NAVFAC
Naval Facilities Engineering Command

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 1701844

Marine Corps Outlying Landing Field Atlantic
MCAS Cherry Point NC

February 2019

December 11, 2017

Vista Work Order No. 1701844

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

Dear Ms. Hill,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on December 05, 2017. This sample set was analyzed on a rush turn-around time, under your Project Name 'CTO-08/MCOLF ATLANTIC PFAS INV.'.

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. Volpendesta 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. 1701844
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-1RW116-1217" and "CH-AT-1RW121-1217" contained particulate and were centrifuged prior to extraction.

The samples were extracted and analyzed for the PFOA, PFOS, and PFBS 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
1701844-01	CH-AT-1RW116-1217	01-Dec-17 12:59	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-02	CH-AT-1FB116-1217	01-Dec-17 13:00	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-03	CH-AT-1RW117-1217	01-Dec-17 15:05	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-04	CH-AT-1FB117-1217	01-Dec-17 15:06	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-05	CH-AT-1RW118-1217	01-Dec-17 15:17	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-06	CH-AT-1FB118-1217	01-Dec-17 15:18	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-07	CH-AT-1RW119-1217	02-Dec-17 09:18	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-08	CH-AT-1FB119-1217	02-Dec-17 09:19	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-09	CH-AT-1RW120-1217	02-Dec-17 09:40	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-10	CH-AT-1FB120-1217	02-Dec-17 09:41	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-11	CH-AT-1RW121-1217	02-Dec-17 10:04	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-12	CH-AT-1FB121-1217	02-Dec-17 10:05	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-13	CH-AT-1RW122-1217	02-Dec-17 10:38	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-14	CH-AT-1FB122-1217	02-Dec-17 10:39	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: LRB

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water

Laboratory Data

Lab Sample: B7L0034-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		B7L0034	07-Dec-17	0.250 L	11-Dec-17 12:40	1
PFOA	ND	1.08	5.00	10.0		B7L0034	07-Dec-17	0.250 L	11-Dec-17 12:40	1
PFOS	ND	1.04	5.00	10.0		B7L0034	07-Dec-17	0.250 L	11-Dec-17 12:40	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	105	70 - 130		B7L0034	07-Dec-17	0.250 L	11-Dec-17 12:40	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: LFBD **EPA Method 537**

Name:	CH2M Hill	Lab Sample:	B7L0034-BS1/B7L0034-BSD1
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	QC Batch:	B7L0034
Matrix:	Drinking Water	Samp Size:	0.250/0.250 L
		Date Extracted:	07-Dec-17
		Column:	BEH C18

Analyte	LCS (ng/L)	LCS Spike Amt	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike Amt	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBS	75.1	70.8	106		78.4	70.8	111	4.23		70-130	30	09-Dec-17 13:54	1	09-Dec-17 14:07	1
PFOA	84.4	80.0	106		93.5	80.0	117	10.2		70-130	30	09-Dec-17 13:54	1	09-Dec-17 14:07	1
PFOS	78.1	74.0	106		78.2	74.0	106	0.100		70-130	30	09-Dec-17 13:54	1	09-Dec-17 14:07	1

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C2-PFHxA	SURR	102		109		70-130	09-Dec-17 13:54	1	09-Dec-17 14:07	1

Sample ID: CH-AT-1RW116-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 01-Dec-17 12:59

Laboratory Data

Lab Sample: 1701844-01
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.439	4.95	9.91		B7L0034	07-Dec-17	0.252 L	09-Dec-17 14:44	1
PFOA	1.39	1.07	4.95	9.91	J	B7L0034	07-Dec-17	0.252 L	09-Dec-17 14:44	1
PFOS	ND	1.03	4.95	9.91		B7L0034	07-Dec-17	0.252 L	09-Dec-17 14:44	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	105	70 - 130		B7L0034	07-Dec-17	0.252 L	09-Dec-17 14:44	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-1FB116-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 01-Dec-17 13:00

Laboratory Data

Lab Sample: 1701844-02
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.426	4.81	9.63		B7L0034	07-Dec-17	0.260 L	09-Dec-17 14:56	1
PFOA	ND	1.04	4.81	9.63		B7L0034	07-Dec-17	0.260 L	09-Dec-17 14:56	1
PFOS	ND	1.00	4.81	9.63		B7L0034	07-Dec-17	0.260 L	09-Dec-17 14:56	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	107	70 - 130		B7L0034	07-Dec-17	0.260 L	09-Dec-17 14:56	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-1RW117-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 01-Dec-17 15:05

Laboratory Data

Lab Sample: 1701844-03
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.442	4.99	9.98		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:09	1
PFOA	ND	1.08	4.99	9.98		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:09	1
PFOS	ND	1.04	4.99	9.98		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:09	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	101	70 - 130		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:09	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-1FB117-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 01-Dec-17 15:06

Laboratory Data

Lab Sample: 1701844-04
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.424	4.78	9.56		B7L0034	07-Dec-17	0.261 L	09-Dec-17 15:21	1
PFOA	ND	1.03	4.78	9.56		B7L0034	07-Dec-17	0.261 L	09-Dec-17 15:21	1
PFOS	ND	0.994	4.78	9.56		B7L0034	07-Dec-17	0.261 L	09-Dec-17 15:21	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	101	70 - 130		B7L0034	07-Dec-17	0.261 L	09-Dec-17 15:21	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-1RW118-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 01-Dec-17 15:17

Laboratory Data

Lab Sample: 1701844-05
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.430	4.86	9.71		B7L0034	07-Dec-17	0.257 L	09-Dec-17 15:34	1
PFOA	ND	1.05	4.86	9.71		B7L0034	07-Dec-17	0.257 L	09-Dec-17 15:34	1
PFOS	ND	1.01	4.86	9.71		B7L0034	07-Dec-17	0.257 L	09-Dec-17 15:34	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	110	70 - 130		B7L0034	07-Dec-17	0.257 L	09-Dec-17 15:34	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-1FB118-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 01-Dec-17 15:18

Laboratory Data

Lab Sample: 1701844-06
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.428	4.83	9.65		B7L0034	07-Dec-17	0.259 L	09-Dec-17 15:46	1
PFOA	ND	1.04	4.83	9.65		B7L0034	07-Dec-17	0.259 L	09-Dec-17 15:46	1
PFOS	ND	1.00	4.83	9.65		B7L0034	07-Dec-17	0.259 L	09-Dec-17 15:46	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	106	70 - 130		B7L0034	07-Dec-17	0.259 L	09-Dec-17 15:46	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-1RW119-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 02-Dec-17 09:18

Laboratory Data

Lab Sample: 1701844-07
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.442	4.99	9.98		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:58	1
PFOA	ND	1.08	4.99	9.98		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:58	1
PFOS	ND	1.04	4.99	9.98		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:58	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	111	70 - 130		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:58	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-1FB119-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 02-Dec-17 09:19

Laboratory Data

Lab Sample: 1701844-08
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.427	4.82	9.64		B7L0034	07-Dec-17	0.259 L	09-Dec-17 16:11	1
PFOA	ND	1.04	4.82	9.64		B7L0034	07-Dec-17	0.259 L	09-Dec-17 16:11	1
PFOS	ND	1.00	4.82	9.64		B7L0034	07-Dec-17	0.259 L	09-Dec-17 16:11	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	111	70 - 130		B7L0034	07-Dec-17	0.259 L	09-Dec-17 16:11	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-1RW120-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 02-Dec-17 09:40

Laboratory Data

Lab Sample: 1701844-09
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.451	5.09	10.2		B7L0034	07-Dec-17	0.245 L	09-Dec-17 16:23	1
PFOA	ND	1.10	5.09	10.2		B7L0034	07-Dec-17	0.245 L	09-Dec-17 16:23	1
PFOS	ND	1.06	5.09	10.2		B7L0034	07-Dec-17	0.245 L	09-Dec-17 16:23	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	93.3	70 - 130		B7L0034	07-Dec-17	0.245 L	09-Dec-17 16:23	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-1FB120-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 02-Dec-17 09:41

Laboratory Data

Lab Sample: 1701844-10
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.429	4.85	9.69		B7L0034	07-Dec-17	0.258 L	09-Dec-17 16:36	1
PFOA	ND	1.05	4.85	9.69		B7L0034	07-Dec-17	0.258 L	09-Dec-17 16:36	1
PFOS	ND	1.01	4.85	9.69		B7L0034	07-Dec-17	0.258 L	09-Dec-17 16:36	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	102	70 - 130		B7L0034	07-Dec-17	0.258 L	09-Dec-17 16:36	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-1RW121-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 02-Dec-17 10:04

Laboratory Data

Lab Sample: 1701844-11
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.459	5.18	10.4		B7L0034	07-Dec-17	0.241 L	09-Dec-17 16:48	1
PFOA	ND	1.12	5.18	10.4		B7L0034	07-Dec-17	0.241 L	09-Dec-17 16:48	1
PFOS	ND	1.08	5.18	10.4		B7L0034	07-Dec-17	0.241 L	09-Dec-17 16:48	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	104	70 - 130		B7L0034	07-Dec-17	0.241 L	09-Dec-17 16:48	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: CH-AT-1FB121-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 02-Dec-17 10:05

Laboratory Data

Lab Sample: 1701844-12
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.425	4.80	9.59		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:01	1
PFOA	ND	1.04	4.80	9.59		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:01	1
PFOS	ND	0.998	4.80	9.59		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:01	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	106	70 - 130		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:01	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-1RW122-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 02-Dec-17 10:38

Laboratory Data

Lab Sample: 1701844-13
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.445	5.03	10.1		B7L0034	07-Dec-17	0.249 L	09-Dec-17 17:13	1
PFOA	ND	1.09	5.03	10.1		B7L0034	07-Dec-17	0.249 L	09-Dec-17 17:13	1
PFOS	ND	1.05	5.03	10.1		B7L0034	07-Dec-17	0.249 L	09-Dec-17 17:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	108	70 - 130		B7L0034	07-Dec-17	0.249 L	09-Dec-17 17:13	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-1FB122-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 02-Dec-17 10:39

Laboratory Data

Lab Sample: 1701844-14
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.425	4.79	9.59		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:26	1
PFOA	ND	1.04	4.79	9.59		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:26	1
PFOS	ND	0.997	4.79	9.59		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:26	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	95.9	70 - 130		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:26	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

Submit by Email*

CTO-08 679580, FI.FS

Pg 1 of 2

Vista

12/4/17 COOLER #1

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project ID: 1701844 Temp 3.7 °C
Storage ID: WR-2 Storage Secured: Yes ☒ No ☐

TAT: (Check One)
Standard ◯ 21 days
Rush (surcharge may apply)
◯ 14 days ◉ 7 days Specify:

Project I.D.: CTO-08/MCOLF ATLANTIC PFAS INV. P.O. #: 100006-7-106051 Sampler: ~~M. CLAY/J. TOWNS~~ (MB) KRABE/A. SEAR (Name)

Invoice to: Name	Company	Address	City	State	Zip	Ph#	Fax #
TIFFANY HILL	CH2M HILL	1100 NE CIRCLE BLVD	CORVALLIS	OR	97330	541-768-3109	

Relinquished by: (Printed Name and Signature) MORGAN BRUNO — Date: 12/4/17 Time: 1500
Received by: (Signature and Printed Name) Marissa Sparks — Date: 12/05/17 Time: 1140
Relinquished by: (Printed Name and Signature) — Date: Time:
Received by: (Signature and Printed Name) — Date: Time:

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

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

ATTN: Martha Maier

Method of Shipment: FEDEX

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	EPA1613 2378-TCDD	EPA1613 2378-TCDD/TCDF	EPA1613 PCDD/PCDF	EPA8290 2378-TCDD	EPA8290 2378-TCDD/TCDF	EPA8290 PCDD/PCDF	EPA8280 2378-TCDD	EPA8280 2378-TCDD/TCDF	EPA8280 PCDD/PCDF	EPA1668 TOTALS	EPA1668 COPLANAR PCBs	EPA1668 209 CONGENERS	EPA1614 PBDE	CARB429 PAH	EPA 537 DW ONLY WHO-29	PFOA, PFOS, PFBS
CH-AT-1RW116-1217	12/01/17	1259		2	P	DW															x	
CH-AT-1FB116-1217	12/01/17	1300		2	P	DW															x	
CH-AT-1RW117-1217	12/01/17	1505		2	P	DW															x	
CH-AT-1FB117-1217	12/01/17	1506		2	P	DW															x	
CH-AT-1RW118-1217	12/01/17	1517		2	P	DW															x	
CH-AT-1FB118-1217	12/01/17	1518		2	P	DW															x	
CH-AT-1RW119-1217	12/02/17	0918		2	P	DW															x	
CH-AT-1FB119-1217	12/02/17	0919		2	P	DW															x	
CH-AT-1RW120-1217	12/02/17	0940		2	P	DW															x	
CH-AT-1FB120-1217	12/02/17	0941		2	P	DW															x	

Special Instructions/Comments: 7 DAY TAT
PFOA/PFOS/PFBS DRINKING WATER ANALYSIS

SEND DOCUMENTATION AND RESULTS TO:
Name: TIFFANY HILL
Company: CH2M
Address: 1100 NE CIRCLE BLVD STE 300
City: CORVALLIS State: OR Zip: 97330
Phone: 541-768-3109 Fax:
Email: TIFFANY.HILL@CH2M.COM

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

***Bottle Preservative Type:** ☐ T = Thiosulfate,
☒ O = Other TRIZMA

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

Submit by Email*

CTO-08 67958Φ.F1.FS

Pg 2 of 2

Vista 12/4/17 COOLER #1

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project ID: 1701844 Temp 3.7 °C
Storage ID: WR-2 Storage Secured: Yes ☒ No ☐

TAT: (Check One)
Standard ◯ 21 days
Rush (surcharge may apply)
◯ 14 days ◉ 7 days Specify:

Project I.D.: CTO-08/MCOLF ATLANTIC PFAS INV. P.O. #: 100006-7-106051 Sampler: ~~M. CLAY/J. TOWNS~~ K. BAGG/A. SEAY (MJB) (Name)

Invoice to: Name	Company	Address	City	State	Zip	Ph#	Fax #
TIFFANY HILL	CH2M HILL	1100 NE CIRCLE BLVD	CORVALLIS	OR	97330	541-768-3109	

Relinquished by: (Printed Name and Signature)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
MORGAN BRUNO	12/4/17	1500			
Relinquished by: (Printed Name and Signature)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
			Marissa Sparks	12/05/17	1140

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

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

ATTN: Martha Maier

Method of Shipment: FEDEX

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	EPA1613 2378-TCDD	EPA1613 2378-TCDD/TCDF	EPA1613 PCDD/PCDF	EPA8290 2378-TCDD	EPA8290 2378-TCDD/TCDF	EPA8290 PCDD/PCDF	EPA8280 2378-TCDD	EPA8280 2378-TCDD/TCDF	EPA8280 PCDD/PCDF	EPA1668 TOTALS	EPA1668 COPLANAR PCBs	EPA1668 209 CONGENERS	EPA1614 PBDE	CARB429 PAH	EPA 537 WHO-29 PFOA, PFOS, PFBS DW ONLY
CH-AT-1RW121-1217	12/02/17	1004		2	P	DW															X
CH-AT-1FB121-1217	12/02/17	1005		2	P	DW															X
CH-AT-1RW122-1217	12/02/17	1038		2	P	DW															X
CH-AT-1FB122-1217	12/02/17	1039		2	P	DW															X

Special Instructions/Comments: 7 DAY TAT
PFOA/PFOS/PFBS DRINKING WATER ANALYSIS

SEND DOCUMENTATION AND RESULTS TO:

Name: TIFFANY HILL
Company: CH2M
Address: 1100 NE CIRCLE BLVD STE 300
City: CORVALLIS State: OR Zip: 97330
Phone: 541-768-3109 Fax:
Email: TIFFANY.HILL@CH2M.COM

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

***Bottle Preservative Type:** ☐ T = Thiosulfate,
☒ O = Other TRIZMA

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

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1701844 **TAT** 7 days

Samples Arrival:	**Date/Time** 12/05/17 1115	**Initials:** WWS	**Location:** WR-2 **Shelf/Rack:** N/a
Logged In:	**Date/Time** 12/05/17 1202	**Initials:** WWS	**Location:** WR-2 **Shelf/Rack:** G-4

Delivered By:	FedEx	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Dry Ice		None

Temp °C: 3.6 (uncorrected)	**Time:** 1139	**Thermometer ID:** IR-1
Temp °C: 3.7 (corrected)	**Probe used:** Yes☐ No☑	

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill — Trk # 7887 5506 8249	✓		
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:	$Na_2S_2O_3$	Trizma	None		Yes	No	NA
Shipping Container	Vista	Client	Retain	Return		Dispose	

Comments:

December 11, 2017

Vista Work Order No. 1701844

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

Dear Ms. Hill,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on December 05, 2017. This sample set was analyzed on a rush turn-around time, under your Project Name 'CTO-08/MCOLF ATLANTIC PFAS INV.'.

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. Volpendesta 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. 1701844
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-1RW116-1217" and "CH-AT-1RW121-1217" contained particulate and were centrifuged prior to extraction.

The samples were extracted and analyzed for the PFOA, PFOS, and PFBS 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.

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1701844-01	CH-AT-1RW116-1217	01-Dec-17 12:59	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-02	CH-AT-1FB116-1217	01-Dec-17 13:00	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-03	CH-AT-1RW117-1217	01-Dec-17 15:05	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-04	CH-AT-1FB117-1217	01-Dec-17 15:06	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-05	CH-AT-1RW118-1217	01-Dec-17 15:17	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-06	CH-AT-1FB118-1217	01-Dec-17 15:18	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-07	CH-AT-1RW119-1217	02-Dec-17 09:18	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-08	CH-AT-1FB119-1217	02-Dec-17 09:19	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-09	CH-AT-1RW120-1217	02-Dec-17 09:40	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-10	CH-AT-1FB120-1217	02-Dec-17 09:41	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-11	CH-AT-1RW121-1217	02-Dec-17 10:04	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-12	CH-AT-1FB121-1217	02-Dec-17 10:05	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-13	CH-AT-1RW122-1217	02-Dec-17 10:38	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701844-14	CH-AT-1FB122-1217	02-Dec-17 10:39	05-Dec-17 11:15	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: LRB

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water

Laboratory Data

Lab Sample: B7L0034-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		B7L0034	07-Dec-17	0.250 L	11-Dec-17 12:40	1
PFOA	ND	1.08	5.00	10.0		B7L0034	07-Dec-17	0.250 L	11-Dec-17 12:40	1
PFOS	ND	1.04	5.00	10.0		B7L0034	07-Dec-17	0.250 L	11-Dec-17 12:40	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	105	70 - 130		B7L0034	07-Dec-17	0.250 L	11-Dec-17 12:40	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: LFBD **EPA Method 537**

Name:	CH2M Hill	Lab Sample:	B7L0034-BS1/B7L0034-BSD1
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	QC Batch:	B7L0034
Matrix:	Drinking Water	Samp Size:	0.250/0.250 L
		Date Extracted:	07-Dec-17
		Column:	BEH C18

Analyte	LCS (ng/L)	LCS Spike Amt	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike Amt	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBS	75.1	70.8	106		78.4	70.8	111	4.23		70-130	30	09-Dec-17 13:54	1	09-Dec-17 14:07	1
PFOA	84.4	80.0	106		93.5	80.0	117	10.2		70-130	30	09-Dec-17 13:54	1	09-Dec-17 14:07	1
PFOS	78.1	74.0	106		78.2	74.0	106	0.100		70-130	30	09-Dec-17 13:54	1	09-Dec-17 14:07	1

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C2-PFHxA	SURR	102		109		70-130	09-Dec-17 13:54	1	09-Dec-17 14:07	1

Sample ID: CH-AT-1RW116-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 01-Dec-17 12:59

Laboratory Data

Lab Sample: 1701844-01
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.439	4.95	9.91		B7L0034	07-Dec-17	0.252 L	09-Dec-17 14:44	1
PFOA	1.39	1.07	4.95	9.91	J	B7L0034	07-Dec-17	0.252 L	09-Dec-17 14:44	1
PFOS	ND	1.03	4.95	9.91		B7L0034	07-Dec-17	0.252 L	09-Dec-17 14:44	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	105	70 - 130		B7L0034	07-Dec-17	0.252 L	09-Dec-17 14:44	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-1FB116-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 01-Dec-17 13:00

Laboratory Data

Lab Sample: 1701844-02
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.426	4.81	9.63		B7L0034	07-Dec-17	0.260 L	09-Dec-17 14:56	1
PFOA	ND	1.04	4.81	9.63		B7L0034	07-Dec-17	0.260 L	09-Dec-17 14:56	1
PFOS	ND	1.00	4.81	9.63		B7L0034	07-Dec-17	0.260 L	09-Dec-17 14:56	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	107	70 - 130		B7L0034	07-Dec-17	0.260 L	09-Dec-17 14:56	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-1RW117-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 01-Dec-17 15:05

Laboratory Data

Lab Sample: 1701844-03
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.442	4.99	9.98		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:09	1
PFOA	ND	1.08	4.99	9.98		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:09	1
PFOS	ND	1.04	4.99	9.98		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:09	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	101	70 - 130		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:09	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-1FB117-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 01-Dec-17 15:06

Laboratory Data

Lab Sample: 1701844-04
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.424	4.78	9.56		B7L0034	07-Dec-17	0.261 L	09-Dec-17 15:21	1
PFOA	ND	1.03	4.78	9.56		B7L0034	07-Dec-17	0.261 L	09-Dec-17 15:21	1
PFOS	ND	0.994	4.78	9.56		B7L0034	07-Dec-17	0.261 L	09-Dec-17 15:21	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	101	70 - 130		B7L0034	07-Dec-17	0.261 L	09-Dec-17 15:21	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-1RW118-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 01-Dec-17 15:17

Laboratory Data

Lab Sample: 1701844-05
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.430	4.86	9.71		B7L0034	07-Dec-17	0.257 L	09-Dec-17 15:34	1
PFOA	ND	1.05	4.86	9.71		B7L0034	07-Dec-17	0.257 L	09-Dec-17 15:34	1
PFOS	ND	1.01	4.86	9.71		B7L0034	07-Dec-17	0.257 L	09-Dec-17 15:34	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	110	70 - 130		B7L0034	07-Dec-17	0.257 L	09-Dec-17 15:34	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-1FB118-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 01-Dec-17 15:18

Laboratory Data

Lab Sample: 1701844-06
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.428	4.83	9.65		B7L0034	07-Dec-17	0.259 L	09-Dec-17 15:46	1
PFOA	ND	1.04	4.83	9.65		B7L0034	07-Dec-17	0.259 L	09-Dec-17 15:46	1
PFOS	ND	1.00	4.83	9.65		B7L0034	07-Dec-17	0.259 L	09-Dec-17 15:46	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	106	70 - 130		B7L0034	07-Dec-17	0.259 L	09-Dec-17 15:46	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-1RW119-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 02-Dec-17 09:18

Laboratory Data

Lab Sample: 1701844-07
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.442	4.99	9.98		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:58	1
PFOA	ND	1.08	4.99	9.98		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:58	1
PFOS	ND	1.04	4.99	9.98		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:58	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	111	70 - 130		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:58	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-1FB119-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 02-Dec-17 09:19

Laboratory Data

Lab Sample: 1701844-08
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.427	4.82	9.64		B7L0034	07-Dec-17	0.259 L	09-Dec-17 16:11	1
PFOA	ND	1.04	4.82	9.64		B7L0034	07-Dec-17	0.259 L	09-Dec-17 16:11	1
PFOS	ND	1.00	4.82	9.64		B7L0034	07-Dec-17	0.259 L	09-Dec-17 16:11	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	111	70 - 130		B7L0034	07-Dec-17	0.259 L	09-Dec-17 16:11	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-1RW120-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 02-Dec-17 09:40

Laboratory Data

Lab Sample: 1701844-09
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.451	5.09	10.2		B7L0034	07-Dec-17	0.245 L	09-Dec-17 16:23	1
PFOA	ND	1.10	5.09	10.2		B7L0034	07-Dec-17	0.245 L	09-Dec-17 16:23	1
PFOS	ND	1.06	5.09	10.2		B7L0034	07-Dec-17	0.245 L	09-Dec-17 16:23	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	93.3	70 - 130		B7L0034	07-Dec-17	0.245 L	09-Dec-17 16:23	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-1FB120-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 02-Dec-17 09:41

Laboratory Data

Lab Sample: 1701844-10
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.429	4.85	9.69		B7L0034	07-Dec-17	0.258 L	09-Dec-17 16:36	1
PFOA	ND	1.05	4.85	9.69		B7L0034	07-Dec-17	0.258 L	09-Dec-17 16:36	1
PFOS	ND	1.01	4.85	9.69		B7L0034	07-Dec-17	0.258 L	09-Dec-17 16:36	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	102	70 - 130		B7L0034	07-Dec-17	0.258 L	09-Dec-17 16:36	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-1RW121-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 02-Dec-17 10:04

Laboratory Data

Lab Sample: 1701844-11
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.459	5.18	10.4		B7L0034	07-Dec-17	0.241 L	09-Dec-17 16:48	1
PFOA	ND	1.12	5.18	10.4		B7L0034	07-Dec-17	0.241 L	09-Dec-17 16:48	1
PFOS	ND	1.08	5.18	10.4		B7L0034	07-Dec-17	0.241 L	09-Dec-17 16:48	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	104	70 - 130		B7L0034	07-Dec-17	0.241 L	09-Dec-17 16:48	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: CH-AT-1FB121-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 02-Dec-17 10:05

Laboratory Data

Lab Sample: 1701844-12
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.425	4.80	9.59		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:01	1
PFOA	ND	1.04	4.80	9.59		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:01	1
PFOS	ND	0.998	4.80	9.59		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:01	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	106	70 - 130		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:01	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-1RW122-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 02-Dec-17 10:38

Laboratory Data

Lab Sample: 1701844-13
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.445	5.03	10.1		B7L0034	07-Dec-17	0.249 L	09-Dec-17 17:13	1
PFOA	ND	1.09	5.03	10.1		B7L0034	07-Dec-17	0.249 L	09-Dec-17 17:13	1
PFOS	ND	1.05	5.03	10.1		B7L0034	07-Dec-17	0.249 L	09-Dec-17 17:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	108	70 - 130		B7L0034	07-Dec-17	0.249 L	09-Dec-17 17:13	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-1FB122-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 02-Dec-17 10:39

Laboratory Data

Lab Sample: 1701844-14
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.425	4.79	9.59		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:26	1
PFOA	ND	1.04	4.79	9.59		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:26	1
PFOS	ND	0.997	4.79	9.59		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:26	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	95.9	70 - 130		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:26	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

Submit by Email*

CTO-08 679580, FI.FS

Vista

12/4/17 COOLER #1

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project ID: 1701844 Temp 3.7 °C
Storage ID: WR-2 Storage Secured: Yes ☒ No ☐

TAT: (Check One)
Standard ◯ 21 days
Rush (surcharge may apply)
◯ 14 days ◉ 7 days Specify:

Project I.D.: CTO-08/MCOLF ATLANTIC PFAS INV. P.O. #: 100006-7-106051 Sampler: ~~M. CLAY/J. TOWNS~~ (MB) KRABE/A. SEAR (Name)

Invoice to: Name	Company	Address	City	State	Zip	Ph#	Fax #
TIFFANY HILL	CH2M HILL	1100 NE CIRCLE BLVD	CORVALLIS	OR	97330	541-768-3109	

Relinquished by: (Printed Name and Signature) MORGAN BRUNO — Date: 12/4/17 Time: 1500
Received by: (Signature and Printed Name) Marissa Sparks — Date: 12/05/17 Time: 1140
Relinquished by: (Printed Name and Signature) — Date: Time:
Received by: (Signature and Printed Name) — Date: Time:

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

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

ATTN: Martha Maier

Method of Shipment: FEDEX

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	EPA1613 2378-TCDD	EPA1613 2378-TCDD/TCDF	EPA1613 PCDD/PCDF	EPA8290 2378-TCDD	EPA8290 2378-TCDD/TCDF	EPA8290 PCDD/PCDF	EPA8280 2378-TCDD	EPA8280 2378-TCDD/TCDF	EPA8280 PCDD/PCDF	EPA1668 TOTALS	EPA1668 COPLANAR PCBs	EPA1668 209 CONGENERS	EPA1614 PBDE	CARB429 PAH	EPA 537 DW ONLY WHO-29	PFOA, PFOS, PFBS
CH-AT-1RW116-1217	12/01/17	1259		2	P	DW																x	
CH-AT-1FB116-1217	12/01/17	1300		2	P	DW																x	
CH-AT-1RW117-1217	12/01/17	1505		2	P	DW																x	
CH-AT-1FB117-1217	12/01/17	1506		2	P	DW																x	
CH-AT-1RW118-1217	12/01/17	1517		2	P	DW																x	
CH-AT-1FB118-1217	12/01/17	1518		2	P	DW																x	
CH-AT-1RW119-1217	12/02/17	0918		2	P	DW																x	
CH-AT-1FB119-1217	12/02/17	0919		2	P	DW																x	
CH-AT-1RW120-1217	12/02/17	0940		2	P	DW																x	
CH-AT-1FB120-1217	12/02/17	0941		2	P	DW																x	

Special Instructions/Comments: 7 DAY TAT
PFOA/PFOS/PFBS DRINKING WATER ANALYSIS

SEND DOCUMENTATION AND RESULTS TO:
Name: TIFFANY HILL
Company: CH2M
Address: 1100 NE CIRCLE BLVD STE 300
City: CORVALLIS State: OR Zip: 97330
Phone: 541-768-3109 Fax:
Email: TIFFANY.HILL@CH2M.COM

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

***Bottle Preservative Type:** ☐ T = Thiosulfate,
☒ O = Other TRIZMA

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

Submit by Email*

CTO-08 67958Φ.F1.FS

Vista 12/4/17 COOLER #1

CHAIN OF CUSTODY RECORD

FOR LABORATORY USE ONLY
Laboratory Project ID: 1701844 Temp 3.7 °C
Storage ID: WR-2 Storage Secured: Yes ☒ No ☐

TAT: (Check One)
Standard ◯ 21 days
Rush (surcharge may apply)
◯ 14 days ◉ 7 days Specify:

Project I.D.: CTO-08/MCOLF ATLANTIC PFAS INV. P.O. #: 100006-7-106051 Sampler: ~~M. CLAY/J. TOWNS~~ K. BAGG/A. SEAY (MJB) (Name)

Invoice to: Name	Company	Address	City	State	Zip	Ph#	Fax #
TIFFANY HILL	CH2M HILL	1100 NE CIRCLE BLVD	CORVALLIS	OR	97330	541-768-3109	

Relinquished by: (Printed Name and Signature) MORGAN BRUNO Date: 12/4/17 Time: 1500 Received by: (Signature and Printed Name) Marissa Sparks Date: 12/05/17 Time: 1140

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

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

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

ATTN: Martha Maier

Method of Shipment: FEDEX

Tracking No.:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	EPA1613 2378-TCDD	EPA1613 2378-TCDD/TCDF	EPA1613 PCDD/PCDF	EPA8290 2378-TCDD	EPA8290 2378-TCDD/TCDF	EPA8290 PCDD/PCDF	EPA8280 2378-TCDD	EPA8280 2378-TCDD/TCDF	EPA8280 PCDD/PCDF	EPA1668 TOTALS	EPA1668 COPLANAR PCBs	EPA1668 209 CONGENERS	EPA1614 PBDE	CARB429 PAH	EPA 537 DW ONLY WHO-29 PFOA, PFOS, PFBS
CH-AT-1RW121-1217	12/02/17	1004		2	P	DW															X
CH-AT-1FB121-1217	12/02/17	1005		2	P	DW															X
CH-AT-1RW122-1217	12/02/17	1038		2	P	DW															X
CH-AT-1FB122-1217	12/02/17	1039		2	P	DW															X

Special Instructions/Comments: 7 DAY TAT
PFOA/PFOS/PFBS DRINKING WATER ANALYSIS

SEND DOCUMENTATION AND RESULTS TO:
Name: TIFFANY HILL
Company: CH2M
Address: 1100 NE CIRCLE BLVD STE 300
City: CORVALLIS State: OR Zip: 97330
Phone: 541-768-3109 Fax:
Email: TIFFANY.HILL@CH2M.COM

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

***Bottle Preservative Type:** ☐ T = Thiosulfate,
☒ O = Other TRIZMA

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

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1701844 **TAT** 7 days

Samples Arrival:	**Date/Time** 12/05/17 1115	**Initials:** WWS	**Location:** WR-2 **Shelf/Rack:** N/a
Logged In:	**Date/Time** 12/05/17 1202	**Initials:** WWS	**Location:** WR-2 **Shelf/Rack:** G-4

Delivered By:	FedEx	UPS	On Trac	GSO	DHL	Hand Delivered	Other
Preservation:	Ice		Blue Ice		Dry Ice		None

Temp °C: 3.6 (uncorrected)	**Time:** 1139	**Thermometer ID:** IR-1
Temp °C: 3.7 (corrected)	**Probe used:** Yes☐ No☑	

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill — Trk # 7887 5506 8249	✓		
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:	$Na_2S_2O_3$	Trizma	None		Yes	No	NA
Shipping Container	Vista	Client	Retain	Return		Dispose	

Comments:

EXTRACTION INFORMATION

Process Sheet

Workorder: 1701844

RUSH

Prep Expiration: 2017-Dec-15
Client: CH2M Hill

Workorder Due: 12-Dec-17 00:00

TAT: 7

Method: **537 PFAS DW DoD Unmodified**
Matrix: **Drinking Water**

Prep Batch: B7L0034

Prep Data Entered: KC 12/8/17
Date and Initials

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

Initial Sequence: S7L0032G

LabSampID	A/B	Prep Rec	Spike Rec	ClientSampleID	Comments	Location	Container
1701844-01	A	☑	☑	CH-AT-1RW116-1217		WR-2 E-4	HDPE Bottle, 250 mL
1701844-02		☑	☑	CH-AT-1FB116-1217		WR-2 E-4	HDPE Bottle, 250 mL
1701844-03		☑	☑	CH-AT-1RW117-1217		WR-2 E-4	HDPE Bottle, 250 mL
1701844-04		☑	☑	CH-AT-1FB117-1217		WR-2 E-4	HDPE Bottle, 250 mL
1701844-05		☑	☑	CH-AT-1RW118-1217		WR-2 E-4	HDPE Bottle, 250 mL
1701844-06		☑	☑	CH-AT-1FB118-1217		WR-2 E-4	HDPE Bottle, 250 mL
1701844-07		☑	☑	CH-AT-1RW119-1217		WR-2 E-4	HDPE Bottle, 250 mL
1701844-08		☑	☑	CH-AT-1FB119-1217		WR-2 E-4	HDPE Bottle, 250 mL
1701844-09		☑	☑	CH-AT-1RW120-1217		WR-2 E-4	HDPE Bottle, 250 mL
1701844-10		☑	☑	CH-AT-1FB120-1217		WR-2 E-4	HDPE Bottle, 250 mL
1701844-11		☑	☑	CH-AT-1RW121-1217		WR-2 E-4	HDPE Bottle, 250 mL
1701844-12		☑	☑	CH-AT-1FB121-1217		WR-2 E-4	HDPE Bottle, 250 mL
1701844-13		☑	☑	CH-AT-1RW122-1217		WR-2 E-4	HDPE Bottle, 250 mL
1701844-14		☑	☑	CH-AT-1FB122-1217		WR-2 E-4	HDPE Bottle, 250 mL

LCS/LCSD

Pre-Prep Check Out: 12/7/17 ST
Pre-Prep Check In: N/A

Prep Check Out: N/A
Prep Check In: N/A

Prep Reconciled Initals/Date: 12/7/17 ST
Spike Reconciled Initals/Date: JC 12.7.17 JC
VialBoxID: Hobbes

PREPARATION BENCH SHEET

Matrix: Drinking Water

Method: 537 PFAS DW DoD Unmodified

B7L0034

Chemist: HC

Prep Date/Time: 07-Dec-17 08:46 / 1310

Prepared using: LCMS - SPE Extraction-LCMS

HC

BalanceID: HRMS-8

Cen	VISTA Sample ID	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	SS/NS CHEM/WIT DATE	SPE	IS CHEM/WIT DATE
☐	B7L0034-BLK1 (A)	N/A	N/A	(0.250) ✓	HC KL 12.7.17	HC 12.7.17	HC HN 12.8.17
☐	B7L0034-BS1	"	"	(0.250) ✓	"	"	"
☐	B7L0034-BSD1	"	"	(0.250) ✓	"	"	"
☒	1701844-01	280.13	27.76	0.25237 ✓			
☐	1701844-02	287.49	27.75	0.25974 ✓			
☐	1701844-03	278.21	27.81	0.2504 ✓			
☐	1701844-04	288.36	26.87	0.26149 ✓			
☐	1701844-05	285.46	28.04	0.25742 ✓			
☐	1701844-06	285.85	26.90	0.25895 ✓			
☐	1701844-07	277.70	27.21	0.25049 ✓			
☐	1701844-08	287.19	27.78	0.25941 ✓			
☐	1701844-09	273.17	27.786	0.24541 ✓			
☐	1701844-10	284.88	27.01	0.25787 ✓			
☒	1701844-11	269.31	27.97	0.24134 ✓			
☐	1701844-12	288.21	27.58	0.260063 ✓			
☐	1701844-13	275.91	27.26	0.24865 ✓			

SS/IS: 17L0515, 20µL (V1)

NS: 17I2601, 20µL (V2)

IS/RS: ~~17L0516, 20µL (V3)~~ HN 12/8/17 17K3042, 10mL (V3)

SPE Chem: Strata-X 33µm 500mg/6mL Lot#: S17-003100

Ele SOLV: MeOH Lot#: I685209324

Final Volume(s): 1mL

Notes: (A) 1.25g of Trizma added 12/7/17 ST

Comments: Assume 1 g = 1 mL

Cen = Centrifuged

PREPARATION BENCH SHEET

Matrix: Drinking Water

Method: 537 PFAS DW DoD Unmodified

B7L0034

Chemist: HC

Prep Date/Time: 07-Dec-17 08:46 / 13:10

Prepared using: LCMS - SPE Extraction-LCMS

HC

BalanceID: HRMS-8

Cen	VISTA Sample ID	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	SS/NS CHEM/WIT DATE	SPE	IS CHEM/WIT DATE
☐	1701844-14	288.45	27.74	0.26071 ✓	HC KC 12.7.17	HC 12.7.17	HC HN 12.8.17

SS/IS: 17L0515, 20µL (V1)

NS: 17I2601, 20µL (V2)

IS/RS: ~~17L0516, 20µL (V2)~~ HN 12/8/17
17K3042, 10mL (V2)

SPE Chem: Strata-X 33µm 500mg 6mL
Lot#: 517-003100

Ele SOLV: MeOH
Lot#: I685209324

Final Volume(s): 1mL

Notes:

Comments: Assume 1 g = 1 mL
Cen = Centrifuged

Batch: B7L0034

Matrix: Drinking Water

LabNumber	WetWeight (Initial)	% Solids (Extraction Solids)	DryWeight	Final	Extracted	Ext By	Spike	SpikeAmount	ClientMatrix	Analysis
1701844-01	0.25237 ✓	NA	NA	1000	07-Dec-17 13:10	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701844-02	0.25974 ✓			1000	07-Dec-17 13:10	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701844-03	0.2504 ✓			1000	07-Dec-17 13:10	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701844-04	0.26149 ✓			1000	07-Dec-17 13:10	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701844-05	0.25742 ✓			1000	07-Dec-17 13:10	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701844-06	0.25895 ✓			1000	07-Dec-17 13:10	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701844-07	0.25049 ✓			1000	07-Dec-17 13:10	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701844-08	0.25941 ✓			1000	07-Dec-17 13:10	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701844-09	0.24541 ✓			1000	07-Dec-17 13:10	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701844-10	0.25787 ✓			1000	07-Dec-17 13:10	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701844-11	0.24134 ✓			1000	07-Dec-17 13:10	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701844-12	0.26063 ✓			1000	07-Dec-17 13:10	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701844-13	0.24865 ✓			1000	07-Dec-17 13:10	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701844-14	0.26071 ✓			1000	07-Dec-17 13:10	HAC			Drinking Water	537 PFAS DW DoD Unmoc
B7L0034-BLK1	0.25 ✓			1000	07-Dec-17 13:10	HAC				QC
B7L0034-BS1	0.25 ✓			1000	07-Dec-17 13:10	HAC	17I2601 ✓	20 ✓		QC
B7L0034-BSD1	0.25 ✓			1000	07-Dec-17 13:10	HAC	17I2601 ✓	20 ✓		QC

KC 12/8/17

SAMPLE DATA –EPA METHOD 537

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

Dataset: U:\G1.PRO\Results\2017\171211G1\171211G1-6.qld

Last Altered: Monday, December 11, 2017 14:35:58 Pacific Standard Time
Printed: Monday, December 11, 2017 14:36:22 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171211G1_6, Date: 11-Dec-2017, Time: 12:40:48, ID: B7L0034-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		1.04e4		0.2500	3.03				
2	2	PFOA	413 > 368.7	4.41e1	9.55e3		0.2500	4.32	4.31	0.0461	0.227	
3	3	PFOS	499 >79.9	8.86e0	1.04e4		0.2500	4.73	4.73	0.0245	0.0813	
4	4	13C2-PFHxA	315 > 269.8	4.45e3	9.55e3	0.443	0.2500	3.38	3.38	4.66	42.1	105.1
5	5	13C2-PFDA	515.1 > 469.9	4.68e3	9.55e3	0.509	0.2500	4.95	4.96	4.89	38.4	96.1
6	6	13C2-PFOA	414.9 > 369.7	9.55e3	9.55e3	1.000	0.2500	4.41	4.32	10.0	40.0	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.04e4	1.04e4	1.000	0.2500	4.81	4.73	28.7	115	100.0

MJT12/11/2017

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

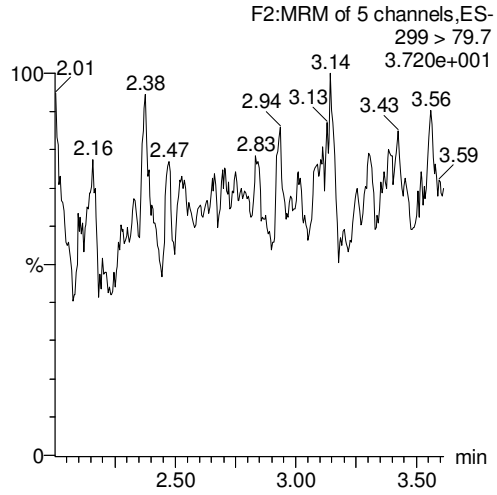
Dataset: U:\G1.PRO\Results\2017\171211G1\171211G1-6.qld

Last Altered: Monday, December 11, 2017 14:35:58 Pacific Standard Time
Printed: Monday, December 11, 2017 14:36:22 Pacific Standard Time

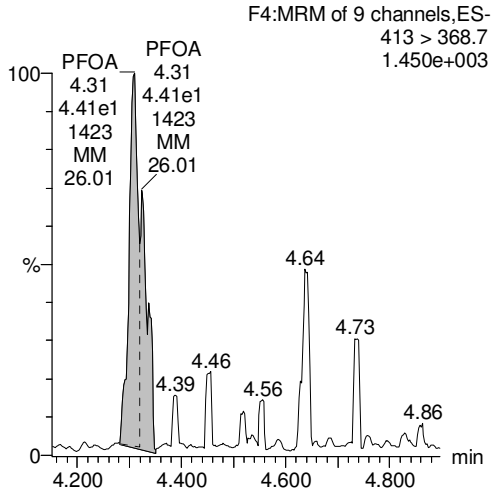
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171211G1_6, Date: 11-Dec-2017, Time: 12:40:48, ID: B7L0034-BLK1 LRB 0.25, Description: LRB

