



**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 320-36091-1**

*Naval Air Warfare Center Warminster
Warminster, Pennsylvania*

August 2019

N62269_001169
WARMINSTER_NAWC
SSIC 5000-33c

**LABORATORY DATA PACKAGE, 320-36091-1, NAS WILLOW GROVE NAWC
WARMINSTER PA**

03/12/2018
TESTAMERICA LABORATORIES INC

Approved for public release: distribution unlimited.

ANALYTICAL REPORT

Job Number: 320-36091-1

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
3/12/2018 9:00 AM

David R Alltucker, Project Manager I
880 Riverside Parkway, West Sacramento, CA, 95605
(916)374-4383
david.alltucker@testamericainc.com
03/12/2018

Table of Contents

Cover Title Page	1
Data Summaries	4
Definitions	4
Case Narrative	5
Detection Summary	6
Client Sample Results	8
Default Detection Limits	14
Surrogate Summary	15
QC Sample Results	16
QC Association	18
Chronicle	20
Certification Summary	24
Method Summary	25
Sample Summary	26
Manual Integration Summary	27
Reagent Traceability	37
COAs	49
Organic Sample Data	93
LCMS	93
Method 537 DOD	93
Method 537 DOD QC Summary	94
Method 537 DOD Sample Data	109
Standards Data	225
Method 537 DOD ICAL Data	225
Method 537 DOD CCAL Data	262
Raw QC Data	323

Table of Contents

Method 537 DOD Blank Data	323
Method 537 DOD LCS/LCSD Data	333
Method 537 DOD Run Logs	361
Method 537 DOD Prep Data	367
Shipping and Receiving Documents	399
Client Chain of Custody	400
Sample Receipt Checklist	402

Definitions/Glossary

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

TestAmerica Job ID: 320-36091-1

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.
Q	One or more quality control criteria failed.
H	Sample was prepped or analyzed beyond the specified holding time

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
320-36091-1

Receipt

The samples were received on 2/15/2018 9:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.3° 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.

Method(s) 537: 320-36091-17 was a field blank sample with detections greater than the reporting limit (RL) while its associated field sample, 320-36091-16 was non-detect for all analytes. Due to the suspicious results, these samples were re-extracted outside holding time and the results confirmed. The original set of data is reported. NAWC-021318-RW-290 (320-36091-16) and NAWC-021318-FRB-290 (320-36091-17)

Method(s) 537: The following samples, WGNA-021318-RW-3933 (320-36091-10), in preparation batch 320-211311 was re-prepared outside of preparation holding time due to high internal standard(IS) recovery. Both sets of data are reported

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

Organic Prep

Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 320-210229

Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-211530.

Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-211311.

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

Detection Summary

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

TestAmerica Job ID: 320-36091-1

Client Sample ID: WGNA-021318-DUP-26

Lab Sample ID: 320-36091-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	32	J M	35	6.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	27		18	2.5	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.0	J	27	4.9	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	10		8.9	1.7	ng/L	1		537	Total/NA

Client Sample ID: NAWC-021318-RW-188

Lab Sample ID: 320-36091-2

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	19	J M	36	6.2	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	21		18	2.5	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.7	J	27	5.0	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	8.5	J	9.0	1.7	ng/L	1		537	Total/NA

Client Sample ID: NAWC-021318-FRB-188

Lab Sample ID: 320-36091-3

No Detections.

Client Sample ID: WGN1A-021318-RW-3382

Lab Sample ID: 320-36091-4

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	18	J M	36	6.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	17	J M	18	2.5	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.1	J	27	4.9	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.1	J	8.9	1.7	ng/L	1		537	Total/NA

Client Sample ID: WGNA-021318-FRB-3382

Lab Sample ID: 320-36091-5

No Detections.

Client Sample ID: NAWC-021318-RW-100

Lab Sample ID: 320-36091-6

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	11	J M	34	5.8	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	13	J	17	2.4	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.8	J	8.6	1.6	ng/L	1		537	Total/NA

Client Sample ID: NAWC-021318-FRB-100

Lab Sample ID: 320-36091-7

No Detections.

Client Sample ID: WGNA-021318-RW-3978

Lab Sample ID: 320-36091-8

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)	24		19	2.6	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	10	J	28	5.1	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	9.9		9.3	1.8	ng/L	1		537	Total/NA

Client Sample ID: WGNA-021318-FRB-3978

Lab Sample ID: 320-36091-9

No Detections.

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: 320-36091-1

Client Sample ID: WGNA-021318-RW-3933

Lab Sample ID: 320-36091-10

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	15	J M	37	6.3	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	13	J	18	2.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.0	J	9.2	1.8	ng/L	1		537	Total/NA
Perfluorooctanesulfonic acid (PFOS) - RE	27	J H M	36	6.1	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA) - RE	24	H	18	2.5	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS) - RE	7.1	J H	27	4.9	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA) - RE	9.7	H	8.9	1.7	ng/L	1		537	Total/NA

Client Sample ID: WGNA-021318-FRB-3933

Lab Sample ID: 320-36091-11

No Detections.

Client Sample ID: NAWC-021318-RW-161

Lab Sample ID: 320-36091-12

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	43	M	35	6.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	20		18	2.5	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	15	J	26	4.8	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.7	J	8.8	1.7	ng/L	1		537	Total/NA

Client Sample ID: NAWC-021318-FRB-161

Lab Sample ID: 320-36091-13

No Detections.

Client Sample ID: NAWC-021318-RW-292

Lab Sample ID: 320-36091-14

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	22	J M	35	6.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	21		18	2.5	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	9.1	J	26	4.9	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.6	J	8.8	1.7	ng/L	1		537	Total/NA

Client Sample ID: NAWC-021318-FRB-292

Lab Sample ID: 320-36091-15

No Detections.

Client Sample ID: NAWC-021318-RW-290

Lab Sample ID: 320-36091-16

No Detections.

Client Sample ID: NAWC-021318-FRB-290

Lab Sample ID: 320-36091-17

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	18	J M	38	6.4	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	54		19	2.6	ng/L	1		537	Total/NA
Perfluorononanoic acid (PFNA)	10	J	23	7.5	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	7.1	J	28	5.2	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	35		9.4	1.8	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: 320-36091-1

Client Sample ID: WGNA-021318-DUP-26

Date Collected: 02/13/18 07:00

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-1

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	35	6.0	ng/L	—	02/27/18 08:13	03/05/18 10:40	1
Perfluorooctanoic acid (PFOA)	27		18	2.5	ng/L		02/27/18 08:13	03/05/18 10:40	1
Perfluorononanoic acid (PFNA)	18	U	21	7.1	ng/L		02/27/18 08:13	03/05/18 10:40	1
Perfluorohexanesulfonic acid (PFHxS)	7.0	J	27	4.9	ng/L		02/27/18 08:13	03/05/18 10:40	1
Perfluoroheptanoic acid (PFHpA)	10		8.9	1.7	ng/L		02/27/18 08:13	03/05/18 10:40	1
Perfluorobutanesulfonic acid (PFBS)	32	U	80	14	ng/L		02/27/18 08:13	03/05/18 10:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	88		70 - 130				02/27/18 08:13	03/05/18 10:40	1
13C2 PFDA	115		70 - 130				02/27/18 08:13	03/05/18 10:40	1

Client Sample ID: NAWC-021318-RW-188

Date Collected: 02/13/18 08:10

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-2

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	19	J M	36	6.2	ng/L	—	02/27/18 08:13	03/05/18 10:45	1
Perfluorooctanoic acid (PFOA)	21		18	2.5	ng/L		02/27/18 08:13	03/05/18 10:45	1
Perfluorononanoic acid (PFNA)	18	U	22	7.2	ng/L		02/27/18 08:13	03/05/18 10:45	1
Perfluorohexanesulfonic acid (PFHxS)	6.7	J	27	5.0	ng/L		02/27/18 08:13	03/05/18 10:45	1
Perfluoroheptanoic acid (PFHpA)	8.5	J	9.0	1.7	ng/L		02/27/18 08:13	03/05/18 10:45	1
Perfluorobutanesulfonic acid (PFBS)	33	U	81	15	ng/L		02/27/18 08:13	03/05/18 10:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	96		70 - 130				02/27/18 08:13	03/05/18 10:45	1
13C2 PFDA	112		70 - 130				02/27/18 08:13	03/05/18 10:45	1

Client Sample ID: NAWC-021318-FRB-188

Date Collected: 02/13/18 08:05

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-3

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	—	02/27/18 08:13	03/05/18 10:50	1
Perfluorooctanoic acid (PFOA)	7.4	U	18	2.6	ng/L		02/27/18 08:13	03/05/18 10:50	1
Perfluorononanoic acid (PFNA)	18	U	22	7.4	ng/L		02/27/18 08:13	03/05/18 10:50	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	28	5.1	ng/L		02/27/18 08:13	03/05/18 10:50	1
Perfluoroheptanoic acid (PFHpA)	3.7	U	9.2	1.8	ng/L		02/27/18 08:13	03/05/18 10:50	1
Perfluorobutanesulfonic acid (PFBS)	33	U	83	15	ng/L		02/27/18 08:13	03/05/18 10:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	98		70 - 130				02/27/18 08:13	03/05/18 10:50	1
13C2 PFDA	107		70 - 130				02/27/18 08:13	03/05/18 10:50	1

Client Sample Results

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

TestAmerica Job ID: 320-36091-1

Client Sample ID: WGN1A-021318-RW-3382

Lab Sample ID: 320-36091-4

Date Collected: 02/13/18 09:10

Matrix: Water

Date Received: 02/15/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	18	J M	36	6.0	ng/L		02/27/18 08:13	03/05/18 10:54	1
Perfluorooctanoic acid (PFOA)	17	J M	18	2.5	ng/L		02/27/18 08:13	03/05/18 10:54	1
Perfluorononanoic acid (PFNA)	18	U	21	7.1	ng/L		02/27/18 08:13	03/05/18 10:54	1
Perfluorohexanesulfonic acid (PFHxS)	6.1	J	27	4.9	ng/L		02/27/18 08:13	03/05/18 10:54	1
Perfluoroheptanoic acid (PFHpA)	6.1	J	8.9	1.7	ng/L		02/27/18 08:13	03/05/18 10:54	1
Perfluorobutanesulfonic acid (PFBS)	32	U	80	14	ng/L		02/27/18 08:13	03/05/18 10:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		70 - 130	02/27/18 08:13	03/05/18 10:54	1
13C2 PFDA	112		70 - 130	02/27/18 08:13	03/05/18 10:54	1

Client Sample ID: WGNA-021318-FRB-3382

Lab Sample ID: 320-36091-5

Date Collected: 02/13/18 09:05

Matrix: Water

Date Received: 02/15/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	38	6.5	ng/L		02/27/18 08:13	03/05/18 10:59	1
Perfluorooctanoic acid (PFOA)	7.6	U	19	2.7	ng/L		02/27/18 08:13	03/05/18 10:59	1
Perfluorononanoic acid (PFNA)	19	U	23	7.6	ng/L		02/27/18 08:13	03/05/18 10:59	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	29	5.2	ng/L		02/27/18 08:13	03/05/18 10:59	1
Perfluoroheptanoic acid (PFHpA)	3.8	U	9.5	1.8	ng/L		02/27/18 08:13	03/05/18 10:59	1
Perfluorobutanesulfonic acid (PFBS)	34	U	86	15	ng/L		02/27/18 08:13	03/05/18 10:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	97		70 - 130	02/27/18 08:13	03/05/18 10:59	1
13C2 PFDA	110		70 - 130	02/27/18 08:13	03/05/18 10:59	1

Client Sample ID: NAWC-021318-RW-100

Lab Sample ID: 320-36091-6

Date Collected: 02/13/18 09:40

Matrix: Water

Date Received: 02/15/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	11	J M	34	5.8	ng/L		02/27/18 08:13	03/05/18 11:04	1
Perfluorooctanoic acid (PFOA)	13	J	17	2.4	ng/L		02/27/18 08:13	03/05/18 11:04	1
Perfluorononanoic acid (PFNA)	17	U	21	6.9	ng/L		02/27/18 08:13	03/05/18 11:04	1
Perfluorohexanesulfonic acid (PFHxS)	10	U	26	4.7	ng/L		02/27/18 08:13	03/05/18 11:04	1
Perfluoroheptanoic acid (PFHpA)	4.8	J	8.6	1.6	ng/L		02/27/18 08:13	03/05/18 11:04	1
Perfluorobutanesulfonic acid (PFBS)	31	U	77	14	ng/L		02/27/18 08:13	03/05/18 11:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	77		70 - 130	02/27/18 08:13	03/05/18 11:04	1
13C2 PFDA	109		70 - 130	02/27/18 08:13	03/05/18 11:04	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-36091-1

Client Sample ID: NAWC-021318-FRB-100

Lab Sample ID: 320-36091-7

Date Collected: 02/13/18 09:35

Matrix: Water

Date Received: 02/15/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	38	6.5	ng/L		02/27/18 08:13	03/05/18 11:08	1
Perfluorooctanoic acid (PFOA)	7.7	U	19	2.7	ng/L		02/27/18 08:13	03/05/18 11:08	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		02/27/18 08:13	03/05/18 11:08	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	29	5.3	ng/L		02/27/18 08:13	03/05/18 11:08	1
Perfluoroheptanoic acid (PFHpA)	3.8	U	9.6	1.8	ng/L		02/27/18 08:13	03/05/18 11:08	1
Perfluorobutanesulfonic acid (PFBS)	34	U	86	15	ng/L		02/27/18 08:13	03/05/18 11:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	100		70 - 130	02/27/18 08:13	03/05/18 11:08	1
13C2 PFDA	117		70 - 130	02/27/18 08:13	03/05/18 11:08	1

Client Sample ID: WGNA-021318-RW-3978

Lab Sample ID: 320-36091-8

Date Collected: 02/13/18 10:40

Matrix: Water

Date Received: 02/15/18 09:05

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		02/27/18 08:13	03/05/18 11:23	1
Perfluorooctanoic acid (PFOA)	24		19	2.6	ng/L		02/27/18 08:13	03/05/18 11:23	1
Perfluorononanoic acid (PFNA)	19	U	22	7.4	ng/L		02/27/18 08:13	03/05/18 11:23	1
Perfluorohexanesulfonic acid (PFHxS)	10	J	28	5.1	ng/L		02/27/18 08:13	03/05/18 11:23	1
Perfluoroheptanoic acid (PFHpA)	9.9		9.3	1.8	ng/L		02/27/18 08:13	03/05/18 11:23	1
Perfluorobutanesulfonic acid (PFBS)	33	U	83	15	ng/L		02/27/18 08:13	03/05/18 11:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	87		70 - 130	02/27/18 08:13	03/05/18 11:23	1
13C2 PFDA	109		70 - 130	02/27/18 08:13	03/05/18 11:23	1

Client Sample ID: WGNA-021318-FRB-3978

Lab Sample ID: 320-36091-9

Date Collected: 02/13/18 10:35

Matrix: Water

Date Received: 02/15/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	37	6.4	ng/L		02/27/18 08:13	03/05/18 11:27	1
Perfluorooctanoic acid (PFOA)	7.5	U	19	2.6	ng/L		02/27/18 08:13	03/05/18 11:27	1
Perfluorononanoic acid (PFNA)	19	U	22	7.5	ng/L		02/27/18 08:13	03/05/18 11:27	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	28	5.1	ng/L		02/27/18 08:13	03/05/18 11:27	1
Perfluoroheptanoic acid (PFHpA)	3.7	U	9.4	1.8	ng/L		02/27/18 08:13	03/05/18 11:27	1
Perfluorobutanesulfonic acid (PFBS)	34	U	84	15	ng/L		02/27/18 08:13	03/05/18 11:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	103		70 - 130	02/27/18 08:13	03/05/18 11:27	1
13C2 PFDA	116		70 - 130	02/27/18 08:13	03/05/18 11:27	1

Client Sample Results

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

TestAmerica Job ID: 320-36091-1

Client Sample ID: WGNA-021318-RW-3933

Lab Sample ID: 320-36091-10

Date Collected: 02/13/18 11:10

Matrix: Water

Date Received: 02/15/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	J M	37	6.3	ng/L	—	02/27/18 08:13	03/05/18 11:32	1
Perfluorooctanoic acid (PFOA)	13	J	18	2.6	ng/L	—	02/27/18 08:13	03/05/18 11:32	1
Perfluorononanoic acid (PFNA)	18	U	22	7.4	ng/L	—	02/27/18 08:13	03/05/18 11:32	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	28	5.1	ng/L	—	02/27/18 08:13	03/05/18 11:32	1
Perfluoroheptanoic acid (PFHpA)	5.0	J	9.2	1.8	ng/L	—	02/27/18 08:13	03/05/18 11:32	1
Perfluorobutanesulfonic acid (PFBS)	33	U	83	15	ng/L	—	02/27/18 08:13	03/05/18 11:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	47	Q	70 - 130	02/27/18 08:13	03/05/18 11:32	1
13C2 PFDA	56	Q	70 - 130	02/27/18 08:13	03/05/18 11:32	1

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	27	J H M	36	6.1	ng/L	—	03/05/18 17:45	03/09/18 09:49	1
Perfluorooctanoic acid (PFOA)	24	H	18	2.5	ng/L	—	03/05/18 17:45	03/09/18 09:49	1
Perfluorononanoic acid (PFNA)	18	U H	21	7.1	ng/L	—	03/05/18 17:45	03/09/18 09:49	1
Perfluorohexanesulfonic acid (PFHxS)	7.1	J H	27	4.9	ng/L	—	03/05/18 17:45	03/09/18 09:49	1
Perfluoroheptanoic acid (PFHpA)	9.7	H	8.9	1.7	ng/L	—	03/05/18 17:45	03/09/18 09:49	1
Perfluorobutanesulfonic acid (PFBS)	32	U H	80	14	ng/L	—	03/05/18 17:45	03/09/18 09:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	80		70 - 130	03/05/18 17:45	03/09/18 09:49	1
13C2 PFDA	107		70 - 130	03/05/18 17:45	03/09/18 09:49	1

Client Sample ID: WGNA-021318-FRB-3933

Lab Sample ID: 320-36091-11

Date Collected: 02/13/18 11:05

Matrix: Water

Date Received: 02/15/18 09:05

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	—	02/27/18 08:13	03/05/18 11:37	1
Perfluorooctanoic acid (PFOA)	7.6	U	19	2.7	ng/L	—	02/27/18 08:13	03/05/18 11:37	1
Perfluorononanoic acid (PFNA)	19	U	23	7.6	ng/L	—	02/27/18 08:13	03/05/18 11:37	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	28	5.2	ng/L	—	02/27/18 08:13	03/05/18 11:37	1
Perfluoroheptanoic acid (PFHpA)	3.8	U	9.5	1.8	ng/L	—	02/27/18 08:13	03/05/18 11:37	1
Perfluorobutanesulfonic acid (PFBS)	34	U	85	15	ng/L	—	02/27/18 08:13	03/05/18 11:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	99		70 - 130	02/27/18 08:13	03/05/18 11:37	1
13C2 PFDA	110		70 - 130	02/27/18 08:13	03/05/18 11:37	1

Client Sample ID: NAWC-021318-RW-161

Lab Sample ID: 320-36091-12

Date Collected: 02/13/18 11:40

Matrix: Water

Date Received: 02/15/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	43	M	35	6.0	ng/L	—	02/27/18 08:13	03/05/18 11:41	1

TestAmerica Sacramento

Client Sample Results

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

TestAmerica Job ID: 320-36091-1

Client Sample ID: NAWC-021318-RW-161

Lab Sample ID: 320-36091-12

Date Collected: 02/13/18 11:40

Matrix: Water

Date Received: 02/15/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanoic acid (PFOA)	20		18	2.5	ng/L		02/27/18 08:13	03/05/18 11:41	1
Perfluorononanoic acid (PFNA)	18	U	21	7.0	ng/L		02/27/18 08:13	03/05/18 11:41	1
Perfluorohexanesulfonic acid (PFHxS)	15	J	26	4.8	ng/L		02/27/18 08:13	03/05/18 11:41	1
Perfluoroheptanoic acid (PFHpA)	6.7	J	8.8	1.7	ng/L		02/27/18 08:13	03/05/18 11:41	1
Perfluorobutanesulfonic acid (PFBS)	32	U	79	14	ng/L		02/27/18 08:13	03/05/18 11:41	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	86		70 - 130				02/27/18 08:13	03/05/18 11:41	1
13C2 PFDA	104		70 - 130				02/27/18 08:13	03/05/18 11:41	1

Client Sample ID: NAWC-021318-FRB-161

Lab Sample ID: 320-36091-13

Date Collected: 02/13/18 11:35

Matrix: Water

Date Received: 02/15/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	15	U	39	6.6	ng/L		02/27/18 08:13	03/05/18 11:46	1
Perfluorooctanoic acid (PFOA)	7.7	U	19	2.7	ng/L		02/27/18 08:13	03/05/18 11:46	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		02/27/18 08:13	03/05/18 11:46	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.3	ng/L		02/27/18 08:13	03/05/18 11:46	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.6	1.8	ng/L		02/27/18 08:13	03/05/18 11:46	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	16	ng/L		02/27/18 08:13	03/05/18 11:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	99		70 - 130				02/27/18 08:13	03/05/18 11:46	1
13C2 PFDA	114		70 - 130				02/27/18 08:13	03/05/18 11:46	1

Client Sample ID: NAWC-021318-RW-292

Lab Sample ID: 320-36091-14

Date Collected: 02/13/18 13:10

Matrix: Water

Date Received: 02/15/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	22	J M	35	6.0	ng/L		02/27/18 08:13	03/05/18 11:51	1
Perfluorooctanoic acid (PFOA)	21		18	2.5	ng/L		02/27/18 08:13	03/05/18 11:51	1
Perfluorononanoic acid (PFNA)	18	U	21	7.1	ng/L		02/27/18 08:13	03/05/18 11:51	1
Perfluorohexanesulfonic acid (PFHxS)	9.1	J	26	4.9	ng/L		02/27/18 08:13	03/05/18 11:51	1
Perfluoroheptanoic acid (PFHpA)	7.6	J	8.8	1.7	ng/L		02/27/18 08:13	03/05/18 11:51	1
Perfluorobutanesulfonic acid (PFBS)	32	U	79	14	ng/L		02/27/18 08:13	03/05/18 11:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	87		70 - 130				02/27/18 08:13	03/05/18 11:51	1
13C2 PFDA	115		70 - 130				02/27/18 08:13	03/05/18 11:51	1

Client Sample Results

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

TestAmerica Job ID: 320-36091-1

Client Sample ID: NAWC-021318-FRB-292

Lab Sample ID: 320-36091-15

Date Collected: 02/13/18 13:05

Matrix: Water

Date Received: 02/15/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	14	U	36	6.1	ng/L		02/27/18 08:13	03/05/18 11:55	1
Perfluorooctanoic acid (PFOA)	7.2	U	18	2.5	ng/L		02/27/18 08:13	03/05/18 11:55	1
Perfluorononanoic acid (PFNA)	18	U	22	7.2	ng/L		02/27/18 08:13	03/05/18 11:55	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	27	4.9	ng/L		02/27/18 08:13	03/05/18 11:55	1
Perfluoroheptanoic acid (PFHpA)	3.6	U	9.0	1.7	ng/L		02/27/18 08:13	03/05/18 11:55	1
Perfluorobutanesulfonic acid (PFBS)	32	U	81	14	ng/L		02/27/18 08:13	03/05/18 11:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		70 - 130	02/27/18 08:13	03/05/18 11:55	1
13C2 PFDA	113		70 - 130	02/27/18 08:13	03/05/18 11:55	1

Client Sample ID: NAWC-021318-RW-290

Lab Sample ID: 320-36091-16

Date Collected: 02/13/18 14:10

Matrix: Water

Date Received: 02/15/18 09:05

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		02/27/18 08:13	03/05/18 12:00	1
Perfluorooctanoic acid (PFOA)	7.4	U	19	2.6	ng/L		02/27/18 08:13	03/05/18 12:00	1
Perfluorononanoic acid (PFNA)	19	U	22	7.4	ng/L		02/27/18 08:13	03/05/18 12:00	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	28	5.1	ng/L		02/27/18 08:13	03/05/18 12:00	1
Perfluoroheptanoic acid (PFHpA)	3.7	U	9.3	1.8	ng/L		02/27/18 08:13	03/05/18 12:00	1
Perfluorobutanesulfonic acid (PFBS)	34	U	84	15	ng/L		02/27/18 08:13	03/05/18 12:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	105		70 - 130	02/27/18 08:13	03/05/18 12:00	1
13C2 PFDA	113		70 - 130	02/27/18 08:13	03/05/18 12:00	1

Client Sample ID: NAWC-021318-FRB-290

Lab Sample ID: 320-36091-17

Date Collected: 02/13/18 14:05

Matrix: Water

Date Received: 02/15/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	18	J M	38	6.4	ng/L		02/27/18 08:13	03/05/18 12:05	1
Perfluorooctanoic acid (PFOA)	54		19	2.6	ng/L		02/27/18 08:13	03/05/18 12:05	1
Perfluorononanoic acid (PFNA)	10	J	23	7.5	ng/L		02/27/18 08:13	03/05/18 12:05	1
Perfluorohexanesulfonic acid (PFHxS)	7.1	J	28	5.2	ng/L		02/27/18 08:13	03/05/18 12:05	1
Perfluoroheptanoic acid (PFHpA)	35		9.4	1.8	ng/L		02/27/18 08:13	03/05/18 12:05	1
Perfluorobutanesulfonic acid (PFBS)	34	U	85	15	ng/L		02/27/18 08:13	03/05/18 12:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	87		70 - 130	02/27/18 08:13	03/05/18 12:05	1
13C2 PFDA	108		70 - 130	02/27/18 08:13	03/05/18 12:05	1

Default Detection Limits

Client: Tetra Tech, Inc.

TestAmerica Job ID: 320-36091-1

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: 320-36091-1

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		PFHxA (70-130)	PFDA (70-130)
320-36091-1	WGNA-021318-DUP-26	88	115
320-36091-2	NAWC-021318-RW-188	96	112
320-36091-3	NAWC-021318-FRB-188	98	107
320-36091-4	WGN1A-021318-RW-3382	94	112
320-36091-5	WGNA-021318-FRB-3382	97	110
320-36091-6	NAWC-021318-RW-100	77	109
320-36091-7	NAWC-021318-FRB-100	100	117
320-36091-8	WGNA-021318-RW-3978	87	109
320-36091-9	WGNA-021318-FRB-3978	103	116
320-36091-10	WGNA-021318-RW-3933	47 Q	56 Q
320-36091-10 - RE	WGNA-021318-RW-3933	80	107
320-36091-11	WGNA-021318-FRB-3933	99	110
320-36091-12	NAWC-021318-RW-161	86	104
320-36091-13	NAWC-021318-FRB-161	99	114
320-36091-14	NAWC-021318-RW-292	87	115
320-36091-15	NAWC-021318-FRB-292	95	113
320-36091-16	NAWC-021318-RW-290	105	113
320-36091-17	NAWC-021318-FRB-290	87	108
LCS 320-211311/2-A	Lab Control Sample	90	106
LCSD 320-211311/3-A	Lab Control Sample Dup	90	101
LLCS 320-210229/2-A	Lab Control Sample	99	110
LLCSD 320-210229/3-A	Lab Control Sample Dup	101	111
MB 320-210229/1-A	Method Blank	100	115
MB 320-211311/1-A	Method Blank	87	106

Surrogate Legend

PFHxA = 13C2 PFHxA

PFDA = 13C2 PFDA

QC Sample Results

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

TestAmerica Job ID: 320-36091-1

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

Lab Sample ID: MB 320-210229/1-A

Matrix: Water

Analysis Batch: 211200

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 210229

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		02/27/18 08:13	03/05/18 10:26	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		02/27/18 08:13	03/05/18 10:26	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		02/27/18 08:13	03/05/18 10:26	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		02/27/18 08:13	03/05/18 10:26	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		02/27/18 08:13	03/05/18 10:26	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		02/27/18 08:13	03/05/18 10:26	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	100		70 - 130	02/27/18 08:13	03/05/18 10:26	1
13C2 PFDA	115		70 - 130	02/27/18 08:13	03/05/18 10:26	1

Lab Sample ID: LLCS 320-210229/2-A

Matrix: Water

Analysis Batch: 211200

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 210229

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	40.2	42.5	M	ng/L		106	50 - 150
Perfluorooctanoic acid (PFOA)	20.1	20.3		ng/L		101	50 - 150
Perfluorononanoic acid (PFNA)	20.0	23.1	J	ng/L		116	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	30.0	31.9		ng/L		106	50 - 150
Perfluoroheptanoic acid (PFHpA)	10.0	11.8		ng/L		118	50 - 150
Perfluorobutanesulfonic acid (PFBS)	90.0	82.0	J	ng/L		91	50 - 150

Surrogate	LLCS %Recovery	LLCS Qualifier	Limits
13C2 PFHxA	99		70 - 130
13C2 PFDA	110		70 - 130

Lab Sample ID: LLCSD 320-210229/3-A

Matrix: Water

Analysis Batch: 211200

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 210229

Analyte	Spike Added	LLCSD Result	LLCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	40.2	43.2	M	ng/L		108	50 - 150	2	50
Perfluorooctanoic acid (PFOA)	20.1	20.4		ng/L		101	50 - 150	0.5	50
Perfluorononanoic acid (PFNA)	20.0	23.9	J	ng/L		119	50 - 150	3	50
Perfluorohexanesulfonic acid (PFHxS)	30.0	31.2		ng/L		104	50 - 150	2	50
Perfluoroheptanoic acid (PFHpA)	10.0	11.9		ng/L		119	50 - 150	1	50
Perfluorobutanesulfonic acid (PFBS)	90.0	83.6	J	ng/L		93	50 - 150	2	50

Surrogate	LLCSD %Recovery	LLCSD Qualifier	Limits
13C2 PFHxA	101		70 - 130
13C2 PFDA	111		70 - 130

TestAmerica Sacramento

QC Sample Results

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

TestAmerica Job ID: 320-36091-1

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

Lab Sample ID: MB 320-211311/1-A

Matrix: Water

Analysis Batch: 212124

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 211311

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L	-	03/05/18 17:45	03/09/18 09:35	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L	-	03/05/18 17:45	03/09/18 09:35	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L	-	03/05/18 17:45	03/09/18 09:35	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L	-	03/05/18 17:45	03/09/18 09:35	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L	-	03/05/18 17:45	03/09/18 09:35	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L	-	03/05/18 17:45	03/09/18 09:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	87		70 - 130	03/05/18 17:45	03/09/18 09:35	1
13C2 PFDA	106		70 - 130	03/05/18 17:45	03/09/18 09:35	1

Lab Sample ID: LCS 320-211311/2-A

Matrix: Water

Analysis Batch: 212124

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 211311

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	134	134	M	ng/L	-	100	70 - 130
Perfluorooctanoic acid (PFOA)	67.0	67.5		ng/L	-	101	70 - 130
Perfluorononanoic acid (PFNA)	66.7	73.1		ng/L	-	110	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	100	99.2		ng/L	-	99	70 - 130
Perfluoroheptanoic acid (PFHpA)	33.3	34.4		ng/L	-	103	70 - 130
Perfluorobutanesulfonic acid (PFBS)	300	265		ng/L	-	88	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
13C2 PFHxA	90		70 - 130
13C2 PFDA	106		70 - 130

Lab Sample ID: LCSD 320-211311/3-A

Matrix: Water

Analysis Batch: 212124

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 211311

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	134	129	M	ng/L	-	96	70 - 130	4	30
Perfluorooctanoic acid (PFOA)	67.0	61.1		ng/L	-	91	70 - 130	10	30
Perfluorononanoic acid (PFNA)	66.7	70.9		ng/L	-	106	70 - 130	3	30
Perfluorohexanesulfonic acid (PFHxS)	100	98.1		ng/L	-	98	70 - 130	1	30
Perfluoroheptanoic acid (PFHpA)	33.3	33.3		ng/L	-	100	70 - 130	3	30
Perfluorobutanesulfonic acid (PFBS)	300	264		ng/L	-	88	70 - 130	0	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
13C2 PFHxA	90		70 - 130
13C2 PFDA	101		70 - 130

TestAmerica Sacramento

QC Association Summary

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

TestAmerica Job ID: 320-36091-1

LCMS

Prep Batch: 210229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-36091-1	WGNA-021318-DUP-26	Total/NA	Water	537	
320-36091-2	NAWC-021318-RW-188	Total/NA	Water	537	
320-36091-3	NAWC-021318-FRB-188	Total/NA	Water	537	
320-36091-4	WGN1A-021318-RW-3382	Total/NA	Water	537	
320-36091-5	WGNA-021318-FRB-3382	Total/NA	Water	537	
320-36091-6	NAWC-021318-RW-100	Total/NA	Water	537	
320-36091-7	NAWC-021318-FRB-100	Total/NA	Water	537	
320-36091-8	WGNA-021318-RW-3978	Total/NA	Water	537	
320-36091-9	WGNA-021318-FRB-3978	Total/NA	Water	537	
320-36091-10	WGNA-021318-RW-3933	Total/NA	Water	537	
320-36091-11	WGNA-021318-FRB-3933	Total/NA	Water	537	
320-36091-12	NAWC-021318-RW-161	Total/NA	Water	537	
320-36091-13	NAWC-021318-FRB-161	Total/NA	Water	537	
320-36091-14	NAWC-021318-RW-292	Total/NA	Water	537	
320-36091-15	NAWC-021318-FRB-292	Total/NA	Water	537	
320-36091-16	NAWC-021318-RW-290	Total/NA	Water	537	
320-36091-17	NAWC-021318-FRB-290	Total/NA	Water	537	
MB 320-210229/1-A	Method Blank	Total/NA	Water	537	
LLCS 320-210229/2-A	Lab Control Sample	Total/NA	Water	537	
LLCSD 320-210229/3-A	Lab Control Sample Dup	Total/NA	Water	537	

Analysis Batch: 211200

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-36091-1	WGNA-021318-DUP-26	Total/NA	Water	537	210229
320-36091-2	NAWC-021318-RW-188	Total/NA	Water	537	210229
320-36091-3	NAWC-021318-FRB-188	Total/NA	Water	537	210229
320-36091-4	WGN1A-021318-RW-3382	Total/NA	Water	537	210229
320-36091-5	WGNA-021318-FRB-3382	Total/NA	Water	537	210229
320-36091-6	NAWC-021318-RW-100	Total/NA	Water	537	210229
320-36091-7	NAWC-021318-FRB-100	Total/NA	Water	537	210229
MB 320-210229/1-A	Method Blank	Total/NA	Water	537	210229
LLCS 320-210229/2-A	Lab Control Sample	Total/NA	Water	537	210229
LLCSD 320-210229/3-A	Lab Control Sample Dup	Total/NA	Water	537	210229

Analysis Batch: 211202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-36091-8	WGNA-021318-RW-3978	Total/NA	Water	537	210229
320-36091-9	WGNA-021318-FRB-3978	Total/NA	Water	537	210229
320-36091-10	WGNA-021318-RW-3933	Total/NA	Water	537	210229
320-36091-11	WGNA-021318-FRB-3933	Total/NA	Water	537	210229
320-36091-12	NAWC-021318-RW-161	Total/NA	Water	537	210229
320-36091-13	NAWC-021318-FRB-161	Total/NA	Water	537	210229
320-36091-14	NAWC-021318-RW-292	Total/NA	Water	537	210229
320-36091-15	NAWC-021318-FRB-292	Total/NA	Water	537	210229
320-36091-16	NAWC-021318-RW-290	Total/NA	Water	537	210229
320-36091-17	NAWC-021318-FRB-290	Total/NA	Water	537	210229

Prep Batch: 211311

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-36091-10 - RE	WGNA-021318-RW-3933	Total/NA	Water	537	
MB 320-211311/1-A	Method Blank	Total/NA	Water	537	

TestAmerica Sacramento

QC Association Summary

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

TestAmerica Job ID: 320-36091-1

LCMS (Continued)

Prep Batch: 211311 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 320-211311/2-A	Lab Control Sample	Total/NA	Water	537	
LCSD 320-211311/3-A	Lab Control Sample Dup	Total/NA	Water	537	

Analysis Batch: 212124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-36091-10 - RE	WGNA-021318-RW-3933	Total/NA	Water	537	211311
MB 320-211311/1-A	Method Blank	Total/NA	Water	537	211311
LCS 320-211311/2-A	Lab Control Sample	Total/NA	Water	537	211311
LCSD 320-211311/3-A	Lab Control Sample Dup	Total/NA	Water	537	211311

Lab Chronicle

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

TestAmerica Job ID: 320-36091-1

Client Sample ID: WGNA-021318-DUP-26

Date Collected: 02/13/18 07:00

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210229	02/27/18 08:13	HJA	TAL SAC
Total/NA	Analysis	537		1	211200	03/05/18 10:40	JRB	TAL SAC

Client Sample ID: NAWC-021318-RW-188

Date Collected: 02/13/18 08:10

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210229	02/27/18 08:13	HJA	TAL SAC
Total/NA	Analysis	537		1	211200	03/05/18 10:45	JRB	TAL SAC

Client Sample ID: NAWC-021318-FRB-188

Date Collected: 02/13/18 08:05

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210229	02/27/18 08:13	HJA	TAL SAC
Total/NA	Analysis	537		1	211200	03/05/18 10:50	JRB	TAL SAC

Client Sample ID: WGN1A-021318-RW-3382

Date Collected: 02/13/18 09:10

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210229	02/27/18 08:13	HJA	TAL SAC
Total/NA	Analysis	537		1	211200	03/05/18 10:54	JRB	TAL SAC

Client Sample ID: WGNA-021318-FRB-3382

Date Collected: 02/13/18 09:05

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210229	02/27/18 08:13	HJA	TAL SAC
Total/NA	Analysis	537		1	211200	03/05/18 10:59	JRB	TAL SAC

Client Sample ID: NAWC-021318-RW-100

Date Collected: 02/13/18 09:40

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210229	02/27/18 08:13	HJA	TAL SAC
Total/NA	Analysis	537		1	211200	03/05/18 11:04	JRB	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-36091-1

Client Sample ID: NAWC-021318-FRB-100

Date Collected: 02/13/18 09:35

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210229	02/27/18 08:13	HJA	TAL SAC
Total/NA	Analysis	537		1	211200	03/05/18 11:08	JRB	TAL SAC

Client Sample ID: WGNA-021318-RW-3978

Date Collected: 02/13/18 10:40

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210229	02/27/18 08:13	HJA	TAL SAC
Total/NA	Analysis	537		1	211202	03/05/18 11:23	JRB	TAL SAC

Client Sample ID: WGNA-021318-FRB-3978

Date Collected: 02/13/18 10:35

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210229	02/27/18 08:13	HJA	TAL SAC
Total/NA	Analysis	537		1	211202	03/05/18 11:27	JRB	TAL SAC

Client Sample ID: WGNA-021318-RW-3933

Date Collected: 02/13/18 11:10

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210229	02/27/18 08:13	HJA	TAL SAC
Total/NA	Analysis	537		1	211202	03/05/18 11:32	JRB	TAL SAC
Total/NA	Prep	537	RE		211311	03/05/18 17:45	TWL	TAL SAC
Total/NA	Analysis	537	RE	1	212124	03/09/18 09:49	JRB	TAL SAC

Client Sample ID: WGNA-021318-FRB-3933

Date Collected: 02/13/18 11:05

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210229	02/27/18 08:13	HJA	TAL SAC
Total/NA	Analysis	537		1	211202	03/05/18 11:37	JRB	TAL SAC

Client Sample ID: NAWC-021318-RW-161

Date Collected: 02/13/18 11:40

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210229	02/27/18 08:13	HJA	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-36091-1

Client Sample ID: NAWC-021318-RW-161

Date Collected: 02/13/18 11:40

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	537		1	211202	03/05/18 11:41	JRB	TAL SAC

Client Sample ID: NAWC-021318-FRB-161

Date Collected: 02/13/18 11:35

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210229	02/27/18 08:13	HJA	TAL SAC
Total/NA	Analysis	537		1	211202	03/05/18 11:46	JRB	TAL SAC

Client Sample ID: NAWC-021318-RW-292

Date Collected: 02/13/18 13:10

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210229	02/27/18 08:13	HJA	TAL SAC
Total/NA	Analysis	537		1	211202	03/05/18 11:51	JRB	TAL SAC

Client Sample ID: NAWC-021318-FRB-292

Date Collected: 02/13/18 13:05

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-15

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210229	02/27/18 08:13	HJA	TAL SAC
Total/NA	Analysis	537		1	211202	03/05/18 11:55	JRB	TAL SAC

Client Sample ID: NAWC-021318-RW-290

Date Collected: 02/13/18 14:10

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-16

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210229	02/27/18 08:13	HJA	TAL SAC
Total/NA	Analysis	537		1	211202	03/05/18 12:00	JRB	TAL SAC

Client Sample ID: NAWC-021318-FRB-290

Date Collected: 02/13/18 14:05

Date Received: 02/15/18 09:05

Lab Sample ID: 320-36091-17

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			210229	02/27/18 08:13	HJA	TAL SAC
Total/NA	Analysis	537		1	211202	03/05/18 12:05	JRB	TAL SAC

TestAmerica Sacramento

Lab Chronicle

Client: Tetra Tech, Inc.

TestAmerica Job ID: 320-36091-1

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

Laboratory References:

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

Accreditation/Certification Summary

Client: Tetra Tech, Inc.

TestAmerica Job ID: 320-36091-1

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

Laboratory: TestAmerica Sacramento

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-020	01-20-21
Arizona	State Program	9	AZ0708	08-11-18
Arkansas DEQ	State Program	6	88-0691	06-17-18
California	State Program	9	2897	01-31-19
Colorado	State Program	8	CA00044	08-31-18
Connecticut	State Program	1	PH-0691	06-30-19
Florida	NELAP	4	E87570	06-30-18
Georgia	State Program	4	N/A	01-28-19
Hawaii	State Program	9	N/A	01-29-19
Illinois	NELAP	5	200060	03-17-18
Kansas	NELAP	7	E-10375	10-31-18
L-A-B	DoD ELAP		L2468	01-20-21
Louisiana	NELAP	6	30612	06-30-18
Maine	State Program	1	CA0004	04-14-18
Michigan	State Program	5	9947	01-31-20
Nevada	State Program	9	CA00044	07-31-18
New Hampshire	NELAP	1	2997	04-18-18
New Jersey	NELAP	2	CA005	06-30-18
New York	NELAP	2	11666	04-01-18
Oregon	NELAP	10	4040	01-29-19
Pennsylvania	NELAP	3	68-01272	03-31-18
Texas	NELAP	6	T104704399	05-31-18
US Fish & Wildlife	Federal		LE148388-0	07-31-18
USDA	Federal		P330-11-00436	01-17-21
USEPA UCMR	Federal	1	CA00044	11-06-18
Utah	NELAP	8	CA00044	02-28-18 *
Virginia	NELAP	3	460278	03-14-19
Washington	State Program	10	C581	05-05-18
West Virginia (DW)	State Program	3	9930C	12-31-18
Wyoming	State Program	8	8TMS-L	01-28-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Sacramento

Method Summary

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

TestAmerica Job ID: 320-36091-1

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: 320-36091-1

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-36091-1	WGNA-021318-DUP-26	Water	02/13/18 07:00	02/15/18 09:05
320-36091-2	NAWC-021318-RW-188	Water	02/13/18 08:10	02/15/18 09:05
320-36091-3	NAWC-021318-FRB-188	Water	02/13/18 08:05	02/15/18 09:05
320-36091-4	WGN1A-021318-RW-3382	Water	02/13/18 09:10	02/15/18 09:05
320-36091-5	WGNA-021318-FRB-3382	Water	02/13/18 09:05	02/15/18 09:05
320-36091-6	NAWC-021318-RW-100	Water	02/13/18 09:40	02/15/18 09:05
320-36091-7	NAWC-021318-FRB-100	Water	02/13/18 09:35	02/15/18 09:05
320-36091-8	WGNA-021318-RW-3978	Water	02/13/18 10:40	02/15/18 09:05
320-36091-9	WGNA-021318-FRB-3978	Water	02/13/18 10:35	02/15/18 09:05
320-36091-10	WGNA-021318-RW-3933	Water	02/13/18 11:10	02/15/18 09:05
320-36091-11	WGNA-021318-FRB-3933	Water	02/13/18 11:05	02/15/18 09:05
320-36091-12	NAWC-021318-RW-161	Water	02/13/18 11:40	02/15/18 09:05
320-36091-13	NAWC-021318-FRB-161	Water	02/13/18 11:35	02/15/18 09:05
320-36091-14	NAWC-021318-RW-292	Water	02/13/18 13:10	02/15/18 09:05
320-36091-15	NAWC-021318-FRB-292	Water	02/13/18 13:05	02/15/18 09:05
320-36091-16	NAWC-021318-RW-290	Water	02/13/18 14:10	02/15/18 09:05
320-36091-17	NAWC-021318-FRB-290	Water	02/13/18 14:05	02/15/18 09:05

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 208773Lab Sample ID: IC 320-208773/4 Client Sample ID: _____Date Analyzed: 02/16/18 08:55 Lab File ID: 2018.02.016_537ICAL_004.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid (PFHpA)	1.66	Assign Peak	roycea	02/16/18 10:26
Perfluorooctanesulfonic acid (PFOS)	2.12	Assign Peak	roycea	02/16/18 10:26

Lab Sample ID: IC 320-208773/5 Client Sample ID: _____Date Analyzed: 02/16/18 09:00 Lab File ID: 2018.02.016_537ICAL_005.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	Peak assignment corrected	roycea	02/16/18 10:29

Lab Sample ID: IC 320-208773/6 Client Sample ID: _____Date Analyzed: 02/16/18 09:05 Lab File ID: 2018.02.016_537ICAL_006.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	Peak assignment corrected	roycea	02/16/18 10:29

Lab Sample ID: IC 320-208773/7 ICISAV Client Sample ID: _____Date Analyzed: 02/16/18 09:09 Lab File ID: 2018.02.016_537ICAL_007.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Peak assignment corrected	roycea	02/16/18 10:30

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 208773Lab Sample ID: IC 320-208773/8 Client Sample ID: _____Date Analyzed: 02/16/18 09:14 Lab File ID: 2018.02.016_537ICAL_008.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Peak assignment corrected	roycea	02/16/18 10:30

Lab Sample ID: IC 320-208773/9 Client Sample ID: _____Date Analyzed: 02/16/18 09:19 Lab File ID: 2018.02.016_537ICAL_009.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Peak assignment corrected	roycea	02/16/18 10:31

Lab Sample ID: CCVL 320-208773/11 Client Sample ID: _____Date Analyzed: 02/16/18 09:28 Lab File ID: 2018.02.016_537ICAL_011.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.12	Peak assignment corrected	roycea	02/16/18 10:36

Lab Sample ID: ICV 320-208773/13 Client Sample ID: _____Date Analyzed: 02/16/18 09:37 Lab File ID: 2018.02.016_537ICAL_013.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.11	Peak assignment corrected	roycea	02/16/18 10:37

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 211128Lab Sample ID: CCVL 320-211128/1 Client Sample ID: _____Date Analyzed: 03/05/18 08:44 Lab File ID: 2018.03.05_537A_004.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.89	Baseline	roycea	03/05/18 10:52
Perfluorooctanesulfonic acid (PFOS)	2.15	Peak assignment corrected	roycea	03/05/18 10:12

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 211200Lab Sample ID: CCV 320-211200/1 CCVIS Client Sample ID: _____Date Analyzed: 03/05/18 10:17 Lab File ID: 2018.03.05_537A_024.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.10	Missed Peak	barnettj	03/05/18 14:07

Lab Sample ID: LLCS 320-210229/2-A Client Sample ID: _____Date Analyzed: 03/05/18 10:31 Lab File ID: 2018.03.05_537A_027.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Peak assignment corrected	barnettj	03/05/18 14:12

Lab Sample ID: LLCSD 320-210229/3-A Client Sample ID: _____Date Analyzed: 03/05/18 10:36 Lab File ID: 2018.03.05_537A_028.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Peak assignment corrected	barnettj	03/05/18 14:12

Lab Sample ID: 320-36091-1 Client Sample ID: WGNA-021318-DUP-26Date Analyzed: 03/05/18 10:40 Lab File ID: 2018.03.05_537A_029.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.10	Missed Peak	barnettj	03/05/18 14:09

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 211200Lab Sample ID: 320-36091-2 Client Sample ID: NAWC-021318-RW-188Date Analyzed: 03/05/18 10:45 Lab File ID: 2018.03.05_537A_030.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Peak assignment corrected	barnettj	03/05/18 14:10

Lab Sample ID: 320-36091-4 Client Sample ID: WGN1A-021318-RW-3382Date Analyzed: 03/05/18 10:54 Lab File ID: 2018.03.05_537A_032.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.84	Incomplete Integration	barnettj	03/06/18 09:58
Perfluorooctanesulfonic acid (PFOS)	2.09	Missed Peak	barnettj	03/05/18 14:11

Lab Sample ID: 320-36091-6 Client Sample ID: NAWC-021318-RW-100Date Analyzed: 03/05/18 11:04 Lab File ID: 2018.03.05_537A_034.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Peak assignment corrected	barnettj	03/05/18 14:11

Lab Sample ID: CCV 320-211200/13 CCVIS Client Sample ID: _____Date Analyzed: 03/05/18 11:13 Lab File ID: 2018.03.05_537A_036.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Peak assignment corrected	barnettj	03/05/18 14:07

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 211202Lab Sample ID: CCV 320-211202/13 CCVIS Client Sample ID: _____Date Analyzed: 03/05/18 11:13 Lab File ID: 2018.03.05_537A_036.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Peak assignment corrected	barnettj	03/05/18 14:07

Lab Sample ID: 320-36091-8 Client Sample ID: WGNA-021318-RW-3978Date Analyzed: 03/05/18 11:23 Lab File ID: 2018.03.05_537A_038.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Missed Peak	barnettj	03/05/18 14:13

Lab Sample ID: 320-36091-10 Client Sample ID: WGNA-021318-RW-3933Date Analyzed: 03/05/18 11:32 Lab File ID: 2018.03.05_537A_040.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Incomplete Integration	barnettj	03/05/18 14:14

Lab Sample ID: 320-36091-12 Client Sample ID: NAWC-021318-RW-161Date Analyzed: 03/05/18 11:41 Lab File ID: 2018.03.05_537A_042.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.08	Missed Peak	barnettj	03/05/18 14:15

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 211202Lab Sample ID: 320-36091-14 Client Sample ID: NAWC-021318-RW-292Date Analyzed: 03/05/18 11:51 Lab File ID: 2018.03.05_537A_044.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Peak assignment corrected	barnettj	03/05/18 14:16

Lab Sample ID: 320-36091-17 Client Sample ID: NAWC-021318-FRB-290Date Analyzed: 03/05/18 12:05 Lab File ID: 2018.03.05_537A_047.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Missed Peak	barnettj	03/05/18 14:17

Lab Sample ID: CCV 320-211202/25 CCVIS Client Sample ID: _____Date Analyzed: 03/05/18 12:09 Lab File ID: 2018.03.05_537A_048.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Peak assignment corrected	barnettj	03/05/18 14:08

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 212122Lab Sample ID: CCVL 320-212122/1 Client Sample ID: _____Date Analyzed: 03/09/18 08:53 Lab File ID: 2018.03.09_537A_004.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.10	Missed Peak	barnettj	03/09/18 10:50

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 212124Lab Sample ID: CCV 320-212124/8 CCVIS Client Sample ID: _____Date Analyzed: 03/09/18 09:26 Lab File ID: 2018.03.09_537A_011.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Missed Peak	barnettj	03/09/18 10:51

Lab Sample ID: LCS 320-211311/2-A Client Sample ID: _____Date Analyzed: 03/09/18 09:40 Lab File ID: 2018.03.09_537A_014.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Peak assignment corrected	barnettj	03/09/18 10:53

Lab Sample ID: LCSD 320-211311/3-A Client Sample ID: _____Date Analyzed: 03/09/18 09:45 Lab File ID: 2018.03.09_537A_015.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Peak assignment corrected	barnettj	03/09/18 10:53

Lab Sample ID: 320-36091-10 RE Client Sample ID: WGNA-021318-RW-3933 REDate Analyzed: 03/09/18 09:49 Lab File ID: 2018.03.09_537A_016.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Missed Peak	barnettj	03/09/18 10:54

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 212124Lab Sample ID: CCV 320-212124/19 CCVIS Client Sample ID: _____Date Analyzed: 03/09/18 10:18 Lab File ID: 2018.03.09_537A_022.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.09	Peak assignment corrected	barnettj	03/09/18 10:51

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
LC537-ICV_00030	07/30/18	02/15/18	MeOH/H ₂ O, Lot 067374	10 mL	LC537-IS_00059	1000 uL	13C2-PFOA	10 ng/mL
.LC537-IS_00059	07/30/18	01/30/18	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-ICV_00030	07/30/18	02/15/18	MeOH/H ₂ O, Lot 067374	10 mL	LC537-SU_00059	1000 uL	13C2 PFDA	10 ng/mL
					LC537ICIM2_00001	400 uL	13C2 PFHxA	10 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	100.092 ng/mL
							Perfluoroheptanoic acid (PFHpA)	10 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	20.1619 ng/mL
							Perfluorononanoic acid (PFNA)	20.1641 ng/mL
							Perfluorooctanoic acid (PFOA)	20.167 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	20.1702 ng/mL
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	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_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
.LC537ICIM2_00001	08/15/18	02/15/18	Methanol, Lot 090285	10 mL	LC537ICIM_00020	0.5 mL	Perfluorobutanesulfonic acid (PFBS)	2.5023 ug/mL
							Perfluoroheptanoic acid (PFHpA)	0.25 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.504047 ug/mL
							Perfluorononanoic acid (PFNA)	0.504103 ug/mL
							Perfluorooctanoic acid (PFOA)	0.504176 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.504255 ug/mL
..LC537ICIM_00020	08/15/18	02/15/18	Methanol, Lot 090285	25 mL	LC537-PFBS2_00009	0.625 mL	Perfluorobutanesulfonic acid (PFBS)	50.0459 ug/mL
					LC537-PFHxA2_00012	0.0625 mL	Perfluoroheptanoic acid (PFHpA)	5 ug/mL
					LC537-PFHxS2_00009	0.126 mL	Perfluorohexanesulfonic acid (PFHxS)	10.0809 ug/mL
					LC537-PFNA2_00010	0.126 mL	Perfluorononanoic acid (PFNA)	10.0821 ug/mL
					LC537-PFOA2_00011	0.126 mL	Perfluorooctanoic acid (PFOA)	10.0835 ug/mL
					LC537-PFOS2_00011	0.126 mL	Perfluorooctanesulfonic acid (PFOS)	10.0851 ug/mL
...LC537-PFBS2_00009	08/15/18	02/15/18	Methanol, Lot 090285	17.1 mL	LC537_PFBS2_00002	0.0343 g	Perfluorobutanesulfonic acid (PFBS)	2001.84 ug/mL
....LC537_PFBS2_00002	09/08/22	Santa Cruz Biotechnology, Lot F0917			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	0.998 g/g

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-36091-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC537-PFHpA2_00012	08/15/18	02/15/18	Methanol, Lot 09092	23.95 mL	LC537_PFHpA2_00002	0.0479 g	Perfluoroheptanoic acid (PFHpA)	2000 ug/mL
....LC537_PFHpA2_00002	06/13/22	Afla Aesar, Lot 10200390			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	1 g/g
...LC537-PFHxS2_00009	08/15/18	02/15/18	Methanol, Lot 090285	25.87 mL	LC537_PFHxS2_00002	0.0569 g	Perfluorohexanesulfonic acid (PFHxS)	2000.19 ug/mL
....LC537_PFHxS2_00002	06/08/22	Santa Cruz Biotechnology, Lot G2516			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA2_00010	08/15/18	02/15/18	Methanol, Lot 090285	16.58 mL	LC537_PFNA2_00002	0.0333 g	Perfluorononanoic acid (PFNA)	2000.41 ug/mL
....LC537_PFNA2_00002	06/14/22	Aldrich, Lot MKCC0699			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.996 g/g
...LC537-PFOA2_00011	08/15/18	02/15/18	Methanol, Lot 090285	22.96 mL	LC537_PFOA2_00002	0.0464 g	Perfluorooctanoic acid (PFOA)	2000.7 ug/mL
....LC537_PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.99 g/g
...LC537-PFOS2_00011	08/15/18	02/15/18	Methanol, Lot 090285	14.71 mL	LC537_PFOS2_00002	0.0378 g	Perfluorooctanesulfonic acid (PFOS)	2001.01 ug/mL
....LC537_PFOS2_00002	06/14/22	Sigma, Lot BCBQ0108V			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.7787 g/g
LC537-IS_00061	08/27/18	02/27/18	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
					(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
LC537-IS_00062	08/27/18	02/27/18	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
					(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
LC537-L1_00021	04/01/18	02/15/18	MeOH/H2O, Lot 090285	5 mL	LC537-IS_00059	500 uL	13C2-PFOA	10 ng/mL
					LC537-MSP_00032	60 uL	13C4 PFOS	28.68 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	9.0018 ng/mL
							Perfluoroheptanoic acid (PFHpA)	1.00031 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	3.00134 ng/mL
							Perfluorononanoic acid (PFNA)	2.00088 ng/mL
							Perfluorooctanoic acid (PFOA)	2.01129 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	4.01756 ng/mL
					LC537-SU_00059	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-IS_00059	07/30/18	01/30/18	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-MSP_00032	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
					LC537SPIM_00026	333.4 uL	Perfluorobutanesulfonic acid (PFBS)	750.15 ng/mL
							Perfluoroheptanoic acid (PFHpA)	83.3591 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	250.111 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-36091-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorononanoic acid (PFNA)	166.74 ng/mL
							Perfluorooctanoic acid (PFOA)	167.608 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	334.797 ng/mL
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 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_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537 PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
....LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537 PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537 PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	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_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L2_00021	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-HSP_00027	320 uL	Perfluorobutanesulfonic acid (PFBS)	20.0016 ng/mL
							Perfluoroheptanoic acid (PFHpA)	2.22264 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	6.66884 ng/mL
							Perfluorononanoic acid (PFNA)	4.44587 ng/mL
							Perfluorooctanoic acid (PFOA)	4.469 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	8.92684 ng/mL
					LC537-IS_00059	2 mL	13C2-PFOA	10 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-36091-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-SU_00059	2 mL	13C4 PFOS	28.68 ng/mL
							13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL
							Perfluorononanoic acid (PFNA)	277.867 ng/mL
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	557.928 ng/mL
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 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_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537 PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537 PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537 PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00059	07/30/18	01/30/18	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_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

 Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration																		
					Reagent ID	Volume Added																				
..LCMPFHxA_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL																		
LC537-L3_00024	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-HSP_00027	720 uL	Perfluorobutanesulfonic acid (PFBS)	45.0036 ng/mL																		
							Perfluoroheptanoic acid (PFHpA)	5.00094 ng/mL																		
							Perfluorohexanesulfonic acid (PFHxS)	15.0049 ng/mL																		
							Perfluorononanoic acid (PFNA)	10.0032 ng/mL																		
							Perfluorooctanoic acid (PFOA)	10.0553 ng/mL																		
							Perfluorooctanesulfonic acid (PFOS)	20.0854 ng/mL																		
					LC537-IS_00059	2 mL	13C2-PFOA	10 ng/mL																		
					LC537-SU_00059	2 mL	13C4 PFOS	28.68 ng/mL																		
							13C2 PFDA	10 ng/mL																		
.LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	13C2 PFHxA	10 ng/mL																		
							Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL																		
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL																		
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL																		
							Perfluorononanoic acid (PFNA)	277.867 ng/mL																		
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL																		
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorooctanesulfonic acid (PFOS)	557.928 ng/mL																		
							Perfluorobutanesulfonic acid (PFBS)	90 ug/mL																		
							LC537-PFHxA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL																
							LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL																
							LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL																
							LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL																
LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL																							
		...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFB_00002	0.0974 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL																
....LC537_PFB_00002	04/01/18								Sigma, Lot MKBP8842V		(Purchased Reagent)	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL													
									...LC537-PFHxA_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHxA_00002	0.1207 g	Perfluorohexanesulfonic acid (PFHxS)	0.99 g/g									
																LC537_PFHxA_00002	04/01/18	Aldrich, Lot BCBM2579V		(Purchased Reagent)	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL				
																		...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
																									LC537_PFHxS_00002	04/01/18
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537 PFNA_00002	0.065 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL																		
							LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F		(Purchased Reagent)															
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537 PFOA_00003	0.0312 g																				

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-36091-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....LC537_PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00059	07/30/18	01/30/18	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_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFHxA_00015	11/22/21		Wellington Laboratories, Lot MPFHxA1116		LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
					(Purchased Reagent)		13C2 PFDA	50 ug/mL
					(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L4_00021	04/01/18	02/15/18	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00027	360 uL	Perfluorobutanesulfonic acid (PFBS)	90.0072 ng/mL
							Perfluoroheptanoic acid (PFHpA)	10.0019 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	30.0098 ng/mL
							Perfluorononanoic acid (PFNA)	20.0064 ng/mL
							Perfluorooctanoic acid (PFOA)	20.1105 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	40.1708 ng/mL
					LC537-IS_00059	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00059	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL
							Perfluorononanoic acid (PFNA)	277.867 ng/mL
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	557.928 ng/mL
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHxA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-36091-1

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_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537 PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537 PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537 PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00059	07/30/18	01/30/18	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_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFHxA_00015	11/22/21		Wellington Laboratories, Lot MPFHxA1116		LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
					(Purchased Reagent)		13C2 PFDA	50 ug/mL
					(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L5_00025	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-HSP_00027	2160 uL	Perfluorobutanesulfonic acid (PFBs)	135.011 ng/mL
							Perfluoroheptanoic acid (PFHpA)	15.0028 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	45.0147 ng/mL
							Perfluorononanoic acid (PFNA)	30.0096 ng/mL
							Perfluorooctanoic acid (PFOA)	30.1658 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	60.2562 ng/mL
					LC537-IS_00059	2 mL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00059	2 mL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutanesulfonic acid (PFBs)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL
							Perfluorononanoic acid (PFNA)	277.867 ng/mL
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-36091-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid (PFOS)	557.928 ng/mL
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 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_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537 PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
....LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537 PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537 PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00059	07/30/18	01/30/18	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_00059	07/30/18	01/30/18	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_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	0.1 ug/mL
LC537-L6_00021	04/01/18	02/15/18	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00027	720 uL	Perfluorobutanesulfonic acid (PFBS)	180.014 ng/mL
							Perfluoroheptanoic acid (PFHpA)	20.0038 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	60.0196 ng/mL
							Perfluorononanoic acid (PFNA)	40.0128 ng/mL
							Perfluorooctanoic acid (PFOA)	40.221 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-36091-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration						
					Reagent ID	Volume Added								
							Perfluorooctanesulfonic acid (PFOS)	80.3416 ng/mL						
					LC537-IS_00059	500 uL	13C2-PFOA	10 ng/mL						
							13C4 PFOS	28.68 ng/mL						
					LC537-SU_00059	500 uL	13C2 PFDA	10 ng/mL						
.LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	13C2 PFHxA	10 ng/mL						
							Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL						
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL						
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL						
							Perfluorononanoic acid (PFNA)	277.867 ng/mL						
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorooctanoic acid (PFOA)	279.313 ng/mL						
							Perfluorobutanesulfonic acid (PFOS)	557.928 ng/mL						
							Perfluorobutanesulfonic acid (PFBS)	90 ug/mL						
							Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL						
							Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL						
							Perfluorononanoic acid (PFNA)	20.0048 ug/mL						
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL						
							LC537-PFOS_00009	800 uL	Perfluorobutanesulfonic acid (PFOS)	40.1676 ug/mL				
							Perfluorobutanesulfonic acid (PFBS)	2 mg/mL						
							LC537-PFBS_00002	04/01/18	Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
							...LC537-PFHxA_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537-PFHxA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)
....LC537-PFHxA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g						
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537-PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL						
....LC537-PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g						
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537-PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL						
....LC537-PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g						
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537-PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL						
....LC537-PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g						
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537-PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL						
....LC537-PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g						
.LC537-IS_00059	07/30/18	01/30/18	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						
							13C4 PFOS	47.8 ug/mL						

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-36091-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	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_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-LSP_00029	04/01/18	01/30/18	Methanol, Lot 090285	40000 uL	LC537SPIM_00026	100 uL	Perfluorobutane Sulfonate	225 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	225 ng/mL
							Perfluoroheptanoic acid (PFHpA)	25.0027 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	75.0184 ng/mL
							Perfluorononanoic acid (PFNA)	50.012 ng/mL
							Perfluorooctanoic acid (PFOA)	50.2723 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	100.419 ng/mL
.LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutane Sulfonate	90 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
..LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutane Sulfonate	2 mg/mL
							Perfluorobutanesulfonic acid (PFBS)	2 mg/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_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
...LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
..LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
...LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537 PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
...LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
..LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537 PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
...LC537 PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
..LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
...LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
LC537-MSP_00032	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	333.4 uL	Perfluorobutane Sulfonate	750.15 ng/mL

REAGENT TRACEABILITY SUMMARY

 Lab Name: TestAmerica Sacramento

 Job No.: 320-36091-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorobutanesulfonic acid (PFBS)	750.15 ng/mL
							Perfluoroheptanoic acid (PFHpA)	83.3591 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	250.111 ng/mL
							Perfluorononanoic acid (PFNA)	166.74 ng/mL
							Perfluorooctanoic acid (PFOA)	167.608 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	334.797 ng/mL
.LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutane Sulfonate	90 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
..LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutane Sulfonate	2 mg/mL
							Perfluorobutanesulfonic acid (PFBS)	2 mg/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_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
...LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
..LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
...LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537 PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
...LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
..LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537 PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
...LC537 PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
..LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
...LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
LC537-SU_00058	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	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_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-SU_00063	08/27/18	02/27/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
.LCMPFHxA_00015	11/22/21		Wellington Laboratories, Lot MPFHxA1116		(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:

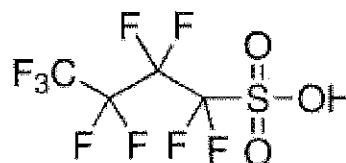
300.10 g/mol

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

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_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

This document has been electronically generated and does not require a signature.

