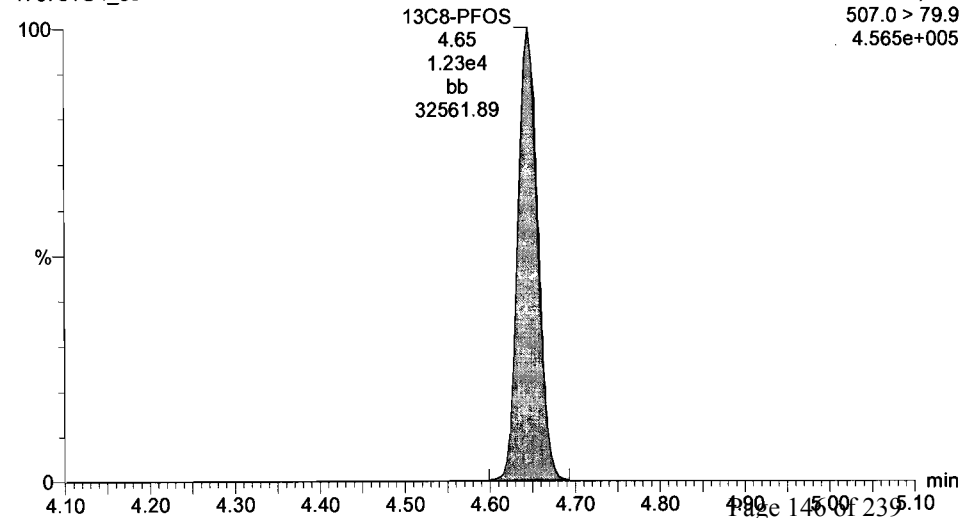
F5:MRM of 12 channels,ES-  
499 > 98.8  
1.350e+005



### 13C8-PFOS

170731G4\_35

F5:MRM of 12 channels,ES-  
507.0 > 79.9  
4.565e+005



Dataset:      U:\G1.PRO\Results\2017\170731G4\170731G4-35.qld

Last Altered:    Tuesday, August 01, 2017 08:34:35 Pacific Daylight Time

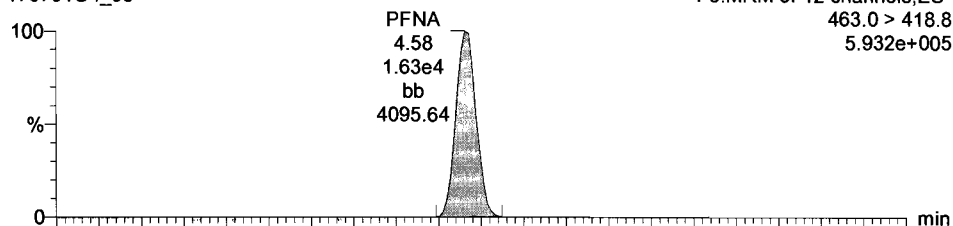
Printed:        Tuesday, August 01, 2017 08:42:00 Pacific Daylight Time

ID: ST170731G4-3 PFC CS3 17G3104, Description: PFC CS3 17G3104 A, Name: 170731G4\_35, Date: 01-Aug-2017, Time: 03:24:41, Instrument: , Lab: , User:

**PFNA**

170731G4\_35

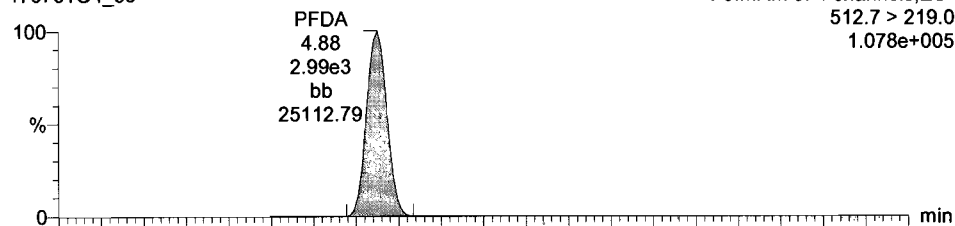
F5:MRM of 12 channels,ES-  
463.0 > 418.8  
5.932e+005



**PFDA**

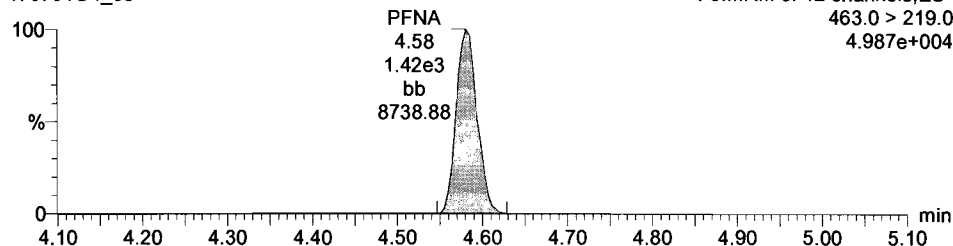
170731G4\_35

F6:MRM of 4 channels,ES-  
512.7 > 219.0  
1.078e+005



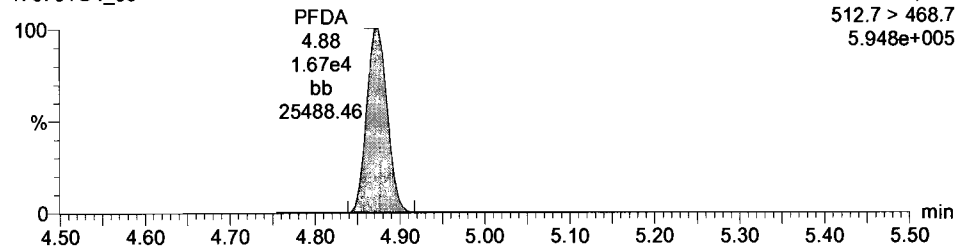
170731G4\_35

F5:MRM of 12 channels,ES-  
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4.987e+004



170731G4\_35

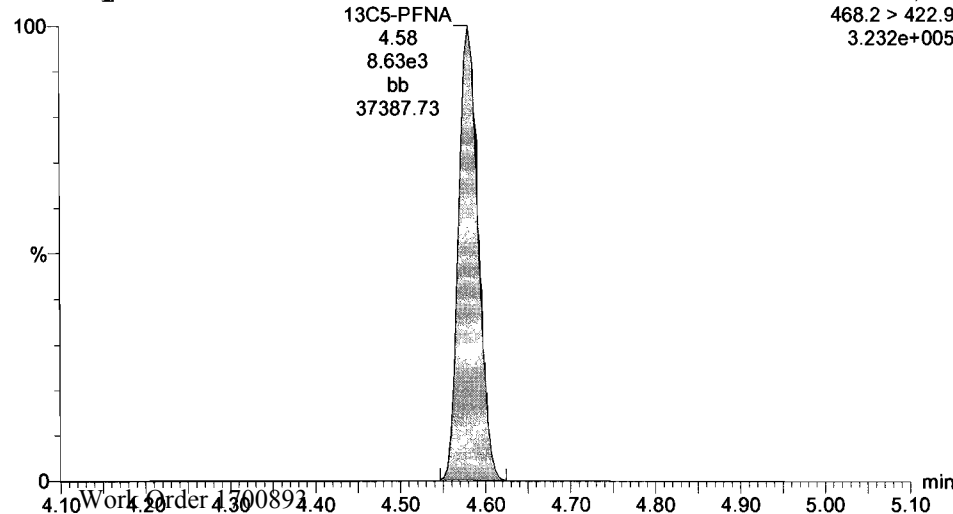
F6:MRM of 4 channels,ES-  
512.7 > 468.7  
5.948e+005



**13C5-PFNA**

170731G4\_35

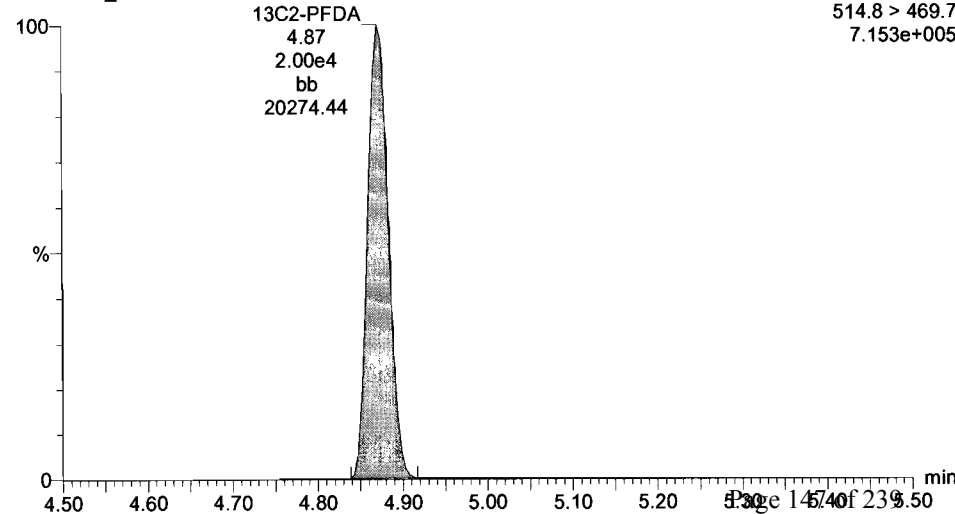
F5:MRM of 12 channels,ES-  
468.2 > 422.9  
3.232e+005



**13C2-PFDA**

170731G4\_35

F6:MRM of 4 channels,ES-  
514.8 > 469.7  
7.153e+005



Dataset:      U:\G1.PRO\Results\2017\170731G4\170731G4-35.qld

Last Altered:    Tuesday, August 01, 2017 08:34:35 Pacific Daylight Time

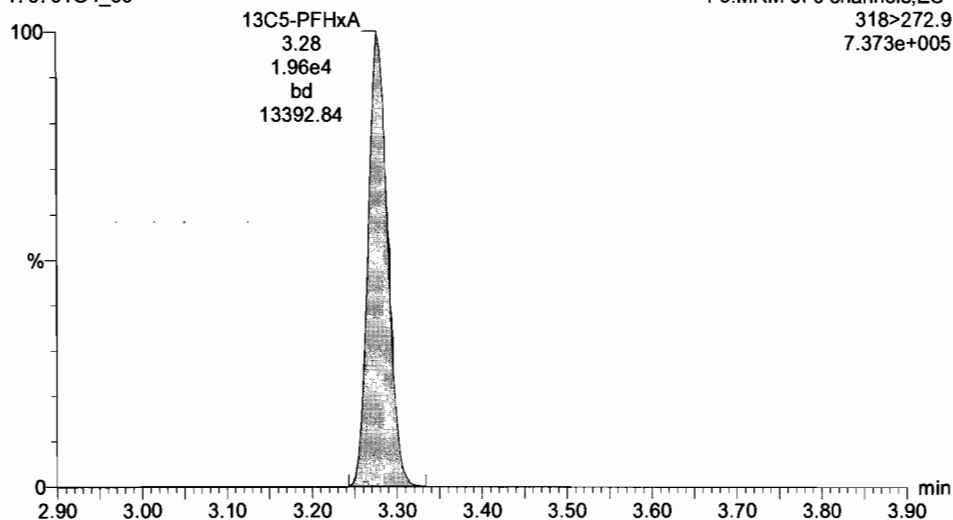
Printed:        Tuesday, August 01, 2017 08:42:00 Pacific Daylight Time

ID: ST170731G4-3 PFC CS3 17G3104, Description: PFC CS3 17G3104 A, Name: 170731G4\_35, Date: 01-Aug-2017, Time: 03:24:41, Instrument: , Lab: , User:

**13C5-PFHxA**

170731G4\_35

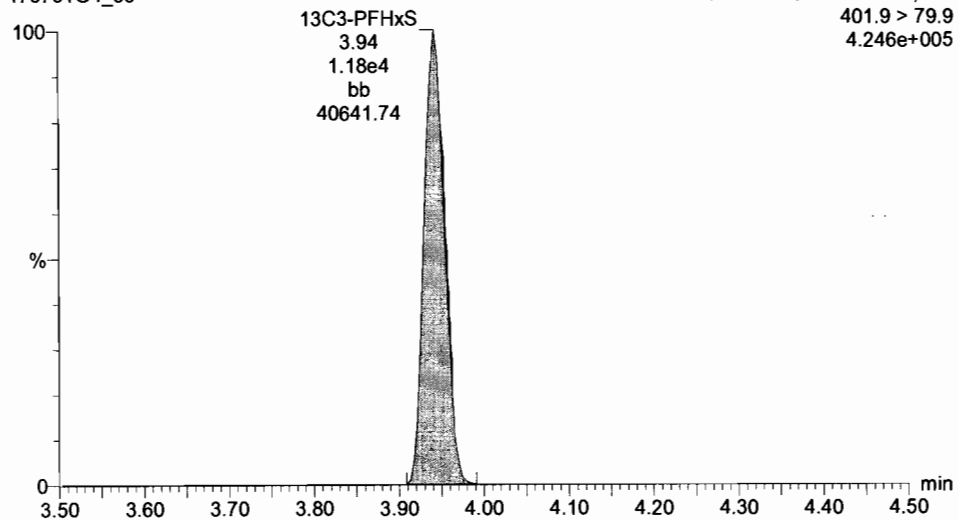
F3:MRM of 9 channels,ES-  
318>272.9  
7.373e+005



**13C3-PFHxS**

170731G4\_35

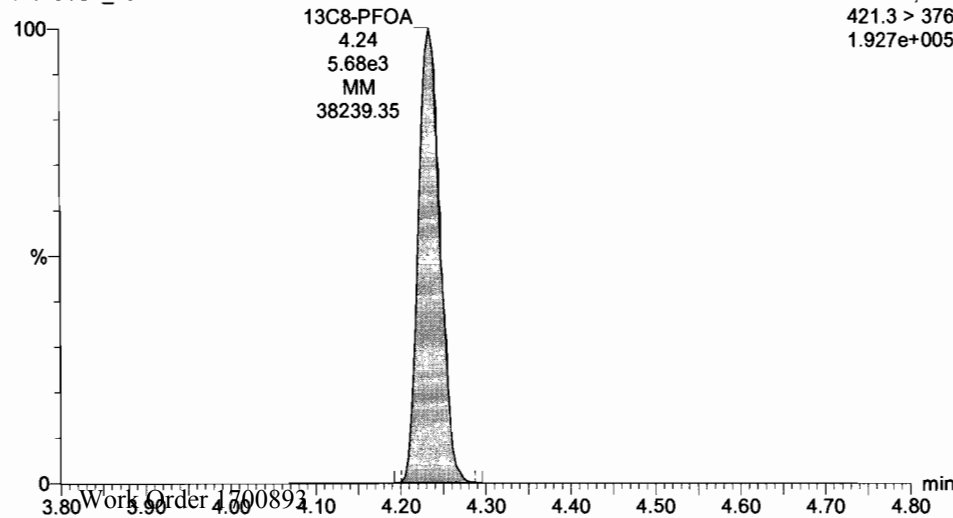
F4:MRM of 7 channels,ES-  
401.9 > 79.9  
4.246e+005



**13C8-PFOA**

170731G4\_35

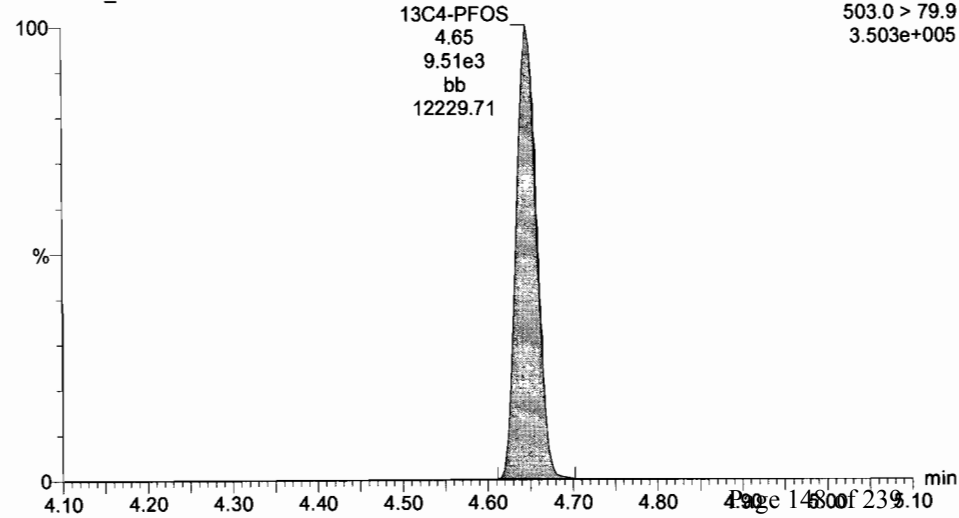
F5:MRM of 12 channels,ES-  
421.3 > 376  
1.927e+005



**13C4-PFOS**

170731G4\_35

F5:MRM of 12 channels,ES-  
503.0 > 79.9  
3.503e+005

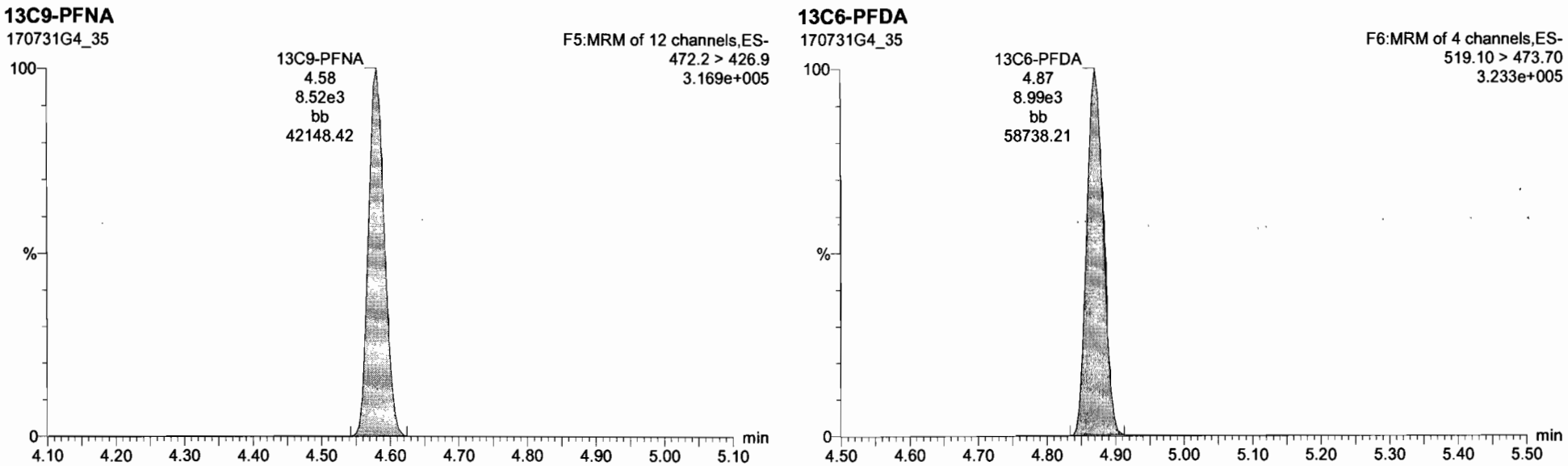


Dataset: U:\G1.PRO\Results\2017\170731G4\170731G4-35.qld

Last Altered: Tuesday, August 01, 2017 08:34:35 Pacific Daylight Time

Printed: Tuesday, August 01, 2017 08:42:00 Pacific Daylight Time

ID: ST170731G4-3 PFC CS3 17G3104, Description: PFC CS3 17G3104 A, Name: 170731G4\_35, Date: 01-Aug-2017, Time: 03:24:41, Instrument: , Lab: , User:



## **INITIAL CALIBRATION**

Dataset: U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered: Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

Printed: Thursday, July 27, 2017 14:52:25 Pacific Daylight Time

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.PRO\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

**Compound name: PFBA**

Correlation coefficient:  $r = 0.999824$ ,  $r^2 = 0.999647$

Calibration curve:  $0.747533 * x + 0.048007$

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

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	0.250	1.67	3.78e2	2.10e4	0.238	-5.0	0.903
2	2 170727G1_3	0.500	1.68	7.43e2	2.27e4	0.483	-3.4	0.818
3	3 170727G1_4	1.00	1.68	1.40e3	2.13e4	1.04	3.7	0.823
4	4 170727G1_5	2.00	1.67	2.90e3	2.25e4	2.09	4.3	0.804
5	5 170727G1_6	5.00	1.68	6.65e3	2.07e4	5.30	5.9	0.801
6	6 170727G1_7	10.0	1.67	1.45e4	2.55e4	9.44	-5.6	0.710
7	7 170727G1_8	50.0	1.68	6.31e4	2.11e4	49.9	-0.2	0.747
8	8 170727G1_9	100	1.68	1.32e5	2.19e4	100	0.3	0.750

Yea 7/27/17  
✓ AC 7/27/17

**Compound name: PFPeA**

Correlation coefficient:  $r = 0.999667$ ,  $r^2 = 0.999334$

Calibration curve:  $1.10054 * x + 0.0486908$

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

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	0.250	2.62	1.86e2	7.64e3	0.233	-6.8	1.22
2	2 170727G1_3	0.500	2.63	3.85e2	8.33e3	0.481	-3.8	1.16
3	3 170727G1_4	1.00	2.63	7.66e2	7.75e3	1.08	7.8	1.23
4	4 170727G1_5	2.00	2.63	1.54e3	8.54e3	2.01	0.5	1.13
5	5 170727G1_6	5.00	2.63	3.71e3	7.82e3	5.34	6.8	1.18
6	6 170727G1_7	10.0	2.63	7.58e3	9.10e3	9.42	-5.8	1.04
7	7 170727G1_8	50.0	2.63	3.27e4	7.23e3	51.2	2.5	1.13
8	8 170727G1_9	100	2.62	6.37e4	7.31e3	98.9	-1.1	1.09

Dataset: U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered: Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

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**Compound name: PFBS**

Correlation coefficient:  $r = 0.999365$ ,  $r^2 = 0.998731$

Calibration curve:  $1.60766 * x + 0.593256$

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

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	0.250	2.91	1.56e2	4.70e3			1.66
2	2 170727G1_3	0.500	2.91	5.18e2	4.48e3	0.531	6.1	2.89
3	3 170727G1_4	1.00	2.91	7.48e2	4.63e3	0.886	-11.4	2.02
4	4 170727G1_5	2.00	2.91	1.51e3	5.33e3	1.83	-8.6	1.77
5	5 170727G1_6	5.00	2.91	3.40e3	4.48e3	5.53	10.7	1.90
6	6 170727G1_7	10.0	2.91	7.34e3	5.40e3	10.2	1.9	1.70
7	7 170727G1_8	50.0	2.91	2.94e4	4.38e3	51.7	3.4	1.67
8	8 170727G1_9	100	2.91	5.18e4	4.10e3	97.8	-2.2	1.58

**Compound name: PFHxA**

Correlation coefficient:  $r = 0.999065$ ,  $r^2 = 0.998131$

Calibration curve:  $1.89981 * x + 0.153363$

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

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	0.250	3.28	2.81e2	5.77e3	0.240	-4.0	2.44
2	2 170727G1_3	0.500	3.28	5.54e2	7.04e3	0.436	-12.7	1.97
3	3 170727G1_4	1.00	3.28	1.13e3	6.35e3	1.09	8.6	2.22
4	4 170727G1_5	2.00	3.28	2.22e3	6.86e3	2.04	2.2	2.02
5	5 170727G1_6	5.00	3.28	5.20e3	5.84e3	5.78	15.6	2.23
6	6 170727G1_7	10.0	3.28	1.11e4	7.89e3	9.21	-7.9	1.77
7	7 170727G1_8	50.0	3.28	4.46e4	6.09e3	48.2	-3.7	1.83
8	8 170727G1_9	100	3.29	8.84e4	5.71e3	102	1.8	1.94



Dataset: U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

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**Compound name: PFHpA**

Correlation coefficient:  $r = 0.999666$ ,  $r^2 = 0.999332$

Calibration curve:  $1.94658 * x + 0.2548$

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

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	0.250	3.81	3.78e2	7.45e3	0.195	-22.1	2.54
2	2 170727G1_3	0.500	3.82	8.08e2	8.06e3	0.513	2.6	2.51
3	3 170727G1_4	1.00	3.81	1.65e3	8.77e3	1.08	7.5	2.35
4	4 170727G1_5	2.00	3.81	3.13e3	8.92e3	2.13	6.3	2.20
5	5 170727G1_6	5.00	3.81	7.12e3	8.20e3	5.45	9.0	2.17
6	6 170727G1_7	10.0	3.81	1.60e4	1.05e4	9.60	-4.0	1.89
7	7 170727G1_8	50.0	3.81	6.42e4	8.09e3	50.8	1.7	1.98
8	8 170727G1_9	100	3.81	1.21e5	7.84e3	99.0	-1.0	1.93

**Compound name: PFHxS**

Correlation coefficient:  $r = 0.999617$ ,  $r^2 = 0.999233$

Calibration curve:  $1.77848 * x + 0.109682$

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

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	0.250	3.94	1.62e2	3.88e3	0.232	-7.1	2.09
2	2 170727G1_3	0.500	3.95	4.30e2	4.68e3	0.584	16.7	2.30
3	3 170727G1_4	1.00	3.94	6.02e2	4.35e3	0.911	-8.9	1.73
4	4 170727G1_5	2.00	3.94	1.37e3	4.63e3	2.02	1.2	1.85
5	5 170727G1_6	5.00	3.94	3.35e3	4.52e3	5.15	3.0	1.85
6	6 170727G1_7	10.0	3.94	7.31e3	5.48e3	9.31	-6.9	1.67
7	7 170727G1_8	50.0	3.94	3.04e4	4.15e3	51.4	2.8	1.83
8	8 170727G1_9	100	3.94	5.94e4	4.21e3	99.1	-0.9	1.76

Dataset: U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

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**Compound name: PFOA**

Correlation coefficient:  $r = 0.998786$ ,  $r^2 = 0.997574$

Calibration curve:  $0.797511 * x + 0.0924786$

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

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	0.250	4.24	3.42e2	1.63e4	0.213	-15.0	1.05
2	2 170727G1_3	0.500	4.24	7.66e2	1.67e4	0.602	20.4	1.14
3	3 170727G1_4	1.00	4.23	1.34e3	1.73e4	1.10	10.0	0.969
4	4 170727G1_5	2.00	4.24	2.75e3	1.86e4	2.21	10.3	0.926
5	5 170727G1_6	5.00	4.24	7.23e3	1.80e4	6.16	23.3	1.00
6	6 170727G1_7	10.0	4.24	1.44e4	2.24e4	9.96	-0.4	0.804
7	7 170727G1_8	50.0	4.24	5.59e4	1.77e4	49.4	-1.3	0.789
8	8 170727G1_9	100	4.24	1.14e5	1.80e4	99.2	-0.8	0.792

**Compound name: PFNA**

Coefficient of Determination:  $R^2 = 0.999639$

Calibration curve:  $-0.00237877 * x^2 + 2.32641 * x + 0.0752635$

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

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	0.250	4.58	2.70e2	4.96e3	0.260	4.1	2.72
2	2 170727G1_3	0.500	4.58	6.08e2	6.55e3	0.466	-6.7	2.32
3	3 170727G1_4	1.00	4.58	1.08e3	5.92e3	0.954	-4.6	2.29
4	4 170727G1_5	2.00	4.58	2.72e3	6.93e3	2.08	4.0	2.45
5	5 170727G1_6	5.00	4.58	6.11e3	6.11e3	5.37	7.3	2.50
6	6 170727G1_7	10.0	4.58	1.31e4	7.36e3	9.60	-4.0	2.22
7	7 170727G1_8	50.0	4.58	6.15e4	6.96e3	50.0	-0.0	2.21
8	8 170727G1_9	100	4.58	1.22e5	7.32e3	100	0.0	2.09

Dataset: U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

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**Compound name: PFOS**

Correlation coefficient:  $r = 0.999145$ ,  $r^2 = 0.998292$

Calibration curve:  $0.470087 * x + 0.0287104$

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

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	0.250	4.64	6.12e1	5.46e3	0.237	-5.3	0.560
2	2 170727G1_3	0.500	4.64	1.27e2	6.34e3	0.472	-5.5	0.502
3	3 170727G1_4	1.00	4.64	2.59e2	6.56e3	0.990	-1.0	0.494
4	4 170727G1_5	2.00	4.64	5.73e2	7.61e3	1.94	-2.9	0.471
5	5 170727G1_6	5.00	4.64	1.51e3	7.06e3	5.61	12.2	0.533
6	6 170727G1_7	10.0	4.64	3.08e3	8.09e3	10.1	0.6	0.476
7	7 170727G1_8	50.0	4.64	1.54e4	7.84e3	52.4	4.7	0.493
8	8 170727G1_9	100	4.64	3.11e4	8.50e3	97.1	-2.9	0.457

**Compound name: PFDA**

Coefficient of Determination:  $R^2 = 0.999346$

Calibration curve:  $-0.000179878 * x^2 + 0.198072 * x + 0.02746$

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

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

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	0.250	4.87	4.13e1	8.28e3	0.176	-29.6	0.249
2	2 170727G1_3	0.500	4.87	1.24e2	1.08e4	0.592	18.3	0.289
3	3 170727G1_4	1.00	4.87	1.85e2	1.06e4	0.967	-3.3	0.219
4	4 170727G1_5	2.00	4.87	4.71e2	1.25e4	2.24	11.8	0.235
5	5 170727G1_6	5.00	4.87	9.70e2	1.15e4	5.23	4.5	0.212
6	6 170727G1_7	10.0	4.87	1.93e3	1.22e4	9.95	-0.5	0.198
7	7 170727G1_8	50.0	4.87	1.03e4	1.38e4	49.2	-1.7	0.187
8	8 170727G1_9	100	4.87	2.06e4	1.42e4	100	0.5	0.181

Dataset: U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

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**Compound name: 13C3-PFBA**

Response Factor: 1.18261

RRF SD: 0.0351574, Relative SD: 2.97286

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

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	12.5	1.67	2.10e4	1.77e4	12.5	0.2	1.18
2	2 170727G1_3	12.5	1.67	2.27e4	1.84e4	13.1	4.6	1.24
3	3 170727G1_4	12.5	1.67	2.13e4	1.76e4	12.8	2.6	1.21
4	4 170727G1_5	12.5	1.67	2.25e4	1.91e4	12.5	-0.2	1.18
5	5 170727G1_6	12.5	1.67	2.07e4	1.79e4	12.3	-1.9	1.16
6	6 170727G1_7	12.5	1.67	2.55e4	2.11e4	12.8	2.0	1.21
7	7 170727G1_8	12.5	1.67	2.11e4	1.85e4	12.1	-3.5	1.14
8	8 170727G1_9	12.5	1.67	2.19e4	1.93e4	12.0	-3.8	1.14

**Compound name: 13C3-PFBS**

Response Factor: 0.262761

RRF SD: 0.0164175, Relative SD: 6.24805

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

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	12.5	2.91	4.70e3	1.73e4	12.9	3.2	0.271
2	2 170727G1_3	12.5	2.91	4.48e3	1.90e4	11.2	-10.1	0.236
3	3 170727G1_4	12.5	2.91	4.63e3	1.62e4	13.6	8.6	0.285
4	4 170727G1_5	12.5	2.91	5.33e3	1.95e4	13.0	4.2	0.274
5	5 170727G1_6	12.5	2.91	4.48e3	1.70e4	12.5	0.1	0.263
6	6 170727G1_7	12.5	2.91	5.40e3	2.04e4	12.6	0.8	0.265
7	7 170727G1_8	12.5	2.91	4.38e3	1.64e4	12.7	1.4	0.266
8	8 170727G1_9	12.5	2.91	4.10e3	1.70e4	11.5	-8.1	0.241

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**Compound name: 13C3-PFPeA**

Response Factor: 0.446443

RRF SD: 0.0151073, Relative SD: 3.38392

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

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	12.5	2.63	7.64e3	1.73e4	12.3	-1.2	0.441
2	2 170727G1_3	12.5	2.63	8.33e3	1.90e4	12.3	-1.6	0.439
3	3 170727G1_4	12.5	2.63	7.75e3	1.62e4	13.4	7.0	0.478
4	4 170727G1_5	12.5	2.63	8.54e3	1.95e4	12.3	-1.6	0.439
5	5 170727G1_6	12.5	2.63	7.82e3	1.70e4	12.9	2.9	0.459
6	6 170727G1_7	12.5	2.63	9.10e3	2.04e4	12.5	-0.1	0.446
7	7 170727G1_8	12.5	2.63	7.23e3	1.64e4	12.3	-1.5	0.440
8	8 170727G1_9	12.5	2.62	7.31e3	1.70e4	12.0	-3.7	0.430

**Compound name: 13C2-PFHxA**

Response Factor: 0.360561

RRF SD: 0.0226683, Relative SD: 6.28695

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

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	12.5	3.28	5.77e3	1.73e4	11.5	-7.6	0.333
2	2 170727G1_3	12.5	3.28	7.04e3	1.90e4	12.9	3.0	0.372
3	3 170727G1_4	12.5	3.28	6.35e3	1.62e4	13.6	8.6	0.391
4	4 170727G1_5	12.5	3.28	6.86e3	1.95e4	12.2	-2.2	0.353
5	5 170727G1_6	12.5	3.28	5.84e3	1.70e4	11.9	-5.0	0.343
6	6 170727G1_7	12.5	3.28	7.89e3	2.04e4	13.4	7.3	0.387
7	7 170727G1_8	12.5	3.28	6.09e3	1.64e4	12.8	2.7	0.370
8	8 170727G1_9	12.5	3.28	5.71e3	1.70e4	11.6	-6.8	0.336

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**Compound name: 13C4-PFHpA**

Response Factor: 0.475457

RRF SD: 0.0400935, Relative SD: 8.43262

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

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	12.5	3.81	7.45e3	1.73e4	11.3	-9.6	0.430
2	2 170727G1_3	12.5	3.81	8.06e3	1.90e4	11.2	-10.6	0.425
3	3 170727G1_4	12.5	3.81	8.77e3	1.62e4	14.2	13.6	0.540
4	4 170727G1_5	12.5	3.81	8.92e3	1.95e4	12.0	-3.6	0.458
5	5 170727G1_6	12.5	3.81	8.20e3	1.70e4	12.7	1.2	0.481
6	6 170727G1_7	12.5	3.81	1.05e4	2.04e4	13.6	8.5	0.516
7	7 170727G1_8	12.5	3.81	8.09e3	1.64e4	12.9	3.4	0.492
8	8 170727G1_9	12.5	3.81	7.84e3	1.70e4	12.1	-3.0	0.461

**Compound name: 18O2-PFHxS**

Response Factor: 0.41062

RRF SD: 0.0152633, Relative SD: 3.71715

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

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	12.5	3.94	3.88e3	9.33e3	12.7	1.3	0.416
2	2 170727G1_3	12.5	3.94	4.68e3	1.09e4	13.1	4.9	0.431
3	3 170727G1_4	12.5	3.94	4.35e3	1.09e4	12.1	-3.3	0.397
4	4 170727G1_5	12.5	3.94	4.63e3	1.19e4	11.8	-5.4	0.388
5	5 170727G1_6	12.5	3.94	4.52e3	1.07e4	12.8	2.7	0.422
6	6 170727G1_7	12.5	3.94	5.48e3	1.30e4	12.8	2.5	0.421
7	7 170727G1_8	12.5	3.94	4.15e3	1.05e4	12.0	-3.9	0.395
8	8 170727G1_9	12.5	3.94	4.21e3	1.01e4	12.6	1.1	0.415

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**Compound name: 13C2-PFOA**

Response Factor: 2.84292

RRF SD: 0.169045, Relative SD: 5.94617

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

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	12.5	4.23	1.63e4	5.56e3	12.9	3.2	2.94
2	2 170727G1_3	12.5	4.24	1.67e4	6.24e3	11.8	-5.6	2.68
3	3 170727G1_4	12.5	4.24	1.73e4	6.06e3	12.5	0.3	2.85
4	4 170727G1_5	12.5	4.24	1.86e4	6.19e3	13.2	5.6	3.00
5	5 170727G1_6	12.5	4.23	1.80e4	5.76e3	13.8	10.1	3.13
6	6 170727G1_7	12.5	4.24	2.24e4	8.45e3	11.6	-7.0	2.64
7	7 170727G1_8	12.5	4.24	1.77e4	6.39e3	12.2	-2.5	2.77
8	8 170727G1_9	12.5	4.24	1.80e4	6.59e3	12.0	-4.1	2.73

**Compound name: 13C5-PFNA**

Response Factor: 0.853546

RRF SD: 0.0383372, Relative SD: 4.49152

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

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	12.5	4.58	4.96e3	5.69e3	12.8	2.1	0.872
2	2 170727G1_3	12.5	4.58	6.55e3	7.13e3	13.5	7.6	0.919
3	3 170727G1_4	12.5	4.58	5.92e3	7.07e3	12.3	-1.9	0.838
4	4 170727G1_5	12.5	4.58	6.93e3	8.26e3	12.3	-1.7	0.839
5	5 170727G1_6	12.5	4.57	6.11e3	6.89e3	13.0	3.8	0.886
6	6 170727G1_7	12.5	4.58	7.36e3	9.28e3	11.6	-7.0	0.794
7	7 170727G1_8	12.5	4.58	6.96e3	8.18e3	12.5	-0.3	0.851
8	8 170727G1_9	12.5	4.58	7.32e3	8.82e3	12.2	-2.8	0.830

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**Compound name: 13C2-PFDA**

Response Factor: 1.74189

RRF SD: 0.0344803, Relative SD: 1.97948

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

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	12.5	4.87	8.28e3	4.70e3	12.6	1.0	1.76
2	2 170727G1_3	12.5	4.87	1.08e4	6.26e3	12.3	-1.4	1.72
3	3 170727G1_4	12.5	4.87	1.06e4	6.00e3	12.7	1.3	1.76
4	4 170727G1_5	12.5	4.87	1.25e4	7.21e3	12.5	-0.1	1.74
5	5 170727G1_6	12.5	4.87	1.15e4	6.64e3	12.4	-0.8	1.73
6	6 170727G1_7	12.5	4.87	1.22e4	7.25e3	12.0	-3.7	1.68
7	7 170727G1_8	12.5	4.87	1.38e4	7.73e3	12.8	2.8	1.79
8	8 170727G1_9	12.5	4.87	1.42e4	8.08e3	12.6	0.9	1.76

**Compound name: 13C8-PFOS**

Response Factor: 0.927146

RRF SD: 0.0309514, Relative SD: 3.33836

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

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	12.5	4.64	5.46e3	6.02e3	12.2	-2.1	0.907
2	2 170727G1_3	12.5	4.64	6.34e3	6.85e3	12.5	-0.1	0.927
3	3 170727G1_4	12.5	4.64	6.56e3	7.35e3	12.0	-3.7	0.893
4	4 170727G1_5	12.5	4.64	7.61e3	8.50e3	12.1	-3.4	0.895
5	5 170727G1_6	12.5	4.64	7.06e3	7.46e3	12.8	2.1	0.947
6	6 170727G1_7	12.5	4.64	8.09e3	8.74e3	12.5	-0.2	0.925
7	7 170727G1_8	12.5	4.64	7.84e3	8.39e3	12.6	0.7	0.934
8	8 170727G1_9	12.5	4.64	8.50e3	8.61e3	13.3	6.6	0.988



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**Compound name: 13C4-PFBA**

Response Factor: 1

RRF SD: 0, Relative SD: 0

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

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	12.5	1.66	1.77e4	1.77e4	12.5	0.0	1.00
2	2 170727G1_3	12.5	1.67	1.84e4	1.84e4	12.5	0.0	1.00
3	3 170727G1_4	12.5	1.67	1.76e4	1.76e4	12.5	0.0	1.00
4	4 170727G1_5	12.5	1.67	1.91e4	1.91e4	12.5	0.0	1.00
5	5 170727G1_6	12.5	1.68	1.79e4	1.79e4	12.5	0.0	1.00
6	6 170727G1_7	12.5	1.67	2.11e4	2.11e4	12.5	0.0	1.00
7	7 170727G1_8	12.5	1.67	1.85e4	1.85e4	12.5	0.0	1.00
8	8 170727G1_9	12.5	1.67	1.93e4	1.93e4	12.5	0.0	1.00

**Compound name: 13C5-PFHxA**

Response Factor: 1

RRF SD: 0, Relative SD: 0

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

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	12.5	3.28	1.73e4	1.73e4	12.5	0.0	1.00
2	2 170727G1_3	12.5	3.28	1.90e4	1.90e4	12.5	0.0	1.00
3	3 170727G1_4	12.5	3.28	1.62e4	1.62e4	12.5	0.0	1.00
4	4 170727G1_5	12.5	3.28	1.95e4	1.95e4	12.5	0.0	1.00
5	5 170727G1_6	12.5	3.28	1.70e4	1.70e4	12.5	0.0	1.00
6	6 170727G1_7	12.5	3.28	2.04e4	2.04e4	12.5	0.0	1.00
7	7 170727G1_8	12.5	3.28	1.64e4	1.64e4	12.5	0.0	1.00
8	8 170727G1_9	12.5	3.28	1.70e4	1.70e4	12.5	0.0	1.00

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**Compound name: 13C3-PFHxS**

Response Factor: 1

RRF SD: 0, Relative SD: 0

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

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	12.5	3.94	9.33e3	9.33e3	12.5	0.0	1.00
2	2 170727G1_3	12.5	3.94	1.09e4	1.09e4	12.5	0.0	1.00
3	3 170727G1_4	12.5	3.94	1.09e4	1.09e4	12.5	0.0	1.00
4	4 170727G1_5	12.5	3.94	1.19e4	1.19e4	12.5	0.0	1.00
5	5 170727G1_6	12.5	3.94	1.07e4	1.07e4	12.5	0.0	1.00
6	6 170727G1_7	12.5	3.94	1.30e4	1.30e4	12.5	0.0	1.00
7	7 170727G1_8	12.5	3.94	1.05e4	1.05e4	12.5	0.0	1.00
8	8 170727G1_9	12.5	3.94	1.01e4	1.01e4	12.5	0.0	1.00

**Compound name: 13C8-PFOA**

Response Factor: 1

RRF SD: 0, Relative SD: 0

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

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	12.5	4.23	5.56e3	5.56e3	12.5	0.0	1.00
2	2 170727G1_3	12.5	4.24	6.24e3	6.24e3	12.5	0.0	1.00
3	3 170727G1_4	12.5	4.23	6.06e3	6.06e3	12.5	0.0	1.00
4	4 170727G1_5	12.5	4.23	6.19e3	6.19e3	12.5	0.0	1.00
5	5 170727G1_6	12.5	4.23	5.76e3	5.76e3	12.5	0.0	1.00
6	6 170727G1_7	12.5	4.24	8.45e3	8.45e3	12.5	0.0	1.00
7	7 170727G1_8	12.5	4.24	6.39e3	6.39e3	12.5	0.0	1.00
8	8 170727G1_9	12.5	4.24	6.59e3	6.59e3	12.5	0.0	1.00

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**Compound name: 13C9-PFNA**

Response Factor: 1

RRF SD: 4.19625e-017, Relative SD: 4.19625e-015

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

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	12.5	4.57	5.69e3	5.69e3	12.5	0.0	1.00
2	2 170727G1_3	12.5	4.58	7.13e3	7.13e3	12.5	0.0	1.00
3	3 170727G1_4	12.5	4.58	7.07e3	7.07e3	12.5	0.0	1.00
4	4 170727G1_5	12.5	4.58	8.26e3	8.26e3	12.5	0.0	1.00
5	5 170727G1_6	12.5	4.57	6.89e3	6.89e3	12.5	-0.0	1.00
6	6 170727G1_7	12.5	4.58	9.28e3	9.28e3	12.5	0.0	1.00
7	7 170727G1_8	12.5	4.58	8.18e3	8.18e3	12.5	0.0	1.00
8	8 170727G1_9	12.5	4.57	8.82e3	8.82e3	12.5	0.0	1.00

**Compound name: 13C4-PFOS**

Response Factor: 1

RRF SD: 5.93439e-017, Relative SD: 5.93439e-015

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

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	12.5	4.64	6.02e3	6.02e3	12.5	0.0	1.00
2	2 170727G1_3	12.5	4.64	6.85e3	6.85e3	12.5	0.0	1.00
3	3 170727G1_4	12.5	4.64	7.35e3	7.35e3	12.5	0.0	1.00
4	4 170727G1_5	12.5	4.64	8.50e3	8.50e3	12.5	0.0	1.00
5	5 170727G1_6	12.5	4.64	7.46e3	7.46e3	12.5	0.0	1.00
6	6 170727G1_7	12.5	4.64	8.74e3	8.74e3	12.5	-0.0	1.00
7	7 170727G1_8	12.5	4.64	8.39e3	8.39e3	12.5	-0.0	1.00
8	8 170727G1_9	12.5	4.64	8.61e3	8.61e3	12.5	0.0	1.00

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**Compound name: 13C6-PFDA**

Response Factor: 1

RRF SD: 0, Relative SD: 0

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

Curve type: RF

	# Name	Std. Conc	RT	Resp	IS Resp	Conc.	%Dev	RRF
1	1 170727G1_2	12.5	4.87	4.70e3	4.70e3	12.5	0.0	1.00
2	2 170727G1_3	12.5	4.87	6.26e3	6.26e3	12.5	0.0	1.00
3	3 170727G1_4	12.5	4.87	6.00e3	6.00e3	12.5	0.0	1.00
4	4 170727G1_5	12.5	4.87	7.21e3	7.21e3	12.5	0.0	1.00
5	5 170727G1_6	12.5	4.87	6.64e3	6.64e3	12.5	0.0	1.00
6	6 170727G1_7	12.5	4.87	7.25e3	7.25e3	12.5	0.0	1.00
7	7 170727G1_8	12.5	4.87	7.73e3	7.73e3	12.5	0.0	1.00
8	8 170727G1_9	12.5	4.87	8.08e3	8.08e3	12.5	0.0	1.00

Dataset:        Untitled

Last Altered:    Thursday, July 27, 2017 15:00:56 Pacific Daylight Time

Printed:        Thursday, July 27, 2017 15:01:11 Pacific Daylight Time

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

Compound name: PFBA

	Name	ID	Acq.Date	Acq Time
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2	170727G1_2	ST170727G1-1 PFC CS-2 17G2714	27-Jul-17	11:44:22
3	170727G1_3	ST170727G1-2 PFC CS-1 17G2715	27-Jul-17	11:56:54
4	170727G1_4	ST170727G1-3 PFC CS0 17G2716	27-Jul-17	12:09:31
5	170727G1_5	ST170727G1-4 PFC CS1 17G2717	27-Jul-17	12:21:58
6	170727G1_6	ST170727G1-5 PFC CS2 17G2718	27-Jul-17	12:34:32
7	170727G1_7	ST170727G1-6 PFC CS3 17G2719	27-Jul-17	12:47:11
8	170727G1_8	ST170727G1-7 PFC CS4 17G2720	27-Jul-17	12:59:35
9	170727G1_9	ST170727G1-8 PFC CS5 17G2721	27-Jul-17	13:12:08
10	170727G1_10	IPA	27-Jul-17	13:24:41
11	170727G1_11	SS170727G1-1 PFC SSS 17G2713	27-Jul-17	13:37:14
12	170727G1_12	IPA	27-Jul-17	13:49:43

Dataset: U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

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Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.PRO\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

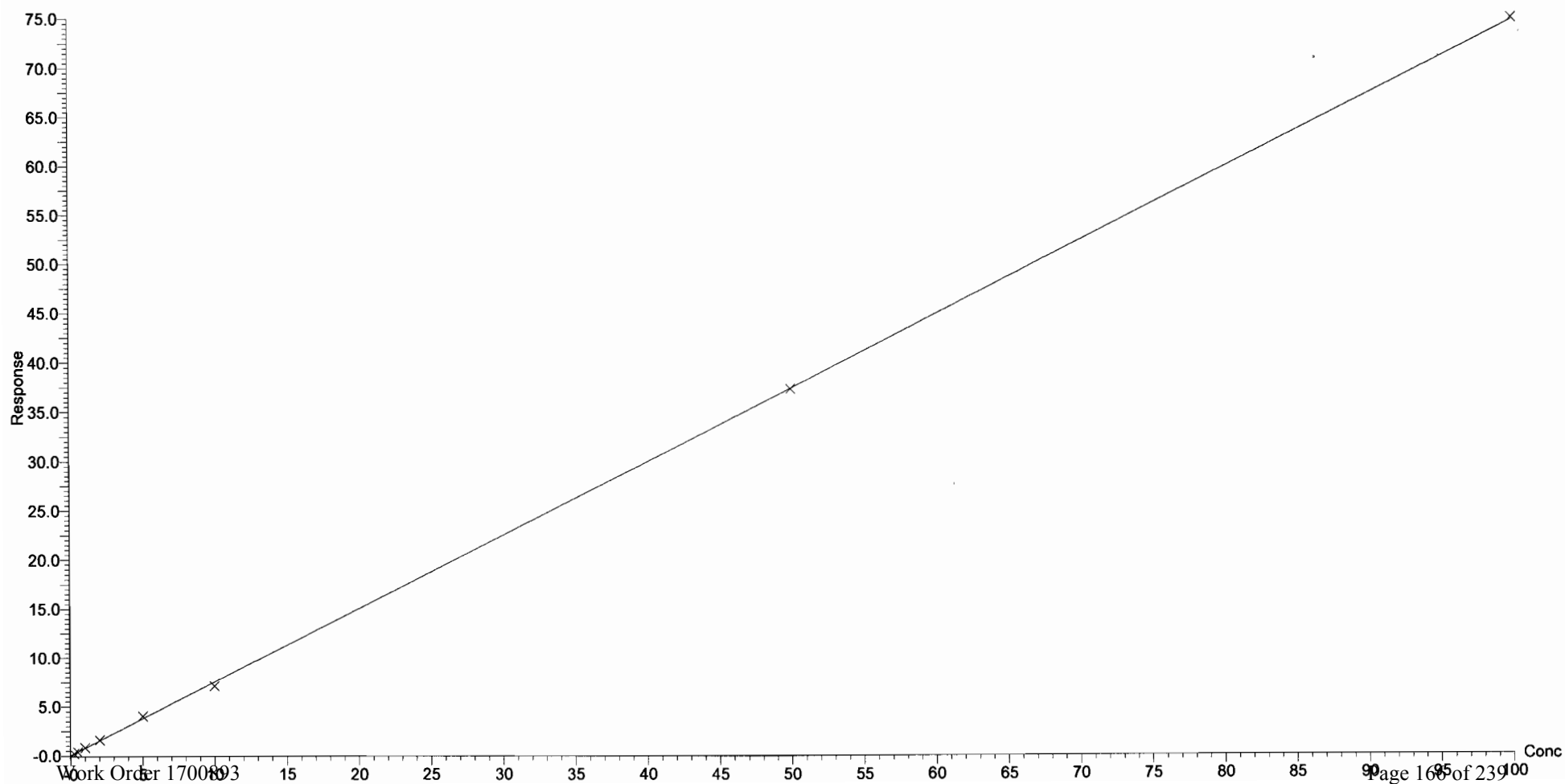
Compound name: PFBA

Correlation coefficient:  $r = 0.999824$ ,  $r^2 = 0.999647$

Calibration curve:  $0.747533 * x + 0.048007$

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

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



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

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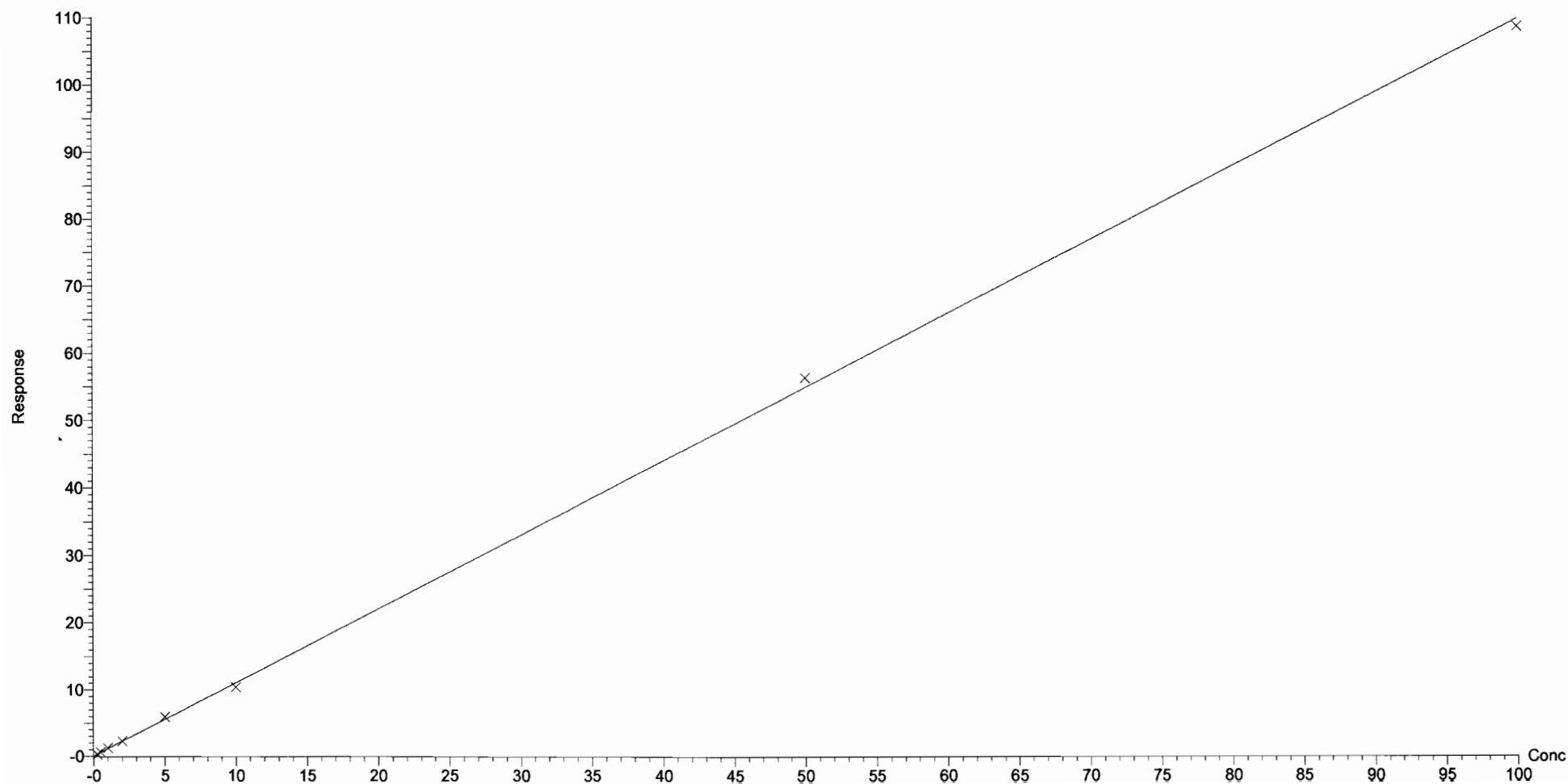
Compound name: PFPeA

Correlation coefficient:  $r = 0.999667$ ,  $r^2 = 0.999334$

Calibration curve:  $1.10054 * x + 0.0486908$

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

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



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

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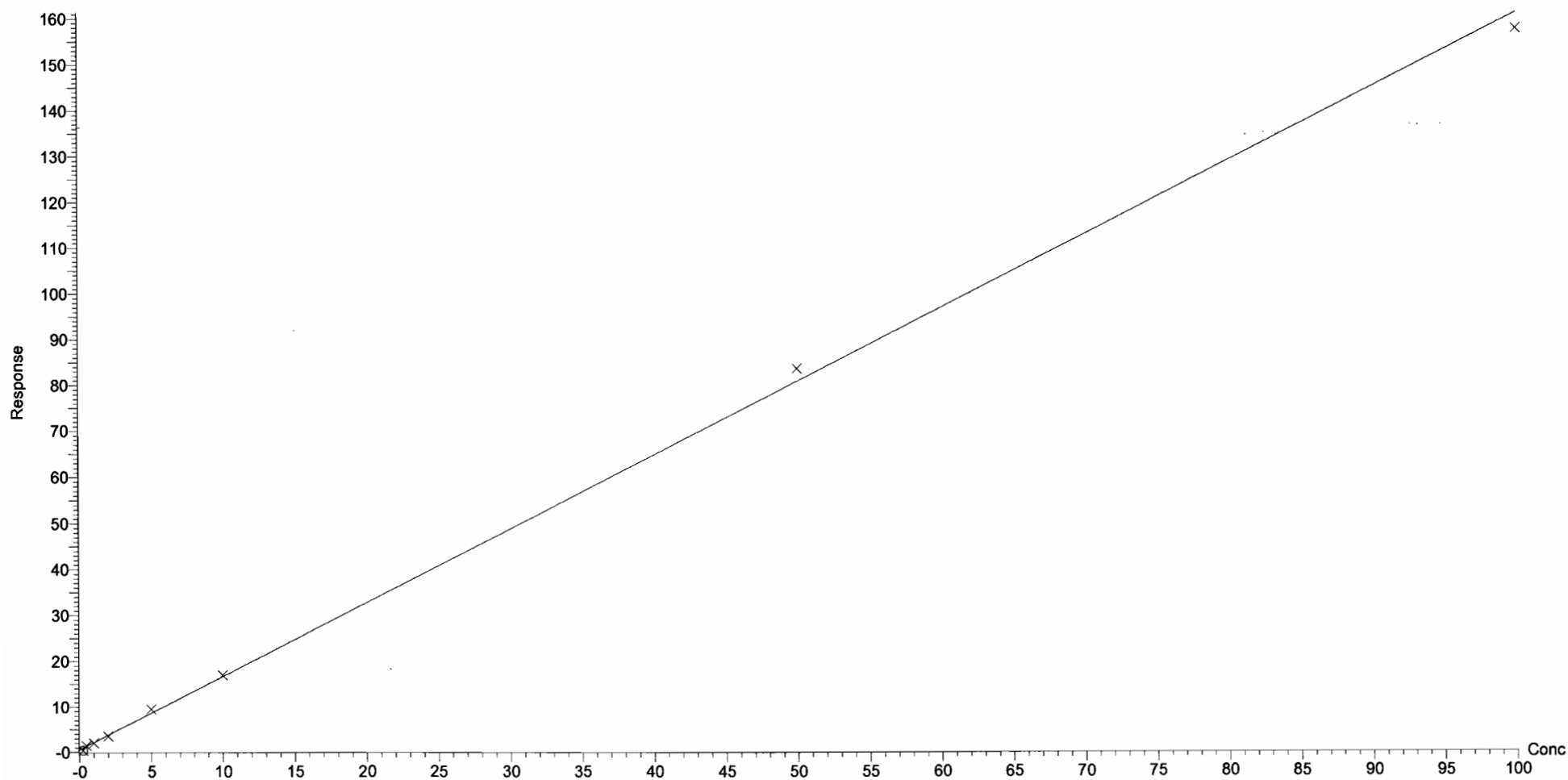
Compound name: PFBS

Correlation coefficient:  $r = 0.999365$ ,  $r^2 = 0.998731$

Calibration curve:  $1.60766 * x + 0.593256$

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

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

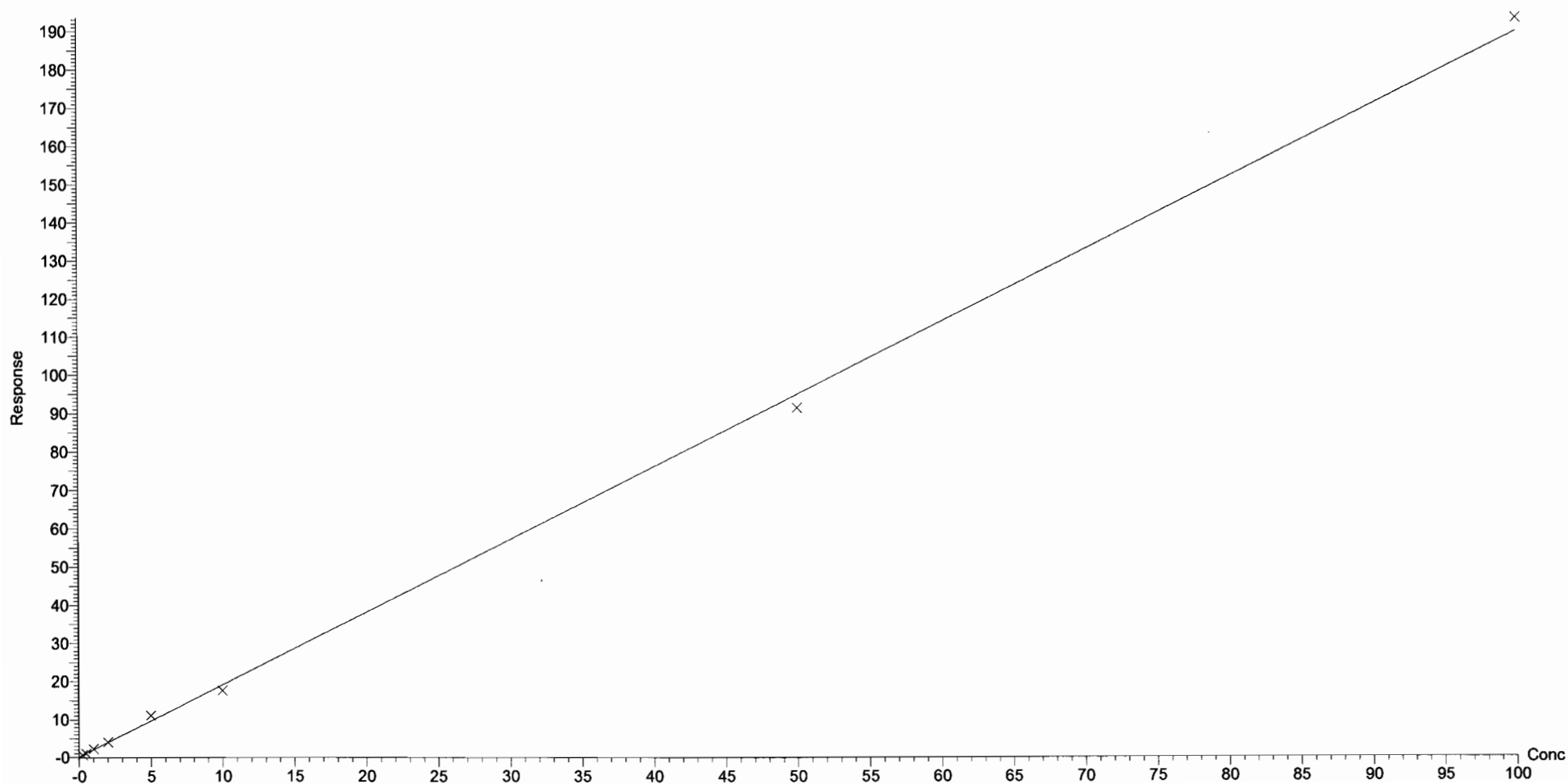




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Compound name: PFHxA  
Correlation coefficient:  $r = 0.999065$ ,  $r^2 = 0.998131$   
Calibration curve:  $1.89981 * x + 0.153363$   
Response type: Internal Std ( Ref 14 ), Area \* ( IS Conc. / IS Area )  
Curve type: Linear, Origin: Exclude, Weighting: 1/x, Axis trans: None



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

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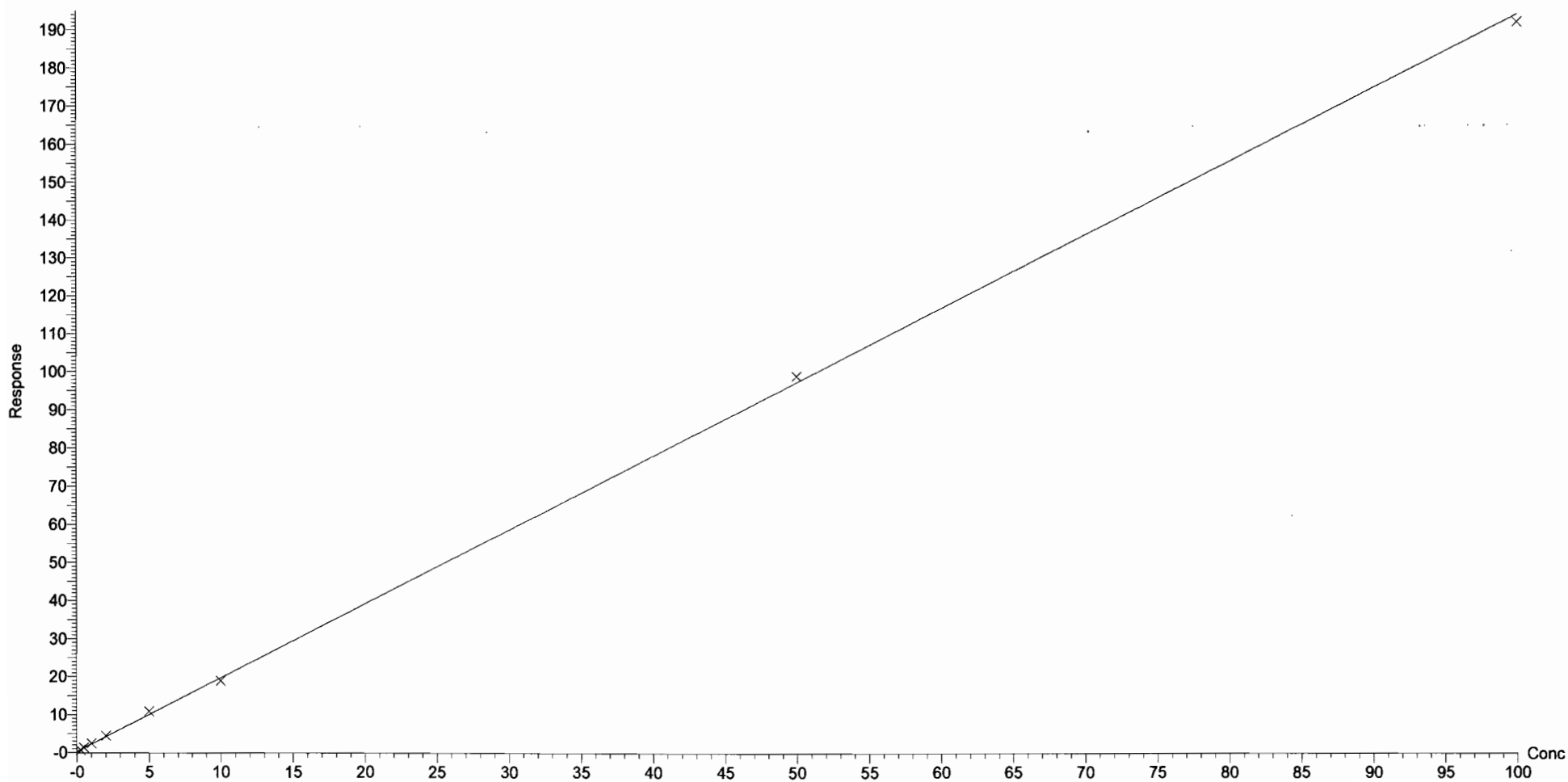
Compound name: PFHpA

Correlation coefficient:  $r = 0.999666$ ,  $r^2 = 0.999332$

Calibration curve:  $1.94658 * x + 0.2548$

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

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



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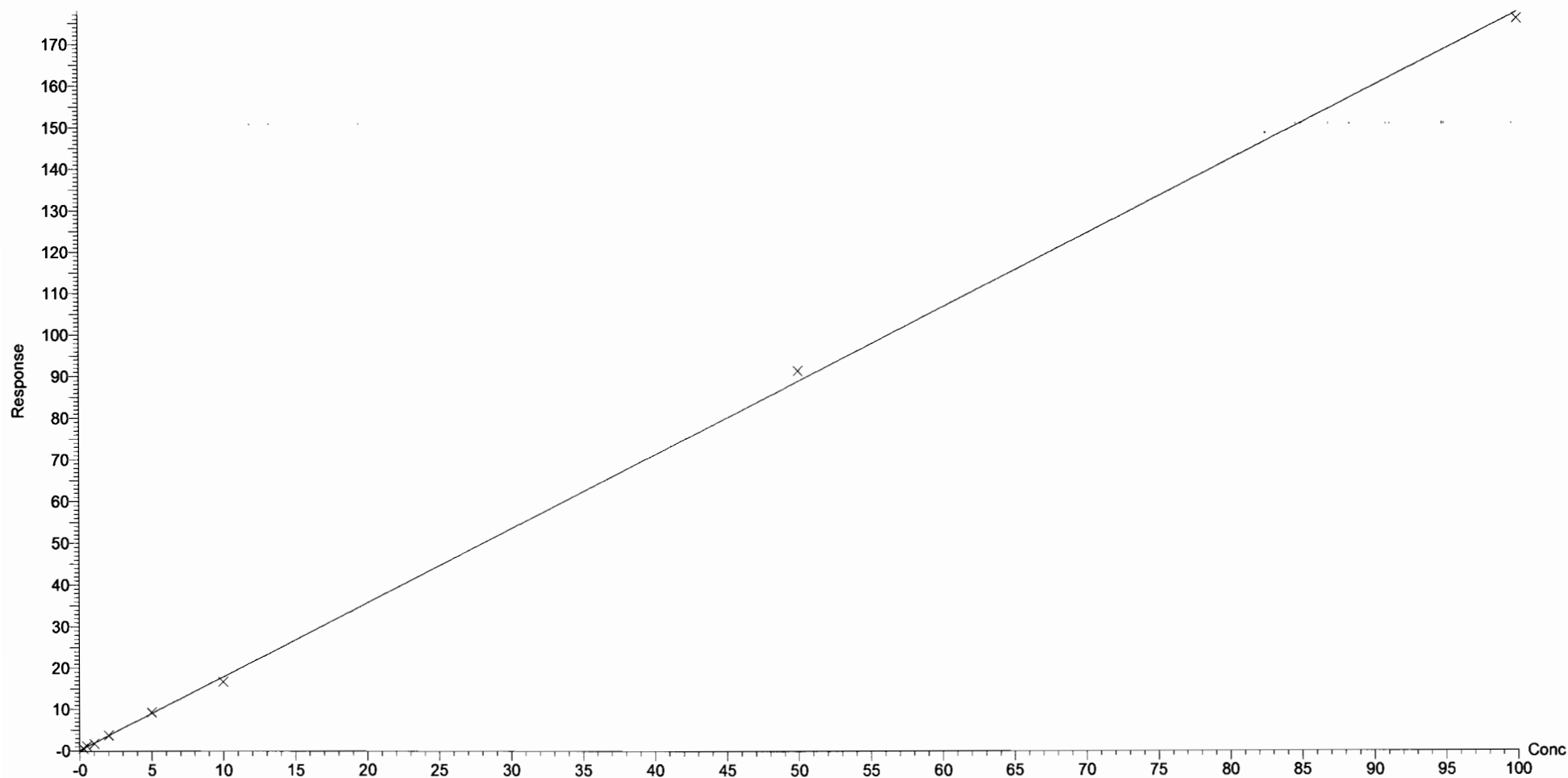
Compound name: PFHxS

Correlation coefficient:  $r = 0.999617$ ,  $r^2 = 0.999233$

Calibration curve:  $1.77848 * x + 0.109682$

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

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



Dataset: U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered: Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