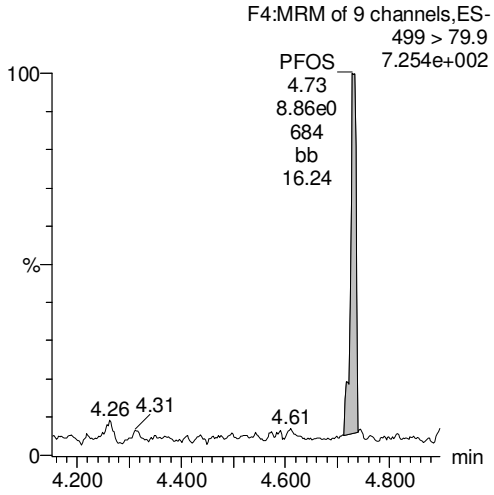
PFBS



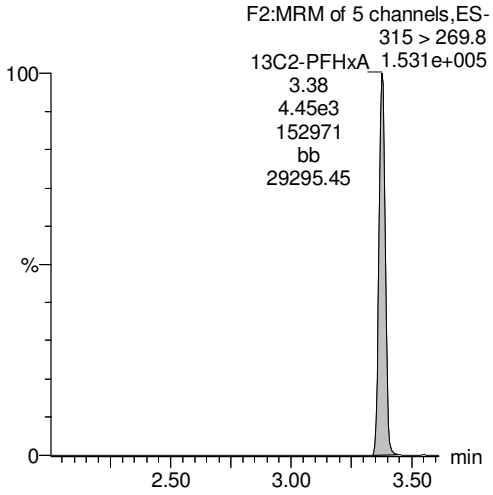
PFOA



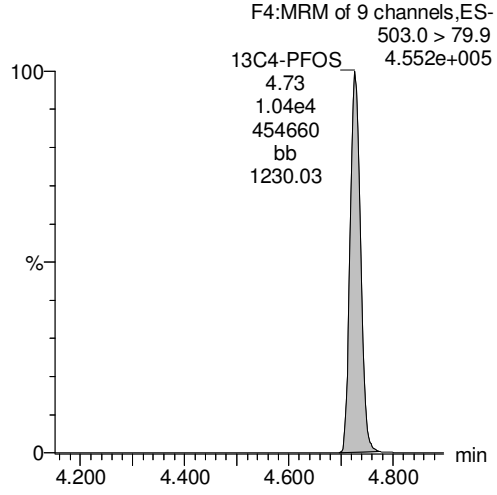
PFOS



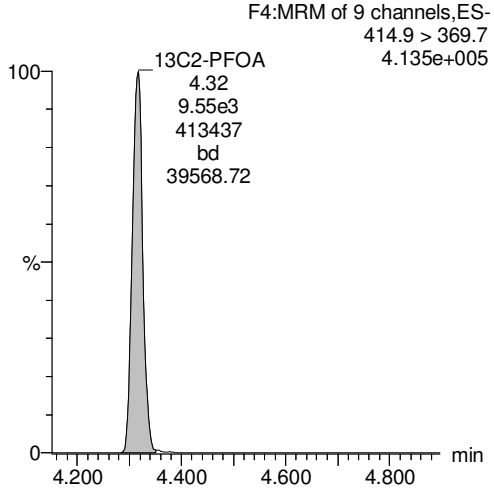
13C2-PFHxA



13C4-PFOS



13C2-PFOA



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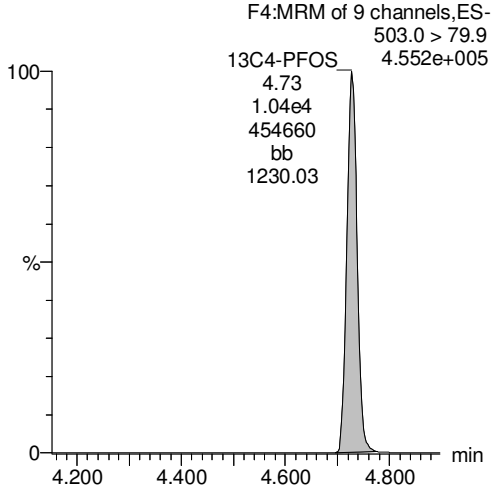
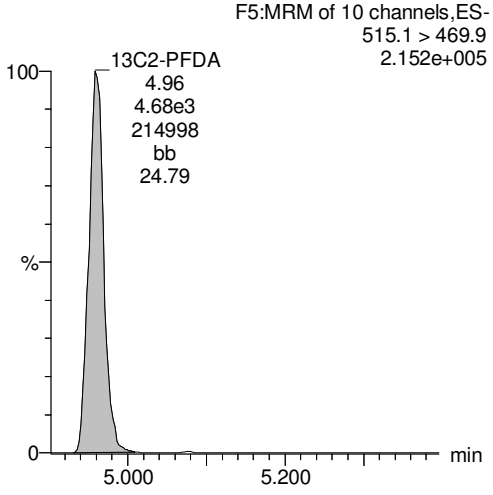


13C2-PFDA



MJT12/11/2017

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-12.qld

Last Altered: Monday, December 11, 2017 12:30:38 Pacific Standard Time
Printed: Monday, December 11, 2017 12:31:07 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_12, Date: 09-Dec-2017, Time: 13:54:40, ID: B7L0034-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	5.18e3	9.88e3		0.2500	3.02	3.01	15.0	75.1	106.1
2	2	PFOA	413 > 368.7	1.57e4	9.15e3		0.2500	4.31	4.31	17.1	84.4	105.5
3	3	PFOS	499 >79.9	8.08e3	9.88e3		0.2500	4.72	4.72	23.5	78.1	105.6
4	4	13C2-PFHxA	315 > 269.8	4.13e3	9.15e3	0.443	0.2500	3.37	3.37	4.52	40.8	102.0
5	5	13C2-PFDA	515.1 > 469.9	4.86e3	9.15e3	0.509	0.2500	4.94	4.96	5.31	41.7	104.3
6	6	13C2-PFOA	414.9 > 369.7	9.15e3	9.15e3	1.000	0.2500	4.41	4.31	10.0	40.0	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.88e3	9.88e3	1.000	0.2500	4.81	4.72	28.7	115	100.0

MJT12/11/2017

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

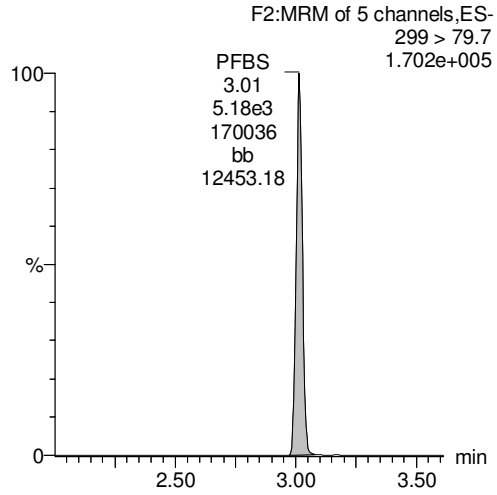
Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-12.qld

Last Altered: Monday, December 11, 2017 12:30:38 Pacific Standard Time
Printed: Monday, December 11, 2017 12:31:07 Pacific Standard Time

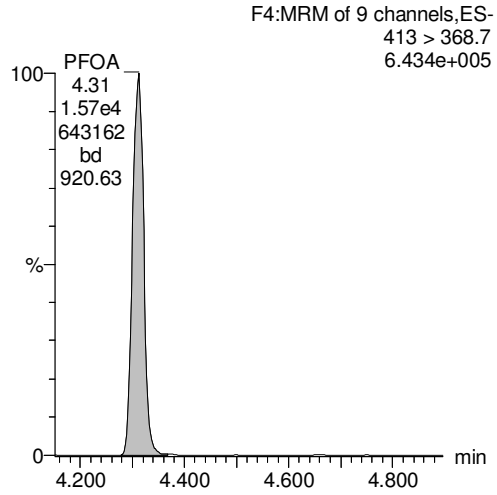
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_12, Date: 09-Dec-2017, Time: 13:54:40, ID: B7L0034-BS1 LFB 0.25, Description: LFB

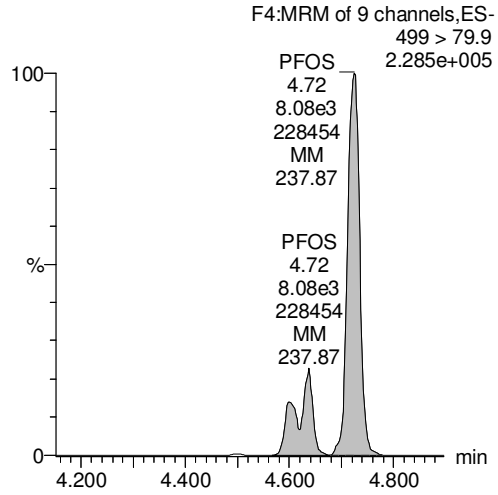
PFBS



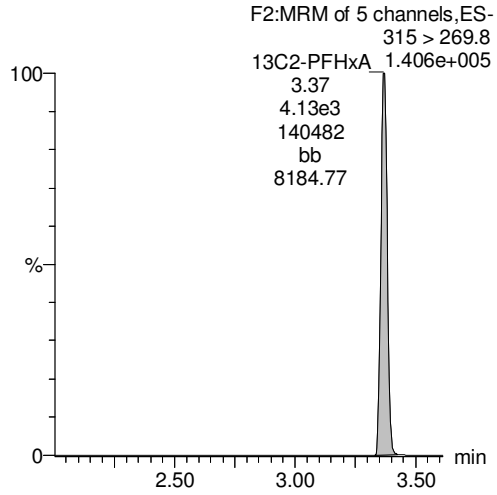
PFOA



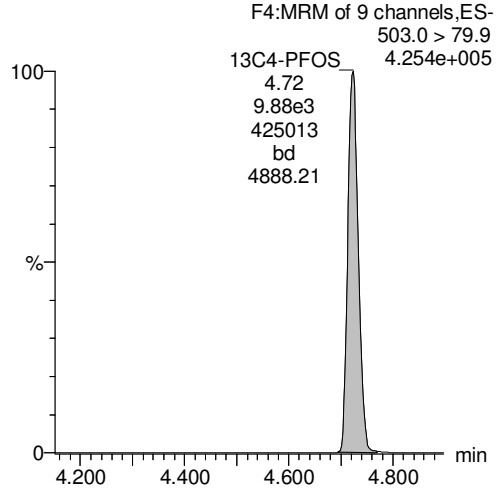
PFOS



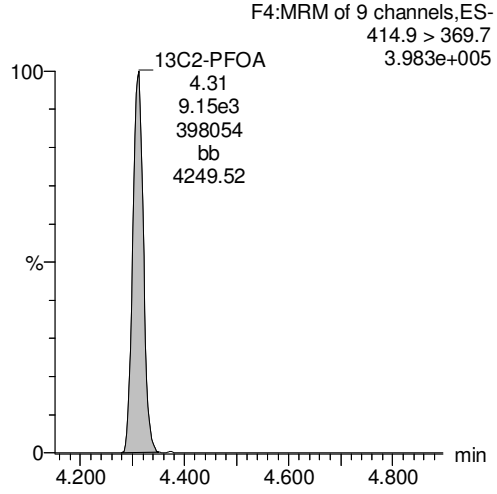
13C2-PFHxA



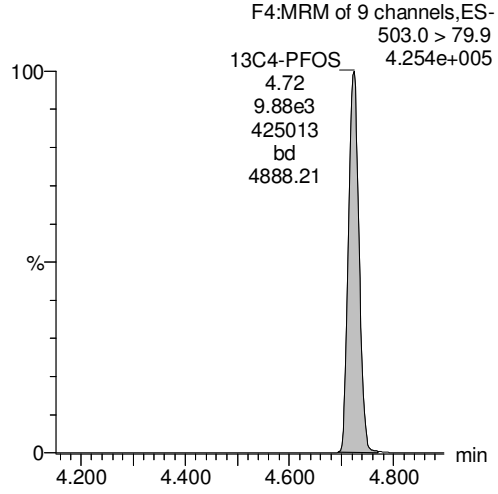
13C4-PFOS



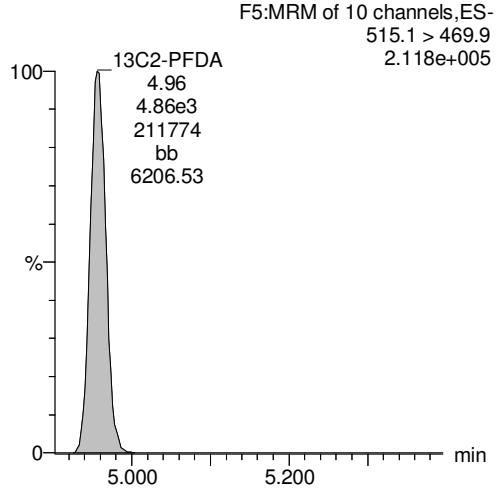
13C2-PFOA



13C4-PFOS



13C2-PFDA



MJT12/11/2017

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-13.qld

Last Altered: Monday, December 11, 2017 12:37:39 Pacific Standard Time
Printed: Monday, December 11, 2017 12:38:08 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_13, Date: 09-Dec-2017, Time: 14:07:06, ID: B7L0034-BSD1 LFBD 0.25, Description: LFBD

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7	5.64e3	1.03e4		0.2500	3.03	3.01	15.7	78.4	110.7
2	2	PFOA	413 > 368.7	1.68e4	8.84e3		0.2500	4.31	4.31	19.0	93.5	116.9
3	3	PFOS	499 >79.9	8.45e3	1.03e4		0.2500	4.73	4.72	23.5	78.2	105.7
4	4	13C2-PFHxA	315 > 269.8	4.25e3	8.84e3	0.443	0.2500	3.37	3.37	4.81	43.4	108.6
5	5	13C2-PFDA	515.1 > 469.9	4.58e3	8.84e3	0.509	0.2500	4.94	4.96	5.18	40.7	101.7
6	6	13C2-PFOA	414.9 > 369.7	8.84e3	8.84e3	1.000	0.2500	4.41	4.31	10.0	40.0	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.03e4	1.03e4	1.000	0.2500	4.81	4.73	28.7	115	100.0

MJT12/11/2017

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

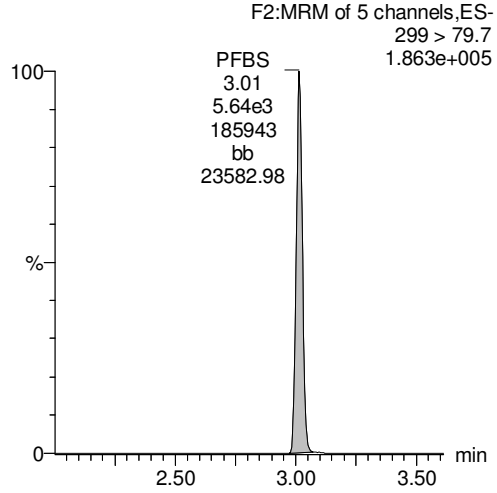
Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-13.qld

Last Altered: Monday, December 11, 2017 12:37:39 Pacific Standard Time
Printed: Monday, December 11, 2017 12:38:08 Pacific Standard Time

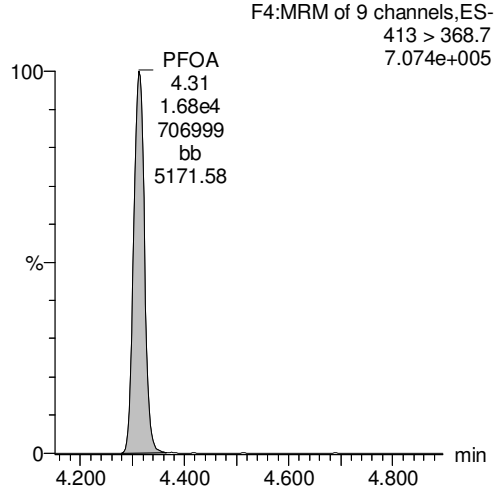
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_13, Date: 09-Dec-2017, Time: 14:07:06, ID: B7L0034-BSD1 LFBD 0.25, Description: LFBD

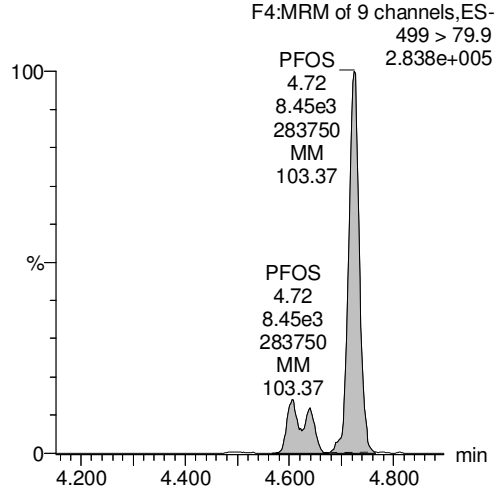
PFBS



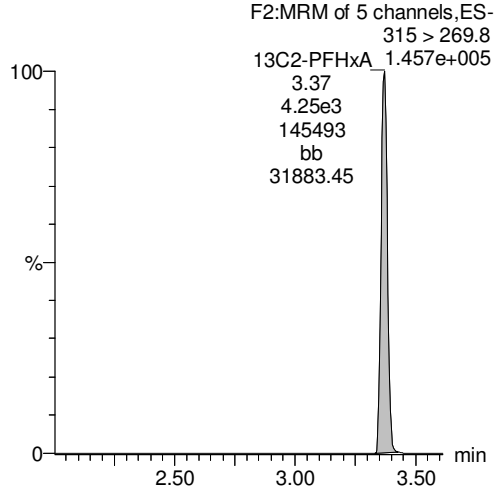
PFOA



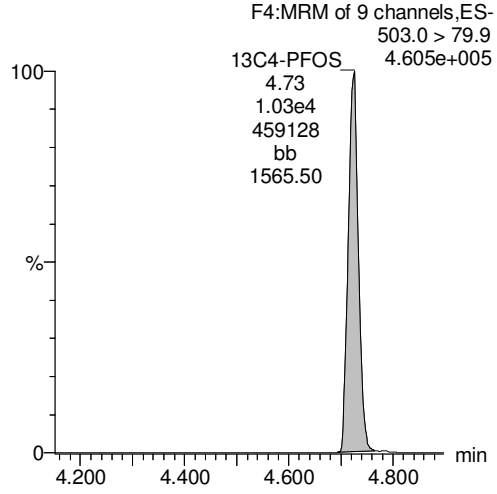
PFOS



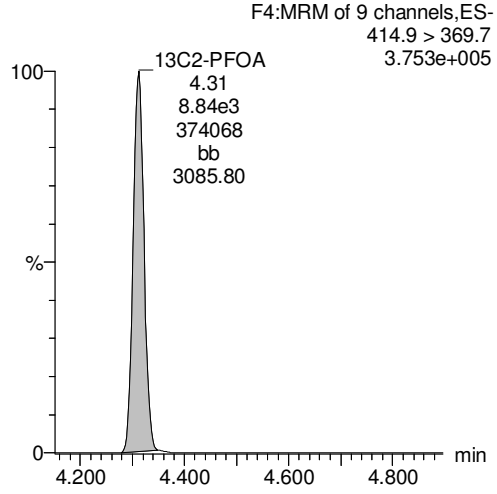
13C2-PFHxA



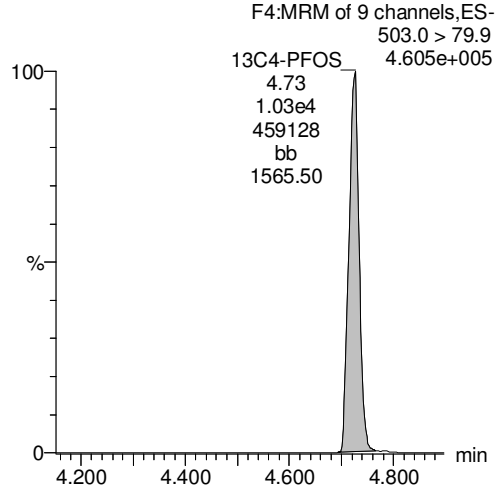
13C4-PFOS



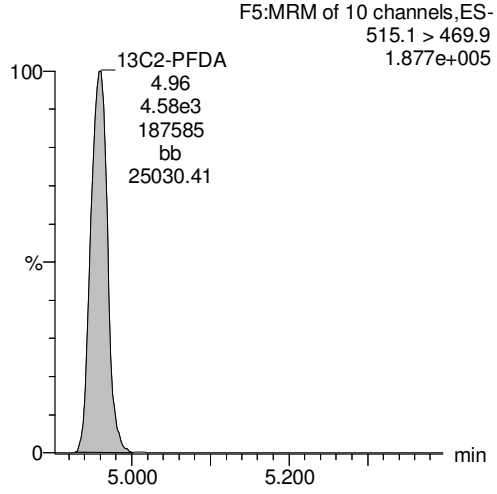
13C2-PFOA



13C4-PFOS



13C2-PFDA



MJT12/11/2017

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-16.qld

Last Altered: Monday, December 11, 2017 12:43:26 Pacific Standard Time
Printed: Monday, December 11, 2017 12:44:10 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_16, Date: 09-Dec-2017, Time: 14:44:24, ID: 1701844-01 CH-AT-1RW116-1217 0.25237, Description: CH-AT-1RW116-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		1.06e4		0.2524	3.03				
2	2	PFOA	413 > 368.7	2.51e2	8.83e3		0.2524	4.31	4.31	0.285	1.39	
3	3	PFOS	499 >79.9	7.79e1	1.06e4		0.2524	4.73	4.60	0.211	0.696	
4	4	13C2-PFHxA	315 > 269.8	4.12e3	8.83e3	0.443	0.2524	3.37	3.37	4.66	41.7	105.2
5	5	13C2-PFDA	515.1 > 469.9	4.78e3	8.83e3	0.509	0.2524	4.94	4.96	5.41	42.1	106.2
6	6	13C2-PFOA	414.9 > 369.7	8.83e3	8.83e3	1.000	0.2524	4.41	4.31	10.0	39.6	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.06e4	1.06e4	1.000	0.2524	4.81	4.73	28.7	114	100.0

MJT12/11/2017

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

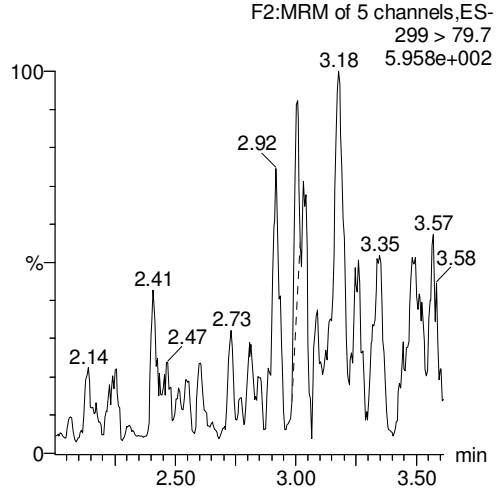
Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-16.qld

Last Altered: Monday, December 11, 2017 12:43:26 Pacific Standard Time
Printed: Monday, December 11, 2017 12:44:10 Pacific Standard Time

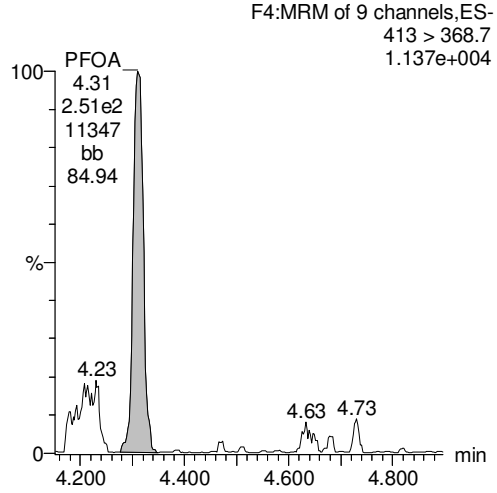
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_16, Date: 09-Dec-2017, Time: 14:44:24, ID: 1701844-01 CH-AT-1RW116-1217 0.25237, Description: CH-AT-1RW116-1217

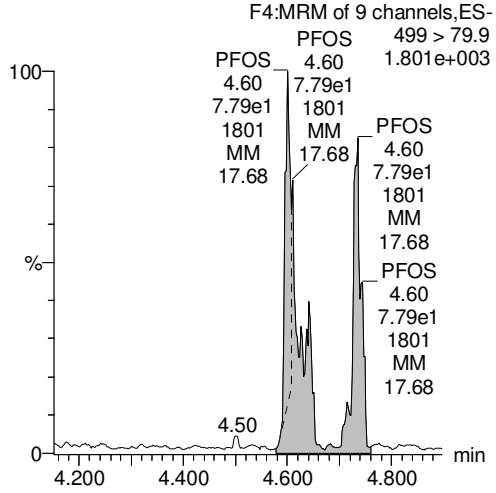
PFBS



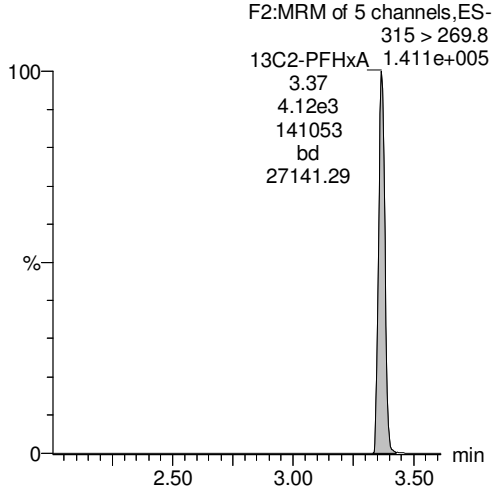
PFOA



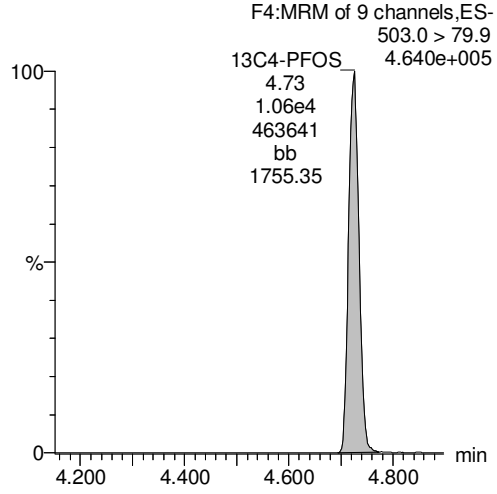
PFOS



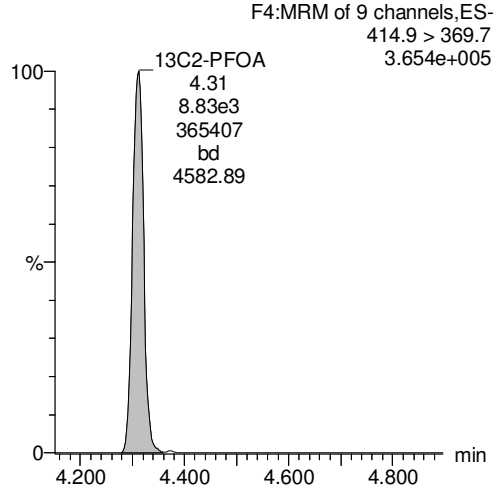
13C2-PFHxA



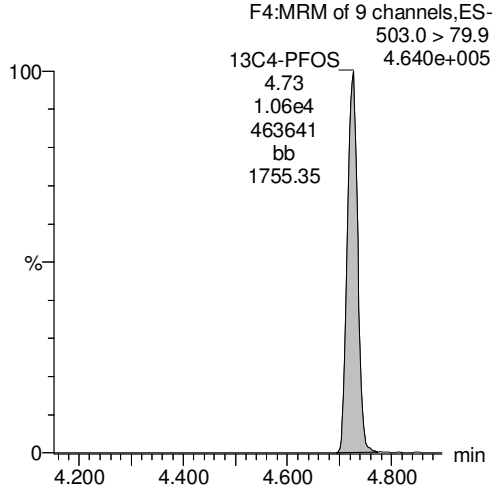
13C4-PFOS



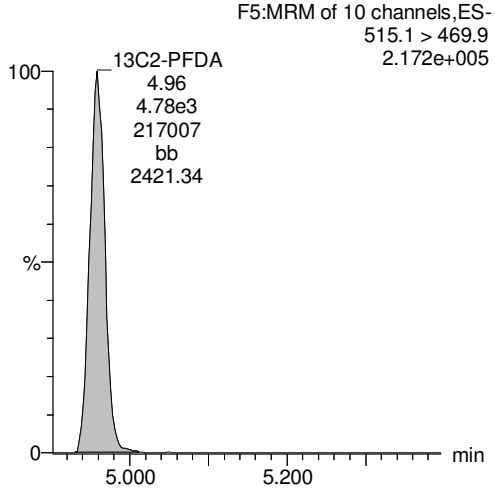
13C2-PFOA



13C4-PFOS



13C2-PFDA



MJT12/11/2017

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-17.qld

Last Altered: Monday, December 11, 2017 12:45:43 Pacific Standard Time
Printed: Monday, December 11, 2017 12:46:12 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_17, Date: 09-Dec-2017, Time: 14:56:50, ID: 1701844-02 CH-AT-1FB116-1217 0.25974, Description: CH-AT-1FB116-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		1.02e4		0.2597	3.02				
2	2	PFOA	413 > 368.7	2.21e1	8.80e3		0.2597	4.31	4.31	0.0251	0.119	
3	3	PFOS	499 >79.9	6.75e-1	1.02e4		0.2597	4.72	4.72	0.00189	0.00606	
4	4	13C2-PFHxA	315 > 269.8	4.16e3	8.80e3	0.443	0.2597	3.37	3.37	4.74	41.2	106.9
5	5	13C2-PFDA	515.1 > 469.9	4.89e3	8.80e3	0.509	0.2597	4.94	4.96	5.56	42.0	109.1
6	6	13C2-PFOA	414.9 > 369.7	8.80e3	8.80e3	1.000	0.2597	4.41	4.31	10.0	38.5	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.02e4	1.02e4	1.000	0.2597	4.81	4.72	28.7	110	100.0

MJT12/11/2017

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

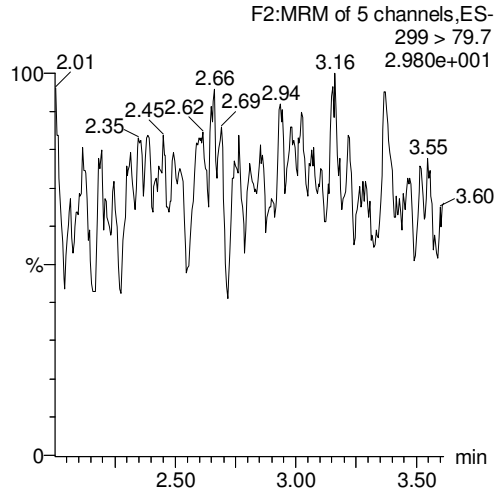
Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-17.qld

Last Altered: Monday, December 11, 2017 12:45:43 Pacific Standard Time
Printed: Monday, December 11, 2017 12:46:12 Pacific Standard Time

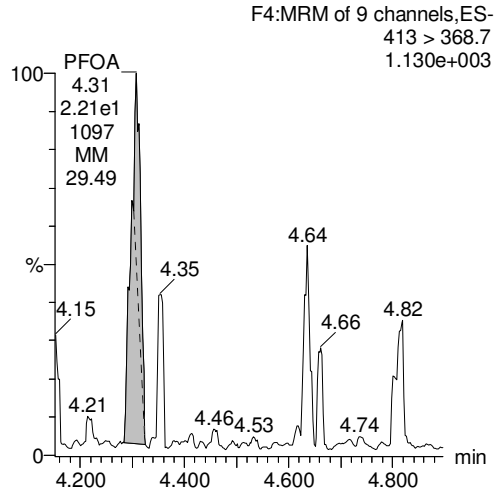
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_17, Date: 09-Dec-2017, Time: 14:56:50, ID: 1701844-02 CH-AT-1FB116-1217 0.25974, Description: CH-AT-1FB116-1217

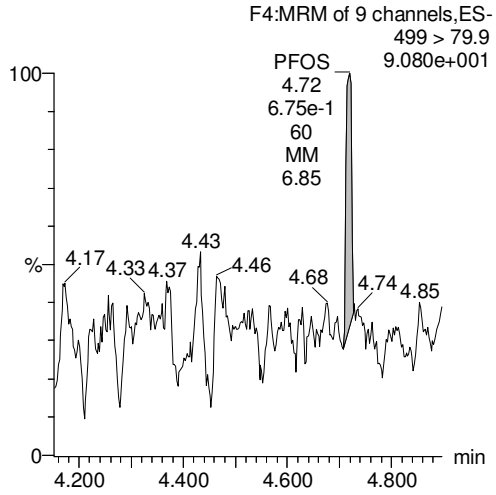
PFBS



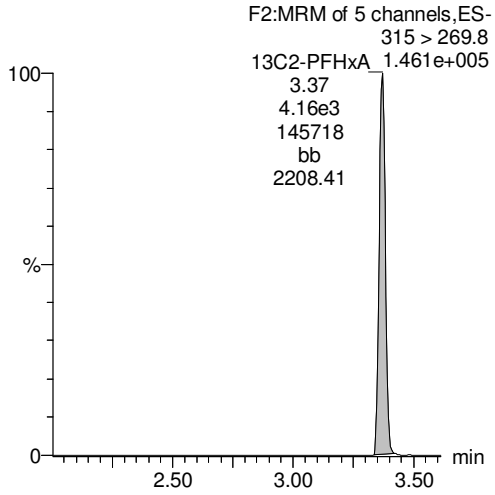
PFOA



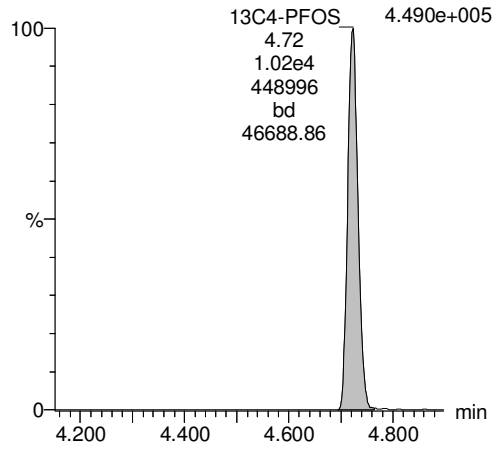
PFOS



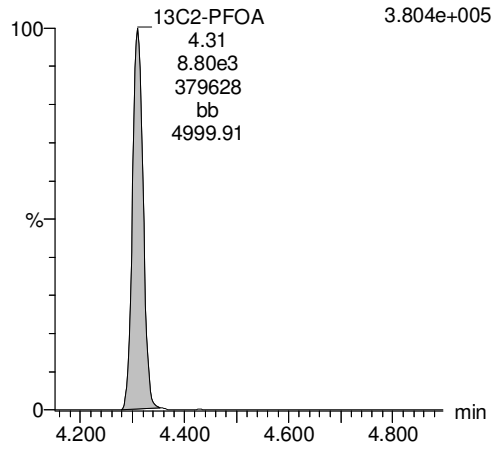
13C2-PFHxA



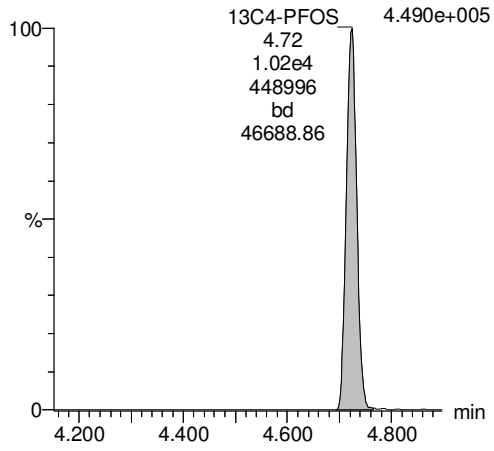
13C4-PFOS



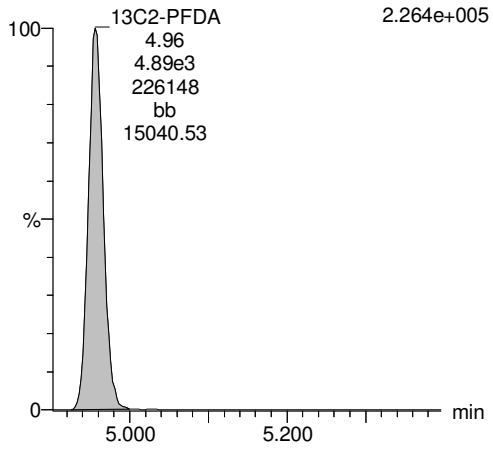
13C2-PFOA



13C4-PFOS



13C2-PFDA



MJT12/11/2017

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-18.qld

Last Altered: Monday, December 11, 2017 12:49:53 Pacific Standard Time
Printed: Monday, December 11, 2017 12:50:48 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_18, Date: 09-Dec-2017, Time: 15:09:17, ID: 1701844-03 CH-AT-1RW117-1217 0.2504, Description: CH-AT-1RW117-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		9.78e3		0.2504	3.02				
2	2	PFOA	413 > 368.7	8.50e1	8.71e3		0.2504	4.31	4.31	0.0976	0.480	
3	3	PFOS	499 >79.9		9.78e3		0.2504	4.72				
4	4	13C2-PFHxA	315 > 269.8	3.89e3	8.71e3	0.443	0.2504	3.37	3.37	4.47	40.3	101.0
5	5	13C2-PFDA	515.1 > 469.9	4.51e3	8.71e3	0.509	0.2504	4.94	4.96	5.18	40.6	101.7
6	6	13C2-PFOA	414.9 > 369.7	8.71e3	8.71e3	1.000	0.2504	4.41	4.31	10.0	39.9	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.78e3	9.78e3	1.000	0.2504	4.81	4.72	28.7	115	100.0

MJT12/11/2017

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

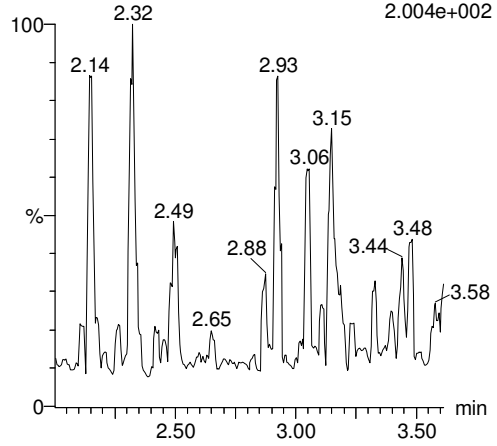
Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-18.qld

Last Altered: Monday, December 11, 2017 12:49:53 Pacific Standard Time
Printed: Monday, December 11, 2017 12:50:48 Pacific Standard Time

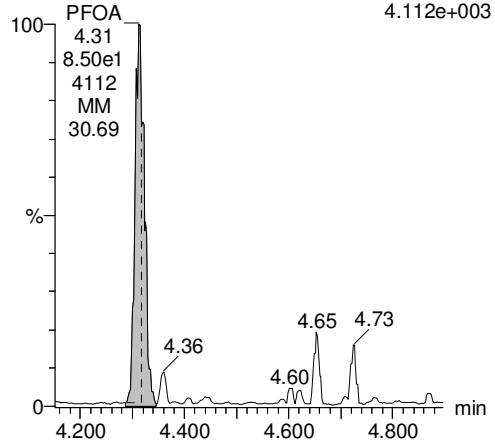
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_18, Date: 09-Dec-2017, Time: 15:09:17, ID: 1701844-03 CH-AT-1RW117-1217 0.2504, Description: CH-AT-1RW117-1217

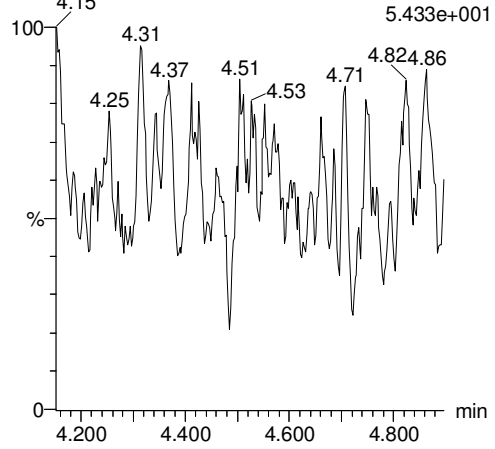
PFBS



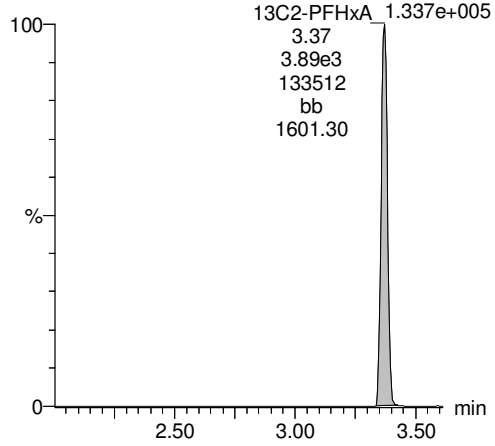
PFOA



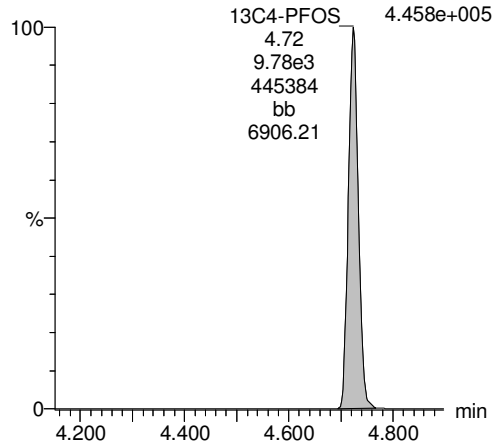
PFOS



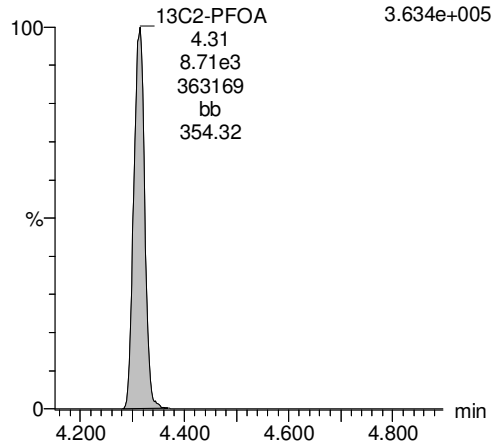
13C2-PFHxA



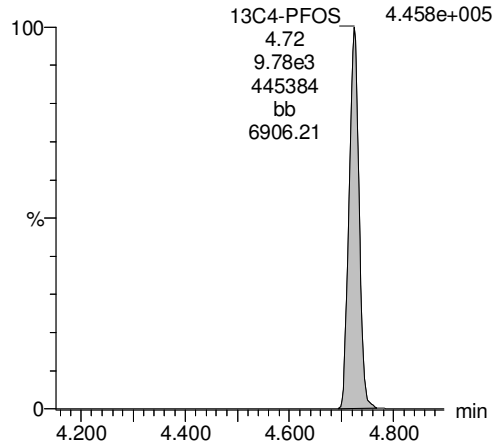
13C4-PFOS



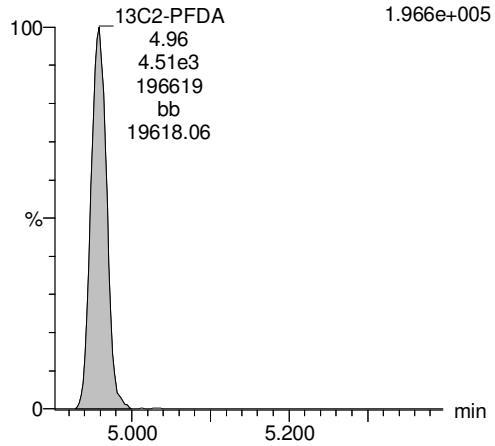
13C2-PFOA



13C4-PFOS



13C2-PFDA



MJT12/11/2017

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-19.qld

Last Altered: Monday, December 11, 2017 12:52:21 Pacific Standard Time
Printed: Monday, December 11, 2017 12:53:28 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_19, Date: 09-Dec-2017, Time: 15:21:45, ID: 1701844-04 CH-AT-1FB117-1217 0.26149, Description: CH-AT-1FB117-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		1.02e4		0.2615	3.02				
2	2	PFOA	413 > 368.7	2.78e1	9.46e3		0.2615	4.31	4.32	0.0294	0.138	
3	3	PFOS	499 >79.9		1.02e4		0.2615	4.72				
4	4	13C2-PFHxA	315 > 269.8	4.22e3	9.46e3	0.443	0.2615	3.37	3.37	4.46	38.5	100.7
5	5	13C2-PFDA	515.1 > 469.9	5.36e3	9.46e3	0.509	0.2615	4.94	4.96	5.67	42.6	111.3
6	6	13C2-PFOA	414.9 > 369.7	9.46e3	9.46e3	1.000	0.2615	4.41	4.31	10.0	38.2	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.02e4	1.02e4	1.000	0.2615	4.81	4.72	28.7	110	100.0

MJT12/11/2017

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

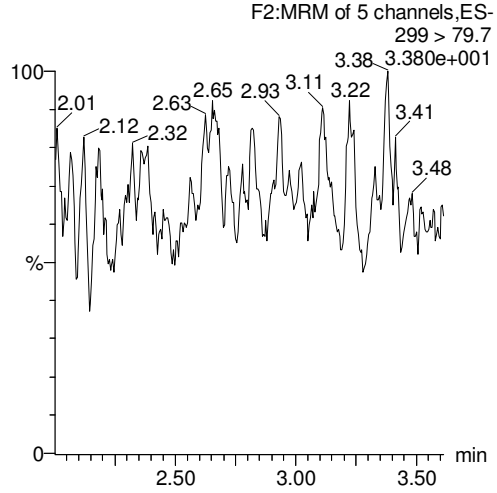
Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-19.qld

Last Altered: Monday, December 11, 2017 12:52:21 Pacific Standard Time
Printed: Monday, December 11, 2017 12:53:28 Pacific Standard Time

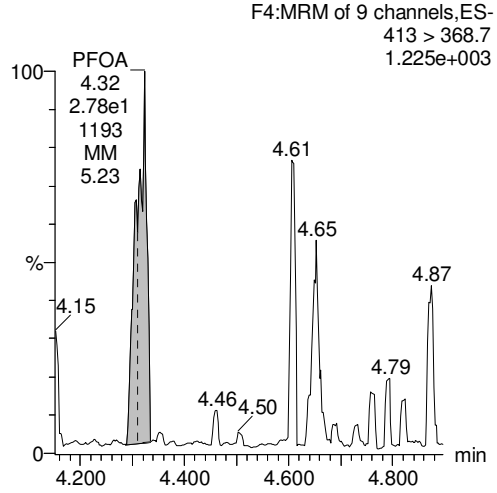
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_19, Date: 09-Dec-2017, Time: 15:21:45, ID: 1701844-04 CH-AT-1FB117-1217 0.26149, Description: CH-AT-1FB117-1217