Order our products online www.alfa.com

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

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_PFHxS2_00002

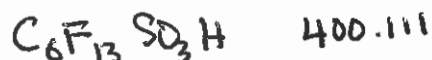
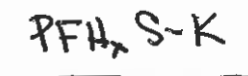


The Future is Now

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%

This document was produced electronically and is valid without a signature.

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 SW

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:

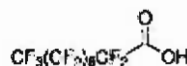
C₉H₁₇O₂

Formula Weight:

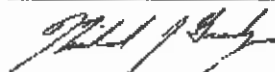
464.08 g/mol

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

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_PFOA_00003

C: 11/30/16 SKV
PFA

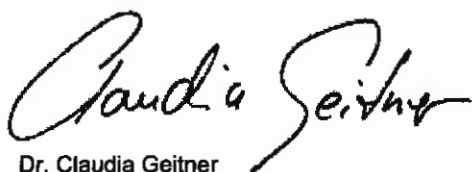
SIGMA-ALDRICH

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

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_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%

This document has been electronically generated and does not require a signature.

Order our products online www.alfa.com

ThermoFisher
SCIENTIFIC

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: HEPTADEC AFLUORO OCTANESULFONIC 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

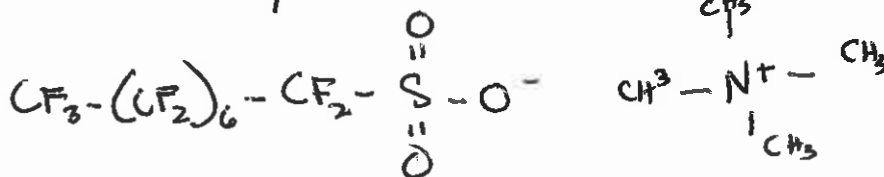
TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	WHITE TO OFF WHITE	OFF-WHITE
APPEARANCE (FORM)	POWDER OR POWDER WITH CHUNK(S)	POWDER
CARBON CONTENT	29.77 % - 31.29 %	29.97 %
INFRARED SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS

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:

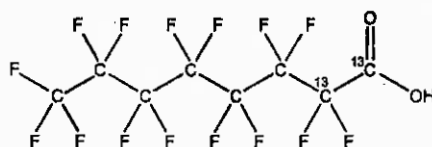
M2PFOA

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.

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:

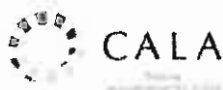
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

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.

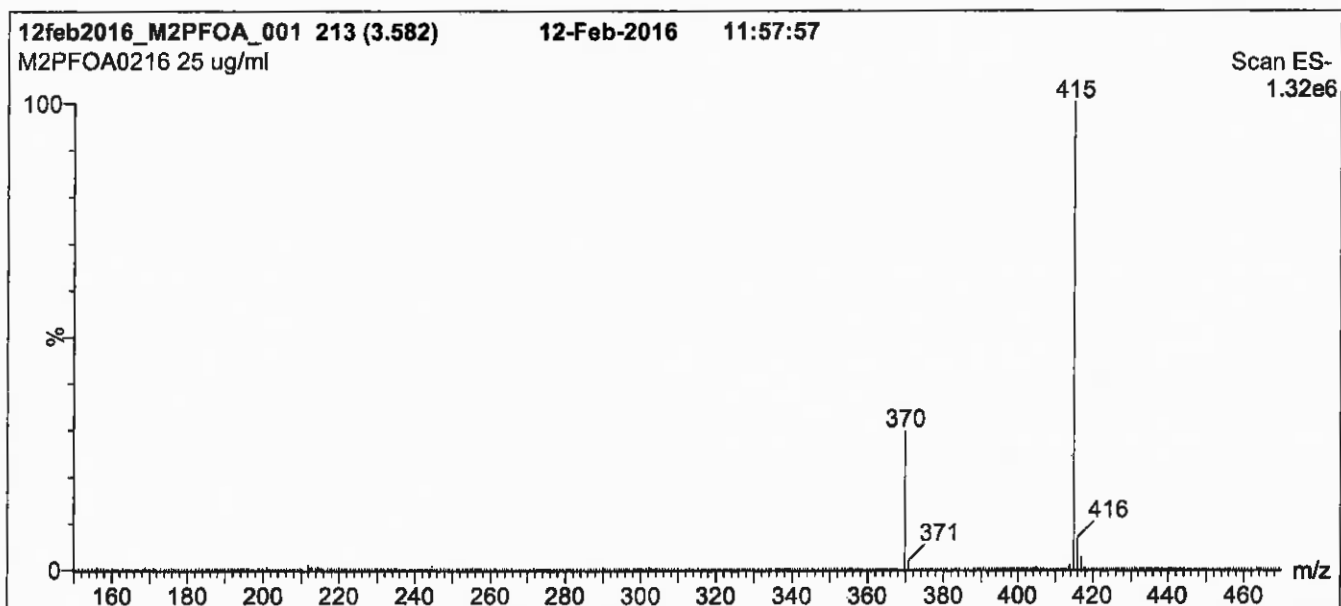
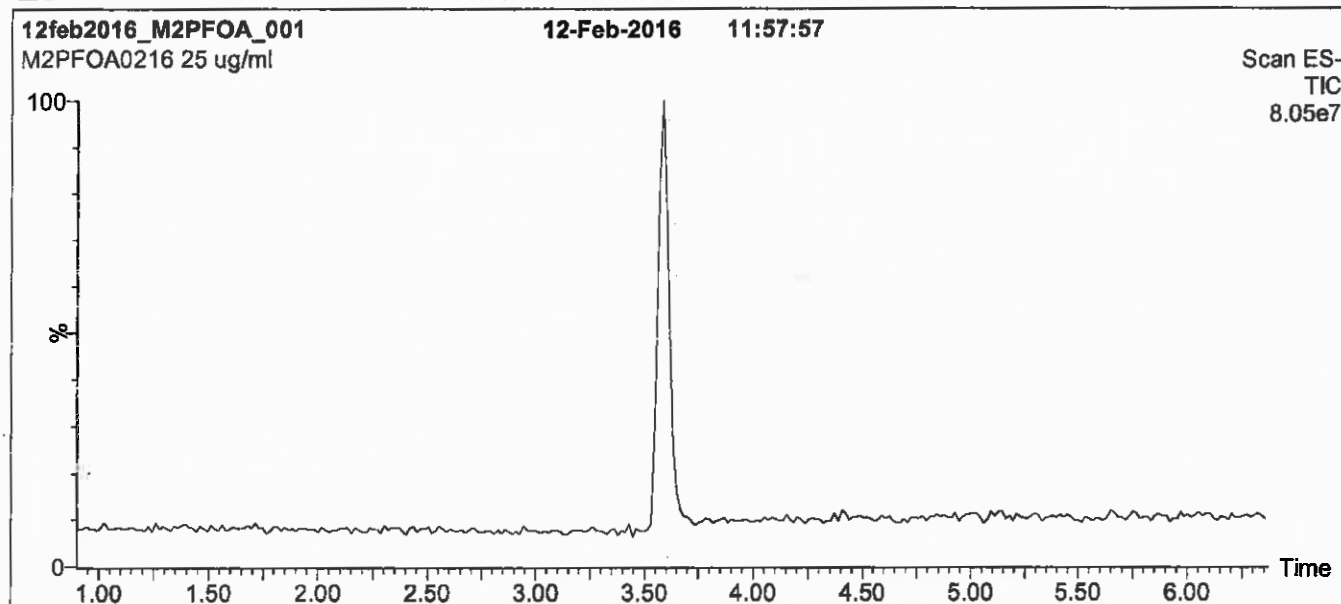
QUALITY MANAGEMENT:

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: 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

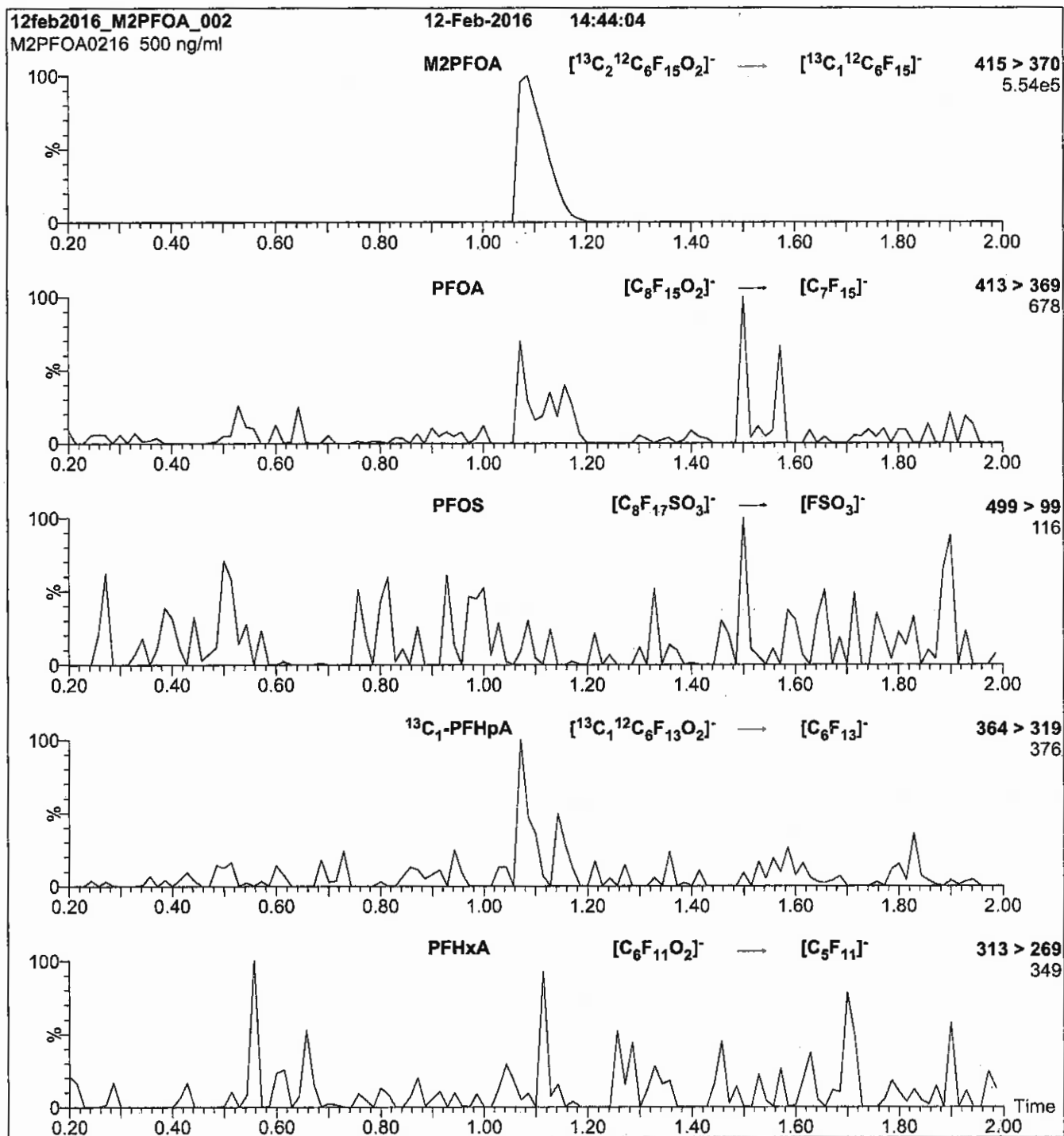
Flow: 300 μ l/min

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 acid



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE:

MPFDA

COMPOUND:

Perfluoro-n-[1,2-¹³C₂]decanoic acid

LOT NUMBER:

MPFDA0916

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

(1,2-¹³C₂)

LAST TESTED: (mm/dd/yyyy)

09/30/2016

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. Chritton

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.

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:

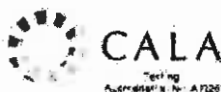
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

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.

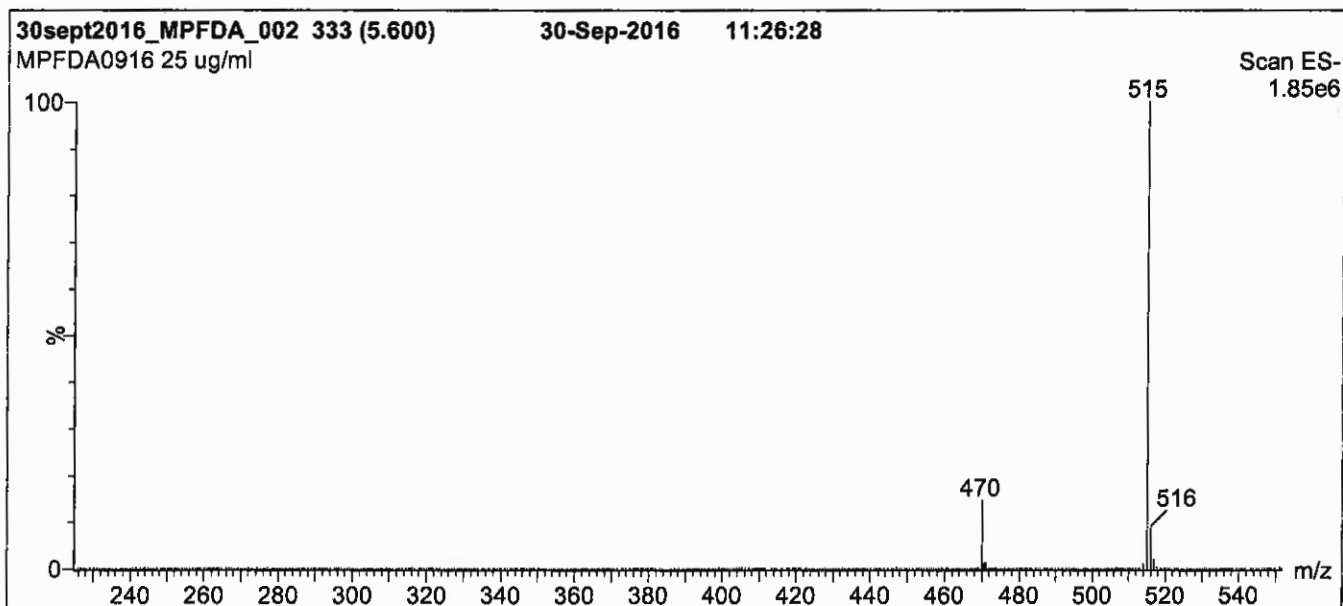
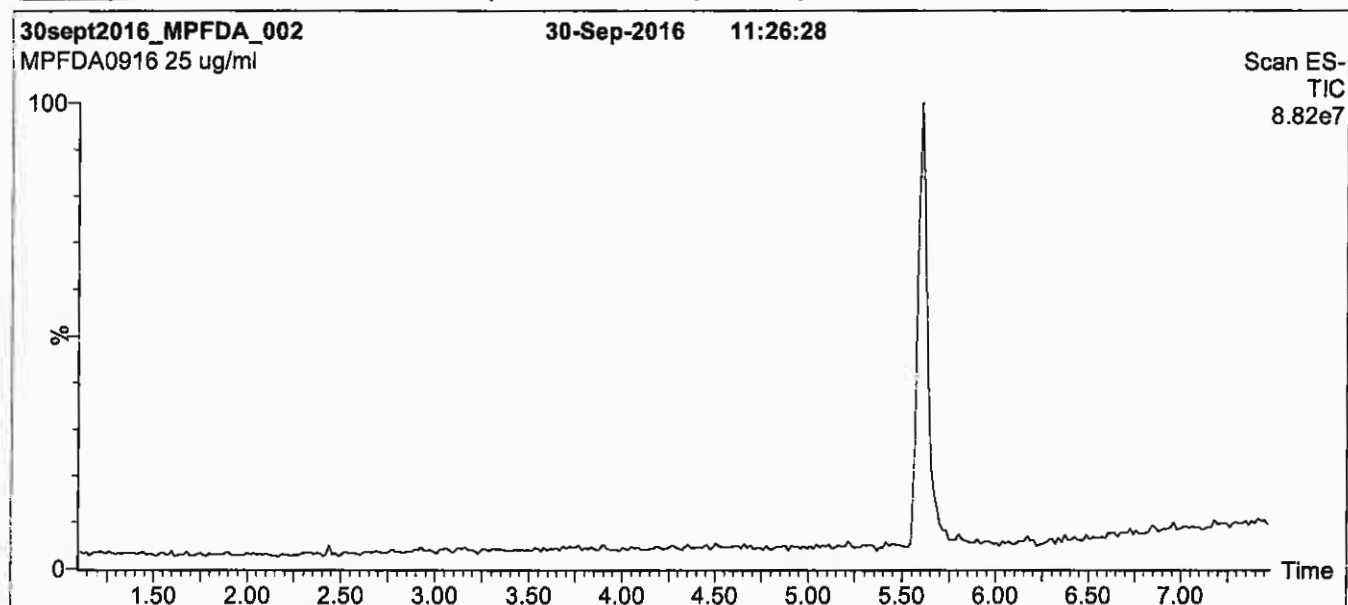
QUALITY MANAGEMENT:

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: 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

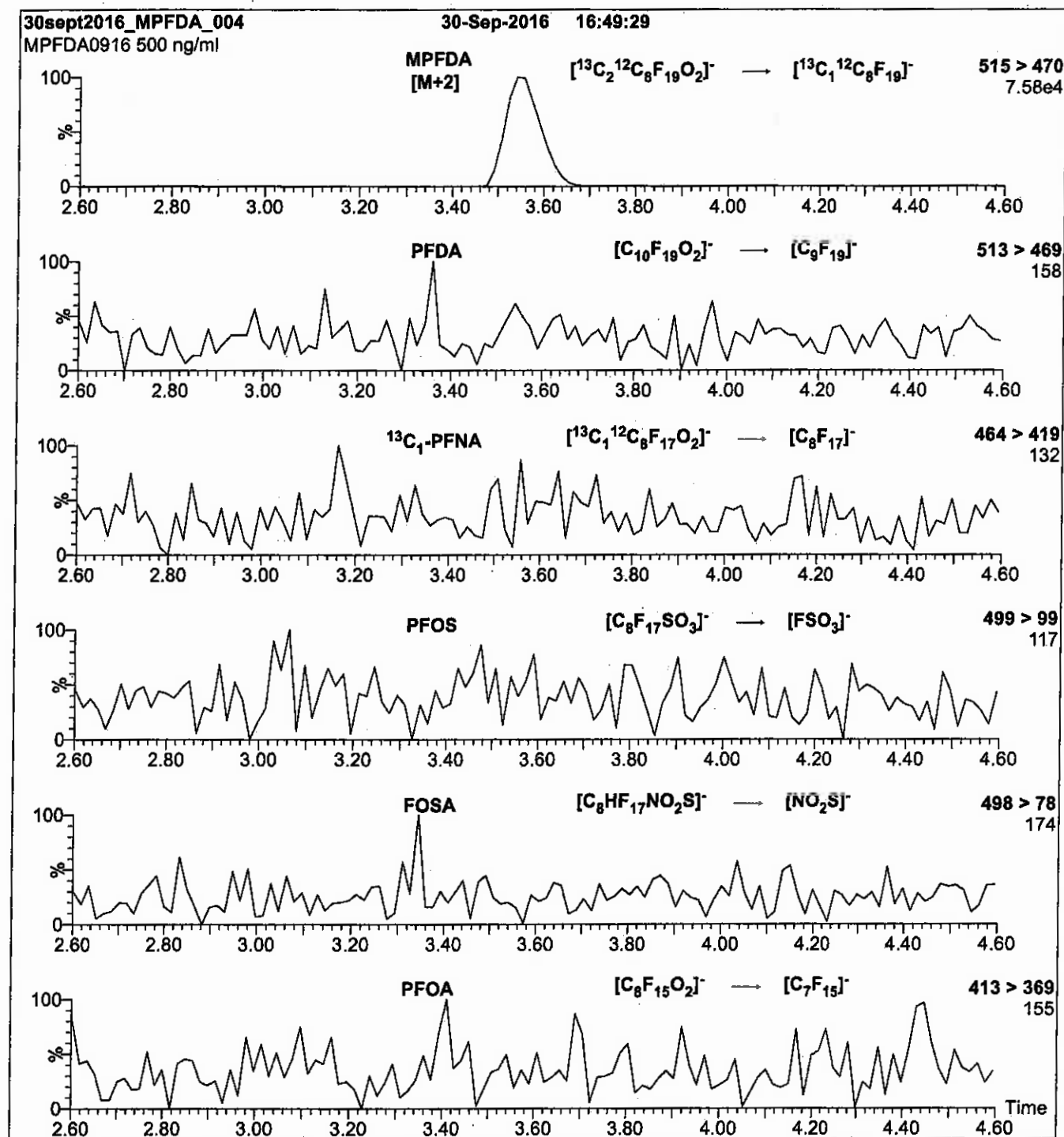
Flow: 300 μ l/min

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_00015

m: 5/6/17 SKJ



WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFHxA
COMPOUND: Perfluoro-n-[1,2-¹³C₂]hexanoic acid

LOT NUMBER: MPFHxA1116

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₄HF₁₁O₂
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 316.04
SOLVENT(S): Methanol
Water (<1%)
ISOTOPIC PURITY: ≥99% ¹³C
(1,2-¹³C₂)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 11/22/2016
EXPIRY DATE: (mm/dd/yyyy) 11/22/2021
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: 12/13/2016
(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.

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:

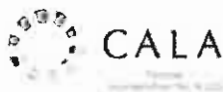
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

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.

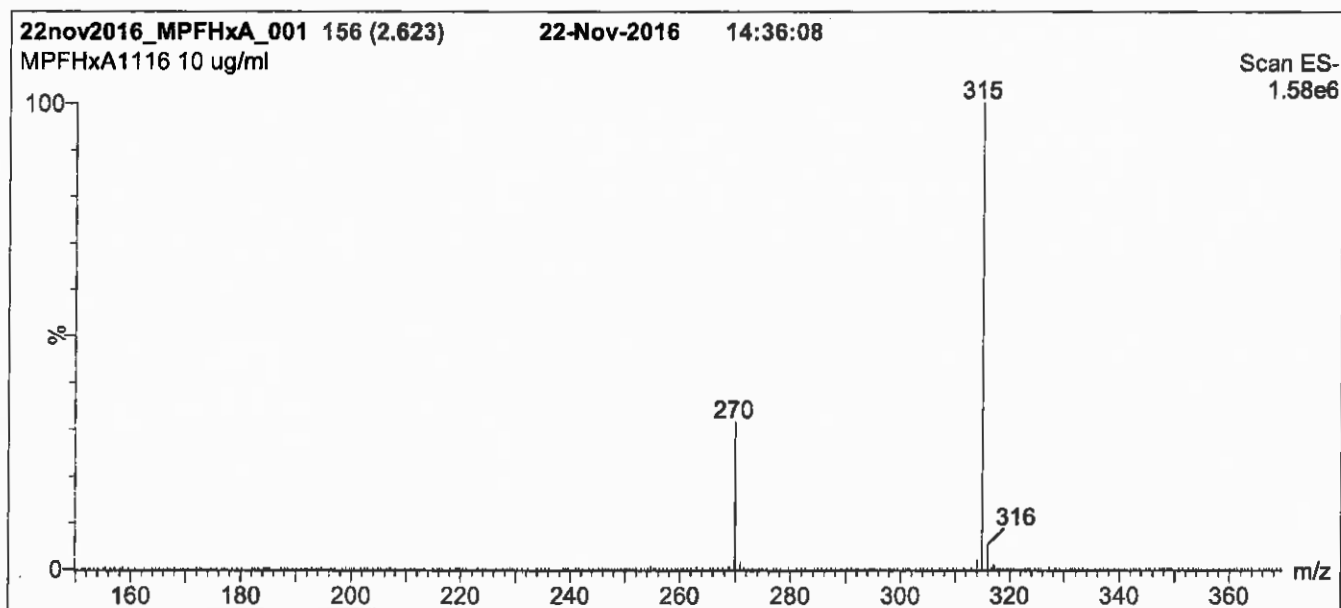
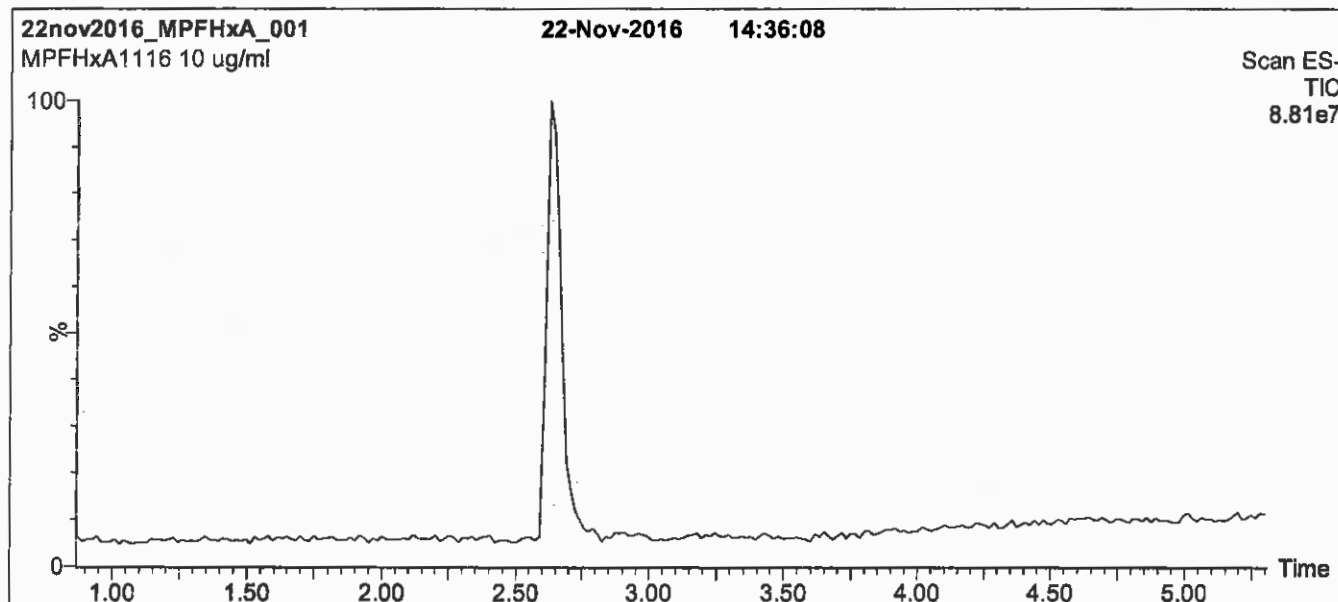
QUALITY MANAGEMENT:

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: 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

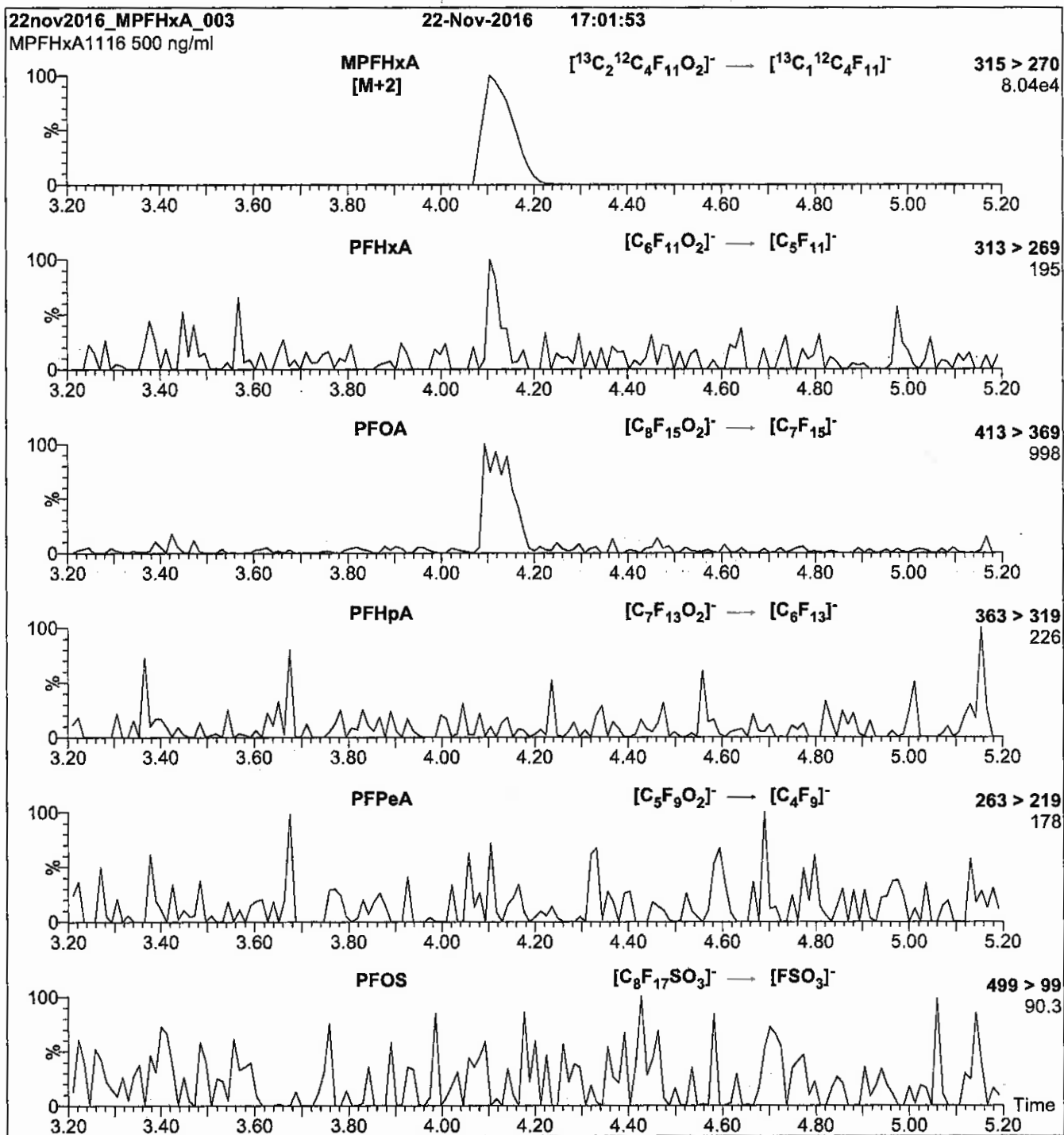
Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm
Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions over 0.5 min.
Time: 10 min

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) = $3.46\text{e-}3$
Collision Energy (eV) = 10

Reagent

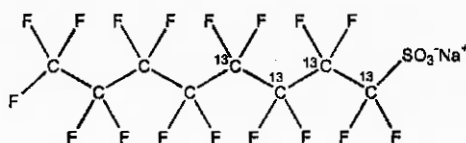
LCMPFOS_00021



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

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.

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:

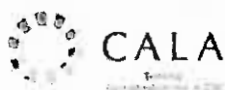
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

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.

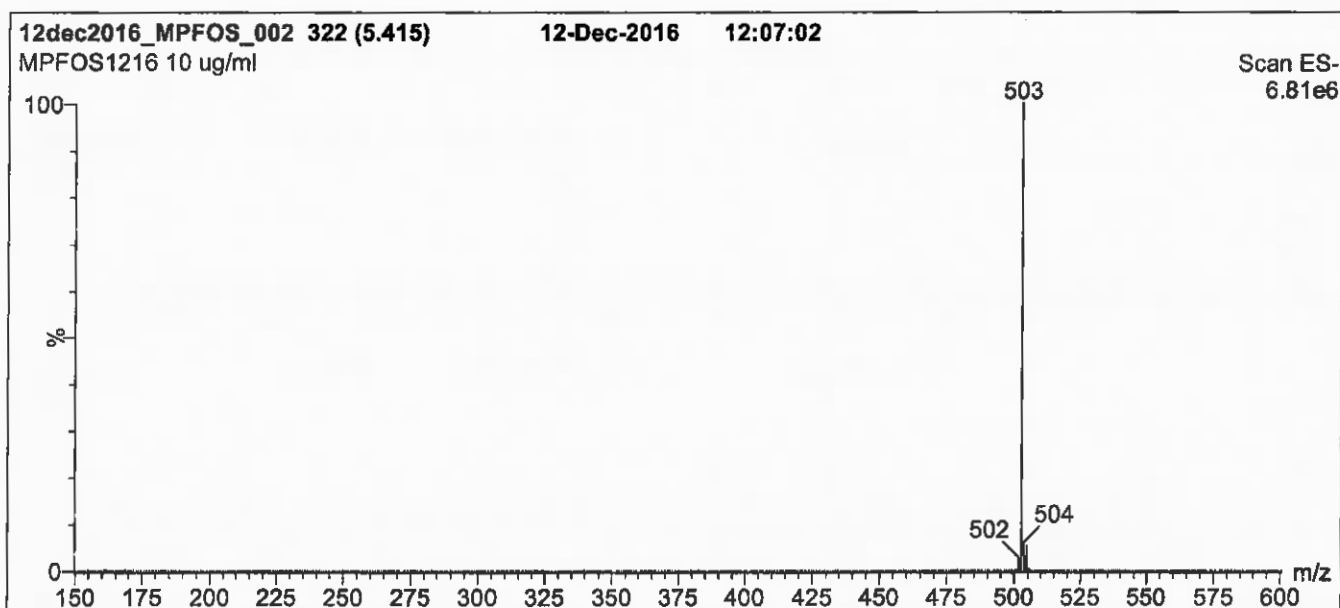
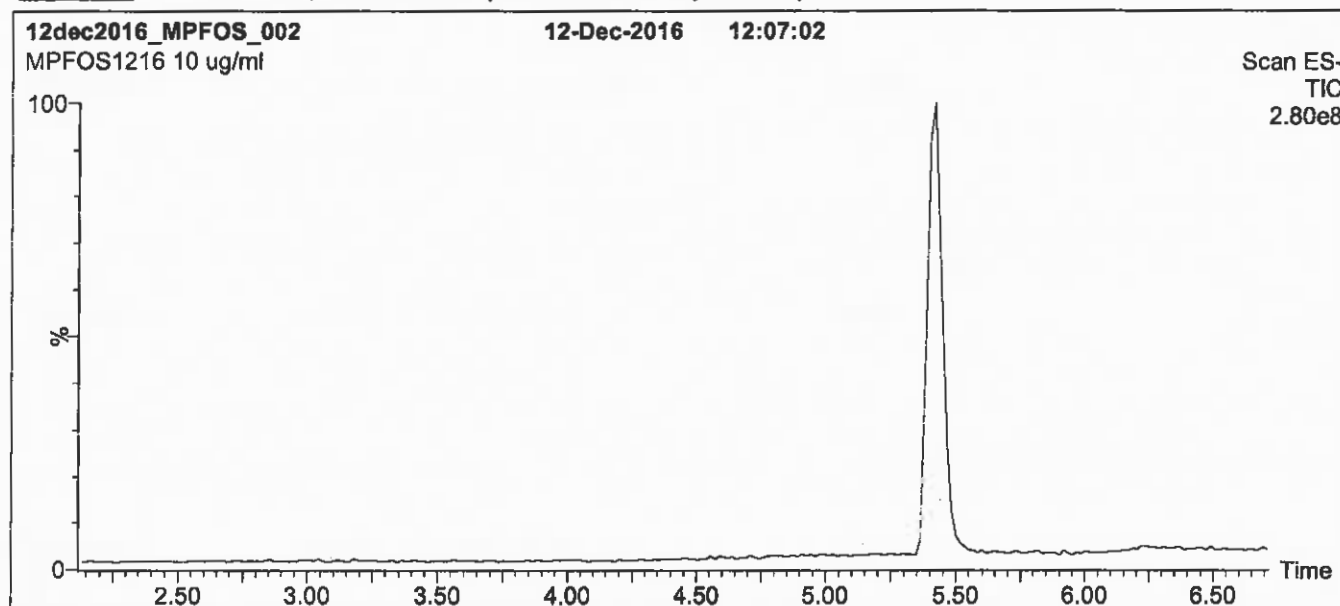
QUALITY MANAGEMENT:

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: 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)

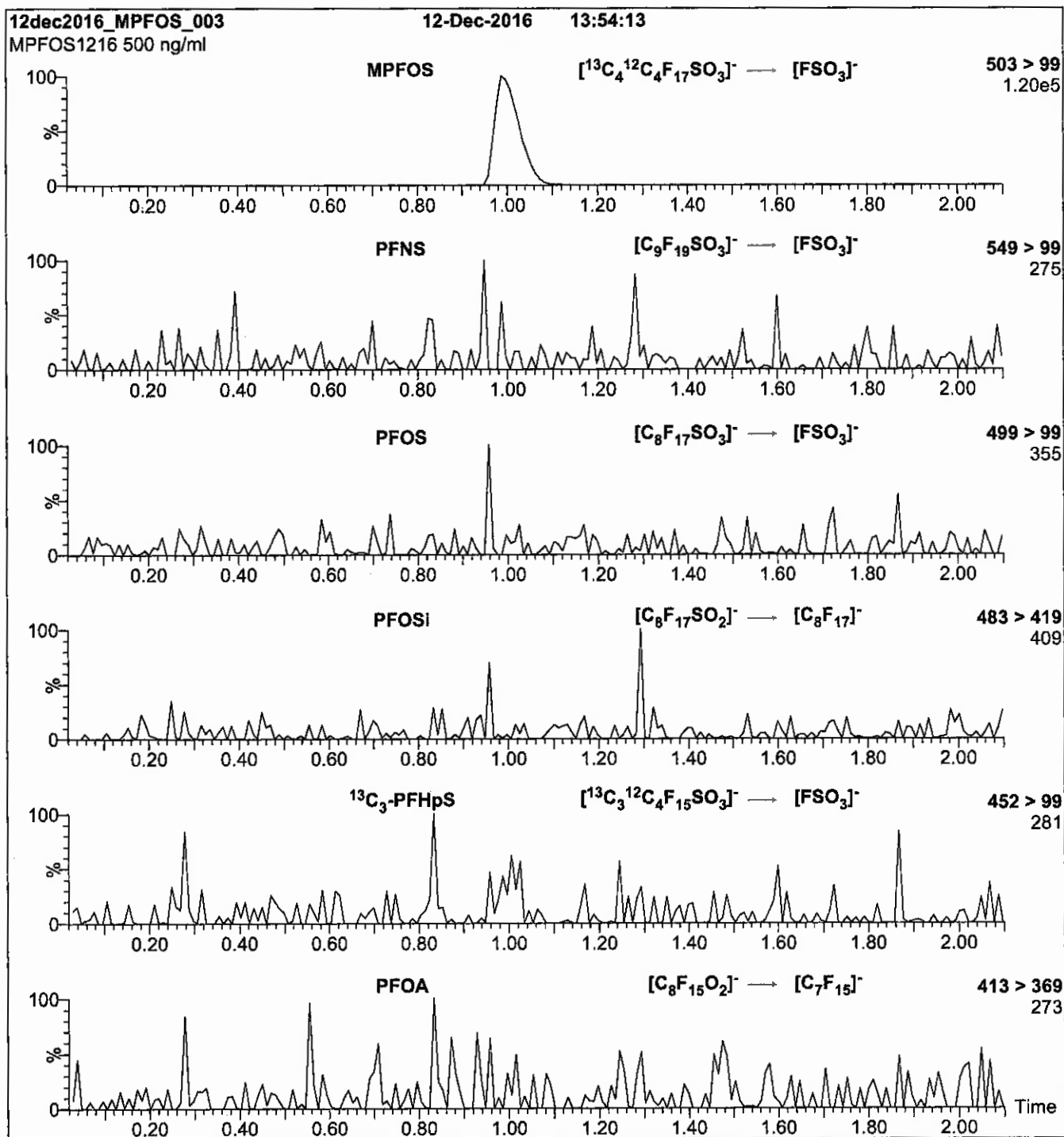
Capillary Voltage (kV) = 3.00

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.: 320-36091-1

SDG No.: _____

Matrix: Water

Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
WGNA-021318-DUP-26	320-36091-1	88	115
NAWC-021318-RW-188	320-36091-2	96	112
NAWC-021318-FRB-188	320-36091-3	98	107
WGN1A-021318-RW-3382	320-36091-4	94	112
WGNA-021318-FRB-3382	320-36091-5	97	110
NAWC-021318-RW-100	320-36091-6	77	109
NAWC-021318-FRB-100	320-36091-7	100	117
WGNA-021318-RW-3978	320-36091-8	87	109
WGNA-021318-FRB-3978	320-36091-9	103	116
WGNA-021318-RW-3933	320-36091-10	47 Q	56 Q
WGNA-021318-RW-3933 RE	320-36091-10 RE	80	107
WGNA-021318-FRB-3933	320-36091-11	99	110
NAWC-021318-RW-161	320-36091-12	86	104
NAWC-021318-FRB-161	320-36091-13	99	114
NAWC-021318-RW-292	320-36091-14	87	115
NAWC-021318-FRB-292	320-36091-15	95	113
NAWC-021318-RW-290	320-36091-16	105	113
NAWC-021318-FRB-290	320-36091-17	87	108
	MB 320-210229/1-A	100	115
	MB 320-211311/1-A	87	106
	LCS 320-211311/2-A	90	106
	LCSD 320-211311/3-A	90	101
	LLCS 320-210229/2-A	99	110
	LLCSD 320-210229/3-A	101	111

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

QC LIMITS
70-130
70-130

Column to be used to flag recovery values

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2018.03.09_537A_014.d
 Lab ID: LCS 320-211311/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	134	134	100	70-130	M
Perfluorooctanoic acid (PFOA)	67.0	67.5	101	70-130	
Perfluorononanoic acid (PFNA)	66.7	73.1	110	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	99.2	99	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	34.4	103	70-130	
Perfluorobutanesulfonic acid (PFBS)	300	265	88	70-130	

Column to be used to flag recovery and RPD values

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2018.03.09_537A_015.d
 Lab ID: LCSD 320-211311/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	134	129	96	4	30	70-130	M
Perfluorooctanoic acid (PFOA)	67.0	61.1	91	10	30	70-130	
Perfluorononanoic acid (PFNA)	66.7	70.9	106	3	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	98.1	98	1	30	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	33.3	100	3	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	300	264	88	0	30	70-130	

Column to be used to flag recovery and RPD values

FORM III
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2018.03.05_537A_027.d
 Lab ID: LLCS 320-210229/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LLCS CONCENTRATION (ng/L)	LLCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	40.2	42.5	106	50-150	M
Perfluorooctanoic acid (PFOA)	20.1	20.3	101	50-150	
Perfluorononanoic acid (PFNA)	20.0	23.1 J	116	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.0	31.9	106	50-150	
Perfluoroheptanoic acid (PFHpA)	10.0	11.8	118	50-150	
Perfluorobutanesulfonic acid (PFBS)	90.0	82.0 J	91	50-150	

Column to be used to flag recovery and RPD values

FORM III
LCMS LOW LEVEL CONTROL STANDARD DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2018.03.05_537A_028.d
 Lab ID: LLCSD 320-210229/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LLCSD CONCENTRATION (ng/L)	LLCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	40.2	43.2	108	2	50	50-150	M
Perfluorooctanoic acid (PFOA)	20.1	20.4	101	0.5	50	50-150	
Perfluorononanoic acid (PFNA)	20.0	23.9 J	119	3	50	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.0	31.2	104	2	50	50-150	
Perfluoroheptanoic acid (PFHpA)	10.0	11.9	119	1	50	50-150	
Perfluorobutanesulfonic acid (PFBS)	90.0	83.6 J	93	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.: 320-36091-1
 SDG No.: _____
 Lab File ID: 2018.03.05_537A_026.d Lab Sample ID: MB 320-210229/1-A
 Matrix: Water Date Extracted: 02/27/2018 08:13
 Instrument ID: A8_N Date Analyzed: 03/05/2018 10:26
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LLCS 320-210229/2-A	2018.03.05_537A_027.d	03/05/2018 10:31
	LLCSD 320-210229/3-A	2018.03.05_537A_028.d	03/05/2018 10:36
WGNA-021318-DUP-26	320-36091-1	2018.03.05_537A_029.d	03/05/2018 10:40
NAWC-021318-RW-188	320-36091-2	2018.03.05_537A_030.d	03/05/2018 10:45
NAWC-021318-FRB-188	320-36091-3	2018.03.05_537A_031.d	03/05/2018 10:50
WGN1A-021318-RW-3382	320-36091-4	2018.03.05_537A_032.d	03/05/2018 10:54
WGNA-021318-FRB-3382	320-36091-5	2018.03.05_537A_033.d	03/05/2018 10:59
NAWC-021318-RW-100	320-36091-6	2018.03.05_537A_034.d	03/05/2018 11:04
NAWC-021318-FRB-100	320-36091-7	2018.03.05_537A_035.d	03/05/2018 11:08
WGNA-021318-RW-3978	320-36091-8	2018.03.05_537A_038.d	03/05/2018 11:23
WGNA-021318-FRB-3978	320-36091-9	2018.03.05_537A_039.d	03/05/2018 11:27
WGNA-021318-RW-3933	320-36091-10	2018.03.05_537A_040.d	03/05/2018 11:32
WGNA-021318-FRB-3933	320-36091-11	2018.03.05_537A_041.d	03/05/2018 11:37
NAWC-021318-RW-161	320-36091-12	2018.03.05_537A_042.d	03/05/2018 11:41
NAWC-021318-FRB-161	320-36091-13	2018.03.05_537A_043.d	03/05/2018 11:46
NAWC-021318-RW-292	320-36091-14	2018.03.05_537A_044.d	03/05/2018 11:51
NAWC-021318-FRB-292	320-36091-15	2018.03.05_537A_045.d	03/05/2018 11:55
NAWC-021318-RW-290	320-36091-16	2018.03.05_537A_046.d	03/05/2018 12:00
NAWC-021318-FRB-290	320-36091-17	2018.03.05_537A_047.d	03/05/2018 12:05

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
SDG No.: _____
Lab File ID: 2018.03.09_537A_013.d Lab Sample ID: MB 320-211311/1-A
Matrix: Water Date Extracted: 03/05/2018 17:45
Instrument ID: A8_N Date Analyzed: 03/09/2018 09:35
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-211311/2-A	2018.03.09_ 537A 014.d	03/09/2018 09:40
	LCSD 320-211311/3-A	2018.03.09_ 537A 015.d	03/09/2018 09:45
WGNA-021318-RW-3933 RE	320-36091-10 RE	2018.03.09_ 537A 016.d	03/09/2018 09:49

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 02/16/2018 09:19
 Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		937117	1.86	2726868	2.11		
UPPER LIMIT		1405676	2.36	4090302	2.61		
LOWER LIMIT		468559	1.36	1363434	1.61		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-208773/11		955394	1.87	2663428	2.12		
ICV 320-208773/13		890238	1.85	2703377	2.11		
CCVL 320-211128/1		856705	1.89	2531502	2.15		
CCV 320-211200/1 CCVIS		955148	1.84	2682346	2.10		
MB 320-210229/1-A		835980	1.83	2465790	2.09		
LLCS 320-210229/2-A		870348	1.83	2603304	2.09		
LLCSD 320-210229/3-A		822256	1.83	2499043	2.09		
320-36091-1	WGNA-021318-DUP-26	910988	1.84	2690930	2.10		
320-36091-2	NAWC-021318-RW-188	811319	1.83	2445777	2.09		
320-36091-3	NAWC-021318-FRB-188	807139	1.83	2390571	2.09		
320-36091-4	WGN1A-021318-RW-3382	835912	1.83	2478112	2.09		
320-36091-5	WGNA-021318-FRB-3382	938305	1.84	2815703	2.09		
320-36091-6	NAWC-021318-RW-100	917373	1.83	2740449	2.09		
320-36091-7	NAWC-021318-FRB-100	901199	1.83	2734418	2.09		
CCV 320-211200/13 CCVIS		930083	1.84	2736448	2.09		
CCV 320-211202/13 CCVIS		930083	1.84	2736448	2.09		
320-36091-8	WGNA-021318-RW-3978	920332	1.83	2689190	2.09		
320-36091-9	WGNA-021318-FRB-3978	795161	1.83	2361397	2.09		
320-36091-11	WGNA-021318-FRB-3933	874758	1.84	2540389	2.09		
320-36091-12	NAWC-021318-RW-161	869043	1.82	2485385	2.08		
320-36091-13	NAWC-021318-FRB-161	877474	1.83	2664695	2.09		
320-36091-14	NAWC-021318-RW-292	919307	1.83	2681340	2.09		
320-36091-15	NAWC-021318-FRB-292	894439	1.83	2594697	2.09		
320-36091-16	NAWC-021318-RW-290	941625	1.82	2780425	2.08		
CCV 320-211202/25 CCVIS		951680	1.83	2793662	2.09		
CCVL 320-212122/1		1054723	1.84	3033079	2.10		
CCV 320-212124/8 CCVIS		870751	1.83	2649281	2.09		
MB 320-211311/1-A		985457	1.84	2765019	2.09		

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.: 320-36091-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 02/16/2018 09:19
 Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		937117	1.86	2726868	2.11		
UPPER LIMIT		1405676	2.36	4090302	2.61		
LOWER LIMIT		468559	1.36	1363434	1.61		
LAB SAMPLE ID	CLIENT SAMPLE ID						
LCS 320-211311/2-A		954109	1.83	2771174	2.09		
LCSD 320-211311/3-A		968987	1.84	2749585	2.09		
320-36091-10 RE	WGNA-021318-RW-3933 RE	1009202	1.83	2874291	2.09		
CCV 320-212124/19 CCVIS		957373	1.83	2813287	2.09		