Printed: Thursday, July 27, 2017 14:52:38 Pacific Daylight Time

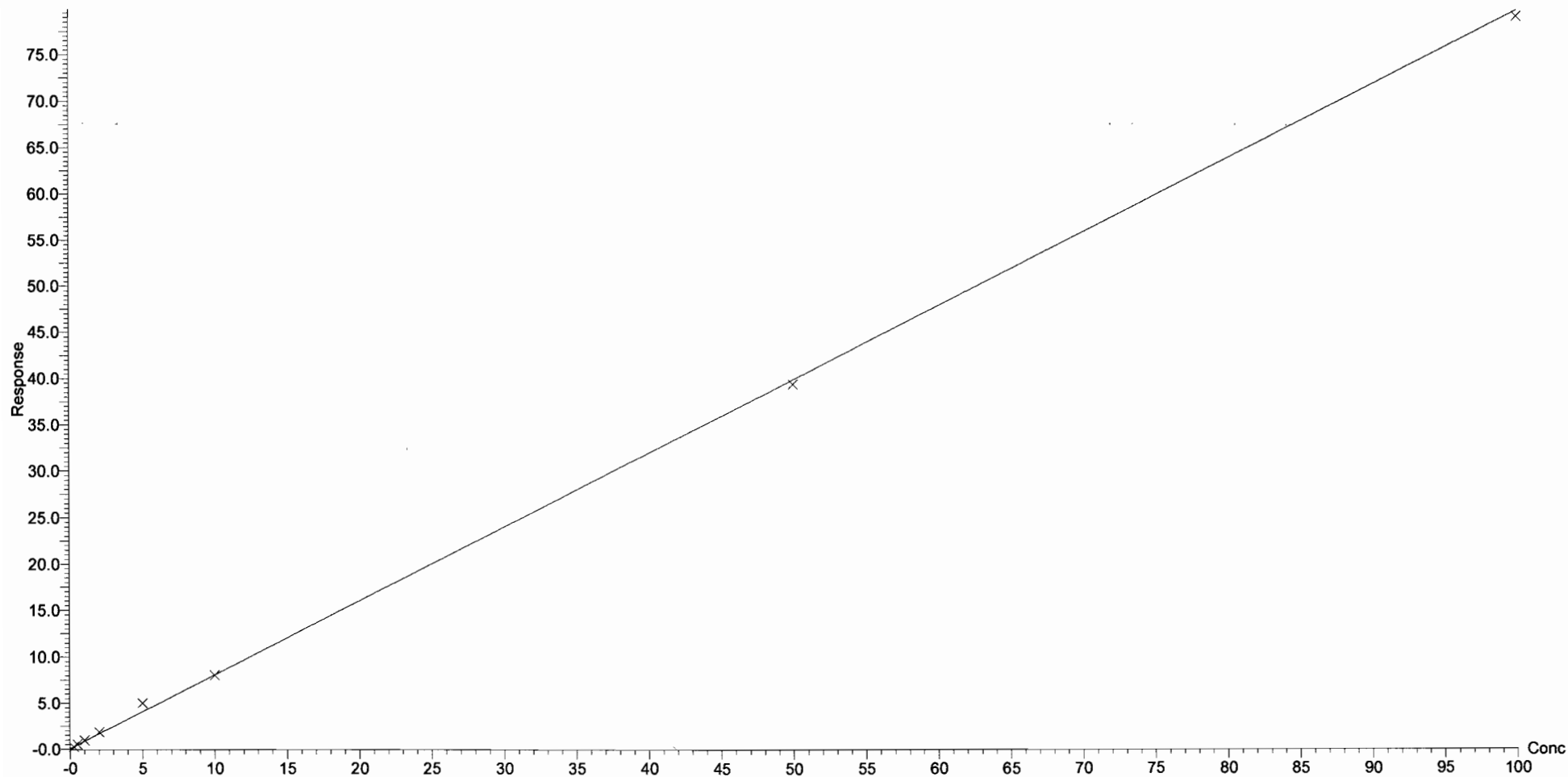
Compound name: PFOA

Correlation coefficient:  $r = 0.998786$ ,  $r^2 = 0.997574$

Calibration curve:  $0.797511 * x + 0.0924786$

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

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



Dataset: U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered: Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

Printed: Thursday, July 27, 2017 14:52:38 Pacific Daylight Time

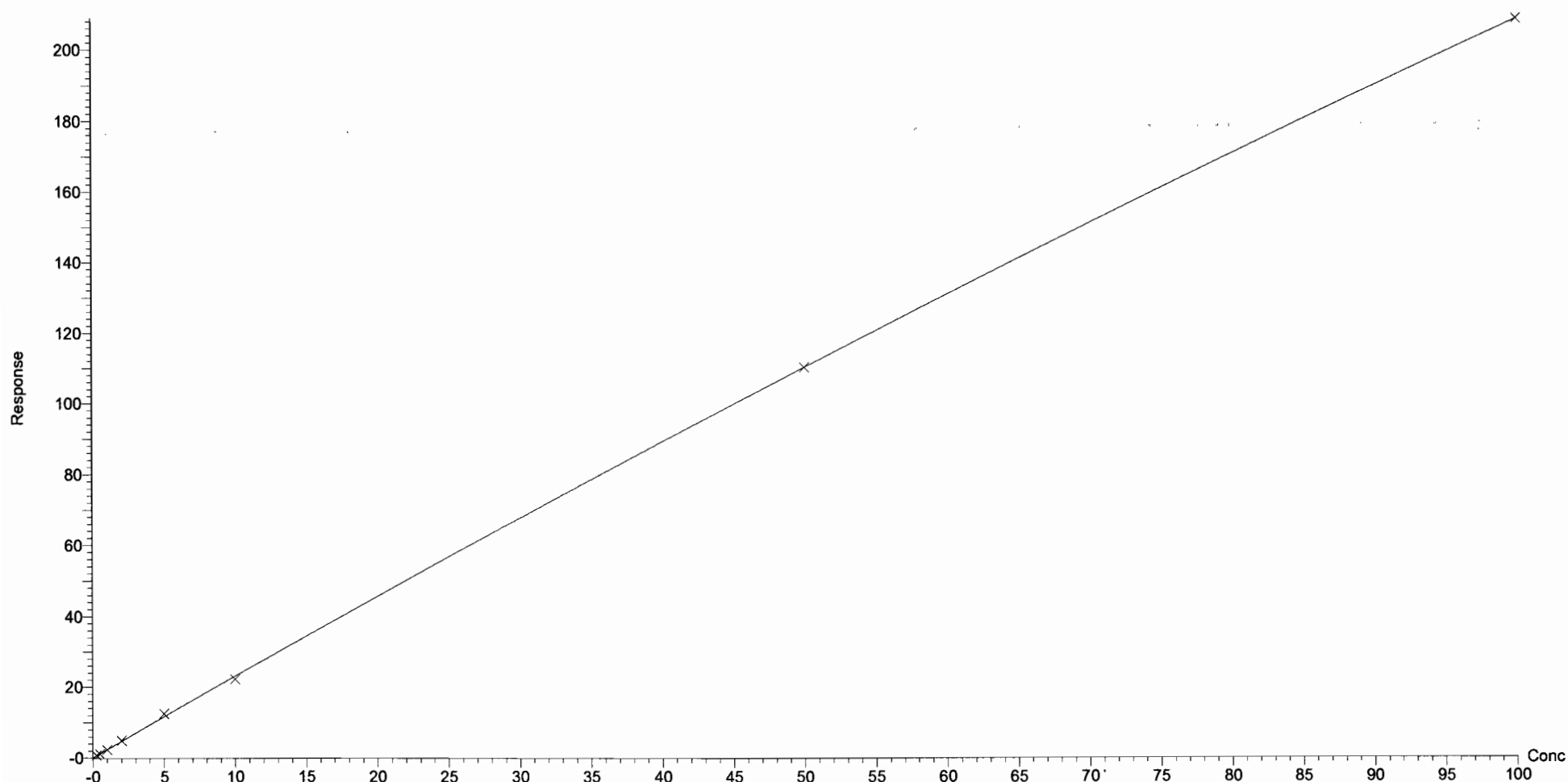
Compound name: PFNA

Coefficient of Determination:  $R^2 = 0.999639$

Calibration curve:  $-0.00237877 * x^2 + 2.32641 * x + 0.0752635$

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

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



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

Printed:        Thursday, July 27, 2017 14:52:38 Pacific Daylight Time

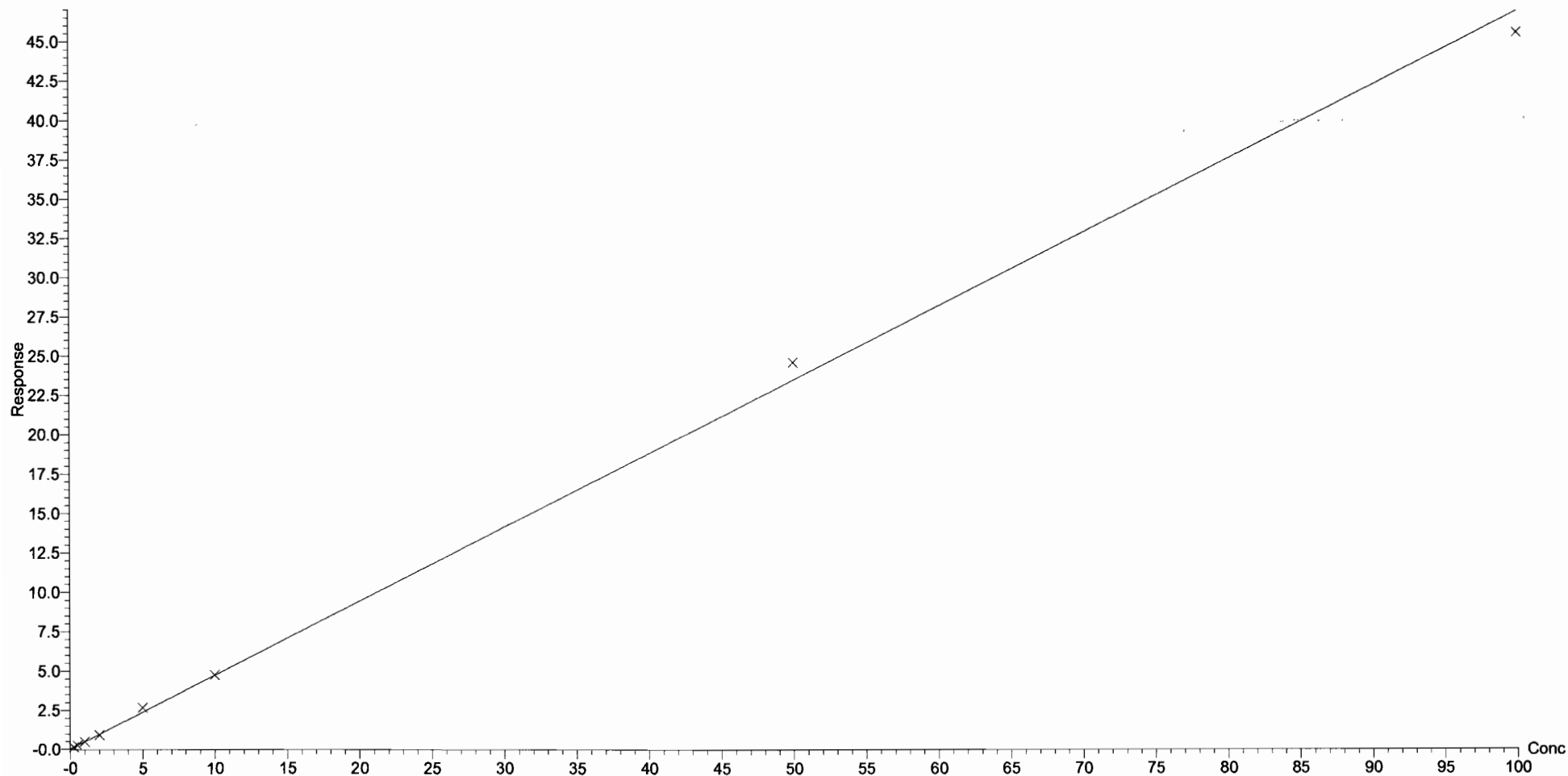
Compound name: PFOS

Correlation coefficient:  $r = 0.999145$ ,  $r^2 = 0.998292$

Calibration curve:  $0.470087 * x + 0.0287104$

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

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



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

Printed:        Thursday, July 27, 2017 14:52:38 Pacific Daylight Time

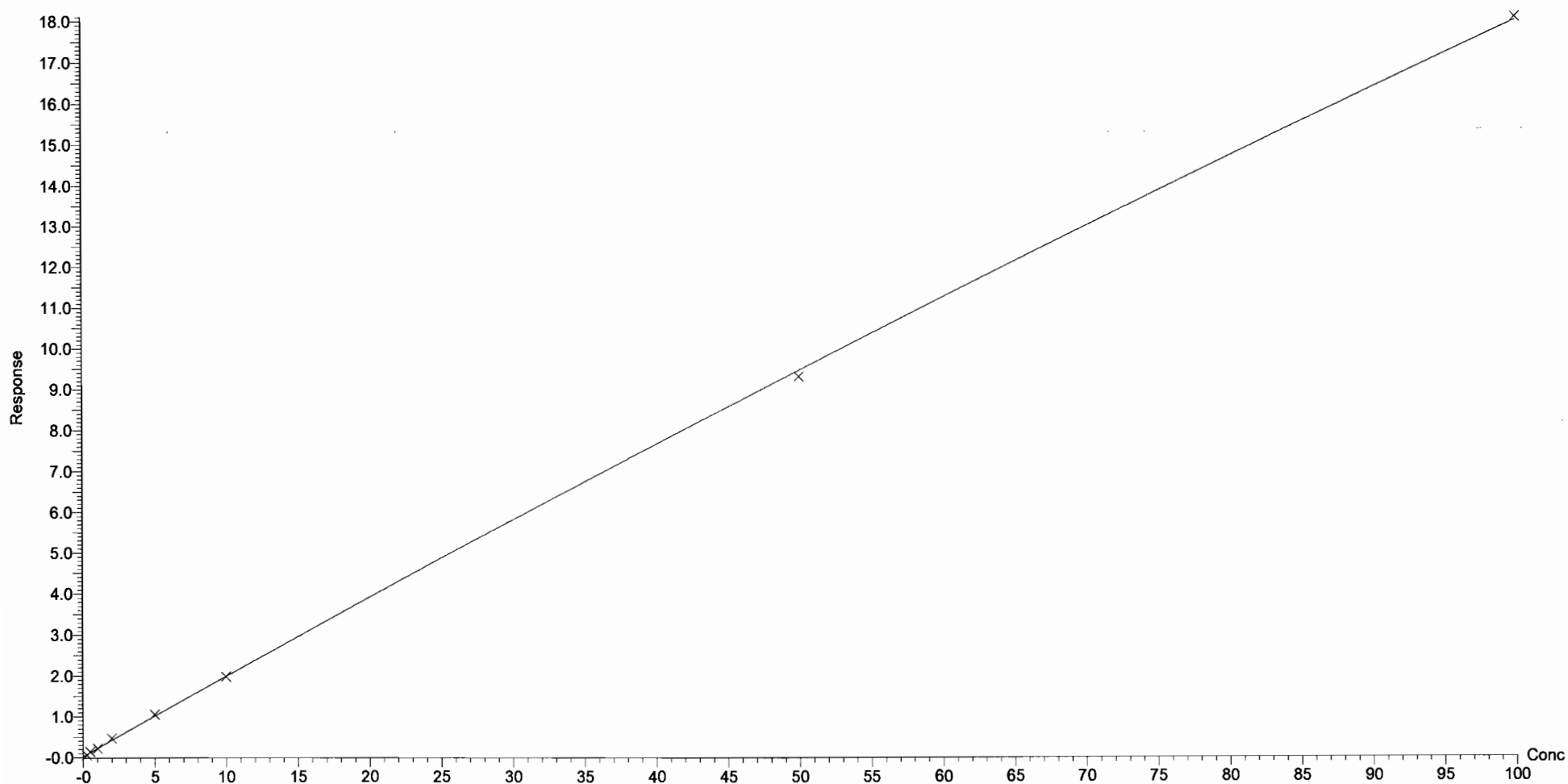
Compound name: PFDA

Coefficient of Determination:  $R^2 = 0.999346$

Calibration curve:  $-0.000179878 * x^2 + 0.198072 * x + 0.02746$

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

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



Dataset: U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered: Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

Printed: Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

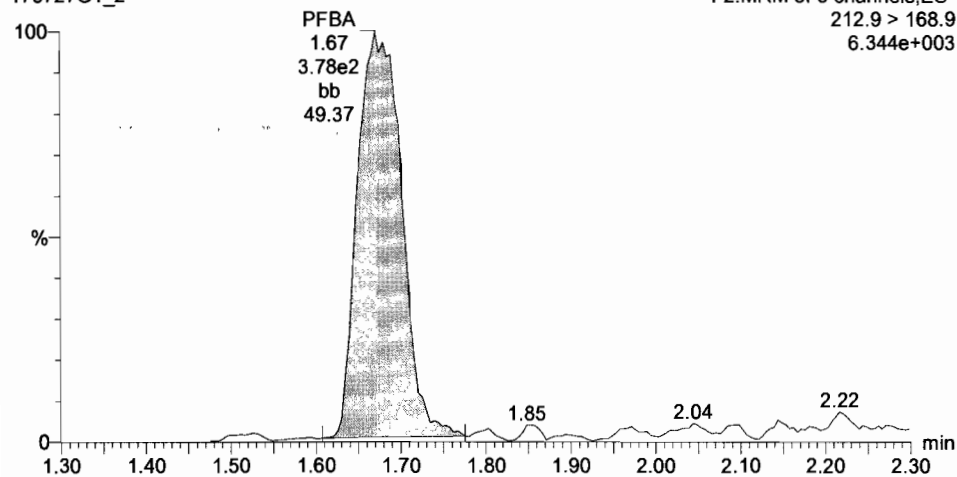
Calibration: U:\G1.PRO\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: ST170727G1-1 PFC CS-2 17G2714, Description: PFC CS-2 17G2714 A, Name: 170727G1\_2, Date: 27-Jul-2017, Time: 11:44:22, Instrument: , Lab: , User:

**PFBA**

170727G1\_2

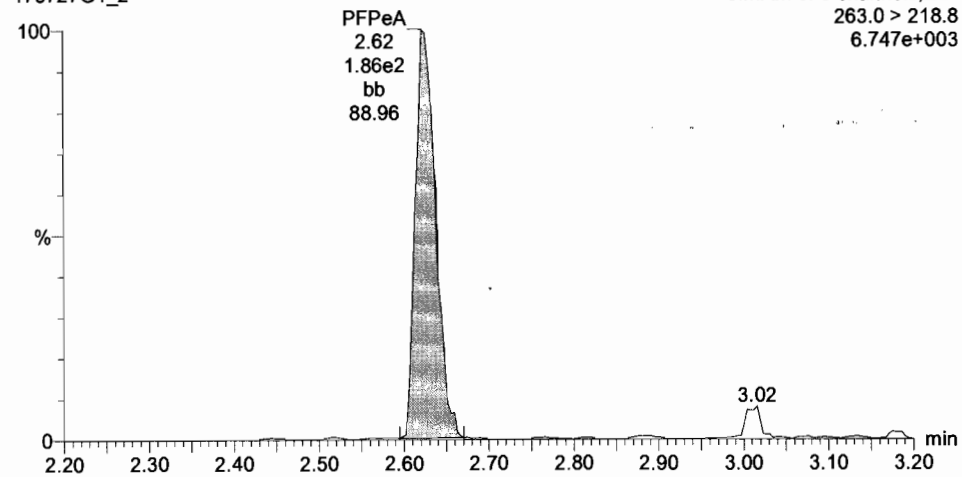
F2:MRM of 3 channels,ES-  
212.9 > 168.9  
6.344e+003



**PFPeA**

170727G1\_2

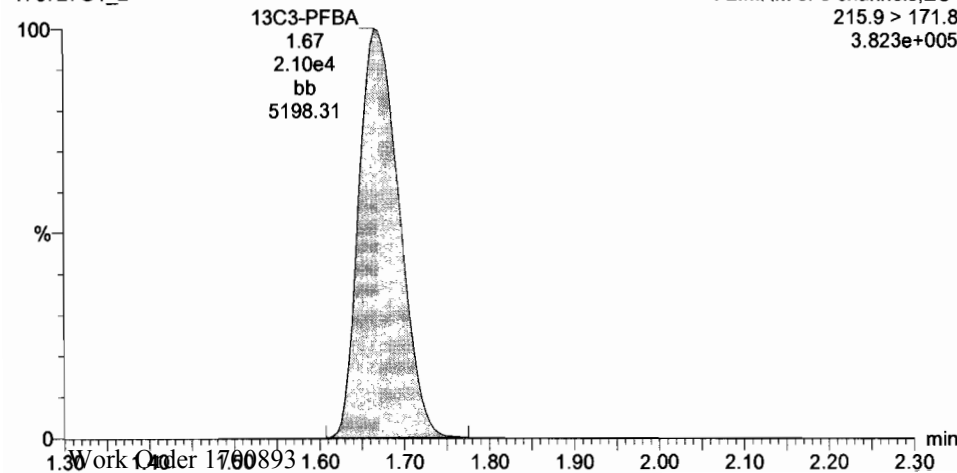
F3:MRM of 9 channels,ES-  
263.0 > 218.8  
6.747e+003



**13C3-PFBA**

170727G1\_2

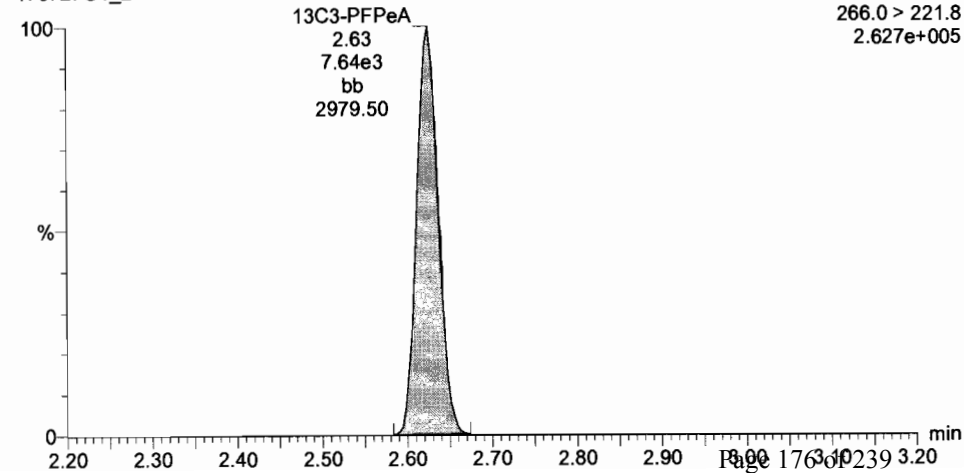
F2:MRM of 3 channels,ES-  
215.9 > 171.8  
3.823e+005



**13C3-PFPeA**

170727G1\_2

F3:MRM of 9 channels,ES-  
266.0 > 221.8  
2.627e+005





Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

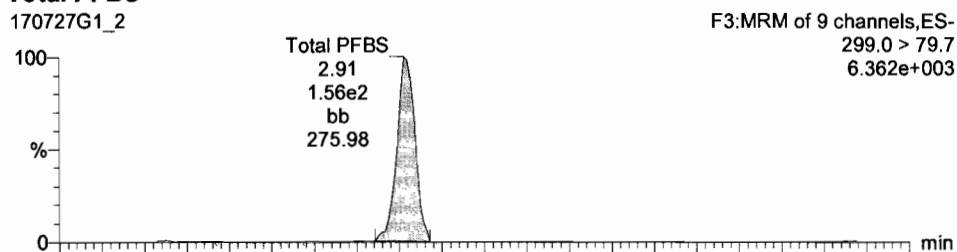
Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-1 PFC CS-2 17G2714, Description: PFC CS-2 17G2714 A, Name: 170727G1\_2, Date: 27-Jul-2017, Time: 11:44:22, Instrument: , Lab: , User:

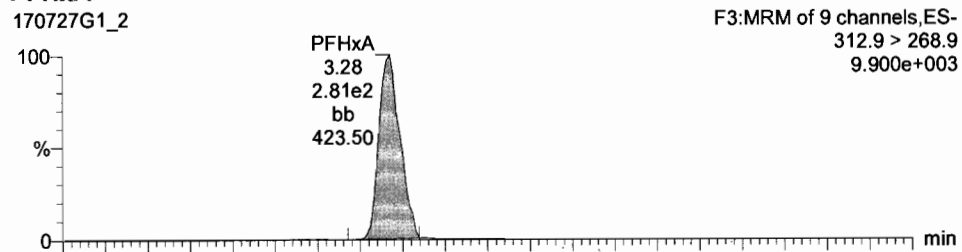
**Total PFBS**

170727G1\_2

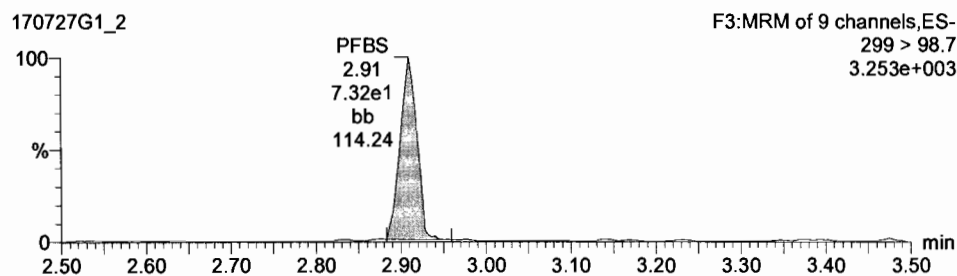


**PFHxA**

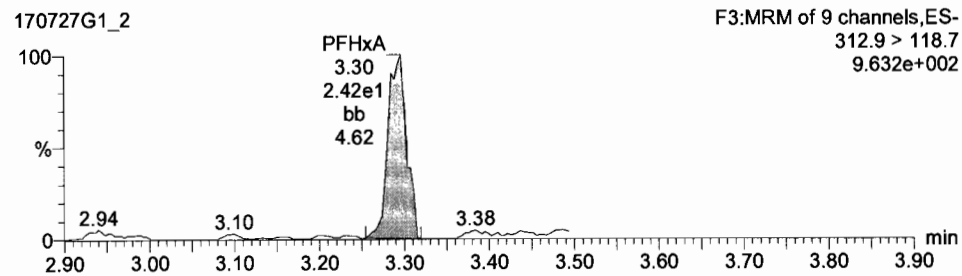
170727G1\_2



170727G1\_2

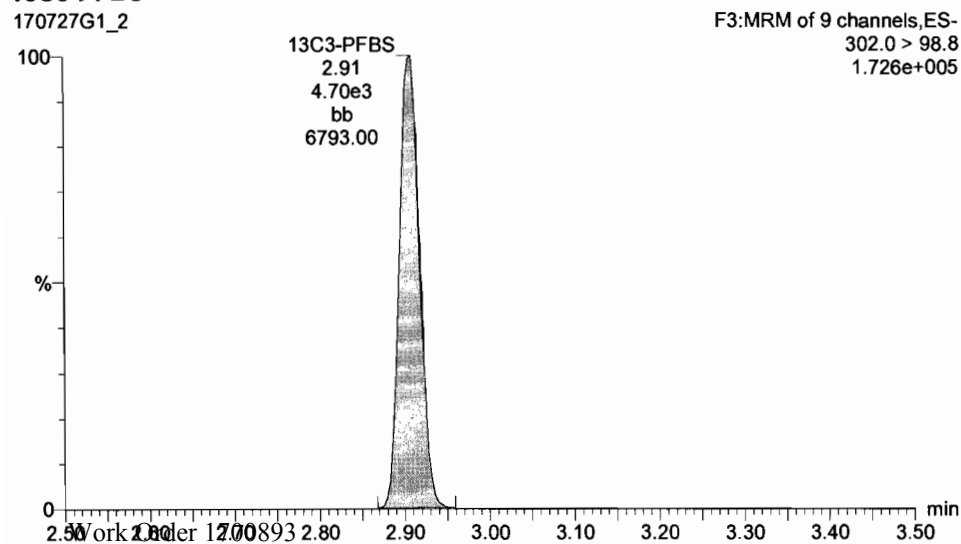


170727G1\_2



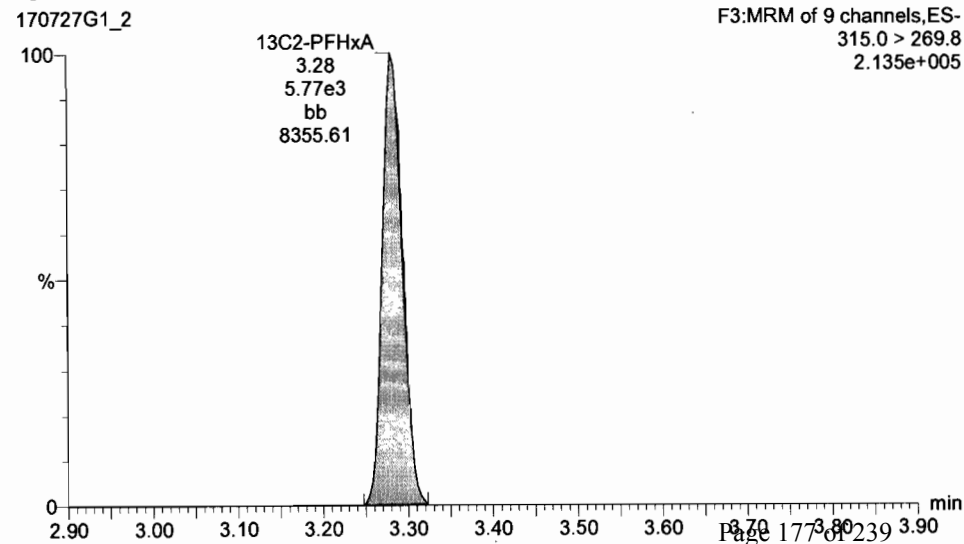
**13C3-PFBS**

170727G1\_2



**13C2-PFHxA**

170727G1\_2



Dataset: U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

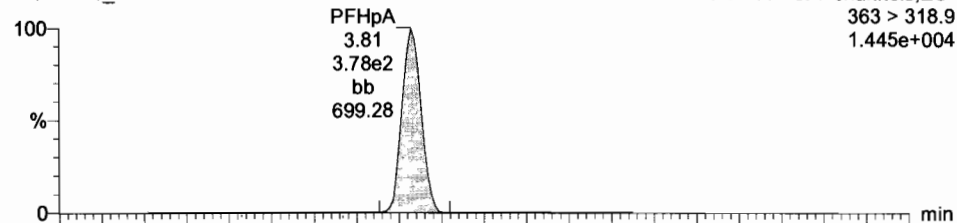
Last Altered: Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

Printed: Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-1 PFC CS-2 17G2714, Description: PFC CS-2 17G2714 A, Name: 170727G1\_2, Date: 27-Jul-2017, Time: 11:44:22, Instrument: , Lab: , User:

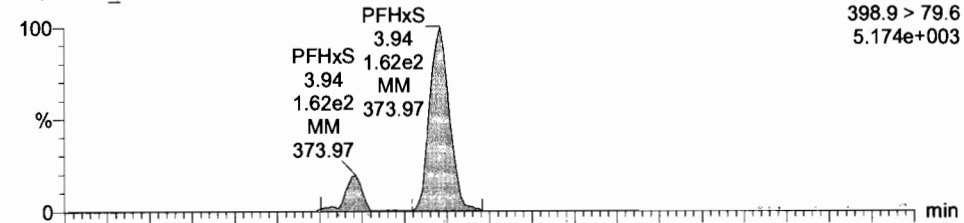
**PFHpA**

170727G1\_2

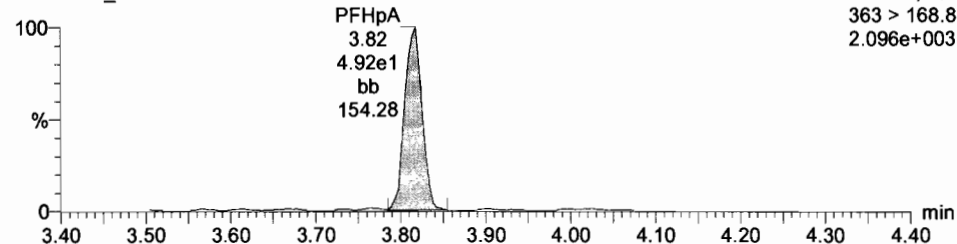


**Total PFHxS**

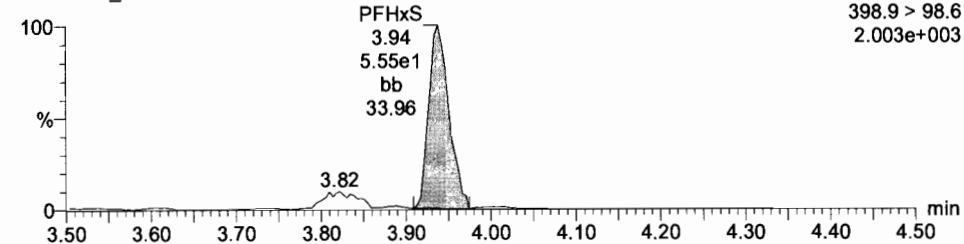
170727G1\_2



170727G1\_2

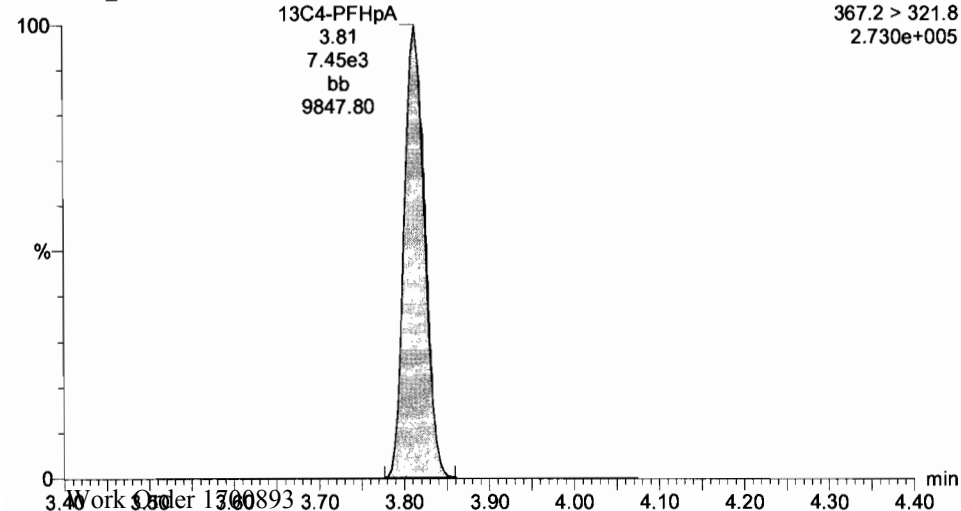


170727G1\_2



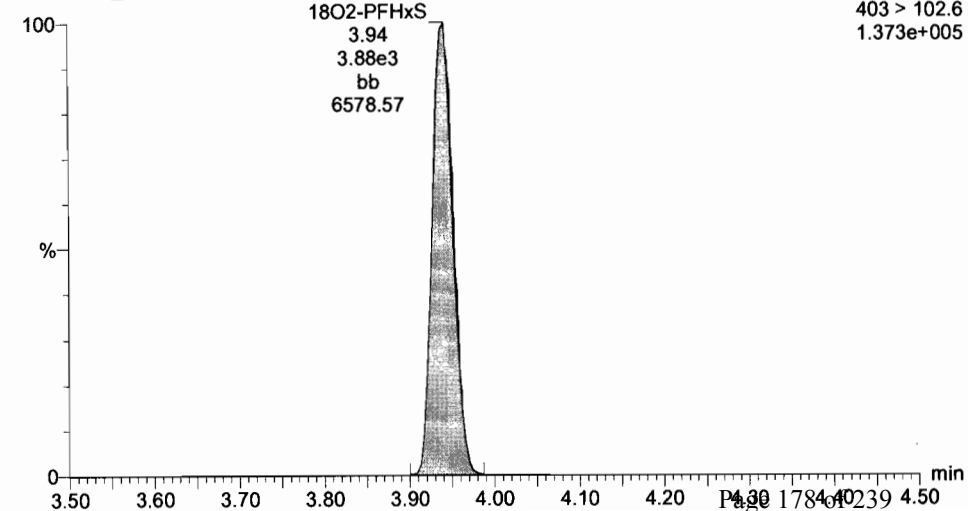
**13C4-PFHpA**

170727G1\_2



**18O2-PFHxS**

170727G1\_2



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

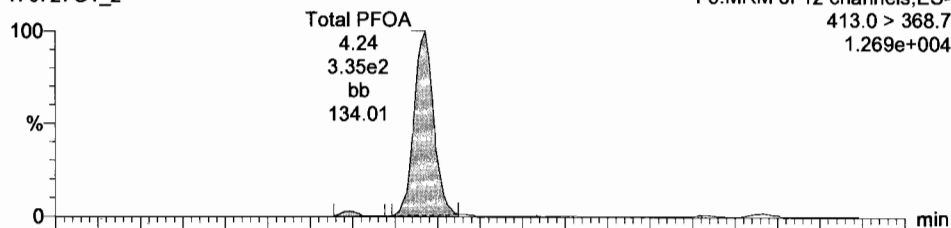
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-1 PFC CS-2 17G2714, Description: PFC CS-2 17G2714 A, Name: 170727G1\_2, Date: 27-Jul-2017, Time: 11:44:22, Instrument: , Lab: , User:

**Total PFOA**

170727G1\_2

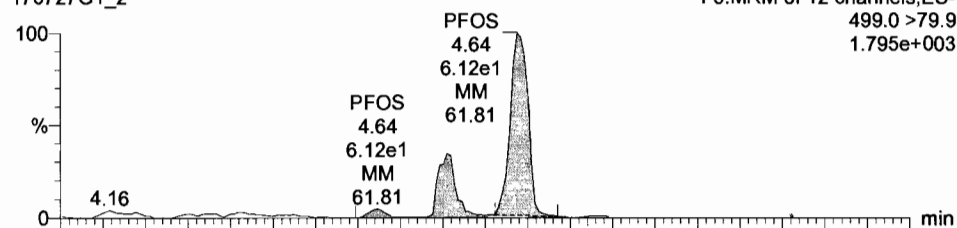
F5:MRM of 12 channels,ES-  
413.0 > 368.7  
1.269e+004



**Total PFOS**

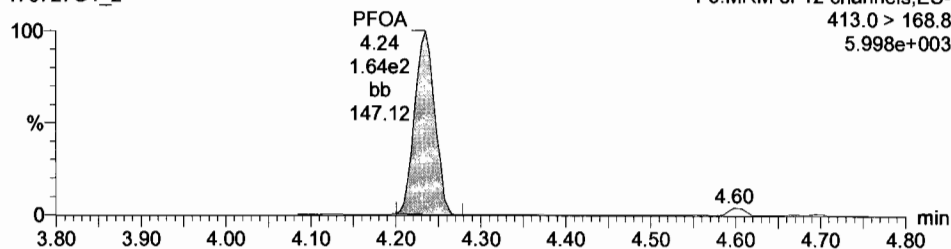
170727G1\_2

F5:MRM of 12 channels,ES-  
499.0 > 79.9  
1.795e+003



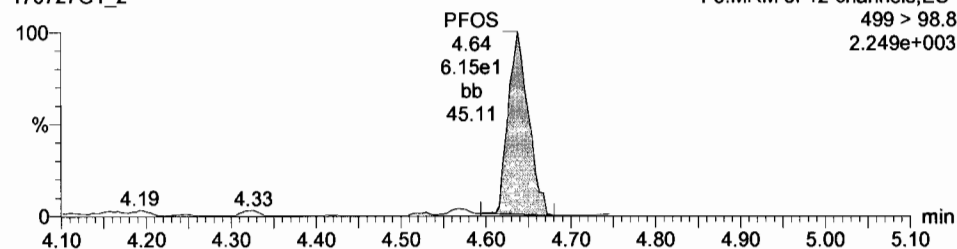
170727G1\_2

F5:MRM of 12 channels,ES-  
413.0 > 168.8  
5.998e+003



170727G1\_2

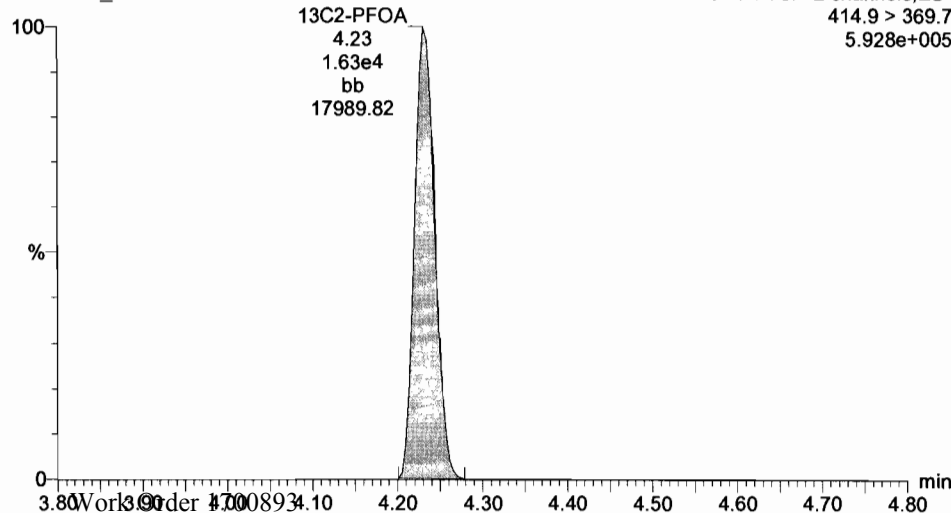
F5:MRM of 12 channels,ES-  
499 > 98.8  
2.249e+003



**13C2-PFOA**

170727G1\_2

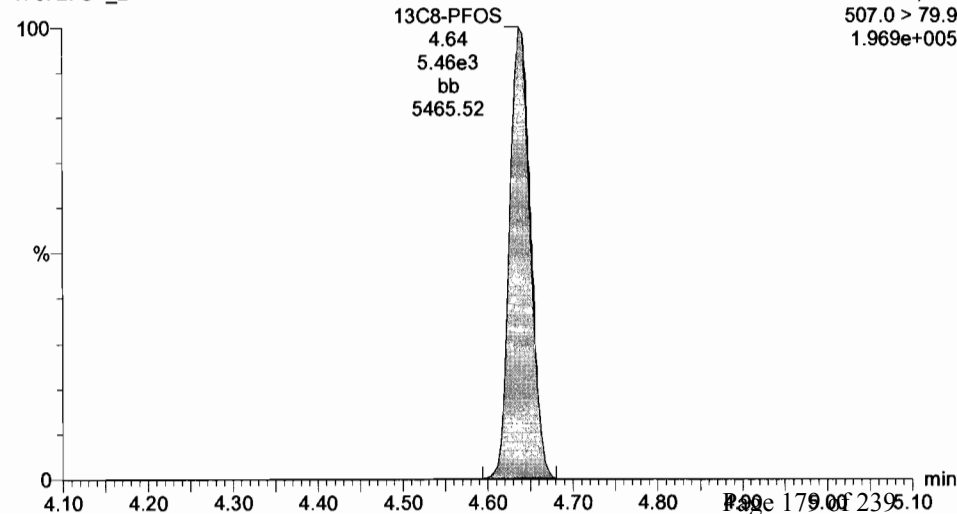
F5:MRM of 12 channels,ES-  
414.9 > 369.7  
5.928e+005



**13C8-PFOS**

170727G1\_2

F5:MRM of 12 channels,ES-  
507.0 > 79.9  
1.969e+005



Dataset: U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered: Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

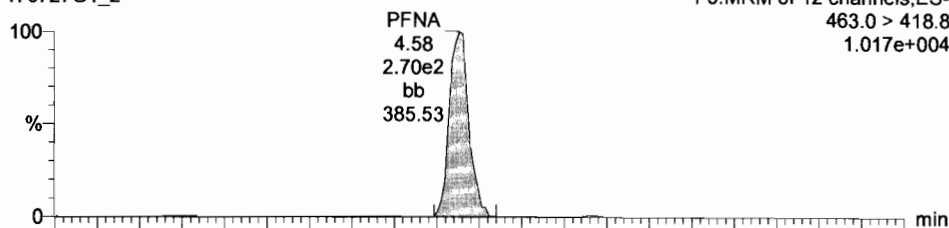
Printed: Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-1 PFC CS-2 17G2714, Description: PFC CS-2 17G2714 A, Name: 170727G1\_2, Date: 27-Jul-2017, Time: 11:44:22, Instrument: , Lab: , User:

**PFNA**

170727G1\_2

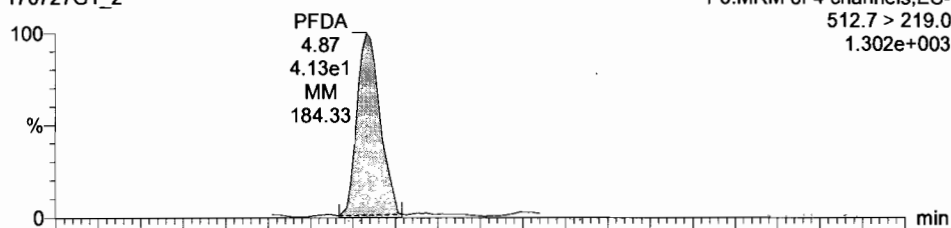
F5:MRM of 12 channels,ES-  
463.0 > 418.8  
1.017e+004



**PFDA**

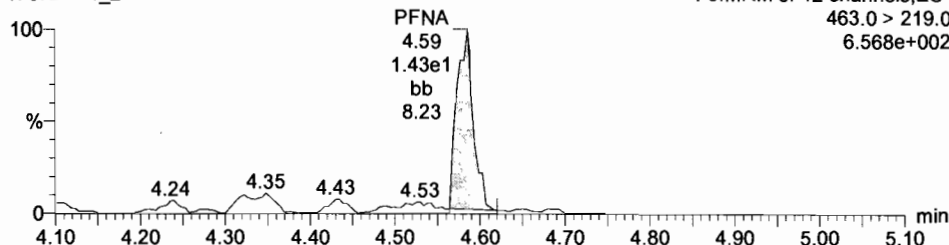
170727G1\_2

F6:MRM of 4 channels,ES-  
512.7 > 219.0  
1.302e+003



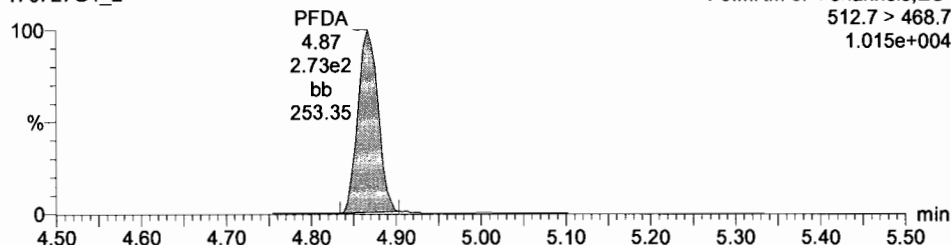
170727G1\_2

F5:MRM of 12 channels,ES-  
463.0 > 219.0  
6.568e+002



170727G1\_2

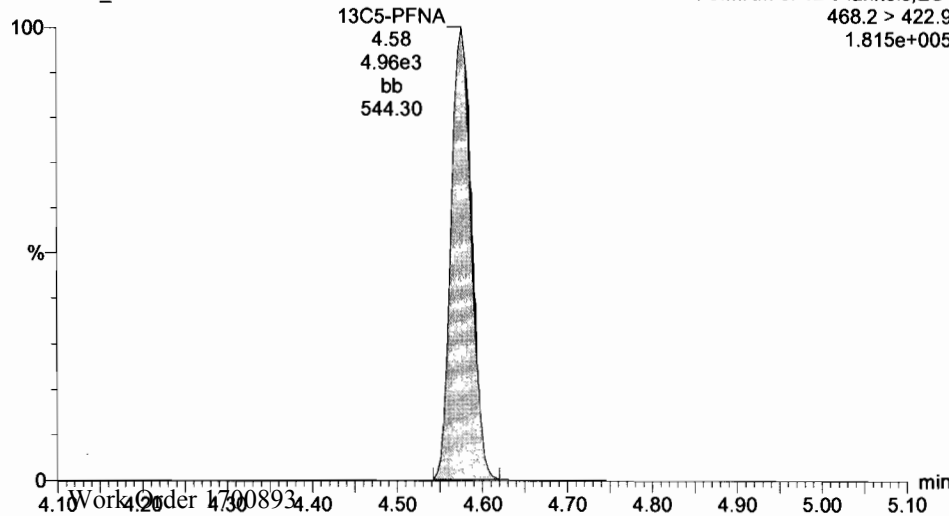
F6:MRM of 4 channels,ES-  
512.7 > 468.7  
1.015e+004



**13C5-PFNA**

170727G1\_2

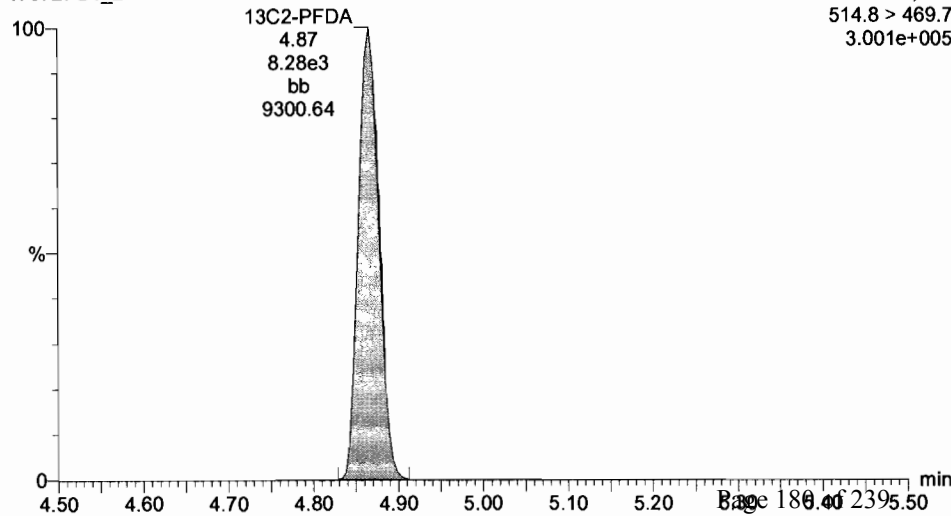
F5:MRM of 12 channels,ES-  
468.2 > 422.9  
1.815e+005



**13C2-PFDA**

170727G1\_2

F6:MRM of 4 channels,ES-  
514.8 > 469.7  
3.001e+005



Dataset: U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered: Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

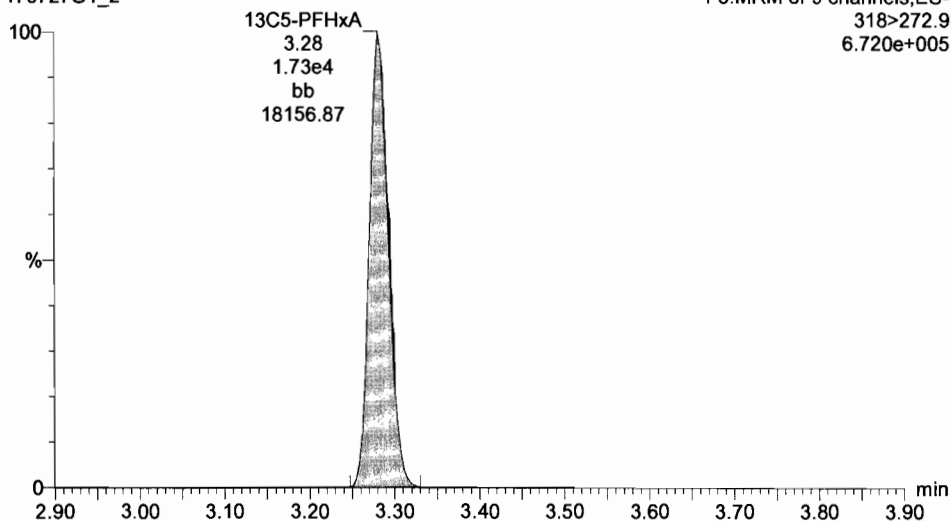
Printed: Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-1 PFC CS-2 17G2714, Description: PFC CS-2 17G2714 A, Name: 170727G1\_2, Date: 27-Jul-2017, Time: 11:44:22, Instrument: , Lab: , User:

**13C5-PFHxA**

170727G1\_2

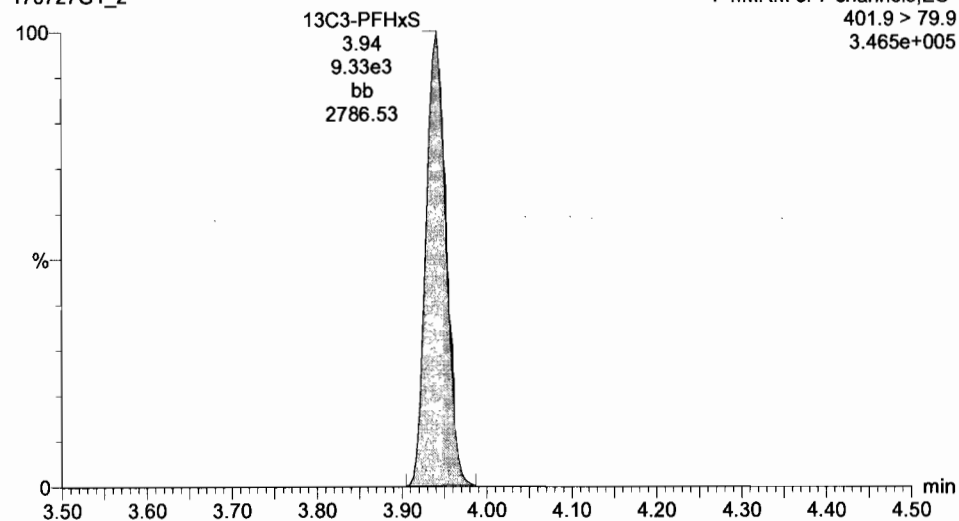
F3:MRM of 9 channels,ES-  
318>272.9  
6.720e+005



**13C3-PFHxS**

170727G1\_2

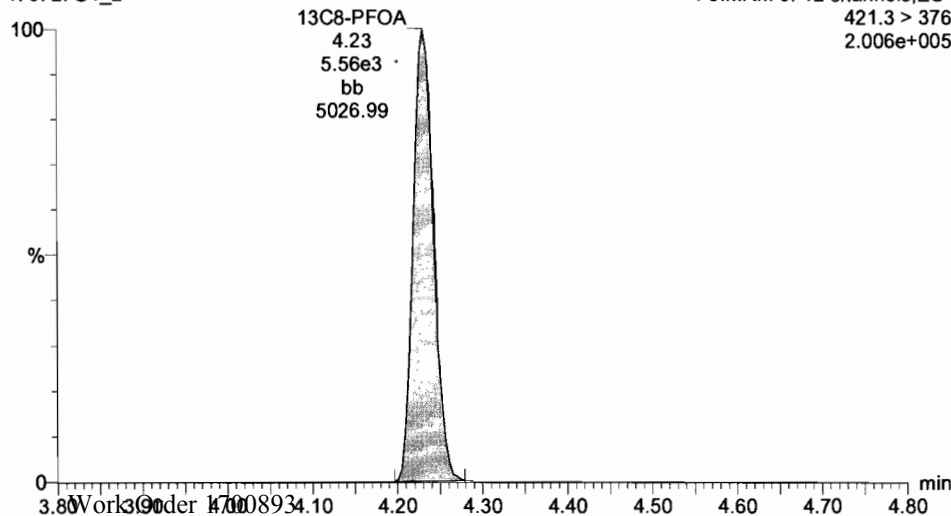
F4:MRM of 7 channels,ES-  
401.9 > 79.9  
3.465e+005



**13C8-PFOA**

170727G1\_2

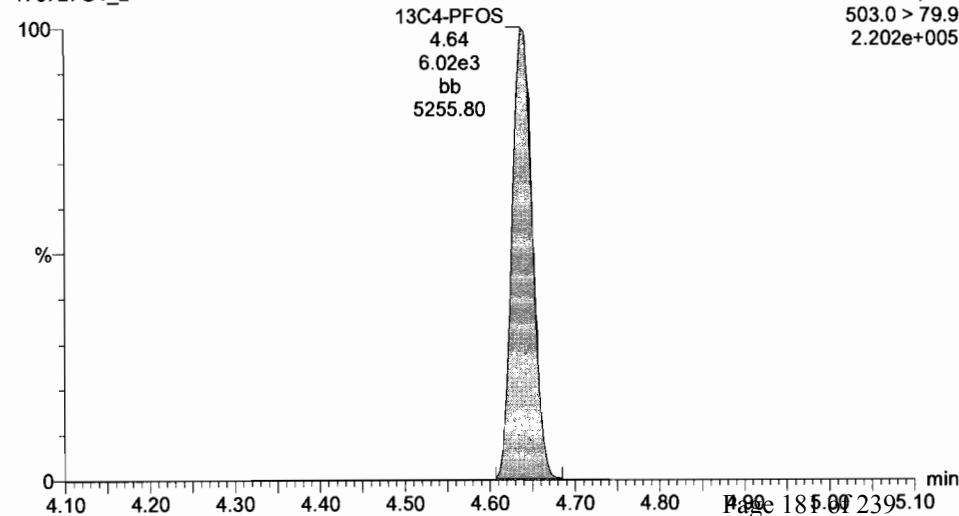
F5:MRM of 12 channels,ES-  
421.3 > 376  
2.006e+005



**13C4-PFOS**

170727G1\_2

F5:MRM of 12 channels,ES-  
503.0 > 79.9  
2.202e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

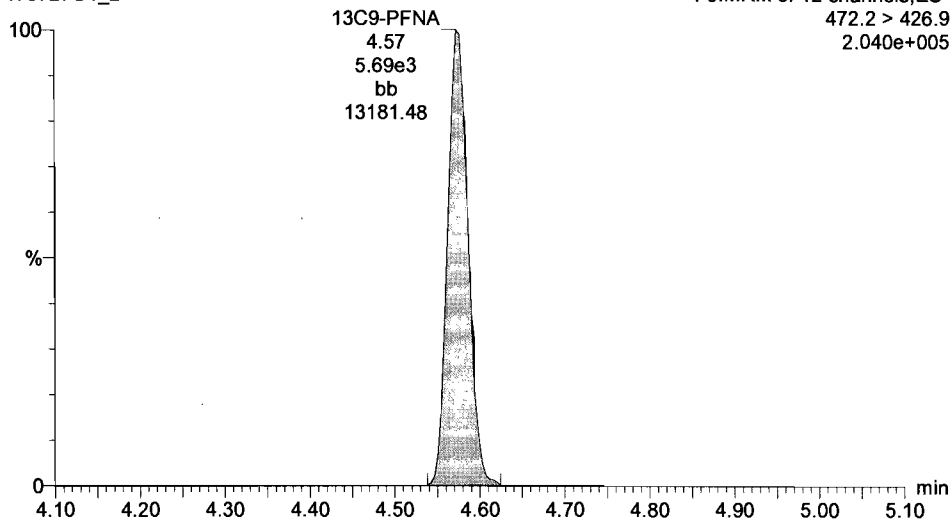
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-1 PFC CS-2 17G2714, Description: PFC CS-2 17G2714 A, Name: 170727G1\_2, Date: 27-Jul-2017, Time: 11:44:22, Instrument: , Lab: , User:

**13C9-PFNA**

170727G1\_2

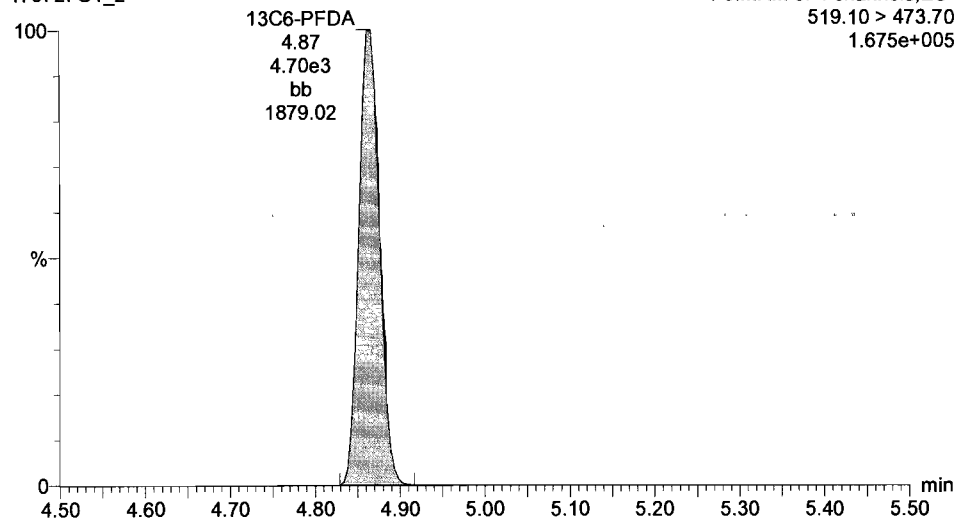
F5:MRM of 12 channels,ES-  
472.2 > 426.9  
2.040e+005



**13C6-PFDA**

170727G1\_2

F6:MRM of 4 channels,ES-  
519.10 > 473.70  
1.675e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

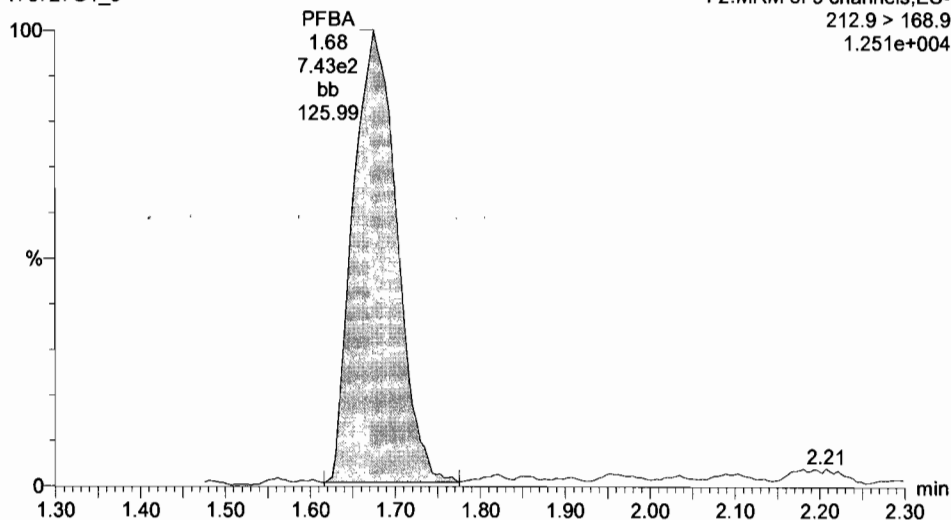
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-2 PFC CS-1 17G2715, Description: PFC CS-1 17G2715 A, Name: 170727G1\_3, Date: 27-Jul-2017, Time: 11:56:54, Instrument: , Lab: , User:

**PFBA**

170727G1\_3

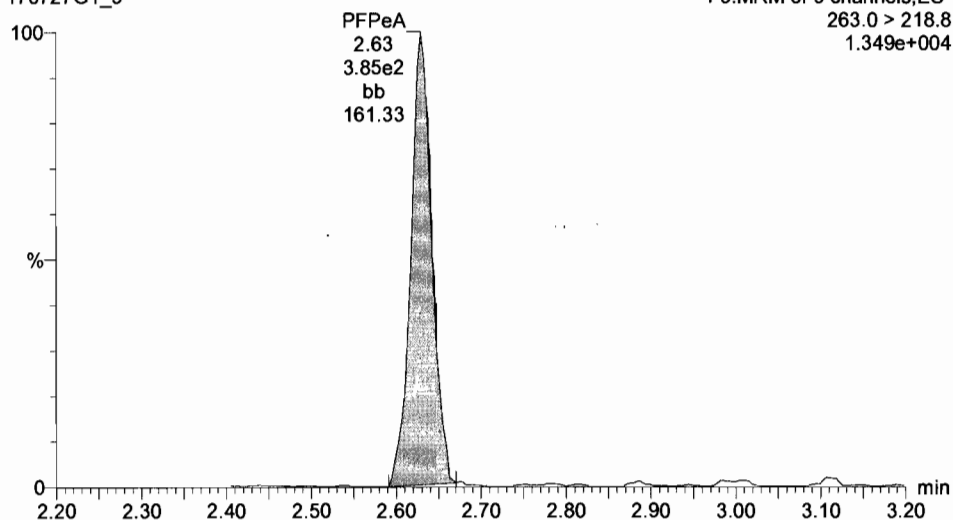
F2:MRM of 3 channels,ES-  
212.9 > 168.9  
1.251e+004



**PFPeA**

170727G1\_3

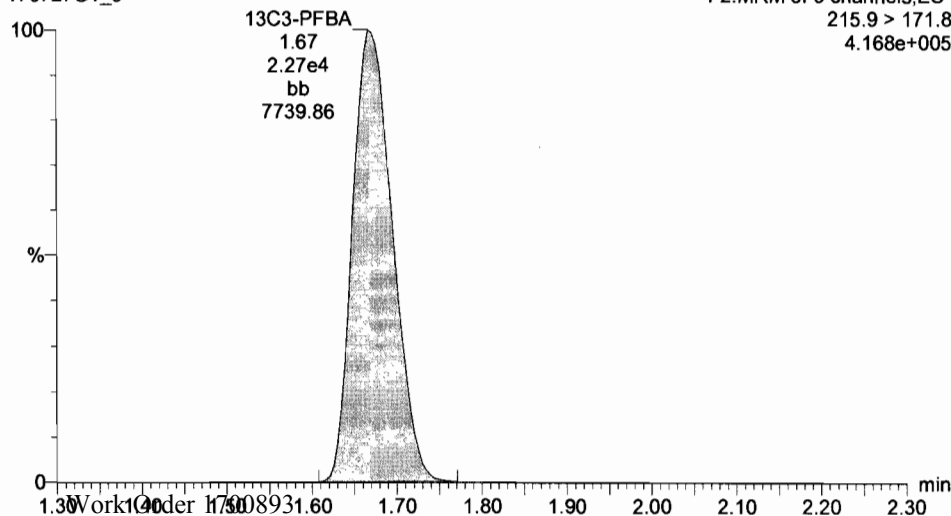
F3:MRM of 9 channels,ES-  
263.0 > 218.8  
1.349e+004



**13C3-PFBA**

170727G1\_3

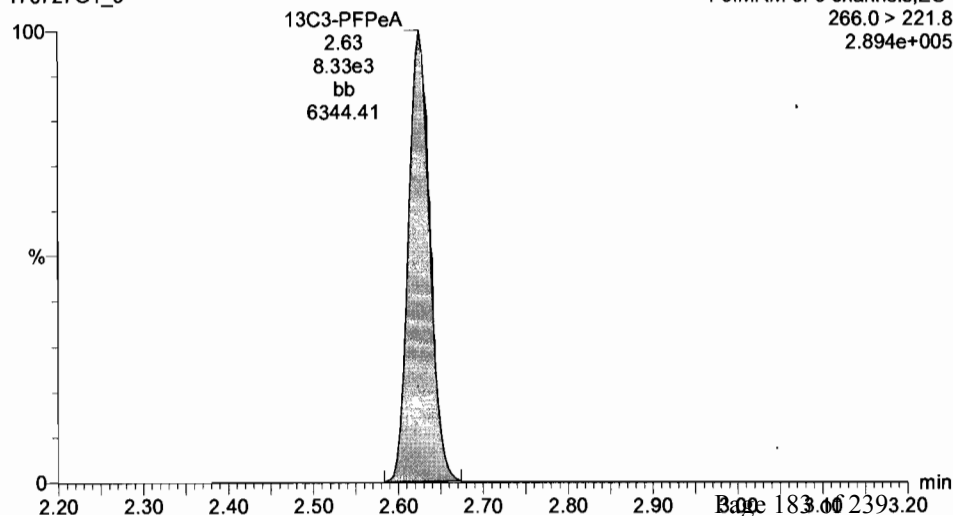
F2:MRM of 3 channels,ES-  
215.9 > 171.8  
4.168e+005



**13C3-PFPeA**

170727G1\_3

F3:MRM of 9 channels,ES-  
266.0 > 221.8  
2.894e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

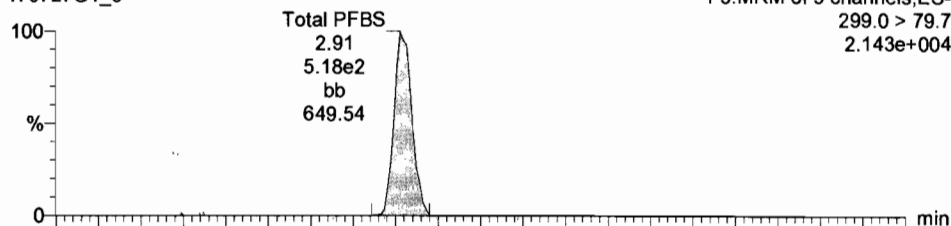
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-2 PFC CS-1 17G2715, Description: PFC CS-1 17G2715 A, Name: 170727G1\_3, Date: 27-Jul-2017, Time: 11:56:54, Instrument: , Lab: , User:

**Total PFBS**

170727G1\_3

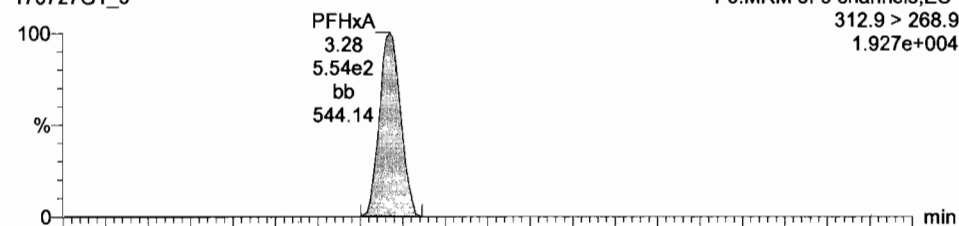
F3:MRM of 9 channels,ES-  
299.0 > 79.7  
2.143e+004



**PFHxA**

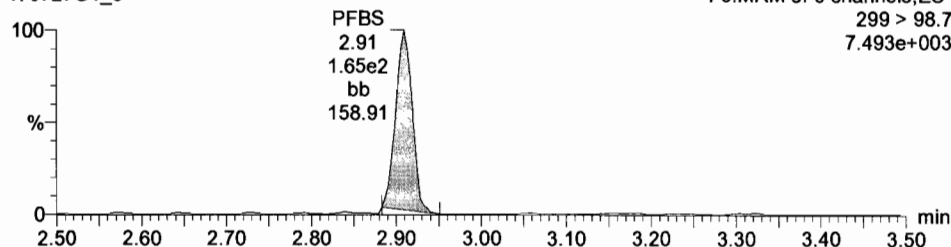
170727G1\_3

F3:MRM of 9 channels,ES-  
312.9 > 268.9  
1.927e+004



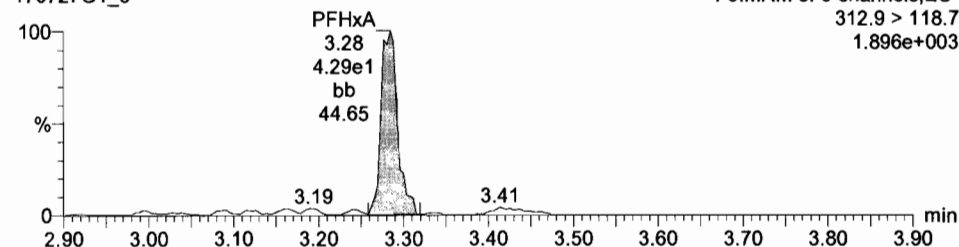
170727G1\_3

F3:MRM of 9 channels,ES-  
299 > 98.7  
7.493e+003



170727G1\_3

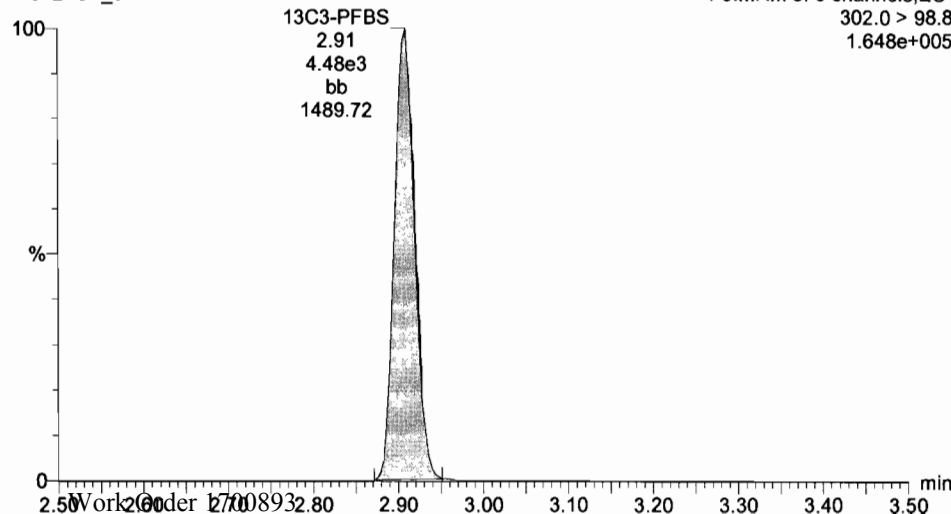
F3:MRM of 9 channels,ES-  
312.9 > 118.7  
1.896e+003



