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 1701716

Marine Corps Outlying Landing Field Atlantic
MCAS Cherry Point NC

February 2019

November 27, 2017

Vista Work Order No. 1701716

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

Dear Ms. Hill,

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

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

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

Sincerely,

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. 1701716
Case Narrative

Sample Condition on Receipt:

Eighteen 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

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

Holding Times

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

Quality Control

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

A Laboratory Fortified Blank (LFB) and a 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.

A Laboratory Fortified Sample Matrix (LFSM) and Laboratory Fortified Sample Matrix Duplicate (LFSMD) were performed on sample "CH-AT-1RW02-1117". All analyte recoveries and RPDs were within the method acceptance criteria.

Table of Contents

Case Narrative..... 1

Table of Contents..... 3

Sample Inventory..... 4

Analytical Results..... 6

Qualifiers..... 28

Certifications..... 29

Sample Receipt..... 32

Sample Inventory Report

Vista Sample ID	Client Sample ID		Sampled	Received	Components/Containers
1701716-01	CH-AT-1RW01-1117		13-Nov-17 11:59	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-02	CH-AT-1FB01-1117		13-Nov-17 12:00	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-03	CH-AT-1RW02-1117	MS/MSD	13-Nov-17 13:20	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-04	CH-AT-1FB02-1117		13-Nov-17 13:21	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-05	CH-AT-1RW03-1117		13-Nov-17 13:45	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-06	CH-AT-1FB03-1117		13-Nov-17 13:46	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-07	CH-AT-1RW04-1117		13-Nov-17 14:42	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-08	CH-AT-1FB04-1117		13-Nov-17 14:43	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-09	CH-AT-1RW05-1117		13-Nov-17 14:55	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-10	CH-AT-1FB05-1117		13-Nov-17 14:56	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-11	CH-AT-1RW06-1117		13-Nov-17 15:20	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-12	CH-AT-1FB06-1117		13-Nov-17 15:21	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-13	CH-AT-1RW07-1117		14-Nov-17 09:00	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-14	CH-AT-1FB07-1117		14-Nov-17 09:01	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-15	CH-AT-1RW08-1117		14-Nov-17 09:10	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-16	CH-AT-1FB08-1117		14-Nov-17 09:11	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-17	CH-AT-1RW09-1117		14-Nov-17 09:54	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-18	CH-AT-1FB09-1117		14-Nov-17 09:55	17-Nov-17 08:54	HDPE Bottle, 250 mL

Vista Project: 1701716

Client Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1701716-18	CH-AT-1FB09-1117	14-Nov-17 09:55	17-Nov-17 08:54	HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: LRB

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water

Laboratory Data

Lab Sample: B7K0131-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		B7K0131	21-Nov-17	0.250 L	27-Nov-17 11:39	1
PFOA	ND	1.08	5.00	10.0		B7K0131	21-Nov-17	0.250 L	27-Nov-17 11:39	1
PFOS	ND	1.04	5.00	10.0		B7K0131	21-Nov-17	0.250 L	27-Nov-17 11:39	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	104	70 - 130		B7K0131	21-Nov-17	0.250 L	27-Nov-17 11:39	1

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

Sample ID: LFB **EPA Method 537**

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigatio
Matrix: Drinking Water

Laboratory Data

Lab Sample: B7K0131-BS1
Column: BEH C18

Analyte	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	15.8	17.7	89.1	70-130		B7K0131	21-Nov-17	0.250 L	27-Nov-17 11:14	1
PFOA	22.6	20.0	113	70-130		B7K0131	21-Nov-17	0.250 L	27-Nov-17 11:14	1
PFOS	20.4	18.5	110	70-130		B7K0131	21-Nov-17	0.250 L	27-Nov-17 11:14	1
Labeled Standards	**Type**		**% Rec**	**Limits**	**Qualifiers**	**Batch**	**Extracted**	**Samp Size**	**Analyzed**	**Dilution**
13C2-PFHxA	SURR		102	70- 130		B7K0131	21-Nov-17	0.250 L	27-Nov-17 11:14	1

Sample ID: CH-AT-1RW01-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 11:59

Laboratory Data

Lab Sample: 1701716-01
Date Received: 17-Nov-17 08:54
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.483	5.45	10.9		B7K0131	21-Nov-17	0.229 L	27-Nov-17 12:16	1
PFOA	ND	1.18	5.45	10.9		B7K0131	21-Nov-17	0.229 L	27-Nov-17 12:16	1
PFOS	ND	1.13	5.45	10.9		B7K0131	21-Nov-17	0.229 L	27-Nov-17 12:16	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	102	70 - 130		B7K0131	21-Nov-17	0.229 L	27-Nov-17 12:16	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-1FB01-1117

EPA Method 537

Client Data

Name: C2 HM 2 ill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 1H:00

Laboratory Data

Lab Sample: 1701716-0H
Date 5 eceived: 17-Nov-17 08:9R
Column: BE2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	04RRH	R4 .	. 4 .		B7K0131	H1-Nov-17	04-90 L	H7-Nov-17 1H:H	1
PFOA	ND	1408	R4 .	. 4 .		B7K0131	H1-Nov-17	04-90 L	H7-Nov-17 1H:H	1
PFOS	ND	140R	R4 .	. 4 .		B7K0131	H1-Nov-17	04-90 L	H7-Nov-17 1H:H	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13CH-PF2 xA	SU5 5	107	70 - 130		B7K0131	H1-Nov-17	04-90 L	H7-Nov-17 1H:H	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
5 esults reported to the DL4
When reported, PF2 xS, PFOA and PFOS include both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1RW02-1117

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drin3ing Water
Date Collected: 1H-Nov-17 1Hu0

Laboratory Data

Lab Sample: 1701716-0H
Date 5 eceived: 17-Nov-17 08:9R
ColBmn: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	04R 8	946u	114u		E7K01H1	u1-Nov-17	04uuHL	u7-Nov-17 1u:R1	1
PFOA	ND	14u1	946u	114u		E7K01H1	u1-Nov-17	04uuHL	u7-Nov-17 1u:R1	1
PFOS	ND	141 7	946u	114u		E7K01H1	u1-Nov-17	04uuHL	u7-Nov-17 1u:R1	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1HCu-PF2 xA	SU5 5	. . 49	70 - 1H0		E7K01H1	u1-Nov-17	04uuHL	u7-Nov-17 1u:R1	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of qBantitation
LCL-UCL- Lower control limit - Bpper control limit
5 esBlts reported to the DL4
When reported, PF2 xS, PFOA and PFOS inclBde both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1RW02-1117 **EPA Method 537**

Name:	CH2M Hill	Lab Sample:	B7K0131-MS1/B7K0131-MSD1	Source Lab Sample:	1701716-03
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigatio	QC Batch:	B7K0131	Date Extracted:	21-Nov-17
Matrix:	Drinking Water	Samp Size:	0.211/0.234 L	Column:	BEH C18

Analyte	Sample (ng/L)	MS (ng/L)	MS Spike Amt	MS % Rec	MS Quals	MSD (ng/L)	MSD Spike Amt	MSD % Rec	RPD	MSD Quals	%Rec Limits	RPD Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
PFBS	ND	20.8	20.9	99.7		17.9	18.9	94.7	5.14		70-130		27-Nov-17 11:52	1	27-Nov-17 12:04	1
PFOA	ND	24.4	23.7	101		24.4	21.3	113	11.2		70-130		27-Nov-17 11:52	1	27-Nov-17 12:04	1
PFOS	ND	21.2	21.9	96.6		17.9	19.7	90.7	6.30		70-130		27-Nov-17 11:52	1	27-Nov-17 12:04	1

Labeled Standards	Type	MS % Rec	MS Quals	MSD % Rec	MSD Quals	Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
13C2-PFHxA	SURR	110		105		70-130	27-Nov-17 11:52	1	27-Nov-17 12:04	1

Sample ID: CH-AT-1FB02-1117

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drin3ing Water
Date Collected: 15-Nov-17 15:u1

Laboratory Data

Lab Sample: 1701716-0H
Date 9 eceived: 17-Nov-17 08:RH
ColBmn: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	04HH6	R405	1041		E7. 0151	u1-Nov-17	04uHKL	u7-Nov-17 1u:RH	1
PFOA	ND	140K	R405	1041		E7. 0151	u1-Nov-17	04uHKL	u7-Nov-17 1u:RH	1
PFOS	ND	140R	R405	1041		E7. 0151	u1-Nov-17	04uHKL	u7-Nov-17 1u:RH	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
15Cu-PF2 xA	SU9 9	105	70 - 150		E7. 0151	u1-Nov-17	04uHKL	u7-Nov-17 1u:RH	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of qBantitation
LCL-UCL- Lower control limit - Bpper control limit
9 esBlts reported to the DL4
When reported, PF2 xS, PFOA and PFOS inclBde both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1RW07-111L **PMA h etdr5 37L**

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 13:45

baoryatryE Data

Lab Sample: 1701716-05
Date Received: 17-Nov-17 08:54
Column: BEH C18

AnalEte	Crnc. (ng/b)	Db	bOD	bOQ	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
PFBS	ND	0.473	5.34	10.7		B7K0131	21-Nov-17	0.234 L	27-Nov-17 13:06	1
PFOA	ND	1.15	5.34	10.7		B7K0131	21-Nov-17	0.234 L	27-Nov-17 13:06	1
PFOS	ND	1.11	5.34	10.7		B7K0131	21-Nov-17	0.234 L	27-Nov-17 13:06	1

baoele5 Stan5ay5s	TEpe	% RecrveyE	bimits	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
13C2-PFHxA	SURR	101	70 - 130		B7K0131	21-Nov-17	0.234 L	27-Nov-17 13:06	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-1FB07-111L **PMA h etdr5 37L**

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 13:56

baoryatryE Data

Lab Sample: 1701716-06
Date 9eceived: 17-Nov-17 08:R5
Column: BEH C18

AnalEte	Crnc. (ng/b)	Db	bOD	bOQ	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
PFBS	ND	0456.	R42.	1046		B7K0131	21-Nov-17	04236 L	27-Nov-17 13:1.	1
PFOA	ND	1415	R42.	1046		B7K0131	21-Nov-17	04236 L	27-Nov-17 13:1.	1
PFOS	ND	1410	R42.	1046		B7K0131	21-Nov-17	04236 L	27-Nov-17 13:1.	1

baoele5 Stan5ay5s	TEpe	% RecrveyE	bimits	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
13C2-PFHxA	SU99	. 848	70 - 130		B7K0131	21-Nov-17	04236 L	27-Nov-17 13:1.	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
9esults reported to the DL4
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1RW04-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 14:42

Laboratory Data

Lab Sample: 1701716-07
Date Received: 17-Nov-17 08:54
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	3.81	0.475	5.36	10.7	J	B7K0131	21-Nov-17	0.233 L	27-Nov-17 13:31	1
PFOA	1.47	1.16	5.36	10.7	J	B7K0131	21-Nov-17	0.233 L	27-Nov-17 13:31	1
PFOS	4.89	1.12	5.36	10.7	J	B7K0131	21-Nov-17	0.233 L	27-Nov-17 13:31	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	93.8	70 - 130		B7K0131	21-Nov-17	0.233 L	27-Nov-17 13:31	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-1FB04-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 15:53

Laboratory Data

Lab Sample: 1701716-08
Date 9 eceived: 17-Nov-17 08:R5
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	04536	54 2	. 485		B7K0131	21-Nov-17	042R5 L	27-Nov-17 13:55	1
PFOA	ND	1406	54 2	. 485		B7K0131	21-Nov-17	042R5 L	27-Nov-17 13:55	1
PFOS	ND	1402	54 2	. 485		B7K0131	21-Nov-17	042R5 L	27-Nov-17 13:55	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SU9 9	101	70 - 130		B7K0131	21-Nov-17	042R5 L	27-Nov-17 13:55	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
9 esults reported to the DL4
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1RW07-111L **PMA h etdr5 73L**

Client Data

Name: C2 uM 2 ill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drin3ing Water
Date Collected: 15-Nov-17 19:RR

baoryatryE Data

Lab Sample: 1701716-0H
Date 4 eceived: 17-Nov-17 08:R9
ColBmn: Ek2 C18

AnalEte	Crnc. (ng/b)	Db	bOD	bOQ	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
PFES	ND	0.9H0	RR5	11.1		E7K0151	u1-Nov-17	0.uu6 L	u7-Nov-17 15:R6	1
PFOA	ND	1.1H	RR5	11.1		E7K0151	u1-Nov-17	0.uu6 L	u7-Nov-17 15:R6	1
PFOS	ND	1.1R	RR5	11.1		E7K0151	u1-Nov-17	0.uu6 L	u7-Nov-17 15:R6	1

baoele5 Stan5ay5s	TEpe	% RecrveyE	bimits	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
15Cu-PF2 xA	SU4 4	HRR	70 - 150		E7K0151	u1-Nov-17	0.uu6 L	u7-Nov-17 15:R6	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of qBantitation
LCL-UCL- Lower control limit - Bpper control limit
4 esBlts reported to the DL.
When reported, PF2 xS, PFOA and PFOS inclBde both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: CH-AT-1FB07-111L **PMA h etdr5 73L**

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 15:96

baoryatryE Data

Lab Sample: 1701716-10
Date Received: 17-Nov-17 08:95
Column: BEH C18

AnalEte	Crnc. (ng/b)	Db	bOD	bOQ	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
PFBS	ND	0453 6	54 2	. 485		B7K0131	21-Nov-17	0429 5 L	27-Nov-17 15:08	1
PFOA	ND	140 6	54 2	. 485		B7K0131	21-Nov-17	0429 5 L	27-Nov-17 15:08	1
PFOS	ND	140 2	54 2	. 485		B7K0131	21-Nov-17	0429 5 L	27-Nov-17 15:08	1

baoele5 Stan5ay5s	TEpe	% RecrveyE	bimits	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
13C2-PFHxA	SURR	. 84 1	70 - 130		B7K0131	21-Nov-17	0429 5 L	27-Nov-17 15:08	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
Results reported to the DL4
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1RW06-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 15:20

Laboratory Data

Lab Sample: 1701716-11
Date 9 eceived: 17-Nov-17 08:5R
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	04R82	54RR	104		B7K0131	21-Nov-17	04230 L	27-Nov-17 1R:21	1
PFOA	ND	1417	54RR	104		B7K0131	21-Nov-17	04230 L	27-Nov-17 1R:21	1
PFOS	ND	1413	54RR	104		B7K0131	21-Nov-17	04230 L	27-Nov-17 1R:21	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SU99	102	70 - 130		B7K0131	21-Nov-17	04230 L	27-Nov-17 1R:21	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
9 esults reported to the DL4
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1FB06-1117

EPA Method 537

Client Data

Name: C2 HM 2 ill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 15:Hl

Laboratory Data

Lab Sample: 1701716-1H
Date 9 eceived: 17-Nov-17 08:5R
Column: BE2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	04R31	R486	. 47H		B7K0131	Hl-Nov-17	04-57 L	H7-Nov-17 1R:33	1
PFOA	ND	1405	R486	. 47H		B7K0131	Hl-Nov-17	04-57 L	H7-Nov-17 1R:33	1
PFOS	ND	1401	R486	. 47H		B7K0131	Hl-Nov-17	04-57 L	H7-Nov-17 1R:33	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13CH-PF2 xA	SU9 9	10H	70 - 130		B7K0131	Hl-Nov-17	04-57 L	H7-Nov-17 1R:33	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
9 esults reported to the DL4
When reported, PF2 xS, PFOA and PFOS include both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1RW07-1117

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drin3ing Water
Date Collected: 15-Nov-17 09:00

Laboratory Data

Lab Sample: 1701716-1H
Date Received: 17-Nov-17 08:45
ColBmn: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	0.401	4.64	11.H		E7K01H1l	u1-Nov-17	0.uu1 L	u7-Nov-17 15:56	1
PFOA	ND	1.uu	4.64	11.H		E7K01H1l	u1-Nov-17	0.uu1 L	u7-Nov-17 15:56	1
PFOS	ND	1.18	4.64	11.H		E7K01H1l	u1-Nov-17	0.uu1 L	u7-Nov-17 15:56	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1HCu-PF2 xA	SURR	104	70 - 1H0		E7K01H1l	u1-Nov-17	0.uu1 L	u7-Nov-17 15:56	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of qBantitation
LCL-UCL- Lower control limit - Bpper control limit
ResBlts reported to the DL.
When reported, PF2 xS, PFOA and PFOS inclBde both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: CH-AT-1FB07-1117

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drin3ing Water
Date Collected: 1H-Nov-17 05:01

Laboratory Data

Lab Sample: 1701716-1H
Date 9 eceived: 17-Nov-17 08:RH
ColBmn: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	04HR8	R417	104		E7K01. 1	u1-Nov-17	04uHu L	u7-Nov-17 1HR8	1
PFOA	ND	141u	R417	104		E7K01. 1	u1-Nov-17	04uHu L	u7-Nov-17 1HR8	1
PFOS	ND	1408	R417	104		E7K01. 1	u1-Nov-17	04uHu L	u7-Nov-17 1HR8	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1. Cu-PF2 xA	SU9 9	101	70 - 1. 0		E7K01. 1	u1-Nov-17	04uHu L	u7-Nov-17 1HR8	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of qBantitation
LCL-UCL- Lower control limit - Bpper control limit
9 esBlts reported to the DL4
When reported, PF2 xS, PFOA and PFOS inclBde both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1RW08-1117

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drin3ing Water
Date Collected: 15-Nov-17 09:10

Laboratory Data

Lab Sample: 1701716-1H
Date Received: 17-Nov-17 08:H5
ColBmn: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	0457 0	H4 0	1045		E7K01. 1	u1-Nov-17	04u. 6 L	u7-Nov-17 1H:10	1
PFOA	ND	141H	H4 0	1045		E7K01. 1	u1-Nov-17	04u. 6 L	u7-Nov-17 1H:10	1
PFOS	ND	1410	H4 0	1045		E7K01. 1	u1-Nov-17	04u. 6 L	u7-Nov-17 1H:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1. Cu-PF2 xA	SURR	10.	70 - 1. 0		E7K01. 1	u1-Nov-17	04u. 6 L	u7-Nov-17 1H:10	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of qBantitation
LCL-UCL- Lower control limit - Bpper control limit
ResBlts reported to the DL4
When reported, PF2 xS, PFOA and PFOS inclBde both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1FB08-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 05:11

Laboratory Data

Lab Sample: 1701716-16
Date 9 eceived: 17-Nov-17 08:R3
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	04363	R423	104R		B7K01. 1	21-Nov-17	042. 8 L	27-Nov-17 1R:2.	1
PFOA	ND	141.	R423	104R		B7K01. 1	21-Nov-17	042. 8 L	27-Nov-17 1R:2.	1
PFOS	ND	1405	R423	104R		B7K01. 1	21-Nov-17	042. 8 L	27-Nov-17 1R:2.	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1. C2-PFHxA	SU9 9	100	70 - 1. 0		B7K01. 1	21-Nov-17	042. 8 L	27-Nov-17 1R:2.	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
9 esults reported to the DL4
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1RW09-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 05:93

Laboratory Data

Lab Sample: 1701716-17
Date Received: 17-Nov-17 08:93
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	04912	9478	1146		B7K01. 1	21-Nov-17	0416 L	27-Nov-17 19:. 9	1
PFOA	ND	1429	9478	1146		B7K01. 1	21-Nov-17	0416 L	27-Nov-17 19:. 9	1
PFOS	ND	1420	9478	1146		B7K01. 1	21-Nov-17	0416 L	27-Nov-17 19:. 9	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1. C2-PFHxA	SURR	574	70 - 1. 0		B7K01. 1	21-Nov-17	0416 L	27-Nov-17 19:. 9	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
Results reported to the DL4
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1FB09-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 05:99

Laboratory Data

Lab Sample: 1701716-18
Date Received: 17-Nov-17 08:93
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.380	9.32	10.8		B7.01K1	21-Nov-17	0.250 L	27-Nov-17 19:38	1
PFOA	ND	1.17	9.32	10.8		B7.01K1	21-Nov-17	0.250 L	27-Nov-17 19:38	1
PFOS	ND	1.1K	9.32	10.8		B7.01K1	21-Nov-17	0.250 L	27-Nov-17 19:38	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1K.C2-PFHxA	SURR	56.6	70 - 1K0		B7.01K1	21-Nov-17	0.250 L	27-Nov-17 19:38	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
Results reported to the DL4
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

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

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701716 Temp: 0.6 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

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

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

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

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kathryn Smith	11/16/17	17:00	B. Benedict	11/17/17	1025
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

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

ATTN: Martha Maier

Method of Shipment: FEDEX

Tracking No:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	Mod. EPA Method 537: PFOA/PFOS	UCMR3 PFAS List 6	537 List: 14	Full List of 26	Other: Please List Below	EPA Method 537(DW only): PFOA/PFOS/PFBS	UCMR3 PFAS List 6	PFAS List: 14	Comments
CH-AT-1RW01-1117	11/13/17	11:59		2	P	DW						X			TZ preservative
CH-AT-1FB01-1117	11/13/17	12:00		2	P	DW						X			TZ preservative
CH-AT-1RW02-1117	11/13/17	13:20		2	P	DW						X			TZ preservative
CH-AT-1RW02-1117-MS	11/13/17	13:20		2	P	DW						X			TZ preservative
CH-AT-1RW02-1117-SD	11/13/17	13:20		2	P	DW						X			TZ preservative
CH-AT-1FB02-1117	11/13/17	13:21		2	P	DW						X			TZ preservative
CH-AT-1RW03-1117	11/13/17	13:45		2	P	DW						X			TZ preservative
CH-AT-1FB03-1117	11/13/17	13:46		2	P	DW						X			TZ preservative
CH-AT-1RW04-1117	11/13/17	14:42		2	P	DW						X			TZ preservative
CH-AT-1FB04-1117	11/13/17	14:43		2	P	DW						X			TZ preservative

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

SEND DOCUMENTATION AND RESULTS TO:

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

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

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

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

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701716 Temp: 0.4 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

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

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

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

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kathryn Smith	11/16/17	17:00	B. Benedict	11/17/17	1025
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

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

ATTN: Martha Maier

Method of Shipment: FEDEX

Tracking No:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	Mod EPA Method 537: PFOA/PFOS	UCMR3 PFAS List 6	537 List: 14	Full List of 25	Other: Please List Below	EPA Method 537(DW only): PFOA/PFOS/PFBS	UCMR3 PFAS List 6	PFAS List: 14	Comments
CH-AT-1RW05-1117	11/13/17	14:55		2	P	DW						X			TZ preservative
CH-AT-1FB05-1117	11/13/17	14:56		2	P	DW						X			TZ preservative
CH-AT-1RW06-1117	11/13/17	15:20		2	P	DW						X			TZ preservative
CH-AT-1FB06-1117	11/13/17	15:21		2	P	DW						X			TZ preservative
CH-AT-1RW07-1117	11/14/17	09:00		2	P	DW						X			TZ preservative
CH-AT-1FB07-1117	11/14/17	09:01		2	P	DW						X			TZ preservative
CH-AT-1RW08-1117	11/14/17	09:10		2	P	DW						X			TZ preservative
CH-AT-1FB08-1117	11/14/17	09:11		2	P	DW						X			TZ preservative
CH-AT-1RW09-1117	11/14/17	09:54		2	P	DW						X			TZ preservative
CH-AT-1FB09-1117	11/14/17	09:55		2	P	DW						X			TZ preservative

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

SEND DOCUMENTATION AND RESULTS TO:

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

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

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

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

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1701716 **TAT** 7

Samples Arrival:	**Date/Time** 11/17/17 0854	**Initials:** BLB	**Location:** WR-2 **Shelf/Rack:** NA
Logged In:	**Date/Time** 11/17/17 1341	**Initials:** BLB MMS	**Location:** WR-2 **Shelf/Rack:** B6

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

Temp °C: 0.5 (uncorrected)	**Time:** 1024	**Thermometer ID:** IR-1
Temp °C: 0.6 (corrected)	**Probe used:** Yes☐ No☑	

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill 1 of 4 Trk # 7707 6984 6159	✓		
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:

November 27, 2017

Vista Work Order No. 1701716

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

Dear Ms. Hill,

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

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

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

Sincerely,

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. 1701716
Case Narrative

Sample Condition on Receipt:

Eighteen 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

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

Holding Times

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

Quality Control

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

A Laboratory Fortified Blank (LFB) and a 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.

A Laboratory Fortified Sample Matrix (LFSM) and Laboratory Fortified Sample Matrix Duplicate (LFSMD) were performed on sample "CH-AT-1RW02-1117". All analyte recoveries and RPDs were within the method acceptance criteria.

Table of Contents

Case Narrative..... 1

Table of Contents..... 3

Sample Inventory..... 4

Analytical Results..... 6

Qualifiers..... 28

Certifications..... 29

Sample Receipt..... 32

Extraction Information..... 35

Sample Data - EPA Method 537.pdf..... 40

IIS Areas, IBs and CCVs..... 85

ICAL with ICV and IB..... 99

Sample Inventory Report

Vista Sample ID	Client Sample ID		Sampled	Received	Components/Containers
1701716-01	CH-AT-1RW01-1117		13-Nov-17 11:59	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-02	CH-AT-1FB01-1117		13-Nov-17 12:00	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-03	CH-AT-1RW02-1117	MS/MSD	13-Nov-17 13:20	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-04	CH-AT-1FB02-1117		13-Nov-17 13:21	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-05	CH-AT-1RW03-1117		13-Nov-17 13:45	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-06	CH-AT-1FB03-1117		13-Nov-17 13:46	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-07	CH-AT-1RW04-1117		13-Nov-17 14:42	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-08	CH-AT-1FB04-1117		13-Nov-17 14:43	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-09	CH-AT-1RW05-1117		13-Nov-17 14:55	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-10	CH-AT-1FB05-1117		13-Nov-17 14:56	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-11	CH-AT-1RW06-1117		13-Nov-17 15:20	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-12	CH-AT-1FB06-1117		13-Nov-17 15:21	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-13	CH-AT-1RW07-1117		14-Nov-17 09:00	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-14	CH-AT-1FB07-1117		14-Nov-17 09:01	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-15	CH-AT-1RW08-1117		14-Nov-17 09:10	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-16	CH-AT-1FB08-1117		14-Nov-17 09:11	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-17	CH-AT-1RW09-1117		14-Nov-17 09:54	17-Nov-17 08:54	HDPE Bottle, 250 mL
					HDPE Bottle, 250 mL
1701716-18	CH-AT-1FB09-1117		14-Nov-17 09:55	17-Nov-17 08:54	HDPE Bottle, 250 mL

Vista Project: 1701716

Client Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1701716-18	CH-AT-1FB09-1117	14-Nov-17 09:55	17-Nov-17 08:54	HDPE Bottle, 250 mL

ANALYTICAL RESULTS

Sample ID: LRB

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water

Laboratory Data

Lab Sample: B7K0131-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		B7K0131	21-Nov-17	0.250 L	27-Nov-17 11:39	1
PFOA	ND	1.08	5.00	10.0		B7K0131	21-Nov-17	0.250 L	27-Nov-17 11:39	1
PFOS	ND	1.04	5.00	10.0		B7K0131	21-Nov-17	0.250 L	27-Nov-17 11:39	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	104	70 - 130		B7K0131	21-Nov-17	0.250 L	27-Nov-17 11:39	1

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

Sample ID: LFB

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigatio
Matrix: Drinking Water

Laboratory Data

Lab Sample: B7K0131-BS1
Column: BEH C18

Analyte	Amt Found (ng/L)	Spike Amt	% Rec	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	15.8	17.7	89.1	70-130		B7K0131	21-Nov-17	0.250 L	27-Nov-17 11:14	1
PFOA	22.6	20.0	113	70-130		B7K0131	21-Nov-17	0.250 L	27-Nov-17 11:14	1
PFOS	20.4	18.5	110	70-130		B7K0131	21-Nov-17	0.250 L	27-Nov-17 11:14	1
Labeled Standards	**Type**		**% Rec**	**Limits**	**Qualifiers**	**Batch**	**Extracted**	**Samp Size**	**Analyzed**	**Dilution**
13C2-PFHxA	SURR		102	70- 130		B7K0131	21-Nov-17	0.250 L	27-Nov-17 11:14	1

Sample ID: CH-AT-1RW01-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 11:59

Laboratory Data

Lab Sample: 1701716-01
Date Received: 17-Nov-17 08:54
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.483	5.45	10.9		B7K0131	21-Nov-17	0.229 L	27-Nov-17 12:16	1
PFOA	ND	1.18	5.45	10.9		B7K0131	21-Nov-17	0.229 L	27-Nov-17 12:16	1
PFOS	ND	1.13	5.45	10.9		B7K0131	21-Nov-17	0.229 L	27-Nov-17 12:16	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	102	70 - 130		B7K0131	21-Nov-17	0.229 L	27-Nov-17 12:16	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-1FB01-1117

EPA Method 537

Client Data

Name: C2 HM 2 ill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 1H:00

Laboratory Data

Lab Sample: 1701716-0H
Date 5 eceived: 17-Nov-17 08:9R
Column: BE2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	04RRH	R4 .	. 4 .		B7K0131	H1-Nov-17	04-90 L	H7-Nov-17 1H:H	1
PFOA	ND	1408	R4 .	. 4 .		B7K0131	H1-Nov-17	04-90 L	H7-Nov-17 1H:H	1
PFOS	ND	140R	R4 .	. 4 .		B7K0131	H1-Nov-17	04-90 L	H7-Nov-17 1H:H	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13CH-PF2 xA	SU5 5	107	70 - 130		B7K0131	H1-Nov-17	04-90 L	H7-Nov-17 1H:H	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
5 esults reported to the DL4
When reported, PF2 xS, PFOA and PFOS include both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1RW02-1117

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drin3ing Water
Date Collected: 1H-Nov-17 1Hu0

Laboratory Data

Lab Sample: 1701716-0H
Date 5 eceived: 17-Nov-17 08:9R
ColBmn: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	04R 8	946u	114u		E7K01H1	u1-Nov-17	04uuHL	u7-Nov-17 1u:R1	1
PFOA	ND	14u1	946u	114u		E7K01H1	u1-Nov-17	04uuHL	u7-Nov-17 1u:R1	1
PFOS	ND	141 7	946u	114u		E7K01H1	u1-Nov-17	04uuHL	u7-Nov-17 1u:R1	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1HCu-PF2 xA	SU5 5	. . 49	70 - 1H0		E7K01H1	u1-Nov-17	04uuHL	u7-Nov-17 1u:R1	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of qBantitation
LCL-UCL- Lower control limit - Bpper control limit
5 esBlts reported to the DL4
When reported, PF2 xS, PFOA and PFOS inclBde both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1RW02-1117 **EPA Method 537**

Name:	CH2M Hill	Lab Sample:	B7K0131-MS1/B7K0131-MSD1	Source Lab Sample:	1701716-03
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigatio	QC Batch:	B7K0131	Date Extracted:	21-Nov-17
Matrix:	Drinking Water	Samp Size:	0.211/0.234 L	Column:	BEH C18

Analyte	Sample (ng/L)	MS (ng/L)	MS Spike Amt	MS % Rec	MS Quals	MSD (ng/L)	MSD Spike Amt	MSD % Rec	RPD	MSD Quals	%Rec Limits	RPD Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
PFBS	ND	20.8	20.9	99.7		17.9	18.9	94.7	5.14		70-130		27-Nov-17 11:52	1	27-Nov-17 12:04	1
PFOA	ND	24.4	23.7	101		24.4	21.3	113	11.2		70-130		27-Nov-17 11:52	1	27-Nov-17 12:04	1
PFOS	ND	21.2	21.9	96.6		17.9	19.7	90.7	6.30		70-130		27-Nov-17 11:52	1	27-Nov-17 12:04	1

Labeled Standards	Type	MS % Rec	MS Quals	MSD % Rec	MSD Quals	Limits	MS Analyzed	MS Dil	MSD Analyzed	MSD Dil
13C2-PFHxA	SURR	110		105		70-130	27-Nov-17 11:52	1	27-Nov-17 12:04	1

Sample ID: CH-AT-1FB02-1117

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drin3ing Water
Date Collected: 15-Nov-17 15:u1

Laboratory Data

Lab Sample: 1701716-0H
Date 9 eceived: 17-Nov-17 08:RH
ColBmn: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	04HH6	R405	1041		E7. 0151	u1-Nov-17	04uHKL	u7-Nov-17 1u:RH	1
PFOA	ND	140K	R405	1041		E7. 0151	u1-Nov-17	04uHKL	u7-Nov-17 1u:RH	1
PFOS	ND	140R	R405	1041		E7. 0151	u1-Nov-17	04uHKL	u7-Nov-17 1u:RH	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
15Cu-PF2 xA	SU9 9	105	70 - 150		E7. 0151	u1-Nov-17	04uHKL	u7-Nov-17 1u:RH	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of qBantitation
LCL-UCL- Lower control limit - Bpper control limit
9 esBlts reported to the DL4
When reported, PF2 xS, PFOA and PFOS inclBde both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1RW07-111L **PMA h etdr5 37L**

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 13:45

baoryatryE Data

Lab Sample: 1701716-05
Date Received: 17-Nov-17 08:54
Column: BEH C18

AnalEte	Crnc. (ng/b)	Db	bOD	bOQ	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
PFBS	ND	0.473	5.34	10.7		B7K0131	21-Nov-17	0.234 L	27-Nov-17 13:06	1
PFOA	ND	1.15	5.34	10.7		B7K0131	21-Nov-17	0.234 L	27-Nov-17 13:06	1
PFOS	ND	1.11	5.34	10.7		B7K0131	21-Nov-17	0.234 L	27-Nov-17 13:06	1

baoele5 Stan5ay5s	TEpe	% RecrveyE	bimits	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
13C2-PFHxA	SURR	101	70 - 130		B7K0131	21-Nov-17	0.234 L	27-Nov-17 13:06	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-1FB07-111L **PMA h etdr5 37L**

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 13:56

baoryatryE Data

Lab Sample: 1701716-06
Date 9eceived: 17-Nov-17 08:R5
Column: BEH C18

AnalEte	Crnc. (ng/b)	Db	bOD	bOQ	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
PFBS	ND	0456.	R42.	1046		B7K0131	21-Nov-17	04236 L	27-Nov-17 13:1.	1
PFOA	ND	1415	R42.	1046		B7K0131	21-Nov-17	04236 L	27-Nov-17 13:1.	1
PFOS	ND	1410	R42.	1046		B7K0131	21-Nov-17	04236 L	27-Nov-17 13:1.	1

baoele5 Stan5ay5s	TEpe	% RecrveyE	bimits	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
13C2-PFHxA	SU99	. 848	70 - 130		B7K0131	21-Nov-17	04236 L	27-Nov-17 13:1.	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
9esults reported to the DL4
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1RW04-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 14:42

Laboratory Data

Lab Sample: 1701716-07
Date Received: 17-Nov-17 08:54
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	3.81	0.475	5.36	10.7	J	B7K0131	21-Nov-17	0.233 L	27-Nov-17 13:31	1
PFOA	1.47	1.16	5.36	10.7	J	B7K0131	21-Nov-17	0.233 L	27-Nov-17 13:31	1
PFOS	4.89	1.12	5.36	10.7	J	B7K0131	21-Nov-17	0.233 L	27-Nov-17 13:31	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	93.8	70 - 130		B7K0131	21-Nov-17	0.233 L	27-Nov-17 13:31	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-1FB04-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 15:53

Laboratory Data

Lab Sample: 1701716-08
Date 9 eceived: 17-Nov-17 08:R5
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	04536	54 2	. 485		B7K0131	21-Nov-17	042R5 L	27-Nov-17 13:55	1
PFOA	ND	1406	54 2	. 485		B7K0131	21-Nov-17	042R5 L	27-Nov-17 13:55	1
PFOS	ND	1402	54 2	. 485		B7K0131	21-Nov-17	042R5 L	27-Nov-17 13:55	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SU9 9	101	70 - 130		B7K0131	21-Nov-17	042R5 L	27-Nov-17 13:55	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
9 esults reported to the DL4
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1RW07-111L **PMA h etdr5 73L**

Client Data

Name: C2 uM 2 ill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drin3ing Water
Date Collected: 15-Nov-17 19:RR

baoryatryE Data

Lab Sample: 1701716-0H
Date 4 eceived: 17-Nov-17 08:R9
ColBmn: Ek2 C18

AnalEte	Crnc. (ng/b)	Db	bOD	bOQ	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
PFES	ND	0.9H0	RR5	11.1		E7K0151	u1-Nov-17	0.uu6 L	u7-Nov-17 15:R6	1
PFOA	ND	1.1H	RR5	11.1		E7K0151	u1-Nov-17	0.uu6 L	u7-Nov-17 15:R6	1
PFOS	ND	1.1R	RR5	11.1		E7K0151	u1-Nov-17	0.uu6 L	u7-Nov-17 15:R6	1

baoele5 Stan5ay5s	TEpe	% RecrveyE	bimits	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
15Cu-PF2 xA	SU4 4	HRR	70 - 150		E7K0151	u1-Nov-17	0.uu6 L	u7-Nov-17 15:R6	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of qBantitation
LCL-UCL- Lower control limit - Bpper control limit
4 esBlts reported to the DL.
When reported, PF2 xS, PFOA and PFOS inclBde both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: CH-AT-1FB07-111L **PMA h etdr5 73L**

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 15:96

baoryatryE Data

Lab Sample: 1701716-10
Date Received: 17-Nov-17 08:95
Column: BEH C18

AnalEte	Crnc. (ng/b)	Db	bOD	bOQ	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
PFBS	ND	0453 6	54 2	. 485		B7K0131	21-Nov-17	0429 5 L	27-Nov-17 15:08	1
PFOA	ND	140 6	54 2	. 485		B7K0131	21-Nov-17	0429 5 L	27-Nov-17 15:08	1
PFOS	ND	140 2	54 2	. 485		B7K0131	21-Nov-17	0429 5 L	27-Nov-17 15:08	1

baoele5 Stan5ay5s	TEpe	% RecrveyE	bimits	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
13C2-PFHxA	SURR	. 84 1	70 - 130		B7K0131	21-Nov-17	0429 5 L	27-Nov-17 15:08	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
Results reported to the DL4
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1RW06-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 15:20

Laboratory Data

Lab Sample: 1701716-11
Date 9 eceived: 17-Nov-17 08:5R
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	04R82	54RR	104		B7K0131	21-Nov-17	04230 L	27-Nov-17 1R:21	1
PFOA	ND	1417	54RR	104		B7K0131	21-Nov-17	04230 L	27-Nov-17 1R:21	1
PFOS	ND	1413	54RR	104		B7K0131	21-Nov-17	04230 L	27-Nov-17 1R:21	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SU99	102	70 - 130		B7K0131	21-Nov-17	04230 L	27-Nov-17 1R:21	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
9 esults reported to the DL4
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1FB06-1117

EPA Method 537

Client Data

Name: C2 HM 2 ill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 15:Hl

Laboratory Data

Lab Sample: 1701716-1H
Date 9 eceived: 17-Nov-17 08:5R
Column: BE2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	04R31	R486	. 47H		B7K0131	Hl-Nov-17	04-57 L	H7-Nov-17 1R:33	1
PFOA	ND	1405	R486	. 47H		B7K0131	Hl-Nov-17	04-57 L	H7-Nov-17 1R:33	1
PFOS	ND	1401	R486	. 47H		B7K0131	Hl-Nov-17	04-57 L	H7-Nov-17 1R:33	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13CH-PF2 xA	SU9 9	10H	70 - 130		B7K0131	Hl-Nov-17	04-57 L	H7-Nov-17 1R:33	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
9 esults reported to the DL4
When reported, PF2 xS, PFOA and PFOS include both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1RW07-1117

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drin3ing Water
Date Collected: 15-Nov-17 09:00

Laboratory Data

Lab Sample: 1701716-1H
Date Received: 17-Nov-17 08:45
ColBmn: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	0.401	4.64	11.H		E7K01H1	u1-Nov-17	0.uu1 L	u7-Nov-17 15:56	1
PFOA	ND	1.uu	4.64	11.H		E7K01H1	u1-Nov-17	0.uu1 L	u7-Nov-17 15:56	1
PFOS	ND	1.18	4.64	11.H		E7K01H1	u1-Nov-17	0.uu1 L	u7-Nov-17 15:56	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1HCu-PF2 xA	SURR	104	70 - 1H0		E7K01H1	u1-Nov-17	0.uu1 L	u7-Nov-17 15:56	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of qBantitation
LCL-UCL- Lower control limit - Bpper control limit
ResBlts reported to the DL.
When reported, PF2 xS, PFOA and PFOS inclBde both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: CH-AT-1FB07-1117

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drin3ing Water
Date Collected: 1H-Nov-17 05:01

Laboratory Data

Lab Sample: 1701716-1H
Date 9 eceived: 17-Nov-17 08:RH
ColBmn: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	04HR8	R417	104		E7K01. 1	u1-Nov-17	04uHu L	u7-Nov-17 1HR8	1
PFOA	ND	141u	R417	104		E7K01. 1	u1-Nov-17	04uHu L	u7-Nov-17 1HR8	1
PFOS	ND	1408	R417	104		E7K01. 1	u1-Nov-17	04uHu L	u7-Nov-17 1HR8	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1. Cu-PF2 xA	SU9 9	101	70 - 1. 0		E7K01. 1	u1-Nov-17	04uHu L	u7-Nov-17 1HR8	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of qBantitation
LCL-UCL- Lower control limit - Bpper control limit
9 esBlts reported to the DL4
When reported, PF2 xS, PFOA and PFOS inclBde both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1RW08-1117

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drin3ing Water
Date Collected: 15-Nov-17 09:10

Laboratory Data

Lab Sample: 1701716-1H
Date Received: 17-Nov-17 08:H5
ColBmn: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	045 70	H4 0	1045		E7K01. 1	u1-Nov-17	04u. 6 L	u7-Nov-17 1H:10	1
PFOA	ND	14 1H	H4 0	1045		E7K01. 1	u1-Nov-17	04u. 6 L	u7-Nov-17 1H:10	1
PFOS	ND	14 10	H4 0	1045		E7K01. 1	u1-Nov-17	04u. 6 L	u7-Nov-17 1H:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1. Cu-PF2 xA	SURR	10.	70 - 1. 0		E7K01. 1	u1-Nov-17	04u. 6 L	u7-Nov-17 1H:10	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of qBantitation
LCL-UCL- Lower control limit - Bpper control limit
ResBlts reported to the DL4
When reported, PF2 xS, PFOA and PFOS inclBde both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1FB08-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 05:11

Laboratory Data

Lab Sample: 1701716-16
Date 9 eceived: 17-Nov-17 08:R3
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	04363	R423	104R		B7K01. 1	21-Nov-17	042. 8 L	27-Nov-17 1R:2.	1
PFOA	ND	141.	R423	104R		B7K01. 1	21-Nov-17	042. 8 L	27-Nov-17 1R:2.	1
PFOS	ND	1405	R423	104R		B7K01. 1	21-Nov-17	042. 8 L	27-Nov-17 1R:2.	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1. C2-PFHxA	SU9 9	100	70 - 1. 0		B7K01. 1	21-Nov-17	042. 8 L	27-Nov-17 1R:2.	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
9 esults reported to the DL4
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1RW09-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 05:93

Laboratory Data

Lab Sample: 1701716-17
Date Received: 17-Nov-17 08:93
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.912	9.78	11.6		B7K01.1	21-Nov-17	0.216 L	27-Nov-17 19:..9	1
PFOA	ND	1.29	9.78	11.6		B7K01.1	21-Nov-17	0.216 L	27-Nov-17 19:..9	1
PFOS	ND	1.20	9.78	11.6		B7K01.1	21-Nov-17	0.216 L	27-Nov-17 19:..9	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1. C2-PFHxA	SURR	57.4	70 - 1.0		B7K01.1	21-Nov-17	0.216 L	27-Nov-17 19:..9	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
Results reported to the DL4
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

Sample ID: CH-AT-1FB09-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 05:99

Laboratory Data

Lab Sample: 1701716-18
Date Received: 17-Nov-17 08:93
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0438O	932	1048		B7. 01K1	21-Nov-17	042K1 L	27-Nov-17 19:38	1
PFOA	ND	1417	932	1048		B7. 01K1	21-Nov-17	042K1 L	27-Nov-17 19:38	1
PFOS	ND	141K	932	1048		B7. 01K1	21-Nov-17	042K1 L	27-Nov-17 19:38	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1KC2-PFHxA	SURR	5645	70 - 1K0		B7. 01K1	21-Nov-17	042K1 L	27-Nov-17 19:38	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
Results reported to the DL4
When reported, PFHxS, PFOA and PFOS include both linear and branched isomers4
Only the linear isomer is reported for all other analytes4

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

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701716 Temp: 0.6 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

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

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

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

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kathryn Smith	11/16/17	17:00	B. Benedict	11/17/17	1025
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

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

ATTN: Martha Maier

Method of Shipment: FEDEX

Tracking No:

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	Mod. EPA Method 537: PFOA/PFOS	UCMR3 PFAS List 6	537 List: 14	Full List of 26	Other: Please List Below	EPA Method 537(DW only): PFOA/PFOS/PFBS	UCMR3 PFAS List 6	PFAS List: 14	Comments
CH-AT-1RW01-1117	11/13/17	11:59		2	P	DW						X			TZ preservative
CH-AT-1FB01-1117	11/13/17	12:00		2	P	DW						X			TZ preservative
CH-AT-1RW02-1117	11/13/17	13:20		2	P	DW						X			TZ preservative
CH-AT-1RW02-1117-MS	11/13/17	13:20		2	P	DW						X			TZ preservative
CH-AT-1RW02-1117-SD	11/13/17	13:20		2	P	DW						X			TZ preservative
CH-AT-1FB02-1117	11/13/17	13:21		2	P	DW						X			TZ preservative
CH-AT-1RW03-1117	11/13/17	13:45		2	P	DW						X			TZ preservative
CH-AT-1FB03-1117	11/13/17	13:46		2	P	DW						X			TZ preservative
CH-AT-1RW04-1117	11/13/17	14:42		2	P	DW						X			TZ preservative
CH-AT-1FB04-1117	11/13/17	14:43		2	P	DW						X			TZ preservative

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

SEND DOCUMENTATION AND RESULTS TO:

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

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

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

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

Vista Analytical Laboratory

CHAIN OF CUSTODY

For Laboratory Use Only
Work Order #: 1701716 Temp: 0.4 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

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

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

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

Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time
Kathryn Smith	11/16/17	17:00	B.Benedict	11/17/17	1025
Relinquished by (printed name and signature)	Date	Time	Received by (printed name and signature)	Date	Time

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

ATTN: Martha Maier

Method of Shipment: FEDEX

Tracking No:

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	Add Analysis(es) Requested: Mod EPA Method 537 PFOA/PFOS	UCMR3 PFAS List 6	537 List: 14	Full List of 25	Other: Please List Below	EPA Method 537(DW only) PFOA/PFOS/PFBS	UCMR3 PFAS List 6	PFAS List: 14	Comments
CH-AT-1RW05-1117	11/13/17	14:55		2	P	DW						X			TZ preservative
CH-AT-1FB05-1117	11/13/17	14:56		2	P	DW						X			TZ preservative
CH-AT-1RW06-1117	11/13/17	15:20		2	P	DW						X			TZ preservative
CH-AT-1FB06-1117	11/13/17	15:21		2	P	DW						X			TZ preservative
CH-AT-1RW07-1117	11/14/17	09:00		2	P	DW						X			TZ preservative
CH-AT-1FB07-1117	11/14/17	09:01		2	P	DW						X			TZ preservative
CH-AT-1RW08-1117	11/14/17	09:10		2	P	DW						X			TZ preservative
CH-AT-1FB08-1117	11/14/17	09:11		2	P	DW						X			TZ preservative
CH-AT-1RW09-1117	11/14/17	09:54		2	P	DW						X			TZ preservative
CH-AT-1FB09-1117	11/14/17	09:55		2	P	DW						X			TZ preservative

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

SEND DOCUMENTATION AND RESULTS TO:

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

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

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

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

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1701716 **TAT** 7

Samples Arrival:	**Date/Time** 11/17/17 0854	**Initials:** BLB	**Location:** WR-2 **Shelf/Rack:** NA
Logged In:	**Date/Time** 11/17/17 1341	**Initials:** BLB MMS	**Location:** WR-2 **Shelf/Rack:** B6

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

Temp °C: 0.5 (uncorrected)	**Time:** 1024	**Thermometer ID:** IR-1
Temp °C: 0.6 (corrected)	**Probe used:** Yes☐ No☑	

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill 1 of 4 Trk # 7707 6984 6159	✓		
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: 1701716