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.: 320-36091-1
 SDG No.: _____
 Sample No.: CCV 320-211200/1 Date Analyzed: 03/05/2018 10:17
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.03.05_537A_024 Heated Purge: (Y/N) N
 Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		955148	1.84	2682346	2.10		
UPPER LIMIT		1337207	2.34	3755284	2.60		
LOWER LIMIT		668604	1.34	1877642	1.60		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-210229/1-A		835980	1.83	2465790	2.09		
LLCS 320-210229/2-A		870348	1.83	2603304	2.09		
LLCSD 320-210229/3-A		822256	1.83	2499043	2.09		
320-36091-1	WGNA-021318-DUP-26	910988	1.84	2690930	2.10		
320-36091-2	NAWC-021318-RW-188	811319	1.83	2445777	2.09		
320-36091-3	NAWC-021318-FRB-188	807139	1.83	2390571	2.09		
320-36091-4	WGN1A-021318-RW-3382	835912	1.83	2478112	2.09		
320-36091-5	WGNA-021318-FRB-3382	938305	1.84	2815703	2.09		
320-36091-6	NAWC-021318-RW-100	917373	1.83	2740449	2.09		
320-36091-7	NAWC-021318-FRB-100	901199	1.83	2734418	2.09		

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.: 320-36091-1
 SDG No.: _____
 Sample No.: CCV 320-211200/13 Date Analyzed: 03/05/2018 11:13
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.03.05_537A_036 Heated Purge: (Y/N) N
 Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		930083	1.84	2736448	2.09		
UPPER LIMIT		1302116	2.34	3831027	2.59		
LOWER LIMIT		651058	1.34	1915514	1.59		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-210229/1-A		835980	1.83	2465790	2.09		
LLCS 320-210229/2-A		870348	1.83	2603304	2.09		
LLCSD 320-210229/3-A		822256	1.83	2499043	2.09		
320-36091-1	WGNA-021318-DUP-26	910988	1.84	2690930	2.10		
320-36091-2	NAWC-021318-RW-188	811319	1.83	2445777	2.09		
320-36091-3	NAWC-021318-FRB-188	807139	1.83	2390571	2.09		
320-36091-5	WGNA-021318-FRB-3382	938305	1.84	2815703	2.09		
320-36091-6	NAWC-021318-RW-100	917373	1.83	2740449	2.09		
320-36091-7	NAWC-021318-FRB-100	901199	1.83	2734418	2.09		

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.: 320-36091-1
 SDG No.: _____
 Sample No.: CCV 320-211202/13 Date Analyzed: 03/05/2018 11:13
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.03.05_537A_036 Heated Purge: (Y/N) N
 Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		930083	1.84	2736448	2.09		
UPPER LIMIT		1302116	2.34	3831027	2.59		
LOWER LIMIT		651058	1.34	1915514	1.59		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-36091-8	WGNA-021318-RW-3978	920332	1.83	2689190	2.09		
320-36091-9	WGNA-021318-FRB-3978	795161	1.83	2361397	2.09		
320-36091-10	WGNA-021318-RW-3933	1619413Q	1.83	4786476Q	2.09		
320-36091-11	WGNA-021318-FRB-3933	874758	1.84	2540389	2.09		
320-36091-12	NAWC-021318-RW-161	869043	1.82	2485385	2.08		
320-36091-13	NAWC-021318-FRB-161	877474	1.83	2664695	2.09		
320-36091-14	NAWC-021318-RW-292	919307	1.83	2681340	2.09		
320-36091-15	NAWC-021318-FRB-292	894439	1.83	2594697	2.09		
320-36091-16	NAWC-021318-RW-290	941625	1.82	2780425	2.08		
320-36091-17	NAWC-021318-FRB-290	889189	1.83	2611881	2.09		

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.: 320-36091-1
 SDG No.: _____
 Sample No.: CCV 320-211202/25 Date Analyzed: 03/05/2018 12:09
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.03.05_537A_048 Heated Purge: (Y/N) N
 Calibration ID: 37889

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	951680	1.83	2793662	2.09		
UPPER LIMIT	1332352	2.33	3911127	2.59		
LOWER LIMIT	666176	1.33	1955563	1.59		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-36091-8	WGNA-021318-RW-3978	920332	1.83	2689190	2.09	
320-36091-9	WGNA-021318-FRB-3978	795161	1.83	2361397	2.09	
320-36091-11	WGNA-021318-FRB-3933	874758	1.84	2540389	2.09	
320-36091-12	NAWC-021318-RW-161	869043	1.82	2485385	2.08	
320-36091-13	NAWC-021318-FRB-161	877474	1.83	2664695	2.09	
320-36091-14	NAWC-021318-RW-292	919307	1.83	2681340	2.09	
320-36091-15	NAWC-021318-FRB-292	894439	1.83	2594697	2.09	
320-36091-16	NAWC-021318-RW-290	941625	1.82	2780425	2.08	

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.: 320-36091-1
 SDG No.: _____
 Sample No.: CCV 320-212124/8 Date Analyzed: 03/09/2018 09:26
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.03.09_537A_011 Heated Purge: (Y/N) N
 Calibration ID: 37889

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	870751	1.83	2649281	2.09		
UPPER LIMIT	1219051	2.33	3708993	2.59		
LOWER LIMIT	609526	1.33	1854497	1.59		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-211311/1-A		985457	1.84	2765019	2.09	
LCS 320-211311/2-A		954109	1.83	2771174	2.09	
LCSD 320-211311/3-A		968987	1.84	2749585	2.09	
320-36091-10 RE	WGNA-021318-RW-3933 RE	1009202	1.83	2874291	2.09	

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.: 320-36091-1
 SDG No.: _____
 Sample No.: CCV 320-212124/19 Date Analyzed: 03/09/2018 10:18
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.03.09_537A_022 Heated Purge: (Y/N) N
 Calibration ID: 37889

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	957373	1.83	2813287	2.09		
UPPER LIMIT	1340322	2.33	3938602	2.59		
LOWER LIMIT	670161	1.33	1969301	1.59		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-211311/1-A		985457	1.84	2765019	2.09	
LCS 320-211311/2-A		954109	1.83	2771174	2.09	
LCSD 320-211311/3-A		968987	1.84	2749585	2.09	
320-36091-10 RE	WGNA-021318-RW-3933 RE	1009202	1.83	2874291	2.09	

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>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-021318-DUP-26</u>	Lab Sample ID: <u>320-36091-1</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.05_537A_029.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 07:00</u>
Extraction Method: <u>537</u>	Date Extracted: <u>02/27/2018 08:13</u>
Sample wt/vol: <u>282.4 (mL)</u>	Date Analyzed: <u>03/05/2018 10:40</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>211200</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	32	J M	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	27		18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.0	J	27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	10		8.9	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	80	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	88		70-130
STL00996	13C2 PFDA	115		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_029.d
 Lims ID: 320-36091-A-1-A
 Client ID: WGNA-021318-DUP-26
 Sample Type: Client
 Inject. Date: 05-Mar-2018 10:40:55 ALS Bottle#: 19 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-36091-a-1-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:45:53 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:09:54

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.373	-0.007	1.000	218592	1.77		61.0	
298.90 > 99.00	1.366	1.373	-0.007	1.000	160592		1.36(0.00-0.00)	78.5	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.495	1.495	0.0	1.000	880443	8.79		11465	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.639	1.646	-0.007	1.000	296785	1.96		121	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.639	1.646	-0.007	1.000	259212	2.93		31.5	
* 6 13C2-PFOA									
415.00 > 370.00	1.836	1.844	-0.008		910988	10.0		8722	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.836	1.844	-0.008	1.000	674769	7.70		18.6	
413.00 > 169.00	1.836	1.844	-0.008	1.000	428135		1.58(0.00-0.00)	300	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.102	2.086	0.016	1.000	790916	8.92		216	Ma
499.00 > 99.00	2.102	2.086	0.016	1.000	137396		5.76(0.00-0.00)	49.9	M
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.102	0.0		2690930	28.7		2188	
9 Perfluorononanoic acid									
463.00 > 419.00	2.109	2.109	0.0	1.000	40099	0.7153		1.7	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.269	2.269	0.0	1.000	547824	11.5		4033	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_029.d

Injection Date: 05-Mar-2018 10:40:55

Instrument ID: A8_N

Lims ID: 320-36091-A-1-A

Lab Sample ID: 320-36091-1

Client ID: WGNA-021318-DUP-26

Operator ID: SACINSTLCMS01

ALS Bottle#: 19

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

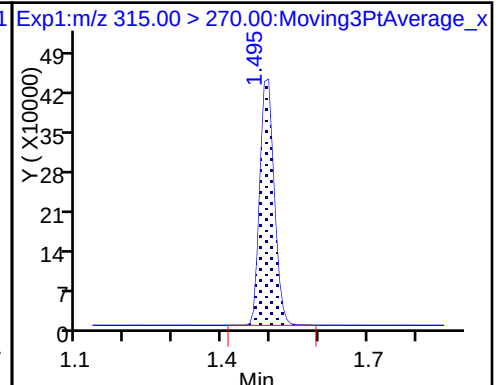
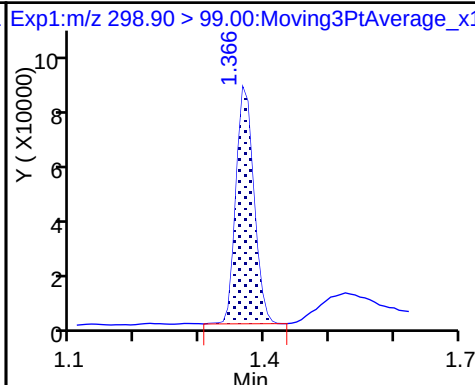
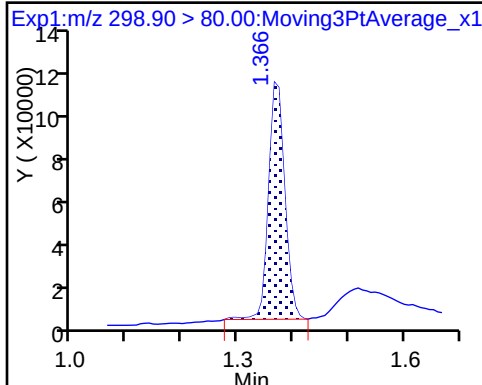
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

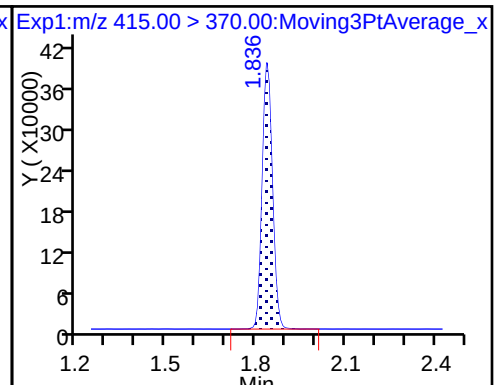
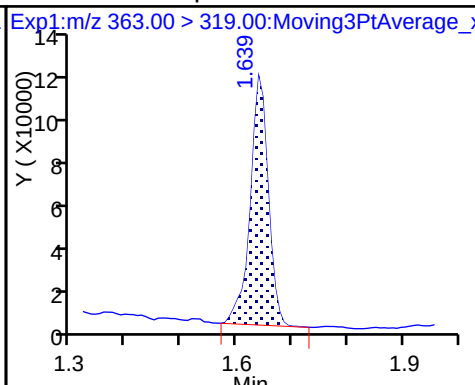
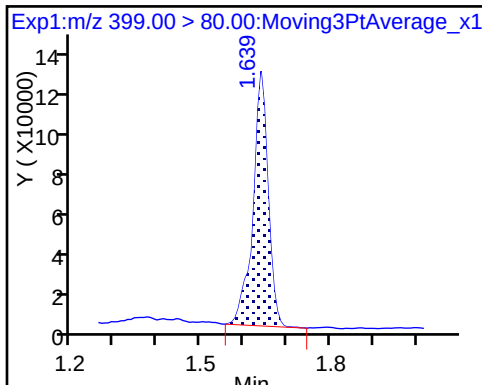
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

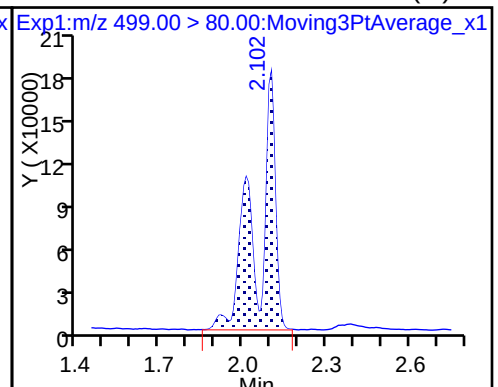
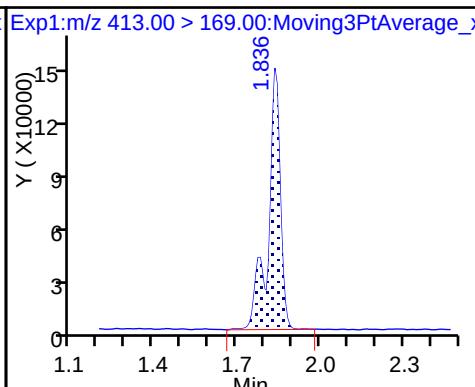
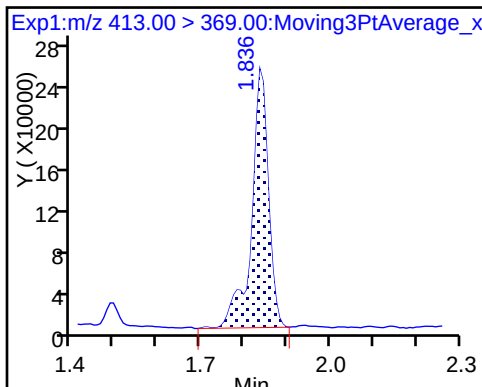
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

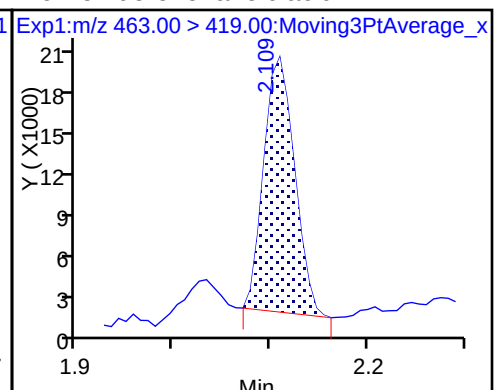
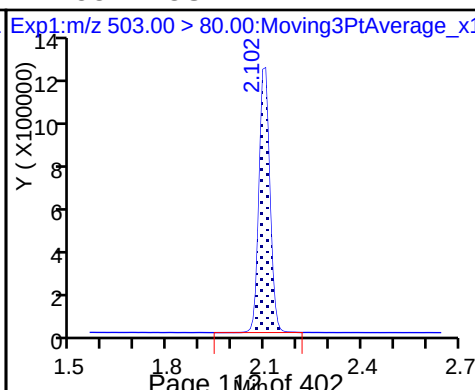
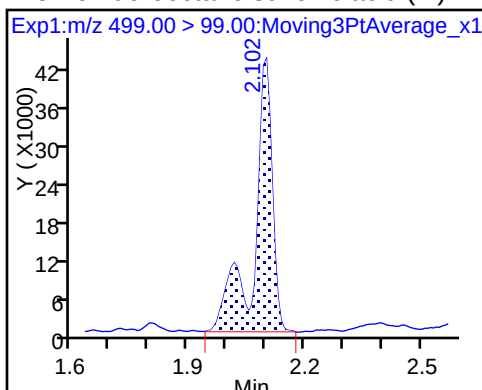
8 Perfluorooctane sulfonic acid (M)



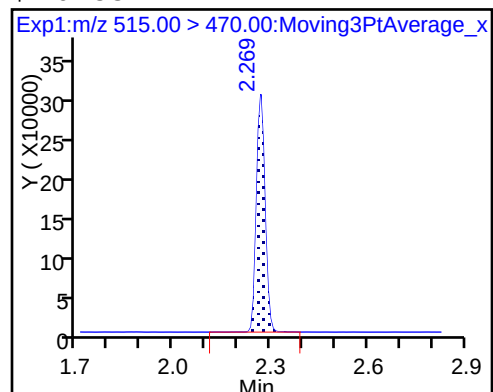
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_029.d
Lims ID: 320-36091-A-1-A
Client ID: WGNA-021318-DUP-26
Sample Type: Client
Inject. Date: 05-Mar-2018 10:40:55 ALS Bottle#: 19 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36091-a-1-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 14:45:53 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
Column 1 : Det: EXP1
Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:09:54

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.79	87.87
\$ 10 13C2 PFDA	10.0	11.5	114.70

TestAmerica Sacramento

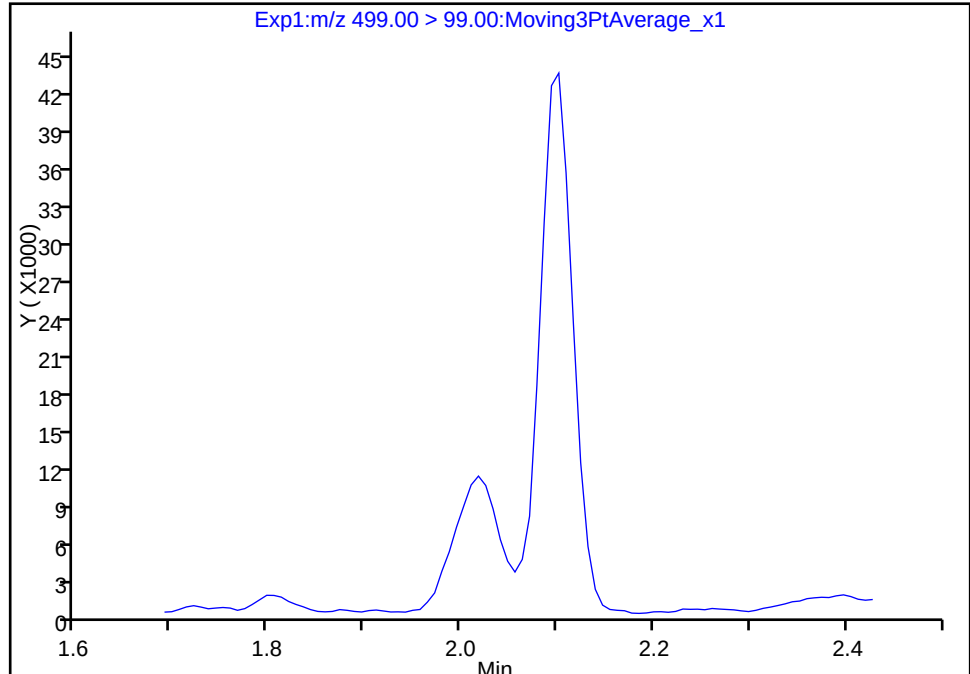
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_029.d				
Injection Date:	05-Mar-2018 10:40:55	Instrument ID:	A8_N		
Lims ID:	320-36091-A-1-A	Lab Sample ID:	320-36091-1		
Client ID:	WGNA-021318-DUP-26				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	19	Worklist Smp#:	6
Injection 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

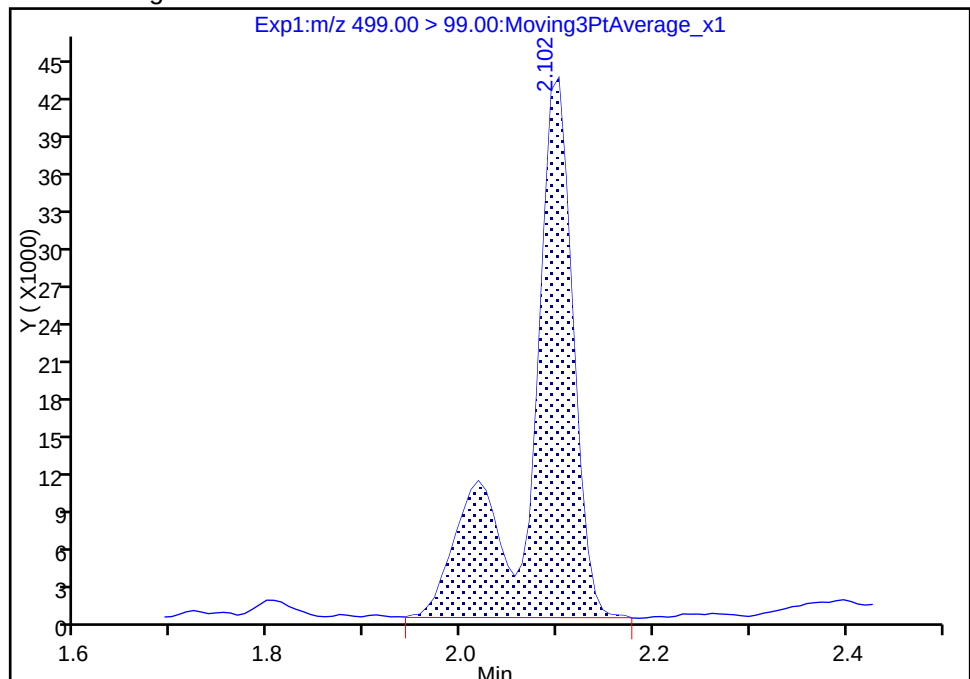
Signal: 2

Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results



RT: 2.10
Area: 137396
Amount: 8.915147
Amount Units: ng/ml

Reviewer: barnettj, 05-Mar-2018 14:09:34
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

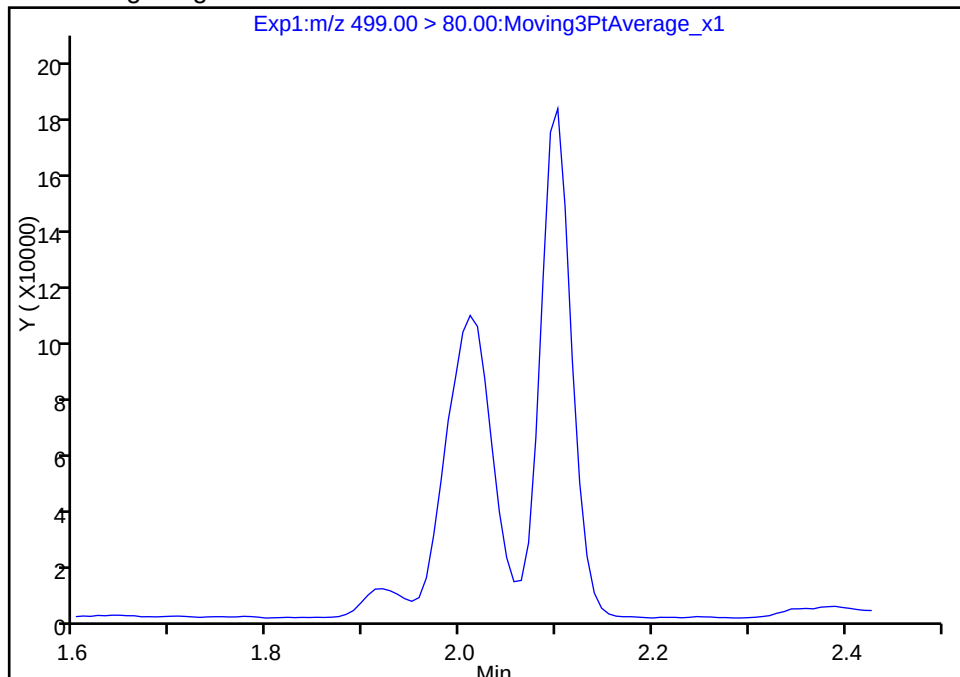
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_029.d
Injection Date: 05-Mar-2018 10:40:55 Instrument ID: A8_N
Lims ID: 320-36091-A-1-A Lab Sample ID: 320-36091-1
Client ID: WGNA-021318-DUP-26
Operator ID: SACINSTLCMS01 ALS Bottle#: 19 Worklist Smp#: 6
Injection Vol: 2.0 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

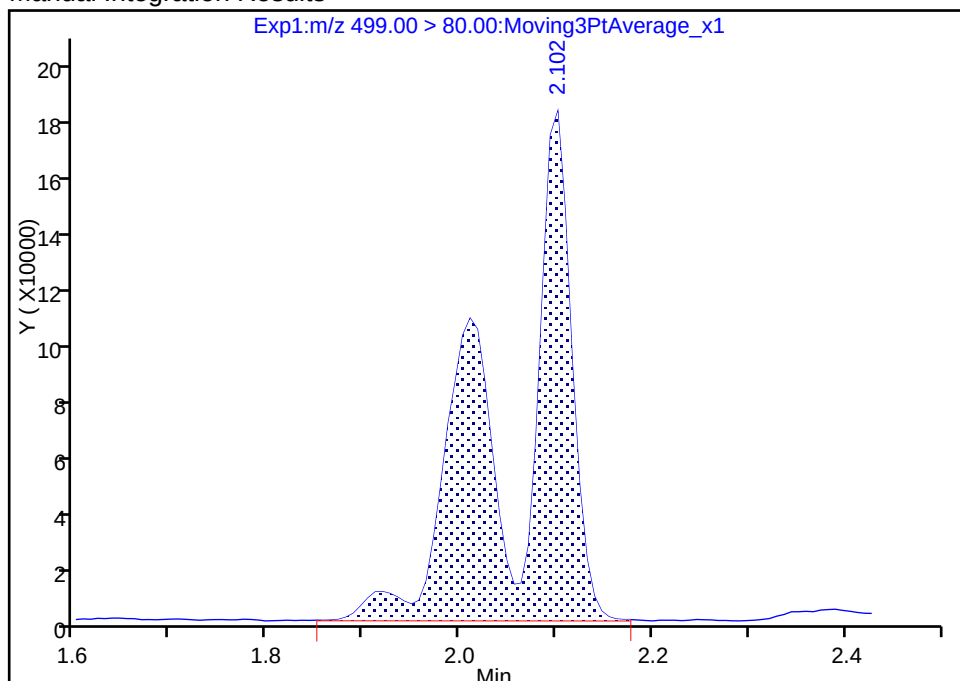
Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 790916
Amount: 8.915147
Amount Units: ng/ml



Reviewer: barnettj, 05-Mar-2018 14:09:34

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-021318-RW-188</u>	Lab Sample ID: <u>320-36091-2</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.05_537A_030.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 08:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>02/27/2018 08:13</u>
Sample wt/vol: <u>276.4 (mL)</u>	Date Analyzed: <u>03/05/2018 10:45</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>211200</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	19	J M	36	14	6.2
335-67-1	Perfluorooctanoic acid (PFOA)	21		18	7.2	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.7	J	27	11	5.0
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.5	J	9.0	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	81	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	112		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_030.d
 Lims ID: 320-36091-A-2-A
 Client ID: NAWC-021318-RW-188
 Sample Type: Client
 Inject. Date: 05-Mar-2018 10:45:36 ALS Bottle#: 20 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-36091-a-2-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:45:53 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:10:21

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.373	-0.007	1.000	96908	0.8634		32.9	
298.90 > 99.00	1.366	1.373	-0.007	1.000	69185		1.40(0.00-0.00)	32.5	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.495	-0.008	1.000	857364	9.61		12253	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.646	-0.015	1.000	252871	1.84		164	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.639	1.646	-0.007	1.000	184990	2.35		25.9	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.844	-0.016		811319	10.0		8223	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.828	1.844	-0.016	1.000	459362	5.89		13.7	
413.00 > 169.00	1.828	1.844	-0.016	1.000	277892		1.65(0.00-0.00)	207	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.094	2.086	0.008	1.000	432700	5.37		160	a
499.00 > 99.00	2.094	2.086	0.008	1.000	78575		5.51(0.00-0.00)	30.8	a
* 7 13C4 PFOS									
503.00 > 80.00	2.086	2.102	-0.016		2445777	28.7		3855	
9 Perfluorononanoic acid									
463.00 > 419.00	2.102	2.109	-0.007	1.000	55760	1.12		3.9	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.269	-0.015	1.000	474559	11.2		4159	

QC Flag Legend

Review Flags

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_030.d

Injection Date: 05-Mar-2018 10:45:36

Instrument ID: A8_N

Lims ID: 320-36091-A-2-A

Lab Sample ID: 320-36091-2

Client ID: NAWC-021318-RW-188

Operator ID: SACINSTLCMS01

ALS Bottle#: 20

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

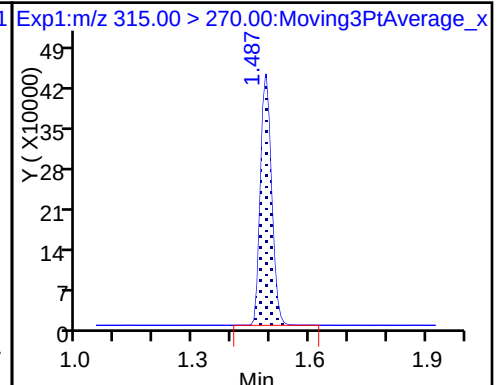
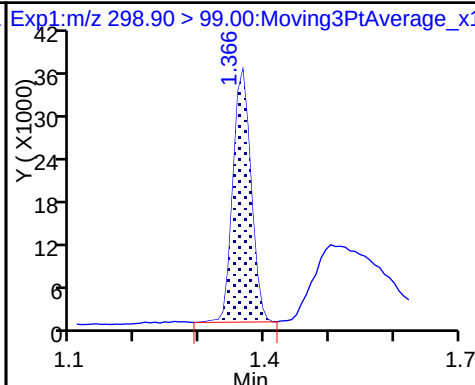
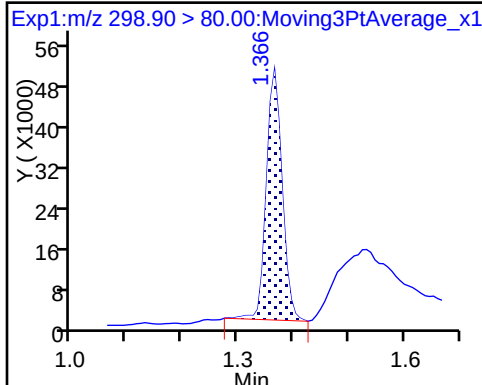
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

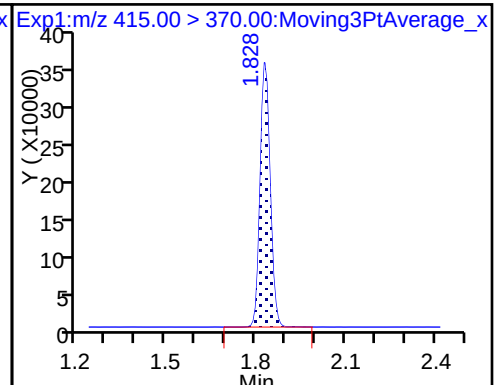
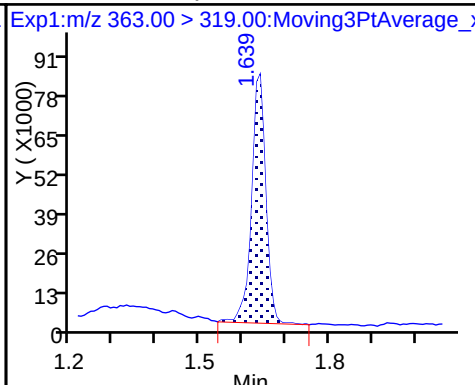
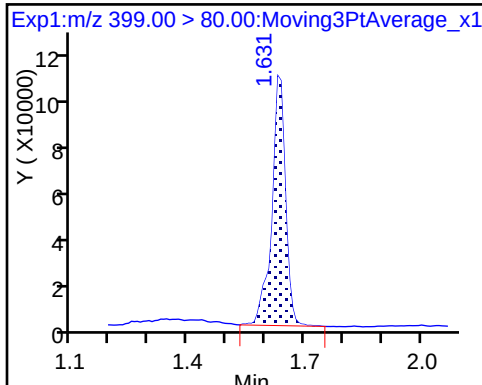
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

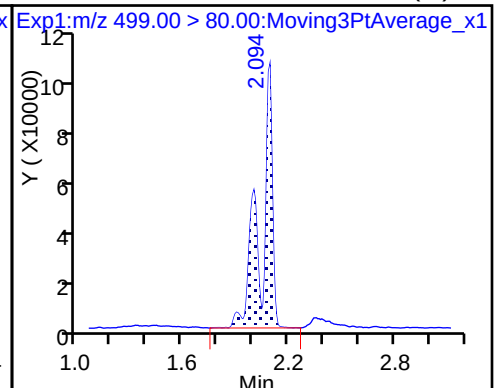
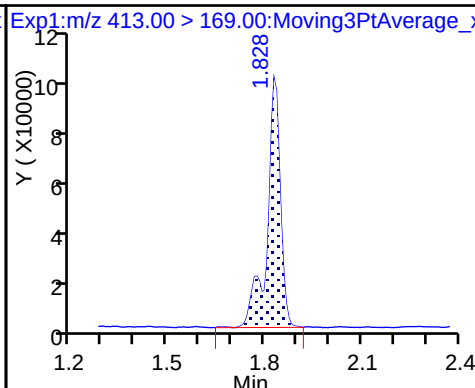
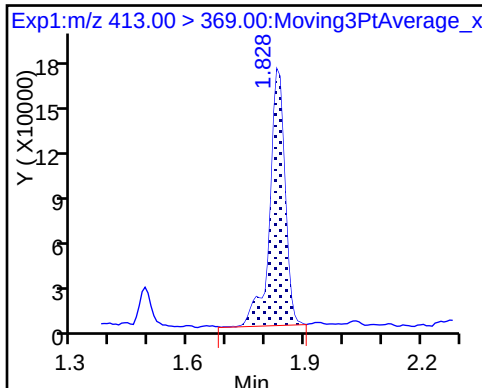
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

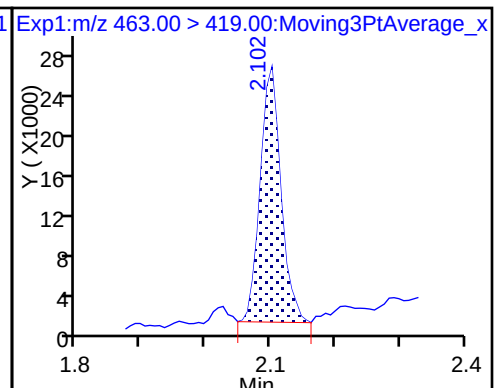
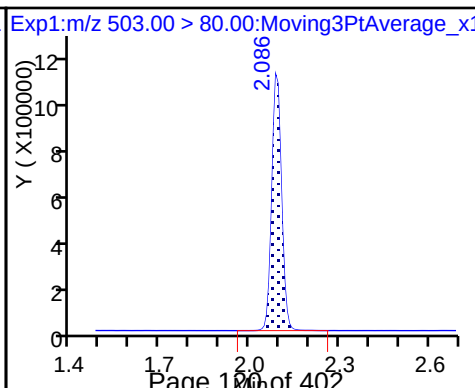
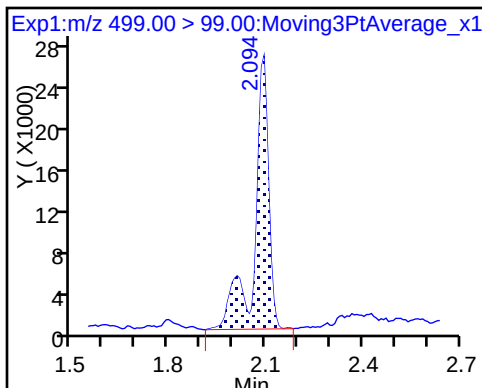
8 Perfluorooctane sulfonic acid (M)



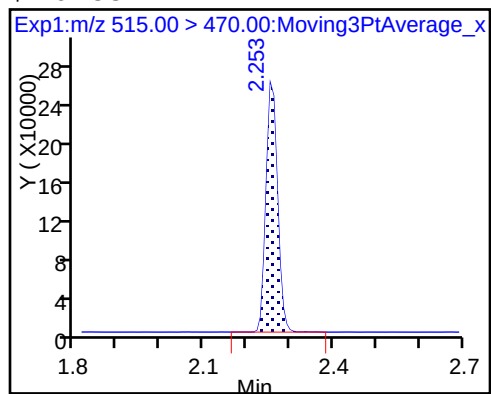
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_030.d
Lims ID: 320-36091-A-2-A
Client ID: NAWC-021318-RW-188
Sample Type: Client
Inject. Date: 05-Mar-2018 10:45:36 ALS Bottle#: 20 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36091-a-2-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 14:45:53 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
Column 1 : Det: EXP1
Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:10:21

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.61	96.08
\$ 10 13C2 PFDA	10.0	11.2	111.57

TestAmerica Sacramento

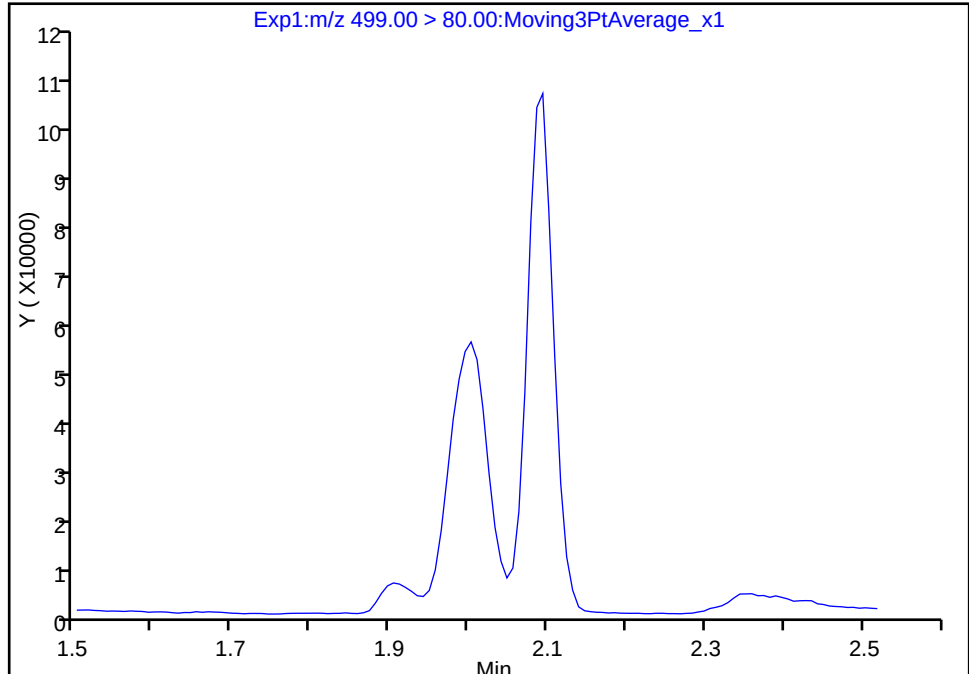
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_030.d				
Injection Date:	05-Mar-2018 10:45:36	Instrument ID:	A8_N		
Lims ID:	320-36091-A-2-A	Lab Sample ID:	320-36091-2		
Client ID:	NAWC-021318-RW-188				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	20	Worklist Smp#:	7
Injection 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

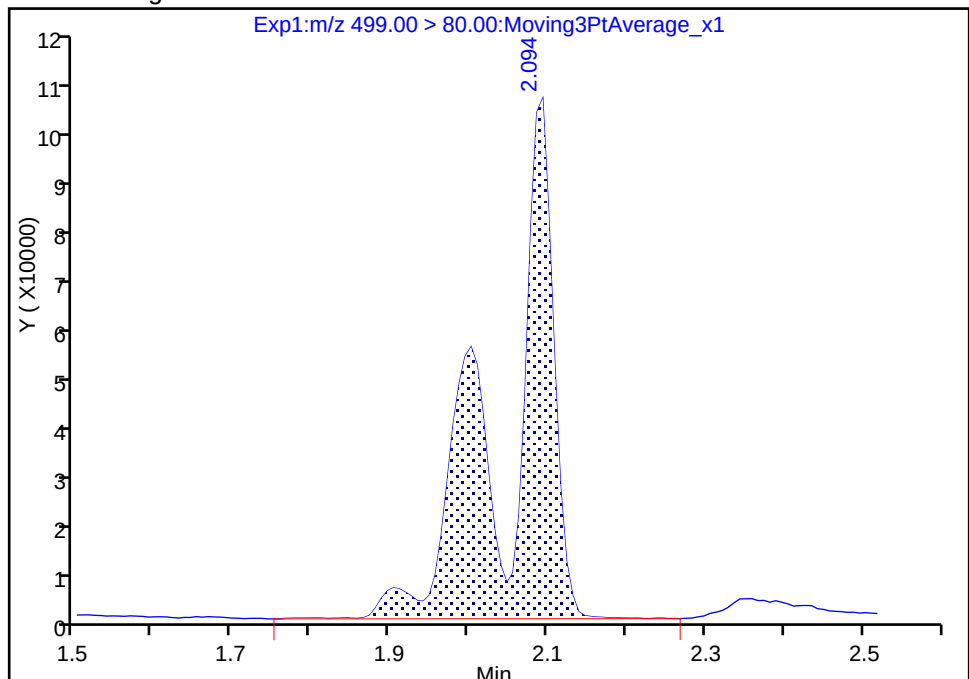
Signal: 1

Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT: 2.09
Area: 432700
Amount: 5.366246
Amount Units: ng/ml

Reviewer: barnettj, 05-Mar-2018 14:10:02

Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: NAWC-021318-FRB-188 Lab Sample ID: 320-36091-3
 Matrix: Water Lab File ID: 2018.03.05_537A_031.d
 Analysis Method: 537 Date Collected: 02/13/2018 08:05
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 271.1 (mL) Date Analyzed: 03/05/2018 10:50
 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.: 211200 Units: ng/L

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	98		70-130
STL00996	13C2 PFDA	107		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_031.d
 Lims ID: 320-36091-A-3-A
 Client ID: NAWC-021318-FRB-188
 Sample Type: Client
 Inject. Date: 05-Mar-2018 10:50:18 ALS Bottle#: 21 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-36091-a-3-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:45:53 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK024

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.495	-0.008	1.000	872025	9.82		11037	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.844	-0.016		807139	10.0		7409	
* 7 13C4 PFOS									
503.00 > 80.00	2.086	2.102	-0.016		2390571	28.7		4890	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.269	-0.015	1.000	452138	10.7		3560	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_031.d

Injection Date: 05-Mar-2018 10:50:18

Instrument ID: A8_N

Lims ID: 320-36091-A-3-A

Lab Sample ID: 320-36091-3

Client ID: NAWC-021318-FRB-188

Operator ID: SACINSTLCMS01

ALS Bottle#: 21

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

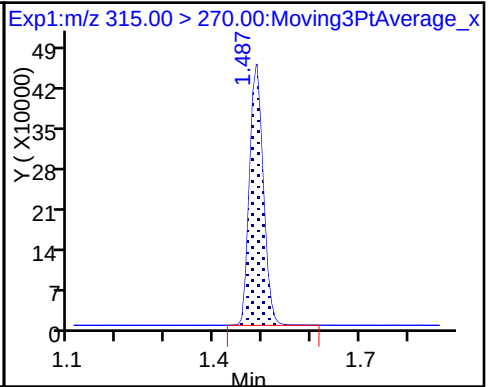
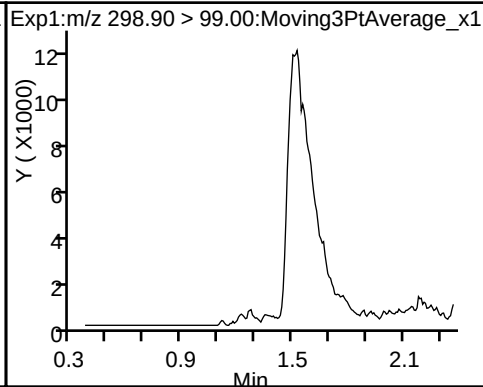
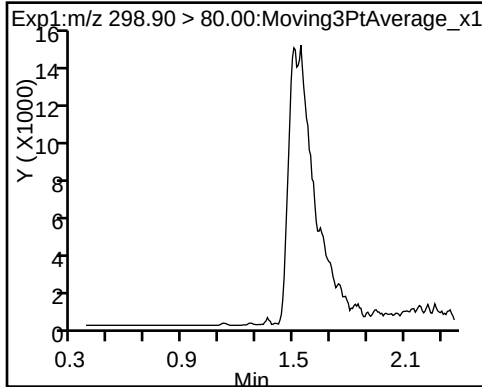
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

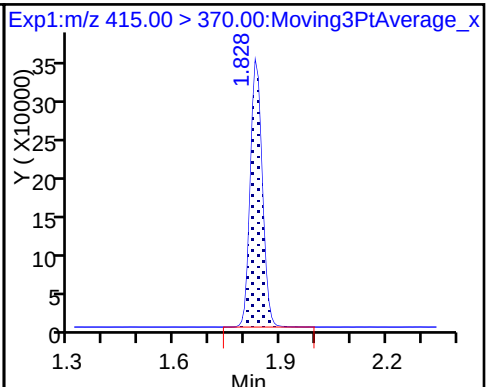
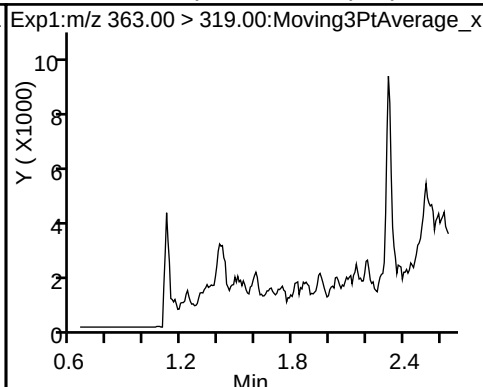
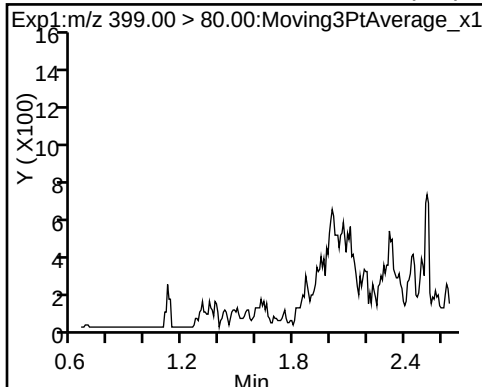
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

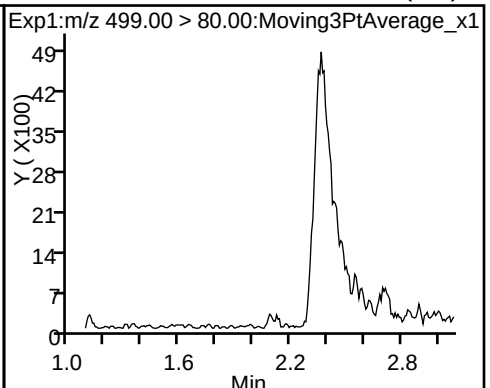
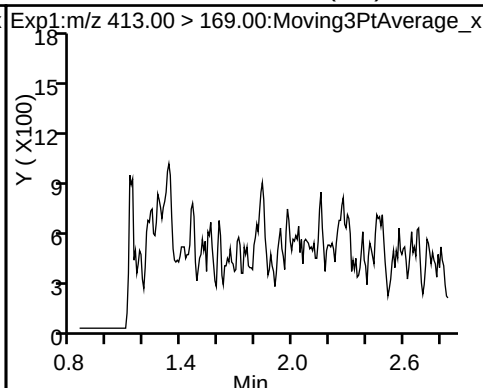
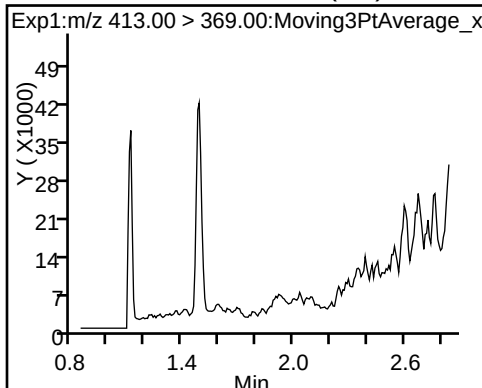
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

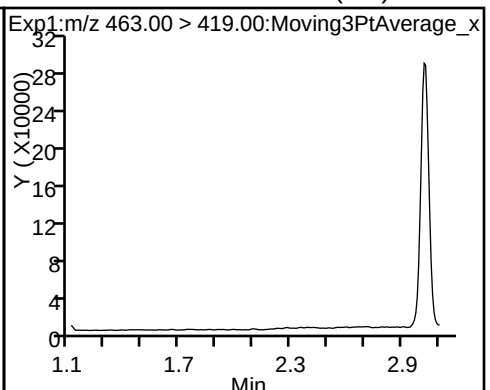
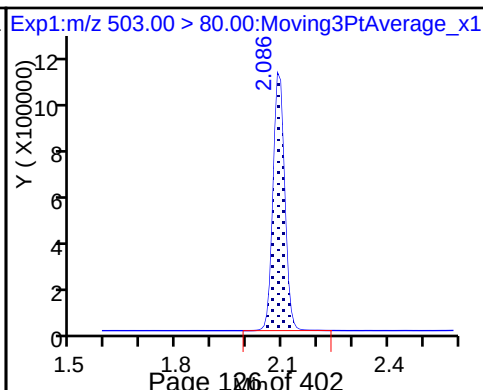
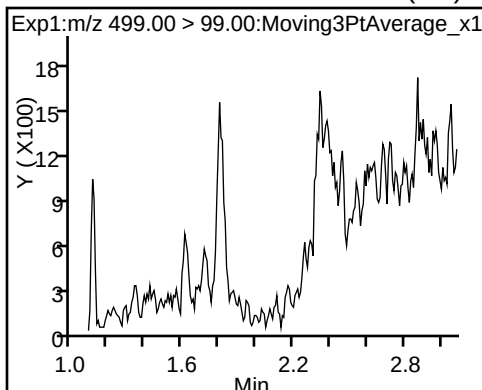
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

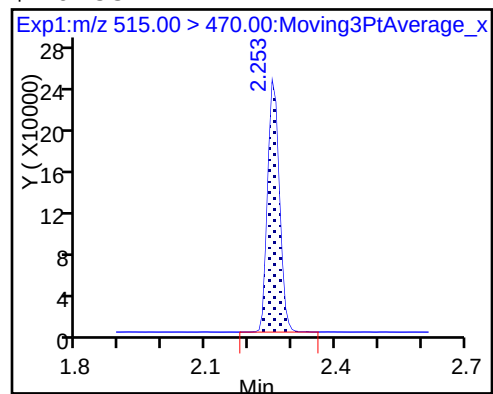


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_031.d
Lims ID: 320-36091-A-3-A
Client ID: NAWC-021318-FRB-188
Sample Type: Client
Inject. Date: 05-Mar-2018 10:50:18 ALS Bottle#: 21 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36091-a-3-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 14:45:53 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK024

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.82	98.23
\$ 10 13C2 PFDA	10.0	10.7	106.85

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: WGN1A-021318-RW-3382 Lab Sample ID: 320-36091-4
 Matrix: Water Lab File ID: 2018.03.05_537A_032.d
 Analysis Method: 537 Date Collected: 02/13/2018 09:10
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 281.1(mL) Date Analyzed: 03/05/2018 10:54
 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.: 211200 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18	J M	36	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	17	J M	18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.1	J	27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.1	J	8.9	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	80	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	112		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_032.d
 Lims ID: 320-36091-A-4-A
 Client ID: WGN1A-021318-RW-3382
 Sample Type: Client
 Inject. Date: 05-Mar-2018 10:54:59 ALS Bottle#: 22 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-36091-a-4-
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 06-Mar-2018 09:58:51 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK027

First Level Reviewer: barnettj

Date: 06-Mar-2018 09:58:51

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	294293	2.59		94.9	
298.90 > 99.00	1.366	1.366	0.0	1.000	209598		1.40(0.00-0.00)	102	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	862854	9.38		13104	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.631	0.0	1.000	240410	1.73		122	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.639	1.639	0.0	1.000	139720	1.72		18.9	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.828	0.0		835912	10.0		6815	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.836	1.828	0.008	1.000	374256	4.65		10.0	M
413.00 > 169.00	1.828	1.828	0.0	0.996	260012		1.44(0.00-0.00)	165	M
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.094	2.086	0.008	1.000	416388	5.10		126	Ma
499.00 > 99.00	2.094	2.086	0.008	1.000	72504		5.74(0.00-0.00)	28.6	M
* 7 13C4 PFOS									
503.00 > 80.00	2.094	2.086	0.008		2478112	28.7		2890	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.253	0.008	1.000	488764	11.2		4153	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_032.d

Injection Date: 05-Mar-2018 10:54:59

Instrument ID: A8_N

Lims ID: 320-36091-A-4-A

Lab Sample ID: 320-36091-4

Client ID: WGN1A-021318-RW-3382

Operator ID: SACINSTLCMS01

ALS Bottle#: 22

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

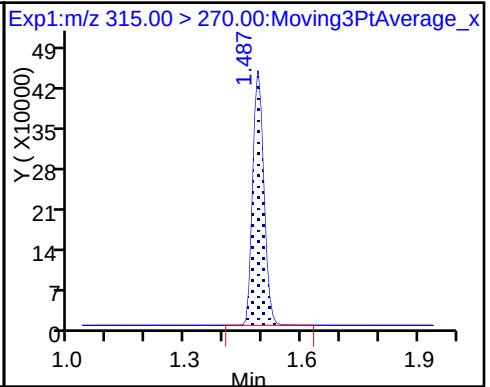
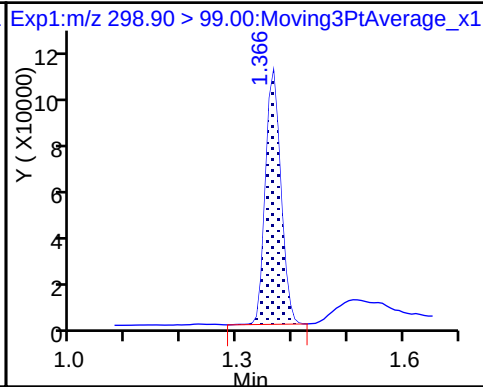
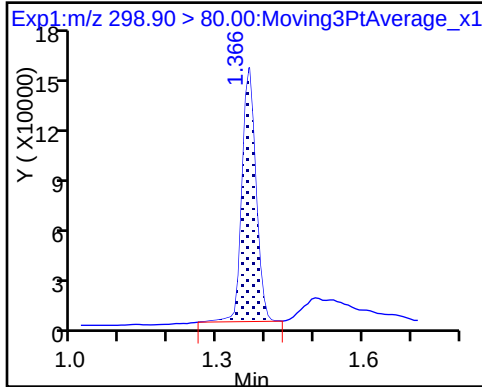
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

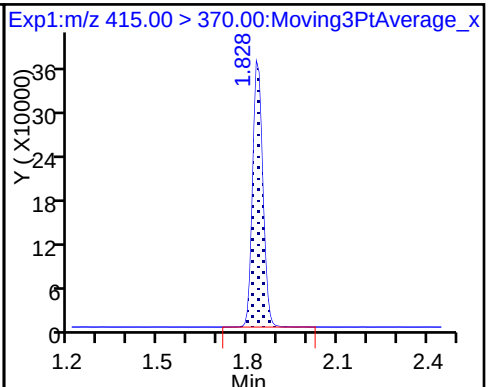
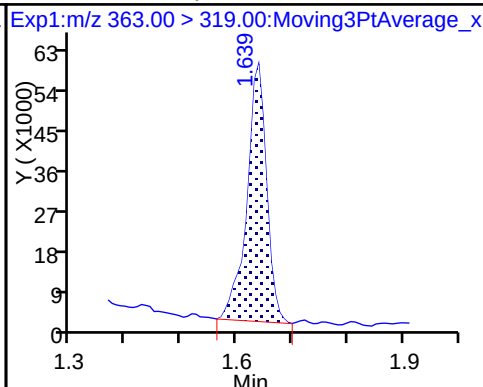
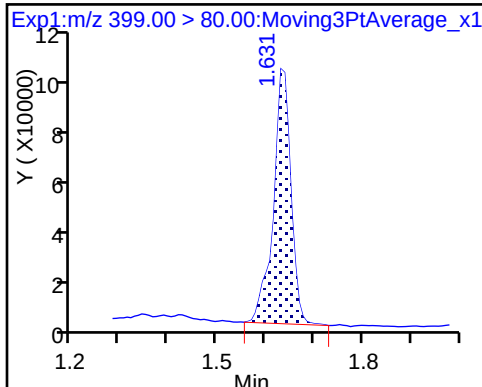
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

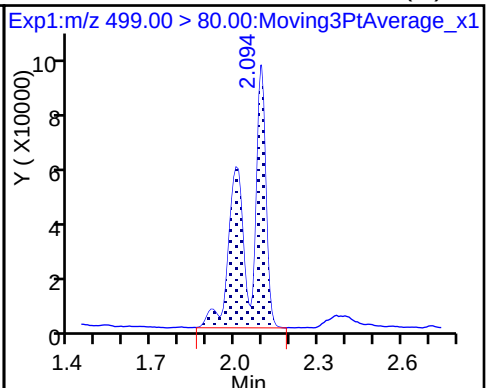
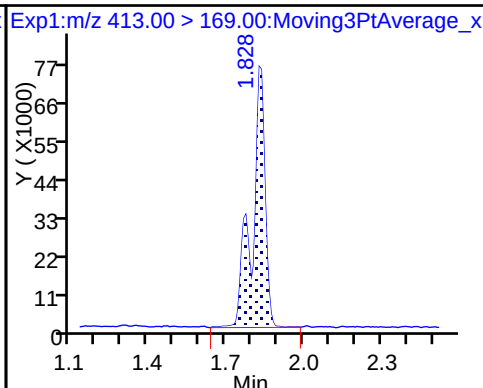
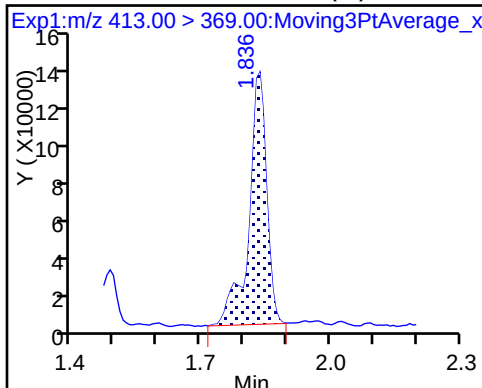
* 6 13C2-PFOA



