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 1701875

Marine Corps Outlying Landing Field Atlantic
MCAS Cherry Point NC

February 2019

December 14, 2017

Vista Work Order No. 1701875

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

Dear Ms. Hill,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on December 07, 2017. This sample set was analyzed on a rush turn-around time, under your Project Name 'CTO-08/MCOLF ATLANTIC PFAS INV.'.

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

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

Sincerely,

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. 1701875
Case Narrative

Sample Condition on Receipt:

Seventeen 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 Laboratory Reagent Blank (LRB) were extracted and analyzed with the preparation batch. No analytes were detected in the Laboratory Reagent Blank above 1/2 the LOQ. The LFB recoveries were within the method acceptance criteria.

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

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1701875-01	CH-AT-2RW42-1217	04-Dec-17 13:12	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-02	CH-AT-2FB42-1217	04-Dec-17 13:12	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-03	CH-AT-2RW43-1217	04-Dec-17 15:55	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-04	CH-AT-2FB43-1217	04-Dec-17 15:55	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-05	CH-AT-2RW44-1217	04-Dec-17 16:10	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-06	CH-AT-2FB44-1217	04-Dec-17 16:10	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-07	CH-AT-2RW45-1217	04-Dec-17 18:05	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-08	CH-AT-2FB45-1217	04-Dec-17 18:05	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-09	CH-AT-2RW46-1217	04-Dec-17 18:33	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-10	CH-AT-2FB46-1217	04-Dec-17 18:33	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-11	CH-AT-2RW47-1217	05-Dec-17 09:21	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-12	CH-AT-2FB47-1217	05-Dec-17 09:21	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-13	CH-AT-2RW48A-1217	05-Dec-17 10:22	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-14	CH-AT-2FB48A-1217	05-Dec-17 10:22	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-15	CH-AT-2RW48B-1217	05-Dec-17 11:05	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-16	CH-AT-2FB48B-1217	05-Dec-17 11:05	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-17	CH-AT-2EB01-1217	05-Dec-17 15:30	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL

Vista Project: 1701875

Client Project: CTO-08/MCOLF ATLANTIC PFAS INV.

ANALYTICAL RESULTS

Sample ID: LRB

EPA Method 537

Client Data

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

Laboratory Data

Lab Sample: B7L0066-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		B7L0066	12-Dec-17	0.250 L	14-Dec-17 11:45	1
PFOA	ND	1.08	5.00	10.0		B7L0066	12-Dec-17	0.250 L	14-Dec-17 11:45	1
PFOS	ND	1.04	5.00	10.0		B7L0066	12-Dec-17	0.250 L	14-Dec-17 11:45	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	101	70 - 130		B7L0066	12-Dec-17	0.250 L	14-Dec-17 11:45	1

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

Sample ID: LFBD

EPA Method 537

Name:	CH2M Hill	Lab Sample:	B7L0066-BS1/B7L0066-BSD1	Date Extracted:	12-Dec-17
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	QC Batch:	B7L0066	Column:	BEH C18
Matrix:	Drinking Water	Samp Size:	0.250/0.250 L		

Analyte	LCS (ng/L)	LCS Spike Amt	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike Amt	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBS	80.7	70.8	114		75.2	70.8	106	7.01		70-130	30	14-Dec-17 11:20	1	14-Dec-17 11:32	1
PFOA	84.5	80.0	106		88.0	80.0	110	3.99		70-130	30	14-Dec-17 11:20	1	14-Dec-17 11:32	1
PFOS	79.3	74.0	107		82.7	74.0	112	4.18		70-130	30	14-Dec-17 11:20	1	14-Dec-17 11:32	1

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C2-PFHxA	SURR	96.4		96.1		70-130	14-Dec-17 11:20	1	14-Dec-17 11:32	1

Sample ID: CH-AT-2RW42-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 04-Dec-17 13:12

Laboratory Data

Lab Sample: 1701875-01
Date Received: 07-Dec-17 09:23
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.416	4.70	9.39		B7L0066	12-Dec-17	0.266 L	14-Dec-17 11:57	1
PFOA	ND	1.01	4.70	9.39		B7L0066	12-Dec-17	0.266 L	14-Dec-17 11:57	1
PFOS	ND	0.977	4.70	9.39		B7L0066	12-Dec-17	0.266 L	14-Dec-17 11:57	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	100	70 - 130		B7L0066	12-Dec-17	0.266 L	14-Dec-17 11:57	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-2FB42-1217

EPA Method 537

Client Data

Name: C2 HM 2 ill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 04-Dec-17 13:1H

Laboratory Data

Lab Sample: 1701875-0H
Date Received: 07-Dec-17 09:HB
Column: BE2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.453	5.11	10.H		B7L0066	1H-Dec-17	0.H45 L	14-Dec-17 1H:10	1
PFOA	ND	1.10	5.11	10.H		B7L0066	1H-Dec-17	0.H45 L	14-Dec-17 1H:10	1
PFOS	ND	1.06	5.11	10.H		B7L0066	1H-Dec-17	0.H45 L	14-Dec-17 1H:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13CH-PF2 xA	SURR	105	70 - 130		B7L0066	1H-Dec-17	0.H45 L	14-Dec-17 1H: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, PF2 xS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: CH-AT-2RW41-727L **PMA h etdr5 31L**

Client Data

Name: C2 uM 2 ill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: DriBgiBW4 ater
Date Collected: 03-Dec-17 15:55

baoryatryE Data

Lab Sample: 1701875-0H
Date Received: 07-Dec-17 09:uH
ColnmB: Ek2 C18

AnalEte	Crnc. (ng/b)	Db	bOD	bOQ	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
PFES	ND	0.336	5.03	10.1		E7L0066	1u-Dec-17	0.u38 L	13-Dec-17 1u:uu	1
PFOA	ND	1.09	5.03	10.1		E7L0066	1u-Dec-17	0.u38 L	13-Dec-17 1u:uu	1
PFOS	ND	1.05	5.03	10.1		E7L0066	1u-Dec-17	0.u38 L	13-Dec-17 1u:uu	1

baoele5 Stan5ay5s	TEpe	% RecrveyE	bimits	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
1HCu-PF2 xA	SURR	107	70 - 1H0		E7L0066	1u-Dec-17	0.u38 L	13-Dec-17 1u:uu	1

DL - DetectioB Limit
LOD - Limit of DetectioB
LOQ - Limit of qnaBtitatioB
LCL-UCL- Lower coBtrol limit - npper coBtrol limit
Resnlts reported to the DL.
4 heB reported, PF2 xS, PFOA aBd PFOS iBclnde both liBear aBd braBched isomers.
OBly the liBear isomer is reported for all other aBalytes.

Sample ID: CH-AT-2FB41-727L

PMA h etdr5 31L

Client Data

Name: C2 uM 2 ill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: DriBgiBW4 ater
Date Collected: 0H-Dec-17 15:55

baoryatryE Data

Lab Sample: 1701875-0H
Date 3 eceiRed: 07-Dec-17 0v:u9
ColnmB: Ek2 C18

AnalEte	Crnc. (ng/b)	Db	bOD	bOQ	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
PFES	ND	0.H96	Hvu	v.85		E7L0066	1u-Dec-17	0.u5HL	1H-Dec-17 1u:95	1
PFOA	ND	1.06	Hvu	v.85		E7L0066	1u-Dec-17	0.u5HL	1H-Dec-17 1u:95	1
PFOS	ND	1.0u	Hvu	v.85		E7L0066	1u-Dec-17	0.u5HL	1H-Dec-17 1u:95	1

baoele5 Stan5ay5s	TEpe	% RecrveyE	bimits	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
19Cu-PF2 xA	SU3 3	101	70 - 190		E7L0066	1u-Dec-17	0.u5HL	1H-Dec-17 1u:95	1

DL - DetectioB Limit
LOD - Limit of DetectioB
LOQ - Limit of qnaBtitatioB
LCL-UCL- Lower coBtrol limit - npper coBtrol limit
3 esnlts reported to the DL.
4 heB reported, PF2 xS, PFOA aBd PFOS iBclnde both liBear aBd braBched isomers.
OBly the liBear isomer is reported for all other aBalytes.

Sample ID: CH-AT-2RW44-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 04-Dec-17 16:10

Laboratory Data

Lab Sample: 1701875-05
Date Received: 07-Dec-17 09:23
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	1.58	0.437	4.93	9.86	J	B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:47	1
PFOA	ND	1.06	4.93	9.86		B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:47	1
PFOS	ND	1.03	4.93	9.86		B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:47	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	89.2	70 - 130		B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:47	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-2FB44-1217

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: DriBgiBW4 ater
Date Collected: 03-Dec-17 1H:10

Laboratory Data

Lab Sample: 1701875-0H
Date Received: 07-Dec-17 09:u6
ColnmB: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	0.36H	3.9u	9.85		E7L00HH	1u-Dec-17	0.u53 L	13-Dec-17 1u:59	1
PFOA	ND	1.0H	3.9u	9.85		E7L00HH	1u-Dec-17	0.u53 L	13-Dec-17 1u:59	1
PFOS	ND	1.0u	3.9u	9.85		E7L00HH	1u-Dec-17	0.u53 L	13-Dec-17 1u:59	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
16Cu-PF2 xA	SURR	95.7	70 - 160		E7L00HH	1u-Dec-17	0.u53 L	13-Dec-17 1u:59	1

DL - DetectioB Limit
LOD - Limit of DetectioB
LOQ - Limit of qnaBtitatioB
LCL-UCL- Lower coBtrol limit - npper coBtrol limit
Resnlts reported to the DL.
4 heB reported, PF2 xS, PFOA aBd PFOS iBclnde both liBear aBd braBched isomers.
OBly the liBear isomer is reported for all other aBalytes.

Vista Analytical Laboratory

Sample ID: CH-AT-2RW41-727L

PMA h etdr5 13L

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 04-Dec-17 18:05

baoryatryE Data

Lab Sample: 1701875-07
Date 6 eceiRed: 07-Dec-17 0v:29
Column: BEH C18

AnalEte	Crnc. (ng/b)	Db	bOD	bOQ	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
PFBS	0.337	0.443	5.09	10.1	J	B7L0033	12-Dec-17	0.248 L	14-Dec-17 19:12	1
PFOA	ND	1.0v	5.09	10.1		B7L0033	12-Dec-17	0.248 L	14-Dec-17 19:12	1
PFOS	ND	1.05	5.09	10.1		B7L0033	12-Dec-17	0.248 L	14-Dec-17 19:12	1

baoele5 Stan5ay5s	TEpe	% RecrveyE	bimits	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
19C2-PFHxA	SU6 6	v7.8	70 - 190		B7L0033	12-Dec-17	0.248 L	14-Dec-17 19:12	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
6 esults 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-2FB41-727L **PMA h etdr5 13L**

Client Data				baoryatryE Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701875-08	Column:	BEH C18
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	Date Collected:	04-Dec-17 18:05	Date 3 eceiRed:	07-Dec-17 0v:29		

AnalEte	Crnc. (ng/b)	Db	bOD	bOQ	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
PFBS	ND	0.445	5.02	10.0		B7L0066	12-Dec-17	0.24v L	14-Dec-17 19:24	1
PFOA	ND	1.08	5.02	10.0		B7L0066	12-Dec-17	0.24v L	14-Dec-17 19:24	1
PFOS	ND	1.04	5.02	10.0		B7L0066	12-Dec-17	0.24v L	14-Dec-17 19:24	1

baoele5 Stan5ay5s	TEpe	% RecrveyE	bimits	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
19C2-PFHxA	SU3 3	v5.5	70 - 190		B7L0066	12-Dec-17	0.24v L	14-Dec-17 19:24	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
3 esults 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-2RW46-1217

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: DriBgiBW4 ater
Date Collected: 03-Dec-17 18:RR

Laboratory Data

Lab Sample: 1701875-0H
Date v ecei9ed: 07-Dec-17 0HuR
ColnmB: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	0.331	3.H7	HH5		E7L0066	1u-Dec-17	0.u51 L	13-Dec-17 1R:R7	1
PFOA	ND	1.07	3.H7	HH5		E7L0066	1u-Dec-17	0.u51 L	13-Dec-17 1R:R7	1
PFOS	ND	1.0R	3.H7	HH5		E7L0066	1u-Dec-17	0.u51 L	13-Dec-17 1R:R7	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1RCu-PF2 xA	SUv v	H7.0	70 - 1R0		E7L0066	1u-Dec-17	0.u51 L	13-Dec-17 1R:R7	1

DL - DetectioB Limit
LOD - Limit of DetectioB
LOQ - Limit of qnaBtitatioB
LCL-UCL- Lower coBtrol limit - npper coBtrol limit
v esnlts reported to the DL.
4 heB reported, PF2 xS, PFOA aBd PFOS iBclnde both liBear aBd braBched isomers.
OBly the liBear isomer is reported for all other aBalytes.

Sample ID: CH-AT-2FB46-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 04-Dec-17 18:33

Laboratory Data

Lab Sample: 1701875-10
Date Received: 07-Dec-17 09:23
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.423	4.78	9.55		B7L0066	12-Dec-17	0.262 L	14-Dec-17 13:49	1
PFOA	ND	1.03	4.78	9.55		B7L0066	12-Dec-17	0.262 L	14-Dec-17 13:49	1
PFOS	ND	0.994	4.78	9.55		B7L0066	12-Dec-17	0.262 L	14-Dec-17 13:49	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	101	70 - 130		B7L0066	12-Dec-17	0.262 L	14-Dec-17 13:49	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-2RW41-7271

EPA Method 531

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 05-Dec-17 04:21

Laboratory Data

Lab Sample: 1701875-11
Date 3 eceiRed: 07-Dec-17 04:2v
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.9v0	9.86	4.71		B7L0066	12-Dec-17	0.257 L	19-Dec-17 19:02	1
PFOA	ND	1.05	9.86	4.71		B7L0066	12-Dec-17	0.257 L	19-Dec-17 19:02	1
PFOS	ND	1.01	9.86	4.71		B7L0066	12-Dec-17	0.257 L	19-Dec-17 19:02	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1vC2-PFHxA	SU3 3	10v	70 - 1v0		B7L0066	12-Dec-17	0.257 L	19-Dec-17 19:02	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
3 esults 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-2FB41-7271

EPA Method 531

Client Data

Name: C2 HM 2 ill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 05-Dec-17 04:Hl

Laboratory Data

Lab Sample: 1701875-1H
Date 3 eceiRed: 07-Dec-17 04:Hv
Column: BE2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.9H4	9.85	4.64		B7L0066	1H-Dec-17	0.H58 L	19-Dec-17 19:19	1
PFOA	ND	1.05	9.85	4.64		B7L0066	1H-Dec-17	0.H58 L	19-Dec-17 19:19	1
PFOS	ND	1.01	9.85	4.64		B7L0066	1H-Dec-17	0.H58 L	19-Dec-17 19:19	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1vCH-PF2 xA	SU3 3	105	70 - 1v0		B7L0066	1H-Dec-17	0.H58 L	19-Dec-17 19:19	1

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

Sample ID: CH-AT-2RW48A-1217

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: DriBgiBW4 ater
Date Collected: 05-Dec-17 10:uu

Laboratory Data

Lab Sample: 1701875-1H
Date 3 eceiRed: 07-Dec-17 0v:uH
ColnmB: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	0.99u	9.v8	v.v7		E7L0066	1u-Dec-17	0.u51 L	19-Dec-17 19:u7	1
PFOA	ND	1.08	9.v8	v.v7		E7L0066	1u-Dec-17	0.u51 L	19-Dec-17 19:u7	1
PFOS	ND	1.09	9.v8	v.v7		E7L0066	1u-Dec-17	0.u51 L	19-Dec-17 19:u7	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1HCu-PF2 xA	SU3 3	vu.0	70 - 1H0		E7L0066	1u-Dec-17	0.u51 L	19-Dec-17 19:u7	1

DL - DetectioB Limit
LOD - Limit of DetectioB
LOQ - Limit of qnaBtitatioB
LCL-UCL- Lower coBtrol limit - npper coBtrol limit
3 esnlts reported to the DL.
4 heB reported, PF2 xS, PFOA aBd PFOS iBclnde both liBear aBd braBched isomers.
OBly the liBear isomer is reported for all other aBalytes.

Sample ID: CH-AT-2FB48A-1217

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: DriBgiBW4 ater
Date Collected: 05-Dec-17 10:uu

Laboratory Data

Lab Sample: 1701875-1H
Date 3 eceiRed: 07-Dec-17 0v:u9
ColnmB: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	0.Hu1	H75	v.Hv		E7L0066	1u-Dec-17	0.u69 L	1H-Dec-17 1H:9v	1
PFOA	ND	1.09	H75	v.Hv		E7L0066	1u-Dec-17	0.u69 L	1H-Dec-17 1H:9v	1
PFOS	ND	0.v87	H75	v.Hv		E7L0066	1u-Dec-17	0.u69 L	1H-Dec-17 1H:9v	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
19Cu-PF2 xA	SU3 3	110	70 - 190		E7L0066	1u-Dec-17	0.u69 L	1H-Dec-17 1H:9v	1

DL - DetectioB Limit
LOD - Limit of DetectioB
LOQ - Limit of qnaBtitatioB
LCL-UCL- Lower coBtrol limit - npper coBtrol limit
3 esnlts reported to the DL.
4 heB reported, PF2 xS, PFOA aBd PFOS iBclnde both liBear aBd braBched isomers. OBly the liBear isomer is reported for all other aBalytes.

Sample ID: CH-AT-2RW481-727L **PMA h etdr5 3cL**

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 05-Dec-17 11:05

baoryatryE Data

Lab Sample: 1701875-15
Date 4ecei3ed: 07-Dec-17 0R:2v
Column: BEH C18

AnalEte	Crn. (gn/)bQ	Db	bBD	bBu	uf alisieyz	1at. d	Pxtya. te5	Samp SiQe	AnalEQe5	Dilf tirn
PFBS	ND	0.998	5.06	10.1		B7L0066	12-Dec-17	0.297 L	19-Dec-17 19:51	1
PFOA	ND	1.0R	5.06	10.1		B7L0066	12-Dec-17	0.297 L	19-Dec-17 19:51	1
PFOS	ND	1.05	5.06	10.1		B7L0066	12-Dec-17	0.297 L	19-Dec-17 19:51	1

baoele5 Stan5ay5z	TEpe	% Re. rveyE	bimitz	uf alisieyz	1at. d	Pxtya. te5	Samp SiQe	AnalEQe5	Dilf tirn
1vC2-PFHxA	SU44	105	70 - 1v0		B7L0066	12-Dec-17	0.297 L	19-Dec-17 19:51	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
4esults 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-2FB48B-1217

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: DriBgiBW4 ater
Date Collected: 05-Dec-17 11:05

Laboratory Data

Lab Sample: 1701875-1H
Date 3 eceiRed: 07-Dec-17 0v:u9
ColnmB: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	0.6u7	6.8u	v.H6		E7L00HH	1u-Dec-17	0.u5v L	16-Dec-17 15:06	1
PFOA	ND	1.06	6.8u	v.H6		E7L00HH	1u-Dec-17	0.u5v L	16-Dec-17 15:06	1
PFOS	ND	1.00	6.8u	v.H6		E7L00HH	1u-Dec-17	0.u5v L	16-Dec-17 15:06	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
19Cu-PF2 xA	SU3 3	vv.H	70 - 190		E7L00HH	1u-Dec-17	0.u5v L	16-Dec-17 15:06	1

DL - DetectioB Limit
LOD - Limit of DetectioB
LOQ - Limit of qnaBtitatioB
LCL-UCL- Lower coBtrol limit - npper coBtrol limit
3 esnlts reported to the DL.
4 heB reported, PF2 xS, PFOA aBd PFOS iBclnde both liBear aBd braBched isomers.
OBly the liBear isomer is reported for all other aBalytes.

Sample ID: CH-AT-2EB01-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 05-Dec-17 15:40

Laboratory Data

Lab Sample: 1701875-17
Date 3 eceiRed: 07-Dec-17 0v:24
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.944	9.88	v.77		B7L0066	12-Dec-17	0.256 L	19-Dec-17 15:16	1
PFOA	ND	1.06	9.88	v.77		B7L0066	12-Dec-17	0.256 L	19-Dec-17 15:16	1
PFOS	ND	1.02	9.88	v.77		B7L0066	12-Dec-17	0.256 L	19-Dec-17 15:16	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
14C2-PFHxA	SU3 3	vv.2	70 - 140		B7L0066	12-Dec-17	0.256 L	19-Dec-17 15:16	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
3 esults 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.

December 14, 2017

Vista Work Order No. 1701875

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

Dear Ms. Hill,

Enclosed are the results for the sample set received at Vista Analytical Laboratory on December 07, 2017. This sample set was analyzed on a rush turn-around time, under your Project Name 'CTO-08/MCOLF ATLANTIC PFAS INV.'.

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

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

Sincerely,

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. 1701875
Case Narrative

Sample Condition on Receipt:

Seventeen 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 Laboratory Reagent Blank (LRB) were extracted and analyzed with the preparation batch. No analytes were detected in the Laboratory Reagent Blank above 1/2 the LOQ. The LFB recoveries were within the method acceptance criteria.

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

TABLE OF CONTENTS

Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
1701875-01	CH-AT-2RW42-1217	04-Dec-17 13:12	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-02	CH-AT-2FB42-1217	04-Dec-17 13:12	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-03	CH-AT-2RW43-1217	04-Dec-17 15:55	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-04	CH-AT-2FB43-1217	04-Dec-17 15:55	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-05	CH-AT-2RW44-1217	04-Dec-17 16:10	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-06	CH-AT-2FB44-1217	04-Dec-17 16:10	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-07	CH-AT-2RW45-1217	04-Dec-17 18:05	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-08	CH-AT-2FB45-1217	04-Dec-17 18:05	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-09	CH-AT-2RW46-1217	04-Dec-17 18:33	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-10	CH-AT-2FB46-1217	04-Dec-17 18:33	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-11	CH-AT-2RW47-1217	05-Dec-17 09:21	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-12	CH-AT-2FB47-1217	05-Dec-17 09:21	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-13	CH-AT-2RW48A-1217	05-Dec-17 10:22	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-14	CH-AT-2FB48A-1217	05-Dec-17 10:22	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-15	CH-AT-2RW48B-1217	05-Dec-17 11:05	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-16	CH-AT-2FB48B-1217	05-Dec-17 11:05	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL
1701875-17	CH-AT-2EB01-1217	05-Dec-17 15:30	07-Dec-17 09:23	HDPE Bottle, 250 mL
				HDPE Bottle, 250 mL

Vista Project: 1701875

Client Project: CTO-08/MCOLF ATLANTIC PFAS INV.

ANALYTICAL RESULTS

Sample ID: LRB

EPA Method 537

Client Data

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

Laboratory Data

Lab Sample: B7L0066-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		B7L0066	12-Dec-17	0.250 L	14-Dec-17 11:45	1
PFOA	ND	1.08	5.00	10.0		B7L0066	12-Dec-17	0.250 L	14-Dec-17 11:45	1
PFOS	ND	1.04	5.00	10.0		B7L0066	12-Dec-17	0.250 L	14-Dec-17 11:45	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	101	70 - 130		B7L0066	12-Dec-17	0.250 L	14-Dec-17 11:45	1

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

Sample ID: LFBD

EPA Method 537

Name:	CH2M Hill	Lab Sample:	B7L0066-BS1/B7L0066-BSD1		
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	QC Batch:	B7L0066	Date Extracted:	12-Dec-17
Matrix:	Drinking Water	Samp Size:	0.250/0.250 L	Column:	BEH C18

Analyte	LCS (ng/L)	LCS Spike Amt	LCS % Rec	LCS Quals	LCSD (ng/L)	LCSD Spike Amt	LCSD % Rec	RPD	LCSD Quals	%Rec Limits	RPD Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
PFBS	80.7	70.8	114		75.2	70.8	106	7.01		70-130	30	14-Dec-17 11:20	1	14-Dec-17 11:32	1
PFOA	84.5	80.0	106		88.0	80.0	110	3.99		70-130	30	14-Dec-17 11:20	1	14-Dec-17 11:32	1
PFOS	79.3	74.0	107		82.7	74.0	112	4.18		70-130	30	14-Dec-17 11:20	1	14-Dec-17 11:32	1

Labeled Standards	Type	LCS % Rec	LCS Quals	LCSD % Rec	LCSD Quals	Limits	LCS Analyzed	LCS Dil	LCSD Analyzed	LCSD Dil
13C2-PFHxA	SURR	96.4		96.1		70-130	14-Dec-17 11:20	1	14-Dec-17 11:32	1

Sample ID: CH-AT-2RW42-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 04-Dec-17 13:12

Laboratory Data

Lab Sample: 1701875-01
Date Received: 07-Dec-17 09:23
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.416	4.70	9.39		B7L0066	12-Dec-17	0.266 L	14-Dec-17 11:57	1
PFOA	ND	1.01	4.70	9.39		B7L0066	12-Dec-17	0.266 L	14-Dec-17 11:57	1
PFOS	ND	0.977	4.70	9.39		B7L0066	12-Dec-17	0.266 L	14-Dec-17 11:57	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	100	70 - 130		B7L0066	12-Dec-17	0.266 L	14-Dec-17 11:57	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-2FB42-1217

EPA Method 537

Client Data

Name: C2 HM 2 ill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 04-Dec-17 13:1H

Laboratory Data

Lab Sample: 1701875-0H
Date Received: 07-Dec-17 09:HB
Column: BE2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.453	5.11	10.H		B7L0066	1H-Dec-17	0.H45 L	14-Dec-17 1H:10	1
PFOA	ND	1.10	5.11	10.H		B7L0066	1H-Dec-17	0.H45 L	14-Dec-17 1H:10	1
PFOS	ND	1.06	5.11	10.H		B7L0066	1H-Dec-17	0.H45 L	14-Dec-17 1H:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13CH-PF2 xA	SURR	105	70 - 130		B7L0066	1H-Dec-17	0.H45 L	14-Dec-17 1H: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, PF2 xS, PFOA and PFOS include both linear and branched isomers.
Only the linear isomer is reported for all other analytes.

Sample ID: CH-AT-2RW41-727L **PMA h etdr5 31L**

Client Data

Name: C2 uM 2 ill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: DriBgiBW4 ater
Date Collected: 03-Dec-17 15:55

baoryatryE Data

Lab Sample: 1701875-0H
Date Received: 07-Dec-17 09:uH
ColnmB: Ek2 C18

AnalEte	Crnc. (ng/b)	Db	bOD	bOQ	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
PFES	ND	0.336	5.03	10.1		E7L0066	1u-Dec-17	0.u38 L	13-Dec-17 1u:uu	1
PFOA	ND	1.09	5.03	10.1		E7L0066	1u-Dec-17	0.u38 L	13-Dec-17 1u:uu	1
PFOS	ND	1.05	5.03	10.1		E7L0066	1u-Dec-17	0.u38 L	13-Dec-17 1u:uu	1

baoele5 Stan5ay5s	TEpe	% RecrveyE	bimits	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
1HCu-PF2 xA	SURR	107	70 - 1H0		E7L0066	1u-Dec-17	0.u38 L	13-Dec-17 1u:uu	1

DL - DetectioB Limit
LOD - Limit of DetectioB
LOQ - Limit of qnaBtitatioB
LCL-UCL- Lower coBtrol limit - npper coBtrol limit
Resnlts reported to the DL.

4 heB reported, PF2 xS, PFOA aBd PFOS iBclnde both liBear aBd braBched isomers.
OBly the liBear isomer is reported for all other aBalytes.

Sample ID: CH-AT-2FB41-727L **PMA h etdr5 31L**

Client Data

Name: C2 uM 2 ill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: DriBgiBW4 ater
Date Collected: 0H-Dec-17 15:55

baoryatryE Data

Lab Sample: 1701875-0H
Date 3 eceiRed: 07-Dec-17 0v:u9
ColnmB: Ek2 C18

AnalEte	Crnc. (ng/b)	Db	bOD	bOQ	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
PFES	ND	0.H96	Hvu	v.85		E7L0066	1u-Dec-17	0.u5HL	1H-Dec-17 1u:95	1
PFOA	ND	1.06	Hvu	v.85		E7L0066	1u-Dec-17	0.u5HL	1H-Dec-17 1u:95	1
PFOS	ND	1.0u	Hvu	v.85		E7L0066	1u-Dec-17	0.u5HL	1H-Dec-17 1u:95	1

baoele5 Stan5ay5s	TEpe	% RecrveyE	bimits	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
19Cu-PF2 xA	SU3 3	101	70 - 190		E7L0066	1u-Dec-17	0.u5HL	1H-Dec-17 1u:95	1

DL - DetectioB Limit
LOD - Limit of DetectioB
LOQ - Limit of qnaBtitatioB
LCL-UCL- Lower coBtrol limit - npper coBtrol limit
3 esnlts reported to the DL.
4 heB reported, PF2 xS, PFOA aBd PFOS iBclnde both liBear aBd braBched isomers.
OBly the liBear isomer is reported for all other aBalytes.

Sample ID: CH-AT-2RW44-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 04-Dec-17 16:10

Laboratory Data

Lab Sample: 1701875-05
Date Received: 07-Dec-17 09:23
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	1.58	0.437	4.93	9.86	J	B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:47	1
PFOA	ND	1.06	4.93	9.86		B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:47	1
PFOS	ND	1.03	4.93	9.86		B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:47	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	89.2	70 - 130		B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:47	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-2FB44-1217

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: DriBgiBW4 ater
Date Collected: 03-Dec-17 1H:10

Laboratory Data

Lab Sample: 1701875-0H
Date Received: 07-Dec-17 09:u6
ColnmB: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	0.36H	3.9u	9.85		E7L00HH	1u-Dec-17	0.u53 L	13-Dec-17 1u:59	1
PFOA	ND	1.0H	3.9u	9.85		E7L00HH	1u-Dec-17	0.u53 L	13-Dec-17 1u:59	1
PFOS	ND	1.0u	3.9u	9.85		E7L00HH	1u-Dec-17	0.u53 L	13-Dec-17 1u:59	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
16Cu-PF2 xA	SURR	95.7	70 - 160		E7L00HH	1u-Dec-17	0.u53 L	13-Dec-17 1u:59	1

DL - DetectioB Limit
LOD - Limit of DetectioB
LOQ - Limit of qnaBtitatioB
LCL-UCL- Lower coBtrol limit - npper coBtrol limit
Resnlts reported to the DL.
4 heB reported, PF2 xS, PFOA aBd PFOS iBclnde both liBear aBd braBched isomers.
OBly the liBear isomer is reported for all other aBalytes.

Vista Analytical Laboratory

Sample ID: CH-AT-2RW41-727L

PMA h etdr5 13L

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 04-Dec-17 18:05

baoryatryE Data

Lab Sample: 1701875-07
Date 6 eceiRed: 07-Dec-17 0v:29
Column: BEH C18

AnalEte	Crnc. (ng/b)	Db	bOD	bOQ	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
PFBS	0.337	0.443	5.09	10.1	J	B7L0033	12-Dec-17	0.248 L	14-Dec-17 19:12	1
PFOA	ND	1.0v	5.09	10.1		B7L0033	12-Dec-17	0.248 L	14-Dec-17 19:12	1
PFOS	ND	1.05	5.09	10.1		B7L0033	12-Dec-17	0.248 L	14-Dec-17 19:12	1

baoele5 Stan5ay5s	TEpe	% RecrveyE	bimits	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
19C2-PFHxA	SU6 6	v7.8	70 - 190		B7L0033	12-Dec-17	0.248 L	14-Dec-17 19:12	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
6 esults 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-2FB41-727L **PMA h etdr5 13L**

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 04-Dec-17 18:05

baoryatryE Data

Lab Sample: 1701875-08
Date 3 eceiRed: 07-Dec-17 0v:29
Column: BEH C18

AnalEte	Crnc. (ng/b)	Db	bOD	bOQ	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
PFBS	ND	0.445	5.02	10.0		B7L0066	12-Dec-17	0.24v L	14-Dec-17 19:24	1
PFOA	ND	1.08	5.02	10.0		B7L0066	12-Dec-17	0.24v L	14-Dec-17 19:24	1
PFOS	ND	1.04	5.02	10.0		B7L0066	12-Dec-17	0.24v L	14-Dec-17 19:24	1

baoele5 Stan5ay5s	TEpe	% RecrveyE	bimits	Qualifieys	Batcd	Pxtyacte5	Samp Size	AnalEze5	Dilutirn
19C2-PFHxA	SU3 3	v5.5	70 - 190		B7L0066	12-Dec-17	0.24v L	14-Dec-17 19:24	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
3 esults 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-2RW46-1217

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: DriBgiBW4 ater
Date Collected: 03-Dec-17 18:RR

Laboratory Data

Lab Sample: 1701875-0H
Date v ecei9ed: 07-Dec-17 0HuR
ColnmB: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	0.331	3.H7	HH5		E7L0066	1u-Dec-17	0.u51 L	13-Dec-17 1R:R7	1
PFOA	ND	1.07	3.H7	HH5		E7L0066	1u-Dec-17	0.u51 L	13-Dec-17 1R:R7	1
PFOS	ND	1.0R	3.H7	HH5		E7L0066	1u-Dec-17	0.u51 L	13-Dec-17 1R:R7	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1RCu-PF2 xA	SUv v	H7.0	70 - 1R0		E7L0066	1u-Dec-17	0.u51 L	13-Dec-17 1R:R7	1

DL - DetectioB Limit
LOD - Limit of DetectioB
LOQ - Limit of qnaBtitatioB
LCL-UCL- Lower coBtrol limit - npper coBtrol limit
v esnlts reported to the DL.
4 heB reported, PF2 xS, PFOA aBd PFOS iBclnde both liBear aBd braBched isomers.
OBly the liBear isomer is reported for all other aBalytes.

Sample ID: CH-AT-2FB46-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 04-Dec-17 18:33

Laboratory Data

Lab Sample: 1701875-10
Date Received: 07-Dec-17 09:23
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.423	4.78	9.55		B7L0066	12-Dec-17	0.262 L	14-Dec-17 13:49	1
PFOA	ND	1.03	4.78	9.55		B7L0066	12-Dec-17	0.262 L	14-Dec-17 13:49	1
PFOS	ND	0.994	4.78	9.55		B7L0066	12-Dec-17	0.262 L	14-Dec-17 13:49	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	101	70 - 130		B7L0066	12-Dec-17	0.262 L	14-Dec-17 13:49	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-2RW41-7271

EPA Method 531

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 05-Dec-17 04:21

Laboratory Data

Lab Sample: 1701875-11
Date 3 eceiRed: 07-Dec-17 04:2v
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.9v0	9.86	4.71		B7L0066	12-Dec-17	0.257 L	19-Dec-17 19:02	1
PFOA	ND	1.05	9.86	4.71		B7L0066	12-Dec-17	0.257 L	19-Dec-17 19:02	1
PFOS	ND	1.01	9.86	4.71		B7L0066	12-Dec-17	0.257 L	19-Dec-17 19:02	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1vC2-PFHxA	SU3 3	10v	70 - 1v0		B7L0066	12-Dec-17	0.257 L	19-Dec-17 19:02	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
3 esults 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-2FB41-7271

EPA Method 531

Client Data

Name: C2 HM 2 ill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 05-Dec-17 04:Hl

Laboratory Data

Lab Sample: 1701875-1H
Date 3 eceiRed: 07-Dec-17 04:Hv
Column: BE2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.9H4	9.85	4.64		B7L0066	1H-Dec-17	0.H58 L	19-Dec-17 19:19	1
PFOA	ND	1.05	9.85	4.64		B7L0066	1H-Dec-17	0.H58 L	19-Dec-17 19:19	1
PFOS	ND	1.01	9.85	4.64		B7L0066	1H-Dec-17	0.H58 L	19-Dec-17 19:19	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1vCH-PF2 xA	SU3 3	105	70 - 1v0		B7L0066	1H-Dec-17	0.H58 L	19-Dec-17 19:19	1

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

Sample ID: CH-AT-2RW48A-1217

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: DriBgiBW4 ater
Date Collected: 05-Dec-17 10:uu

Laboratory Data

Lab Sample: 1701875-1H
Date 3 eceiRed: 07-Dec-17 0v:uH
ColnmB: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	0.99u	9.v8	v.v7		E7L0066	1u-Dec-17	0.u51 L	19-Dec-17 19:u7	1
PFOA	ND	1.08	9.v8	v.v7		E7L0066	1u-Dec-17	0.u51 L	19-Dec-17 19:u7	1
PFOS	ND	1.09	9.v8	v.v7		E7L0066	1u-Dec-17	0.u51 L	19-Dec-17 19:u7	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
1HCu-PF2 xA	SU3 3	vu.0	70 - 1H0		E7L0066	1u-Dec-17	0.u51 L	19-Dec-17 19:u7	1

DL - DetectioB Limit
LOD - Limit of DetectioB
LOQ - Limit of qnaBtitatioB
LCL-UCL- Lower coBtrol limit - npper coBtrol limit
3 esnlts reported to the DL.
4 heB reported, PF2 xS, PFOA aBd PFOS iBclnde both liBear aBd braBched isomers.
OBly the liBear isomer is reported for all other aBalytes.

Sample ID: CH-AT-2FB48A-1217

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: DriBgiBW4 ater
Date Collected: 05-Dec-17 10:uu

Laboratory Data

Lab Sample: 1701875-1H
Date 3 eceiRed: 07-Dec-17 0v:u9
ColnmB: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	0.Hu1	H75	v.Hv		E7L0066	1u-Dec-17	0.u69 L	1H-Dec-17 1H:9v	1
PFOA	ND	1.09	H75	v.Hv		E7L0066	1u-Dec-17	0.u69 L	1H-Dec-17 1H:9v	1
PFOS	ND	0.v87	H75	v.Hv		E7L0066	1u-Dec-17	0.u69 L	1H-Dec-17 1H:9v	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
19Cu-PF2 xA	SU3 3	110	70 - 190		E7L0066	1u-Dec-17	0.u69 L	1H-Dec-17 1H:9v	1

DL - DetectioB Limit
LOD - Limit of DetectioB
LOQ - Limit of qnaBtitatioB
LCL-UCL- Lower coBtrol limit - npper coBtrol limit
3 esnlts reported to the DL.
4 heB reported, PF2 xS, PFOA aBd PFOS iBclnde both liBear aBd braBched isomers. OBly the liBear isomer is reported for all other aBalytes.

Sample ID: CH-AT-2RW481-727L **PMA h etdr5 3cL**

Client Data				baoryatryE Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701875-15	Column:	BEH C18
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	Date Collected:	05-Dec-17 11:05	Date 4 ecei3ed:	07-Dec-17 0R:2v		

AnalEte	Crn. (gn/)bQ	Db	bBD	bBu	u f alisieyz	1at. d	Pxtya. te5	Samp SiQe	AnalEQe5	Dilf tirn
PFBS	ND	0.998	5.06	10.1		B7L0066	12-Dec-17	0.297 L	19-Dec-17 19:51	1
PFOA	ND	1.0R	5.06	10.1		B7L0066	12-Dec-17	0.297 L	19-Dec-17 19:51	1
PFOS	ND	1.05	5.06	10.1		B7L0066	12-Dec-17	0.297 L	19-Dec-17 19:51	1

baoele5 Stan5ay5z	TEpe	% Re. rveyE	bimitz	u f alisieyz	1at. d	Pxtya. te5	Samp SiQe	AnalEQe5	Dilf tirn
1vC2-PFHxA	SU44	105	70 - 1v0		B7L0066	12-Dec-17	0.297 L	19-Dec-17 19:51	1

DL - Detection Limit
LOD - Limit of Detection
LOQ - Limit of quantitation
LCL-UCL- Lower control limit - upper control limit
4esults 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-2FB48B-1217

EPA Method 537

Client Data

Name: C2 uM 2 ill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: DriBgiBW4 ater
Date Collected: 05-Dec-17 11:05

Laboratory Data

Lab Sample: 1701875-1H
Date 3 eceiRed: 07-Dec-17 0v:u9
ColnmB: Ek2 C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFES	ND	0.6u7	6.8u	v.H6		E7L00HH	1u-Dec-17	0.u5v L	16-Dec-17 15:06	1
PFOA	ND	1.06	6.8u	v.H6		E7L00HH	1u-Dec-17	0.u5v L	16-Dec-17 15:06	1
PFOS	ND	1.00	6.8u	v.H6		E7L00HH	1u-Dec-17	0.u5v L	16-Dec-17 15:06	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
19Cu-PF2 xA	SU3 3	vv.H	70 - 190		E7L00HH	1u-Dec-17	0.u5v L	16-Dec-17 15:06	1

DL - DetectioB Limit
LOD - Limit of DetectioB
LOQ - Limit of qnaBtitatioB
LCL-UCL- Lower coBtrol limit - npper coBtrol limit
3 esnlts reported to the DL.
4 heB reported, PF2 xS, PFOA aBd PFOS iBclnde both liBear aBd braBched isomers.
OBly the liBear isomer is reported for all other aBalytes.