RUSH

Prep Expiration: 2017-Nov-27
Client: CH2M Hill

Workorder Due: 27-Nov-17 00:00

TAT: 10

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

Prep Batch: B7K0131

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

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

Initial Sequence: _____

LabSampID	A/B	Prep Rec	Spike Rec	ClientSampleID	Comments	Location	Container
1701716-01	"A"	☑	☑	CH-AT-1RW01-1117		WR-2 B-6	HDPE Bottle, 250 mL
1701716-02	↓	☑	☑	CH-AT-1FB01-1117		WR-2 B-6	HDPE Bottle, 250 mL
1701716-03	"ABC"	☑	☑	CH-AT-1RW02-1117	**MS/MSD**	WR-2 B-6	HDPE Bottle, 250 mL
1701716-04	"A"	☑	☑	CH-AT-1FB02-1117		WR-2 B-6	HDPE Bottle, 250 mL
1701716-05		☑	☑	CH-AT-1RW03-1117		WR-2 B-6	HDPE Bottle, 250 mL
1701716-06		☑	☑	CH-AT-1FB03-1117		WR-2 B-6	HDPE Bottle, 250 mL
1701716-07		☑	☑	CH-AT-1RW04-1117		WR-2 B-6	HDPE Bottle, 250 mL
1701716-08		☑	☑	CH-AT-1FB04-1117		WR-2 B-6	HDPE Bottle, 250 mL
1701716-09		☑	☑	CH-AT-1RW05-1117		WR-2 B-6	HDPE Bottle, 250 mL
1701716-10		☑	☑	CH-AT-1FB05-1117		WR-2 B-6	HDPE Bottle, 250 mL
1701716-11		☑	☑	CH-AT-1RW06-1117		WR-2 B-6	HDPE Bottle, 250 mL
1701716-12		☑	☑	CH-AT-1FB06-1117		WR-2 B-6	HDPE Bottle, 250 mL
1701716-13		☑	☑	CH-AT-1RW07-1117		WR-2 B-6	HDPE Bottle, 250 mL
1701716-14		☑	☑	CH-AT-1FB07-1117		WR-2 B-6	HDPE Bottle, 250 mL
1701716-15		☑	☑	CH-AT-1RW08-1117		WR-2 B-6	HDPE Bottle, 250 mL
1701716-16		☑	☑	CH-AT-1FB08-1117		WR-2 B-6	HDPE Bottle, 250 mL
1701716-17		☑	☑	CH-AT-1RW09-1117		WR-2 B-6	HDPE Bottle, 250 mL
1701716-18	↓	☑	☑	CH-AT-1FB09-1117		WR-2 B-6	HDPE Bottle, 250 mL

Pre-Prep Check Out: HB 11/20/17
Pre-Prep Check In: HB 11/20/17

Prep Check Out: JC 11.21.17
Prep Check In: NA

Prep Reconciled Initals/Date: HB 11/20/17
Spike Reconciled Initals/Date: JC 11.21.17
VialBoxID: Cheryl

PREPARATION BENCH SHEET

Matrix: Drinking Water

Method: 537 PFAS DW DoD Unmodified

B7K0131

Chemist: HC

Prep Date/Time: 20-Nov-17 13:36 / 11.21.17 0830

HC

Prepared using: LCMS - SPE Extraction-LCMS

HRMS-9 Hannah D 11/21/17

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
☐	B7K0131-BLK1 (A)	NA	NA	(0.250) ✓	HC HN 11.21.17	HC 11.21.17	HC KC 11.21.17
☐	B7K0131-BS1 (A)	↓	↓	(0.250) ✓			
☐	B7K0131-MS1 1701716-03 HB 11/20/17	~~25~~ 239.53	28.22	0.21131 ✓			
☐	B7K0131-MSD1 1701716-03	262.07	27.59	0.23448 ✓			
☐	1701716-01	257.23	28.00	0.22923 ✓			
☐	1701716-02 (B)	278.00	~~27.68~~ 11/22/17 ST	0.25032 ✓			
☐	1701716-03	250.93	28.33	0.22260 ✓			
☐	1701716-04	276.24	27.73	0.24851 ✓			
☐	1701716-05	261.05	27.12	0.23393 ✓			
☐	1701716-06	263.77	27.67	0.23610 ✓			
☐	1701716-07	259.83	26.76	0.23307 ✓			
☐	1701716-08	281.51	27.57	0.25394 ✓			
☐	1701716-09	254.39	28.30	0.22609 ✓			
☐	1701716-10	281.11	26.94	0.254170 ✓			
☐	1701716-11	257.33	27.49	0.22984 ✓			
☐	1701716-12	284.23	27.04	0.25719 ✓			

SS/IS: 17J3101, 50µL (V2)

NS: 17I2602, 20µL

IS/RS: 17J3102, 50µL (V3)

SPE Chem: ~~Strata~~ X 33µm 500mg/6mL

Lot#: S17-001946

Ele SOLV: MeOH

Lot#: DT006

Final Volume(s): 1mL

Notes: (A) ~~0.6259~~ Trizma preservative added to QCS. HB 11/20/17
1.259 HB 11/21/17

(B) Bottle only = 27.68g 11/22/17 ST

Comments: Assume 1 g = 1 mL

Cen = Centrifuged

PREPARATION BENCH SHEET

Matrix: Drinking Water

Method: 537 PFAS DW DoD Unmodified

B7K0131

Chemist: HC

Prep Date/Time: 20-Nov-17 ~~13:36~~ 11.21.17 0830 HC

Prepared using: LCMS - SPE Extraction-LCMS

BalanceID: HRMS-9

Cen	VISTA Sample ID	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	SS/NS CHEM/WIT DATE	SPE	IS CHEM/WIT DATE
☐	1701716-13	249.65	28.47	0.22118 ✓	HC HN 11.21.17	HC 11.21.17	HC KC 11.21.17
☐	1701716-14	269.39	27.56	0.24183 ✓			
☐	1701716-15	263.81	28.18	0.23563 ✓			
☐	1701716-16	266.17	27.71	0.23846 ✓			
☐	1701716-17	244.37	28.08	0.21629 ✓			
☐	1701716-18	258.32	27.53	0.23079 ✓			

SS/IS: 17J3101, 50µL (V2)

NS: 17I2602, 20µL

IS/RS: 17J3102, 50µL (V3)

SPE Chem: Strata X 33µm 500mg/6mL

Lot#: S17-00446

Ele SOLV: MeOH

Lot#: DT006

Final Volume(s): 1mL

Notes:

Comments: Assume 1 g = 1 mL

Cen = Centrifuged

Batch: B7K0131

Matrix: Drinking Water

LabNumber	WetWeight (Initial)	% Solids (Extraction Solids)	DryWeight	Final	Extracted	Ext By	Spike	SpikeAmount	ClientMatrix	Analysis
1701716-01	0.22923	NA	NA	1000	21-Nov-17 08:30	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701716-02	0.25032			1000	21-Nov-17 08:30	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701716-03	0.2226			1000	21-Nov-17 08:30	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701716-04	0.24851			1000	21-Nov-17 08:30	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701716-05	0.23393			1000	21-Nov-17 08:30	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701716-06	0.2361			1000	21-Nov-17 08:30	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701716-07	0.23307			1000	21-Nov-17 08:30	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701716-08	0.25394			1000	21-Nov-17 08:30	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701716-09	0.22609			1000	21-Nov-17 08:30	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701716-10	0.25417			1000	21-Nov-17 08:30	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701716-11	0.22984			1000	21-Nov-17 08:30	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701716-12	0.25719			1000	21-Nov-17 08:30	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701716-13	0.22118			1000	21-Nov-17 08:30	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701716-14	0.24183			1000	21-Nov-17 08:30	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701716-15	0.23563			1000	21-Nov-17 08:30	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701716-16	0.23846			1000	21-Nov-17 08:30	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701716-17	0.21629			1000	21-Nov-17 08:30	HAC			Drinking Water	537 PFAS DW DoD Unmoc
1701716-18	0.23079			1000	21-Nov-17 08:30	HAC			Drinking Water	537 PFAS DW DoD Unmoc
B7K0131-BLK1	0.25			1000	21-Nov-17 08:30	HAC				QC
B7K0131-BS1	0.25			1000	21-Nov-17 08:30	HAC				QC
B7K0131-MS1	0.21131			1000	21-Nov-17 08:30	HAC	17I2602	20		QC
B7K0131-MSD1	0.23448			1000	21-Nov-17 08:30	HAC	17I2602	20		QC

HN 11/22/17

Printed: 11/22/2017 5:07:20PM

SAMPLE DATA –EPA METHOD 537

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-5.qld

Last Altered: Monday, November 27, 2017 14:52:35 Pacific Standard Time
Printed: Monday, November 27, 2017 14:52:51 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_5, Date: 27-Nov-2017, Time: 11:39:39, ID: B7K0131-BLK1 LRB 0.25, Description: LRB

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		8.39e3		0.2500	3.11				
2	2	PFOA	413 > 368.7	3.74e1	8.27e3		0.2500	4.41	4.41	0.0452	0.215	
3	3	PFOS	499 >79.9		8.39e3		0.2500	4.81				
4	4	13C2-PFHxA	315 > 269.8	3.89e3	8.27e3	0.451	0.2500	3.47	3.47	4.71	41.7	104.3
5	5	13C2-PFDA	515.1 > 469.9	4.33e3	8.27e3	0.590	0.2500	5.04	5.04	5.23	35.5	88.7
6	6	13C2-PFOA	414.9 > 369.7	8.27e3	8.27e3	1.000	0.2500	4.41	4.41	10.0	40.0	100.0
7	7	13C4-PFOS	503.0 > 79.9	8.39e3	8.39e3	1.000	0.2500	4.81	4.81	28.7	115	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-5.qld

Last Altered: Monday, November 27, 2017 14:52:35 Pacific Standard Time
Printed: Monday, November 27, 2017 14:52:51 Pacific Standard Time

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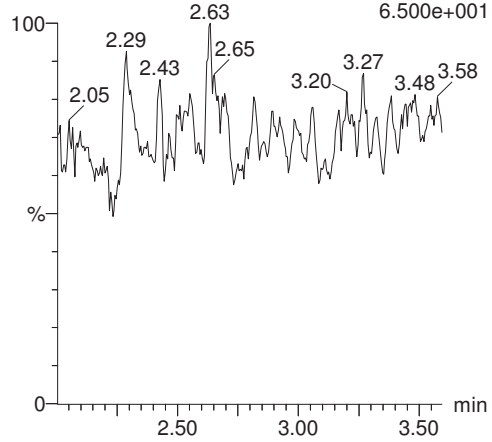
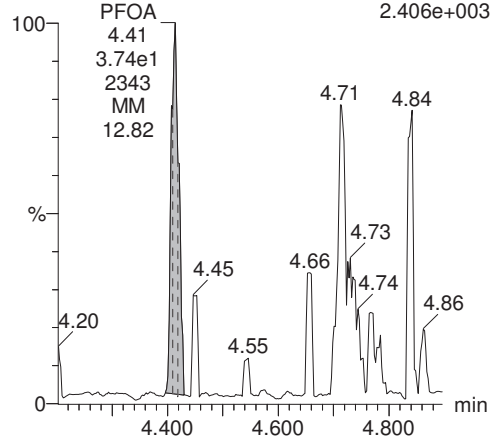
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_5, Date: 27-Nov-2017, Time: 11:39:39, ID: B7K0131-BLK1 LRB 0.25, Description: LRB

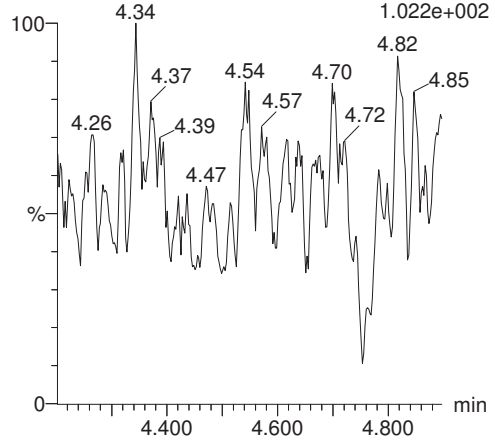
PFBS



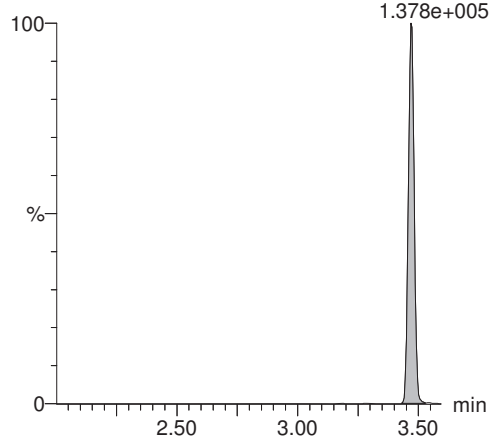
PFOA



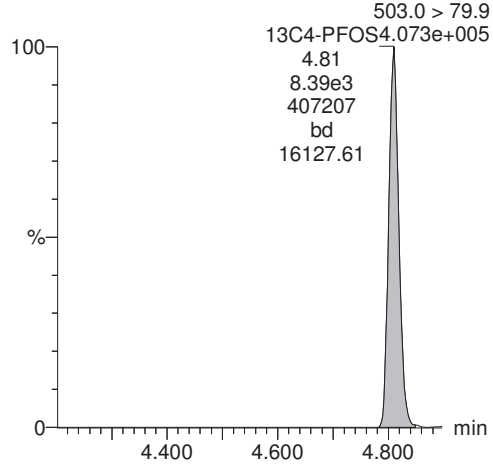
PFOS



13C2-PFHxA



13C4-PFOS



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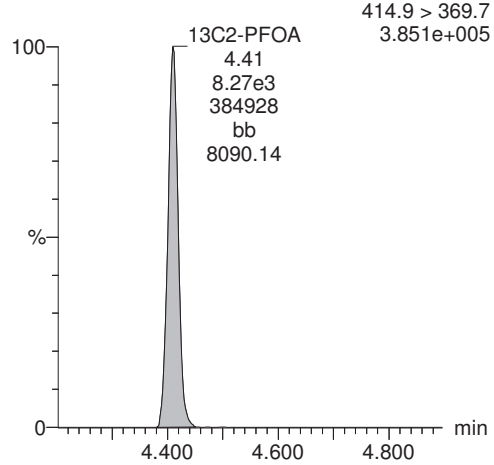
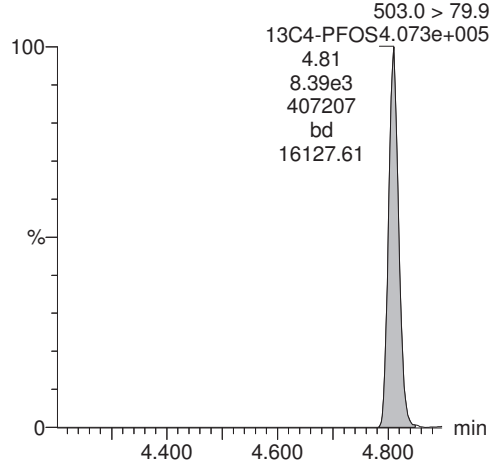
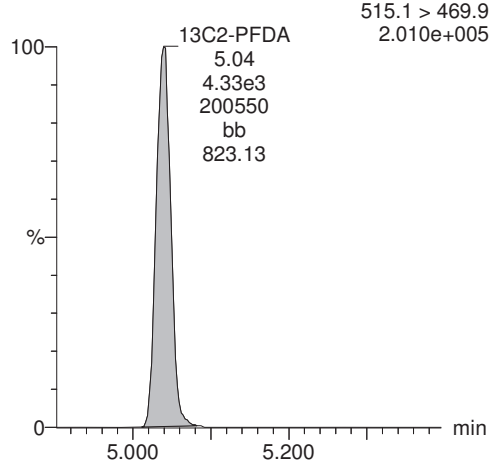


13C4-PFOS



13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-3.qld

Last Altered: Monday, November 27, 2017 14:37:03 Pacific Standard Time
Printed: Monday, November 27, 2017 14:37:23 Pacific Standard Time

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

Name: 171127G1_3, Date: 27-Nov-2017, Time: 11:14:47, ID: B7K0131-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	1.14e3	9.35e3		0.2500	3.11	3.11	3.49	15.8	89.1
2	2	PFOA	413 > 368.7	4.10e3	8.60e3		0.2500	4.41	4.41	4.76	22.6	113.2
3	3	PFOS	499 >79.9	1.96e3	9.35e3		0.2500	4.81	4.81	6.02	20.4	110.2
4	4	13C2-PFHxA	315 > 269.8	3.94e3	8.60e3	0.451	0.2500	3.47	3.47	4.58	40.6	101.5
5	5	13C2-PFDA	515.1 > 469.9	4.19e3	8.60e3	0.590	0.2500	5.04	5.04	4.87	33.0	82.5
6	6	13C2-PFOA	414.9 > 369.7	8.60e3	8.60e3	1.000	0.2500	4.41	4.41	10.0	40.0	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.35e3	9.35e3	1.000	0.2500	4.81	4.81	28.7	115	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

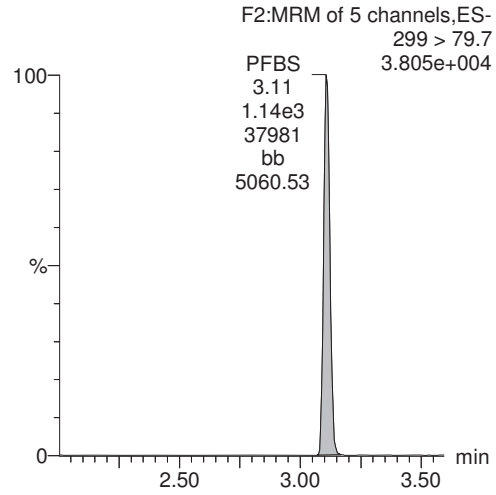
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-3.qld

Last Altered: Monday, November 27, 2017 14:37:03 Pacific Standard Time
Printed: Monday, November 27, 2017 14:37:23 Pacific Standard Time

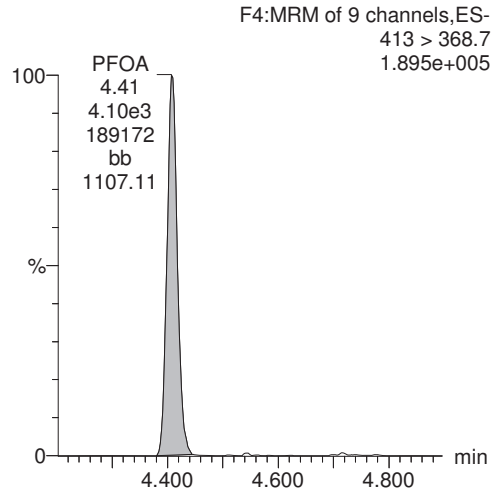
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_3, Date: 27-Nov-2017, Time: 11:14:47, ID: B7K0131-BS1 LFB 0.25, Description: LFB

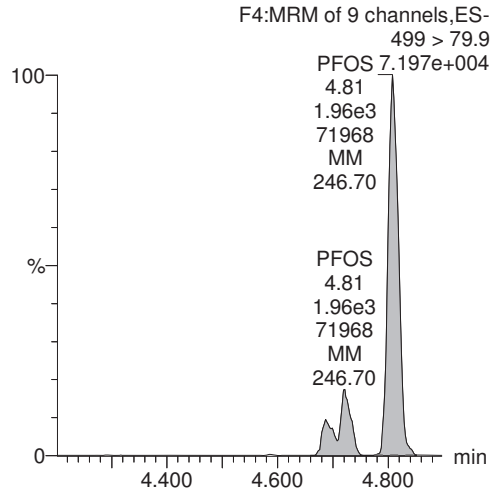
PFBS



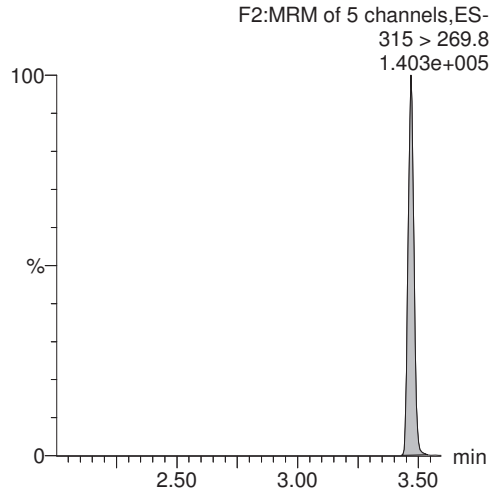
PFOA



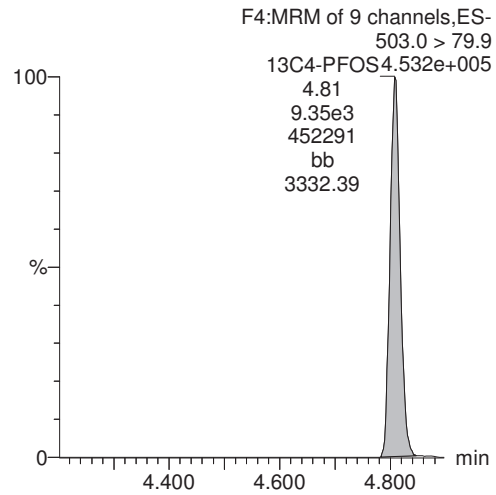
PFOS



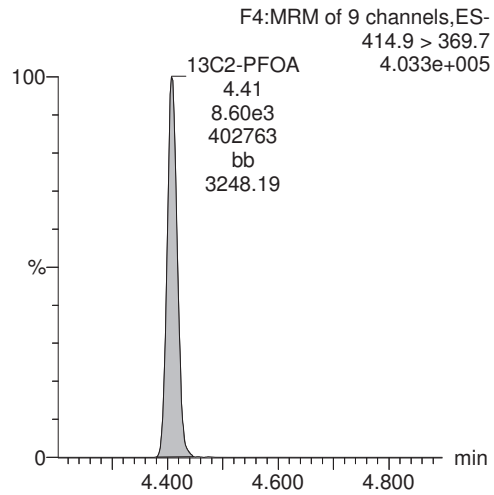
13C2-PFHxA



13C4-PFOS



13C2-PFOA



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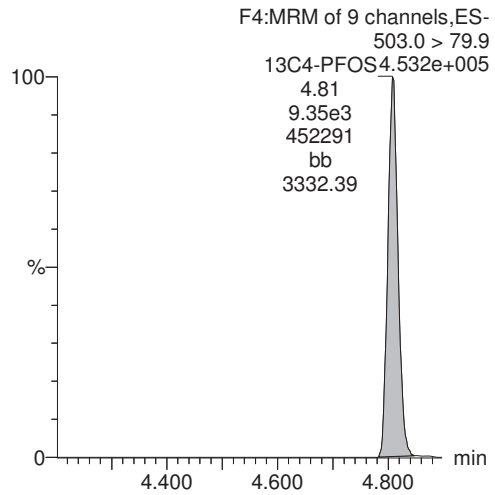
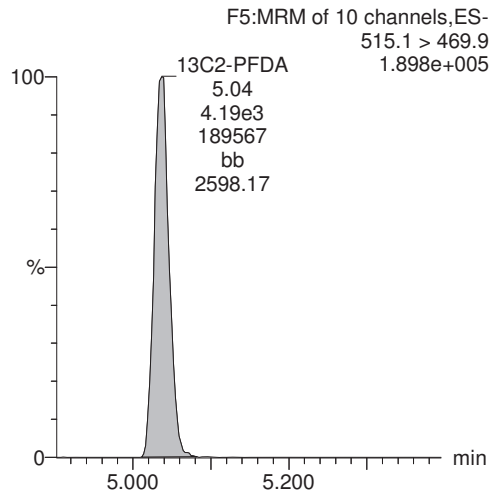


13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-8.qld

Last Altered: Monday, November 27, 2017 15:09:25 Pacific Standard Time
Printed: Monday, November 27, 2017 15:10:05 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_8, Date: 27-Nov-2017, Time: 12:16:59, ID: 1701716-01 CH-AT-1RW01-1117 0.22923, Description: CH-AT-1RW01-1117

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		9.67e3		0.2292	3.11				
2	2	PFOA	413 > 368.7	3.93e1	9.20e3		0.2292	4.41	4.41	0.0427	0.221	
3	3	PFOS	499 >79.9		9.67e3		0.2292	4.81				
4	4	13C2-PFHxA	315 > 269.8	4.24e3	9.20e3	0.451	0.2292	3.47	3.47	4.61	44.5	102.1
5	5	13C2-PFDA	515.1 > 469.9	4.42e3	9.20e3	0.590	0.2292	5.04	5.04	4.81	35.5	81.5
6	6	13C2-PFOA	414.9 > 369.7	9.20e3	9.20e3	1.000	0.2292	4.41	4.41	10.0	43.6	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.67e3	9.67e3	1.000	0.2292	4.81	4.81	28.7	125	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-8.qld

Last Altered: Monday, November 27, 2017 15:09:25 Pacific Standard Time
Printed: Monday, November 27, 2017 15:10:05 Pacific Standard Time

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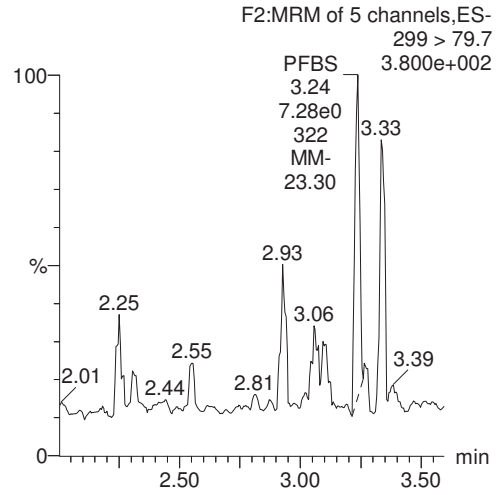
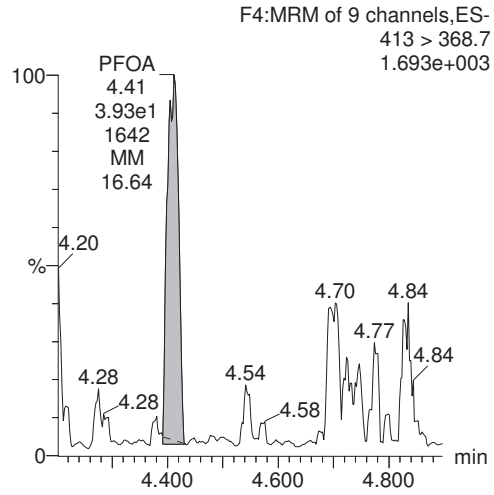
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_8, Date: 27-Nov-2017, Time: 12:16:59, ID: 1701716-01 CH-AT-1RW01-1117 0.22923, Description: CH-AT-1RW01-1117

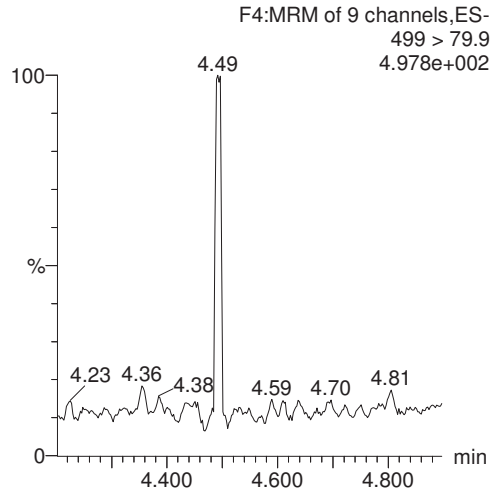
PFBS



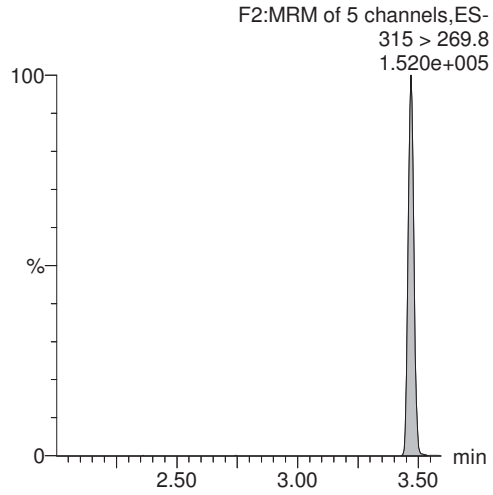
PFOA



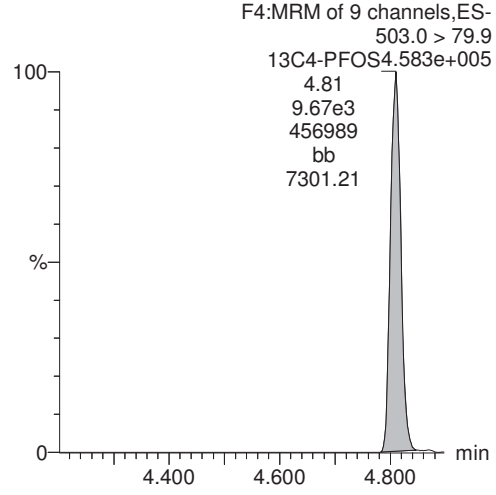
PFOS



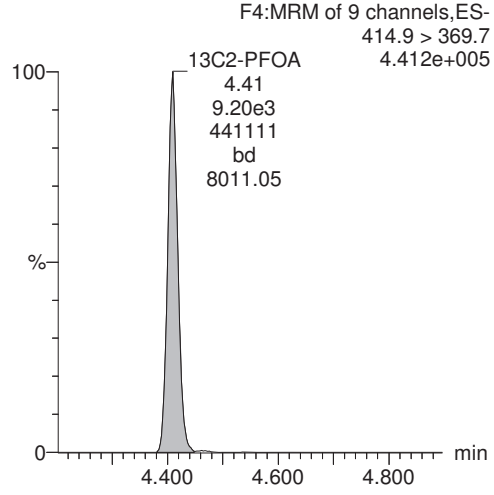
13C2-PFHxA



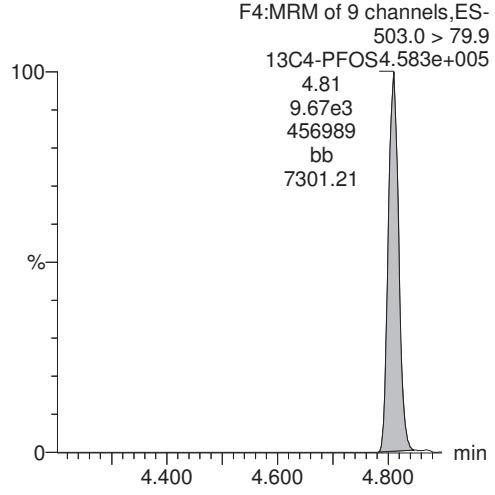
13C4-PFOS



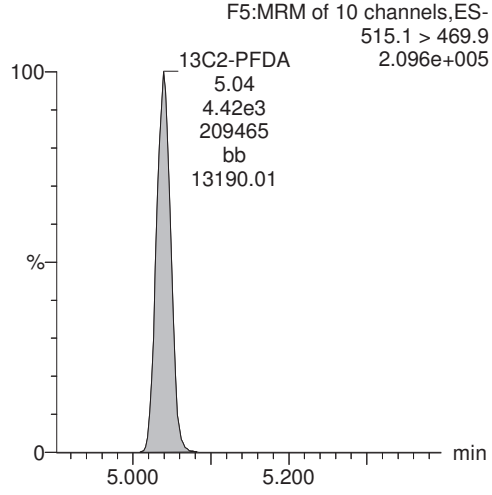
13C2-PFOA



13C4-PFOS



13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-9.qld

Last Altered: Monday, November 27, 2017 15:11:13 Pacific Standard Time
Printed: Monday, November 27, 2017 15:11:39 Pacific Standard Time

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

Name: 171127G1_9, Date: 27-Nov-2017, Time: 12:29:26, ID: 1701716-02 CH-AT-1FB01-1117 0.25032, Description: CH-AT-1FB01-1117

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		8.28e3		0.2503	3.11				
2	2	PFOA	413 > 368.7	4.21e1	8.17e3		0.2503	4.41	4.41	0.0516	0.245	
3	3	PFOS	499 >79.9		8.28e3		0.2503	4.81				
4	4	13C2-PFHxA	315 > 269.8	3.94e3	8.17e3	0.451	0.2503	3.47	3.47	4.83	42.7	107.0
5	5	13C2-PFDA	515.1 > 469.9	4.39e3	8.17e3	0.590	0.2503	5.04	5.04	5.37	36.4	91.1
6	6	13C2-PFOA	414.9 > 369.7	8.17e3	8.17e3	1.000	0.2503	4.41	4.41	10.0	39.9	100.0
7	7	13C4-PFOS	503.0 > 79.9	8.28e3	8.28e3	1.000	0.2503	4.81	4.81	28.7	115	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

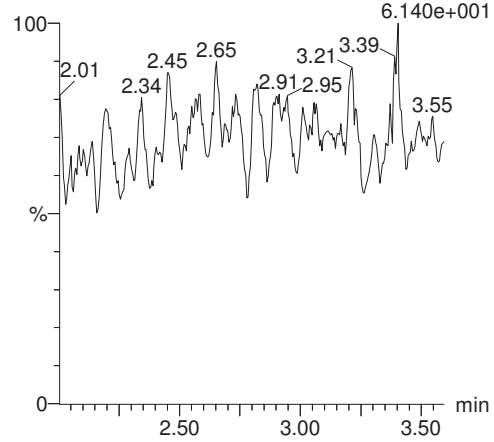
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-9.qld

Last Altered: Monday, November 27, 2017 15:11:13 Pacific Standard Time
Printed: Monday, November 27, 2017 15:11:39 Pacific Standard Time

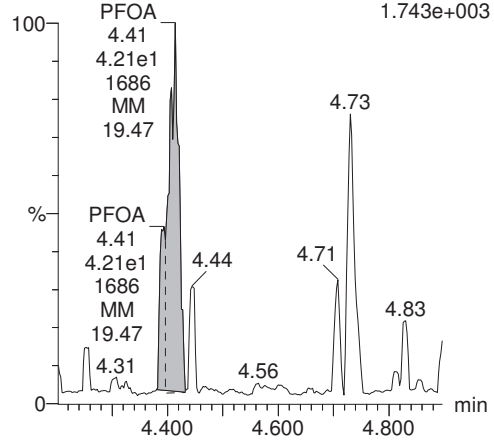
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_9, Date: 27-Nov-2017, Time: 12:29:26, ID: 1701716-02 CH-AT-1FB01-1117 0.25032, Description: CH-AT-1FB01-1117

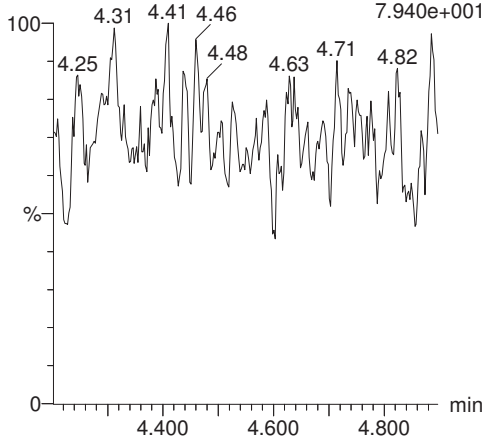
PFBS



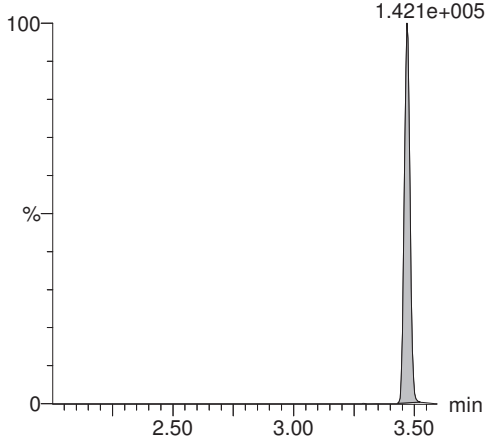
PFOA



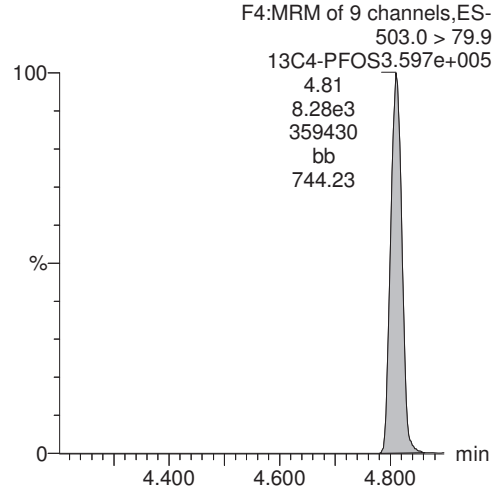
PFOS



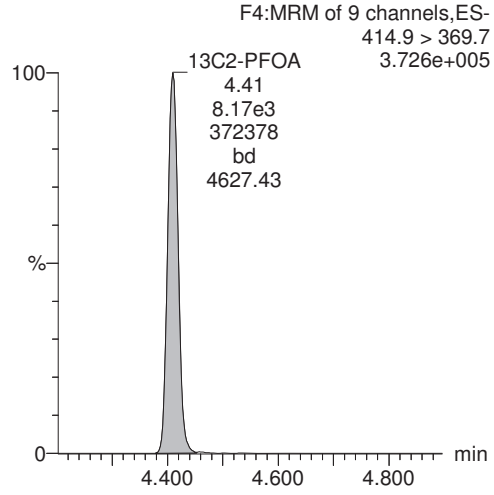
13C2-PFHxA



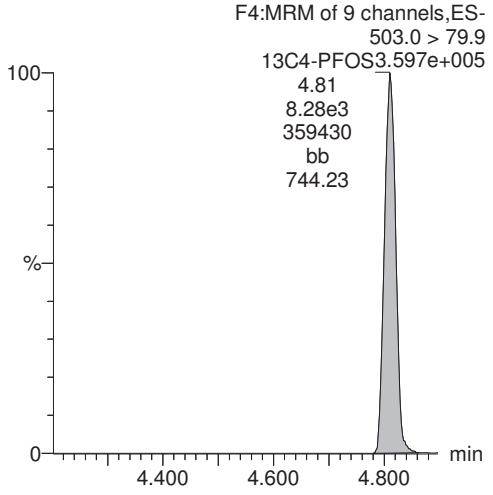
13C4-PFOS



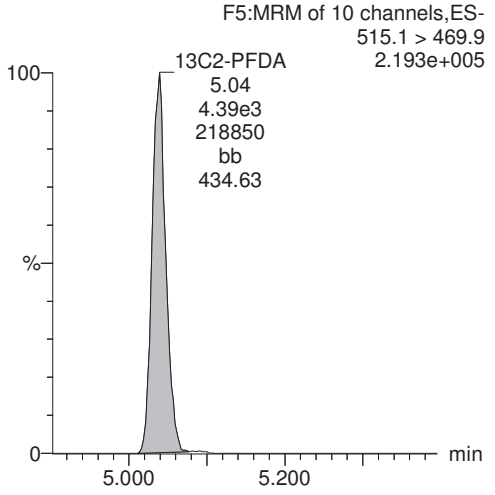
13C2-PFOA



13C4-PFOS



13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-10.qld

Last Altered: Monday, November 27, 2017 15:12:20 Pacific Standard Time
Printed: Monday, November 27, 2017 15:12:43 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_10, Date: 27-Nov-2017, Time: 12:41:54, ID: 1701716-03 CH-AT-1RW02-1117 0.2226, Description: CH-AT-1RW02-1117

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		8.72e3		0.2226	3.11				
2	2	PFOA	413 > 368.7	5.76e1	8.29e3		0.2226	4.41	4.41	0.0695	0.371	
3	3	PFOS	499 >79.9		8.72e3		0.2226	4.81				
4	4	13C2-PFHxA	315 > 269.8	3.72e3	8.29e3	0.451	0.2226	3.47	3.47	4.49	44.7	99.5
5	5	13C2-PFDA	515.1 > 469.9	4.66e3	8.29e3	0.590	0.2226	5.04	5.04	5.62	42.8	95.2
6	6	13C2-PFOA	414.9 > 369.7	8.29e3	8.29e3	1.000	0.2226	4.41	4.41	10.0	44.9	100.0
7	7	13C4-PFOS	503.0 > 79.9	8.72e3	8.72e3	1.000	0.2226	4.81	4.81	28.7	129	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

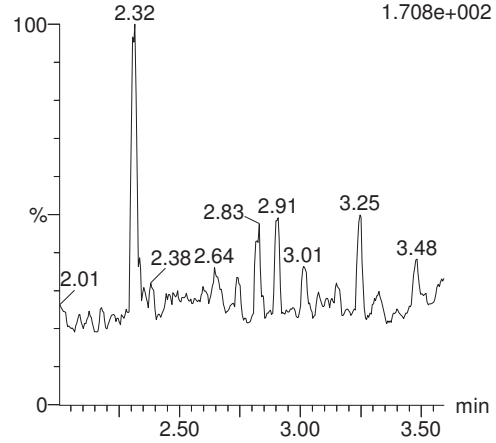
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-10.qld

Last Altered: Monday, November 27, 2017 15:12:20 Pacific Standard Time
Printed: Monday, November 27, 2017 15:12:43 Pacific Standard Time

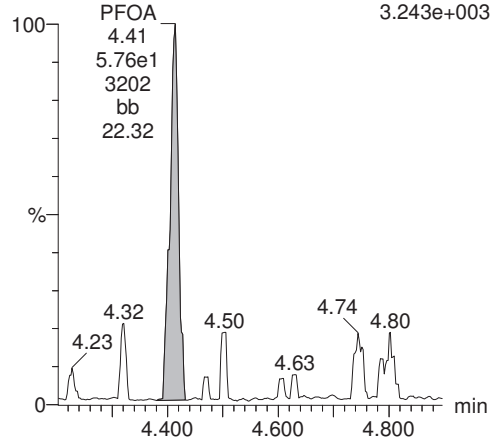
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_10, Date: 27-Nov-2017, Time: 12:41:54, ID: 1701716-03 CH-AT-1RW02-1117 0.2226, Description: CH-AT-1RW02-1117

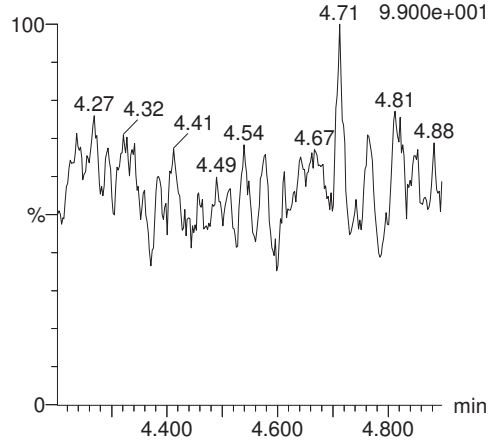
PFBS



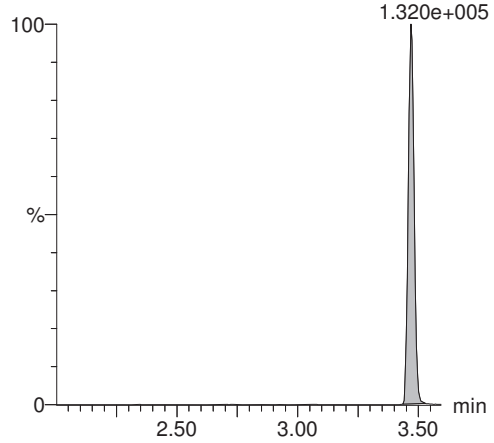
PFOA



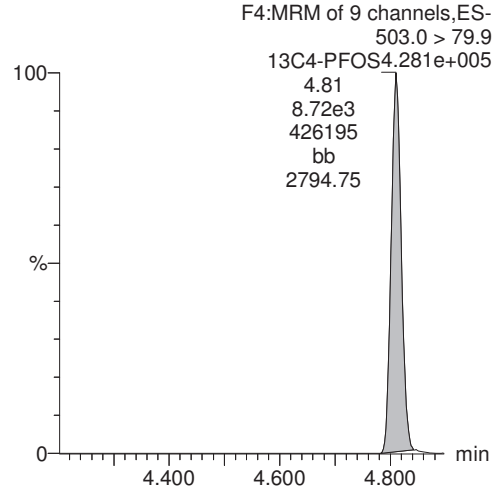
PFOS



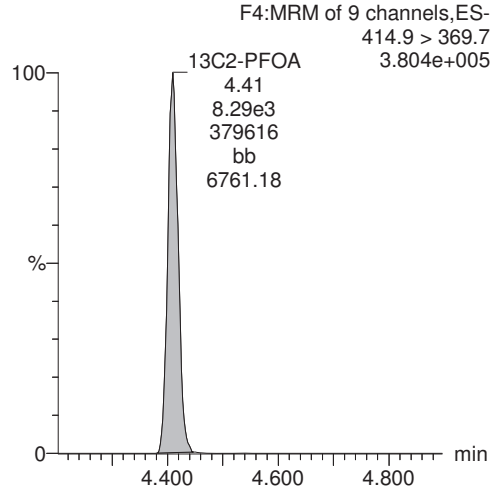
13C2-PFHxA



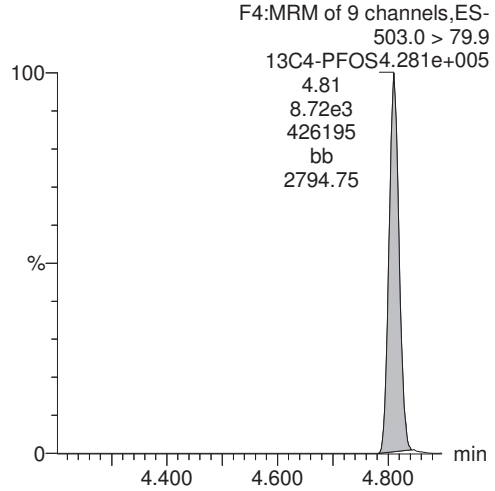
13C4-PFOS



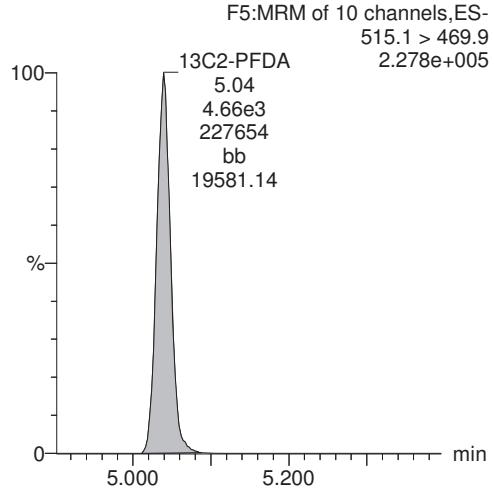
13C2-PFOA



13C4-PFOS



13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-6.qld

Last Altered: Monday, November 27, 2017 14:53:48 Pacific Standard Time
Printed: Monday, November 27, 2017 14:54:03 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_6, Date: 27-Nov-2017, Time: 11:52:05, ID: B7K0131-MS1 LFSM 0.21131, Description: LFSM

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7	1.25e3	9.22e3		0.2113	3.11	3.11	3.90	20.8	
2	2	PFOA	413 > 368.7	3.53e3	8.15e3		0.2113	4.41	4.41	4.33	24.4	
3	3	PFOS	499 >79.9	1.70e3	9.22e3		0.2113	4.81	4.81	5.29	21.2	
4	4	13C2-PFHxA	315 > 269.8	4.04e3	8.15e3	0.451	0.2113	3.47	3.47	4.96	52.0	109.9
5	5	13C2-PFDA	515.1 > 469.9	4.82e3	8.15e3	0.590	0.2113	5.04	5.04	5.92	47.5	100.3
6	6	13C2-PFOA	414.9 > 369.7	8.15e3	8.15e3	1.000	0.2113	4.41	4.41	10.0	47.3	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.22e3	9.22e3	1.000	0.2113	4.81	4.81	28.7	136	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

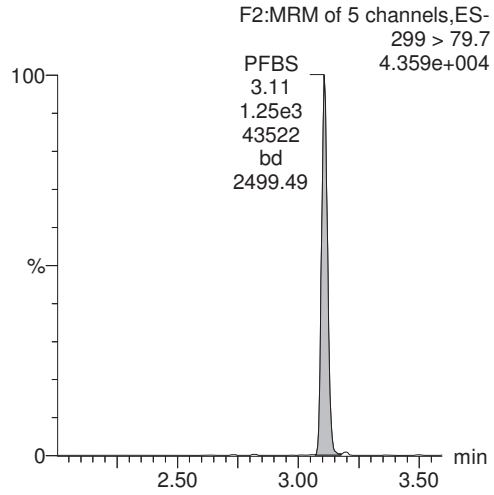
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-6.qld

Last Altered: Monday, November 27, 2017 14:53:48 Pacific Standard Time
Printed: Monday, November 27, 2017 14:54:03 Pacific Standard Time

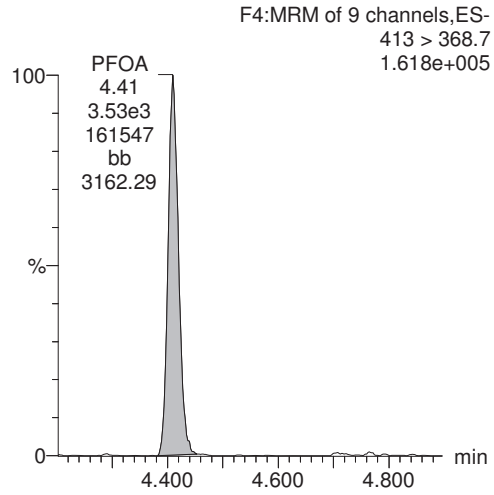
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_6, Date: 27-Nov-2017, Time: 11:52:05, ID: B7K0131-MS1 LFSM 0.21131, Description: LFSM

