



**Off-Base Drinking Water Sample Results,
Combined Level 2 and Level 4 Laboratory Report,
Electronic Data Deliverable, Data Validation Report,
and the Sample Location Figure, SDG 320-30330-1**

*Naval Air Station Willow Grove
Willow Grove, Pennsylvania*

August 2019

N00158_000746
WILLOW_GROVE_NAS
SSIC 5000-33c

**LABORATORY DATA PACKAGE, 320-30330-1, NAWC WARMINSTER NAS
WILLOW GROVE PA**

08/24/2017
TESTAMERICA LABORATORIES INC

Approved for public release: distribution unlimited.

ANALYTICAL REPORT

Job Number: 320-30330-1

Job Description: Warminster: PFAS, NAS JRB Willow Grove

For:
Tetra Tech, Inc.
234 Mall Boulevard
Suite 260
King of Prussia, PA 19406
Attention: Andy Frebowitz



Approved for release.
David R Alltucker
Project Manager I
8/24/2017 12:13 PM

David R Alltucker, Project Manager I
880 Riverside Parkway, West Sacramento, CA, 95605
(916)374-4383
david.alltucker@testamericainc.com
08/24/2017

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Definitions/Glossary

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-30330-1

Qualifiers

LCMS

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job Narrative
320-30330-1

Receipt

The samples were received on 8/2/2017 11:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.3° C and 3.4° C.

LCMS

Method(s) 537: The first level standard from the initial calibration curve is used to evaluate the tune criteria. The instrument mass windows are set at +/- 0.5amu; therefore, detection of the analyte serves as verification that the assigned mass is within +/- 0.5amu of the true value, which meets the DoD/DOE QSM tune criterion.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-30330-1

Client Sample ID: WGNA-080117-RW-0104

Lab Sample ID: 320-30330-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	42		39	6.7	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	21	M	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	34		30	5.4	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.4	J	9.9	1.9	ng/L	1		537	Total/NA

Client Sample ID: WGNA-080117-FRB-0104

Lab Sample ID: 320-30330-2

No Detections.

Client Sample ID: WGNA-080117-RW-0443A

Lab Sample ID: 320-30330-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	32	J M	37	6.3	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	31		18	2.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	12		9.2	1.7	ng/L	1		537	Total/NA
Perfluorobutanesulfonic acid (PFBS)	15	J	83	15	ng/L	1		537	Total/NA

Client Sample ID: WGNA-080117-RW-0443B

Lab Sample ID: 320-30330-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	29	J	37	6.3	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	31	M	19	2.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	13		9.3	1.8	ng/L	1		537	Total/NA

Client Sample ID: WGNA-080117-FRB-0443B

Lab Sample ID: 320-30330-5

No Detections.

Client Sample ID: WGNA-080117-RW-0437

Lab Sample ID: 320-30330-6

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	25	J	38	6.4	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	28	M	19	2.7	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	15	J	28	5.2	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.0	J	9.5	1.8	ng/L	1		537	Total/NA

Client Sample ID: WGNA-080117-FRB-0437

Lab Sample ID: 320-30330-7

No Detections.

Client Sample ID: WGNA-080117-RW-3178A

Lab Sample ID: 320-30330-8

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	18	J	38	6.5	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	11	J	19	2.7	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	8.0	J	29	5.3	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.3	J	9.6	1.8	ng/L	1		537	Total/NA

Client Sample ID: WGNA-080117-RW-3178B

Lab Sample ID: 320-30330-9

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Detection Summary

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-30330-1

Client Sample ID: WGNA-080117-RW-3178B (Continued)

Lab Sample ID: 320-30330-9

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	26	J	39	6.6	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	14	J M	20	2.7	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.8	J	29	5.4	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.9	J	9.8	1.9	ng/L	1		537	Total/NA

Client Sample ID: WGNA-080117-FRB-3178B

Lab Sample ID: 320-30330-10

No Detections.

Client Sample ID: WGNA-080117-RW-3325

Lab Sample ID: 320-30330-11

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	20	J	40	6.7	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	17	J M	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	16	J	30	5.5	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.6	J	9.9	1.9	ng/L	1		537	Total/NA

Client Sample ID: WGNA-080117-FRB-3325

Lab Sample ID: 320-30330-12

No Detections.

Client Sample ID: WGNA-080117-DUP06

Lab Sample ID: 320-30330-13

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	26	J M	38	6.4	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	28	M	19	2.6	ng/L	1		537	Total/NA
Perfluorononanoic acid (PFNA)	7.6	J	23	7.5	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	15	J	28	5.2	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.1	J	9.4	1.8	ng/L	1		537	Total/NA
Perfluorobutanesulfonic acid (PFBS)	15	J	85	15	ng/L	1		537	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-30330-1

Client Sample ID: WGNA-080117-RW-0104

Date Collected: 08/01/17 08:00

Date Received: 08/02/17 11:10

Lab Sample ID: 320-30330-1

Matrix: Water

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	42		39	6.7	ng/L	—	08/04/17 09:11	08/16/17 18:27	1
Perfluorooctanoic acid (PFOA)	21	M	20	2.8	ng/L		08/04/17 09:11	08/16/17 18:27	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		08/04/17 09:11	08/16/17 18:27	1
Perfluorohexanesulfonic acid (PFHxS)	34		30	5.4	ng/L		08/04/17 09:11	08/16/17 18:27	1
Perfluoroheptanoic acid (PFHpA)	6.4	J	9.9	1.9	ng/L		08/04/17 09:11	08/16/17 18:27	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		08/04/17 09:11	08/16/17 18:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	92		70 - 130				08/04/17 09:11	08/16/17 18:27	1
13C2 PFDA	119		70 - 130				08/04/17 09:11	08/16/17 18:27	1

Client Sample ID: WGNA-080117-FRB-0104

Date Collected: 08/01/17 07:55

Date Received: 08/02/17 11:10

Lab Sample ID: 320-30330-2

Matrix: Water

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	37	6.3	ng/L	—	08/04/17 09:11	08/16/17 18:32	1
Perfluorooctanoic acid (PFOA)	7.4	U	18	2.6	ng/L		08/04/17 09:11	08/16/17 18:32	1
Perfluorononanoic acid (PFNA)	18	U	22	7.4	ng/L		08/04/17 09:11	08/16/17 18:32	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	28	5.1	ng/L		08/04/17 09:11	08/16/17 18:32	1
Perfluoroheptanoic acid (PFHpA)	3.7	U	9.2	1.8	ng/L		08/04/17 09:11	08/16/17 18:32	1
Perfluorobutanesulfonic acid (PFBS)	33	U	83	15	ng/L		08/04/17 09:11	08/16/17 18:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	104		70 - 130				08/04/17 09:11	08/16/17 18:32	1
13C2 PFDA	122		70 - 130				08/04/17 09:11	08/16/17 18:32	1

Client Sample ID: WGNA-080117-RW-0443A

Date Collected: 08/01/17 08:45

Date Received: 08/02/17 11:10

Lab Sample ID: 320-30330-3

Matrix: Water

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	32	J M	37	6.3	ng/L	—	08/04/17 09:11	08/17/17 20:12	1
Perfluorooctanoic acid (PFOA)	31		18	2.6	ng/L		08/04/17 09:11	08/17/17 20:12	1
Perfluorononanoic acid (PFNA)	18	U	22	7.4	ng/L		08/04/17 09:11	08/17/17 20:12	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	28	5.1	ng/L		08/04/17 09:11	08/17/17 20:12	1
Perfluoroheptanoic acid (PFHpA)	12		9.2	1.7	ng/L		08/04/17 09:11	08/17/17 20:12	1
Perfluorobutanesulfonic acid (PFBS)	15	J	83	15	ng/L		08/04/17 09:11	08/17/17 20:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	84		70 - 130				08/04/17 09:11	08/17/17 20:12	1
13C2 PFDA	97		70 - 130				08/04/17 09:11	08/17/17 20:12	1

TestAmerica Sacramento

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-30330-1

Client Sample ID: WGNA-080117-RW-0443B

Lab Sample ID: 320-30330-4

Date Collected: 08/01/17 08:50

Matrix: Water

Date Received: 08/02/17 11:10

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	29	J	37	6.3	ng/L	—	08/04/17 09:11	08/16/17 18:41	1
Perfluorooctanoic acid (PFOA)	31	M	19	2.6	ng/L	—	08/04/17 09:11	08/16/17 18:41	1
Perfluorononanoic acid (PFNA)	19	U	22	7.4	ng/L	—	08/04/17 09:11	08/16/17 18:41	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	28	5.1	ng/L	—	08/04/17 09:11	08/16/17 18:41	1
Perfluoroheptanoic acid (PFHpA)	13		9.3	1.8	ng/L	—	08/04/17 09:11	08/16/17 18:41	1
Perfluorobutanesulfonic acid (PFBS)	33	U	84	15	ng/L	—	08/04/17 09:11	08/16/17 18:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	86		70 - 130	08/04/17 09:11	08/16/17 18:41	1
13C2 PFDA	119		70 - 130	08/04/17 09:11	08/16/17 18:41	1

Client Sample ID: WGNA-080117-FRB-0443B

Lab Sample ID: 320-30330-5

Date Collected: 08/01/17 08:40

Matrix: Water

Date Received: 08/02/17 11:10

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	37	6.2	ng/L	—	08/04/17 09:11	08/16/17 18:46	1
Perfluorooctanoic acid (PFOA)	7.3	U	18	2.6	ng/L	—	08/04/17 09:11	08/16/17 18:46	1
Perfluorononanoic acid (PFNA)	18	U	22	7.3	ng/L	—	08/04/17 09:11	08/16/17 18:46	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	27	5.0	ng/L	—	08/04/17 09:11	08/16/17 18:46	1
Perfluoroheptanoic acid (PFHpA)	3.7	U	9.2	1.7	ng/L	—	08/04/17 09:11	08/16/17 18:46	1
Perfluorobutanesulfonic acid (PFBS)	33	U	82	15	ng/L	—	08/04/17 09:11	08/16/17 18:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	103		70 - 130	08/04/17 09:11	08/16/17 18:46	1
13C2 PFDA	122		70 - 130	08/04/17 09:11	08/16/17 18:46	1

Client Sample ID: WGNA-080117-RW-0437

Lab Sample ID: 320-30330-6

Date Collected: 08/01/17 09:05

Matrix: Water

Date Received: 08/02/17 11:10

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	25	J	38	6.4	ng/L	—	08/04/17 09:11	08/16/17 18:51	1
Perfluorooctanoic acid (PFOA)	28	M	19	2.7	ng/L	—	08/04/17 09:11	08/16/17 18:51	1
Perfluorononanoic acid (PFNA)	19	U M	23	7.6	ng/L	—	08/04/17 09:11	08/16/17 18:51	1
Perfluorohexanesulfonic acid (PFHxS)	15	J	28	5.2	ng/L	—	08/04/17 09:11	08/16/17 18:51	1
Perfluoroheptanoic acid (PFHpA)	7.0	J	9.5	1.8	ng/L	—	08/04/17 09:11	08/16/17 18:51	1
Perfluorobutanesulfonic acid (PFBS)	34	U	85	15	ng/L	—	08/04/17 09:11	08/16/17 18:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	91		70 - 130	08/04/17 09:11	08/16/17 18:51	1
13C2 PFDA	112		70 - 130	08/04/17 09:11	08/16/17 18:51	1

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-30330-1

Client Sample ID: WGNA-080117-FRB-0437

Date Collected: 08/01/17 09:00

Date Received: 08/02/17 11:10

Lab Sample ID: 320-30330-7

Matrix: Water

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	38	6.4	ng/L		08/04/17 09:11	08/16/17 18:56	1
Perfluorooctanoic acid (PFOA)	7.5	U	19	2.6	ng/L		08/04/17 09:11	08/16/17 18:56	1
Perfluorononanoic acid (PFNA)	19	U	23	7.5	ng/L		08/04/17 09:11	08/16/17 18:56	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	28	5.2	ng/L		08/04/17 09:11	08/16/17 18:56	1
Perfluoroheptanoic acid (PFHpA)	3.8	U	9.4	1.8	ng/L		08/04/17 09:11	08/16/17 18:56	1
Perfluorobutanesulfonic acid (PFBS)	34	U	85	15	ng/L		08/04/17 09:11	08/16/17 18:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	108		70 - 130	08/04/17 09:11	08/16/17 18:56	1
13C2 PFDA	128		70 - 130	08/04/17 09:11	08/16/17 18:56	1

Client Sample ID: WGNA-080117-RW-3178A

Date Collected: 08/01/17 09:40

Date Received: 08/02/17 11:10

Lab Sample ID: 320-30330-8

Matrix: Water

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	18	J	38	6.5	ng/L		08/04/17 09:11	08/17/17 20:17	1
Perfluorooctanoic acid (PFOA)	11	J	19	2.7	ng/L		08/04/17 09:11	08/17/17 20:17	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		08/04/17 09:11	08/17/17 20:17	1
Perfluorohexanesulfonic acid (PFHxS)	8.0	J	29	5.3	ng/L		08/04/17 09:11	08/17/17 20:17	1
Perfluoroheptanoic acid (PFHpA)	3.3	J	9.6	1.8	ng/L		08/04/17 09:11	08/17/17 20:17	1
Perfluorobutanesulfonic acid (PFBS)	34	U	86	15	ng/L		08/04/17 09:11	08/17/17 20:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	84		70 - 130	08/04/17 09:11	08/17/17 20:17	1
13C2 PFDA	101		70 - 130	08/04/17 09:11	08/17/17 20:17	1

Client Sample ID: WGNA-080117-RW-3178B

Date Collected: 08/01/17 09:35

Date Received: 08/02/17 11:10

Lab Sample ID: 320-30330-9

Matrix: Water

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	26	J	39	6.6	ng/L		08/04/17 09:11	08/16/17 19:15	1
Perfluorooctanoic acid (PFOA)	14	J M	20	2.7	ng/L		08/04/17 09:11	08/16/17 19:15	1
Perfluorononanoic acid (PFNA)	20	U	23	7.8	ng/L		08/04/17 09:11	08/16/17 19:15	1
Perfluorohexanesulfonic acid (PFHxS)	7.8	J	29	5.4	ng/L		08/04/17 09:11	08/16/17 19:15	1
Perfluoroheptanoic acid (PFHpA)	3.9	J	9.8	1.9	ng/L		08/04/17 09:11	08/16/17 19:15	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		08/04/17 09:11	08/16/17 19:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	87		70 - 130	08/04/17 09:11	08/16/17 19:15	1
13C2 PFDA	124		70 - 130	08/04/17 09:11	08/16/17 19:15	1

TestAmerica Sacramento

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-30330-1

Client Sample ID: WGNA-080117-FRB-3178B

Lab Sample ID: 320-30330-10

Date Collected: 08/01/17 09:30

Matrix: Water

Date Received: 08/02/17 11:10

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	37	6.3	ng/L		08/04/17 09:11	08/16/17 19:29	1
Perfluorooctanoic acid (PFOA)	7.4	U	19	2.6	ng/L		08/04/17 09:11	08/16/17 19:29	1
Perfluorononanoic acid (PFNA)	19	U	22	7.4	ng/L		08/04/17 09:11	08/16/17 19:29	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	28	5.1	ng/L		08/04/17 09:11	08/16/17 19:29	1
Perfluoroheptanoic acid (PFHpA)	3.7	U	9.3	1.8	ng/L		08/04/17 09:11	08/16/17 19:29	1
Perfluorobutanesulfonic acid (PFBS)	33	U	84	15	ng/L		08/04/17 09:11	08/16/17 19:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	105		70 - 130	08/04/17 09:11	08/16/17 19:29	1
13C2 PFDA	126		70 - 130	08/04/17 09:11	08/16/17 19:29	1

Client Sample ID: WGNA-080117-RW-3325

Lab Sample ID: 320-30330-11

Date Collected: 08/01/17 10:15

Matrix: Water

Date Received: 08/02/17 11:10

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	20	J	40	6.7	ng/L		08/04/17 09:11	08/16/17 19:34	1
Perfluorooctanoic acid (PFOA)	17	J M	20	2.8	ng/L		08/04/17 09:11	08/16/17 19:34	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		08/04/17 09:11	08/16/17 19:34	1
Perfluorohexanesulfonic acid (PFHxS)	16	J	30	5.5	ng/L		08/04/17 09:11	08/16/17 19:34	1
Perfluoroheptanoic acid (PFHpA)	5.6	J	9.9	1.9	ng/L		08/04/17 09:11	08/16/17 19:34	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		08/04/17 09:11	08/16/17 19:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		70 - 130	08/04/17 09:11	08/16/17 19:34	1
13C2 PFDA	127		70 - 130	08/04/17 09:11	08/16/17 19:34	1

Client Sample ID: WGNA-080117-FRB-3325

Lab Sample ID: 320-30330-12

Date Collected: 08/01/17 10:10

Matrix: Water

Date Received: 08/02/17 11:10

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	41	6.9	ng/L		08/04/17 09:11	08/16/17 19:38	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		08/04/17 09:11	08/16/17 19:38	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		08/04/17 09:11	08/16/17 19:38	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		08/04/17 09:11	08/16/17 19:38	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		08/04/17 09:11	08/16/17 19:38	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		08/04/17 09:11	08/16/17 19:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	107		70 - 130	08/04/17 09:11	08/16/17 19:38	1
13C2 PFDA	127		70 - 130	08/04/17 09:11	08/16/17 19:38	1

TestAmerica Sacramento

Client Sample Results

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-30330-1

Client Sample ID: WGNA-080117-DUP06

Lab Sample ID: 320-30330-13

Date Collected: 08/01/17 07:00

Matrix: Water

Date Received: 08/02/17 11:10

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	26	J M	38	6.4	ng/L		08/04/17 09:11	08/16/17 19:43	1
Perfluorooctanoic acid (PFOA)	28	M	19	2.6	ng/L		08/04/17 09:11	08/16/17 19:43	1
Perfluorononanoic acid (PFNA)	7.6	J	23	7.5	ng/L		08/04/17 09:11	08/16/17 19:43	1
Perfluorohexanesulfonic acid (PFHxS)	15	J	28	5.2	ng/L		08/04/17 09:11	08/16/17 19:43	1
Perfluoroheptanoic acid (PFHpA)	7.1	J	9.4	1.8	ng/L		08/04/17 09:11	08/16/17 19:43	1
Perfluorobutanesulfonic acid (PFBS)	15	J	85	15	ng/L		08/04/17 09:11	08/16/17 19:43	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	92		70 - 130				08/04/17 09:11	08/16/17 19:43	1
13C2 PFDA	123		70 - 130				08/04/17 09:11	08/16/17 19:43	1

Default Detection Limits

Client: Tetra Tech, Inc.

TestAmerica Job ID: 320-30330-1

Project/Site: Warminster: PFAS, NAS JRB Willow Grove

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Prep: 537

Analyte	LOQ	DL	Units	Method
Perfluorobutanesulfonic acid (PFBS)	90	16	ng/L	537
Perfluoroheptanoic acid (PFHpA)	10	1.9	ng/L	537
Perfluorohexanesulfonic acid (PFHxS)	30	5.5	ng/L	537
Perfluorononanoic acid (PFNA)	24	8.0	ng/L	537
Perfluorooctanesulfonic acid (PFOS)	40	6.8	ng/L	537
Perfluorooctanoic acid (PFOA)	20	2.8	ng/L	537

Surrogate Summary

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-30330-1

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		3C2 PFHx (70-130)	3C2 PFD/ (70-130)
320-30330-1	WGNA-080117-RW-0104	92	119
320-30330-2	WGNA-080117-FRB-0104	104	122
320-30330-3	WGNA-080117-RW-0443A	84	97
320-30330-4	WGNA-080117-RW-0443B	86	119
320-30330-5	WGNA-080117-FRB-0443B	103	122
320-30330-6	WGNA-080117-RW-0437	91	112
320-30330-7	WGNA-080117-FRB-0437	108	128
320-30330-8	WGNA-080117-RW-3178A	84	101
320-30330-9	WGNA-080117-RW-3178B	87	124
320-30330-9 LMS	WGNA-080117-RW-3178B	93	126
320-30330-9 LMSD	WGNA-080117-RW-3178B	91	121
320-30330-10	WGNA-080117-FRB-3178B	105	126
320-30330-11	WGNA-080117-RW-3325	94	127
320-30330-12	WGNA-080117-FRB-3325	107	127
320-30330-13	WGNA-080117-DUP06	92	123
LLCS 320-177692/2-A	Lab Control Sample	100	116
MB 320-177692/1-A	Method Blank	101	123

Surrogate Legend

13C2 PFHxA = 13C2 PFHxA

13C2 PFDA = 13C2 PFDA

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-30330-1

Method: 537 - Perfluorinated Alkyl Acids (LC/MS)

Lab Sample ID: MB 320-177692/1-A

Matrix: Water

Analysis Batch: 179896

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 177692

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		08/04/17 09:11	08/16/17 18:17	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		08/04/17 09:11	08/16/17 18:17	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		08/04/17 09:11	08/16/17 18:17	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		08/04/17 09:11	08/16/17 18:17	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		08/04/17 09:11	08/16/17 18:17	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		08/04/17 09:11	08/16/17 18:17	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	101		70 - 130	08/04/17 09:11	08/16/17 18:17	1
13C2 PFDA	123		70 - 130	08/04/17 09:11	08/16/17 18:17	1

Lab Sample ID: LLCS 320-177692/2-A

Matrix: Water

Analysis Batch: 179896

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 177692

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	40.0	41.0		ng/L		102	50 - 150
Perfluorooctanoic acid (PFOA)	20.0	18.1	J	ng/L		91	50 - 150
Perfluorononanoic acid (PFNA)	19.3	22.7	J	ng/L		118	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	30.1	29.5	J	ng/L		98	50 - 150
Perfluoroheptanoic acid (PFHpA)	9.90	11.2		ng/L		113	50 - 150
Perfluorobutanesulfonic acid (PFBS)	88.3	92.1		ng/L		104	50 - 150

Surrogate	LLCS %Recovery	LLCS Qualifier	Limits
13C2 PFHxA	100		70 - 130
13C2 PFDA	116		70 - 130

Lab Sample ID: 320-30330-9 LMS

Matrix: Water

Analysis Batch: 179897

Client Sample ID: WGNA-080117-RW-3178B

Prep Type: Total/NA

Prep Batch: 177692

Analyte	Sample Result	Sample Qualifier	Spike Added	LMS Result	LMS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	26	J	38.3	66.7		ng/L		107	50 - 150
Perfluorooctanoic acid (PFOA)	14	J M	19.1	33.0	M	ng/L		99	50 - 150
Perfluorononanoic acid (PFNA)	20	U	18.4	24.4		ng/L		132	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	7.8	J	28.7	34.8		ng/L		94	50 - 150
Perfluoroheptanoic acid (PFHpA)	3.9	J	9.46	13.2		ng/L		99	50 - 150
Perfluorobutanesulfonic acid (PFBS)	35	U	84.4	91.9		ng/L		109	50 - 150

Surrogate	LMS %Recovery	LMS Qualifier	Limits
13C2 PFHxA	93		70 - 130
13C2 PFDA	126		70 - 130

TestAmerica Sacramento

QC Sample Results

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-30330-1

Method: 537 - Perfluorinated Alkyl Acids (LC/MS) (Continued)

Lab Sample ID: 320-30330-9 LMSD

Matrix: Water

Analysis Batch: 179897

Client Sample ID: WGNA-080117-RW-3178B

Prep Type: Total/NA

Prep Batch: 177692

Analyte	Sample Result	Sample Qualifier	Spike Added	LMSD Result	LMSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	26	J	37.7	66.0	M	ng/L		107	50 - 150	1	50
Perfluorooctanoic acid (PFOA)	14	J M	18.8	32.8	M	ng/L		99	50 - 150	1	50
Perfluorononanoic acid (PFNA)	20	U	18.2	25.2		ng/L		139	50 - 150	3	50
Perfluorohexanesulfonic acid (PFHxS)	7.8	J	28.3	34.9		ng/L		96	50 - 150	0	50
Perfluoroheptanoic acid (PFHpA)	3.9	J	9.33	13.9		ng/L		107	50 - 150	5	50
Perfluorobutanesulfonic acid (PFBS)	35	U	83.3	89.8		ng/L		108	50 - 150	2	50
Surrogate	LMSD %Recovery	LMSD Qualifier	Limits								
13C2 PFHxA	91		70 - 130								
13C2 PFDA	121		70 - 130								

QC Association Summary

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-30330-1

LCMS

Prep Batch: 177692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-30330-1	WGNA-080117-RW-0104	Total/NA	Water	537	
320-30330-2	WGNA-080117-FRB-0104	Total/NA	Water	537	
320-30330-3	WGNA-080117-RW-0443A	Total/NA	Water	537	
320-30330-4	WGNA-080117-RW-0443B	Total/NA	Water	537	
320-30330-5	WGNA-080117-FRB-0443B	Total/NA	Water	537	
320-30330-6	WGNA-080117-RW-0437	Total/NA	Water	537	
320-30330-7	WGNA-080117-FRB-0437	Total/NA	Water	537	
320-30330-8	WGNA-080117-RW-3178A	Total/NA	Water	537	
320-30330-9	WGNA-080117-RW-3178B	Total/NA	Water	537	
320-30330-10	WGNA-080117-FRB-3178B	Total/NA	Water	537	
320-30330-11	WGNA-080117-RW-3325	Total/NA	Water	537	
320-30330-12	WGNA-080117-FRB-3325	Total/NA	Water	537	
320-30330-13	WGNA-080117-DUP06	Total/NA	Water	537	
MB 320-177692/1-A	Method Blank	Total/NA	Water	537	
LLCS 320-177692/2-A	Lab Control Sample	Total/NA	Water	537	
320-30330-9 LMS	WGNA-080117-RW-3178B	Total/NA	Water	537	
320-30330-9 LMSD	WGNA-080117-RW-3178B	Total/NA	Water	537	

Analysis Batch: 179896

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-30330-1	WGNA-080117-RW-0104	Total/NA	Water	537	177692
320-30330-2	WGNA-080117-FRB-0104	Total/NA	Water	537	177692
320-30330-4	WGNA-080117-RW-0443B	Total/NA	Water	537	177692
320-30330-5	WGNA-080117-FRB-0443B	Total/NA	Water	537	177692
320-30330-6	WGNA-080117-RW-0437	Total/NA	Water	537	177692
320-30330-7	WGNA-080117-FRB-0437	Total/NA	Water	537	177692
MB 320-177692/1-A	Method Blank	Total/NA	Water	537	177692
LLCS 320-177692/2-A	Lab Control Sample	Total/NA	Water	537	177692

Analysis Batch: 179897

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-30330-9	WGNA-080117-RW-3178B	Total/NA	Water	537	177692
320-30330-10	WGNA-080117-FRB-3178B	Total/NA	Water	537	177692
320-30330-11	WGNA-080117-RW-3325	Total/NA	Water	537	177692
320-30330-12	WGNA-080117-FRB-3325	Total/NA	Water	537	177692
320-30330-13	WGNA-080117-DUP06	Total/NA	Water	537	177692
320-30330-9 LMS	WGNA-080117-RW-3178B	Total/NA	Water	537	177692
320-30330-9 LMSD	WGNA-080117-RW-3178B	Total/NA	Water	537	177692

Analysis Batch: 180242

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-30330-3	WGNA-080117-RW-0443A	Total/NA	Water	537	177692
320-30330-8	WGNA-080117-RW-3178A	Total/NA	Water	537	177692

Lab Chronicle

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-30330-1

Client Sample ID: WGNA-080117-RW-0104

Date Collected: 08/01/17 08:00

Date Received: 08/02/17 11:10

Lab Sample ID: 320-30330-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			177692	08/04/17 09:11	NS1	TAL SAC
Total/NA	Analysis	537		1	179896	08/16/17 18:27	JRB	TAL SAC

Client Sample ID: WGNA-080117-FRB-0104

Date Collected: 08/01/17 07:55

Date Received: 08/02/17 11:10

Lab Sample ID: 320-30330-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			177692	08/04/17 09:11	NS1	TAL SAC
Total/NA	Analysis	537		1	179896	08/16/17 18:32	JRB	TAL SAC

Client Sample ID: WGNA-080117-RW-0443A

Date Collected: 08/01/17 08:45

Date Received: 08/02/17 11:10

Lab Sample ID: 320-30330-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			177692	08/04/17 09:11	NS1	TAL SAC
Total/NA	Analysis	537		1	180242	08/17/17 20:12	JRB	TAL SAC

Client Sample ID: WGNA-080117-RW-0443B

Date Collected: 08/01/17 08:50

Date Received: 08/02/17 11:10

Lab Sample ID: 320-30330-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			177692	08/04/17 09:11	NS1	TAL SAC
Total/NA	Analysis	537		1	179896	08/16/17 18:41	JRB	TAL SAC

Client Sample ID: WGNA-080117-FRB-0443B

Date Collected: 08/01/17 08:40

Date Received: 08/02/17 11:10

Lab Sample ID: 320-30330-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			177692	08/04/17 09:11	NS1	TAL SAC
Total/NA	Analysis	537		1	179896	08/16/17 18:46	JRB	TAL SAC

Client Sample ID: WGNA-080117-RW-0437

Date Collected: 08/01/17 09:05

Date Received: 08/02/17 11:10

Lab Sample ID: 320-30330-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			177692	08/04/17 09:11	NS1	TAL SAC
Total/NA	Analysis	537		1	179896	08/16/17 18:51	JRB	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-30330-1

Client Sample ID: WGNA-080117-FRB-0437

Date Collected: 08/01/17 09:00

Date Received: 08/02/17 11:10

Lab Sample ID: 320-30330-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			177692	08/04/17 09:11	NS1	TAL SAC
Total/NA	Analysis	537		1	179896	08/16/17 18:56	JRB	TAL SAC

Client Sample ID: WGNA-080117-RW-3178A

Date Collected: 08/01/17 09:40

Date Received: 08/02/17 11:10

Lab Sample ID: 320-30330-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			177692	08/04/17 09:11	NS1	TAL SAC
Total/NA	Analysis	537		1	180242	08/17/17 20:17	JRB	TAL SAC

Client Sample ID: WGNA-080117-RW-3178B

Date Collected: 08/01/17 09:35

Date Received: 08/02/17 11:10

Lab Sample ID: 320-30330-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			177692	08/04/17 09:11	NS1	TAL SAC
Total/NA	Analysis	537		1	179897	08/16/17 19:15	JRB	TAL SAC

Client Sample ID: WGNA-080117-FRB-3178B

Date Collected: 08/01/17 09:30

Date Received: 08/02/17 11:10

Lab Sample ID: 320-30330-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			177692	08/04/17 09:11	NS1	TAL SAC
Total/NA	Analysis	537		1	179897	08/16/17 19:29	JRB	TAL SAC

Client Sample ID: WGNA-080117-RW-3325

Date Collected: 08/01/17 10:15

Date Received: 08/02/17 11:10

Lab Sample ID: 320-30330-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			177692	08/04/17 09:11	NS1	TAL SAC
Total/NA	Analysis	537		1	179897	08/16/17 19:34	JRB	TAL SAC

Client Sample ID: WGNA-080117-FRB-3325

Date Collected: 08/01/17 10:10

Date Received: 08/02/17 11:10

Lab Sample ID: 320-30330-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			177692	08/04/17 09:11	NS1	TAL SAC
Total/NA	Analysis	537		1	179897	08/16/17 19:38	JRB	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-30330-1

Client Sample ID: WGNA-080117-DUP06
Date Collected: 08/01/17 07:00
Date Received: 08/02/17 11:10

Lab Sample ID: 320-30330-13
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			177692	08/04/17 09:11	NS1	TAL SAC
Total/NA	Analysis	537		1	179897	08/16/17 19:43	JRB	TAL SAC

Laboratory References:
TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Accreditation/Certification Summary

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-30330-1

Laboratory: TestAmerica Sacramento

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Oregon	NELAP	10	4040	01-28-18

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
537	537	Water	Perfluorobutanesulfonic acid (PFBS)
537	537	Water	Perfluoroheptanoic acid (PFHpA)
537	537	Water	Perfluorohexanesulfonic acid (PFHxS)
537	537	Water	Perfluorononanoic acid (PFNA)
537	537	Water	Perfluorooctanesulfonic acid (PFOS)
537	537	Water	Perfluorooctanoic acid (PFOA)

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-30330-1

Method	Method Description	Protocol	Laboratory
537	Perfluorinated Alkyl Acids (LC/MS)	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

Sample Summary

Client: Tetra Tech, Inc.

TestAmerica Job ID: 320-30330-1

Project/Site: Warminster: PFAS, NAS JRB Willow Grove

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-30330-1	WGNA-080117-RW-0104	Water	08/01/17 08:00	08/02/17 11:10
320-30330-2	WGNA-080117-FRB-0104	Water	08/01/17 07:55	08/02/17 11:10
320-30330-3	WGNA-080117-RW-0443A	Water	08/01/17 08:45	08/02/17 11:10
320-30330-4	WGNA-080117-RW-0443B	Water	08/01/17 08:50	08/02/17 11:10
320-30330-5	WGNA-080117-FRB-0443B	Water	08/01/17 08:40	08/02/17 11:10
320-30330-6	WGNA-080117-RW-0437	Water	08/01/17 09:05	08/02/17 11:10
320-30330-7	WGNA-080117-FRB-0437	Water	08/01/17 09:00	08/02/17 11:10
320-30330-8	WGNA-080117-RW-3178A	Water	08/01/17 09:40	08/02/17 11:10
320-30330-9	WGNA-080117-RW-3178B	Water	08/01/17 09:35	08/02/17 11:10
320-30330-10	WGNA-080117-FRB-3178B	Water	08/01/17 09:30	08/02/17 11:10
320-30330-11	WGNA-080117-RW-3325	Water	08/01/17 10:15	08/02/17 11:10
320-30330-12	WGNA-080117-FRB-3325	Water	08/01/17 10:10	08/02/17 11:10
320-30330-13	WGNA-080117-DUP06	Water	08/01/17 07:00	08/02/17 11:10

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 179896Lab Sample ID: 320-30330-1 Client Sample ID: WGNA-080117-RW-0104Date Analyzed: 08/16/17 18:27 Lab File ID: 2017.08.16_537D_035.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.94	Isomers	barnettj	08/17/17 13:09

Lab Sample ID: 320-30330-4 Client Sample ID: WGNA-080117-RW-0443BDate Analyzed: 08/16/17 18:41 Lab File ID: 2017.08.16_537D_038.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.94	Isomers	barnettj	08/17/17 13:10

Lab Sample ID: 320-30330-6 Client Sample ID: WGNA-080117-RW-0437Date Analyzed: 08/16/17 18:51 Lab File ID: 2017.08.16_537D_040.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.94	Isomers	barnettj	08/17/17 13:11
Perfluorononanoic acid (PFNA)	2.18	Split Peak	barnettj	08/17/17 13:12

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 179897Lab Sample ID: 320-30330-9 Client Sample ID: WGNA-080117-RW-3178BDate Analyzed: 08/16/17 19:15 Lab File ID: 2017.08.16_537D_045.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.94	Isomers	barnettj	08/17/17 13:13

Lab Sample ID: 320-30330-9 LMS Client Sample ID: WGNA-080117-RW-3178B LMSDate Analyzed: 08/16/17 19:19 Lab File ID: 2017.08.16_537D_046.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.94	Isomers	barnettj	08/17/17 13:14

Lab Sample ID: 320-30330-9 LMSD Client Sample ID: WGNA-080117-RW-3178B LMSDDate Analyzed: 08/16/17 19:24 Lab File ID: 2017.08.16_537D_047.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.93	Isomers	barnettj	08/17/17 13:15
Perfluorooctanesulfonic acid (PFOS)	2.16	Missed Peak	barnettj	08/17/17 13:15

Lab Sample ID: 320-30330-11 Client Sample ID: WGNA-080117-RW-3325Date Analyzed: 08/16/17 19:34 Lab File ID: 2017.08.16_537D_049.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.94	Isomers	barnettj	08/17/17 13:16

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 179897Lab Sample ID: 320-30330-13 Client Sample ID: WGNA-080117-DUP06Date Analyzed: 08/16/17 19:43 Lab File ID: 2017.08.16_537D_051.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.93	Isomers	barnettj	08/17/17 13:19
Perfluorooctanesulfonic acid (PFOS)	2.16	Missed Peak	barnettj	08/17/17 13:18

Lab Sample ID: CCV 320-179897/45 CCVIS Client Sample ID: _____Date Analyzed: 08/16/17 19:48 Lab File ID: 2017.08.16_537D_052.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.16	Missed Peak	barnettj	08/17/17 13:07

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 180236Lab Sample ID: CCVL 320-180236/9 Client Sample ID: _____Date Analyzed: 08/17/17 17:40 Lab File ID: 207.08.17_537A_011.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.17	Assign Peak	phomsopha t	08/19/17 13:45

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 180242Lab Sample ID: CCV 320-180242/27 CCVIS Client Sample ID: _____Date Analyzed: 08/17/17 20:03 Lab File ID: 2017.08.17_537A_027.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.16	Missed Peak	barnettj	08/21/17 10:44

Lab Sample ID: 320-30330-3 Client Sample ID: WGNA-080117-RW-0443ADate Analyzed: 08/17/17 20:12 Lab File ID: 2017.08.17_537A_029.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.16	Missed Peak	barnettj	08/21/17 10:44

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-30330-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
LC537-ICV_00028	01/05/18	08/02/17	MeOH/H2O, Lot 067374	10 mL	LC537-IS_00045	1000 uL	13C2-PFOA	10 ng/mL
..LC537-IS_00045	01/05/18	07/05/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	28.68 ng/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			LCMPFOS_00019	180 uL	13C4 PFOS	0.1 ug/mL
..LCMPFOS_00019	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	0.2868 ug/mL
LC537-ICV_00028	01/05/18	08/02/17	MeOH/H2O, Lot 067374	10 mL	LC537-SU_00046	1000 uL	13C2-PFOA	50 ug/mL
..LC537-SU_00046	01/05/18	07/05/17	Methanol, Lot 104453	30000 uL	LC537ICIM_00019	20 uL	13C2 PFDA	47.8 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916					13C2 PFHxA	10 ng/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416					Perfluorobutanesulfonic acid (PFBS)	100.119 ng/mL
..LC537ICIM_00019	01/25/18	08/01/17	Methanol, Lot 090285	25 mL	LC537-PFBS2_00008	0.6 mL	Perfluoroheptanoic acid (PFHpA)	9.99613 ng/mL
..LC537-PFBS2_00008	01/25/18	07/25/17	Methanol, Lot 090285	20 mL	LC537-PFHxA2_00011	0.061 mL	Perfluorohexanesulfonic acid (PFHxS)	20.0761 ng/mL
...LC537-PFHxA2_00011	01/25/18	07/25/17	Methanol, Lot 090285	31 mL	LC537-PFHxS2_00008	0.122 mL	Perfluorononanoic acid (PFNA)	20.1272 ng/mL
...LC537-PFHxS2_00008	06/13/22	Afla Aesar, Lot 10200390			LC537-PFOA2_00010	0.122 mL	Perfluorooctanoic acid (PFOA)	20.4843 ng/mL
..LC537-PFOA2_00010	01/25/18	07/25/17	Methanol, Lot 090285	21 mL	LC537-PFOS2_00010	0.124 mL	Perfluorooctanesulfonic acid (PFOS)	19.698 ng/mL
...LC537-PFOS2_00010	06/08/22	Santa Cruz Biotechnology, Lot G2516			LC537-PFBS2_00002	0.0418 g	Perfluorobutanesulfonic acid (PFBS)	50.0597 ug/mL
..LC537-PFBS2_00002	09/08/22	Santa Cruz Biotechnology, Lot F0917			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	4.99806 ug/mL
..LC537-PFHxA2_00011	01/25/18	07/25/17	Methanol, Lot 09092	31 mL	LC537-PFHxA2_00002	0.0635 g	Perfluorohexanesulfonic acid (PFHxS)	10.038 ug/mL
...LC537-PFHxA2_00002	06/13/22	Afla Aesar, Lot 10200390			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	10.0636 ug/mL
..LC537-PFHxS2_00008	01/25/18	07/25/17	Methanol, Lot 090285	21 mL	LC537-PFOA2_00002	0.0475 g	Perfluorooctanoic acid (PFOA)	10.2421 ug/mL
...LC537-PFHxS2_00002	06/08/22	Santa Cruz Biotechnology, Lot G2516			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	9.849 ug/mL
..LC537-PFNA2_00009	01/25/18	07/25/17	Methanol, Lot 090285	21 mL	LC537-PFNA2_00002	0.0421 g	Perfluorobutanesulfonic acid (PFBS)	2085.82 ug/mL
..LC537-PFNA2_00002	06/14/22	Aldrich, Lot MKCC0699			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	0.998 g/g
..LC537-PFOA2_00010	01/25/18	08/01/17	Methanol, Lot 090285	20 mL	LC537-PFOA2_00002	0.0424 g	Perfluoroheptanoic acid (PFHpA)	2048.39 ug/mL
..LC537-PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	1 g/g
..LC537-PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	2056.98 ug/mL
..LC537-PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	1996.74 ug/mL
..LC537-PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.996 g/g
..LC537-PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	2098.8 ug/mL
..LC537-PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.99 g/g

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-30330-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
..LC537-PFOS2_00010	01/25/18	08/01/17	Methanol, Lot 090285	22 mL	LC537_PFOS2_00002	0.0561 g	Perfluorooctanesulfonic acid (PFOS)	1985.68 ug/mL		
...LC537_PFOS2_00002	06/14/22	Sigma, Lot BCBQ0108V			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.7787 g/g		
LC537-IS_00046	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL		
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL		
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL		
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL		
LC537-L1_00020	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL		
					LC537-MSP_00029	60 uL	13C4 PFOS	28.68 ng/mL		
							Perfluorobutanesulfonic acid (PFBS)	9.0018 ng/mL		
							Perfluoroheptanoic acid (PFHpA)	1.00036 ng/mL		
							Perfluorohexanesulfonic acid (PFHxS)	3.00103 ng/mL		
							Perfluorononanoic acid (PFNA)	2.0006 ng/mL		
							Perfluorooctanoic acid (PFOA)	2.00191 ng/mL		
							Perfluorooctanesulfonic acid (PFOS)	4.00146 ng/mL		
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL		
					..LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL							
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL		
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL		
..LC537-MSP_00029	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	166.7 uL	Perfluorobutanesulfonic acid (PFBS)	750.15 ng/mL		
							Perfluoroheptanoic acid (PFHpA)	83.3637 ng/mL		
							Perfluorohexanesulfonic acid (PFHxS)	250.086 ng/mL		
							Perfluorononanoic acid (PFNA)	166.716 ng/mL		
							Perfluorooctanoic acid (PFOA)	166.826 ng/mL		
							Perfluorooctanesulfonic acid (PFOS)	333.455 ng/mL		
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL		
							LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
							LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
							LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
							LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
							LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-30330-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....LC537_PFBs_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537 PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537 PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537 PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFHxA	0.1 ug/mL
..LCMPFHxA_00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L2_00020	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	80 uL	Perfluorobutanesulfonic acid (PFBS)	20.0016 ng/mL
							Perfluoroheptanoic acid (PFHpA)	2.22277 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	6.66817 ng/mL
							Perfluorononanoic acid (PFNA)	4.44524 ng/mL
							Perfluorooctanoic acid (PFOA)	4.44816 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	8.89106 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
					LC537-SU_00049	500 uL	13C4 PFOS	28.68 ng/mL
							13C2 PFDA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	13C2 PFHxA	10 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-30330-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537 PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C4 PFOS	47.8 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			LCMPFHxA_00013	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	0.1 ug/mL
LC537-L3_00023	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	180 uL	Perfluorobutanesulfonic acid (PFBS)	45.0036 ng/mL
							Perfluoroheptanoic acid (PFHpA)	5.00122 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	15.0034 ng/mL
							Perfluorononanoic acid (PFNA)	10.0018 ng/mL
							Perfluorooctanoic acid (PFOA)	10.0084 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	20.0049 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
					LC537-SU_00049	500 uL	13C4 PFOS	28.68 ng/mL
							13C2 PFDA	10 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	13C2 PFHxA	10 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
							Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
							Perfluorononanoic acid (PFNA)	20.002 ug/mL
							Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537 PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537 PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537 PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C4 PFOS	47.8 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			LCMPFHxA_00013	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	0.1 ug/mL
							13C2 PFDA	50 ug/mL
							13C2 PFHxA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-30330-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
LC537-L4_00020	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	360 uL	Perfluorobutanesulfonic acid (PFBS)	90.0072 ng/mL		
							Perfluoroheptanoic acid (PFHpA)	10.0024 ng/mL		
							Perfluorohexanesulfonic acid (PFHxS)	30.0067 ng/mL		
							Perfluorononanoic acid (PFNA)	20.0036 ng/mL		
							Perfluorooctanoic acid (PFOA)	20.0167 ng/mL		
					Perfluorooctanesulfonic acid (PFOS)	40.0098 ng/mL				
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL		
							13C4 PFOS	28.68 ng/mL		
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL		
13C2 PFHxA	10 ng/mL									
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL		
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL		
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL		
							Perfluorononanoic acid (PFNA)	277.827 ng/mL		
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL		
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL		
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL		
							LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
							LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
							LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
							LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
							LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL		
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g		
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL		
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g		
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL		
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g		
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL		
....LC537_PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g		
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL		
....LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA 00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS 00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA 00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS 00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA 00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA 00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA 00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA 00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L5_00024	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	540 uL	Perfluorobutanesulfonic acid (PFBS)	135.011 ng/mL
							Perfluoroheptanoic acid (PFHpA)	15.0037 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	45.0101 ng/mL
							Perfluorononanoic acid (PFNA)	30.0053 ng/mL
							Perfluorooctanoic acid (PFOA)	30.0251 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	60.0146 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
					LC537-SU_00049	500 uL	13C4 PFOS	28.68 ng/mL
							13C2 PFDA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	13C2 PFHxA	10 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
					LC537-PFHpA_00015	100 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFNA 00013	200 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFOA 00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	2 mg/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-30330-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....LC537_PFBs_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537_PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537_PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		(Purchased Reagent)		13C4 PFOS	0.2868 ug/mL
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFHxA	0.1 ug/mL
..LCMPFHxA_00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFDA	50 ug/mL
LC537-L6_00020	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	720 uL	Perfluorobutanesulfonic acid (PFBS)	180.014 ng/mL
							Perfluoroheptanoic acid (PFHpA)	20.0049 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	60.0135 ng/mL
							Perfluorononanoic acid (PFNA)	40.0071 ng/mL
							Perfluorooctanoic acid (PFOA)	40.0334 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	80.0195 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
							13C2 PFDA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	13C2 PFHxA	10 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-30330-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537 PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537 PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C4 PFOS	0.2868 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C4 PFOS	47.8 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	0.1 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	0.1 ug/mL
LC537-LSP_00021	08/08/17	03/23/17	Methanol, Lot 090285	20000 uL	LC537SPIM_00022	50 uL	Perfluorobutane Sulfonate	220.854 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	220.854 ng/mL
							Perfluoroheptanoic acid (PFHpA)	24.75 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	75.1518 ng/mL
							Perfluorononanoic acid (PFNA)	48.15 ng/mL
							Perfluorooctanoic acid (PFOA)	49.95 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-30330-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid (PFOS)	100.082 ng/mL
.LC537SPIM_00022	08/09/17	03/22/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00007	440 uL	Perfluorobutane Sulfonate	88.3417 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	88.3417 ug/mL
					LC537-PFHpA_00014	100 uL	Perfluoroheptanoic acid (PFHpA)	9.9 ug/mL
					LC537-PFHxS_00009	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0607 ug/mL
					LC537-PFNA_00012	200 uL	Perfluorononanoic acid (PFNA)	19.26 ug/mL
					LC537-PFOA_00012	200 uL	Perfluorooctanoic acid (PFOA)	19.98 ug/mL
					LC537-PFOS_00007	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0329 ug/mL
..LC537-PFBS_00007	01/04/18	01/04/17	Methanol, Lot 090285	51.5 mL	LC537_PFBS_00002	0.1034 g	Perfluorobutane Sulfonate	2007.77 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	2007.77 ug/mL
...LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutane Sulfonate	1 g/g
							Perfluorobutanesulfonic acid (PFBS)	1 g/g
..LC537-PFHpA_00014	03/22/18	03/22/17	Methanol, Lot 090285	50 mL	LC537_PFHpA_00002	0.05 g	Perfluoroheptanoic acid (PFHpA)	990 ug/mL
...LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
..LC537-PFHxS_00009	01/04/18	01/04/17	Methanol, Lot 090285	54 mL	LC537_PFHxS_00002	0.119 g	Perfluorohexanesulfonic acid (PFHxS)	2004.05 ug/mL
...LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA_00012	03/22/18	03/22/17	Methanol, Lot 090285	23 mL	LC537 PFNA_00002	0.023 g	Perfluorononanoic acid (PFNA)	963 ug/mL
...LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
..LC537-PFOA_00012	03/22/18	03/22/17	Methanol, Lot 090285	21.5 mL	LC537_PFOA_00002	0.0215 g	Perfluorooctanoic acid (PFOA)	999 ug/mL
...LC537 PFOA_00002	11/04/18	Fluka, Lot SZBD308XV			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
..LC537-PFOS_00007	08/09/17	01/04/17	Methanol, Lot 090285	48.95 mL	LC537_PFOS_00002	0.0538 g	Perfluorooctanesulfonic acid (PFOS)	1000.82 ug/mL
...LC537_PFOS_00002	08/09/17	Fluka, Lot SZBC222XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
LC537-SU_00046	01/05/18	07/05/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
.LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
.LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL

Reagent

LC537_PFB_00002

4/1/15 SPV

SIGMA-ALDRICH®

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA

Website: www.sigmaaldrich.com

Email USA: techserv@sial.com

Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:

Nonafluorobutane-1-sulfonic acid - 97%

Product Number:

562629

Batch Number:

MKBP8842V

Brand:

ALDRICH

CAS Number:

375-73-5

MDL Number:

MFCD01320794

Formula:

C₄HF₉O₃S

Formula Weight:

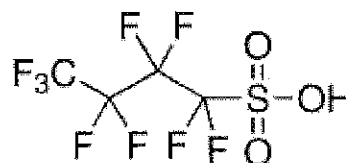
300.10 g/mol

Storage Temperature:

Store at 2 - 8 °C

Quality Release Date:

11 OCT 2013



PFBS

Test	Specification	Result
Appearance (Color)	Colorless	Colorless
Appearance (Form)	Liquid	Liquid
Infrared Spectrum	Conforms to Structure	Conforms
Fluorine NMR Spectrum	Conforms to Structure	Conforms
Purity (Titration by NaOH)	96.5 - 103.5 %	101.6 %

Jamie Gleason

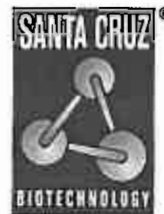
Jamie Gleason, Manager
Quality Control
Milwaukee, Wisconsin US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Reagent

LC537_PFB2_00002

11.6.8.17 SW



CERTIFICATE OF ANALYSIS

The Power to Question

Catalog Number: sc-236187
 Lot Number: F0917
 Product Name: Nonafluorobutane-1-sulfonic acid
 CAS Number: 375-73-5
 Molecular Formula: $C_4HF_9O_3S$
 Molecular Weight: 300.10

Test	Specification	Result
Appearance	Colorless liquid	Complies
Identification (19F-NMR)	Conforms to structure	Complies
Purity (Sodium Hydroxide Titration)	$\geq 97\%$	101.3%
Infrared Spectrum	Conforms to structure	Complies

Reagent

LC537_PFHpA_00002

Certificate of Analysis

Product Name: PERFLUOROHEPTANOIC ACID
99 %
Product Number: 342041
Batch Number: BCBM2579V
Brand: Aldrich
CAS Number: 375-85-9
Formula: $\text{CF}_3(\text{CF}_2)_5\text{CO}_2\text{H}$
Formula Weight: 364.06
Quality Release Date: 06 DEC 2013
Recommended Retest Date: OCT 2018

PFH₇A

TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	COLORLESS OR WHITE	WHITE
APPEARANCE (FORM)	LIQUID OR SOLID	SOLID
TITRATION	98.5 - 101.5 %	99.8 %
TITRATION (METHOD)	-	BACK TITRATION
PURITY (GC AREA %)	≥ 98.5 %	99.5 %
INFRARED SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS



Dr. Claudia Geithner
Manager Quality Control
Buchs, Switzerland

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Reagent

LC537_PFHpA2_00002

Certificate of analysis

r:6.13.17 SW

PFHe A

Product No.: A12092
Product: Perfluoroheptanoic acid, 98+%
Lot No.: 10200390

Appearance: White fused solid
Water Content (Karl-Fischer): 0.30%
Melting Point: 32.0-34.3°C
Assay (Aqueous acid-base titration): 99.7%
Identification (FTIR): Conforms

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ThermoFisher
SCIENTIFIC

Reagent

LC537_PFHxS_00002

r: 4/1/15 stw

Certificate of Analysis

Product Name: TRIDECAFLUOROHXANE-1-SULFONIC ACID POTASSIUM SALT
Product Number: 50929
Batch Number: BCBL3545V
Brand: Aldrich
CAS Number: 3871-99-6
Formula: $C_{13}F_{27}KO_2S$
Formula Weight: 438.20
Quality Release Date: 20 JUN 2013

PFH₁₃S-K

TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	WHITE TO FAINT BEIGE	WHITE
APPEARANCE (FORM)	POWDER OR CRYSTALS	POWDER
TITRATION (ION EXCHANGE)	≥ 98.0 %	99.5 %
INFRARED SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS



Dr. Claudia Geitner
 Manager Quality Control
 Buchs, Switzerland

$$MW_{corr} = \frac{(k_{form}) - (k) + (H)}{438.20 (k_{form})} = \frac{(438.20 - 3910 + 101)}{438.20 (k_{form})} = 0.91307 \text{ (anion form)}$$

$$Purity = 90.94 \% \text{ w/m.w correction}$$

stw 4/1/15

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Reagent

LC537_PFHxS2_00002

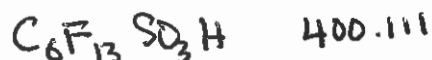
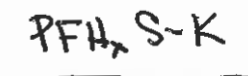


The Future is Now

CERTIFICATE OF ANALYSIS

Catalog Number: sc-237289
 Lot Number: G2516
 Product Name: Tridecafluorohexane-1-sulfonic acid potassium salt
 CAS Number: 3871-99-6
 Molecular Formula: $C_{13}F_{27}KO_2S$
 Molecular Weight: 438.20

Test	Specification	Result
Appearance	White to faint beige powder or crystals	White powder
Identification (Infrared Spectrum)	Consistent with structure	Complies
Purity (Titration, Ion Exchange)	$\geq 98.0\%$	100.4%



$$MW \text{ correction} = \frac{400.11}{438.201} = 0.91307 \quad \frac{PFH_2S}{\text{cas \# 355-46-4}}$$

Purity $\times$ MW correction = 90.9%

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Reagent

LC537_PFNA_00002

R: 4/1/15 SKV



Certificate of Analysis

Apr 2, 2015 (JST)

TOKYO CHEMICAL INDUSTRY CO.,LTD.
4-10-1 Nihonbashi-Honcho, Chuo-ku, Tokyo 103-0023 Japan

Chemical Name: Heptadecafluorononanoic Acid		
Product Number: H0843	Lot: QN44F	
CAS: 375-95-1		

Tests	Results	Specifications
Purity(GC)	96.3 %	min. 95.0 %
Purity(Neutralization titration)	98.1 %	min. 95.0 %
Melting point	63.3 deg-C	62.0 to 67.0 deg-C

TCI Lot numbers are 4-5 characters in length.
Characters listed after the first 4-5 characters are control numbers for internal purpose only.

Customer service:

TCI AMERICA
Tel: +1-800-423-8616 / +1-503-283-1681
Fax: +1-888-520-1075 / +1-503-283-1987
E-mail: Sales-US@TCIchemicals.com

PFNA

Reagent

LC537_PFNA2_00002

17.14.16 SKW

SIGMA-ALDRICH

sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA

Website: www.sigmaaldrich.com

Email USA: techserv@sial.com

Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:

Perfluorononanoic acid - 97%

Product Number:

394459

Batch Number:

MKCC0699

Brand:

ALDRICH

CAS Number:

375-95-1

MDL Number:

MFCD00039605

Formula:

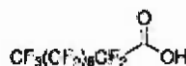
C₉H₁₇O₂

Formula Weight:

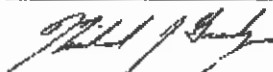
464.08 g/mol

Quality Release Date:

07 DEC 2016



Test	Specification	Result
Appearance (Color)	White to Off-White	White
Appearance (Form)	Powder or Crystals or Crystalline Chunk(s) or Granule or Flakes or Solid	Powder
Infrared Spectrum	Conforms to Structure	Conforms
GC (area %)	≥ 96.5 %	98.2 %



Michael Grady, Manager
Quality Control
Milwaukee, WI US

PFNA

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Reagent

LC537_PFOA_00002

3/20/15

SIGMA-ALDRICH®

CERTIFICATE OF ANALYSIS

Sigma-Aldrich Laborchemikalien GmbH D-30918 Seelze
Telefon: +49 5137 8238-150

Seelze, 13.11.2013/505378/13/24029

Order-No.:

Customer-No.:

Order-Code:

Quantity:

Production Date: 04.Nov.2013

Expiry Date: 04.Nov.2018

Article/Product: 33824

Batch : SZBD308XV

Pentadecafluorooctanoic acid OEKANAL®

PFOA

Reference Material (RM)

1. General Information

Formula: C₈HF₁₅O₂

CAS-No.: [335-67-1]

Usage : PFOA

Molar mass: 414.07 g/Mole

Recomm. storage temp.: roomtemp.

The estimated uncertainty of a single measurement of the assay can be expected to be 0.5 % relative (confidence level = 95%, n= 6) whereby the assay measurements are calculated by 100% minus found impurities.

2. Batch Analysis

identity (GC-MS)

Assay (GCMS)

Date of Analysis

complying

99.4 %

13.Nov.2013

3. Advice and Remarks

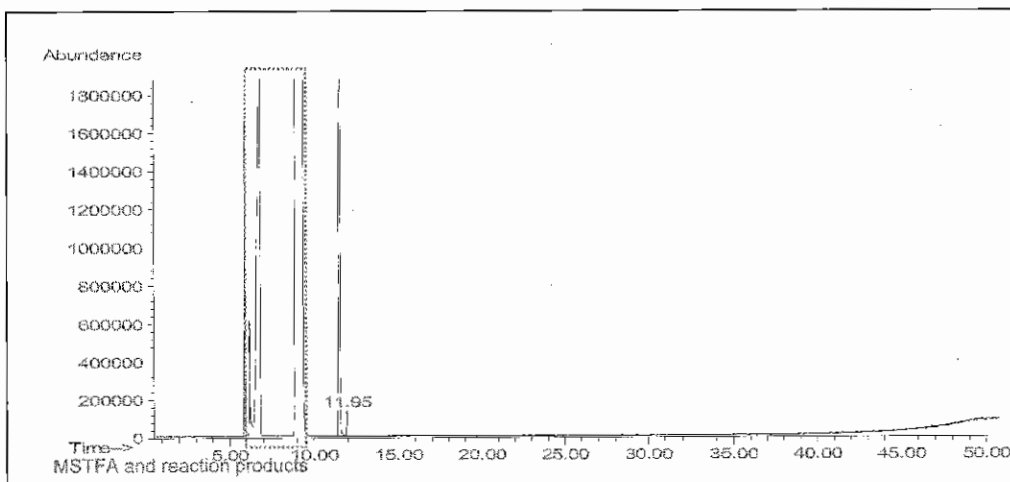
- The expiry date is based on the current knowledge and holds only for proper storage conditions in the originally closed flasks/ packages.
- Whenever the container is opened for removal of aliquot portions of the substance, the person handling the substance must assure, that the integrity of the substance is maintained and proper records of all its handlings are kept. Special care has to be taken to avoid any contamination or adulteration of the substance.
- We herewith confirm that the delivery is effected according to the technical delivery conditions agreed.
- Particular properties of the products or the suitability for a particular area of application are not assured.
- We guarantee a proper quality within our General Conditions of Sales.

Sigma-Aldrich Laborchemikalien GmbH
Quality Management SA-LC

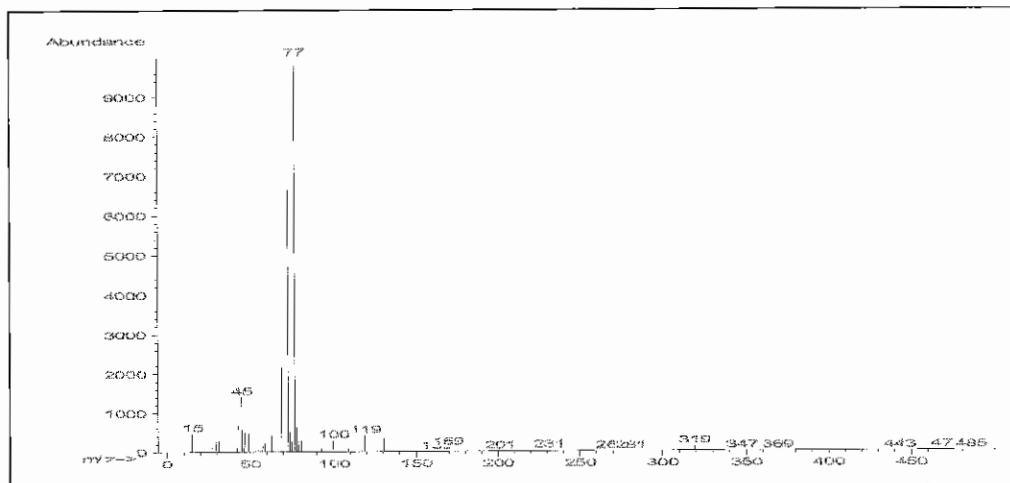
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GC/MS-Method**Analytical Department****Article:** Pentadecafluorooctanoic acid OEKANAL**Article-No.:** 33824**Batch:** SZBD308XV**Column:** XTI-5 (Restek); 30 m; fs cap.; I.D.:0.25 mm; 1 µm df**Injector:** Split mode**Injection:** approx. 1 µl of reaction mixture with MSTFA (approx. 10 mg + 200 µl MSTFA)**Inj.-temp.:** 280°C**Oven-temp.:** 40°C (for 2 min) to 320°C (6°C/min) hold for 2 min**Split:** 1:100**Flow:** 1 ml He/min (Constant flow mode)**Detector:** MSD**Mass range:** 10-600 amu (Scan mode)**Evaluation:** Purity: Total Ion Chromatogram
(MSTFA and reaction products blinded out in report)

Identity: Mass spectrum complies

Operator: Ahrens / 2013-11-13**Total Ion Chromatogram:**

Ret.time	Area	Area-%	Com
11.54	565.1670	99.4	Pentadecafluorooctanoic acid (as TMS-ester)
11.95	3.6792	0.64	

Mass spectrum (rt = 11.54 min):

Reagent

LC537_PFOA_00003

C: 11/30/16 SKV
PFA

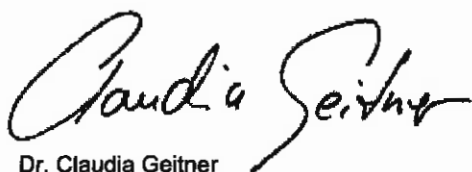
SIGMA-ALDRICH

3050 Spruce Street, Saint Louis, MO 63103 USA
Email USA: techserv@sial.com Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name: PENTADECAFLUOROOCTANOIC ACID
analytical standard
Product Number: 33824
Batch Number: BCBS1198V
Brand: Sigma-Aldrich
CAS Number: 335-67-1
Formula: $\text{CF}_3(\text{CF}_2)_6\text{COOH}$
Formula Weight: 414.07
Expiration Date: OCT 2023
Quality Release Date: 12 MAY 2016

TEST	SPECIFICATION	RESULT
PURITY (HPLC AREA %)	$\geq 98.0\%$	100.0%
IDENTIFICATION (LC-MS)	IDENTITY CONFORMS	CONFORMS



Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

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Reagent

LC537_PFOA2_00002

Certificate of analysis

17: 6/9/17 SW

Product No.: L08862
Product: Perfluorooctanoic acid, 95%
Lot No.: 10199078

PFOA

Appearance: White powder
Water Content (Karl-Fischer): 1.30%
Melting Point: 47.6-54.0°C
Assay (Aqueous acid-base titration): 98.4%
Assay (GC Silyl Deriv): 97.2%

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Reagent

LC537_PFOS_00002

F: 4/1/15 SV

SIGMA-ALDRICH®

CERTIFICATE OF ANALYSIS

Sigma-Aldrich Laborchemikalien GmbH D-30918 Seelze
Telefon: +49 5137 8238-150

Seelze, 13.08.2012/419060/12/17583

Order-No.:

Customer-No.:

Order-Code:

Quantity:

Production Date: 09.Aug.2012

Expiry Date: 09.Aug.2017 - *ex date*

Article/Product: 33829

Batch : SZBC222XV

Heptadecafluorooctanesulfonic acid potassium salt OEKANAL®

PFOS-K⁺

Reference Material (RM)

1. General Information

Formula: C8F17KO3S

CAS-No.: [2795-39-3]

Usage : PFOS

Molar mass: 538.22 g/Mole

Recomm. storage temp.: roomtemp.

The estimated uncertainty of a single measurement of the assay can be expected to be 0.5 % relative (confidence level = 95%, n= 6) whereby the assay measurements are calculated by 100% minus found impurities.

2. Batch Analysis

Identity

Assay (LC-MS)

Date of Analysis

complying

98 %

10.Aug.2012

PW-correction:

$$\frac{538.22 - 39.10 + 1.01}{538.22} = \frac{500.13}{538.22} = 0.92923$$

Purity = 91.66%

3. Advice and Remarks

- The minimum shelf life is based on the current knowledge and holds only for proper storage conditions in the originally closed flasks/ packages.
- Whenever the container is opened for removal of aliquot portions of the substance, the person handling the substance must assure, that the integrity of the substance is maintained and proper records of all its handlings are kept. Special care has to be taken to avoid any contamination or adulteration of the substance.
- We herewith confirm that the delivery is effected according to the technical delivery conditions agreed.
- Particular properties of the products or the suitability for a particular area of application are not assured.
- We guarantee a proper quality within our General Conditions of Sales.

Sigma-Aldrich Laborchemikalien GmbH
Quality Management SA-LC

Reagent

LC537_PFOS_00003

n: 11/30/16 SV
PFOS

SIGMA-ALDRICH

CERTIFICATE OF ANALYSIS

Sigma-Aldrich Laborchemikalien GmbH D-30918 Seelze
Telefon: +49 5137 8238-150

Seelze, 22.04.2014/524107/14/08646

Order-No.:

Customer-No.:

Order-Code:

Quantity:

Production Date: 17.Apr.2014

Expiry Date: 17.Apr.2019

Article/Product: 33829

Batch : SZBE107XV

Heptadecafluorooctanesulfonic acid potassium salt OEKANAL®

Reference Material (RM)

1. General Information

Formula: C₈F₁₇KO₃S

CAS-No.: [2795-39-3]

Usage : PFOS

Molar mass: 538.22 g/Mole

Recomm. storage temp.: roomtemp.

The estimated uncertainty of a single measurement of the assay can be expected to be 0.5 % relative (confidence level = 95%, n= 6) whereby the assay measurements are calculated by 100% minus found impurities.

2. Batch Analysis

Identity

Assay (LC-MS)

Date of Analysis

complying

98 %

22.Apr.2014

3. Advice and Remarks

- The expiry date is based on the current knowledge and holds only for proper storage conditions in the originally closed flasks/ packages.
- Whenever the container is opened for removal of aliquot portions of the substance, the person handling the substance must assure, that the integrity of the substance is maintained and proper records of all its handlings are kept. Special care has to be taken to avoid any contamination or adulteration of the substance.
- We herewith confirm that the delivery is effected according to the technical delivery conditions agreed.
- Particular properties of the products or the suitability for a particular area of application are not assured.
- We guarantee a proper quality within our General Conditions of Sales.

Sigma-Aldrich Laborchemikalien GmbH
Quality Management SA-LC

Reagent

LC537_PFOS2_00002

R: 6.14.17 SKV

SIGMA-ALDRICH

3050 Spruce Street, Saint Louis, MO 63103 USA
Email USA: techserv@sial.com Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name: HEPTADECAFLUOROOCTANESULFONIC ACID TETRAETHYLAMMONIUM SALT
98 %
Product Number: 365289
Batch Number: BCBQ0108V
Brand: Aldrich
CAS Number: 56773-42-3
Formula: $\text{CF}_3(\text{CF}_2)_6\text{CF}_2\text{SO}_3\text{N}(\text{C}_2\text{H}_5)_4$
Formula Weight: 629.37
Quality Release Date: 11 JUN 2015

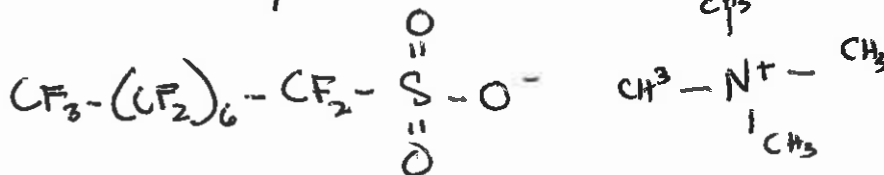
TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	WHITE TO OFF WHITE	OFF-WHITE
APPEARANCE (FORM)	POWDER OR POWDER WITH CHUNK(S)	POWDER
CARBON CONTENT	29.77 % - 31.29 %	29.97 %
INFRARED SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS

Claudia Geitner

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

$$\text{MW correction: } \frac{500.125}{629.37} = 0.7946$$

$$\text{Purity \& MW correction} = 77.37\%$$



$$\begin{array}{r} \text{C}_8\text{F}_{17}\text{SO}_3^+\text{H} \\ \text{C} = 12.011 \quad 96.088 \\ \text{F} = 18.998 \quad 322.966 \\ \text{S} = 32.066 \quad 32.066 \\ \text{O} = 16.000 \quad 47.947 \\ \text{H} = 1.008 \quad 1.008 \\ \text{N} = 14.007 \quad - \\ \hline 500.125 \end{array}$$

$$\begin{array}{r} \text{C}_8\text{H}_{20}\text{N} \\ 96.088 \\ - \\ - \\ 20.60 \\ 14.007 \\ \hline 130.255 \end{array}$$

Reagent

LCM2PFOA_00007



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

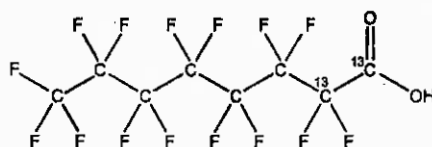
M2PFOA

LOT NUMBER:

M2PFOA0216

COMPOUND:Perfluoro-n-[1,2-¹³C₂]octanoic acid**STRUCTURE:****CAS #:**

Not available

**MOLECULAR FORMULA:**¹³C₂¹²C₆H₁₅O₂**CONCENTRATION:**

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

416.05

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:≥99% ¹³C(1,2-¹³C₂)**LAST TESTED:** (mm/dd/yyyy)

02/12/2016

EXPIRY DATE: (mm/dd/yyyy)

02/12/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 02/24/2016

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

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Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

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UNCERTAINTY:

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The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \dots, x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of $\pm 5\%$ (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

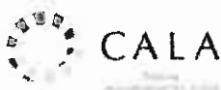
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

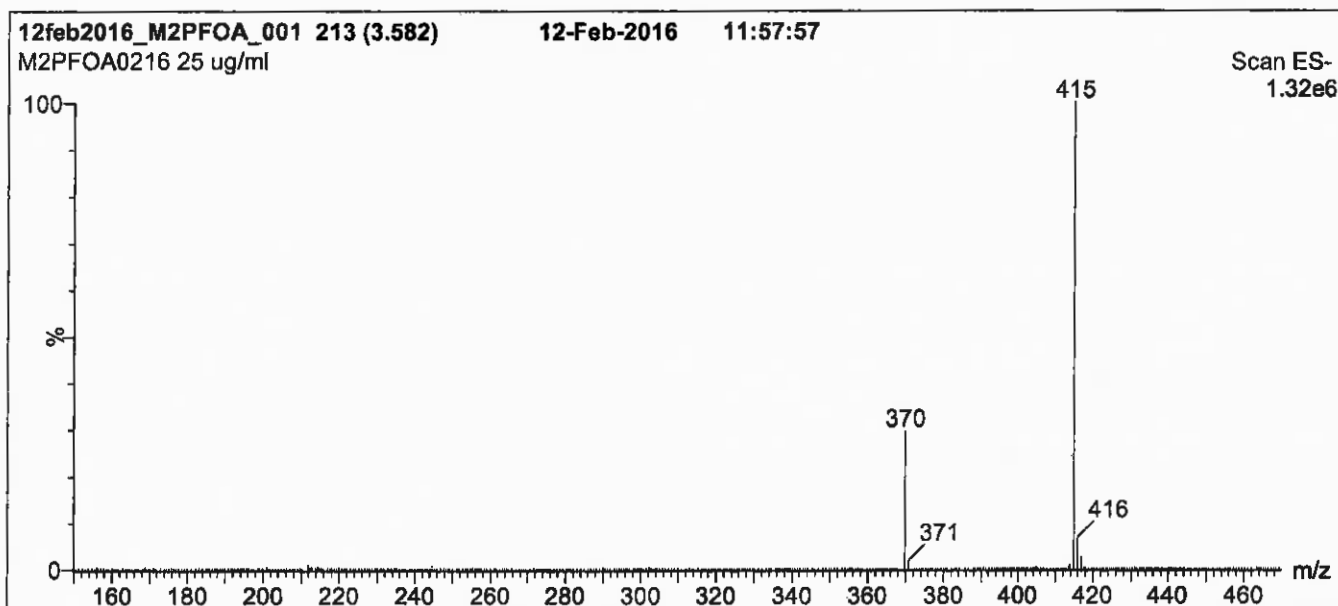
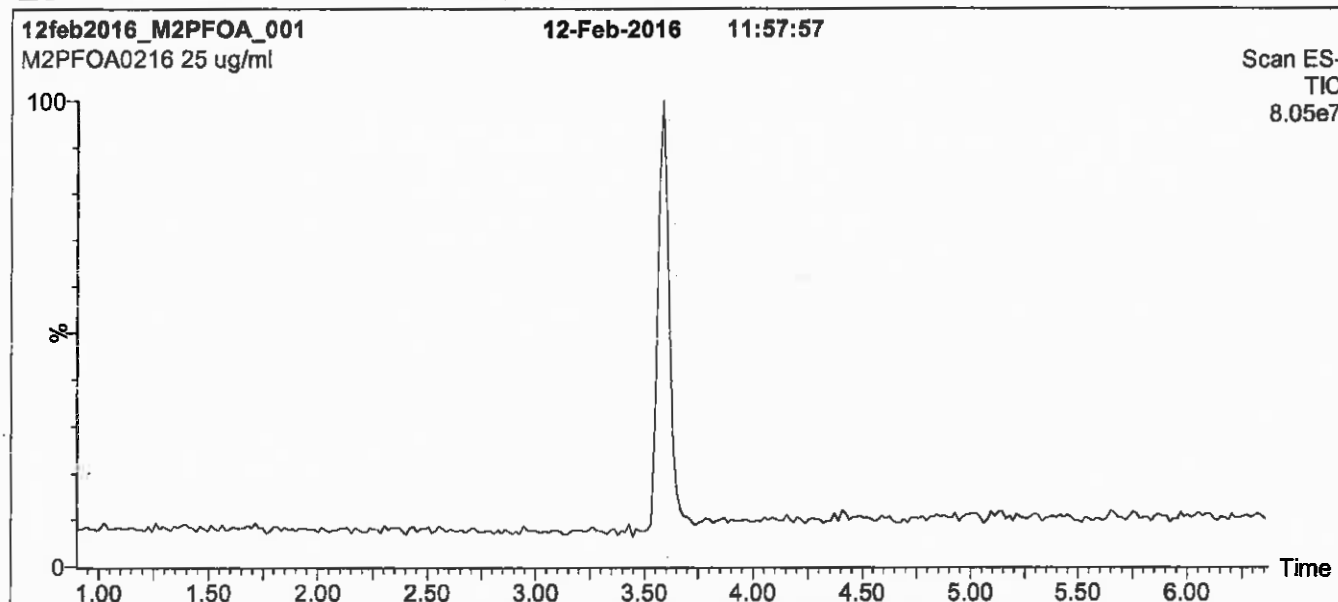
QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).



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Figure 1: M2PFOA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient

Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

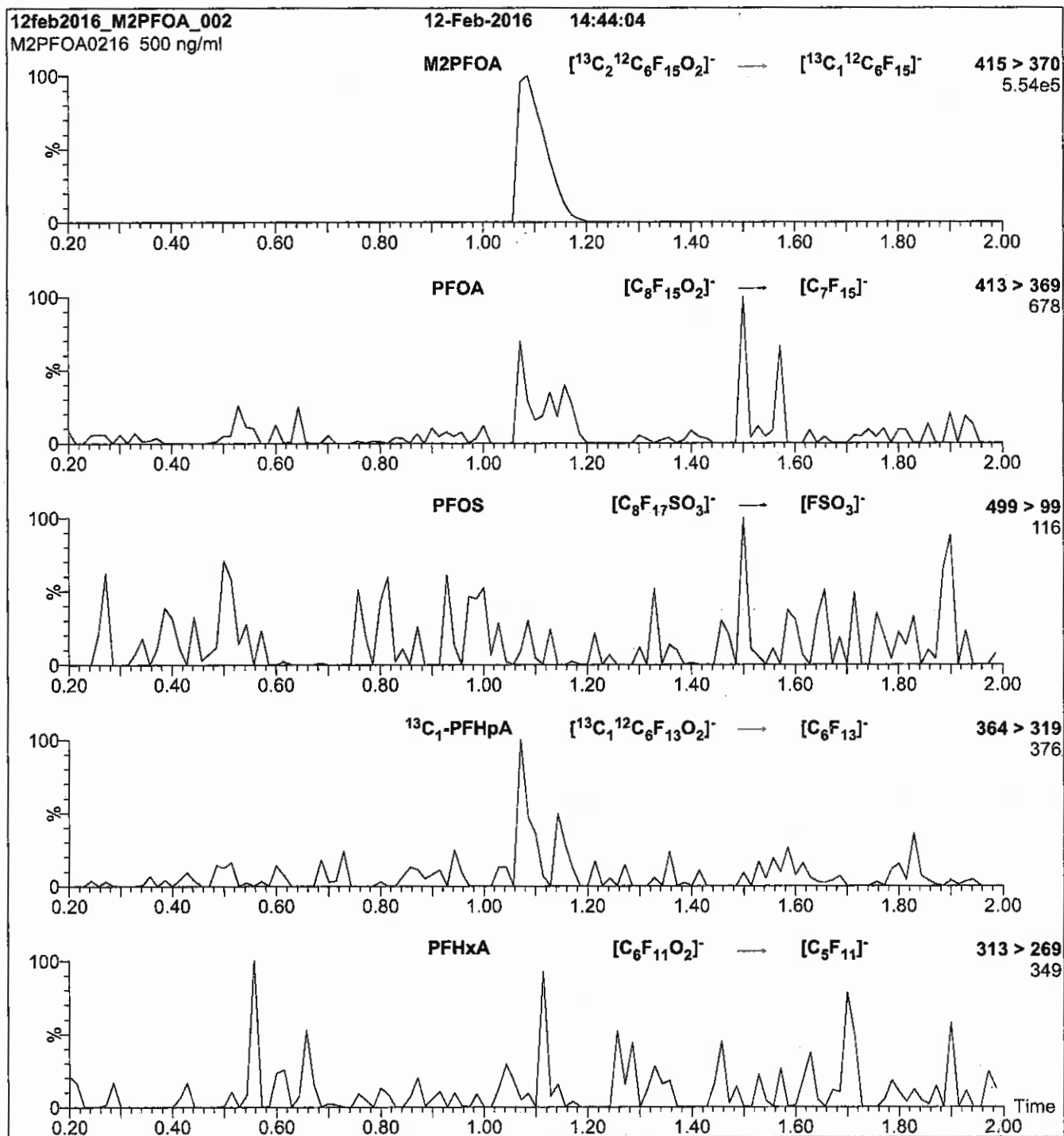
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

Figure 2: M2PFOA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml M2PFOA)

Mobile phase: Isocratic 80% MeOH / 20% H_2O

Flow: 300 $\mu\text{l}/\text{min}$

MS Parameters

Collision Gas (mbar) = 3.39e-3
Collision Energy (eV) = 10

Reagent

LCMPFDA_00012

R: SBC 12/21/16



814255

ID: LCMFDA_00012

Exp: 09/30/21 Prod: SBC

¹³C2-Perfluorodecanoic a



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

MPFDA

LOT NUMBER:

MPFDA0916

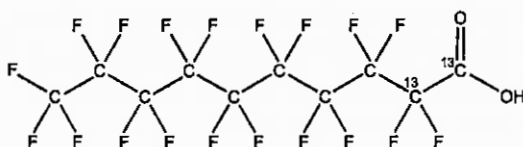
COMPOUND:

Perfluoro-n-[1,2-¹³C₂]decanoic acid

STRUCTURE:

CAS #:

Not available



MOLECULAR FORMULA:

¹³C₂¹²C₈HF₁₉O₂

CONCENTRATION:

50 ± 2.5 µg/ml

MOLECULAR WEIGHT:

516.07

SOLVENT(S):

Methanol

Water (<1%)

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:

≥99% ¹³C

LAST TESTED: (mm/dd/yyyy)

09/30/2016

(1,2-¹³C₂)

EXPIRY DATE: (mm/dd/yyyy)

09/30/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains < 0.1% of ¹³C₁-PFNA.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Crittitt

Date: 10/07/2016

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

INTENDED USE:

The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

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where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of $\pm 5\%$ (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

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EXPIRY DATE / PERIOD OF VALIDITY:

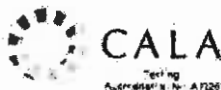
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

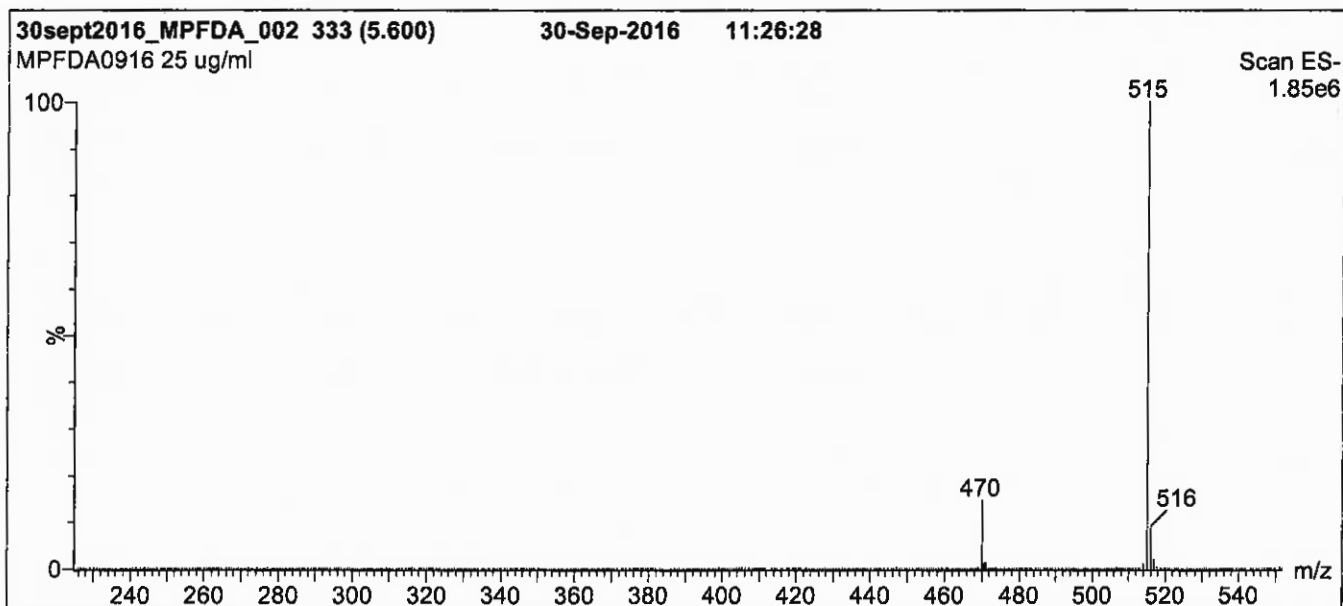
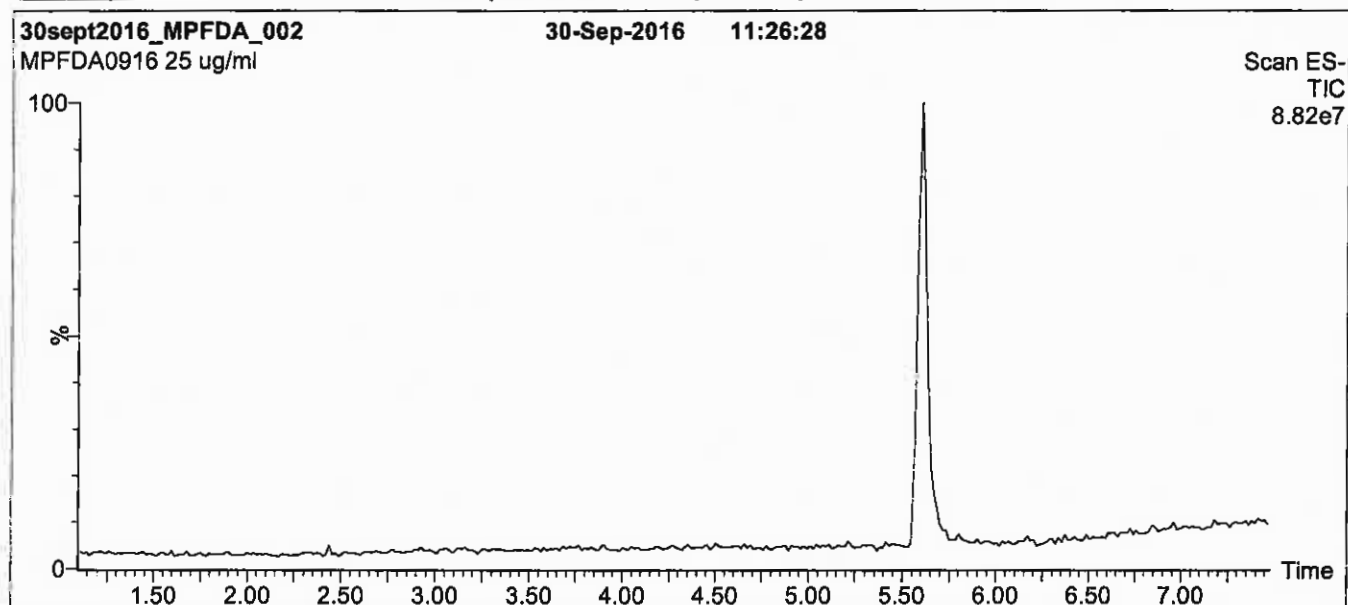
QUALITY MANAGEMENT:

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Figure 1: MPFDA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

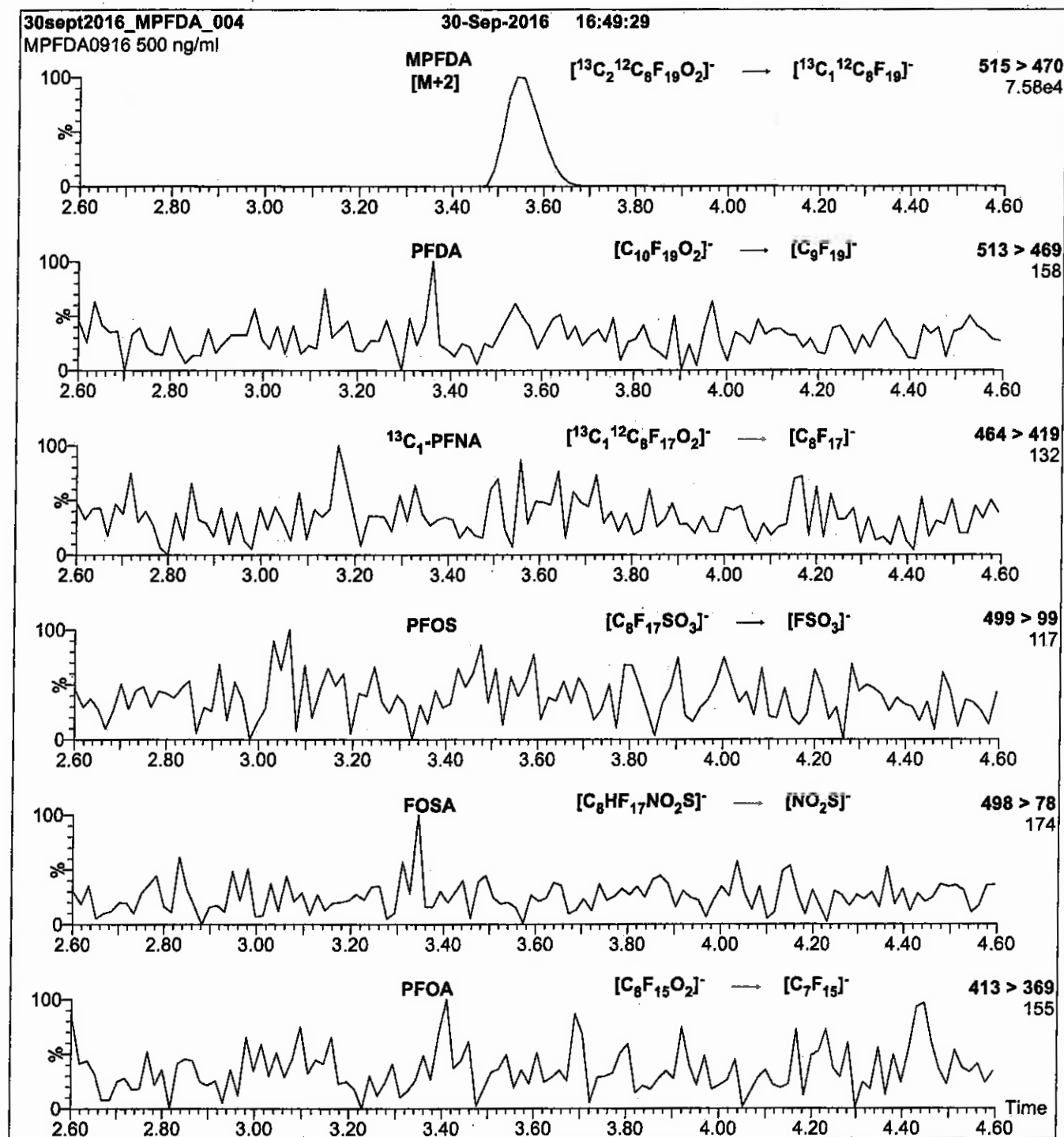
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: MPFDA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop Injection
10 μ l (500 ng/ml MPFDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = $3.31e-3$
Collision Energy (eV) = 13

Reagent

LCMPFHxA_00013

R: SBC 12/21/16

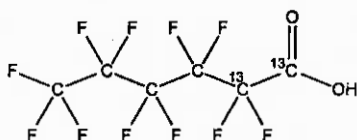
814258
ID: LCMPFHxA_00013
Exp: 04/08/21 Ppdt: SBC
13C2-Perfluorohexanoic ac**WELLINGTON**
LABORATORIES**CERTIFICATE OF ANALYSIS**
DOCUMENTATION**PRODUCT CODE:** MPFHxA
COMPOUND: Perfluoro-n-[1,2-¹³C₂]hexanoic acid**LOT NUMBER:** MPFHxA0416**STRUCTURE:****CAS #:** Not available**MOLECULAR FORMULA:** ¹³C₂¹²C₄HF₁₁O₂
CONCENTRATION: 50 ± 2.5 µg/ml**MOLECULAR WEIGHT:** 316.04
SOLVENT(S): Methanol
Water (<1%)**CHEMICAL PURITY:** >98%**ISOTOPIC PURITY:** ≥99%¹³C
(1,2-¹³C₂)**LAST TESTED:** (mm/dd/yyyy) 04/08/2016**EXPIRY DATE:** (mm/dd/yyyy) 04/08/2021**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place**DOCUMENTATION/ DATA ATTACHED:**

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains 4 mole eq. of NaOH to prevent conversion of the carboxylic acid to the methyl ester.
- Contains < 0.1% of perfluoro-n-hexanoic acid and ~ 0.3% of perfluoro-n-octanoic acid.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**Certified By:**
B.G. Chittim**Date:** 04/29/2016

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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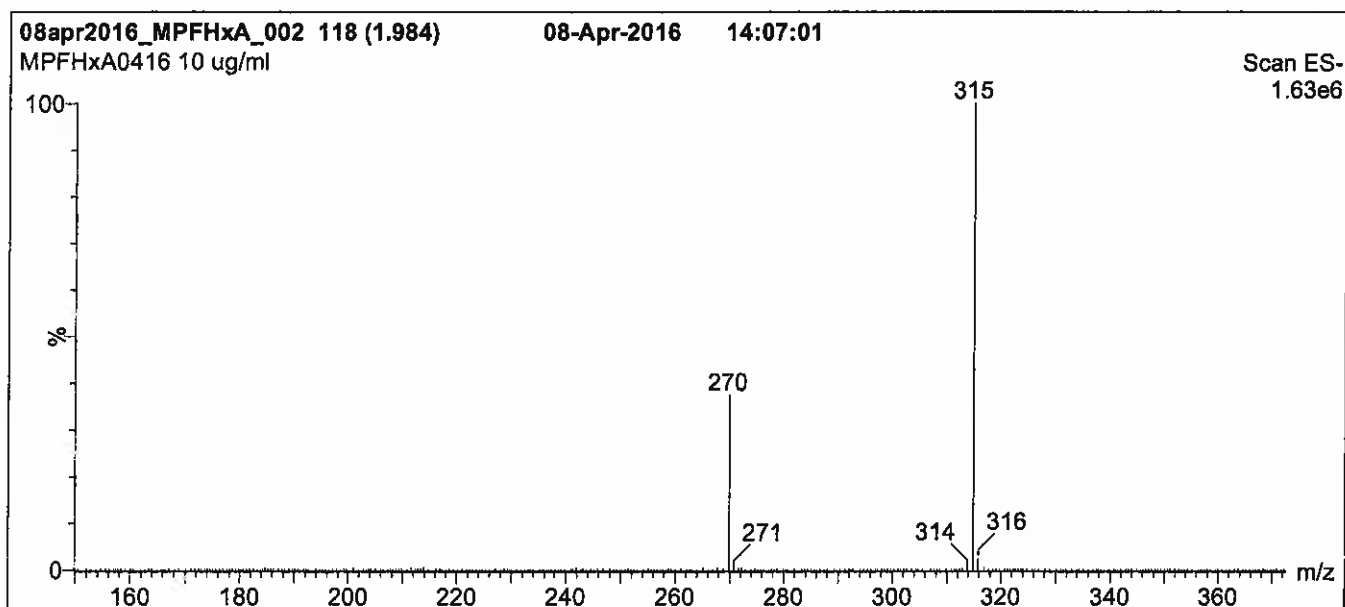
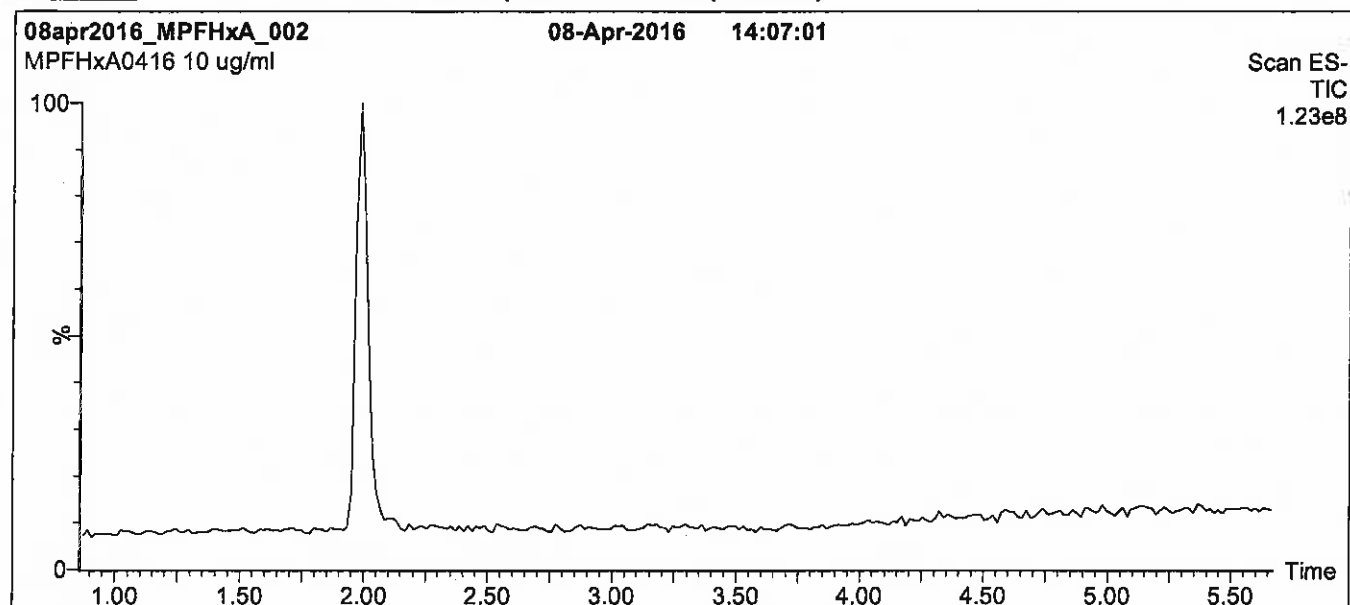
QUALITY MANAGEMENT:

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Figure 1: MPFHxA; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro *micro* API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient

Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)

Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions over 0.5 min.

Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)

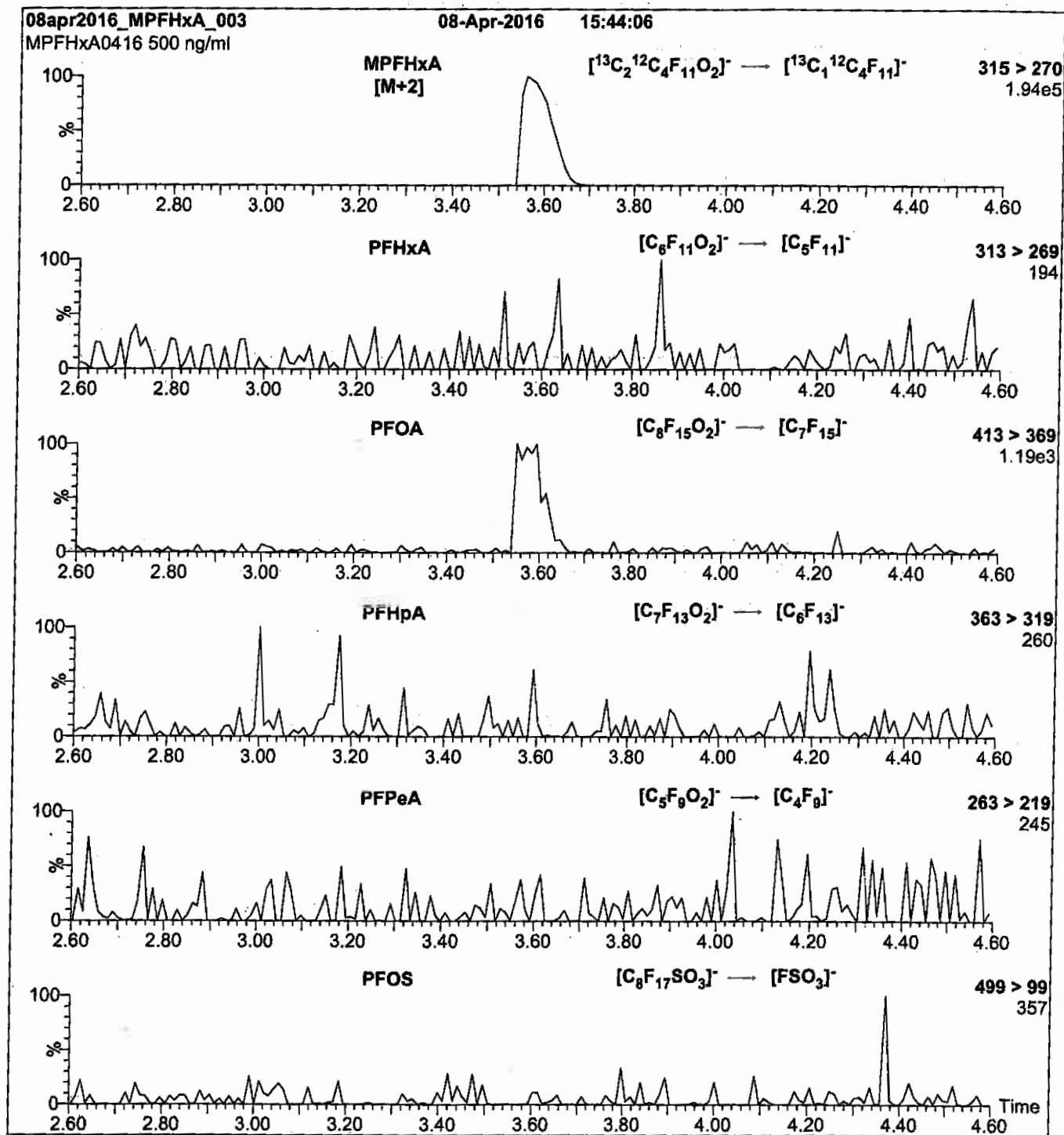
Capillary Voltage (kV) = 2.00

Cone Voltage (V) = 15.00

Cone Gas Flow (l/hr) = 100

Desolvation Gas Flow (l/hr) = 750

Figure 2: MPFHxA; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml MPFHxA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 $\mu\text{l}/\text{min}$

MS Parameters

Collision Gas (mbar) = $3.39\text{e-}3$
Collision Energy (eV) = 10

Reagent

LCMPFOS_00019

R: SBC 12/21/16



814253

ID: LCMFOS_00019

Exp: 08/03/21 Pipd: SBC

13C4-Perfluorooctanesulfo

WELLINGTON
LABORATORIESCERTIFICATE OF ANALYSIS
DOCUMENTATION**PRODUCT CODE:**

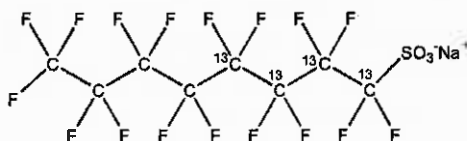
MPFOS

LOT NUMBER:

MPFOS0816

COMPOUND:Sodium perfluoro-1-[1,2,3,4-¹³C₄]octanesulfonate**STRUCTURE:****CAS #:**

Not available

**MOLECULAR FORMULA:**¹³C₄¹²C₄F₁₇SO₃Na**CONCENTRATION:**

50.0 ± 2.5 µg/ml (Na salt)

47.8 ± 2.4 µg/ml (MPFOS anion)

MOLECULAR WEIGHT:

526.08

SOLVENT(S):

Methanol

CHEMICAL PURITY:

>98%

ISOTOPIC PURITY:≥99% ¹³C**LAST TESTED:** (mm/dd/yyyy)

08/03/2016

(1,2,3,4-¹³C₄)**EXPIRY DATE:** (mm/dd/yyyy)

08/03/2021

RECOMMENDED STORAGE:

Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)

Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.8% Sodium perfluoro-1-[1,2,3-¹³C₃]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 08/05/2016

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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The products prepared by Wellington Laboratories Inc. are for laboratory use only. This certified reference material (CRM) was designed to be used as a standard for the identification and/or quantification of the specific chemical compound it contains.

HAZARDS:

This product should only be used by qualified personnel familiar with its potential hazards and trained in the handling of hazardous chemicals. Due care should be exercised to prevent unnecessary human contact or ingestion. All procedures should be carried out in a well-functioning fume hood and suitable gloves, eye protection, and clothing should be worn at all times. Waste should be disposed of according to national and regional regulations. Safety Data Sheets (SDSs) are available upon request.

SYNTHESIS / CHARACTERIZATION:

Where possible, all of our products are synthesized using single-product unambiguous routes. They are then characterized, and their structures and purities confirmed, using a combination of the most relevant techniques, such as NMR, GC/MS, LC/MS/MS, SFC/UV/MS/MS, x-ray crystallography, and melting point. Isotopic purities of mass-labelled compounds are also confirmed using HRGC/HRMS and/or LC/MS/MS.

HOMOGENEITY:

Prior to solution preparation, crystalline material is tested for homogeneity using a variety of techniques (as stated above) and its solubility in a given diluent is taken into consideration. Duplicate solutions of a new product are prepared from the same crystalline lot and, after the addition of an appropriate internal standard, they are compared by GC/MS, LC/MS/MS and/or SFC/UV/MS/MS. The relative response factors of the analyte of interest in each solution are required to be <5% RSD. New solution lots of existing products are compared to older lots in the same manner, which further confirms the homogeneity of the crystalline material as well as the stability and homogeneity of the solutions in the storage containers.

UNCERTAINTY:

The maximum combined relative standard uncertainty of our reference standard solutions is calculated using the following equation:

The combined relative standard uncertainty, $u_c(y)$, of a value y and the uncertainty of the independent parameters $x_1, x_2, \dots, x_n$ on which it depends is:

$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

The individual uncertainties taken into account include those associated with weights (calibration of the balance) and volumes (calibration of the volumetric glassware). An expanded maximum combined percent relative uncertainty of $\pm 5\%$ (calculated with a coverage factor of 2 and a level of confidence of 95%) is stated on the Certificate of Analysis for all of our products.