**13C3-PFBS**

170727G1\_3

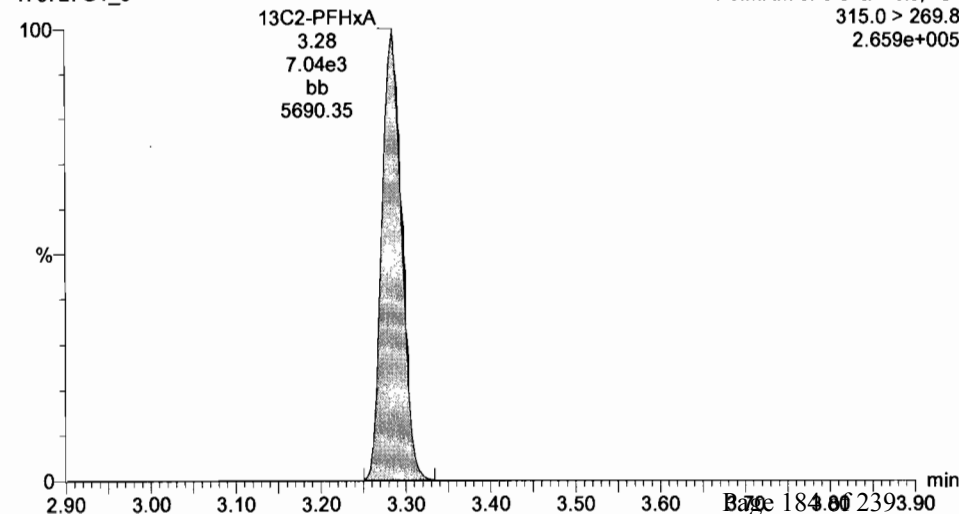
F3:MRM of 9 channels,ES-  
302.0 > 98.8  
1.648e+005



**13C2-PFHxA**

170727G1\_3

F3:MRM of 9 channels,ES-  
315.0 > 269.8  
2.659e+005





Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

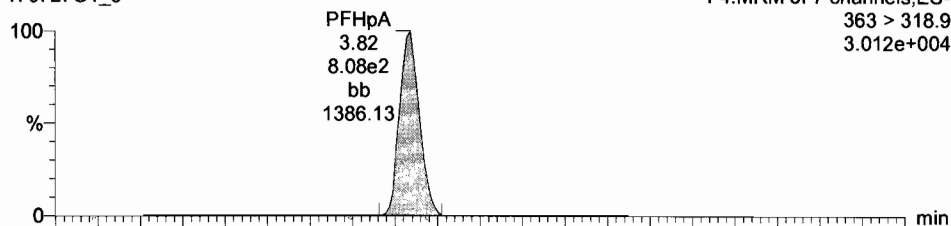
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-2 PFC CS-1 17G2715, Description: PFC CS-1 17G2715 A, Name: 170727G1\_3, Date: 27-Jul-2017, Time: 11:56:54, Instrument: , Lab: , User:

**PFHpA**

170727G1\_3

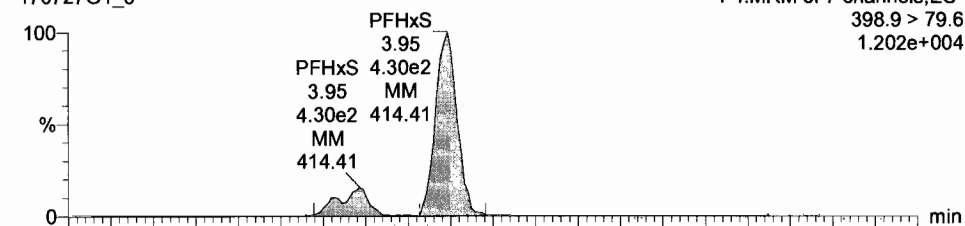
F4:MRM of 7 channels,ES-  
363 > 318.9  
3.012e+004



**Total PFHxS**

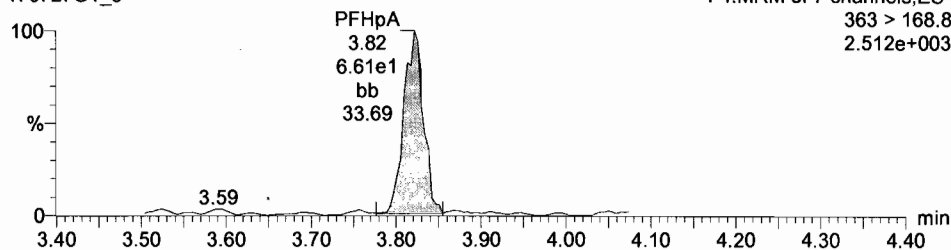
170727G1\_3

F4:MRM of 7 channels,ES-  
398.9 > 79.6  
1.202e+004



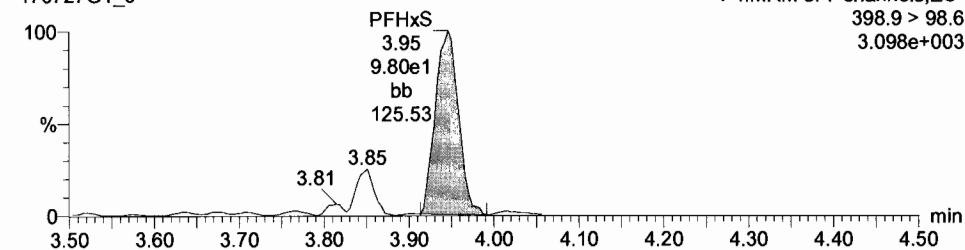
170727G1\_3

F4:MRM of 7 channels,ES-  
363 > 168.8  
2.512e+003



170727G1\_3

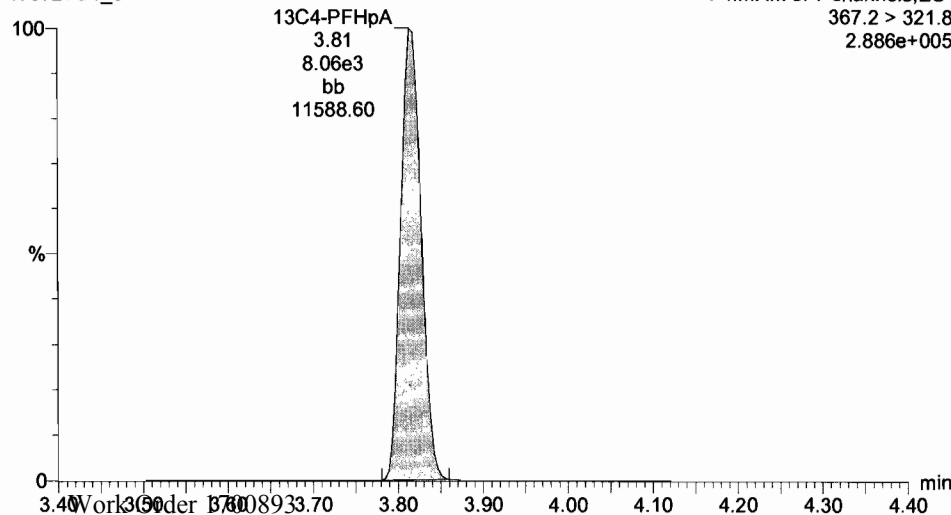
F4:MRM of 7 channels,ES-  
398.9 > 98.6  
3.098e+003



**13C4-PFHpA**

170727G1\_3

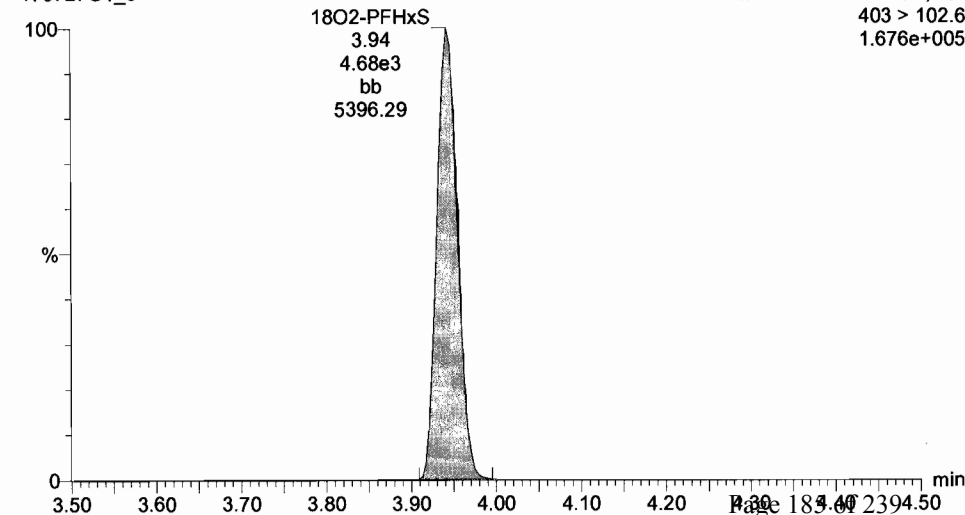
F4:MRM of 7 channels,ES-  
367.2 > 321.8  
2.886e+005



**18O2-PFHxS**

170727G1\_3

F4:MRM of 7 channels,ES-  
403 > 102.6  
1.676e+005



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Last Altered:    Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

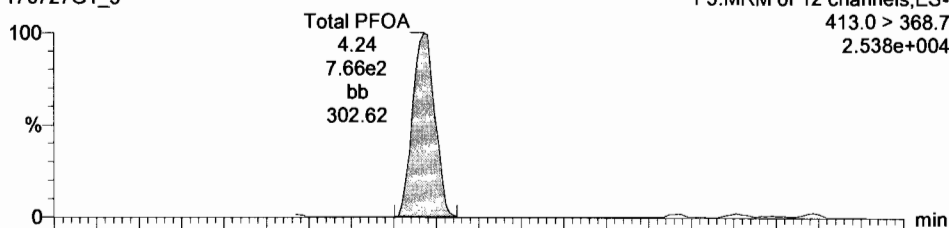
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**Total PFOA**

170727G1\_3

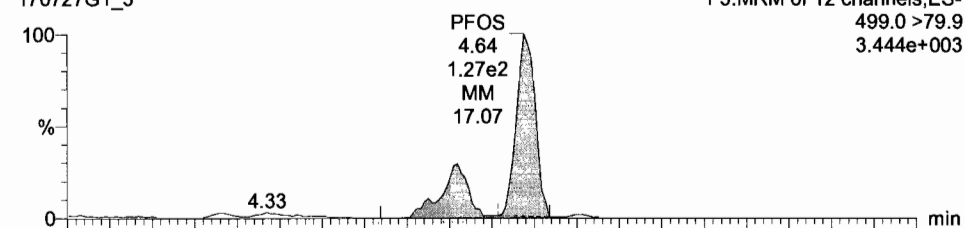
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413.0 > 368.7  
2.538e+004



**Total PFOS**

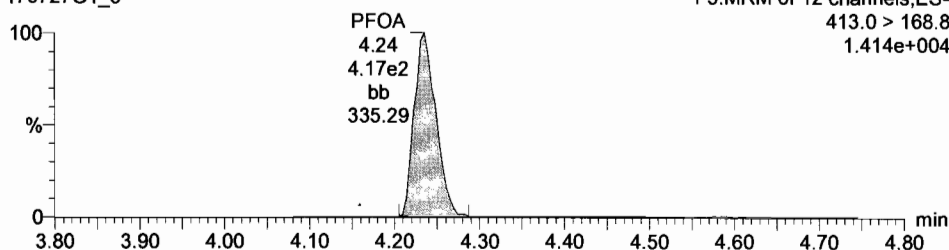
170727G1\_3

F5:MRM of 12 channels,ES-  
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3.444e+003



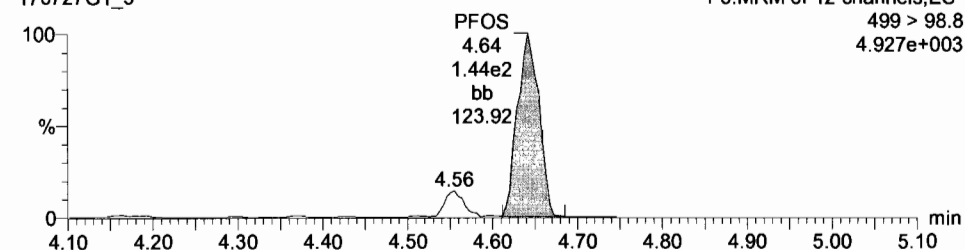
170727G1\_3

F5:MRM of 12 channels,ES-  
413.0 > 168.8  
1.414e+004



170727G1\_3

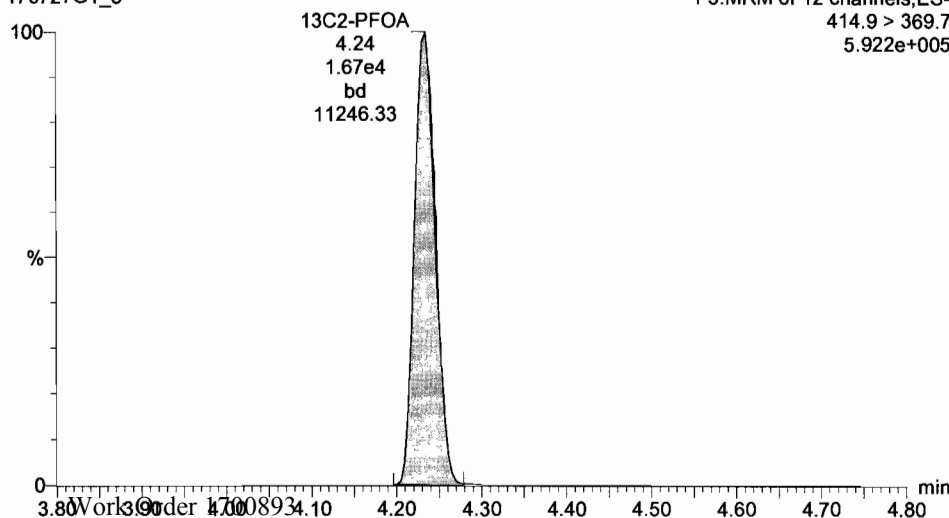
F5:MRM of 12 channels,ES-  
499 > 98.8  
4.927e+003



**13C2-PFOA**

170727G1\_3

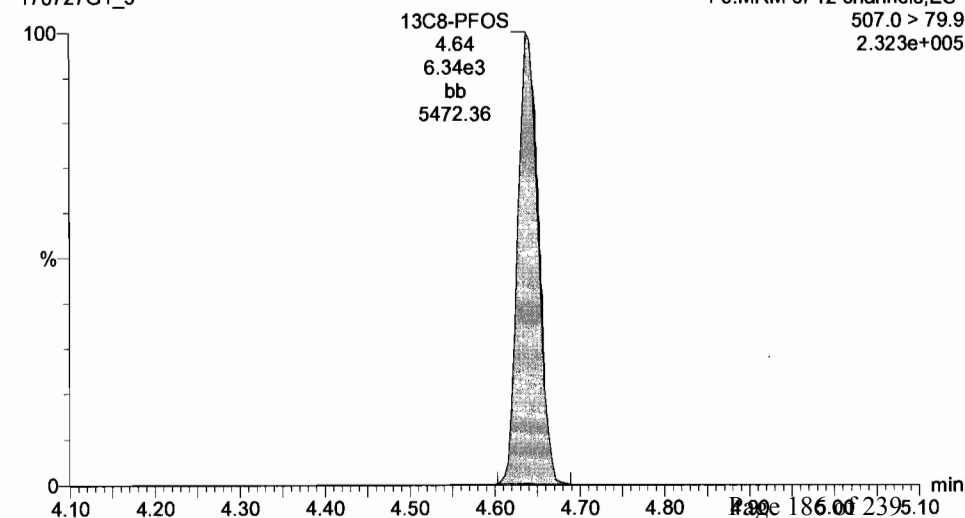
F5:MRM of 12 channels,ES-  
414.9 > 369.7  
5.922e+005



**13C8-PFOS**

170727G1\_3

F5:MRM of 12 channels,ES-  
507.0 > 79.9  
2.323e+005



Dataset: U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

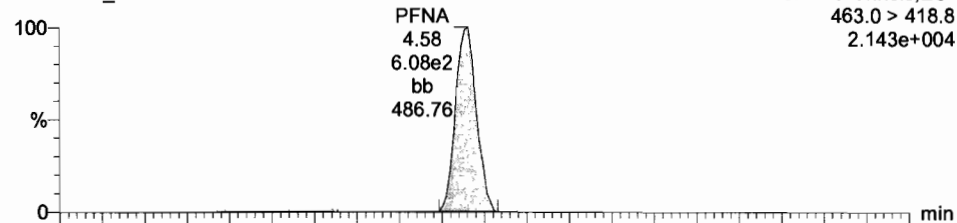
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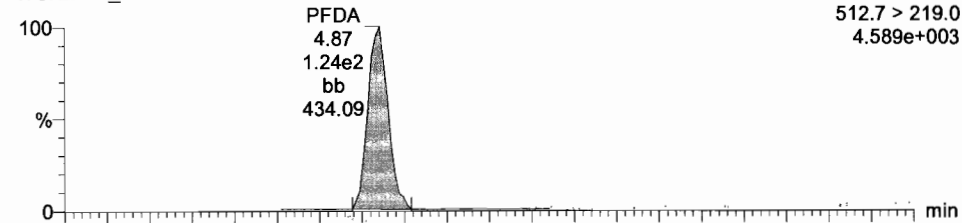
PFNA

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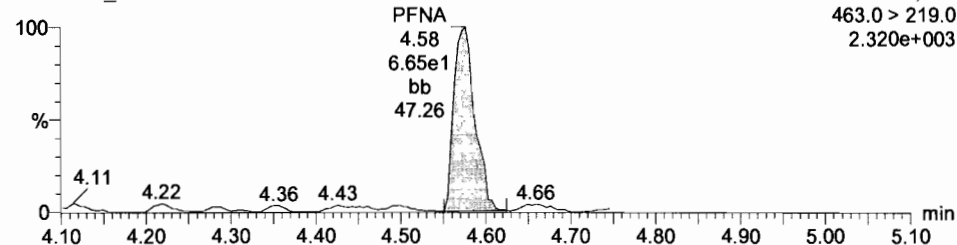


PFDA

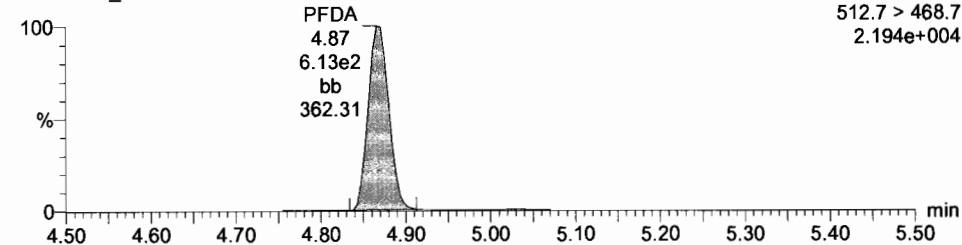
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170727G1\_3

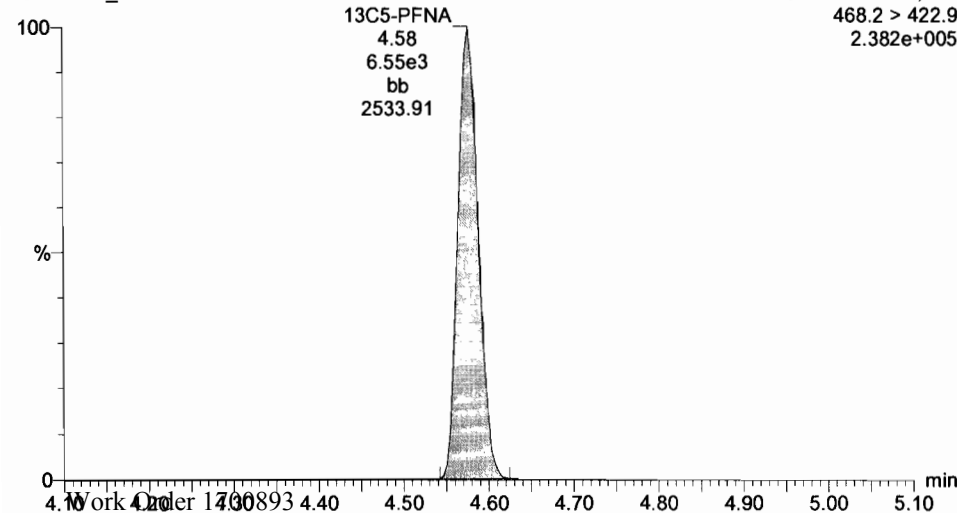


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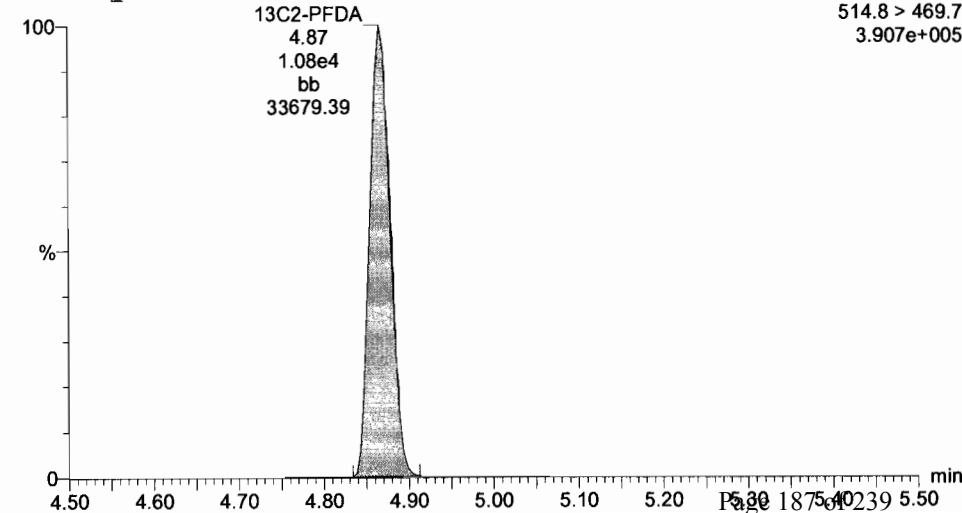
13C5-PFNA

170727G1\_3



13C2-PFDA

170727G1\_3



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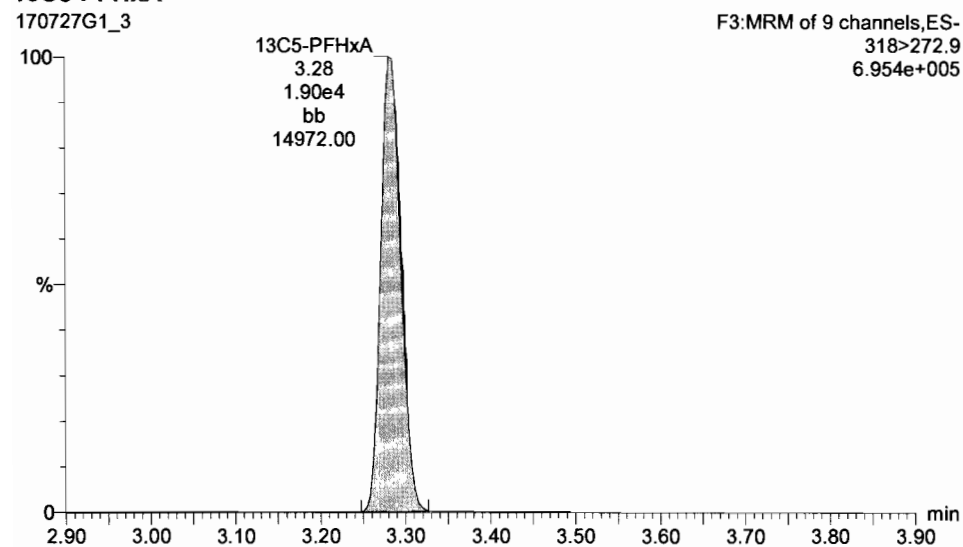
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ID: ST170727G1-2 PFC CS-1 17G2715, Description: PFC CS-1 17G2715 A, Name: 170727G1\_3, Date: 27-Jul-2017, Time: 11:56:54, Instrument: , Lab: , User:

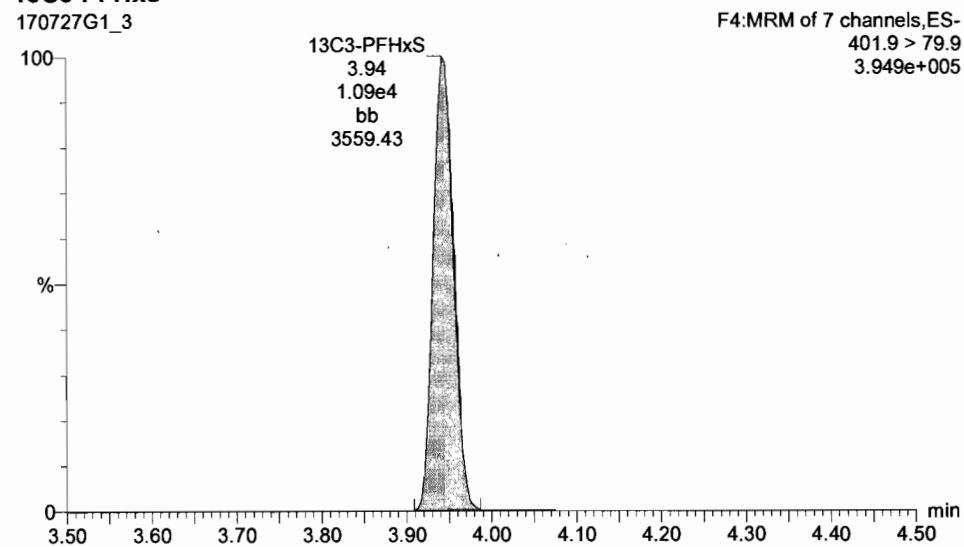
**13C5-PFHxA**

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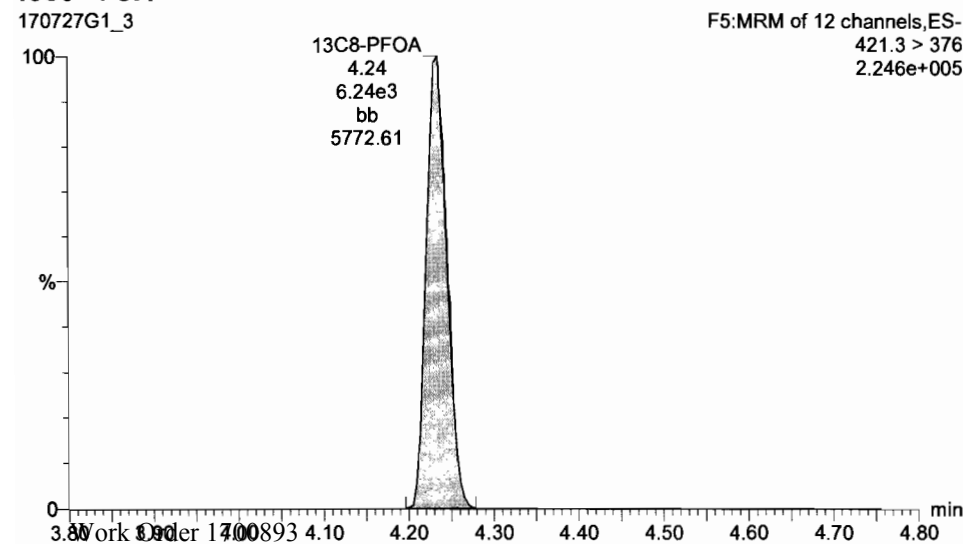
**13C3-PFHxS**

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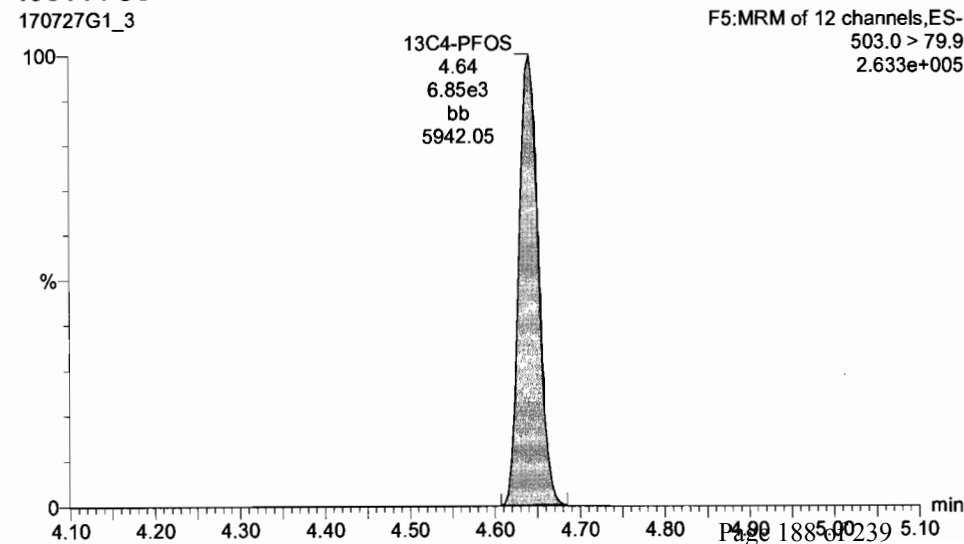
**13C8-PFOA**

170727G1\_3



**13C4-PFOS**

170727G1\_3



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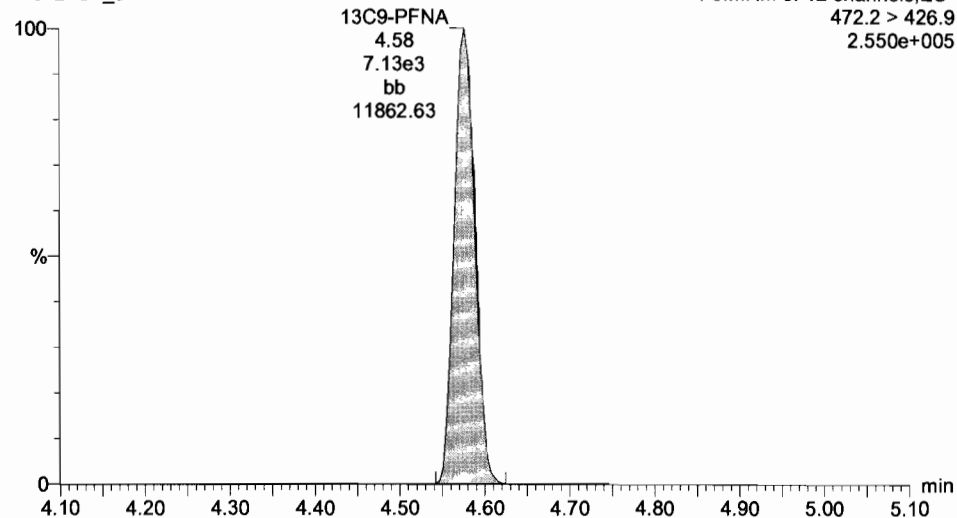
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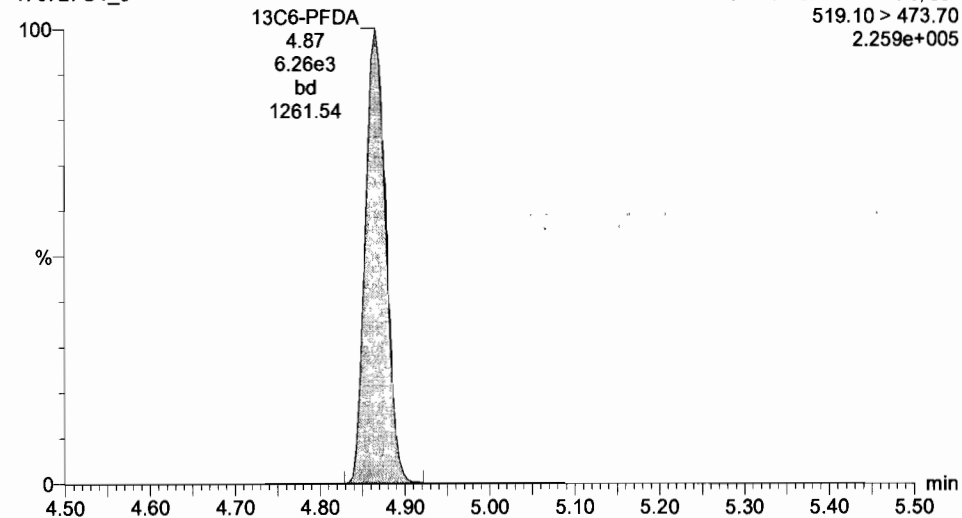
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170727G1\_3



**13C6-PFDA**

170727G1\_3



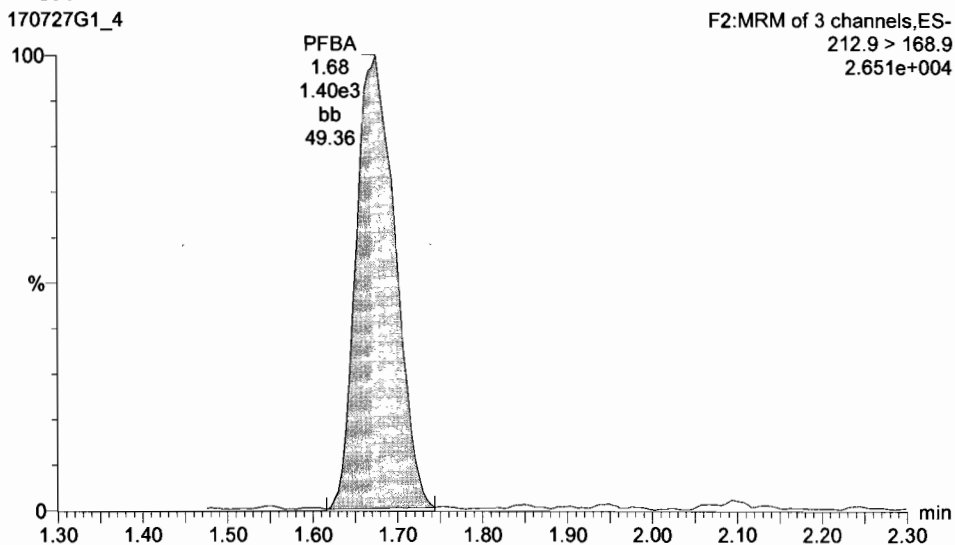
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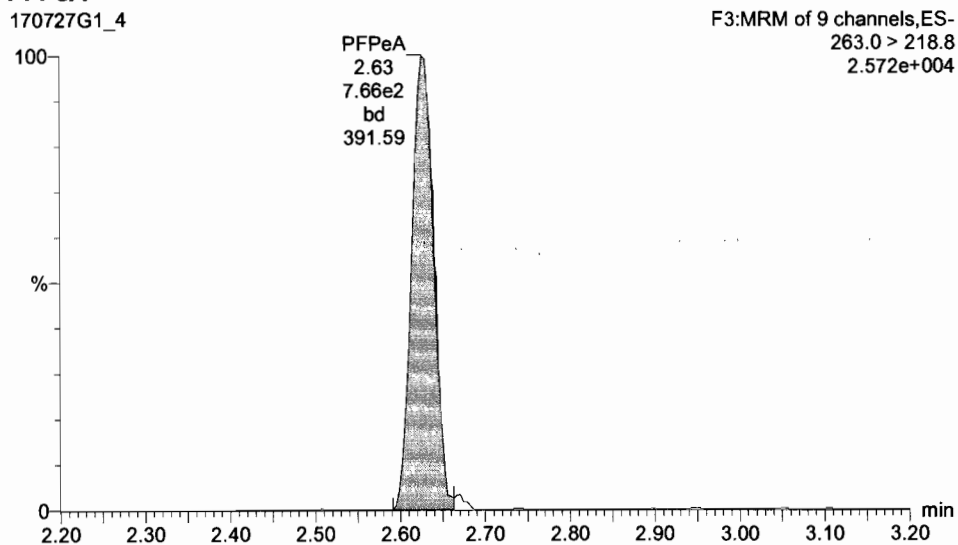
**PFBA**

170727G1\_4



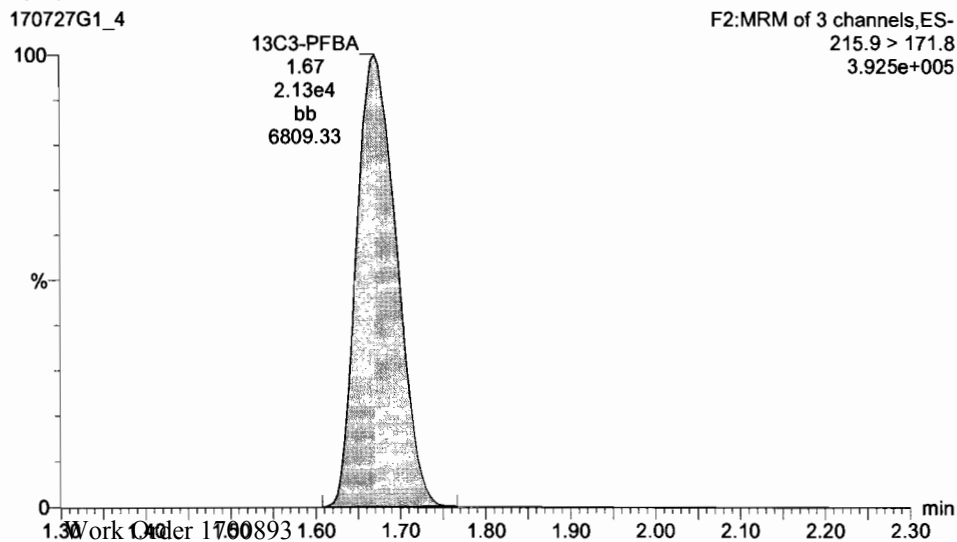
**PFPeA**

170727G1\_4



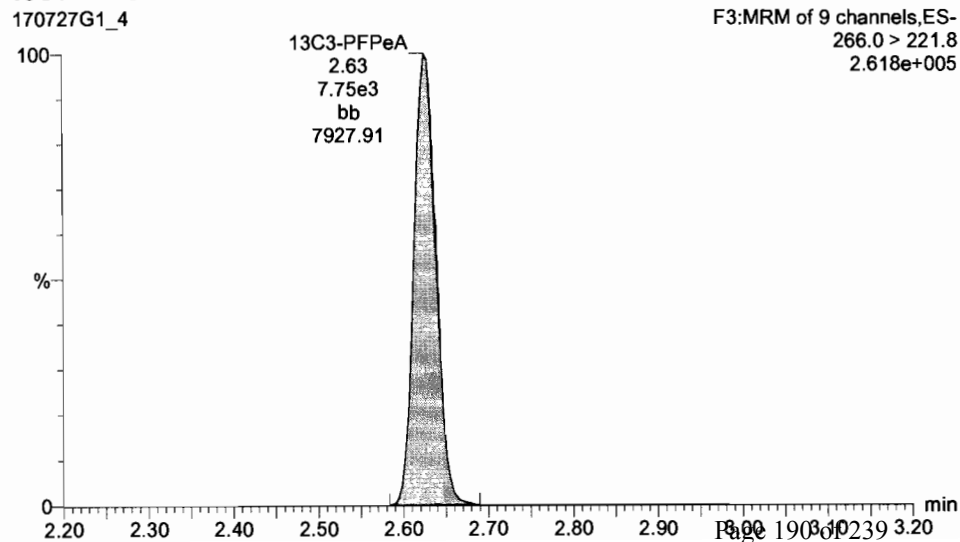
**13C3-PFBA**

170727G1\_4



**13C3-PFPeA**

170727G1\_4



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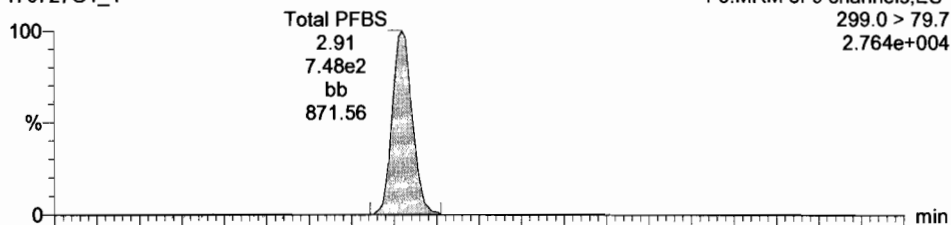
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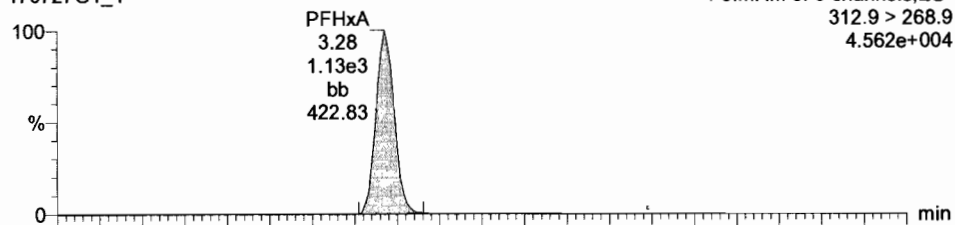
**Total PFBS**

170727G1\_4

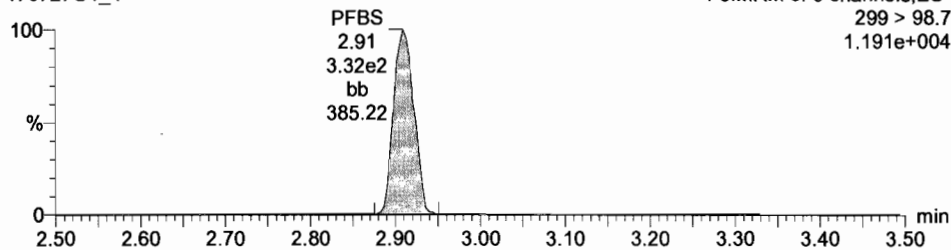


**PFHxA**

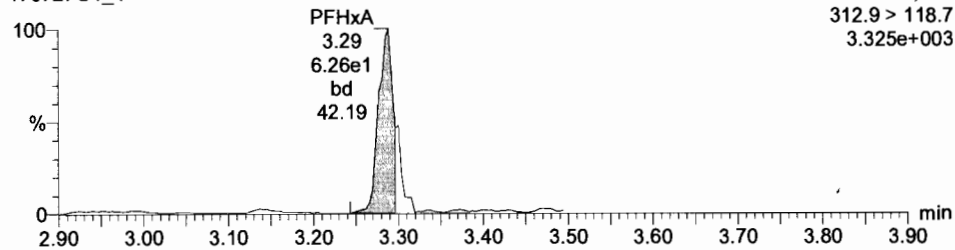
170727G1\_4



170727G1\_4

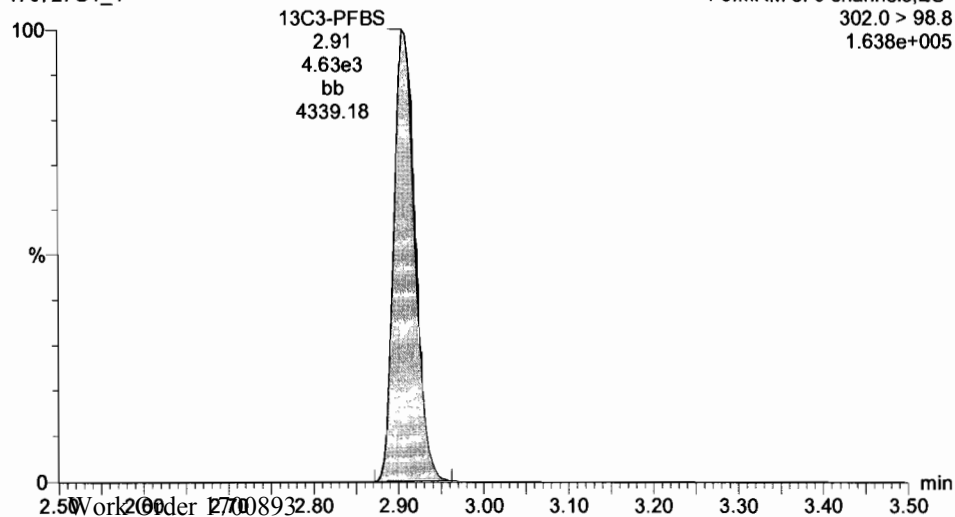


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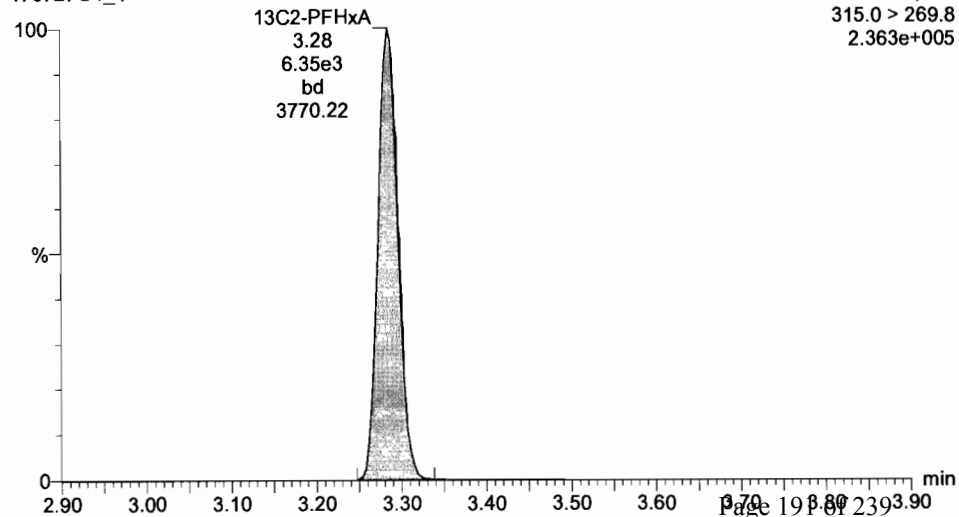
**13C3-PFBS**

170727G1\_4



**13C2-PFHxA**

170727G1\_4



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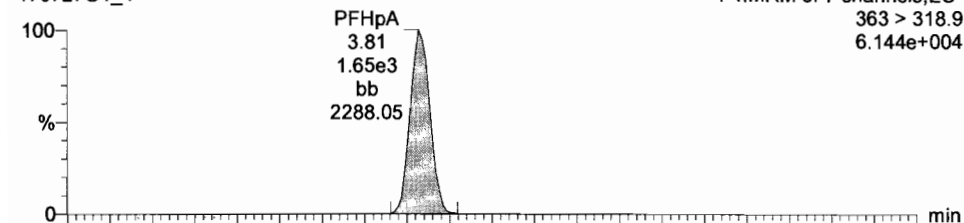
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ID: ST170727G1-3 PFC CS0 17G2716, Description: PFC CS0 17G2716 A, Name: 170727G1\_4, Date: 27-Jul-2017, Time: 12:09:31, Instrument: , Lab: , User:

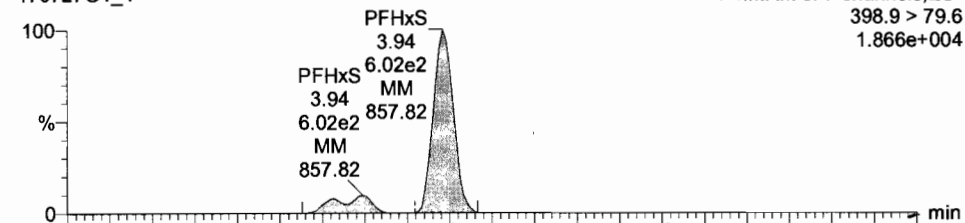
**PFHpA**

170727G1\_4

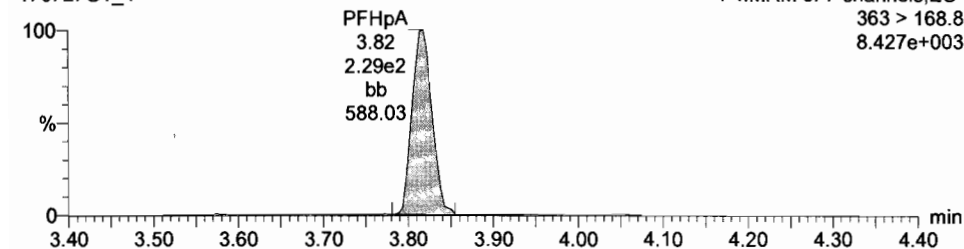


**Total PFHxS**

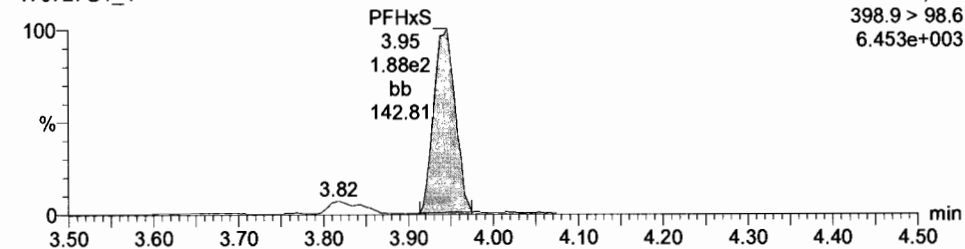
170727G1\_4



170727G1\_4

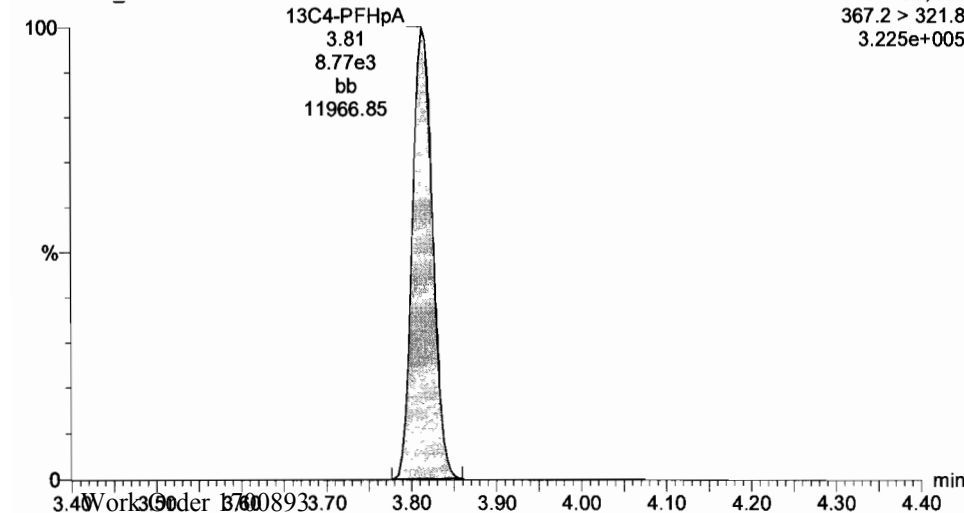


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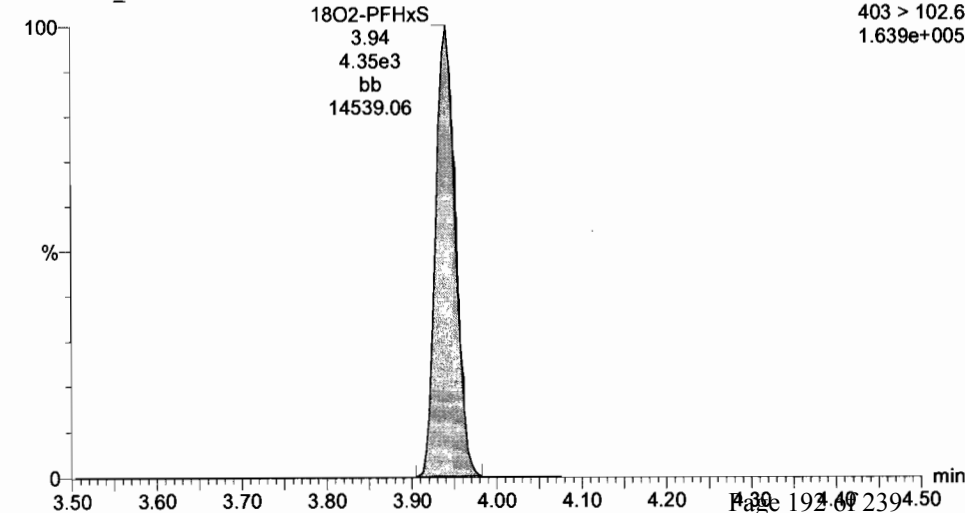
**13C4-PFHpA**

170727G1\_4



**18O2-PFHxS**

170727G1\_4





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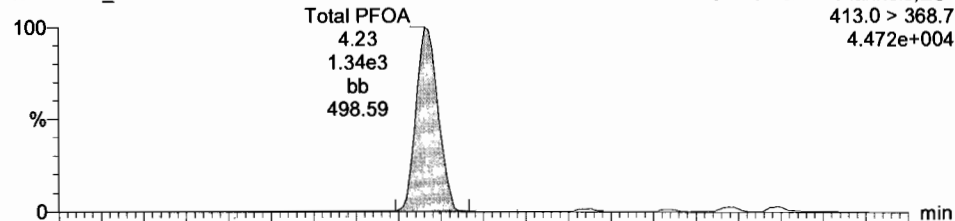
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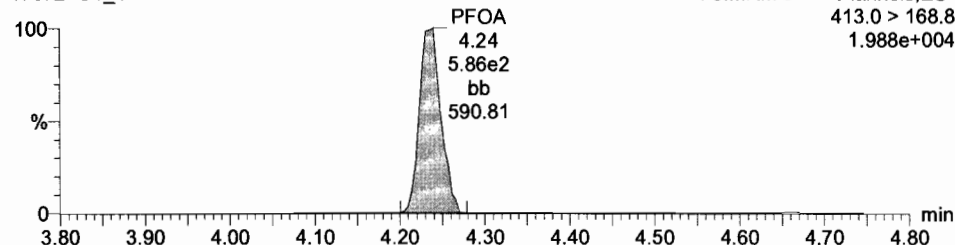
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### Total PFOA

170727G1\_4

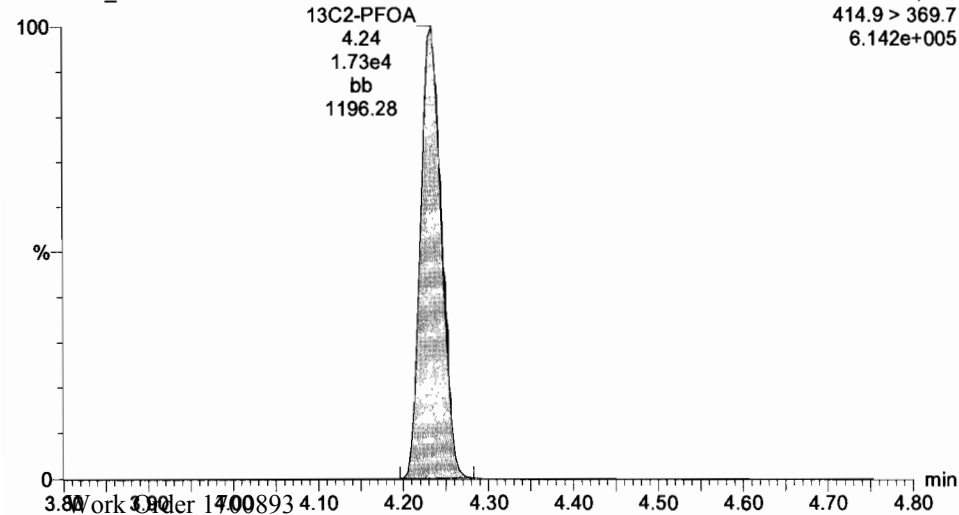


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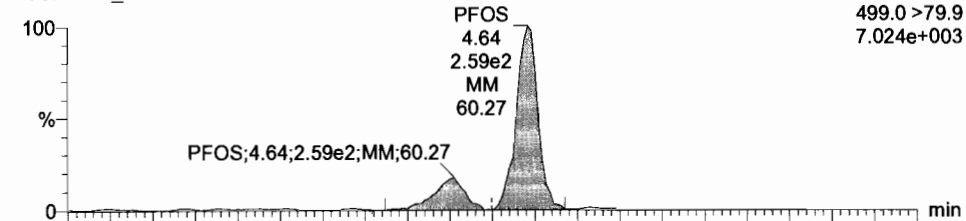
### 13C2-PFOA

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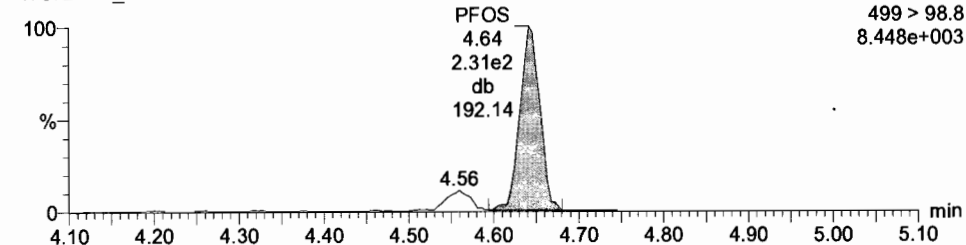


### Total PFOS

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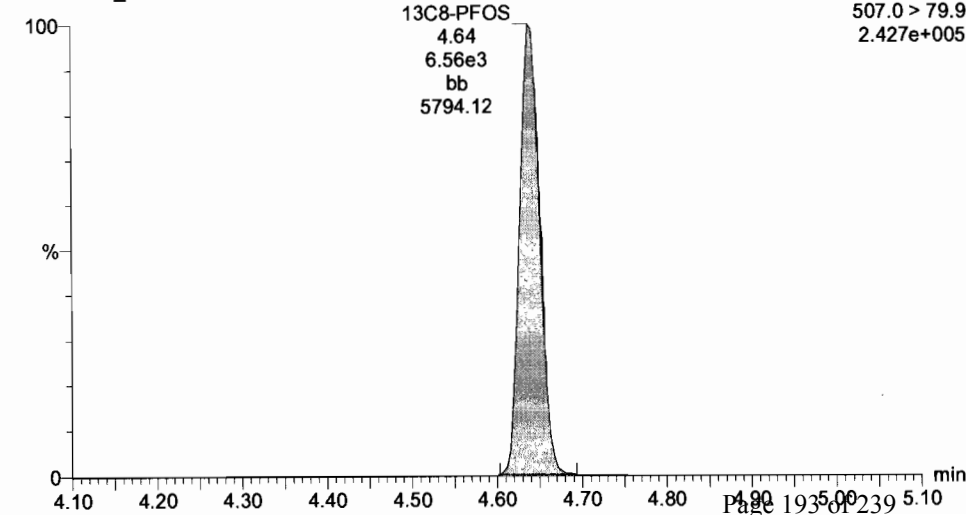


170727G1\_4



### 13C8-PFOS

170727G1\_4



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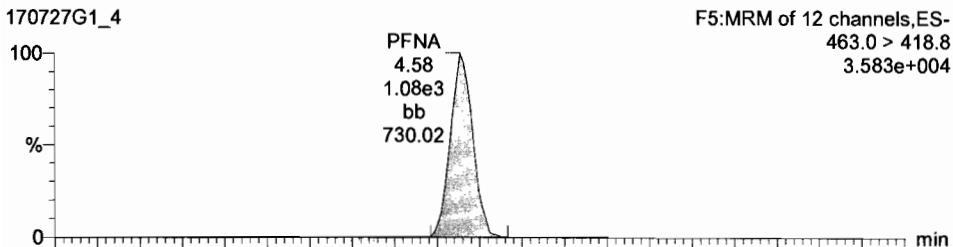
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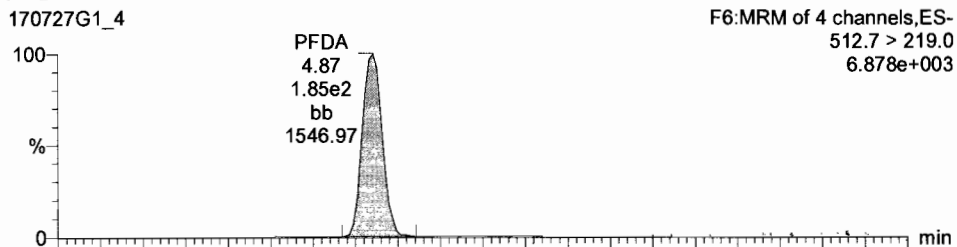
**PFNA**

170727G1\_4

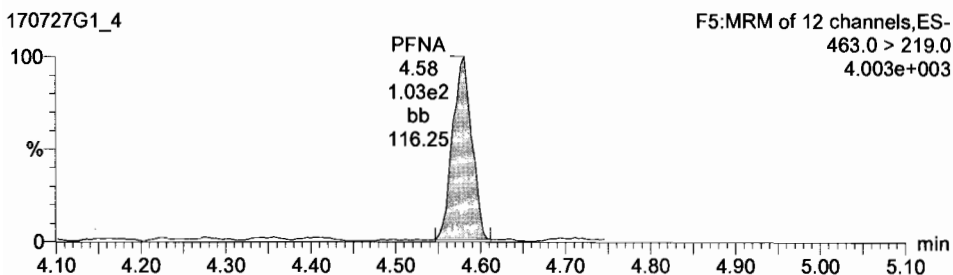


**PFDA**

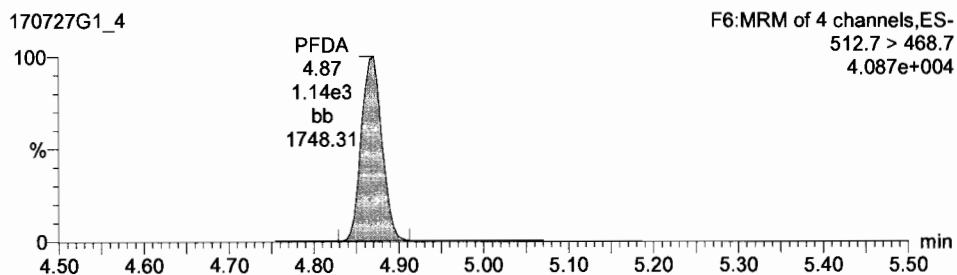
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170727G1\_4

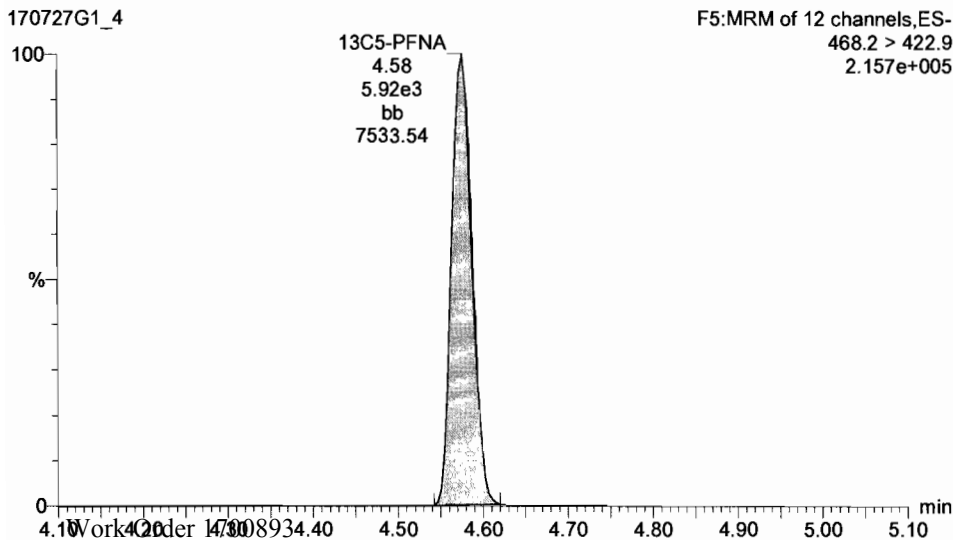


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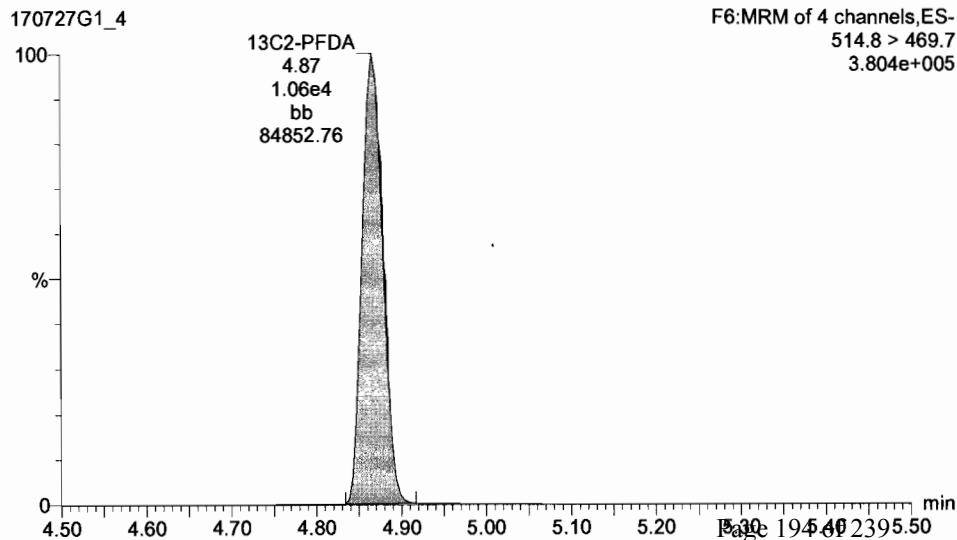
**13C5-PFNA**

170727G1\_4



**13C2-PFDA**

170727G1\_4



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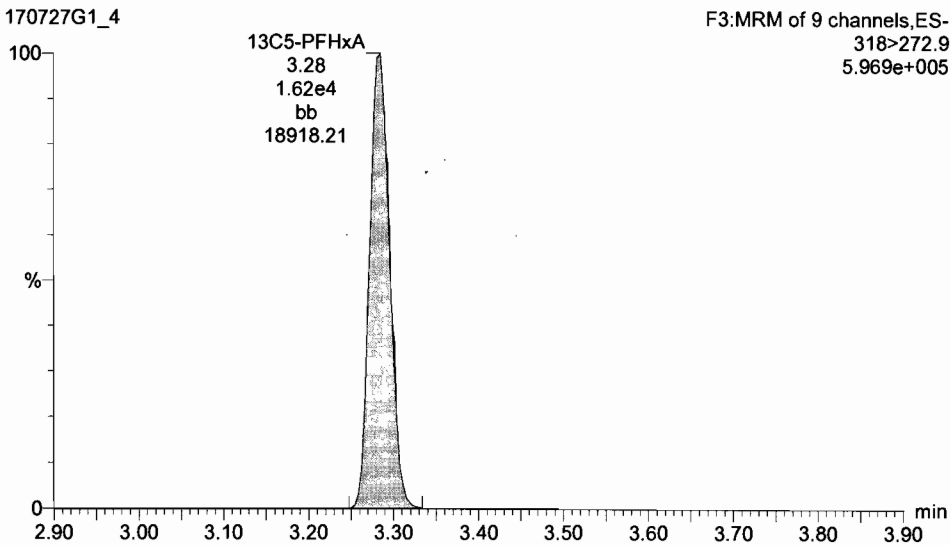
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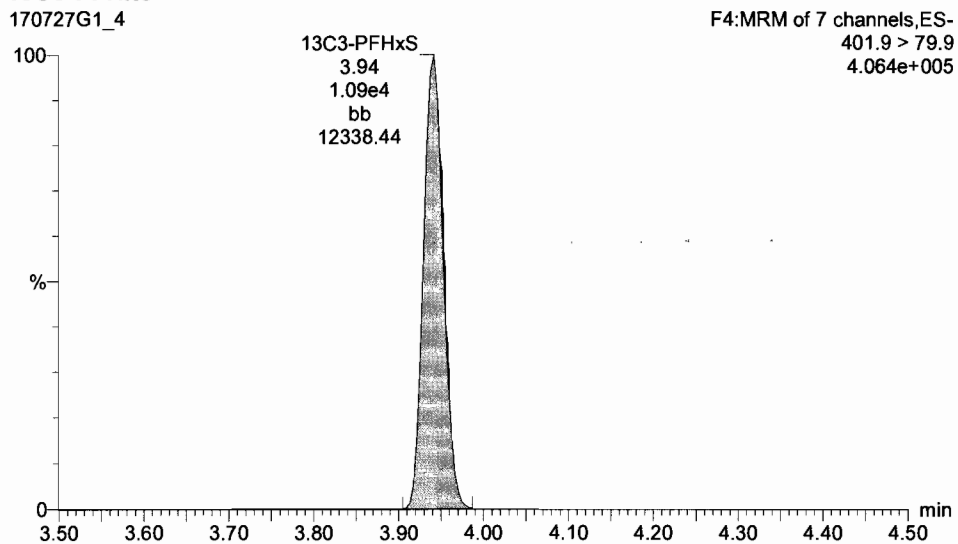
**13C5-PFHxA**