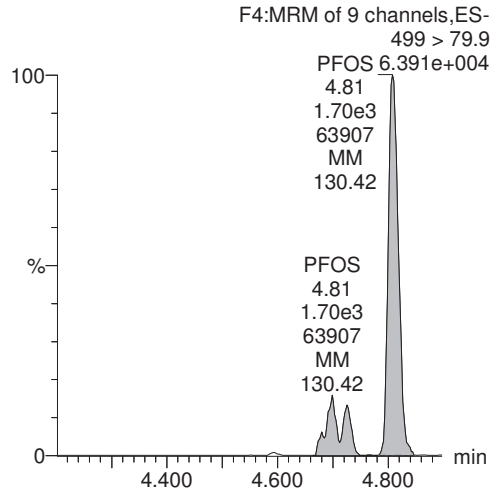
PFBS



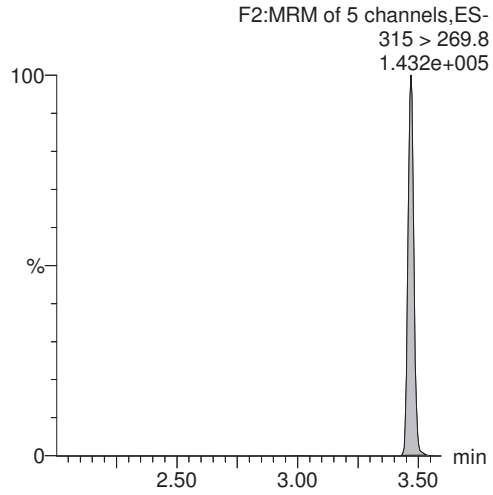
PFOA



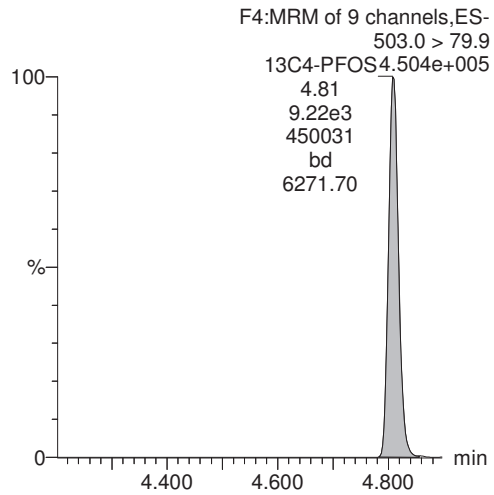
PFOS



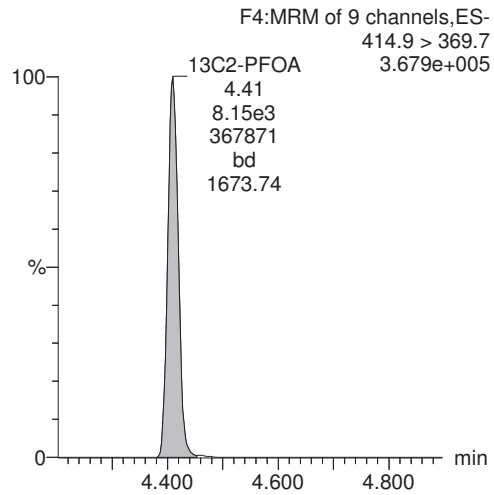
13C2-PFHxA



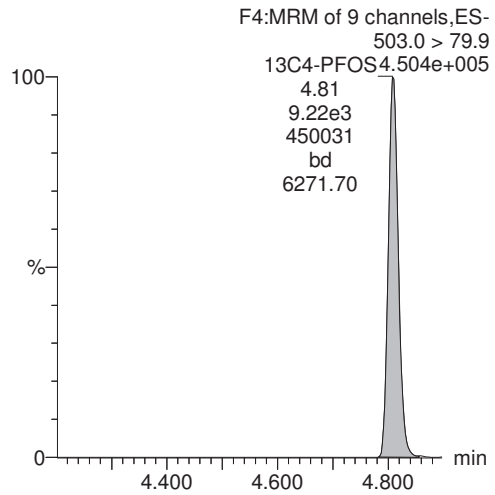
13C4-PFOS



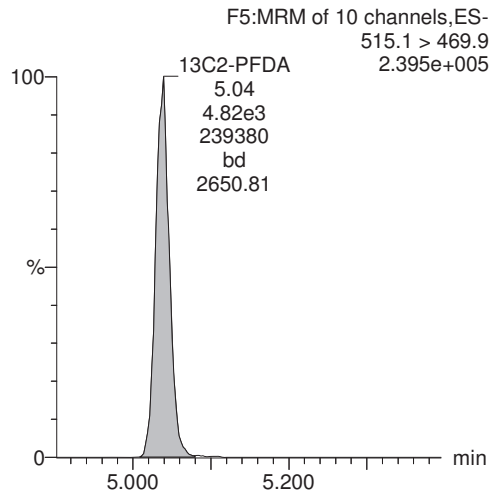
13C2-PFOA



13C4-PFOS



13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-7.qld

Last Altered: Monday, November 27, 2017 14:56:31 Pacific Standard Time
Printed: Monday, November 27, 2017 14:56:49 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_7, Date: 27-Nov-2017, Time: 12:04:32, ID: B7K0131-MSD1 LFSMD 0.23448, Description: LFSMD

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7	1.25e3	9.66e3		0.2345	3.11	3.11	3.72	17.9	
2	2	PFOA	413 > 368.7	4.18e3	8.68e3		0.2345	4.41	4.41	4.82	24.4	
3	3	PFOS	499 >79.9	1.67e3	9.66e3		0.2345	4.81	4.81	4.95	17.9	
4	4	13C2-PFHxA	315 > 269.8	4.09e3	8.68e3	0.451	0.2345	3.47	3.47	4.71	44.6	104.5
5	5	13C2-PFDA	515.1 > 469.9	4.67e3	8.68e3	0.590	0.2345	5.04	5.04	5.38	38.9	91.2
6	6	13C2-PFOA	414.9 > 369.7	8.68e3	8.68e3	1.000	0.2345	4.41	4.41	10.0	42.6	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.66e3	9.66e3	1.000	0.2345	4.81	4.81	28.7	122	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

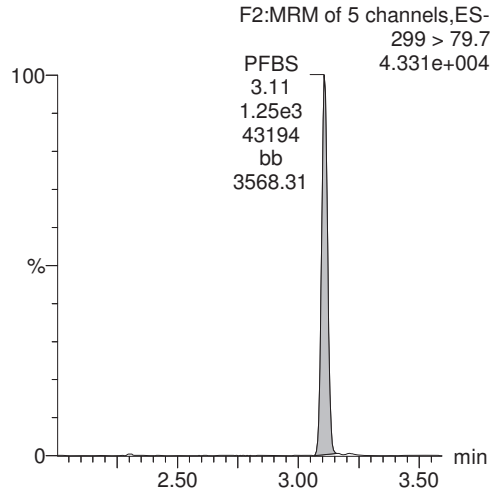
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-7.qld

Last Altered: Monday, November 27, 2017 14:56:31 Pacific Standard Time
Printed: Monday, November 27, 2017 14:56:49 Pacific Standard Time

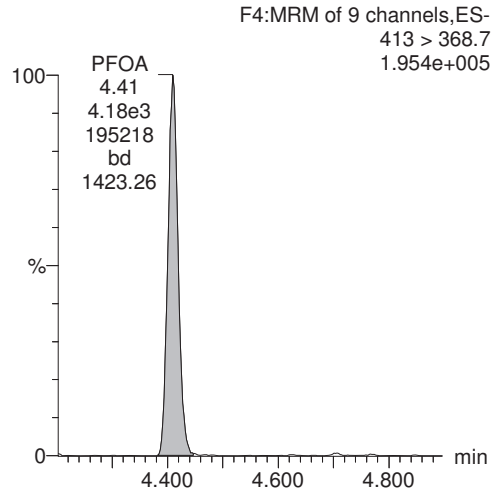
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_7, Date: 27-Nov-2017, Time: 12:04:32, ID: B7K0131-MSD1 LFSMD 0.23448, Description: LFSMD

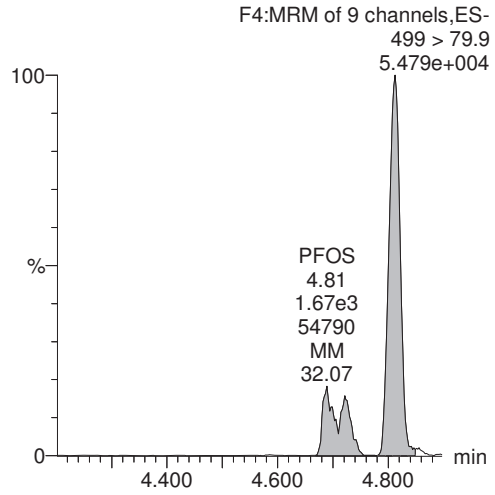
PFBS



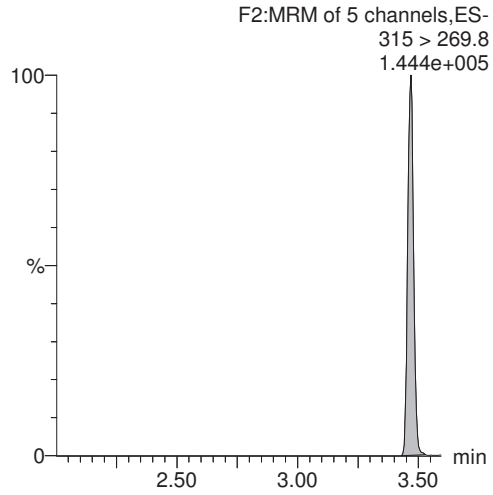
PFOA



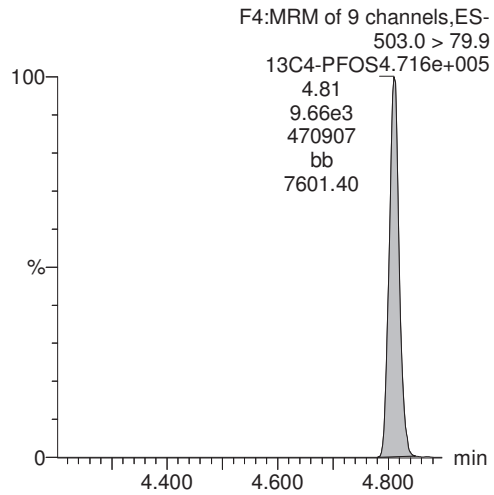
PFOS



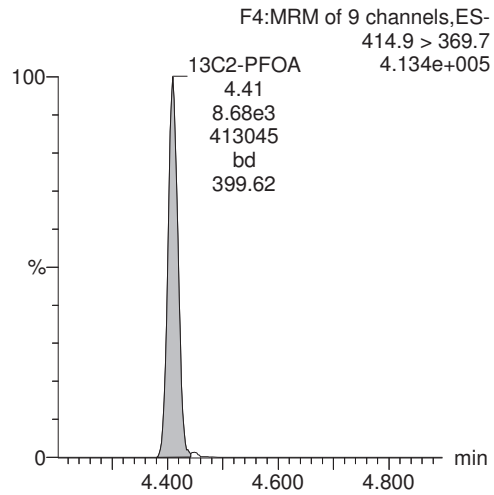
13C2-PFHxA



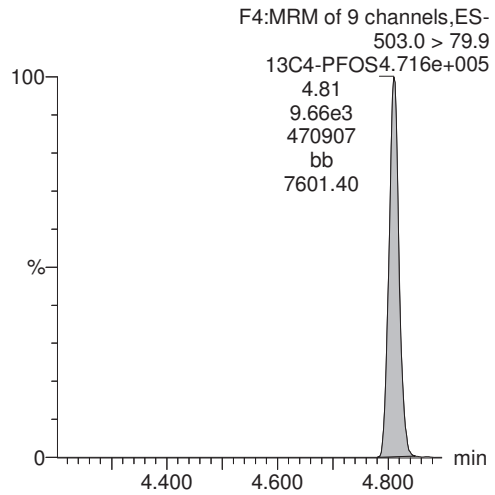
13C4-PFOS



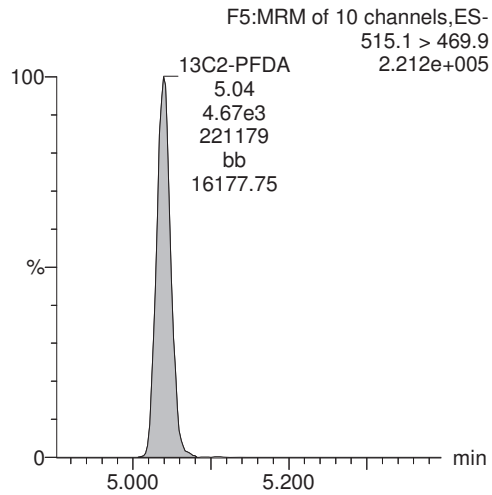
13C2-PFOA



13C4-PFOS



13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-11.qld

Last Altered: Monday, November 27, 2017 15:13:52 Pacific Standard Time
Printed: Monday, November 27, 2017 15:14:09 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_11, Date: 27-Nov-2017, Time: 12:54:18, ID: 1701716-04 CH-AT-1FB02-1117 0.24851, Description: CH-AT-1FB02-1117

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		9.07e3		0.2485	3.11				
2	2	PFOA	413 > 368.7	1.86e1	7.76e3		0.2485	4.41	4.41	0.0239	0.115	
3	3	PFOS	499 >79.9		9.07e3		0.2485	4.81				
4	4	13C2-PFHxA	315 > 269.8	3.61e3	7.76e3	0.451	0.2485	3.47	3.47	4.65	41.5	103.0
5	5	13C2-PFDA	515.1 > 469.9	4.35e3	7.76e3	0.590	0.2485	5.04	5.04	5.61	38.2	95.0
6	6	13C2-PFOA	414.9 > 369.7	7.76e3	7.76e3	1.000	0.2485	4.41	4.41	10.0	40.2	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.07e3	9.07e3	1.000	0.2485	4.81	4.81	28.7	115	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

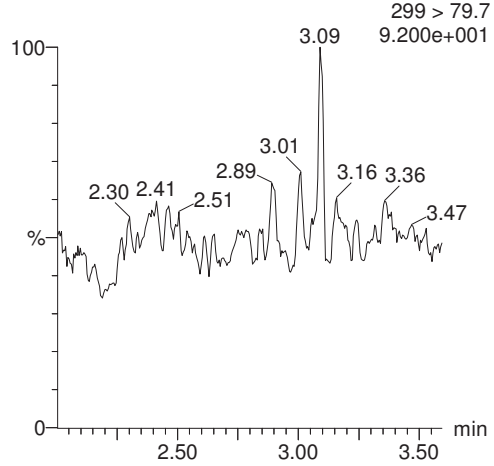
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-11.qld

Last Altered: Monday, November 27, 2017 15:13:52 Pacific Standard Time
Printed: Monday, November 27, 2017 15:14:09 Pacific Standard Time

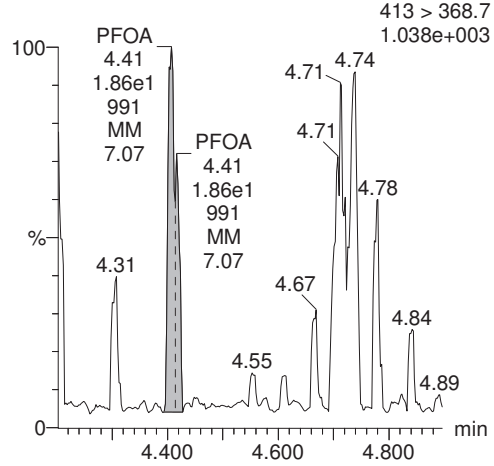
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_11, Date: 27-Nov-2017, Time: 12:54:18, ID: 1701716-04 CH-AT-1FB02-1117 0.24851, Description: CH-AT-1FB02-1117

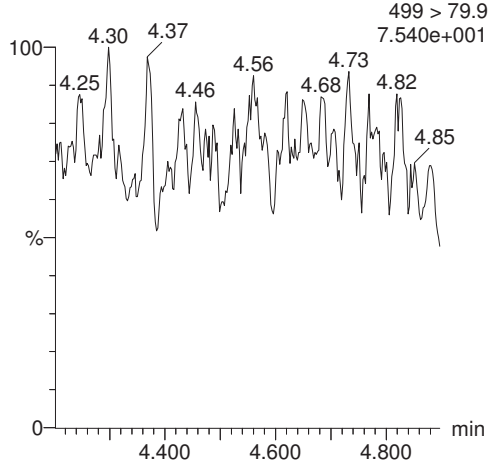
PFBS



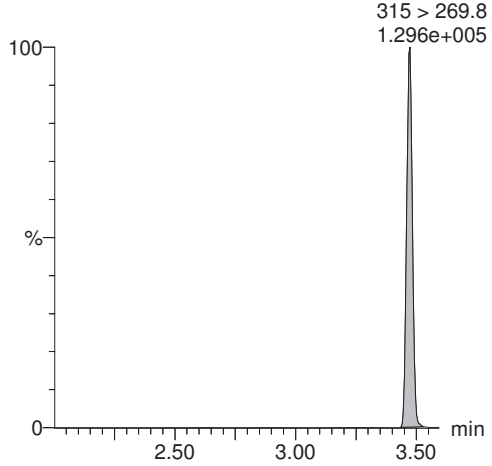
PFOA



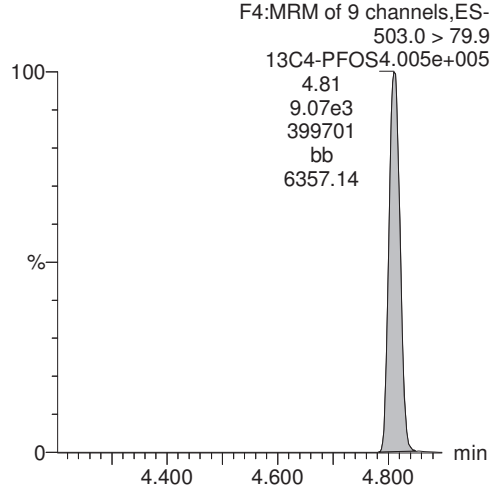
PFOS



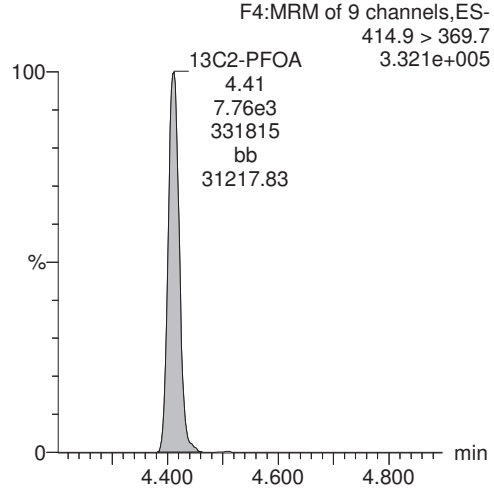
13C2-PFHxA



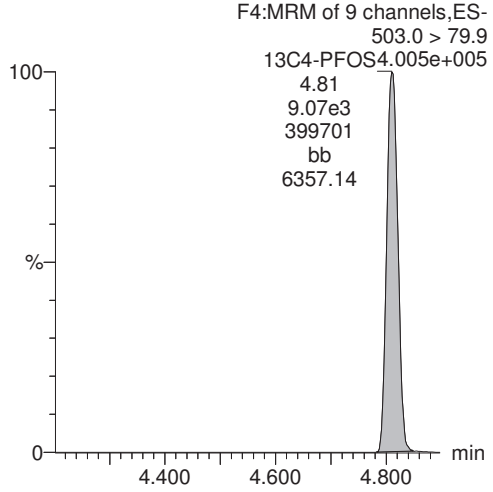
13C4-PFOS



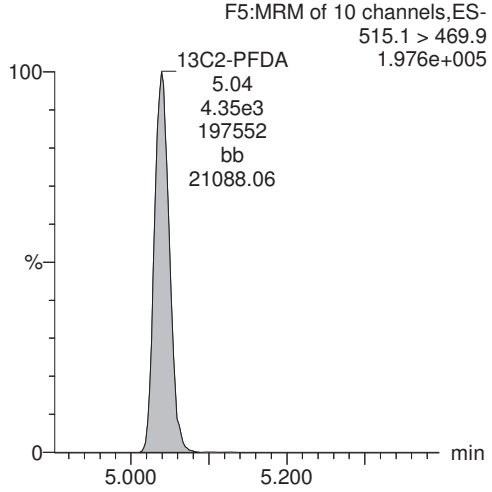
13C2-PFOA



13C4-PFOS



13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-12.qld

Last Altered: Monday, November 27, 2017 15:14:49 Pacific Standard Time
Printed: Monday, November 27, 2017 15:15:06 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_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_12, Date: 27-Nov-2017, Time: 13:06:43, ID: 1701716-05 CH-AT-1RW03-1117 0.23393, Description: CH-AT-1RW03-1117

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		9.39e3		0.2339	3.11				
2	2	PFOA	413 > 368.7	6.14e1	8.58e3		0.2339	4.41	4.41	0.0716	0.364	
3	3	PFOS	499 >79.9		9.39e3		0.2339	4.81				
4	4	13C2-PFHxA	315 > 269.8	3.90e3	8.58e3	0.451	0.2339	3.47	3.47	4.54	43.1	100.7
5	5	13C2-PFDA	515.1 > 469.9	4.61e3	8.58e3	0.590	0.2339	5.04	5.04	5.37	38.9	91.0
6	6	13C2-PFOA	414.9 > 369.7	8.58e3	8.58e3	1.000	0.2339	4.41	4.41	10.0	42.7	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.39e3	9.39e3	1.000	0.2339	4.81	4.81	28.7	123	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

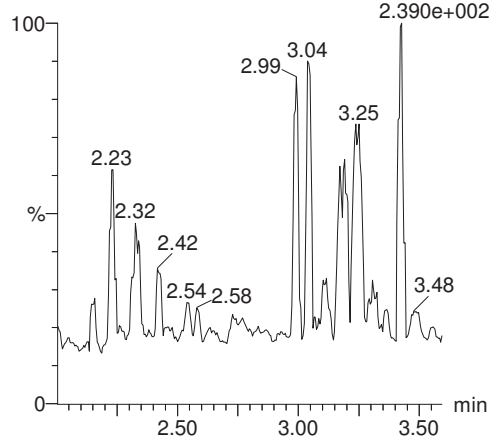
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-12.qld

Last Altered: Monday, November 27, 2017 15:14:49 Pacific Standard Time
Printed: Monday, November 27, 2017 15:15:06 Pacific Standard Time

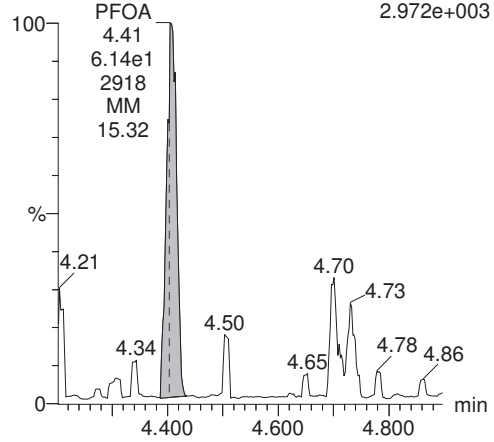
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_12, Date: 27-Nov-2017, Time: 13:06:43, ID: 1701716-05 CH-AT-1RW03-1117 0.23393, Description: CH-AT-1RW03-1117

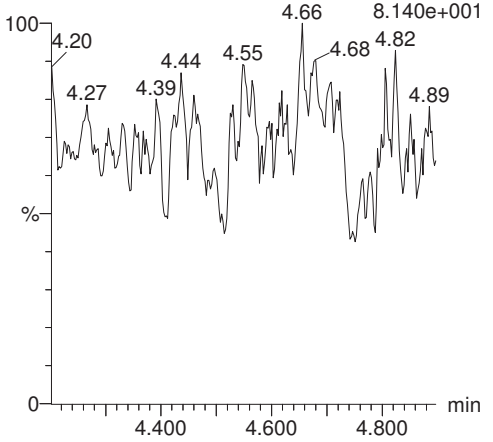
PFBS



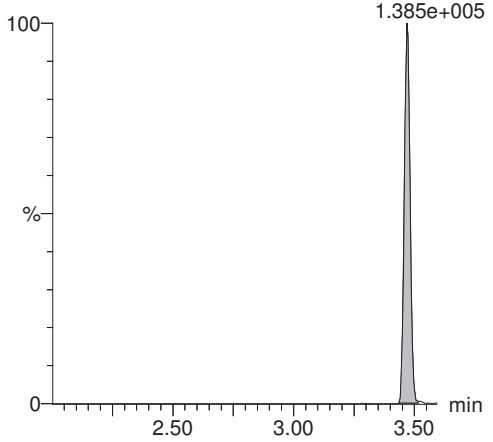
PFOA



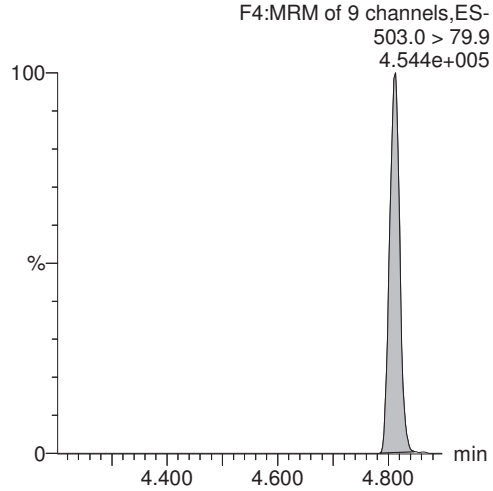
PFOS



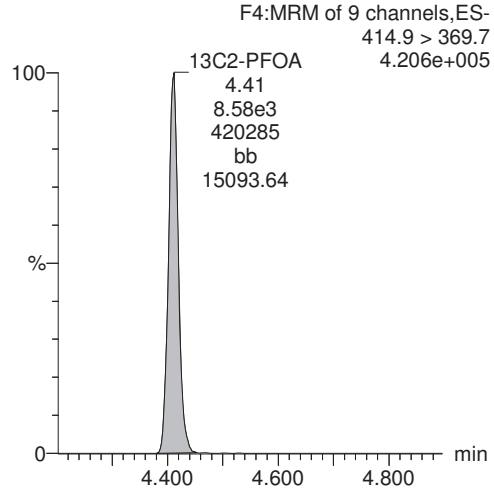
13C2-PFHxA



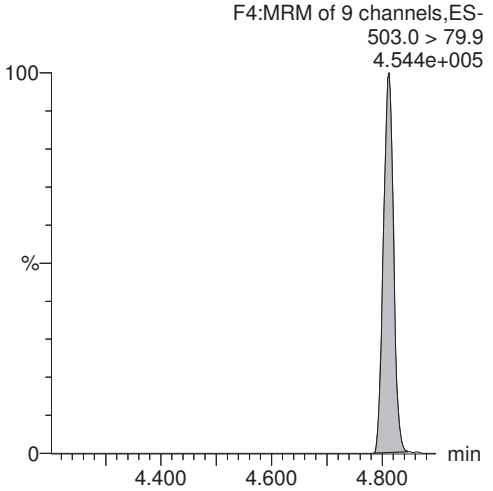
13C4-PFOS



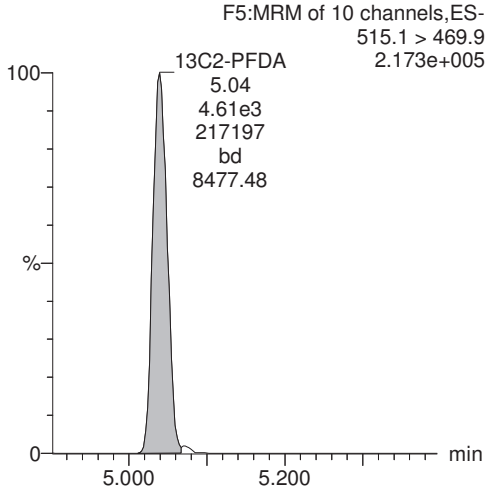
13C2-PFOA



13C4-PFOS



13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

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Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-13.qld

Last Altered: Monday, November 27, 2017 15:15:45 Pacific Standard Time
Printed: Monday, November 27, 2017 15:16:24 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_13, Date: 27-Nov-2017, Time: 13:19:08, ID: 1701716-06 CH-AT-1FB03-1117 0.2361, Description: CH-AT-1FB03-1117

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		9.47e3		0.2361	3.11				
2	2	PFOA	413 > 368.7	2.29e1	8.95e3		0.2361	4.41	4.42	0.0256	0.129	
3	3	PFOS	499 >79.9		9.47e3		0.2361	4.81				
4	4	13C2-PFHxA	315 > 269.8	3.99e3	8.95e3	0.451	0.2361	3.47	3.47	4.46	41.9	98.8
5	5	13C2-PFDA	515.1 > 469.9	4.61e3	8.95e3	0.590	0.2361	5.04	5.04	5.15	37.0	87.3
6	6	13C2-PFOA	414.9 > 369.7	8.95e3	8.95e3	1.000	0.2361	4.41	4.41	10.0	42.4	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.47e3	9.47e3	1.000	0.2361	4.81	4.81	28.7	122	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

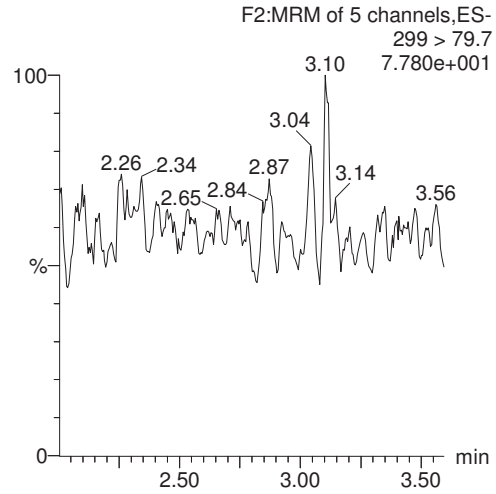
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-13.qld

Last Altered: Monday, November 27, 2017 15:15:45 Pacific Standard Time
Printed: Monday, November 27, 2017 15:16:24 Pacific Standard Time

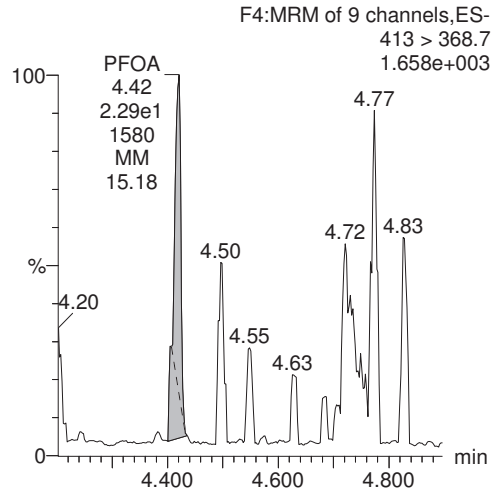
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_13, Date: 27-Nov-2017, Time: 13:19:08, ID: 1701716-06 CH-AT-1FB03-1117 0.2361, Description: CH-AT-1FB03-1117

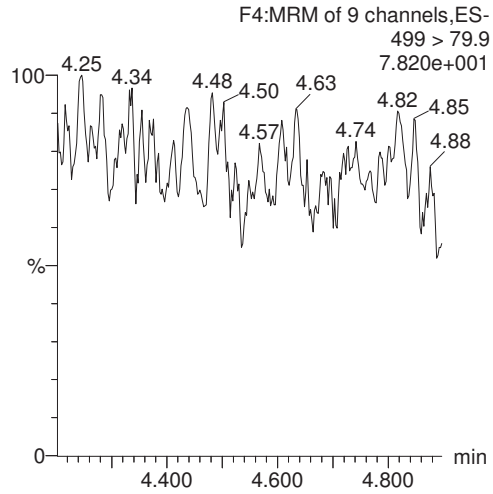
PFBS



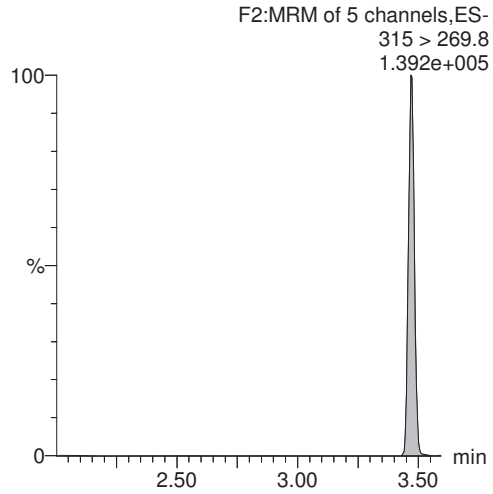
PFOA



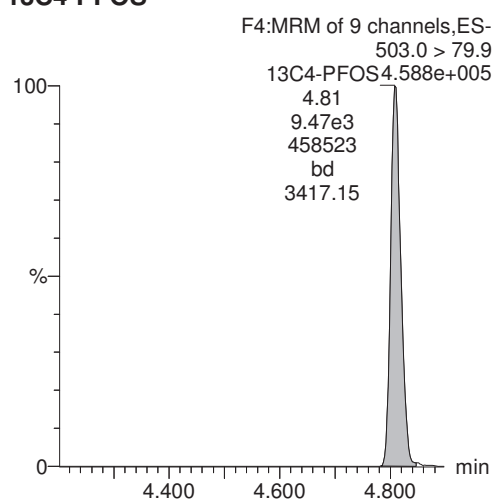
PFOS



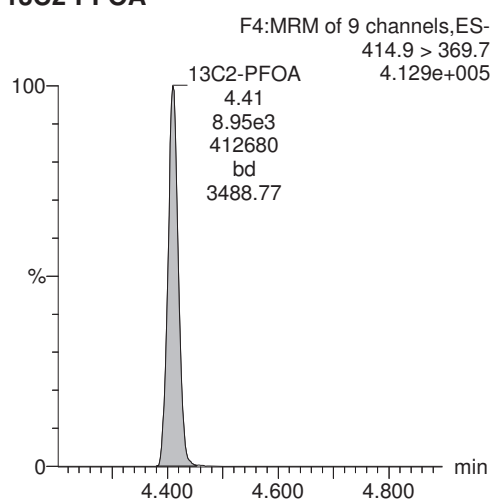
13C2-PFHxA



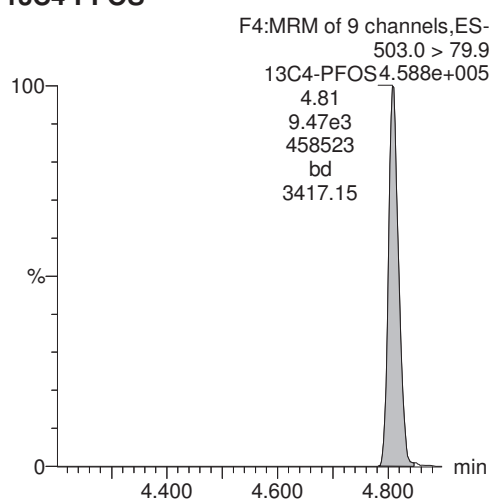
13C4-PFOS



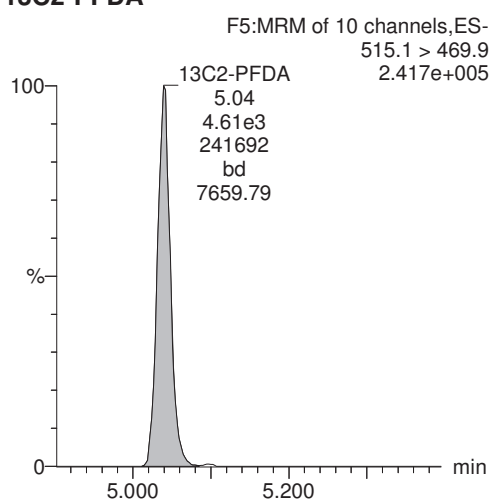
13C2-PFOA



13C4-PFOS



13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-14.qld

Last Altered: Monday, November 27, 2017 15:17:42 Pacific Standard Time
Printed: Monday, November 27, 2017 15:18:00 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_14, Date: 27-Nov-2017, Time: 13:31:34, ID: 1701716-07 CH-AT-1RW04-1117 0.23307, Description: CH-AT-1RW04-1117

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7	2.46e2	8.97e3		0.2331	3.11	3.11	0.786	3.81	
2	2	PFOA	413 > 368.7	2.51e2	8.72e3		0.2331	4.41	4.41	0.288	1.47	
3	3	PFOS	499 >79.9	4.22e2	8.97e3		0.2331	4.81	4.81	1.35	4.89	
4	4	13C2-PFHxA	315 > 269.8	3.69e3	8.72e3	0.451	0.2331	3.47	3.47	4.23	40.3	93.8
5	5	13C2-PFDA	515.1 > 469.9	4.56e3	8.72e3	0.590	0.2331	5.04	5.04	5.23	38.0	88.6
6	6	13C2-PFOA	414.9 > 369.7	8.72e3	8.72e3	1.000	0.2331	4.41	4.41	10.0	42.9	100.0
7	7	13C4-PFOS	503.0 > 79.9	8.97e3	8.97e3	1.000	0.2331	4.81	4.81	28.7	123	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

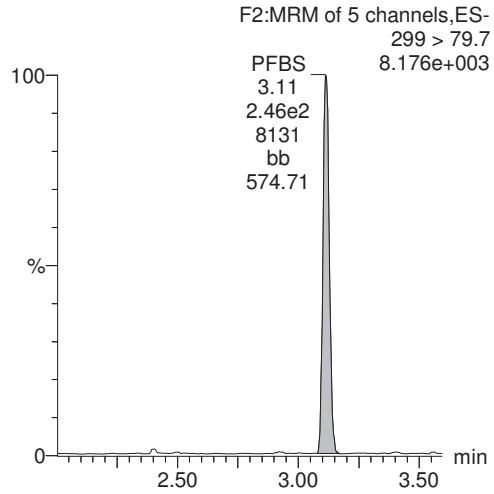
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-14.qld

Last Altered: Monday, November 27, 2017 15:17:42 Pacific Standard Time
Printed: Monday, November 27, 2017 15:18:00 Pacific Standard Time

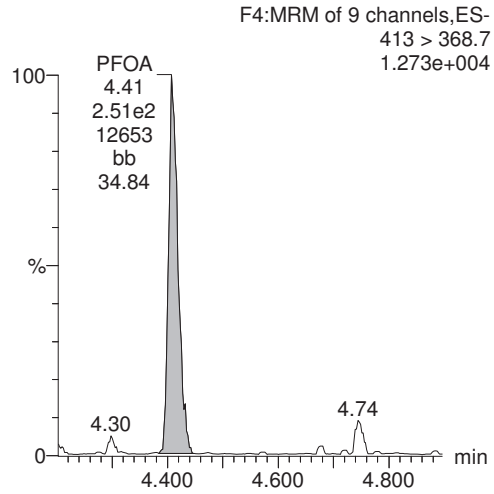
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_14, Date: 27-Nov-2017, Time: 13:31:34, ID: 1701716-07 CH-AT-1RW04-1117 0.23307, Description: CH-AT-1RW04-1117

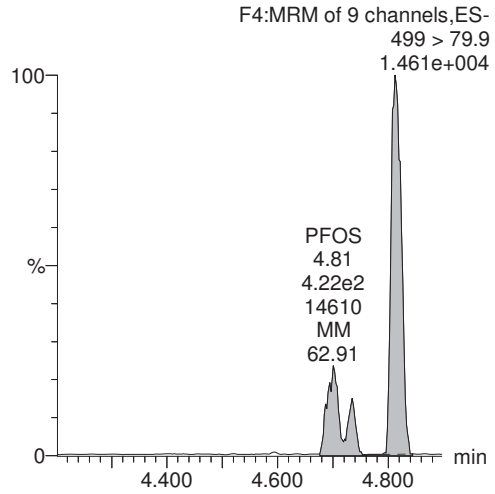
PFBS



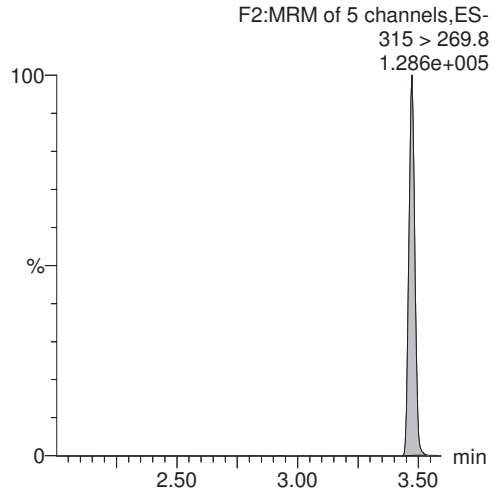
PFOA



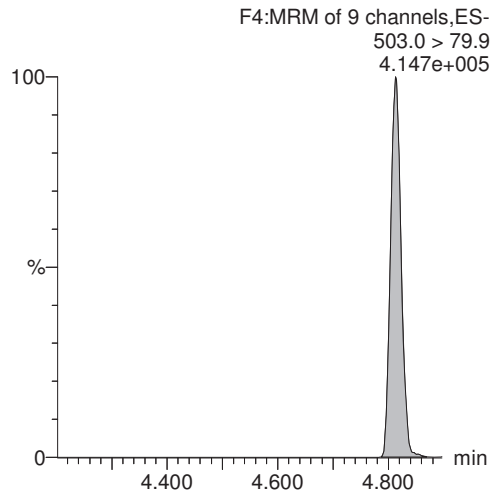
PFOS



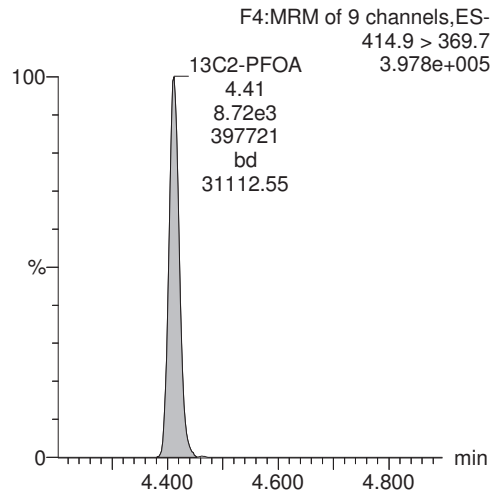
13C2-PFHxA



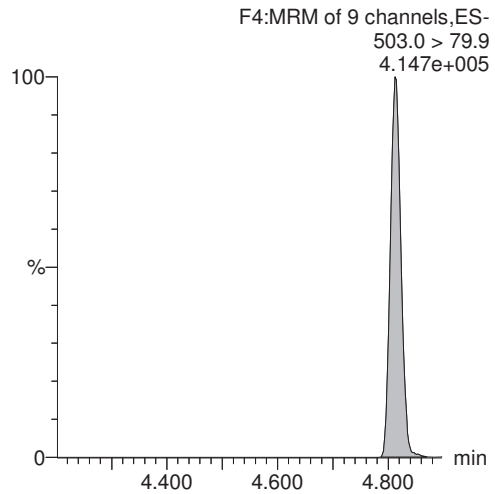
13C4-PFOS



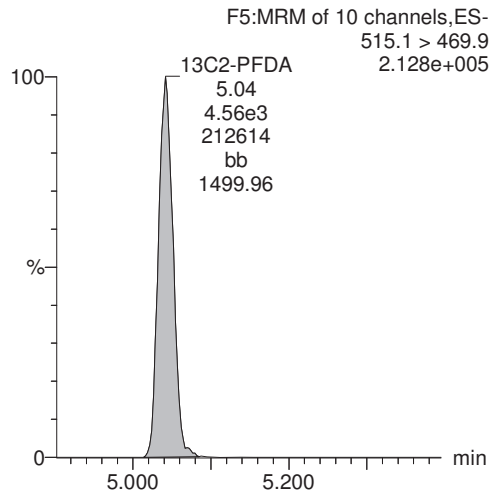
13C2-PFOA



13C4-PFOS



13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-15.qld

Last Altered: Monday, November 27, 2017 15:18:47 Pacific Standard Time
Printed: Monday, November 27, 2017 15:19:07 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_15, Date: 27-Nov-2017, Time: 13:44:00, ID: 1701716-08 CH-AT-1FB04-1117 0.25394, Description: CH-AT-1FB04-1117

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		9.14e3		0.2539	3.11				
2	2	PFOA	413 > 368.7	4.64e1	8.66e3		0.2539	4.41	4.40	0.0536	0.251	
3	3	PFOS	499 >79.9	5.49e0	9.14e3		0.2539	4.81	4.81	0.0172	0.0574	
4	4	13C2-PFHxA	315 > 269.8	3.96e3	8.66e3	0.451	0.2539	3.47	3.47	4.57	39.9	101.4
5	5	13C2-PFDA	515.1 > 469.9	4.87e3	8.66e3	0.590	0.2539	5.04	5.04	5.63	37.6	95.4
6	6	13C2-PFOA	414.9 > 369.7	8.66e3	8.66e3	1.000	0.2539	4.41	4.41	10.0	39.4	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.14e3	9.14e3	1.000	0.2539	4.81	4.81	28.7	113	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

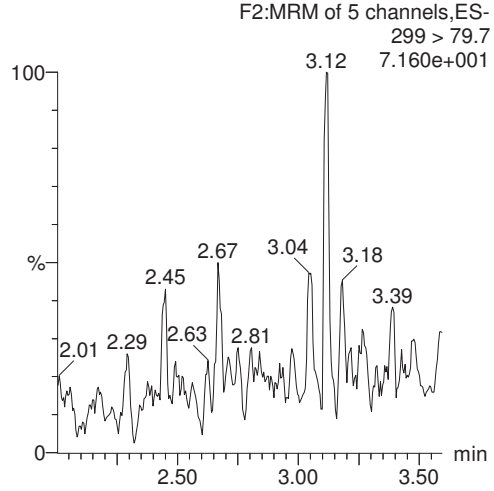
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-15.qld

Last Altered: Monday, November 27, 2017 15:18:47 Pacific Standard Time
Printed: Monday, November 27, 2017 15:19:07 Pacific Standard Time

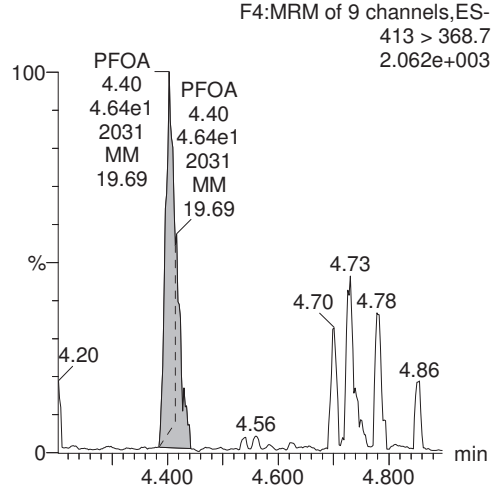
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_15, Date: 27-Nov-2017, Time: 13:44:00, ID: 1701716-08 CH-AT-1FB04-1117 0.25394, Description: CH-AT-1FB04-1117