TRACEABILITY:

All reference standard solutions are traceable to specific crystalline lots. The microbalances used for solution preparation are regularly tested by an external ISO/IEC 17025 accredited calibration company. In addition, their calibration is verified prior to each weighing using NIST and/or NRC traceable external weights. All volumetric glassware used is of Class A tolerance and has been tested according to the appropriate ASTM procedures, which are ultimately traceable to NIST. For certain products, traceability to international interlaboratory studies has also been established.

EXPIRY DATE / PERIOD OF VALIDITY:

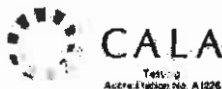
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

At the time of shipment, all products are warranted to be free of defects in material and workmanship and to conform to the stated technical and purity specifications.

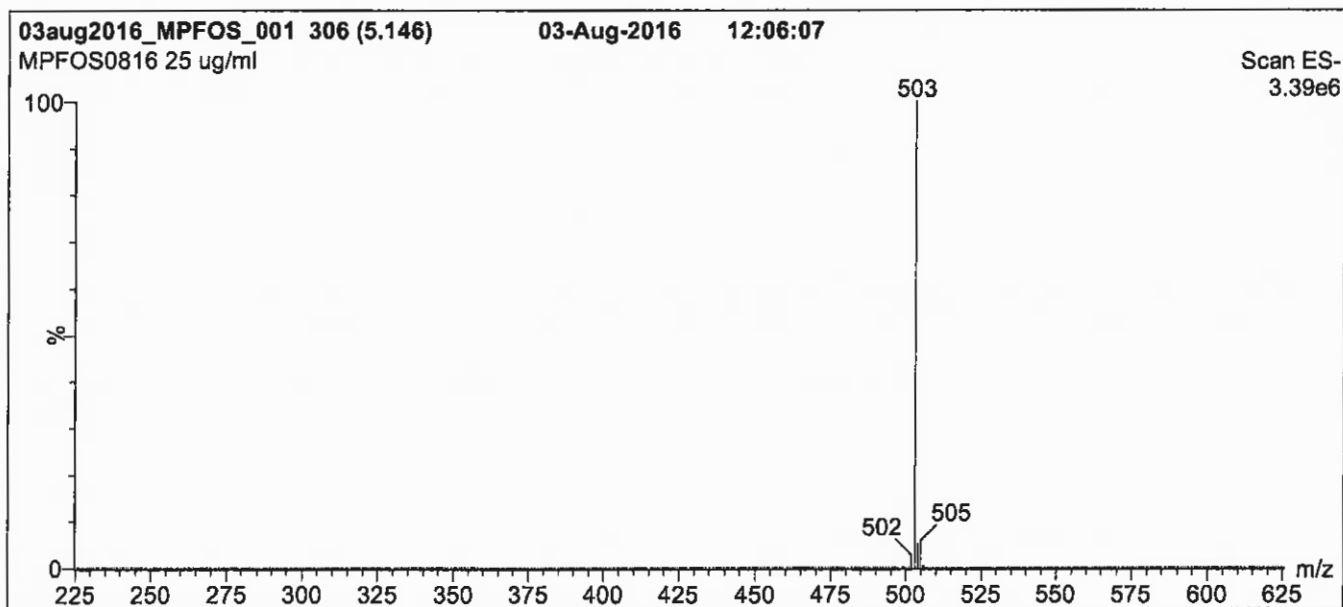
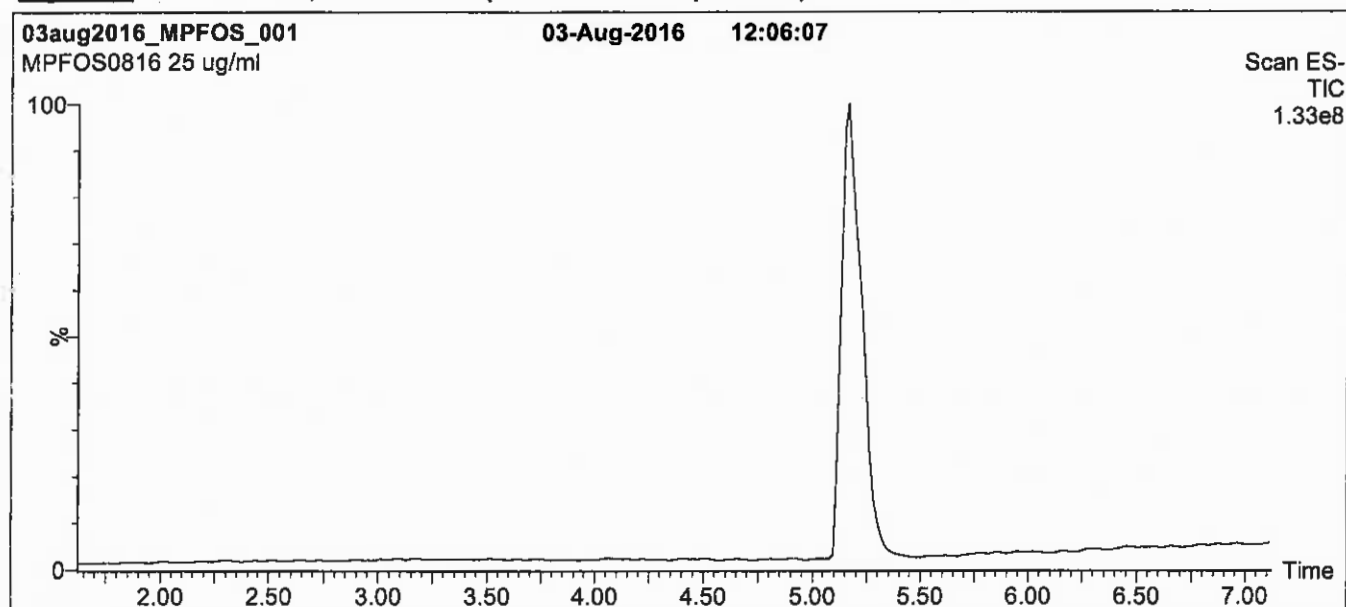
QUALITY MANAGEMENT:

This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).



****For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at www.well-labs.com or contact us directly at info@well-labs.com****

Figure 1: MPFOS; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro micro API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient

Start: 45% (80:20 MeOH:ACN) / 55% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

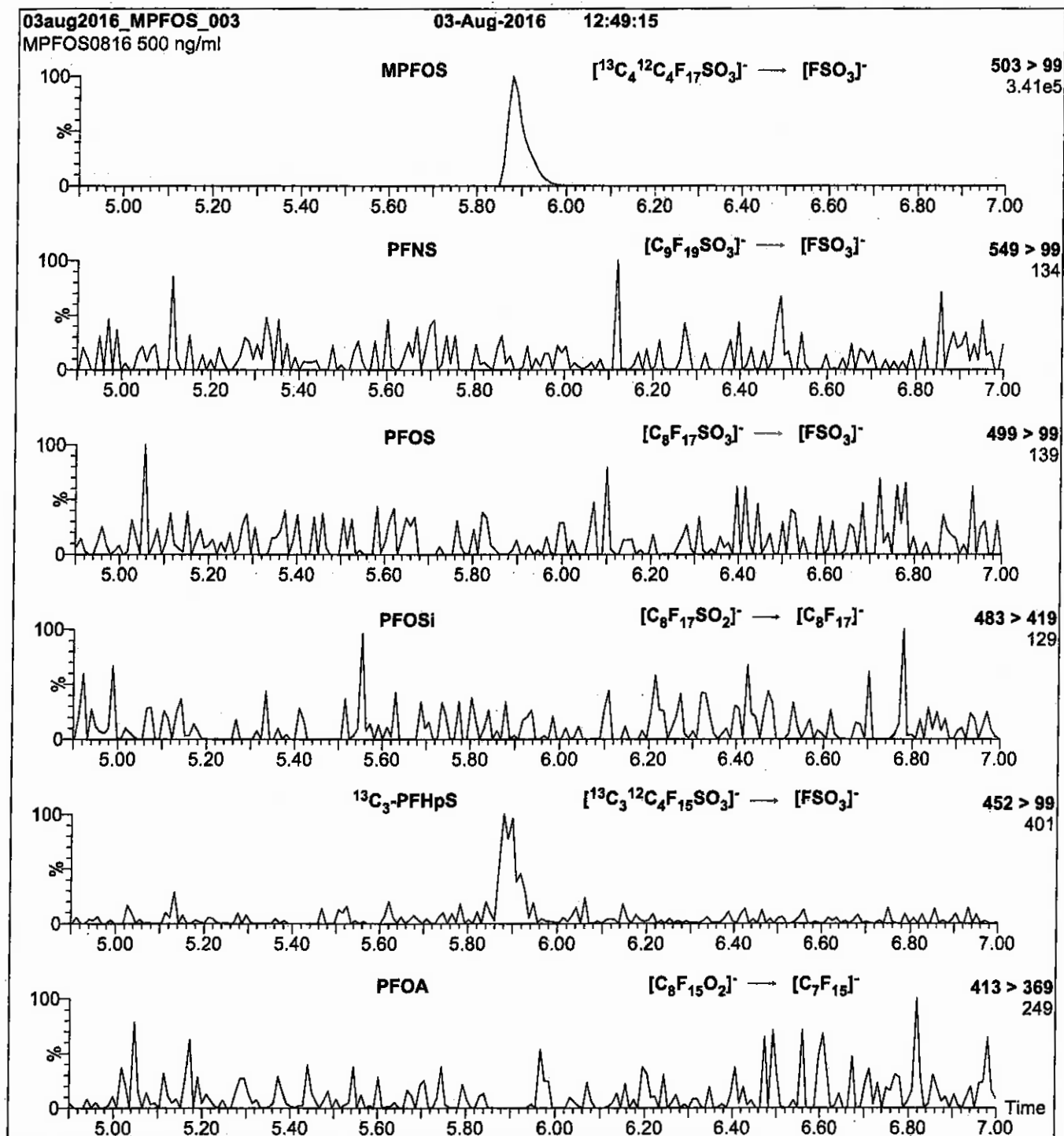
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 60.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: MPFOS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml MPFOS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 $\mu\text{l}/\text{min}$

MS Parameters

Collision Gas (mbar) = 3.46e-3

Collision Energy (eV) = 40

Reagent

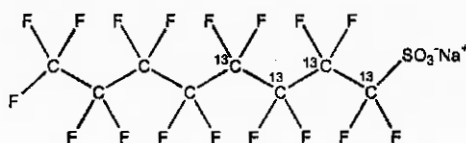
LCMPFOS_00021



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFOS **LOT NUMBER:** MPFOS1216
COMPOUND: Sodium perfluoro-1-[1,2,3,4-¹³C₄]octanesulfonate
STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₄¹²C₄F₁₇SO₃Na **MOLECULAR WEIGHT:** 526.08
CONCENTRATION: 50.0 ± 2.5 µg/ml (Na salt) **SOLVENT(S):** Methanol
 47.8 ± 2.4 µg/ml (MPFOS anion)
CHEMICAL PURITY: >98% **ISOTOPIC PURITY:** ≥99% ¹³C
LAST TESTED: (mm/dd/yyyy) 12/12/2016 (1,2,3,4-¹³C₄)
EXPIRY DATE: (mm/dd/yyyy) 12/12/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

Figure 1: LC/MS Data (TIC and Mass Spectrum)
 Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

- See page 2 for further details.
- Contains ~ 0.8% Sodium perfluoro-1-[1,2,3-¹³C₃]heptanesulfonate.

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:

B.G. Chittim

Date: 12/14/2016

(mm/dd/yyyy)

Wellington Laboratories Inc., 345 Southgate Dr. Guelph ON N1G 3M5 CANADA
 519-822-2436 • Fax: 519-822-2849 • info@well-labs.com

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$$u_c(y(x_1, x_2, \dots, x_n)) = \sqrt{\sum_{i=1}^n u(y, x_i)^2}$$

where x is expressed as a relative standard uncertainty of the individual parameter.

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EXPIRY DATE / PERIOD OF VALIDITY:

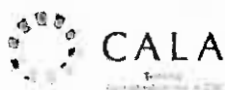
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

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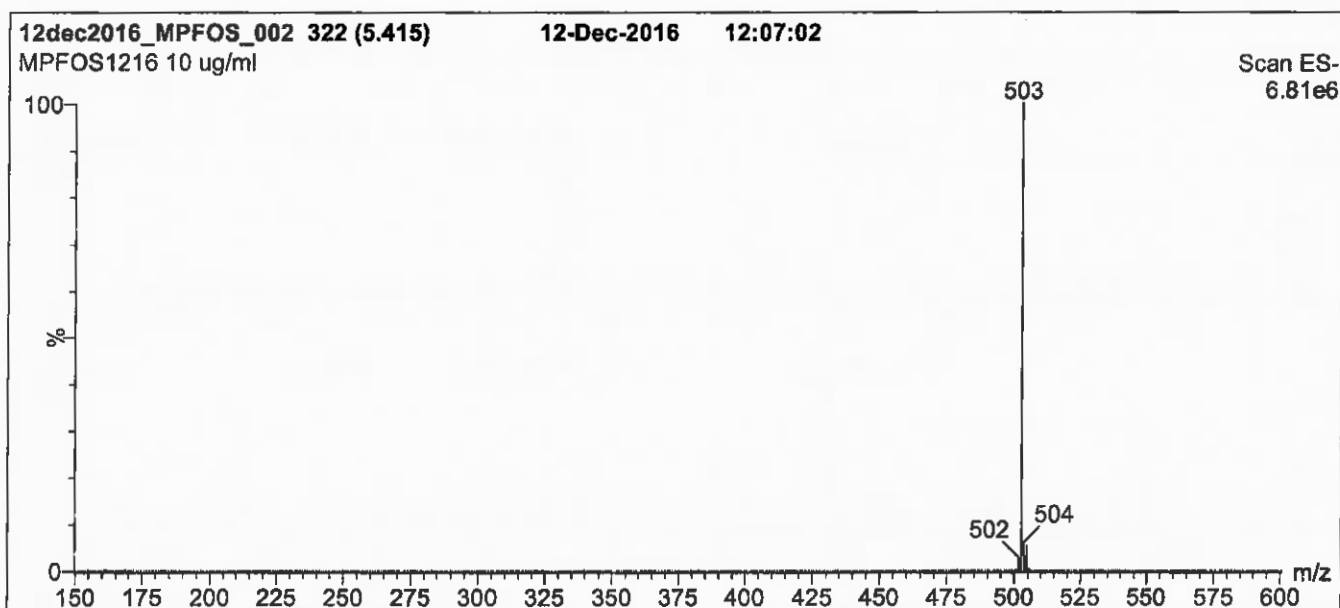
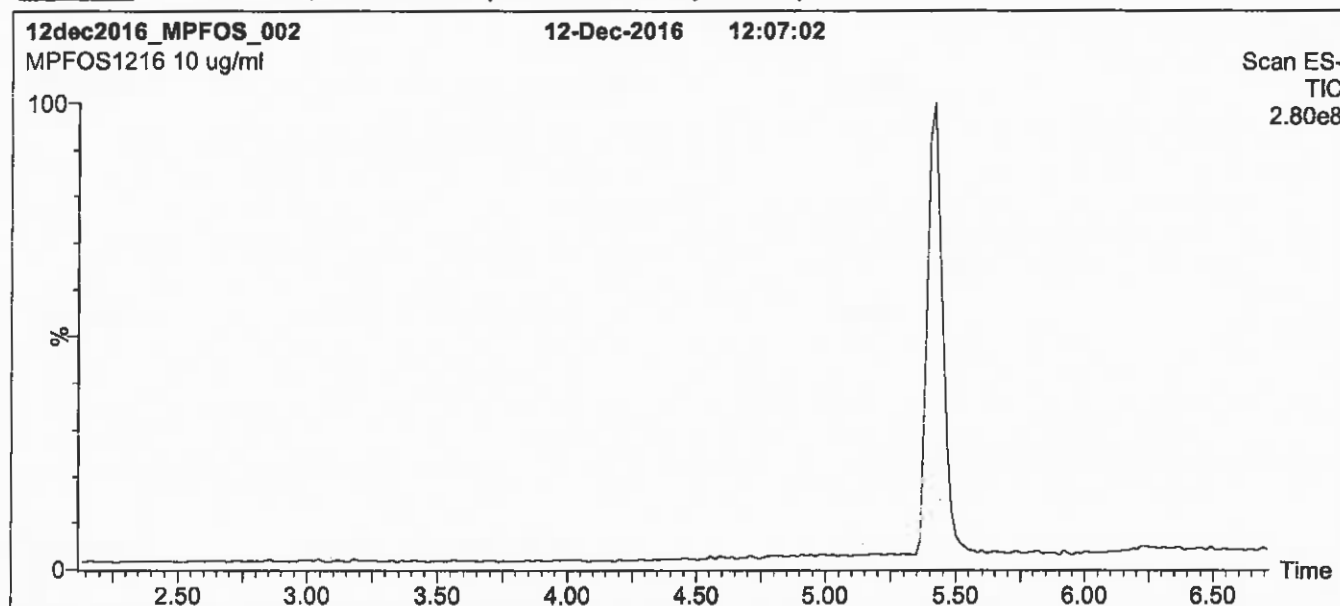
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Figure 1: MPFOS; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

LC: Waters Acquity Ultra Performance LC
MS: Micromass Quattro micro API MS

Chromatographic Conditions

Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm

Mobile phase: Gradient

Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 85% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

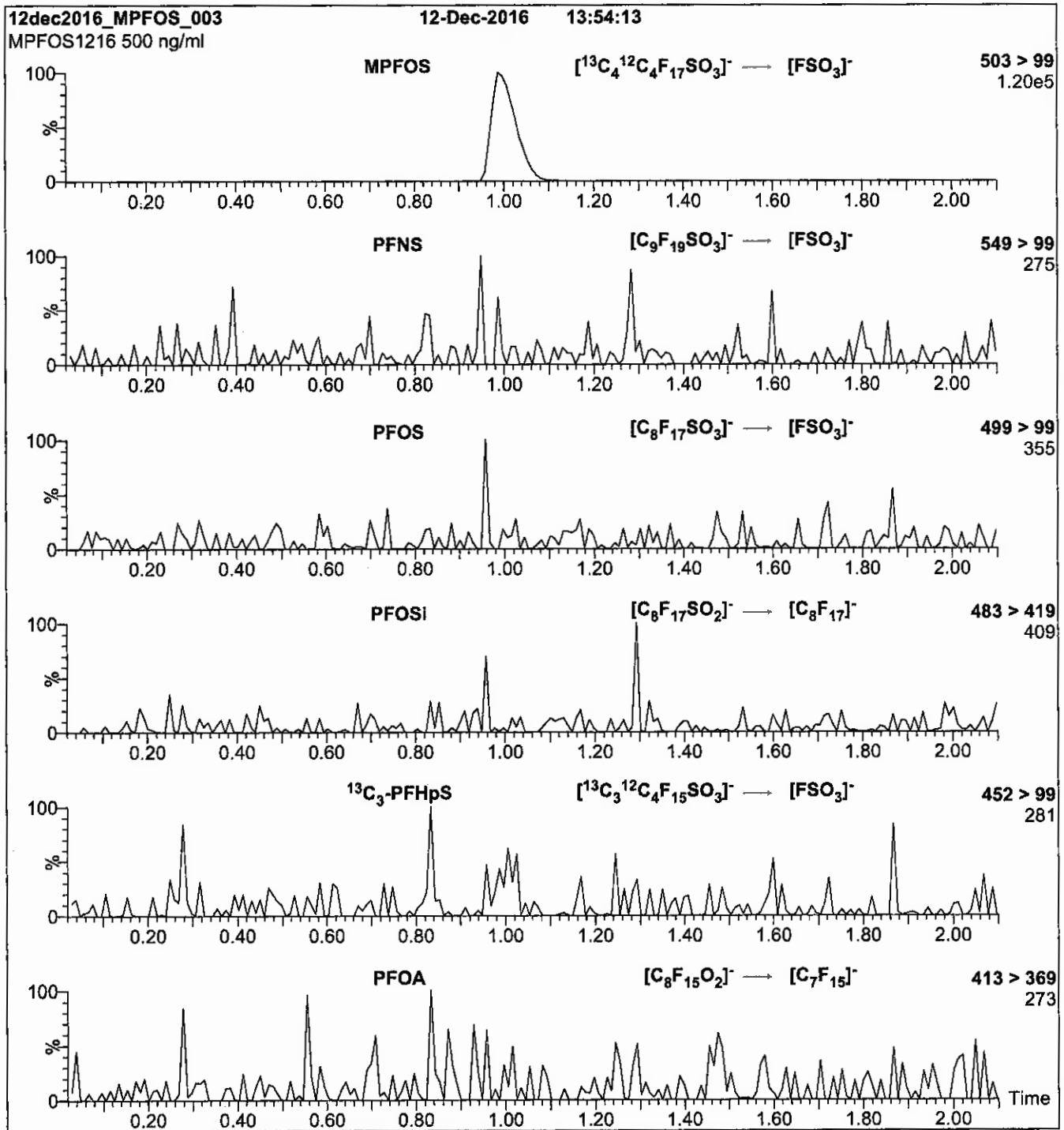
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 60.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

Figure 2: MPFOS; LC/MS/MS Data (Selected MRM Transitions)



Conditions for Figure 2:

Injection: Direct loop injection
10 μl (500 ng/ml MPFOS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H_2O
(both with 10 mM NH_4OAc buffer)

Flow: 300 $\mu\text{l}/\text{min}$

MS Parameters

Collision Gas (mbar) = 3.35e-3
Collision Energy (eV) = 40

Method 537 DOD

Perfluorinated Alkyl Acids (LC/MS)
by Method 537 DOD

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Matrix: Water Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
WGNA-080117-RW-0104	320-30330-1	92	119
WGNA-080117-FRB-0104	320-30330-2	104	122
WGNA-080117-RW-0443A	320-30330-3	84	97
WGNA-080117-RW-0443B	320-30330-4	86	119
WGNA-080117-FRB-0443B	320-30330-5	103	122
WGNA-080117-RW-0437	320-30330-6	91	112
WGNA-080117-FRB-0437	320-30330-7	108	128
WGNA-080117-RW-3178A	320-30330-8	84	101
WGNA-080117-RW-3178B	320-30330-9	87	124
WGNA-080117-FRB-3178B	320-30330-10	105	126
WGNA-080117-RW-3325	320-30330-11	94	127
WGNA-080117-FRB-3325	320-30330-12	107	127
WGNA-080117-DUP06	320-30330-13	92	123
	MB 320-177692/1-A	101	123
	LLCS 320-177692/2-A	100	116
WGNA-080117-RW-3178B LMS	320-30330-9 LMS	93	126
WGNA-080117-RW-3178B LMSD	320-30330-9 LMSD	91	121

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

QC LIMITS
70-130
70-130

Column to be used to flag recovery values

FORM III
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.08.16_537D_034.d
 Lab ID: LLCS 320-177692/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LLCS CONCENTRATION (ng/L)	LLCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	40.0	41.0	102	50-150	
Perfluorooctanoic acid (PFOA)	20.0	18.1 J	91	50-150	
Perfluorononanoic acid (PFNA)	19.3	22.7 J	118	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.1	29.5 J	98	50-150	
Perfluoroheptanoic acid (PFHpA)	9.90	11.2	113	50-150	
Perfluorobutanesulfonic acid (PFBS)	88.3	92.1	104	50-150	

Column to be used to flag recovery and RPD values

FORM III
LCMS LOW LEVEL MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.08.16_537D_046.d
 Lab ID: 320-30330-9 LMS Client ID: WGNA-080117-RW-3178B LMS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	LMS CONCENTRATION (ng/L)	LMS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	38.3	26 J	66.7	107	50-150	
Perfluorooctanoic acid (PFOA)	19.1	14 J	33.0	99	50-150	M
Perfluorononanoic acid (PFNA)	18.4	20 U	24.4	132	50-150	
Perfluorohexanesulfonic acid (PFHxS)	28.7	7.8 J	34.8	94	50-150	
Perfluoroheptanoic acid (PFHpA)	9.46	3.9 J	13.2	99	50-150	
Perfluorobutanesulfonic acid (PFBS)	84.4	35 U	91.9	109	50-150	

Column to be used to flag recovery and RPD values

FORM III
LCMS LOW LEVEL MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.08.16_537D_047.d
 Lab ID: 320-30330-9 LMSD Client ID: WGNA-080117-RW-3178B LMSD

COMPOUND	SPIKE ADDED (ng/L)	LMSD CONCENTRATION (ng/L)	LMSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	37.7	66.0	107	1	50	50-150	M
Perfluorooctanoic acid (PFOA)	18.8	32.8	99	1	50	50-150	M
Perfluorononanoic acid (PFNA)	18.2	25.2	139	3	50	50-150	
Perfluorohexanesulfonic acid (PFHxS)	28.3	34.9	96	0	50	50-150	
Perfluoroheptanoic acid (PFHpA)	9.33	13.9	107	5	50	50-150	
Perfluorobutanesulfonic acid (PFBS)	83.3	89.8	108	2	50	50-150	

Column to be used to flag recovery and RPD values

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
SDG No.: _____
Lab File ID: 2017.08.16_537D_033.d Lab Sample ID: MB 320-177692/1-A
Matrix: Water Date Extracted: 08/04/2017 09:11
Instrument ID: A8_N Date Analyzed: 08/16/2017 18:17
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LLCS 320-177692/2-A	2017.08.16_537D_034.d	08/16/2017 18:22
WGNA-080117-RW-0104	320-30330-1	2017.08.16_537D_035.d	08/16/2017 18:27
WGNA-080117-FRB-0104	320-30330-2	2017.08.16_537D_036.d	08/16/2017 18:32
WGNA-080117-RW-0443B	320-30330-4	2017.08.16_537D_038.d	08/16/2017 18:41
WGNA-080117-FRB-0443B	320-30330-5	2017.08.16_537D_039.d	08/16/2017 18:46
WGNA-080117-RW-0437	320-30330-6	2017.08.16_537D_040.d	08/16/2017 18:51
WGNA-080117-FRB-0437	320-30330-7	2017.08.16_537D_041.d	08/16/2017 18:56
WGNA-080117-RW-3178B	320-30330-9	2017.08.16_537D_045.d	08/16/2017 19:15
WGNA-080117-RW-3178B LMS	320-30330-9 LMS	2017.08.16_537D_046.d	08/16/2017 19:19
WGNA-080117-RW-3178B LMSD	320-30330-9 LMSD	2017.08.16_537D_047.d	08/16/2017 19:24
WGNA-080117-FRB-3178B	320-30330-10	2017.08.16_537D_048.d	08/16/2017 19:29
WGNA-080117-RW-3325	320-30330-11	2017.08.16_537D_049.d	08/16/2017 19:34
WGNA-080117-FRB-3325	320-30330-12	2017.08.16_537D_050.d	08/16/2017 19:38
WGNA-080117-DUP06	320-30330-13	2017.08.16_537D_051.d	08/16/2017 19:43
WGNA-080117-RW-0443A	320-30330-3	2017.08.17_537A_029.d	08/17/2017 20:12
WGNA-080117-RW-3178A	320-30330-8	2017.08.17_537A_030.d	08/17/2017 20:17

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 08/14/2017 12:48
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 08/14/2017 13:12
 Calibration ID: 33517

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		2250916	1.95	5850602	2.21		
UPPER LIMIT		3376374	2.45	8775903	2.71		
LOWER LIMIT		1125458	1.45	2925301	1.71		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-179319/9		2177935	1.94	5998180	2.20		
ICV 320-179319/11		1980065	1.94	5824653	2.19		
CCVL 320-179695/4		2440436	1.99	6032262	2.21		
CCV 320-179896/24 CCVIS		1836809	1.94	5523414	2.16		
MB 320-177692/1-A		1923796	1.94	5541173	2.17		
LLCS 320-177692/2-A		1919068	1.94	5641559	2.16		
320-30330-1	WGNA-080117-RW-0104	1881263	1.94	5607046	2.16		
320-30330-2	WGNA-080117-FRB-0104	1857683	1.94	5634366	2.17		
320-30330-4	WGNA-080117-RW-0443B	1873256	1.94	5761889	2.16		
320-30330-5	WGNA-080117-FRB-0443B	1944014	1.94	5834473	2.16		
320-30330-6	WGNA-080117-RW-0437	1880459	1.94	5905510	2.17		
320-30330-7	WGNA-080117-FRB-0437	1870664	1.94	5692153	2.16		
CCV 320-179896/36 CCVIS		1862875	1.94	5497046	2.17		
CCV 320-179897/36 CCVIS		1862875	1.94	5497046	2.17		
320-30330-9	WGNA-080117-RW-3178B	1920039	1.93	5812728	2.16		
320-30330-9 LMS	WGNA-080117-RW-3178B LMS	1825362	1.94	5550935	2.16		
320-30330-9 LMSD	WGNA-080117-RW-3178B LMSD	1788426	1.93	5486328	2.16		
320-30330-10	WGNA-080117-FRB-3178B	1934711	1.94	5721899	2.16		
320-30330-11	WGNA-080117-RW-3325	1896233	1.93	5969288	2.16		
320-30330-12	WGNA-080117-FRB-3325	1918706	1.93	5887015	2.16		
320-30330-13	WGNA-080117-DUP06	1771373	1.93	5539091	2.16		
CCV 320-179897/45 CCVIS		1811420	1.93	5562915	2.16		

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 50%-150% of internal standard area

RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Sample No.: CCV 320-179896/24 Date Analyzed: 08/16/2017 18:08
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.08.16_537D_031 Heated Purge: (Y/N) N
 Calibration ID: 33517

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1836809	1.94	5523414	2.16		
UPPER LIMIT		2571533	2.44	7732780	2.66		
LOWER LIMIT		1285766	1.44	3866390	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-177692/1-A		1923796	1.94	5541173	2.17		
LLCS 320-177692/2-A		1919068	1.94	5641559	2.16		
320-30330-1	WGNA-080117-RW-0104	1881263	1.94	5607046	2.16		
320-30330-2	WGNA-080117-FRB-0104	1857683	1.94	5634366	2.17		
320-30330-4	WGNA-080117-RW-0443B	1873256	1.94	5761889	2.16		
320-30330-5	WGNA-080117-FRB-0443B	1944014	1.94	5834473	2.16		
320-30330-6	WGNA-080117-RW-0437	1880459	1.94	5905510	2.17		
320-30330-7	WGNA-080117-FRB-0437	1870664	1.94	5692153	2.16		

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area

RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Sample No.: CCV 320-179896/36 Date Analyzed: 08/16/2017 19:05
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.08.16_537D_043 Heated Purge: (Y/N) N
 Calibration ID: 33517

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	1862875	1.94	5497046	2.17		
UPPER LIMIT	2608025	2.44	7695864	2.67		
LOWER LIMIT	1304013	1.44	3847932	1.67		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-177692/1-A		1923796	1.94	5541173	2.17	
LLCS 320-177692/2-A		1919068	1.94	5641559	2.16	
320-30330-1	WGNA-080117-RW-0104	1881263	1.94	5607046	2.16	
320-30330-2	WGNA-080117-FRB-0104	1857683	1.94	5634366	2.17	
320-30330-4	WGNA-080117-RW-0443B	1873256	1.94	5761889	2.16	
320-30330-5	WGNA-080117-FRB-0443B	1944014	1.94	5834473	2.16	
320-30330-6	WGNA-080117-RW-0437	1880459	1.94	5905510	2.17	
320-30330-7	WGNA-080117-FRB-0437	1870664	1.94	5692153	2.16	

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area

RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Sample No.: CCV 320-179897/36 Date Analyzed: 08/16/2017 19:05
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.08.16_537D_043 Heated Purge: (Y/N) N
 Calibration ID: 33517

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1862875	1.94	5497046	2.17		
UPPER LIMIT		2608025	2.44	7695864	2.67		
LOWER LIMIT		1304013	1.44	3847932	1.67		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-30330-9	WGNA-080117-RW-3178B	1920039	1.93	5812728	2.16		
320-30330-9 LMS	WGNA-080117-RW-3178B LMS	1825362	1.94	5550935	2.16		
320-30330-9 LMSD	WGNA-080117-RW-3178B LMSD	1788426	1.93	5486328	2.16		
320-30330-10	WGNA-080117-FRB-3178B	1934711	1.94	5721899	2.16		
320-30330-11	WGNA-080117-RW-3325	1896233	1.93	5969288	2.16		
320-30330-12	WGNA-080117-FRB-3325	1918706	1.93	5887015	2.16		
320-30330-13	WGNA-080117-DUP06	1771373	1.93	5539091	2.16		

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area

RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Sample No.: CCV 320-179897/45 Date Analyzed: 08/16/2017 19:48
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.08.16_537D_052 Heated Purge: (Y/N) N
 Calibration ID: 33517

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	1811420	1.93	5562915	2.16		
UPPER LIMIT	2535988	2.43	7788081	2.66		
LOWER LIMIT	1267994	1.43	3894041	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-30330-9	WGNA-080117-RW-3178B	1920039	1.93	5812728	2.16	
320-30330-9 LMS	WGNA-080117-RW-3178B LMS	1825362	1.94	5550935	2.16	
320-30330-9 LMSD	WGNA-080117-RW-3178B LMSD	1788426	1.93	5486328	2.16	
320-30330-10	WGNA-080117-FRB-3178B	1934711	1.94	5721899	2.16	
320-30330-11	WGNA-080117-RW-3325	1896233	1.93	5969288	2.16	
320-30330-12	WGNA-080117-FRB-3325	1918706	1.93	5887015	2.16	
320-30330-13	WGNA-080117-DUP06	1771373	1.93	5539091	2.16	

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area

RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 08/17/2017 17:07
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 08/17/2017 17:30
 Calibration ID: 33656

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		1895140	1.93	5625431	2.18		
UPPER LIMIT		2842710	2.43	8438147	2.68		
LOWER LIMIT		947570	1.43	2812716	1.68		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-180236/9		2135014	1.91	5637183	2.17		
ICV 320-180236/11		1977664	1.90	5748034	2.16		
CCV 320-180242/27 CCVIS		1827584	1.90	5546997	2.16		
320-30330-3	WGNA-080117-RW-0443A	2017988	1.90	5762356	2.16		
320-30330-8	WGNA-080117-RW-3178A	1859989	1.90	5454663	2.15		
CCV 320-180242/32 CCVIS		1833952	1.89	5482835	2.15		

13PFOA = 13C2-PFOA
 PFOS = 13C4 PFOS

Area Limit = 50%-150% of internal standard area
 RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Sample No.: CCV 320-180242/27 Date Analyzed: 08/17/2017 20:03
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.08.17_537A_027 Heated Purge: (Y/N) N
 Calibration ID: 33656

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	1827584	1.90	5546997	2.16		
UPPER LIMIT	2558618	2.40	7765796	2.66		
LOWER LIMIT	1279309	1.40	3882898	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-30330-3	WGNA-080117-RW-0443A	2017988	1.90	5762356	2.16	
320-30330-8	WGNA-080117-RW-3178A	1859989	1.90	5454663	2.15	

13PFOA = 13C2-PFOA
 PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
 RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Sample No.: CCV 320-180242/32 Date Analyzed: 08/17/2017 20:26
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.08.17_537A_032 Heated Purge: (Y/N) N
 Calibration ID: 33656

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	1833952	1.89	5482835	2.15		
UPPER LIMIT	2567533	2.39	7675969	2.65		
LOWER LIMIT	1283766	1.39	3837985	1.65		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-30330-3	WGNA-080117-RW-0443A	2017988	1.90	5762356	2.16	
320-30330-8	WGNA-080117-RW-3178A	1859989	1.90	5454663	2.15	

13PFOA = 13C2-PFOA
 PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
 RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-RW-0104</u>	Lab Sample ID: <u>320-30330-1</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_035.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 08:00</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>253.5 (mL)</u>	Date Analyzed: <u>08/16/2017 18:27</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179896</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	42		39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	21	M	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	34		30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.4	J	9.9	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	119		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_035.d
 Lims ID: 320-30330-A-1-A
 Client ID: WGNA-080117-RW-0104
 Sample Type: Client
 Inject. Date: 16-Aug-2017 18:27:28 ALS Bottle#: 27 Worklist Smp#: 28
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-30330-a-1-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:21 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
 Column 1 : Det: EXP1
 Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:09:32

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.434	1.453	-0.019	1.000	544403	2.48		120	
298.90 > 99.00	1.434	1.453	-0.019	1.000	347217		1.57(0.00-0.00)	130	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.582	-0.004	1.000	1845908	9.18		5877	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.737	1.742	-0.005	1.000	2514363	8.61		573	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.737	1.742	-0.005	1.000	262640	1.63		29.3	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.935	1.955	-0.020	1.000	928967	5.45		44.9	M
413.00 > 169.00	1.935	1.955	-0.020	1.000	541758		1.71(0.00-0.00)	826	M
* 6 13C2-PFOA									
415.00 > 370.00	1.935	1.955	-0.020		1881263	10.0		5963	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.155	0.007	1.000	1941436	10.8		708	
499.00 > 99.00	2.162	2.155	0.007	1.000	394660		4.92(0.00-0.00)	305	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.205	-0.043		5607046	28.7		3847	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.213	-0.043	1.000	54168	0.5083		4.1	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.354	-0.040	1.000	1318553	11.9		5841	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_035.d

Injection Date: 16-Aug-2017 18:27:28

Instrument ID: A8_N

Lims ID: 320-30330-A-1-A

Lab Sample ID: 320-30330-1

Client ID: WGNA-080117-RW-0104

Operator ID: SACINSTLCMS01

ALS Bottle#: 27

Worklist Smp#: 28

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

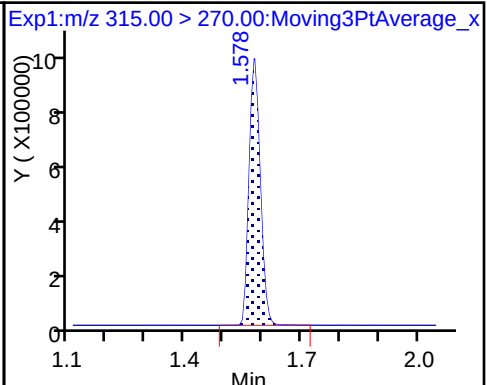
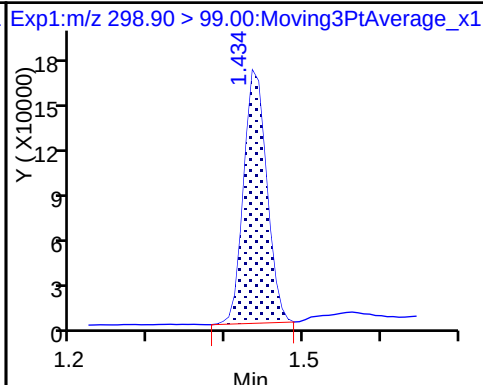
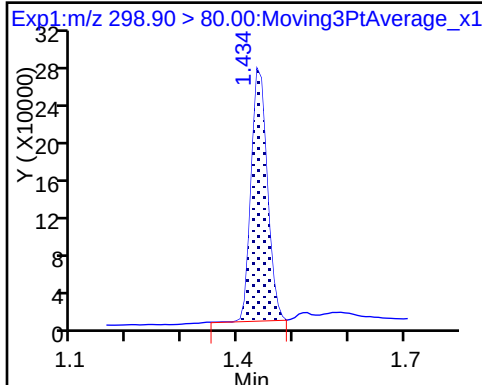
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

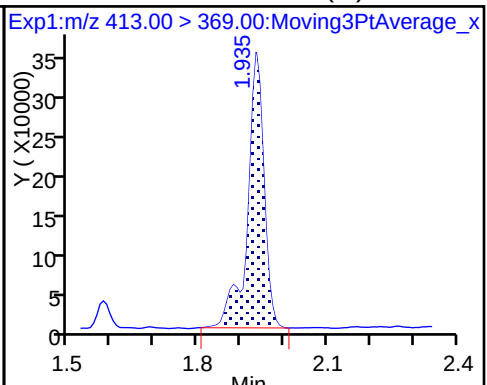
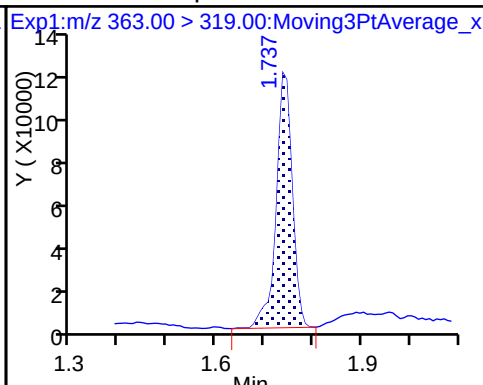
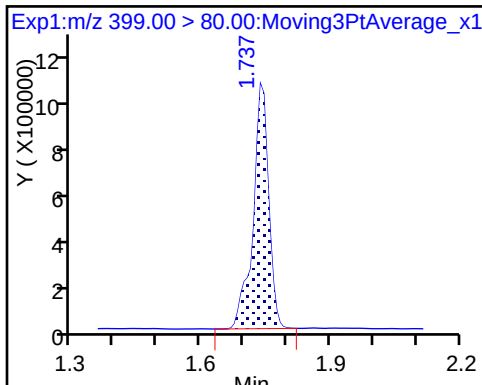
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

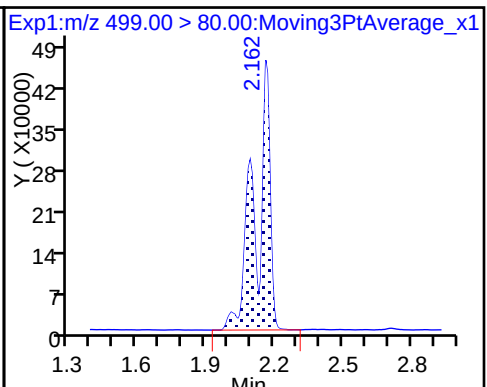
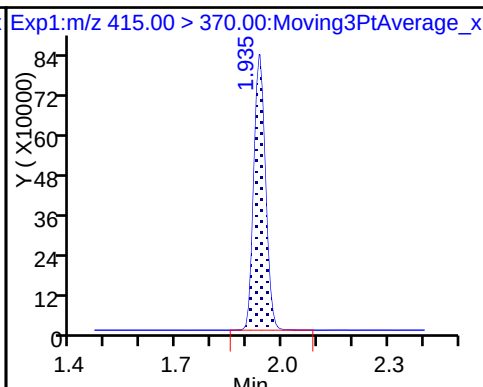
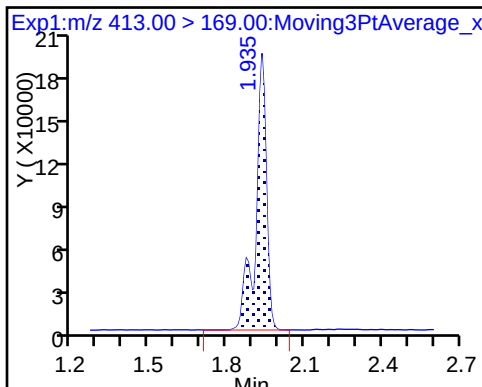
5 Perfluorooctanoic acid (M)



5 Perfluorooctanoic acid

* 6 13C2-PFOA

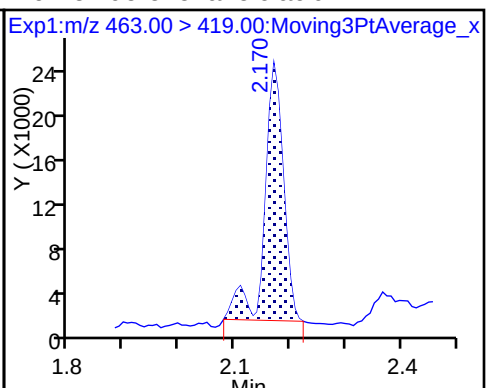
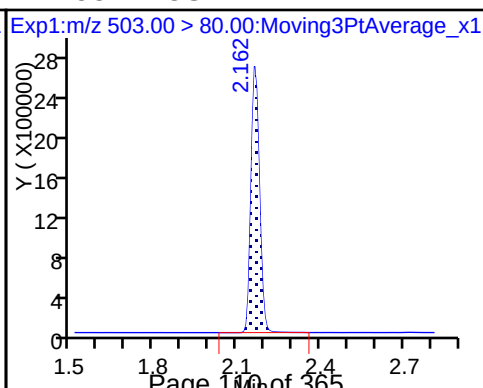
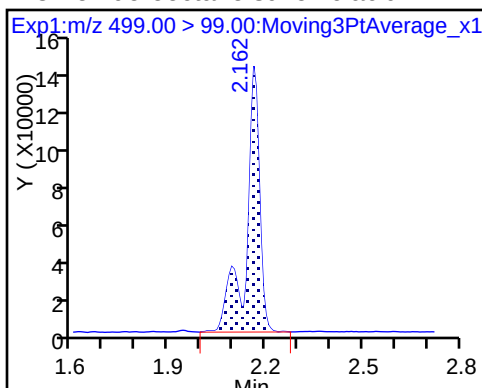
8 Perfluorooctane sulfonic acid



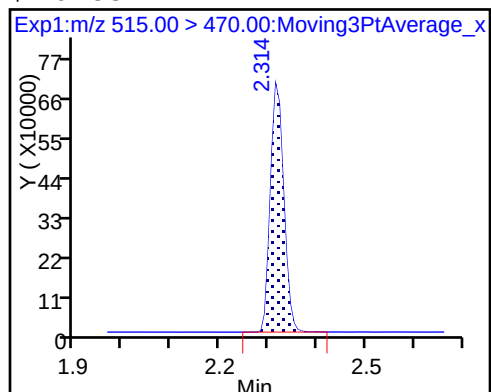
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_035.d
Lims ID: 320-30330-A-1-A
Client ID: WGNA-080117-RW-0104
Sample Type: Client
Inject. Date: 16-Aug-2017 18:27:28 ALS Bottle#: 27 Worklist Smp#: 28
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-30330-a-1-a
Misc. Info.: Plate: 1 Rack: 4
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 17-Aug-2017 15:26:21 Calib Date: 14-Aug-2017 13:12:40
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
Column 1 : Det: EXP1
Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:09:32

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.18	91.76
\$ 10 13C2 PFDA	10.0	11.9	119.27

TestAmerica Sacramento

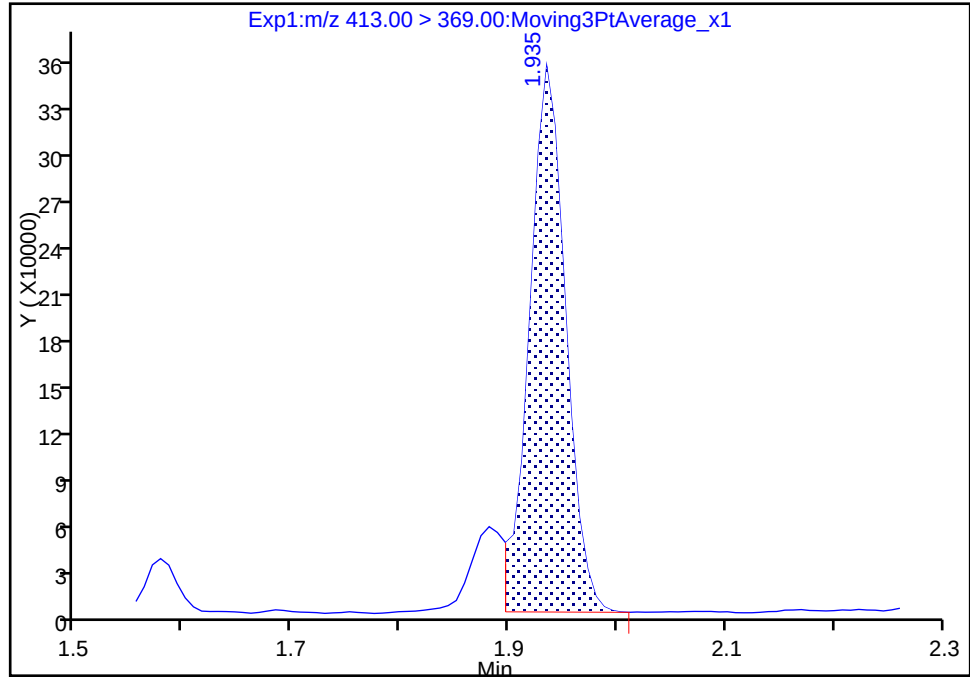
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_035.d
Injection Date: 16-Aug-2017 18:27:28 Instrument ID: A8_N
Lims ID: 320-30330-A-1-A Lab Sample ID: 320-30330-1
Client ID: WGNA-080117-RW-0104
Operator ID: SACINSTLCMS01 ALS Bottle#: 27 Worklist Smp#: 28
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

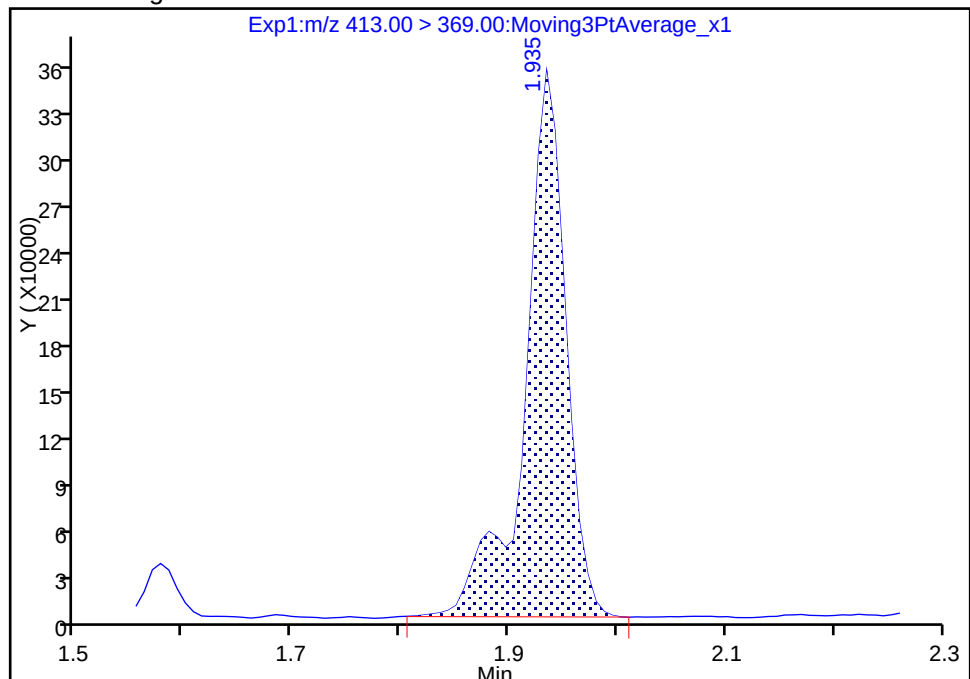
RT: 1.93
Area: 816244
Amount: 4.784551
Amount Units: ng/ml

Processing Integration Results



RT: 1.93
Area: 928967
Amount: 5.445296
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Aug-2017 13:09:16
Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-FRB-0104</u>	Lab Sample ID: <u>320-30330-2</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_036.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 07:55</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>270.6(mL)</u>	Date Analyzed: <u>08/16/2017 18:32</u>
Con. Extract Vol.: <u>1.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179896</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	7.4	U	18	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.2	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	83	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	104		70-130
STL00996	13C2 PFDA	122		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_036.d
 Lims ID: 320-30330-A-2-A
 Client ID: WGNA-080117-FRB-0104
 Sample Type: Client
 Inject. Date: 16-Aug-2017 18:32:12 ALS Bottle#: 28 Worklist Smp#: 29
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-30330-a-2-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:21 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK030

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.582	-0.004	1.000	2075369	10.4		6447	
* 6 13C2-PFOA									
415.00 > 370.00	1.935	1.955	-0.020		1857683	10.0		6179	
* 7 13C4 PFOS									
503.00 > 80.00	2.170	2.205	-0.035		5634366	28.7		4083	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.322	2.354	-0.032	1.000	1328106	12.2		6306	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_036.d

Injection Date: 16-Aug-2017 18:32:12

Instrument ID: A8_N

Lims ID: 320-30330-A-2-A

Lab Sample ID: 320-30330-2

Client ID: WGNA-080117-FRB-0104

Operator ID: SACINSTLCMS01

ALS Bottle#: 28

Worklist Smp#: 29

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

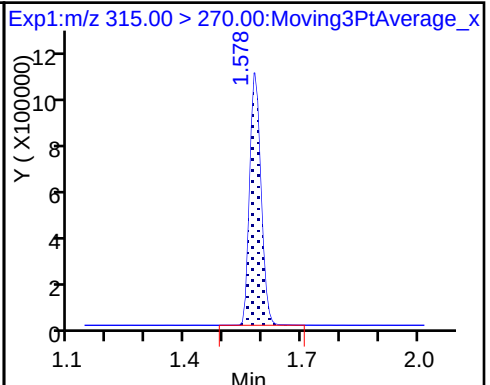
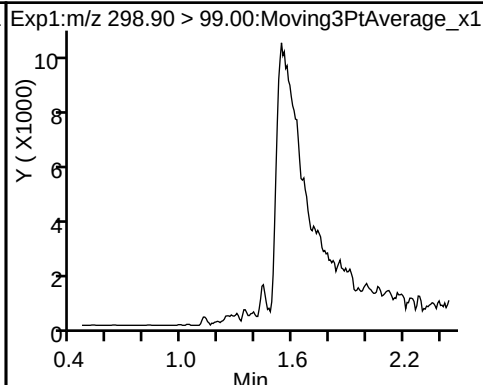
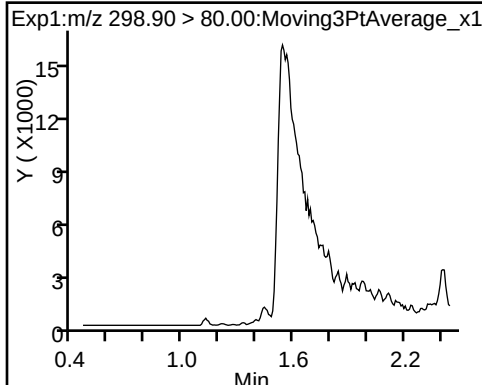
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

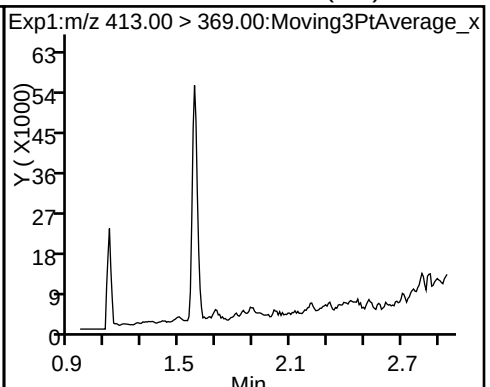
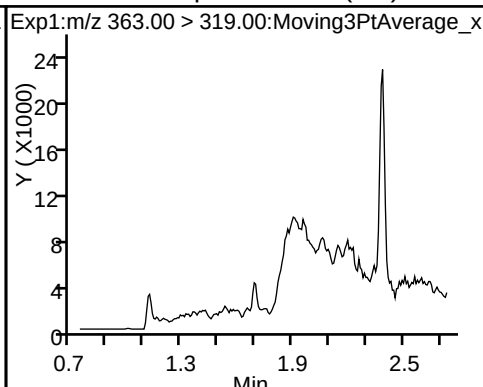
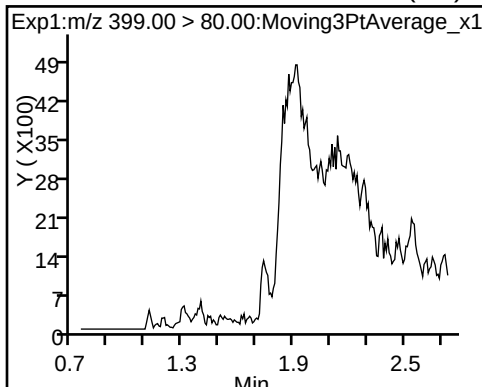
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

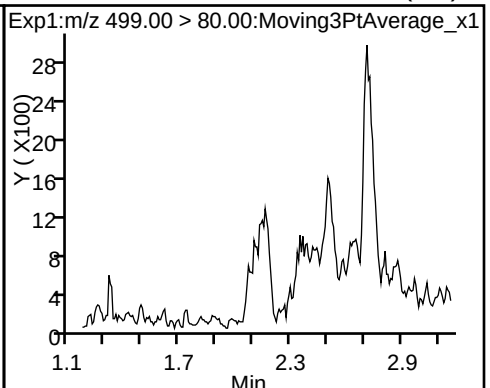
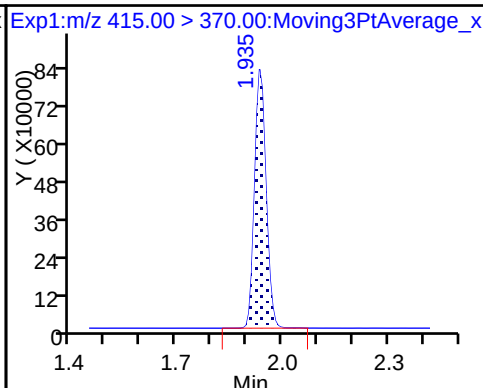
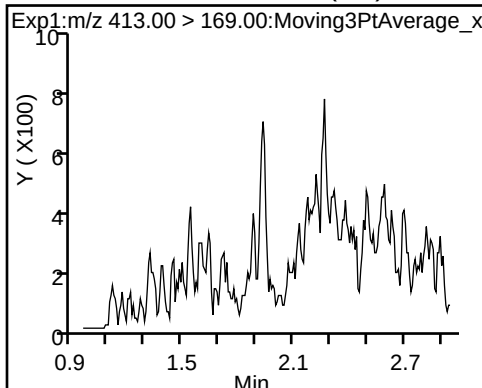
5 Perfluorooctanoic acid (ND)



5 Perfluorooctanoic acid (ND)

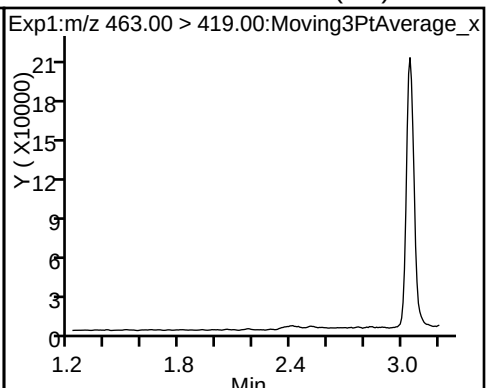
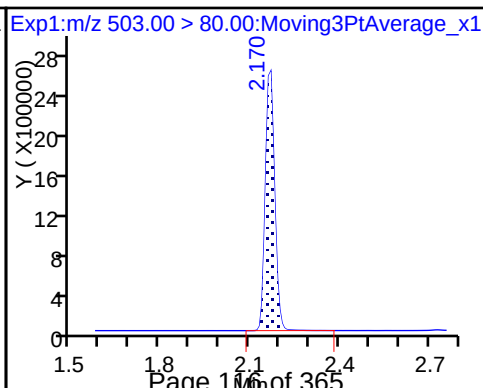
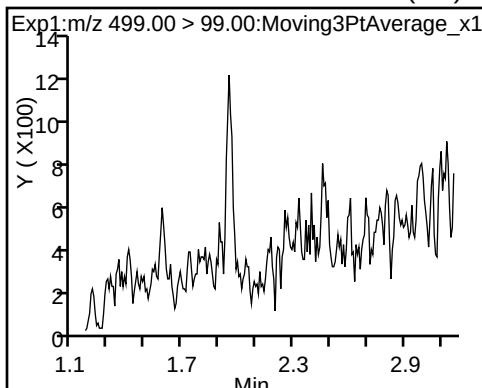
* 6 13C2-PFOA

8 Perfluorooctane sulfonic acid (ND)

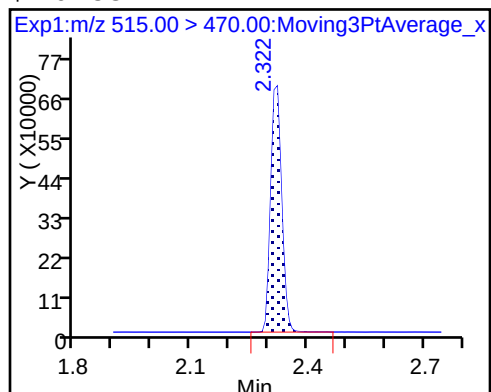


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_036.d
Lims ID: 320-30330-A-2-A
Client ID: WGNA-080117-FRB-0104
Sample Type: Client
Inject. Date: 16-Aug-2017 18:32:12 ALS Bottle#: 28 Worklist Smp#: 29
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-30330-a-2-a
Misc. Info.: Plate: 1 Rack: 4
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 17-Aug-2017 15:26:21 Calib Date: 14-Aug-2017 13:12:40
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK030

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.4	104.48
\$ 10 13C2 PFDA	10.0	12.2	121.65

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-RW-0443A</u>	Lab Sample ID: <u>320-30330-3</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.17_537A_029.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 08:45</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>271.8 (mL)</u>	Date Analyzed: <u>08/17/2017 20:12</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>180242</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	32	J M	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	31		18	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	12		9.2	3.7	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	15	J	83	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	84		70-130
STL00996	13C2 PFDA	97		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\2017.08.17_537A_029.d
 Lims ID: 320-30330-A-3-A
 Client ID: WGNA-080117-RW-0443A
 Sample Type: Client
 Inject. Date: 17-Aug-2017 20:12:32 ALS Bottle#: 29 Worklist Smp#: 29
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-30330-a-3-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 21-Aug-2017 10:47:24 Calib Date: 17-Aug-2017 17:30:56
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK001

First Level Reviewer: barnettj

Date: 21-Aug-2017 10:44:52

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.438	-0.012	1.000	865740	4.01		123	
298.90 > 99.00	1.426	1.438	-0.012	1.000	529542		1.63(0.00-0.00)	154	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.555	1.568	-0.013	1.000	1924947	8.40		7872	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.707	1.722	-0.015	1.000	613138	3.23		46.2	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.707	1.722	-0.015	1.000	420871	1.36		65.8	
* 6 13C2-PFOA									
415.00 > 370.00	1.897	1.928	-0.031		2017988	10.0		6625	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.897	1.928	-0.031	1.000	1557768	8.41		70.4	
413.00 > 169.00	1.897	1.928	-0.031	1.000	866669		1.80(0.00-0.00)	1194	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.155	2.147	0.008	1.000	1587436	8.59		253	M
499.00 > 99.00	2.155	2.147	0.008	1.000	278530		5.70(0.00-0.00)	127	M
* 7 13C4 PFOS									
503.00 > 80.00	2.155	2.185	-0.030		5762356	28.7		1470	
9 Perfluorononanoic acid									
463.00 > 419.00	2.162	2.193	-0.031	1.000	158606	1.10		6.8	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.322	2.342	-0.020	1.000	1278672	9.70		7895	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\2017.08.17_537A_029.d

Injection Date: 17-Aug-2017 20:12:32

Instrument ID: A8_N

Lims ID: 320-30330-A-3-A

Lab Sample ID: 320-30330-3

Client ID: WGNA-080117-RW-0443A

Operator ID: SACINSTLCMS01

ALS Bottle#: 29

Worklist Smp#: 29

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

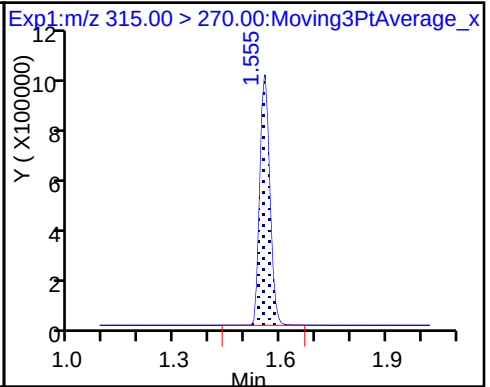
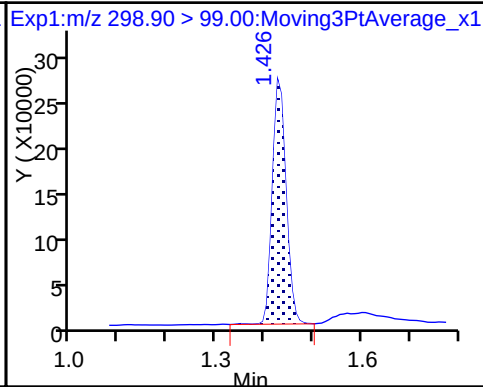
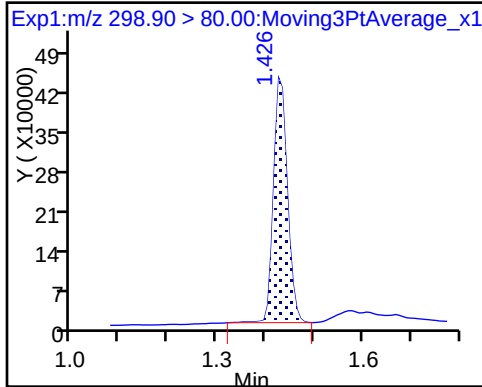
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

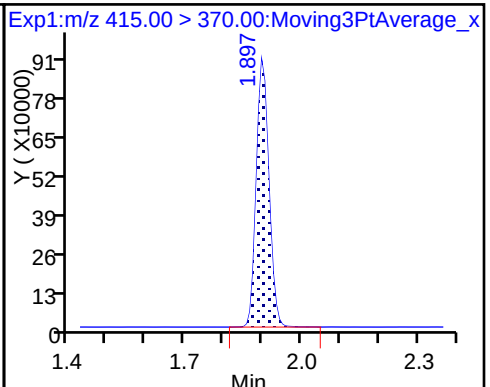
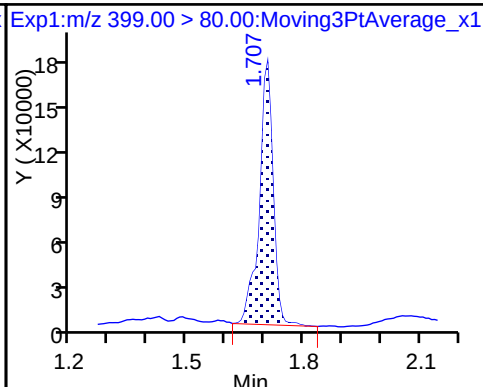
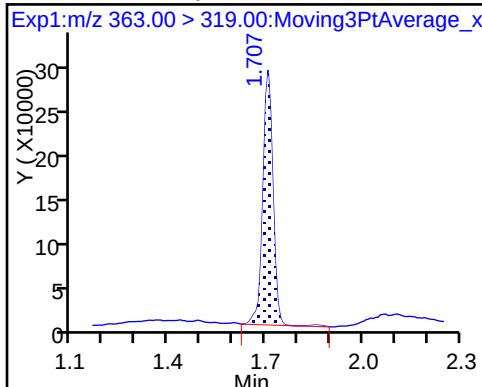
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

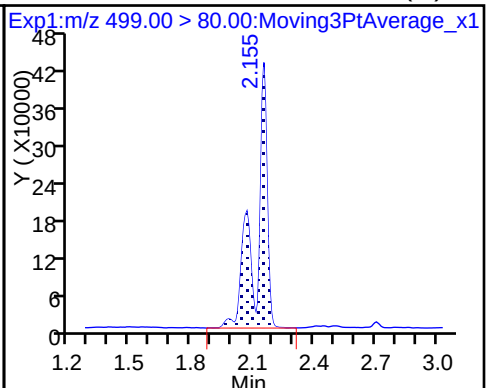
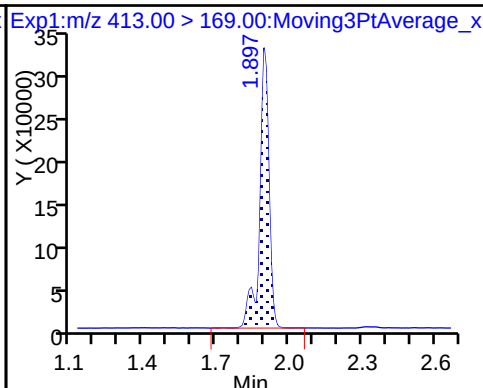
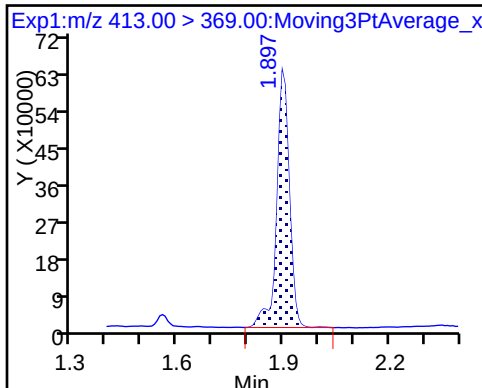
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

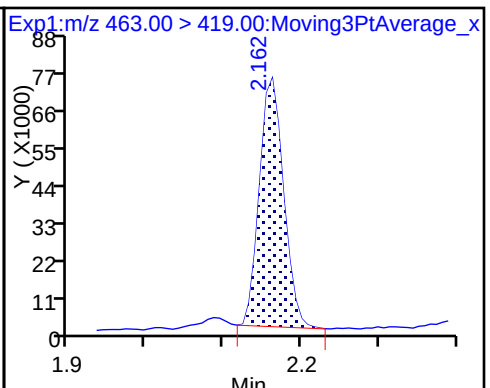
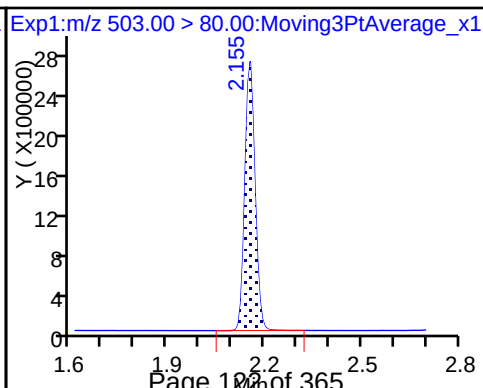
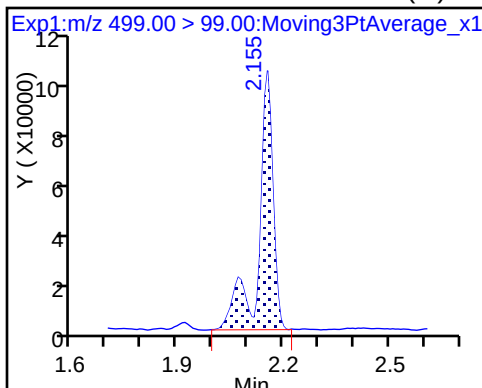
8 Perfluorooctane sulfonic acid (M)



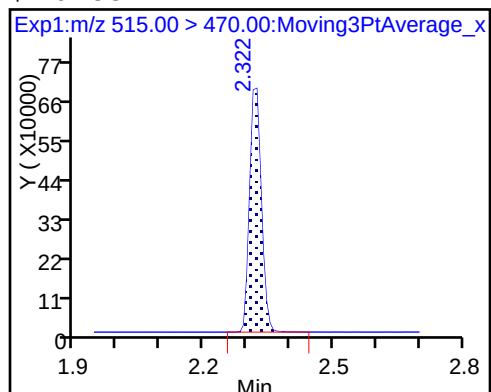
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\2017.08.17_537A_029.d
Lims ID: 320-30330-A-3-A
Client ID: WGNA-080117-RW-0443A
Sample Type: Client
Inject. Date: 17-Aug-2017 20:12:32 ALS Bottle#: 29 Worklist Smp#: 29
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-30330-a-3-a
Misc. Info.: Plate: 1 Rack: 4
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 21-Aug-2017 10:47:24 Calib Date: 17-Aug-2017 17:30:56
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_009.d
Column 1 : Det: EXP1
Process Host: XAWRK001

First Level Reviewer: barnettj

Date: 21-Aug-2017 10:44:52

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.40	84.03
\$ 10 13C2 PFDA	10.0	9.70	97.01

TestAmerica Sacramento

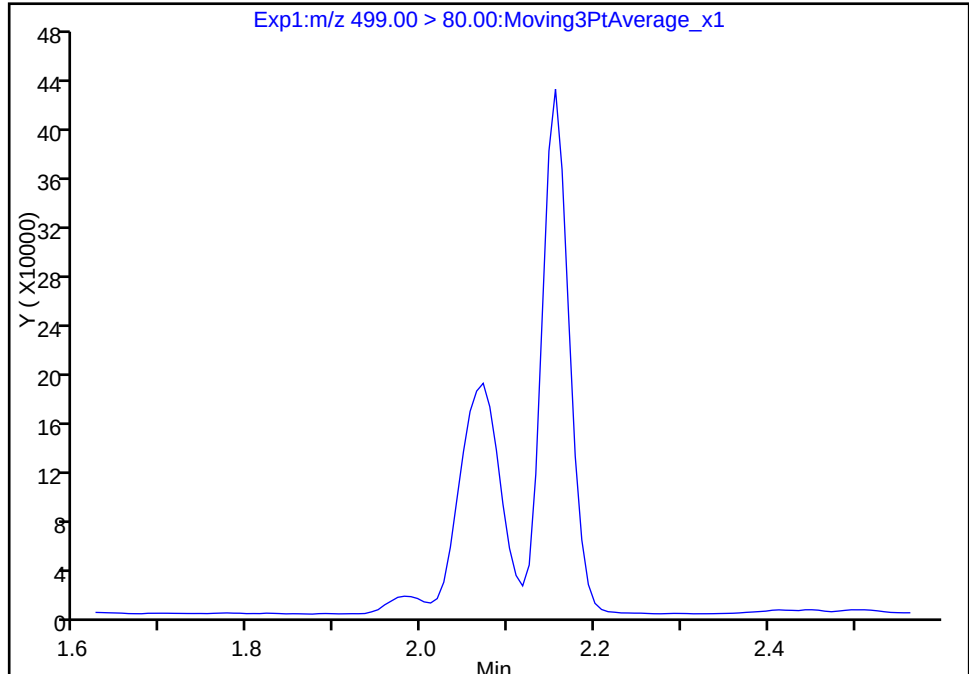
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\2017.08.17_537A_029.d				
Injection Date:	17-Aug-2017 20:12:32	Instrument ID:	A8_N		
Lims ID:	320-30330-A-3-A	Lab Sample ID:	320-30330-3		
Client ID:	WGNA-080117-RW-0443A				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	29	Worklist Smp#:	29
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

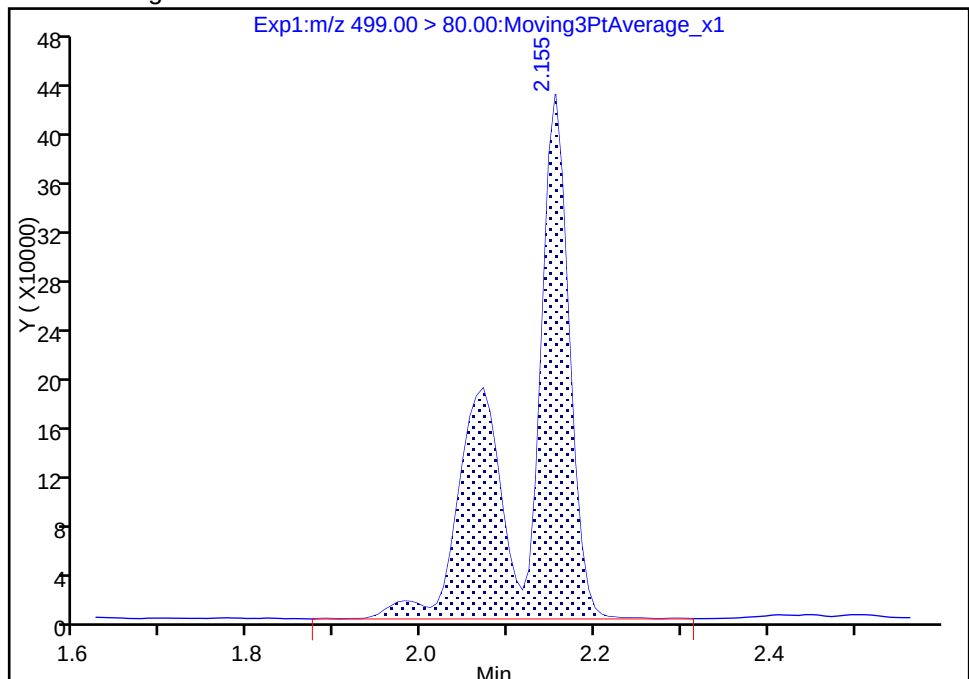
Signal: 1

Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 1587436
Amount: 8.590230
Amount Units: ng/ml

TestAmerica Sacramento

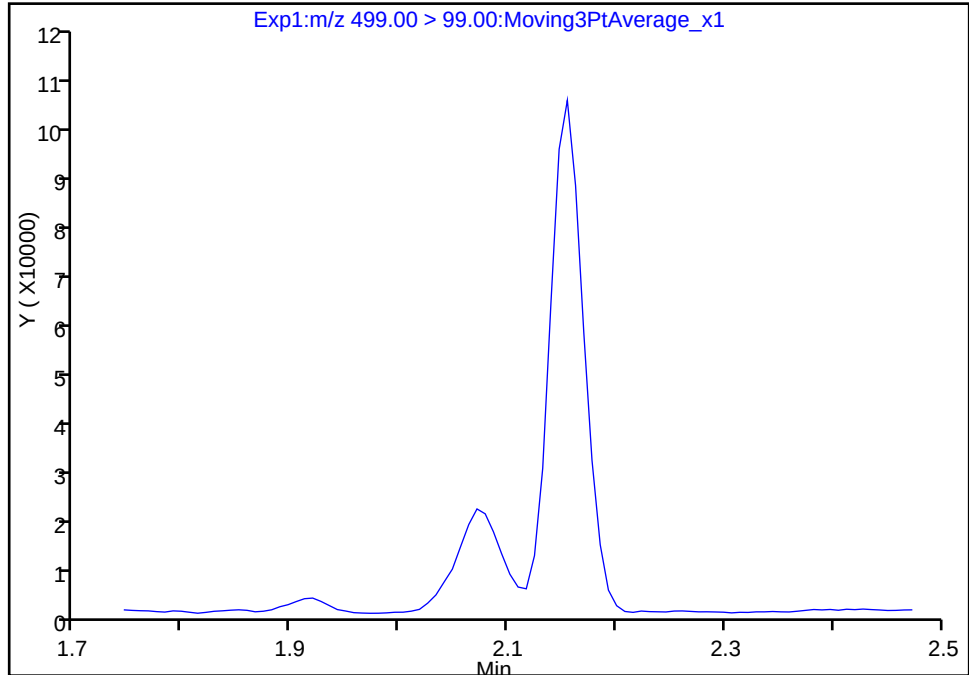
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\2017.08.17_537A_029.d
Injection Date: 17-Aug-2017 20:12:32 Instrument ID: A8_N
Lims ID: 320-30330-A-3-A Lab Sample ID: 320-30330-3
Client ID: WGNA-080117-RW-0443A
Operator ID: SACINSTLCMS01 ALS Bottle#: 29 Worklist Smp#: 29
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

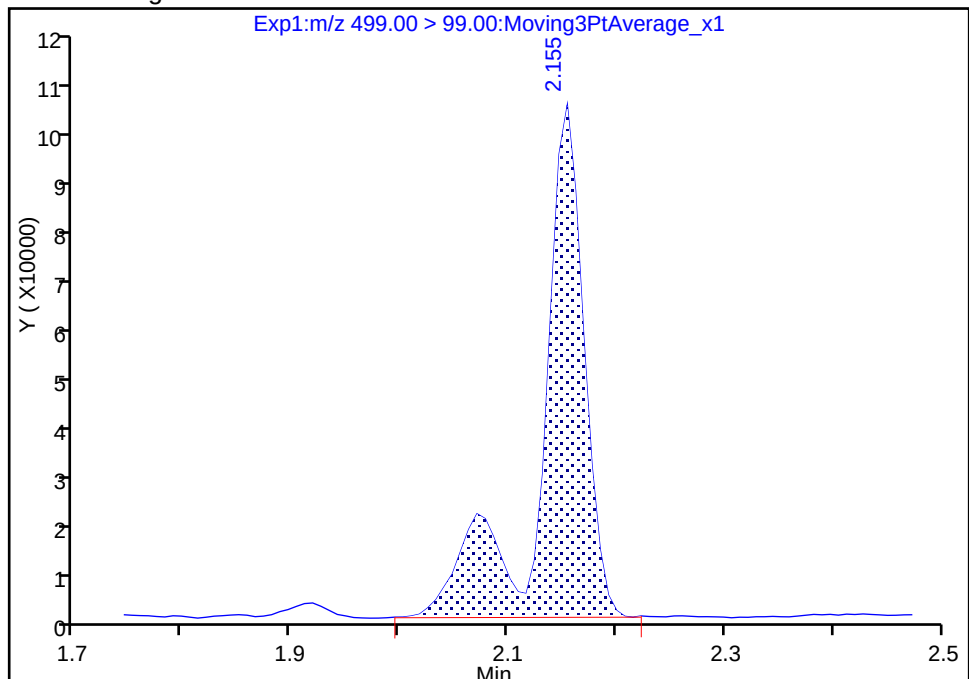
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 278530
Amount: 8.590230
Amount Units: ng/ml



Reviewer: barnettj, 21-Aug-2017 10:44:46

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

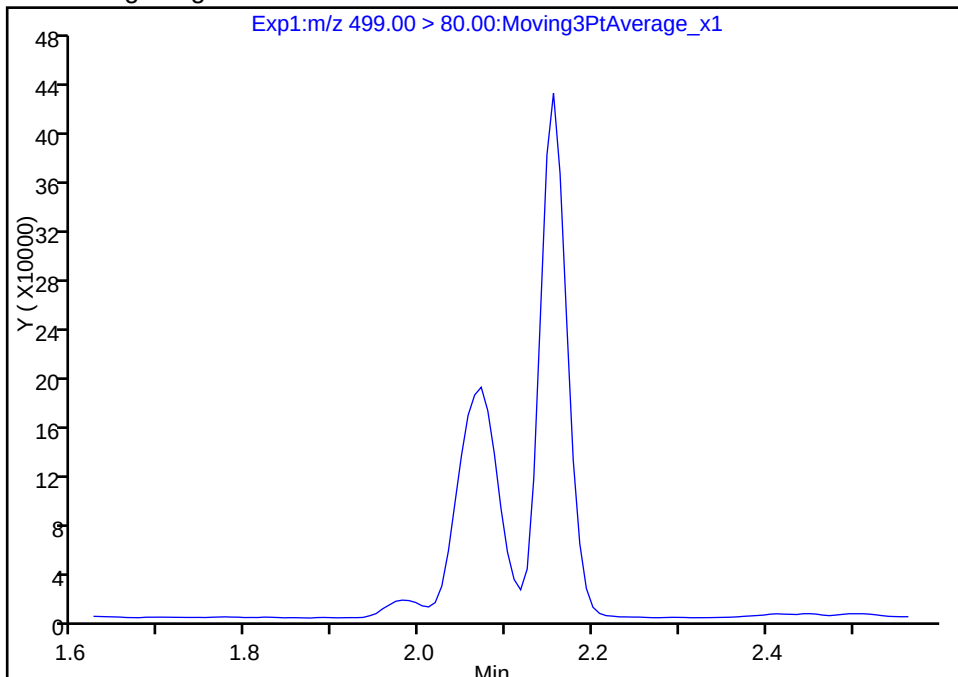
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\2017.08.17_537A_029.d
Injection Date: 17-Aug-2017 20:12:32 Instrument ID: A8_N
Lims ID: 320-30330-A-3-A Lab Sample ID: 320-30330-3
Client ID: WGNA-080117-RW-0443A
Operator ID: SACINSTLCMS01 ALS Bottle#: 29 Worklist Smp#: 29
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

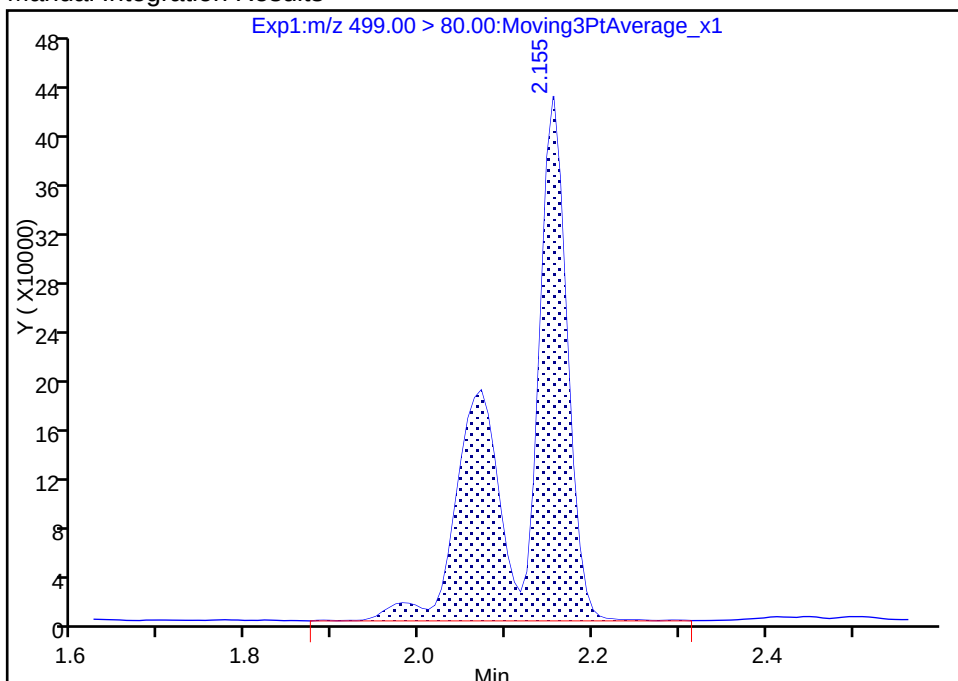
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 1587436
Amount: 8.590230
Amount Units: ng/ml



Reviewer: barnettj, 21-Aug-2017 10:44:46

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-RW-0443B</u>	Lab Sample ID: <u>320-30330-4</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_038.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 08:50</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>269.2 (mL)</u>	Date Analyzed: <u>08/16/2017 18:41</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179896</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	29	J	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	31	M	19	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	13		9.3	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	84	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	119		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_038.d
 Lims ID: 320-30330-A-4-A
 Client ID: WGNA-080117-RW-0443B
 Sample Type: Client
 Inject. Date: 16-Aug-2017 18:41:45 ALS Bottle#: 30 Worklist Smp#: 31
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-30330-a-4-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:21 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
 Column 1 : Det: EXP1
 Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:10:57

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.442	1.453	-0.011	1.000	739529	3.29		138	
298.90 > 99.00	1.442	1.453	-0.011	1.000	467974		1.58(0.00-0.00)	160	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.582	-0.004	1.000	1732374	8.65		5019	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.745	1.742	0.003	1.000	358102	1.19		61.5	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.745	1.742	0.003	1.000	553003	3.45		54.2	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.935	1.955	-0.020	1.000	1421130	8.37		69.5	M
413.00 > 169.00	1.935	1.955	-0.020	1.000	798967		1.78(0.00-0.00)	1119	M
* 6 13C2-PFOA									
415.00 > 370.00	1.935	1.955	-0.020		1873256	10.0		5468	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.155	0.007	1.000	1472901	7.94		413	
499.00 > 99.00	2.162	2.155	0.007	1.000	267536		5.51(0.00-0.00)	181	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.205	-0.043		5761889	28.7		2998	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.213	-0.043	1.000	163661	1.54		4.8	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.354	-0.040	1.000	1305280	11.9		6645	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_038.d

Injection Date: 16-Aug-2017 18:41:45

Instrument ID: A8_N

Lims ID: 320-30330-A-4-A

Lab Sample ID: 320-30330-4

Client ID: WGNA-080117-RW-0443B

Operator ID: SACINSTLCMS01

ALS Bottle#: 30

Worklist Smp#: 31

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

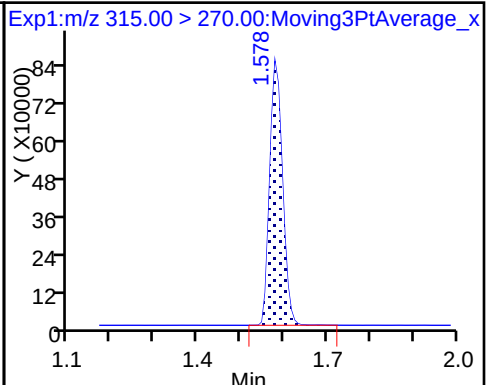
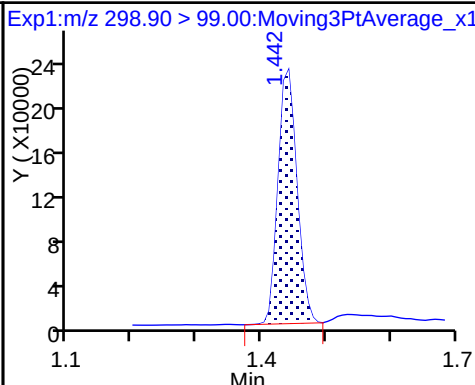
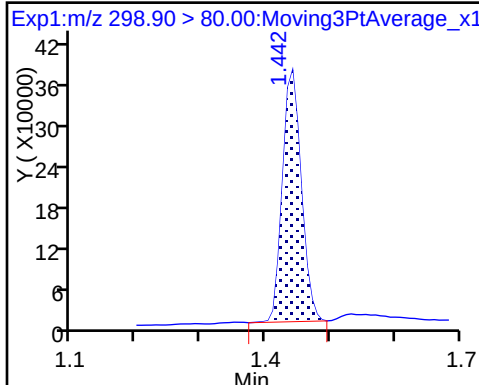
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

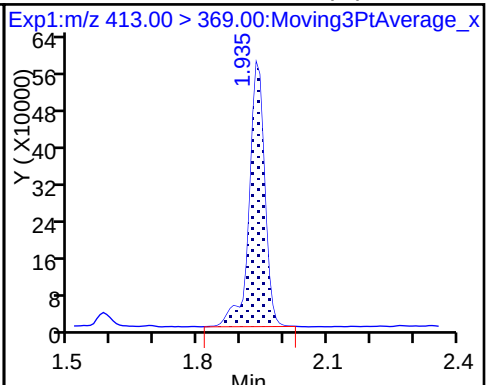
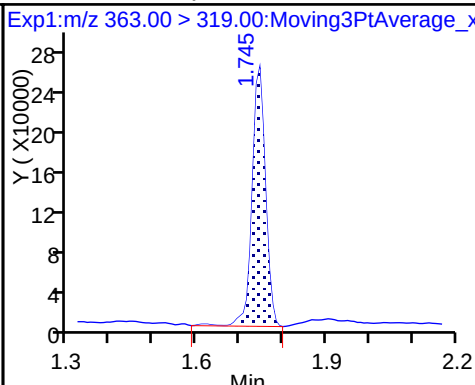
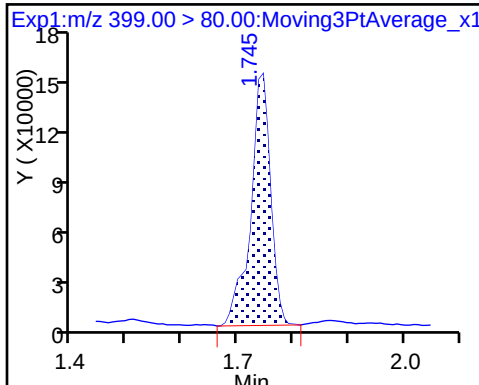
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

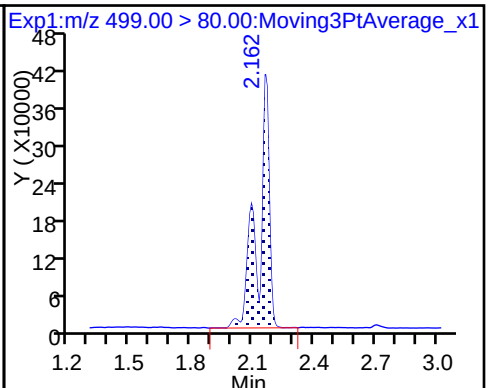
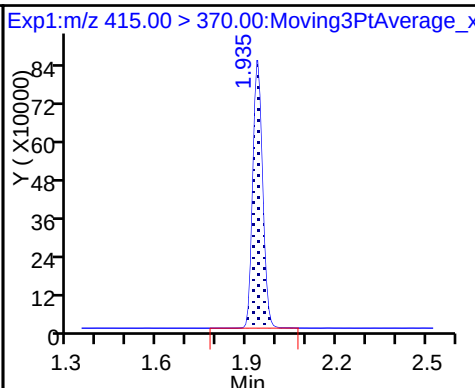
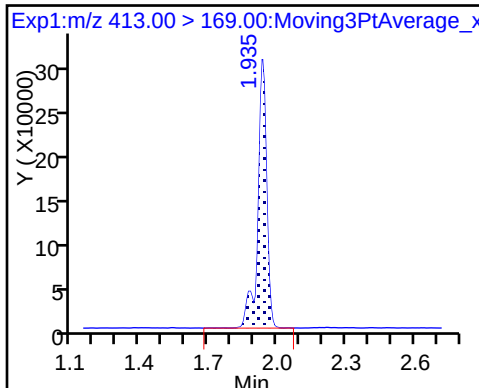
5 Perfluorooctanoic acid (M)



5 Perfluorooctanoic acid

* 6 13C2-PFOA

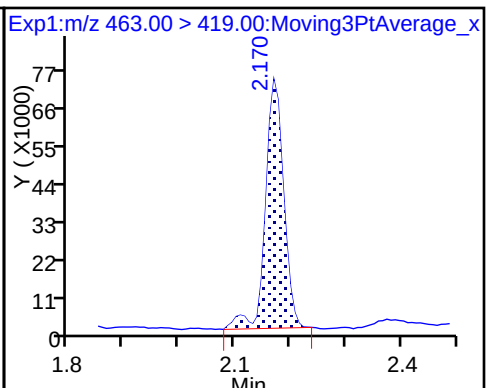
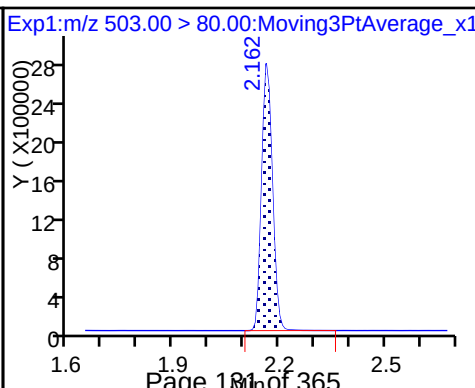
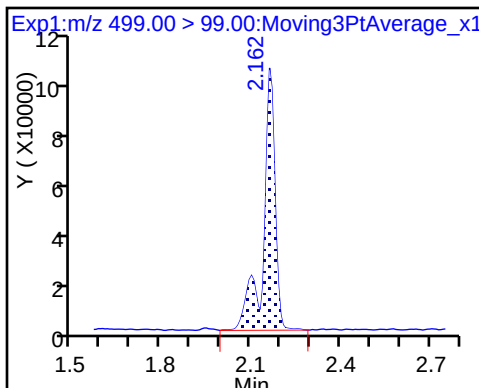
8 Perfluorooctane sulfonic acid



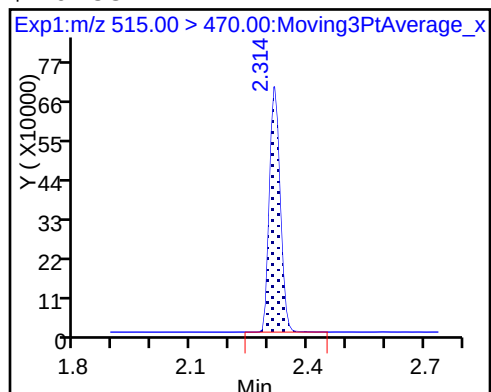
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_038.d
Lims ID: 320-30330-A-4-A
Client ID: WGNA-080117-RW-0443B
Sample Type: Client
Inject. Date: 16-Aug-2017 18:41:45 ALS Bottle#: 30 Worklist Smp#: 31
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-30330-a-4-a
Misc. Info.: Plate: 1 Rack: 4
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 17-Aug-2017 15:26:21 Calib Date: 14-Aug-2017 13:12:40
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
Column 1 : Det: EXP1
Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:10:57

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.65	86.49
\$ 10 13C2 PFDA	10.0	11.9	118.57

TestAmerica Sacramento

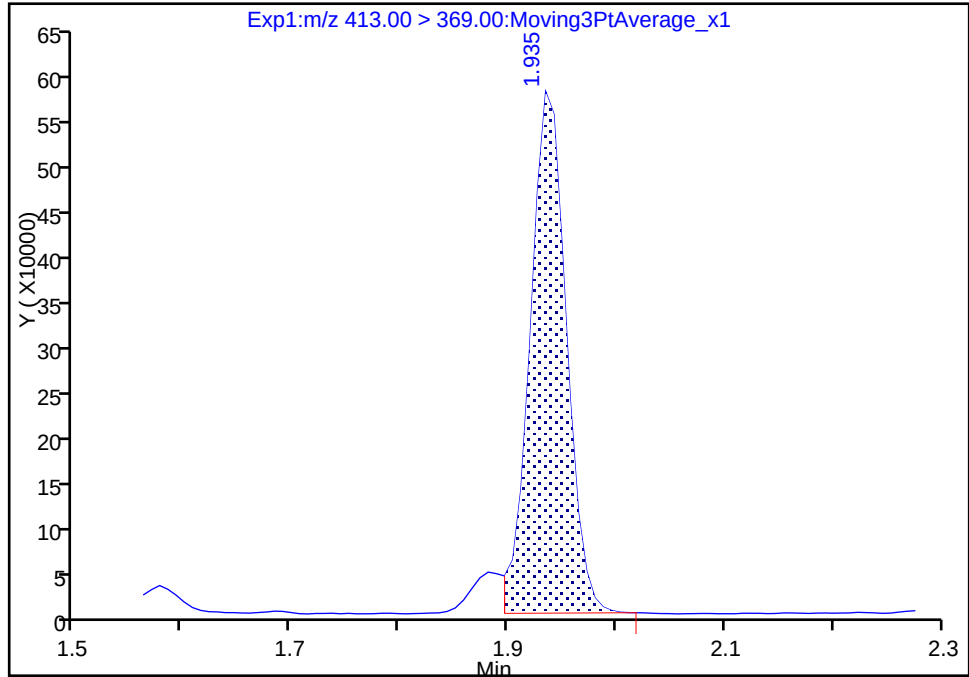
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_038.d
Injection Date: 16-Aug-2017 18:41:45 Instrument ID: A8_N
Lims ID: 320-30330-A-4-A Lab Sample ID: 320-30330-4
Client ID: WGNA-080117-RW-0443B
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 31
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

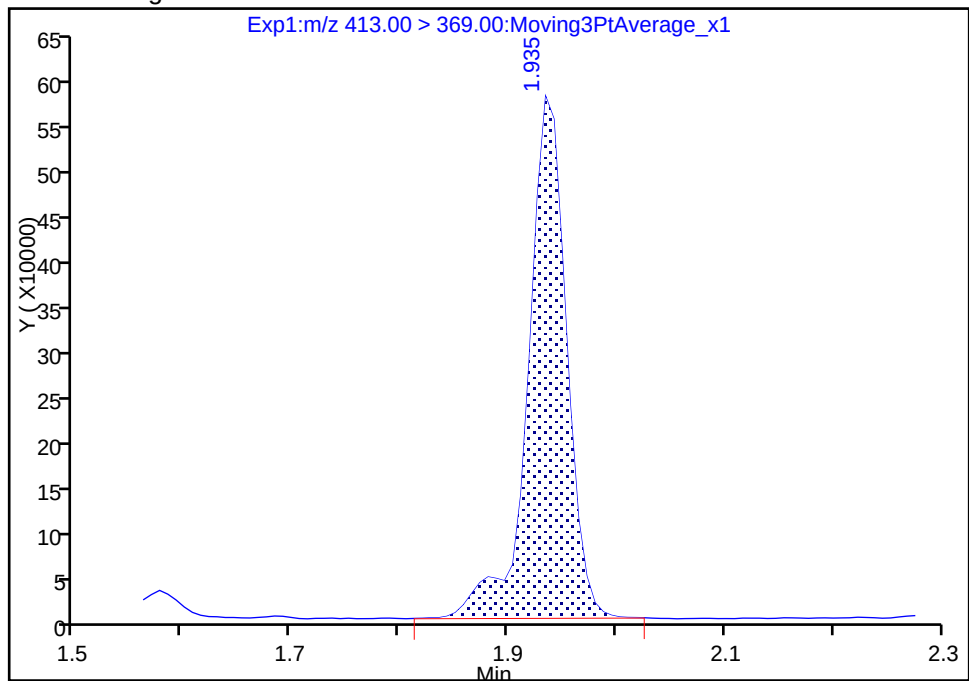
RT: 1.93
Area: 1324935
Amount: 7.799524
Amount Units: ng/ml

Processing Integration Results



RT: 1.93
Area: 1421130
Amount: 8.365798
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Aug-2017 13:10:36
Audit Action: Manually Integrated

Audit Reason: Isomers
Page 134 of 365

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-FRB-0443B</u>	Lab Sample ID: <u>320-30330-5</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_039.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 08:40</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>273.2 (mL)</u>	Date Analyzed: <u>08/16/2017 18:46</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179896</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	15	6.2
335-67-1	Perfluorooctanoic acid (PFOA)	7.3	U	18	7.3	2.6
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	27	11	5.0
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.2	3.7	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	82	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	122		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_039.d
 Lims ID: 320-30330-A-5-A
 Client ID: WGNA-080117-FRB-0443B
 Sample Type: Client
 Inject. Date: 16-Aug-2017 18:46:31 ALS Bottle#: 31 Worklist Smp#: 32
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-30330-a-5-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:21 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK030

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.582	-0.004	1.000	2147966	10.3		6687	
* 6 13C2-PFOA									
415.00 > 370.00	1.935	1.955	-0.020		1944014	10.0		5581	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.205	-0.043		5834473	28.7		4449	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.354	-0.040	1.000	1396367	12.2		5835	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_039.d

Injection Date: 16-Aug-2017 18:46:31

Instrument ID: A8_N

Lims ID: 320-30330-A-5-A

Lab Sample ID: 320-30330-5

Client ID: WGNA-080117-FRB-0443B

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 32

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

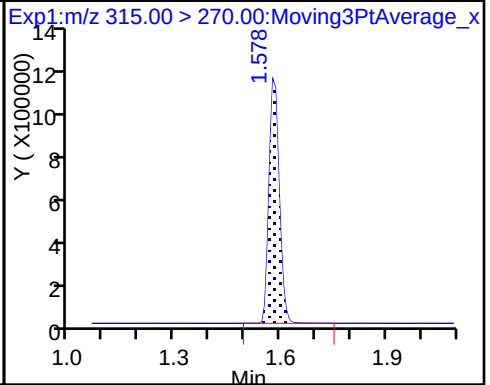
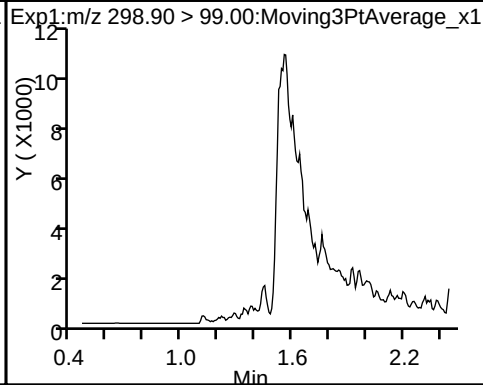
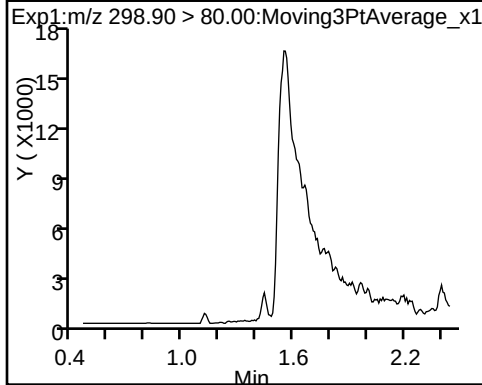
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

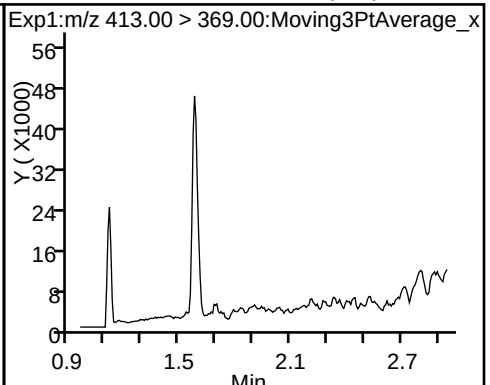
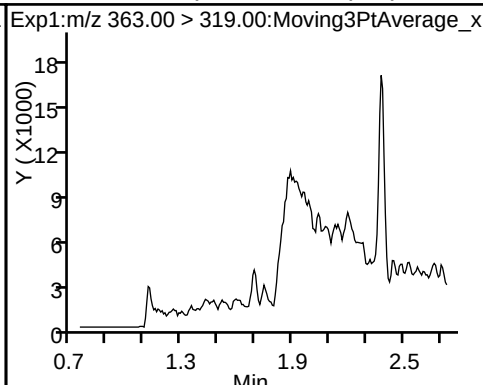
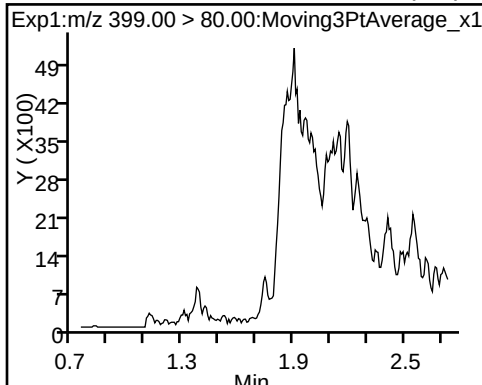
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