170727G1\_4



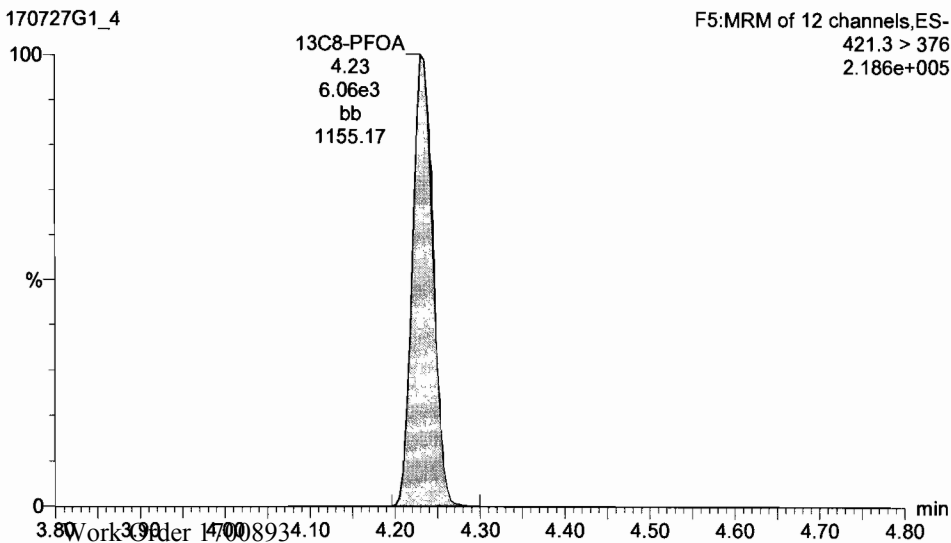
**13C3-PFHxS**

170727G1\_4



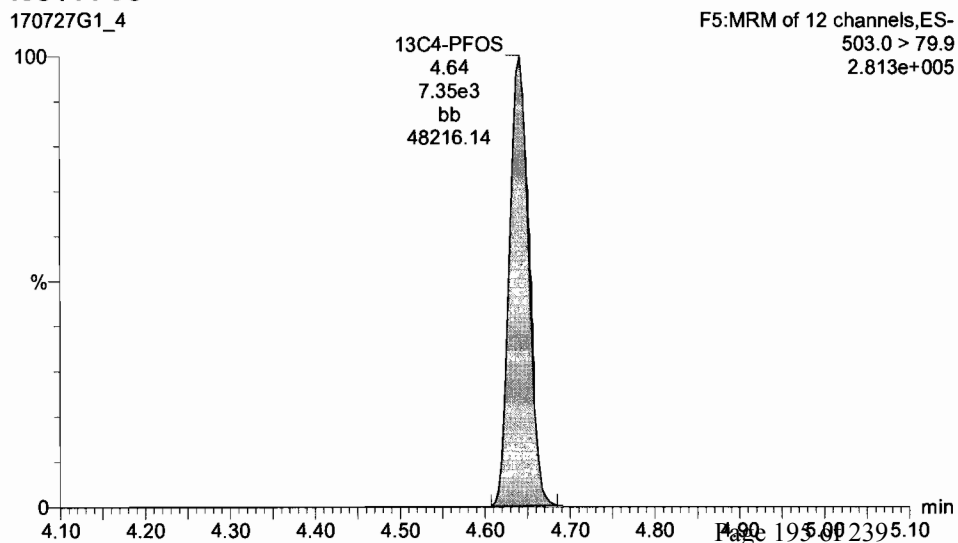
**13C8-PFOA**

170727G1\_4



**13C4-PFOS**

170727G1\_4



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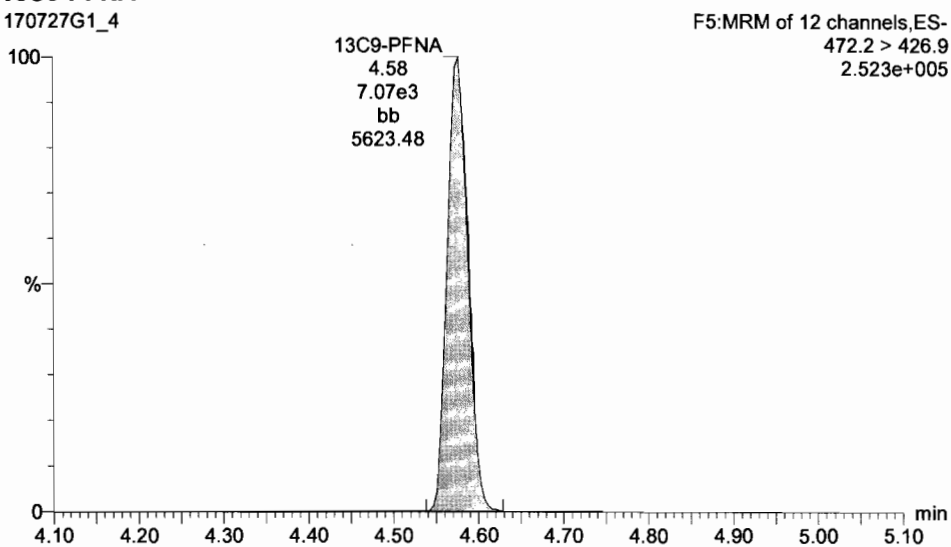
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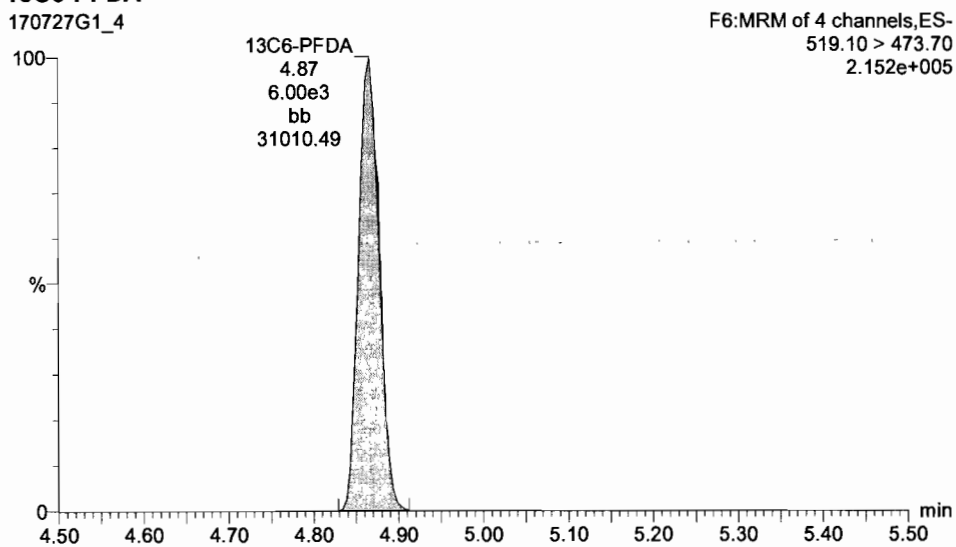
**13C9-PFNA**

170727G1\_4



**13C6-PFDA**

170727G1\_4



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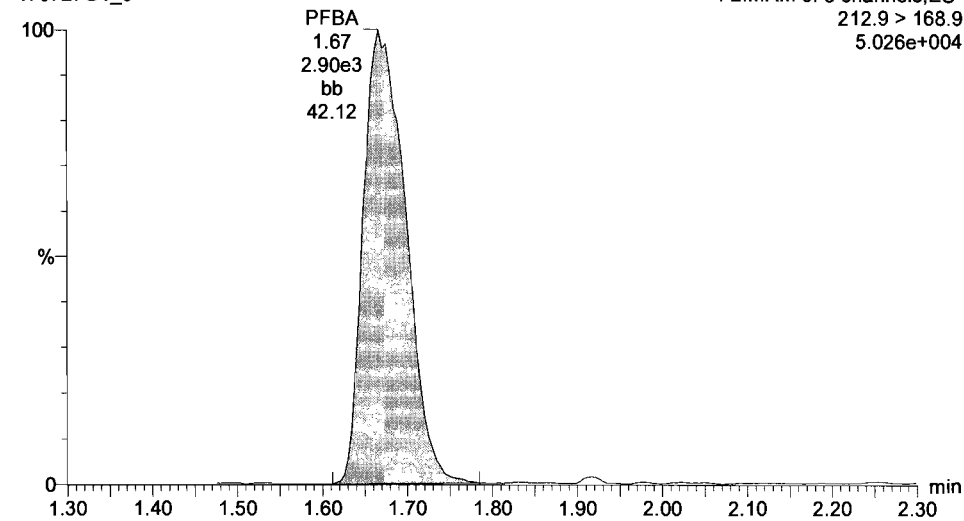
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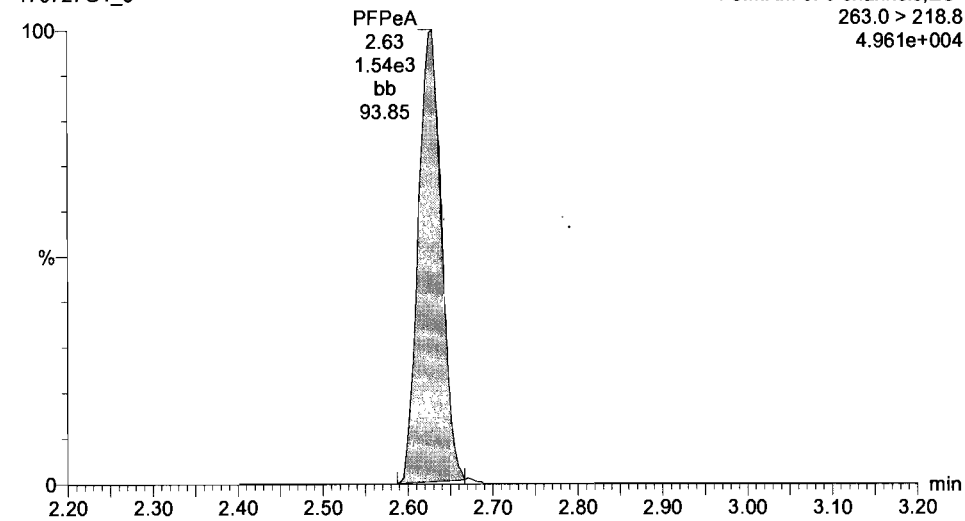
**PFBA**

170727G1\_5



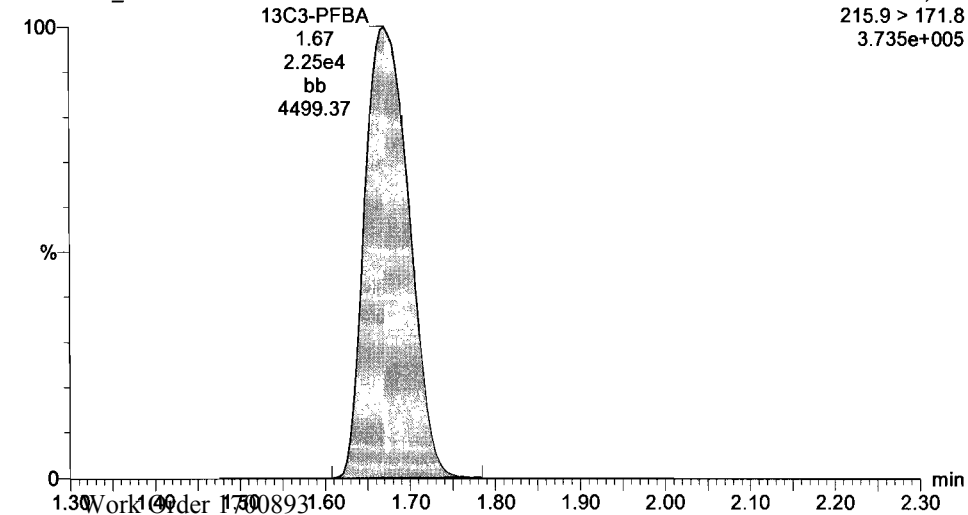
**PFPeA**

170727G1\_5



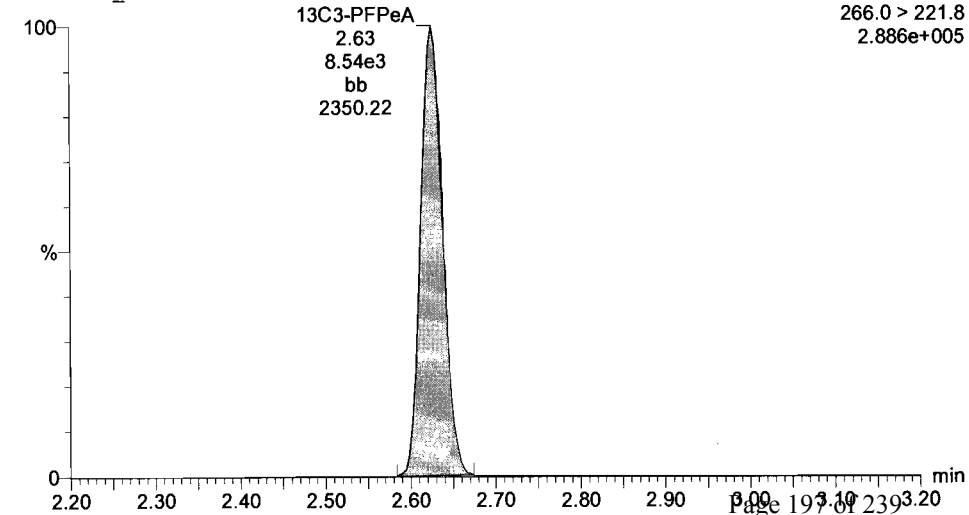
**13C3-PFBA**

170727G1\_5



**13C3-PFPeA**

170727G1\_5



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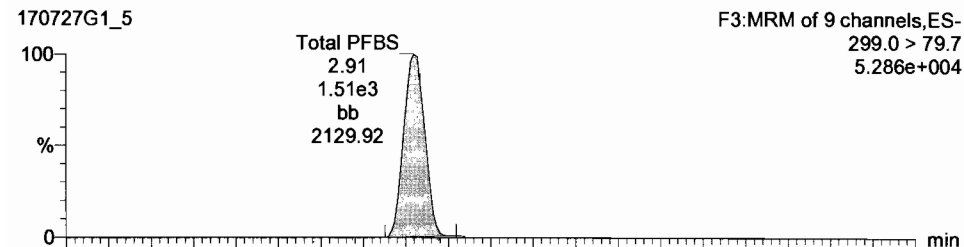
Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-4 PFC CS1 17G2717, Description: PFC CS1 17G2717 A, Name: 170727G1\_5, Date: 27-Jul-2017, Time: 12:21:58, Instrument: , Lab: , User:

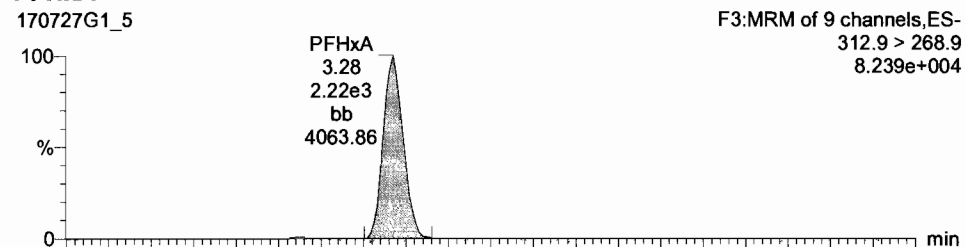
**Total PFBS**

170727G1\_5

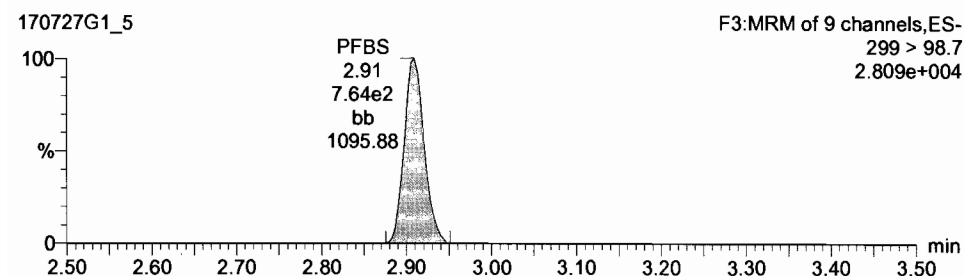


**PFHxA**

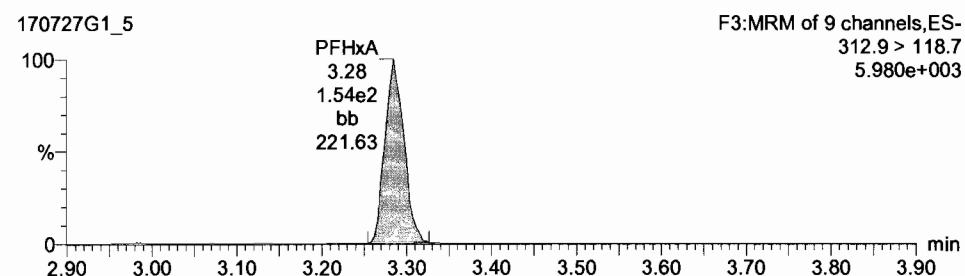
170727G1\_5



170727G1\_5

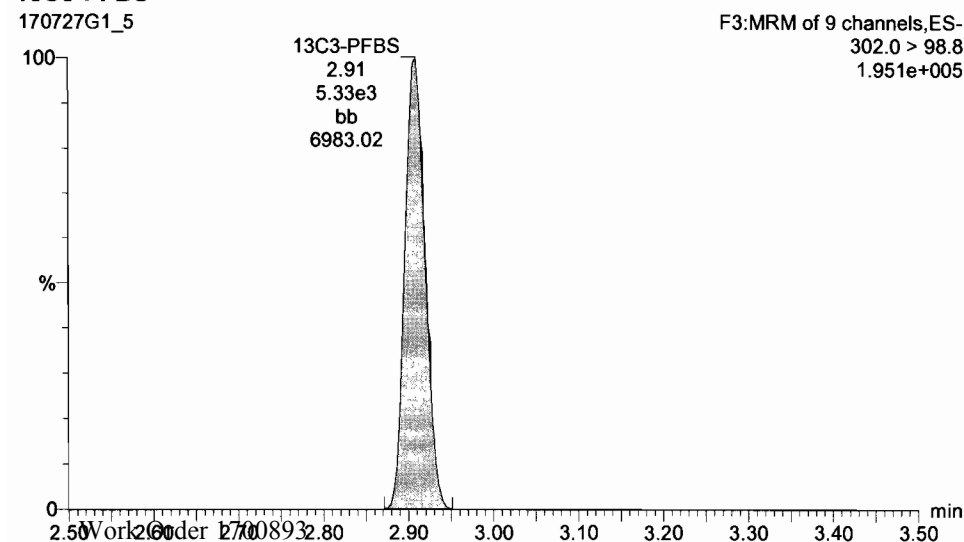


170727G1\_5



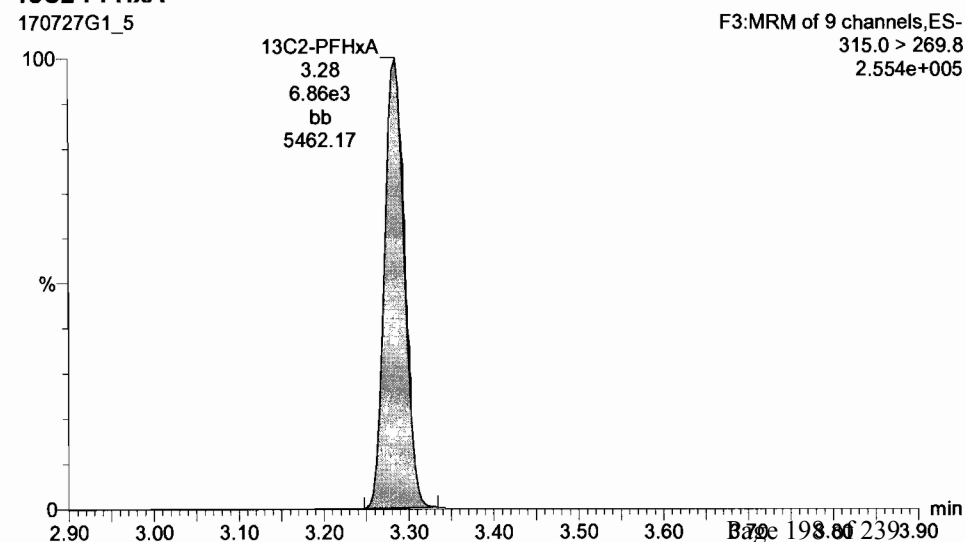
**13C3-PFBS**

170727G1\_5



**13C2-PFHxA**

170727G1\_5



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

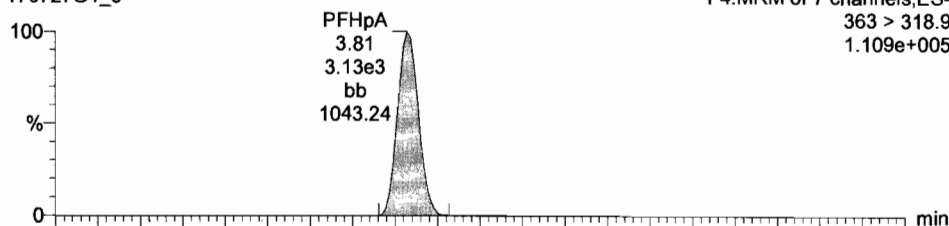
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ID: ST170727G1-4 PFC CS1 17G2717, Description: PFC CS1 17G2717 A, Name: 170727G1\_5, Date: 27-Jul-2017, Time: 12:21:58, Instrument: , Lab: , User:

**PFHpA**

170727G1\_5

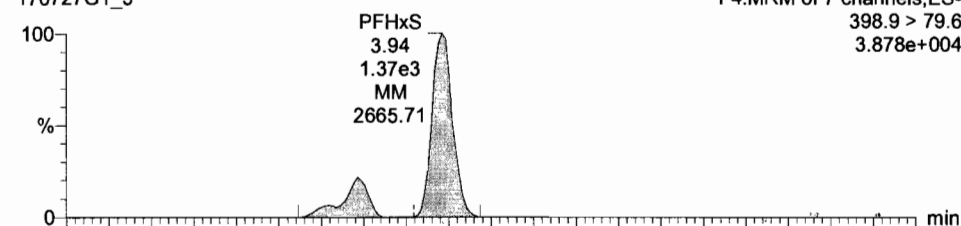
F4:MRM of 7 channels,ES-  
363 > 318.9  
1.109e+005



**Total PFHxS**

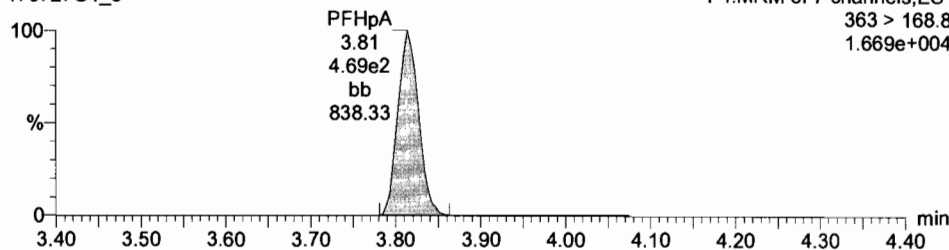
170727G1\_5

F4:MRM of 7 channels,ES-  
398.9 > 79.6  
3.878e+004



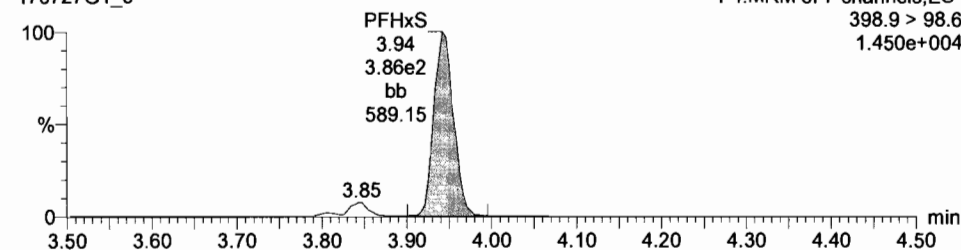
170727G1\_5

F4:MRM of 7 channels,ES-  
363 > 168.8  
1.669e+004



170727G1\_5

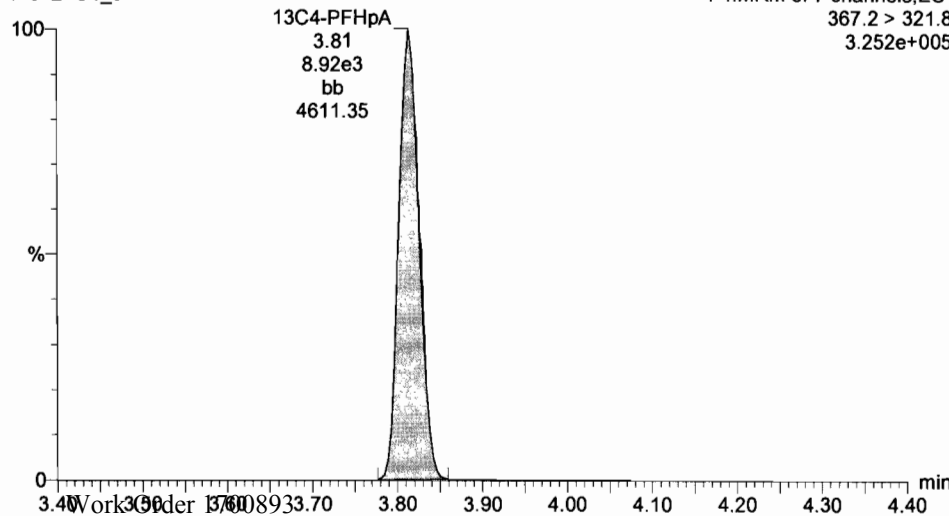
F4:MRM of 7 channels,ES-  
398.9 > 98.6  
1.450e+004



**13C4-PFHpA**

170727G1\_5

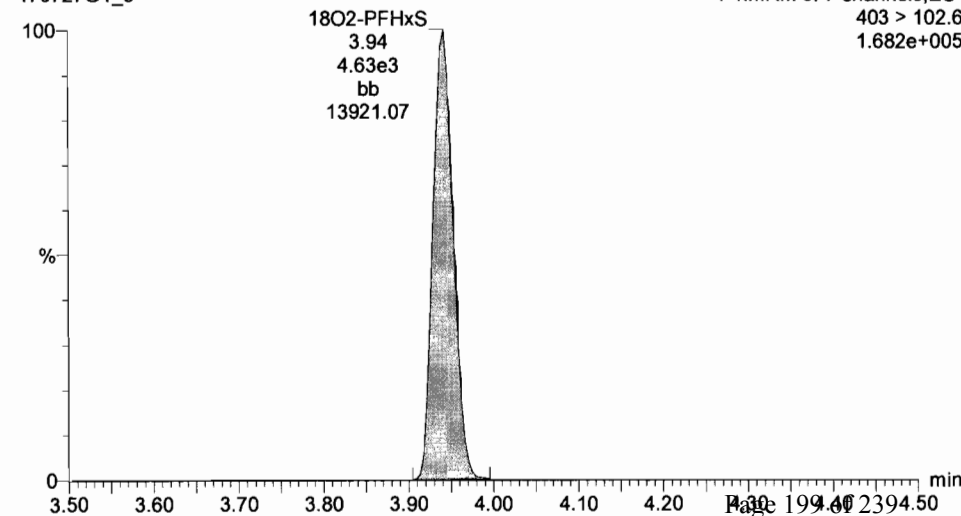
F4:MRM of 7 channels,ES-  
367.2 > 321.8  
3.252e+005



**18O2-PFHxS**

170727G1\_5

F4:MRM of 7 channels,ES-  
403 > 102.6  
1.682e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

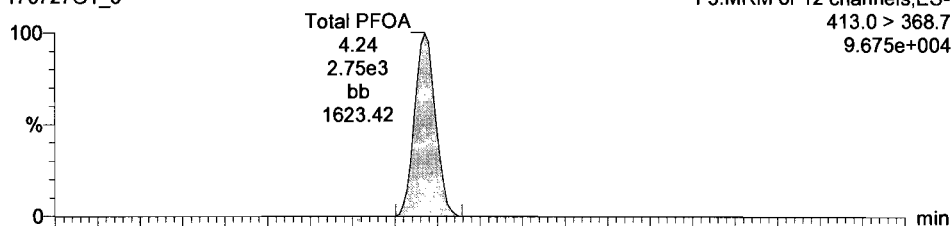
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-4 PFC CS1 17G2717, Description: PFC CS1 17G2717 A, Name: 170727G1\_5, Date: 27-Jul-2017, Time: 12:21:58, Instrument: , Lab: , User:

**Total PFOA**

170727G1\_5

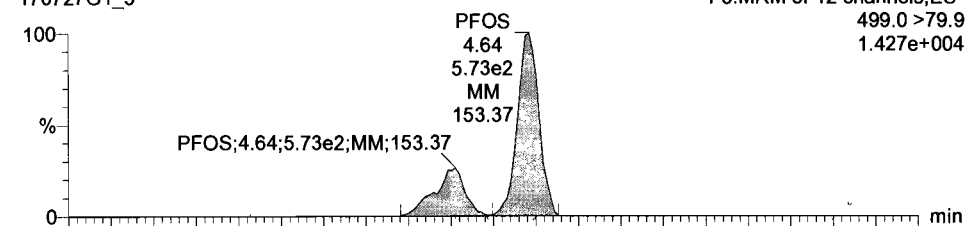
F5:MRM of 12 channels,ES-  
413.0 > 368.7  
9.675e+004



**Total PFOS**

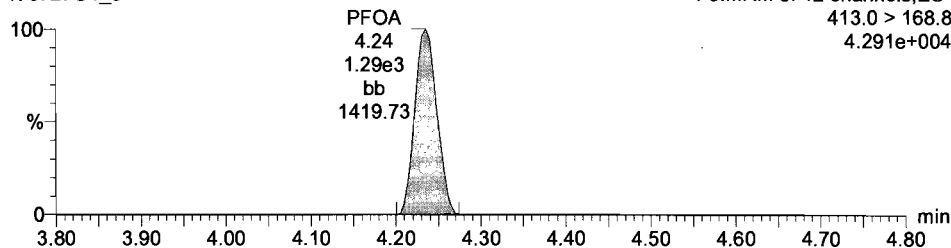
170727G1\_5

F5:MRM of 12 channels,ES-  
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1.427e+004



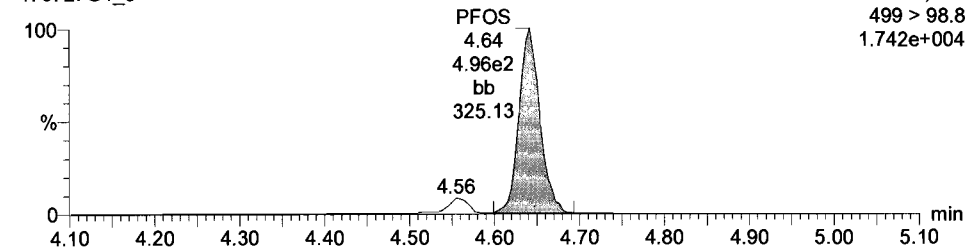
170727G1\_5

F5:MRM of 12 channels,ES-  
413.0 > 168.8  
4.291e+004



170727G1\_5

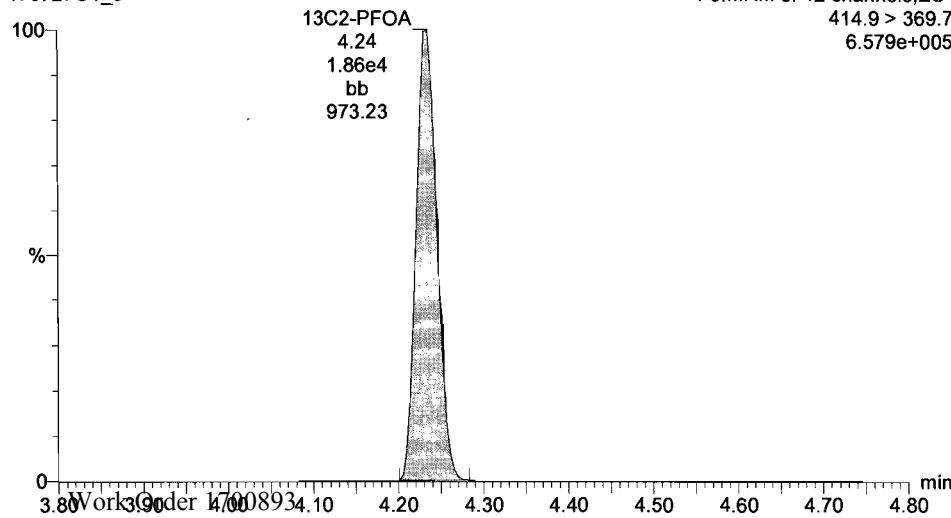
F5:MRM of 12 channels,ES-  
499 > 98.8  
1.742e+004



**13C2-PFOA**

170727G1\_5

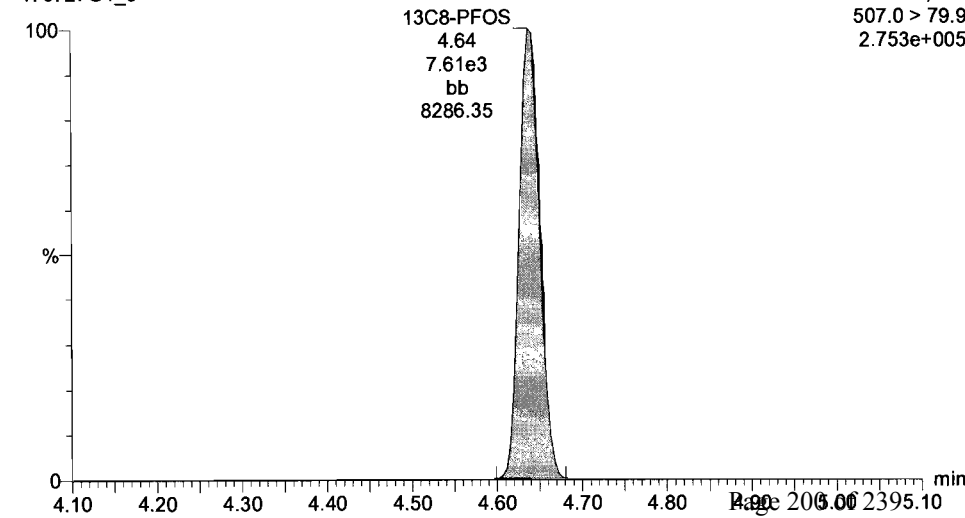
F5:MRM of 12 channels,ES-  
414.9 > 369.7  
6.579e+005



**13C8-PFOS**

170727G1\_5

F5:MRM of 12 channels,ES-  
507.0 > 79.9  
2.753e+005





Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

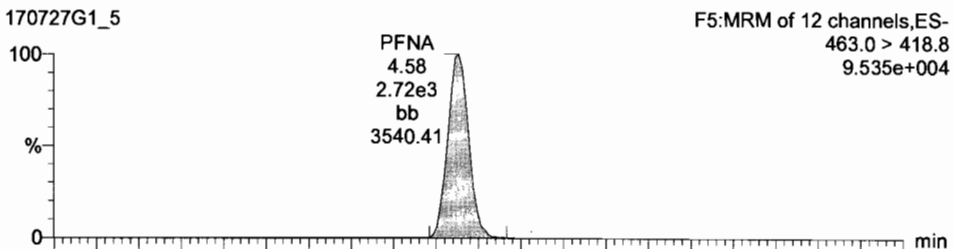
Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-4 PFC CS1 17G2717, Description: PFC CS1 17G2717 A, Name: 170727G1\_5, Date: 27-Jul-2017, Time: 12:21:58, Instrument: , Lab: , User:

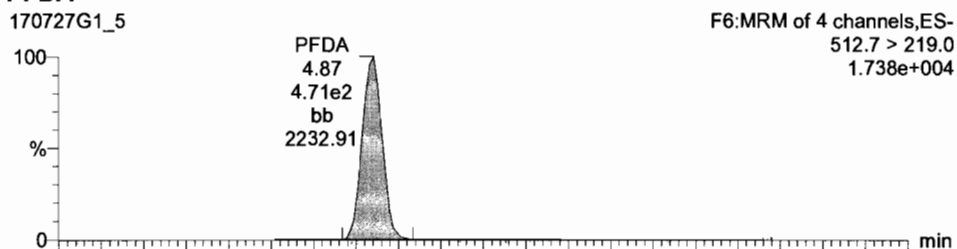
**PFNA**

170727G1\_5

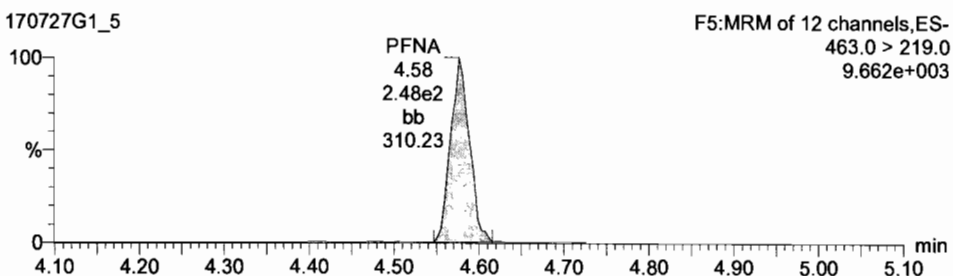


**PFDA**

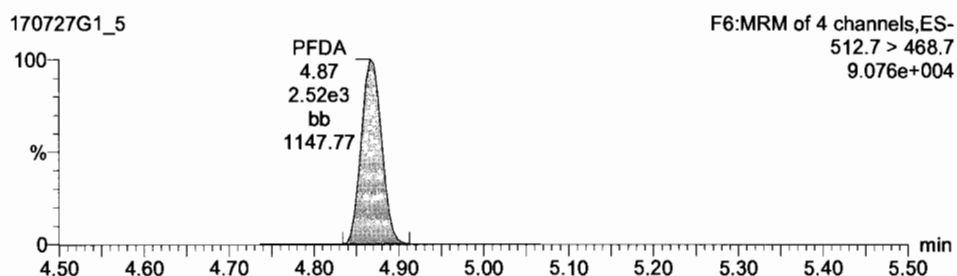
170727G1\_5



170727G1\_5

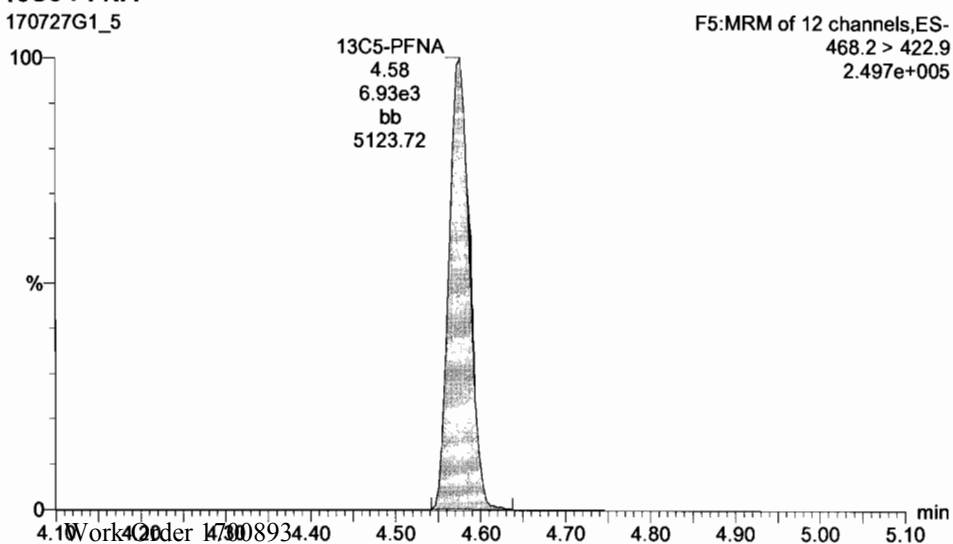


170727G1\_5



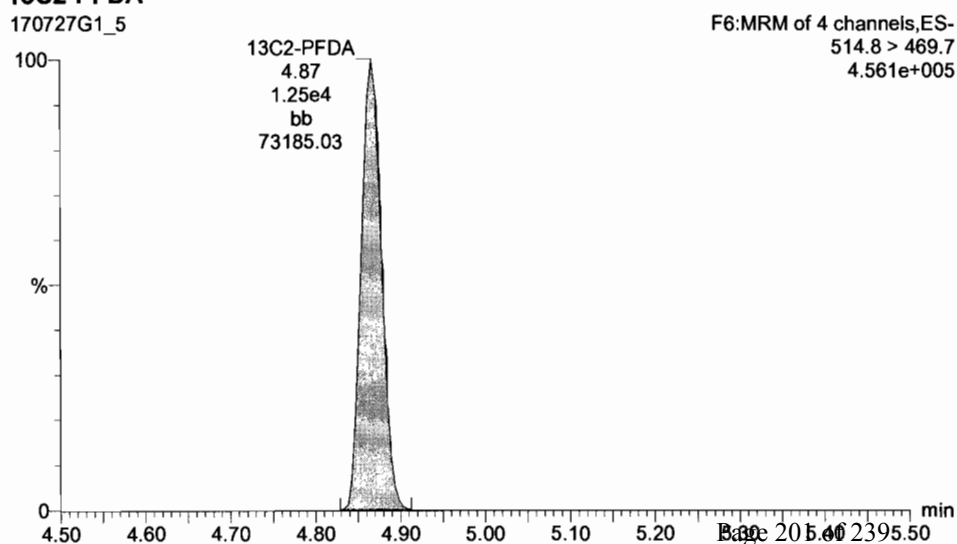
**13C5-PFNA**

170727G1\_5



**13C2-PFDA**

170727G1\_5



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

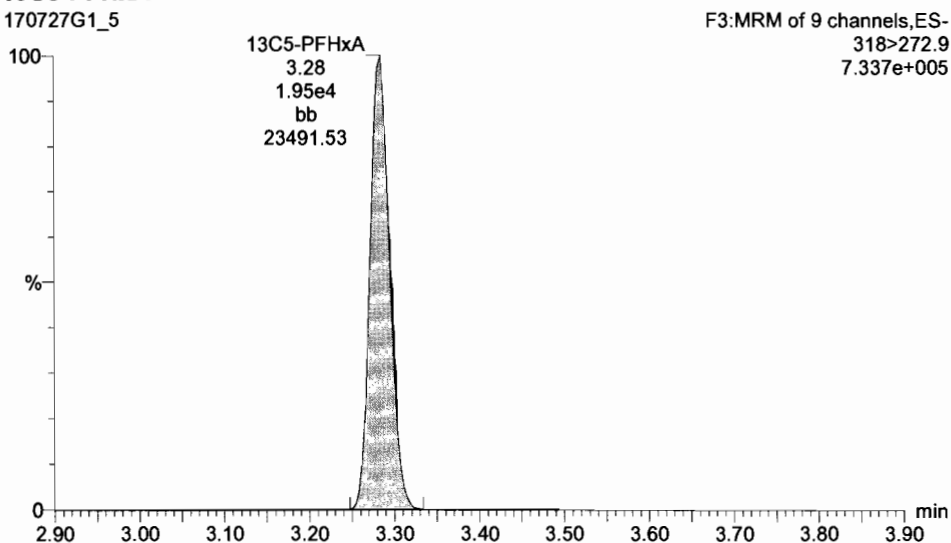
Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-4 PFC CS1 17G2717, Description: PFC CS1 17G2717 A, Name: 170727G1\_5, Date: 27-Jul-2017, Time: 12:21:58, Instrument: , Lab: , User:

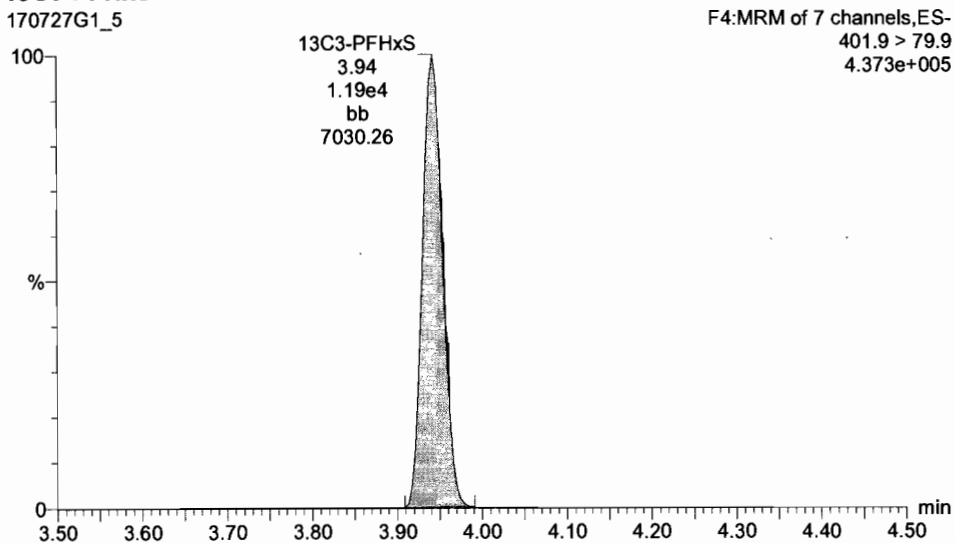
**13C5-PFHxA**

170727G1\_5



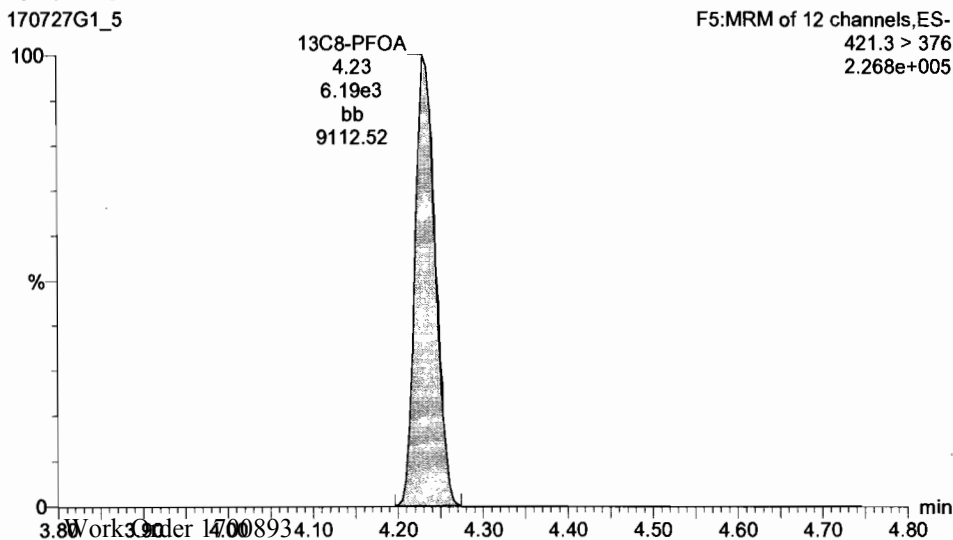
**13C3-PFHxS**

170727G1\_5



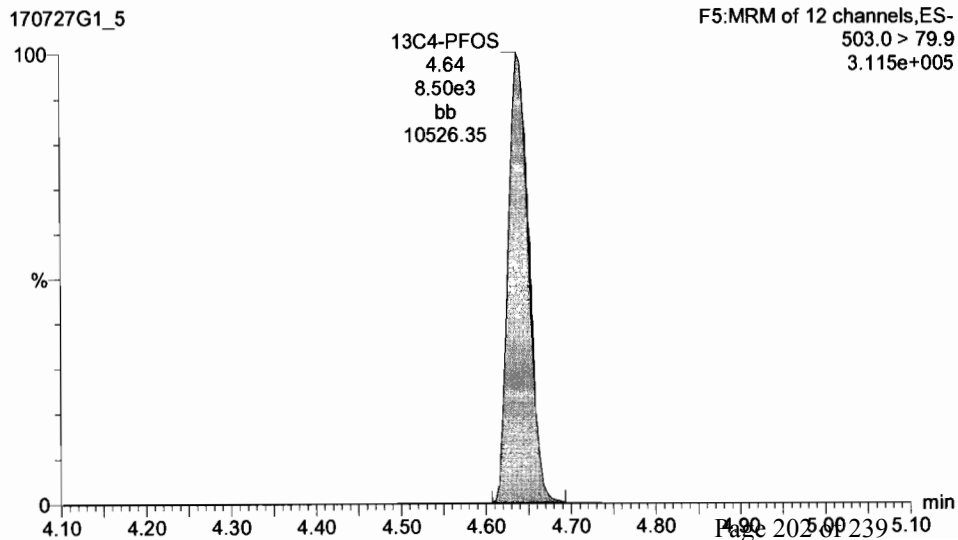
**13C8-PFOA**

170727G1\_5



**13C4-PFOS**

170727G1\_5



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

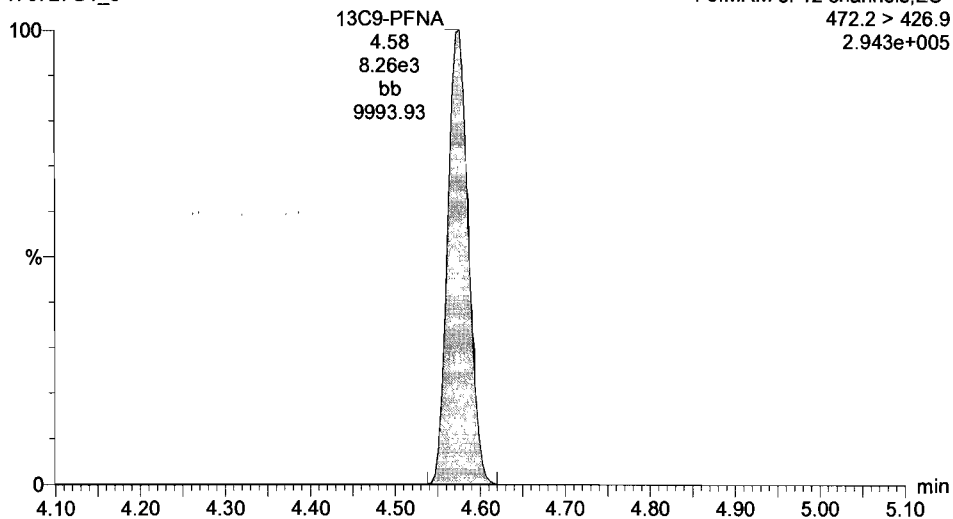
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-4 PFC CS1 17G2717, Description: PFC CS1 17G2717 A, Name: 170727G1\_5, Date: 27-Jul-2017, Time: 12:21:58, Instrument: , Lab: , User:

**13C9-PFNA**

170727G1\_5

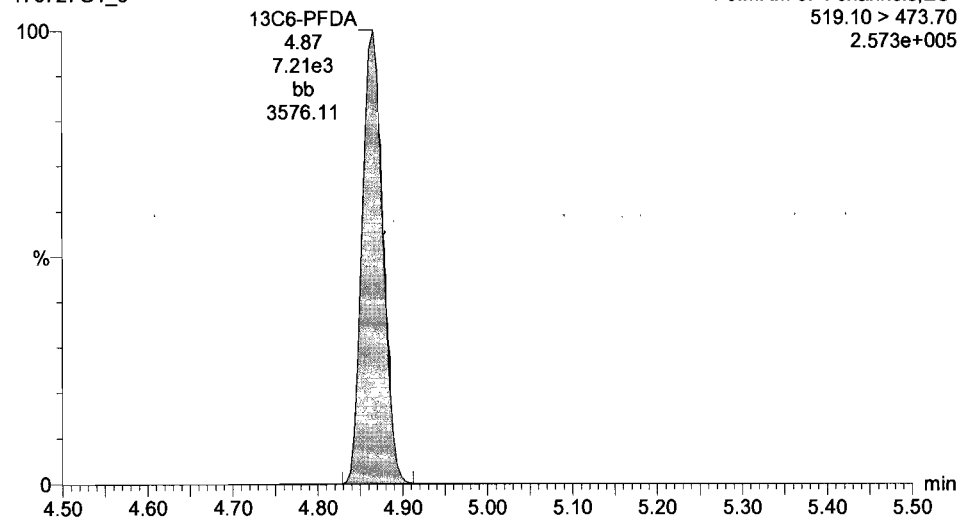
F5:MRM of 12 channels,ES-  
472.2 > 426.9  
2.943e+005



**13C6-PFDA**

170727G1\_5

F6:MRM of 4 channels,ES-  
519.10 > 473.70  
2.573e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

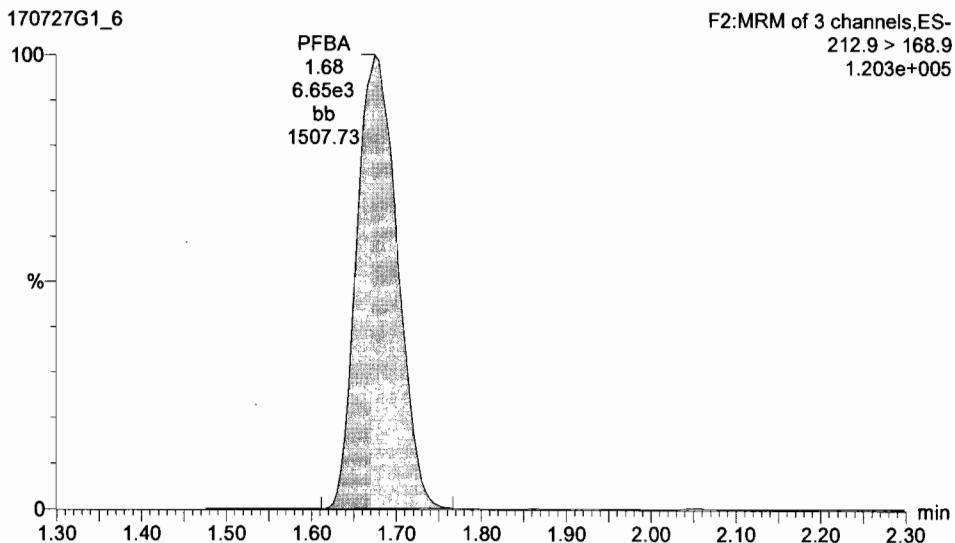
Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-5 PFC CS2 17G2718, Description: PFC CS2 17G2718 A, Name: 170727G1\_6, Date: 27-Jul-2017, Time: 12:34:32, Instrument: , Lab: , User:

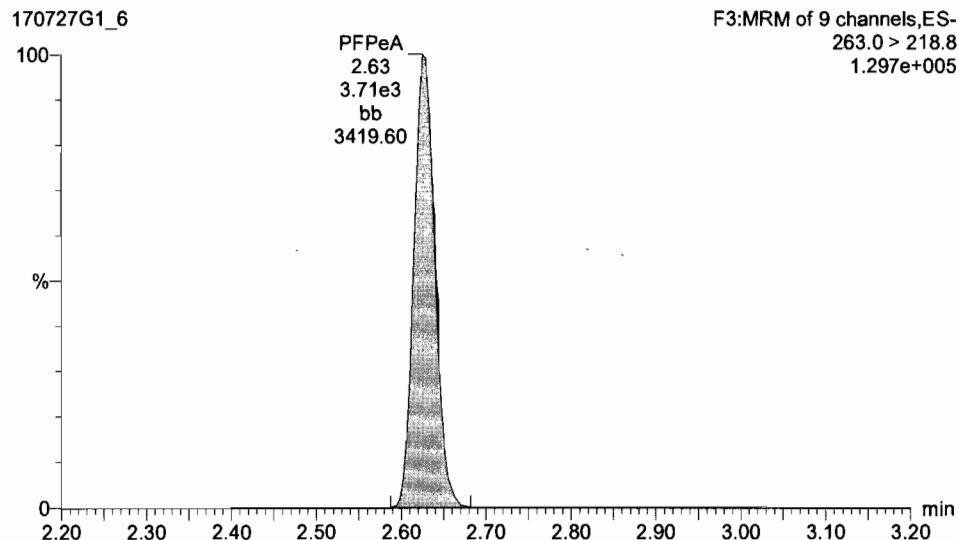
**PFBA**

170727G1\_6



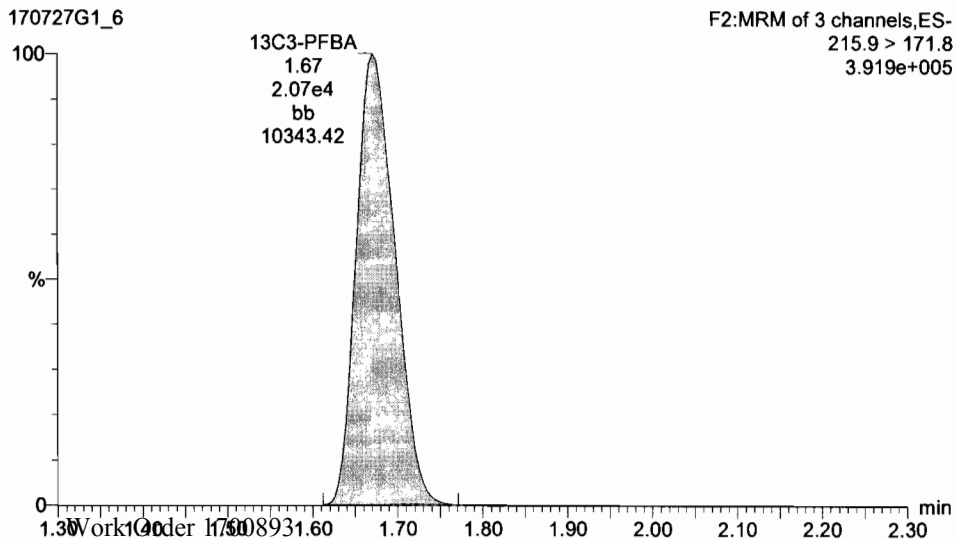
**PFPeA**

170727G1\_6



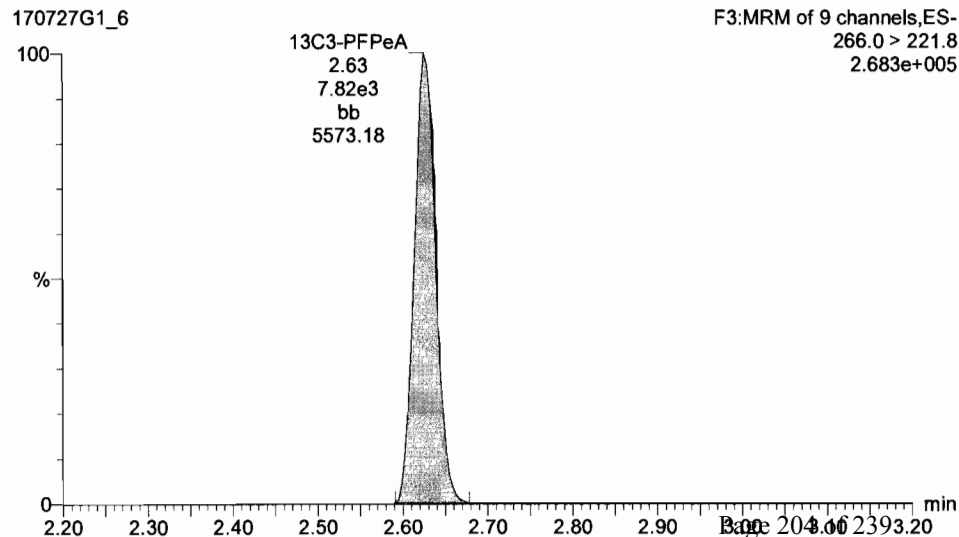
**13C3-PFBA**

170727G1\_6



**13C3-PFPeA**

170727G1\_6



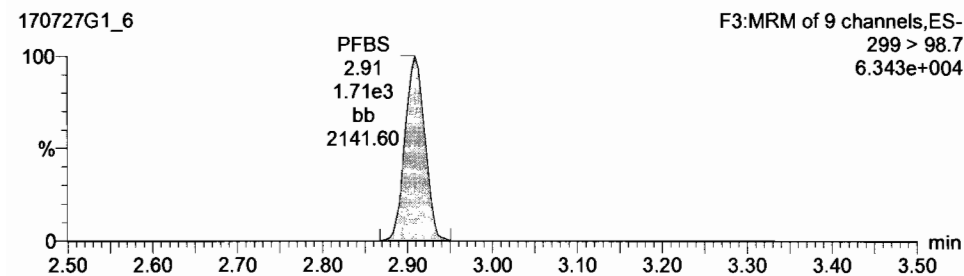
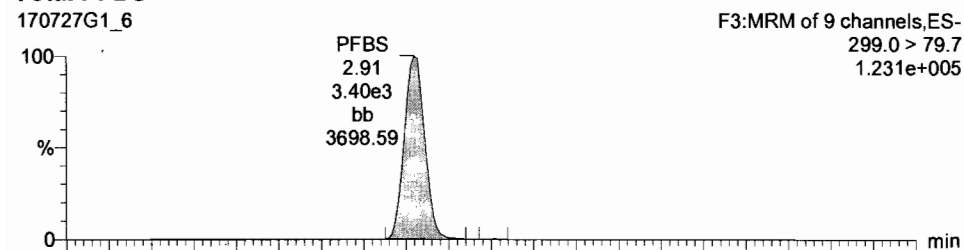
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Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

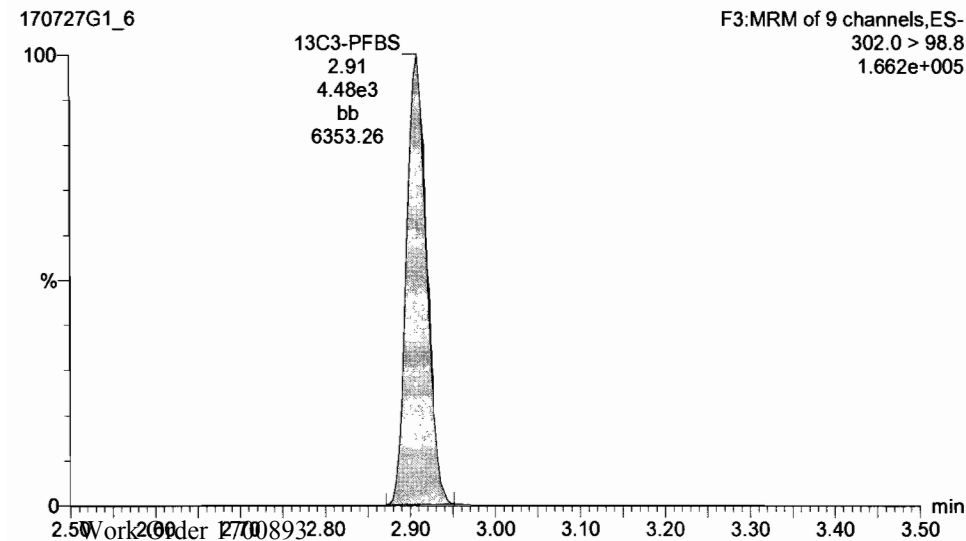
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-5 PFC CS2 17G2718, Description: PFC CS2 17G2718 A, Name: 170727G1\_6, Date: 27-Jul-2017, Time: 12:34:32, Instrument: , Lab: , User:

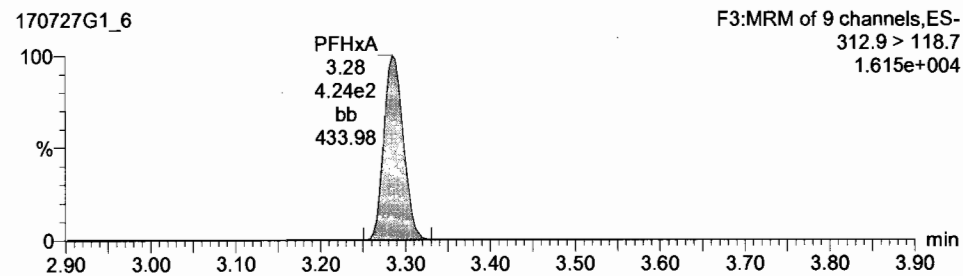
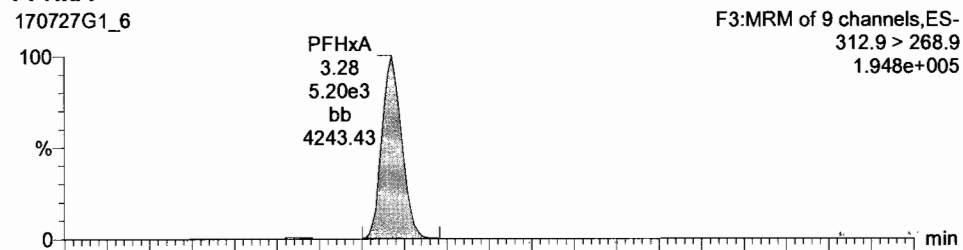
**Total PFBS**



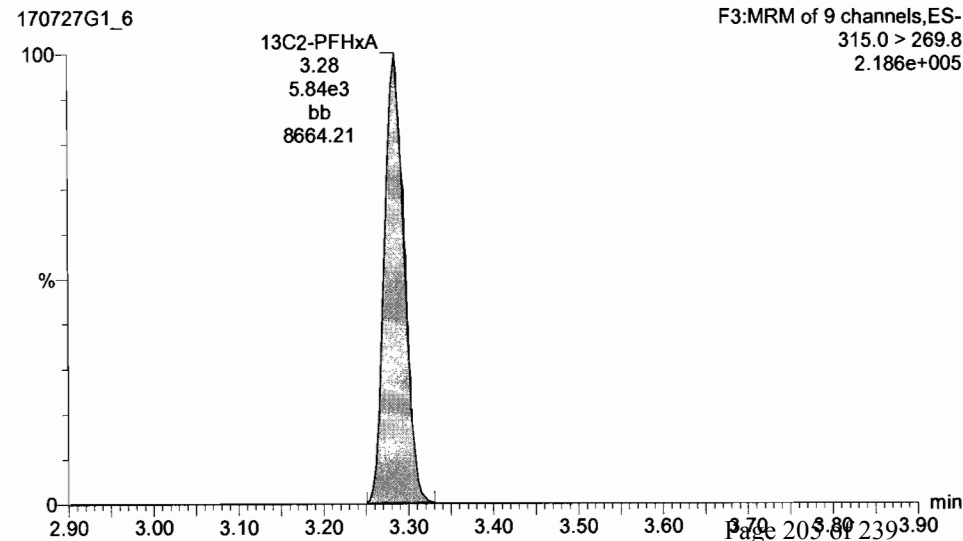
**13C3-PFBS**



**PFHxA**



**13C2-PFHxA**



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

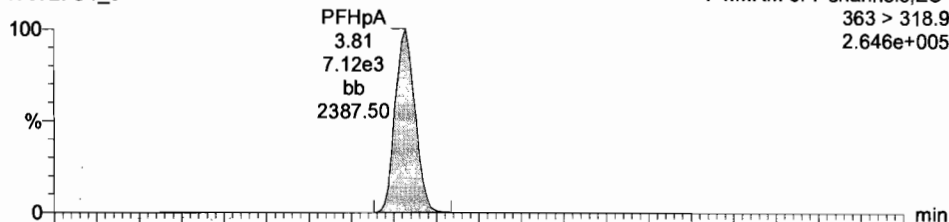
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-5 PFC CS2 17G2718, Description: PFC CS2 17G2718 A, Name: 170727G1\_6, Date: 27-Jul-2017, Time: 12:34:32, Instrument: , Lab: , User:

**PFHpA**

170727G1\_6

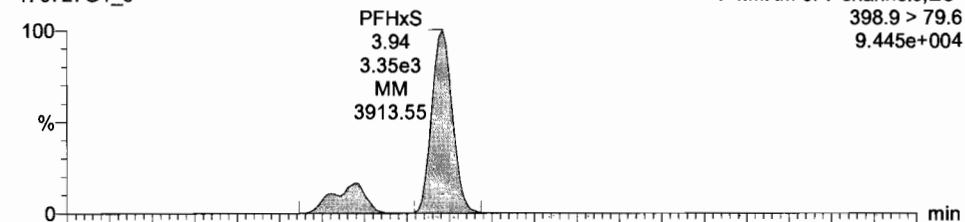
F4:MRM of 7 channels,ES-  
363 > 318.9  
2.646e+005



**Total PFHxS**

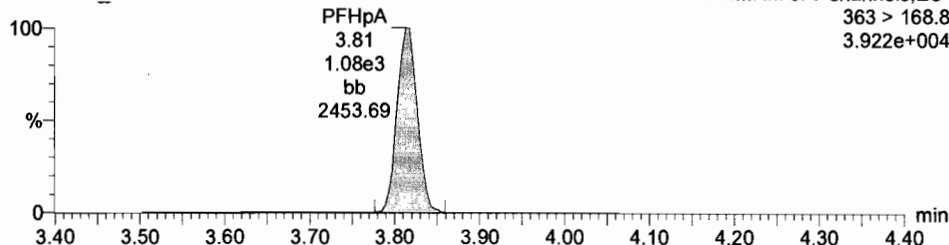
170727G1\_6

F4:MRM of 7 channels,ES-  
398.9 > 79.6  
9.445e+004



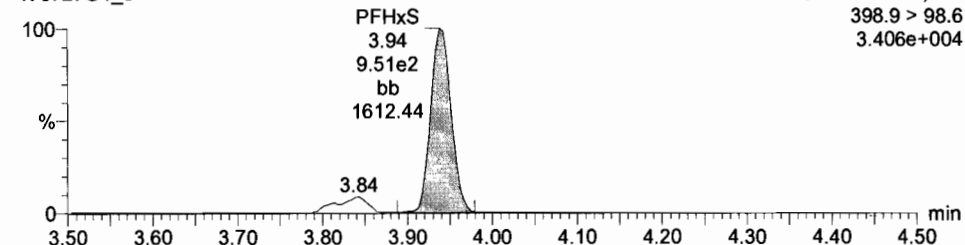
170727G1\_6

F4:MRM of 7 channels,ES-  
363 > 168.8  
3.922e+004



170727G1\_6

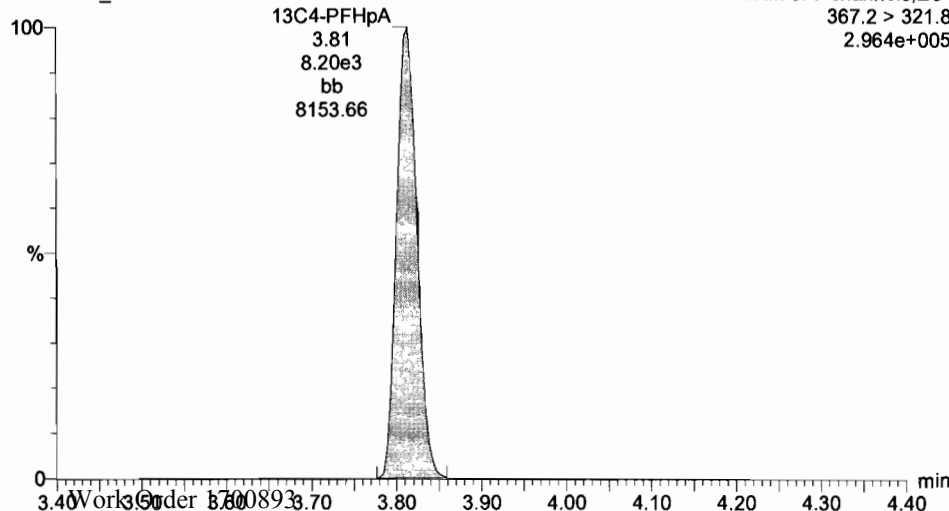
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398.9 > 98.6  
3.406e+004



**13C4-PFHpA**

170727G1\_6

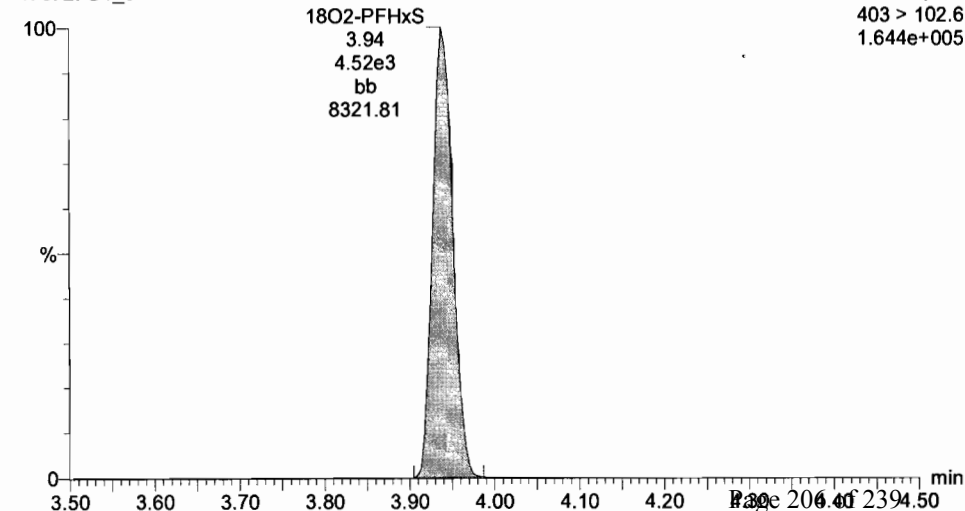
F4:MRM of 7 channels,ES-  
367.2 > 321.8  
2.964e+005



**18O2-PFHxS**

170727G1\_6

F4:MRM of 7 channels,ES-  
403 > 102.6  
1.644e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

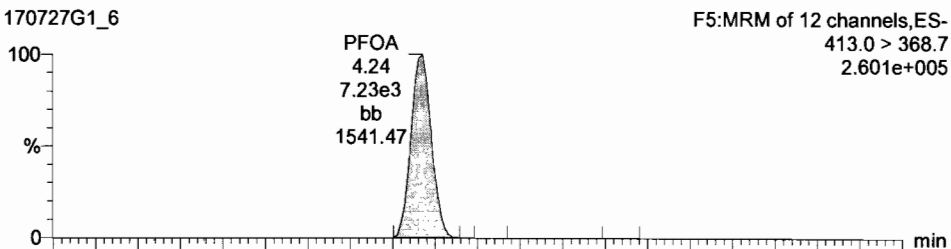
Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-5 PFC CS2 17G2718, Description: PFC CS2 17G2718 A, Name: 170727G1\_6, Date: 27-Jul-2017, Time: 12:34:32, Instrument: , Lab: , User:

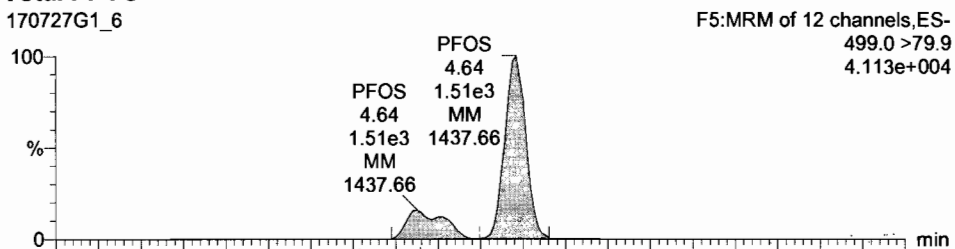
**Total PFOA**

170727G1\_6

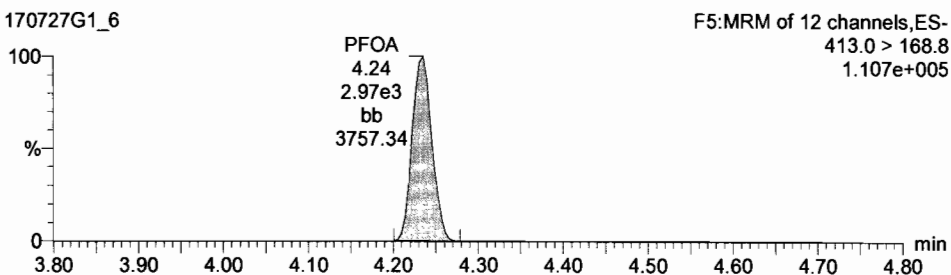


**Total PFOS**

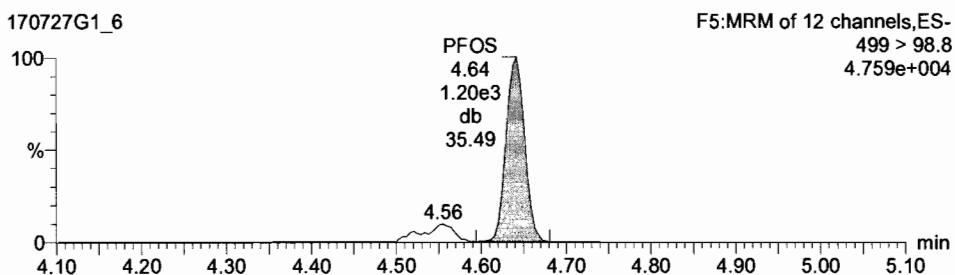
170727G1\_6



170727G1\_6

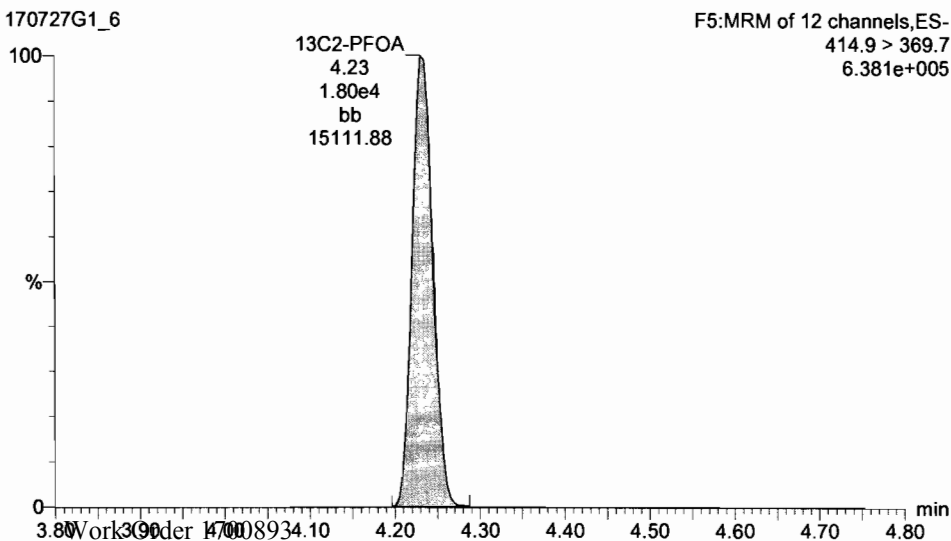


170727G1\_6



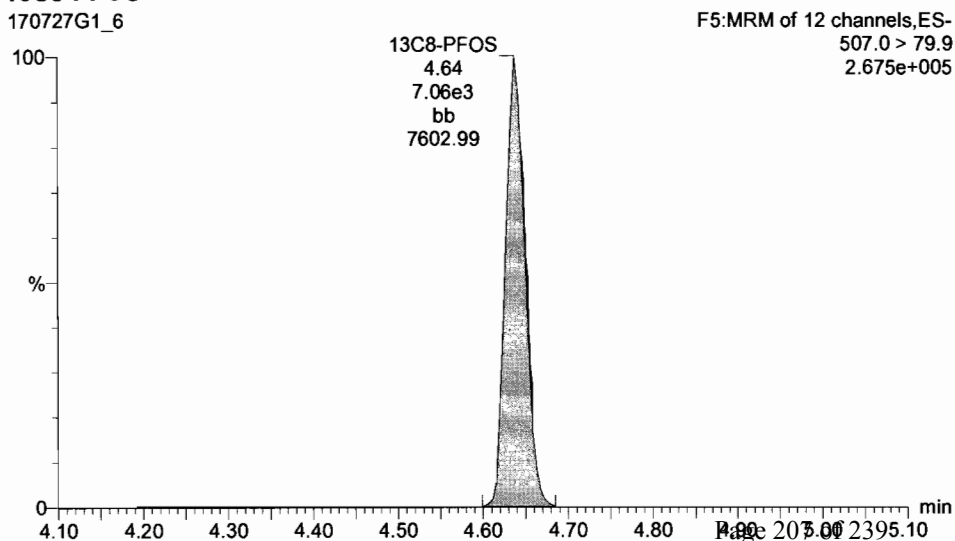
**13C2-PFOA**

170727G1\_6



**13C8-PFOS**

170727G1\_6



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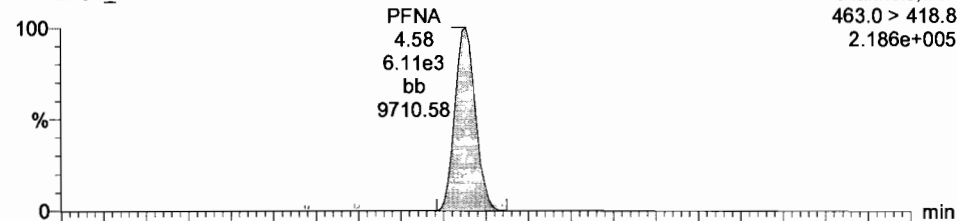
Last Altered: Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

Printed: Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-5 PFC CS2 17G2718, Description: PFC CS2 17G2718 A, Name: 170727G1\_6, Date: 27-Jul-2017, Time: 12:34:32, Instrument: , Lab: , User:

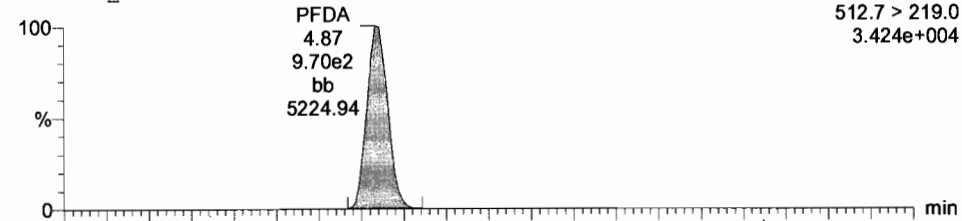
PFNA

170727G1\_6

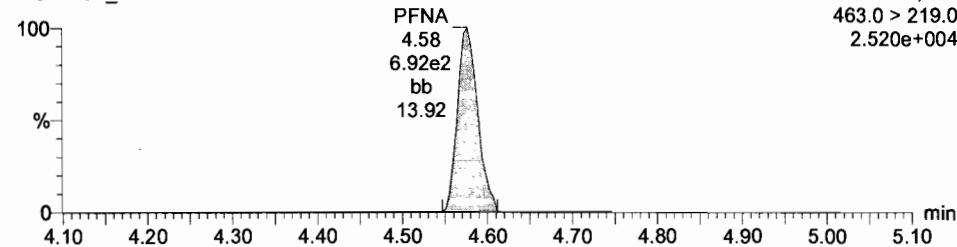


PFDA

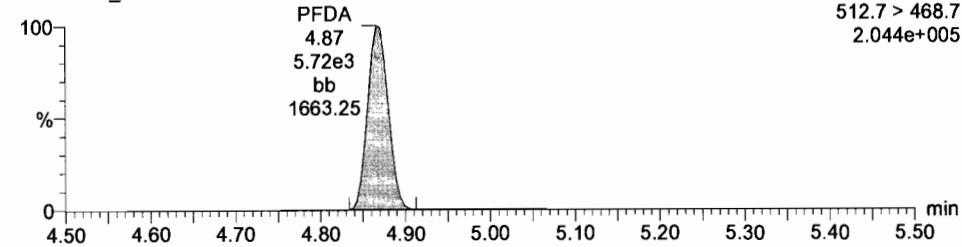
170727G1\_6



170727G1\_6

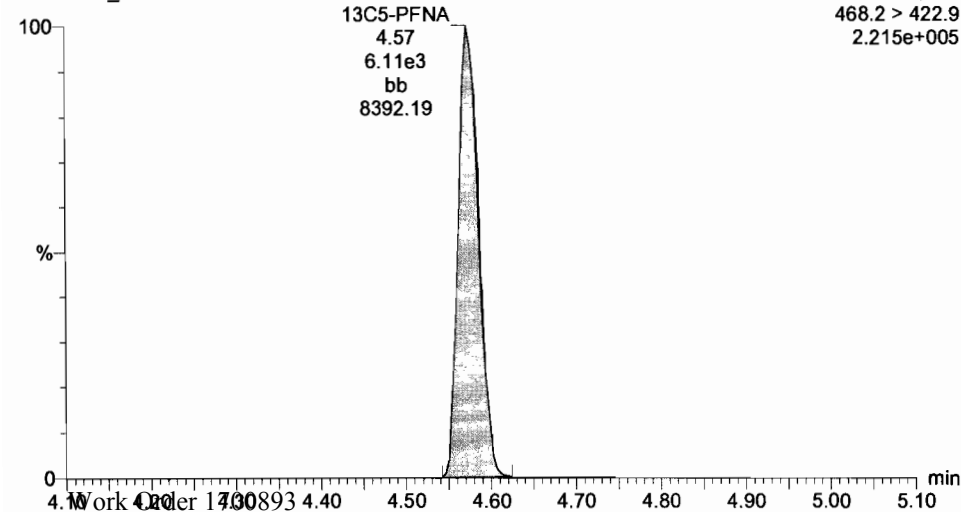


170727G1\_6



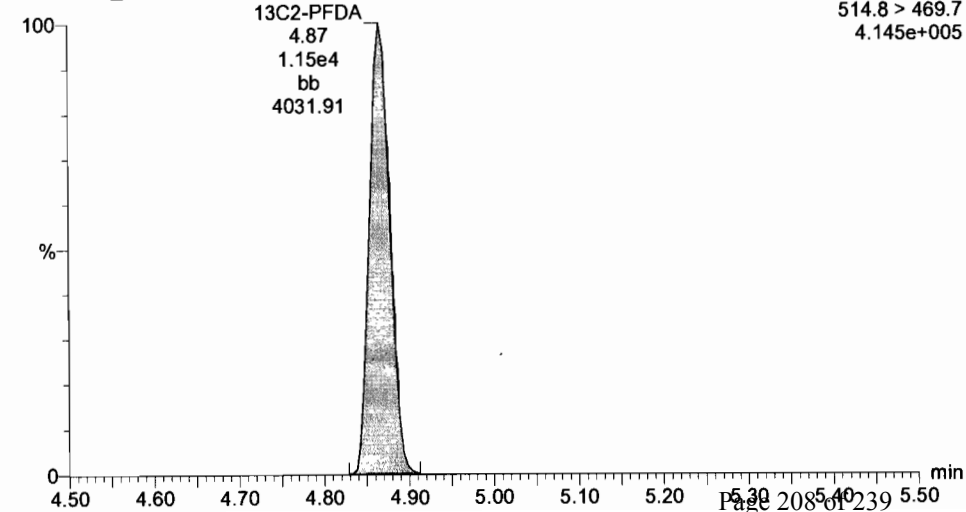
13C5-PFNA

170727G1\_6



13C2-PFDA

170727G1\_6





Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

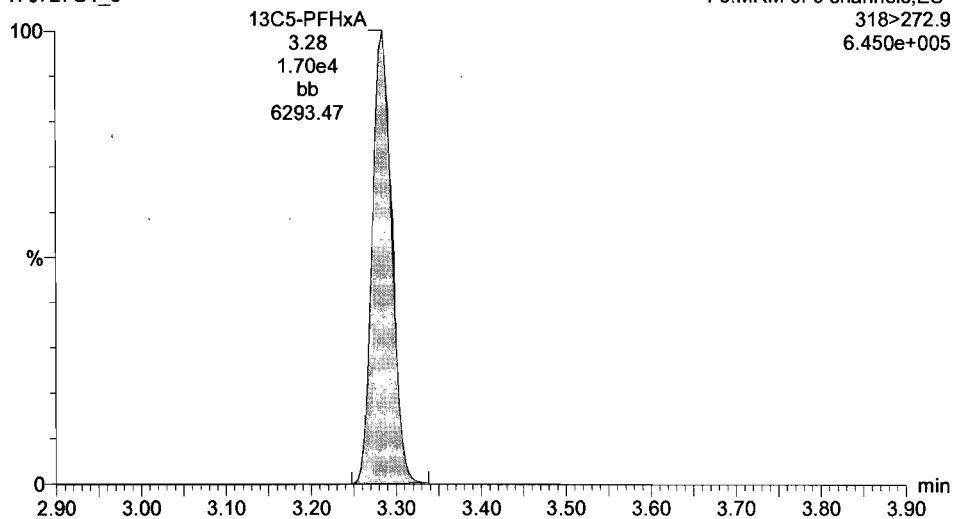
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-5 PFC CS2 17G2718, Description: PFC CS2 17G2718 A, Name: 170727G1\_6, Date: 27-Jul-2017, Time: 12:34:32, Instrument: , Lab: , User:

**13C5-PFHxA**

170727G1\_6

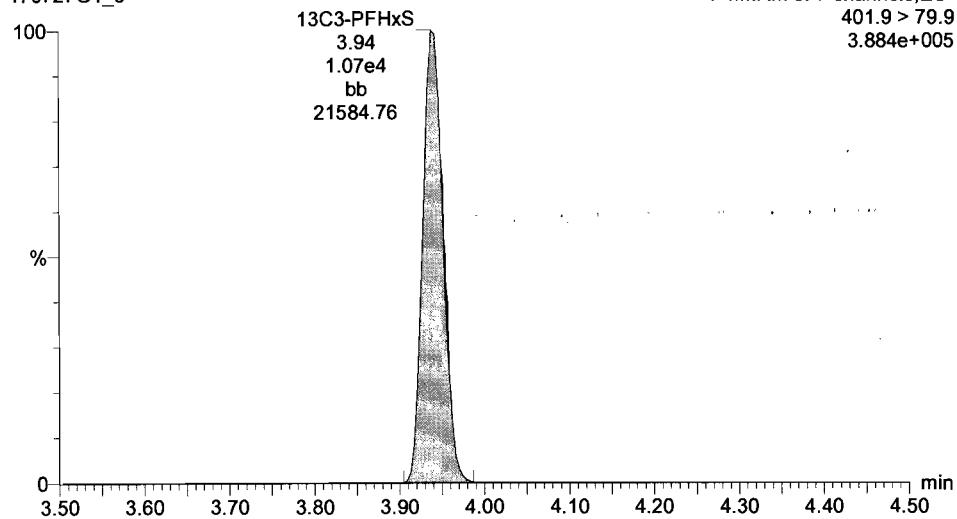
F3:MRM of 9 channels,ES-  
318>272.9  
6.450e+005



**13C3-PFHxS**

170727G1\_6

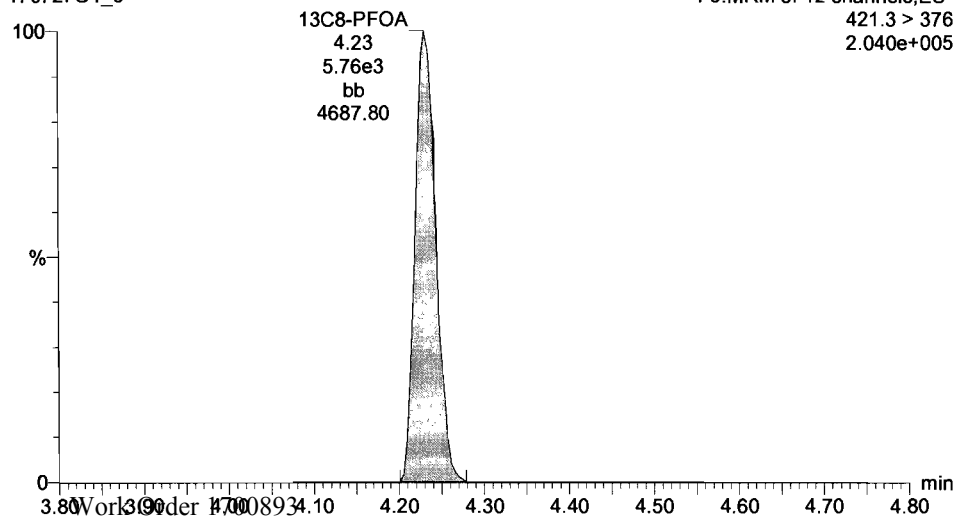
F4:MRM of 7 channels,ES-  
401.9 > 79.9  
3.884e+005



**13C8-PFOA**

170727G1\_6

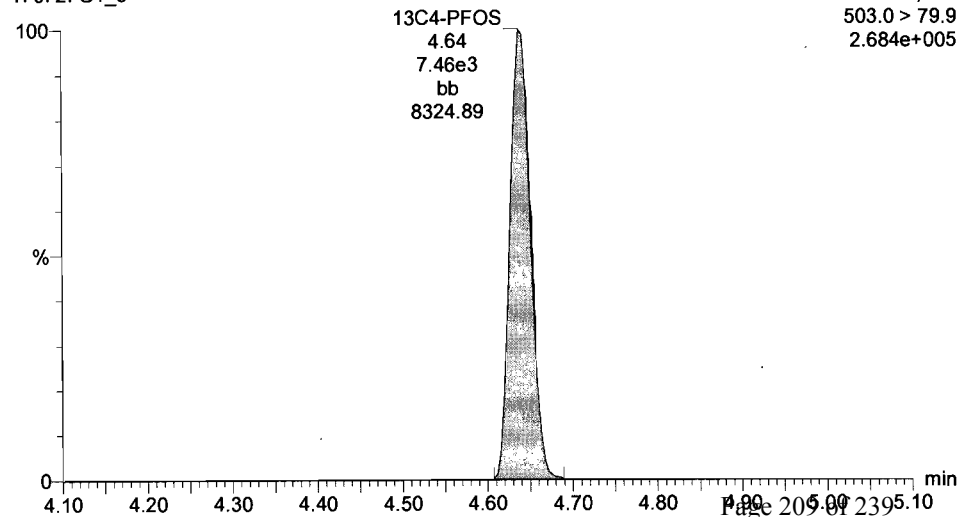
F5:MRM of 12 channels,ES-  
421.3 > 376  
2.040e+005



**13C4-PFOS**

170727G1\_6

F5:MRM of 12 channels,ES-  
503.0 > 79.9  
2.684e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

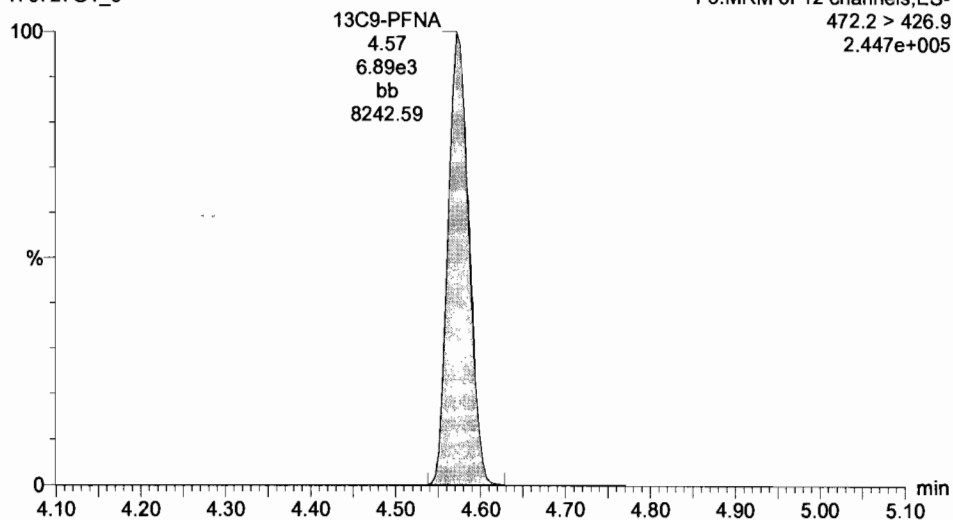
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-5 PFC CS2 17G2718, Description: PFC CS2 17G2718 A, Name: 170727G1\_6, Date: 27-Jul-2017, Time: 12:34:32, Instrument: , Lab: , User:

**13C9-PFNA**

170727G1\_6

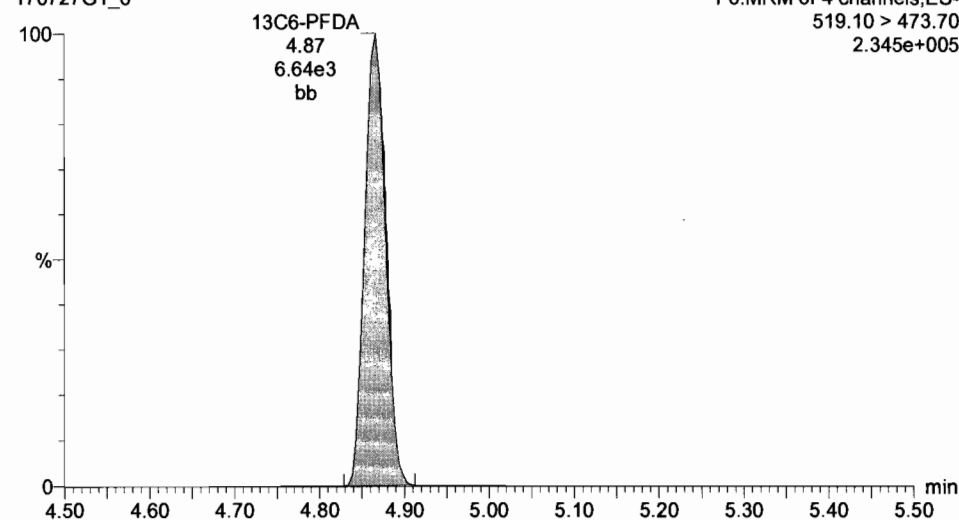
F5:MRM of 12 channels,ES-  
472.2 > 426.9  
2.447e+005



**13C6-PFDA**

170727G1\_6

F6:MRM of 4 channels,ES-  
519.10 > 473.70  
2.345e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

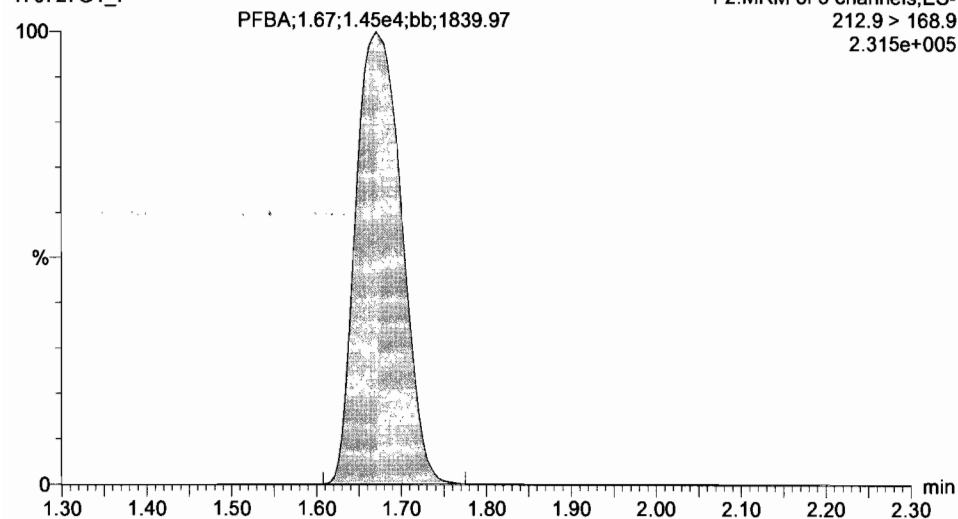
Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-6 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G1\_7, Date: 27-Jul-2017, Time: 12:47:11, Instrument: , Lab: , User:

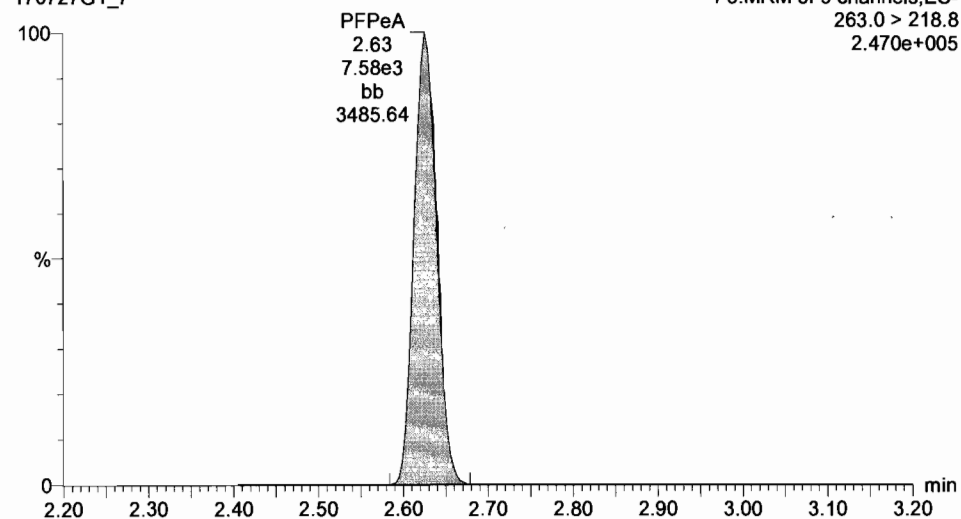
**PFBA**

170727G1\_7



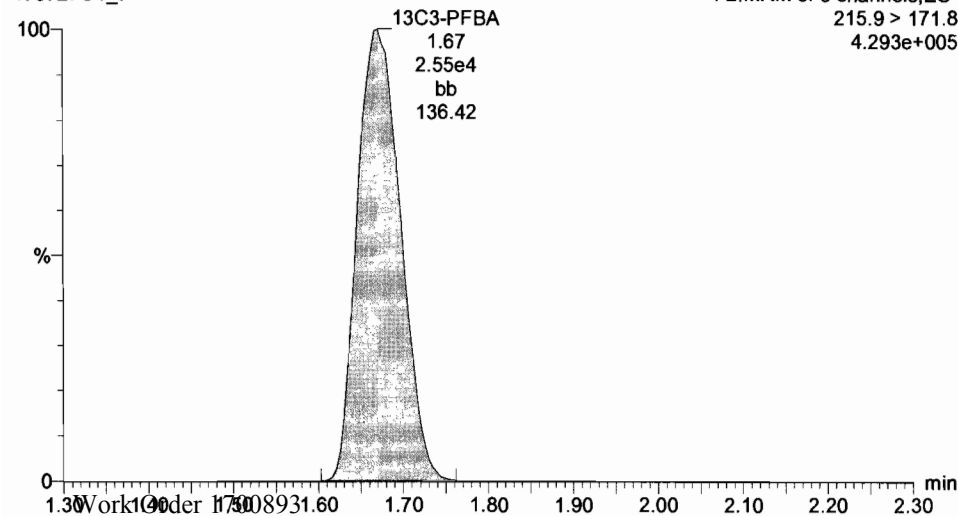
**PFPeA**

170727G1\_7



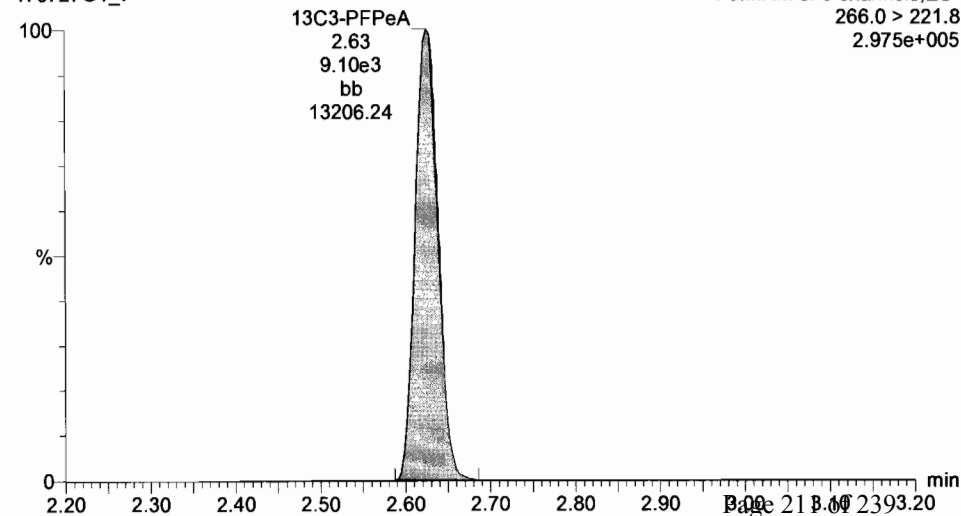
**13C3-PFBA**

170727G1\_7



**13C3-PFPeA**

170727G1\_7



Dataset:      U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:    Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

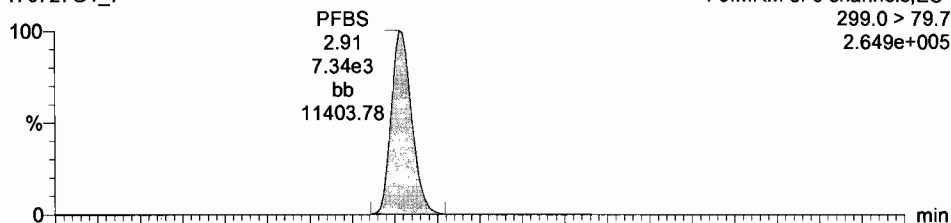
Printed:      Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-6 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G1\_7, Date: 27-Jul-2017, Time: 12:47:11, Instrument: , Lab: , User:

**Total PFBS**

170727G1\_7

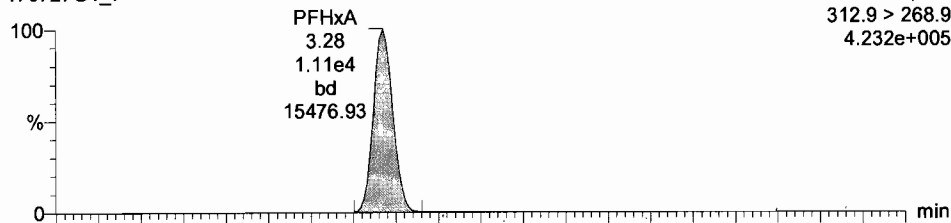
F3:MRM of 9 channels,ES-  
299.0 > 79.7  
2.649e+005



**PFHxA**

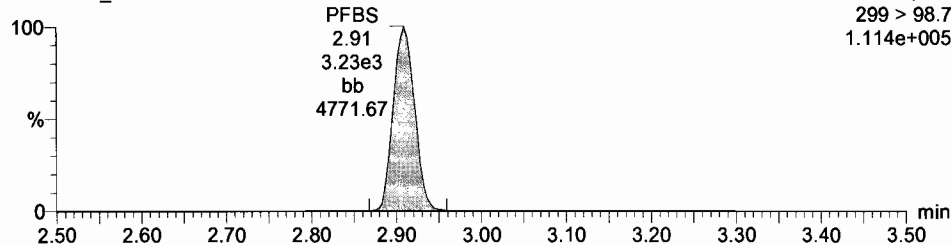
170727G1\_7

F3:MRM of 9 channels,ES-  
312.9 > 268.9  
4.232e+005



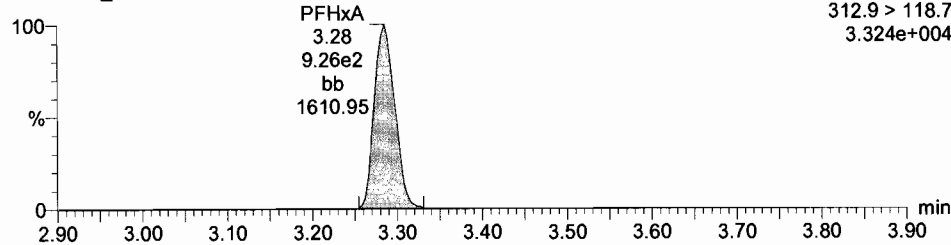
170727G1\_7

F3:MRM of 9 channels,ES-  
299 > 98.7  
1.114e+005



170727G1\_7

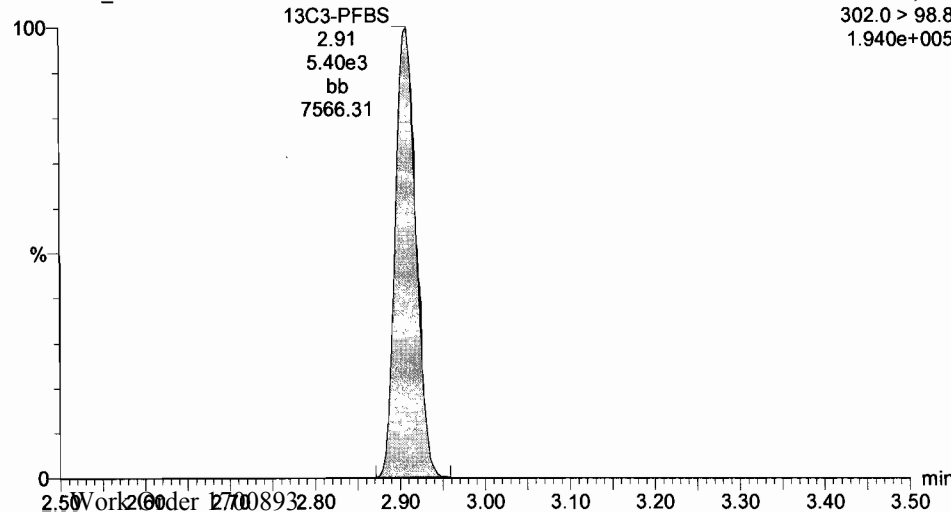
F3:MRM of 9 channels,ES-  
312.9 > 118.7  
3.324e+004



**13C3-PFBS**

170727G1\_7

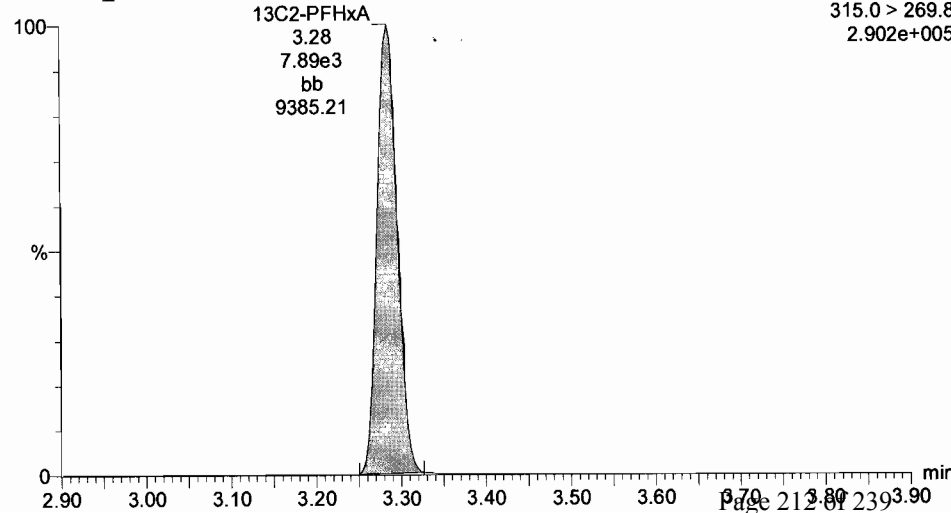
F3:MRM of 9 channels,ES-  
302.0 > 98.8  
1.940e+005



**13C2-PFHxA**

170727G1\_7

F3:MRM of 9 channels,ES-  
315.0 > 269.8  
2.902e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

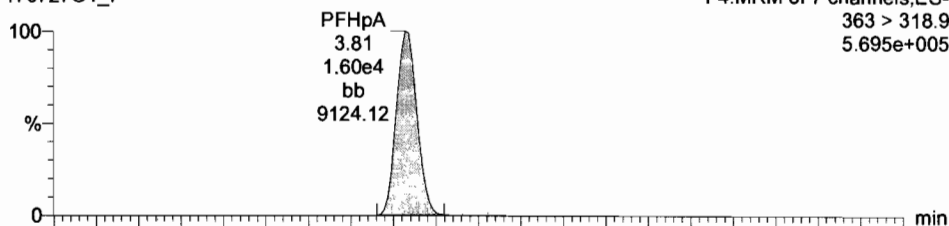
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-6 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G1\_7, Date: 27-Jul-2017, Time: 12:47:11, Instrument: , Lab: , User:

**PFHpA**

170727G1\_7

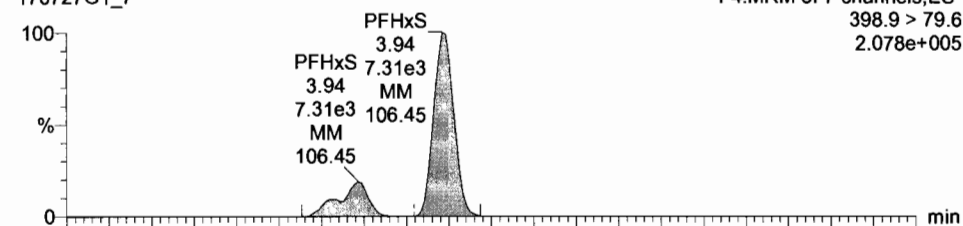
F4:MRM of 7 channels,ES-  
363 > 318.9  
5.695e+005



**Total PFHxS**

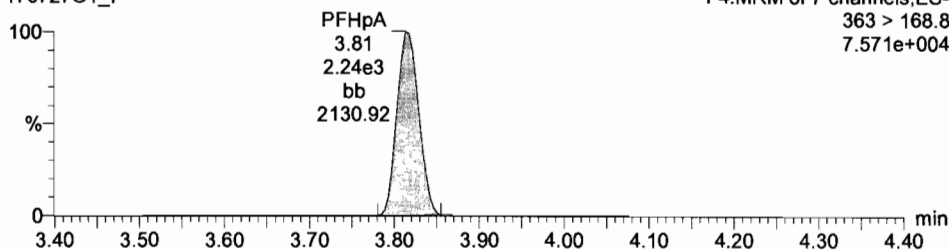
170727G1\_7

F4:MRM of 7 channels,ES-  
398.9 > 79.6  
2.078e+005



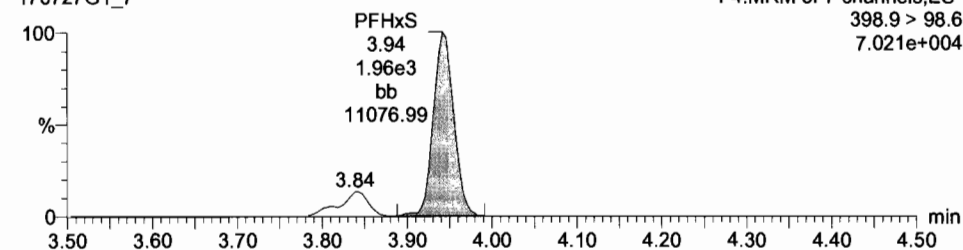
170727G1\_7

F4:MRM of 7 channels,ES-  
363 > 168.8  
7.571e+004



170727G1\_7

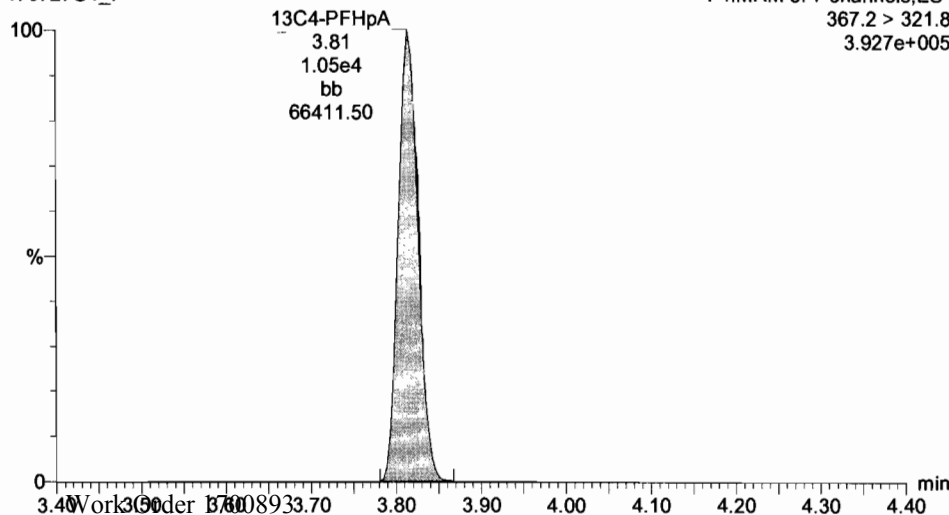
F4:MRM of 7 channels,ES-  
398.9 > 98.6  
7.021e+004



**13C4-PFHpA**

170727G1\_7

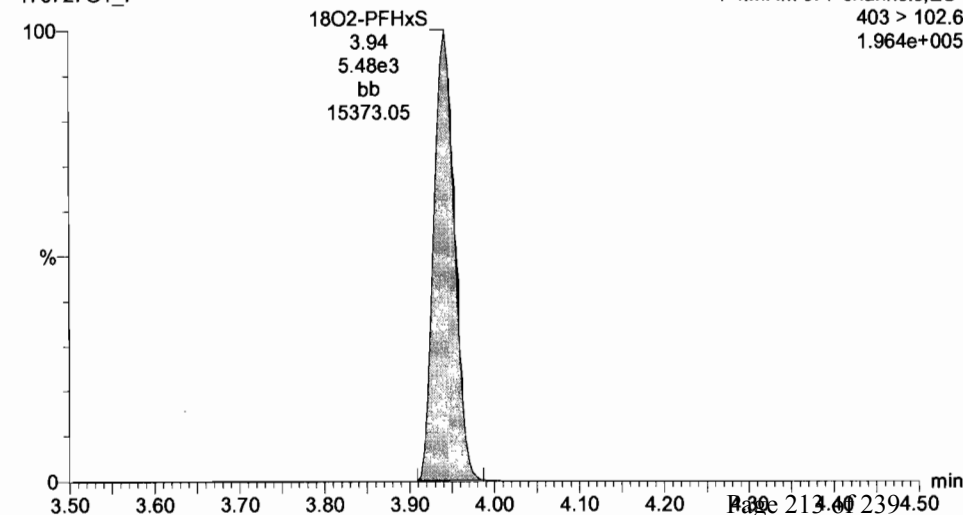
F4:MRM of 7 channels,ES-  
367.2 > 321.8  
3.927e+005



**18O2-PFHxS**

170727G1\_7

F4:MRM of 7 channels,ES-  
403 > 102.6  
1.964e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

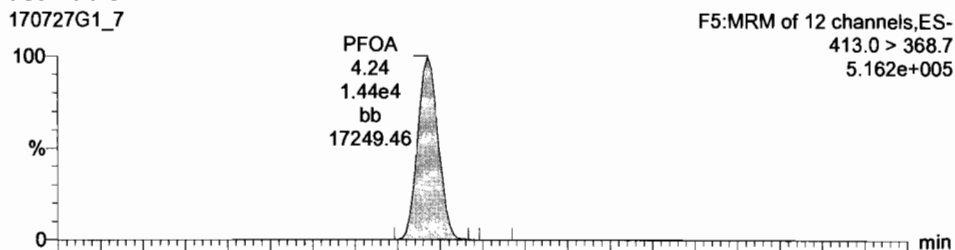
Last Altered:    Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-6 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G1\_7, Date: 27-Jul-2017, Time: 12:47:11, Instrument: , Lab: , User:

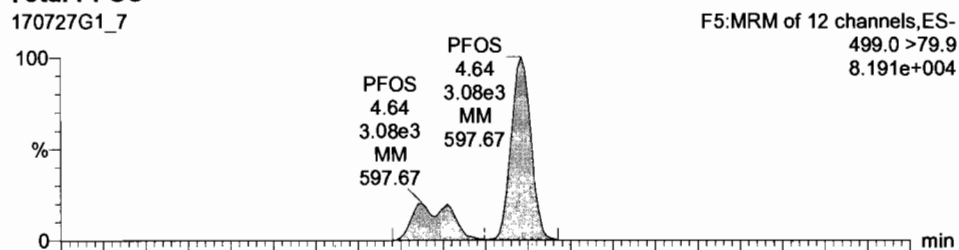
**Total PFOA**

170727G1\_7

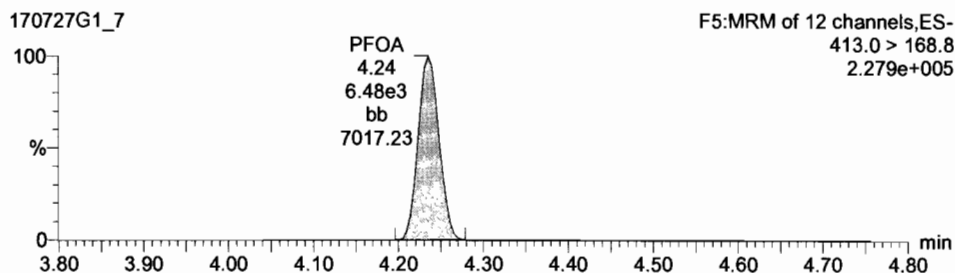


**Total PFOS**

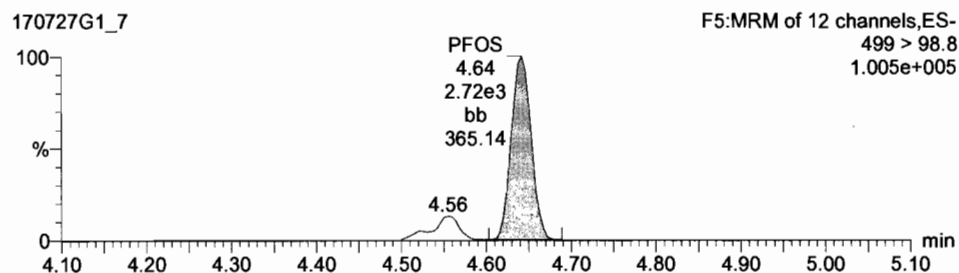
170727G1\_7



170727G1\_7

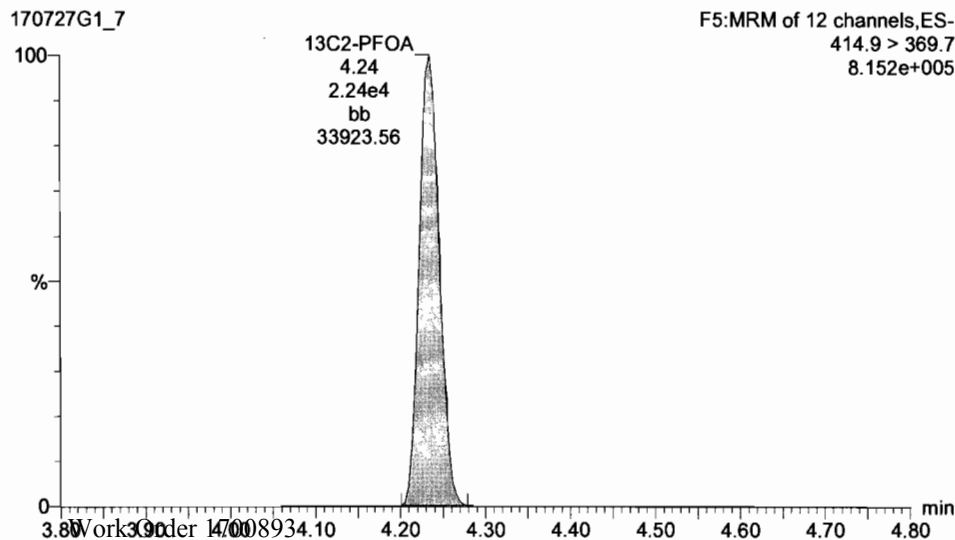


170727G1\_7



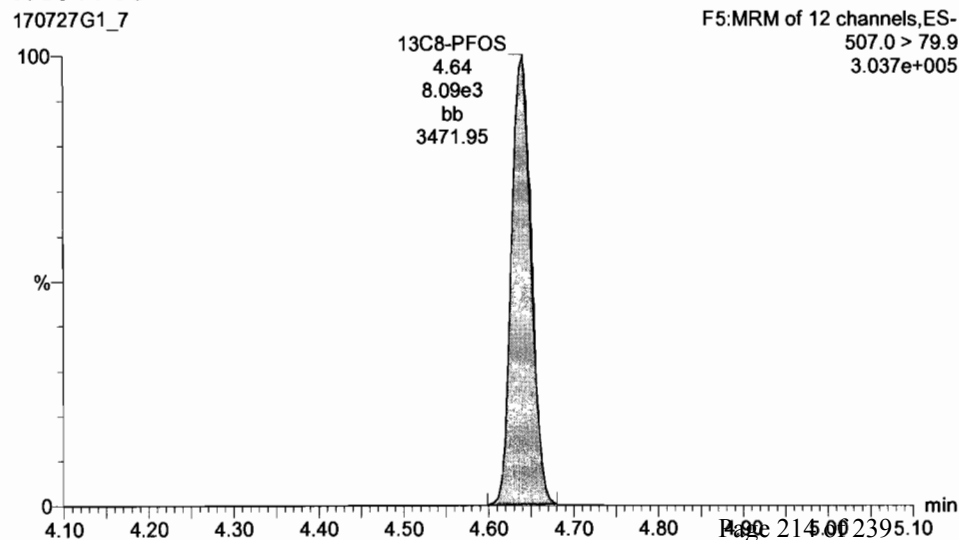
**13C2-PFOA**

170727G1\_7



**13C8-PFOS**

170727G1\_7



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

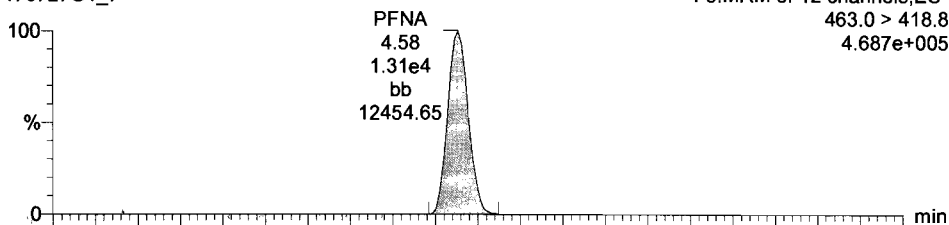
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-6 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G1\_7, Date: 27-Jul-2017, Time: 12:47:11, Instrument: , Lab: , User:

**PFNA**

170727G1\_7

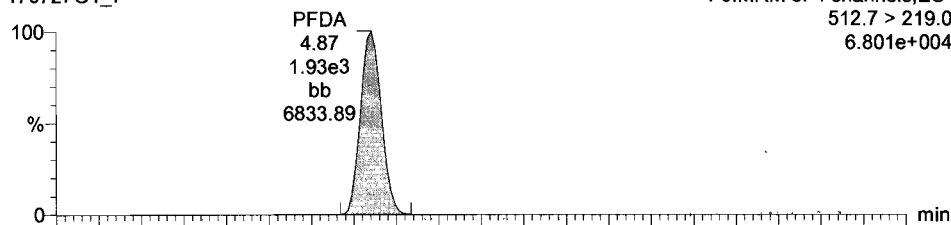
F5:MRM of 12 channels,ES-  
463.0 > 418.8  
4.687e+005



**PFDA**

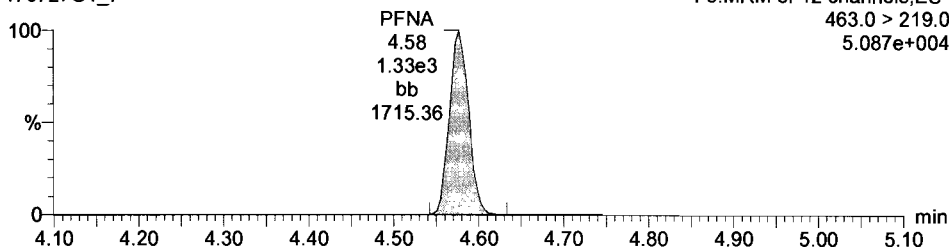
170727G1\_7

F6:MRM of 4 channels,ES-  
512.7 > 219.0  
6.801e+004



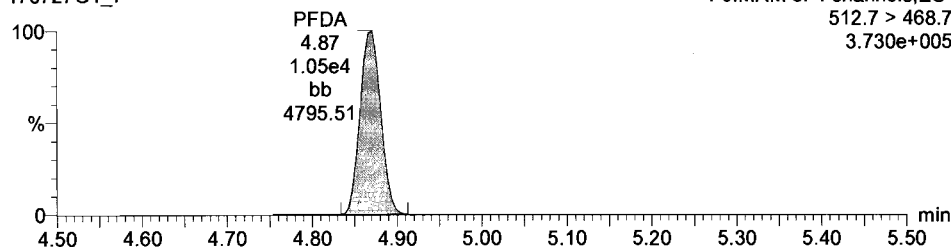
170727G1\_7

F5:MRM of 12 channels,ES-  
463.0 > 219.0  
5.087e+004



170727G1\_7

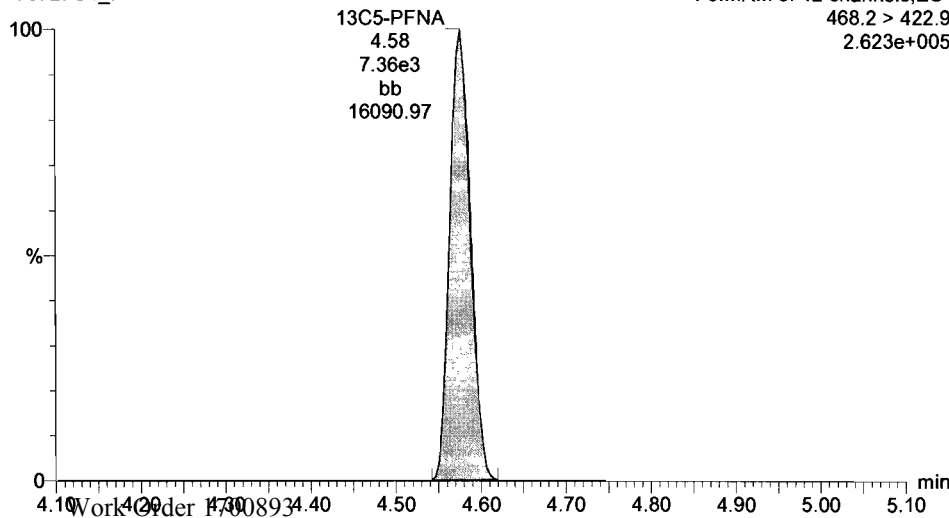
F6:MRM of 4 channels,ES-  
512.7 > 468.7  
3.730e+005



**13C5-PFNA**

170727G1\_7

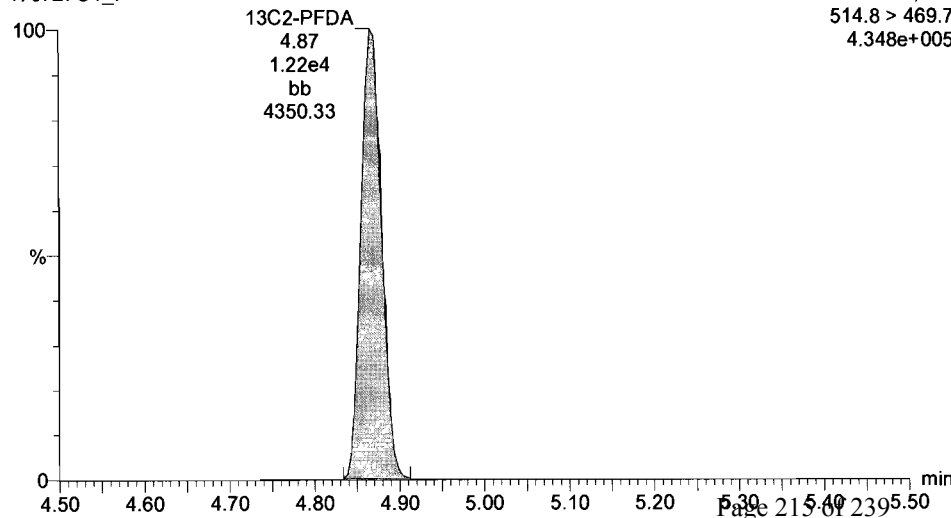
F5:MRM of 12 channels,ES-  
468.2 > 422.9  
2.623e+005



**13C2-PFDA**

170727G1\_7

F6:MRM of 4 channels,ES-  
514.8 > 469.7  
4.348e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

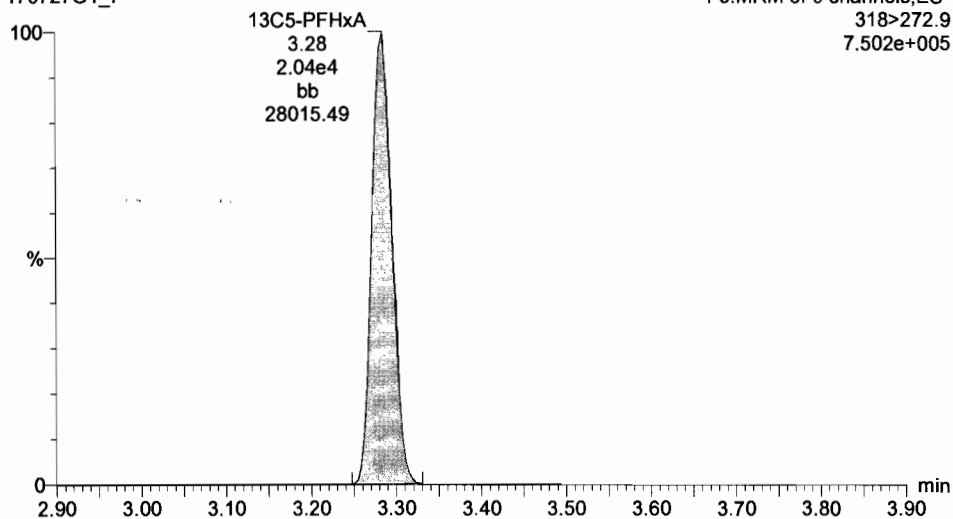
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-6 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G1\_7, Date: 27-Jul-2017, Time: 12:47:11, Instrument: , Lab: , User:

**13C5-PFHxA**

170727G1\_7

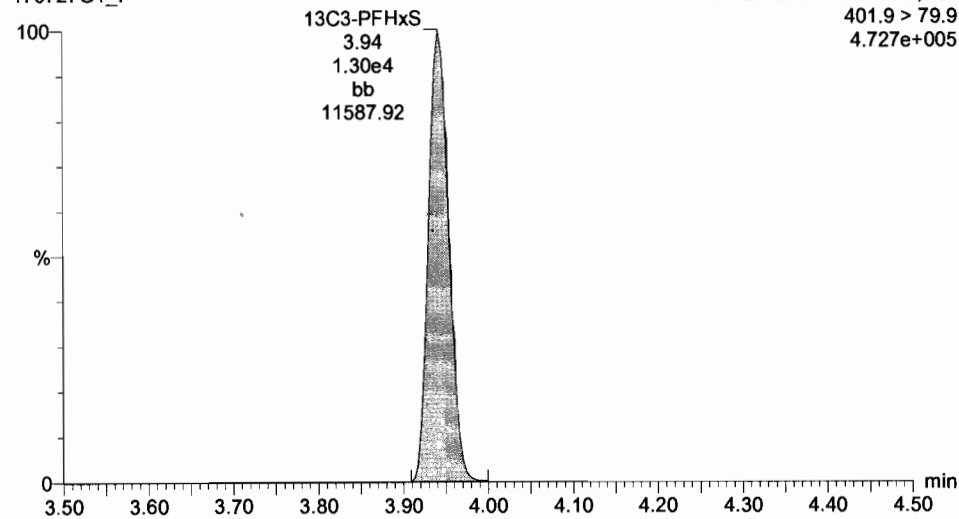
F3:MRM of 9 channels,ES-  
318>272.9  
7.502e+005



**13C3-PFHxS**

170727G1\_7

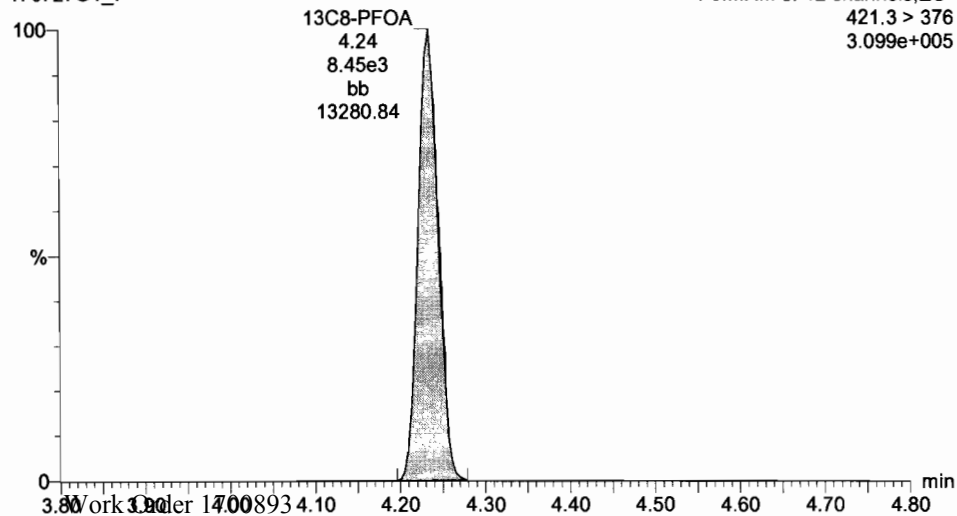
F4:MRM of 7 channels,ES-  
401.9 > 79.9  
4.727e+005



**13C8-PFOA**

170727G1\_7

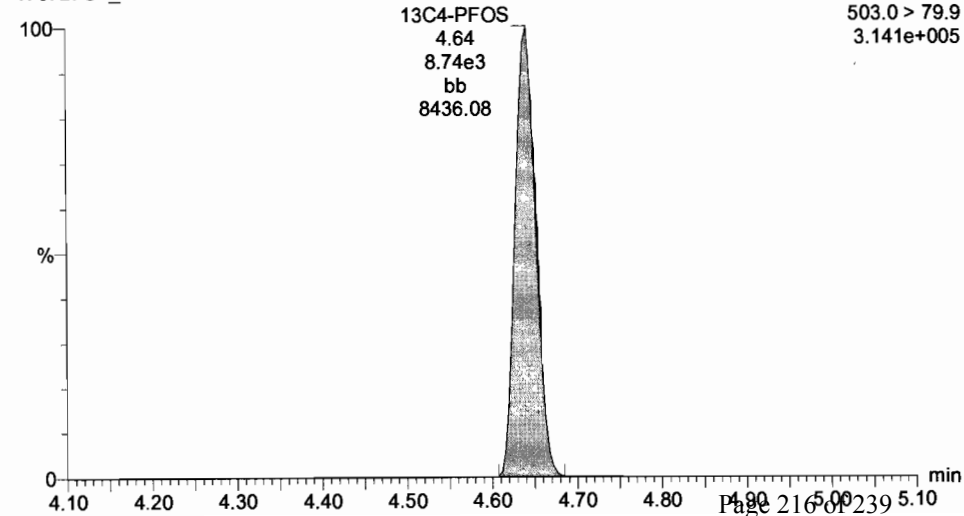
F5:MRM of 12 channels,ES-  
421.3 > 376  
3.099e+005



**13C4-PFOS**

170727G1\_7

F5:MRM of 12 channels,ES-  
503.0 > 79.9  
3.141e+005





Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

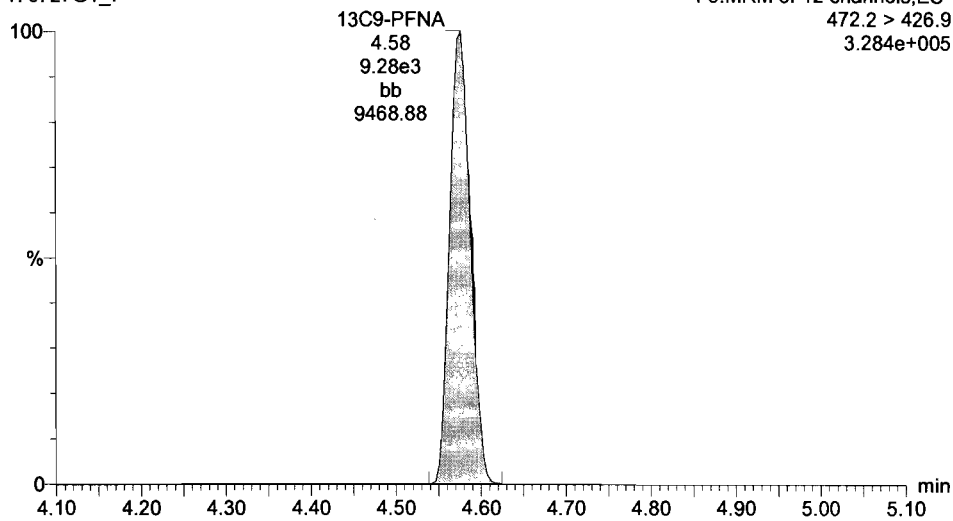
Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time  
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-6 PFC CS3 17G2719, Description: PFC CS3 17G2719 A, Name: 170727G1\_7, Date: 27-Jul-2017, Time: 12:47:11, Instrument: , Lab: , User:

**13C9-PFNA**

170727G1\_7

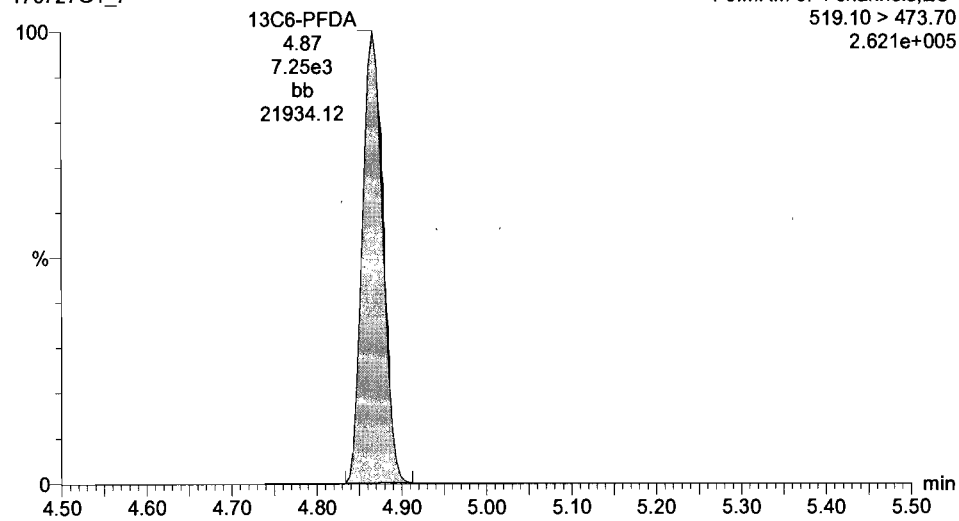
F5:MRM of 12 channels,ES-  
472.2 > 426.9  
3.284e+005



**13C6-PFDA**

170727G1\_7

F6:MRM of 4 channels,ES-  
519.10 > 473.70  
2.621e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

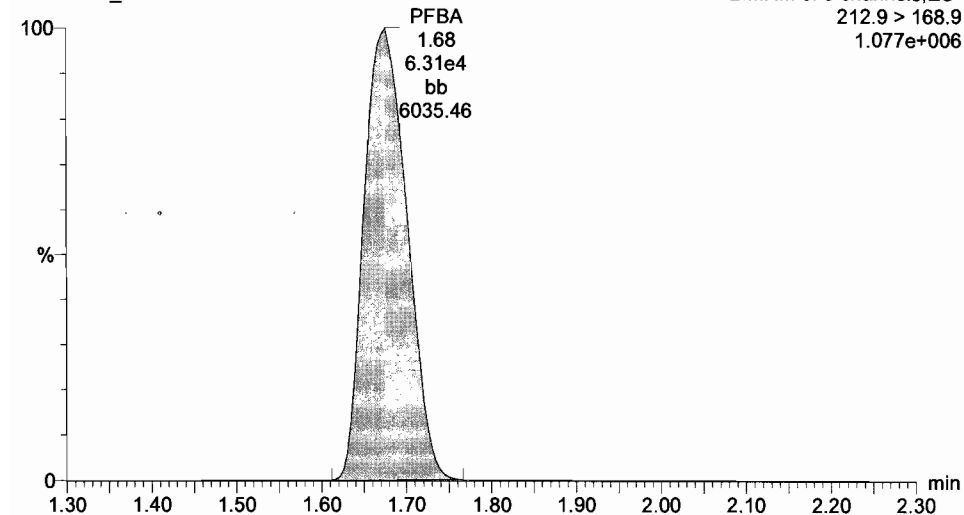
Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-7 PFC CS4 17G2720, Description: PFC CS4 17G2720 A, Name: 170727G1\_8, Date: 27-Jul-2017, Time: 12:59:35, Instrument: , Lab: , User:

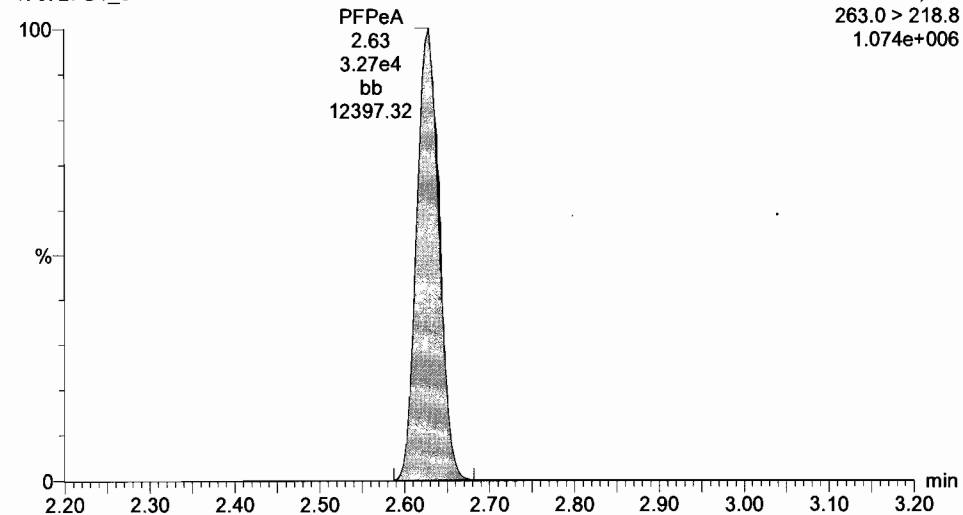
**PFBA**

170727G1\_8



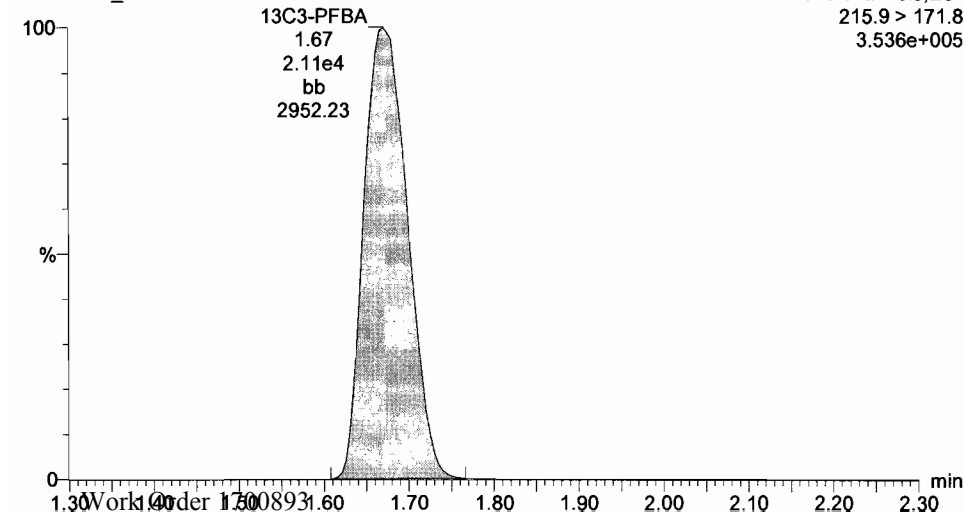
**PFPeA**

170727G1\_8



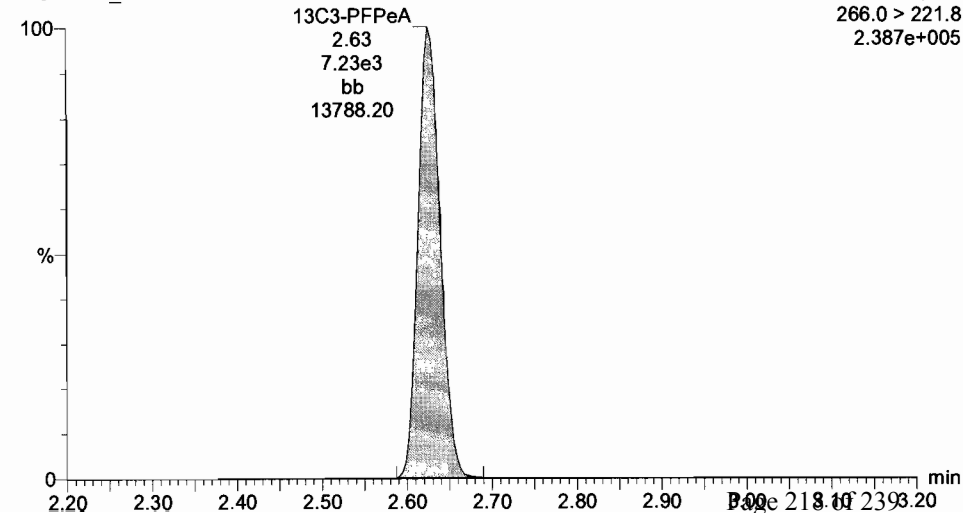
**13C3-PFBA**

170727G1\_8



**13C3-PFPeA**

170727G1\_8



Dataset:      U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:    Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