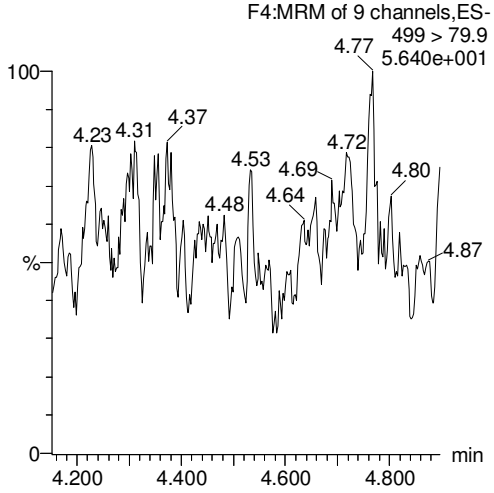
PFBS



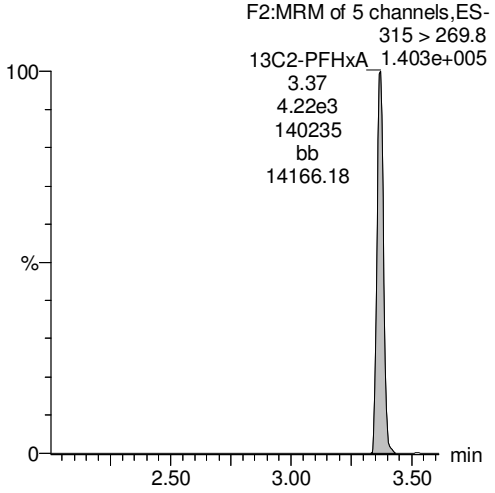
PFOA



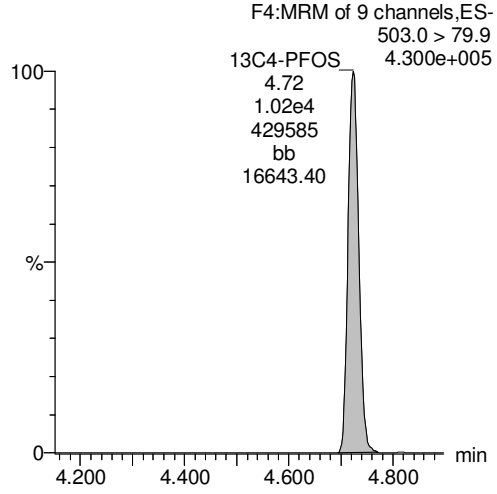
PFOS



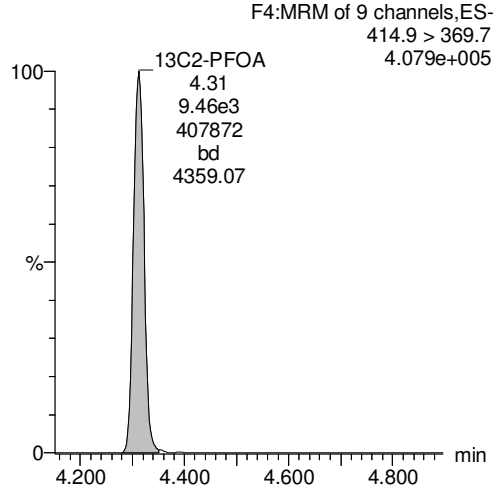
13C2-PFHxA



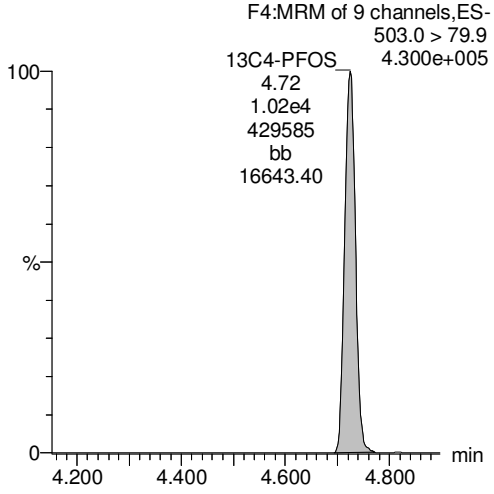
13C4-PFOS



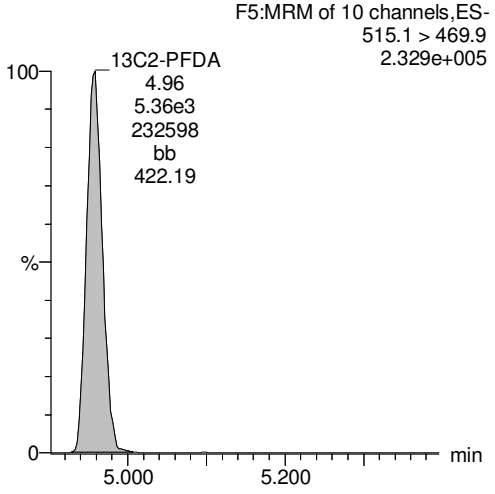
13C2-PFOA



13C4-PFOS



13C2-PFDA



MJT12/11/2017

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-20.qld

Last Altered: Monday, December 11, 2017 12:58:34 Pacific Standard Time
Printed: Monday, December 11, 2017 12:59:52 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_20, Date: 09-Dec-2017, Time: 15:34:09, ID: 1701844-05 CH-AT-1RW118-1217 0.25742, Description: CH-AT-1RW118-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		1.05e4		0.2574	3.03				
2	2	PFOA	413 > 368.7	4.70e1	8.69e3		0.2574	4.31	4.31	0.0541	0.259	
3	3	PFOS	499 >79.9		1.05e4		0.2574	4.73				
4	4	13C2-PFHxA	315 > 269.8	4.22e3	8.69e3	0.443	0.2574	3.37	3.37	4.85	42.6	109.6
5	5	13C2-PFDA	515.1 > 469.9	4.49e3	8.69e3	0.509	0.2574	4.94	4.96	5.16	39.4	101.3
6	6	13C2-PFOA	414.9 > 369.7	8.69e3	8.69e3	1.000	0.2574	4.41	4.31	10.0	38.8	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.05e4	1.05e4	1.000	0.2574	4.81	4.73	28.7	111	100.0

MJT12/11/2017

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

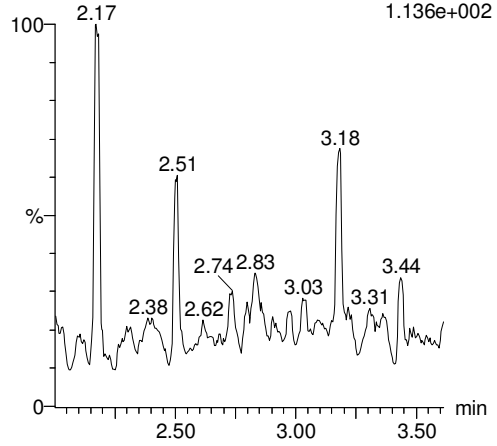
Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-20.qld

Last Altered: Monday, December 11, 2017 12:58:34 Pacific Standard Time
Printed: Monday, December 11, 2017 12:59:52 Pacific Standard Time

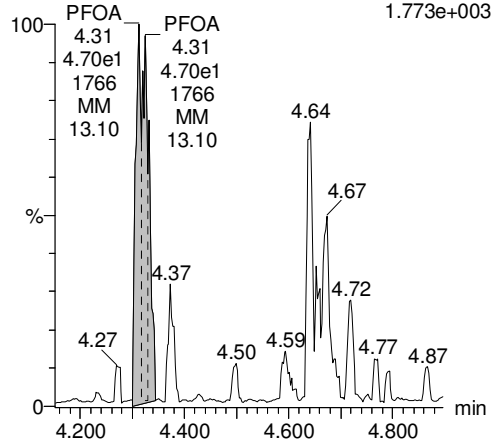
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_20, Date: 09-Dec-2017, Time: 15:34:09, ID: 1701844-05 CH-AT-1RW118-1217 0.25742, Description: CH-AT-1RW118-1217

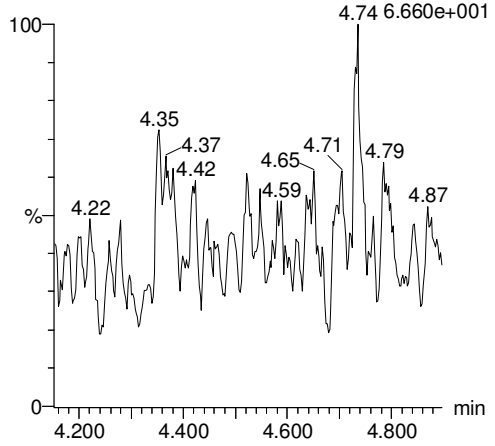
PFBS



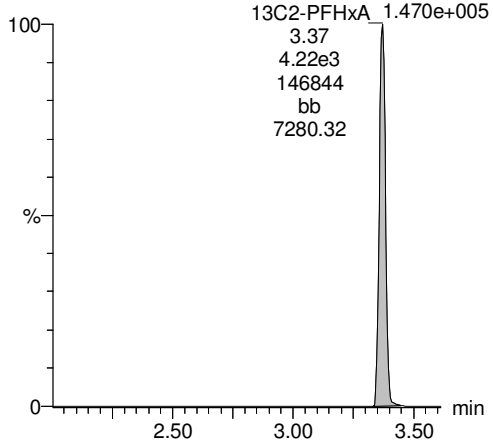
PFOA



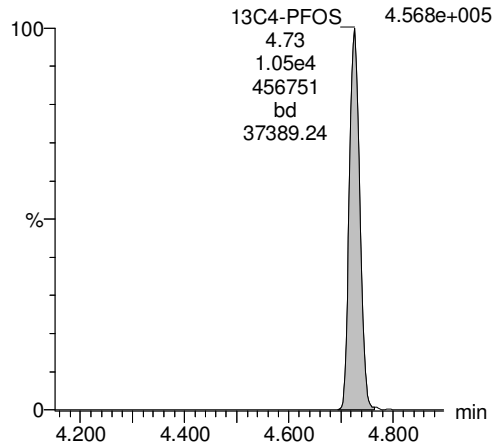
PFOS



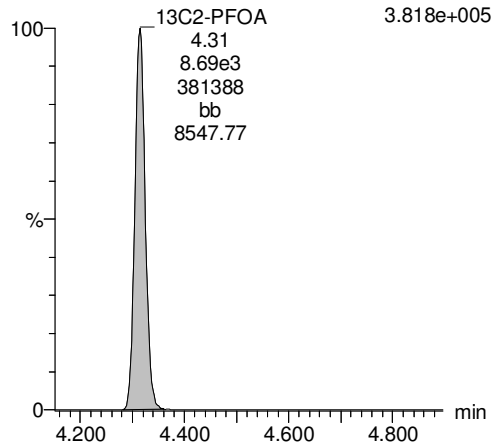
13C2-PFHxA



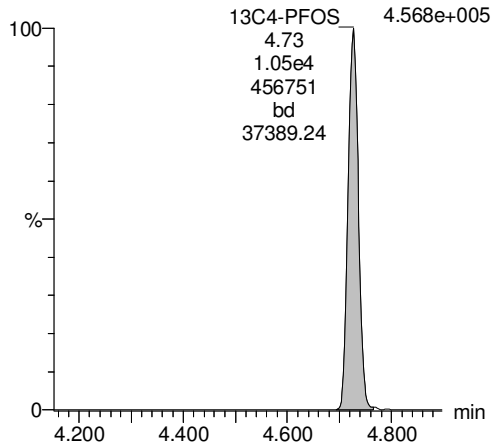
13C4-PFOS



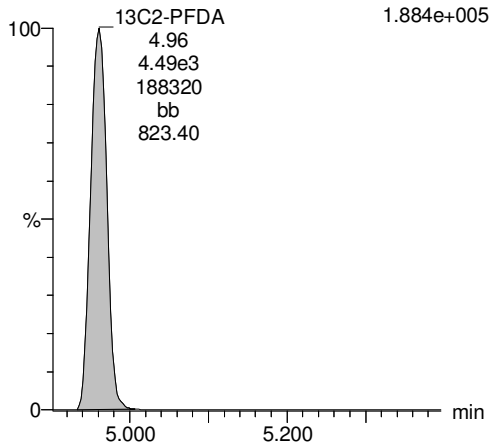
13C2-PFOA



13C4-PFOS



13C2-PFDA



MJT12/11/2017

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-21.qld

Last Altered: Monday, December 11, 2017 13:02:34 Pacific Standard Time
Printed: Monday, December 11, 2017 13:02:46 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_21, Date: 09-Dec-2017, Time: 15:46:34, ID: 1701844-06 CH-AT-1FB118-1217 0.25895, Description: CH-AT-1FB118-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		9.85e3		0.2590	3.02				
2	2	PFOA	413 > 368.7	3.83e1	8.91e3		0.2590	4.31	4.31	0.0430	0.205	
3	3	PFOS	499 >79.9		9.85e3		0.2590	4.72				
4	4	13C2-PFHxA	315 > 269.8	4.19e3	8.91e3	0.443	0.2590	3.37	3.37	4.71	41.0	106.2
5	5	13C2-PFDA	515.1 > 469.9	4.59e3	8.91e3	0.509	0.2590	4.94	4.96	5.15	39.1	101.1
6	6	13C2-PFOA	414.9 > 369.7	8.91e3	8.91e3	1.000	0.2590	4.41	4.31	10.0	38.6	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.85e3	9.85e3	1.000	0.2590	4.81	4.72	28.7	111	100.0

MJT12/11/2017

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

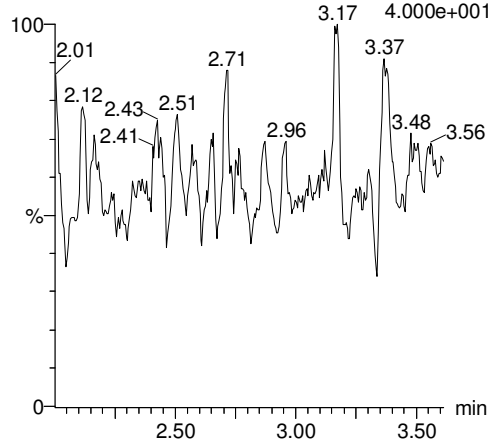
Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-21.qld

Last Altered: Monday, December 11, 2017 13:02:34 Pacific Standard Time
Printed: Monday, December 11, 2017 13:02:46 Pacific Standard Time

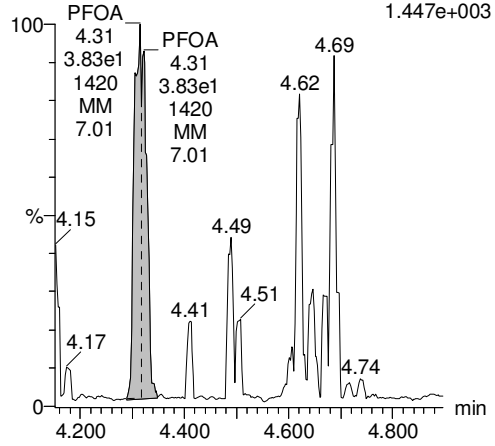
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_21, Date: 09-Dec-2017, Time: 15:46:34, ID: 1701844-06 CH-AT-1FB118-1217 0.25895, Description: CH-AT-1FB118-1217

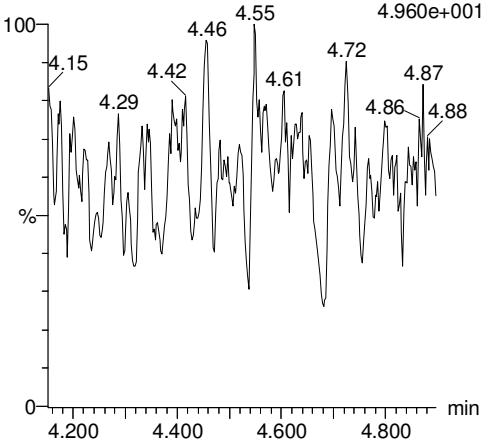
PFBS



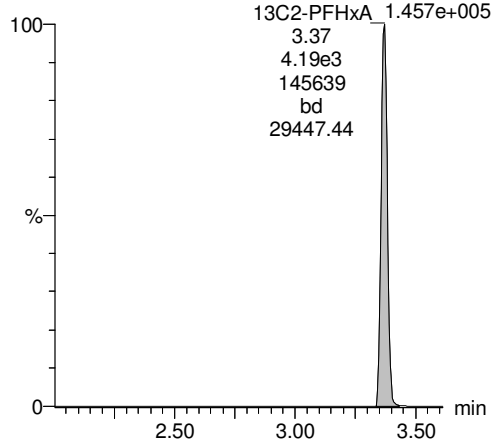
PFOA



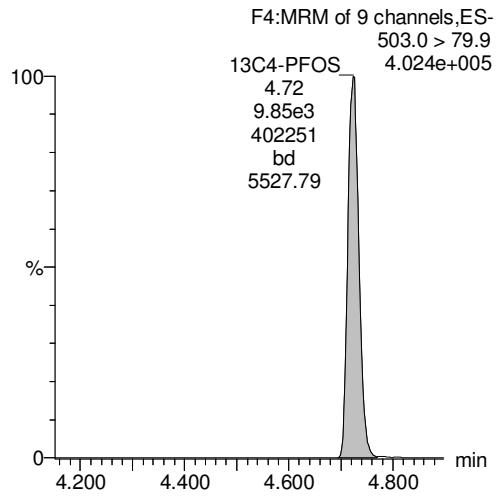
PFOS



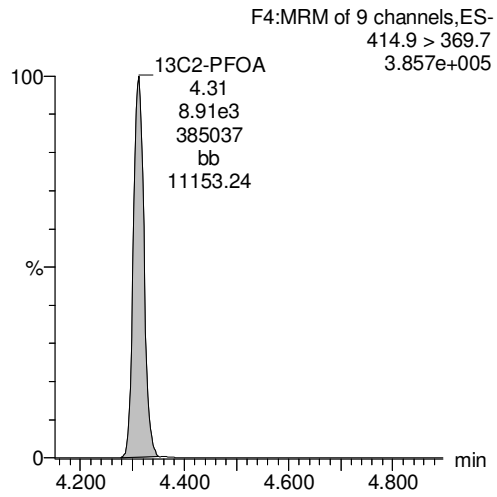
13C2-PFHxA



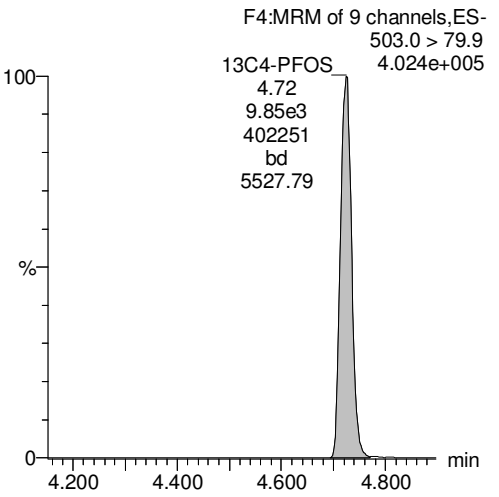
13C4-PFOS



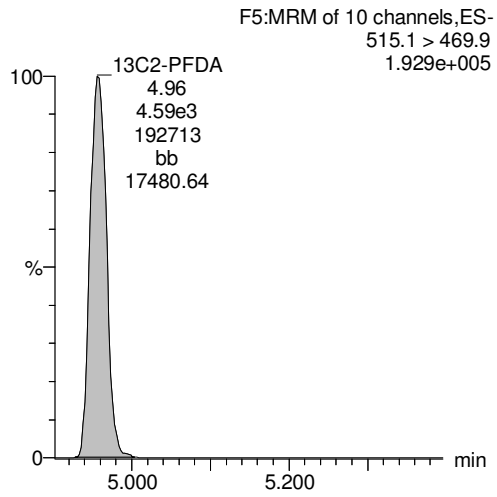
13C2-PFOA



13C4-PFOS



13C2-PFDA



MJT12/11/2017

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-22.qld

Last Altered: Monday, December 11, 2017 13:04:06 Pacific Standard Time
Printed: Monday, December 11, 2017 13:04:25 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_22, Date: 09-Dec-2017, Time: 15:58:59, ID: 1701844-07 CH-AT-1RW119-1217 0.25049, Description: CH-AT-1RW119-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		9.85e3		0.2505	3.02				
2	2	PFOA	413 > 368.7	3.61e1	8.38e3		0.2505	4.31	4.31	0.0431	0.212	
3	3	PFOS	499 >79.9		9.85e3		0.2505	4.72				
4	4	13C2-PFHxA	315 > 269.8	4.13e3	8.38e3	0.443	0.2505	3.37	3.37	4.92	44.4	111.2
5	5	13C2-PFDA	515.1 > 469.9	4.40e3	8.38e3	0.509	0.2505	4.94	4.96	5.25	41.2	103.1
6	6	13C2-PFOA	414.9 > 369.7	8.38e3	8.38e3	1.000	0.2505	4.41	4.31	10.0	39.9	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.85e3	9.85e3	1.000	0.2505	4.81	4.72	28.7	115	100.0

MJT12/11/2017

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

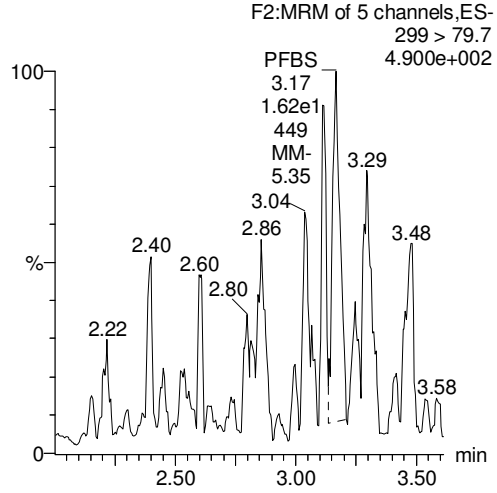
Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-22.qld

Last Altered: Monday, December 11, 2017 13:04:06 Pacific Standard Time
Printed: Monday, December 11, 2017 13:04:25 Pacific Standard Time

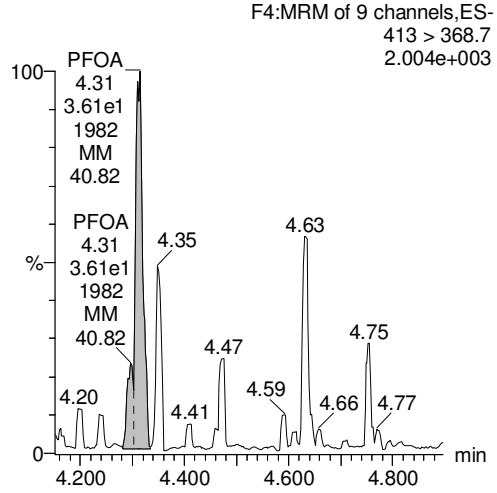
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_22, Date: 09-Dec-2017, Time: 15:58:59, ID: 1701844-07 CH-AT-1RW119-1217 0.25049, Description: CH-AT-1RW119-1217

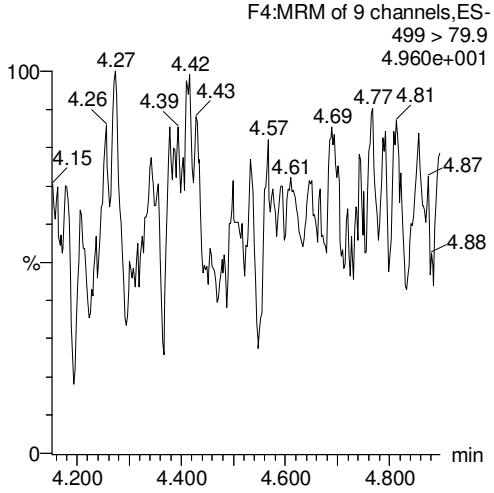
PFBS



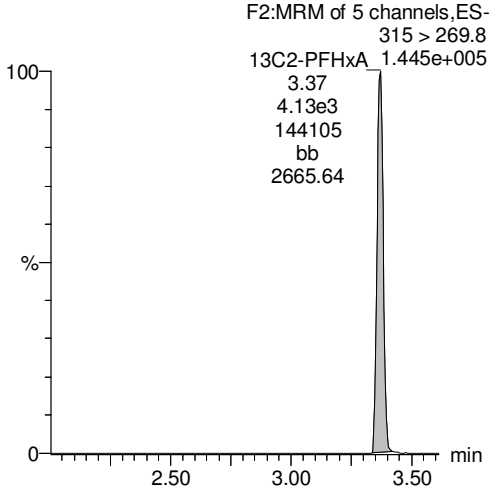
PFOA



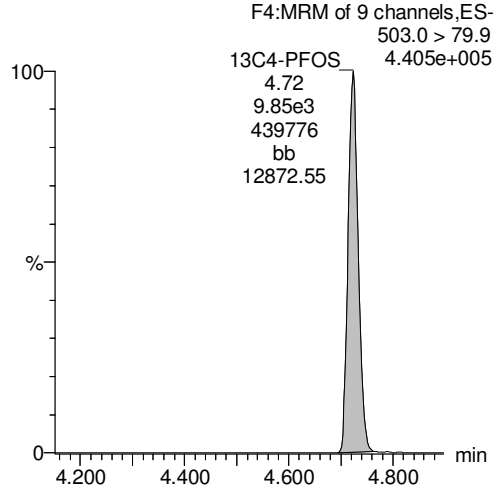
PFOS



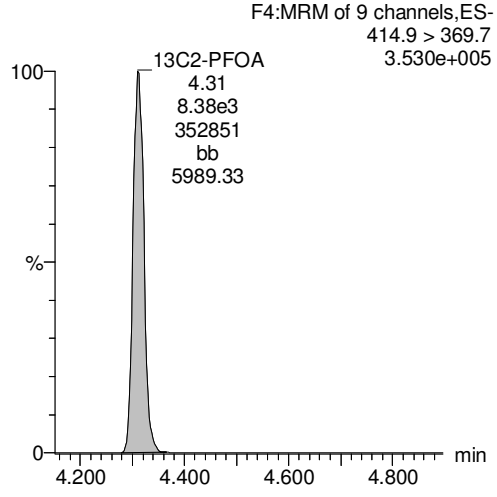
13C2-PFHxA



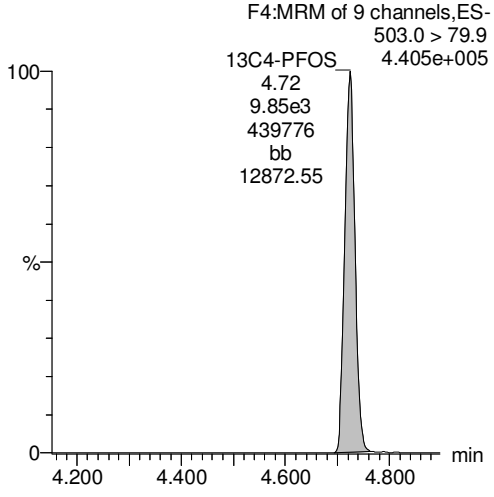
13C4-PFOS



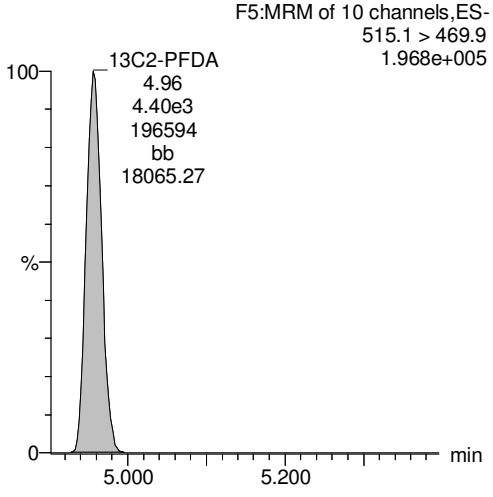
13C2-PFOA



13C4-PFOS



13C2-PFDA



MJT12/11/2017

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-23.qld

Last Altered: Monday, December 11, 2017 13:05:57 Pacific Standard Time
Printed: Monday, December 11, 2017 13:06:53 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_23, Date: 09-Dec-2017, Time: 16:11:25, ID: 1701844-08 CH-AT-1FB119-1217 0.25941, Description: CH-AT-1FB119-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		9.95e3		0.2594	3.02				
2	2	PFOA	413 > 368.7	6.05e1	8.97e3		0.2594	4.31	4.31	0.0674	0.320	
3	3	PFOS	499 >79.9		9.95e3		0.2594	4.72				
4	4	13C2-PFHxA	315 > 269.8	4.40e3	8.97e3	0.443	0.2594	3.37	3.37	4.90	42.6	110.6
5	5	13C2-PFDA	515.1 > 469.9	4.50e3	8.97e3	0.509	0.2594	4.94	4.96	5.02	38.0	98.5
6	6	13C2-PFOA	414.9 > 369.7	8.97e3	8.97e3	1.000	0.2594	4.41	4.31	10.0	38.5	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.95e3	9.95e3	1.000	0.2594	4.81	4.72	28.7	111	100.0

MJT12/11/2017

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

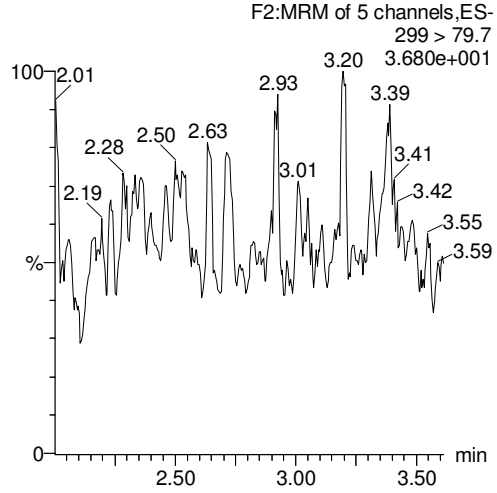
Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-23.qld

Last Altered: Monday, December 11, 2017 13:05:57 Pacific Standard Time
Printed: Monday, December 11, 2017 13:06:53 Pacific Standard Time

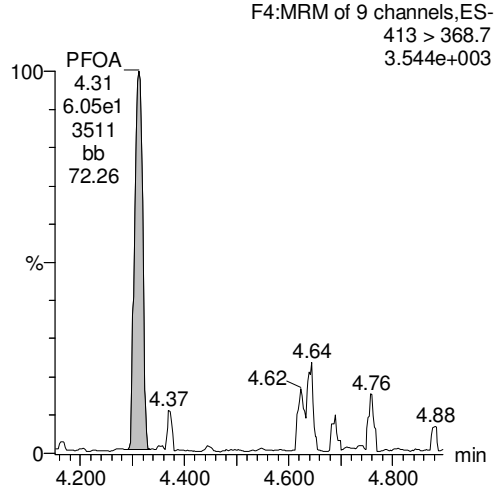
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_23, Date: 09-Dec-2017, Time: 16:11:25, ID: 1701844-08 CH-AT-1FB119-1217 0.25941, Description: CH-AT-1FB119-1217

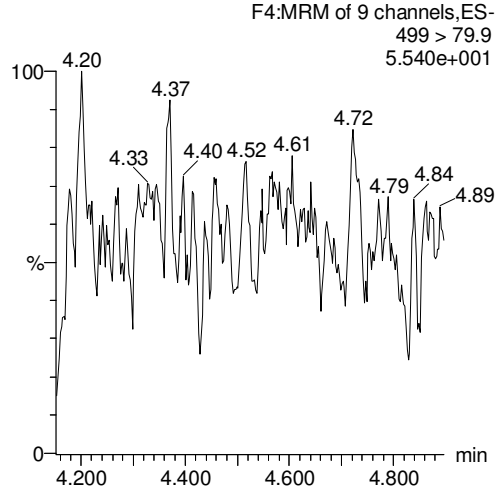
PFBS



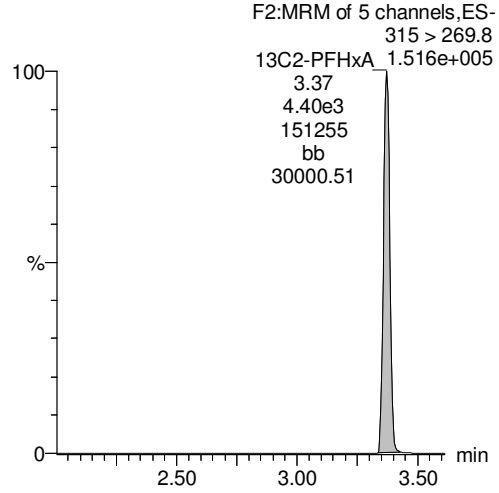
PFOA



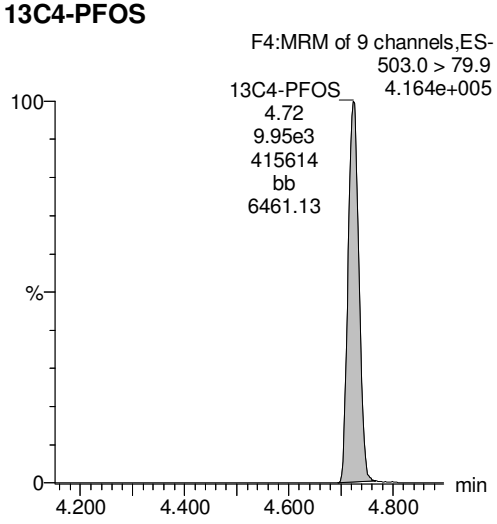
PFOS



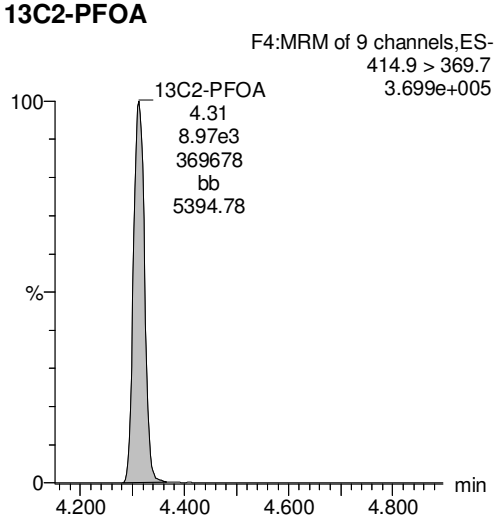
13C2-PFHxA



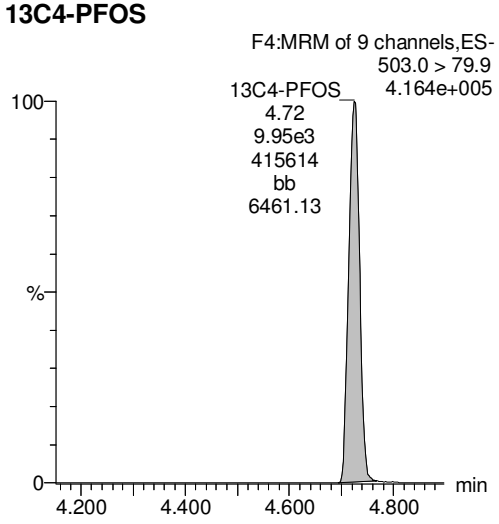
13C4-PFOS



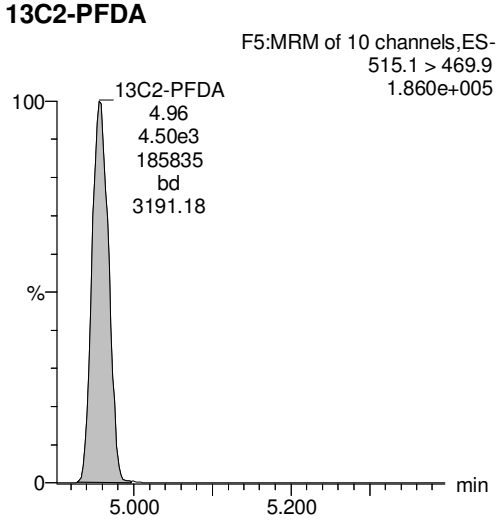
13C2-PFOA



13C4-PFOS



13C2-PFDA



MJT12/11/2017

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-24.qld

Last Altered: Monday, December 11, 2017 13:32:22 Pacific Standard Time
Printed: Monday, December 11, 2017 13:37:50 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_24, Date: 09-Dec-2017, Time: 16:23:50, ID: 1701844-09 CH-AT-1RW120-1217 0.24541, Description: CH-AT-1RW120-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		1.06e4		0.2454	3.03				
2	2	PFOA	413 > 368.7	2.62e1	1.00e4		0.2454	4.31	4.31	0.0261	0.131	
3	3	PFOS	499 >79.9		1.06e4		0.2454	4.73				
4	4	13C2-PFHxA	315 > 269.8	4.15e3	1.00e4	0.443	0.2454	3.37	3.37	4.13	38.0	93.3
5	5	13C2-PFDA	515.1 > 469.9	5.18e3	1.00e4	0.509	0.2454	4.94	4.96	5.16	41.3	101.4
6	6	13C2-PFOA	414.9 > 369.7	1.00e4	1.00e4	1.000	0.2454	4.41	4.31	10.0	40.7	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.06e4	1.06e4	1.000	0.2454	4.81	4.73	28.7	117	100.0

MJT12/11/2017

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

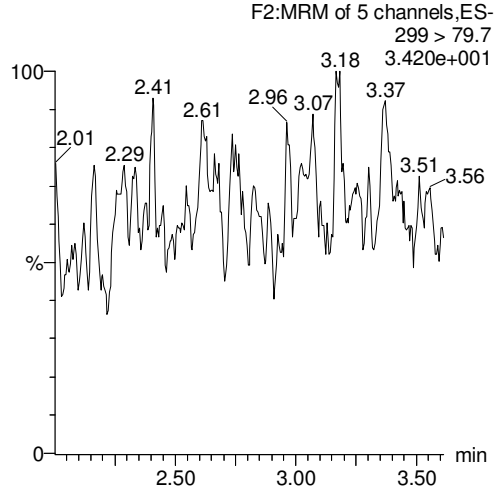
Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-24.qld

Last Altered: Monday, December 11, 2017 13:32:22 Pacific Standard Time
Printed: Monday, December 11, 2017 13:37:50 Pacific Standard Time

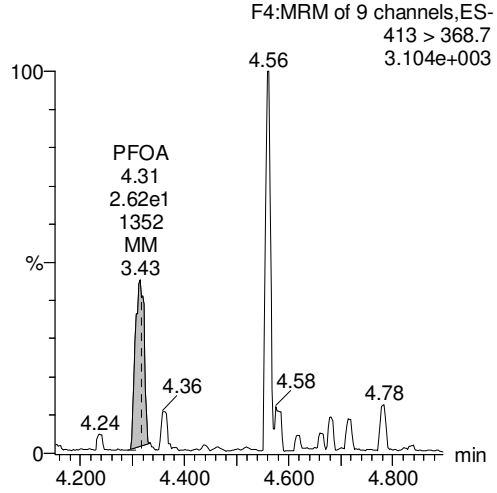
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_24, Date: 09-Dec-2017, Time: 16:23:50, ID: 1701844-09 CH-AT-1RW120-1217 0.24541, Description: CH-AT-1RW120-1217

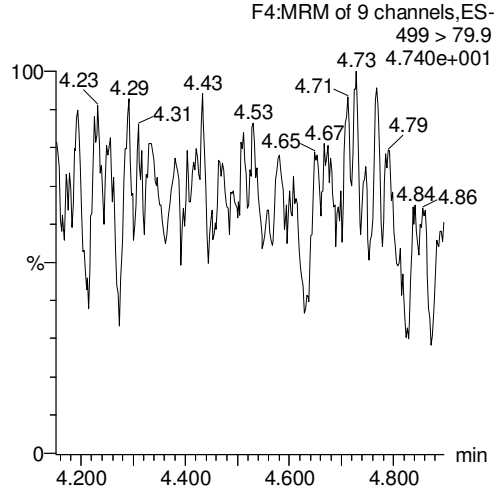
PFBS



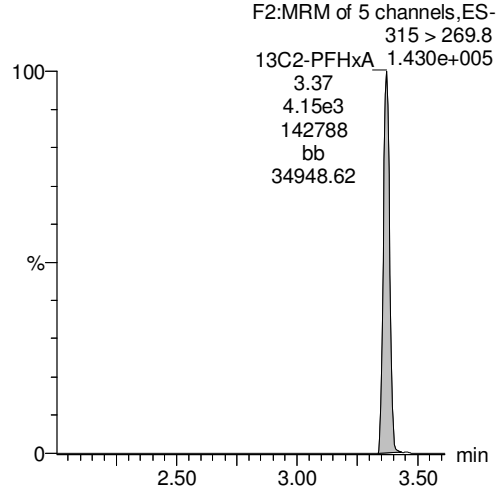
PFOA



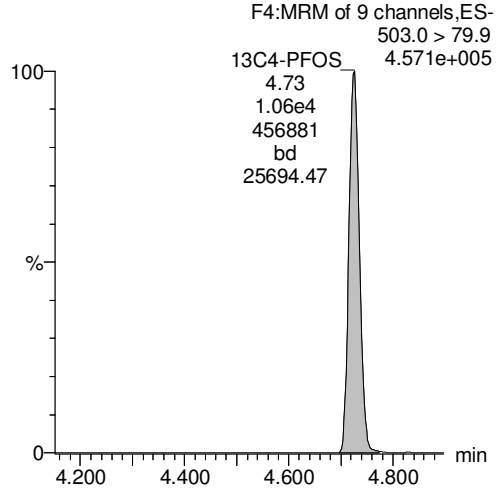
PFOS



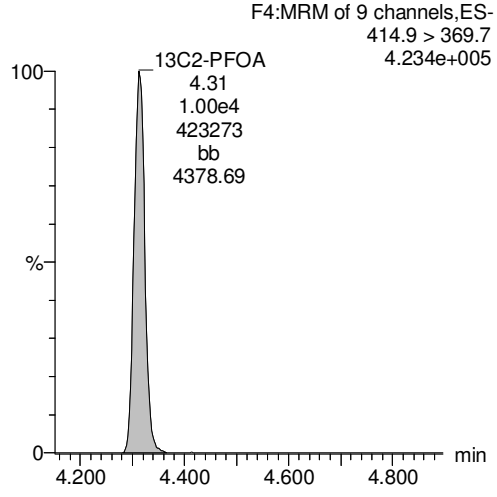
13C2-PFHxA



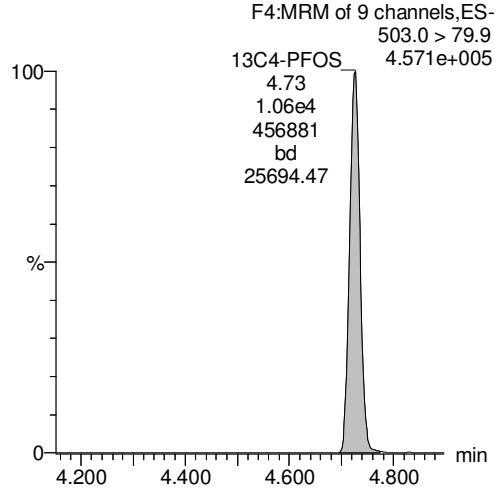
13C4-PFOS



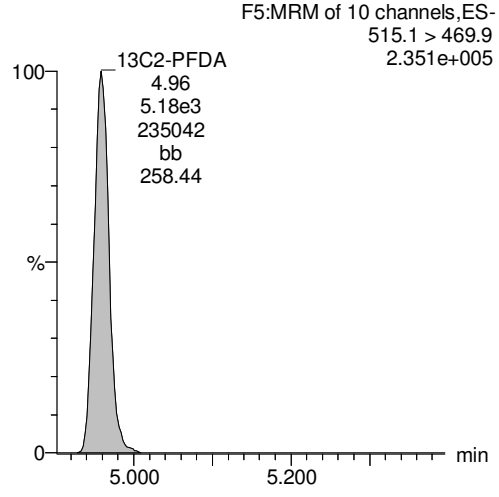
13C2-PFOA



13C4-PFOS



13C2-PFDA



MJT12/11/2017

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-25.qld

Last Altered: Monday, December 11, 2017 13:39:00 Pacific Standard Time
Printed: Monday, December 11, 2017 13:39:35 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_25, Date: 09-Dec-2017, Time: 16:36:17, ID: 1701844-10 CH-AT-1FB120-1217 0.25787, Description: CH-AT-1FB120-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		9.75e3		0.2579	3.02				
2	2	PFOA	413 > 368.7	5.99e1	9.26e3		0.2579	4.31	4.31	0.0647	0.309	
3	3	PFOS	499 >79.9		9.75e3		0.2579	4.72				
4	4	13C2-PFHxA	315 > 269.8	4.18e3	9.26e3	0.443	0.2579	3.37	3.37	4.52	39.5	101.9
5	5	13C2-PFDA	515.1 > 469.9	4.63e3	9.26e3	0.509	0.2579	4.94	4.96	5.00	38.1	98.3
6	6	13C2-PFOA	414.9 > 369.7	9.26e3	9.26e3	1.000	0.2579	4.41	4.31	10.0	38.8	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.75e3	9.75e3	1.000	0.2579	4.81	4.72	28.7	111	100.0

MJT12/11/2017

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

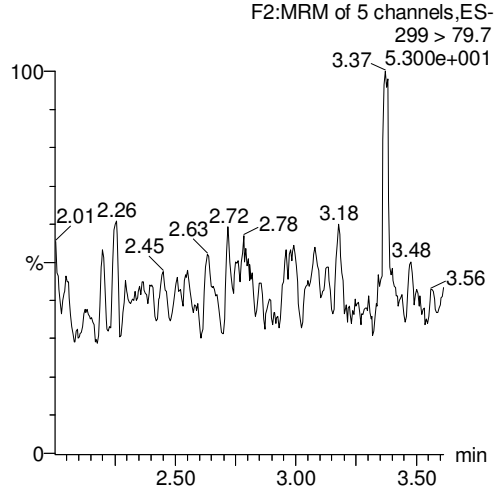
Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-25.qld

Last Altered: Monday, December 11, 2017 13:39:00 Pacific Standard Time
Printed: Monday, December 11, 2017 13:39:35 Pacific Standard Time

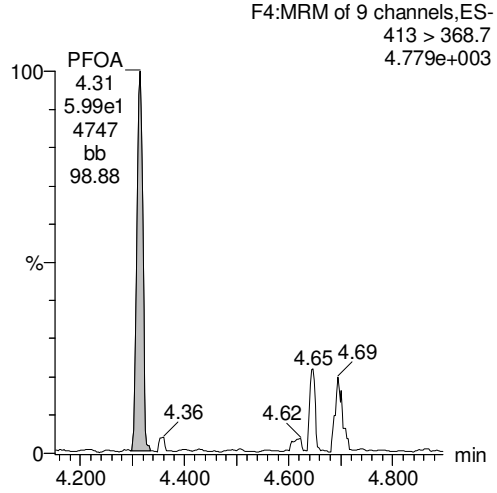
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_25, Date: 09-Dec-2017, Time: 16:36:17, ID: 1701844-10 CH-AT-1FB120-1217 0.25787, Description: CH-AT-1FB120-1217