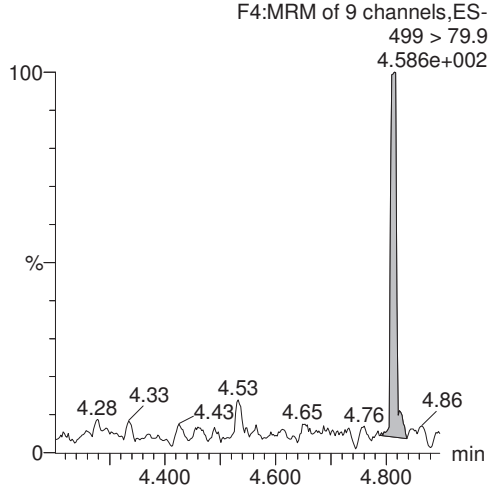
PFBS



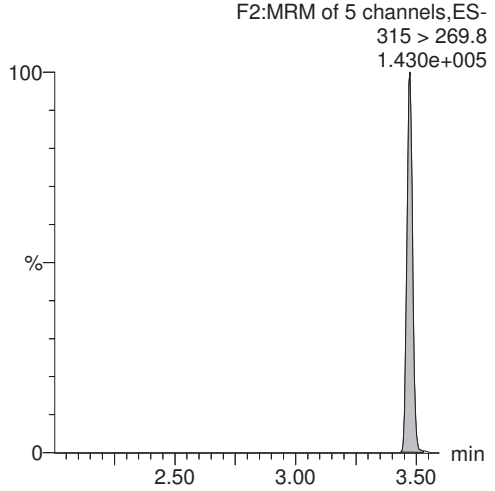
PFOA



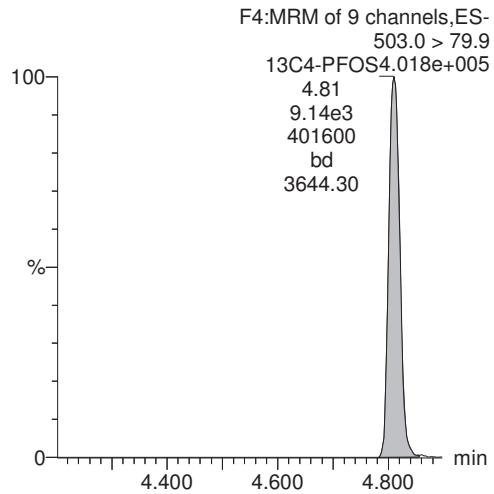
PFOS



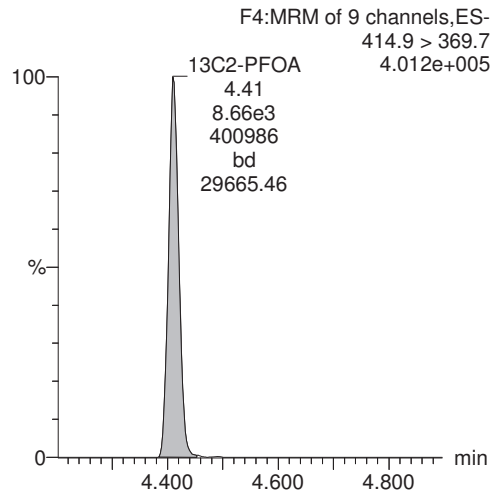
13C2-PFHxA



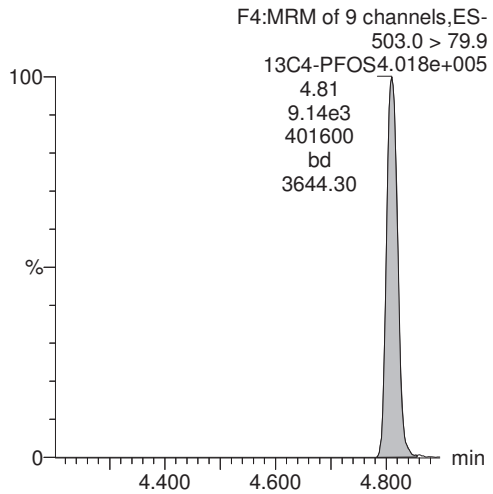
13C4-PFOS



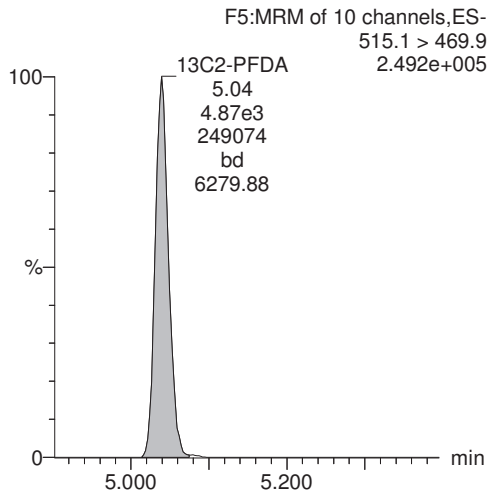
13C2-PFOA



13C4-PFOS



13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-16.qld

Last Altered: Monday, November 27, 2017 15:20:24 Pacific Standard Time
Printed: Monday, November 27, 2017 15:20:43 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_16, Date: 27-Nov-2017, Time: 13:56:26, ID: 1701716-09 CH-AT-1RW05-1117 0.22609, Description: CH-AT-1RW05-1117

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		8.83e3		0.2261	3.11				
2	2	PFOA	413 > 368.7	6.18e1	8.32e3		0.2261	4.41	4.42	0.0743	0.391	
3	3	PFOS	499 >79.9		8.83e3		0.2261	4.81				
4	4	13C2-PFHxA	315 > 269.8	3.58e3	8.32e3	0.451	0.2261	3.47	3.47	4.31	42.2	95.5
5	5	13C2-PFDA	515.1 > 469.9	3.77e3	8.32e3	0.590	0.2261	5.04	5.04	4.53	34.0	76.8
6	6	13C2-PFOA	414.9 > 369.7	8.32e3	8.32e3	1.000	0.2261	4.41	4.41	10.0	44.2	100.0
7	7	13C4-PFOS	503.0 > 79.9	8.83e3	8.83e3	1.000	0.2261	4.81	4.81	28.7	127	100.0

AC 11/27/17

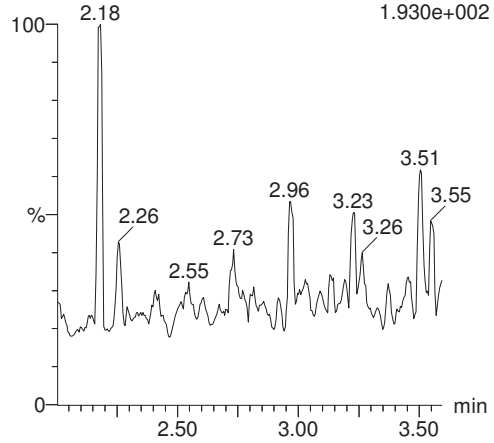
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-16.qld

Last Altered: Monday, November 27, 2017 15:20:24 Pacific Standard Time
Printed: Monday, November 27, 2017 15:20:43 Pacific Standard Time

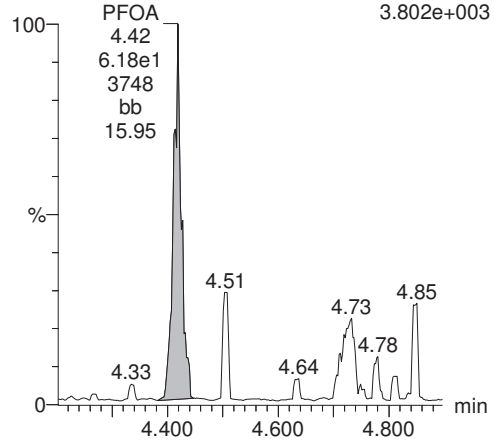
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_16, Date: 27-Nov-2017, Time: 13:56:26, ID: 1701716-09 CH-AT-1RW05-1117 0.22609, Description: CH-AT-1RW05-1117

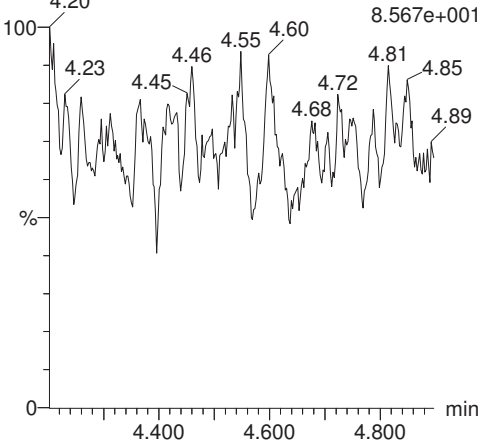
PFBS



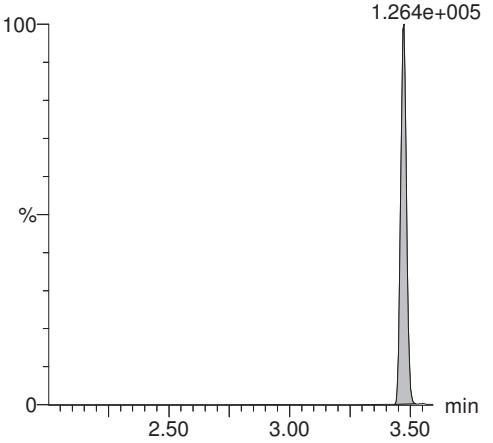
PFOA



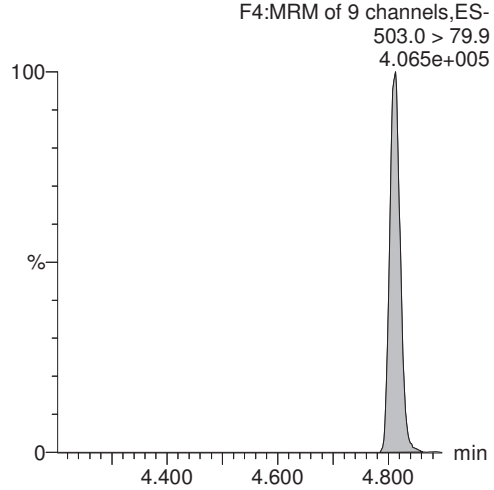
PFOS



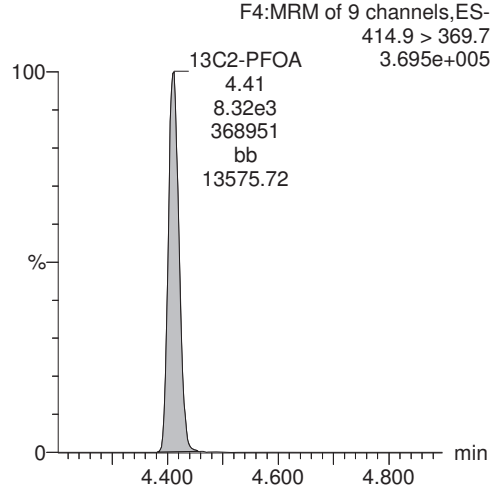
13C2-PFHxA



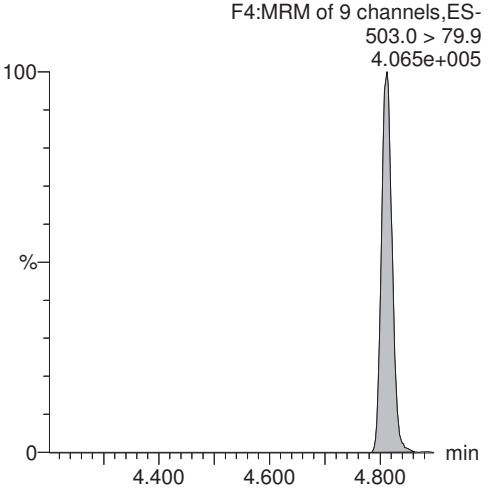
13C4-PFOS



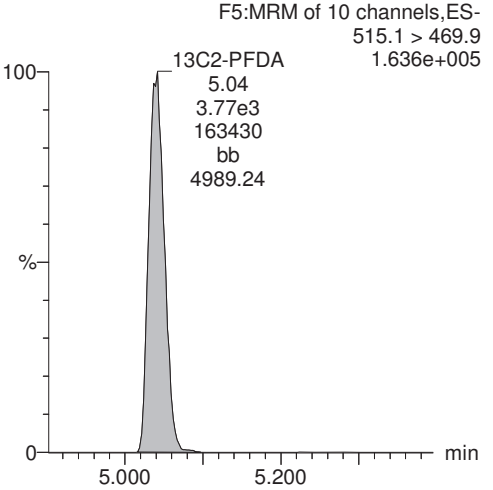
13C2-PFOA



13C4-PFOS



13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-17.qld

Last Altered: Monday, November 27, 2017 15:21:20 Pacific Standard Time
Printed: Monday, November 27, 2017 15:21:37 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_17, Date: 27-Nov-2017, Time: 14:08:53, ID: 1701716-10 CH-AT-1FB05-1117 0.25417, Description: CH-AT-1FB05-1117

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		9.64e3		0.2542	3.11				
2	2	PFOA	413 > 368.7	6.88e1	8.59e3		0.2542	4.41	4.41	0.0801	0.375	
3	3	PFOS	499 >79.9		9.64e3		0.2542	4.81				
4	4	13C2-PFHxA	315 > 269.8	3.80e3	8.59e3	0.451	0.2542	3.47	3.47	4.42	38.6	98.1
5	5	13C2-PFDA	515.1 > 469.9	4.57e3	8.59e3	0.590	0.2542	5.04	5.04	5.32	35.5	90.2
6	6	13C2-PFOA	414.9 > 369.7	8.59e3	8.59e3	1.000	0.2542	4.41	4.41	10.0	39.3	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.64e3	9.64e3	1.000	0.2542	4.81	4.81	28.7	113	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

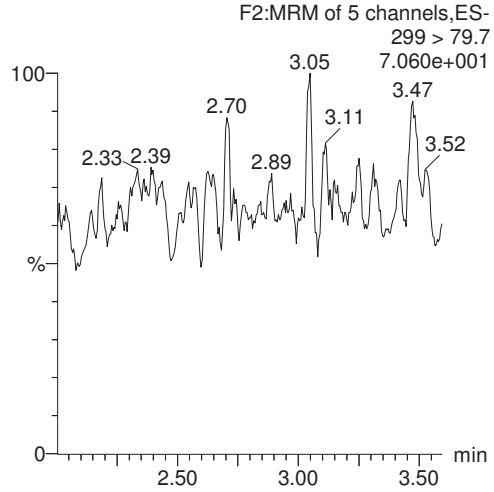
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-17.qld

Last Altered: Monday, November 27, 2017 15:21:20 Pacific Standard Time
Printed: Monday, November 27, 2017 15:21:37 Pacific Standard Time

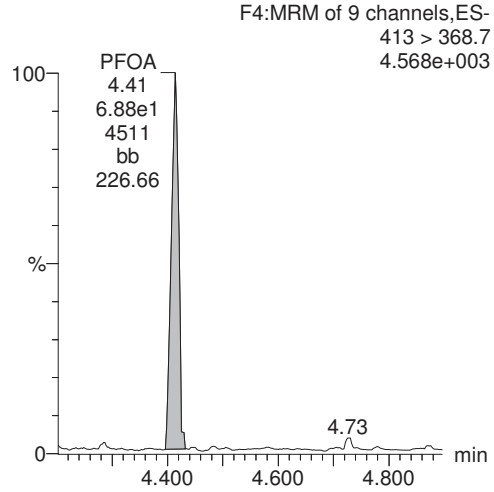
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_17, Date: 27-Nov-2017, Time: 14:08:53, ID: 1701716-10 CH-AT-1FB05-1117 0.25417, Description: CH-AT-1FB05-1117

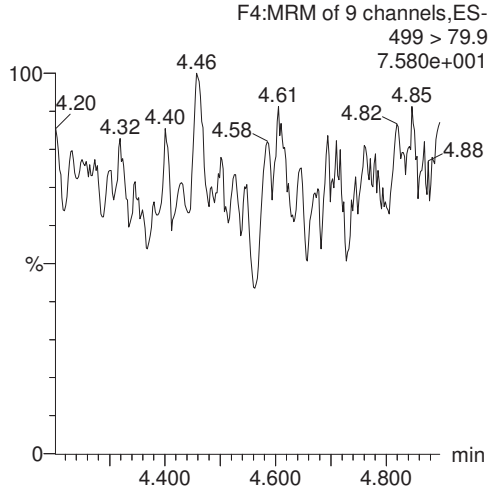
PFBS



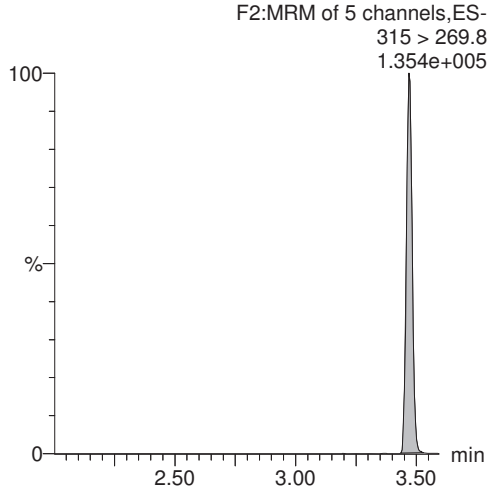
PFOA



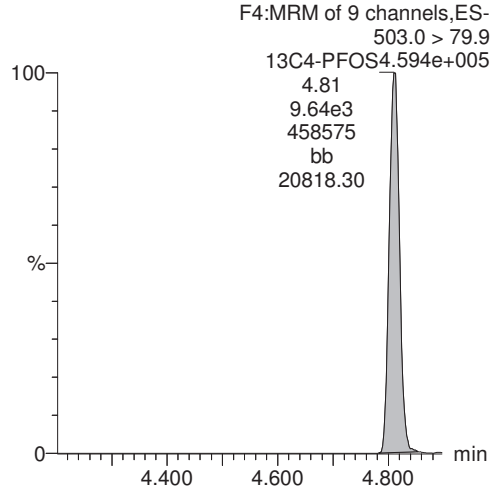
PFOS



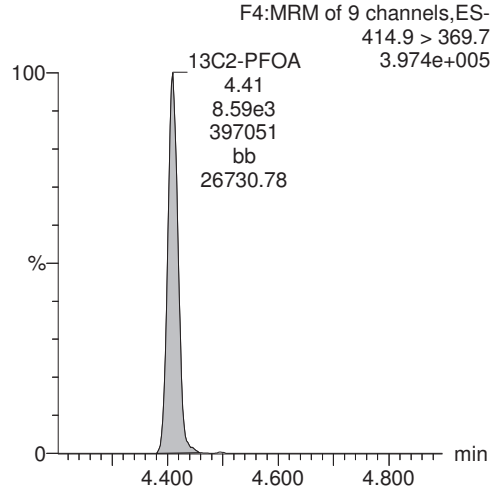
13C2-PFHxA



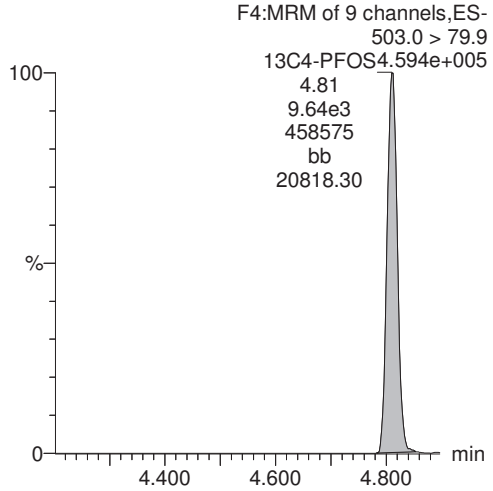
13C4-PFOS



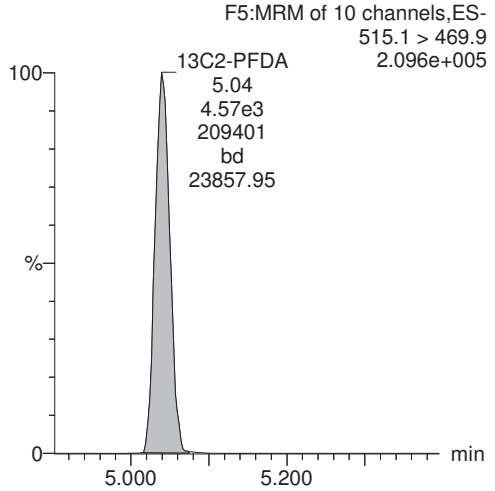
13C2-PFOA



13C4-PFOS



13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-18.qld

Last Altered: Monday, November 27, 2017 15:22:24 Pacific Standard Time
Printed: Monday, November 27, 2017 15:22:42 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_18, Date: 27-Nov-2017, Time: 14:21:20, ID: 1701716-11 CH-AT-1RW06-1117 0.22984, Description: CH-AT-1RW06-1117

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		8.90e3		0.2298	3.11				
2	2	PFOA	413 > 368.7	6.50e1	9.18e3		0.2298	4.41	4.41	0.0708	0.366	
3	3	PFOS	499 >79.9		8.90e3		0.2298	4.81				
4	4	13C2-PFHxA	315 > 269.8	4.24e3	9.18e3	0.451	0.2298	3.47	3.47	4.62	44.6	102.4
5	5	13C2-PFDA	515.1 > 469.9	4.64e3	9.18e3	0.590	0.2298	5.04	5.04	5.05	37.2	85.5
6	6	13C2-PFOA	414.9 > 369.7	9.18e3	9.18e3	1.000	0.2298	4.41	4.41	10.0	43.5	100.0
7	7	13C4-PFOS	503.0 > 79.9	8.90e3	8.90e3	1.000	0.2298	4.81	4.81	28.7	125	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

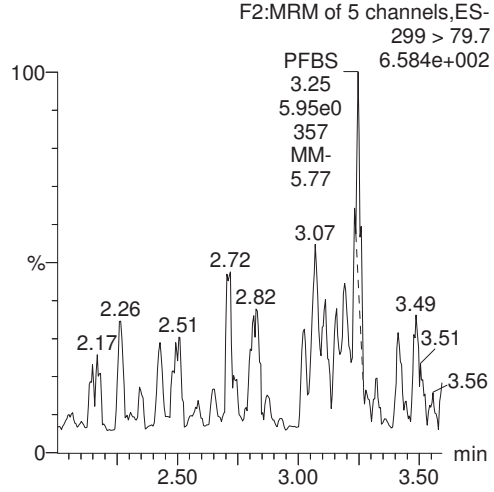
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-18.qld

Last Altered: Monday, November 27, 2017 15:22:24 Pacific Standard Time
Printed: Monday, November 27, 2017 15:22:42 Pacific Standard Time

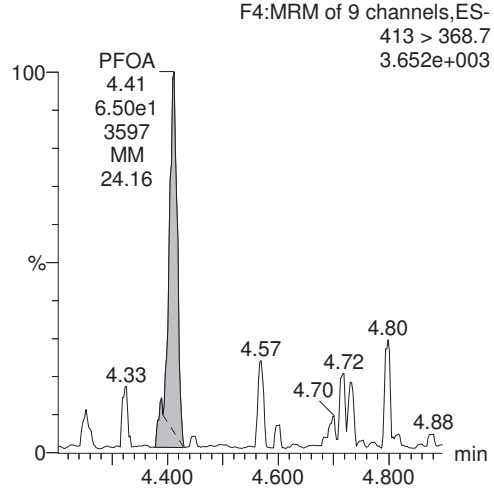
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_18, Date: 27-Nov-2017, Time: 14:21:20, ID: 1701716-11 CH-AT-1RW06-1117 0.22984, Description: CH-AT-1RW06-1117

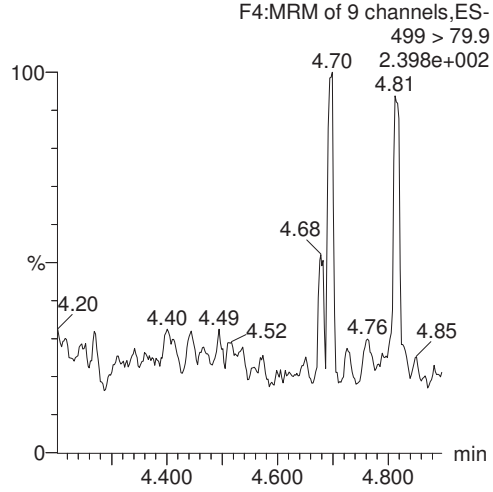
PFBS



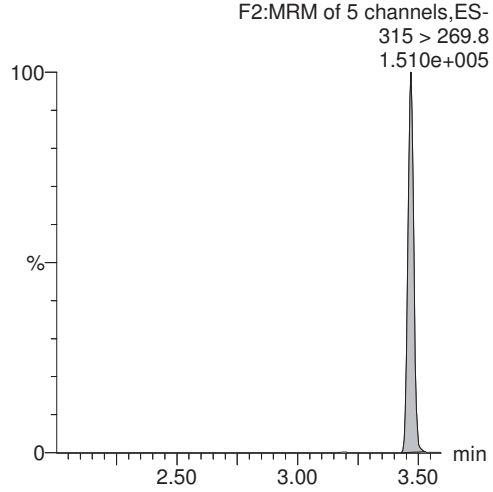
PFOA



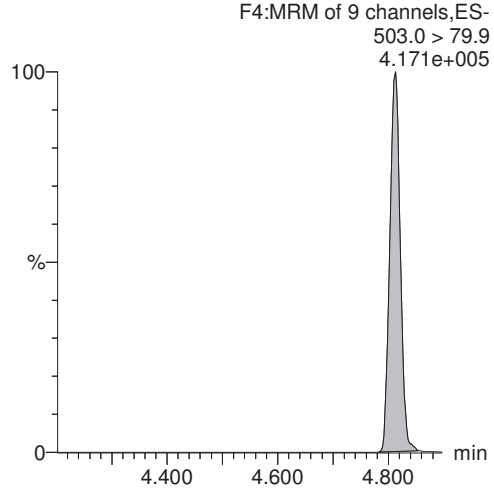
PFOS



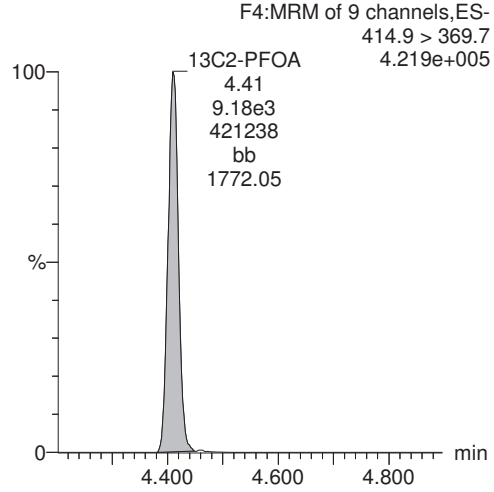
13C2-PFHxA



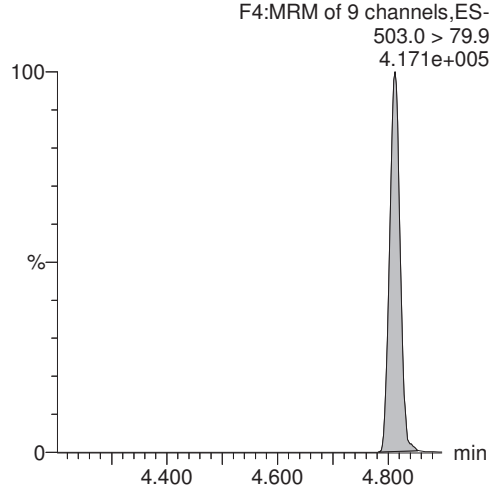
13C4-PFOS



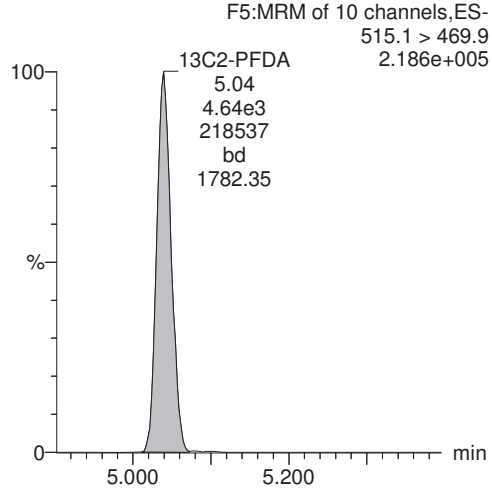
13C2-PFOA



13C4-PFOS



13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-19.qld

Last Altered: Monday, November 27, 2017 15:23:27 Pacific Standard Time
Printed: Monday, November 27, 2017 15:23:44 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_19, Date: 27-Nov-2017, Time: 14:33:45, ID: 1701716-12 CH-AT-1FB06-1117 0.25719, Description: CH-AT-1FB06-1117

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		8.37e3		0.2572	3.11				
2	2	PFOA	413 > 368.7	3.72e1	7.62e3		0.2572	4.41	4.41	0.0488	0.225	
3	3	PFOS	499 >79.9		8.37e3		0.2572	4.81				
4	4	13C2-PFHxA	315 > 269.8	3.49e3	7.62e3	0.451	0.2572	3.47	3.47	4.58	39.5	101.5
5	5	13C2-PFDA	515.1 > 469.9	3.81e3	7.62e3	0.590	0.2572	5.04	5.04	5.00	32.9	84.7
6	6	13C2-PFOA	414.9 > 369.7	7.62e3	7.62e3	1.000	0.2572	4.41	4.41	10.0	38.9	100.0
7	7	13C4-PFOS	503.0 > 79.9	8.37e3	8.37e3	1.000	0.2572	4.81	4.81	28.7	112	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

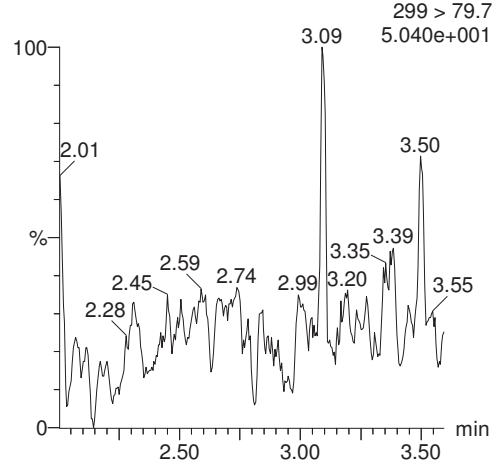
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-19.qld

Last Altered: Monday, November 27, 2017 15:23:27 Pacific Standard Time
Printed: Monday, November 27, 2017 15:23:44 Pacific Standard Time

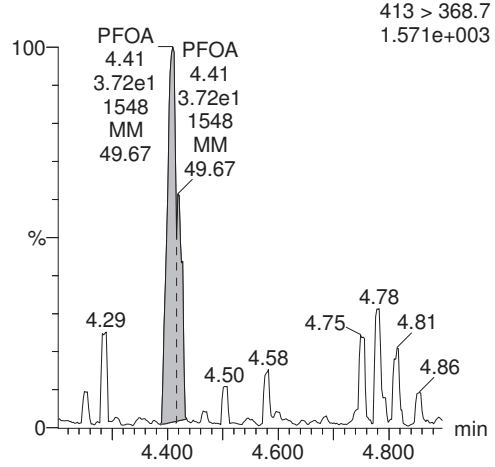
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_19, Date: 27-Nov-2017, Time: 14:33:45, ID: 1701716-12 CH-AT-1FB06-1117 0.25719, Description: CH-AT-1FB06-1117

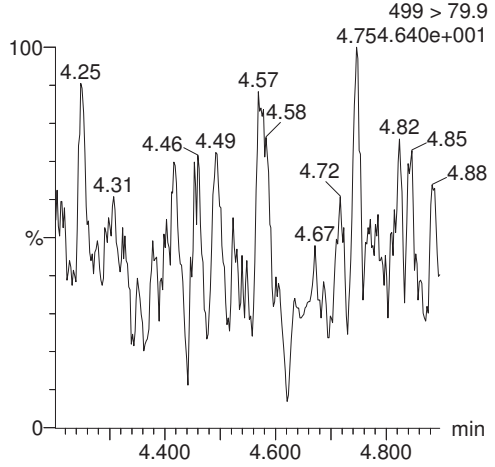
PFBS



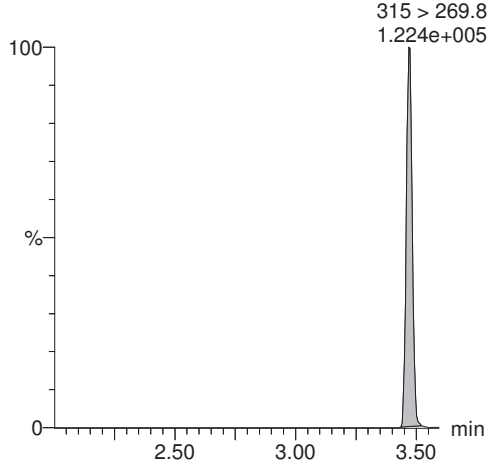
PFOA



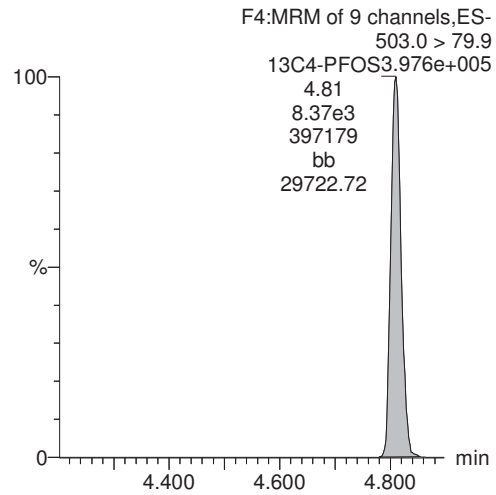
PFOS



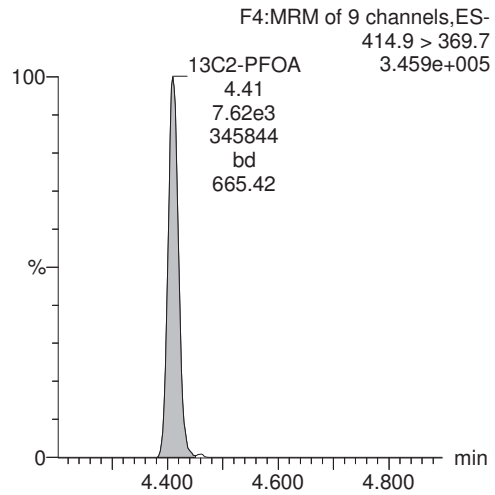
13C2-PFHxA



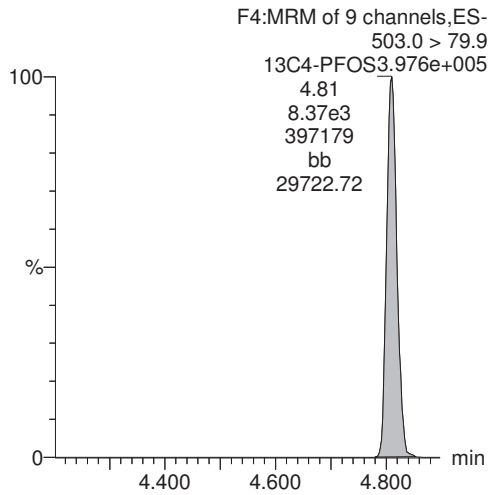
13C4-PFOS



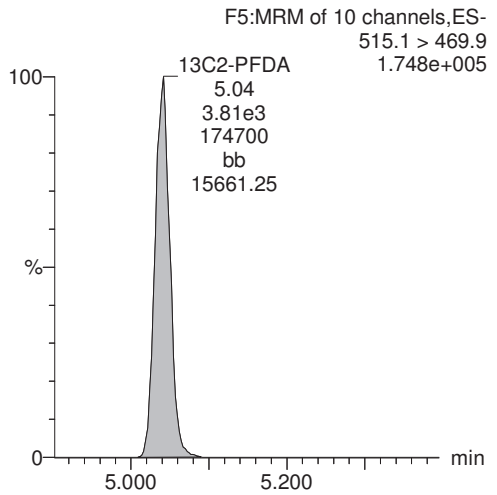
13C2-PFOA



13C4-PFOS



13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-20.qld

Last Altered: Monday, November 27, 2017 15:24:33 Pacific Standard Time
Printed: Monday, November 27, 2017 15:26:03 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_20, Date: 27-Nov-2017, Time: 14:46:09, ID: 1701716-13 CH-AT-1RW07-1117 0.22118, Description: CH-AT-1RW07-1117

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7	4.23e0	8.90e3		0.2212	3.11	3.12	0.0136	0.0696	
2	2	PFOA	413 > 368.7	3.74e1	8.50e3		0.2212	4.41	4.42	0.0440	0.237	
3	3	PFOS	499 >79.9		8.90e3		0.2212	4.81				
4	4	13C2-PFHxA	315 > 269.8	4.03e3	8.50e3	0.451	0.2212	3.47	3.47	4.74	47.5	105.1
5	5	13C2-PFDA	515.1 > 469.9	4.19e3	8.50e3	0.590	0.2212	5.04	5.04	4.93	37.8	83.6
6	6	13C2-PFOA	414.9 > 369.7	8.50e3	8.50e3	1.000	0.2212	4.41	4.41	10.0	45.2	100.0
7	7	13C4-PFOS	503.0 > 79.9	8.90e3	8.90e3	1.000	0.2212	4.81	4.81	28.7	130	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

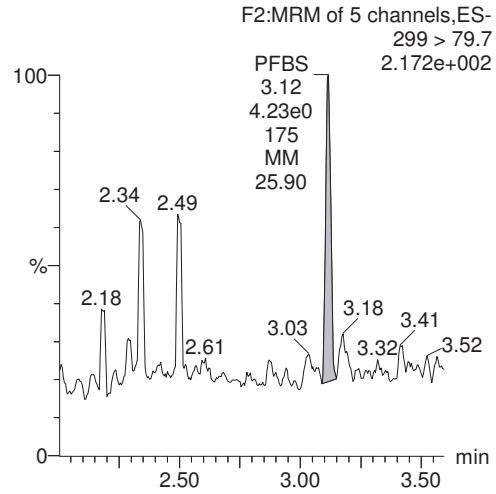
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-20.qld

Last Altered: Monday, November 27, 2017 15:24:33 Pacific Standard Time
Printed: Monday, November 27, 2017 15:26:03 Pacific Standard Time

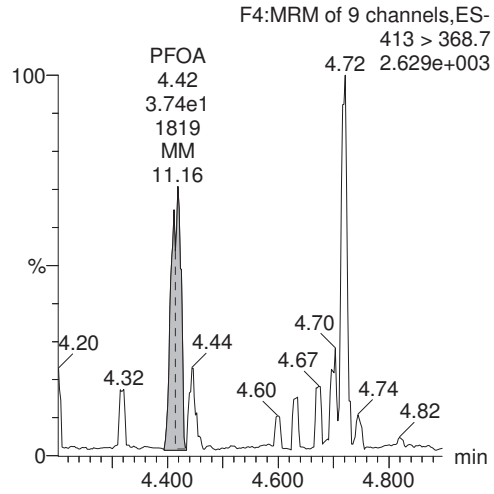
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_20, Date: 27-Nov-2017, Time: 14:46:09, ID: 1701716-13 CH-AT-1RW07-1117 0.22118, Description: CH-AT-1RW07-1117

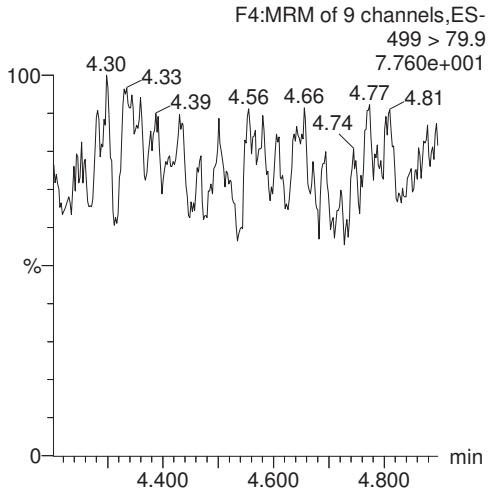
PFBS



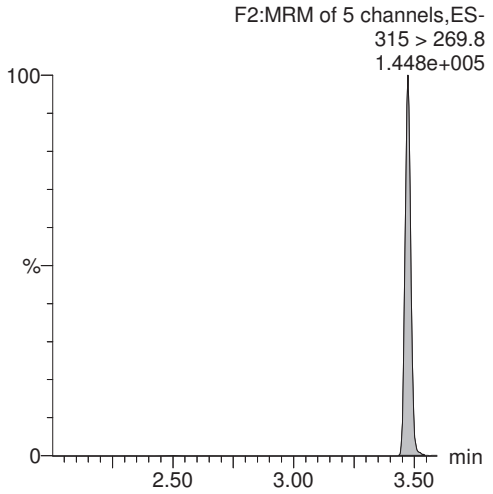
PFOA



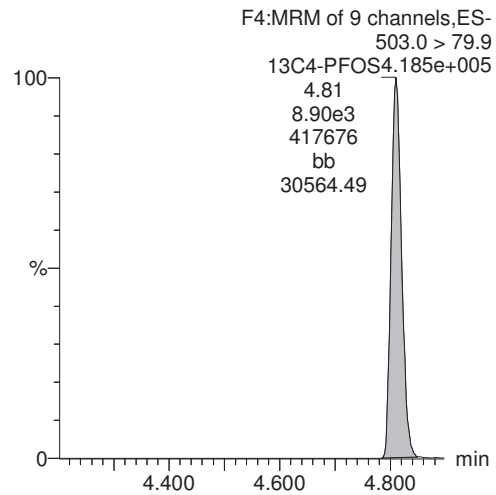
PFOS



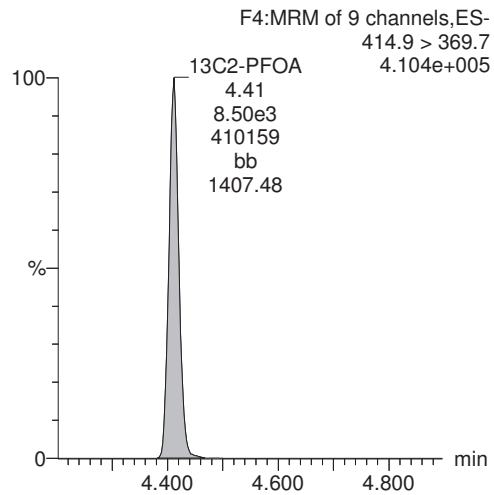
13C2-PFHxA



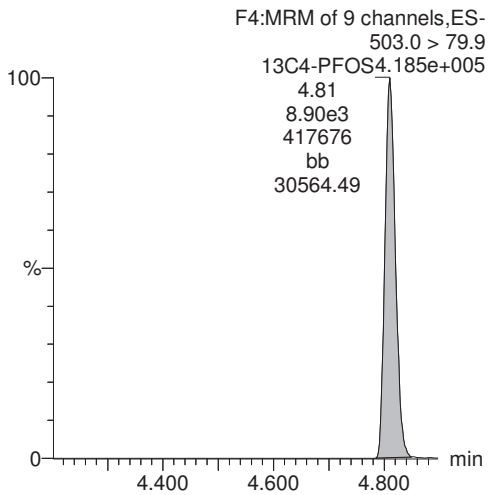
13C4-PFOS



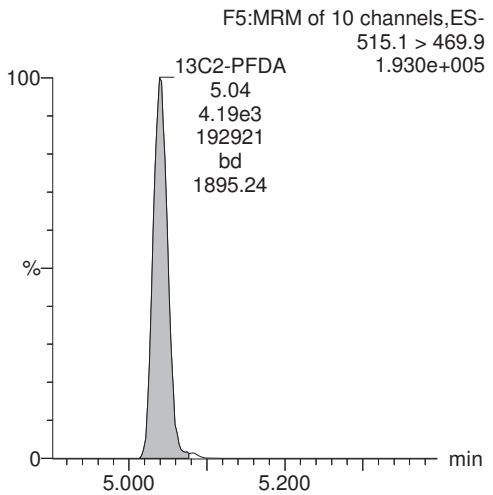
13C2-PFOA



13C4-PFOS



13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-21.qld

Last Altered: Monday, November 27, 2017 15:27:43 Pacific Standard Time
Printed: Monday, November 27, 2017 15:27:58 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_21, Date: 27-Nov-2017, Time: 14:58:33, ID: 1701716-14 CH-AT-1FB07-1117 0.24183, Description: CH-AT-1FB07-1117

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		8.53e3		0.2418	3.11				
2	2	PFOA	413 > 368.7	2.98e1	8.47e3		0.2418	4.41	4.41	0.0351	0.173	
3	3	PFOS	499 >79.9	3.84e0	8.53e3		0.2418	4.81	4.80	0.0129	0.0452	
4	4	13C2-PFHxA	315 > 269.8	3.87e3	8.47e3	0.451	0.2418	3.47	3.47	4.57	41.9	101.3
5	5	13C2-PFDA	515.1 > 469.9	4.18e3	8.47e3	0.590	0.2418	5.04	5.04	4.93	34.5	83.5
6	6	13C2-PFOA	414.9 > 369.7	8.47e3	8.47e3	1.000	0.2418	4.41	4.41	10.0	41.4	100.0
7	7	13C4-PFOS	503.0 > 79.9	8.53e3	8.53e3	1.000	0.2418	4.81	4.81	28.7	119	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

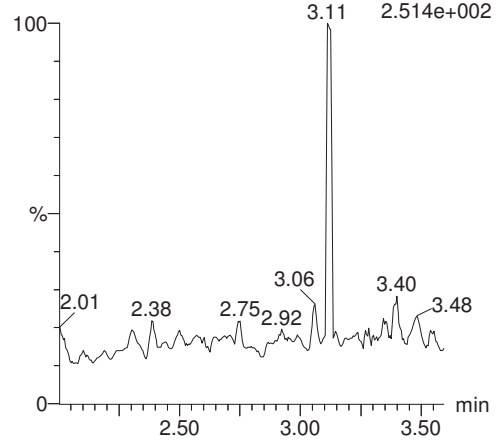
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-21.qld

Last Altered: Monday, November 27, 2017 15:27:43 Pacific Standard Time
Printed: Monday, November 27, 2017 15:27:58 Pacific Standard Time

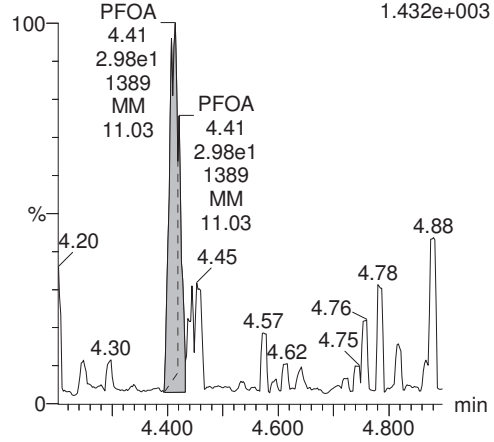
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_21, Date: 27-Nov-2017, Time: 14:58:33, ID: 1701716-14 CH-AT-1FB07-1117 0.24183, Description: CH-AT-1FB07-1117

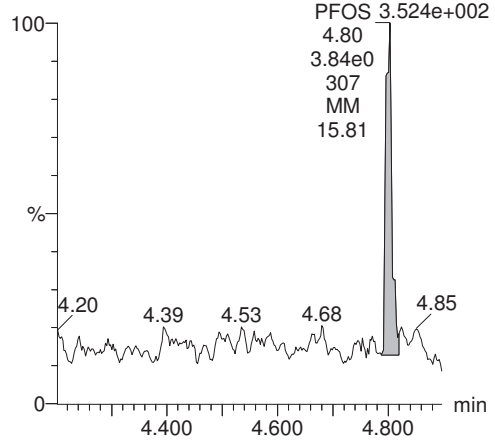
PFBS



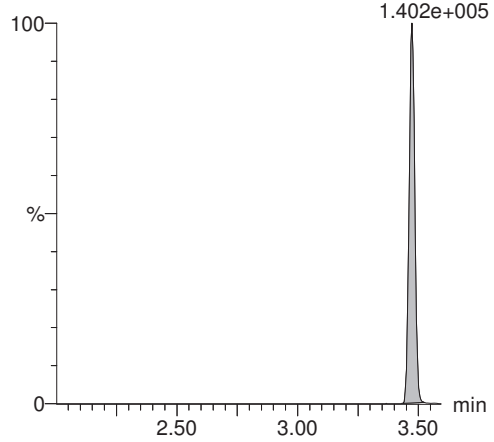
PFOA



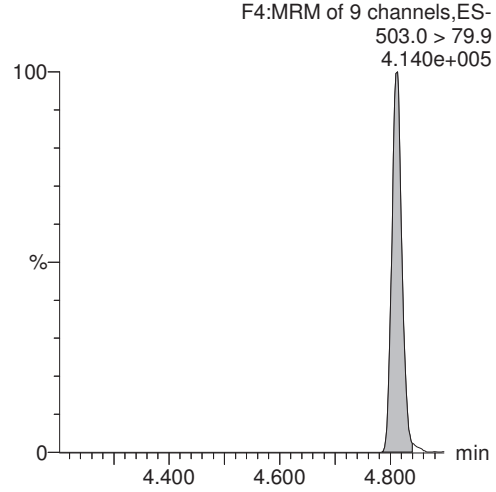
PFOS



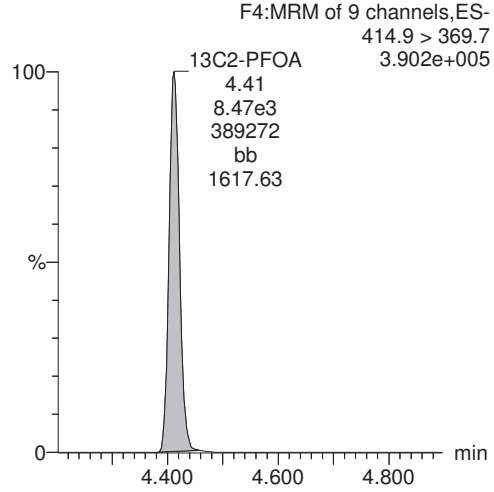
13C2-PFHxA



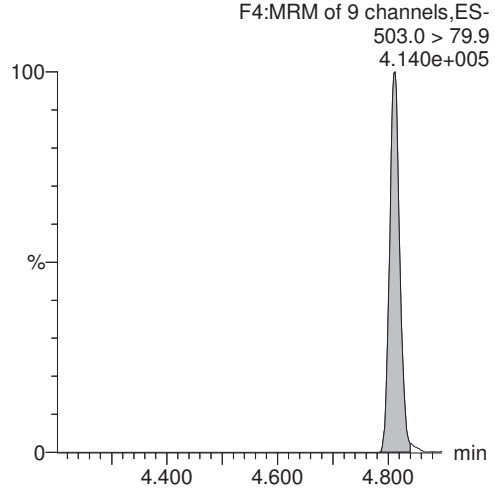
13C4-PFOS



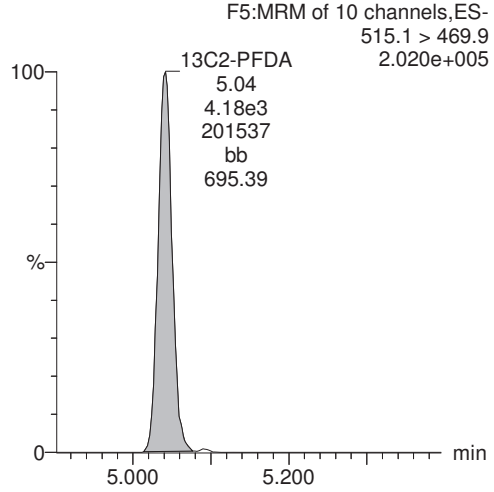
13C2-PFOA



13C4-PFOS



13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-22.qld

Last Altered: Monday, November 27, 2017 15:28:51 Pacific Standard Time
Printed: Monday, November 27, 2017 15:29:06 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_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_22, Date: 27-Nov-2017, Time: 15:10:59, ID: 1701716-15 CH-AT-1RW08-1117 0.23563, Description: CH-AT-1RW08-1117

