



**Off-base Drinking Water Sample Results,
Level 2 Laboratory Report, Level 4 Laboratory Report,
Electronic Data Deliverable, Data Validation Report,
and the Sample Location Figure, SDG 1701713**

*Marine Corps Outlying Landing Field Atlantic
MCAS Cherry Point NC*

February 2019



November 28, 2017

Vista Work Order No. 1701713

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

Dear Ms. Hill,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on November 17, 2017. This sample set was analyzed on a rush turn-around time, under your Project Name 'CTO-08, MCOLF Atlantic / PFAS DW Investigation'.

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

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

Sincerely,

Karen J. Volpenko
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. 1701713**Case Narrative****Sample Condition on Receipt:**

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

Analytical Notes:**EPA Method 537**

Samples "CH-AT-1RW24-1117" and "CH-AT-1RW11-1117" contained particulate and were centrifuged prior to extraction.

The samples were extracted and analyzed for PFBS, PFOA and PFOS using 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 Laboratory Fortified Blank (LFB) and Laboratory Reagent Blank (LRB) were extracted and analyzed with the preparation batch. No analytes were detected in the Laboratory Reagent Blank above 1/2 the LOQ. The LFB recoveries were within the method acceptance criteria.

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

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1701713-01	CH-AT-1RW23-1117	15-Nov-17 11:10	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-02	CH-AT-1FB23-1117	15-Nov-17 11:11	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-03	CH-AT-1RW24-1117	15-Nov-17 13:04	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-04	CH-AT-1FB24-1117	15-Nov-17 13:05	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-05	CH-AT-1RW10-1117	14-Nov-17 10:19	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-06	CH-AT-1FB10-1117	14-Nov-17 10:20	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-07	CH-AT-1RW11-1117	14-Nov-17 10:29	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-08	CH-AT-1FB11-1117	14-Nov-17 10:30	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-09	CH-AT-1RW12-1117	14-Nov-17 10:50	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-10	CH-AT-1FB12-1117	14-Nov-17 10:51	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-11	CH-AT-1RW35-1117	16-Nov-17 11:23	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-12	CH-AT-1FB35-1117	16-Nov-17 11:24	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-13	CH-AT-1RW36-1117	16-Nov-17 11:58	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-14	CH-AT-1FB36-1117	16-Nov-17 11:59	17-Nov-17 08:54	HDPE Bottle, 250 mL

ANALYTICAL RESULTS

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

Only the linear isomer is reported for all other analytes.

Sample ID: LFB					EPA Method 537					
Client Data					Laboratory Data					
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	B7K0104-BS1	Column:	BEH C18		
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigatic									
Analyte	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	64.9	70.8	91.6	70-130		B7K0104	20-Nov-17	0.250 L	28-Nov-17 10:23	1
PFOA	79.2	80.0	99.0	70-130		B7K0104	20-Nov-17	0.250 L	28-Nov-17 10:23	1
PFOS	68.4	74.0	92.5	70-130		B7K0104	20-Nov-17	0.250 L	28-Nov-17 10:23	1
Labeled Standards	Type		% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR		109	70- 130		B7K0104	20-Nov-17	0.250 L	28-Nov-17 10:23	1

Sample ID: CH-AT-1RW23-1117					EPA Method 537					
Client Data Name:CH2M Hill Matrix:Drinking Water Project:CTO-08, MCOLF Atlantic / PFAS DW Investigation Date Collected:15-Nov-17 11:10					Laboratory Data Lab Sample:1701713-01 Column:BEH C18 Date Received:17-Nov-17 08:54					
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.411	4.64	9.28		B7K0104	20-Nov-17	0.269 L	28-Nov-17 11:00	1
PFOA	ND	1.00	4.64	9.28		B7K0104	20-Nov-17	0.269 L	28-Nov-17 11:00	1
PFOS	ND	0.965	4.64	9.28		B7K0104	20-Nov-17	0.269 L	28-Nov-17 11:00	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	112	70 - 130			B7K0104	20-Nov-17	0.269 L	28-Nov-17 11:00	1

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit

Results reported to the DL.

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

Only the linear isomer is reported for all other analytes.

Sample ID: CH-AT-1FB23-1117					EPA Method 537					
Client Data Name:CH2M Hill Matrix:Drinking Water Project:CTO-08, MCOLF Atlantic / PFAS DW Investigation Date Collected:15-Nov-17 11:11					Laboratory Data Lab Sample:1701713-02 Column:BEH C18 Date Received:17-Nov-17 08:54					
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.418	4.72	9.44		B7K0104	20-Nov-17	0.265 L	28-Nov-17 11:13	1
PFOA	ND	1.02	4.72	9.44		B7K0104	20-Nov-17	0.265 L	28-Nov-17 11:13	1
PFOS	ND	0.982	4.72	9.44		B7K0104	20-Nov-17	0.265 L	28-Nov-17 11:13	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	110	70 - 130			B7K0104	20-Nov-17	0.265 L	28-Nov-17 11:13	1

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit

Results reported to the DL.

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

Sample ID: CH-AT-1RW24-1117					EPA Method 537					
Client Data Name: CH2M Hill Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation Matrix: Drinking Water Date Collected: 15-Nov-17 13:04					Laboratory Data Lab Sample: 1701713-03 Date Received: 17-Nov-17 08:54 Column: BEH C18					
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.420	4.74	9.48		B7K0104	20-Nov-17	0.264 L	28-Nov-17 11:25	1
PFOA	ND	1.02	4.74	9.48		B7K0104	20-Nov-17	0.264 L	28-Nov-17 11:25	1
PFOS	ND	0.986	4.74	9.48		B7K0104	20-Nov-17	0.264 L	28-Nov-17 11:25	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	105	70 - 130			B7K0104	20-Nov-17	0.264 L	28-Nov-17 11:25	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.

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

Sample ID: CH-AT-1FB24-1117					EPA Method 537					
Client Data Name: CH2M Hill										

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.

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

Sample ID: CH-AT-1RW10-1117										EPA Method 537
Client Data Name: CH2M Hill										

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.

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

Sample ID: CH-AT-1FB10-1117					EPA Method 537					
Client Data Name: CH2M Hill Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation Matrix: Drinking Water Date Collected: 14-Nov-17 10:20					Laboratory Data Lab Sample: 1701713-06 Date Received: 17-Nov-17 08:54 Column: BEH C18					
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.407	4.59	9.18		B7K0104	20-Nov-17	0.272 L	28-Nov-17 12:02	1
PFOA	ND	0.991	4.59	9.18		B7K0104	20-Nov-17	0.272 L	28-Nov-17 12:02	1
PFOS	ND	0.954	4.59	9.18		B7K0104	20-Nov-17	0.272 L	28-Nov-17 12:02	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	106	70 - 130			B7K0104	20-Nov-17	0.272 L	28-Nov-17 12:02	1

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit

Results reported to the DL.

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

Only the linear isomer is reported for all other analytes.

Sample ID: CH-AT-1RW11-1117					EPA Method 537					
Client Data Name: CH2M Hill										

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit

Results reported to the DL.

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

Only the linear isomer is reported for all other analytes.

Sample ID: CH-AT-1FB11-1117										EPA Method 537	
Client Data Name: CH2M Hill											

DL - Detection Limit	LOD - Limit of Detection LOQ - Limit of quantitation	LCL-UCL- Lower control limit - upper control limit Results reported to the DL.	When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.
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Sample ID: CH-AT-1RW12-1117										EPA Method 537
Client Data Name: CH2M Hill										

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.

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

Sample ID: CH-AT-1FB12-1117										EPA Method 537
Client Data Name: CH2M Hill										

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.

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

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

Only the linear isomer is reported for all other analytes.

Sample ID: CH-AT-1FB35-1117					EPA Method 537					
Client Data Name: CH2M Hill										

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.

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

Sample ID: CH-AT-1RW36-1117					EPA Method 537					
Client Data Name: CH2M Hill										

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

Sample ID: CH-AT-1FB36-1117										EPA Method 537
Client Data					Laboratory Data					
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	1701713-14	Column:	BEH C18		
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation	Date Collected:	16-Nov-17 11:59		Date Received:	17-Nov-17 08:54				
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.411	4.64	9.27		B7K0104	20-Nov-17	0.270 L	28-Nov-17 13:42	1
PFOA	ND	1.00	4.64	9.27		B7K0104	20-Nov-17	0.270 L	28-Nov-17 13:42	1
PFOS	ND	0.964	4.64	9.27		B7K0104	20-Nov-17	0.270 L	28-Nov-17 13:42	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	99.3	70 - 130			B7K0104	20-Nov-17	0.270 L	28-Nov-17 13:42	1

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit

Results reported to the DL.

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

Only the linear isomer is reported for all other analytes.

DATA QUALIFIERS & ABBREVIATIONS

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

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
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



CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701713 Temp: 0.6 °C
Storage ID: WR-2 Storage Secured Yes ☒ No ☐

Project ID: CTO-08, MCOLF Atlantic PFAS DW Investigation
PO#: 10006-7-106051 Sampler: J. Towns / A. Ewalt / K. Smith
(name)

TAT (check one): ☐ 21 days
☐ Rush (surcharge may apply)
☐ 14 days ☒ 7 days Specify: _____

Invoice to: Name: Tiffany Hill Company: CH2M Address: 1100 NE Circle Blvd Suite #300 City: Corvallis State: Oregon Ph#: 541-768-3109 Fax#: _____

Relinquished by (printed name and signature): Kathleen Smith Date: 11/16/17 Time: 17:00
Received by (printed name and signature): Beth Wammat B. Benedict Date: 11/17/17 Time: 1034

SHIP TO: Vista Analytical Laboratory 1104 Windfield Way El Dorado Hills, CA 95762 (916) 673-1520 • Fax (916) 673-0106				Method of Shipment: FEDEX		Tracking No.: _____		Add Analysis(es) Requested				Container(s)				Mod EPA Method 837				EPA Method 537(DW only)			
ATTN: <u>Martha Maier</u>																							
Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	PFOM/PEOS	UCMR3 PFAS List 8	537 List 14	Full List of 26	Other Please List:	PEOS/PEOS/PBS	UCMR3 PFAS List 6	PFAS List 14									
CH-AT-1RW23-1117	11/15/17	11:10		2	P	DW						X											TZ preservative
CH-AT-1FB23-1117	11/15/17	11:11		2	P	DW						X											TZ preservative
CH-AT-1RW24-1117	11/15/17	13:04		2	P	DW						X											TZ preservative
CH-AT-1FB24-1117	11/15/17	13:05		2	P	DW						X											TZ preservative

Special Instructions/Comments: 7 DAY TAT
Analysis of Drinking Water samples for PFOA/PFOS/PFBS

SEND
DOCUMENTATION
AND RESULTS TO:

Name: Tiffany Hill
Company: CH2M HILL Inc.
Address: 1100 NE Circle Blvd Suite 300
City: Corvallis State: OR Zip: 97330
Phone: 541-768-3109 Fax: _____
Email: Tiffany.Hill@ch2m.com

Container Types: P = HDPE, PJ = HDPE Jar
O = Other _____

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____



CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701713 Temp: 0.6 °C
Storage ID: WR-2 Storage Secured Yes ☒ No ☐

Project ID: CTO-08, MCOLF Atlantic PFAS DW Investigation PO#: 10006-7-106051 Sampler: J. Towns / A. Ewalt / K. Smith
(name)

TAT (check one): Standard ☐ 21 days
Rush (surcharge may apply) ☐ 14 days ☒ 7 days Specify _____

Invoice to: Name Tiffany Hill Company CH2M Address 1100 NE Circle Blvd Suite #300 City Corvallis State Oregon Ph# 541-768-3109 Fax# _____

Relinquished by (printed name and signature) Kathryn Smith Date 11/16/17 Time 17:00 Received by (printed name and signature) B. Benedict Date 11/17/17 Time 1020
Relinquished by (printed name and signature) _____ Date _____ Time _____ Received by (printed name and signature) _____ Date _____ Time _____

SHIP TO: Vista Analytical Laboratory 1104 Windfield Way El Dorado Hills, CA 95762 (916) 673-1520 * Fax (916) 673-0106				Method of Shipment: FEDEX		Add Analysis(es) Requested		Container(s)		Mod. EPA Method 537		EPA Method 537 (DW only)		Comments	
Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	PFOA/PFOS	UCMR3 PFAS List 6	537 List: 14	Full List of 26	Other: Please List	PFOA/PFOS/PFBS	UCMR3 PFAS List 6		PFAS List: 14
CH-AT-1RW10-1117	11/14/17	10:19		2	P	DW						X			TZ preservative
CH-AT-1FB10-1117	11/14/17	10:20		2	P	DW						X			TZ preservative
CH-AT-1RW11-1117	11/14/17	10:29		2	P	DW						X			TZ preservative
CH-AT-1FB11-1117	11/14/17	10:30		2	P	DW						X			TZ preservative

Special Instructions/Comments: 7 DAY TAT
Analysis of Drinking Water samples for PFOA/PFOS/PFBS

SEND
DOCUMENTATION
AND RESULTS TO:

Name: Tiffany Hill
Company: CH2M HILL Inc.
Address: 1100 NE Circle Blvd Suite 300
City: Corvallis State: OR Zip: 97330
Phone: 541-768-3109 Fax: _____
Email: Tiffany.Hill@ch2m.com

Container Types: P= HDPE, PJ= HDPE Jar
O = Other _____

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____

Coder 4-1 of 1 pages

CTO-08 679580.15.FI.FS

ID: LR-537COC



CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701713 Temp: 0.0 °C
Storage ID: WR-2 Storage Secured: Yes ☒ No ☐

Project ID: CTO-08, MCOLF Atlantic PFAS DW Investigation PO#: 10006-7-106051 Sampler: J. Towns / A. Ewalt / K. Smith
(name)

TAT (check one): Standard ☐ 21 days
Rush (surcharge may apply) ☐ 14 days ☒ 7 days Specify _____

Invoice to: Name Tiffany Hill Company CH2M Address 1100 NE Circle Blvd Suite #300 City Corvallis State Oregon Ph# 541-768-3109 Fax# _____

Relinquished by (printed name and signature) Kathryn Smith Date 11/16/17 Time 1700 Received by (printed name and signature) B. Benedict Date 11/17/17 Time 0927
Relinquished by (printed name and signature) _____ Date _____ Time _____ Received by (printed name and signature) _____ Date _____ Time _____

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

ATTN: Martha Maier

Method of Shipment: FEDEX
Tracking No: _____

Add Analysis(es) Requested

Container(s)

Mod EPA Method 537

EPA Method 537 (DW only)

Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	PFOA/PFOS	UOMR3 PFAS List 6	537 List 14	Full List of 26	Other: Please List Below	PFOA/PFOS/PFS	UOMR3 PFAS List 6	PFAS List 14	Comments
CH-AT-1RW12-1117	11/14/17	10:50		2	P	DW						X			TZ preservative
CH-AT-1FB12-1117	11/14/17	10:51		2	P	DW						X			TZ preservative
CH-AT-1RW35-1117	11/16/17	11:23		2	P	DW						X			TZ preservative
CH-AT-1FB35-1117	11/16/17	11:24		2	P	DW						X			TZ preservative
CH-AT-1RW36-1117	11/16/17	11:58		2	P	DW						X			TZ preservative
CH-AT-1FB36-1117	11/16/17	11:59		2	P	DW						X			TZ preservative

Special Instructions/Comments: 7 DAY TAT
Analysis of Drinking Water samples for PFOA/PFOS/PFBS

SEND DOCUMENTATION AND RESULTS TO:

Name: Tiffany Hill
Company: CH2M HILL Inc.
Address: 1100 NE Circle Blvd Suite 300
City: Corvallis State: OR Zip: 97330
Phone: 541-768-3109 Fax: _____
Email: Tiffany.Hill@ch2m.com

Container Types: P = HDPE, PJ = HDPE Jar
O = Other _____

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____

Sample Log-in Checklist

 Vista Work Order #: 1701713 TAT 7

Samples Arrival:	Date/Time 11/17/17 0854	Initials: UBB	Location: WR-2
			Shelf/Rack: NA
Logged In:	Date/Time 11/17/17 1119	Initials: 8R	Location: WR-2
			Shelf/Rack: B5 F7
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
		☐ GSO	☐ DHL
		☐ Hand Delivered	☐ Other
Preservation:	☒ Ice	☐ Blue Ice	☐ Dry Ice
	☐ None		
Temp °C: 0.5 (uncorrected)	Time: 1032		Thermometer ID: IR-1
Temp °C: 0.6 (corrected)	Probe used: Yes ☐ No ☒		

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill <u>244</u> Trk # <u>7707 6984 5976</u>	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?	✓		
Preservation Documented:	Na ₂ S ₂ O ₃	☒ Trizma	None
	☒ Yes	No	NA
Shipping Container	☒ Vista	Client	Retain
		Return	Dispose

Comments:

Sample Log-in Checklist

 Vista Work Order #: 1701713 TAT 7

Samples Arrival:	Date/Time 11/17/17 08:54	Initials: BAP	Location: WR-2 Shelf/Rack: NA
Logged In:	Date/Time 11/17/17 11:19	Initials: SK	Location: WR-2 Shelf/Rack: F7
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
	☐ GSO	☐ DHL	☐ Hand Delivered
Preservation:	☒ Ice	☐ Blue Ice	☐ Dry Ice
	☐ None		
Temp °C: 0.5 (uncorrected)	Time: 1024		Thermometer ID: IR-1
Temp °C: 0.6 (corrected)	Probe used: Yes ☐ No ☒		

	YES	NO	NA
Adequate Sample Volume Received?	☒	☐	☐
Holding Time Acceptable?	☒	☐	☐
Shipping Container(s) Intact?	☒	☐	☐
Shipping Custody Seals Intact?	☒	☐	☐
Shipping Documentation Present?	☒	☐	☐
Airbill <u>1044</u> Trk # <u>7707 6984 6159</u>	☒	☐	☐
Sample Container Intact?	☒	☐	☐
Sample Custody Seals Intact?	☐	☐	☒
Chain of Custody / Sample Documentation Present?	☒	☐	☐
COC Anomaly/Sample Acceptance Form completed?	☐	☒	☒
If Chlorinated or Drinking Water Samples, Acceptable Preservation?	☒	☐	☐
Preservation Documented:	☐ Na ₂ S ₂ O ₃	☒ Trizma	☐ None
	☒ Yes	☐ No	☐ NA
Shipping Container	☐ Vista	☒ Client	☐ Retain
	☐ Return	☐ Dispose	

Comments:

Sample Log-in Checklist

Vista Work Order #: 1701713 TAT 7

Samples Arrival:	Date/Time 11/17/17 0854	Initials: CBB	Location: WR-2
			Shelf/Rack: NA
Logged In:	Date/Time 11/17/17 1119	Initials: SR	Location: WR-2
			Shelf/Rack: F7
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
		☐ GSO	☐ DHL
		☐ Hand Delivered	☐ Other
Preservation:	☒ Ice	☐ Blue Ice	☐ Dry Ice
	☐ None		
Temp °C: 0.0 (uncorrected)	Time: 0927		Thermometer ID: DT-3 IR-1
Temp °C: 0.0 (corrected)	Probe used: Yes ☒ No ☐		

	YES	NO	NA
Adequate Sample Volume Received?	☒		
Holding Time Acceptable?	☒		
Shipping Container(s) Intact?	☒		
Shipping Custody Seals Intact?	☒		
Shipping Documentation Present?	☒		
Airbill <u>4054</u> Trk # <u>7707 69846814</u>	☒		
Sample Container Intact?	☒		
Sample Custody Seals Intact?			☒
Chain of Custody / Sample Documentation Present?	☒		
COC Anomaly/Sample Acceptance Form completed?		☒	☒
If Chlorinated or Drinking Water Samples, Acceptable Preservation?	☒		
Preservation Documented:	Na ₂ S ₂ O ₃	☒ Trizma	☐ None
		☒ Yes	☐ No
Shipping Container	Vista	☒ Client	☐ Retain
		☒ Return	☐ Dispose

Comments:



November 28, 2017

Vista Work Order No. 1701713

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

Dear Ms. Hill,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on November 17, 2017. This sample set was analyzed on a rush turn-around time, under your Project Name 'CTO-08, MCOLF Atlantic / PFAS DW Investigation'.

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

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

Sincerely,

Karen J. Wolpenhuta
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. 1701713**Case Narrative****Sample Condition on Receipt:**

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

Analytical Notes:**EPA Method 537**

Samples "CH-AT-1RW24-1117" and "CH-AT-1RW11-1117" contained particulate and were centrifuged prior to extraction.

The samples were extracted and analyzed for PFBS, PFOA and PFOS using 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 Laboratory Fortified Blank (LFB) and Laboratory Reagent Blank (LRB) were extracted and analyzed with the preparation batch. No analytes were detected in the Laboratory Reagent Blank above 1/2 the LOQ. The LFB recoveries were within the method acceptance criteria.

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

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1701713-01	CH-AT-1RW23-1117	15-Nov-17 11:10	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-02	CH-AT-1FB23-1117	15-Nov-17 11:11	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-03	CH-AT-1RW24-1117	15-Nov-17 13:04	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-04	CH-AT-1FB24-1117	15-Nov-17 13:05	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-05	CH-AT-1RW10-1117	14-Nov-17 10:19	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-06	CH-AT-1FB10-1117	14-Nov-17 10:20	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-07	CH-AT-1RW11-1117	14-Nov-17 10:29	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-08	CH-AT-1FB11-1117	14-Nov-17 10:30	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-09	CH-AT-1RW12-1117	14-Nov-17 10:50	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-10	CH-AT-1FB12-1117	14-Nov-17 10:51	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-11	CH-AT-1RW35-1117	16-Nov-17 11:23	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-12	CH-AT-1FB35-1117	16-Nov-17 11:24	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-13	CH-AT-1RW36-1117	16-Nov-17 11:58	17-Nov-17 08:54	HDPE Bottle, 250 mL
1701713-14	CH-AT-1FB36-1117	16-Nov-17 11:59	17-Nov-17 08:54	HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: LRB					EPA Method 537					
Client Data Name: CH2M Hill Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation Matrix: Drinking Water					Laboratory Data Lab Sample: B7K0104-BLK1 Column: BEH C18					
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.443	5.00	10.0		B7K0104	20-Nov-17	0.250 L	28-Nov-17 10:48	1
PFOA	ND	1.08	5.00	10.0		B7K0104	20-Nov-17	0.250 L	28-Nov-17 10:48	1
PFOS	ND	1.04	5.00	10.0		B7K0104	20-Nov-17	0.250 L	28-Nov-17 10:48	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	101	70 - 130			B7K0104	20-Nov-17	0.250 L	28-Nov-17 10:48	1

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit

Results reported to the DL.

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

Sample ID: LFB					EPA Method 537					
Client Data					Laboratory Data					
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	B7K0104-BS1	Column:	BEH C18		
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigatic									
Analyte	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	64.9	70.8	91.6	70-130		B7K0104	20-Nov-17	0.250 L	28-Nov-17 10:23	1
PFOA	79.2	80.0	99.0	70-130		B7K0104	20-Nov-17	0.250 L	28-Nov-17 10:23	1
PFOS	68.4	74.0	92.5	70-130		B7K0104	20-Nov-17	0.250 L	28-Nov-17 10:23	1
Labeled Standards	Type		% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR		109	70- 130		B7K0104	20-Nov-17	0.250 L	28-Nov-17 10:23	1

Sample ID: CH-AT-1RW23-1117										EPA Method 537
Client Data Name: CH2M Hill										

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit

Results reported to the DL.

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

Only the linear isomer is reported for all other analytes.

Sample ID: CH-AT-1FB23-1117										EPA Method 537
Client Data Name: CH2M Hill										

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit

Results reported to the DL.

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

Only the linear isomer is reported for all other analytes.

Sample ID: CH-AT-1RW24-1117					EPA Method 537					
Client Data Name:CH2M Hill Matrix:Drinking Water Project:CTO-08, MCOLF Atlantic / PFAS DW Investigation Date Collected:15-Nov-17 13:04					Laboratory Data Lab Sample:1701713-03 Column:BEH C18 Date Received:17-Nov-17 08:54					
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.420	4.74	9.48		B7K0104	20-Nov-17	0.264 L	28-Nov-17 11:25	1
PFOA	ND	1.02	4.74	9.48		B7K0104	20-Nov-17	0.264 L	28-Nov-17 11:25	1
PFOS	ND	0.986	4.74	9.48		B7K0104	20-Nov-17	0.264 L	28-Nov-17 11:25	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	105	70 - 130			B7K0104	20-Nov-17	0.264 L	28-Nov-17 11:25	1

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit

Results reported to the DL.

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

Only the linear isomer is reported for all other analytes.

Sample ID: CH-AT-1FB24-1117					EPA Method 537					
Client Data Name: CH2M Hill										

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit

Results reported to the DL.

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

Only the linear isomer is reported for all other analytes.

Sample ID: CH-AT-1RW10-1117										EPA Method 537
Client Data Name: CH2M Hill										

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit

Results reported to the DL.

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

Only the linear isomer is reported for all other analytes.

Sample ID: CH-AT-1FB10-1117					EPA Method 537					
Client Data Name: CH2M Hill										

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.

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

Sample ID: CH-AT-1FB11-1117					EPA Method 537					
Client Data Name:CH2M Hill Matrix:Drinking Water Project:CTO-08, MCOLF Atlantic / PFAS DW Investigation Date Collected:14-Nov-17 10:30					Laboratory Data Lab Sample:1701713-08 Column:BEH C18 Date Received:17-Nov-17 08:54					
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.414	4.67	9.35		B7K0104	20-Nov-17	0.267 L	28-Nov-17 12:27	1
PFOA	ND	1.01	4.67	9.35		B7K0104	20-Nov-17	0.267 L	28-Nov-17 12:27	1
PFOS	ND	0.972	4.67	9.35		B7K0104	20-Nov-17	0.267 L	28-Nov-17 12:27	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	104	70 - 130			B7K0104	20-Nov-17	0.267 L	28-Nov-17 12:27	1

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit

Results reported to the DL.

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

Only the linear isomer is reported for all other analytes.

Sample ID: CH-AT-1FB12-1117					EPA Method 537					
Client Data Name: CH2M Hill										

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit

Results reported to the DL.

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

Only the linear isomer is reported for all other analytes.

Sample ID: CH-AT-1RW35-1117										EPA Method 537
Client Data Name: CH2M Hill										

DL - Detection Limit

LOD - Limit of Detection

LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit

Results reported to the DL.

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

Sample ID: CH-AT-1RW36-1117										EPA Method 537	
Client Data Name: CH2M Hill Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation Matrix: Drinking Water Date Collected: 16-Nov-17 11:58					Laboratory Data Lab Sample: 1701713-13 Date Received: 17-Nov-17 08:54 Column: BEH C18						
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
PFBS	ND	0.431	4.86	9.72		B7K0104	20-Nov-17	0.257 L	28-Nov-17 13:30	1	
PFOA	ND	1.05	4.86	9.72		B7K0104	20-Nov-17	0.257 L	28-Nov-17 13:30	1	
PFOS	ND	1.01	4.86	9.72		B7K0104	20-Nov-17	0.257 L	28-Nov-17 13:30	1	
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution	
13C2-PFHxA	SURR	107	70 - 130			B7K0104	20-Nov-17	0.257 L	28-Nov-17 13:30	1	

DL - Detection Limit	LOD - Limit of Detection LOQ - Limit of quantitation	LCL-UCL- Lower control limit - upper control limit Results reported to the DL.	When reported, PFHxS, PFOA and PFOS include both linear and branched isomers. Only the linear isomer is reported for all other analytes.
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Sample ID: CH-AT-1FB36-1117					EPA Method 537					
Client Data Name: CH2M Hill Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation Matrix: Drinking Water Date Collected: 16-Nov-17 11:59					Laboratory Data Lab Sample: 1701713-14 Date Received: 17-Nov-17 08:54 Column: BEH C18					
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.411	4.64	9.27		B7K0104	20-Nov-17	0.270 L	28-Nov-17 13:42	1
PFOA	ND	1.00	4.64	9.27		B7K0104	20-Nov-17	0.270 L	28-Nov-17 13:42	1
PFOS	ND	0.964	4.64	9.27		B7K0104	20-Nov-17	0.270 L	28-Nov-17 13:42	1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	99.3	70 - 130			B7K0104	20-Nov-17	0.270 L	28-Nov-17 13:42	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.

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

DATA QUALIFIERS & ABBREVIATIONS

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

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
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



CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701713 Temp: 0.6 °C
Storage ID: WR-2 Storage Secured Yes ☒ No ☐

Project ID CTO-08, MCOLF Atlantic PFAS DW Investigation PO# 10006-7-106051 Sampler: J. Towns / A. Ewalt / K. Smith
(name)

TAT (check one): ☐ 21 days ☐ 14 days ☒ 7 days Specify: _____
Standard Rush (surcharge may apply)

Invoice to: Name Tiffany Hill Company CH2M Address 1100 NE Circle Blvd Suite #300 City Corvallis State Oregon Ph# 541-768-3109 Fax# _____

Relinquished by (printed name and signature) Kathleen Smith Date 11/16/17 Time 17:00 Received by (printed name and signature) Beth Wammat B. Benedict Date 11/17/17 Time 1034
Relinquished by (printed name and signature) _____ Date _____ Time _____ Received by (printed name and signature) _____ Date _____ Time _____

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

ATTN: Martha Maier

Method of Shipment: FEDEX
Tracking No.: _____

Add Analysis(es) Requested

Container(s)

Mod EPA Method 837

EPA Method 537 (DW only)

Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	PFOA/PFOS	UCMR3 PFAS List 6	537 List 14	Full List of 26	Other Please List:	PFOA/PFOS/PFS	UCMR3 PFAS List 6	PFAS List 14	Comments
CH-AT-1RW23-1117	11/15/17	11:10		2	P	DW						X			TZ preservative
CH-AT-1FB23-1117	11/15/17	11:11		2	P	DW						X			TZ preservative
CH-AT-1RW24-1117	11/15/17	13:04		2	P	DW						X			TZ preservative
CH-AT-1FB24-1117	11/15/17	13:05		2	P	DW						X			TZ preservative

Special Instructions/Comments: 7 DAY TAT
Analysis of Drinking Water samples for PFOA/PFOS/PFS

SEND DOCUMENTATION AND RESULTS TO:

Name: Tiffany Hill
Company: CH2M HILL Inc.
Address: 1100 NE Circle Blvd Suite 300
City: Corvallis State: OR Zip: 97330
Phone: 541-768-3109 Fax: _____
Email: Tiffany.Hill@ch2m.com

Container Types: P = HDPE, PJ = HDPE Jar
O = Other _____

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____



CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701713 Temp: 0.6 °C
Storage ID: WF-2 Storage Secured Yes ☒ No ☐

Project ID: CTO-08, MCOLF Atlantic PFAS DW Investigation PO#: 10006-7-106051 Sampler: J. Towns / A. Ewalt / K. Smith
(name)

TAT (check one): Standard ☐ 21 days
Rush (surcharge may apply) ☐ 14 days ☒ 7 days Specify: _____

Invoice to: Name: Tiffany Hill Company: CH2M Address: 1100 NE Circle Blvd Suite #300 City: Corvallis State: Oregon Ph#: 541-768-3109 Fax#: _____

Relinquished by (printed name and signature): Kathryn Smith Date: 11/16/17 Time: 17:00 Received by (printed name and signature): B. Benedict Date: 11/17/17 Time: 1020
Relinquished by (printed name and signature): _____ Date: _____ Time: _____ Received by (printed name and signature): _____ Date: _____ Time: _____

SHIP TO: Vista Analytical Laboratory 1104 Windfield Way El Dorado Hills, CA 95762 (916) 673-1520 * Fax (916) 673-0106				Method of Shipment: FEDEX		Add Analysis(es) Requested										Comments	
ATTN: <u>Martha Maier</u>				Tracking No.: _____		Container(s)											
Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	PFOA/PFOS	UCMR3 PFAS List 6	537 List: 14	Full List of 26	Other: Please List	PFOA/PFOS/PFBS	UCMR3 PFAS List 6	537 List: 14			
CH-AT-1RW10-1117	11/14/17	10:19		2	P	DW						X			TZ preservative		
CH-AT-1FB10-1117	11/14/17	10:20		2	P	DW						X			TZ preservative		
CH-AT-1RW11-1117	11/14/17	10:29		2	P	DW						X			TZ preservative		
CH-AT-1FB11-1117	11/14/17	10:30		2	P	DW						X			TZ preservative		

Special Instructions/Comments: 7 DAY TAT
Analysis of Drinking Water samples for PFOA/PFOS/PFBS

SEND
DOCUMENTATION
AND RESULTS TO:

Name: Tiffany Hill
Company: CH2M HILL Inc.
Address: 1100 NE Circle Blvd Suite 300
City: Corvallis State: OR Zip: 97330
Phone: 541-768-3109 Fax: _____
Email: Tiffany.Hill@ch2m.com

Container Types: P = HDPE, PJ = HDPE Jar
O = Other _____

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____

Coder 4-1 of 1 pages

CTO-08 679580.15.FI.FS

ID: LR-537COC



CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701713 Temp: 0.0 °C
Storage ID: WR-2 Storage Secured: Yes ☒ No ☐

Project ID: CTO-08, MCOLF Atlantic PFAS DW Investigation PO#: 10006-7-106051 Sampler: J. Towns / A. Ewalt / K. Smith
(name)

TAT (check one): Standard ☐ 21 days
Rush (surcharge may apply) ☐ 14 days ☒ 7 days Specify _____

Invoice to: Name Tiffany Hill Company CH2M Address 1100 NE Circle Blvd Suite #300 City Corvallis State Oregon Ph# 541-768-3109 Fax# _____

Relinquished by (printed name and signature) Kathryn Smith Date 11/16/17 Time 1700 Received by (printed name and signature) B. Benedict Date 11/17/17 Time 0927
Relinquished by (printed name and signature) _____ Date _____ Time _____ Received by (printed name and signature) _____ Date _____ Time _____

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

ATTN: Martha Maier

Method of Shipment: FEDEX
Tracking No: _____

Add Analysis(es) Requested

Container(s)

Mod EPA Method 537

EPA Method 537 (DW only)

Sample ID	Date	Time	Location/Sample Description	Quantity	Type	Matrix	PFOA/PFOS	UOMR3 PFAS List 6	537 List 14	Full List of 26	Other: Please List Below	PFOA/PFOS/PFS	UOMR3 PFAS List 6	PFAS List 14	Comments
CH-AT-1RW12-1117	11/14/17	10:50		2	P	DW						X			TZ preservative
CH-AT-1FB12-1117	11/14/17	10:51		2	P	DW						X			TZ preservative
CH-AT-1RW35-1117	11/16/17	11:23		2	P	DW						X			TZ preservative
CH-AT-1FB35-1117	11/16/17	11:24		2	P	DW						X			TZ preservative
CH-AT-1RW36-1117	11/16/17	11:58		2	P	DW						X			TZ preservative
CH-AT-1FB36-1117	11/16/17	11:59		2	P	DW						X			TZ preservative

Special Instructions/Comments: 7 DAY TAT
Analysis of Drinking Water samples for PFOA/PFOS/PFBS

SEND DOCUMENTATION AND RESULTS TO:

Name: Tiffany Hill
Company: CH2M HILL Inc.
Address: 1100 NE Circle Blvd Suite 300
City: Corvallis State: OR Zip: 97330
Phone: 541-768-3109 Fax: _____
Email: Tiffany.Hill@ch2m.com

Container Types: P = HDPE, PJ = HDPE Jar
O = Other _____

Bottle Preservation Type: T = Thiosulfate,
TZ = Trizma: _____

Matrix Types: AQ = Aqueous, DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment,
SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum, O = Other: _____

Sample Log-in Checklist

 Vista Work Order #: 1701713 TAT 7

Samples Arrival:	Date/Time 11/17/17 0854	Initials: UBB	Location: WR-2
			Shelf/Rack: NA
Logged In:	Date/Time 11/17/17 1119	Initials: 8R	Location: WR-2
			Shelf/Rack: B5 F7
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
		☐ GSO	☐ DHL
		☐ Hand Delivered	☐ Other
Preservation:	☒ Ice	☐ Blue Ice	☐ Dry Ice
	☐ None		
Temp °C: 0.5 (uncorrected)	Time: 1032		Thermometer ID: IR-1
Temp °C: 0.6 (corrected)	Probe used: Yes ☐ No ☒		

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill <u>244</u> Trk # <u>7707 6984 5976</u>	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?	✓		
Preservation Documented:	Na ₂ S ₂ O ₃	☒ Trizma	None
	☒ Yes	No	NA
Shipping Container	☒ Vista	Client	Retain
		Return	Dispose

Comments:

Sample Log-in Checklist

 Vista Work Order #: 1701713 TAT 7

Samples Arrival:	Date/Time 11/17/17 08:54	Initials: BAP	Location: WR-2 Shelf/Rack: NA
Logged In:	Date/Time 11/17/17 11:19	Initials: SK	Location: WR-2 Shelf/Rack: F7
Delivered By:	☒ FedEx ☐ UPS ☐ On Trac ☐ GSO ☐ DHL ☐ Hand Delivered ☐ Other		
Preservation:	☒ Ice ☐ Blue Ice ☐ Dry Ice ☐ None		
Temp °C: 0.5 (uncorrected)	Time: 1024	Thermometer ID: IR-1	
Temp °C: 0.6 (corrected)	Probe used: Yes ☐ No ☒		