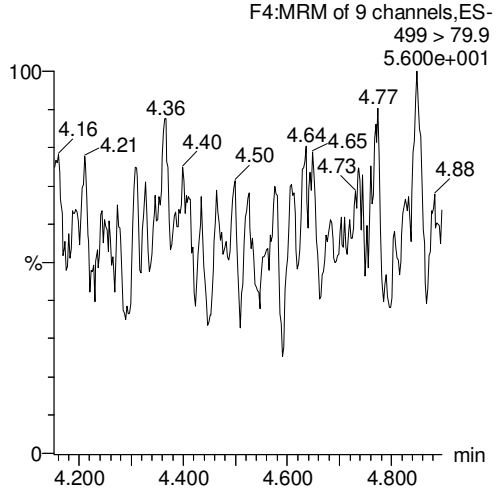
PFBS



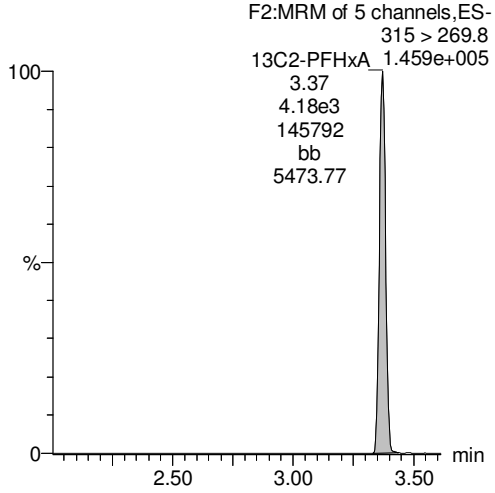
PFOA



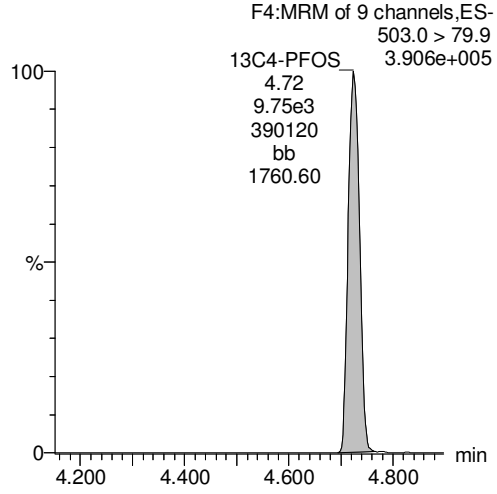
PFOS



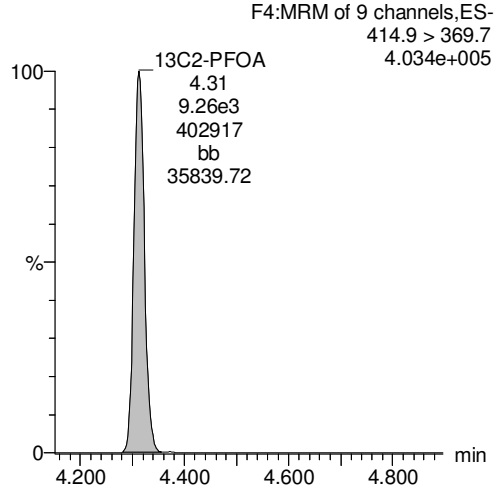
13C2-PFHxA



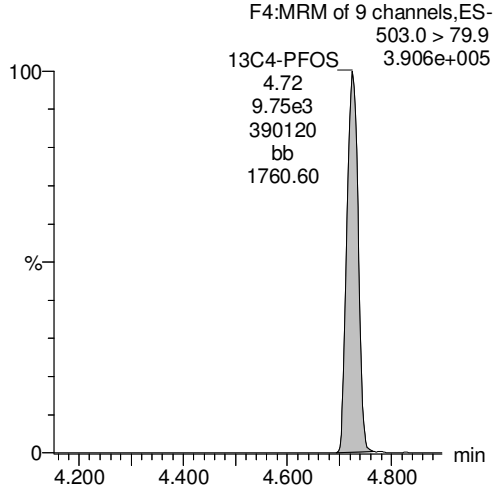
13C4-PFOS



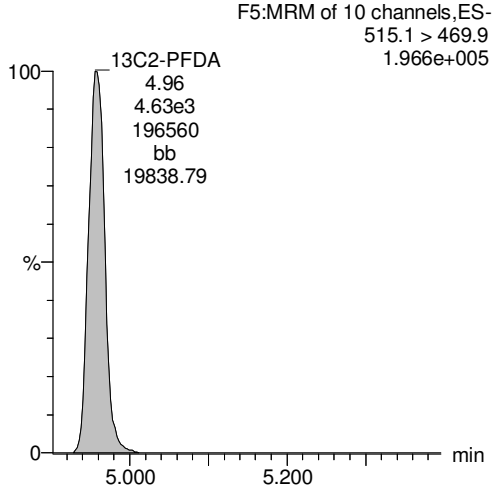
13C2-PFOA



13C4-PFOS



13C2-PFDA



MJT12/11/2017

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-26.qld

Last Altered: Monday, December 11, 2017 13:41:07 Pacific Standard Time
Printed: Monday, December 11, 2017 13:41:53 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_26, Date: 09-Dec-2017, Time: 16:48:44, ID: 1701844-11 CH-AT-1RW121-1217 0.24134, Description: CH-AT-1RW121-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7	2.40e1	1.06e4		0.2413	3.02	3.18	0.0651	0.337	
2	2	PFOA	413 > 368.7	3.32e1	8.99e3		0.2413	4.31	4.31	0.0369	0.188	
3	3	PFOS	499 >79.9		1.06e4		0.2413	4.72				
4	4	13C2-PFHxA	315 > 269.8	4.13e3	8.99e3	0.443	0.2413	3.37	3.37	4.59	43.0	103.7
5	5	13C2-PFDA	515.1 > 469.9	4.77e3	8.99e3	0.509	0.2413	4.94	4.96	5.31	43.2	104.2
6	6	13C2-PFOA	414.9 > 369.7	8.99e3	8.99e3	1.000	0.2413	4.41	4.31	10.0	41.4	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.06e4	1.06e4	1.000	0.2413	4.81	4.72	28.7	119	100.0

MJT12/11/2017

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

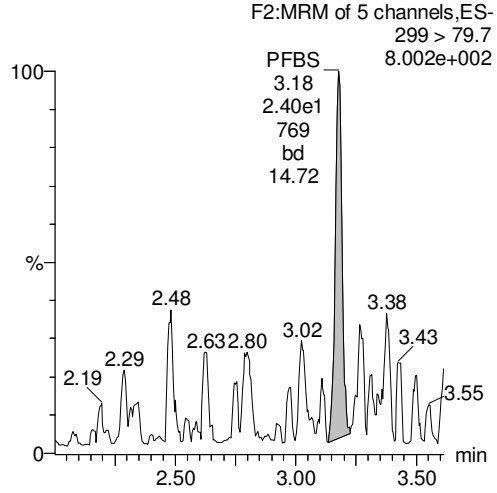
Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-26.qld

Last Altered: Monday, December 11, 2017 13:41:07 Pacific Standard Time
Printed: Monday, December 11, 2017 13:41:53 Pacific Standard Time

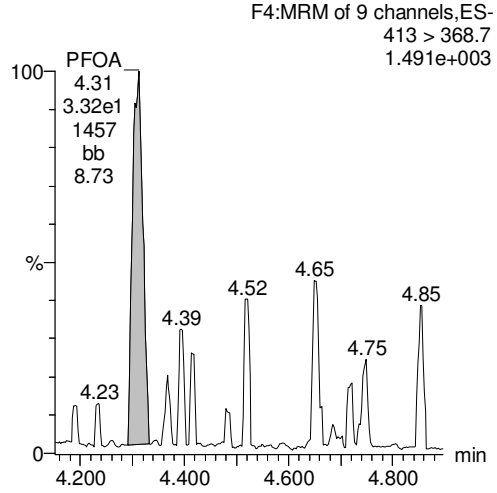
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_26, Date: 09-Dec-2017, Time: 16:48:44, ID: 1701844-11 CH-AT-1RW121-1217 0.24134, Description: CH-AT-1RW121-1217

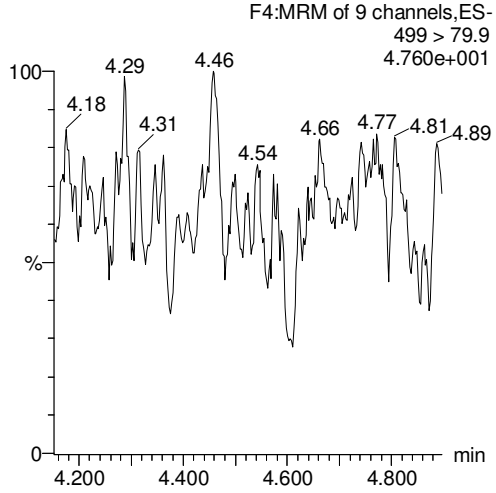
PFBS



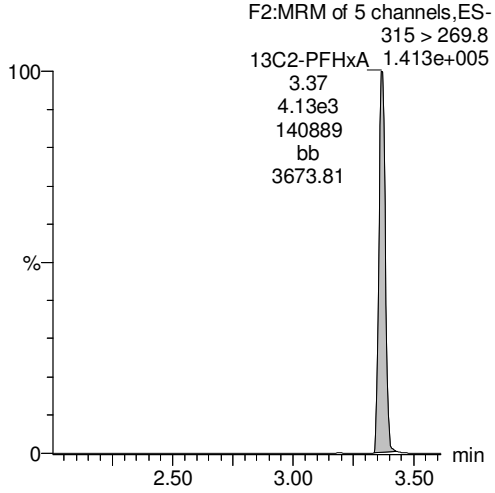
PFOA



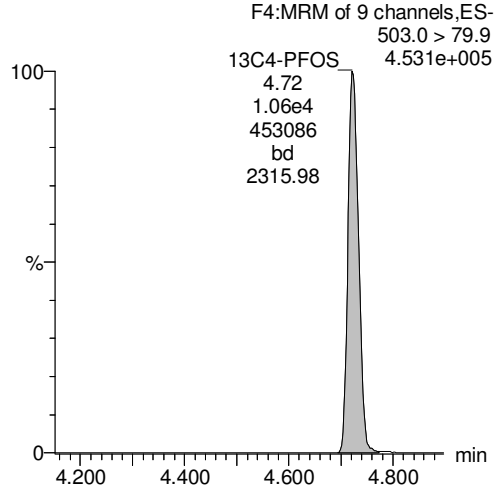
PFOS



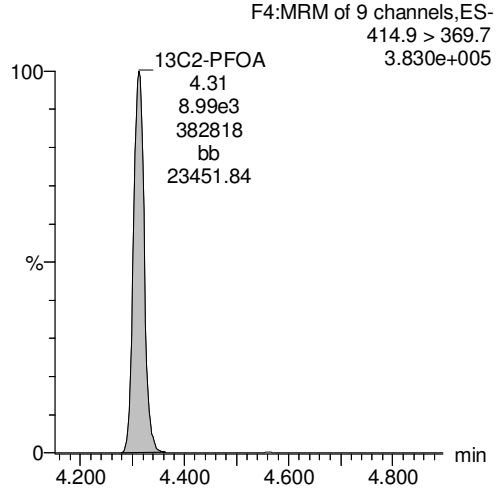
13C2-PFHxA



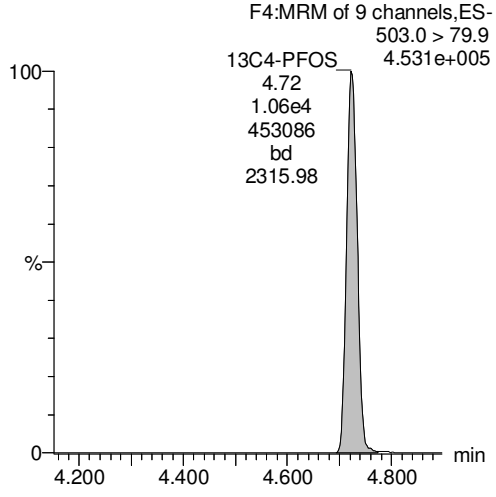
13C4-PFOS



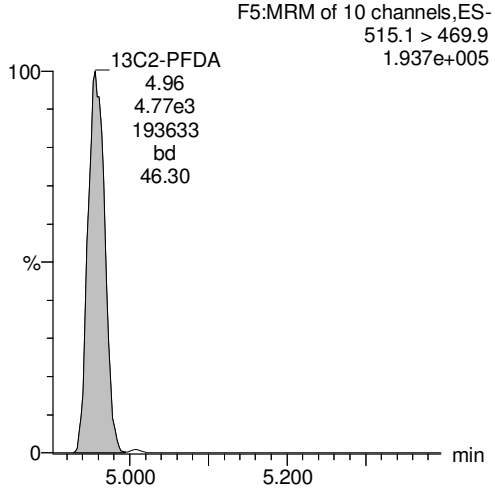
13C2-PFOA



13C4-PFOS



13C2-PFDA



MJT12/11/2017

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-27.qld

Last Altered: Monday, December 11, 2017 13:43:00 Pacific Standard Time
Printed: Monday, December 11, 2017 13:43:34 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_27, Date: 09-Dec-2017, Time: 17:01:12, ID: 1701844-12 CH-AT-1FB121-1217 0.26063, Description: CH-AT-1FB121-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7	2.18e0	9.61e3		0.2606	3.03	3.02	0.00650	0.0312	
2	2	PFOA	413 > 368.7	3.09e1	8.99e3		0.2606	4.31	4.31	0.0343	0.162	
3	3	PFOS	499 >79.9		9.61e3		0.2606	4.73				
4	4	13C2-PFHxA	315 > 269.8	4.22e3	8.99e3	0.443	0.2606	3.37	3.37	4.69	40.7	106.0
5	5	13C2-PFDA	515.1 > 469.9	4.75e3	8.99e3	0.509	0.2606	4.94	4.96	5.29	39.9	103.9
6	6	13C2-PFOA	414.9 > 369.7	8.99e3	8.99e3	1.000	0.2606	4.41	4.31	10.0	38.4	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.61e3	9.61e3	1.000	0.2606	4.81	4.73	28.7	110	100.0

MJT12/11/2017

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

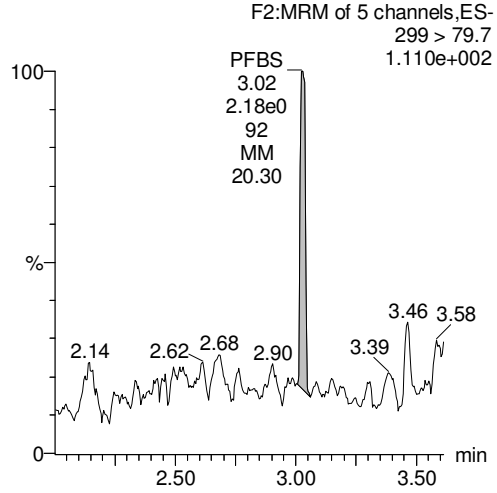
Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-27.qld

Last Altered: Monday, December 11, 2017 13:43:00 Pacific Standard Time
Printed: Monday, December 11, 2017 13:43:34 Pacific Standard Time

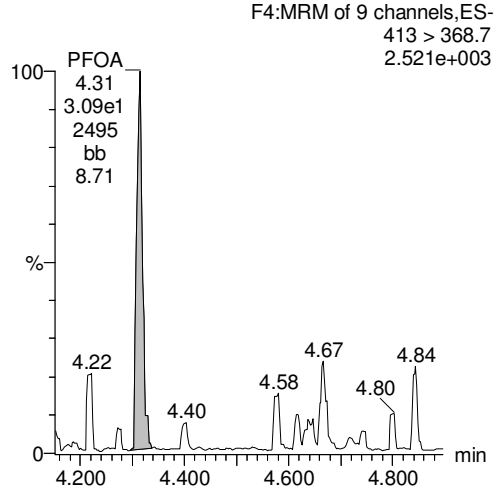
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_27, Date: 09-Dec-2017, Time: 17:01:12, ID: 1701844-12 CH-AT-1FB121-1217 0.26063, Description: CH-AT-1FB121-1217

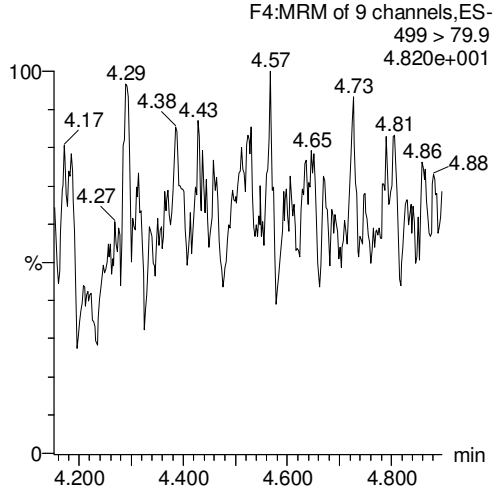
PFBS



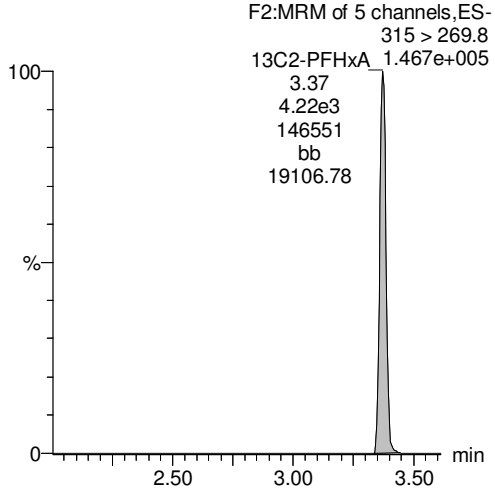
PFOA



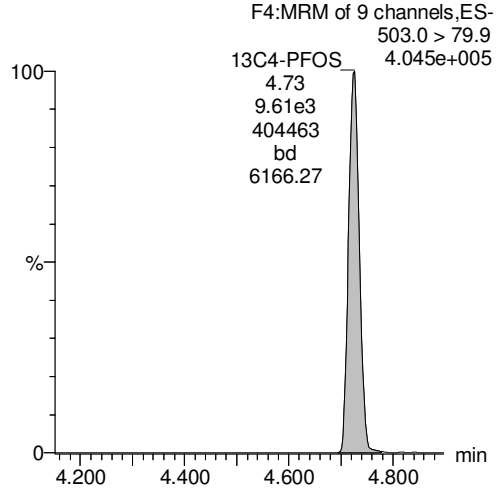
PFOS



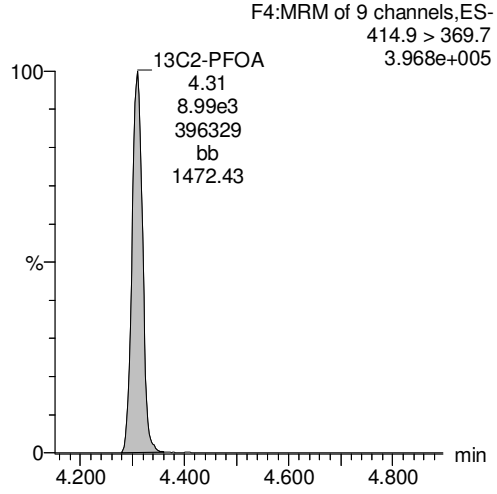
13C2-PFHxA



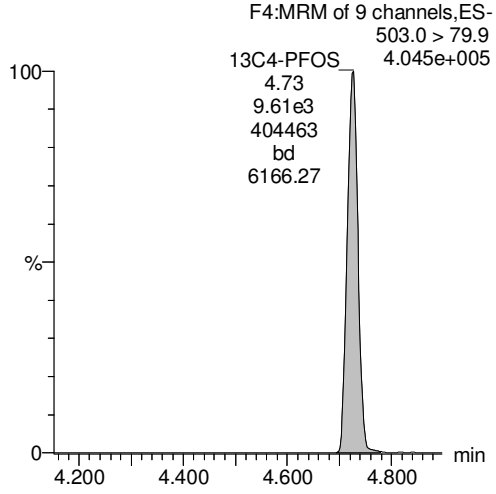
13C4-PFOS



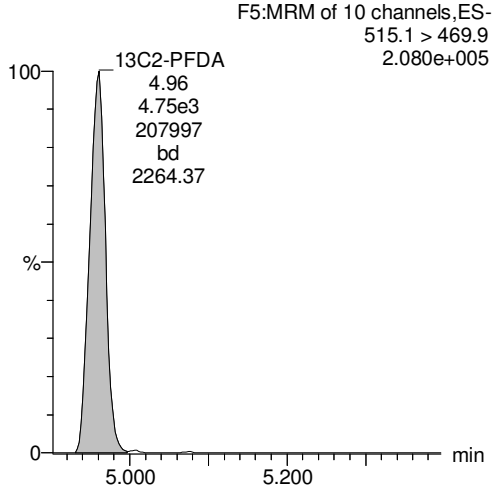
13C2-PFOA



13C4-PFOS



13C2-PFDA



MJT12/11/2017

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-28.qld

Last Altered: Monday, December 11, 2017 13:45:15 Pacific Standard Time
Printed: Monday, December 11, 2017 13:45:49 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_28, Date: 09-Dec-2017, Time: 17:13:35, ID: 1701844-13 CH-AT-1RW122-1217 0.24865, Description: CH-AT-1RW122-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7	3.48e0	1.02e4		0.2487	3.02	3.28	0.00975	0.0490	
2	2	PFOA	413 > 368.7	3.86e1	8.75e3		0.2487	4.31	4.31	0.0441	0.218	
3	3	PFOS	499 >79.9		1.02e4		0.2487	4.72				
4	4	13C2-PFHxA	315 > 269.8	4.20e3	8.75e3	0.443	0.2487	3.37	3.37	4.80	43.6	108.3
5	5	13C2-PFDA	515.1 > 469.9	4.57e3	8.75e3	0.509	0.2487	4.94	4.96	5.22	41.2	102.5
6	6	13C2-PFOA	414.9 > 369.7	8.75e3	8.75e3	1.000	0.2487	4.41	4.31	10.0	40.2	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.02e4	1.02e4	1.000	0.2487	4.81	4.72	28.7	115	100.0

MJT12/11/2017

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

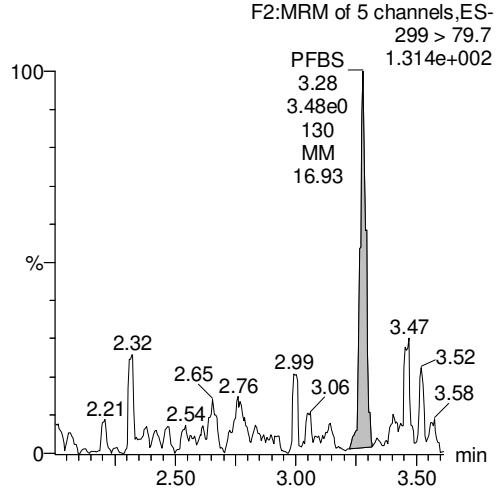
Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-28.qld

Last Altered: Monday, December 11, 2017 13:45:15 Pacific Standard Time
Printed: Monday, December 11, 2017 13:45:49 Pacific Standard Time

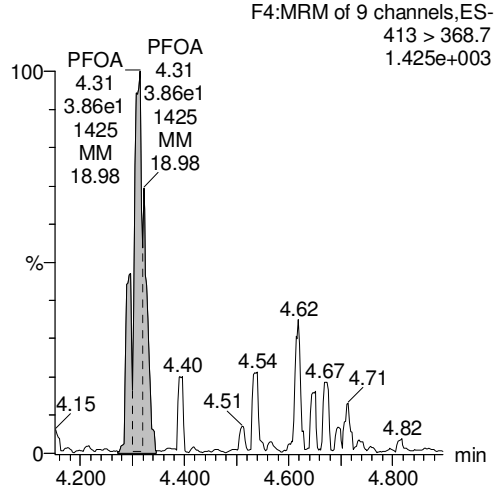
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_28, Date: 09-Dec-2017, Time: 17:13:35, ID: 1701844-13 CH-AT-1RW122-1217 0.24865, Description: CH-AT-1RW122-1217

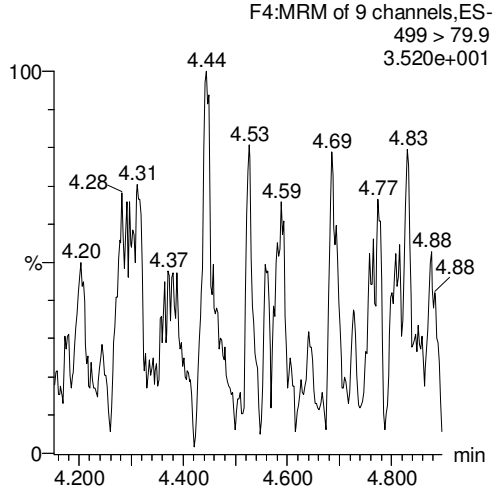
PFBS



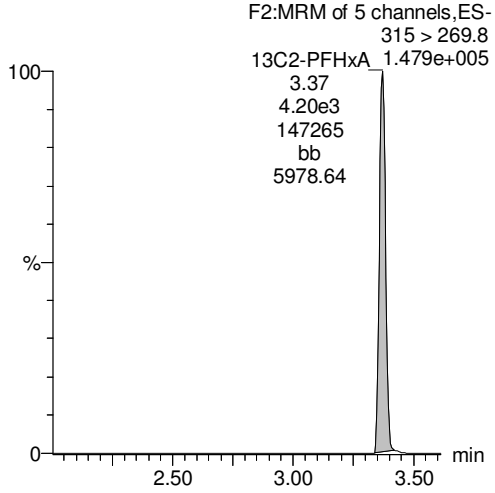
PFOA



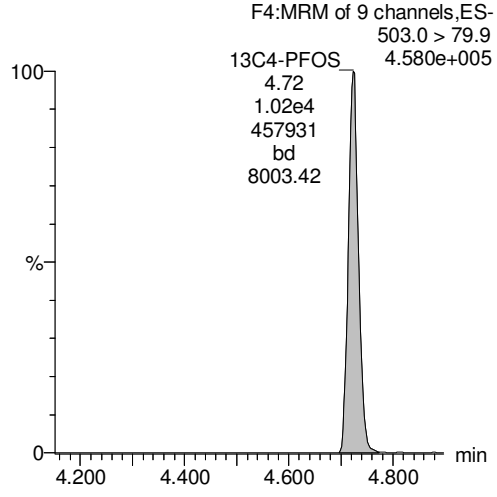
PFOS



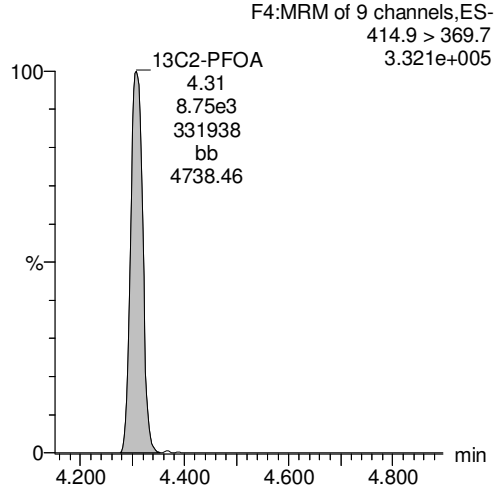
13C2-PFHxA



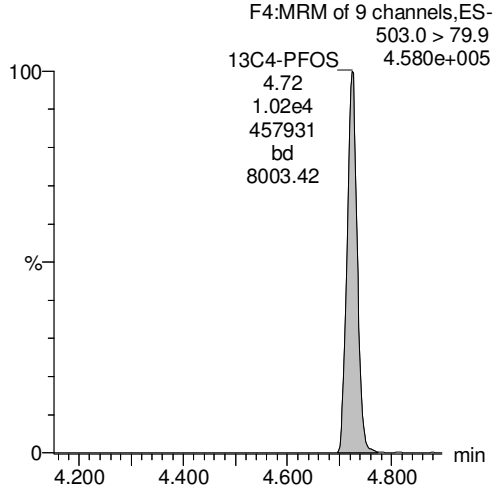
13C4-PFOS



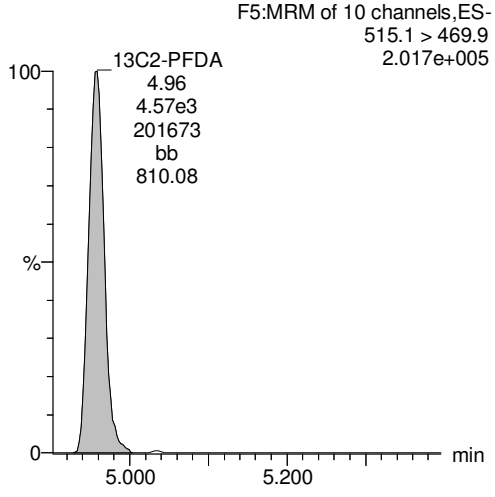
13C2-PFOA



13C4-PFOS



13C2-PFDA



MJT12/11/2017

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-29.qld

Last Altered: Monday, December 11, 2017 13:48:08 Pacific Standard Time
Printed: Monday, December 11, 2017 13:48:29 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_29, Date: 09-Dec-2017, Time: 17:26:00, ID: 1701844-14 CH-AT-1FB122-1217 0.26071, Description: CH-AT-1FB122-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		1.02e4		0.2607	3.02				
2	2	PFOA	413 > 368.7	1.69e1	9.55e3		0.2607	4.31	4.31	0.0177	0.0835	
3	3	PFOS	499 >79.9		1.02e4		0.2607	4.72				
4	4	13C2-PFHxA	315 > 269.8	4.06e3	9.55e3	0.443	0.2607	3.37	3.37	4.25	36.8	95.9
5	5	13C2-PFDA	515.1 > 469.9	5.04e3	9.55e3	0.509	0.2607	4.94	4.96	5.27	39.7	103.5
6	6	13C2-PFOA	414.9 > 369.7	9.55e3	9.55e3	1.000	0.2607	4.41	4.31	10.0	38.4	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.02e4	1.02e4	1.000	0.2607	4.81	4.72	28.7	110	100.0

MJT12/11/2017

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Rev'd: MM 12/11/17

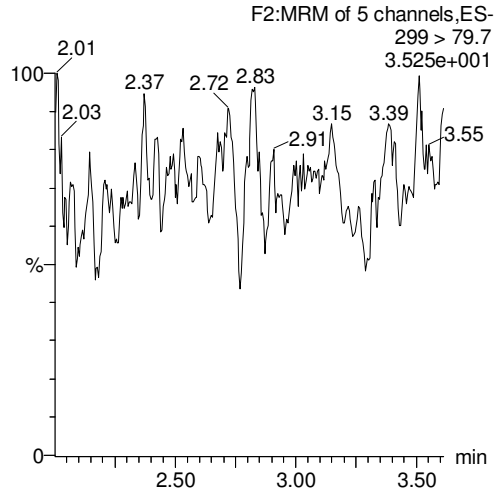
Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-29.qld

Last Altered: Monday, December 11, 2017 13:48:08 Pacific Standard Time
Printed: Monday, December 11, 2017 13:48:29 Pacific Standard Time

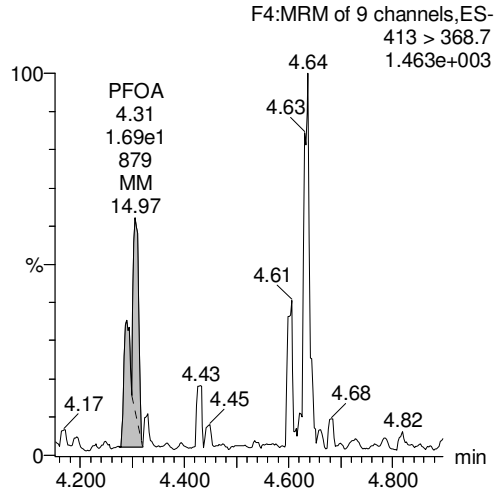
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_29, Date: 09-Dec-2017, Time: 17:26:00, ID: 1701844-14 CH-AT-1FB122-1217 0.26071, Description: CH-AT-1FB122-1217

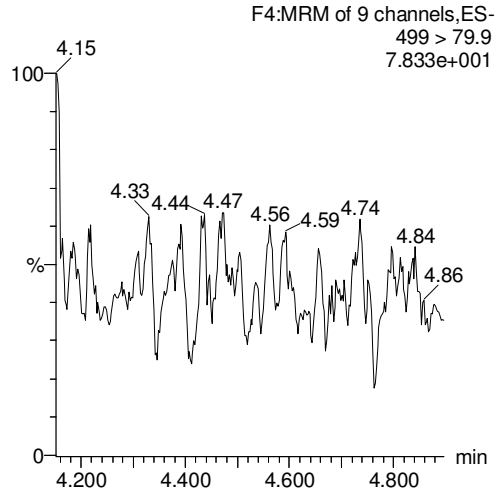
PFBS



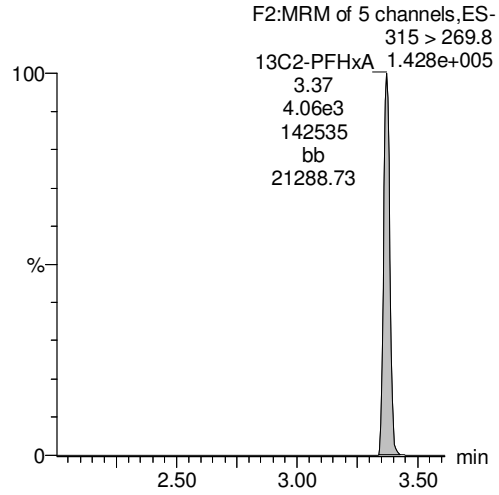
PFOA



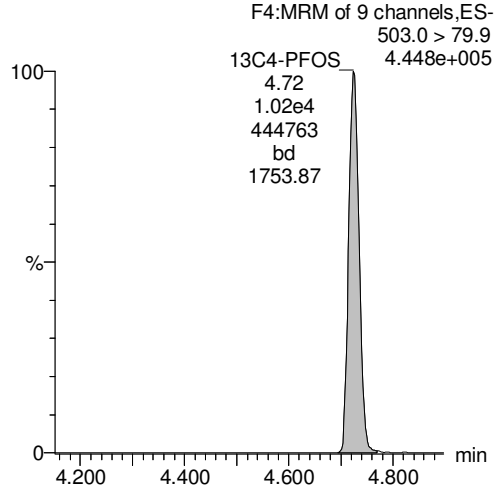
PFOS



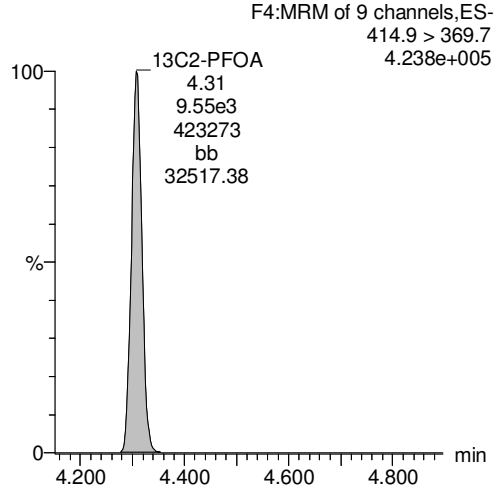
13C2-PFHxA



13C4-PFOS



13C2-PFOA



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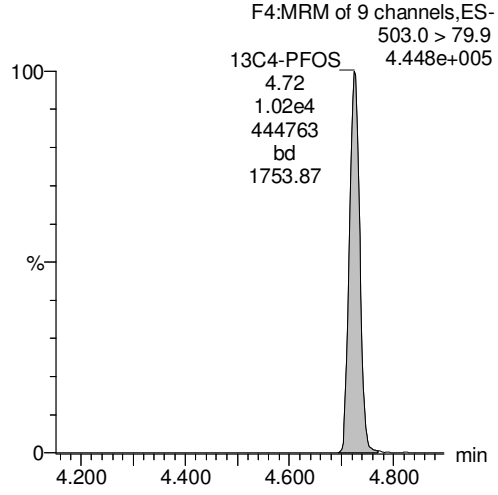
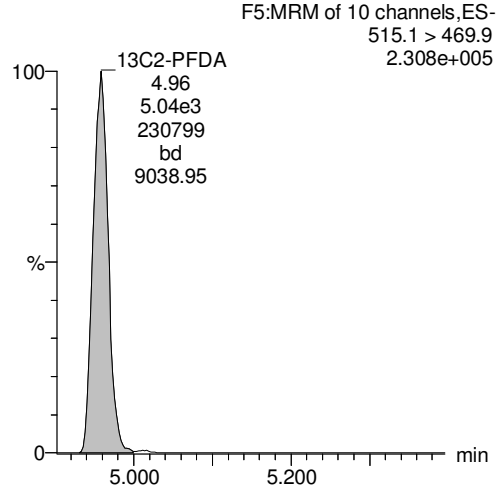


13C2-PFDA



MJT12/11/2017

INJECTION INTERNAL STANDARD (IIS) AREAS,

AND

CONTINUTING CALIBRATION VERIFICATIONS CCV)

Compound 6: 13C2-PFOA

ICAL

	ID	Name	Type	Std. Conc	RT	Area	IS Area	ICAL AREA	
1	ST171209G1-1 PFC CS-1 537 17K3024	171209G1_	Analyte	10	4.31	11221.28	11221.28		12372.36
2	IPA	171209G1_	Analyte	10					12372.36
3	1701824-12 CH-AT-2FB35-1117 0.25792	171209G1_	Analyte	10	4.31	9230.374	9230.374		12372.36
4	1701824-13 CH-AT-2RW36-1117 0.26093	171209G1_	Analyte	10	4.31	8975.831	8975.831		12372.36
5	1701824-14 CH-AT-2FB36-1117 0.24528	171209G1_	Analyte	10	4.31	9083.281	9083.281		12372.36
6	1701824-15 CH-AT-2RW37-1117 0.25012	171209G1_	Analyte	10	4.31	10123.52	10123.52		12372.36
7	1701824-16 CH-AT-2FB37-1117 0.25022	171209G1_	Analyte	10	4.31	9299.059	9299.059		12372.36
8	1701824-17 CH-AT-2RW38-1117 0.25473	171209G1_	Analyte	10	4.31	9230.15	9230.15		12372.36
9	1701824-18 CH-AT-2FB38-1117 0.25911	171209G1_	Analyte	10	4.31	9963.859	9963.859		12372.36
10	IPA	171209G1_	Analyte	10					12372.36
11	B7L0034-BS1 LFB 0.25	171209G1_	Analyte	10	4.31	9146.447	9146.447		12372.36
12	B7L0034-BSD1 LFBD 0.25	171209G1_	Analyte	10	4.31	8838.859	8838.859		12372.36
13	IPA	171209G1_	Analyte	10					12372.36
14	B7L0034-BLK1 LRB 0.25	171209G1_	Analyte	10	4.31	8039.652	8039.652		12372.36
15	1701844-01 CH-AT-1RW116-1217 0.25237	171209G1_	Analyte	10	4.31	8832.188	8832.188		12372.36
16	1701844-02 CH-AT-1FB116-1217 0.25974	171209G1_	Analyte	10	4.31	8795.489	8795.489		12372.36
17	1701844-03 CH-AT-1RW117-1217 0.2504	171209G1_	Analyte	10	4.31	8706.85	8706.85		12372.36
18	1701844-04 CH-AT-1FB117-1217 0.26149	171209G1_	Analyte	10	4.31	9455.278	9455.278		12372.36
19	1701844-05 CH-AT-1RW118-1217 0.25742	171209G1_	Analyte	10	4.31	8693.622	8693.622		12372.36
20	1701844-06 CH-AT-1FB118-1217 0.25895	171209G1_	Analyte	10	4.31	8908.759	8908.759		12372.36
21	1701844-07 CH-AT-1RW119-1217 0.25049	171209G1_	Analyte	10	4.31	8380.444	8380.444		12372.36
22	1701844-08 CH-AT-1FB119-1217 0.25941	171209G1_	Analyte	10	4.31	8971.354	8971.354		12372.36
23	1701844-09 CH-AT-1RW120-1217 0.24541	171209G1_	Analyte	10	4.31	10028.98	10028.98		12372.36
24	1701844-10 CH-AT-1FB120-1217 0.25787	171209G1_	Analyte	10	4.31	9255.936	9255.936		12372.36
25	1701844-11 CH-AT-1RW121-1217 0.24134	171209G1_	Analyte	10	4.31	8993.397	8993.397		12372.36
26	1701844-12 CH-AT-1FB121-1217 0.26063	171209G1_	Analyte	10	4.31	8987.493	8987.493		12372.36
27	1701844-13 CH-AT-1RW122-1217 0.24865	171209G1_	Analyte	10	4.31	8749.588	8749.588		12372.36
28	1701844-14 CH-AT-1FB122-1217 0.26071	171209G1_	Analyte	10	4.31	9553.459	9553.459		12372.36
29	IPA	171209G1_	Analyte	10					12372.36
30	ST171209G1-2 PFC CS3 17K3027	171209G1_	Analyte	10	4.31	10981.69	10981.69		12372.36

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31	IPA	171209G1_	Analyte	10

Compound 7: 13C4-PFOS

ICAL

	ID	Name	Type	Std. Conc	RT	Area	IS Area	ICAL AREA	
1	ST171209G1-1 PFC CS-1 537 17K3024	171209G1_	Analyte	28.7	4.72	13462.92	13462.92		13322.56
2	IPA	171209G1_	Analyte	28.7	4.72	5.905	5.905		13322.56
3	1701824-12 CH-AT-2FB35-1117 0.25792	171209G1_	Analyte	28.7	4.72	10480.47	10480.47		13322.56
4	1701824-13 CH-AT-2RW36-1117 0.26093	171209G1_	Analyte	28.7	4.72	11199.77	11199.77		13322.56
5	1701824-14 CH-AT-2FB36-1117 0.24528	171209G1_	Analyte	28.7	4.72	10959.31	10959.31		13322.56
6	1701824-15 CH-AT-2RW37-1117 0.25012	171209G1_	Analyte	28.7	4.72	10981.53	10981.53		13322.56
7	1701824-16 CH-AT-2FB37-1117 0.25022	171209G1_	Analyte	28.7	4.72	10819.62	10819.62		13322.56
8	1701824-17 CH-AT-2RW38-1117 0.25473	171209G1_	Analyte	28.7	4.72	10267.83	10267.83		13322.56
9	1701824-18 CH-AT-2FB38-1117 0.25911	171209G1_	Analyte	28.7	4.73	10209.97	10209.97		13322.56
10	IPA	171209G1_	Analyte	28.7					13322.56
11	B7L0034-BS1 LFB 0.25	171209G1_	Analyte	28.7	4.72	9875.615	9875.615		13322.56
12	B7L0034-BSD1 LFBD 0.25	171209G1_	Analyte	28.7	4.73	10308.73	10308.73		13322.56
13	IPA	171209G1_	Analyte	28.7					13322.56
14	B7L0034-BLK1 LRB 0.25	171209G1_	Analyte	28.7	4.73	8834.43	8834.43		13322.56
15	1701844-01 CH-AT-1RW116-1217 0.25237	171209G1_	Analyte	28.7	4.73	10578.54	10578.54		13322.56
16	1701844-02 CH-AT-1FB116-1217 0.25974	171209G1_	Analyte	28.7	4.72	10230.06	10230.06		13322.56
17	1701844-03 CH-AT-1RW117-1217 0.2504	171209G1_	Analyte	28.7	4.72	9778.84	9778.84		13322.56
18	1701844-04 CH-AT-1FB117-1217 0.26149	171209G1_	Analyte	28.7	4.72	10157.83	10157.83		13322.56
19	1701844-05 CH-AT-1RW118-1217 0.25742	171209G1_	Analyte	28.7	4.73	10505.35	10505.35		13322.56
20	1701844-06 CH-AT-1FB118-1217 0.25895	171209G1_	Analyte	28.7	4.72	9845.127	9845.127		13322.56
21	1701844-07 CH-AT-1RW119-1217 0.25049	171209G1_	Analyte	28.7	4.72	9852.461	9852.461		13322.56
22	1701844-08 CH-AT-1FB119-1217 0.25941	171209G1_	Analyte	28.7	4.72	9946.396	9946.396		13322.56
23	1701844-09 CH-AT-1RW120-1217 0.24541	171209G1_	Analyte	28.7	4.73	10554.43	10554.43		13322.56
24	1701844-10 CH-AT-1FB120-1217 0.25787	171209G1_	Analyte	28.7	4.72	9752.95	9752.95		13322.56
25	1701844-11 CH-AT-1RW121-1217 0.24134	171209G1_	Analyte	28.7	4.72	10579.61	10579.61		13322.56
26	1701844-12 CH-AT-1FB121-1217 0.26063	171209G1_	Analyte	28.7	4.73	9607.18	9607.18		13322.56

27	1701844-13 CH-AT-1RW122-1217 0.24865	171209G1_	Analyte	28.7	4.72	10229.33	10229.33	13322.56
28	1701844-14 CH-AT-1FB122-1217 0.26071	171209G1_	Analyte	28.7	4.72	10203.73	10203.73	13322.56
29	IPA	171209G1_	Analyte	28.7				13322.56
30	ST171209G1-2 PFC CS3 17K3027	171209G1_	Analyte	28.7	4.72	12339.33	12339.33	13322.56
31	IPA	171209G1_	Analyte	28.7				