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		8.98e3		0.2356	3.11				
2	2	PFOA	413 > 368.7	4.48e1	8.53e3		0.2356	4.41	4.41	0.0525	0.265	
3	3	PFOS	499 >79.9	1.12e1	8.98e3		0.2356	4.81	4.81	0.0359	0.129	
4	4	13C2-PFHxA	315 > 269.8	3.97e3	8.53e3	0.451	0.2356	3.47	3.47	4.65	43.8	103.1
5	5	13C2-PFDA	515.1 > 469.9	4.22e3	8.53e3	0.590	0.2356	5.04	5.04	4.95	35.6	83.8
6	6	13C2-PFOA	414.9 > 369.7	8.53e3	8.53e3	1.000	0.2356	4.41	4.41	10.0	42.4	100.0
7	7	13C4-PFOS	503.0 > 79.9	8.98e3	8.98e3	1.000	0.2356	4.81	4.81	28.7	122	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

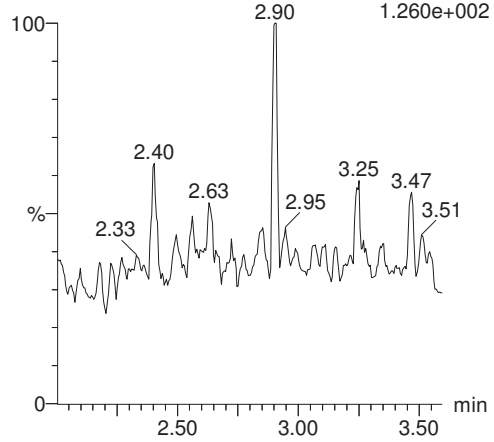
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-22.qld

Last Altered: Monday, November 27, 2017 15:28:51 Pacific Standard Time
Printed: Monday, November 27, 2017 15:29:06 Pacific Standard Time

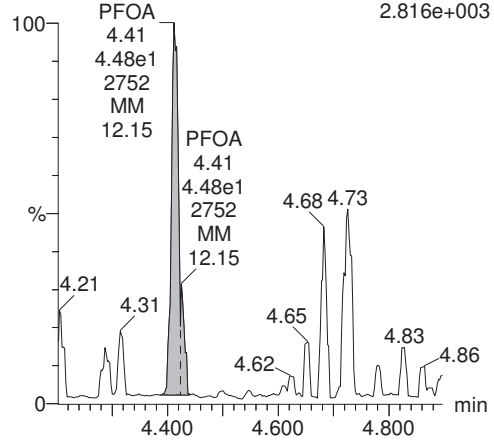
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_22, Date: 27-Nov-2017, Time: 15:10:59, ID: 1701716-15 CH-AT-1RW08-1117 0.23563, Description: CH-AT-1RW08-1117

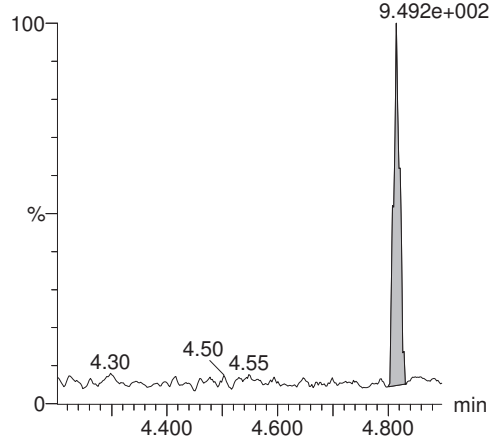
PFBS



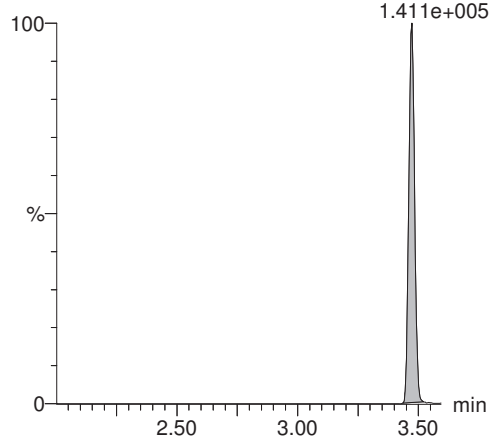
PFOA



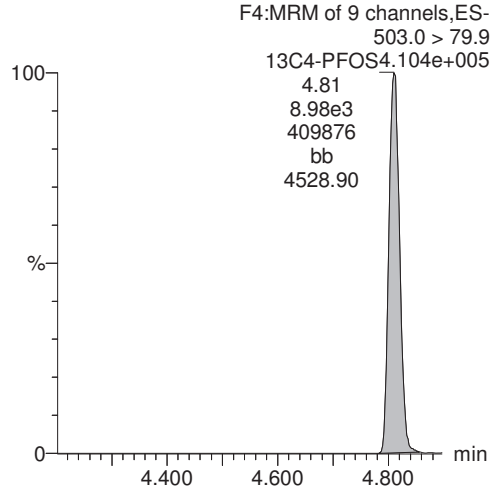
PFOS



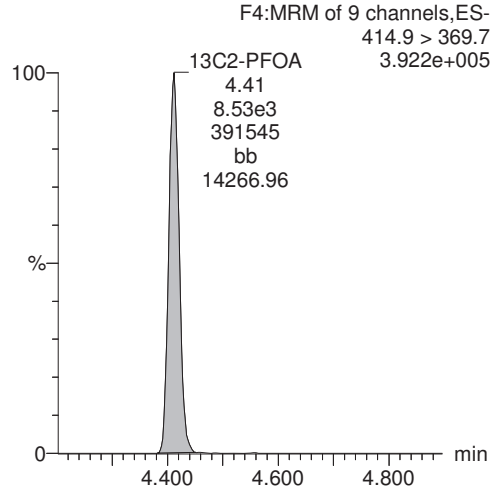
13C2-PFHxA



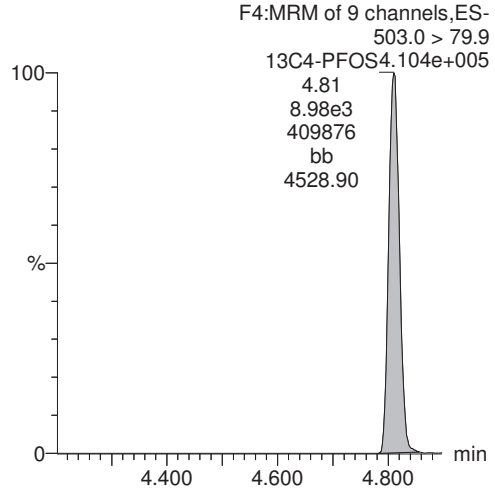
13C4-PFOS



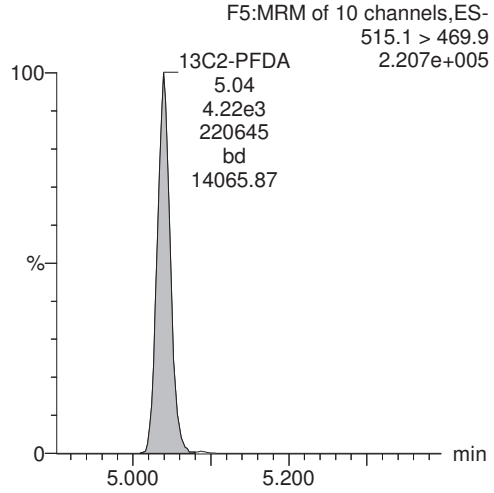
13C2-PFOA



13C4-PFOS



13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-23.qld

Last Altered: Monday, November 27, 2017 15:33:00 Pacific Standard Time
Printed: Monday, November 27, 2017 15:34:07 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_23, Date: 27-Nov-2017, Time: 15:23:25, ID: 1701716-16 CH-AT-1FB08-1117 0.23846, Description: CH-AT-1FB08-1117

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		9.29e3		0.2385	3.11				
2	2	PFOA	413 > 368.7	6.17e1	8.21e3		0.2385	4.41	4.41	0.0752	0.375	
3	3	PFOS	499 >79.9		9.29e3		0.2385	4.81				
4	4	13C2-PFHxA	315 > 269.8	3.70e3	8.21e3	0.451	0.2385	3.47	3.47	4.51	41.9	100.0
5	5	13C2-PFDA	515.1 > 469.9	4.05e3	8.21e3	0.590	0.2385	5.04	5.04	4.93	35.0	83.6
6	6	13C2-PFOA	414.9 > 369.7	8.21e3	8.21e3	1.000	0.2385	4.41	4.41	10.0	41.9	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.29e3	9.29e3	1.000	0.2385	4.81	4.81	28.7	120	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

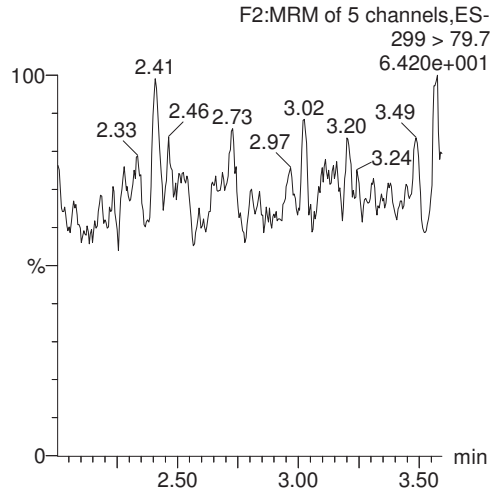
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-23.qld

Last Altered: Monday, November 27, 2017 15:33:00 Pacific Standard Time
Printed: Monday, November 27, 2017 15:34:07 Pacific Standard Time

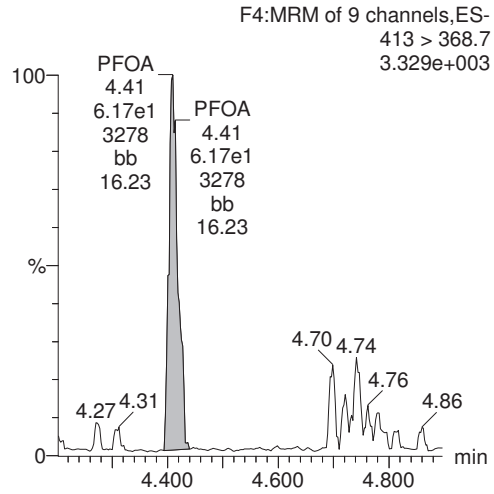
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_23, Date: 27-Nov-2017, Time: 15:23:25, ID: 1701716-16 CH-AT-1FB08-1117 0.23846, Description: CH-AT-1FB08-1117

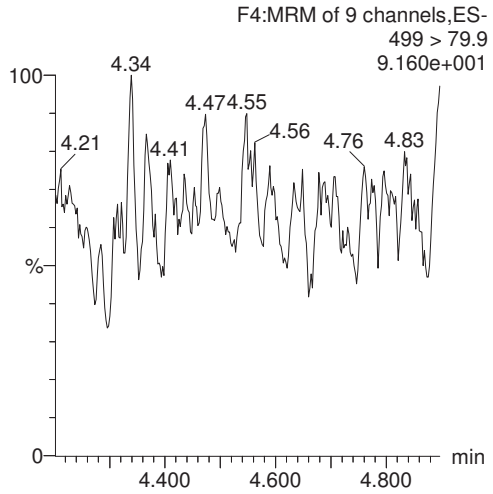
PFBS



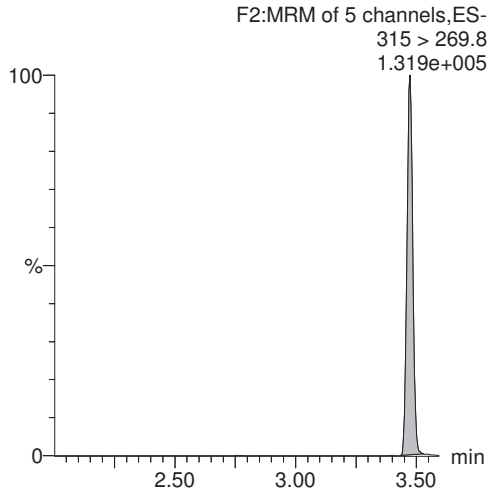
PFOA



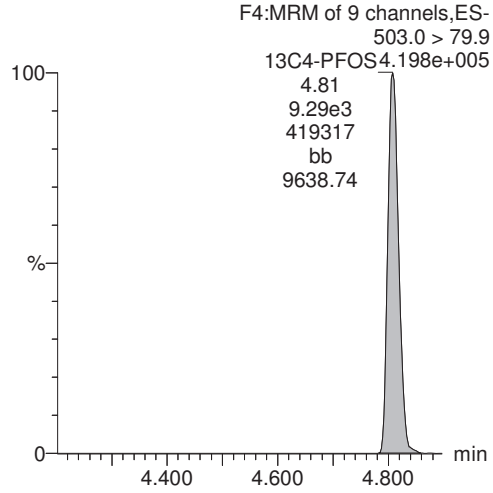
PFOS



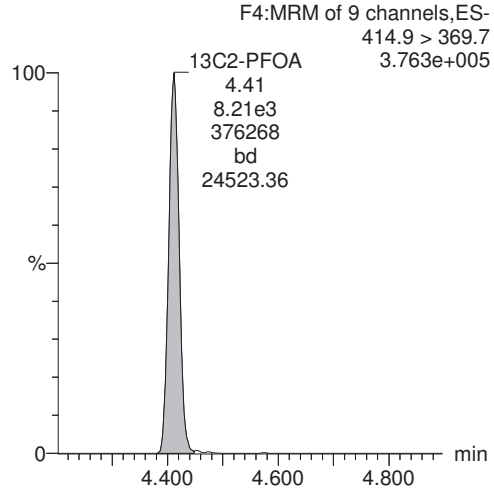
13C2-PFHxA



13C4-PFOS



13C2-PFOA



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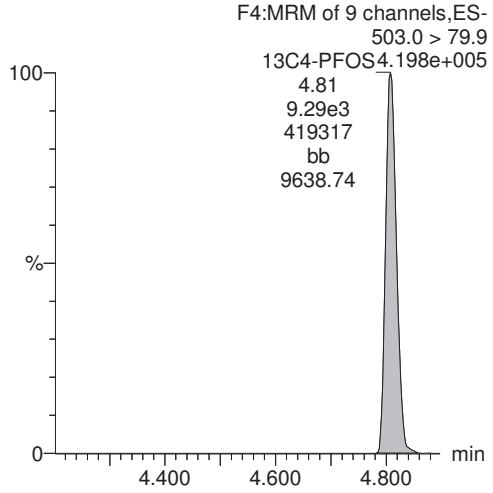
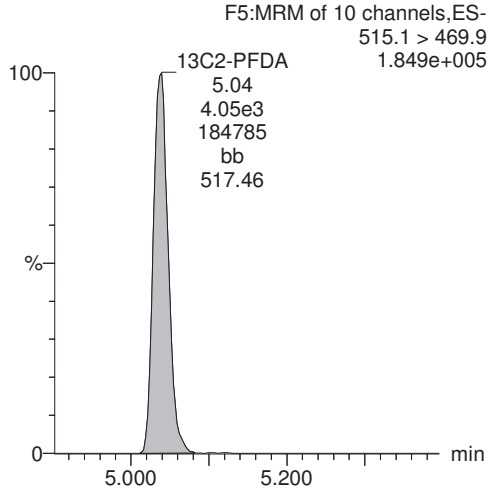


13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-24.qld

Last Altered: Monday, November 27, 2017 15:55:38 Pacific Standard Time
Printed: Monday, November 27, 2017 15:57:13 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_24, Date: 27-Nov-2017, Time: 15:35:51, ID: 1701716-17 CH-AT-1RW09-1117 0.21629, Description: CH-AT-1RW09-1117

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		9.50e3		0.2163	3.11				
2	2	PFOA	413 > 368.7	5.88e1	8.37e3		0.2163	4.41	4.42	0.0703	0.386	
3	3	PFOS	499 >79.9		9.50e3		0.2163	4.81				
4	4	13C2-PFHxA	315 > 269.8	3.67e3	8.37e3	0.451	0.2163	3.47	3.47	4.39	45.0	97.3
5	5	13C2-PFDA	515.1 > 469.9	4.02e3	8.37e3	0.590	0.2163	5.04	5.04	4.80	37.6	81.3
6	6	13C2-PFOA	414.9 > 369.7	8.37e3	8.37e3	1.000	0.2163	4.41	4.41	10.0	46.2	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.50e3	9.50e3	1.000	0.2163	4.81	4.81	28.7	133	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

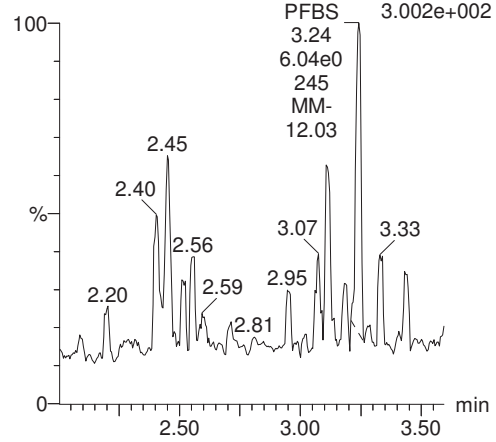
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-24.qld

Last Altered: Monday, November 27, 2017 15:55:38 Pacific Standard Time
Printed: Monday, November 27, 2017 15:57:13 Pacific Standard Time

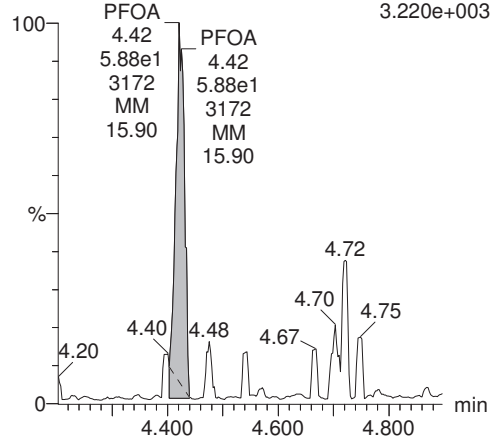
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_24, Date: 27-Nov-2017, Time: 15:35:51, ID: 1701716-17 CH-AT-1RW09-1117 0.21629, Description: CH-AT-1RW09-1117

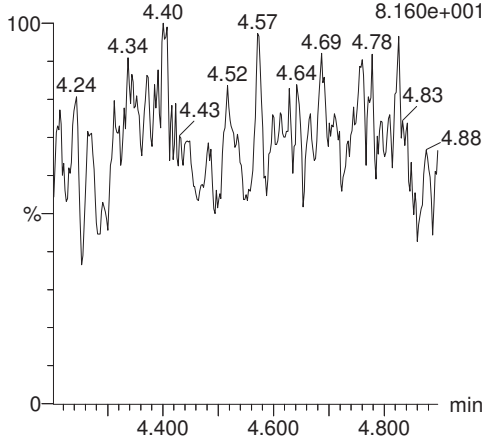
PFBS



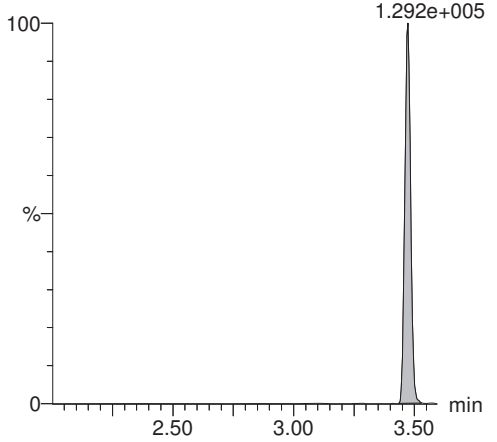
PFOA



PFOS



13C2-PFHxA



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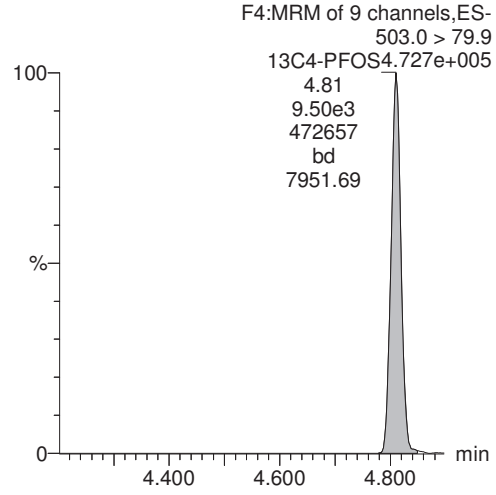

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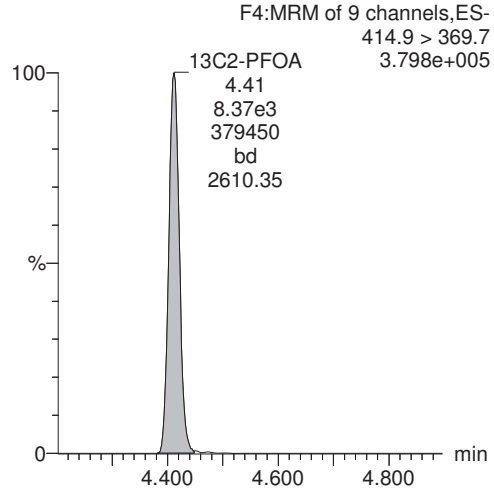

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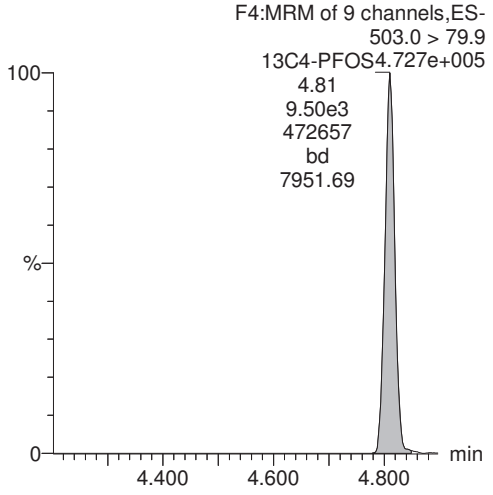
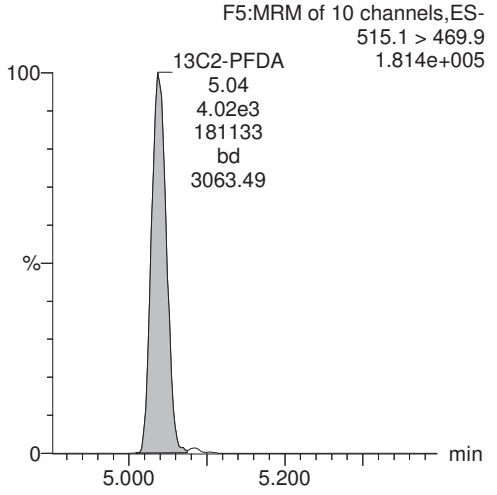


13C2-PFDA



AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-25.qld

Last Altered: Monday, November 27, 2017 15:57:54 Pacific Standard Time
Printed: Monday, November 27, 2017 15:58:48 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_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_25, Date: 27-Nov-2017, Time: 15:48:17, ID: 1701716-18 CH-AT-1FB09-1117 0.23079, Description: CH-AT-1FB09-1117

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		9.36e3		0.2308	3.11				
2	2	PFOA	413 > 368.7	3.14e1	8.93e3		0.2308	4.41	4.41	0.0352	0.181	
3	3	PFOS	499 >79.9		9.36e3		0.2308	4.81				
4	4	13C2-PFHxA	315 > 269.8	3.89e3	8.93e3	0.451	0.2308	3.47	3.47	4.36	41.9	96.6
5	5	13C2-PFDA	515.1 > 469.9	3.95e3	8.93e3	0.590	0.2308	5.04	5.04	4.43	32.5	75.0
6	6	13C2-PFOA	414.9 > 369.7	8.93e3	8.93e3	1.000	0.2308	4.41	4.41	10.0	43.3	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.36e3	9.36e3	1.000	0.2308	4.81	4.81	28.7	124	100.0

AC 11/27/17

Vista Analytical Laboratory

Rev'd: MM 11/27/17

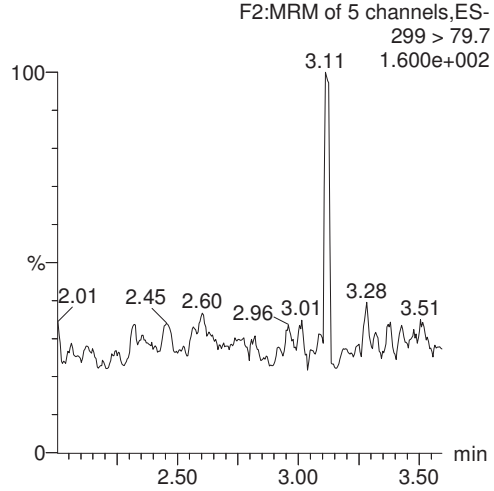
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-25.qld

Last Altered: Monday, November 27, 2017 15:57:54 Pacific Standard Time
Printed: Monday, November 27, 2017 15:58:48 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_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_25, Date: 27-Nov-2017, Time: 15:48:17, ID: 1701716-18 CH-AT-1FB09-1117 0.23079, Description: CH-AT-1FB09-1117

PFBS



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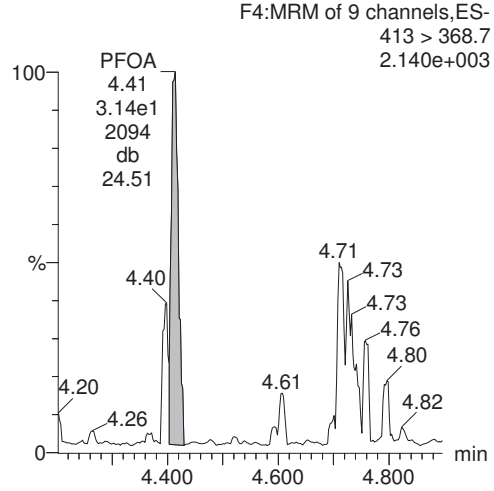

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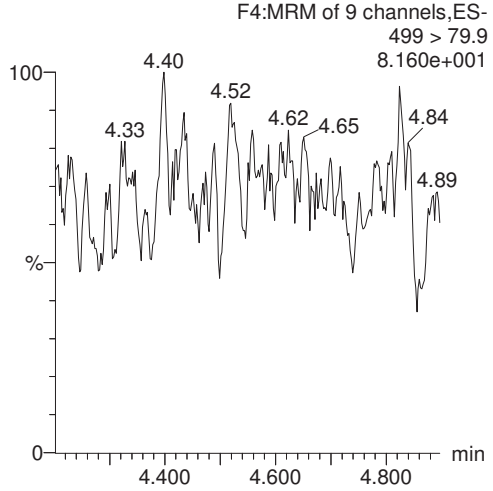
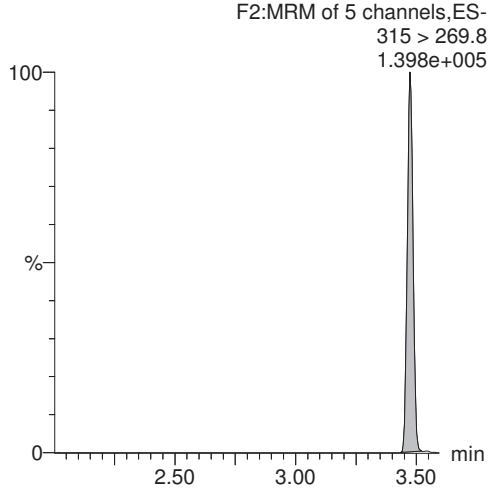
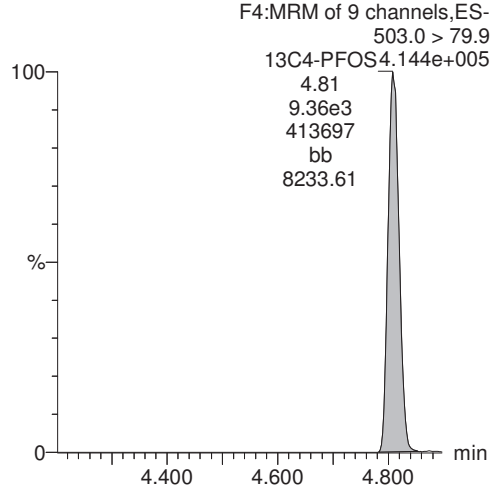


13C2-PFHxA



13C4-PFOS



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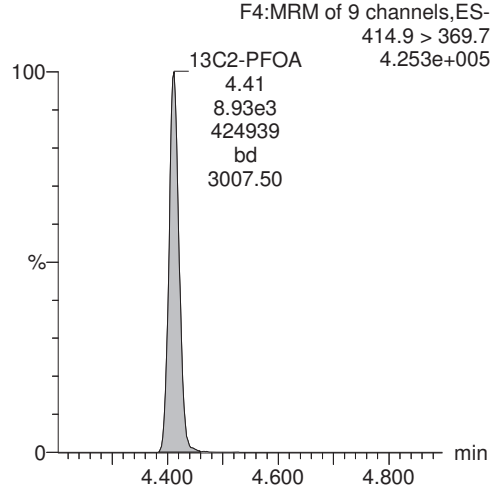

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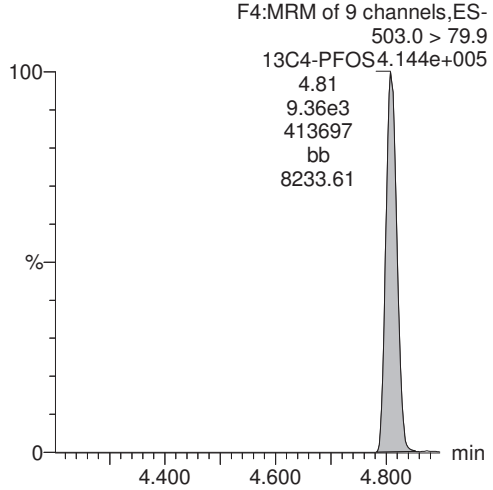

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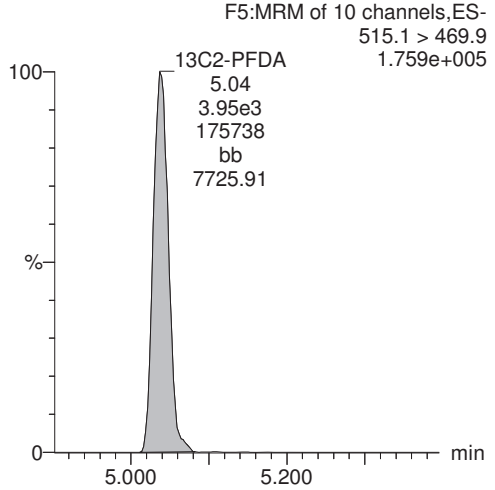


AC 11/27/17

INJECTION INTERNAL STANDARD (IIS) AREAS,

INSTRUMENT BLANKS (IB)

AND

CONTINUTING CALIBRATION VERIFICATIONS CCV)

Compound 6: 13C2-PFOA

	ID	Name	IS Area	CCAL AREA	area %
1	ST171127G1-1 PFC CS-1 537 17K2005	171127G1_2	9809.73	9809.73	100
2	B7K0131-BS1 LFB 0.25	171127G1_3	8603.748	9809.73	87.70627
3	IPA	171127G1_4		9809.73	0
4	B7K0131-BLK1 LRB 0.25	171127G1_5	8270.147	9809.73	84.30555
5	B7K0131-MS1 LFSM 0.21131	171127G1_6	8149.746	9809.73	83.07819
6	B7K0131-MSD1 LFSMD 0.23448	171127G1_7	8680.86	9809.73	88.49234
7	1701716-01 CH-AT-1RW01-1117 0.22923	171127G1_8	9203.189	9809.73	93.81695
8	1701716-02 CH-AT-1FB01-1117 0.25032	171127G1_9	8169.68	9809.73	83.2814
9	1701716-03 CH-AT-1RW02-1117 0.2226	171127G1_10	8290.029	9809.73	84.50823
10	1701716-04 CH-AT-1FB02-1117 0.24851	171127G1_11	7764.047	9809.73	79.14639
11	1701716-05 CH-AT-1RW03-1117 0.23393	171127G1_12	8579.34	9809.73	87.45745
12	1701716-06 CH-AT-1FB03-1117 0.2361	171127G1_13	8950.83	9809.73	91.24441
13	1701716-07 CH-AT-1RW04-1117 0.23307	171127G1_14	8722.06	9809.73	88.91233
14	1701716-08 CH-AT-1FB04-1117 0.25394	171127G1_15	8655.281	9809.73	88.23159
15	1701716-09 CH-AT-1RW05-1117 0.22609	171127G1_16	8322.873	9809.73	84.84304
16	1701716-10 CH-AT-1FB05-1117 0.25417	171127G1_17	8586.053	9809.73	87.52589
17	1701716-11 CH-AT-1RW06-1117 0.22984	171127G1_18	9184.992	9809.73	93.63145
18	1701716-12 CH-AT-1FB06-1117 0.25719	171127G1_19	7618.573	9809.73	77.66343
19	1701716-13 CH-AT-1RW07-1117 0.22118	171127G1_20	8497.069	9809.73	86.61879
20	1701716-14 CH-AT-1FB07-1117 0.24183	171127G1_21	8474.05	9809.73	86.38413
21	1701716-15 CH-AT-1RW08-1117 0.23563	171127G1_22	8529.611	9809.73	86.95052
22	1701716-16 CH-AT-1FB08-1117 0.23846	171127G1_23	8205.61	9809.73	83.64766
23	1701716-17 CH-AT-1RW09-1117 0.21629	171127G1_24	8372.371	9809.73	85.34762
24	1701716-18 CH-AT-1FB09-1117 0.23079	171127G1_25	8927.09	9809.73	91.0024

Compound 7: 13C4-PFOS

	ID	Name	IS Area	Ccal area	area %
1	ST171127G1-1 PFC CS-1 537 17K2005	171127G1_2	10813.13	10813.126	100
2	B7K0131-BS1 LFB 0.25	171127G1_3	9345.595	10813.126	86.42824
3	IPA	171127G1_4		10813.126	0
4	B7K0131-BLK1 LRB 0.25	171127G1_5	8387.791	10813.126	77.57045
5	B7K0131-MS1 LFSM 0.21131	171127G1_6	9216.008	10813.126	85.22982
6	B7K0131-MSD1 LFSMD 0.23448	171127G1_7	9657.529	10813.126	89.31302
7	1701716-01 CH-AT-1RW01-1117 0.22923	171127G1_8	9672.814	10813.126	89.45437
8	1701716-02 CH-AT-1FB01-1117 0.25032	171127G1_9	8282.712	10813.126	76.59868
9	1701716-03 CH-AT-1RW02-1117 0.2226	171127G1_10	8724.81	10813.126	80.68721
10	1701716-04 CH-AT-1FB02-1117 0.24851	171127G1_11	9073.076	10813.126	83.90798
11	1701716-05 CH-AT-1RW03-1117 0.23393	171127G1_12	9391.521	10813.126	86.85297
12	1701716-06 CH-AT-1FB03-1117 0.2361	171127G1_13	9474.131	10813.126	87.61695
13	1701716-07 CH-AT-1RW04-1117 0.23307	171127G1_14	8971.539	10813.126	82.96897
14	1701716-08 CH-AT-1FB04-1117 0.25394	171127G1_15	9137.932	10813.126	84.50777
15	1701716-09 CH-AT-1RW05-1117 0.22609	171127G1_16	8829.463	10813.126	81.65505
16	1701716-10 CH-AT-1FB05-1117 0.25417	171127G1_17	9637.25	10813.126	89.12548
17	1701716-11 CH-AT-1RW06-1117 0.22984	171127G1_18	8899.868	10813.126	82.30615
18	1701716-12 CH-AT-1FB06-1117 0.25719	171127G1_19	8373.117	10813.126	77.43475
19	1701716-13 CH-AT-1RW07-1117 0.22118	171127G1_20	8902.731	10813.126	82.33263
20	1701716-14 CH-AT-1FB07-1117 0.24183	171127G1_21	8528.867	10813.126	78.87513
21	1701716-15 CH-AT-1RW08-1117 0.23563	171127G1_22	8975.838	10813.126	83.00872
22	1701716-16 CH-AT-1FB08-1117 0.23846	171127G1_23	9291.649	10813.126	85.92935
23	1701716-17 CH-AT-1RW09-1117 0.21629	171127G1_24	9500.77	10813.126	87.86331
24	1701716-18 CH-AT-1FB09-1117 0.23079	171127G1_25	9357.165	10813.126	86.53524

Quantify Compound Summary Report

Printed Sun Nov 26 20:11:08 2017

Compound 6: 13C2-PFOA

	ID	Name	IS Area	ICAL AREA	area %
1	ST171127G1-1 PFC CS-1 537 17K2005	171127G1_2	9809.73	9795.802778	100.1422
2	B7K0131-BS1 LFB 0.25	171127G1_3	8603.748	9795.802778	87.83096
3	IPA	171127G1_4		9795.802778	0
4	B7K0131-BLK1 LRB 0.25	171127G1_5	8270.147	9795.802778	84.42541
5	B7K0131-MS1 LFSM 0.21131	171127G1_6	8149.746	9795.802778	83.19631
6	B7K0131-MSD1 LFSMD 0.23448	171127G1_7	8680.86	9795.802778	88.61816
7	1701716-01 CH-AT-1RW01-1117 0.22923	171127G1_8	9203.189	9795.802778	93.95033
8	1701716-02 CH-AT-1FB01-1117 0.25032	171127G1_9	8169.68	9795.802778	83.3998
9	1701716-03 CH-AT-1RW02-1117 0.2226	171127G1_10	8290.029	9795.802778	84.62838
10	1701716-04 CH-AT-1FB02-1117 0.24851	171127G1_11	7764.047	9795.802778	79.25892
11	1701716-05 CH-AT-1RW03-1117 0.23393	171127G1_12	8579.34	9795.802778	87.5818
12	1701716-06 CH-AT-1FB03-1117 0.2361	171127G1_13	8950.83	9795.802778	91.37413
13	1701716-07 CH-AT-1RW04-1117 0.23307	171127G1_14	8722.06	9795.802778	89.03875
14	1701716-08 CH-AT-1FB04-1117 0.25394	171127G1_15	8655.281	9795.802778	88.35704
15	1701716-09 CH-AT-1RW05-1117 0.22609	171127G1_16	8322.873	9795.802778	84.96366
16	1701716-10 CH-AT-1FB05-1117 0.25417	171127G1_17	8586.053	9795.802778	87.65033
17	1701716-11 CH-AT-1RW06-1117 0.22984	171127G1_18	9184.992	9795.802778	93.76457
18	1701716-12 CH-AT-1FB06-1117 0.25719	171127G1_19	7618.573	9795.802778	77.77385
19	1701716-13 CH-AT-1RW07-1117 0.22118	171127G1_20	8497.069	9795.802778	86.74194
20	1701716-14 CH-AT-1FB07-1117 0.24183	171127G1_21	8474.05	9795.802778	86.50695
21	1701716-15 CH-AT-1RW08-1117 0.23563	171127G1_22	8529.611	9795.802778	87.07414
22	1701716-16 CH-AT-1FB08-1117 0.23846	171127G1_23	8205.61	9795.802778	83.76659
23	1701716-17 CH-AT-1RW09-1117 0.21629	171127G1_24	8372.371	9795.802778	85.46896
24	1701716-18 CH-AT-1FB09-1117 0.23079	171127G1_25	8927.09	9795.802778	91.13179

Quantify Compound Summary Report

Printed Sun Nov 26 20:18:27 2017

Compound 7: 13C4-PFOS

	ID	Name	IS Area	ical area	area %
1	ST171127G1-1 PFC CS-1 537 17K2005	171127G1_2	10813.13	10884.5595	99.34372
2	B7K0131-BS1 LFB 0.25	171127G1_3	9345.595	10884.5595	85.86103
3	IPA	171127G1_4		10884.5595	0
4	B7K0131-BLK1 LRB 0.25	171127G1_5	8387.791	10884.5595	77.06137
5	B7K0131-MS1 LFSM 0.21131	171127G1_6	9216.008	10884.5595	84.67047
6	B7K0131-MSD1 LFSMD 0.23448	171127G1_7	9657.529	10884.5595	88.72687
7	1701716-01 CH-AT-1RW01-1117 0.22923	171127G1_8	9672.814	10884.5595	88.8673
8	1701716-02 CH-AT-1FB01-1117 0.25032	171127G1_9	8282.712	10884.5595	76.09598
9	1701716-03 CH-AT-1RW02-1117 0.2226	171127G1_10	8724.81	10884.5595	80.15768
10	1701716-04 CH-AT-1FB02-1117 0.24851	171127G1_11	9073.076	10884.5595	83.35731
11	1701716-05 CH-AT-1RW03-1117 0.23393	171127G1_12	9391.521	10884.5595	86.28297
12	1701716-06 CH-AT-1FB03-1117 0.2361	171127G1_13	9474.131	10884.5595	87.04193
13	1701716-07 CH-AT-1RW04-1117 0.23307	171127G1_14	8971.539	10884.5595	82.42446
14	1701716-08 CH-AT-1FB04-1117 0.25394	171127G1_15	9137.932	10884.5595	83.95316
15	1701716-09 CH-AT-1RW05-1117 0.22609	171127G1_16	8829.463	10884.5595	81.11916
16	1701716-10 CH-AT-1FB05-1117 0.25417	171127G1_17	9637.25	10884.5595	88.54056
17	1701716-11 CH-AT-1RW06-1117 0.22984	171127G1_18	8899.868	10884.5595	81.76599
18	1701716-12 CH-AT-1FB06-1117 0.25719	171127G1_19	8373.117	10884.5595	76.92656
19	1701716-13 CH-AT-1RW07-1117 0.22118	171127G1_20	8902.731	10884.5595	81.79229
20	1701716-14 CH-AT-1FB07-1117 0.24183	171127G1_21	8528.867	10884.5595	78.35748
21	1701716-15 CH-AT-1RW08-1117 0.23563	171127G1_22	8975.838	10884.5595	82.46395
22	1701716-16 CH-AT-1FB08-1117 0.23846	171127G1_23	9291.649	10884.5595	85.36541
23	1701716-17 CH-AT-1RW09-1117 0.21629	171127G1_24	9500.77	10884.5595	87.28667
24	1701716-18 CH-AT-1FB09-1117 0.23079	171127G1_25	9357.165	10884.5595	85.96733

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

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-2.qld

Last Altered: Monday, November 27, 2017 14:32:34 Pacific Standard Time
Printed: Monday, November 27, 2017 14:33:28 Pacific Standard Time

dm 11/27/17 AC 11/27/17

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_2, Date: 27-Nov-2017, Time: 11:02:22, ID: ST171127G1-1 PFC CS-1 537 17K2005, Description: PFC CS-1 537 17K2005

	# Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1 PFBS	299 > 79.7	5.51e2	1.08e4		1.0000	3.11	3.11	1.46	1.65	93.3
2	2 PFOA	413 > 368.7	1.80e3	9.81e3		1.0000	4.41	4.41	1.84	2.18	109.1
3	3 PFOS	499 >79.9	7.00e2	1.08e4		1.0000	4.81	4.81	1.86	1.57	84.9
4	4 13C2-PFHxA	315 > 269.8	4.58e3	9.81e3	0.451	1.0000	3.47	3.47	4.67	10.4	103.5
5	5 13C2-PFDA	515.1 > 469.9	5.19e3	9.81e3	0.590	1.0000	5.04	5.04	5.29	8.96	89.6
6	6 13C2-PFOA	414.9 > 369.7	9.81e3	9.81e3	1.000	1.0000	4.41	4.41	10.0	10.0	100.0
7	7 13C4-PFOS	503.0 > 79.9	1.08e4	1.08e4	1.000	1.0000	4.81	4.81	28.7	28.7	100.0

70-130

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Monday, November 27, 2017 16:34:20 Pacific Standard Time
Printed: Monday, November 27, 2017 16:34:59 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Compound name: PFBS

	Name	ID	Acq.Date	Acq.Time
1	171127G1_1	IPA	27-Nov-17	10:49:55
2	171127G1_2	ST171127G1-1 PFC CS-1 537 17K2005	27-Nov-17	11:02:22
3	171127G1_3	B7K0131-BS1 LFB 0.25	27-Nov-17	11:14:47
4	171127G1_4	IPA	27-Nov-17	11:27:12
5	171127G1_5	B7K0131-BLK1 LRB 0.25	27-Nov-17	11:39:39
6	171127G1_6	B7K0131-MS1 LFSM 0.21131	27-Nov-17	11:52:05
7	171127G1_7	B7K0131-MSD1 LFSMD 0.23448	27-Nov-17	12:04:32
8	171127G1_8	1701716-01 CH-AT-1RW01-1117 0.22923	27-Nov-17	12:16:59
9	171127G1_9	1701716-02 CH-AT-1FB01-1117 0.25032	27-Nov-17	12:29:26
10	171127G1_10	1701716-03 CH-AT-1RW02-1117 0.2226	27-Nov-17	12:41:54
11	171127G1_11	1701716-04 CH-AT-1FB02-1117 0.24851	27-Nov-17	12:54:18
12	171127G1_12	1701716-05 CH-AT-1RW03-1117 0.23393	27-Nov-17	13:06:43
13	171127G1_13	1701716-06 CH-AT-1FB03-1117 0.2361	27-Nov-17	13:19:08
14	171127G1_14	1701716-07 CH-AT-1RW04-1117 0.23307	27-Nov-17	13:31:34
15	171127G1_15	1701716-08 CH-AT-1FB04-1117 0.25394	27-Nov-17	13:44:00
16	171127G1_16	1701716-09 CH-AT-1RW05-1117 0.22609	27-Nov-17	13:56:26
17	171127G1_17	1701716-10 CH-AT-1FB05-1117 0.25417	27-Nov-17	14:08:53
18	171127G1_18	1701716-11 CH-AT-1RW06-1117 0.22984	27-Nov-17	14:21:20
19	171127G1_19	1701716-12 CH-AT-1FB06-1117 0.25719	27-Nov-17	14:33:45
20	171127G1_20	1701716-13 CH-AT-1RW07-1117 0.22118	27-Nov-17	14:46:09
21	171127G1_21	1701716-14 CH-AT-1FB07-1117 0.24183	27-Nov-17	14:58:33
22	171127G1_22	1701716-15 CH-AT-1RW08-1117 0.23563	27-Nov-17	15:10:59
23	171127G1_23	1701716-16 CH-AT-1FB08-1117 0.23846	27-Nov-17	15:23:25
24	171127G1_24	1701716-17 CH-AT-1RW09-1117 0.21629	27-Nov-17	15:35:51
25	171127G1_25	1701716-18 CH-AT-1FB09-1117 0.23079	27-Nov-17	15:48:17
26	171127G1_26	IPA	27-Nov-17	16:00:45
27	171127G1_27	ST171127G1-2 PFC CS3 537 17K2009	27-Nov-17	16:13:12
28	171127G1_28	IPA	27-Nov-17	16:25:37

LC Calibration Standards Review Checklist Q1

			ION Ratio	Concentration	C-Cals Name	Sign Date	Correct I-Cal	Manual Integrations	N/A
Calibration ID:	ST171127G1-1	[✓ L] M H	N/A	☐	☐	☐	☐	☐	☐
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: 4/5/17

Run Log Present: ☑

# of Samples per Sequence Checked: ☑

Reviewed By: 11/27/17
Initials/Date

Comments:
DW L3

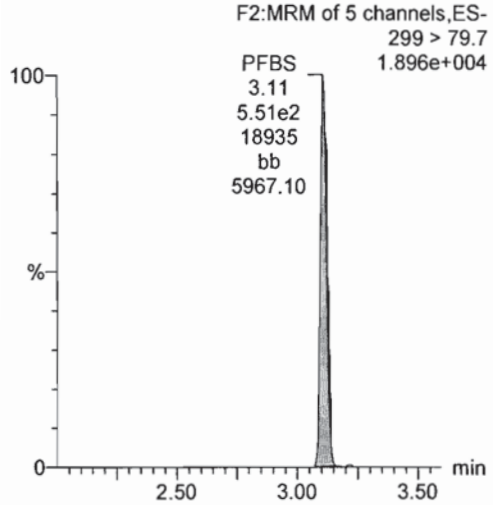
Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-2.qld