5 Perfluorooctanoic acid (M)

5 Perfluorooctanoic acid

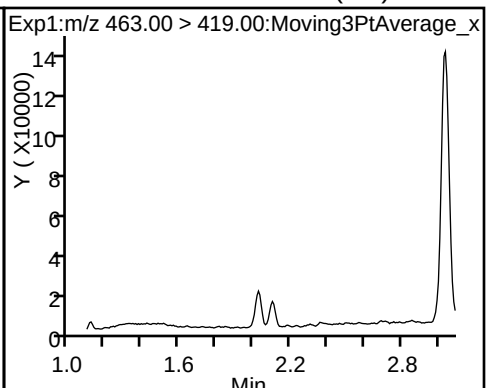
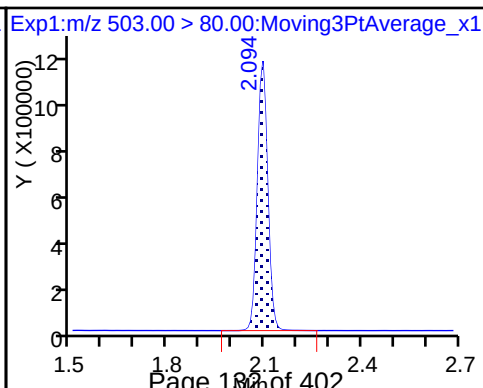
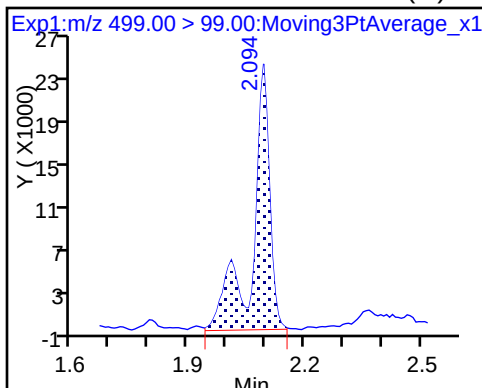
8 Perfluorooctane sulfonic acid (M)



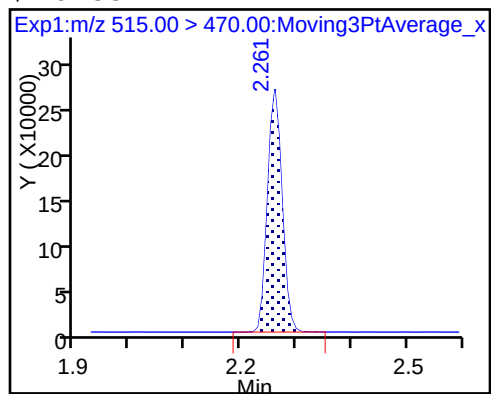
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_032.d
Lims ID: 320-36091-A-4-A
Client ID: WGN1A-021318-RW-3382
Sample Type: Client
Inject. Date: 05-Mar-2018 10:54:59 ALS Bottle#: 22 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36091-a-4-
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 06-Mar-2018 09:58:51 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
Column 1 : Det: EXP1
Process Host: XAWRK027

First Level Reviewer: barnettj Date: 06-Mar-2018 09:58:51

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.38	93.85
\$ 10 13C2 PFDA	10.0	11.2	111.53

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_032.d

Injection Date: 05-Mar-2018 10:54:59

Instrument ID: A8_N

Lims ID: 320-36091-A-4-A

Lab Sample ID: 320-36091-4

Client ID: WGN1A-021318-RW-3382

Operator ID: SACINSTLCMS01

ALS Bottle#: 22 Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: 537_A8_N

Limit Group: LC 537 ICAL

Column:

Detector EXP1

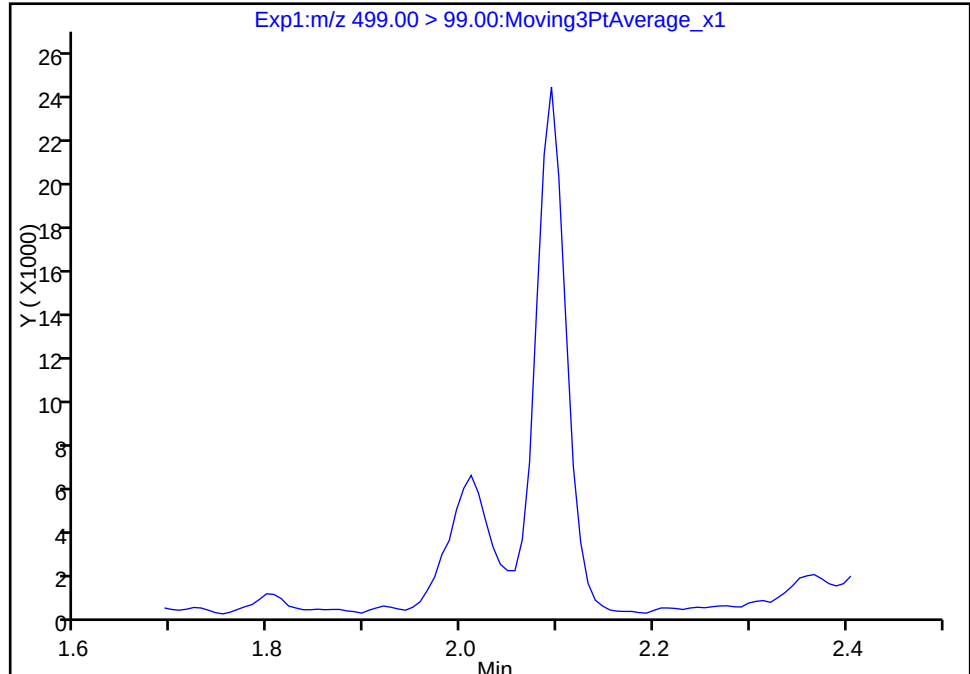
8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 2

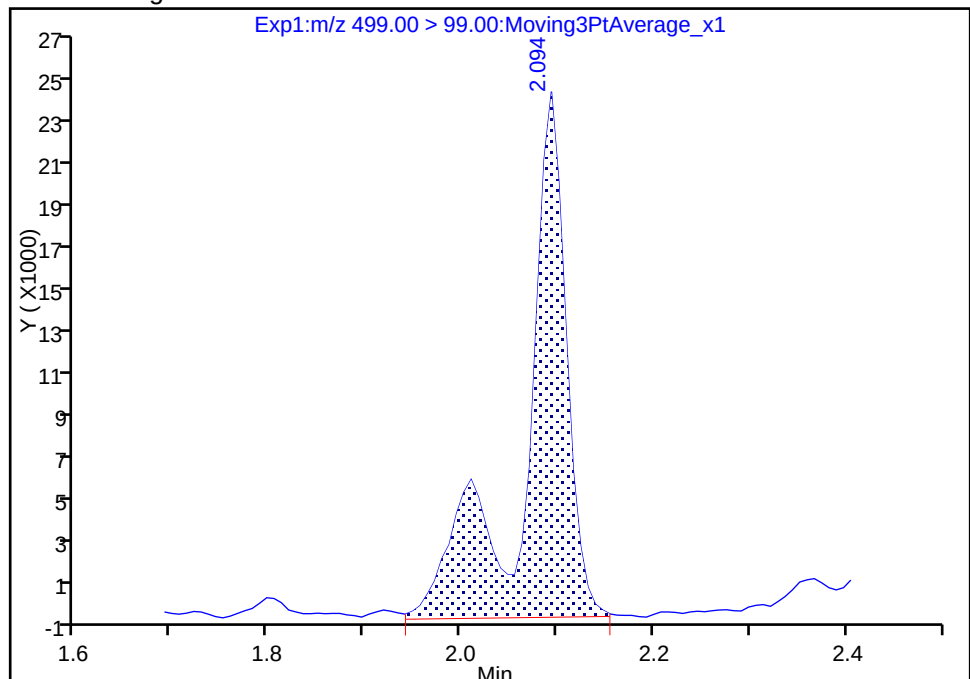
Not Detected

Expected RT: 2.09

Processing Integration Results



Manual Integration Results



RT: 2.09

Area: 72504

Amount: 5.096568

Amount Units: ng/ml

Reviewer: barnettj, 05-Mar-2018 14:11:08

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

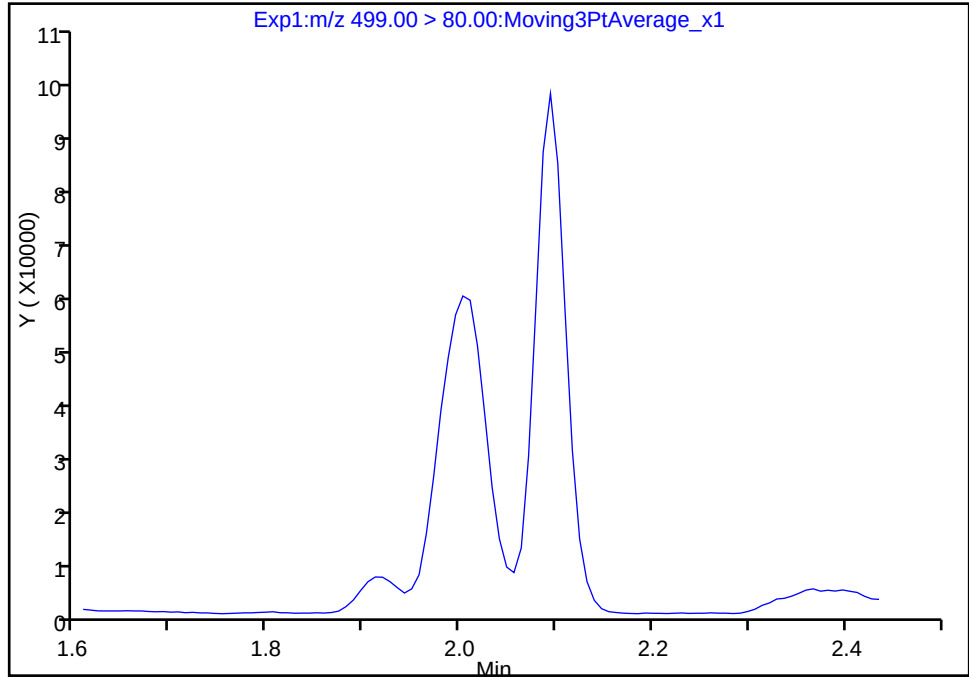
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_032.d
Injection Date: 05-Mar-2018 10:54:59 Instrument ID: A8_N
Lims ID: 320-36091-A-4-A Lab Sample ID: 320-36091-4
Client ID: WGN1A-021318-RW-3382
Operator ID: SACINSTLCMS01 ALS Bottle#: 22 Worklist Smp#: 9
Injection Vol: 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

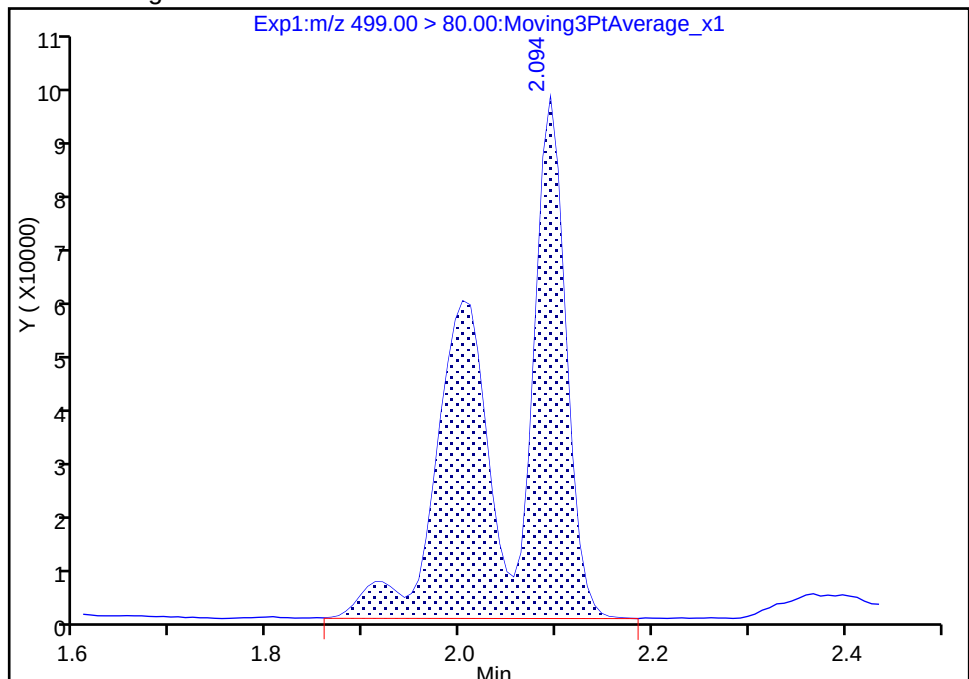
Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT: 2.09
Area: 416388
Amount: 5.096568
Amount Units: ng/ml



Reviewer: barnettj, 05-Mar-2018 14:11:08

Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

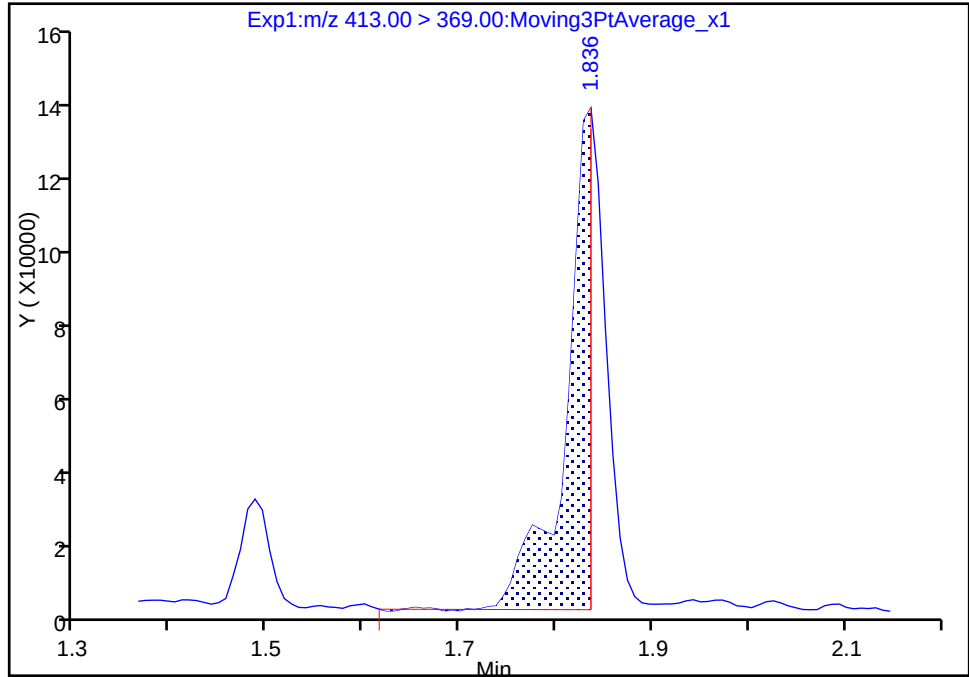
Data File:	\\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_032.d				
Injection Date:	05-Mar-2018 10:54:59	Instrument ID:	A8_N		
Lims ID:	320-36091-A-4-A	Lab Sample ID:	320-36091-4		
Client ID:	WGN1A-021318-RW-3382				
Operator ID:	SACINSTLCMS01	ALS Bottle#:	22	Worklist Smp#:	9
Injection 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

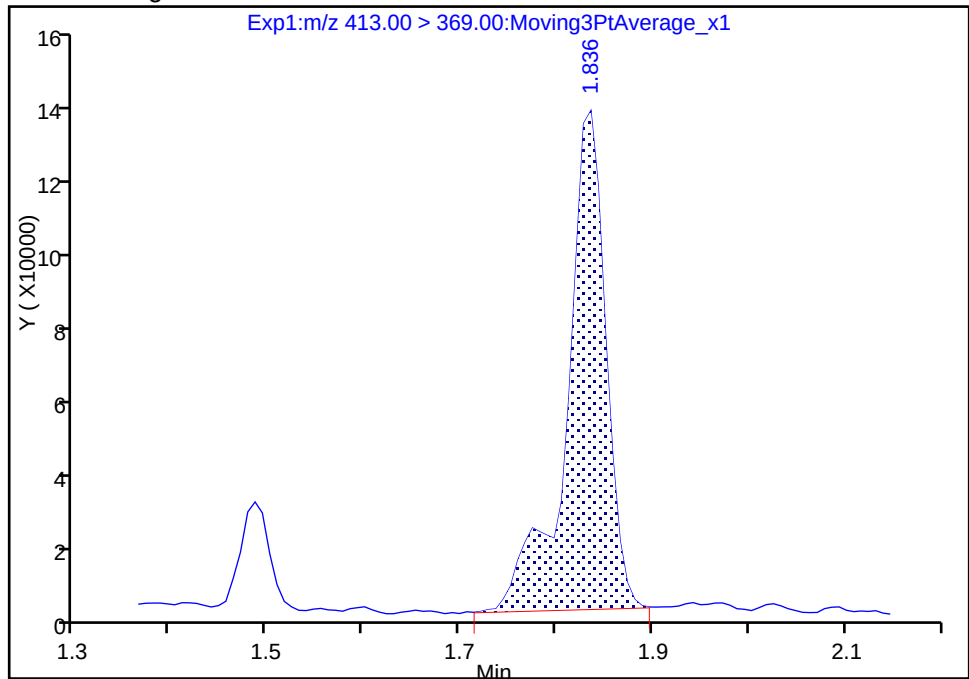
RT: 1.84
Area: 230966
Amount: 2.872088
Amount Units: ng/ml

Processing Integration Results



RT: 1.84
Area: 374256
Amount: 4.653915
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 06-Mar-2018 09:58:38

Audit Action: Manually Integrated

Audit Reason: Incomplete Integration

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-021318-FRB-3382</u>	Lab Sample ID: <u>320-36091-5</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.05_537A_033.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 09:05</u>
Extraction Method: <u>537</u>	Date Extracted: <u>02/27/2018 08:13</u>
Sample wt/vol: <u>262.6(mL)</u>	Date Analyzed: <u>03/05/2018 10:59</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>211200</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	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	7.6	U	19	7.6	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	29	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.5	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	86	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	110		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_033.d
 Lims ID: 320-36091-A-5-A
 Client ID: WGNA-021318-FRB-3382
 Sample Type: Client
 Inject. Date: 05-Mar-2018 10:59:39 ALS Bottle#: 23 Worklist Smp#: 10
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-36091-a-5-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:45:53 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:11:32

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.495	1.495	0.0	1.000	996910	9.66		16049	
* 6 13C2-PFOA									
415.00 > 370.00	1.836	1.844	-0.008		938305	10.0		8120	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.836	1.844	-0.008	1.000	25622	0.2838		0.9	
413.00 > 169.00	1.836	1.844	-0.008	1.000	16816		1.52(0.00-0.00)	14.2	
* 7 13C4 PFOS									
503.00 > 80.00	2.094	2.102	-0.008		2815703	28.7		7680	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.269	-0.007	1.000	538837	11.0		4740	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_033.d

Injection Date: 05-Mar-2018 10:59:39

Instrument ID: A8_N

Lims ID: 320-36091-A-5-A

Lab Sample ID: 320-36091-5

Client ID: WGNA-021318-FRB-3382

Operator ID: SACINSTLCMS01

ALS Bottle#: 23

Worklist Smp#: 10

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

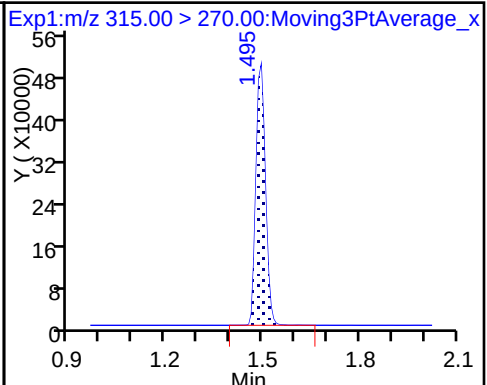
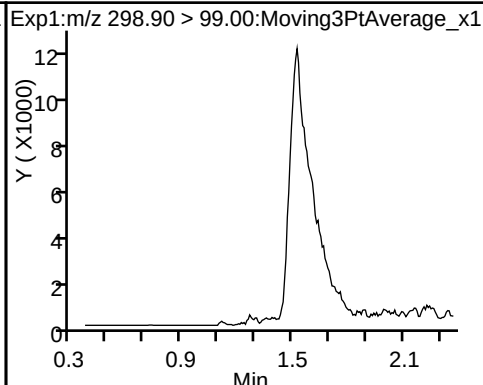
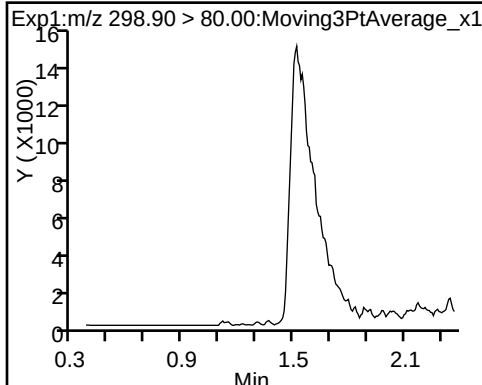
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

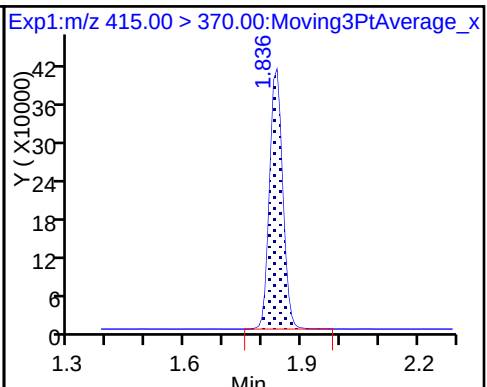
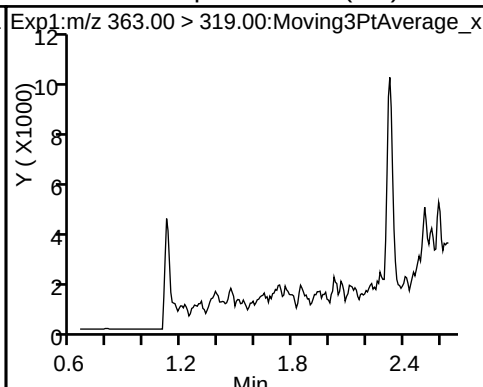
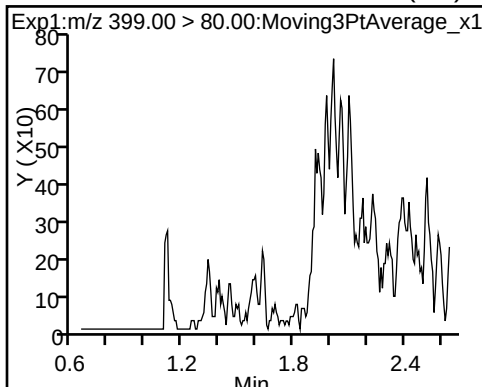
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

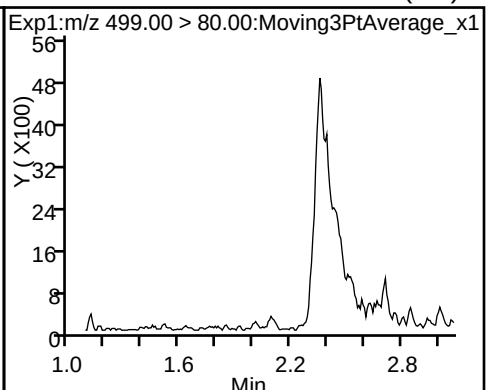
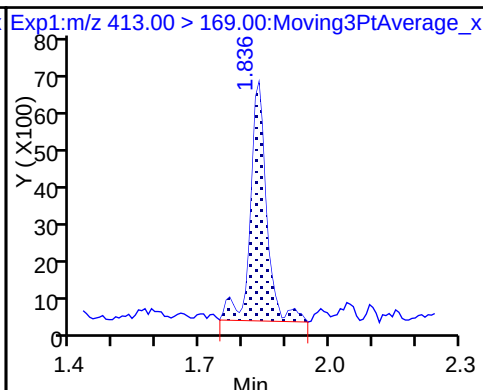
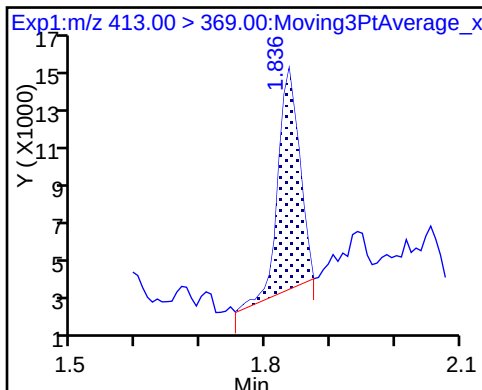
* 6 13C2-PFOA



5 Perfluorooctanoic acid

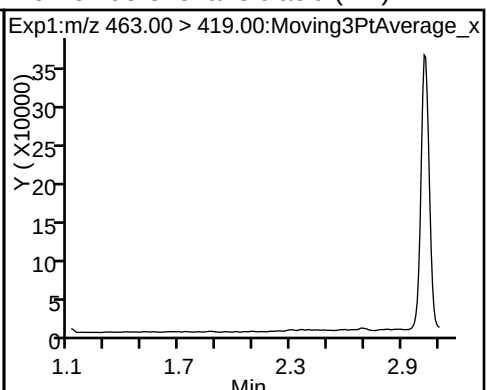
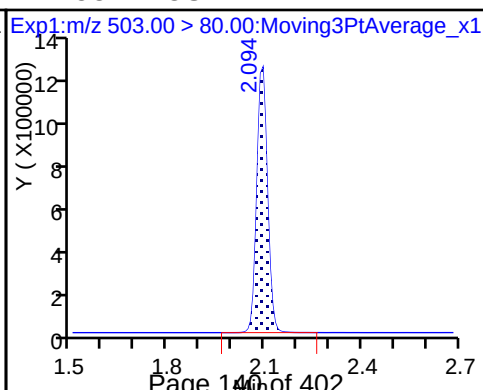
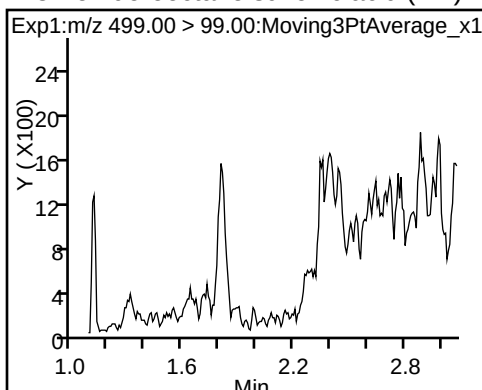
5 Perfluorooctanoic acid

8 Perfluorooctane sulfonic acid (ND)

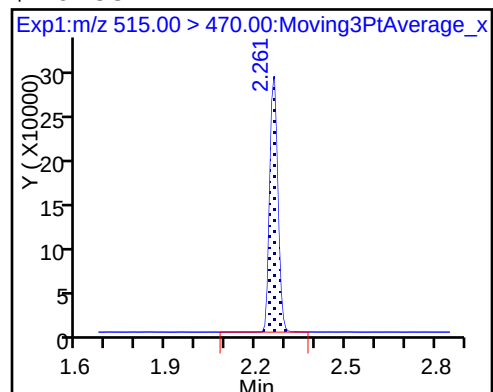


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_033.d
Lims ID: 320-36091-A-5-A
Client ID: WGNA-021318-FRB-3382
Sample Type: Client
Inject. Date: 05-Mar-2018 10:59:39 ALS Bottle#: 23 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36091-a-5-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 14:45:53 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
Column 1 : Det: EXP1
Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:11:32

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.66	96.60
\$ 10 13C2 PFDA	10.0	11.0	109.54

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-021318-RW-100</u>	Lab Sample ID: <u>320-36091-6</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.05_537A_034.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 09:40</u>
Extraction Method: <u>537</u>	Date Extracted: <u>02/27/2018 08:13</u>
Sample wt/vol: <u>291.6(mL)</u>	Date Analyzed: <u>03/05/2018 11:04</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>211200</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J M	34	14	5.8
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	17	6.9	2.4
375-95-1	Perfluorononanoic acid (PFNA)	17	U	21	17	6.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	10	U	26	10	4.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.8	J	8.6	3.4	1.6
375-73-5	Perfluorobutanesulfonic acid (PFBS)	31	U	77	31	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	77		70-130
STL00996	13C2 PFDA	109		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_034.d
 Lims ID: 320-36091-A-6-A
 Client ID: NAWC-021318-RW-100
 Sample Type: Client
 Inject. Date: 05-Mar-2018 11:04:19 ALS Bottle#: 24 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-36091-a-6-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:45:53 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:11:59

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.373	-0.007	1.000	406157	3.24		134	
298.90 > 99.00	1.366	1.373	-0.007	1.000	273406		1.49(0.00-0.00)	136	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.495	-0.008	1.000	778962	7.72		12575	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.639	1.646	-0.007	1.000	161495	1.05		97.2	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.639	1.646	-0.007	1.000	125950	1.41		20.5	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.844	-0.016		917373	10.0		8186	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.828	1.844	-0.016	1.000	322610	3.66		9.5	
413.00 > 169.00	1.828	1.844	-0.016	1.000	184347		1.75(0.00-0.00)	147	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.094	2.086	0.008	1.000	277025	3.07		104	a
499.00 > 99.00	2.094	2.086	0.008	1.000	55978		4.95(0.00-0.00)	22.2	a
* 7 13C4 PFOS									
503.00 > 80.00	2.094	2.102	-0.008		2740449	28.7		3626	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.269	-0.007	1.000	525651	10.9		3916	

QC Flag Legend

Review Flags

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_034.d

Injection Date: 05-Mar-2018 11:04:19

Instrument ID: A8_N

Lims ID: 320-36091-A-6-A

Lab Sample ID: 320-36091-6

Client ID: NAWC-021318-RW-100

Operator ID: SACINSTLCMS01

ALS Bottle#: 24

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

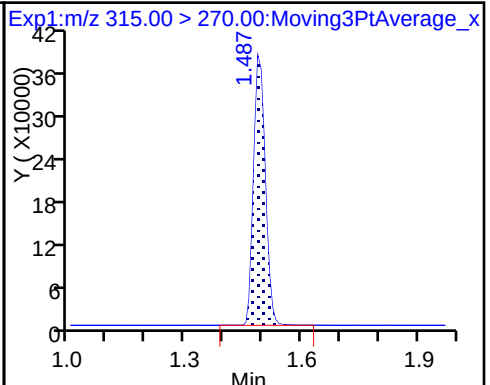
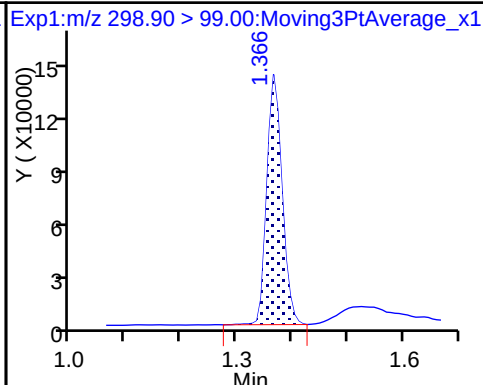
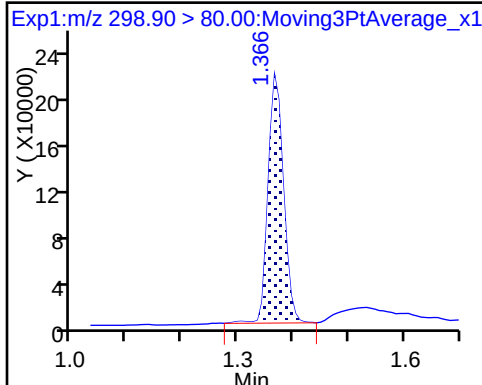
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

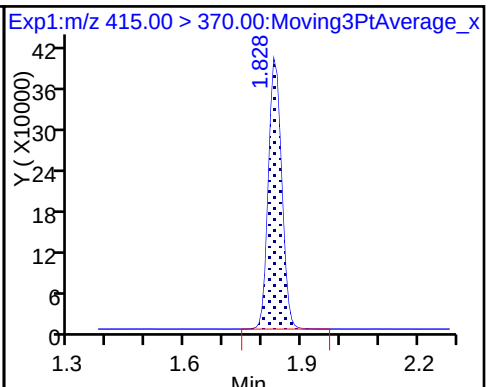
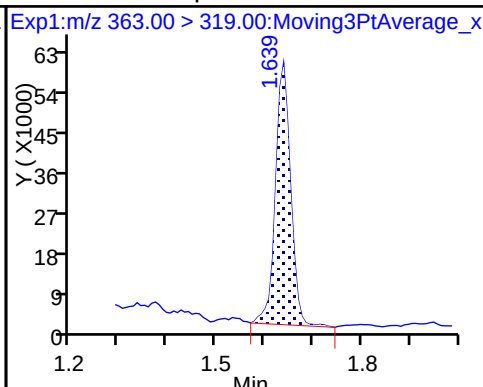
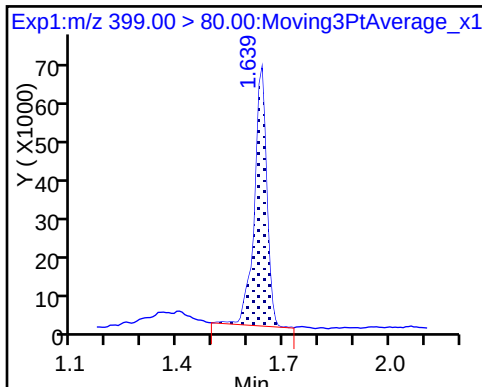
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

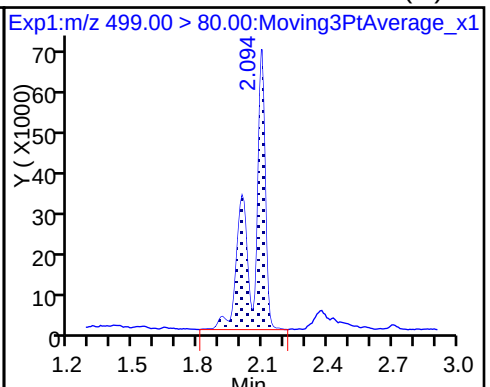
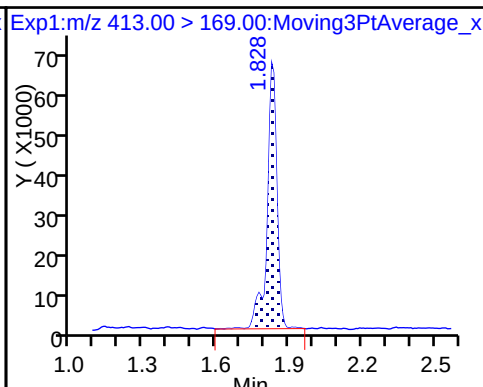
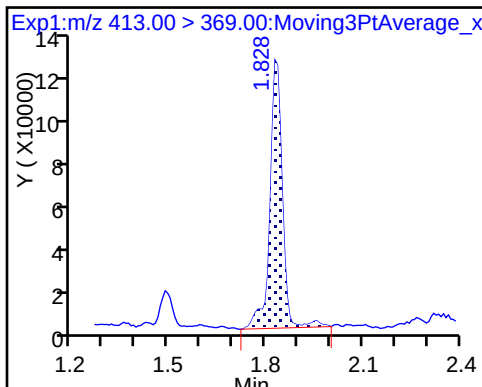
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

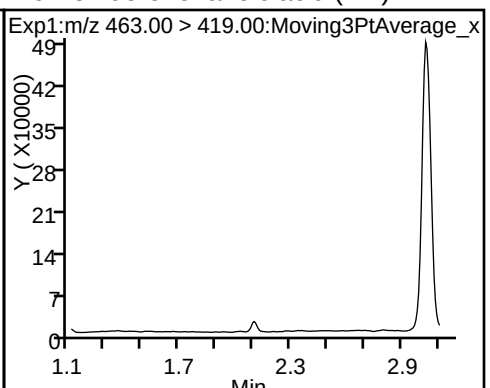
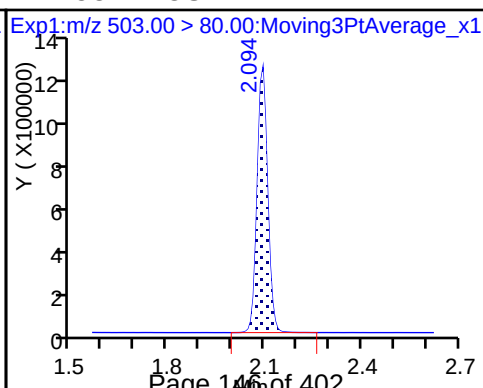
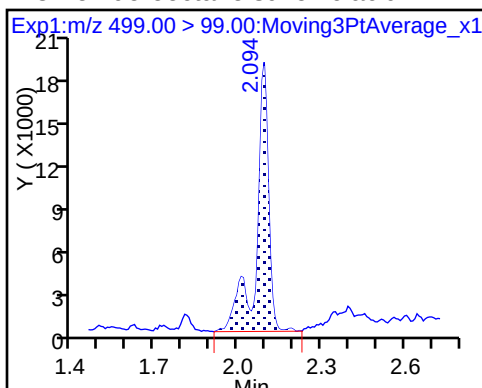
8 Perfluorooctane sulfonic acid (M)



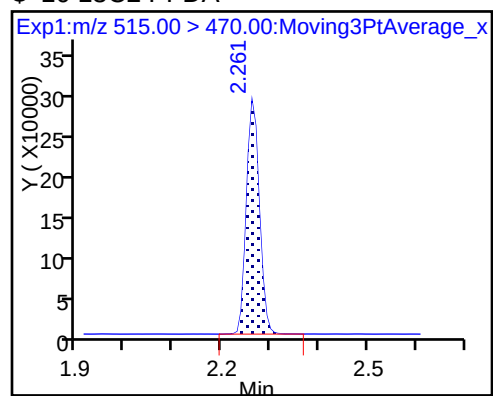
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_034.d
Lims ID: 320-36091-A-6-A
Client ID: NAWC-021318-RW-100
Sample Type: Client
Inject. Date: 05-Mar-2018 11:04:19 ALS Bottle#: 24 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36091-a-6-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 14:45:53 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
Column 1 : Det: EXP1
Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:11:59

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	7.72	77.20
\$ 10 13C2 PFDA	10.0	10.9	109.29

TestAmerica Sacramento

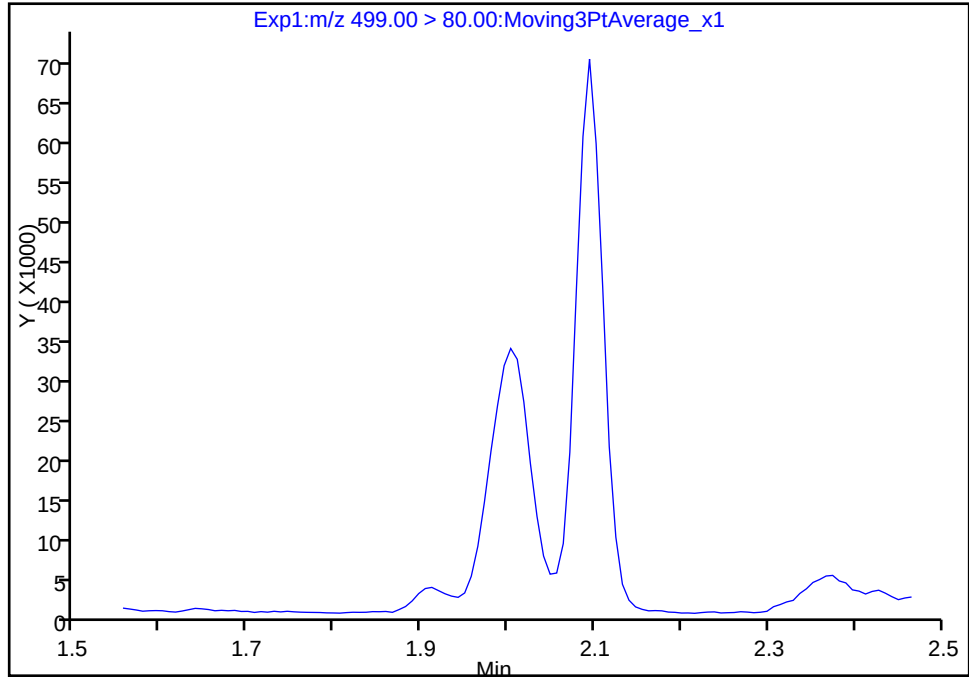
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_034.d
Injection Date: 05-Mar-2018 11:04:19 Instrument ID: A8_N
Lims ID: 320-36091-A-6-A Lab Sample ID: 320-36091-6
Client ID: NAWC-021318-RW-100
Operator ID: SACINSTLCMS01 ALS Bottle#: 24 Worklist Smp#: 11
Injection Vol: 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

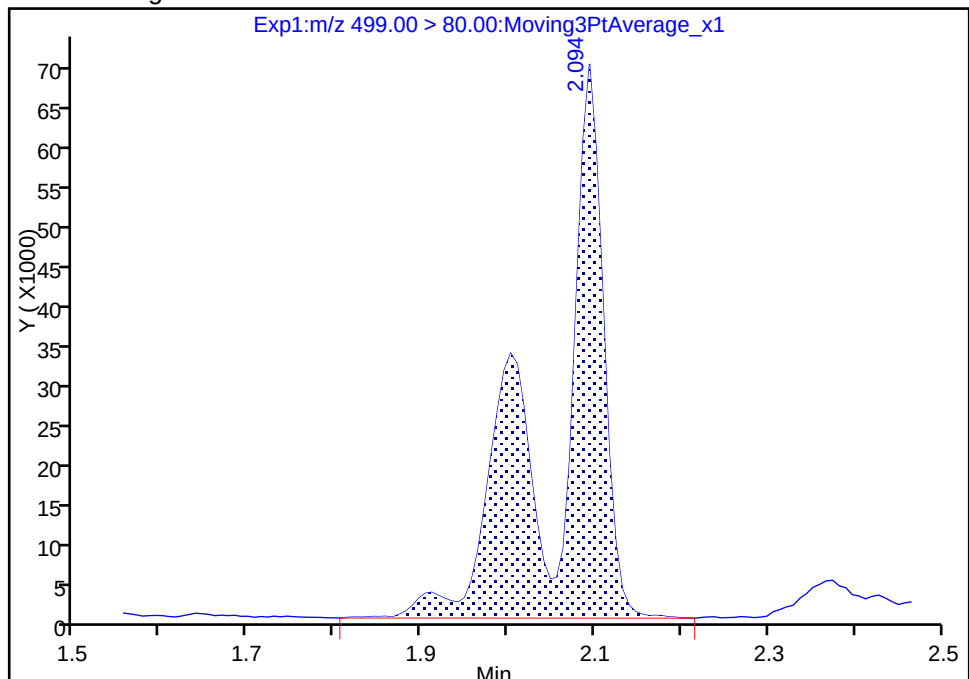
Signal: 1

Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results



RT: 2.09
Area: 277025
Amount: 3.066181
Amount Units: ng/ml

Reviewer: barnettj, 05-Mar-2018 14:11:40

Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-021318-FRB-100</u>	Lab Sample ID: <u>320-36091-7</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.05_537A_035.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 09:35</u>
Extraction Method: <u>537</u>	Date Extracted: <u>02/27/2018 08:13</u>
Sample wt/vol: <u>260.9(mL)</u>	Date Analyzed: <u>03/05/2018 11:08</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>211200</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	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	29	11	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	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	100		70-130
STL00996	13C2 PFDA	117		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_035.d
 Lims ID: 320-36091-A-7-A
 Client ID: NAWC-021318-FRB-100
 Sample Type: Client
 Inject. Date: 05-Mar-2018 11:08:59 ALS Bottle#: 25 Worklist Smp#: 12
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-36091-a-7-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:45:53 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK024

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.495	-0.008	1.000	988965	9.98		14801	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.844	-0.016		901199	10.0		7819	
* 7 13C4 PFOS									
503.00 > 80.00	2.086	2.102	-0.016		2734418	28.7		6340	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.269	-0.007	1.000	551035	11.7		4152	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_035.d

Injection Date: 05-Mar-2018 11:08:59

Instrument ID: A8_N

Lims ID: 320-36091-A-7-A

Lab Sample ID: 320-36091-7

Client ID: NAWC-021318-FRB-100

Operator ID: SACINSTLCMS01

ALS Bottle#: 25

Worklist Smp#: 12

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

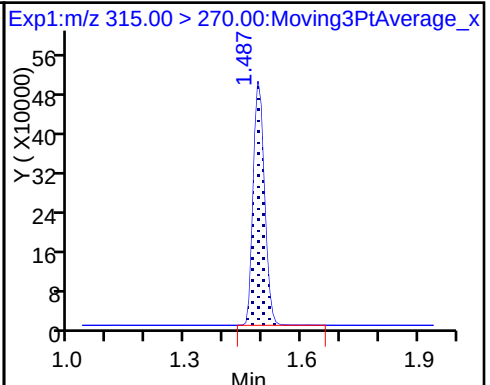
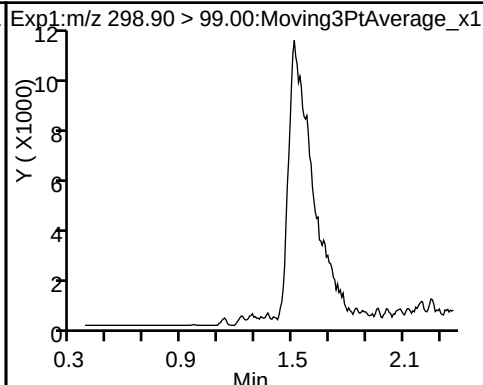
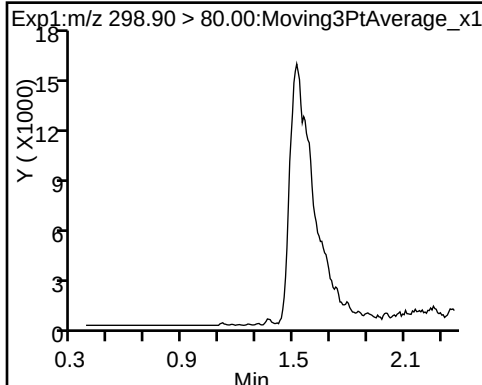
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

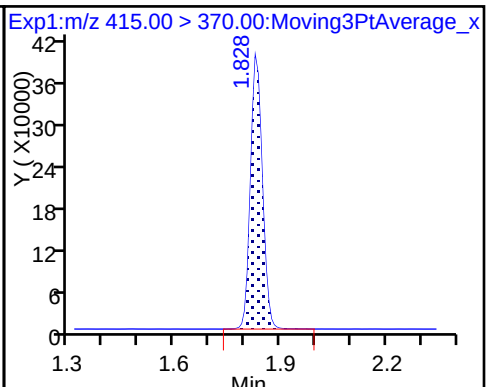
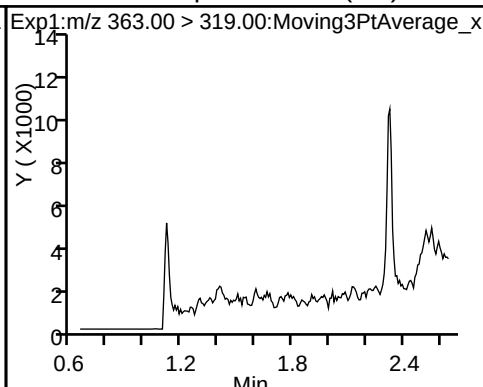
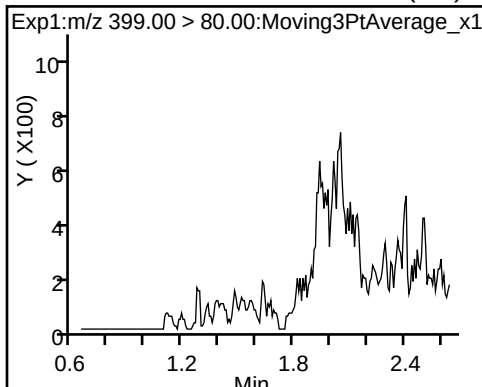
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

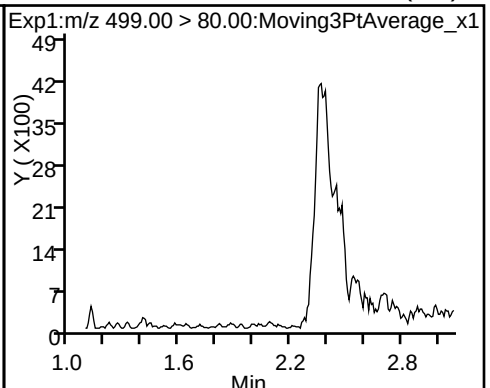
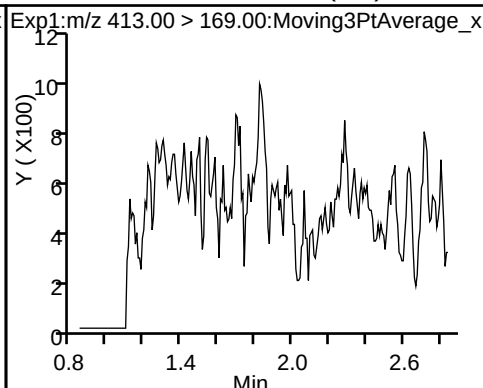
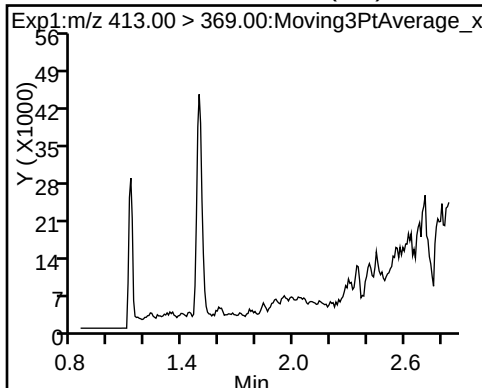
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

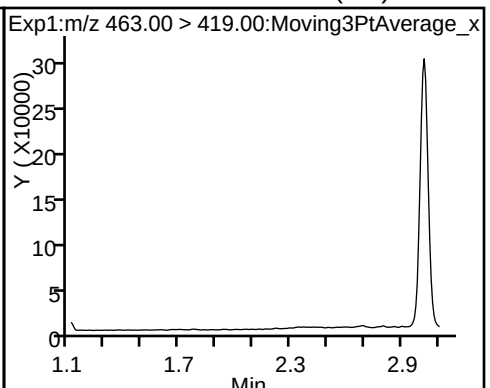
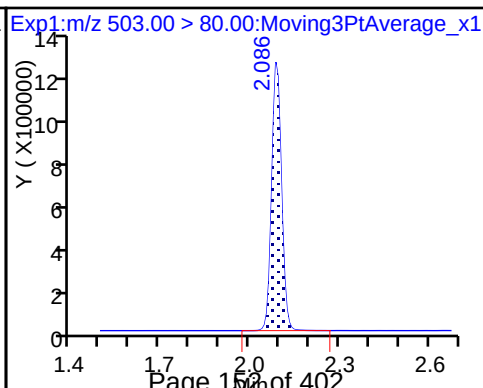
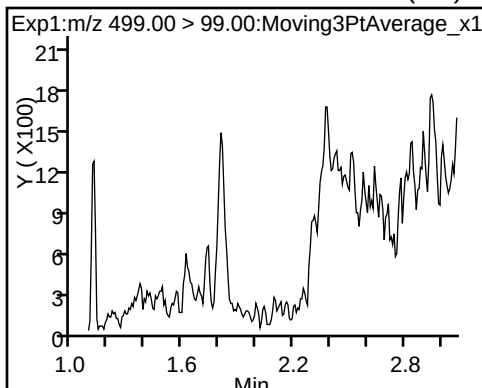
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

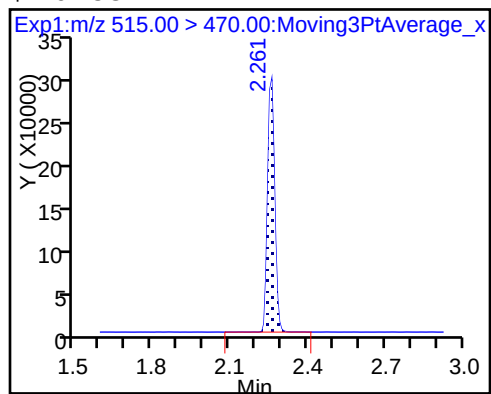


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_035.d
Lims ID: 320-36091-A-7-A
Client ID: NAWC-021318-FRB-100
Sample Type: Client
Inject. Date: 05-Mar-2018 11:08:59 ALS Bottle#: 25 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36091-a-7-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 14:45:53 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK024

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.98	99.77
\$ 10 13C2 PFDA	10.0	11.7	116.63

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: WGNA-021318-RW-3978 Lab Sample ID: 320-36091-8
 Matrix: Water Lab File ID: 2018.03.05_537A_038.d
 Analysis Method: 537 Date Collected: 02/13/2018 10:40
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 269.5 (mL) Date Analyzed: 03/05/2018 11:23
 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.: 211202 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)	24		19	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	10	J	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.9		9.3	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	83	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	109		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_038.d
 Lims ID: 320-36091-A-8-A
 Client ID: WGNA-021318-RW-3978
 Sample Type: Client
 Inject. Date: 05-Mar-2018 11:23:00 ALS Bottle#: 26 Worklist Smp#: 15
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-36091-a-8-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:13:49

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags	
1 Perfluorobutanesulfonic acid										
298.90 > 80.00	1.366	1.366	0.0	1.000	182109	1.48	1.53(0.00-0.00)	50.0	Ma M	
298.90 > 99.00	1.366	1.366	0.0	1.000	119343			57.8		
\$ 2 13C2 PFHxA										
315.00 > 270.00	1.487	1.487	0.0	1.000	882738	8.72		12544		
3 Perfluorohexanesulfonic acid										
399.00 > 80.00	1.639	1.639	0.0	1.000	425007	2.82		134		
4 Perfluoroheptanoic acid										
363.00 > 319.00	1.639	1.639	0.0	1.000	237305	2.66		30.0		
* 6 13C2-PFOA										
415.00 > 370.00	1.828	1.836	-0.008		920332	10.0		7739		
5 Perfluorooctanoic acid										
413.00 > 369.00	1.828	1.836	-0.008	1.000	572027	6.46	1.71(0.00-0.00)	16.7		
413.00 > 169.00	1.828	1.836	-0.008	1.000	335130			250		
8 Perfluorooctane sulfonic acid										
499.00 > 80.00	2.094	2.086	0.008	1.000	765741	8.64	5.55(0.00-0.00)	166		
499.00 > 99.00	2.086	2.086	0.0	0.996	138057			52.2		
* 7 13C4 PFOS										
503.00 > 80.00	2.086	2.086	0.0		2689190	28.7		1885		
9 Perfluorononanoic acid										
463.00 > 419.00	2.102	2.102	0.0	1.000	70481	1.24		2.2		
\$ 10 13C2 PFDA										
515.00 > 470.00	2.261	2.261	0.0	1.000	526785	10.9		4347		

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_038.d

Injection Date: 05-Mar-2018 11:23:00

Instrument ID: A8_N

Lims ID: 320-36091-A-8-A

Lab Sample ID: 320-36091-8

Client ID: WGNA-021318-RW-3978

Operator ID: SACINSTLCMS01

ALS Bottle#: 26

Worklist Smp#: 15

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

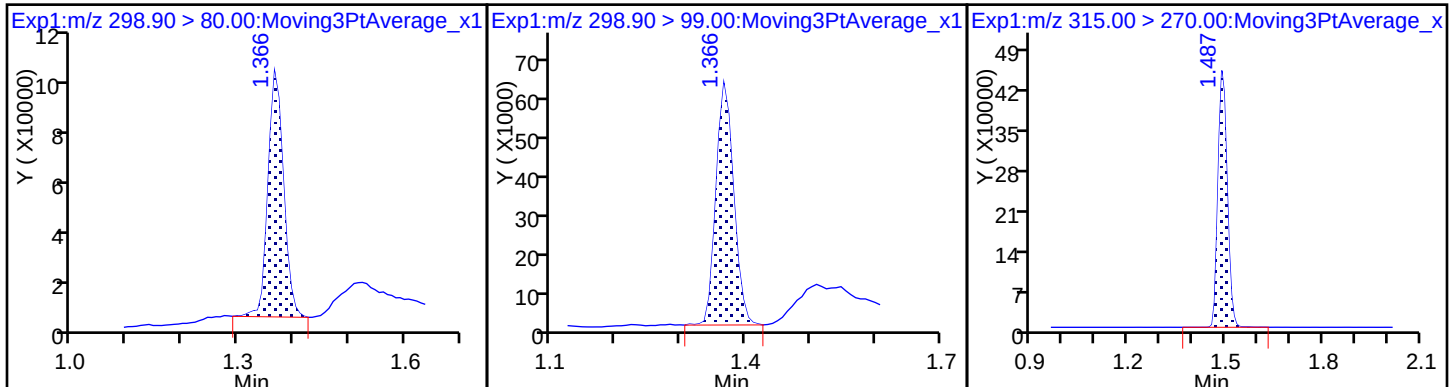
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