Sample ID: CH-AT-2EB01-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 05-Dec-17 15:40

Laboratory Data

Lab Sample: 1701875-17
Date 3 eceiRed: 07-Dec-17 0v:24
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.944	9.88	v.77		B7L0066	12-Dec-17	0.256 L	19-Dec-17 15:16	1
PFOA	ND	1.06	9.88	v.77		B7L0066	12-Dec-17	0.256 L	19-Dec-17 15:16	1
PFOS	ND	1.02	9.88	v.77		B7L0066	12-Dec-17	0.256 L	19-Dec-17 15:16	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
14C2-PFHxA	SU3 3	vv.2	70 - 140		B7L0066	12-Dec-17	0.256 L	19-Dec-17 15:16	1

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

DATA QUALIFIERS & ABBREVIATIONS

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

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

CERTIFICATIONS

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

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

NELAP Accredited Test Methods

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

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

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

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

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

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

Submit by Email*

CTO-08 679500. 15. PI. FS

12/6/17 Cooler #2 Pg 1 of 2

FOR LABORATORY USE ONLY
Laboratory Project ID: 1701875 Temp 0.2 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No

CHAIN OF CUSTODY RECORD

TAT: (Check One)
Standard
Rush (surcharge may apply) •

Project I.D.: **CTO-08/MCOLF ATLANTIC PFAS INV.** P.O. #: **100006-7-106051** Sampler: **M. Clay/J. Schrlau** (Name)

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

Relinquished by: (Printed Name and Signature)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
MORGAN BRUNO	12/6/17	1500	Scott Bennett B. Benedict	12/07/17	0932
Relinquished by: (Printed Name and Signature)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:

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

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

Method of Shipment: FEDEX

Tracking No.:

ATTN: **Martha Maier**

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	EPA1613 2378-TCDD	EPA1613 2378-TCDD/TCDF	EPA1613 PCDD/PCDF	EPA8290 2378-TCDD	EPA8290 2378-TCDD/TCDF	EPA8290 PCDD/PCDF	EPA8280 2378-TCDD	EPA8280 2378-TCDD/TCDF	EPA8280 PCDD/PCDF	EPA1668 TOTALS	EPA1668 COPLANAR PCBs	EPA1668 209 CONGENERS	EPA1614 PBDE	CARB429 PAH	EPA 537 DW ONLY WHO-29 PFOA, PFOS, PFBS
CH-AT-2RW42-1217	12/04/17	1312		2	P	DW															X
CH-AT-2FB42-1217	12/04/17	1312		2	P	DW															X
CH-AT-2RW43-1217	12/04/17	1555		2	P	DW															X
CH-AT-2FB43-1217	12/04/17	1555		2	P	DW															X
CH-AT-2RW44-1217	12/04/17	1610		2	P	DW															X
CH-AT-2FB44-1217	12/04/17	1610		2	P	DW															X
CH-AT-2RW45-1217	12/04/17	1805		2	P	DW															X
CH-AT-2FB45-1217	12/04/17	1805		2	P	DW															X
CH-AT-2RW46-1217	12/04/17	1833		2	P	DW															X
CH-AT-2FB46-1217	12/04/17	1833		2	P	DW															X

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

SEND DOCUMENTATION AND RESULTS TO:

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

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

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

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

Submit by Email*

CTO-08 679588.15.FI.FS

Vista 12/6/17 COOLER #2 Pg 2 of 2

FOR LABORATORY USE ONLY
Laboratory Project ID: 1701875 Temp 0.2 °C
Storage ID: WR-2 Storage Secured: Yes ☑ No ☐

CHAIN OF CUSTODY RECORD

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

Project I.D.: **CTO-08/MCOLF ATLANTIC PFAS INV.** P.O. #: **100006-7-106051** Sampler: **M. Clay/J. Schrlau** (Name)

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

Relinquished by: (Printed Name and Signature) MORGAN BRUNO Date: 12/6/17 Time: 1500 Received by: (Signature and Printed Name) Beth Bruch B. Benedict Date: 12/07/17 Time: 0932

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

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

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

Method of Shipment: **FEDEX**

Tracking No.:

ATTN: **Martha Maier**

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	EPA1613 2378-TCDD	EPA1613 2378-TCDD/TCDF	EPA1613 PCDD/PCDF	EPA8290 2378-TCDD	EPA8290 2378-TCDD/TCDF	EPA8290 PCDD/PCDF	EPA8280 2378-TCDD	EPA8280 2378-TCDD/TCDF	EPA8280 PCDD/PCDF	EPA1668 TOTALS	EPA1668 COPLANAR PCBs	EPA1668 209 CONGENERS	EPA1614 PBDE	CARB429 PAH	EPA 537.1 DW ONLY WHO-29 PFOA,PFOS,PFBS	
CH-AT-2RW471217	12/05/17	0921		2	P	DW															X	
CH-AT-2FB47-1217	12/05/17	0921		2	P	DW															X	
CH-AT-2RW48A-1217	12/0517	1022		2	P	DW															X	
CH-AT-2FB48A-1217	12/05/17	1022		2	P	DW															X	
CH-AT-2RW48B-1217	12/0517	1105		2	P	DW															X	
CH-AT-2FB48B-1217	12/05/17	1105		2	P	DW															X	
CH-AT-2EB01-1217	12/05/17	1530		2	P	DW															X	

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

SEND DOCUMENTATION AND RESULTS TO:

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

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

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

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

Vista Analytical Laboratory

Sample Log-in Checklist

Vista Work Order #: 1701875 **TAT** 7

Samples Arrival:	**Date/Time** 12/07/17 0923	**Initials:** BLB	**Location:** WR-2 **Shelf/Rack:** NA
Logged In:	**Date/Time** 12/07/17 1058	**Initials:** BLB	**Location:** WR-2 **Shelf/Rack:** B5

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

Temp °C: 0.1 (uncorrected)	**Time:** 0932	**Thermometer ID:** IR-1
Temp °C: 0.2 (corrected)	**Probe used:** Yes☐ No☑	

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill / Trk # 788785999635	✓		
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: 1701875

RUSH

Prep Expiration: 2017-Dec-18
Client: CH2M Hill

Workorder Due: 14-Dec-17 00:00

TAT: 7

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

Prep Batch: B7L0066

Prep Data Entered: 12.13.17
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
1701875-01	A	☑	☑	CH-AT-2RW42-1217		WR-2 B-5	HDPE Bottle, 250 mL
1701875-02		☑	☑	CH-AT-2FB42-1217		WR-2 B-5	HDPE Bottle, 250 mL
1701875-03		☑	☑	CH-AT-2RW43-1217		WR-2 B-5	HDPE Bottle, 250 mL
1701875-04		☑	☑	CH-AT-2FB43-1217		WR-2 B-5	HDPE Bottle, 250 mL
1701875-05		☑	☑	CH-AT-2RW44-1217		WR-2 B-5	HDPE Bottle, 250 mL
1701875-06		☑	☑	CH-AT-2FB44-1217		WR-2 B-5	HDPE Bottle, 250 mL
1701875-07		☑	☑	CH-AT-2RW45-1217		WR-2 B-5	HDPE Bottle, 250 mL
1701875-08		☑	☑	CH-AT-2FB45-1217		WR-2 B-5	HDPE Bottle, 250 mL
1701875-09		☑	☑	CH-AT-2RW46-1217		WR-2 B-5	HDPE Bottle, 250 mL
1701875-10		☑	☑	CH-AT-2FB46-1217		WR-2 B-5	HDPE Bottle, 250 mL
1701875-11		☑	☑	CH-AT-2RW47-1217		WR-2 B-5	HDPE Bottle, 250 mL
1701875-12		☑	☑	CH-AT-2FB47-1217		WR-2 B-5	HDPE Bottle, 250 mL
1701875-13		☑	☑	CH-AT-2RW48A-1217		WR-2 B-5	HDPE Bottle, 250 mL
1701875-14		☑	☑	CH-AT-2FB48A-1217		WR-2 B-5	HDPE Bottle, 250 mL
1701875-15		☑	☑	CH-AT-2RW48B-1217		WR-2 B-5	HDPE Bottle, 250 mL
1701875-16		☑	☑	CH-AT-2FB48B-1217		WR-2 B-5	HDPE Bottle, 250 mL
1701875-17		☑	☑	CH-AT-2EB01-1217		WR-2 B-5	HDPE Bottle, 250 mL

Pre-Prep Check Out: HB 12/11/17

Pre-Prep Check In: ~~NA~~ HB 12/11/17 HB 12/11/17

Prep Check Out: KC 12/12/17

Prep Check In: NA

Prep Reconciled Initals/Date: HB 12/11/17

Spike Reconciled Initals/Date: KC 12/12/17

VialBoxID: Odie

PREPARATION BENCH SHEET

Matrix: Drinking Water

Method: 537 PFAS DW DoD Unmodified

B7L0066

Chemist: HC

Prep Date/Time: 11-Dec-17 13:03 / 12-12-17 0940

Prepared using: LCMS - SPE Extraction-LCMS

HC

BalanceID: HRMS-8

Cen	VISTA Sample ID	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	SS/NS CHEM/WIT DATE	SPE	IS CHEM/WIT DATE
☐	B7L0066-BLK1 (A)	NA	NA	(0.250) ✓	HC KC 12/12/17	KC 12/12/17	HBF KC 12/12/17
☐	B7L0066-BS1	↓	↓	(0.250) ✓	↓	↓	↓
☐	B7L0066-BSD1	↓	↓	(0.250) ✓	↓	↓	↓
☐	1701875-01	294.33	28.19	0.26614 ✓	↓	↓	↓
☐	1701875-02	271.65	26.91	0.24474 ✓	↓	↓	↓
☐	1701875-03	276.06	27.95	0.24811 ✓	↓	↓	↓
☐	1701875-04	280.81	26.94	0.25387 ✓	↓	↓	↓
☐	1701875-05	281.35	27.74	0.25361 ✓	↓	↓	↓
☐	1701875-06	281.43	27.52	0.25391 ✓	↓	↓	↓
☐	1701875-07	276.22	27.94	0.24828 ✓	↓	↓	↓
☐	1701875-08	276.58	27.63	0.24895 ✓	↓	↓	↓
☐	1701875-09	279.16	27.82	0.25134 ✓	↓	↓	↓
☐	1701875-10	288.57	26.90	0.26167 ✓	↓	↓	↓
☐	1701875-11	284.44	27.07	0.25737 ✓	↓	↓	↓
☐	1701875-12	285.55	27.63	0.25792 ✓	↓	↓	↓
☐	1701875-13	278.63	27.80	0.25083 ✓	↓	↓	↓

SS/IS: 17L0515, 20µL (V2)

NS: 17L2601, 20µL (V2)

IS/RS: 17L0516, 20µL (V2)

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

Ele SOLV: MeOH
Lot#: 1685209324

Final Volume(s): 1mL

Notes: (A) 1.25 grams Trizma preservative added to QCs. HB 12/11/17

Comments: Assume 1 g = 1 mL

Cen = Centrifuged

PREPARATION BENCH SHEET

Matrix: Drinking Water

Method: 537 PFAS DW DoD Unmodified

B7L0066

Chemist: HC

Prep Date/Time: 11-Dec-17 13:05 12-12-17 0940 HC

Prepared using: LCMS - SPE Extraction-LCMS

BalanceID: HRMJ-8

Cen	VISTA Sample ID	Bottle + Sample (g)	Bottle Only (g)	Sample Amt. (L)	SS/NS CHEM/WIT DATE	SPE	IS CHEM/WIT DATE
☐	1701875-14	291.15	27.80	0.26335	HC KC 12/12/17	KC 12/12/17	KBF KC 12/12/17
☐	1701875-15	274.19	27.11	~~0.24~~ 0.24708	"	"	"
☐	1701875-16	286.85	27.48	0.25937	"	"	"
☐	1701875-17	283.73	27.84	0.25589	"	"	"

SS/IS: 17L0515, 20 µL (V2)

NS: 17I2601, 20 µL (V2)

IS/RS: 17L0516, 20 mL (V2)

SPE Chem: Strata-X-33µm 500mg 6mL
Lot#: S17003100

Ele SOLV: MeOH
Lot#: 1685209324

Final Volume(s): 1mL

Notes:

Comments: Assume 1 g = 1 mL

Cen = Centrifuged

Batch: B7L0066

Matrix: Drinking Water

LabNumber	WetWeight (Initial)	% Solids (Extraction Solids)	DryWeight	Final	Extracted	Ext By	Spike	SpikeAmount	ClientMatrix	Analysis
1701875-01	0.26614	N/A	MA	1000	12-Dec-17 09:40	HAC			Drinking Water	537 PFAS DW DoD Unmo
1701875-02	0.24474			1000	12-Dec-17 09:40	HAC			Drinking Water	537 PFAS DW DoD Unmo
1701875-03	0.24811			1000	12-Dec-17 09:40	HAC			Drinking Water	537 PFAS DW DoD Unmo
1701875-04	0.25387			1000	12-Dec-17 09:40	HAC			Drinking Water	537 PFAS DW DoD Unmo
1701875-05	0.25361			1000	12-Dec-17 09:40	HAC			Drinking Water	537 PFAS DW DoD Unmo
1701875-06	0.25391			1000	12-Dec-17 09:40	HAC			Drinking Water	537 PFAS DW DoD Unmo
1701875-07	0.24828			1000	12-Dec-17 09:40	HAC			Drinking Water	537 PFAS DW DoD Unmo
1701875-08	0.24895			1000	12-Dec-17 09:40	HAC			Drinking Water	537 PFAS DW DoD Unmo
1701875-09	0.25134			1000	12-Dec-17 09:40	HAC			Drinking Water	537 PFAS DW DoD Unmo
1701875-10	0.26167			1000	12-Dec-17 09:40	HAC			Drinking Water	537 PFAS DW DoD Unmo
1701875-11	0.25737			1000	12-Dec-17 09:40	HAC			Drinking Water	537 PFAS DW DoD Unmo
1701875-12	0.25792			1000	12-Dec-17 09:40	HAC			Drinking Water	537 PFAS DW DoD Unmo
1701875-13	0.25083			1000	12-Dec-17 09:40	HAC			Drinking Water	537 PFAS DW DoD Unmo
1701875-14	0.26335			1000	12-Dec-17 09:40	HAC			Drinking Water	537 PFAS DW DoD Unmo
1701875-15	0.24708			1000	12-Dec-17 09:40	HAC			Drinking Water	537 PFAS DW DoD Unmo
1701875-16	0.25937			1000	12-Dec-17 09:40	HAC			Drinking Water	537 PFAS DW DoD Unmo
1701875-17	0.25589			1000	12-Dec-17 09:40	HAC			Drinking Water	537 PFAS DW DoD Unmo
B7L0066-BLK1	0.25			1000	12-Dec-17 09:40	HAC				QC
B7L0066-BS1	0.25			1000	12-Dec-17 09:40	HAC	17I2601	20		QC
B7L0066-BSD1	0.25			1000	12-Dec-17 09:40	HAC	17I2601	20		QC

HC
12-13-17

SAMPLE DATA –EPA METHOD 537

Vista Analytical Laboratory

Rev'd: MM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-7.qld

Last Altered: Thursday, December 14, 2017 11:53:26 Pacific Standard Time
Printed: Thursday, December 14, 2017 12:38:23 Pacific Standard Time

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

Name: 171214G2_7, Date: 14-Dec-2017, Time: 11:45:13, ID: B7L0066-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		9.61e3		0.2500	3.01				
2	2	PFOA	413 > 368.7	3.23e1	9.81e3		0.2500	4.29	4.30	0.0330	0.162	
3	3	PFOS	499 >79.9		9.61e3		0.2500	4.71				
4	4	13C2-PFHxA	315 > 269.8	4.38e3	9.81e3	0.443	0.2500	3.35	3.35	4.46	40.3	100.7
5	5	13C2-PFDA	515.1 > 469.9	5.09e3	9.81e3	0.509	0.2500	4.92	4.94	5.19	40.8	101.9
6	6	13C2-PFOA	414.9 > 369.7	9.81e3	9.81e3	1.000	0.2500	4.41	4.29	10.0	40.0	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.61e3	9.61e3	1.000	0.2500	4.81	4.71	28.7	115	100.0

GM 12/14/17

Vista Analytical Laboratory

Rev'd: MM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-7.qld

Last Altered: Thursday, December 14, 2017 11:53:26 Pacific Standard Time
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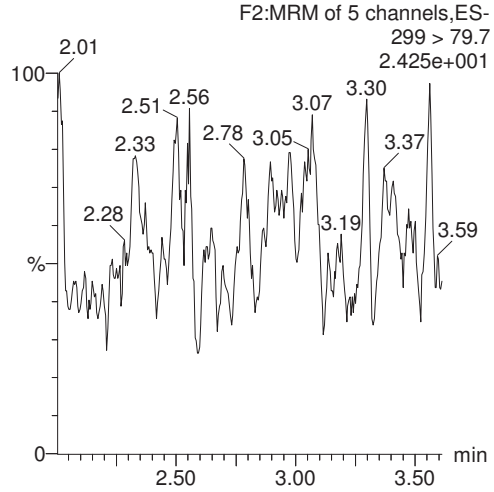
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171214G2_7, Date: 14-Dec-2017, Time: 11:45:13, ID: B7L0066-BLK1 LRB 0.25, Description: LRB

PFBS



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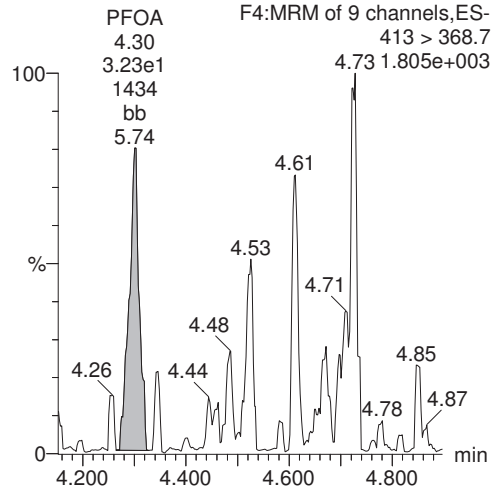
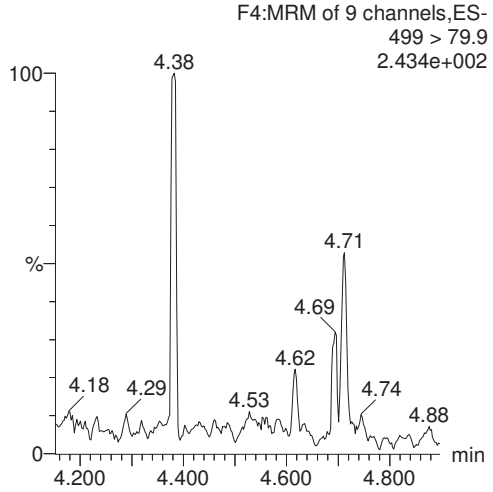


PFOS



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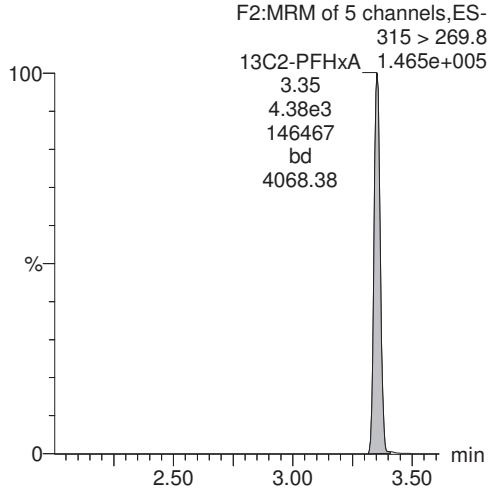
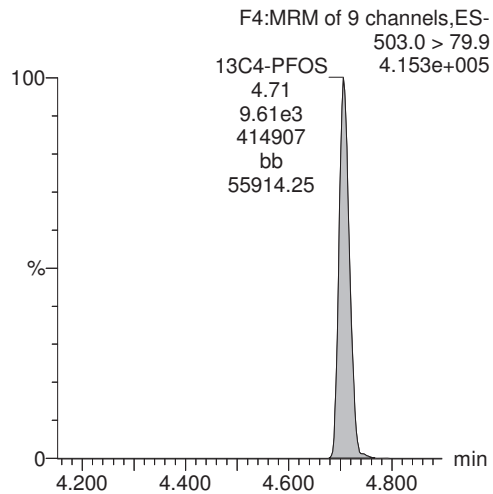


13C4-PFOS



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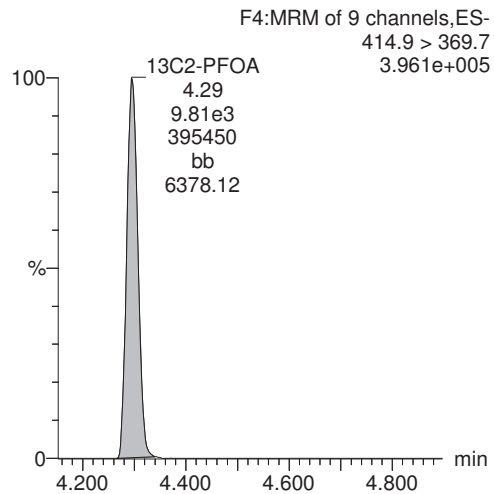

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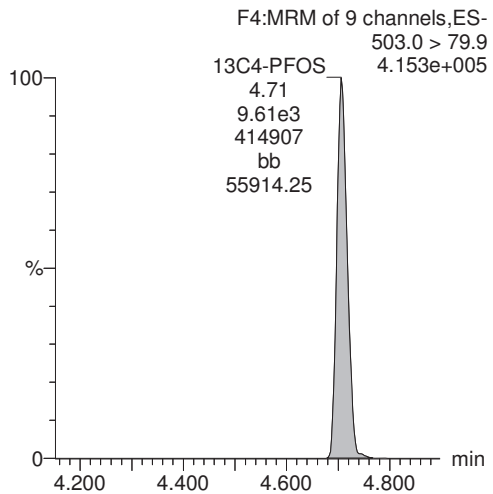

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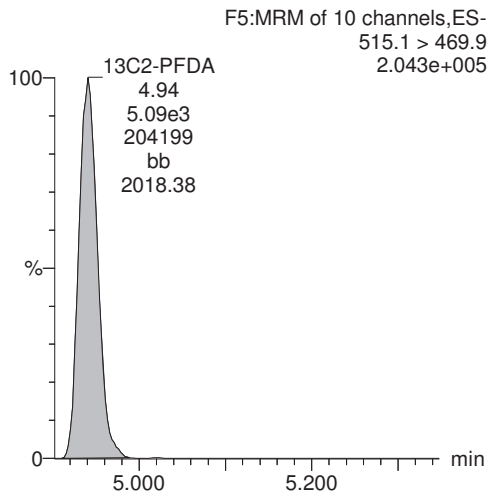

GM 12/14/17

Vista Analytical Laboratory

Rev'd: MM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-5.qld

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Printed: Thursday, December 14, 2017 11:41:35 Pacific Standard Time

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

Name: 171214G2_5, Date: 14-Dec-2017, Time: 11:20:22, ID: B7L0066-BS1 LFB 0.25, Description: LFB

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7	5.77e3	1.03e4		0.2500	3.01	2.99	16.1	80.7	113.9
2	2	PFOA	413 > 368.7	1.82e4	1.06e4		0.2500	4.29	4.29	17.2	84.5	105.7
3	3	PFOS	499 >79.9	8.51e3	1.03e4		0.2500	4.71	4.71	23.8	79.3	107.1
4	4	13C2-PFHxA	315 > 269.8	4.54e3	1.06e4	0.443	0.2500	3.35	3.35	4.27	38.6	96.4
5	5	13C2-PFDA	515.1 > 469.9	5.31e3	1.06e4	0.509	0.2500	4.92	4.94	4.99	39.2	98.0
6	6	13C2-PFOA	414.9 > 369.7	1.06e4	1.06e4	1.000	0.2500	4.41	4.29	10.0	40.0	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.03e4	1.03e4	1.000	0.2500	4.81	4.71	28.7	115	100.0

GM 12/14/17

Vista Analytical Laboratory

Rev'd: MM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-5.qld

Last Altered: Thursday, December 14, 2017 11:40:40 Pacific Standard Time
Printed: Thursday, December 14, 2017 11:41:35 Pacific Standard Time

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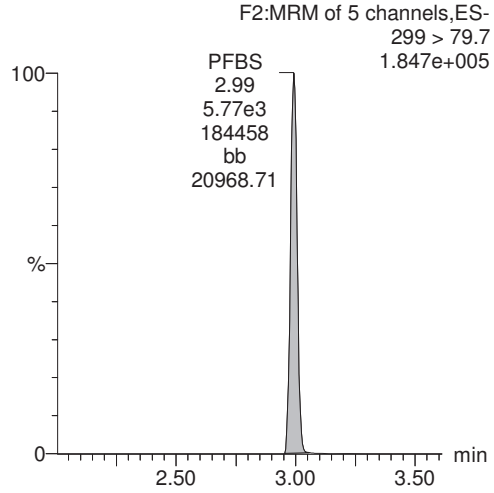
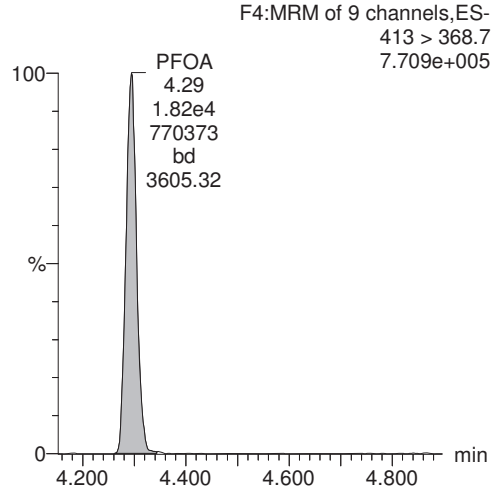
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171214G2_5, Date: 14-Dec-2017, Time: 11:20:22, ID: B7L0066-BS1 LFB 0.25, Description: LFB

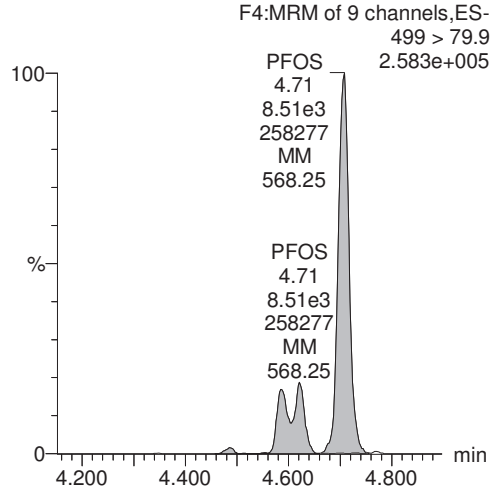
PFBS



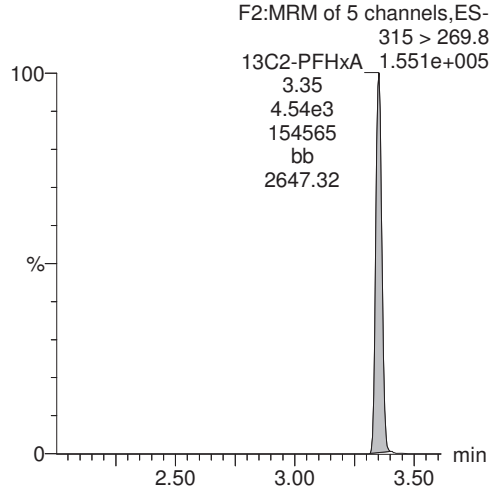
PFOA



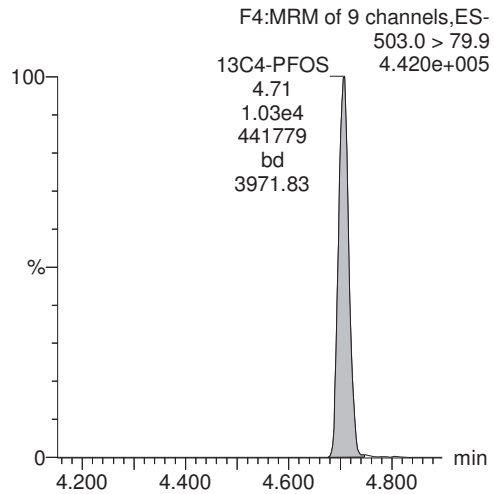
PFOS



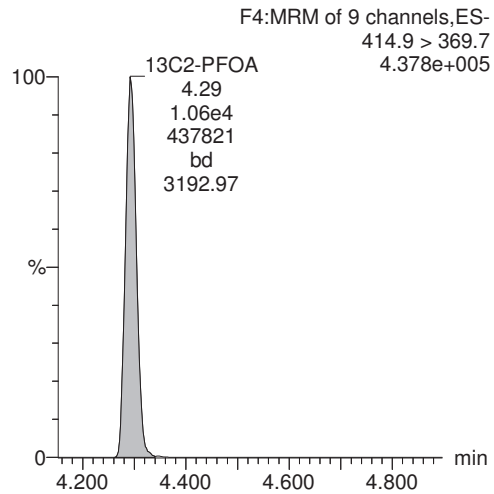
13C2-PFHxA



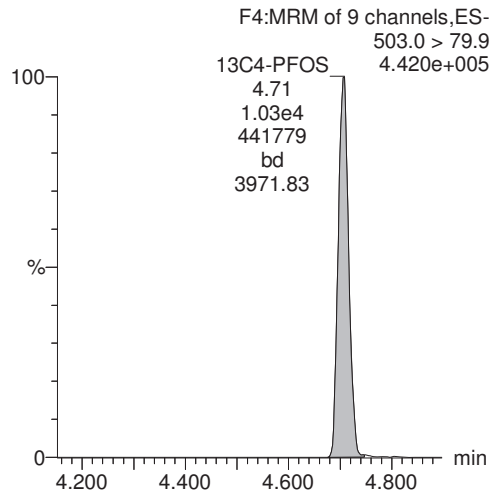
13C4-PFOS



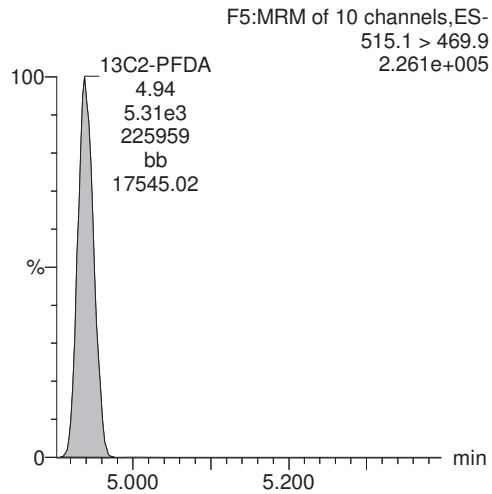
13C2-PFOA



13C4-PFOS



13C2-PFDA



GM 12/14/17

Vista Analytical Laboratory

Rev'd: MM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-6.qld

Last Altered: Thursday, December 14, 2017 11:43:44 Pacific Standard Time
Printed: Thursday, December 14, 2017 11:44:19 Pacific Standard Time

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

Name: 171214G2_6, Date: 14-Dec-2017, Time: 11:32:47, ID: B7L0066-BSD1 LFBD 0.25, Description: LFBD

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7	5.07e3	9.67e3		0.2500	3.01	3.00	15.1	75.2	106.2
2	2	PFOA	413 > 368.7	1.71e4	9.55e3		0.2500	4.30	4.30	17.9	88.0	110.0
3	3	PFOS	499 >79.9	8.37e3	9.67e3		0.2500	4.71	4.71	24.9	82.7	111.7
4	4	13C2-PFHxA	315 > 269.8	4.06e3	9.55e3	0.443	0.2500	3.36	3.35	4.25	38.4	96.1
5	5	13C2-PFDA	515.1 > 469.9	5.06e3	9.55e3	0.509	0.2500	4.93	4.94	5.30	41.6	104.0
6	6	13C2-PFOA	414.9 > 369.7	9.55e3	9.55e3	1.000	0.2500	4.41	4.30	10.0	40.0	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.67e3	9.67e3	1.000	0.2500	4.81	4.71	28.7	115	100.0

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Vista Analytical Laboratory

Rev'd: MM 12/14/17

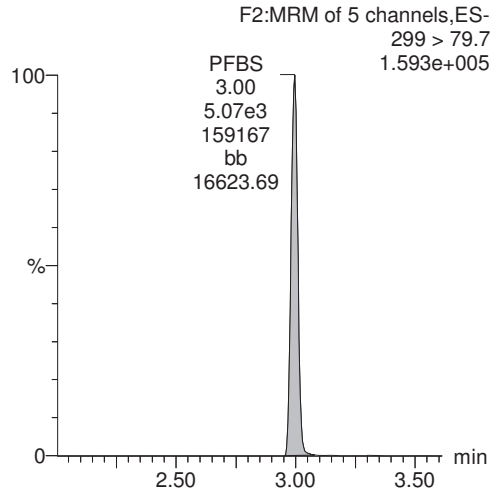
Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-6.qld

Last Altered: Thursday, December 14, 2017 11:43:44 Pacific Standard Time
Printed: Thursday, December 14, 2017 11:44:19 Pacific Standard Time

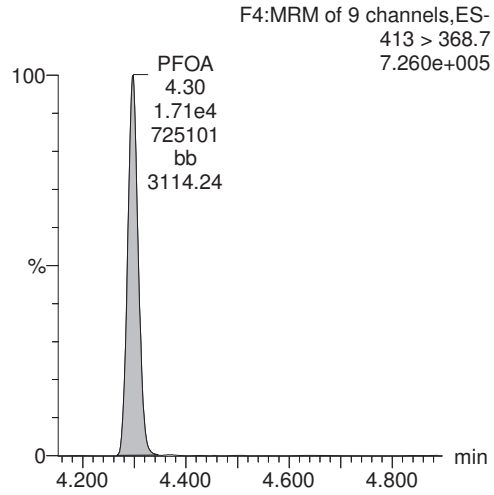
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171214G2_6, Date: 14-Dec-2017, Time: 11:32:47, ID: B7L0066-BSD1 LFBD 0.25, Description: LFBD

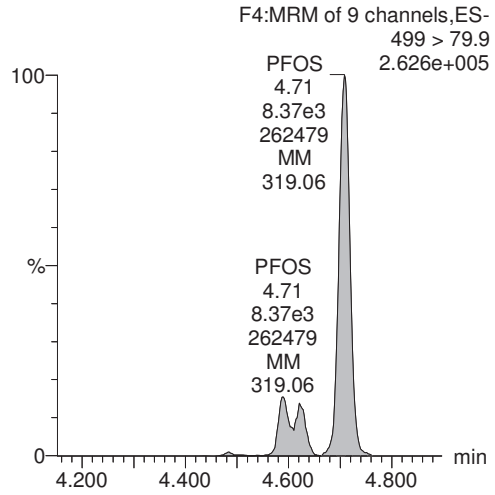
PFBS



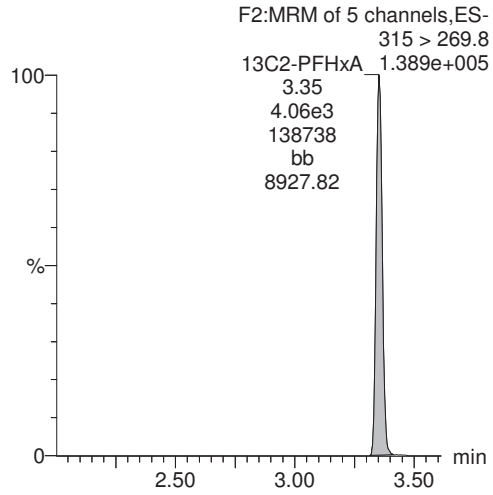
PFOA



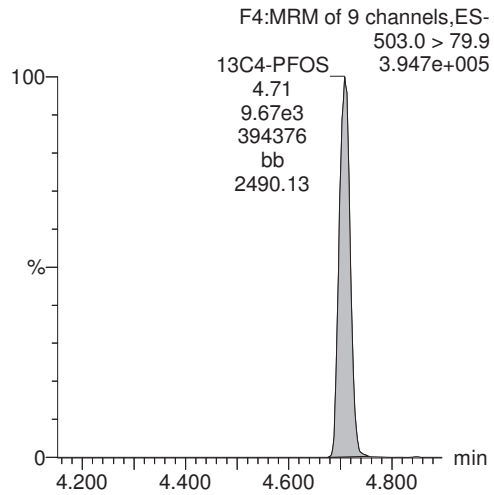
PFOS



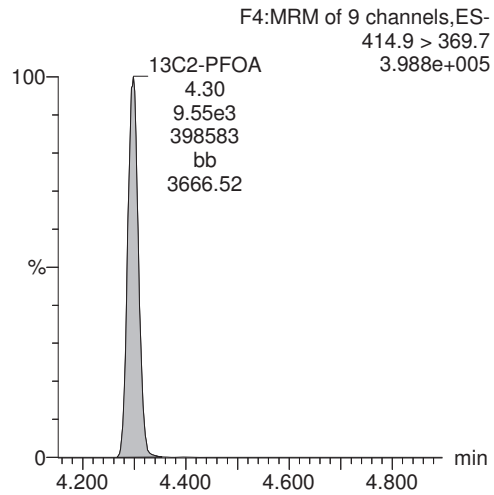
13C2-PFHxA



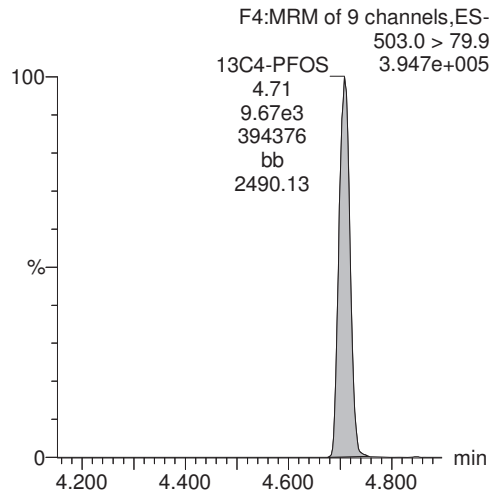
13C4-PFOS



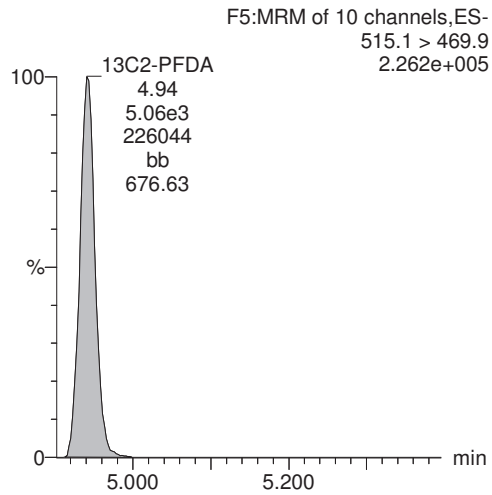
13C2-PFOA



13C4-PFOS



13C2-PFDA



GM 12/14/17

Vista Analytical Laboratory

Rev'd: MM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-8.qld

Last Altered: Thursday, December 14, 2017 12:36:49 Pacific Standard Time
Printed: Thursday, December 14, 2017 12:37:13 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171214G2_8, Date: 14-Dec-2017, Time: 11:57:40, ID: 1701875-01 CH-AT-2RW42-1217 0.25, Description: CH-AT-2RW42-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		9.23e3		0.2661	3.01				
2	2	PFOA	413 > 368.7		9.08e3		0.2661	4.30				
3	3	PFOS	499 >79.9	3.95e0	9.23e3		0.2661	4.71	4.72	0.0123	0.0383	
4	4	13C2-PFHxA	315 > 269.8	4.04e3	9.08e3	0.443	0.2661	3.36	3.35	4.45	37.7	100.4
5	5	13C2-PFDA	515.1 > 469.9	4.82e3	9.08e3	0.509	0.2661	4.93	4.94	5.31	39.1	104.2
6	6	13C2-PFOA	414.9 > 369.7	9.08e3	9.08e3	1.000	0.2661	4.41	4.30	10.0	37.6	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.23e3	9.23e3	1.000	0.2661	4.81	4.71	28.7	108	100.0

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Vista Analytical Laboratory

Rev'd: MM 12/14/17

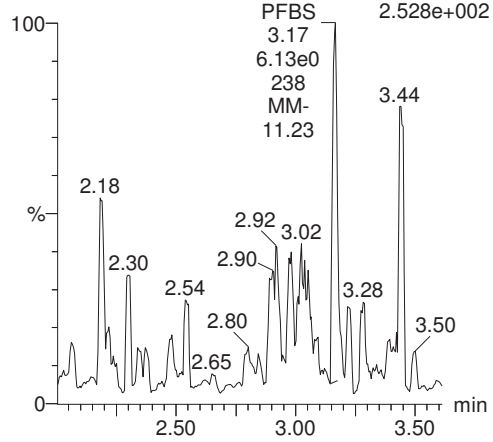
Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-8.qld

Last Altered: Thursday, December 14, 2017 12:36:49 Pacific Standard Time
Printed: Thursday, December 14, 2017 12:37:13 Pacific Standard Time

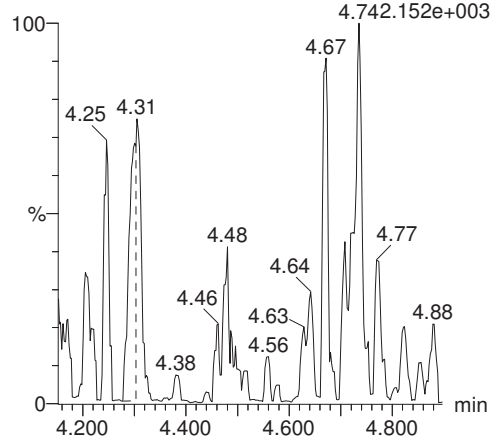
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171214G2_8, Date: 14-Dec-2017, Time: 11:57:40, ID: 1701875-01 CH-AT-2RW42-1217 0.25, Description: CH-AT-2RW42-1217

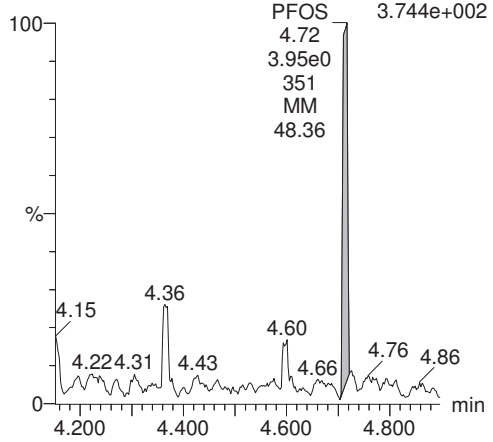
PFBS



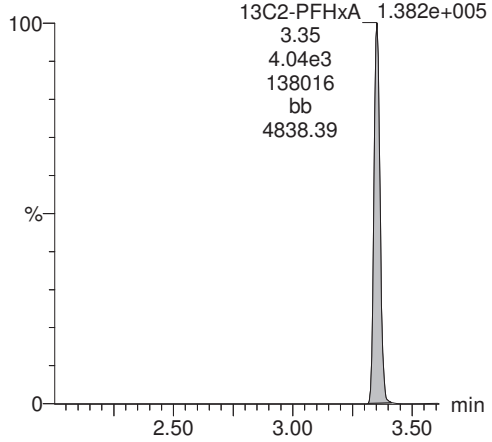
PFOA



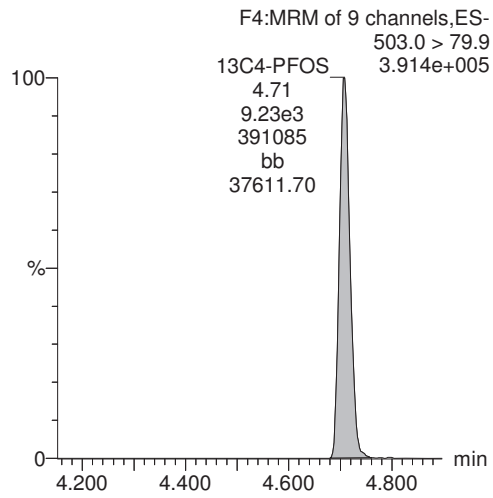
PFOS



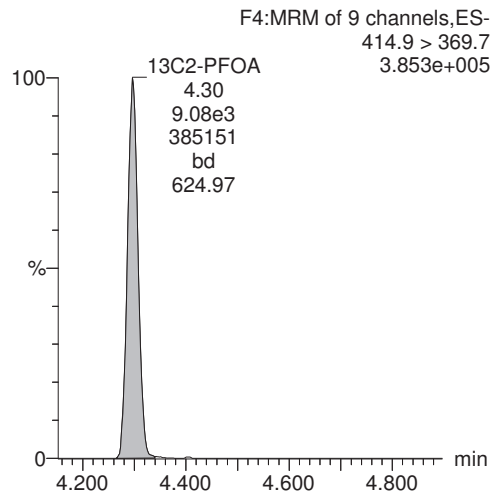
13C2-PFHxA



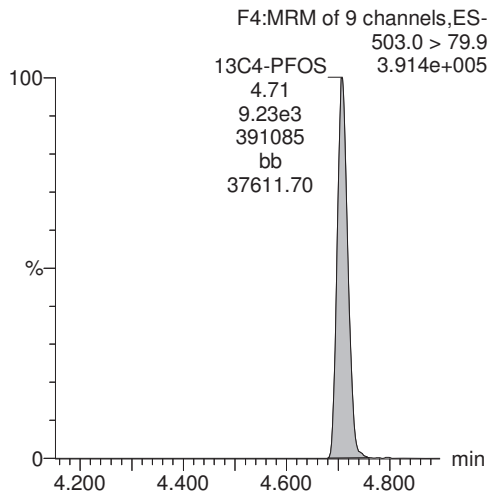
13C4-PFOS



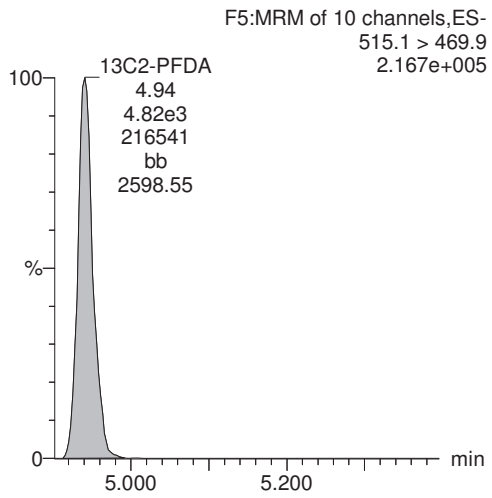
13C2-PFOA



13C4-PFOS



13C2-PFDA



GM 12/14/17

Vista Analytical Laboratory

Rev'd: MM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-9.qld

Last Altered: Thursday, December 14, 2017 12:47:48 Pacific Standard Time
Printed: Thursday, December 14, 2017 12:48:10 Pacific Standard Time

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

Name: 171214G2_9, Date: 14-Dec-2017, Time: 12:10:07, ID: 1701875-02 CH-AT-2FB42-1217 0.25, Description: CH-AT-2FB42-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		1.04e4		0.2447	3.01				
2	2	PFOA	413 > 368.7	5.57e1	9.34e3		0.2447	4.30	4.31	0.0596	0.300	
3	3	PFOS	499 >79.9		1.04e4		0.2447	4.71				
4	4	13C2-PFHxA	315 > 269.8	4.33e3	9.34e3	0.443	0.2447	3.36	3.35	4.64	42.8	104.8
5	5	13C2-PFDA	515.1 > 469.9	4.73e3	9.34e3	0.509	0.2447	4.93	4.94	5.06	40.6	99.4
6	6	13C2-PFOA	414.9 > 369.7	9.34e3	9.34e3	1.000	0.2447	4.41	4.30	10.0	40.9	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.04e4	1.04e4	1.000	0.2447	4.81	4.71	28.7	117	100.0

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Vista Analytical Laboratory

Rev'd: MM 12/14/17

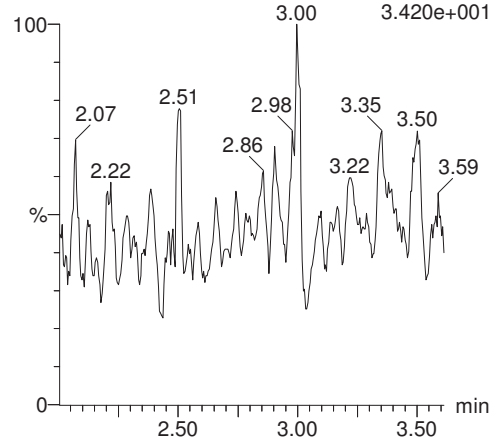
Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-9.qld

Last Altered: Thursday, December 14, 2017 12:47:48 Pacific Standard Time
Printed: Thursday, December 14, 2017 12:48:10 Pacific Standard Time

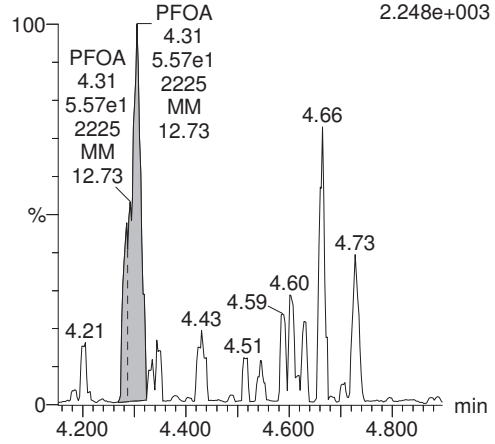
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171214G2_9, Date: 14-Dec-2017, Time: 12:10:07, ID: 1701875-02 CH-AT-2FB42-1217 0.25, Description: CH-AT-2FB42-1217

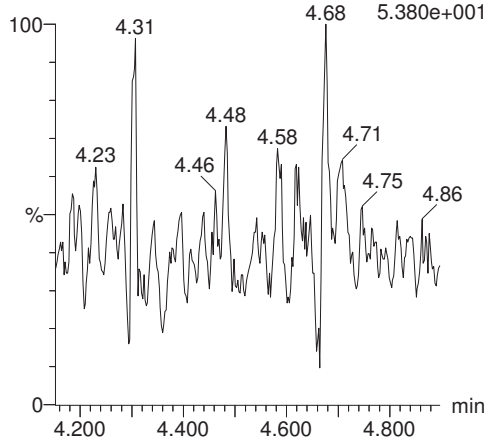
PFBS



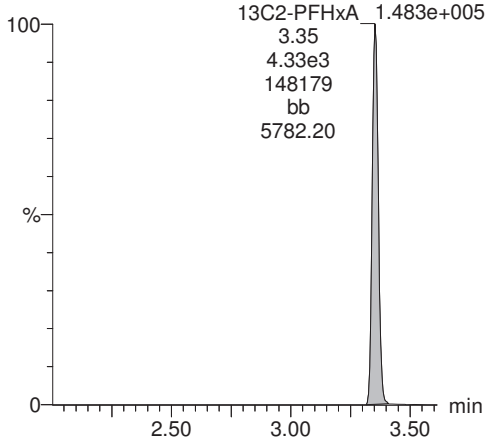
PFOA



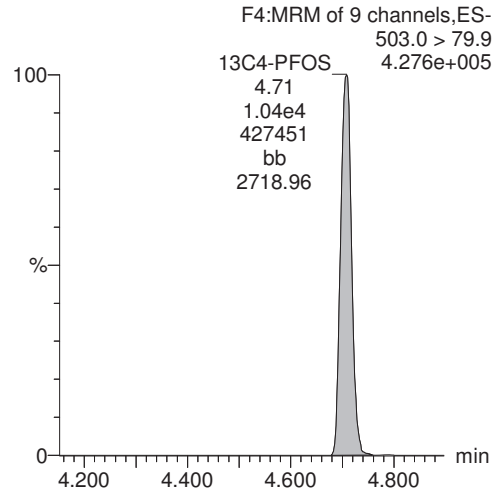
PFOS



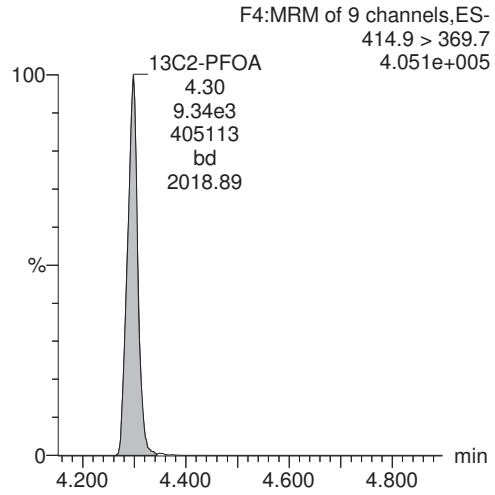
13C2-PFHxA



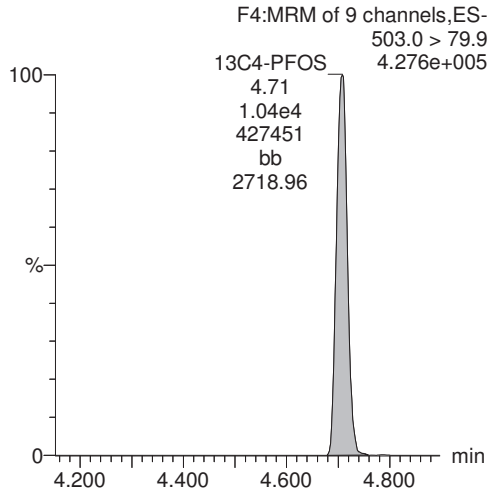
13C4-PFOS



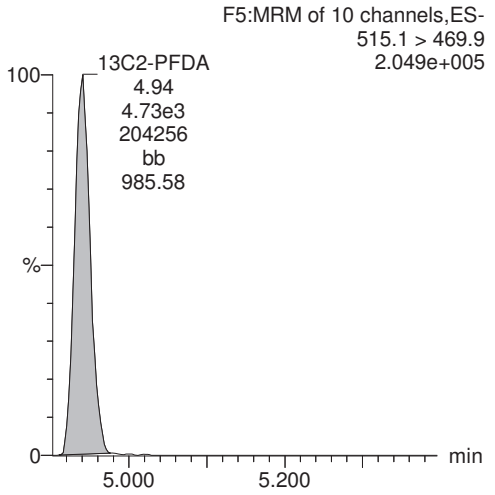
13C2-PFOA



13C4-PFOS



13C2-PFDA



Vista Analytical Laboratory

Rev'd: MM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-10.qld

Last Altered: Thursday, December 14, 2017 12:51:43 Pacific Standard Time
Printed: Thursday, December 14, 2017 12:52:02 Pacific Standard Time