Last Altered: Monday, November 27, 2017 14:32:34 Pacific Standard Time
Printed: Monday, November 27, 2017 14:33:28 Pacific Standard Time

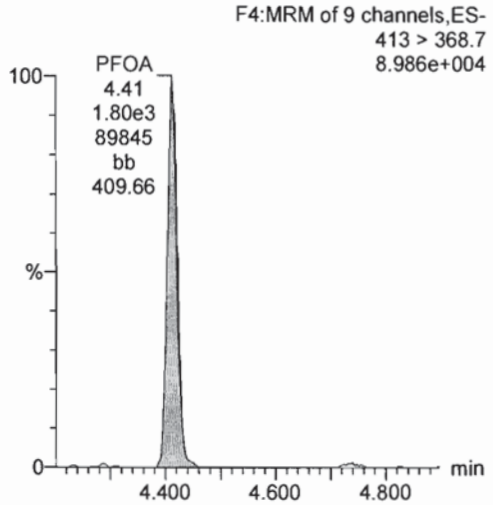
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_2, Date: 27-Nov-2017, Time: 11:02:22, ID: ST171127G1-1 PFC CS-1 537 17K2005, Description: PFC CS-1 537 17K2005

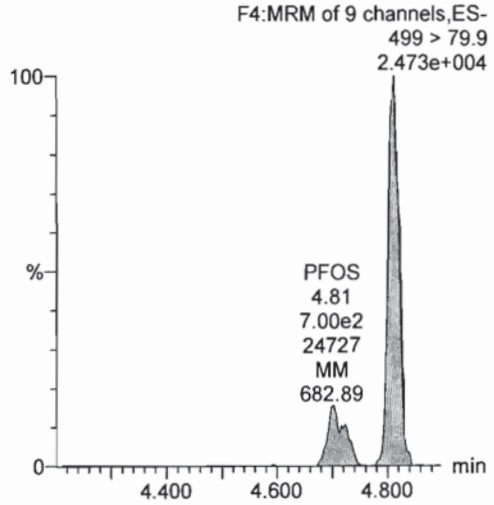
PFBS



PFOA



PFOS



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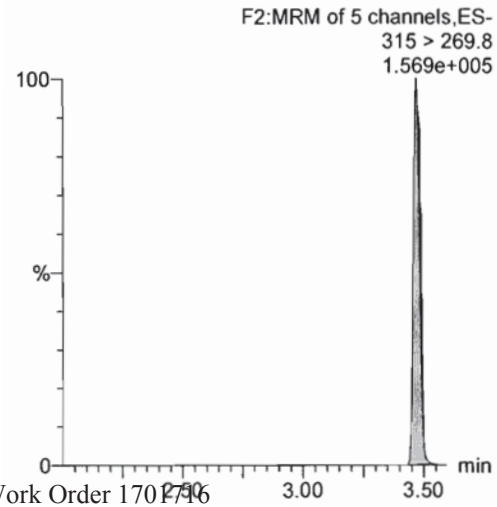

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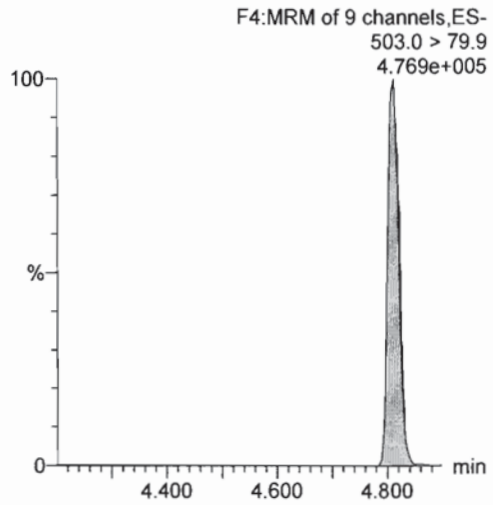

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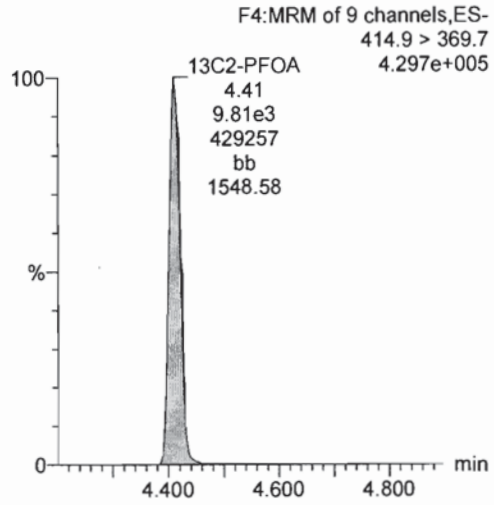
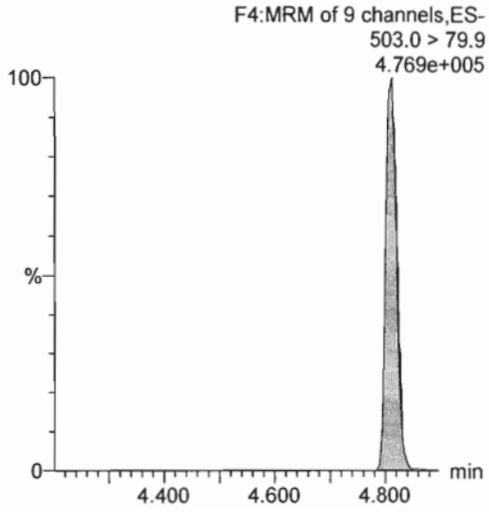


Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-2.qld

Last Altered: Monday, November 27, 2017 14:32:34 Pacific Standard Time
Printed: Monday, November 27, 2017 14:33:28 Pacific Standard Time

Name: 171127G1_2, Date: 27-Nov-2017, Time: 11:02:22, ID: ST171127G1-1 PFC CS-1 537 17K2005, Description: PFC CS-1 537 17K2005

13C4-PFOS



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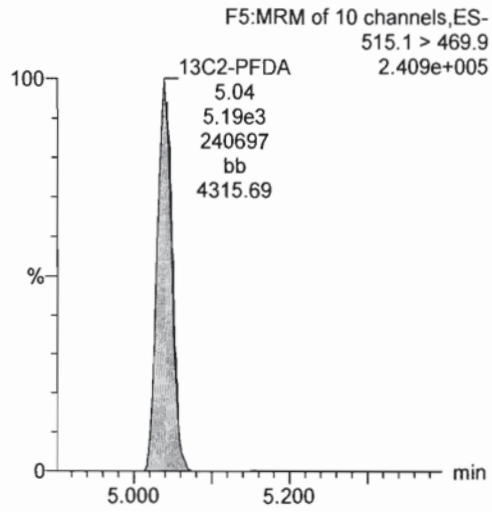

Vista Analytical Laboratory

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-27.qld

Last Altered: Monday, November 27, 2017 16:25:15 Pacific Standard Time
Printed: Monday, November 27, 2017 16:28:01 Pacific Standard Time

AC 11/27/17

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

JAM 11/27/17

Name: 171127G1_27, Date: 27-Nov-2017, Time: 16:13:12, ID: ST171127G1-2 PFC CS3 537 17K2009, Description: PFC CS3 537 17K2009

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7	1.26e4	1.00e4		1.0000	3.11	3.12	36.1	40.7	92.1
2	2	PFOA	413 > 368.7	4.00e4	8.97e3		1.0000	4.41	4.41	44.6	53.0	106.1
3	3	PFOS	499 >79.9	1.83e4	1.00e4		1.0000	4.81	4.81	52.2	44.1	95.5
4	4	13C2-PFHxA	315 > 269.8	4.30e3	8.97e3	0.451	1.0000	3.47	3.48	4.80	10.6	106.4
5	5	13C2-PFDA	515.1 > 469.9	4.50e3	8.97e3	0.590	1.0000	5.04	5.04	5.02	8.51	85.1
6	6	13C2-PFOA	414.9 > 369.7	8.97e3	8.97e3	1.000	1.0000	4.41	4.41	10.0	10.0	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.00e4	1.00e4	1.000	1.0000	4.81	4.81	28.7	28.7	100.0

70-130

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Monday, November 27, 2017 16:34:20 Pacific Standard Time
Printed: Monday, November 27, 2017 16:34:59 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Compound name: PFBS

	Name	ID	Acq.Date	Acq.Time
1	171127G1_1	IPA	27-Nov-17	10:49:55
2	171127G1_2	ST171127G1-1 PFC CS-1 537 17K2005	27-Nov-17	11:02:22
3	171127G1_3	B7K0131-BS1 LFB 0.25	27-Nov-17	11:14:47
4	171127G1_4	IPA	27-Nov-17	11:27:12
5	171127G1_5	B7K0131-BLK1 LRB 0.25	27-Nov-17	11:39:39
6	171127G1_6	B7K0131-MS1 LFSM 0.21131	27-Nov-17	11:52:05
7	171127G1_7	B7K0131-MSD1 LFSMD 0.23448	27-Nov-17	12:04:32
8	171127G1_8	1701716-01 CH-AT-1RW01-1117 0.22923	27-Nov-17	12:16:59
9	171127G1_9	1701716-02 CH-AT-1FB01-1117 0.25032	27-Nov-17	12:29:26
10	171127G1_10	1701716-03 CH-AT-1RW02-1117 0.2226	27-Nov-17	12:41:54
11	171127G1_11	1701716-04 CH-AT-1FB02-1117 0.24851	27-Nov-17	12:54:18
12	171127G1_12	1701716-05 CH-AT-1RW03-1117 0.23393	27-Nov-17	13:06:43
13	171127G1_13	1701716-06 CH-AT-1FB03-1117 0.2361	27-Nov-17	13:19:08
14	171127G1_14	1701716-07 CH-AT-1RW04-1117 0.23307	27-Nov-17	13:31:34
15	171127G1_15	1701716-08 CH-AT-1FB04-1117 0.25394	27-Nov-17	13:44:00
16	171127G1_16	1701716-09 CH-AT-1RW05-1117 0.22609	27-Nov-17	13:56:26
17	171127G1_17	1701716-10 CH-AT-1FB05-1117 0.25417	27-Nov-17	14:08:53
18	171127G1_18	1701716-11 CH-AT-1RW06-1117 0.22984	27-Nov-17	14:21:20
19	171127G1_19	1701716-12 CH-AT-1FB06-1117 0.25719	27-Nov-17	14:33:45
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21	171127G1_21	1701716-14 CH-AT-1FB07-1117 0.24183	27-Nov-17	14:58:33
22	171127G1_22	1701716-15 CH-AT-1RW08-1117 0.23563	27-Nov-17	15:10:59
23	171127G1_23	1701716-16 CH-AT-1FB08-1117 0.23846	27-Nov-17	15:23:25
24	171127G1_24	1701716-17 CH-AT-1RW09-1117 0.21629	27-Nov-17	15:35:51
25	171127G1_25	1701716-18 CH-AT-1FB09-1117 0.23079	27-Nov-17	15:48:17
26	171127G1_26	IPA	27-Nov-17	16:00:45
27	171127G1_27	ST171127G1-2 PFC CS3 537 17K2009	27-Nov-17	16:13:12
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Vista Analytical Laboratory

Dataset: U:\G1.PRO\Results\2017\171127G1\171127G1-27.qld

Last Altered: Monday, November 27, 2017 16:25:15 Pacific Standard Time
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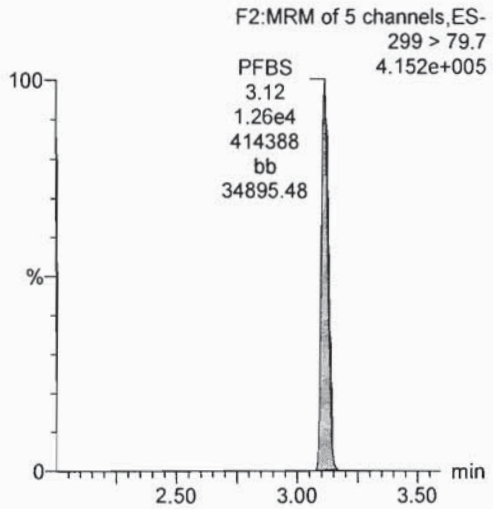
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171127G1_27, Date: 27-Nov-2017, Time: 16:13:12, ID: ST171127G1-2 PFC CS3 537 17K2009, Description: PFC CS3 537 17K2009

PFBS



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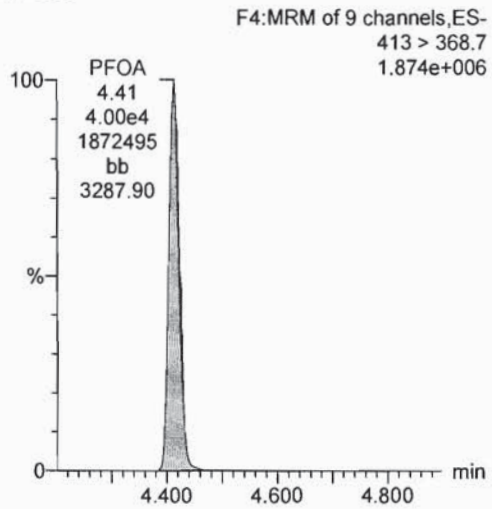
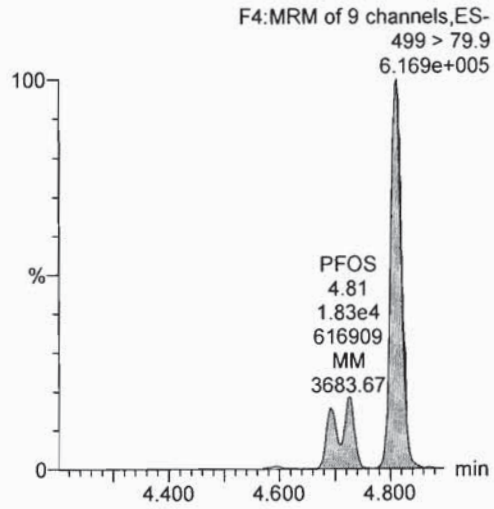


PFOS



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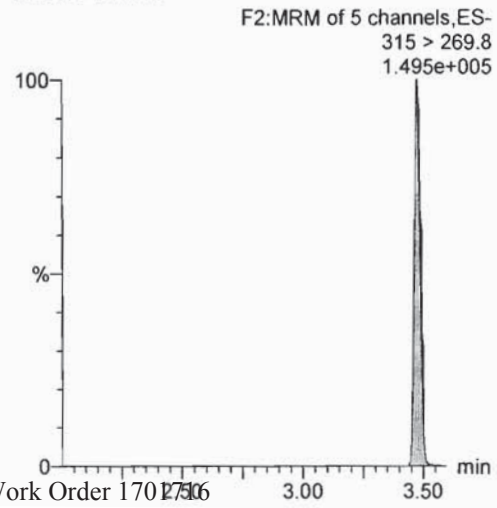

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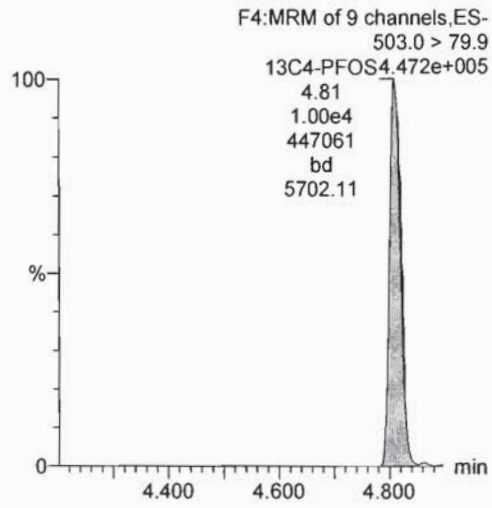

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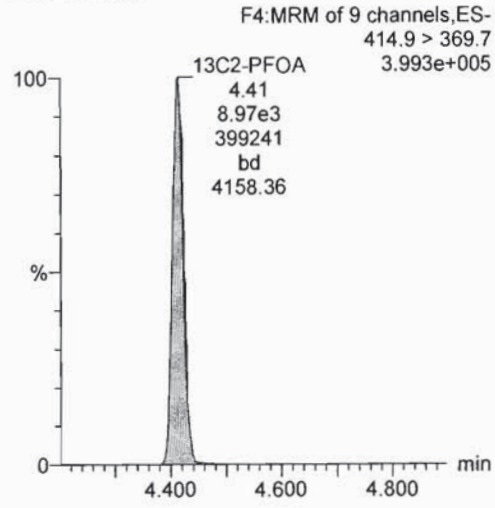

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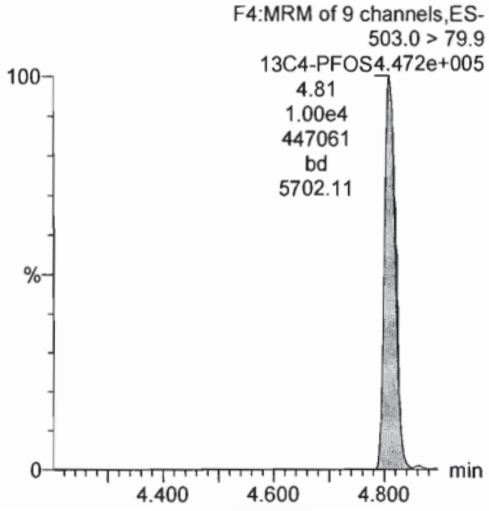
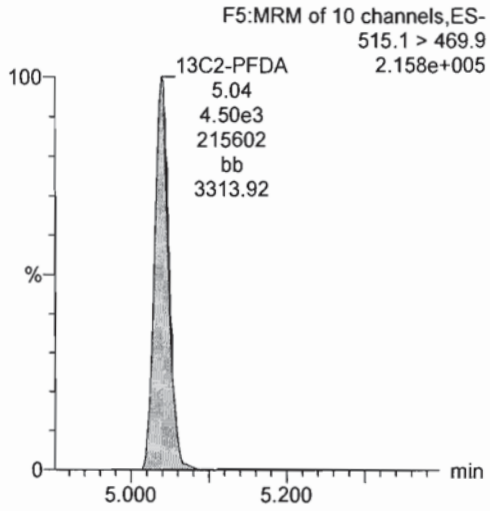
Last Altered: Monday, November 27, 2017 16:25:15 Pacific Standard Time
Printed: Monday, November 27, 2017 16:28:01 Pacific Standard Time

Name: 171127G1_27, Date: 27-Nov-2017, Time: 16:13:12, ID: ST171127G1-2 PFC CS3 537 17K2009, Description: PFC CS3 537 17K2009

13C4-PFOS



13C2-PFDA



INITIAL CALIBRATION (ICAL)

INCLUDING ASSOCIATED

INITIAL CALIBRATION VERIFICATION (ICV) AND INSTRUMENT BLANK (IB)

Vista Analytical Laboratory

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

Last Altered: Sunday, November 26, 2017 19:51:30 Pacific Standard Time
Printed: Monday, November 27, 2017 09:18:54 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 26 Nov 2017 19:34:27
Calibration: 26 Nov 2017 19:51:30 C18_537_Q1_11-25-17_L3

DM 11/27/17
VJA 11/27/2017

Compound name: PFBS
Coefficient of Determination: R^2 = 0.998067
Calibration curve: 0.886278 * x
Response type: Internal Std (Ref 7), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None

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

Compound name: PFOA
Coefficient of Determination: R^2 = 0.999038
Calibration curve: 0.841053 * x
Response type: Internal Std (Ref 6), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None

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

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

Last Altered: Sunday, November 26, 2017 19:51:30 Pacific Standard Time
Printed: Monday, November 27, 2017 09:18:54 Pacific Standard Time

Compound name: PFOS
Coefficient of Determination: R^2 = 0.998864
Calibration curve: 1.18285 * x
Response type: Internal Std (Ref 7), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None

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

Compound name: 13C2-PFHxA
Response Factor: 0.450991
RRF SD: 0.0234656, Relative SD: 5.20312
Response type: Internal Std (Ref 6), Area * (IS Conc. / IS Area)
Curve type: RF

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

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

Last Altered: Sunday, November 26, 2017 19:51:30 Pacific Standard Time
Printed: Monday, November 27, 2017 09:18:54 Pacific Standard Time

Compound name: 13C2-PFDA
Response Factor: 0.590185
RRF SD: 0.0468027, Relative SD: 7.93017
Response type: Internal Std (Ref 6), Area * (IS Conc. / IS Area)
Curve type: RF

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

Compound name: 13C2-PFOA
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 6), Area * (IS Conc. / IS Area)
Curve type: RF

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

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

Last Altered: Sunday, November 26, 2017 19:51:30 Pacific Standard Time
Printed: Monday, November 27, 2017 09:18:54 Pacific Standard Time

Compound name: 13C4-PFOS
Response Factor: 1
RRF SD: 0, Relative SD: 0
Response type: Internal Std (Ref 7), Area * (IS Conc. / IS Area)
Curve type: RF

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

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Monday, November 27, 2017 09:22:48 Pacific Standard Time
Printed: Monday, November 27, 2017 09:24:50 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 26 Nov 2017 20:36:49
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Compound name: PFBS

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

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Monday, November 27, 2017 09:22:48 Pacific Standard Time
Printed: Monday, November 27, 2017 09:24:50 Pacific Standard Time

Compound name: PFBS

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

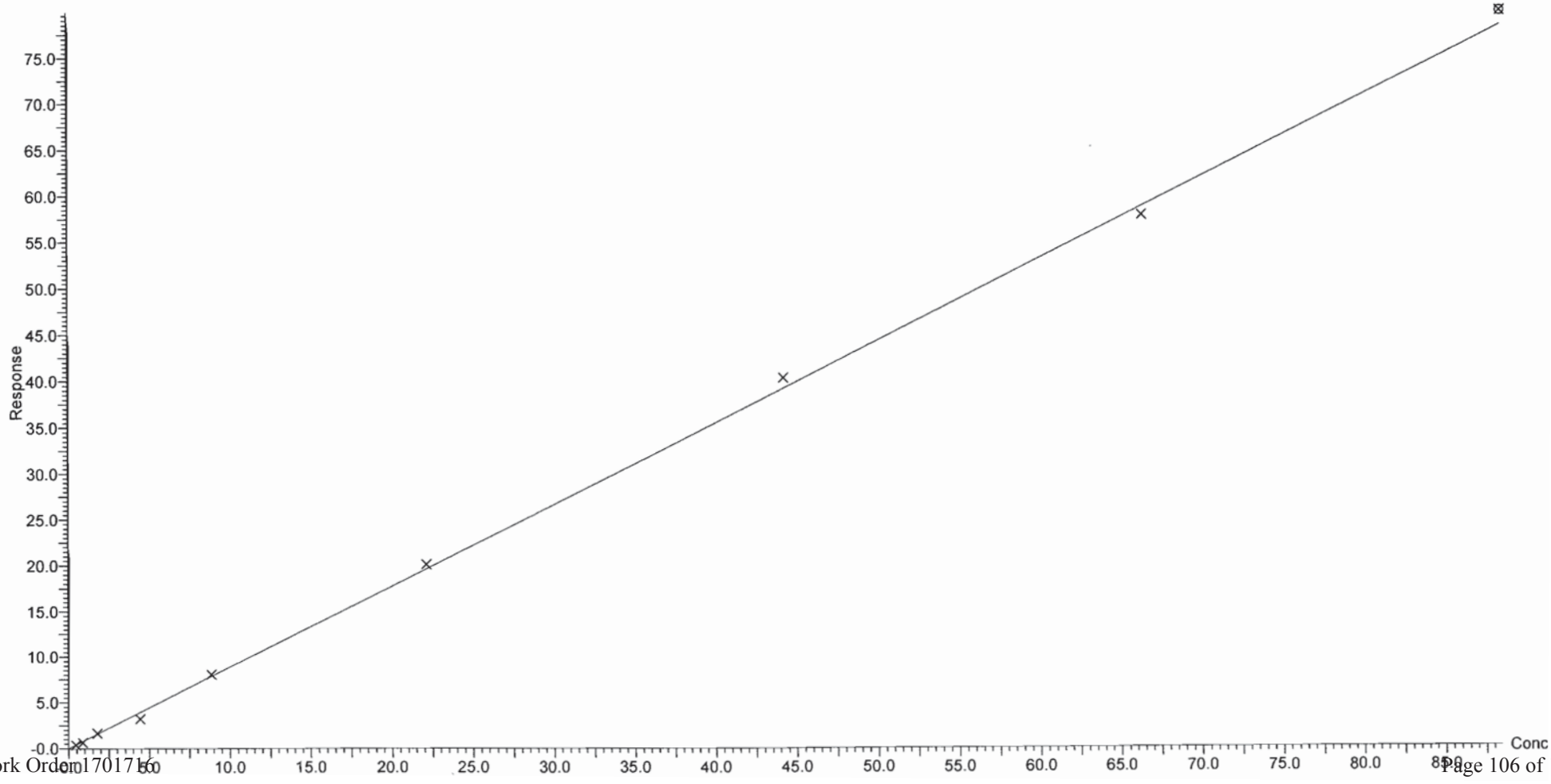
Vista Analytical Laboratory Q1

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

Last Altered: Sunday, November 26, 2017 19:51:30 Pacific Standard Time
Printed: Monday, November 27, 2017 09:19:38 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 26 Nov 2017 19:34:27
Calibration: 26 Nov 2017 19:51:30 C18_537_Q1_11-25-17_L3

Compound name: PFBS
Coefficient of Determination: R^2 = 0.998067
Calibration curve: 0.886278 * x
Response type: Internal Std (Ref 7), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None

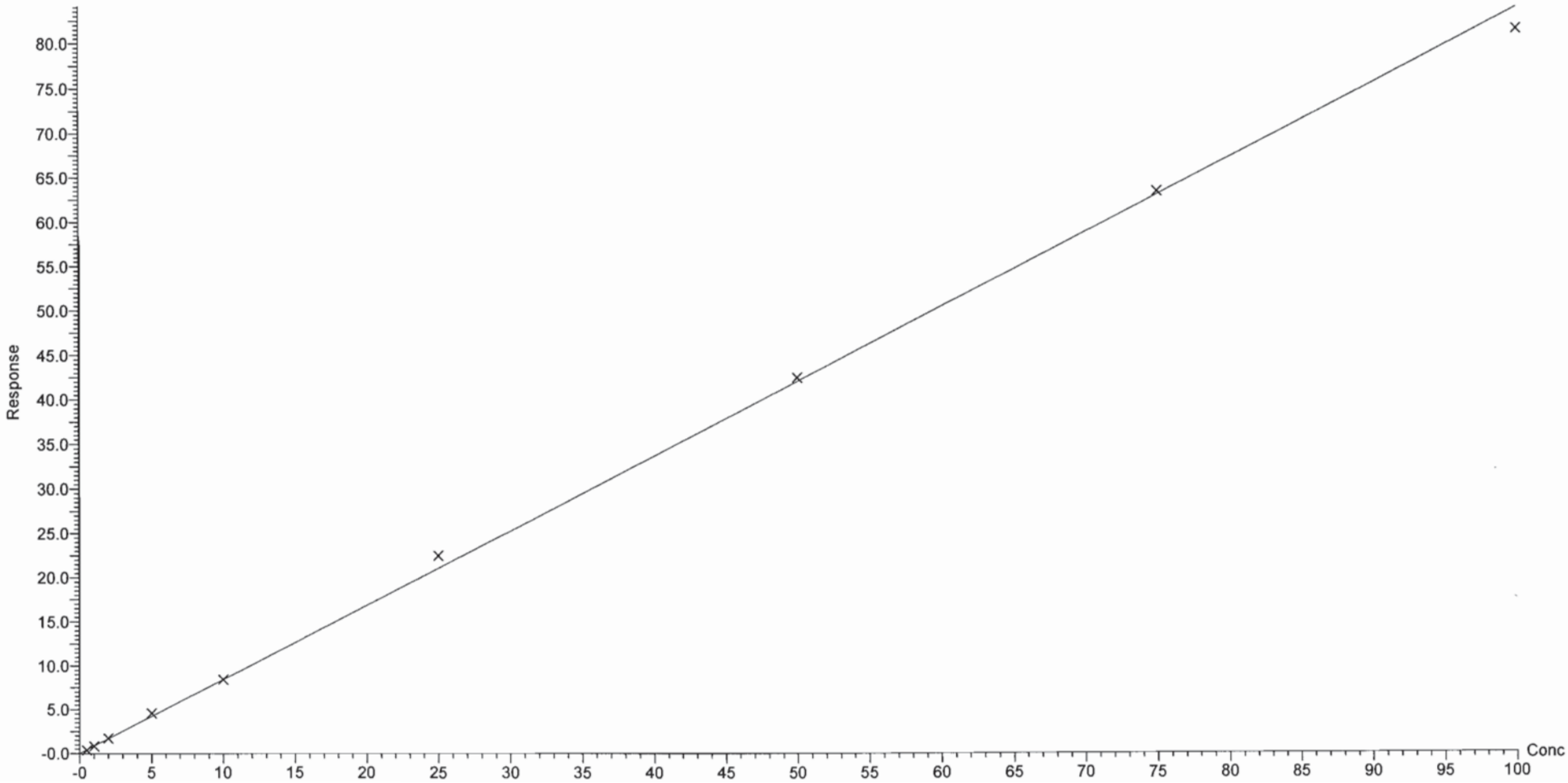


Vista Analytical Laboratory Q1

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

Last Altered: Sunday, November 26, 2017 19:51:30 Pacific Standard Time
Printed: Monday, November 27, 2017 09:19:38 Pacific Standard Time

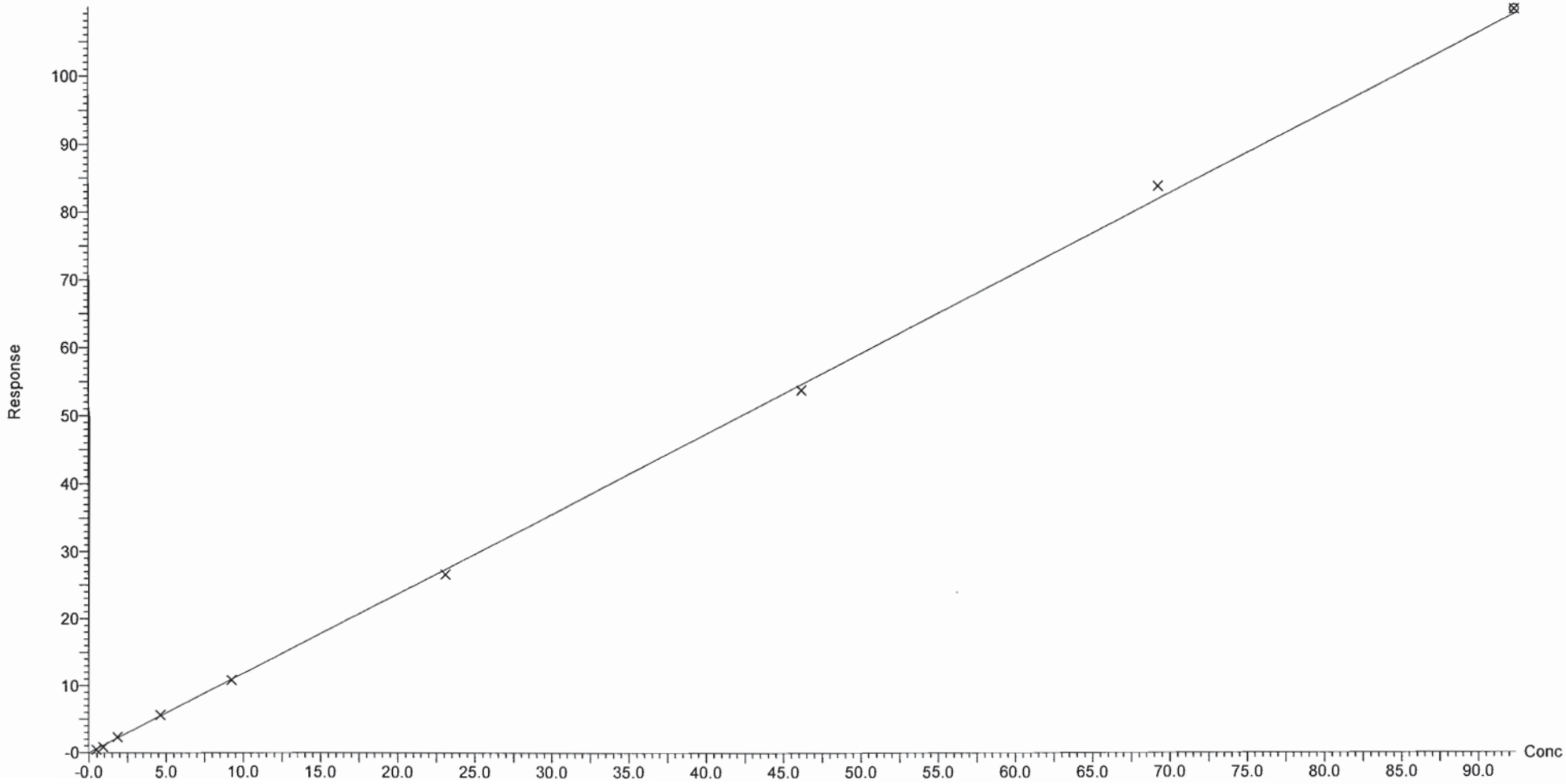
Compound name: PFOA
Coefficient of Determination: R^2 = 0.999038
Calibration curve: 0.841053 * x
Response type: Internal Std (Ref 6), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None



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

Last Altered: Sunday, November 26, 2017 19:51:30 Pacific Standard Time
Printed: Monday, November 27, 2017 09:19:38 Pacific Standard Time

Compound name: PFOS
Coefficient of Determination: R^2 = 0.998864
Calibration curve: 1.18285 * x
Response type: Internal Std (Ref 7), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None



TargetLynx XS - 171125G1-CRV.qld - [Chromatogram]

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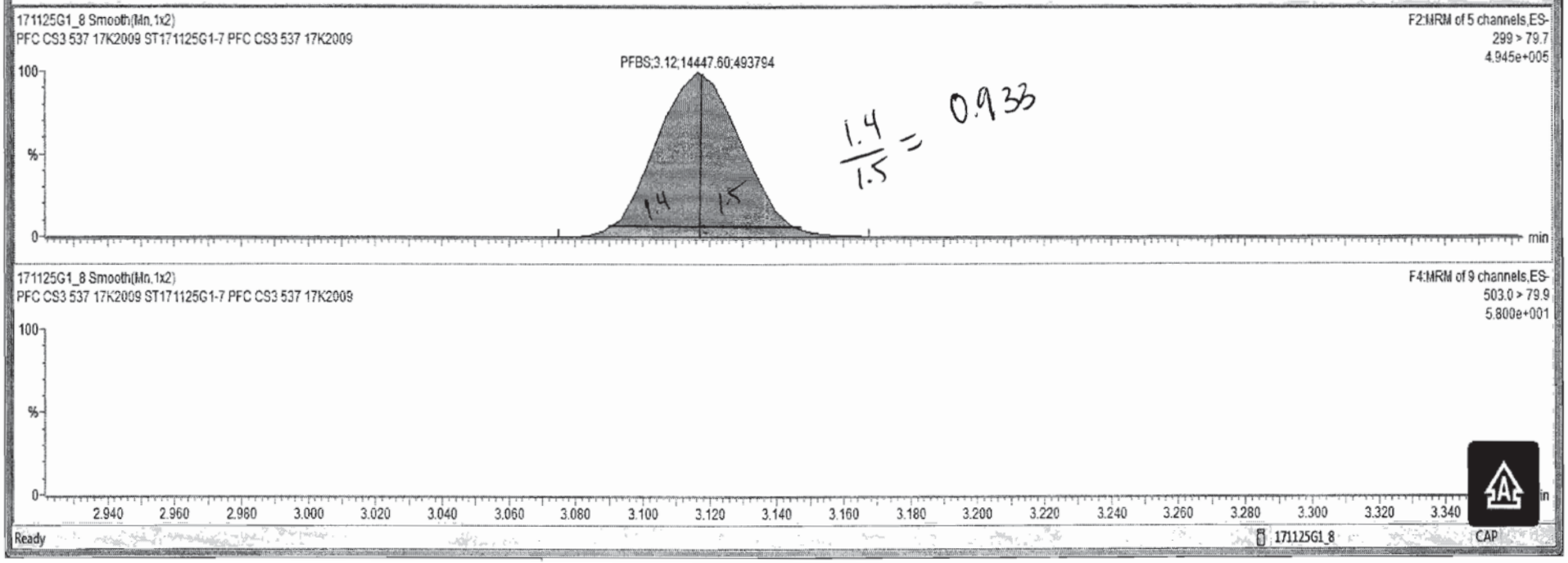
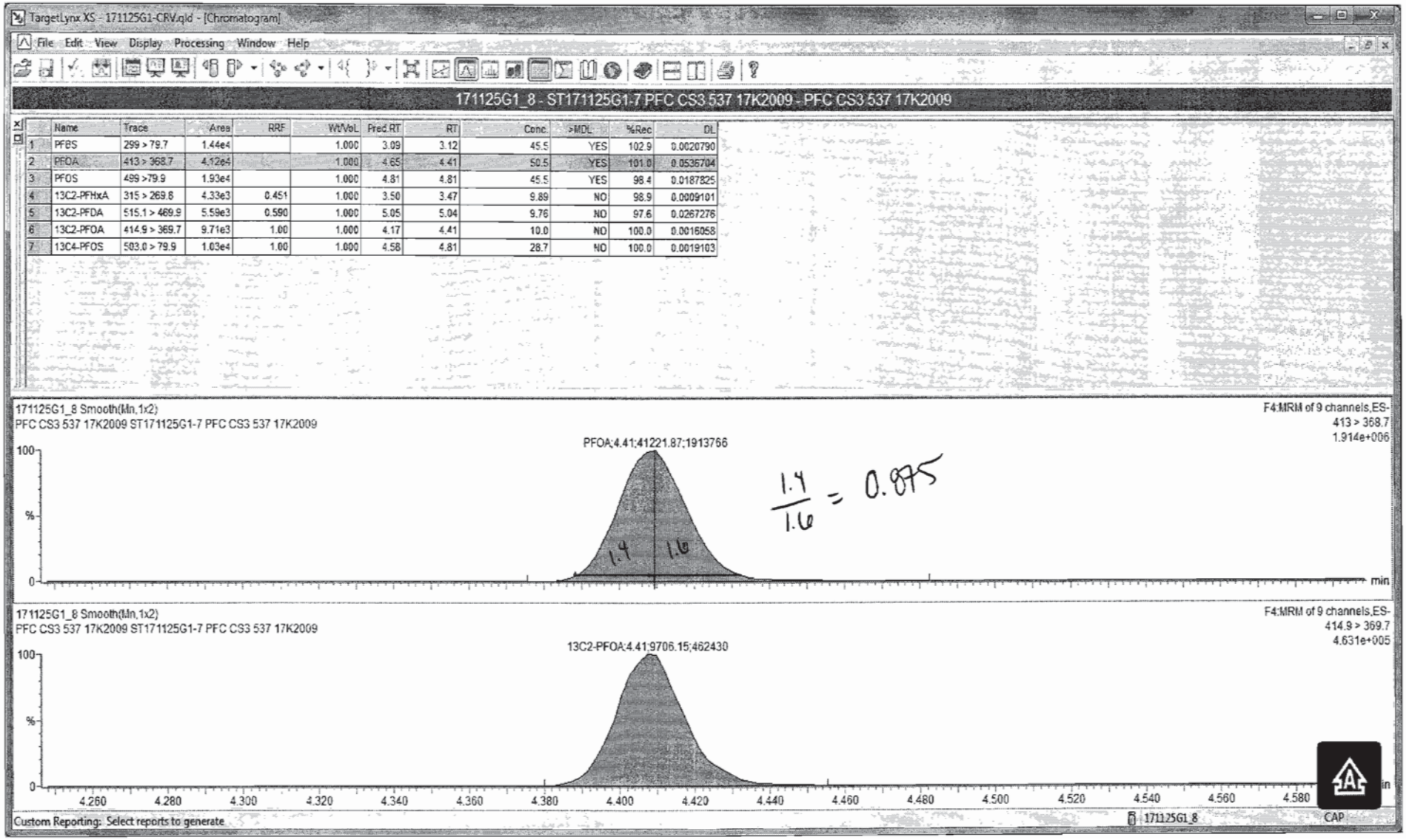
171125G1_8 - ST171125G1-7 PFC CS3 537 17K2009 - PFC CS3 537 17K2009

	Name	Trace	Area	RRF	Wt/Vol	Pred.RT	RT	Conc.	>MDL	%Rec	DL
1	PFBS	299 > 79.7	1.44e4		1.000	3.09	3.12	45.5	YES	102.9	0.0020790
2	PFOA	413 > 368.7	4.12e4		1.000	4.65	4.41	50.5	YES	101.0	0.0536704
3	PFOS	499 >79.9	1.93e4		1.000	4.81	4.81	45.5	YES	98.4	0.0187825
4	13C2-PFHxA	315 > 269.8	4.33e3	0.451	1.000	3.50	3.47	9.89	NO	98.9	0.0009101
5	13C2-PFDA	515.1 > 469.9	5.59e3	0.590	1.000	5.05	5.04	9.76	NO	97.6	0.0267276
6	13C2-PFOA	414.9 > 369.7	9.71e3	1.00	1.000	4.17	4.41	10.0	NO	100.0	0.0016058
7	13C4-PFOS	503.0 > 79.9	1.03e4	1.00	1.000	4.58	4.81	28.7	NO	100.0	0.0019103





	Name	Trace	Area	RRF	Wt/Vol	Pred.RT	RT	Conc	>MDL	%Rec	DL
1	PFBS	299 > 79.7	1.44e4		1.000	3.09	3.12	45.5	YES	102.9	0.0020790
2	PFOA	413 > 368.7	4.12e4		1.000	4.65	4.41	50.5	YES	101.0	0.0536704
3	PFOS	499 >79.9	1.93e4		1.000	4.81	4.81	45.5	YES	98.4	0.0187825
4	13C2-PFHxA	315 > 269.8	4.33e3	0.451	1.000	3.50	3.47	9.89	NO	98.9	0.0009101
5	13C2-PFDA	515.1 > 469.9	5.59e3	0.590	1.000	5.05	5.04	9.76	NO	97.6	0.0267276
6	13C2-PFOA	414.9 > 369.7	9.71e3	1.00	1.000	4.17	4.41	10.0	NO	100.0	0.0016058
7	13C4-PFOS	503.0 > 79.9	1.03e4	1.00	1.000	4.58	4.81	28.7	NO	100.0	0.0019103

Compound 6: 13C2-PFOA

	ID	Name	Type	Std. Conc	RT	Area	IS Area	X=excluded Primary Flags
1	ST171125G1-1 PFC CS-3 537 17K2003	171125G1_	Standard	10	4.41	10353.7	10353.7	bd
2	ST171125G1-2 PFC CS-2 537 17K2004	171125G1_	Standard	10	4.41	9329.975	9329.975	bb
3	ST171125G1-3 PFC CS-1 537 17K2005	171125G1_	Standard	10	4.41	10352.18	10352.18	bd
4	ST171125G1-4 PFC CS0 537 17K2006	171125G1_	Standard	10	4.41	10109.76	10109.76	bb
5	ST171125G1-5 PFC CS1 537 17K2007	171125G1_	Standard	10	4.41	10344.22	10344.22	bb
6	ST171125G1-6 PFC CS2 537 17K2008	171125G1_	Standard	10	4.41	9886.793	9886.793	bd
7	ST171125G1-7 PFC CS3 537 17K2009	171125G1_	Standard	10	4.41	9706.146	9706.146	bb
8	ST171125G1-8 PFC CS4 537 17K2010	171125G1_	Standard	10	4.41	9324.723	9324.723	bb
9	ST171125G1-9 PFC CS5 537 17K2011	171125G1_	Standard	10	4.41	8754.735	8754.735	bd

Average Area:	RPD:
9795.803	16.72108

Compound 7: 13C4-PFOS

	ID	Name	Type	Std. Conc	RT	Area	IS Area	X=excluded Primary Flags
1	ST171125G1-1 PFC CS-3 537 17K2003	171125G1_	Standard	28.7	4.81	11353.71	11353.71	bb
2	ST171125G1-2 PFC CS-2 537 17K2004	171125G1_	Standard	28.7	4.81	11312.52	11312.52	bd
3	ST171125G1-3 PFC CS-1 537 17K2005	171125G1_	Standard	28.7	4.81	10414.69	10414.69	bd
4	ST171125G1-4 PFC CS0 537 17K2006	171125G1_	Standard	28.7	4.81	11717.42	11717.42	MM
5	ST171125G1-5 PFC CS1 537 17K2007	171125G1_	Standard	28.7	4.81	10923.13	10923.13	bd
6	ST171125G1-6 PFC CS2 537 17K2008	171125G1_	Standard	28.7	4.81	10961.46	10961.46	bd
7	ST171125G1-7 PFC CS3 537 17K2009	171125G1_	Standard	28.7	4.81	10288.46	10288.46	bd
8	ST171125G1-8 PFC CS4 537 17K2010	171125G1_	Standard	28.7	4.81	10105.09	10105.09	bd
9	ST171125G1-9 PFC CS5 537 17K2011	171125G1_	Standard	28.7	4.81	9430.776	9430.776	MMX

Average Area:	RPD:
10884.56	14.77678

Vista Analytical Laboratory

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

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

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Calibration: 26 Nov 2017 19:51:30

Name: 171125G1_2, Date: 25-Nov-2017, Time: 15:30:51, ID: ST171125G1-1 PFC CS-3 537 17K2003, Description: PFC CS-3 537 17K2003

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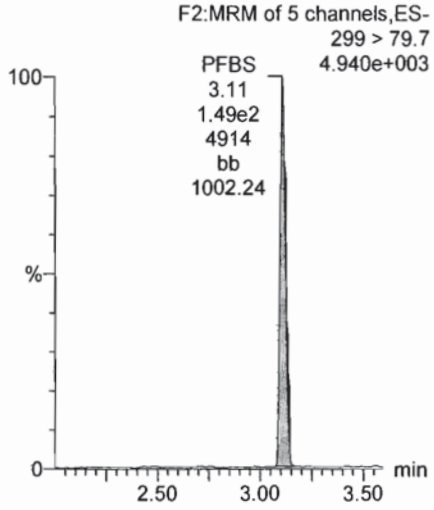
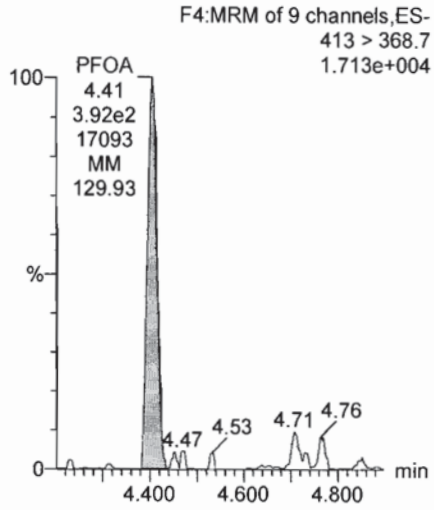
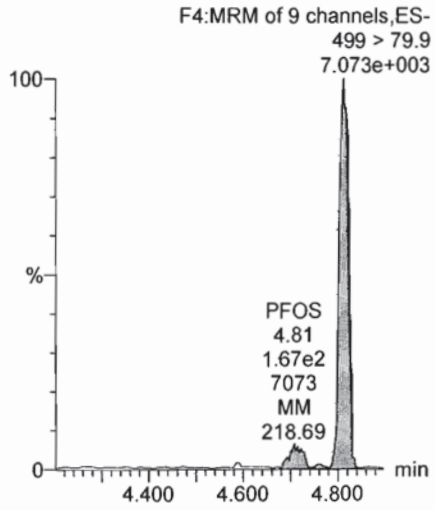


PFOA



PFOS



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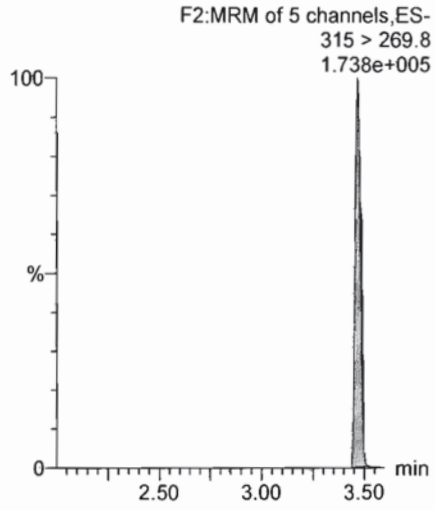

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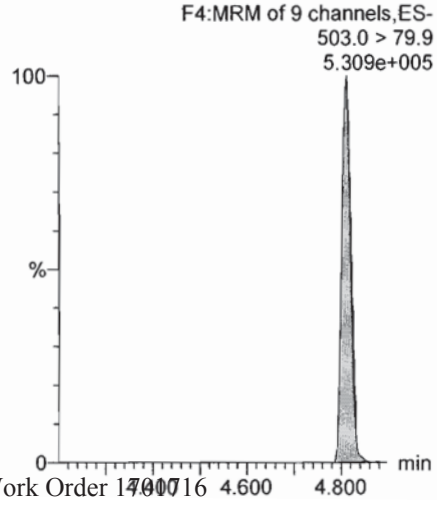