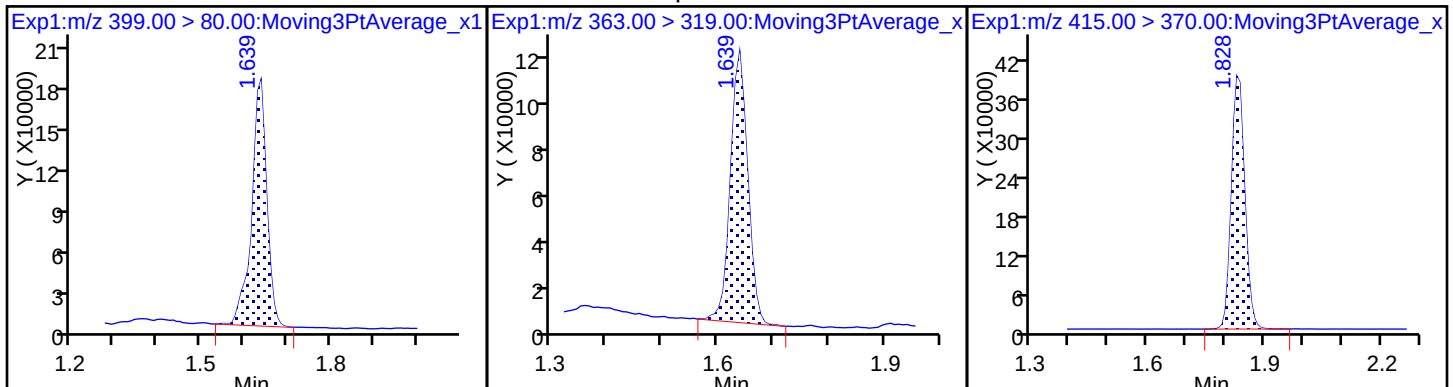
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

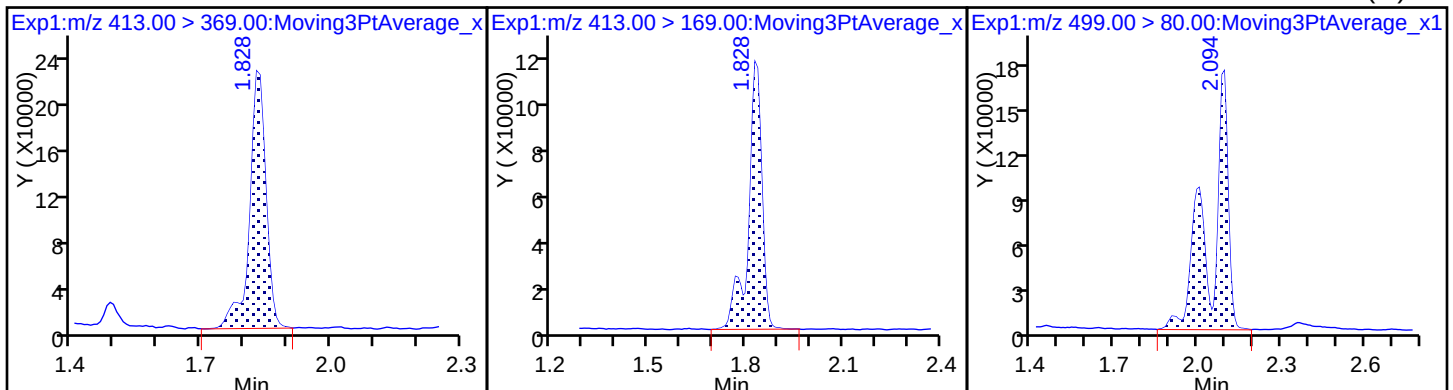
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

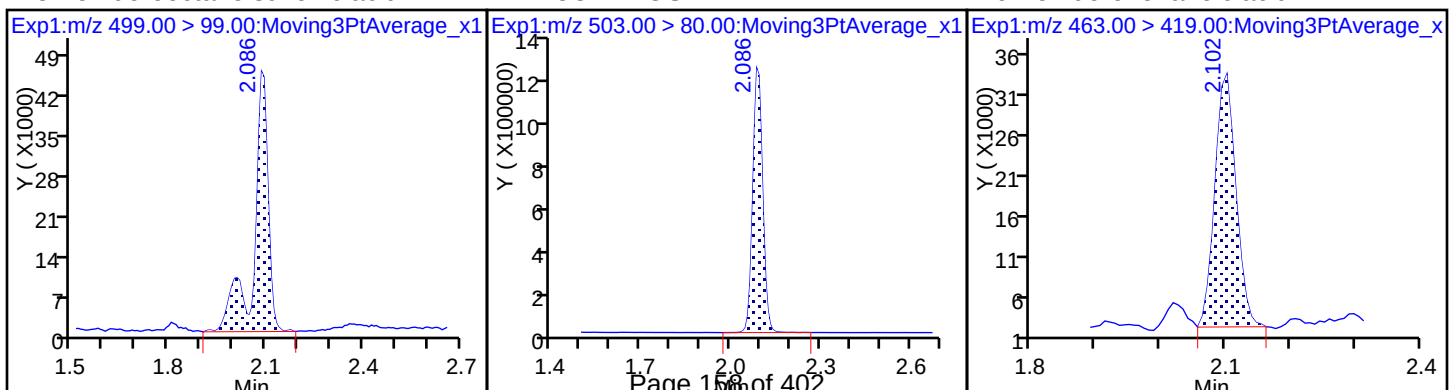
8 Perfluorooctane sulfonic acid (M)



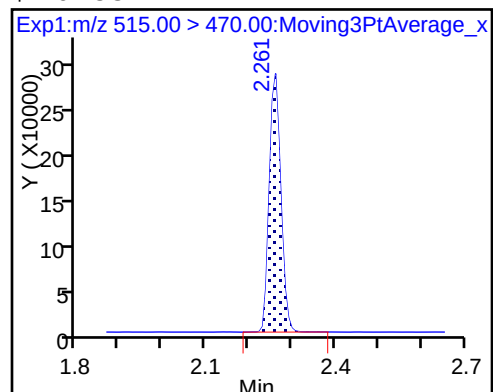
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_038.d
Lims ID: 320-36091-A-8-A
Client ID: WGNA-021318-RW-3978
Sample Type: Client
Inject. Date: 05-Mar-2018 11:23:00 ALS Bottle#: 26 Worklist Smp#: 15
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36091-a-8-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
Column 1 : Det: EXP1
Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:13:49

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.72	87.20
\$ 10 13C2 PFDA	10.0	10.9	109.18

TestAmerica Sacramento

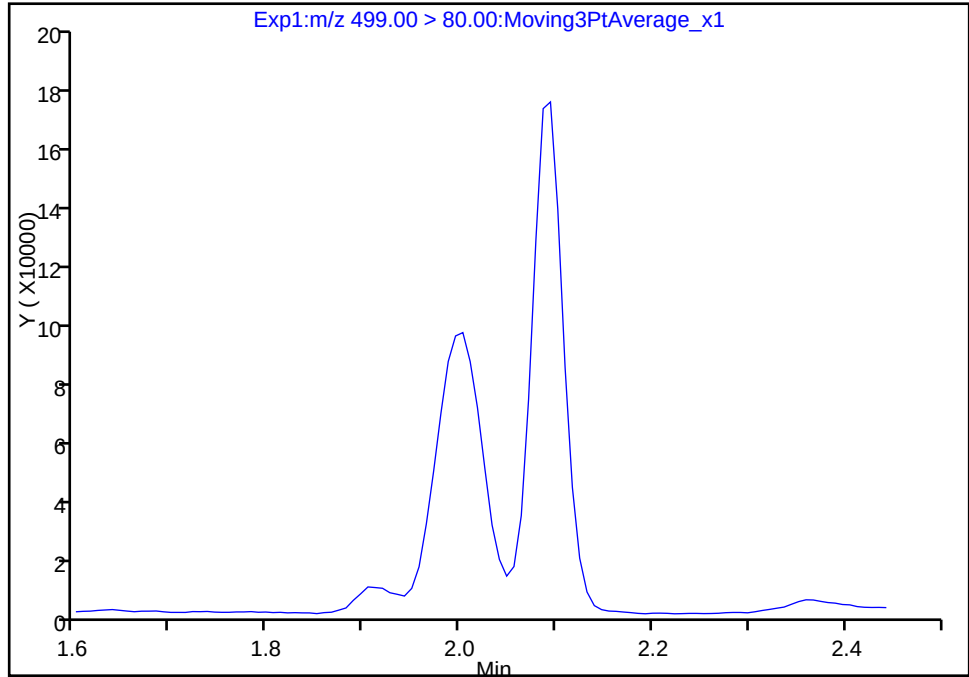
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_038.d
Injection Date: 05-Mar-2018 11:23:00 Instrument ID: A8_N
Lims ID: 320-36091-A-8-A Lab Sample ID: 320-36091-8
Client ID: WGNA-021318-RW-3978
Operator ID: SACINSTLCMS01 ALS Bottle#: 26 Worklist Smp#: 15
Injection Vol: 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

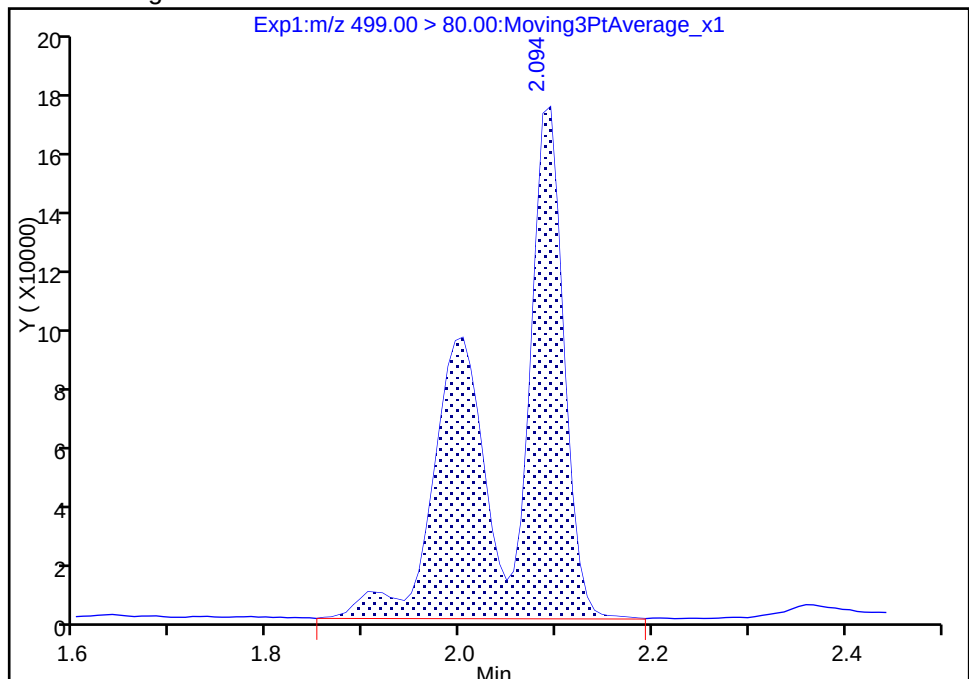
Signal: 1

Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results



RT: 2.09
Area: 765741
Amount: 8.636961
Amount Units: ng/ml

Reviewer: barnettj, 05-Mar-2018 14:13:33

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: WGNA-021318-FRB-3978 Lab Sample ID: 320-36091-9
 Matrix: Water Lab File ID: 2018.03.05_537A_039.d
 Analysis Method: 537 Date Collected: 02/13/2018 10:35
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 267.1(mL) Date Analyzed: 03/05/2018 11:27
 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.: 211202 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	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	22	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.4	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	84	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	116		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_039.d
 Lims ID: 320-36091-A-9-A
 Client ID: WGNA-021318-FRB-3978
 Sample Type: Client
 Inject. Date: 05-Mar-2018 11:27:40 ALS Bottle#: 27 Worklist Smp#: 16
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-36091-a-9-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK024

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	896694	10.3		11989	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.836	-0.008		795161	10.0		6978	
* 7 13C4 PFOS									
503.00 > 80.00	2.086	2.086	0.0		2361397	28.7		5781	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.261	0.0	1.000	482600	11.6		3448	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_039.d

Injection Date: 05-Mar-2018 11:27:40

Instrument ID: A8_N

Lims ID: 320-36091-A-9-A

Lab Sample ID: 320-36091-9

Client ID: WGNA-021318-FRB-3978

Operator ID: SACINSTLCMS01

ALS Bottle#: 27

Worklist Smp#: 16

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

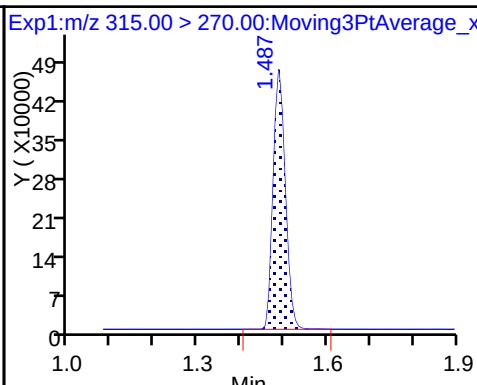
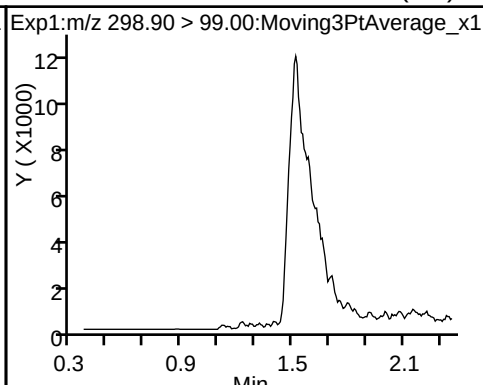
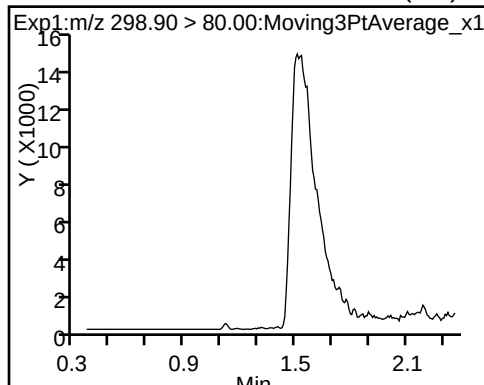
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

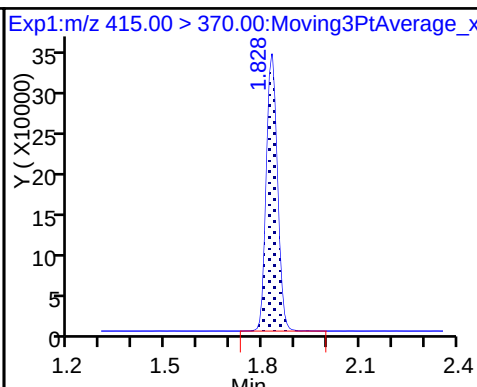
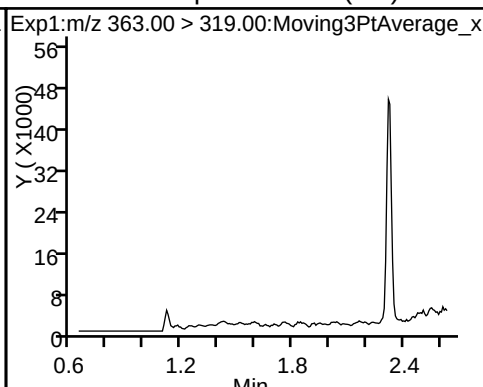
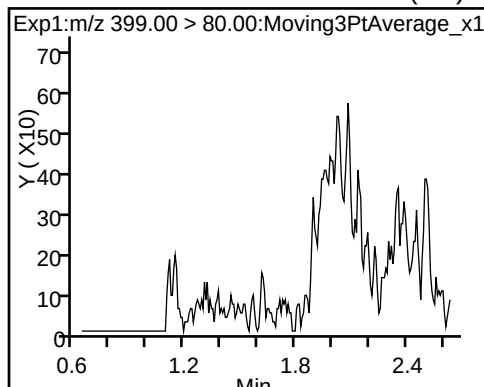
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

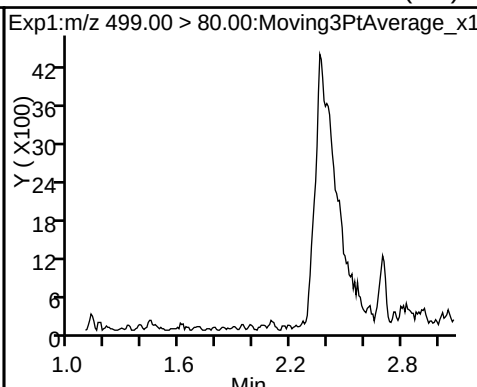
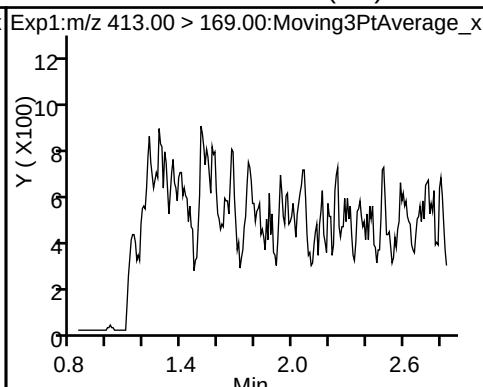
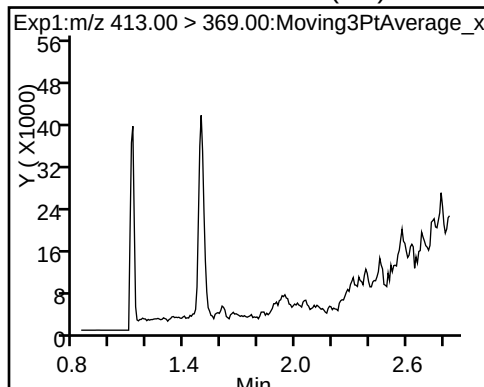
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

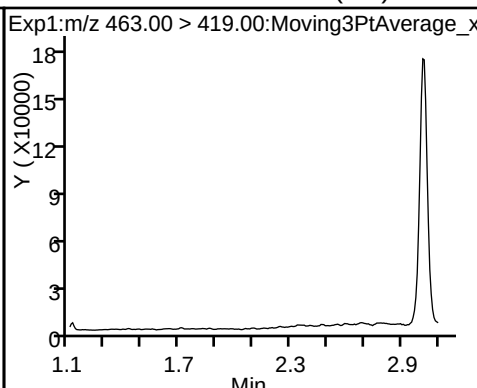
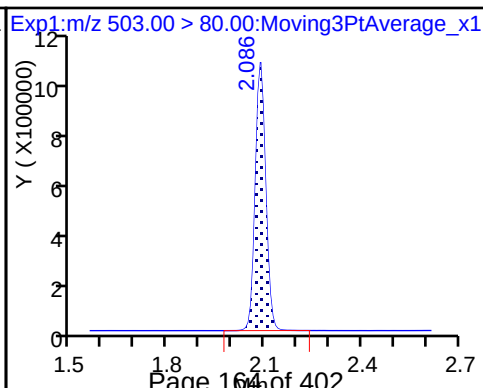
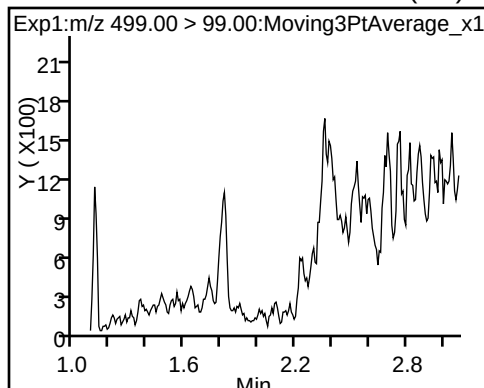
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

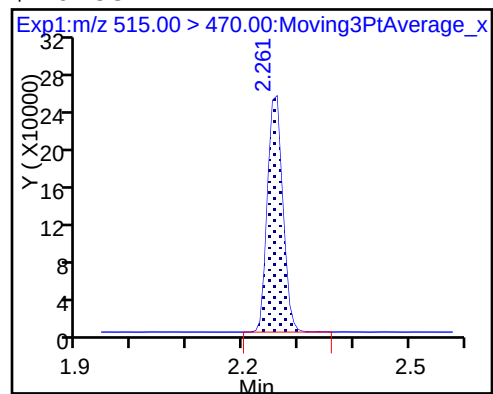


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_039.d
Lims ID: 320-36091-A-9-A
Client ID: WGNA-021318-FRB-3978
Sample Type: Client
Inject. Date: 05-Mar-2018 11:27:40 ALS Bottle#: 27 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36091-a-9-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 :

Det: EXP1

Process Host: XAWRK024

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.3	102.53
\$ 10 13C2 PFDA	10.0	11.6	115.76

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: WGNA-021318-RW-3933 Lab Sample ID: 320-36091-10
 Matrix: Water Lab File ID: 2018.03.05_537A_040.d
 Analysis Method: 537 Date Collected: 02/13/2018 11:10
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 271.3 (mL) Date Analyzed: 03/05/2018 11:32
 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.: 211202 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	J M	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	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)	5.0	J	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	47	Q	70-130
STL00996	13C2 PFDA	56	Q	70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_040.d
 Lims ID: 320-36091-A-10-A
 Client ID: WGNA-021318-RW-3933
 Sample Type: Client
 Inject. Date: 05-Mar-2018 11:32:20 ALS Bottle#: 28 Worklist Smp#: 17
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-36091-a-10-
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:14:57

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	203206	0.9252		59.4	
298.90 > 99.00	1.366	1.366	0.0	1.000	136848		1.48(0.00-0.00)	69.9	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	834562	4.69		12433	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.639	-0.008	1.000	271692	1.01		126	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.639	-0.008	1.000	214978	1.37		21.2	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.836	-0.008		1619413	10.0		16581	s
5 Perfluorooctanoic acid									
413.00 > 369.00	1.828	1.836	-0.008	1.000	557643	3.58		14.9	
413.00 > 169.00	1.828	1.836	-0.008	1.000	354199		1.57(0.00-0.00)	251	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.086	2.086	0.0	1.000	637048	4.04		183	Ma
499.00 > 99.00	2.086	2.086	0.0	1.000	112151		5.68(0.00-0.00)	43.6	M
* 7 13C4 PFOS									
503.00 > 80.00	2.086	2.086	0.0		4786476	28.7		3928	s
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.261	-0.008	1.000	478015	5.63		4250	

QC Flag Legend

Processing Flags

s - Failed ISTD Recovery Test

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_040.d

Injection Date: 05-Mar-2018 11:32:20

Instrument ID: A8_N

Lims ID: 320-36091-A-10-A

Lab Sample ID: 320-36091-10

Client ID: WGNA-021318-RW-3933

Operator ID: SACINSTLCMS01

ALS Bottle#: 28

Worklist Smp#: 17

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

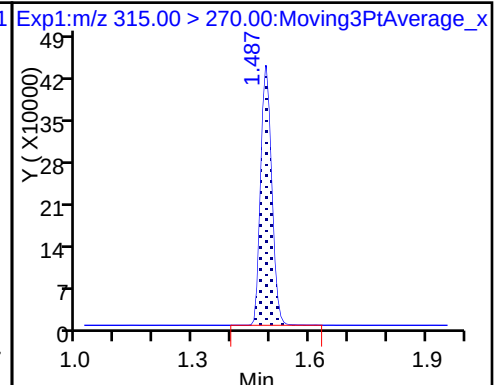
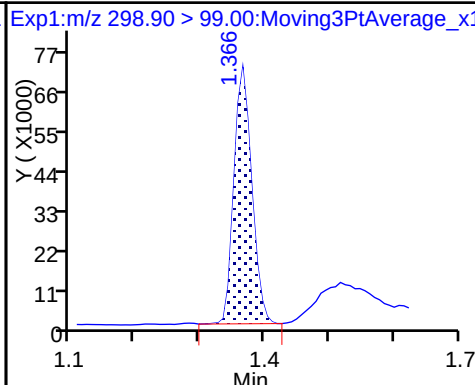
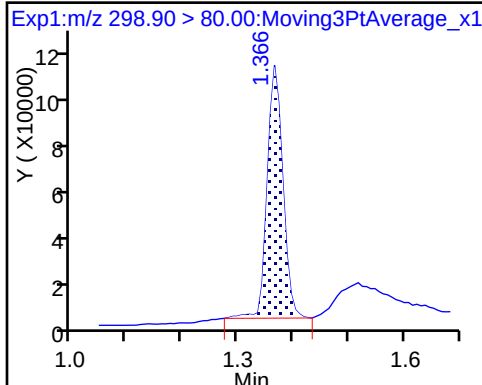
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

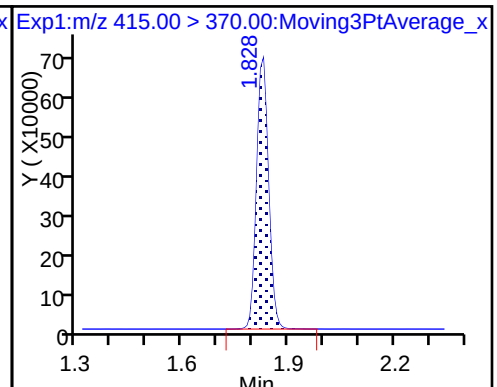
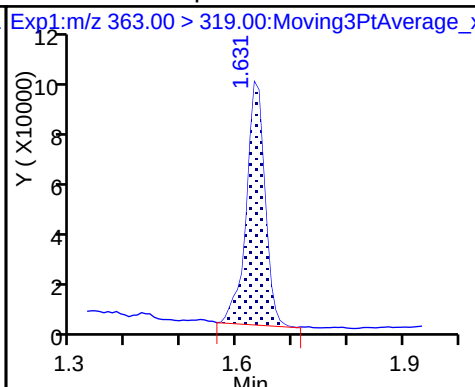
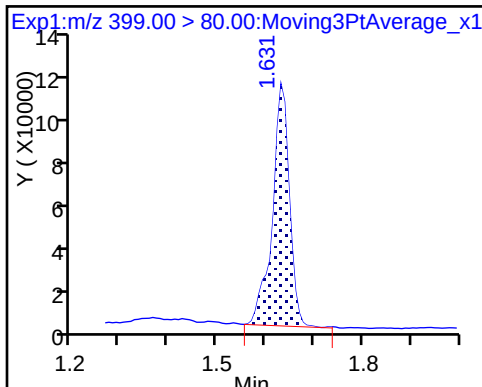
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

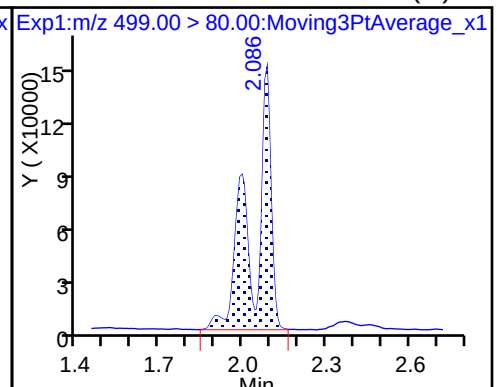
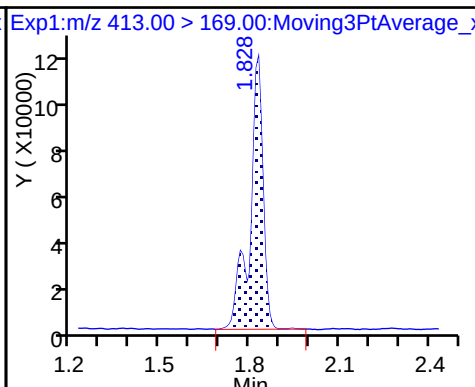
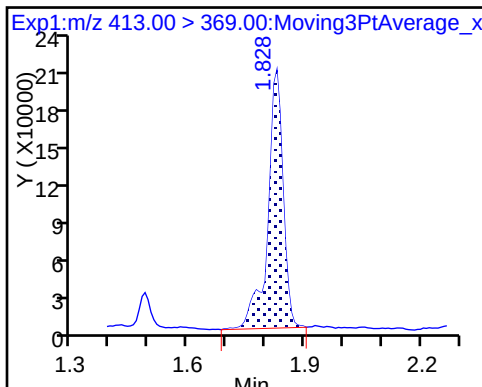
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

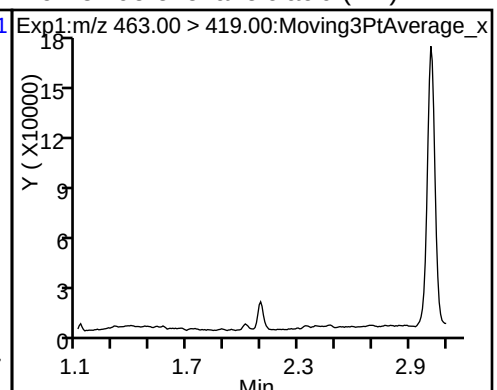
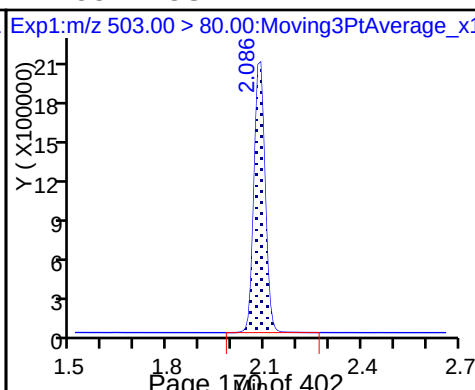
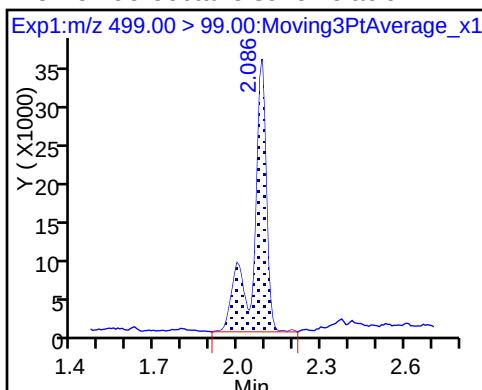
8 Perfluorooctane sulfonic acid (M)



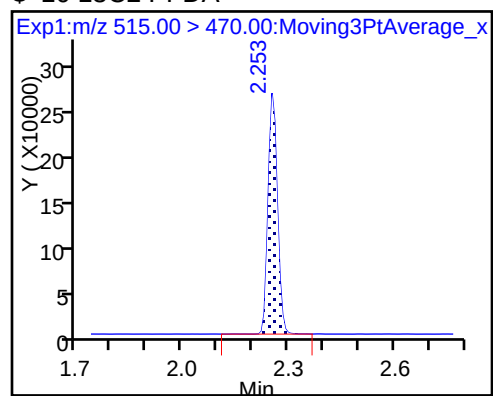
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_040.d
Lims ID: 320-36091-A-10-A
Client ID: WGNA-021318-RW-3933
Sample Type: Client
Inject. Date: 05-Mar-2018 11:32:20 ALS Bottle#: 28 Worklist Smp#: 17
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36091-a-10-
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
Column 1 : Det: EXP1
Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:14:57

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	4.69	46.85
\$ 10 13C2 PFDA	10.0	5.63	56.30

TestAmerica Sacramento

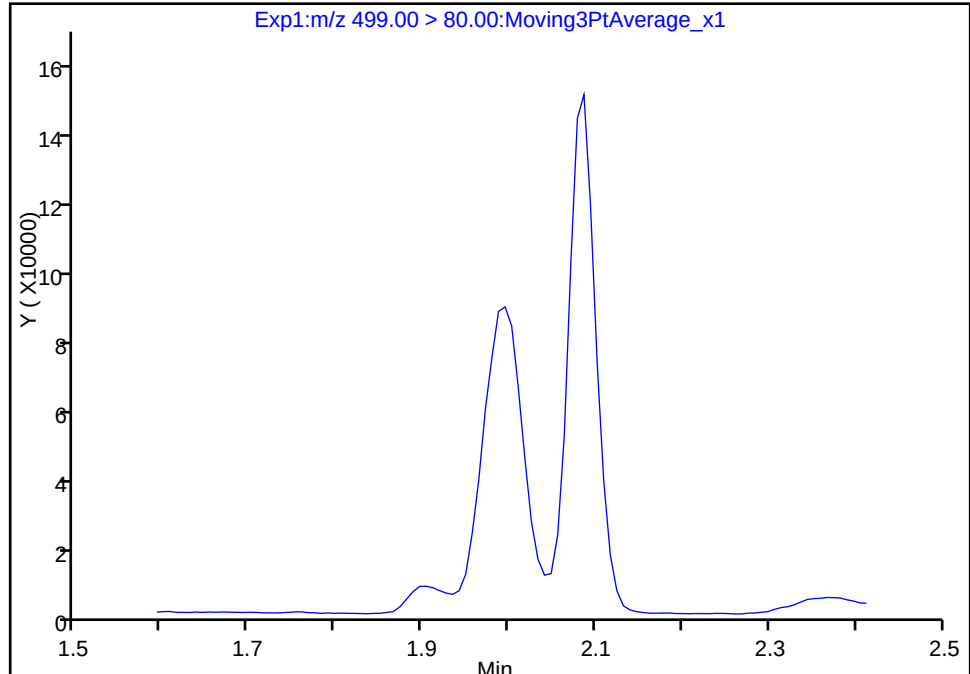
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_040.d
Injection Date: 05-Mar-2018 11:32:20 Instrument ID: A8_N
Lims ID: 320-36091-A-10-A Lab Sample ID: 320-36091-10
Client ID: WGNA-021318-RW-3933
Operator ID: SACINSTLCMS01 ALS Bottle#: 28 Worklist Smp#: 17
Injection Vol: 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

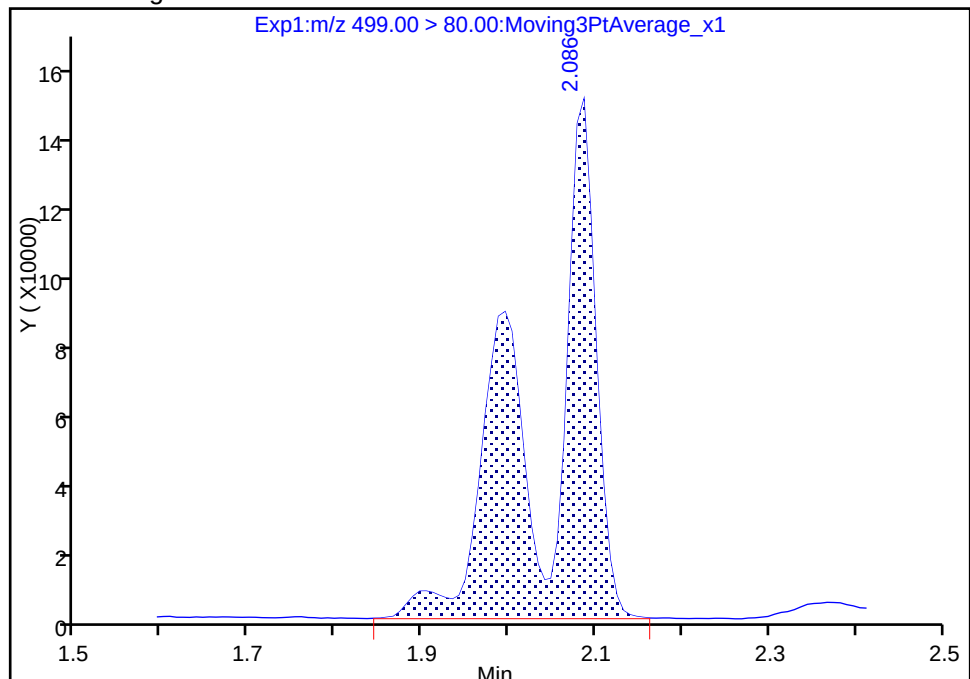
Signal: 1

Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results



RT: 2.09
Area: 637048
Amount: 4.036982
Amount Units: ng/ml

Reviewer: barnettj, 05-Mar-2018 14:14:51
Audit Action: Manually Integrated

Audit Reason: Incomplete Integration
Page 173 of 402

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-021318-RW-3933 RE</u>	Lab Sample ID: <u>320-36091-10 RE</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.09_537A_016.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 11:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>03/05/2018 17:45</u>
Sample wt/vol: <u>280 (mL)</u>	Date Analyzed: <u>03/09/2018 09:49</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>212124</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	27	J H M	36	14	6.1
335-67-1	Perfluorooctanoic acid (PFOA)	24	H	18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U H	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.1	J H	27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.7	H	8.9	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U H	80	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	80		70-130
STL00996	13C2 PFDA	107		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_016.d
 Lims ID: 320-36091-B-10-A
 Client ID: WGNA-021318-RW-3933
 Sample Type: Client
 Inject. Date: 09-Mar-2018 09:49:57 ALS Bottle#: 45 Worklist Smp#: 13
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-36091-b-10-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Mar-2018 11:01:35 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK018

First Level Reviewer: barnettj

Date: 09-Mar-2018 10:54:13

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.373	-0.007	1.000	221662	1.68		97.4	
298.90 > 99.00	1.366	1.373	-0.007	1.000	157394		1.41(0.00-0.00)	128	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.495	1.495	0.0	1.000	882814	7.95		11663	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.639	1.639	0.0	1.000	319957	1.98		142	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.639	1.639	0.0	1.000	265347	2.71		33.4	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.828	0.0		1009202	10.0		8154	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.828	1.828	0.0	1.000	659254	6.79		15.9	
413.00 > 169.00	1.828	1.828	0.0	1.000	409470		1.61(0.00-0.00)	323	
* 7 13C4 PFOS									
503.00 > 80.00	2.086	2.086	0.0		2874291	28.7		2655	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.086	2.086	0.0	1.000	703429	7.42		226	Ma
499.00 > 99.00	2.086	2.086	0.0	1.000	118916		5.92(0.00-0.00)	53.0	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.094	2.094	0.0	1.000	40900	0.6586		1.4	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.261	-0.008	1.000	564451	10.7		4711	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_016.d

Injection Date: 09-Mar-2018 09:49:57

Instrument ID: A8_N

Lims ID: 320-36091-B-10-A

Lab Sample ID: 320-36091-10

Client ID: WGNA-021318-RW-3933

Operator ID: SACINSTLCMS01

ALS Bottle#: 45

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

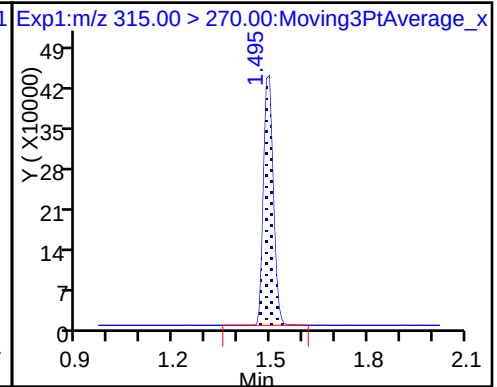
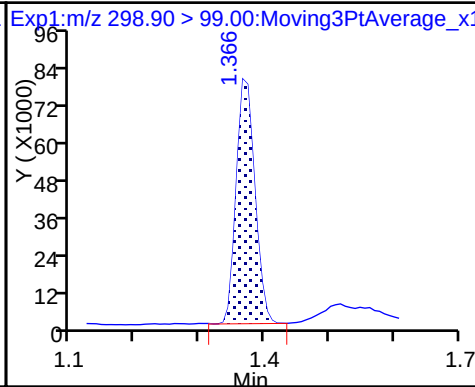
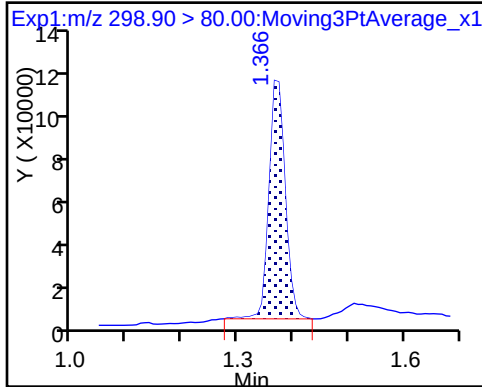
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

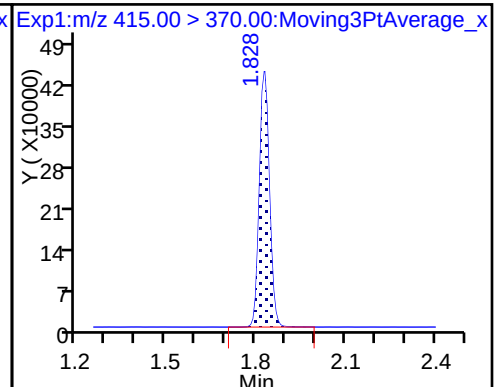
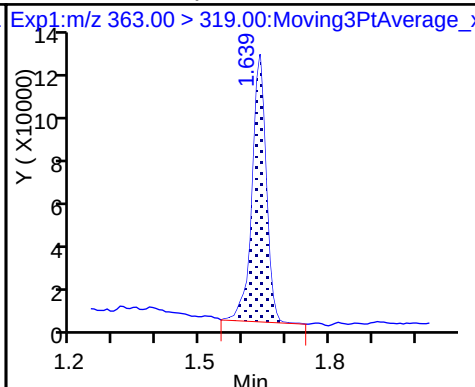
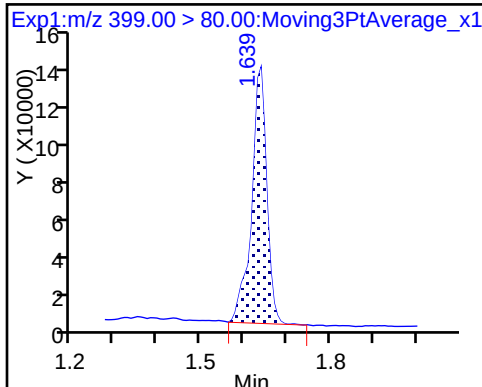
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

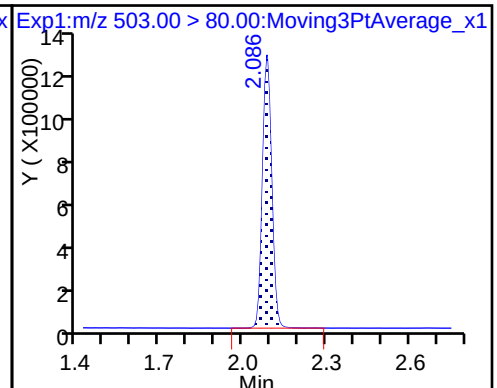
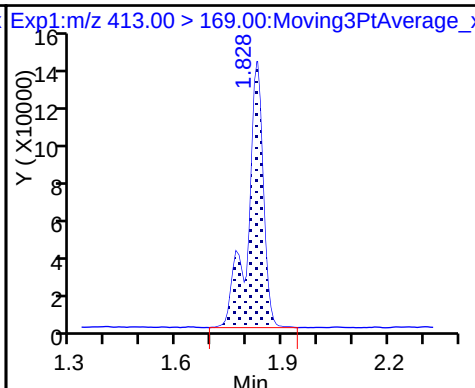
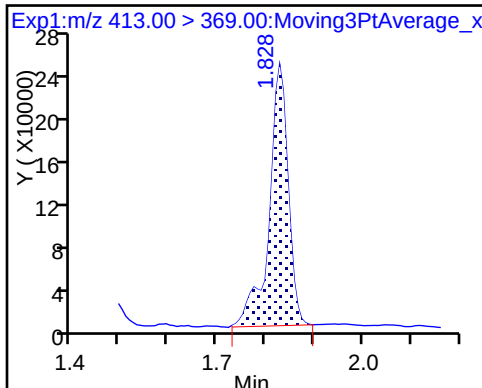
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

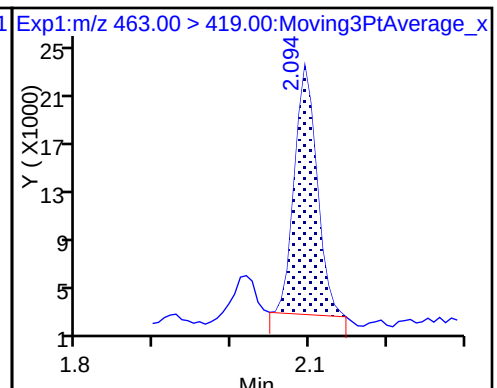
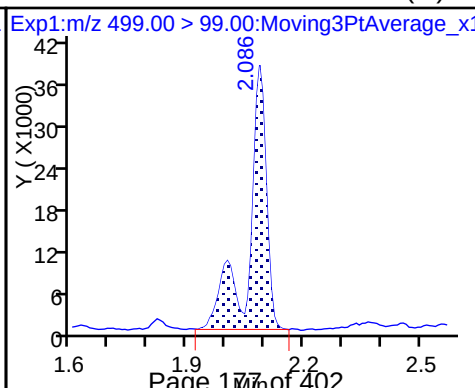
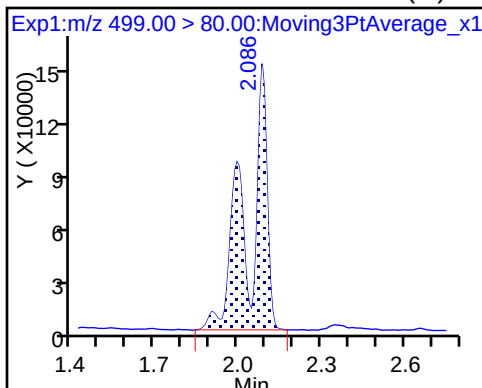
* 7 13C4 PFOS



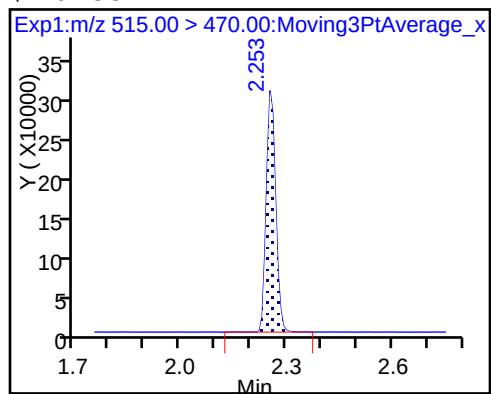
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_016.d
Lims ID: 320-36091-B-10-A
Client ID: WGNA-021318-RW-3933
Sample Type: Client
Inject. Date: 09-Mar-2018 09:49:57 ALS Bottle#: 45 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36091-b-10-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Mar-2018 11:01:35 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
Column 1 : Det: EXP1
Process Host: XAWRK018

First Level Reviewer: barnettj

Date: 09-Mar-2018 10:54:13

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	7.95	79.53
\$ 10 13C2 PFDA	10.0	10.7	106.68

TestAmerica Sacramento

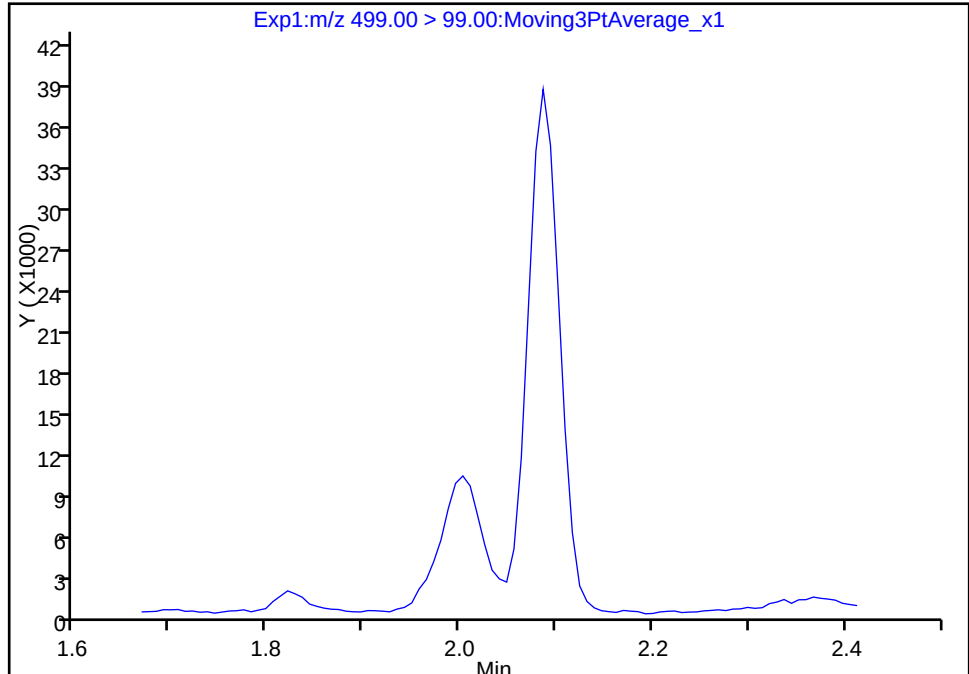
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_016.d
Injection Date: 09-Mar-2018 09:49:57 Instrument ID: A8_N
Lims ID: 320-36091-B-10-A Lab Sample ID: 320-36091-10
Client ID: WGNA-021318-RW-3933
Operator ID: SACINSTLCMS01 ALS Bottle#: 45 Worklist Smp#: 13
Injection Vol: 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

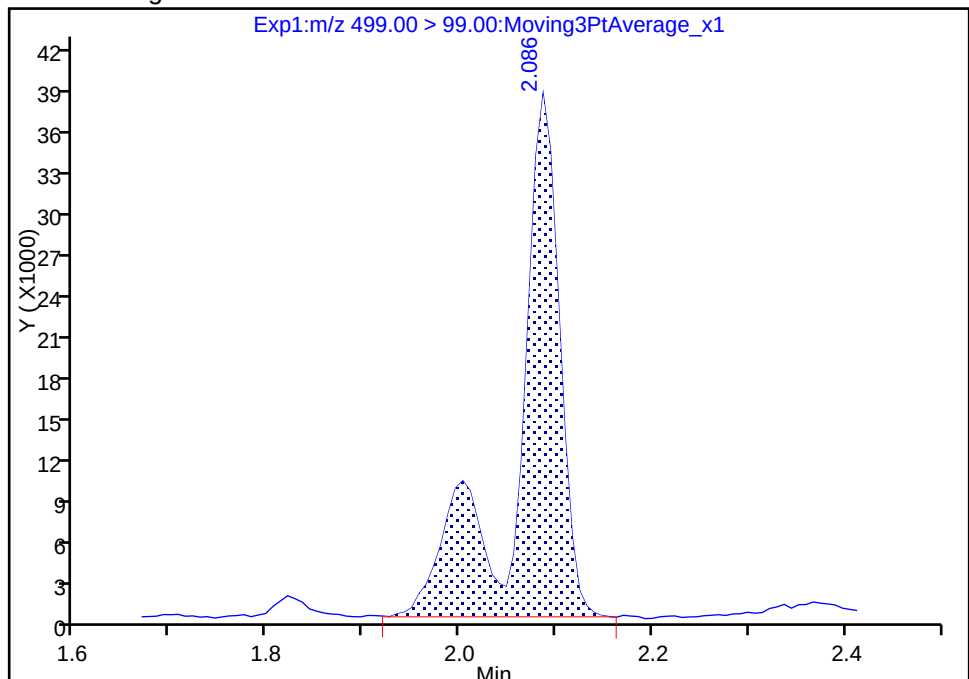
Not Detected
Expected RT: 2.09

Processing Integration Results



RT: 2.09
Area: 118916
Amount: 7.423182
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 09-Mar-2018 10:54:06
Audit Action: Manually Integrated

Audit Reason: Missed Peak
Page 180 of 402

TestAmerica Sacramento

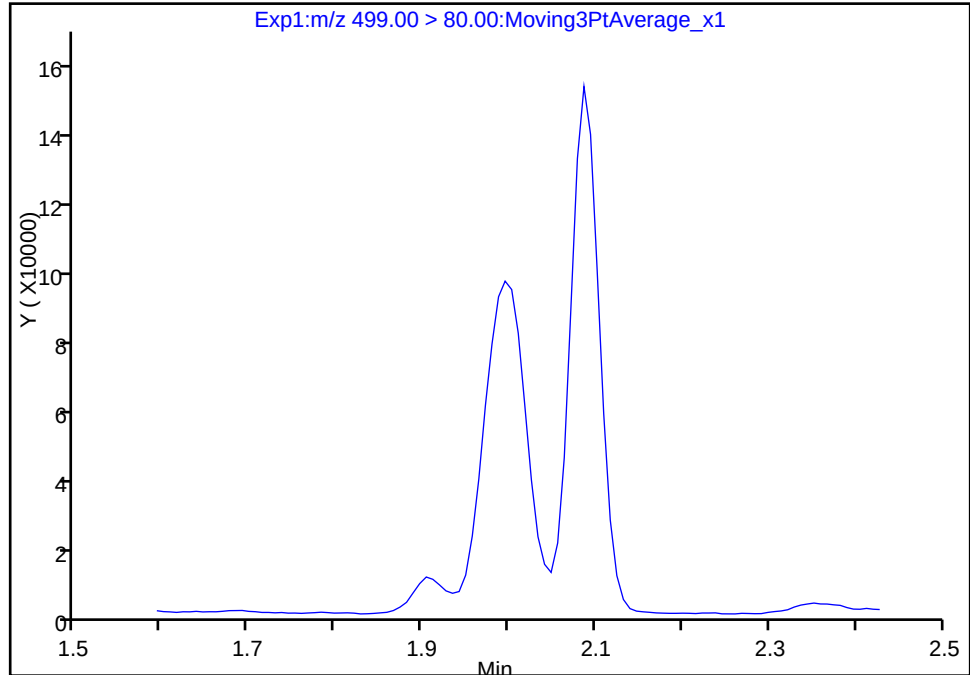
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_016.d
Injection Date: 09-Mar-2018 09:49:57 Instrument ID: A8_N
Lims ID: 320-36091-B-10-A Lab Sample ID: 320-36091-10
Client ID: WGNA-021318-RW-3933
Operator ID: SACINSTLCMS01 ALS Bottle#: 45 Worklist Smp#: 13
Injection Vol: 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

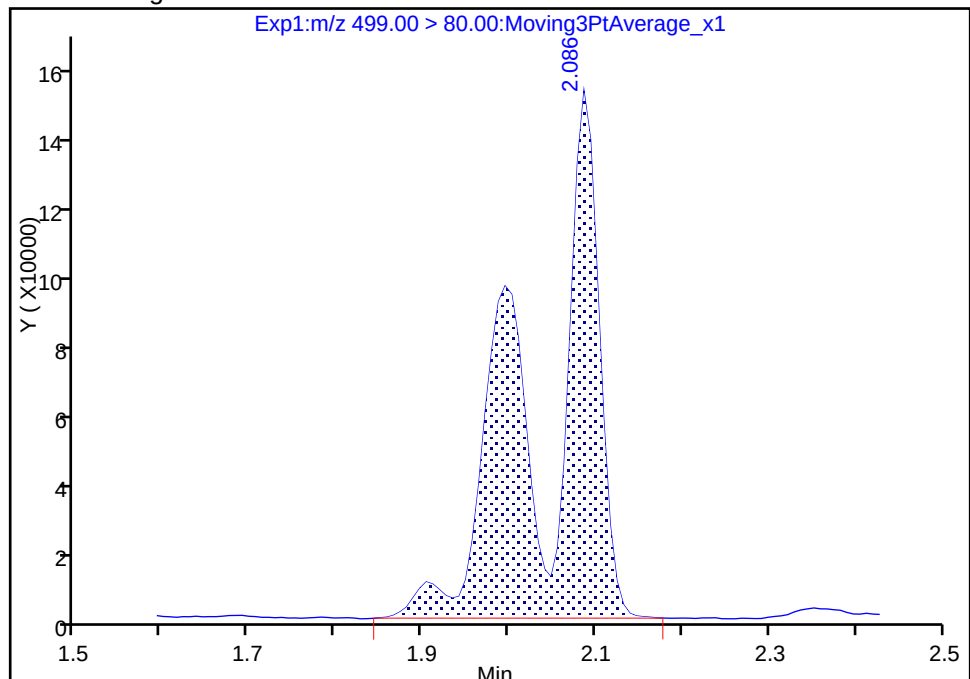
Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT: 2.09
Area: 703429
Amount: 7.423182
Amount Units: ng/ml



Reviewer: barnettj, 09-Mar-2018 10:54:06

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-021318-FRB-3933</u>	Lab Sample ID: <u>320-36091-11</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.05_537A_041.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 11:05</u>
Extraction Method: <u>537</u>	Date Extracted: <u>02/27/2018 08:13</u>
Sample wt/vol: <u>263.6(mL)</u>	Date Analyzed: <u>03/05/2018 11:37</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>211202</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)	7.6	U	19	7.6	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	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	99		70-130
STL00996	13C2 PFDA	110		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_041.d
 Lims ID: 320-36091-A-11-A
 Client ID: WGNA-021318-FRB-3933
 Sample Type: Client
 Inject. Date: 05-Mar-2018 11:37:01 ALS Bottle#: 29 Worklist Smp#: 18
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-36091-a-11-
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK024

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.495	1.487	0.008	1.000	954395	9.92		13974	
* 6 13C2-PFOA									
415.00 > 370.00	1.836	1.836	0.0		874758	10.0		7363	
* 7 13C4 PFOS									
503.00 > 80.00	2.086	2.086	0.0		2540389	28.7		7574	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.261	0.0	1.000	505927	11.0		4264	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_041.d