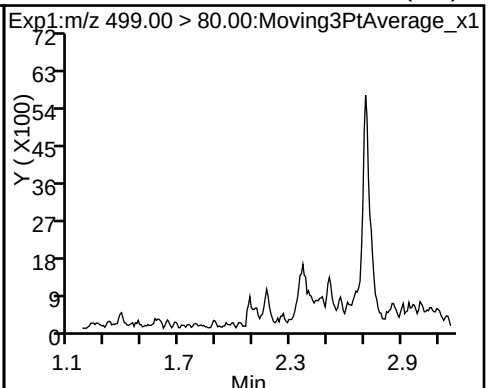
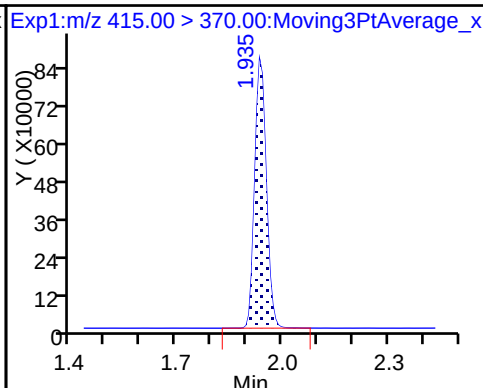
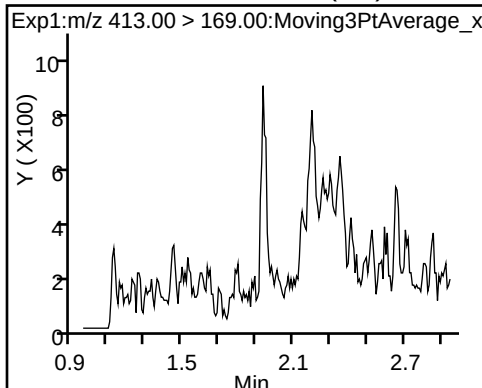
5 Perfluorooctanoic acid (ND)



5 Perfluorooctanoic acid (ND)

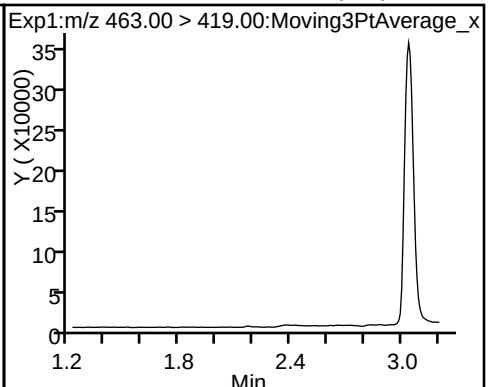
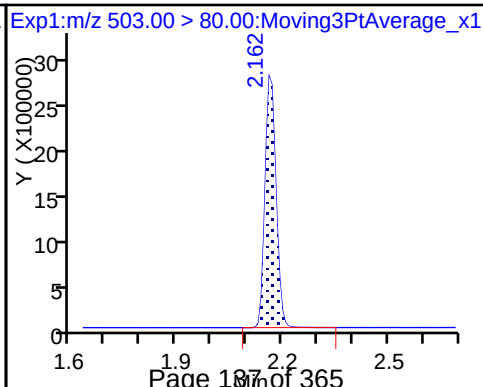
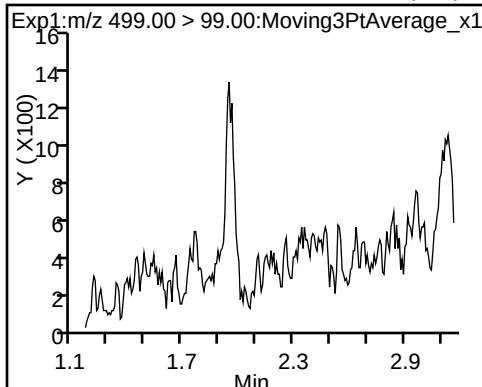
* 6 13C2-PFOA

8 Perfluorooctane sulfonic acid (ND)

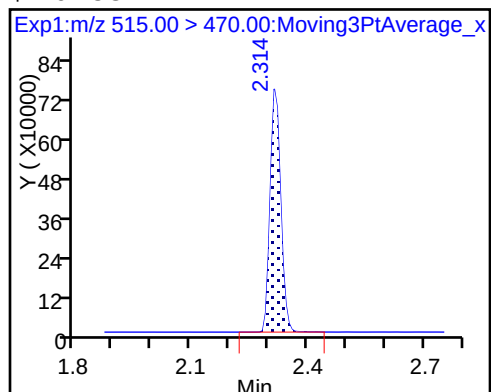


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_039.d
Lims ID: 320-30330-A-5-A
Client ID: WGNA-080117-FRB-0443B
Sample Type: Client
Inject. Date: 16-Aug-2017 18:46:31 ALS Bottle#: 31 Worklist Smp#: 32
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-30330-a-5-a
Misc. Info.: Plate: 1 Rack: 4
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 17-Aug-2017 15:26:21 Calib Date: 14-Aug-2017 13:12:40
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK030

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.3	103.33
\$ 10 13C2 PFDA	10.0	12.2	122.23

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-RW-0437</u>	Lab Sample ID: <u>320-30330-6</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_040.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 09:05</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>263.9(mL)</u>	Date Analyzed: <u>08/16/2017 18:51</u>
Con. Extract Vol.: <u>1.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179896</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	25	J	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	28	M	19	7.6	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U M	23	19	7.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	15	J	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.0	J	9.5	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	112		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_040.d
 Lims ID: 320-30330-A-6-A
 Client ID: WGNA-080117-RW-0437
 Sample Type: Client
 Inject. Date: 16-Aug-2017 18:51:17 ALS Bottle#: 32 Worklist Smp#: 33
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-30330-a-6-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:21 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
 Column 1 : Det: EXP1
 Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:12:20

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.442	1.453	-0.011	1.000	865694	3.76		167	
298.90 > 99.00	1.442	1.453	-0.011	1.000	555010		1.56(0.00-0.00)	201	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.582	-0.004	1.000	1820706	9.06		5915	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.745	1.742	0.003	1.000	1254915	4.08		278	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.745	1.742	0.003	1.000	298934	1.86		29.1	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.942	1.955	-0.013	1.000	1277941	7.49		53.7	M
413.00 > 169.00	1.942	1.955	-0.013	1.000	741294		1.72(0.00-0.00)	1001	M
* 6 13C2-PFOA									
415.00 > 370.00	1.942	1.955	-0.013		1880459	10.0		6474	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.170	2.155	0.015	1.000	1233475	6.49		314	
499.00 > 99.00	2.170	2.155	0.015	1.000	221478		5.57(0.00-0.00)	127	
* 7 13C4 PFOS									
503.00 > 80.00	2.170	2.205	-0.035		5905510	28.7		3196	
9 Perfluorononanoic acid									
463.00 > 419.00	2.177	2.213	-0.036	1.000	91692	0.8607		2.5	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.322	2.354	-0.032	1.000	1238287	11.2		5737	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_040.d

Injection Date: 16-Aug-2017 18:51:17

Instrument ID: A8_N

Lims ID: 320-30330-A-6-A

Lab Sample ID: 320-30330-6

Client ID: WGNA-080117-RW-0437

Operator ID: SACINSTLCMS01

ALS Bottle#: 32

Worklist Smp#: 33

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

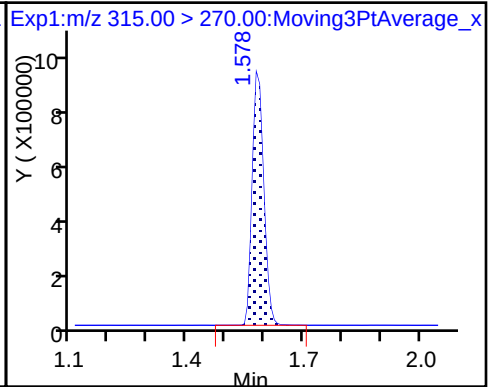
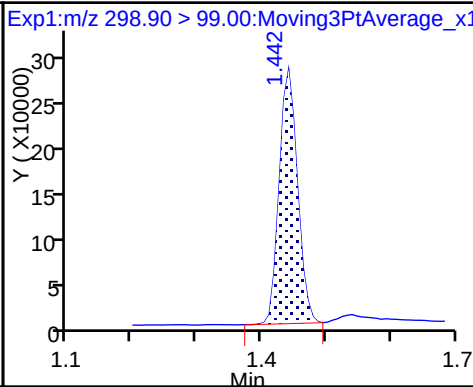
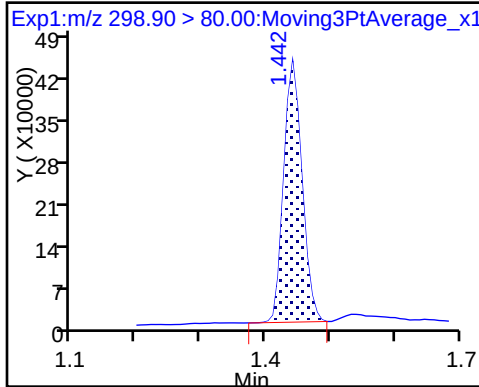
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

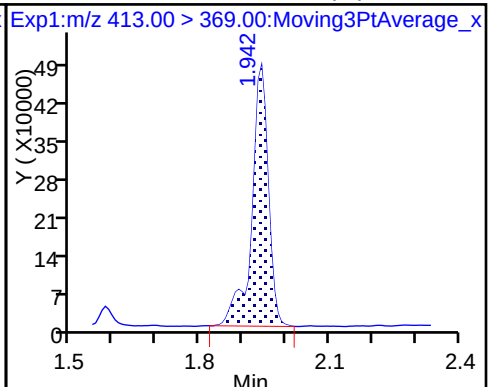
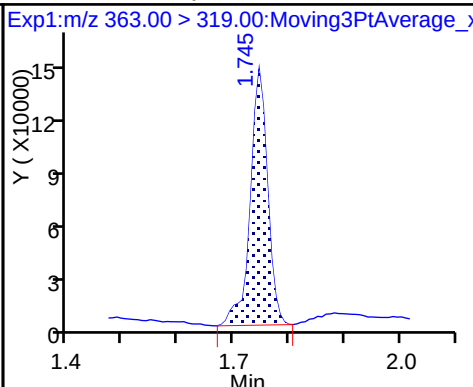
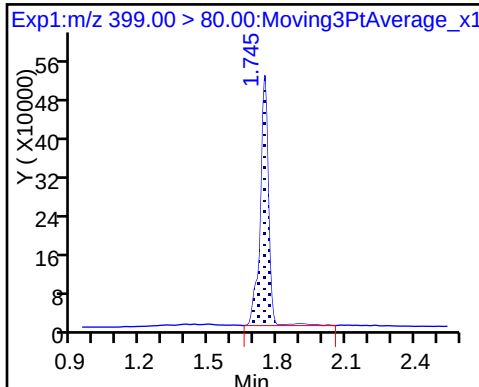
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

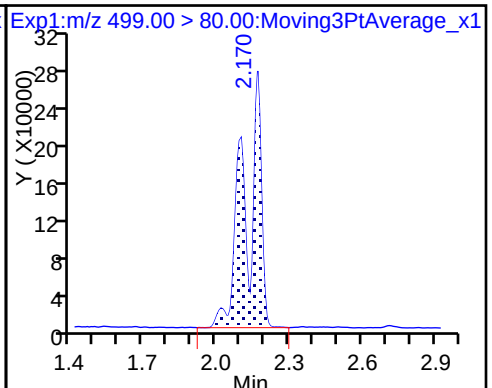
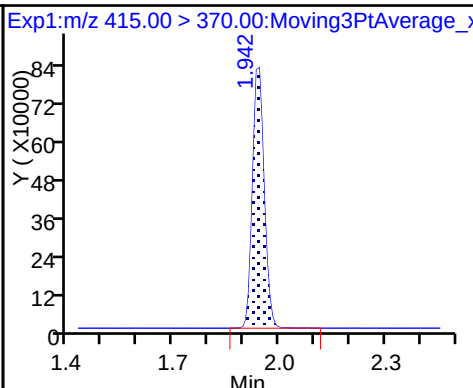
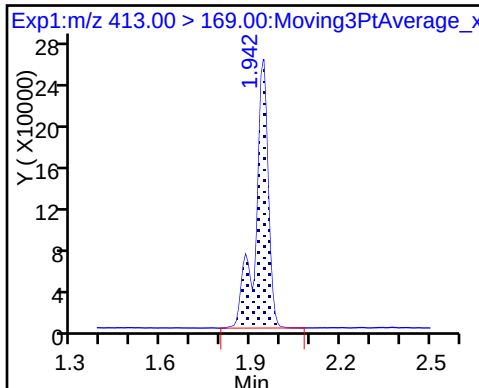
5 Perfluorooctanoic acid (M)



5 Perfluorooctanoic acid

* 6 13C2-PFOA

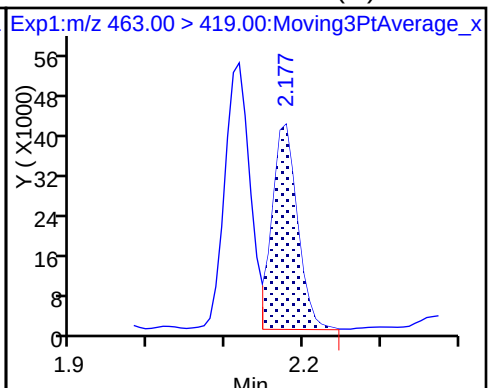
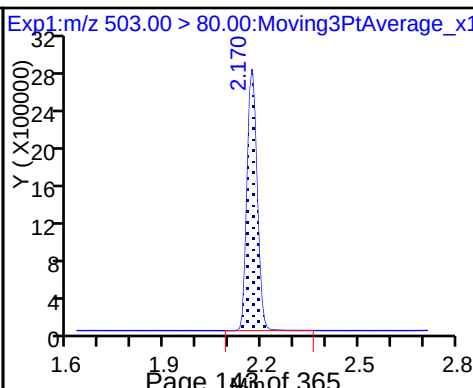
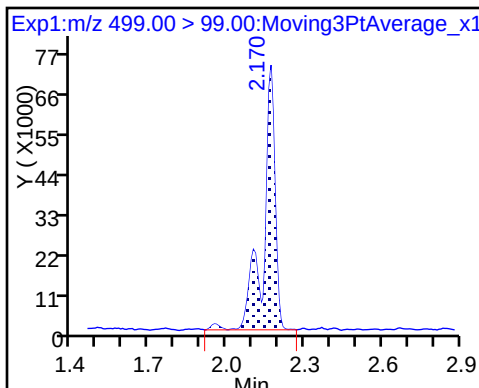
8 Perfluorooctane sulfonic acid



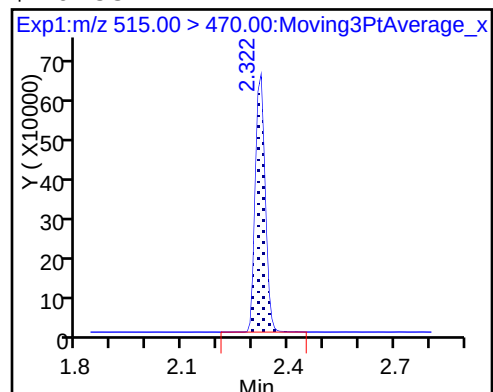
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_040.d
Lims ID: 320-30330-A-6-A
Client ID: WGNA-080117-RW-0437
Sample Type: Client
Inject. Date: 16-Aug-2017 18:51:17 ALS Bottle#: 32 Worklist Smp#: 33
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-30330-a-6-a
Misc. Info.: Plate: 1 Rack: 4
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 17-Aug-2017 15:26:21 Calib Date: 14-Aug-2017 13:12:40
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
Column 1 : Det: EXP1
Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:12:20

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.06	90.55
\$ 10 13C2 PFDA	10.0	11.2	112.05

TestAmerica Sacramento

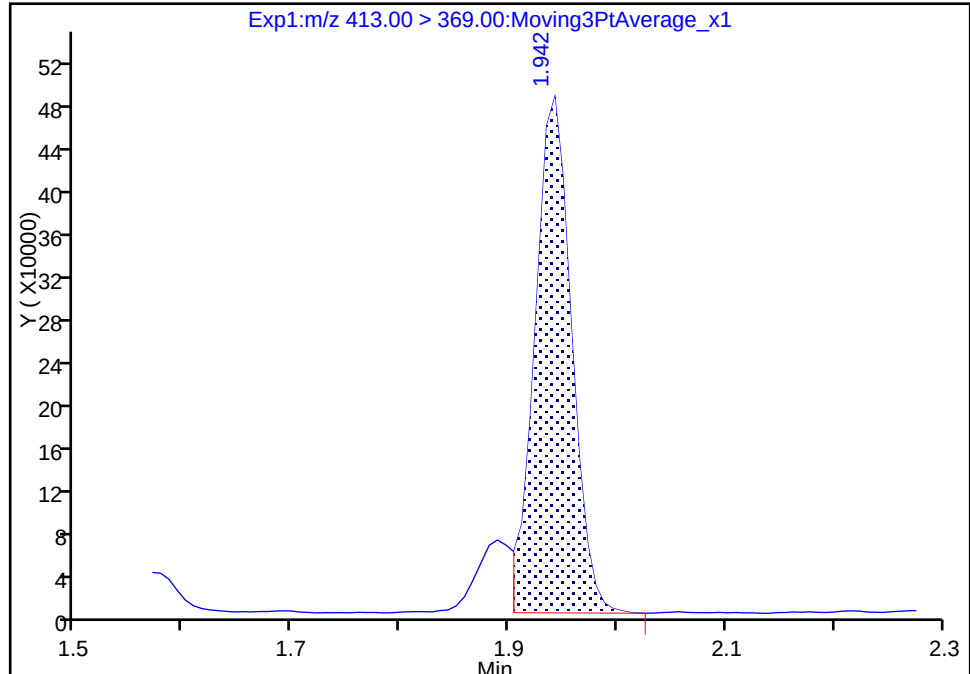
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_040.d				
Injection Date:	16-Aug-2017 18:51:17	Instrument ID:	A8_N		
Lims ID:	320-30330-A-6-A	Lab Sample ID:	320-30330-6		
Client ID:	WGNA-080117-RW-0437				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	32	Worklist Smp#:	33
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

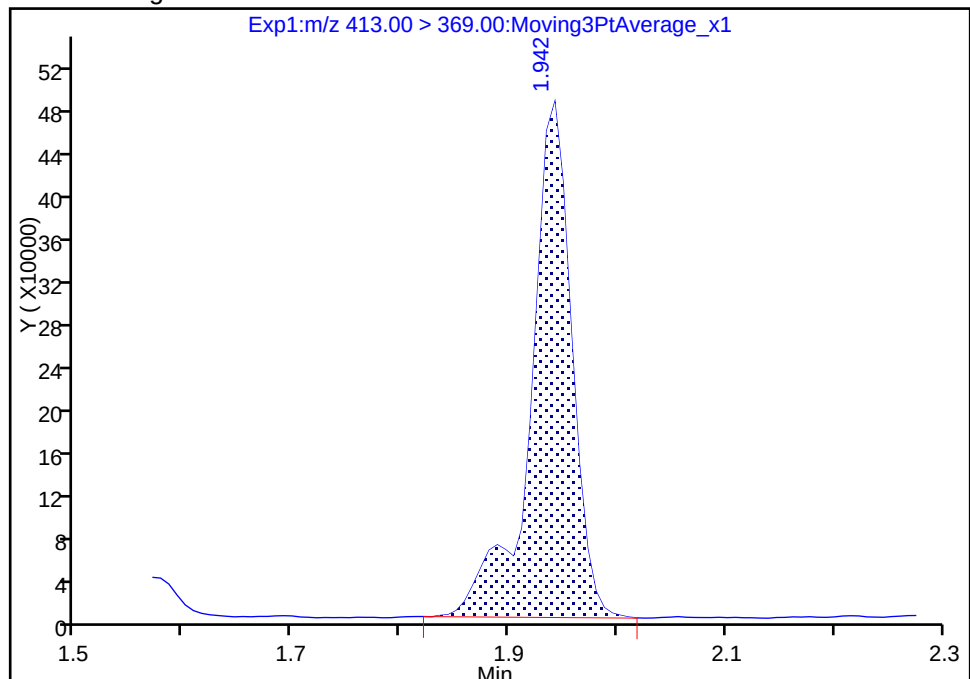
RT: 1.94
Area: 1132785
Amount: 6.642848
Amount Units: ng/ml

Processing Integration Results



RT: 1.94
Area: 1277941
Amount: 7.494068
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Aug-2017 13:11:42
Audit Action: Manually Integrated

Audit Reason: Isomers
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TestAmerica Sacramento

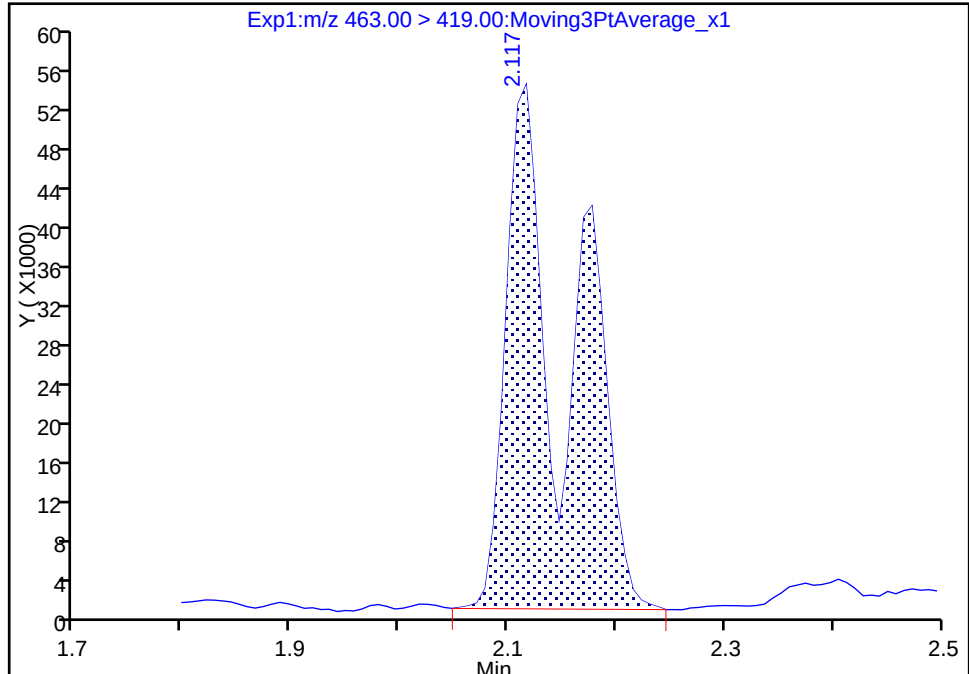
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_040.d
Injection Date: 16-Aug-2017 18:51:17 Instrument ID: A8_N
Lims ID: 320-30330-A-6-A Lab Sample ID: 320-30330-6
Client ID: WGNA-080117-RW-0437
Operator ID: SACINSTLCMS01 ALS Bottle#: 32 Worklist Smp#: 33
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

9 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

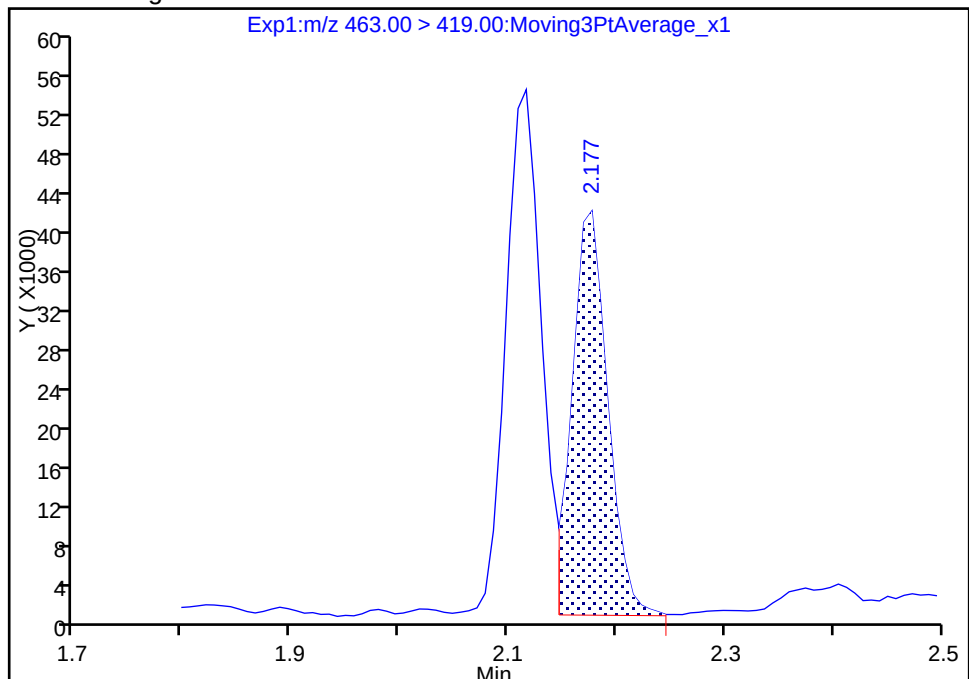
RT: 2.12
Area: 209797
Amount: 1.969424
Amount Units: ng/ml

Processing Integration Results



RT: 2.18
Area: 91692
Amount: 0.860739
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Aug-2017 13:12:13
Audit Action: Manually Integrated

Audit Reason: Split Peak
Page 147 of 365

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-FRB-0437</u>	Lab Sample ID: <u>320-30330-7</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_041.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 09:00</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>265.2 (mL)</u>	Date Analyzed: <u>08/16/2017 18:56</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179896</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	7.5	U	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.4	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	108		70-130
STL00996	13C2 PFDA	128		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_041.d
 Lims ID: 320-30330-A-7-A
 Client ID: WGNA-080117-FRB-0437
 Sample Type: Client
 Inject. Date: 16-Aug-2017 18:56:04 ALS Bottle#: 33 Worklist Smp#: 34
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-30330-a-7-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:21 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK030

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.582	-0.004	1.000	2165814	10.8		7257	
* 6 13C2-PFOA									
415.00 > 370.00	1.935	1.955	-0.020		1870664	10.0		6222	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.205	-0.043		5692153	28.7		4951	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.354	-0.040	1.000	1407482	12.8		6658	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_041.d

Injection Date: 16-Aug-2017 18:56:04

Instrument ID: A8_N

Lims ID: 320-30330-A-7-A

Lab Sample ID: 320-30330-7

Client ID: WGNA-080117-FRB-0437

Operator ID: SACINSTLCMS01

ALS Bottle#: 33

Worklist Smp#: 34

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

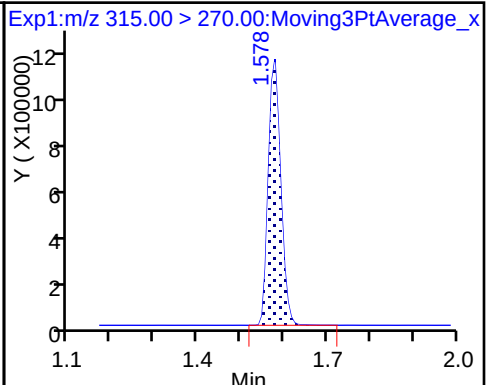
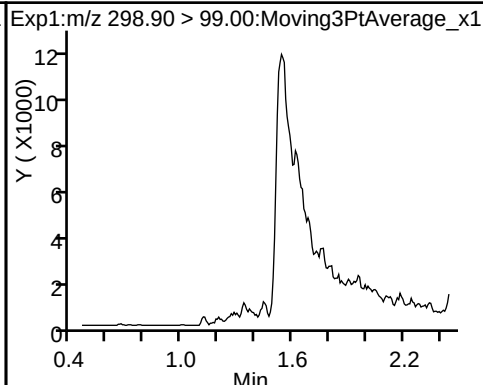
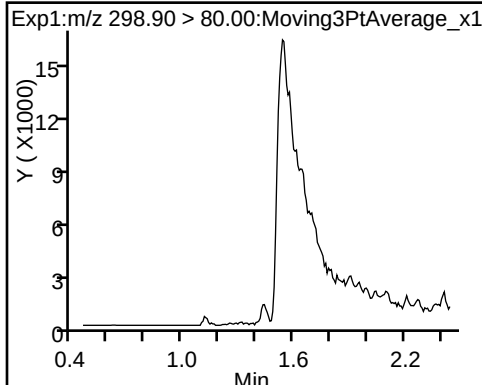
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

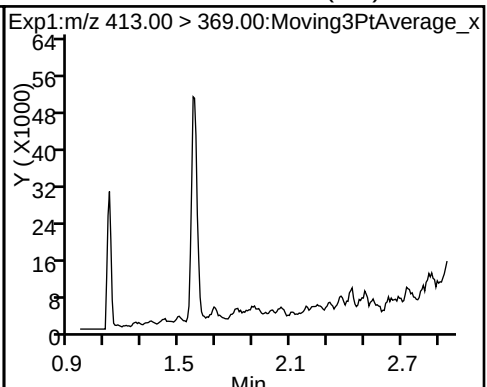
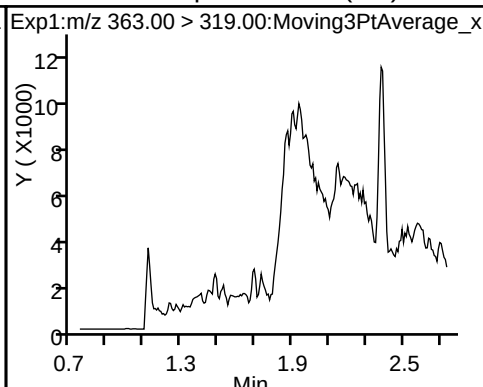
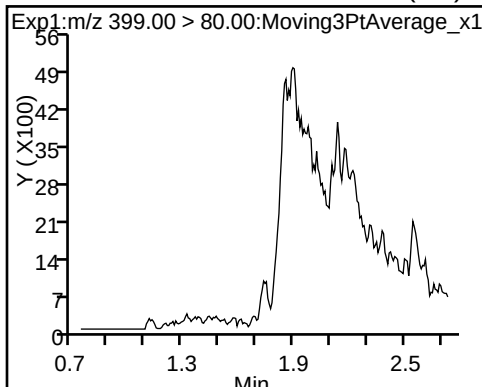
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

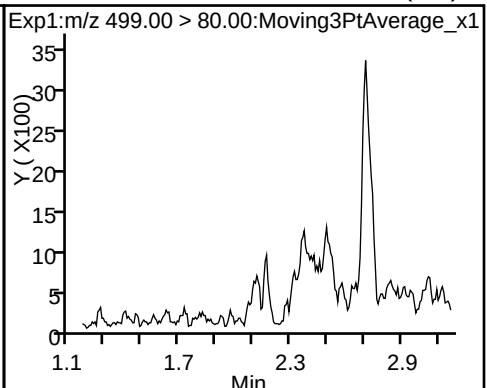
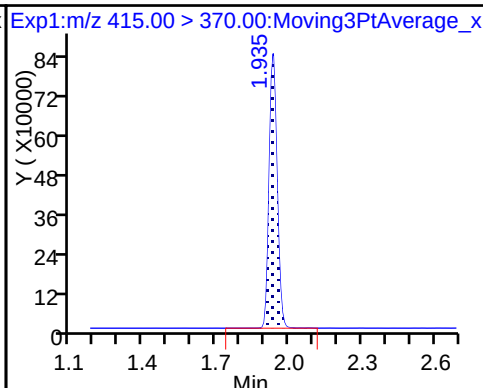
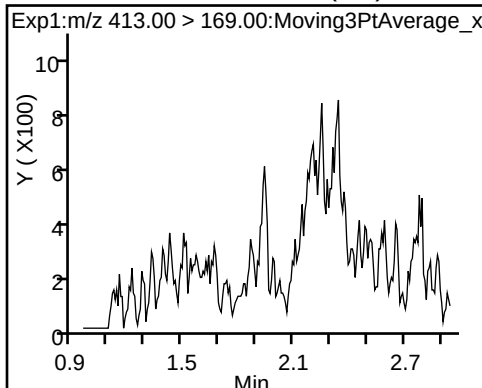
5 Perfluorooctanoic acid (ND)



5 Perfluorooctanoic acid (ND)

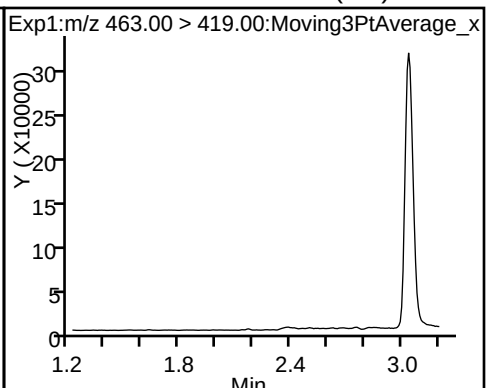
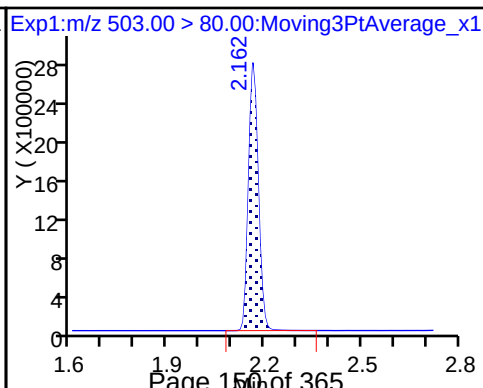
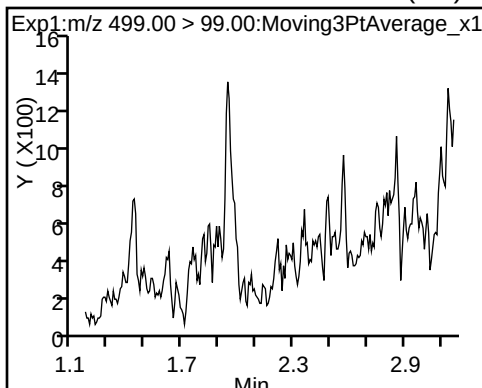
* 6 13C2-PFOA

8 Perfluorooctane sulfonic acid (ND)

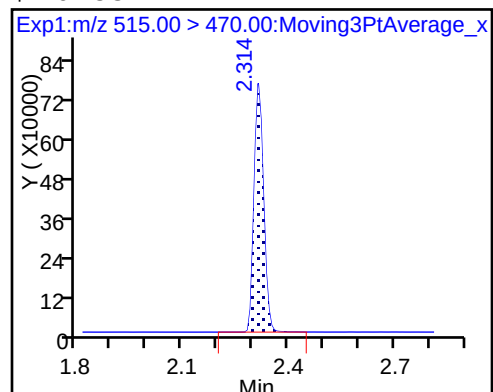


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_041.d
Lims ID: 320-30330-A-7-A
Client ID: WGNA-080117-FRB-0437
Sample Type: Client
Inject. Date: 16-Aug-2017 18:56:04 ALS Bottle#: 33 Worklist Smp#: 34
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-30330-a-7-a
Misc. Info.: Plate: 1 Rack: 4
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 17-Aug-2017 15:26:21 Calib Date: 14-Aug-2017 13:12:40
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK030

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.8	108.28
\$ 10 13C2 PFDA	10.0	12.8	128.03

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Client Sample ID: WGNA-080117-RW-3178A Lab Sample ID: 320-30330-8

Matrix: Water Lab File ID: 2017.08.17_537A_030.d

Analysis Method: 537 Date Collected: 08/01/2017 09:40

Extraction Method: 537 Date Extracted: 08/04/2017 09:11

Sample wt/vol: 261.3(mL) Date Analyzed: 08/17/2017 20:17

Con. Extract Vol.: 1.00(mL) Dilution Factor: 1

Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: _____ GPC Cleanup: (Y/N) N

Analysis Batch No.: 180242 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18	J	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	11	J	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.0	J	29	11	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.3	J	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	86	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	84		70-130
STL00996	13C2 PFDA	101		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\2017.08.17_537A_030.d
 Lims ID: 320-30330-A-8-A
 Client ID: WGNA-080117-RW-3178A
 Sample Type: Client
 Inject. Date: 17-Aug-2017 20:17:17 ALS Bottle#: 34 Worklist Smp#: 30
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-30330-a-8-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 21-Aug-2017 10:47:24 Calib Date: 17-Aug-2017 17:30:56
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK001

First Level Reviewer: barnettj

Date: 21-Aug-2017 10:45:39

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.438	-0.012	1.000	356469	1.74		65.7	
298.90 > 99.00	1.426	1.438	-0.012	1.000	218265		1.63(0.00-0.00)	60.6	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.568	-0.020	1.000	1764568	8.36		7173	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.699	1.722	-0.023	1.000	149173	0.8519		12.3	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.699	1.722	-0.023	1.000	612381	2.09		113	
* 6 13C2-PFOA									
415.00 > 370.00	1.897	1.928	-0.031		1859989	10.0		6113	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.897	1.928	-0.031	1.000	498197	2.92		21.0	
413.00 > 169.00	1.897	1.928	-0.031	1.000	289089		1.72(0.00-0.00)	403	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.155	2.147	0.008	1.000	834492	4.77		126	
499.00 > 99.00	2.147	2.147	0.0	0.996	135096		6.18(0.00-0.00)	49.3	
* 7 13C4 PFOS									
503.00 > 80.00	2.147	2.185	-0.038		5454663	28.7		1896	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.342	-0.028	1.000	1226015	10.1		7153	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\2017.08.17_537A_030.d

Injection Date: 17-Aug-2017 20:17:17

Instrument ID: A8_N

Lims ID: 320-30330-A-8-A

Lab Sample ID: 320-30330-8

Client ID: WGNA-080117-RW-3178A

Operator ID: SACINSTLCMS01

ALS Bottle#: 34

Worklist Smp#: 30

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

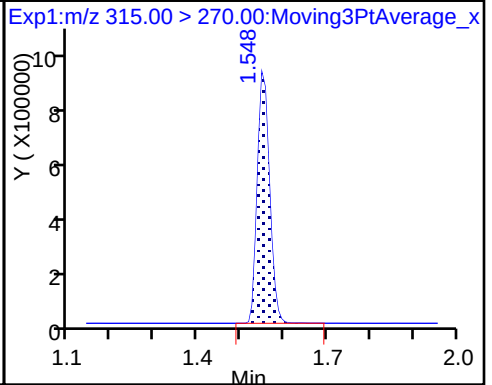
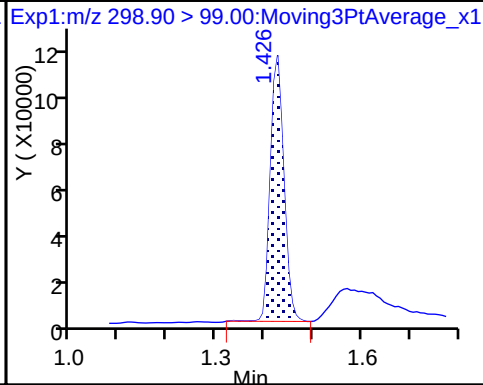
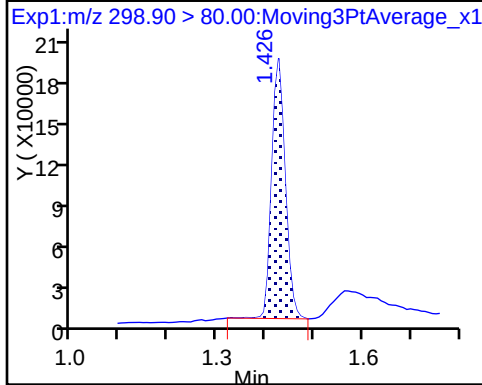
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

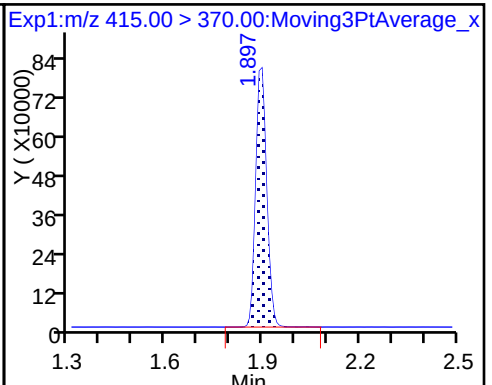
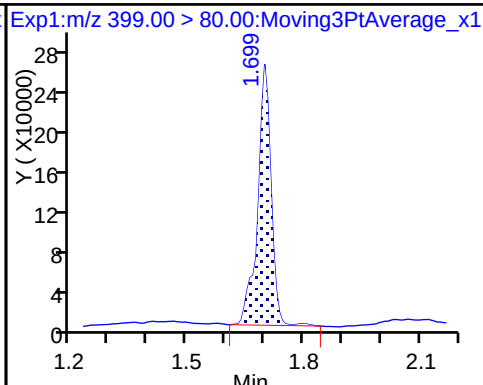
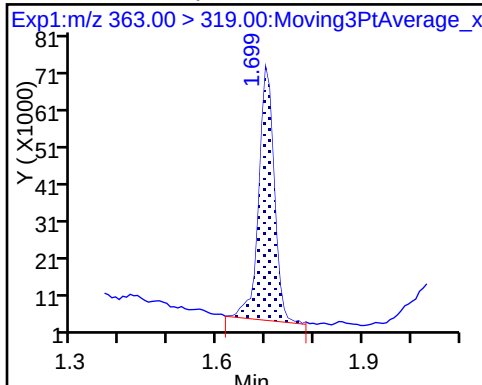
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

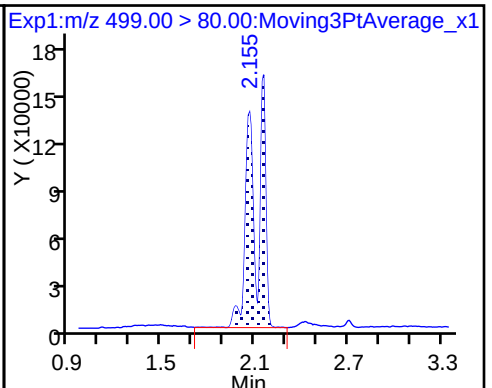
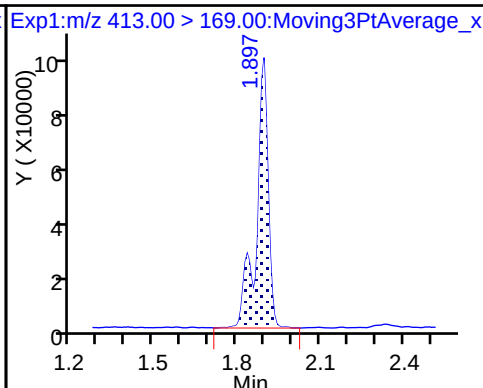
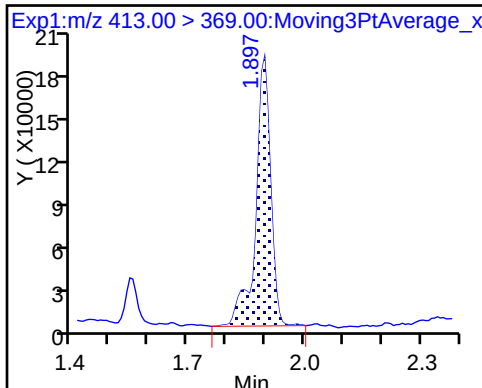
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

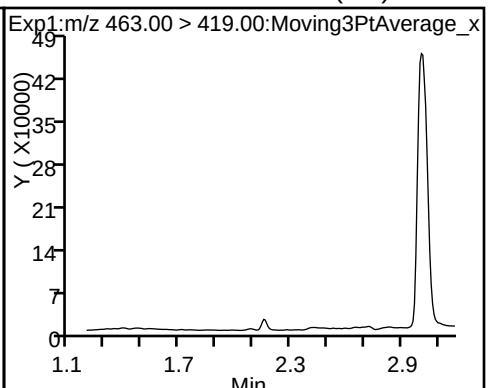
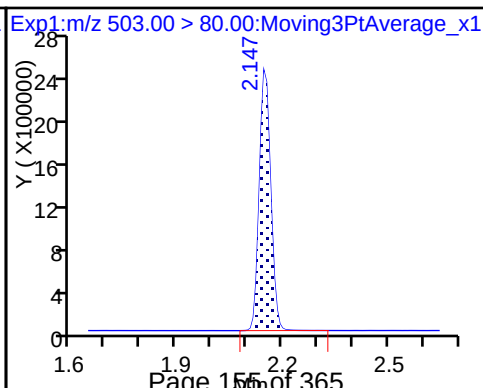
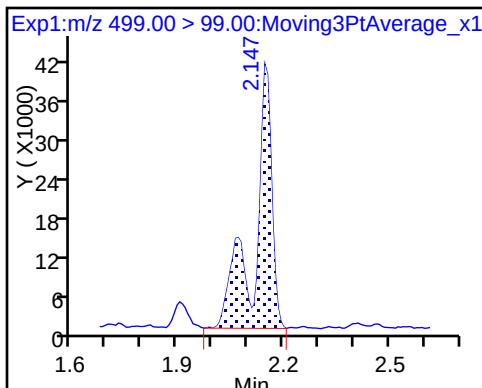
8 Perfluorooctane sulfonic acid



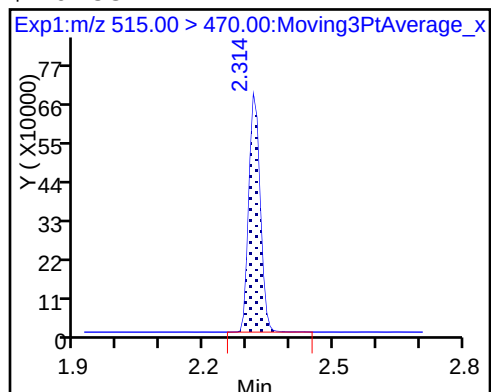
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\2017.08.17_537A_030.d
Lims ID: 320-30330-A-8-A
Client ID: WGNA-080117-RW-3178A
Sample Type: Client
Inject. Date: 17-Aug-2017 20:17:17 ALS Bottle#: 34 Worklist Smp#: 30
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-30330-a-8-a
Misc. Info.: Plate: 1 Rack: 4
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 21-Aug-2017 10:47:24 Calib Date: 17-Aug-2017 17:30:56
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_009.d
Column 1 : Det: EXP1
Process Host: XAWRK001

First Level Reviewer: barnettj

Date: 21-Aug-2017 10:45:39

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.36	83.58
\$ 10 13C2 PFDA	10.0	10.1	100.91

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-RW-3178B</u>	Lab Sample ID: <u>320-30330-9</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_045.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 09:35</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>256.2 (mL)</u>	Date Analyzed: <u>08/16/2017 19:15</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179897</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	26	J	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	14	J M	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.8	J	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	124		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_045.d
 Lims ID: 320-30330-A-9-A
 Client ID: WGNA-080117-RW-3178B
 Sample Type: Client
 Inject. Date: 16-Aug-2017 19:15:04 ALS Bottle#: 35 Worklist Smp#: 38
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-30330-a-9-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:32 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
 Column 1 : Det: EXP1
 Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:14:03

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.434	1.453	-0.019	1.000	286514	1.26		60.6	
298.90 > 99.00	1.434	1.453	-0.019	1.000	183101		1.56(0.00-0.00)	65.4	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.582	-0.004	1.000	1795647	8.75		5410	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.737	1.742	-0.005	1.000	607906	2.01		106	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.737	1.742	-0.005	1.000	162689	0.9898		14.2	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.935	1.955	-0.020	1.000	632056	3.63		28.7	M
413.00 > 169.00	1.927	1.955	-0.028	0.996	364780		1.73(0.00-0.00)	511	M
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.955	-0.028		1920039	10.0		5962	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.155	0.007	1.000	1229967	6.57		289	
499.00 > 99.00	2.162	2.155	0.007	1.000	201009		6.12(0.00-0.00)	110	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.205	-0.043		5812728	28.7		3235	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.213	-0.043	1.000	56224	0.5169		1.7	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.354	-0.040	1.000	1403850	12.4		6754	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_045.d

Injection Date: 16-Aug-2017 19:15:04

Instrument ID: A8_N

Lims ID: 320-30330-A-9-A

Lab Sample ID: 320-30330-9

Client ID: WGNA-080117-RW-3178B

Operator ID: SACINSTLCMS01

ALS Bottle#: 35

Worklist Smp#: 38

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

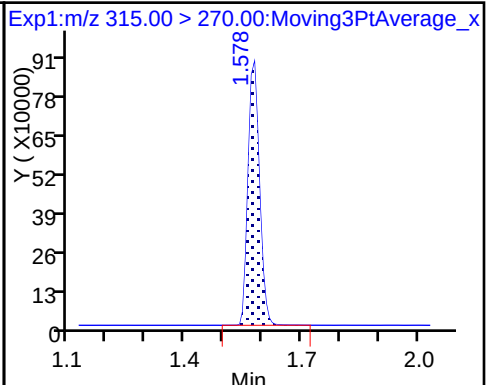
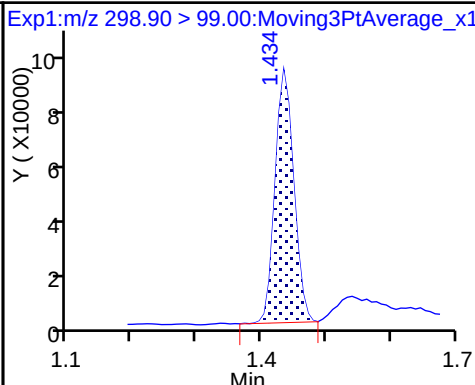
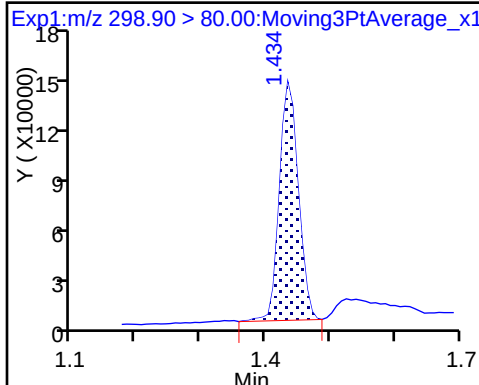
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

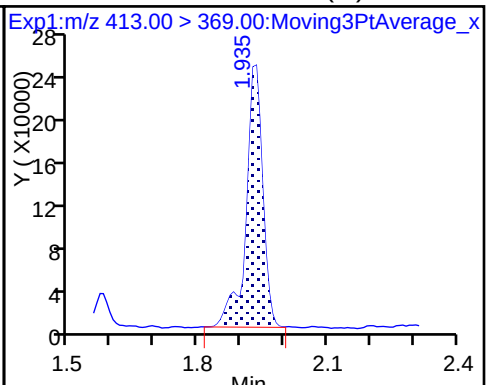
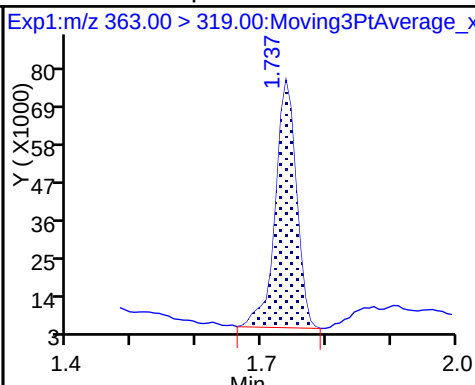
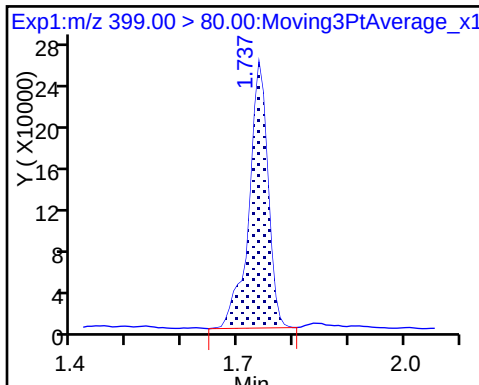
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

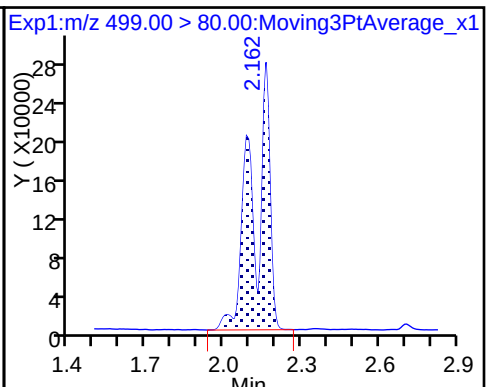
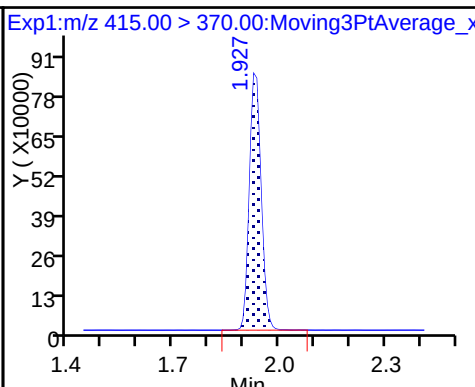
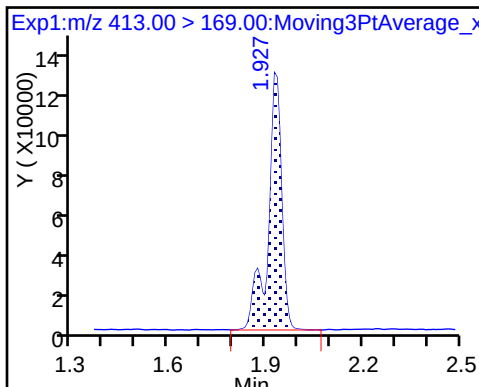
5 Perfluorooctanoic acid (M)



5 Perfluorooctanoic acid

* 6 13C2-PFOA

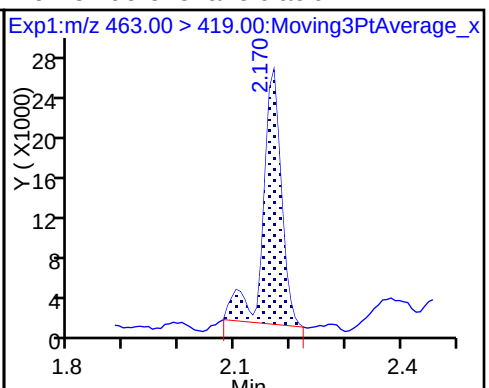
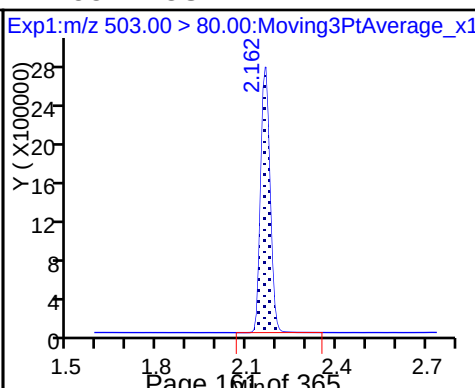
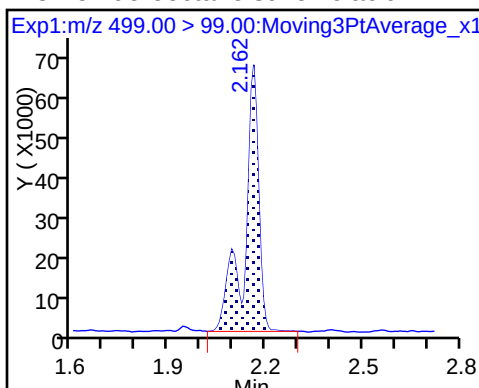
8 Perfluorooctane sulfonic acid



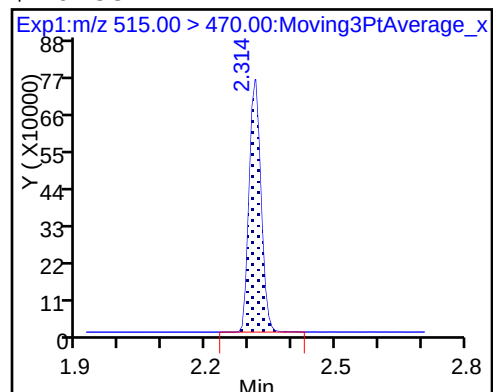
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_045.d
Lims ID: 320-30330-A-9-A
Client ID: WGNA-080117-RW-3178B
Sample Type: Client
Inject. Date: 16-Aug-2017 19:15:04 ALS Bottle#: 35 Worklist Smp#: 38
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-30330-a-9-a
Misc. Info.: Plate: 1 Rack: 4
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 17-Aug-2017 15:26:32 Calib Date: 14-Aug-2017 13:12:40
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
Column 1 : Det: EXP1
Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:14:03

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.75	87.46
\$ 10 13C2 PFDA	10.0	12.4	124.42

TestAmerica Sacramento

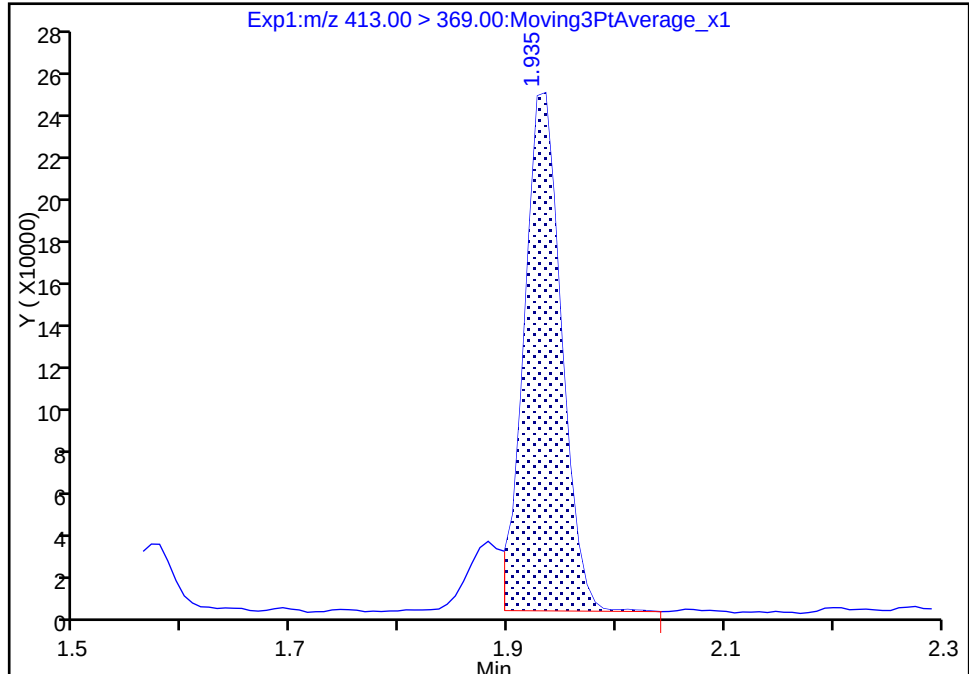
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Injection Date: 16-Aug-2017 19:15:04 Instrument ID: A8_N
Lims ID: 320-30330-A-9-A Lab Sample ID: 320-30330-9
Client ID: WGNA-080117-RW-3178B
Operator ID: SACINSTLCMS01 ALS Bottle#: 35 Worklist Smp#: 38
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

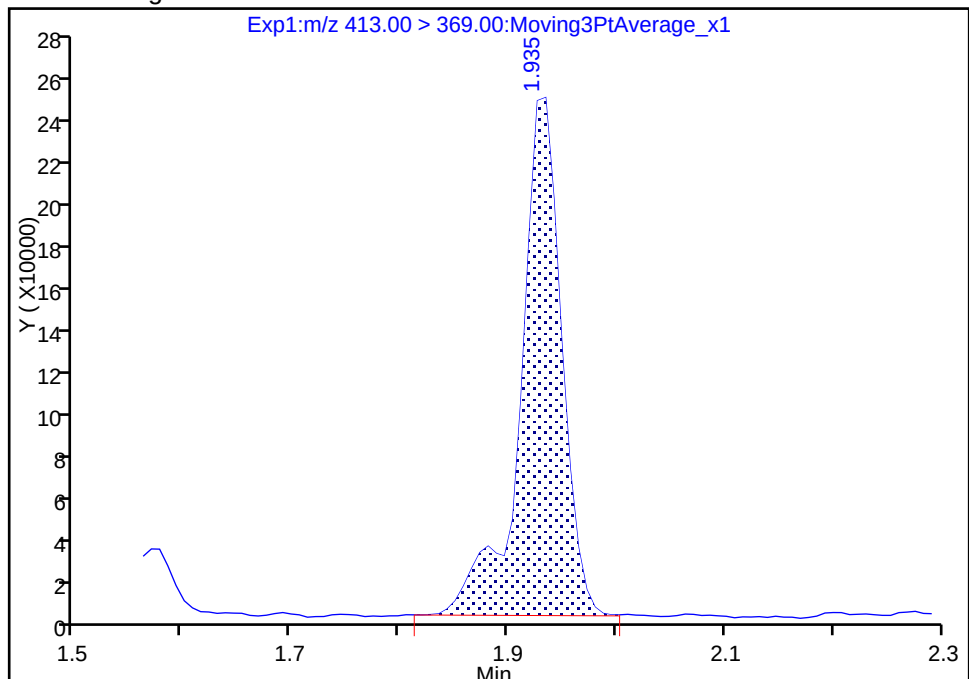
RT: 1.93
Area: 566505
Amount: 3.253602
Amount Units: ng/ml

Processing Integration Results



RT: 1.93
Area: 632056
Amount: 3.630080
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Aug-2017 13:13:45
Audit Action: Manually Integrated

Audit Reason: Isomers

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-FRB-3178B</u>	Lab Sample ID: <u>320-30330-10</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_048.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 09:30</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>269.4 (mL)</u>	Date Analyzed: <u>08/16/2017 19:29</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179897</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	7.4	U	19	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.3	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	84	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	105		70-130
STL00996	13C2 PFDA	126		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_048.d
 Lims ID: 320-30330-A-10-A
 Client ID: WGNA-080117-FRB-3178B
 Sample Type: Client
 Inject. Date: 16-Aug-2017 19:29:20 ALS Bottle#: 38 Worklist Smp#: 41
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-30330-a-10-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:32 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK030

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.582	-0.004	1.000	2166952	10.5		6479	
* 6 13C2-PFOA									
415.00 > 370.00	1.935	1.955	-0.020		1934711	10.0		6081	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.205	-0.043		5721899	28.7		5532	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.354	-0.040	1.000	1429834	12.6		8173	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_048.d

Injection Date: 16-Aug-2017 19:29:20

Instrument ID: A8_N

Lims ID: 320-30330-A-10-A

Lab Sample ID: 320-30330-10

Client ID: WGNA-080117-FRB-3178B

Operator ID: SACINSTLCMS01

ALS Bottle#: 38

Worklist Smp#: 41

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

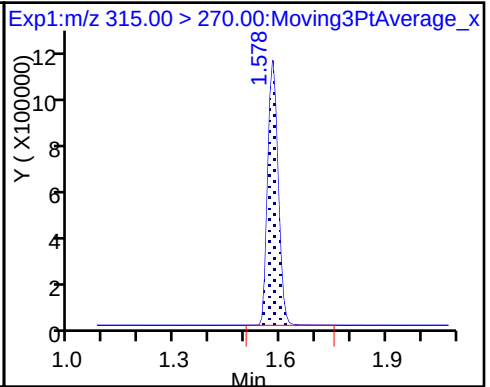
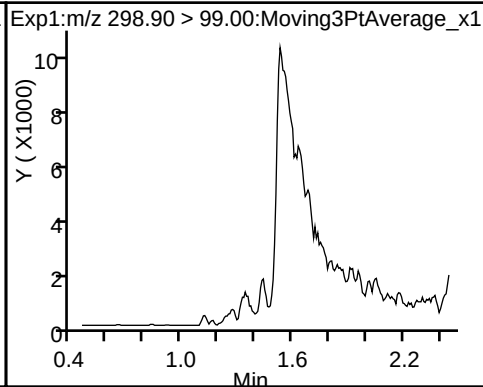
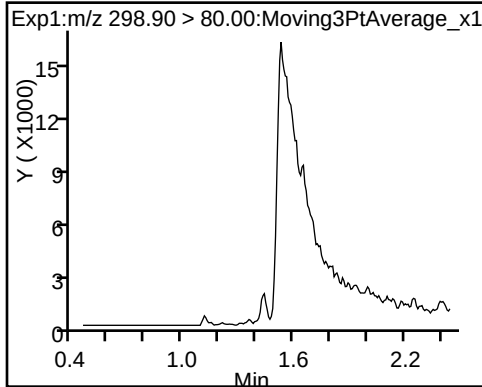
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

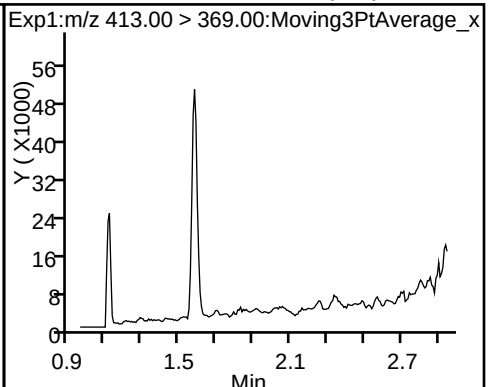
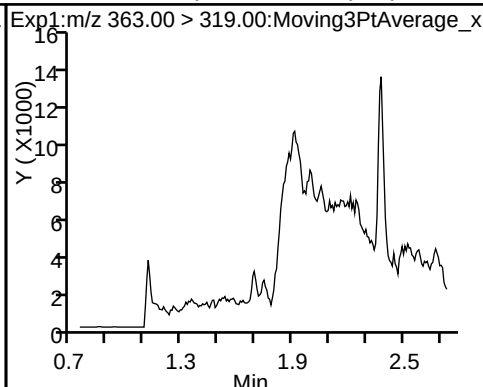
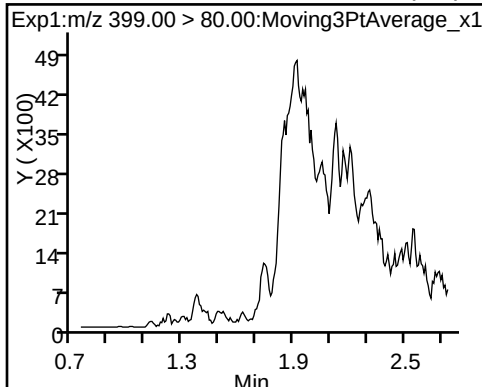
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

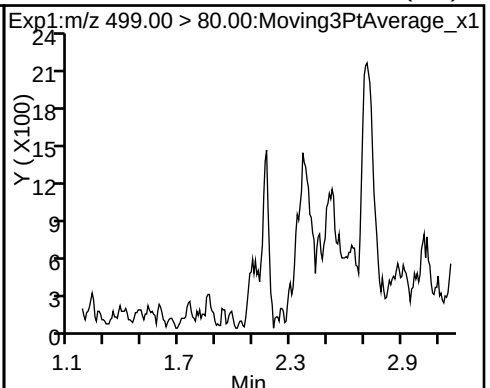
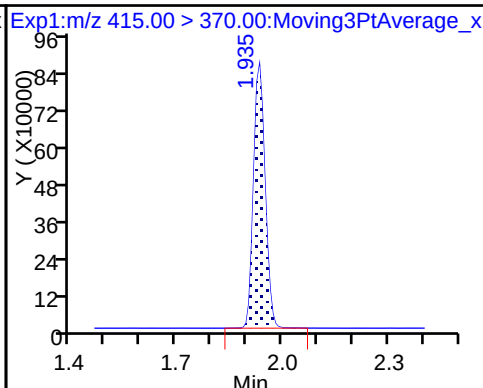
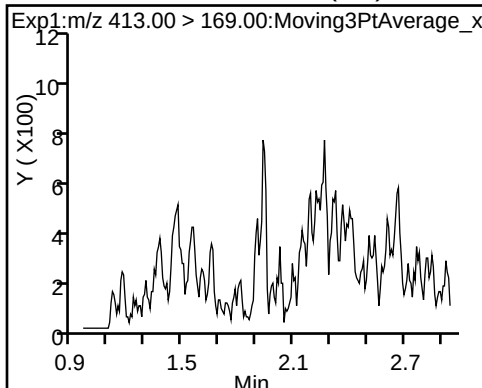
5 Perfluorooctanoic acid (ND)



5 Perfluorooctanoic acid (ND)

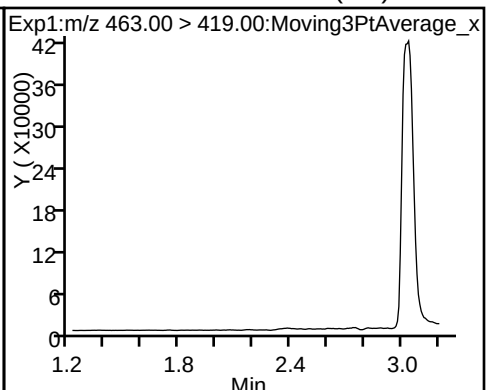
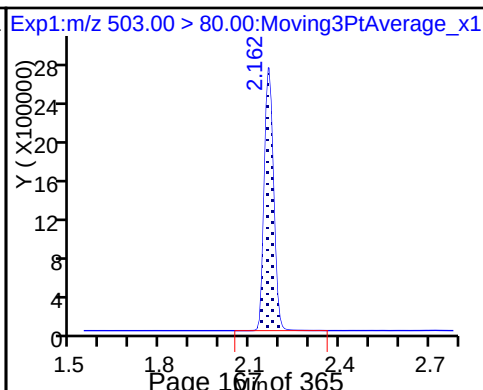
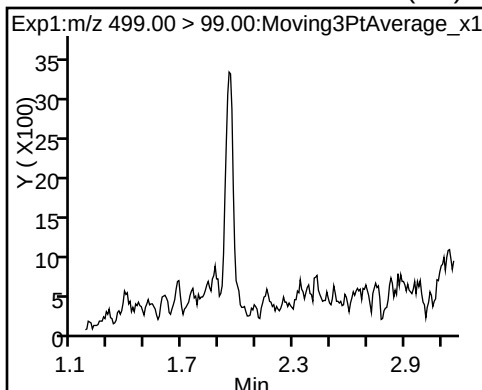
* 6 13C2-PFOA

8 Perfluorooctane sulfonic acid (ND)

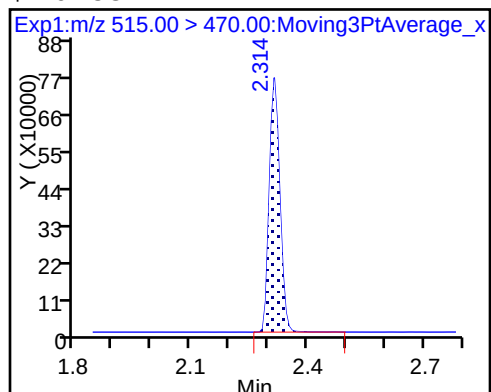


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_048.d
Lims ID: 320-30330-A-10-A
Client ID: WGNA-080117-FRB-3178B
Sample Type: Client
Inject. Date: 16-Aug-2017 19:29:20 ALS Bottle#: 38 Worklist Smp#: 41
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-30330-a-10-a
Misc. Info.: Plate: 1 Rack: 4
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 17-Aug-2017 15:26:32 Calib Date: 14-Aug-2017 13:12:40
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 :

Det: EXP1

Process Host: XAWRK030

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.5	104.75
\$ 10 13C2 PFDA	10.0	12.6	125.76

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-RW-3325</u>	Lab Sample ID: <u>320-30330-11</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_049.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 10:15</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>252.1 (mL)</u>	Date Analyzed: <u>08/16/2017 19:34</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179897</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	17	J M	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	16	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.6	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	127		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_049.d
 Lims ID: 320-30330-A-11-A
 Client ID: WGNA-080117-RW-3325
 Sample Type: Client
 Inject. Date: 16-Aug-2017 19:34:06 ALS Bottle#: 39 Worklist Smp#: 42
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-30330-a-11-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:32 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
 Column 1 : Det: EXP1
 Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:16:45

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.434	1.453	-0.019	1.000	405839	1.74		85.3	
298.90 > 99.00	1.434	1.453	-0.019	1.000	261297		1.55(0.00-0.00)	92.4	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.582	-0.004	1.000	1913616	9.44		6746	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.737	1.742	-0.005	1.000	1233592	3.97		252	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.737	1.742	-0.005	1.000	227786	1.40		22.3	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.935	1.955	-0.020	1.000	758256	4.41		33.8	M
413.00 > 169.00	1.927	1.955	-0.028	0.996	430288		1.76(0.00-0.00)	646	M
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.955	-0.028		1896233	10.0		6534	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.155	0.007	1.000	960320	5.00		232	
499.00 > 99.00	2.162	2.155	0.007	1.000	184034		5.22(0.00-0.00)	108	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.205	-0.043		5969288	28.7		3443	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.213	-0.043	1.000	76132	0.7087		2.3	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.354	-0.040	1.000	1410200	12.7		7257	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_049.d

Injection Date: 16-Aug-2017 19:34:06

Instrument ID: A8_N

Lims ID: 320-30330-A-11-A

Lab Sample ID: 320-30330-11

Client ID: WGNA-080117-RW-3325

Operator ID: SACINSTLCMS01

ALS Bottle#: 39

Worklist Smp#: 42

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

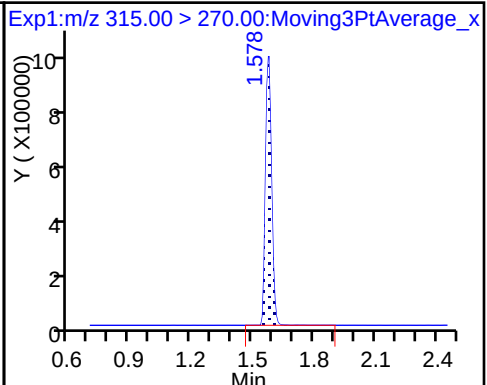
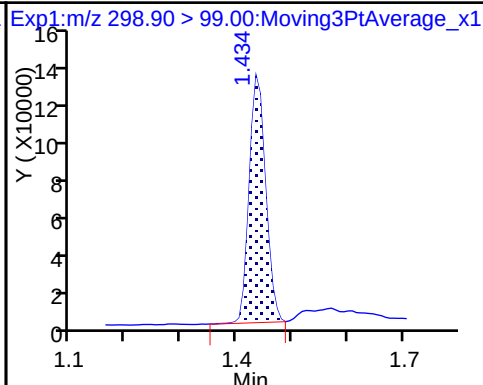
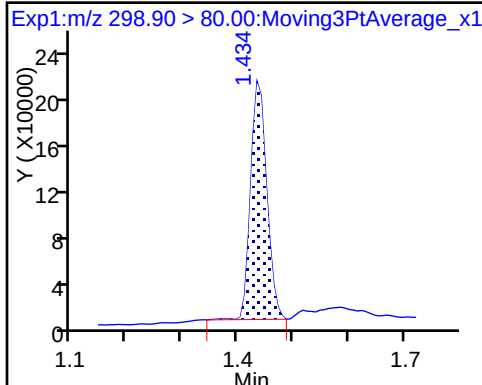
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

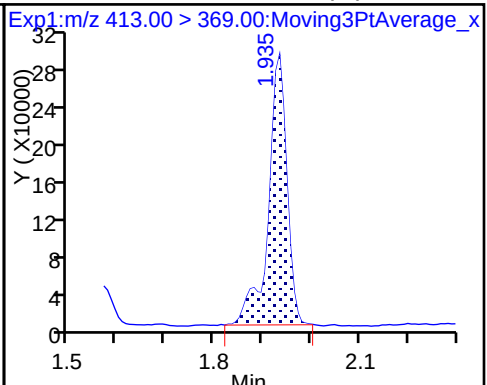
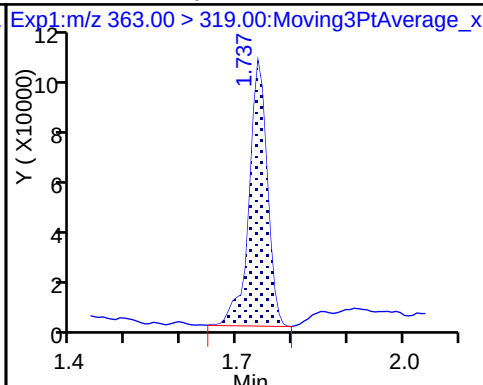
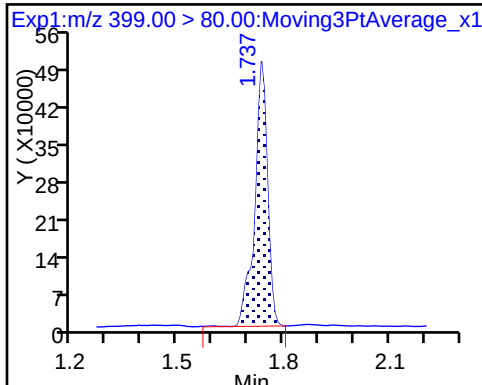
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

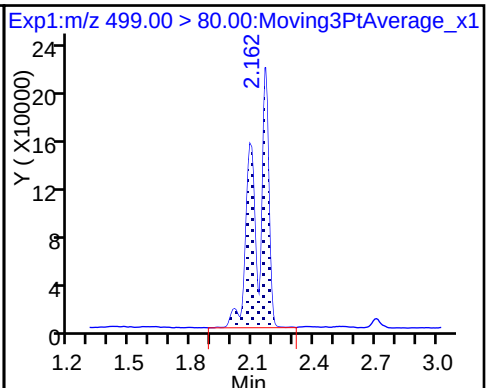
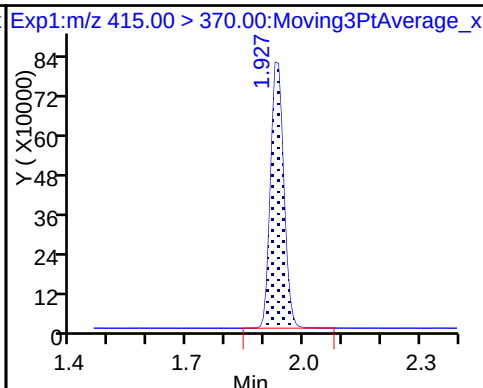
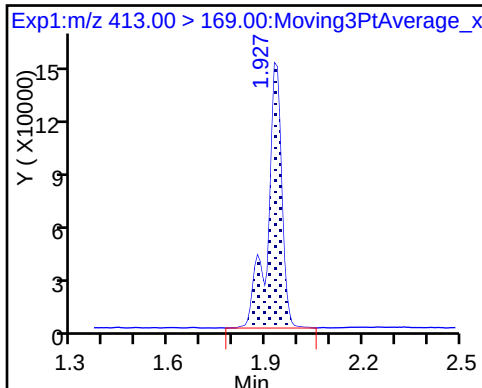
5 Perfluorooctanoic acid (M)



5 Perfluorooctanoic acid

* 6 13C2-PFOA

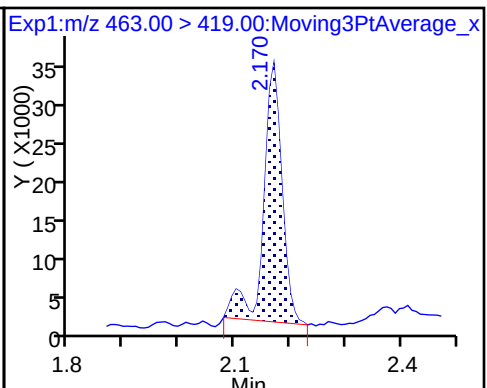
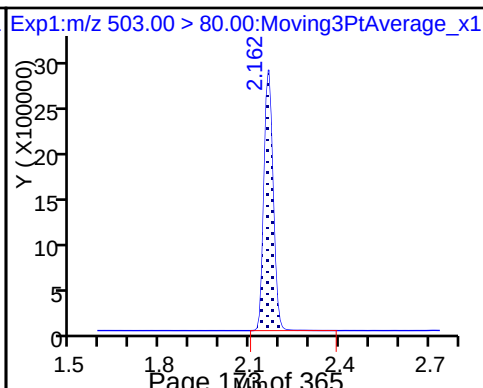
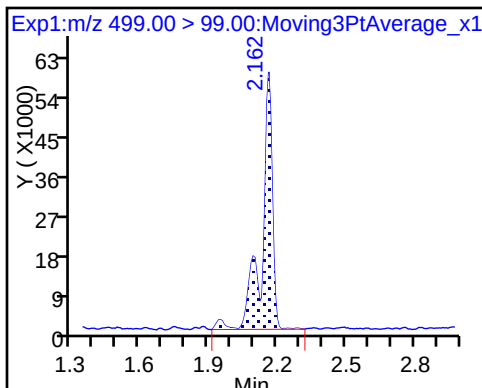
8 Perfluorooctane sulfonic acid



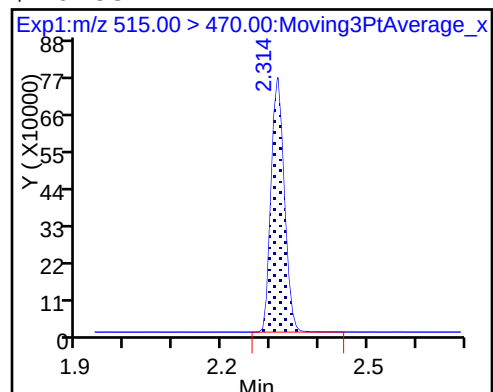
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_049.d
Lims ID: 320-30330-A-11-A
Client ID: WGNA-080117-RW-3325
Sample Type: Client
Inject. Date: 16-Aug-2017 19:34:06 ALS Bottle#: 39 Worklist Smp#: 42
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-30330-a-11-a
Misc. Info.: Plate: 1 Rack: 4
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 17-Aug-2017 15:26:32 Calib Date: 14-Aug-2017 13:12:40
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
Column 1 : Det: EXP1
Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:16:45

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.44	94.38
\$ 10 13C2 PFDA	10.0	12.7	126.55

TestAmerica Sacramento

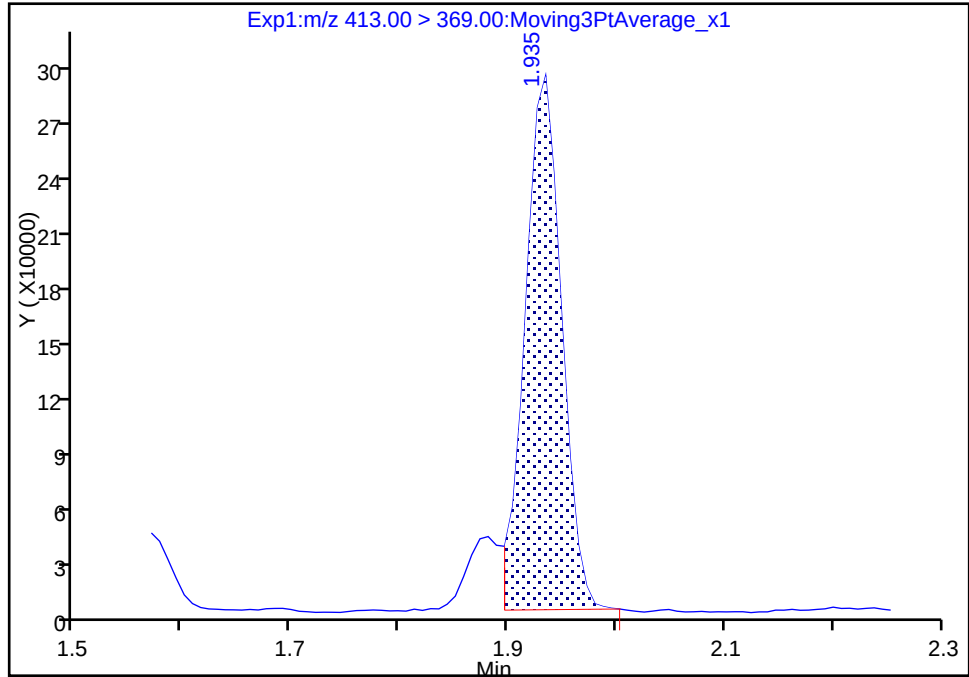
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Injection Date:	16-Aug-2017 19:34:06	Instrument ID:	A8_N		
Lims ID:	320-30330-A-11-A	Lab Sample ID:	320-30330-11		
Client ID:	WGNA-080117-RW-3325				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	39	Worklist Smp#:	42
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector:	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

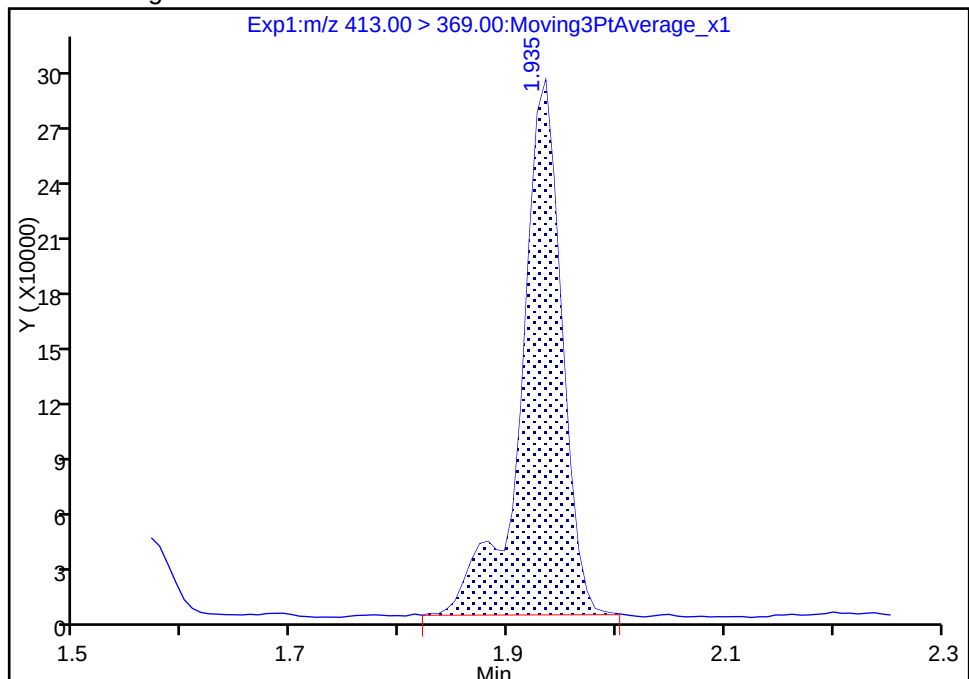
RT: 1.93
Area: 669678
Amount: 3.894440
Amount Units: ng/ml

Processing Integration Results



RT: 1.93
Area: 758256
Amount: 4.409556
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Aug-2017 13:16:31
Audit Action: Manually Integrated

Audit Reason: Isomers
Page 176 of 365

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-FRB-3325</u>	Lab Sample ID: <u>320-30330-12</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_050.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 10:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>246.9(mL)</u>	Date Analyzed: <u>08/16/2017 19:38</u>
Con. Extract Vol.: <u>1.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179897</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	107		70-130
STL00996	13C2 PFDA	127		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_050.d
 Lims ID: 320-30330-A-12-A
 Client ID: WGNA-080117-FRB-3325
 Sample Type: Client
 Inject. Date: 16-Aug-2017 19:38:51 ALS Bottle#: 40 Worklist Smp#: 43
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-30330-a-12-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:32 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK030

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.582	-0.004	1.000	2193014	10.7		8110	
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.955	-0.028		1918706	10.0		6922	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.205	-0.043		5887015	28.7		5285	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.354	-0.040	1.000	1435720	12.7		7172	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_050.d

Injection Date: 16-Aug-2017 19:38:51

Instrument ID: A8_N

Lims ID: 320-30330-A-12-A

Lab Sample ID: 320-30330-12

Client ID: WGNA-080117-FRB-3325

Operator ID: SACINSTLCMS01

ALS Bottle#: 40

Worklist Smp#: 43

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

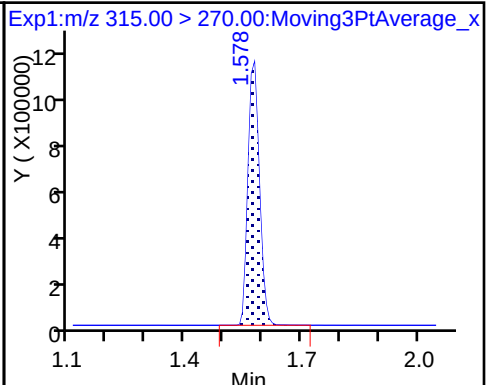
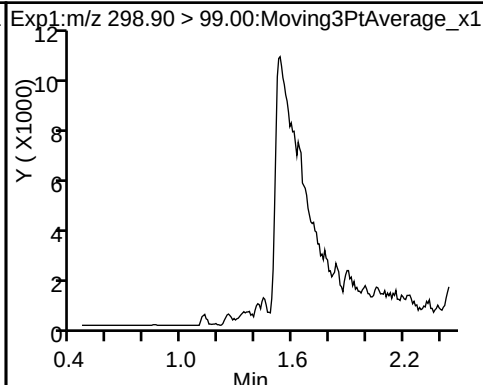
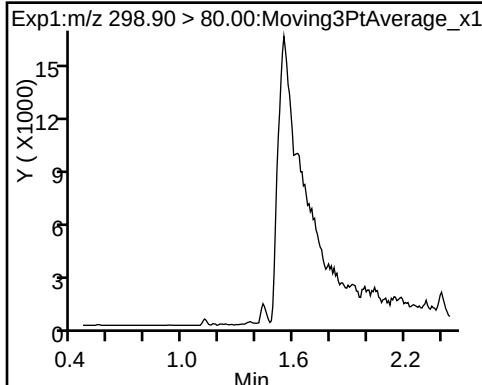
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

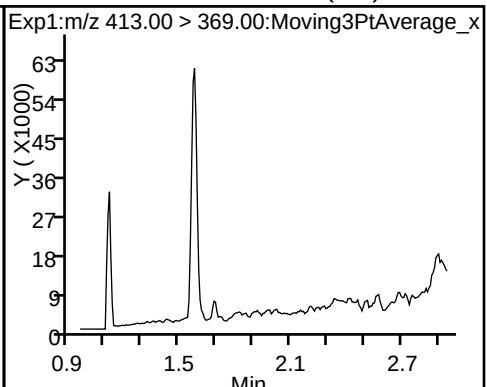
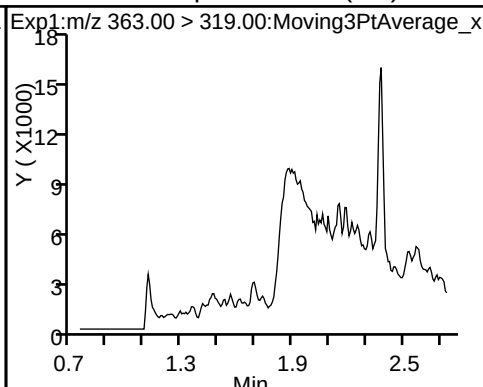
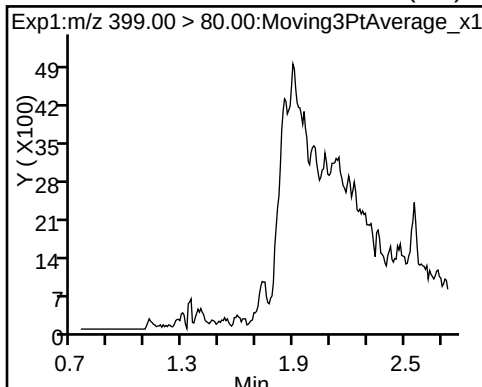
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

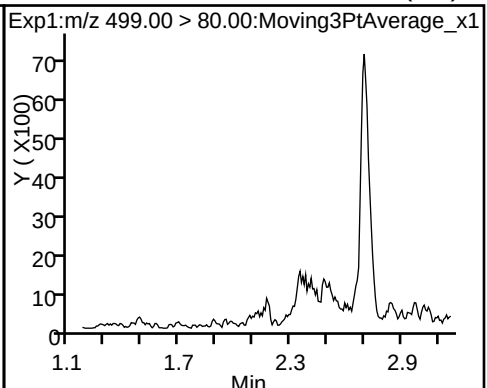
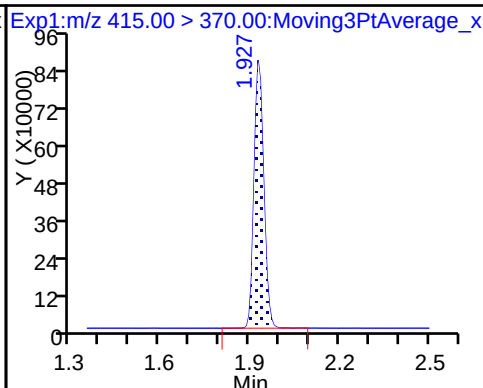
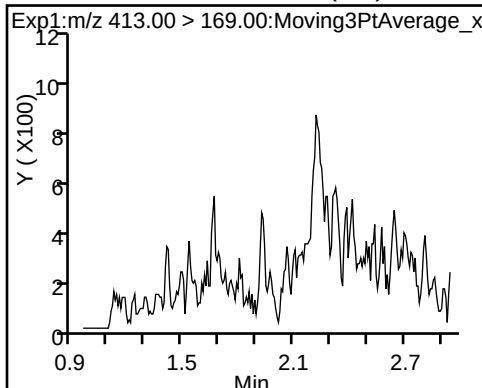
5 Perfluorooctanoic acid (ND)



5 Perfluorooctanoic acid (ND)

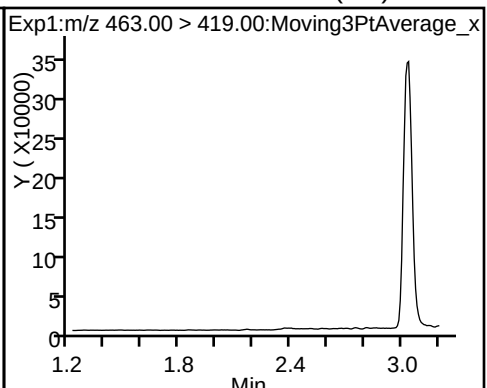
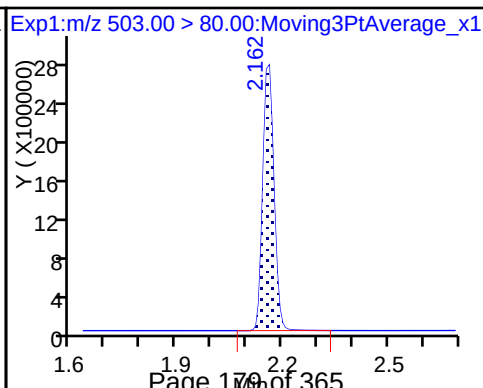
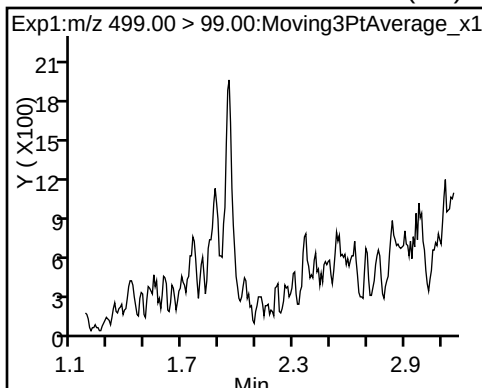
* 6 13C2-PFOA

8 Perfluorooctane sulfonic acid (ND)

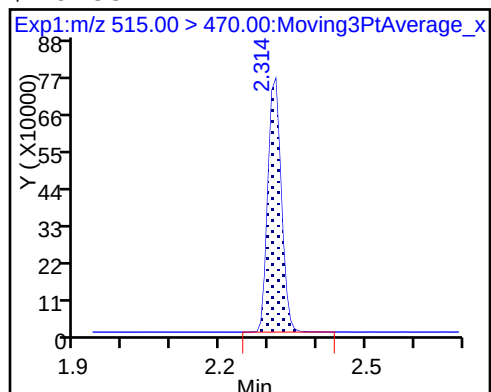


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_050.d
Lims ID: 320-30330-A-12-A
Client ID: WGNA-080117-FRB-3325
Sample Type: Client
Inject. Date: 16-Aug-2017 19:38:51 ALS Bottle#: 40 Worklist Smp#: 43
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-30330-a-12-a
Misc. Info.: Plate: 1 Rack: 4
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 17-Aug-2017 15:26:32 Calib Date: 14-Aug-2017 13:12:40
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 :

Det: EXP1

Process Host: XAWRK030

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.7	106.89
\$ 10 13C2 PFDA	10.0	12.7	127.33

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-DUP06</u>	Lab Sample ID: <u>320-30330-13</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_051.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 07:00</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>265 (mL)</u>	Date Analyzed: <u>08/16/2017 19:43</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179897</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	26	J M	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	28	M	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	7.6	J	23	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	15	J	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.1	J	9.4	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	15	J	85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	123		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_051.d
 Lims ID: 320-30330-A-13-A
 Client ID: WGNA-080117-DUP06
 Sample Type: Client
 Inject. Date: 16-Aug-2017 19:43:37 ALS Bottle#: 41 Worklist Smp#: 44
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-30330-a-13-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:32 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
 Column 1 : Det: EXP1
 Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:19:20

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.434	1.453	-0.019	1.000	848850	3.93		162	
298.90 > 99.00	1.434	1.453	-0.019	1.000	542973		1.56(0.00-0.00)	194	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.582	-0.012	1.000	1742906	9.20		5466	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.737	1.742	-0.005	1.000	1163729	4.03		200	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.737	1.742	-0.005	1.000	287247	1.89		25.8	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.955	-0.028	1.000	1202372	7.49		50.5	M
413.00 > 169.00	1.927	1.955	-0.028	1.000	715251		1.68(0.00-0.00)	1019	M
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.955	-0.028		1771373	10.0		6224	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.155	2.155	0.0	1.000	1237384	6.94		264	M
499.00 > 99.00	2.155	2.155	0.0	1.000	212144		5.83(0.00-0.00)	121	M
* 7 13C4 PFOS									
503.00 > 80.00	2.155	2.205	-0.050		5539091	28.7		2838	
9 Perfluorononanoic acid									
463.00 > 419.00	2.102	2.213	-0.111	1.000	202453	2.02		3.2	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.306	2.354	-0.048	1.000	1281343	12.3		6352	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_051.d

Injection Date: 16-Aug-2017 19:43:37

Instrument ID: A8_N

Lims ID: 320-30330-A-13-A

Lab Sample ID: 320-30330-13

Client ID: WGNA-080117-DUP06

Operator ID: SACINSTLCMS01

ALS Bottle#: 41

Worklist Smp#: 44

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

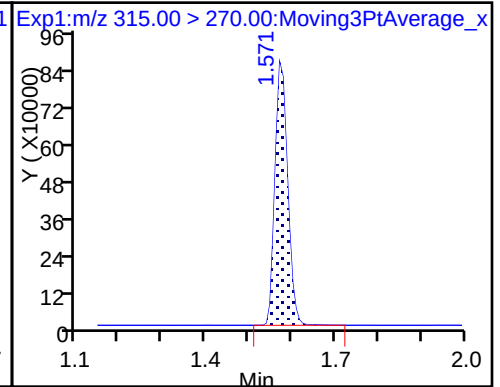
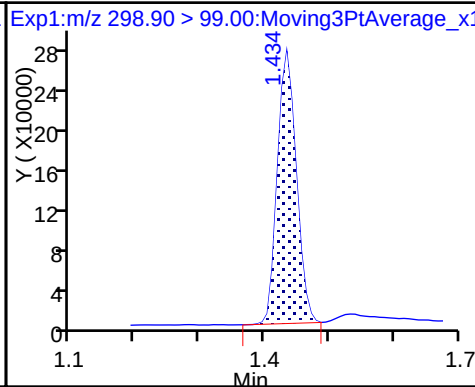
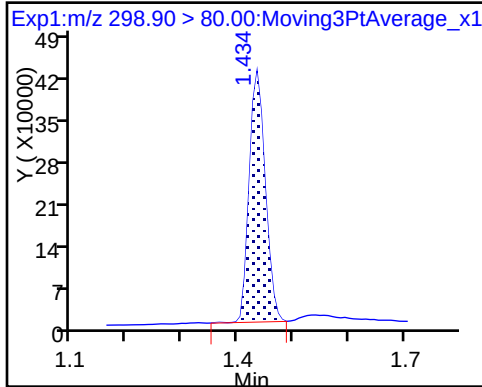
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

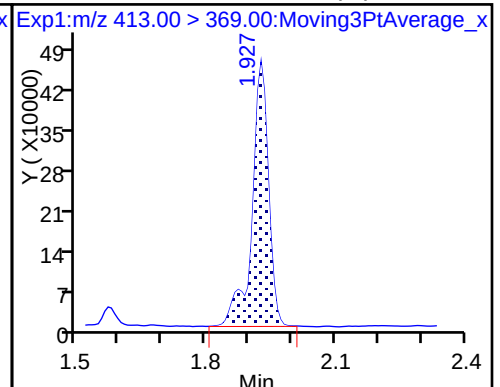
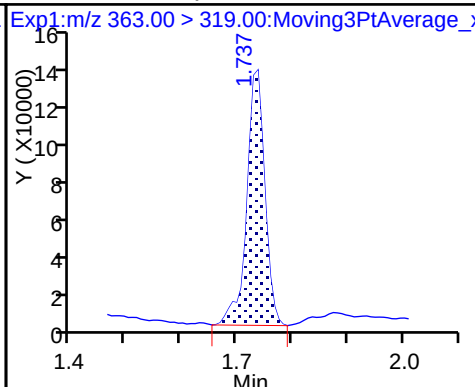
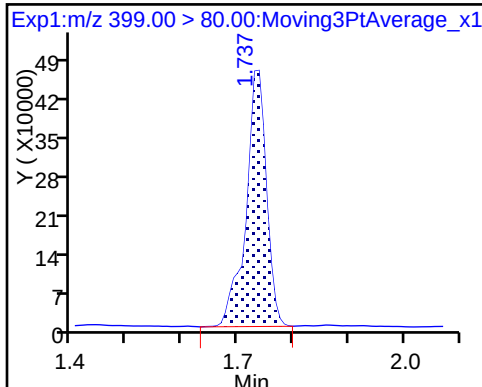
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

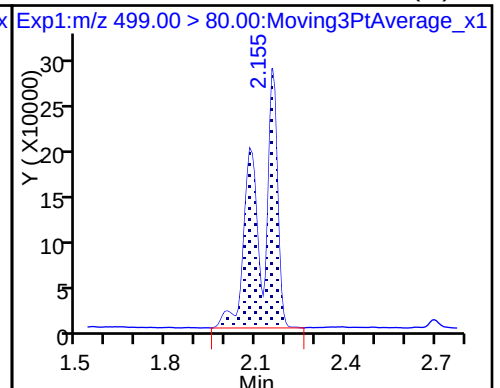
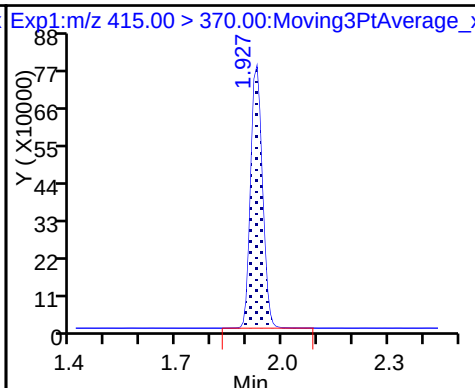
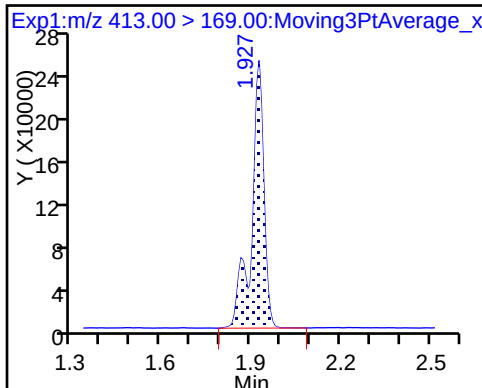
5 Perfluorooctanoic acid (M)