	YES	NO	NA
Adequate Sample Volume Received?	☒		
Holding Time Acceptable?	☒		
Shipping Container(s) Intact?	☒		
Shipping Custody Seals Intact?	☒		
Shipping Documentation Present?	☒		
Airbill <u>1044</u> Trk # <u>7707 6984 6159</u>	☒		
Sample Container Intact?	☒		
Sample Custody Seals Intact?			☒
Chain of Custody / Sample Documentation Present?	☒		
COC Anomaly/Sample Acceptance Form completed?		☒	☒
If Chlorinated or Drinking Water Samples, Acceptable Preservation?	☒		
Preservation Documented:	Na ₂ S ₂ O ₃ ☒ Trizma ☐ None ☐ Yes ☒ No ☐ NA ☐		
Shipping Container	Vista ☒ Client ☐ Retain ☐ Return ☐ Dispose ☐		

Comments:

Sample Log-in Checklist

 Vista Work Order #: 1701713 TAT 7

Samples Arrival:	Date/Time 11/17/17 0854	Initials: CBB	Location: WR-2
			Shelf/Rack: NA
Logged In:	Date/Time 11/17/17 1119	Initials: SK	Location: WR-2
			Shelf/Rack: F7
Delivered By:	☒ FedEx	☐ UPS	☐ On Trac
		☐ GSO	☐ DHL
		☐ Hand Delivered	☐ Other
Preservation:	☒ Ice	☐ Blue Ice	☐ Dry Ice
	☐ None		
Temp °C: 0.0 (uncorrected)	Time: 0927		Thermometer ID: DT-3
Temp °C: 0.0 (corrected)	Probe used: Yes ☒ No ☐		Thermometer ID: IR-1

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill <u>4054</u> Trk # <u>7707 69846814</u>	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	✓
If Chlorinated or Drinking Water Samples, Acceptable Preservation?	✓		
Preservation Documented:	Na ₂ S ₂ O ₃	☒ Trizma	☐ None
		☒ Yes	☐ No
Shipping Container	Vista	☒ Client	☐ Retain
		☒ Return	☐ Dispose

Comments:

EXTRACTION INFORMATION

Process Sheet
Workorder: 1701713



Prep Expiration: 2017-Nov-28
Client: CH2M Hill

Workorder Due: 27-Nov-17 00:00

TAT: 10

Method: 537 PFAS DW DoD Unmodified
Matrix: Drinking Water

Prep Batch: B7K0104

Prep Data Entered: HN 11/22/17
Date and Initials

Version: PFOA, PFOS, & PFBS
DoD: DoD QSM 5.1

Initial Sequence:

LabSampleID	A/B	Prep Rec	Spike Rec	ClientSampleID	Comments	Location	Container
1701713-01	A	☒	☒	CH-AT-1RW23-1117		WR-2 F-7	HDPE Bottle, 250 mL
1701713-02		☒	☒	CH-AT-1FB23-1117		WR-2 F-7	HDPE Bottle, 250 mL
1701713-03		☒	☒	CH-AT-1RW24-1117		WR-2 F-7	HDPE Bottle, 250 mL
1701713-04		☒	☒	CH-AT-1FB24-1117		WR-2 F-7	HDPE Bottle, 250 mL
1701713-05		☒	☒	CH-AT-1RW10-1117		WR-2 F-7	HDPE Bottle, 250 mL
1701713-06		☒	☒	CH-AT-1FB10-1117		WR-2 F-7	HDPE Bottle, 250 mL
1701713-07		☒	☒	CH-AT-1RW11-1117		WR-2 F-7	HDPE Bottle, 250 mL
1701713-08		☒	☒	CH-AT-1FB11-1117		WR-2 F-7	HDPE Bottle, 250 mL
1701713-09		☒	☒	CH-AT-1RW12-1117		WR-2 F-7	HDPE Bottle, 250 mL
1701713-10		☒	☒	CH-AT-1FB12-1117		WR-2 F-7	HDPE Bottle, 250 mL
1701713-11		☒	☒	CH-AT-1RW35-1117		WR-2 F-7	HDPE Bottle, 250 mL
1701713-12		☒	☒	CH-AT-1FB35-1117		WR-2 F-7	HDPE Bottle, 250 mL
1701713-13		☒	☒	CH-AT-1RW36-1117		WR-2 F-7	HDPE Bottle, 250 mL
1701713-14		☒	☒	CH-AT-1FB36-1117		WR-2 F-7	HDPE Bottle, 250 mL

LCS/LCSD

Pre-Prep Check Out: HC 11-20-17

Pre-Prep Check In: NA

Prep Check Out: NA

Prep Check In: NA

Prep Reconciled Initials/Date: HC 11-20-17

Spike Reconciled Initials/Date: HC 11-20-17

VialBoxID: Cheryl

PREPARATION BENCH SHEET

Matrix: Drinking Water

Method: 537 PFAS DW DoD Unmodified

B7K0104

Chemist: HC

Prep Date/Time: 20-Nov-17 09:00

11:45

HC

Prepared using: LCMS - SPE Extraction-LCMS

Balance ID: <u>HMS-8</u>							
Cen	VISTA Sample ID	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	SS/NS CHEM/WIT DATE	SPE	IS CHEM/WIT DATE
☐	B7K0104-BLK1 <u>(A)</u>	NA	NA	(0.250) ✓	HC HN 11-20-17	HC	HC VC 11-21-17
☐	B7K0104-BS1	↓	↓	(0.250) ✓			
☐	B7K0104-MS1 1701687-01 <u>(B)</u>	273.36	27.41	0.24595			
☐	B7K0104-MSD1 1701687-01	276.39	27.30	0.24909			
☐	1701687-01	273.16	27.58	0.24558			
☐	1701687-02	274.57	26.61	0.24796			
☐	1701687-03	266.96	26.63	0.24633 ^{HN 11/23/17} 0.24033			
☐	1701687-04	273.11	27.28	0.24583			
☐	1701687-05	269.54	27.54	0.24200			
☐	1701713-01	296.22	26.82	0.26940 ✓			
☐	1701713-02	292.42	27.54	0.26488 ✓			
☒	1701713-03	291.10	27.28	0.26382 ✓			
☐	1701713-04	301.13	27.46	0.27367 ✓			
☐	1701713-05	289.70	27.59	0.26211 ✓			
☐	1701713-06	299.97	27.53	0.27244 ✓			
☒	1701713-07	291.75	27.20	0.26455 ✓			

SS/IS:

17J3101, 50µL (V3)

NS:

17J2601, 20µL (V2)

IS/RS:

17J3102, 50µL (V2)

SPE Chem: Strata-X 33µm ^{500mg} 6mL
Lot#: S17-001946Ele SOLV: MeOH
Lot#: DT006Final Volume(s) 1mL

Notes:

(A) 1.25g frizma added HC 11-20-17

(B) A and B bottles combined to make the "250.0mL" desired volume for method. HC 11-20-17

Comments: Assume 1 g = 1 mL

Cen = Centrifuged
Work Order 1701713

PREPARATION BENCH SHEET

Matrix: Drinking Water

Method: 537 PFAS DW DoD Unmodified

B7K0104

Chemist: HC

Prep Date/Time: 20-Nov-17 09:00

11:45
HC

Prepared using: LCMS - SPE Extraction-LCMS

Balance ID: HZMS-8

Cen	VISTA Sample ID	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	SS/NS CHEM/WIT DATE	SPE	IS CHEM/WIT DATE
☐	1701713-08	295.21	27.82	0.26739 ✓	HC HN 11-20-17	HC	HC KC 11-21-17
☐	1701713-09	288.42	27.02	0.26141 ✓ HN 11/22/17			
☐	1701713-10	294.84	27.71	0.26713 ✓			
☐	1701713-11	289.26	27.42	0.26184 ✓			
☐	1701713-12	292.68	27.66	0.26502 ✓			
☐	1701713-13	283.99	26.90	0.25709 ✓			
☐	1701713-14	297.28	27.66	0.26962 ✓			

SS/IS: <u>17J3101, 50µl (V3)</u> NS: <u>17J2601, 20µl (V2)</u> IS/RS: <u>17J3102, 50µl (V2)</u>	SPE Chem: <u>Strata X 35µm 500mg Gal</u> Lot#: <u>517-001446</u> Ele SOLV: <u>MeOH</u> Lot#: <u>DT006</u> Final Volume(s): <u>1ml</u>	Notes:
---	---	--------

Comments: Assume 1 g = 1 mL

Cen = Centrifuged
Work Order 1701713

Batch: B7K0104

Matrix: Drinking Water

LabNumber	WetWeight (Initial)	% Solids (Extraction Solids)	DryWeight	Final	Extracted	Ext By	Spike	SpikeAmount	ClientMatrix	Analysis
1701687-01	0.24558 ✓	NA	NA	1000	20-Nov-17 11:45	HAC			Potable Water	537 PFAS DW DoD Unmod
1701687-02	0.24796 ✓			1000	20-Nov-17 11:45	HAC			Potable Water	537 PFAS DW DoD Unmod
1701687-03	0.24033 ✓			1000	20-Nov-17 11:45	HAC			Potable Water	537 PFAS DW DoD Unmod
1701687-04	0.24583 ✓			1000	20-Nov-17 11:45	HAC			Potable Water	537 PFAS DW DoD Unmod
1701687-05	0.242 ✓			1000	20-Nov-17 11:45	HAC			Potable Water	537 PFAS DW DoD Unmod
1701713-01	0.2694 ✓			1000	20-Nov-17 11:45	HAC			Drinking Water	537 PFAS DW DoD Unmod
1701713-02	0.26488 ✓			1000	20-Nov-17 11:45	HAC			Drinking Water	537 PFAS DW DoD Unmod
1701713-03	0.26382 ✓			1000	20-Nov-17 11:45	HAC			Drinking Water	537 PFAS DW DoD Unmod
1701713-04	0.27367 ✓			1000	20-Nov-17 11:45	HAC			Drinking Water	537 PFAS DW DoD Unmod
1701713-05	0.26211 ✓			1000	20-Nov-17 11:45	HAC			Drinking Water	537 PFAS DW DoD Unmod
1701713-06	0.27244 ✓			1000	20-Nov-17 11:45	HAC			Drinking Water	537 PFAS DW DoD Unmod
1701713-07	0.26455 ✓			1000	20-Nov-17 11:45	HAC			Drinking Water	537 PFAS DW DoD Unmod
1701713-08	0.26739 ✓			1000	20-Nov-17 11:45	HAC			Drinking Water	537 PFAS DW DoD Unmod
1701713-09	0.2614 ✓			1000	20-Nov-17 11:45	HAC			Drinking Water	537 PFAS DW DoD Unmod
1701713-10	0.26713 ✓			1000	20-Nov-17 11:45	HAC			Drinking Water	537 PFAS DW DoD Unmod
1701713-11	0.26184 ✓			1000	20-Nov-17 11:45	HAC			Drinking Water	537 PFAS DW DoD Unmod
1701713-12	0.26502 ✓			1000	20-Nov-17 11:45	HAC			Drinking Water	537 PFAS DW DoD Unmod
1701713-13	0.25709 ✓			1000	20-Nov-17 11:45	HAC			Drinking Water	537 PFAS DW DoD Unmod
1701713-14	0.26962 ✓			1000	20-Nov-17 11:45	HAC			Drinking Water	537 PFAS DW DoD Unmod
B7K0104-BLK1	0.25			1000	20-Nov-17 11:45	HAC				QC
B7K0104-BS1	0.25			1000	20-Nov-17 11:45	HAC				QC
B7K0104-MS1	0.24595 ✓			1000	20-Nov-17 11:45	HAC	17I2601	20		QC
B7K0104-MSD1	0.24909 ✓			1000	20-Nov-17 11:45	HAC	17I2601	20		QC

HN 11/22/17

SAMPLE DATA –EPA METHOD 537

Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-5.qld

Last Altered: Tuesday, November 28, 2017 13:50:31 Pacific Standard Time

Printed: Tuesday, November 28, 2017 13:51:47 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_5, Date: 28-Nov-2017, Time: 10:48:21, ID: B7K0104-BLK1 LRB 0.25, Description: LRB

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7		8.46e3		0.2500	3.11				
2	2 PFOA	413 > 368.7	4.96e1	8.35e3		0.2500	4.41	4.41	0.0594	0.283	
3	3 PFOS	499 >79.9	8.49e0	8.46e3		0.2500	4.81	4.81	0.0288	0.0975	
4	4 13C2-PFHxA	315 > 269.8	3.78e3	8.35e3	0.451	0.2500	3.47	3.48	4.53	40.2	100.5
5	5 13C2-PFDA	515.1 > 469.9	3.80e3	8.35e3	0.590	0.2500	5.04	5.04	4.56	30.9	77.2
6	6 13C2-PFOA	414.9 > 369.7	8.35e3	8.35e3	1.000	0.2500	4.41	4.41	10.0	40.0	100.0
7	7 13C4-PFOS	503.0 > 79.9	8.46e3	8.46e3	1.000	0.2500	4.81	4.81	28.7	115	100.0

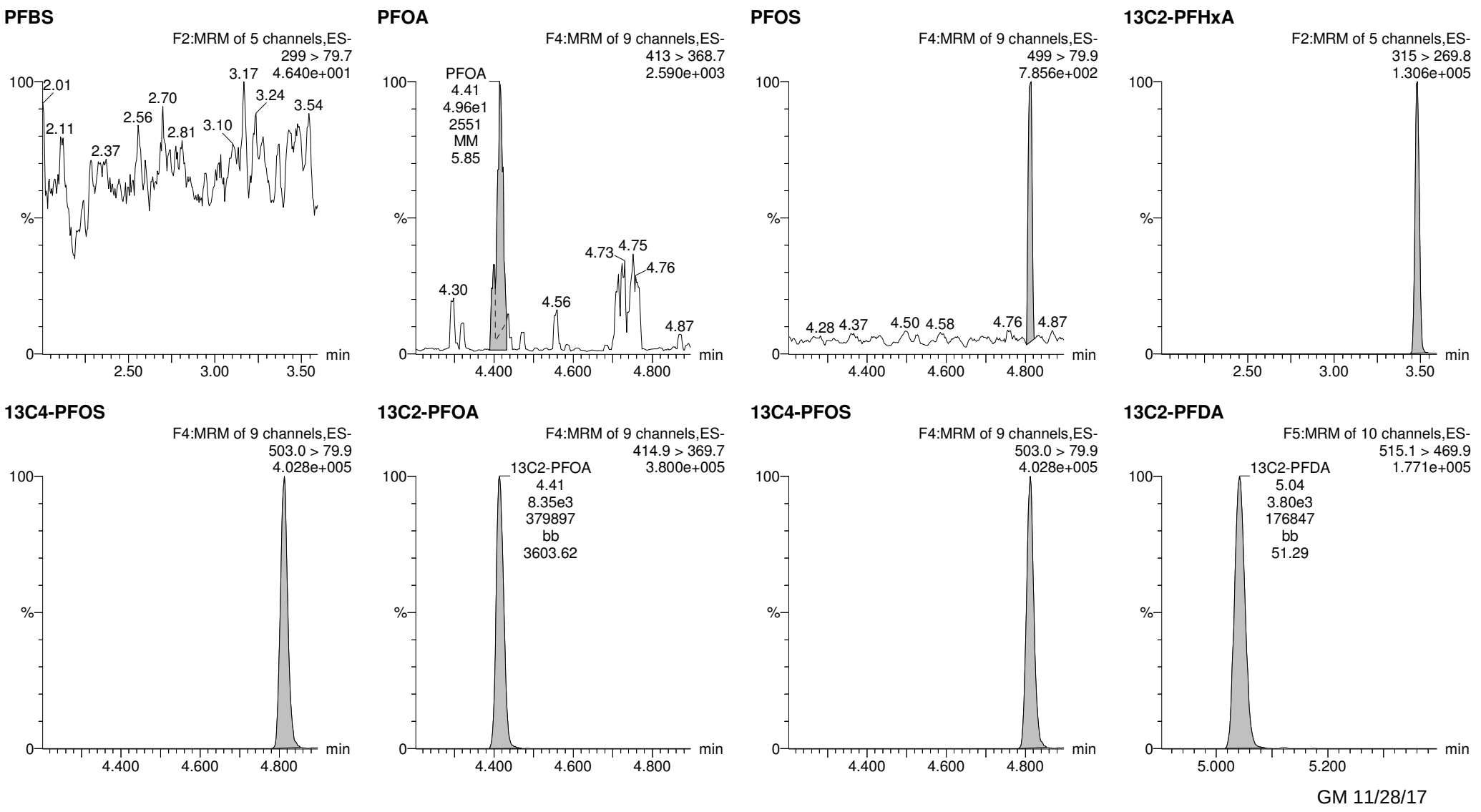
Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-5.qld

Rev'd: MM 11/28/17

Last Altered: Tuesday, November 28, 2017 13:50:31 Pacific Standard Time

Printed: Tuesday, November 28, 2017 13:51:47 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30
Name: 171128G1_5, Date: 28-Nov-2017, Time: 10:48:21, ID: B7K0104-BLK1 LRB 0.25, Description: LRB



13C4-PFOS

F4:MRM of 9 channels,ES-503.0 > 79.9
4.028e+005

13C2-PFOA

F4:MRM of 9 channels,ES-414.9 > 369.7
3.800e+005

13C4-PFOS

F4:MRM of 9 channels,ES-503.0 > 79.9
4.028e+005

13C2-PFDA

F5:MRM of 10 channels,ES-515.1 > 469.9
1.771e+005

Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-3.qld

Last Altered: Tuesday, November 28, 2017 13:46:56 Pacific Standard Time

Printed: Tuesday, November 28, 2017 13:48:08 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_3, Date: 28-Nov-2017, Time: 10:23:29, ID: B7K0104-BS1 LFB 0.25, Description: LFB

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7	4.55e3	9.08e3		0.2500	3.11	3.11	14.4	64.9	91.6
2	2 PFOA	413 > 368.7	1.33e4	8.00e3		0.2500	4.41	4.41	16.7	79.2	99.0
3	3 PFOS	499 >79.9	6.40e3	9.08e3		0.2500	4.81	4.81	20.2	68.4	92.6
4	4 13C2-PFHxA	315 > 269.8	3.94e3	8.00e3	0.451	0.2500	3.47	3.48	4.92	43.7	109.1
5	5 13C2-PFDA	515.1 > 469.9	4.16e3	8.00e3	0.590	0.2500	5.04	5.04	5.20	35.3	88.2
6	6 13C2-PFOA	414.9 > 369.7	8.00e3	8.00e3	1.000	0.2500	4.41	4.41	10.0	40.0	100.0
7	7 13C4-PFOS	503.0 > 79.9	9.08e3	9.08e3	1.000	0.2500	4.81	4.81	28.7	115	100.0

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Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-3.qld

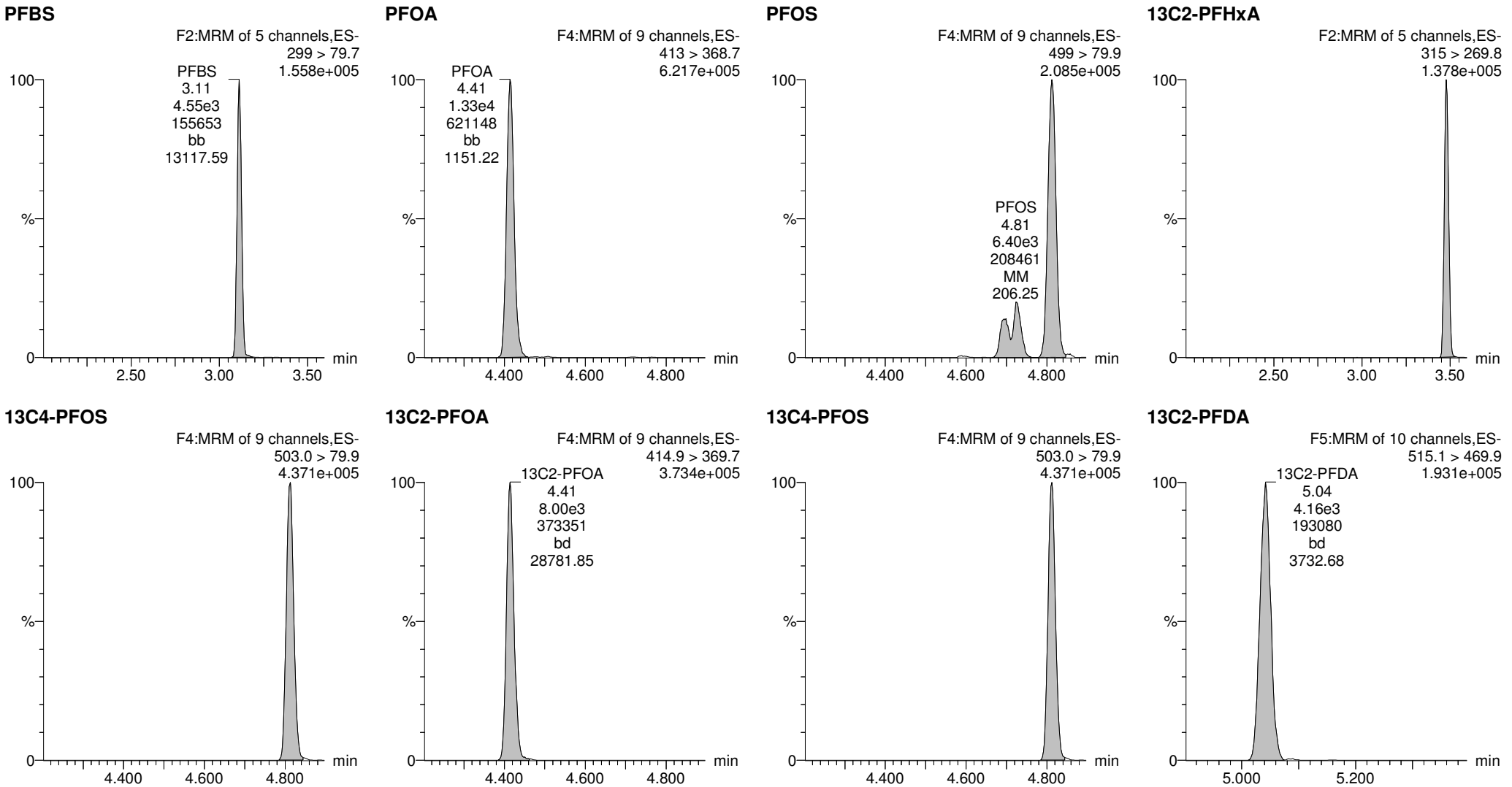
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Printed: Tuesday, November 28, 2017 13:48:08 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_3, Date: 28-Nov-2017, Time: 10:23:29, ID: B7K0104-BS1 LFB 0.25, Description: LFB



Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-7.qld

Last Altered: Tuesday, November 28, 2017 13:53:23 Pacific Standard Time

Printed: Tuesday, November 28, 2017 13:54:00 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_7, **Date:** 28-Nov-2017, **Time:** 11:00:46, **ID:** 1701713-01 CH-AT-1RW23-1117 0.2694, **Description:** CH-AT-1RW23-1117

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7		8.16e3		0.2694	3.11				
2	2 PFOA	413 > 368.7	4.72e1	8.16e3		0.2694	4.41	4.41	0.0578	0.255	
3	3 PFOS	499 >79.9		8.16e3		0.2694	4.81				
4	4 13C2-PFHxA	315 > 269.8	4.12e3	8.16e3	0.451	0.2694	3.47	3.48	5.05	41.6	112.0
5	5 13C2-PFDA	515.1 > 469.9	4.54e3	8.16e3	0.590	0.2694	5.04	5.04	5.56	35.0	94.2
6	6 13C2-PFOA	414.9 > 369.7	8.16e3	8.16e3	1.000	0.2694	4.41	4.41	10.0	37.1	100.0
7	7 13C4-PFOS	503.0 > 79.9	8.16e3	8.16e3	1.000	0.2694	4.81	4.81	28.7	107	100.0

Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-7.qld

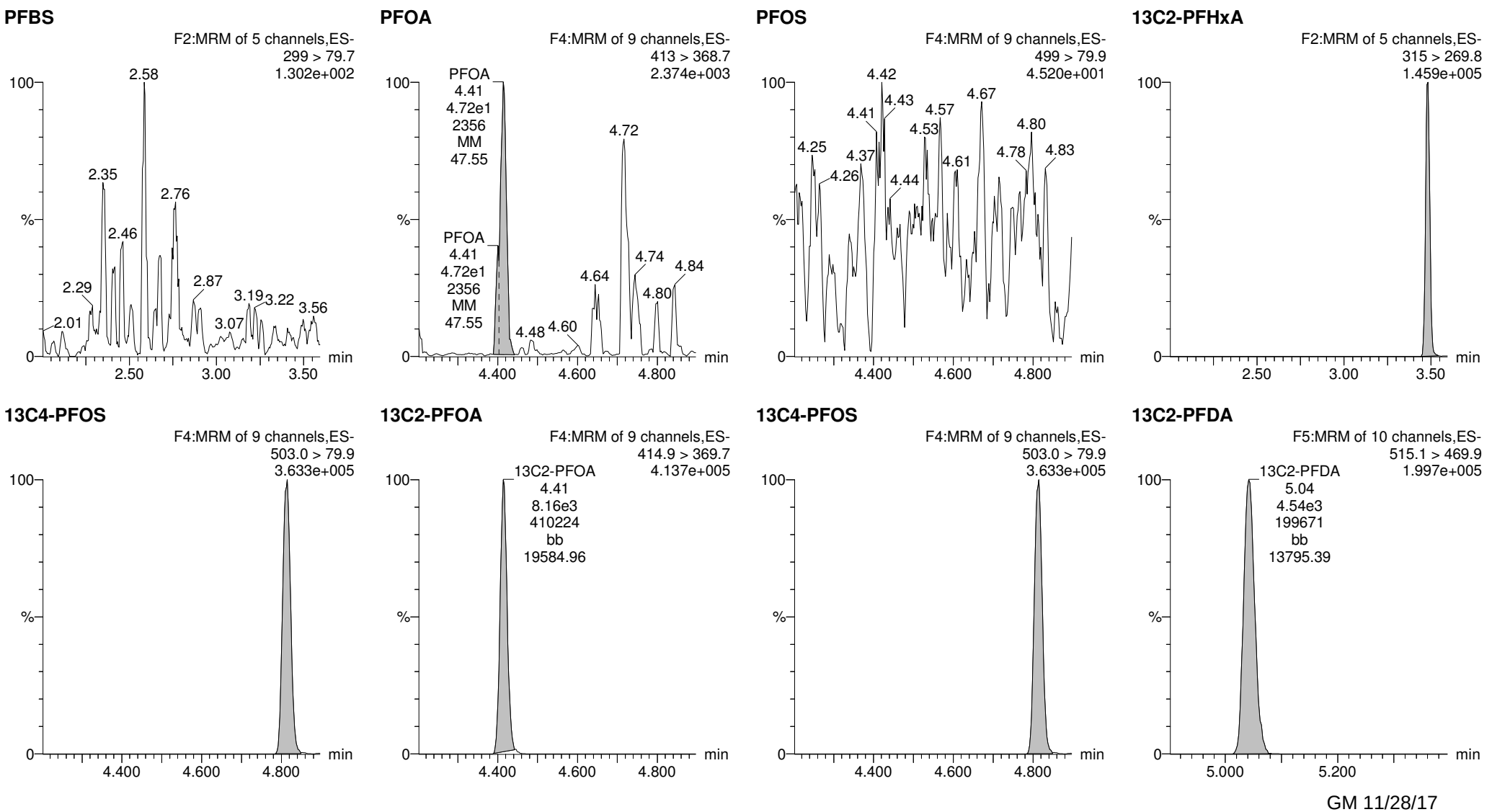
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Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_7, Date: 28-Nov-2017, Time: 11:00:46, ID: 1701713-01 CH-AT-1RW23-1117 0.2694, Description: CH-AT-1RW23-1117



Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-8.qld

Last Altered: Tuesday, November 28, 2017 13:57:41 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:00:33 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_8, **Date:** 28-Nov-2017, **Time:** 11:13:13, **ID:** 1701713-02 CH-AT-1FB23-1117 0.26488, **Description:** CH-AT-1FB23-1117

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7		7.80e3		0.2649	3.11				
2	2 PFOA	413 > 368.7	3.63e1	7.50e3		0.2649	4.42	4.42	0.0484	0.217	
3	3 PFOS	499 >79.9		7.80e3		0.2649	4.81				
4	4 13C2-PFHxA	315 > 269.8	3.72e3	7.50e3	0.451	0.2649	3.48	3.48	4.96	41.5	110.0
5	5 13C2-PFDA	515.1 > 469.9	4.19e3	7.50e3	0.590	0.2649	5.05	5.04	5.59	35.7	94.7
6	6 13C2-PFOA	414.9 > 369.7	7.50e3	7.50e3	1.000	0.2649	4.41	4.42	10.0	37.8	100.0
7	7 13C4-PFOS	503.0 > 79.9	7.80e3	7.80e3	1.000	0.2649	4.81	4.81	28.7	108	100.0

Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-8.qld

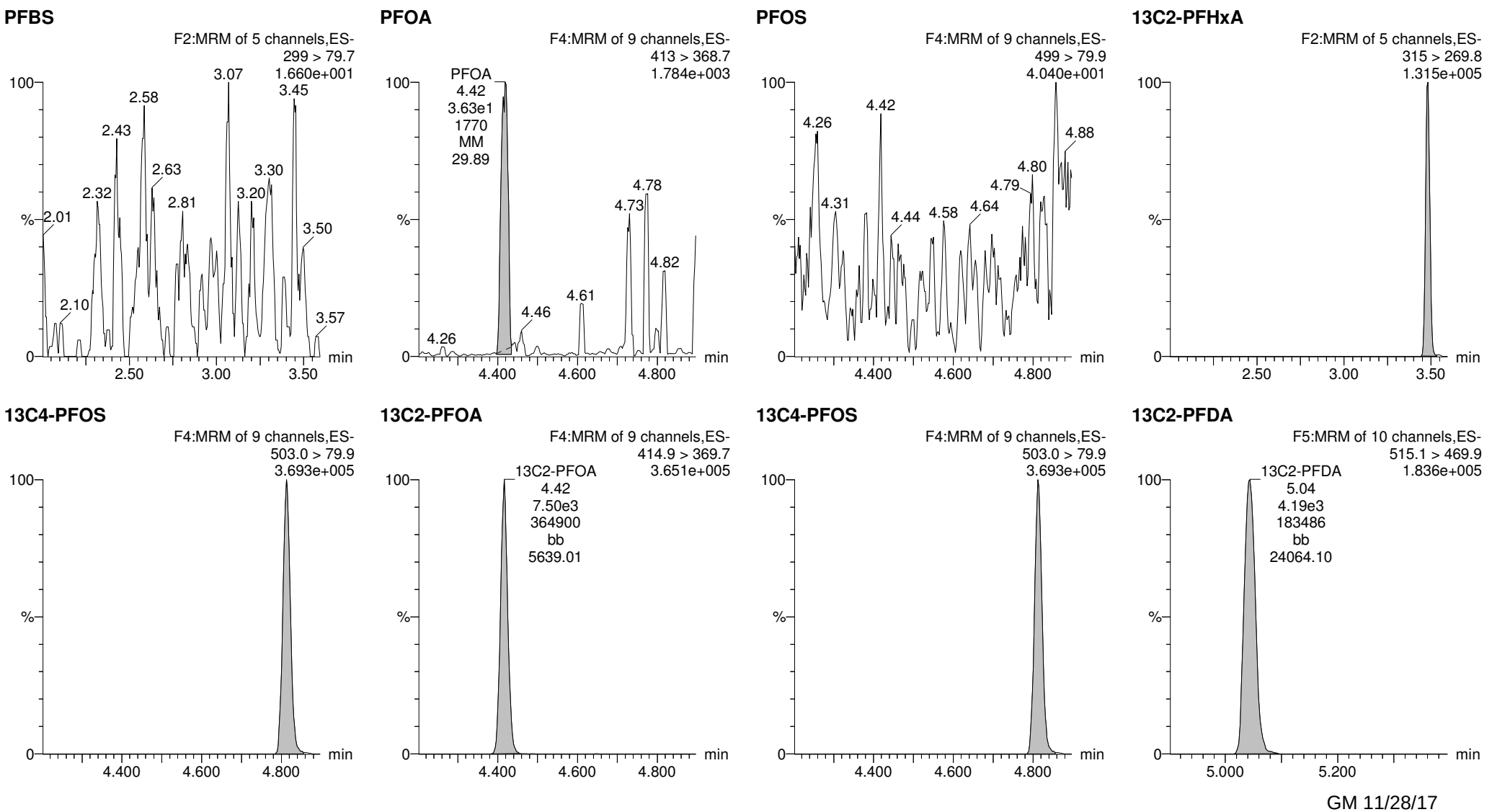
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Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_8, Date: 28-Nov-2017, Time: 11:13:13, ID: 1701713-02 CH-AT-1FB23-1117 0.26488, Description: CH-AT-1FB23-1117



Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-9.qld

Last Altered: Tuesday, November 28, 2017 14:01:30 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:01:49 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_9, **Date:** 28-Nov-2017, **Time:** 11:25:40, **ID:** 1701713-03 CH-AT-1RW24-1117 0.26382, **Description:** CH-AT-1RW24-1117

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7		8.40e3		0.2638	3.11				
2	2 PFOA	413 > 368.7	2.83e1	7.63e3		0.2638	4.41	4.42	0.0371	0.167	
3	3 PFOS	499 >79.9		8.40e3		0.2638	4.81				
4	4 13C2-PFHxA	315 > 269.8	3.63e3	7.63e3	0.451	0.2638	3.47	3.48	4.76	40.0	105.4
5	5 13C2-PFDA	515.1 > 469.9	3.68e3	7.63e3	0.590	0.2638	5.04	5.04	4.82	31.0	81.7
6	6 13C2-PFOA	414.9 > 369.7	7.63e3	7.63e3	1.000	0.2638	4.41	4.41	10.0	37.9	100.0
7	7 13C4-PFOS	503.0 > 79.9	8.40e3	8.40e3	1.000	0.2638	4.81	4.81	28.7	109	100.0

Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-9.qld

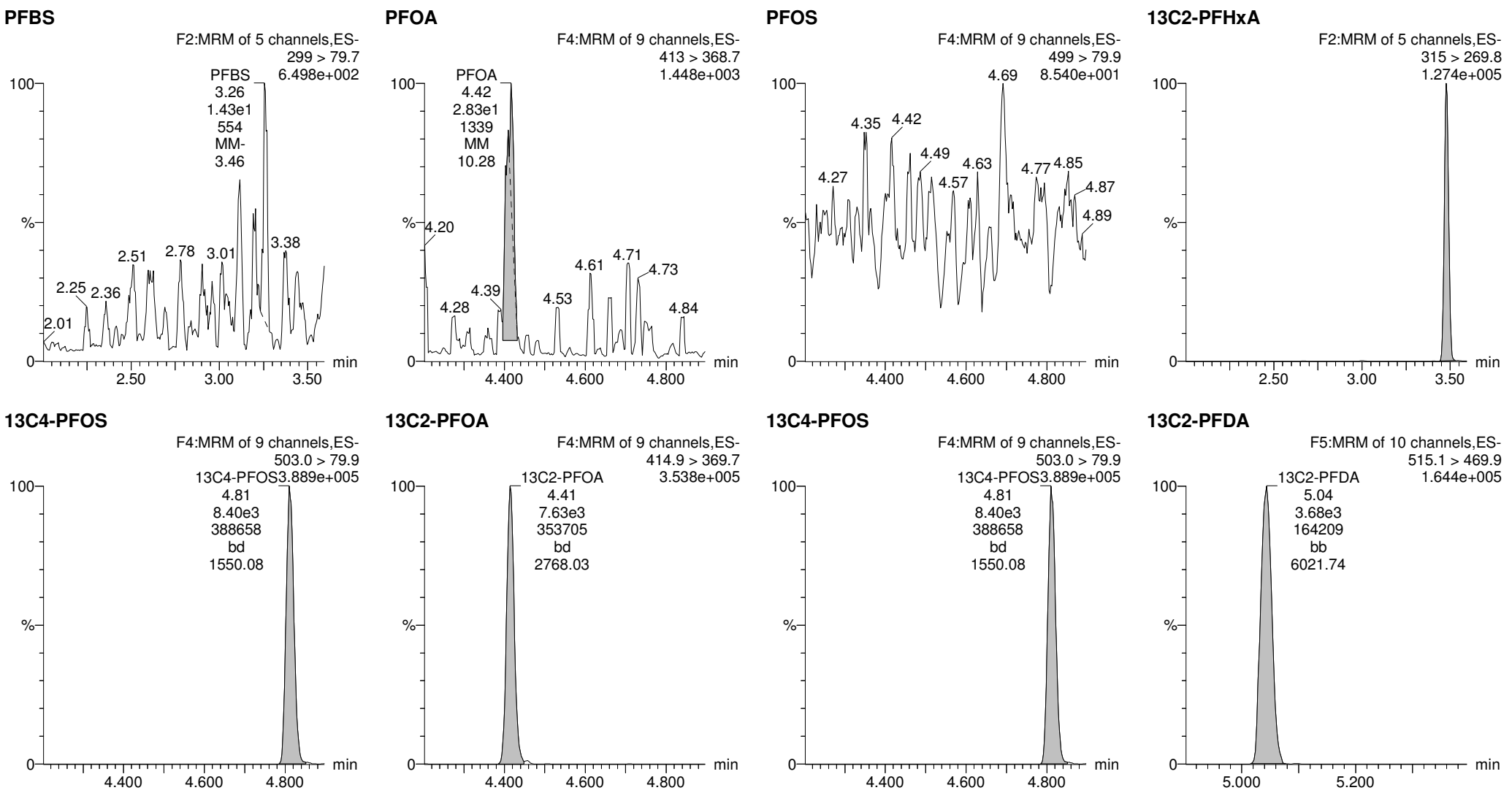
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Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_9, Date: 28-Nov-2017, Time: 11:25:40, ID: 1701713-03 CH-AT-1RW24-1117 0.26382, Description: CH-AT-1RW24-1117



Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-10.qld

Last Altered: Tuesday, November 28, 2017 14:02:21 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:05:54 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_10, Date: 28-Nov-2017, Time: 11:38:07, ID: 1701713-04 CH-AT-1FB24-1117 0.27367, Description: CH-AT-1FB24-1117

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7		8.49e3		0.2737	3.11				
2	2 PFOA	413 > 368.7	4.85e1	7.30e3		0.2737	4.42	4.42	0.0664	0.289	
3	3 PFOS	499 >79.9		8.49e3		0.2737	4.81				
4	4 13C2-PFHxA	315 > 269.8	3.66e3	7.30e3	0.451	0.2737	3.48	3.48	5.01	40.6	111.2
5	5 13C2-PFDA	515.1 > 469.9	4.10e3	7.30e3	0.590	0.2737	5.05	5.04	5.61	34.8	95.1
6	6 13C2-PFOA	414.9 > 369.7	7.30e3	7.30e3	1.000	0.2737	4.41	4.42	10.0	36.5	100.0
7	7 13C4-PFOS	503.0 > 79.9	8.49e3	8.49e3	1.000	0.2737	4.81	4.81	28.7	105	100.0

Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-10.qld

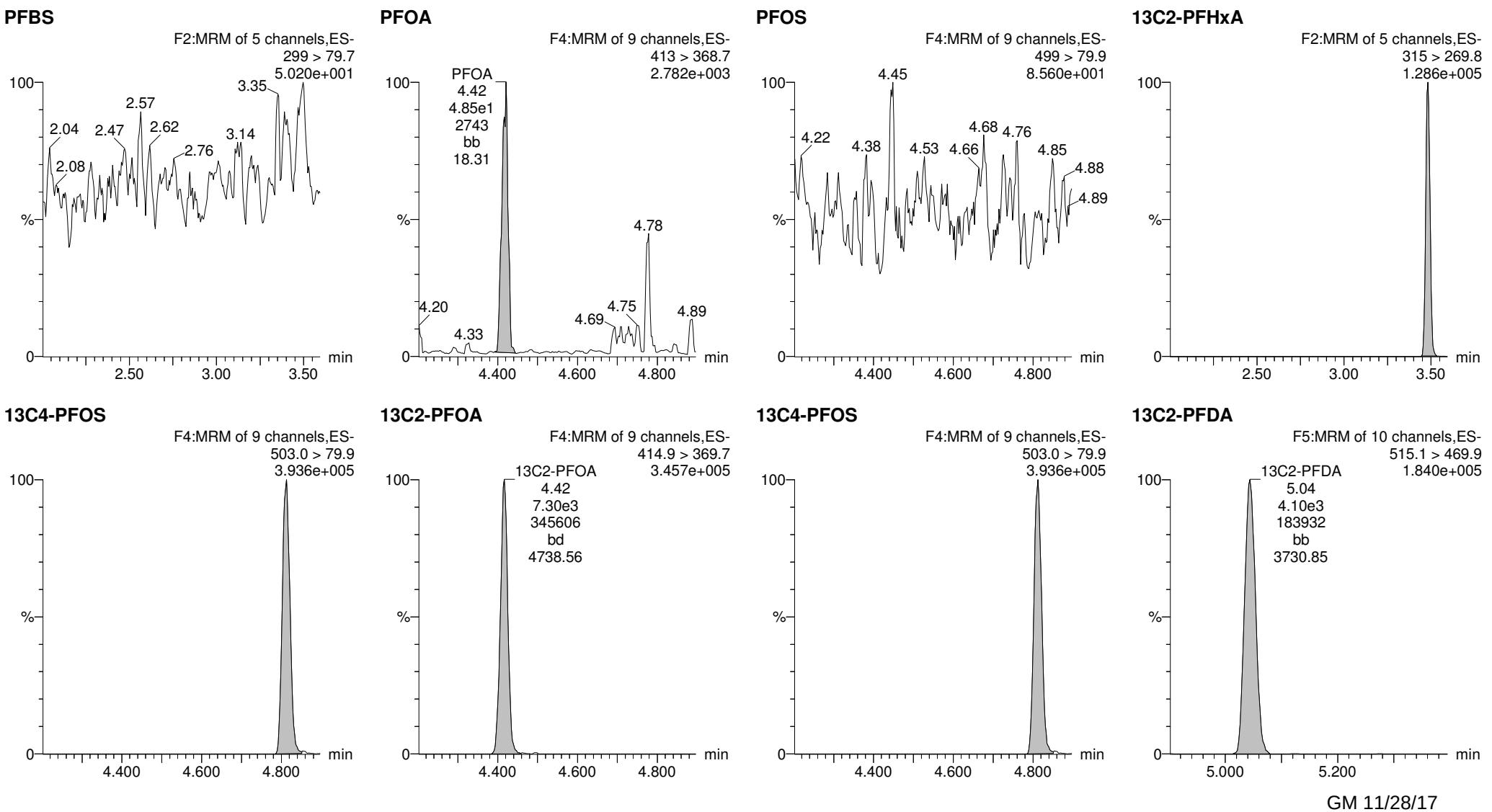
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Printed: Tuesday, November 28, 2017 14:05:54 Pacific Standard Time

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Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_10, Date: 28-Nov-2017, Time: 11:38:07, ID: 1701713-04 CH-AT-1FB24-1117 0.27367, Description: CH-AT-1FB24-1117



Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-11.qld

Last Altered: Tuesday, November 28, 2017 14:10:57 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:11:24 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_11, Date: 28-Nov-2017, Time: 11:50:35, ID: 1701713-05 CH-AT-1RW10-1117 0.26211, Description: CH-AT-1RW10-1117

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7		9.14e3		0.2621	3.11				
2	2 PFOA	413 > 368.7	5.70e1	8.09e3		0.2621	4.42	4.41	0.0706	0.320	
3	3 PFOS	499 >79.9	2.08e0	9.14e3		0.2621	4.81	4.82	0.00653	0.0211	
4	4 13C2-PFHxA	315 > 269.8	3.96e3	8.09e3	0.451	0.2621	3.48	3.48	4.89	41.4	108.5
5	5 13C2-PFDA	515.1 > 469.9	4.55e3	8.09e3	0.590	0.2621	5.05	5.04	5.63	36.4	95.4
6	6 13C2-PFOA	414.9 > 369.7	8.09e3	8.09e3	1.000	0.2621	4.41	4.42	10.0	38.2	100.0
7	7 13C4-PFOS	503.0 > 79.9	9.14e3	9.14e3	1.000	0.2621	4.81	4.81	28.7	109	100.0

Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-11.qld

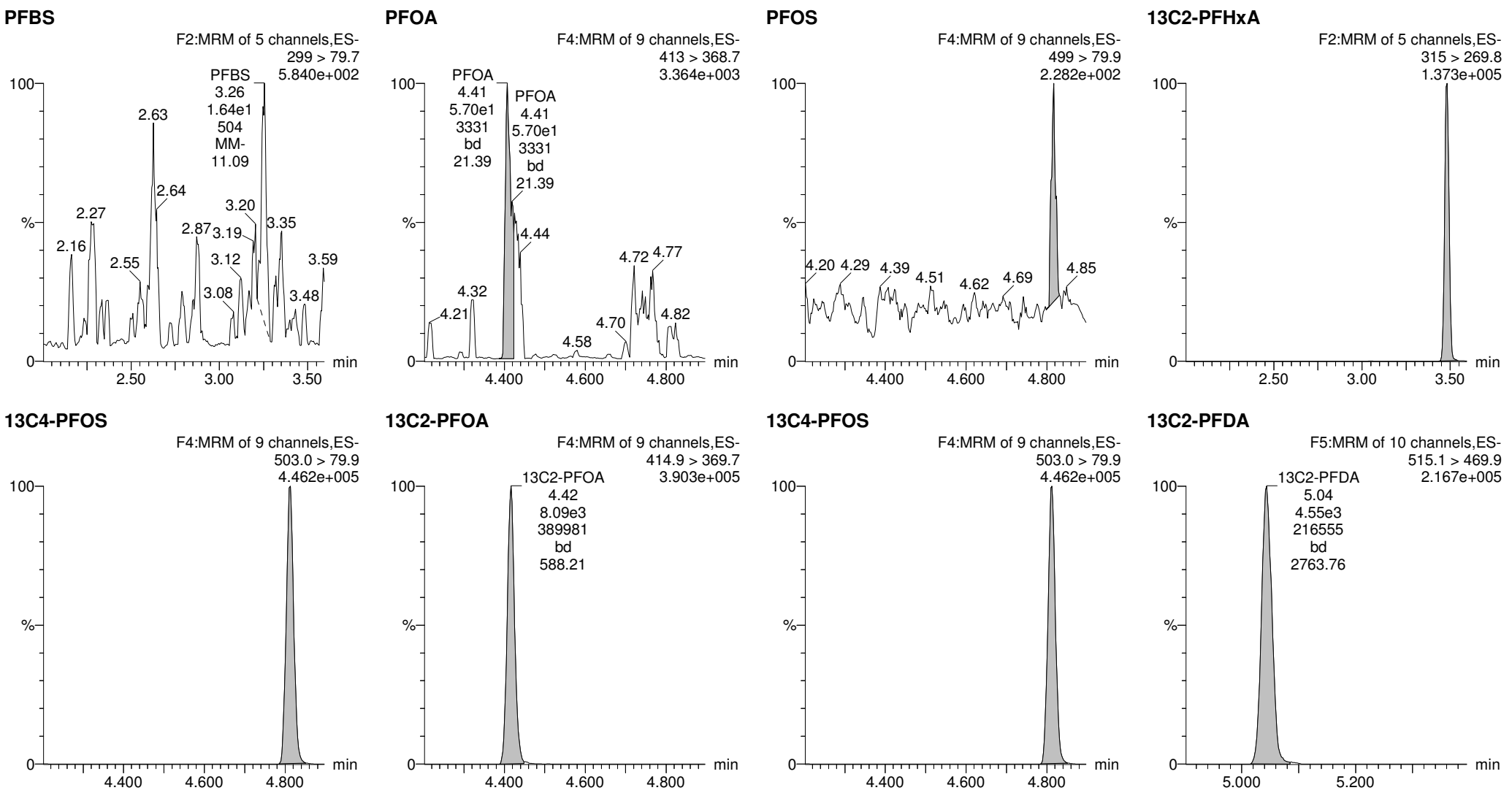
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Printed: Tuesday, November 28, 2017 14:11:24 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_11, Date: 28-Nov-2017, Time: 11:50:35, ID: 1701713-05 CH-AT-1RW10-1117 0.26211, Description: CH-AT-1RW10-1117



Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-12.qld

Last Altered: Tuesday, November 28, 2017 14:11:31 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:12:24 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_12, Date: 28-Nov-2017, Time: 12:02:58, ID: 1701713-06 CH-AT-1FB10-1117 0.27244, Description: CH-AT-1FB10-1117

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7		8.74e3		0.2724	3.11				
2	2 PFOA	413 > 368.7	2.39e1	8.02e3		0.2724	4.41	4.42	0.0298	0.130	
3	3 PFOS	499 >79.9		8.74e3		0.2724	4.81				
4	4 13C2-PFHxA	315 > 269.8	3.82e3	8.02e3	0.451	0.2724	3.47	3.48	4.77	38.8	105.7
5	5 13C2-PFDA	515.1 > 469.9	4.28e3	8.02e3	0.590	0.2724	5.04	5.04	5.34	33.2	90.5
6	6 13C2-PFOA	414.9 > 369.7	8.02e3	8.02e3	1.000	0.2724	4.41	4.41	10.0	36.7	100.0
7	7 13C4-PFOS	503.0 > 79.9	8.74e3	8.74e3	1.000	0.2724	4.81	4.81	28.7	105	100.0

Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-12.qld

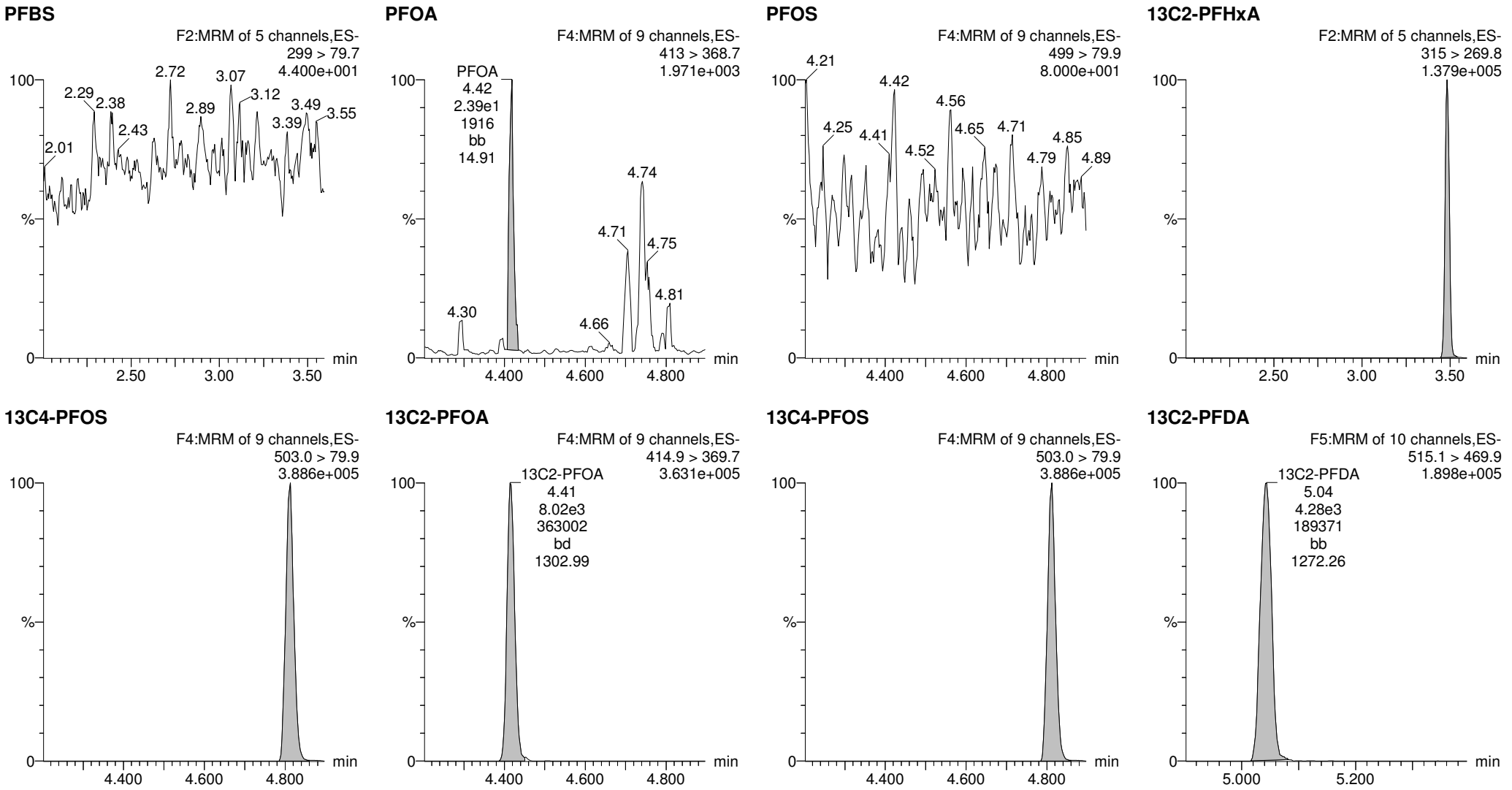
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Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_12, Date: 28-Nov-2017, Time: 12:02:58, ID: 1701713-06 CH-AT-1FB10-1117 0.27244, Description: CH-AT-1FB10-1117



Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-13.qld

Last Altered: Tuesday, November 28, 2017 14:13:24 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:13:43 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_13, Date: 28-Nov-2017, Time: 12:15:23, ID: 1701713-07 CH-AT-1RW11-1117 0.26455, Description: CH-AT-1RW11-1117

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7		8.36e3		0.2646	3.11				
2	2 PFOA	413 > 368.7	4.21e1	7.81e3		0.2646	4.41	4.42	0.0539	0.242	
3	3 PFOS	499 >79.9		8.36e3		0.2646	4.81				
4	4 13C2-PFHxA	315 > 269.8	3.90e3	7.81e3	0.451	0.2646	3.47	3.48	5.00	41.9	110.8
5	5 13C2-PFDA	515.1 > 469.9	4.08e3	7.81e3	0.590	0.2646	5.04	5.04	5.23	33.5	88.5
6	6 13C2-PFOA	414.9 > 369.7	7.81e3	7.81e3	1.000	0.2646	4.41	4.41	10.0	37.8	100.0
7	7 13C4-PFOS	503.0 > 79.9	8.36e3	8.36e3	1.000	0.2646	4.81	4.81	28.7	108	100.0

Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-13.qld

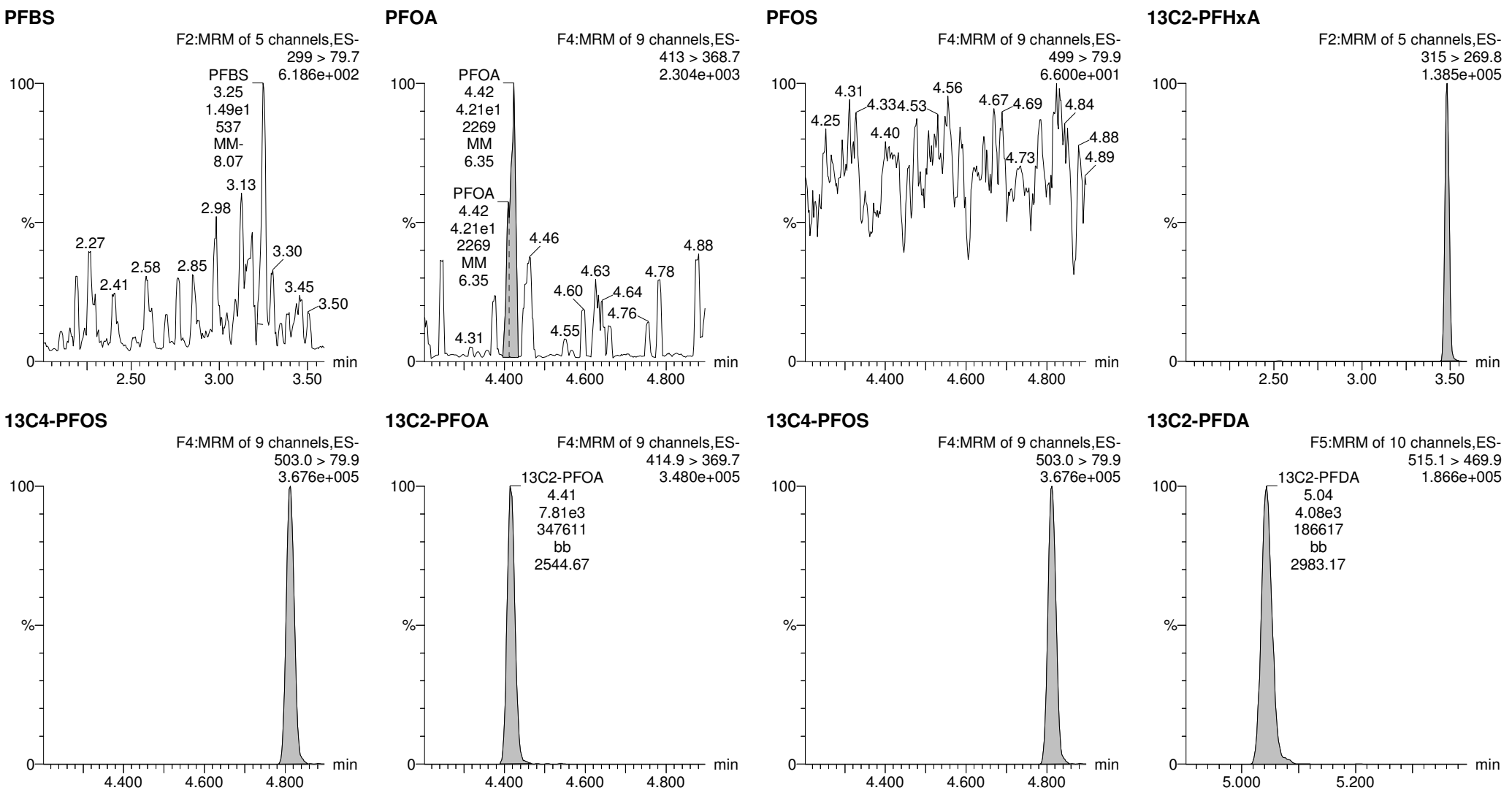
Rev'd: MM 11/28/17

Last Altered: Tuesday, November 28, 2017 14:13:24 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:13:43 Pacific Standard Time

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Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_13, Date: 28-Nov-2017, Time: 12:15:23, ID: 1701713-07 CH-AT-1RW11-1117 0.26455, Description: CH-AT-1RW11-1117



Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-14.qld

Last Altered: Tuesday, November 28, 2017 14:14:30 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:14:47 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_14, Date: 28-Nov-2017, Time: 12:27:48, ID: 1701713-08 CH-AT-1FB11-1117 0.26739, Description: CH-AT-1FB11-1117

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7		9.52e3		0.2674	3.11				
2	2 PFOA	413 > 368.7	2.59e1	7.95e3		0.2674	4.42	4.42	0.0325	0.145	
3	3 PFOS	499 >79.9		9.52e3		0.2674	4.81				
4	4 13C2-PFHxA	315 > 269.8	3.72e3	7.95e3	0.451	0.2674	3.48	3.48	4.68	38.8	103.8
5	5 13C2-PFDA	515.1 > 469.9	4.26e3	7.95e3	0.590	0.2674	5.05	5.04	5.35	33.9	90.7
6	6 13C2-PFOA	414.9 > 369.7	7.95e3	7.95e3	1.000	0.2674	4.41	4.42	10.0	37.4	100.0
7	7 13C4-PFOS	503.0 > 79.9	9.52e3	9.52e3	1.000	0.2674	4.81	4.81	28.7	107	100.0

Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-14.qld

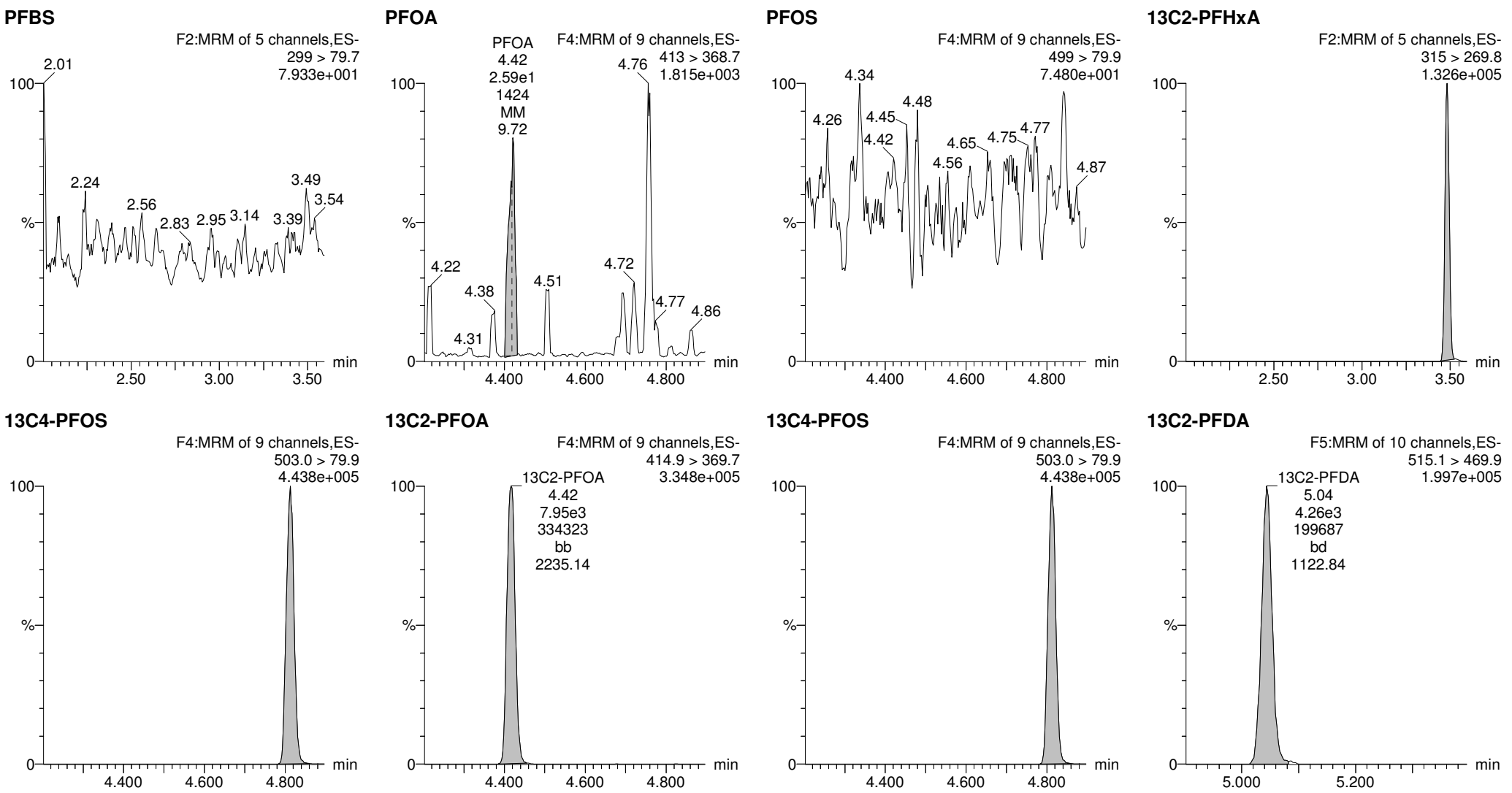
Rev'd: MM 11/28/17

Last Altered: Tuesday, November 28, 2017 14:14:30 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:14:47 Pacific Standard Time

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Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_14, Date: 28-Nov-2017, Time: 12:27:48, ID: 1701713-08 CH-AT-1FB11-1117 0.26739, Description: CH-AT-1FB11-1117



Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-15.qld

Last Altered: Tuesday, November 28, 2017 14:15:29 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:15:50 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_15, Date: 28-Nov-2017, Time: 12:40:13, ID: 1701713-09 CH-AT-1RW12-1117 0.2614, Description: CH-AT-1RW12-1117

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7		8.46e3		0.2614	3.11				
2	2 PFOA	413 > 368.7	4.19e1	7.87e3		0.2614	4.41	4.42	0.0532	0.242	
3	3 PFOS	499 >79.9		8.46e3		0.2614	4.81				
4	4 13C2-PFHxA	315 > 269.8	3.60e3	7.87e3	0.451	0.2614	3.47	3.48	4.57	38.8	101.3
5	5 13C2-PFDA	515.1 > 469.9	3.97e3	7.87e3	0.590	0.2614	5.04	5.04	5.04	32.7	85.4
6	6 13C2-PFOA	414.9 > 369.7	7.87e3	7.87e3	1.000	0.2614	4.41	4.41	10.0	38.3	100.0
7	7 13C4-PFOS	503.0 > 79.9	8.46e3	8.46e3	1.000	0.2614	4.81	4.81	28.7	110	100.0

Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-15.qld

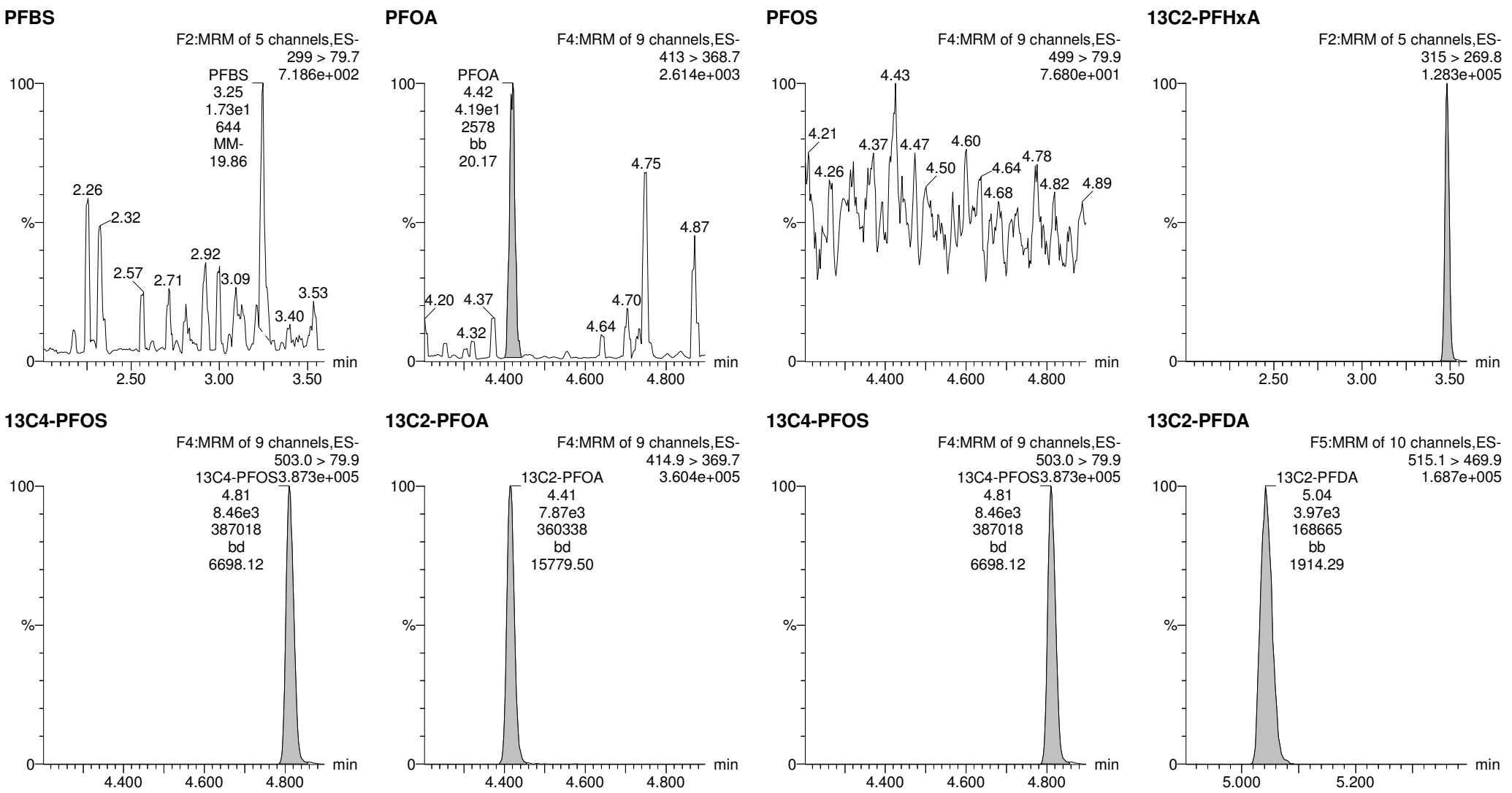
Last Altered: Tuesday, November 28, 2017 14:15:29 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:15:50 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_15, Date: 28-Nov-2017, Time: 12:40:13, ID: 1701713-09 CH-AT-1RW12-1117 0.2614, Description: CH-AT-1RW12-1117



Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-16.qld

Last Altered: Tuesday, November 28, 2017 14:16:25 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:16:42 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_16, Date: 28-Nov-2017, Time: 12:52:39, ID: 1701713-10 CH-AT-1FB12-1117 0.26713, Description: CH-AT-1FB12-1117

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7		8.96e3		0.2671	3.11				
2	2 PFOA	413 > 368.7	3.76e1	7.58e3		0.2671	4.42	4.42	0.0496	0.221	
3	3 PFOS	499 >79.9		8.96e3		0.2671	4.81				
4	4 13C2-PFHxA	315 > 269.8	3.67e3	7.58e3	0.451	0.2671	3.48	3.48	4.84	40.2	107.4
5	5 13C2-PFDA	515.1 > 469.9	4.02e3	7.58e3	0.590	0.2671	5.05	5.04	5.30	33.6	89.7
6	6 13C2-PFOA	414.9 > 369.7	7.58e3	7.58e3	1.000	0.2671	4.41	4.42	10.0	37.4	100.0
7	7 13C4-PFOS	503.0 > 79.9	8.96e3	8.96e3	1.000	0.2671	4.81	4.81	28.7	107	100.0

Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-16.qld

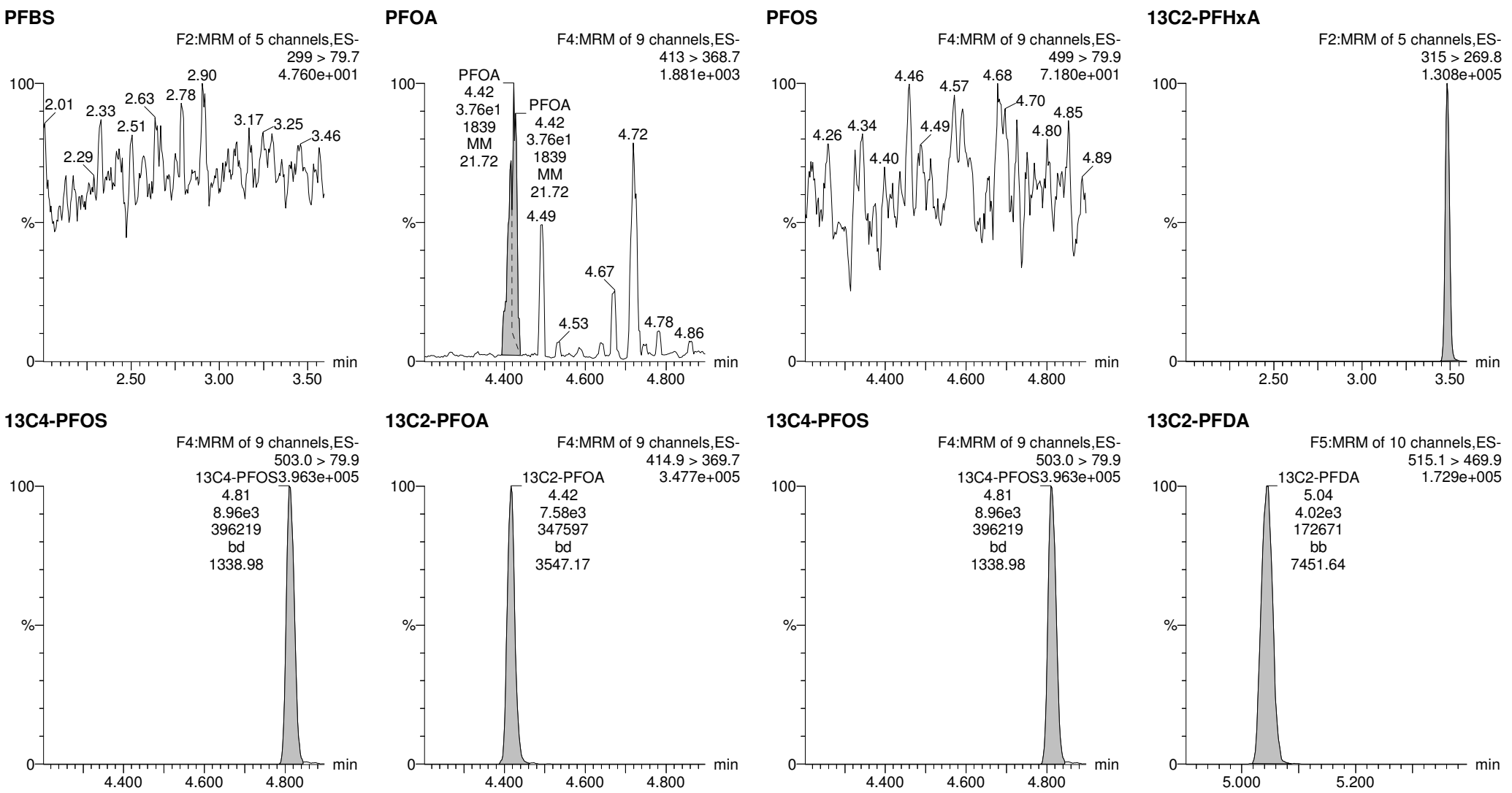
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Printed: Tuesday, November 28, 2017 14:16:42 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_16, Date: 28-Nov-2017, Time: 12:52:39, ID: 1701713-10 CH-AT-1FB12-1117 0.26713, Description: CH-AT-1FB12-1117



Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-17.qld

Last Altered: Tuesday, November 28, 2017 14:17:21 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:17:37 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_17, Date: 28-Nov-2017, Time: 13:05:05, ID: 1701713-11 CH-AT-1RW35-1117 0.26184, Description: CH-AT-1RW35-1117

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7		8.67e3		0.2618	3.11				
2	2 PFOA	413 > 368.7	5.69e1	7.63e3		0.2618	4.42	4.41	0.0746	0.339	
3	3 PFOS	499 >79.9		8.67e3		0.2618	4.81				
4	4 13C2-PFHxA	315 > 269.8	3.65e3	7.63e3	0.451	0.2618	3.48	3.48	4.79	40.5	106.1
5	5 13C2-PFDA	515.1 > 469.9	4.44e3	7.63e3	0.590	0.2618	5.05	5.04	5.82	37.7	98.6
6	6 13C2-PFOA	414.9 > 369.7	7.63e3	7.63e3	1.000	0.2618	4.41	4.42	10.0	38.2	100.0
7	7 13C4-PFOS	503.0 > 79.9	8.67e3	8.67e3	1.000	0.2618	4.81	4.81	28.7	110	100.0

Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-17.qld

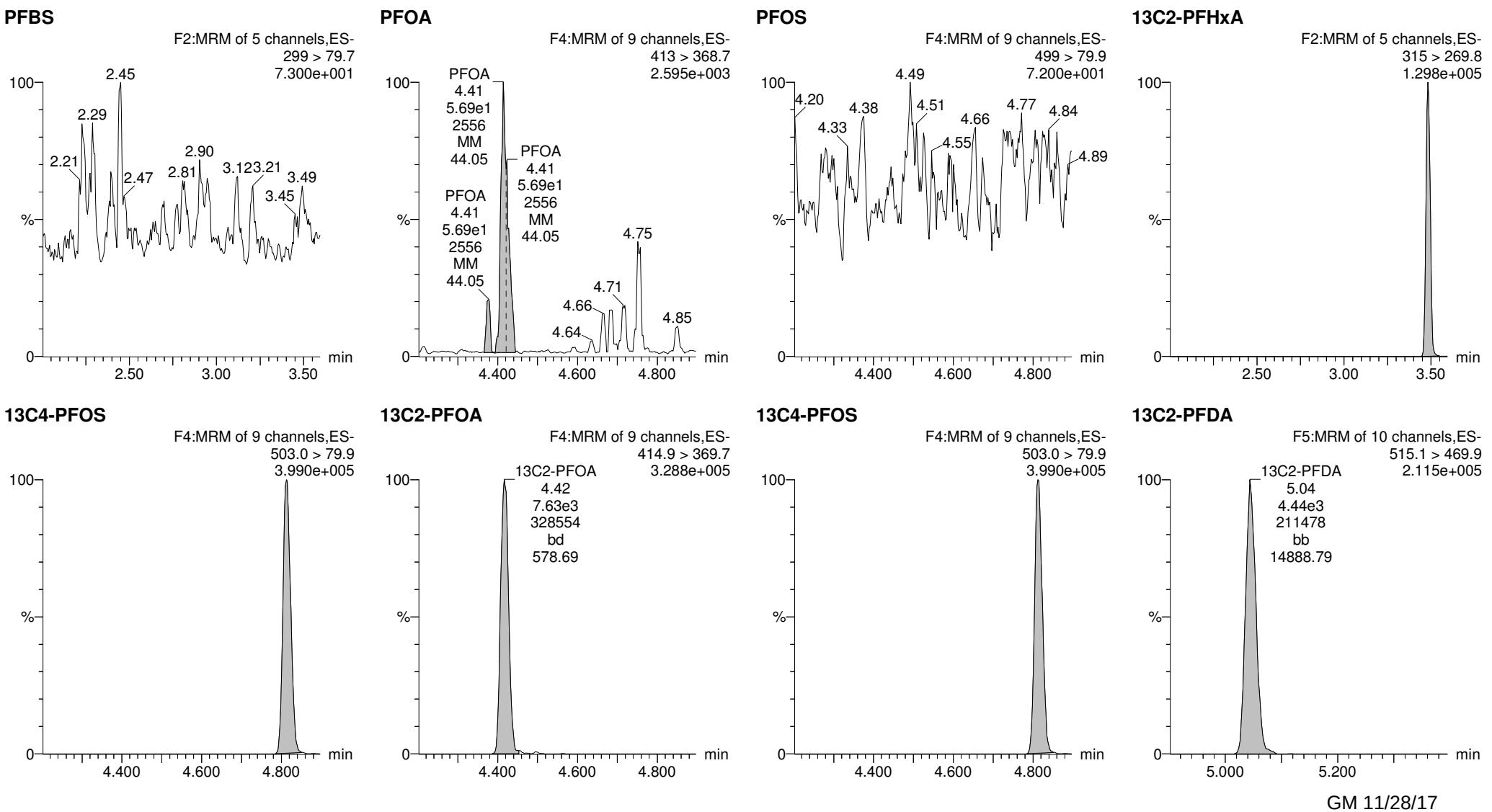
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Printed: Tuesday, November 28, 2017 14:17:37 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_17, Date: 28-Nov-2017, Time: 13:05:05, ID: 1701713-11 CH-AT-1RW35-1117 0.26184, Description: CH-AT-1RW35-1117



Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-18.qld

Last Altered: Tuesday, November 28, 2017 14:18:11 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:18:29 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_18, Date: 28-Nov-2017, Time: 13:17:34, ID: 1701713-12 CH-AT-1FB35-1117 0.26502, Description: CH-AT-1FB35-1117

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7		8.40e3		0.2650	3.11				
2	2 PFOA	413 > 368.7	6.69e1	6.71e3		0.2650	4.41	4.42	0.0997	0.447	
3	3 PFOS	499 >79.9		8.40e3		0.2650	4.81				
4	4 13C2-PFHxA	315 > 269.8	3.65e3	6.71e3	0.451	0.2650	3.47	3.48	5.44	45.5	120.7
5	5 13C2-PFDA	515.1 > 469.9	3.98e3	6.71e3	0.590	0.2650	5.04	5.04	5.93	37.9	100.5
6	6 13C2-PFOA	414.9 > 369.7	6.71e3	6.71e3	1.000	0.2650	4.41	4.41	10.0	37.7	100.0
7	7 13C4-PFOS	503.0 > 79.9	8.40e3	8.40e3	1.000	0.2650	4.81	4.81	28.7	108	100.0

Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-18.qld

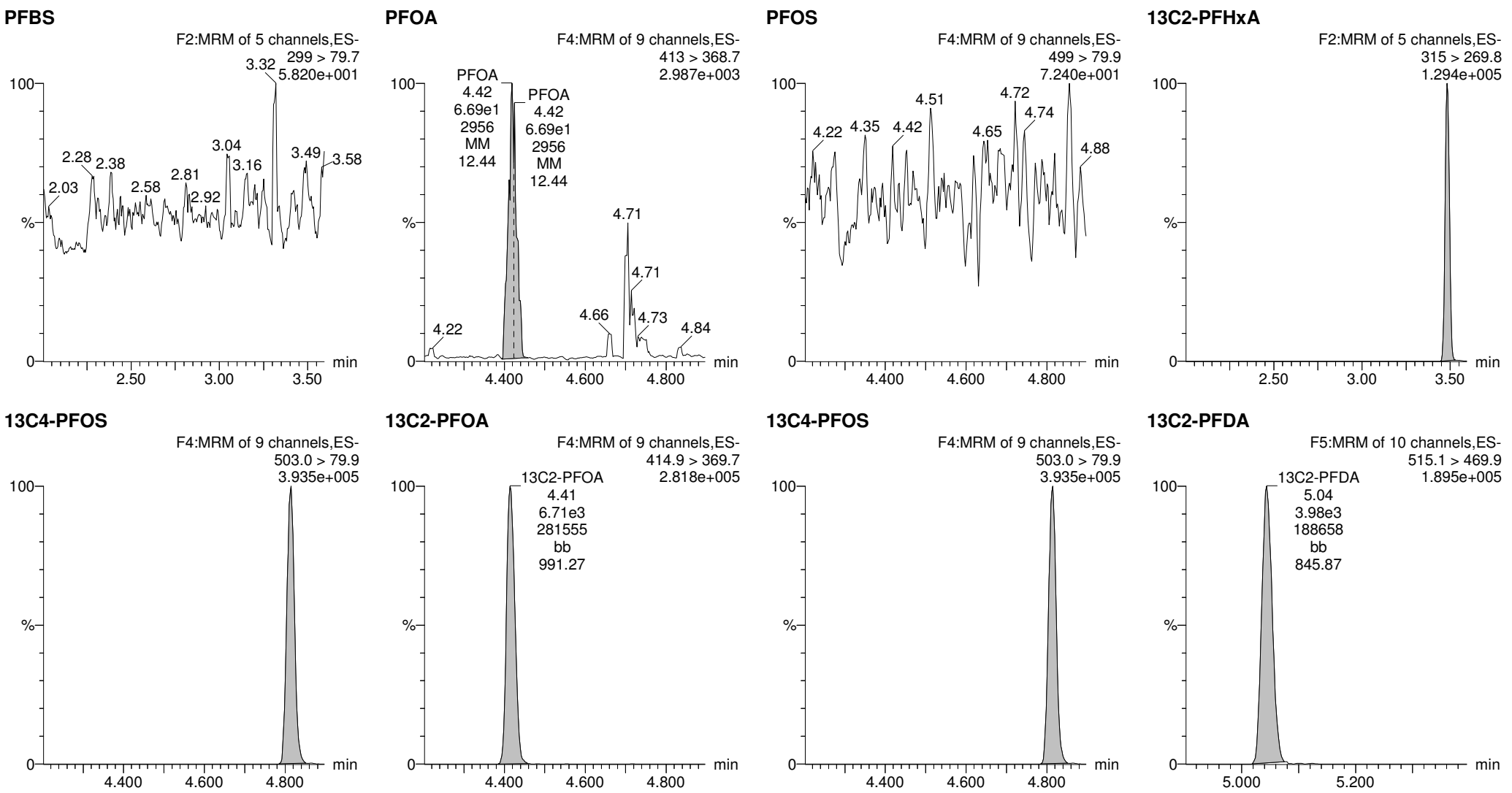
Last Altered: Tuesday, November 28, 2017 14:18:11 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:18:29 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_18, Date: 28-Nov-2017, Time: 13:17:34, ID: 1701713-12 CH-AT-1FB35-1117 0.26502, Description: CH-AT-1FB35-1117



Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-19.qld

Last Altered: Tuesday, November 28, 2017 14:19:20 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:19:35 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_19, Date: 28-Nov-2017, Time: 13:30:01, ID: 1701713-13 CH-AT-1RW36-1117 0.25709, Description: CH-AT-1RW36-1117

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7		8.41e3		0.2571	3.11				
2	2 PFOA	413 > 368.7	1.03e2	7.36e3		0.2571	4.42	4.42	0.140	0.647	
3	3 PFOS	499 >79.9	1.32e0	8.41e3		0.2571	4.81	4.82	0.00450	0.0148	
4	4 13C2-PFHxA	315 > 269.8	3.55e3	7.36e3	0.451	0.2571	3.48	3.48	4.83	41.6	107.0
5	5 13C2-PFDA	515.1 > 469.9	4.16e3	7.36e3	0.590	0.2571	5.05	5.04	5.65	37.2	95.7
6	6 13C2-PFOA	414.9 > 369.7	7.36e3	7.36e3	1.000	0.2571	4.41	4.42	10.0	38.9	100.0
7	7 13C4-PFOS	503.0 > 79.9	8.41e3	8.41e3	1.000	0.2571	4.81	4.81	28.7	112	100.0

Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-19.qld

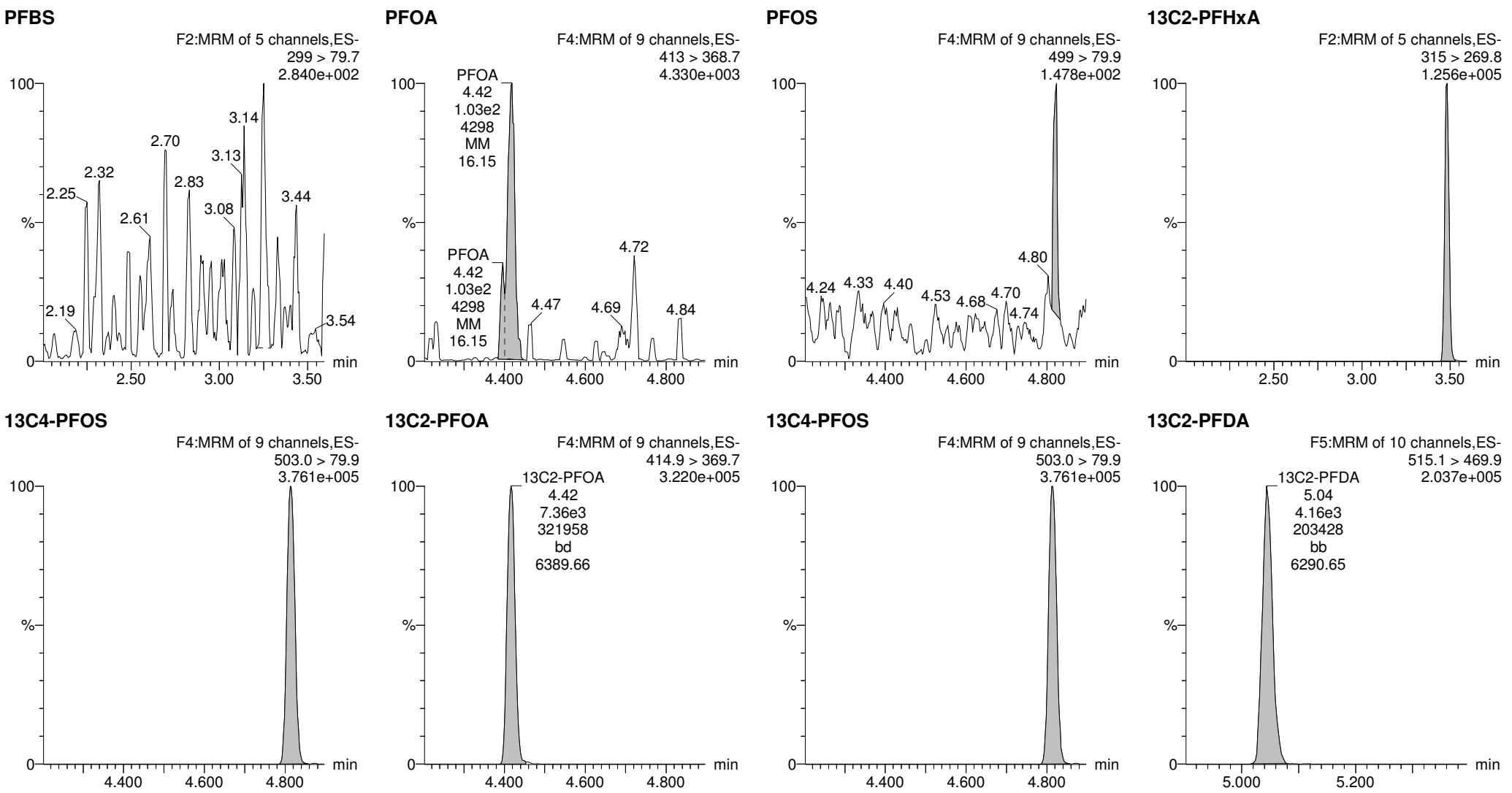
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Printed: Tuesday, November 28, 2017 14:19:35 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_19, Date: 28-Nov-2017, Time: 13:30:01, ID: 1701713-13 CH-AT-1RW36-1117 0.25709, Description: CH-AT-1RW36-1117



Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-20.qld

Last Altered: Tuesday, November 28, 2017 14:20:26 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:20:44 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_20, Date: 28-Nov-2017, Time: 13:42:26, ID: 1701713-14 CH-AT-1FB36-1117 0.26962, Description: CH-AT-1FB36-1117

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7		8.81e3		0.2696	3.11				
2	2 PFOA	413 > 368.7	2.26e1	7.78e3		0.2696	4.42	4.42	0.0291	0.128	
3	3 PFOS	499 >79.9		8.81e3		0.2696	4.81				
4	4 13C2-PFHxA	315 > 269.8	3.48e3	7.78e3	0.451	0.2696	3.48	3.49	4.48	36.8	99.3
5	5 13C2-PFDA	515.1 > 469.9	3.82e3	7.78e3	0.590	0.2696	5.05	5.04	4.92	30.9	83.3
6	6 13C2-PFOA	414.9 > 369.7	7.78e3	7.78e3	1.000	0.2696	4.41	4.42	10.0	37.1	100.0
7	7 13C4-PFOS	503.0 > 79.9	8.81e3	8.81e3	1.000	0.2696	4.81	4.81	28.7	106	100.0

Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-20.qld

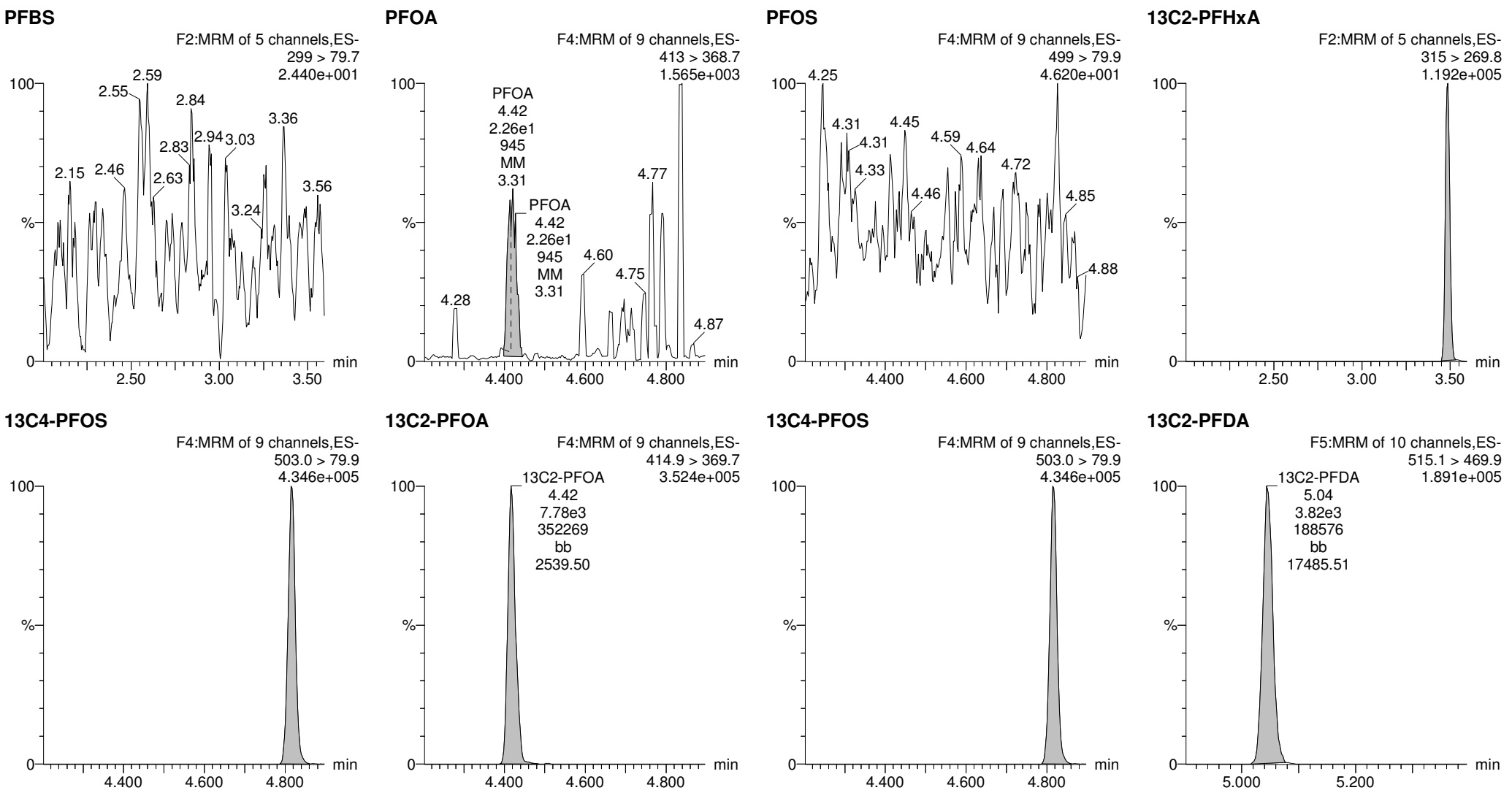
Last Altered: Tuesday, November 28, 2017 14:20:26 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:20:44 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_20, Date: 28-Nov-2017, Time: 13:42:26, ID: 1701713-14 CH-AT-1FB36-1117 0.26962, Description: CH-AT-1FB36-1117



**INJECTION INTERNAL STANDARD (IIS) AREAS,
INSTRUMENT BLANKS (IB)
AND
CONTINUING CALIBRATION VERIFICATIONS CCV)**

IIS AREA

ICAL

Compound 6: 13C2-PFOA

ID	Name	Type	Std. Conc	RT	Area	IS Area	Primary Flags	Ical Area	Area %
1 ST171128G1-1 PFC CS-1 537 17K2005	171128G1_	Analyte	10	4.41	9305.118	9305.118	bd	9795.803	94.99087
2 B7K0104-BS1 LFB 0.25	171128G1_	Analyte	10	4.41	7995.766	7995.766	bd	9795.803	81.62441
3 IPA	171128G1_	Analyte	10					9795.803	0
4 B7K0104-BLK1 LRB 0.25	171128G1_	Analyte	10	4.41	8350.563	8350.563	bb	9795.803	85.24634
5 1701713-01 CH-AT-1RW23-1117 0.2694	171128G1_	Analyte	10	4.41	8160.262	8160.262	bb	9795.803	83.30366
6 1701713-02 CH-AT-1FB23-1117 0.26488	171128G1_	Analyte	10	4.42	7503.246	7503.246	bb	9795.803	76.59654
7 1701713-03 CH-AT-1RW24-1117 0.26382	171128G1_	Analyte	10	4.41	7627.876	7627.876	bd	9795.803	77.86882
8 1701713-04 CH-AT-1FB24-1117 0.27367	171128G1_	Analyte	10	4.42	7298.748	7298.748	bd	9795.803	74.50893
9 1701713-05 CH-AT-1RW10-1117 0.26211	171128G1_	Analyte	10	4.42	8086.15	8086.15	bd	9795.803	82.54709
10 1701713-06 CH-AT-1FB10-1117 0.27244	171128G1_	Analyte	10	4.41	8015.287	8015.287	bd	9795.803	81.82369
11 1701713-07 CH-AT-1RW11-1117 0.26455	171128G1_	Analyte	10	4.41	7809.918	7809.918	bb	9795.803	79.72719
12 1701713-08 CH-AT-1FB11-1117 0.26739	171128G1_	Analyte	10	4.42	7950.882	7950.882	bb	9795.803	81.16621
13 1701713-09 CH-AT-1RW12-1117 0.2614	171128G1_	Analyte	10	4.41	7871.204	7871.204	bd	9795.803	80.35282
14 1701713-10 CH-AT-1FB12-1117 0.26713	171128G1_	Analyte	10	4.41	7584.224	7584.224	bd	9795.803	77.4232
15 1701713-11 CH-AT-1RW35-1117 0.26184	171128G1_	Analyte	10	4.41	7630.181	7630.181	bd	9795.803	77.89235
16 1701713-12 CH-AT-1FB35-1117 0.26502	171128G1_	Analyte	10	4.41	6706.979	6706.979	bb	9795.803	68.46789
17 1701713-13 CH-AT-1RW36-1117 0.25709	171128G1_	Analyte	10	4.41	7356.885	7356.885	bd	9795.803	75.10242
18 1701713-14 CH-AT-1FB36-1117 0.26962	171128G1_	Analyte	10	4.41	7775.856	7775.856	bb	9795.803	79.37947
19 IPA	171128G1_	Analyte	10	4.41				9795.803	0
20 ST171128G1-2 PFC CS3 537 17K2009	171128G1_	Analyte	10	4.41	8943.386	8943.386	bd	9795.803	91.29814

Compound 7: 13C4-PFOS

ID	Name	Type	Std. Conc	RT	Area	IS Area	Primary Flags	Ical Area	Area %
1 ST171128G1-1 PFC CS-1 537 17K2005	171128G1_	Analyte	28.7	4.81	9823.18	9823.18	bd	10884.56	90.24876
2 B7K0104-BS1 LFB 0.25	171128G1_	Analyte	28.7	4.81	9079.517	9079.517	bd	10884.56	83.41649

3 IPA	171128G1_Analyte	28.7						10884.56	0
4 B7K0104-BLK1 LRB 0.25	171128G1_Analyte	28.7	4.81	8459.048	8459.048	bb		10884.56	77.71603
5 1701713-01 CH-AT-1RW23-1117 0.2694	171128G1_Analyte	28.7	4.81	8157.322	8157.322	bd		10884.56	74.94398
6 1701713-02 CH-AT-1FB23-1117 0.26488	171128G1_Analyte	28.7	4.81	7803.072	7803.072	bd		10884.56	71.68937
7 1701713-03 CH-AT-1RW24-1117 0.26382	171128G1_Analyte	28.7	4.81	8399.156	8399.156	bd		10884.56	77.16579
8 1701713-04 CH-AT-1FB24-1117 0.27367	171128G1_Analyte	28.7	4.81	8490.739	8490.739	bd		10884.56	78.00719
9 1701713-05 CH-AT-1RW10-1117 0.26211	171128G1_Analyte	28.7	4.81	9143.11	9143.11	bb		10884.56	84.00074
10 1701713-06 CH-AT-1FB10-1117 0.27244	171128G1_Analyte	28.7	4.81	8739.456	8739.456	bd		10884.56	80.29223
11 1701713-07 CH-AT-1RW11-1117 0.26455	171128G1_Analyte	28.7	4.81	8363.209	8363.209	bb		10884.56	76.83553
12 1701713-08 CH-AT-1FB11-1117 0.26739	171128G1_Analyte	28.7	4.81	9522.483	9522.483	bb		10884.56	87.48616
13 1701713-09 CH-AT-1RW12-1117 0.2614	171128G1_Analyte	28.7	4.81	8455.371	8455.371	bd		10884.56	77.68225
14 1701713-10 CH-AT-1FB12-1117 0.26713	171128G1_Analyte	28.7	4.81	8955.634	8955.634	bd		10884.56	82.27833
15 1701713-11 CH-AT-1RW35-1117 0.26184	171128G1_Analyte	28.7	4.81	8672.416	8672.416	bb		10884.56	79.67632
16 1701713-12 CH-AT-1FB35-1117 0.26502	171128G1_Analyte	28.7	4.81	8404.488	8404.488	bb		10884.56	77.21477
17 1701713-13 CH-AT-1RW36-1117 0.25709	171128G1_Analyte	28.7	4.81	8406.791	8406.791	bb		10884.56	77.23593
18 1701713-14 CH-AT-1FB36-1117 0.26962	171128G1_Analyte	28.7	4.81	8814.516	8814.516	bd		10884.56	80.98183
19 IPA	171128G1_Analyte	28.7	4.81					10884.56	0
20 ST171128G1-2 PFC CS3 537 17K2009	171128G1_Analyte	28.7	4.81	9940.575	9940.575	bb		10884.56	91.32731

Ccal

ID	Name	Type	Std. Conc	RT	Area	IS Area	CCAL AREA	Area %
1 ST171128G1-1 PFC CS-1 537 17K2005	171128G1_Analyte		10	4.41	9305.118	9305.118	9305.118	100
2 B7K0104-BS1 LFB 0.25	171128G1_Analyte		10	4.41	7995.766	7995.766	9305.118	85.92869
3 IPA	171128G1_Analyte		10				9305.118	0
4 B7K0104-BLK1 LRB 0.25	171128G1_Analyte		10	4.41	8350.563	8350.563	9305.118	89.74161
5 1701713-01 CH-AT-1RW23-1117 0.2694	171128G1_Analyte		10	4.41	8160.262	8160.262	9305.118	87.69649
6 1701713-02 CH-AT-1FB23-1117 0.26488	171128G1_Analyte		10	4.42	7503.246	7503.246	9305.118	80.63569
7 1701713-03 CH-AT-1RW24-1117 0.26382	171128G1_Analyte		10	4.41	7627.876	7627.876	9305.118	81.97506
8 1701713-04 CH-AT-1FB24-1117 0.27367	171128G1_Analyte		10	4.42	7298.748	7298.748	9305.118	78.438
9 1701713-05 CH-AT-1RW10-1117 0.26211	171128G1_Analyte		10	4.42	8086.15	8086.15	9305.118	86.90003
10 1701713-06 CH-AT-1FB10-1117 0.27244	171128G1_Analyte		10	4.41	8015.287	8015.287	9305.118	86.13848
11 1701713-07 CH-AT-1RW11-1117 0.26455	171128G1_Analyte		10	4.41	7809.918	7809.918	9305.118	83.93142
12 1701713-08 CH-AT-1FB11-1117 0.26739	171128G1_Analyte		10	4.42	7950.882	7950.882	9305.118	85.44633

13	1701713-09 CH-AT-1RW12-1117 0.2614	171128G1_Analyte	10	4.41	7871.204	7871.204	9305.118	84.59005
14	1701713-10 CH-AT-1FB12-1117 0.26713	171128G1_Analyte	10	4.41	7584.224	7584.224	9305.118	81.50594
15	1701713-11 CH-AT-1RW35-1117 0.26184	171128G1_Analyte	10	4.41	7630.181	7630.181	9305.118	81.99983
16	1701713-12 CH-AT-1FB35-1117 0.26502	171128G1_Analyte	10	4.41	6706.979	6706.979	9305.118	72.07839
17	1701713-13 CH-AT-1RW36-1117 0.25709	171128G1_Analyte	10	4.41	7356.885	7356.885	9305.118	79.06278
18	1701713-14 CH-AT-1FB36-1117 0.26962	171128G1_Analyte	10	4.41	7775.856	7775.856	9305.118	83.56537
19	IPA	171128G1_Analyte	10	4.41			9305.118	0
20	ST171128G1-2 PFC CS3 537 17K2009	171128G1_Analyte	10	4.41	8943.386	8943.386	9305.118	96.11255

Compound 7: 13C4-PFOS

ID	Name	Type	Std. Conc	RT	Area	IS Area	CCAL AREA	Area %
1	ST171128G1-1 PFC CS-1 537 17K2005	171128G1_Analyte	28.7	4.81	9823.18	9823.18	9823.18	100
2	B7K0104-BS1 LFB 0.25	171128G1_Analyte	28.7	4.81	9079.517	9079.517	9823.18	92.42951
3	IPA	171128G1_Analyte	28.7				9823.18	0
4	B7K0104-BLK1 LRB 0.25	171128G1_Analyte	28.7	4.81	8459.048	8459.048	9823.18	86.11313
5	1701713-01 CH-AT-1RW23-1117 0.2694	171128G1_Analyte	28.7	4.81	8157.322	8157.322	9823.18	83.04156
6	1701713-02 CH-AT-1FB23-1117 0.26488	171128G1_Analyte	28.7	4.81	7803.072	7803.072	9823.18	79.43529
7	1701713-03 CH-AT-1RW24-1117 0.26382	171128G1_Analyte	28.7	4.81	8399.156	8399.156	9823.18	85.50343
8	1701713-04 CH-AT-1FB24-1117 0.27367	171128G1_Analyte	28.7	4.81	8490.739	8490.739	9823.18	86.43575
9	1701713-05 CH-AT-1RW10-1117 0.26211	171128G1_Analyte	28.7	4.81	9143.11	9143.11	9823.18	93.07689
10	1701713-06 CH-AT-1FB10-1117 0.27244	171128G1_Analyte	28.7	4.81	8739.456	8739.456	9823.18	88.96769
11	1701713-07 CH-AT-1RW11-1117 0.26455	171128G1_Analyte	28.7	4.81	8363.209	8363.209	9823.18	85.13749
12	1701713-08 CH-AT-1FB11-1117 0.26739	171128G1_Analyte	28.7	4.81	9522.483	9522.483	9823.18	96.9389
13	1701713-09 CH-AT-1RW12-1117 0.2614	171128G1_Analyte	28.7	4.81	8455.371	8455.371	9823.18	86.0757
14	1701713-10 CH-AT-1FB12-1117 0.26713	171128G1_Analyte	28.7	4.81	8955.634	8955.634	9823.18	91.16838
15	1701713-11 CH-AT-1RW35-1117 0.26184	171128G1_Analyte	28.7	4.81	8672.416	8672.416	9823.18	88.28522
16	1701713-12 CH-AT-1FB35-1117 0.26502	171128G1_Analyte	28.7	4.81	8404.488	8404.488	9823.18	85.55771
17	1701713-13 CH-AT-1RW36-1117 0.25709	171128G1_Analyte	28.7	4.81	8406.791	8406.791	9823.18	85.58116
18	1701713-14 CH-AT-1FB36-1117 0.26962	171128G1_Analyte	28.7	4.81	8814.516	8814.516	9823.18	89.7318
19	IPA	171128G1_Analyte	28.7	4.81			9823.18	0
20	ST171128G1-2 PFC CS3 537 17K2009	171128G1_Analyte	28.7	4.81	9940.575	9940.575	9823.18	101.1951

Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-2.qld

Last Altered: Tuesday, November 28, 2017 10:27:00 Pacific Standard Time

Printed: Tuesday, November 28, 2017 13:31:17 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_2, Date: 28-Nov-2017, Time: 10:11:04, ID: ST171128G1-1 PFC CS-1 537 17K2005, Description: PFC CS-1 537 17K2005

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7	5.80e2	9.82e3		1.0000	3.11	3.11	1.69	1.91	108.0
2	2 PFOA	413 > 368.7	1.81e3	9.31e3		1.0000	4.41	4.41	1.94	2.31	115.5
3	3 PFOS	499 > 79.9	6.66e2	9.82e3		1.0000	4.81	4.81	1.95	1.65	89.0
4	4 13C2-PFHxA	315 > 269.8	4.38e3	9.31e3	0.451	1.0000	3.47	3.48	4.71	10.4	104.4
5	5 13C2-PFDA	515.1 > 469.9	5.31e3	9.31e3	0.590	1.0000	5.04	5.04	5.71	9.67	96.7
6	6 13C2-PFOA	414.9 > 369.7	9.31e3	9.31e3	1.000	1.0000	4.41	4.41	10.0	10.0	100.0
7	7 13C4-PFOS	503.0 > 79.9	9.82e3	9.82e3	1.000	1.0000	4.81	4.81	28.7	28.7	100.0

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Dataset: Untitled

Last Altered: Tuesday, November 28, 2017 14:22:44 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:33:07 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Compound name: PFBS

	Name	ID	Acq.Date	Acq.Time
1	171128G1_2	ST171128G1-1 PFC CS-1 537 17K2005	28-Nov-17	10:11:04
2	171128G1_3	B7K0104-BS1 LFB 0.25	28-Nov-17	10:23:29
3	171128G1_4	IPA	28-Nov-17	10:35:54
4	171128G1_5	B7K0104-BLK1 LRB 0.25	28-Nov-17	10:48:21
5	171128G1_7	1701713-01 CH-AT-1RW23-1117 0.2694	28-Nov-17	11:00:46
6	171128G1_8	1701713-02 CH-AT-1FB23-1117 0.26488	28-Nov-17	11:13:13
7	171128G1_9	1701713-03 CH-AT-1RW24-1117 0.26382	28-Nov-17	11:25:40
8	171128G1_10	1701713-04 CH-AT-1FB24-1117 0.27367	28-Nov-17	11:38:07
9	171128G1_11	1701713-05 CH-AT-1RW10-1117 0.26211	28-Nov-17	11:50:35
10	171128G1_12	1701713-06 CH-AT-1FB10-1117 0.27244	28-Nov-17	12:02:58
11	171128G1_13	1701713-07 CH-AT-1RW11-1117 0.26455	28-Nov-17	12:15:23
12	171128G1_14	1701713-08 CH-AT-1FB11-1117 0.26739	28-Nov-17	12:27:48
13	171128G1_15	1701713-09 CH-AT-1RW12-1117 0.2614	28-Nov-17	12:40:13
14	171128G1_16	1701713-10 CH-AT-1FB12-1117 0.26713	28-Nov-17	12:52:39
15	171128G1_17	1701713-11 CH-AT-1RW35-1117 0.26184	28-Nov-17	13:05:05
16	171128G1_18	1701713-12 CH-AT-1FB35-1117 0.26502	28-Nov-17	13:17:34
17	171128G1_19	1701713-13 CH-AT-1RW36-1117 0.25709	28-Nov-17	13:30:01
18	171128G1_20	1701713-14 CH-AT-1FB36-1117 0.26962	28-Nov-17	13:42:26
19	171128G1_21	IPA	28-Nov-17	13:54:50
20	171128G1_22	ST171128G1-2 PFC CS3 537 17K2009	28-Nov-17	14:07:17