Compound 6: 13C2-PFOA

CCAL

	ID	Name	Type	Std. Conc	RT	Area	IS Area	CCAL AREA
1	ST171209G1-1 PFC CS-1 537 17K3024	171209G1_	Analyte	10	4.31	11221.28	11221.28	11221.283
2	IPA	171209G1_	Analyte	10				11221.283
3	1701824-12 CH-AT-2FB35-1117 0.25792	171209G1_	Analyte	10	4.31	9230.374	9230.374	11221.283
4	1701824-13 CH-AT-2RW36-1117 0.26093	171209G1_	Analyte	10	4.31	8975.831	8975.831	11221.283
5	1701824-14 CH-AT-2FB36-1117 0.24528	171209G1_	Analyte	10	4.31	9083.281	9083.281	11221.283
6	1701824-15 CH-AT-2RW37-1117 0.25012	171209G1_	Analyte	10	4.31	10123.52	10123.52	11221.283
7	1701824-16 CH-AT-2FB37-1117 0.25022	171209G1_	Analyte	10	4.31	9299.059	9299.059	11221.283
8	1701824-17 CH-AT-2RW38-1117 0.25473	171209G1_	Analyte	10	4.31	9230.15	9230.15	11221.283
9	1701824-18 CH-AT-2FB38-1117 0.25911	171209G1_	Analyte	10	4.31	9963.859	9963.859	11221.283
10	IPA	171209G1_	Analyte	10				11221.283
11	B7L0034-BS1 LFB 0.25	171209G1_	Analyte	10	4.31	9146.447	9146.447	11221.283
12	B7L0034-BSD1 LFBD 0.25	171209G1_	Analyte	10	4.31	8838.859	8838.859	11221.283
13	IPA	171209G1_	Analyte	10				11221.283
14	B7L0034-BLK1 LRB 0.25	171209G1_	Analyte	10	4.31	8039.652	8039.652	11221.283
15	1701844-01 CH-AT-1RW116-1217 0.25237	171209G1_	Analyte	10	4.31	8832.188	8832.188	11221.283
16	1701844-02 CH-AT-1FB116-1217 0.25974	171209G1_	Analyte	10	4.31	8795.489	8795.489	11221.283
17	1701844-03 CH-AT-1RW117-1217 0.2504	171209G1_	Analyte	10	4.31	8706.85	8706.85	11221.283
18	1701844-04 CH-AT-1FB117-1217 0.26149	171209G1_	Analyte	10	4.31	9455.278	9455.278	11221.283
19	1701844-05 CH-AT-1RW118-1217 0.25742	171209G1_	Analyte	10	4.31	8693.622	8693.622	11221.283
20	1701844-06 CH-AT-1FB118-1217 0.25895	171209G1_	Analyte	10	4.31	8908.759	8908.759	11221.283
21	1701844-07 CH-AT-1RW119-1217 0.25049	171209G1_	Analyte	10	4.31	8380.444	8380.444	11221.283
22	1701844-08 CH-AT-1FB119-1217 0.25941	171209G1_	Analyte	10	4.31	8971.354	8971.354	11221.283
23	1701844-09 CH-AT-1RW120-1217 0.24541	171209G1_	Analyte	10	4.31	10028.98	10028.98	11221.283
24	1701844-10 CH-AT-1FB120-1217 0.25787	171209G1_	Analyte	10	4.31	9255.936	9255.936	11221.283

25	1701844-11 CH-AT-1RW121-1217 0.24134	171209G1_	Analyte	10	4.31	8993.397	8993.397	11221.283
26	1701844-12 CH-AT-1FB121-1217 0.26063	171209G1_	Analyte	10	4.31	8987.493	8987.493	11221.283
27	1701844-13 CH-AT-1RW122-1217 0.24865	171209G1_	Analyte	10	4.31	8749.588	8749.588	11221.283
28	1701844-14 CH-AT-1FB122-1217 0.26071	171209G1_	Analyte	10	4.31	9553.459	9553.459	11221.283
29	IPA	171209G1_	Analyte	10				11221.283
30	ST171209G1-2 PFC CS3 17K3027	171209G1_	Analyte	10	4.31	10981.69	10981.69	11221.283
31	IPA	171209G1_	Analyte	10				

Compound 7: 13C4-PFOS

CCAL

	ID	Name	Type	Std. Conc	RT	Area	IS Area	CCAL AREA
1	ST171209G1-1 PFC CS-1 537 17K3024	171209G1_	Analyte	28.7	4.72	13462.92	13462.92	13462.918
2	IPA	171209G1_	Analyte	28.7	4.72	5.905	5.905	13462.918
3	1701824-12 CH-AT-2FB35-1117 0.25792	171209G1_	Analyte	28.7	4.72	10480.47	10480.47	13462.918
4	1701824-13 CH-AT-2RW36-1117 0.26093	171209G1_	Analyte	28.7	4.72	11199.77	11199.77	13462.918
5	1701824-14 CH-AT-2FB36-1117 0.24528	171209G1_	Analyte	28.7	4.72	10959.31	10959.31	13462.918
6	1701824-15 CH-AT-2RW37-1117 0.25012	171209G1_	Analyte	28.7	4.72	10981.53	10981.53	13462.918
7	1701824-16 CH-AT-2FB37-1117 0.25022	171209G1_	Analyte	28.7	4.72	10819.62	10819.62	13462.918
8	1701824-17 CH-AT-2RW38-1117 0.25473	171209G1_	Analyte	28.7	4.72	10267.83	10267.83	13462.918
9	1701824-18 CH-AT-2FB38-1117 0.25911	171209G1_	Analyte	28.7	4.73	10209.97	10209.97	13462.918
10	IPA	171209G1_	Analyte	28.7				13462.918
11	B7L0034-BS1 LFB 0.25	171209G1_	Analyte	28.7	4.72	9875.615	9875.615	13462.918
12	B7L0034-BSD1 LFBD 0.25	171209G1_	Analyte	28.7	4.73	10308.73	10308.73	13462.918
13	IPA	171209G1_	Analyte	28.7				13462.918
14	B7L0034-BLK1 LRB 0.25	171209G1_	Analyte	28.7	4.73	8834.43	8834.43	13462.918
15	1701844-01 CH-AT-1RW116-1217 0.25237	171209G1_	Analyte	28.7	4.73	10578.54	10578.54	13462.918
16	1701844-02 CH-AT-1FB116-1217 0.25974	171209G1_	Analyte	28.7	4.72	10230.06	10230.06	13462.918
17	1701844-03 CH-AT-1RW117-1217 0.2504	171209G1_	Analyte	28.7	4.72	9778.84	9778.84	13462.918
18	1701844-04 CH-AT-1FB117-1217 0.26149	171209G1_	Analyte	28.7	4.72	10157.83	10157.83	13462.918
19	1701844-05 CH-AT-1RW118-1217 0.25742	171209G1_	Analyte	28.7	4.73	10505.35	10505.35	13462.918

20	1701844-06 CH-AT-1FB118-1217 0.25895	171209G1_ Analyte	28.7	4.72	9845.127	9845.127	13462.918
21	1701844-07 CH-AT-1RW119-1217 0.25049	171209G1_ Analyte	28.7	4.72	9852.461	9852.461	13462.918
22	1701844-08 CH-AT-1FB119-1217 0.25941	171209G1_ Analyte	28.7	4.72	9946.396	9946.396	13462.918
23	1701844-09 CH-AT-1RW120-1217 0.24541	171209G1_ Analyte	28.7	4.73	10554.43	10554.43	13462.918
24	1701844-10 CH-AT-1FB120-1217 0.25787	171209G1_ Analyte	28.7	4.72	9752.95	9752.95	13462.918
25	1701844-11 CH-AT-1RW121-1217 0.24134	171209G1_ Analyte	28.7	4.72	10579.61	10579.61	13462.918
26	1701844-12 CH-AT-1FB121-1217 0.26063	171209G1_ Analyte	28.7	4.73	9607.18	9607.18	13462.918
27	1701844-13 CH-AT-1RW122-1217 0.24865	171209G1_ Analyte	28.7	4.72	10229.33	10229.33	13462.918
28	1701844-14 CH-AT-1FB122-1217 0.26071	171209G1_ Analyte	28.7	4.72	10203.73	10203.73	13462.918
29	IPA	171209G1_ Analyte	28.7				13462.918
30	ST171209G1-2 PFC CS3 17K3027	171209G1_ Analyte	28.7	4.72	12339.33	12339.33	13462.918
31	IPA	171209G1_ Analyte	28.7				

AREA%
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74.6047965
72.54744446
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74.60298601
80.53321274
0
73.92645381
71.44036384
0
64.98074741
71.38644527
71.08982442
70.37339683
76.42259035
70.26648109
72.00533285
67.73520977
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81.05953108
74.81140219
72.68942223
72.64170296
70.7188281
77.21614146
0
88.75988898

AREA%
101.0535363
0.044323313
78.66705048
84.06622301
82.26131464
82.42803936
81.21273989
77.07100587
76.63665992
0
74.12700712
77.3779739
0
66.31180494
79.4032153
76.78751681
73.40060769
76.24536125
78.8538314
73.89816222
73.9532117
74.6582939
79.22222906
73.20627567
79.41126931
72.11211659

76.78199235
76.5898521
0
92.6197968

AREA%
100
0
82.25774183
79.98934703
80.94690242
90.21715253
82.86983761
82.25574562
88.79429384
0
81.50981488
78.7687023
0
71.64645968
78.70925277
78.3822046
77.59228602
84.26200462
77.47440288
79.39162572
74.68347425
79.94944963
89.37460182
82.48554109

	80.14588884
	80.09327454
	77.97315155
	85.13695805
	0
	97.86486091

AREA%	
	100
	0.043861219
	77.84690511
	83.18978842
	81.40369718
	81.5686837
	80.36605437
	76.26750011
	75.83768244
	0
	73.35419409
	76.57126783
	0
	65.6204695
	78.57539502
	75.98696657
	72.63536776
	75.45046327
	78.03173874

MJT12/11/2017

73.12773501
73.18221057
73.87994193
78.39629566
72.44306175
78.58336506
71.36030985
75.9814997
75.79136262
0
91.65418671

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-2.qld

Last Altered: Monday, December 11, 2017 11:36:48 Pacific Standard Time
Printed: Monday, December 11, 2017 11:56:06 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

MJT 12/11/17

Name: 171209G1_2, Date: 09-Dec-2017, Time: 11:50:18, ID: ST171209G1-1 PFC CS-1 537 17K3024, Description: PFC CS-1 537 17K3024

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7	6.78e2	1.35e4		1.0000	3.02	3.01	1.45	1.80	102.0
2	2	PFOA	413 > 368.7	2.13e3	1.12e4		1.0000	4.31	4.31	1.90	2.34	116.9
3	3	PFOS	499 >79.9	9.69e2	1.35e4		1.0000	4.72	4.73	2.07	1.72	92.9
4	4	13C2-PFHxA	315 > 269.8	4.76e3	1.12e4	0.443	1.0000	3.37	3.37	4.24	9.57	95.7
5	5	13C2-PFDA	515.1 > 469.9	6.62e3	1.12e4	0.509	1.0000	4.94	4.96	5.90	11.6	115.8
6	6	13C2-PFOA	414.9 > 369.7	1.12e4	1.12e4	1.000	1.0000	4.41	4.31	10.0	10.0	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.35e4	1.35e4	1.000	1.0000	4.81	4.72	28.7	28.7	100.0

70 - 130

~~70 - 130~~. MJT 12/11/17

J

✓ JA 12/11/2017

MJT12/11/2017

Quantify Compound Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Monday, December 11, 2017 11:59:32 Pacific Standard Time
Printed: Monday, December 11, 2017 12:00:43 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Compound name: PFBS

	Name	ID	Acq.Date	Acq.Time
1	171209G1_1	IPA	09-Dec-17	11:37:51
2	171209G1_2	ST171209G1-1 PFC CS-1 537 17K3024	09-Dec-17	11:50:18
3	171209G1_3	IPA	09-Dec-17	12:02:43
4	171209G1_4	1701824-12 CH-AT-2FB35-1117 0.25792	09-Dec-17	12:15:10
5	171209G1_5	1701824-13 CH-AT-2RW36-1117 0.26093	09-Dec-17	12:27:36
6	171209G1_6	1701824-14 CH-AT-2FB36-1117 0.24528	09-Dec-17	12:40:03
7	171209G1_7	1701824-15 CH-AT-2RW37-1117 0.25012	09-Dec-17	12:52:30
8	171209G1_8	1701824-16 CH-AT-2FB37-1117 0.25022	09-Dec-17	13:04:57
9	171209G1_9	1701824-17 CH-AT-2RW38-1117 0.25473	09-Dec-17	13:17:25
10	171209G1_10	1701824-18 CH-AT-2FB38-1117 0.25911	09-Dec-17	13:29:48
11	171209G1_11	IPA	09-Dec-17	13:42:13
12	171209G1_12	B7L0034-BS1 LFB 0.25	09-Dec-17	13:54:40
13	171209G1_13	B7L0034-BSD1 LFBD 0.25	09-Dec-17	14:07:06
14	171209G1_14	IPA	09-Dec-17	14:19:31
15	171209G1_15	B7L0034-BLK1 LRB 0.25	09-Dec-17	14:31:58
16	171209G1_16	1701844-01 CH-AT-1RW116-1217 0.25237	09-Dec-17	14:44:24
17	171209G1_17	1701844-02 CH-AT-1FB116-1217 0.25974	09-Dec-17	14:56:50
18	171209G1_18	1701844-03 CH-AT-1RW117-1217 0.2504	09-Dec-17	15:09:17
19	171209G1_19	1701844-04 CH-AT-1FB117-1217 0.26149	09-Dec-17	15:21:45
20	171209G1_20	1701844-05 CH-AT-1RW118-1217 0.25742	09-Dec-17	15:34:09
21	171209G1_21	1701844-06 CH-AT-1FB118-1217 0.25895	09-Dec-17	15:46:34
22	171209G1_22	1701844-07 CH-AT-1RW119-1217 0.25049	09-Dec-17	15:58:59
23	171209G1_23	1701844-08 CH-AT-1FB119-1217 0.25941	09-Dec-17	16:11:25
24	171209G1_24	1701844-09 CH-AT-1RW120-1217 0.24541	09-Dec-17	16:23:50
25	171209G1_25	1701844-10 CH-AT-1FB120-1217 0.25787	09-Dec-17	16:36:17
26	171209G1_26	1701844-11 CH-AT-1RW121-1217 0.24134	09-Dec-17	16:48:44
27	171209G1_27	1701844-12 CH-AT-1FB121-1217 0.26063	09-Dec-17	17:01:12
28	171209G1_28	1701844-13 CH-AT-1RW122-1217 0.24865	09-Dec-17	17:13:35
29	171209G1_29	1701844-14 CH-AT-1FB122-1217 0.26071	09-Dec-17	17:26:00
30	171209G1_30	IPA	09-Dec-17	17:38:25
31	171209G1_31	ST171209G1-2 PFC CS3 17K3027	09-Dec-17	17:50:52
32	171209G1_32	IPA	09-Dec-17	18:03:16

LC Calibration Standards Review Checklist G

Calibration ID		ION Ratio	Concentration	C-Cals Name	Sign Date	Correct I-Cal	Manual Integrations	
Calibration ID: ST 171209G1-1	L M H	NA	☑	☑	☑	☑	☑	NA
Calibration ID: ↓ -2	L M H	☐	☑	☑	☑	☑	☑	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐

Full Mass Cal. Date: 4/15/17

Run Log Present: ☑

# of Samples per Sequence Checked: ☑

Reviewed By: JA 12/11/2017
Initials/Date

Comments: pg/uL
PFOA @ 2.00 to 50.00
PFBS @ 1.770 to 44.20
PFOS @ 1.850 to 46.20

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

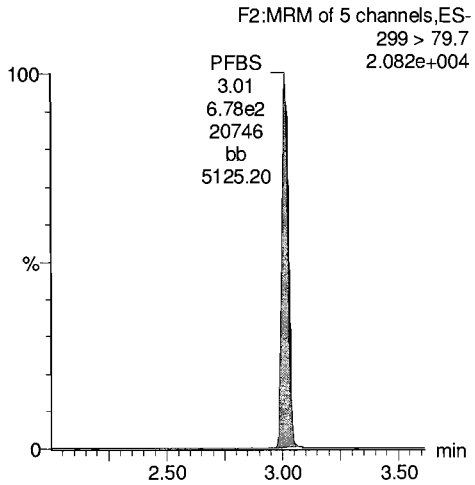
Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-2.qld

Last Altered: Monday, December 11, 2017 11:36:48 Pacific Standard Time
Printed: Monday, December 11, 2017 11:56:06 Pacific Standard Time

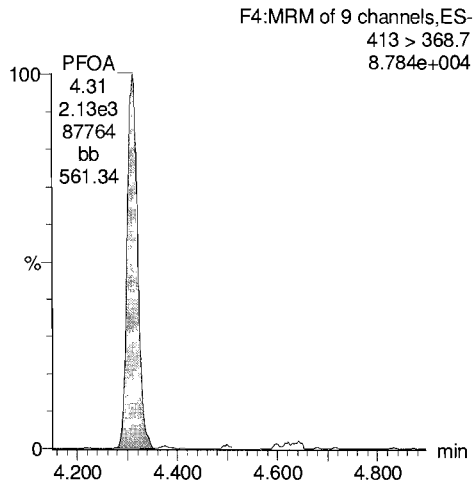
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_2, Date: 09-Dec-2017, Time: 11:50:18, ID: ST171209G1-1 PFC CS-1 537 17K3024, Description: PFC CS-1 537 17K3024

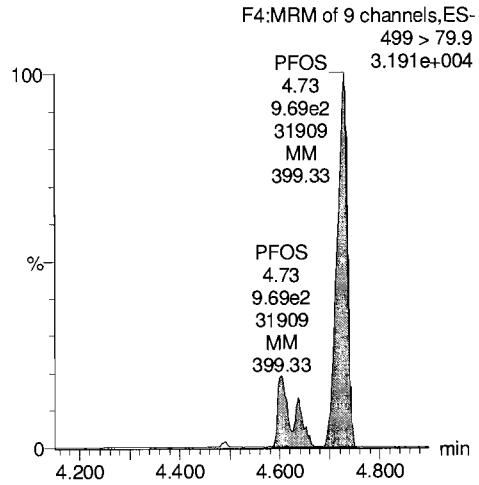
PFBS



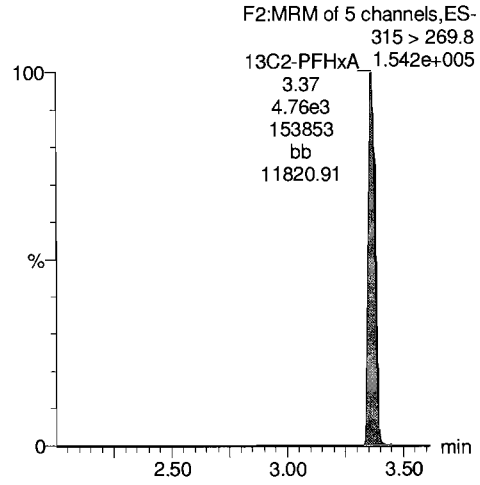
PFOA



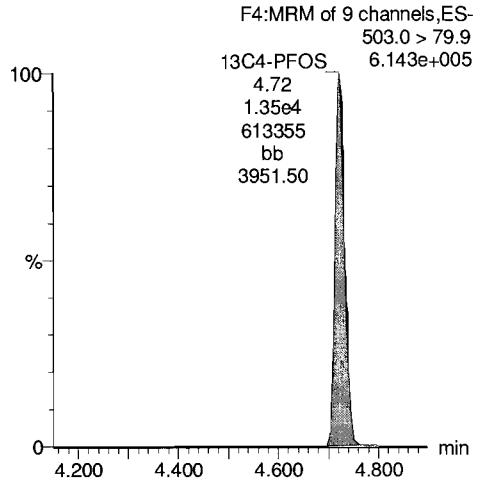
PFOS



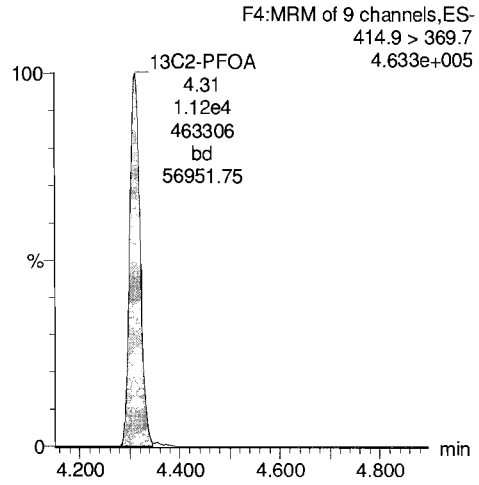
13C2-PFHxA



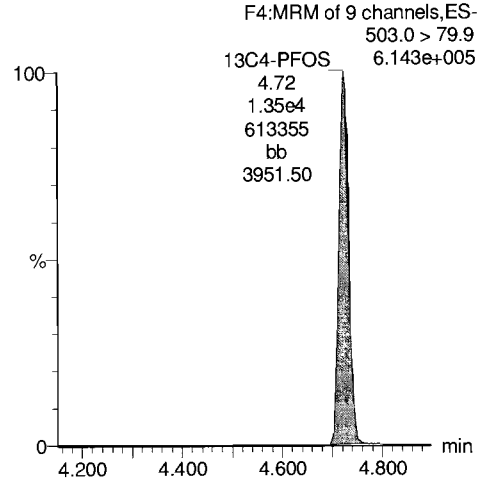
13C4-PFOS



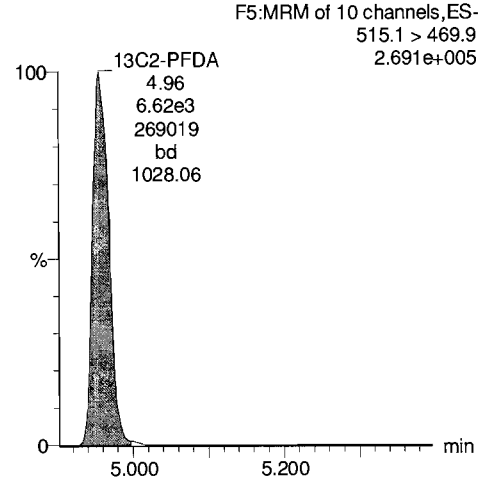
13C2-PFOA



13C4-PFOS



13C2-PFDA



MJT12/11/2017

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-31.qld

Last Altered: Monday, December 11, 2017 11:58:13 Pacific Standard Time
Printed: Monday, December 11, 2017 11:58:34 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_31, Date: 09-Dec-2017, Time: 17:50:52, ID: ST171209G1-2 PFC CS3 17K3027, Description: PFC CS3 17K3027

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7	1.52e4	1.23e4		1.0000	3.02	3.01	35.4	44.3	100.1
2	2	PFOA	413 > 368.7	4.36e4	1.10e4		1.0000	4.31	4.31	39.7	48.9	97.8
3	3	PFOS	499 >79.9	2.36e4	1.23e4		1.0000	4.72	4.73	54.9	45.6	98.8
4	4	13C2-PFHxA	315 > 269.8	5.04e3	1.10e4	0.443	1.0000	3.37	3.37	4.59	10.4	103.5
5	5	13C2-PFDA	515.1 > 469.9	5.62e3	1.10e4	0.509	1.0000	4.94	4.96	5.12	10.1	100.5
6	6	13C2-PFOA	414.9 > 369.7	1.10e4	1.10e4	1.000	1.0000	4.41	4.31	10.0	10.0	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.23e4	1.23e4	1.000	1.0000	4.81	4.72	28.7	28.7	100.0

70-130

MJT
12/11/17

VJA.
12/11/2017

Quantify Compound Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Monday, December 11, 2017 11:59:32 Pacific Standard Time
Printed: Monday, December 11, 2017 12:00:43 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Compound name: PFBS

	Name	ID	Acq.Date	Acq.Time
1	171209G1_1	IPA	09-Dec-17	11:37:51
2	171209G1_2	ST171209G1-1 PFC CS-1 537 17K3024	09-Dec-17	11:50:18
3	171209G1_3	IPA	09-Dec-17	12:02:43
4	171209G1_4	1701824-12 CH-AT-2FB35-1117 0.25792	09-Dec-17	12:15:10
5	171209G1_5	1701824-13 CH-AT-2RW36-1117 0.26093	09-Dec-17	12:27:36
6	171209G1_6	1701824-14 CH-AT-2FB36-1117 0.24528	09-Dec-17	12:40:03
7	171209G1_7	1701824-15 CH-AT-2RW37-1117 0.25012	09-Dec-17	12:52:30
8	171209G1_8	1701824-16 CH-AT-2FB37-1117 0.25022	09-Dec-17	13:04:57
9	171209G1_9	1701824-17 CH-AT-2RW38-1117 0.25473	09-Dec-17	13:17:25
10	171209G1_10	1701824-18 CH-AT-2FB38-1117 0.25911	09-Dec-17	13:29:48
11	171209G1_11	IPA	09-Dec-17	13:42:13
12	171209G1_12	B7L0034-BS1 LFB 0.25	09-Dec-17	13:54:40
13	171209G1_13	B7L0034-BSD1 LFBD 0.25	09-Dec-17	14:07:06
14	171209G1_14	IPA	09-Dec-17	14:19:31
15	171209G1_15	B7L0034-BLK1 LRB 0.25	09-Dec-17	14:31:58
16	171209G1_16	1701844-01 CH-AT-1RW116-1217 0.25237	09-Dec-17	14:44:24
17	171209G1_17	1701844-02 CH-AT-1FB116-1217 0.25974	09-Dec-17	14:56:50
18	171209G1_18	1701844-03 CH-AT-1RW117-1217 0.2504	09-Dec-17	15:09:17
19	171209G1_19	1701844-04 CH-AT-1FB117-1217 0.26149	09-Dec-17	15:21:45
20	171209G1_20	1701844-05 CH-AT-1RW118-1217 0.25742	09-Dec-17	15:34:09
21	171209G1_21	1701844-06 CH-AT-1FB118-1217 0.25895	09-Dec-17	15:46:34
22	171209G1_22	1701844-07 CH-AT-1RW119-1217 0.25049	09-Dec-17	15:58:59
23	171209G1_23	1701844-08 CH-AT-1FB119-1217 0.25941	09-Dec-17	16:11:25
24	171209G1_24	1701844-09 CH-AT-1RW120-1217 0.24541	09-Dec-17	16:23:50
25	171209G1_25	1701844-10 CH-AT-1FB120-1217 0.25787	09-Dec-17	16:36:17
26	171209G1_26	1701844-11 CH-AT-1RW121-1217 0.24134	09-Dec-17	16:48:44
27	171209G1_27	1701844-12 CH-AT-1FB121-1217 0.26063	09-Dec-17	17:01:12
28	171209G1_28	1701844-13 CH-AT-1RW122-1217 0.24865	09-Dec-17	17:13:35
29	171209G1_29	1701844-14 CH-AT-1FB122-1217 0.26071	09-Dec-17	17:26:00
30	171209G1_30	IPA	09-Dec-17	17:38:25
31	171209G1_31	ST171209G1-2 PFC CS3 17K3027	09-Dec-17	17:50:52
32	171209G1_32	IPA	09-Dec-17	18:03:16

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

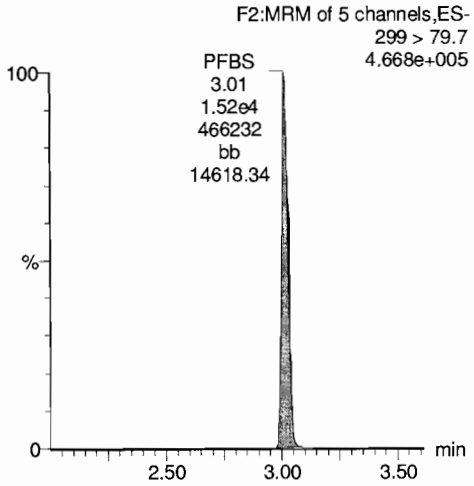
Dataset: U:\G1.PRO\Results\2017\171209G1\171209G1-31.qld

Last Altered: Monday, December 11, 2017 11:58:13 Pacific Standard Time
Printed: Monday, December 11, 2017 11:58:34 Pacific Standard Time

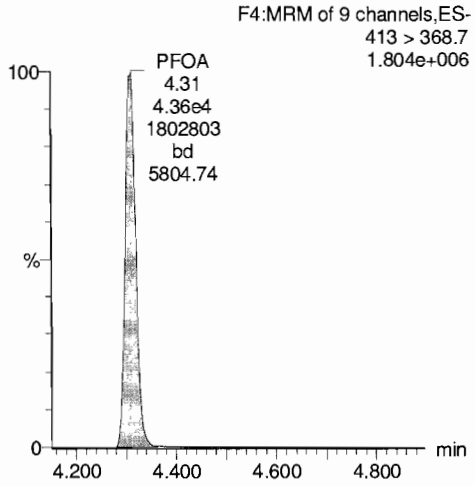
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171209G1_31, Date: 09-Dec-2017, Time: 17:50:52, ID: ST171209G1-2 PFC CS3 17K3027, Description: PFC CS3 17K3027

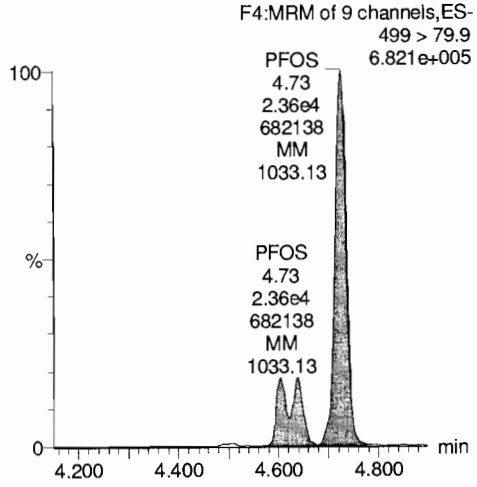
PFBS



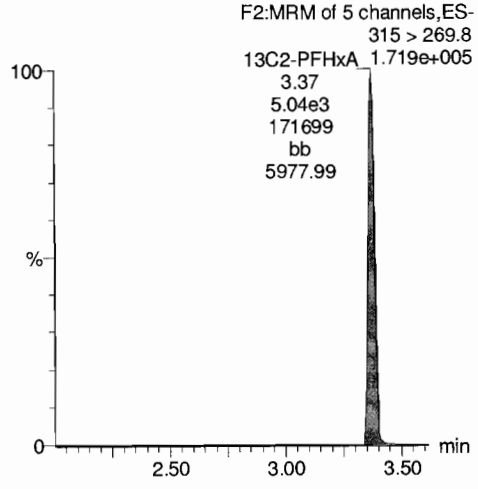
PFOA



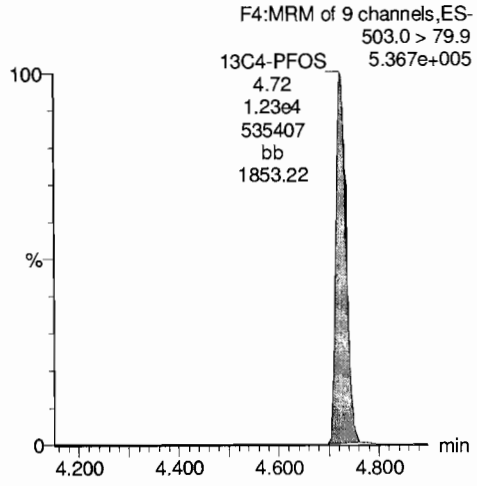
PFOS



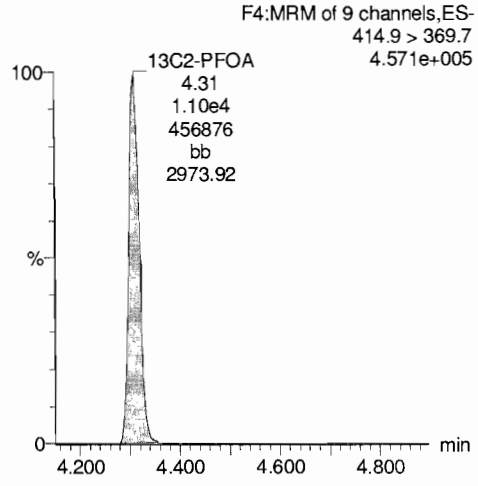
13C2-PFHxA



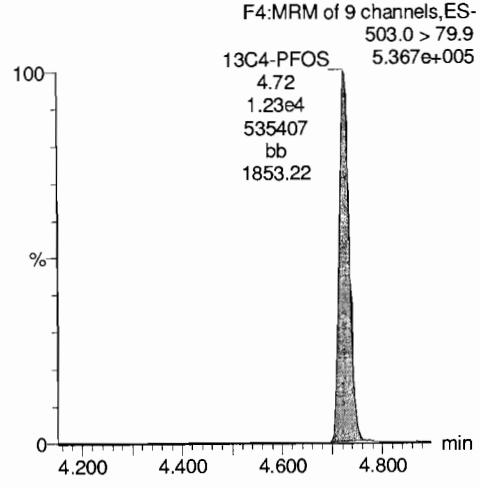
13C4-PFOS



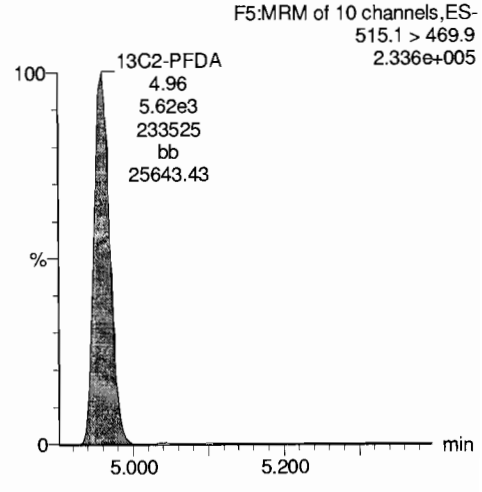
13C2-PFOA



13C4-PFOS



13C2-PFDA



ICAL

Compound 6: 13C2-PFOA

	ID	Name	Type	Std. Conc	RT	Area	IS Area	ICAL AREA	AREA%
1	ST171211G1-1 PFC CS-1 537 17L1106	171211G1_2	Standard	10	4.31	10648.18	10648.18	12372.36	86.06424
2	IPA	171211G1_3	Analyte	10				12372.36	0
3	1701813-10 CH-AT-2FB24-1117 0.26256	171211G1_4	Analyte	10	4.31	8312.228	8312.228	12372.36	67.18385
4	1701813-20 CH-AT-2FB29-1117 0.26487	171211G1_5	Analyte	10	4.31	7956.156	7956.156	12372.36	64.30589
5	B7L0034-BLK1 LRB 0.25	171211G1_6	Analyte		4.32	9552.299	9552.299	12372.36	77.20677
6	IPA	171211G1_7	Analyte	10				12372.36	0
7	ST171211G1-2 PFC CS3 17L1107	171211G1_8	Analyte	10	4.32	10271.11	10271.11	12372.36	83.01659

Compound 7: 13C4-PFOS

ICAL

	ID	Name	Type	Std. Conc	RT	Area	IS Area	ICAL AREA	AREA%
1	ST171211G1-1 PFC CS-1 537 17L1106	171211G1_2	Standard	28.7	4.72	11291.68	11291.68	13322.56	84.7561
2	IPA	171211G1_3	Analyte	28.7				13322.56	0
3	1701813-10 CH-AT-2FB24-1117 0.26256	171211G1_4	Analyte	28.7	4.73	9371.263	9371.263	13322.56	70.34131
4	1701813-20 CH-AT-2FB29-1117 0.26487	171211G1_5	Analyte	28.7	4.73	9397.963	9397.963	13322.56	70.54172
5	B7L0034-BLK1 LRB 0.25	171211G1_6	Analyte		4.73	10397.18	10397.18	13322.56	78.04189
6	IPA	171211G1_7	Analyte	28.7				13322.56	0
7	ST171211G1-2 PFC CS3 17L1107	171211G1_8	Analyte	28.7	4.73	10907.83	10907.83	13322.56	81.87489

CCAL

Compound 6: 13C2-PFOA

	ID	Name	Type	Std. Conc	RT	Area	IS Area	CCAL AREA	AREA%
1	ST171211G1-1 PFC CS-1 537 17L1106	171211G1_2	Standard	10	4.31	10648.18	10648.18	10648.177	100

2	IPA	171211G1_3	Analyte	10				10648.177	0
3	1701813-10 CH-AT-2FB24-1117 0.26256	171211G1_4	Analyte	10	4.31	8312.228	8312.228	10648.177	78.06245
4	1701813-20 CH-AT-2FB29-1117 0.26487	171211G1_5	Analyte	10	4.31	7956.156	7956.156	10648.177	74.71848
5	B7L0034-BLK1 LRB 0.25	171211G1_6	Analyte		4.32	9552.299	9552.299	10648.177	89.7083
6	IPA	171211G1_7	Analyte	10				10648.177	0
7	ST171211G1-2 PFC CS3 17L1107	171211G1_8	Analyte	10	4.32	10271.11	10271.11	10648.177	96.45887

Compound 7: 13C4-PFOS

CCAL

	ID	Name	Type	Std. Conc	RT	Area	IS Area	CCAL AREA	AREA%
1	ST171211G1-1 PFC CS-1 537 17L1106	171211G1_2	Standard	28.7	4.72	11291.68	11291.68	11291.682	100
2	IPA	171211G1_3	Analyte	28.7				11291.682	0
3	1701813-10 CH-AT-2FB24-1117 0.26256	171211G1_4	Analyte	28.7	4.73	9371.263	9371.263	11291.682	82.99262
4	1701813-20 CH-AT-2FB29-1117 0.26487	171211G1_5	Analyte	28.7	4.73	9397.963	9397.963	11291.682	83.22908
5	B7L0034-BLK1 LRB 0.25	171211G1_6	Analyte		4.73	10397.18	10397.18	11291.682	92.0782
6	IPA	171211G1_7	Analyte	28.7				11291.682	0
7	ST171211G1-2 PFC CS3 17L1107	171211G1_8	Analyte	28.7	4.73	10907.83	10907.83	11291.682	96.6006

Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Dataset: U:\G1.PRO\Results\2017\171211G1\171211G1-2.qld

Last Altered: Monday, December 11, 2017 14:28:59 Pacific Standard Time
Printed: Monday, December 11, 2017 14:29:22 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171211G1_2, Date: 11-Dec-2017, Time: 11:51:01, ID: ST171211G1-1 PFC CS-1 537 17L1106, Description: PFC CS-1 537 17L1106

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7	6.09e2	1.13e4		1.0000	3.02	3.01	1.55	1.93	109.2
2	2	PFOA	413 > 368.7	1.64e3	1.06e4		1.0000	4.31	4.31	1.54	1.89	94.6
3	3	PFOS	499 >79.9	9.32e2	1.13e4		1.0000	4.72	4.72	2.37	1.97	106.5
4	4	13C2-PFHxA	315 > 269.8	4.41e3	1.06e4	0.443	1.0000	3.37	3.37	4.14	9.34	93.4
5	5	13C2-PFDA	515.1 > 469.9	5.81e3	1.06e4	0.509	1.0000	4.94	4.95	5.46	10.7	107.2
6	6	13C2-PFOA	414.9 > 369.7	1.06e4	1.06e4	1.000	1.0000	4.41	4.31	10.0	10.0	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.13e4	1.13e4	1.000	1.0000	4.81	4.72	28.7	28.7	100.0

70 – 130

MJT 12/11/17

VJA. 12/11/2017

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Monday, December 11, 2017 14:18:34 Pacific Standard Time
Printed: Monday, December 11, 2017 14:19:23 Pacific Standard Time

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Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Compound name: PFBS

	Name	ID	Acq.Date	Acq.Time
1	171211G1_1	IPA	11-Dec-17	11:38:33
2	171211G1_2	ST171211G1-1 PFC CS-1 537 17L1106	11-Dec-17	11:51:01
3	171211G1_3	IPA	11-Dec-17	12:03:25
4	171211G1_4	1701813-10 CH-AT-2FB24-1117 0.26256	11-Dec-17	12:15:55
5	171211G1_5	1701813-20 CH-AT-2FB29-1117 0.26487	11-Dec-17	12:28:21
6	171211G1_6	B7L0034-BLK1 LRB 0.25	11-Dec-17	12:40:48
7	171211G1_7	IPA	11-Dec-17	12:53:17
8	171211G1_8	ST171211G1-2 PFC CS3 17L1107	11-Dec-17	13:05:44
9	171211G1_9	IPA	11-Dec-17	13:18:08
10	171211G1_10	B7L0026-BS1 LFB 0.25		
11	171211G1_11	B7L0026-BSD1 LFBD 0.25		
12	171211G1_12	IPA		
13	171211G1_13	B7L0026-BLK1 LRB 0.25		
14	171211G1_14	1701815-01 CH-AT-1RW98A-1117 0.25004		
15	171211G1_15	1701815-02 CH-AT-1FB98A-1117 0.22006		
16	171211G1_16	1701815-03 CH-AT-1RW98B-1117 0.2516		
17	171211G1_17	1701815-04 CH-AT-1FB98B-1117 0.23954		
18	171211G1_18	1701815-05 CH-AT-1RW99-1117 0.23773		
19	171211G1_19	1701815-06 CH-AT-1FB99-1117 0.2595		
20	171211G1_20	1701815-07 CH-AT-1RW100-1117 0.23268		
21	171211G1_21	1701815-08 CH-AT-1FB100-1117 0.24391		
22	171211G1_22	1701815-09 CH-AT-1RW101-1117 0.23904		
23	171211G1_23	1701815-10 CH-AT-1FB101-1117 0.24933		
24	171211G1_24	1701815-11 CH-AT-1RW102-1117 0.22328		
25	171211G1_25	1701815-12 CH-AT-1FB102-1117 0.2476		
26	171211G1_26	1701815-13 CH-AT-1RW103-1117 0.23828		
27	171211G1_27	1701815-14 CH-AT-1FB103-1117 0.23541		
28	171211G1_28	1701815-15 CH-AT-1RW104-1117 0.23862		
29	171211G1_29	1701815-16 CH-AT-1FB104-1117 0.23966		
30	171211G1_30	1701815-17 CH-AT-1RW105-1117 0.23516		
31	171211G1_31	1701815-18 CH-AT-1FB105-1117 0.24394		
32	171211G1_32	1701815-19 CH-AT-1RW06-1117 0.24687		

LC Calibration Standards Review Checklist G

		ION Ratio	Concentration	C-Cals Name	Sign Date	Correct I-Cal	Manual Integrations	NA
Calibration ID: ST 171211G1-1	(L) M H	NA	☑	☑	☑	☑	☑	☐
Calibration ID: -2	L (M) H	☑	☑	☑	☑	☑	☑	☑
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐
Calibration ID:	L M H	☐	☐	☐	☐	☐	☐	☐

Full Mass Cal. Date: 4/15/17

Run Log Present: ☑

# of Samples per Sequence Checked: ☑

Reviewed By: JA 12/11/2017
Initials/Date

Comments: Curve
PFBS 1.770 pg/ul — 44.2 pg/ul
PFOA 2.00 — 50.00
PFOS 1.85 — 46.20

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

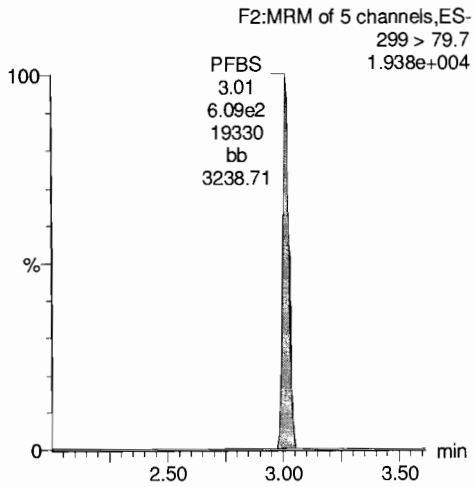
Dataset: U:\G1.PRO\Results\2017\171211G1\171211G1-2.qld

Last Altered: Monday, December 11, 2017 14:28:59 Pacific Standard Time
Printed: Monday, December 11, 2017 14:29:22 Pacific Standard Time

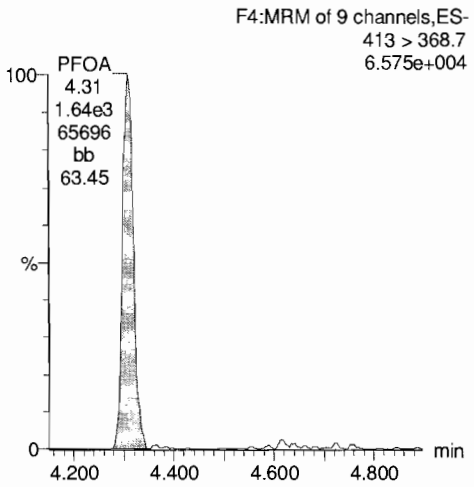
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171211G1_2, Date: 11-Dec-2017, Time: 11:51:01, ID: ST171211G1-1 PFC CS-1 537 17L1106, Description: PFC CS-1 537 17L1106