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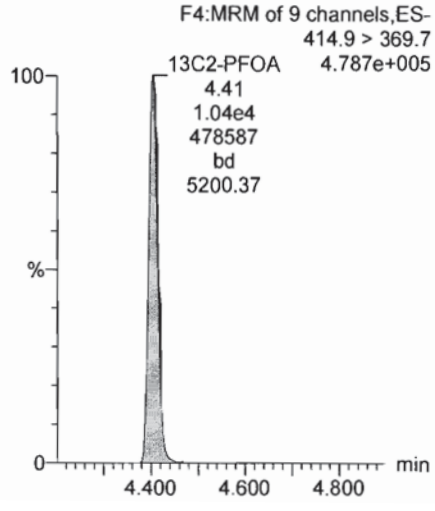

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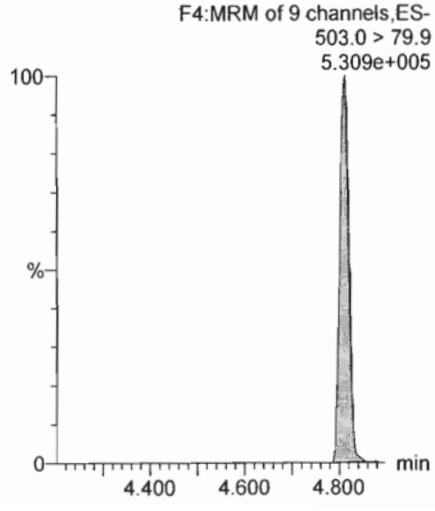

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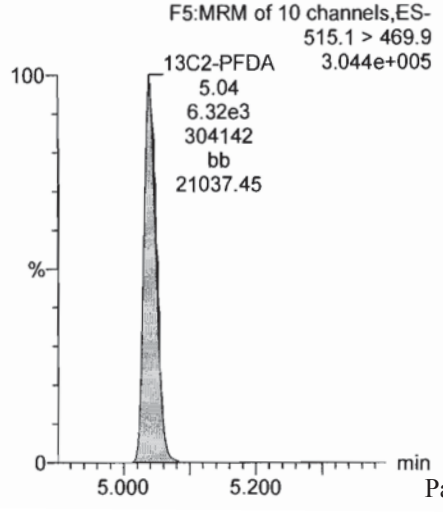

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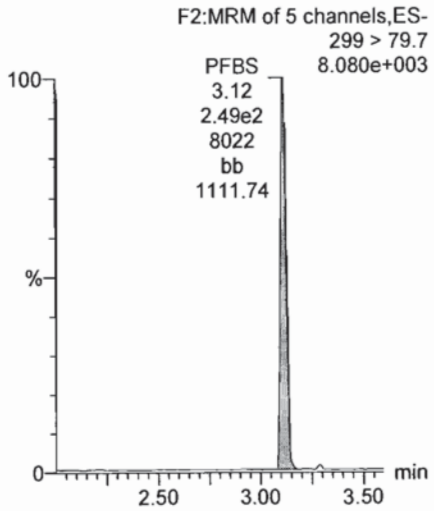
Printed: Monday, November 27, 2017 08:59:55 Pacific Standard Time

Name: 171125G1_3, Date: 25-Nov-2017, Time: 15:43:15, ID: ST171125G1-2 PFC CS-2 537 17K2004, Description: PFC CS-2 537 17K2004

PFBS



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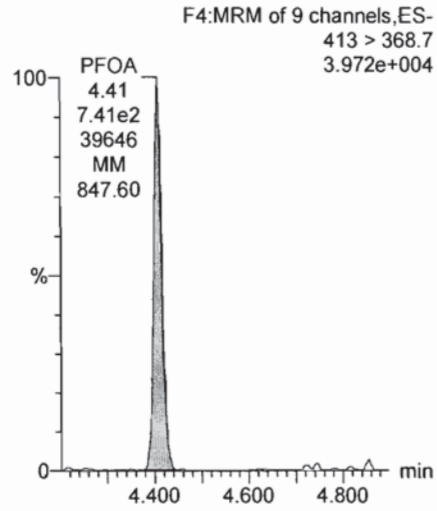

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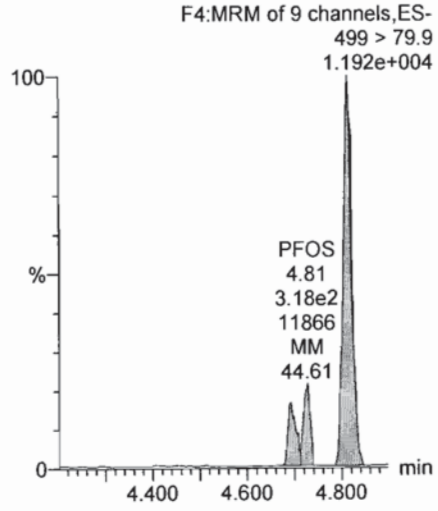

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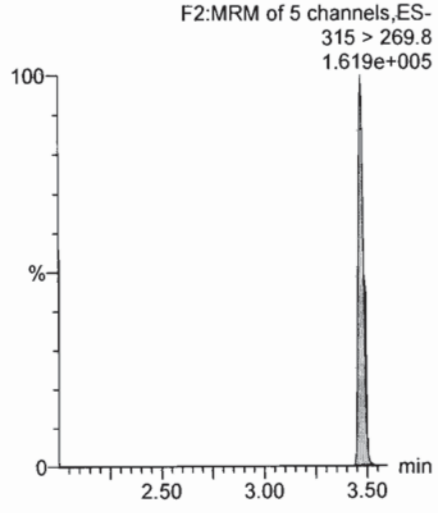

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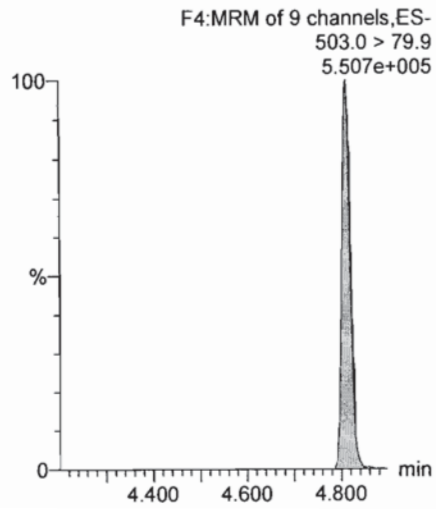

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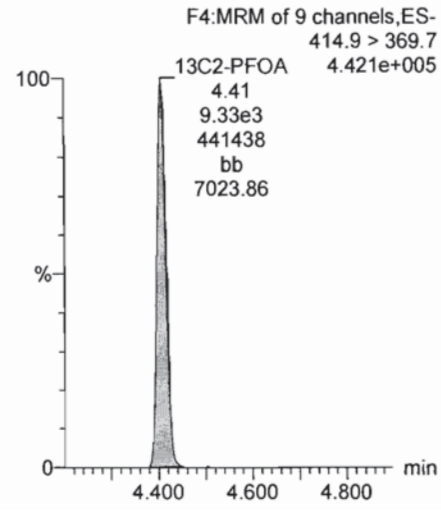

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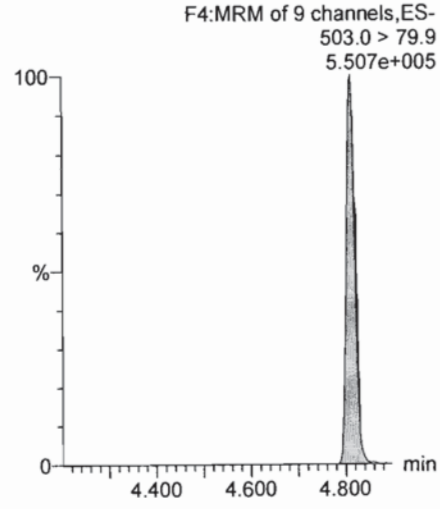

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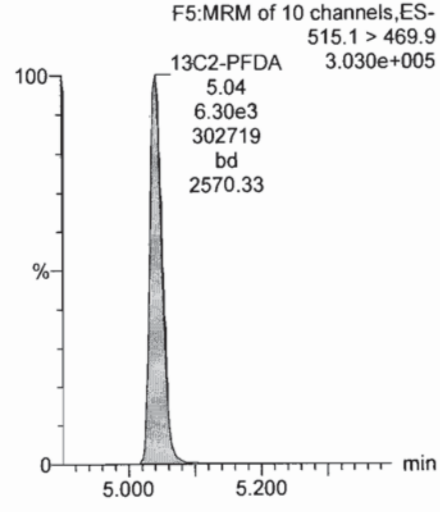

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Name: 171125G1_4, Date: 25-Nov-2017, Time: 15:55:39, ID: ST171125G1-3 PFC CS-1 537 17K2005, Description: PFC CS-1 537 17K2005

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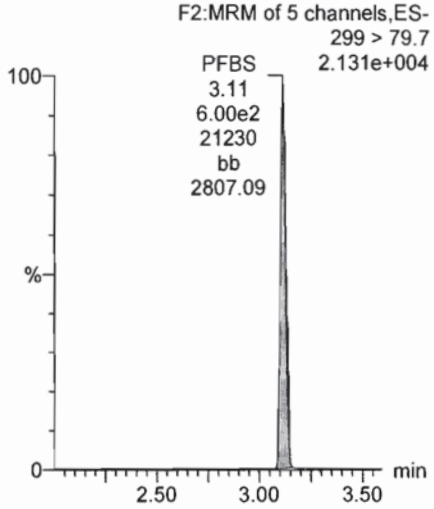

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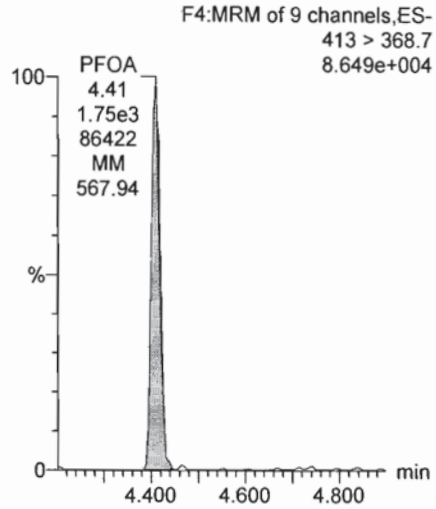

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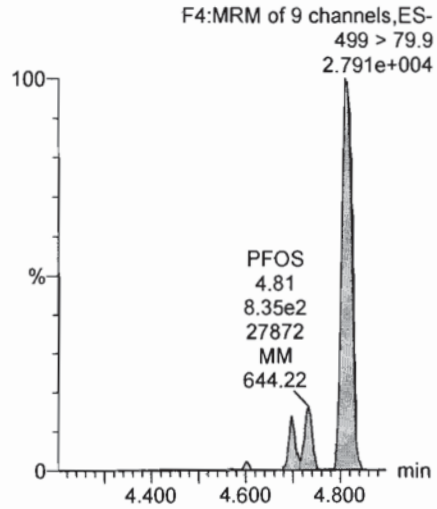

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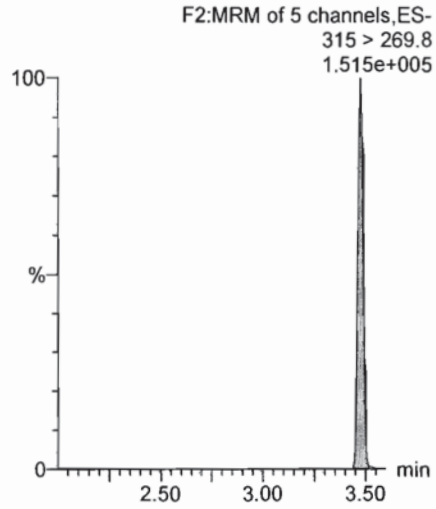

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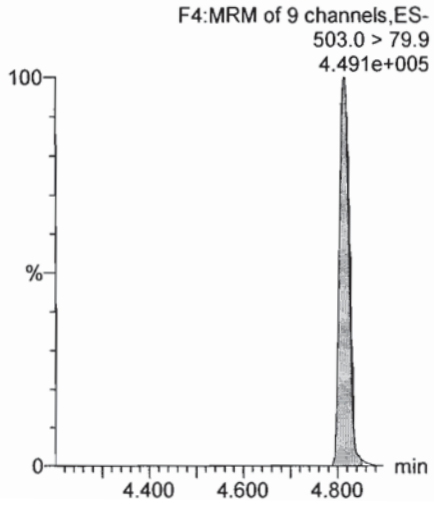

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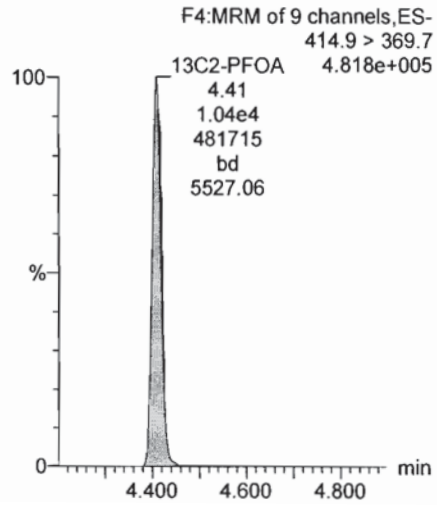

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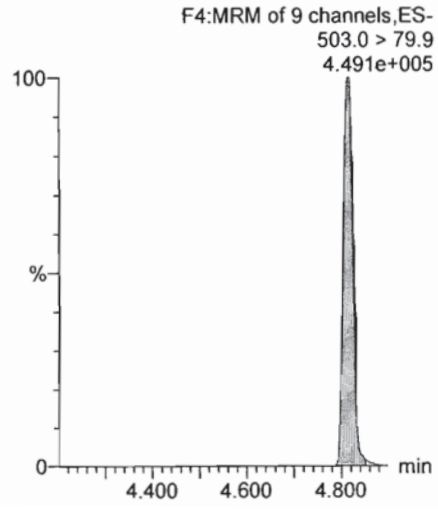

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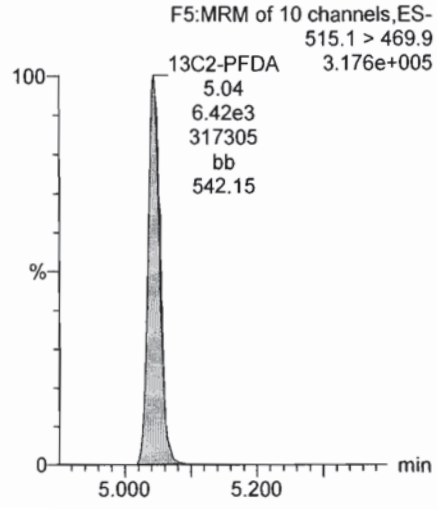

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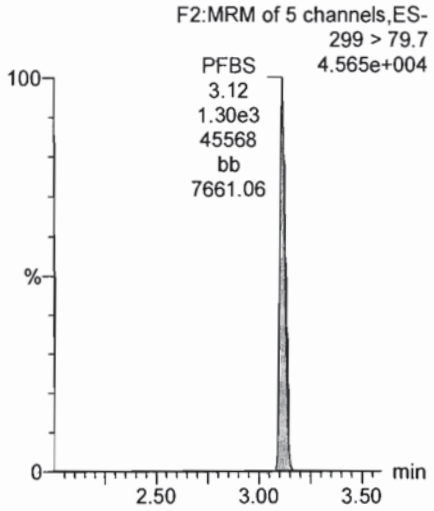
PFBS



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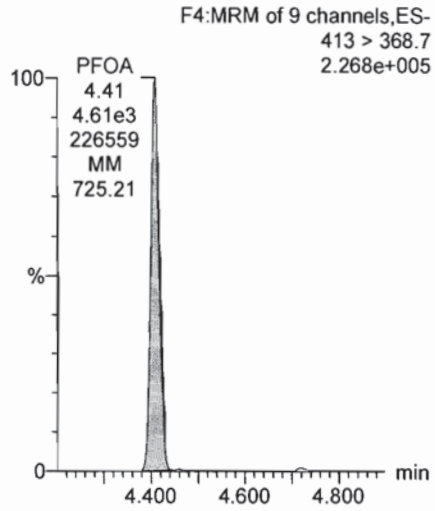

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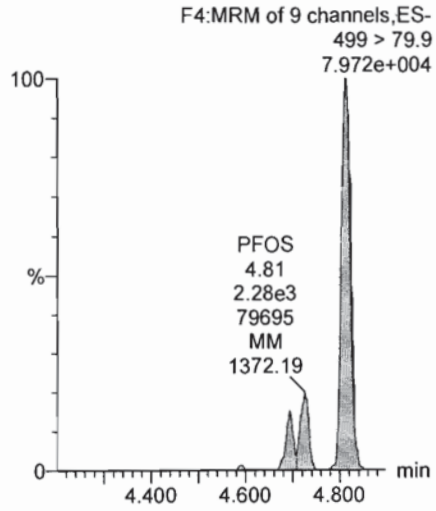

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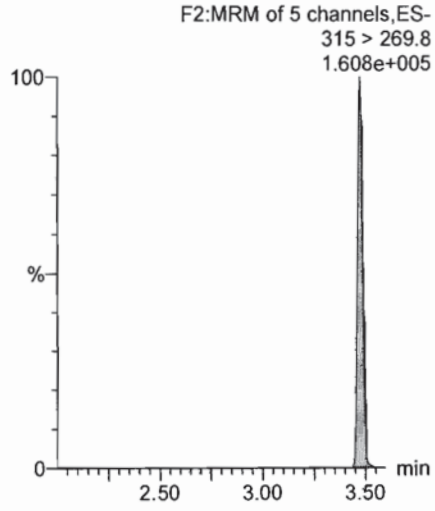

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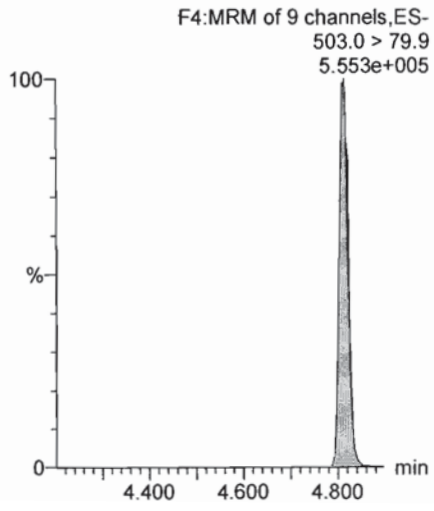

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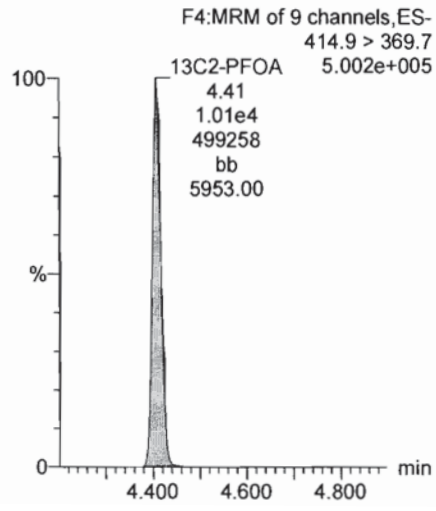

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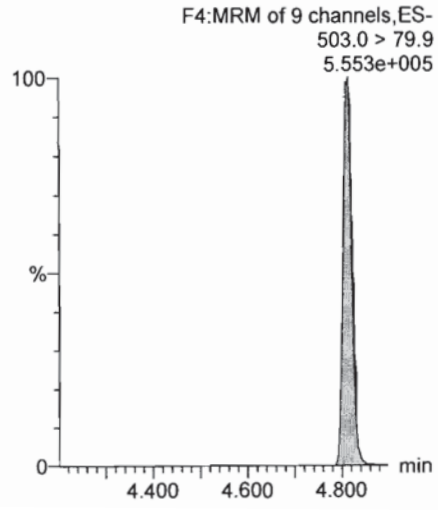

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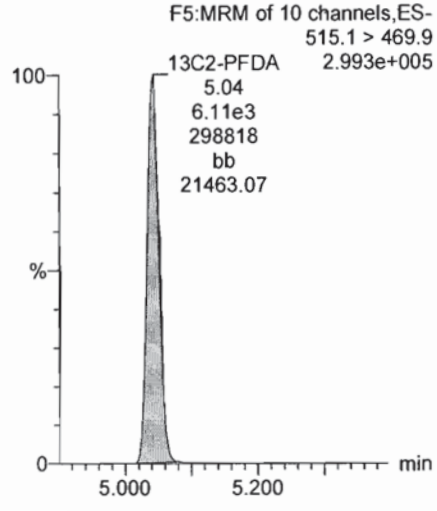

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Name: 171125G1_6, Date: 25-Nov-2017, Time: 16:20:31, ID: ST171125G1-5 PFC CS1 537 17K2007, Description: PFC CS1 537 17K2007

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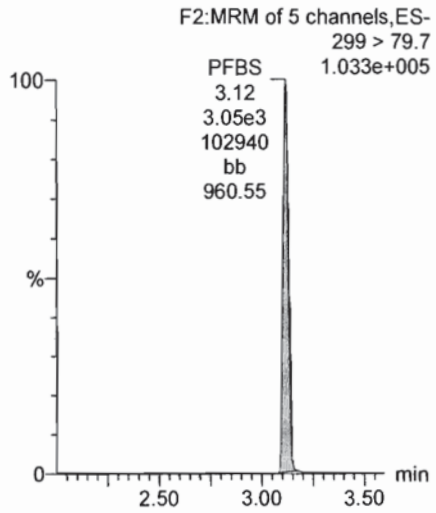

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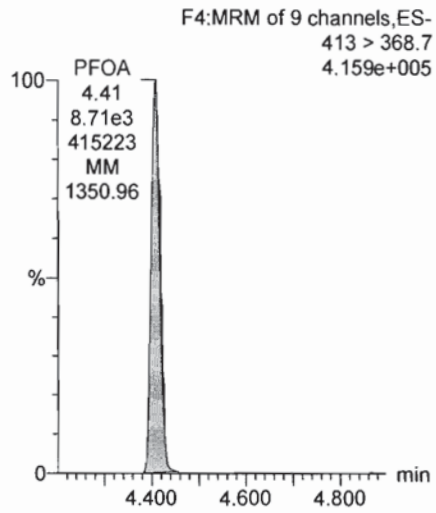

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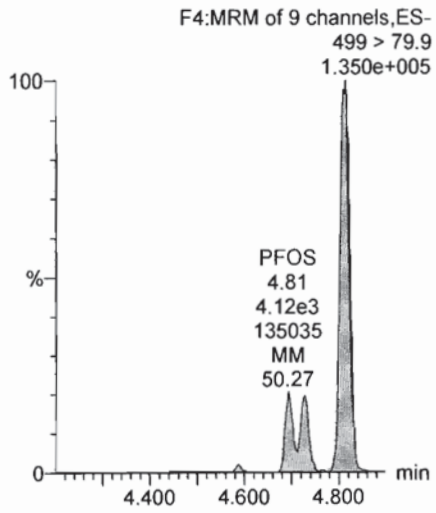

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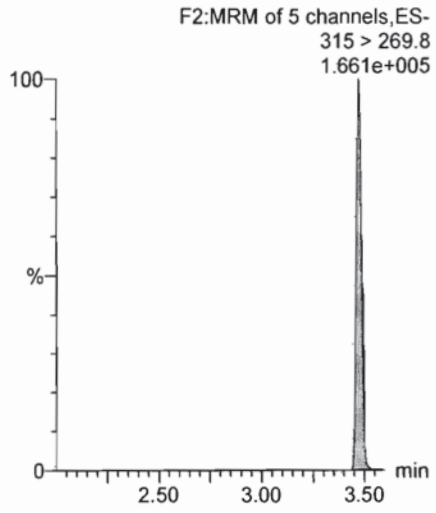

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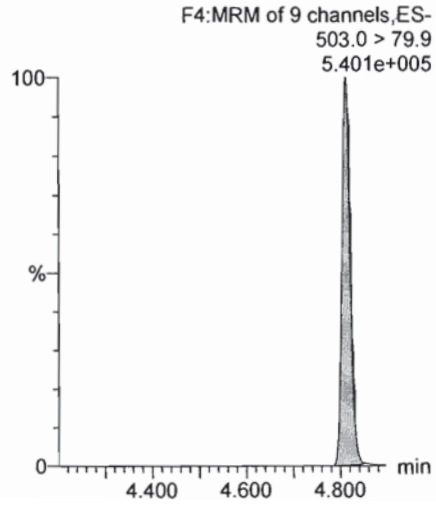

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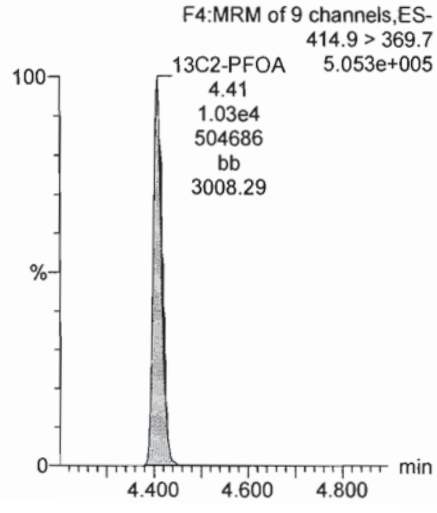

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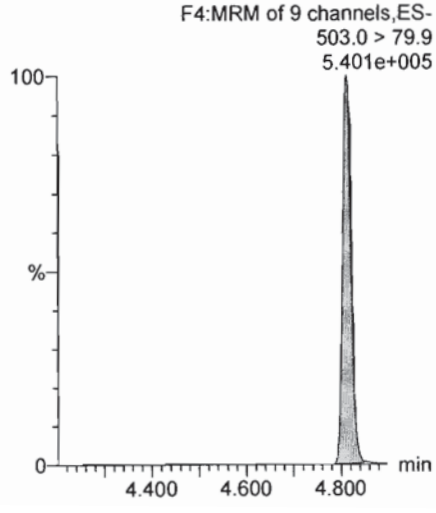

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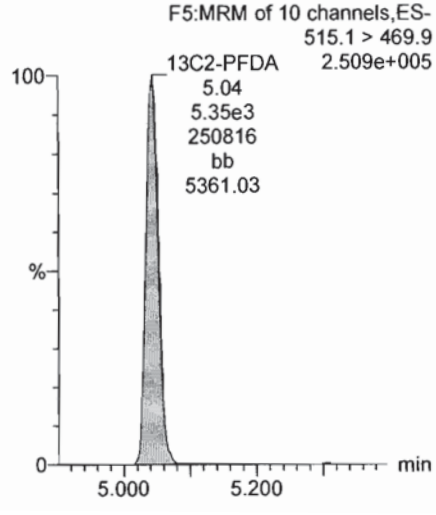

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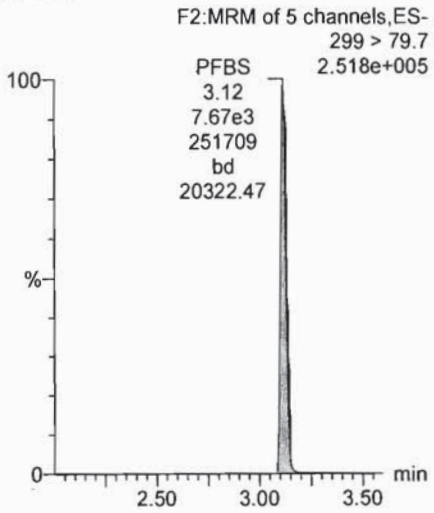
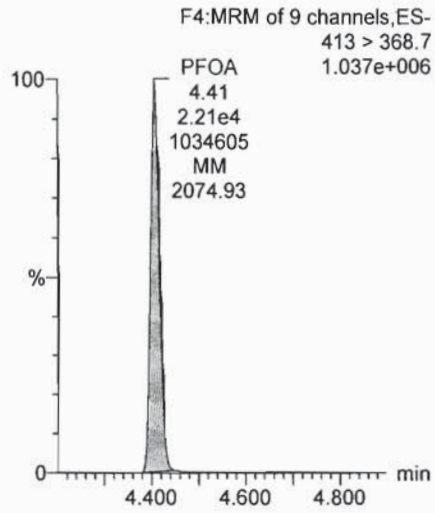
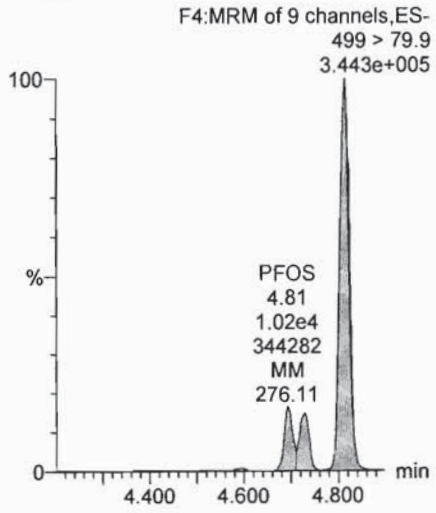


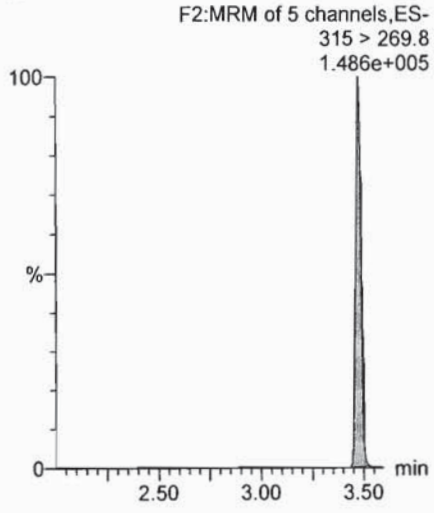
PFOA



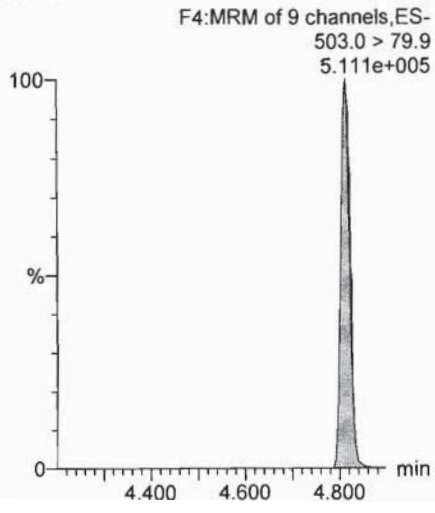
PFOS



13C2-PFHxA



13C4-PFOS



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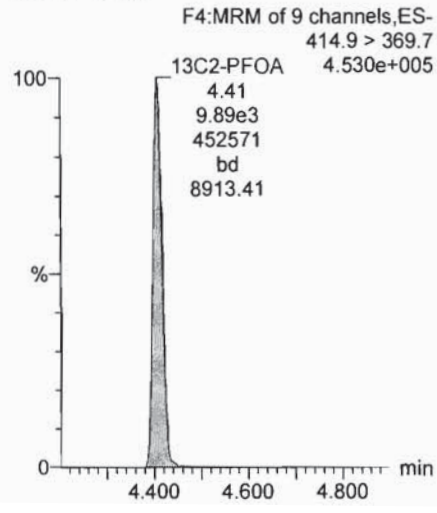

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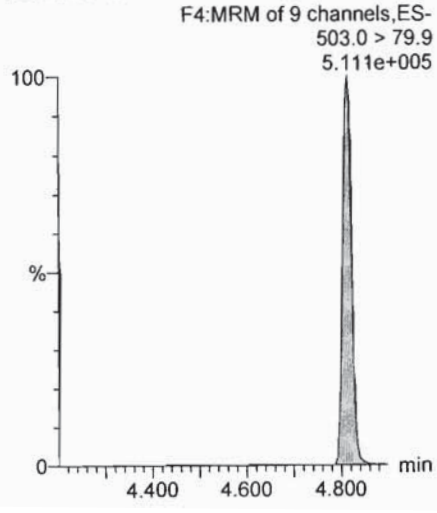

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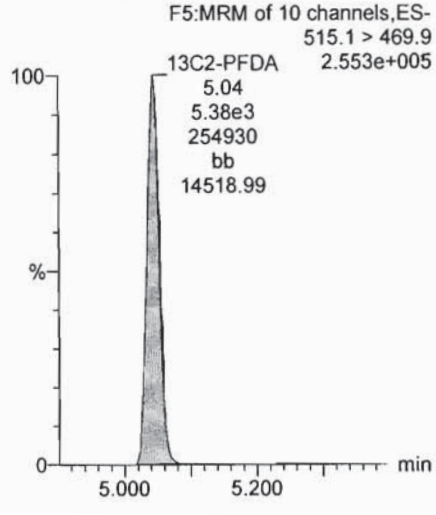
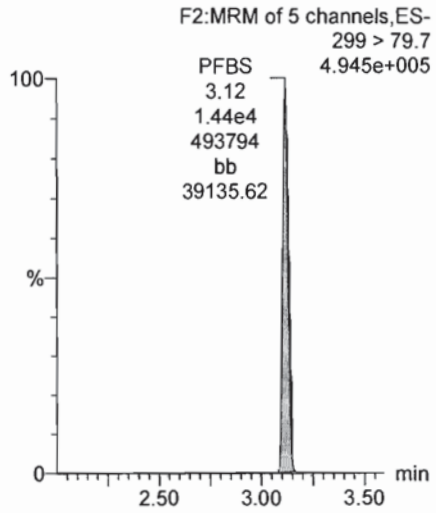


Dataset: U:\G1.PRO\Results\2017\171125G1\171125G1-CRV.qld

Last Altered: Sunday, November 26, 2017 19:51:30 Pacific Standard Time
Printed: Monday, November 27, 2017 08:59:55 Pacific Standard Time

Name: 171125G1_8, Date: 25-Nov-2017, Time: 16:45:24, ID: ST171125G1-7 PFC CS3 537 17K2009, Description: PFC CS3 537 17K2009

PFBS



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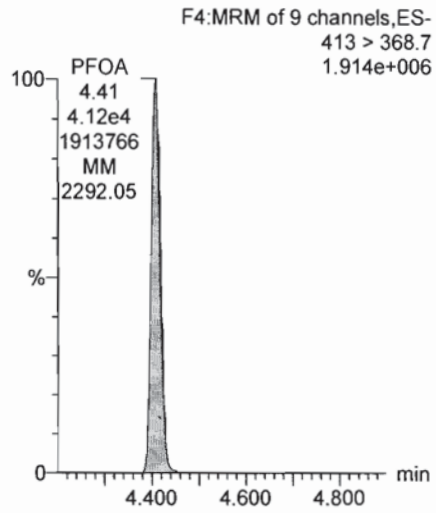
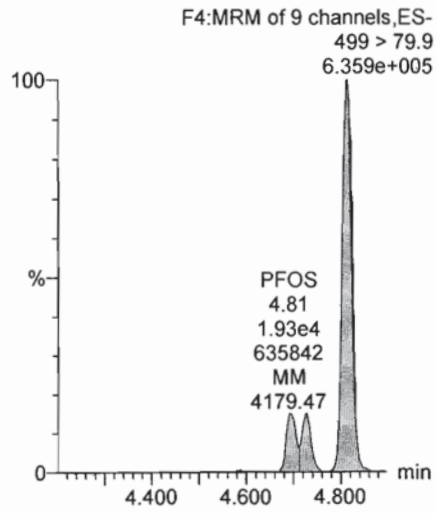


PFOS



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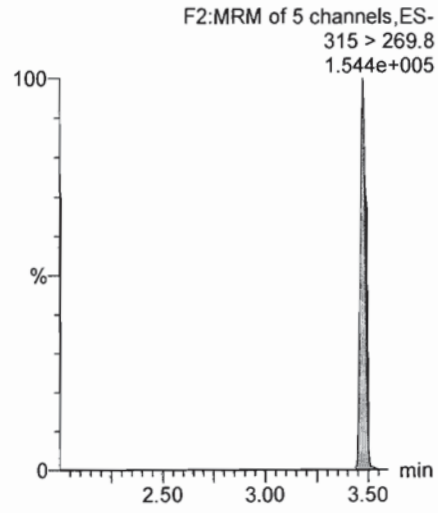

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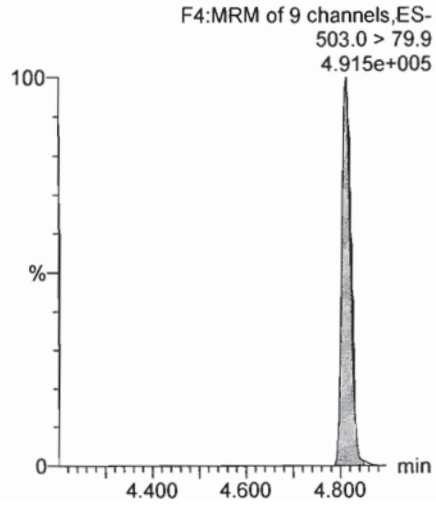

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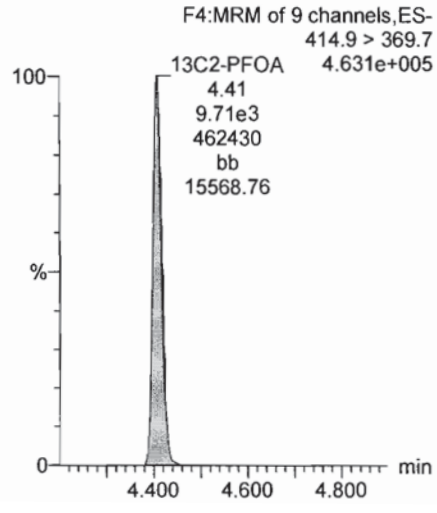
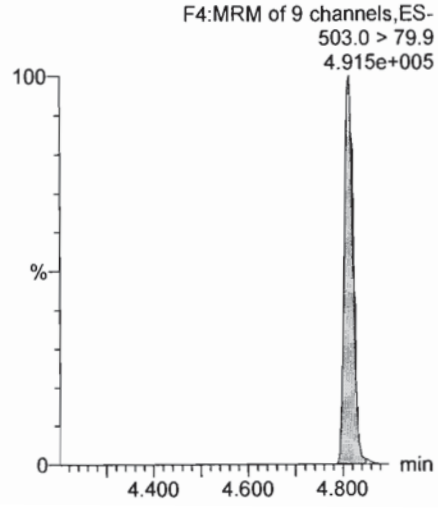


13C4-PFOS



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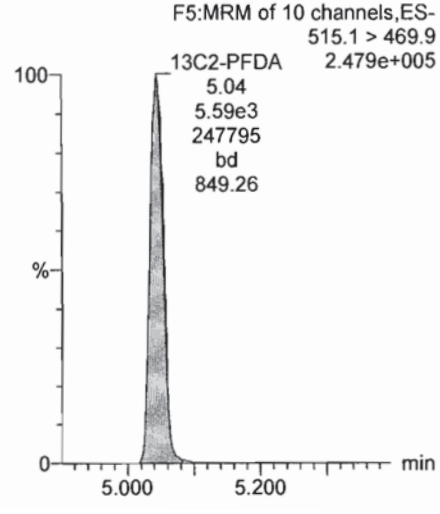

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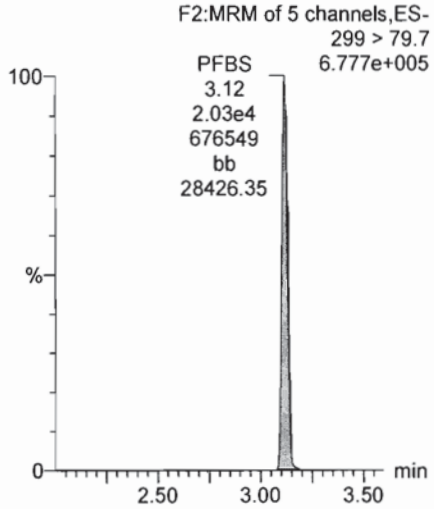
Printed: Monday, November 27, 2017 08:59:55 Pacific Standard Time

Name: 171125G1_9, Date: 25-Nov-2017, Time: 16:57:53, ID: ST171125G1-8 PFC CS4 537 17K2010, Description: PFC CS4 537 17K2010

PFBS



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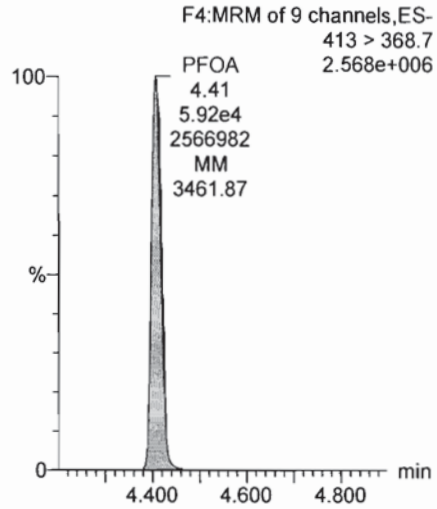
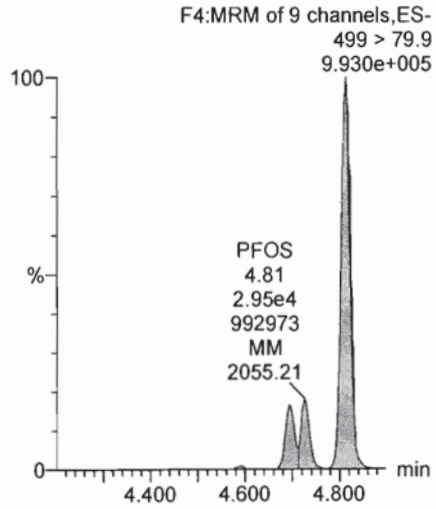


PFOS



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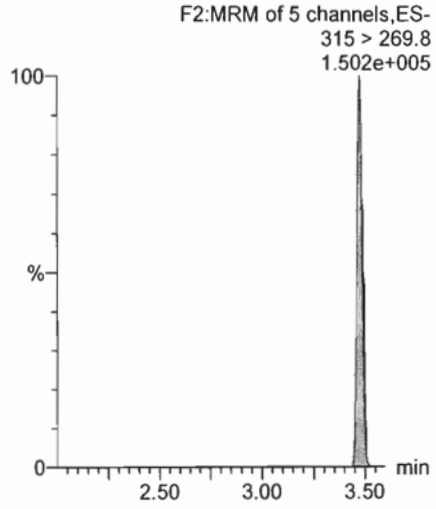

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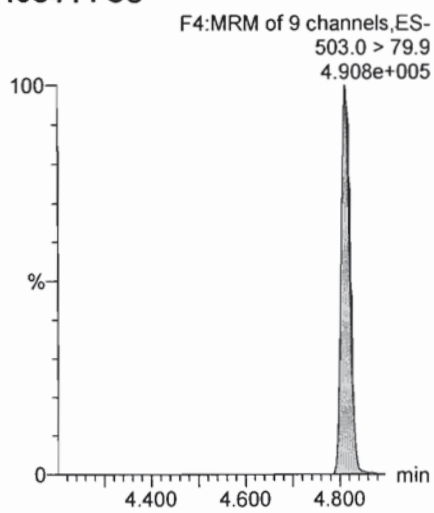

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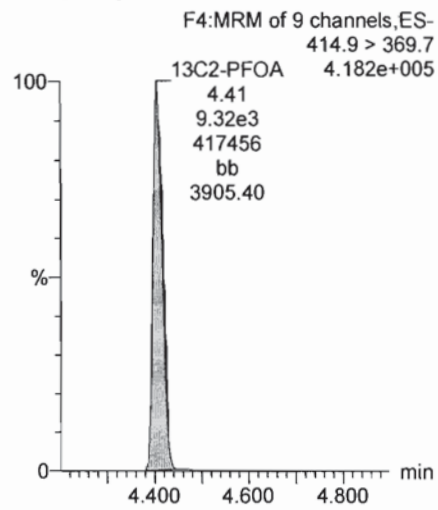

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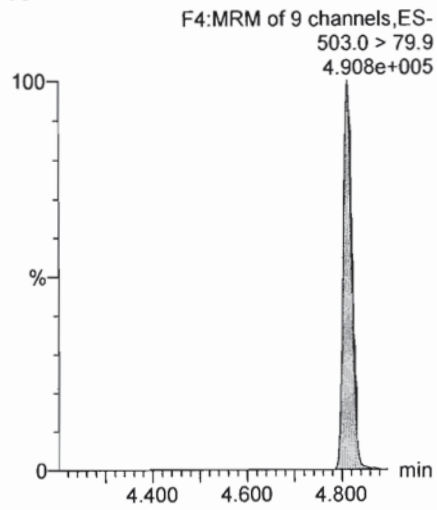

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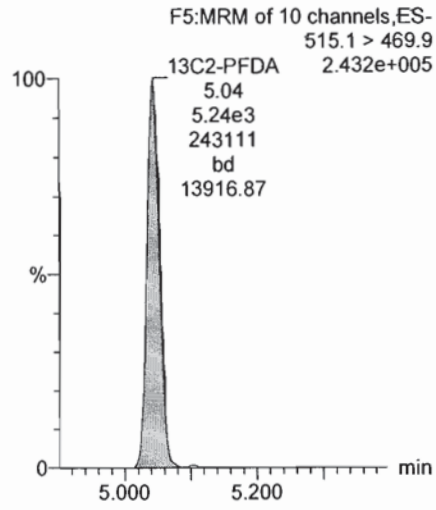

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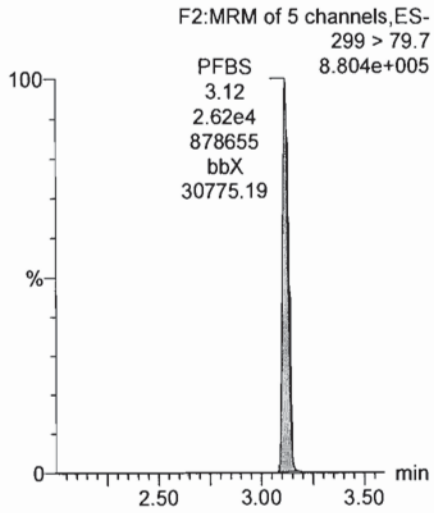
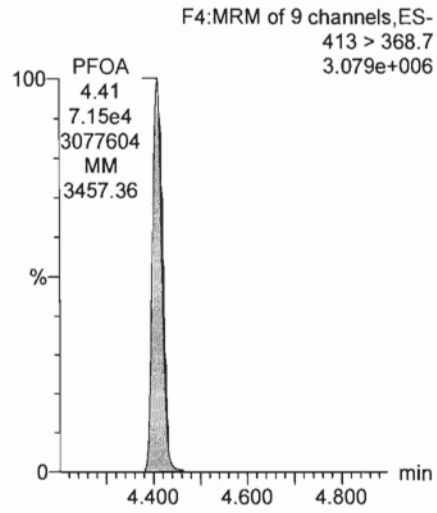
Last Altered: Sunday, November 26, 2017 19:51:30 Pacific Standard Time
Printed: Monday, November 27, 2017 08:59:55 Pacific Standard Time

Name: 171125G1_10, Date: 25-Nov-2017, Time: 17:10:21, ID: ST171125G1-9 PFC CS5 537 17K2011, Description: PFC CS5 537 17K2011

PFBS



PFOA



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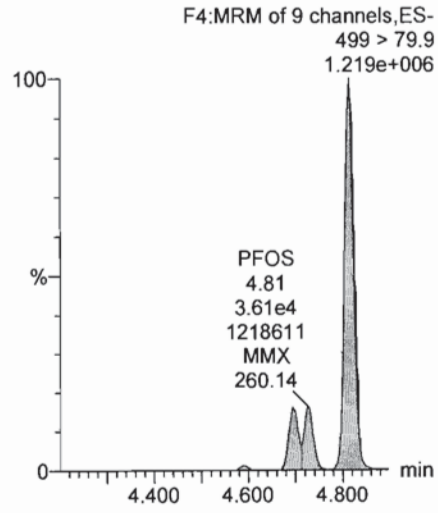

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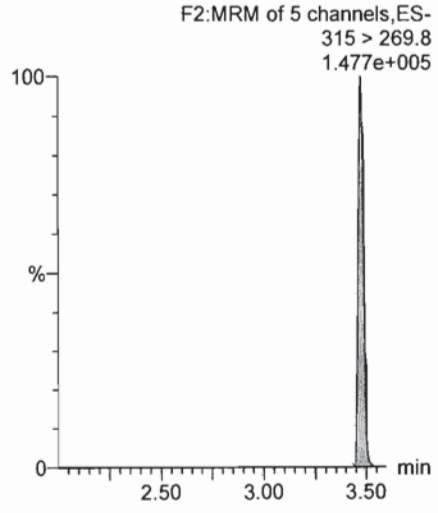