5 Perfluorooctanoic acid

* 6 13C2-PFOA

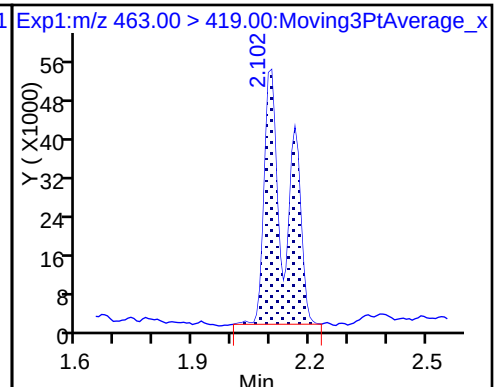
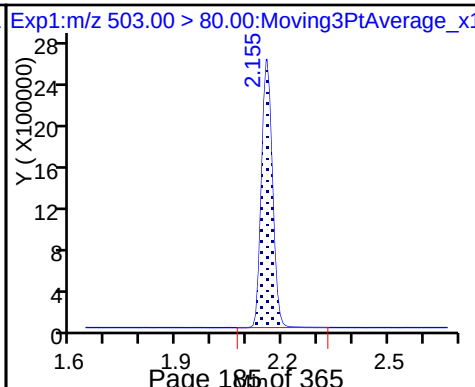
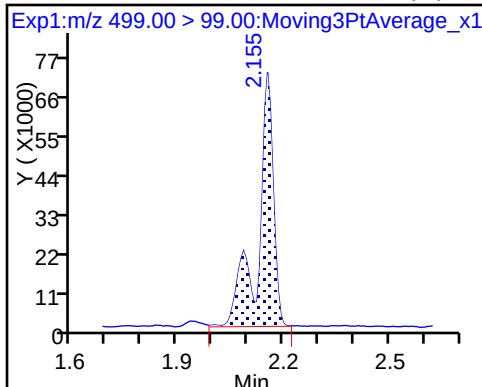
8 Perfluorooctane sulfonic acid (M)



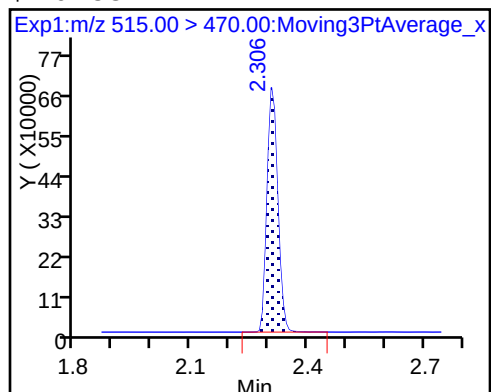
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_051.d
Lims ID: 320-30330-A-13-A
Client ID: WGNA-080117-DUP06
Sample Type: Client
Inject. Date: 16-Aug-2017 19:43:37 ALS Bottle#: 41 Worklist Smp#: 44
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-30330-a-13-a
Misc. Info.: Plate: 1 Rack: 4
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 17-Aug-2017 15:26:32 Calib Date: 14-Aug-2017 13:12:40
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
Column 1 : Det: EXP1
Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:19:20

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.20	92.02
\$ 10 13C2 PFDA	10.0	12.3	123.09

TestAmerica Sacramento

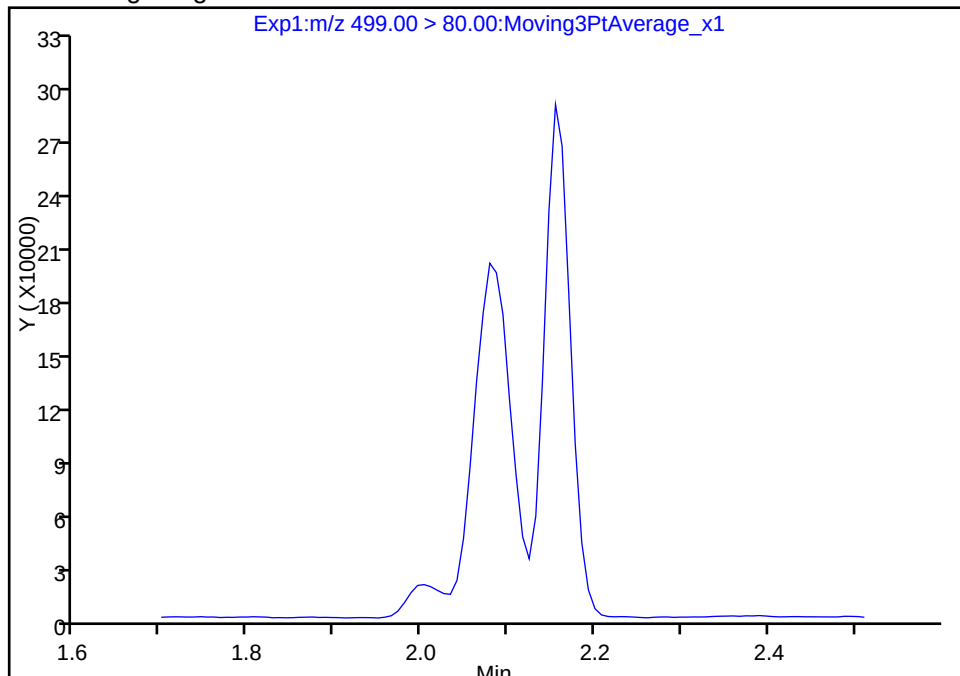
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_051.d				
Injection Date:	16-Aug-2017 19:43:37	Instrument ID:	A8_N		
Lims ID:	320-30330-A-13-A	Lab Sample ID:	320-30330-13		
Client ID:	WGNA-080117-DUP06				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	41	Worklist Smp#:	44
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector	EXP1		

8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

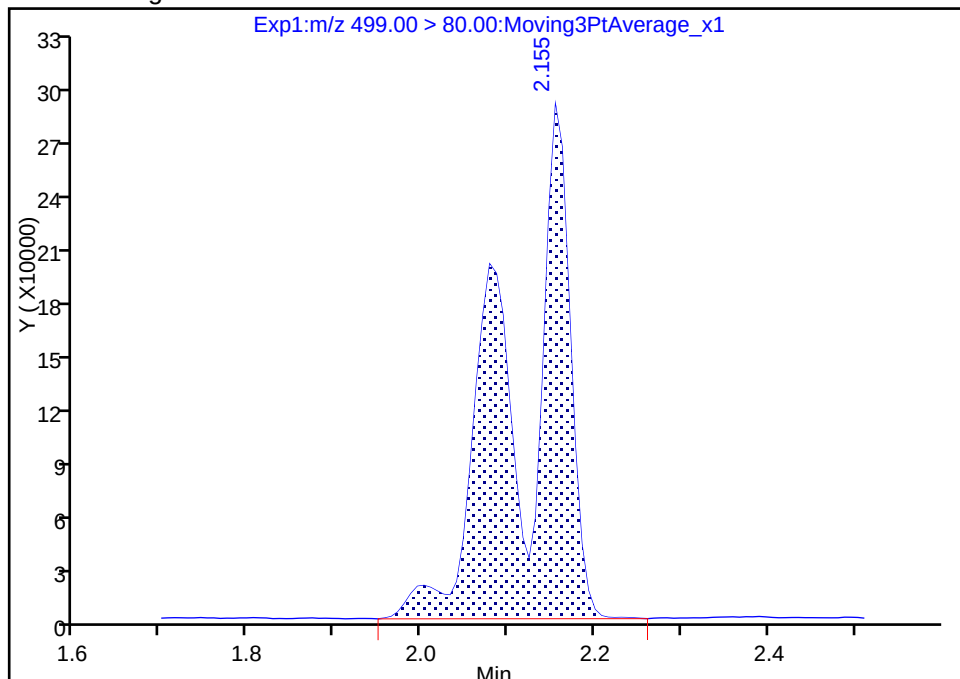
Signal: 1

Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 1237384
Amount: 6.936626
Amount Units: ng/ml

Reviewer: barnettj, 17-Aug-2017 13:18:12

Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

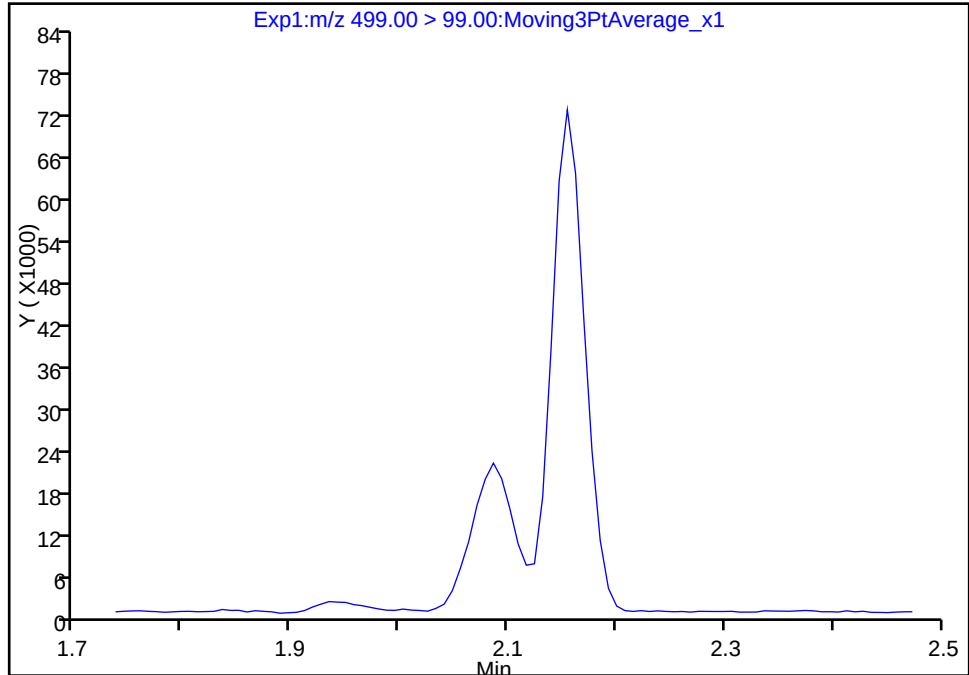
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_051.d
Injection Date: 16-Aug-2017 19:43:37 Instrument ID: A8_N
Lims ID: 320-30330-A-13-A Lab Sample ID: 320-30330-13
Client ID: WGNA-080117-DUP06
Operator ID: SACINSTLCMS01 ALS Bottle#: 41 Worklist Smp#: 44
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

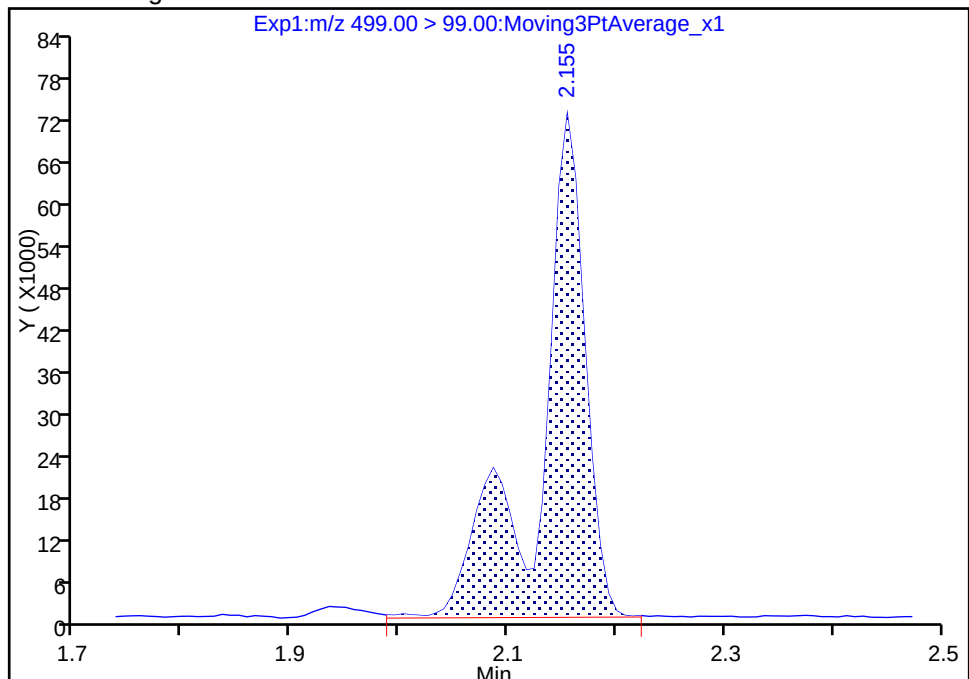
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 212144
Amount: 6.936626
Amount Units: ng/ml



Reviewer: barnettj, 17-Aug-2017 13:18:35

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

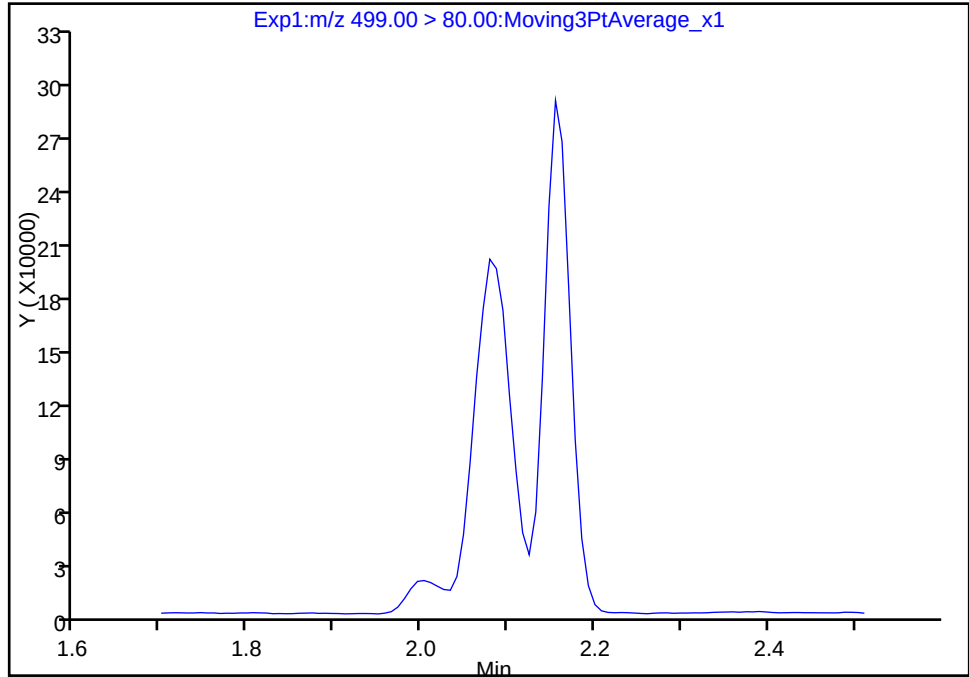
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Injection Date: 16-Aug-2017 19:43:37 Instrument ID: A8_N
Lims ID: 320-30330-A-13-A Lab Sample ID: 320-30330-13
Client ID: WGNA-080117-DUP06
Operator ID: SACINSTLCMS01 ALS Bottle#: 41 Worklist Smp#: 44
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

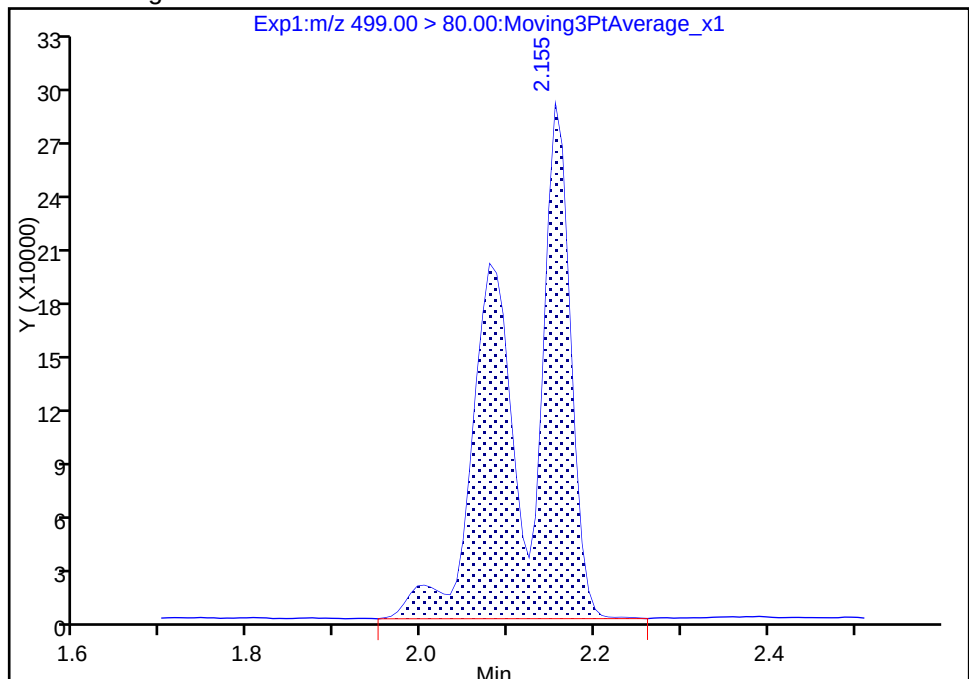
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 1237384
Amount: 6.936626
Amount Units: ng/ml



Reviewer: barnettj, 17-Aug-2017 13:18:35

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

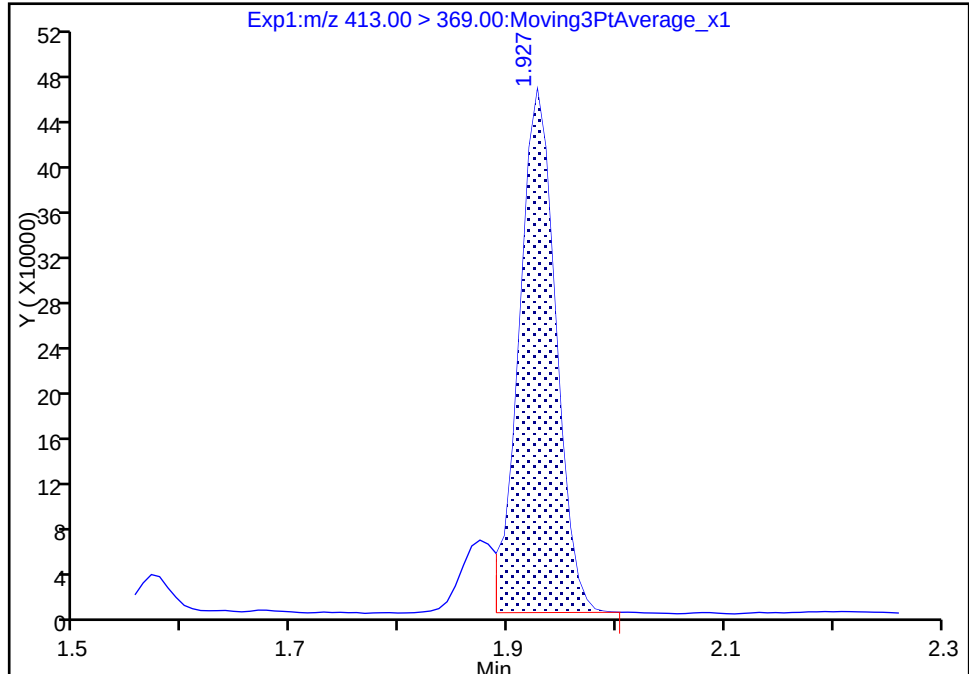
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_051.d				
Injection Date:	16-Aug-2017 19:43:37	Instrument ID:	A8_N		
Lims ID:	320-30330-A-13-A	Lab Sample ID:	320-30330-13		
Client ID:	WGNA-080117-DUP06				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	41	Worklist Smp#:	44
Injection Vol:	2.0 ul	Dil. Factor:	1.0000		
Method:	537_A8_N	Limit Group:	LC 537 ICAL		
Column:		Detector:	EXP1		

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

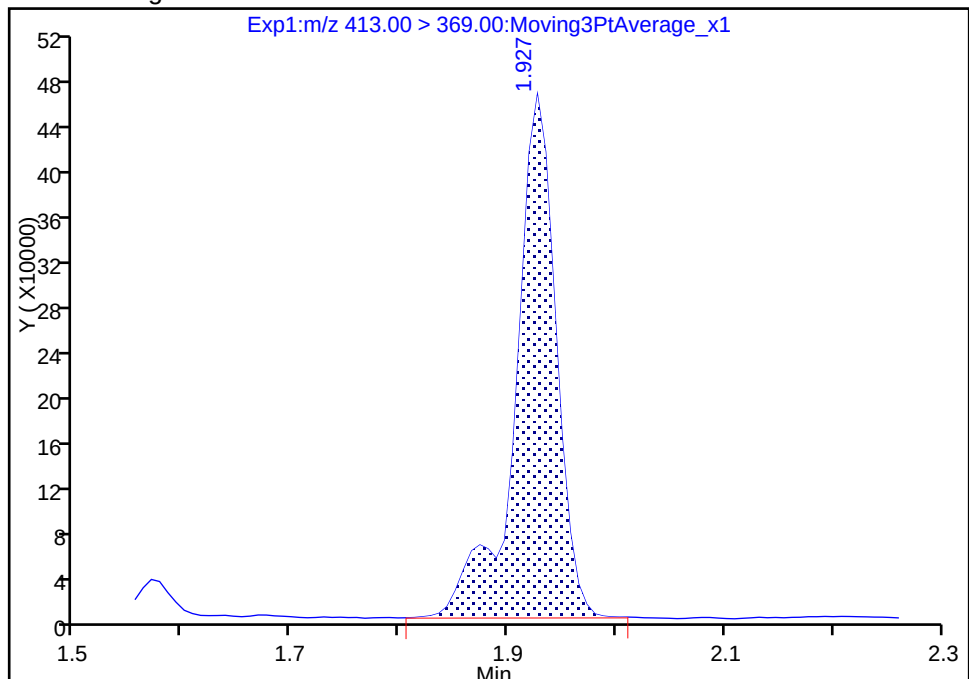
RT: 1.93
Area: 1065519
Amount: 6.633181
Amount Units: ng/ml

Processing Integration Results



RT: 1.93
Area: 1202372
Amount: 7.485133
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Aug-2017 13:19:00
Audit Action: Manually Integrated

Audit Reason: Isomers
Page 191 of 365

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1 Analy Batch No.: 179319

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/14/2017 12:48 Calibration End Date: 08/14/2017 13:12 Calibration ID: 33517

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-179319/2	2017.08.14_537ICAL_002.d
Level 2	IC 320-179319/3	2017.08.14_537ICAL_003.d
Level 3	IC 320-179319/4	2017.08.14_537ICAL_004.d
Level 4	IC 320-179319/5	2017.08.14_537ICAL_005.d
Level 5	IC 320-179319/6	2017.08.14_537ICAL_006.d
Level 6	IC 320-179319/7	2017.08.14_537ICAL_007.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanesulfonic acid (PFBS)	1.1417 0.7313	1.1495	1.0943	0.9210	0.7959	QuaF		1.1266	-0.002254						0.9980		0.9600
Perfluoroheptanoic acid (PFHpA)	0.8346 0.8325	0.8724	0.8737	0.8715	0.8517	Ave		0.8560				2.2		30.0			
Perfluorohexanesulfonic acid (PFHxS)	1.4757 1.3970	1.5378	1.5080	1.5703	1.4756	Ave		1.4941				4.0		30.0			
Perfluorooctanoic acid (PFOA)	0.8851 0.9102	0.8837	0.8984	0.9375	0.9261	Ave		0.9068				2.4		30.0			
Perfluorooctanesulfonic acid (PFOS)	0.8922 0.9252	0.9148	0.9148	0.9461	0.9486	Ave		0.9236				2.3		30.0			
Perfluorononanoic acid (PFNA)	0.5491 0.5714	0.5670	0.5764	0.5665	0.5686	Ave		0.5665				1.6		30.0			
13C2 PFHxA	1.0141 1.0999	1.0032	1.0998	1.0933	1.1053	Ave		1.0693				4.4		30.0			
13C2 PFDA	0.5512 0.6012	0.5785	0.5919	0.5906	0.6127	Ave		0.5877				3.6		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1 Analy Batch No.: 179319

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/14/2017 12:48 Calibration End Date: 08/14/2017 13:12 Calibration ID: 33517

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-179319/2	2017.08.14_537ICAL_002.d
Level 2	IC 320-179319/3	2017.08.14_537ICAL_003.d
Level 3	IC 320-179319/4	2017.08.14_537ICAL_004.d
Level 4	IC 320-179319/5	2017.08.14_537ICAL_005.d
Level 5	IC 320-179319/6	2017.08.14_537ICAL_006.d
Level 6	IC 320-179319/7	2017.08.14_537ICAL_007.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluorobutanesulfonic acid (PFBS)	PFOS	QuaF	2176776 26040065	4858409	10071471	16707104	21165476	9.00 180	20.0	45.0	90.0	135
Perfluoroheptanoic acid (PFHpA)	13PF OA	Ave	198176 3589599	455479	965342	1966143	2763295	1.00 20.0	2.22	5.00	10.0	15.0
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	938005 16584369	2166866	4626981	9496666	13083092	3.00 60.0	6.67	15.0	30.0	45.0
Perfluorooctanoic acid (PFOA)	13PF OA	Ave	420599 7854398	923370	1986507	4232647	6012905	2.00 40.0	4.45	10.0	20.0	30.0
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	756213 14645432	1718775	3742396	7629588	11213929	4.00 80.0	8.89	20.0	40.0	60.0
Perfluorononanoic acid (PFNA)	13PF OA	Ave	260762 4927051	592024	1273686	2556105	3689416	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PF OA	Ave	2407096 2370885	2356458	2429839	2465941	2390227	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PF OA	Ave	1308306 1295768	1358920	1307668	1332089	1324957	10.0 10.0	10.0	10.0	10.0	10.0

Curve Type Legend:

Ave = Average ISTD
QuaF = Quadratic ISTD forced zero

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1 Analy Batch No.: 179319

SDG No.: _____

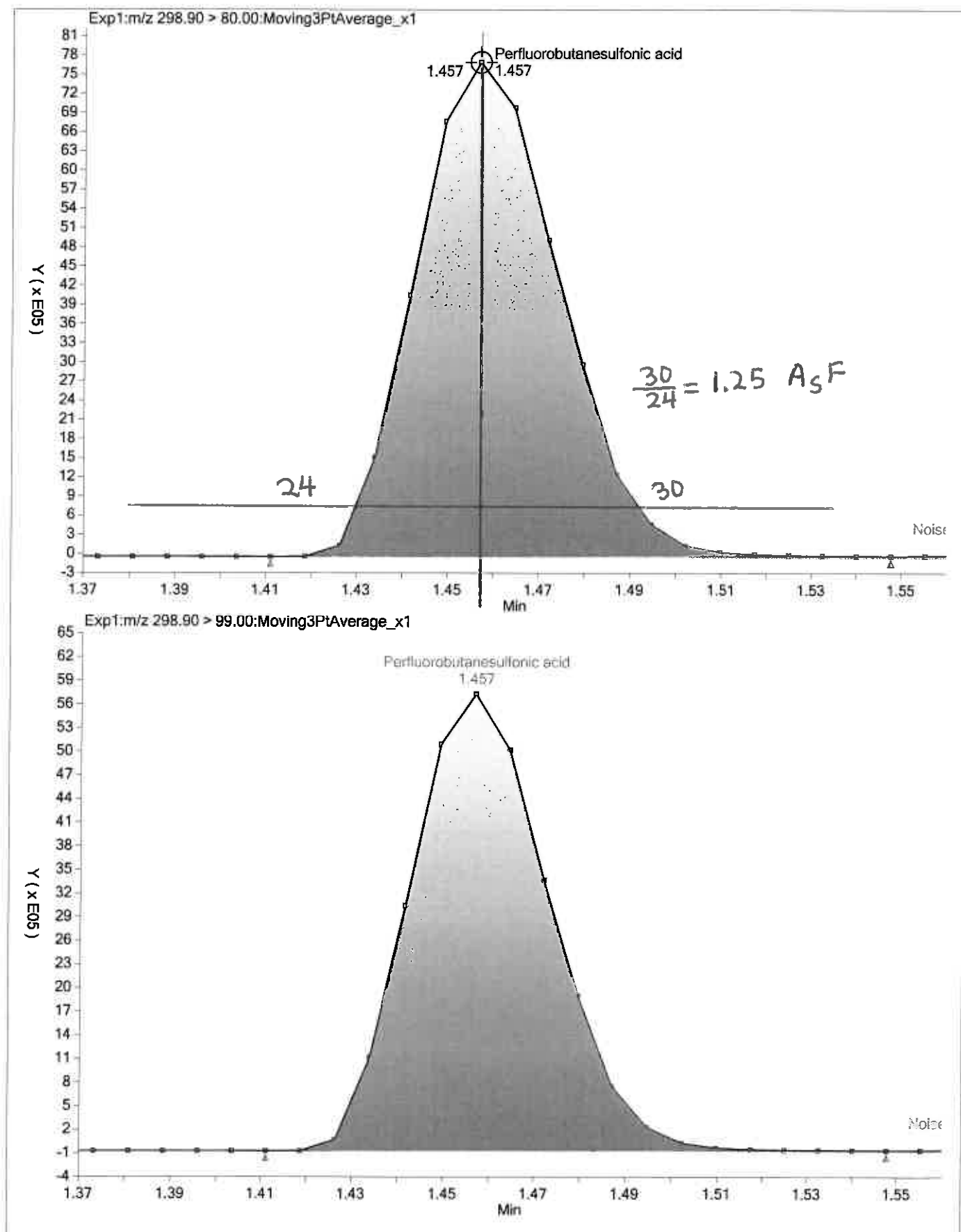
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

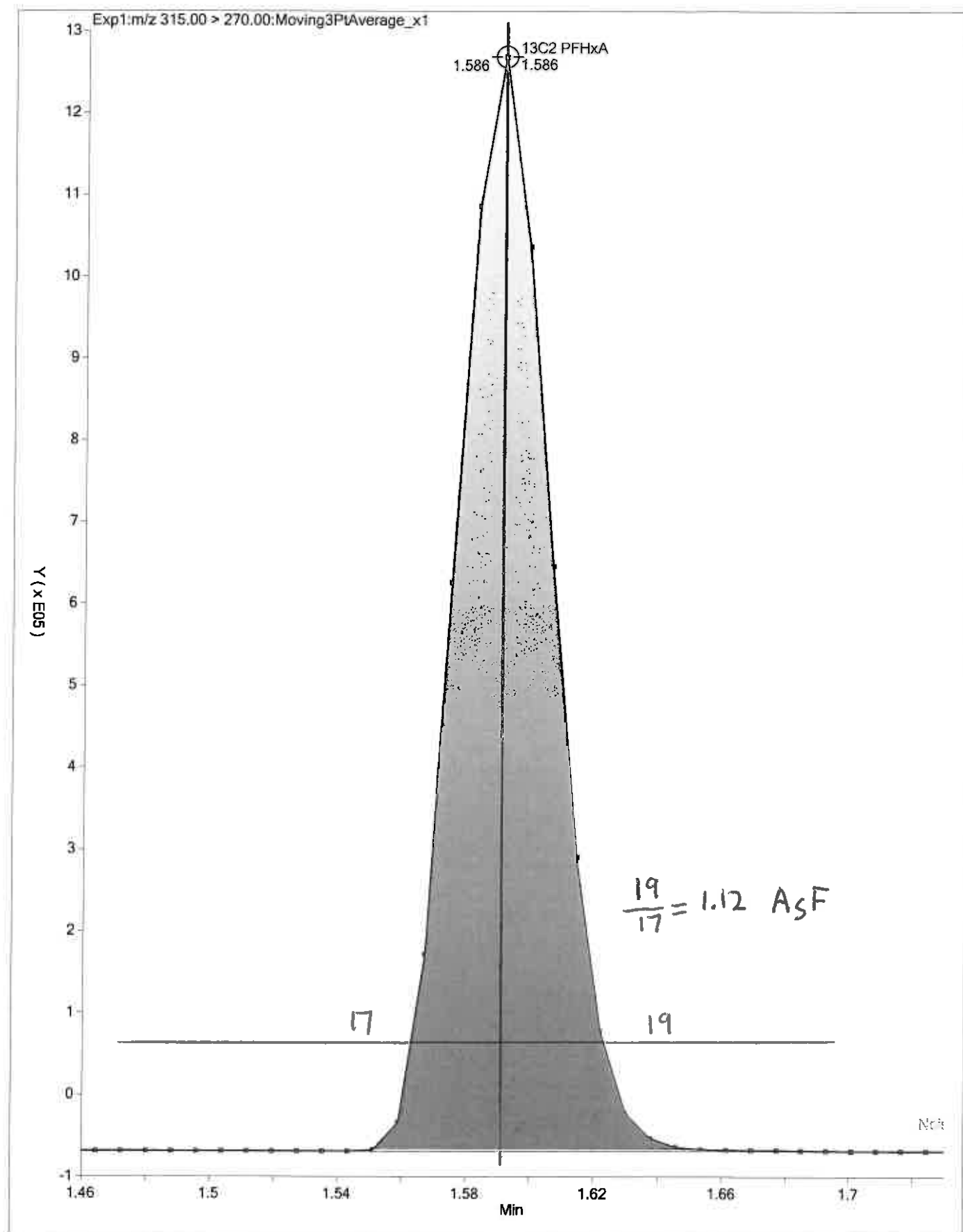
Calibration Start Date: 08/14/2017 12:48 Calibration End Date: 08/14/2017 13:12 Calibration ID: 33517

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-179319/2	2017.08.14_537ICAL_002.d
Level 2	IC 320-179319/3	2017.08.14_537ICAL_003.d
Level 3	IC 320-179319/4	2017.08.14_537ICAL_004.d
Level 4	IC 320-179319/5	2017.08.14_537ICAL_005.d
Level 5	IC 320-179319/6	2017.08.14_537ICAL_006.d
Level 6	IC 320-179319/7	2017.08.14_537ICAL_007.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid (PFBS)	3.3	6.6	7.5	-0.4	-5.0	3.4	50	50	50	50	50	50
Perfluoroheptanoic acid (PFHpA)	-2.5	1.9	2.1	1.8	-0.5	-2.8	50	50	50	50	50	50
Perfluorohexanesulfonic acid (PFHxS)	-1.2	2.9	0.9	5.1	-1.2	-6.5	50	50	50	50	50	50
Perfluorooctanoic acid (PFOA)	-2.4	-2.5	-0.9	3.4	2.1	0.4	50	50	50	50	50	50
Perfluorooctanesulfonic acid (PFOS)	-3.4	-1.0	-1.0	2.4	2.7	0.2	50	50	50	50	50	50
Perfluorononanoic acid (PFNA)	-3.1	0.1	1.7	0.0	0.4	0.9	50	50	50	50	50	50
13C2 PFHxA	-5.2	-6.2	2.9	2.2	3.4	2.9	30	30	30	30	30	30
13C2 PFDA	-6.2	-1.6	0.7	0.5	4.3	2.3	30	30	30	30	30	30





TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_002.d
 Lims ID: IC L1
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 14-Aug-2017 12:48:56 ALS Bottle#: 1 Worklist Smp#: 2
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L1_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 14-Aug-2017 14:36:02 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK023

First Level Reviewer: phomsophat

Date: 14-Aug-2017 14:08:06

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.449	1.453	-0.004	1.000	2176776	9.30		309	
298.90 > 99.00	1.449	1.453	-0.004	1.000	1426588		1.53(0.00-0.00)	311	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.582	-0.004	1.000	2407096	9.48		6502	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.745	1.742	0.003	1.000	198176	0.9753		16.5	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.745	1.742	0.003	1.000	938005	2.96		150	
* 6 13C2-PFOA									
415.00 > 370.00	1.957	1.955	0.002		2373611	10.0		11876	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.957	1.955	0.002	1.000	420599	1.95		27.8	
413.00 > 169.00	1.957	1.955	0.002	1.000	229992		1.83(0.00-0.00)	416	
* 7 13C4 PFOS									
503.00 > 80.00	2.208	2.205	0.003		6074703	28.7		6398	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.215	2.208	0.007	1.000	756213	3.87		746	
499.00 > 99.00	2.208	2.208	0.0	0.997	158187		4.78(0.00-0.00)	215	
9 Perfluorononanoic acid									
463.00 > 419.00	2.215	2.213	0.002	1.000	260762	1.94		63.7	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.360	2.354	0.006	1.000	1308306	9.38		6900	

Reagents:

LC537-L1_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_002.d

Injection Date: 14-Aug-2017 12:48:56

Instrument ID: A8_N

Lims ID: IC L1

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 1

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

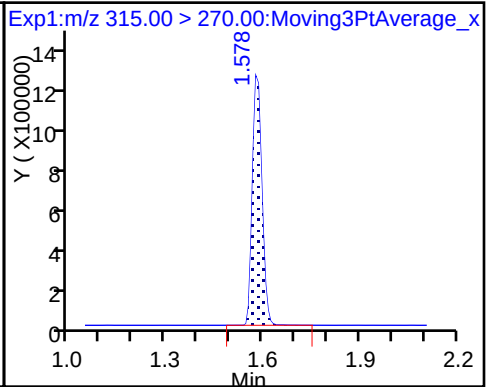
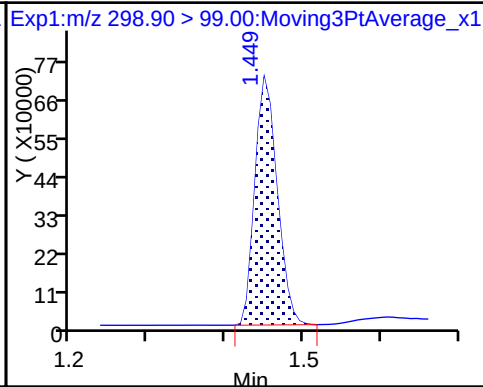
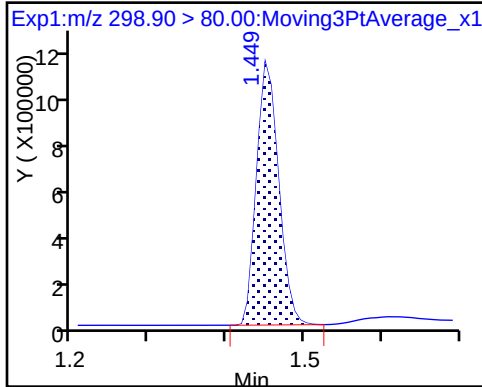
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

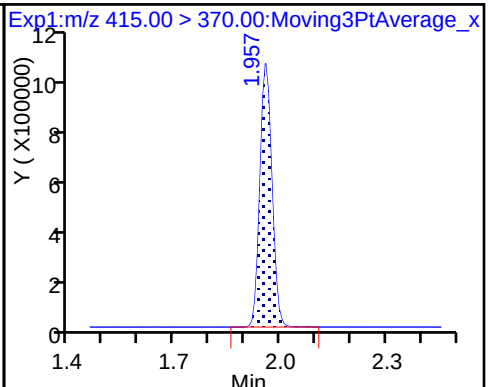
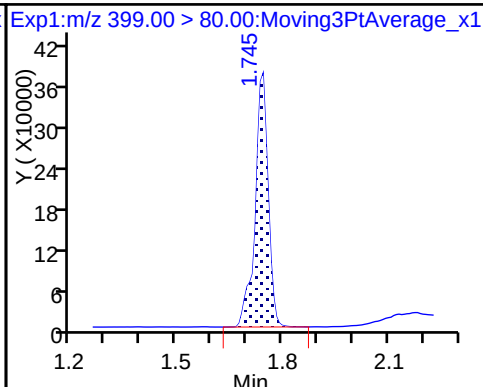
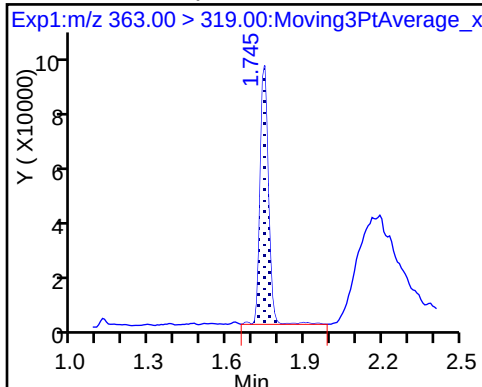
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

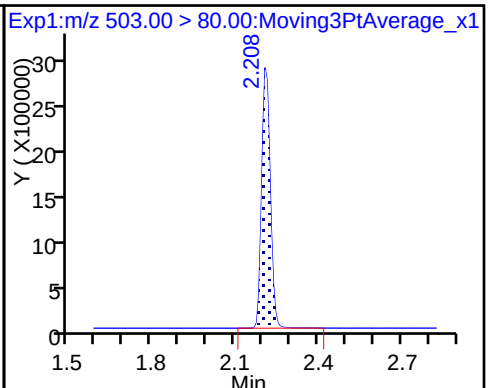
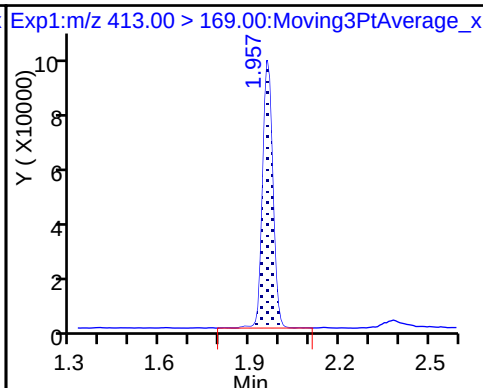
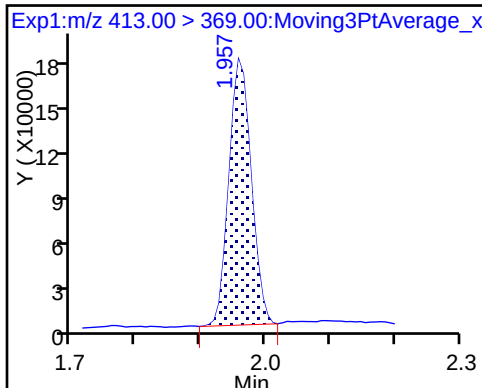
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

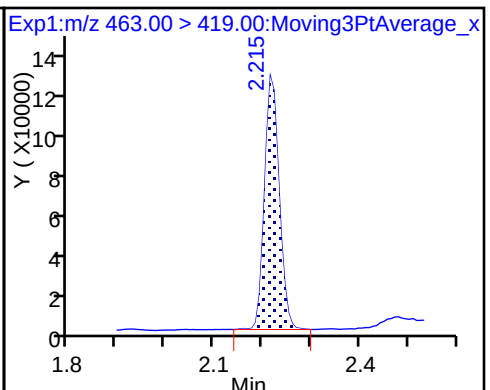
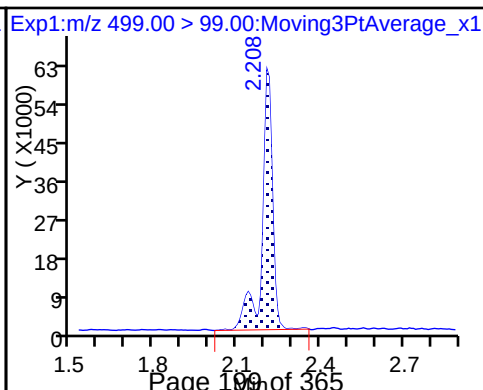
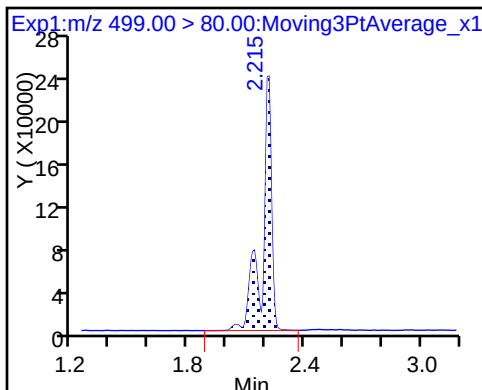
* 7 13C4 PFOS



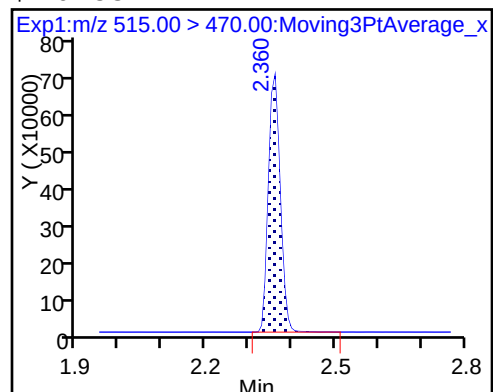
8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_003.d
 Lims ID: IC L2
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 14-Aug-2017 12:53:41 ALS Bottle#: 2 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L2_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 14-Aug-2017 14:36:03 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK023

First Level Reviewer: phomsophat

Date: 14-Aug-2017 14:08:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.457	1.453	0.004	1.000	4858409	21.3		661	
298.90 > 99.00	1.457	1.453	0.004	1.000	3160338		1.54(0.00-0.00)	670	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.586	1.582	0.004	1.000	2356458	9.38		6407	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.745	1.742	0.003	1.000	2166866	6.86		343	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.745	1.742	0.003	1.000	455479	2.27		38.5	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.957	1.955	0.002	1.000	923370	4.33		60.6	
413.00 > 169.00	1.957	1.955	0.002	1.000	484643		1.91(0.00-0.00)	845	
* 6 13C2-PFOA									
415.00 > 370.00	1.957	1.955	0.002		2348990	10.0		11507	
* 7 13C4 PFOS									
503.00 > 80.00	2.208	2.205	0.003		6060332	28.7		6159	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.215	2.208	0.007	1.000	1718775	8.81		1524	
499.00 > 99.00	2.215	2.208	0.007	1.000	367461		4.68(0.00-0.00)	477	
9 Perfluorononanoic acid									
463.00 > 419.00	2.215	2.213	0.002	1.000	592024	4.45		150	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.360	2.354	0.006	1.000	1358920	9.84		7130	

Reagents:

LC537-L2_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_003.d

Injection Date: 14-Aug-2017 12:53:41

Instrument ID: A8_N

Lims ID: IC L2

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

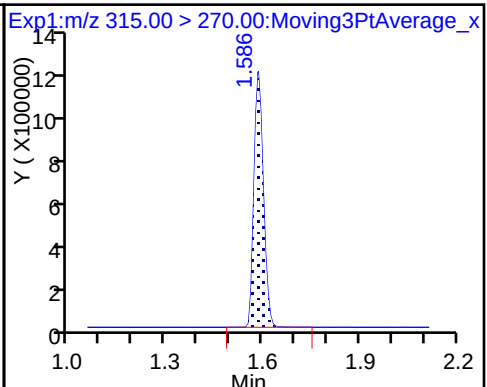
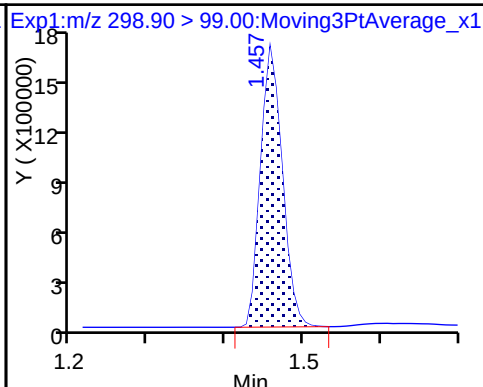
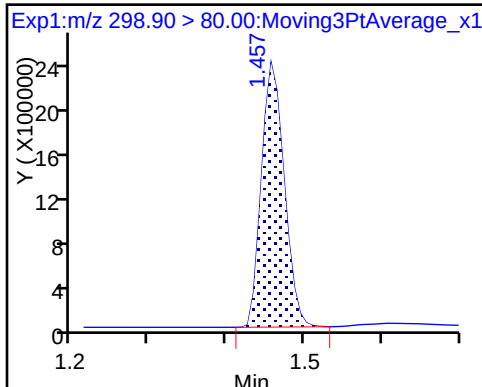
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

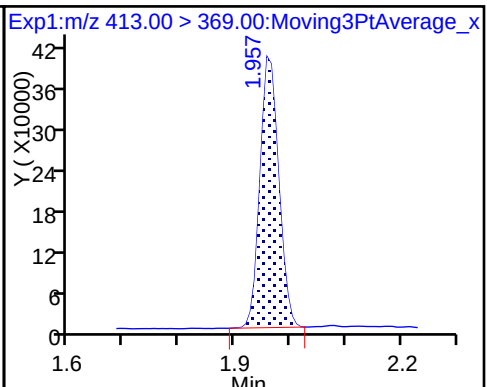
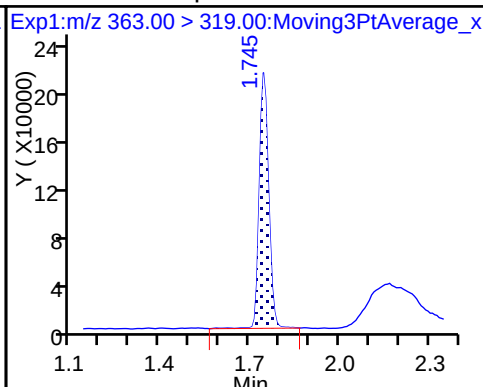
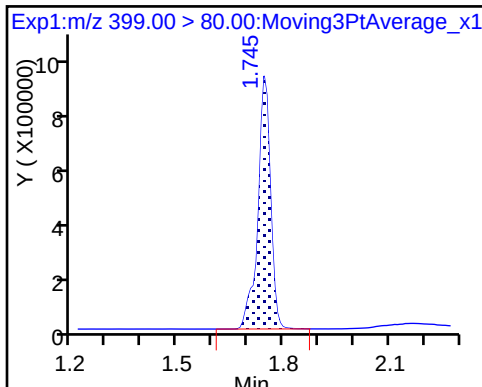
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

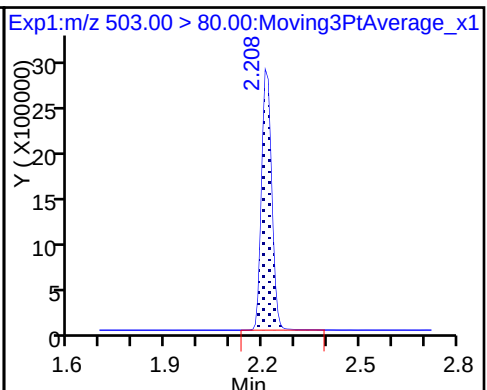
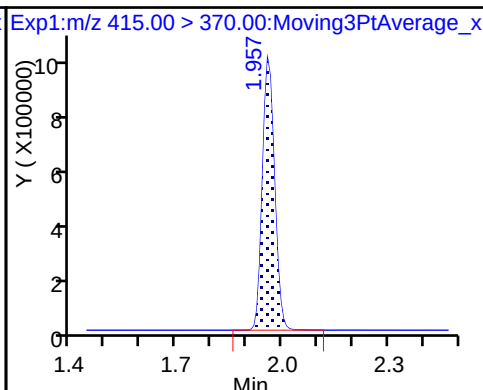
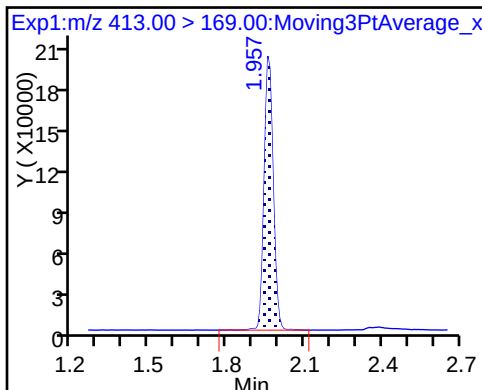
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

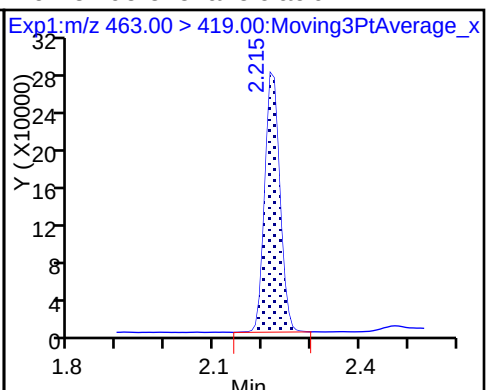
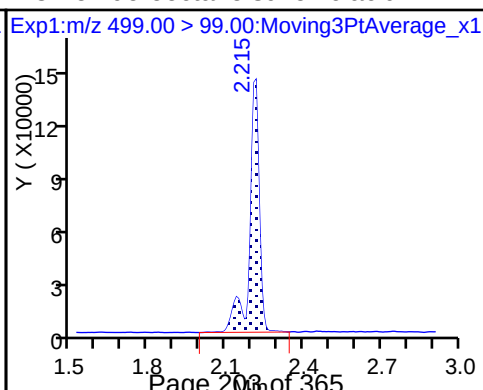
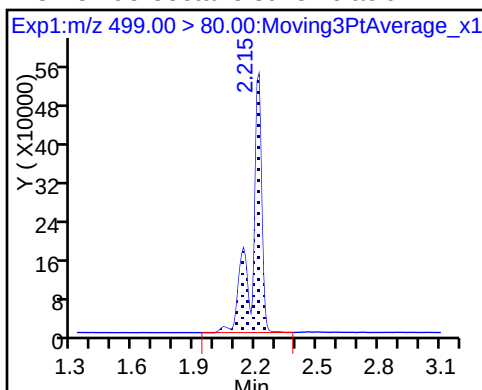
* 7 13C4 PFOS



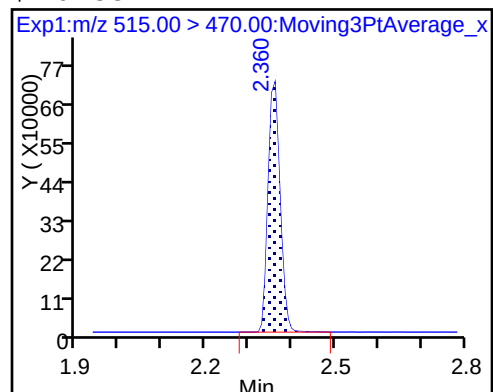
8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_004.d
 Lims ID: IC L3
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 14-Aug-2017 12:58:26 ALS Bottle#: 3 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L3_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 14-Aug-2017 14:36:04 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK023

First Level Reviewer: phomsophat

Date: 14-Aug-2017 14:08:41

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.457	1.453	0.004	1.000	10071471	48.4		1362	
298.90 > 99.00	1.457	1.453	0.004	1.000	6755881		1.49(0.00-0.00)	1317	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.586	1.582	0.004	1.000	2429839	10.3		6722	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.745	1.742	0.003	1.000	965342	5.10		85.2	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.745	1.742	0.003	1.000	4626981	15.1		718	
* 6 13C2-PFOA									
415.00 > 370.00	1.957	1.955	0.002		2209361	10.0		11698	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.957	1.955	0.002	1.000	1986507	9.92		125	
413.00 > 169.00	1.957	1.955	0.002	1.000	1014880		1.96(0.00-0.00)	1650	
* 7 13C4 PFOS									
503.00 > 80.00	2.208	2.205	0.003		5865253	28.7		6014	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.208	2.208	0.0	1.000	3742396	19.8		2971	
499.00 > 99.00	2.208	2.208	0.0	1.000	760295		4.92(0.00-0.00)	903	
9 Perfluorononanoic acid									
463.00 > 419.00	2.215	2.213	0.002	1.000	1273686	10.2		298	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.352	2.354	-0.002	1.000	1307668	10.1		7842	

Reagents:

LC537-L3_00023

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_004.d

Injection Date: 14-Aug-2017 12:58:26

Instrument ID: A8_N

Lims ID: IC L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

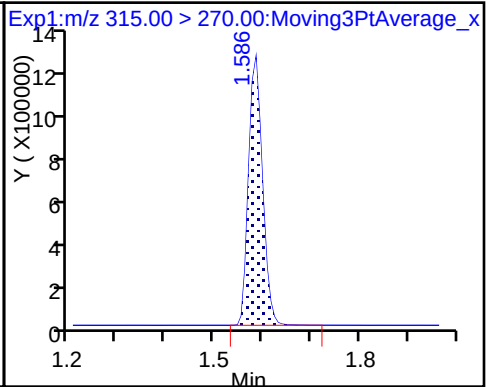
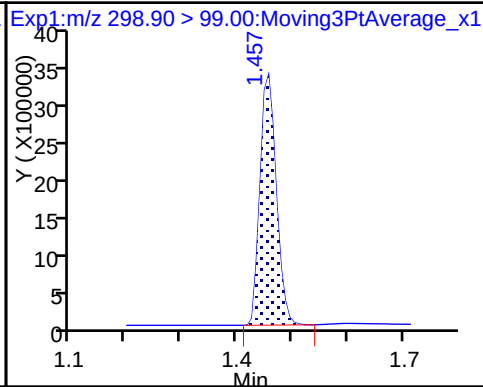
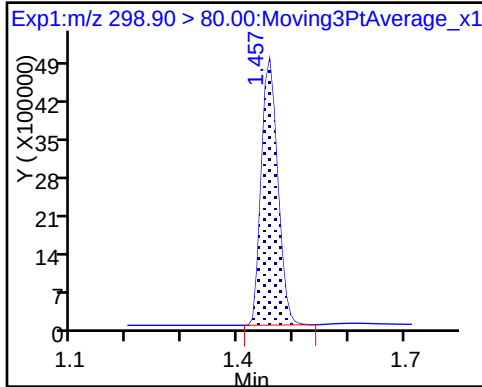
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

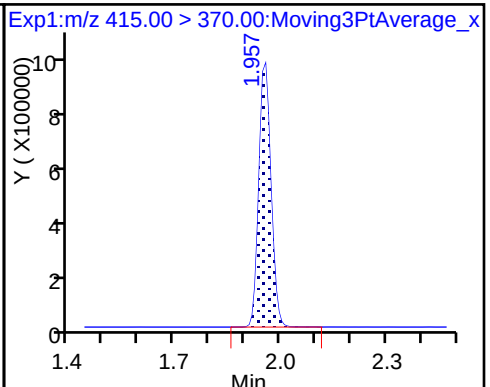
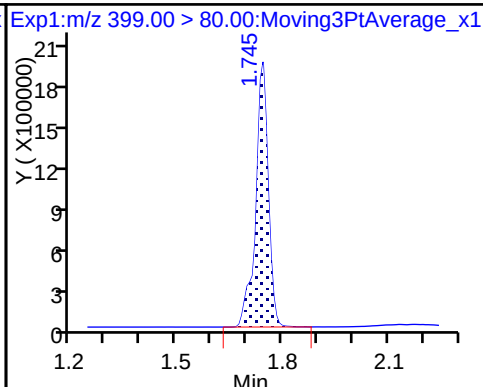
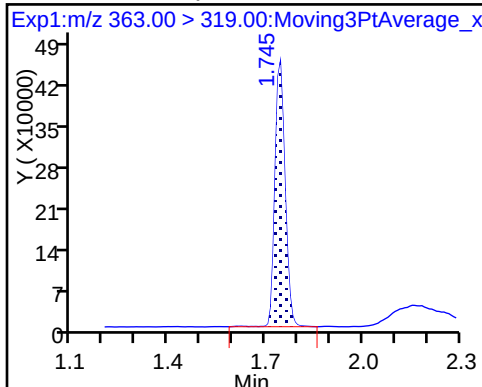
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

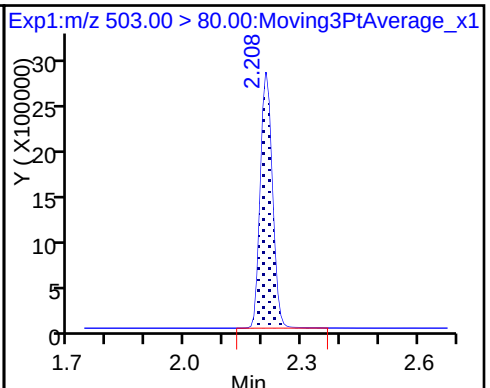
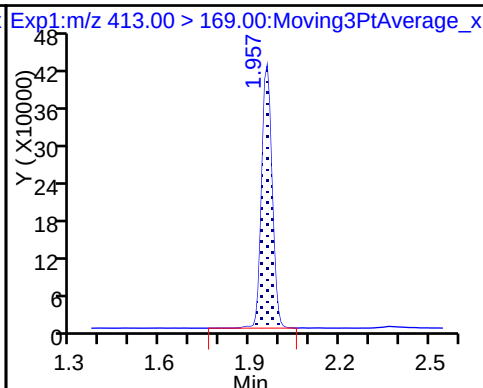
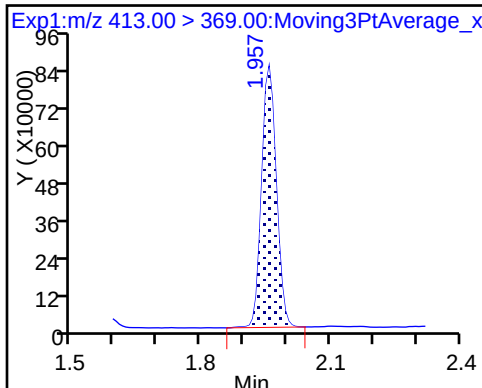
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

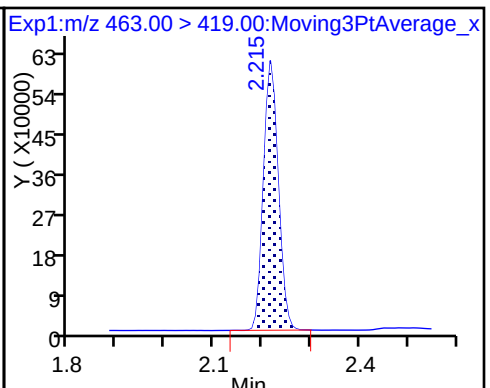
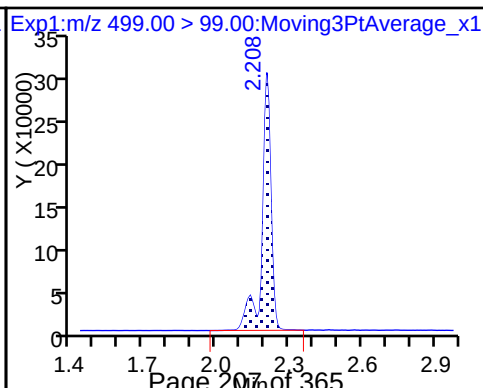
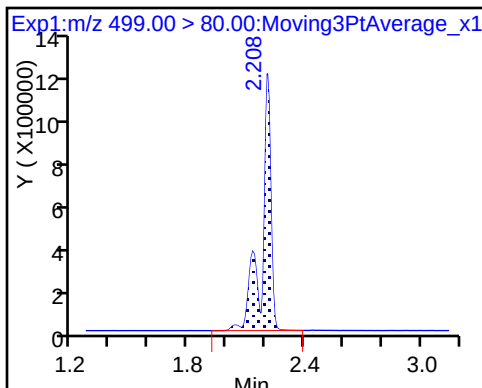
* 7 13C4 PFOS



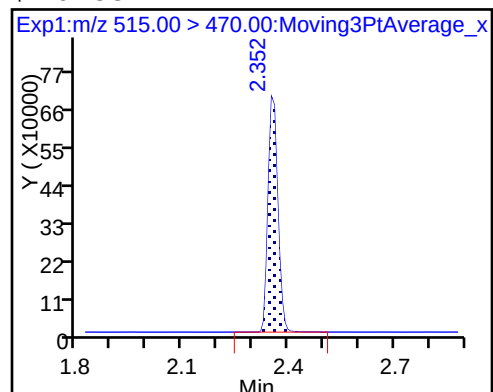
8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_005.d
 Lims ID: IC L4
 Client ID:
 Sample Type: ICISAV Calib Level: 4
 Inject. Date: 14-Aug-2017 13:03:11 ALS Bottle#: 4 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L4_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 14-Aug-2017 14:36:04 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK023

First Level Reviewer: phomsophat

Date: 14-Aug-2017 14:08:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.457	1.453	0.004	1.000	16707104	89.7		1918	
298.90 > 99.00	1.457	1.453	0.004	1.000	12133728		1.38(0.00-0.00)	2117	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.586	1.582	0.004	1.000	2465941	10.2		6561	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.745	1.742	0.003	1.000	9496666	31.5		1386	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.745	1.742	0.003	1.000	1966143	10.2		175	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.957	1.955	0.002	1.000	4232647	20.7		258	
413.00 > 169.00	1.957	1.955	0.002	1.000	2149139		1.97(0.00-0.00)	3387	
* 6 13C2-PFOA									
415.00 > 370.00	1.957	1.955	0.002		2255521	10.0		11927	
* 7 13C4 PFOS									
503.00 > 80.00	2.208	2.205	0.003		5780409	28.7		6098	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.208	2.208	0.0	1.000	7629588	41.0		6465	
499.00 > 99.00	2.208	2.208	0.0	1.000	1600291		4.77(0.00-0.00)	1799	
9 Perfluorononanoic acid									
463.00 > 419.00	2.215	2.213	0.002	1.000	2556105	20.0		585	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.352	2.354	-0.002	1.000	1332089	10.0		7263	

Reagents:

LC537-L4_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_005.d

Injection Date: 14-Aug-2017 13:03:11

Instrument ID: A8_N

Lims ID: IC L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 4

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

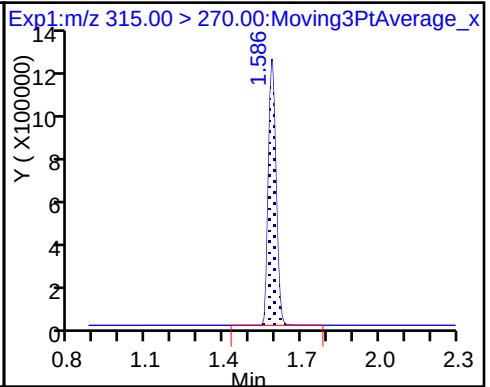
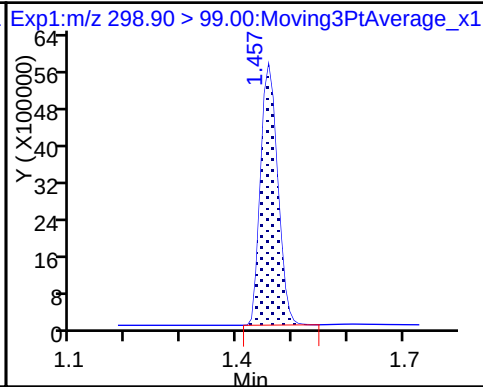
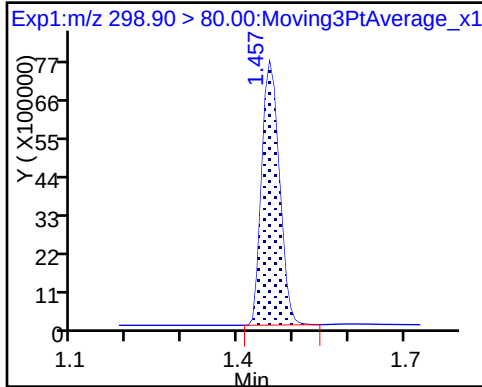
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

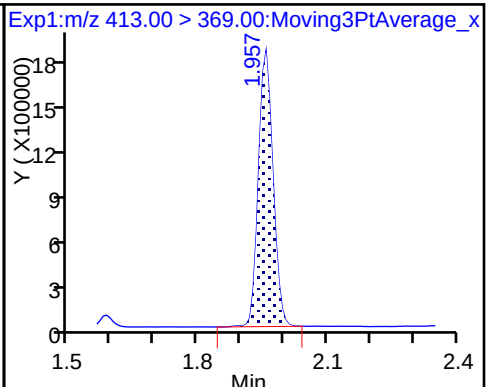
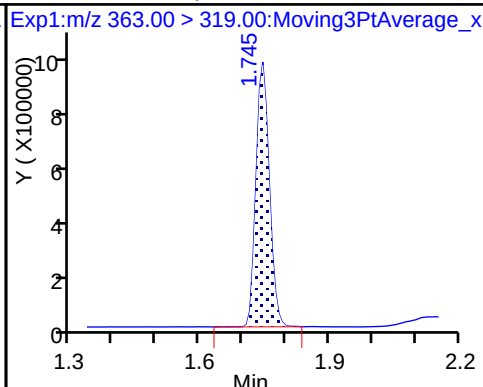
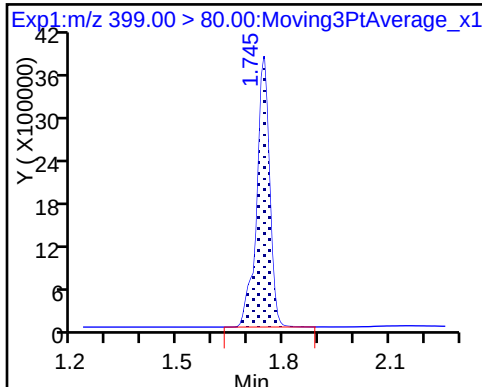
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

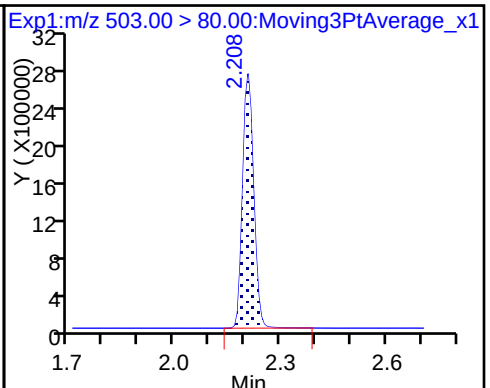
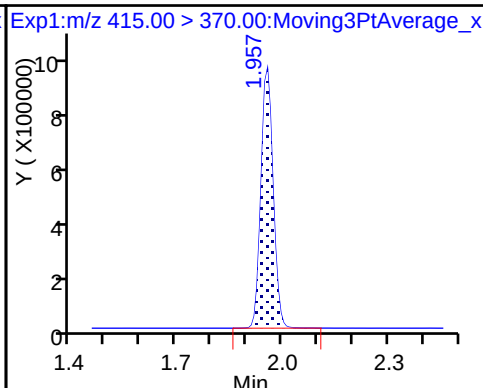
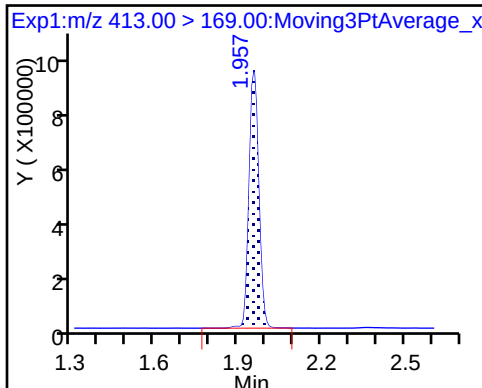
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

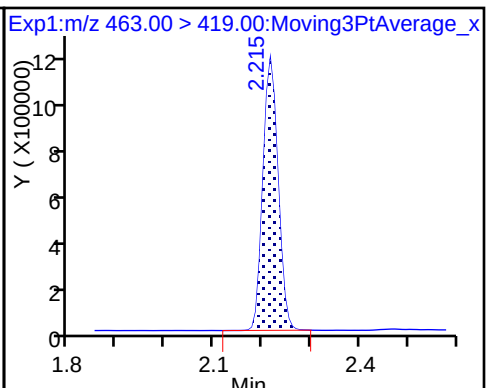
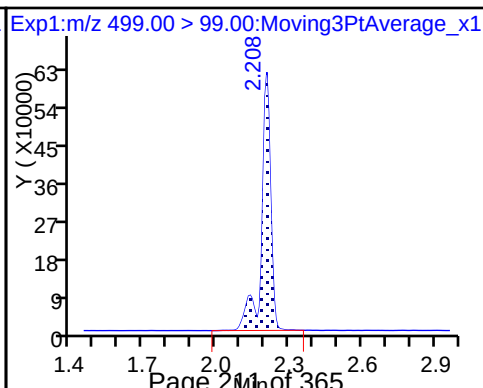
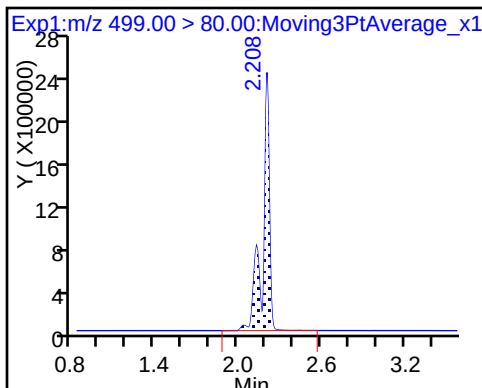
* 7 13C4 PFOS



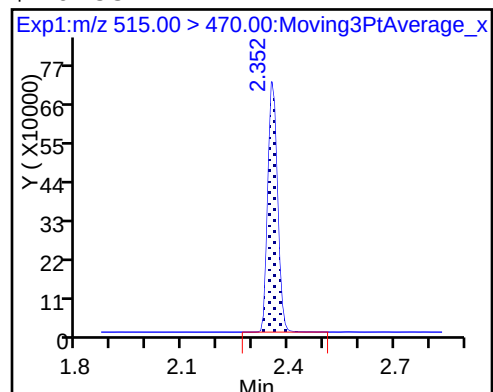
8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_006.d
 Lims ID: IC L5
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 14-Aug-2017 13:07:55 ALS Bottle#: 5 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L5_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 14-Aug-2017 14:36:05 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK023

First Level Reviewer: phomsophat

Date: 14-Aug-2017 14:09:10

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.449	1.453	-0.004	1.000	21165476	128.3		1973	
298.90 > 99.00	1.449	1.453	-0.004	1.000	15381000		1.38(0.00-0.00)	2392	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.582	-0.004	1.000	2390227	10.3		7171	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.737	1.742	-0.005	1.000	2763295	14.9		247	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.737	1.742	-0.005	1.000	13083092	44.5		1759	
* 6 13C2-PFOA									
415.00 > 370.00	1.950	1.955	-0.005		2162548	10.0		10597	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.950	1.955	-0.005	1.000	6012905	30.7		331	
413.00 > 169.00	1.950	1.955	-0.005	1.000	3169462		1.90(0.00-0.00)	4885	
* 7 13C4 PFOS									
503.00 > 80.00	2.200	2.205	-0.005		5649456	28.7		5877	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.208	2.208	0.0	1.000	11213929	61.6		7515	
499.00 > 99.00	2.200	2.208	-0.008	0.997	2357369		4.76(0.00-0.00)	2390	
9 Perfluorononanoic acid									
463.00 > 419.00	2.208	2.213	-0.005	1.000	3689416	30.1		869	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.352	2.354	-0.002	1.000	1324957	10.4		7073	

Reagents:

LC537-L5_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_006.d

Injection Date: 14-Aug-2017 13:07:55

Instrument ID: A8_N

Lims ID: IC L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

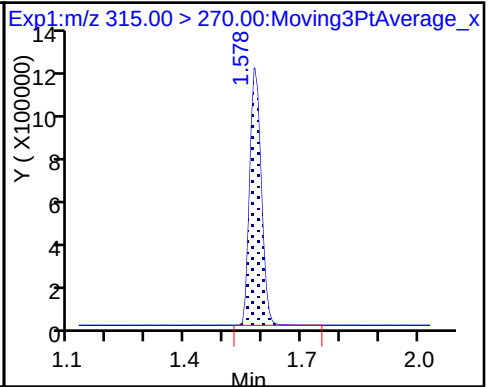
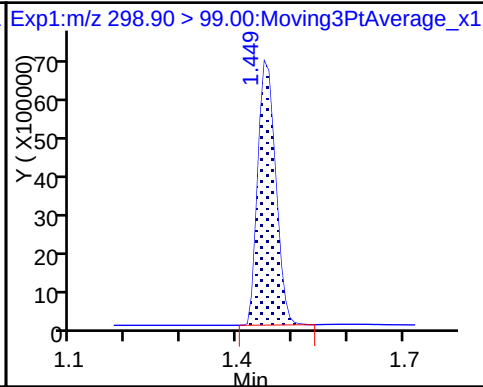
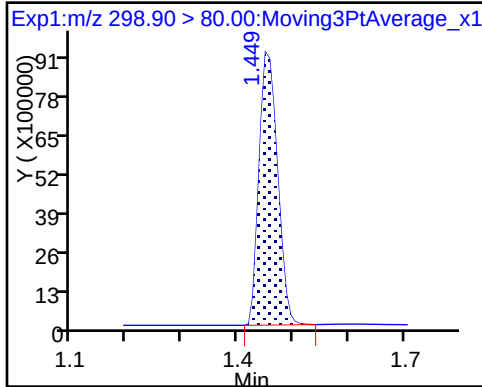
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

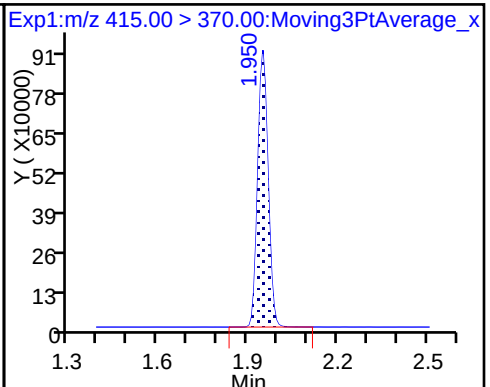
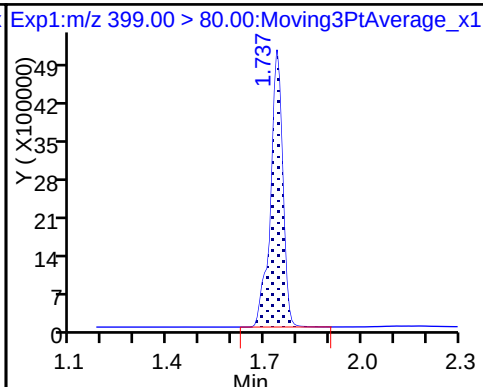
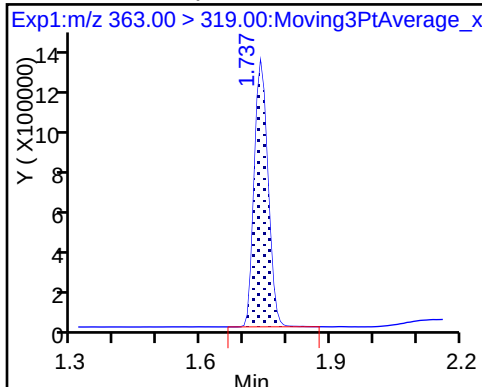
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

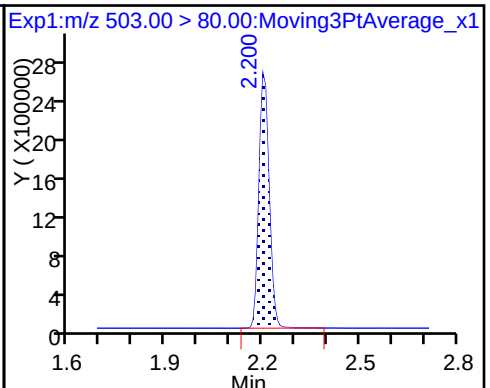
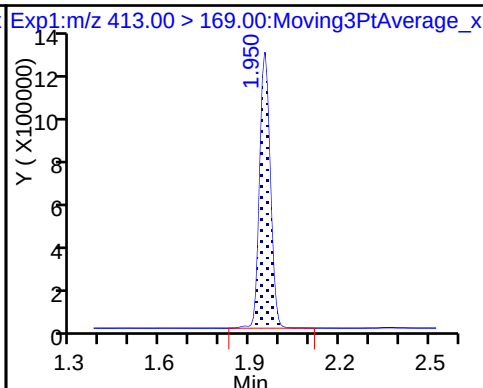
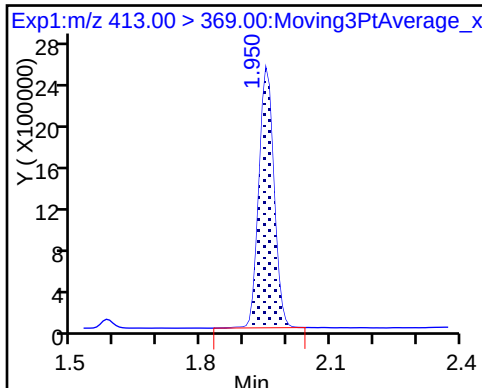
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

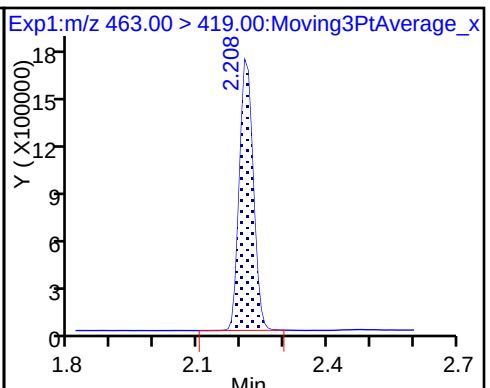
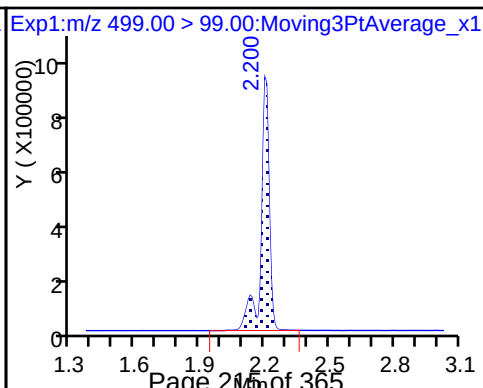
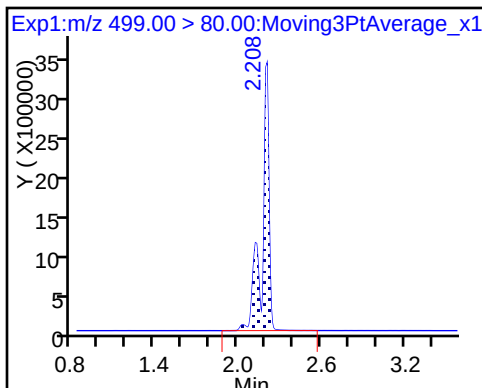
* 7 13C4 PFOS



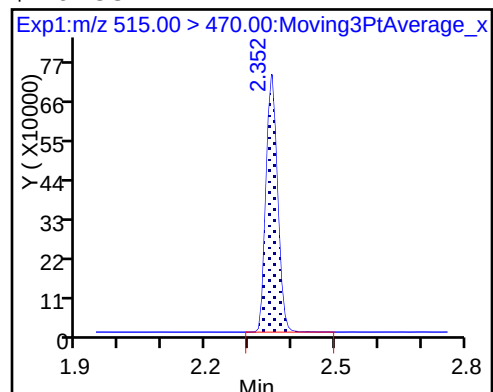
8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
 Lims ID: IC L6
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 14-Aug-2017 13:12:40 ALS Bottle#: 6 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L6_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 14-Aug-2017 14:36:07 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK023

First Level Reviewer: phomsophat

Date: 14-Aug-2017 14:09:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.449	1.453	-0.004	1.000	26040065	186.2		2319	
298.90 > 99.00	1.449	1.453	-0.004	1.000	19002053		1.37(0.00-0.00)	2644	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.582	-0.004	1.000	2370885	10.3		6962	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.737	1.742	-0.005	1.000	16584369	56.1		1968	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.737	1.742	-0.005	1.000	3589599	19.5		307	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.950	1.955	-0.005	1.000	7854398	40.2		429	
413.00 > 169.00	1.950	1.955	-0.005	1.000	4254502		1.85(0.00-0.00)	6275	
* 6 13C2-PFOA									
415.00 > 370.00	1.950	1.955	-0.005		2155463	10.0		11567	
* 7 13C4 PFOS									
503.00 > 80.00	2.200	2.205	-0.005		5673459	28.7		5607	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.208	2.208	0.0	1.000	14645432	80.2		8157	
499.00 > 99.00	2.200	2.208	-0.008	0.997	3183566		4.60(0.00-0.00)	2767	
9 Perfluorononanoic acid									
463.00 > 419.00	2.208	2.213	-0.005	1.000	4927051	40.4		1112	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.352	2.354	-0.002	1.000	1295768	10.2		7545	

Reagents:

LC537-L6_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Injection Date: 14-Aug-2017 13:12:40

Instrument ID: A8_N

Lims ID: IC L6

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 6

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

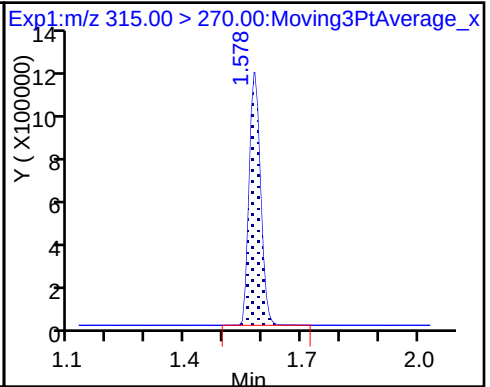
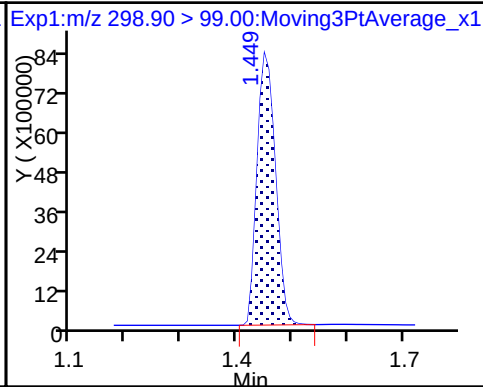
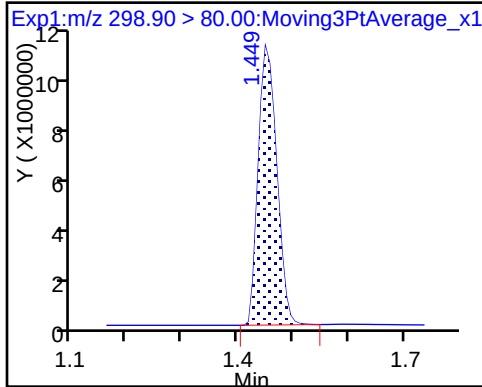
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

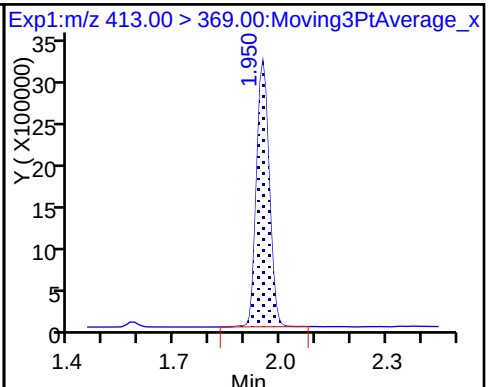
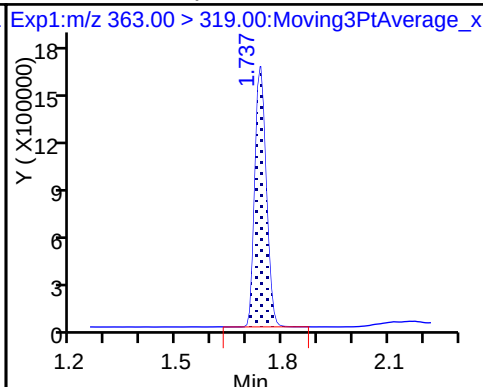
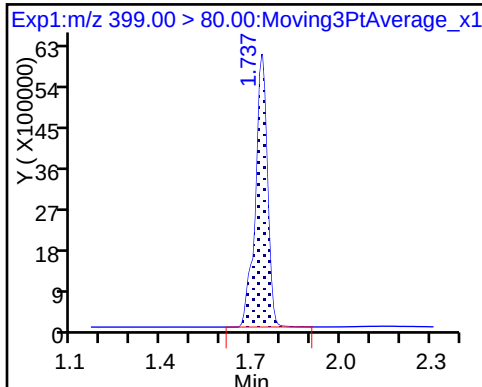
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

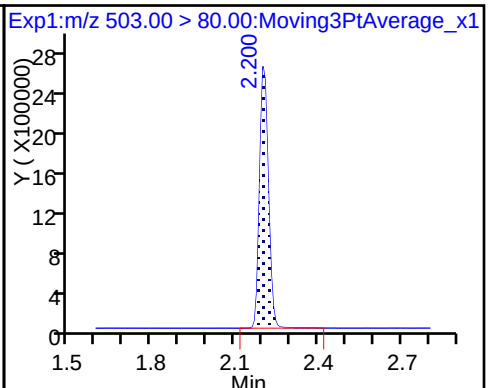
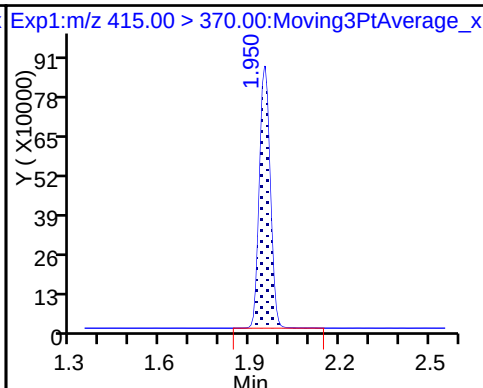
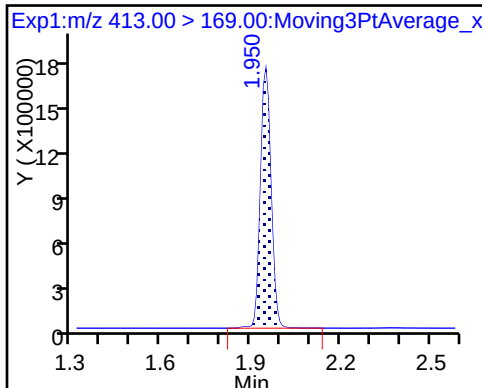
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

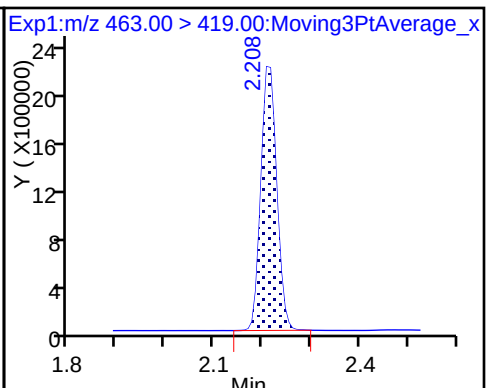
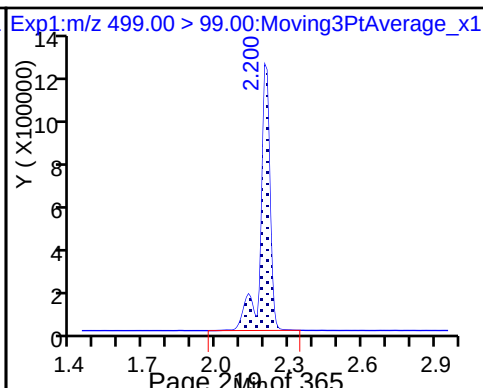
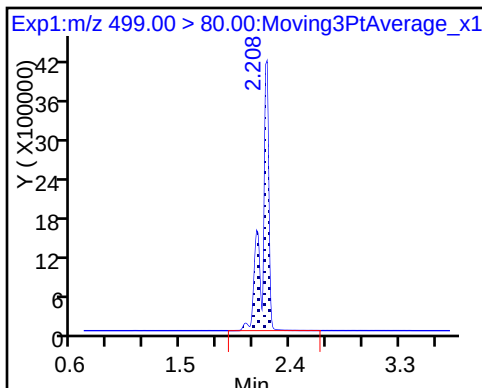
* 7 13C4 PFOS



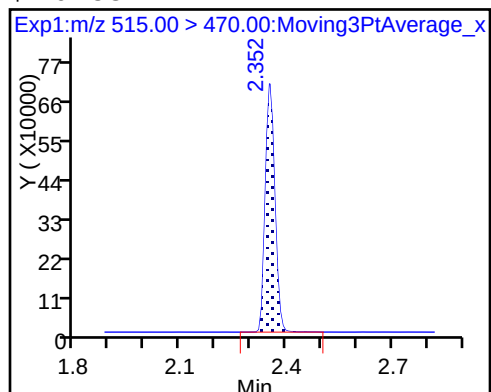
8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1 Analy Batch No.: 180236

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/17/2017 17:07 Calibration End Date: 08/17/2017 17:30 Calibration ID: 33656

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-180236/2	207.08.17_537A_004.d
Level 2	IC 320-180236/3	207.08.17_537A_005.d
Level 3	IC 320-180236/4	207.08.17_537A_006.d
Level 4	IC 320-180236/5	207.08.17_537A_007.d
Level 5	IC 320-180236/6	207.08.17_537A_008.d
Level 6	IC 320-180236/7	207.08.17_537A_009.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanesulfonic acid (PFBS)	1.0927 0.7332	1.1633	1.0611	0.8972	0.7853	QuaF		1.0837	-0.002008						0.9970		0.9600
Perfluoroheptanoic acid (PFHpA)	0.9281 0.8704	0.9794	1.0010	0.9614	0.9085	Ave		0.9415				5.1		30.0			
Perfluorohexanesulfonic acid (PFHxS)	1.4768 1.4556	1.6479	1.5869	1.5645	1.4984	Ave		1.5383				4.8		30.0			
Perfluorooctanoic acid (PFOA)	0.8906 0.9399	0.8695	0.9315	0.9671	0.9064	Ave		0.9175				3.9		30.0			
Perfluorooctanesulfonic acid (PFOS)	0.8621 0.9508	0.9259	0.8962	0.9469	0.9367	Ave		0.9198				3.7		30.0			
Perfluorononanoic acid (PFNA)	0.7073 0.6252	0.7733	0.7934	0.7465	0.6445	Ave		0.7150				9.6		30.0			
13C2 PFHxA	1.1263 1.0730	1.1534	1.1964	1.1363	1.1254	Ave		1.1351				3.6		30.0			
13C2 PFDA	0.7013 0.5669	0.6802	0.7263	0.6486	0.5957	Ave		0.6532				9.5		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1 Analy Batch No.: 180236

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/17/2017 17:07 Calibration End Date: 08/17/2017 17:30 Calibration ID: 33656

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-180236/2	207.08.17_537A_004.d
Level 2	IC 320-180236/3	207.08.17_537A_005.d
Level 3	IC 320-180236/4	207.08.17_537A_006.d
Level 4	IC 320-180236/5	207.08.17_537A_007.d
Level 5	IC 320-180236/6	207.08.17_537A_008.d
Level 6	IC 320-180236/7	207.08.17_537A_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluorobutanesulfonic acid (PFBS)	PFOS	QuaF	1989419 25626485	4448062	9376032	15897968	20788356	9.00 180	20.0	45.0	90.0	135
Perfluoroheptanoic acid (PFHpA)	13PF OA	Ave	167400 3752250	379095	852234	1817435	2833966	1.00 20.0	2.22	5.00	10.0	15.0
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	896364 16959937	2100734	4674793	9242464	13223291	3.00 60.0	6.67	15.0	30.0	45.0
Perfluorooctanoic acid (PFOA)	13PF OA	Ave	321453 8108947	673518	1587046	3658778	5658166	2.00 40.0	4.45	10.0	20.0	30.0
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	697706 14770994	1573826	3519979	7458706	11021657	4.00 80.0	8.89	20.0	40.0	60.0
Perfluorononanoic acid (PFNA)	13PF OA	Ave	255111 5389964	598613	1350886	2822430	4020876	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PF OA	Ave	2030599 2312284	2008624	2036663	2147570	2339905	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PF OA	Ave	1264490 1221662	1184489	1236464	1225880	1238610	10.0 10.0	10.0	10.0	10.0	10.0

Curve Type Legend:

Ave = Average ISTD
QuaF = Quadratic ISTD forced zero

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
READBACK PERCENT ERROR

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1 Analy Batch No.: 180236

SDG No.: _____

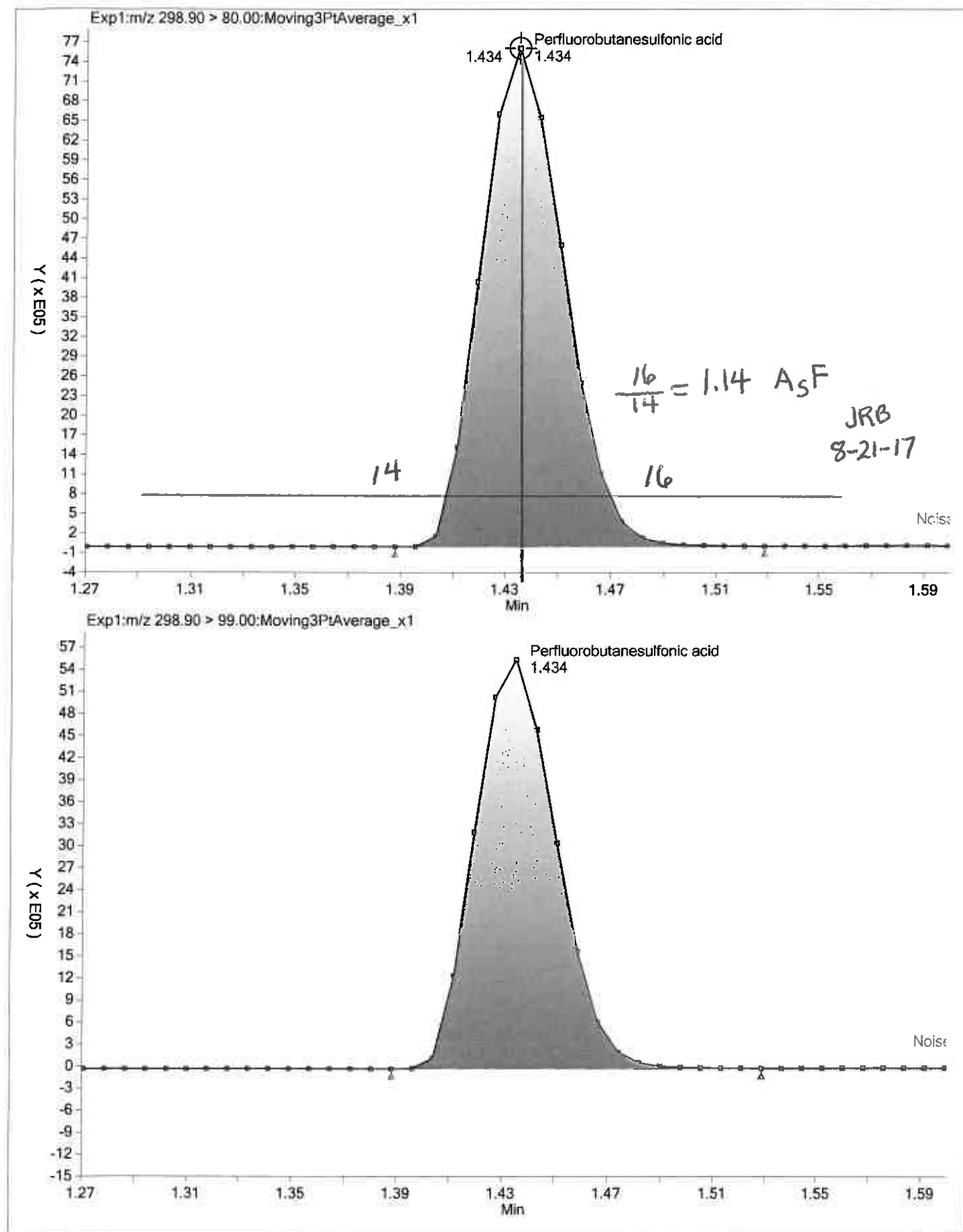
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

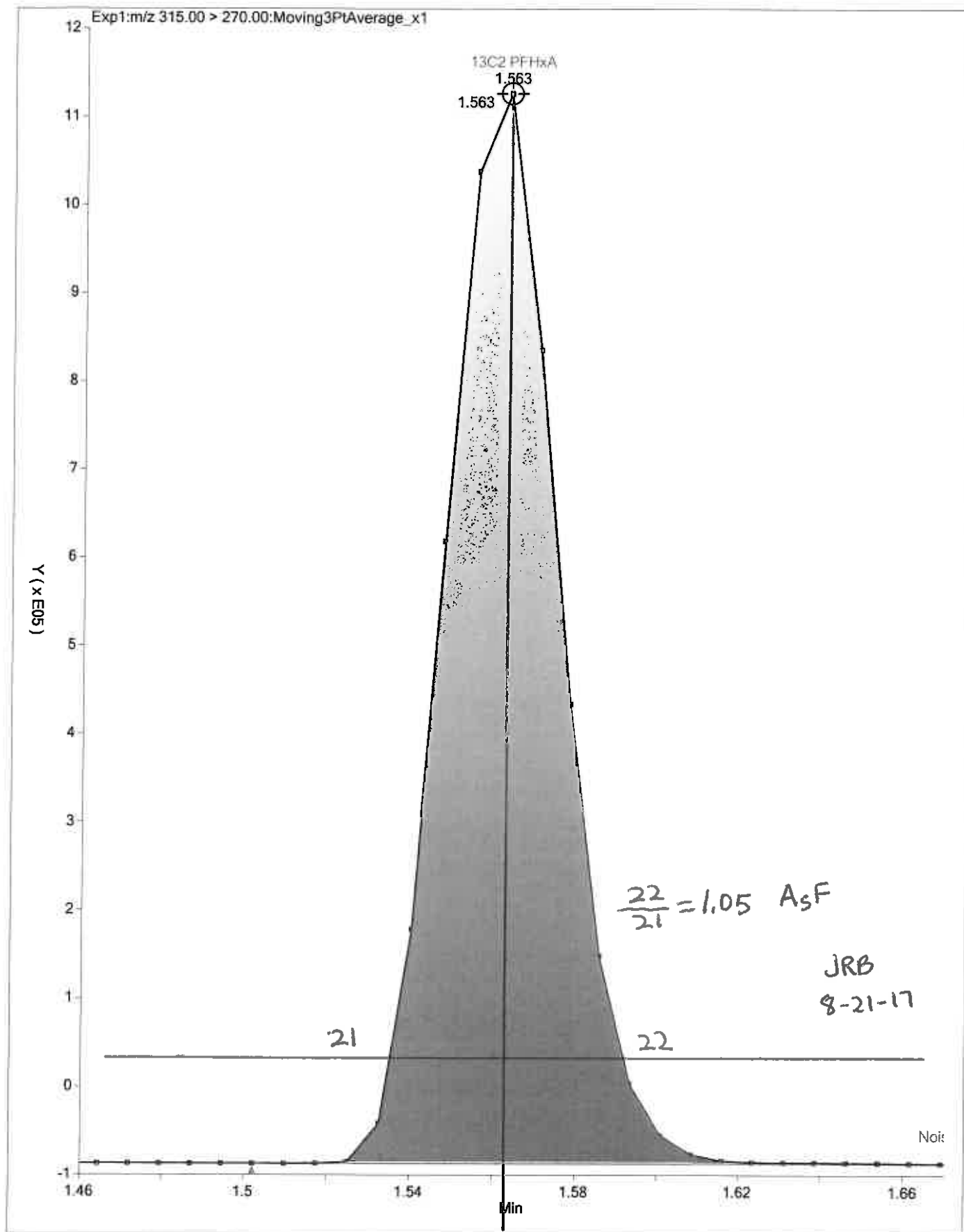
Calibration Start Date: 08/17/2017 17:07 Calibration End Date: 08/17/2017 17:30 Calibration ID: 33656

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-180236/2	207.08.17_537A_004.d
Level 2	IC 320-180236/3	207.08.17_537A_005.d
Level 3	IC 320-180236/4	207.08.17_537A_006.d
Level 4	IC 320-180236/5	207.08.17_537A_007.d
Level 5	IC 320-180236/6	207.08.17_537A_008.d
Level 6	IC 320-180236/7	207.08.17_537A_009.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid (PFBS)	2.6	12.0	7.6	-0.8	-4.9	3.1	50	50	50	50	50	50
Perfluoroheptanoic acid (PFHpA)	-1.4	4.0	6.3	2.1	-3.5	-7.6	50	50	50	50	50	50
Perfluorohexanesulfonic acid (PFHxS)	-4.0	7.1	3.2	1.7	-2.6	-5.4	50	50	50	50	50	50
Perfluorooctanoic acid (PFOA)	-2.9	-5.2	1.5	5.4	-1.2	2.4	50	50	50	50	50	50
Perfluorooctanesulfonic acid (PFOS)	-6.3	0.7	-2.6	3.0	1.8	3.4	50	50	50	50	50	50
Perfluorononanoic acid (PFNA)	-1.1	8.1	11.0	4.4	-9.9	-12.6	50	50	50	50	50	50
13C2 PFHxA	-0.8	1.6	5.4	0.1	-0.9	-5.5	30	30	30	30	30	30
13C2 PFDA	7.4	4.1	11.2	-0.7	-8.8	-13.2	30	30	30	30	30	30





TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_004.d
 Lims ID: IC L1
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 17-Aug-2017 17:07:15 ALS Bottle#: 1 Worklist Smp#: 2
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L1_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 21-Aug-2017 10:10:39 Calib Date: 17-Aug-2017 17:30:56
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_009.d

Column 1 : Det: EXP1

Process Host: XAWRK001

First Level Reviewer: phomsophat

Date: 19-Aug-2017 13:42:12

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.442	1.438	0.004	1.000	1989419	9.23		400	
298.90 > 99.00	1.442	1.438	0.004	1.000	1350551		1.47(0.00-0.00)	347	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.568	0.010	1.000	2030599	9.92		8904	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.737	1.722	0.015	1.000	896364	2.88		255	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.737	1.722	0.015	1.000	167400	0.9862		23.2	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.950	1.928	0.022	1.000	321453	1.94		37.6	
413.00 > 169.00	1.950	1.928	0.022	1.000	173092		1.86(0.00-0.00)	272	
* 6 13C2-PFOA									
415.00 > 370.00	1.950	1.928	0.022		1802946	10.0		7232	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.208	2.177	0.031	1.000	697706	3.75		192	
499.00 > 99.00	2.200	2.177	0.023	0.997	152215		4.58(0.00-0.00)	145	
* 7 13C4 PFOS									
503.00 > 80.00	2.200	2.185	0.015		5800695	28.7		2681	
9 Perfluorononanoic acid									
463.00 > 419.00	2.208	2.193	0.015	1.000	255111	1.98		19.9	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.352	2.342	0.010	1.000	1264490	10.7		7755	