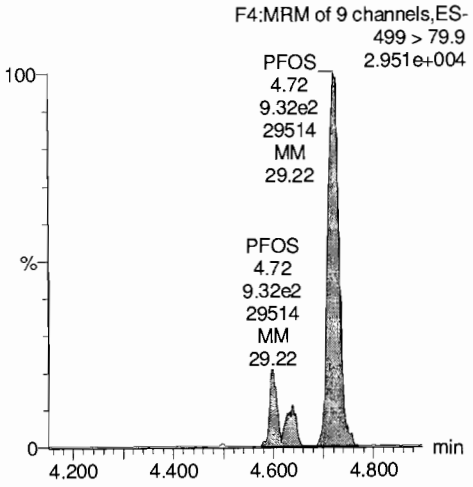
PFBS



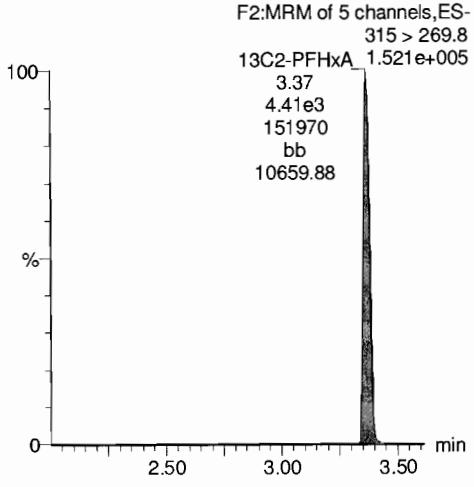
PFOA



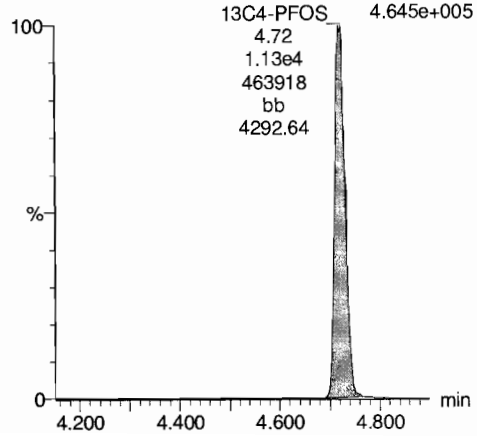
PFOS



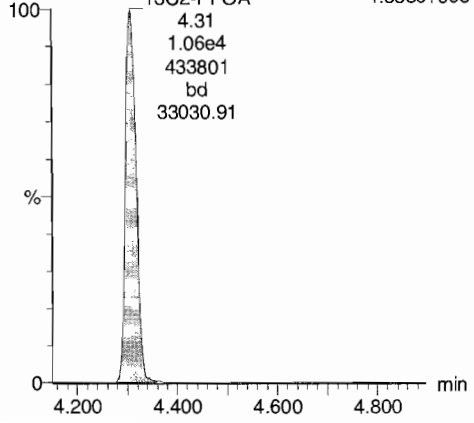
13C2-PFHxA



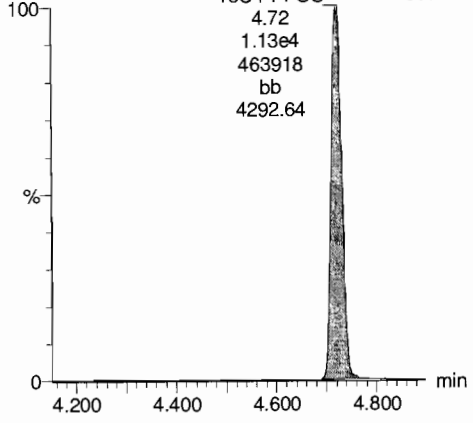
13C4-PFOS



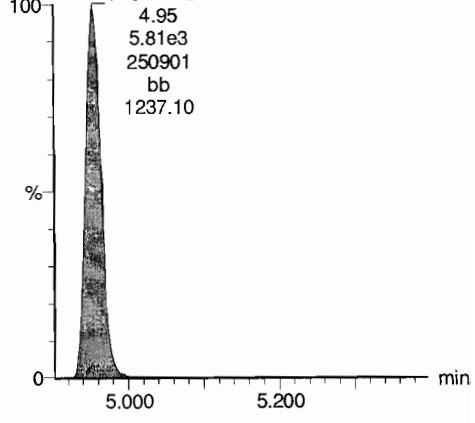
13C2-PFOA



13C4-PFOS



13C2-PFDA



Quantify Sample Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Dataset: U:\G1.PRO\Results\2017\171211G1\171211G1-8.qld

Last Altered: Monday, December 11, 2017 14:30:40 Pacific Standard Time
Printed: Monday, December 11, 2017 14:31:02 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171211G1_8, Date: 11-Dec-2017, Time: 13:05:44, ID: ST171211G1-2 PFC CS3 17L1107, Description: PFC CS3 17L1107

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7	1.37e4	1.09e4		1.0000	3.03	3.02	36.1	45.1	102.0
2	2	PFOA	413 > 368.7	4.20e4	1.03e4		1.0000	4.32	4.32	40.8	50.3	100.6
3	3	PFOS	499 >79.9	2.05e4	1.09e4		1.0000	4.73	4.73	54.0	44.9	97.2
4	4	13C2-PFHxA	315 > 269.8	4.53e3	1.03e4	0.443	1.0000	3.38	3.38	4.41	9.95	99.5
5	5	13C2-PFDA	515.1 > 469.9	4.87e3	1.03e4	0.509	1.0000	4.95	4.96	4.74	9.32	93.2
6	6	13C2-PFOA	414.9 > 369.7	1.03e4	1.03e4	1.000	1.0000	4.41	4.32	10.0	10.0	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.09e4	1.09e4	1.000	1.0000	4.81	4.73	28.7	28.7	100.0

70-130%

MJT 12/11/17

VJA 12/4/2017

Quantify Compound Summary Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Monday, December 11, 2017 14:18:34 Pacific Standard Time
Printed: Monday, December 11, 2017 14:19:23 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Compound name: PFBS

	Name	ID	Acq.Date	Acq.Time
1	171211G1_1	IPA	11-Dec-17	11:38:33
2	171211G1_2	ST171211G1-1 PFC CS-1 537 17L1106	11-Dec-17	11:51:01
3	171211G1_3	IPA	11-Dec-17	12:03:25
4	171211G1_4	1701813-10 CH-AT-2FB24-1117 0.26256	11-Dec-17	12:15:55
5	171211G1_5	1701813-20 CH-AT-2FB29-1117 0.26487	11-Dec-17	12:28:21
6	171211G1_6	B7L0034-BLK1 LRB 0.25	11-Dec-17	12:40:48
7	171211G1_7	IPA	11-Dec-17	12:53:17
8	171211G1_8	ST171211G1-2 PFC CS3 17L1107	11-Dec-17	13:05:44
9	171211G1_9	IPA	11-Dec-17	13:18:08
10	171211G1_10	B7L0026-BS1 LFB 0.25		
11	171211G1_11	B7L0026-BSD1 LFBD 0.25		
12	171211G1_12	IPA		
13	171211G1_13	B7L0026-BLK1 LRB 0.25		
14	171211G1_14	1701815-01 CH-AT-1RW98A-1117 0.25004		
15	171211G1_15	1701815-02 CH-AT-1FB98A-1117 0.22006		
16	171211G1_16	1701815-03 CH-AT-1RW98B-1117 0.2516		
17	171211G1_17	1701815-04 CH-AT-1FB98B-1117 0.23954		
18	171211G1_18	1701815-05 CH-AT-1RW99-1117 0.23773		
19	171211G1_19	1701815-06 CH-AT-1FB99-1117 0.2595		
20	171211G1_20	1701815-07 CH-AT-1RW100-1117 0.23268		
21	171211G1_21	1701815-08 CH-AT-1FB100-1117 0.24391		
22	171211G1_22	1701815-09 CH-AT-1RW101-1117 0.23904		
23	171211G1_23	1701815-10 CH-AT-1FB101-1117 0.24933		
24	171211G1_24	1701815-11 CH-AT-1RW102-1117 0.22328		
25	171211G1_25	1701815-12 CH-AT-1FB102-1117 0.2476		
26	171211G1_26	1701815-13 CH-AT-1RW103-1117 0.23828		
27	171211G1_27	1701815-14 CH-AT-1FB103-1117 0.23541		
28	171211G1_28	1701815-15 CH-AT-1RW104-1117 0.23862		
29	171211G1_29	1701815-16 CH-AT-1FB104-1117 0.23966		
30	171211G1_30	1701815-17 CH-AT-1RW105-1117 0.23516		
31	171211G1_31	1701815-18 CH-AT-1FB105-1117 0.24394		
32	171211G1_32	1701815-19 CH-AT-1RW06-1117 0.24687		

Quantify Sample Report **MassLynx MassLynx V4.1 SCN 945**
Vista Analytical Laboratory

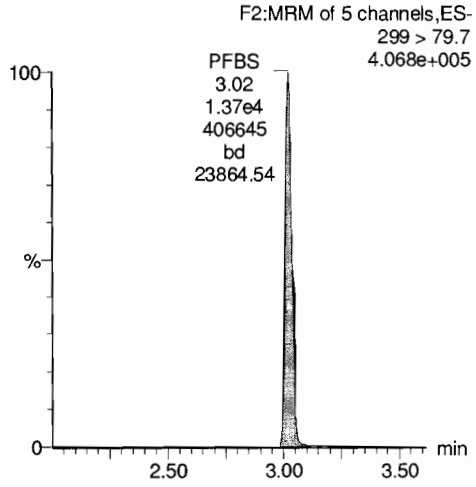
Dataset: U:\G1.PRO\Results\2017\171211G1\171211G1-8.qld

Last Altered: Monday, December 11, 2017 14:30:40 Pacific Standard Time
Printed: Monday, December 11, 2017 14:31:02 Pacific Standard Time

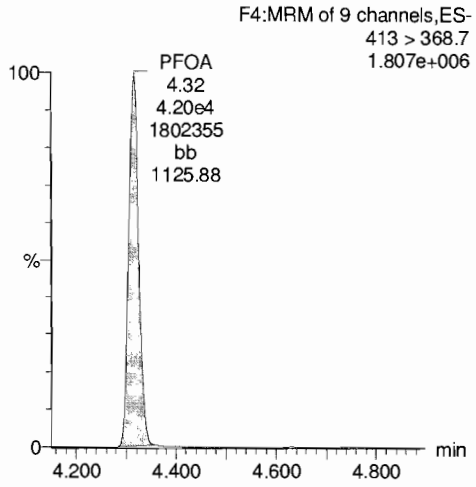
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171211G1_8, Date: 11-Dec-2017, Time: 13:05:44, ID: ST171211G1-2 PFC CS3 17L1107, Description: PFC CS3 17L1107

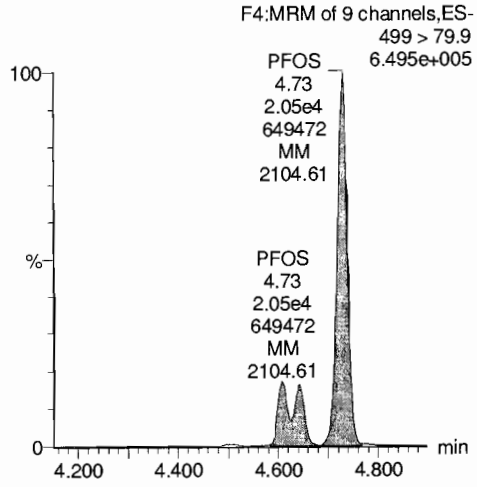
PFBS



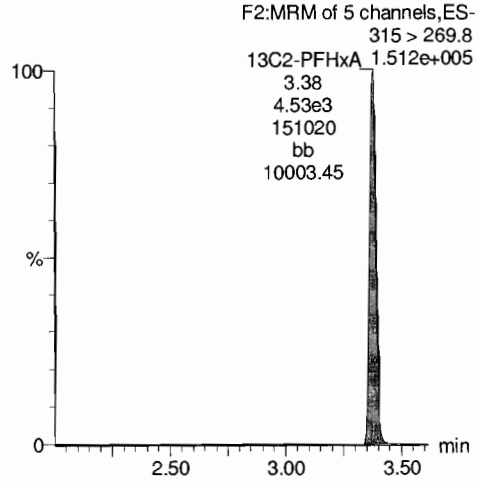
PFOA



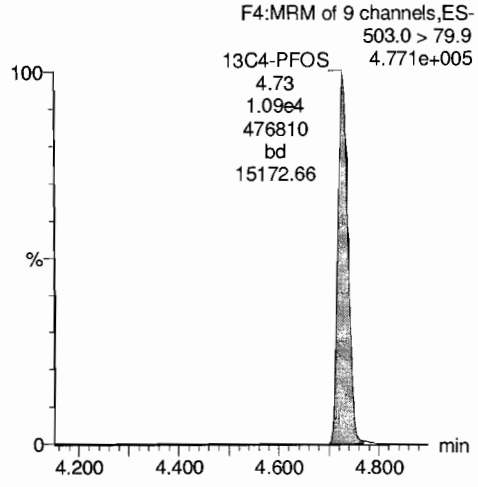
PFOS



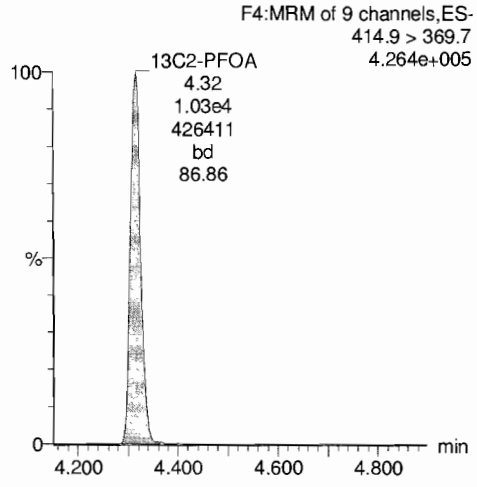
13C2-PFHxA



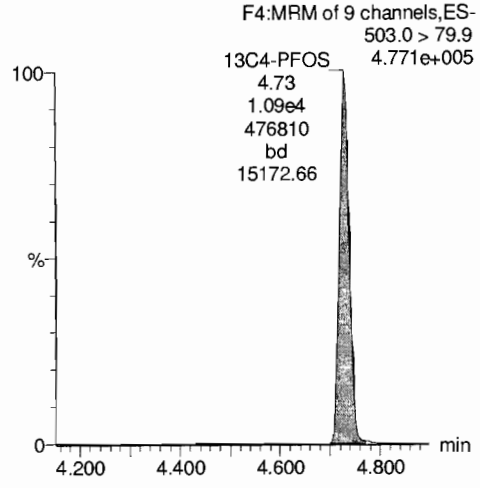
13C4-PFOS



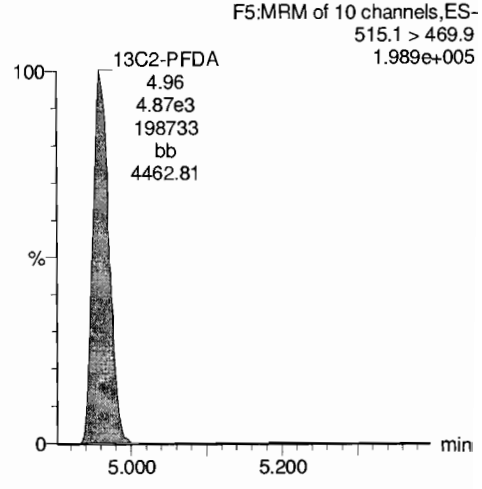
13C2-PFOA



13C4-PFOS



13C2-PFDA



INITIAL CALIBRATION (ICAL)

INCLUDING ASSOCIATED

INITIAL CALIBRATION VERIFICATION (ICV)

Vista Analytical Laboratory

Dataset: U:\G1.PRO\Results\2017\171208G2\171208G2-CRV.qld

Last Altered: Sunday, December 10, 2017 22:49:55 Pacific Standard Time
Printed: Monday, December 11, 2017 10:37:29 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Compound name: PFBS
Coefficient of Determination: R^2 = 0.994837
Calibration curve: 0.800672 * x
Response type: Internal Std (Ref 7), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None

AM 12/11/17
JMA 12/11/2017

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	171208G2_2	Standard	0.443	3.02	134.074	11857.967	0.325	0.4	-8.4	NO	0.995	NO	MMX
2	2	171208G2_3	Standard	0.885	3.01	428.832	15349.467	0.802	1.0	13.2	NO	0.995	NO	bbX
3	3	171208G2_4	Standard	1.770	3.01	759.007	14402.649	1.512	1.9	6.7	NO	0.995	NO	bb
4	4	171208G2_5	Standard	4.420	3.01	1983.680	14516.459	3.922	4.9	10.8	NO	0.995	NO	MM
5	5	171208G2_6	Standard	8.850	3.01	2903.323	11953.820	6.971	8.7	-1.6	NO	0.995	NO	bb
6	6	171208G2_7	Standard	22.100	3.01	8898.488	13445.892	18.994	23.7	7.3	NO	0.995	NO	bb
7	7	171208G2_8	Standard	44.200	3.01	14447.786	12293.957	33.728	42.1	-4.7	NO	0.995	NO	bb
8	8	171208G2_9	Standard	66.300	3.01	21148.451	10786.034	56.273	70.3	6.0	NO	0.995	NO	bbX
9	9	171208G2_10	Standard	88.400	3.01	29888.051	12003.273	71.463	89.3	1.0	NO	0.995	NO	bbX

Compound name: PFOA
Coefficient of Determination: R^2 = 0.997893
Calibration curve: 0.811837 * 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	171208G2_2	Standard	0.500	4.33	504.601	11571.904	0.436	0.5	7.4	NO	0.998	NO	bbX
2	2	171208G2_3	Standard	1.000	4.31	1289.415	14038.166	0.919	1.1	13.1	NO	0.998	NO	bbX
3	3	171208G2_4	Standard	2.000	4.31	2044.709	12600.569	1.623	2.0	-0.1	NO	0.998	NO	bb
4	4	171208G2_5	Standard	5.000	4.31	5935.702	13262.253	4.476	5.5	10.3	NO	0.998	NO	bd
5	5	171208G2_6	Standard	10.000	4.31	8915.754	12044.611	7.402	9.1	-8.8	NO	0.998	NO	bd
6	6	171208G2_7	Standard	25.000	4.31	25977.795	12740.901	20.389	25.1	0.5	NO	0.998	NO	bd
7	7	171208G2_8	Standard	50.000	4.31	45749.875	11213.454	40.799	50.3	0.5	NO	0.998	NO	bd
8	8	171208G2_9	Standard	75.000	4.31	60947.063	9546.963	63.839	78.6	4.8	NO	0.998	NO	bdX
9	9	171208G2_10	Standard	100.000	4.31	85445.031	11090.062	77.046	94.9	-5.1	NO	0.998	NO	bbX

Vista Analytical Laboratory

Dataset: U:\G1.PRO\Results\2017\171208G2\171208G2-CRV.qld

Last Altered: Sunday, December 10, 2017 22:49:55 Pacific Standard Time
Printed: Monday, December 11, 2017 10:37:29 Pacific Standard Time

Compound name: PFOS
Coefficient of Determination: R^2 = 0.998516
Calibration curve: 1.20278 * 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	171208G2_2	Standard	0.464	4.73	185.089	11857.967	0.448	0.4	-19.7	NO	0.999	NO	MMX
2	2	171208G2_3	Standard	0.925	4.73	617.089	15349.467	1.154	1.0	3.7	NO	0.999	NO	MMX
3	3	171208G2_4	Standard	1.850	4.72	889.150	14402.649	1.772	1.5	-20.4	NO	0.999	NO	MM
4	4	171208G2_5	Standard	4.625	4.73	2773.974	14516.459	5.484	4.6	-1.4	NO	0.999	NO	MM
5	5	171208G2_6	Standard	9.250	4.73	4524.466	11953.820	10.863	9.0	-2.4	NO	0.999	NO	MM
6	6	171208G2_7	Standard	23.100	4.73	13079.806	13445.892	27.919	23.2	0.5	NO	0.999	NO	MM
7	7	171208G2_8	Standard	46.200	4.72	24086.246	12293.957	56.229	46.7	1.2	NO	0.999	NO	MM
8	8	171208G2_9	Standard	69.300	4.72	33750.160	10786.034	89.804	74.7	7.7	NO	0.999	NO	MMX
9	9	171208G2_10	Standard	92.400	4.72	47716.457	12003.273	114.091	94.9	2.7	NO	0.999	NO	MMX

Compound name: 13C2-PFHxA
Response Factor: 0.44294
RRF SD: 0.0227764, Relative SD: 5.14209
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	171208G2_2	Standard	10.000	3.38	4801.410	11571.904	4.149	9.4	-6.3	NO		NO	bbX
2	2	171208G2_3	Standard	10.000	3.37	6735.231	14038.166	4.798	10.8	8.3	NO		NO	bbX
3	3	171208G2_4	Standard	10.000	3.36	5697.994	12600.569	4.522	10.2	2.1	NO		NO	bb
4	4	171208G2_5	Standard	10.000	3.37	6341.437	13262.253	4.782	10.8	8.0	NO		NO	bb
5	5	171208G2_6	Standard	10.000	3.36	5086.919	12044.611	4.223	9.5	-4.7	NO		NO	bd
6	6	171208G2_7	Standard	10.000	3.36	5434.637	12740.901	4.266	9.6	-3.7	NO		NO	bb
7	7	171208G2_8	Standard	10.000	3.36	4882.918	11213.454	4.355	9.8	-1.7	NO		NO	bb
8	8	171208G2_9	Standard	10.000	3.36	4706.410	9546.963	4.930	11.1	11.3	NO		NO	bdX
9	9	171208G2_10	Standard	10.000	3.36	4749.668	11090.062	4.283	9.7	-3.3	NO		NO	bdX

Vista Analytical Laboratory

Dataset: U:\G1.PRO\Results\2017\171208G2\171208G2-CRV.qld

Last Altered: Sunday, December 10, 2017 22:49:55 Pacific Standard Time
Printed: Monday, December 11, 2017 10:37:29 Pacific Standard Time

Compound name: 13C2-PFDA
Response Factor: 0.509254
RRF SD: 0.0328522, Relative SD: 6.45105
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	171208G2_2	Standard	10.000	4.97	5579.112	11571.904	4.821	9.5	-5.3	NO		NO	bdX
2	2	171208G2_3	Standard	10.000	4.96	8625.498	14038.166	6.144	12.1	20.7	NO		NO	bbX
3	3	171208G2_4	Standard	10.000	4.96	6581.716	12600.569	5.223	10.3	2.6	NO		NO	bb
4	4	171208G2_5	Standard	10.000	4.96	7244.836	13262.253	5.463	10.7	7.3	NO		NO	bb
5	5	171208G2_6	Standard	10.000	4.96	5507.656	12044.611	4.573	9.0	-10.2	NO		NO	bb
6	6	171208G2_7	Standard	10.000	4.96	6576.478	12740.901	5.162	10.1	1.4	NO		NO	bb
7	7	171208G2_8	Standard	10.000	4.96	5654.003	11213.454	5.042	9.9	-1.0	NO		NO	bb
8	8	171208G2_9	Standard	10.000	4.96	5376.028	9546.963	5.631	11.1	10.6	NO		NO	bbX
9	9	171208G2_10	Standard	10.000	4.96	5314.285	11090.062	4.792	9.4	-5.9	NO		NO	bbX

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	171208G2_2	Standard	10.000	4.33	11571.904	11571.904	10.000	10.0	0.0	NO		NO	bbX
2	2	171208G2_3	Standard	10.000	4.31	14038.166	14038.166	10.000	10.0	0.0	NO		NO	bbX
3	3	171208G2_4	Standard	10.000	4.31	12600.569	12600.569	10.000	10.0	0.0	NO		NO	bb
4	4	171208G2_5	Standard	10.000	4.31	13262.253	13262.253	10.000	10.0	0.0	NO		NO	bb
5	5	171208G2_6	Standard	10.000	4.31	12044.611	12044.611	10.000	10.0	0.0	NO		NO	bd
6	6	171208G2_7	Standard	10.000	4.31	12740.901	12740.901	10.000	10.0	0.0	NO		NO	bd
7	7	171208G2_8	Standard	10.000	4.31	11213.454	11213.454	10.000	10.0	0.0	NO		NO	bb
8	8	171208G2_9	Standard	10.000	4.31	9546.963	9546.963	10.000	10.0	0.0	NO		NO	bbX
9	9	171208G2_10	Standard	10.000	4.31	11090.062	11090.062	10.000	10.0	0.0	NO		NO	bdX

Vista Analytical Laboratory

Dataset: U:\G1.PRO\Results\2017\171208G2\171208G2-CRV.qld

Last Altered: Sunday, December 10, 2017 22:49:55 Pacific Standard Time
Printed: Monday, December 11, 2017 10:37:29 Pacific Standard Time

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	171208G2_2	Standard	28.700	4.74	11857.967	11857.967	28.700	28.7	0.0	NO		NO	bdX
2	2	171208G2_3	Standard	28.700	4.73	15349.467	15349.467	28.700	28.7	0.0	NO		NO	bbX
3	3	171208G2_4	Standard	28.700	4.72	14402.649	14402.649	28.700	28.7	0.0	NO		NO	bd
4	4	171208G2_5	Standard	28.700	4.73	14516.459	14516.459	28.700	28.7	0.0	NO		NO	bd
5	5	171208G2_6	Standard	28.700	4.72	11953.820	11953.820	28.700	28.7	0.0	NO		NO	MM
6	6	171208G2_7	Standard	28.700	4.72	13445.892	13445.892	28.700	28.7	0.0	NO		NO	bb
7	7	171208G2_8	Standard	28.700	4.72	12293.957	12293.957	28.700	28.7	0.0	NO		NO	bd
8	8	171208G2_9	Standard	28.700	4.72	10786.034	10786.034	28.700	28.7	0.0	NO		NO	bbX
9	9	171208G2_10	Standard	28.700	4.72	12003.273	12003.273	28.700	28.7	0.0	NO		NO	bbX

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Monday, December 11, 2017 10:39:34 Pacific Standard Time
Printed: Monday, December 11, 2017 10:40:25 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Compound name: PFBS

	Name	ID	Acq.Date	Acq.Time
1	171208G2_1	IPA	08-Dec-17	15:56:48
2	171208G2_2	ST171208G2-1 PFC CS-3 537 17K3022	08-Dec-17	16:09:15
3	171208G2_3	ST171208G2-2 PFC CS-2 537 17K3023	08-Dec-17	16:21:40
4	171208G2_4	ST171208G2-3 PFC CS-1 537 17K3024	08-Dec-17	16:34:04
5	171208G2_5	ST171208G2-4 PFC CS0 537 17K3025	08-Dec-17	16:46:29
6	171208G2_6	ST171208G2-5 PFC CS1 537 17K3026	08-Dec-17	16:58:55
7	171208G2_7	ST171208G2-6 PFC CS2 537 17K3033	08-Dec-17	17:11:21
8	171208G2_8	ST171208G2-7 PFC CS3 537 17K3027	08-Dec-17	17:23:47
9	171208G2_9	ST171208G2-8 PFC CS4 537 17K3028	08-Dec-17	17:36:15
10	171208G2_10	ST171208G2-9 PFC CS5 537 17K3029	08-Dec-17	17:48:42
11	171208G2_11	IPA	08-Dec-17	18:01:06
12	171208G2_12	ICV171208G2-1 PFC ICV 537 17K3030	08-Dec-17	18:13:34
13	171208G2_13	IPA	08-Dec-17	18:25:58

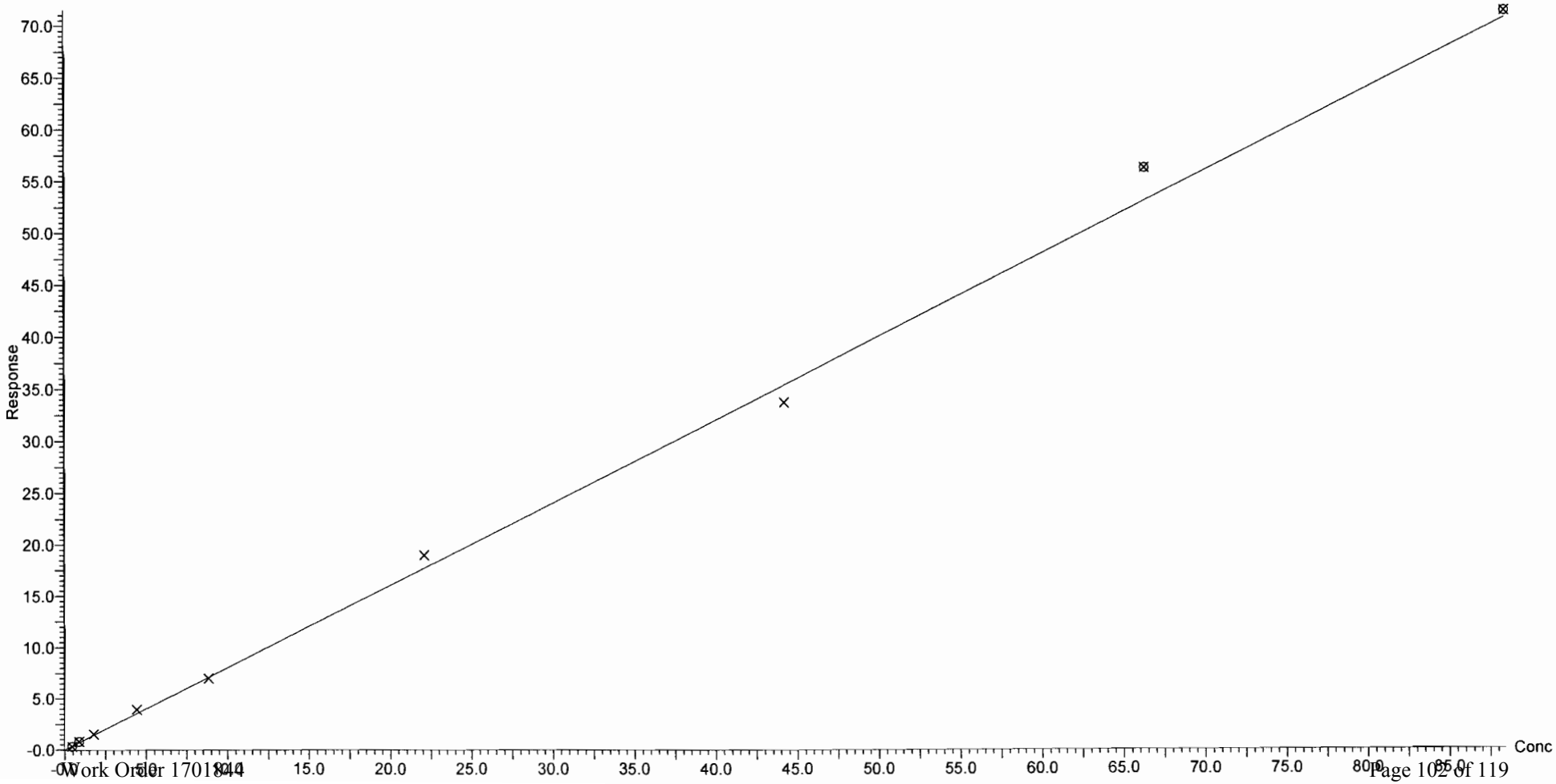
Vista Analytical Laboratory Q1

Dataset: U:\G1.PRO\Results\2017\171208G2\171208G2-CRV.qld

Last Altered: Sunday, December 10, 2017 22:49:55 Pacific Standard Time
Printed: Monday, December 11, 2017 10:36:23 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

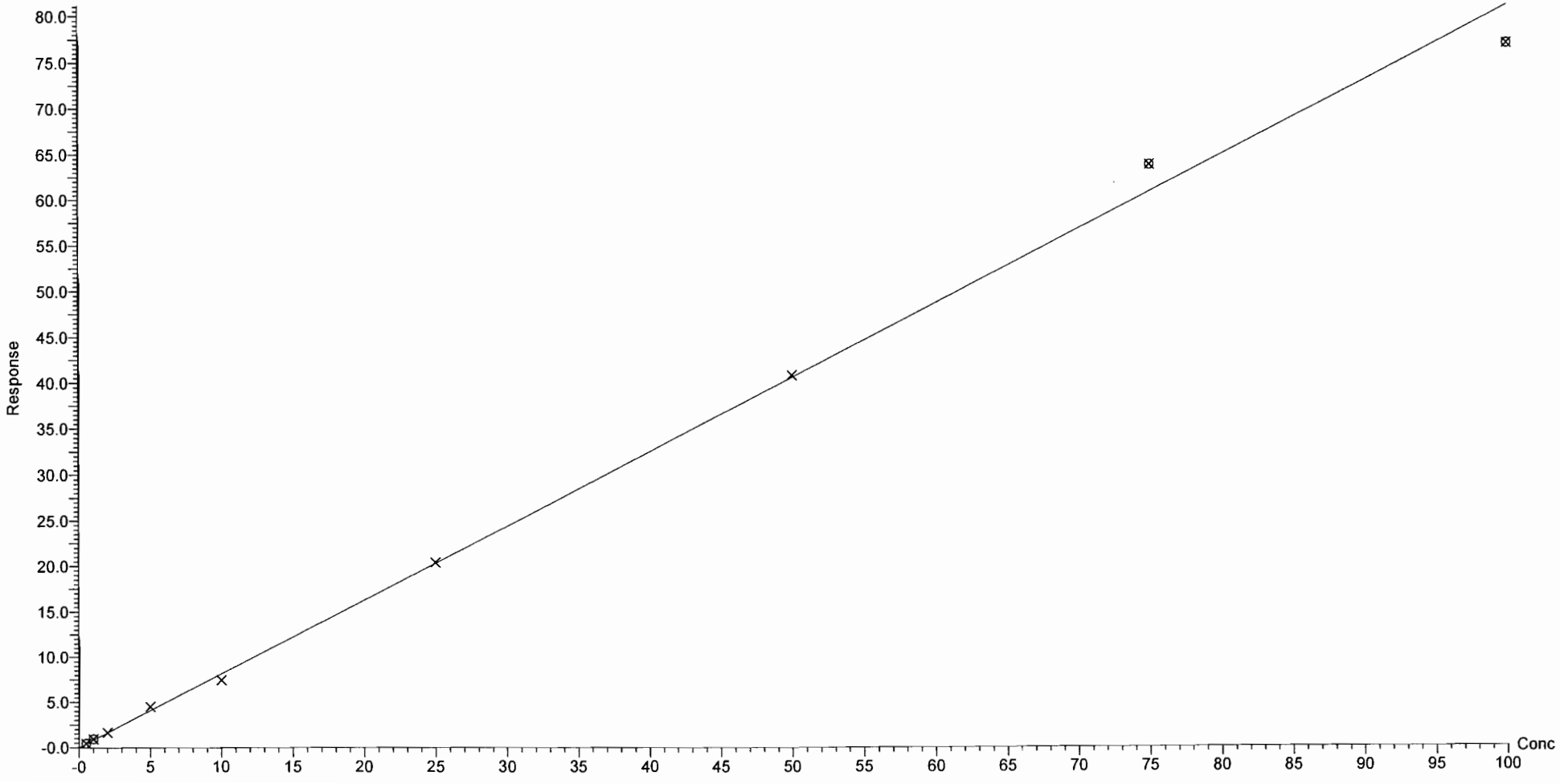
Compound name: PFBS
Coefficient of Determination: R^2 = 0.994837
Calibration curve: 0.800672 * x
Response type: Internal Std (Ref 7), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None



Dataset: U:\G1.PRO\Results\2017\171208G2\171208G2-CRV.qld

Last Altered: Sunday, December 10, 2017 22:49:55 Pacific Standard Time
Printed: Monday, December 11, 2017 10:36:23 Pacific Standard Time

Compound name: PFOA
Coefficient of Determination: R^2 = 0.997893
Calibration curve: 0.811837 * x
Response type: Internal Std (Ref 6), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None

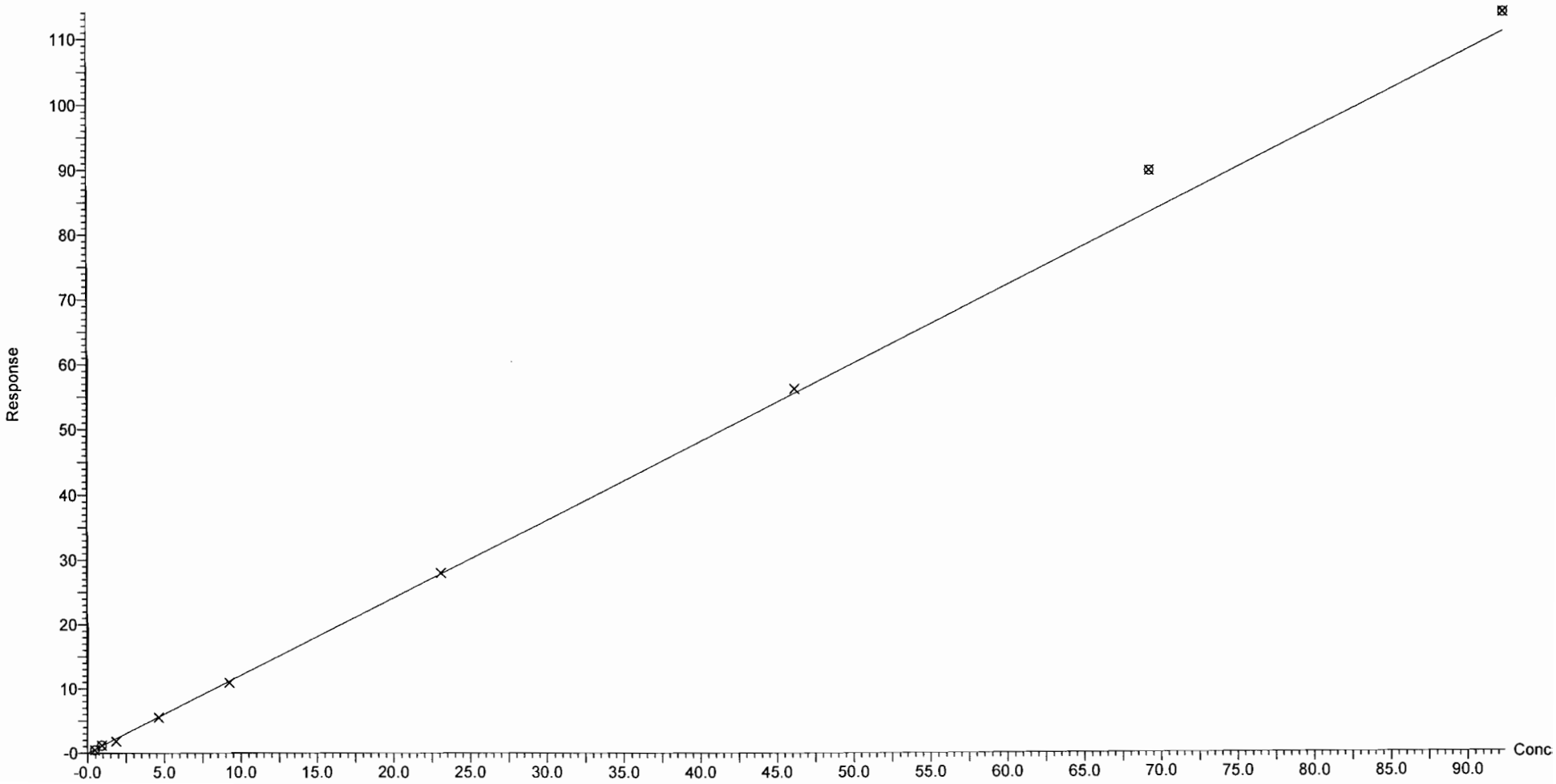


Vista Analytical Laboratory Q1

Dataset: U:\G1.PRO\Results\2017\171208G2\171208G2-CRV.qld

Last Altered: Sunday, December 10, 2017 22:49:55 Pacific Standard Time
Printed: Monday, December 11, 2017 10:36:23 Pacific Standard Time

Compound name: PFOS
Coefficient of Determination: R^2 = 0.998516
Calibration curve: 1.20278 * x
Response type: Internal Std (Ref 7), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None

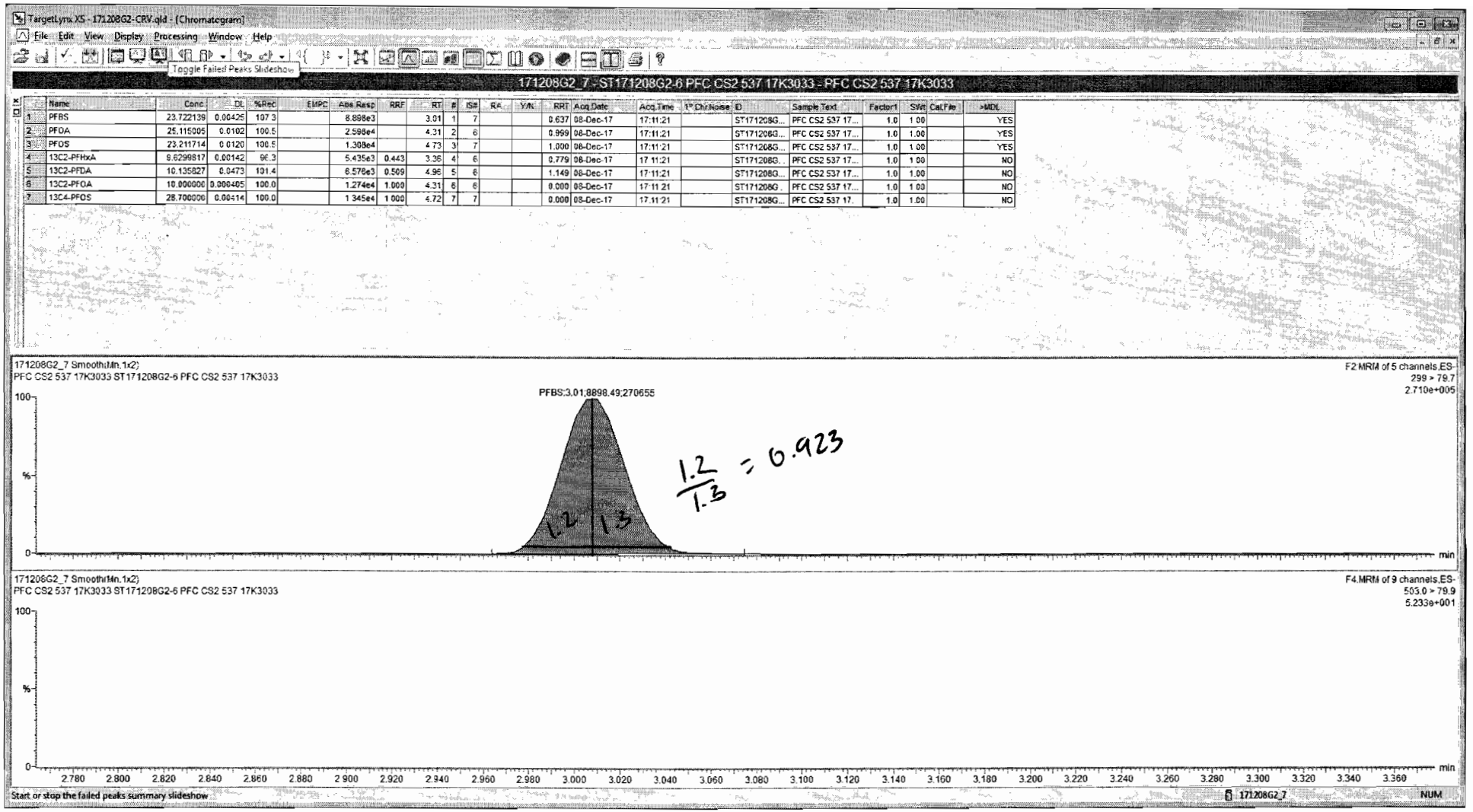


Compound 6: 13C2-PFOA

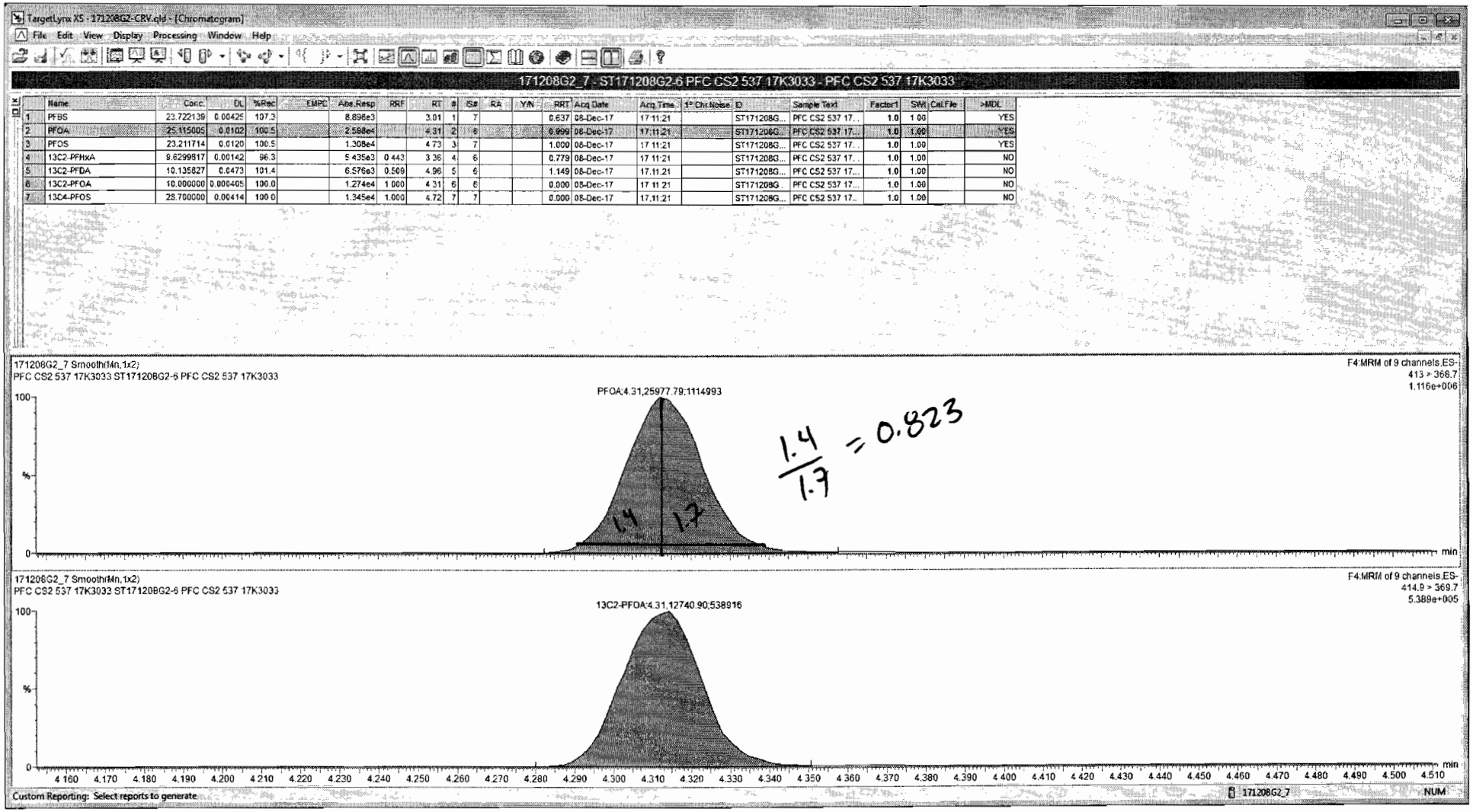
	ID	Name	Type	Std. Conc	RT	Area	IS Area	Primary Flags
1	ST171208G2-1 PFC CS-3 537 17K3022	171208G2_	Standard	10	4.33	11571.9	11571.9	bbX
2	ST171208G2-2 PFC CS-2 537 17K3023	171208G2_	Standard	10	4.31	14038.17	14038.17	bbX
3	ST171208G2-3 PFC CS-1 537 17K3024	171208G2_	Standard	10	4.31	12600.57	12600.57	bb
4	ST171208G2-4 PFC CS0 537 17K3025	171208G2_	Standard	10	4.31	13262.25	13262.25	bb
5	ST171208G2-5 PFC CS1 537 17K3026	171208G2_	Standard	10	4.31	12044.61	12044.61	bd
6	ST171208G2-6 PFC CS2 537 17K3033	171208G2_	Standard	10	4.31	12740.9	12740.9	bd
7	ST171208G2-7 PFC CS3 537 17K3027	171208G2_	Standard	10	4.31	11213.45	11213.45	bb
8	ST171208G2-8 PFC CS4 537 17K3028	171208G2_	Standard	10	4.31	9546.963	9546.963	bbX
9	ST171208G2-9 PFC CS5 537 17K3029	171208G2_	Standard	10	4.31	11090.06	11090.06	bdX
						average		RPD
						12372.36		16.74148984