LC Calibration Standards Review Checklist

01

Calibration ID:	ION Ratio	Concentration	C-Cals Name	Sign Date	Correct I-Cal	Manual Integrations	
ST17112061-1 LMH	☒	☒	☒	☒	☒	☒	NA
<u> </u> -2 LMH	☒	☒	☒	☒	☒	☒	☒
Calibration ID: LMH	☐	☐	☐	☐	☐	☐	☐
Calibration ID: LMH	☐	☐	☐	☐	☐	☐	☐
Calibration ID: LMH	☐	☐	☐	☐	☐	☐	☐
Calibration ID: LMH	☐	☐	☐	☐	☐	☐	☐
Calibration ID: LMH	☐	☐	☐	☐	☐	☐	☐
Calibration ID: LMH	☐	☐	☐	☐	☐	☐	☐
Calibration ID: LMH	☐	☐	☐	☐	☐	☐	☐
Calibration ID: LMH	☐	☐	☐	☐	☐	☐	☐

Full Mass Cal. Date: 4/5/17

Run Log Present: ☒

of Samples per Sequence Checked: ☒

Reviewed By: JA. 11/28/2017
Initials/Date

Comments: DN L3

Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-2.qld

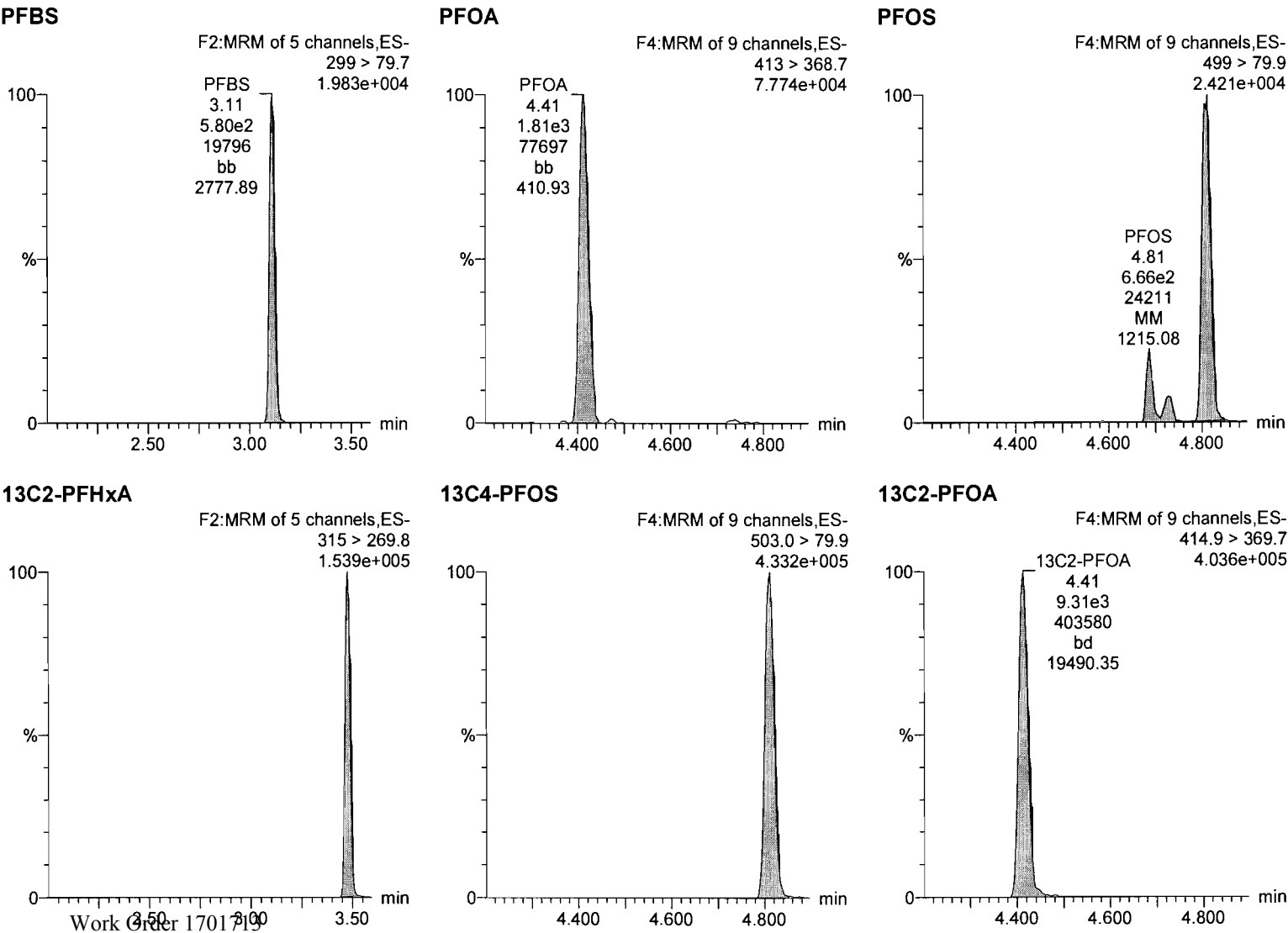
Last Altered: Tuesday, November 28, 2017 10:27:00 Pacific Standard Time

Printed: Tuesday, November 28, 2017 13:31:17 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_2, Date: 28-Nov-2017, Time: 10:11:04, ID: ST171128G1-1 PFC CS-1 537 17K2005, Description: PFC CS-1 537 17K2005

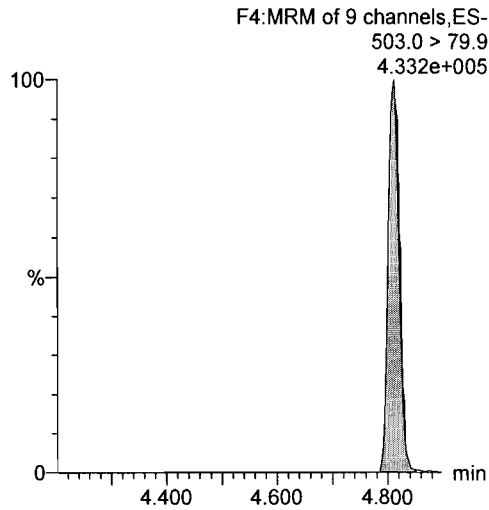


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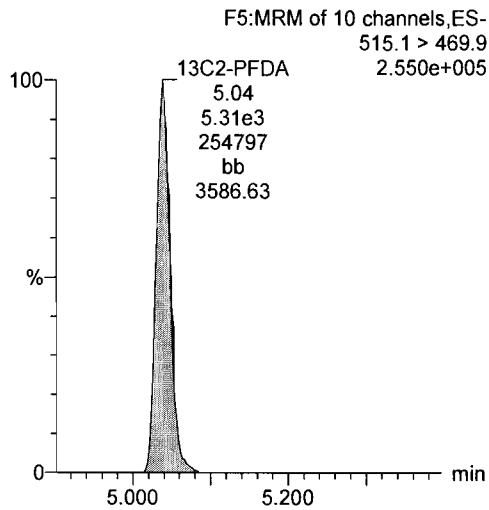
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Printed: Tuesday, November 28, 2017 13:31:17 Pacific Standard Time

Name: 171128G1_2, Date: 28-Nov-2017, Time: 10:11:04, ID: ST171128G1-1 PFC CS-1 537 17K2005, Description: PFC CS-1 537 17K2005

13C4-PFOS



13C2-PFDA



Dataset: U:\G1.PRO\Results\2017\171128G1\171128G1-22.qld

Last Altered: Tuesday, November 28, 2017 14:22:10 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:22:25 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171128G1_22, Date: 28-Nov-2017, Time: 14:07:17, ID: ST171128G1-2 PFC CS3 537 17K2009, Description: PFC CS3 537 17K2009

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7	1.30e4	9.94e3		1.0000	3.11	3.12	37.4	42.2	95.5
2	2 PFOA	413 > 368.7	3.27e4	8.94e3		1.0000	4.42	4.42	36.5	43.4	86.8
3	3 PFOS	499 > 79.9	1.96e4	9.94e3		1.0000	4.81	4.81	56.5	47.8	103.4
4	4 13C2-PFHxA	315 > 269.8	3.89e3	8.94e3	0.451	1.0000	3.48	3.48	4.35	9.65	96.5
5	5 13C2-PFDA	515.1 > 469.9	4.63e3	8.94e3	0.590	1.0000	5.05	5.04	5.18	8.77	87.7
6	6 13C2-PFOA	414.9 > 369.7	8.94e3	8.94e3	1.000	1.0000	4.41	4.42	10.0	10.0	100.0
7	7 13C4-PFOS	503.0 > 79.9	9.94e3	9.94e3	1.000	1.0000	4.81	4.81	28.7	28.7	100.0

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Dataset: Untitled

Last Altered: Tuesday, November 28, 2017 14:22:44 Pacific Standard Time

Printed: Tuesday, November 28, 2017 14:33:07 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Compound name: PFBS

	Name	ID	Acq.Date	Acq.Time
1	171128G1_2	ST171128G1-1 PFC CS-1 537 17K2005	28-Nov-17	10:11:04
2	171128G1_3	B7K0104-BS1 LFB 0.25	28-Nov-17	10:23:29
3	171128G1_4	IPA	28-Nov-17	10:35:54
4	171128G1_5	B7K0104-BLK1 LRB 0.25	28-Nov-17	10:48:21
5	171128G1_7	1701713-01 CH-AT-1RW23-1117 0.2694	28-Nov-17	11:00:46
6	171128G1_8	1701713-02 CH-AT-1FB23-1117 0.26488	28-Nov-17	11:13:13
7	171128G1_9	1701713-03 CH-AT-1RW24-1117 0.26382	28-Nov-17	11:25:40
8	171128G1_10	1701713-04 CH-AT-1FB24-1117 0.27367	28-Nov-17	11:38:07
9	171128G1_11	1701713-05 CH-AT-1RW10-1117 0.26211	28-Nov-17	11:50:35
10	171128G1_12	1701713-06 CH-AT-1FB10-1117 0.27244	28-Nov-17	12:02:58
11	171128G1_13	1701713-07 CH-AT-1RW11-1117 0.26455	28-Nov-17	12:15:23
12	171128G1_14	1701713-08 CH-AT-1FB11-1117 0.26739	28-Nov-17	12:27:48
13	171128G1_15	1701713-09 CH-AT-1RW12-1117 0.2614	28-Nov-17	12:40:13
14	171128G1_16	1701713-10 CH-AT-1FB12-1117 0.26713	28-Nov-17	12:52:39
15	171128G1_17	1701713-11 CH-AT-1RW35-1117 0.26184	28-Nov-17	13:05:05
16	171128G1_18	1701713-12 CH-AT-1FB35-1117 0.26502	28-Nov-17	13:17:34
17	171128G1_19	1701713-13 CH-AT-1RW36-1117 0.25709	28-Nov-17	13:30:01
18	171128G1_20	1701713-14 CH-AT-1FB36-1117 0.26962	28-Nov-17	13:42:26
19	171128G1_21	IPA	28-Nov-17	13:54:50
20	171128G1_22	ST171128G1-2 PFC CS3 537 17K2009	28-Nov-17	14:07:17

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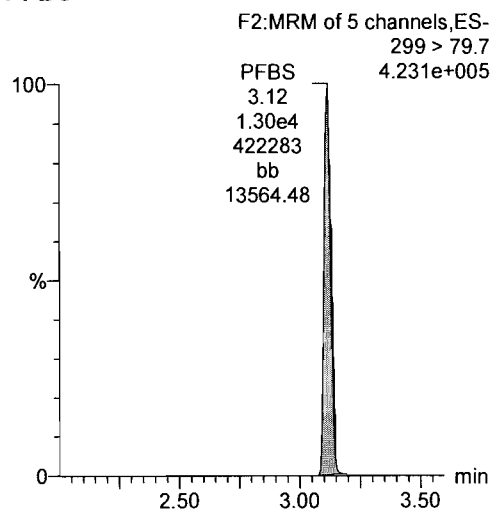
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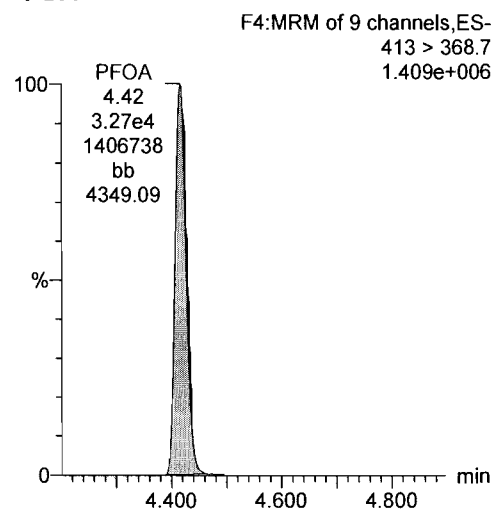
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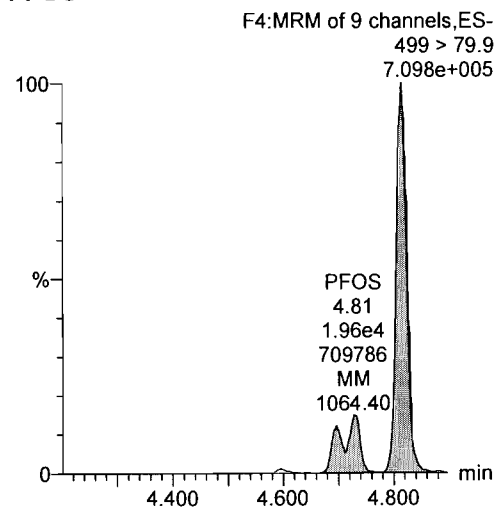
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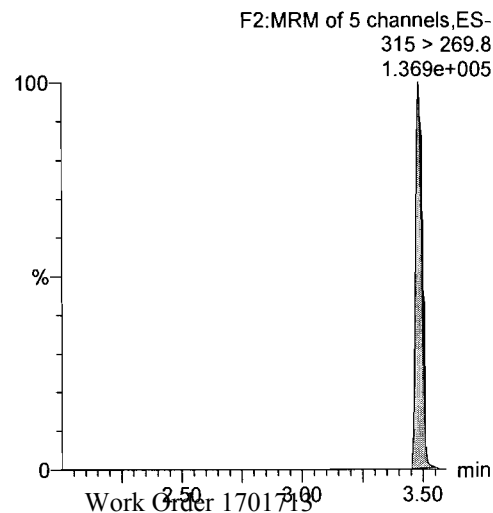
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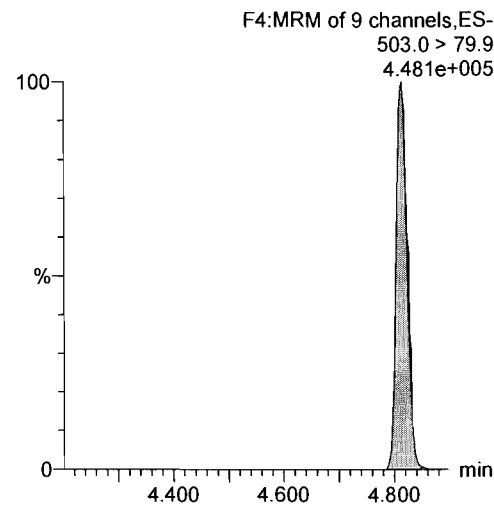
PFOS



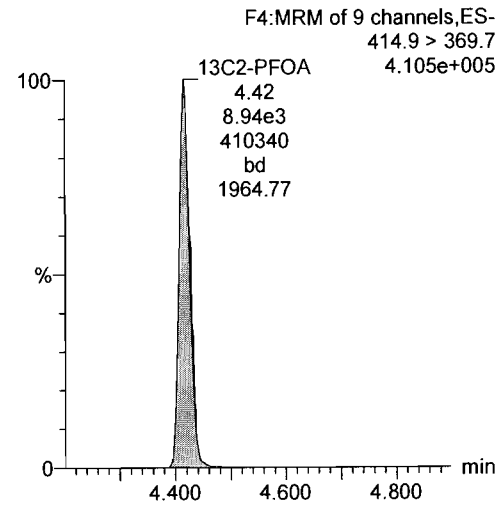
13C2-PFHxA



13C4-PFOS



13C2-PFOA



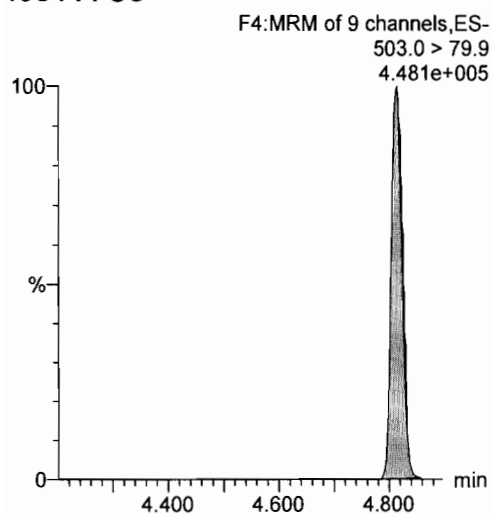
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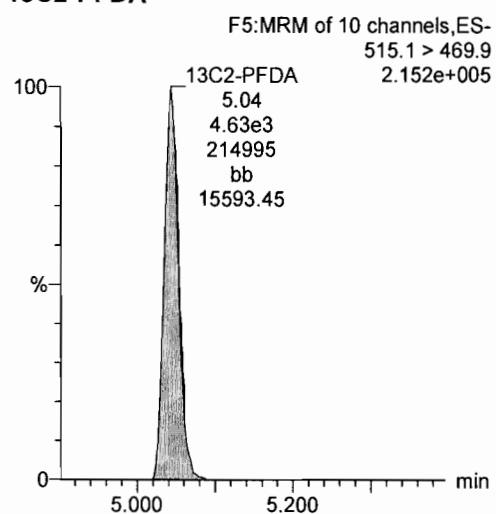
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Name: 171128G1_22, Date: 28-Nov-2017, Time: 14:07:17, ID: ST171128G1-2 PFC CS3 537 17K2009, Description: PFC CS3 537 17K2009

13C4-PFOS



13C2-PFDA



INITIAL CALIBRATION (ICAL)
INCLUDING ASSOCIATED
INITIAL CALIBRATION VERIFICATION (ICV) AND INSTRUMENT BLANK (IB)

Dataset: U:\G1.PRO\Results\2017\171125G1\171125G1-CRV.qld

Last Altered: Sunday, November 26, 2017 19:51:30 Pacific Standard Time

Printed: Monday, November 27, 2017 09:18:54 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 26 Nov 2017 19:34:27

Calibration: 26 Nov 2017 19:51:30 C18_537-Q1_11-25-17-L3

Compound name: PFBS

Coefficient of Determination: $R^2 = 0.998067$

Calibration curve: $0.886278 * x$

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

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

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	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	171125G1_2	Standard	0.443	3.11	148.778	11353.713	0.376	0.4	-4.1	NO	0.998	NO	bb
2	2	171125G1_3	Standard	0.885	3.12	249.125	11312.515	0.632	0.7	-19.4	NO	0.998	NO	bb
3	3	171125G1_4	Standard	1.770	3.11	599.879	10414.688	1.653	1.9	5.4	NO	0.998	NO	bb
4	4	171125G1_5	Standard	4.420	3.12	1304.232	11717.421	3.195	3.6	-18.5	NO	0.998	NO	bb
5	5	171125G1_6	Standard	8.850	3.12	3046.969	10923.131	8.006	9.0	2.1	NO	0.998	NO	bb
6	6	171125G1_7	Standard	22.100	3.12	7668.119	10961.457	20.077	22.7	2.5	NO	0.998	NO	bd
7	7	171125G1_8	Standard	44.200	3.12	14447.599	10288.462	40.302	45.5	2.9	NO	0.998	NO	bb
8	8	171125G1_9	Standard	66.300	3.12	20346.059	10105.089	57.786	65.2	-1.7	NO	0.998	NO	bb
9	9	171125G1_10	Standard	88.400	3.12	26241.977	9430.776	79.860	90.1	1.9	NO	0.998	NO	bbX

Compound name: PFOA

Coefficient of Determination: $R^2 = 0.999038$

Calibration curve: $0.841053 * x$

Response type: Internal Std (Ref 6), Area * (IS Conc. / IS Area)

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

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	171125G1_2	Standard	0.500	4.41	391.622	10353.699	0.378	0.4	-10.1	NO	0.999	NO	MM
2	2	171125G1_3	Standard	1.000	4.41	740.757	9329.975	0.794	0.9	-5.6	NO	0.999	NO	MM
3	3	171125G1_4	Standard	2.000	4.41	1754.398	10352.176	1.695	2.0	0.7	NO	0.999	NO	MM
4	4	171125G1_5	Standard	5.000	4.41	4610.348	10109.761	4.560	5.4	8.4	NO	0.999	NO	MM
5	5	171125G1_6	Standard	10.000	4.41	8710.974	10344.217	8.421	10.0	0.1	NO	0.999	NO	MM
6	6	171125G1_7	Standard	25.000	4.41	22122.717	9886.793	22.376	26.6	6.4	NO	0.999	NO	MM
7	7	171125G1_8	Standard	50.000	4.41	41221.871	9706.146	42.470	50.5	1.0	NO	0.999	NO	MM
8	8	171125G1_9	Standard	75.000	4.41	59173.539	9324.723	63.459	75.5	0.6	NO	0.999	NO	MM
9	9	171125G1_10	Standard	100.000	4.41	71499.648	8754.735	81.670	97.1	-2.9	NO	0.999	NO	MM

Dataset: U:\G1.PRO\Results\2017\171125G1\171125G1-CRV.qld

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Compound name: PFOS

Coefficient of Determination: $R^2 = 0.998864$

Calibration curve: $1.18285 * x$

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

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

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 171125G1_2	Standard	0.464	4.81	166.570	11353.713	0.421	0.4	-23.3	NO	0.999	NO	MM
2	2 171125G1_3	Standard	0.924	4.81	318.383	11312.515	0.808	0.7	-26.1	NO	0.999	NO	MM
3	3 171125G1_4	Standard	1.850	4.81	834.568	10414.688	2.300	1.9	5.1	NO	0.999	NO	MM
4	4 171125G1_5	Standard	4.620	4.81	2283.895	11717.421	5.594	4.7	2.4	NO	0.999	NO	MM
5	5 171125G1_6	Standard	9.240	4.81	4117.661	10923.131	10.819	9.1	-1.0	NO	0.999	NO	MM
6	6 171125G1_7	Standard	23.100	4.81	10156.604	10961.457	26.593	22.5	-2.7	NO	0.999	NO	MM
7	7 171125G1_8	Standard	46.200	4.81	19277.029	10288.462	53.774	45.5	-1.6	NO	0.999	NO	MM
8	8 171125G1_9	Standard	69.300	4.81	29526.109	10105.089	83.859	70.9	2.3	NO	0.999	NO	MM
9	9 171125G1_10	Standard	92.400	4.81	36144.129	9430.776	109.995	93.0	0.6	NO	0.999	NO	MMX

Compound name: 13C2-PFHxA

Response Factor: 0.450991

RRF SD: 0.0234656, Relative SD: 5.20312

Response type: Internal Std (Ref 6), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 171125G1_2	Standard	10.000	3.47	4870.931	10353.699	4.705	10.4	4.3	NO		NO	bb
2	2 171125G1_3	Standard	10.000	3.47	4441.022	9329.975	4.760	10.6	5.5	NO		NO	bb
3	3 171125G1_4	Standard	10.000	3.47	4281.225	10352.176	4.136	9.2	-8.3	NO		NO	bd
4	4 171125G1_5	Standard	10.000	3.47	4499.601	10109.761	4.451	9.9	-1.3	NO		NO	bb
5	5 171125G1_6	Standard	10.000	3.47	4701.819	10344.217	4.545	10.1	0.8	NO		NO	bb
6	6 171125G1_7	Standard	10.000	3.47	4133.068	9886.793	4.180	9.3	-7.3	NO		NO	bb
7	7 171125G1_8	Standard	10.000	3.47	4328.377	9706.146	4.459	9.9	-1.1	NO		NO	bb
8	8 171125G1_9	Standard	10.000	3.47	4249.482	9324.723	4.557	10.1	1.0	NO		NO	bb
9	9 171125G1_10	Standard	10.000	3.47	4198.792	8754.735	4.796	10.6	6.3	NO		NO	bb

Dataset: U:\G1.PRO\Results\2017\171125G1\171125G1-CRV.qld

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Compound name: 13C2-PFDA

Response Factor: 0.590185

RRF SD: 0.0468027, Relative SD: 7.93017

Response type: Internal Std (Ref 6), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 171125G1_2	Standard	10.000	5.04	6324.458	10353.699	6.108	10.3	3.5	NO		NO	bb
2	2 171125G1_3	Standard	10.000	5.04	6302.661	9329.975	6.755	11.4	14.5	NO		NO	bd
3	3 171125G1_4	Standard	10.000	5.04	6422.071	10352.176	6.204	10.5	5.1	NO		NO	bb
4	4 171125G1_5	Standard	10.000	5.04	6106.069	10109.761	6.040	10.2	2.3	NO		NO	bb
5	5 171125G1_6	Standard	10.000	5.04	5345.813	10344.217	5.168	8.8	-12.4	NO		NO	bb
6	6 171125G1_7	Standard	10.000	5.04	5375.334	9886.793	5.437	9.2	-7.9	NO		NO	bb
7	7 171125G1_8	Standard	10.000	5.04	5589.127	9706.146	5.758	9.8	-2.4	NO		NO	bd
8	8 171125G1_9	Standard	10.000	5.04	5239.463	9324.723	5.619	9.5	-4.8	NO		NO	bd
9	9 171125G1_10	Standard	10.000	5.04	5277.000	8754.735	6.028	10.2	2.1	NO		NO	bd

Compound name: 13C2-PFOA

Response Factor: 1

RRF SD: 0, Relative SD: 0

Response type: Internal Std (Ref 6), Area * (IS Conc. / IS Area)

Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 171125G1_2	Standard	10.000	4.41	10353.699	10353.699	10.000	10.0	0.0	NO		NO	bd
2	2 171125G1_3	Standard	10.000	4.41	9329.975	9329.975	10.000	10.0	0.0	NO		NO	bb
3	3 171125G1_4	Standard	10.000	4.41	10352.176	10352.176	10.000	10.0	0.0	NO		NO	bd
4	4 171125G1_5	Standard	10.000	4.41	10109.761	10109.761	10.000	10.0	0.0	NO		NO	bb
5	5 171125G1_6	Standard	10.000	4.41	10344.217	10344.217	10.000	10.0	0.0	NO		NO	bb
6	6 171125G1_7	Standard	10.000	4.41	9886.793	9886.793	10.000	10.0	0.0	NO		NO	bd
7	7 171125G1_8	Standard	10.000	4.41	9706.146	9706.146	10.000	10.0	0.0	NO		NO	bb
8	8 171125G1_9	Standard	10.000	4.41	9324.723	9324.723	10.000	10.0	0.0	NO		NO	bb
9	9 171125G1_10	Standard	10.000	4.41	8754.735	8754.735	10.000	10.0	0.0	NO		NO	bd

Dataset: U:\G1.PRO\Results\2017\171125G1\171125G1-CRV.qld

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Compound name: 13C4-PFOS

Response Factor: 1

RRF SD: 0, Relative SD: 0

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

Curve type: RF

	# Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1 171125G1_2	Standard	28.700	4.81	11353.713	11353.713	28.700	28.7	0.0	NO		NO	bb
2	2 171125G1_3	Standard	28.700	4.81	11312.515	11312.515	28.700	28.7	0.0	NO		NO	bd
3	3 171125G1_4	Standard	28.700	4.81	10414.688	10414.688	28.700	28.7	0.0	NO		NO	bd
4	4 171125G1_5	Standard	28.700	4.81	11717.421	11717.421	28.700	28.7	0.0	NO		NO	MM
5	5 171125G1_6	Standard	28.700	4.81	10923.131	10923.131	28.700	28.7	0.0	NO		NO	bd
6	6 171125G1_7	Standard	28.700	4.81	10961.457	10961.457	28.700	28.7	0.0	NO		NO	bd
7	7 171125G1_8	Standard	28.700	4.81	10288.462	10288.462	28.700	28.7	0.0	NO		NO	bd
8	8 171125G1_9	Standard	28.700	4.81	10105.089	10105.089	28.700	28.7	0.0	NO		NO	bd
9	9 171125G1_10	Standard	28.700	4.81	9430.776	9430.776	28.700	28.7	0.0	NO		NO	MMX

Dataset: Untitled

Last Altered: Monday, November 27, 2017 09:22:48 Pacific Standard Time

Printed: Monday, November 27, 2017 09:24:50 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 26 Nov 2017 20:36:49

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Compound name: PFBS

	Name	ID	Acq.Date	Acq.Time
1	171125G1_1	IPA	25-Nov-17	15:18:23
2	171125G1_2	ST171125G1-1 PFC CS-3 537 17K2003	25-Nov-17	15:30:51
3	171125G1_3	ST171125G1-2 PFC CS-2 537 17K2004	25-Nov-17	15:43:15
4	171125G1_4	ST171125G1-3 PFC CS-1 537 17K2005	25-Nov-17	15:55:39
5	171125G1_5	ST171125G1-4 PFC CS0 537 17K2006	25-Nov-17	16:08:05
6	171125G1_6	ST171125G1-5 PFC CS1 537 17K2007	25-Nov-17	16:20:31
7	171125G1_7	ST171125G1-6 PFC CS2 537 17K2008	25-Nov-17	16:32:58
8	171125G1_8	ST171125G1-7 PFC CS3 537 17K2009	25-Nov-17	16:45:24
9	171125G1_9	ST171125G1-8 PFC CS4 537 17K2010	25-Nov-17	16:57:53
10	171125G1_10	ST171125G1-9 PFC CS5 537 17K2011	25-Nov-17	17:10:21
11	171125G1_11	IPA	25-Nov-17	17:22:45
12	171125G1_12	ICV171125G1-1 PFC ICV 537 17K2012	25-Nov-17	17:35:12
13	171125G1_13	IPA	25-Nov-17	17:47:37
14	171125G1_14	B7K0117-BS1	25-Nov-17	18:00:08
15	171125G1_15	B7K0117-BSD1	25-Nov-17	18:12:34
16	171125G1_16	IPA	25-Nov-17	18:24:59
17	171125G1_17	B7K0117-BLK1	25-Nov-17	18:37:25
18	171125G1_18	1701712-01 CH-AT-1RW13-1117	25-Nov-17	18:49:51
19	171125G1_19	1701712-02 CH-AT-1FB13-1117	25-Nov-17	19:02:18
20	171125G1_20	1701712-03 CH-AT-1RW14-1117	25-Nov-17	19:14:46
21	171125G1_21	1701712-04 CH-AT-1FB14-1117	25-Nov-17	19:27:13
22	171125G1_22	1701712-05 CH-AT-1RW15-1117	25-Nov-17	19:39:37
23	171125G1_23	1701712-06 CH-AT-1FB15-1117	25-Nov-17	19:52:02
24	171125G1_24	1701712-07 CH-AT-1RW16-1117	25-Nov-17	20:04:26
25	171125G1_25	1701712-08 CH-AT-1FB16-1117	25-Nov-17	20:16:52
26	171125G1_26	1701712-09 CH-AT-1RW17-1117	25-Nov-17	20:29:18
27	171125G1_27	1701712-10 CH-AT-1FB17-1117	25-Nov-17	20:41:44
28	171125G1_28	1701712-11 CH-AT-1RW18-1117	25-Nov-17	20:54:11
29	171125G1_29	1701712-12 CH-AT-1FB18-1117	25-Nov-17	21:06:38
30	171125G1_30	1701712-13 CH-AT-1RW19-1117	25-Nov-17	21:19:02
31	171125G1_31	1701712-14 CH-AT-1FB19-1117	25-Nov-17	21:31:26

Dataset: Untitled

Last Altered: Monday, November 27, 2017 09:22:48 Pacific Standard Time

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Compound name: PFBS

	Name	ID	Acq.Date	Acq.Time
32	171125G1_32	1701712-15 CH-AT-1RW20-1117	25-Nov-17	21:43:51
33	171125G1_33	1701712-16 CH-AT-1FB20-1117	25-Nov-17	21:56:19
34	171125G1_34	1701712-17 CH-AT-1RW21-1117	25-Nov-17	22:08:47
35	171125G1_35	1701712-18 CH-AT-1FB21-1117	25-Nov-17	22:21:13
36	171125G1_36	1701712-19 CH-AT-1RW22-1117	25-Nov-17	22:33:40
37	171125G1_37	1701712-20 CH-AT-1FB22-1117	25-Nov-17	22:46:08
38	171125G1_38	IPA	25-Nov-17	22:58:31
39	171125G1_39	ST171125G1-10 PFC CS3 17K2009	25-Nov-17	23:10:59
40	171125G1_40	IPA	25-Nov-17	23:23:26

Dataset: U:\G1.PRO\Results\2017\171125G1\171125G1-CRV.qld

Last Altered: Sunday, November 26, 2017 19:51:30 Pacific Standard Time

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Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 26 Nov 2017 19:34:27