Reagents:

LC537-L1_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_004.d

Injection Date: 17-Aug-2017 17:07:15

Instrument ID: A8_N

Lims ID: IC L1

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 1

Worklist Smp#: 2

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

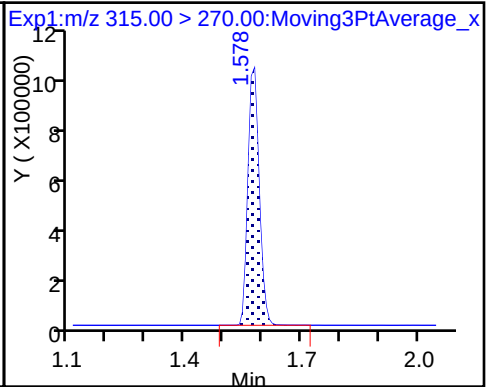
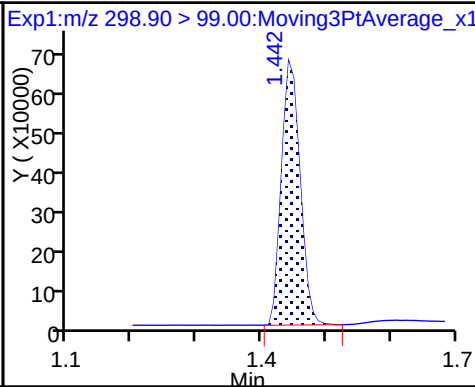
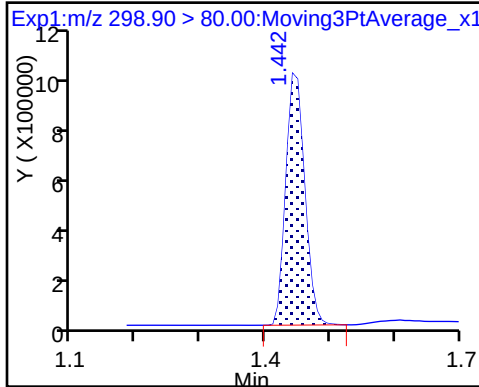
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

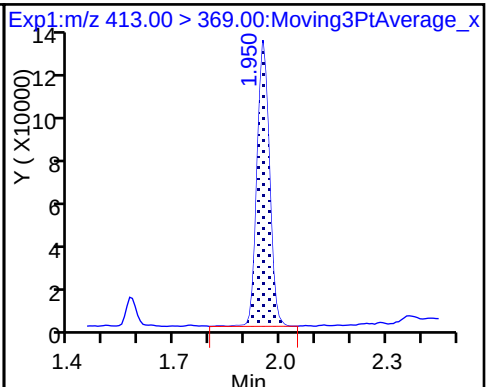
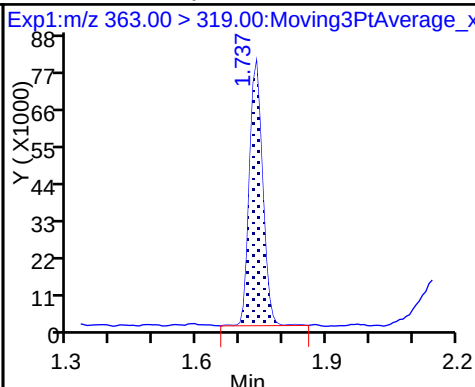
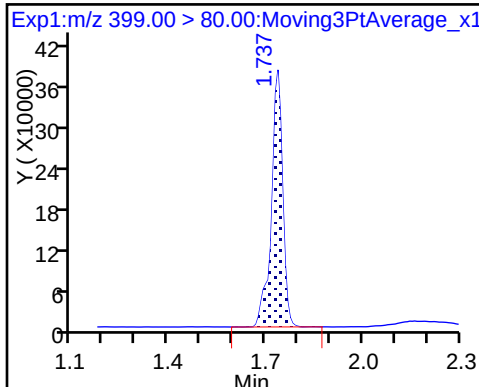
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

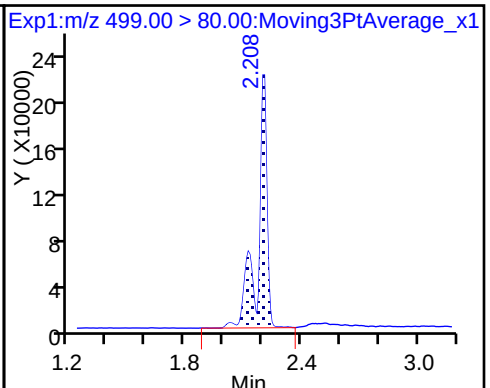
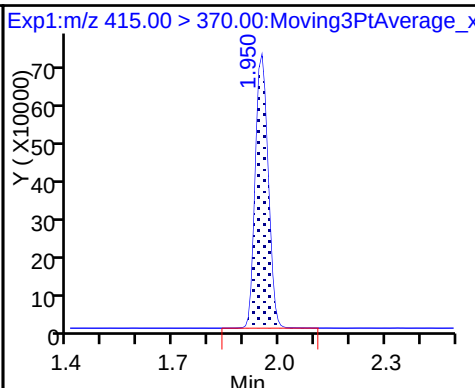
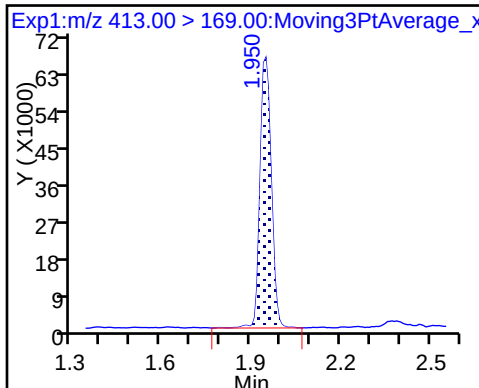
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

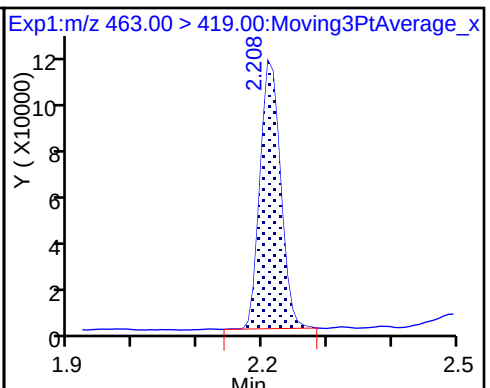
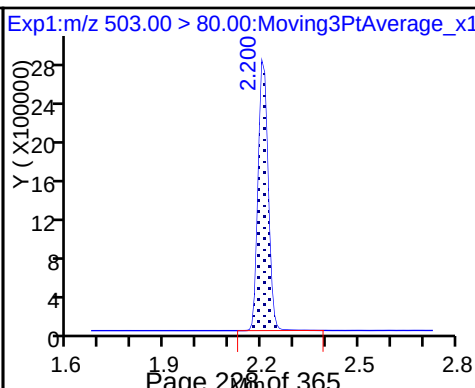
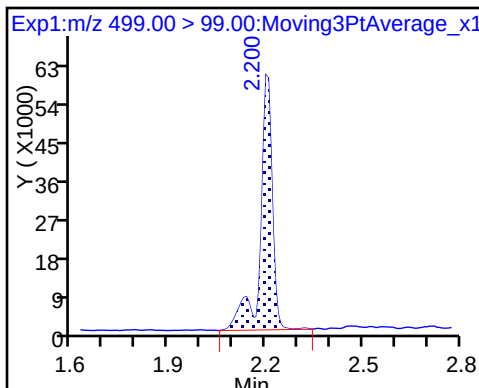
8 Perfluorooctane sulfonic acid



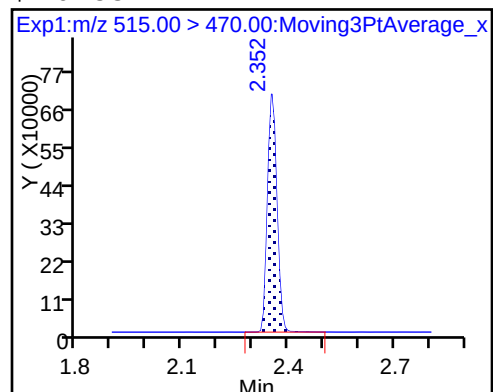
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_005.d
 Lims ID: IC L2
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 17-Aug-2017 17:12:00 ALS Bottle#: 2 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L2_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 21-Aug-2017 10:10:40 Calib Date: 17-Aug-2017 17:30:56
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_009.d

Column 1 : Det: EXP1

Process Host: XAWRK001

First Level Reviewer: phomsophat

Date: 19-Aug-2017 13:42:24

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.449	1.438	0.011	1.000	4448062	22.4		935	
298.90 > 99.00	1.449	1.438	0.011	1.000	3039828		1.46(0.00-0.00)	790	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.568	0.010	1.000	2008624	10.2		9026	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.737	1.722	0.015	1.000	379095	2.31		50.7	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.737	1.722	0.015	1.000	2100734	7.14		621	
* 6 13C2-PFOA									
415.00 > 370.00	1.942	1.928	0.014		1741419	10.0		7925	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.942	1.928	0.014	1.000	673518	4.22		66.4	
413.00 > 169.00	1.942	1.928	0.014	1.000	351878		1.91(0.00-0.00)	543	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.200	2.177	0.023	1.000	1573826	8.95		525	
499.00 > 99.00	2.200	2.177	0.023	1.000	340165		4.63(0.00-0.00)	346	
* 7 13C4 PFOS									
503.00 > 80.00	2.200	2.185	0.015		5482857	28.7		2967	
9 Perfluorononanoic acid									
463.00 > 419.00	2.208	2.193	0.015	1.000	598613	4.81		63.2	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.352	2.342	0.010	1.000	1184489	10.4		8321	

Reagents:

LC537-L2_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_005.d

Injection Date: 17-Aug-2017 17:12:00

Instrument ID: A8_N

Lims ID: IC L2

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

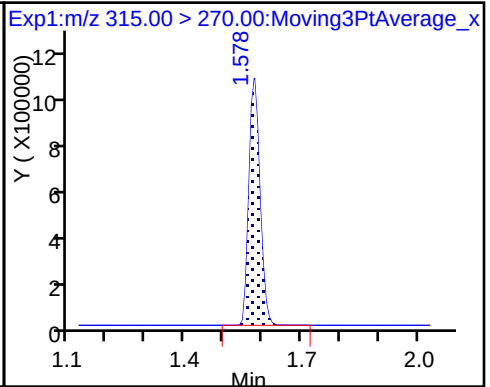
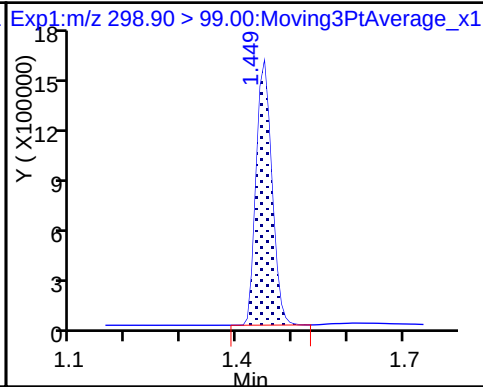
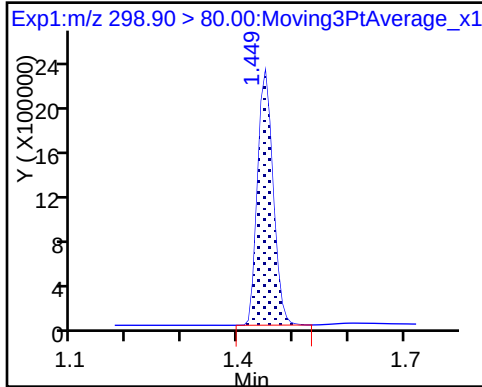
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

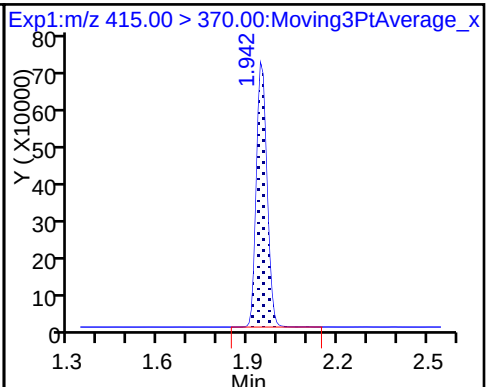
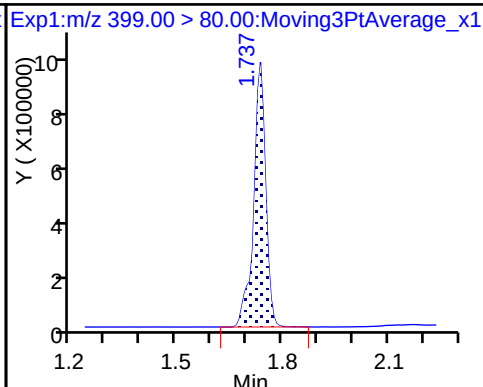
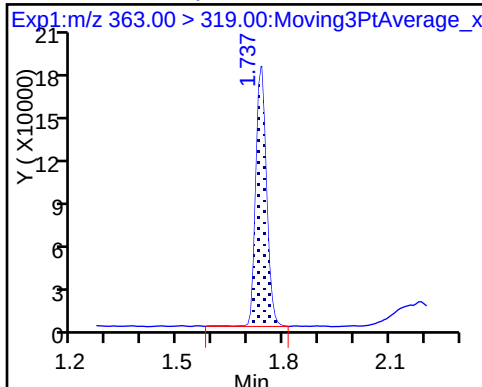
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

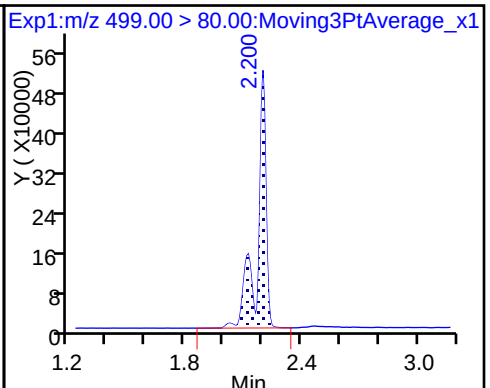
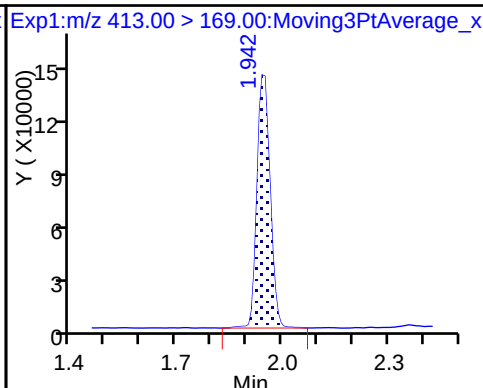
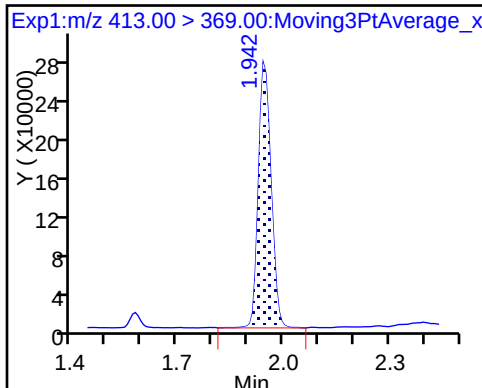
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

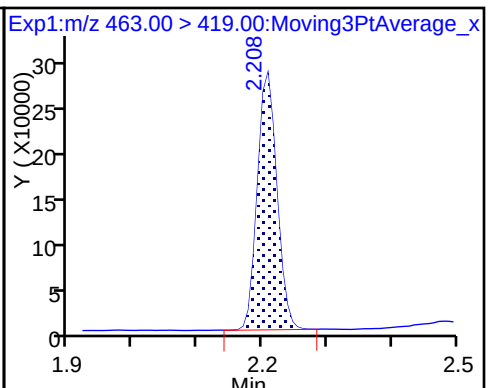
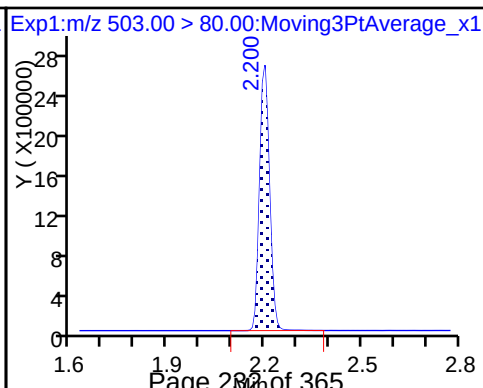
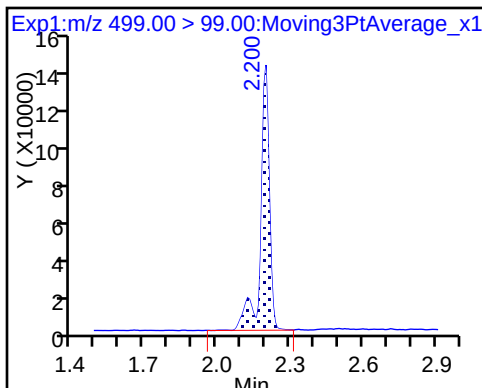
8 Perfluorooctane sulfonic acid



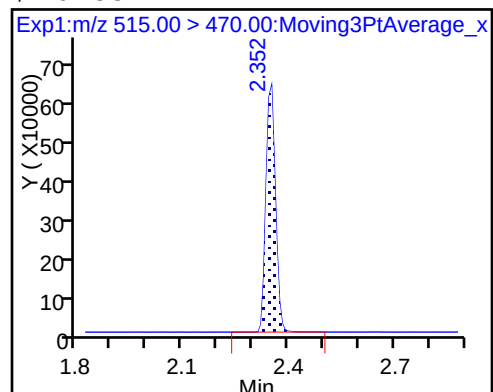
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_006.d
 Lims ID: IC L3
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 17-Aug-2017 17:16:44 ALS Bottle#: 3 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L3_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 21-Aug-2017 10:10:42 Calib Date: 17-Aug-2017 17:30:56
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_009.d

Column 1 : Det: EXP1

Process Host: XAWRK001

First Level Reviewer: phomsophat

Date: 19-Aug-2017 13:42:36

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.434	1.438	-0.004	1.000	9376032	48.4		1742	
298.90 > 99.00	1.434	1.438	-0.004	1.000	6443436		1.46(0.00-0.00)	1548	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.563	1.568	-0.005	1.000	2036663	10.5		10368	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.715	1.722	-0.007	1.000	4674793	15.5		1277	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.715	1.722	-0.007	1.000	852234	5.32		109	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.920	1.928	-0.008	1.000	1587046	10.2		139	
413.00 > 169.00	1.920	1.928	-0.008	1.000	811042		1.96(0.00-0.00)	1273	
* 6 13C2-PFOA									
415.00 > 370.00	1.920	1.928	-0.008		1702319	10.0		7551	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.177	2.177	0.0	1.000	3519979	19.5		1141	
499.00 > 99.00	2.177	2.177	0.0	1.000	734381		4.79(0.00-0.00)	643	
* 7 13C4 PFOS									
503.00 > 80.00	2.177	2.185	-0.008		5631219	28.7		2814	
9 Perfluorononanoic acid									
463.00 > 419.00	2.185	2.193	-0.008	1.000	1350886	11.1		146	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.337	2.342	-0.005	1.000	1236464	11.1		7600	

Reagents:

LC537-L3_00023

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_006.d

Injection Date: 17-Aug-2017 17:16:44

Instrument ID: A8_N

Lims ID: IC L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

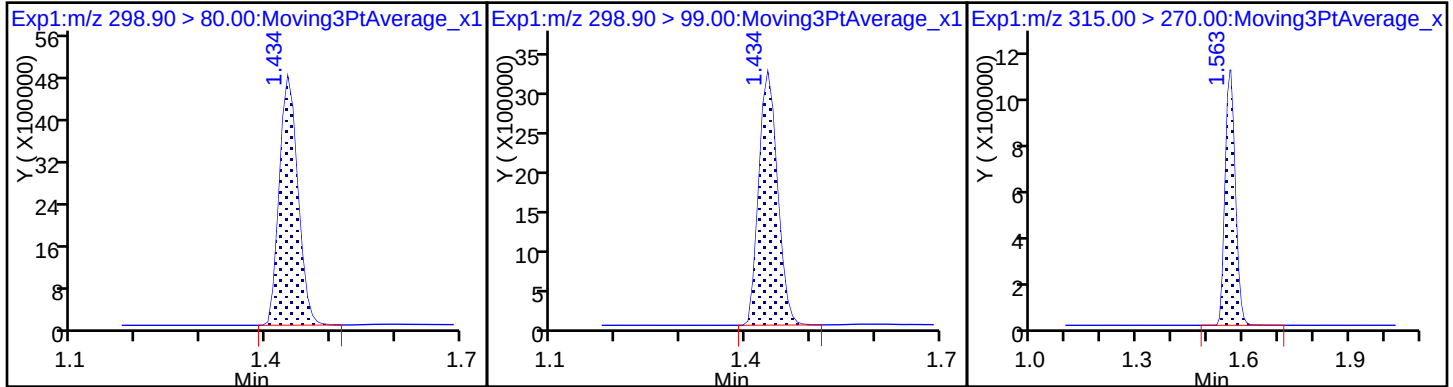
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

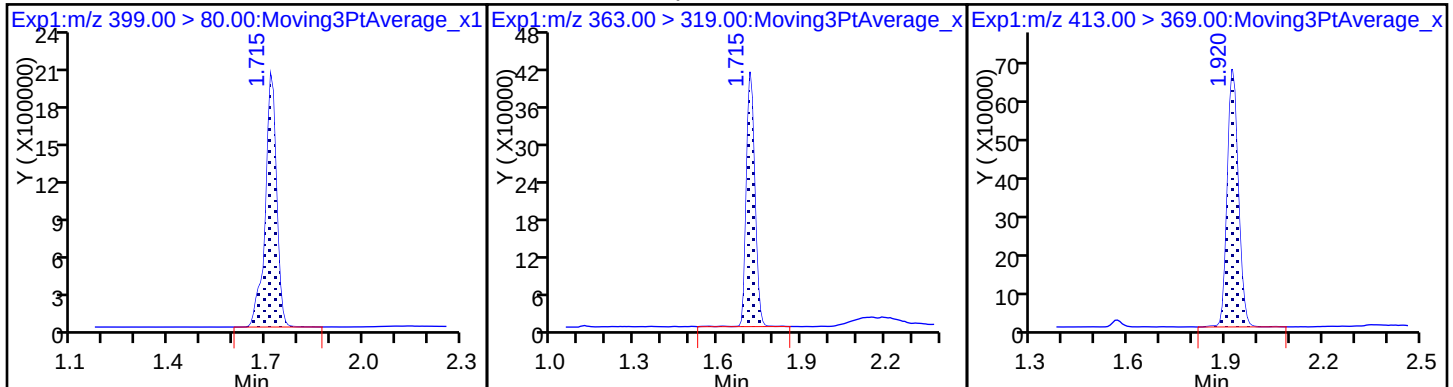
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

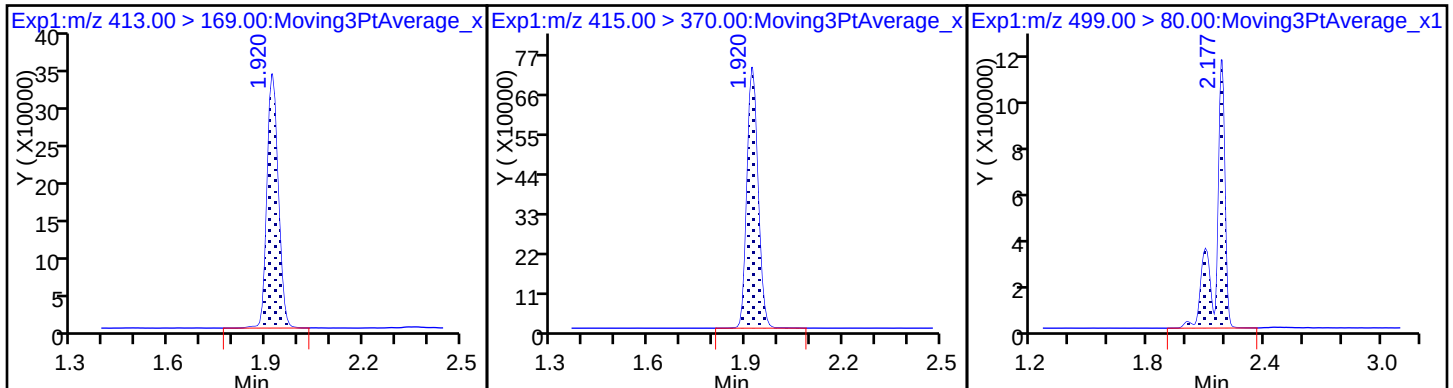
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

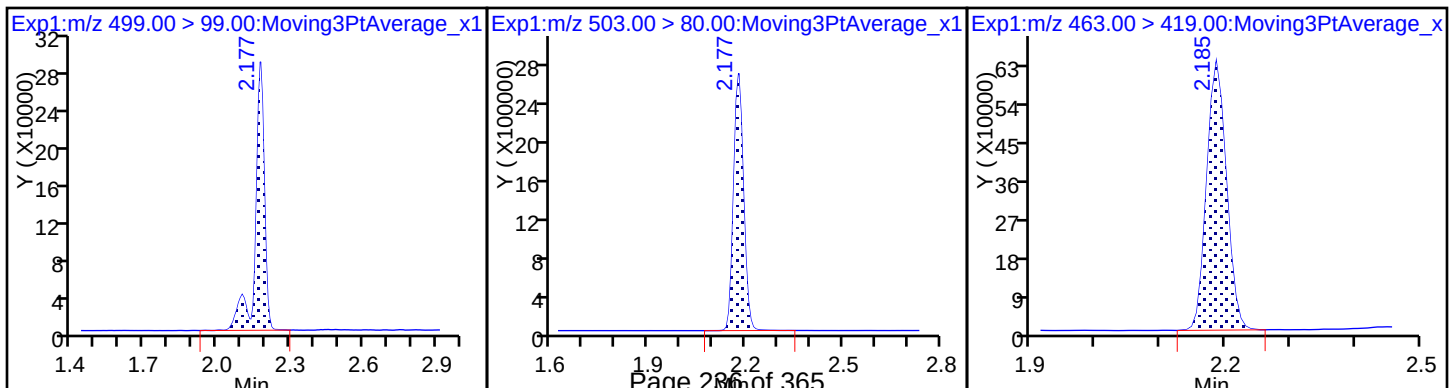
8 Perfluorooctane sulfonic acid



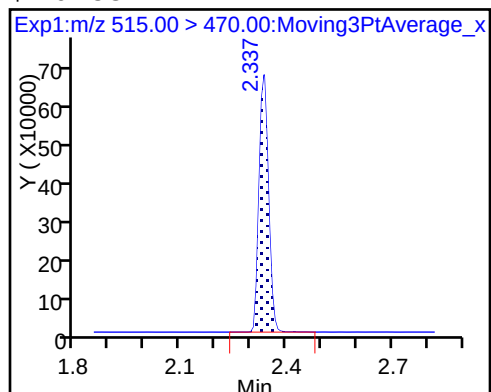
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_007.d
 Lims ID: IC L4
 Client ID:
 Sample Type: ICISAV Calib Level: 4
 Inject. Date: 17-Aug-2017 17:21:27 ALS Bottle#: 4 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L4_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 21-Aug-2017 10:10:44 Calib Date: 17-Aug-2017 17:30:56
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_009.d

Column 1 : Det: EXP1

Process Host: XAWRK001

First Level Reviewer: barnettj

Date: 21-Aug-2017 10:10:28

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.434	1.438	-0.004	1.000	15897968	89.3		2489	
298.90 > 99.00	1.434	1.438	-0.004	1.000	11377248		1.40(0.00-0.00)	2453	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.563	1.568	-0.005	1.000	2147570	10.0		9863	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.715	1.722	-0.007	1.000	1817435	10.2		228	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.715	1.722	-0.007	1.000	9242464	30.5		2162	
* 6 13C2-PFOA									
415.00 > 370.00	1.920	1.928	-0.008		1890017	10.0		8600	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.920	1.928	-0.008	1.000	3658778	21.1		282	
413.00 > 169.00	1.920	1.928	-0.008	1.000	1830595		2.00(0.00-0.00)	2557	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.177	2.177	0.0	1.000	7458706	41.2		3723	
499.00 > 99.00	2.177	2.177	0.0	1.000	1548337		4.82(0.00-0.00)	1253	
* 7 13C4 PFOS									
503.00 > 80.00	2.177	2.185	-0.008		5646402	28.7		2860	
9 Perfluorononanoic acid									
463.00 > 419.00	2.185	2.193	-0.008	1.000	2822430	20.9		323	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.337	2.342	-0.005	1.000	1225880	9.93		8717	

Reagents:

LC537-L4_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_007.d

Injection Date: 17-Aug-2017 17:21:27

Instrument ID: A8_N

Lims ID: IC L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 4

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

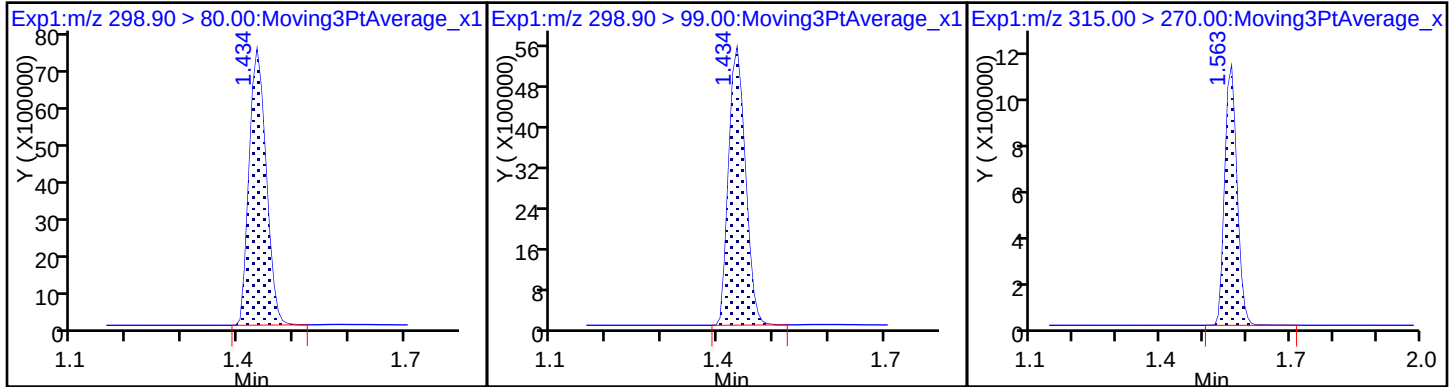
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

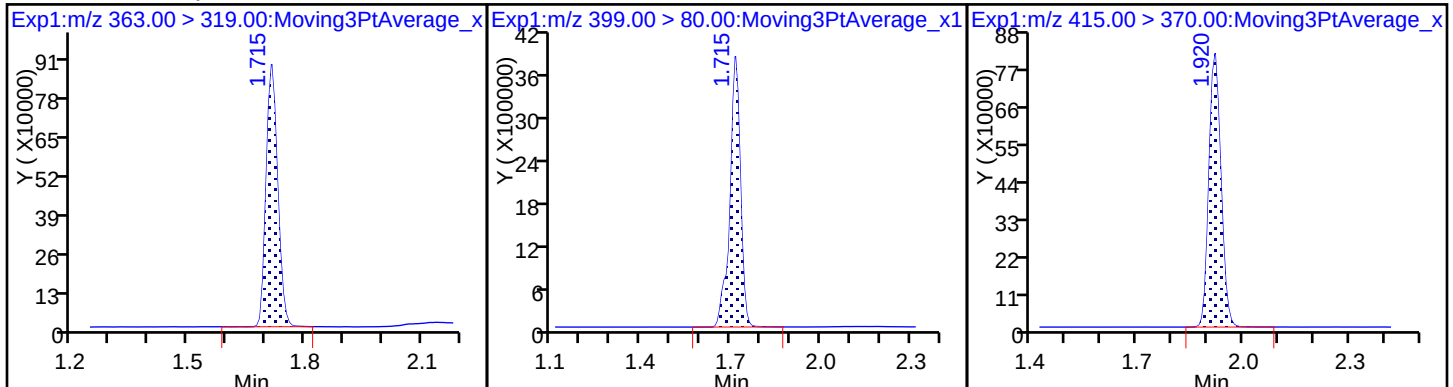
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

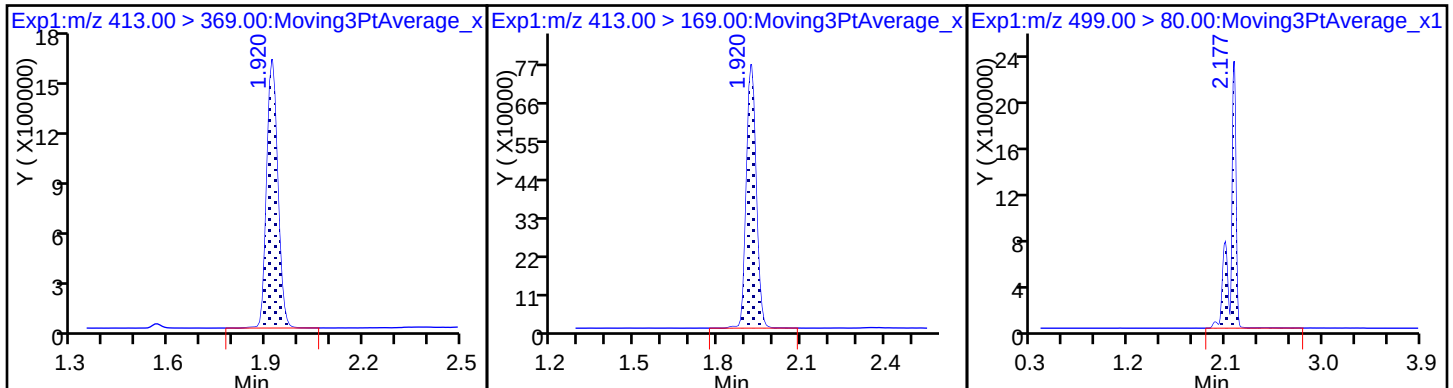
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

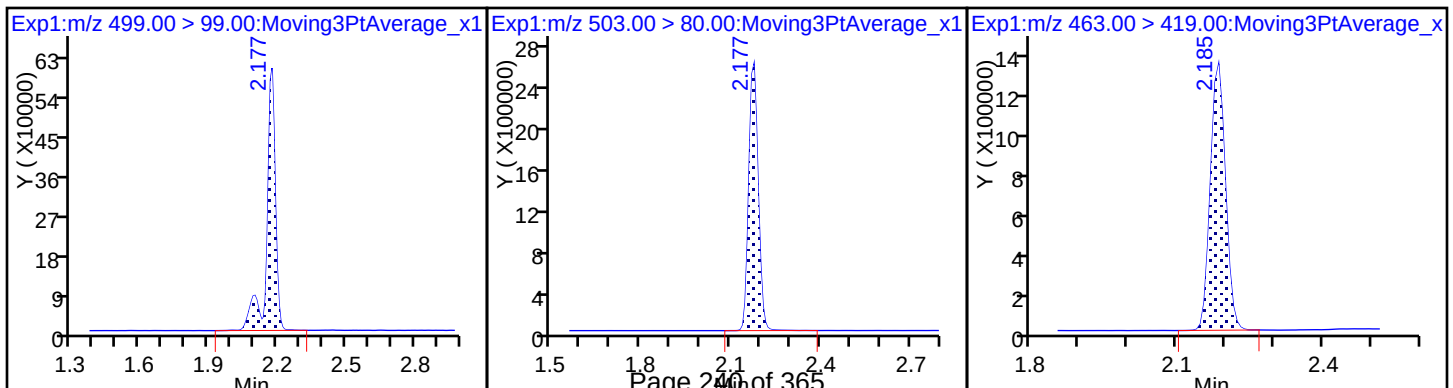
8 Perfluorooctane sulfonic acid



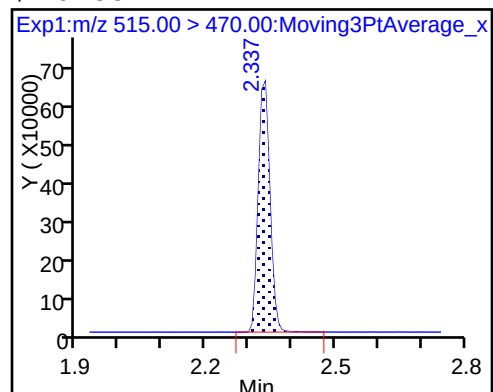
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_008.d
 Lims ID: IC L5
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 17-Aug-2017 17:26:12 ALS Bottle#: 5 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L5_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 21-Aug-2017 10:10:45 Calib Date: 17-Aug-2017 17:30:56
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_009.d

Column 1 : Det: EXP1

Process Host: XAWRK001

First Level Reviewer: phomsophat

Date: 19-Aug-2017 13:43:09

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.434	1.438	-0.004	1.000	20788356	128.4		3029	
298.90 > 99.00	1.434	1.438	-0.004	1.000	15484251		1.34(0.00-0.00)	2979	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.563	1.568	-0.005	1.000	2339905	9.91		10949	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.715	1.722	-0.007	1.000	13223291	43.8		2949	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.715	1.722	-0.007	1.000	2833966	14.5		343	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.920	1.928	-0.008	1.000	5658166	29.7		404	
413.00 > 169.00	1.920	1.928	-0.008	1.000	3055610		1.85(0.00-0.00)	4022	
* 6 13C2-PFOA									
415.00 > 370.00	1.920	1.928	-0.008		2079120	10.0		9116	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.177	2.177	0.0	1.000	11021657	61.1		4955	
499.00 > 99.00	2.170	2.177	-0.007	0.997	2318380		4.75(0.00-0.00)	1730	
* 7 13C4 PFOS									
503.00 > 80.00	2.177	2.185	-0.008		5623095	28.7		2752	
9 Perfluorononanoic acid									
463.00 > 419.00	2.185	2.193	-0.008	1.000	4020876	27.0		485	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.337	2.342	-0.005	1.000	1238610	9.12		8347	

Reagents:

LC537-L5_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_008.d

Injection Date: 17-Aug-2017 17:26:12

Instrument ID: A8_N

Lims ID: IC L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

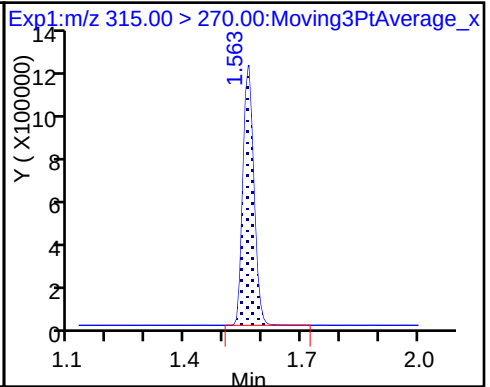
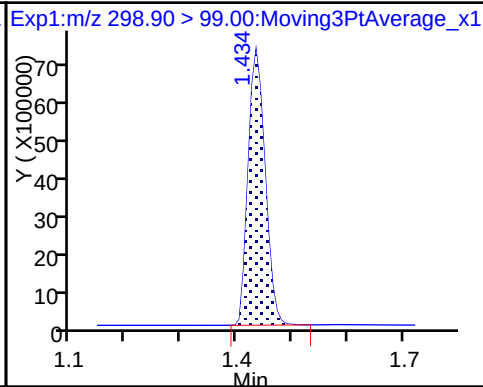
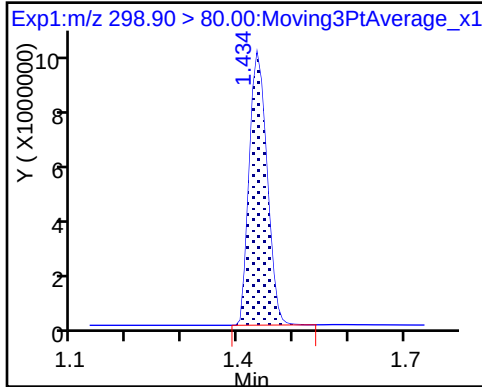
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

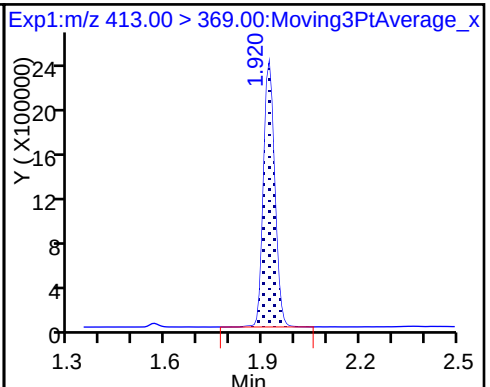
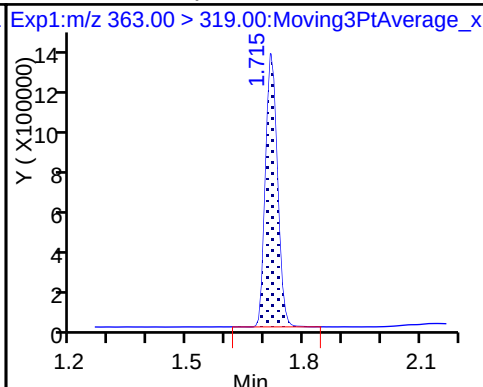
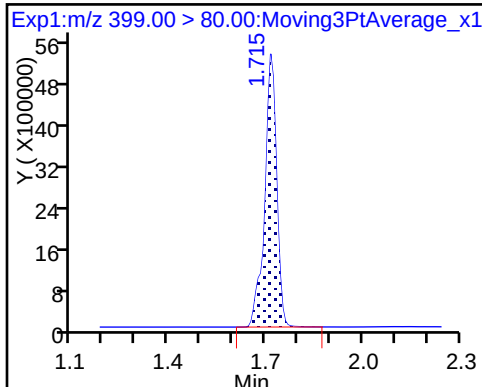
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

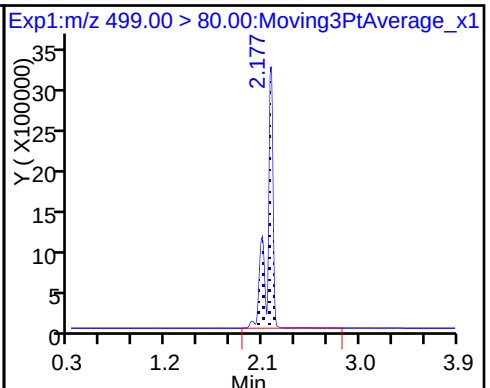
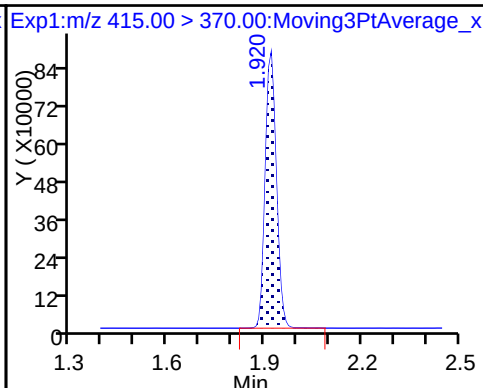
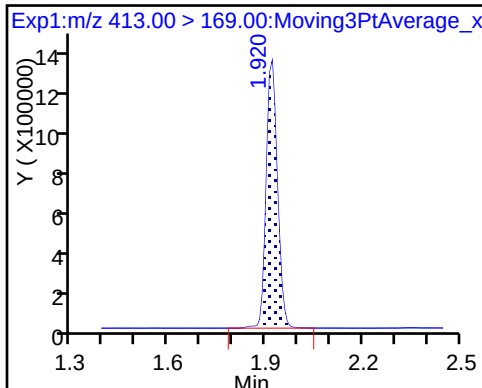
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

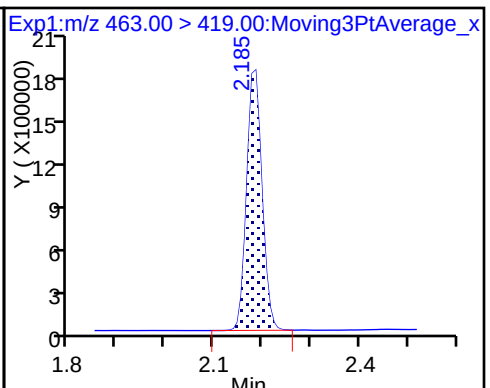
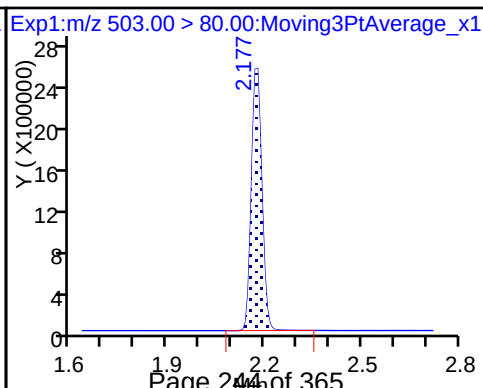
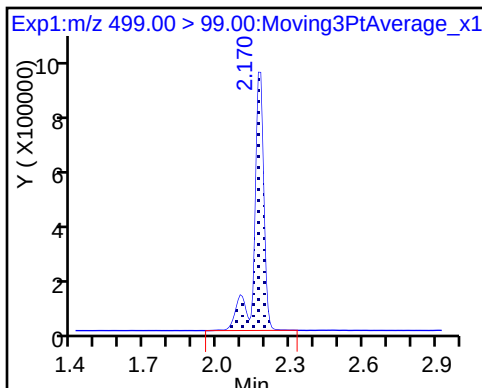
8 Perfluorooctane sulfonic acid



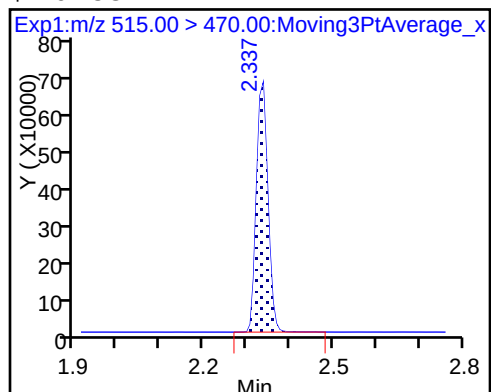
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_009.d
 Lims ID: IC L6
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 17-Aug-2017 17:30:56 ALS Bottle#: 6 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: L6_537
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 21-Aug-2017 10:10:46 Calib Date: 17-Aug-2017 17:30:56
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_009.d

Column 1 : Det: EXP1

Process Host: XAWRK001

First Level Reviewer: phomsophat

Date: 19-Aug-2017 13:43:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.434	1.438	-0.004	1.000	25626485	185.7		4359	
298.90 > 99.00	1.434	1.438	-0.004	1.000	18744630		1.37(0.00-0.00)	4242	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.563	1.568	-0.005	1.000	2312284	9.45		10080	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.715	1.722	-0.007	1.000	3752250	18.5		432	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.715	1.722	-0.007	1.000	16959937	56.8		3185	
* 6 13C2-PFOA									
415.00 > 370.00	1.920	1.928	-0.008		2155019	10.0		9574	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.920	1.928	-0.008	1.000	8108947	41.0		551	
413.00 > 169.00	1.920	1.928	-0.008	1.000	4149097		1.95(0.00-0.00)	4945	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.177	2.177	0.0	1.000	14770994	82.7		5185	
499.00 > 99.00	2.177	2.177	0.0	1.000	3187705		4.63(0.00-0.00)	2395	
* 7 13C4 PFOS									
503.00 > 80.00	2.177	2.185	-0.008		5568319	28.7		2691	
9 Perfluorononanoic acid									
463.00 > 419.00	2.185	2.193	-0.008	1.000	5389964	35.0		644	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.337	2.342	-0.005	1.000	1221662	8.68		9151	

Reagents:

LC537-L6_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_009.d

Injection Date: 17-Aug-2017 17:30:56

Instrument ID: A8_N

Lims ID: IC L6

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 6

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

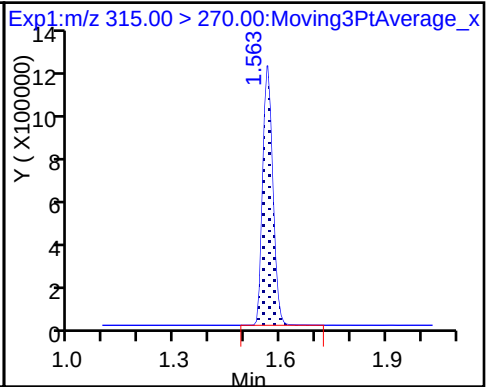
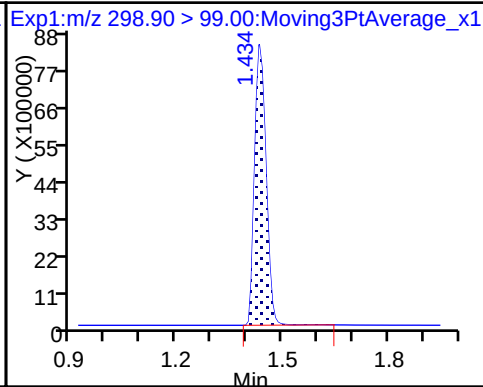
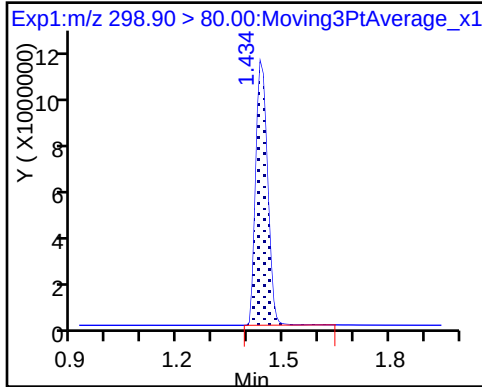
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

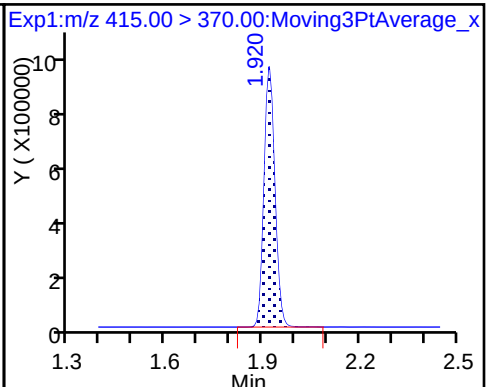
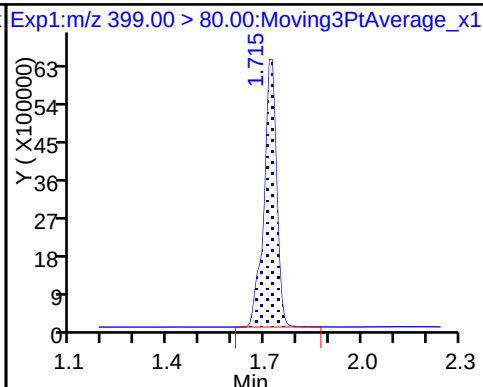
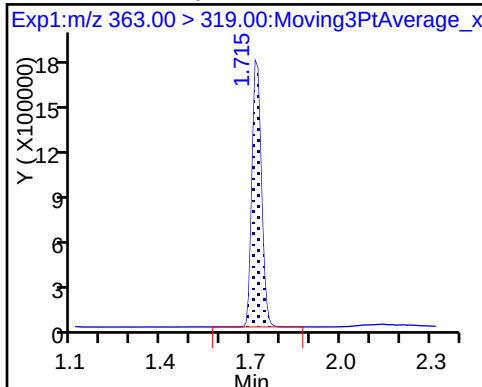
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

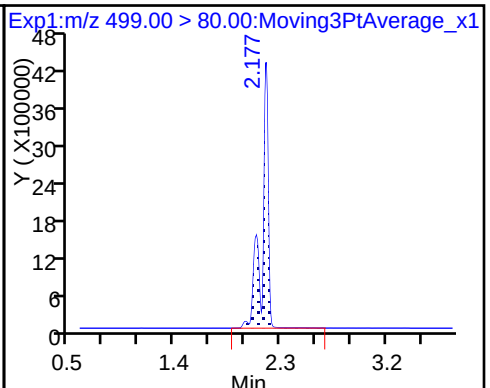
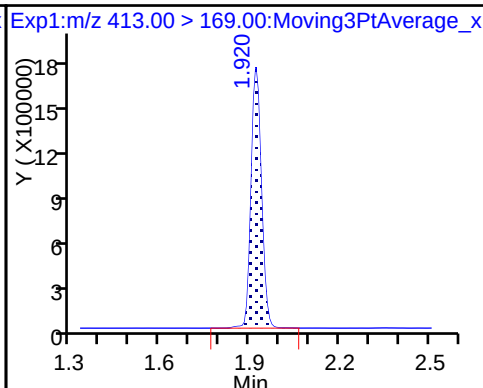
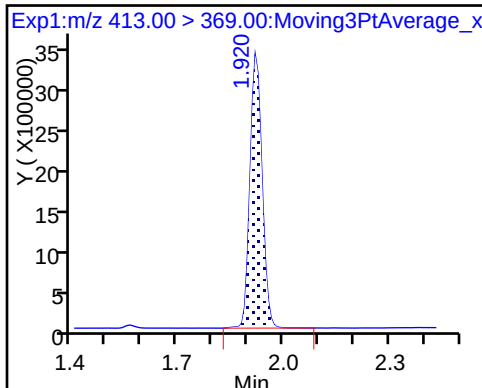
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

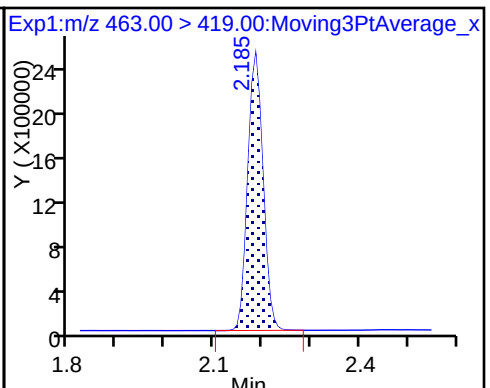
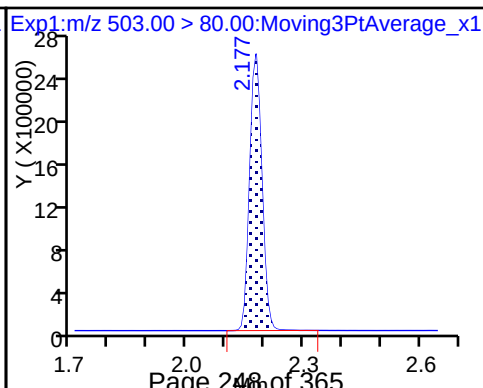
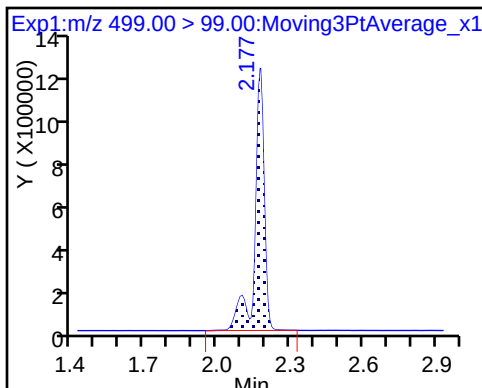
8 Perfluorooctane sulfonic acid



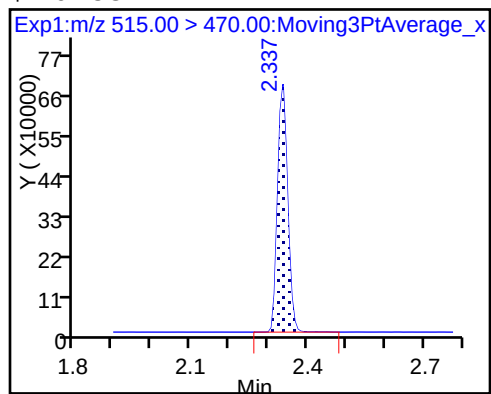
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-179319/9 Calibration Date: 08/14/2017 13:22
 Instrument ID: A8_N Calib Start Date: 08/14/2017 12:48
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/14/2017 13:12
 Lab File ID: 2017.08.14_537ICAL_009.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.212		22.5	20.0	12.7	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.8560	0.9386		2.44	2.22	9.6	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.494	1.568		7.00	6.67	4.9	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9068	0.9308		4.57	4.45	2.6	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9236	0.9255		8.91	8.89	0.2	50.0
Perfluorononanoic acid (PFNA)	Ave	0.5665	0.6283		4.93	4.45	10.9	50.0
13C2 PFHxA	Ave	1.069	1.128		10.5	10.0	5.5	30.0
13C2 PFDA	Ave	0.5877	0.6289		10.7	10.0	7.0	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_009.d
 Lims ID: CCVL
 Client ID:
 Sample Type: CCVL
 Inject. Date: 14-Aug-2017 13:22:09 ALS Bottle#: 2 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L2
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 14-Aug-2017 14:36:08 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK023

First Level Reviewer: phomsophat

Date: 14-Aug-2017 14:17:21

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.449	1.453	-0.004	1.000	5069955	22.5		689	
298.90 > 99.00	1.449	1.453	-0.004	1.000	3233517		1.57(0.00-0.00)	644	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.582	-0.004	1.000	2456705	10.5		7072	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.737	1.742	-0.005	1.000	454396	2.44		40.4	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.737	1.742	-0.005	1.000	2186681	7.00		343	
* 6 13C2-PFOA									
415.00 > 370.00	1.942	1.955	-0.013		2177935	10.0		9587	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.942	1.955	-0.013	1.000	901705	4.57		50.1	
413.00 > 169.00	1.942	1.955	-0.013	1.000	476593		1.89(0.00-0.00)	869	
* 7 13C4 PFOS									
503.00 > 80.00	2.200	2.205	-0.005		5998180	28.7		5754	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.200	2.208	-0.008	1.000	1720862	8.91		1437	
499.00 > 99.00	2.200	2.208	-0.008	1.000	364893		4.72(0.00-0.00)	416	
9 Perfluorononanoic acid									
463.00 > 419.00	2.208	2.213	-0.005	1.000	608257	4.93		144	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.352	2.354	-0.002	1.000	1369753	10.7		8253	

Reagents:

LC537-L2_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_009.d

Injection Date: 14-Aug-2017 13:22:09

Instrument ID: A8_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

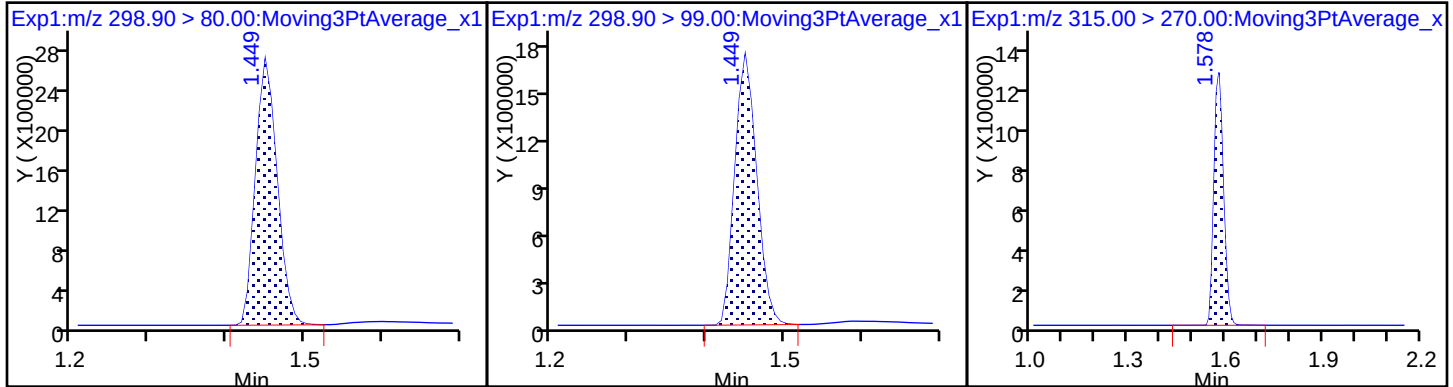
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

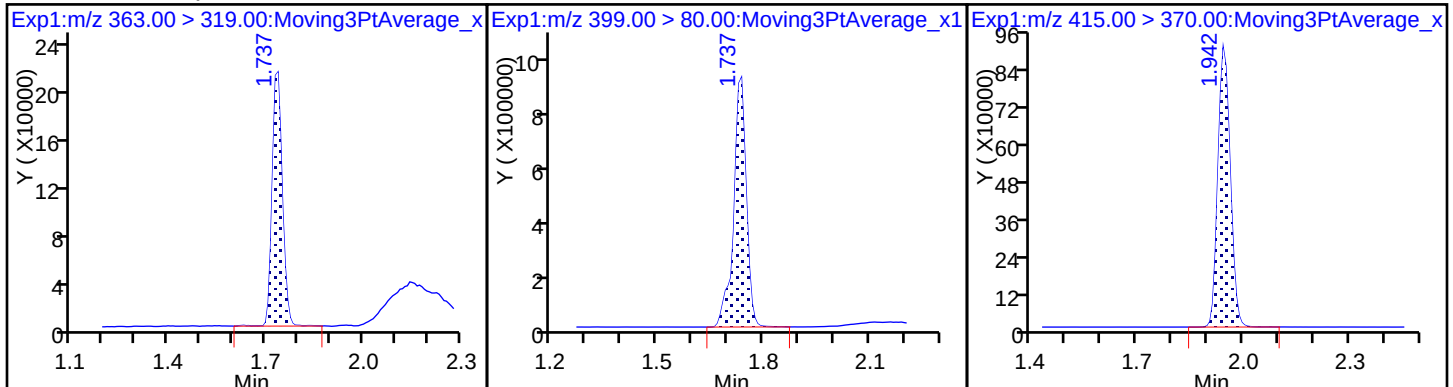
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

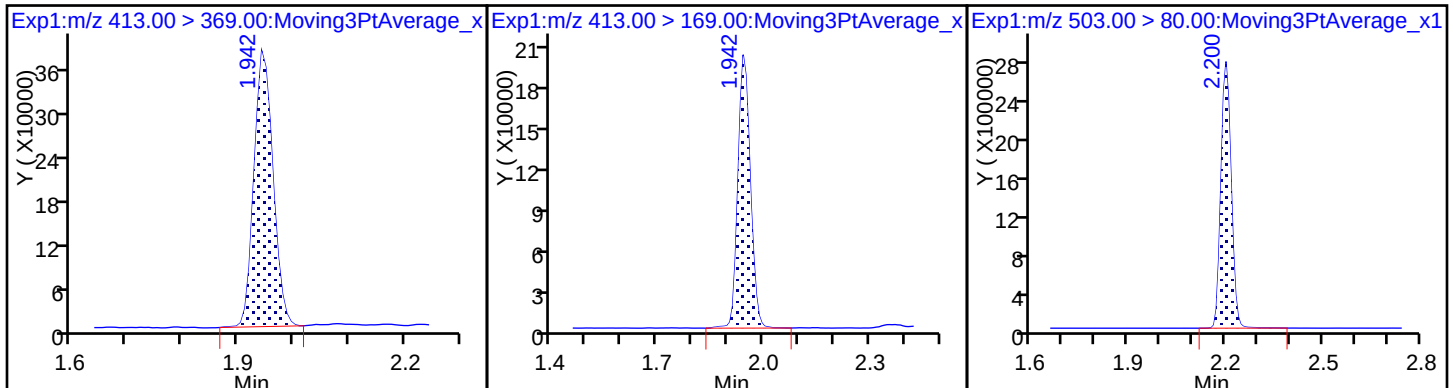
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

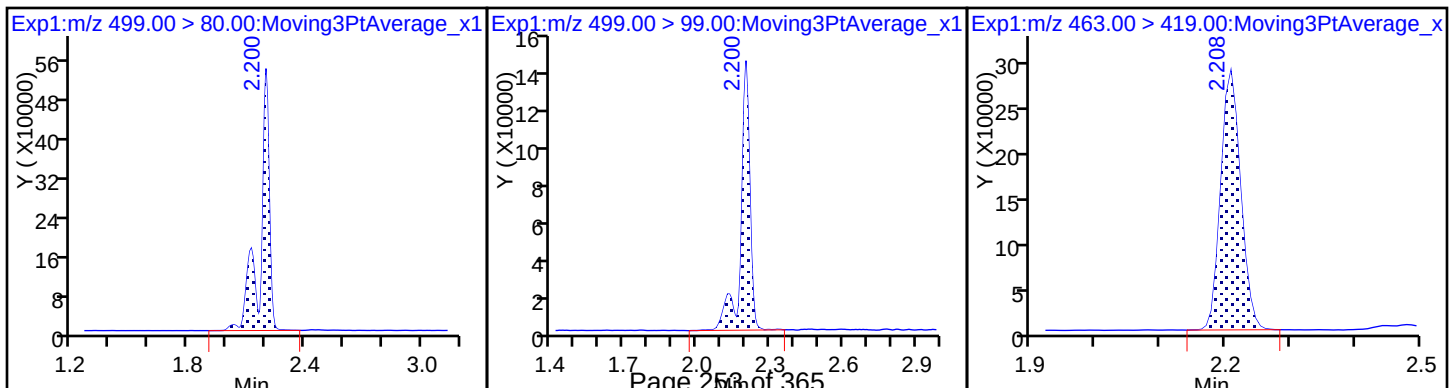
* 7 13C4 PFOS



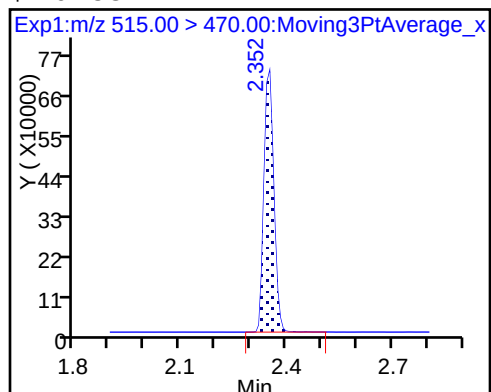
8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: ICV 320-179319/11 Calibration Date: 08/14/2017 13:31
 Instrument ID: A8_N Calib Start Date: 08/14/2017 12:48
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/14/2017 13:12
 Lab File ID: 2017.08.14_537ICAL_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9251		104	100	3.6	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.8560	0.9672		11.3	10.0	13.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.494	1.761		23.7	20.1	17.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9068	0.9396		21.2	20.5	3.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.5665	0.7333		26.1	20.1	29.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9236	1.121		23.9	19.7	21.3	30.0
13C2 PFHxA	Ave	1.069	1.124		10.5	10.0	5.1	30.0
13C2 PFDA	Ave	0.5877	0.6385		10.9	10.0	8.7	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_011.d
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 14-Aug-2017 13:31:37 ALS Bottle#: 7 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: ICV
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist:
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 14-Aug-2017 14:36:10 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK023

First Level Reviewer: phomsophat

Date: 14-Aug-2017 14:18:36

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.449	1.453	-0.004	1.000	18809532	103.7		1920	
298.90 > 99.00	1.449	1.453	-0.004	1.000	13567533		1.39(0.00-0.00)	2047	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.582	-0.004	1.000	2224871	10.5		6402	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.742	-0.012	1.000	1914446	11.3		166	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.742	-0.012	1.000	7180754	23.7		1082	
* 6 13C2-PFOA									
415.00 > 370.00	1.942	1.955	-0.013		1980065	10.0		9656	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.942	1.955	-0.013	1.000	3810943	21.2		220	
413.00 > 169.00	1.942	1.955	-0.013	1.000	2037831		1.87(0.00-0.00)	3256	
* 7 13C4 PFOS									
503.00 > 80.00	2.193	2.205	-0.012		5824653	28.7		5480	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.200	2.208	-0.008	1.000	4482668	23.9		3801	
499.00 > 99.00	2.200	2.208	-0.008	1.000	847951		5.29(0.00-0.00)	940	
9 Perfluorononanoic acid									
463.00 > 419.00	2.200	2.213	-0.013	1.000	2922223	26.1		737	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.344	2.354	-0.010	1.000	1264298	10.9		7686	

Reagents:

LC537-ICV_00028

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_011.d

Injection Date: 14-Aug-2017 13:31:37

Instrument ID: A8_N

Lims ID: ICV

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 7

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

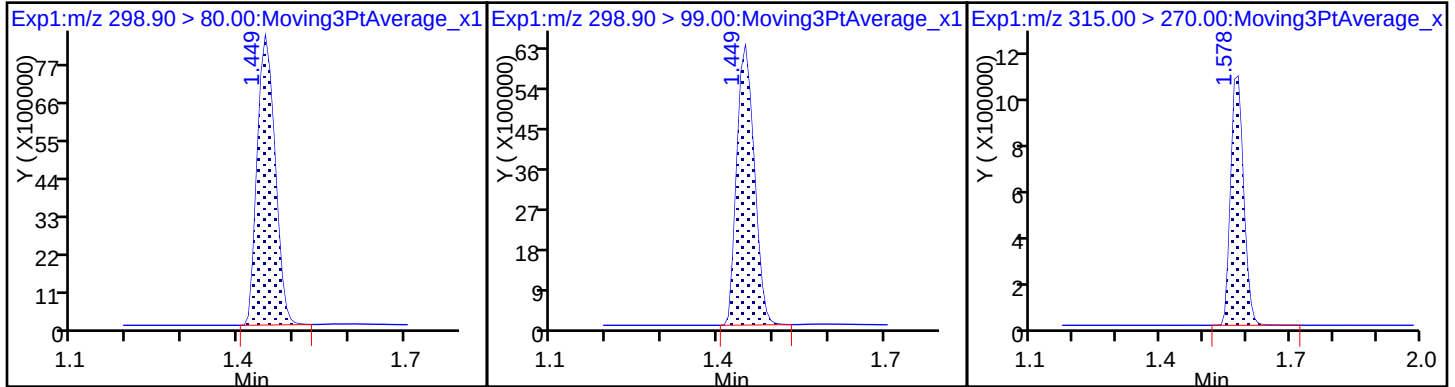
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

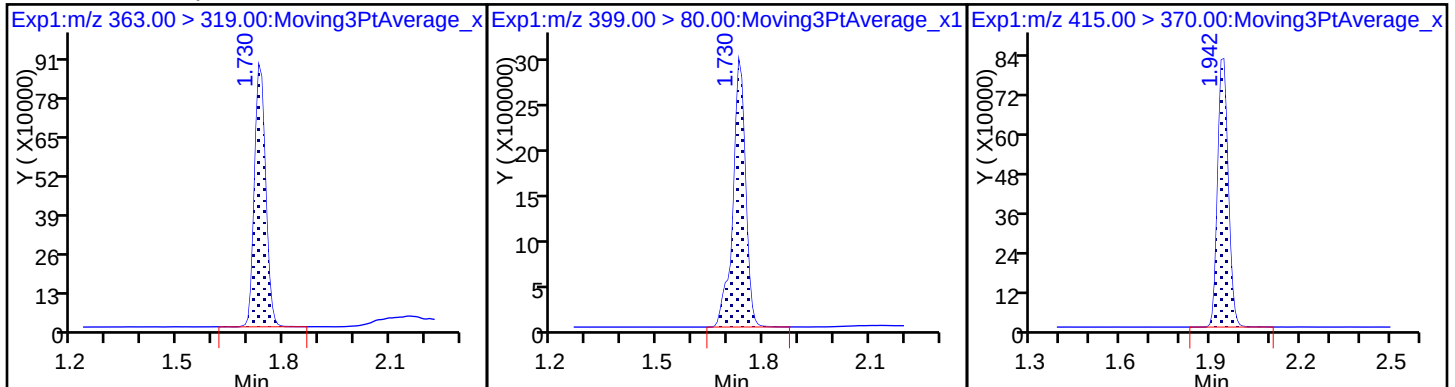
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

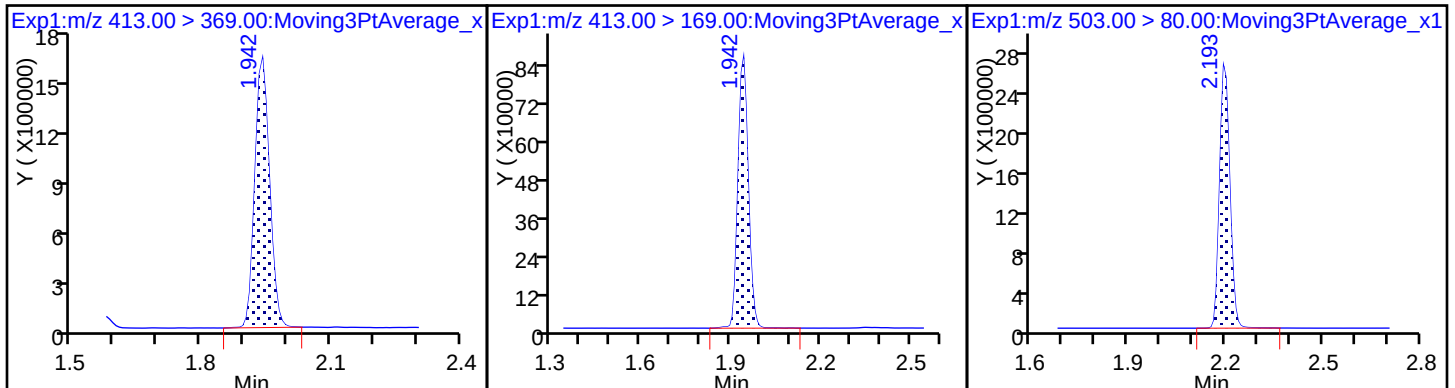
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

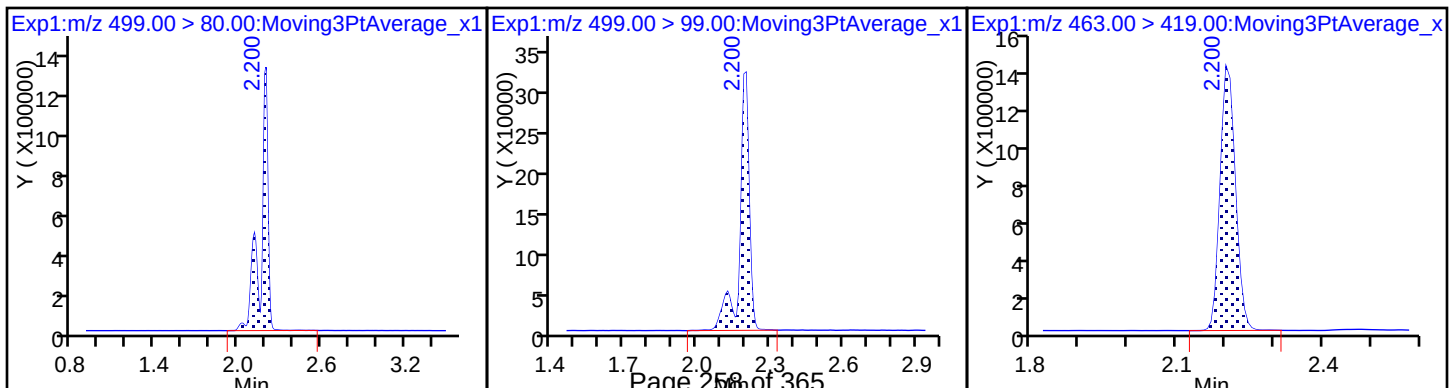
* 7 13C4 PFOS



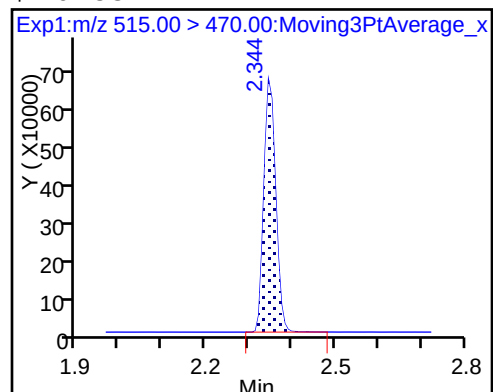
8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-179695/4 Calibration Date: 08/16/2017 09:11
 Instrument ID: A8_N Calib Start Date: 08/14/2017 12:48
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/14/2017 13:12
 Lab File ID: 2017.08.15_537A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.167		21.7	20.0	8.3	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.8560	0.7567		1.96	2.22	-11.6	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.494	1.526		6.81	6.67	2.2	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9068	0.9013		4.42	4.45	-0.6	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9236	0.9279		8.93	8.89	0.5	50.0
Perfluorononanoic acid (PFNA)	Ave	0.5665	0.5763		4.52	4.45	1.7	50.0
13C2 PFHxA	Ave	1.069	0.9803		9.17	10.0	-8.3	30.0
13C2 PFDA	Ave	0.5877	0.6186		10.5	10.0	5.3	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170816-46763.b\2017.08.15_537A_004.d
 Lims ID: CCVL
 Client ID:
 Sample Type: CCVL
 Inject. Date: 16-Aug-2017 09:11:57 ALS Bottle#: 2 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L2
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170816-46763.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Aug-2017 14:01:43 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK009

First Level Reviewer: barnettj

Date: 16-Aug-2017 13:35:50

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.449	1.453	-0.004	1.000	4908309	21.7		621	
298.90 > 99.00	1.449	1.453	-0.004	1.000	3217797		1.53(0.00-0.00)	635	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.601	1.582	0.019	1.000	2392442	9.17		3409	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.775	1.742	0.033	1.000	2140738	6.81		291	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.775	1.742	0.033	1.000	410489	1.96		20.5	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.988	1.955	0.033	1.000	978392	4.42		59.6	
413.00 > 169.00	1.988	1.955	0.033	1.000	519425		1.88(0.00-0.00)	490	
* 6 13C2-PFOA									
415.00 > 370.00	1.988	1.955	0.033		2440436	10.0		8227	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.208	2.185	0.023	1.000	1735194	8.93		562	
499.00 > 99.00	2.208	2.185	0.023	1.000	374503		4.63(0.00-0.00)	303	
* 7 13C4 PFOS									
503.00 > 80.00	2.208	2.205	0.003		6032262	28.7		5656	
9 Perfluorononanoic acid									
463.00 > 419.00	2.215	2.213	0.002	1.000	625131	4.52		100	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.352	2.354	-0.002	1.000	1509624	10.5		3939	

Reagents:

LC537-L2_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170816-46763.b\2017.08.15_537A_004.d

Injection Date: 16-Aug-2017 09:11:57

Instrument ID: A8_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

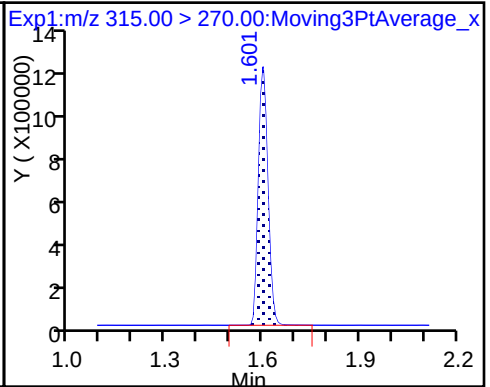
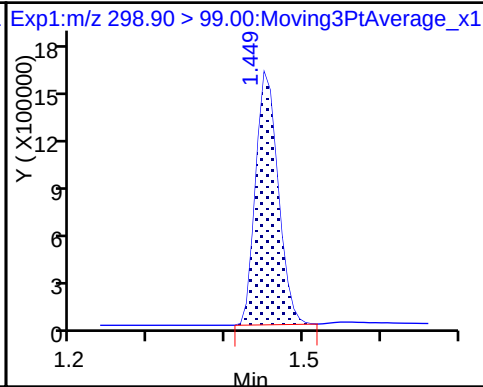
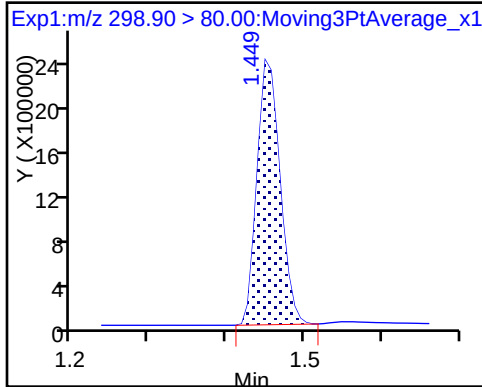
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

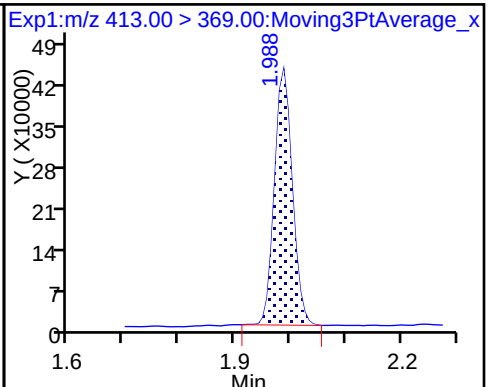
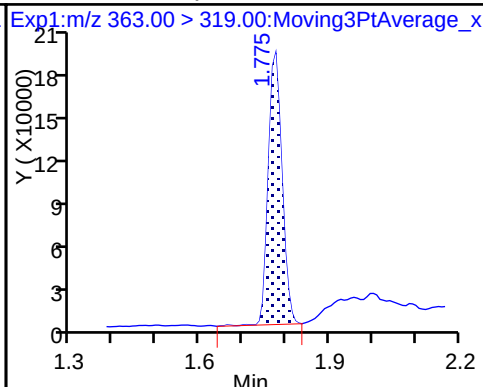
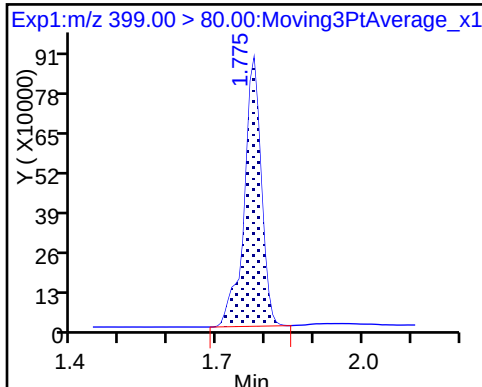
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

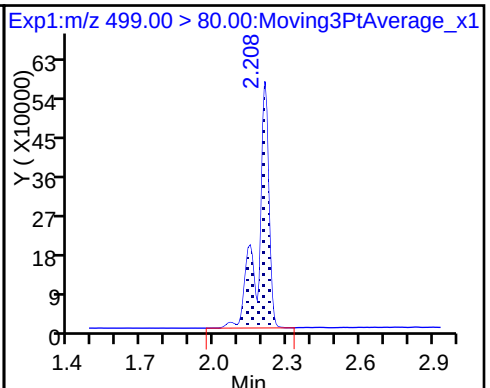
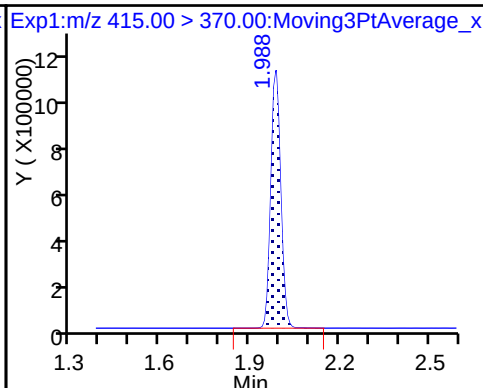
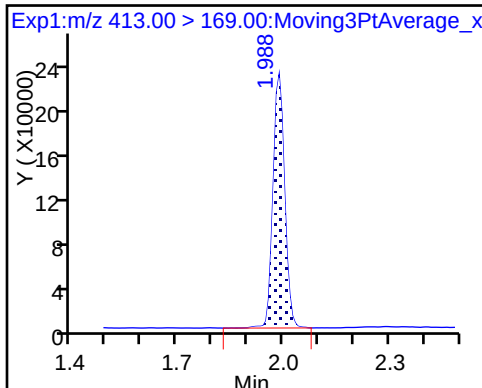
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

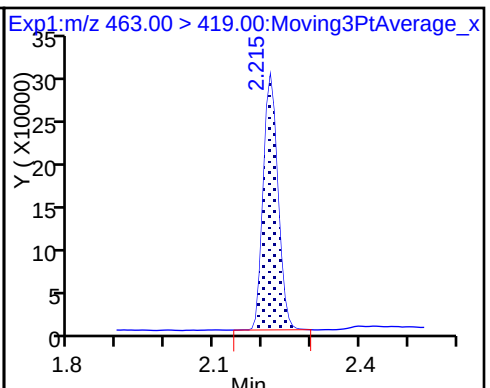
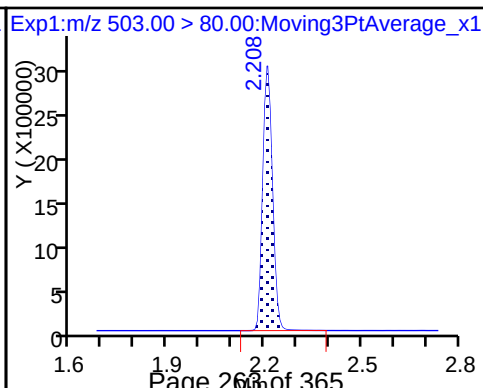
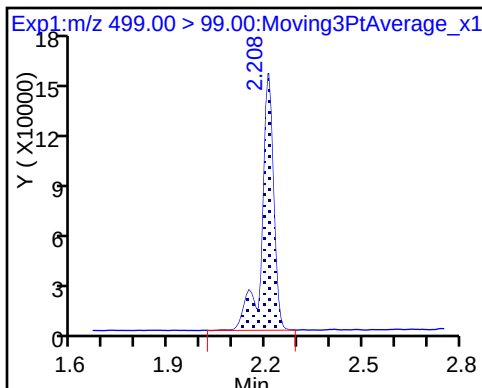
8 Perfluorooctane sulfonic acid



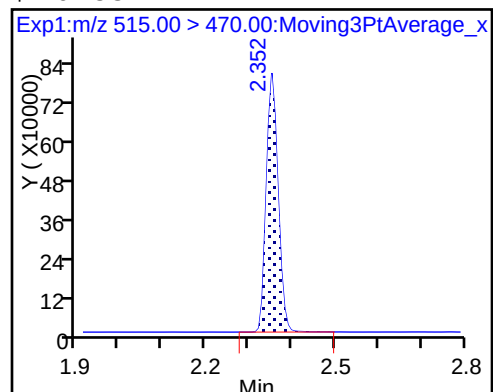
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: CCV 320-179896/24 Calibration Date: 08/16/2017 18:08
 Instrument ID: A8_N Calib Start Date: 08/14/2017 12:48
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/14/2017 13:12
 Lab File ID: 2017.08.16_537D_031.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.7908		127	135	-5.9	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.8560	0.9280		16.3	15.0	8.4	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.494	1.496		45.1	45.0	0.1	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9068	0.9266		30.7	30.0	2.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9236	0.9409		61.1	60.0	1.9	30.0
Perfluorononanoic acid (PFNA)	Ave	0.5665	0.6437		34.1	30.0	13.6	30.0
13C2 PFHxA	Ave	1.069	1.204		11.3	10.0	12.6	30.0
13C2 PFDA	Ave	0.5877	0.7018		11.9	10.0	19.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_031.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 16-Aug-2017 18:08:30 ALS Bottle#: 5 Worklist Smp#: 24
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:21 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 11:28:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.434	1.453	-0.019	1.000	20561327	127.1		2572	
298.90 > 99.00	1.434	1.453	-0.019	1.000	15298401		1.34(0.00-0.00)	2739	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.582	-0.004	1.000	2210758	11.3		7167	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.737	1.742	-0.005	1.000	12965295	45.1		2250	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.737	1.742	-0.005	1.000	2557586	16.3		244	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.935	1.955	-0.020	1.000	5110271	30.7		245	
413.00 > 169.00	1.935	1.955	-0.020	1.000	2635058		1.94(0.00-0.00)	3426	
* 6 13C2-PFOA									
415.00 > 370.00	1.935	1.955	-0.020		1836809	10.0		6057	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.155	0.007	1.000	10874472	61.1		5569	
499.00 > 99.00	2.162	2.155	0.007	1.000	2258234		4.82(0.00-0.00)	1764	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.205	-0.043		5523414	28.7		5419	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.213	-0.043	1.000	3547577	34.1		552	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.354	-0.040	1.000	1288977	11.9		6809	

Reagents:

LC537-L5_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_031.d

Injection Date: 16-Aug-2017 18:08:30

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 24

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

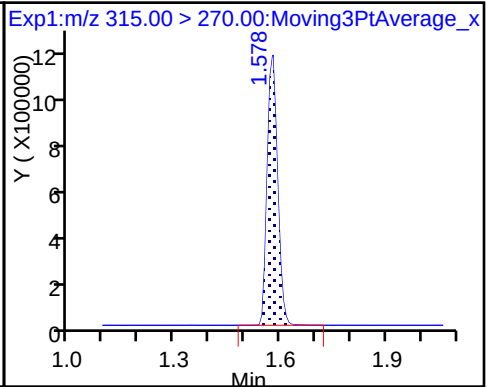
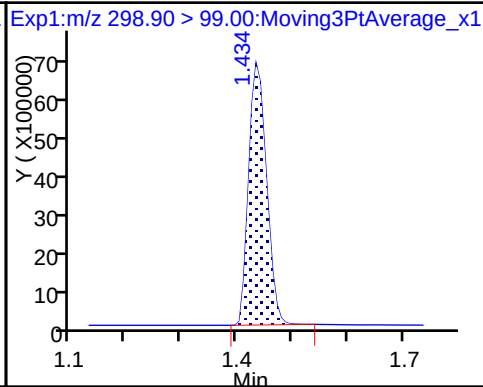
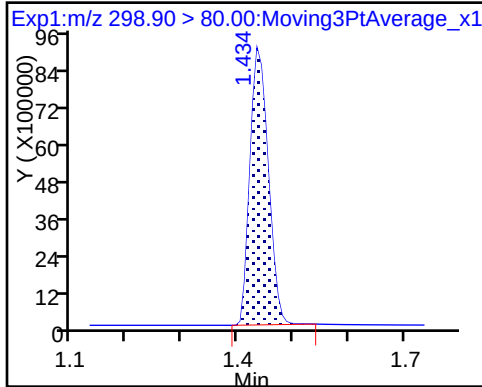
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

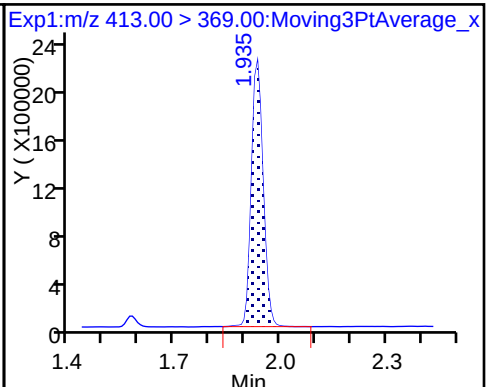
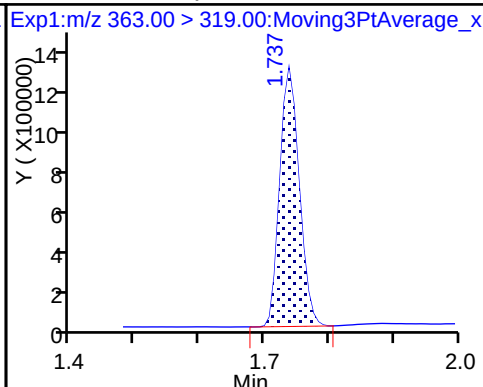
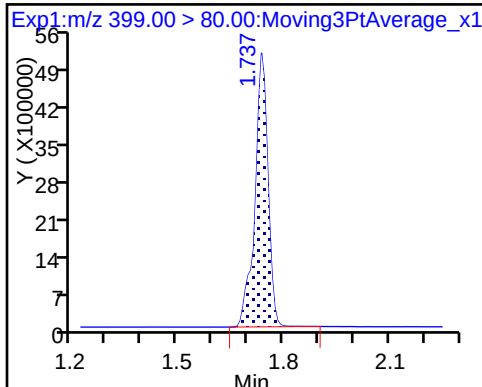
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

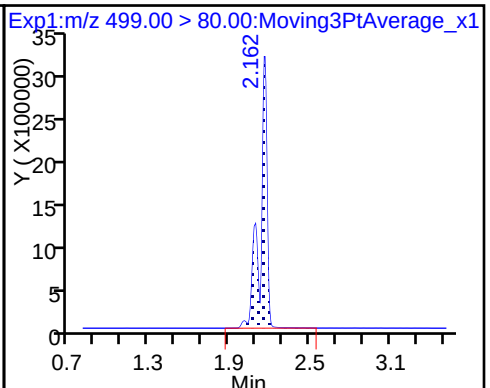
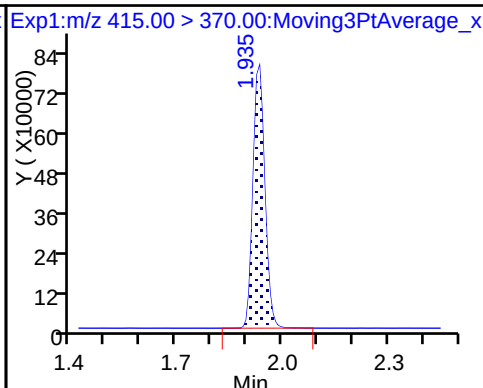
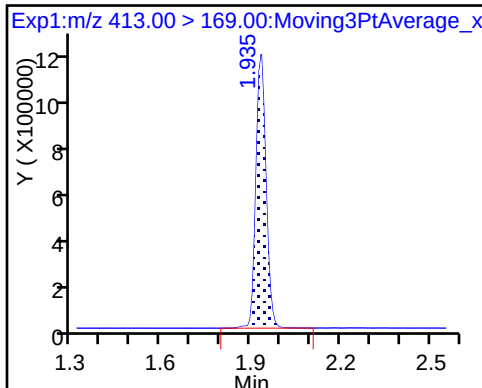
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

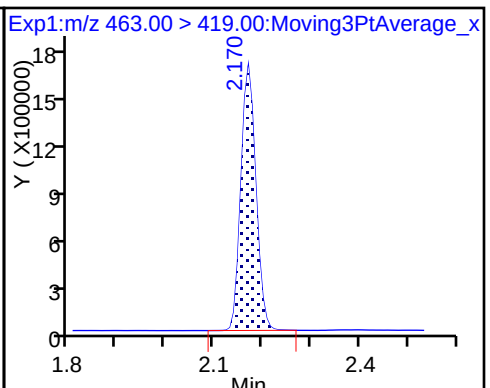
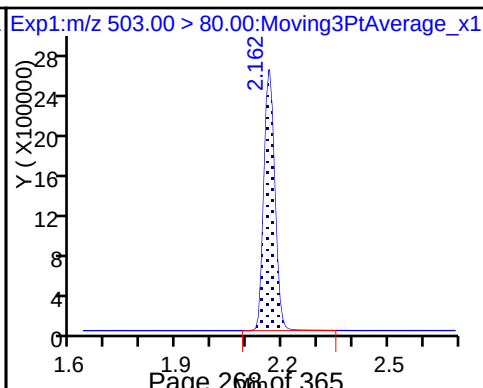
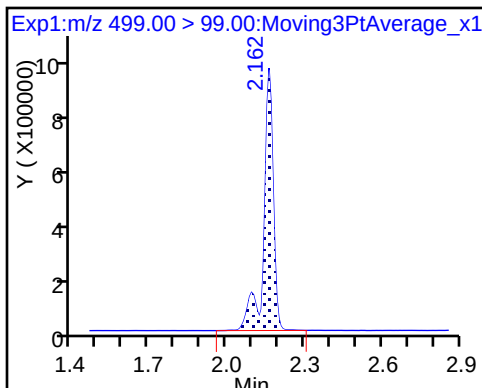
8 Perfluorooctane sulfonic acid



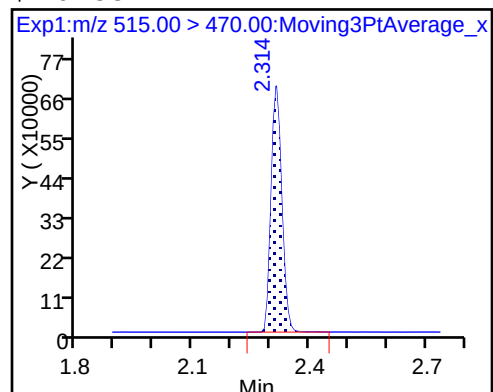
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: CCV 320-179896/36 Calibration Date: 08/16/2017 19:05
 Instrument ID: A8_N Calib Start Date: 08/14/2017 12:48
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/14/2017 13:12
 Lab File ID: 2017.08.16_537D_043.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.093		48.3	45.0	7.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.8560	0.9138		5.34	5.00	6.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.494	1.568		15.7	15.0	4.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9068	0.8895		9.82	10.0	-1.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9236	0.9421		20.4	20.0	2.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.5665	0.6496		11.5	10.0	14.7	30.0
13C2 PFHxA	Ave	1.069	1.193		11.2	10.0	11.5	30.0
13C2 PFDA	Ave	0.5877	0.6864		11.7	10.0	16.8	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: CCV 320-179897/36 Calibration Date: 08/16/2017 19:05
 Instrument ID: A8_N Calib Start Date: 08/14/2017 12:48
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/14/2017 13:12
 Lab File ID: 2017.08.16_537D_043.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.093		48.3	45.0	7.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.8560	0.9138		5.34	5.00	6.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.494	1.568		15.7	15.0	4.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9068	0.8895		9.82	10.0	-1.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9236	0.9421		20.4	20.0	2.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.5665	0.6496		11.5	10.0	14.7	30.0
13C2 PFHxA	Ave	1.069	1.193		11.2	10.0	11.5	30.0
13C2 PFDA	Ave	0.5877	0.6864		11.7	10.0	16.8	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_043.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 16-Aug-2017 19:05:36 ALS Bottle#: 3 Worklist Smp#: 36
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L3
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:32 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:07:18

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.442	1.453	-0.011	1.000	9430414	48.3		2425	
298.90 > 99.00	1.442	1.453	-0.011	1.000	6350122		1.49(0.00-0.00)	2042	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.586	1.582	0.004	1.000	2221829	11.2		7769	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.745	1.742	0.003	1.000	4507806	15.7		1547	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.745	1.742	0.003	1.000	851335	5.34		126	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.942	1.955	-0.013	1.000	1658438	9.82		78.6	
413.00 > 169.00	1.942	1.955	-0.013	1.000	832400		1.99(0.00-0.00)	1642	
* 6 13C2-PFOA									
415.00 > 370.00	1.935	1.955	-0.020		1862875	10.0		6441	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.170	2.155	0.015	1.000	3612422	20.4		2996	
499.00 > 99.00	2.170	2.155	0.015	1.000	735184		4.91(0.00-0.00)	686	
* 7 13C4 PFOS									
503.00 > 80.00	2.170	2.205	-0.035		5497046	28.7		5520	
9 Perfluorononanoic acid									
463.00 > 419.00	2.177	2.213	-0.036	1.000	1210333	11.5		149	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.322	2.354	-0.032	1.000	1278662	11.7		6490	

Reagents:

LC537-L3_00023

Amount Added: 1.00

Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_043.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 16-Aug-2017 19:05:36 ALS Bottle#: 3 Worklist Smp#: 36
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L3
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:32 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:07:18

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.442	1.453	-0.011	1.000	9430414	48.3		2425	
298.90 > 99.00	1.442	1.453	-0.011	1.000	6350122		1.49(0.00-0.00)	2042	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.586	1.582	0.004	1.000	2221829	11.2		7769	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.745	1.742	0.003	1.000	4507806	15.7		1547	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.745	1.742	0.003	1.000	851335	5.34		126	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.942	1.955	-0.013	1.000	1658438	9.82		78.6	
413.00 > 169.00	1.942	1.955	-0.013	1.000	832400		1.99(0.00-0.00)	1642	
* 6 13C2-PFOA									
415.00 > 370.00	1.935	1.955	-0.020		1862875	10.0		6441	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.170	2.155	0.015	1.000	3612422	20.4		2996	
499.00 > 99.00	2.170	2.155	0.015	1.000	735184		4.91(0.00-0.00)	686	
* 7 13C4 PFOS									
503.00 > 80.00	2.170	2.205	-0.035		5497046	28.7		5520	
9 Perfluorononanoic acid									
463.00 > 419.00	2.177	2.213	-0.036	1.000	1210333	11.5		149	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.322	2.354	-0.032	1.000	1278662	11.7		6490	

Reagents:

LC537-L3_00023

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_043.d

Injection Date: 16-Aug-2017 19:05:36

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 36

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

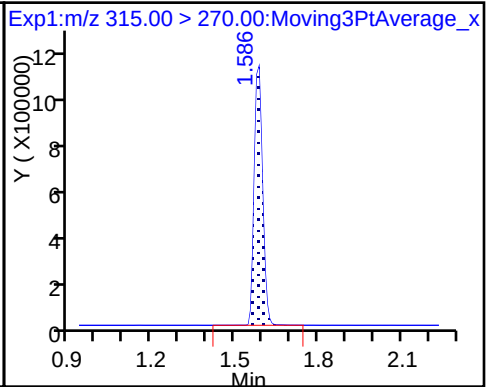
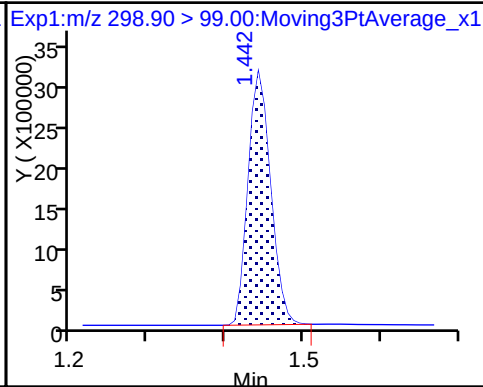
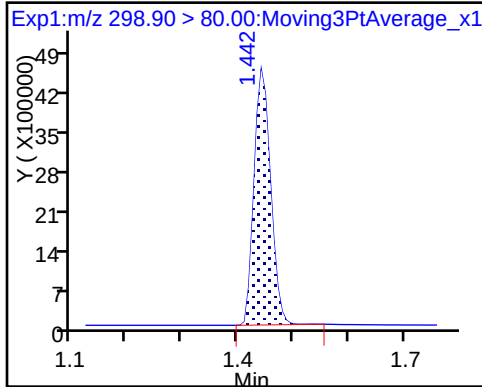
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

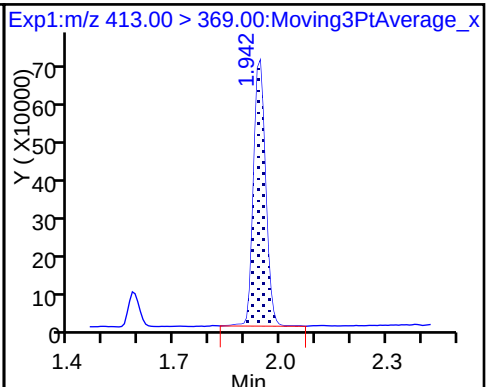
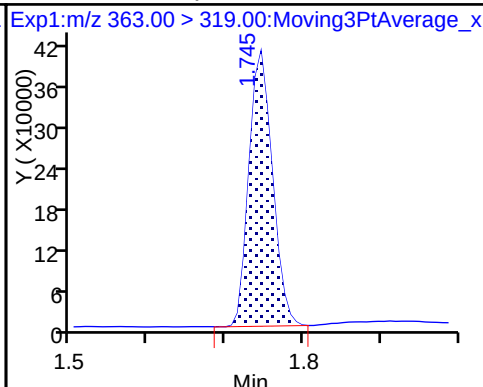
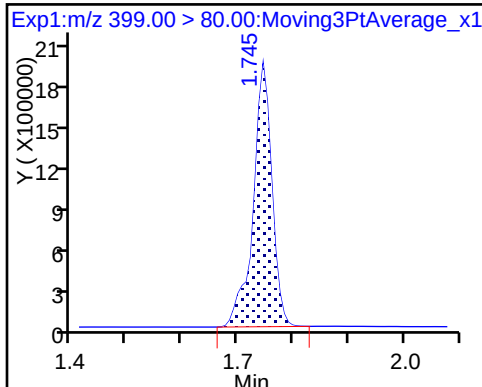
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