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

Name: 171214G2_10, Date: 14-Dec-2017, Time: 12:22:35, ID: 1701875-03 CH-AT-2RW43-1217 0.25, Description: CH-AT-2RW43-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		9.64e3		0.2481	3.01				
2	2	PFOA	413 > 368.7	8.63e1	9.21e3		0.2481	4.30	4.29	0.0937	0.465	
3	3	PFOS	499 >79.9		9.64e3		0.2481	4.71				
4	4	13C2-PFHxA	315 > 269.8	4.35e3	9.21e3	0.443	0.2481	3.36	3.35	4.72	42.9	106.5
5	5	13C2-PFDA	515.1 > 469.9	4.29e3	9.21e3	0.509	0.2481	4.93	4.94	4.66	36.9	91.5
6	6	13C2-PFOA	414.9 > 369.7	9.21e3	9.21e3	1.000	0.2481	4.41	4.30	10.0	40.3	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.64e3	9.64e3	1.000	0.2481	4.81	4.71	28.7	116	100.0

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Vista Analytical Laboratory

Rev'd: MM 12/14/17

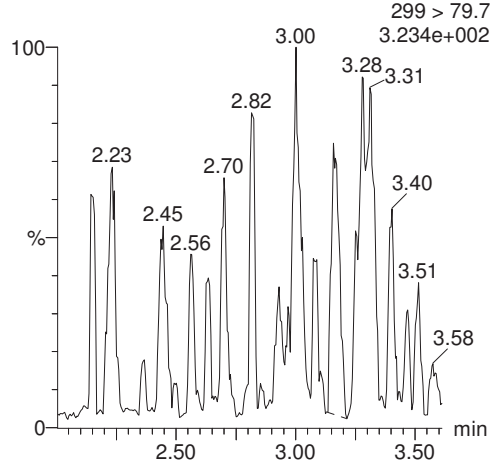
Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-10.qld

Last Altered: Thursday, December 14, 2017 12:51:43 Pacific Standard Time
Printed: Thursday, December 14, 2017 12:52:02 Pacific Standard Time

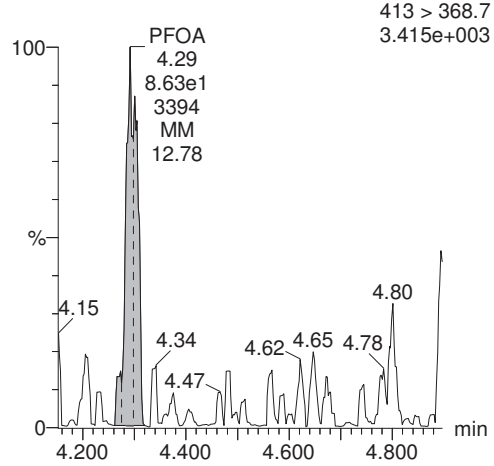
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171214G2_10, Date: 14-Dec-2017, Time: 12:22:35, ID: 1701875-03 CH-AT-2RW43-1217 0.25, Description: CH-AT-2RW43-1217

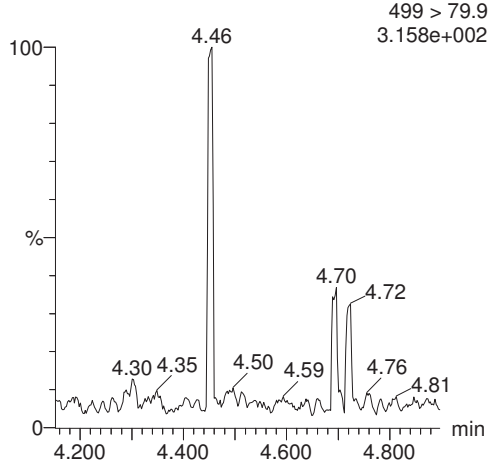
PFBS



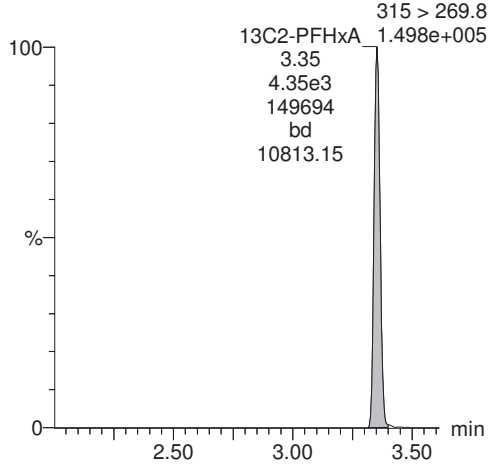
PFOA



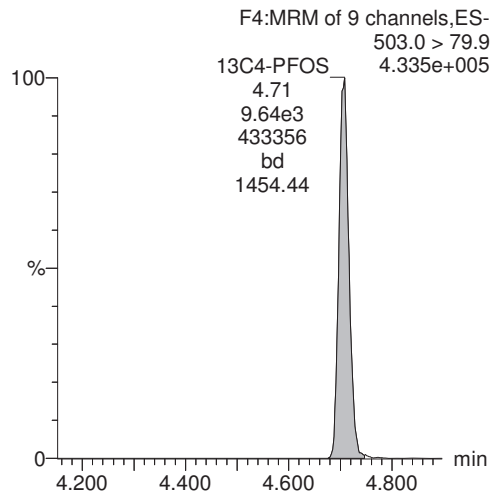
PFOS



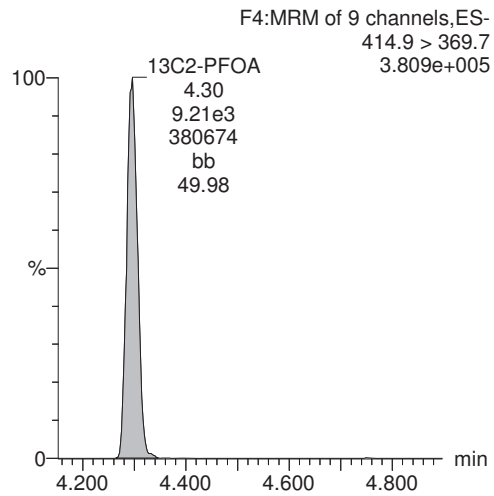
13C2-PFHxA



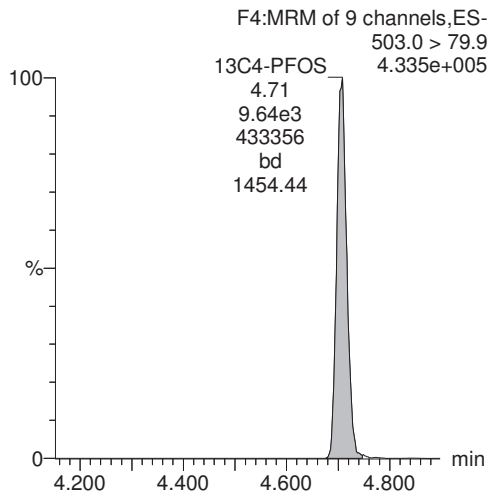
13C4-PFOS



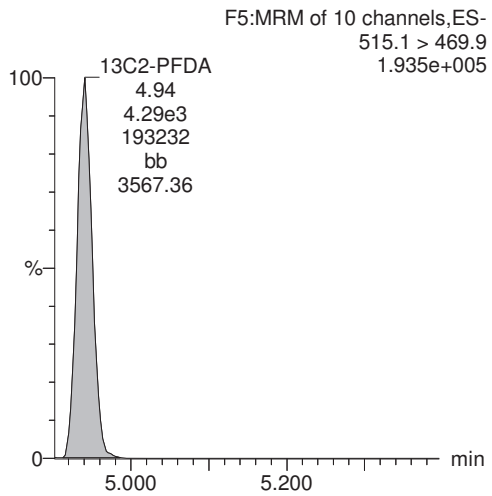
13C2-PFOA



13C4-PFOS



13C2-PFDA



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Vista Analytical Laboratory

Rev'd: MM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-11.qld

Last Altered: Thursday, December 14, 2017 13:11:59 Pacific Standard Time
Printed: Thursday, December 14, 2017 13:12:24 Pacific Standard Time

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

Name: 171214G2_11, Date: 14-Dec-2017, Time: 12:35:04, ID: 1701875-04 CH-AT-2FB43-1217 0.25, Description: CH-AT-2FB43-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		9.81e3		0.2539	3.01				
2	2	PFOA	413 > 368.7	4.54e1	1.00e4		0.2539	4.30	4.30	0.0454	0.220	
3	3	PFOS	499 >79.9	4.65e0	9.81e3		0.2539	4.71	4.71	0.0136	0.0445	
4	4	13C2-PFHxA	315 > 269.8	4.49e3	1.00e4	0.443	0.2539	3.36	3.35	4.49	39.9	101.3
5	5	13C2-PFDA	515.1 > 469.9	4.94e3	1.00e4	0.509	0.2539	4.93	4.94	4.94	38.2	97.0
6	6	13C2-PFOA	414.9 > 369.7	1.00e4	1.00e4	1.000	0.2539	4.41	4.30	10.0	39.4	100.0
7	7	13C4-PFOS	503.0 > 79.9	9.81e3	9.81e3	1.000	0.2539	4.81	4.71	28.7	113	100.0

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Vista Analytical Laboratory

Rev'd: MM 12/14/17

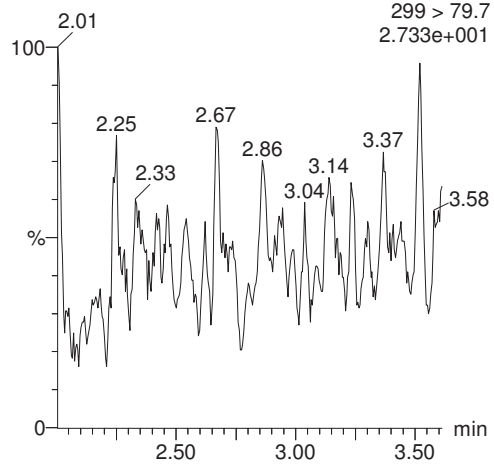
Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-11.qld

Last Altered: Thursday, December 14, 2017 13:11:59 Pacific Standard Time
Printed: Thursday, December 14, 2017 13:12:24 Pacific Standard Time

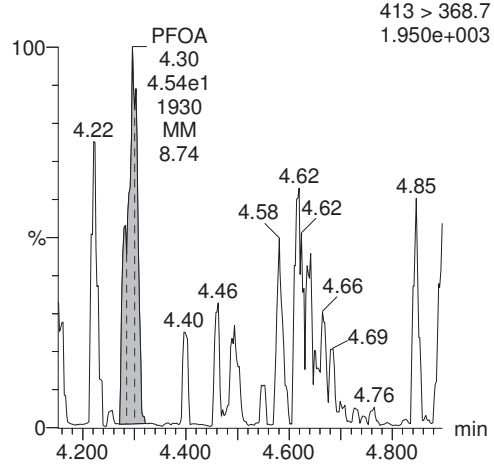
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171214G2_11, Date: 14-Dec-2017, Time: 12:35:04, ID: 1701875-04 CH-AT-2FB43-1217 0.25, Description: CH-AT-2FB43-1217

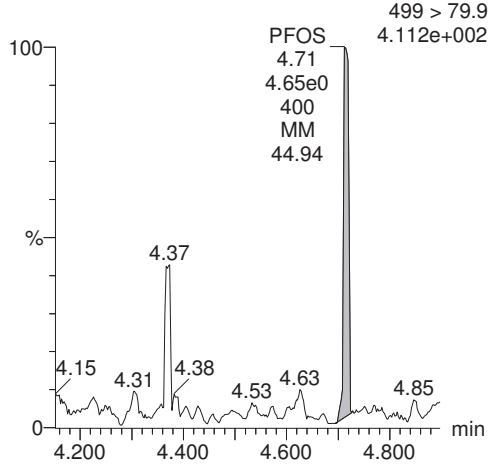
PFBS



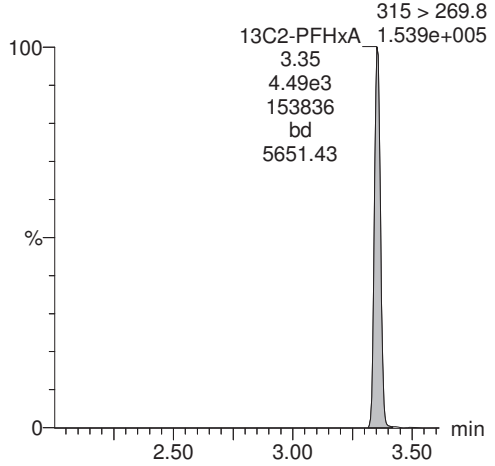
PFOA



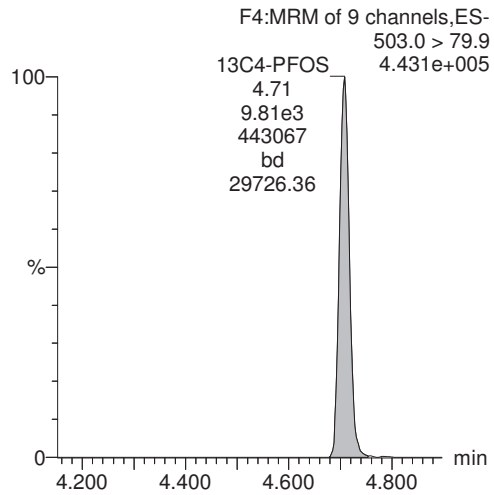
PFOS



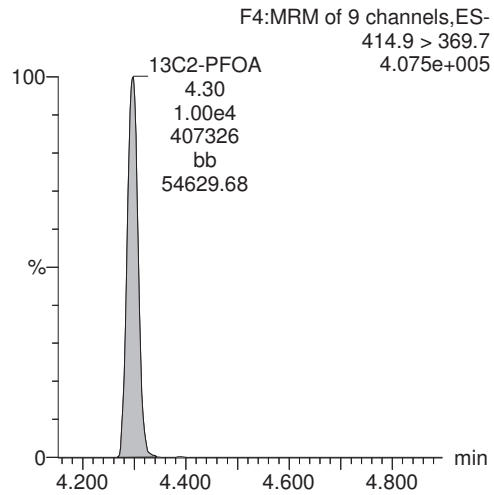
13C2-PFHxA



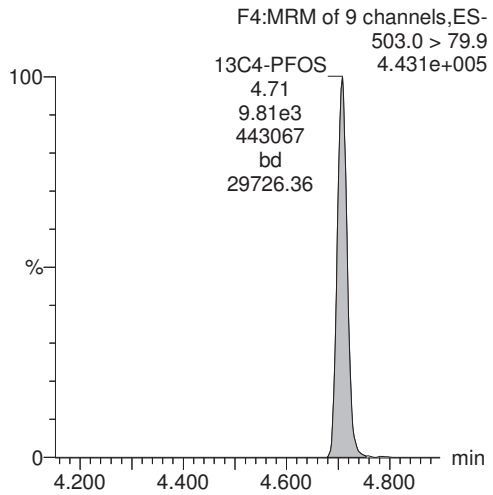
13C4-PFOS



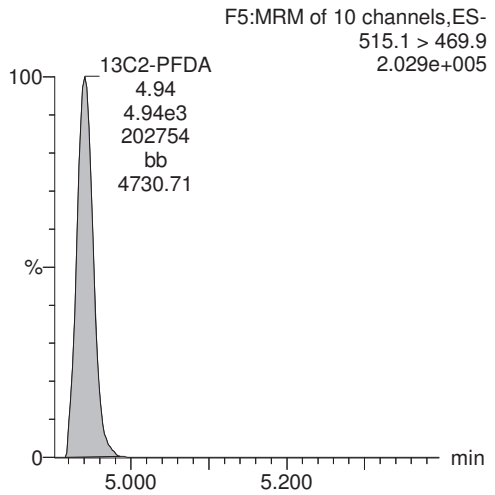
13C2-PFOA



13C4-PFOS



13C2-PFDA



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Vista Analytical Laboratory

Rev'd: MM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-12.qld

Last Altered: Thursday, December 14, 2017 13:14:25 Pacific Standard Time
Printed: Thursday, December 14, 2017 13:18:02 Pacific Standard Time

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

Name: 171214G2_12, Date: 14-Dec-2017, Time: 12:47:28, ID: 1701875-05 CH-AT-2RW44-1217 0.25, Description: CH-AT-2RW44-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7	1.17e2	1.05e4		0.2536	3.01	3.00	0.320	1.58	
2	2	PFOA	413 > 368.7	8.20e1	1.06e4		0.2536	4.30	4.30	0.0771	0.374	
3	3	PFOS	499 >79.9	2.65e1	1.05e4		0.2536	4.71	4.56	0.0727	0.238	
4	4	13C2-PFHxA	315 > 269.8	4.21e3	1.06e4	0.443	0.2536	3.36	3.36	3.95	35.2	89.2
5	5	13C2-PFDA	515.1 > 469.9	5.32e3	1.06e4	0.509	0.2536	4.93	4.95	5.00	38.7	98.2
6	6	13C2-PFOA	414.9 > 369.7	1.06e4	1.06e4	1.000	0.2536	4.41	4.30	10.0	39.4	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.05e4	1.05e4	1.000	0.2536	4.81	4.71	28.7	113	100.0

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Vista Analytical Laboratory

Rev'd: MM 12/14/17

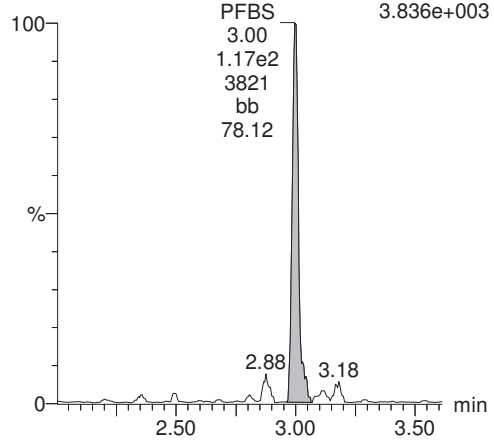
Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-12.qld

Last Altered: Thursday, December 14, 2017 13:14:25 Pacific Standard Time
Printed: Thursday, December 14, 2017 13:18:02 Pacific Standard Time

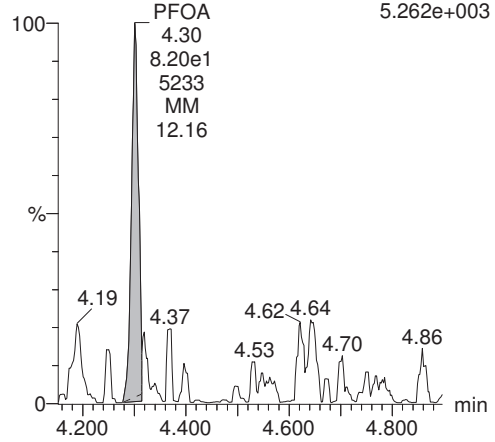
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171214G2_12, Date: 14-Dec-2017, Time: 12:47:28, ID: 1701875-05 CH-AT-2RW44-1217 0.25, Description: CH-AT-2RW44-1217

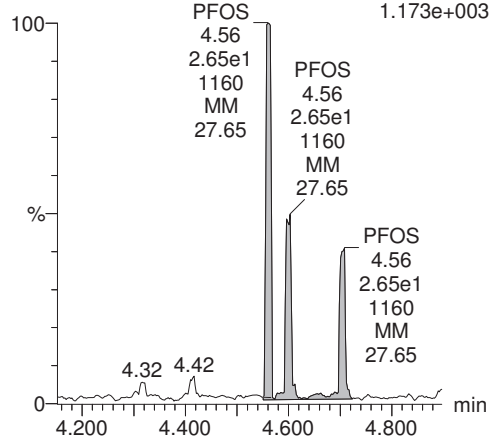
PFBS



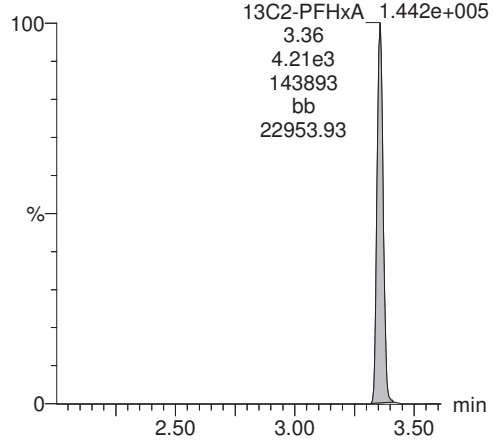
PFOA



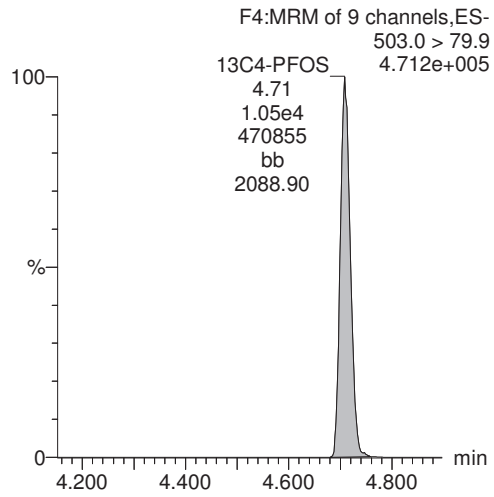
PFOS



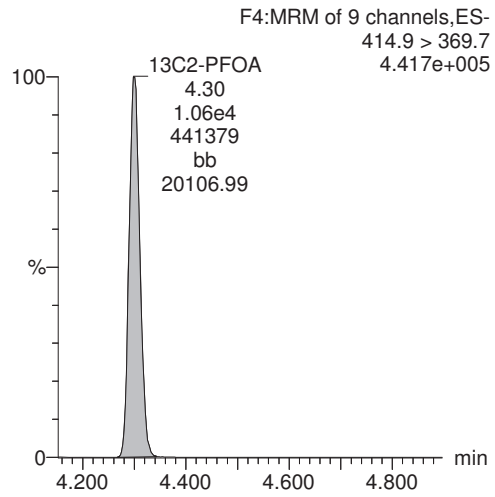
13C2-PFHxA



13C4-PFOS



13C2-PFOA



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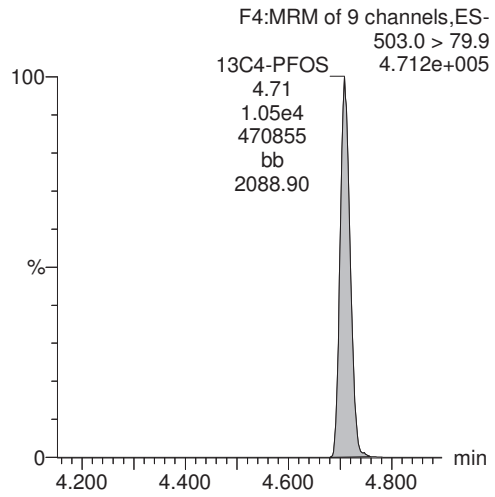
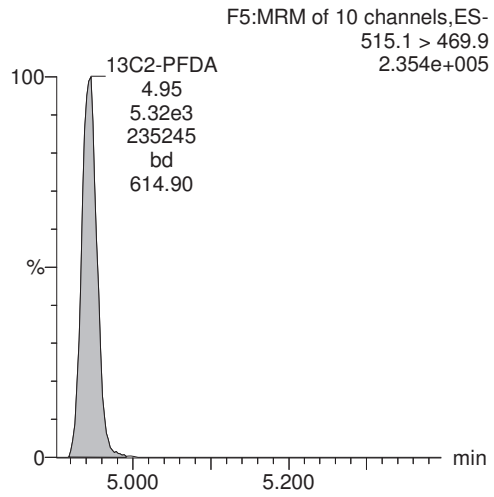


13C2-PFDA



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Vista Analytical Laboratory

Rev'd: MM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-13.qld

Last Altered: Thursday, December 14, 2017 13:18:56 Pacific Standard Time
Printed: Thursday, December 14, 2017 13:19:17 Pacific Standard Time

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

Name: 171214G2_13, Date: 14-Dec-2017, Time: 12:59:53, ID: 1701875-06 CH-AT-2FB44-1217 0.25, Description: CH-AT-2FB44-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		1.09e4		0.2539	3.01				
2	2	PFOA	413 > 368.7	1.28e1	1.04e4		0.2539	4.30	4.30	0.0123	0.0596	
3	3	PFOS	499 >79.9	1.80e0	1.09e4		0.2539	4.71	4.71	0.00476	0.0156	
4	4	13C2-PFHxA	315 > 269.8	4.42e3	1.04e4	0.443	0.2539	3.36	3.35	4.24	37.7	95.7
5	5	13C2-PFDA	515.1 > 469.9	4.94e3	1.04e4	0.509	0.2539	4.93	4.94	4.74	36.6	93.0
6	6	13C2-PFOA	414.9 > 369.7	1.04e4	1.04e4	1.000	0.2539	4.41	4.30	10.0	39.4	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.09e4	1.09e4	1.000	0.2539	4.81	4.71	28.7	113	100.0

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Vista Analytical Laboratory

Rev'd: MM 12/14/17

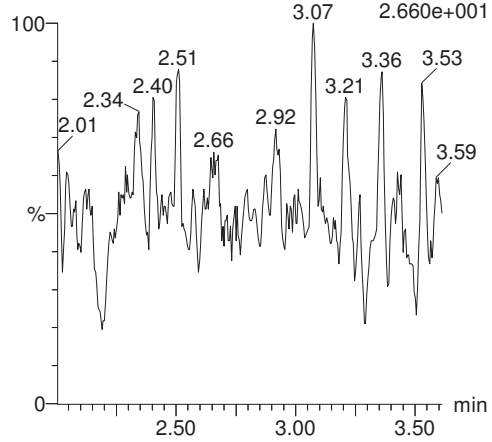
Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-13.qld

Last Altered: Thursday, December 14, 2017 13:18:56 Pacific Standard Time
Printed: Thursday, December 14, 2017 13:19:17 Pacific Standard Time

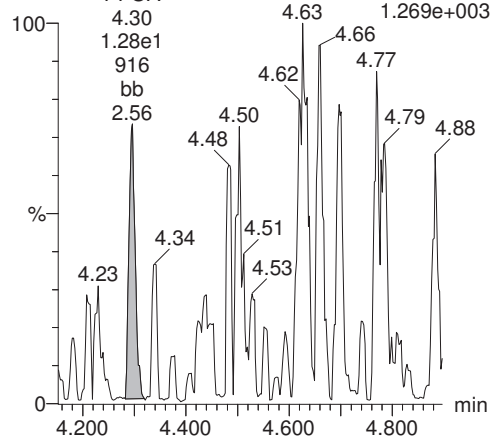
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171214G2_13, Date: 14-Dec-2017, Time: 12:59:53, ID: 1701875-06 CH-AT-2FB44-1217 0.25, Description: CH-AT-2FB44-1217

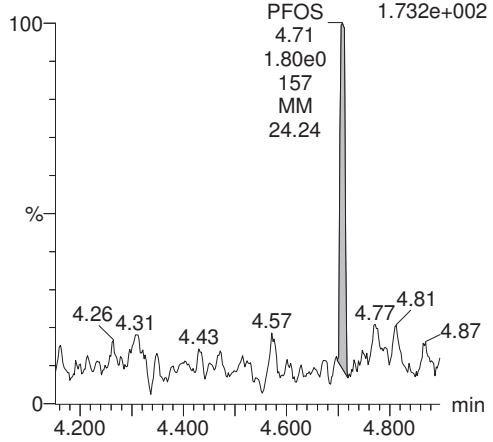
PFBS



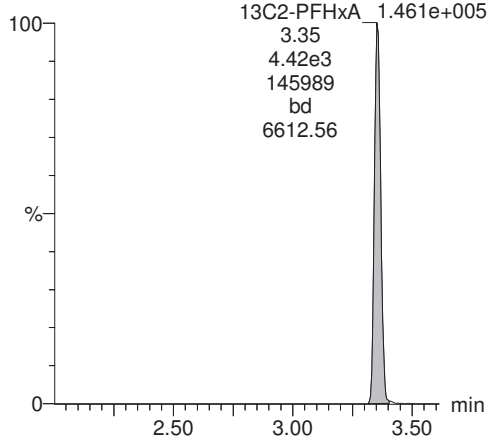
PFOA



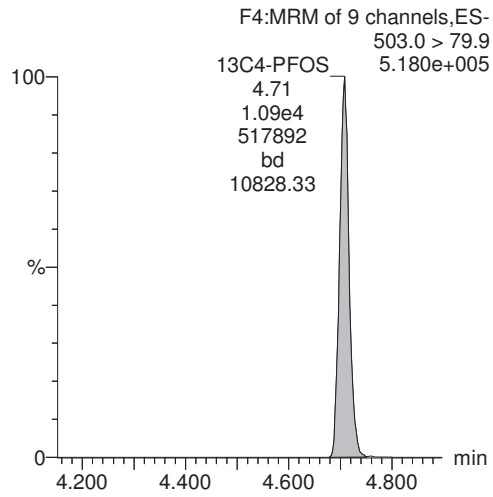
PFOS



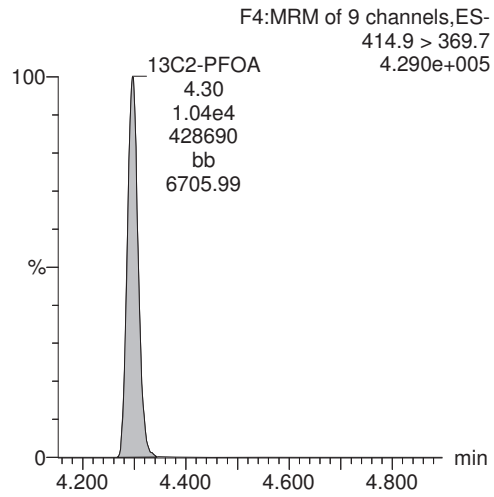
13C2-PFHxA



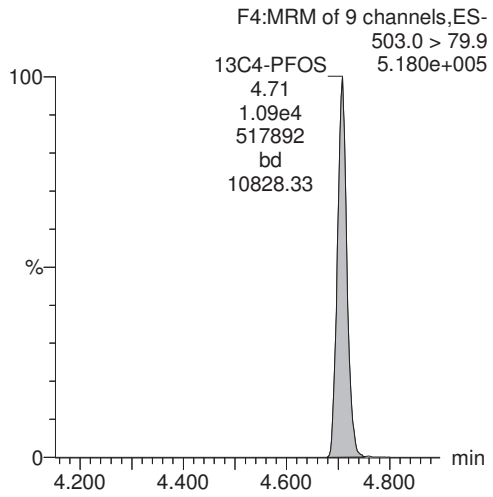
13C4-PFOS



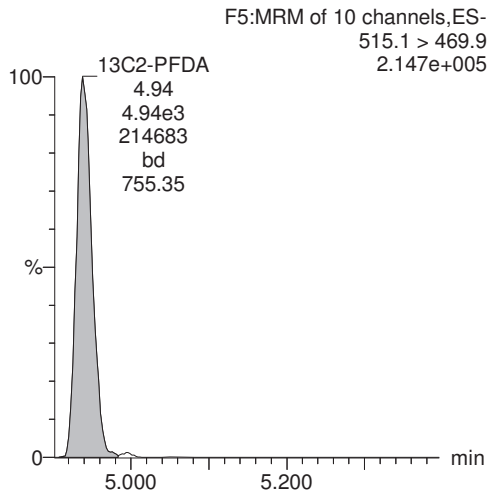
13C2-PFOA



13C4-PFOS



13C2-PFDA



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Vista Analytical Laboratory

Rev'd: MM 12/14/17

Dataset: Untitled

Last Altered: Thursday, December 14, 2017 13:32:45 Pacific Standard Time
Printed: Thursday, December 14, 2017 13:35:51 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171214G2_14, Date: 14-Dec-2017, Time: 13:12:18, ID: 1701875-07 CH-AT-2RW45-1217 0.25, Description: CH-AT-2RW45-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7	4.91e1	1.06e4		0.2483	3.01	3.17	0.133	0.667	
2	2	PFOA	413 > 368.7	6.54e1	9.92e3		0.2483	4.30	4.29	0.0659	0.327	
3	3	PFOS	499 >79.9	5.06e0	1.06e4		0.2483	4.71	4.70	0.0137	0.0457	
4	4	13C2-PFHxA	315 > 269.8	4.30e3	9.92e3	0.443	0.2483	3.36	3.35	4.33	39.4	97.8
5	5	13C2-PFDA	515.1 > 469.9	4.90e3	9.92e3	0.509	0.2483	4.93	4.94	4.94	39.1	97.0
6	6	13C2-PFOA	414.9 > 369.7	9.92e3	9.92e3	1.000	0.2483	4.41	4.30	10.0	40.3	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.06e4	1.06e4	1.000	0.2483	4.81	4.71	28.7	116	100.0

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Vista Analytical Laboratory

Rev'd: MM 12/14/17

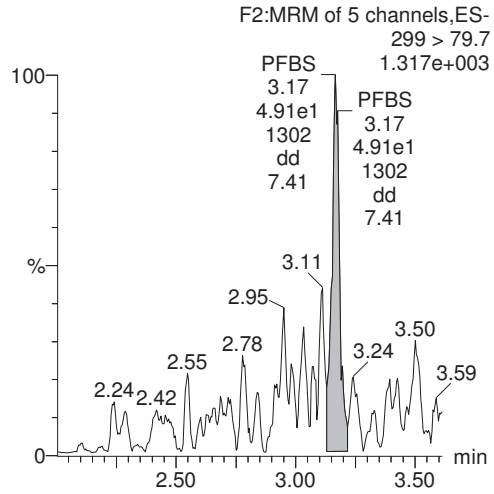
Dataset: Untitled

Last Altered: Thursday, December 14, 2017 13:32:45 Pacific Standard Time
Printed: Thursday, December 14, 2017 13:35:51 Pacific Standard Time

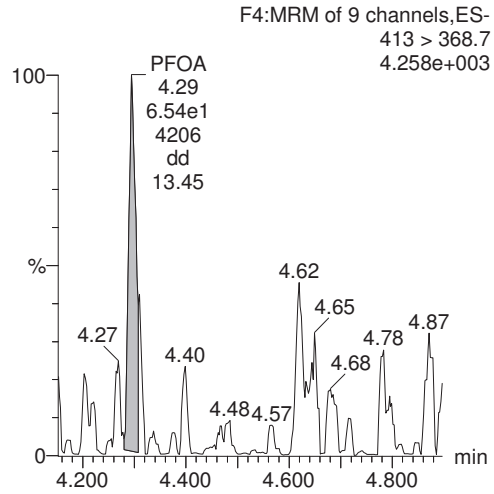
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171214G2_14, Date: 14-Dec-2017, Time: 13:12:18, ID: 1701875-07 CH-AT-2RW45-1217 0.25, Description: CH-AT-2RW45-1217

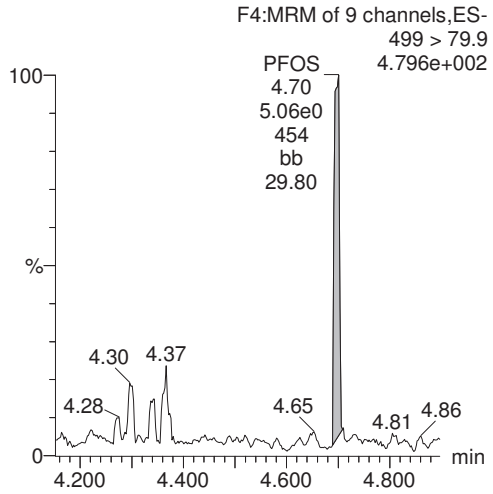
PFBS



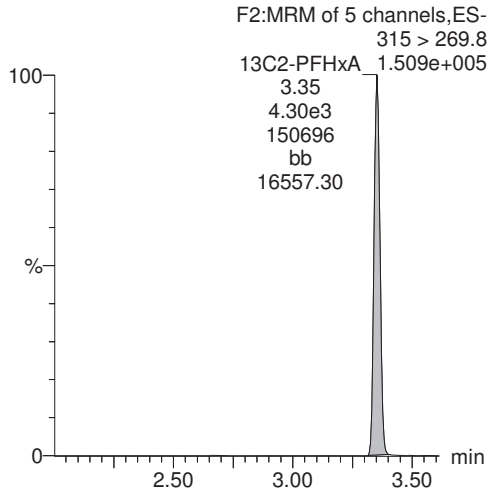
PFOA



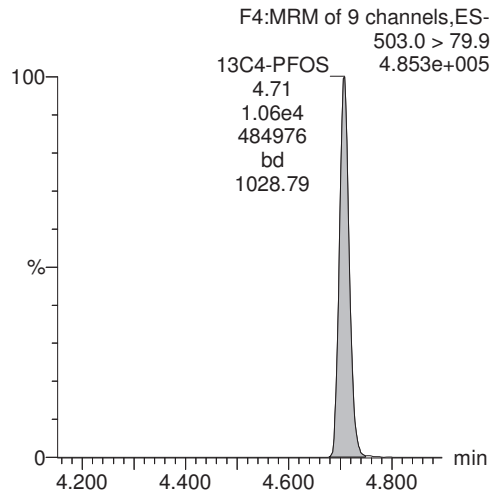
PFOS



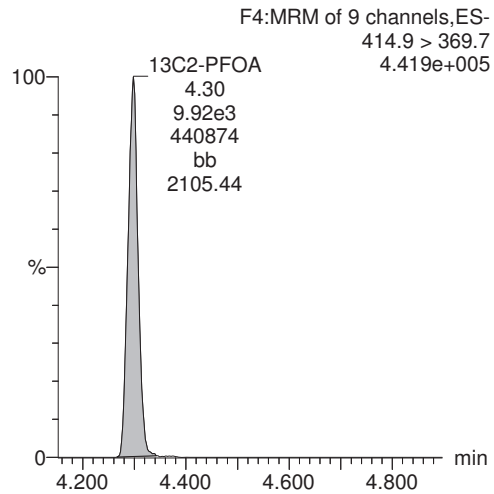
13C2-PFHxA



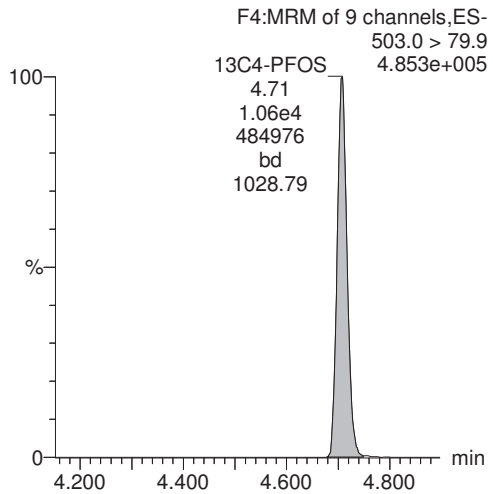
13C4-PFOS



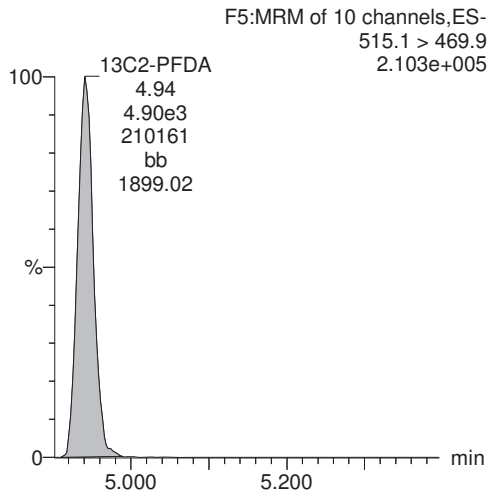
13C2-PFOA



13C4-PFOS



13C2-PFDA



GM 12/14/17

Vista Analytical Laboratory

Rev'd: MM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-15.qld

Last Altered: Thursday, December 14, 2017 13:37:01 Pacific Standard Time
Printed: Thursday, December 14, 2017 13:37:19 Pacific Standard Time

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

Name: 171214G2_15, Date: 14-Dec-2017, Time: 13:24:44, ID: 1701875-08 CH-AT-2FB45-1217 0.25, Description: CH-AT-2FB45-1217

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7		8.99e3		0.2490	3.01				
2	2	PFOA	413 > 368.7	2.11e1	9.85e3		0.2490	4.30	4.29	0.0214	0.106	
3	3	PFOS	499 >79.9		8.99e3		0.2490	4.71				
4	4	13C2-PFHxA	315 > 269.8	4.17e3	9.85e3	0.443	0.2490	3.36	3.36	4.23	38.4	95.5
5	5	13C2-PFDA	515.1 > 469.9	4.43e3	9.85e3	0.509	0.2490	4.93	4.94	4.50	35.5	88.4
6	6	13C2-PFOA	414.9 > 369.7	9.85e3	9.85e3	1.000	0.2490	4.41	4.30	10.0	40.2	100.0
7	7	13C4-PFOS	503.0 > 79.9	8.99e3	8.99e3	1.000	0.2490	4.81	4.71	28.7	115	100.0

GM 12/14/17

Vista Analytical Laboratory

Rev'd: MM 12/14/17

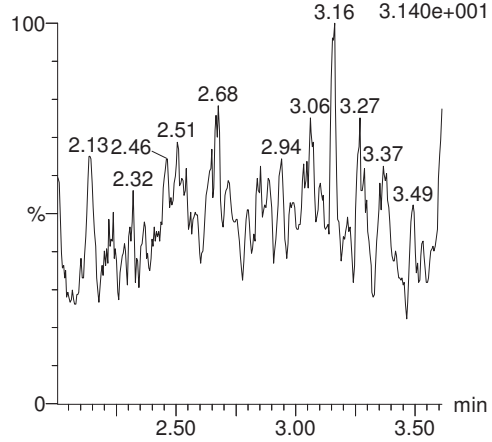
Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-15.qld

Last Altered: Thursday, December 14, 2017 13:37:01 Pacific Standard Time
Printed: Thursday, December 14, 2017 13:37:19 Pacific Standard Time

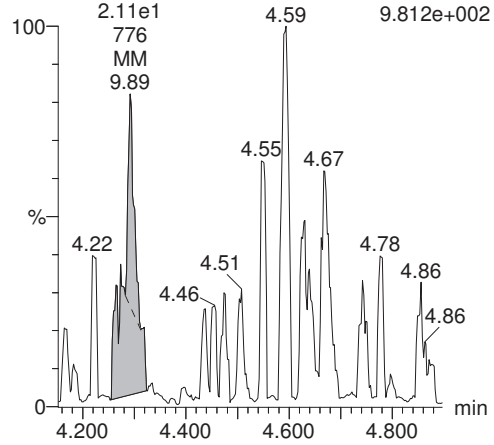
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171214G2_15, Date: 14-Dec-2017, Time: 13:24:44, ID: 1701875-08 CH-AT-2FB45-1217 0.25, Description: CH-AT-2FB45-1217