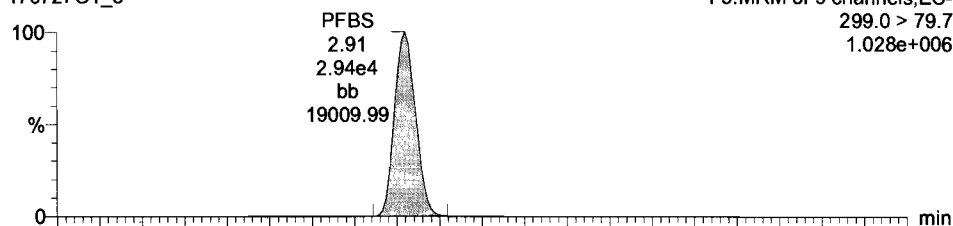
Printed:      Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-7 PFC CS4 17G2720, Description: PFC CS4 17G2720 A, Name: 170727G1\_8, Date: 27-Jul-2017, Time: 12:59:35, Instrument: , Lab: , User:

**Total PFBS**

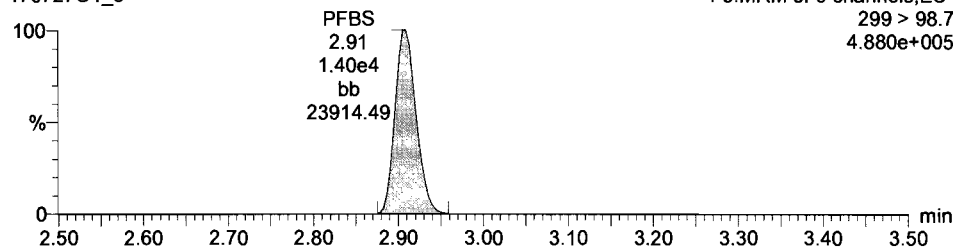
170727G1\_8

F3:MRM of 9 channels,ES-  
299.0 > 79.7  
1.028e+006



170727G1\_8

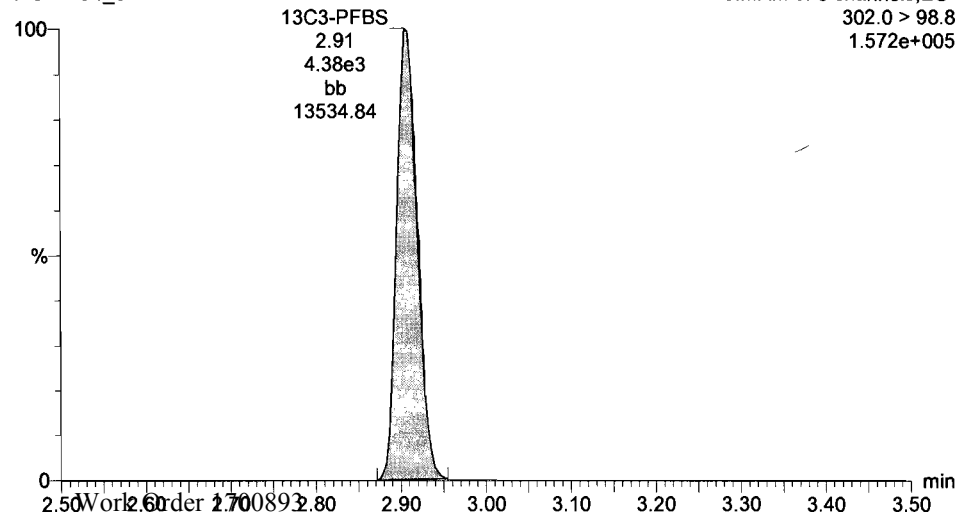
F3:MRM of 9 channels,ES-  
299 > 98.7  
4.880e+005



**13C3-PFBS**

170727G1\_8

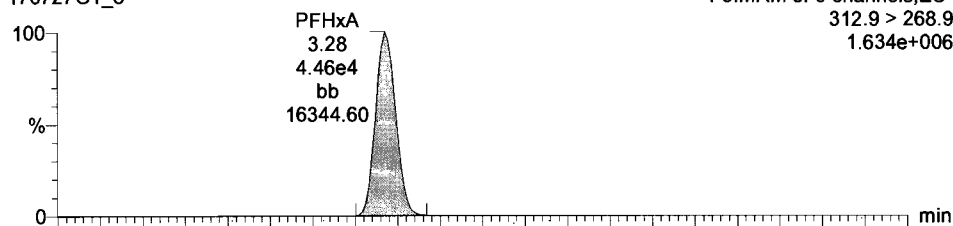
F3:MRM of 9 channels,ES-  
302.0 > 98.8  
1.572e+005



**PFHxA**

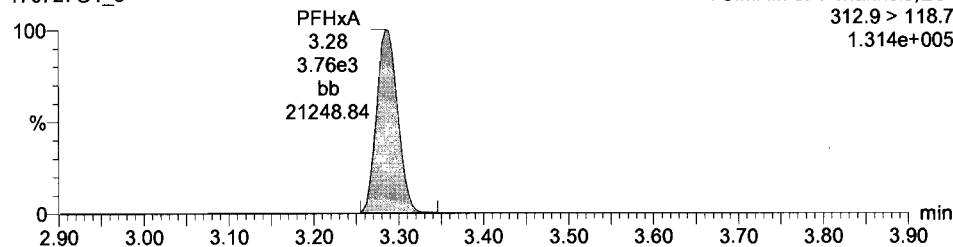
170727G1\_8

F3:MRM of 9 channels,ES-  
312.9 > 268.9  
1.634e+006



170727G1\_8

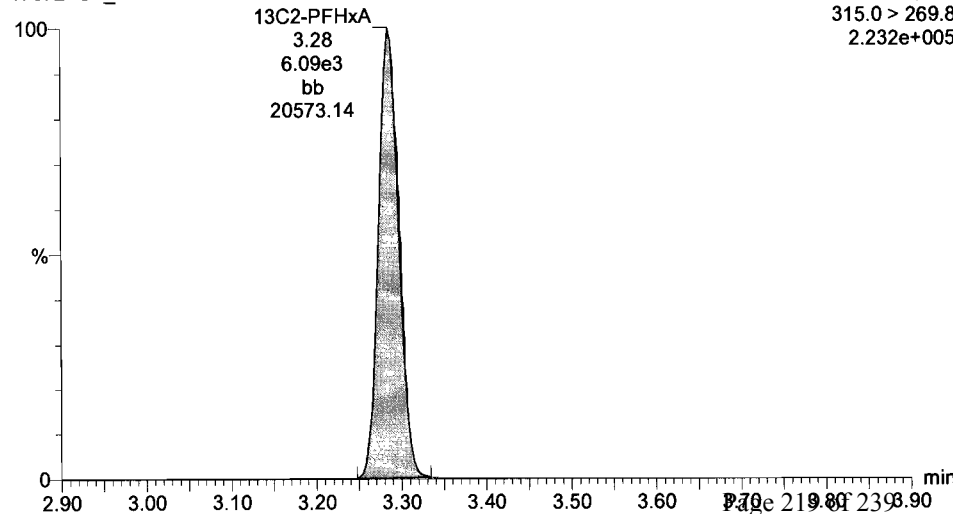
F3:MRM of 9 channels,ES-  
312.9 > 118.7  
1.314e+005



**13C2-PFHxA**

170727G1\_8

F3:MRM of 9 channels,ES-  
315.0 > 269.8  
2.232e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

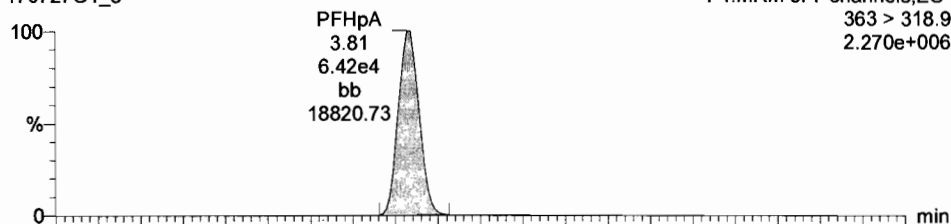
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-7 PFC CS4 17G2720, Description: PFC CS4 17G2720 A, Name: 170727G1\_8, Date: 27-Jul-2017, Time: 12:59:35, Instrument: , Lab: , User:

**PFHpA**

170727G1\_8

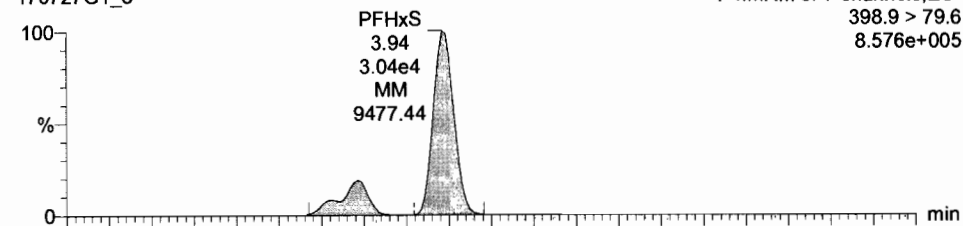
F4:MRM of 7 channels,ES-  
363 > 318.9  
2.270e+006



**Total PFHxS**

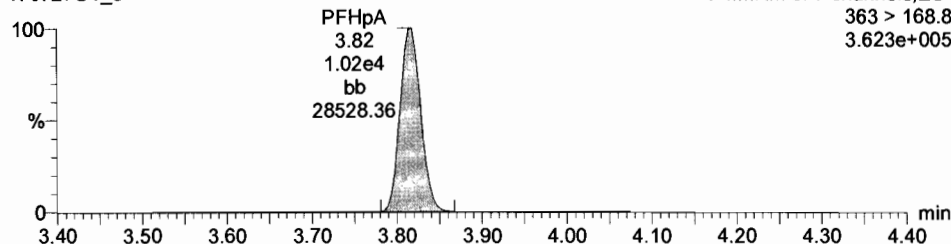
170727G1\_8

F4:MRM of 7 channels,ES-  
398.9 > 79.6  
8.576e+005



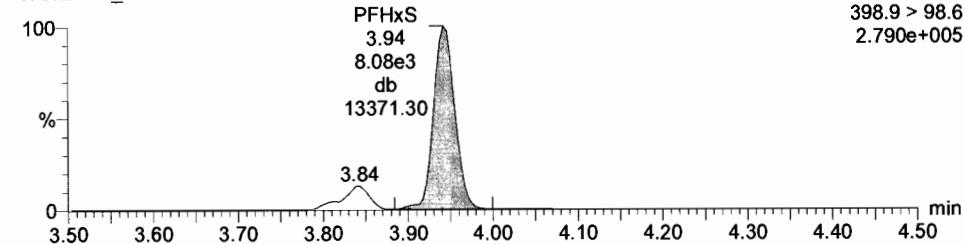
170727G1\_8

F4:MRM of 7 channels,ES-  
363 > 168.8  
3.623e+005



170727G1\_8

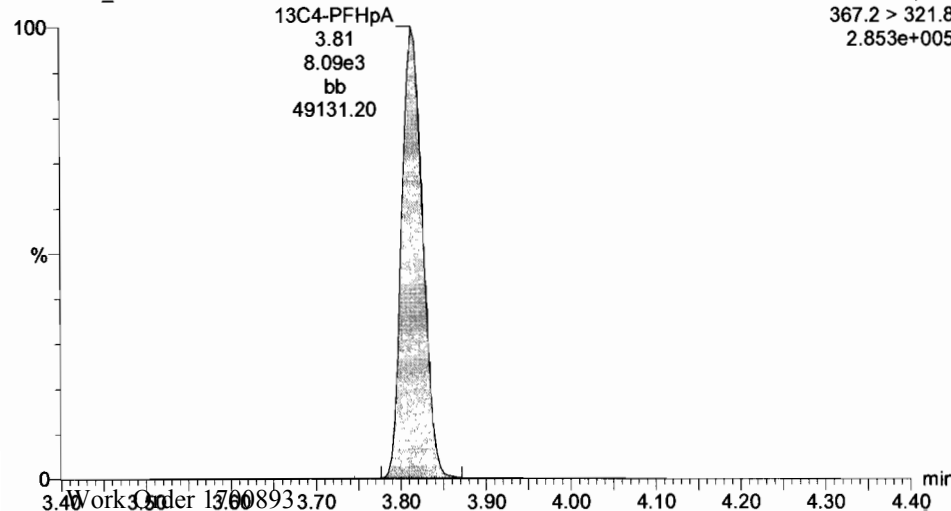
F4:MRM of 7 channels,ES-  
398.9 > 98.6  
2.790e+005



**13C4-PFHpA**

170727G1\_8

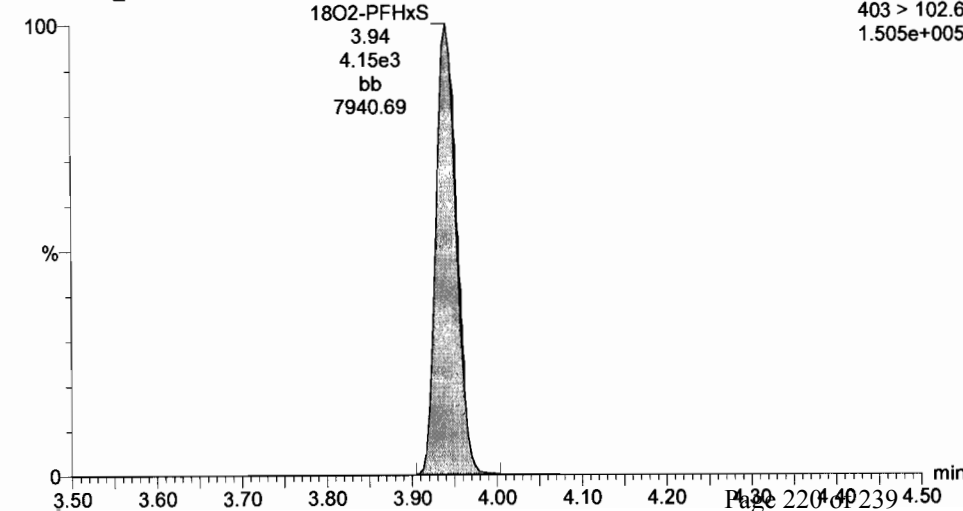
F4:MRM of 7 channels,ES-  
367.2 > 321.8  
2.853e+005



**18O2-PFHxS**

170727G1\_8

F4:MRM of 7 channels,ES-  
403 > 102.6  
1.505e+005



Dataset:      U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:    Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

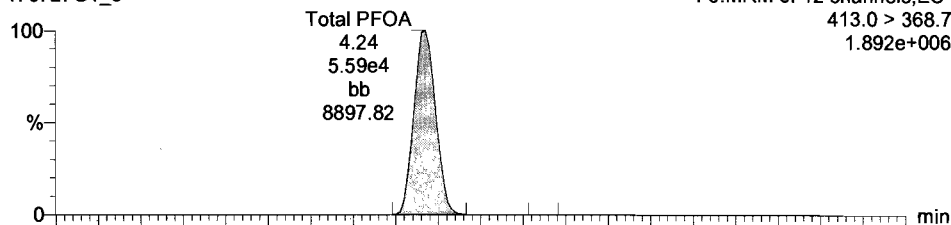
Printed:      Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-7 PFC CS4 17G2720, Description: PFC CS4 17G2720 A, Name: 170727G1\_8, Date: 27-Jul-2017, Time: 12:59:35, Instrument: , Lab: , User:

### Total PFOA

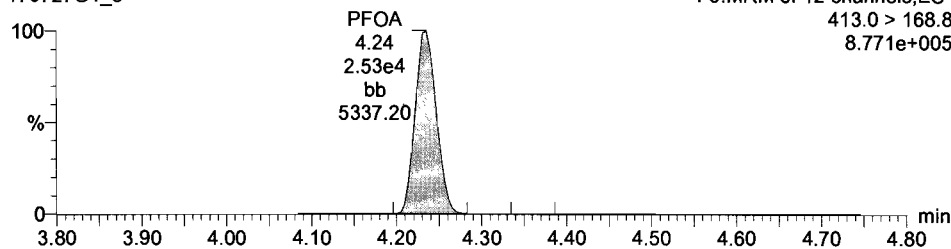
170727G1\_8

F5:MRM of 12 channels,ES-  
413.0 > 368.7  
1.892e+006



170727G1\_8

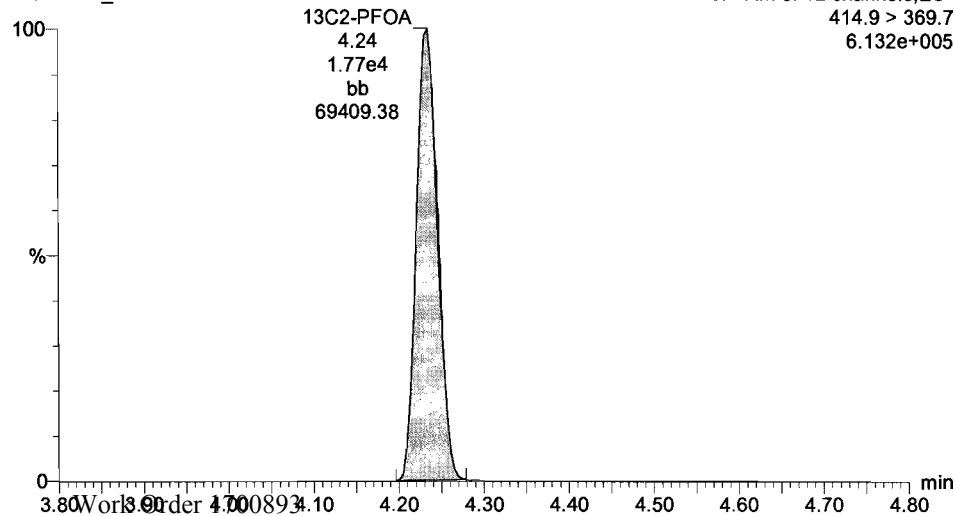
F5:MRM of 12 channels,ES-  
413.0 > 168.8  
8.771e+005



### 13C2-PFOA

170727G1\_8

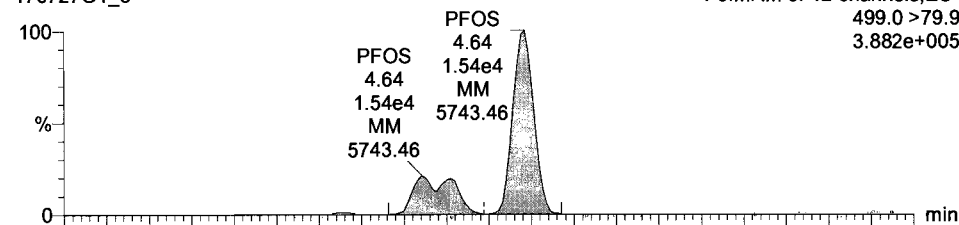
F5:MRM of 12 channels,ES-  
414.9 > 369.7  
6.132e+005



### Total PFOS

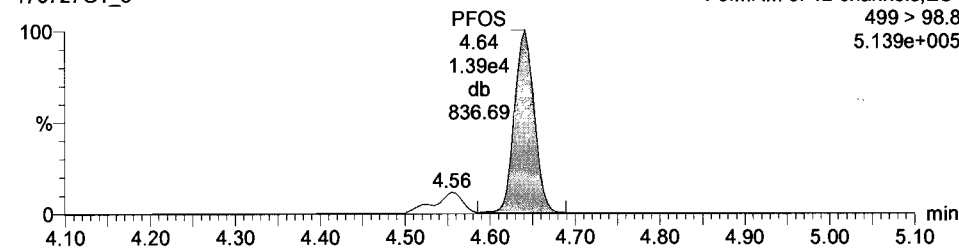
170727G1\_8

F5:MRM of 12 channels,ES-  
499.0 > 79.9  
3.882e+005



170727G1\_8

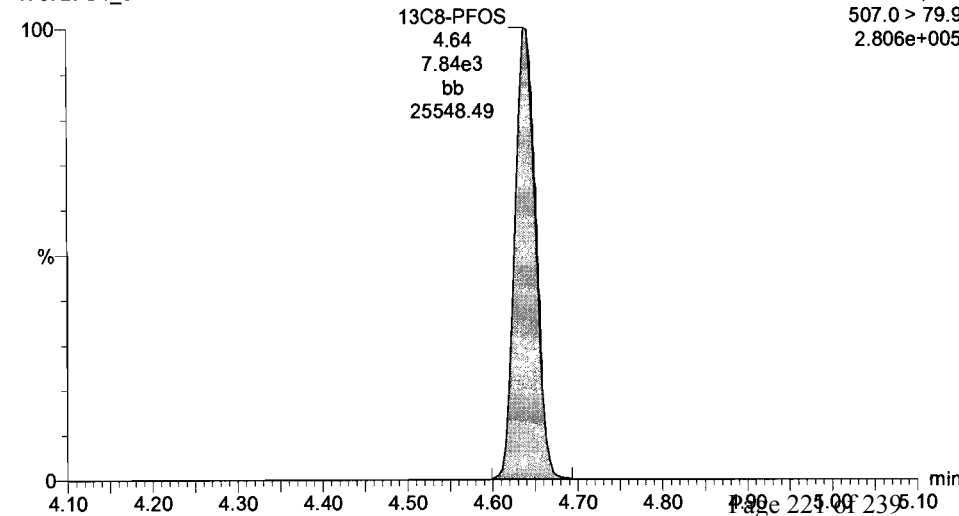
F5:MRM of 12 channels,ES-  
499 > 98.8  
5.139e+005



### 13C8-PFOS

170727G1\_8

F5:MRM of 12 channels,ES-  
507.0 > 79.9  
2.806e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

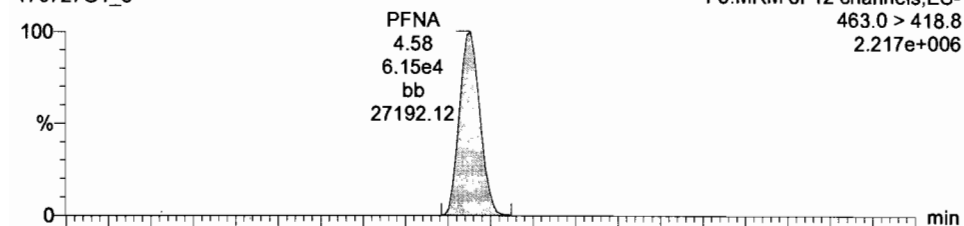
Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-7 PFC CS4 17G2720, Description: PFC CS4 17G2720 A, Name: 170727G1\_8, Date: 27-Jul-2017, Time: 12:59:35, Instrument: , Lab: , User:

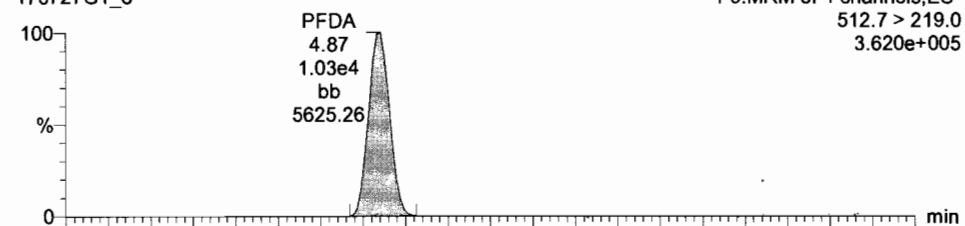
**PFNA**

170727G1\_8

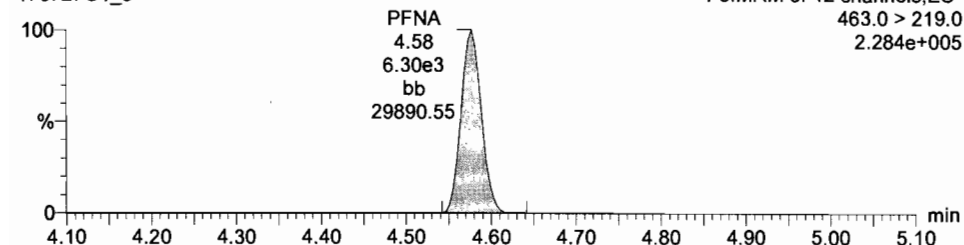


**PFDA**

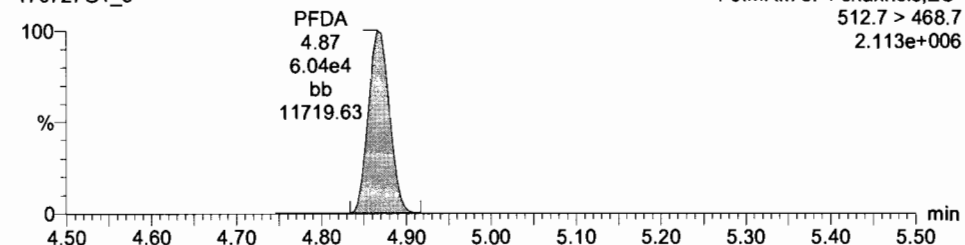
170727G1\_8



170727G1\_8

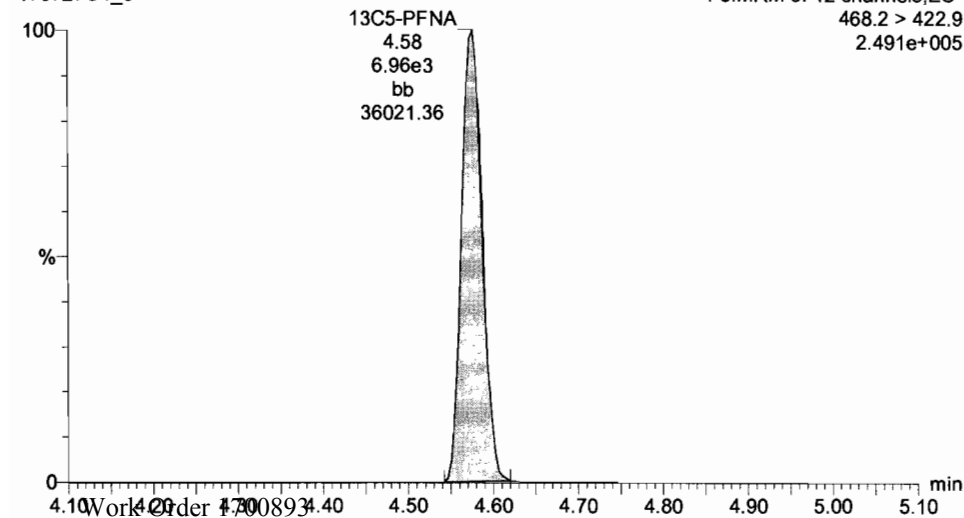


170727G1\_8



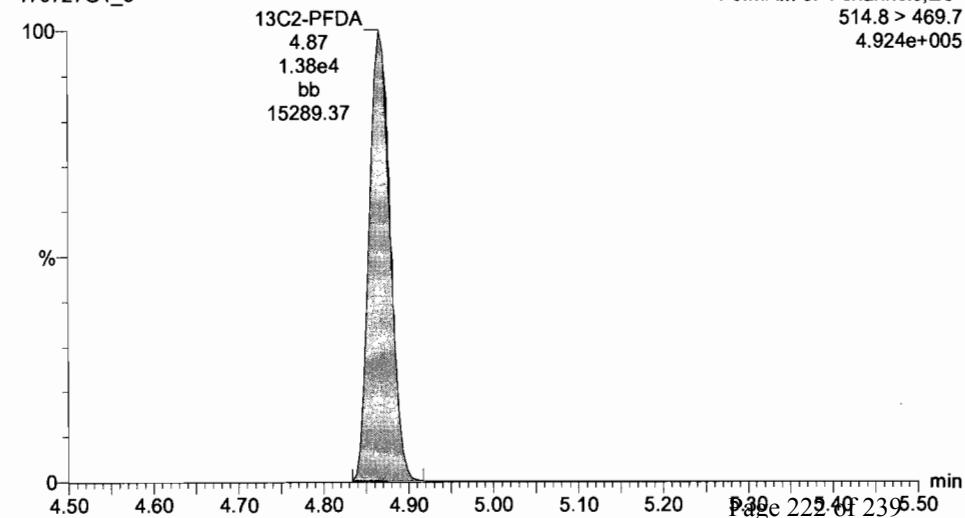
**13C5-PFNA**

170727G1\_8



**13C2-PFDA**

170727G1\_8



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

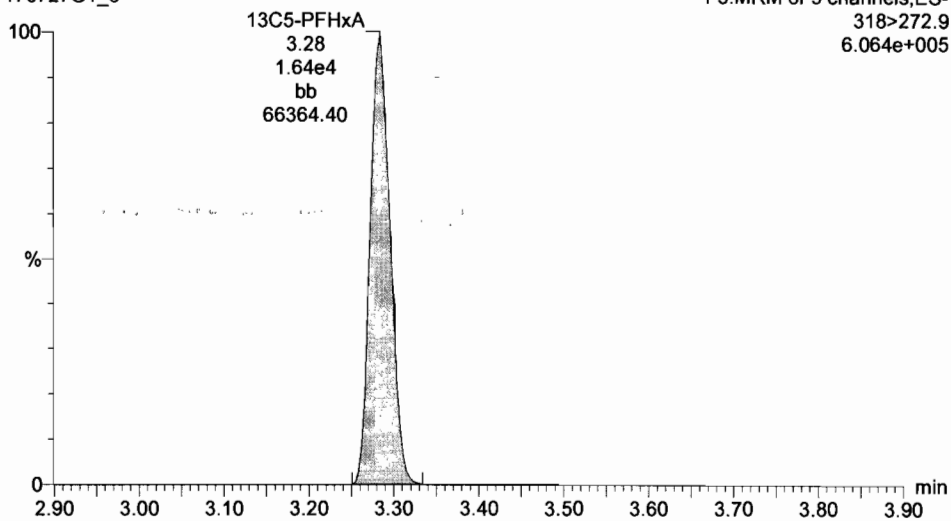
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-7 PFC CS4 17G2720, Description: PFC CS4 17G2720 A, Name: 170727G1\_8, Date: 27-Jul-2017, Time: 12:59:35, Instrument: , Lab: , User:

**13C5-PFHxA**

170727G1\_8

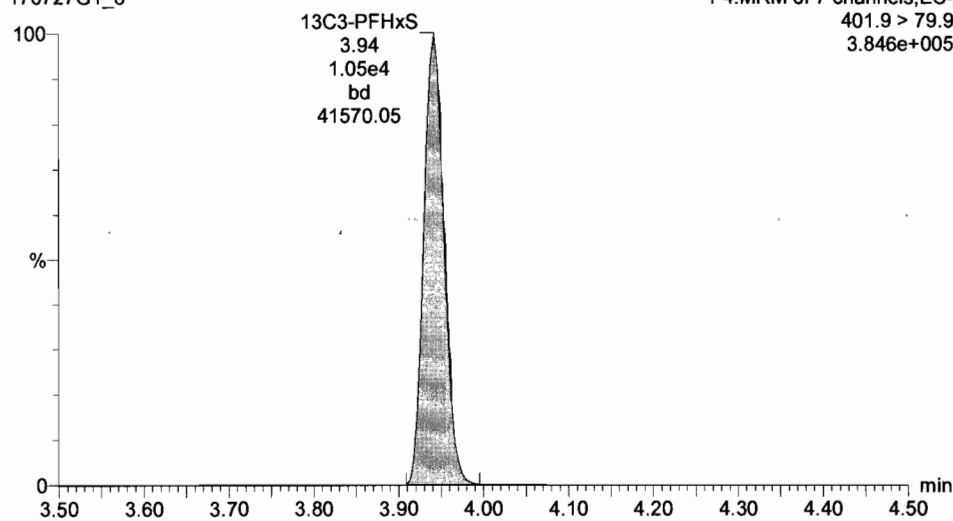
F3:MRM of 9 channels,ES-  
318>272.9  
6.064e+005



**13C3-PFHxS**

170727G1\_8

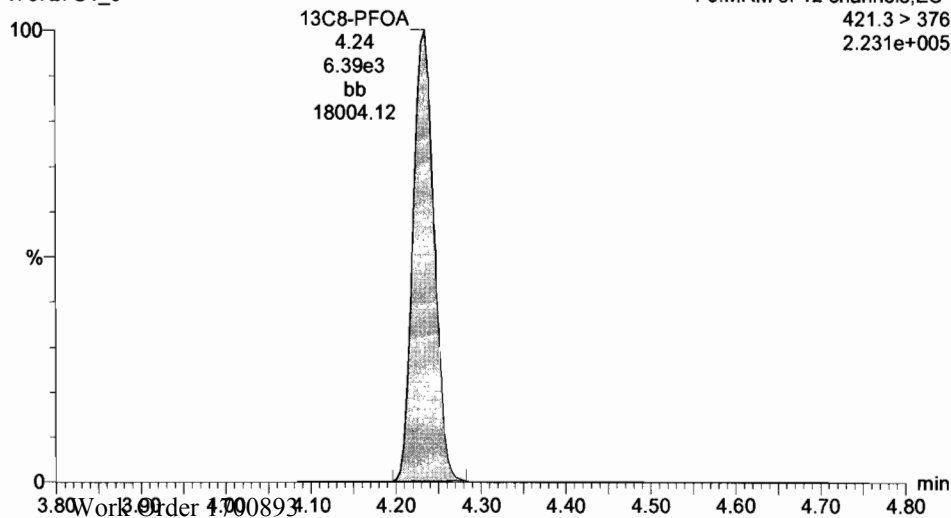
F4:MRM of 7 channels,ES-  
401.9 > 79.9  
3.846e+005



**13C8-PFOA**

170727G1\_8

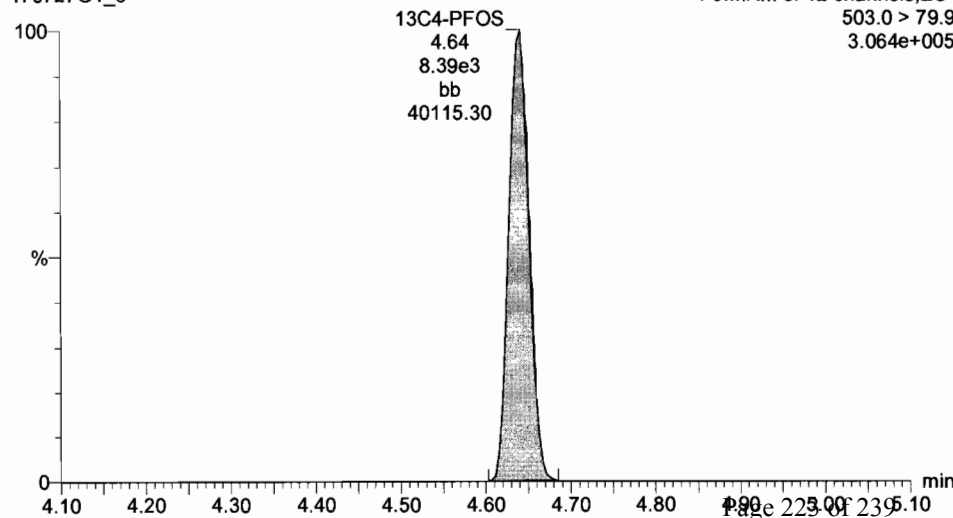
F5:MRM of 12 channels,ES-  
421.3 > 376  
2.231e+005



**13C4-PFOS**

170727G1\_8

F5:MRM of 12 channels,ES-  
503.0 > 79.9  
3.064e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

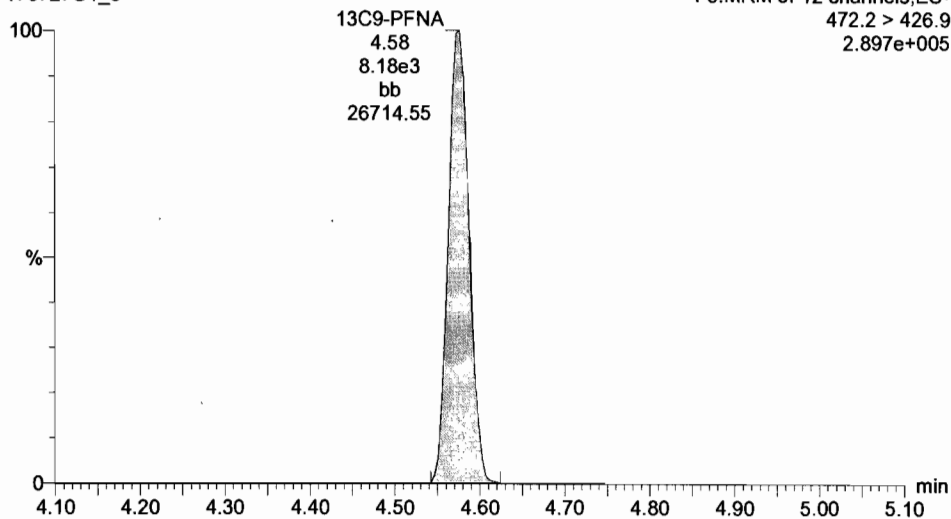
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-7 PFC CS4 17G2720, Description: PFC CS4 17G2720 A, Name: 170727G1\_8, Date: 27-Jul-2017, Time: 12:59:35, Instrument: , Lab: , User:

**13C9-PFNA**

170727G1\_8

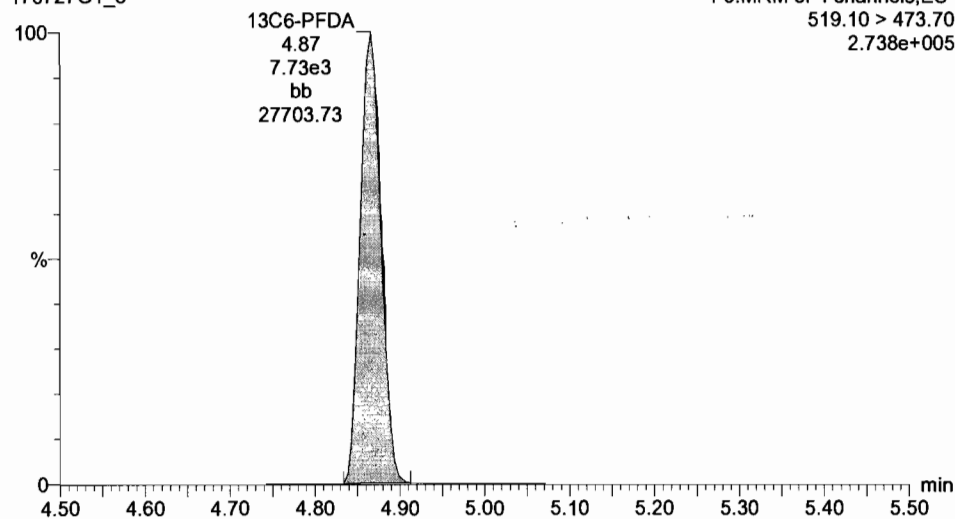
F5:MRM of 12 channels,ES-  
472.2 > 426.9  
2.897e+005



**13C6-PFDA**

170727G1\_8

F6:MRM of 4 channels,ES-  
519.10 > 473.70  
2.738e+005





Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

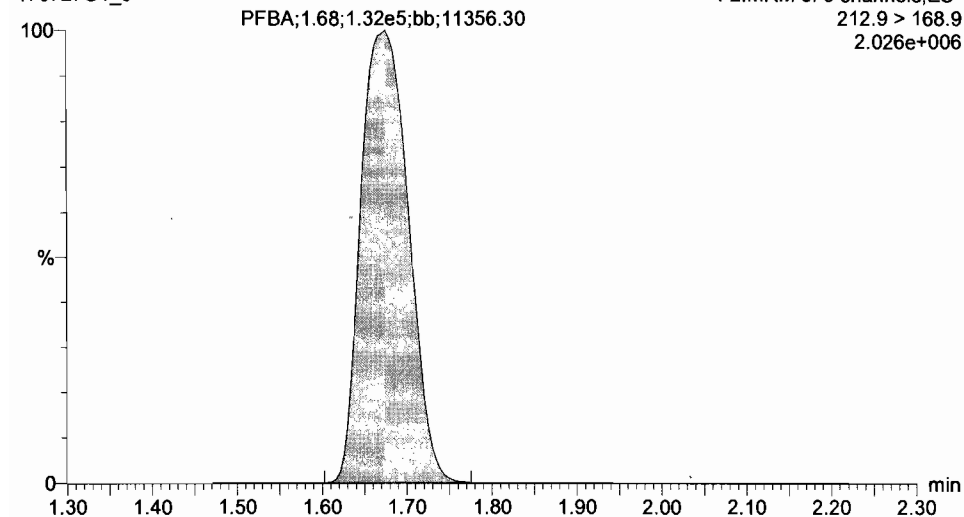
Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-8 PFC CS5 17G2721, Description: PFC CS5 17G2721 A, Name: 170727G1\_9, Date: 27-Jul-2017, Time: 13:12:08, Instrument: , Lab: , User:

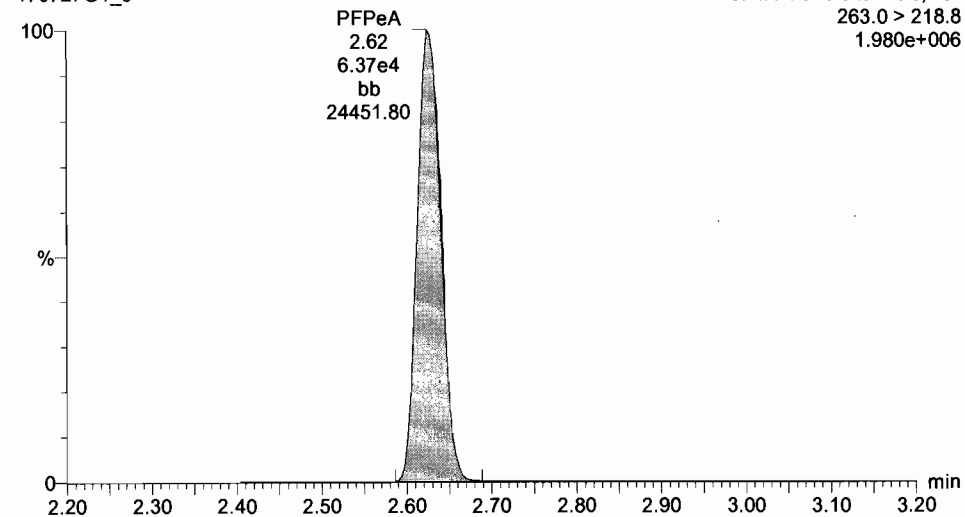
**PFBA**

170727G1\_9



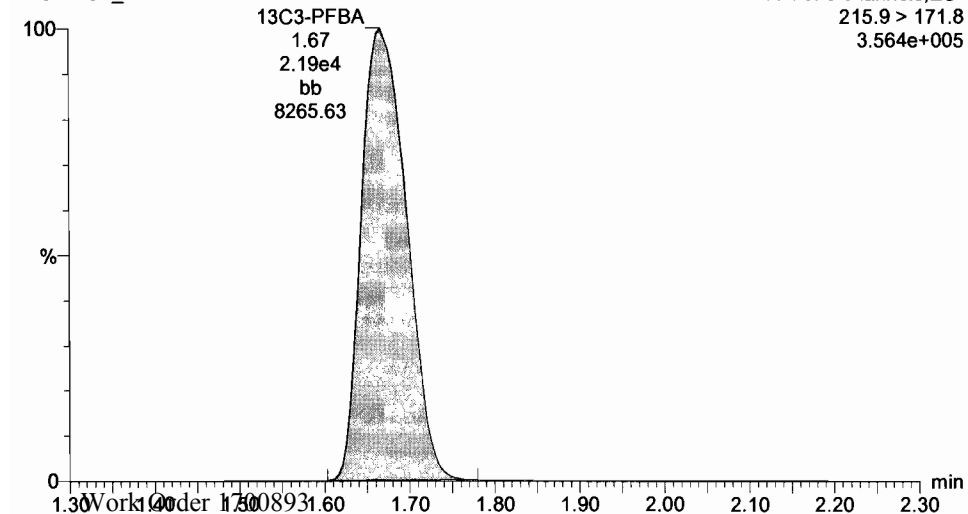
**PFPeA**

170727G1\_9



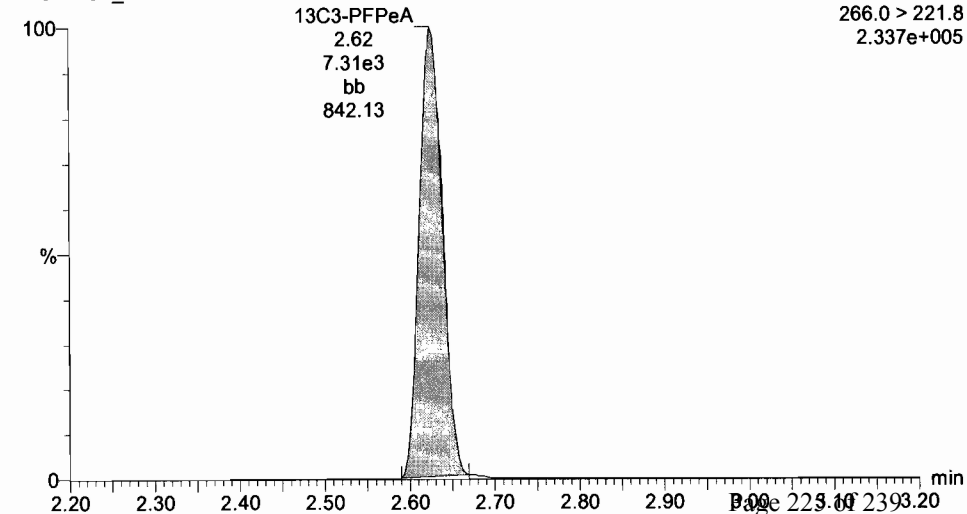
**13C3-PFBA**

170727G1\_9



**13C3-PFPeA**

170727G1\_9



Dataset:      U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:    Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

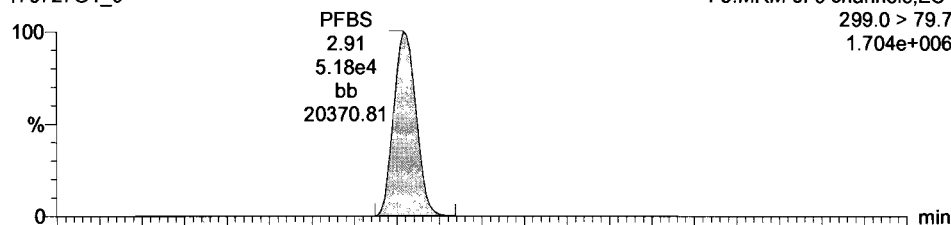
Printed:      Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-8 PFC CS5 17G2721, Description: PFC CS5 17G2721 A, Name: 170727G1\_9, Date: 27-Jul-2017, Time: 13:12:08, Instrument: , Lab: , User:

**Total PFBS**

170727G1\_9

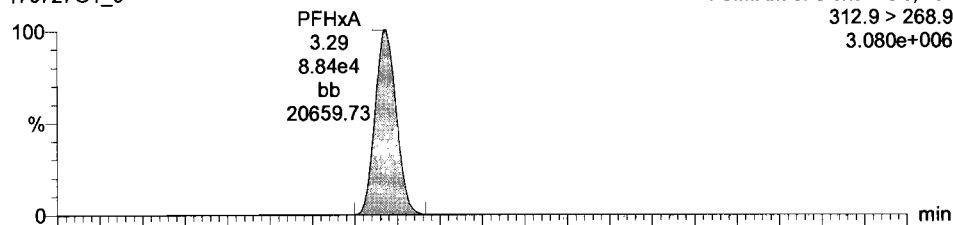
F3:MRM of 9 channels,ES-  
299.0 > 79.7  
1.704e+006



**PFHxA**

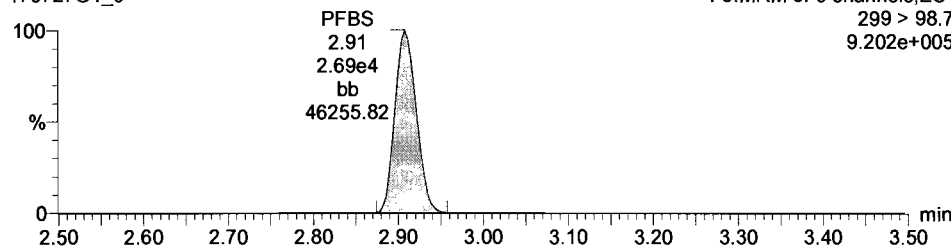
170727G1\_9

F3:MRM of 9 channels,ES-  
312.9 > 268.9  
3.080e+006



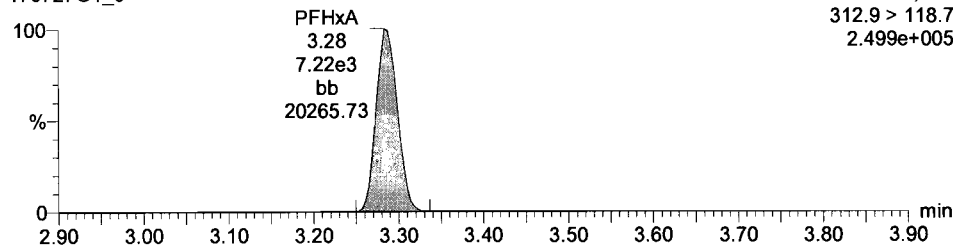
170727G1\_9

F3:MRM of 9 channels,ES-  
299 > 98.7  
9.202e+005



170727G1\_9

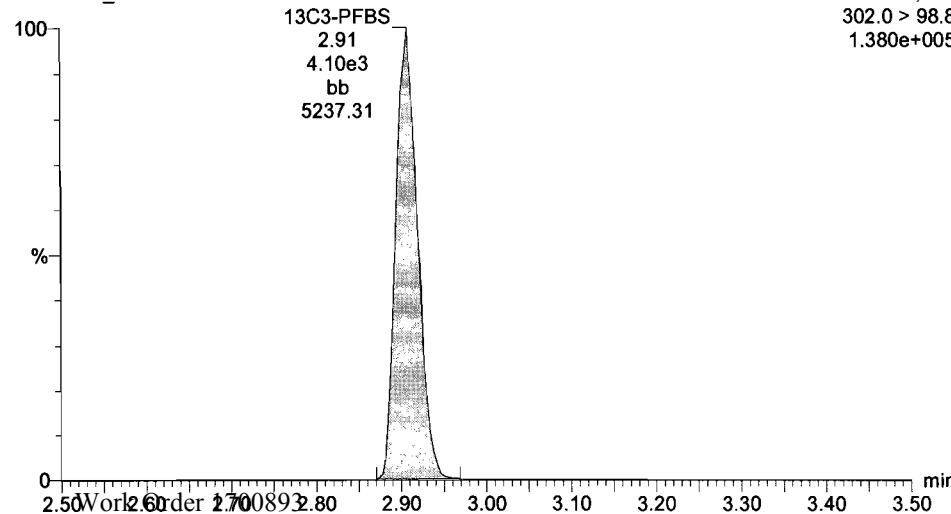
F3:MRM of 9 channels,ES-  
312.9 > 118.7  
2.499e+005



**13C3-PFBS**

170727G1\_9

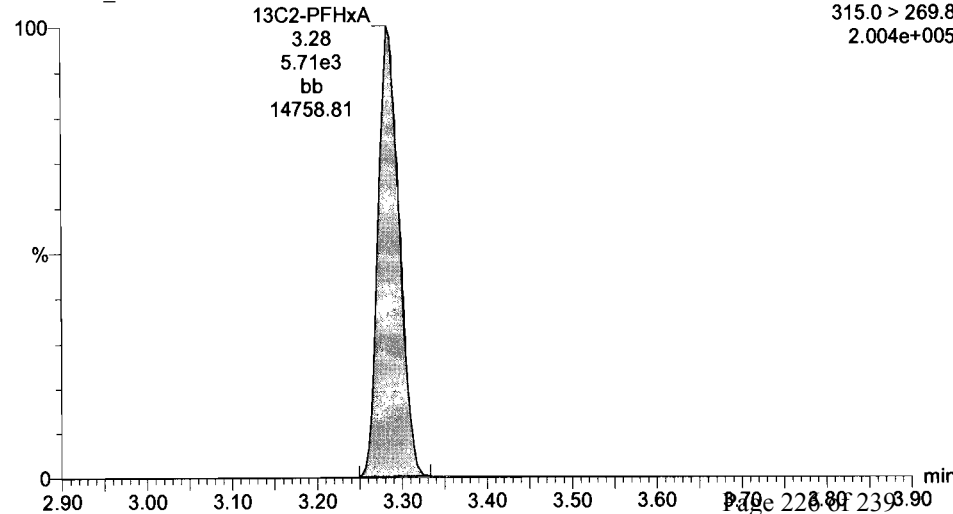
F3:MRM of 9 channels,ES-  
302.0 > 98.8  
1.380e+005



**13C2-PFHxA**

170727G1\_9

F3:MRM of 9 channels,ES-  
315.0 > 269.8  
2.004e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

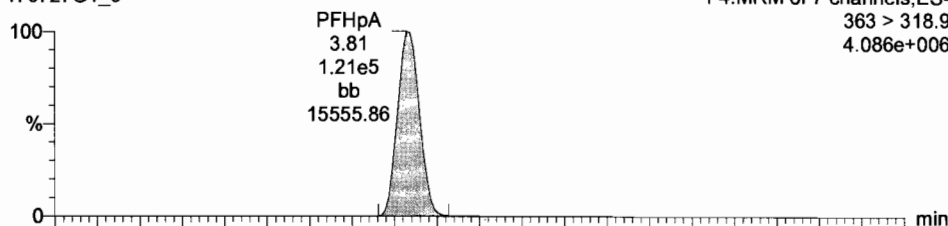
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-8 PFC CS5 17G2721, Description: PFC CS5 17G2721 A, Name: 170727G1\_9, Date: 27-Jul-2017, Time: 13:12:08, Instrument: , Lab: , User:

**PFHpA**

170727G1\_9

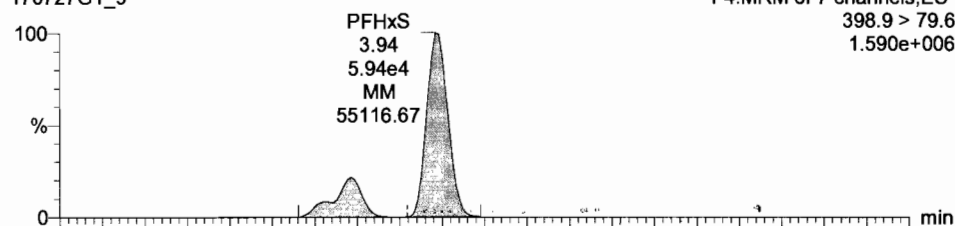
F4:MRM of 7 channels,ES-  
363 > 318.9  
4.086e+006



**Total PFHxS**

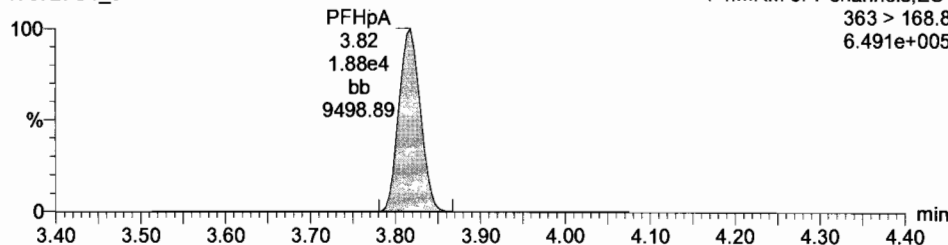
170727G1\_9

F4:MRM of 7 channels,ES-  
398.9 > 79.6  
1.590e+006



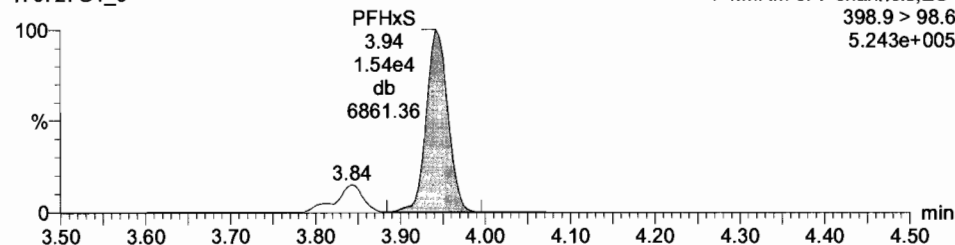
170727G1\_9

F4:MRM of 7 channels,ES-  
363 > 168.8  
6.491e+005



170727G1\_9

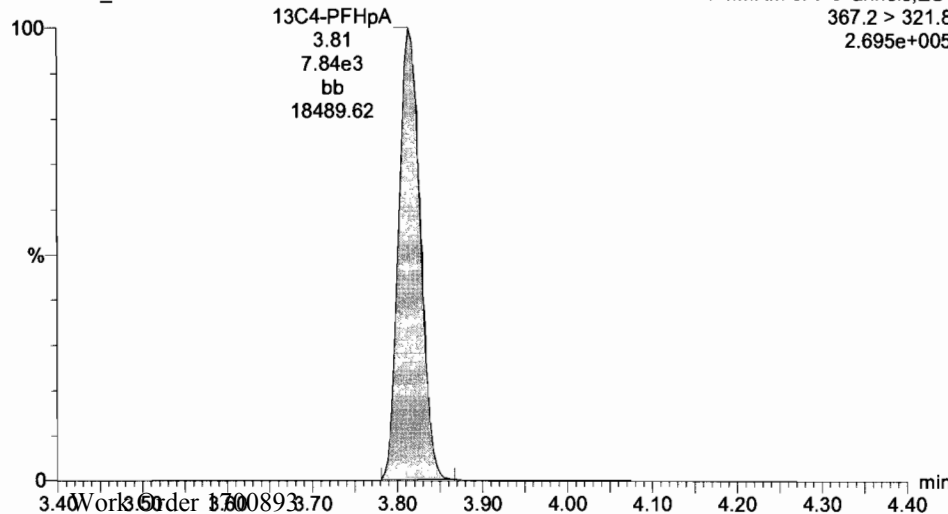
F4:MRM of 7 channels,ES-  
398.9 > 98.6  
5.243e+005



**13C4-PFHpA**

170727G1\_9

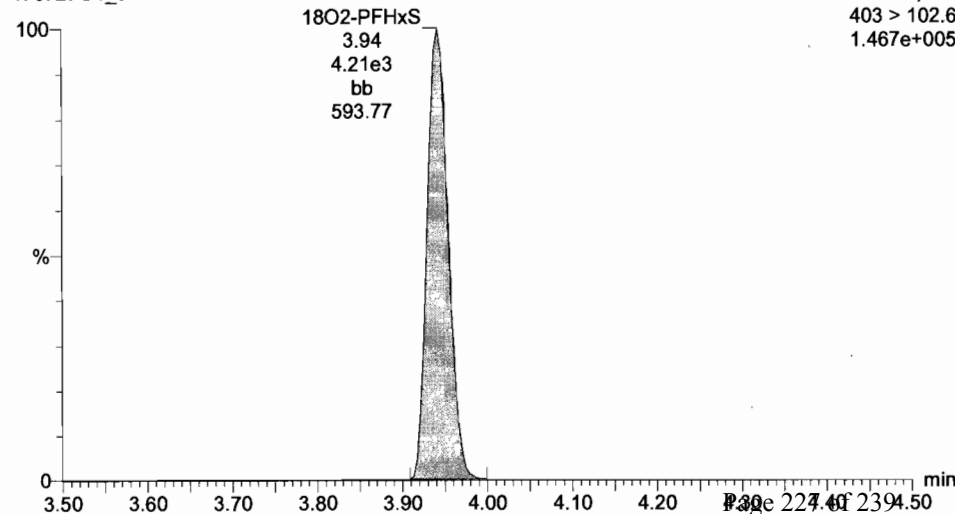
F4:MRM of 7 channels,ES-  
367.2 > 321.8  
2.695e+005



**18O2-PFHxS**

170727G1\_9

F4:MRM of 7 channels,ES-  
403 > 102.6  
1.467e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

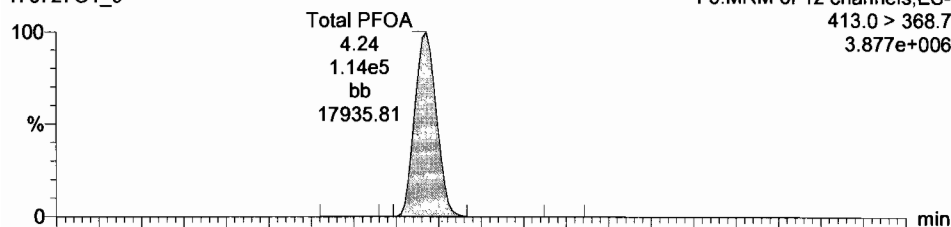
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-8 PFC CS5 17G2721, Description: PFC CS5 17G2721 A, Name: 170727G1\_9, Date: 27-Jul-2017, Time: 13:12:08, Instrument: , Lab: , User:

### Total PFOA

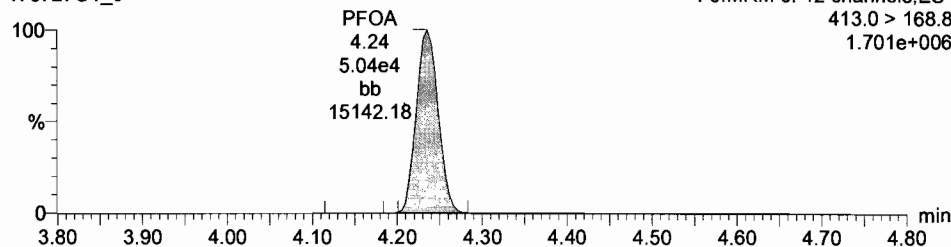
170727G1\_9

F5:MRM of 12 channels,ES-  
413.0 > 368.7  
3.877e+006



170727G1\_9

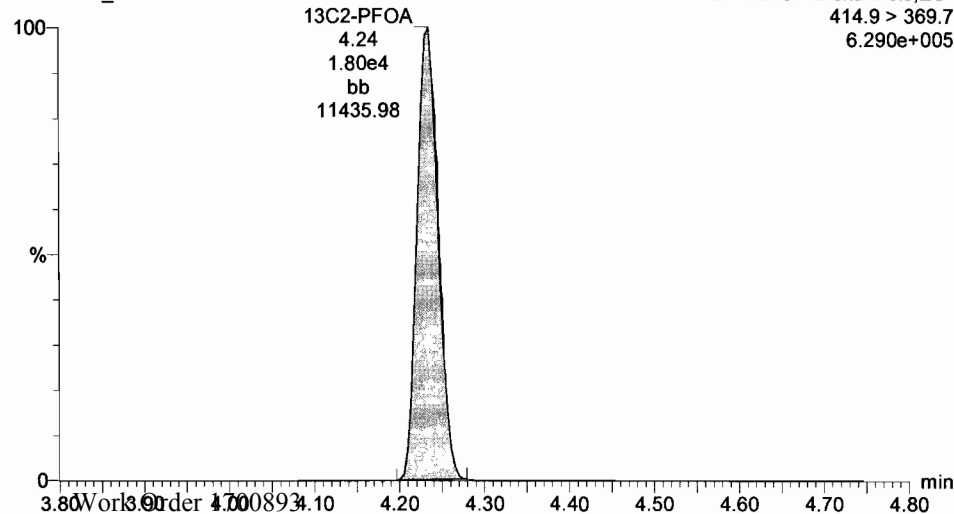
F5:MRM of 12 channels,ES-  
413.0 > 168.8  
1.701e+006



### 13C2-PFOA

170727G1\_9

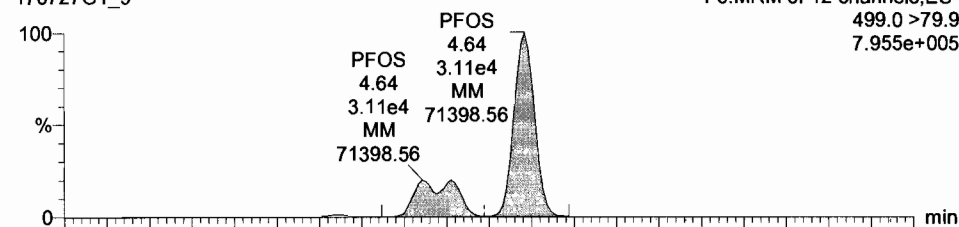
F5:MRM of 12 channels,ES-  
414.9 > 369.7  
6.290e+005



### Total PFOS

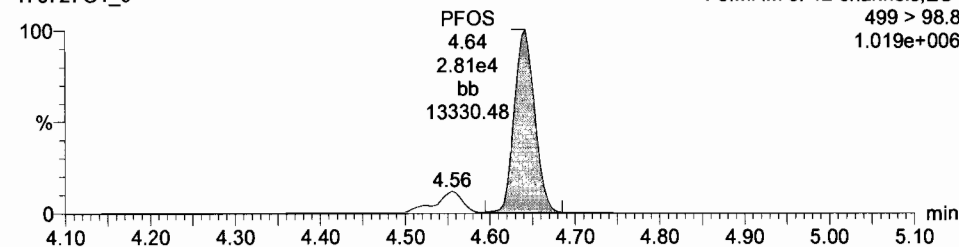
170727G1\_9

F5:MRM of 12 channels,ES-  
499.0 > 79.9  
7.955e+005



170727G1\_9

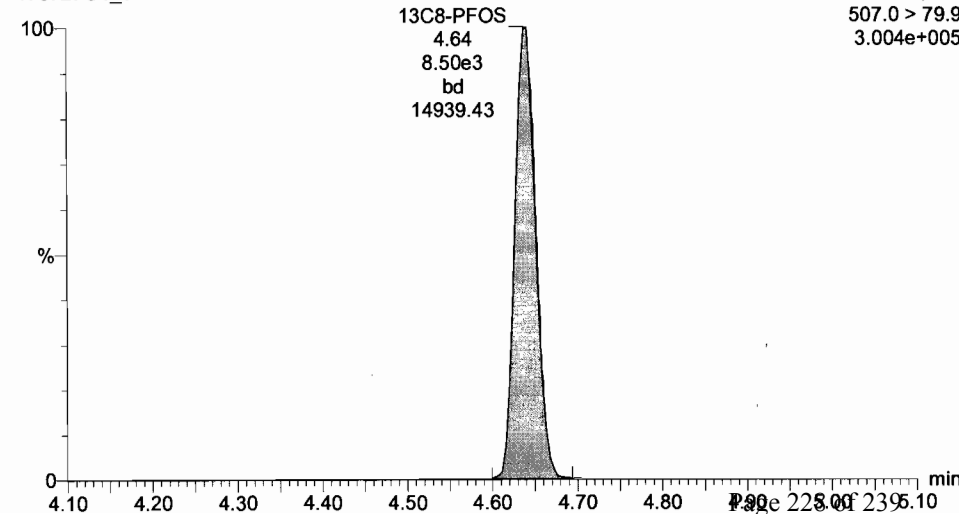
F5:MRM of 12 channels,ES-  
499 > 98.8  
1.019e+006



### 13C8-PFOS

170727G1\_9

F5:MRM of 12 channels,ES-  
507.0 > 79.9  
3.004e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:   Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

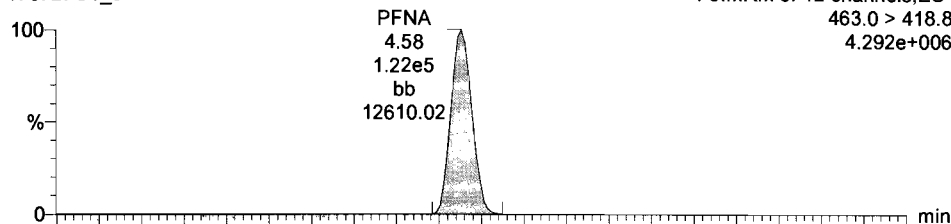
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-8 PFC CS5 17G2721, Description: PFC CS5 17G2721 A, Name: 170727G1\_9, Date: 27-Jul-2017, Time: 13:12:08, Instrument: , Lab: , User:

**PFNA**

170727G1\_9

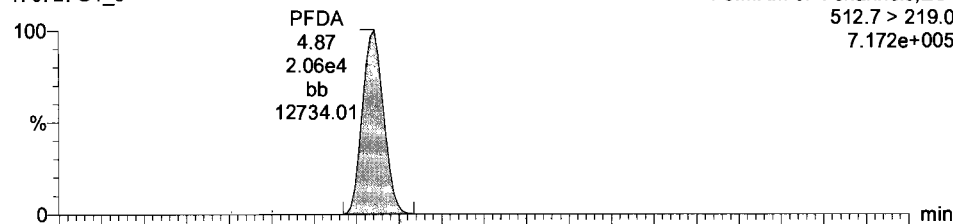
F5:MRM of 12 channels,ES-  
463.0 > 418.8  
4.292e+006



**PFDA**

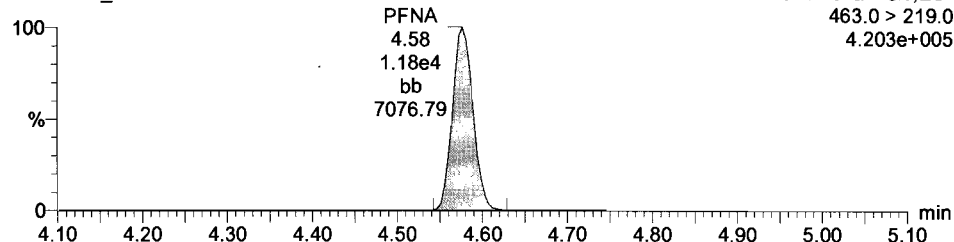
170727G1\_9

F6:MRM of 4 channels,ES-  
512.7 > 219.0  
7.172e+005



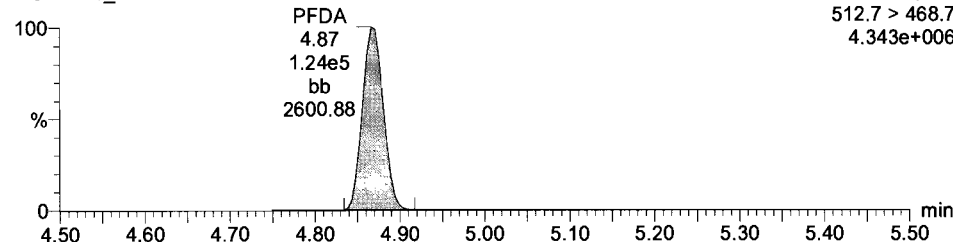
170727G1\_9

F5:MRM of 12 channels,ES-  
463.0 > 219.0  
4.203e+005



170727G1\_9

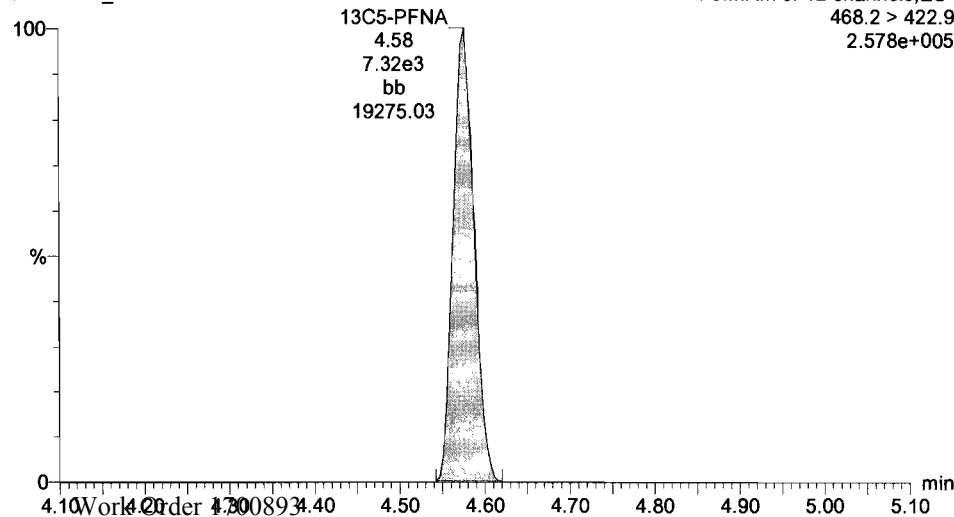
F6:MRM of 4 channels,ES-  
512.7 > 468.7  
4.343e+006