Calibration: 26 Nov 2017 19:51:30 C18_537_Q1_11-25-17-L3

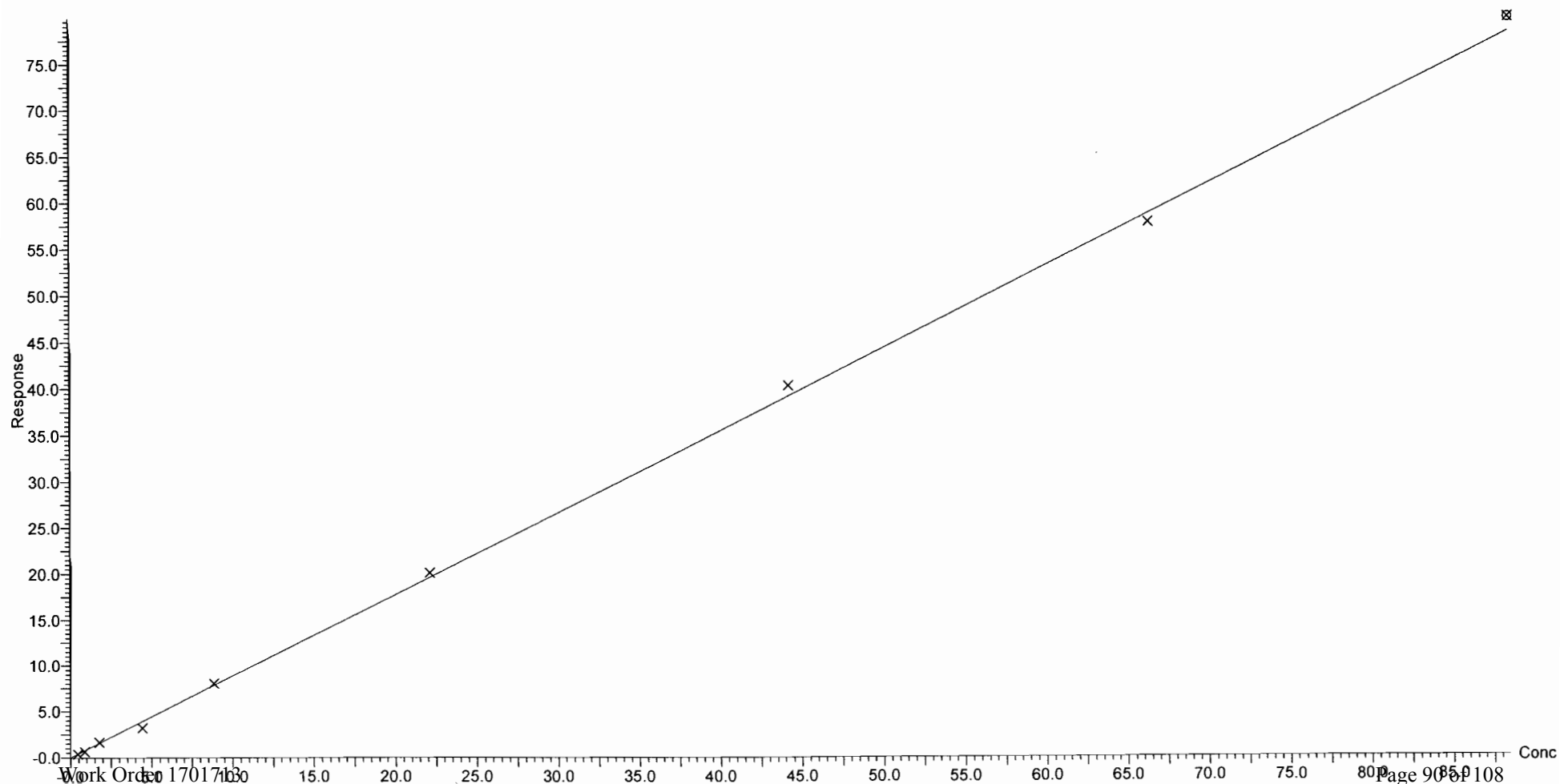
Compound name: PFBS

Coefficient of Determination: $R^2 = 0.998067$

Calibration curve: $0.886278 * x$

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

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



Dataset: U:\G1.PRO\Results\2017\171125G1\171125G1-CRV.qld

Last Altered: Sunday, November 26, 2017 19:51:30 Pacific Standard Time

Printed: Monday, November 27, 2017 09:19:38 Pacific Standard Time

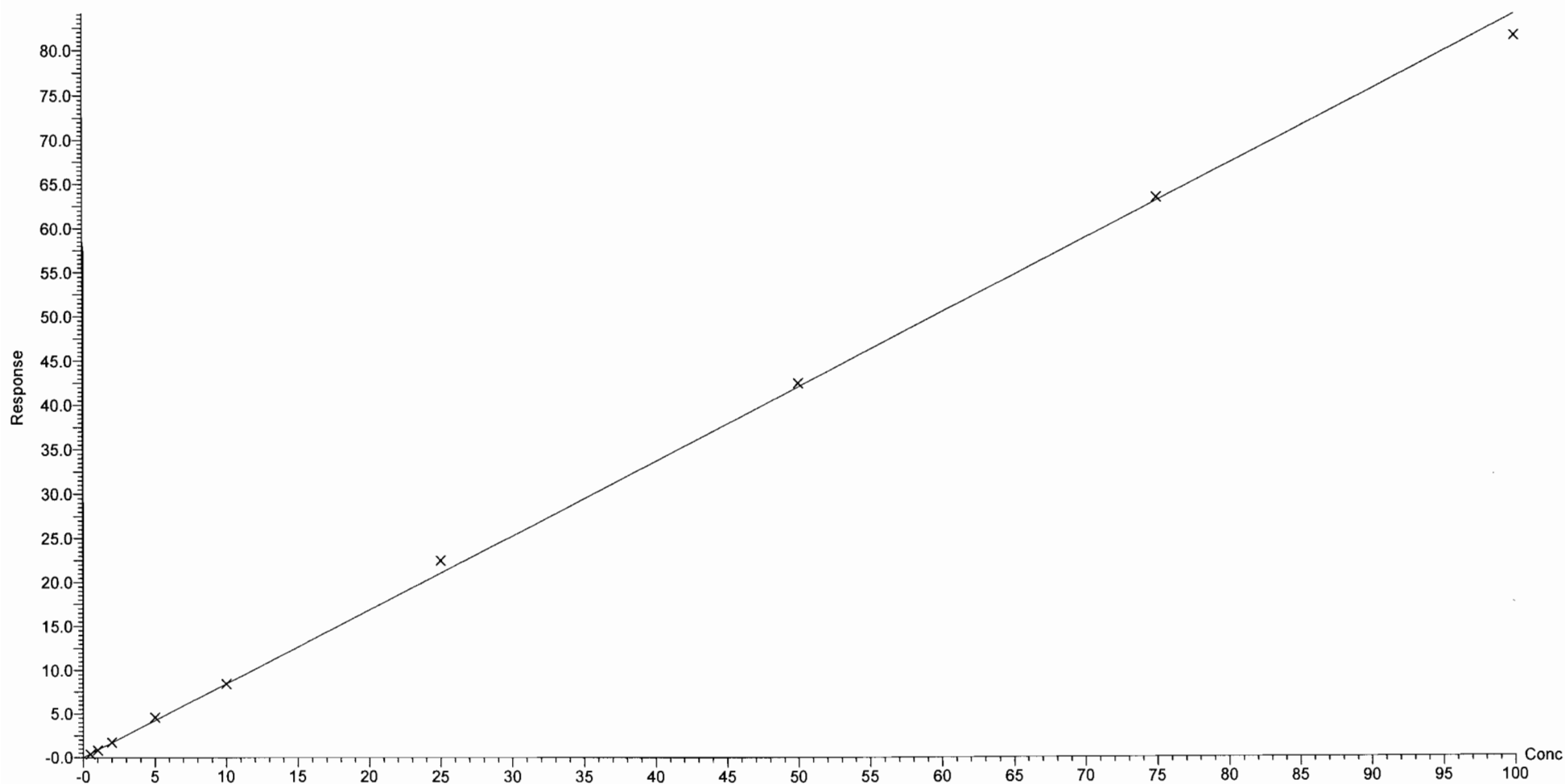
Compound name: PFOA

Coefficient of Determination: $R^2 = 0.999038$

Calibration curve: $0.841053 \times x$

Response type: Internal Std (Ref 6), Area * (IS Conc. / IS Area)

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



Dataset: U:\G1.PRO\Results\2017\171125G1\171125G1-CRV.qld

Last Altered: Sunday, November 26, 2017 19:51:30 Pacific Standard Time

Printed: Monday, November 27, 2017 09:19:38 Pacific Standard Time

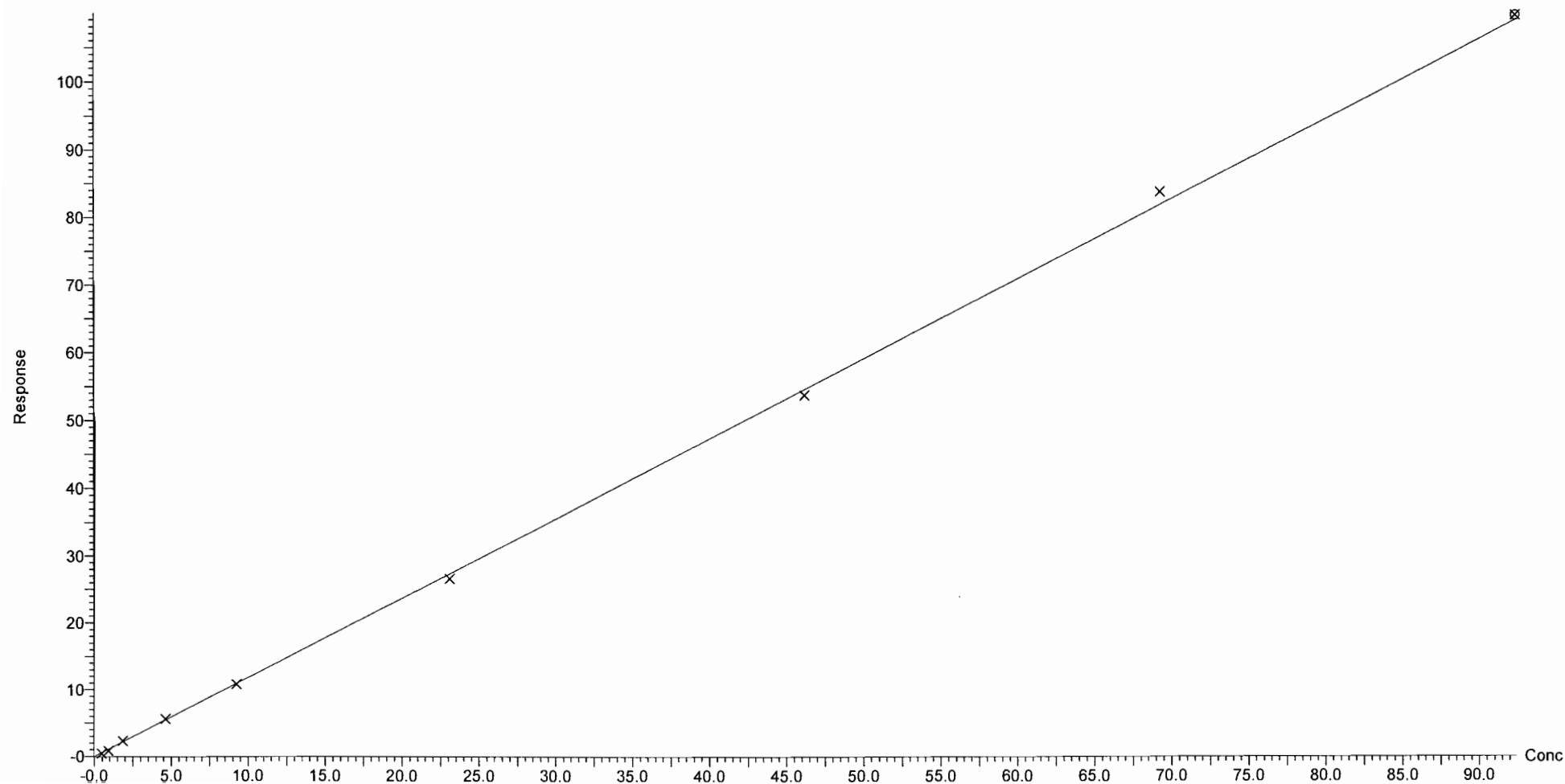
Compound name: PFOS

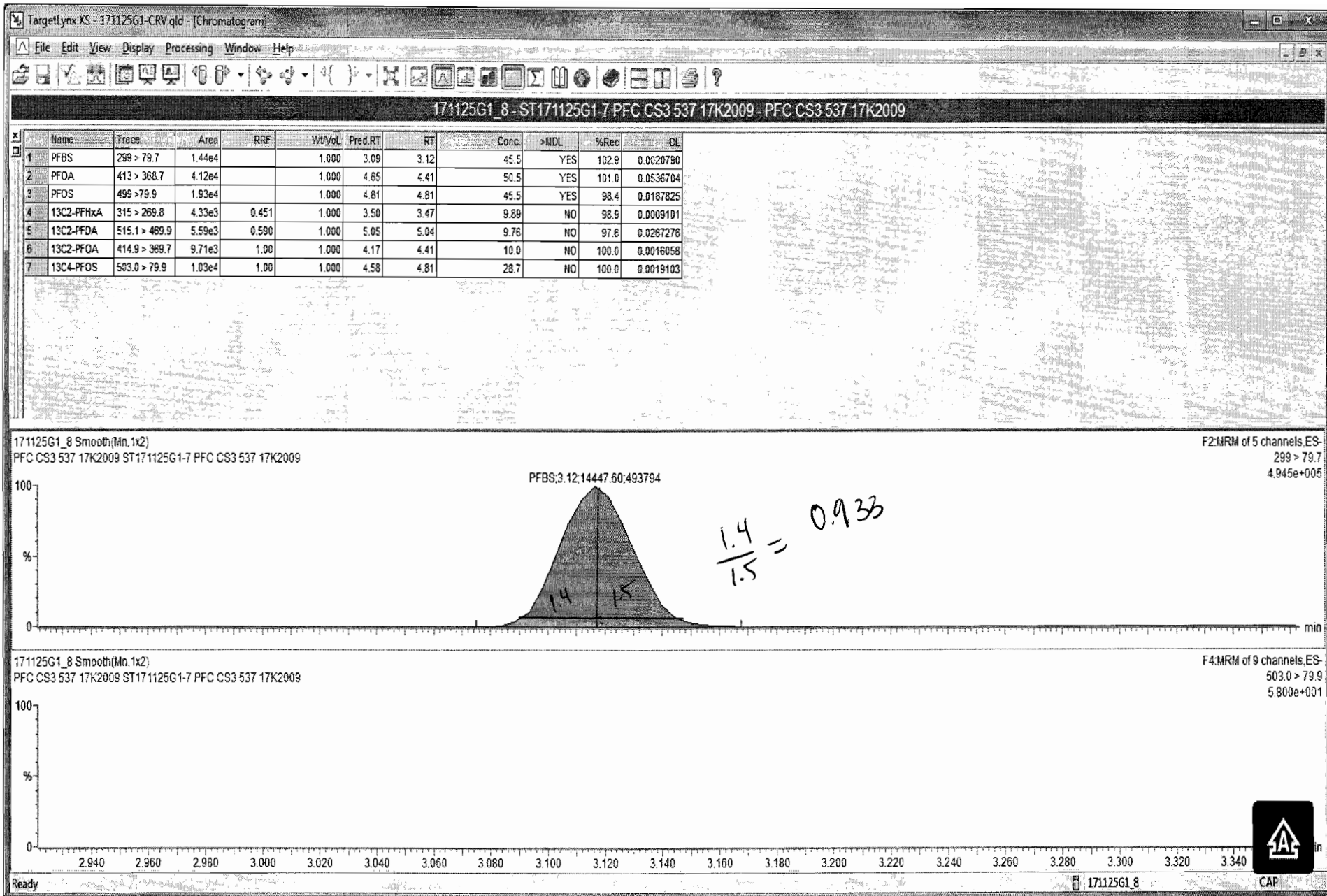
Coefficient of Determination: $R^2 = 0.998864$

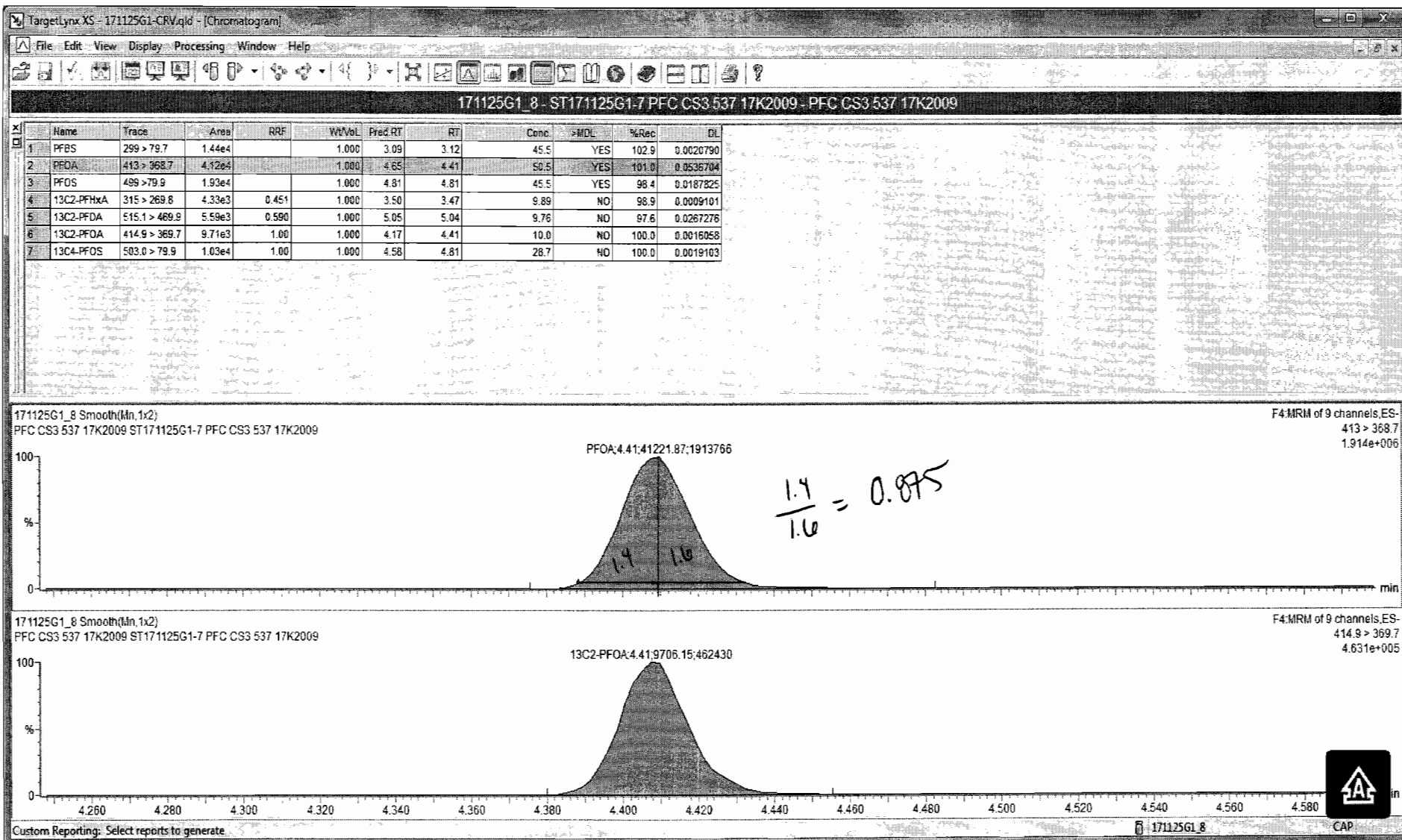
Calibration curve: $1.18285 * x$

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

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







Compound 6: 13C2-PFOA

ID	Name	Type	Std. Conc	RT	Area	IS Area	X=excluded	
							Primary	Flags
1	ST171125G1-1 PFC CS-3 537 17K2003	171125G1_Standard	10	4.41	10353.7	10353.7	bd	
2	ST171125G1-2 PFC CS-2 537 17K2004	171125G1_Standard	10	4.41	9329.975	9329.975	bb	
3	ST171125G1-3 PFC CS-1 537 17K2005	171125G1_Standard	10	4.41	10352.18	10352.18	bd	
4	ST171125G1-4 PFC CS0 537 17K2006	171125G1_Standard	10	4.41	10109.76	10109.76	bb	
5	ST171125G1-5 PFC CS1 537 17K2007	171125G1_Standard	10	4.41	10344.22	10344.22	bb	
6	ST171125G1-6 PFC CS2 537 17K2008	171125G1_Standard	10	4.41	9886.793	9886.793	bd	
7	ST171125G1-7 PFC CS3 537 17K2009	171125G1_Standard	10	4.41	9706.146	9706.146	bb	
8	ST171125G1-8 PFC CS4 537 17K2010	171125G1_Standard	10	4.41	9324.723	9324.723	bb	
9	ST171125G1-9 PFC CS5 537 17K2011	171125G1_Standard	10	4.41	8754.735	8754.735	bd	
Average Area:							RPD:	
9795.803							16.72108	

Compound 7: 13C4-PFOS

ID	Name	Type	Std. Conc	RT	Area	IS Area	X=excluded	
							Primary	Flags
1	ST171125G1-1 PFC CS-3 537 17K2003	171125G1_Standard	28.7	4.81	11353.71	11353.71	bb	
2	ST171125G1-2 PFC CS-2 537 17K2004	171125G1_Standard	28.7	4.81	11312.52	11312.52	bd	
3	ST171125G1-3 PFC CS-1 537 17K2005	171125G1_Standard	28.7	4.81	10414.69	10414.69	bd	
4	ST171125G1-4 PFC CS0 537 17K2006	171125G1_Standard	28.7	4.81	11717.42	11717.42	MM	
5	ST171125G1-5 PFC CS1 537 17K2007	171125G1_Standard	28.7	4.81	10923.13	10923.13	bd	
6	ST171125G1-6 PFC CS2 537 17K2008	171125G1_Standard	28.7	4.81	10961.46	10961.46	bd	
7	ST171125G1-7 PFC CS3 537 17K2009	171125G1_Standard	28.7	4.81	10288.46	10288.46	bd	
8	ST171125G1-8 PFC CS4 537 17K2010	171125G1_Standard	28.7	4.81	10105.09	10105.09	bd	
9	ST171125G1-9 PFC CS5 537 17K2011	171125G1_Standard	28.7	4.81	9430.776	9430.776	MMX	
Average Area:							RPD:	
10884.56							14.77678	

Dataset: U:\G1.PRO\Results\2017\171125G1\171125G1-CRV.qld

Last Altered: Sunday, November 26, 2017 19:51:30 Pacific Standard Time

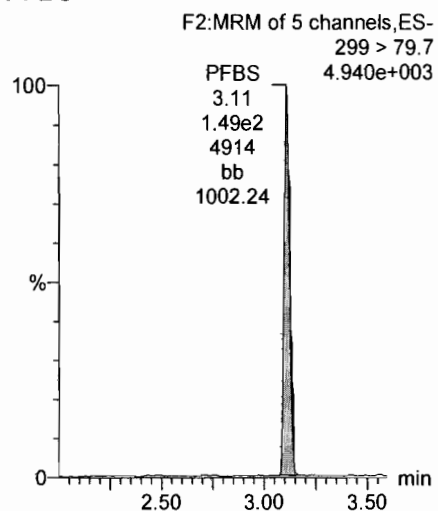
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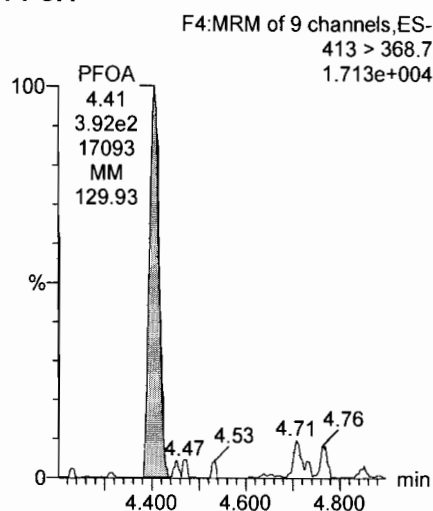
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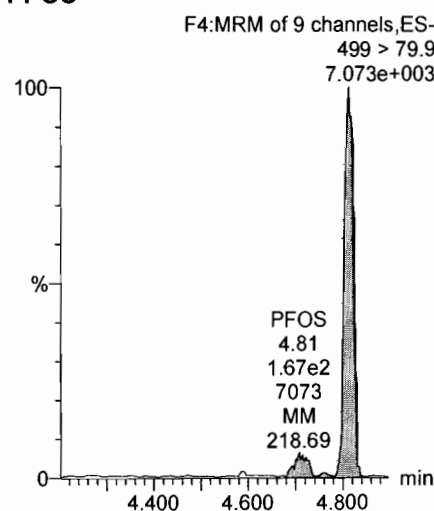
PFBS



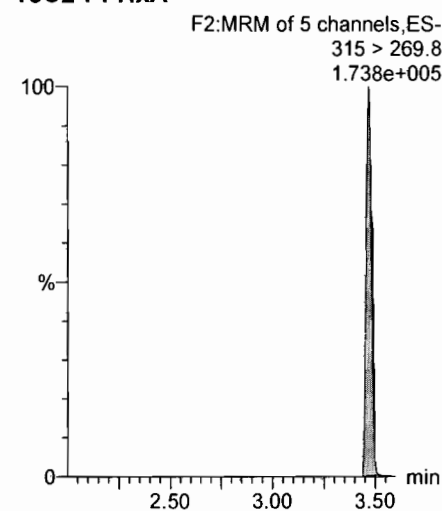
PFOA



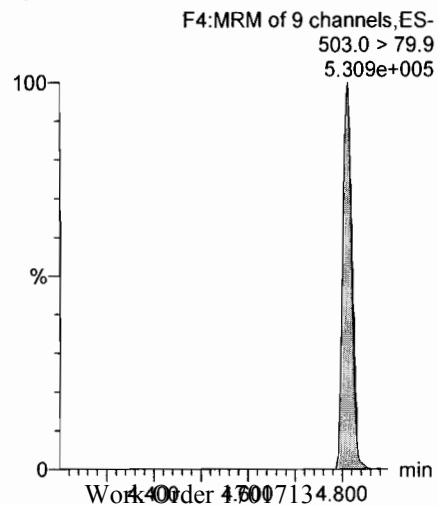
PFOS



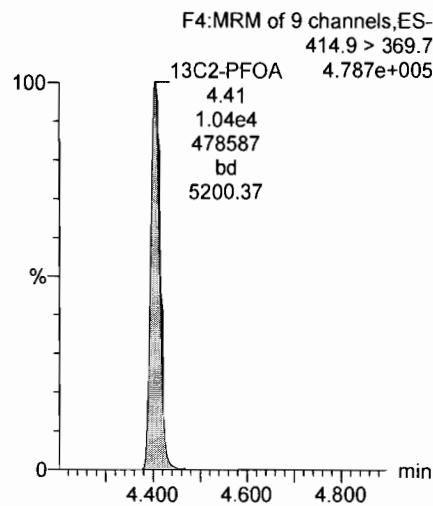
13C2-PFHxA



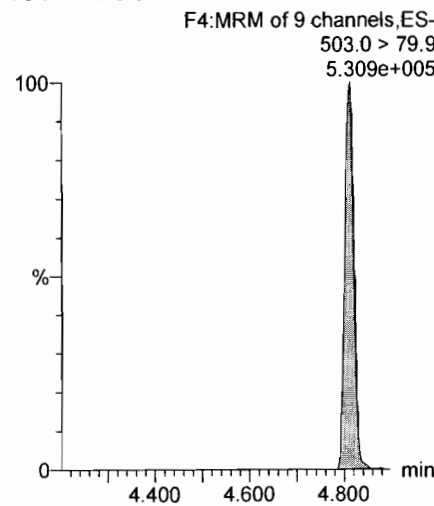
13C4-PFOS



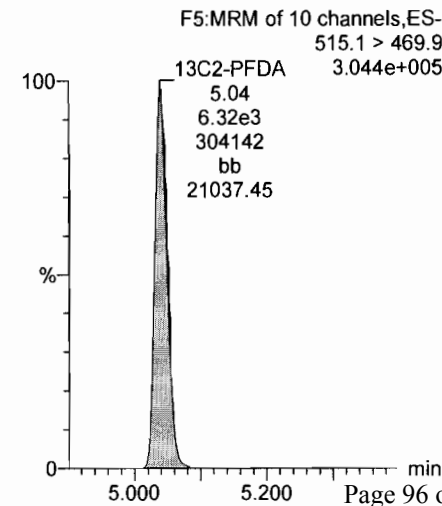
13C2-PFOA



13C4-PFOS



13C2-PFDA

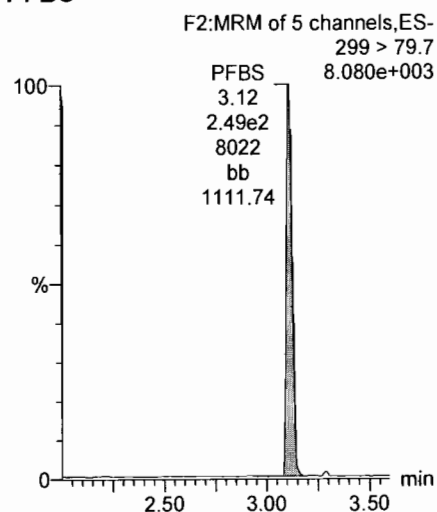


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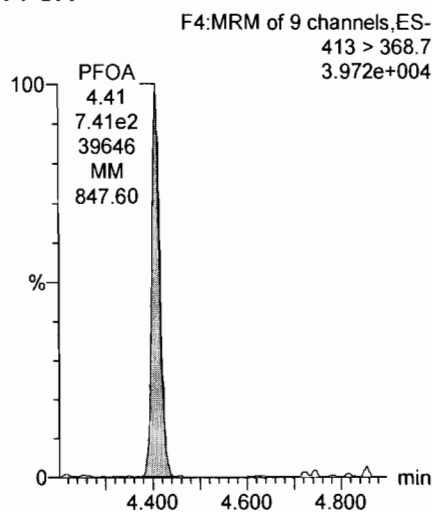
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Printed: Monday, November 27, 2017 08:59:55 Pacific Standard Time

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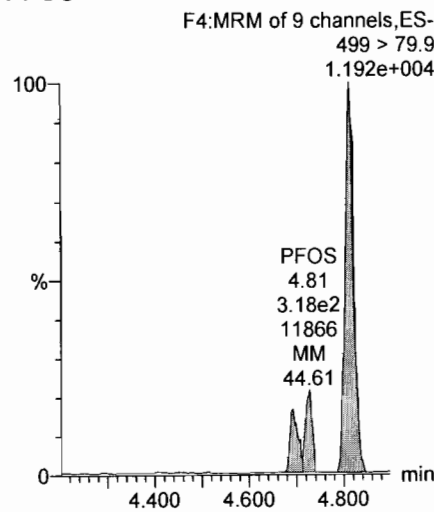
PFBS



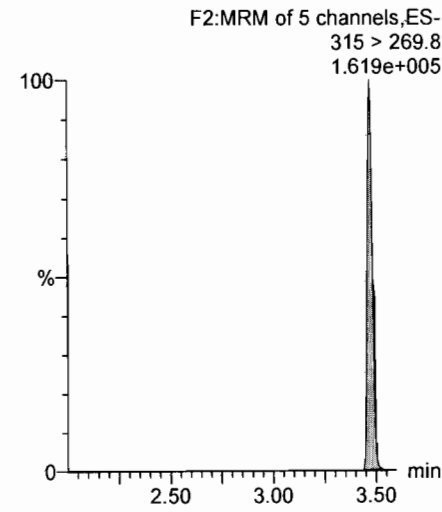
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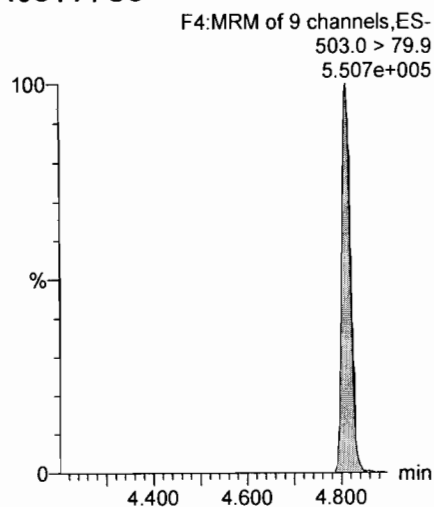
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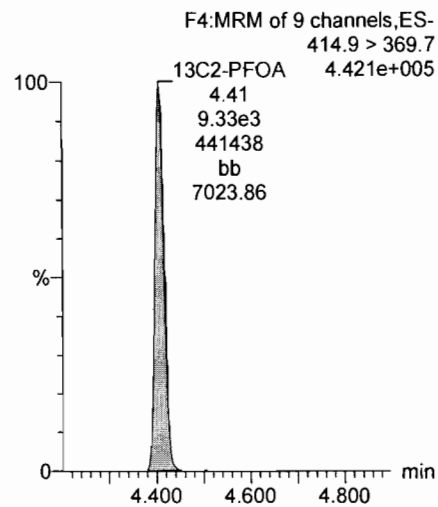
13C2-PFHxA



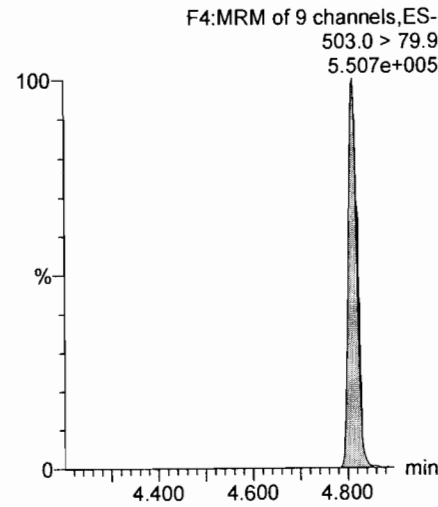
13C4-PFOS



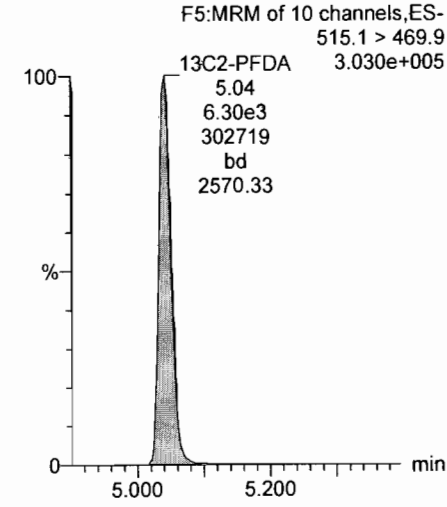
13C2-PFOA



13C4-PFOS



13C2-PFDA

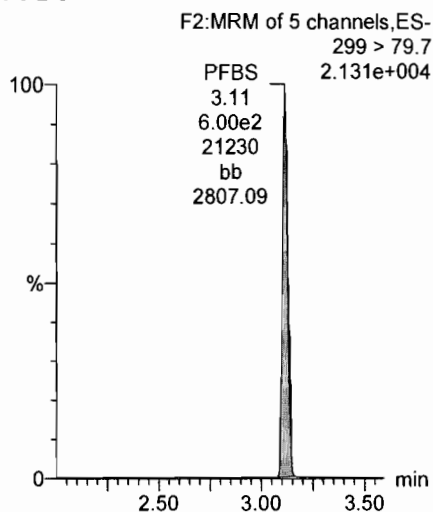


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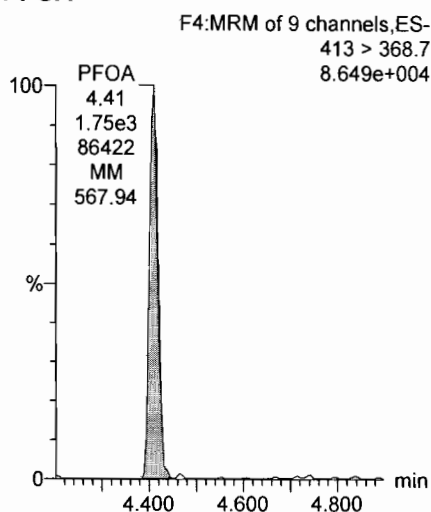
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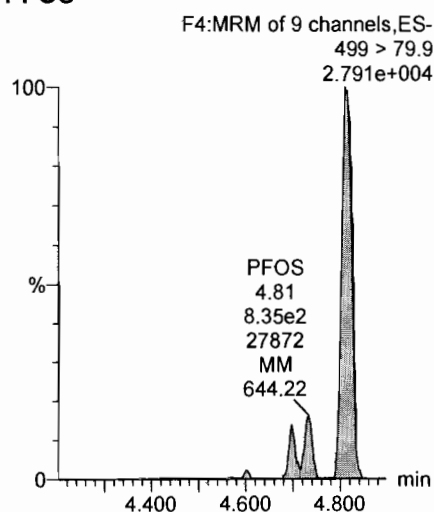
PFBS



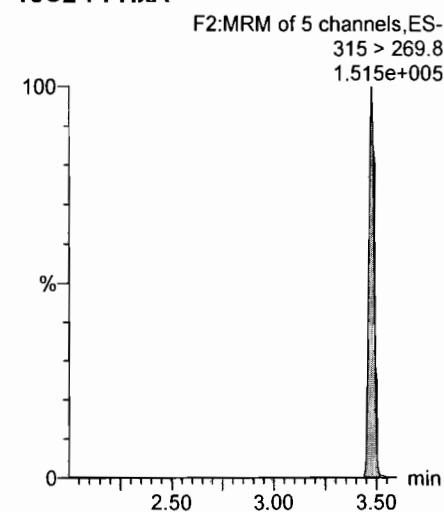
PFOA



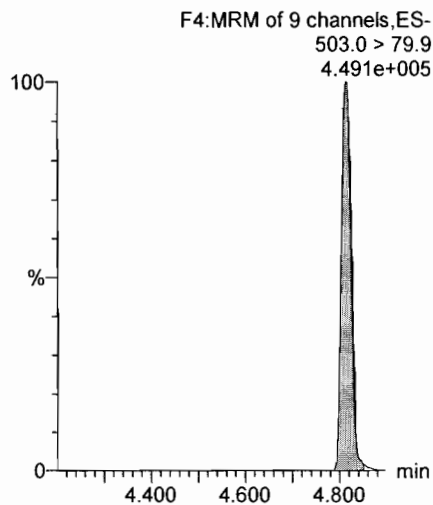
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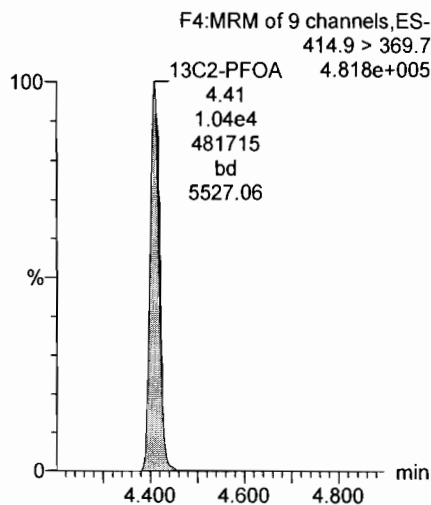
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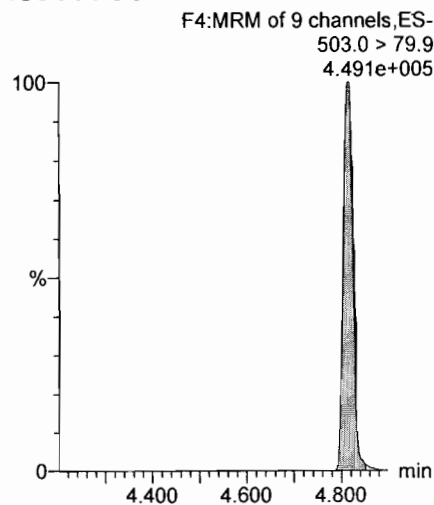
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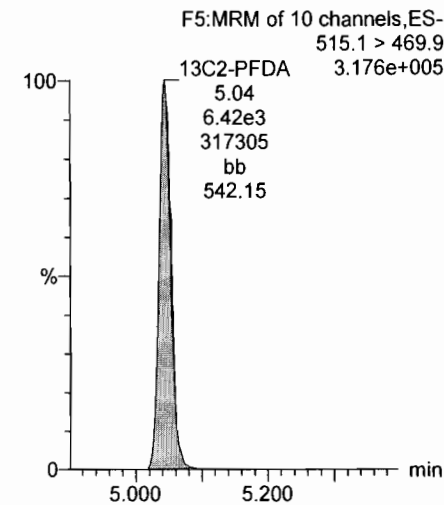
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13C2-PFDA