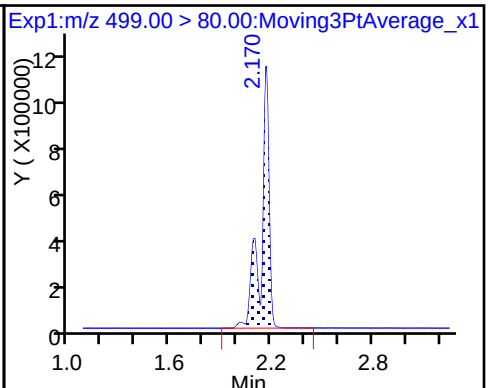
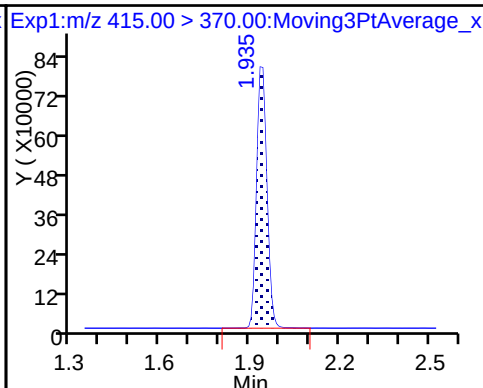
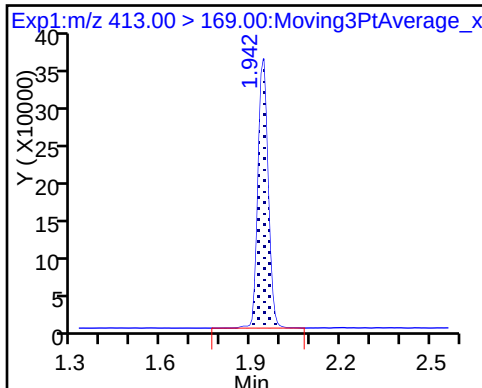
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

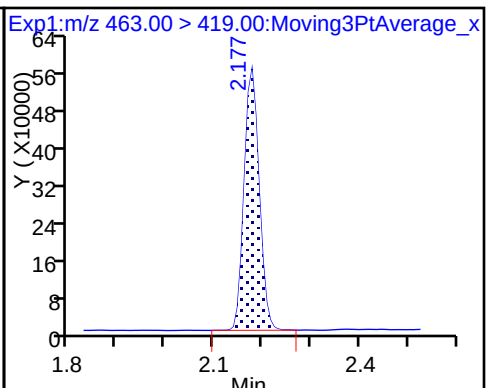
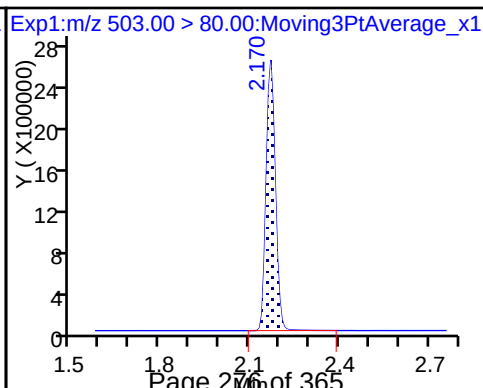
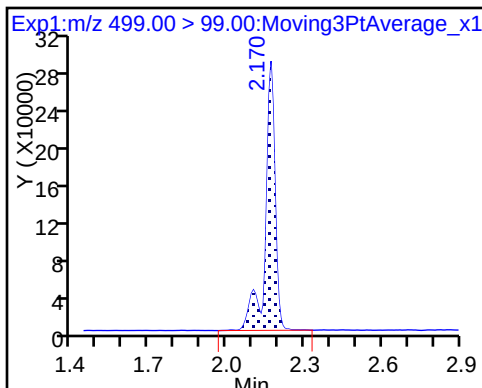
8 Perfluorooctane sulfonic acid



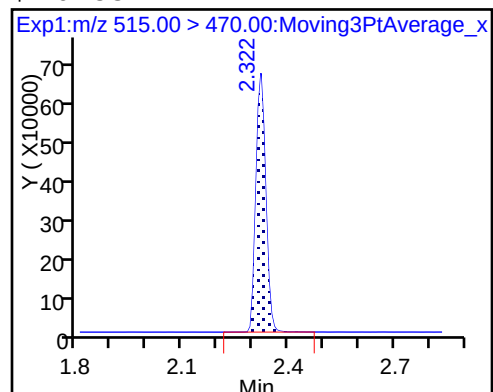
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_043.d

Injection Date: 16-Aug-2017 19:05:36

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 36

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

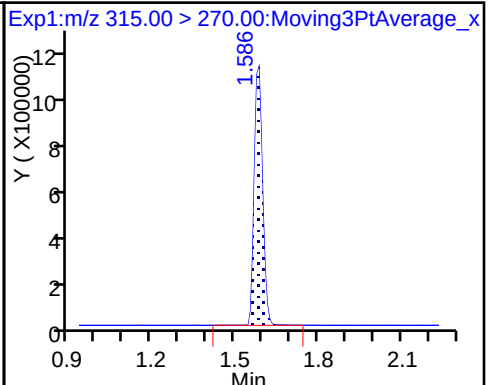
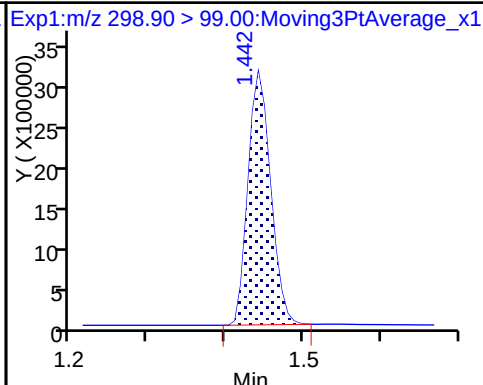
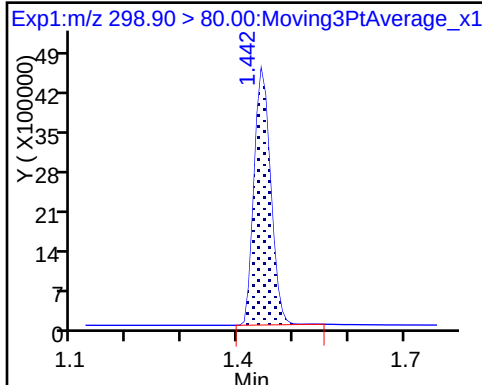
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

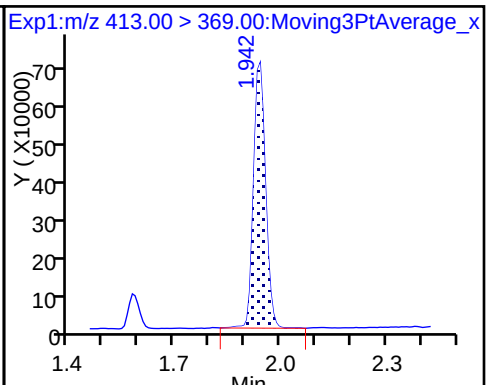
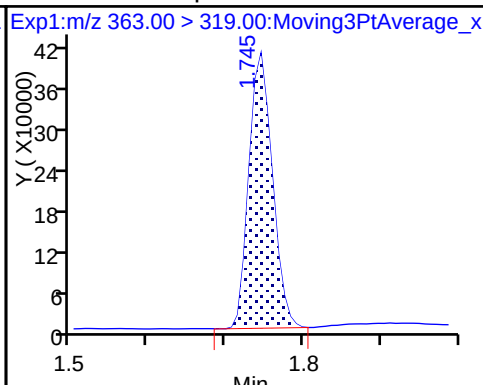
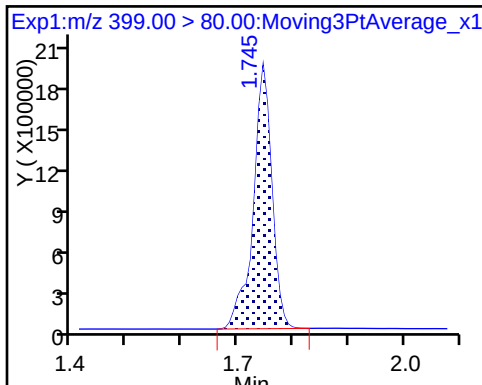
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

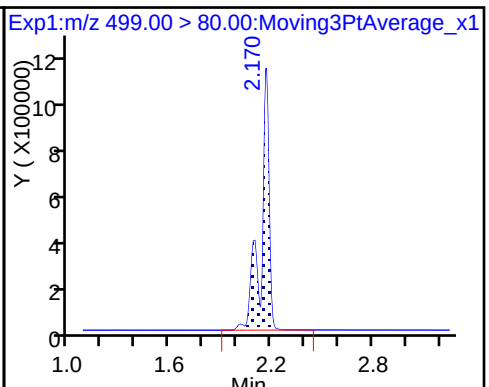
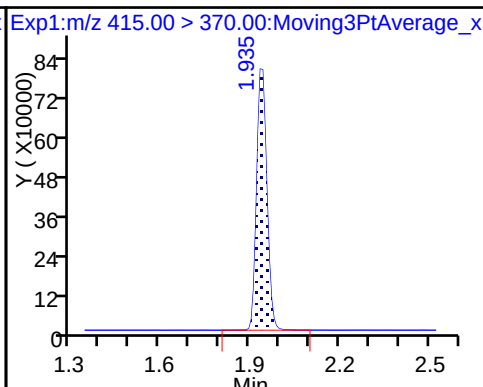
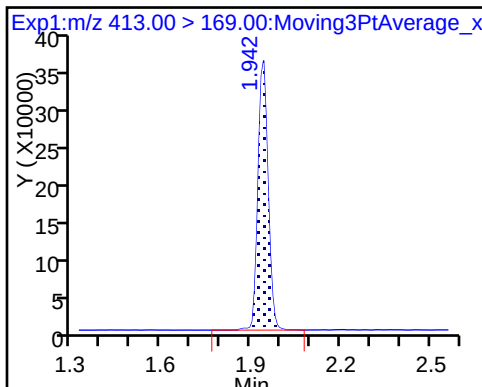
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

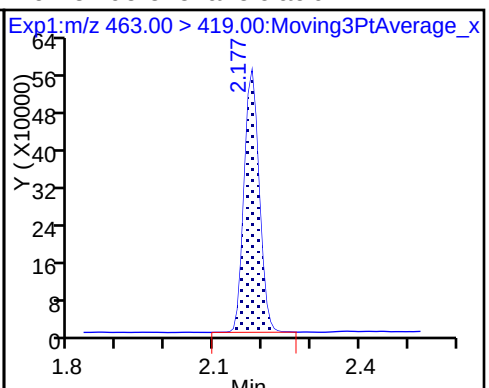
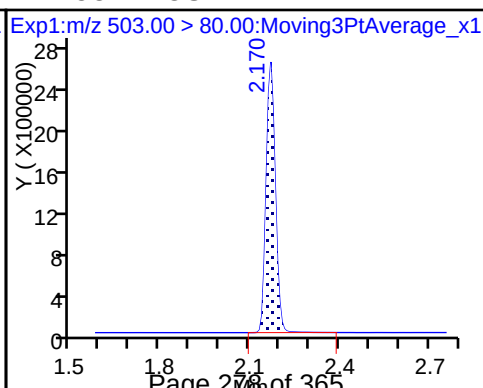
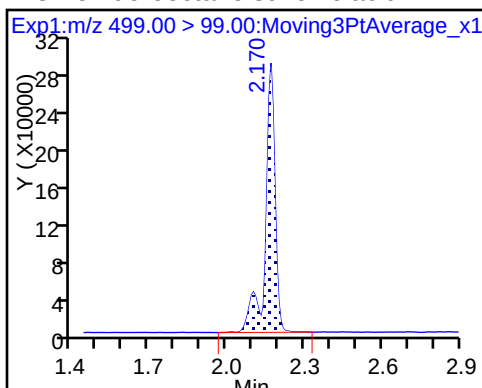
8 Perfluorooctane sulfonic acid



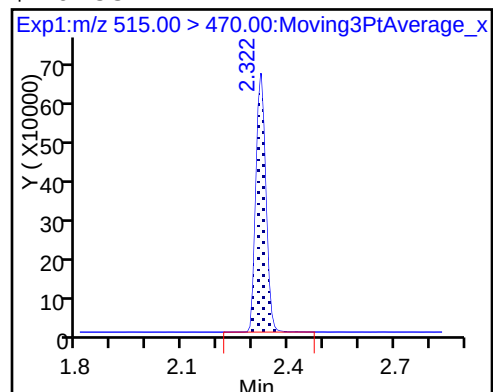
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: CCV 320-179897/45 Calibration Date: 08/16/2017 19:48
 Instrument ID: A8_N Calib Start Date: 08/14/2017 12:48
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/14/2017 13:12
 Lab File ID: 2017.08.16_537D_052.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.7972		129	135	-4.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.8560	0.9273		16.3	15.0	8.3	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.494	1.468		44.2	45.0	-1.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9068	0.9302		30.8	30.0	2.6	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9236	0.9166		59.6	60.0	-0.8	30.0
Perfluorononanoic acid (PFNA)	Ave	0.5665	0.6502		34.4	30.0	14.8	30.0
13C2 PFHxA	Ave	1.069	1.254		11.7	10.0	17.3	30.0
13C2 PFDA	Ave	0.5877	0.6899		11.7	10.0	17.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_052.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 16-Aug-2017 19:48:22 ALS Bottle#: 5 Worklist Smp#: 45
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:41 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:07:57

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.434	1.453	-0.019	1.000	20876476	128.6		3504	
298.90 > 99.00	1.434	1.453	-0.019	1.000	15103228		1.38(0.00-0.00)	3736	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.582	-0.012	1.000	2272067	11.7		7456	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.737	1.742	-0.005	1.000	12819450	44.2		3473	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.742	-0.012	1.000	2520173	16.3		356	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.955	-0.028	1.000	5059031	30.8		240	
413.00 > 169.00	1.927	1.955	-0.028	1.000	2611782		1.94(0.00-0.00)	4249	
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.955	-0.028		1811420	10.0		5818	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.155	2.155	0.0	1.000	10669272	59.6		5348	M
499.00 > 99.00	2.155	2.155	0.0	1.000	2269483		4.70(0.00-0.00)	1733	M
* 7 13C4 PFOS									
503.00 > 80.00	2.155	2.205	-0.050		5562915	28.7		5252	
9 Perfluorononanoic acid									
463.00 > 419.00	2.162	2.213	-0.051	1.000	3533906	34.4		415	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.306	2.354	-0.048	1.000	1249774	11.7		5620	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L5_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_052.d

Injection Date: 16-Aug-2017 19:48:22

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 45

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

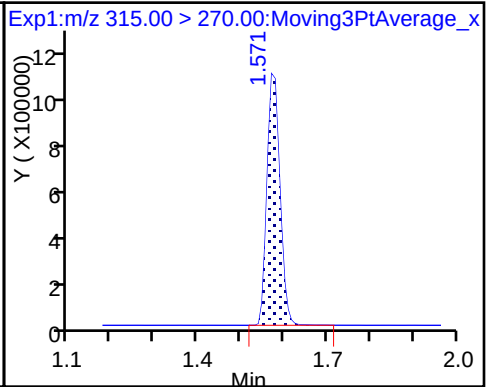
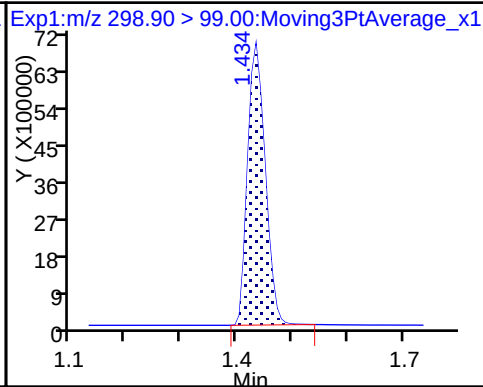
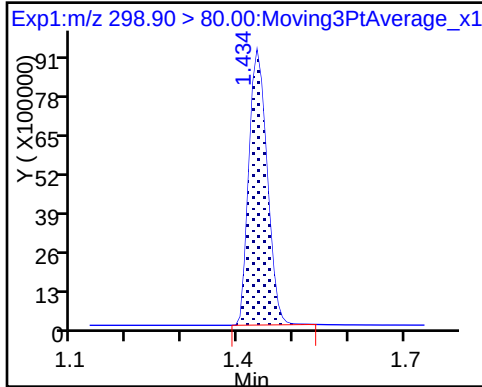
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

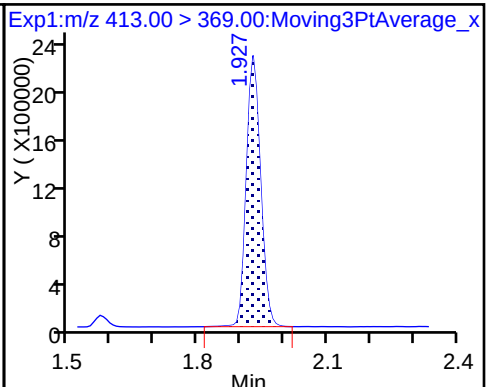
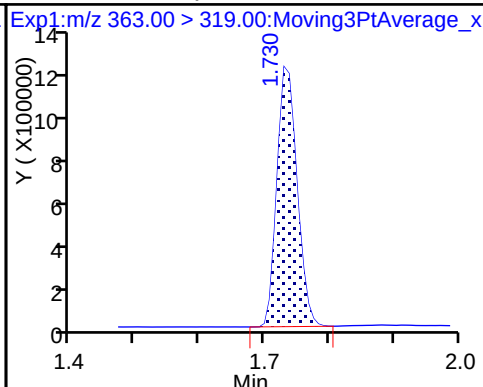
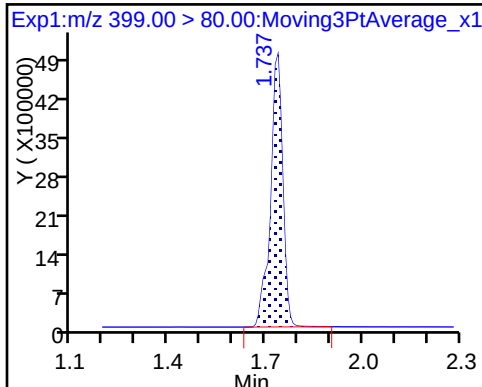
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

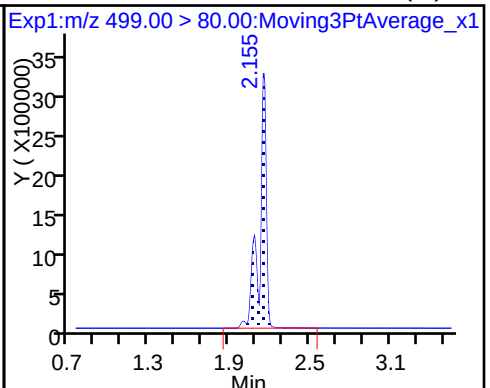
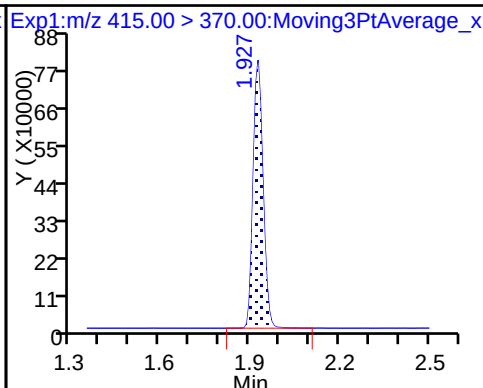
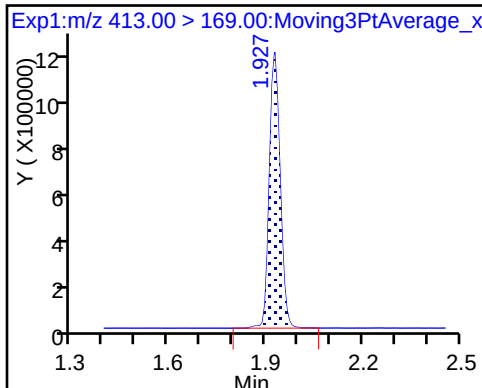
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

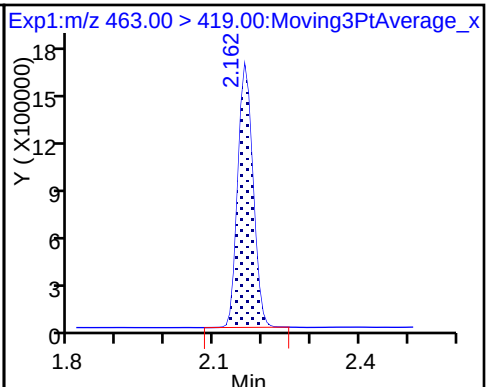
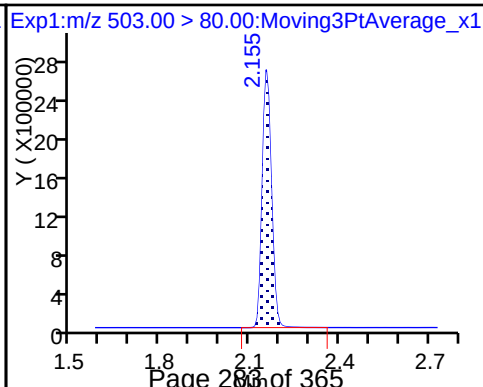
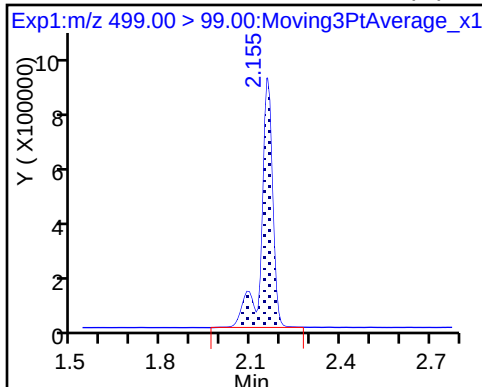
8 Perfluorooctane sulfonic acid (M)



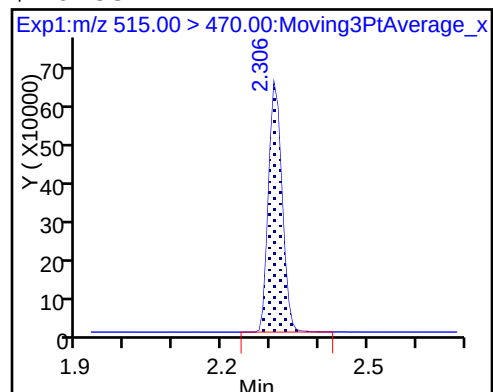
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

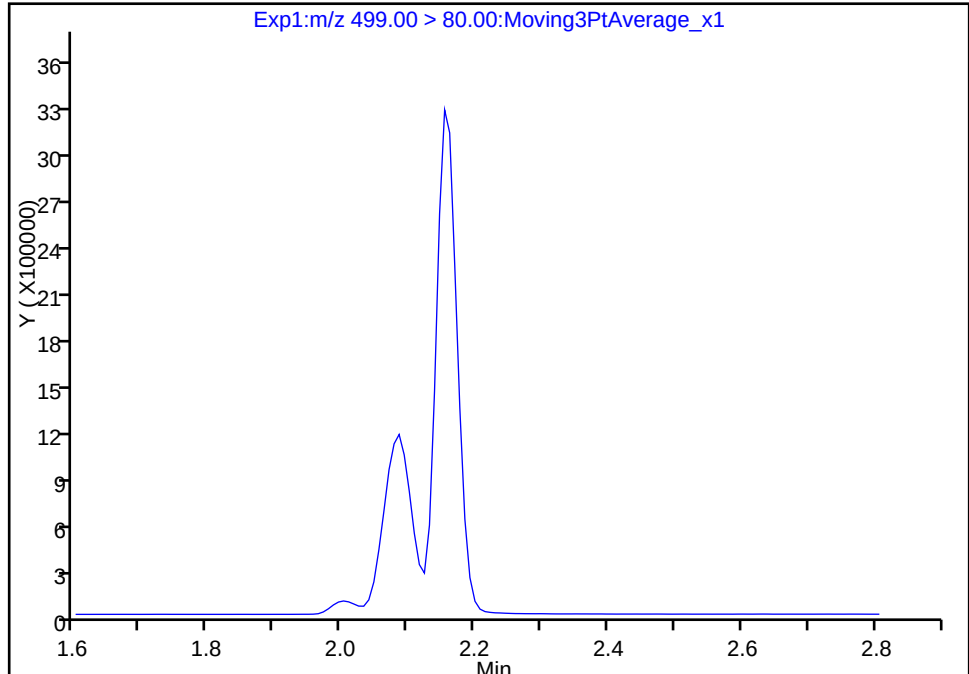
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_052.d
Injection Date: 16-Aug-2017 19:48:22 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 45
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

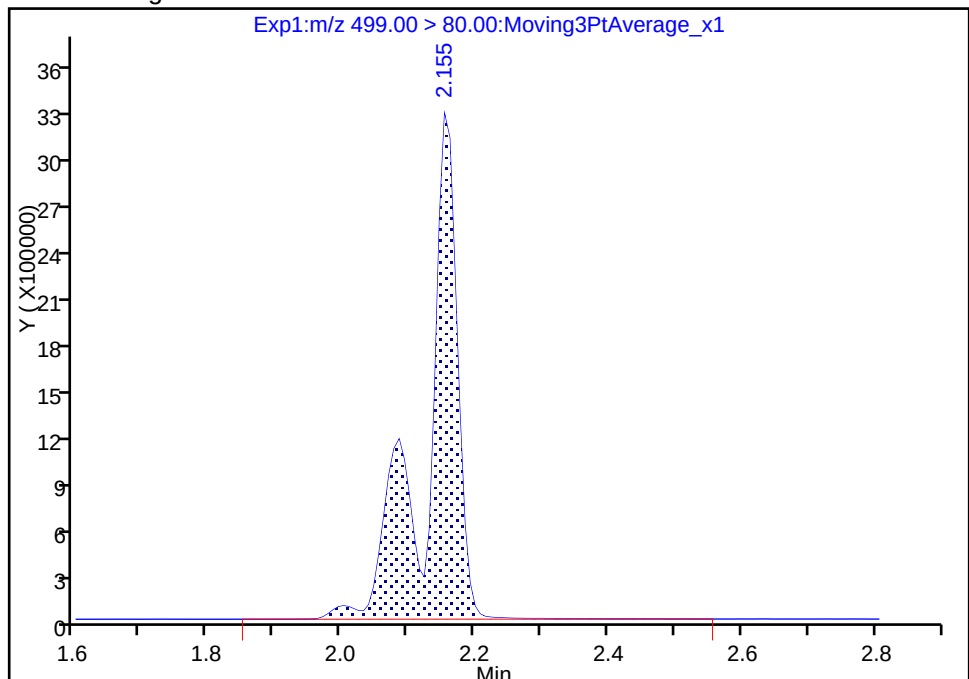
Signal: 1

Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results



RT: 2.15
Area: 10669272
Amount: 59.554509
Amount Units: ng/ml

Reviewer: barnettj, 17-Aug-2017 13:07:23

Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

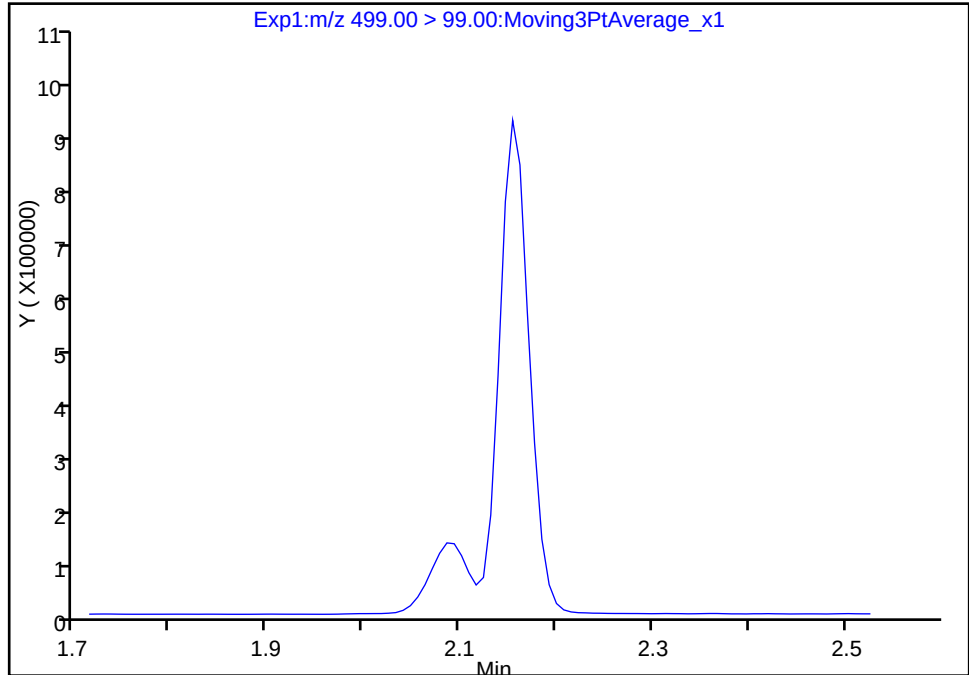
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_052.d
Injection Date: 16-Aug-2017 19:48:22 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 45
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

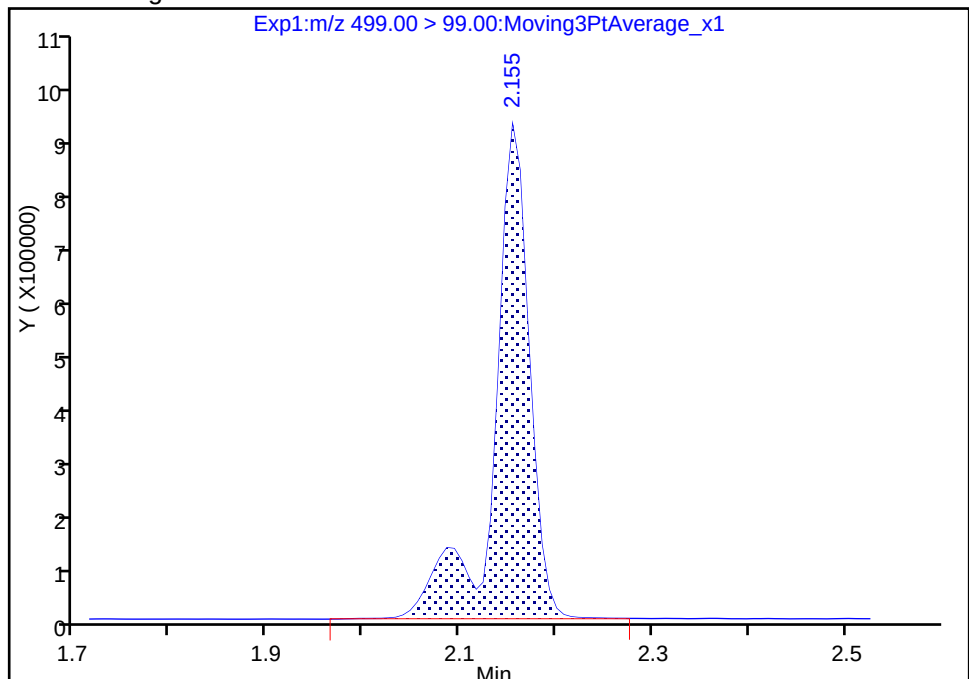
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 2269483
Amount: 59.554509
Amount Units: ng/ml



Reviewer: barnettj, 17-Aug-2017 13:07:49

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

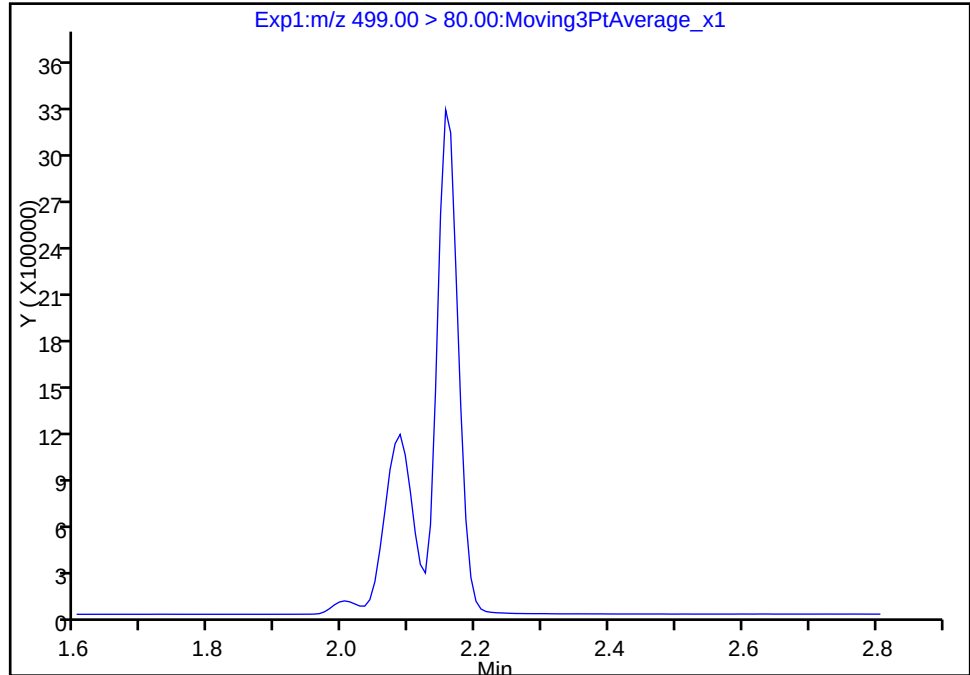
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_052.d
Injection Date: 16-Aug-2017 19:48:22 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 45
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

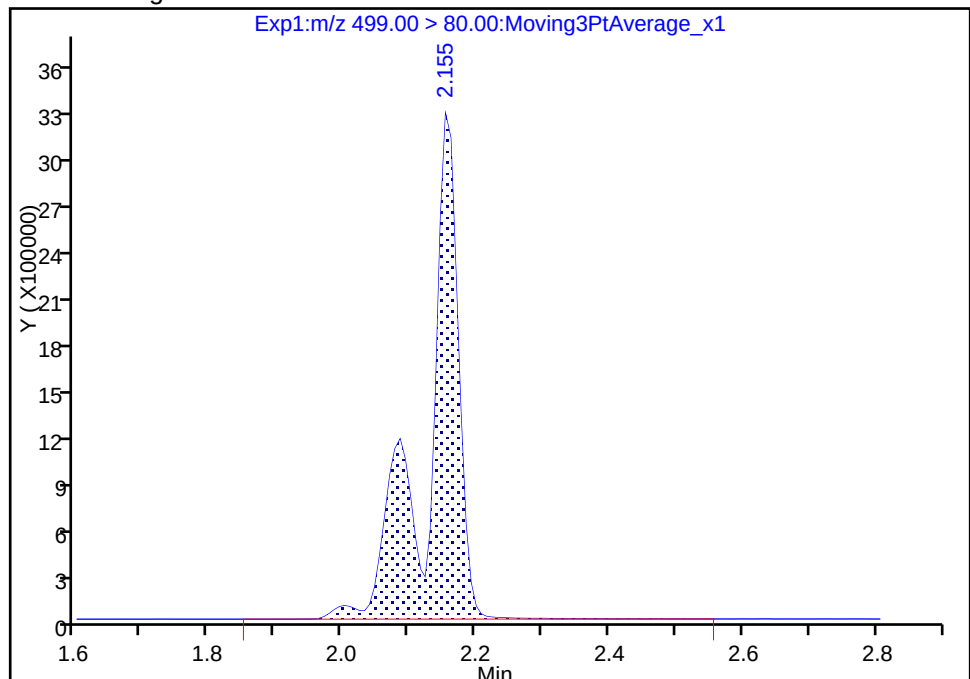
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 10669272
Amount: 59.554509
Amount Units: ng/ml



Reviewer: barnettj, 17-Aug-2017 13:07:49

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-180236/9 Calibration Date: 08/17/2017 17:40
 Instrument ID: A8_N Calib Start Date: 08/17/2017 17:07
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/17/2017 17:30
 Lab File ID: 207.08.17_537A_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.202		23.2	20.0	15.9	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9415	0.9087		2.15	2.22	-3.5	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.538	1.602		6.94	6.67	4.1	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9175	0.8942		4.33	4.45	-2.5	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9198	0.9120		8.82	8.89	-0.8	50.0
Perfluorononanoic acid (PFNA)	Ave	0.7150	0.6150		3.82	4.45	-14.0	50.0
13C2 PFHxA	Ave	1.135	1.097		9.66	10.0	-3.4	30.0
13C2 PFDA	Ave	0.6532	0.5535		8.47	10.0	-15.3	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_011.d
 Lims ID: CCVL
 Client ID:
 Sample Type: CCVL
 Inject. Date: 17-Aug-2017 17:40:25 ALS Bottle#: 2 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L2
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 21-Aug-2017 10:10:49 Calib Date: 17-Aug-2017 17:30:56
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_009.d

Column 1 : Det: EXP1

Process Host: XAWRK001

First Level Reviewer: phomsophat

Date: 19-Aug-2017 13:45:34

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.434	1.438	-0.004	1.000	4727301	23.2		936	
298.90 > 99.00	1.434	1.438	-0.004	1.000	3102525		1.52(0.00-0.00)	808	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.555	1.568	-0.013	1.000	2341594	9.66		11304	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.715	1.722	-0.007	1.000	2099863	6.94		594	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.715	1.722	-0.007	1.000	431250	2.15		47.9	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.912	1.928	-0.016	1.000	849166	4.33		53.1	
413.00 > 169.00	1.912	1.928	-0.016	1.000	452734		1.88(0.00-0.00)	713	
* 6 13C2-PFOA									
415.00 > 370.00	1.912	1.928	-0.016		2135014	10.0		9556	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.170	2.177	-0.007	1.000	1593767	8.82		547	M
499.00 > 99.00	2.170	2.177	-0.007	1.000	337001		4.73(0.00-0.00)	273	M
* 7 13C4 PFOS									
503.00 > 80.00	2.170	2.185	-0.015		5637183	28.7		2779	
9 Perfluorononanoic acid									
463.00 > 419.00	2.177	2.193	-0.016	1.000	583704	3.82		73.2	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.329	2.342	-0.013	1.000	1181826	8.47		8470	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L2_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_011.d

Injection Date: 17-Aug-2017 17:40:25

Instrument ID: A8_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

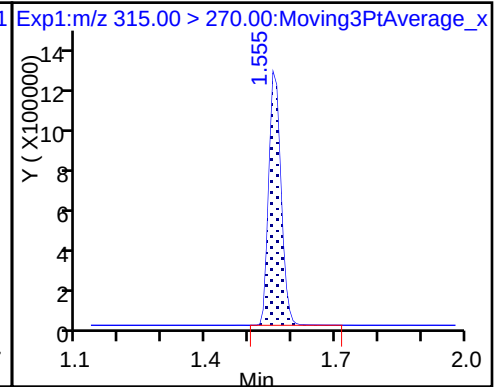
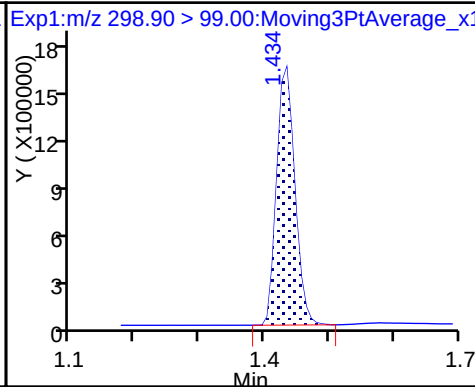
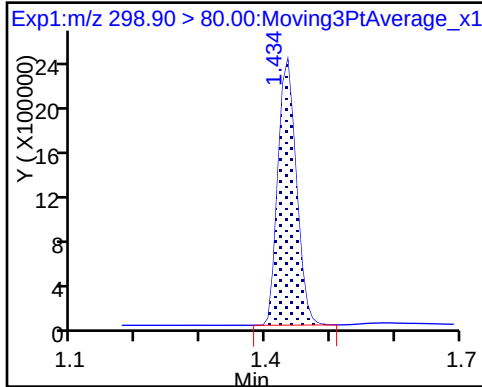
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

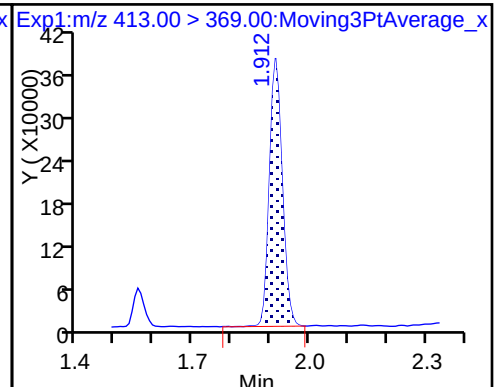
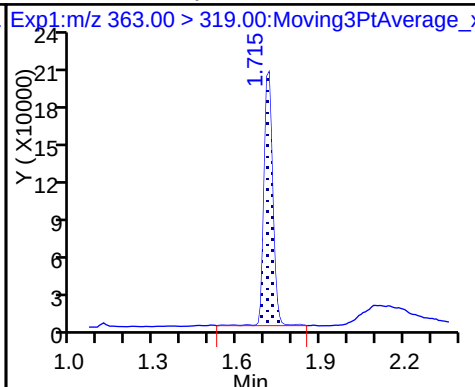
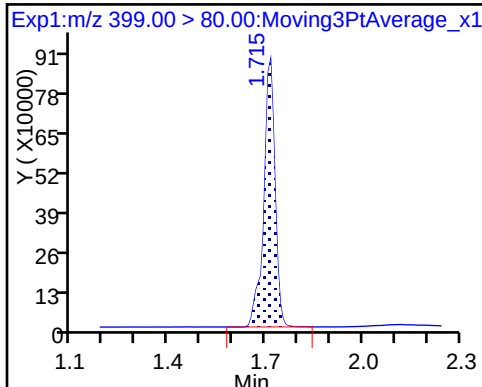
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

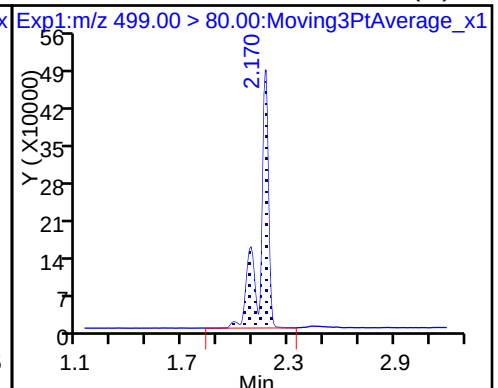
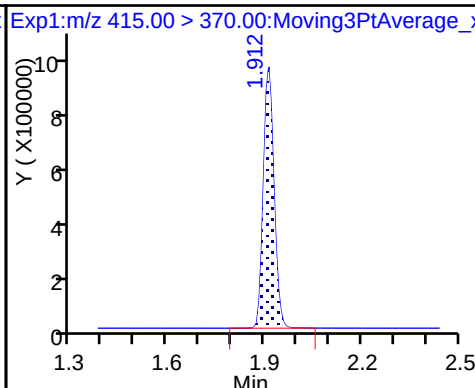
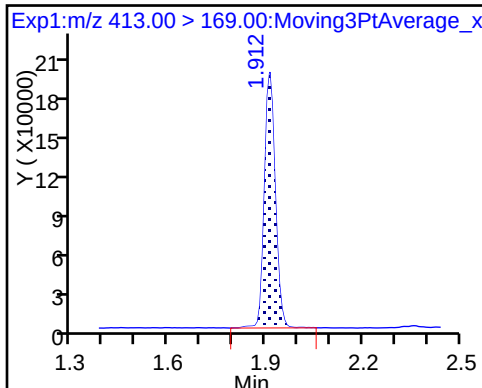
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

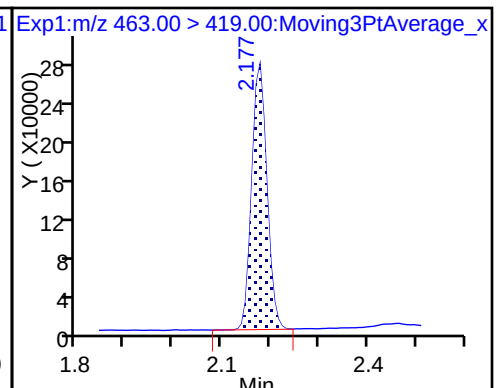
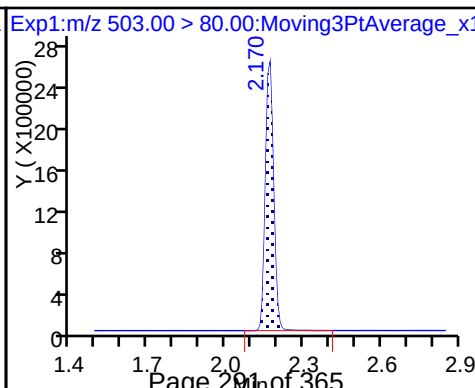
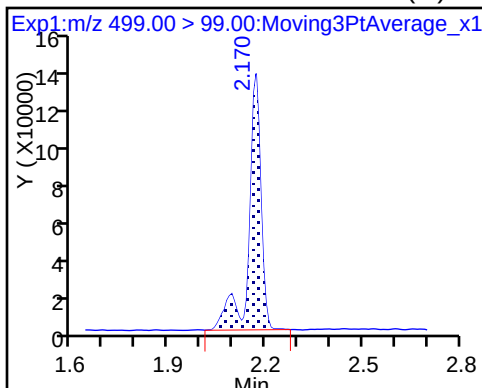
8 Perfluorooctane sulfonic acid (M)



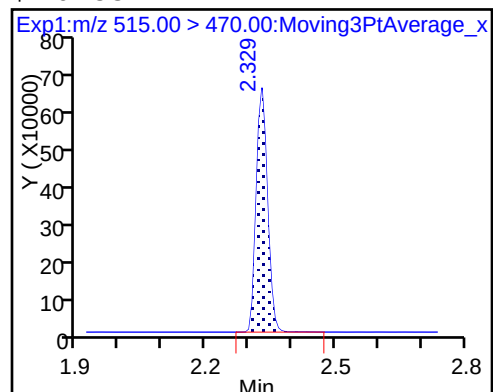
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

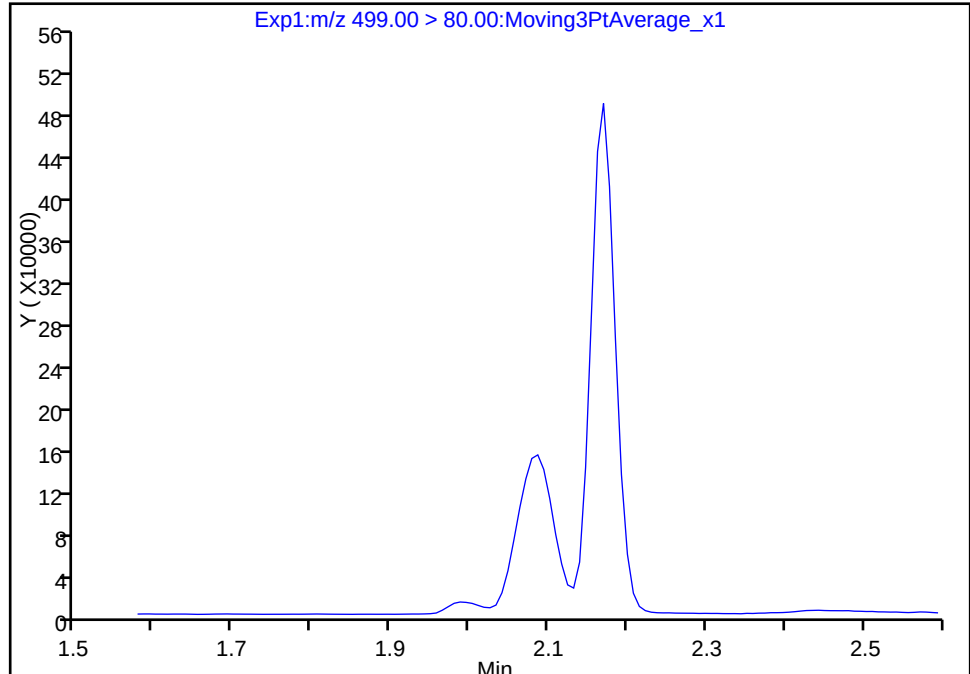
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Injection Date: 17-Aug-2017 17:40:25 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

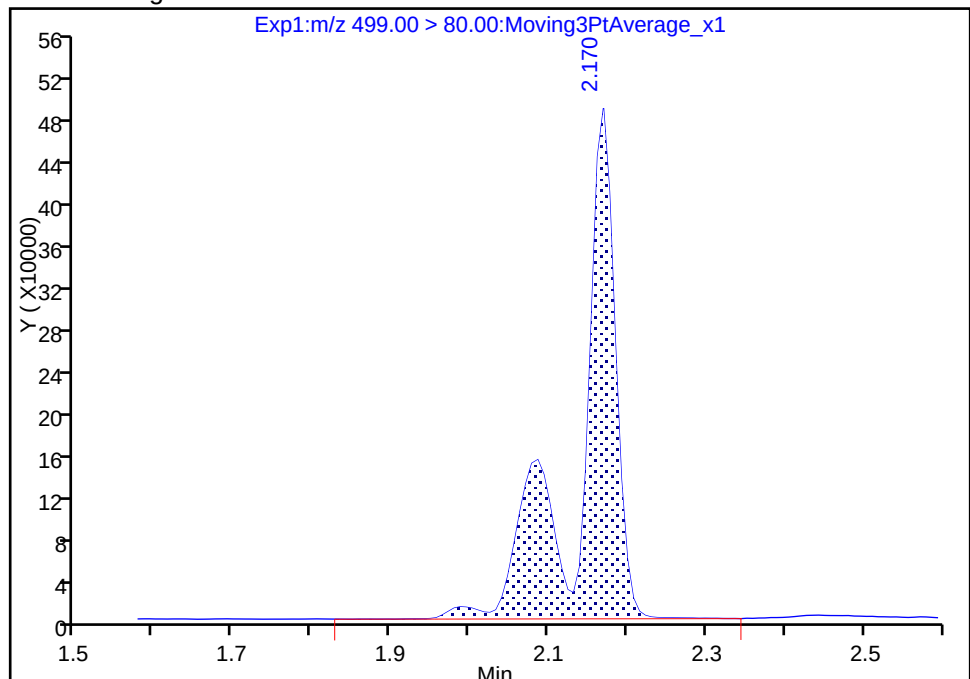
Signal: 1

Not Detected
Expected RT: 2.18

Processing Integration Results



Manual Integration Results



RT: 2.17
Area: 1593767
Amount: 8.815995
Amount Units: ng/ml

Reviewer: phomsophat, 19-Aug-2017 13:45:01

Audit Action: Assigned Compound ID

Audit Reason: Assign Peak

TestAmerica Sacramento

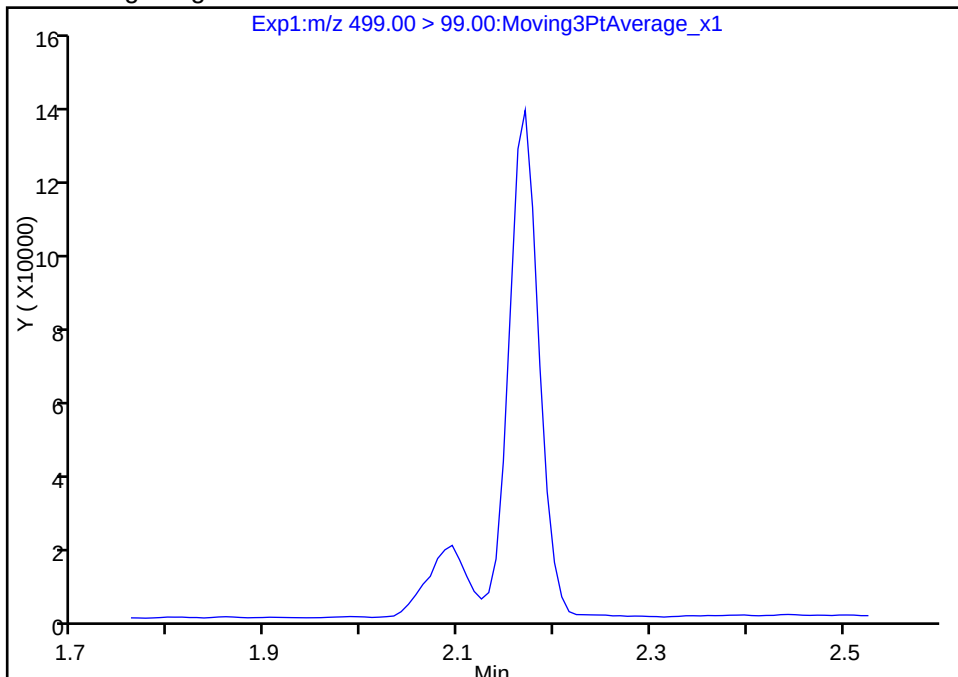
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_011.d
Injection Date: 17-Aug-2017 17:40:25 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

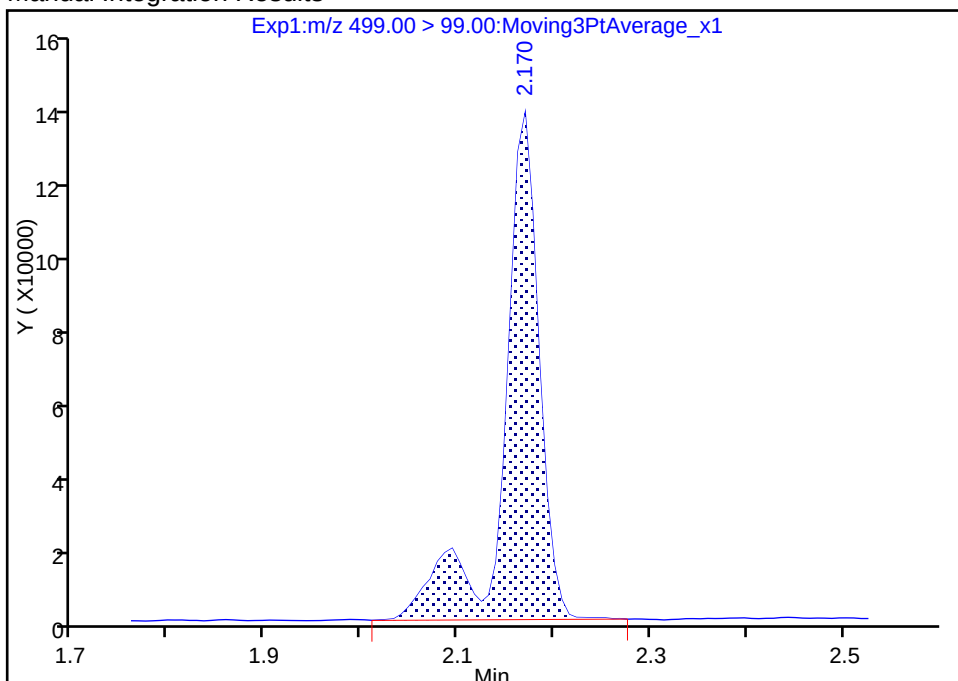
Not Detected
Expected RT: 2.18

Processing Integration Results



Manual Integration Results

RT: 2.17
Area: 337001
Amount: 8.815995
Amount Units: ng/ml



Reviewer: phomsophat, 19-Aug-2017 13:45:11

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

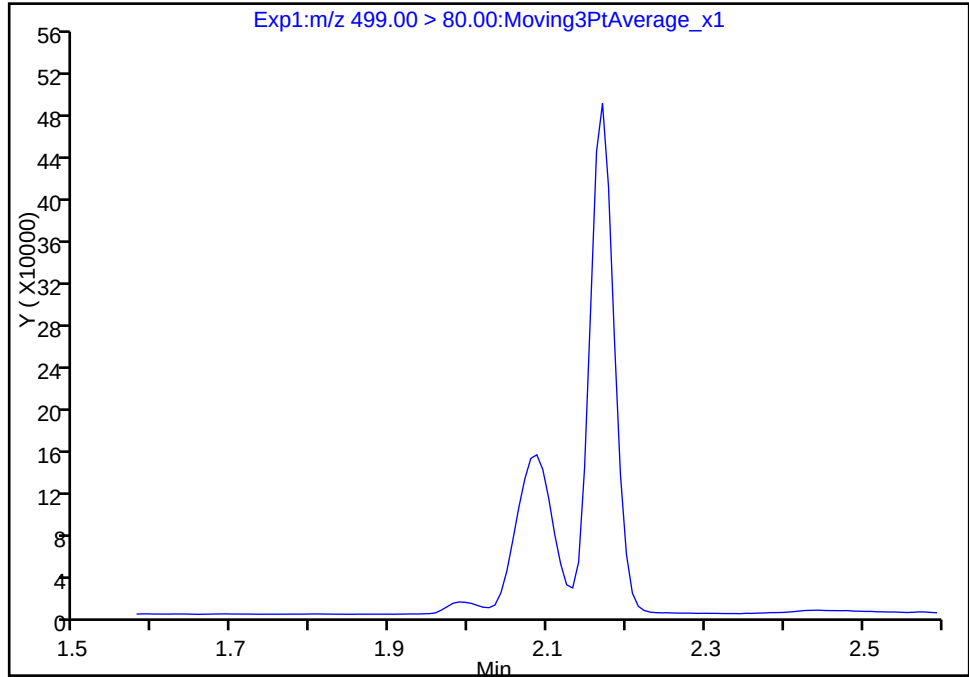
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_011.d
Injection Date: 17-Aug-2017 17:40:25 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

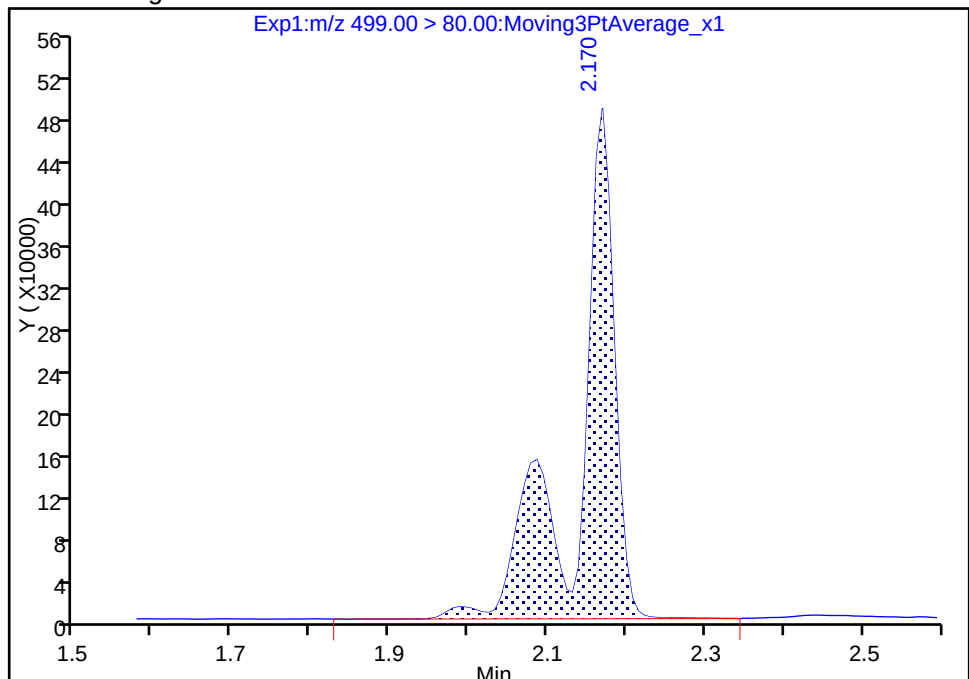
Not Detected
Expected RT: 2.18

Processing Integration Results



Manual Integration Results

RT: 2.17
Area: 1593767
Amount: 8.815995
Amount Units: ng/ml



Reviewer: phomsophat, 19-Aug-2017 13:45:11

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: ICV 320-180236/11 Calibration Date: 08/17/2017 17:49
 Instrument ID: A8_N Calib Start Date: 08/17/2017 17:07
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/17/2017 17:30
 Lab File ID: 207.08.17_537A_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9477		110	100	9.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9415	0.9454		10.0	10.0	0.4	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.538	1.748		22.8	20.1	13.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9175	0.9757		21.8	20.5	6.3	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9198	1.118		23.9	19.7	21.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.7150	0.7455		21.0	20.1	4.3	30.0
13C2 PFHxA	Ave	1.135	1.118		9.85	10.0	-1.5	30.0
13C2 PFDA	Ave	0.6532	0.5562		8.51	10.0	-14.9	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_013.d
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 17-Aug-2017 17:49:55 ALS Bottle#: 7 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: ICV
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist:
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 21-Aug-2017 10:10:52 Calib Date: 17-Aug-2017 17:30:56
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_009.d

Column 1 : Det: EXP1

Process Host: XAWRK001

First Level Reviewer: phomsophat

Date: 19-Aug-2017 13:55:28

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.438	-0.012	1.000	19016696	110.0		2807	
298.90 > 99.00	1.426	1.438	-0.012	1.000	13787471		1.38(0.00-0.00)	2790	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.555	1.568	-0.013	1.000	2211762	9.85		10799	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.707	1.722	-0.015	1.000	7034445	22.8		1797	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.707	1.722	-0.015	1.000	1868976	10.0		216	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.904	1.928	-0.024	1.000	3952635	21.8		226	
413.00 > 169.00	1.904	1.928	-0.024	1.000	2077871		1.90(0.00-0.00)	3084	
* 6 13C2-PFOA									
415.00 > 370.00	1.904	1.928	-0.024		1977664	10.0		7784	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.177	-0.015	1.000	4412804	23.9		2058	
499.00 > 99.00	2.162	2.177	-0.015	1.000	673345		6.55(0.00-0.00)	193	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.185	-0.023		5748034	28.7		2718	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.193	-0.023	1.000	2967510	21.0		415	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.322	2.342	-0.020	1.000	1099926	8.51		7550	

Reagents:

LC537-ICV_00028

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_013.d

Injection Date: 17-Aug-2017 17:49:55

Instrument ID: A8_N

Lims ID: ICV

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 7

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

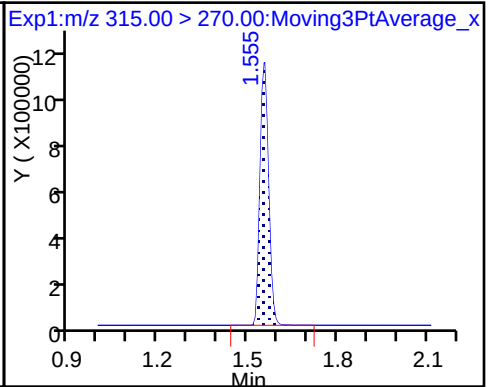
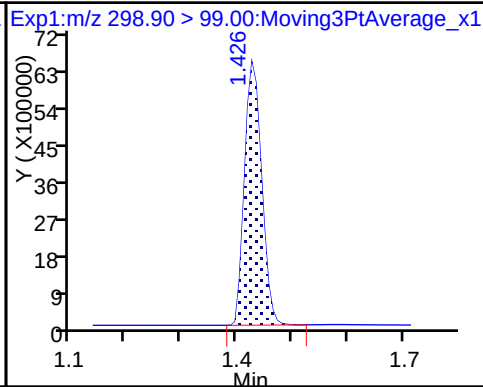
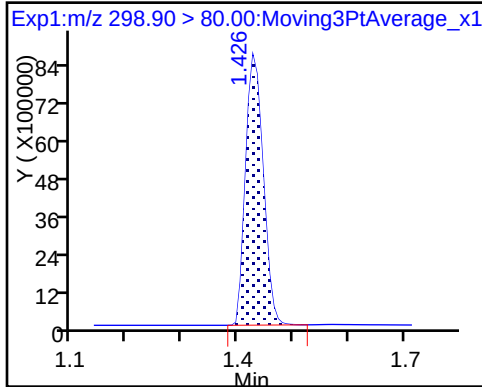
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

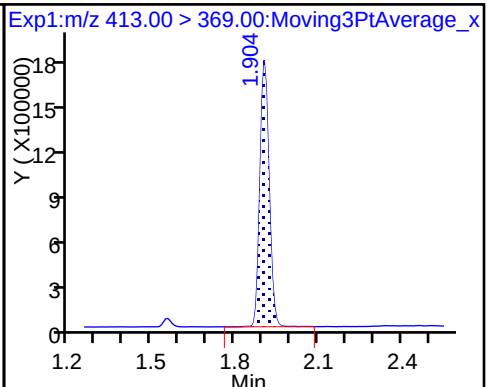
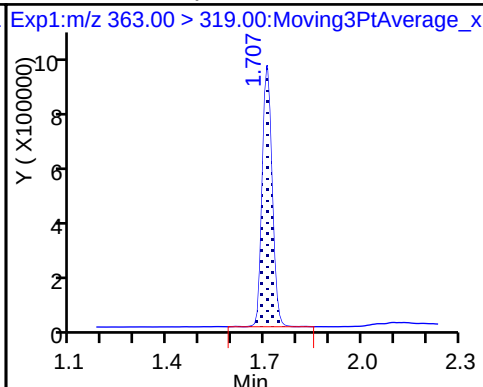
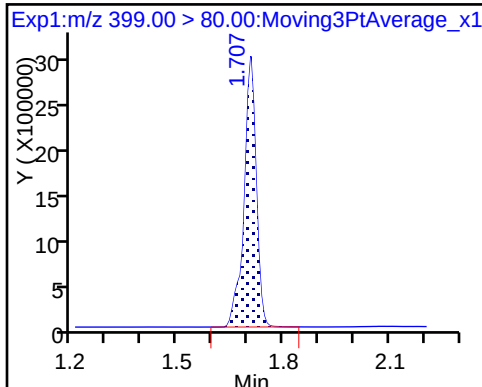
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

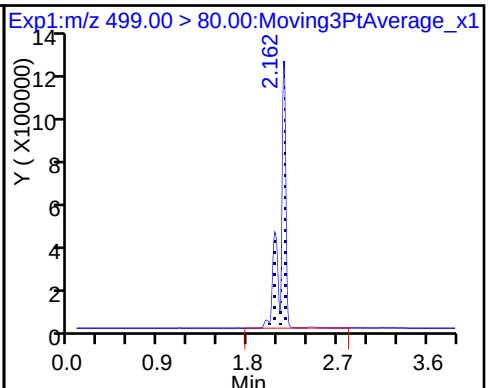
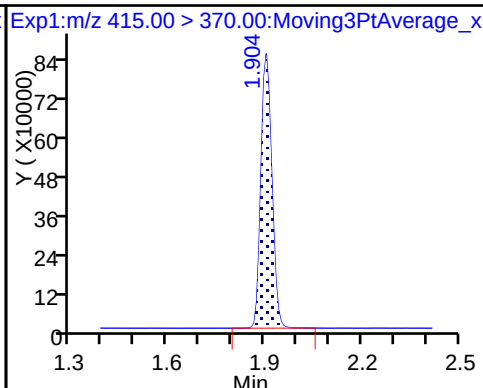
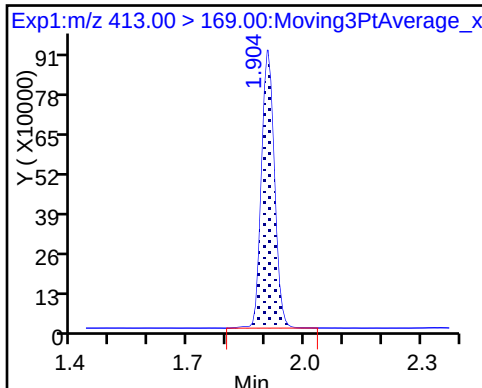
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

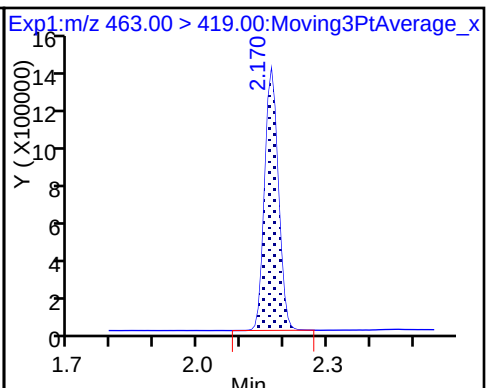
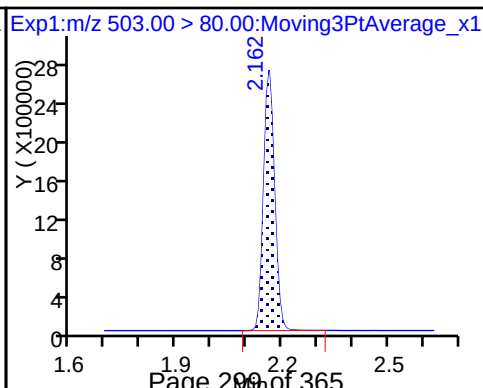
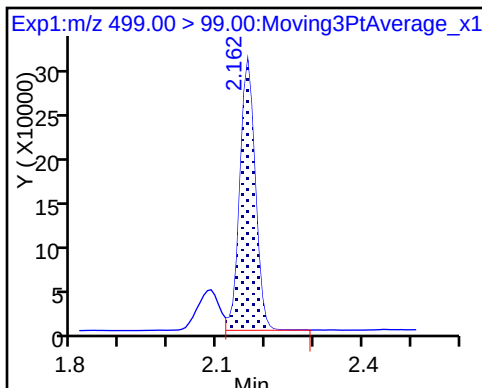
8 Perfluorooctane sulfonic acid



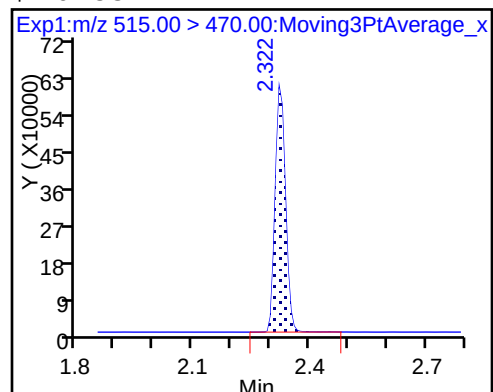
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: CCV 320-180242/27 Calibration Date: 08/17/2017 20:03
 Instrument ID: A8_N Calib Start Date: 08/17/2017 17:07
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/17/2017 17:30
 Lab File ID: 2017.08.17_537A_027.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.8368		141	135	4.6	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9415	0.9584		15.3	15.0	1.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.538	1.553		45.4	45.0	0.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9175	0.9532		31.2	30.0	3.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9198	0.9360		61.1	60.0	1.8	30.0
Perfluorononanoic acid (PFNA)	Ave	0.7150	0.6407		26.9	30.0	-10.4	30.0
13C2 PFHxA	Ave	1.135	1.243		10.9	10.0	9.5	30.0
13C2 PFDA	Ave	0.6532	0.6457		9.89	10.0	-1.1	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\2017.08.17_537A_027.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 17-Aug-2017 20:03:03 ALS Bottle#: 5 Worklist Smp#: 27
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 21-Aug-2017 10:47:24 Calib Date: 17-Aug-2017 17:30:56
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_009.d

Column 1 : Det: EXP1

Process Host: XAWRK001

First Level Reviewer: barnettj

Date: 21-Aug-2017 10:44:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.438	-0.012	1.000	21851470	141.2		4008	
298.90 > 99.00	1.426	1.438	-0.012	1.000	16205322		1.35(0.00-0.00)	4462	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.555	1.568	-0.013	1.000	2271024	10.9		9970	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.707	1.722	-0.015	1.000	2627897	15.3		315	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.707	1.722	-0.015	1.000	13517496	45.4		3080	
* 6 13C2-PFOA									
415.00 > 370.00	1.897	1.928	-0.031		1827584	10.0		7086	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.897	1.928	-0.031	1.000	5230443	31.2		239	
413.00 > 169.00	1.897	1.928	-0.031	1.000	2738425		1.91(0.00-0.00)	4601	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.155	2.147	0.008	1.000	10864860	61.1		2867	M
499.00 > 99.00	2.155	2.147	0.008	1.000	2308620		4.71(0.00-0.00)	1428	M
* 7 13C4 PFOS									
503.00 > 80.00	2.155	2.185	-0.030		5546997	28.7		2604	
9 Perfluorononanoic acid									
463.00 > 419.00	2.162	2.193	-0.031	1.000	3513658	26.9		463	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.322	2.342	-0.020	1.000	1180088	9.89		7534	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L5_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\2017.08.17_537A_027.d

Injection Date: 17-Aug-2017 20:03:03

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 27

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

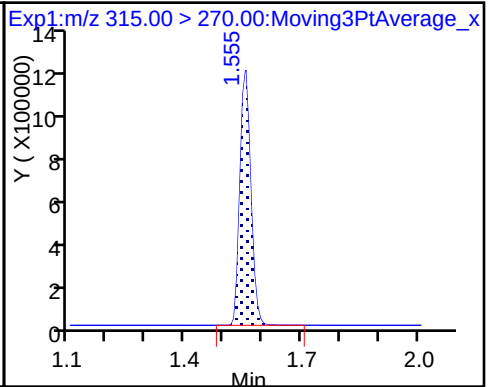
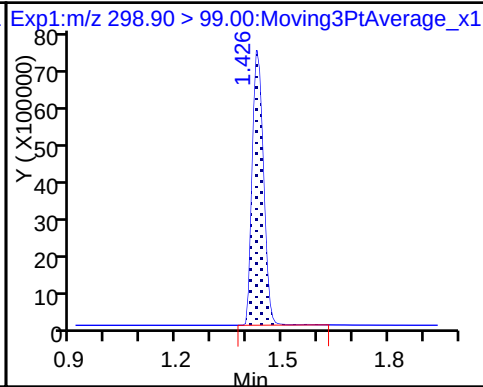
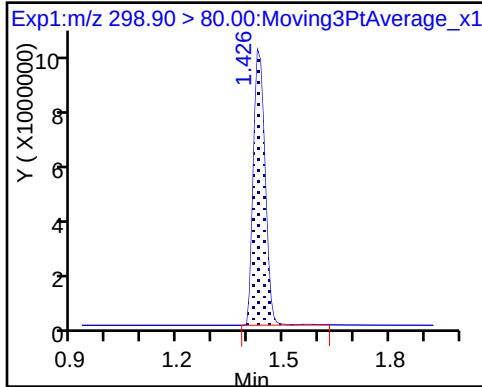
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

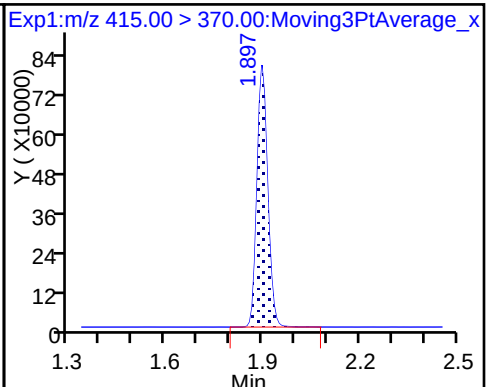
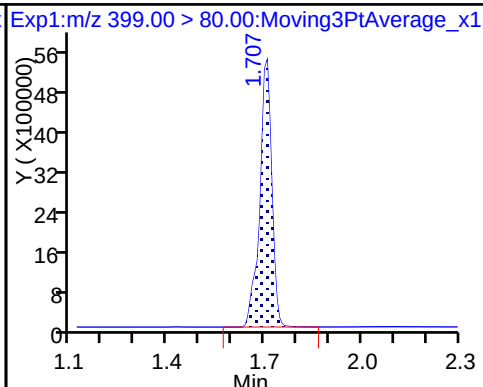
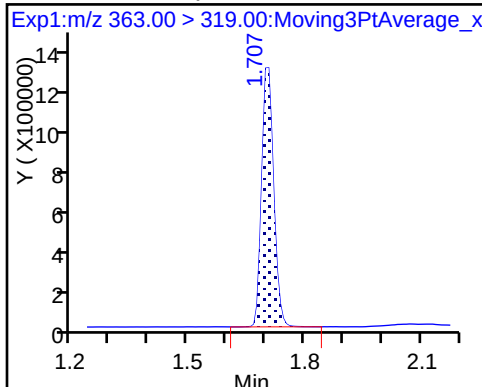
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

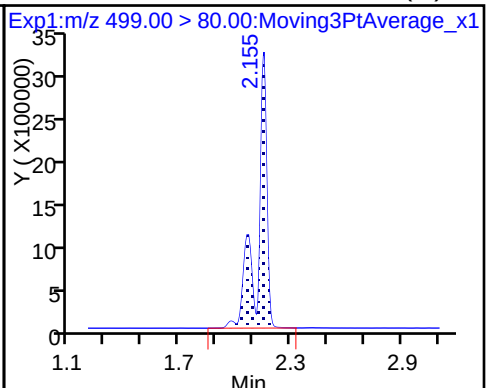
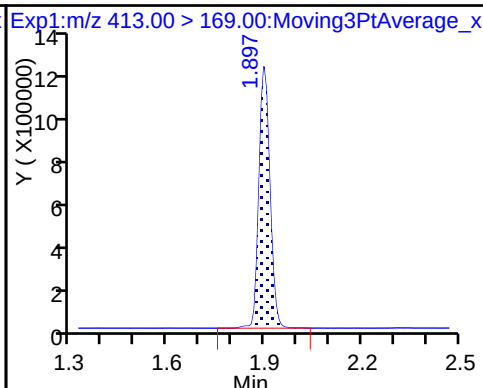
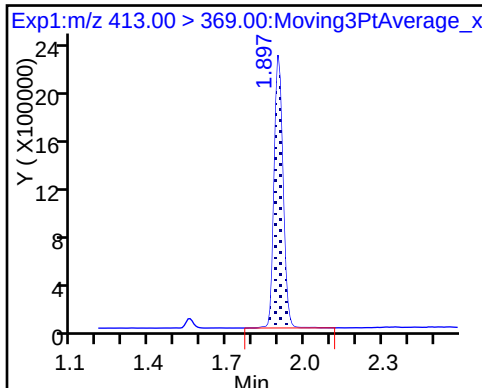
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

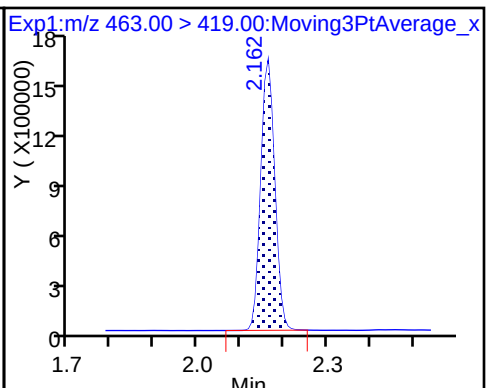
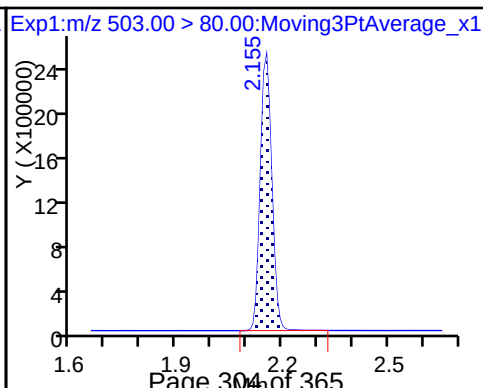
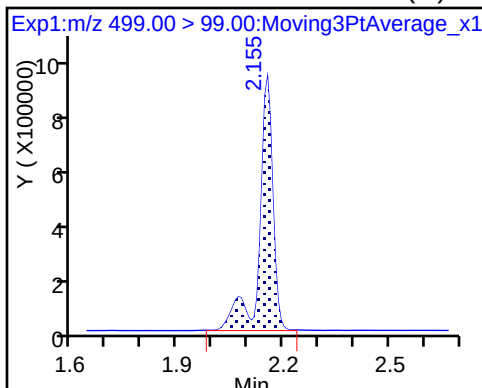
8 Perfluorooctane sulfonic acid (M)



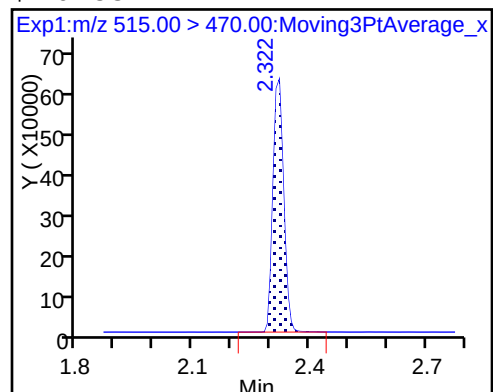
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

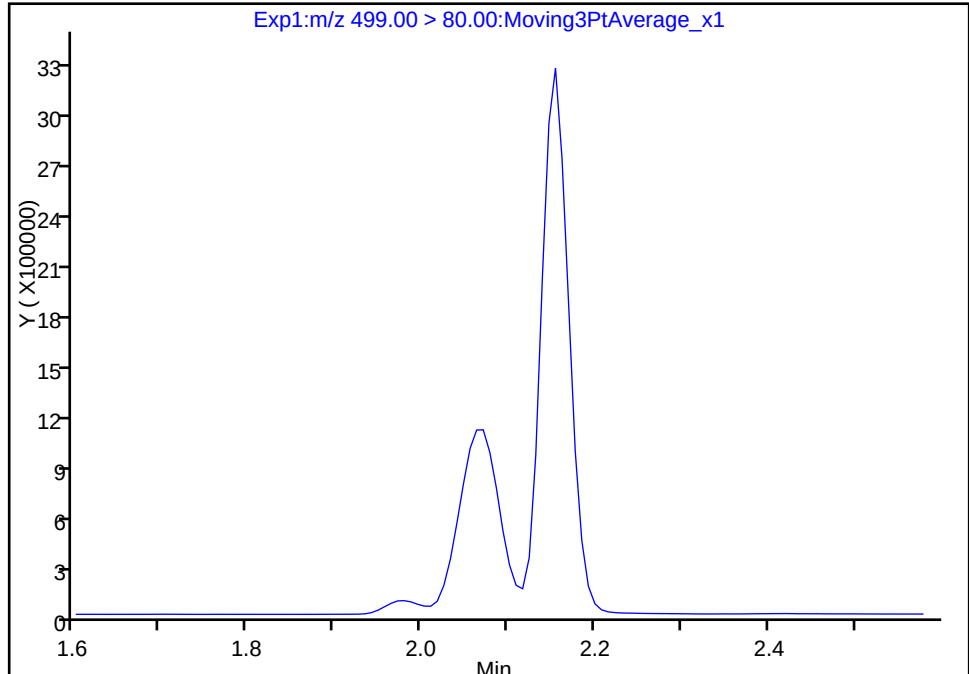
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\2017.08.17_537A_027.d
Injection Date: 17-Aug-2017 20:03:03 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

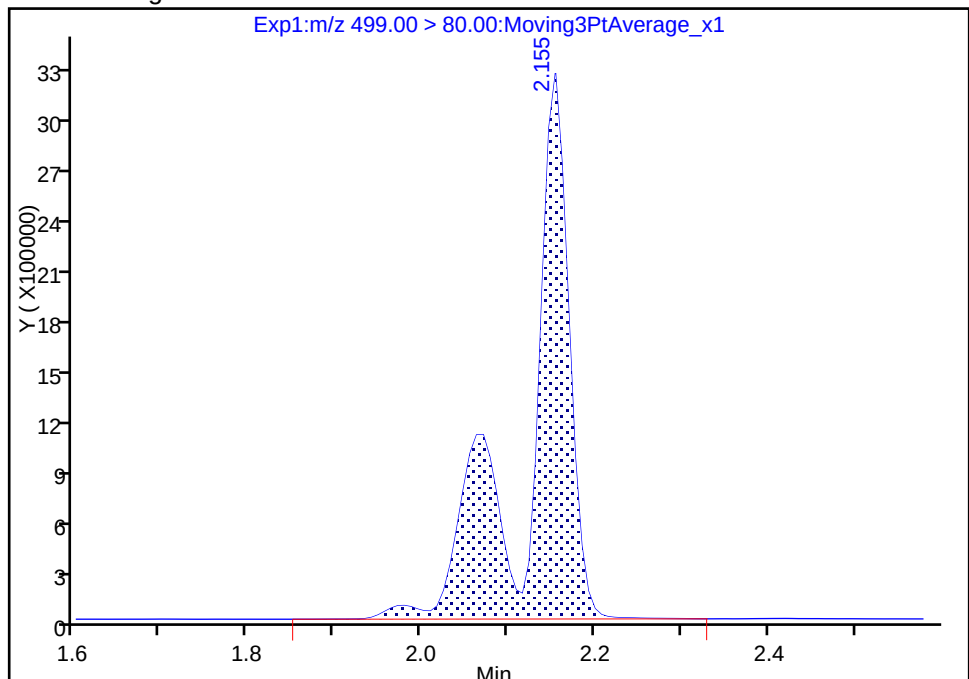
Signal: 1

Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results



RT: 2.15
Area: 10864860
Amount: 61.076599
Amount Units: ng/ml

Reviewer: barnettj, 21-Aug-2017 10:43:55

Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

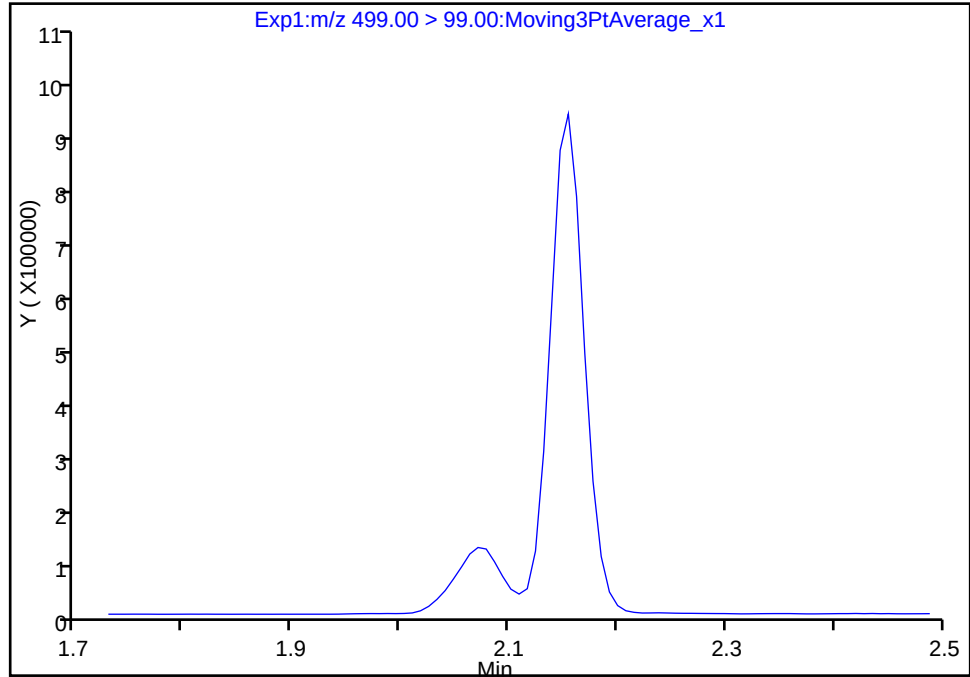
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\2017.08.17_537A_027.d
Injection Date: 17-Aug-2017 20:03:03 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

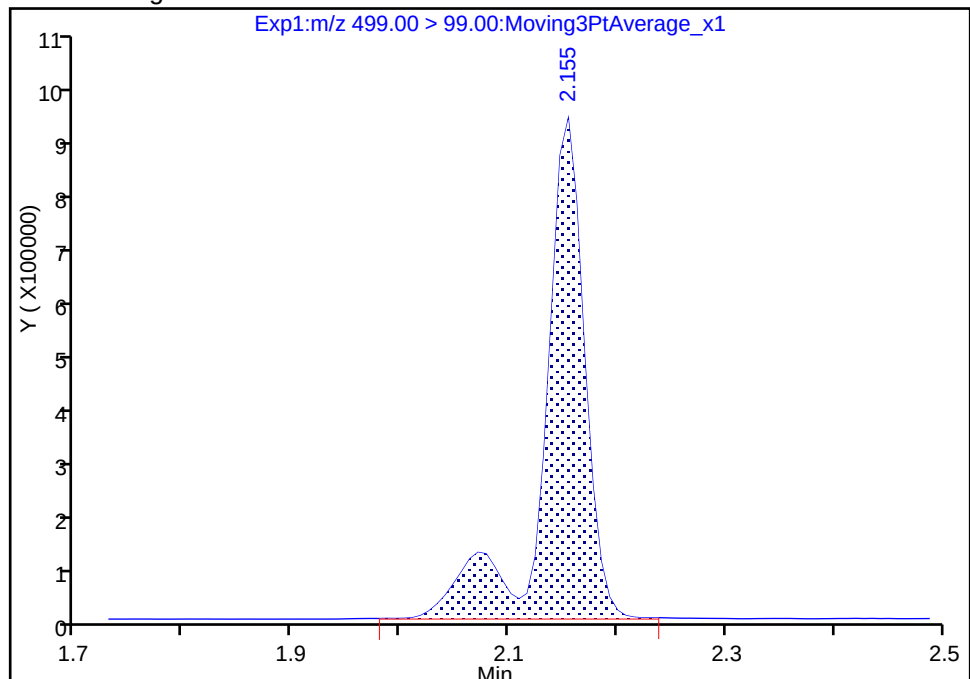
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 2308620
Amount: 61.076599
Amount Units: ng/ml



Reviewer: barnettj, 21-Aug-2017 10:44:15

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

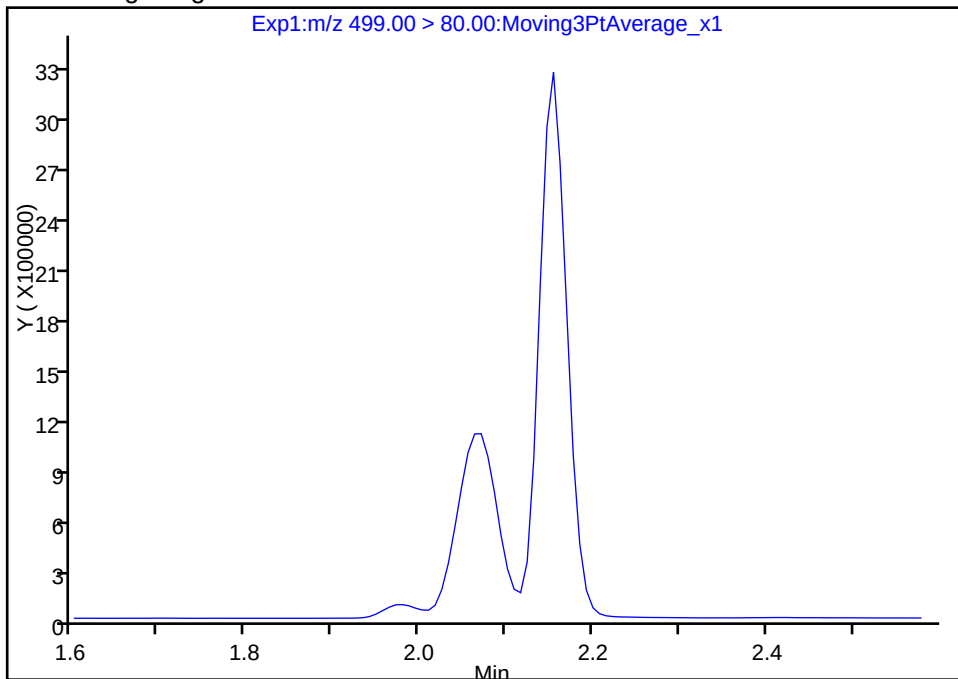
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Injection Date: 17-Aug-2017 20:03:03 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

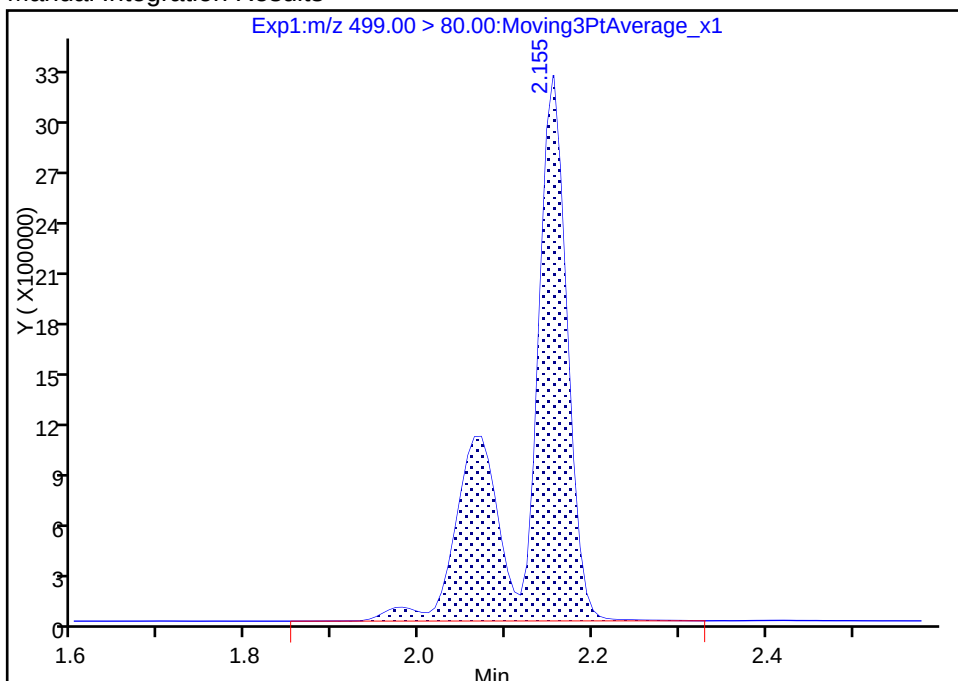
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 10864860
Amount: 61.076599
Amount Units: ng/ml



Reviewer: barnettj, 21-Aug-2017 10:44:15

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: CCV 320-180242/32 Calibration Date: 08/17/2017 20:26
 Instrument ID: A8_N Calib Start Date: 08/17/2017 17:07
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/17/2017 17:30
 Lab File ID: 2017.08.17_537A_032.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.135		52.2	45.0	16.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9415	0.9592		5.10	5.00	1.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.538	1.670		16.3	15.0	8.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9175	0.9023		9.84	10.0	-1.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9198	0.9386		20.4	20.0	2.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.7150	0.6338		8.87	10.0	-11.4	30.0
13C2 PFHxA	Ave	1.135	1.186		10.4	10.0	4.5	30.0
13C2 PFDA	Ave	0.6532	0.6274		9.61	10.0	-3.9	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\2017.08.17_537A_032.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 17-Aug-2017 20:26:47 ALS Bottle#: 3 Worklist Smp#: 32
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L3
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 21-Aug-2017 10:47:31 Calib Date: 17-Aug-2017 17:30:56
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46875.b\207.08.17_537A_009.d

Column 1 : Det: EXP1

Process Host: XAWRK001

First Level Reviewer: barnettj

Date: 21-Aug-2017 10:46:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.426	1.438	-0.012	1.000	9765260	52.2		1806	
298.90 > 99.00	1.426	1.438	-0.012	1.000	6740068		1.45(0.00-0.00)	1731	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.548	1.568	-0.020	1.000	2174947	10.4		9493	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.699	1.722	-0.023	1.000	879784	5.10		108	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.699	1.722	-0.023	1.000	4790955	16.3		1389	
* 6 13C2-PFOA									
415.00 > 370.00	1.889	1.928	-0.039		1833952	10.0		6968	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.897	1.928	-0.031	1.000	1656140	9.84		70.5	
413.00 > 169.00	1.897	1.928	-0.031	1.000	889224		1.86(0.00-0.00)	1781	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.147	2.147	0.0	1.000	3589434	20.4		1962	
499.00 > 99.00	2.147	2.147	0.0	1.000	736765		4.87(0.00-0.00)	513	
* 7 13C4 PFOS									
503.00 > 80.00	2.147	2.185	-0.038		5482835	28.7		2759	
9 Perfluorononanoic acid									
463.00 > 419.00	2.155	2.193	-0.038	1.000	1162626	8.87		134	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.342	-0.028	1.000	1150660	9.61		7081	

Reagents:

LC537-L3_00023

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b\2017.08.17_537A_032.d

Injection Date: 17-Aug-2017 20:26:47

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 32

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

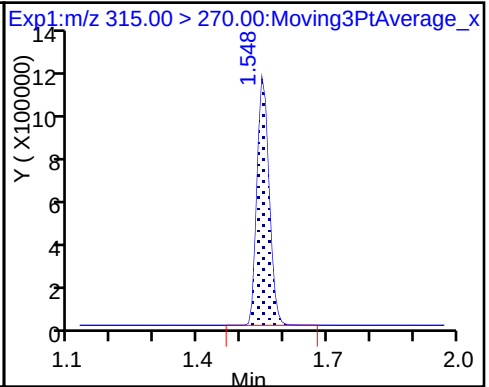
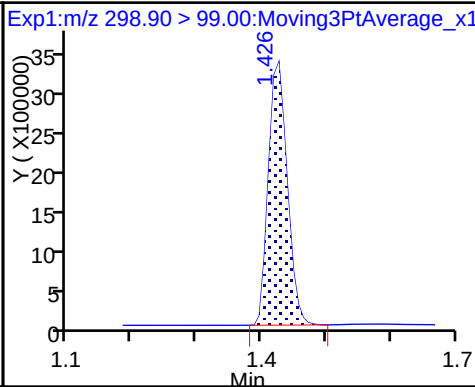
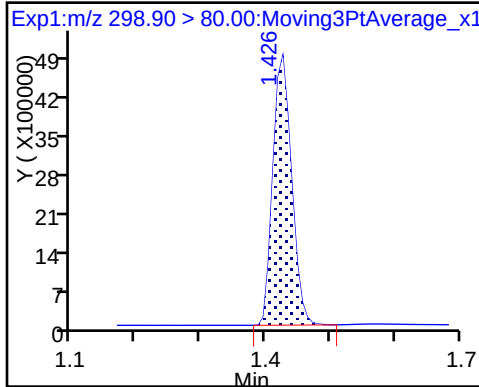
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

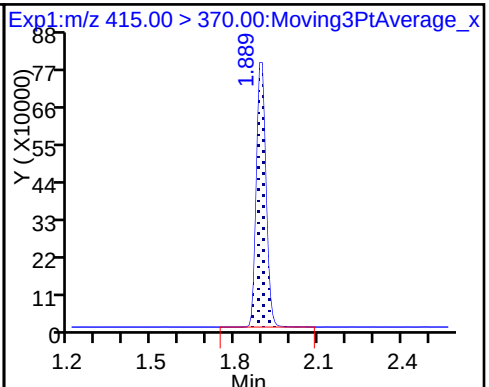
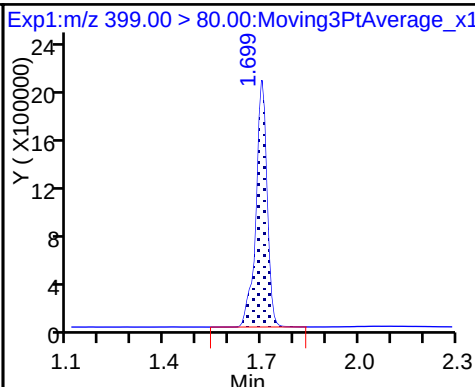
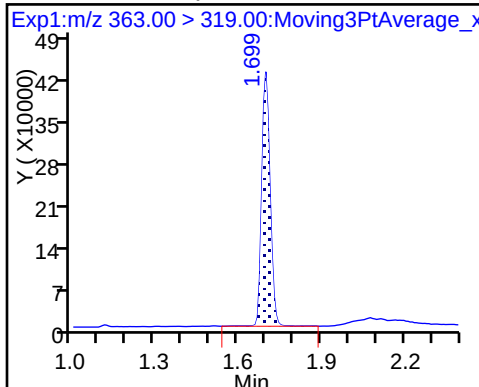
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

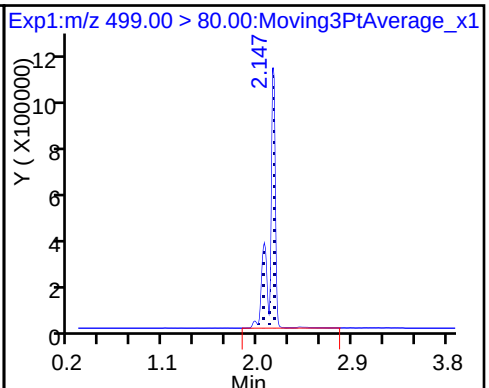
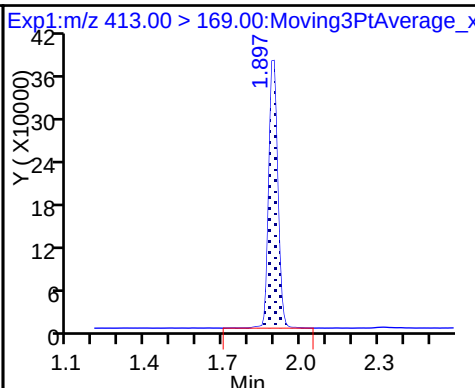
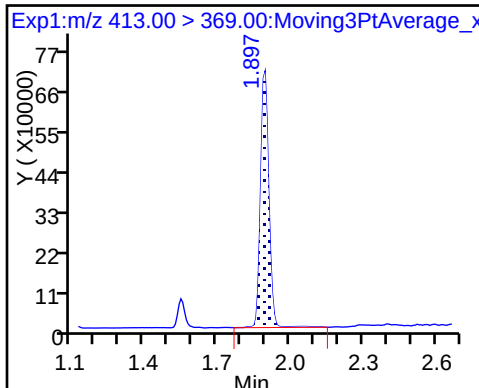
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

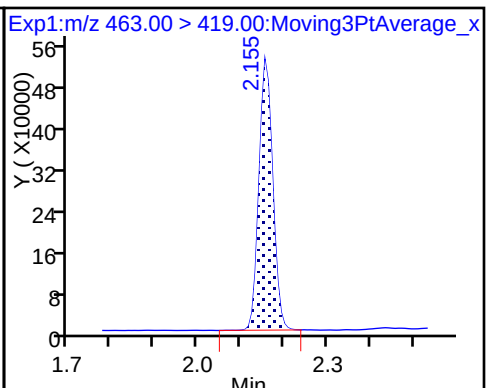
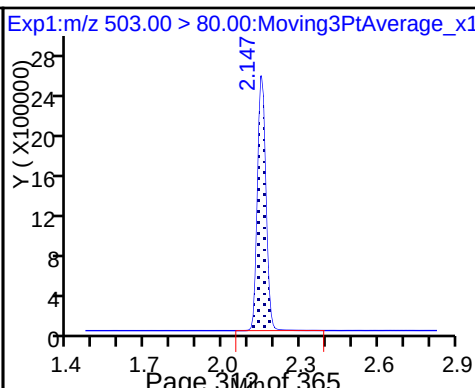
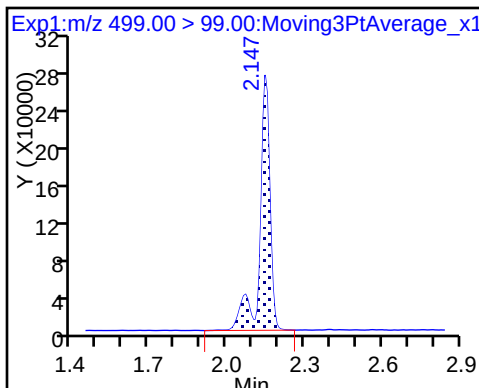
8 Perfluorooctane sulfonic acid



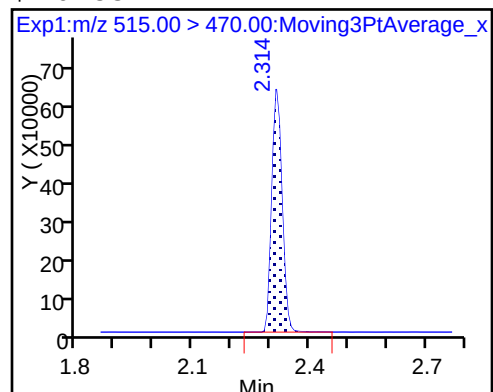
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Client Sample ID: _____ Lab Sample ID: MB 320-177692/1-A

Matrix: Water Lab File ID: 2017.08.16_537D_033.d

Analysis Method: 537 Date Collected: _____

Extraction Method: 537 Date Extracted: 08/04/2017 09:11

Sample wt/vol: 250 (mL) Date Analyzed: 08/16/2017 18:17

Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1

Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)

% Moisture: _____ GPC Cleanup: (Y/N) N

Analysis Batch No.: 179896 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	8.0	U	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	123		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_033.d
 Lims ID: MB 320-177692/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 16-Aug-2017 18:17:59 ALS Bottle#: 25 Worklist Smp#: 26
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-177692/1-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:21 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK030

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.586	1.582	0.004	1.000	2068190	10.1		6841	
* 6 13C2-PFOA									
415.00 > 370.00	1.935	1.955	-0.020		1923796	10.0		7002	
* 7 13C4 PFOS									
503.00 > 80.00	2.170	2.205	-0.035		5541173	28.7		5123	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.322	2.354	-0.032	1.000	1386815	12.3		7326	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_033.d

Injection Date: 16-Aug-2017 18:17:59

Instrument ID: A8_N

Lims ID: MB 320-177692/1-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 25