**13C5-PFNA**

170727G1\_9

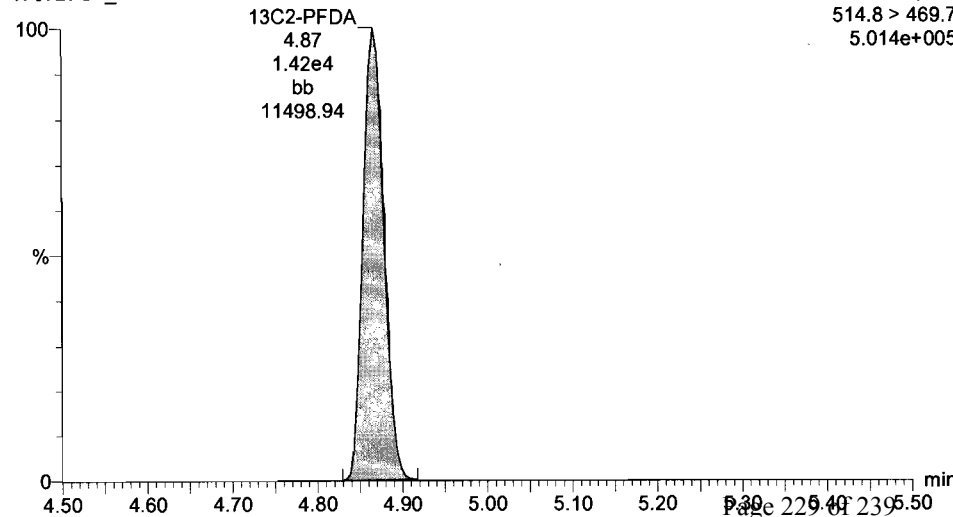
F5:MRM of 12 channels,ES-  
468.2 > 422.9  
2.578e+005



**13C2-PFDA**

170727G1\_9

F6:MRM of 4 channels,ES-  
514.8 > 469.7  
5.014e+005



Dataset:      U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:    Thursday, July 27, 2017 14:48:06 Pacific Daylight Time

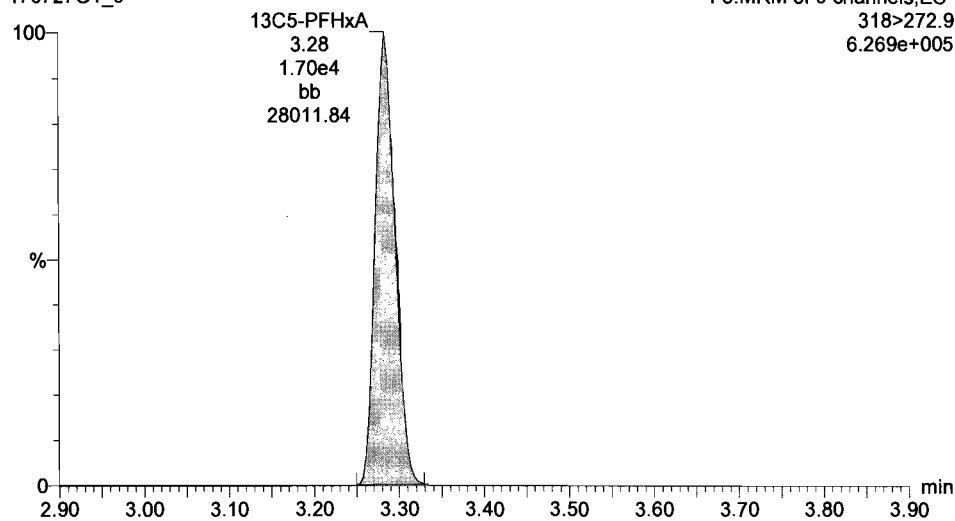
Printed:      Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-8 PFC CS5 17G2721, Description: PFC CS5 17G2721 A, Name: 170727G1\_9, Date: 27-Jul-2017, Time: 13:12:08, Instrument: , Lab: , User:

**13C5-PFHxA**

170727G1\_9

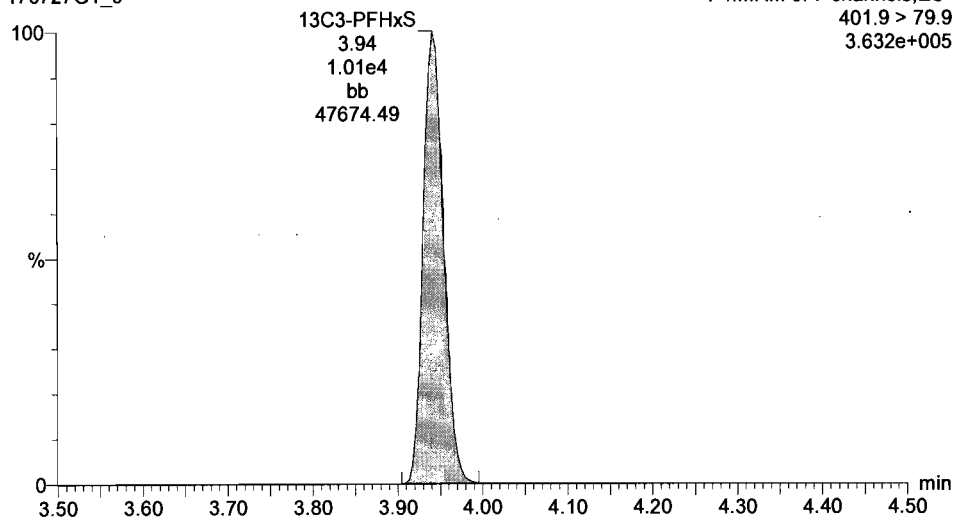
F3:MRM of 9 channels,ES-  
318>272.9  
6.269e+005



**13C3-PFHxS**

170727G1\_9

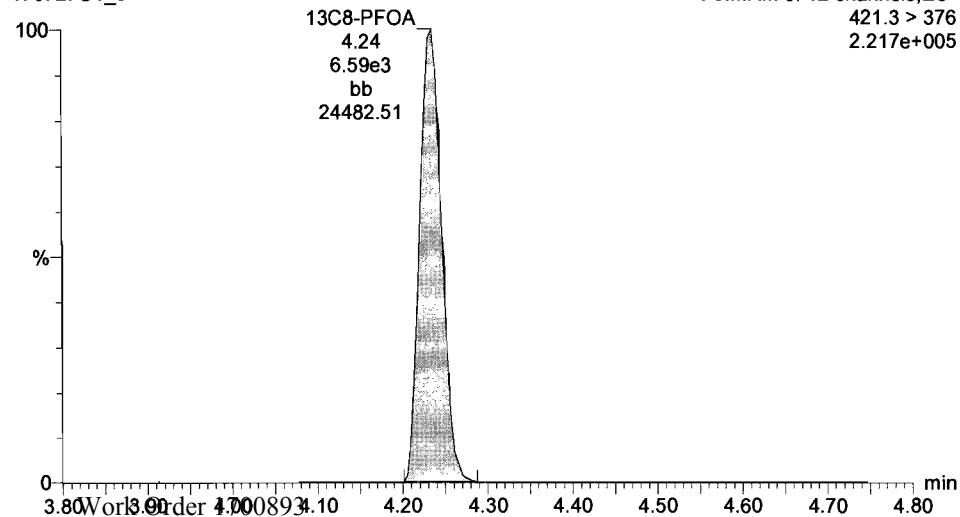
F4:MRM of 7 channels,ES-  
401.9 > 79.9  
3.632e+005



**13C8-PFOA**

170727G1\_9

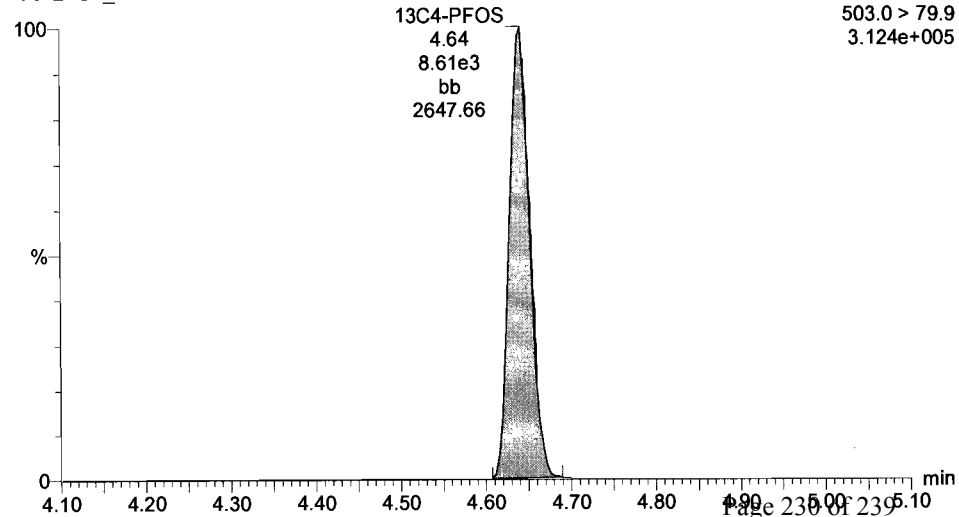
F5:MRM of 12 channels,ES-  
421.3 > 376  
2.217e+005



**13C4-PFOS**

170727G1\_9

F5:MRM of 12 channels,ES-  
503.0 > 79.9  
3.124e+005



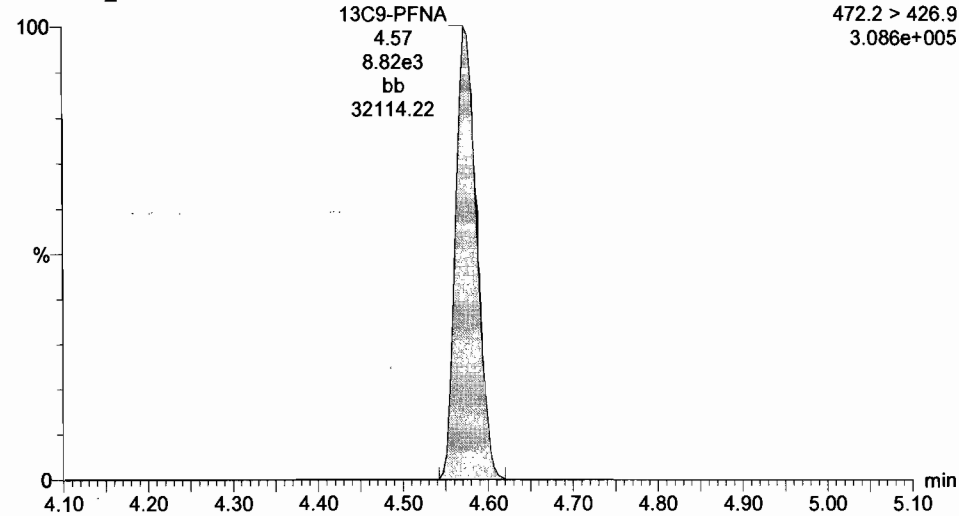
Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-CRV.qld

Last Altered:    Thursday, July 27, 2017 14:48:06 Pacific Daylight Time  
Printed:        Thursday, July 27, 2017 14:52:56 Pacific Daylight Time

ID: ST170727G1-8 PFC CS5 17G2721, Description: PFC CS5 17G2721 A, Name: 170727G1\_9, Date: 27-Jul-2017, Time: 13:12:08, Instrument: , Lab: , User:

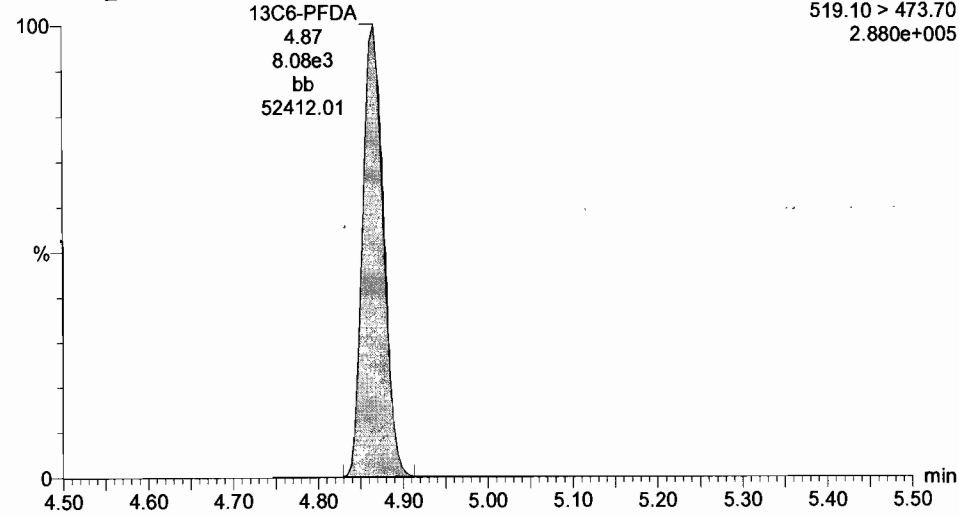
**13C9-PFNA**

170727G1\_9



**13C6-PFDA**

170727G1\_9



Dataset: U:\G1.PRO\Results\2017\170727G1\170727G1-11.qld

Last Altered: Thursday, July 27, 2017 14:54:17 Pacific Daylight Time

Printed: Thursday, July 27, 2017 14:55:09 Pacific Daylight Time

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

Name: 170727G1\_11, Date: 27-Jul-2017, Time: 13:37:14, ID: SS170727G1-1 PFC SSS 17G2713, Description: PFC SSS 17G2713

	# Name	Trace	Response	IS Resp	RRF	Wt/Vol	RT	Conc.	%Rec
1	1 PFBA	212.9 > 168.9	1.32e4	2.05e4		1.000	1.67	10.7	107.1
2	2 PFPeA	263.0 > 218.8	7.15e3	7.69e3		1.000	2.63	10.5	105.2
3	3 PFBS	299.0 > 79.7	5.63e3	4.75e3		1.000	2.91	8.84	88.4
4	4 PFHxA	312.9 > 268.9	1.00e4	6.50e3		1.000	3.29	10.1	101.0
5	5 PFHpA	363 > 318.9	1.41e4	8.41e3		1.000	3.82	10.7	106.6
6	6 PFHxS	398.9 > 79.6	6.09e3	4.53e3		1.000	3.95	9.38	93.8
7	7 PFOA	413.0 > 368.7	1.28e4	1.85e4		1.000	4.24	10.7	107.3
8	8 PFNA	463.0 > 418.8	1.13e4	5.97e3		1.000	4.58	10.3	102.8
9	9 PFOS	499.0 > 79.9	2.54e3	7.28e3		1.000	4.64	9.20	92.0
10	10 PFDA	512.7 > 219.0	1.65e3	1.13e4		1.000	4.87	9.14	91.4
11	11 13C3-PFBA	215.9 > 171.8	2.05e4	1.93e4	1.183	1.000	1.67	11.3	90.1
12	12 13C3-PFBS	302.0 > 98.8	4.75e3	1.63e4	0.263	1.000	2.91	13.8	110.7
13	13 13C3-PFPeA	266.0 > 221.8	7.69e3	1.63e4	0.446	1.000	2.63	13.2	105.3
14	14 13C2-PFHxA	315.0 > 269.8	6.50e3	1.63e4	0.361	1.000	3.29	13.8	110.2
15	15 13C4-PFHpA	367.2 > 321.8	8.41e3	1.63e4	0.475	1.000	3.82	13.5	108.3
16	16 18O2-PFHxS	403 > 102.6	4.53e3	1.12e4	0.411	1.000	3.95	12.3	98.2
17	17 13C2-PFOA	414.9 > 369.7	1.85e4	6.32e3	2.843	1.000	4.24	12.9	103.1
18	18 13C5-PFNA	468.2 > 422.9	5.97e3	7.44e3	0.854	1.000	4.58	11.7	94.0
19	19 13C2-PFDA	514.8 > 469.7	1.13e4	6.36e3	1.742	1.000	4.87	12.8	102.1
20	20 13C8-PFOS	507.0 > 79.9	7.28e3	7.78e3	0.927	1.000	4.64	12.6	100.9
21	21 13C4-PFBA	216.9 > 171.8	1.93e4	1.93e4	1.000	1.000	1.67	12.5	100.0
22	22 13C5-PFHxA	318 > 272.9	1.63e4	1.63e4	1.000	1.000	3.28	12.5	100.0
23	23 13C3-PFHxS	401.9 > 79.9	1.12e4	1.12e4	1.000	1.000	3.95	12.5	100.0
24	24 13C8-PFOA	421.3 > 376	6.32e3	6.32e3	1.000	1.000	4.24	12.5	100.0
25	25 13C9-PFNA	472.2 > 426.9	7.44e3	7.44e3	1.000	1.000	4.58	12.5	100.0
26	26 13C4-PFOS	503.0 > 79.9	7.78e3	7.78e3	1.000	1.000	4.64	12.5	100.0
27	27 13C6-PFDA	519.10 > 47...	6.36e3	6.36e3	1.000	1.000	4.87	12.5	100.0

70-130

✓ AC  
7/27/17



Dataset:      U:\G1.PRO\Results\2017\170727G1\170727G1-11.qld

Last Altered:    Thursday, July 27, 2017 14:54:17 Pacific Daylight Time  
Printed:        Thursday, July 27, 2017 14:54:55 Pacific Daylight Time

Method: U:\G1.pro\MethDB\PFAS\_14or16\_2trans\_0712.mdb 12 Jul 2017 13:38:17

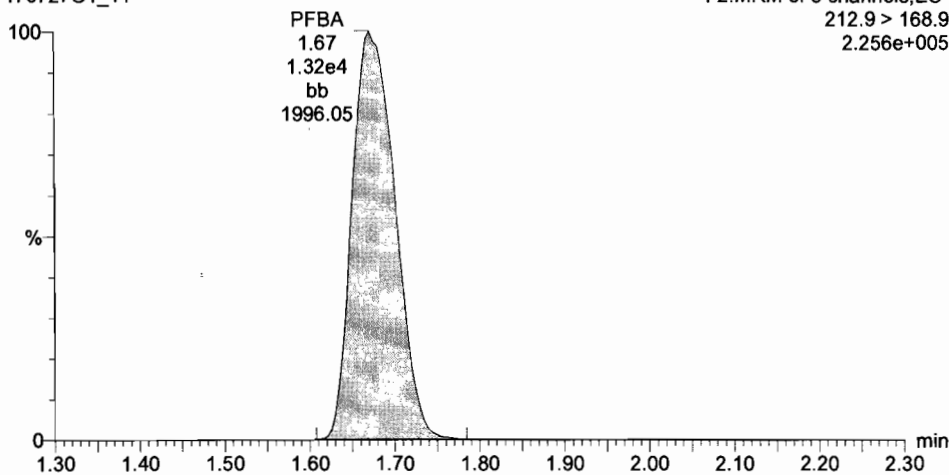
Calibration: U:\G1.pro\CurveDB\C18\_VAL-PFC\_Q1\_7-27-17\_L16\_2Trans\_A\_NEW.cdb 27 Jul 2017 14:48:06

ID: SS170727G1-1 PFC SSS 17G2713, Description: PFC SSS 17G2713, Name: 170727G1\_11, Date: 27-Jul-2017, Time: 13:37:14, Instrument: , Lab: , User:

**PFBA**

170727G1\_11

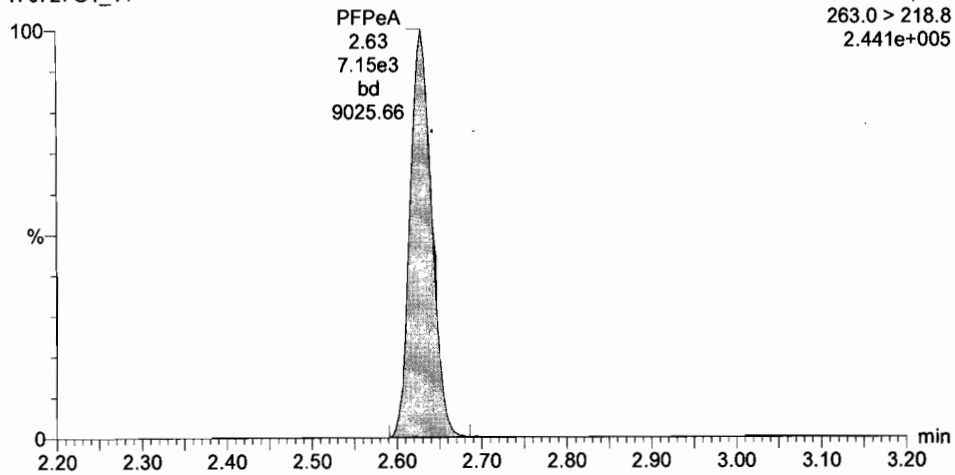
F2:MRM of 3 channels,ES-  
212.9 > 168.9  
2.256e+005



**PFPeA**

170727G1\_11

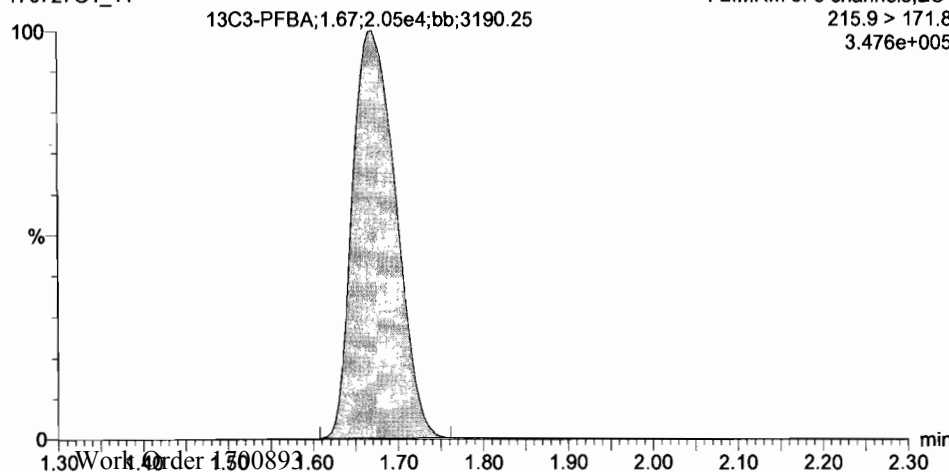
F3:MRM of 9 channels,ES-  
263.0 > 218.8  
2.441e+005



**13C3-PFBA**

170727G1\_11

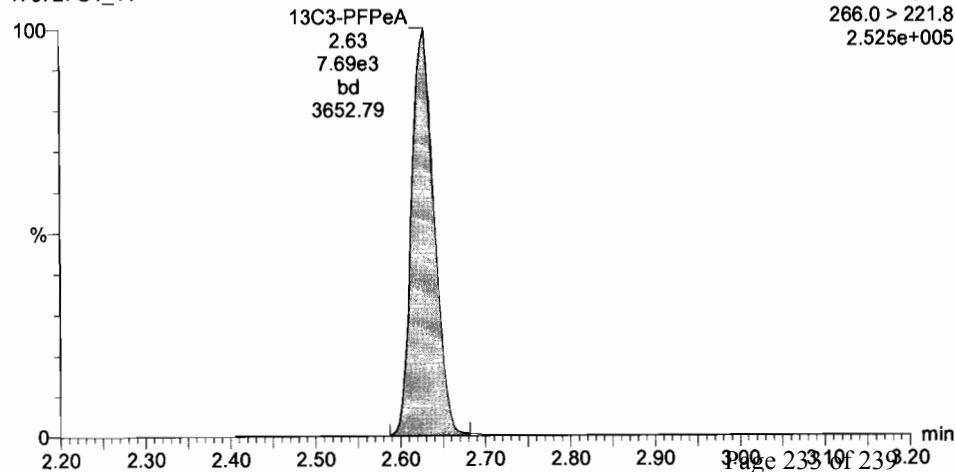
F2:MRM of 3 channels,ES-  
215.9 > 171.8  
3.476e+005



**13C3-PFPeA**

170727G1\_11

F3:MRM of 9 channels,ES-  
266.0 > 221.8  
2.525e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-11.qld

Last Altered:   Thursday, July 27, 2017 14:54:17 Pacific Daylight Time

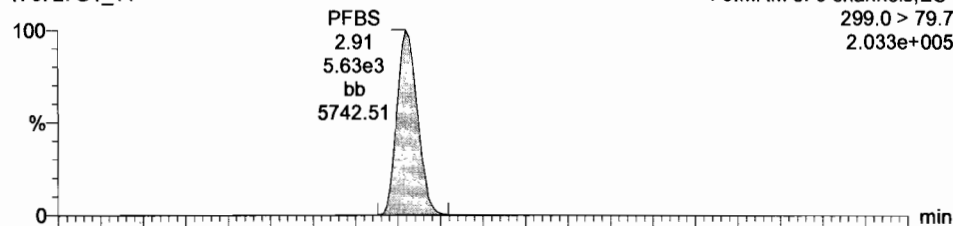
Printed:        Thursday, July 27, 2017 14:54:55 Pacific Daylight Time

ID: SS170727G1-1 PFC SSS 17G2713, Description: PFC SSS 17G2713, Name: 170727G1\_11, Date: 27-Jul-2017, Time: 13:37:14, Instrument: , Lab: , User:

**Total PFBS**

170727G1\_11

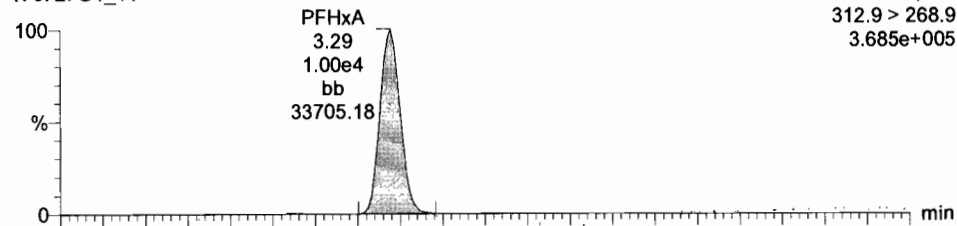
F3:MRM of 9 channels,ES-  
299.0 > 79.7  
2.033e+005



**PFHxA**

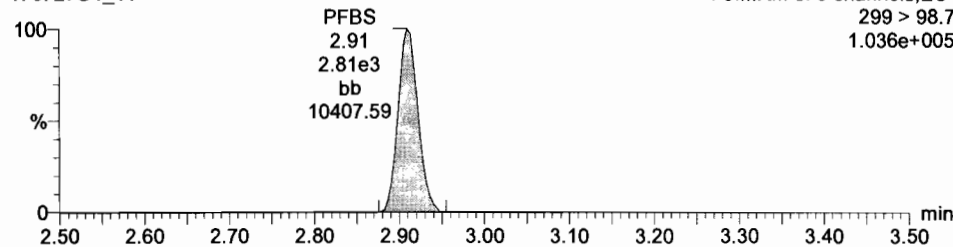
170727G1\_11

F3:MRM of 9 channels,ES-  
312.9 > 268.9  
3.685e+005



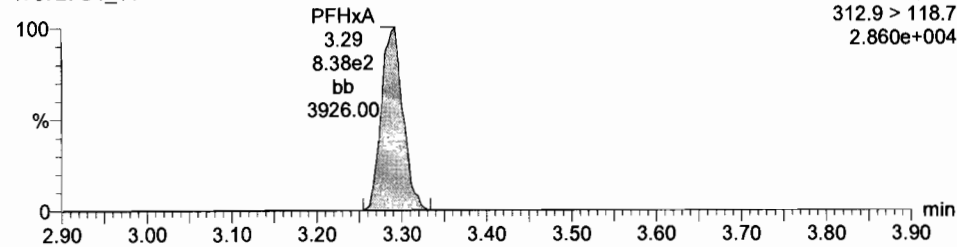
170727G1\_11

F3:MRM of 9 channels,ES-  
299 > 98.7  
1.036e+005



170727G1\_11

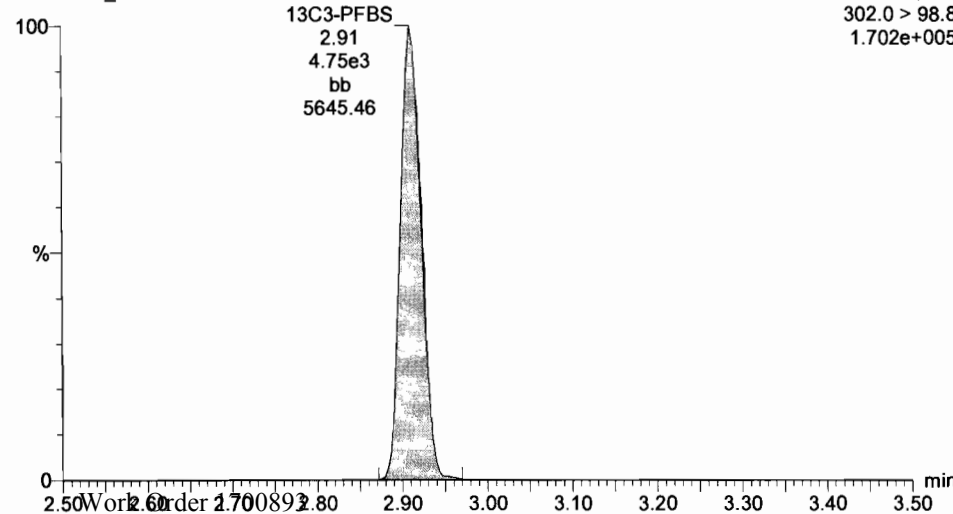
F3:MRM of 9 channels,ES-  
312.9 > 118.7  
2.860e+004



**13C3-PFBS**

170727G1\_11

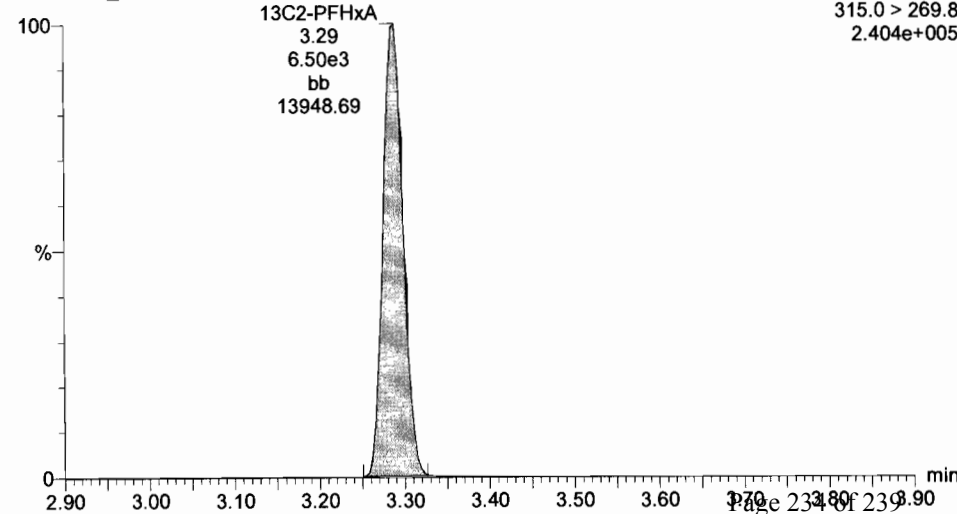
F3:MRM of 9 channels,ES-  
302.0 > 98.8  
1.702e+005



**13C2-PFHxA**

170727G1\_11

F3:MRM of 9 channels,ES-  
315.0 > 269.8  
2.404e+005



Dataset:      U:\G1.PRO\Results\2017\170727G1\170727G1-11.qld

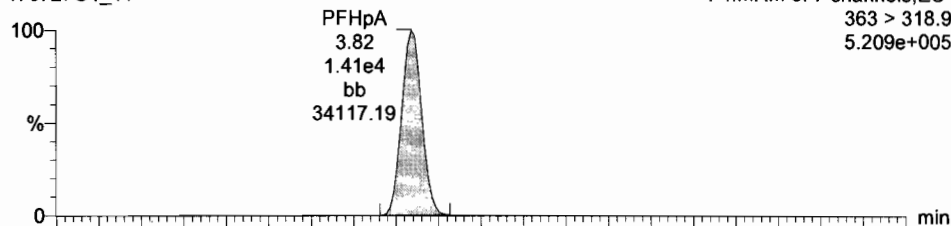
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Printed:          Thursday, July 27, 2017 14:54:55 Pacific Daylight Time

ID: SS170727G1-1 PFC SSS 17G2713, Description: PFC SSS 17G2713, Name: 170727G1\_11, Date: 27-Jul-2017, Time: 13:37:14, Instrument: , Lab: , User:

**PFHpA**

170727G1\_11

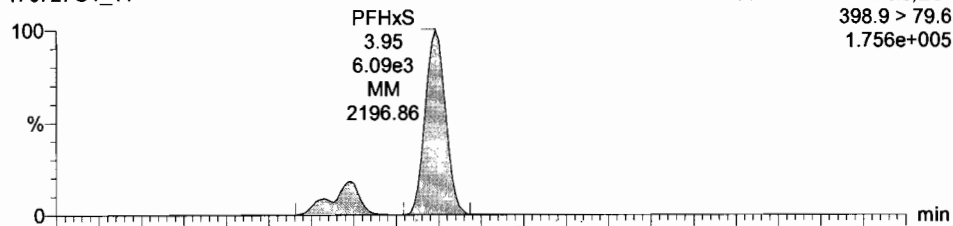
F4:MRM of 7 channels,ES-  
363 > 318.9  
5.209e+005



**Total PFHxS**

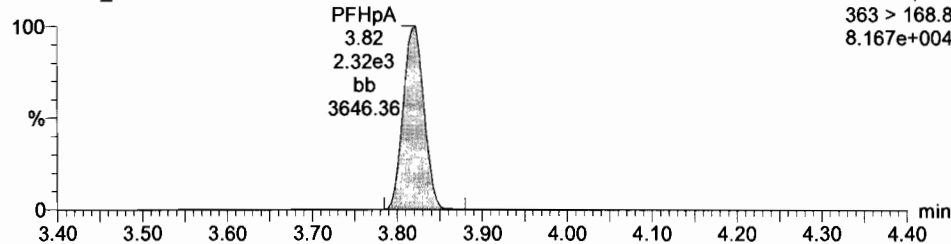
170727G1\_11

F4:MRM of 7 channels,ES-  
398.9 > 79.6  
1.756e+005



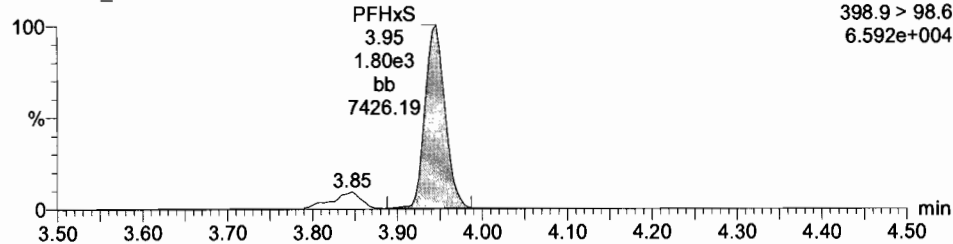
170727G1\_11

F4:MRM of 7 channels,ES-  
363 > 168.8  
8.167e+004



170727G1\_11

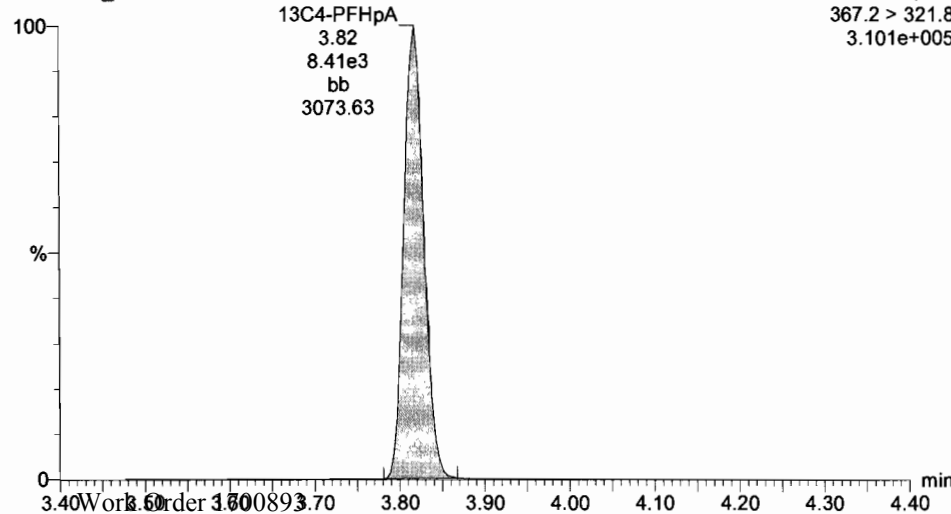
F4:MRM of 7 channels,ES-  
398.9 > 98.6  
6.592e+004



**13C4-PFHpA**

170727G1\_11

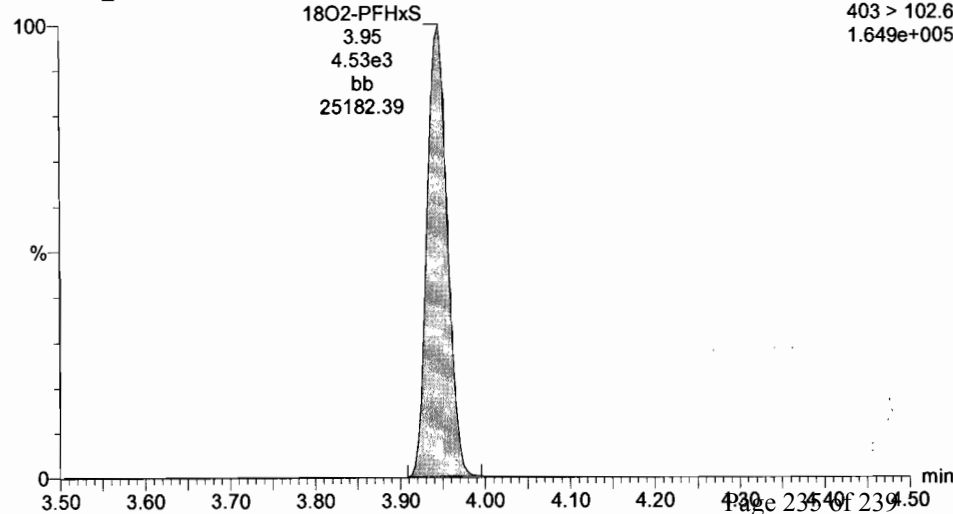
F4:MRM of 7 channels,ES-  
367.2 > 321.8  
3.101e+005



**18O2-PFHxS**

170727G1\_11

F4:MRM of 7 channels,ES-  
403 > 102.6  
1.649e+005



Dataset:      U:\G1.PRO\Results\2017\170727G1\170727G1-11.qld

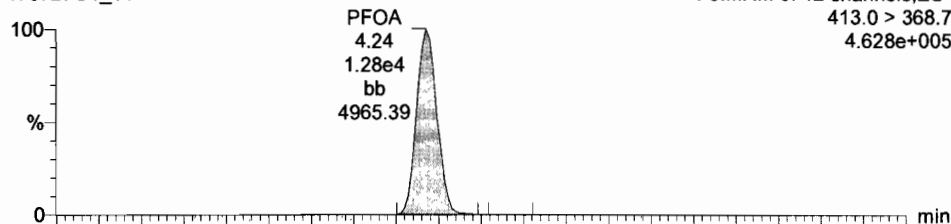
Last Altered:    Thursday, July 27, 2017 14:54:17 Pacific Daylight Time  
Printed:          Thursday, July 27, 2017 14:54:55 Pacific Daylight Time

ID: SS170727G1-1 PFC SSS 17G2713, Description: PFC SSS 17G2713, Name: 170727G1\_11, Date: 27-Jul-2017, Time: 13:37:14, Instrument: , Lab: , User:

### Total PFOA

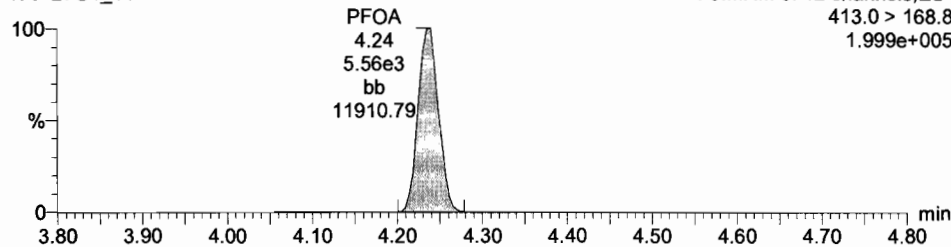
170727G1\_11

F5:MRM of 12 channels,ES-  
413.0 > 368.7  
4.628e+005



170727G1\_11

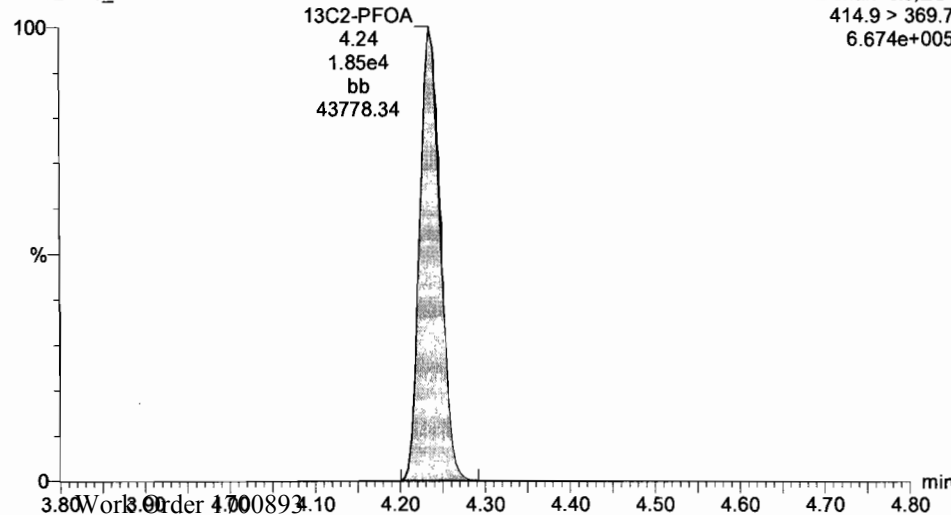
F5:MRM of 12 channels,ES-  
413.0 > 168.8  
1.999e+005



### 13C2-PFOA

170727G1\_11

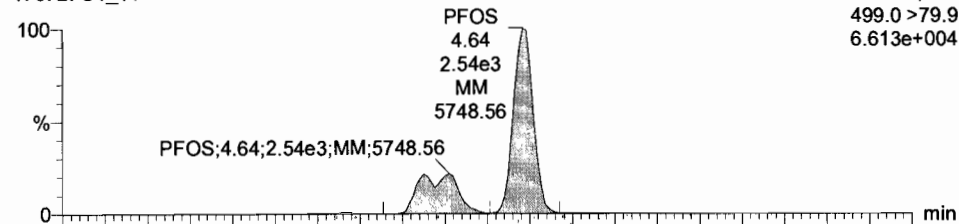
F5:MRM of 12 channels,ES-  
414.9 > 369.7  
6.674e+005



### Total PFOS

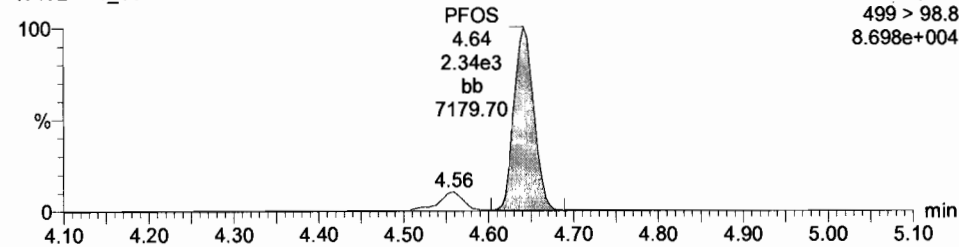
170727G1\_11

F5:MRM of 12 channels,ES-  
499.0 > 79.9  
6.613e+004



170727G1\_11

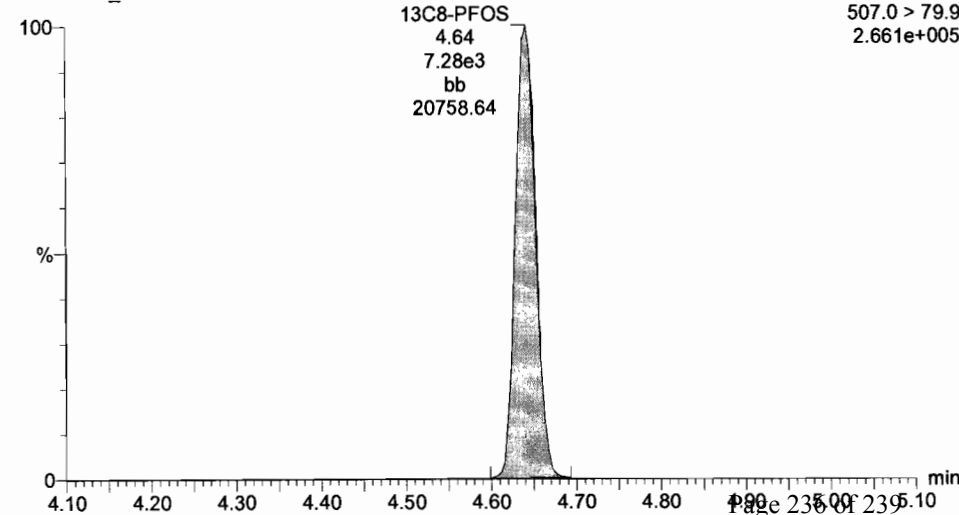
F5:MRM of 12 channels,ES-  
499 > 98.8  
8.698e+004



### 13C8-PFOS

170727G1\_11

F5:MRM of 12 channels,ES-  
507.0 > 79.9  
2.661e+005



Dataset: U:\G1.PRO\Results\2017\170727G1\170727G1-11.qld

Last Altered: Thursday, July 27, 2017 14:54:17 Pacific Daylight Time

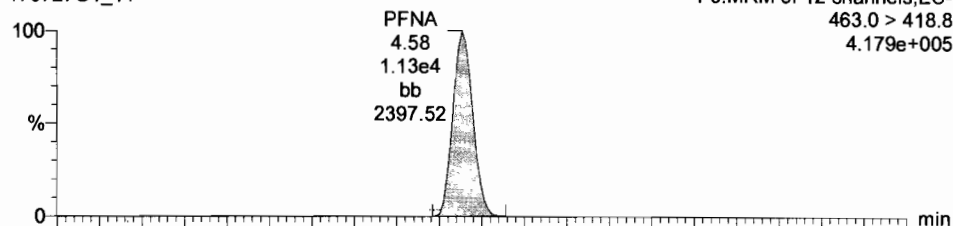
Printed: Thursday, July 27, 2017 14:54:55 Pacific Daylight Time

ID: SS170727G1-1 PFC SSS 17G2713, Description: PFC SSS 17G2713, Name: 170727G1\_11, Date: 27-Jul-2017, Time: 13:37:14, Instrument: , Lab: , User:

PFNA

170727G1\_11

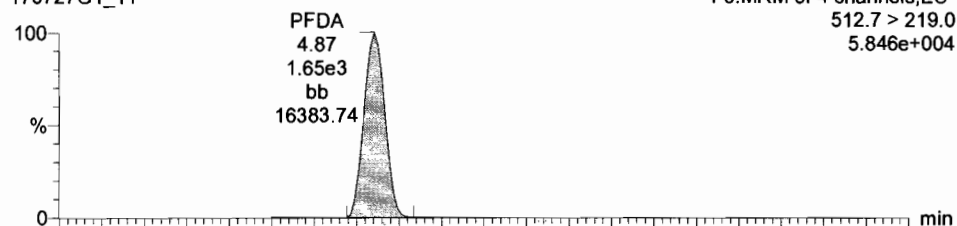
F5:MRM of 12 channels,ES-  
463.0 > 418.8  
4.179e+005



PFDA

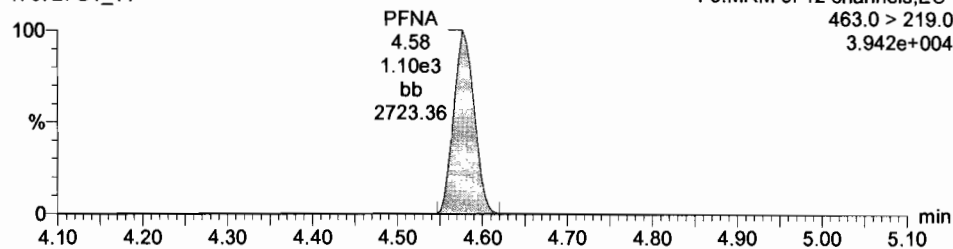
170727G1\_11

F6:MRM of 4 channels,ES-  
512.7 > 219.0  
5.846e+004



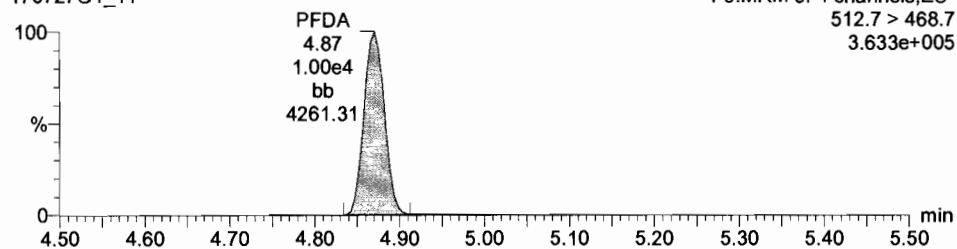
170727G1\_11

F5:MRM of 12 channels,ES-  
463.0 > 219.0  
3.942e+004



170727G1\_11

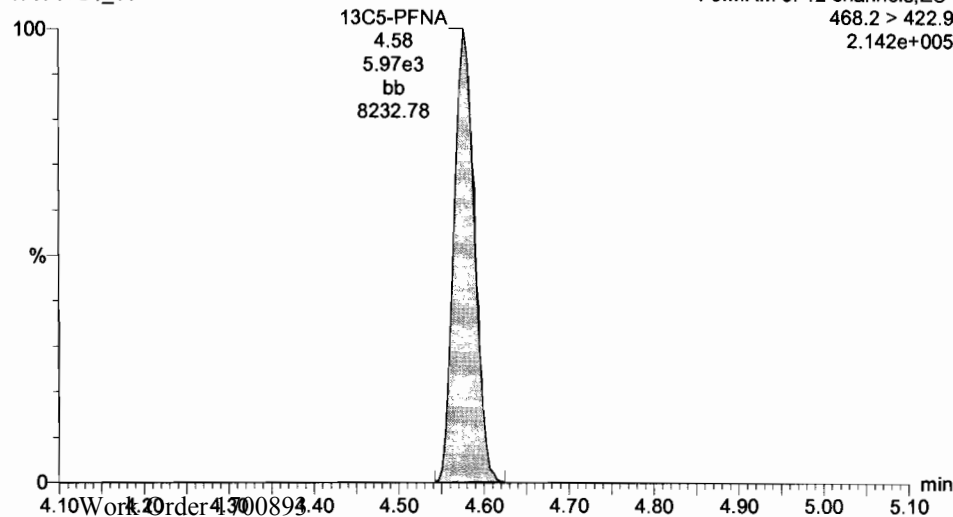
F6:MRM of 4 channels,ES-  
512.7 > 468.7  
3.633e+005



13C5-PFNA

170727G1\_11

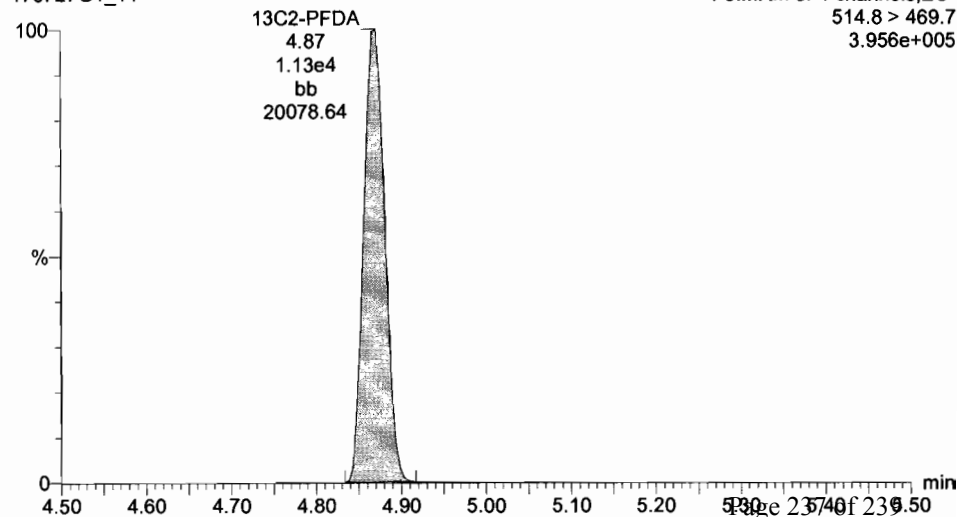
F5:MRM of 12 channels,ES-  
468.2 > 422.9  
2.142e+005



13C2-PFDA

170727G1\_11

F6:MRM of 4 channels,ES-  
514.8 > 469.7  
3.956e+005



Dataset:        U:\G1.PRO\Results\2017\170727G1\170727G1-11.qld

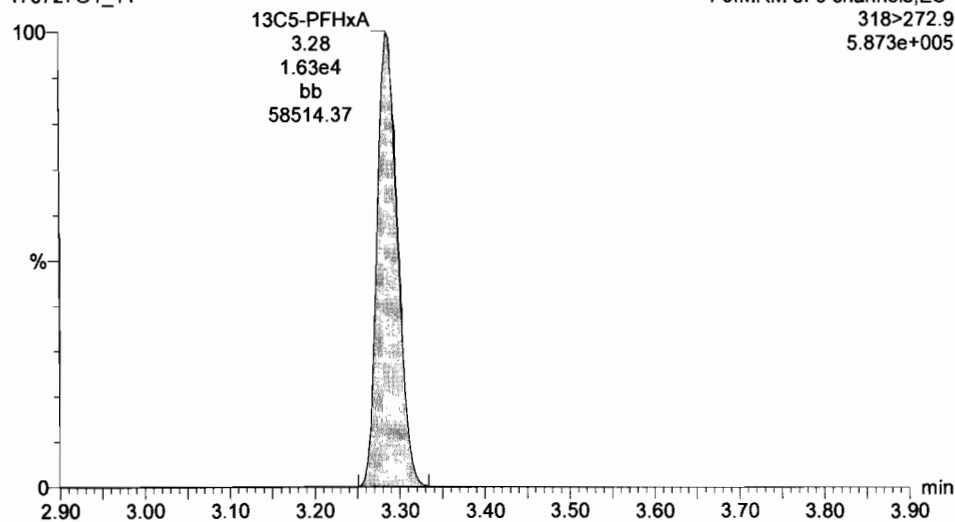
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Printed:        Thursday, July 27, 2017 14:54:55 Pacific Daylight Time

ID: SS170727G1-1 PFC SSS 17G2713, Description: PFC SSS 17G2713, Name: 170727G1\_11, Date: 27-Jul-2017, Time: 13:37:14, Instrument: , Lab: , User:

**13C5-PFHxA**

170727G1\_11

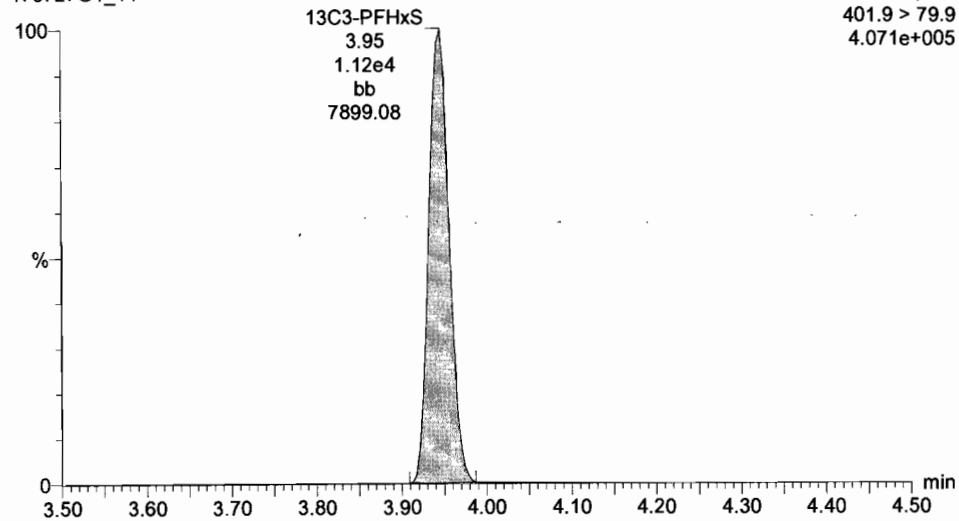
F3:MRM of 9 channels,ES-  
318>272.9  
5.873e+005



**13C3-PFHxS**

170727G1\_11

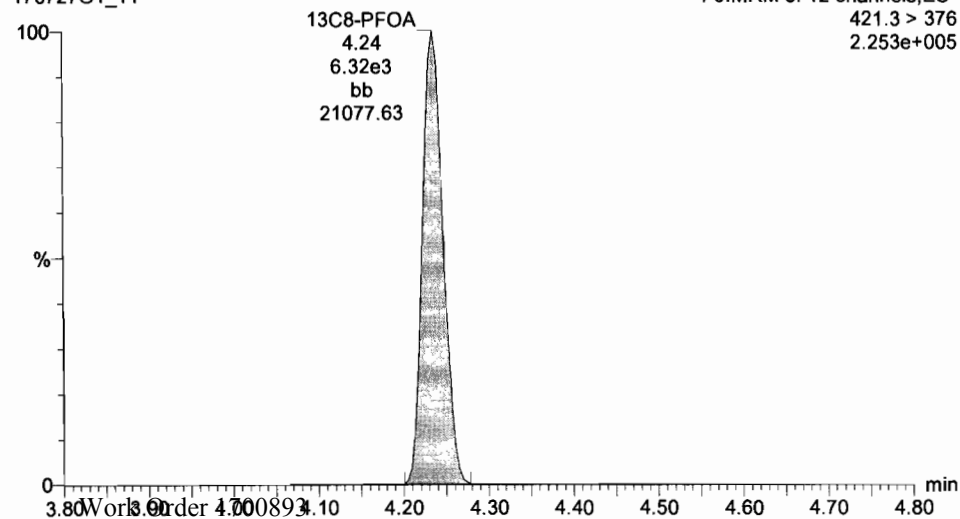
F4:MRM of 7 channels,ES-  
401.9 > 79.9  
4.071e+005



**13C8-PFOA**

170727G1\_11

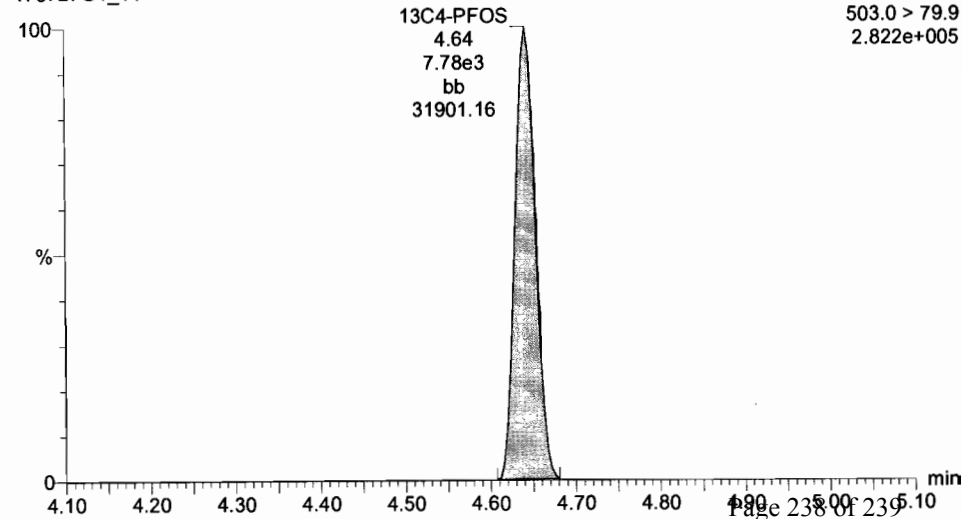
F5:MRM of 12 channels,ES-  
421.3 > 376  
2.253e+005



**13C4-PFOS**

170727G1\_11

F5:MRM of 12 channels,ES-  
503.0 > 79.9  
2.822e+005

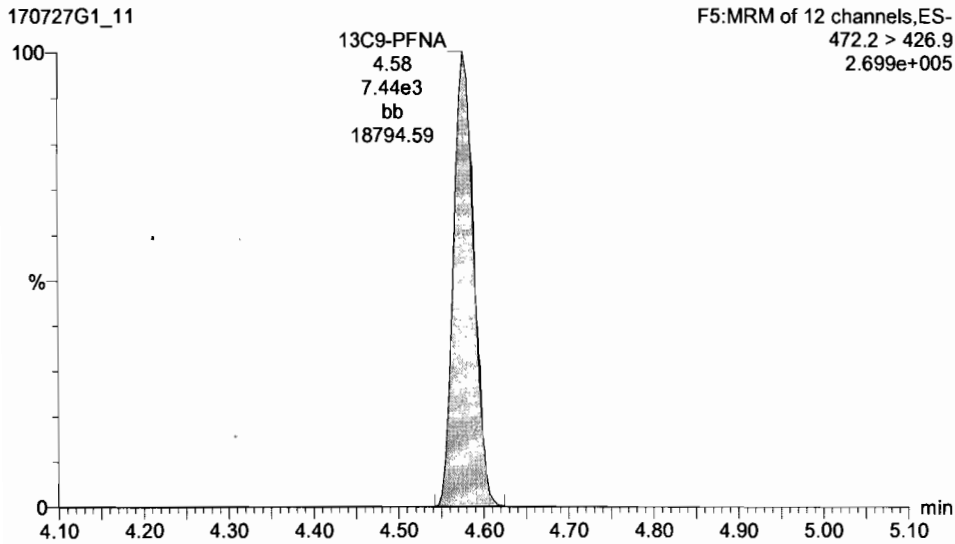


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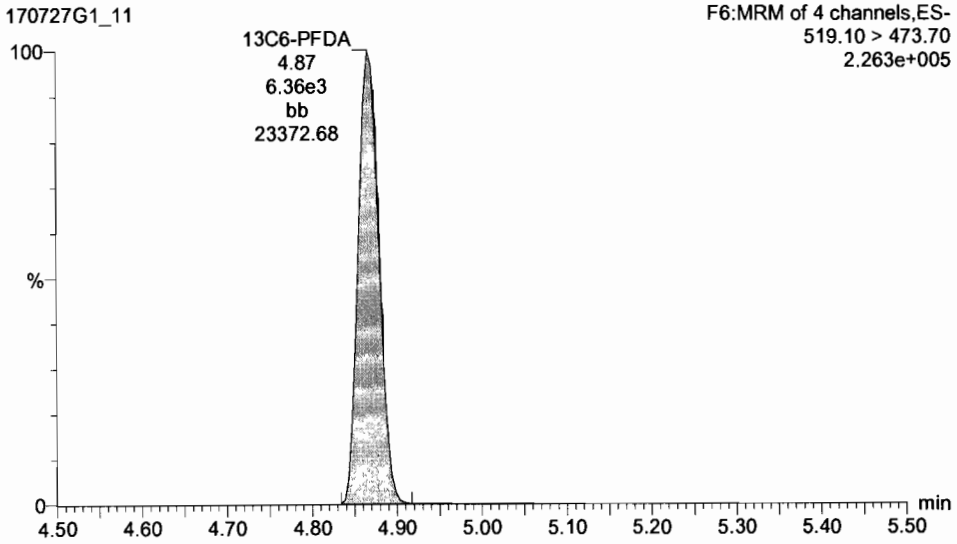
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Printed: Thursday, July 27, 2017 14:54:55 Pacific Daylight Time

ID: SS170727G1-1 PFC SSS 17G2713, Description: PFC SSS 17G2713, Name: 170727G1\_11, Date: 27-Jul-2017, Time: 13:37:14, Instrument: , Lab: , User:

13C9-PFNA  
170727G1\_11



13C6-PFDA  
170727G1\_11



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5","PFBS","","","TRG","Yes","N","U","Y","1.87","5.21","8.35","NG\_L","NG\_L","","","","","","","","","","","","",""  
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(PFOA)","","","TRG","Yes","N","U","Y","0.679","5.21","8.35","NG\_L","NG\_L","","","","","","","","","","","","",""  
"SB01-20170717","537\_MOD","07/27/17","22:02","N","NA","000","1763-23-  
1","HEPTADEC AFLUOROACTANESULFONIC ACID SOLUTION  
","","","TRG","Yes","N","U","Y","0.842","5.21","8.35","NG\_L","NG\_L","","","","","","","","","","","","",""  
"SB01-20170717","537\_MOD","07/27/17","22:02","N","NA","000","13C3-PFBS","13C3-  
PFBS","96.8","","IS","Yes","Y","","Y","","","PCT\_REC","","","","","100","96.8","96.8","","","","","50","150","","  
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PFOA","116","","IS","Yes","Y","","Y","","","PCT\_REC","","","","","100","116","116","","","","","50","150","","  
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5","PFBS","","","TRG","Yes","N","U","Y","2.29","6.41","10.3","NG\_L","NG\_L","","","","","","","","","","","","",""  
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(PFOA)","","","TRG","Yes","N","U","Y","0.835","6.41","10.3","NG\_L","NG\_L","","","","","","","","","","","","",""  
"EB01-20170717","537\_MOD","07/27/17","22:14","N","NA","000","1763-23-  
1","HEPTADEC AFLUOROACTANESULFONIC ACID SOLUTION  
","","","TRG","Yes","N","U","Y","1.03","6.41","10.3","NG\_L","NG\_L","","","","","","","","","","","","",""  
"EB01-20170717","537\_MOD","07/27/17","22:14","N","NA","000","13C3-PFBS","13C3-  
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PFOA","126","","IS","Yes","Y","","Y","","","PCT\_REC","","","","","100","126","126","","","","","50","150","","  
"EB01-20170717","537\_MOD","07/27/17","22:14","N","NA","000","13C8-PFOS","13C8-  
PFOS","103","","IS","Yes","Y","","Y","","","PCT\_REC","","","","","100","103","103","","","","","50","150","","  
"OUA1-MW08-20170717","537\_MOD","08/01/17","01:57","N","NA","DL1","375-73-  
5","PFBS","1930","","TRG","Yes","Y","D","Y","9.49","26.5","42.4","NG\_L","NG\_L","","","","","","","","","","","","",""  
"OUA1-MW08-20170717","537\_MOD","07/27/17","22:27","N","NA","000","335-67-1","PERFLUOROOCTANOIC  
ACID  
(PFOA)","71.5","","TRG","Yes","Y","","Y","0.690","5.30","8.48","NG\_L","NG\_L","","","","","","","","","","","","",""  
"OUA1-MW08-20170717","537\_MOD","07/27/17","22:27","N","NA","000","1763-23-  
1","HEPTADEC AFLUOROACTANESULFONIC ACID SOLUTION  
","14.1","","TRG","Yes","Y","","Y","0.856","5.30","8.48","NG\_L","NG\_L","","","","","","","","","","","","",""



""

"OUA1-MW08-20170717","537\_MOD","08/01/17","01:57","N","NA","DL1","13C3-PFBS","13C3-PFBS","98.4","","","IS","Yes","Y","D","Y","","","PCT\_REC","","","100","98.4","98.4","","","50","150",""

"OUA1-MW08-20170717","537\_MOD","07/27/17","22:27","N","NA","000","13C2-PFOA","13C2-PFOA","128","","","IS","Yes","Y","","Y","","","PCT\_REC","","","100","128","128","","","50","150","",""

"OUA1-MW08-20170717","537\_MOD","07/27/17","22:27","N","NA","000","13C8-PFOS","13C8-PFOS","108","","","IS","Yes","Y","","Y","","","PCT\_REC","","","100","108","108","","","50","150","",""

"OUA1-HS03-20170717","537\_MOD","08/01/17","02:09","N","NA","DL1","375-73-5","PFBS","745","","","TRG","Yes","Y","D","Y","9.51","26.5","42.5","NG\_L","NG\_L","","","50","150","",""

"OUA1-HS03-20170717","537\_MOD","07/31/17","23:38","N","NA","000","335-67-1","PERFLUOROOCTANOIC ACID (PFOA)","25.6","","","TRG","Yes","Y","","Y","0.692","5.30","8.50","NG\_L","NG\_L","","","50","150","",""

"OUA1-HS03-20170717","537\_MOD","07/31/17","23:38","N","NA","000","1763-23-1","HEPTADEC AFLUOROACTANESULFONIC ACID SOLUTION","2.80","","","TRG","Yes","Y","J","Y","0.858","5.30","8.50","NG\_L","NG\_L","","","50","150","",""

"OUA1-HS03-20170717","537\_MOD","08/01/17","02:09","N","NA","DL1","13C3-PFBS","13C3-PFBS","128","","","IS","Yes","Y","D","Y","","","PCT\_REC","","","100","128","128","","","50","150","",""

"OUA1-HS03-20170717","537\_MOD","07/31/17","23:38","N","NA","000","13C2-PFOA","13C2-PFOA","125","","","IS","Yes","Y","","Y","","","PCT\_REC","","","100","125","125","","","50","150","",""

"OUA1-HS03-20170717","537\_MOD","07/31/17","23:38","N","NA","000","13C8-PFOS","13C8-PFOS","87.4","","","IS","Yes","Y","","Y","","","PCT\_REC","","","100","87.4","87.4","","","50","150","",""

"OUA1-HS03A-20170717","537\_MOD","08/01/17","02:47","N","NA","DL1","375-73-5","PFBS","915","","","TRG","Yes","Y","D","Y","9.32","26.0","41.6","NG\_L","NG\_L","","","50","150","",""

"OUA1-HS03A-20170717","537\_MOD","07/31/17","23:51","N","NA","000","335-67-1","PERFLUOROOCTANOIC ACID (PFOA)","22.3","","","TRG","Yes","Y","","Y","0.678","5.21","8.33","NG\_L","NG\_L","","","50","150","",""

"OUA1-HS03A-20170717","537\_MOD","07/31/17","23:51","N","NA","000","1763-23-1","HEPTADEC AFLUOROACTANESULFONIC ACID SOLUTION","2.41","","","TRG","Yes","Y","J","Y","0.840","5.21","8.33","NG\_L","NG\_L","","","50","150","",""

"OUA1-HS03A-20170717","537\_MOD","08/01/17","02:47","N","NA","DL1","13C3-PFBS","13C3-PFBS","111","","","IS","Yes","Y","D","Y","","","PCT\_REC","","","100","111","111","","","50","150","",""

"OUA1-HS03A-20170717","537\_MOD","07/31/17","23:51","N","NA","000","13C2-PFOA","13C2-PFOA","127","","","IS","Yes","Y","","Y","","","PCT\_REC","","","100","127","127","","","50","150","",""

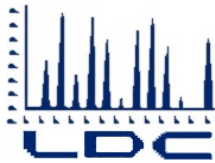
"OUA1-HS03A-20170717","537\_MOD","07/31/17","23:51","N","NA","000","13C8-PFOS","13C8-PFOS","96.7","","","IS","Yes","Y","","Y","","","PCT\_REC","","","100","96.7","96.7","","","50","150","",""

"B7G0106-BLK1","537\_MOD","07/27/17","20:34","N","NA","000","375-73-5","PFBS","","","TRG","Yes","N","U","Y","1.79","5.00","8.00","NG\_L","NG\_L","","","50","150","",""

"B7G0106-BLK1","537\_MOD","07/27/17","20:34","N","NA","000","335-67-1","PERFLUOROOCTANOIC ACID



H","Y","8.95","25.0","40.0","NG\_L","NG\_L","","","745","80.0","1030","351","1020","80.0","1030","351","8.62","70",  
,"130","25","","\*",""  
"B7G0106-MSD2","537\_MOD","07/27/17","23:04","N","NA","000","335-67-1","PERFLUOROOCTANOIC ACID  
(PFOA)","111","","TRG","Yes","Y","","Y","0.651","5.00","8.00","NG\_L","NG\_L","","","25.6","80.0","111","107","1  
21","80.0","111","107","3.67","70","130","25","","",""  
"B7G0106-MSD2","537\_MOD","07/27/17","23:04","N","NA","000","1763-23-  
1","HEPTADEC AFLUOROACTANESULFONIC ACID SOLUTION  
","88.6","","TRG","Yes","Y","","Y","0.807","5.00","8.00","NG\_L","NG\_L","","","2.80","80.0","88.6","107","105","80  
.0","88.6","107","10.6","70","130","25","","",""  
"B7G0106-MSD2","537\_MOD","08/01/17","02:34","N","NA","DL1","13C3-PFBS","13C3-  
PFBS","113","","IS","Yes","Y","D","Y","","","","PCT\_REC","","","","","100","113","113","","","","","50","150","",  
"," "" ""  
"B7G0106-MSD2","537\_MOD","07/27/17","23:04","N","NA","000","13C2-PFOA","13C2-  
PFOA","111","","IS","Yes","Y","","Y","","","","PCT\_REC","","","","","100","111","111","","","","","50","150","",  
"," "" ""  
"B7G0106-MSD2","537\_MOD","07/27/17","23:04","N","NA","000","13C8-PFOS","13C8-  
PFOS","95.0","","IS","Yes","Y","","Y","","","","PCT\_REC","","","","","100","95.0","95.0","","","","","50","150","",  
"," "" ""



## LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

AMEC Foster Wheeler, Inc.  
7376 SW Durham Road  
Portland, OR 97224  
Attn: Ms. Marie Bevier

August 28, 2017

SUBJECT: MCAS Yuma, Data Validation

Dear Ms. Bevier,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on August 15, 2017. Attachment 1 is a summary of the samples that were reviewed for each analysis.