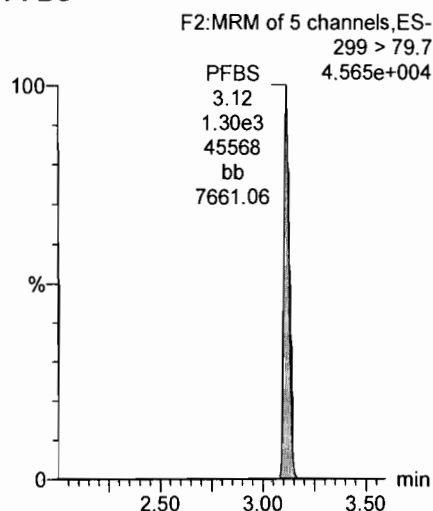
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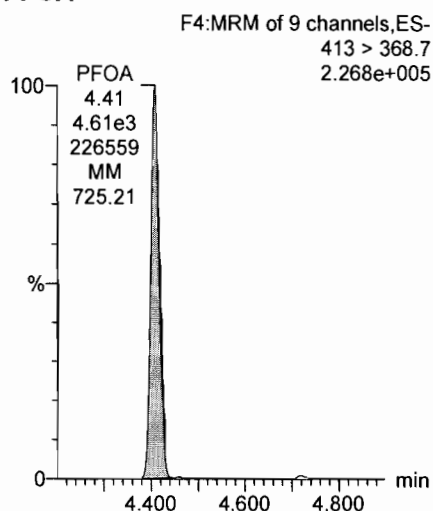
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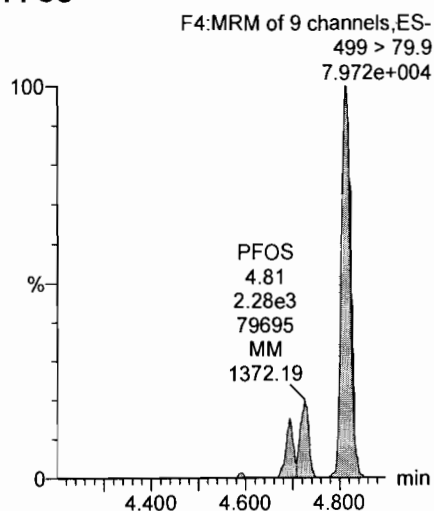
PFBS



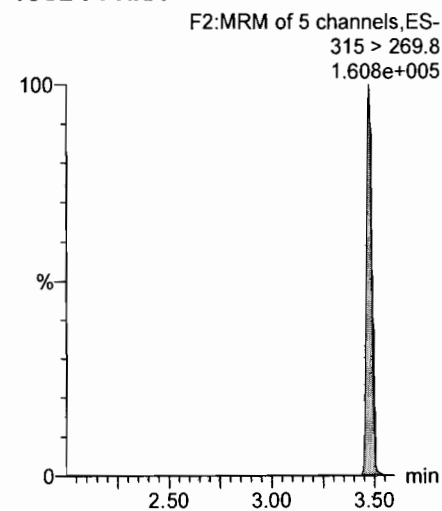
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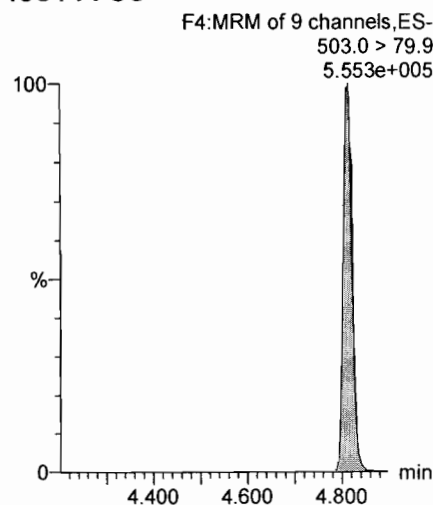
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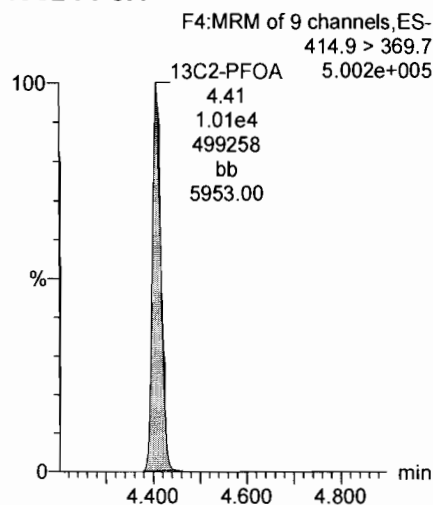
13C2-PFHxA



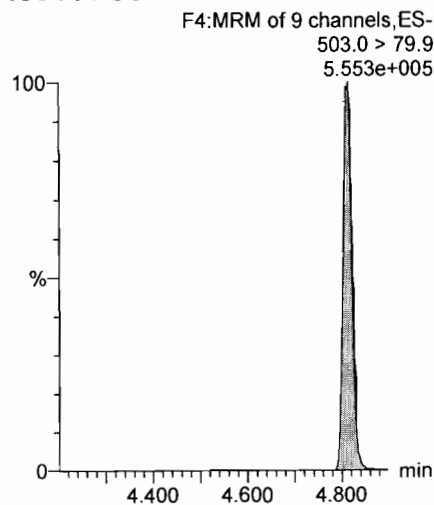
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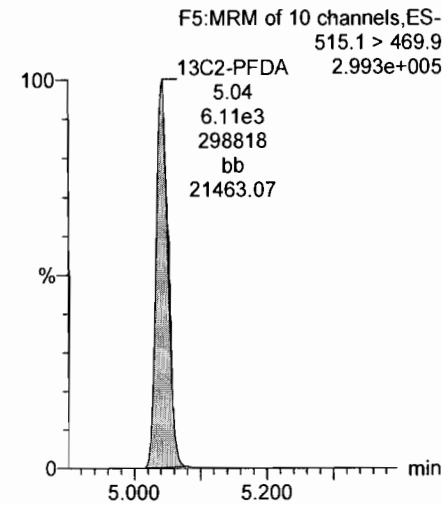
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13C4-PFOS



13C2-PFDA

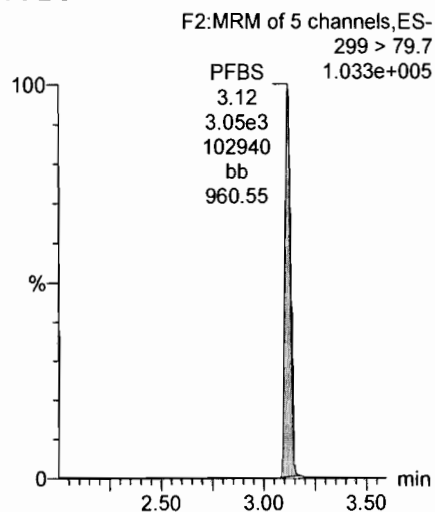


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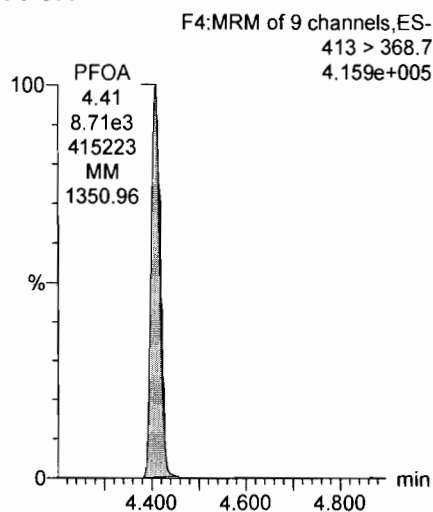
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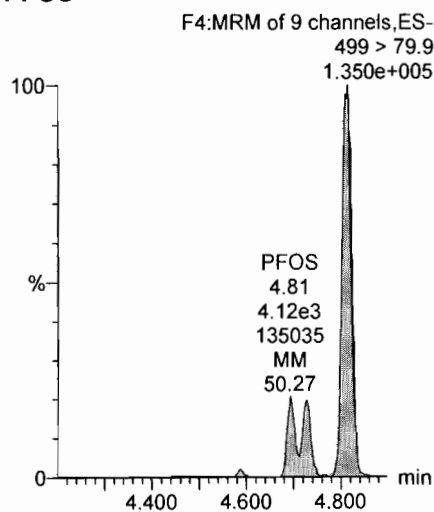
PFBS



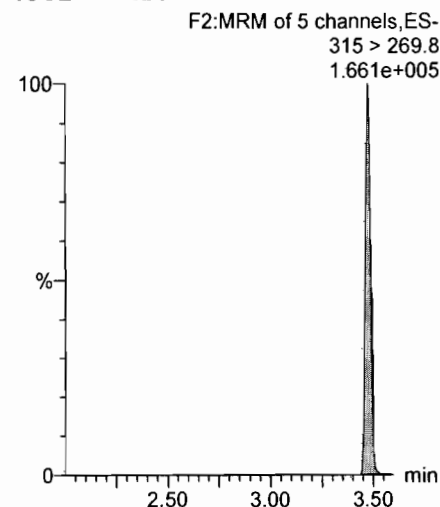
PFOA



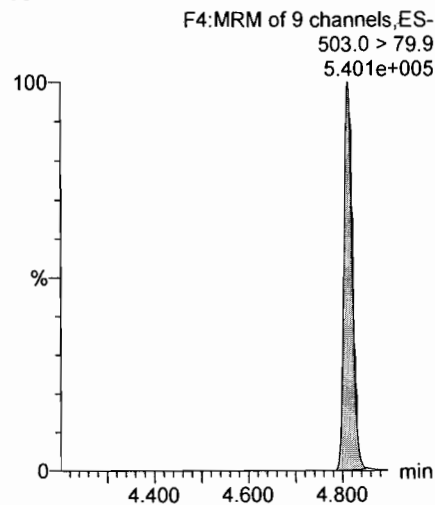
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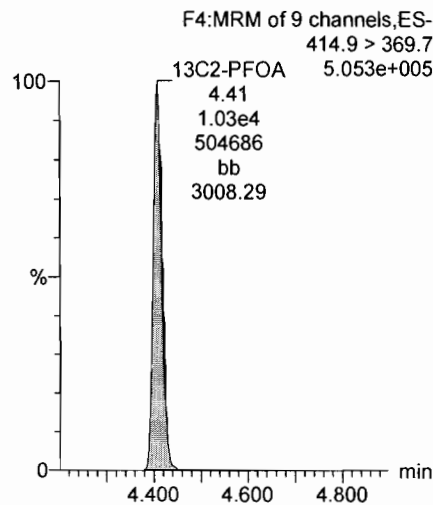
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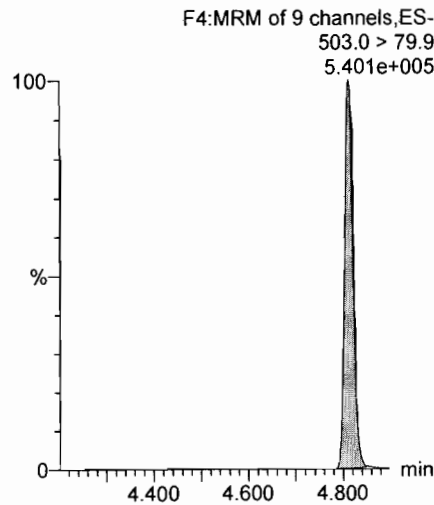
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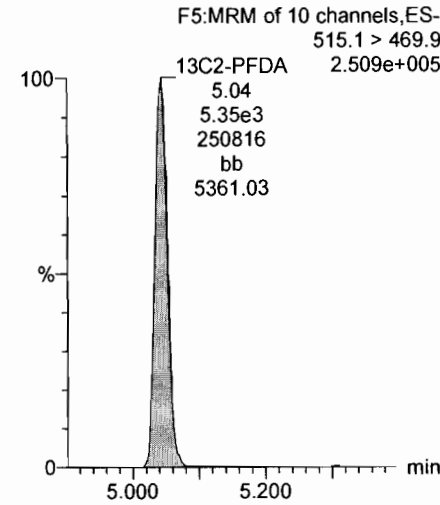
13C2-PFOA



13C4-PFOS



13C2-PFDA

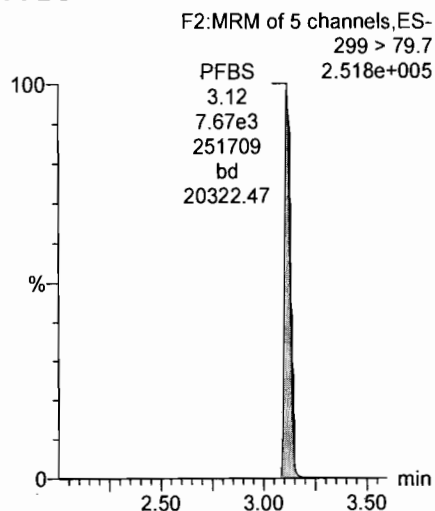


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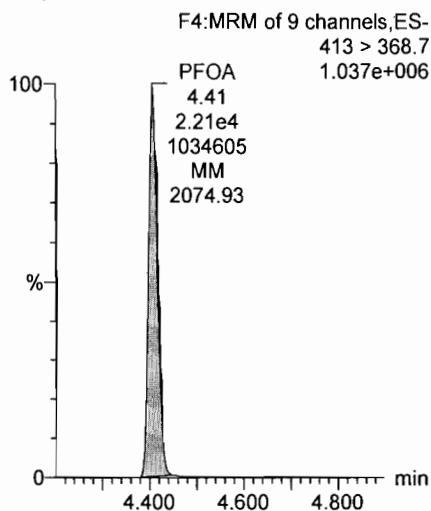
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Printed: Monday, November 27, 2017 08:59:55 Pacific Standard Time

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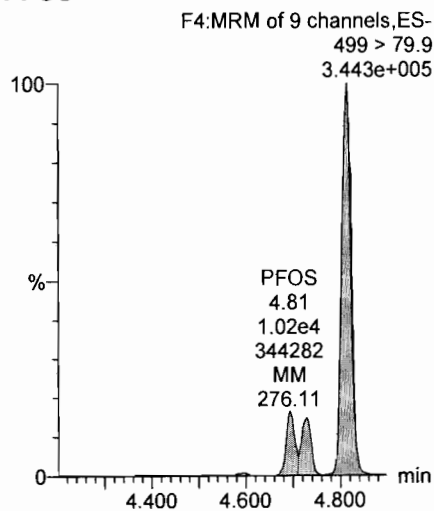
PFBS



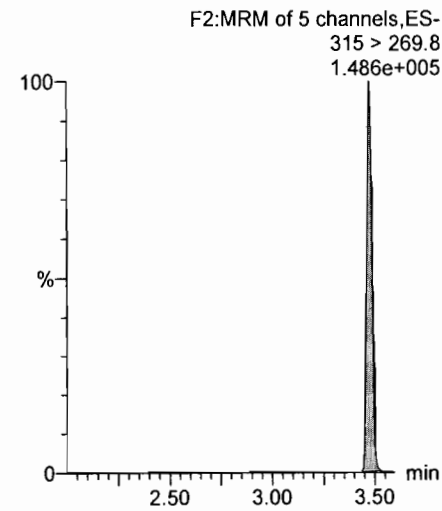
PFOA



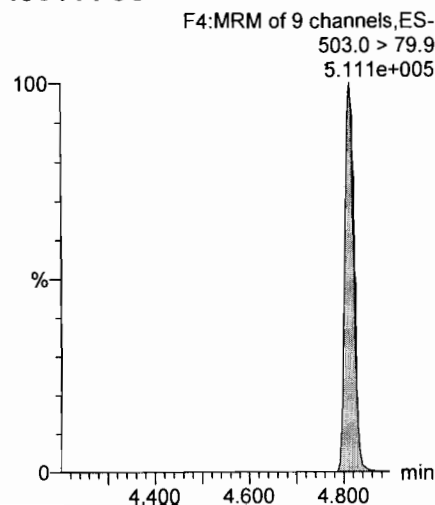
PFOS



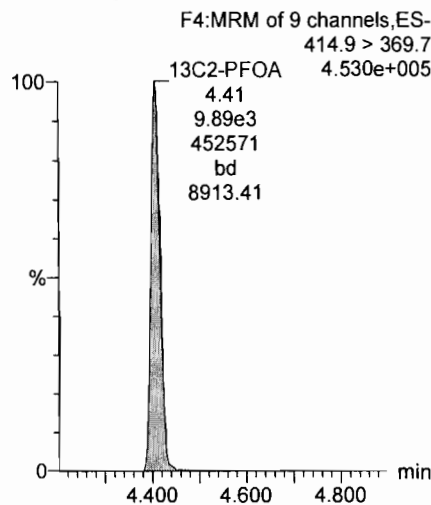
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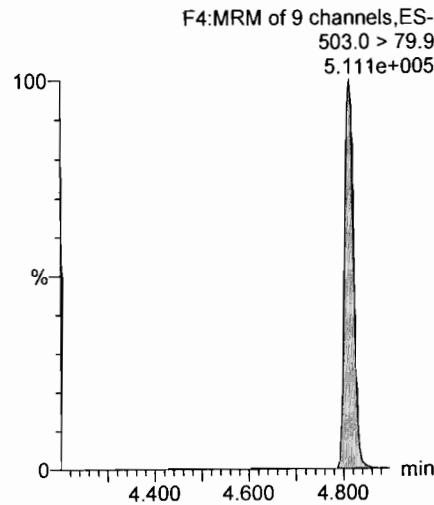
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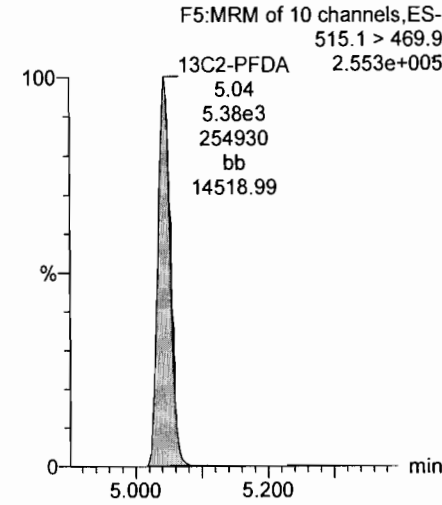
13C2-PFOA



13C4-PFOS



13C2-PFDA

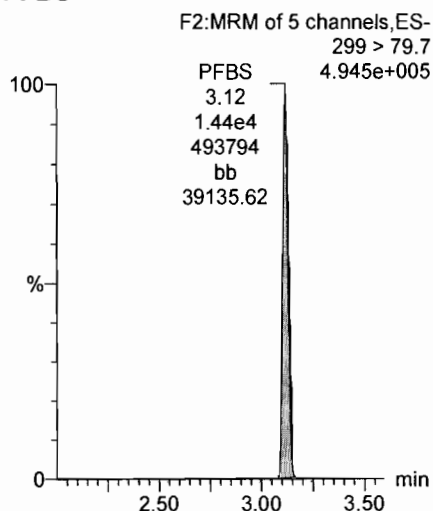


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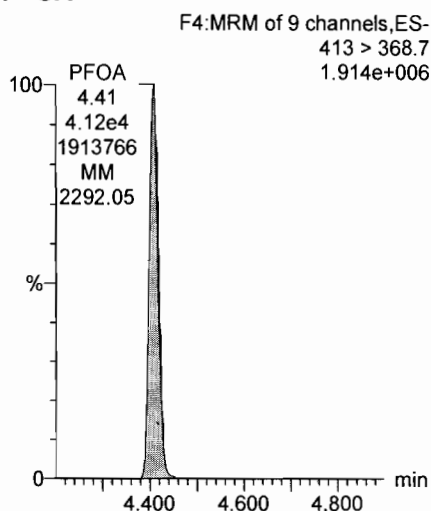
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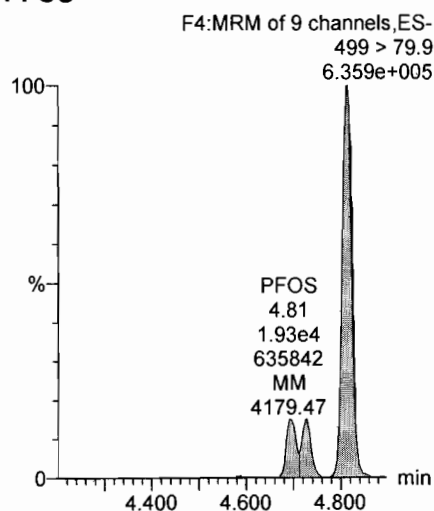
PFBS



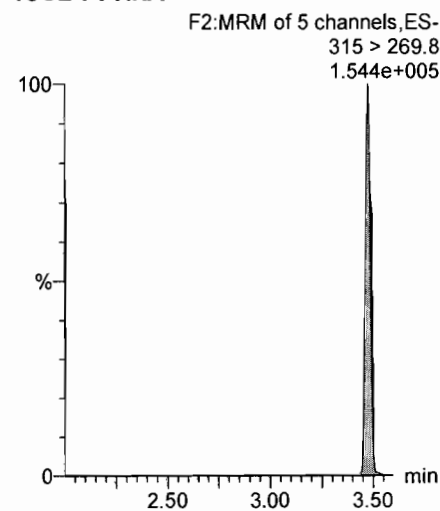
PFOA



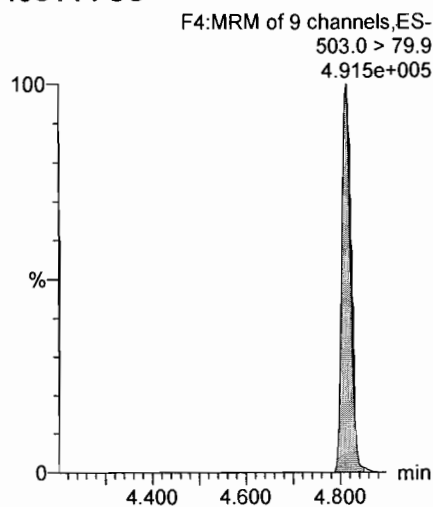
PFOS



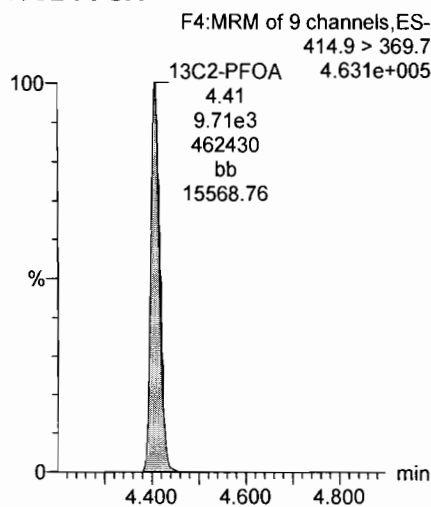
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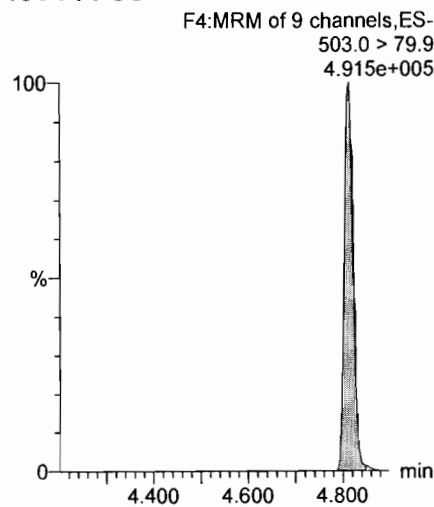
13C4-PFOS



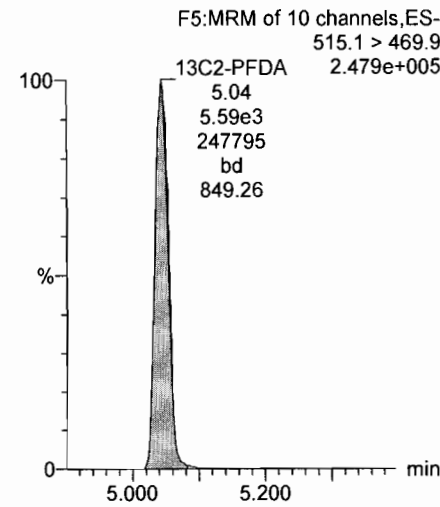
13C2-PFOA



13C4-PFOS



13C2-PFDA

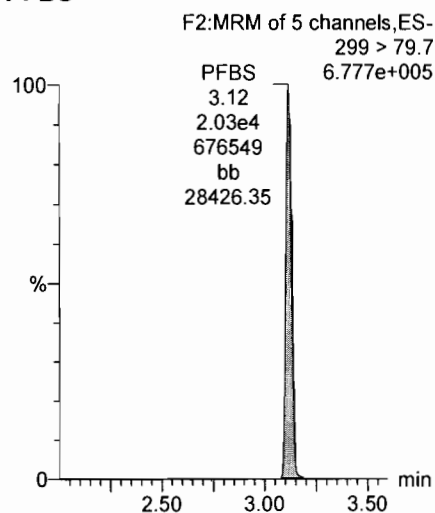


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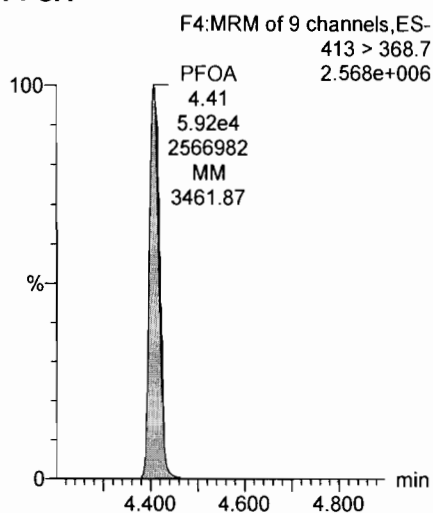
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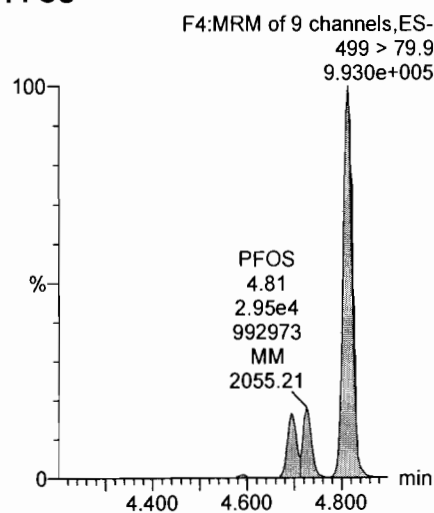
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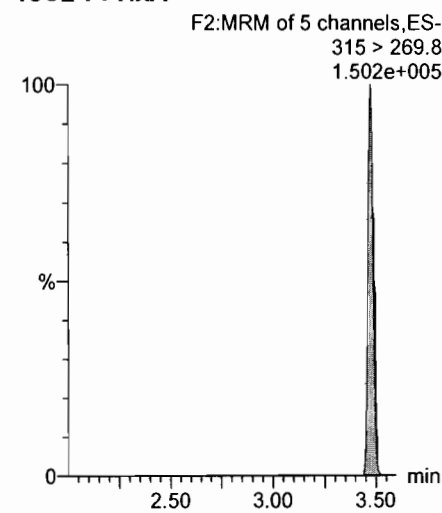
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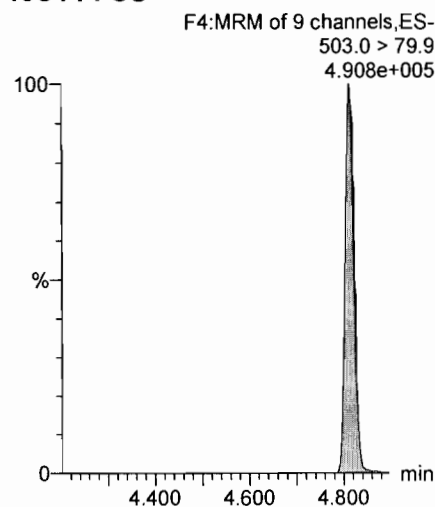
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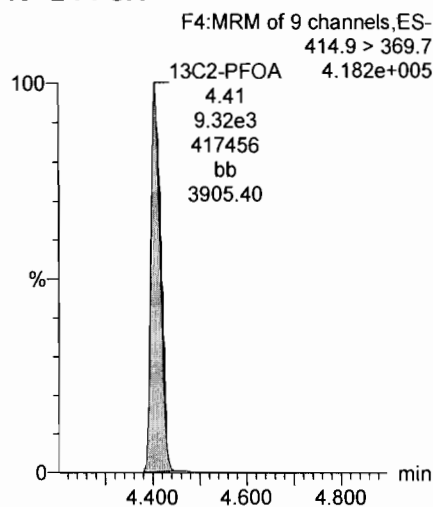
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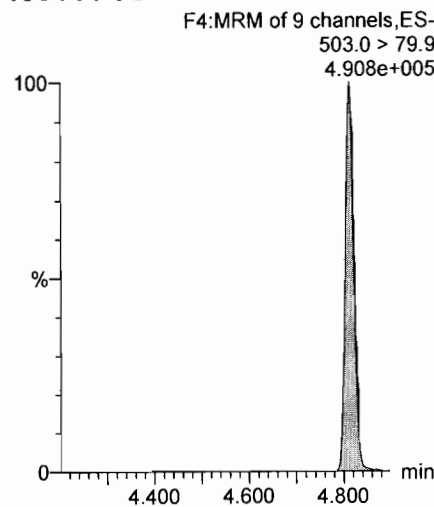
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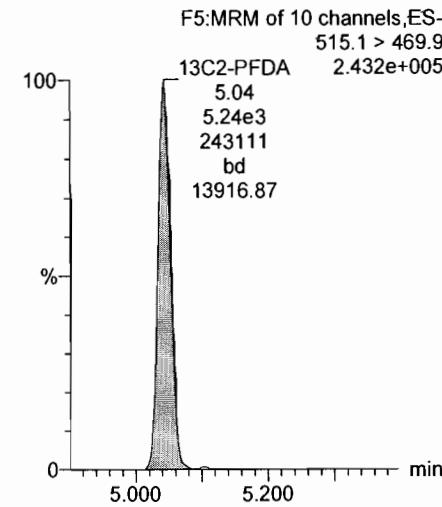
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13C4-PFOS



13C2-PFDA



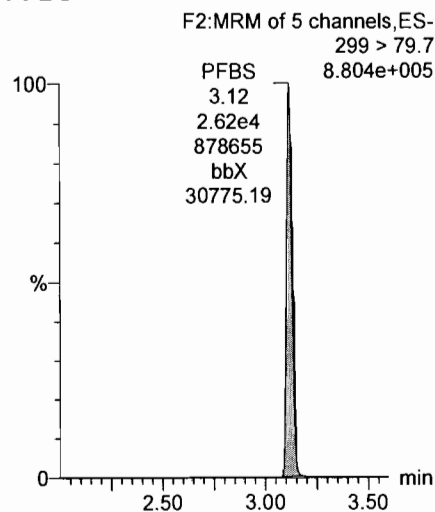
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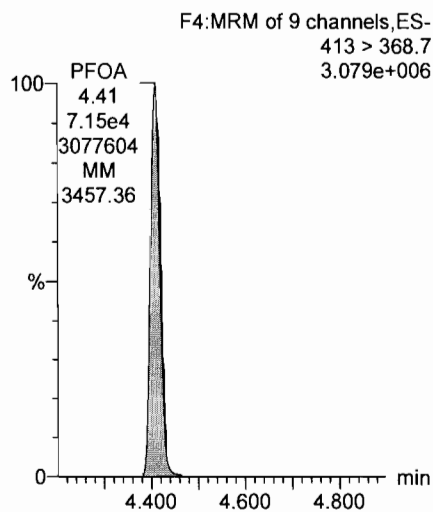
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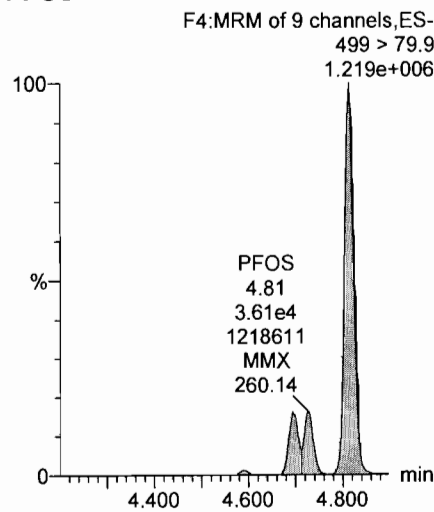
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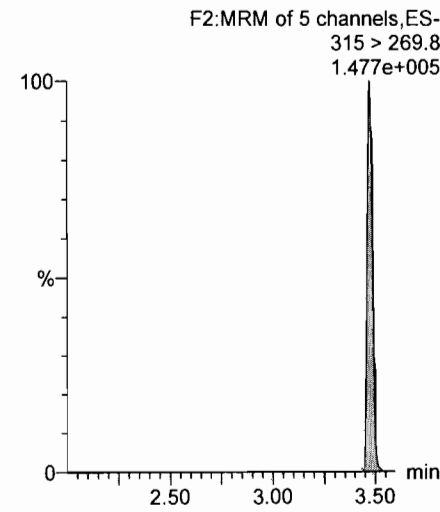
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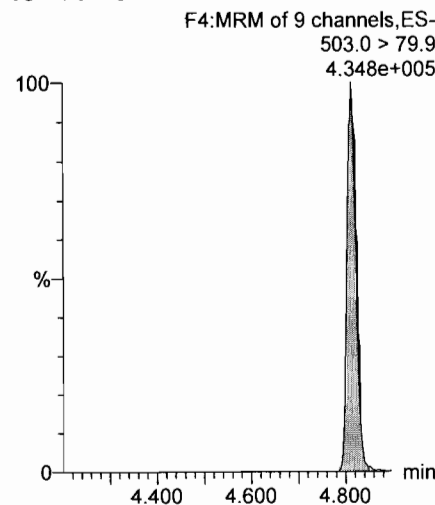
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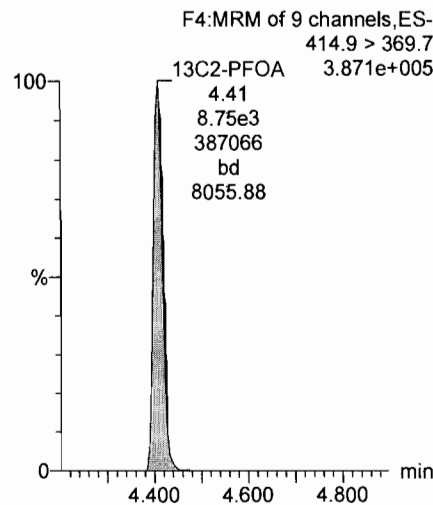
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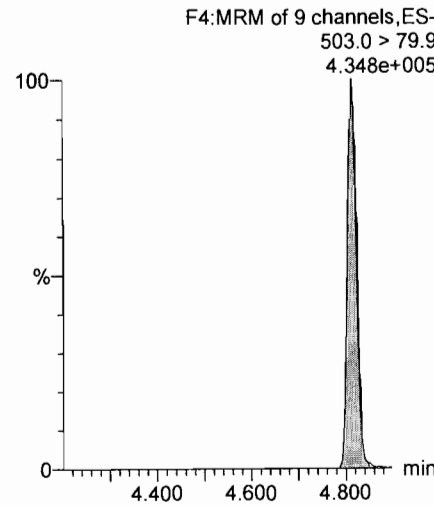
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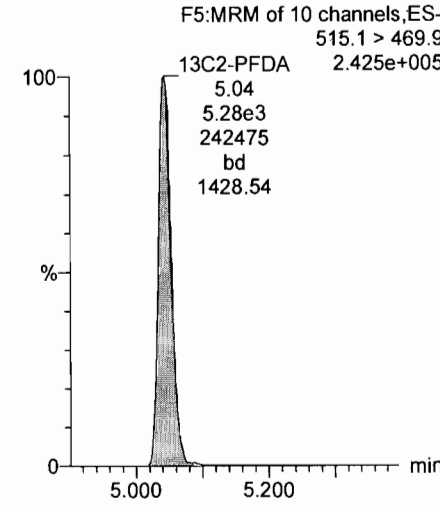
13C2-PFOA



13C4-PFOS



13C2-PFDA



Dataset: U:\G1.PRO\Results\2017\171125G1\171125G1-icv.qld

Last Altered: Sunday, November 26, 2017 20:30:59 Pacific Standard Time

Printed: Monday, November 27, 2017 09:36:34 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 26 Nov 2017 20:29:15

Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171125G1_12, Date: 25-Nov-2017, Time: 17:35:12, ID: ICV171125G1-1 PFC ICV 537 17K2012, Description: PFC ICV 537 17K2012

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7	3.28e3	1.06e4		1.0000	3.09	3.12	8.89	10.0	100.3
2	2 PFOA	413 > 368.7	9.56e3	1.01e4		1.0000	4.65	4.41	9.49	11.3	112.8
3	3 PFOS	499 > 79.9	4.55e3	1.06e4		1.0000	4.81	4.81	12.3	10.4	104.3
4	4 13C2-PFHxA	315 > 269.8	4.60e3	1.01e4	0.451	1.0000	3.50	3.48	4.56	10.1	101.2
5	5 13C2-PFDA	515.1 > 469.9	5.30e3	1.01e4	0.590	1.0000	5.05	5.04	5.26	8.92	89.2
6	6 13C2-PFOA	414.9 > 369.7	1.01e4	1.01e4	1.000	1.0000	4.17	4.41	10.0	10.0	100.0
7	7 13C4-PFOS	503.0 > 79.9	1.06e4	1.06e4	1.000	1.0000	4.58	4.81	28.7	28.7	100.0