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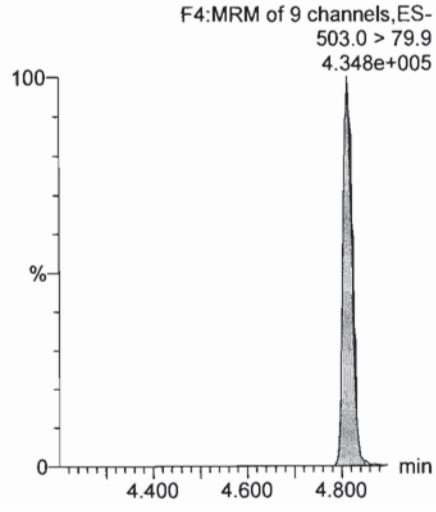

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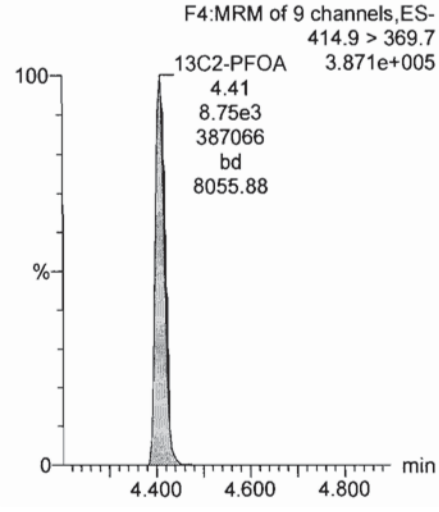

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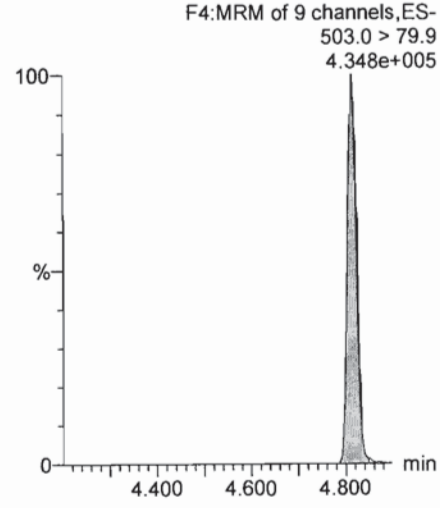
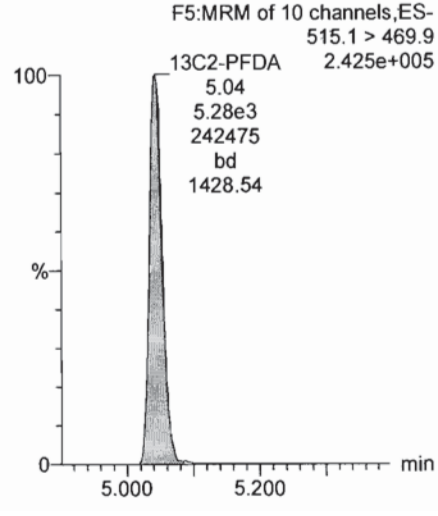


13C2-PFDA



Vista Analytical Laboratory

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

Last Altered: Sunday, November 26, 2017 20:30:59 Pacific Standard Time
Printed: Monday, November 27, 2017 09:36:34 Pacific Standard Time

Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 26 Nov 2017 20:29:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

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

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

70-130

DM 11/27/17

VJA. 11/27/2017

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

Last Altered: Sunday, November 26, 2017 20:30:59 Pacific Standard Time
Printed: Monday, November 27, 2017 09:36:34 Pacific Standard Time

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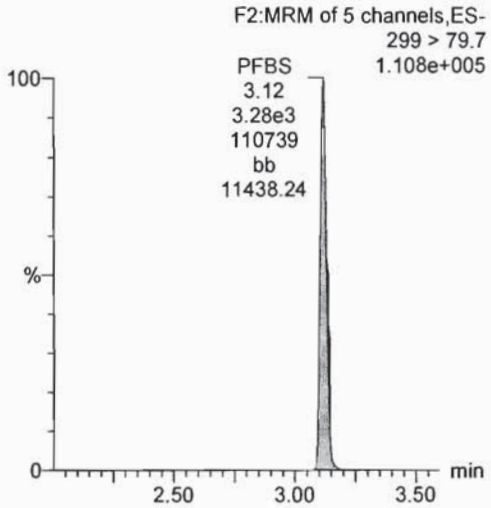
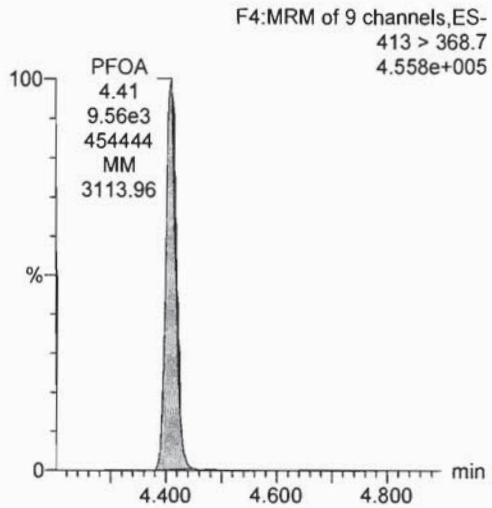
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

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

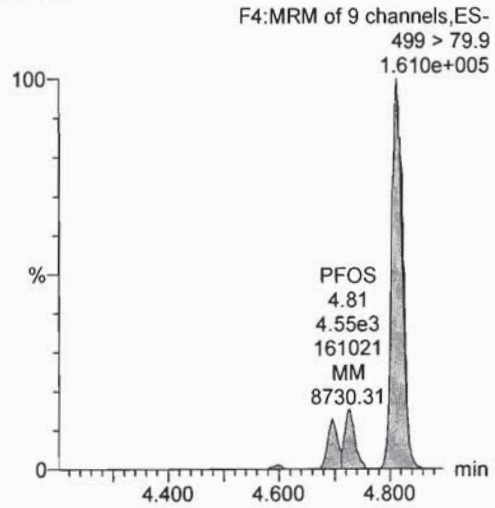
PFBS



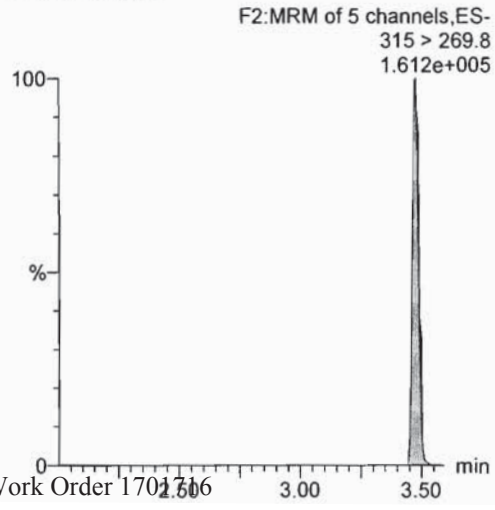
PFOA



PFOS



13C2-PFHxA



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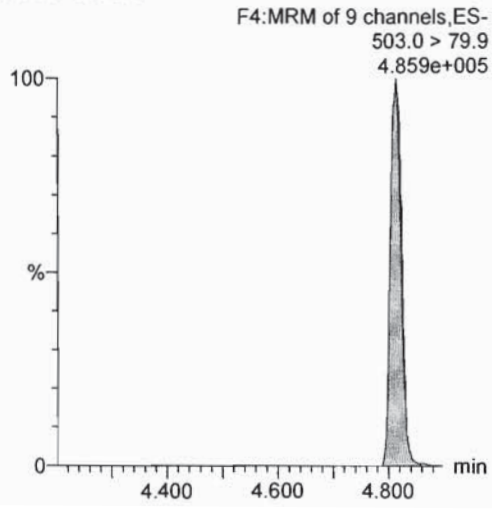

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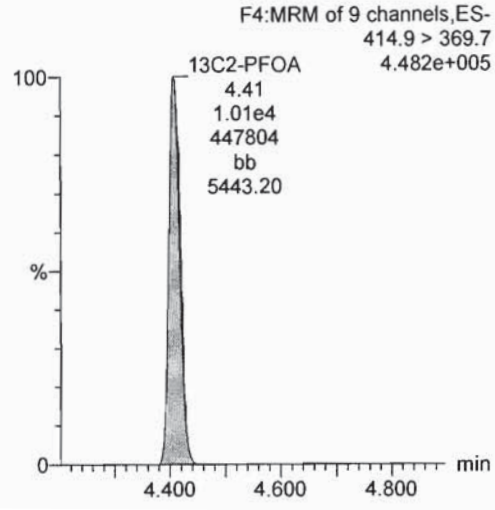

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Printed: Monday, November 27, 2017 09:36:34 Pacific Standard Time

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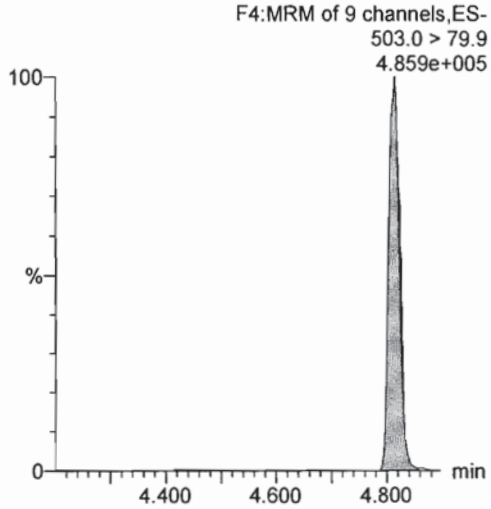
13C4-PFOS



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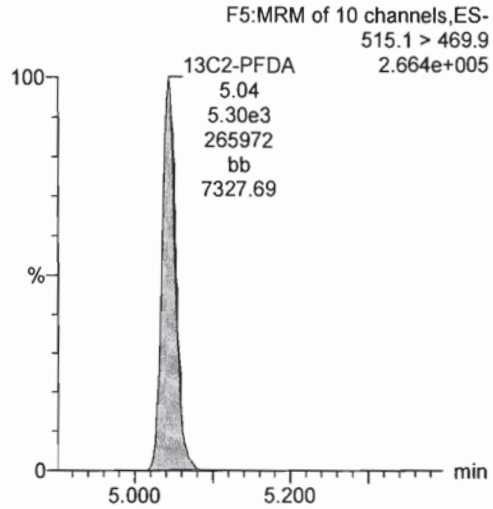

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Monday, November 27, 2017 09:43:24 Pacific Standard Time
Printed: Monday, November 27, 2017 09:43:44 Pacific Standard Time

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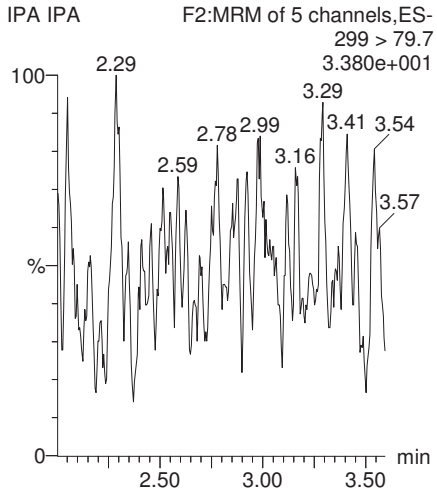
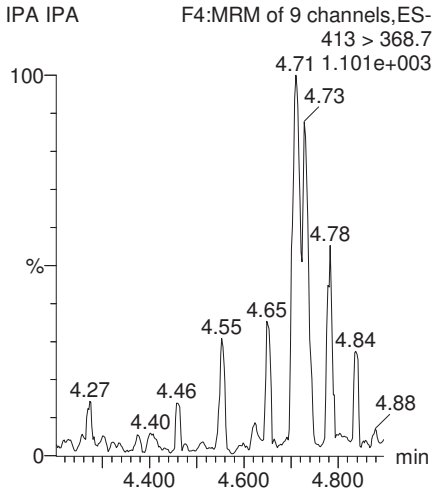
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_11-25-17_L3.cdb 26 Nov 2017 19:51:30

Name: 171125G1_11, Date: 25-Nov-2017, Time: 17:22:45, ID: IPA, Description: IPA

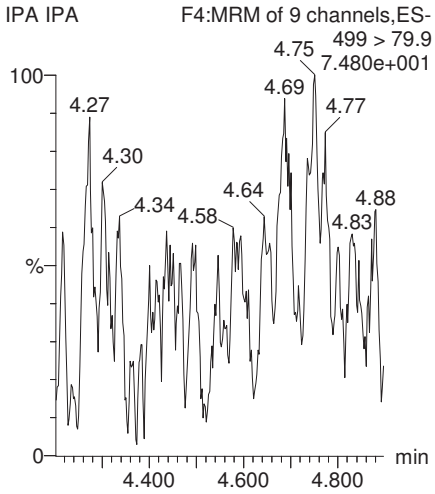
PFBS



PFOA



PFOS



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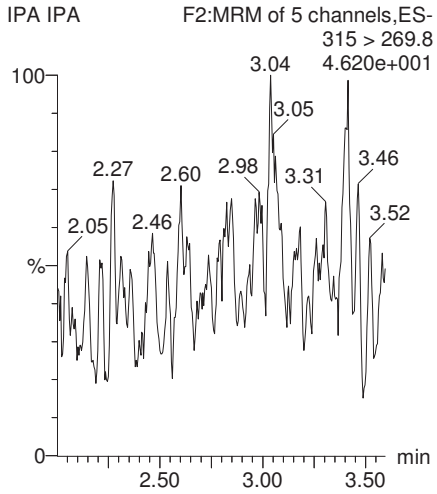

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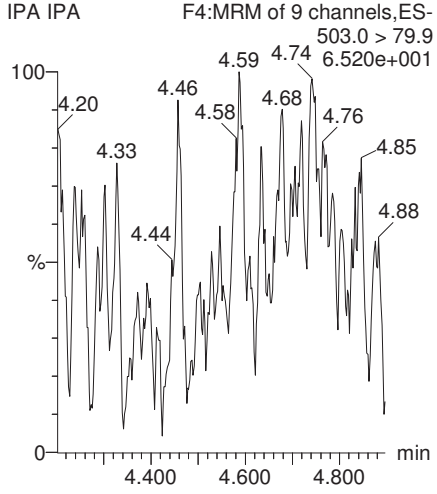

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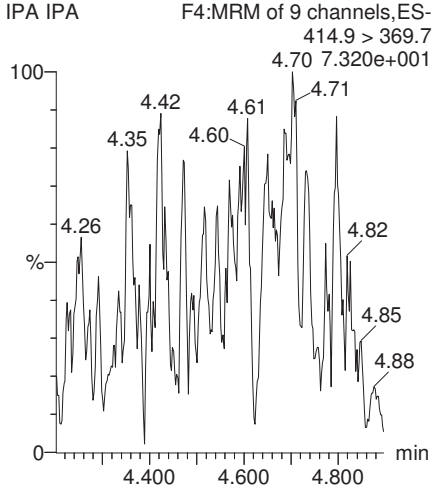

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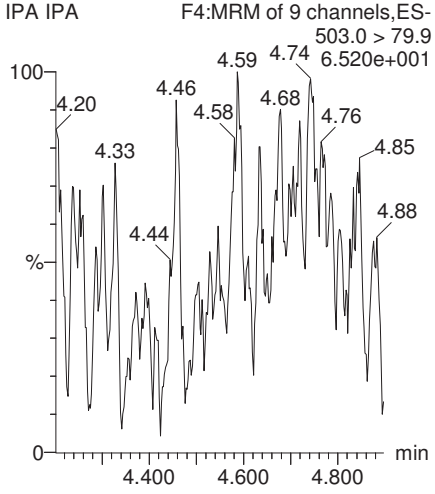

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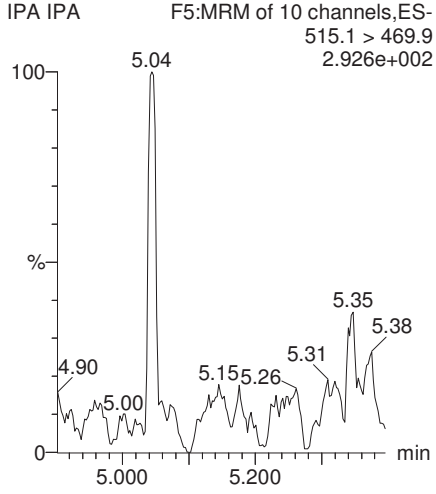

gm 11/27/17

Contract_ID	DO_CTO_Number	Phase	Installation_ID	Sample_Name	CH2M_Code	Analysis_Group	Analytical_Method	PRC_Code	Lab_Code	Lab_Name	Leachate_Method	Sample_Basis	Extraction_Method	Result_Type	Lab_QC_Type	Sample_Medium	QC_Level	Date_Time_Collected	Date_Received	Leachate_Date	Leachate_Time	Extraction_Date	Extraction_Time	Analysis_Date	Analysis_Time	Lab_Sample_ID	Dilution	Run_Number	Percent_Moisture	Percent_Lipid	Chem_Name
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW01-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 11:59	11/17/2017			20171121	08:30:00	20171127	12:16:00	1701716-01	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW01-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 11:59	11/17/2017			20171121	08:30:00	20171127	12:16:00	1701716-01	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW01-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 11:59	11/17/2017			20171121	08:30:00	20171127	12:16:00	1701716-01	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW01-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 11:59	11/17/2017			20171121	08:30:00	20171127	12:16:00	1701716-01	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB01-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 12:00	11/17/2017			20171121	08:30:00	20171127	12:29:00	1701716-02	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB01-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 12:00	11/17/2017			20171121	08:30:00	20171127	12:29:00	1701716-02	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB01-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 12:00	11/17/2017			20171121	08:30:00	20171127	12:29:00	1701716-02	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB01-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 12:00	11/17/2017			20171121	08:30:00	20171127	12:29:00	1701716-02	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW02-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 13:20	11/17/2017			20171121	08:30:00	20171127	12:41:00	1701716-03	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW02-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 13:20	11/17/2017			20171121	08:30:00	20171127	12:41:00	1701716-03	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW02-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 13:20	11/17/2017			20171121	08:30:00	20171127	12:41:00	1701716-03	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW02-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 13:20	11/17/2017			20171121	08:30:00	20171127	12:41:00	1701716-03	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB02-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 13:21	11/17/2017			20171121	08:30:00	20171127	12:54:00	1701716-04	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB02-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 13:21	11/17/2017			20171121	08:30:00	20171127	12:54:00	1701716-04	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB02-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 13:21	11/17/2017			20171121	08:30:00	20171127	12:54:00	1701716-04	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB02-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 13:21	11/17/2017			20171121	08:30:00	20171127	12:54:00	1701716-04	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW03-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 13:45	11/17/2017			20171121	08:30:00	20171127	13:06:00	1701716-05	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW03-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 13:45	11/17/2017			20171121	08:30:00	20171127	13:06:00	1701716-05	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW03-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 13:45	11/17/2017			20171121	08:30:00	20171127	13:06:00	1701716-05	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW03-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 13:45	11/17/2017			20171121	08:30:00	20171127	13:06:00	1701716-05	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB03-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 13:46	11/17/2017			20171121	08:30:00	20171127	13:19:00	1701716-06	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB03-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 13:46	11/17/2017			20171121	08:30:00	20171127	13:19:00	1701716-06	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB03-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 13:46	11/17/2017			20171121	08:30:00	20171127	13:19:00	1701716-06	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB03-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 13:46	11/17/2017			20171121	08:30:00	20171127	13:19:00	1701716-06	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW04-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 14:42	11/17/2017			20171121	08:30:00	20171127	13:31:00	1701716-07	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW04-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 14:42	11/17/2017			20171121	08:30:00	20171127	13:31:00	1701716-07	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW04-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 14:42	11/17/2017			20171121	08:30:00	20171127	13:31:00	1701716-07	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW04-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 14:42	11/17/2017			20171121	08:30:00	20171127	13:31:00	1701716-07	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB04-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 14:43	11/17/2017			20171121	08:30:00	20171127	13:44:00	1701716-08	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB04-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 14:43	11/17/2017			20171121	08:30:00	20171127	13:44:00	1701716-08	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB04-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 14:43	11/17/2017			20171121	08:30:00	20171127	13:44:00	1701716-08	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB04-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 14:43	11/17/2017			20171121	08:30:00	20171127	13:44:00	1701716-08	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW05-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 14:55	11/17/2017			20171121	08:30:00	20171127	13:56:00	1701716-09	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW05-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 14:55	11/17/2017			20171121	08:30:00	20171127	13:56:00	1701716-09	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW05-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 14:55	11/17/2017			20171121	08:30:00	20171127	13:56:00	1701716-09	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW05-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 14:55	11/17/2017			20171121	08:30:00	20171127	13:56:00	1701716-09	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB05-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 14:56	11/17/2017			20171121	08:30:00	20171127	14:08:00	1701716-10	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB05-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 14:56	11/17/2017			20171121	08:30:00	20171127	14:08:00	1701716-10	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB05-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 14:56	11/17/2017			20171121	08:30:00	20171127	14:08:00	1701716-10	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB05-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 14:56	11/17/2017			20171121	08:30:00	20171127	14:08:00	1701716-10	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW06-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 15:20	11/17/2017			20171121	08:30:00	20171127	14:21:00	1701716-11	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW06-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 15:20	11/17/2017			20171121	08:30:00	20171127	14:21:00	1701716-11	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW06-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 15:20	11/17/2017			20171121	08:30:00	20171127	14:21:00	1701716-11	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW06-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 15:20	11/17/2017			20171121	08:30:00	20171127	14:21:00	1701716-11	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB06-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 15:21	11/17/2017			20171121	08:30:00	20171127	14:33:00	1701716-12	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB06-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 15:21	11/17/2017			20171121	08:30:00	20171127	14:33:00	1701716-12	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB06-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 15:21	11/17/2017			20171121	08:30:00	20171127	14:33:00	1701716-12	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB06-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/13/2017 15:21	11/17/2017			20171121	08:30:00	20171127	14:33:00	1701716-12	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW07-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:00	11/17/2017			20171121	08:30:00	20171127	14:46:00	1701716-13	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW07-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:00	11/17/2017			20171121	08:30:00	20171127	14:46:00	1701716-13	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW07-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:00	11/17/2017			20171121	08:30:00	20171127	14:46:00	1701716-13	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW07-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:00	11/17/2017			20171121	08:30:00	20171127	14:46:00	1701716-13	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB07-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:01	11/17/2017			20171121	08:30:00	20171127	14:58:00	1701716-14	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB07-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:01	11/17/2017			20171121	08:30:00	20171127	14:58:00	1701716-14	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB07-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:01	11/17/2017			20171121	08:30:00	20171127	14:58:00	1701716-14	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB07-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:01	11/17/2017			20171121	08:30:00	20171127	14:58:00	1701716-14	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW08-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:10	11/17/2017			20171121	08:30:00	20171127	15:10:00	1701716-15	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW08-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:10	11/17/2017			20171121	08:30:00	20171127	15:10:00	1701716-15	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW08-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:10	11/17/2017			20171121	08:30:00	20171127	15:10:00	1701716-15	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW08-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:10	11/17/2017			20171121	08:30:00	20171127	15:10:00	1701716-15	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB08-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:11	11/17/2017			20171121	08:30:00	20171127	15:23:00	1701716-16	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB08-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:11	11/17/2017			20171121	08:30:00	20171127	15:23:00	1701716-16	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB08-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:11	11/17/2017			20171121	08:30:00	20171127	15:23:00	1701716-16	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB08-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:11	11/17/2017			20171121	08:30:00	20171127	15:23:00	1701716-16	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW09-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:54	11/17/2017			20171121	08:30:00	20171127	15:35:00	1701716-17	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW09-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:54	11/17/2017			20171121	08:30:00	20171127	15:35:00	1701716-17	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW09-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:54	11/17/2017			20171121	08:30:00	20171127	15:35:00	1701716-17	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1RW09-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:54	11/17/2017			20171121	08:30:00	20171127	15:35:00	1701716-17	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB09-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:55	11/17/2017			20171121	08:30:00	20171127	15:48:00	1701716-18	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB09-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:55	11/17/2017			20171121	08:30:00	20171127	15:48:00	1701716-18	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB09-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:55	11/17/2017			20171121	08:30:00	20171127	15:48:00	1701716-18	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-1FB09-1117	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	11/14/2017 09:55	11/17/2017			20171121	08:30:00	20171127	15:48:00	1701716-18	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	Blank	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BLK	W	4	11/21/2017 08:30	11/21/2017			20171121	08:30:00	20171127	11:39:00	B7K0131-BLK1	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	Blank	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BLK	W	4	11/21/2017 08:30	11/21/2017			20171121	08:30:00	20171127	11:39:00	B7K0131-BLK1	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	Blank	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BLK	W	4	11/21/2017 08:30	11/21/2017			20171121	08:30:00	20171127	11:39:00	B7K0131-BLK1	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	Blank	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BLK	W	4	11/21/2017 08:30	11/21/2017			20171121	08:30:00	20171127	11:39:00	B7K0131-BLK1	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	LCS	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BS	W	4	11/21/2017 08:30	11/21/2017			20171121	08:30:00	20171127	11:14:00	B7K0131-BS1	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	LCS	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BS	W	4	11/21/2017 08:30	11/21/2017			20171121	08:30:00	20171127	11:14:00	B7K0131-BS1	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	LCS	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BS	W	4	11/21/2017 08:30	11/21/2017			20171121	08:30:00	20171127	11:14:00	B7K0131-BS1	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	LCS	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BS	W	4	11/21/2017 08:30	11/21/2017			20171121	08:30:00	20171127	11:14:00	B7K0131-BS1	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	Matrix Spike	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	MS	W	4	11/21/2017 08:30	11/21/2017			20171121	08:30:00	20171127	11:52:00	B7K0131-MS1	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	Matrix Spike	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	MS	W	4	11/21/2017 08:30	11/21/2017			20171121	08:30:00	20171127	11:52:00	B7K0131-MS1	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	Matrix Spike	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	MS	W	4	11/21/2017 08:30	11/21/2017			20171121	08:30:00	20171127	11:52:00	B7K0131-MS1	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	Matrix Spike	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	MS	W	4	11/21/2017 08:30	11/21/2017			20171121	08:30:00	20171127	11:52:00	B7K0131-MS1	1	-999			13C2-PFHxA
N6247016D9000	0008		CHERRY_POINT_MCAS	Matrix Spike Dup	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	MSD	W	4	11/21/2017 08:30	11/21/2017			20171121	08:30:00	20171127	12:04:00	B7K0131-MSD1	1	-999			Perfluorobutanesulfonic acid (PFBS)
N6247016D9000	0008		CHERRY_POINT_MCAS	Matrix Spike Dup	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	MSD	W	4	11/21/2017 08:30	11/21/2017			20171121	08:30:00	20171127	12:04:00	B7K0131-MSD1	1	-999			Perfluorooctanoic acid (PFOA)
N6247016D9000	0008		CHERRY_POINT_MCAS	Matrix Spike Dup	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	MSD	W	4	11/21/2017 08:30	11/21/2017			20171121	08:30:00	20171127	12:04:00	B7K0131-MSD1	1	-999			Perfluorooctane Sulfonate (PFOS)
N6247016D9000	0008		CHERRY_POINT_MCAS	Matrix Spike Dup	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	MSD	W	4	11/21/2017 08:30	11/21/2017			20171121	08:30:00	20171127	12:04:00	B7K0131-MSD1	1	-999			13C2-PFHxA

Contract_ID	DO_CTO_Number	Phase	Installation_ID	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	375-73-5		5.45	NG_L	U		PR	TRG									5.1	0.483	5.45	10.9	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		5.45	NG_L	U		PR	TRG									5.1	1.18	5.45	10.9	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		5.45	NG_L	U		PR	TRG									5.1	1.13	5.45	10.9	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		102	PCT_REC			PR			SLSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		4.99	NG_L	U		PR	TRG									5.1	0.442	4.99	9.99	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		4.99	NG_L	U		PR	TRG									5.1	1.08	4.99	9.99	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		4.99	NG_L	U		PR	TRG									5.1	1.04	4.99	9.99	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		107	PCT_REC			PR			SLSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		5.62	NG_L	U		PR	TRG									5.1	0.498	5.62	11.2	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		5.62	NG_L	U		PR	TRG									5.1	1.21	5.62	11.2	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		5.62	NG_L	U		PR	TRG									5.1	1.17	5.62	11.2	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		99.5	PCT_REC			PR			SLSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		5.03	NG_L	U		PR	TRG									5.1	0.446	5.03	10.1	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		5.03	NG_L	U		PR	TRG									5.1	1.09	5.03	10.1	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		5.03	NG_L	U		PR	TRG									5.1	1.05	5.03	10.1	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		103	PCT_REC			PR			SLSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		5.34	NG_L	U		PR	TRG									5.1	0.473	5.34	10.7	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		5.34	NG_L	U		PR	TRG									5.1	1.15	5.34	10.7	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		5.34	NG_L	U		PR	TRG									5.1	1.11	5.34	10.7	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		101	PCT_REC			PR			SLSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		5.29	NG_L	U		PR	TRG									5.1	0.469	5.29	10.6	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		5.29	NG_L	U		PR	TRG									5.1	1.14	5.29	10.6	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		5.29	NG_L	U		PR	TRG									5.1	1.10	5.29	10.6	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		98.8	PCT_REC			PR			SLSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		3.81	NG_L	J		PR	TRG									5.1	0.475	5.36	10.7	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		1.47	NG_L	J		PR	TRG									5.1	1.16	5.36	10.7	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		4.89	NG_L	J		PR	TRG									5.1	1.12	5.36	10.7	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		93.8	PCT_REC			PR			SLSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		4.92	NG_L	U		PR	TRG									5.1	0.436	4.92	9.84	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		4.92	NG_L	U		PR	TRG									5.1	1.06	4.92	9.84	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		4.92	NG_L	U		PR	TRG									5.1	1.02	4.92	9.84	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		101	PCT_REC			PR			SLSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		5.53	NG_L	U		PR	TRG									5.1	0.490	5.53	11.1	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		5.53	NG_L	U		PR	TRG									5.1	1.19	5.53	11.1	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		5.53	NG_L	U		PR	TRG									5.1	1.15	5.53	11.1	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		95.5	PCT_REC			PR			SLSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		4.92	NG_L	U		PR	TRG									5.1	0.436	4.92	9.84	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		4.92	NG_L	U		PR	TRG									5.1	1.06	4.92	9.84	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		4.92	NG_L	U		PR	TRG									5.1	1.02	4.92	9.84	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		98.1	PCT_REC			PR			SLSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		5.44	NG_L	U		PR	TRG									5.1	0.482	5.44	10.9	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		5.44	NG_L	U		PR	TRG									5.1	1.17	5.44	10.9	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		5.44	NG_L	U		PR	TRG									5.1	1.13	5.44	10.9	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		102	PCT_REC			PR			SLSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		4.86	NG_L	U		PR	TRG									5.1	0.431	4.86	9.72	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		4.86	NG_L	U		PR	TRG									5.1	1.05	4.86	9.72	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		4.86	NG_L	U		PR	TRG									5.1	1.01	4.86	9.72	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		102	PCT_REC			PR			SLSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		5.65	NG_L	U		PR	TRG									5.1	0.501	5.65	11.3	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		5.65	NG_L	U		PR	TRG									5.1	1.22	5.65	11.3	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		5.65	NG_L	U		PR	TRG									5.1	1.18	5.65	11.3	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		105	PCT_REC			PR			SLSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		5.17	NG_L	U		PR	TRG									5.1	0.458	5.17	10.3	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		5.17	NG_L	U		PR	TRG									5.1	1.12	5.17	10.3	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		5.17	NG_L	U		PR	TRG									5.1	1.08	5.17	10.3	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		101	PCT_REC			PR			SLSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		5.30	NG_L	U		PR	TRG									5.1	0.470	5.30	10.6	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		5.30	NG_L	U		PR	TRG									5.1	1.15	5.30	10.6	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		5.30	NG_L	U		PR	TRG									5.1	1.10	5.30	10.6	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		103	PCT_REC			PR			SLSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		5.24	NG_L	U		PR	TRG									5.1	0.464	5.24	10.5	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		5.24	NG_L	U		PR	TRG									5.1	1.13	5.24	10.5	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		5.24	NG_L	U		PR	TRG									5.1	1.09	5.24	10.5	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		100	PCT_REC			PR			SLSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		5.78	NG_L	U		PR	TRG									5.1	0.512	5.78	11.6	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		5.78	NG_L	U		PR	TRG									5.1	1.25	5.78	11.6	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		5.78	NG_L	U		PR	TRG									5.1	1.20	5.78	11.6	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		97.3	PCT_REC			PR			SLSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		5.42	NG_L	U		PR	TRG									5.1	0.480	5.42	10.8	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		5.42	NG_L	U		PR	TRG									5.1	1.17	5.42	10.8	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		5.42	NG_L	U		PR	TRG									5.1	1.13	5.42	10.8	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		96.6	PCT_REC			PR			SLSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		5.00	NG_L	U		PR	TRG									5.1	0.443	5.00	10.0	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		5.00	NG_L	U		PR	TRG									5.1	1.08	5.00	10.0	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		5.00	NG_L	U		PR	TRG									5.1	1.04	5.00	10.0	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		104	PCT_REC			PR	SUR		SLSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		15.8	NG_L			PR	TRG		LSA	130	70					5.1	0.443	5.00	10.0	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		22.6	NG_L			PR	TRG		LSA	130	70					5.1	1.08	5.00	10.0	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		20.4	NG_L			PR	TRG		LSA	130	70					5.1	1.04	5.00	10.0	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		102	PCT_REC			PR	SUR		LSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		20.8	NG_L			PR	TRG		LSA	130	70					5.1	0.524	5.92	11.8	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		24.4	NG_L			PR	TRG		LSA	130	70					5.1	1.28	5.92	11.8	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		21.2	NG_L			PR	TRG		LSA	130	70					5.1	1.23	5.92	11.8	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		110	PCT_REC			PR	SUR		LSA	130	70					5.1				1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	375-73-5		17.9	NG_L			PR	TRG		LSA	130	70					5.1	0.472	5.33	10.7	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	335-67-1		24.4	NG_L			PR	TRG		LSA	130	70					5.1	1.15	5.33	10.7	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	1763-23-1		17.9	NG_L			PR	TRG		LSA	130	70					5.1	1.11	5.33	10.7	1701716	S7K0076
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA		105	PCT_REC			PR	SUR		LSA	130	70					5.1				1701716	S7K0076

ENVIRONMENTAL
Data Services, Inc.

DATA VALIDATION SUMMARY REPORT
MCOLF ATLANTC, NORTH CAROLINA

Client: CH2M HILL, Inc., Corvallis, Oregon
SDG: 1701716
Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
Site: MCOLF Atlantic, North Carolina
Date: January 3, 2018

PFCs			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	CH-AT-1RW01-1117	1701716-01	Water
2	CH-AT-1FB01-1117	1701716-02	Water
3	CH-AT-1RW02-1117	1701716-03	Water
3MS	CH-AT-1RW02-1117MS	1701716-03MS	Water
3MSD	CH-AT-1RW02-1117MSD	1701716-03MSD	Water
4	CH-AT-1FB02-1117	1701716-04	Water
5	CH-AT-1RW03-1117	1701716-05	Water
6	CH-AT-1FB03-1117	1701716-06	Water
7	CH-AT-1RW04-1117	1701716-07	Water
8	CH-AT-1FB04-1117	1701716-08	Water
9	CH-AT-1RW05-1117	1701716-09	Water
10	CH-AT-1FB05-1117	1701716-10	Water
11	CH-AT-1RW06-1117	1701716-11	Water
12	CH-AT-1FB06-1117	1701716-12	Water
13	CH-AT-1RW07-1117	1701716-13	Water
14	CH-AT-1FB07-1117	1701716-14	Water
15	CH-AT-1RW08-1117	1701716-15	Water
16	CH-AT-1FB08-1117	1701716-16	Water
17	CH-AT-1RW09-1117	1701716-17	Water
18	CH-AT-1FB09-1117	1701716-18	Water

A full data validation was performed on the analytical data for nine water samples and nine aqueous field blank samples collected on November 13-14, 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-1FB01-1117	None - ND	-	-	-
CH-AT-1FB02-1117	None - ND	-	-	-
CH-AT-1FB03-1117	None - ND	-	-	-
CH-AT-1FB04-1117	None - ND	-	-	-
CH-AT-1FB05-1117	None - ND	-	-	-
CH-AT-1FB06-1117	None - ND	-	-	-
CH-AT-1FB07-1117	None - ND	-	-	-
CH-AT-1FB08-1117	None - ND	-	-	-
CH-AT-1FB09-1117	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

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

- The MS/MSD samples exhibited acceptable percent recoveries (%R) and RPD values.

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: 1/5/18

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

1

Sample ID: CH-AT-1RW01-1117 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701716-01	Column:	BEH C18
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation	Date Collected:	13-Nov-17 11:59	Date Received:	17-Nov-17 08:54		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.483	5.45	10.9		B7K0131	21-Nov-17	0.229 L	27-Nov-17 12:16	1
PFOA	ND	1.18	5.45	10.9		B7K0131	21-Nov-17	0.229 L	27-Nov-17 12:16	1
PFOS	ND	1.13	5.45	10.9		B7K0131	21-Nov-17	0.229 L	27-Nov-17 12:16	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	102	70 - 130		B7K0131	21-Nov-17	0.229 L	27-Nov-17 12:16	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.

mc 1/31.8

Vista Analytical Laboratory

2

Sample ID: CH-AT-1FB01-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 12:00

Laboratory Data

Lab Sample: 1701716-02
Date Received: 17-Nov-17 08:54
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.442	4.99	9.99		B7K0131	21-Nov-17	0.250 L	27-Nov-17 12:29	1
PFOA	ND	1.08	4.99	9.99		B7K0131	21-Nov-17	0.250 L	27-Nov-17 12:29	1
PFOS	ND	1.04	4.99	9.99		B7K0131	21-Nov-17	0.250 L	27-Nov-17 12:29	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	107	70 - 130		B7K0131	21-Nov-17	0.250 L	27-Nov-17 12:29	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 13.8

Vista Analytical Laboratory 3

Sample ID: CH-AT-1RW02-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 13:20

Laboratory Data

Lab Sample: 1701716-03
Date Received: 17-Nov-17 08:54
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.498	5.62	11.2		B7K0131	21-Nov-17	0.223 L	27-Nov-17 12:41	1
PFOA	ND	1.21	5.62	11.2		B7K0131	21-Nov-17	0.223 L	27-Nov-17 12:41	1
PFOS	ND	1.17	5.62	11.2		B7K0131	21-Nov-17	0.223 L	27-Nov-17 12:41	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	99.5	70 - 130		B7K0131	21-Nov-17	0.223 L	27-Nov-17 12:41	1

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

11/3/18

Vista Analytical Laboratory 4

Sample ID: CH-AT-1FB02-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 13:21

Laboratory Data

Lab Sample: 1701716-04
Date Received: 17-Nov-17 08:54
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.446	5.03	10.1		B7K0131	21-Nov-17	0.249 L	27-Nov-17 12:54	1
PFOA	ND	1.09	5.03	10.1		B7K0131	21-Nov-17	0.249 L	27-Nov-17 12:54	1
PFOS	ND	1.05	5.03	10.1		B7K0131	21-Nov-17	0.249 L	27-Nov-17 12:54	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	103	70 - 130		B7K0131	21-Nov-17	0.249 L	27-Nov-17 12:54	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 11/3/18

Vista Analytical Laboratory 5

Sample ID: CH-AT-1RW03-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 13:45

Laboratory Data

Lab Sample: 1701716-05
Date Received: 17-Nov-17 08:54
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.473	5.34	10.7		B7K0131	21-Nov-17	0.234 L	27-Nov-17 13:06	1
PFOA	ND	1.15	5.34	10.7		B7K0131	21-Nov-17	0.234 L	27-Nov-17 13:06	1
PFOS	ND	1.11	5.34	10.7		B7K0131	21-Nov-17	0.234 L	27-Nov-17 13:06	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	101	70 - 130		B7K0131	21-Nov-17	0.234 L	27-Nov-17 13:06	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

Sample ID: CH-AT-1FB03-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 13:46

Laboratory Data

Lab Sample: 1701716-06
Date Received: 17-Nov-17 08:54
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.469	5.29	10.6		B7K0131	21-Nov-17	0.236 L	27-Nov-17 13:19	1
PFOA	ND	1.14	5.29	10.6		B7K0131	21-Nov-17	0.236 L	27-Nov-17 13:19	1
PFOS	ND	1.10	5.29	10.6		B7K0131	21-Nov-17	0.236 L	27-Nov-17 13:19	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	98.8	70 - 130		B7K0131	21-Nov-17	0.236 L	27-Nov-17 13:19	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

7

Sample ID: CH-AT-1RW04-1117 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701716-07	Column:	BEH C18
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation	Date Collected:	13-Nov-17 14:42	Date Received:	17-Nov-17 08:54		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	3.81	0.475	5.36	10.7	J	B7K0131	21-Nov-17	0.233 L	27-Nov-17 13:31	1
PFOA	1.47	1.16	5.36	10.7	J	B7K0131	21-Nov-17	0.233 L	27-Nov-17 13:31	1
PFOS	4.89	1.12	5.36	10.7	J	B7K0131	21-Nov-17	0.233 L	27-Nov-17 13:31	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	93.8	70 - 130		B7K0131	21-Nov-17	0.233 L	27-Nov-17 13:31	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 13.18

Vista Analytical Laboratory

Sample ID: CH-AT-1FB04-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 14:43

Laboratory Data

Lab Sample: 1701716-08
Date Received: 17-Nov-17 08:54
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	**ND**	0.436	4.92	9.84		**B7K0131**	**21-Nov-17**	**0.254 L**	**27-Nov-17 13:44**	1
PFOA	ND	1.06	4.92	9.84		B7K0131	21-Nov-17	0.254 L	27-Nov-17 13:44	1
PFOS	**ND**	1.02	4.92	9.84		**B7K0131**	**21-Nov-17**	**0.254 L**	**27-Nov-17 13:44**	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	101	70 - 130		B7K0131	21-Nov-17	0.254 L	27-Nov-17 13:44	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.

Vista Analytical Laboratory 9

Sample ID: CH-AT-1RW05-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 14:55

Laboratory Data

Lab Sample: 1701716-09
Date Received: 17-Nov-17 08:54
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.490	5.53	11.1		B7K0131	21-Nov-17	0.226 L	27-Nov-17 13:56	1
PFOA	ND	1.19	5.53	11.1		B7K0131	21-Nov-17	0.226 L	27-Nov-17 13:56	1
PFOS	ND	1.15	5.53	11.1		B7K0131	21-Nov-17	0.226 L	27-Nov-17 13:56	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	95.5	70 - 130		B7K0131	21-Nov-17	0.226 L	27-Nov-17 13:56	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

11/3/18

Vista Analytical Laboratory 10

Sample ID: CH-AT-1FB05-1117 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701716-10	Column:	BEH C18
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation	Date Collected:	13-Nov-17 14:56	Date Received:	17-Nov-17 08:54		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.436	4.92	9.84		B7K0131	21-Nov-17	0.254 L	27-Nov-17 14:08	1
PFOA	ND	1.06	4.92	9.84		B7K0131	21-Nov-17	0.254 L	27-Nov-17 14:08	1
PFOS	ND	1.02	4.92	9.84		B7K0131	21-Nov-17	0.254 L	27-Nov-17 14:08	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	98.1	70 - 130		B7K0131	21-Nov-17	0.254 L	27-Nov-17 14:08	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 13/18

Sample ID: CH-AT-1RW06-1117 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701716-11	Column:	BEH C18
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation	Date Collected:	13-Nov-17 15:20	Date Received:	17-Nov-17 08:54		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.482	5.44	10.9		B7K0131	21-Nov-17	0.230 L	27-Nov-17 14:21	1
PFOA	ND	1.17	5.44	10.9		B7K0131	21-Nov-17	0.230 L	27-Nov-17 14:21	1
PFOS	ND	1.13	5.44	10.9		B7K0131	21-Nov-17	0.230 L	27-Nov-17 14:21	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	102	70 - 130		B7K0131	21-Nov-17	0.230 L	27-Nov-17 14:21	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

nw 11.3.18

Vista 12
Analytical Laboratory

Sample ID: CH-AT-1FB06-1117 **EPA Method 537**

Client Data

Name: CH2M Hill
Project: CTO-08. MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 13-Nov-17 15:21

Laboratory Data

Lab Sample: 1701716-12
Date Received: 17-Nov-17 08:54
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.431	4.86	9.72		B7K0131	21-Nov-17	0.257 L	27-Nov-17 14:33	1
PFOA	ND	1.05	4.86	9.72		B7K0131	21-Nov-17	0.257 L	27-Nov-17 14:33	1
PFOS	ND	1.01	4.86	9.72		B7K0131	21-Nov-17	0.257 L	27-Nov-17 14:33	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	102	70 - 130		B7K0131	21-Nov-17	0.257 L	27-Nov-17 14:33	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 13
Analytical Laboratory

Sample ID: CH-AT-1RW07-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 14-Nov-17 09:00

Laboratory Data

Lab Sample: 1701716-13
Date Received: 17-Nov-17 08:54
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.501	5.65	11.3		B7K0131	21-Nov-17	0.221 L	27-Nov-17 14:46	1
PFOA	ND	1.22	5.65	11.3		B7K0131	21-Nov-17	0.221 L	27-Nov-17 14:46	1
PFOS	ND	1.18	5.65	11.3		B7K0131	21-Nov-17	0.221 L	27-Nov-17 14:46	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	105	70 - 130		B7K0131	21-Nov-17	0.221 L	27-Nov-17 14:46	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.

11/3/18

Vista Analytical Laboratory 14

Sample ID: CH-AT-1FB07-1117 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701716-14	Column:	BEH C18
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation	Date Collected:	14-Nov-17 09:01	Date Received:	17-Nov-17 08:54		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	**ND**	**0.458**	**5.17**	**10.3**		**B7K0131**	**21-Nov-17**	**0.242 L**	**27-Nov-17 14:58**	1
PFOA	ND	1.12	5.17	10.3		B7K0131	21-Nov-17	0.242 L	27-Nov-17 14:58	1
PFOS	**ND**	**1.08**	**5.17**	**10.3**		**B7K0131**	**21-Nov-17**	**0.242 L**	**27-Nov-17 14:58**	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	101	70 - 130		B7K0131	21-Nov-17	0.242 L	27-Nov-17 14:58	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.

mw 13/18

Vista Analytical Laboratory 15

Sample ID: CH-AT-1RW08-1117 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701716-15	Column:	BEH C18
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation	Date Collected:	14-Nov-17 09:10	Date Received:	17-Nov-17 08:54		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.470	5.30	10.6		B7K0131	21-Nov-17	0.236 L	27-Nov-17 15:10	1
PFOA	ND	1.15	5.30	10.6		B7K0131	21-Nov-17	0.236 L	27-Nov-17 15:10	1
PFOS	ND	1.10	5.30	10.6		B7K0131	21-Nov-17	0.236 L	27-Nov-17 15:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	103	70 - 130		B7K0131	21-Nov-17	0.236 L	27-Nov-17 15:10	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 16 Analytical Laboratory

Sample ID: CH-AT-1FB08-1117

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08, MCOLF Atlantic / PFAS DW Investigation
Matrix: Drinking Water
Date Collected: 14-Nov-17 09:11

Laboratory Data

Lab Sample: 1701716-16
Date Received: 17-Nov-17 08:54
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.464	5.24	10.5		B7K0131	21-Nov-17	0.238 L	27-Nov-17 15:23	1
PFOA	ND	1.13	5.24	10.5		B7K0131	21-Nov-17	0.238 L	27-Nov-17 15:23	1
PFOS	ND	1.09	5.24	10.5		B7K0131	21-Nov-17	0.238 L	27-Nov-17 15:23	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	100	70 - 130		B7K0131	21-Nov-17	0.238 L	27-Nov-17 15:23	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.

mw 13/18

17

Sample ID: CH-AT-1RW09-1117 — **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701716-17	Column:	BEH C18
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation	Date Collected:	14-Nov-17 09:54	Date Received:	17-Nov-17 08:54		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	**ND**	0.512	5.78	11.6		**B7K0131**	**21-Nov-17**	**0.216 L**	**27-Nov-17 15:35**	1
PFOA	ND	1.25	5.78	11.6		B7K0131	21-Nov-17	0.216 L	27-Nov-17 15:35	1
PFOS	**ND**	1.20	5.78	11.6		**B7K0131**	**21-Nov-17**	**0.216 L**	**27-Nov-17 15:35**	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	97.3	70 - 130		B7K0131	21-Nov-17	0.216 L	27-Nov-17 15:35	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 18
Analytical Laboratory

Sample ID: CH-AT-1FB09-1117 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701716-18	Column:	BEH C18
Project:	CTO-08, MCOLF Atlantic / PFAS DW Investigation	Date Collected:	14-Nov-17 09:55	Date Received:	17-Nov-17 08:54		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	**ND**	0.480	5.42	10.8		**B7K0131**	**21-Nov-17**	**0.231 L**	**27-Nov-17 15:48**	1
PFOA	ND	1.17	5.42	10.8		B7K0131	21-Nov-17	0.231 L	27-Nov-17 15:48	1
PFOS	**ND**	1.13	5.42	10.8		B7K0131	**21-Nov-17**	**0.231 L**	**27-Nov-17 15:48**	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	96.6	70 - 130		B7K0131	21-Nov-17	0.231 L	27-Nov-17 15:48	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 11/3/18

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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