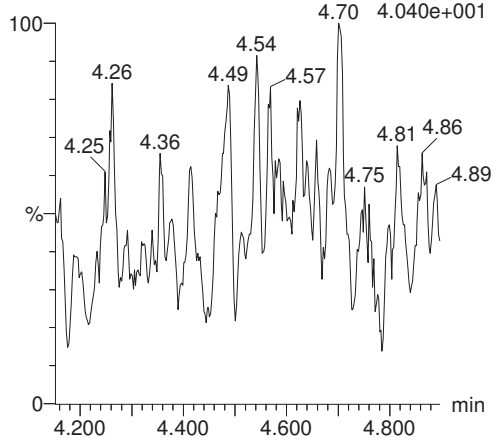
PFBS



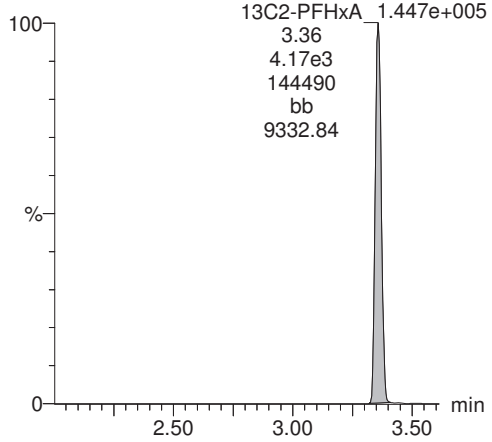
PFOA



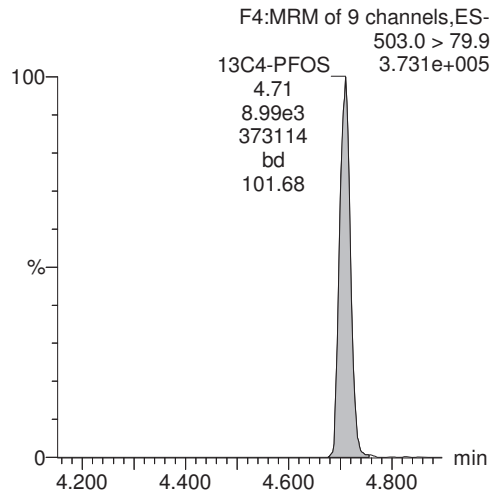
PFOS



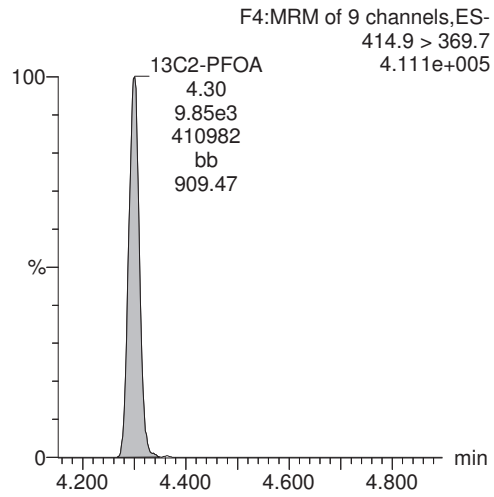
13C2-PFHxA



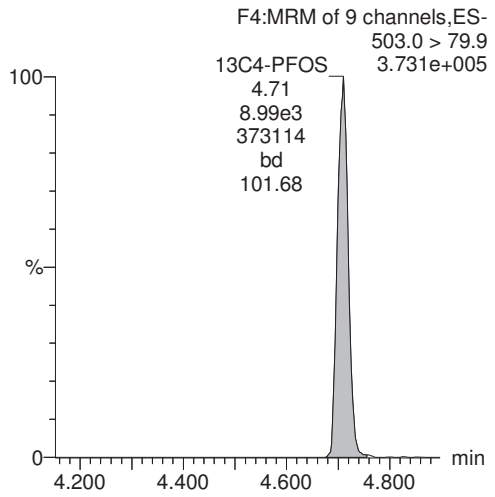
13C4-PFOS



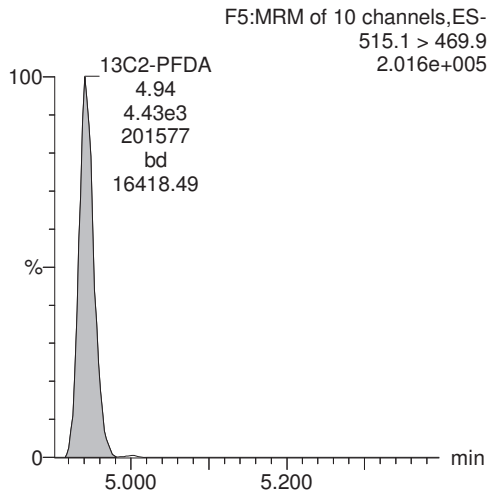
13C2-PFOA



13C4-PFOS



13C2-PFDA



GM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-16.qld

Last Altered: Thursday, December 14, 2017 14:09:14 Pacific Standard Time
Printed: Thursday, December 14, 2017 14:45:43 Pacific Standard Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_L3_DW_1206.mdb 06 Dec 2017 11:11:24
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: 1701875-09 CH-AT-2RW46-1217 0.25, Description: CH-AT-2RW46-1217, Name: 171214G2_16, Date: 14-Dec-2017, Time: 13:37:11

	#	Name	Trace	Area	Peak Area	RRF Mean	wt/vol	Pred.RT	RT	IS Resp	Conc.	%Rec
1	1	PFBS	299.00 > 79.70				0.2513	2.89		9.901e3		
2	2	PFOA	413 > 368.70	148.626	1.486e2		0.2513	4.21	4.30	1.026e4	0.710	
3	3	PFOS	499.00 > 79.90	6.029	6.029e0		0.2513	4.62	4.60	9.901e3	0.0578	
4	4	13C2-PFHxA	315.0 > 269.80	4408.397	4.408e3	0.443	0.2513	3.27	3.35	1.026e4	38.6	97.0
5	5	13C2-PFDA	515.10 > 469.90	4645.982	4.646e3	0.509	0.2513	4.85	4.94	1.026e4	35.4	88.9
6	6	13C2-PFOA	414.90 > 369.70	10259.842	1.026e4	1.000	0.2513	4.21	4.30	1.026e4	39.8	100
7	7	13C4-PFOS	503.0 > 79.90	9900.912	9.901e3	1.000	0.2513	4.62	4.71	9.901e3	114	100

GM 12/14/17

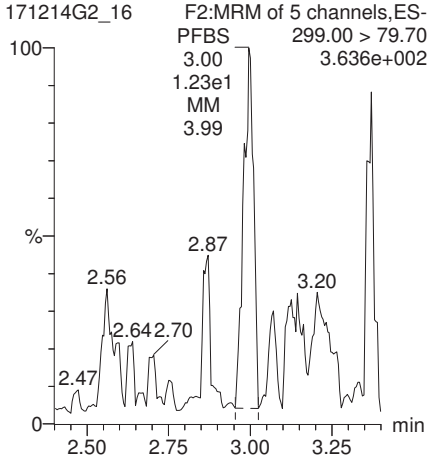
Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-16.qld

Last Altered: Thursday, December 14, 2017 14:09:14 Pacific Standard Time
Printed: Thursday, December 14, 2017 14:45:43 Pacific Standard Time

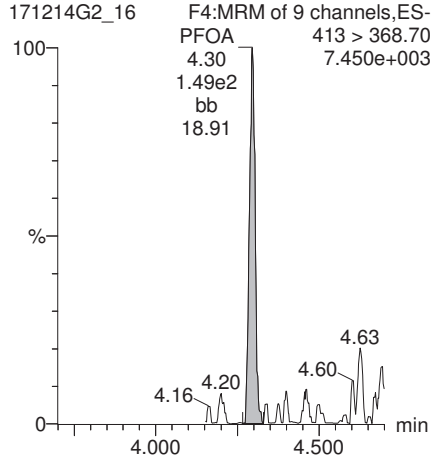
Method: C:\Projects\Q1.PRO\MethDB\PFAS_L3_DW_1206.mdb 06 Dec 2017 11:11:24
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: 1701875-09 CH-AT-2RW46-1217 0.25, Description: CH-AT-2RW46-1217, Name: 171214G2_16, Date: 14-Dec-2017, Time: 13:37:11, Instrument: , Lab: , User:

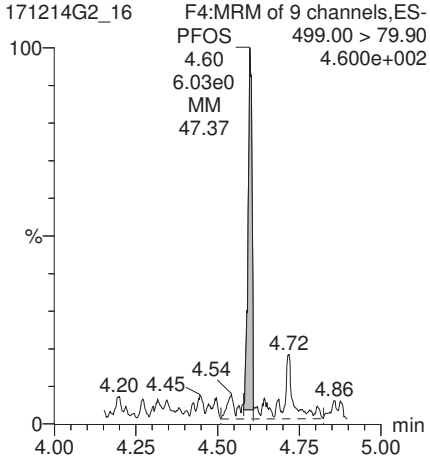
PFBS



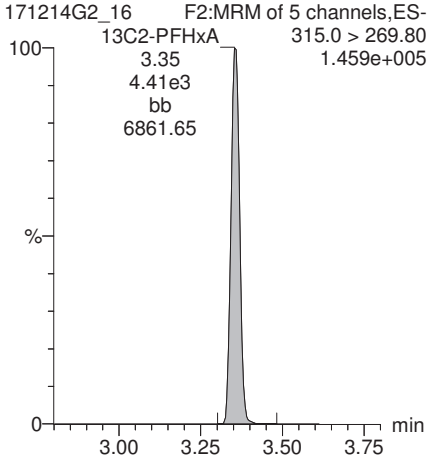
PFOA



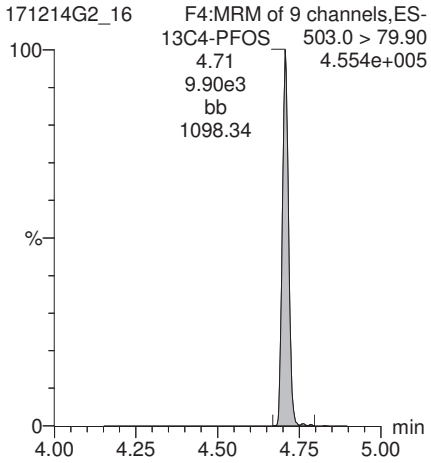
PFOS



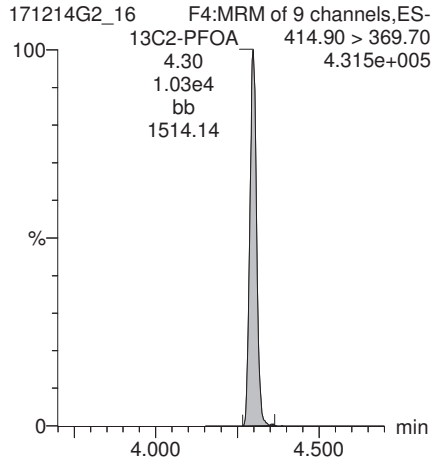
13C2-PFHxA



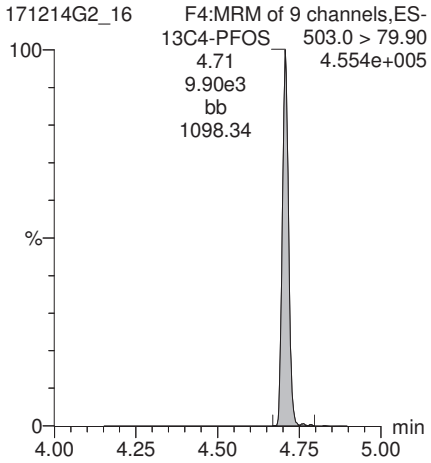
13C4-PFOS



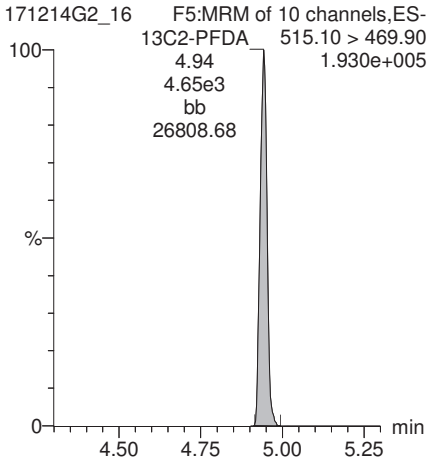
13C2-PFOA



13C4-PFOS



13C2-PFDA



GM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-17.qld

Last Altered: Thursday, December 14, 2017 14:43:50 Pacific Standard Time
Printed: Thursday, December 14, 2017 14:45:24 Pacific Standard Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_L3_DW_1206.mdb 06 Dec 2017 11:11:24
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: 1701875-10 CH-AT-2FB46-1217 0.25, Description: CH-AT-2FB46-1217, Name: 171214G2_17, Date: 14-Dec-2017, Time: 13:49:38

	#	Name	Trace	Area	Peak Area	RRF Mean	wt/vol	Pred.RT	RT	IS Resp	Conc.	%Rec
1	1	PFBS	299.00 > 79.70	1.867	1.867e0		0.2617	2.89	2.99	1.043e4	0.0245	
2	2	PFOA	413 > 368.70	50.592	5.059e1		0.2617	4.21	4.31	9.716e3	0.245	
3	3	PFOS	499.00 > 79.90				0.2617	4.62		1.043e4		
4	4	13C2-PFHxA	315.0 > 269.80	4344.814	4.345e3	0.443	0.2617	3.27	3.36	9.716e3	38.6	101
5	5	13C2-PFDA	515.10 > 469.90	5234.854	5.235e3	0.509	0.2617	4.85	4.94	9.716e3	40.4	106
6	6	13C2-PFOA	414.90 > 369.70	9715.818	9.716e3	1.000	0.2617	4.21	4.30	9.716e3	38.2	100
7	7	13C4-PFOS	503.0 > 79.90	10428.252	1.043e4	1.000	0.2617	4.62	4.71	1.043e4	110	100

GM 12/14/17

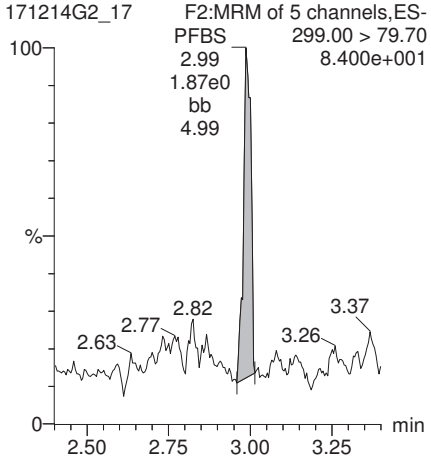
Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-17.qld

Last Altered: Thursday, December 14, 2017 14:43:50 Pacific Standard Time
Printed: Thursday, December 14, 2017 14:45:24 Pacific Standard Time

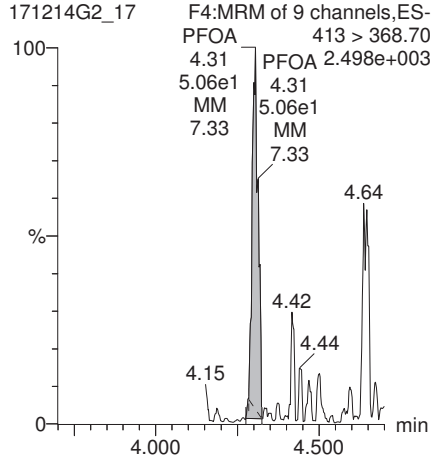
Method: C:\Projects\Q1.PRO\MethDB\PFAS_L3_DW_1206.mdb 06 Dec 2017 11:11:24
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: 1701875-10 CH-AT-2FB46-1217 0.25, Description: CH-AT-2FB46-1217, Name: 171214G2_17, Date: 14-Dec-2017, Time: 13:49:38, Instrument: , Lab: , User:

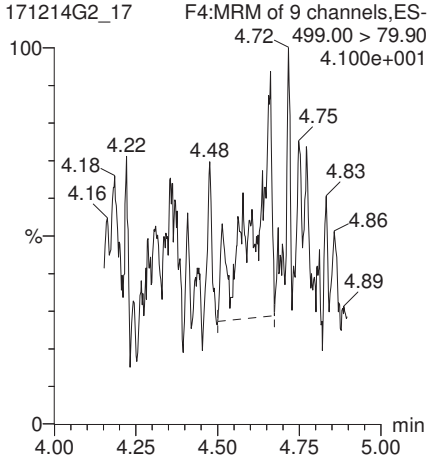
PFBS



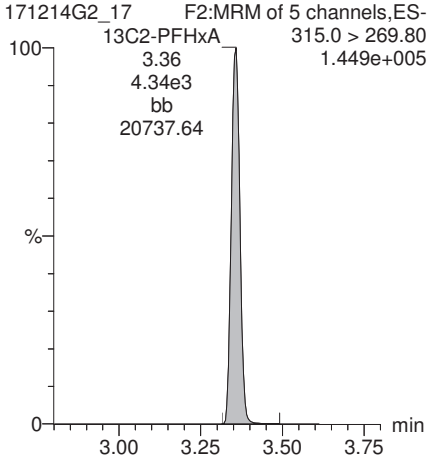
PFOA



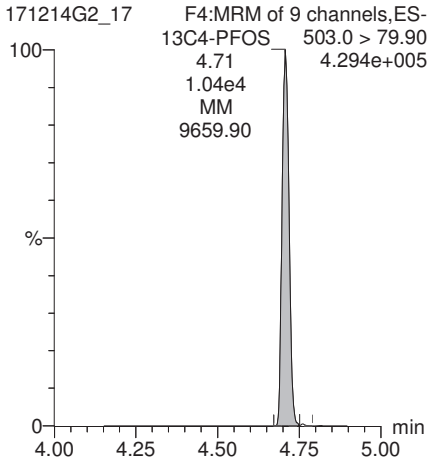
PFOS



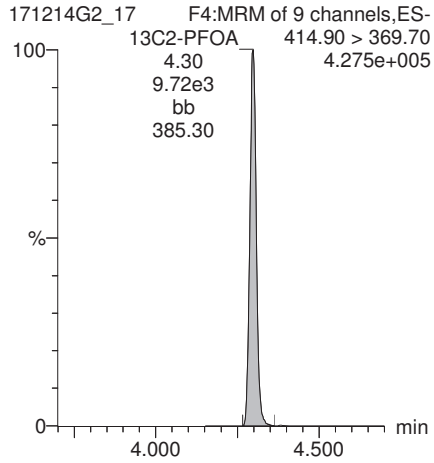
13C2-PFHxA



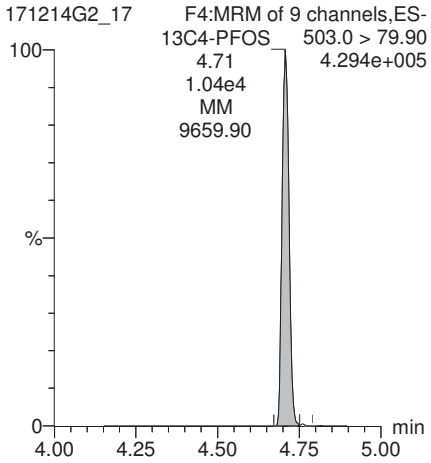
13C4-PFOS



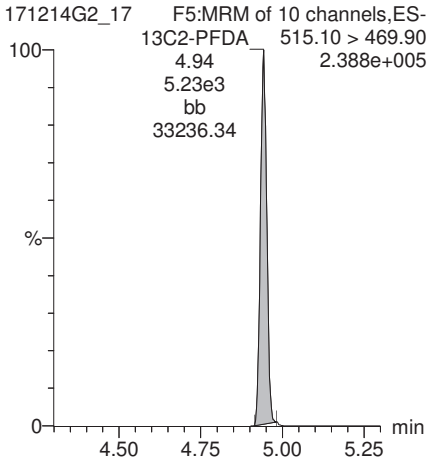
13C2-PFOA



13C4-PFOS



13C2-PFDA



GM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-18.qld

Last Altered: Thursday, December 14, 2017 14:46:21 Pacific Standard Time
Printed: Thursday, December 14, 2017 14:46:48 Pacific Standard Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_L3_DW_1206.mdb 06 Dec 2017 11:11:24
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: 1701875-11 CH-AT-2RW47-1217 0.25, Description: CH-AT-2RW47-1217, Name: 171214G2_18, Date: 14-Dec-2017, Time: 14:02:06

	#	Name	Trace	Area	Peak Area	RRF Mean	wt/vol	Pred.RT	RT	IS Resp	Conc.	%Rec
1	1	PFBS	299.00 > 79.70				0.2574	2.89		9.420e3		
2	2	PFOA	413 > 368.70	61.703	6.170e1		0.2574	4.21	4.30	9.542e3	0.309	
3	3	PFOS	499.00 > 79.90	2.978	2.978e0		0.2574	4.62	4.71	9.420e3	0.0293	
4	4	13C2-PFHxA	315.0 > 269.80	4349.315	4.349e3	0.443	0.2574	3.27	3.36	9.542e3	40.0	103
5	5	13C2-PFDA	515.10 > 469.90	5167.740	5.168e3	0.509	0.2574	4.85	4.95	9.542e3	41.3	106
6	6	13C2-PFOA	414.90 > 369.70	9541.609	9.542e3	1.000	0.2574	4.21	4.30	9.542e3	38.9	100
7	7	13C4-PFOS	503.0 > 79.90	9420.171	9.420e3	1.000	0.2574	4.62	4.71	9.420e3	112	100

GM 12/14/17

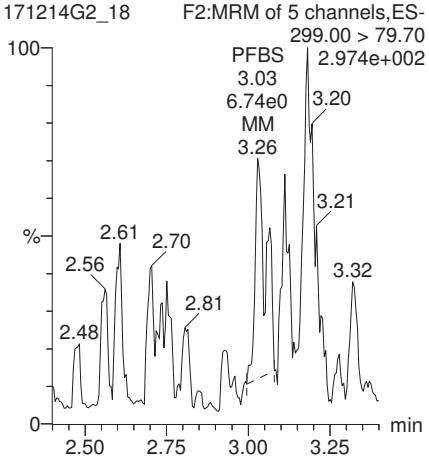
Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-18.qld

Last Altered: Thursday, December 14, 2017 14:46:21 Pacific Standard Time
Printed: Thursday, December 14, 2017 14:46:48 Pacific Standard Time

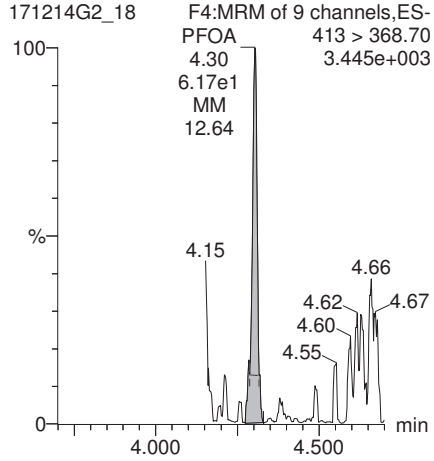
Method: C:\Projects\Q1.PRO\MethDB\PFAS_L3_DW_1206.mdb 06 Dec 2017 11:11:24
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: 1701875-11 CH-AT-2RW47-1217 0.25, Description: CH-AT-2RW47-1217, Name: 171214G2_18, Date: 14-Dec-2017, Time: 14:02:06, Instrument: , Lab: , User:

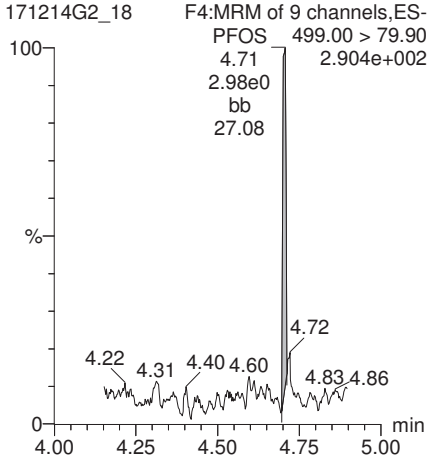
PFBS



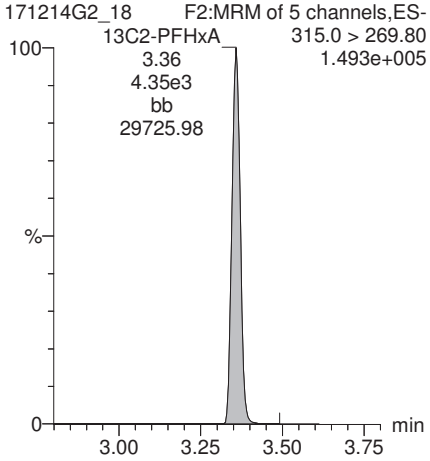
PFOA



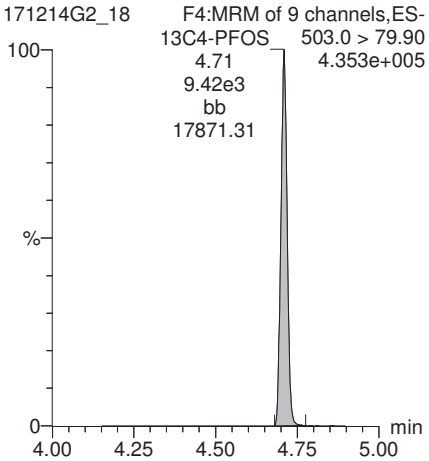
PFOS



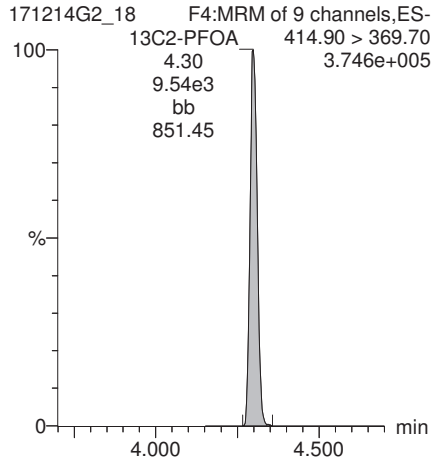
13C2-PFHxA



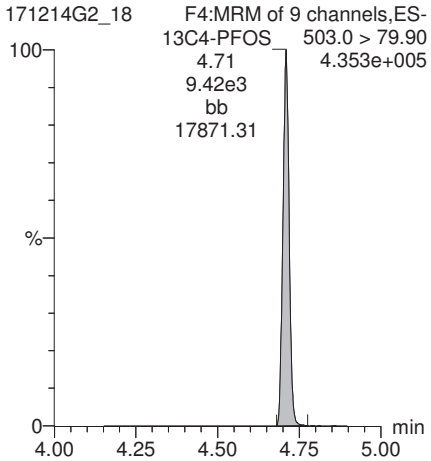
13C4-PFOS



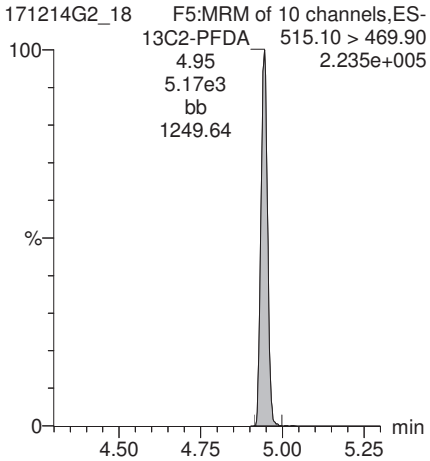
13C2-PFOA



13C4-PFOS



13C2-PFDA



GM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-19.qld

Last Altered: Thursday, December 14, 2017 14:48:47 Pacific Standard Time
Printed: Thursday, December 14, 2017 14:49:11 Pacific Standard Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_L3_DW_1206.mdb 06 Dec 2017 11:11:24
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: 1701875-12 CH-AT-2FB47-1217 0.25, Description: CH-AT-2FB47-1217, Name: 171214G2_19, Date: 14-Dec-2017, Time: 14:14:37

	#	Name	Trace	Area	Peak Area	RRF Mean	wt/vol	Pred.RT	RT	IS Resp	Conc.	%Rec
1	1	PFBS	299.00 > 79.70				0.2579	2.89		1.021e4		
2	2	PFOA	413 > 368.70	79.040	7.904e1		0.2579	4.21	4.30	9.349e3	0.404	
3	3	PFOS	499.00 > 79.90				0.2579	4.62		1.021e4		
4	4	13C2-PFHxA	315.0 > 269.80	4348.458	4.348e3	0.443	0.2579	3.27	3.36	9.349e3	40.7	105
5	5	13C2-PFDA	515.10 > 469.90	4997.532	4.998e3	0.509	0.2579	4.85	4.94	9.349e3	40.7	105
6	6	13C2-PFOA	414.90 > 369.70	9348.766	9.349e3	1.000	0.2579	4.21	4.30	9.349e3	38.8	100
7	7	13C4-PFOS	503.0 > 79.90	10207.969	1.021e4	1.000	0.2579	4.62	4.71	1.021e4	111	100

GM 12/14/17

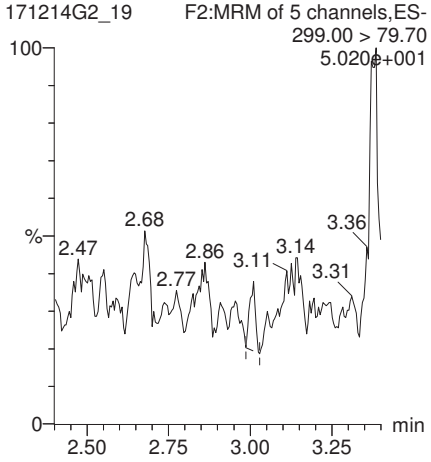
Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-19.qld

Last Altered: Thursday, December 14, 2017 14:48:47 Pacific Standard Time
Printed: Thursday, December 14, 2017 14:49:11 Pacific Standard Time

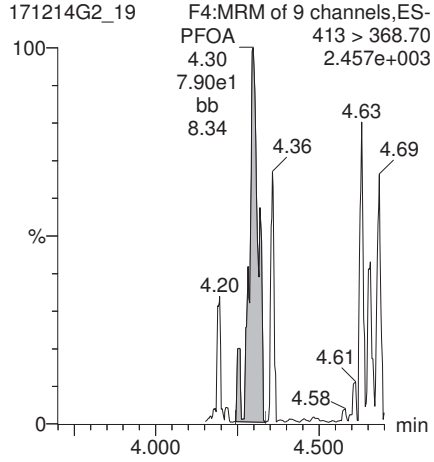
Method: C:\Projects\Q1.PRO\MethDB\PFAS_L3_DW_1206.mdb 06 Dec 2017 11:11:24
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: 1701875-12 CH-AT-2FB47-1217 0.25, Description: CH-AT-2FB47-1217, Name: 171214G2_19, Date: 14-Dec-2017, Time: 14:14:37, Instrument: , Lab: , User:

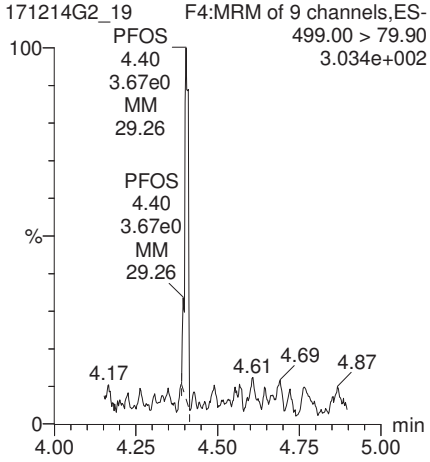
PFBS



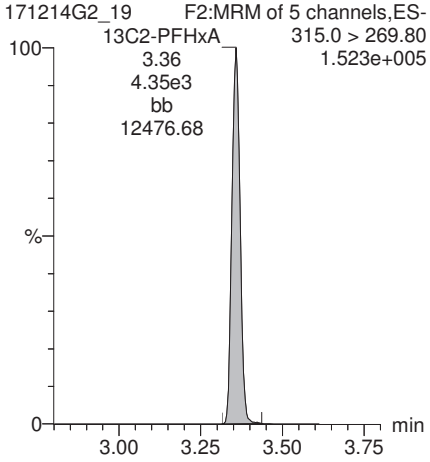
PFOA



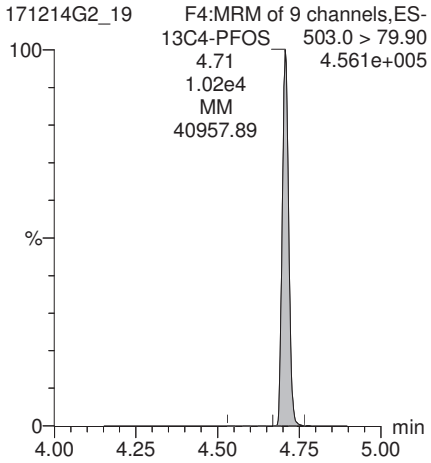
PFOS



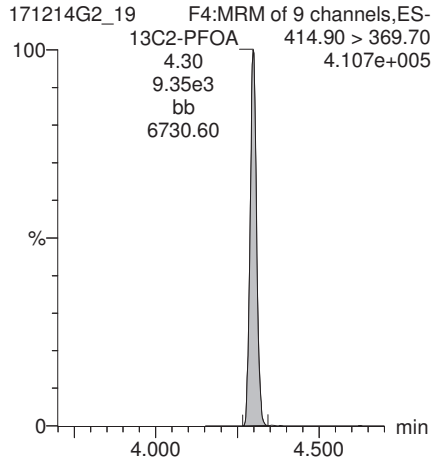
13C2-PFHxA



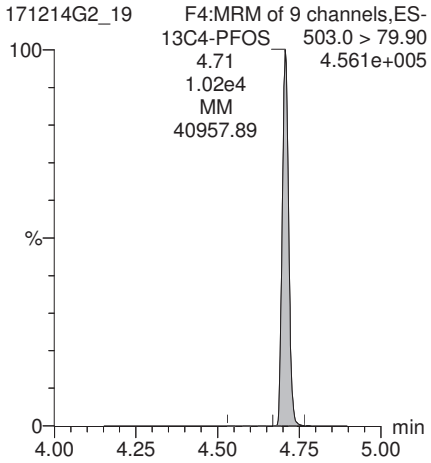
13C4-PFOS



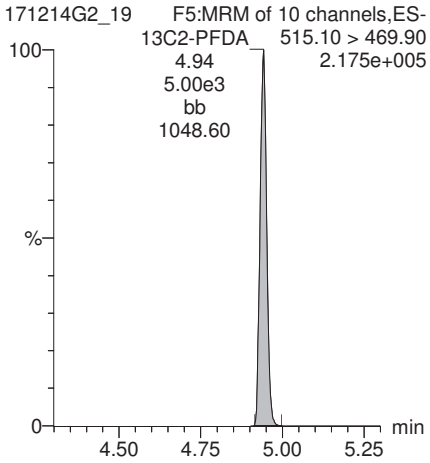
13C2-PFOA



13C4-PFOS



13C2-PFDA



GM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-20.qld

Last Altered: Thursday, December 14, 2017 14:50:13 Pacific Standard Time
Printed: Thursday, December 14, 2017 14:50:33 Pacific Standard Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_L3_DW_1206.mdb 06 Dec 2017 11:11:24
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: 1701875-13 CH-AT-2RW48A-1217 0.25, Description: CH-AT-2RW48A-1217, Name: 171214G2_20, Date: 14-Dec-2017, Time: 14:27:02

	#	Name	Trace	Area	Peak Area	RRF Mean	wt/vol	Pred.RT	RT	IS Resp	Conc.	%Rec
1	1	PFBS	299.00 > 79.70				0.2508	2.89		1.031e4		
2	2	PFOA	413 > 368.70	65.358	6.536e1		0.2508	4.21	4.31	1.004e4	0.320	
3	3	PFOS	499.00 > 79.90				0.2508	4.62		1.031e4		
4	4	13C2-PFHxA	315.0 > 269.80	4093.720	4.094e3	0.443	0.2508	3.27	3.36	1.004e4	36.7	92.0
5	5	13C2-PFDA	515.10 > 469.90	5178.228	5.178e3	0.509	0.2508	4.85	4.94	1.004e4	40.4	101
6	6	13C2-PFOA	414.90 > 369.70	10040.372	1.004e4	1.000	0.2508	4.21	4.30	1.004e4	39.9	100
7	7	13C4-PFOS	503.0 > 79.90	10312.860	1.031e4	1.000	0.2508	4.62	4.71	1.031e4	114	100

GM 12/14/17

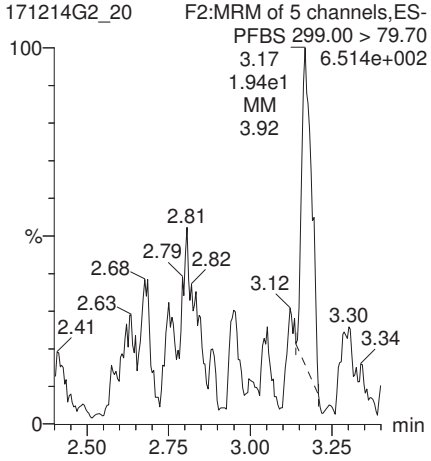
Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-20.qld

Last Altered: Thursday, December 14, 2017 14:50:13 Pacific Standard Time
Printed: Thursday, December 14, 2017 14:50:33 Pacific Standard Time

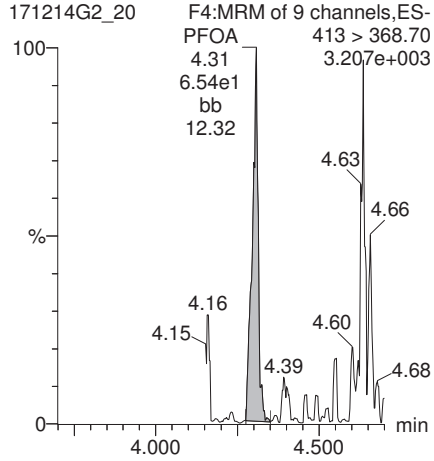
Method: C:\Projects\Q1.PRO\MethDB\PFAS_L3_DW_1206.mdb 06 Dec 2017 11:11:24
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: 1701875-13 CH-AT-2RW48A-1217 0.25, Description: CH-AT-2RW48A-1217, Name: 171214G2_20, Date: 14-Dec-2017, Time: 14:27:02, Instrument: , Lab: , User:

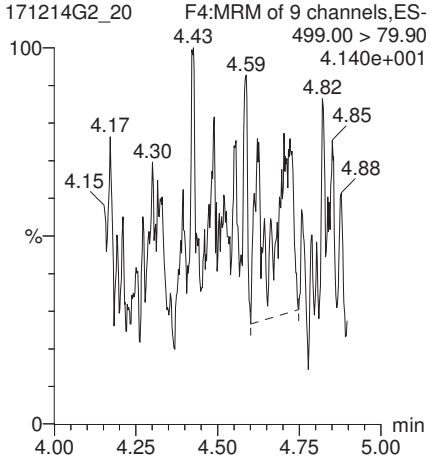
PFBS



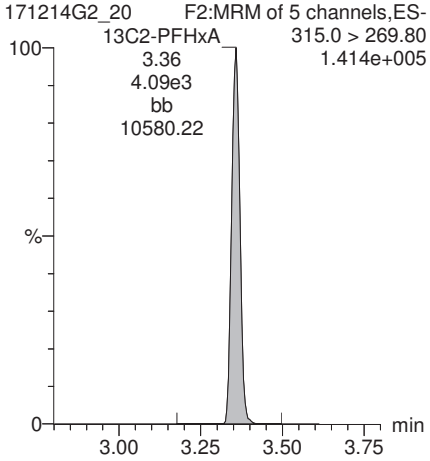
PFOA



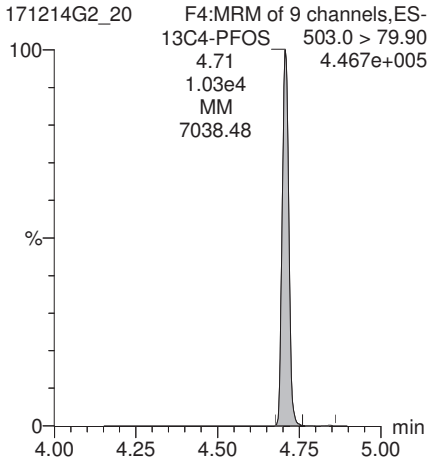
PFOS



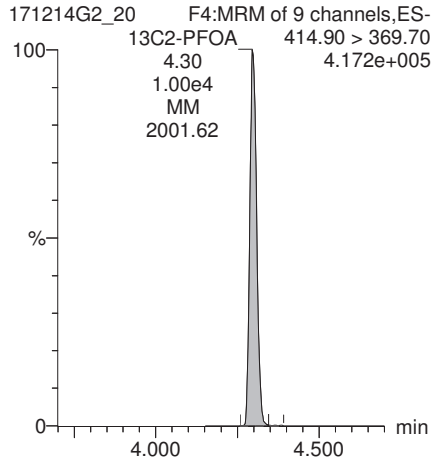
13C2-PFHxA



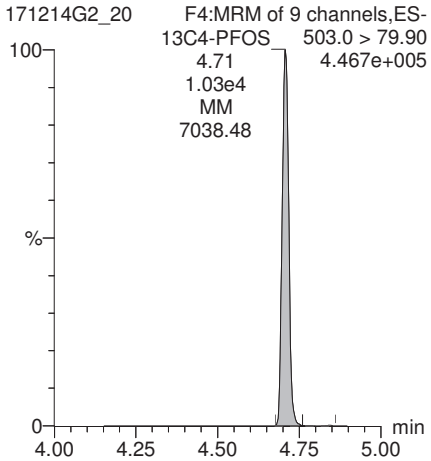
13C4-PFOS



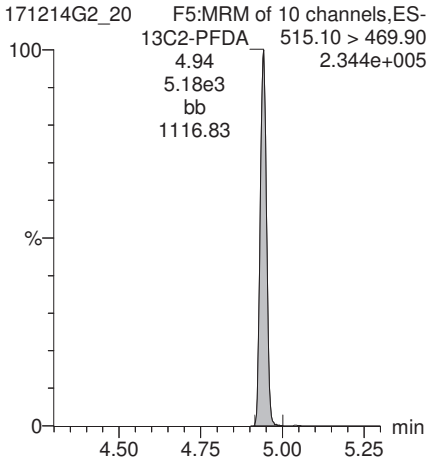
13C2-PFOA



13C4-PFOS



13C2-PFDA



GM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-1.qld

Last Altered: Thursday, December 14, 2017 15:37:02 Pacific Standard Time
Printed: Thursday, December 14, 2017 15:37:25 Pacific Standard Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_L3_DW_1206.mdb 06 Dec 2017 11:11:24
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: 1701875-14 CH-AT-2FB48A-1217 0.25, Description: CH-AT-2FB48A-1217, Name: 171214G2_21, Date: 14-Dec-2017, Time: 14:39:28

	#	Name	Trace	Area	Peak Area	RRF Mean	wt/vol	Pred.RT	RT	IS Resp	Conc.	%Rec
1	1	PFBS	299.00 > 79.70				0.2633	2.89		1.019e4		
2	2	PFOA	413 > 368.70	42.853	4.285e1		0.2633	4.21	4.31	9.384e3	0.214	
3	3	PFOS	499.00 > 79.90	1.137	1.137e0		0.2633	4.62	4.70	1.019e4	0.0101	
4	4	13C2-PFHxA	315.0 > 269.80	4563.253	4.563e3	0.443	0.2633	3.27	3.36	9.384e3	41.7	110
5	5	13C2-PFDA	515.10 > 469.90	5198.269	5.198e3	0.509	0.2633	4.85	4.94	9.384e3	41.3	109
6	6	13C2-PFOA	414.90 > 369.70	9384.449	9.384e3	1.000	0.2633	4.21	4.30	9.384e3	38.0	100
7	7	13C4-PFOS	503.0 > 79.90	10189.356	1.019e4	1.000	0.2633	4.62	4.71	1.019e4	109	100

GM 12/14/17

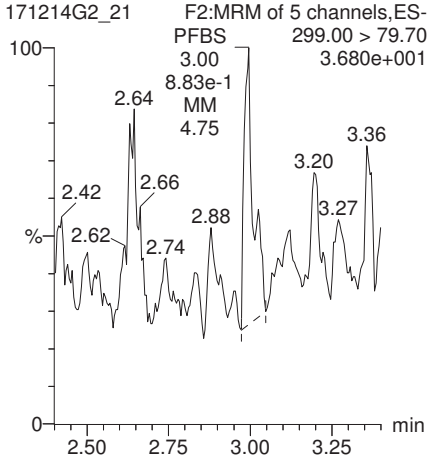
Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-1.qld

Last Altered: Thursday, December 14, 2017 15:37:02 Pacific Standard Time
Printed: Thursday, December 14, 2017 15:37:25 Pacific Standard Time

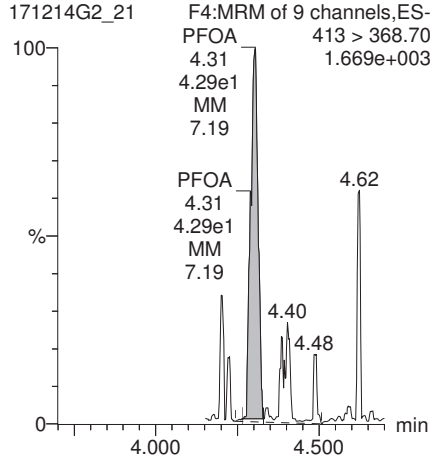
Method: C:\Projects\Q1.PRO\MethDB\PFAS_L3_DW_1206.mdb 06 Dec 2017 11:11:24
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: 1701875-14 CH-AT-2FB48A-1217 0.25, Description: CH-AT-2FB48A-1217, Name: 171214G2_21, Date: 14-Dec-2017, Time: 14:39:28, Instrument: , Lab: , User:

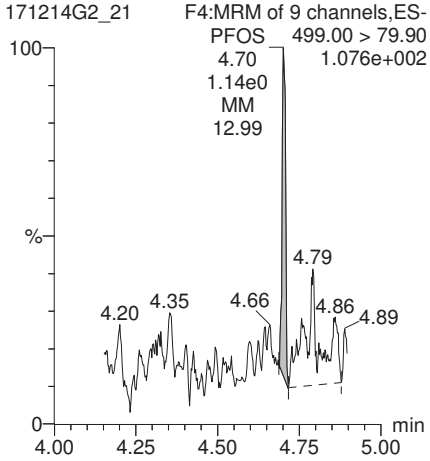
PFBS



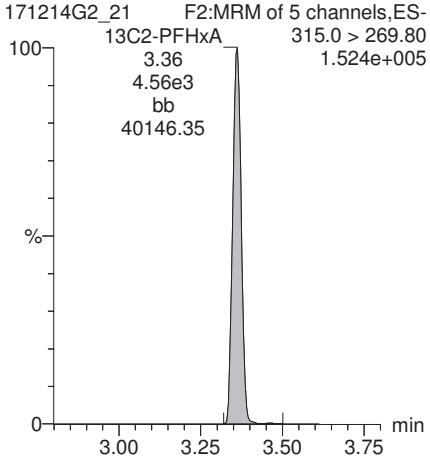
PFOA



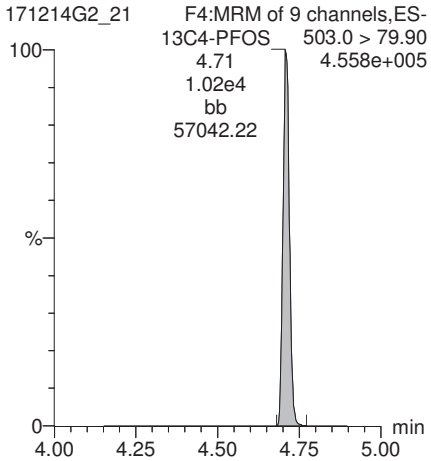
PFOS



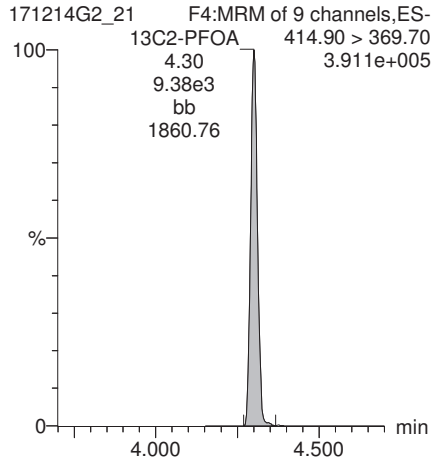
13C2-PFHxA



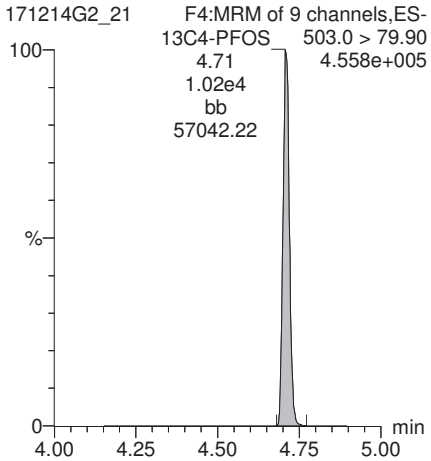
13C4-PFOS



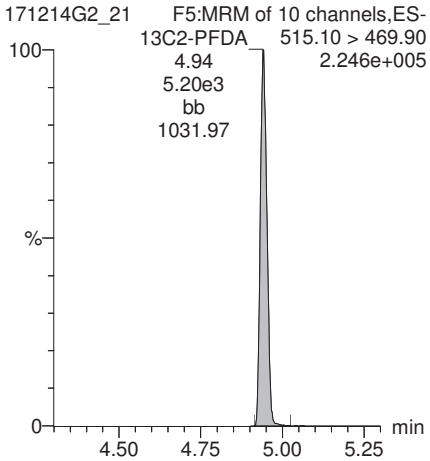
13C2-PFOA



13C4-PFOS



13C2-PFDA



GM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-22.qld

Last Altered: Thursday, December 14, 2017 15:38:14 Pacific Standard Time
Printed: Thursday, December 14, 2017 15:38:37 Pacific Standard Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_L3_DW_1206.mdb 06 Dec 2017 11:11:24
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: 1701875-15 CH-AT-2RW48B-1217 0.25, Description: CH-AT-2RW48B-1217, Name: 171214G2_22, Date: 14-Dec-2017, Time: 14:51:53

	#	Name	Trace	Area	Peak Area	RRF Mean	wt/vol	Pred.RT	RT	IS Resp	Conc.	%Rec
1	1	PFBS	299.00 > 79.70				0.2471	2.89		9.044e3		
2	2	PFOA	413 > 368.70	68.799	6.880e1		0.2471	4.21	4.30	8.772e3	0.391	
3	3	PFOS	499.00 > 79.90				0.2471	4.62		9.044e3		
4	4	13C2-PFHxA	315.0 > 269.80	4083.168	4.083e3	0.443	0.2471	3.27	3.36	8.772e3	42.5	105
5	5	13C2-PFDA	515.10 > 469.90	4785.041	4.785e3	0.509	0.2471	4.85	4.94	8.772e3	43.4	107
6	6	13C2-PFOA	414.90 > 369.70	8771.618	8.772e3	1.000	0.2471	4.21	4.30	8.772e3	40.5	100
7	7	13C4-PFOS	503.0 > 79.90	9043.934	9.044e3	1.000	0.2471	4.62	4.71	9.044e3	116	100

GM 12/14/17

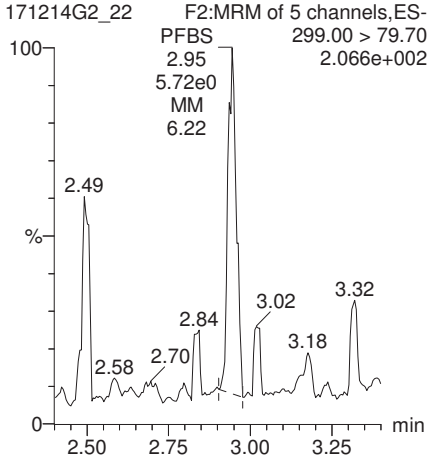
Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-22.qld

Last Altered: Thursday, December 14, 2017 15:38:14 Pacific Standard Time
Printed: Thursday, December 14, 2017 15:38:37 Pacific Standard Time

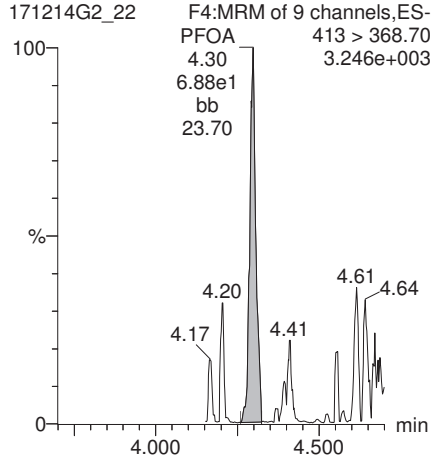
Method: C:\Projects\Q1.PRO\MethDB\PFAS_L3_DW_1206.mdb 06 Dec 2017 11:11:24
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: 1701875-15 CH-AT-2RW48B-1217 0.25, Description: CH-AT-2RW48B-1217, Name: 171214G2_22, Date: 14-Dec-2017, Time: 14:51:53, Instrument: , Lab: , User:

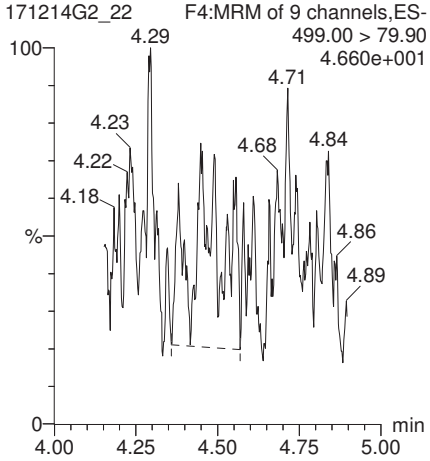
PFBS



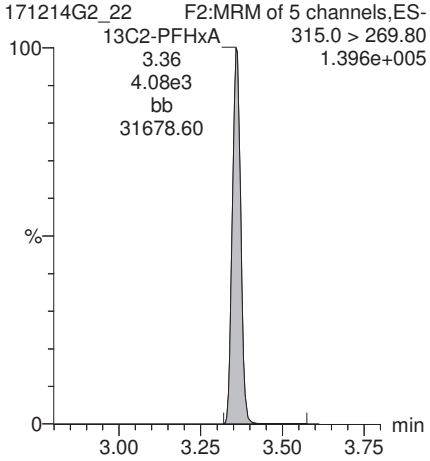
PFOA



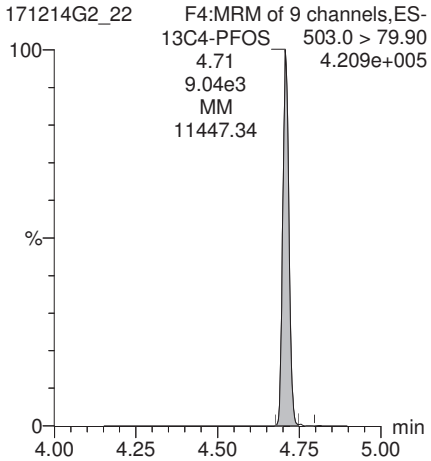
PFOS



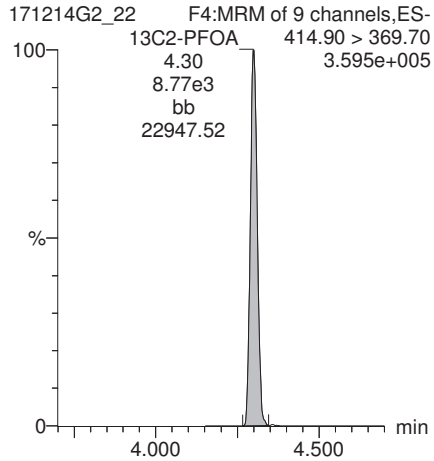
13C2-PFHxA



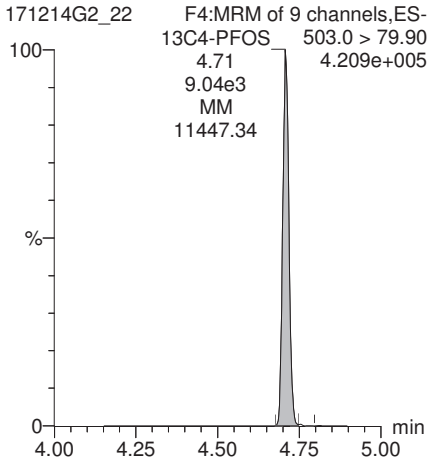
13C4-PFOS



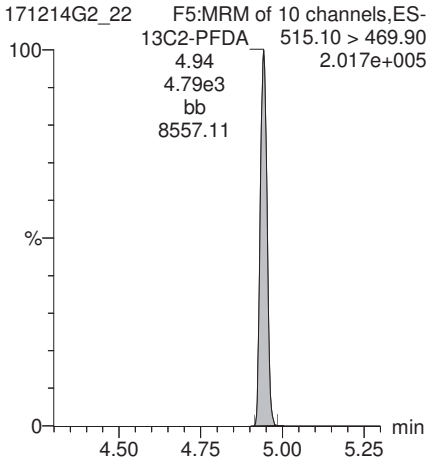
13C2-PFOA



13C4-PFOS



13C2-PFDA



GM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-23.qld

Last Altered: Thursday, December 14, 2017 15:39:59 Pacific Standard Time
Printed: Thursday, December 14, 2017 15:40:19 Pacific Standard Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_L3_DW_1206.mdb 06 Dec 2017 11:11:24
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: 1701875-16 CH-AT-2FB48B-1217 0.25, Description: CH-AT-2FB48B-1217, Name: 171214G2_23, Date: 14-Dec-2017, Time: 15:04:18

	#	Name	Trace	Area	Peak Area	RRF Mean	wt/vol	Pred.RT	RT	IS Resp	Conc.	%Rec
1	1	PFBS	299.00 > 79.70				0.2594	2.89		8.999e3		
2	2	PFOA	413 > 368.70	45.833	4.583e1		0.2594	4.21	4.30	9.288e3	0.234	
3	3	PFOS	499.00 > 79.90				0.2594	4.62		8.999e3		
4	4	13C2-PFHxA	315.0 > 269.80	4096.765	4.097e3	0.443	0.2594	3.27	3.36	9.288e3	38.4	99.6
5	5	13C2-PFDA	515.10 > 469.90	4807.168	4.807e3	0.509	0.2594	4.85	4.94	9.288e3	39.2	102
6	6	13C2-PFOA	414.90 > 369.70	9287.623	9.288e3	1.000	0.2594	4.21	4.30	9.288e3	38.6	100
7	7	13C4-PFOS	503.0 > 79.90	8999.327	8.999e3	1.000	0.2594	4.62	4.71	8.999e3	111	100

GM 12/14/17

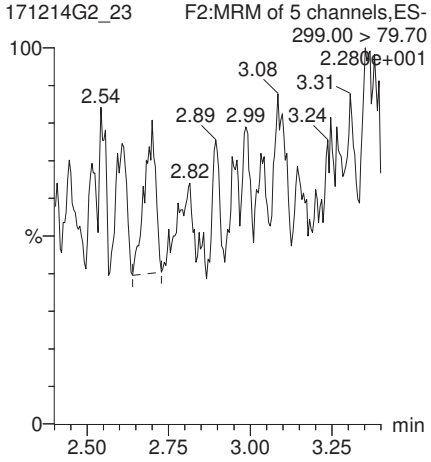
Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-23.qld

Last Altered: Thursday, December 14, 2017 15:39:59 Pacific Standard Time
Printed: Thursday, December 14, 2017 15:40:19 Pacific Standard Time

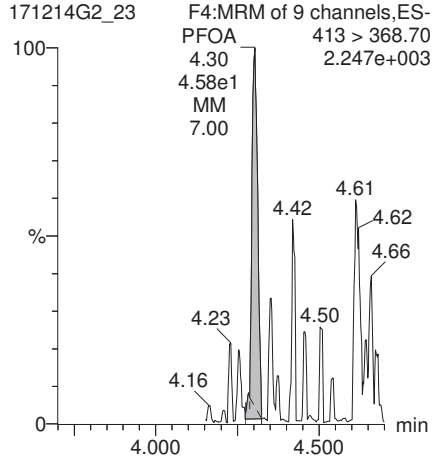
Method: C:\Projects\Q1.PRO\MethDB\PFAS_L3_DW_1206.mdb 06 Dec 2017 11:11:24
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: 1701875-16 CH-AT-2FB48B-1217 0.25, Description: CH-AT-2FB48B-1217, Name: 171214G2_23, Date: 14-Dec-2017, Time: 15:04:18, Instrument: , Lab: , User:

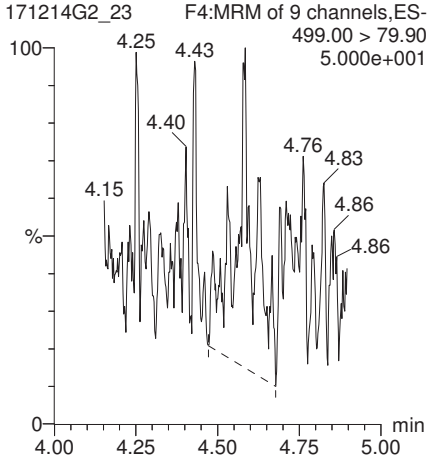
PFBS



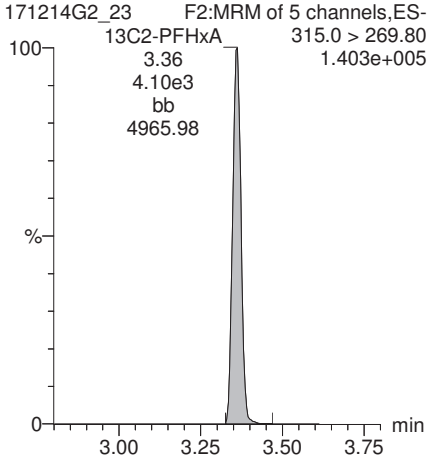
PFOA



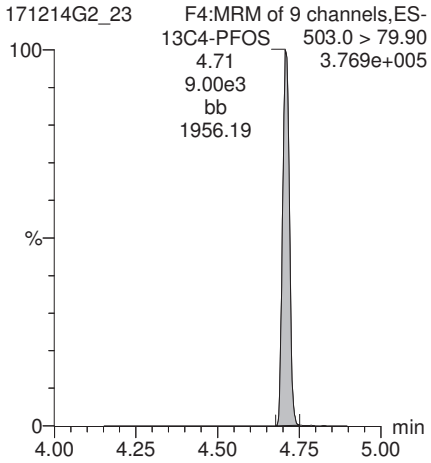
PFOS



13C2-PFHxA



13C4-PFOS



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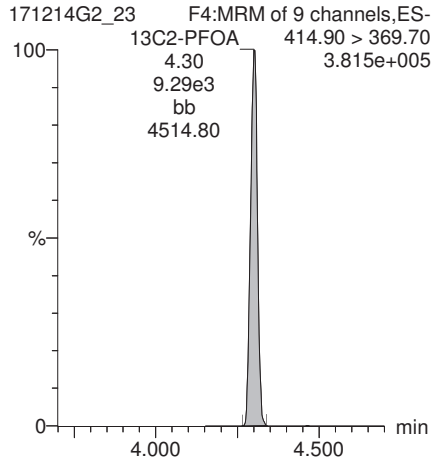
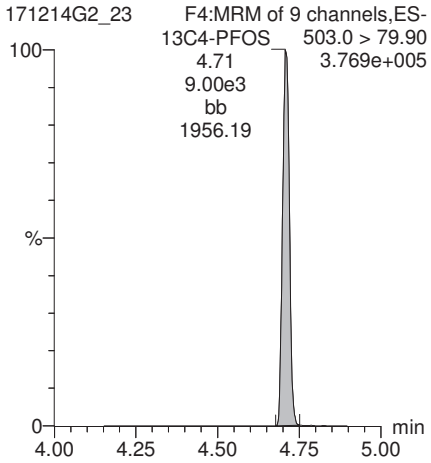


13C4-PFOS



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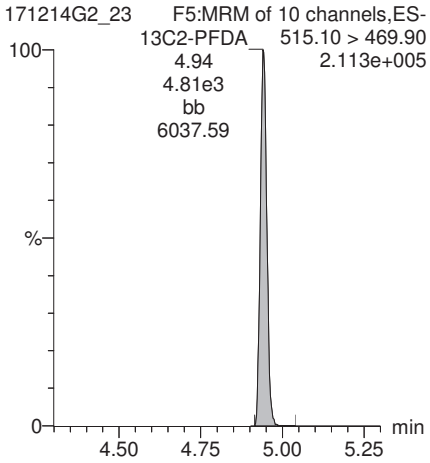

GM 12/14/17

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-24.qld

Last Altered: Thursday, December 14, 2017 15:41:04 Pacific Standard Time
Printed: Thursday, December 14, 2017 15:41:30 Pacific Standard Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_L3_DW_1206.mdb 06 Dec 2017 11:11:24
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: 1701875-17 CH-AT-2EB01-1217 0.25, Description: CH-AT-2EB01-1217, Name: 171214G2_24, Date: 14-Dec-2017, Time: 15:16:49

	#	Name	Trace	Area	Peak Area	RRF Mean	wt/vol	Pred.RT	RT	IS Resp	Conc.	%Rec
1	1	PFBS	299.00 > 79.70				0.2559	2.89		1.034e4		
2	2	PFOA	413 > 368.70	38.534	3.853e1		0.2559	4.21	4.29	1.006e4	0.184	
3	3	PFOS	499.00 > 79.90				0.2559	4.62		1.034e4		
4	4	13C2-PFHxA	315.0 > 269.80	4420.456	4.420e3	0.443	0.2559	3.27	3.36	1.006e4	38.8	99.2
5	5	13C2-PFDA	515.10 > 469.90	4789.745	4.790e3	0.509	0.2559	4.85	4.94	1.006e4	36.5	93.5
6	6	13C2-PFOA	414.90 > 369.70	10060.267	1.006e4	1.000	0.2559	4.21	4.30	1.006e4	39.1	100
7	7	13C4-PFOS	503.0 > 79.90	10338.562	1.034e4	1.000	0.2559	4.62	4.71	1.034e4	112	100

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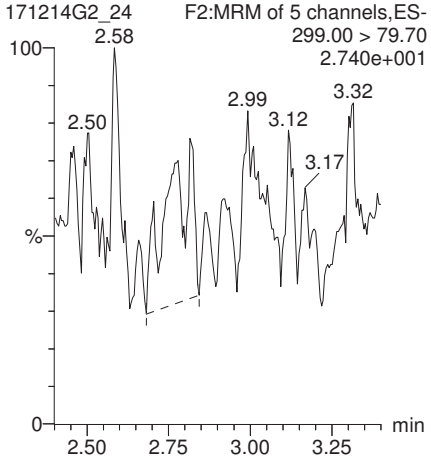
Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-24.qld

Last Altered: Thursday, December 14, 2017 15:41:04 Pacific Standard Time
Printed: Thursday, December 14, 2017 15:41:30 Pacific Standard Time

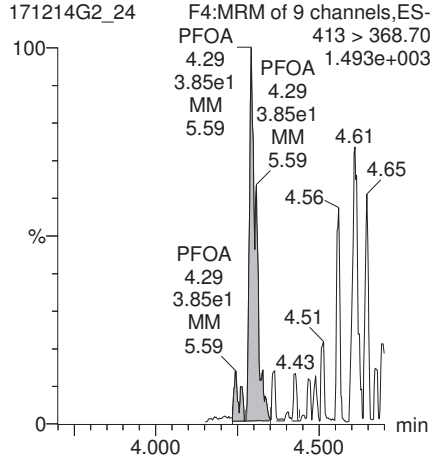
Method: C:\Projects\Q1.PRO\MethDB\PFAS_L3_DW_1206.mdb 06 Dec 2017 11:11:24
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: 1701875-17 CH-AT-2EB01-1217 0.25, Description: CH-AT-2EB01-1217, Name: 171214G2_24, Date: 14-Dec-2017, Time: 15:16:49, Instrument: , Lab: , User:

PFBS



PFOA



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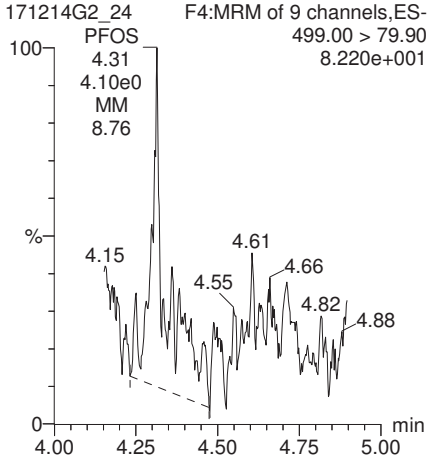
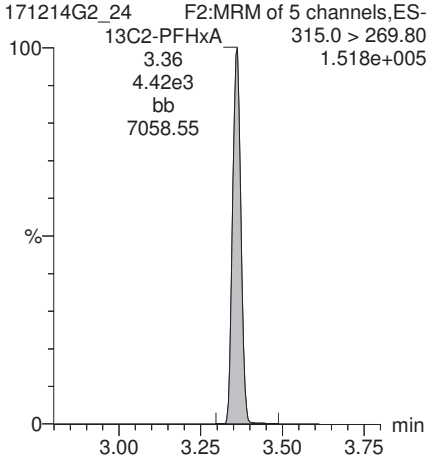
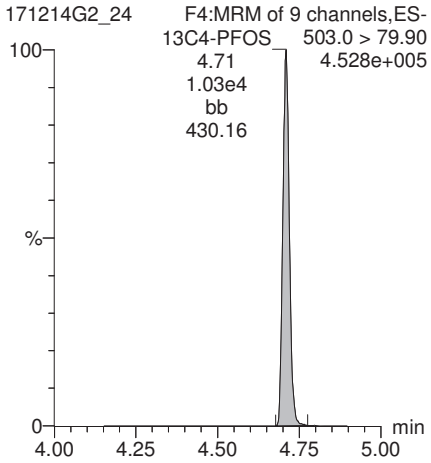


13C2-PFHxA



13C4-PFOS



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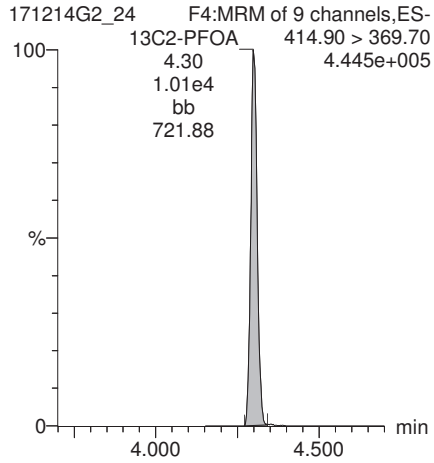

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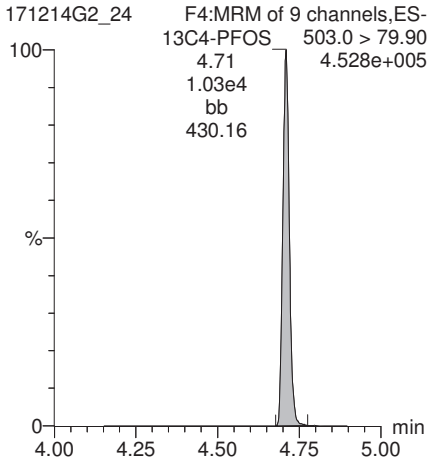

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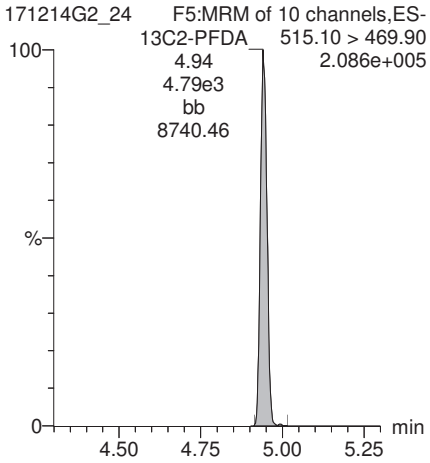

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INJECTION INTERNAL STANDARD (IIS) AREAS,

INSTRUMENT BLANKS (IB)

AND

CONTINUTING CALIBRATION VERIFICATIONS CCV)

IS Area

Ical

Compound 6: 13C2-PFOA

	ID	Name	Type	RT	Area	IS Area	Ical Area	Area %
1	ST171214G2-1 PFC CS-1 537 17L1106	171214G2_	Analyte	4.29	12322.23	12322.23	12372.36	99.59478
2	IPA	171214G2_	Analyte	4.53	0.226	0.226	12372.36	0.001827
3	B7L0066-BS1 LFB 0.25	171214G2_	Analyte	4.29	10649.72	10649.72	12372.36	86.07674
4	B7L0066-BSD1 LFBD 0.25	171214G2_	Analyte	4.3	9570.696	9570.696	12372.36	77.35546
5	B7L0066-BLK1 LRB 0.25	171214G2_	Analyte	4.29	9886.041	9886.041	12372.36	79.90425
6	1701875-01 CH-AT-2RW42-1217 0.25	171214G2_	Analyte	4.3	9141.917	9141.917	12372.36	73.88984
7	1701875-02 CH-AT-2FB42-1217 0.25	171214G2_	Analyte	4.3	9380.221	9380.221	12372.36	75.81594
8	1701875-03 CH-AT-2RW43-1217 0.25	171214G2_	Analyte	4.3	9025.746	9025.746	12372.36	72.95088
9	1701875-04 CH-AT-2FB43-1217 0.25	171214G2_	Analyte	4.3	10008.94	10008.94	12372.36	80.89758
10	1701875-05 CH-AT-2RW44-1217 0.25	171214G2_	Analyte	4.3	10694.27	10694.27	12372.36	86.43674
11	1701875-06 CH-AT-2FB44-1217 0.25	171214G2_	Analyte	4.3	10426.47	10426.47	12372.36	84.2723
12	1701875-07 CH-AT-2RW45-1217 0.25	171214G2_	Analyte	4.3	10059.88	10059.88	12372.36	81.3093
13	1701875-08 CH-AT-2FB45-1217 0.25	171214G2_	Analyte	4.3	9882.868	9882.868	12372.36	79.8786
14	1701875-09 CH-AT-2RW46-1217 0.25	171214G2_	Analyte	4.3	10259.84	10259.84	12372.36	82.9255
15	1701875-10 CH-AT-2FB46-1217 0.25	171214G2_	Analyte	4.3	9715.818	9715.818	12372.36	78.52841
16	1701875-11 CH-AT-2RW47-1217 0.25	171214G2_	Analyte	4.3	9541.609	9541.609	12372.36	77.12036
17	1701875-12 CH-AT-2FB47-1217 0.25	171214G2_	Analyte	4.3	9348.766	9348.766	12372.36	75.5617
18	1701875-13 CH-AT-2RW48A-1217 0.25	171214G2_	Analyte	4.3	10073.14	10073.14	12372.36	81.41648
19	1701875-14 CH-AT-2FB48A-1217 0.25	171214G2_	Analyte	4.3	9384.449	9384.449	12372.36	75.85011
20	1701875-15 CH-AT-2RW48B-1217 0.25	171214G2_	Analyte	4.3	8771.618	8771.618	12372.36	70.89689
21	1701875-16 CH-AT-2FB48B-1217 0.25	171214G2_	Analyte	4.3	9287.623	9287.623	12372.36	75.06751
22	1701875-17 CH-AT-2EB01-1217 0.25	171214G2_	Analyte	4.3	10060.27	10060.27	12372.36	81.31243
23	IPA	171214G2_	Analyte	4.3	3.594	3.594	12372.36	0.029049
24	ST171214G2-2 PFC CS3 17K3027	171214G2_	Analyte	4.3	11145.5	11145.5	12372.36	90.08386

Compound 7: 13C4-PFOS

	ID	Name	Type	RT	Area	IS Area	Ical Area	Area %
1	ST171214G2-1 PFC CS-1 537 17L1106	171214G2_	Analyte	4.71	11568.89	11568.89	13322.56	86.83682
2	IPA	171214G2_	Analyte	4.56	2.446	2.446	13322.56	0.01836
3	B7L0066-BS1 LFB 0.25	171214G2_	Analyte	4.71	10165.77	10165.77	13322.56	76.30489
4	B7L0066-BSD1 LFBD 0.25	171214G2_	Analyte	4.71	9674.903	9674.903	13322.56	72.62045
5	B7L0066-BLK1 LRB 0.25	171214G2_	Analyte	4.71	9638.731	9638.731	13322.56	72.34894
6	1701875-01 CH-AT-2RW42-1217 0.25	171214G2_	Analyte	4.71	9286.818	9286.818	13322.56	69.70746
7	1701875-02 CH-AT-2FB42-1217 0.25	171214G2_	Analyte	4.71	10383.51	10383.51	13322.56	77.93928
8	1701875-03 CH-AT-2RW43-1217 0.25	171214G2_	Analyte	4.71	9703.133	9703.133	13322.56	72.83235
9	1701875-04 CH-AT-2FB43-1217 0.25	171214G2_	Analyte	4.71	9844.489	9844.489	13322.56	73.89337
10	1701875-05 CH-AT-2RW44-1217 0.25	171214G2_	Analyte	4.71	10295.47	10295.47	13322.56	77.2785
11	1701875-06 CH-AT-2FB44-1217 0.25	171214G2_	Analyte	4.71	10912.02	10912.02	13322.56	81.90633
12	1701875-07 CH-AT-2RW45-1217 0.25	171214G2_	Analyte	4.71	10681.33	10681.33	13322.56	80.17479
13	1701875-08 CH-AT-2FB45-1217 0.25	171214G2_	Analyte	4.71	8895.184	8895.184	13322.56	66.76783
14	1701875-09 CH-AT-2RW46-1217 0.25	171214G2_	Analyte	4.71	9900.912	9900.912	13322.56	74.31689
15	1701875-10 CH-AT-2FB46-1217 0.25	171214G2_	Analyte	4.71	10463.8	10463.8	13322.56	78.54196
16	1701875-11 CH-AT-2RW47-1217 0.25	171214G2_	Analyte	4.71	9420.171	9420.171	13322.56	70.70841
17	1701875-12 CH-AT-2FB47-1217 0.25	171214G2_	Analyte	4.71	10210.23	10210.23	13322.56	76.63866
18	1701875-13 CH-AT-2RW48A-1217 0.25	171214G2_	Analyte	4.71	10343.68	10343.68	13322.56	77.64035
19	1701875-14 CH-AT-2FB48A-1217 0.25	171214G2_	Analyte	4.71	10189.36	10189.36	13322.56	76.48197
20	1701875-15 CH-AT-2RW48B-1217 0.25	171214G2_	Analyte	4.71	9074.72	9074.72	13322.56	68.11544
21	1701875-16 CH-AT-2FB48B-1217 0.25	171214G2_	Analyte	4.71	8999.327	8999.327	13322.56	67.54953
22	1701875-17 CH-AT-2EB01-1217 0.25	171214G2_	Analyte	4.71	10338.56	10338.56	13322.56	77.60192
23	IPA	171214G2_	Analyte	4.42	4.055	4.055	13322.56	0.030437
24	ST171214G2-2 PFC CS3 17K3027	171214G2_	Analyte	4.71	10522.22	10522.22	13322.56	78.98044

Ccal

Compound 6: 13C2-PFOA ST171214G2-1 PFC CS-1 537 17L1106

	ID	Name	Type	RT	Area	IS Area	Ccal Area	Area %
1	ST171214G2-1 PFC CS-1 537 17L1106	171214G2_	Analyte	4.29	12322.23	12322.23	12322.23	100
2	IPA	171214G2_	Analyte	4.53	0.226	0.226	12322.23	0.001834
3	B7L0066-BS1 LFB 0.25	171214G2_	Analyte	4.29	10649.72	10649.72	12322.23	86.42696

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4	B7L0066-BSD1 LFBD 0.25	171214G2_	Analyte	4.3	9570.696	9570.696	12322.23	77.67019
5	B7L0066-BLK1 LRB 0.25	171214G2_	Analyte	4.29	9886.041	9886.041	12322.23	80.22935
6	1701875-01 CH-AT-2RW42-1217 0.25	171214G2_	Analyte	4.3	9141.917	9141.917	12322.23	74.19047
7	1701875-02 CH-AT-2FB42-1217 0.25	171214G2_	Analyte	4.3	9380.221	9380.221	12322.23	76.12441
8	1701875-03 CH-AT-2RW43-1217 0.25	171214G2_	Analyte	4.3	9025.746	9025.746	12322.23	73.2477
9	1701875-04 CH-AT-2FB43-1217 0.25	171214G2_	Analyte	4.3	10008.94	10008.94	12322.23	81.22673
10	1701875-05 CH-AT-2RW44-1217 0.25	171214G2_	Analyte	4.3	10694.27	10694.27	12322.23	86.78842
11	1701875-06 CH-AT-2FB44-1217 0.25	171214G2_	Analyte	4.3	10426.47	10426.47	12322.23	84.61517
12	1701875-07 CH-AT-2RW45-1217 0.25	171214G2_	Analyte	4.3	10059.88	10059.88	12322.23	81.64012
13	1701875-08 CH-AT-2FB45-1217 0.25	171214G2_	Analyte	4.3	9882.868	9882.868	12322.23	80.2036
14	1701875-09 CH-AT-2RW46-1217 0.25	171214G2_	Analyte	4.3	10259.84	10259.84	12322.23	83.2629
15	1701875-10 CH-AT-2FB46-1217 0.25	171214G2_	Analyte	4.3	9715.818	9715.818	12322.23	78.84792
16	1701875-11 CH-AT-2RW47-1217 0.25	171214G2_	Analyte	4.3	9541.609	9541.609	12322.23	77.43414
17	1701875-12 CH-AT-2FB47-1217 0.25	171214G2_	Analyte	4.3	9348.766	9348.766	12322.23	75.86914
18	1701875-13 CH-AT-2RW48A-1217 0.25	171214G2_	Analyte	4.3	10073.14	10073.14	12322.23	81.74774
19	1701875-14 CH-AT-2FB48A-1217 0.25	171214G2_	Analyte	4.3	9384.449	9384.449	12322.23	76.15872
20	1701875-15 CH-AT-2RW48B-1217 0.25	171214G2_	Analyte	4.3	8771.618	8771.618	12322.23	71.18534
21	1701875-16 CH-AT-2FB48B-1217 0.25	171214G2_	Analyte	4.3	9287.623	9287.623	12322.23	75.37294
22	1701875-17 CH-AT-2EB01-1217 0.25	171214G2_	Analyte	4.3	10060.27	10060.27	12322.23	81.64327
23	IPA	171214G2_	Analyte	4.3	3.594	3.594	12322.23	0.029167
24	ST171214G2-2 PFC CS3 17K3027	171214G2_	Analyte	4.3	11145.5	11145.5	12322.23	90.45038

Compound 7: 13C4-PFOS

ID	Name	Type	RT	Area	IS Area	Ccal Area	Area %
1 ST171214G2-1 PFC CS-1 537 17L1106	171214G2_	Analyte	4.71	11568.89	11568.89	11568.89	100
2 IPA	171214G2_	Analyte	4.56	2.446	2.446	11568.89	0.021143
3 B7L0066-BS1 LFB 0.25	171214G2_	Analyte	4.71	10165.77	10165.77	11568.89	87.87159
4 B7L0066-BSD1 LFBD 0.25	171214G2_	Analyte	4.71	9674.903	9674.903	11568.89	83.62864
5 B7L0066-BLK1 LRB 0.25	171214G2_	Analyte	4.71	9638.731	9638.731	11568.89	83.31597
6 1701875-01 CH-AT-2RW42-1217 0.25	171214G2_	Analyte	4.71	9286.818	9286.818	11568.89	80.27408
7 1701875-02 CH-AT-2FB42-1217 0.25	171214G2_	Analyte	4.71	10383.51	10383.51	11568.89	89.75372
8 1701875-03 CH-AT-2RW43-1217 0.25	171214G2_	Analyte	4.71	9703.133	9703.133	11568.89	83.87266
9 1701875-04 CH-AT-2FB43-1217 0.25	171214G2_	Analyte	4.71	9844.489	9844.489	11568.89	85.09452

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10	1701875-05 CH-AT-2RW44-1217 0.25	171214G2_ Analyte	4.71	10295.47	10295.47	11568.89	88.99278
11	1701875-06 CH-AT-2FB44-1217 0.25	171214G2_ Analyte	4.71	10912.02	10912.02	11568.89	94.32212
12	1701875-07 CH-AT-2RW45-1217 0.25	171214G2_ Analyte	4.71	10681.33	10681.33	11568.89	92.3281
13	1701875-08 CH-AT-2FB45-1217 0.25	171214G2_ Analyte	4.71	8895.184	8895.184	11568.89	76.88885
14	1701875-09 CH-AT-2RW46-1217 0.25	171214G2_ Analyte	4.71	9900.912	9900.912	11568.89	85.58223
15	1701875-10 CH-AT-2FB46-1217 0.25	171214G2_ Analyte	4.71	10463.8	10463.8	11568.89	90.44777
16	1701875-11 CH-AT-2RW47-1217 0.25	171214G2_ Analyte	4.71	9420.171	9420.171	11568.89	81.42677
17	1701875-12 CH-AT-2FB47-1217 0.25	171214G2_ Analyte	4.71	10210.23	10210.23	11568.89	88.25596
18	1701875-13 CH-AT-2RW48A-1217 0.25	171214G2_ Analyte	4.71	10343.68	10343.68	11568.89	89.40948
19	1701875-14 CH-AT-2FB48A-1217 0.25	171214G2_ Analyte	4.71	10189.36	10189.36	11568.89	88.07551
20	1701875-15 CH-AT-2RW48B-1217 0.25	171214G2_ Analyte	4.71	9074.72	9074.72	11568.89	78.44074
21	1701875-16 CH-AT-2FB48B-1217 0.25	171214G2_ Analyte	4.71	8999.327	8999.327	11568.89	77.78905
22	1701875-17 CH-AT-2EB01-1217 0.25	171214G2_ Analyte	4.71	10338.56	10338.56	11568.89	89.36523
23	IPA	171214G2_ Analyte	4.42	4.055	4.055	11568.89	0.035051
24	ST171214G2-2 PFC CS3 17K3027	171214G2_ Analyte	4.71	10522.22	10522.22	11568.89	90.95272

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Vista Analytical Laboratory

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-3.qld

Last Altered: Thursday, December 14, 2017 11:05:49 Pacific Standard Time
Printed: Thursday, December 14, 2017 16:11:31 Pacific Standard Time

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

Name: 171214G2_3, Date: 14-Dec-2017, Time: 10:55:27, ID: ST171214G2-1 PFC CS-1 537 17L1106, Description: PFC CS-1 537 17L1106

	#	Name	Trace	Area	IS Area	RRF	wt/vol	Pred.RT	RT	y Axis Resp.	Conc.	%Rec
1	1	PFBS	299 > 79.7	6.32e2	1.18e4		1.0000	3.01	2.99	1.54	1.93	108.8
2	2	PFOA	413 > 368.7	1.97e3	1.23e4		1.0000	4.29	4.29	1.60	1.97	98.7
3	3	PFOS	499 >79.9	7.65e2	1.18e4		1.0000	4.71	4.70	1.86	1.55	83.8
4	4	13C2-PFHxA	315 > 269.8	5.15e3	1.23e4	0.443	1.0000	3.35	3.34	4.19	9.46	94.6
5	5	13C2-PFDA	515.1 > 469.9	5.75e3	1.23e4	0.509	1.0000	4.92	4.94	4.68	9.19	91.9
6	6	13C2-PFOA	414.9 > 369.7	1.23e4	1.23e4	1.000	1.0000	4.41	4.29	10.0	10.0	100.0
7	7	13C4-PFOS	503.0 > 79.9	1.18e4	1.18e4	1.000	1.0000	4.81	4.71	28.7	28.7	100.0

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OM 12/14/17

✓ JA. 12/14/2017

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Thursday, December 14, 2017 16:12:57 Pacific Standard Time
Printed: Thursday, December 14, 2017 16:13:05 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Compound name: PFBS

	Name	ID	Acq.Date	Acq.Time
1	171214G2_2	IPA	14-Dec-17	10:43:02
2	171214G2_3	ST171214G2-1 PFC CS-1 537 17L1106	14-Dec-17	10:55:27
3	171214G2_4	IPA	14-Dec-17	11:07:51
4	171214G2_5	B7L0066-BS1 LFB 0.25	14-Dec-17	11:20:22
5	171214G2_6	B7L0066-BSD1 LFBD 0.25	14-Dec-17	11:32:47
6	171214G2_7	B7L0066-BLK1 LRB 0.25	14-Dec-17	11:45:13
7	171214G2_8	1701875-01 CH-AT-2RW42-1217 0.25	14-Dec-17	11:57:40
8	171214G2_9	1701875-02 CH-AT-2FB42-1217 0.25	14-Dec-17	12:10:07
9	171214G2_10	1701875-03 CH-AT-2RW43-1217 0.25	14-Dec-17	12:22:35
10	171214G2_11	1701875-04 CH-AT-2FB43-1217 0.25	14-Dec-17	12:35:04
11	171214G2_12	1701875-05 CH-AT-2RW44-1217 0.25	14-Dec-17	12:47:28
12	171214G2_13	1701875-06 CH-AT-2FB44-1217 0.25	14-Dec-17	12:59:53
13	171214G2_14	1701875-07 CH-AT-2RW45-1217 0.25	14-Dec-17	13:12:18
14	171214G2_15	1701875-08 CH-AT-2FB45-1217 0.25	14-Dec-17	13:24:44
15	171214G2_16	1701875-09 CH-AT-2RW46-1217 0.25	14-Dec-17	13:37:11
16	171214G2_17	1701875-10 CH-AT-2FB46-1217 0.25	14-Dec-17	13:49:38
17	171214G2_18	1701875-11 CH-AT-2RW47-1217 0.25	14-Dec-17	14:02:06
18	171214G2_19	1701875-12 CH-AT-2FB47-1217 0.25	14-Dec-17	14:14:37
19	171214G2_20	1701875-13 CH-AT-2RW48A-1217 0.25	14-Dec-17	14:27:02
20	171214G2_21	1701875-14 CH-AT-2FB48A-1217 0.25	14-Dec-17	14:39:28
21	171214G2_22	1701875-15 CH-AT-2RW48B-1217 0.25	14-Dec-17	14:51:53
22	171214G2_23	1701875-16 CH-AT-2FB48B-1217 0.25	14-Dec-17	15:04:18
23	171214G2_24	1701875-17 CH-AT-2EB01-1217 0.25	14-Dec-17	15:16:49
24	171214G2_25	IPA	14-Dec-17	15:29:20
25	171214G2_26	ST171214G2-2 PFC CS3 17K3027	14-Dec-17	15:41:47
26	171214G2_27	IPA	14-Dec-17	15:54:13

LC Calibration Standards Review Checklist Q1

			ION Ratio	Concentration	C-Cals Name	Sign Date	Correct I-Cal	Manual Integrations	NA
Calibration ID:	ST171214G2-2 (6)	(L) M H	NA (✓)	✓	✓	✓	✓	✓	
Calibration ID:	↓ -3 (6)	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	☐	☐	☐	☐	☐	☐	☐

em 12/14/17 em 12/14/17

Full Mass Cal. Date: 4/5/17

Run Log Present: ✓

# of Samples per Sequence Checked: ✓

Comments: NWL3

Reviewed By: JA 12/14/2017
Initials/Date

Vista Analytical Laboratory

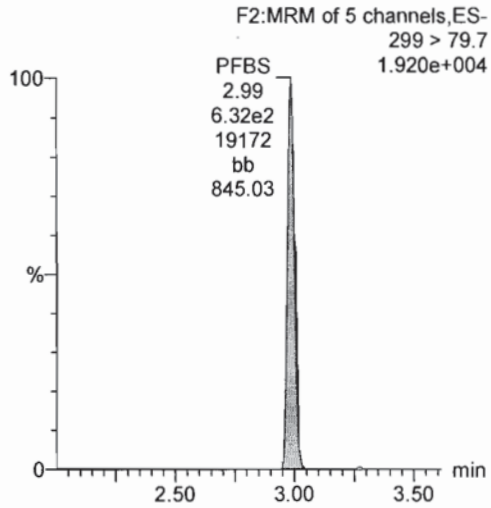
Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-3.qld

Last Altered: Thursday, December 14, 2017 11:05:49 Pacific Standard Time
Printed: Thursday, December 14, 2017 16:11:31 Pacific Standard Time

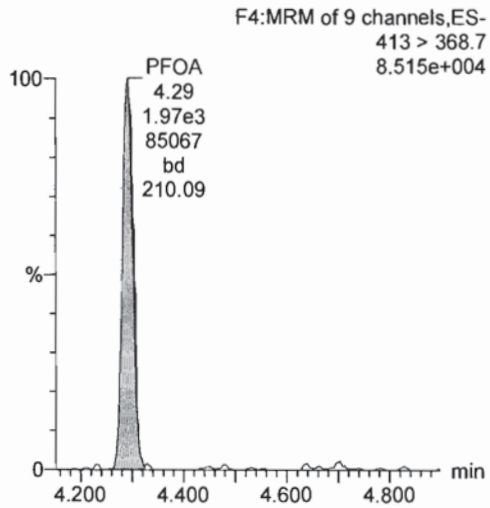
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Name: 171214G2_3, Date: 14-Dec-2017, Time: 10:55:27, ID: ST171214G2-1 PFC CS-1 537 17L1106, Description: PFC CS-1 537 17L1106