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Dataset: U:\G1.PRO\Results\2017\171125G1\171125G1-icv.qld

Last Altered: Sunday, November 26, 2017 20:30:59 Pacific Standard Time

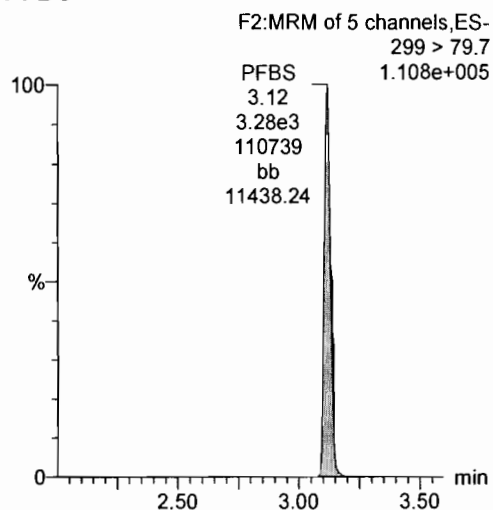
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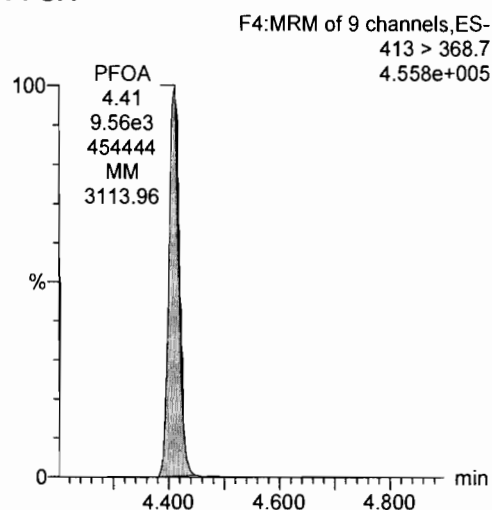
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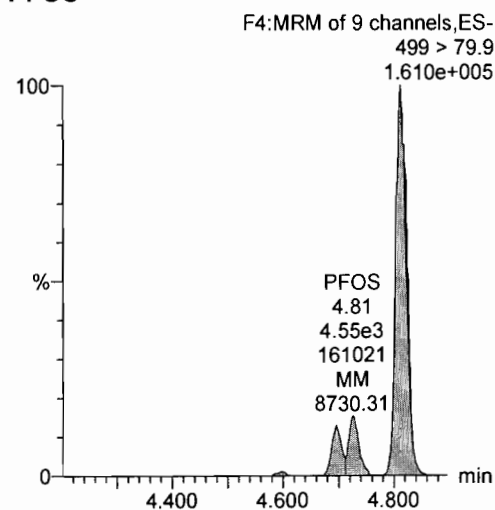
PFBS



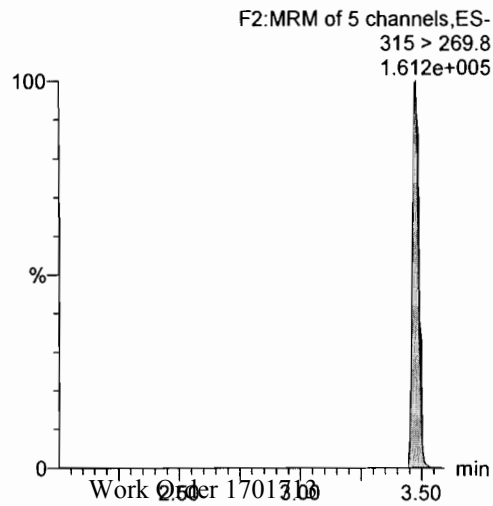
PFOA



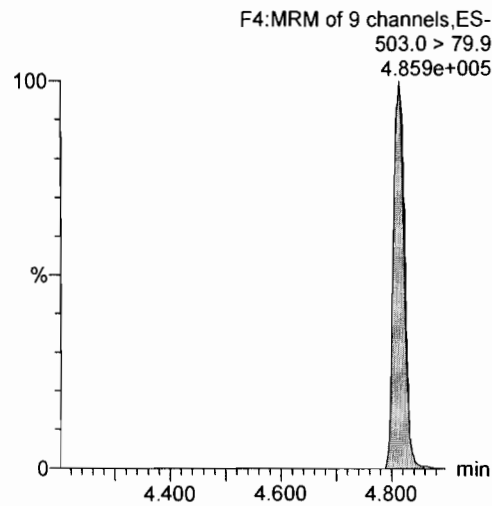
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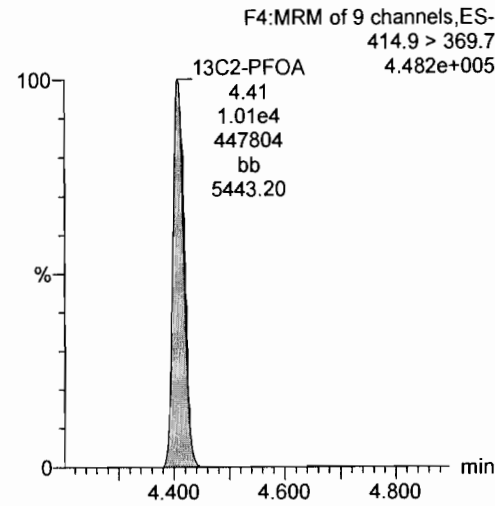
13C2-PFHxA



13C4-PFOS



13C2-PFOA



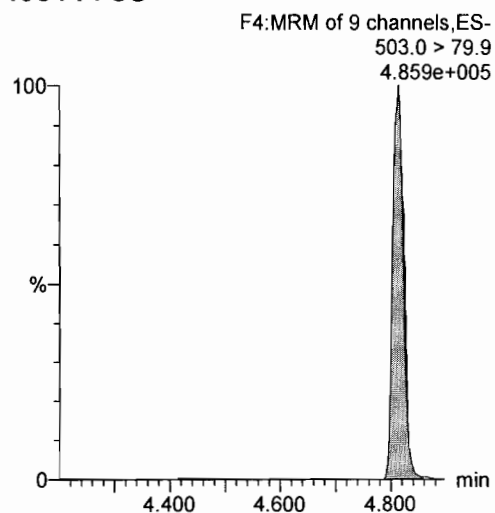
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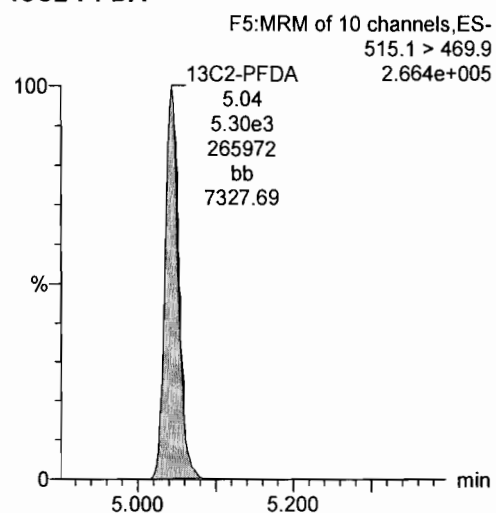
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13C4-PFOS



13C2-PFDA



Vista Analytical Laboratory

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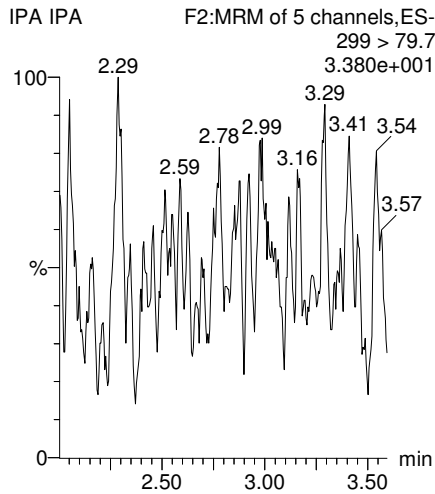
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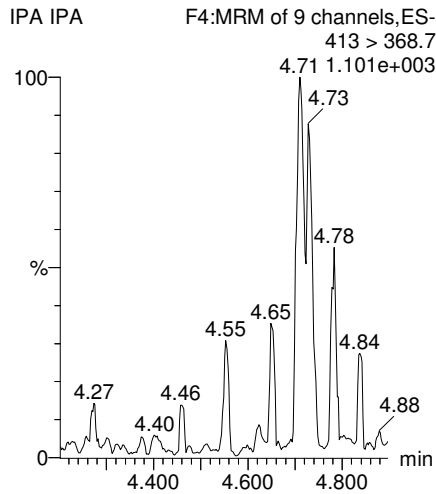
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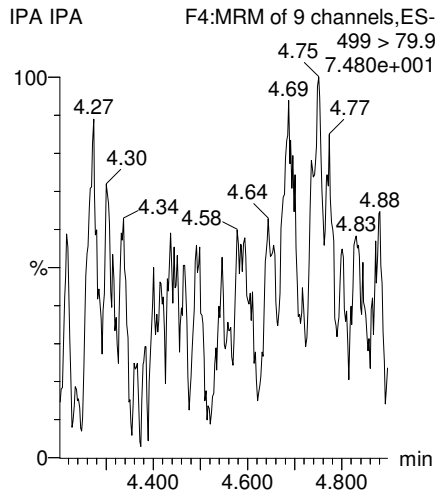
PFBS



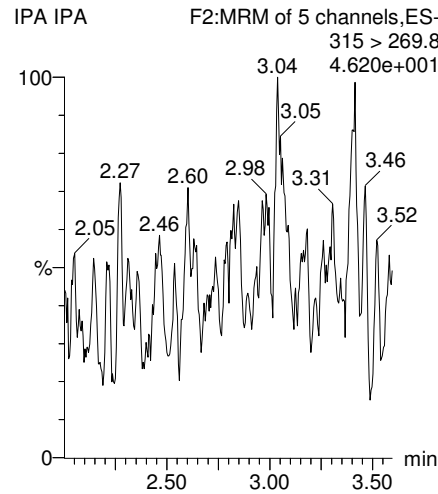
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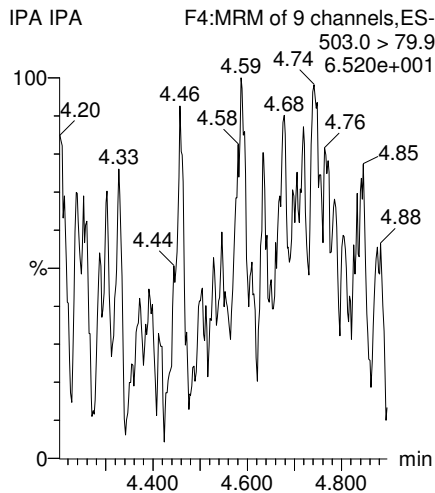
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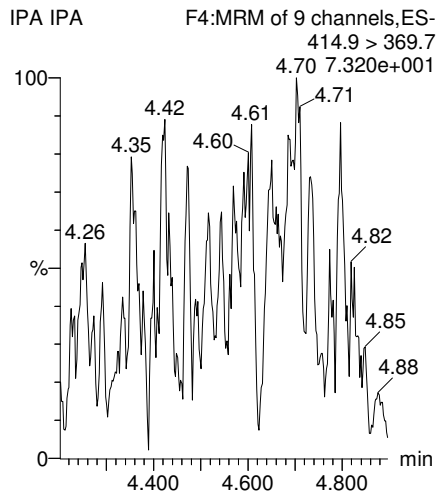
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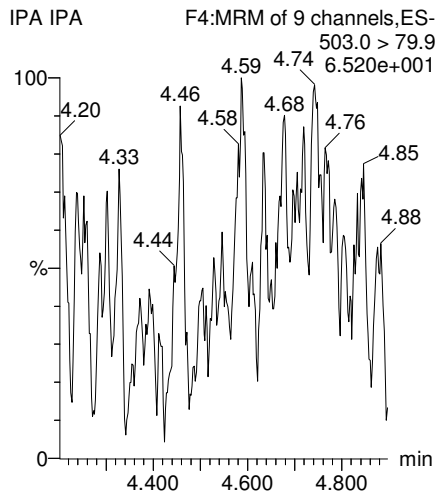
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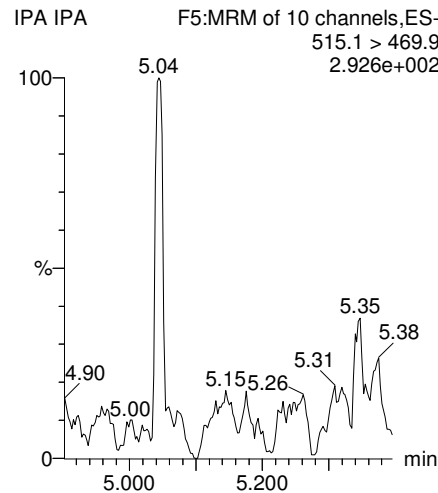
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13C4-PFOS



13C2-PFDA



Contract ID	DO_CTO_ Number	Phase	Installation ID	Sample Name	CH2M_ Code	Analysis_ Group	Analytical_ Method	PRC_ Code	Lab_ Code	Lab Name	Leachate_ Method	Sample_ Basis	Extraction_ Method	Result_ Type	Lab_QC_ Type	Sample_ Medium	QC_ Level	Date_Time_ Collected	Date_Rec eived	Leachate Date	Leachate Time	Extraction_D ate	Extraction_ Time	Analysis_ Date	Analysis_ Time	Lab_ Sample ID	Dilution	Run_ Number	Percent Moisture	Percent_L ipid
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Contract_ID	DO_CTO_Number	Phase	Installation_ID	Chem_Name	Analyte_ID	Analyte_Value	Original_Analyte_Value	Result_Units	Lab_Qualifier	Validator_Qualifier	GC_Column_Type	Analysis_Result_Type	Result_Narrative	QC_Control_Limit_Code	QC_Accuracy_Upper	QC_Accuracy_Lower	Control_Limit_Date	QC_Narrative	MDL	Detection_Limit	QSM_Version	DL	LOD	LOQ	SDG	Analysis_Batch
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5	4.64		NG L	U		PR	TRG									5.1	0.411	4.64	9.28	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1	4.64		NG L	U		PR	TRG									5.1	1.00	4.64	9.28	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1	4.64		NG L	U		PR	TRG									5.1	0.965	4.64	9.28	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA	112		PCT_REC			PR			SLSA	130	70					5.1				1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5	4.72		NG L	U		PR	TRG									5.1	0.418	4.72	9.44	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1	4.72		NG L	U		PR	TRG									5.1	1.02	4.72	9.44	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1	4.72		NG L	U		PR	TRG									5.1	0.982	4.72	9.44	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA	110		PCT_REC			PR			SLSA	130	70					5.1				1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5	4.74		NG L	U		PR	TRG									5.1	0.420	4.74	9.48	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1	4.74		NG L	U		PR	TRG									5.1	1.02	4.74	9.48	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1	4.74		NG L	U		PR	TRG									5.1	0.986	4.74	9.48	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA	105		PCT_REC			PR			SLSA	130	70					5.1				1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5	4.57		NG L	U		PR	TRG									5.1	0.405	4.57	9.14	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1	4.57		NG L	U		PR	TRG									5.1	0.987	4.57	9.14	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1	4.57		NG L	U		PR	TRG									5.1	0.950	4.57	9.14	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA	111		PCT_REC			PR			SLSA	130	70					5.1				1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5	4.77		NG L	U		PR	TRG									5.1	0.423	4.77	9.54	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1	4.77		NG L	U		PR	TRG									5.1	1.03	4.77	9.54	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1	4.77		NG L	U		PR	TRG									5.1	0.992	4.77	9.54	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA	109		PCT_REC			PR			SLSA	130	70					5.1				1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5	4.59		NG L	U		PR	TRG									5.1	0.407	4.59	9.18	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1	4.59		NG L	U		PR	TRG									5.1	0.991	4.59	9.18	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1	4.59		NG L	U		PR	TRG									5.1	0.954	4.59	9.18	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA	106		PCT_REC			PR			SLSA	130	70					5.1				1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5	4.73		NG L	U		PR	TRG									5.1	0.419	4.73	9.45	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1	4.73		NG L	U		PR	TRG									5.1	1.02	4.73	9.45	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1	4.73		NG L	U		PR	TRG									5.1	0.983	4.73	9.45	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA	111		PCT_REC			PR			SLSA	130	70					5.1				1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5	4.67		NG L	U		PR	TRG									5.1	0.414	4.67	9.35	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1	4.67		NG L	U		PR	TRG									5.1	1.01	4.67	9.35	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1	4.67		NG L	U		PR	TRG									5.1	0.972	4.67	9.35	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA	104		PCT_REC			PR			SLSA	130	70					5.1				1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5	4.78		NG L	U		PR	TRG									5.1	0.424	4.78	9.56	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1	4.78		NG L	U		PR	TRG									5.1	1.03	4.78	9.56	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1	4.78		NG L	U		PR	TRG									5.1	0.995	4.78	9.56	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA	101		PCT_REC			PR			SLSA	130	70					5.1				1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5	4.68		NG L	U		PR	TRG									5.1	0.415	4.68	9.36	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1	4.68		NG L	U		PR	TRG									5.1	1.01	4.68	9.36	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1	4.68		NG L	U		PR	TRG									5.1	0.973	4.68	9.36	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA	107		PCT_REC			PR			SLSA	130	70					5.1				1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5	4.77		NG L	U		PR	TRG									5.1	0.423	4.77	9.55	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1	4.77		NG L	U		PR	TRG									5.1	1.03	4.77	9.55	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1	4.77		NG L	U		PR	TRG									5.1	0.993	4.77	9.55	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA	106		PCT_REC			PR			SLSA	130	70					5.1				1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5	4.72		NG L	U		PR	TRG									5.1	0.418	4.72	9.43	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1	4.72		NG L	U		PR	TRG									5.1	1.02	4.72	9.43	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1	4.72		NG L	U		PR	TRG									5.1	0.981	4.72	9.43	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA	121		PCT_REC			PR			SLSA	130	70					5.1				1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5	4.86		NG L	U		PR	TRG									5.1	0.431	4.86	9.72	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1	4.86		NG L	U		PR	TRG									5.1	1.05	4.86	9.72	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1	4.86		NG L	U		PR	TRG									5.1	1.01	4.86	9.72	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA	107		PCT_REC			PR			SLSA	130	70					5.1				1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5	4.64		NG L	U		PR	TRG									5.1	0.411	4.64	9.27	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1	4.64		NG L	U		PR	TRG									5.1	1.00	4.64	9.27	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1	4.64		NG L	U		PR	TRG									5.1	0.964	4.64	9.27	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA	99.3		PCT_REC			PR			SLSA	130	70					5.1				1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5	5.00		NG L	U		PR	TRG									5.1	0.443	5.00	10.0	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1	5.00		NG L	U		PR	TRG									5.1	1.08	5.00	10.0	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1	5.00		NG L	U		PR	TRG									5.1	1.04	5.00	10.0	1701713	S7K0075
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-P																					

**DATA VALIDATION SUMMARY REPORT
MCOLE ATLANTIC, NORTH CAROLINA**

Client: CH2M HILL, Inc., Corvallis, Oregon
SDG: 1701713
Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
Site: MCOLF Atlantic, North Carolina
Date: January 3, 2018

PFCs			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	CH-AT-1RW23-1117	1701713-01	Water
2	CH-AT-1FB23-1117	1701713-02	Water
3	CH-AT-1RW24-1117	1701713-03	Water
4	CH-AT-1FB24-1117	1701713-04	Water
5	CH-AT-1RW10-1117	1701713-05	Water
6	CH-AT-1FB10-1117	1701713-06	Water
7	CH-AT-1RW11-1117	1701713-07	Water
8	CH-AT-1FB11-1117	1701713-08	Water
9	CH-AT-1RW12-1117	1701713-09	Water
10	CH-AT-1FB12-1117	1701713-10	Water
11	CH-AT-1RW35-1117	1701713-11	Water
12	CH-AT-1FB35-1117	1701713-12	Water
13	CH-AT-1RW36-1117	1701713-13	Water
14	CH-AT-1FB36-1117	1701713-14	Water

A full data validation was performed on the analytical data for seven water samples and seven aqueous field blank samples collected on November 14-16, 2017 by CH2M HILL at the MCOLF Atlantic site in Atlantic, North Carolina. The samples were analyzed under the EPA Method "Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)".

Specific method references are as follows:

Analysis
PFCs

Method References
USEPA Method 537

The data have been validated according to the protocols and quality control (QC) requirements of the analytical method, and the U.S. Department of Defense (DoD) Quality Systems Manual (QSM), Version 5.0 (July 2013) and the USEPA National Functional Guidelines for Organic Data Review as follows:

- The USEPA "Contract Laboratories Program National Functional Guidelines for Organic Superfund Methods Data Review," January 2017;

- and the reviewer's professional judgment.

The following data quality indicators were reviewed for this report:

Organics

- Date Completeness, Case Narrative & Custody Documentation
- Holding times
- Liquid Chromatography/Mass Spectrometry (LC/MS) Tuning
- Initial and continuing calibration summaries
- Method blank and field QC blank contamination
- Surrogate Spike recoveries
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) recoveries
- Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) recoveries
- Internal standard area and retention time summary forms
- Target Compound Identification
- Compound Quantitation
- Field Duplicate sample precision

A full (Level IV) data validation was performed with this review including a recalculation of 10% of the detected results in the samples.

Data Usability Assessment

There were no rejections of data.

Overall the data is acceptable for the intended purposes. There were no qualifications.

Perfluorinated Compounds (PFCs)

Data Completeness, Case Narrative & Custody Documentation

- The case narrative and chain-of-custody documentation were included in the data package as required. All criteria were met.

Holding Times

- All samples were extracted within 14 days for water samples and analyzed within 28 days.

LC/MS Tuning

- All criteria were met.

Initial Calibration

- All relative standard deviation (%RSD) and/or correlation coefficients criteria were met.

Continuing Calibration

- All percent difference (%D) and RRF criteria were met.

Method Blank

- The method blanks were free of contamination.

Field QC Blank

- Field QC samples were free of contamination.

Blank ID	Compound	Conc. ng/L	Qualifier	Affected Samples
CH-AT-1FB23-1117	None - ND	-	-	-
CH-AT-1FB24-1117	None - ND	-	-	-
CH-AT-1FB10-1117	None - ND	-	-	-
CH-AT-1FB11-1117	None - ND	-	-	-
CH-AT-1FB12-1117	None - ND	-	-	-
CH-AT-1FB35-1117	None - ND	-	-	-
CH-AT-1FB36-1117	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

- MS/MSD samples were not analyzed.

Laboratory Control Samples

- The LCS samples exhibited acceptable percent recoveries (%R).

Internal Standard (IS) Area Performance

- All internal standards met response and retention time (RT) criteria.

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- All criteria were met.

Field Duplicate Sample Precision

- Field duplicate samples were not collected.

Please contact the undersigned at (757) 564-0090 if you have any questions or need further information.

Signed:


Nancy Weaver
Senior Chemist

Dated: 1/5/18

Data Qualifier	Definition
U	The analyte was analyzed for, but was not detected above the level of the reported sample quantitation limit.
J	The analyte is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
NJ	The analysis has been "tentatively identified" or "presumptively" as present and the associated numerical value is the estimated concentration in the samples.
UJ	The analyte was analyzed for but was not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting QC criteria. The analyte may or may not be present in the samples.

Sample ID: CH-AT-1RW23-1117									
Client Data					Laboratory Data				
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	1701713-01	Column:	BEH C18	
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation	Date Collected:	15-Nov-17 11:10		Date Received:	17-Nov-17 08:54			
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Dilution
PFBS	ND	0.411	4.64	9.28		B7K0104	20-Nov-17	0.269 L	28-Nov-17 11:00
PFOA	ND	1.00	4.64	9.28		B7K0104	20-Nov-17	0.269 L	28-Nov-17 11:00
PFOS	ND	0.965	4.64	9.28		B7K0104	20-Nov-17	0.269 L	28-Nov-17 11:00
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Dilution	
13C2-PFHxA	SURR	112	70 - 130		B7K0104	20-Nov-17	0.269 L	28-Nov-17 11:00	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
Results reported to the DL

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

11/3/18

Sample ID: CH-AT-1FB23-1117										EPA Method 537			
Client Data				Laboratory Data									
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701713-02	Batch	Extracted	Samp Size	Analyzed	Dilution	Column:	BEH C18	
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation		Date Collected:	15-Nov-17 11:11	Date Received:	17-Nov-17 08:54							
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution			
PFBS	ND	0.418	4.72	9.44		B7K0104	20-Nov-17	0.265 L	28-Nov-17 11:13	1			
PFOA	ND	1.02	4.72	9.44		B7K0104	20-Nov-17	0.265 L	28-Nov-17 11:13	1			
PFOS	ND	0.982	4.72	9.44		B7K0104	20-Nov-17	0.265 L	28-Nov-17 11:13	1			
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution			
13C2-PFHxA	SURR	110	70 - 130			B7K0104	20-Nov-17	0.265 L	28-Nov-17 11:13	1			

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
Results reported to the DL

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

ms 11/3/17

Sample ID: CH-AT-1RW24-1117

EPA Method 537									
Client Data					Laboratory Data				
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	1701713-03	Column:	BEH C18	
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation	Date Collected:	15-Nov-17 13:04		Date Received:	17-Nov-17 08:54			
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Dilution
PFBS	ND	0.420	4.74	9.48		B7K0104	20-Nov-17	0.264 L	28-Nov-17 11:25
PFOA	ND	1.02	4.74	9.48		B7K0104	20-Nov-17	0.264 L	28-Nov-17 11:25
PFOS	ND	0.986	4.74	9.48		B7K0104	20-Nov-17	0.264 L	28-Nov-17 11:25
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Dilution	
I3C2-PFHxA	SURR	105	70 - 130		B7K0104	20-Nov-17	0.264 L	28-Nov-17 11:25	1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
Results reported to the DL

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

11/31/18

Sample ID: CH-AT-1FB24-1117										EPA Method 537			
Client Data					Laboratory Data								
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:		1701713-04		Column:		BEH C18	
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation		Date Collected:	15-Nov-17 13:05		Date Received:		17-Nov-17 08:54					
Analyte	Conc. (ng/L)		DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution		
PFBS	ND		0.405	4.57	9.14		B7K0104	20-Nov-17	0.274 L	28-Nov-17 11:38	1		
PFOA	ND		0.987	4.57	9.14		B7K0104	20-Nov-17	0.274 L	28-Nov-17 11:38	1		
PFOS	ND		0.950	4.57	9.14		B7K0104	20-Nov-17	0.274 L	28-Nov-17 11:38	1		
Labeled Standards	Type	% Recovery	Limits		Qualifiers		Batch	Extracted	Samp Size	Analyzed	Dilution		
13C2-PFHxA	SURR	111	70 - 130				B7K0104	20-Nov-17	0.274 L	28-Nov-17 11:38	1		

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

Nov 13/18

Sample ID: CH-AT-1RW10-1117										EPA Method 537			
Client Data				Laboratory Data									
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1701713-05		Column:	BEH C18			
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation		Date Collected:	14-Nov-17 10:19		Date Received:	17-Nov-17 08:54						
Analyte	Conc. (ng/L)		DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution		
PFBS	ND		0.423	4.77	9.54		B7K0104	20-Nov-17	0.262 L	28-Nov-17 11:50	1		
PFOA	ND		1.03	4.77	9.54		B7K0104	20-Nov-17	0.262 L	28-Nov-17 11:50	1		
PFOS	ND		0.992	4.77	9.54		B7K0104	20-Nov-17	0.262 L	28-Nov-17 11:50	1		
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution			
13C2-PFHxA	SURR	109	70 - 130			B7K0104	20-Nov-17	0.262 L	28-Nov-17 11:50	1			

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

new 11/3/18

Sample ID: CH-AT-1FB10-1117									
Client Data					Laboratory Data				
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	1701713-06	Column:	BEH C18	
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation	Date Collected:	14-Nov-17 10:20		Date Received:	17-Nov-17 08:54			
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Dilution
PFBS	ND	0.407	4.59	9.18		B7K0104	20-Nov-17	0.272 L	28-Nov-17 12:02
PFOA	ND	0.991	4.59	9.18		B7K0104	20-Nov-17	0.272 L	28-Nov-17 12:02
PFOS	ND	0.954	4.59	9.18		B7K0104	20-Nov-17	0.272 L	28-Nov-17 12:02
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	106	70 - 130		B7K0104	20-Nov-17	0.272 L	28-Nov-17 12:02	1

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

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL - Lower control limit - upper control limit
Results reported to the DL

Nov 13 11:18

Sample ID: CH-AT-1RW11-1117										EPA Method 537					
Client Data					Laboratory Data										
Name: CH2M Hill		Matrix: Drinking Water		Lab Sample: 1701713-07		Column: BEH C18									
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation		Date Collected: 14-Nov-17 10:29		Date Received: 17-Nov-17 08:54											
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution					
PFBS	ND	0.419	4.73	9.45		B7K0104	20-Nov-17	0.265 L	28-Nov-17	12:15					
PFOA	ND	1.02	4.73	9.45		B7K0104	20-Nov-17	0.265 L	28-Nov-17	12:15					
PFOS	ND	0.983	4.73	9.45		B7K0104	20-Nov-17	0.265 L	28-Nov-17	12:15					
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution						
13C2-PFHxA	SURR	111	70 - 130		B7K0104	20-Nov-17	0.265 L	28-Nov-17	12:15						

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

2211318

Sample ID: CH-AT-1FB11-1117									
Client Data					Laboratory Data				
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	1701713-08	Column:	BEH C18	
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation	Date Collected:	14-Nov-17 10:30		Date Received:	17-Nov-17 08:54			
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Dilution
PFBS	ND	0.414	4.67	9.35		B7K0104	20-Nov-17	0.267 L	28-Nov-17 12:27 1
PFOA	ND	1.01	4.67	9.35		B7K0104	20-Nov-17	0.267 L	28-Nov-17 12:27 1
PFOS	ND	0.972	4.67	9.35		B7K0104	20-Nov-17	0.267 L	28-Nov-17 12:27 1
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Dilution
13C2-PFHxA	SURR	104	70 - 130			B7K0104	20-Nov-17	0.267 L	28-Nov-17 12:27 1

DL - Detection Limit

LOD - Limit of Detection
LOQ - Limit of quantitation

LCL-UCL- Lower control limit - upper control limit
Results reported to the DL

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

new 11/31/18

Sample ID: CH-AT-1RW12-1117									
Client Data					Laboratory Data				
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	1701713-09	Column:	BEH C18	
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation	Date Collected:	14-Nov-17 10:50		Date Received:	17-Nov-17 08:54			
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Dilution
PFBS	ND	0.424	4.78	9.56		B7K0104	20-Nov-17	0.261 L	28-Nov-17 12:40
PFOA	ND	1.03	4.78	9.56		B7K0104	20-Nov-17	0.261 L	28-Nov-17 12:40
PFOS	ND	0.995	4.78	9.56		B7K0104	20-Nov-17	0.261 L	28-Nov-17 12:40
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Dilution
13C2-PFHxA	SURR	101	70 - 130			B7K0104	20-Nov-17	0.261 L	28-Nov-17 12:40

DL - Detection Limit LOD - Limit of Detection LCL-UCL - Lower control limit - upper control limit When reported, PFHxS, PFOA and PFOS include both linear and branched isomers
 LOQ - Limit of quantitation Results reported to the DL Only the linear isomer is reported for all other analytes

261131.8

Sample ID: CH-AT-1FB12-1117									
Client Data					Laboratory Data				
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	1701713-10	Column:	BEH C18	
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation	Date Collected:	14-Nov-17 10:51		Date Received:	17-Nov-17 08:54			
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Dilution
PFBS	ND	0.415	4.68	9.36		B7K0104	20-Nov-17	0.267 L	28-Nov-17 12:52
PFOA	ND	1.01	4.68	9.36		B7K0104	20-Nov-17	0.267 L	28-Nov-17 12:52
PFOS	ND	0.973	4.68	9.36		B7K0104	20-Nov-17	0.267 L	28-Nov-17 12:52
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Dilution	
13C2-PFHxA	SURR	107	70 - 130		B7K0104	20-Nov-17	0.267 L	28-Nov-17 12:52	1

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

1701713-10

Sample ID: CH-AT-1RW35-1117									
Client Data					Laboratory Data				
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	1701713-11	Column:	BEH C18	
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation	Date Collected:	16-Nov-17 11:23		Date Received:	17-Nov-17 08:54			
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Dilution
PFBS	ND	0.423	4.77	9.55		B7K0104	20-Nov-17	0.262 L	28-Nov-17 13:05
PFOA	ND	1.03	4.77	9.55		B7K0104	20-Nov-17	0.262 L	28-Nov-17 13:05
PFOS	ND	0.993	4.77	9.55		B7K0104	20-Nov-17	0.262 L	28-Nov-17 13:05
Labeled Standards	Type	% Recovery	Limits		Qualifiers	Batch	Extracted	Samp Size	Dilution
13C2-PFHxA	SURR	106	70 - 130			B7K0104	20-Nov-17	0.262 L	28-Nov-17 13:05
DL - Detection Limit LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers Only the linear isomer is reported for all other analytes									

11/13/18

Sample ID: CH-AT-1FB35-1117									
Client Data					Laboratory Data				
Name:	CH2M Hill	Matrix:	Drinking Water		Lab Sample:	1701713-12	Column:	BEH C18	
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation	Date Collected:	16-Nov-17 11:24		Date Received:	17-Nov-17 08:54			
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Dilution
PFBS	ND	0.418	4.72	9.43		B7K0104	20-Nov-17	0.265 L	28-Nov-17 13:17 1
PFOA	ND	1.02	4.72	9.43		B7K0104	20-Nov-17	0.265 L	28-Nov-17 13:17 1
PFOS	ND	0.981	4.72	9.43		B7K0104	20-Nov-17	0.265 L	28-Nov-17 13:17 1
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	121	70 - 130		B7K0104	20-Nov-17	0.265 L	28-Nov-17 13:17	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

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

11/3/18

Sample ID: CH-AT-1RW36-1117										EPA Method 537			
Client Data				Laboratory Data									
Name: CH2M Hill		Matrix: Drinking Water		Lab Sample: 1701713-13		Batch: B7K0104		Extracted: 20-Nov-17		Analyzed: 28-Nov-17 13:30			
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation		Date Collected: 16-Nov-17 11:58		Date Received: 17-Nov-17 08:54		Batch: B7K0104		Extracted: 20-Nov-17		Analyzed: 28-Nov-17 13:30			
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution			
PFBS	ND	0.431	4.86	9.72		B7K0104	20-Nov-17	0.257 L	28-Nov-17 13:30	1			
PFOA	ND	1.05	4.86	9.72		B7K0104	20-Nov-17	0.257 L	28-Nov-17 13:30	1			
PFOS	ND	1.01	4.86	9.72		B7K0104	20-Nov-17	0.257 L	28-Nov-17 13:30	1			
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution				
13C2-PFHxA	SURR	107	70 - 130		B7K0104	20-Nov-17	0.257 L	28-Nov-17 13:30	1				
DL - Detection Limit LOD - Limit of Detection LOQ - Limit of quantitation LCL-UCL- Lower control limit - upper control limit Results reported to the DL When reported, PFHxS, PFOA and PFOS include both linear and branched isomers Only the linear isomer is reported for all other analytes													

Nov 13/18

Sample ID: CH-AT-1FB36-1117										EPA Method 537			
Client Data				Laboratory Data									
Name:	CH2M Hill		Matrix:	Drinking Water		Lab Sample:	1701713-14		Column:	BEH C18			
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation			Date Collected:	16-Nov-17 11:59	Date Received:	17-Nov-17 08:54						
Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution			
PFBS	ND	0.411	4.64	9.27		B7K0104	20-Nov-17	0.270 L	28-Nov-17 13:42	1			
PFOA	ND	1.00	4.64	9.27		B7K0104	20-Nov-17	0.270 L	28-Nov-17 13:42	1			
PFOS	ND	0.964	4.64	9.27		B7K0104	20-Nov-17	0.270 L	28-Nov-17 13:42	1			
Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution				
13C2-PFHxA	SURR	99.3	70 - 130		B7K0104	20-Nov-17	0.270 L	28-Nov-17 13:42	1				

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation

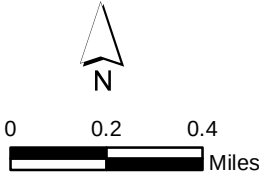
LCL-UCL- Lower control limit - upper control limit
Results reported to the DL.

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

new 11/3/18



- Legend**
- Proposed Sample Location
 - Public Water Supply Well
 - Direction of Groundwater Flow
 - MCOLF Atlantic - 1-mile zone
 - Base Boundary
 - Site Boundary (suspected source)
 - Parcels



1 inch = 0.4 mile
Imagery: Esri, 2016

Figure 3
Proposed Sampling Locations
Marine Corps Outlying Landing Field Atlantic
Atlantic Beach, North Carolina