Injection Date: 05-Mar-2018 11:37:01

Instrument ID: A8_N

Lims ID: 320-36091-A-11-A

Lab Sample ID: 320-36091-11

Client ID: WGNA-021318-FRB-3933

Operator ID: SACINSTLCMS01

ALS Bottle#: 29

Worklist Smp#: 18

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

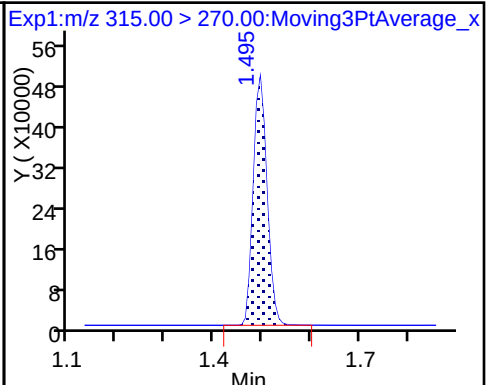
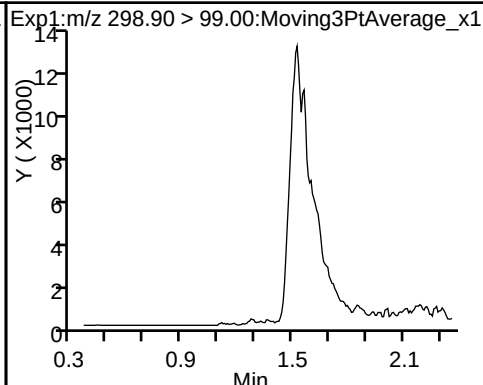
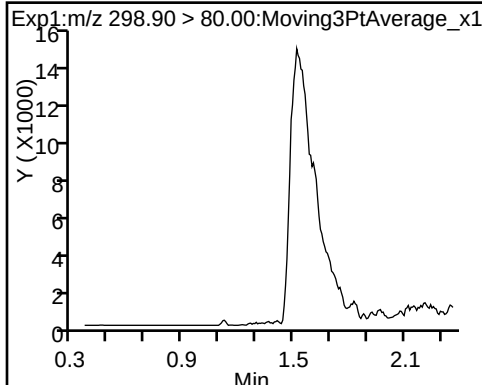
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

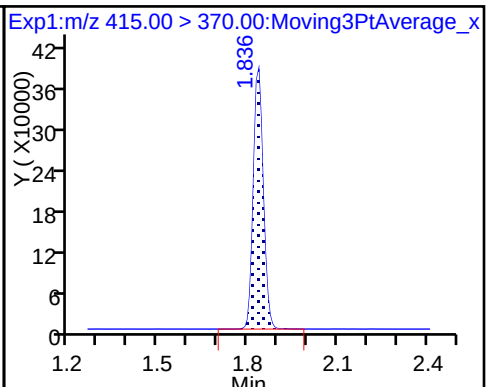
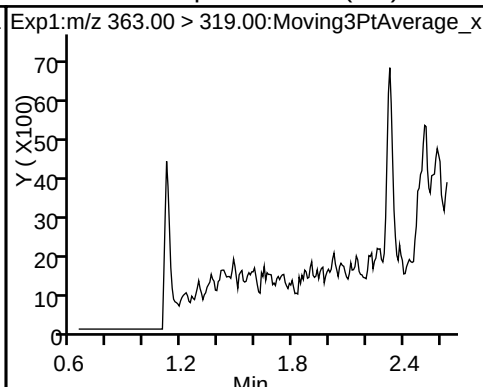
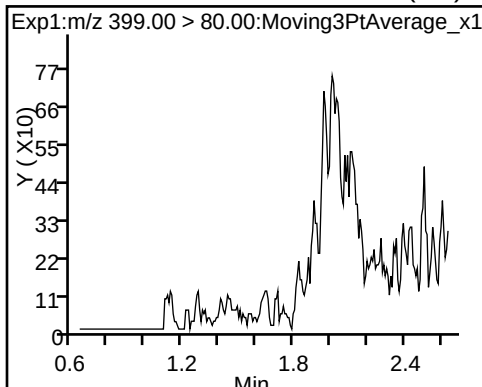
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

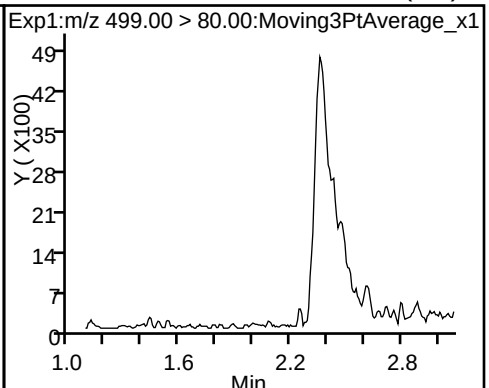
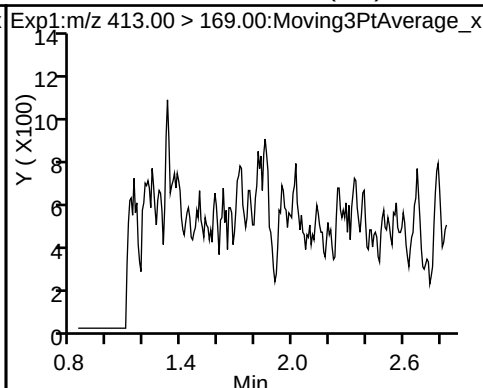
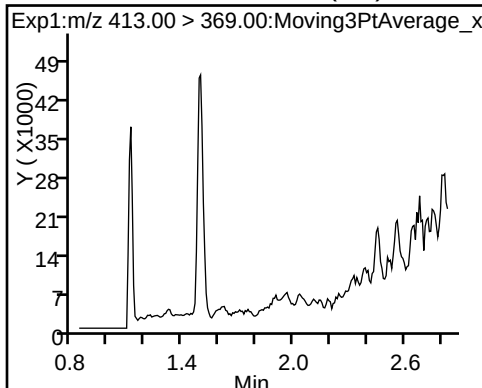
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

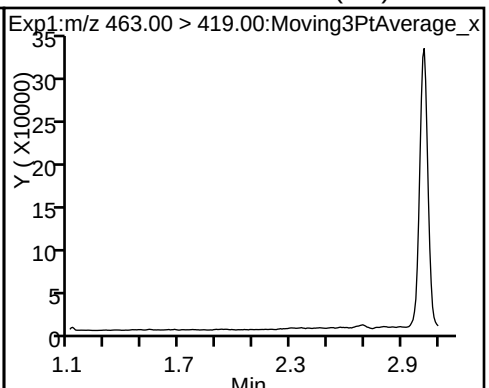
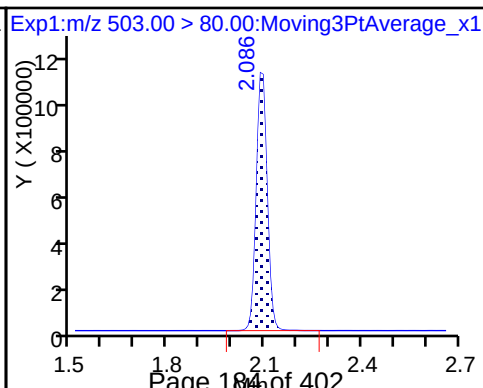
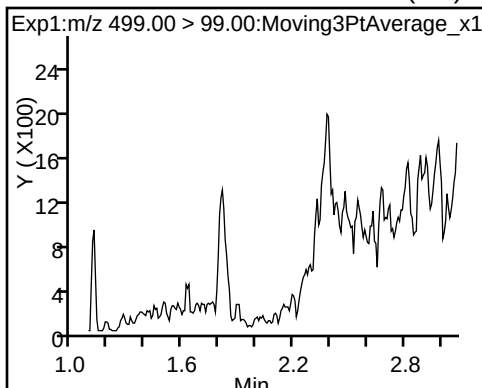
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

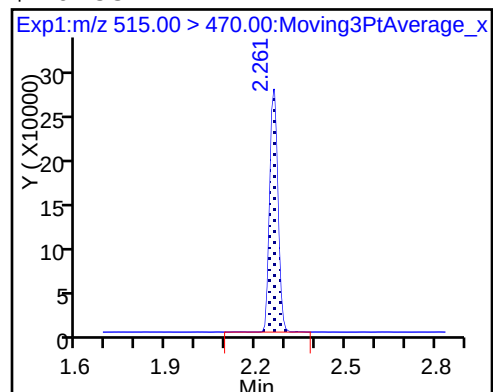


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_041.d
Lims ID: 320-36091-A-11-A
Client ID: WGNA-021318-FRB-3933
Sample Type: Client
Inject. Date: 05-Mar-2018 11:37:01 ALS Bottle#: 29 Worklist Smp#: 18
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36091-a-11-
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK024

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.92	99.20
\$ 10 13C2 PFDA	10.0	11.0	110.32

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-021318-RW-161</u>	Lab Sample ID: <u>320-36091-12</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.05_537A_042.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 11:40</u>
Extraction Method: <u>537</u>	Date Extracted: <u>02/27/2018 08:13</u>
Sample wt/vol: <u>284.4 (mL)</u>	Date Analyzed: <u>03/05/2018 11:41</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>211202</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	43	M	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	20		18	7.0	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	15	J	26	11	4.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.7	J	8.8	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	79	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	104		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_042.d
 Lims ID: 320-36091-A-12-A
 Client ID: NAWC-021318-RW-161
 Sample Type: Client
 Inject. Date: 05-Mar-2018 11:41:42 ALS Bottle#: 30 Worklist Smp#: 19
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-36091-a-12-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:15:51

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	256047	2.25		74.8	
298.90 > 99.00	1.358	1.366	-0.008	0.994	164440		1.56(0.00-0.00)	78.5	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	818061	8.56		11599	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.639	-0.008	1.000	607416	4.35		254	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.639	-0.008	1.000	161674	1.92		18.9	
* 6 13C2-PFOA									
415.00 > 370.00	1.821	1.836	-0.015		869043	10.0		7136	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.821	1.836	-0.015	1.000	472717	5.65		13.9	
413.00 > 169.00	1.821	1.836	-0.015	1.000	285076		1.66(0.00-0.00)	227	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.079	2.086	-0.007	1.000	995921	12.2		281	Ma
499.00 > 99.00	2.079	2.086	-0.007	1.000	176113		5.66(0.00-0.00)	70.8	M
* 7 13C4 PFOS									
503.00 > 80.00	2.079	2.086	-0.007		2485385	28.7		2124	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.261	-0.008	1.000	473819	10.4		3748	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_042.d

Injection Date: 05-Mar-2018 11:41:42

Instrument ID: A8_N

Lims ID: 320-36091-A-12-A

Lab Sample ID: 320-36091-12

Client ID: NAWC-021318-RW-161

Operator ID: SACINSTLCMS01

ALS Bottle#: 30

Worklist Smp#: 19

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

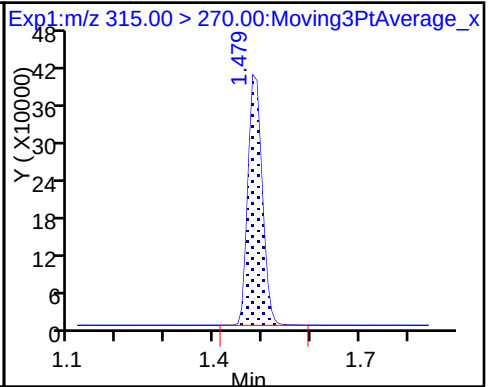
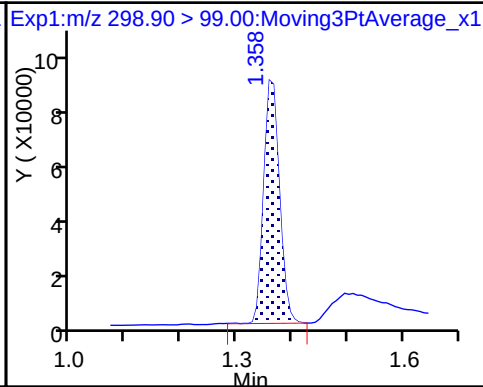
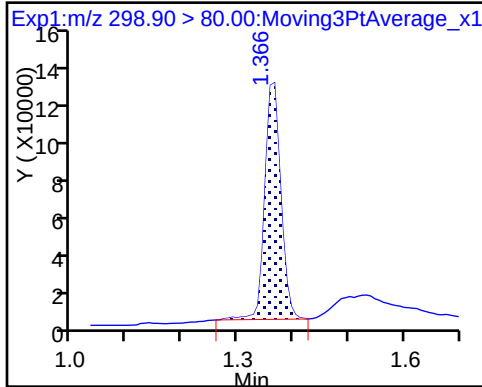
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

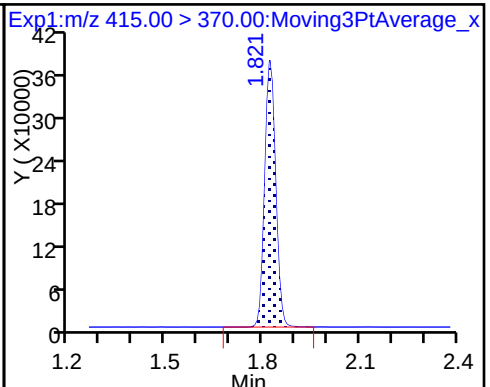
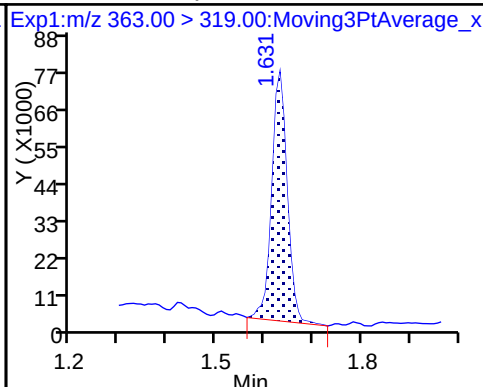
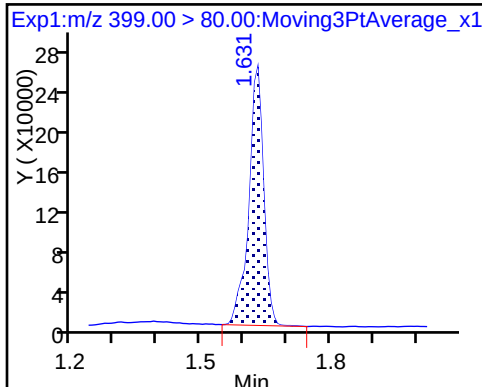
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

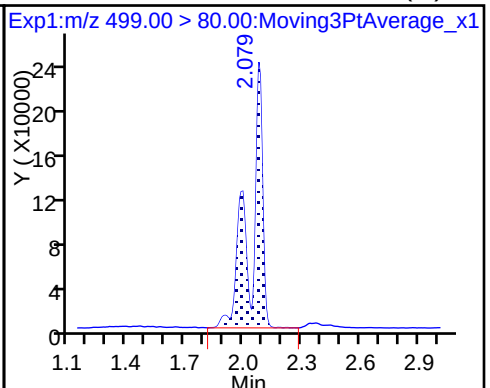
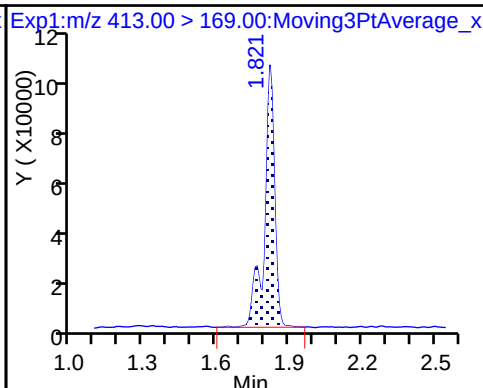
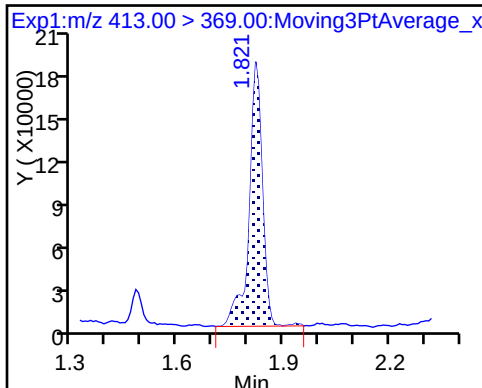
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

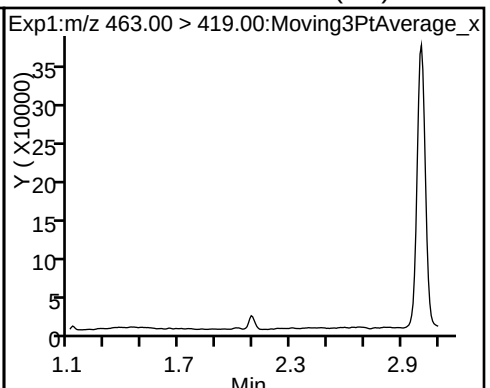
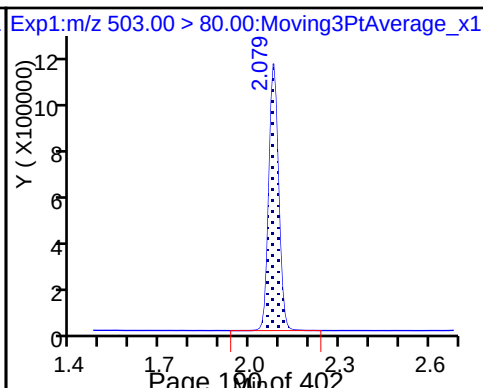
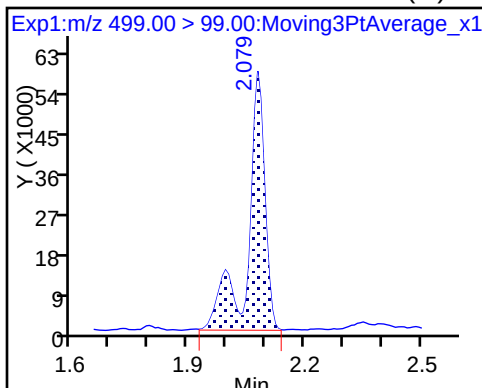
8 Perfluorooctane sulfonic acid (M)



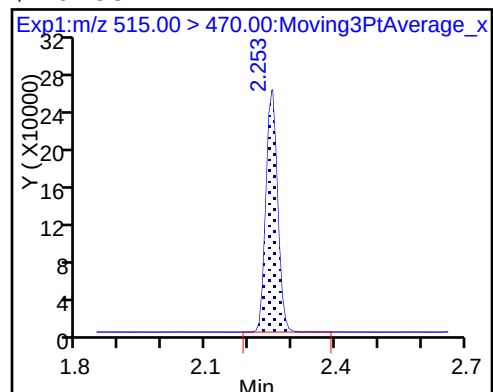
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_042.d
Lims ID: 320-36091-A-12-A
Client ID: NAWC-021318-RW-161
Sample Type: Client
Inject. Date: 05-Mar-2018 11:41:42 ALS Bottle#: 30 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36091-a-12-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
Column 1 : Det: EXP1
Process Host: XAWRK024

First Level Reviewer: barnettj Date: 05-Mar-2018 14:15:51

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.56	85.58
\$ 10 13C2 PFDA	10.0	10.4	104.00

TestAmerica Sacramento

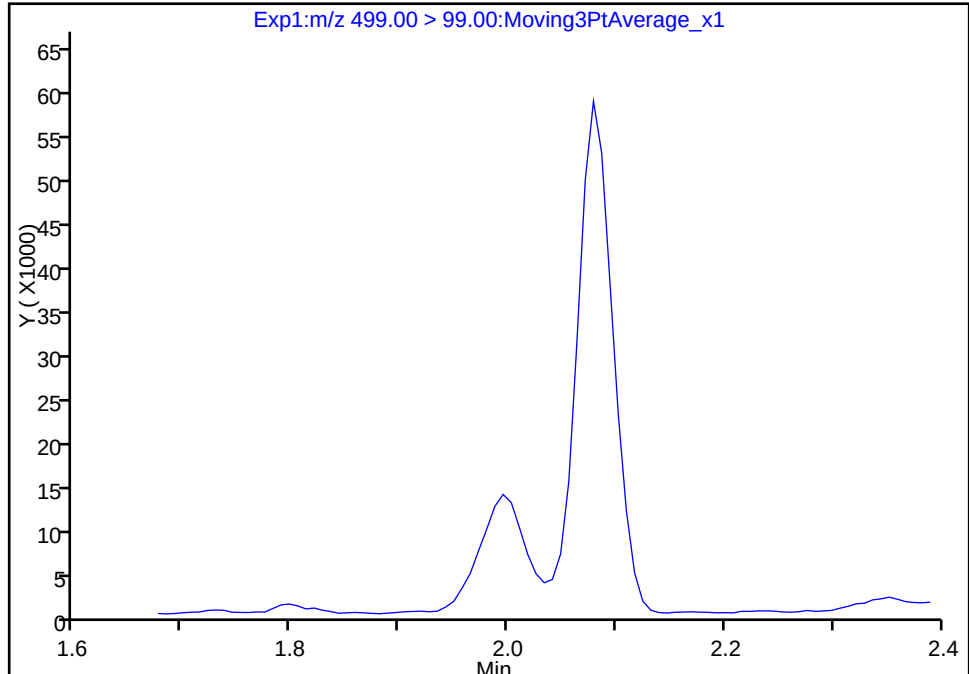
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_042.d
Injection Date: 05-Mar-2018 11:41:42 Instrument ID: A8_N
Lims ID: 320-36091-A-12-A Lab Sample ID: 320-36091-12
Client ID: NAWC-021318-RW-161
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 19
Injection Vol: 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

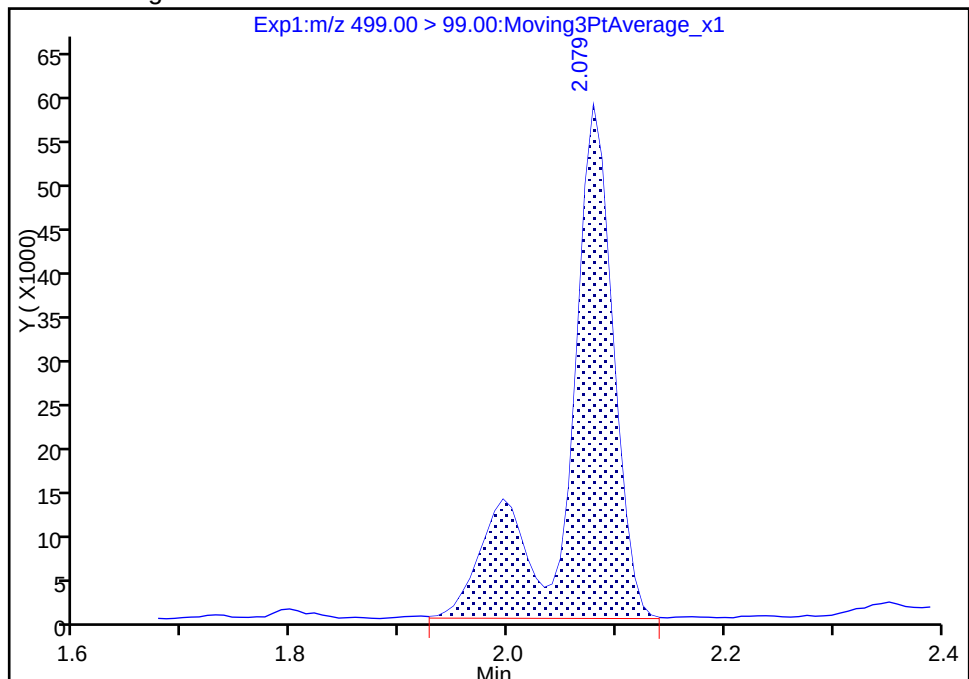
Signal: 2

Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results



RT: 2.08
Area: 176113
Amount: 12.154351
Amount Units: ng/ml

Reviewer: barnettj, 05-Mar-2018 14:15:33
Audit Action: Manually Integrated

Audit Reason: Missed Peak
Page 193 of 402

TestAmerica Sacramento

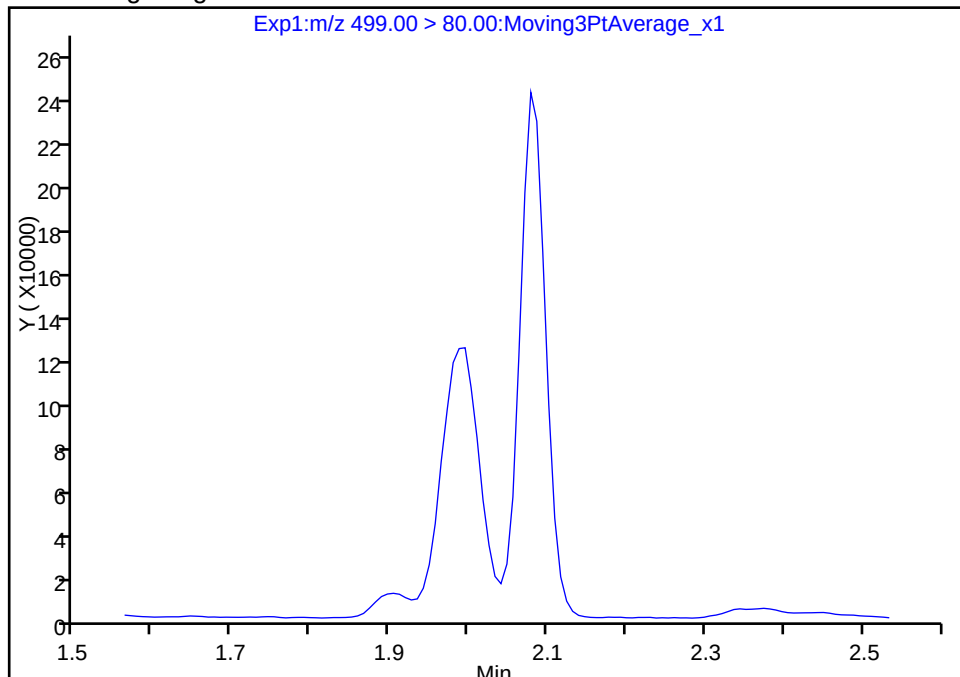
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_042.d
Injection Date: 05-Mar-2018 11:41:42 Instrument ID: A8_N
Lims ID: 320-36091-A-12-A Lab Sample ID: 320-36091-12
Client ID: NAWC-021318-RW-161
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 19
Injection Vol: 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

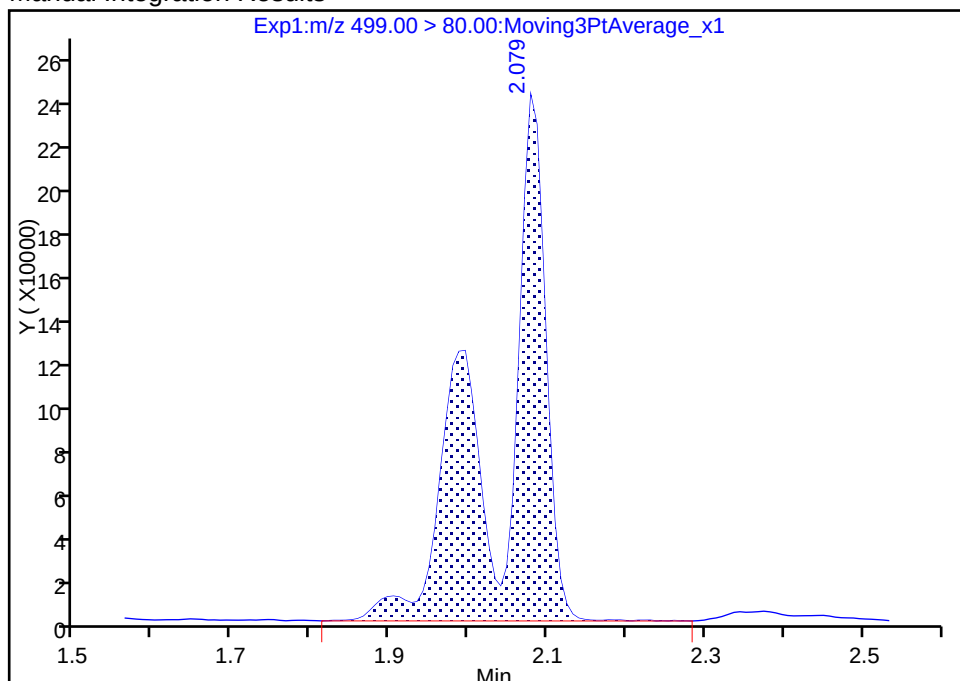
Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT: 2.08
Area: 995921
Amount: 12.154351
Amount Units: ng/ml



Reviewer: barnettj, 05-Mar-2018 14:15:33

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Client Sample ID: NAWC-021318-FRB-161 Lab Sample ID: 320-36091-13

Matrix: Water Lab File ID: 2018.03.05_537A_043.d

Analysis Method: 537 Date Collected: 02/13/2018 11:35

Extraction Method: 537 Date Extracted: 02/27/2018 08:13

Sample wt/vol: 259.4 (mL) Date Analyzed: 03/05/2018 11:46

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.: 211202 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.6	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	114		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_043.d
 Lims ID: 320-36091-A-13-A
 Client ID: NAWC-021318-FRB-161
 Sample Type: Client
 Inject. Date: 05-Mar-2018 11:46:22 ALS Bottle#: 31 Worklist Smp#: 20
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-36091-a-13-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK024

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	958574	9.93		14485	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.836	-0.008		877474	10.0		6765	
* 7 13C4 PFOS									
503.00 > 80.00	2.086	2.086	0.0		2664695	28.7		7783	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.261	0.0	1.000	525738	11.4		4302	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_043.d

Injection Date: 05-Mar-2018 11:46:22

Instrument ID: A8_N

Lims ID: 320-36091-A-13-A

Lab Sample ID: 320-36091-13

Client ID: NAWC-021318-FRB-161

Operator ID: SACINSTLCMS01

ALS Bottle#: 31

Worklist Smp#: 20

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

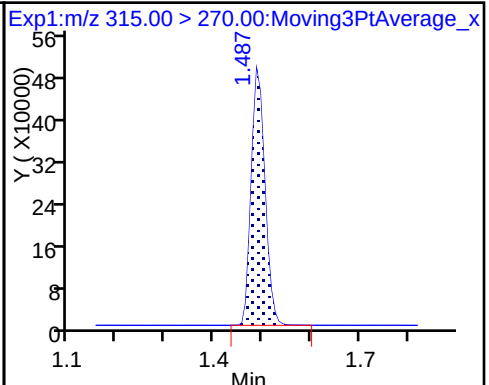
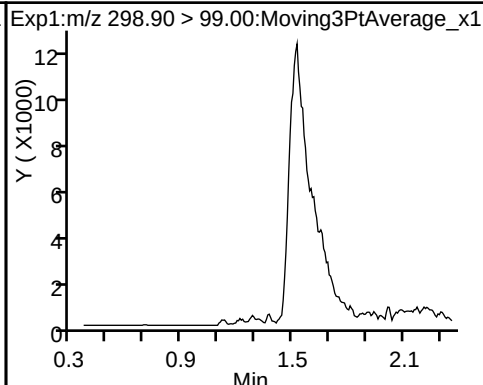
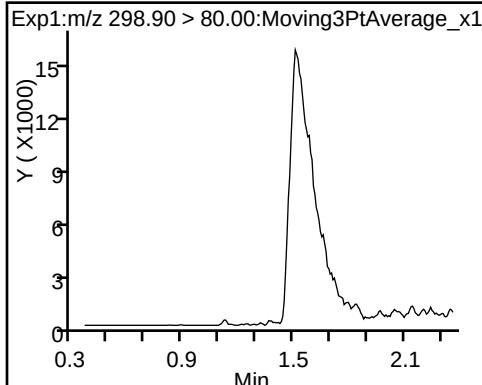
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

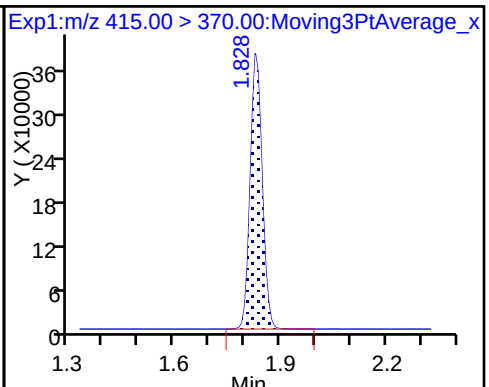
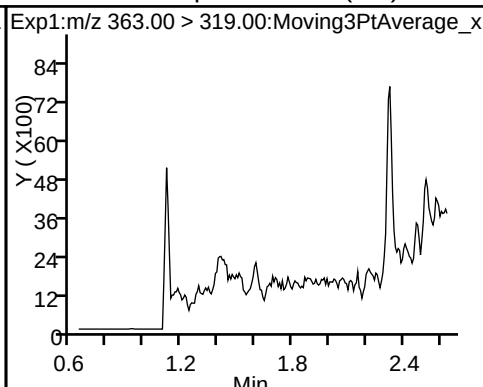
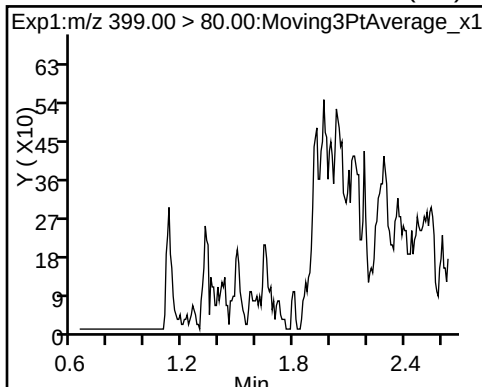
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

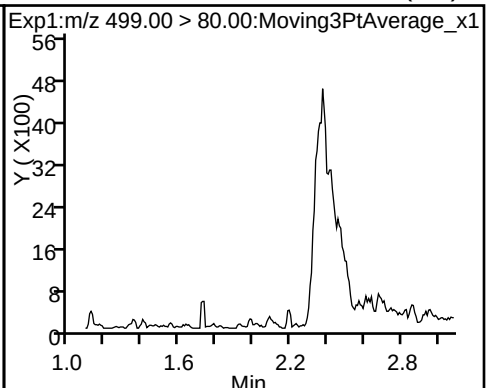
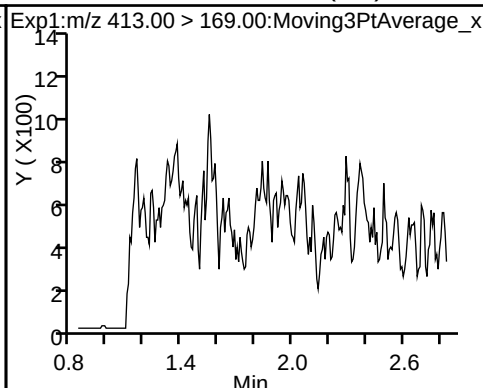
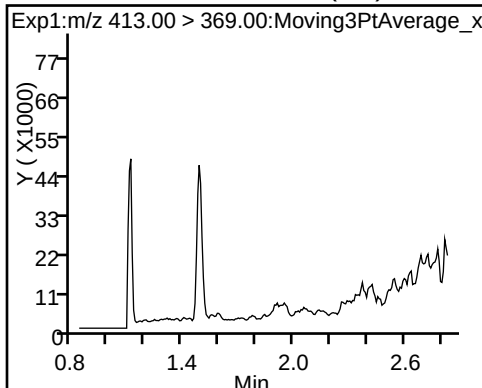
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

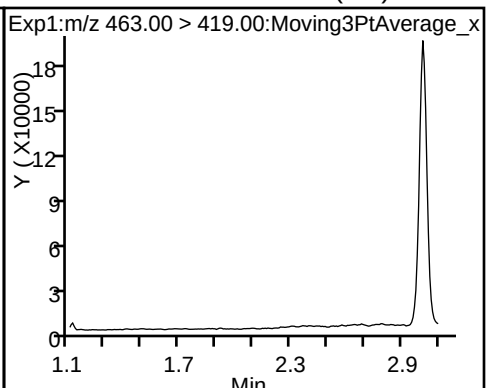
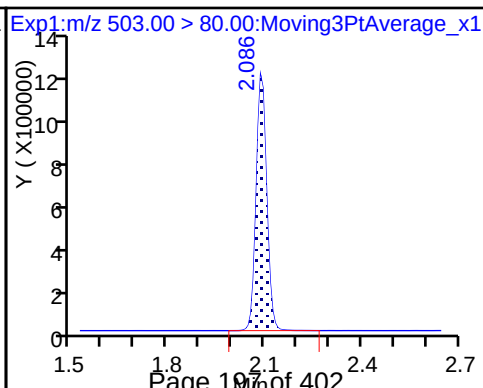
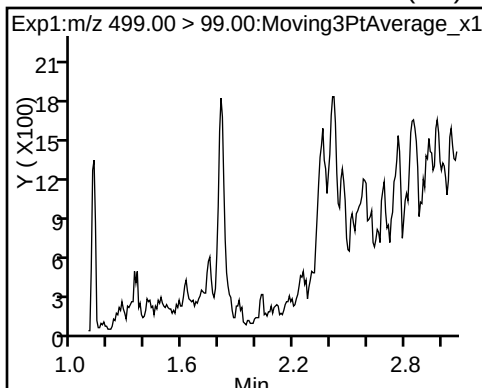
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

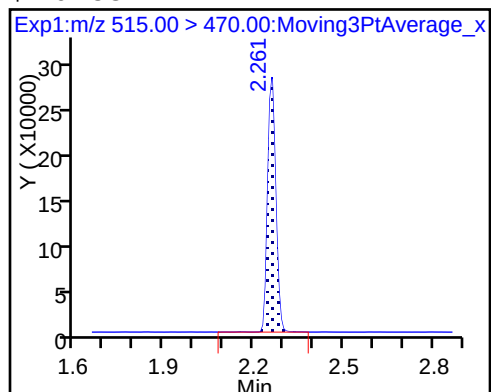


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_043.d
Lims ID: 320-36091-A-13-A
Client ID: NAWC-021318-FRB-161
Sample Type: Client
Inject. Date: 05-Mar-2018 11:46:22 ALS Bottle#: 31 Worklist Smp#: 20
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36091-a-13-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK024

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.93	99.32
\$ 10 13C2 PFDA	10.0	11.4	114.28

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-021318-RW-292</u>	Lab Sample ID: <u>320-36091-14</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.05_537A_044.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 13:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>02/27/2018 08:13</u>
Sample wt/vol: <u>283.1 (mL)</u>	Date Analyzed: <u>03/05/2018 11:51</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>211202</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	J M	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	21		18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	9.1	J	26	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.6	J	8.8	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	79	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	115		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_044.d
 Lims ID: 320-36091-A-14-A
 Client ID: NAWC-021318-RW-292
 Sample Type: Client
 Inject. Date: 05-Mar-2018 11:51:03 ALS Bottle#: 32 Worklist Smp#: 21
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-36091-a-14-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:16:20

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	315590	2.57		99.9	
298.90 > 99.00	1.366	1.366	0.0	1.000	225598		1.40(0.00-0.00)	109	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	883045	8.73		11773	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.639	1.639	0.0	1.000	387101	2.57		196	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.639	1.639	0.0	1.000	191083	2.14		28.3	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.836	-0.008		919307	10.0		8209	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.828	1.836	-0.008	1.000	519825	5.88		15.6	
413.00 > 169.00	1.828	1.836	-0.008	1.000	314035		1.66(0.00-0.00)	244	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.086	2.086	0.0	1.000	538394	6.09		139	a
499.00 > 99.00	2.086	2.086	0.0	1.000	96682		5.57(0.00-0.00)	38.5	a
* 7 13C4 PFOS									
503.00 > 80.00	2.086	2.086	0.0		2681340	28.7		2786	
9 Perfluorononanoic acid									
463.00 > 419.00	2.094	2.102	-0.008	1.000	48168	0.8514		2.0	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.261	-0.008	1.000	555709	11.5		3908	

QC Flag Legend

Review Flags

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_044.d

Injection Date: 05-Mar-2018 11:51:03

Instrument ID: A8_N

Lims ID: 320-36091-A-14-A

Lab Sample ID: 320-36091-14

Client ID: NAWC-021318-RW-292

Operator ID: SACINSTLCMS01

ALS Bottle#: 32

Worklist Smp#: 21

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

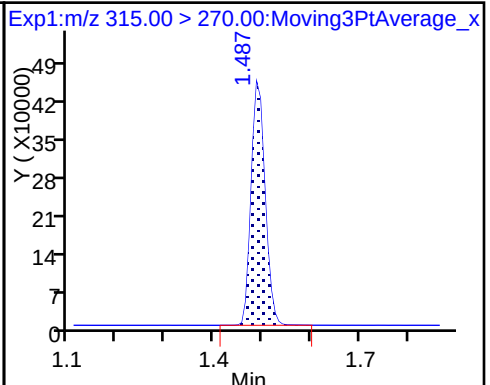
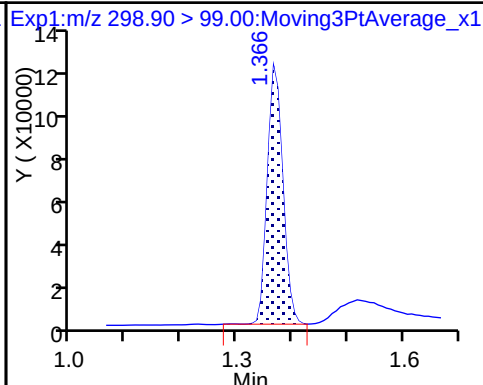
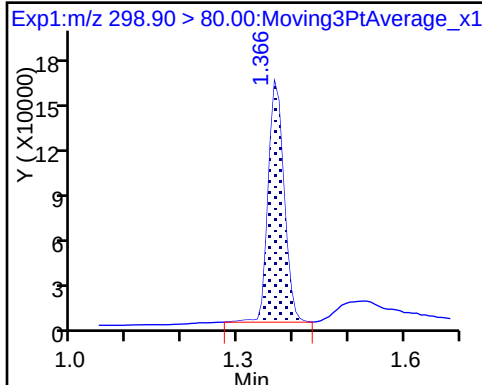
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

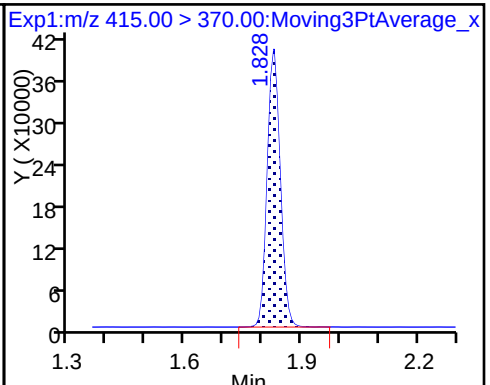
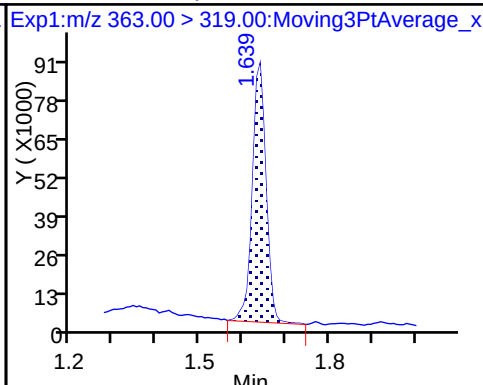
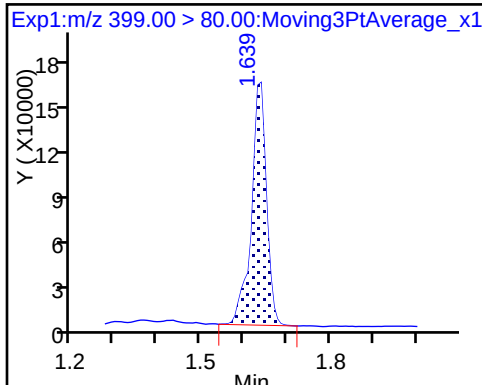
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

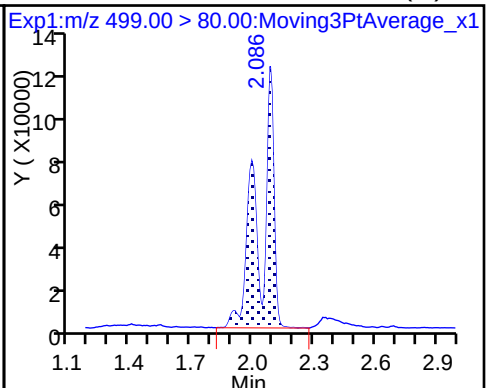
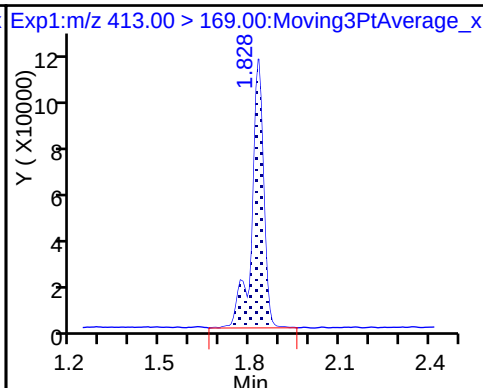
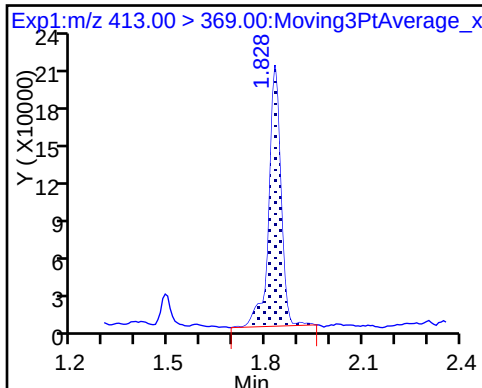
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

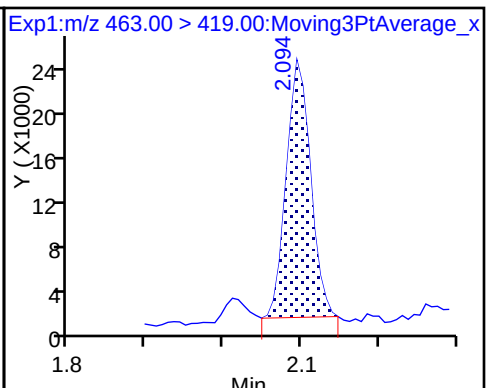
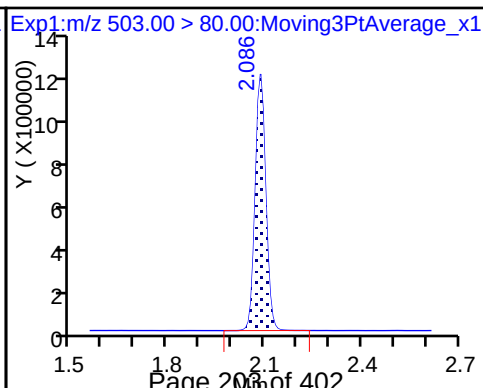
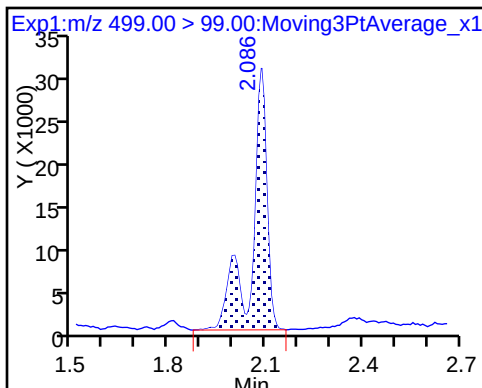
8 Perfluorooctane sulfonic acid (M)



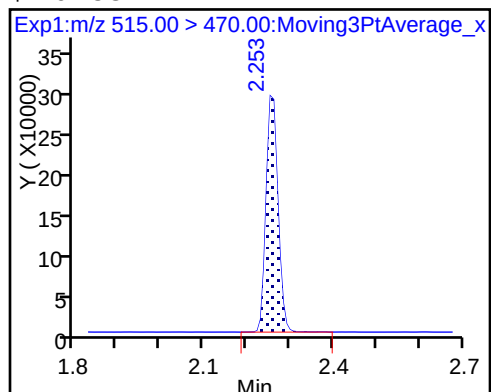
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_044.d
Lims ID: 320-36091-A-14-A
Client ID: NAWC-021318-RW-292
Sample Type: Client
Inject. Date: 05-Mar-2018 11:51:03 ALS Bottle#: 32 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36091-a-14-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
Column 1 : Det: EXP1
Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:16:20

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.73	87.33
\$ 10 13C2 PFDA	10.0	11.5	115.30

TestAmerica Sacramento

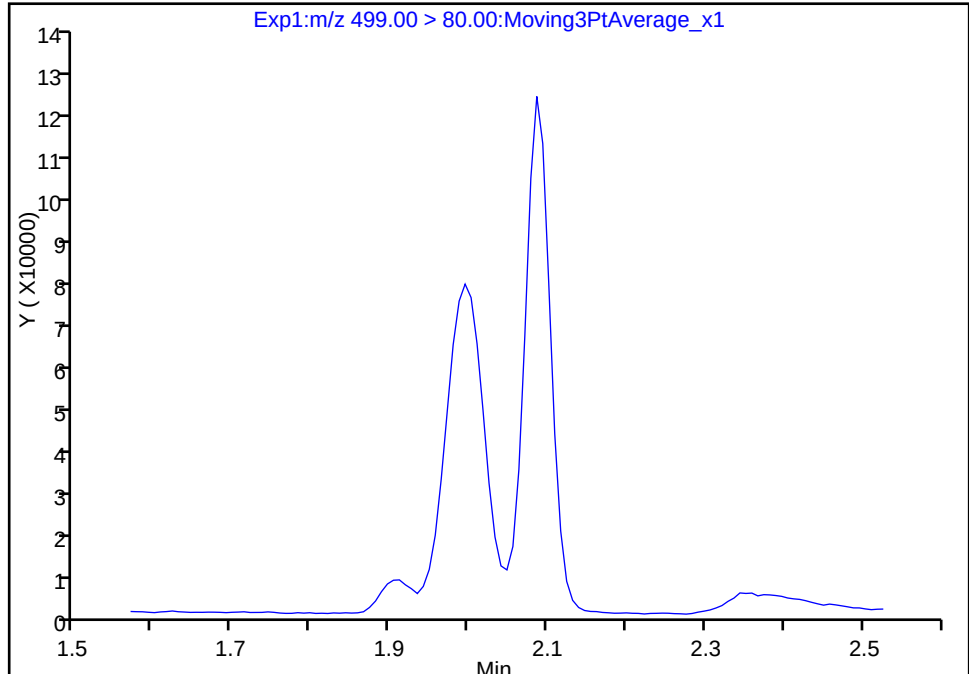
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_044.d
Injection Date: 05-Mar-2018 11:51:03 Instrument ID: A8_N
Lims ID: 320-36091-A-14-A Lab Sample ID: 320-36091-14
Client ID: NAWC-021318-RW-292
Operator ID: SACINSTLCMS01 ALS Bottle#: 32 Worklist Smp#: 21
Injection Vol: 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

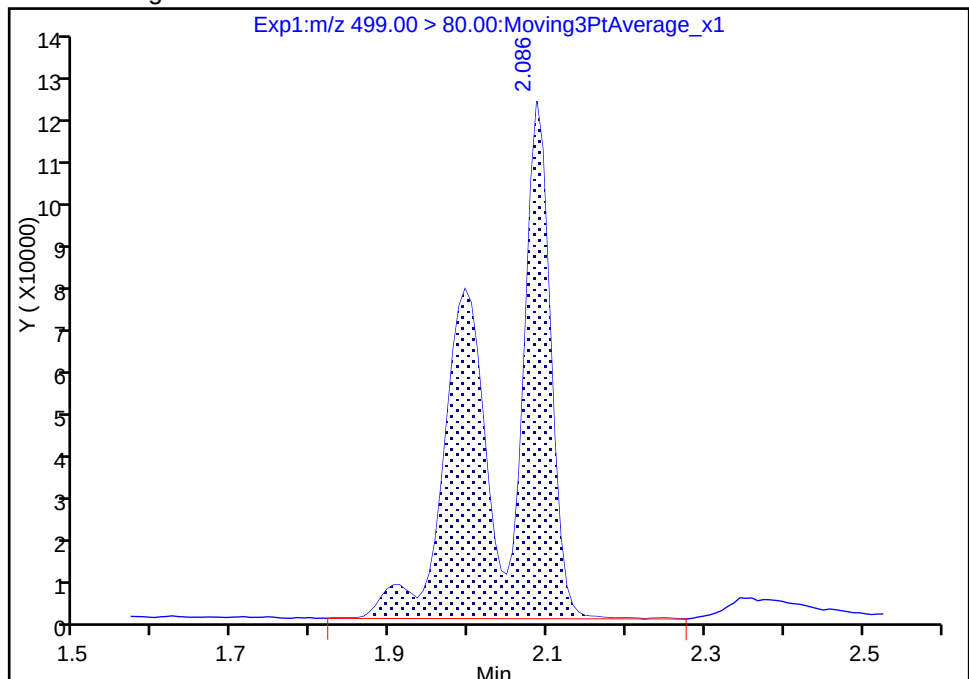
Signal: 1

Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results



RT: 2.09
Area: 538394
Amount: 6.090443
Amount Units: ng/ml

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-021318-FRB-292</u>	Lab Sample ID: <u>320-36091-15</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.05_537A_045.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 13:05</u>
Extraction Method: <u>537</u>	Date Extracted: <u>02/27/2018 08:13</u>
Sample wt/vol: <u>278.9(mL)</u>	Date Analyzed: <u>03/05/2018 11:55</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>211202</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	U	36	14	6.1
335-67-1	Perfluorooctanoic acid (PFOA)	7.2	U	18	7.2	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.6	U	9.0	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	81	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	113		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_045.d
 Lims ID: 320-36091-A-15-A
 Client ID: NAWC-021318-FRB-292
 Sample Type: Client
 Inject. Date: 05-Mar-2018 11:55:43 ALS Bottle#: 33 Worklist Smp#: 22
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-36091-a-15-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK024

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	936159	9.52		14271	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.836	-0.008		894439	10.0		8398	
* 7 13C4 PFOS									
503.00 > 80.00	2.086	2.086	0.0		2594697	28.7		4203	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.261	-0.008	1.000	529156	11.3		3707	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_045.d

Injection Date: 05-Mar-2018 11:55:43

Instrument ID: A8_N

Lims ID: 320-36091-A-15-A

Lab Sample ID: 320-36091-15

Client ID: NAWC-021318-FRB-292

Operator ID: SACINSTLCMS01

ALS Bottle#: 33

Worklist Smp#: 22

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

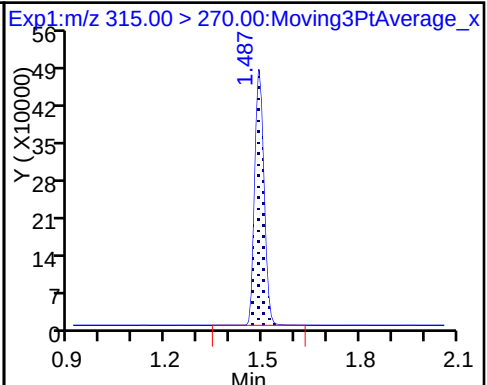
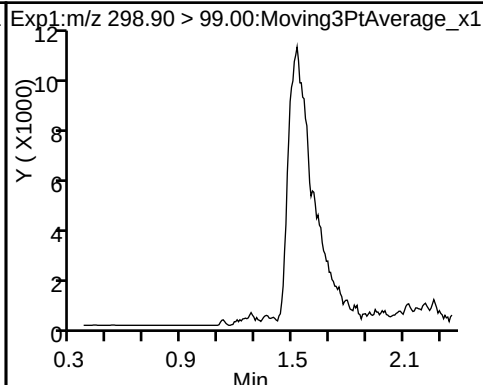
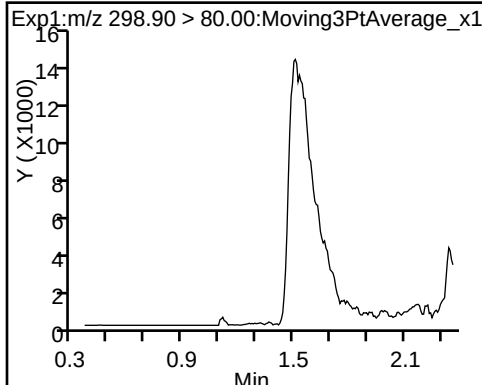
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

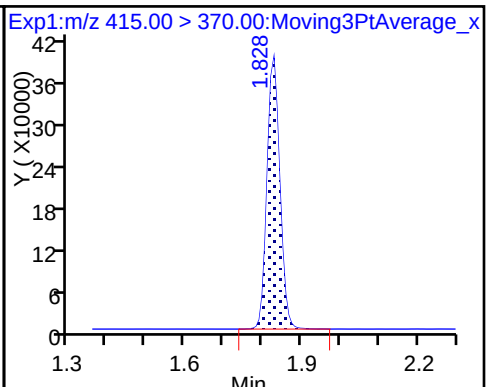
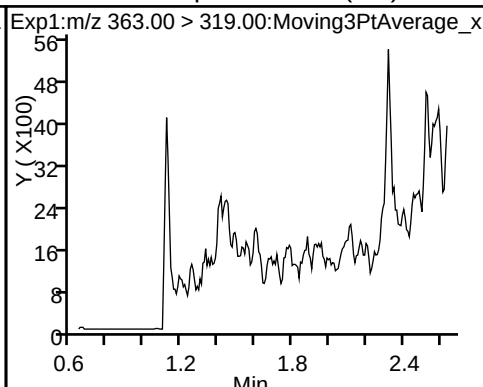
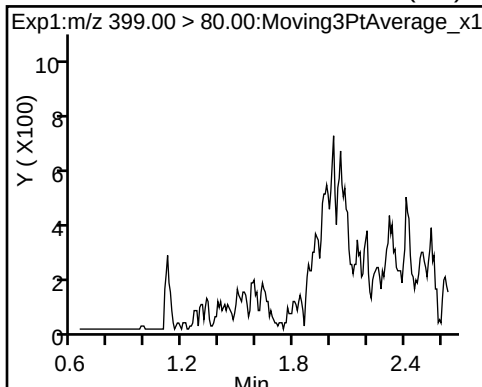
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