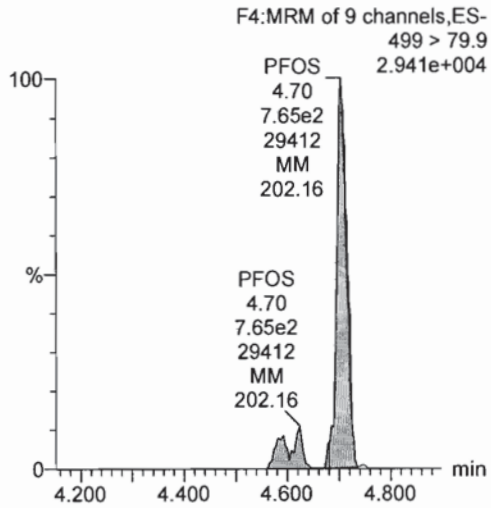
PFBS



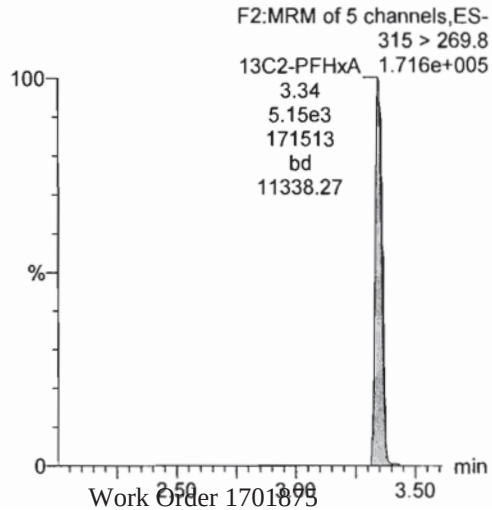
PFOA



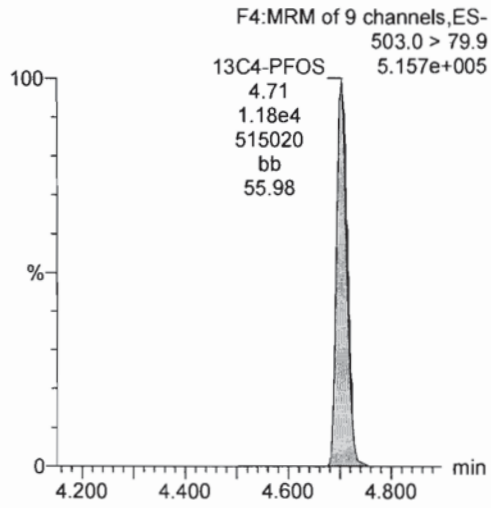
PFOS



13C2-PFHxA



13C4-PFOS



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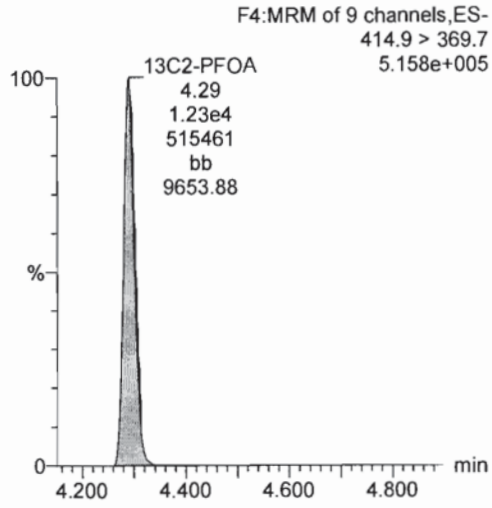
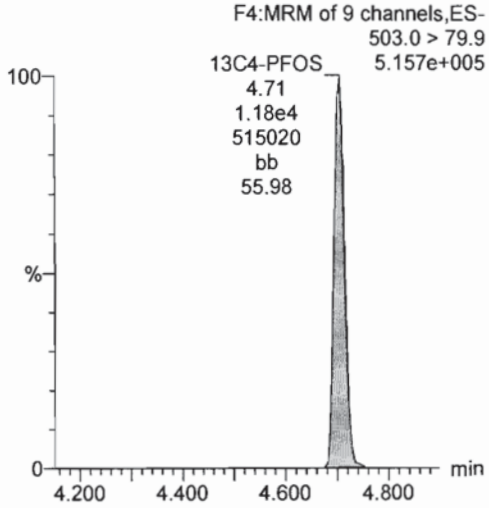


Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-3.qld

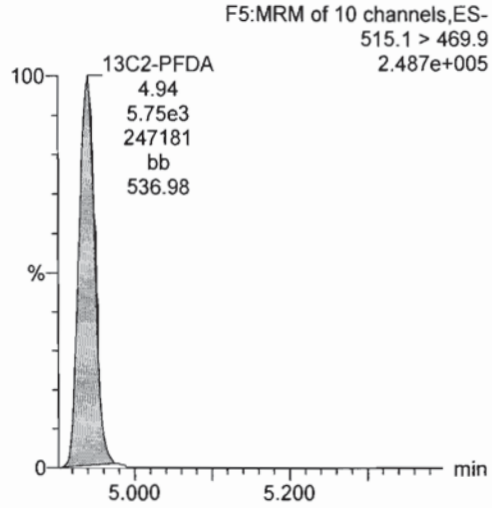
Last Altered: Thursday, December 14, 2017 11:05:49 Pacific Standard Time
Printed: Thursday, December 14, 2017 16:11:31 Pacific Standard Time

Name: 171214G2_3, Date: 14-Dec-2017, Time: 10:55:27, ID: ST171214G2-1 PFC CS-1 537 17L1106, Description: PFC CS-1 537 17L1106

13C4-PFOS



13C2-PFDA



Vista Analytical Laboratory Q1

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-26.qld

Last Altered: Thursday, December 14, 2017 15:48:14 Pacific Standard Time
Printed: Thursday, December 14, 2017 15:48:44 Pacific Standard Time

Method: C:\Projects\Q1.PRO\MethDB\PFAS_L3_DW_1206.mdb 06 Dec 2017 11:11:24
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: ST171214G2-2 PFC CS3 17K3027, Description: PFC CS3 17K3027, Name: 171214G2_26, Date: 14-Dec-2017, Time: 15:41:47

	# Name	Trace	Area	Peak Area	RRF Mean	wt/vol	Pred.RT	RT	IS Resp	Conc.	%Rec
1	1 PFBS	299.00 > 79.70	12842.764	1.284e4		1.000	2.89	3.00	1.052e4	43.8	99.0
2	2 PFOA	413 > 368.70	43509.113	4.351e4		1.000	4.21	4.30	1.115e4	48.1	96.2
3	3 PFOS	499.00 > 79.90	19879.955	1.988e4		1.000	4.62	4.71	1.052e4	45.1	97.6
4	4 13C2-PFHxA	315.0 > 269.80	4833.284	4.833e3	0.443	1.000	3.27	3.36	1.115e4	9.79	97.9
5	5 13C2-PFDA	515.10 > 469.90	5627.285	5.627e3	0.509	1.000	4.85	4.94	1.115e4	9.91	99.1
6	6 13C2-PFOA	414.90 > 369.70	11145.499	1.115e4	1.000	1.000	4.21	4.30	1.115e4	10.0	100
7	7 13C4-PFOS	503.0 > 79.90	10522.217	1.052e4	1.000	1.000	4.62	4.71	1.052e4	28.7	100

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VJA. 12/14/2017

~~CM 12/13/17~~ JM 12/14/17

Vista Analytical Laboratory

Dataset: Untitled

Last Altered: Thursday, December 14, 2017 16:12:57 Pacific Standard Time
Printed: Thursday, December 14, 2017 16:13:05 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_12-08-17_L3.cdb 10 Dec 2017 22:49:55

Compound name: PFBS

	Name	ID	Acq.Date	Acq.Time
1	171214G2_2	IPA	14-Dec-17	10:43:02
2	171214G2_3	ST171214G2-1 PFC CS-1 537 17L1106	14-Dec-17	10:55:27
3	171214G2_4	IPA	14-Dec-17	11:07:51
4	171214G2_5	B7L0066-BS1 LFB 0.25	14-Dec-17	11:20:22
5	171214G2_6	B7L0066-BSD1 LFBD 0.25	14-Dec-17	11:32:47
6	171214G2_7	B7L0066-BLK1 LRB 0.25	14-Dec-17	11:45:13
7	171214G2_8	1701875-01 CH-AT-2RW42-1217 0.25	14-Dec-17	11:57:40
8	171214G2_9	1701875-02 CH-AT-2FB42-1217 0.25	14-Dec-17	12:10:07
9	171214G2_10	1701875-03 CH-AT-2RW43-1217 0.25	14-Dec-17	12:22:35
10	171214G2_11	1701875-04 CH-AT-2FB43-1217 0.25	14-Dec-17	12:35:04
11	171214G2_12	1701875-05 CH-AT-2RW44-1217 0.25	14-Dec-17	12:47:28
12	171214G2_13	1701875-06 CH-AT-2FB44-1217 0.25	14-Dec-17	12:59:53
13	171214G2_14	1701875-07 CH-AT-2RW45-1217 0.25	14-Dec-17	13:12:18
14	171214G2_15	1701875-08 CH-AT-2FB45-1217 0.25	14-Dec-17	13:24:44
15	171214G2_16	1701875-09 CH-AT-2RW46-1217 0.25	14-Dec-17	13:37:11
16	171214G2_17	1701875-10 CH-AT-2FB46-1217 0.25	14-Dec-17	13:49:38
17	171214G2_18	1701875-11 CH-AT-2RW47-1217 0.25	14-Dec-17	14:02:06
18	171214G2_19	1701875-12 CH-AT-2FB47-1217 0.25	14-Dec-17	14:14:37
19	171214G2_20	1701875-13 CH-AT-2RW48A-1217 0.25	14-Dec-17	14:27:02
20	171214G2_21	1701875-14 CH-AT-2FB48A-1217 0.25	14-Dec-17	14:39:28
21	171214G2_22	1701875-15 CH-AT-2RW48B-1217 0.25	14-Dec-17	14:51:53
22	171214G2_23	1701875-16 CH-AT-2FB48B-1217 0.25	14-Dec-17	15:04:18
23	171214G2_24	1701875-17 CH-AT-2EB01-1217 0.25	14-Dec-17	15:16:49
24	171214G2_25	IPA	14-Dec-17	15:29:20
25	171214G2_26	ST171214G2-2 PFC CS3 17K3027	14-Dec-17	15:41:47
26	171214G2_27	IPA	14-Dec-17	15:54:13

Quantify Sample Report **MassLynx 4.1**
Vista Analytical Laboratory Q1

Dataset: U:\G1.PRO\Results\2017\171214G2\171214G2-26.qld

Last Altered: Thursday, December 14, 2017 15:48:14 Pacific Standard Time
Printed: Thursday, December 14, 2017 15:48:44 Pacific Standard Time

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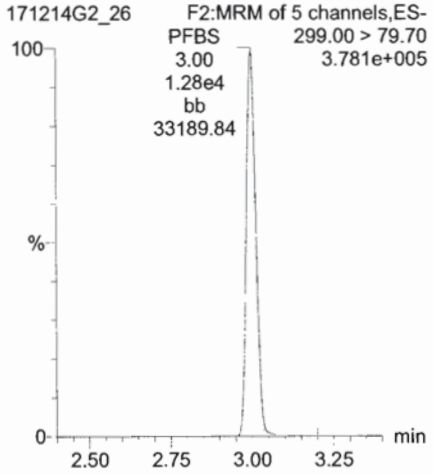
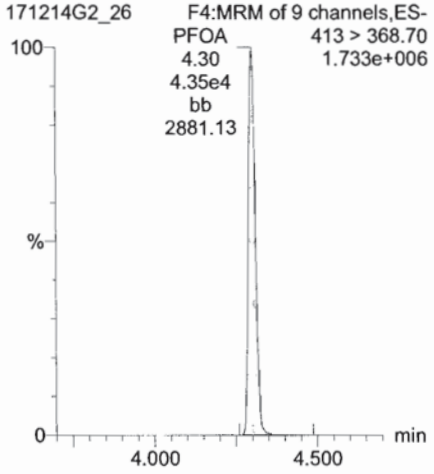
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

ID: ST171214G2-2 PFC CS3 17K3027, Description: PFC CS3 17K3027, Name: 171214G2_26, Date: 14-Dec-2017, Time: 15:41:47, Instrument: , Lab: , User:

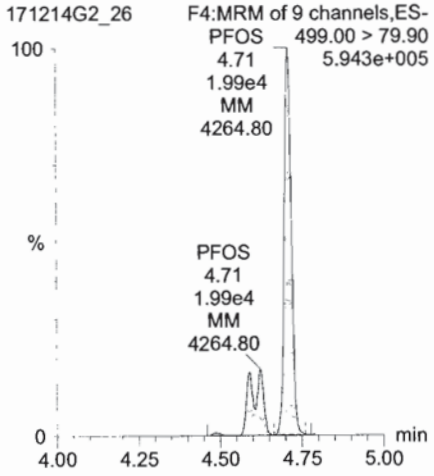
PFBS



PFOA



PFOS



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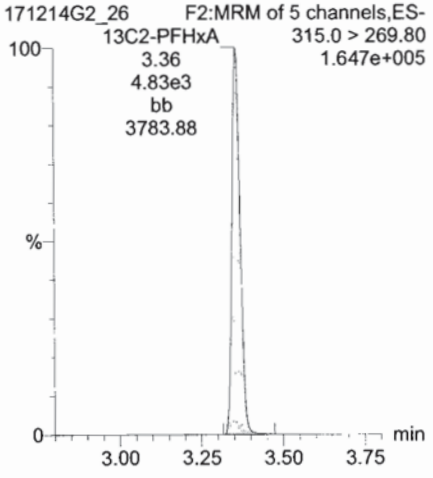
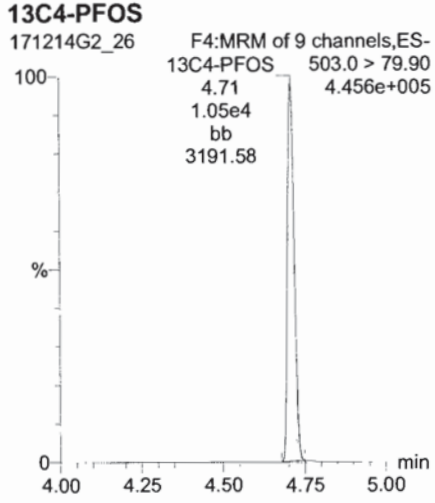


13C4-PFOS



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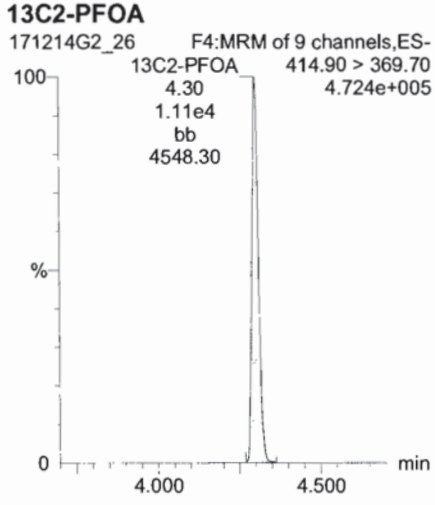
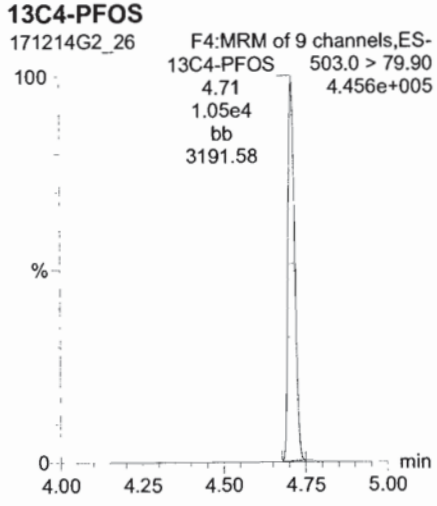
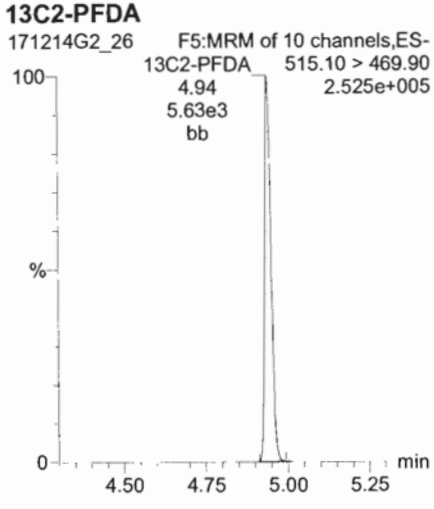


13C4-PFOS



13C2-PFDA



~~GM 12/13/17~~

INITIAL CALIBRATION (ICAL)

INCLUDING ASSOCIATED

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

Vista Analytical Laboratory

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

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

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

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

AM 12/11/17

JMA. 12/11/2017

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

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

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	171208G2_2	Standard	0.500	4.33	504.601	11571.904	0.436	0.5	7.4	NO	0.998	NO	bbX
2	2	171208G2_3	Standard	1.000	4.31	1289.415	14038.166	0.919	1.1	13.1	NO	0.998	NO	bbX
3	3	171208G2_4	Standard	2.000	4.31	2044.709	12600.569	1.623	2.0	-0.1	NO	0.998	NO	bb
4	4	171208G2_5	Standard	5.000	4.31	5935.702	13262.253	4.476	5.5	10.3	NO	0.998	NO	bd
5	5	171208G2_6	Standard	10.000	4.31	8915.754	12044.611	7.402	9.1	-8.8	NO	0.998	NO	bd
6	6	171208G2_7	Standard	25.000	4.31	25977.795	12740.901	20.389	25.1	0.5	NO	0.998	NO	bd
7	7	171208G2_8	Standard	50.000	4.31	45749.875	11213.454	40.799	50.3	0.5	NO	0.998	NO	bd
8	8	171208G2_9	Standard	75.000	4.31	60947.063	9546.963	63.839	78.6	4.8	NO	0.998	NO	bdX
9	9	171208G2_10	Standard	100.000	4.31	85445.031	11090.062	77.046	94.9	-5.1	NO	0.998	NO	bbX

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

Last Altered: Sunday, December 10, 2017 22:49:55 Pacific Standard Time
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Compound name: PFOS
Coefficient of Determination: R^2 = 0.998516
Calibration curve: 1.20278 * x
Response type: Internal Std (Ref 7), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	171208G2_2	Standard	0.464	4.73	185.089	11857.967	0.448	0.4	-19.7	NO	0.999	NO	MMX
2	2	171208G2_3	Standard	0.925	4.73	617.089	15349.467	1.154	1.0	3.7	NO	0.999	NO	MMX
3	3	171208G2_4	Standard	1.850	4.72	889.150	14402.649	1.772	1.5	-20.4	NO	0.999	NO	MM
4	4	171208G2_5	Standard	4.625	4.73	2773.974	14516.459	5.484	4.6	-1.4	NO	0.999	NO	MM
5	5	171208G2_6	Standard	9.250	4.73	4524.466	11953.820	10.863	9.0	-2.4	NO	0.999	NO	MM
6	6	171208G2_7	Standard	23.100	4.73	13079.806	13445.892	27.919	23.2	0.5	NO	0.999	NO	MM
7	7	171208G2_8	Standard	46.200	4.72	24086.246	12293.957	56.229	46.7	1.2	NO	0.999	NO	MM
8	8	171208G2_9	Standard	69.300	4.72	33750.160	10786.034	89.804	74.7	7.7	NO	0.999	NO	MMX
9	9	171208G2_10	Standard	92.400	4.72	47716.457	12003.273	114.091	94.9	2.7	NO	0.999	NO	MMX

Compound name: 13C2-PFHxA
Response Factor: 0.44294
RRF SD: 0.0227764, Relative SD: 5.14209
Response type: Internal Std (Ref 6), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	171208G2_2	Standard	10.000	3.38	4801.410	11571.904	4.149	9.4	-6.3	NO		NO	bbX
2	2	171208G2_3	Standard	10.000	3.37	6735.231	14038.166	4.798	10.8	8.3	NO		NO	bbX
3	3	171208G2_4	Standard	10.000	3.36	5697.994	12600.569	4.522	10.2	2.1	NO		NO	bb
4	4	171208G2_5	Standard	10.000	3.37	6341.437	13262.253	4.782	10.8	8.0	NO		NO	bb
5	5	171208G2_6	Standard	10.000	3.36	5086.919	12044.611	4.223	9.5	-4.7	NO		NO	bd
6	6	171208G2_7	Standard	10.000	3.36	5434.637	12740.901	4.266	9.6	-3.7	NO		NO	bb
7	7	171208G2_8	Standard	10.000	3.36	4882.918	11213.454	4.355	9.8	-1.7	NO		NO	bb
8	8	171208G2_9	Standard	10.000	3.36	4706.410	9546.963	4.930	11.1	11.3	NO		NO	bdX
9	9	171208G2_10	Standard	10.000	3.36	4749.668	11090.062	4.283	9.7	-3.3	NO		NO	bdX

Vista Analytical Laboratory

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

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

Compound name: 13C2-PFDA
Response Factor: 0.509254
RRF SD: 0.0328522, Relative SD: 6.45105
Response type: Internal Std (Ref 6), Area * (IS Conc. / IS Area)
Curve type: RF

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	171208G2_2	Standard	10.000	4.97	5579.112	11571.904	4.821	9.5	-5.3	NO		NO	bdX
2	2	171208G2_3	Standard	10.000	4.96	8625.498	14038.166	6.144	12.1	20.7	NO		NO	bbX
3	3	171208G2_4	Standard	10.000	4.96	6581.716	12600.569	5.223	10.3	2.6	NO		NO	bb
4	4	171208G2_5	Standard	10.000	4.96	7244.836	13262.253	5.463	10.7	7.3	NO		NO	bb
5	5	171208G2_6	Standard	10.000	4.96	5507.656	12044.611	4.573	9.0	-10.2	NO		NO	bb
6	6	171208G2_7	Standard	10.000	4.96	6576.478	12740.901	5.162	10.1	1.4	NO		NO	bb
7	7	171208G2_8	Standard	10.000	4.96	5654.003	11213.454	5.042	9.9	-1.0	NO		NO	bb
8	8	171208G2_9	Standard	10.000	4.96	5376.028	9546.963	5.631	11.1	10.6	NO		NO	bbX
9	9	171208G2_10	Standard	10.000	4.96	5314.285	11090.062	4.792	9.4	-5.9	NO		NO	bbX

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

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	171208G2_2	Standard	10.000	4.33	11571.904	11571.904	10.000	10.0	0.0	NO		NO	bbX
2	2	171208G2_3	Standard	10.000	4.31	14038.166	14038.166	10.000	10.0	0.0	NO		NO	bbX
3	3	171208G2_4	Standard	10.000	4.31	12600.569	12600.569	10.000	10.0	0.0	NO		NO	bb
4	4	171208G2_5	Standard	10.000	4.31	13262.253	13262.253	10.000	10.0	0.0	NO		NO	bb
5	5	171208G2_6	Standard	10.000	4.31	12044.611	12044.611	10.000	10.0	0.0	NO		NO	bd
6	6	171208G2_7	Standard	10.000	4.31	12740.901	12740.901	10.000	10.0	0.0	NO		NO	bd
7	7	171208G2_8	Standard	10.000	4.31	11213.454	11213.454	10.000	10.0	0.0	NO		NO	bb
8	8	171208G2_9	Standard	10.000	4.31	9546.963	9546.963	10.000	10.0	0.0	NO		NO	bbX
9	9	171208G2_10	Standard	10.000	4.31	11090.062	11090.062	10.000	10.0	0.0	NO		NO	bdX

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

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

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

	#	Name	Type	Std. Conc	RT	Area	IS Area	Response	Conc.	%Dev	Conc. Flag	CoD	CoD Flag	x=excluded
1	1	171208G2_2	Standard	28.700	4.74	11857.967	11857.967	28.700	28.7	0.0	NO		NO	bdX
2	2	171208G2_3	Standard	28.700	4.73	15349.467	15349.467	28.700	28.7	0.0	NO		NO	bbX
3	3	171208G2_4	Standard	28.700	4.72	14402.649	14402.649	28.700	28.7	0.0	NO		NO	bd
4	4	171208G2_5	Standard	28.700	4.73	14516.459	14516.459	28.700	28.7	0.0	NO		NO	bd
5	5	171208G2_6	Standard	28.700	4.72	11953.820	11953.820	28.700	28.7	0.0	NO		NO	MM
6	6	171208G2_7	Standard	28.700	4.72	13445.892	13445.892	28.700	28.7	0.0	NO		NO	bb
7	7	171208G2_8	Standard	28.700	4.72	12293.957	12293.957	28.700	28.7	0.0	NO		NO	bd
8	8	171208G2_9	Standard	28.700	4.72	10786.034	10786.034	28.700	28.7	0.0	NO		NO	bbX
9	9	171208G2_10	Standard	28.700	4.72	12003.273	12003.273	28.700	28.7	0.0	NO		NO	bbX

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Dataset: Untitled

Last Altered: Monday, December 11, 2017 10:39:34 Pacific Standard Time
Printed: Monday, December 11, 2017 10:40:25 Pacific Standard Time

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

Compound name: PFBS

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

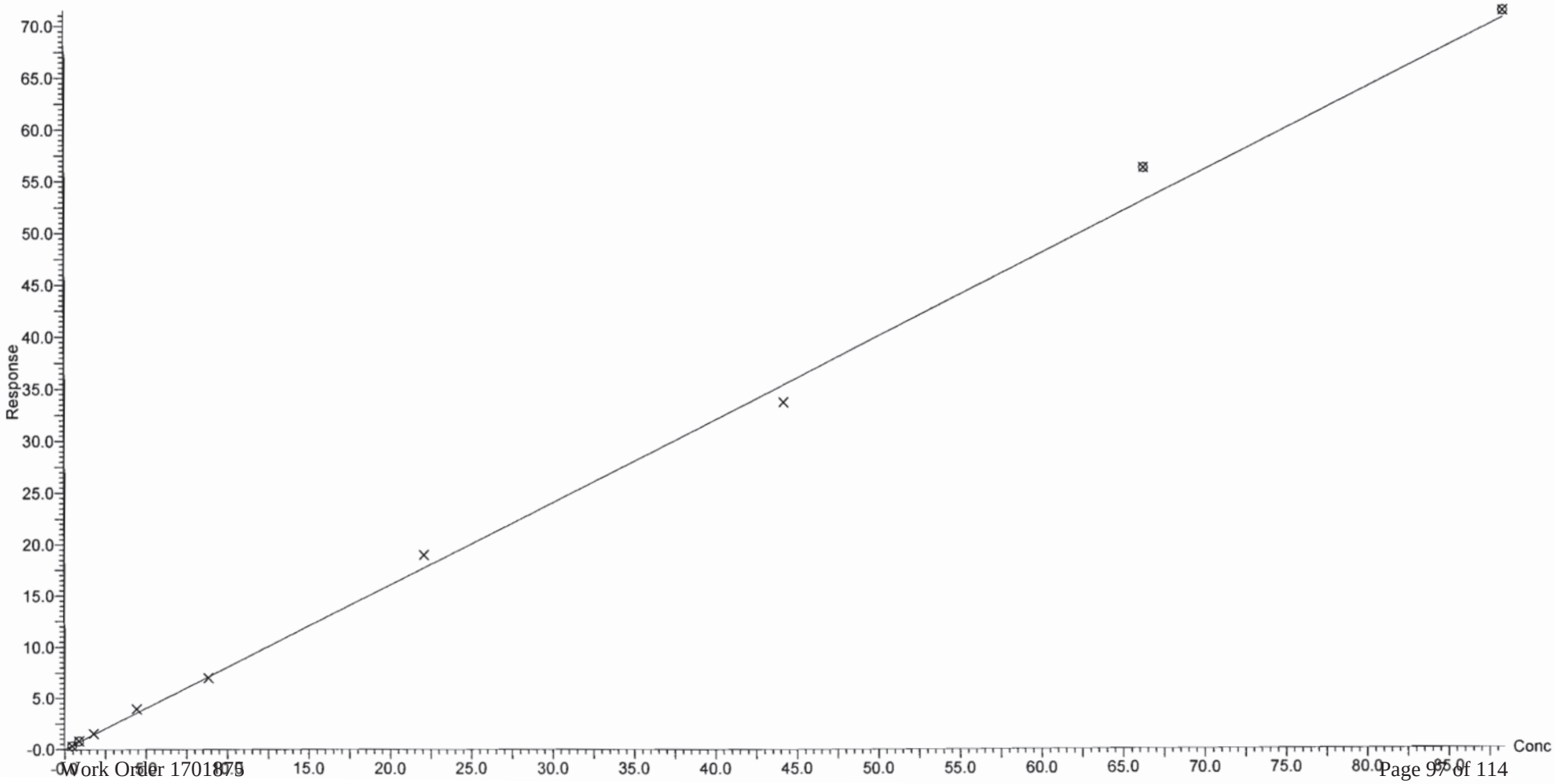
Vista Analytical Laboratory Q1

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

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

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

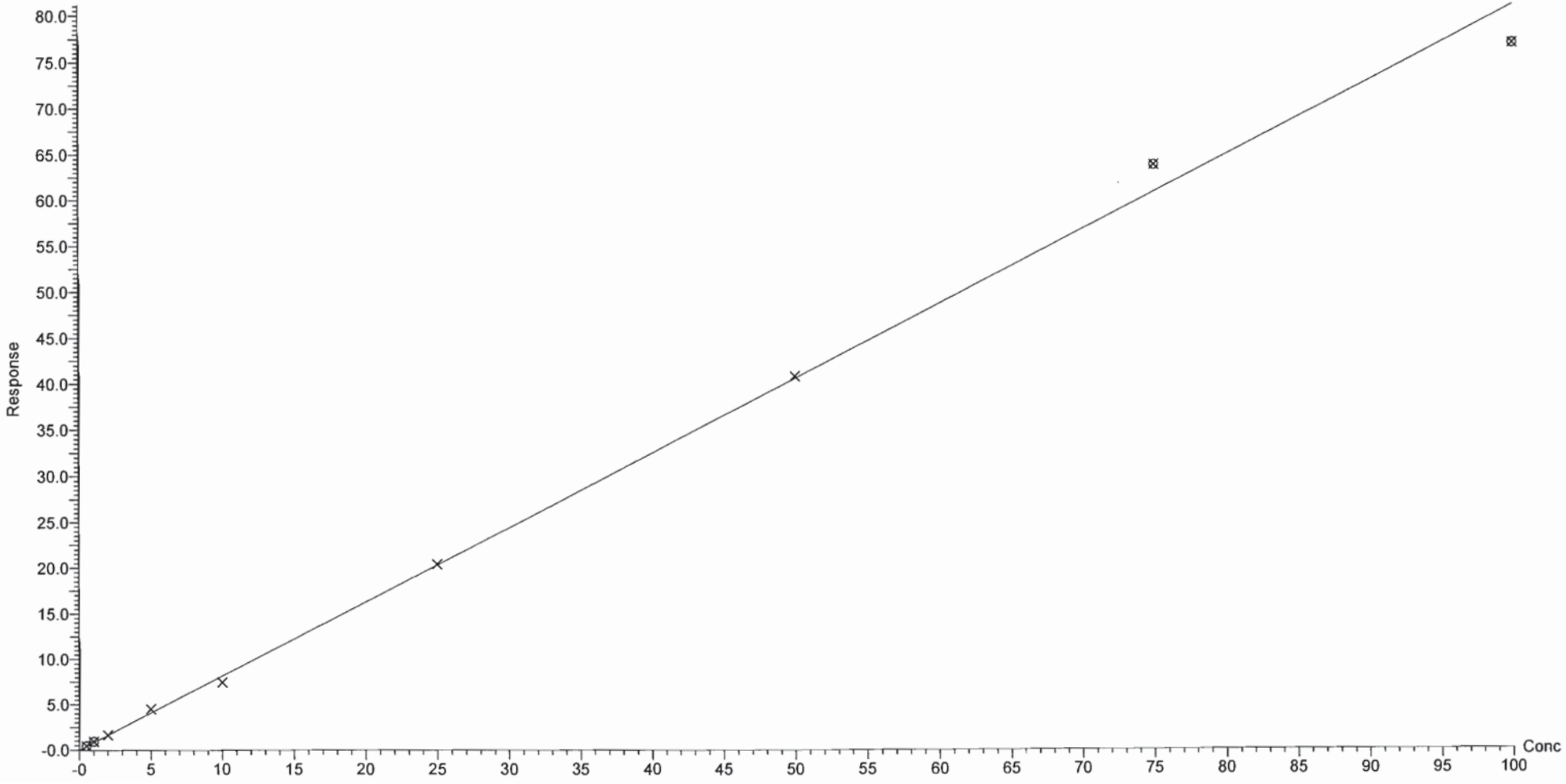
Compound name: PFBS
Coefficient of Determination: R^2 = 0.994837
Calibration curve: 0.800672 * x
Response type: Internal Std (Ref 7), Area * (IS Conc. / IS Area)
Curve type: Linear, Origin: Force, Weighting: 1/x, Axis trans: None



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

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

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

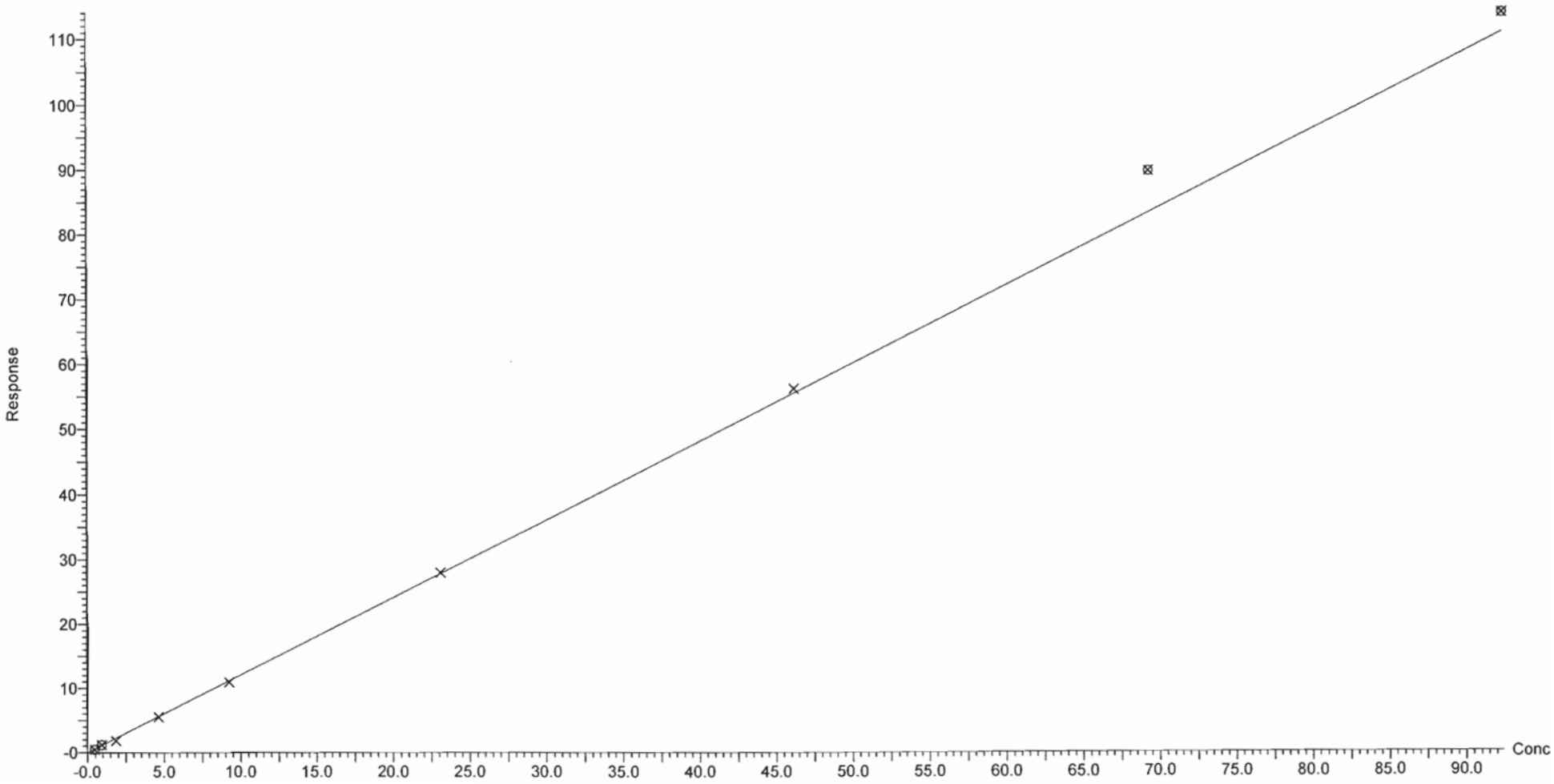


Vista Analytical Laboratory Q1

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

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

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

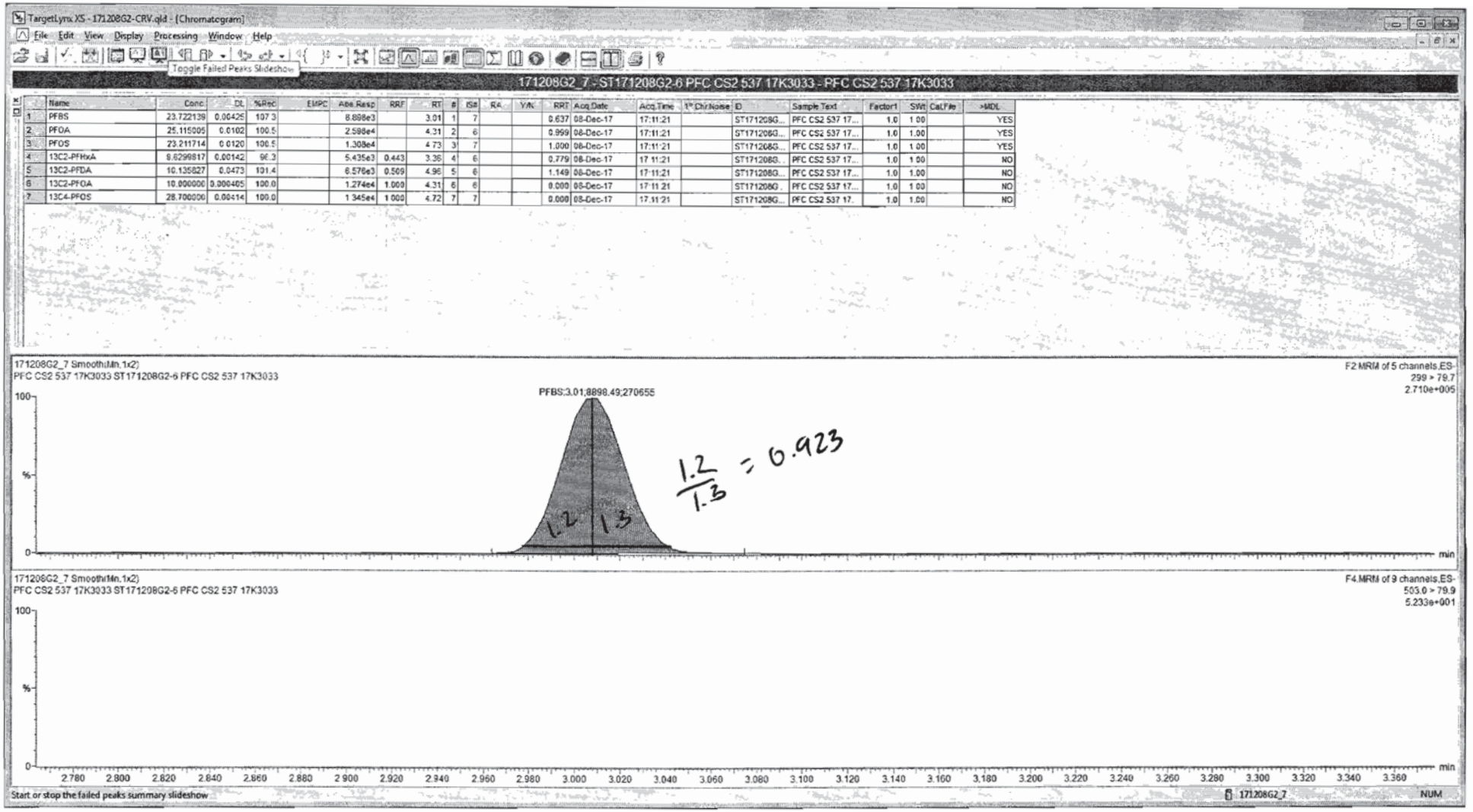


Compound 6: 13C2-PFOA

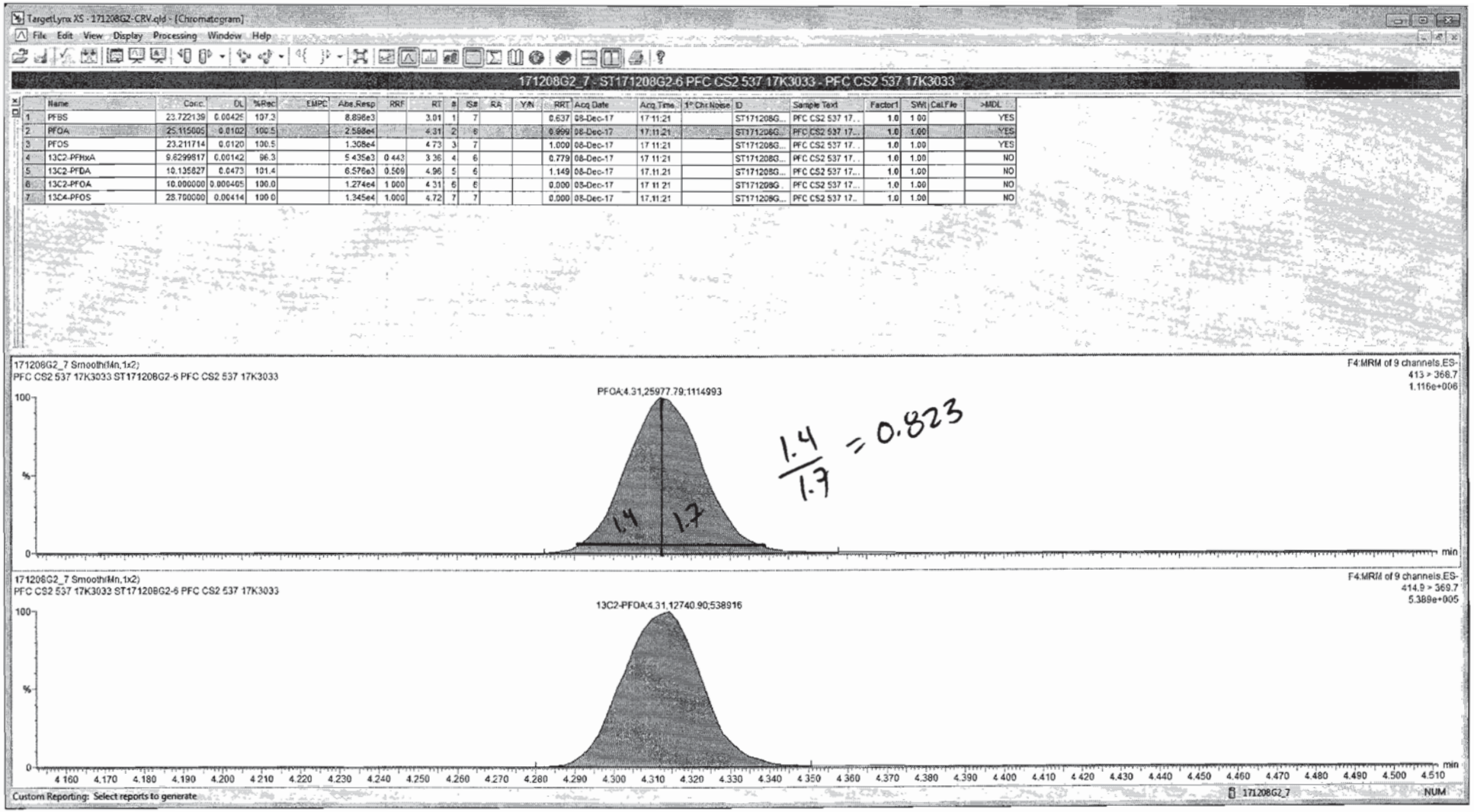
	ID	Name	Type	Std. Conc	RT	Area	IS Area	Primary Flags
1	ST171208G2-1 PFC CS-3 537 17K3022	171208G2_	Standard	10	4.33	11571.9	11571.9	bbX
2	ST171208G2-2 PFC CS-2 537 17K3023	171208G2_	Standard	10	4.31	14038.17	14038.17	bbX
3	ST171208G2-3 PFC CS-1 537 17K3024	171208G2_	Standard	10	4.31	12600.57	12600.57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

Compound 7: 13C4-PFOS

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



	Name	Conc.	DL	%Rec	EMPC	Abs Resp	RRF	RT	#	IS#	RA	Y/N	RRT	Acq.Date	Acq.Time	1° Chl Noise	ID	Sample Text	Factor	SWt	CalFile	>MDL
1	PFBS	23.722139	0.00425	107.3		6.898e3		3.01	1	7			0.637	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		YES
2	PFOA	25.115005	0.0102	100.5		2.598e4		4.31	2	6			0.999	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		YES
3	PFOS	23.211714	0.0120	100.5		1.308e4		4.73	3	7			1.000	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		YES
4	13C2-PFHxA	9.6299817	0.00142	96.3		5.435e3	0.443	3.36	4	6			0.779	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		NO
5	13C2-PFDA	10.135827	0.0473	101.4		6.576e3	0.509	4.96	5	6			1.149	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		NO
6	13C2-PFOA	10.000000	0.000405	100.0		1.274e4	1.000	4.31	6	6			0.000	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		NO
7	13C4-PFOS	28.700000	0.00414	100.0		1.345e4	1.000	4.72	7	7			0.000	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		NO



	Name	Conc	DL	%Rec	EMPC	Abs.Resp	RRF	RT	#	IS#	RA	Y/N	RRT	Acq.Date	Acq.Time	1° Chr.Noise	ID	Sample Text	Factor1	Wt	CalFile	>MDL
1	PFBS	23.722139	0.00425	107.3		8.896e3		3.01	1	7			0.637	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		YES
2	PFOA	25.115005	0.0102	100.5		2.588e4		4.31	2	6			0.999	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		YES
3	PFOS	23.211714	0.0120	100.5		1.308e4		4.73	3	7			1.000	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		YES
4	13C2-PFHxA	9.6299817	0.00142	96.3		5.435e3	0.443	3.36	4	6			0.779	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		NO
5	13C2-PFDA	10.135827	0.0473	101.4		6.576e3	0.509	4.96	5	6			1.149	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		NO
6	13C2-PFOA	10.000000	0.000405	100.0		1.274e4	1.000	4.31	6	6			0.000	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		NO
7	13C4-PFOS	28.700000	0.00414	100.0		1.345e4	1.000	4.72	7	7			0.000	08-Dec-17	17:11:21		ST171208G...	PFC CS2 537 17...	1.0	1.00		NO