Worklist Smp#: 26

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

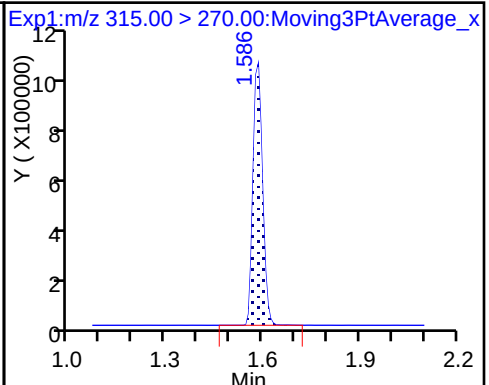
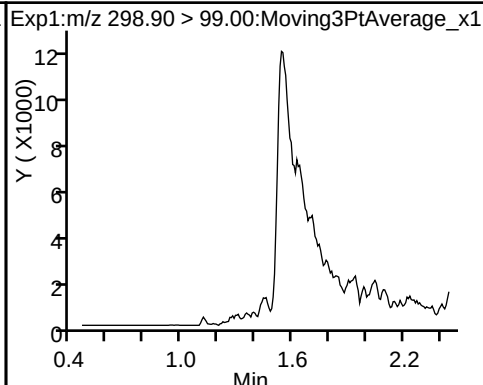
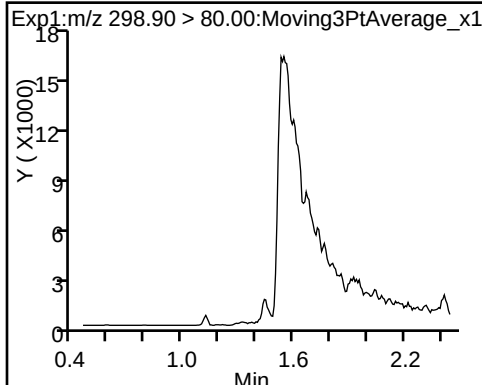
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

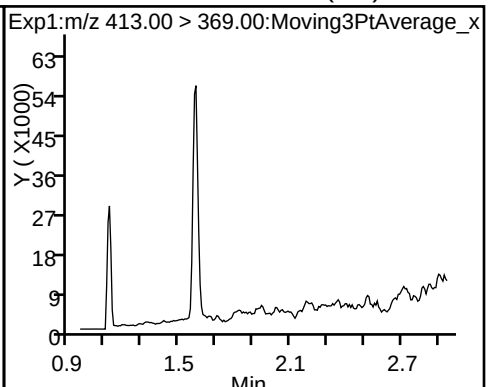
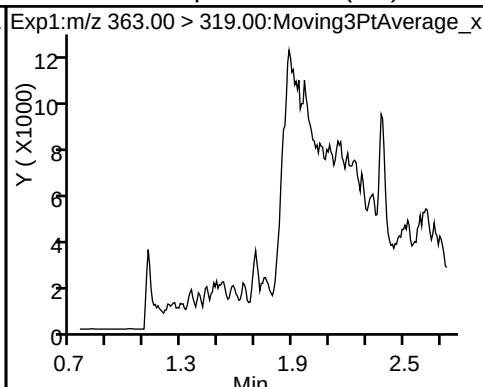
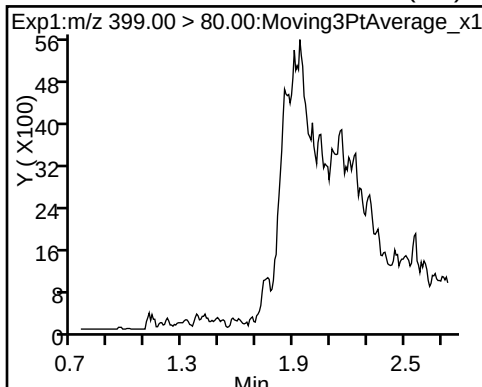
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

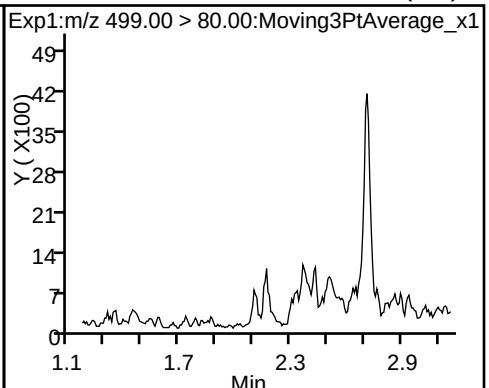
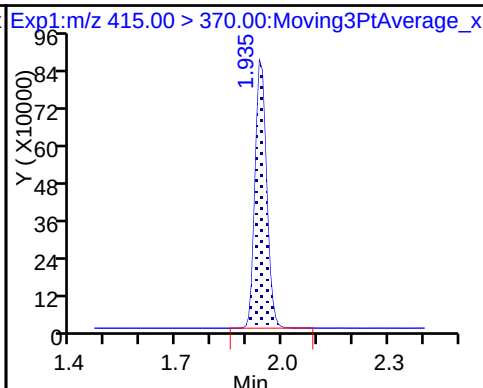
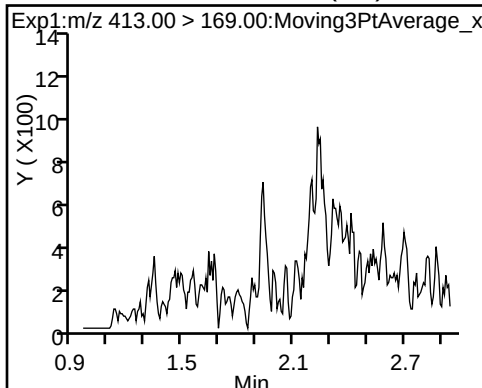
5 Perfluorooctanoic acid (ND)



5 Perfluorooctanoic acid (ND)

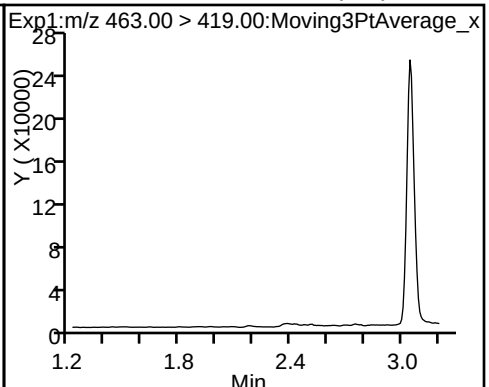
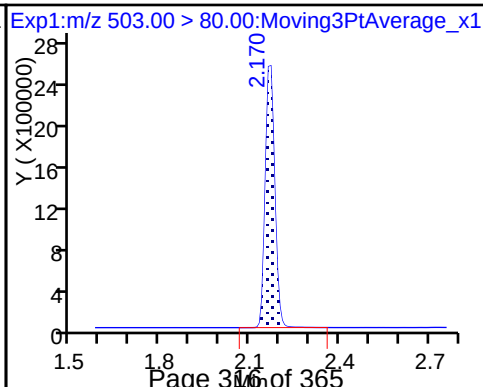
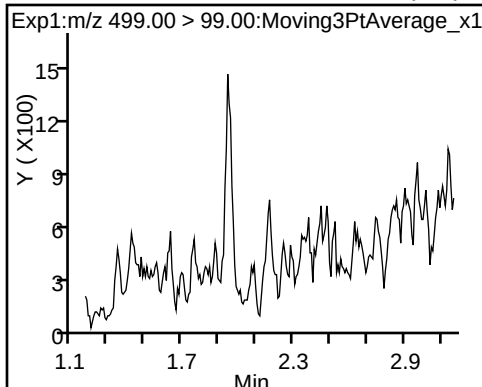
* 6 13C2-PFOA

8 Perfluorooctane sulfonic acid (ND)

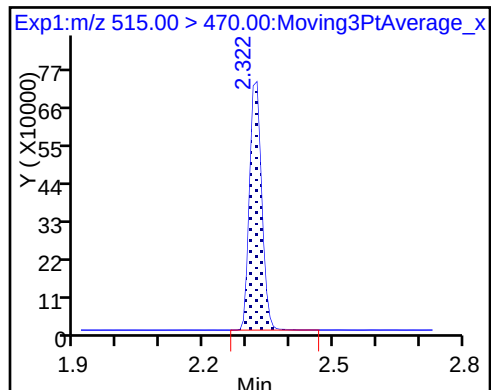


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_033.d
Lims ID: MB 320-177692/1-A
Client ID:
Sample Type: MB
Inject. Date: 16-Aug-2017 18:17:59 ALS Bottle#: 25 Worklist Smp#: 26
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-177692/1-a
Misc. Info.: Plate: 1 Rack: 4
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 17-Aug-2017 15:26:21 Calib Date: 14-Aug-2017 13:12:40
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d

Column 1 : Det: EXP1

Process Host: XAWRK030

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.1	100.54
\$ 10 13C2 PFDA	10.0	12.3	122.67

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LLCS 320-177692/2-A
 Matrix: Water Lab File ID: 2017.08.16_537D_034.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 08/04/2017 09:11
 Sample wt/vol: 250 (mL) Date Analyzed: 08/16/2017 18:22
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 179896 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	41.0		40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	18.1	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	22.7	J	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	29.5	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	11.2		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	92.1		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	100		70-130
STL00996	13C2 PFDA	116		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_034.d
 Lims ID: LLCS 320-177692/2-A
 Client ID:
 Sample Type: LLCS
 Inject. Date: 16-Aug-2017 18:22:44 ALS Bottle#: 26 Worklist Smp#: 27
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: llcs 320-177692/2-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:21 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
 Column 1 : Det: EXP1
 Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:08:30

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.434	1.453	-0.019	1.000	4867662	23.0		1196	
298.90 > 99.00	1.434	1.453	-0.019	1.000	3316990		1.47(0.00-0.00)	1061	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.582	-0.004	1.000	2053926	10.0		6821	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.737	1.742	-0.005	1.000	2167023	7.37		1019	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.737	1.742	-0.005	1.000	459537	2.80		62.7	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.935	1.955	-0.020	1.000	788801	4.53		45.0	
413.00 > 169.00	1.935	1.955	-0.020	1.000	416738		1.89(0.00-0.00)	772	
* 6 13C2-PFOA									
415.00 > 370.00	1.935	1.955	-0.020		1919068	10.0		7167	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.155	0.007	1.000	1860256	10.2		1526	
499.00 > 99.00	2.162	2.155	0.007	1.000	417494		4.46(0.00-0.00)	380	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.205	-0.043		5641559	28.7		4771	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.213	-0.043	1.000	617750	5.68		93.1	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.354	-0.040	1.000	1306219	11.6		5823	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_034.d

Injection Date: 16-Aug-2017 18:22:44

Instrument ID: A8_N

Lims ID: LLCS 320-177692/2-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 26

Worklist Smp#: 27

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

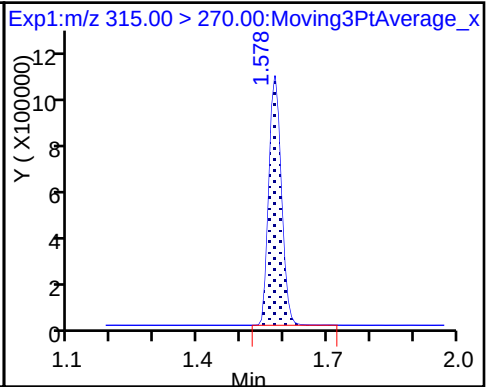
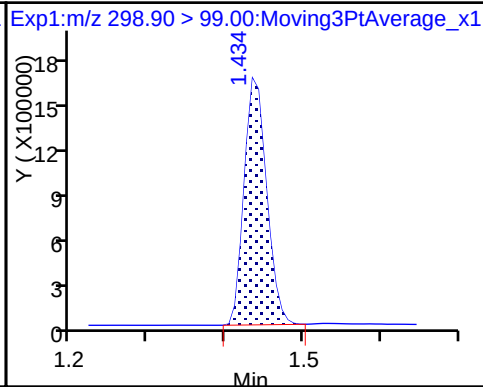
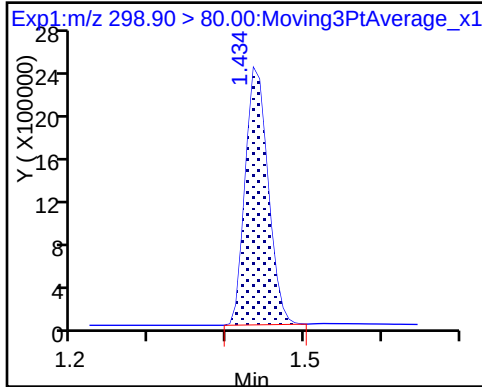
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

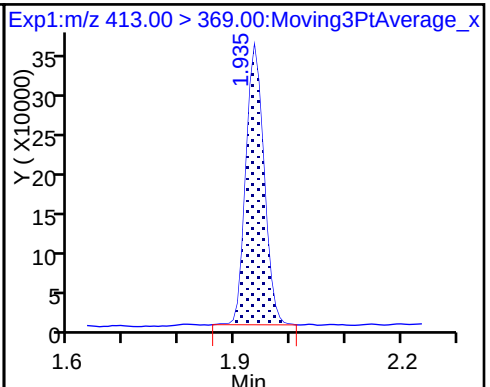
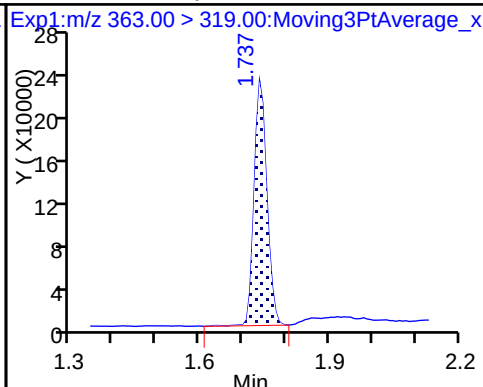
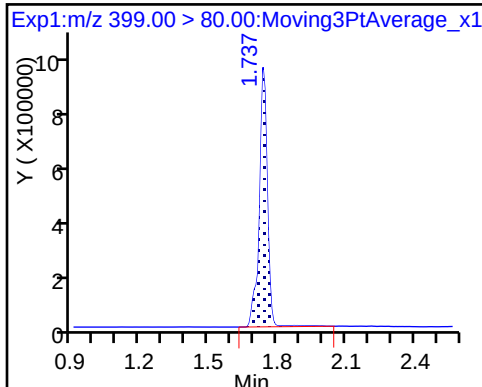
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

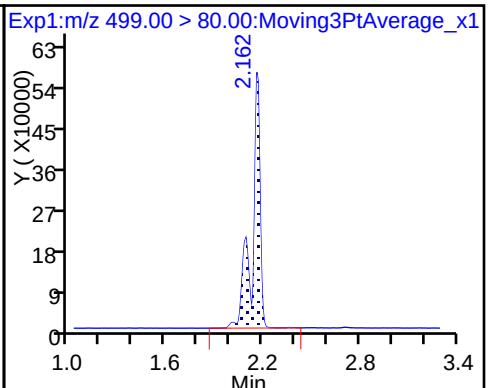
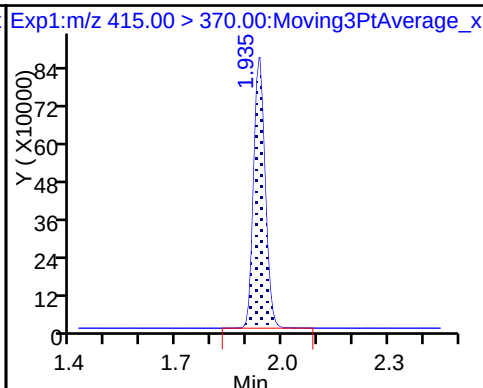
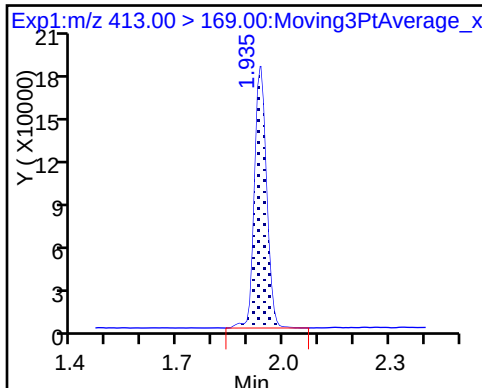
5 Perfluorooctanoic acid



5 Perfluorooctanoic acid

* 6 13C2-PFOA

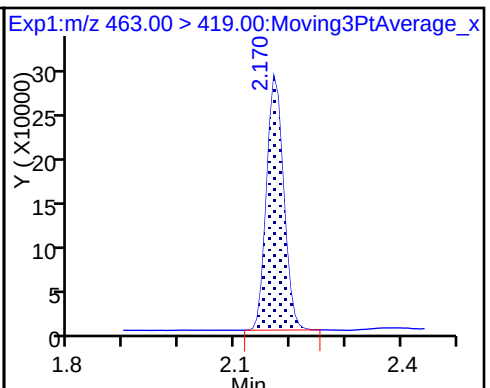
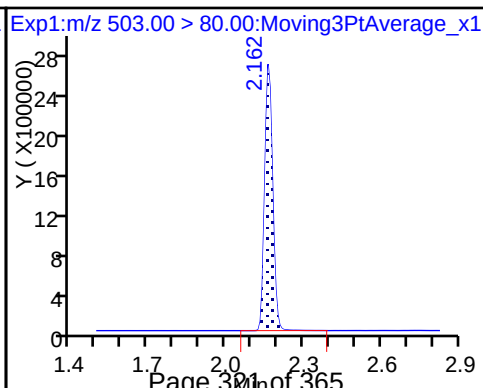
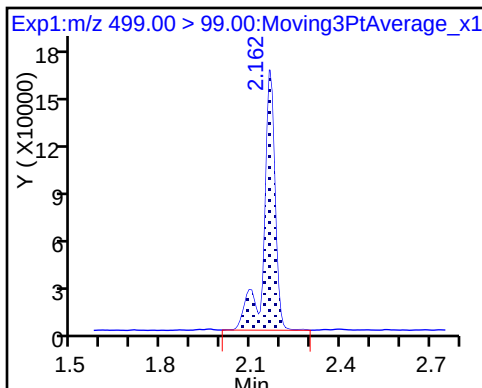
8 Perfluorooctane sulfonic acid



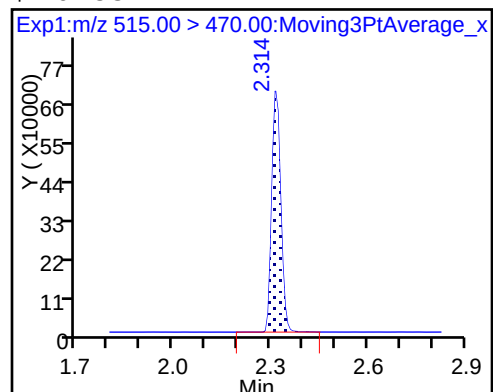
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_034.d
Lims ID: LLCs 320-177692/2-A
Client ID:
Sample Type: LLCs
Inject. Date: 16-Aug-2017 18:22:44 ALS Bottle#: 26 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: llcs 320-177692/2-a
Misc. Info.: Plate: 1 Rack: 4
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 17-Aug-2017 15:26:21 Calib Date: 14-Aug-2017 13:12:40
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
Column 1 : Det: EXP1
Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:08:30

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.0	100.09
\$ 10 13C2 PFDA	10.0	11.6	115.82

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-RW-3178B LMS</u>	Lab Sample ID: <u>320-30330-9 LMS</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_046.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 09:35</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>261.6(mL)</u>	Date Analyzed: <u>08/16/2017 19:19</u>
Con. Extract Vol.: <u>1.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179897</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	66.7		38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	33.0	M	19	7.6	2.7
375-95-1	Perfluorononanoic acid (PFNA)	24.4		23	19	7.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	34.8		29	11	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	13.2		9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	91.9		86	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	126		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_046.d
 Lims ID: 320-30330-A-9-B LMS
 Client ID:
 Sample Type: LMS
 Inject. Date: 16-Aug-2017 19:19:50 ALS Bottle#: 36 Worklist Smp#: 39
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-30330-a-9-b lms
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:32 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
 Column 1 : Det: EXP1
 Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:14:46

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.442	1.453	-0.011	1.000	4991995	24.1		1340	
298.90 > 99.00	1.442	1.453	-0.011	1.000	3049592		1.64(0.00-0.00)	1036	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.582	-0.004	1.000	1816673	9.31		6155	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.745	1.742	0.003	1.000	2634334	9.11		456	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.745	1.742	0.003	1.000	538930	3.45		49.1	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.935	1.955	-0.020	1.000	1429313	8.63		67.0	M
413.00 > 169.00	1.935	1.955	-0.020	1.000	773880		1.85(0.00-0.00)	1201	M
* 6 13C2-PFOA									
415.00 > 370.00	1.935	1.955	-0.020		1825362	10.0		6074	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.155	0.007	1.000	3117150	17.4		937	
499.00 > 99.00	2.162	2.155	0.007	1.000	626841		4.97(0.00-0.00)	369	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.205	-0.043		5550935	28.7		3151	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.213	-0.043	1.000	659630	6.38		22.8	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.354	-0.040	1.000	1352698	12.6		6607	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_046.d

Injection Date: 16-Aug-2017 19:19:50

Instrument ID: A8_N

Lims ID: 320-30330-A-9-B LMS

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 36

Worklist Smp#: 39

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

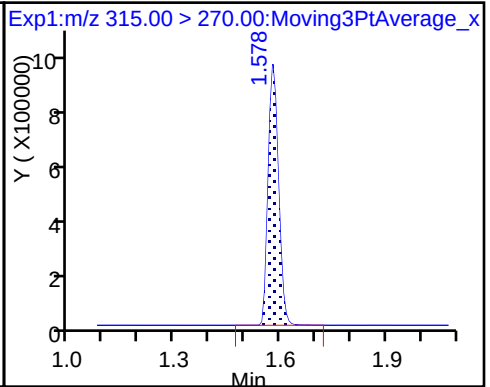
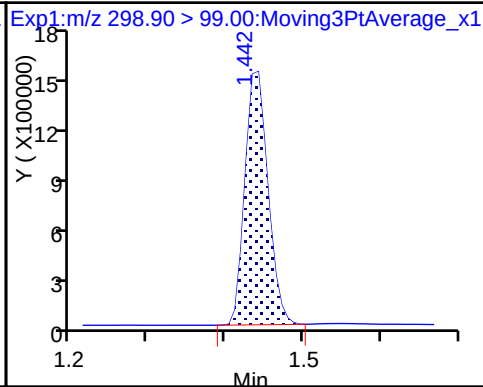
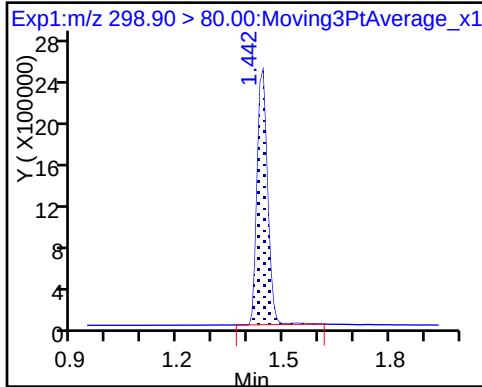
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

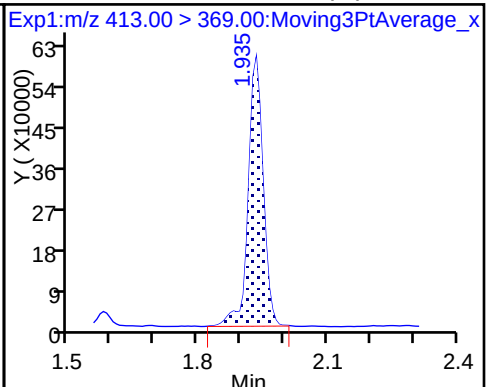
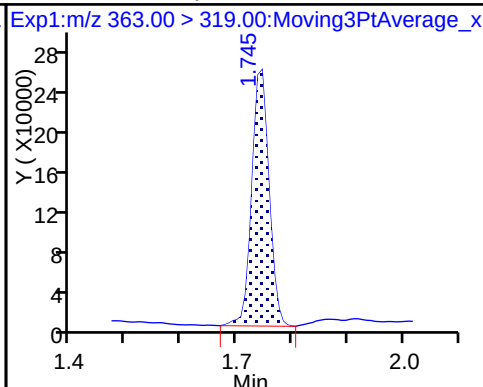
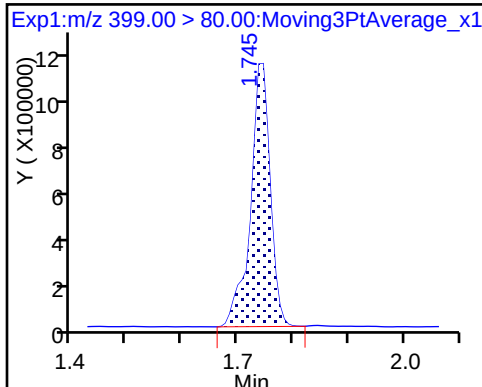
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

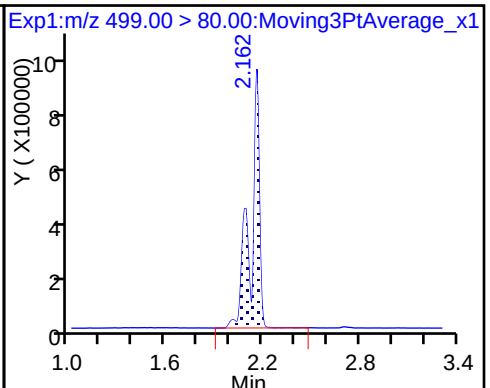
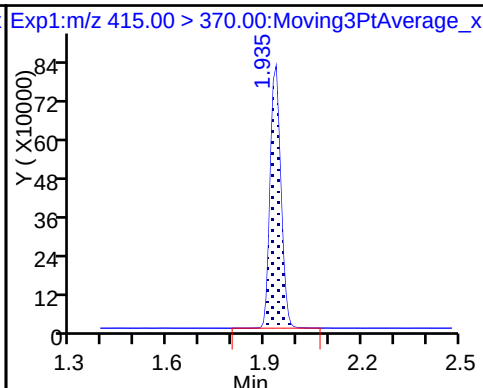
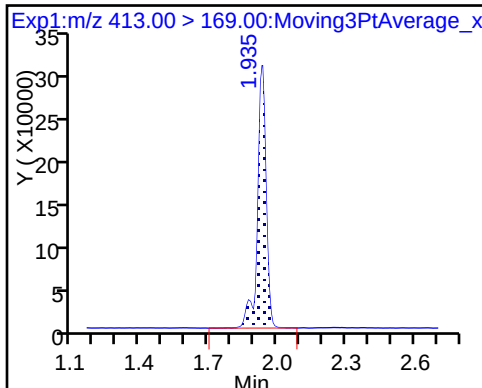
5 Perfluorooctanoic acid (M)



5 Perfluorooctanoic acid

* 6 13C2-PFOA

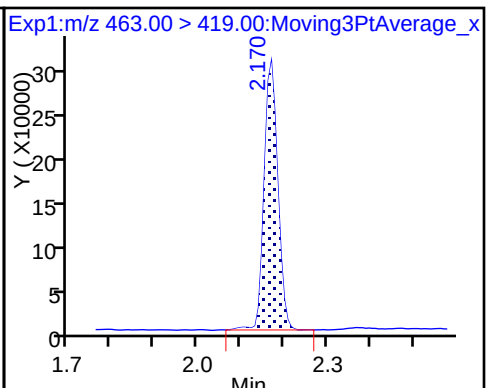
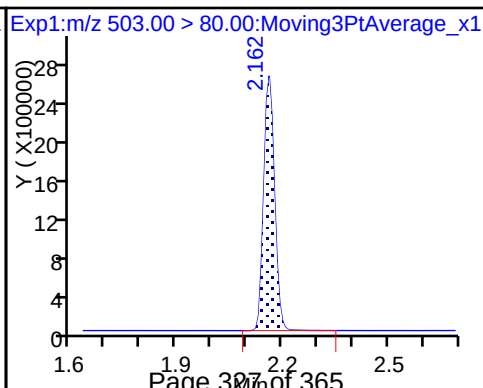
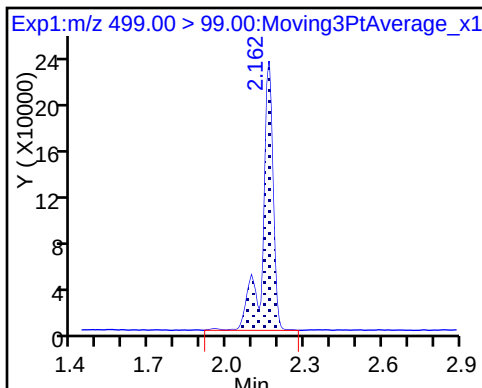
8 Perfluorooctane sulfonic acid



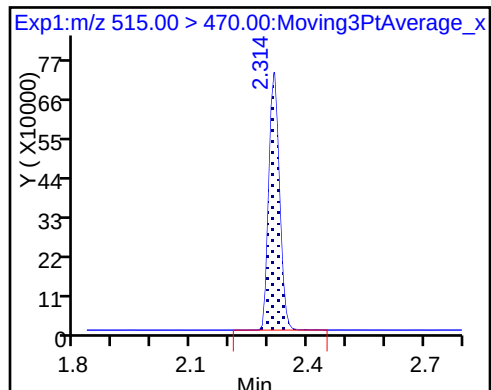
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_046.d
Lims ID: 320-30330-A-9-B LMS
Client ID:
Sample Type: LMS
Inject. Date: 16-Aug-2017 19:19:50 ALS Bottle#: 36 Worklist Smp#: 39
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-30330-a-9-b lms
Misc. Info.: Plate: 1 Rack: 4
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 17-Aug-2017 15:26:32 Calib Date: 14-Aug-2017 13:12:40
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
Column 1 : Det: EXP1
Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:14:46

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.31	93.08
\$ 10 13C2 PFDA	10.0	12.6	126.10

TestAmerica Sacramento

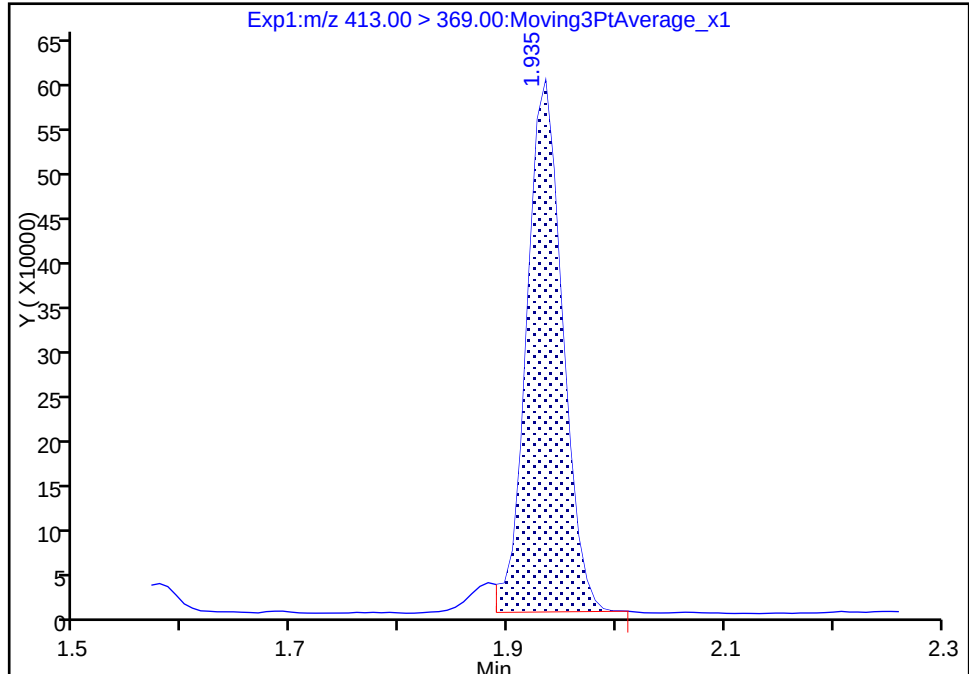
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_046.d
Injection Date: 16-Aug-2017 19:19:50 Instrument ID: A8_N
Lims ID: 320-30330-A-9-B LMS
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 36 Worklist Smp#: 39
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

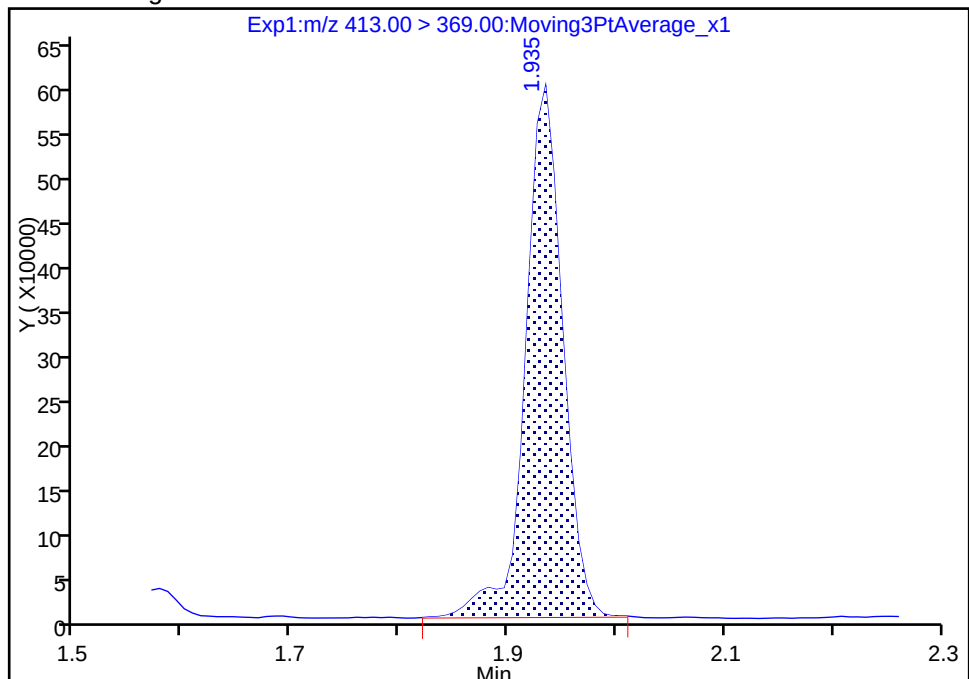
RT: 1.93
Area: 1365285
Amount: 8.247931
Amount Units: ng/ml

Processing Integration Results



RT: 1.93
Area: 1429313
Amount: 8.634735
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Aug-2017 13:14:30
Audit Action: Manually Integrated

Audit Reason: Isomers
Page 330 of 365

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Client Sample ID: WGNA-080117-RW-3178B LMSD Lab Sample ID: 320-30330-9 LMSD
 Matrix: Water Lab File ID: 2017.08.16_537D_047.d
 Analysis Method: 537 Date Collected: 08/01/2017 09:35
 Extraction Method: 537 Date Extracted: 08/04/2017 09:11
 Sample wt/vol: 265.2 (mL) Date Analyzed: 08/16/2017 19:24
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 179897 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	66.0	M	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	32.8	M	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	25.2		23	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	34.9		28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	13.9		9.4	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	89.8		85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	121		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_047.d
 Lims ID: 320-30330-A-9-C LMSD
 Client ID:
 Sample Type: LMSD
 Inject. Date: 16-Aug-2017 19:24:35 ALS Bottle#: 37 Worklist Smp#: 40
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-30330-a-9-c lmsd
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:32 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
 Column 1 : Det: EXP1
 Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:15:56

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.434	1.453	-0.019	1.000	4885754	23.8		1292	
298.90 > 99.00	1.434	1.453	-0.019	1.000	3164596		1.54(0.00-0.00)	1342	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.582	-0.012	1.000	1741484	9.11		5378	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.737	1.742	-0.005	1.000	2648108	9.27		472	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.737	1.742	-0.005	1.000	562402	3.67		50.8	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.927	1.955	-0.028	1.000	1411603	8.70		72.3	M
413.00 > 169.00	1.927	1.955	-0.028	1.000	782356		1.80(0.00-0.00)	1237	M
* 6 13C2-PFOA									
415.00 > 370.00	1.927	1.955	-0.028		1788426	10.0		5415	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.155	0.007	1.000	3092764	17.5		891	M
499.00 > 99.00	2.155	2.155	0.0	0.996	641804		4.82(0.00-0.00)	371	M
* 7 13C4 PFOS									
503.00 > 80.00	2.155	2.205	-0.050		5486328	28.7		2935	
9 Perfluorononanoic acid									
463.00 > 419.00	2.162	2.213	-0.051	1.000	677145	6.68		19.4	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.354	-0.040	1.000	1274948	12.1		5975	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_047.d

Injection Date: 16-Aug-2017 19:24:35

Instrument ID: A8_N

Lims ID: 320-30330-A-9-C LMSD

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 37

Worklist Smp#: 40

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

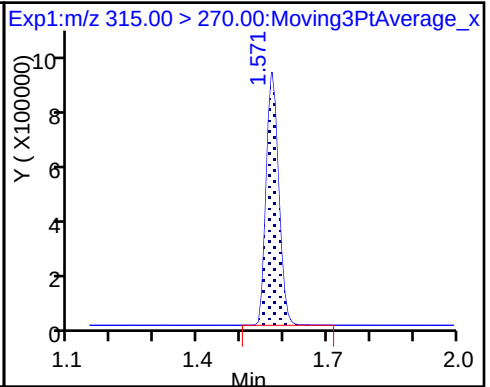
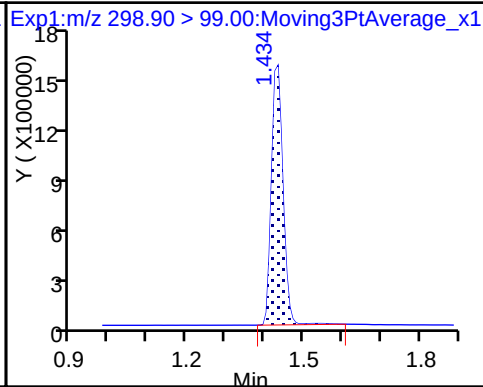
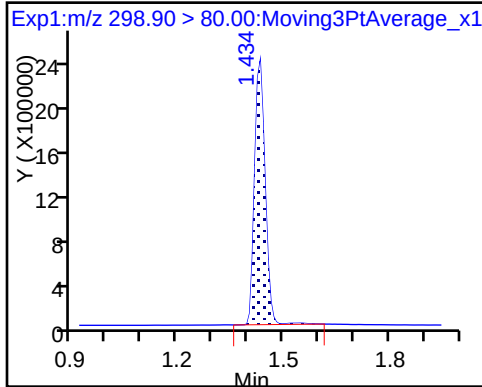
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

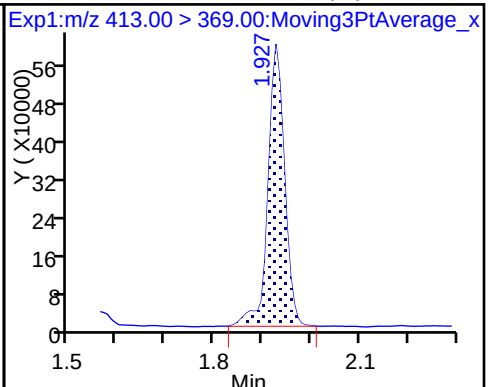
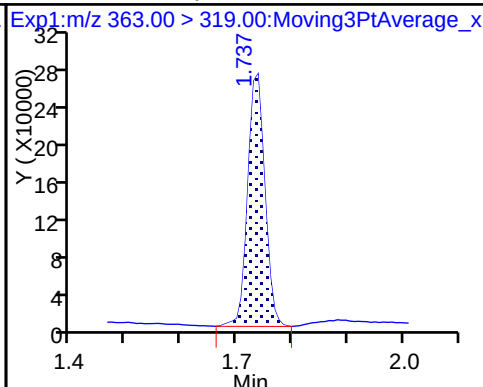
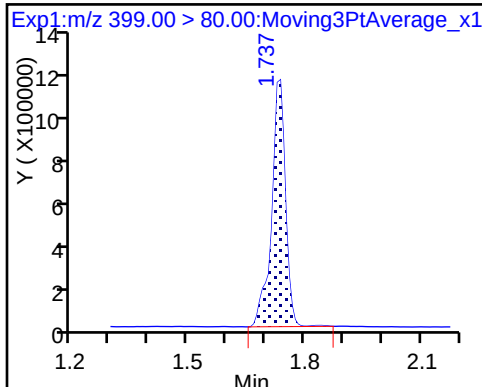
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

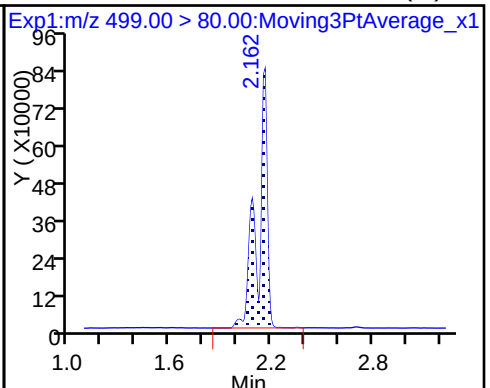
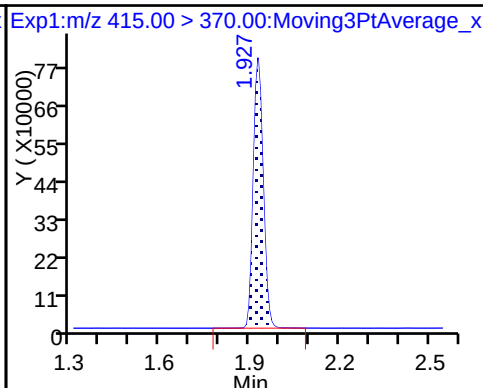
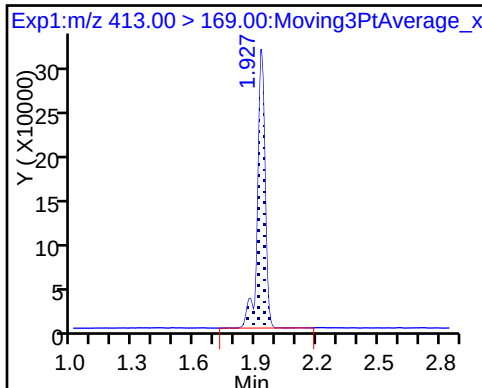
5 Perfluorooctanoic acid (M)



5 Perfluorooctanoic acid

* 6 13C2-PFOA

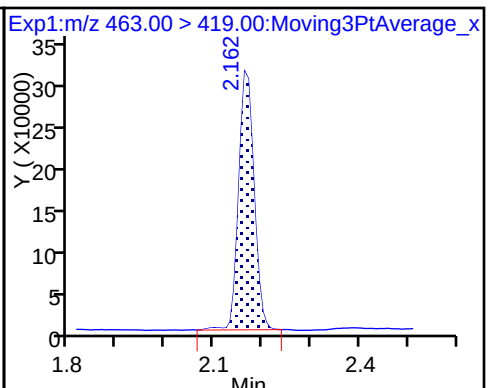
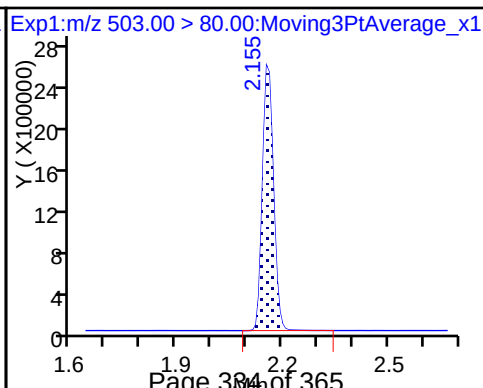
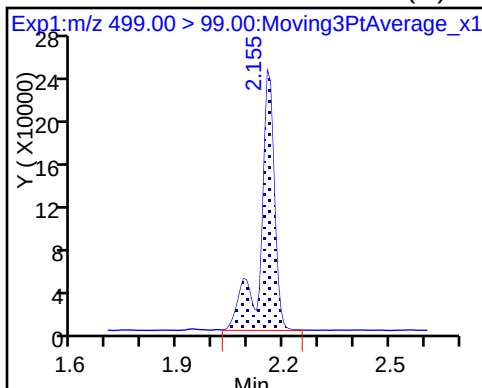
8 Perfluorooctane sulfonic acid (M)



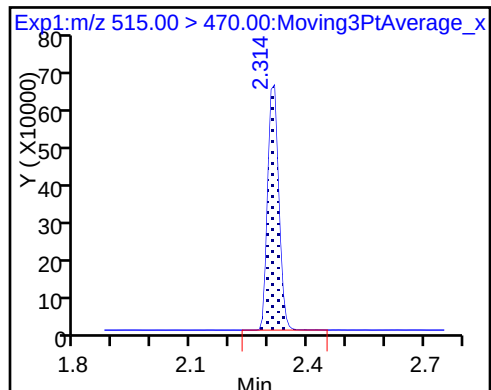
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_047.d
Lims ID: 320-30330-A-9-C LMSD
Client ID:
Sample Type: LMSD
Inject. Date: 16-Aug-2017 19:24:35 ALS Bottle#: 37 Worklist Smp#: 40
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-30330-a-9-c lmsd
Misc. Info.: Plate: 1 Rack: 4
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 17-Aug-2017 15:26:32 Calib Date: 14-Aug-2017 13:12:40
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
Column 1 : Det: EXP1
Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:15:56

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.11	91.07
\$ 10 13C2 PFDA	10.0	12.1	121.31

TestAmerica Sacramento

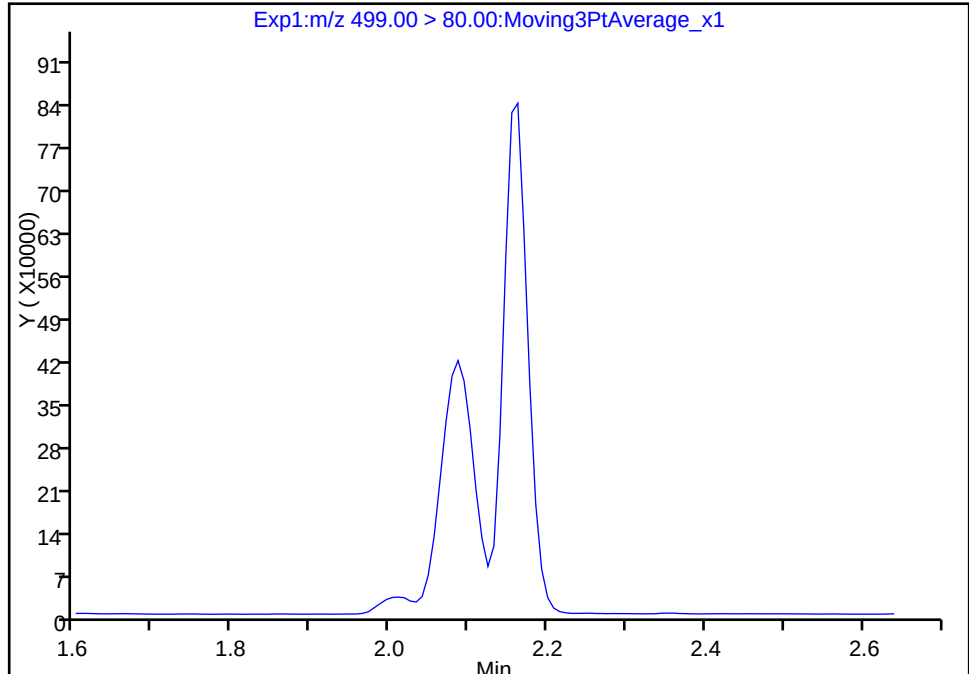
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_047.d
Injection Date: 16-Aug-2017 19:24:35 Instrument ID: A8_N
Lims ID: 320-30330-A-9-C LMSD
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 37 Worklist Smp#: 40
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

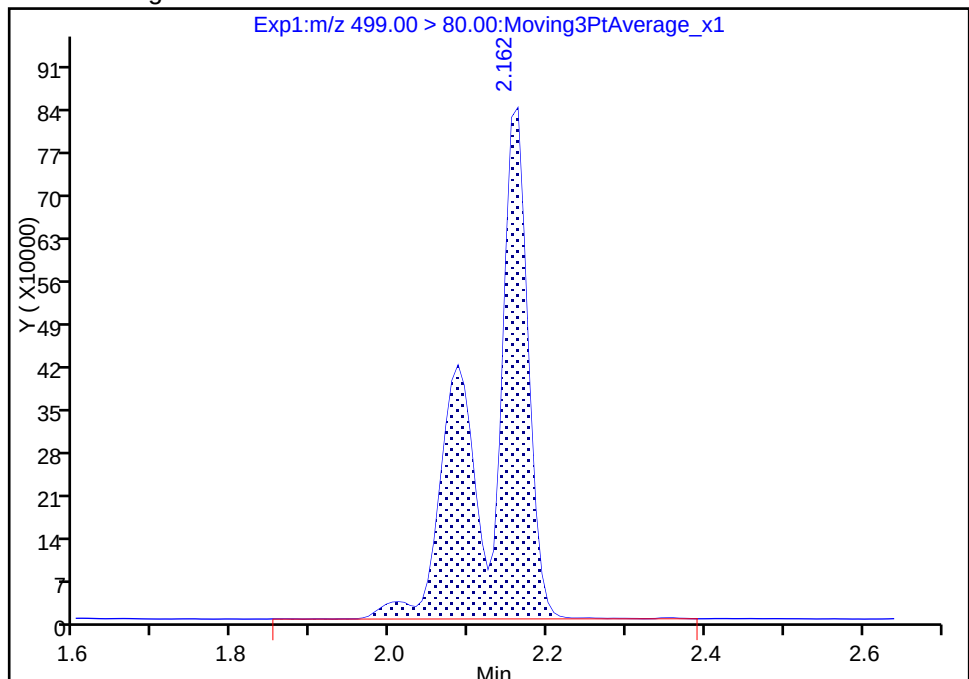
Signal: 1

Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results



RT: 2.16
Area: 3092764
Amount: 17.504403
Amount Units: ng/ml

TestAmerica Sacramento

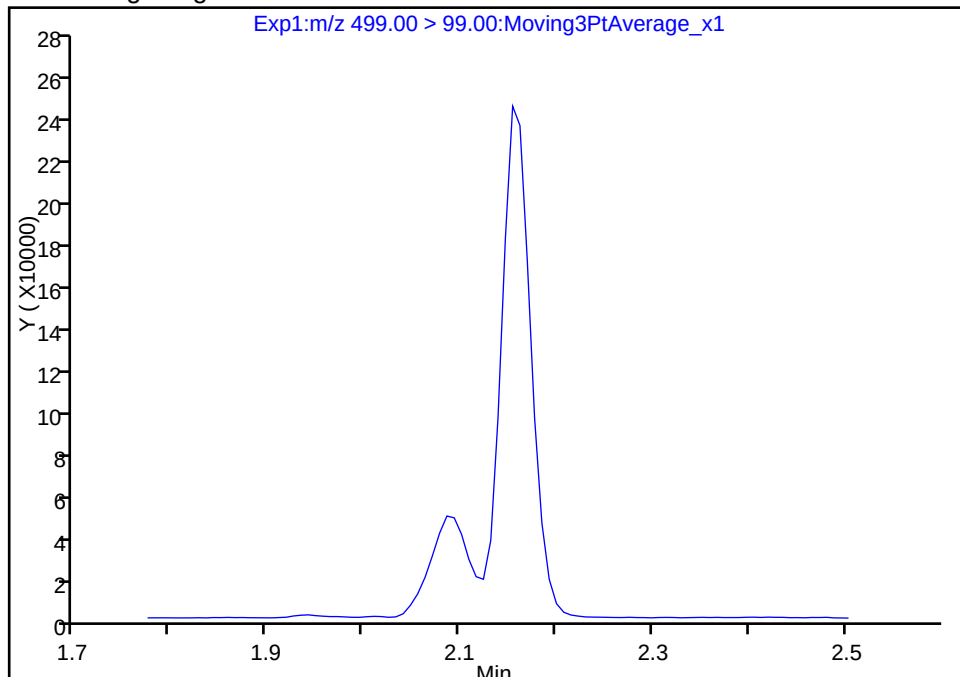
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Injection Date: 16-Aug-2017 19:24:35 Instrument ID: A8_N
Lims ID: 320-30330-A-9-C LMSD
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 37 Worklist Smp#: 40
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

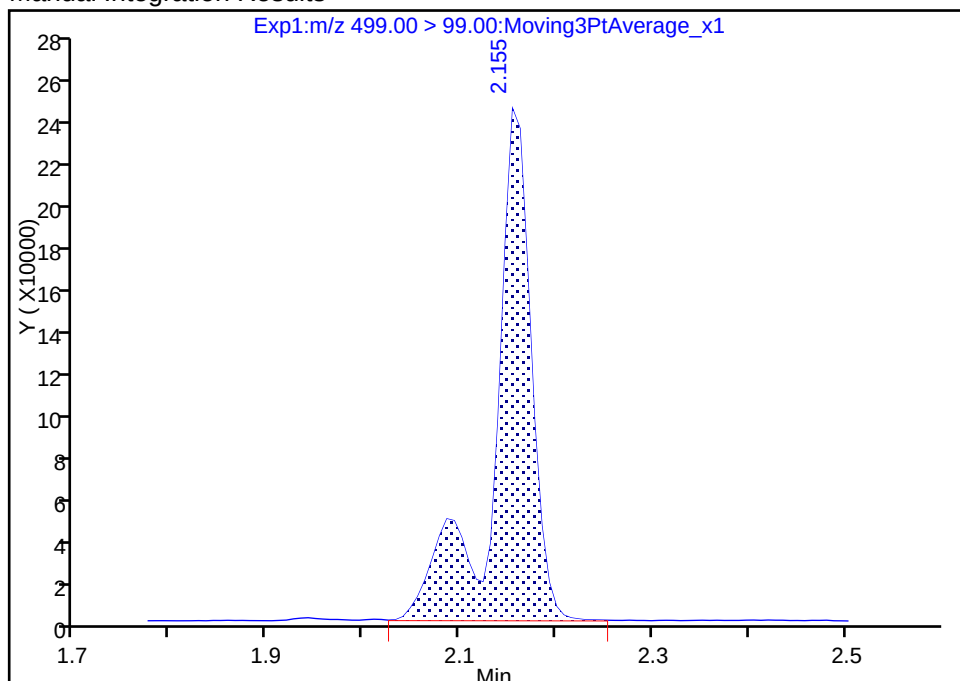
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 641804
Amount: 17.504403
Amount Units: ng/ml



Reviewer: barnettj, 17-Aug-2017 13:15:11

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

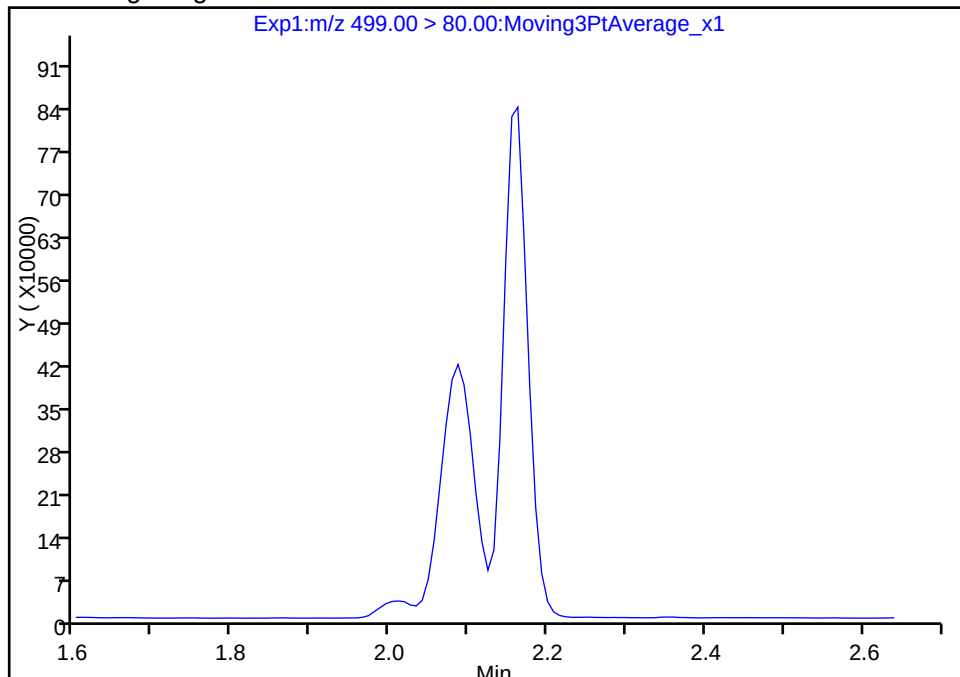
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Injection Date: 16-Aug-2017 19:24:35 Instrument ID: A8_N
Lims ID: 320-30330-A-9-C LMSD
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 37 Worklist Smp#: 40
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

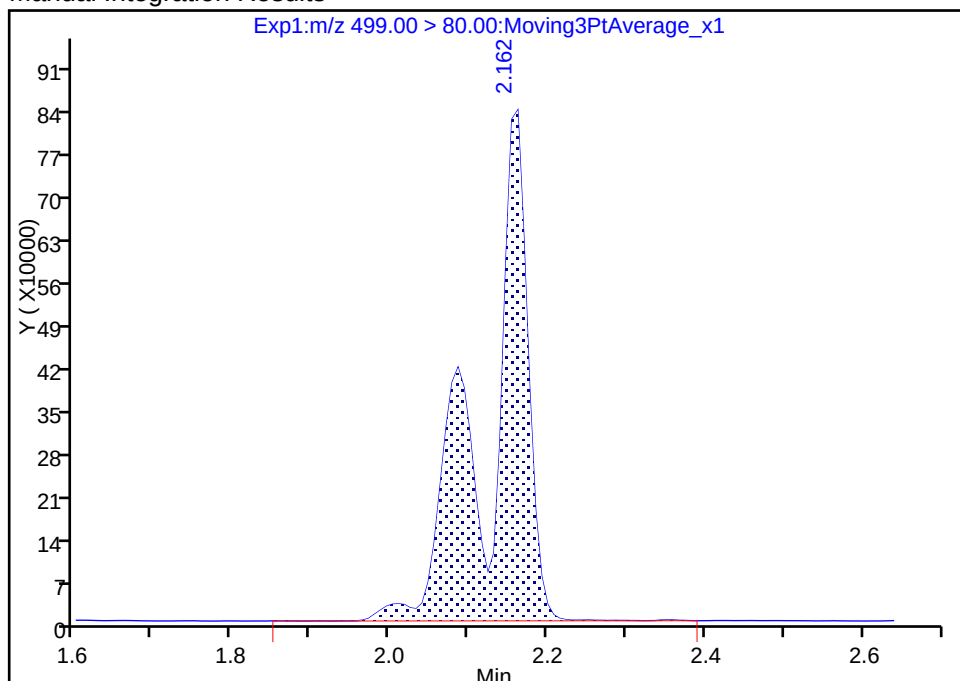
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.16
Area: 3092764
Amount: 17.504403
Amount Units: ng/ml



Reviewer: barnettj, 17-Aug-2017 13:15:11

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

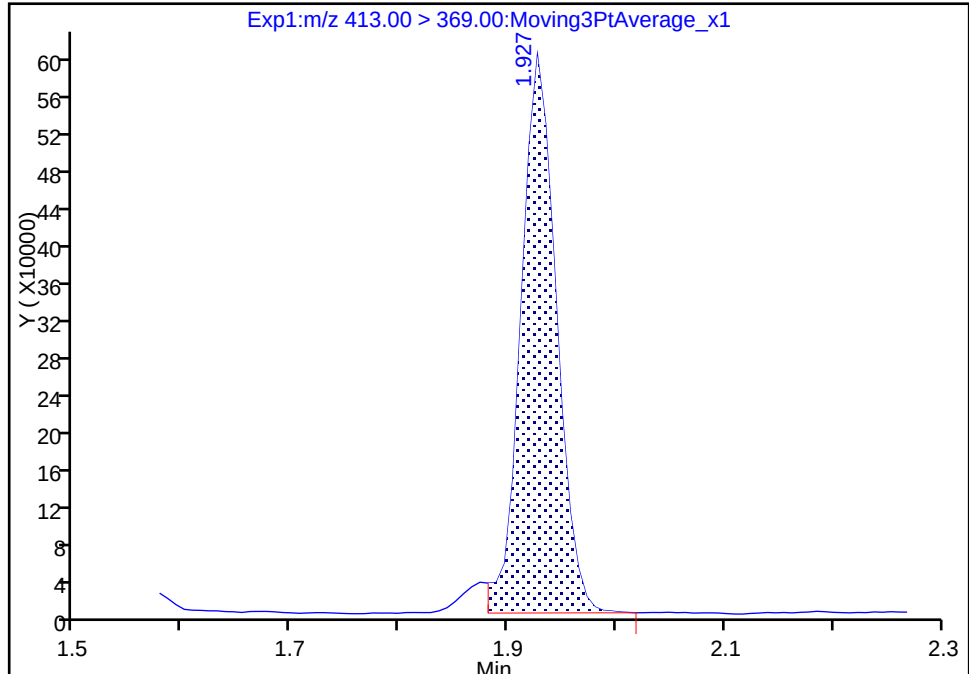
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_047.d
Injection Date: 16-Aug-2017 19:24:35 Instrument ID: A8_N
Lims ID: 320-30330-A-9-C LMSD
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 37 Worklist Smp#: 40
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

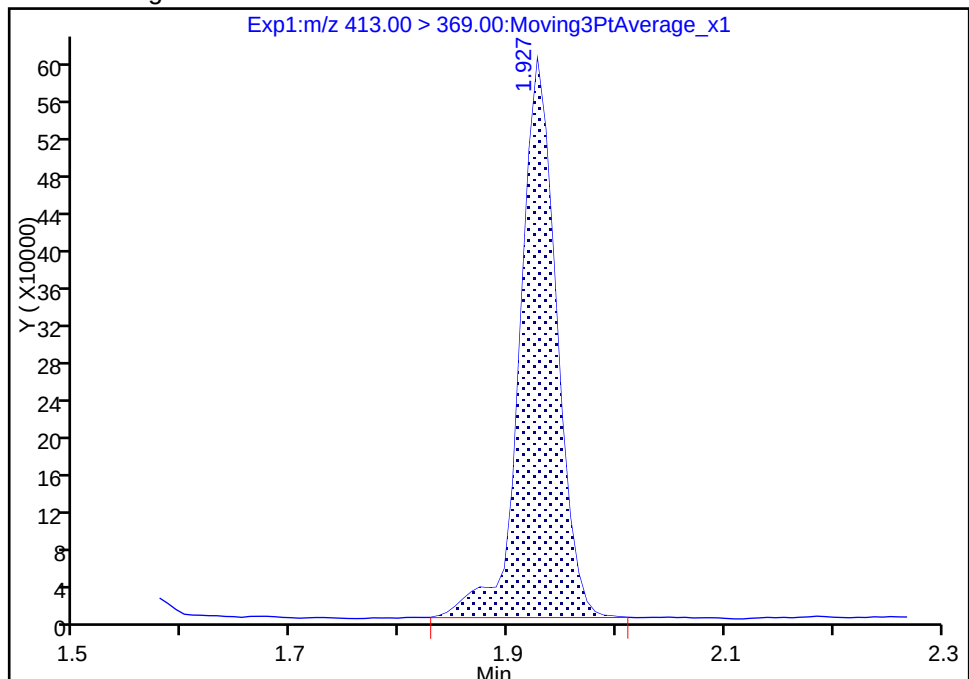
RT: 1.93
Area: 1360534
Amount: 8.388979
Amount Units: ng/ml

Processing Integration Results



RT: 1.93
Area: 1411603
Amount: 8.703868
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 17-Aug-2017 13:15:35
Audit Action: Manually Integrated

Audit Reason: Isomers
Page 340 of 365

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-30330-1

SDG No.: _____

Instrument ID: A8_NStart Date: 08/14/2017 12:48Analysis Batch Number: 179319End Date: 08/14/2017 13:31

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-179319/2		08/14/2017 12:48	1	2017.08.14_537I CAL 002.d	GeminiC18 3x100 3(mm)
IC 320-179319/3		08/14/2017 12:53	1	2017.08.14_537I CAL 003.d	GeminiC18 3x100 3(mm)
IC 320-179319/4		08/14/2017 12:58	1	2017.08.14_537I CAL 004.d	GeminiC18 3x100 3(mm)
IC 320-179319/5 ICISAV		08/14/2017 13:03	1	2017.08.14_537I CAL 005.d	GeminiC18 3x100 3(mm)
IC 320-179319/6		08/14/2017 13:07	1	2017.08.14_537I CAL 006.d	GeminiC18 3x100 3(mm)
IC 320-179319/7		08/14/2017 13:12	1	2017.08.14_537I CAL 007.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/14/2017 13:17	1		GeminiC18 3x100 3(mm)
CCVL 320-179319/9		08/14/2017 13:22	1	2017.08.14_537I CAL 009.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/14/2017 13:26	1		GeminiC18 3x100 3(mm)
ICV 320-179319/11		08/14/2017 13:31	1	2017.08.14_537I CAL 011.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-30330-1

SDG No.: _____

Instrument ID: A8_NStart Date: 08/16/2017 09:11Analysis Batch Number: 179695End Date: 08/16/2017 10:13

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-179695/4		08/16/2017 09:11	1	2017.08.15_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-179695/5 CCVIS		08/16/2017 09:16	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 09:21	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 09:26	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 09:30	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 09:35	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 09:40	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 09:45	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 09:49	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 09:54	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 09:59	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 10:04	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 10:08	1		GeminiC18 3x100 3(mm)
CCV 320-179695/17 CCVIS		08/16/2017 10:13	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-30330-1

SDG No.: _____

Instrument ID: A8_NStart Date: 08/16/2017 18:08Analysis Batch Number: 179896End Date: 08/16/2017 19:05

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-179896/24 CCVIS		08/16/2017 18:08	1	2017.08.16_537D 031.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 18:13	1		GeminiC18 3x100 3(mm)
MB 320-177692/1-A		08/16/2017 18:17	1	2017.08.16_537D 033.d	GeminiC18 3x100 3(mm)
LLCS 320-177692/2-A		08/16/2017 18:22	1	2017.08.16_537D 034.d	GeminiC18 3x100 3(mm)
320-30330-1		08/16/2017 18:27	1	2017.08.16_537D 035.d	GeminiC18 3x100 3(mm)
320-30330-2		08/16/2017 18:32	1	2017.08.16_537D 036.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 18:36	1		GeminiC18 3x100 3(mm)
320-30330-4		08/16/2017 18:41	1	2017.08.16_537D 038.d	GeminiC18 3x100 3(mm)
320-30330-5		08/16/2017 18:46	1	2017.08.16_537D 039.d	GeminiC18 3x100 3(mm)
320-30330-6		08/16/2017 18:51	1	2017.08.16_537D 040.d	GeminiC18 3x100 3(mm)
320-30330-7		08/16/2017 18:56	1	2017.08.16_537D 041.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 19:00	1		GeminiC18 3x100 3(mm)
CCV 320-179896/36 CCVIS		08/16/2017 19:05	1	2017.08.16_537D 043.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Instrument ID: A8_N Start Date: 08/16/2017 19:05Analysis Batch Number: 179897 End Date: 08/16/2017 19:48

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-179897/36 CCVIS		08/16/2017 19:05	1	2017.08.16_537D 043.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 19:10	1		GeminiC18 3x100 3(mm)
320-30330-9		08/16/2017 19:15	1	2017.08.16_537D 045.d	GeminiC18 3x100 3(mm)
320-30330-9 LMS		08/16/2017 19:19	1	2017.08.16_537D 046.d	GeminiC18 3x100 3(mm)
320-30330-9 LMSD		08/16/2017 19:24	1	2017.08.16_537D 047.d	GeminiC18 3x100 3(mm)
320-30330-10		08/16/2017 19:29	1	2017.08.16_537D 048.d	GeminiC18 3x100 3(mm)
320-30330-11		08/16/2017 19:34	1	2017.08.16_537D 049.d	GeminiC18 3x100 3(mm)
320-30330-12		08/16/2017 19:38	1	2017.08.16_537D 050.d	GeminiC18 3x100 3(mm)
320-30330-13		08/16/2017 19:43	1	2017.08.16_537D 051.d	GeminiC18 3x100 3(mm)
CCV 320-179897/45 CCVIS		08/16/2017 19:48	1	2017.08.16_537D 052.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-30330-1

SDG No.: _____

Instrument ID: A8_NStart Date: 08/17/2017 17:07Analysis Batch Number: 180236End Date: 08/17/2017 17:49

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-180236/2		08/17/2017 17:07	1	207.08.17_537A_ 004.d	GeminiC18 3x100 3(mm)
IC 320-180236/3		08/17/2017 17:12	1	207.08.17_537A_ 005.d	GeminiC18 3x100 3(mm)
IC 320-180236/4		08/17/2017 17:16	1	207.08.17_537A_ 006.d	GeminiC18 3x100 3(mm)
IC 320-180236/5 ICISAV		08/17/2017 17:21	1	207.08.17_537A_ 007.d	GeminiC18 3x100 3(mm)
IC 320-180236/6		08/17/2017 17:26	1	207.08.17_537A_ 008.d	GeminiC18 3x100 3(mm)
IC 320-180236/7		08/17/2017 17:30	1	207.08.17_537A_ 009.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/17/2017 17:35	1		GeminiC18 3x100 3(mm)
CCVL 320-180236/9		08/17/2017 17:40	1	207.08.17_537A_ 011.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/17/2017 17:45	1		GeminiC18 3x100 3(mm)
ICV 320-180236/11		08/17/2017 17:49	1	207.08.17_537A_ 013.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Instrument ID: A8_N Start Date: 08/17/2017 20:03Analysis Batch Number: 180242 End Date: 08/17/2017 20:26

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-180242/27 CCVIS		08/17/2017 20:03	1	2017.08.17_537A 027.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/17/2017 20:07	1		GeminiC18 3x100 3(mm)
320-30330-3		08/17/2017 20:12	1	2017.08.17_537A 029.d	GeminiC18 3x100 3(mm)
320-30330-8		08/17/2017 20:17	1	2017.08.17_537A 030.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/17/2017 20:22	1		GeminiC18 3x100 3(mm)
CCV 320-180242/32 CCVIS		08/17/2017 20:26	1	2017.08.17_537A 032.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Batch Number: 177692 Batch Start Date: 08/04/17 09:10 Batch Analyst: Sharifi, NooshinBatch Method: 537 Batch End Date: 08/08/17 13:58

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00046
MB 320-177692/1		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCS 320-177692/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-30330-A-1	WGNA-080117-RW-0104	537, 537	T	282.24 g	28.73 g	253.5 mL	1.00 mL	7 SU	100 uL
320-30330-A-2	WGNA-080117-FRB-0104	537, 537	T	298.54 g	27.90 g	270.6 mL	1.00 mL	7 SU	100 uL
320-30330-A-3	WGNA-080117-RW-0443A	537, 537	T	299.88 g	28.07 g	271.8 mL	1.00 mL	7 SU	100 uL
320-30330-A-4	WGNA-080117-RW-0443B	537, 537	T	297.14 g	27.96 g	269.2 mL	1.00 mL	7 SU	100 uL
320-30330-A-5	WGNA-080117-FRB-0443B	537, 537	T	301.50 g	28.31 g	273.2 mL	1.00 mL	7 SU	100 uL
320-30330-A-6	WGNA-080117-RW-0437	537, 537	T	292.51 g	28.58 g	263.9 mL	1.00 mL	7 SU	100 uL
320-30330-A-7	WGNA-080117-FRB-0437	537, 537	T	293.03 g	27.85 g	265.2 mL	1.00 mL	7 SU	100 uL
320-30330-A-8	WGNA-080117-RW-3178A	537, 537	T	288.29 g	27.00 g	261.3 mL	1.00 mL	7 SU	100 uL
320-30330-A-9	WGNA-080117-RW-3178B	537, 537	T	285.06 g	28.82 g	256.2 mL	1.00 mL	7 SU	100 uL
320-30330-A-9 LMS	WGNA-080117-RW-3178B	537, 537	T	289.99 g	28.44 g	261.6 mL	1.00 mL	7 SU	100 uL
320-30330-A-9 LMSD	WGNA-080117-RW-3178B	537, 537	T	293.99 g	28.83 g	265.2 mL	1.00 mL	7 SU	100 uL
320-30330-A-10	WGNA-080117-FRB-3178B	537, 537	T	297.59 g	28.22 g	269.4 mL	1.00 mL	7 SU	100 uL
320-30330-A-11	WGNA-080117-RW-3325	537, 537	T	280.45 g	28.34 g	252.1 mL	1.00 mL	7 SU	100 uL
320-30330-A-12	WGNA-080117-FRB-3325	537, 537	T	274.78 g	27.87 g	246.9 mL	1.00 mL	7 SU	100 uL
320-30330-A-13	WGNA-080117-DUP06	537, 537	T	293.76 g	28.73 g	265 mL	1.00 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00021	LC537-SU 00046	AnalysisComment			
MB 320-177692/1		537, 537			100 uL	CH ND			
LLCS 320-177692/2		537, 537		100 uL	100 uL	CH ND			
320-30330-A-1	WGNA-080117-RW-0104	537, 537	T		100 uL	CH ND			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Batch Number: 177692 Batch Start Date: 08/04/17 09:10 Batch Analyst: Sharifi, NooshinBatch Method: 537 Batch End Date: 08/08/17 13:58

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00021	LC537-SU 00046	AnalysisComment			
320-30330-A-2	WGNA-080117-FRB-0104	537, 537	T		100 uL	CH ND			
320-30330-A-3	WGNA-080117-RW-0443A	537, 537	T		100 uL	CH ND			
320-30330-A-4	WGNA-080117-RW-0443B	537, 537	T		100 uL	CH ND			
320-30330-A-5	WGNA-080117-FRB-0443B	537, 537	T		100 uL	CH ND			
320-30330-A-6	WGNA-080117-RW-0437	537, 537	T		100 uL	CH ND			
320-30330-A-7	WGNA-080117-FRB-0437	537, 537	T		100 uL	CH ND			
320-30330-A-8	WGNA-080117-RW-3178A	537, 537	T		100 uL	CH ND			
320-30330-A-9	WGNA-080117-RW-3178B	537, 537	T		100 uL	CH ND			
320-30330-A-9 LMS	WGNA-080117-RW-3178B	537, 537	T	100 uL	100 uL	CH ND			
320-30330-A-9 LMSD	WGNA-080117-RW-3178B	537, 537	T	100 uL	100 uL	CH ND			
320-30330-A-10	WGNA-080117-FRB-3178B	537, 537	T		100 uL	CH ND			
320-30330-A-11	WGNA-080117-RW-3325	537, 537	T		100 uL	CH ND			
320-30330-A-12	WGNA-080117-FRB-3325	537, 537	T		100 uL	CH ND			
320-30330-A-13	WGNA-080117-DUP06	537, 537	T		100 uL	CH ND			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Batch Number: 177692 Batch Start Date: 08/04/17 09:10 Batch Analyst: Sharifi, NooshinBatch Method: 537 Batch End Date: 08/08/17 13:58

Batch Notes	
Batch Comment	IS:1002798
Manifold ID	1,4
Methanol ID	988835
Pipette ID	H14930F
Analyst ID - IS Reagent Drop	CCB
Analyst ID - IS Reagent Drop Witness	NSH
Analyst ID - SU Reagent Drop	NSH
Analyst ID - SU Reagent Drop Witness	HJA
Analyst ID - TA Reagent Drop	NSH
Analyst ID - TA Reagent Drop Witness	HJA
SPE Cartridge ID	6357081-02
Trizma ID	SLBR4303V
Reagent Water ID	8/03/17

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

Job No: 30330 Instrument ID & Date: A8 8-16-17 ICAL Batch: 179319, 180236
 Extraction Batch: 177692 Worklist #: 46803, 46876 TALS Batch: 179896, 179897, 180242

Review Items	--- Level 1 ---			Level 2
	Yes	No	N/A	
Initial Calibration				
1. Is ICAL verified and locked in Chrom & TALS?	✓			✓
2. Is ICV properly linked in TALS?	✓			✓
Continuing Calibration				
1. Low-range CCV injected at start of analytical run? CCV injected after every 10 samples and at the end of the analytical run and alternated between Low-range, Mid-range and High-range?	✓			✓
2. If sequence was not after an ICAL was a low and mid range CCV injected at the start of the analytical run?	✓			✓
3. Native compounds and surrogates in control? Low-range within $\pm 50\%$ of true value Mid and High-range within $\pm 30\%$ of true value	✓			✓
4. Internal Standard areas in control? Areas $\geq 50\%$ of average area of the ICAL and 70-140% of the most recent CCV.	✓			✓
Client Samples & QC Sample Results				
1. Were preparation and analysis done within holding times?	✓			✓
2. Are Chromatograms reviewed and spectra verified?	✓			✓
3. Are positive results within calibration range?	✓			✓
4. Dilutions due to target cpds? _____ Dilutions due to non-targets? _____			✓	
5. All target compounds in MB < 1/3 RL ? (Requires NCM if "no.")	✓			✓
6. Are target constituents in LCS/LCSD within method control limits?	✓			✓
7. Internal Standard areas in control for all samples and QC reported? $\pm 50\%$ from the average area of the ICAL and 70-140% of the most recent CCV	✓			✓
8. Do results (e.g., dilutions/trip blanks) make sense?	✓			✓
9. Are MS/MSD recoveries and RPDs within method control limits?	✓			✓
10. Are all QC samples properly linked in TALS?	✓			✓
11. All manual integrations appropriate and completely documented?	✓			✓
12. Are nonconformances documented as NCMs?			✓	
13. Are all Chrom graphics uploaded?	✓			✓

1st Level Reviewer / Date: JRB 8-21-17 2nd Level Reviewer / Date: neway 8/22/17

NCM # and Comments: _____

A8

Instrument ID & Date: 8-14-17 Worklist#: 46675

ICAL Batch: 179319, 179320 Calibration ID number: 33517

Review Items	--- Level 1 ---			Level 2
	Yes	No	N/A	
Initial Calibration				
1. Mass calibration, as needed, verified by full scan of PFC stock standard. All PFC ions used for quantitation are within 0.3 m/z of true mass?	✓			✓
2. Responses increase with increasing concentration?	✓			✓
3. Fit used (circle): <u>Average</u> Linear (1/x ²) Linear <u>Quadratic</u> (6 points minimum)				
4. Meets fit criteria? Intercept ≤ 1/2 RL RSD ≤ 30% for Average R ² ≥ 0.990 for Linear R ² ≥ 0.990 for Quadratic NOTE: "Force through Zero" must be used and weighted if needed	✓			✓
5. If quadratic fit used the curve does not "bend over".	✓			✓
6. Feed calibration points into the calculated curve. Are points ≤ MRL within ±50% of true value? Are points > MRL within ±30% of true value?	✓			✓
7. Any carryover from the high calibration point must be < 1/3 RL	✓			✓
8. Asymmetry check meets criteria for the first two eluting peaks? (0.8 - 1.5).	✓			✓
9. Is the asymmetry check scanned and linked in TALS to the calibration point?	✓			✓
10. Is ICV (2 nd source) ± 30% of true value?	✓			✓
11. Is ICV (2 nd source) internal standards ±50% of average area of the ICAL?	✓			✓
12. ICAL locked in Chrom and uploaded to TALS?	✓			✓
13. ICAL locked in TALS and scanned?				✓

1st Level Reviewer / Date: JRB 8-14-17

2nd Level Reviewer / Date: QBW 8/14/17

NCM # and Comments: _____

A8

Instrument ID & Date: 8-17-17 Worklist#: 46875

ICAL Batch: 180236, 180237 Calibration ID number: 33656, 33657

Review Items	-- Level 1 --			Level 2
	Yes	No	N/A	
Initial Calibration				
1. Mass calibration, as needed, verified by full scan of PFC stock standard. All PFC ions used for quantitation are within 0.3 m/z of true mass?	✓			✓
2. Responses increase with increasing concentration?	✓			✓
3. Fit used (circle): <u>Average</u> Linear (1/x ²)Linear <u>Quadratic</u> (6 points minimum)				
4. Meets fit criteria? Intercept ≤ ½ RL RSD ≤ 30% for Average R ² ≥ 0.990 for Linear R ² ≥ 0.990 for Quadratic NOTE: "Force through Zero" must be used and weighted if needed	✓			✓
5. If quadratic fit used the curve does not "bend over".	✓			✓
6. Feed calibration points into the calculated curve. Are points ≤MRL within ±50% of true value? Are points >MRL within ±30% of true value?	✓			✓
7. Any carryover from the high calibration point must be ≤ 1/3 RL	✓			✓
8. Asymmetry check meets criteria for the first two eluting peaks? (0.8 - 1.5).	✓			✓
9. Is the asymmetry check scanned and linked in TALS to the calibration point?	✓			✓
10. Is ICV (2 nd source) ± 30% of true value?	✓			✓
11. Is ICV (2 nd source) internal standards ±50% of average area of the ICAL?	✓			✓
12. ICAL locked in Chrom and uploaded to TALS?	✓			
13. ICAL locked in TALS and scanned?				✓

1st Level Reviewer / Date: JRB 8-21-17

2nd Level Reviewer / Date: Murray 8/22/2017

NCM # and Comments: _____

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 16AUG2017_537F

Worklist Number: 46803

Instrument Name: A8_N

Chrom Method: 537_A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b

QC Batching: Enabled

Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 179891
# 1 CCV L5	# 1 CCV L5
# 2 RB	# 2 RB
# 3 MB 320-177957/1-A	# 3 MB 320-177957/1-A
# 4 LCS 320-177957/2-A	# 4 LCS 320-177957/2-A
# 5 LCSD 320-177957/3-A	# 5 LCSD 320-177957/3-A
# 6 320-30296-A-1-A	# 6 320-30296-A-1-A
# 7 320-30296-A-2-A	# 7 320-30296-A-2-A
# 8 320-30296-A-3-A	# 8 320-30296-A-3-A
# 9 320-30296-A-4-A	# 9 320-30296-A-4-A
#10 320-30296-A-5-A	#10 320-30296-A-5-A
#11 320-30296-A-6-A	#11 320-30296-A-6-A
#12 320-30296-A-7-A	#12 320-30296-A-7-A
#13 CCV L3	#13 CCV L3

Not Used

QC Batch: 2	LC 537 ICAL Raw Batch: 179895
#13 CCV L3	#13 CCV L3
#14 RB	#14 RB
#15 320-30296-A-8-A	#15 320-30296-A-8-A
#16 320-30296-A-9-A	#16 320-30296-A-9-A
#17 320-30296-A-10-A	#17 320-30296-A-10-A
#18 320-30296-A-11-A	#18 320-30296-A-11-A
#19 320-30296-A-12-A	#19 320-30296-A-12-A
#20 320-30296-A-13-A	#20 320-30296-A-13-A
#21 320-30296-A-15-A	#21 320-30296-A-15-A
#22 320-30296-A-14-A	#22 320-30296-A-14-A
#23 320-30296-A-16-A	#23 320-30296-A-16-A
#24 CCV L5	#24 CCV L5

QC Batch: 3	LC 537 ICAL Raw Batch: 179896
#24 CCV L5	#24 CCV L5
#25 RB	#25 RB
#26 MB 320-177692/1-A	#26 MB 320-177692/1-A
#27 LLCS 320-177692/2-A	#27 LLCS 320-177692/2-A
#28 320-30330-A-1-A	#28 320-30330-A-1-A
#29 320-30330-A-2-A	#29 320-30330-A-2-A
#30 320-30330-A-3-A	#30 320-30330-A-3-A
#31 320-30330-A-4-A	#31 320-30330-A-4-A
#32 320-30330-A-5-A	#32 320-30330-A-5-A
#33 320-30330-A-6-A	#33 320-30330-A-6-A
#34 320-30330-A-7-A	#34 320-30330-A-7-A
#35 320-30330-A-8-A	#35 320-30330-A-8-A
#36 CCV L3	#36 CCV L3

QC Batch: 4	LC 537 ICAL Raw Batch: 179897
#36 CCV L3	#36 CCV L3
#37 RB	#37 RB
#38 320-30330-A-9-A	#38 320-30330-A-9-A

QC Batch: 4	LC 537 ICAL Raw Batch: 179897
#39 320-30330-A-9-B LMS	#39 320-30330-A-9-B LMS
#40 320-30330-A-9-C LMSD	#40 320-30330-A-9-C LMSD
#41 320-30330-A-10-A	#41 320-30330-A-10-A
#42 320-30330-A-11-A	#42 320-30330-A-11-A
#43 320-30330-A-12-A	#43 320-30330-A-12-A
#44 320-30330-A-13-A	#44 320-30330-A-13-A
#45 CCV L5	#45 CCV L5
#46 RB	#46 RB

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 17AUG2017_537A

Worklist Number: 46876

Instrument Name: A8_N

Chrom Method: 537_A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20170819-46876.b

QC Batching: Enabled

Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 180239
# 1 CCV L3	# 1 CCV L3
# 2 RB	# 2 RB
# 3 MB 320-177432/1-A	# 3 MB 320-177432/1-A
# 4 CCV L5	# 4 CCV L5

QC Batch: 2	LC 537 ICAL Raw Batch: 180240
# 4 CCV L5	# 4 CCV L5
# 5 RB	# 5 RB
# 6 MB 320-177957/1-A	# 6 MB 320-177957/1-A
# 7 LCS 320-177957/2-A	# 7 LCS 320-177957/2-A
# 8 LCSD 320-177957/3-A	# 8 LCSD 320-177957/3-A
# 9 320-30296-A-1-A	# 9 320-30296-A-1-A
#10 320-30296-A-2-A	#10 320-30296-A-2-A
#11 320-30296-A-3-A	#11 320-30296-A-3-A
#12 320-30296-A-4-A	#12 320-30296-A-4-A
#13 320-30296-A-5-A	#13 320-30296-A-5-A
#14 320-30296-A-6-A	#14 320-30296-A-6-A
#15 320-30296-A-7-A	#15 320-30296-A-7-A
#16 CCV L3	#16 CCV L3

QC Batch: 3	LC 537 ICAL Raw Batch: 180241
#16 CCV L3	#16 CCV L3
#17 RB	#17 RB
#18 320-30296-A-8-A	#18 320-30296-A-8-A
#19 320-30296-A-9-A	#19 320-30296-A-9-A
#20 320-30296-A-10-A	#20 320-30296-A-10-A
#21 320-30296-A-11-A	#21 320-30296-A-11-A
#22 320-30296-A-12-A	#22 320-30296-A-12-A
#23 320-30296-A-13-A	#23 320-30296-A-13-A
#24 320-30296-A-15-A	#24 320-30296-A-15-A
#25 320-30296-A-14-A	#25 320-30296-A-14-A
#26 320-30296-A-16-A	#26 320-30296-A-16-A
#27 CCV L5	#27 CCV L5

QC Batch: 4	LC 537 ICAL Raw Batch: 180242
#27 CCV L5	#27 CCV L5
#28 RB	#28 RB
#29 320-30330-A-3-A	#29 320-30330-A-3-A
#30 320-30330-A-8-A	#30 320-30330-A-8-A
#31 320-30391-A-11-B MS	#31 320-30391-A-11-B MS
#32 CCV L3	#32 CCV L3

QC Batch: 5	LC 537 ICAL Raw Batch: 180243
#32 CCV L3	#32 CCV L3
#33 RB	#33 RB

81 82

IN 08/04/17

Aqueous Extraction Analysis Sheet

AB

8/16/17

(To Accompany Samples to Instruments)

Batch Number: 320-177692

Analyst: Sharifi, Nooshin

Batch Open: 8/4/2017 9:10:00AM

Method Code: 320-537_Prep-320

Batch End: 8/8/17 13:58

Extraction of Perfluorinated Alkyl Acids

8/30

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	Rcvd	PHs Adj1	Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1	MB-320-177692/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	CH ND	
				1.00 mL								
2	LLCS-320-177692/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	CH ND	
				1.00 mL								
3	320-30330-A-1 (537_DOD5)	N/A (320-30330-1)	282.24 g	253.5 mL	7			8/8/17	16_Days	4	CH ND	
			28.73 g	1.00 mL								
4	320-30330-A-2 (537_DOD5)	N/A (320-30330-1)	298.54 g	270.6 mL	7			8/8/17	16_Days	4	CH ND	
			27.90 g	1.00 mL								
5	320-30330-A-3 (537_DOD5)	N/A (320-30330-1)	299.88 g	271.8 mL	7			8/8/17	16_Days	4	CH ND	
			28.07 g	1.00 mL							RI	
6	320-30330-A-4 (537_DOD5)	N/A (320-30330-1)	297.14 g	269.2 mL	7			8/8/17	16_Days	4	CH ND	
			27.96 g	1.00 mL								
7	320-30330-A-5 (537_DOD5)	N/A (320-30330-1)	301.50 g	273.2 mL	7			8/8/17	16_Days	4	CH ND	
			28.31 g	1.00 mL								
8	320-30330-A-6 (537_DOD5)	N/A (320-30330-1)	292.51 g	263.9 mL	7			8/8/17	16_Days	4	CH ND	
			28.58 g	1.00 mL								
9	320-30330-A-7 (537_DOD5)	N/A (320-30330-1)	293.03 g	265.2 mL	7			8/8/17	16_Days	4	CH ND	
			27.85 g	1.00 mL								
10	320-30330-A-8 (537_DOD5)	N/A (320-30330-1)	288.29 g	261.3 mL	7			8/8/17	16_Days	4	CH ND	
			27.00 g	1.00 mL							RI	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-177692

Analyst: Sharifi, Nooshin

Batch Open: 8/4/2017 9:10:00AM

Method Code: 320-537_Prep-320

Batch End:

11	320-30330-A-9 (537_DOD5)	N/A (320-30330-1)	285.06 g	256.2 mL	7			8/8/17	16_Days	4	CH ND	
			28.82 g	1.00 mL								
12	320-30330-A-9-LMS (537_DOD5)	N/A (320-30330-1)	289.99 g	261.6 mL	7			8/8/17	16_Days	4	CH ND	
			28.44 g	1.00 mL								
13	320-30330-A-9-LMSD (537_DOD5)	N/A (320-30330-1)	293.99 g	265.2 mL	7			8/8/17	16_Days	4	CH ND	
			28.83 g	1.00 mL								
14	320-30330-A-10 (537_DOD5)	N/A (320-30330-1)	297.59 g	269.4 mL	7			8/8/17	16_Days	4	CH ND	
			28.22 g	1.00 mL								
15	320-30330-A-11 (537_DOD5)	N/A (320-30330-1)	280.45 g	252.1 mL	7			8/8/17	16_Days	4	CH ND	
			28.34 g	1.00 mL								
16	320-30330-A-12 (537_DOD5)	N/A (320-30330-1)	274.78 g	246.9 mL	7			8/8/17	16_Days	4	CH ND	
			27.87 g	1.00 mL								
17	320-30330-A-13 (537_DOD5)	N/A (320-30330-1)	293.76 g	265 mL	7			8/8/17	16_Days	4	CH ND	
			28.73 g	1.00 mL								

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-177692

Analyst: Sharifi, Nooshin

Batch Open: 8/4/2017 9:10:00AM

Method Code: 320-537_Prep-320

Batch End:

Batch Notes

Manifold ID 1,4

Trizma ID SLBR4303V

SPE Cartridge ID 6357081-02

Methanol ID 988835

Reagent Water ID 8/03/17

Pipette ID H14930F

Analyst ID - TA Reagent Drop NSH

Analyst ID - TA Reagent Drop

Witness

Analyst ID - SU Reagent Drop NSH

Analyst ID - SU Reagent Drop

Witness

Analyst ID - IS Reagent Drop

Analyst ID - IS Reagent Drop

Witness

Batch Comment

IS: 100 2798

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-177692

Analyst: Sharifi, Nooshin

Batch Open: 8/4/2017 9:10:00AM

Method Code: 320-537_Prep-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-177692/1	LC537-SU_00046	100 uL	1.00 mL	NSH 8/4/17	HJA 8-4-17
LLCS 320-177692/2	LC537-LSP_00021	100 uL	1.00 mL		
LLCS 320-177692/2	LC537-SU_00046	100 uL	1.00 mL		
320-30330-A-1	LC537-SU_00046	100 uL	1.00 mL		
320-30330-A-2	LC537-SU_00046	100 uL	1.00 mL		
320-30330-A-3	LC537-SU_00046	100 uL	1.00 mL		
320-30330-A-4	LC537-SU_00046	100 uL	1.00 mL		
320-30330-A-5	LC537-SU_00046	100 uL	1.00 mL		
320-30330-A-6	LC537-SU_00046	100 uL	1.00 mL		
320-30330-A-7	LC537-SU_00046	100 uL	1.00 mL		
320-30330-A-8	LC537-SU_00046	100 uL	1.00 mL		
320-30330-A-9	LC537-SU_00046	100 uL	1.00 mL		
320-30330-A-9 LMS	LC537-LSP_00021	100 uL	1.00 mL		
320-30330-A-9 LMS	LC537-SU_00046	100 uL	1.00 mL		
320-30330-A-9 LMSD	LC537-LSP_00021	100 uL	1.00 mL		
320-30330-A-9 LMSD	LC537-SU_00046	100 uL	1.00 mL		
320-30330-A-10	LC537-SU_00046	100 uL	1.00 mL		
320-30330-A-11	LC537-SU_00046	100 uL	1.00 mL		

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-177692

Analyst: Sharifi, Nooshin

Batch Open: 8/4/2017 9:10:00AM

Method Code: 320-537_Prep-320

Batch End:

320-30330-A-12	LC537-SU_00046	100 uL	1.00 mL	NS# 8/4/17	HSA 8-4-17
320-30330-A-13	LC537-SU_00046	100 uL	1.00 mL	↓	↓

Other Reagents:

Reagent

Amount/Units

Lot#:

Page 360 of 365

Preparation Batch Number(s): 320-177692 Test: 537 Prep
Earliest Holding Time: 8/13/17

Sample List Tab	1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method	/	/
All necessary NCMs filed (including holding time)	NA	NA
Method/sample/login/QAS checked and correct	/	/
Worksheet Tab	1 st Level Reviewer	2 nd Level Reviewer
All samples properly preserved	/	/
Weights in anticipated range and not targeted	/	/
All additional test requirements performed, documented, and uploaded to TALS correctly (e.g. final amount, initial amount, turbidity, and CI Check)	/	/
The pH is transcribed correctly in TALS	/	/
All additional information transcribed into TALS is correct and raw data is attached	/	/
Comments are transcribed correctly in TALS	/	/
Reagents Tab	1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and entered into TALS	/	/
All spike amounts correct and added to necessary samples and QC	/	/
Batch Information	1 st Level Reviewer	2 nd Level Reviewer
Date and time accurate and entered into TALS correctly	/	/
All necessary 'batch information' complete and entered into TALS correctly	/	/

1st Level Reviewer: COB

Date: 8-8-17

2nd Level Reviewer: TH

Date: 08/08/17

Comments: _____

Shipping and Receiving Documents

TestAmerica Sacramento

880 Riverside Parkway

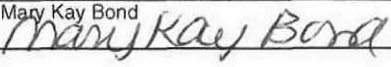
West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

Chain of Custody Record
TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☒ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact			Project Manager: Andy Frebowitz			Site Contact: Mary Kay Bond			Date: 8/1/17			COC No:		
TetraTech			Tel/Fax: 610.382.1170			Lab Contact: Dave Alltucker			Carrier: FedEx			1 of 2 COCs		
234 Mall Boulevard Suite 260			Analysis Turnaround Time			 320-30330 Chain of Custody			For Lab Use Only: Walk-in Client: Lab Sampling: 			Job / SDG No.: 		
King of Prussia, PA 19406			☐ CALENDAR DAYS ☐ WORKING DAYS											
610-382-1174			TAT if different from Below 21											
610-491-9688			☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day											
Project Name: WE04														
Site: WE04														
P O # 1132358 (through EarthToxics)														
Sample Identification			Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	EPA 537 UCMR3	Sample Specific Notes:			
WGNA-080117-RW-0104			8/1/2017	8:00	G	DW	2	N	N	Y				
WGNA-080117-FRB-0104			8/1/2017	7:55	G	DW	2	N	N	Y	Field Reagent Blank			
WGNA-080117-RW-0443A			8/1/2017	8:45	G	DW	2	N	N	Y				
WGNA-080117-RW-0443B			8/1/2017	8:50	G	DW	2	N	N	Y				
WGNA-080117-FRB-0443B			8/1/2017	8:40	G	BLK	2	N	N	Y	Field Reagent Blank			
WGNA-080117-RW-0437			8/1/2017	9:05	G	DW	2	N	N	Y				
WGNA-080117-FRB-0437			8/1/2017	9:00	G	BLK	2	N	N	Y	Field Reagent Blank			
WGNA-080117-RW-3178A			8/1/2017	9:40	G	DW	2	N	N	Y				
WGNA-080117-RW-3178B			8/1/2017	9:35	G	DW	6	N	Y	Y	MS/MSD			
WGNA-080117-FRB-3178B			8/1/2017	9:30	G	BLK	2	N	N	Y	Field Reagent Blank			
WGNA-080117-RW-3325			8/1/2017	10:15	G	DW	2	N	N	Y				
WGNA-080117-FRB-3325			8/1/2017	10:10	G	BLK	2	N	N	Y	Field Reagent Blank			
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other: Trizma														
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.												Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months		
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown														
Fed Ex Tracking: 7449 6194 4101 7449 6194 4112														
Custody Seals Intact: ☐ Yes ☐ No			Custody Seal No.:			Cooler Temp. (°C): Obs'd: 3.4			Therm ID No.: AP-2					
Relinquished by: Mary Kay Bond			Company: Tetra Tech			Date/Time: 8/1/17 18:00			Received by: 					
Relinquished by: 			Company:			Date/Time:			Received by: 					
Relinquished by:			Company:			Date/Time:			Received in Laboratory by:					
Relinquished by:			Company:			Date/Time:			Received in Laboratory by:					
Relinquished by:			Company:			Date/Time:			Received in Laboratory by:					

Chain of Custody Record

Regulatory Program: ☒ DW ☐ NPDES ☐ RCRA ☐ Other:[illegible]

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-30330-1

Login Number: 30330

List Source: TestAmerica Sacramento

List Number: 1

Creator: Edman, Connor M

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

"WGNA-080117-RW-0104","537","RES","320-30330-1","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","42","ng/L","",,"6.7","DL","",,"TRG","",,"",,"39","LOQ","YES","-99","",,"253.5","1.00","16","",
"WGNA-080117-RW-0104","537","RES","320-30330-1","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","21","ng/L","M","2.8","DL","",,"TRG","",,"",,"20","LOQ","YES","-99","",,"253.5","1.00","7.9","",
"WGNA-080117-RW-0104","537","RES","320-30330-1","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","34","ng/L","",,"5.4","DL","",,"TRG","",,"",,"30","LOQ","YES","-99","",,"253.5","1.00","12","",
"WGNA-080117-RW-0104","537","RES","320-30330-1","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","",,"TRG","",,"",,"89","LOQ","YES","-99","",,"253.5","1.00","36","",
"WGNA-080117-RW-0104","537","RES","320-30330-1","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","6.4","ng/L","J","1.9","DL","",,"TRG","",,"",,"9.9","LOQ","YES","-99","",,"253.5","1.00","3.9","",
"WGNA-080117-RW-0104","537","RES","320-30330-1","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","7.9","DL","",,"TRG","",,"",,"24","LOQ","YES","-99","",,"253.5","1.00","20","",
"WGNA-080117-RW-0104","537","RES","320-30330-1","TALSAC","STL00993","13C2 PFHxA","36","ng/L","",,"-99","DL","",,"SURR","92","",,"-99","LOQ","YES","39.4","",,"253.5","1.00","0","",
"WGNA-080117-RW-0104","537","RES","320-30330-1","TALSAC","STL00996","13C2 PFDA","47","ng/L","",,"-99","DL","",,"SURR","119","",,"-99","LOQ","YES","39.4","",,"253.5","1.00","0","",
"WGNA-080117-FRB-3178B","537","RES","320-30330-10","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","15","ng/L","U","6.3","DL","",,"TRG","",,"",,"37","LOQ","YES","-99","",,"269.4","1.00","15","",
"WGNA-080117-FRB-3178B","537","RES","320-30330-10","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","7.4","ng/L","U","2.6","DL","",,"TRG","",,"",,"19","LOQ","YES","-99","",,"269.4","1.00","7.4","",
"WGNA-080117-FRB-3178B","537","RES","320-30330-10","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","11","ng/L","U","5.1","DL","",,"TRG","",,"",,"28","LOQ","YES","-99","",,"269.4","1.00","11","",
"WGNA-080117-FRB-3178B","537","RES","320-30330-10","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","33","ng/L","U","15","DL","",,"TRG","",,"",,"84","LOQ","YES","-99","",,"269.4","1.00","33","",
"WGNA-080117-FRB-3178B","537","RES","320-30330-10","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","3.7","ng/L","U","1.8","DL","",,"TRG","",,"",,"9.3","LOQ","YES","-99","",,"269.4","1.00","3.7","",
"WGNA-080117-FRB-3178B","537","RES","320-30330-10","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","19","ng/L","U","7.4","DL","",,"TRG","",,"",,"22","LOQ","YES","-99","",,"269.4","1.00","19","",
"WGNA-080117-FRB-3178B","537","RES","320-30330-10","TALSAC","STL00993","13C2 PFHxA","39","ng/L","",,"-99","DL","",,"SURR","105","",,"-99","LOQ","YES","37.1","",,"269.4","1.00","0","",
"WGNA-080117-FRB-3178B","537","RES","320-30330-10","TALSAC","STL00996","13C2 PFDA","47","ng/L","",,"-99","DL","",,"SURR","126","",,"-99","LOQ","YES","37.1","",,"269.4","1.00","0","",
"WGNA-080117-RW-3325","537","RES","320-30330-11","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","20","ng/L","J","6.7","DL","",,"TRG","",,"",,"40","LOQ","YES","-99","",,"252.1","1.00","16","",
"WGNA-080117-RW-3325","537","RES","320-30330-11","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","17","ng/L","J M","2.8","DL","",,"TRG","",,"",,"20","LOQ","YES","-99","",,"252.1","1.00","7.9","",
"WGNA-080117-RW-3325","537","RES","320-30330-11","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","16","ng/L","J","5.5","DL","",,"TRG","",,"",,"30","LOQ","YES","-99","",,"252.1","1.00","12","",
"WGNA-080117-RW-3325","537","RES","320-30330-11","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","",,"TRG","",,"",,"89","LOQ","YES","-99","",,"252.1","1.00","36","",
"WGNA-080117-RW-3325","537","RES","320-30330-11","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","5.6","ng/L","J","1.9","DL","",,"TRG","",,"",,"9.9","LOQ","YES","-99","",,"252.1","1.00","4.0","",
"WGNA-080117-RW-3325","537","RES","320-30330-11","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","7.9","DL","",,"TRG","",,"",,"24","LOQ","YES","-99","",,"252.1","1.00","20","",
"WGNA-080117-RW-3325","537","RES","320-30330-11","TALSAC","STL00993","13C2 PFHxA","37","ng/L","",,"-99","DL","",,"SURR","94","",,"-99","LOQ","YES","39.7","",,"252.1","1.00","0","",
"WGNA-080117-RW-3325","537","RES","320-30330-11","TALSAC","STL00996","13C2 PFDA","50","ng/L","",,"-99","DL","",,"SURR","127","",,"-99","LOQ","YES","39.7","",,"252.1","1.00","0","",
"WGNA-080117-FRB-3325","537","RES","320-30330-12","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.9","DL","",,"TRG","",,"",,"41","LOQ","YES","-99","",,"246.9","1.00","16","",
"WGNA-080117-FRB-3325","537","RES","320-30330-12","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","8.1","ng/L","U","2.8","DL","",,"TRG","",,"",,"20","LOQ","YES","-99","",,"246.9","1.00","8.1","",
"WGNA-080117-FRB-3325","537","RES","320-30330-12","TALSAC","355-46-4","Perfluorohexanesulfonic acid