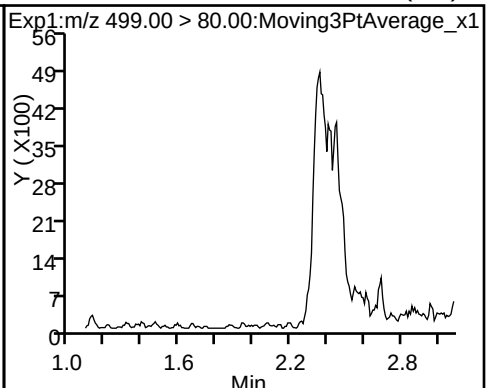
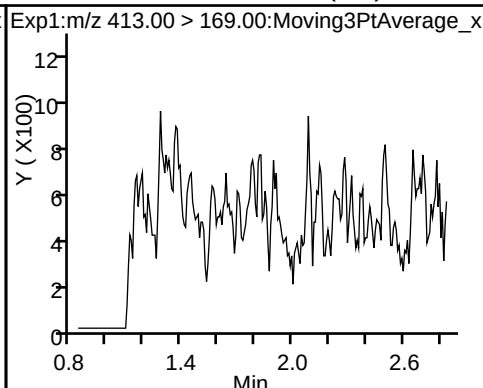
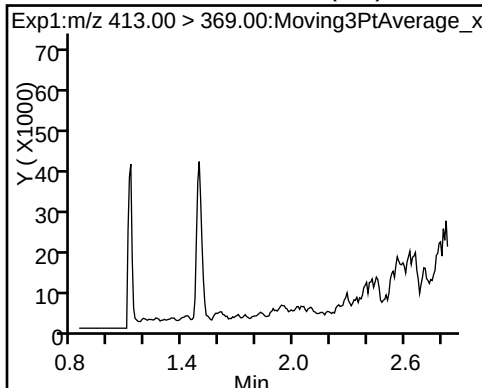
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

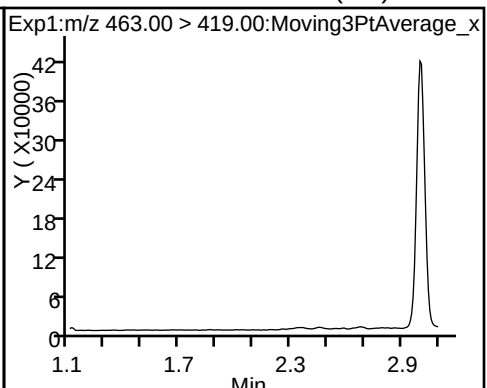
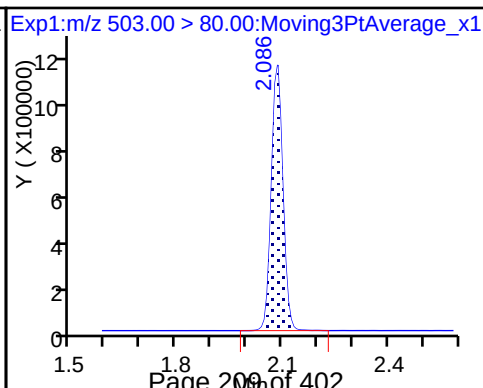
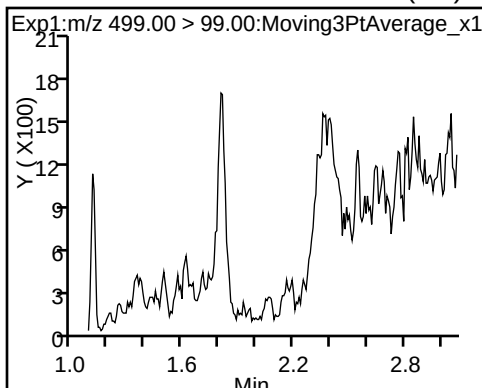
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

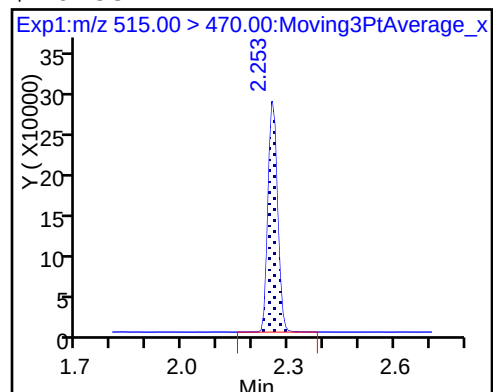


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_045.d
Lims ID: 320-36091-A-15-A
Client ID: NAWC-021318-FRB-292
Sample Type: Client
Inject. Date: 05-Mar-2018 11:55:43 ALS Bottle#: 33 Worklist Smp#: 22
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36091-a-15-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 :

Det: EXP1

Process Host: XAWRK024

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.52	95.16
\$ 10 13C2 PFDA	10.0	11.3	112.84

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-021318-RW-290</u>	Lab Sample ID: <u>320-36091-16</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.05_537A_046.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 14:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>02/27/2018 08:13</u>
Sample wt/vol: <u>268.6(mL)</u>	Date Analyzed: <u>03/05/2018 12:00</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>211202</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)	34	U	84	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	105		70-130
STL00996	13C2 PFDA	113		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_046.d
 Lims ID: 320-36091-A-16-A
 Client ID: NAWC-021318-RW-290
 Sample Type: Client
 Inject. Date: 05-Mar-2018 12:00:23 ALS Bottle#: 34 Worklist Smp#: 23
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-36091-a-16-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK024

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1085217	10.5		16990	
* 6 13C2-PFOA									
415.00 > 370.00	1.821	1.836	-0.015		941625	10.0		9416	
* 7 13C4 PFOS									
503.00 > 80.00	2.079	2.086	-0.007		2780425	28.7		6985	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.261	-0.008	1.000	556683	11.3		4372	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_046.d

Injection Date: 05-Mar-2018 12:00:23

Instrument ID: A8_N

Lims ID: 320-36091-A-16-A

Lab Sample ID: 320-36091-16

Client ID: NAWC-021318-RW-290

Operator ID: SACINSTLCMS01

ALS Bottle#: 34

Worklist Smp#: 23

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

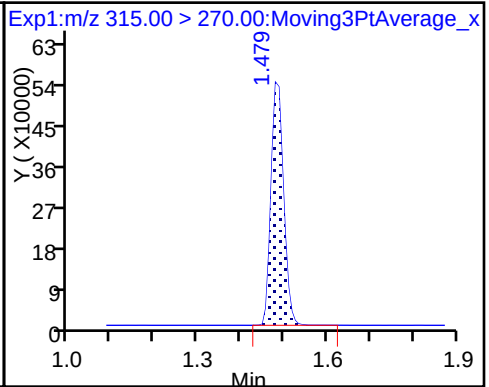
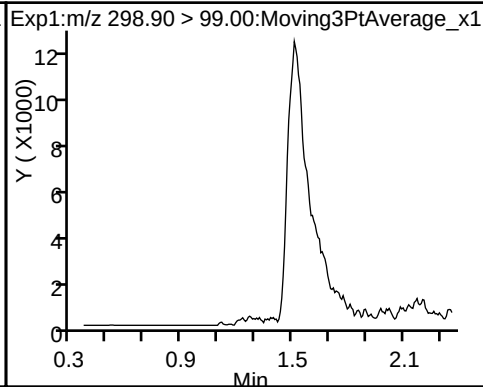
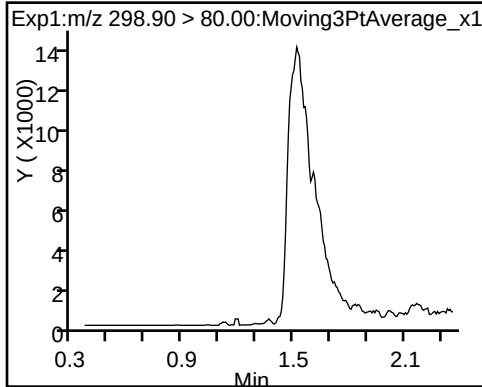
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

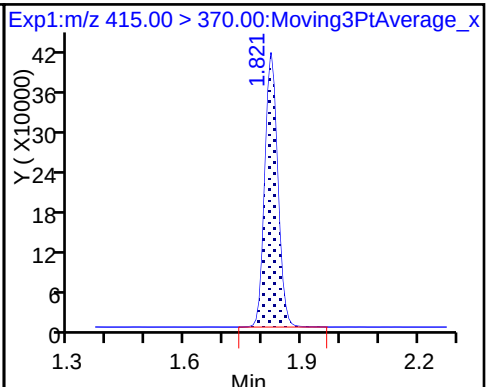
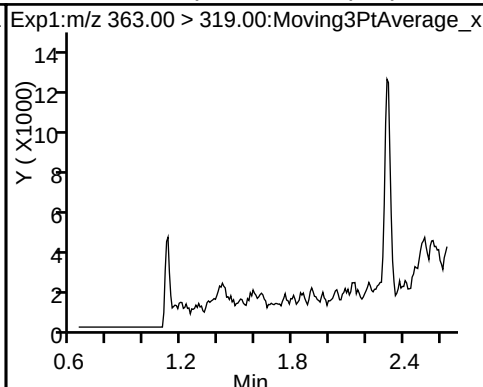
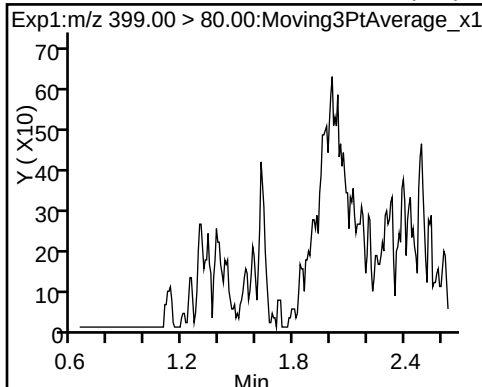
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

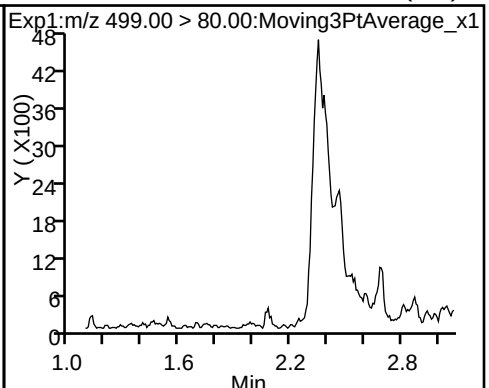
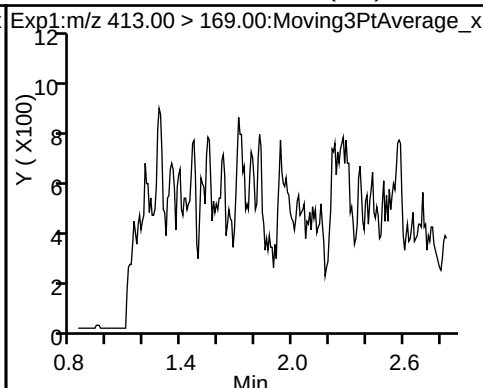
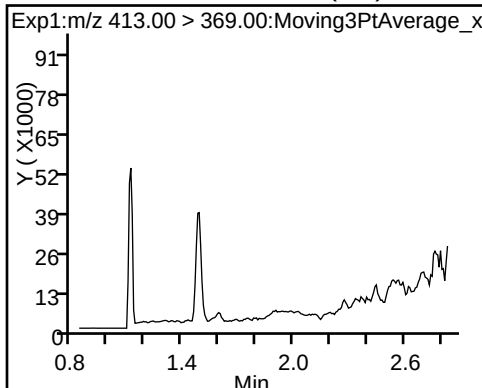
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

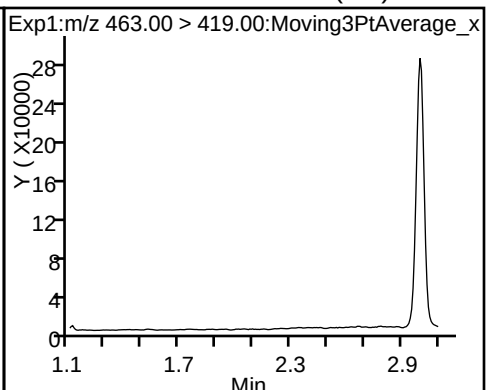
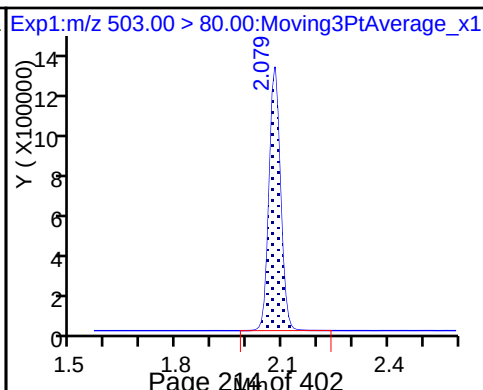
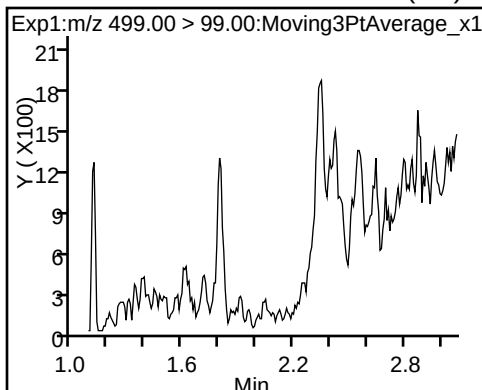
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

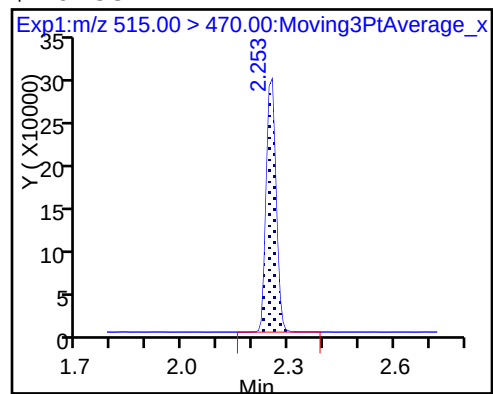


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_046.d
Lims ID: 320-36091-A-16-A
Client ID: NAWC-021318-RW-290
Sample Type: Client
Inject. Date: 05-Mar-2018 12:00:23 ALS Bottle#: 34 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36091-a-16-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK024

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.5	104.78
\$ 10 13C2 PFDA	10.0	11.3	112.77

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: NAWC-021318-FRB-290 Lab Sample ID: 320-36091-17
 Matrix: Water Lab File ID: 2018.03.05_537A_047.d
 Analysis Method: 537 Date Collected: 02/13/2018 14:05
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 266.1(mL) Date Analyzed: 03/05/2018 12:05
 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.: 211202 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18	J M	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	54		19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	10	J	23	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.1	J	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	35		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	87		70-130
STL00996	13C2 PFDA	108		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_047.d
 Lims ID: 320-36091-A-17-A
 Client ID: NAWC-021318-FRB-290
 Sample Type: Client
 Inject. Date: 05-Mar-2018 12:05:03 ALS Bottle#: 35 Worklist Smp#: 24
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-36091-a-17-a
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:20:11

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	318532	2.67		89.3	
298.90 > 99.00	1.366	1.366	0.0	1.000	224346		1.42(0.00-0.00)	106	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	847872	8.67		11965	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.639	1.639	0.0	1.000	275627	1.88		113	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.639	1.639	0.0	1.000	805143	9.32		109	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.836	-0.008		889189	10.0		7773	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.828	1.836	-0.008	1.000	1229469	14.4		33.8	
413.00 > 169.00	1.828	1.836	-0.008	1.000	681960		1.80(0.00-0.00)	602	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.086	2.086	0.0	1.000	418032	4.85		102	Ma
499.00 > 99.00	2.086	2.086	0.0	1.000	71158		5.87(0.00-0.00)	25.2	M
* 7 13C4 PFOS									
503.00 > 80.00	2.086	2.086	0.0		2611881	28.7		2132	
9 Perfluorononanoic acid									
463.00 > 419.00	2.094	2.102	-0.008	1.000	148662	2.72		15.6	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.261	-0.008	1.000	504809	10.8		3725	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_047.d

Injection Date: 05-Mar-2018 12:05:03

Instrument ID: A8_N

Lims ID: 320-36091-A-17-A

Lab Sample ID: 320-36091-17

Client ID: NAWC-021318-FRB-290

Operator ID: SACINSTLCMS01

ALS Bottle#: 35

Worklist Smp#: 24

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

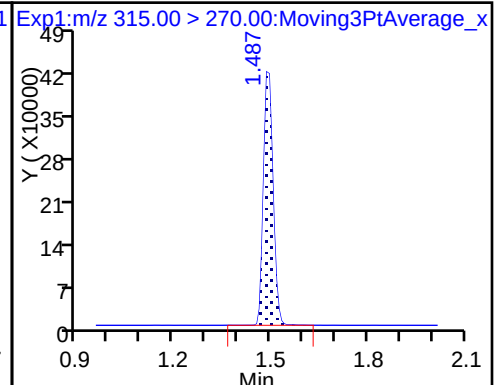
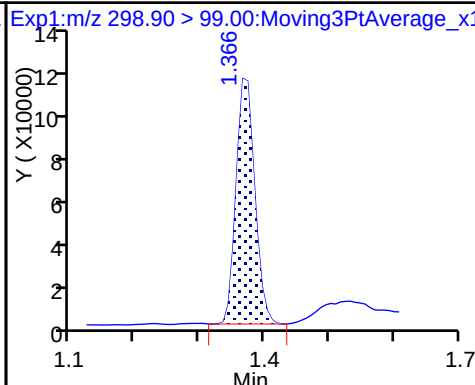
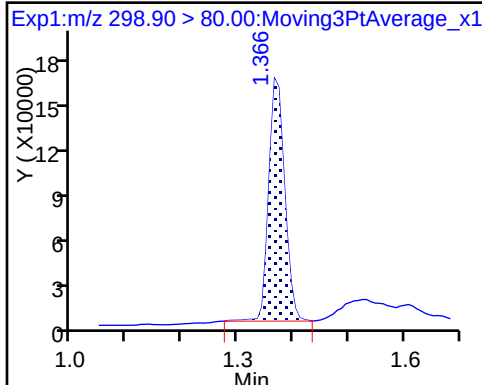
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

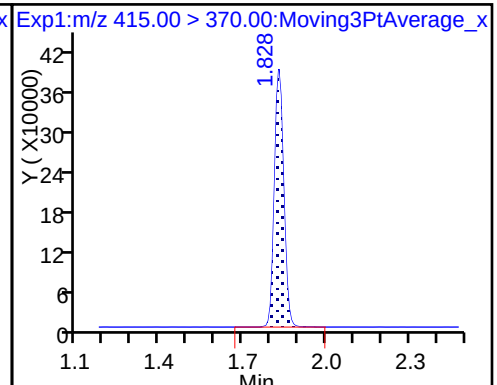
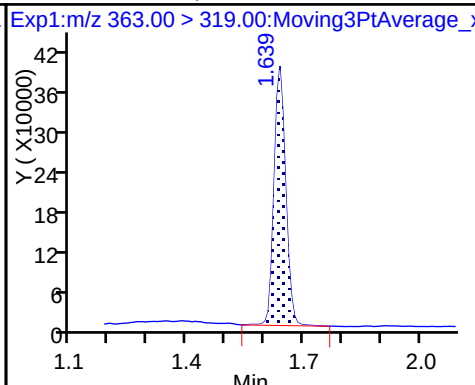
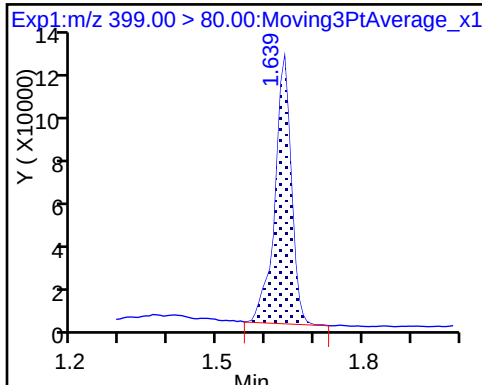
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

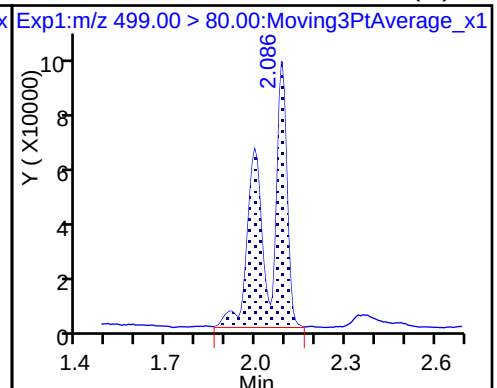
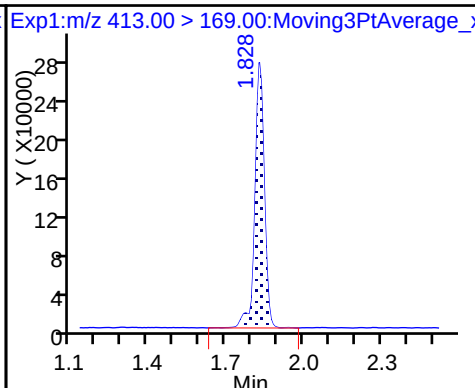
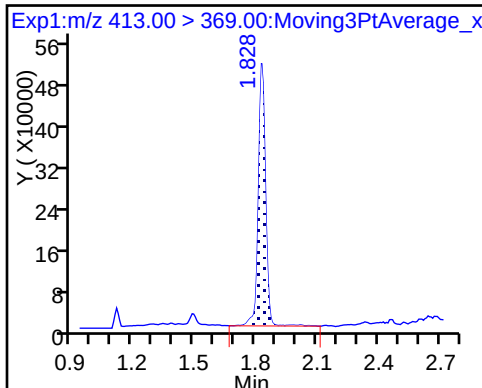
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

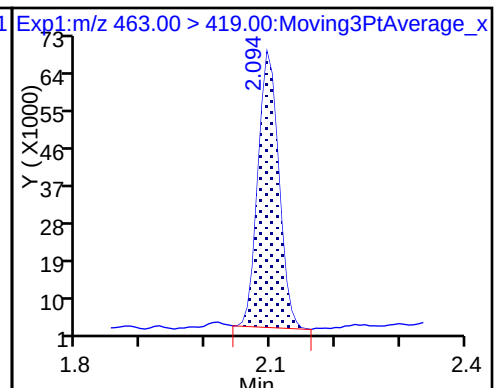
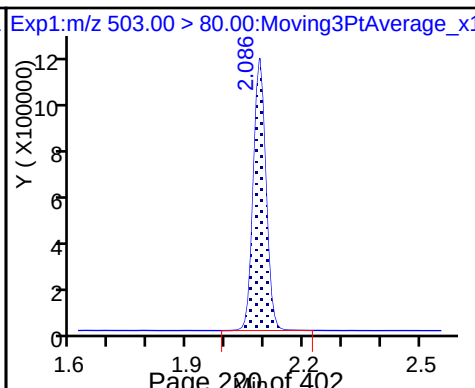
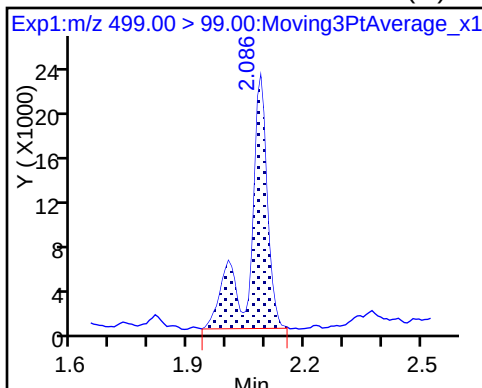
8 Perfluorooctane sulfonic acid (M)



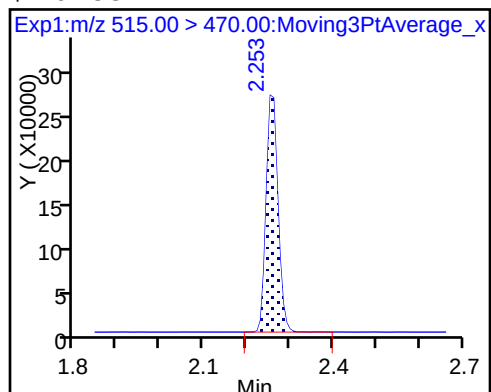
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_047.d
Lims ID: 320-36091-A-17-A
Client ID: NAWC-021318-FRB-290
Sample Type: Client
Inject. Date: 05-Mar-2018 12:05:03 ALS Bottle#: 35 Worklist Smp#: 24
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: 320-36091-a-17-a
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 14:51:29 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
Column 1 : Det: EXP1
Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:20:11

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.67	86.69
\$ 10 13C2 PFDA	10.0	10.8	108.29

TestAmerica Sacramento

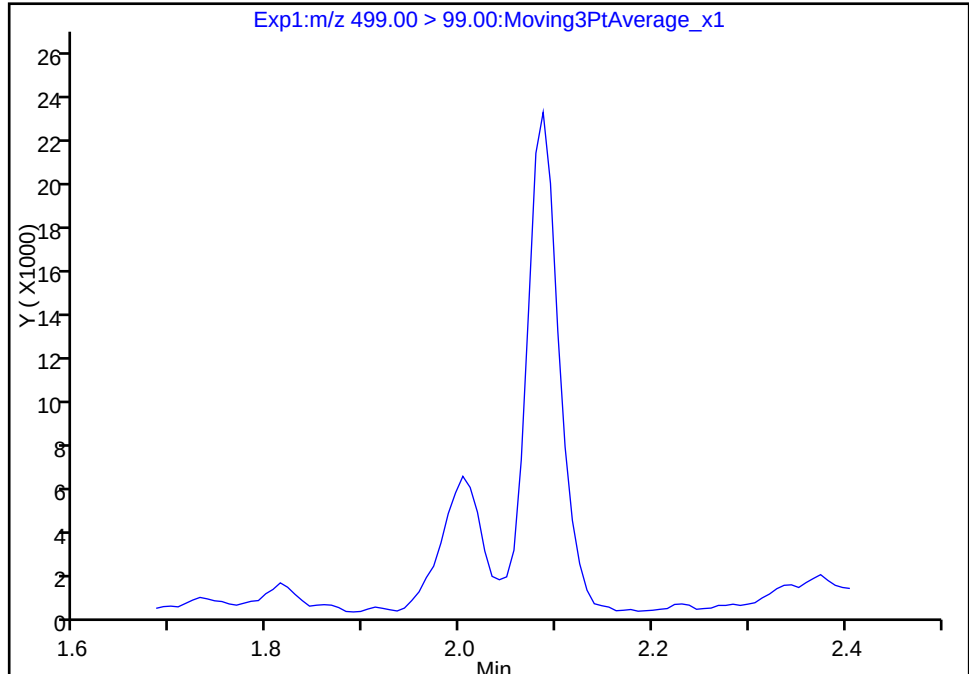
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_047.d
Injection Date: 05-Mar-2018 12:05:03 Instrument ID: A8_N
Lims ID: 320-36091-A-17-A Lab Sample ID: 320-36091-17
Client ID: NAWC-021318-FRB-290
Operator ID: SACINSTLCMS01 ALS Bottle#: 35 Worklist Smp#: 24
Injection Vol: 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

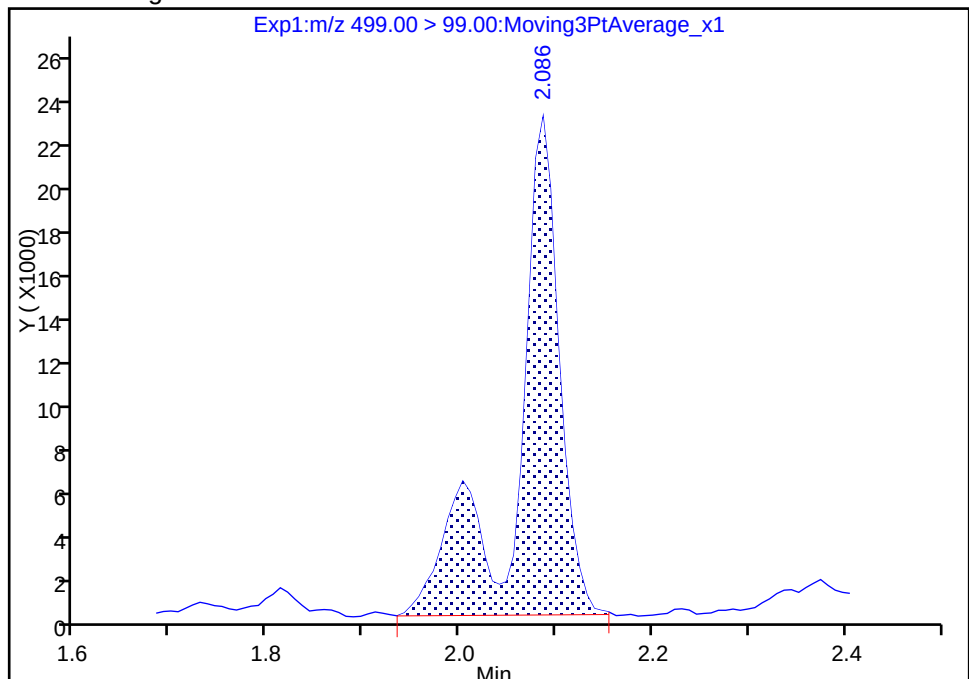
Signal: 2

Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results



RT: 2.09
Area: 71158
Amount: 4.854636
Amount Units: ng/ml

Reviewer: barnettj, 05-Mar-2018 14:17:04
Audit Action: Manually Integrated

Audit Reason: Missed Peak
Page 223 of 402

TestAmerica Sacramento

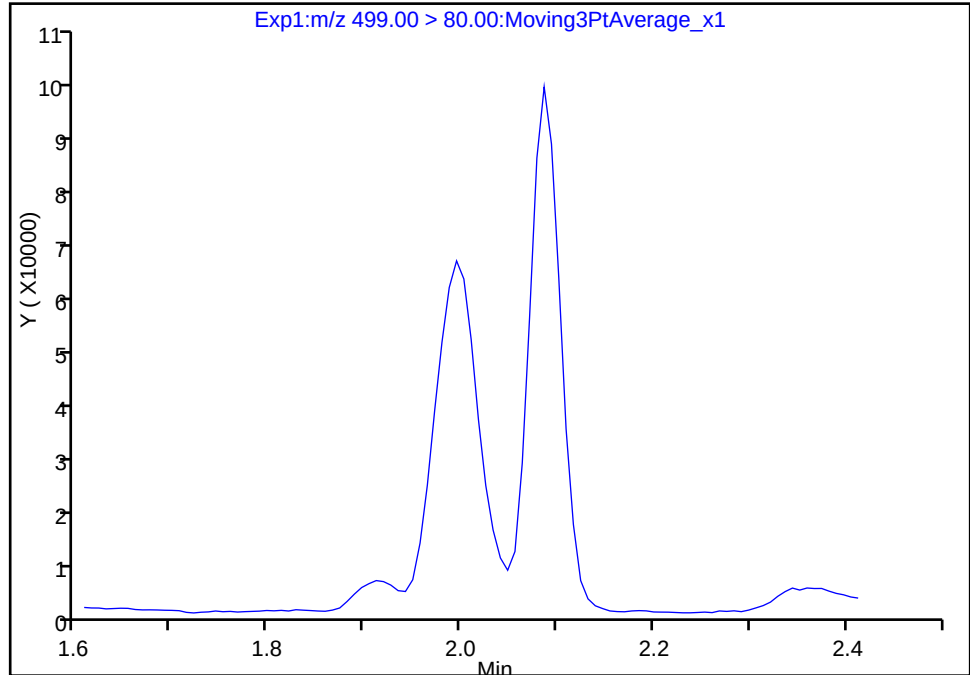
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_047.d
Injection Date: 05-Mar-2018 12:05:03 Instrument ID: A8_N
Lims ID: 320-36091-A-17-A Lab Sample ID: 320-36091-17
Client ID: NAWC-021318-FRB-290
Operator ID: SACINSTLCMS01 ALS Bottle#: 35 Worklist Smp#: 24
Injection Vol: 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

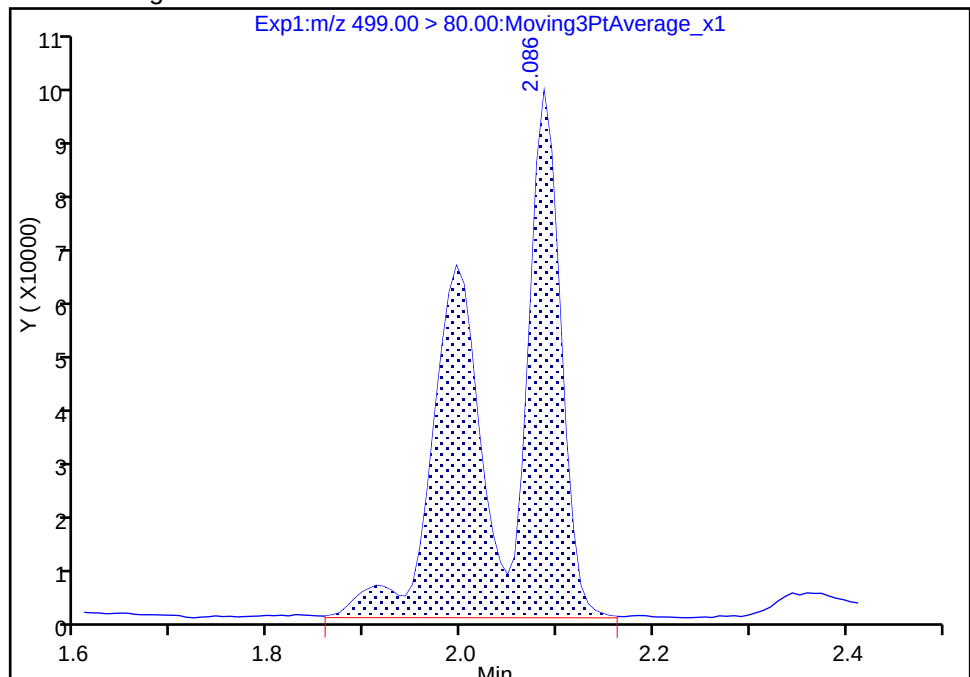
Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT: 2.09
Area: 418032
Amount: 4.854636
Amount Units: ng/ml



Reviewer: barnettj, 05-Mar-2018 14:17:04

Audit Action: Manually Integrated

Audit Reason: Missed Peak

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

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1 Analy Batch No.: 208773

SDG No.: _____

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

Calibration Start Date: 02/16/2018 08:55 Calibration End Date: 02/16/2018 09:19 Calibration ID: 37889

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208773/4	2018.02.016_537ICAL_004.d
Level 2	IC 320-208773/5	2018.02.016_537ICAL_005.d
Level 3	IC 320-208773/6	2018.02.016_537ICAL_006.d
Level 4	IC 320-208773/7	2018.02.016_537ICAL_007.d
Level 5	IC 320-208773/8	2018.02.016_537ICAL_008.d
Level 6	IC 320-208773/9	2018.02.016_537ICAL_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)	1.1922 0.9350	1.2685	1.2630	1.1053	1.0403	QuaF		1.3180	-0.002120						1.0000		0.9600
Perfluorohexanesulfonic acid (PFHxS)	1.5376 1.6019	1.6461	1.6181	1.5963	1.6585	Ave		1.6098				2.7		30.0			
Perfluoroheptanoic acid (PFHpA)	0.9596 0.9834	0.9488	0.9462	1.0388	0.9501	Ave		0.9711				3.7		30.0			
Perfluorooctanoic acid (PFOA)	0.9118 0.9514	1.0053	0.9624	0.9616	0.9798	Ave		0.9620				3.2		30.0			
Perfluorooctanesulfonic acid (PFOS)	0.9021 0.9430	0.9481	0.9569	0.9539	0.9692	Ave		0.9455				2.4		30.0			
Perfluorononanoic acid (PFNA)	0.6417 0.6193	0.5823	0.5991	0.6537	0.5962	Ave		0.6154				4.5		30.0			
13C2 PFHxA	1.1327 1.1621	1.0418	1.0430	1.1541	1.0657	Ave		1.0999				5.1		30.0			
13C2 PFDA	0.5790 0.5388	0.4974	0.4674	0.5464	0.5166	Ave		0.5243				7.5		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.: 320-36091-1 Analy Batch No.: 208773

SDG No.: _____

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

Calibration Start Date: 02/16/2018 08:55 Calibration End Date: 02/16/2018 09:19 Calibration ID: 37889

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208773/4	2018.02.016_537ICAL_004.d
Level 2	IC 320-208773/5	2018.02.016_537ICAL_005.d
Level 3	IC 320-208773/6	2018.02.016_537ICAL_006.d
Level 4	IC 320-208773/7	2018.02.016_537ICAL_007.d
Level 5	IC 320-208773/8	2018.02.016_537ICAL_008.d
Level 6	IC 320-208773/9	2018.02.016_537ICAL_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	1004877 16112512	2401851	5386060	9625497	13334361	9.00 180	20.0	45.0	90.0	135
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	432087 9203547	1039145	2300670	4635169	7088297	3.00 60.0	6.67	15.0	30.0	45.0
Perfluoroheptanoic acid (PFHpA)	13PF OA	Ave	89434 1755879	208408	467875	919334	1334846	1.00 20.0	2.22	5.00	10.0	15.0
Perfluorooctanoic acid (PFOA)	13PF OA	Ave	170858 3415564	443975	956930	1711070	2767901	2.01 40.2	4.47	10.1	20.1	30.2
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	339345 7252490	801200	1821248	3707450	5544581	4.02 80.3	8.93	20.1	40.2	60.3
Perfluorononanoic acid (PFNA)	13PF OA	Ave	119635 2211715	255853	592583	1157180	1675602	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PF OA	Ave	1055358 1037300	1029524	1031304	1021204	998008	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PF OA	Ave	539488 480980	491558	462142	483499	483740	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.: 320-36091-1 Analy Batch No.: 208773

SDG No.: _____

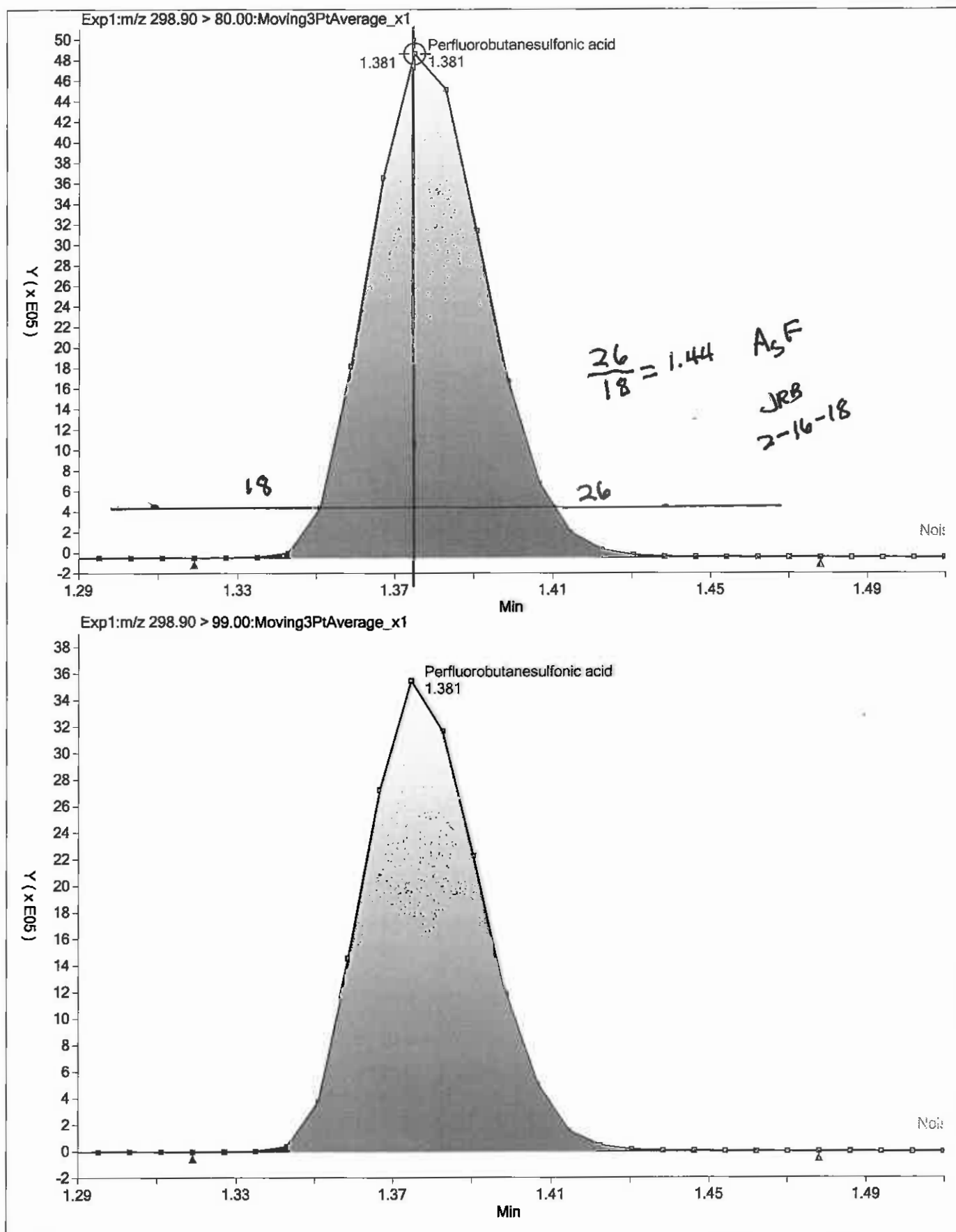
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

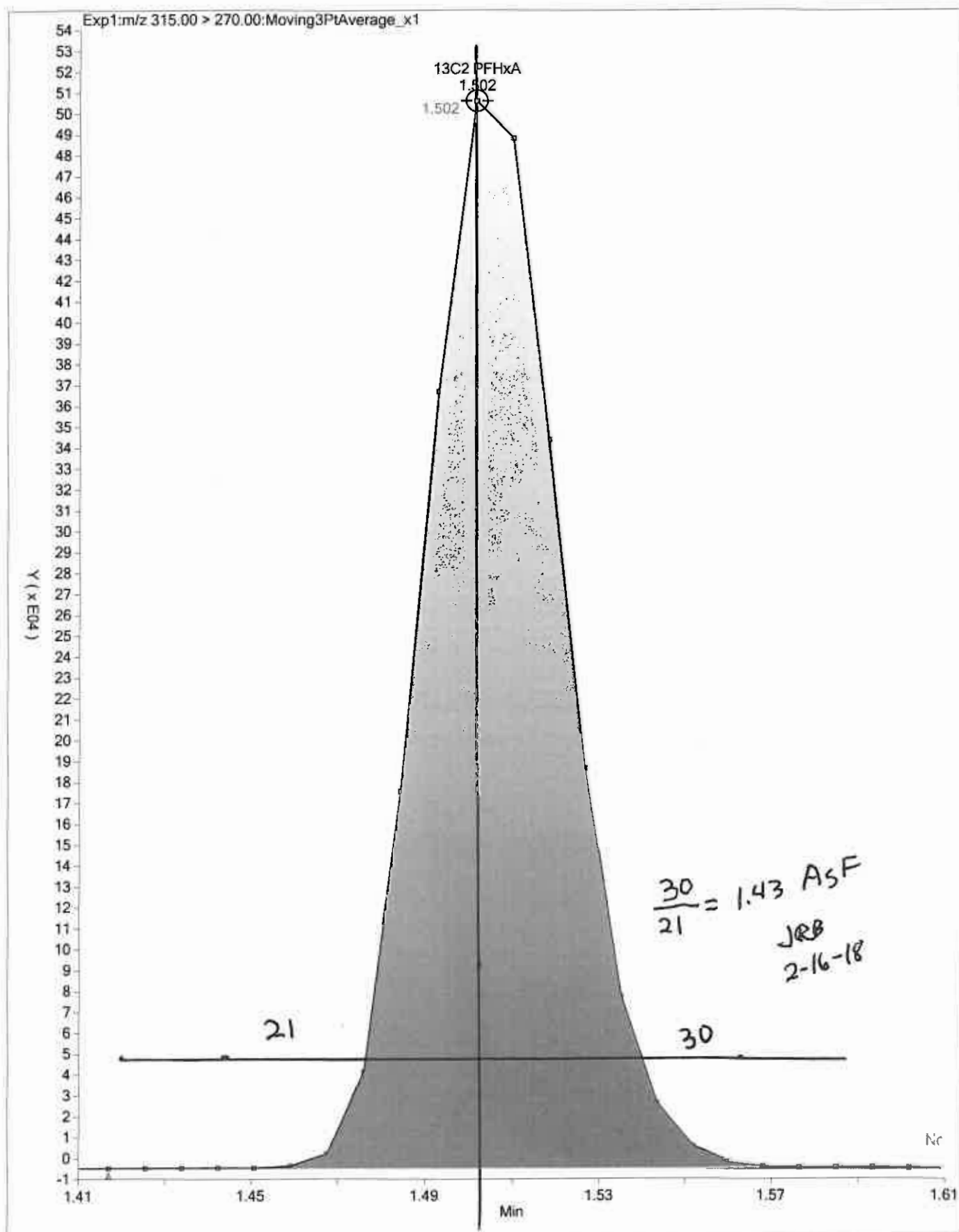
Calibration Start Date: 02/16/2018 08:55 Calibration End Date: 02/16/2018 09:19 Calibration ID: 37889

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208773/4	2018.02.016_537ICAL_004.d
Level 2	IC 320-208773/5	2018.02.016_537ICAL_005.d
Level 3	IC 320-208773/6	2018.02.016_537ICAL_006.d
Level 4	IC 320-208773/7	2018.02.016_537ICAL_007.d
Level 5	IC 320-208773/8	2018.02.016_537ICAL_008.d
Level 6	IC 320-208773/9	2018.02.016_537ICAL_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)	-8.3	-0.6	3.6	-2.3	1.1	-0.3	50	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	-4.5	2.3	0.5	-0.8	3.0	-0.5	50	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	-1.2	-2.3	-2.6	7.0	-2.2	1.3	50	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	-5.2	4.5	0.0	0.0	1.8	-1.1	50	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-4.6	0.3	1.2	0.9	2.5	-0.3	50	30	30	30	30	30
Perfluorononanoic acid (PFNA)	4.3	-5.4	-2.6	6.2	-3.1	0.6	50	30	30	30	30	30
13C2 PFHxA	3.0	-5.3	-5.2	4.9	-3.1	5.7	30	30	30	30	30	30
13C2 PFDA	10.4	-5.1	-10.9	4.2	-1.5	2.8	30	30	30	30	30	30





TestAmerica Laboratories
Istd/Surrogate Recovery Report

Worklist Name: 16FEB2018_537_ICAL

Worklist Num: 54164

Instrument: A8_N

Method: 537_A8_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b

Limit Group: LC 537 ICAI

Analysis Type: SemiVOA

Inj Volume: 2.00

Inj Vol Units: ul

Lims Batch: 208773

CCV IS Mode: Select Ical Level, Cal Level: 3

Non-Cal IS Mode: Last Ccal Sample

\$ 2 13C2 PFHxA

\$ 10 13C2 PFDA

Lab ID	Ini Date	\$ 2	\$ 10	* 6 13C2-PFOA	* 7 13C4 PFOS
IS Std				3628037 1.81	9733097 2.06
# 1 RB	16-Feb-2018 08:41:23			1076886< 1.97	2716766< 2.19
				29.7*	27.9*
# 2 RB	16-Feb-2018 08:46:06			1019457< 1.89	2755286< 2.14
				28.1*	28.3*
# 3 RB	16-Feb-2018 08:50:50			1105032< 1.87	2805992< 2.13
				30.5*	28.8*
IS Std					
# 4 IC L1	16-Feb-2018 08:55:33	1.51	2.28	931713> 1.87	2685321> 2.12
		103.00	110.40	100.0*	100.0*
# 5 IC L2	16-Feb-2018 09:00:16	1.51	2.28	988244> 1.87	2714895> 2.12
		94.72	94.88	106.1*	101.1*
# 6 IC L3	16-Feb-2018 09:05:01	1.50	2.27	988820> 1.86	2717621> 2.12
		94.82	89.15	106.1*	101.2*
# 7 IC L4	16-Feb-2018 09:09:42	1.50	2.27	884854> 1.85	2774986> 2.11
		104.90	104.20	95.0*	103.3*
# 8 IC L5	16-Feb-2018 09:14:23	1.50	2.26	936458> 1.85	2722967> 2.11
		96.89	98.53	100.5*	101.4*
# 9 IC L6	16-Feb-2018 09:19:04	1.50	2.27	892615> 1.86	2745419> 2.11
		105.70	102.80	95.8*	102.2*
IS Std				988820 1.86	2717621 2.12
#10 RB	16-Feb-2018 09:23:44			878108 1.85	2705714 2.11
				88.8	99.6
IS Std				884854 1.85	2774986 2.11
#11 CCVL	16-Feb-2018 09:28:24	1.51	2.27	955394 1.87	2663428 2.12
		94.27	95.61	108.0	96.0
IS Std				955394 1.87	2663428 2.12
#12 RB	16-Feb-2018 09:33:05			966669 1.86	2704283 2.11
				101.2	101.5
IS Std				884854 1.85	2774986 2.11
#13 ICV	16-Feb-2018 09:37:44	1.50	2.26	890238 1.85	2703377 2.11
		102.30	102.00	100.6	97.4
IS Std					
#14 RB	16-Feb-2018 09:42:24				

13C2-PFOA

$$RPD = \frac{988820 - 884854}{\frac{(988820 + 884854)}{2}} \times 100 = 11.1$$

13C4-PFOS

$$RPD = \frac{2774986 - 2685321}{\frac{(2774986 + 2685321)}{2}} \times 100 = 3.28$$

JRB

2-16-18

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_004.d
 Lims ID: IC L1
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 16-Feb-2018 08:55:33 ALS Bottle#: 1 Worklist Smp#: 4
 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\20180216-54164.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Feb-2018 10:55:29 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK013

First Level Reviewer: roycea

Date: 16-Feb-2018 10:27:22

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.381	1.381	0.0	1.000	1004877	8.25		5011	
298.90 > 99.00	1.381	1.381	0.0	1.000	703519		1.43(0.00-0.00)	3183	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.510	1.505	0.005	1.000	1055358	10.3		16680	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.662	1.656	0.006	1.000	432087	2.87		1230	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.662	1.658	0.004	1.000	89434	0.9884		25.8	M
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.859	0.007		931713	10.0		9317	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.866	1.860	0.006	1.000	170858	1.91		8.2	
413.00 > 169.00	1.866	1.860	0.006	1.000	97793		1.75(0.00-0.00)	20.1	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.124	2.109	0.015	1.000	339345	3.83		616	a
499.00 > 99.00	2.124	2.109	0.015	1.000	75172		4.51(0.00-0.00)	93.5	a
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.114	0.010		2685321	28.7		10079	
9 Perfluorononanoic acid									
463.00 > 419.00	2.132	2.122	0.010	1.000	119635	2.09		13.5	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.270	0.006	1.000	539488	11.0		5616	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L1_00021

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_004.d

Injection Date: 16-Feb-2018 08:55:33

Instrument ID: A8_N

Lims ID: IC L1

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 1

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

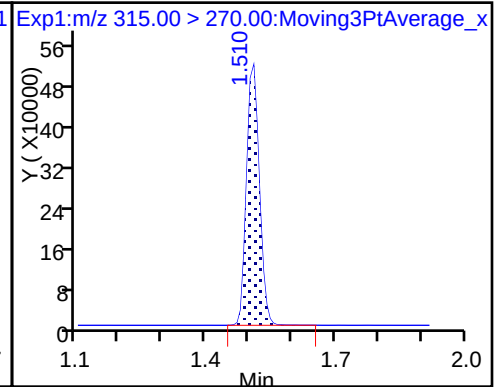
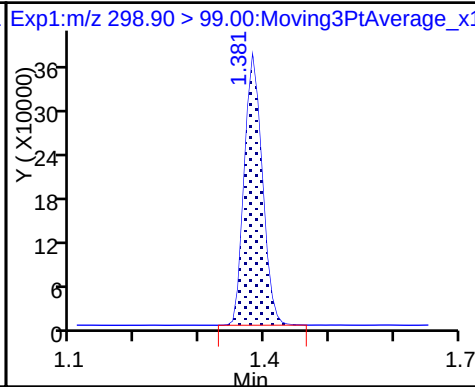
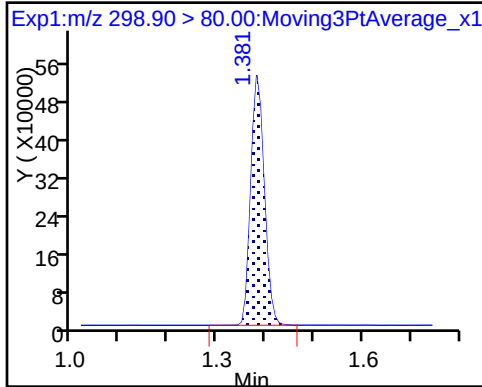
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

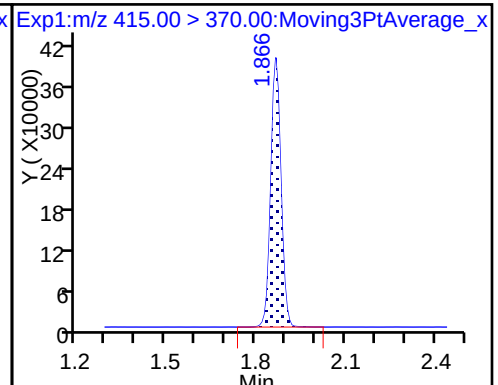
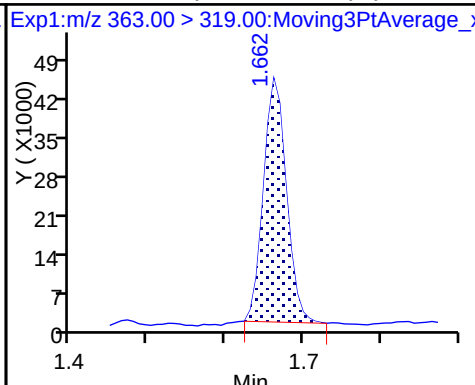
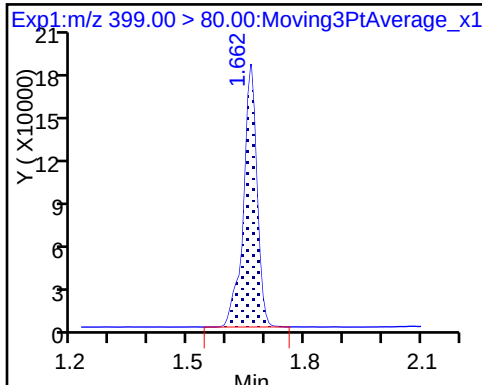
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid (M)

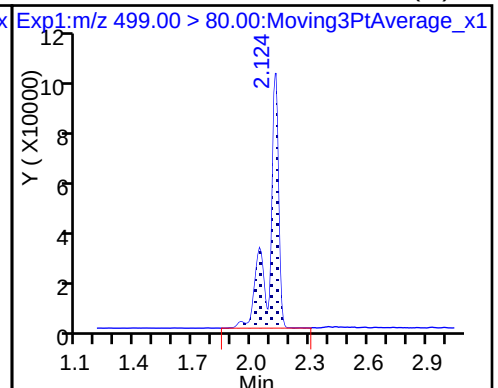
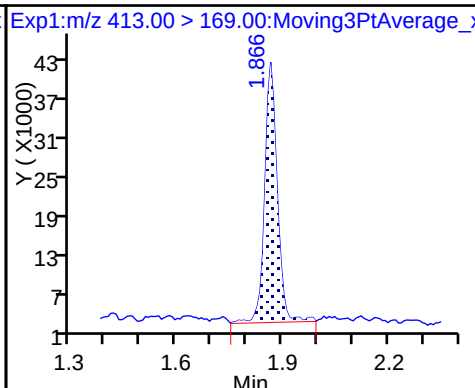
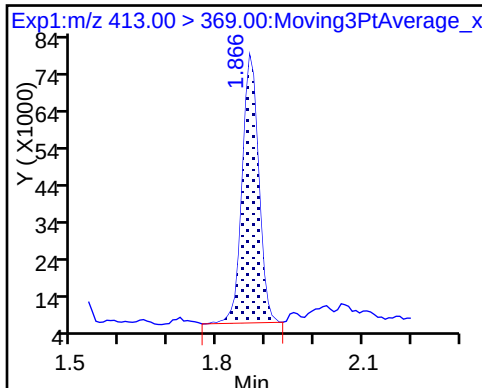
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

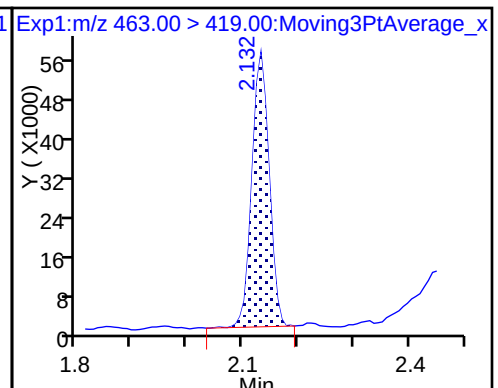
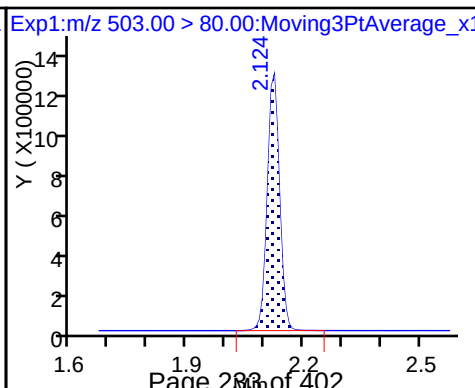
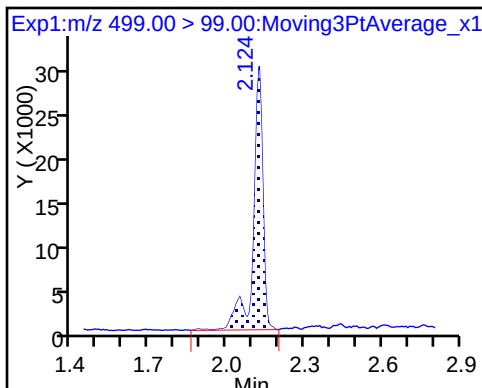
8 Perfluorooctane sulfonic acid (M)