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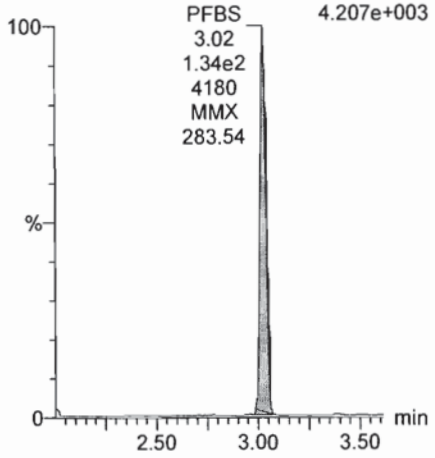
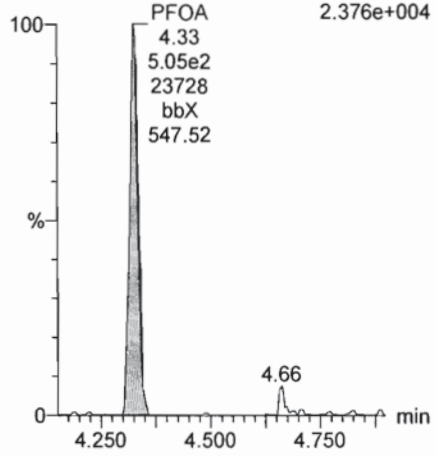
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: 10 Dec 2017 22:49:55

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

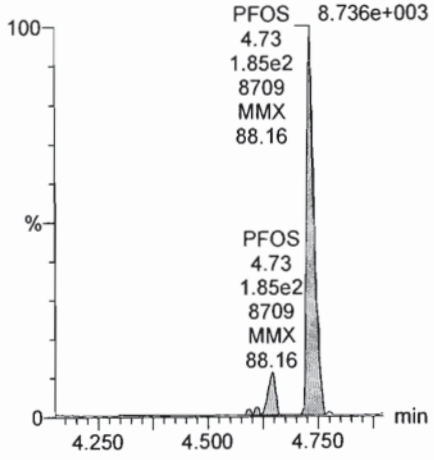
PFBS



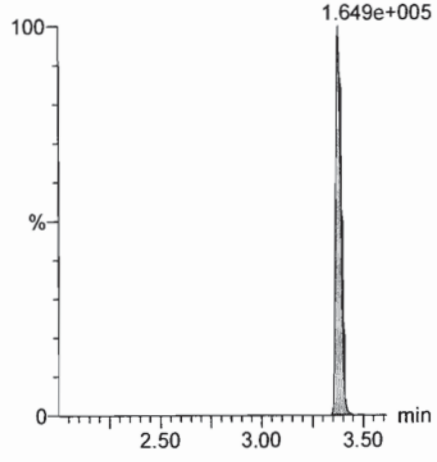
PFOA



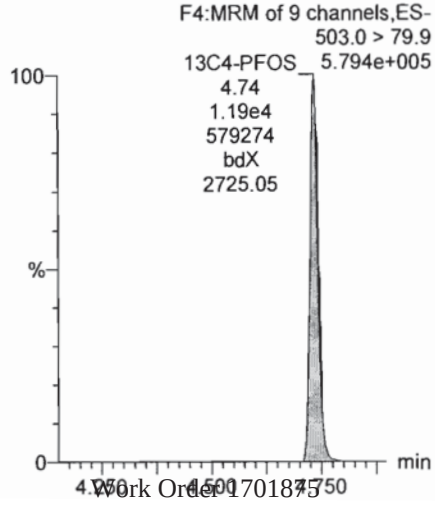
PFOS



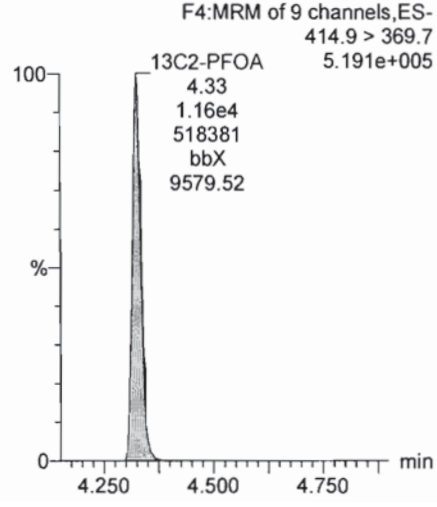
13C2-PFHxA



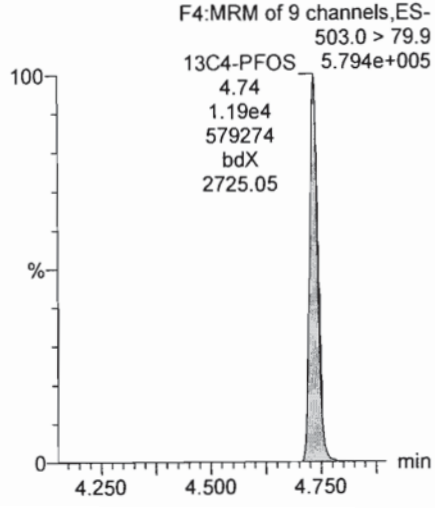
13C4-PFOS



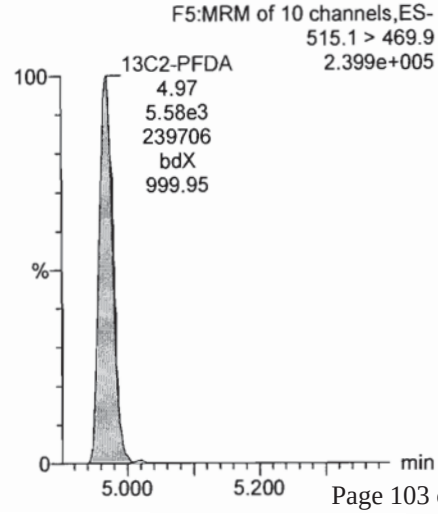
13C2-PFOA



13C4-PFOS



13C2-PFDA



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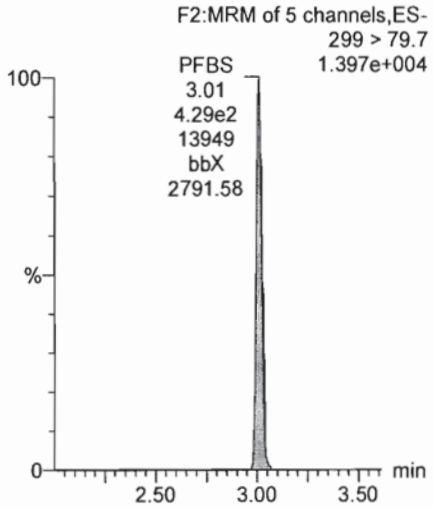
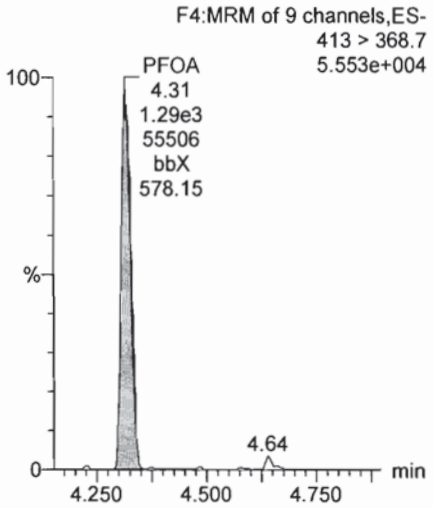
Name: 171208G2_3, Date: 08-Dec-2017, Time: 16:21:40, ID: ST171208G2-2 PFC CS-2 537 17K3023, Description: PFC CS-2 537 17K3023

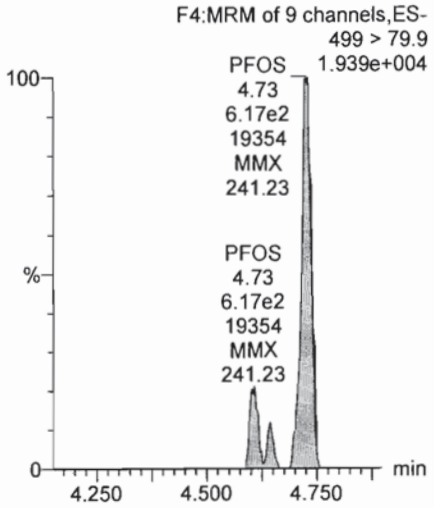
PFBS



PFOA



PFOS



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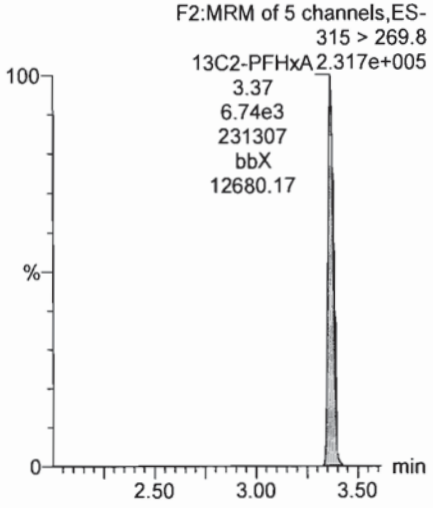

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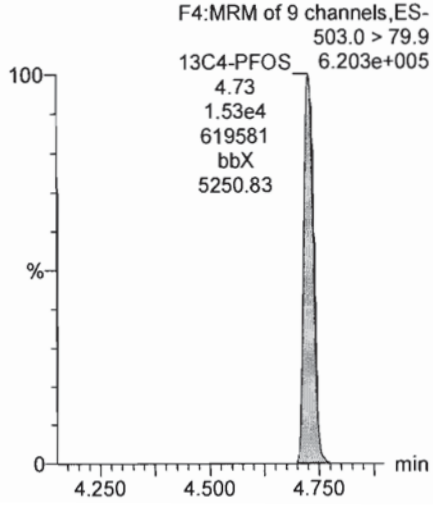

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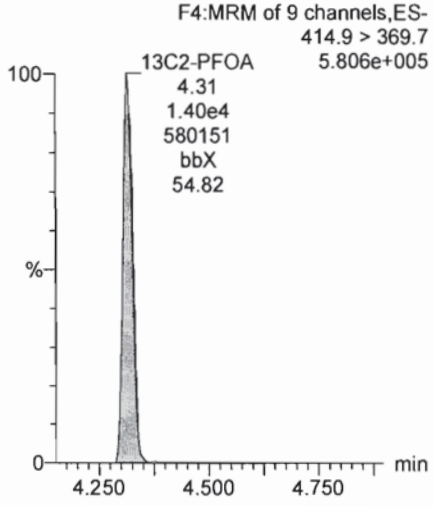

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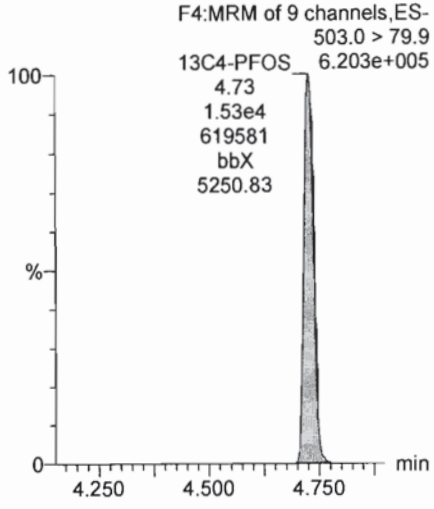
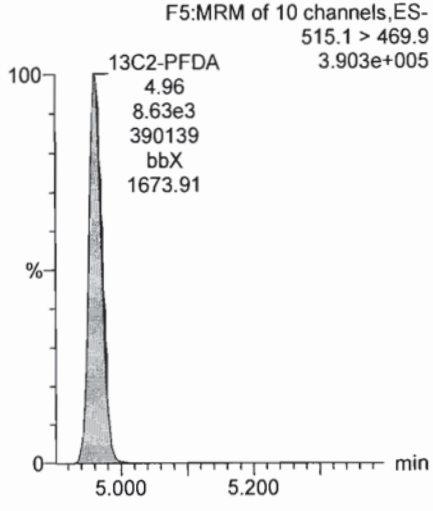


13C2-PFDA



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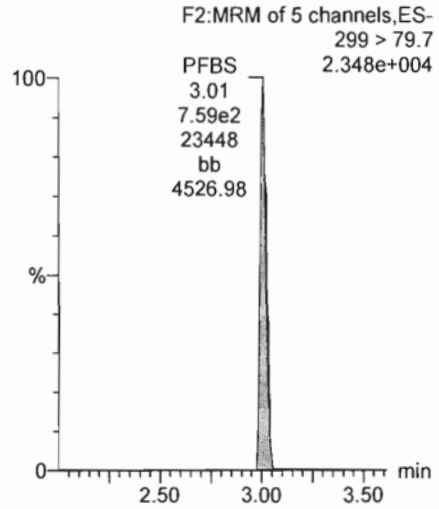
Name: 171208G2_4, Date: 08-Dec-2017, Time: 16:34:04, ID: ST171208G2-3 PFC CS-1 537 17K3024, Description: PFC CS-1 537 17K3024

PFBS



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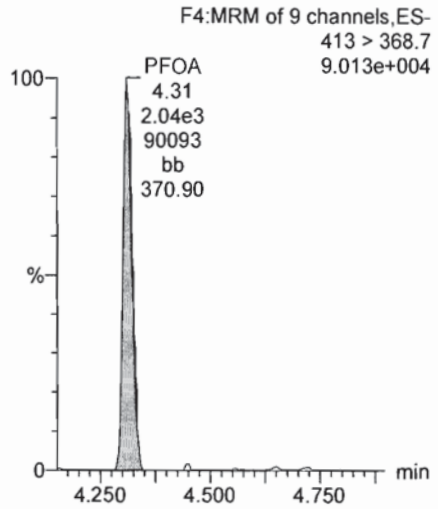
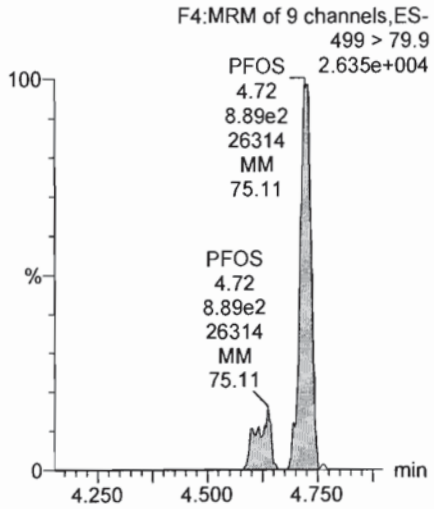


PFOS



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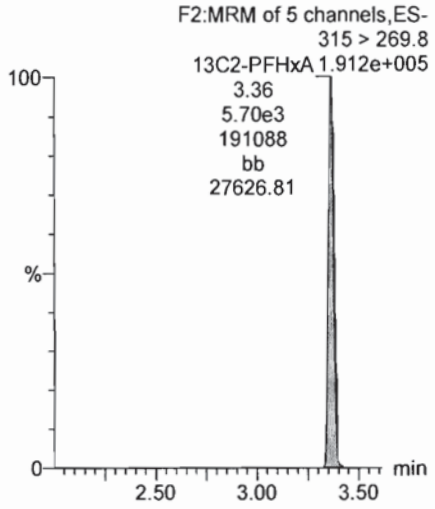

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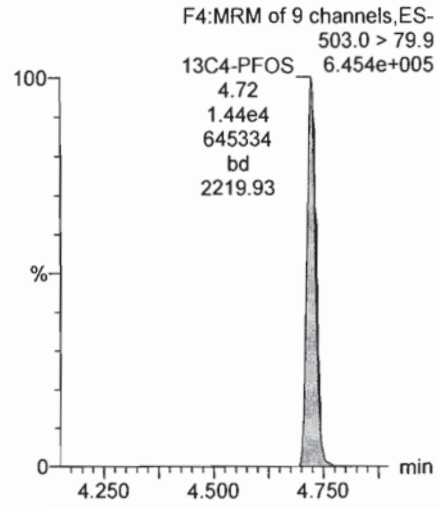

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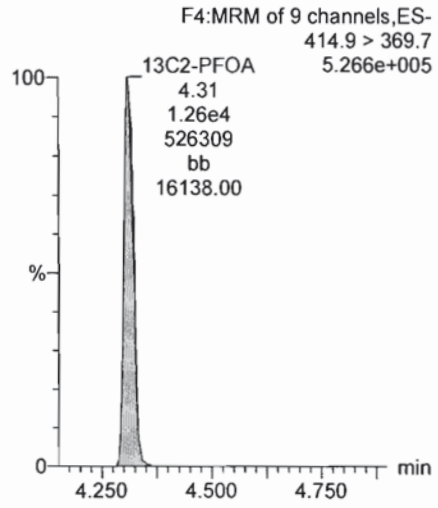

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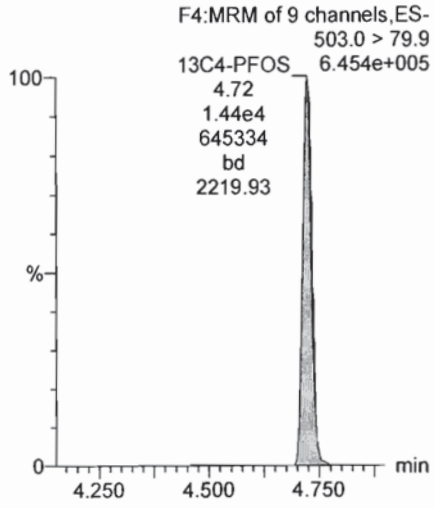
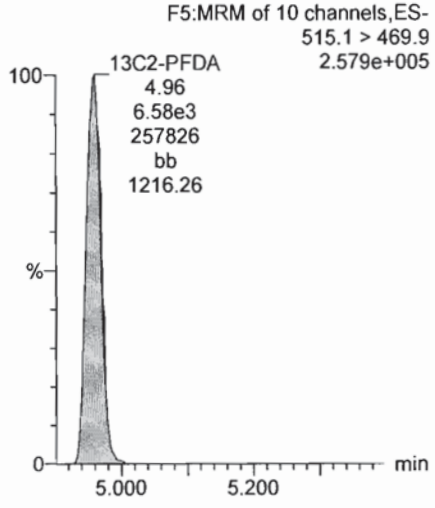


13C2-PFDA



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

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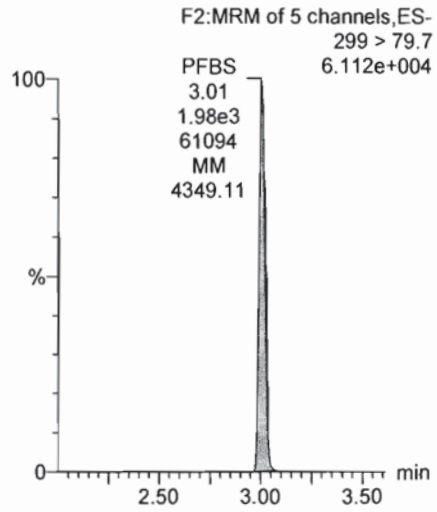
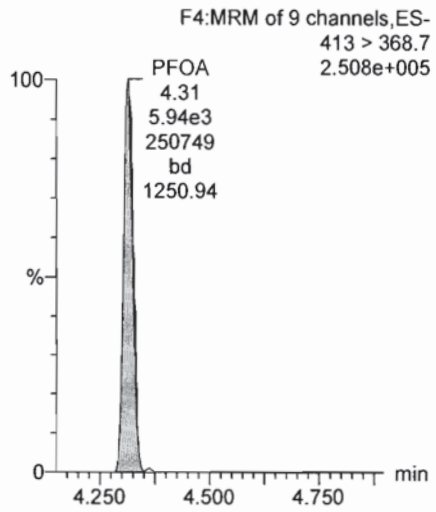
Name: 171208G2_5, Date: 08-Dec-2017, Time: 16:46:29, ID: ST171208G2-4 PFC CS0 537 17K3025, Description: PFC CS0 537 17K3025

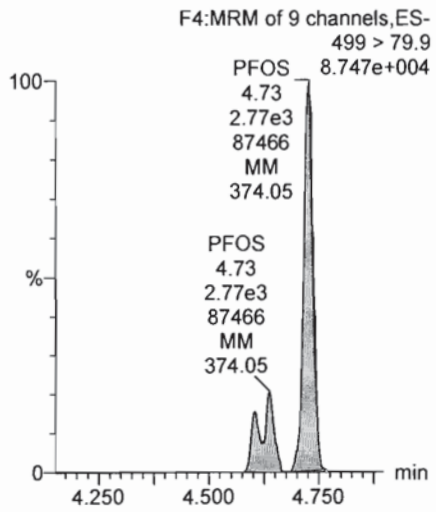
PFBS



PFOA



PFOS



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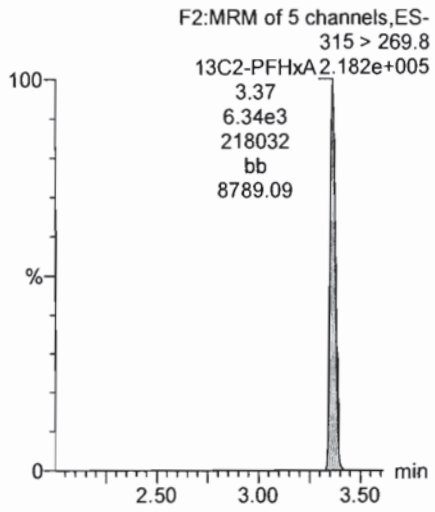

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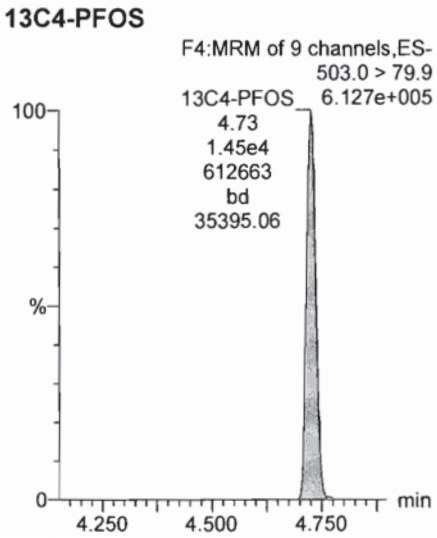

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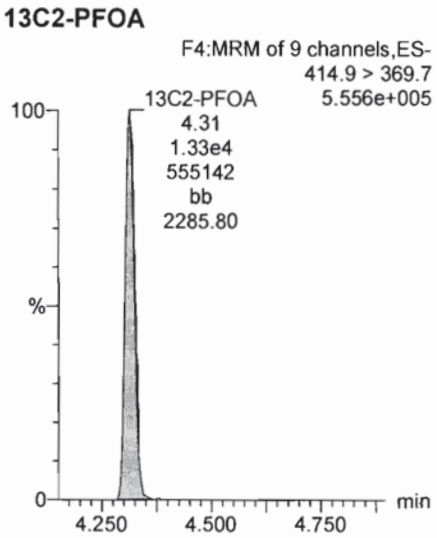

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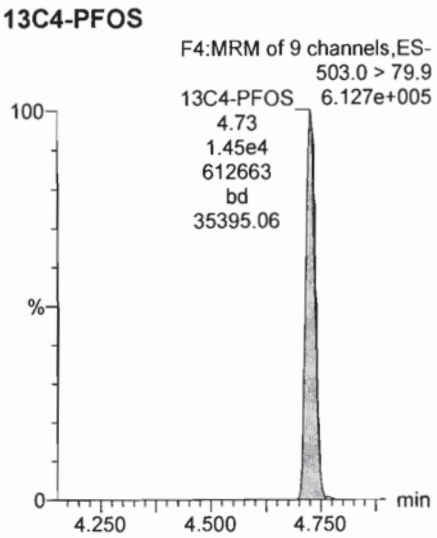
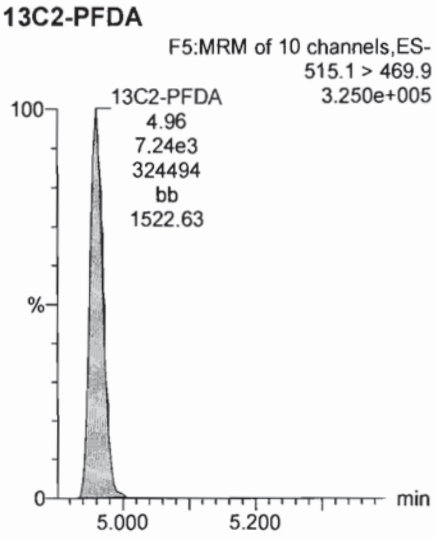


13C2-PFDA



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

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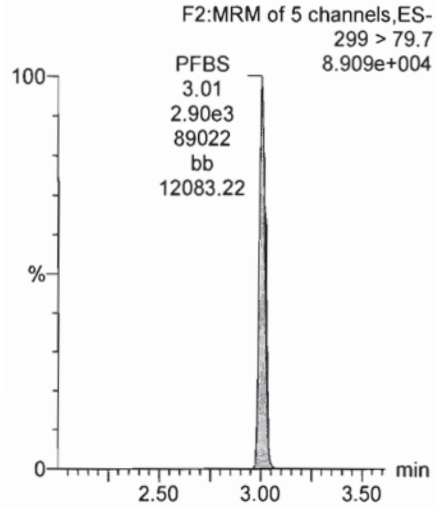
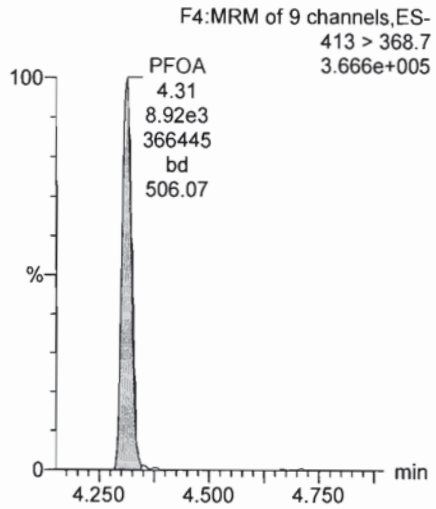
Name: 171208G2_6, Date: 08-Dec-2017, Time: 16:58:55, ID: ST171208G2-5 PFC CS1 537 17K3026, Description: PFC CS1 537 17K3026

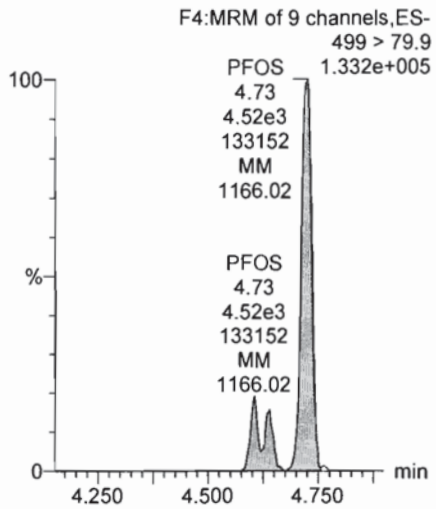
PFBS



PFOA



PFOS



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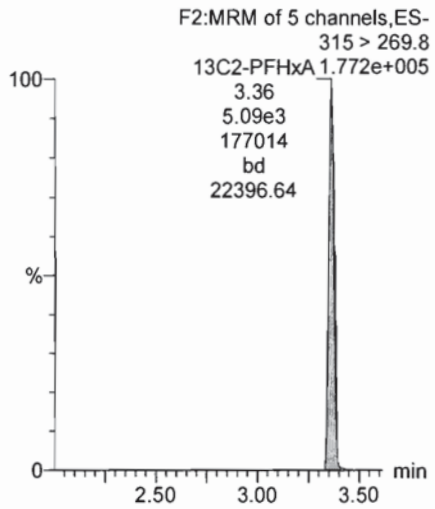

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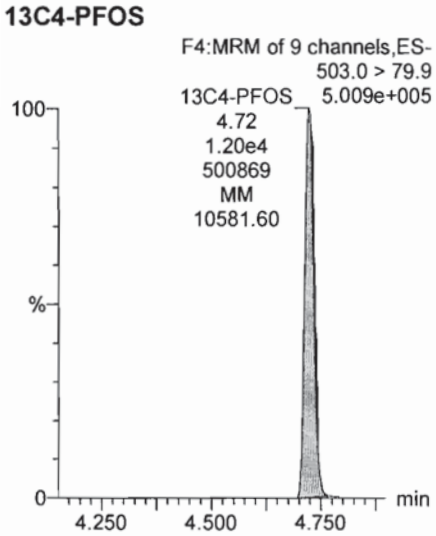
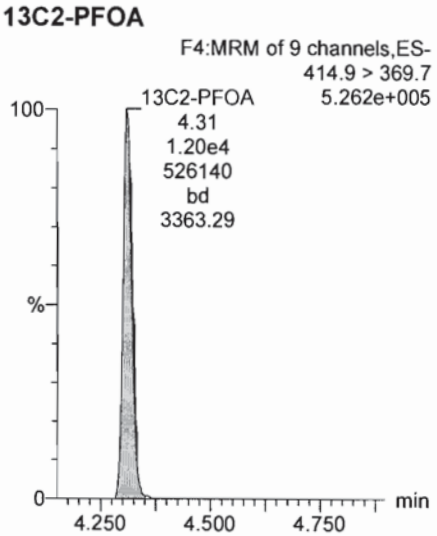


13C2-PFOA



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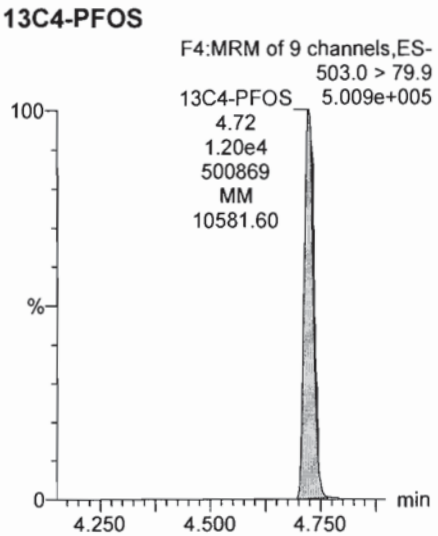
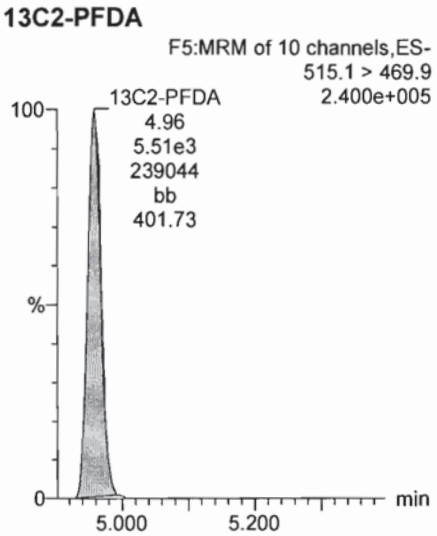


13C2-PFDA



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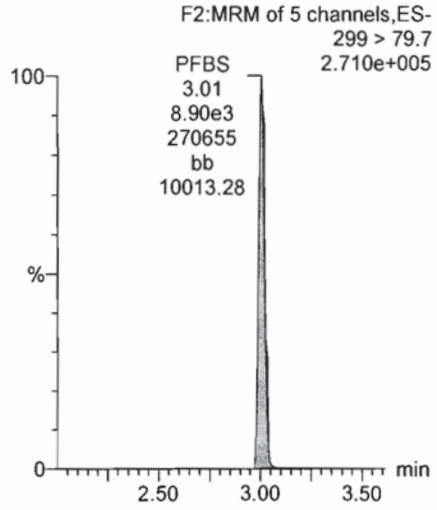
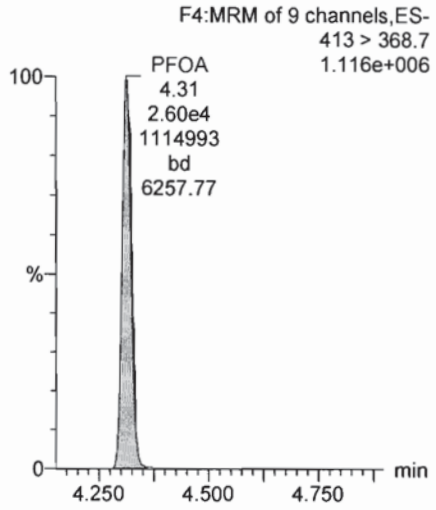
Name: 171208G2_7, Date: 08-Dec-2017, Time: 17:11:21, ID: ST171208G2-6 PFC CS2 537 17K3033, Description: PFC CS2 537 17K3033

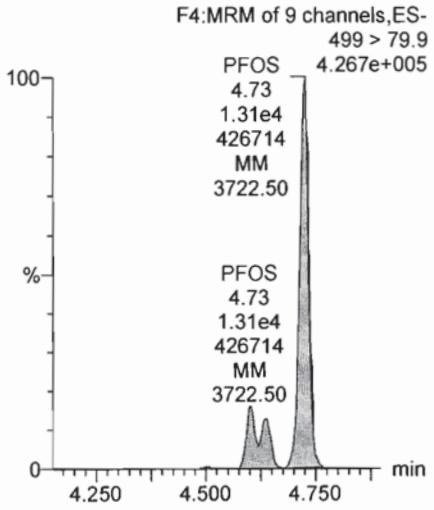
PFBS



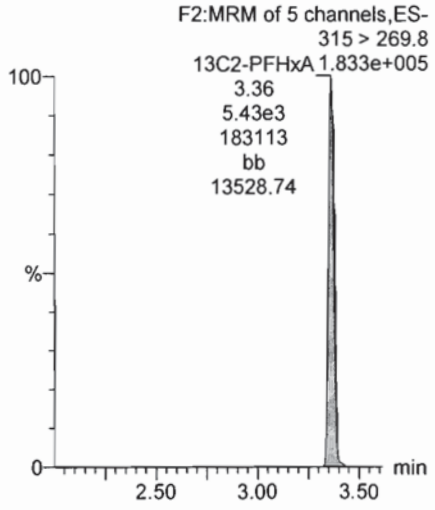
PFOA



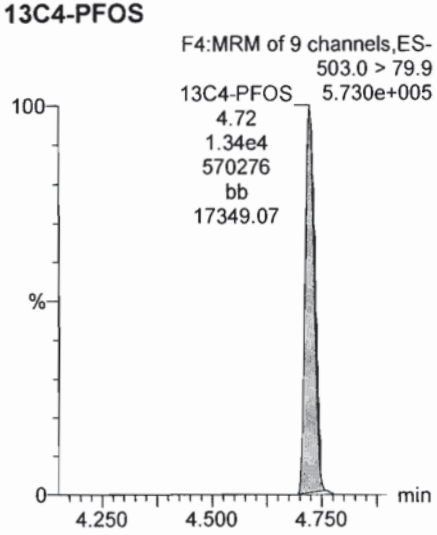
PFOS



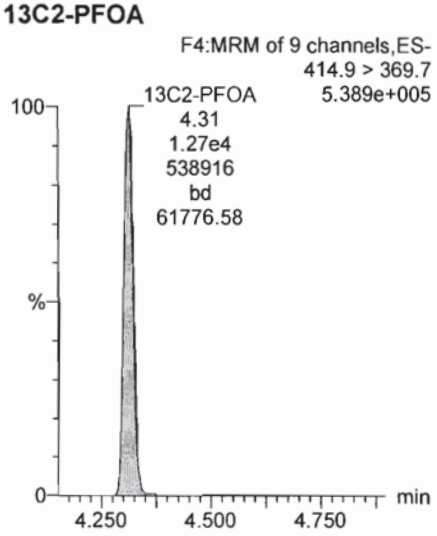
13C2-PFHxA



13C4-PFOS



13C2-PFOA



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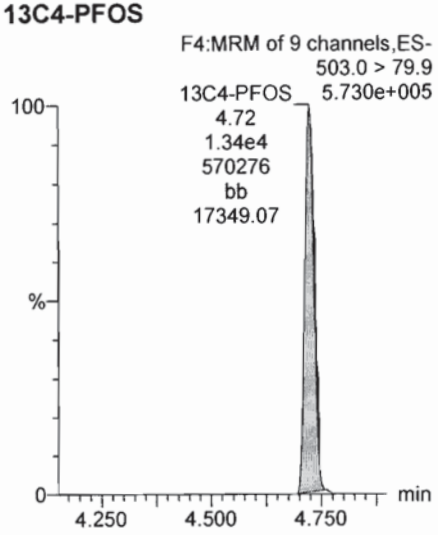
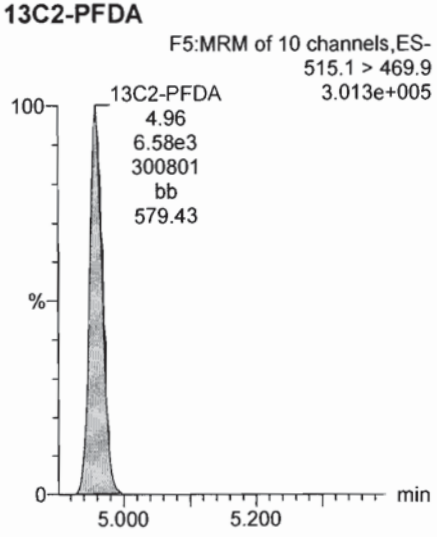


13C2-PFDA



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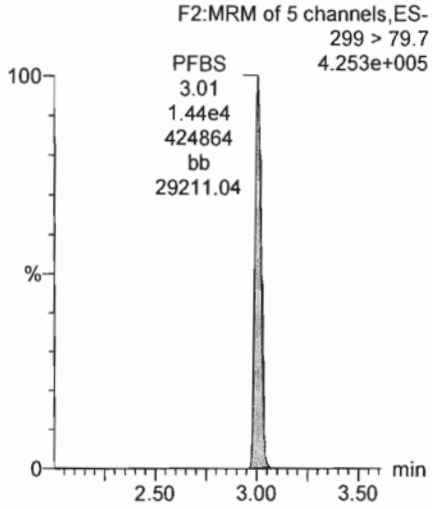
Printed: Monday, December 11, 2017 10:34:58 Pacific Standard Time

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

PFBS



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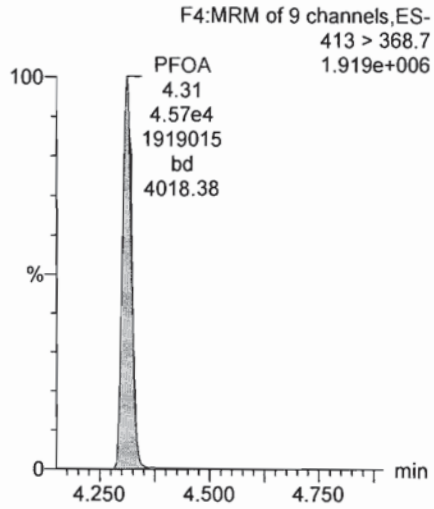
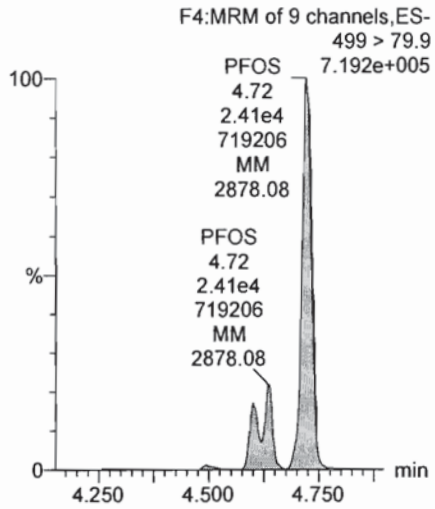


PFOS



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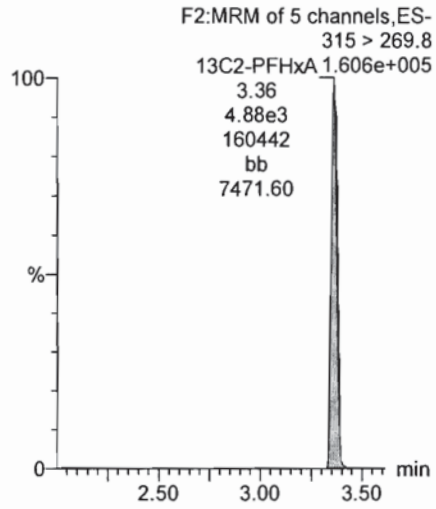
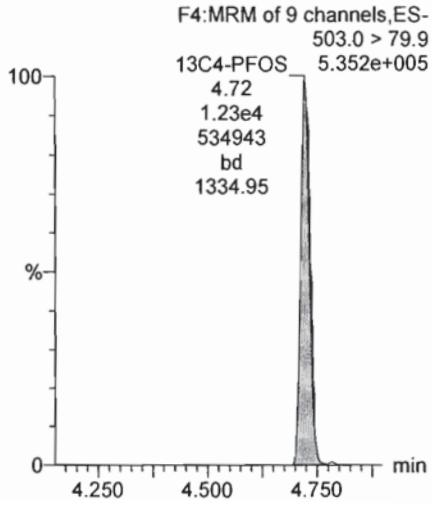


13C4-PFOS



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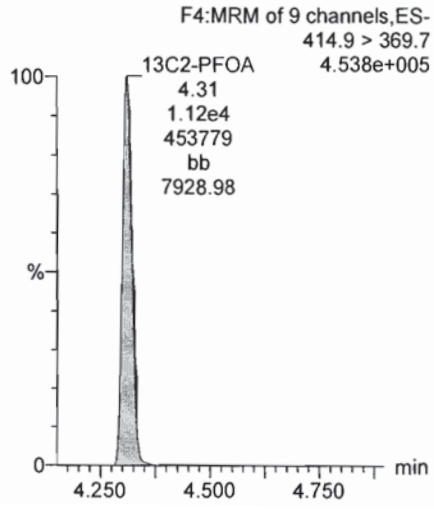
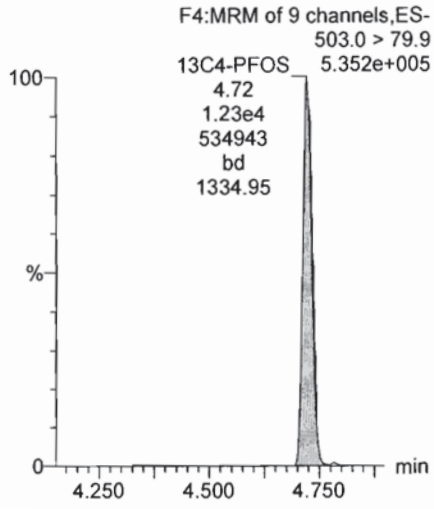
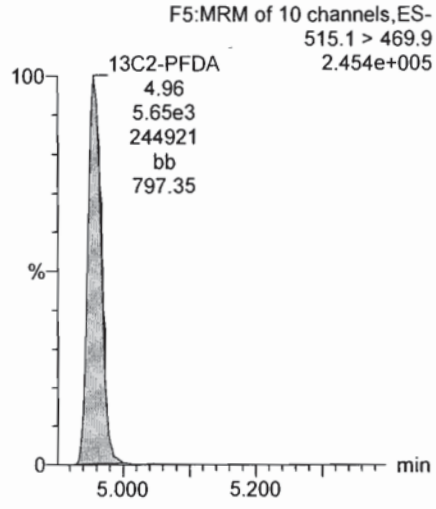


13C4-PFOS



13C2-PFDA



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

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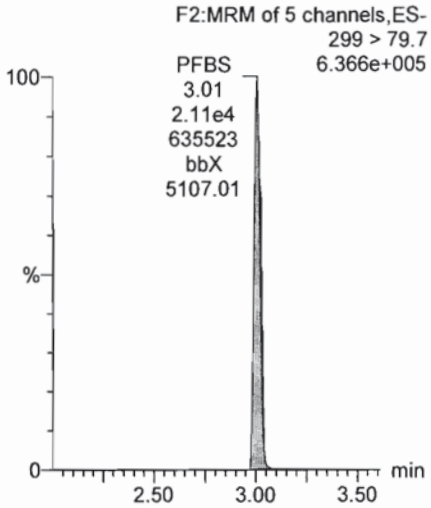
Printed: Monday, December 11, 2017 10:34:58 Pacific Standard Time

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

PFBS



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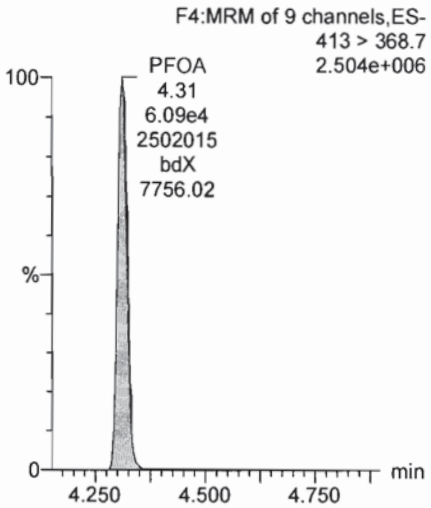
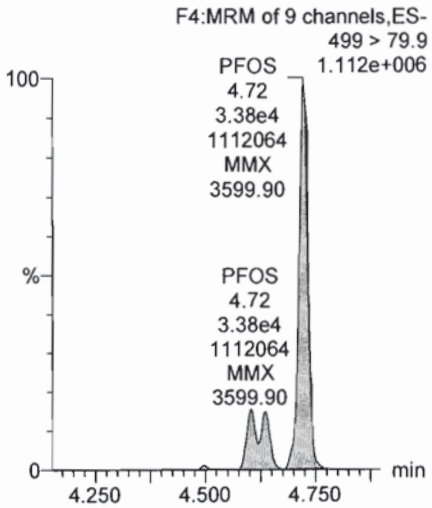


PFOS



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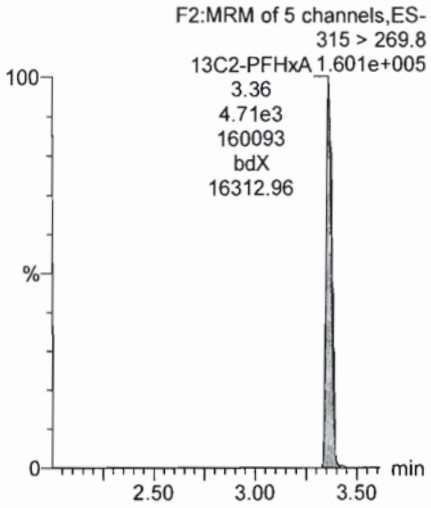