(PFHxS)","12","ng/L","U","5.6","DL","","","TRG","","","30","LOQ","YES",-99","","246.9","1.00","12","","
"WGNA-080117-FRB-3325","537","RES","320-30330-12","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","","TRG","","","91","LOQ","YES",-99","","246.9","1.00","36","","
"WGNA-080117-FRB-3325","537","RES","320-30330-12","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.1","ng/L","U","1.9","DL","","","TRG","","","10","LOQ","YES",-99","","246.9","1.00","4.1","","
"WGNA-080117-FRB-3325","537","RES","320-30330-12","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.1","DL","","","TRG","","","24","LOQ","YES",-99","","246.9","1.00","20","","
"WGNA-080117-FRB-3325","537","RES","320-30330-12","TALSAC","STL00993","13C2
PFHxA","43","ng/L","","","-99","DL","","","SURR","107","","","-99","LOQ","YES","40.5","","246.9","1.00","0","","
"WGNA-080117-FRB-3325","537","RES","320-30330-12","TALSAC","STL00996","13C2
PFDA","52","ng/L","","","-99","DL","","","SURR","127","","","-99","LOQ","YES","40.5","","246.9","1.00","0","","
"WGNA-080117-DUP06","537","RES","320-30330-13","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","26","ng/L","J M","6.4","DL","","","TRG","","","38","LOQ","YES",-99","","265","1.00","15","","
"WGNA-080117-DUP06","537","RES","320-30330-13","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","28","ng/L","M","2.6","DL","","","TRG","","","19","LOQ","YES",-99","","265","1.00","7.5","","
"WGNA-080117-DUP06","537","RES","320-30330-13","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","15","ng/L","J","5.2","DL","","","TRG","","","28","LOQ","YES",-99","","265","1.00","11","","
"WGNA-080117-DUP06","537","RES","320-30330-13","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","15","ng/L","J","15","DL","","","TRG","","","85","LOQ","YES",-99","","265","1.00","34","","
"WGNA-080117-DUP06","537","RES","320-30330-13","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","7.1","ng/L","J","1.8","DL","","","TRG","","","9.4","LOQ","YES",-99","","265","1.00","3.8","","
"WGNA-080117-DUP06","537","RES","320-30330-13","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","7.6","ng/L","J","7.5","DL","","","TRG","","","23","LOQ","YES",-99","","265","1.00","19","","
"WGNA-080117-DUP06","537","RES","320-30330-13","TALSAC","STL00993","13C2
PFHxA","35","ng/L","","","-99","DL","","","SURR","92","","","-99","LOQ","YES","37.7","","265","1.00","0","","
"WGNA-080117-DUP06","537","RES","320-30330-13","TALSAC","STL00996","13C2
PFDA","46","ng/L","","","-99","DL","","","SURR","123","","","-99","LOQ","YES","37.7","","265","1.00","0","","
"WGNA-080117-FRB-0104","537","RES","320-30330-2","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","U","6.3","DL","","","TRG","","","37","LOQ","YES",-99","","270.6","1.00","15","","
"WGNA-080117-FRB-0104","537","RES","320-30330-2","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.4","ng/L","U","2.6","DL","","","TRG","","","18","LOQ","YES",-99","","270.6","1.00","7.4","","
"WGNA-080117-FRB-0104","537","RES","320-30330-2","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","5.1","DL","","","TRG","","","28","LOQ","YES",-99","","270.6","1.00","11","","
"WGNA-080117-FRB-0104","537","RES","320-30330-2","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","33","ng/L","U","15","DL","","","TRG","","","83","LOQ","YES",-99","","270.6","1.00","33","","
"WGNA-080117-FRB-0104","537","RES","320-30330-2","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.7","ng/L","U","1.8","DL","","","TRG","","","9.2","LOQ","YES",-99","","270.6","1.00","3.7","","
"WGNA-080117-FRB-0104","537","RES","320-30330-2","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","18","ng/L","U","7.4","DL","","","TRG","","","22","LOQ","YES",-99","","270.6","1.00","18","","
"WGNA-080117-FRB-0104","537","RES","320-30330-2","TALSAC","STL00993","13C2
PFHxA","39","ng/L","","","-99","DL","","","SURR","104","","","-99","LOQ","YES","37.0","","270.6","1.00","0","","
"WGNA-080117-FRB-0104","537","RES","320-30330-2","TALSAC","STL00996","13C2
PFDA","45","ng/L","","","-99","DL","","","SURR","122","","","-99","LOQ","YES","37.0","","270.6","1.00","0","","
"WGNA-080117-RW-0443A","537","RES","320-30330-3","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","32","ng/L","J M","6.3","DL","","","TRG","","","37","LOQ","YES",-99","","271.8","1.00","15","","
"WGNA-080117-RW-0443A","537","RES","320-30330-3","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","31","ng/L","","","2.6","DL","","","TRG","","","18","LOQ","YES",-99","","271.8","1.00","7.4","","
"WGNA-080117-RW-0443A","537","RES","320-30330-3","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","5.1","DL","","","TRG","","","28","LOQ","YES",-99","","271.8","1.00","11","","
"WGNA-080117-RW-0443A","537","RES","320-30330-3","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","15","ng/L","J","15","DL","","","TRG","","","83","LOQ","YES",-99","","271.8","1.00","33","","
"WGNA-080117-RW-0443A","537","RES","320-30330-3","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","12","ng/L","","","1.7","DL","","","TRG","","","9.2","LOQ","YES",-99","","271.8","1.00","3.7","","
"WGNA-080117-RW-0443A","537","RES","320-30330-3","TALSAC","375-95-1","Perfluorononanoic acid

(PFNA),"18","ng/L","U","7.4","DL","","","TRG","","","22","LOQ","YES","-99","","","271.8","1.00","18","","
"WGNA-080117-RW-0443A","537","RES","320-30330-3","TALSAC","STL00993","13C2
PFHxA","31","ng/L","","","-99","DL","","","SURRE","84","","","-99","LOQ","YES","36.8","","","271.8","1.00","0","","
"WGNA-080117-RW-0443A","537","RES","320-30330-3","TALSAC","STL00996","13C2
PFDA","36","ng/L","","","-99","DL","","","SURRE","97","","","-99","LOQ","YES","36.8","","","271.8","1.00","0","","
"WGNA-080117-RW-0443B","537","RES","320-30330-4","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","29","ng/L","J","6.3","DL","","","TRG","","","37","LOQ","YES","-99","","","269.2","1.00","15","","
"WGNA-080117-RW-0443B","537","RES","320-30330-4","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","31","ng/L","M","2.6","DL","","","TRG","","","19","LOQ","YES","-99","","","269.2","1.00","7.4","","
"WGNA-080117-RW-0443B","537","RES","320-30330-4","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","5.1","DL","","","TRG","","","28","LOQ","YES","-99","","","269.2","1.00","11","","
"WGNA-080117-RW-0443B","537","RES","320-30330-4","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","33","ng/L","U","15","DL","","","TRG","","","84","LOQ","YES","-99","","","269.2","1.00","33","","
"WGNA-080117-RW-0443B","537","RES","320-30330-4","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","13","ng/L","","","1.8","DL","","","TRG","","","9.3","LOQ","YES","-99","","","269.2","1.00","3.7","","
"WGNA-080117-RW-0443B","537","RES","320-30330-4","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.4","DL","","","TRG","","","22","LOQ","YES","-99","","","269.2","1.00","19","","
"WGNA-080117-RW-0443B","537","RES","320-30330-4","TALSAC","STL00993","13C2
PFHxA","32","ng/L","","","-99","DL","","","SURRE","86","","","-99","LOQ","YES","37.1","","","269.2","1.00","0","","
"WGNA-080117-RW-0443B","537","RES","320-30330-4","TALSAC","STL00996","13C2
PFDA","44","ng/L","","","-99","DL","","","SURRE","119","","","-99","LOQ","YES","37.1","","","269.2","1.00","0","","
"WGNA-080117-FRB-0443B","537","RES","320-30330-5","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","U","6.2","DL","","","TRG","","","37","LOQ","YES","-99","","","273.2","1.00","15","","
"WGNA-080117-FRB-0443B","537","RES","320-30330-5","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.3","ng/L","U","2.6","DL","","","TRG","","","18","LOQ","YES","-99","","","273.2","1.00","7.3","","
"WGNA-080117-FRB-0443B","537","RES","320-30330-5","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","5.0","DL","","","TRG","","","27","LOQ","YES","-99","","","273.2","1.00","11","","
"WGNA-080117-FRB-0443B","537","RES","320-30330-5","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","33","ng/L","U","15","DL","","","TRG","","","82","LOQ","YES","-99","","","273.2","1.00","33","","
"WGNA-080117-FRB-0443B","537","RES","320-30330-5","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.7","ng/L","U","1.7","DL","","","TRG","","","9.2","LOQ","YES","-99","","","273.2","1.00","3.7","","
"WGNA-080117-FRB-0443B","537","RES","320-30330-5","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","18","ng/L","U","7.3","DL","","","TRG","","","22","LOQ","YES","-99","","","273.2","1.00","18","","
"WGNA-080117-FRB-0443B","537","RES","320-30330-5","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","","-99","DL","","","SURRE","103","","","-99","LOQ","YES","36.6","","","273.2","1.00","0","","
"WGNA-080117-FRB-0443B","537","RES","320-30330-5","TALSAC","STL00996","13C2
PFDA","45","ng/L","","","-99","DL","","","SURRE","122","","","-99","LOQ","YES","36.6","","","273.2","1.00","0","","
"WGNA-080117-RW-0437","537","RES","320-30330-6","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","25","ng/L","J","6.4","DL","","","TRG","","","38","LOQ","YES","-99","","","263.9","1.00","15","","
"WGNA-080117-RW-0437","537","RES","320-30330-6","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","28","ng/L","M","2.7","DL","","","TRG","","","19","LOQ","YES","-99","","","263.9","1.00","7.6","","
"WGNA-080117-RW-0437","537","RES","320-30330-6","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","15","ng/L","J","5.2","DL","","","TRG","","","28","LOQ","YES","-99","","","263.9","1.00","11","","
"WGNA-080117-RW-0437","537","RES","320-30330-6","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","34","ng/L","U","15","DL","","","TRG","","","85","LOQ","YES","-99","","","263.9","1.00","34","","
"WGNA-080117-RW-0437","537","RES","320-30330-6","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","7.0","ng/L","J","1.8","DL","","","TRG","","","9.5","LOQ","YES","-99","","","263.9","1.00","3.8","","
"WGNA-080117-RW-0437","537","RES","320-30330-6","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U M","7.6","DL","","","TRG","","","23","LOQ","YES","-99","","","263.9","1.00","19","","
"WGNA-080117-RW-0437","537","RES","320-30330-6","TALSAC","STL00993","13C2
PFHxA","34","ng/L","","","-99","DL","","","SURRE","91","","","-99","LOQ","YES","37.9","","","263.9","1.00","0","","
"WGNA-080117-RW-0437","537","RES","320-30330-6","TALSAC","STL00996","13C2
PFDA","42","ng/L","","","-99","DL","","","SURRE","112","","","-99","LOQ","YES","37.9","","","263.9","1.00","0","","
"WGNA-080117-FRB-0437","537","RES","320-30330-7","TALSAC","1763-23-1","Perfluorooctanesulfonic acid

(PFOS),"15","ng/L","U","6.4","DL","","TRG","","","38","LOQ","YES",-99","","265.2","1.00","15",""
"WGNA-080117-FRB-0437","537","RES","320-30330-7","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"7.5","ng/L","U","2.6","DL","","TRG","","","19","LOQ","YES",-99","","265.2","1.00","7.5",""
"WGNA-080117-FRB-0437","537","RES","320-30330-7","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"11","ng/L","U","5.2","DL","","TRG","","","28","LOQ","YES",-99","","265.2","1.00","11",""
"WGNA-080117-FRB-0437","537","RES","320-30330-7","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"34","ng/L","U","15","DL","","TRG","","","85","LOQ","YES",-99","","265.2","1.00","34",""
"WGNA-080117-FRB-0437","537","RES","320-30330-7","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"3.8","ng/L","U","1.8","DL","","TRG","","","9.4","LOQ","YES",-99","","265.2","1.00","3.8",""
"WGNA-080117-FRB-0437","537","RES","320-30330-7","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"19","ng/L","U","7.5","DL","","TRG","","","23","LOQ","YES",-99","","265.2","1.00","19",""
"WGNA-080117-FRB-0437","537","RES","320-30330-7","TALSAC","STL00993","13C2
PFHxA","41","ng/L","","-99","DL","","SURR","108","","-99","LOQ","YES","37.7","","265.2","1.00","0",""
"WGNA-080117-FRB-0437","537","RES","320-30330-7","TALSAC","STL00996","13C2
PFDA","48","ng/L","","-99","DL","","SURR","128","","-99","LOQ","YES","37.7","","265.2","1.00","0",""
"WGNA-080117-RW-3178A","537","RES","320-30330-8","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"18","ng/L","J","6.5","DL","","TRG","","","38","LOQ","YES",-99","","261.3","1.00","15",""
"WGNA-080117-RW-3178A","537","RES","320-30330-8","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"11","ng/L","J","2.7","DL","","TRG","","","19","LOQ","YES",-99","","261.3","1.00","7.7",""
"WGNA-080117-RW-3178A","537","RES","320-30330-8","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"8.0","ng/L","J","5.3","DL","","TRG","","","29","LOQ","YES",-99","","261.3","1.00","11",""
"WGNA-080117-RW-3178A","537","RES","320-30330-8","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"34","ng/L","U","15","DL","","TRG","","","86","LOQ","YES",-99","","261.3","1.00","34",""
"WGNA-080117-RW-3178A","537","RES","320-30330-8","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"3.3","ng/L","J","1.8","DL","","TRG","","","9.6","LOQ","YES",-99","","261.3","1.00","3.8",""
"WGNA-080117-RW-3178A","537","RES","320-30330-8","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"19","ng/L","U","7.7","DL","","TRG","","","23","LOQ","YES",-99","","261.3","1.00","19",""
"WGNA-080117-RW-3178A","537","RES","320-30330-8","TALSAC","STL00993","13C2
PFHxA","32","ng/L","","-99","DL","","SURR","84","","-99","LOQ","YES","38.3","","261.3","1.00","0",""
"WGNA-080117-RW-3178A","537","RES","320-30330-8","TALSAC","STL00996","13C2
PFDA","39","ng/L","","-99","DL","","SURR","101","","-99","LOQ","YES","38.3","","261.3","1.00","0",""
"WGNA-080117-RW-3178B","537","RES","320-30330-9","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"26","ng/L","J","6.6","DL","","TRG","","","39","LOQ","YES",-99","","256.2","1.00","16",""
"WGNA-080117-RW-3178B","537","RES","320-30330-9","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"14","ng/L","J M","2.7","DL","","TRG","","","20","LOQ","YES",-99","","256.2","1.00","7.8",""
"WGNA-080117-RW-3178B","537","RES","320-30330-9","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"7.8","ng/L","J","5.4","DL","","TRG","","","29","LOQ","YES",-99","","256.2","1.00","12",""
"WGNA-080117-RW-3178B","537","RES","320-30330-9","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"35","ng/L","U","16","DL","","TRG","","","88","LOQ","YES",-99","","256.2","1.00","35",""
"WGNA-080117-RW-3178B","537","RES","320-30330-9","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"3.9","ng/L","J","1.9","DL","","TRG","","","9.8","LOQ","YES",-99","","256.2","1.00","3.9",""
"WGNA-080117-RW-3178B","537","RES","320-30330-9","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"20","ng/L","U","7.8","DL","","TRG","","","23","LOQ","YES",-99","","256.2","1.00","20",""
"WGNA-080117-RW-3178B","537","RES","320-30330-9","TALSAC","STL00993","13C2
PFHxA","34","ng/L","","-99","DL","","SURR","87","","-99","LOQ","YES","39.0","","256.2","1.00","0",""
"WGNA-080117-RW-3178B","537","RES","320-30330-9","TALSAC","STL00996","13C2
PFDA","49","ng/L","","-99","DL","","SURR","124","","-99","LOQ","YES","39.0","","256.2","1.00","0",""
"WGNA-080117-RW-3178BMS","537","RES","320-30330-9MS","TALSAC","1763-23-1","Perfluorooctanesulfonic
acid (PFOS),"66.7","ng/L","","6.5","DL","","SPK","107","","38","LOQ","YES","38.3","WGNA-080117-RW-
3178B","261.6","1.00","15",""
"WGNA-080117-RW-3178BMS","537","RES","320-30330-9MS","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"33.0","ng/L","M","2.7","DL","","SPK","99","","19","LOQ","YES","19.1","WGNA-080117-RW-
3178B","261.6","1.00","7.6",""
"WGNA-080117-RW-3178BMS","537","RES","320-30330-9MS","TALSAC","355-46-4","Perfluorohexanesulfonic

acid (PFHxS)", "34.8", "ng/L", "", "5.3", "DL", "", "SPK", "94", "", "29", "LOQ", "YES", "28.7", "WGNA-080117-RW-3178B", "261.6", "1.00", "11", ""

"WGNA-080117-RW-3178BMS", "537", "RES", "320-30330-9MS", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "91.9", "ng/L", "", "15", "DL", "", "SPK", "109", "", "86", "LOQ", "YES", "84.4", "WGNA-080117-RW-3178B", "261.6", "1.00", "34", ""

"WGNA-080117-RW-3178BMS", "537", "RES", "320-30330-9MS", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "13.2", "ng/L", "", "1.8", "DL", "", "SPK", "99", "", "9.6", "LOQ", "YES", "9.46", "WGNA-080117-RW-3178B", "261.6", "1.00", "3.8", ""

"WGNA-080117-RW-3178BMS", "537", "RES", "320-30330-9MS", "TALSAC", "375-95-1", "Perfluorononanoic acid (PFNA)", "24.4", "ng/L", "", "7.6", "DL", "", "SPK", "132", "", "23", "LOQ", "YES", "18.4", "WGNA-080117-RW-3178B", "261.6", "1.00", "19", ""

"WGNA-080117-RW-3178BMS", "537", "RES", "320-30330-9MS", "TALSAC", "STL00993", "13C2 PFHxA", "35.6", "ng/L", "", "-99", "DL", "", "SURR", "93", "", "-99", "LOQ", "YES", "38.2", "WGNA-080117-RW-3178B", "261.6", "1.00", "0", ""

"WGNA-080117-RW-3178BMS", "537", "RES", "320-30330-9MS", "TALSAC", "STL00996", "13C2 PFDA", "48.2", "ng/L", "", "-99", "DL", "", "SURR", "126", "", "-99", "LOQ", "YES", "38.2", "WGNA-080117-RW-3178B", "261.6", "1.00", "0", ""

"WGNA-080117-RW-3178BMSD", "537", "RES", "320-30330-9MSD", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid (PFOS)", "66.0", "ng/L", "M", "6.4", "DL", "", "SPK", "107", "1", "38", "LOQ", "YES", "37.7", "WGNA-080117-RW-3178B", "265.2", "1.00", "15", ""

"WGNA-080117-RW-3178BMSD", "537", "RES", "320-30330-9MSD", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "32.8", "ng/L", "M", "2.6", "DL", "", "SPK", "99", "1", "19", "LOQ", "YES", "18.8", "WGNA-080117-RW-3178B", "265.2", "1.00", "7.5", ""

"WGNA-080117-RW-3178BMSD", "537", "RES", "320-30330-9MSD", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid (PFHxS)", "34.9", "ng/L", "", "5.2", "DL", "", "SPK", "96", "0", "28", "LOQ", "YES", "28.3", "WGNA-080117-RW-3178B", "265.2", "1.00", "11", ""

"WGNA-080117-RW-3178BMSD", "537", "RES", "320-30330-9MSD", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "89.8", "ng/L", "", "15", "DL", "", "SPK", "108", "2", "85", "LOQ", "YES", "83.3", "WGNA-080117-RW-3178B", "265.2", "1.00", "34", ""

"WGNA-080117-RW-3178BMSD", "537", "RES", "320-30330-9MSD", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "13.9", "ng/L", "", "1.8", "DL", "", "SPK", "107", "5", "9.4", "LOQ", "YES", "9.33", "WGNA-080117-RW-3178B", "265.2", "1.00", "3.8", ""

"WGNA-080117-RW-3178BMSD", "537", "RES", "320-30330-9MSD", "TALSAC", "375-95-1", "Perfluorononanoic acid (PFNA)", "25.2", "ng/L", "", "7.5", "DL", "", "SPK", "139", "3", "23", "LOQ", "YES", "18.2", "WGNA-080117-RW-3178B", "265.2", "1.00", "19", ""

"WGNA-080117-RW-3178BMSD", "537", "RES", "320-30330-9MSD", "TALSAC", "STL00993", "13C2 PFHxA", "34.3", "ng/L", "", "-99", "DL", "", "SURR", "91", "", "-99", "LOQ", "YES", "37.7", "WGNA-080117-RW-3178B", "265.2", "1.00", "0", ""

"WGNA-080117-RW-3178BMSD", "537", "RES", "320-30330-9MSD", "TALSAC", "STL00996", "13C2 PFDA", "45.7", "ng/L", "", "-99", "DL", "", "SURR", "121", "", "-99", "LOQ", "YES", "37.7", "WGNA-080117-RW-3178B", "265.2", "1.00", "0", ""

"LLCS 320-177692/2-A", "537", "RES", "LLCS 320-177692/2-A", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid (PFOS)", "41.0", "ng/L", "", "6.8", "DL", "", "SPK", "102", "", "40", "LOQ", "YES", "40.0", "", "250", "1.00", "16", ""

"LLCS 320-177692/2-A", "537", "RES", "LLCS 320-177692/2-A", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "18.1", "ng/L", "J", "2.8", "DL", "", "SPK", "91", "", "20", "LOQ", "YES", "20.0", "", "250", "1.00", "8.0", ""

"LLCS 320-177692/2-A", "537", "RES", "LLCS 320-177692/2-A", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid (PFHxS)", "29.5", "ng/L", "J", "5.5", "DL", "", "SPK", "98", "", "30", "LOQ", "YES", "30.1", "", "250", "1.00", "12", ""

"LLCS 320-177692/2-A", "537", "RES", "LLCS 320-177692/2-A", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "92.1", "ng/L", "", "16", "DL", "", "SPK", "104", "", "90", "LOQ", "YES", "88.3", "", "250", "1.00", "36", ""

"LLCS 320-177692/2-A", "537", "RES", "LLCS 320-177692/2-A", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "11.2", "ng/L", "", "1.9", "DL", "", "SPK", "113", "", "10", "LOQ", "YES", "9.90", "", "250", "1.00", "4.0", ""

"LLCS 320-177692/2-A", "537", "RES", "LLCS 320-177692/2-A", "TALSAC", "375-95-1", "Perfluorononanoic acid

(PFNA),"22.7","ng/L","J","8.0","DL","","SPK","118","","24","LOQ","YES","19.3","","250","1.00","20",""
"LLCS 320-177692/2-A","537","RES","LLCS 320-177692/2-A","TALSAC","STL00993","13C2
PFHxA","40.0","ng/L","","-99","DL","","SURR","100","","-99","LOQ","YES","40.0","","250","1.00","0",""
"LLCS 320-177692/2-A","537","RES","LLCS 320-177692/2-A","TALSAC","STL00996","13C2
PFDA","46.3","ng/L","","-99","DL","","SURR","116","","-99","LOQ","YES","40.0","","250","1.00","0",""
"MB 320-177692/1-A","537","RES","MB 320-177692/1-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","250","1.00","16",""
"MB 320-177692/1-A","537","RES","MB 320-177692/1-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","250","1.00","8.0",""
"MB 320-177692/1-A","537","RES","MB 320-177692/1-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","250","1.00","12",""
"MB 320-177692/1-A","537","RES","MB 320-177692/1-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250","1.00","36",""
"MB 320-177692/1-A","537","RES","MB 320-177692/1-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","250","1.00","4.0",""
"MB 320-177692/1-A","537","RES","MB 320-177692/1-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","250","1.00","20",""
"MB 320-177692/1-A","537","RES","MB 320-177692/1-A","TALSAC","STL00993","13C2
PFHxA","40.2","ng/L","","-99","DL","","SURR","101","","-99","LOQ","YES","40.0","","250","1.00","0",""
"MB 320-177692/1-A","537","RES","MB 320-177692/1-A","TALSAC","STL00996","13C2
PFDA","49.1","ng/L","","-99","DL","","SURR","123","","-99","LOQ","YES","40.0","","250","1.00","0",""
"Unknown","Unknown","WGNA-080117-RW-0104","08/01/2017 08:00","AQ","320-30330-
1","NM","","3.4","537","METHOD","RES","08/04/2017 09:11","08/16/2017
18:27","TALSAC","COA","WET","NA","1","NA","NA","","100","320-177692","320-177692","NA","320-
179896","320-30330-1","08/02/2017 11:10","08/02/2017 17:05",""
"Unknown","Unknown","WGNA-080117-FRB-3178B","08/01/2017 09:30","AQ","320-30330-
10","FB","","3.4","537","METHOD","RES","08/04/2017 09:11","08/16/2017
19:29","TALSAC","COA","WET","NA","1","NA","NA","","100","320-177692","320-177692","NA","320-
179897","320-30330-1","08/02/2017 11:10","08/02/2017 17:05",""
"Unknown","Unknown","WGNA-080117-RW-3325","08/01/2017 10:15","AQ","320-30330-
11","NM","","3.4","537","METHOD","RES","08/04/2017 09:11","08/16/2017
19:34","TALSAC","COA","WET","NA","1","NA","NA","","100","320-177692","320-177692","NA","320-
179897","320-30330-1","08/02/2017 11:10","08/02/2017 17:05",""
"Unknown","Unknown","WGNA-080117-FRB-3325","08/01/2017 10:10","AQ","320-30330-
12","FB","","3.4","537","METHOD","RES","08/04/2017 09:11","08/16/2017
19:38","TALSAC","COA","WET","NA","1","NA","NA","","100","320-177692","320-177692","NA","320-
179897","320-30330-1","08/02/2017 11:10","08/02/2017 17:05",""
"Unknown","Unknown","WGNA-080117-DUP06","08/01/2017 07:00","AQ","320-30330-
13","FD","","3.4","537","METHOD","RES","08/04/2017 09:11","08/16/2017
19:43","TALSAC","COA","WET","NA","1","NA","NA","","100","320-177692","320-177692","NA","320-
179897","320-30330-1","08/02/2017 11:10","08/02/2017 17:05",""
"Unknown","Unknown","WGNA-080117-FRB-0104","08/01/2017 07:55","AQ","320-30330-
2","FB","","3.4","537","METHOD","RES","08/04/2017 09:11","08/16/2017
18:32","TALSAC","COA","WET","NA","1","NA","NA","","100","320-177692","320-177692","NA","320-
179896","320-30330-1","08/02/2017 11:10","08/02/2017 17:05",""
"Unknown","Unknown","WGNA-080117-RW-0443A","08/01/2017 08:45","AQ","320-30330-
3","NM","","3.4","537","METHOD","RES","08/04/2017 09:11","08/17/2017
20:12","TALSAC","COA","WET","NA","1","NA","NA","","100","320-177692","320-177692","NA","320-
180242","320-30330-1","08/02/2017 11:10","08/02/2017 17:05",""
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4","NM","","3.4","537","METHOD","RES","08/04/2017 09:11","08/16/2017
18:41","TALSAC","COA","WET","NA","1","NA","NA","","100","320-177692","320-177692","NA","320-
179896","320-30330-1","08/02/2017 11:10","08/02/2017 17:05",""
"Unknown","Unknown","WGNA-080117-FRB-0443B","08/01/2017 08:40","AQ","320-30330-

5","FB","","3.4","537","METHOD","RES","08/04/2017 09:11","08/16/2017
18:46","TALSAC","COA","WET","NA","1","NA","NA","","100","320-177692","320-177692","NA","320-
179896","320-30330-1","08/02/2017 11:10","08/02/2017 17:05",""
"Unknown","Unknown","WGNA-080117-RW-0437","08/01/2017 09:05","AQ","320-30330-
6","NM","","3.4","537","METHOD","RES","08/04/2017 09:11","08/16/2017
18:51","TALSAC","COA","WET","NA","1","NA","NA","","100","320-177692","320-177692","NA","320-
179896","320-30330-1","08/02/2017 11:10","08/02/2017 17:05",""
"Unknown","Unknown","WGNA-080117-FRB-0437","08/01/2017 09:00","AQ","320-30330-
7","FB","","3.4","537","METHOD","RES","08/04/2017 09:11","08/16/2017
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179896","320-30330-1","08/02/2017 11:10","08/02/2017 17:05",""
"Unknown","Unknown","WGNA-080117-RW-3178A","08/01/2017 09:40","AQ","320-30330-
8","NM","","3.4","537","METHOD","RES","08/04/2017 09:11","08/17/2017
20:17","TALSAC","COA","WET","NA","1","NA","NA","","100","320-177692","320-177692","NA","320-
180242","320-30330-1","08/02/2017 11:10","08/02/2017 17:05",""
"Unknown","Unknown","WGNA-080117-RW-3178B","08/01/2017 09:35","AQ","320-30330-
9","NM","","3.4","537","METHOD","RES","08/04/2017 09:11","08/16/2017
19:15","TALSAC","COA","WET","NA","1","NA","NA","","100","320-177692","320-177692","NA","320-
179897","320-30330-1","08/02/2017 11:10","08/02/2017 17:05",""
"Unknown","Unknown","WGNA-080117-RW-3178BMS","08/01/2017 09:35","AQ","320-30330-
9MS","MS","","3.4","537","METHOD","RES","08/04/2017 09:11","08/16/2017
19:19","TALSAC","COA","WET","NA","1","NA","NA","","100","320-177692","320-177692","NA","320-
179897","320-30330-1","08/02/2017 11:10","08/02/2017 17:05",""
"Unknown","Unknown","WGNA-080117-RW-3178BMSD","08/01/2017 09:35","AQ","320-30330-
9MSD","MSD","","3.4","537","METHOD","RES","08/04/2017 09:11","08/16/2017
19:24","TALSAC","COA","WET","NA","1","NA","NA","","100","320-177692","320-177692","NA","320-
179897","320-30330-1","08/02/2017 11:10","08/02/2017 17:05",""
"Unknown","Unknown","LLCS 320-177692/2-A","","AQ","LLCS 320-177692/2-
A","LCS","","-99","537","METHOD","RES","08/04/2017 09:11","08/16/2017
18:22","TALSAC","COA","WET","NA","1","NA","NA","","100","320-177692","320-177692","NA","320-
179896","320-30330-1","08/04/2017 09:11","08/02/2017 17:05",""
"Unknown","Unknown","MB 320-177692/1-A","","AQ","MB 320-177692/1-
A","MB","","-99","537","METHOD","RES","08/04/2017 09:11","08/16/2017
18:17","TALSAC","COA","WET","NA","1","NA","NA","","100","320-177692","320-177692","NA","320-
179896","320-30330-1","08/04/2017 09:11","08/02/2017 17:05",""



TETRA TECH

INTERNAL CORRESPONDENCE

TO: A. FREBOWITZ **DATE:** SEPTEMBER 1, 2017
FROM: MICHELLE L. ALLEN **COPIES:** DV FILE
SUBJECT: ORGANIC DATA VALIDATION – POLYFLUOROALKYL SUBSTANCES (PFAS)
NAVAL AIR STATION JOINT BASE RESERVE (NASJRB) WILLOW GROVE
WILLOW GROVE, PENNSYLVANIA
SAMPLE DELIVERY GROUP (SDG) 320-30330-1

SAMPLES: 13/Aqueous/PFAS

WGNA-080117-DUP06	WGNA-080117-FRB-0104	WGNA-080117-FRB-0437
WGNA-080117-FRB-0443B	WGNA-080117-FRB-3178B	WGNA-080117-FRB-3325
WGNA-080117-RW-0104	WGNA-080117-RW-0437	WGNA-080117-RW-0443A
WGNA-080117-RW-0443B	WGNA-080117-RW-3178A	WGNA-080117-RW-3178B
WGNA-080117-RW-3325		

Overview

The sample set for NASJRB Willow Grove, SDG 320-30330-1 consisted of eight (8) aqueous environmental samples and five (5) Field Reagent Blanks (FRBs). All thirteen (13) samples were analyzed for select polyfluoroalkyl substances (PFAS) (pentadecafluorooctanoic acid (PFOA), perfluorobutanesulfonic acid (PFBS), perfluoroheptanoic acid (PFHpA), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA) and perfluorooctane sulfonic acid (PFOS)). One field duplicate pair was included in this SDG: WGNA-080117-DUP06/WGNA-080117-RW-0437.

The samples were collected by Tetra Tech, Inc. on August 1, 2017 and analyzed by Test America, Inc. All analyses were conducted in accordance with EPA Method 537 version 1.1 analytical and reporting protocols.

The data contained in this SDG was validated with regard to the following parameters: data completeness, hold times and sample preservation, LC/MS/MS system tuning and performance, initial and continuing calibrations, laboratory method blank results, field reagent blank results, isotope dilution analyte surrogate recoveries, laboratory control sample/laboratory control sample duplicate results, field duplicate precision, compound identification, compound quantitation, and detection limits.

The symbol (*) indicates that all quality control criteria were met for this parameter. Qualified analytical results are presented in Appendix A, results as reported by the laboratory are presented in Appendix B, and documentation supporting these findings is presented in Appendix C.

Major

No major issues were identified.

Minor

No minor issues were identified.

Notes

PFAS compounds were not detected in the FRBs contained in this SDG.

Detected results reported below the LOQ but above the Method Detection Limit (MDL) were qualified as estimated, (J). Non-detected results were reported to the LOD.

Executive Summary

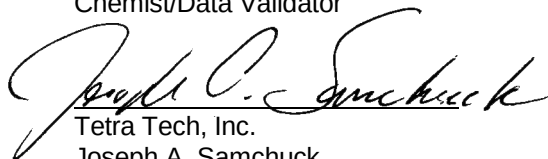
Laboratory Performance Issues: None.

Other Factors Affecting Data Quality: Detected results below the LOQ were estimated.

The data for these analyses were reviewed with reference to the "National Functional Guidelines for Organic Superfund Methods Data Review" (January 2017), EPA Method 537 version 1.1, and the Department of Defense (DoD) document entitled "Quality Systems Manual (QSM) for Environmental Laboratories" (2017). The text of this report has been formulated to address only those areas affecting data quality.



Tetra Tech, Inc.
Michelle L. Allen
Chemist/Data Validator



Tetra Tech, Inc.
Joseph A. Samchuck
Data Validation Manager

Attachments:

Appendix A - Qualified Analytical Results
Appendix B – Results as Reported by the Laboratory
Appendix C – Support Documentation

Data Qualifier Definitions

The following definitions provide brief explanations of the validation qualifiers assigned to results in the data review process.

U	The analyte was analyzed for, but was not detected at a level greater than or equal to the level of the adjusted method detection limit for sample and method.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the reporting limit).
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
UJ	The analyte was analyzed for, but was not detected. The reported detection limit is approximate and may be inaccurate or imprecise.
R	The sample result (detected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
UR	The sample result (nondetected) is unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.

APPENDIX A

QUALIFIED ANALYTICAL RESULTS

Qualifier Codes:

- A = Lab Blank Contamination
- B = Field Blank Contamination
- C = Calibration Noncompliance (i.e., % RSDs, %Ds, ICVs, CCVs, RRFs, etc.)
- C01 = GC/MS Tuning Noncompliance
- D = MS/MSD Recovery Noncompliance
- E = LCS/LCSD Recovery Noncompliance
- F = Lab Duplicate Imprecision
- G = Field Duplicate Imprecision
- H = Holding Time Exceedance
- I = ICP Serial Dilution Noncompliance
- J = ICP PDS Recovery Noncompliance; MSA's $r < 0.995$
- K = ICP Interference - includes ICS % R Noncompliance
- L = Instrument Calibration Range Exceedance
- M = Sample Preservation Noncompliance
- N = Internal Standard Noncompliance
- N01 = Internal Standard Recovery Noncompliance Dioxins
- N02 = Recovery Standard Noncompliance Dioxins
- N03 = Clean-up Standard Noncompliance Dioxins
- O = Poor Instrument Performance (i.e., base-time drifting)
- P = Uncertainty near detection limit ($< 2 \times \text{IDL}$ for inorganics and $< \text{CRQL}$ for organics)
- Q = Other problems (can encompass a number of issues; i.e. chromatography, interferences, etc.)
- R = Surrogates Recovery Noncompliance
- S = Pesticide/PCB Resolution
- T = % Breakdown Noncompliance for DDT and Endrin
- U = RPD between columns/detectors $> 40\%$ for positive results determined via GC/HPLC
- V = Non-linear calibrations; correlation coefficient $r < 0.995$
- W = EMPC result
- X = Signal to noise response drop
- Y = Percent solids $< 30\%$
- Z = Uncertainty at 2 standard deviations is greater than sample activity
- Z1 = Tentatively Identified Compound considered presumptively present
- Z2 = Tentatively Identified Compound column bleed
- Z3 = Tentatively Identified Compound aldol condensate
- Z4 = Sample activity is less than the at uncertainty at 3 standard deviations and greater than the MDC
- Z5 = Sample activity is less than the at uncertainty at 3 standard deviations and less than the MDC

PROJ_NO: 08005-WE04 SDG: 320-30330-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	WGNA-080117-DUP06			WGNA-080117-FRB-0104			WGNA-080117-FRB-0437			WGNA-080117-FRB-0443B		
	LAB_ID	320-30330-13			320-30330-2			320-30330-7			320-30330-5		
	SAMP_DATE	8/1/2017			8/1/2017			8/1/2017			8/1/2017		
	QC_TYPE	FD			FB			FB			FB		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF	WGNA-080117-FRB-0437											
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		28			7.4	U		7.5	U		7.3	U	
PERFLUOROBUTANESULFONIC ACID		15	J	P	33	U		34	U		33	U	
PERFLUOROHEPTANOIC ACID		7.1	J	P	3.7	U		3.8	U		3.7	U	
PERFLUOROHEXANESULFONIC ACID		15	J	P	11	U		11	U		11	U	
PERFLUORONONANOIC ACID		7.6	J	P	18	U		19	U		18	U	
PERFLUOROOCTANE SULFONIC ACID		26	J	P	15	U		15	U		15	U	

PROJ_NO: 08005-WE04 SDG: 320-30330-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	WGNA-080117-FRB-3178B			WGNA-080117-FRB-3325			WGNA-080117-RW-0104			WGNA-080117-RW-0437		
	LAB_ID	320-30330-10			320-30330-12			320-30330-1			320-30330-6		
	SAMP_DATE	8/1/2017			8/1/2017			8/1/2017			8/1/2017		
	QC_TYPE	FB			FB			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		7.4	U		8.1	U		21			28		
PERFLUOROBUTANESULFONIC ACID		33	U		36	U		36	U		34	U	
PERFLUOROHEPTANOIC ACID		3.7	U		4.1	U		6.4	J	P	7	J	P
PERFLUOROHEXANESULFONIC ACID		11	U		12	U		34			15	J	P
PERFLUORONONANOIC ACID		19	U		20	U		20	U		19	U	
PERFLUOROOCTANE SULFONIC ACID		15	U		16	U		42			25	J	P

PROJ_NO: 08005-WE04 SDG: 320-30330-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	WGNA-080117-RW-0443A			WGNA-080117-RW-0443B			WGNA-080117-RW-3178A			WGNA-080117-RW-3178B		
	LAB_ID	320-30330-3			320-30330-4			320-30330-8			320-30330-9		
	SAMP_DATE	8/1/2017			8/1/2017			8/1/2017			8/1/2017		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		31			31			11	J	P	14	J	P
PERFLUOROBUTANESULFONIC ACID		15	J	P	33	U		34	U		35	U	
PERFLUOROHEPTANOIC ACID		12			13			3.3	J	P	3.9	J	P
PERFLUOROHEXANESULFONIC ACID		11	U		11	U		8	J	P	7.8	J	P
PERFLUORONONANOIC ACID		18	U		19	U		19	U		20	U	
PERFLUOROOCTANE SULFONIC ACID		32	J	P	29	J	P	18	J	P	26	J	P

PROJ_NO: 08005-WE04 SDG: 320-30330-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	WGNA-080117-RW-3325		
	LAB_ID	320-30330-11		
	SAMP_DATE	8/1/2017		
	QC_TYPE	NM		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		17	J	P
PERFLUOROBUTANESULFONIC ACID		36	U	
PERFLUOROHEPTANOIC ACID		5.6	J	P
PERFLUOROHEXANESULFONIC ACID		16	J	P
PERFLUORONONANOIC ACID		20	U	
PERFLUOROOCTANE SULFONIC ACID		20	J	P

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-RW-0104</u>	Lab Sample ID: <u>320-30330-1</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_035.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 08:00</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>253.5 (mL)</u>	Date Analyzed: <u>08/16/2017 18:27</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179896</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	42		39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	21	M	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	34		30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.4	F	9.9	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	119		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-FRB-0104</u>	Lab Sample ID: <u>320-30330-2</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_036.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 07:55</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>270.6(mL)</u>	Date Analyzed: <u>08/16/2017 18:32</u>
Con. Extract Vol.: <u>1.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179896</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	7.4	U	18	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.2	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	83	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	104		70-130
STL00996	13C2 PFDA	122		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-RW-0443A</u>	Lab Sample ID: <u>320-30330-3</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.17_537A_029.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 08:45</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>271.8 (mL)</u>	Date Analyzed: <u>08/17/2017 20:12</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>180242</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	32	J M	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	31		18	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	12		9.2	3.7	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	15	J	83	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	84		70-130
STL00996	13C2 PFDA	97		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-RW-0443B</u>	Lab Sample ID: <u>320-30330-4</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_038.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 08:50</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>269.2 (mL)</u>	Date Analyzed: <u>08/16/2017 18:41</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179896</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	29	J	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	31	M	19	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	13		9.3	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	84	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	119		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Client Sample ID: WGNA-080117-FRB-0443B Lab Sample ID: 320-30330-5
 Matrix: Water Lab File ID: 2017.08.16_537D_039.d
 Analysis Method: 537 Date Collected: 08/01/2017 08:40
 Extraction Method: 537 Date Extracted: 08/04/2017 09:11
 Sample wt/vol: 273.2 (mL) Date Analyzed: 08/16/2017 18:46
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 179896 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	15	6.2
335-67-1	Perfluorooctanoic acid (PFOA)	7.3	U	18	7.3	2.6
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	27	11	5.0
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.2	3.7	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	82	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	122		70-130

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FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Client Sample ID: WGNA-080117-RW-0437	Lab Sample ID: 320-30330-6
 Matrix: Water	Lab File ID: 2017.08.16_537D_040.d
 Analysis Method: 537	Date Collected: 08/01/2017 09:05
 Extraction Method: 537	Date Extracted: 08/04/2017 09:11
 Sample wt/vol: 263.9(mL)	Date Analyzed: 08/16/2017 18:51
 Con. Extract Vol.: 1.00(mL)	Dilution Factor: 1
 Injection Volume: 2(uL)	GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____	GPC Cleanup: (Y/N) N
 Analysis Batch No.: 179896	Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	25	J	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	28	M	19	7.6	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U M	23	19	7.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	15	J	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.0	J	9.5	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	112		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Client Sample ID: WGNA-080117-FRB-0437	Lab Sample ID: 320-30330-7
 Matrix: Water	Lab File ID: 2017.08.16_537D_041.d
 Analysis Method: 537	Date Collected: 08/01/2017 09:00
 Extraction Method: 537	Date Extracted: 08/04/2017 09:11
 Sample wt/vol: 265.2 (mL)	Date Analyzed: 08/16/2017 18:56
 Con. Extract Vol.: 1.00 (mL)	Dilution Factor: 1
 Injection Volume: 2 (uL)	GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____	GPC Cleanup: (Y/N) N
 Analysis Batch No.: 179896	Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	7.5	U	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.4	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	108		70-130
STL00996	13C2 PFDA	128		70-130

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Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Client Sample ID: WGNA-080117-RW-3178A Lab Sample ID: 320-30330-8
 Matrix: Water Lab File ID: 2017.08.17_537A_030.d
 Analysis Method: 537 Date Collected: 08/01/2017 09:40
 Extraction Method: 537 Date Extracted: 08/04/2017 09:11
 Sample wt/vol: 261.3(mL) Date Analyzed: 08/17/2017 20:17
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 180242 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18	J	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	11	J	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.0	J	29	11	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.3	J	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	86	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	84		70-130
STL00996	13C2 PFDA	101		70-130

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Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-RW-3178B</u>	Lab Sample ID: <u>320-30330-9</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_045.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 09:35</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>256.2 (mL)</u>	Date Analyzed: <u>08/16/2017 19:15</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179897</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	26	J	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	14	J M	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.8	J	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	124		70-130

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Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-FRB-3178B</u>	Lab Sample ID: <u>320-30330-10</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_048.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 09:30</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>269.4 (mL)</u>	Date Analyzed: <u>08/16/2017 19:29</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179897</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	7.4	U	19	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.3	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	84	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	105		70-130
STL00996	13C2 PFDA	126		70-130

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Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Client Sample ID: WGNA-080117-RW-3325 Lab Sample ID: 320-30330-11
 Matrix: Water	Lab File ID: 2017.08.16_537D_049.d
 Analysis Method: 537	Date Collected: 08/01/2017 10:15
 Extraction Method: 537	Date Extracted: 08/04/2017 09:11
 Sample wt/vol: 252.1(mL)	Date Analyzed: 08/16/2017 19:34
 Con. Extract Vol.: 1.00(mL)	Dilution Factor: 1
 Injection Volume: 2(uL)	GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____	GPC Cleanup: (Y/N) N
 Analysis Batch No.: 179897	Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	17	J M	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	16	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.6	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	127		70-130

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Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-FRB-3325</u>	Lab Sample ID: <u>320-30330-12</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_050.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 10:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>246.9(mL)</u>	Date Analyzed: <u>08/16/2017 19:38</u>
Con. Extract Vol.: <u>1.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179897</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	107		70-130
STL00996	13C2 PFDA	127		70-130

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LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-DUP06</u>	Lab Sample ID: <u>320-30330-13</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_051.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 07:00</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>265 (mL)</u>	Date Analyzed: <u>08/16/2017 19:43</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179897</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	26	J M	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	28	M	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	7.6	J	23	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	15	J	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.1	J	9.4	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	15	J	85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	123		70-130

Michelle J. Ah

9/1/17

APPENDIX B

RESULTS AS REPORTED BY THE LABORATORY

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-RW-0104</u>	Lab Sample ID: <u>320-30330-1</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_035.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 08:00</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>253.5 (mL)</u>	Date Analyzed: <u>08/16/2017 18:27</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179896</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	42		39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	21	M	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	34		30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.4	J	9.9	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	119		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-FRB-0104</u>	Lab Sample ID: <u>320-30330-2</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_036.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 07:55</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>270.6(mL)</u>	Date Analyzed: <u>08/16/2017 18:32</u>
Con. Extract Vol.: <u>1.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179896</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	7.4	U	18	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.2	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	83	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	104		70-130
STL00996	13C2 PFDA	122		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Client Sample ID: WGNA-080117-RW-0443A Lab Sample ID: 320-30330-3
 Matrix: Water Lab File ID: 2017.08.17_537A_029.d
 Analysis Method: 537 Date Collected: 08/01/2017 08:45
 Extraction Method: 537 Date Extracted: 08/04/2017 09:11
 Sample wt/vol: 271.8 (mL) Date Analyzed: 08/17/2017 20:12
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 180242 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	32	J M	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	31		18	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	12		9.2	3.7	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	15	J	83	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	84		70-130
STL00996	13C2 PFDA	97		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-RW-0443B</u>	Lab Sample ID: <u>320-30330-4</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_038.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 08:50</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>269.2 (mL)</u>	Date Analyzed: <u>08/16/2017 18:41</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179896</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	29	J	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	31	M	19	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	13		9.3	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	84	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	119		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Client Sample ID: WGNA-080117-FRB-0443B Lab Sample ID: 320-30330-5
 Matrix: Water Lab File ID: 2017.08.16_537D_039.d
 Analysis Method: 537 Date Collected: 08/01/2017 08:40
 Extraction Method: 537 Date Extracted: 08/04/2017 09:11
 Sample wt/vol: 273.2 (mL) Date Analyzed: 08/16/2017 18:46
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 179896 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	15	6.2
335-67-1	Perfluorooctanoic acid (PFOA)	7.3	U	18	7.3	2.6
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	27	11	5.0
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.2	3.7	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	82	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	122		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-RW-0437</u>	Lab Sample ID: <u>320-30330-6</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_040.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 09:05</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>263.9(mL)</u>	Date Analyzed: <u>08/16/2017 18:51</u>
Con. Extract Vol.: <u>1.00(mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2(uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3(mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179896</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	25	J	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	28	M	19	7.6	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U M	23	19	7.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	15	J	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.0	J	9.5	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	112		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-FRB-0437</u>	Lab Sample ID: <u>320-30330-7</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_041.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 09:00</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>265.2 (mL)</u>	Date Analyzed: <u>08/16/2017 18:56</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179896</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	7.5	U	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.4	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	108		70-130
STL00996	13C2 PFDA	128		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Client Sample ID: WGNA-080117-RW-3178A Lab Sample ID: 320-30330-8
 Matrix: Water Lab File ID: 2017.08.17_537A_030.d
 Analysis Method: 537 Date Collected: 08/01/2017 09:40
 Extraction Method: 537 Date Extracted: 08/04/2017 09:11
 Sample wt/vol: 261.3(mL) Date Analyzed: 08/17/2017 20:17
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 180242 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18	J	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	11	J	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.0	J	29	11	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.3	J	9.6	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	86	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	84		70-130
STL00996	13C2 PFDA	101		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Client Sample ID: WGNA-080117-RW-3178B Lab Sample ID: 320-30330-9
 Matrix: Water Lab File ID: 2017.08.16_537D_045.d
 Analysis Method: 537 Date Collected: 08/01/2017 09:35
 Extraction Method: 537 Date Extracted: 08/04/2017 09:11
 Sample wt/vol: 256.2 (mL) Date Analyzed: 08/16/2017 19:15
 Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 179897 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	26	J	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	14	J M	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.8	J	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	124		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-FRB-3178B</u>	Lab Sample ID: <u>320-30330-10</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_048.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 09:30</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>269.4 (mL)</u>	Date Analyzed: <u>08/16/2017 19:29</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179897</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	7.4	U	19	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.3	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	84	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	105		70-130
STL00996	13C2 PFDA	126		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-RW-3325</u>	Lab Sample ID: <u>320-30330-11</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_049.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 10:15</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>252.1 (mL)</u>	Date Analyzed: <u>08/16/2017 19:34</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179897</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	17	J M	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	16	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.6	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	127		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Client Sample ID: WGNA-080117-FRB-3325 Lab Sample ID: 320-30330-12

Matrix: Water	Lab File ID: 2017.08.16_537D_050.d

Analysis Method: 537	Date Collected: 08/01/2017 10:10

Extraction Method: 537	Date Extracted: 08/04/2017 09:11

Sample wt/vol: 246.9(mL)	Date Analyzed: 08/16/2017 19:38

Con. Extract Vol.: 1.00(mL)	Dilution Factor: 1

Injection Volume: 2(uL)	GC Column: GeminiC18 3x100 ID: 3(mm)

% Moisture: _____	GPC Cleanup: (Y/N) N

Analysis Batch No.: 179897	Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	107		70-130
STL00996	13C2 PFDA	127		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-30330-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-080117-DUP06</u>	Lab Sample ID: <u>320-30330-13</u>
Matrix: <u>Water</u>	Lab File ID: <u>2017.08.16_537D_051.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>08/01/2017 07:00</u>
Extraction Method: <u>537</u>	Date Extracted: <u>08/04/2017 09:11</u>
Sample wt/vol: <u>265 (mL)</u>	Date Analyzed: <u>08/16/2017 19:43</u>
Con. Extract Vol.: <u>1.00 (mL)</u>	Dilution Factor: <u>1</u>
Injection Volume: <u>2 (uL)</u>	GC Column: <u>GeminiC18 3x100 ID: 3 (mm)</u>
% Moisture: _____	GPC Cleanup: (Y/N) <u>N</u>
Analysis Batch No.: <u>179897</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	26	J M	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	28	M	19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	7.6	J	23	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	15	J	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.1	J	9.4	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	15	J	85	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	92		70-130
STL00996	13C2 PFDA	123		70-130

APPENDIX C

SUPPORT DOCUMENTATION

ANALYTE	ORIGINAL	DUPLICATE	RL	RPD	RPD > 30%
PENTADEC AFLUORO OCTANOIC ACID	28	28	19	0.00	FALSE
PERFLUOROBUTANE SULFONATE	34	15	84	77.55	TRUE
PERFLUOROHEPTANOIC ACID	7	7.1	9.4	1.42	FALSE
PERFLUOROHXANESULFONIC ACID	15	15	28	0.00	FALSE
PERFLUORONONANOIC ACID	19	7.6	22	85.71	TRUE
PERFLUORO OCTANE SULFONIC ACID	25	26	37	3.92	FALSE

ORIGINAL SAMPLE CONC >2xRL	DUPLICATE SAMPLE CONC >2xRL	DIFFERENCE >2xRL
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE
FALSE	FALSE	FALSE

SDG 320-30330-1

WGNA-080117-DUP06/WGNA-080117-RW-0437

NASJRB WILLOW GROVE
SDG 320-30330-1

SAMPLE IDENTIFICATION

WGNA-080117-RW-0104

COMPOUND

PERFLUOROOCTANE SULFONIC ACID

COMPOUND AREA 1941436

INTERNAL STANDARD AMOUNT (ng/ml) 28.7

DILUTION FACTOR 1

INTERNAL STANDARD AREA 5607046

AVERAGE RRF 0.9236

SAMPLE VOLUME (ml) 253.5

VOLUME EXTRACT (ml) 1

VOLUME INJECTED (μl) 1

ml to L 1000

CONCENTRATION = 42.44 μg/L

$1941436 \times 28.7\text{ng/ml} \times 1000\text{ml} \times 1 / (5607046 \times 0.9236 \times 253.5\text{ml} \times 1\text{L})$

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\2017.08.16_537D_035.d
 Lims ID: 320-30330-A-1-A
 Client ID: WGNA-080117-RW-0104
 Sample Type: Client
 Inject. Date: 16-Aug-2017 18:27:28 ALS Bottle#: 27 Worklist Smp#: 28
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-30330-a-1-a
 Misc. Info.: Plate: 1 Rack: 4
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20170817-46803.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 17-Aug-2017 15:26:21 Calib Date: 14-Aug-2017 13:12:40
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20170814-46675.b\2017.08.14_537ICAL_007.d
 Column 1 : Det: EXP1
 Process Host: XAWRK030

First Level Reviewer: barnettj

Date: 17-Aug-2017 13:09:32

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.434	1.453	-0.019	1.000	544403	2.48		120	
298.90 > 99.00	1.434	1.453	-0.019	1.000	347217		1.57(0.00-0.00)	130	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.582	-0.004	1.000	1845908	9.18		5877	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.737	1.742	-0.005	1.000	2514363	8.61		573	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.737	1.742	-0.005	1.000	262640	1.63		29.3	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.935	1.955	-0.020	1.000	928967	5.45		44.9	M
413.00 > 169.00	1.935	1.955	-0.020	1.000	541758		1.71(0.00-0.00)	826	M
* 6 13C2-PFOA									
415.00 > 370.00	1.935	1.955	-0.020		1881263	10.0		5963	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.162	2.155	0.007	1.000	1941436	10.8		708	
499.00 > 99.00	2.162	2.155	0.007	1.000	394660		4.92(0.00-0.00)	305	
* 7 13C4 PFOS									
503.00 > 80.00	2.162	2.205	-0.043		5607046	28.7		3847	
9 Perfluorononanoic acid									
463.00 > 419.00	2.170	2.213	-0.043	1.000	54168	0.5083		4.1	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.354	-0.040	1.000	1318553	11.9		5841	

TestAmerica Sacramento

880 Riverside Parkway

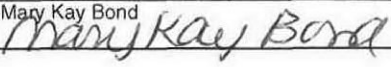
West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

Chain of Custody Record
TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☒ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact			Project Manager: Andy Frebowitz			Site Contact: Mary Kay Bond			Date: 8/1/17			COC No:		
TetraTech			Tel/Fax: 610.382.1170			Lab Contact: Dave Alltucker			Carrier: FedEx			1 of 2 COCs		
234 Mall Boulevard Suite 260			Analysis Turnaround Time			 320-30330 Chain of Custody			For Lab Use Only: Walk-in Client: Lab Sampling: 			Job / SDG No.: 		
King of Prussia, PA 19406			☐ CALENDAR DAYS ☐ WORKING DAYS											
610-382-1174			TAT if different from Below 21											
610-491-9688			☐ 2 weeks ☐ 1 week ☐ 2 days ☐ 1 day											
Project Name: WE04														
Site: WE04														
P O # 1132358 (through EarthToxics)														
Sample Identification			Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	EPA 537 UCMR3	Sample Specific Notes:			
WGNA-080117-RW-0104			8/1/2017	8:00	G	DW	2	N	N	Y				
WGNA-080117-FRB-0104			8/1/2017	7:55	G	DW	2	N	N	Y	Field Reagent Blank			
WGNA-080117-RW-0443A			8/1/2017	8:45	G	DW	2	N	N	Y				
WGNA-080117-RW-0443B			8/1/2017	8:50	G	DW	2	N	N	Y				
WGNA-080117-FRB-0443B			8/1/2017	8:40	G	BLK	2	N	N	Y	Field Reagent Blank			
WGNA-080117-RW-0437			8/1/2017	9:05	G	DW	2	N	N	Y				
WGNA-080117-FRB-0437			8/1/2017	9:00	G	BLK	2	N	N	Y	Field Reagent Blank			
WGNA-080117-RW-3178A			8/1/2017	9:40	G	DW	2	N	N	Y				
WGNA-080117-RW-3178B			8/1/2017	9:35	G	DW	6	N	Y	Y	MS/MSD			
WGNA-080117-FRB-3178B			8/1/2017	9:30	G	BLK	2	N	N	Y	Field Reagent Blank			
WGNA-080117-RW-3325			8/1/2017	10:15	G	DW	2	N	N	Y				
WGNA-080117-FRB-3325			8/1/2017	10:10	G	BLK	2	N	N	Y	Field Reagent Blank			
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other: Trizma														
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.												Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) ☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months		
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown														
Fed Ex Tracking: 7449 6194 4101 7449 6194 4112														
Custody Seals Intact: ☐ Yes ☐ No			Custody Seal No.:			Cooler Temp. (°C): Obs'd: 3.4			Corr'd: _____			Therm ID No.: AP-2		
Relinquished by: Mary Kay Bond			Company: Tetra Tech			Date/Time: 8/1/17 18:00			Received by: 			Company: T.A.S.		
Relinquished by: 			Company:			Date/Time:			Received by:			Company:		
Relinquished by:			Company:			Date/Time:			Received in Laboratory by:			Company:		

Chain of Custody Record

Regulatory Program: ☒ DW ☐ NPDES ☐ RCRA ☐ Other:[illegible]

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-30330-1

Login Number: 30330

List Source: TestAmerica Sacramento

List Number: 1

Creator: Edman, Connor M

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Job Narrative
320-30330-1

Receipt

The samples were received on 8/2/2017 11:10 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 2.3° C and 3.4° C.

LCMS

Method(s) 537: The first level standard from the initial calibration curve is used to evaluate the tune criteria. The instrument mass windows are set at +/- 0.5amu; therefore, detection of the analyte serves as verification that the assigned mass is within +/- 0.5amu of the true value, which meets the DoD/DOE QSM tune criterion.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-30330-1

Qualifiers

LCMS

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Sample Summary

Client: Tetra Tech, Inc.

TestAmerica Job ID: 320-30330-1

Project/Site: Warminster: PFAS, NAS JRB Willow Grove

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-30330-1	WGNA-080117-RW-0104	Water	08/01/17 08:00	08/02/17 11:10
320-30330-2	WGNA-080117-FRB-0104	Water	08/01/17 07:55	08/02/17 11:10
320-30330-3	WGNA-080117-RW-0443A	Water	08/01/17 08:45	08/02/17 11:10
320-30330-4	WGNA-080117-RW-0443B	Water	08/01/17 08:50	08/02/17 11:10
320-30330-5	WGNA-080117-FRB-0443B	Water	08/01/17 08:40	08/02/17 11:10
320-30330-6	WGNA-080117-RW-0437	Water	08/01/17 09:05	08/02/17 11:10
320-30330-7	WGNA-080117-FRB-0437	Water	08/01/17 09:00	08/02/17 11:10
320-30330-8	WGNA-080117-RW-3178A	Water	08/01/17 09:40	08/02/17 11:10
320-30330-9	WGNA-080117-RW-3178B	Water	08/01/17 09:35	08/02/17 11:10
320-30330-10	WGNA-080117-FRB-3178B	Water	08/01/17 09:30	08/02/17 11:10
320-30330-11	WGNA-080117-RW-3325	Water	08/01/17 10:15	08/02/17 11:10
320-30330-12	WGNA-080117-FRB-3325	Water	08/01/17 10:10	08/02/17 11:10
320-30330-13	WGNA-080117-DUP06	Water	08/01/17 07:00	08/02/17 11:10

Method Summary

Client: Tetra Tech, Inc.
Project/Site: Warminster: PFAS, NAS JRB Willow Grove

TestAmerica Job ID: 320-30330-1

Method	Method Description	Protocol	Laboratory
537	Perfluorinated Alkyl Acids (LC/MS)	EPA	TAL SAC

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL SAC = TestAmerica Sacramento, 880 Riverside Parkway, West Sacramento, CA 95605, TEL (916)373-5600

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Matrix: Water Level: Low

GC Column (1): GeminiC18 3 ID: 3 (mm)

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
WGNA-080117-RW-0104	320-30330-1	92	119
WGNA-080117-FRB-0104	320-30330-2	104	122
WGNA-080117-RW-0443A	320-30330-3	84	97
WGNA-080117-RW-0443B	320-30330-4	86	119
WGNA-080117-FRB-0443B	320-30330-5	103	122
WGNA-080117-RW-0437	320-30330-6	91	112
WGNA-080117-FRB-0437	320-30330-7	108	128
WGNA-080117-RW-3178A	320-30330-8	84	101
WGNA-080117-RW-3178B	320-30330-9	87	124
WGNA-080117-FRB-3178B	320-30330-10	105	126
WGNA-080117-RW-3325	320-30330-11	94	127
WGNA-080117-FRB-3325	320-30330-12	107	127
WGNA-080117-DUP06	320-30330-13	92	123
	MB 320-177692/1-A	101	123
	LLCS 320-177692/2-A	100	116
WGNA-080117-RW-3178B LMS	320-30330-9 LMS	93	126
WGNA-080117-RW-3178B LMSD	320-30330-9 LMSD	91	121

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

QC LIMITS
70-130
70-130

Column to be used to flag recovery values

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 08/14/2017 12:48
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 08/14/2017 13:12
 Calibration ID: 33517

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		2250916	1.95	5850602	2.21		
UPPER LIMIT		3376374	2.45	8775903	2.71		
LOWER LIMIT		1125458	1.45	2925301	1.71		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-179319/9		2177935	1.94	5998180	2.20		
ICV 320-179319/11		1980065	1.94	5824653	2.19		
CCVL 320-179695/4		2440436	1.99	6032262	2.21		
CCV 320-179896/24 CCVIS		1836809	1.94	5523414	2.16		
MB 320-177692/1-A		1923796	1.94	5541173	2.17		
LLCS 320-177692/2-A		1919068	1.94	5641559	2.16		
320-30330-1	WGNA-080117-RW-0104	1881263	1.94	5607046	2.16		
320-30330-2	WGNA-080117-FRB-0104	1857683	1.94	5634366	2.17		
320-30330-4	WGNA-080117-RW-0443B	1873256	1.94	5761889	2.16		
320-30330-5	WGNA-080117-FRB-0443B	1944014	1.94	5834473	2.16		
320-30330-6	WGNA-080117-RW-0437	1880459	1.94	5905510	2.17		
320-30330-7	WGNA-080117-FRB-0437	1870664	1.94	5692153	2.16		
CCV 320-179896/36 CCVIS		1862875	1.94	5497046	2.17		
CCV 320-179897/36 CCVIS		1862875	1.94	5497046	2.17		
320-30330-9	WGNA-080117-RW-3178B	1920039	1.93	5812728	2.16		
320-30330-9 LMS	WGNA-080117-RW-3178B LMS	1825362	1.94	5550935	2.16		
320-30330-9 LMSD	WGNA-080117-RW-3178B LMSD	1788426	1.93	5486328	2.16		
320-30330-10	WGNA-080117-FRB-3178B	1934711	1.94	5721899	2.16		
320-30330-11	WGNA-080117-RW-3325	1896233	1.93	5969288	2.16		
320-30330-12	WGNA-080117-FRB-3325	1918706	1.93	5887015	2.16		
320-30330-13	WGNA-080117-DUP06	1771373	1.93	5539091	2.16		
CCV 320-179897/45 CCVIS		1811420	1.93	5562915	2.16		

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 50%-150% of internal standard area

RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Sample No.: CCV 320-179896/24 Date Analyzed: 08/16/2017 18:08
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.08.16_537D_031 Heated Purge: (Y/N) N
 Calibration ID: 33517

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	1836809	1.94	5523414	2.16		
UPPER LIMIT	2571533	2.44	7732780	2.66		
LOWER LIMIT	1285766	1.44	3866390	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-177692/1-A		1923796	1.94	5541173	2.17	
LLCS 320-177692/2-A		1919068	1.94	5641559	2.16	
320-30330-1	WGNA-080117-RW-0104	1881263	1.94	5607046	2.16	
320-30330-2	WGNA-080117-FRB-0104	1857683	1.94	5634366	2.17	
320-30330-4	WGNA-080117-RW-0443B	1873256	1.94	5761889	2.16	
320-30330-5	WGNA-080117-FRB-0443B	1944014	1.94	5834473	2.16	
320-30330-6	WGNA-080117-RW-0437	1880459	1.94	5905510	2.17	
320-30330-7	WGNA-080117-FRB-0437	1870664	1.94	5692153	2.16	

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area

RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Sample No.: CCV 320-179896/36 Date Analyzed: 08/16/2017 19:05
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.08.16_537D_043 Heated Purge: (Y/N) N
 Calibration ID: 33517

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1862875	1.94	5497046	2.17		
UPPER LIMIT		2608025	2.44	7695864	2.67		
LOWER LIMIT		1304013	1.44	3847932	1.67		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-177692/1-A		1923796	1.94	5541173	2.17		
LLCS 320-177692/2-A		1919068	1.94	5641559	2.16		
320-30330-1	WGNA-080117-RW-0104	1881263	1.94	5607046	2.16		
320-30330-2	WGNA-080117-FRB-0104	1857683	1.94	5634366	2.17		
320-30330-4	WGNA-080117-RW-0443B	1873256	1.94	5761889	2.16		
320-30330-5	WGNA-080117-FRB-0443B	1944014	1.94	5834473	2.16		
320-30330-6	WGNA-080117-RW-0437	1880459	1.94	5905510	2.17		
320-30330-7	WGNA-080117-FRB-0437	1870664	1.94	5692153	2.16		

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area

RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Sample No.: CCV 320-179897/36 Date Analyzed: 08/16/2017 19:05
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.08.16_537D_043 Heated Purge: (Y/N) N
 Calibration ID: 33517

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		1862875	1.94	5497046	2.17		
UPPER LIMIT		2608025	2.44	7695864	2.67		
LOWER LIMIT		1304013	1.44	3847932	1.67		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-30330-9	WGNA-080117-RW-3178B	1920039	1.93	5812728	2.16		
320-30330-9 LMS	WGNA-080117-RW-3178B LMS	1825362	1.94	5550935	2.16		
320-30330-9 LMSD	WGNA-080117-RW-3178B LMSD	1788426	1.93	5486328	2.16		
320-30330-10	WGNA-080117-FRB-3178B	1934711	1.94	5721899	2.16		
320-30330-11	WGNA-080117-RW-3325	1896233	1.93	5969288	2.16		
320-30330-12	WGNA-080117-FRB-3325	1918706	1.93	5887015	2.16		
320-30330-13	WGNA-080117-DUP06	1771373	1.93	5539091	2.16		

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area

RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Sample No.: CCV 320-179897/45 Date Analyzed: 08/16/2017 19:48
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.08.16_537D_052 Heated Purge: (Y/N) N
 Calibration ID: 33517

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	1811420	1.93	5562915	2.16		
UPPER LIMIT	2535988	2.43	7788081	2.66		
LOWER LIMIT	1267994	1.43	3894041	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-30330-9	WGNA-080117-RW-3178B	1920039	1.93	5812728	2.16	
320-30330-9 LMS	WGNA-080117-RW-3178B LMS	1825362	1.94	5550935	2.16	
320-30330-9 LMSD	WGNA-080117-RW-3178B LMSD	1788426	1.93	5486328	2.16	
320-30330-10	WGNA-080117-FRB-3178B	1934711	1.94	5721899	2.16	
320-30330-11	WGNA-080117-RW-3325	1896233	1.93	5969288	2.16	
320-30330-12	WGNA-080117-FRB-3325	1918706	1.93	5887015	2.16	
320-30330-13	WGNA-080117-DUP06	1771373	1.93	5539091	2.16	

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area

RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 08/17/2017 17:07
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 08/17/2017 17:30
 Calibration ID: 33656

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		1895140	1.93	5625431	2.18		
UPPER LIMIT		2842710	2.43	8438147	2.68		
LOWER LIMIT		947570	1.43	2812716	1.68		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-180236/9		2135014	1.91	5637183	2.17		
ICV 320-180236/11		1977664	1.90	5748034	2.16		
CCV 320-180242/27 CCVIS		1827584	1.90	5546997	2.16		
320-30330-3	WGNA-080117-RW-0443A	2017988	1.90	5762356	2.16		
320-30330-8	WGNA-080117-RW-3178A	1859989	1.90	5454663	2.15		
CCV 320-180242/32 CCVIS		1833952	1.89	5482835	2.15		

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

Area Limit = 50%-150% of internal standard area

RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Sample No.: CCV 320-180242/27 Date Analyzed: 08/17/2017 20:03
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.08.17_537A_027 Heated Purge: (Y/N) N
 Calibration ID: 33656

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	1827584	1.90	5546997	2.16		
UPPER LIMIT	2558618	2.40	7765796	2.66		
LOWER LIMIT	1279309	1.40	3882898	1.66		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-30330-3	WGNA-080117-RW-0443A	2017988	1.90	5762356	2.16	
320-30330-8	WGNA-080117-RW-3178A	1859989	1.90	5454663	2.15	

13PFOA = 13C2-PFOA
 PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
 RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Sample No.: CCV 320-180242/32 Date Analyzed: 08/17/2017 20:26
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2017.08.17_537A_032 Heated Purge: (Y/N) N
 Calibration ID: 33656

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	1833952	1.89	5482835	2.15		
UPPER LIMIT	2567533	2.39	7675969	2.65		
LOWER LIMIT	1283766	1.39	3837985	1.65		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-30330-3	WGNA-080117-RW-0443A	2017988	1.90	5762356	2.16	
320-30330-8	WGNA-080117-RW-3178A	1859989	1.90	5454663	2.15	

13PFOA = 13C2-PFOA
 PFOS = 13C4 PFOS

Area Limit = 70%-140% of internal standard area
 RT Limit = $\pm$ 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab File ID: 2017.08.16_537D_033.d Lab Sample ID: MB 320-177692/1-A
 Matrix: Water Date Extracted: 08/04/2017 09:11
 Instrument ID: A8_N Date Analyzed: 08/16/2017 18:17
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LLCS 320-177692/2-A	2017.08.16_537D 034.d	08/16/2017 18:22
WGNA-080117-RW-0104	320-30330-1	2017.08.16_537D 035.d	08/16/2017 18:27
WGNA-080117-FRB-0104	320-30330-2	2017.08.16_537D 036.d	08/16/2017 18:32
WGNA-080117-RW-0443B	320-30330-4	2017.08.16_537D 038.d	08/16/2017 18:41
WGNA-080117-FRB-0443B	320-30330-5	2017.08.16_537D 039.d	08/16/2017 18:46
WGNA-080117-RW-0437	320-30330-6	2017.08.16_537D 040.d	08/16/2017 18:51
WGNA-080117-FRB-0437	320-30330-7	2017.08.16_537D 041.d	08/16/2017 18:56
WGNA-080117-RW-3178B	320-30330-9	2017.08.16_537D 045.d	08/16/2017 19:15
WGNA-080117-RW-3178B LMS	320-30330-9 LMS	2017.08.16_537D 046.d	08/16/2017 19:19
WGNA-080117-RW-3178B LMSD	320-30330-9 LMSD	2017.08.16_537D 047.d	08/16/2017 19:24
WGNA-080117-FRB-3178B	320-30330-10	2017.08.16_537D 048.d	08/16/2017 19:29
WGNA-080117-RW-3325	320-30330-11	2017.08.16_537D 049.d	08/16/2017 19:34
WGNA-080117-FRB-3325	320-30330-12	2017.08.16_537D 050.d	08/16/2017 19:38
WGNA-080117-DUP06	320-30330-13	2017.08.16_537D 051.d	08/16/2017 19:43
WGNA-080117-RW-0443A	320-30330-3	2017.08.17_537A 029.d	08/17/2017 20:12
WGNA-080117-RW-3178A	320-30330-8	2017.08.17_537A 030.d	08/17/2017 20:17

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Client Sample ID: _____ Lab Sample ID: MB 320-177692/1-A

Matrix: Water Lab File ID: 2017.08.16_537D_033.d

Analysis Method: 537 Date Collected: _____

Extraction Method: 537 Date Extracted: 08/04/2017 09:11

Sample wt/vol: 250 (mL) Date Analyzed: 08/16/2017 18:17

Con. Extract Vol.: 1.00 (mL) Dilution Factor: 1

Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)

% Moisture: _____ GPC Cleanup: (Y/N) N

Analysis Batch No.: 179896 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	8.0	U	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	123		70-130

FORM III
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.08.16_537D_034.d
 Lab ID: LLCS 320-177692/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LLCS CONCENTRATION (ng/L)	LLCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	40.0	41.0	102	50-150	
Perfluorooctanoic acid (PFOA)	20.0	18.1 J	91	50-150	
Perfluorononanoic acid (PFNA)	19.3	22.7 J	118	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.1	29.5 J	98	50-150	
Perfluoroheptanoic acid (PFHpA)	9.90	11.2	113	50-150	
Perfluorobutanesulfonic acid (PFBS)	88.3	92.1	104	50-150	

Column to be used to flag recovery and RPD values

FORM III
LCMS LOW LEVEL MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.08.16_537D_046.d
 Lab ID: 320-30330-9 LMS Client ID: WGNA-080117-RW-3178B LMS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	LMS CONCENTRATION (ng/L)	LMS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	38.3	26 J	66.7	107	50-150	
Perfluorooctanoic acid (PFOA)	19.1	14 J	33.0	99	50-150	M
Perfluorononanoic acid (PFNA)	18.4	20 U	24.4	132	50-150	
Perfluorohexanesulfonic acid (PFHxS)	28.7	7.8 J	34.8	94	50-150	
Perfluoroheptanoic acid (PFHpA)	9.46	3.9 J	13.2	99	50-150	
Perfluorobutanesulfonic acid (PFBS)	84.4	35 U	91.9	109	50-150	

Column to be used to flag recovery and RPD values

FORM III
LCMS LOW LEVEL MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2017.08.16_537D_047.d
 Lab ID: 320-30330-9 LMSD Client ID: WGNA-080117-RW-3178B LMSD

COMPOUND	SPIKE ADDED (ng/L)	LMSD CONCENTRATION (ng/L)	LMSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	37.7	66.0	107	1	50	50-150	M
Perfluorooctanoic acid (PFOA)	18.8	32.8	99	1	50	50-150	M
Perfluorononanoic acid (PFNA)	18.2	25.2	139	3	50	50-150	
Perfluorohexanesulfonic acid (PFHxS)	28.3	34.9	96	0	50	50-150	
Perfluoroheptanoic acid (PFHpA)	9.33	13.9	107	5	50	50-150	
Perfluorobutanesulfonic acid (PFBS)	83.3	89.8	108	2	50	50-150	

Column to be used to flag recovery and RPD values

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-30330-1

SDG No.: _____

Instrument ID: A8_NStart Date: 08/14/2017 12:48Analysis Batch Number: 179319End Date: 08/14/2017 13:31

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-179319/2		08/14/2017 12:48	1	2017.08.14_537I CAL 002.d	GeminiC18 3x100 3(mm)
IC 320-179319/3		08/14/2017 12:53	1	2017.08.14_537I CAL 003.d	GeminiC18 3x100 3(mm)
IC 320-179319/4		08/14/2017 12:58	1	2017.08.14_537I CAL 004.d	GeminiC18 3x100 3(mm)
IC 320-179319/5 ICISAV		08/14/2017 13:03	1	2017.08.14_537I CAL 005.d	GeminiC18 3x100 3(mm)
IC 320-179319/6		08/14/2017 13:07	1	2017.08.14_537I CAL 006.d	GeminiC18 3x100 3(mm)
IC 320-179319/7		08/14/2017 13:12	1	2017.08.14_537I CAL 007.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/14/2017 13:17	1		GeminiC18 3x100 3(mm)
CCVL 320-179319/9		08/14/2017 13:22	1	2017.08.14_537I CAL 009.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/14/2017 13:26	1		GeminiC18 3x100 3(mm)
ICV 320-179319/11		08/14/2017 13:31	1	2017.08.14_537I CAL 011.d	GeminiC18 3x100 3(mm)

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1 Analy Batch No.: 179319

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/14/2017 12:48 Calibration End Date: 08/14/2017 13:12 Calibration ID: 33517

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-179319/2	2017.08.14_537ICAL_002.d
Level 2	IC 320-179319/3	2017.08.14_537ICAL_003.d
Level 3	IC 320-179319/4	2017.08.14_537ICAL_004.d
Level 4	IC 320-179319/5	2017.08.14_537ICAL_005.d
Level 5	IC 320-179319/6	2017.08.14_537ICAL_006.d
Level 6	IC 320-179319/7	2017.08.14_537ICAL_007.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanesulfonic acid (PFBS)	1.1417 0.7313	1.1495	1.0943	0.9210	0.7959	QuaF		1.1266	-0.002254						0.9980		0.9600
Perfluoroheptanoic acid (PFHpA)	0.8346 0.8325	0.8724	0.8737	0.8715	0.8517	Ave		0.8560				2.2		30.0			
Perfluorohexanesulfonic acid (PFHxS)	1.4757 1.3970	1.5378	1.5080	1.5703	1.4756	Ave		1.4941				4.0		30.0			
Perfluorooctanoic acid (PFOA)	0.8851 0.9102	0.8837	0.8984	0.9375	0.9261	Ave		0.9068				2.4		30.0			
Perfluorooctanesulfonic acid (PFOS)	0.8922 0.9252	0.9148	0.9148	0.9461	0.9486	Ave		0.9236				2.3		30.0			
Perfluorononanoic acid (PFNA)	0.5491 0.5714	0.5670	0.5764	0.5665	0.5686	Ave		0.5665				1.6		30.0			
13C2 PFHxA	1.0141 1.0999	1.0032	1.0998	1.0933	1.1053	Ave		1.0693				4.4		30.0			
13C2 PFDA	0.5512 0.6012	0.5785	0.5919	0.5906	0.6127	Ave		0.5877				3.6		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1 Analy Batch No.: 179319

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/14/2017 12:48 Calibration End Date: 08/14/2017 13:12 Calibration ID: 33517

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-179319/2	2017.08.14_537ICAL_002.d
Level 2	IC 320-179319/3	2017.08.14_537ICAL_003.d
Level 3	IC 320-179319/4	2017.08.14_537ICAL_004.d
Level 4	IC 320-179319/5	2017.08.14_537ICAL_005.d
Level 5	IC 320-179319/6	2017.08.14_537ICAL_006.d
Level 6	IC 320-179319/7	2017.08.14_537ICAL_007.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluorobutanesulfonic acid (PFBS)	PFOS	QuaF	2176776 26040065	4858409	10071471	16707104	21165476	9.00 180	20.0	45.0	90.0	135
Perfluoroheptanoic acid (PFHpA)	13PF OA	Ave	198176 3589599	455479	965342	1966143	2763295	1.00 20.0	2.22	5.00	10.0	15.0
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	938005 16584369	2166866	4626981	9496666	13083092	3.00 60.0	6.67	15.0	30.0	45.0
Perfluorooctanoic acid (PFOA)	13PF OA	Ave	420599 7854398	923370	1986507	4232647	6012905	2.00 40.0	4.45	10.0	20.0	30.0
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	756213 14645432	1718775	3742396	7629588	11213929	4.00 80.0	8.89	20.0	40.0	60.0
Perfluorononanoic acid (PFNA)	13PF OA	Ave	260762 4927051	592024	1273686	2556105	3689416	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PF OA	Ave	2407096 2370885	2356458	2429839	2465941	2390227	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PF OA	Ave	1308306 1295768	1358920	1307668	1332089	1324957	10.0 10.0	10.0	10.0	10.0	10.0

Curve Type Legend:

Ave = Average ISTD
QuaF = Quadratic ISTD forced zero

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-179319/9 Calibration Date: 08/14/2017 13:22
 Instrument ID: A8_N Calib Start Date: 08/14/2017 12:48
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/14/2017 13:12
 Lab File ID: 2017.08.14_537ICAL_009.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.212		22.5	20.0	12.7	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.8560	0.9386		2.44	2.22	9.6	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.494	1.568		7.00	6.67	4.9	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9068	0.9308		4.57	4.45	2.6	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9236	0.9255		8.91	8.89	0.2	50.0
Perfluorononanoic acid (PFNA)	Ave	0.5665	0.6283		4.93	4.45	10.9	50.0
13C2 PFHxA	Ave	1.069	1.128		10.5	10.0	5.5	30.0
13C2 PFDA	Ave	0.5877	0.6289		10.7	10.0	7.0	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: ICV 320-179319/11 Calibration Date: 08/14/2017 13:31
 Instrument ID: A8_N Calib Start Date: 08/14/2017 12:48
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/14/2017 13:12
 Lab File ID: 2017.08.14_537ICAL_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9251		104	100	3.6	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.8560	0.9672		11.3	10.0	13.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.494	1.761		23.7	20.1	17.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9068	0.9396		21.2	20.5	3.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.5665	0.7333		26.1	20.1	29.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9236	1.121		23.9	19.7	21.3	30.0
13C2 PFHxA	Ave	1.069	1.124		10.5	10.0	5.1	30.0
13C2 PFDA	Ave	0.5877	0.6385		10.9	10.0	8.7	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Instrument ID: A8_N Start Date: 08/16/2017 09:11Analysis Batch Number: 179695 End Date: 08/16/2017 10:13

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-179695/4		08/16/2017 09:11	1	2017.08.15_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-179695/5 CCVIS		08/16/2017 09:16	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 09:21	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 09:26	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 09:30	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 09:35	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 09:40	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 09:45	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 09:49	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 09:54	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 09:59	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 10:04	1		GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 10:08	1		GeminiC18 3x100 3(mm)
CCV 320-179695/17 CCVIS		08/16/2017 10:13	1		GeminiC18 3x100 3(mm)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-179695/4 Calibration Date: 08/16/2017 09:11
 Instrument ID: A8_N Calib Start Date: 08/14/2017 12:48
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/14/2017 13:12
 Lab File ID: 2017.08.15_537A_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.167		21.7	20.0	8.3	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.8560	0.7567		1.96	2.22	-11.6	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.494	1.526		6.81	6.67	2.2	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9068	0.9013		4.42	4.45	-0.6	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9236	0.9279		8.93	8.89	0.5	50.0
Perfluorononanoic acid (PFNA)	Ave	0.5665	0.5763		4.52	4.45	1.7	50.0
13C2 PFHxA	Ave	1.069	0.9803		9.17	10.0	-8.3	30.0
13C2 PFDA	Ave	0.5877	0.6186		10.5	10.0	5.3	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-30330-1

SDG No.: _____

Instrument ID: A8_NStart Date: 08/16/2017 18:08Analysis Batch Number: 179896End Date: 08/16/2017 19:05

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-179896/24 CCVIS		08/16/2017 18:08	1	2017.08.16_537D 031.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 18:13	1		GeminiC18 3x100 3(mm)
MB 320-177692/1-A		08/16/2017 18:17	1	2017.08.16_537D 033.d	GeminiC18 3x100 3(mm)
LLCS 320-177692/2-A		08/16/2017 18:22	1	2017.08.16_537D 034.d	GeminiC18 3x100 3(mm)
320-30330-1		08/16/2017 18:27	1	2017.08.16_537D 035.d	GeminiC18 3x100 3(mm)
320-30330-2		08/16/2017 18:32	1	2017.08.16_537D 036.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 18:36	1		GeminiC18 3x100 3(mm)
320-30330-4		08/16/2017 18:41	1	2017.08.16_537D 038.d	GeminiC18 3x100 3(mm)
320-30330-5		08/16/2017 18:46	1	2017.08.16_537D 039.d	GeminiC18 3x100 3(mm)
320-30330-6		08/16/2017 18:51	1	2017.08.16_537D 040.d	GeminiC18 3x100 3(mm)
320-30330-7		08/16/2017 18:56	1	2017.08.16_537D 041.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 19:00	1		GeminiC18 3x100 3(mm)
CCV 320-179896/36 CCVIS		08/16/2017 19:05	1	2017.08.16_537D 043.d	GeminiC18 3x100 3(mm)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: CCV 320-179896/24 Calibration Date: 08/16/2017 18:08
 Instrument ID: A8_N Calib Start Date: 08/14/2017 12:48
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/14/2017 13:12
 Lab File ID: 2017.08.16_537D_031.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.7908		127	135	-5.9	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.8560	0.9280		16.3	15.0	8.4	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.494	1.496		45.1	45.0	0.1	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9068	0.9266		30.7	30.0	2.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9236	0.9409		61.1	60.0	1.9	30.0
Perfluorononanoic acid (PFNA)	Ave	0.5665	0.6437		34.1	30.0	13.6	30.0
13C2 PFHxA	Ave	1.069	1.204		11.3	10.0	12.6	30.0
13C2 PFDA	Ave	0.5877	0.7018		11.9	10.0	19.4	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Instrument ID: A8_N Start Date: 08/16/2017 19:05Analysis Batch Number: 179897 End Date: 08/16/2017 19:48

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-179897/36 CCVIS		08/16/2017 19:05	1	2017.08.16_537D 043.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/16/2017 19:10	1		GeminiC18 3x100 3(mm)
320-30330-9		08/16/2017 19:15	1	2017.08.16_537D 045.d	GeminiC18 3x100 3(mm)
320-30330-9 LMS		08/16/2017 19:19	1	2017.08.16_537D 046.d	GeminiC18 3x100 3(mm)
320-30330-9 LMSD		08/16/2017 19:24	1	2017.08.16_537D 047.d	GeminiC18 3x100 3(mm)
320-30330-10		08/16/2017 19:29	1	2017.08.16_537D 048.d	GeminiC18 3x100 3(mm)
320-30330-11		08/16/2017 19:34	1	2017.08.16_537D 049.d	GeminiC18 3x100 3(mm)
320-30330-12		08/16/2017 19:38	1	2017.08.16_537D 050.d	GeminiC18 3x100 3(mm)
320-30330-13		08/16/2017 19:43	1	2017.08.16_537D 051.d	GeminiC18 3x100 3(mm)
CCV 320-179897/45 CCVIS		08/16/2017 19:48	1	2017.08.16_537D 052.d	GeminiC18 3x100 3(mm)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: CCV 320-179896/36 Calibration Date: 08/16/2017 19:05
 Instrument ID: A8_N Calib Start Date: 08/14/2017 12:48
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/14/2017 13:12
 Lab File ID: 2017.08.16_537D_043.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.093		48.3	45.0	7.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.8560	0.9138		5.34	5.00	6.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.494	1.568		15.7	15.0	4.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9068	0.8895		9.82	10.0	-1.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9236	0.9421		20.4	20.0	2.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.5665	0.6496		11.5	10.0	14.7	30.0
13C2 PFHxA	Ave	1.069	1.193		11.2	10.0	11.5	30.0
13C2 PFDA	Ave	0.5877	0.6864		11.7	10.0	16.8	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: CCV 320-179897/36 Calibration Date: 08/16/2017 19:05
 Instrument ID: A8_N Calib Start Date: 08/14/2017 12:48
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/14/2017 13:12
 Lab File ID: 2017.08.16_537D_043.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.093		48.3	45.0	7.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.8560	0.9138		5.34	5.00	6.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.494	1.568		15.7	15.0	4.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9068	0.8895		9.82	10.0	-1.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9236	0.9421		20.4	20.0	2.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.5665	0.6496		11.5	10.0	14.7	30.0
13C2 PFHxA	Ave	1.069	1.193		11.2	10.0	11.5	30.0
13C2 PFDA	Ave	0.5877	0.6864		11.7	10.0	16.8	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: CCV 320-179897/45 Calibration Date: 08/16/2017 19:48
 Instrument ID: A8_N Calib Start Date: 08/14/2017 12:48
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/14/2017 13:12
 Lab File ID: 2017.08.16_537D_052.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.7972		129	135	-4.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.8560	0.9273		16.3	15.0	8.3	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.494	1.468		44.2	45.0	-1.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9068	0.9302		30.8	30.0	2.6	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9236	0.9166		59.6	60.0	-0.8	30.0
Perfluorononanoic acid (PFNA)	Ave	0.5665	0.6502		34.4	30.0	14.8	30.0
13C2 PFHxA	Ave	1.069	1.254		11.7	10.0	17.3	30.0
13C2 PFDA	Ave	0.5877	0.6899		11.7	10.0	17.4	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Instrument ID: A8_N Start Date: 08/17/2017 17:07Analysis Batch Number: 180236 End Date: 08/17/2017 17:49

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-180236/2		08/17/2017 17:07	1	207.08.17_537A_ 004.d	GeminiC18 3x100 3(mm)
IC 320-180236/3		08/17/2017 17:12	1	207.08.17_537A_ 005.d	GeminiC18 3x100 3(mm)
IC 320-180236/4		08/17/2017 17:16	1	207.08.17_537A_ 006.d	GeminiC18 3x100 3(mm)
IC 320-180236/5 ICISAV		08/17/2017 17:21	1	207.08.17_537A_ 007.d	GeminiC18 3x100 3(mm)
IC 320-180236/6		08/17/2017 17:26	1	207.08.17_537A_ 008.d	GeminiC18 3x100 3(mm)
IC 320-180236/7		08/17/2017 17:30	1	207.08.17_537A_ 009.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/17/2017 17:35	1		GeminiC18 3x100 3(mm)
CCVL 320-180236/9		08/17/2017 17:40	1	207.08.17_537A_ 011.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/17/2017 17:45	1		GeminiC18 3x100 3(mm)
ICV 320-180236/11		08/17/2017 17:49	1	207.08.17_537A_ 013.d	GeminiC18 3x100 3(mm)

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1 Analy Batch No.: 180236

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/17/2017 17:07 Calibration End Date: 08/17/2017 17:30 Calibration ID: 33656

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-180236/2	207.08.17_537A_004.d
Level 2	IC 320-180236/3	207.08.17_537A_005.d
Level 3	IC 320-180236/4	207.08.17_537A_006.d
Level 4	IC 320-180236/5	207.08.17_537A_007.d
Level 5	IC 320-180236/6	207.08.17_537A_008.d
Level 6	IC 320-180236/7	207.08.17_537A_009.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R^2 OR COD	#	MIN R^2 OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanesulfonic acid (PFBS)	1.0927 0.7332	1.1633	1.0611	0.8972	0.7853	QuaF		1.0837	-0.002008						0.9970		0.9600
Perfluoroheptanoic acid (PFHpA)	0.9281 0.8704	0.9794	1.0010	0.9614	0.9085	Ave		0.9415				5.1		30.0			
Perfluorohexanesulfonic acid (PFHxS)	1.4768 1.4556	1.6479	1.5869	1.5645	1.4984	Ave		1.5383				4.8		30.0			
Perfluorooctanoic acid (PFOA)	0.8906 0.9399	0.8695	0.9315	0.9671	0.9064	Ave		0.9175				3.9		30.0			
Perfluorooctanesulfonic acid (PFOS)	0.8621 0.9508	0.9259	0.8962	0.9469	0.9367	Ave		0.9198				3.7		30.0			
Perfluorononanoic acid (PFNA)	0.7073 0.6252	0.7733	0.7934	0.7465	0.6445	Ave		0.7150				9.6		30.0			
13C2 PFHxA	1.1263 1.0730	1.1534	1.1964	1.1363	1.1254	Ave		1.1351				3.6		30.0			
13C2 PFDA	0.7013 0.5669	0.6802	0.7263	0.6486	0.5957	Ave		0.6532				9.5		30.0			

Note: The M1 coefficient is the same as Ave RRF for an Ave curve type.

FORM VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
RESPONSE AND CONCENTRATION

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1 Analy Batch No.: 180236

SDG No.: _____

Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

Calibration Start Date: 08/17/2017 17:07 Calibration End Date: 08/17/2017 17:30 Calibration ID: 33656

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-180236/2	207.08.17_537A_004.d
Level 2	IC 320-180236/3	207.08.17_537A_005.d
Level 3	IC 320-180236/4	207.08.17_537A_006.d
Level 4	IC 320-180236/5	207.08.17_537A_007.d
Level 5	IC 320-180236/6	207.08.17_537A_008.d
Level 6	IC 320-180236/7	207.08.17_537A_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluorobutanesulfonic acid (PFBS)	PFOS	QuaF	1989419 25626485	4448062	9376032	15897968	20788356	9.00 180	20.0	45.0	90.0	135
Perfluoroheptanoic acid (PFHpA)	13PF OA	Ave	167400 3752250	379095	852234	1817435	2833966	1.00 20.0	2.22	5.00	10.0	15.0
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	896364 16959937	2100734	4674793	9242464	13223291	3.00 60.0	6.67	15.0	30.0	45.0
Perfluorooctanoic acid (PFOA)	13PF OA	Ave	321453 8108947	673518	1587046	3658778	5658166	2.00 40.0	4.45	10.0	20.0	30.0
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	697706 14770994	1573826	3519979	7458706	11021657	4.00 80.0	8.89	20.0	40.0	60.0
Perfluorononanoic acid (PFNA)	13PF OA	Ave	255111 5389964	598613	1350886	2822430	4020876	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PF OA	Ave	2030599 2312284	2008624	2036663	2147570	2339905	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PF OA	Ave	1264490 1221662	1184489	1236464	1225880	1238610	10.0 10.0	10.0	10.0	10.0	10.0

Curve Type Legend:

Ave = Average ISTD
QuaF = Quadratic ISTD forced zero

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: ICV 320-180236/11 Calibration Date: 08/17/2017 17:49
 Instrument ID: A8_N Calib Start Date: 08/17/2017 17:07
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/17/2017 17:30
 Lab File ID: 207.08.17_537A_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9477		110	100	9.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9415	0.9454		10.0	10.0	0.4	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.538	1.748		22.8	20.1	13.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9175	0.9757		21.8	20.5	6.3	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9198	1.118		23.9	19.7	21.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.7150	0.7455		21.0	20.1	4.3	30.0
13C2 PFHxA	Ave	1.135	1.118		9.85	10.0	-1.5	30.0
13C2 PFDA	Ave	0.6532	0.5562		8.51	10.0	-14.9	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Instrument ID: A8_N Start Date: 08/17/2017 20:03

Analysis Batch Number: 180242 End Date: 08/17/2017 20:26

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-180242/27 CCVIS		08/17/2017 20:03	1	2017.08.17_537A 027.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/17/2017 20:07	1		GeminiC18 3x100 3(mm)
320-30330-3		08/17/2017 20:12	1	2017.08.17_537A 029.d	GeminiC18 3x100 3(mm)
320-30330-8		08/17/2017 20:17	1	2017.08.17_537A 030.d	GeminiC18 3x100 3(mm)
ZZZZZ		08/17/2017 20:22	1		GeminiC18 3x100 3(mm)
CCV 320-180242/32 CCVIS		08/17/2017 20:26	1	2017.08.17_537A 032.d	GeminiC18 3x100 3(mm)

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: CCV 320-180242/27 Calibration Date: 08/17/2017 20:03
 Instrument ID: A8_N Calib Start Date: 08/17/2017 17:07
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/17/2017 17:30
 Lab File ID: 2017.08.17_537A_027.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.8368		141	135	4.6	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9415	0.9584		15.3	15.0	1.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.538	1.553		45.4	45.0	0.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9175	0.9532		31.2	30.0	3.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9198	0.9360		61.1	60.0	1.8	30.0
Perfluorononanoic acid (PFNA)	Ave	0.7150	0.6407		26.9	30.0	-10.4	30.0
13C2 PFHxA	Ave	1.135	1.243		10.9	10.0	9.5	30.0
13C2 PFDA	Ave	0.6532	0.6457		9.89	10.0	-1.1	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1
 SDG No.: _____
 Lab Sample ID: CCV 320-180242/32 Calibration Date: 08/17/2017 20:26
 Instrument ID: A8_N Calib Start Date: 08/17/2017 17:07
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 08/17/2017 17:30
 Lab File ID: 2017.08.17_537A_032.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.135		52.2	45.0	16.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9415	0.9592		5.10	5.00	1.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.538	1.670		16.3	15.0	8.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9175	0.9023		9.84	10.0	-1.7	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9198	0.9386		20.4	20.0	2.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.7150	0.6338		8.87	10.0	-11.4	30.0
13C2 PFHxA	Ave	1.135	1.186		10.4	10.0	4.5	30.0
13C2 PFDA	Ave	0.6532	0.6274		9.61	10.0	-3.9	30.0

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Batch Number: 177692 Batch Start Date: 08/04/17 09:10 Batch Analyst: Sharifi, NooshinBatch Method: 537 Batch End Date: 08/08/17 13:58

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00046
MB 320-177692/1		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCS 320-177692/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-30330-A-1	WGNA-080117-RW-0104	537, 537	T	282.24 g	28.73 g	253.5 mL	1.00 mL	7 SU	100 uL
320-30330-A-2	WGNA-080117-FRB-0104	537, 537	T	298.54 g	27.90 g	270.6 mL	1.00 mL	7 SU	100 uL
320-30330-A-3	WGNA-080117-RW-0443A	537, 537	T	299.88 g	28.07 g	271.8 mL	1.00 mL	7 SU	100 uL
320-30330-A-4	WGNA-080117-RW-0443B	537, 537	T	297.14 g	27.96 g	269.2 mL	1.00 mL	7 SU	100 uL
320-30330-A-5	WGNA-080117-FRB-0443B	537, 537	T	301.50 g	28.31 g	273.2 mL	1.00 mL	7 SU	100 uL
320-30330-A-6	WGNA-080117-RW-0437	537, 537	T	292.51 g	28.58 g	263.9 mL	1.00 mL	7 SU	100 uL
320-30330-A-7	WGNA-080117-FRB-0437	537, 537	T	293.03 g	27.85 g	265.2 mL	1.00 mL	7 SU	100 uL
320-30330-A-8	WGNA-080117-RW-3178A	537, 537	T	288.29 g	27.00 g	261.3 mL	1.00 mL	7 SU	100 uL
320-30330-A-9	WGNA-080117-RW-3178B	537, 537	T	285.06 g	28.82 g	256.2 mL	1.00 mL	7 SU	100 uL
320-30330-A-9 LMS	WGNA-080117-RW-3178B	537, 537	T	289.99 g	28.44 g	261.6 mL	1.00 mL	7 SU	100 uL
320-30330-A-9 LMSD	WGNA-080117-RW-3178B	537, 537	T	293.99 g	28.83 g	265.2 mL	1.00 mL	7 SU	100 uL
320-30330-A-10	WGNA-080117-FRB-3178B	537, 537	T	297.59 g	28.22 g	269.4 mL	1.00 mL	7 SU	100 uL
320-30330-A-11	WGNA-080117-RW-3325	537, 537	T	280.45 g	28.34 g	252.1 mL	1.00 mL	7 SU	100 uL
320-30330-A-12	WGNA-080117-FRB-3325	537, 537	T	274.78 g	27.87 g	246.9 mL	1.00 mL	7 SU	100 uL
320-30330-A-13	WGNA-080117-DUP06	537, 537	T	293.76 g	28.73 g	265 mL	1.00 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00021	LC537-SU 00046	AnalysisComment			
MB 320-177692/1		537, 537			100 uL	CH ND			
LLCS 320-177692/2		537, 537		100 uL	100 uL	CH ND			
320-30330-A-1	WGNA-080117-RW-0104	537, 537	T		100 uL	CH ND			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Batch Number: 177692 Batch Start Date: 08/04/17 09:10 Batch Analyst: Sharifi, NooshinBatch Method: 537 Batch End Date: 08/08/17 13:58

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00021	LC537-SU 00046	AnalysisComment			
320-30330-A-2	WGNA-080117-FRB-0104	537, 537	T		100 uL	CH ND			
320-30330-A-3	WGNA-080117-RW-0443A	537, 537	T		100 uL	CH ND			
320-30330-A-4	WGNA-080117-RW-0443B	537, 537	T		100 uL	CH ND			
320-30330-A-5	WGNA-080117-FRB-0443B	537, 537	T		100 uL	CH ND			
320-30330-A-6	WGNA-080117-RW-0437	537, 537	T		100 uL	CH ND			
320-30330-A-7	WGNA-080117-FRB-0437	537, 537	T		100 uL	CH ND			
320-30330-A-8	WGNA-080117-RW-3178A	537, 537	T		100 uL	CH ND			
320-30330-A-9	WGNA-080117-RW-3178B	537, 537	T		100 uL	CH ND			
320-30330-A-9 LMS	WGNA-080117-RW-3178B	537, 537	T	100 uL	100 uL	CH ND			
320-30330-A-9 LMSD	WGNA-080117-RW-3178B	537, 537	T	100 uL	100 uL	CH ND			
320-30330-A-10	WGNA-080117-FRB-3178B	537, 537	T		100 uL	CH ND			
320-30330-A-11	WGNA-080117-RW-3325	537, 537	T		100 uL	CH ND			
320-30330-A-12	WGNA-080117-FRB-3325	537, 537	T		100 uL	CH ND			
320-30330-A-13	WGNA-080117-DUP06	537, 537	T		100 uL	CH ND			

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-30330-1

SDG No.: _____

Batch Number: 177692 Batch Start Date: 08/04/17 09:10 Batch Analyst: Sharifi, NooshinBatch Method: 537 Batch End Date: 08/08/17 13:58

Batch Notes	
Batch Comment	IS:1002798
Manifold ID	1,4
Methanol ID	988835
Pipette ID	H14930F
Analyst ID - IS Reagent Drop	CCB
Analyst ID - IS Reagent Drop Witness	NSH
Analyst ID - SU Reagent Drop	NSH
Analyst ID - SU Reagent Drop Witness	HJA
Analyst ID - TA Reagent Drop	NSH
Analyst ID - TA Reagent Drop Witness	HJA
SPE Cartridge ID	6357081-02
Trizma ID	SLBR4303V
Reagent Water ID	8/03/17

Basis	Basis Description
T	Total/NA

The pound sign (#) in the amount added field denotes that the reagent was used undiluted. All calculations are performed using the stated concentration for this reagent.

81 82

08/08/17

Aqueous Extraction Analysis Sheet

AB

8/16/17

(To Accompany Samples to Instruments)

Batch Number: 320-177692
Method Code: 320-537_Prep-320

Analyst: Sharifi, Nooshin

Batch Open: 8/4/2017 9:10:00AM

Batch End: 8/8/17 13:58

8/30

Extraction of Perfluorinated Alkyl Acids

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	Rcvd	PHs Adj1	Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1 MB-320-177692/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	CH ND	
			1.00 mL								
2 LLCS-320-177692/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	CH ND	
			1.00 mL								
3 320-30330-A-1 (537_DOD5)	N/A (320-30330-1)	282.24 g	253.5 mL	7			8/8/17	16_Days	4	CH ND	
		28.73 g	1.00 mL								
4 320-30330-A-2 (537_DOD5)	N/A (320-30330-1)	298.54 g	270.6 mL	7			8/8/17	16_Days	4	CH ND	
		27.90 g	1.00 mL								
5 320-30330-A-3 (537_DOD5)	N/A (320-30330-1)	299.88 g	271.8 mL	7			8/8/17	16_Days	4	CH ND RI	
		28.07 g	1.00 mL								
6 320-30330-A-4 (537_DOD5)	N/A (320-30330-1)	297.14 g	269.2 mL	7			8/8/17	16_Days	4	CH ND	
		27.96 g	1.00 mL								
7 320-30330-A-5 (537_DOD5)	N/A (320-30330-1)	301.50 g	273.2 mL	7			8/8/17	16_Days	4	CH ND	
		28.31 g	1.00 mL								
8 320-30330-A-6 (537_DOD5)	N/A (320-30330-1)	292.51 g	263.9 mL	7			8/8/17	16_Days	4	CH ND	
		28.58 g	1.00 mL								
9 320-30330-A-7 (537_DOD5)	N/A (320-30330-1)	293.03 g	265.2 mL	7			8/8/17	16_Days	4	CH ND	
		27.85 g	1.00 mL								
10 320-30330-A-8 (537_DOD5)	N/A (320-30330-1)	288.29 g	261.3 mL	7			8/8/17	16_Days	4	CH ND RI	
		27.00 g	1.00 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-177692

Analyst: Sharifi, Nooshin

Batch Open: 8/4/2017 9:10:00AM

Method Code: 320-537_Prep-320

Batch End:

11	320-30330-A-9 (537_DOD5)	N/A (320-30330-1)	285.06 g	256.2 mL	7		8/8/17	16_Days	4	CH ND	
			28.82 g	1.00 mL							
12	320-30330-A-9-LMS (537_DOD5)	N/A (320-30330-1)	289.99 g	261.6 mL	7		8/8/17	16_Days	4	CH ND	
			28.44 g	1.00 mL							
13	320-30330-A-9-LMSD (537_DOD5)	N/A (320-30330-1)	293.99 g	265.2 mL	7		8/8/17	16_Days	4	CH ND	
			28.83 g	1.00 mL							
14	320-30330-A-10 (537_DOD5)	N/A (320-30330-1)	297.59 g	269.4 mL	7		8/8/17	16_Days	4	CH ND	
			28.22 g	1.00 mL							
15	320-30330-A-11 (537_DOD5)	N/A (320-30330-1)	280.45 g	252.1 mL	7		8/8/17	16_Days	4	CH ND	
			28.34 g	1.00 mL							
16	320-30330-A-12 (537_DOD5)	N/A (320-30330-1)	274.78 g	246.9 mL	7		8/8/17	16_Days	4	CH ND	
			27.87 g	1.00 mL							
17	320-30330-A-13 (537_DOD5)	N/A (320-30330-1)	293.76 g	265 mL	7		8/8/17	16_Days	4	CH ND	
			28.73 g	1.00 mL							

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-177692

Analyst: Sharifi, Nooshin

Batch Open: 8/4/2017 9:10:00AM

Method Code: 320-537_Prep-320

Batch End:

Batch Notes

Manifold ID 1,4

Trizma ID SLBR4303V

SPE Cartridge ID 6357081-02

Methanol ID 988835

Reagent Water ID 8/03/17

Pipette ID H14930F

Analyst ID - TA Reagent Drop NSH

Analyst ID - TA Reagent Drop

Witness

Analyst ID - SU Reagent Drop NSH

Analyst ID - SU Reagent Drop

Witness

Analyst ID - IS Reagent Drop

Analyst ID - IS Reagent Drop

Witness

Batch Comment

IS: 100 2798

Comments

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