Compound 7: 13C4-PFOS

	ID	Name	Type	Std. Conc	RT	Area	IS Area	Primary Flags
1	ST171208G2-1 PFC CS-3 537 17K3022	171208G2_	Standard	28.7	4.74	11857.97	11857.97	bdX
2	ST171208G2-2 PFC CS-2 537 17K3023	171208G2_	Standard	28.7	4.73	15349.47	15349.47	bbX
3	ST171208G2-3 PFC CS-1 537 17K3024	171208G2_	Standard	28.7	4.72	14402.65	14402.65	bd
4	ST171208G2-4 PFC CS0 537 17K3025	171208G2_	Standard	28.7	4.73	14516.46	14516.46	bd
5	ST171208G2-5 PFC CS1 537 17K3026	171208G2_	Standard	28.7	4.72	11953.82	11953.82	MM
6	ST171208G2-6 PFC CS2 537 17K3033	171208G2_	Standard	28.7	4.72	13445.89	13445.89	bb
7	ST171208G2-7 PFC CS3 537 17K3027	171208G2_	Standard	28.7	4.72	12293.96	12293.96	bd
8	ST171208G2-8 PFC CS4 537 17K3028	171208G2_	Standard	28.7	4.72	10786.03	10786.03	bbX
9	ST171208G2-9 PFC CS5 537 17K3029	171208G2_	Standard	28.7	4.72	12003.27	12003.27	bbX
						average		RPD
						13322.56		19.36238753



	Name	Conc.	DL	%Rec	EMPC	Abs.Resp	RRF	RT	#	IS#	RA	Y/N	RRT	Acq.Date	Acq.Time	1° Chl.Noise	ID	Sample Text	Factor	Wt	Cal File	>MDL
1	PFBS	23.722139	0.00425	107.3		8.898e3		3.01	1	7			0.637	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		YES
2	PFOA	25.115005	0.0102	100.5		2.598e4		4.31	2	6			0.999	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		YES
3	PFOS	23.211714	0.0120	100.5		1.308e4		4.73	3	7			1.000	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		YES
4	13C2-PFHxA	9.6299817	0.00142	96.3		5.435e3	0.443	3.36	4	6			0.779	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		NO
5	13C2-PFDA	10.135827	0.0473	101.4		6.578e3	0.509	4.96	5	6			1.149	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		NO
6	13C2-PFOA	10.000000	0.000405	100.0		1.274e4	1.000	4.31	6	6			0.000	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		NO
7	13C4-PFOS	28.700000	0.00414	100.0		1.345e4	1.000	4.72	7	7			0.000	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		NO



	Name	Conc.	DL	%Rec	EMPC	Abs.Resp	RRF	RT	#	IS#	RA	Y/N	RRT	Acq.Date	Acq.Time	1st Chl.Noise	ID	Sample Text	Factor1	Wt	Cal.File	>MDL
1	PFBS	23.722139	0.00425	107.3		8.898e3		3.01	1	7			0.637	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		YES
2	PFOA	25.115005	0.0102	100.5		2.588e4		4.31	2	6			0.999	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		YES
3	PFOS	23.211714	0.0120	100.5		1.308e4		4.73	3	7			1.000	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		YES
4	13C2-PFHxA	9.6299817	0.00142	96.3		5.435e3	0.443	3.36	4	6			0.779	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		NO
5	13C2-PFDA	10.135827	0.0473	101.4		6.576e3	0.509	4.96	5	6			1.149	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		NO
6	13C2-PFOA	10.000000	0.000405	100.0		1.274e4	1.000	4.31	6	6			0.000	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		NO
7	13C4-PFOS	28.700000	0.00414	100.0		1.345e4	1.000	4.72	7	7			0.000	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		NO

Vista Analytical Laboratory

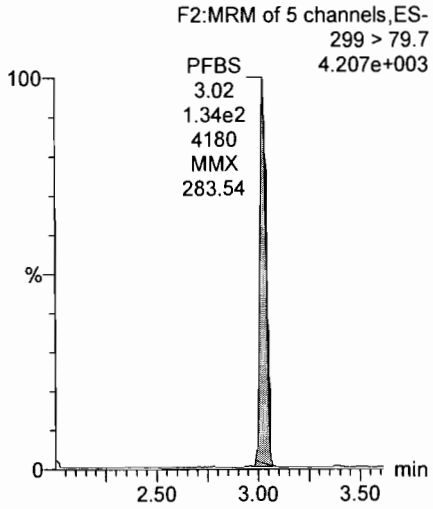
Dataset: U:\G1.PRO\Results\2017\171208G2\171208G2-CRV.qld

Last Altered: Sunday, December 10, 2017 22:49:55 Pacific Standard Time
Printed: Monday, December 11, 2017 10:34:58 Pacific Standard Time

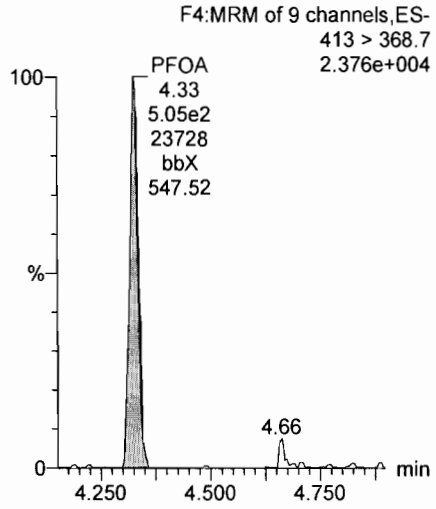
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: 10 Dec 2017 22:49:55

Name: 171208G2_2, Date: 08-Dec-2017, Time: 16:09:15, ID: ST171208G2-1 PFC CS-3 537 17K3022, Description: PFC CS-3 537 17K3022

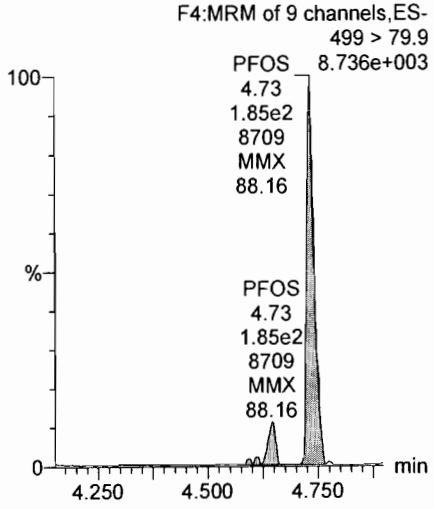
PFBS



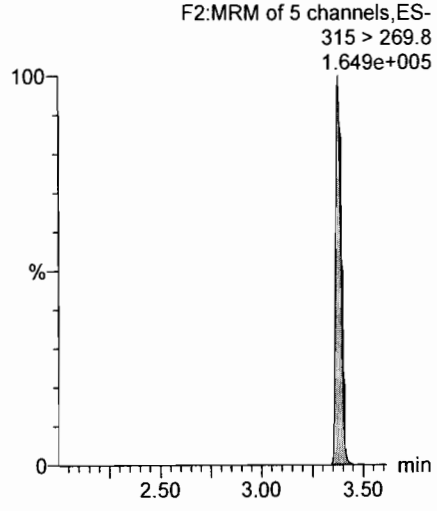
PFOA



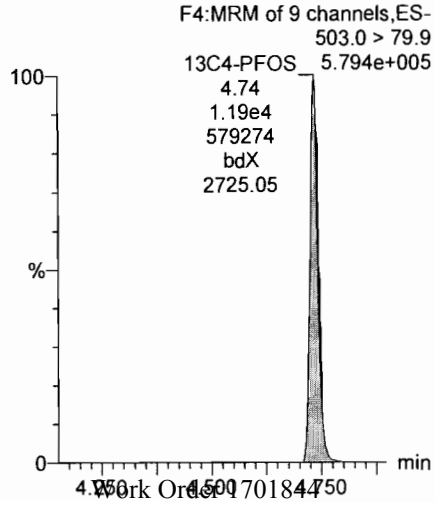
PFOS



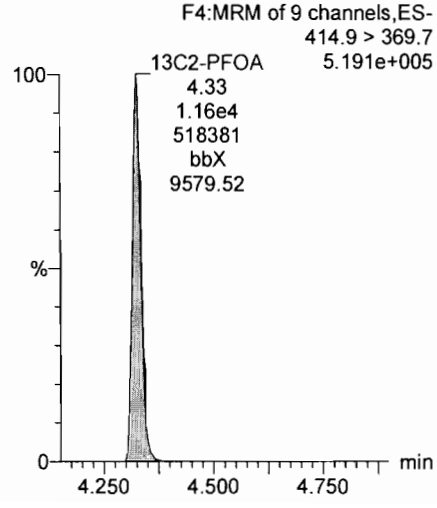
13C2-PFHxA



13C4-PFOS



13C2-PFOA



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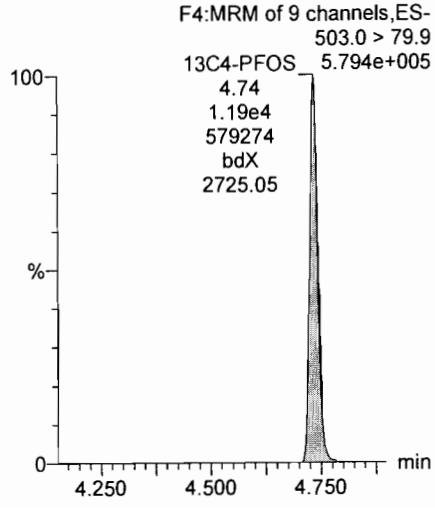
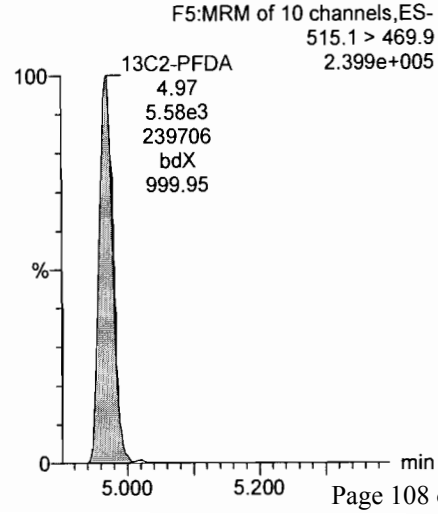


13C2-PFDA

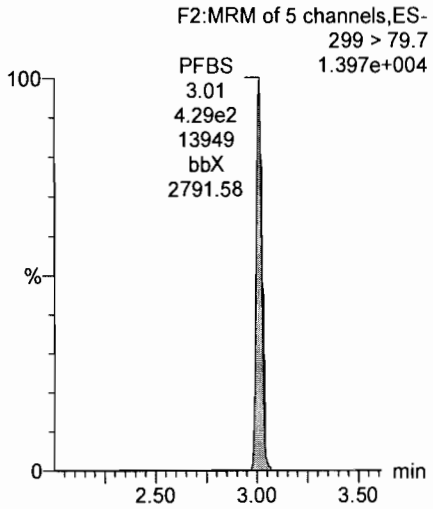


Dataset: U:\G1.PRO\Results\2017\171208G2\171208G2-CRV.qld

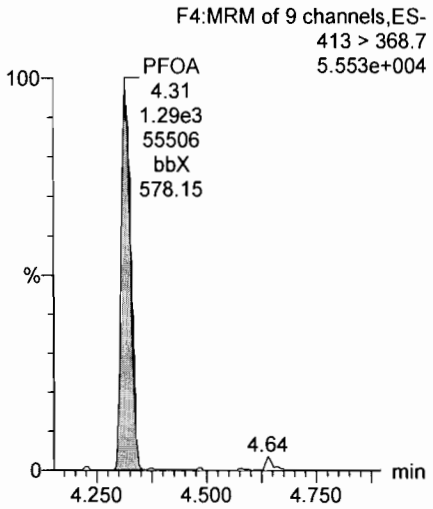
Last Altered: Sunday, December 10, 2017 22:49:55 Pacific Standard Time
Printed: Monday, December 11, 2017 10:34:58 Pacific Standard Time

Name: 171208G2_3, Date: 08-Dec-2017, Time: 16:21:40, ID: ST171208G2-2 PFC CS-2 537 17K3023, Description: PFC CS-2 537 17K3023

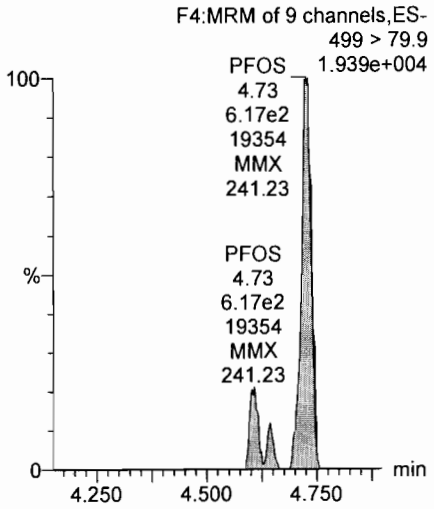
PFBS



PFOA



PFOS



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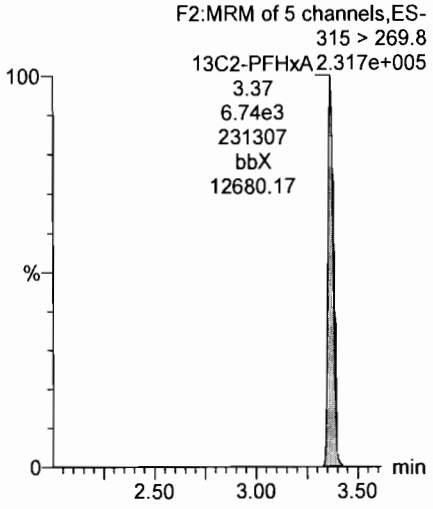
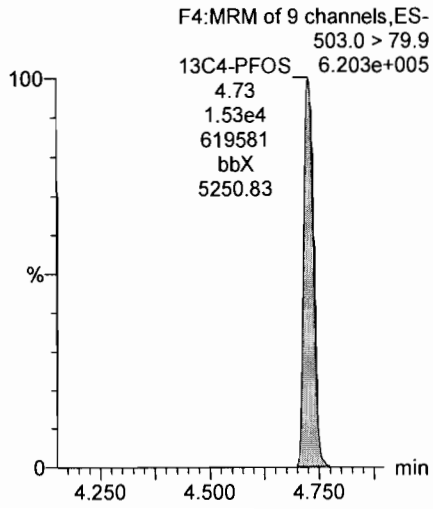
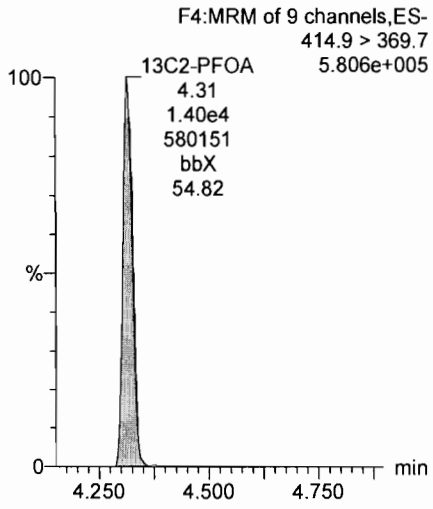


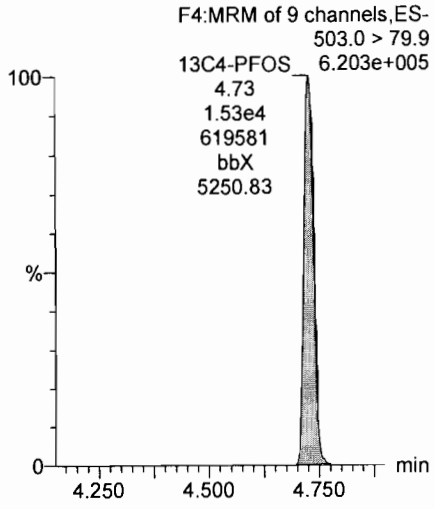
13C4-PFOS



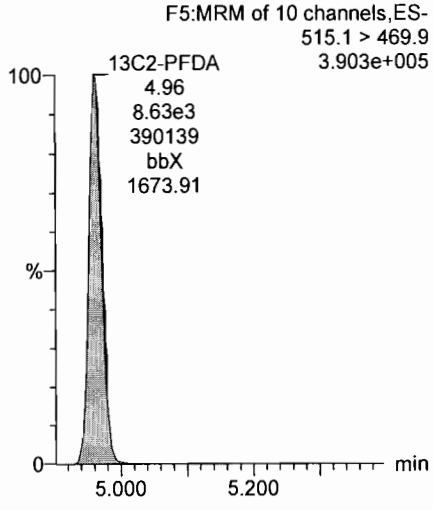
13C2-PFOA



13C4-PFOS



13C2-PFDA

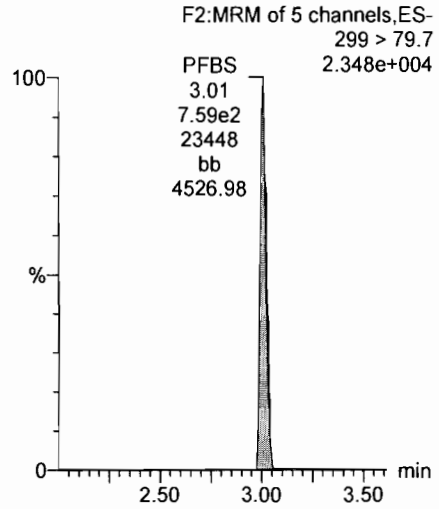


Dataset: U:\G1.PRO\Results\2017\171208G2\171208G2-CRV.qld

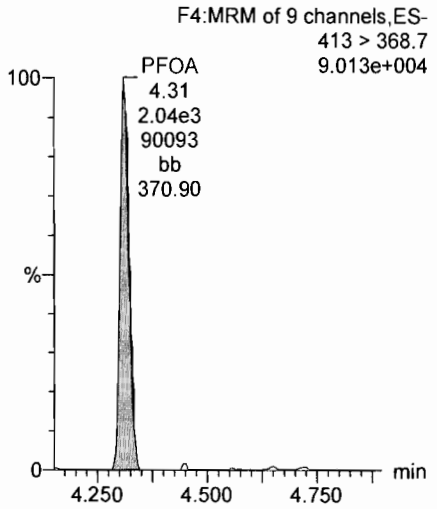
Last Altered: Sunday, December 10, 2017 22:49:55 Pacific Standard Time
Printed: Monday, December 11, 2017 10:34:58 Pacific Standard Time

Name: 171208G2_4, Date: 08-Dec-2017, Time: 16:34:04, ID: ST171208G2-3 PFC CS-1 537 17K3024, Description: PFC CS-1 537 17K3024

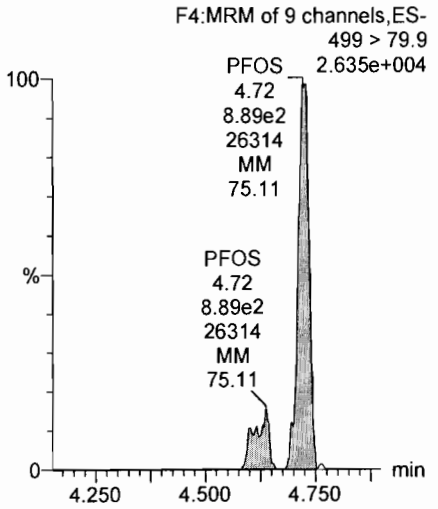
PFBS



PFOA



PFOS



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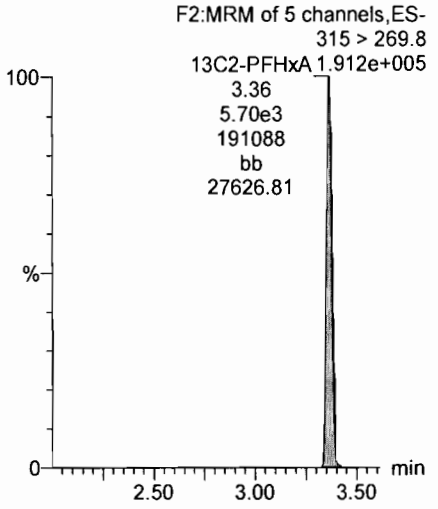

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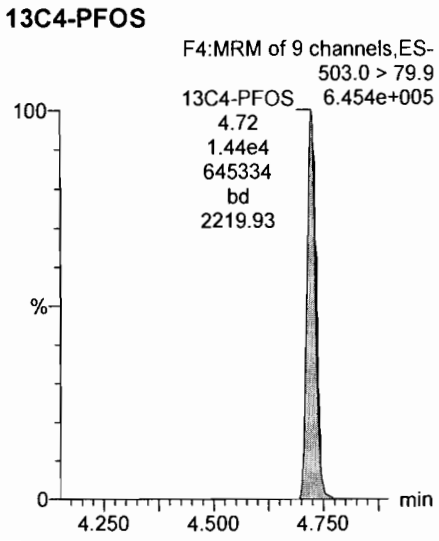

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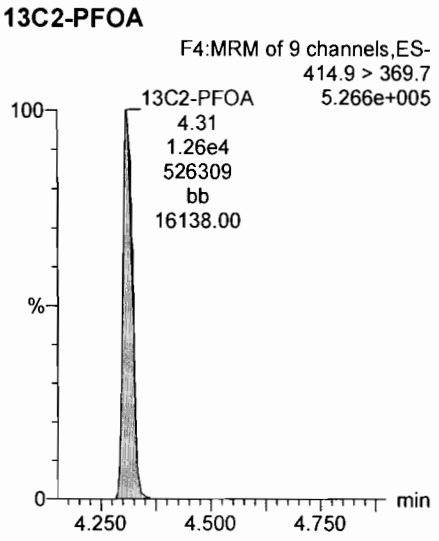

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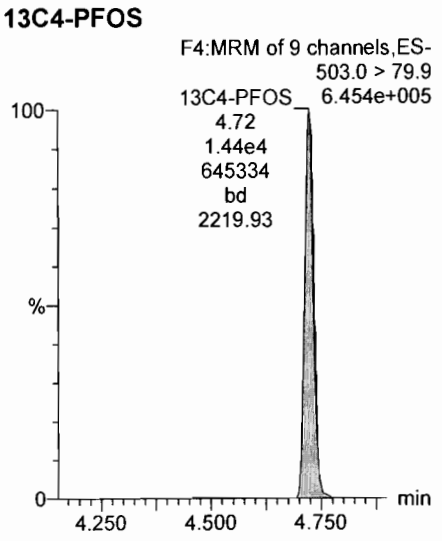

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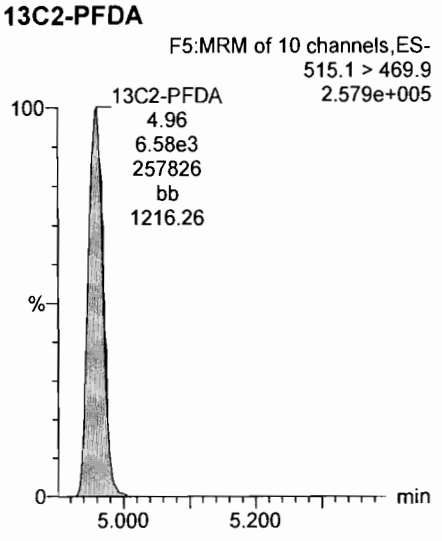

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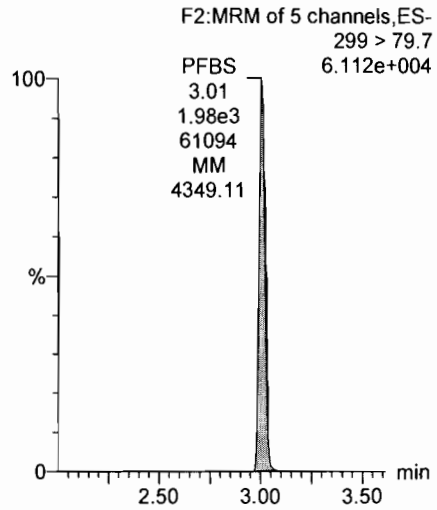
Name: 171208G2_5, Date: 08-Dec-2017, Time: 16:46:29, ID: ST171208G2-4 PFC CS0 537 17K3025, Description: PFC CS0 537 17K3025

PFBS



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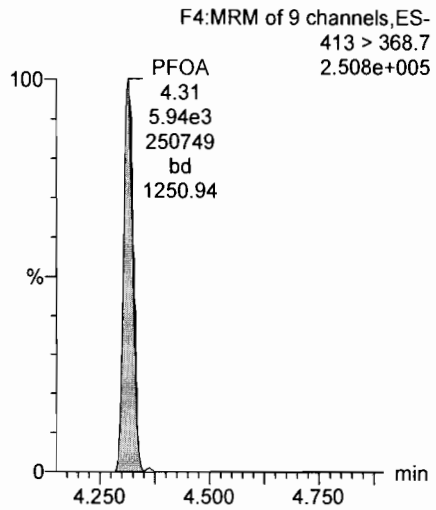

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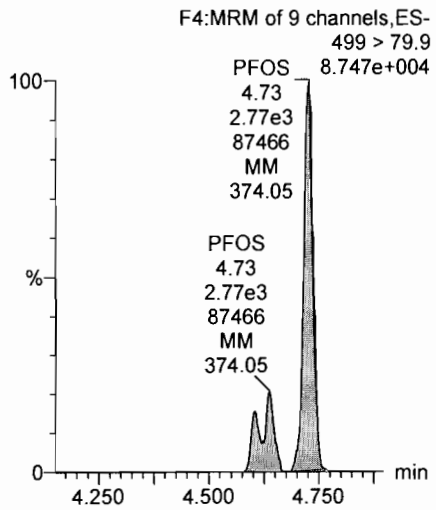

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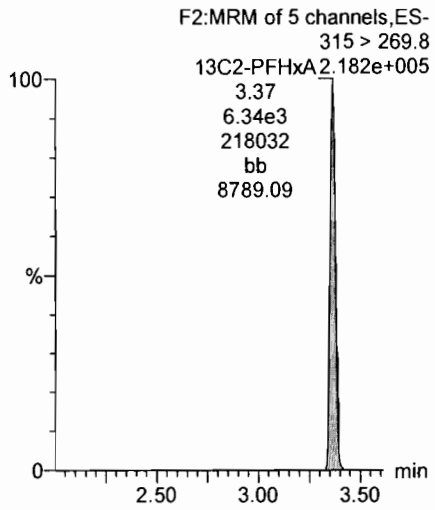

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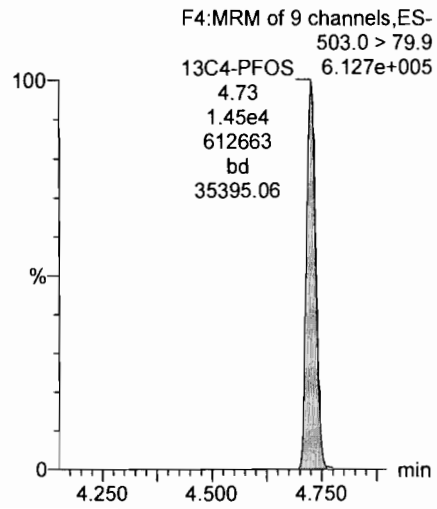

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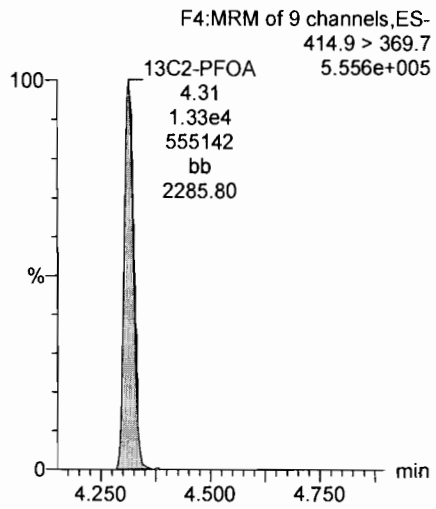

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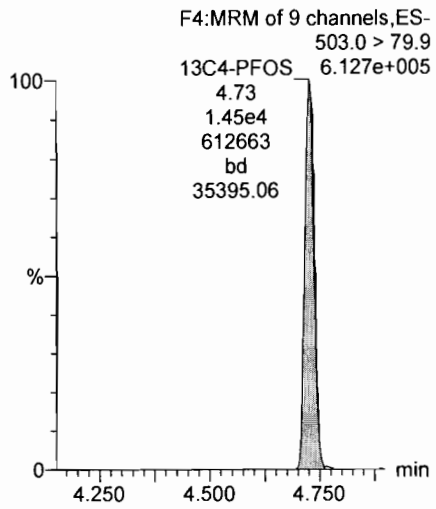

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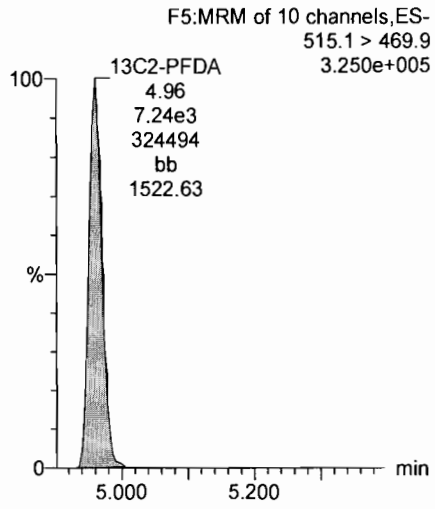

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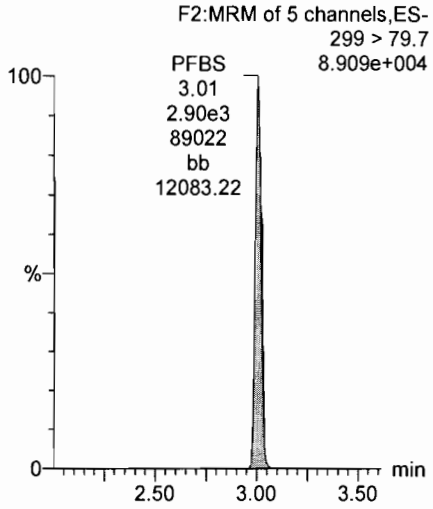
Name: 171208G2_6, Date: 08-Dec-2017, Time: 16:58:55, ID: ST171208G2-5 PFC CS1 537 17K3026, Description: PFC CS1 537 17K3026

PFBS



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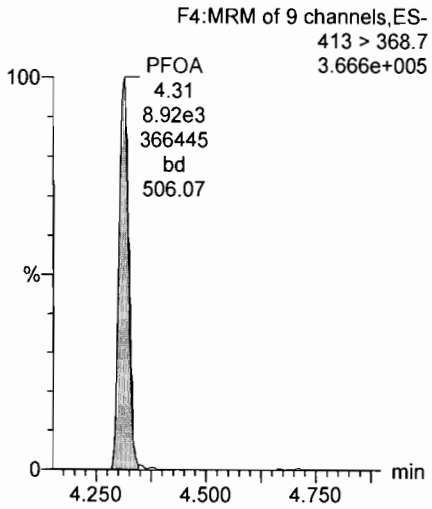

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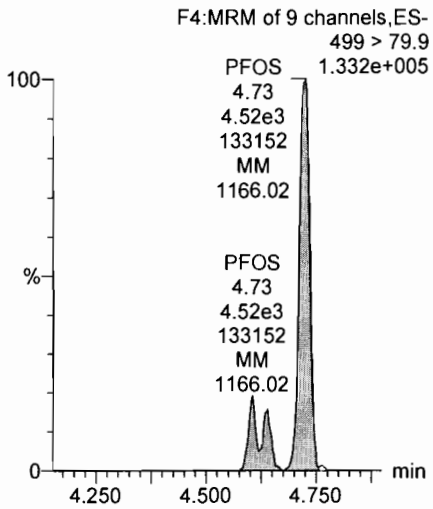

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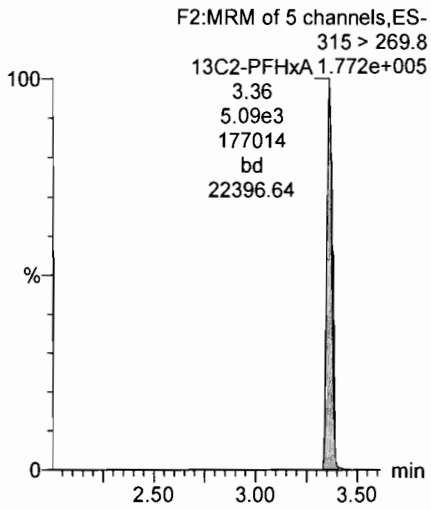

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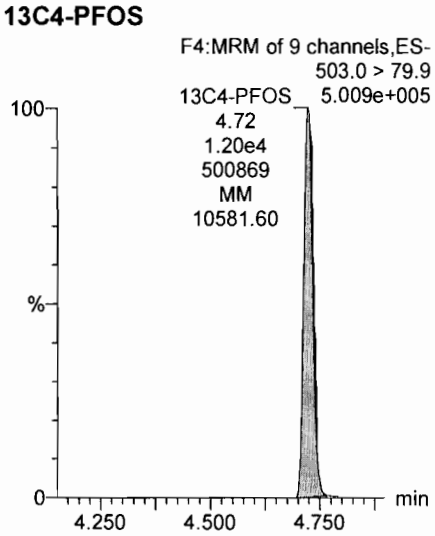

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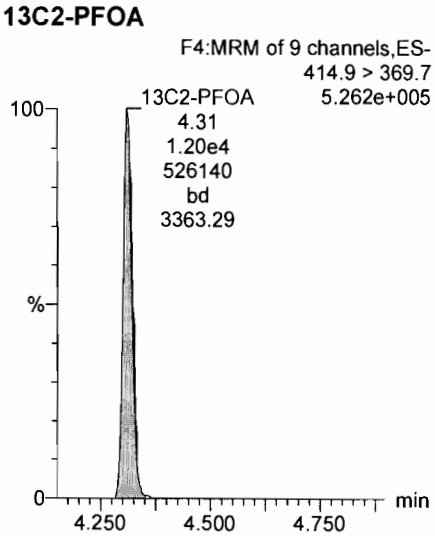

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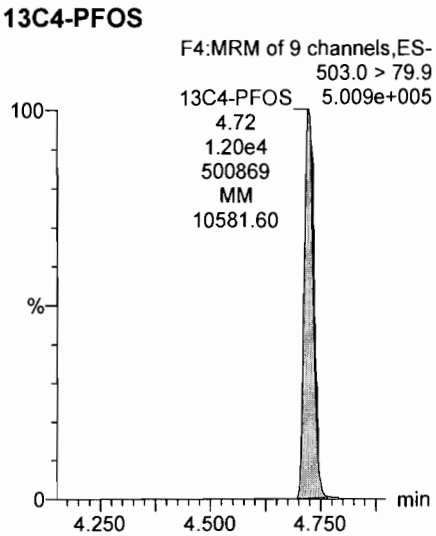

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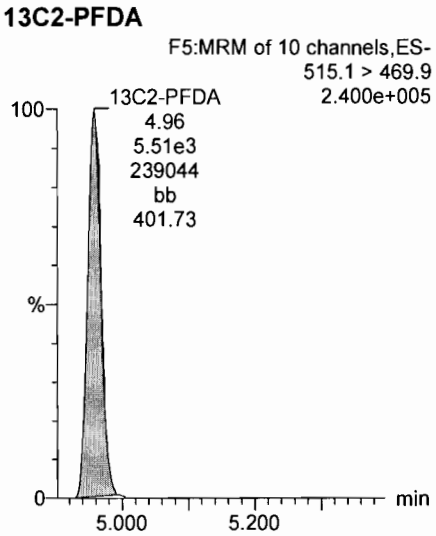

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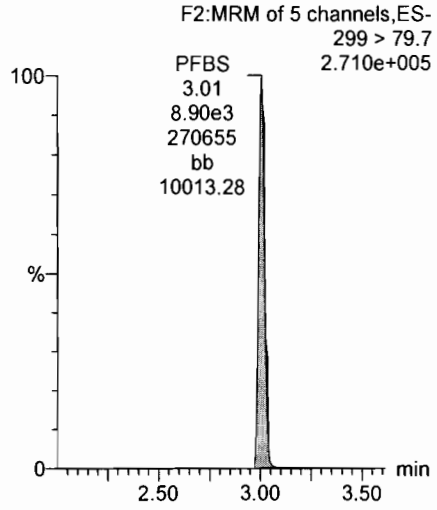
Name: 171208G2_7, Date: 08-Dec-2017, Time: 17:11:21, ID: ST171208G2-6 PFC CS2 537 17K3033, Description: PFC CS2 537 17K3033

PFBS



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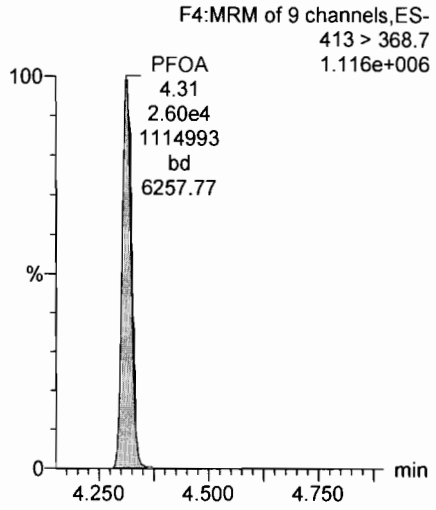

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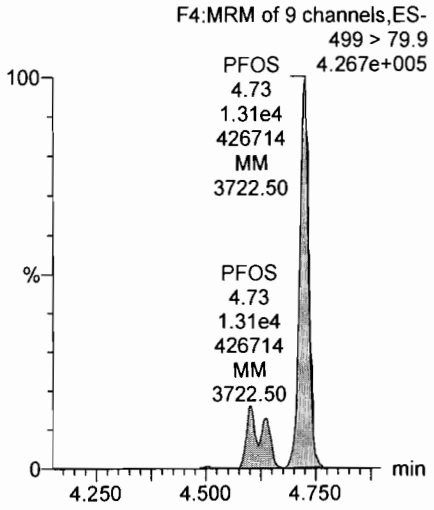

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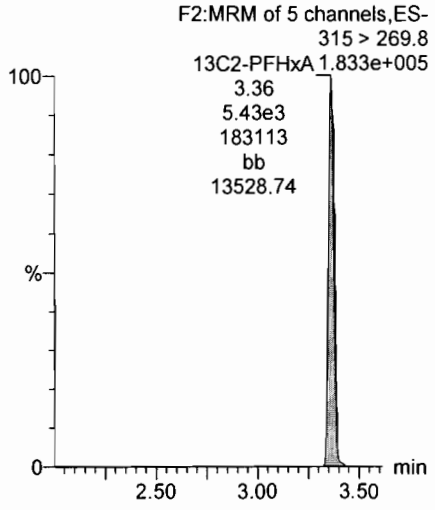

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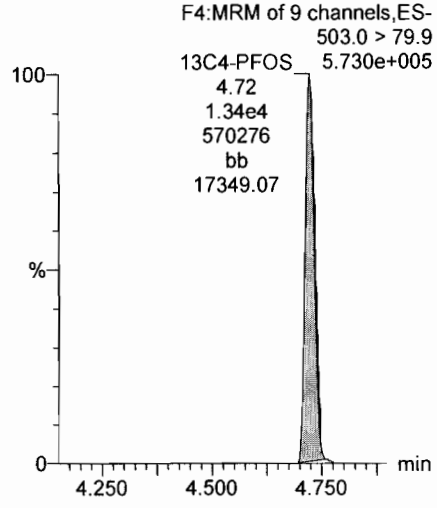

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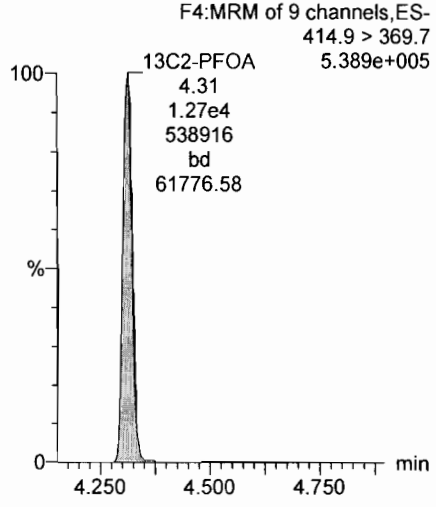

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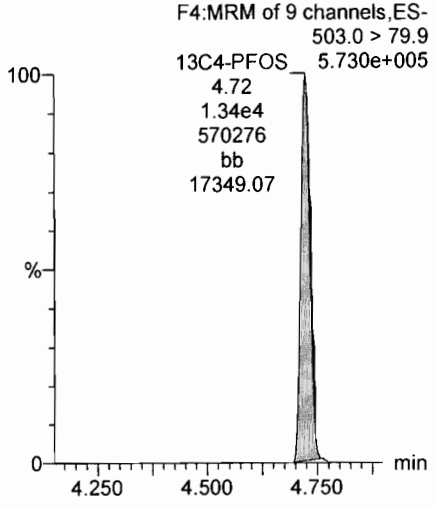

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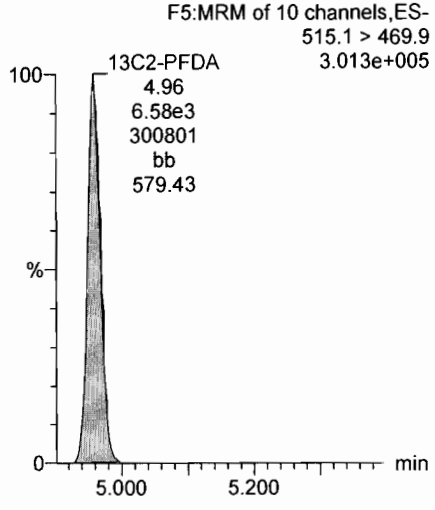

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Name: 171208G2_8, Date: 08-Dec-2017, Time: 17:23:47, ID: ST171208G2-7 PFC CS3 537 17K3027, Description: PFC CS3 537 17K3027

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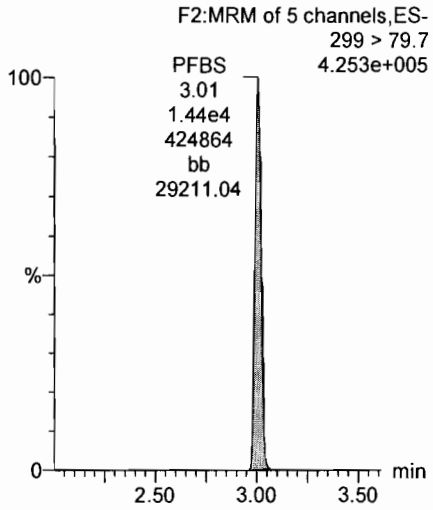

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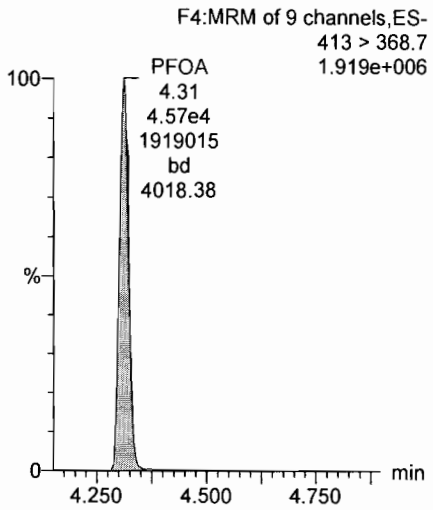

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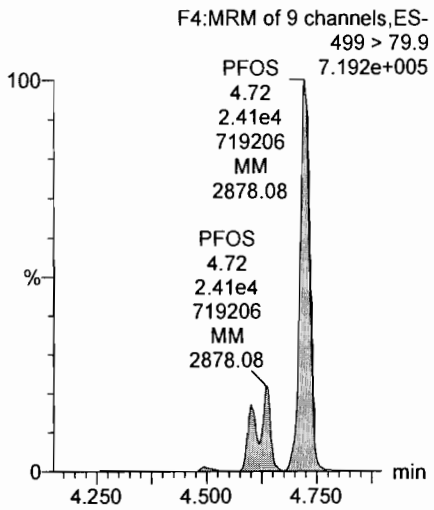