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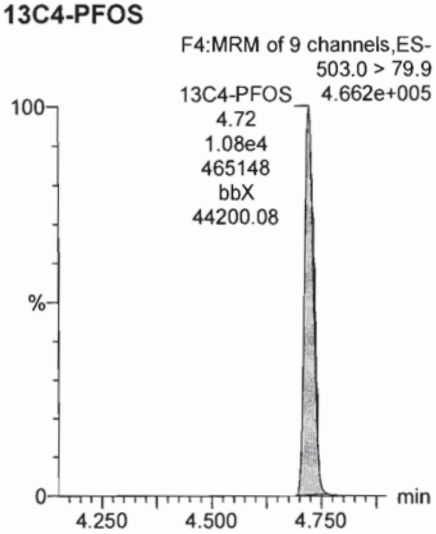

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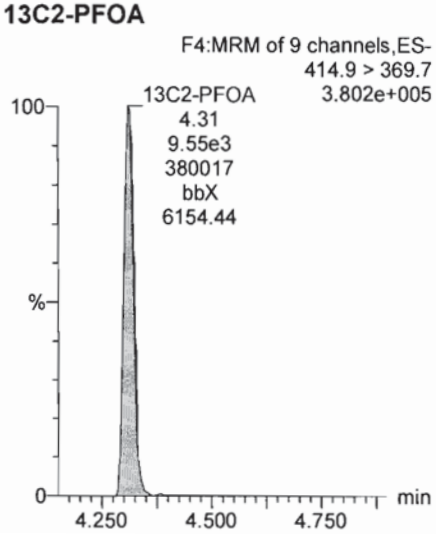

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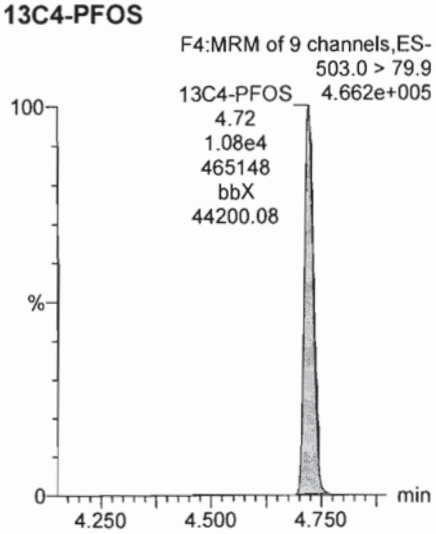

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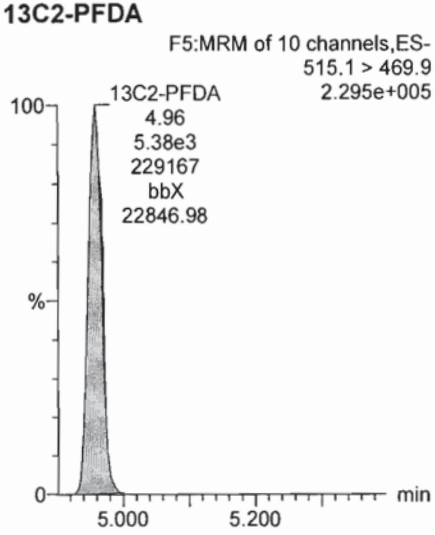

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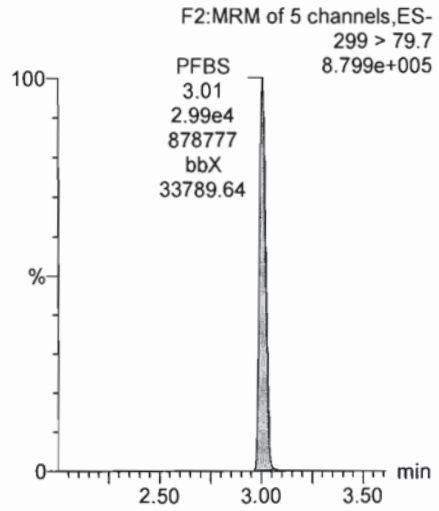
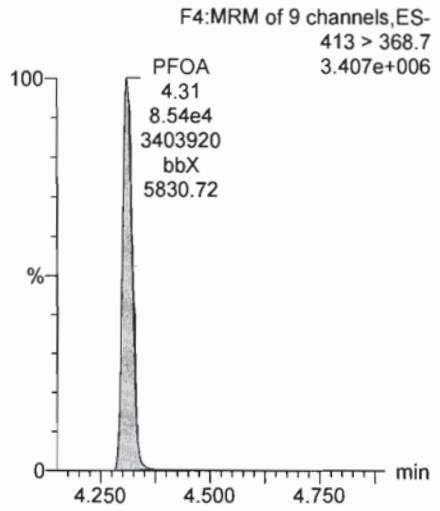
Printed: Monday, December 11, 2017 10:34:58 Pacific Standard Time

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

PFBS



PFOA



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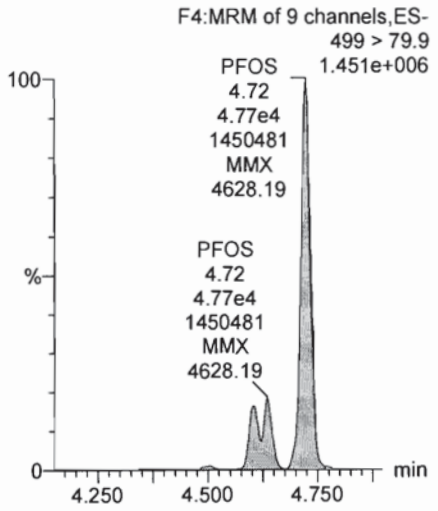

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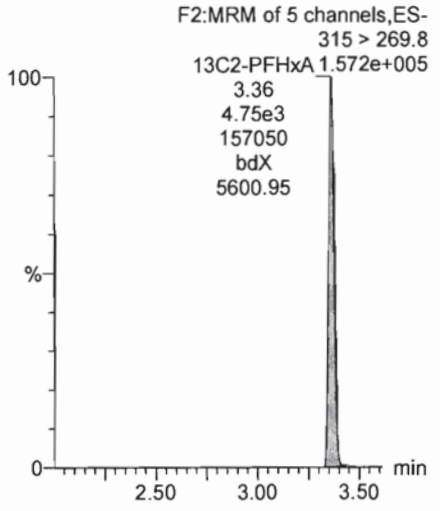

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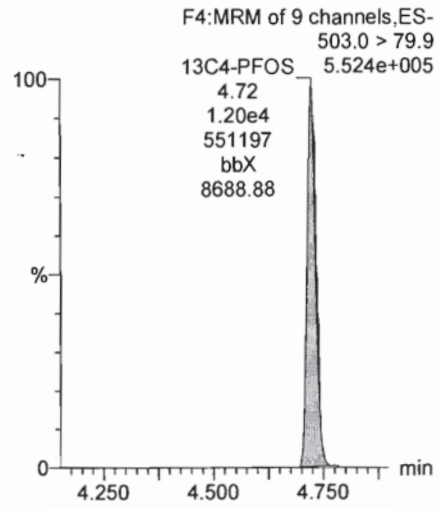

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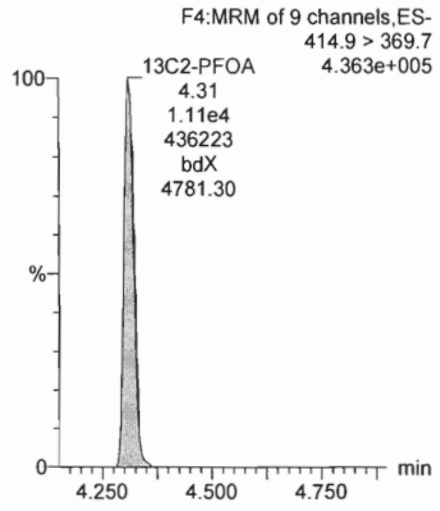

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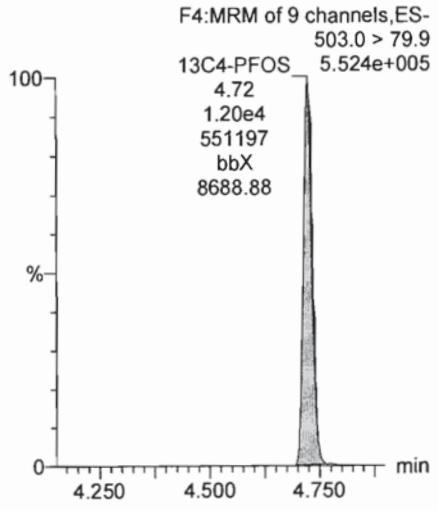

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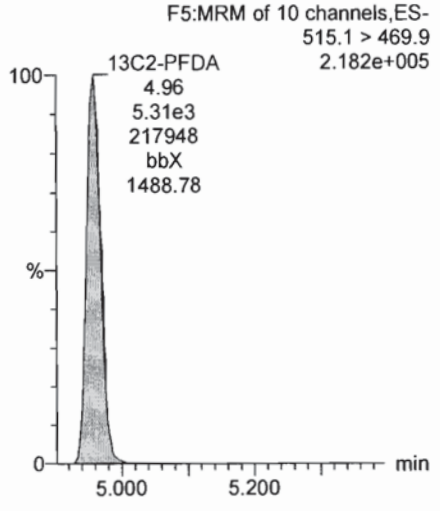


Vista Analytical Laboratory

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

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

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

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

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

70-130

12/11/17

12/11/2017

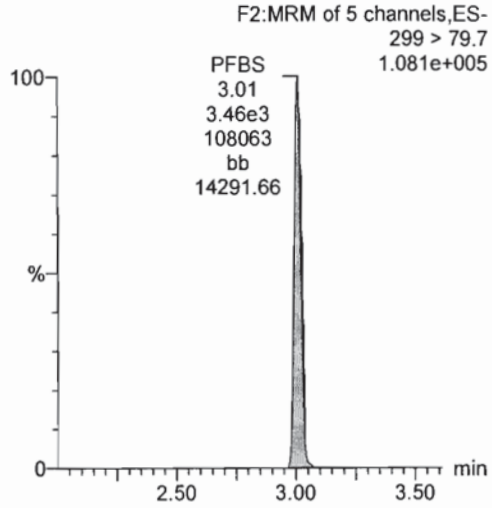
Dataset: U:\G1.PRO\Results\2017\171208G2\171208G2-12.qld

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

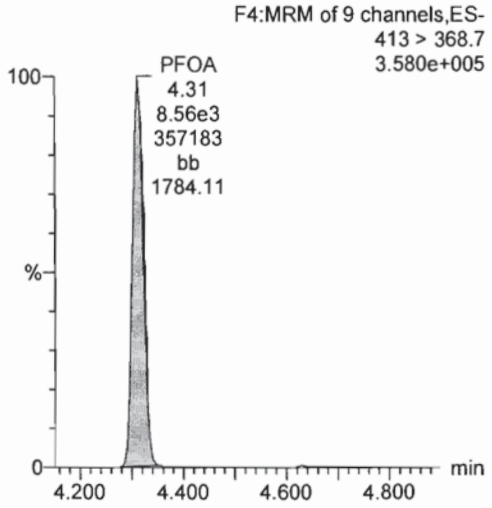
Method: U:\G1.PRO\MethDB\PFAS_DW_L3_1126.mdb 27 Nov 2017 14:32:15
Calibration: U:\G1.PRO\CurveDB\C18_537_Q1_12-08-17_L3.cdb 10 Dec 2017 22:49:55

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

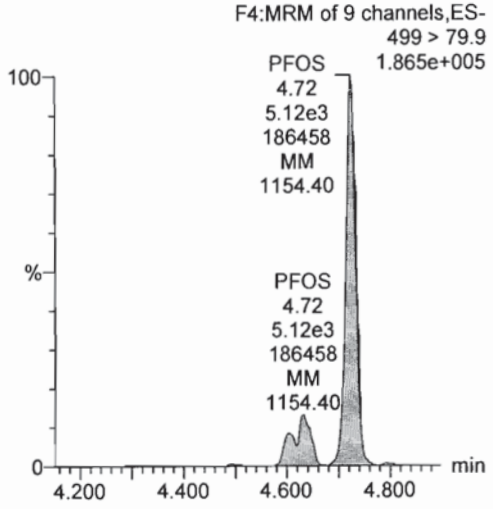
PFBS



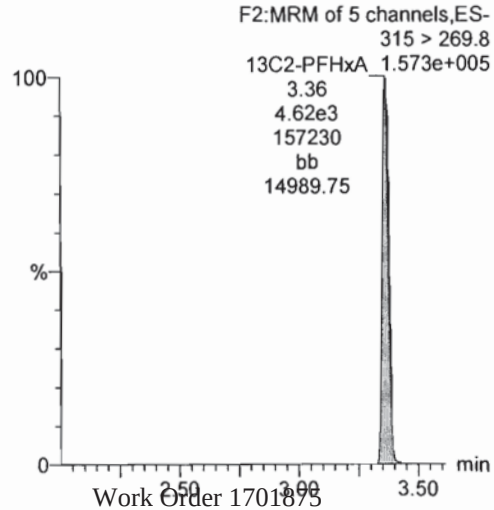
PFOA



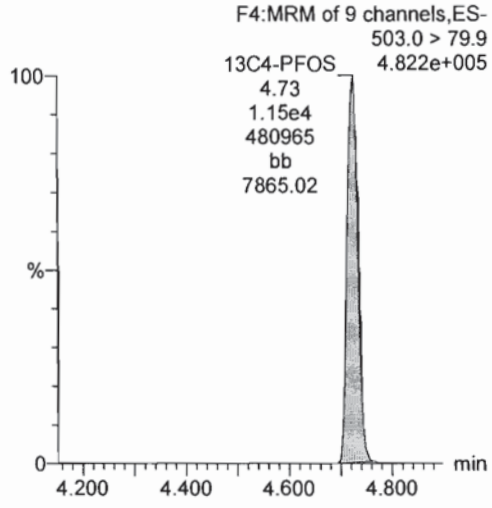
PFOS



13C2-PFHxA



13C4-PFOS



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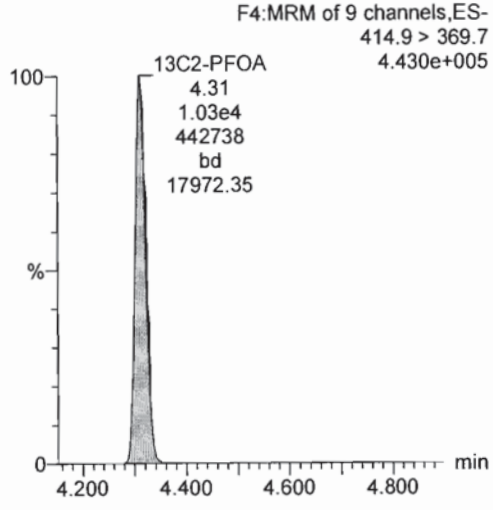

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Last Altered: Monday, December 11, 2017 10:41:12 Pacific Standard Time
Printed: Monday, December 11, 2017 10:41:34 Pacific Standard Time

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

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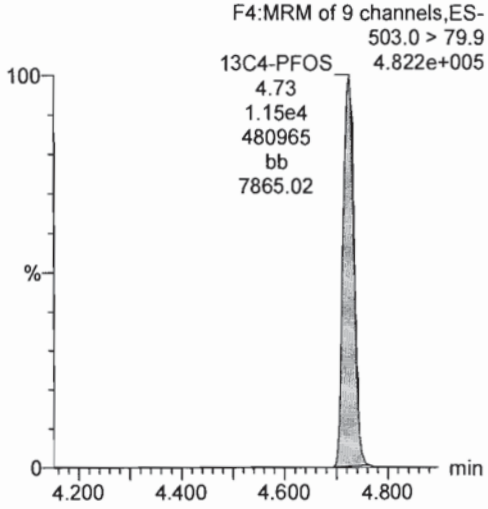

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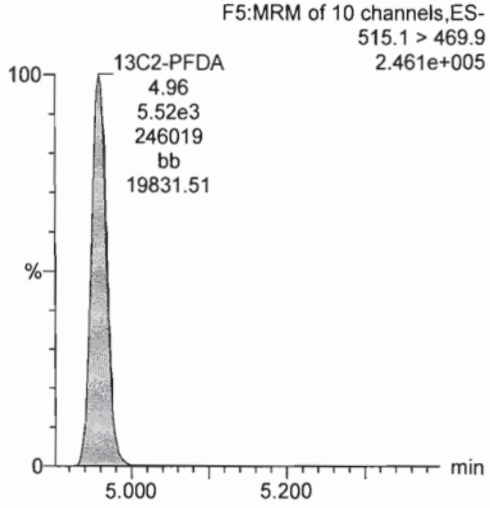

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N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 13:12	12/07/2017			20171212	09:40:00	20171214	11:57:00	1701875-01	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 13:12	12/07/2017			20171212	09:40:00	20171214	11:57:00	1701875-01	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 13:12	12/07/2017			20171212	09:40:00	20171214	11:57:00	1701875-01	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 13:12	12/07/2017			20171212	09:40:00	20171214	12:10:00	1701875-02	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 13:12	12/07/2017			20171212	09:40:00	20171214	12:10:00	1701875-02	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 13:12	12/07/2017			20171212	09:40:00	20171214	12:10:00	1701875-02	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 13:12	12/07/2017			20171212	09:40:00	20171214	12:10:00	1701875-02	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 15:55	12/07/2017			20171212	09:40:00	20171214	12:22:00	1701875-03	1	-999		
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N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 15:55	12/07/2017			20171212	09:40:00	20171214	12:22:00	1701875-03	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 15:55	12/07/2017			20171212	09:40:00	20171214	12:22:00	1701875-03	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 15:55	12/07/2017			20171212	09:40:00	20171214	12:35:00	1701875-04	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 15:55	12/07/2017			20171212	09:40:00	20171214	12:35:00	1701875-04	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 15:55	12/07/2017			20171212	09:40:00	20171214	12:35:00	1701875-04	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 15:55	12/07/2017			20171212	09:40:00	20171214	12:35:00	1701875-04	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 16:10	12/07/2017			20171212	09:40:00	20171214	12:47:00	1701875-05	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 16:10	12/07/2017			20171212	09:40:00	20171214	12:47:00	1701875-05	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 16:10	12/07/2017			20171212	09:40:00	20171214	12:47:00	1701875-05	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 16:10	12/07/2017			20171212	09:40:00	20171214	12:47:00	1701875-05	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 16:10	12/07/2017			20171212	09:40:00	20171214	12:59:00	1701875-06	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 16:10	12/07/2017			20171212	09:40:00	20171214	12:59:00	1701875-06	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 16:10	12/07/2017			20171212	09:40:00	20171214	12:59:00	1701875-06	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 16:10	12/07/2017			20171212	09:40:00	20171214	12:59:00	1701875-06	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 18:05	12/07/2017			20171212	09:40:00	20171214	13:12:00	1701875-07	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 18:05	12/07/2017			20171212	09:40:00	20171214	13:12:00	1701875-07	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 18:05	12/07/2017			20171212	09:40:00	20171214	13:12:00	1701875-07	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 18:05	12/07/2017			20171212	09:40:00	20171214	13:12:00	1701875-07	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 18:05	12/07/2017			20171212	09:40:00	20171214	13:24:00	1701875-08	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 18:05	12/07/2017			20171212	09:40:00	20171214	13:24:00	1701875-08	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 18:05	12/07/2017			20171212	09:40:00	20171214	13:24:00	1701875-08	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 18:05	12/07/2017			20171212	09:40:00	20171214	13:24:00	1701875-08	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 18:33	12/07/2017			20171212	09:40:00	20171214	13:37:00	1701875-09	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 18:33	12/07/2017			20171212	09:40:00	20171214	13:37:00	1701875-09	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 18:33	12/07/2017			20171212	09:40:00	20171214	13:37:00	1701875-09	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 18:33	12/07/2017			20171212	09:40:00	20171214	13:37:00	1701875-09	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 18:33	12/07/2017			20171212	09:40:00	20171214	13:49:00	1701875-10	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 18:33	12/07/2017			20171212	09:40:00	20171214	13:49:00	1701875-10	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 18:33	12/07/2017			20171212	09:40:00	20171214	13:49:00	1701875-10	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/04/2017 18:33	12/07/2017			20171212	09:40:00	20171214	13:49:00	1701875-10	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 09:21	12/07/2017			20171212	09:40:00	20171214	14:02:00	1701875-11	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 09:21	12/07/2017			20171212	09:40:00	20171214	14:02:00	1701875-11	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 09:21	12/07/2017			20171212	09:40:00	20171214	14:02:00	1701875-11	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 09:21	12/07/2017			20171212	09:40:00	20171214	14:02:00	1701875-11	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 09:21	12/07/2017			20171212	09:40:00	20171214	14:14:00	1701875-12	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 09:21	12/07/2017			20171212	09:40:00	20171214	14:14:00	1701875-12	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 09:21	12/07/2017			20171212	09:40:00	20171214	14:14:00	1701875-12	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 09:21	12/07/2017			20171212	09:40:00	20171214	14:14:00	1701875-12	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 10:22	12/07/2017			20171212	09:40:00	20171214	14:27:00	1701875-13	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 10:22	12/07/2017			20171212	09:40:00	20171214	14:27:00	1701875-13	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 10:22	12/07/2017			20171212	09:40:00	20171214	14:27:00	1701875-13	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 10:22	12/07/2017			20171212	09:40:00	20171214	14:27:00	1701875-13	1	-999		
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N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 10:22	12/07/2017			20171212	09:40:00	20171214	14:39:00	1701875-14	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 10:22	12/07/2017			20171212	09:40:00	20171214	14:39:00	1701875-14	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 10:22	12/07/2017			20171212	09:40:00	20171214	14:39:00	1701875-14	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 11:05	12/07/2017			20171212	09:40:00	20171214	14:51:00	1701875-15	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 11:05	12/07/2017			20171212	09:40:00	20171214	14:51:00	1701875-15	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 11:05	12/07/2017			20171212	09:40:00	20171214	14:51:00	1701875-15	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2R	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 11:05	12/07/2017			20171212	09:40:00	20171214	14:51:00	1701875-15	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 11:05	12/07/2017			20171212	09:40:00	20171214	15:04:00	1701875-16	1	-999		
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N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 11:05	12/07/2017			20171212	09:40:00	20171214	15:04:00	1701875-16	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2F	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 11:05	12/07/2017			20171212	09:40:00	20171214	15:04:00	1701875-16	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2E	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 15:30	12/07/2017			20171212	09:40:00	20171214	15:16:00	1701875-17	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2E	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 15:30	12/07/2017			20171212	09:40:00	20171214	15:16:00	1701875-17	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2E	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 15:30	12/07/2017			20171212	09:40:00	20171214	15:16:00	1701875-17	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	CH-AT-2E	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	REG	W	4	12/05/2017 15:30	12/07/2017			20171212	09:40:00	20171214	15:16:00	1701875-17	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	Blank	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BLK	W	4	12/12/2017 09:40	12/12/2017			20171212	09:40:00	20171214	11:45:00	B7L0066-BLK1	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	Blank	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BLK	W	4	12/12/2017 09:40	12/12/2017			20171212	09:40:00	20171214	11:45:00	B7L0066-BLK1	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	Blank	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BLK	W	4	12/12/2017 09:40	12/12/2017			20171212	09:40:00	20171214	11:45:00	B7L0066-BLK1	1	-999		
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N6247016D9000	0008		CHERRY_POINT_MCAS	LCS	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BS	W	4	12/12/2017 09:40	12/12/2017			20171212	09:40:00	20171214	11:20:00	B7L0066-BS1	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	LCS	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BS	W	4	12/12/2017 09:40	12/12/2017			20171212	09:40:00	20171214	11:20:00	B7L0066-BS1	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	LCS	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BS	W	4	12/12/2017 09:40	12/12/2017			20171212	09:40:00	20171214	11:20:00	B7L0066-BS1	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	LCS Dup	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BS	W	4	12/12/2017 09:40	12/12/2017			20171212	09:40:00	20171214	11:32:00	B7L0066-BSD1	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	LCS Dup	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BS	W	4	12/12/2017 09:40	12/12/2017			20171212	09:40:00	20171214	11:32:00	B7L0066-BSD1	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	LCS Dup	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BS	W	4	12/12/2017 09:40	12/12/2017			20171212	09:40:00	20171214	11:32:00	B7L0066-BSD1	1	-999		
N6247016D9000	0008		CHERRY_POINT_MCAS	LCS Dup	NONS	SVOA	537	ORG	VISTA	VISTA ANALYTICAL LABORATORY, INC.	NONE	WET	METHOD	000	BS	W	4	12/12/2017 09:40	12/12/2017			20171212	09:40:00	20171214	11:32:00	B7L0066-BSD1	1	-999		

Contract_ID	DO_CTO_Number	Phase	Installation_ID	Chem_Name	Analyte_ID	Analyte_Value	Original_Analyte_Value	Result_Units	Lab_Qualifier	Validator_Qualifier	GC_Column_Type	Analysis_Result_Type	Result_Narrative	QC_Control_Limit_Code	QC_Accuracy_Upper	QC_Accuracy_Lower	Control_Limit_Date	QC_Narrative	MDL	Detection_Limit	QSM_Version	DL	LOD	LOQ	SDG	Analysis_Batch
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.70	NG_L	U		PR	TRG									5.1	0.416	4.70	9.39	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		4.70	NG_L	U		PR	TRG									5.1	1.01	4.70	9.39	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.70	NG_L	U		PR	TRG									5.1	0.977	4.70	9.39	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		100	PCT_REC			PR			SLSA	130	70					5.1				1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		5.11	NG_L	U		PR	TRG									5.1	0.453	5.11	10.2	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		5.11	NG_L	U		PR	TRG									5.1	1.10	5.11	10.2	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		5.11	NG_L	U		PR	TRG									5.1	1.06	5.11	10.2	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		105	PCT_REC			PR			SLSA	130	70					5.1				1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		5.04	NG_L	U		PR	TRG									5.1	0.446	5.04	10.1	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		5.04	NG_L	U		PR	TRG									5.1	1.09	5.04	10.1	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		5.04	NG_L	U		PR	TRG									5.1	1.05	5.04	10.1	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		107	PCT_REC			PR			SLSA	130	70					5.1				1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.92	NG_L	U		PR	TRG									5.1	0.436	4.92	9.85	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		4.92	NG_L	U		PR	TRG									5.1	1.06	4.92	9.85	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.92	NG_L	U		PR	TRG									5.1	1.02	4.92	9.85	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		101	PCT_REC			PR			SLSA	130	70					5.1				1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		1.58	NG_L	J		PR	TRG									5.1	0.437	4.93	9.86	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		4.93	NG_L	U		PR	TRG									5.1	1.06	4.93	9.86	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.93	NG_L	U		PR	TRG									5.1	1.03	4.93	9.86	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		89.2	PCT_REC			PR			SLSA	130	70					5.1				1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.92	NG_L	U		PR	TRG									5.1	0.436	4.92	9.85	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		4.92	NG_L	U		PR	TRG									5.1	1.06	4.92	9.85	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.92	NG_L	U		PR	TRG									5.1	1.02	4.92	9.85	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		95.7	PCT_REC			PR			SLSA	130	70					5.1				1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		0.667	NG_L	J		PR	TRG									5.1	0.446	5.03	10.1	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		5.03	NG_L	U		PR	TRG									5.1	1.09	5.03	10.1	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		5.03	NG_L	U		PR	TRG									5.1	1.05	5.03	10.1	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		97.8	PCT_REC			PR			SLSA	130	70					5.1				1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		5.02	NG_L	U		PR	TRG									5.1	0.445	5.02	10.0	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		5.02	NG_L	U		PR	TRG									5.1	1.08	5.02	10.0	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		5.02	NG_L	U		PR	TRG									5.1	1.04	5.02	10.0	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		95.5	PCT_REC			PR			SLSA	130	70					5.1				1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.97	NG_L	U		PR	TRG									5.1	0.441	4.97	9.95	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		4.97	NG_L	U		PR	TRG									5.1	1.07	4.97	9.95	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.97	NG_L	U		PR	TRG									5.1	1.03	4.97	9.95	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		97.0	PCT_REC			PR			SLSA	130	70					5.1				1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.78	NG_L	U		PR	TRG									5.1	0.423	4.78	9.55	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		4.78	NG_L	U		PR	TRG									5.1	1.03	4.78	9.55	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.78	NG_L	U		PR	TRG									5.1	0.994	4.78	9.55	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		101	PCT_REC			PR			SLSA	130	70					5.1				1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.86	NG_L	U		PR	TRG									5.1	0.430	4.86	9.71	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		4.86	NG_L	U		PR	TRG									5.1	1.05	4.86	9.71	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.86	NG_L	U		PR	TRG									5.1	1.01	4.86	9.71	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		103	PCT_REC			PR			SLSA	130	70					5.1				1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.85	NG_L	U		PR	TRG									5.1	0.429	4.85	9.69	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		4.85	NG_L	U		PR	TRG									5.1	1.05	4.85	9.69	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.85	NG_L	U		PR	TRG									5.1	1.01	4.85	9.69	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		105	PCT_REC			PR			SLSA	130	70					5.1				1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.98	NG_L	U		PR	TRG									5.1	0.442	4.98	9.97	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		4.98	NG_L	U		PR	TRG									5.1	1.08	4.98	9.97	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.98	NG_L	U		PR	TRG									5.1	1.04	4.98	9.97	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		92.0	PCT_REC			PR			SLSA	130	70					5.1				1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.75	NG_L	U		PR	TRG									5.1	0.421	4.75	9.49	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		4.75	NG_L	U		PR	TRG									5.1	1.03	4.75	9.49	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.75	NG_L	U		PR	TRG									5.1	0.987	4.75	9.49	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		110	PCT_REC			PR			SLSA	130	70					5.1				1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		5.06	NG_L	U		PR	TRG									5.1	0.448	5.06	10.1	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		5.06	NG_L	U		PR	TRG									5.1	1.09	5.06	10.1	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		5.06	NG_L	U		PR	TRG									5.1	1.05	5.06	10.1	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		105	PCT_REC			PR			SLSA	130	70					5.1				1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.82	NG_L	U		PR	TRG									5.1	0.427	4.82	9.64	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		4.82	NG_L	U		PR	TRG									5.1	1.04	4.82	9.64	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.82	NG_L	U		PR	TRG									5.1	1.00	4.82	9.64	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		99.6	PCT_REC			PR			SLSA	130	70					5.1				1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		4.88	NG_L	U		PR	TRG									5.1	0.433	4.88	9.77	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		4.88	NG_L	U		PR	TRG									5.1	1.06	4.88	9.77	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		4.88	NG_L	U		PR	TRG									5.1	1.02	4.88	9.77	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		99.2	PCT_REC			PR			SLSA	130	70					5.1				1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		5.00	NG_L	U		PR	TRG									5.1	0.443	5.00	10.0	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		5.00	NG_L	U		PR	TRG									5.1	1.08	5.00	10.0	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		5.00	NG_L	U		PR	TRG									5.1	1.04	5.00	10.0	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		101	PCT_REC			PR	SUR		SLSA	130	70					5.1				1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		80.7	NG_L			PR	TRG		LSA	130	70					5.1	0.443	5.00	10.0	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		84.5	NG_L			PR	TRG		LSA	130	70					5.1	1.08	5.00	10.0	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		79.3	NG_L			PR	TRG		LSA	130	70					5.1	1.04	5.00	10.0	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		96.4	PCT_REC			PR	SUR		LSA	130	70					5.1				1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorobutanesulfonic acid (PFBS)	375-73-5		75.2	NG_L			PR	TRG		LSA	130	70					5.1	0.443	5.00	10.0	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctanoic acid (PFOA)	335-67-1		88.0	NG_L			PR	TRG		LSA	130	70					5.1	1.08	5.00	10.0	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	Perfluorooctane Sulfonate (PFOS)	1763-23-1		82.7	NG_L			PR	TRG		LSA	130	70					5.1	1.04	5.00	10.0	1701875	S7L0042
N6247016D9000	0008		CHERRY_POINT_MCAS	13C2-PFHxA	13C2-PFHxA		96.1	PCT_REC			PR	SUR		LSA	130	70					5.1				1701875	S7L0042

ENVIRONMENTAL
Data Services, Inc.

DATA VALIDATION SUMMARY REPORT
MCOLF ATLANTC, NORTH CAROLINA

Client: CH2M HILL, Inc., Corvallis, Oregon
SDG: 1701875
Laboratory: Vista Analytical Laboratory, El Dorado Hills, California
Site: MCOLF Atlantic, North Carolina
Date: January 22, 2018

PFCs			
EDS ID	Client Sample ID	Laboratory Sample ID	Matrix
1	CH-AT-2RW42-1217	1701875-01	Water
2	CH-AT-2FB42-1217	1701875-02	Water
3	CH-AT-2RW43-1217	1701875-03	Water
4	CH-AT-2FB43-1217	1701875-04	Water
5	CH-AT-2RW44-1217	1701875-05	Water
6	CH-AT-2FB44-1217	1701875-06	Water
7	CH-AT-2RW45-1217	1701875-07	Water
8	CH-AT-2FB45-1217	1701875-08	Water
9	CH-AT-2RW46-1217	1701875-09	Water
10	CH-AT-2FB46-1217	1701875-10	Water
11	CH-AT-2RW47-1217	1701875-11	Water
12	CH-AT-2FB47-1217	1701875-12	Water
13	CH-AT-2RW48A-1217	1701875-13	Water
14	CH-AT-2FB48A-1217	1701875-14	Water
15	CH-AT-2RW48B-1217	1701875-15	Water
16	CH-AT-2FB48B-1217	1701875-16	Water
17	CH-AT-2EB01-1217	1701875-17	Water

A full data validation was performed on the analytical data for eight water samples, eight aqueous field blank samples, and one aqueous equipment blank sample collected on December 4-5, 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-2FB42-1217	None - ND	-	-	-
CH-AT-2FB43-1217	None - ND	-	-	-
CH-AT-2FB44-1217	None - ND	-	-	-
CH-AT-2FB45-1217	None - ND	-	-	-
CH-AT-2FB46-1217	None - ND	-	-	-
CH-AT-2FB47-1217	None - ND	-	-	-
CH-AT-2FB48A-1217	None - ND	-	-	-
CH-AT-2FB48B-1217	None - ND	-	-	-
CH-AT-2EB01-1217	None - ND	-	-	-

Surrogate Spike Recoveries

- All samples exhibited acceptable surrogate %R values.

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

- MS/MSD samples were not analyzed.

Laboratory Control Samples

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

Internal Standard (IS) Area Performance

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

Target Compound Identification

- All mass spectra and quantitation criteria were met.

Compound Quantitation

- All criteria were met.

Field Duplicate Sample Precision

- Field duplicate samples were not collected.

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

Signed: Nancy Weaver Dated: 1/22/18

Nancy Weaver
Senior Chemist

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

Vista Analytical Laboratory

Sample ID: CH-AT-2RW42-1217

EPA Method 537

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 04-Dec-17 13:12

Laboratory Data

Lab Sample: 1701875-01
Date Received: 07-Dec-17 09:23
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.416	4.70	9.39		B7L0066	12-Dec-17	0.266 L	14-Dec-17 11:57	1
PFOA	ND	1.01	4.70	9.39		B7L0066	12-Dec-17	0.266 L	14-Dec-17 11:57	1
PFOS	ND	0.977	4.70	9.39		B7L0066	12-Dec-17	0.266 L	14-Dec-17 11:57	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	100	70 - 130		B7L0066	12-Dec-17	0.266 L	14-Dec-17 11:57	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 1/22/18

Vista Analytical Laboratory 2

Sample ID: CH-AT-2FB42-1217 **EPA Method 537**

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 04-Dec-17 13:12

Laboratory Data

Lab Sample: 1701875-02
Date Received: 07-Dec-17 09:23
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.453	5.11	10.2		B7L0066	12-Dec-17	0.245 L	14-Dec-17 12:10	1
PFOA	ND	1.10	5.11	10.2		B7L0066	12-Dec-17	0.245 L	14-Dec-17 12:10	1
PFOS	ND	1.06	5.11	10.2		B7L0066	12-Dec-17	0.245 L	14-Dec-17 12:10	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	105	70 - 130		B7L0066	12-Dec-17	0.245 L	14-Dec-17 12:10	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.

nw 1/22/18

Vista Analytical Laboratory 3

Sample ID: CH-AT-2RW43-1217 — **EPA Method 537**

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 04-Dec-17 15:55

Laboratory Data

Lab Sample: 1701875-03
Date Received: 07-Dec-17 09:23
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.446	5.04	10.1		B7L0066	12-Dec-17	0.248 L	14-Dec-17 12:22	1
PFOA	ND	1.09	5.04	10.1		B7L0066	12-Dec-17	0.248 L	14-Dec-17 12:22	1
PFOS	ND	1.05	5.04	10.1		B7L0066	12-Dec-17	0.248 L	14-Dec-17 12:22	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	107	70 - 130		B7L0066	12-Dec-17	0.248 L	14-Dec-17 12:22	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 1/22/18

Vista 4 Analytical Laboratory

Sample ID: CH-AT-2FB43-1217 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701875-04	Column:	BEH C18
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	Date Collected:	04-Dec-17 15:55	Date Received:	07-Dec-17 09:23		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.436	4.92	9.85		B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:35	1
PFOA	ND	1.06	4.92	9.85		B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:35	1
PFOS	ND	1.02	4.92	9.85		B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:35	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	101	70 - 130		B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:35	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 1/22/18

Vista Analytical Laboratory 5

Sample ID: CH-AT-2RW44-1217 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701875-05	Column:	BEH C18
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	Date Collected:	04-Dec-17 16:10	Date Received:	07-Dec-17 09:23		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	1.58	0.437	4.93	9.86	J	B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:47	1
PFOA	ND	1.06	4.93	9.86		B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:47	1
PFOS	ND	1.03	4.93	9.86		B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:47	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	89.2	70 - 130		B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:47	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 1/22/18

Sample ID: CH-AT-2FB44-1217 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701875-06	Column:	BEH C18
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	Date Collected:	04-Dec-17 16:10	Date Received:	07-Dec-17 09:23		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.436	4.92	9.85		B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:59	1
PFOA	ND	1.06	4.92	9.85		B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:59	1
PFOS	ND	1.02	4.92	9.85		B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:59	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	95.7	70 - 130		B7L0066	12-Dec-17	0.254 L	14-Dec-17 12:59	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 1/22/18

Vista 7 Analytical Laboratory

Sample ID: CH-AT-2RW45-1217 — **EPA Method 537**

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 04-Dec-17 18:05

Laboratory Data

Lab Sample: 1701875-07
Date Received: 07-Dec-17 09:23
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	0.667	0.446	5.03	10.1	J	B7L0066	12-Dec-17	0.248 L	14-Dec-17 13:12	1
PFOA	ND	1.09	5.03	10.1		B7L0066	12-Dec-17	0.248 L	14-Dec-17 13:12	1
PFOS	ND	1.05	5.03	10.1		B7L0066	12-Dec-17	0.248 L	14-Dec-17 13:12	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	97.8	70 - 130		B7L0066	12-Dec-17	0.248 L	14-Dec-17 13:12	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 1/22/18

Vista Analytical Laboratory

8

Sample ID: CH-AT-2FB45-1217 — **EPA Method 537**

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 04-Dec-17 18:05

Laboratory Data

Lab Sample: 1701875-08
Date Received: 07-Dec-17 09:23
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.445	5.02	10.0		B7L0066	12-Dec-17	0.249 L	14-Dec-17 13:24	1
PFOA	ND	1.08	5.02	10.0		B7L0066	12-Dec-17	0.249 L	14-Dec-17 13:24	1
PFOS	ND	1.04	5.02	10.0		B7L0066	12-Dec-17	0.249 L	14-Dec-17 13:24	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	95.5	70 - 130		B7L0066	12-Dec-17	0.249 L	14-Dec-17 13:24	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 1/22/18

Vista 9
Analytical Laboratory

Sample ID: CH-AT-2RW46-1217 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701875-09	Column:	BEH C18
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	Date Collected:	04-Dec-17 18:33	Date Received:	07-Dec-17 09:23		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.441	4.97	9.95		B7L0066	12-Dec-17	0.251 L	14-Dec-17 13:37	1
PFOA	ND	1.07	4.97	9.95		B7L0066	12-Dec-17	0.251 L	14-Dec-17 13:37	1
PFOS	ND	1.03	4.97	9.95		B7L0066	12-Dec-17	0.251 L	14-Dec-17 13:37	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	97.0	70 - 130		B7L0066	12-Dec-17	0.251 L	14-Dec-17 13:37	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 1/22/18

Vista Analytical Laboratory

Sample ID: CH-AT-2FB46-1217 — **EPA Method 537**

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 04-Dec-17 18:33

Laboratory Data

Lab Sample: 1701875-10
Date Received: 07-Dec-17 09:23
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.423	4.78	9.55		B7L0066	12-Dec-17	0.262 L	14-Dec-17 13:49	1
PFOA	ND	1.03	4.78	9.55		B7L0066	12-Dec-17	0.262 L	14-Dec-17 13:49	1
PFOS	ND	0.994	4.78	9.55		B7L0066	12-Dec-17	0.262 L	14-Dec-17 13:49	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	101	70 - 130		B7L0066	12-Dec-17	0.262 L	14-Dec-17 13:49	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 1/22/18

Sample ID: CH-AT-2RW47-1217 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701875-11	Column:	BEH C18
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	Date Collected:	05-Dec-17 09:21	Date Received:	07-Dec-17 09:23		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.430	4.86	9.71		B7L0066	12-Dec-17	0.257 L	14-Dec-17 14:02	1
PFOA	ND	1.05	4.86	9.71		B7L0066	12-Dec-17	0.257 L	14-Dec-17 14:02	1
PFOS	ND	1.01	4.86	9.71		B7L0066	12-Dec-17	0.257 L	14-Dec-17 14:02	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	103	70 - 130		B7L0066	12-Dec-17	0.257 L	14-Dec-17 14:02	1

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

mw 1/22/18

Vista 12
Analytical Laboratory

Sample ID: CH-AT-2FB47-1217 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701875-12	Column:	BEH C18
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	Date Collected:	05-Dec-17 09:21	Date Received:	07-Dec-17 09:23		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.429	4.85	9.69		B7L0066	12-Dec-17	0.258 L	14-Dec-17 14:14	1
PFOA	ND	1.05	4.85	9.69		B7L0066	12-Dec-17	0.258 L	14-Dec-17 14:14	1
PFOS	ND	1.01	4.85	9.69		B7L0066	12-Dec-17	0.258 L	14-Dec-17 14:14	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	105	70 - 130		B7L0066	12-Dec-17	0.258 L	14-Dec-17 14:14	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.

AW 1/22/18

Vista Analytical Laboratory 13

Sample ID: CH-AT-2RW48A-1217 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701875-13	Column:	BEH C18
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	Date Collected:	05-Dec-17 10:22	Date Received:	07-Dec-17 09:23		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.442	4.98	9.97		B7L0066	12-Dec-17	0.251 L	14-Dec-17 14:27	1
PFOA	ND	1.08	4.98	9.97		B7L0066	12-Dec-17	0.251 L	14-Dec-17 14:27	1
PFOS	ND	1.04	4.98	9.97		B7L0066	12-Dec-17	0.251 L	14-Dec-17 14:27	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	92.0	70 - 130		B7L0066	12-Dec-17	0.251 L	14-Dec-17 14:27	1

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

MW 1/22/18

Vista Analytical Laboratory 14

Sample ID: CH-AT-2FB48A-1217 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701875-14	Column:	BEH C18
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	Date Collected:	05-Dec-17 10:22	Date Received:	07-Dec-17 09:23		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.421	4.75	9.49		B7L0066	12-Dec-17	0.263 L	14-Dec-17 14:39	1
PFOA	ND	1.03	4.75	9.49		B7L0066	12-Dec-17	0.263 L	14-Dec-17 14:39	1
PFOS	ND	0.987	4.75	9.49		B7L0066	12-Dec-17	0.263 L	14-Dec-17 14:39	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	110	70 - 130		B7L0066	12-Dec-17	0.263 L	14-Dec-17 14:39	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

nw 1/22/18

Vista 15
Analytical Laboratory

Sample ID: CH-AT-2RW48B-1217 **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701875-15	Column:	BEH C18
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	Date Collected:	05-Dec-17 11:05	Date Received:	07-Dec-17 09:23		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.448	5.06	10.1		B7L0066	12-Dec-17	0.247 L	14-Dec-17 14:51	1
PFOA	ND	1.09	5.06	10.1		B7L0066	12-Dec-17	0.247 L	14-Dec-17 14:51	1
PFOS	ND	1.05	5.06	10.1		B7L0066	12-Dec-17	0.247 L	14-Dec-17 14:51	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	105	70 - 130		B7L0066	12-Dec-17	0.247 L	14-Dec-17 14:51	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 1/22/18

Vista 16 Analytical Laboratory

Sample ID: CH-AT-2FB48B-1217 — **EPA Method 537**

Client Data

Name: CH2M Hill
Project: CTO-08/MCOLF ATLANTIC PFAS INV.
Matrix: Drinking Water
Date Collected: 05-Dec-17 11:05

Laboratory Data

Lab Sample: 1701875-16
Date Received: 07-Dec-17 09:23
Column: BEH C18

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.427	4.82	9.64		B7L0066	12-Dec-17	0.259 L	14-Dec-17 15:04	1
PFOA	ND	1.04	4.82	9.64		B7L0066	12-Dec-17	0.259 L	14-Dec-17 15:04	1
PFOS	ND	1.00	4.82	9.64		B7L0066	12-Dec-17	0.259 L	14-Dec-17 15:04	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	99.6	70 - 130		B7L0066	12-Dec-17	0.259 L	14-Dec-17 15:04	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 1/2 2018

Vista 17
Analytical Laboratory

Sample ID: CH-AT-2EB01-1217 — **EPA Method 537**

Client Data				Laboratory Data			
Name:	CH2M Hill	Matrix:	Drinking Water	Lab Sample:	1701875-17	Column:	BEH C18
Project:	CTO-08/MCOLF ATLANTIC PFAS INV.	Date Collected:	05-Dec-17 15:30	Date Received:	07-Dec-17 09:23		

Analyte	Conc. (ng/L)	DL	LOD	LOQ	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
PFBS	ND	0.433	4.88	9.77		B7L0066	12-Dec-17	0.256 L	14-Dec-17 15:16	1
PFOA	ND	1.06	4.88	9.77		B7L0066	12-Dec-17	0.256 L	14-Dec-17 15:16	1
PFOS	ND	1.02	4.88	9.77		B7L0066	12-Dec-17	0.256 L	14-Dec-17 15:16	1

Labeled Standards	Type	% Recovery	Limits	Qualifiers	Batch	Extracted	Samp Size	Analyzed	Dilution
13C2-PFHxA	SURR	99.2	70 - 130		B7L0066	12-Dec-17	0.256 L	14-Dec-17 15:16	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.

mw/12/18

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

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