**LDC Project #39266:**

**SDG #**

**Fraction**

280-99297-1, 280-99297-2/17G121, 1700893

Volatiles, 1,4-Dioxane, Perfluorinated Alkyl Acids,  
Bromate, Wet Chemistry

The data validation was performed under Stage 2B & 4 guidelines. The analyses were validated using the following documents, as applicable to each method:

- Final Addendum 2 to the Final Sampling and Analysis Plan, Field Sampling Plan and Quality Assurance Project Plan, for Groundwater Long Term Monitoring and System Operation at Marine Corps Air Station Yuma, Yuma, Arizona, September 2015
- Final Addendum 1 to the Final Sampling and Analysis Plan, Field Sampling Plan and Quality Assurance Project Plan, for Groundwater Long Term Monitoring and System Operation at Marine Corps Air Station Yuma, Yuma, Arizona, May 2013
- Final Sampling and Analysis Plan, Field Sampling Plan and Quality Assurance Project Plan, for Groundwater Long Term Monitoring and System Operation at Marine Corps Air Station Yuma, Yuma, Arizona, May 2013
- U.S. Department of Defense Quality Systems Manual for Environmental Laboratories, Version 5.0, July 2013
- USEPA, Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, August 2014
- USEPA, Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, August 2014
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng  
Project Manager/Senior Chemist

Shaded cells indicate Stage 4 validation (all other cells are Stage 2B review). These sample counts do not include DL, RE, MS, MSD, or DUP's. V:\LOGIN\AMEC FW\Yuma\39266ST.wpd

**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** MCAS Yuma  
**LDC Report Date:** August 21, 2017  
**Parameters:** Volatiles  
**Validation Level:** Stage 2B & 4  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-99297-1

<b>Sample Identification</b>	<b>Laboratory Sample Identification</b>	<b>Matrix</b>	<b>Collection Date</b>
OUA1-MW08-20170717**	280-99297-5**	Water	07/17/17
OUA1-HS03-20170717	280-99297-6	Water	07/17/17
OUA1-HS03A-20170717	280-99297-7	Water	07/17/17
OUA1-HS03-20170717MS	280-99297-6MS	Water	07/17/17
OUA1-HS03-20170717MSD	280-99297-6MSD	Water	07/17/17

\*\*Indicates sample underwent Stage 4 validation

## Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Addendum 2 to the Final Sampling and Analysis Plan, Field Sampling Plan and Quality Assurance Project Plan, for Groundwater Long Term Monitoring and System Operation at Marine Corps Air Station Yuma, Yuma, Arizona (September 2015), the Final Addendum 1 to the Final Sampling and Analysis Plan, Field Sampling Plan and Quality Assurance Project Plan, for Groundwater Long Term Monitoring and System Operation at Marine Corps Air Station Yuma, Yuma, Arizona (May 2013), the Final Sampling and Analysis Plan, Field Sampling Plan and Quality Assurance Project Plan, for Groundwater Long Term Monitoring and System Operation at Marine Corps Air Station Yuma, Yuma, Arizona (May 2013), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (August 2014). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260B

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Stage 4 data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

- J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.
- U (Non-detect): The compound or analyte was analyzed for and positively identified by the laboratory; however the analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.



## **I. Sample Receipt and Technical Holding Times**

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

## **II. GC/MS Instrument Performance Check**

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration and Initial Calibration Verification**

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0% for all compounds.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0% for all compounds.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

## **V. Laboratory Blanks**

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

## **VI. Field Blanks**

Samples TB01-20170717 and TB02-20170717 were identified as trip blanks. No contaminants were found.

Sample EB01-20170717 was identified as an equipment blank. No contaminants were found.

Sample SB01-20170717 was identified as a source blank. No contaminants were found.

## VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

## VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits.

Relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	RPD (Limits)	Flag	A or P
OUA1-HS03-20170717MS/MSD (OUA1-HS03-20170717)	1,1-Dichloroethene	27 (≤20)	NA	-

## IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

## X. Field Duplicates

Samples OUA1-HS03-20170717 and OUA1-HS03A-20170717 were identified as field duplicates. No results were detected in any of the samples.

## XI. Internal Standards

All internal standard areas and retention times were within QC limits.

## XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

## XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

#### **XIV. System Performance**

The system performance was acceptable for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

#### **XV. Overall Assessment of Data**

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

**MCAS Yuma**

**Volatiles - Data Qualification Summary - SDG 280-99297-1**

No Sample Data Qualified in this SDG

**MCAS Yuma**

**Volatiles - Laboratory Blank Data Qualification Summary - SDG 280-99297-1**

No Sample Data Qualified in this SDG

**MCAS Yuma**

**Volatiles - Field Blank Data Qualification Summary - SDG 280-99297-1**

No Sample Data Qualified in this SDG

LDC #: 39266A1

## VALIDATION COMPLETENESS WORKSHEET

SDG #: 280-99297-1

Stage 2B/4

Laboratory: Test America, Inc.

Date: 08/17/17

Page: 1 of 1

Reviewer: [Signature]

2nd Reviewer: [Signature]

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	ICAL $\leq 15\%$ ICV $\leq 20\%$
IV.	Continuing calibration <i>ending</i>	A	COV $\leq 20/50\%$
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	SB = 1      EB = 2      TB = 3, 4
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	SW	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	ND	D = 6/7
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Stage 2B validation.
XIII.	Target compound identification	A	Not reviewed for Stage 2B validation.
XIV.	System performance	A	Not reviewed for Stage 2B validation.
XV.	Overall assessment of data	A	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB = Source blank  
OTHER:

\*\* Indicates sample underwent Stage 4 validation

	Client ID	Lab ID	Matrix	Date
1	SB01-20170717	280-99297-1	Water	07/17/17
2	EB01-20170717	280-99297-2	Water	07/17/17
3	TB01-20170717	280-99297-3	Water	07/17/17
4	TB02-20170717	280-99297-4	Water	07/17/17
5	OUA1-MW08-20170717**	280-99297-5**	Water	07/17/17
6	OUA1-HS03-20170717	280-99297-6	Water	07/17/17
7	OUA1-HS03A-20170717	280-99297-7	Water	07/17/17
8	OUA1-HS03-20170717MS	280-99297-6MS	Water	07/17/17
9	OUA1-HS03-20170717MSD	280-99297-6MSD	Water	07/17/17
10				
11				
12	MP 280- 381518/6			
13				

(H, QQQ, AA, S, C only)

LDC #: 39266 A

## VALIDATION FINDINGS CHECKLIST

Page: 1 of 2  
Reviewer: JVG  
2nd Reviewer: [Signature]

Method: Volatiles (EPA SW 846 Method 8260B)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
Were all technical holding times met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was cooler temperature criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>II. GC/MS Instrument performance check</b>				
Were the BFB performance results reviewed and found to be within the specified criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples analyzed within the 12 hour clock criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IIIa. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of $\geq 0.990$ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Were all percent relative standard deviations (%RSD) $\leq 30\%/15\%$ and relative response factors (RRF) $\geq 0.05$ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IIIb. Initial Calibration Verification</b>				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) $\leq 20\%$ or percent recoveries (%R) 80-120%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) $\leq 20\%$ and relative response factors (RRF) $\geq 0.05$ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>V. Laboratory Blanks</b>				
Was a laboratory blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a laboratory blank analyzed at least once every 12 hours for each matrix and concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>VI. Field blanks</b>				
Were field blanks were identified in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were target compounds detected in the field blanks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>VII. Surrogate spikes</b>				
Were all surrogate percent recovery (%R) within QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

## VALIDATION FINDINGS CHECKLIST

Validation Area	Yes	No	NA	Findings/Comments
<b>VIII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	/			
Was a MS/MSD analyzed every 20 samples of each matrix?	/			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		/		
<b>IX. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	/			
Was an LCS analyzed per analytical batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
<b>X. Field duplicates</b>				
Were field duplicate pairs identified in this SDG?	/			
Were target compounds detected in the field duplicates?		/		
<b>XI. Internal standards</b>				
Were internal standard area counts within -50% to +100% of the associated calibration standard?	/			
Were retention times within + 30 seconds of the associated calibration standard?	/			
<b>XII. Compound quantitation</b>				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
<b>XIII. Target compound identification</b>				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
<b>XIV. System performance</b>				
System performance was found to be acceptable.	/			
<b>XV. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	/			

# TARGET COMPOUND WORKSHEET

## METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene	A2.
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane	B2.
C. Vinyl chloride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane	C2.
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene	D2.
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11	E2.
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12	F2.
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113	G2.
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114	H2.
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane	I2.
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide	J2.
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane	K2.
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane	L2.
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane	M2.
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane	N2.
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO. 1,1-Difluoroethane	O1. 3-Methylpentane	O2.
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane	P2.
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane	Q2.
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3-Trimethylbutane	R2.
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane	S2.
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane	T2.
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal	U2.
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene	V2.
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWWW. Ethyl methacrylate	W1. Methanol	W2.
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene	X2.
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1.	Y2.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.	Z2.





LDC #: 39266A1

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: 4

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$$RRF = (A_x)(C_{is}) / (A_{is})(C_x)$$

average RRF = sum of the RRFs/number of standards

$$\%RSD = 100 * (S/X)$$

 $A_x$  = Area of Compound $C_x$  = Concentration of compound

S = Standard deviation of the RRFs

 $A_{is}$  = Area of associated internal standard $C_{is}$  = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 10 std)	Recalculated RRF (RRF 10 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL GC MS9	6/29/2017	Trichloroethene (FB)	0.3768	0.3768	0.3789	0.3789	13.8	13.8
			Tetrachloroethene (CBZ)	1.5531	1.5531	1.5766	1.5767	14.2	14.2

LDC#: 39266A1

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Calculation Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: 4

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference =  $100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$   
 $\text{RRF} = (\text{Ax})(\text{Cis}) / (\text{Ais})(\text{Cx})$

Where:

ave. RRF = initial calibration average RRF

RRF = continuing calibration RRF

Ax = Area of compound


Cx = Concentration of compound,

Ais = Area of associated internal standard

Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial)	Reported RRF (CCV)	Recalculated RRF (CCV)	Reported % D	Recalculated %D
1	MS9_8639	7/20/2017	Trichloroethene (FB)	0.3789	0.3660	0.3660	3.4	3.4
			Tetrachloroethene (CBZ)	1.577	1.424	1.424	9.7	9.7

LDC #: 39266 A1

**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**Page: 1 of 1  
Reviewer: JVG  
2nd reviewer: **METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS \* 100

Where: SF = Surrogate Found  
SS = Surrogate Spiked

Sample ID: # 5

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane	11.0	11.2	102	102	0
1,2-Dichloroethane-d4	1	11.7	106	106	1
Toluene-d8	1	11.6	100	100	1
Bromofluorobenzene	1	10.3	94	94	1

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

LDC #: 39266 A1

# **VALIDATION FINDINGS WORKSHEET** **Matrix Spike/Matrix Spike Duplicates Results Verification**

Page: 1 of 1Reviewer: JVG2nd Reviewer: [Signature]**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery =  $100 * (SSC - SC) / SA$ Where: SSC = Spiked sample concentration  
SA = Spike added

SC = Sample concentration

RPD =  $| MSC - MSC | * 2 / (MSC + MSDC)$ 

MSC = Matrix spike concentration

MSDC = Matrix spike duplicate concentration

MS/MSD sample: 8/9

Compound	Spike Added (ug/L)		Sample Concentration (ug/L)	Spiked Sample Concentration (ug/L)		Matrix Spike		Matrix Spike Duplicate		MS/MSD	
	MS	MSD		-----	MS	MSD	Percent Recovery		Percent Recovery		RPD
			Reported				Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	5.00	5.00	0	3.76	2.87	75	75	57	57	27	27
Trichloroethene	↓	↓	↓	4.36	4.24	87	87	85	85	3	3
Benzene											
Toluene											
Chlorobenzene											

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 39266A1

**VALIDATION FINDINGS WORKSHEET**  
**Laboratory Control Sample Results Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery =  $100 * SSC/SA$ 

Where: SSC = Spiked sample concentration  
SA = Spike added

RPD =  $|LCSC - LCSDC| * 2 / (LCSC + LCSDC)$ 

LCSC = Laboratory control sample concentration    LCSDC = Laboratory control sample duplicate concentration

LCS ID: LCS 280-381518/4

Compound	Spike Added (ug/L)		Spiked Sample Concentration (ug/L)		LCS		LCSD		LCS/LCSD	
					Percent Recovery		Percent Recovery		RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	5.0	NA	4.32	NA	86	86				
Trichloroethene	↓	↓	4.54	↓	91	91				
Benzene										
Toluene										
Chlorobenzene										

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 39266A1

## VALIDATION FINDINGS WORKSHEET

### Sample Calculation Verification

Page: 1 of 1  
Reviewer: JVG  
2nd reviewer:

**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

(Y) N N/A

Were all reported results recalculated and verified for all level IV samples?

Y	N	N/A
---	---	-----

Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

$$\text{Concentration} = \frac{(A_s)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$$

$A_x$  = Area of the characteristic ion (EICP) for the compound to be measured

$A_{is}$  = Area of the characteristic ion (EICP) for the specific internal standard

$I_s$  = Amount of internal standard added in nanograms (ng)

RRF = Relative response factor of the calibration standard.

$V_o$  = Volume or weight of sample pruged in milliliters (ml) or grams (g).

Df = Dilution factor.

**%S** = Percent solids, applicable to soils and solid matrices only.

**Example:**

Sample I.D. 5, TCE.

Conc. =  $\frac{(39938)(12.5)}{(113935)(0.3789)}$

$$= 11.57$$

$\approx 12 \text{ ug/L}$

[illegible]

## Laboratory Data Consultants, Inc. Data Validation Report

**Project/Site Name:** MCAS Yuma  
**LDC Report Date:** August 21, 2017  
**Parameters:** 1,4-Dioxane  
**Validation Level:** Stage 2B & 4  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-99297-1

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
OUA1-MW08-20170717**	280-99297-5**	Water	07/17/17
OUA1-HS03-20170717	280-99297-6	Water	07/17/17
OUA1-HS03A-20170717	280-99297-7	Water	07/17/17
OUA1-HS03-20170717MS	280-99297-6MS	Water	07/17/17
OUA1-HS03-20170717MSD	280-99297-6MSD	Water	07/17/17

\*\*Indicates sample underwent Stage 4 validation



## Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Addendum 2 to the Final Sampling and Analysis Plan, Field Sampling Plan and Quality Assurance Project Plan, for Groundwater Long Term Monitoring and System Operation at Marine Corps Air Station Yuma, Yuma, Arizona (September 2015), the Final Addendum 1 to the Final Sampling and Analysis Plan, Field Sampling Plan and Quality Assurance Project Plan, for Groundwater Long Term Monitoring and System Operation at Marine Corps Air Station Yuma, Yuma, Arizona (May 2013), the Final Sampling and Analysis Plan, Field Sampling Plan and Quality Assurance Project Plan, for Groundwater Long Term Monitoring and System Operation at Marine Corps Air Station Yuma, Yuma, Arizona (May 2013), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (August 2014). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

1,4-Dioxane by Environmental Protection Agency (EPA) SW 846 Method 8270C Low Level

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Stage 4 data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

- J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered not detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

## **I. Sample Receipt and Technical Holding Times**

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

## **II. GC/MS Instrument Performance Check**

A decafluorotriphenylphosphine (DFTPP) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

## **III. Initial Calibration and Initial Calibration Verification**

An initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 15.0%.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 20.0%.

## **IV. Continuing Calibration**

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0%.

The percent differences (%D) of the ending continuing calibration verifications (CCVs) were less than or equal to 50.0%.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

## **V. Laboratory Blanks**

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

## **VI. Field Blanks**

Sample EB01-20170717 was identified as an equipment blank. No contaminants were found.

Sample SB01-20170717 was identified as a source blank. No contaminants were found.

## VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

## VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

## IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

## X. Field Duplicates

Samples S1111111 and S2222222 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Difference (Limits)	Flag	A or P
	OUA1-HS03-20170717	OUA1-HS03A-20170717				
1,4-Dioxane	0.78	0.25U	-	0.53 (≤1.0)	-	-

## XI. Internal Standards

All internal standard areas and retention times were within QC limits.

## XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

## XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

## XIV. System Performance

The system performance was acceptable for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

## **XV. Overall Assessment of Data**

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

**MCAS Yuma**

**1,4-Dioxane - Data Qualification Summary - SDG 280-99297-1**

No Sample Data Qualified in this SDG

**MCAS Yuma**

**1,4-Dioxane - Laboratory Blank Data Qualification Summary - SDG 280-99297-1**

No Sample Data Qualified in this SDG

**MCAS Yuma**

**1,4-Dioxane - Field Blank Data Qualification Summary - SDG 280-99297-1**

No Sample Data Qualified in this SDG

LDC #: 39266A2b  
SDG #: 280-99297-1  
Laboratory: Test America, Inc.

# VALIDATION COMPLETENESS WORKSHEET

Stage 2B/4

Date: 08/17/17  
Page: 1 of 1  
Reviewer: *SV*  
2nd Reviewer: *D*

**METHOD:** GC/MS 1,4-Dioxane (EPA SW 846 Method 8270CLL)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	ICAL $\leq 15\%$ ICV $\leq 20\%$
IV.	Continuing calibration <i>ending</i>	A	CCV $\leq 20\%$ / 50%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	SB = 1 EB = 2
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	A	
IX.	Laboratory control samples	A	LC5
X.	Field duplicates	SW	D = 4/5
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Stage 2B validation.
XIII.	Target compound identification	A	Not reviewed for Stage 2B validation.
XIV.	System performance	A	Not reviewed for Stage 2B validation.
XV.	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB=Source blank  
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:  
SW = See worksheet FB = Field blank EB = Equipment blank

\*\* Indicates sample underwent Stage 4 validation

	Client ID	Lab ID	Matrix	Date
1	SB01-20170717	280-99297-1	Water	07/17/17
2	SB01-20170717	280-99297-2	Water	07/17/17
3	OUA1-MW08-20170717**	280-99297-5**	Water	07/17/17
4	OUA1-HS03-20170717	280-99297-6	Water	07/17/17
5	OUA1-HS03A-20170717	280-99297-7	Water	07/17/17
6	OUA1-HS03-20170717MS	280-99297-6MS	Water	07/17/17
7	OUA1-HS03-20170717MSD	280-99297-6MSD	Water	07/17/17
8				
9				
10				

Notes:

MP 280-381173/A				

LDC #: 39266A26

## VALIDATION FINDINGS CHECKLIST

Page: 1 of 2  
Reviewer: JVG  
2nd Reviewer: Q

Method: Semivolatiles (EPA SW 846 Method 8270C)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
Were all technical holding times met?	/			
Was cooler temperature criteria met?	/			
<b>II. GC/MS Instrument performance check</b>				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	/			
Were all samples analyzed within the 12 hour clock criteria?	/			
<b>IIIa. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	/			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of $> 0.990$ ?			/	
Were all percent relative standard deviations (%RSD) $\leq 30\%$ <u>15%</u> and relative response factors (RRF) $> 0.05$ ?	/			
<b>IIIb. Initial Calibration Verification</b>				
Was an initial calibration verification standard analyzed after each ICAL for each instrument?	/			
Were all percent difference (%D) $\leq 20\%$ or percent recoveries (%R) 80-120%?	/			
<b>IV. Continuing calibration</b>				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	/			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Were all percent differences (%D) $< 20\%$ and relative response factors (RRF) $> 0.05$ ?	/			
<b>V. Laboratory Blanks</b>				
Was a laboratory blank associated with every sample in this SDG?	/			
Was a laboratory blank analyzed at least once every 12 hours for each matrix and concentration?	/			
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.		/		
<b>VI. Field blanks</b>				
Were field blanks identified in this SDG?	/			
Were target compounds detected in the field blanks?		/		
<b>VII. Surrogate spikes</b>				
Were all surrogate %R within QC limits?	/			
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			/	
If any percent recoveries (%R) was less than 10 percent, was a reanalysis performed to confirm %R?			/	



LDC #: 39266A2b

## VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
Reviewer: JVG  
2nd Reviewer: Q

Validation Area	Yes	No	NA	Findings/Comments
VIII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	/			
Was a MS/MSD analyzed every 20 samples of each matrix?	/			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	/			
IX. Laboratory control samples				
Was an LCS analyzed for this SDG?	/			
Was an LCS analyzed per analytical batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	/			
Were target compounds detected in the field duplicates?	/			
XI. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	/			
Were retention times within + 30 seconds of the associated calibration standard?	/			
XII. Compound quantitation				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
XIII. Target compound identification				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
XIV. System performance				
System performance was found to be acceptable.	/			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	/			

LDC#: 39266A2b

**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**

Page: 1 of 1

Reviewer: W32nd Reviewer: 4**METHOD:** GC MS 1,4-Dioxane (EPA SW 846 Method 8270C LL)Y/N/NA Were field duplicate pairs identified in this SDG?Y/N/NA Were target analytes detected in the field duplicate pairs?

Compound	Concentration (ug/L)		RPD (≤20%)	Difference (ug/L)	Limits (≤LOQ)	Qualifications (Parent Only)
	4	5				
1,4-Dioxane	0.78	0.25U		0.53	≤1.0	

V:\Josephine\FIELD DUPLICATES\39266A2b amec yuma.wpd

LDC # 39266A2b

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: 9

METHOD: GC/MS1,4-Dioxane (EPA SW 846 Method 8270C-LL)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$$\text{RRF} = (\text{Ax})(\text{Cis})/(\text{Ais})(\text{Cx})$$

average RRF = sum of the RRFs/number of standards

$$\% \text{RSD} = 100 * (\text{S}/\text{X})$$

Ax = Area of Compound

Cx = Concentration of compound

S= Standard deviation of the RRFs

Ais = Area of associated internal standard

Cis = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 1000 std)	Recalculated RRF (RRF 1000 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL SMS_G4	04/21/17	1,4-Dioxane (1,4-DCB-d4)	0.5831	0.5831	0.5653	0.5654	8.6	8.6

LDC # 39266A2b

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Calculation Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: 9

METHOD: GC/MS1,4-Dioxane (EPA SW 846 Method 8270C-LL)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

$$\% \text{ Difference} = 100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$$
$$\text{RRF} = (\text{Ax})(\text{Cis}) / (\text{Ais})(\text{Cx})$$

Where:

ave. RRF = initial calibration average RRF

RRF = continuing calibration RRF

Ax = Area of compound

Cx = Concentration of compound,

Ais = Area of associated internal standard

Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Ave RRF	Reported RRF	Recalculated RRF	Reported % D	Recalculated %D
1	G4_5635 SMS_G4	7/21/2017	1,4-Dioxane (1,4-DCB-d4)	0.5653	0.5091	0.5091	9.9	9.9

LDC #: 39266 A 26**VALIDATION FINDINGS WORKSHEET**  
**Surrogate Results Verification**Page: 1 of 1  
Reviewer: JVG  
2nd reviewer: 2**METHOD:** GC/MS Semivolatiles (EPA SW 846 Method 8270C)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery:  $SF/SS \times 100$ Where: SF = Surrogate Found  
SS = Surrogate SpikedSample ID: # 3

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl	2500	2144.3	86	86	0
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID: \_\_\_\_\_

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

LDC #: 39266A 26

# **VALIDATION FINDINGS WORKSHEET** **Matrix Spike/Matrix Spike Duplicates Results Verification**

Page: 1 of 1  
 Reviewer: JVG  
 2nd Reviewer: [Signature]

**METHOD:** GC/MS BNA (EPA SW 846 Method 8270C)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery =  $100 * (SSC - SC) / SA$ 

Where: SSC = Spiked sample concentration  
 SA = Spike added

SC = Sample concentration

RPD =  $|MSC - MSC| * 2 / (MSC + MSDC)$ 

MSC = Matrix spike concentration

MSDC = Matrix spike duplicate concentration

MS/MSD samples: 6/7

Compound	Spike Added ( ug/L)		Sample Concentration (ug/L)	Spiked Sample Concentration ( ug/L)		Matrix Spike	Matrix Spike Duplicate	MS/MSD			
	MS	MSD		MS	MSD	Percent Recovery		Percent Recovery		RPD	
			Reported			Recalc	Reported	Recalc	Reported	Recalc	
Phenol											
N-Nitroso-di-n-propylamine											
4-Chloro-3-methylphenol											
Acenaphthene											
Pentachlorophenol											
Pyrene											
1,4-Dioxane	10.1	10.1	0.78	6.768	7.614	60	60	62	62	4	4

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 39266 A2b

## VALIDATION FINDINGS WORKSHEET

Page: 1 of 1Laboratory Control Sample/Laboratory Control Sample Duplicates Results VerificationReviewer: JVG2nd Reviewer: Q**METHOD:** GC/MS BNA (EPA SW 846 Method 8270C)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery =  $100 * (SC/SA)$ 

Where: SSC = Spike concentration  
SA = Spike added

RPD =  $|LCSC - LCSDC| * 2 / (LCSC + LCSDC)$ 

LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: LCS 280-781173/2-A

Compound	Spike Added (ug/L)		Spike Concentration (ug/L)		LCS		LCSD		LCS/LCSD	
					Percent Recovery		Percent Recovery		RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
Phenol										
N-Nitroso-di-n-propylamine										
4-Chloro-3-methylphenol										
Acenaphthene										
Pentachlorophenol										
Pyrene										
1,4-Dioxane	10.0	NA	5.61	NA	56	56				

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.


LDC #: 39266 A26

## VALIDATION FINDINGS WORKSHEET

### Sample Calculation Verification

Page: 1 of 1

Reviewer: JVG

2nd reviewer: 

**METHOD:** GC/MS BNA (EPA SW 846 Method 8270C)

Y	N	N/A
Y	N	N/A

Were all reported results recalculated and verified for all level IV samples?

Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

$$\text{Concentration} = \frac{(A_v)(I_s)(V_f)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$$

$A_x$  = Area of the characteristic ion (EICP) for the compound to be measured

$A_{is}$  = Area of the characteristic ion (EICP) for the specific internal standard

$I_s$  = Amount of internal standard added in nanograms (ng)

$V_o$  = Volume or weight of sample extract in milliliters (ml) or grams (g).

$V_i$  = Volume of extract injected in microliters (ul)

$V_t$  = Volume of the concentrated extract in microliters (ul)

Df = Dilution Factor.

**%S** = Percent solids, applicable to soil and solid matrices only.

2.0 = Factor of 2 to account for GPC cleanup

**Example:**

Sample I.D. 3, 1 g. Dioxane

$$\text{Conc.} = \frac{(151165)(4000)(2\text{ml})}{(19755)(0.5653)(972.5\text{ml})} = 11.14 \text{ ug/L}$$
[illegible]



**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** MCAS Yuma  
**LDC Report Date:** August 23, 2017  
**Parameters:** Wet Chemistry  
**Validation Level:** Stage 2B & 4  
**Laboratory:** TestAmerica, Inc.  
**Sample Delivery Group (SDG):** 280-99297-1

<b>Sample Identification</b>	<b>Laboratory Sample Identification</b>	<b>Matrix</b>	<b>Collection Date</b>
OUA1-MW08-20170717**	280-99297-5**	Water	07/17/17
OUA1-HS03-20170717	280-99297-6	Water	07/17/17
OUA1-HS03A-20170717	280-99297-7	Water	07/17/17
OUA1-HS03-20170717MS	280-99297-6MS	Water	07/17/17
OUA1-HS03-20170717MSD	280-99297-6MSD	Water	07/17/17
OUA1-HS03-20170717DUP	280-99297-6DUP	Water	07/17/17

\*\*Indicates sample underwent Stage 4 validation

## **Introduction**

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Addendum 2 to the Final Sampling and Analysis Plan, Field Sampling Plan and Quality Assurance Project Plan, for Groundwater Long Term Monitoring and System Operation at Marine Corps Air Station Yuma, Yuma, Arizona (September 2015), the Final Addendum 1 to the Final Sampling and Analysis Plan, Field Sampling Plan and Quality Assurance Project Plan, for Groundwater Long Term Monitoring and System Operation at Marine Corps Air Station Yuma, Yuma, Arizona (May 2013), the Final Sampling and Analysis Plan, Field Sampling Plan and Quality Assurance Project Plan, for Groundwater Long Term Monitoring and System Operation at Marine Corps Air Station Yuma, Yuma, Arizona (May 2013), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (August 2014). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Chloride, Nitrate as Nitrogen, and Sulfate by Environmental Protection Agency (EPA)  
SW 846 Method 9056  
Ferrous Iron by Standard Method 3500-FE D  
Hexavalent Chromium by EPA SW 846 Method 7196A  
pH by EPA SW 846 Method 9040C

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Stage 4 data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

- J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

## I. Sample Receipt and Technical Holding Times

All samples were received in good condition.

All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Time From Sample Collection Until Analysis	Required Holding Time From Sample Collection Until Analysis	Flag	A or P
OUA1-MW08-20170717**	Ferrous iron Hexavalent chromium pH	155.58 hours 24.75 hours 54.88 hours	48 hours 24 hours 48 hours	J (all detects) J (all detects) J (all detects)	P
OUA1-HS03-20170717	Ferrous iron pH	154.58 hours 54.18 hours	48 hours 48 hours	J (all detects) J (all detects)	P
OUA1-HS03A-20170717	Ferrous iron pH	154.60 hours 54.03 hours	48 hours 48 hours	J (all detects) J (all detects)	P

## II. Initial Calibration

All criteria for the initial calibration of each method were met.

## III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met for each method when applicable.

## IV. Laboratory Blanks

Laboratory blanks were analyzed as required by the methods. No contaminants were found in the laboratory blanks with the following exceptions:

Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Ferrous iron	0.0259 mg/L	All samples in SDG 280-99297-1
ICB/CCB	Ferrous iron	0.0259 mg/L	All samples in SDG 280-99297-1
ICB/CCB	Sulfate	0.323 mg/L	OUA1-HS03-20170717
ICB/CCB	Sulfate	0.617 mg/L	OUA1-HS03A-20170717

Data qualification by the laboratory blanks was based on the maximum contaminant concentration in the laboratory blanks in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated laboratory blanks with

the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
OUA1-MW08-20170717**	Ferrous iron	0.035 mg/L	0.050U mg/L
OUA1-HS03-20170717	Ferrous iron	0.069 mg/L	0.069U mg/L
OUA1-HS03A-20170717	Ferrous iron	0.088 mg/L	0.088U mg/L

## V. Field Blanks

Sample EB01-20170717 was identified as an equipment blank. No contaminants were found.

Sample SB01-20170717 was identified as a source blank. No contaminants were found.

## VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	Flag	A or P
OUA1-HS03-20170717MS/MSD (OUA1-HS03-20170717)	Ferrous iron Hexavalent chromium	2 (85-113) 8 (90-111)	3 (85-113) 4 (90-111)	J (all detects) J (all detects)	A

Relative percent differences (RPD) were within QC limits.

## VII. Duplicates

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

## VIII. Laboratory Control Samples

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

## IX. Field Duplicates

Samples OUA1-HS03-20170717 and OUA1-HS03A-20170717 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration		RPD (Limits)	Difference (Limits)	Flag	A or P
	OUA1-HS03-20170717	OUA1-HS03A-20170717				
pH	9.3 SU	9.3 SU	0 ( $\leq 20$ )	-	-	-
Chloride	310 mg/L	310 mg/L	0 ( $\leq 20$ )	-	-	-
Ferrous iron	0.069 mg/L	0.088 mg/L	-	0.019 ( $\leq 0.20$ )	-	-
Hexavalent chromium	0.022 mg/L	0.024 mg/L	9 ( $\leq 20$ )	-	-	-
Nitrate as N	7.0 mg/L	6.6 mg/L	-	0.4 ( $\leq 25$ )	-	-
Sulfate	1900 mg/L	1700 mg/L	11 ( $\leq 20$ )	-	-	-

## X. Sample Result Verification

All sample result verifications were acceptable for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

## XI. Overall Assessment of Data

The analysis was conducted within all specifications of the methods. No results were rejected in this SDG.

Due to technical holding time and MS/MSD %R, data were qualified as estimated in three samples.

Due to laboratory blank contamination, data were qualified as not detected in three samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

**MCAS Yuma**  
**Wet Chemistry - Data Qualification Summary - SDG 280-99297-1**

Sample	Analyte	Flag	A or P	Reason
OUA1-MW08-20170717**	Ferrous iron Hexavalent chromium pH	J (all detects) J (all detects) J (all detects)	P	Technical holding times
OUA1-HS03-20170717 OUA1-HS03A-20170717	Ferrous iron pH	J (all detects) J (all detects)	P	Technical holding times
OUA1-HS03-20170717	Ferrous iron Hexavalent chromium	J (all detects) J (all detects)	A	Matrix Spike/Matrix Spike Duplicate (%R)

**MCAS Yuma**  
**Wet Chemistry - Laboratory Blank Data Qualification Summary - SDG 280-99297-1**

Sample	Analyte	Modified Final Concentration	A or P
OUA1-MW08-20170717**	Ferrous iron	0.050U mg/L	A
OUA1-HS03-20170717	Ferrous iron	0.069U mg/L	A
OUA1-HS03A-20170717	Ferrous iron	0.088U mg/L	A

**MCAS Yuma**  
**Wet Chemistry - Field Blank Data Qualification Summary - SDG 280-99297-1**

No Sample Data Qualified in this SDG

LDC #: 39266A6  
 SDG #: 280-99297-1  
 Laboratory: Test America, Inc.

# VALIDATION COMPLETENESS WORKSHEET

Stage 2B/4

Date: 08/21/17  
 Page: 1 of 1  
 Reviewer: ATL  
 2nd Reviewer: JB1

**METHOD: (Analyte)** Chloride, Nitrate-N, Sulfate (EPA SW846 Method 9056), Ferrous Iron (SM3500-FE D), Hexavalent Chromium (EPA SW846 Method 7196A), pH, (EPA SW846 Method 9040C), Temperature <sub>JS</sub>

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A SW	
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Laboratory Blanks	SW	
V.	Field blanks	ND	1=SB, 2=EB
VI.	Matrix Spike/Matrix Spike Duplicates	SW	
VII.	Duplicate sample analysis	A	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Field duplicates	SW	4,5
X.	Sample result verification	A	Not reviewed for Stage 2B validation.
XI.	Overall assessment of data	A	

Note: A = Acceptable  
 N = Not provided/applicable  
 SW = See worksheet  
 ND = No compounds detected  
 R = Rinsate  
 FB = Field blank  
 D = Duplicate  
 TB = Trip blank  
 EB = Equipment blank  
 SB=Source blank  
 OTHER:

\*\* Indicates sample underwent Stage 4 validation

	Client ID	Lab ID	Matrix	Date
1	SB01-20170717	280-99297-1	Water	07/17/17
2	EB01-20170717	280-99297-2	Water	07/17/17
3	OUA1-MW08-20170717**	280-99297-5**	Water	07/17/17
4	OUA1-HS03-20170717	280-99297-6	Water	07/17/17
5	OUA1-HS03A-20170717	280-99297-7	Water	07/17/17
6	OUA1-HS03-20170717MS	280-99297-6MS	Water	07/17/17
7	OUA1-HS03-20170717MSD	280-99297-6MSD	Water	07/17/17
8	OUA1-HS03-20170717DUP	280-99297-6DUP	Water	07/17/17
9				
10				
11				
12				
13				
14				
15				

Notes:



## VALIDATION FINDINGS CHECKLIST

Method: Inorganics (EPA Method see cover)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.		✓		
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?		✓		
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients $\geq 0.995$ ?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)			✓	
Were balance checks performed as required? (Level IV only)			✓	
<b>III. Blanks</b>				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\leq \text{CRDL}$ ( $\leq 2\text{X CRDL}$ for soil) was used for samples that were $\leq 5\text{X}$ the CRDL, including when only one of the duplicate sample values were $\leq 5\text{X}$ the CRDL.	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?		✓		

DC #: 39266AG

**VALIDATION FINDINGS CHECKLIST**

Page: 2 of 2  
 Reviewer: ATL  
 2nd Reviewer: JB

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were detection limits < RL?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Target analytes were detected in the field duplicates.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Target analytes were detected in the field blanks.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

LDC #: 39266AG

## VALIDATION FINDINGS WORKSHEET

### Sample Specific Analysis Reference

Page: 1 of 1

Reviewer: ATL

2nd reviewer: CB

All circled methods are applicable to each sample.

[illegible]

Comments:





# VALIDATION FINDINGS WORKSHEET Blanks

METHOD: Inorganics, Method See CoverConc. units: mg/LAssociated Samples: All

Analyte	Blank ID	Blank ID	Blank Action Limit								
	PB (mg/L)	ICB/CCB (mg/L)		3	4	5					
Ferrous Iron	0.0259		0.1295	0.035/0.050	0.069/0.050	0.088/0.050					
Ferrous Iron		0.0259	0.1295	see above	see above	see above					

Conc. units: mg/LAssociated Samples: 4

Analyte	Blank ID	Blank ID	Blank Action Limit								
	PB (mg/L)	ICB/CCB (mg/L)		No Qualifiers							
SO4		0.323	1.615								

Conc. units: mg/LAssociated Samples: 5

Analyte	Blank ID	Blank ID	Blank Action Limit								
	PB (mg/L)	ICB/CCB (mg/L)		No Qualifiers							
SO4		0.617	3.085								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:

All contaminants within five times the method blank concentration were qualified as not detected, "U".

## VALIDATION FINDINGS WORKSHEET

### Matrix Spike/Matrix Spike Duplicates

Reviewer: ATL

2nd Reviewer: JB

**METHOD:** Inorganics, EPA Method See cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y (N) N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

Were all duplicate sample relative percent differences (RPD)  $\leq 20\%$  for water samples and  $\leq 35\%$  for soil samples?

**LEVEL IV ONLY:**

(Y) N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

[illegible]

Comments:

VALIDATION FINDINGS WORKSHEET  
Field Duplicates

Method: Inorganics (See cover)

Analyte	Concentration (mg/L)		RPD ( $\leq 20$ )	Diff.	Diff. Limits	Qualifiers (Parents Only)
	4	5				
pH	9.3 <i>SU</i>	9.3 <i>SU</i>	0			
<del>Temperature</del>	<del>24.3 <i>°C</i></del>	<del>24.6 <i>°C</i></del>	<del>1</del>			
Chloride	310	310	0			
Ferrous Iron	0.069	0.088		0.019	( $\leq 0.20$ )	
Hexavalent Chromium	0.022	0.024	9			
Nitrate as N	7.0	6.6		0.4	( $\leq 25$ )	
Sulfate	1900	1700	11			



LDC #: 39266AG

**Validation Findings Worksheet**  
**Initial and Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: ATL  
 2nd Reviewer: JS

Method: Inorganics, Method See CoverThe correlation coefficient (r) for the calibration of NO<sub>3</sub>-N was recalculated. Calibration date: 05/10/17

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

%R =  $\frac{\text{Found} \times 100}{\text{True}}$

Where,

Found = concentration of each analyte measured in the analysis of the ICV or CCV solution  
 True = concentration of each analyte in the ICV or CCV source

Type of analysis	Analyte	Standard	Conc. (mg/L)	Area	Recalculated	Reported	Acceptable (Y/N)
					r or r <sup>2</sup>	r or r <sup>2</sup>	
Initial calibration	NO <sub>3</sub> -N	s1	0.2	9065243	0.99999	0.99986	Y
		s2	0.5	22548818			
		s3	1	45231075			
		s4	4	186689082			
		s5	8	373793994			
		s6	10	466847276			
CCV (07/18 @ 20:06) Calibration verification	Cl <sup>-</sup>	FOUND 105	TRUE 100		105	105	Y
CCV (07/19 @ 15:06) Calibration verification	SO <sub>4</sub> <sup>-</sup>	102	100		102	102	Y
CCV (280-381/58/19) Calibration verification	Cr6+	0.108	0.100		108	108	Y

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 39266AG**VALIDATION FINDINGS WORKSHEET**  
**Level IV Recalculation Worksheet**Page: 1 of 1  
Reviewer: ATL  
2nd Reviewer: B**METHOD:** Inorganics, Method see cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{\text{Found}}{\text{True}} \times 100$       Where,      Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$       Where,      S = Original sample concentration  
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	(mg/L) Found / S (units)	(mg/L) True / D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD	
LCS	Laboratory control sample	Ferrous Iron	1.97	2.00	98	98	Y
G	Matrix spike sample	NO <sub>3</sub> -N	(SSR-SR) 252	250	101	101	Y
G/7	Duplicate sample	NO <sub>3</sub> -N	259.5	259	0	0	Y

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** MCAS Yuma

**LDC Report Date:** August 23, 2017

**Parameters:** Bromate

**Validation Level:** Stage 2B & 4

**Laboratory:** TestAmerica, Inc./EMAX Laboratories, Inc.

**Sample Delivery Group (SDG):** 280-99297-2/17G121

<b>Sample Identification</b>	<b>Laboratory Sample Identification</b>	<b>Matrix</b>	<b>Collection Date</b>
OUA1-MW08-20170717**	280-99297-5/G121-03**	Water	07/17/17
OUA1-HS03-20170717	280-99297-6/G121-04I	Water	07/17/17
OUA1-HS03A-20170717	280-99297-7/G121-05I	Water	07/17/17
OUA1-HS03-20170717MS	280-99297-6/G121-04IMS	Water	07/17/17
OUA1-HS03-20170717MSD	280-99297-6/G121-04IMSD	Water	07/17/17

\*\*Indicates sample underwent Stage 4 validation

## **Introduction**

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Addendum 2 to the Final Sampling and Analysis Plan, Field Sampling Plan and Quality Assurance Project Plan, for Groundwater Long Term Monitoring and System Operation at Marine Corps Air Station Yuma, Yuma, Arizona (September 2015), the Final Addendum 1 to the Final Sampling and Analysis Plan, Field Sampling Plan and Quality Assurance Project Plan, for Groundwater Long Term Monitoring and System Operation at Marine Corps Air Station Yuma, Yuma, Arizona (May 2013), the Final Sampling and Analysis Plan, Field Sampling Plan and Quality Assurance Project Plan, for Groundwater Long Term Monitoring and System Operation at Marine Corps Air Station Yuma, Yuma, Arizona (May 2013), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Inorganic Superfund Data Review (August 2014). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Bromate by Environmental Protection Agency (EPA) Method 300.0

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Stage 4 data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

- J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detect at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

## **I. Sample Receipt and Technical Holding Times**

All samples were received in good condition.

All technical holding time requirements were met.

## **II. Initial Calibration**

All criteria for the initial calibration were met.

## **III. Continuing Calibration**

Continuing calibration frequency and analysis criteria were met.

## **IV. Laboratory Blanks**

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

## **V. Field Blanks**

Sample EB01-20170717 was identified as an equipment blank. No contaminants were found.

Sample SB01-20170717 was identified as a source blank. No contaminants were found.

## **VI. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits with the following exceptions:

<b>Spike ID (Associated Samples)</b>	<b>Analyte</b>	<b>MS (%R) (Limits)</b>	<b>MSD (%R) (Limits)</b>	<b>Flag</b>	<b>A or P</b>
OUA1-HS03-20170717MS/MSD (OUA1-HS03-20170717)	Bromate	112 (90-110)	111 (90-111)	NA	-

Relative percent differences (RPD) were within QC limits.

## **VII. Duplicates**

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

### **VIII. Laboratory Control Samples**

Laboratory control samples (LCS) and laboratory control samples duplicates (LCSD) were analyzed as required by the method. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

### **IX. Field Duplicates**

Samples OUA1-HS03-20170717 and OUA1-HS03A-20170717 were identified as field duplicates. No results were detected in any of the samples.

### **X. Sample Result Verification**

All sample result verifications were acceptable for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

### **XI. Overall Assessment of Data**

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.



**MCAS Yuma**

**Bromate - Data Qualification Summary - SDG 280-99297-2/17G121**

No Sample Data Qualified in this SDG

**MCAS Yuma**

**Bromate - Laboratory Blank Data Qualification Summary - SDG 280-99297-2/17G121**

No Sample Data Qualified in this SDG

**MCAS Yuma**

**Bromate - Field Blank Data Qualification Summary - SDG 280-99297-2/17G121**

No Sample Data Qualified in this SDG

LDC #: 39266B6 **VALIDATION COMPLETENESS WORKSHEET**

SDG #: 280-99297-2/17G121

Stage 2B/4

Laboratory: Test America, Inc./EMAX Laboratories, Inc.

Date: 08/22/17

Page: 1 of 1

Reviewer: ATL

2nd Reviewer: JR

**METHOD: (Analyte)** Bromate (EPA Method 300.0)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A, A	
II.	Initial calibration	A	
III.	Calibration verification	A	
IV.	Laboratory Blanks	A	
V.	Field blanks	ND	1=SB; 2=EB
VI.	Matrix Spike/Matrix Spike Duplicates	SW	
VII.	Duplicate sample analysis	N	
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Field duplicates	ND	4, 5
X.	Sample result verification	A	Not reviewed for Stage 2B validation.
XI.	Overall assessment of data	A	

Note: A = Acceptable  
N = Not provided/applicable  
SW = See worksheet

ND = No compounds detected  
R = Rinsate  
FB = Field blank

D = Duplicate  
TB = Trip blank  
EB = Equipment blank

SB=Source blank  
OTHER:

\*\* Indicates sample underwent Stage 4 validation

	Client ID	Lab ID	Matrix	Date
1	<del>SB01-20170717</del>	<del>280-99297-1</del>	<del>Water</del>	<del>07/17/17</del>
2	<del>EB01-20170717</del>	<del>280-99297-2</del>	<del>Water</del>	<del>07/17/17</del>
3	OUA1-MW08-20170717**	280-99297-5**/G121-03	Water	07/17/17
4	OUA1-HS03-20170717	280-99297-6 / -04I	Water	07/17/17
5	OUA1-HS03A-20170717	280-99297-7 / -05I	Water	07/17/17
6	OUA1-HS03-20170717MS	G121-04IMS / 280-99297-6MS	Water	07/17/17
7	OUA1-HS03-20170717MSD	↓ MSD / 280-99297-6MSD	Water	07/17/17
8				
9				
10				
11				
12				
13				
14				
15				

Notes:

## VALIDATION FINDINGS CHECKLIST

Method: Inorganics (EPA Method see cover)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	✓			
<b>II. Calibration</b>				
Were all instruments calibrated daily, each set-up time?		✓		
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients $\geq 0.995$ ?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)			✓	
Were balance checks performed as required? (Level IV only)			✓	
<b>III. Blanks</b>				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
<b>IV. Matrix spike/Matrix spike duplicates and Duplicates</b>				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.		✓		
Were the MS/MSD or duplicate relative percent differences (RPD) $\leq 20\%$ for waters and $\leq 35\%$ for soil samples? A control limit of $\leq \text{CRDL} (\leq 2X \text{ CRDL for soil})$ was used for samples that were $\leq 5X$ the CRDL, including when only one of the duplicate sample values were $\leq 5X$ the CRDL.	✓			
<b>V. Laboratory control samples</b>				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
<b>VI. Regional Quality Assurance and Quality Control</b>				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?		✓		

DC #: 39266BG

# VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
 Reviewer: ATL  
 2nd Reviewer: JA

Validation Area	Yes	No	NA	Findings/Comments
<b>VII. Sample Result Verification</b>				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
<b>VIII. Overall assessment of data</b>				
Overall assessment of data was found to be acceptable.				
<b>IX. Field duplicates</b>				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.		✓		
<b>X. Field blanks</b>				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.		✓		

## VALIDATION FINDINGS WORKSHEET

### Matrix Spike/Matrix Spike Duplicates

Reviewer: ATL

2nd Reviewer: 

**METHOD:** Inorganics, EPA Method See cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y(N) N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

Y N N/A Were all duplicate sample relative percent differences (RPD)  $\leq 20\%$  for water samples and  $\leq 35\%$  for soil samples?

**LEVEL IV ONLY:**

(Y) N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

[illegible]

Comments:

LDC #: 39266B6

**Validation Findings Worksheet**  
**Initial and Continuing Calibration Calculation Verification**

Page: 1 of 1  
 Reviewer: ATL  
 2nd Reviewer: JS

**Method:** Inorganics, Method see cover

The correlation coefficient (r) for the calibration of Bromate was recalculated. Calibration date: 08/04/17

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found} \times 100}{\text{True}}$$

Where,

Found = concentration of each analyte measured in the analysis of the ICV or CCV solution

True = concentration of each analyte in the ICV or CCV source

Type of analysis	Analyte	Standard	Conc. (ug/L)	Response	Recalculated	Reported	Acceptable (Y/N)
					r or r <sup>2</sup>	r or r <sup>2</sup>	
Initial calibration	<u>Bromate</u>	s1	10	0.000502	<u>0.99980</u>	<u>0.99994</u>	<u>Y</u>
		s2	20	0.001092			
		s3	40	0.002212			
		s4	50	0.002708			
		s5	100	0.005423			
		s6	250	0.013608			
		s7	500	0.028034			
<u>ICV</u> Calibration verification	<u>Bromate</u>	<u>FOUND</u> <u>103</u>	<u>TRUE</u> <u>100</u>		<u>103</u>	<u>103</u>	<u>Y</u>
<u>CCV4</u> Calibration verification	<u>Bromate</u>	<u>102</u>	<u>100</u>		<u>102</u>	<u>102</u>	<u>Y</u>
<u>CCV5</u> Calibration verification	<u>Bromate</u>	<u>91</u>	<u>100</u>		<u>91</u>	<u>91</u>	<u>Y</u>

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 39266BG

## VALIDATION FINDINGS WORKSHEET

### Level IV Recalculation Worksheet

Page: 1 of 1  
Reviewer: ATL  
2nd Reviewer: JS

**METHOD:** Inorganics, Method See cover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

%R =  $\frac{\text{Found}}{\text{True}} \times 100$       Where,      Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).  
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

RPD =  $\frac{|S-D|}{(S+D)/2} \times 100$       Where,      S = Original sample concentration  
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	(mg/L) Found / S (units)	(mg/L) True / D (units)	Recalculated	Reported	Acceptable (Y/N)
					%R / RPD	%R / RPD	
LCS (08/05 @ 10:54)	Laboratory control sample	Bromate	104	100	104	104	Y
G	Matrix spike sample	Bromate	(SSR-SR) 559	500	112	112	Y
6/7	Duplicate sample	Bromate	557	559	0	0	Y

Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**METHOD:** Inorganics, Method See cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?

Y	N	N/A	Are results within the calibrated range of the instruments?
---	---	-----	---

Y	N	N/A	Are all detection limits below the CRQL?
---	---	-----	--

Compound (analyte) results for Bromate reported with a positive detect were recalculated and verified using the following equation:

Concentration =

Recalculation:

$$1.87880 + 17858.5 \times \text{Area}$$

$$1.87880 + 17858.5 \times 0$$

$$= 1.87880 \approx ND$$

[illegible]

Note: \_\_\_\_\_



**Laboratory Data Consultants, Inc.**  
**Data Validation Report**

**Project/Site Name:** MCAS Yuma

**LDC Report Date:** August 21, 2017

**Parameters:** Perfluorinated Alkyl Acids

**Validation Level:** Stage 2B & 4

**Laboratory:** Vista Analytical Laboratory

**Sample Delivery Group (SDG):** 1700893

<b>Sample Identification</b>	<b>Laboratory Sample Identification</b>	<b>Matrix</b>	<b>Collection Date</b>
OUA1-MW08-20170717**	1700893-03**	Water	07/17/17
OUA1-HS03-20170717	1700893-04	Water	07/17/17
OUA1-HS03A-20170717	1700893-05	Water	07/17/17
OUA1-HS03-20170717MS	1700893-04MS	Water	07/17/17
OUA1-HS03-20170717MSD	1700893-04MSD	Water	07/17/17

\*\*Indicates sample underwent Stage 4 validation

## **Introduction**

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Final Addendum 3 to the Final Sampling and Analysis Plan, Field Sampling Plan and Quality Assurance Project Plan, for Groundwater Long Term Monitoring and System Operation at Marine Corps Air Station Yuma, Yuma, Arizona (February 2017), the Final Addendum 2 to the Final Sampling and Analysis Plan, Field Sampling Plan and Quality Assurance Project Plan, for Groundwater Long Term Monitoring and System Operation at Marine Corps Air Station Yuma, Yuma, Arizona (September 2015), the Final Addendum 1 to the Final Sampling and Analysis Plan, Field Sampling Plan and Quality Assurance Project Plan, for Groundwater Long Term Monitoring and System Operation at Marine Corps Air Station Yuma, Yuma, Arizona (May 2013), the Final Sampling and Analysis Plan, Field Sampling Plan and Quality Assurance Project Plan, for Groundwater Long Term Monitoring and System Operation at Marine Corps Air Station Yuma, Yuma, Arizona (May 2013), the U.S. Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.0 (July 2013), and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFG) for Superfund Organic Methods Data Review (August 2014). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Perfluorinated Alkyl Acids by Environmental Protection Agency (EPA) Method 537

All sample results were subjected to Stage 2B data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Stage 4 data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

- J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NJ (Presumptive and Estimated): The analysis indicates the presence of a compound or analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

## **I. Sample Receipt and Technical Holding Times**

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

## **II. LC/MS Instrument Performance Check**

Instrument performance was checked as applicable.

All ion abundance requirements were met.

## **III. Initial Calibration and Initial Calibration Verification**

Initial calibration was performed as required by the method.

A curve fit, based on the initial calibration, was established for quantitation. The coefficient of determination ( $r^2$ ) was greater than or equal to 0.990.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

## **IV. Continuing Calibration**

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 30.0% for all compounds.

## **V. Laboratory Blanks**

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

## **VI. Field Blanks**

Sample EB01-20170717 was identified as an equipment blank. No contaminants were found.

Sample SB01-20170717 was identified as a source blank. No contaminants were found.

## **VII. Matrix Spike/Matrix Spike Duplicates**

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were not within the QC limits for OUA1-HS03-20170717MS/MSD. No data were qualified since the parent sample results were greater than 4X the spiked concentration. Relative percent differences (RPD) were within QC limits.

### VIII. Ongoing Precision Recovery Samples

Ongoing precision recovery (OPR) samples were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

### IX. Field Duplicates

Samples OUA1-HS03-20170717 and OUA1-HS03A-20170717 were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ng/L)		RPD (Limits)	Differences (Limits)	Flag	A or P
	OUA1-HS03-20170717	OUA1-HS03A-20170717				
PFBS	745	915	20	-	-	-
PFOA	25.6	22.3	-	3.3 (≤8.50)	-	-
PFOS	2.80	2.41	-	0.39 (≤8.50)	-	-

### X. Internal Standards

All internal standard areas and retention times were within QC limits.

### XI. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

### XII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

### XIII. System Performance

The system performance was acceptable for samples which underwent Stage 4 validation. Raw data were not reviewed for Stage 2B validation.

### XIV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

**MCAS Yuma**

**Perfluorinated Alkyl Acids - Data Qualification Summary - SDG 1700893**

No Sample Data Qualified in this SDG

**MCAS Yuma**

**Perfluorinated Alkyl Acids - Laboratory Blank Data Qualification Summary - SDG 1700893**

No Sample Data Qualified in this SDG

**MCAS Yuma**

**Perfluorinated Alkyl Acids - Field Blank Data Qualification Summary - SDG 1700893**

No Sample Data Qualified in this SDG

**METHOD:** LC/MS Perfluorinated Alkyl Acids (EPA Method 537)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	ICAL = 20% r <sup>2</sup> ICV = 30%
IV.	Continuing calibration	A	CV = 30%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	SB = 1 EB = 2
VII.	Surrogate spikes	N	
VIII.	Matrix spike/Matrix spike duplicates	SW	
IX.	Laboratory control samples	A	OPR
X.	Field duplicates	SW	D = 4/5
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Stage 2B validation.
XIII.	Target compound identification	A	Not reviewed for Stage 2B validation.
XIV.	System performance	A	Not reviewed for Stage 2B validation.
XV.	Overall assessment of data	A	

Note: A = Acceptable ND = No compounds detected D = Duplicate SB = Source blank  
N = Not provided/applicable R = Rinsate TB = Trip blank OTHER:  
SW = See worksheet FB = Field blank EB = Equipment blank

\*\* Indicates sample was underwent Stage 4 review

	Client ID	Lab ID	Matrix	Date
1	SB01-20170717	1700893-02	Water	07/17/17
2	EB01-20170717	1700893-02	Water	07/17/17
3	OUA1-MW08-20170717**	1700893-03**	Water	07/17/17
4	OUA1-HS03-20170717 D	1700893-04	Water	07/17/17
5	OUA1-HS03A-20170717 D	1700893-05	Water	07/17/17
6	OUA1-HS03-20170717MS	1700893-04MS	Water	07/17/17
7	OUA1-HS03-20170717MSD	1700893-04MSD	Water	07/17/17
8				
9				
10				

Notes:

BTG0106-BUK1				

(PFBS, PFOA, PFOS only)

LDC #: 39266 C96

## VALIDATION FINDINGS CHECKLIST

Page: 1 of 2  
Reviewer: JVG  
2nd Reviewer: [Signature]

Method: LC/MS PFCs (EPA Method 537M)

Validation Area	Yes	No	NA	Findings/Comments
<b>I. Technical holding times</b>				
All technical holding times were met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Cooler temperature criteria was met.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>II. Initial calibration</b>				
Did the laboratory perform a 5 point calibration prior to sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent relative standard deviations (%RSD) $\leq$ 20%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Was a curve fit used for evaluation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Did the initial calibration meet the curve fit acceptance criteria of $\geq$ 0.990?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the RT windows properly established?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>III. Initial Calibration Verification</b>				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) $\leq$ 30%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>IV. Continuing calibration</b>				
Was a continuing calibration analyzed daily?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) $\leq$ 30%	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all the retention times within the acceptance windows?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<b>V. Blanks</b>				
Was a method blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a method blank analyzed for each matrix and concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>VI. Field blanks</b>				
Field blanks were identified in this SDG.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Target compounds were detected in the field blanks.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
<b>VII. Surrogate spikes</b>				
Were all surrogate %R within the QC limits?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>VIII. Matrix spike/Matrix spike duplicates</b>				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a MS/MSD analyzed every 20 samples of each matrix?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	



LDC #: 39266C96

## VALIDATION FINDINGS CHECKLIST

Page: 2 of 2  
Reviewer: JVG  
2nd Reviewer: Q

Validation Area	Yes	No	NA	Findings/Comments
IX. Laboratory control samples				
Was an LCS analyzed for this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was an LCS analyzed per extraction batch?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
X. Field duplicates				
Field duplicate pairs were identified in this SDG.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Target compounds were detected in the field duplicates.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XI. Internal standards				
Were internal standard area counts within acceptance limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XII. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XIII. Target compound identification				
Were the retention times of reported detects within the RT windows?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XIV. System performance				
System performance was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

LDC #: 39266C96

## VALIDATION FINDINGS WORKSHEET

### Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1

Reviewer: JVG

2nd Reviewer:                     

**METHOD:** LC/MS PFCs (EPA Method 537M)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".


DN N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) or duplicate sample analyzed for each matrix in this SDG?

Q	N	N/A	Was a MS/MSD analyzed every 20 samples of each matrix?
---	---	-----	--

Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

Y (N) N/A Were all duplicate sample relative percent differences (RPD) or differences within QC limits?

[illegible]

LDC#: 39266C96**VALIDATION FINDINGS WORKSHEET**  
**Field Duplicates**Page: 1 of 1Reviewer: JVG2nd Reviewer: **METHOD:** LCMS PFCs (EPA Method 537Mod)Y N NA Were field duplicate pairs identified in this SDG?Y N NA Were target analytes detected in the field duplicate pairs?

Compound	Concentration (ng/L)		RPD (≤20%)	Difference (ng/L)	Limits (≤LOQ)	Qualifications (Parent Only)
	4	5				
PFBS	745	915	20			
PFOA	25.6	22.3		3.3	≤8.50	
PFOS	2.80	2.41		0.39	≤8.50	

V:\Josephine\FIELD DUPLICATES\39266C96 amec yuma.wpd

LDC#: 39226C96

**VALIDATION FINDINGS WORKSHEET**  
**Initial Calibration Calculation Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: Q

METHOD: LC/MS PFCs (EPA Method 537Mod)

Calibration Date	System	Compound	Standard	(Y) Area ratio	(X) Conc ratio
7/27/2017	SCN815	PFBS	1	0.03319	0.020
			2	0.11563	0.040
			3	0.16156	0.080
			4	0.28330	0.160
			5	0.76439	0.400
			6	1.35926	0.800
			7	6.71233	4.000
			8	12.63415	8.000

Regression Output	Calculated	Reported WLR
Constant	0.079423	0.593256
Std Err of Y Est		
R Squared	0.999270	0.998731
Degrees of Freedom		
X Coefficient(s)	1.58728973	1.060766
Std Err of Coef.		
Correlation Coefficient	0.999635	
Coefficient of Determination (r^2)	0.999270	0.998731

LDC # 39226C96

**VALIDATION FINDINGS WORKSHEET**  
**Continuing Calibration Calculation Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: 9

METHOD: LC/MS PFCs (EPA Method 537Mod)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference =  $100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$   
 $\text{RRF} = (\text{Ax})(\text{Cis}) / (\text{Ais})(\text{Cx})$

Where:

ave. RRF = initial calibration average RRF

RRF = continuing calibration RRF

Ax = Area of compound

Cx = Concentration of compound,

Ais = Area of associated internal standard

Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Conc	Reported	Recalculated	Reported % R	Recalculated % R
1	170727G5_18	7/27/2017	PFBS (13PFBS)	10.00	9.59	9.60	95.9	96.0
2	170731G4_20	8/1/2017	PFBS (13PFBS)	10.00	9.16	9.16	91.6	91.6

LDC #: 39266 C96

**VALIDATION FINDINGS WORKSHEET**  
**Matrix Spike/Matrix Spike Duplicates Results Verification**

Page: 1 of 1  
Reviewer: JVG  
2nd Reviewer: [Signature]

METHOD: LC/MS/MS PFCs (EPA Method 537Mod)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

$$\% \text{ Recovery} = 100 * (\text{SSC} - \text{SC}) / \text{SA}$$

Where: SSC = Spiked sample concentration  
SA = Spike added

SC = Sample concentration

$$\text{RPD} = | \text{MSC} - \text{MSC} | * 2 / (\text{MSC} + \text{MSDC})$$

MSC = Matrix spike concentration

MSDC = Matrix spike duplicate concentration

MS/MSD samples: 6/7

Compound	Spike Added (ng/L)		Sample Conc (ng/L)	Spiked Sample Concentration (ng/L)		Matrix Spike		Matrix Spike Duplicate		MS/MSD	
						Percent Recovery		Percent Recovery		RPD	
	MS	MSD	-----	MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalc
PFBS	85.8	80.0	745	1020	1030	322	321	351	356	8.62	10

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

RPD based on 2 R

LDC #: 392665 96

## VALIDATION FINDINGS WORKSHEET

Page: 1 of 1Laboratory Control Sample/Laboratory Control Sample Duplicates Results VerificationReviewer: JK2nd Reviewer: JK

METHOD: LC/MS/MS PFCs (EPA Method 537Mod)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery =  $100 * (SC/SA)$ 

Where: SSC = Spike concentration

SA = Spike added

RPD =  $|LCSC - LCSDC| * 2 / (LCSC + LCSDC)$ 

LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: B750106-BSI

Compound	Spike Added (ng/L)		Spike Concentration (ng/L)		LCS		LCSD		LCS/LCSD	
					Percent Recovery		Percent Recovery		RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
PFBS	80.0	NA	77.8	NA	97.2	97.2				

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 39266c96**VALIDATION FINDINGS WORKSHEET**  
**Sample Calculation Verification**Page: 1 of 1  
Reviewer: JVG  
2nd reviewer: [Signature]

METHOD: LC/MS/MS PFCs (EPA Method 537Mod)

(Y) N N/A  
(Y) N N/A

Were all reported results recalculated and verified for all level IV samples?

Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

$$\text{Concentration} = \frac{(A_x)(I_s)(V_i)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$$

 $A_x$  = Area of the characteristic ion (EICP) for the compound to be measured $A_{is}$  = Area of the characteristic ion (EICP) for the specific internal standard $I_s$  = Amount of internal standard added in nanograms (ng) $V_o$  = Volume or weight of sample extract in milliliters (ml) or grams (g). $V_i$  = Volume of extract injected in microliters (ul) $V_t$  = Volume of the concentrated extract in microliters (ul)

Df = Dilution Factor.

 $\%S$  = Percent solids, applicable to soil and solid matrices only.

2.0 = Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 3 , PFB5

$$\text{Conc.} = \frac{\left[ \frac{(2.113e4)(12.5)}{(7.205e2)} \right] - (0.593256)}{(1.60766)(0.118L)}$$

$$= 1929.3$$

$$\approx 1930 \text{ ng/L}$$

#	Sample ID	Compound	Reported Concentration (ng/L)	Calculated Concentration ( )	Qualification
			1930		



LDC #: 392466

## EDD POPULATION COMPLETENESS WORKSHEET

Date: 8/28Page: 1 of 12<sup>nd</sup> Reviewer: BAThe LDC job number listed above was entered by JE

	EDD Process		Comments/Action
I.	EDD Completeness	-	
Ia.	- All methods present?	Y	
Ib.	- All samples present/match report?	Y	
Ic.	- All reported analytes present?	Y	
Id.	- <u>10%</u> or 100% verification of EDD?	Y	
II.	EDD Preparation/Entry	-	
IIa.	- Carryover U/J?	N	
IIb.	- Reason Codes used? If so, note which codes.	Y	client
IIc.	- Additional Information (QC Level, Validator, Validated Y/N, etc.)	Y	
III.	Reasonableness Checks	-	
IIIa.	- Do all qualified ND results have ND qualifier (e.g. UJ)?	Y	
IIIb.	- Do all qualified detect results have detect qualifier (e.g. J)?	Y	
IIIc.	- If reason codes are used, do all qualified results have reason code field populated, and vice versa?	Y	
IIId.	- Does the detect flag require changing for blank qualifier? If so, are all U results marked ND?	Y/Y	
IIIe.	- Do blank concentrations in report match EDD where data was qualified due to blank contamination?	Y	
IIIf.	- Were multiple results reported due to dilutions/reanalysis? If so, were results qualified appropriately?	+	
IIIg.	- Are there any discrepancies between the data packet and the EDD?	N	

Notes: \*see discrepancy sheet

INSTALLATION_ID	SDG	LOCATION-NAME	SITE_NAME	INSTALLATION_ID	LOCATION_TYPE	LOCATION_TYPE_DESC	COORD_X	COORD_Y	SAMPLE_NAME	SAMPLE_MATRIX	SAMPLE_MATRIC_DESC	COLLECT_DATE
MCAS YUMA	1700893	16-HS-03	SITE 00019	YUMA_MCAS	WLM	MONITORING WELL	441712.6895	605539.6474	OUA1-HS03-20170717	WG	GROUNDWATER	17-Jul-17
MCAS YUMA	1700893	16-HS-03	SITE 00019	YUMA_MCAS	WLM	MONITORING WELL	441712.6895	605539.6474	OUA1-HS03-20170717	WG	GROUNDWATER	17-Jul-17
MCAS YUMA	1700893	16-HS-03	SITE 00019	YUMA_MCAS	WLM	MONITORING WELL	441712.6895	605539.6474	OUA1-HS03-20170717	WG	GROUNDWATER	17-Jul-17
MCAS YUMA	1700893	16-HS-03	SITE 00019	YUMA_MCAS	WLM	MONITORING WELL	441712.6895	605539.6474	OUA1-HS03A-20170717	WG	GROUNDWATER	17-Jul-17
MCAS YUMA	1700893	16-HS-03	SITE 00019	YUMA_MCAS	WLM	MONITORING WELL	441712.6895	605539.6474	OUA1-HS03A-20170717	WG	GROUNDWATER	17-Jul-17
MCAS YUMA	1700893	16-HS-03	SITE 00019	YUMA_MCAS	WLM	MONITORING WELL	441712.6895	605539.6474	OUA1-HS03A-20170717	WG	GROUNDWATER	17-Jul-17
MCAS YUMA	1700893	16-MW-08	SITE 00019	YUMA_MCAS	WLM	MONITORING WELL	442128.793	605331.0117	OUA1-MW08-20170717	WG	GROUNDWATER	17-Jul-17
MCAS YUMA	1700893	16-MW-08	SITE 00019	YUMA_MCAS	WLM	MONITORING WELL	442128.793	605331.0117	OUA1-MW08-20170717	WG	GROUNDWATER	17-Jul-17
MCAS YUMA	1700893	16-MW-08	SITE 00019	YUMA_MCAS	WLM	MONITORING WELL	442128.793	605331.0117	OUA1-MW08-20170717	WG	GROUNDWATER	17-Jul-17

CHEMICAL_NAME
Perfluorooctanesulfonic Acid (PFOS)
Perfluorooctanoic Acid (PFOA)
Perfluorobutanesulfonic Acid (PFBS)
Perfluorooctanesulfonic Acid (PFOS)
Perfluorooctanoic Acid (PFOA)
Perfluorobutanesulfonic Acid (PFBS)
Perfluorooctanesulfonic Acid (PFOS)
Perfluorooctanoic Acid (PFOA)
Perfluorobutanesulfonic Acid (PFBS)