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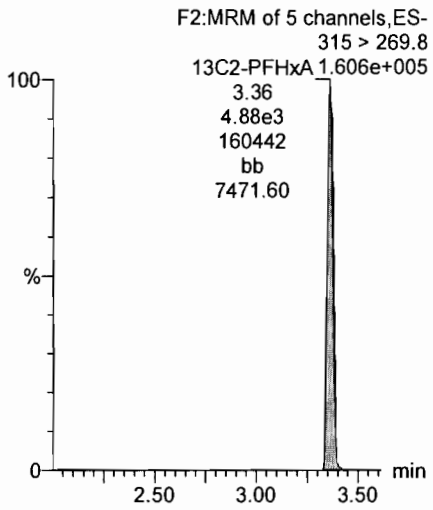

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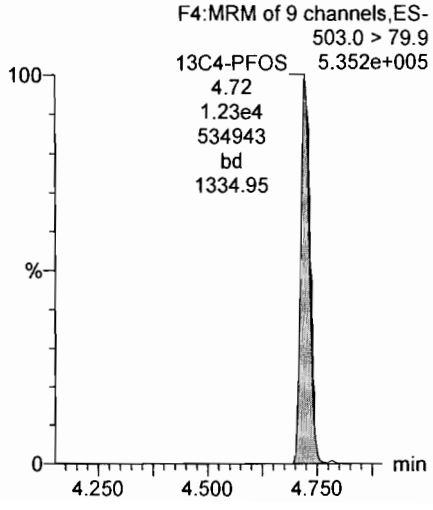

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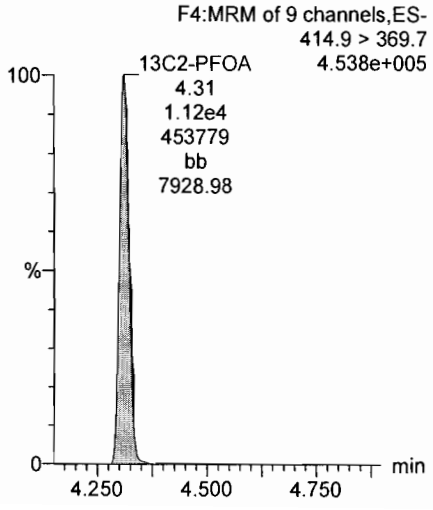

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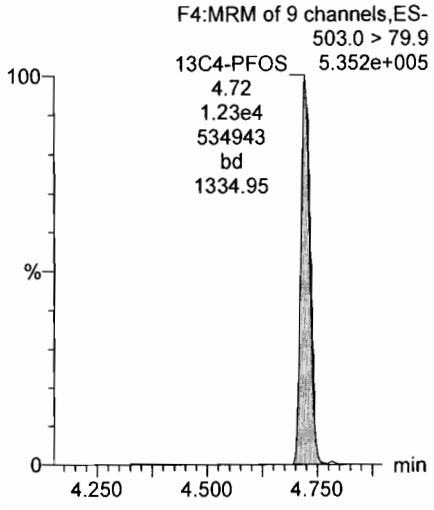

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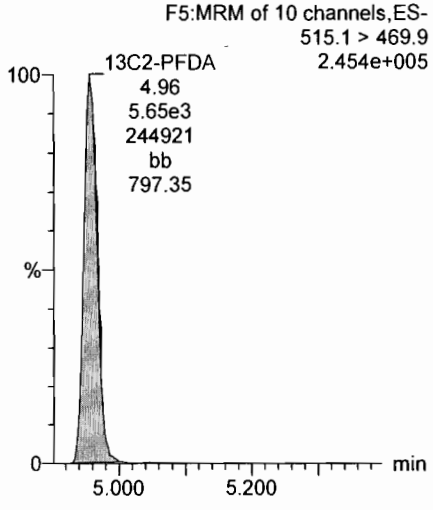

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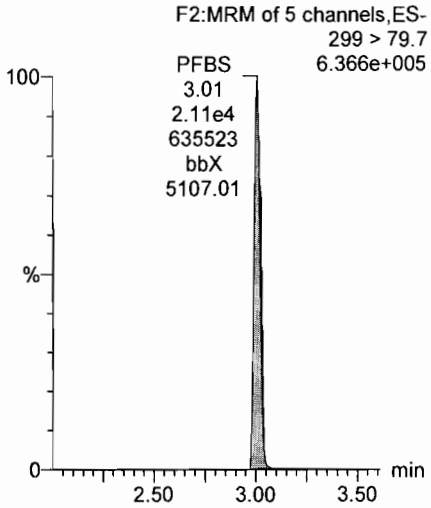
Name: 171208G2_9, Date: 08-Dec-2017, Time: 17:36:15, ID: ST171208G2-8 PFC CS4 537 17K3028, Description: PFC CS4 537 17K3028

PFBS



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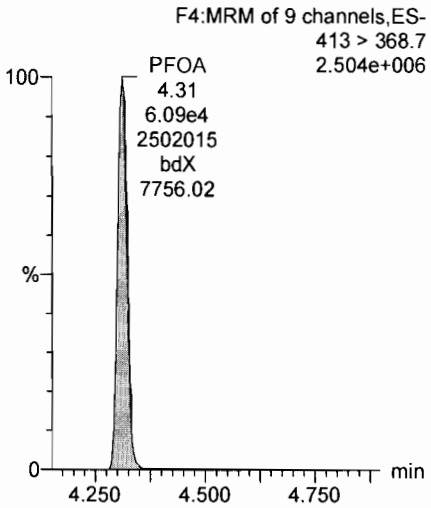

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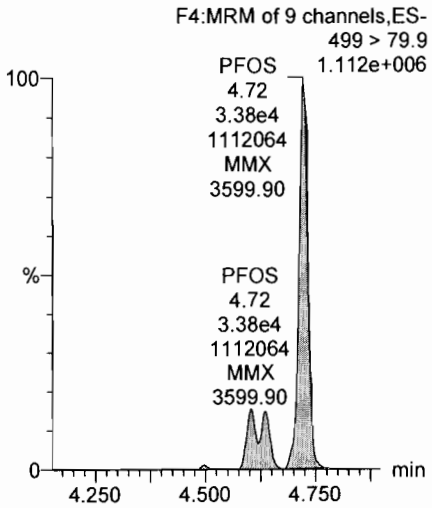

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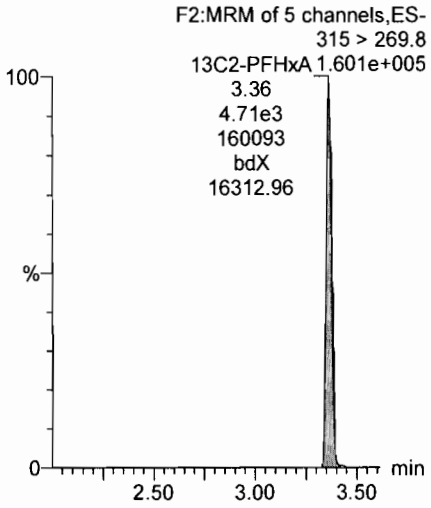

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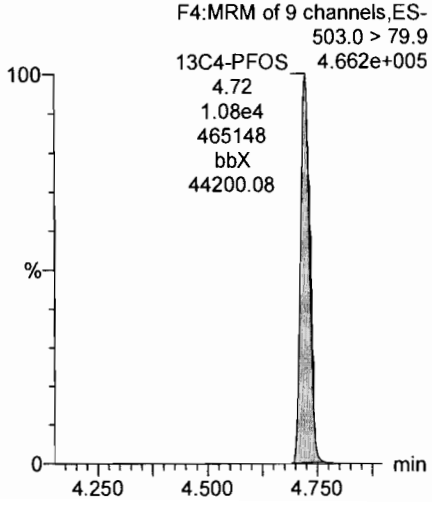

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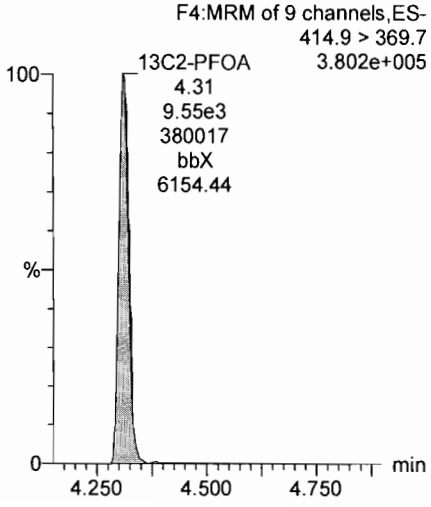

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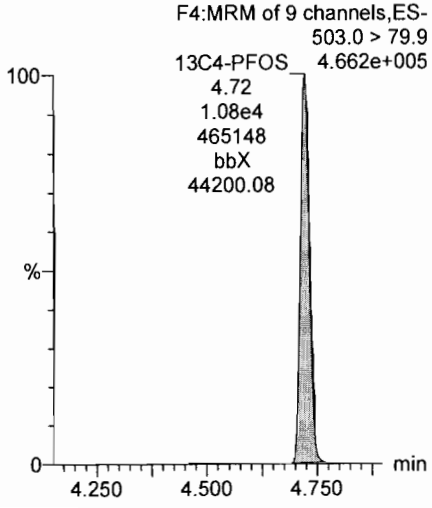

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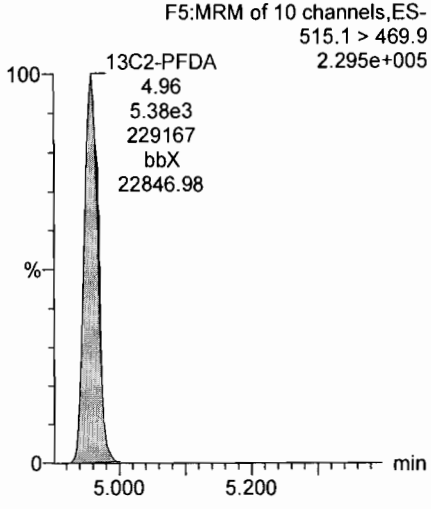

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Name: 171208G2_10, Date: 08-Dec-2017, Time: 17:48:42, ID: ST171208G2-9 PFC CS5 537 17K3029, Description: PFC CS5 537 17K3029

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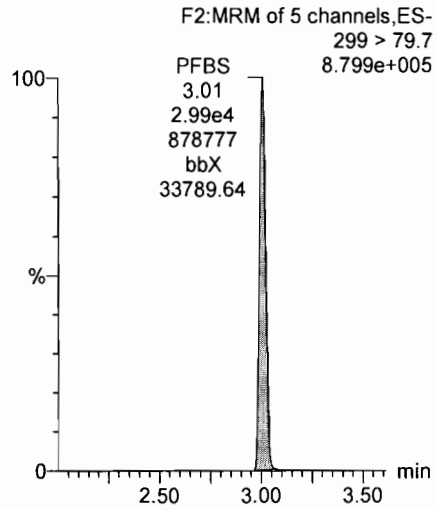

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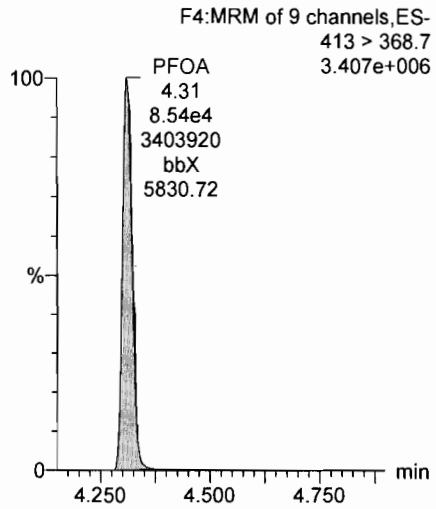

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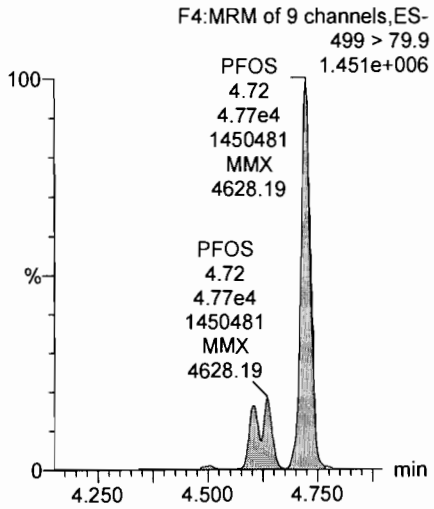

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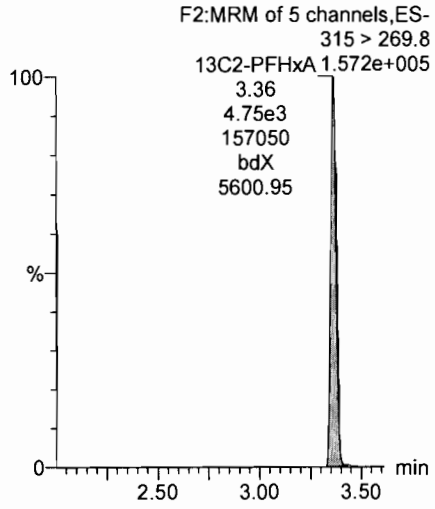

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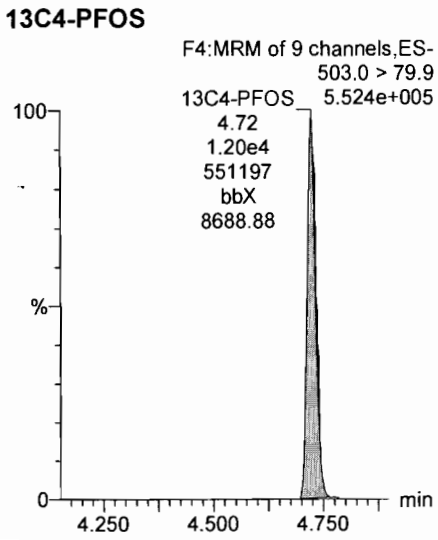

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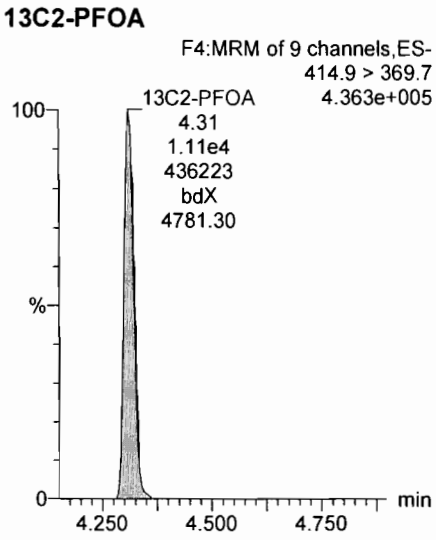

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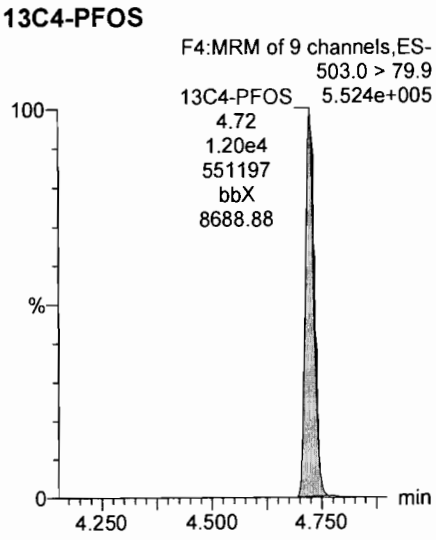

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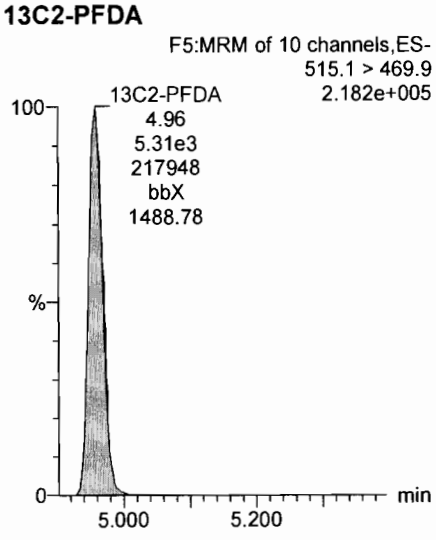

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Printed: Monday, December 11, 2017 10:41:34 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
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Name: 171208G2_12, Date: 08-Dec-2017, Time: 18:13:34, ID: ICV171208G2-1 PFC ICV 537 17K3030, Description: PFC ICV 537 17K3030

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7	3.46e3	1.15e4		1.0000	3.03	3.01	8.65	10.8	108.1
2	2	PFOA	413 > 368.7	8.56e3	1.03e4		1.0000	4.31	4.31	8.35	10.3	102.8
3	3	PFOS	499 >79.9	5.12e3	1.15e4		1.0000	4.73	4.72	12.8	10.7	106.5
4	4	13C2-PFHxA	315 > 269.8	4.62e3	1.03e4	0.443	1.0000	3.37	3.36	4.50	10.2	101.6
5	5	13C2-PFDA	515.1 > 469.9	5.52e3	1.03e4	0.509	1.0000	4.94	4.96	5.38	10.6	105.6
6	6	13C2-PFOA	414.9 > 369.7	1.03e4	1.03e4	1.000	1.0000	4.41	4.31	10.0	10.0	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.15e4	1.15e4	1.000	1.0000	4.81	4.73	28.7	28.7	100.0

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12/11/17

12/11/2017

Vista Analytical Laboratory

Dataset: U:\G1.PRO\Results\2017\171208G2\171208G2-12.qld

Last Altered: Monday, December 11, 2017 10:41:12 Pacific Standard Time
Printed: Monday, December 11, 2017 10:41:34 Pacific Standard Time

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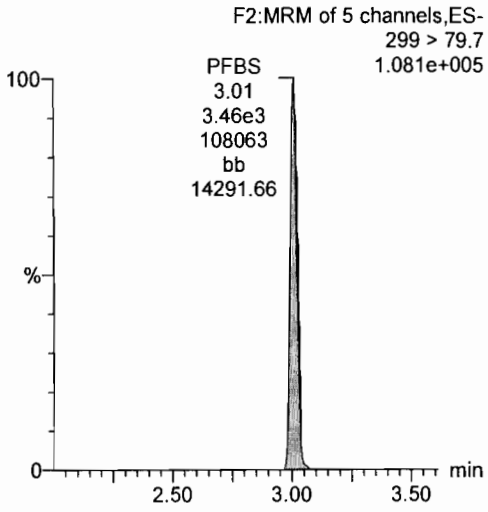
Name: 171208G2_12, Date: 08-Dec-2017, Time: 18:13:34, ID: ICV171208G2-1 PFC ICV 537 17K3030, Description: PFC ICV 537 17K3030

PFBS



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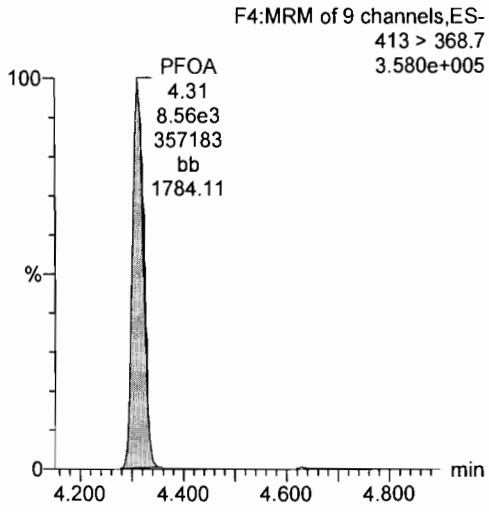

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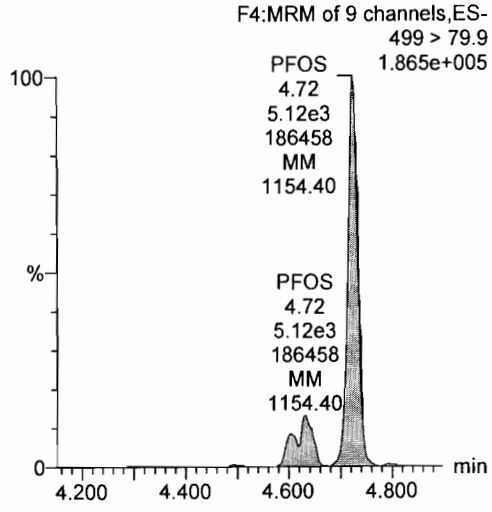

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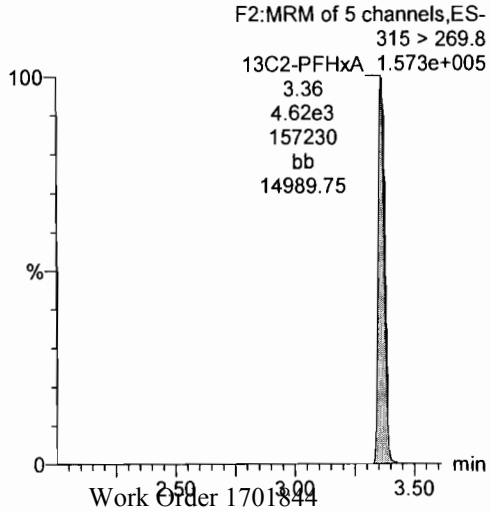

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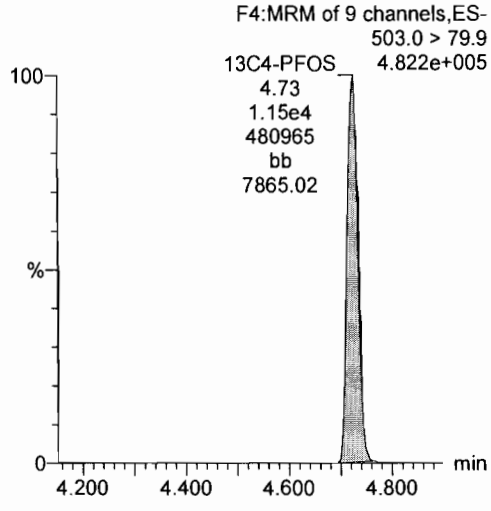

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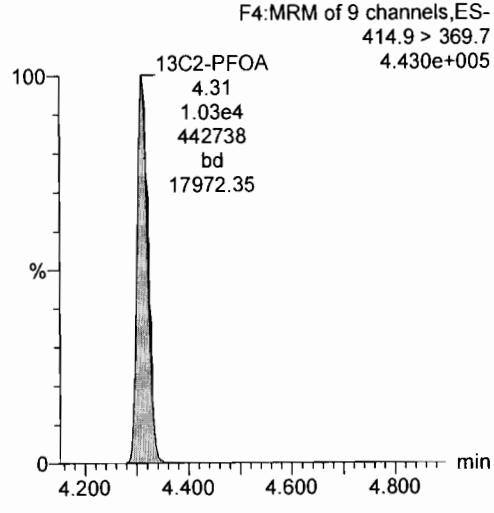

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Printed: Monday, December 11, 2017 10:41:34 Pacific Standard Time

Name: 171208G2_12, Date: 08-Dec-2017, Time: 18:13:34, ID: ICV171208G2-1 PFC ICV 537 17K3030, Description: PFC ICV 537 17K3030

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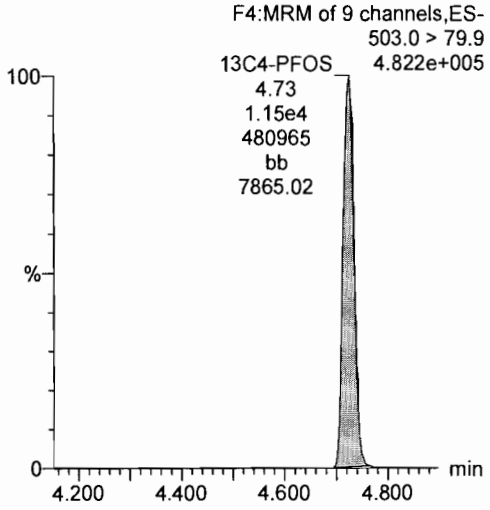

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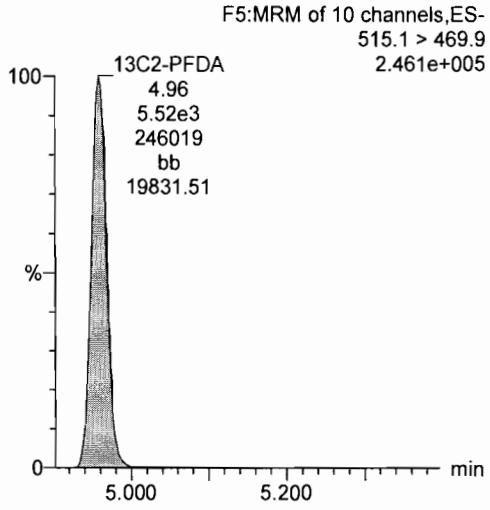

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N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB121-1217	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/02/2017 10:05	12/05/2017			20171207	13:10:00	20171209	17:01:00	1701844-12	1	-999	
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N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB121-1217	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/02/2017 10:05	12/05/2017			20171207	13:10:00	20171209	17:01:00	1701844-12	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW122-1217	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/02/2017 10:38	12/05/2017			20171207	13:10:00	20171209	17:13:00	1701844-13	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW122-1217	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/02/2017 10:38	12/05/2017			20171207	13:10:00	20171209	17:13:00	1701844-13	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW122-1217	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/02/2017 10:38	12/05/2017			20171207	13:10:00	20171209	17:13:00	1701844-13	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW122-1217	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/02/2017 10:38	12/05/2017			20171207	13:10:00	20171209	17:13:00	1701844-13	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB122-1217	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/02/2017 10:39	12/05/2017			20171207	13:10:00	20171209	17:26:00	1701844-14	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB122-1217	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/02/2017 10:39	12/05/2017			20171207	13:10:00	20171209	17:26:00	1701844-14	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB122-1217	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/02/2017 10:39	12/05/2017			20171207	13:10:00	20171209	17:26:00	1701844-14	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB122-1217	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/02/2017 10:39	12/05/2017			20171207	13:10:00	20171209	17:26:00	1701844-14	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	Blank	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BLK	W	4	12/07/2017 13:10	12/07/2017			20171207	13:10:00	20171211	12:40:00	B7L0034-BLK1	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	Blank	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BLK	W	4	12/07/2017 13:10	12/07/2017			20171207	13:10:00	20171211	12:40:00	B7L0034-BLK1	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	Blank	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BLK	W	4	12/07/2017 13:10	12/07/2017			20171207	13:10:00	20171211	12:40:00	B7L0034-BLK1	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	Blank	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BLK	W	4	12/07/2017 13:10	12/07/2017			20171207	13:10:00	20171211	12:40:00	B7L0034-BLK1	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	LCS	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BS	W	4	12/07/2017 13:10	12/07/2017			20171207	13:10:00	20171209	13:54:00	B7L0034-BS1	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	LCS	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BS	W	4	12/07/2017 13:10	12/07/2017			20171207	13:10:00	20171209	13:54:00	B7L0034-BS1	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	LCS	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BS	W	4	12/07/2017 13:10	12/07/2017			20171207	13:10:00	20171209	13:54:00	B7L0034-BS1	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	LCS	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BS	W	4	12/07/2017 13:10	12/07/2017			20171207	13:10:00	20171209	13:54:00	B7L0034-BS1	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	LCS Dup	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BS	W	4	12/07/2017 13:10	12/07/2017			20171207	13:10:00	20171209	14:07:00	B7L0034-BSD1	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	LCS Dup	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BS	W	4	12/07/2017 13:10	12/07/2017			20171207	13:10:00	20171209	14:07:00	B7L0034-BSD1	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	LCS Dup	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BS	W	4	12/07/2017 13:10	12/07/2017			20171207	13:10:00	20171209	14:07:00	B7L0034-BSD1	1	-999	
N6247016D9000	0008		CHERRY_POINT_MCAS	LCS Dup	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BS	W	4	12/07/2017 13:10	12/07/2017			20171207	13:10:00	20171209	14:07:00	B7L0034-BSD1	1	-999	

Contract_ID	DO_CTO_Number	Phase	Installation_ID	Percent_Lipid	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		4.95	NG_L	U		PR	TRG									5.1	0.439	4.95	9.91	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctanoic acid (PFOA)	335-67-1		1.39	NG_L	J		PR	TRG									5.1	1.07	4.95	9.91	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.95	NG_L	U		PR	TRG									5.1	1.03	4.95	9.91	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		13C2-PFHxA	13C2-PFHxA		105	PCT_REC			PR			SLSA	130	70					5.1				1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.81	NG_L	U		PR	TRG									5.1	0.426	4.81	9.63	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctanoic acid (PFOA)	335-67-1		4.81	NG_L	U		PR	TRG									5.1	1.04	4.81	9.63	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.81	NG_L	U		PR	TRG									5.1	1.00	4.81	9.63	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		13C2-PFHxA	13C2-PFHxA		107	PCT_REC			PR			SLSA	130	70					5.1				1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.99	NG_L	U		PR	TRG									5.1	0.442	4.99	9.98	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctanoic acid (PFOA)	335-67-1		4.99	NG_L	U		PR	TRG									5.1	1.08	4.99	9.98	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.99	NG_L	U		PR	TRG									5.1	1.04	4.99	9.98	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		13C2-PFHxA	13C2-PFHxA		101	PCT_REC			PR			SLSA	130	70					5.1				1701844	S7L0032
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	1701844	S7L0032
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	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.78	NG_L	U		PR	TRG									5.1	0.994	4.78	9.56	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		13C2-PFHxA	13C2-PFHxA		101	PCT_REC			PR			SLSA	130	70					5.1				1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.86	NG_L	U		PR	TRG									5.1	0.430	4.86	9.71	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctanoic acid (PFOA)	335-67-1		4.86	NG_L	U		PR	TRG									5.1	1.05	4.86	9.71	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.86	NG_L	U		PR	TRG									5.1	1.01	4.86	9.71	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		13C2-PFHxA	13C2-PFHxA		110	PCT_REC			PR			SLSA	130	70					5.1				1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.83	NG_L	U		PR	TRG									5.1	0.428	4.83	9.65	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctanoic acid (PFOA)	335-67-1		4.83	NG_L	U		PR	TRG									5.1	1.04	4.83	9.65	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.83	NG_L	U		PR	TRG									5.1	1.00	4.83	9.65	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		13C2-PFHxA	13C2-PFHxA		106	PCT_REC			PR			SLSA	130	70					5.1				1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.99	NG_L	U		PR	TRG									5.1	0.442	4.99	9.98	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctanoic acid (PFOA)	335-67-1		4.99	NG_L	U		PR	TRG									5.1	1.08	4.99	9.98	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.99	NG_L	U		PR	TRG									5.1	1.04	4.99	9.98	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		13C2-PFHxA	13C2-PFHxA		111	PCT_REC			PR			SLSA	130	70					5.1				1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.82	NG_L	U		PR	TRG									5.1	0.427	4.82	9.64	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctanoic acid (PFOA)	335-67-1		4.82	NG_L	U		PR	TRG									5.1	1.04	4.82	9.64	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.82	NG_L	U		PR	TRG									5.1	1.00	4.82	9.64	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		13C2-PFHxA	13C2-PFHxA		111	PCT_REC			PR			SLSA	130	70					5.1				1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorobutanesulfonic acid (PFBS)	375-73-5		5.09	NG_L	U		PR	TRG									5.1	0.451	5.09	10.2	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctanoic acid (PFOA)	335-67-1		5.09	NG_L	U		PR	TRG									5.1	1.10	5.09	10.2	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctane Sulfonate (PFOS)	1763-23-1		5.09	NG_L	U		PR	TRG									5.1	1.06	5.09	10.2	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		13C2-PFHxA	13C2-PFHxA		93.3	PCT_REC			PR			SLSA	130	70					5.1				1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.85	NG_L	U		PR	TRG									5.1	0.429	4.85	9.69	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctanoic acid (PFOA)	335-67-1		4.85	NG_L	U		PR	TRG									5.1	1.05	4.85	9.69	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.85	NG_L	U		PR	TRG									5.1	1.01	4.85	9.69	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		13C2-PFHxA	13C2-PFHxA		102	PCT_REC			PR			SLSA	130	70					5.1				1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorobutanesulfonic acid (PFBS)	375-73-5		5.18	NG_L	U		PR	TRG									5.1	0.459	5.18	10.4	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctanoic acid (PFOA)	335-67-1		5.18	NG_L	U		PR	TRG									5.1	1.12	5.18	10.4	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctane Sulfonate (PFOS)	1763-23-1		5.18	NG_L	U		PR	TRG									5.1	1.08	5.18	10.4	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		13C2-PFHxA	13C2-PFHxA		104	PCT_REC			PR			SLSA	130	70					5.1				1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.80	NG_L	U		PR	TRG									5.1	0.425	4.80	9.59	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctanoic acid (PFOA)	335-67-1		4.80	NG_L	U		PR	TRG									5.1	1.04	4.80	9.59	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.80	NG_L	U		PR	TRG									5.1	0.998	4.80	9.59	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		13C2-PFHxA	13C2-PFHxA		106	PCT_REC			PR			SLSA	130	70					5.1				1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorobutanesulfonic acid (PFBS)	375-73-5		5.03	NG_L	U		PR	TRG									5.1	0.445	5.03	10.1	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctanoic acid (PFOA)	335-67-1		5.03	NG_L	U		PR	TRG									5.1	1.09	5.03	10.1	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctane Sulfonate (PFOS)	1763-23-1		5.03	NG_L	U		PR	TRG									5.1	1.05	5.03	10.1	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		13C2-PFHxA	13C2-PFHxA		108	PCT_REC			PR			SLSA	130	70					5.1				1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.79	NG_L	U		PR	TRG									5.1	0.425	4.79	9.59	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctanoic acid (PFOA)	335-67-1		4.79	NG_L	U		PR	TRG									5.1	1.04	4.79	9.59	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.79	NG_L	U		PR	TRG									5.1	0.997	4.79	9.59	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		13C2-PFHxA	13C2-PFHxA		95.9	PCT_REC			PR			SLSA	130	70					5.1				1701844	S7L0032
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	1701844	S7L0032
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	1701844	S7L0032
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	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		13C2-PFHxA	13C2-PFHxA		105	PCT_REC			PR	SUR		SLSA	130	70					5.1				1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorobutanesulfonic acid (PFBS)	375-73-5		75.1	NG_L			PR	TRG		LSA	130	70					5.1	0.443	5.00	10.0	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctanoic acid (PFOA)	335-67-1		84.4	NG_L			PR	TRG		LSA	130	70					5.1	1.08	5.00	10.0	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctane Sulfonate (PFOS)	1763-23-1		78.1	NG_L			PR	TRG		LSA	130	70					5.1	1.04	5.00	10.0	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		13C2-PFHxA	13C2-PFHxA		102	PCT_REC			PR	SUR		LSA	130	70					5.1				1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorobutanesulfonic acid (PFBS)	375-73-5		78.4	NG_L			PR	TRG		LSA	130	70					5.1	0.443	5.00	10.0	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctanoic acid (PFOA)	335-67-1		93.5	NG_L			PR	TRG		LSA	130	70					5.1	1.08	5.00	10.0	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		Perfluorooctane Sulfonate (PFOS)	1763-23-1		78.2	NG_L			PR	TRG		LSA	130	70					5.1	1.04	5.00	10.0	1701844	S7L0032
N6247016D9000	0008		CHERRY_POINT_MCAS		13C2-PFHxA	13C2-PFHxA		109	PCT_REC			PR	SUR		LSA	130	70					5.1				1701844	S7L0032

ENVIRONMENTAL
Data Services, Inc.

DATA VALIDATION SUMMARY REPORT
MCOLF ATLANTC, NORTH CAROLINA

Client: CH2M HILL, Inc., Corvallis, Oregon
SDG: 1701844
Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
Site: MCOLF Atlantic, North Carolina
Date: January 13, 2018

PFCs			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	CH-AT-1RW116-1217	1701844-01	Water
2	CH-AT-1FB116-1217	1701844-02	Water
3	CH-AT-1RW117-1217	1701844-03	Water
4	CH-AT-1FB117-1217	1701844-04	Water
5	CH-AT-1RW118-1217	1701844-05	Water
6	CH-AT-1FB118-1217	1701844-06	Water
7	CH-AT-1RW119-1217	1701844-07	Water
8	CH-AT-1FB119-1217	1701844-08	Water
9	CH-AT-1RW120-1217	1701844-09	Water
10	CH-AT-1FB120-1217	1701844-10	Water
11	CH-AT-1RW121-1217	1701844-11	Water
12	CH-AT-1FB121-1217	1701844-12	Water
13	CH-AT-1RW122-1217	1701844-13	Water
14	CH-AT-1FB122-1217	1701844-14	Water

A full data validation was performed on the analytical data for seven water samples and seven aqueous field blank samples collected on December 1-2, 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	*Method References*
PFCs	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-1FB116-1217	None - ND	-	-	-
CH-AT-1FB117-1217	None - ND	-	-	-
CH-AT-1FB118-1217	None - ND	-	-	-
CH-AT-1FB119-1217	None - ND	-	-	-
CH-AT-1FB120-1217	None - ND	-	-	-
CH-AT-1FB121-1217	None - ND	-	-	-
CH-AT-1FB122-1217	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 Dated: 1/15/18

Nancy Weaver
Senior Chemist

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.

Vista Analytical Laboratory

Sample ID: CH-AT-1RW116-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 01-Dec-17 12:59

Laboratory Data

Lab Sample: 1701844-01
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.439	4.95	9.91		B7L0034	07-Dec-17	0.252 L	09-Dec-17 14:44	1
PFOA	1.39	1.07	4.95	9.91	J	B7L0034	07-Dec-17	0.252 L	09-Dec-17 14:44	1
PFOS	ND	1.03	4.95	9.91		B7L0034	07-Dec-17	0.252 L	09-Dec-17 14:44	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	105	70 - 130		B7L0034	07-Dec-17	0.252 L	09-Dec-17 14:44	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.

MW 1/31/18

Vista 2
Analytical Laboratory

Sample ID: CH-AT-1FB116-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 01-Dec-17 13:00

Laboratory Data

Lab Sample: 1701844-02
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.426	4.81	9.63		B7L0034	07-Dec-17	0.260 L	09-Dec-17 14:56	1
PFOA	ND	1.04	4.81	9.63		B7L0034	07-Dec-17	0.260 L	09-Dec-17 14:56	1
PFOS	ND	1.00	4.81	9.63		B7L0034	07-Dec-17	0.260 L	09-Dec-17 14:56	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	107	70 - 130		B7L0034	07-Dec-17	0.260 L	09-Dec-17 14:56	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.

NW 1.31.8

Vista Analytical Laboratory 3

Sample ID: CH-AT-1RW117-1217 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701844-03	Column:	BEH C18
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	Date Collected:	01-Dec-17 15:05	Date Received:	05-Dec-17 11:15		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.442	4.99	9.98		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:09	1
PFOA	ND	1.08	4.99	9.98		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:09	1
PFOS	ND	1.04	4.99	9.98		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:09	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	101	70 - 130		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:09	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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Vista Analytical Laboratory

4

Sample ID: CH-AT-1FB117-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 01-Dec-17 15:06

Laboratory Data

Lab Sample: 1701844-04
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.424	4.78	9.56		B7L0034	07-Dec-17	0.261 L	09-Dec-17 15:21	1
PFOA	ND	1.03	4.78	9.56		B7L0034	07-Dec-17	0.261 L	09-Dec-17 15:21	1
PFOS	ND	0.994	4.78	9.56		B7L0034	07-Dec-17	0.261 L	09-Dec-17 15:21	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	101	70 - 130		B7L0034	07-Dec-17	0.261 L	09-Dec-17 15:21	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.

1/13/18

Sample ID: CH-AT-1RW118-1217 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701844-05	Column:	BEH C18
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	Date Collected:	01-Dec-17 15:17	Date Received:	05-Dec-17 11:15		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.430	4.86	9.71		B7L0034	07-Dec-17	0.257 L	09-Dec-17 15:34	1
PFOA	ND	1.05	4.86	9.71		B7L0034	07-Dec-17	0.257 L	09-Dec-17 15:34	1
PFOS	ND	1.01	4.86	9.71		B7L0034	07-Dec-17	0.257 L	09-Dec-17 15:34	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	110	70 - 130		B7L0034	07-Dec-17	0.257 L	09-Dec-17 15:34	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.

Vista Analytical Laboratory 6

Sample ID: CH-AT-1FB118-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 01-Dec-17 15:18

Laboratory Data

Lab Sample: 1701844-06
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.428	4.83	9.65		B7L0034	07-Dec-17	0.259 L	09-Dec-17 15:46	1
PFOA	ND	1.04	4.83	9.65		B7L0034	07-Dec-17	0.259 L	09-Dec-17 15:46	1
PFOS	ND	1.00	4.83	9.65		B7L0034	07-Dec-17	0.259 L	09-Dec-17 15:46	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	106	70 - 130		B7L0034	07-Dec-17	0.259 L	09-Dec-17 15:46	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.

nw 11.3.18

Vista Analytical Laboratory 7

Sample ID: CH-AT-1RW119-1217

EPA Method 537

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701844-07	Column:	BEH C18
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	Date Collected:	02-Dec-17 09:18	Date Received:	05-Dec-17 11:15		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.442	4.99	9.98		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:58	1
PFOA	ND	1.08	4.99	9.98		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:58	1
PFOS	ND	1.04	4.99	9.98		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:58	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	111	70 - 130		B7L0034	07-Dec-17	0.250 L	09-Dec-17 15:58	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.

12/13/18

Vista Analytical Laboratory

8

Sample ID: CH-AT-1FB119-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 02-Dec-17 09:19

Laboratory Data

Lab Sample: 1701844-08
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.427	4.82	9.64		B7L0034	07-Dec-17	0.259 L	09-Dec-17 16:11	1
PFOA	ND	1.04	4.82	9.64		B7L0034	07-Dec-17	0.259 L	09-Dec-17 16:11	1
PFOS	ND	1.00	4.82	9.64		B7L0034	07-Dec-17	0.259 L	09-Dec-17 16:11	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	111	70 - 130		B7L0034	07-Dec-17	0.259 L	09-Dec-17 16:11	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

Vista Analytical Laboratory 9

Sample ID: CH-AT-1RW120-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 02-Dec-17 09:40

Laboratory Data

Lab Sample: 1701844-09
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.451	5.09	10.2		B7L0034	07-Dec-17	0.245 L	09-Dec-17 16:23	1
PFOA	ND	1.10	5.09	10.2		B7L0034	07-Dec-17	0.245 L	09-Dec-17 16:23	1
PFOS	ND	1.06	5.09	10.2		B7L0034	07-Dec-17	0.245 L	09-Dec-17 16:23	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	93.3	70 - 130		B7L0034	07-Dec-17	0.245 L	09-Dec-17 16:23	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.

NW 1/3/18

Vista Analytical Laboratory 10

Sample ID: CH-AT-1FB120-1217 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701844-10	Column:	BEH C18
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	Date Collected:	02-Dec-17 09:41	Date Received:	05-Dec-17 11:15		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.429	4.85	9.69		B7L0034	07-Dec-17	0.258 L	09-Dec-17 16:36	1
PFOA	ND	1.05	4.85	9.69		B7L0034	07-Dec-17	0.258 L	09-Dec-17 16:36	1
PFOS	ND	1.01	4.85	9.69		B7L0034	07-Dec-17	0.258 L	09-Dec-17 16:36	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	102	70 - 130		B7L0034	07-Dec-17	0.258 L	09-Dec-17 16:36	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.

MW 1/13/18

Sample ID: CH-AT-1RW121-1217 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701844-11	Column:	BEH C18
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	Date Collected:	02-Dec-17 10:04	Date Received:	05-Dec-17 11:15		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.459	5.18	10.4		B7L0034	07-Dec-17	0.241 L	09-Dec-17 16:48	1
PFOA	ND	1.12	5.18	10.4		B7L0034	07-Dec-17	0.241 L	09-Dec-17 16:48	1
PFOS	ND	1.08	5.18	10.4		B7L0034	07-Dec-17	0.241 L	09-Dec-17 16:48	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	104	70 - 130		B7L0034	07-Dec-17	0.241 L	09-Dec-17 16:48	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.

nw 1/3/18

Vista Analytical Laboratory 12

Sample ID: CH-AT-1FB121-1217 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701844-12	Column:	BEH C18
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	Date Collected:	02-Dec-17 10:05	Date Received:	05-Dec-17 11:15		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.425	4.80	9.59		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:01	1
PFOA	ND	1.04	4.80	9.59		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:01	1
PFOS	ND	0.998	4.80	9.59		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:01	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	106	70 - 130		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:01	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

11/13/18

Vista Analytical Laboratory 13

Sample ID: CH-AT-1RW122-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 02-Dec-17 10:38

Laboratory Data

Lab Sample: 1701844-13
Date Received: 05-Dec-17 11:15
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.445	5.03	10.1		B7L0034	07-Dec-17	0.249 L	09-Dec-17 17:13	1
PFOA	ND	1.09	5.03	10.1		B7L0034	07-Dec-17	0.249 L	09-Dec-17 17:13	1
PFOS	ND	1.05	5.03	10.1		B7L0034	07-Dec-17	0.249 L	09-Dec-17 17:13	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	108	70 - 130		B7L0034	07-Dec-17	0.249 L	09-Dec-17 17:13	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.

12/13/18

Vista 14 Analytical Laboratory

Sample ID: CH-AT-1FB122-1217 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701844-14	Column:	BEH C18
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	Date Collected:	02-Dec-17 10:39	Date Received:	05-Dec-17 11:15		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.425	4.79	9.59		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:26	1
PFOA	ND	1.04	4.79	9.59		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:26	1
PFOS	ND	0.997	4.79	9.59		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:26	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	95.9	70 - 130		B7L0034	07-Dec-17	0.261 L	09-Dec-17 17:26	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.

nw 1/13/18

R:\N\Navy\CLEAN\MULTI_REGION\PFC_679580\MapFiles\ML\CherryPoint_MCAS\OLF Atlantic Working - 2.mxd4/25/2017bmailhes

MARINE CORPS OUTLYING LANDING FIELD ATLANTIC

Atlantic, NC

ATLANTIC ELEMENTARY

CRUISE MART II

CORE SOUND

Legend

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

N

0 0.2 0.4 Miles

1 inch = 0.4 mile

Imagery: Esri, 2016

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