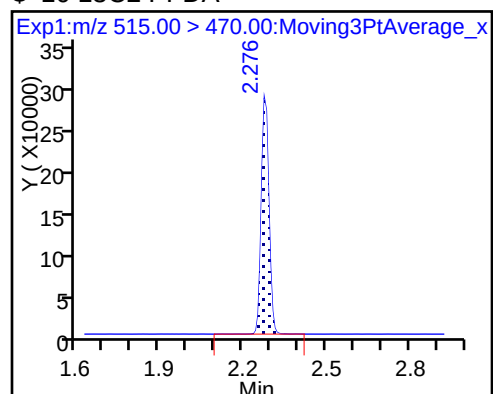
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

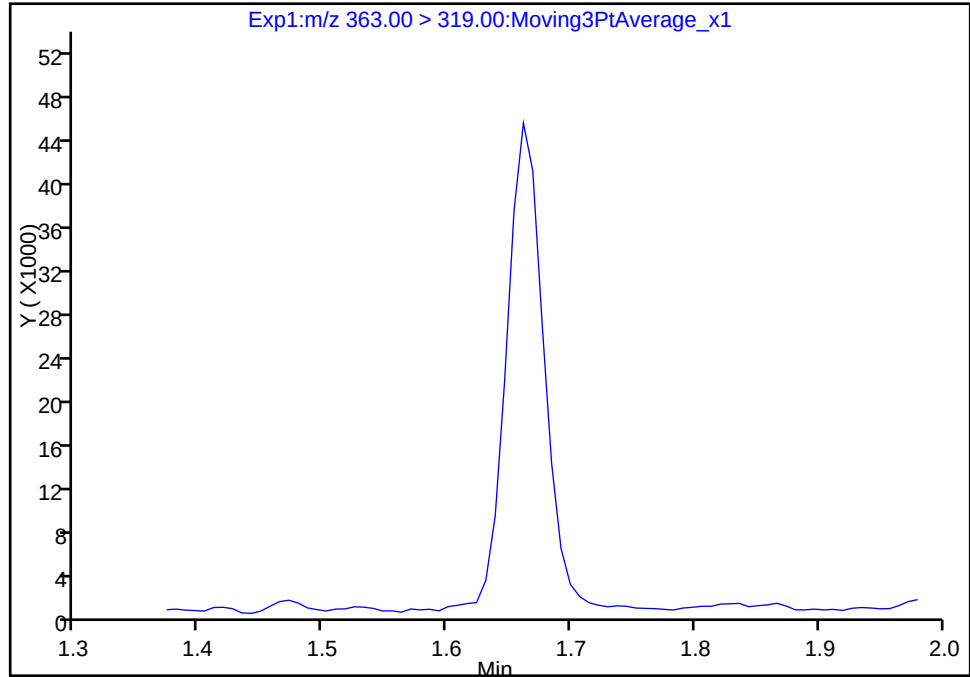
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_004.d
Injection Date: 16-Feb-2018 08:55:33 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

4 Perfluoroheptanoic acid, CAS: 375-85-9

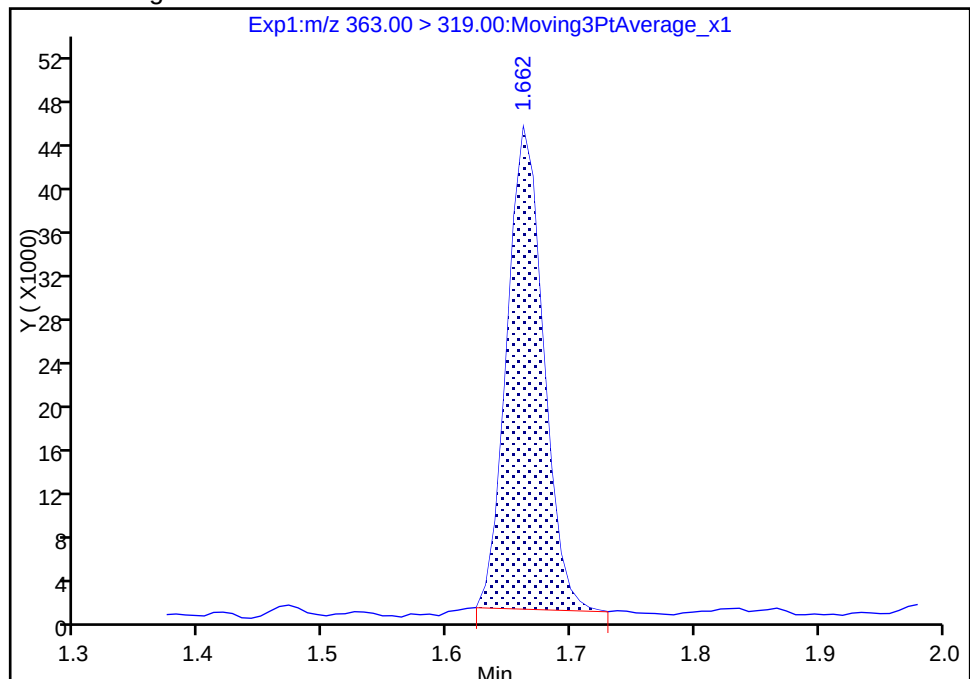
Signal: 1

Not Detected
Expected RT: 1.66

Processing Integration Results



Manual Integration Results



RT: 1.66
Area: 89434
Amount: 0.988420
Amount Units: ng/ml

Reviewer: roycea, 16-Feb-2018 10:26:41

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

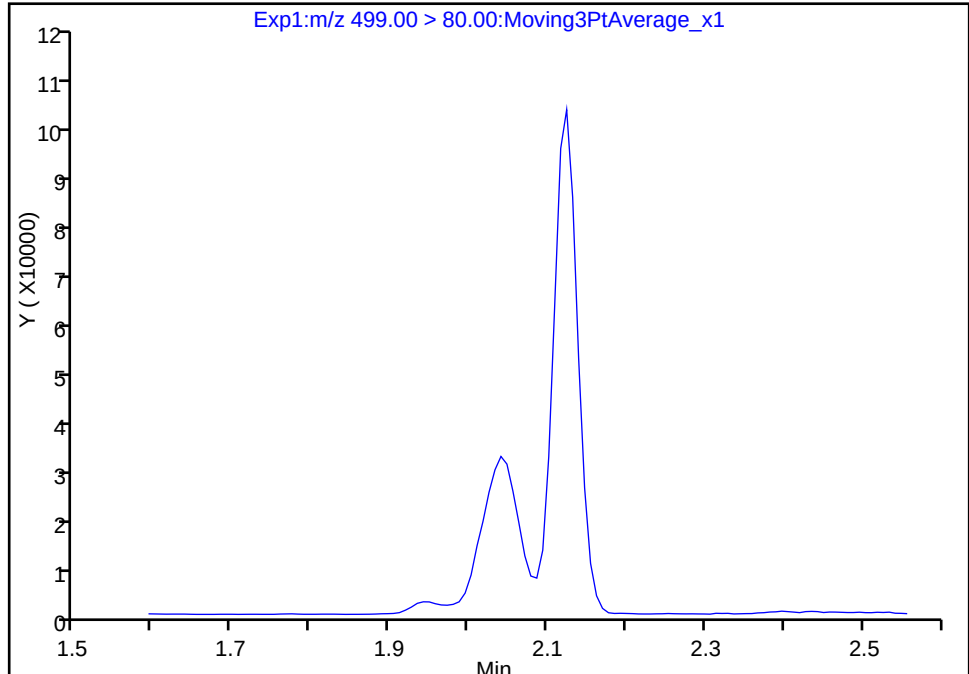
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_004.d
Injection Date: 16-Feb-2018 08:55:33 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

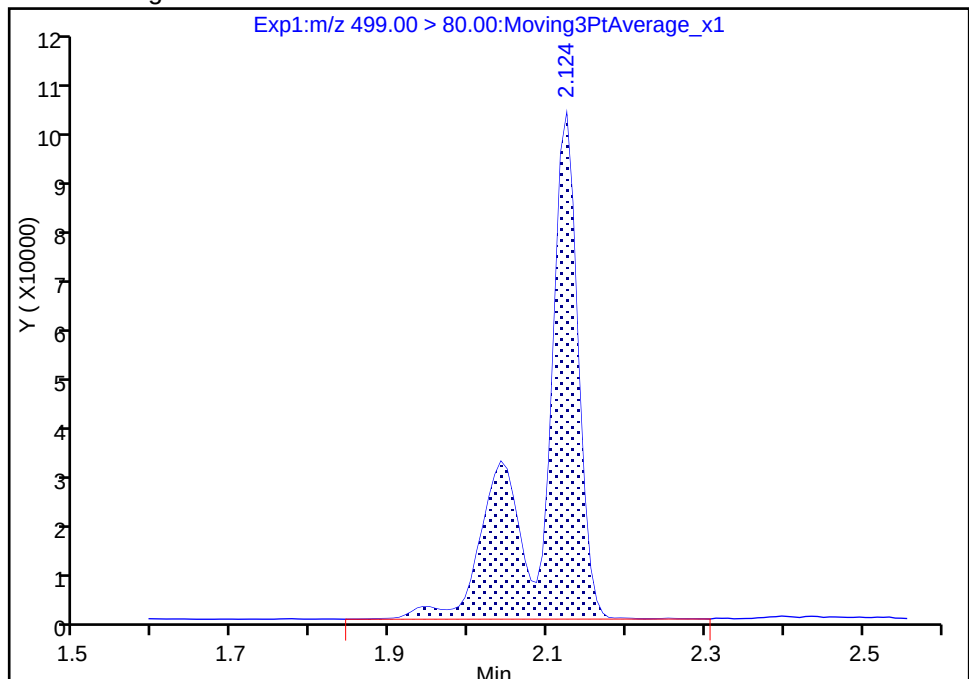
Not Detected
Expected RT: 2.11

Processing Integration Results



RT: 2.12
Area: 339345
Amount: 3.833062
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 16-Feb-2018 10:26:57

Audit Action: Assigned Compound ID

Audit Reason: Assign Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_005.d
 Lims ID: IC L2
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 16-Feb-2018 09:00:16 ALS Bottle#: 2 Worklist Smp#: 5
 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\20180216-54164.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Feb-2018 10:55:30 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK013

First Level Reviewer: roycea

Date: 16-Feb-2018 10:29:45

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.381	1.381	0.0	1.000	2401851	19.9		11847	
298.90 > 99.00	1.381	1.381	0.0	1.000	1648571		1.46(0.00-0.00)	6533	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.510	1.505	0.005	1.000	1029524	9.47		13087	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.662	1.656	0.006	1.000	1039145	6.82		2484	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.662	1.658	0.004	1.000	208408	2.17		62.0	
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.859	0.007		988244	10.0		9787	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.866	1.860	0.006	1.000	443975	4.67		19.7	
413.00 > 169.00	1.866	1.860	0.006	1.000	241410		1.84(0.00-0.00)	47.8	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.117	2.109	0.008	1.000	801200	8.95		1624	a
499.00 > 99.00	2.117	2.109	0.008	1.000	172636		4.64(0.00-0.00)	228	a
* 7 13C4 PFOS									
503.00 > 80.00	2.117	2.114	0.003		2714895	28.7		10005	
9 Perfluorononanoic acid									
463.00 > 419.00	2.124	2.122	0.002	1.000	255853	4.21		29.7	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.276	2.270	0.006	1.000	491558	9.49		5500	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L2_00021

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_005.d

Injection Date: 16-Feb-2018 09:00:16

Instrument ID: A8_N

Lims ID: IC L2

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

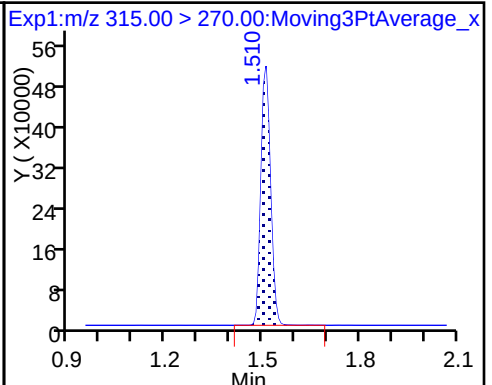
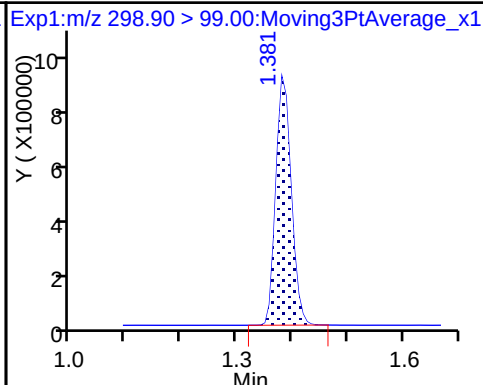
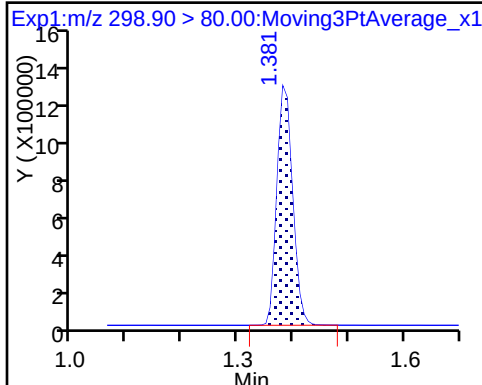
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

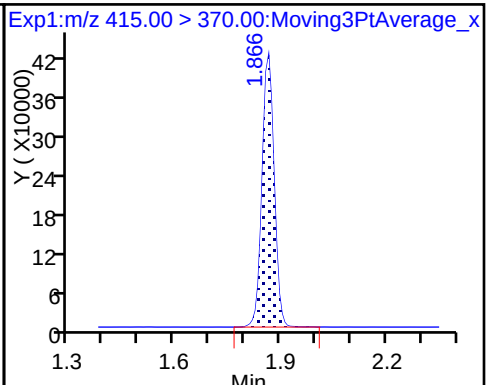
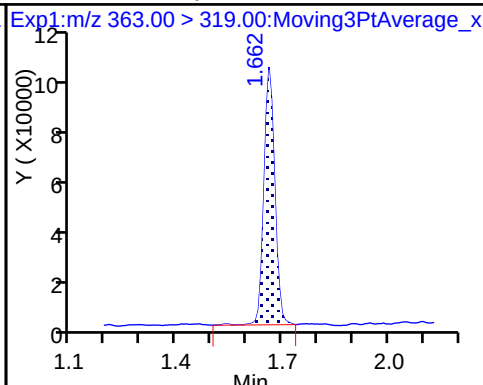
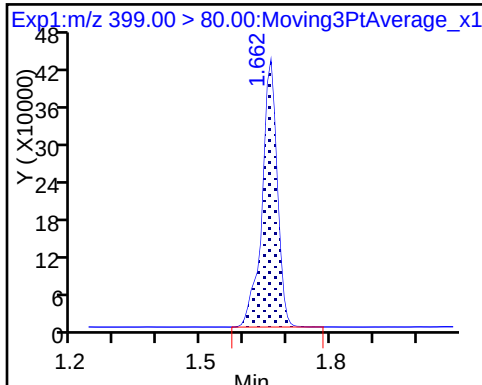
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

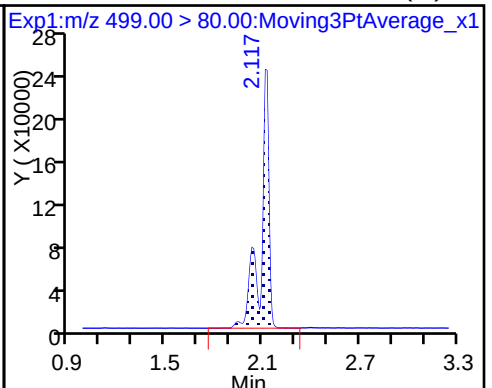
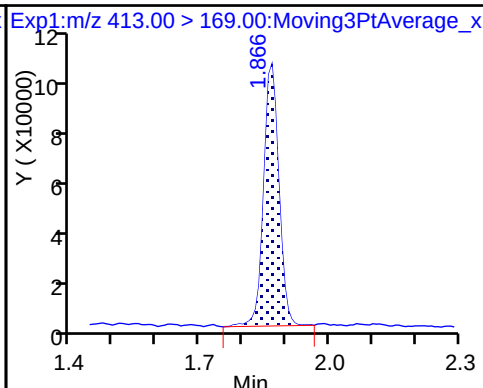
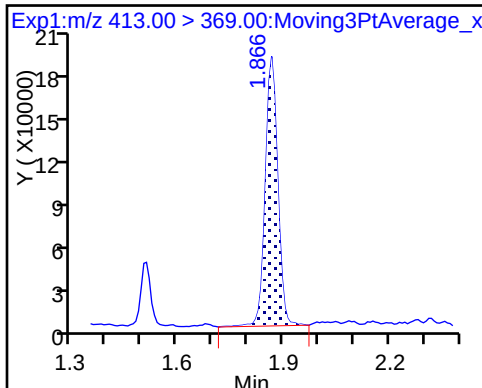
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

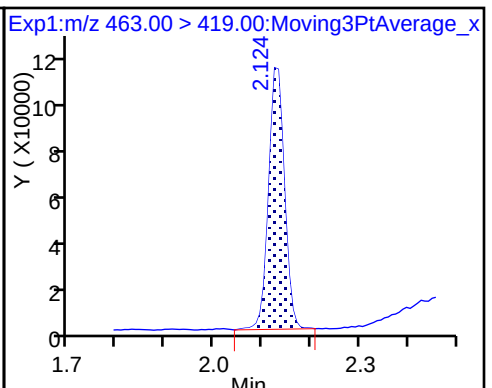
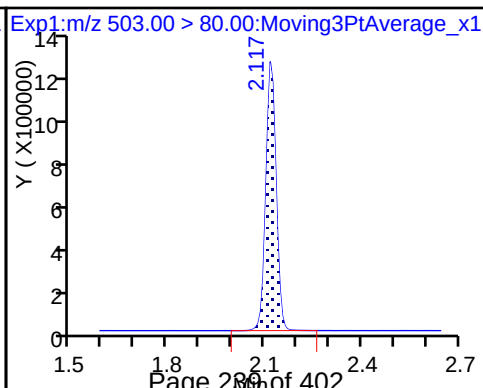
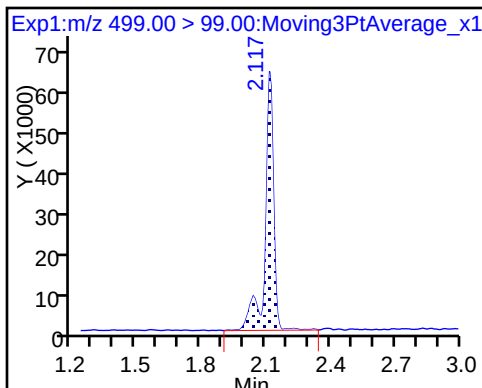
8 Perfluorooctane sulfonic acid (M)



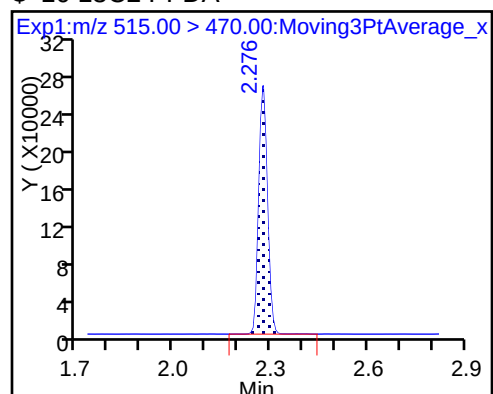
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

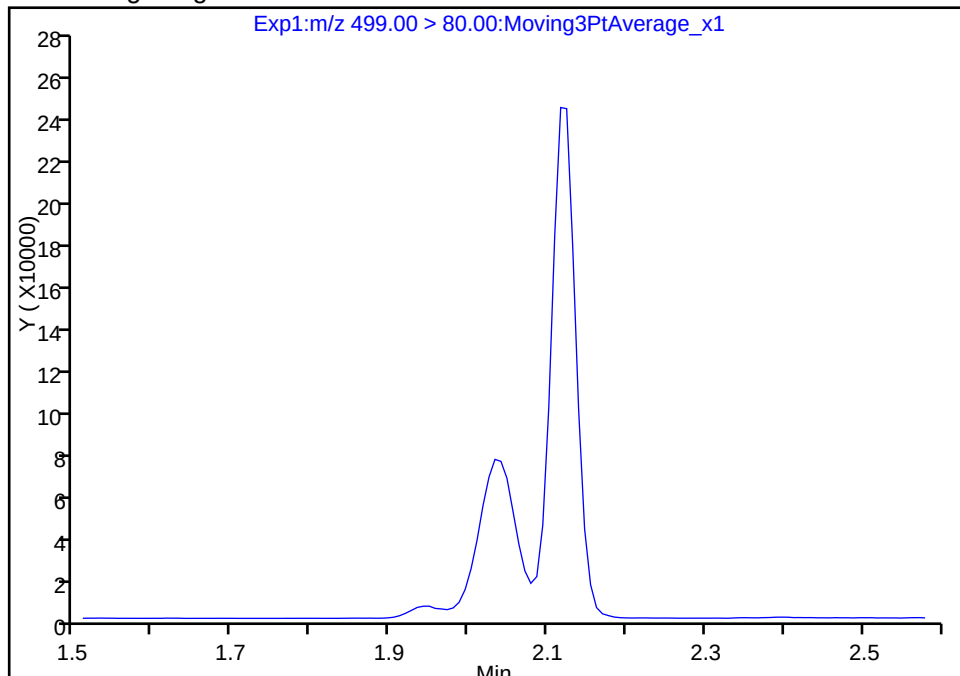
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_005.d
Injection Date: 16-Feb-2018 09:00:16 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

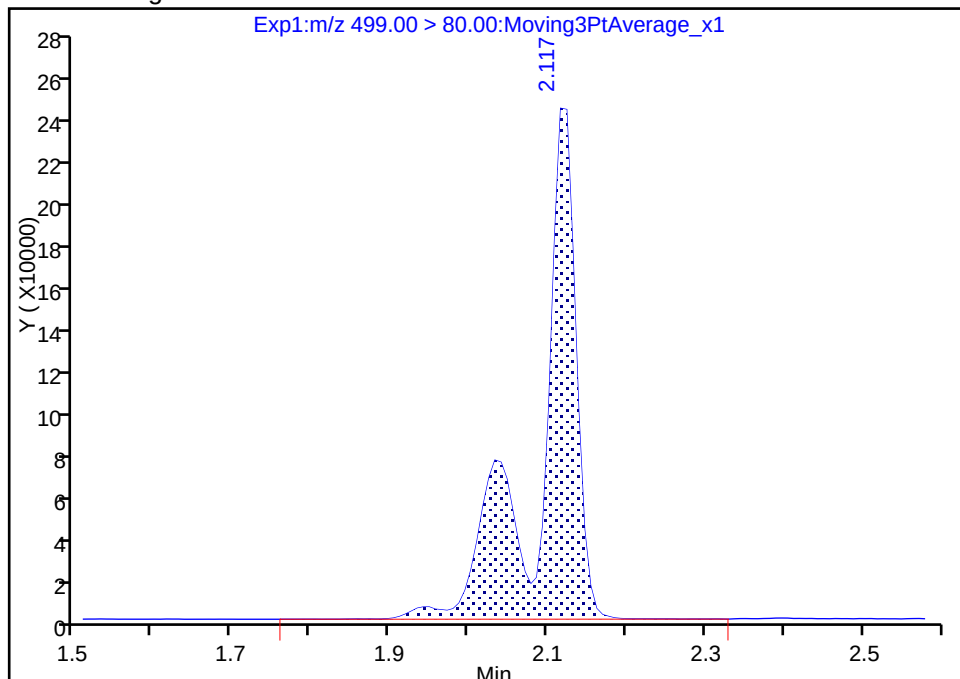
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 801200
Amount: 8.951348
Amount Units: ng/ml



Reviewer: roycea, 16-Feb-2018 10:29:26

Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_006.d
 Lims ID: IC L3
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 16-Feb-2018 09:05:01 ALS Bottle#: 3 Worklist Smp#: 6
 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\20180216-54164.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Feb-2018 10:55:31 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK013

First Level Reviewer: roycea

Date: 16-Feb-2018 10:30:08

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.381	1.381	0.0	1.000	5386060	46.6		24881	
298.90 > 99.00	1.381	1.381	0.0	1.000	3691119		1.46(0.00-0.00)	13454	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.502	1.505	-0.003	1.000	1031304	9.48		13749	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.654	1.656	-0.002	1.000	2300670	15.1		5477	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.662	1.658	0.004	1.000	467875	4.87		141	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.859	0.0		988820	10.0		11038	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.860	-0.001	1.000	956930	10.1		43.8	
413.00 > 169.00	1.859	1.860	-0.001	1.000	520439		1.84(0.00-0.00)	103	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.117	2.109	0.008	1.000	1821248	20.3		3507	a
499.00 > 99.00	2.117	2.109	0.008	1.000	390582		4.66(0.00-0.00)	507	a
* 7 13C4 PFOS									
503.00 > 80.00	2.117	2.114	0.003		2717621	28.7		11170	
9 Perfluorononanoic acid									
463.00 > 419.00	2.124	2.122	0.002	1.000	592583	9.74		77.0	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.269	2.270	-0.002	1.000	462142	8.91		5257	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L3_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_006.d

Injection Date: 16-Feb-2018 09:05:01

Instrument ID: A8_N

Lims ID: IC L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

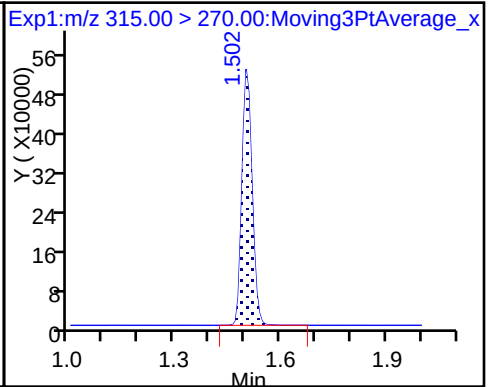
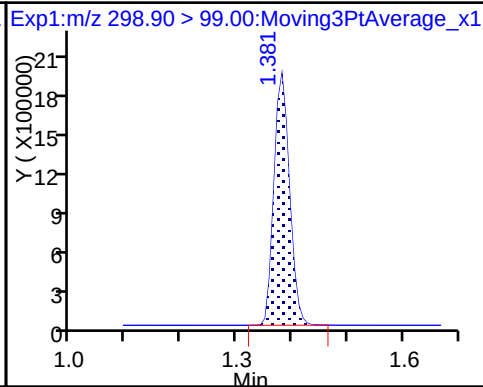
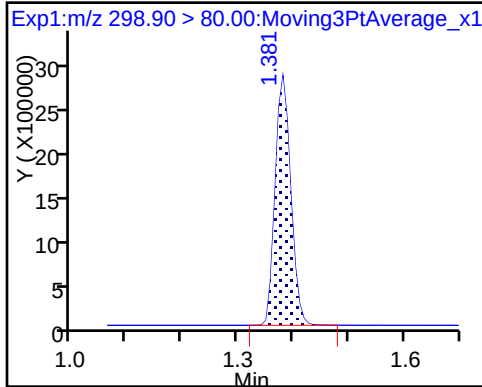
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

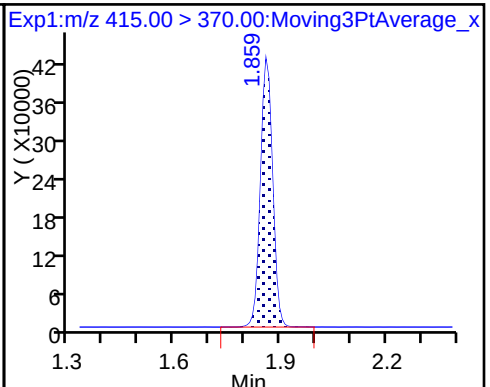
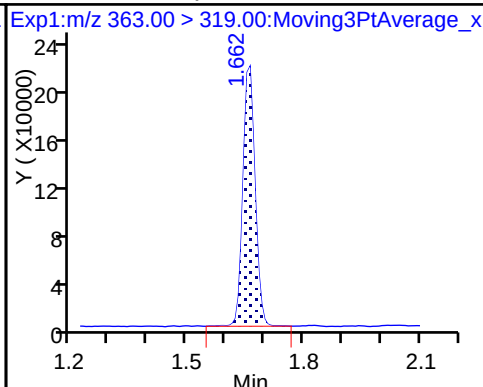
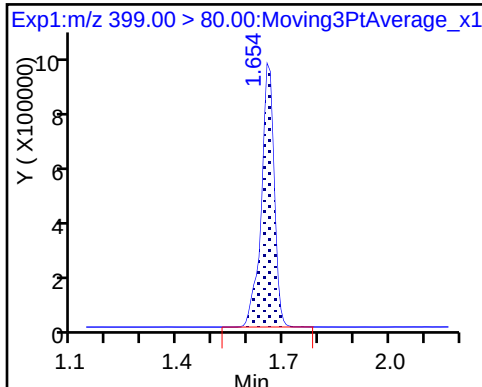
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

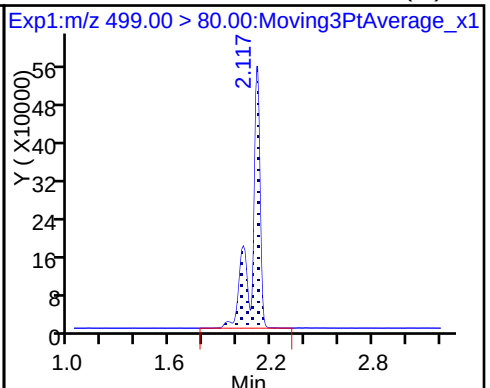
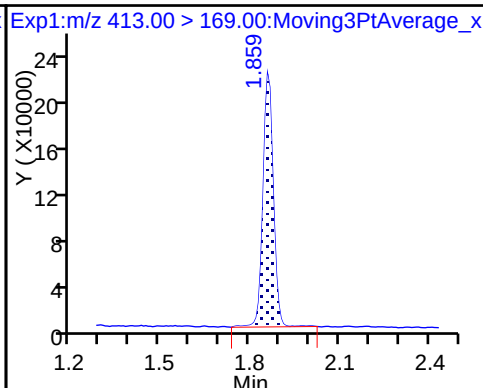
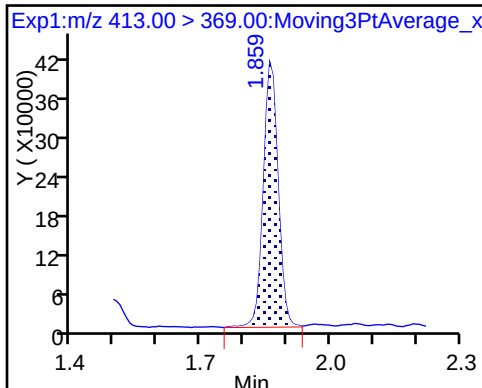
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

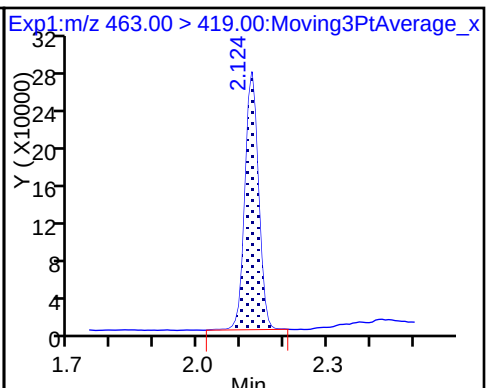
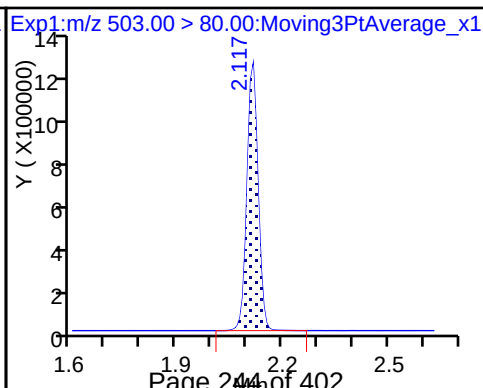
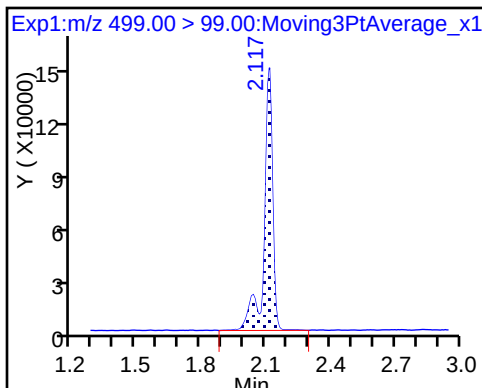
8 Perfluorooctane sulfonic acid (M)



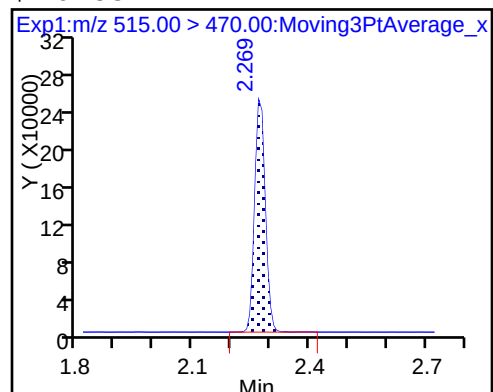
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_006.d
Injection Date: 16-Feb-2018 09:05:01 Instrument ID: A8_N
Lims ID: IC L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

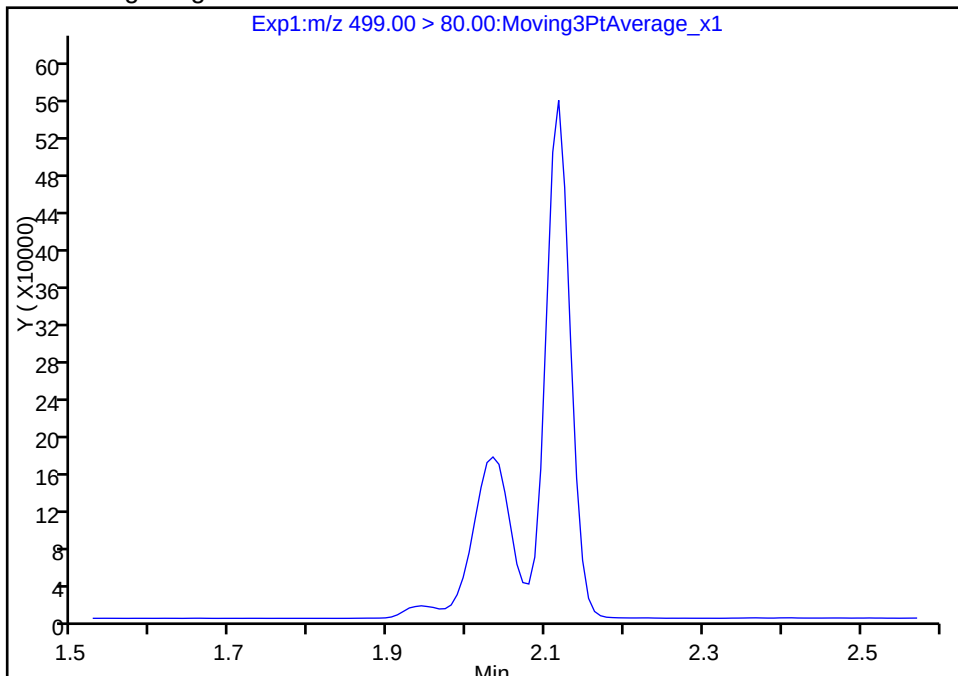
8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

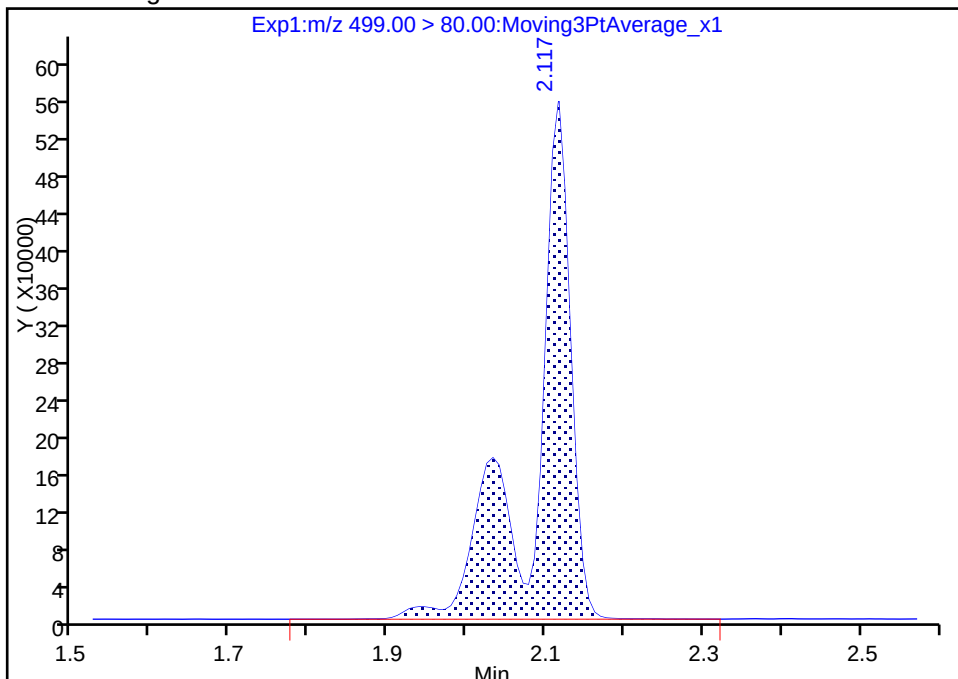
Not Detected

Expected RT: 2.11

Processing Integration Results



Manual Integration Results



RT: 2.12
Area: 1821248
Amount: 20.327349
Amount Units: ng/ml

Reviewer: roycea, 16-Feb-2018 10:29:49

Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_007.d
 Lims ID: IC L4
 Client ID:
 Sample Type: ICISAV Calib Level: 4
 Inject. Date: 16-Feb-2018 09:09:42 ALS Bottle#: 4 Worklist Smp#: 7
 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\20180216-54164.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Feb-2018 10:55:32 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK013

First Level Reviewer: roycea

Date: 16-Feb-2018 10:30:42

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.381	1.381	0.0	1.000	9625497	87.9		31459	
298.90 > 99.00	1.381	1.381	0.0	1.000	6951294		1.38(0.00-0.00)	19310	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.502	1.505	-0.003	1.000	1021204	10.5		12876	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.654	1.656	-0.002	1.000	4635169	29.8		9685	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.654	1.658	-0.004	1.000	919334	10.7		269	
* 6 13C2-PFOA									
415.00 > 370.00	1.851	1.859	-0.008		884854	10.0		8810	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.860	-0.001	1.000	1711070	20.1		75.8	
413.00 > 169.00	1.859	1.860	-0.001	1.000	935401		1.83(0.00-0.00)	172	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.109	2.109	0.0	1.000	3707450	40.5		7539	a
499.00 > 99.00	2.109	2.109	0.0	1.000	789268		4.70(0.00-0.00)	1168	a
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.114	-0.005		2774986	28.7		12601	
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.122	-0.005	1.000	1157180	21.3		175	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.269	2.270	-0.002	1.000	483499	10.4		5556	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L4_00021

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_007.d

Injection Date: 16-Feb-2018 09:09:42

Instrument ID: A8_N

Lims ID: IC L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 4

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

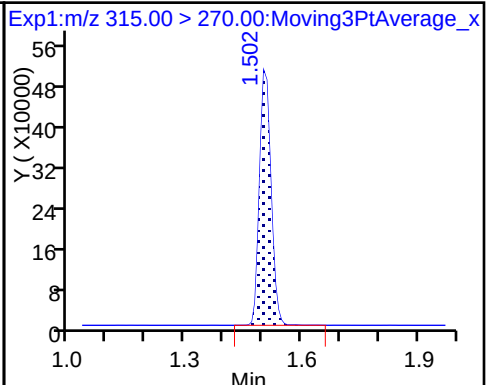
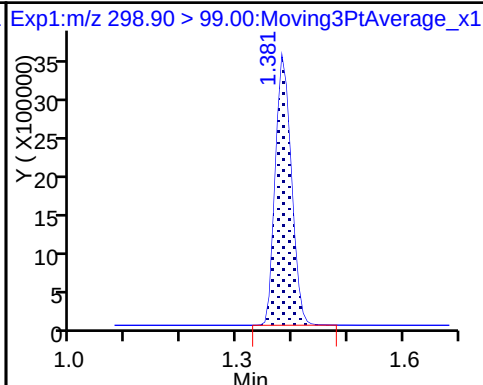
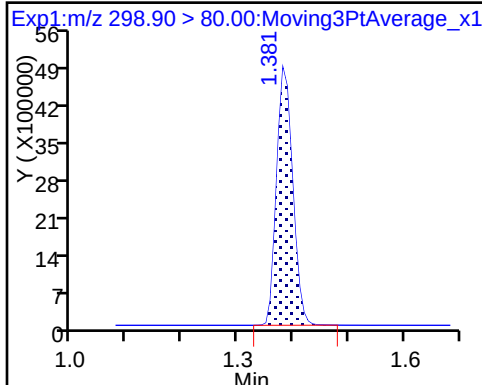
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

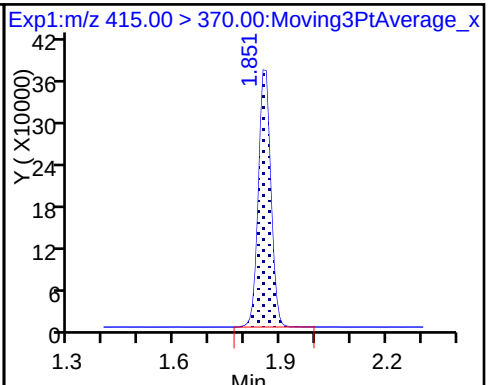
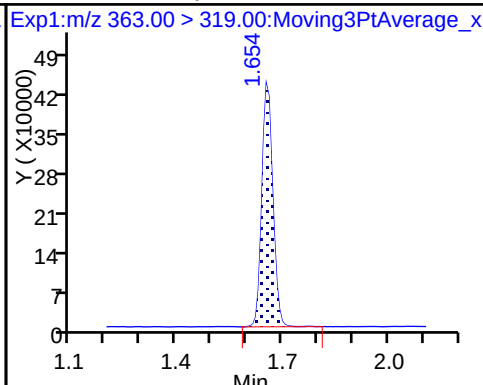
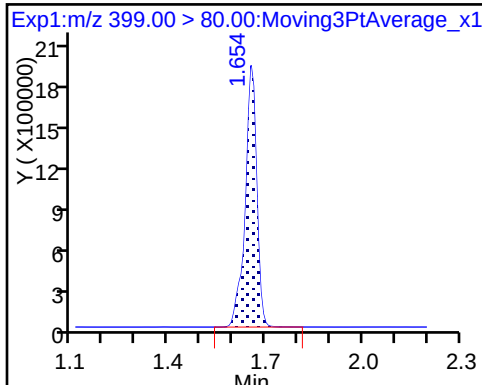
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

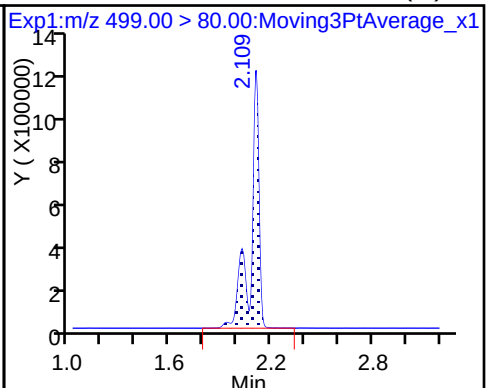
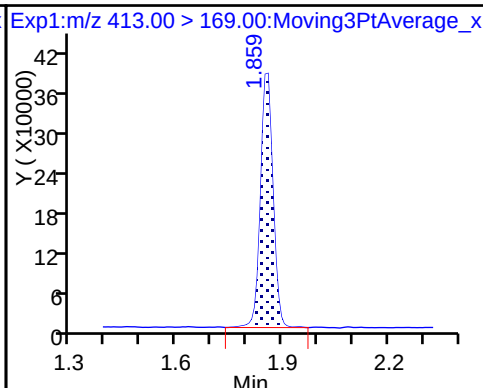
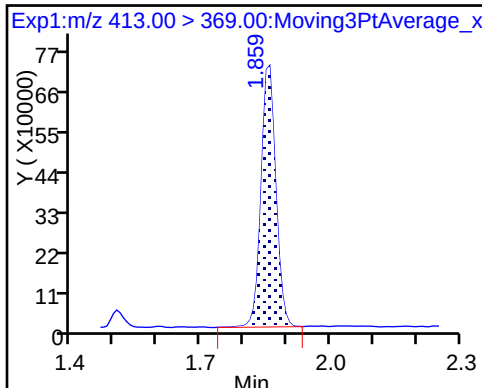
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

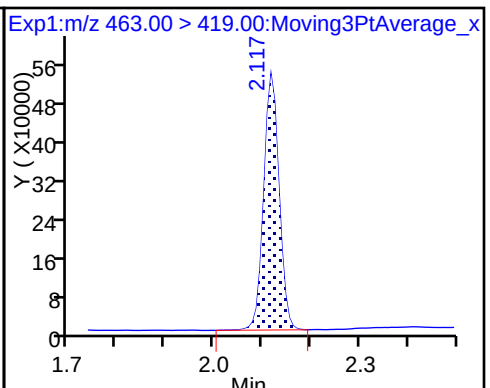
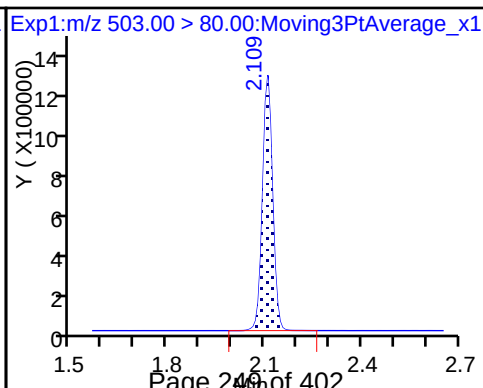
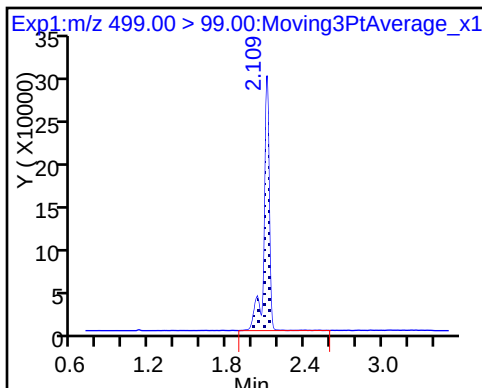
8 Perfluorooctane sulfonic acid (M)



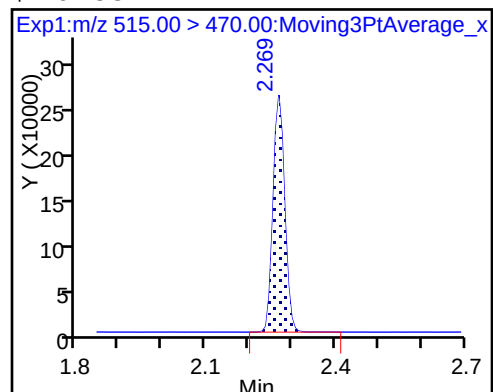
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

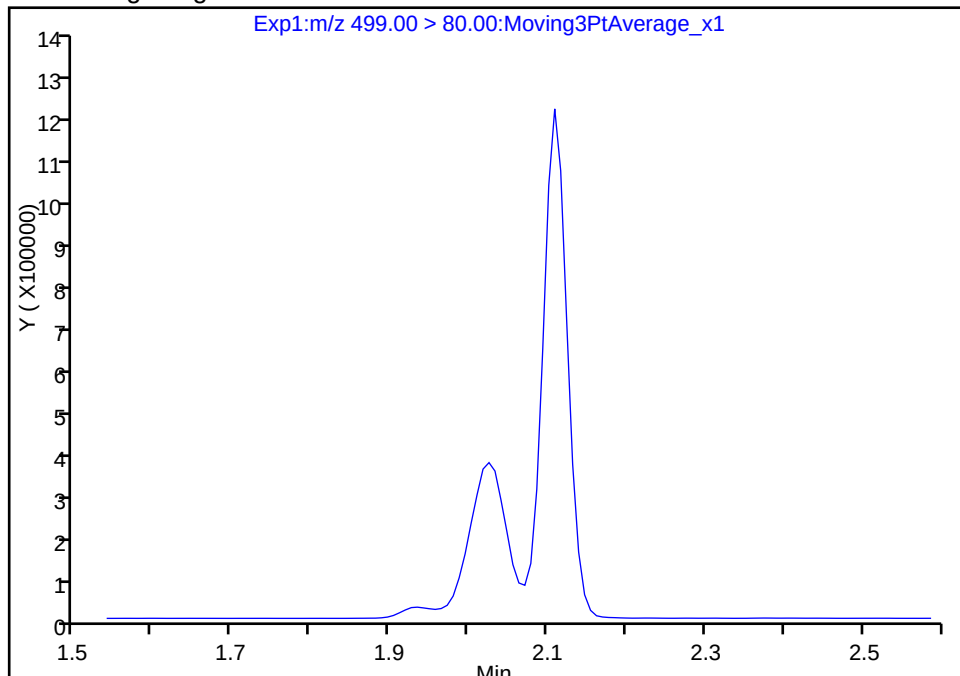
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_007.d
Injection Date: 16-Feb-2018 09:09:42 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

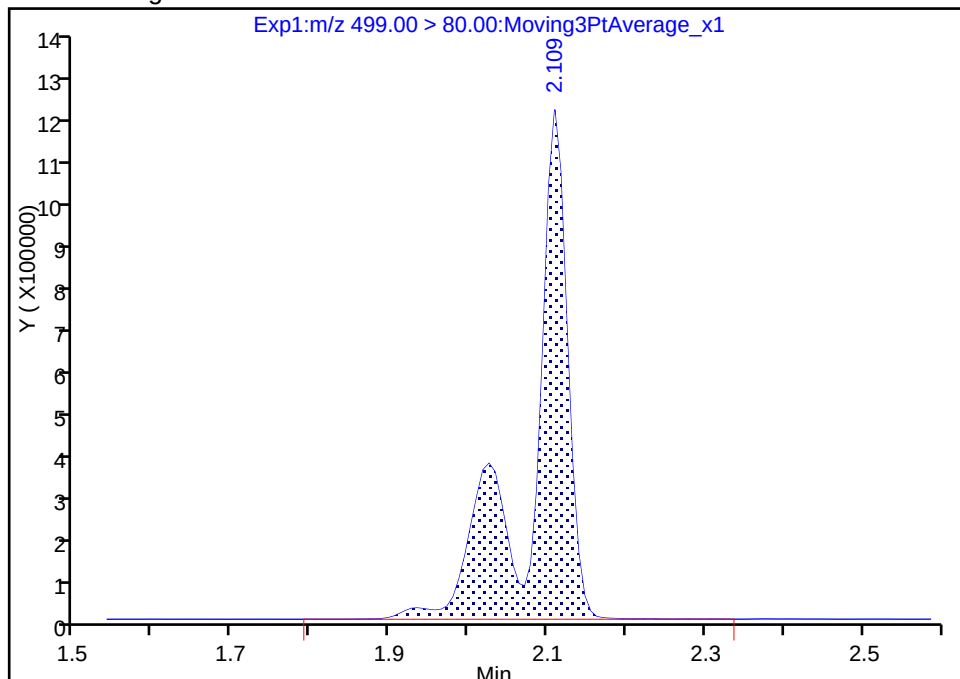
Signal: 1

Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results



RT: 2.11
Area: 3707450
Amount: 40.524256
Amount Units: ng/ml

Reviewer: roycea, 16-Feb-2018 10:30:18

Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_008.d
 Lims ID: IC L5
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 16-Feb-2018 09:14:23 ALS Bottle#: 5 Worklist Smp#: 8
 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\20180216-54164.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Feb-2018 10:55:33 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK013

First Level Reviewer: roycea

Date: 16-Feb-2018 10:31:06

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.381	1.381	0.0	1.000	13334361	136.5		33692	
298.90 > 99.00	1.381	1.381	0.0	1.000	9982883		1.34(0.00-0.00)	24528	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.502	1.505	-0.003	1.000	998008	9.69		16387	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.654	1.656	-0.002	1.000	7088297	46.4		14215	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.654	1.658	-0.004	1.000	1334846	14.7		427	
* 6 13C2-PFOA									
415.00 > 370.00	1.851	1.859	-0.008		936458	10.0		9383	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.851	1.860	-0.009	1.000	2767901	30.7		125	
413.00 > 169.00	1.851	1.860	-0.009	1.000	1502671		1.84(0.00-0.00)	280	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.109	2.109	0.0	1.000	5544581	61.8		11632	a
499.00 > 99.00	2.109	2.109	0.0	1.000	1138506		4.87(0.00-0.00)	1480	a
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.114	-0.005		2722967	28.7		9525	
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.122	-0.005	1.000	1675602	29.1		264	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.270	-0.009	1.000	483740	9.85		5874	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L5_00025

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_008.d

Injection Date: 16-Feb-2018 09:14:23

Instrument ID: A8_N

Lims ID: IC L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

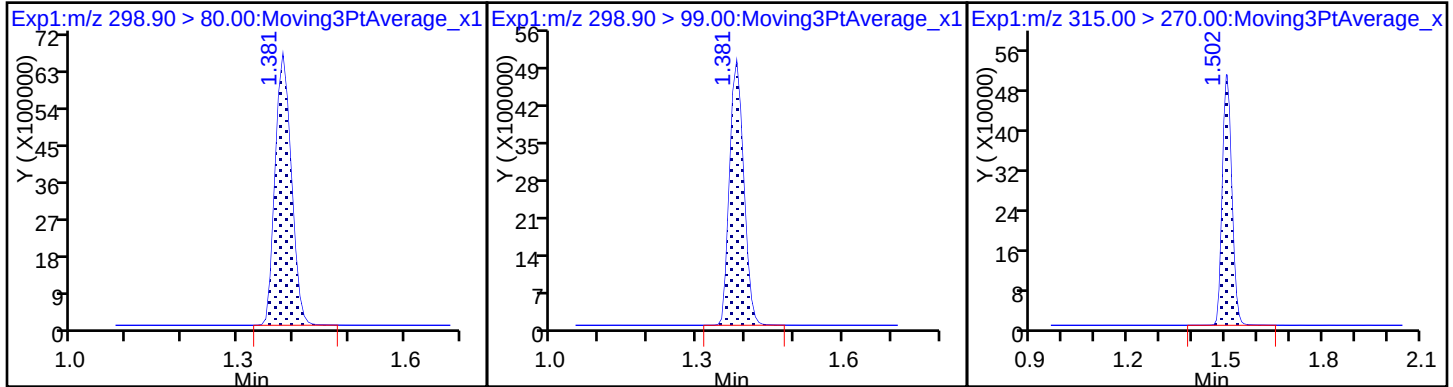
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

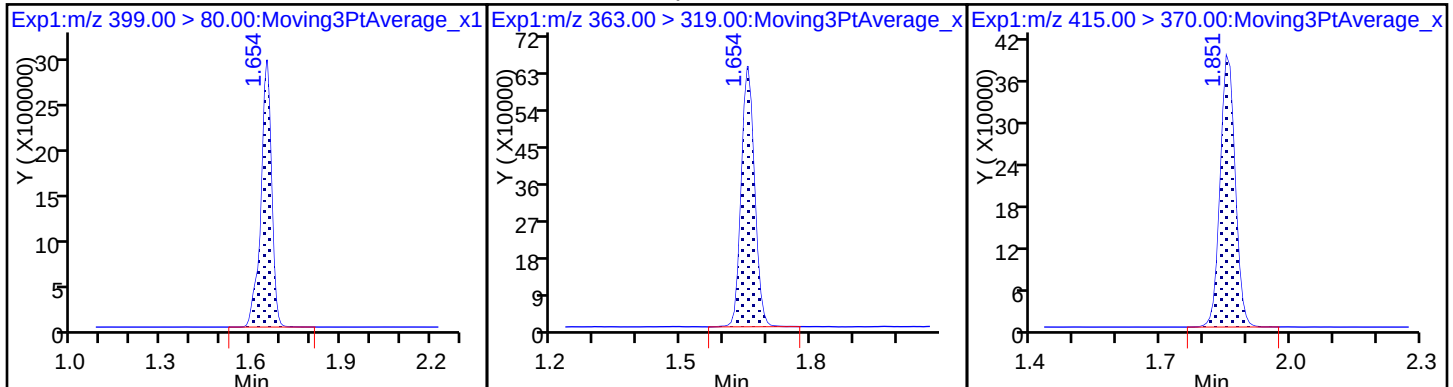
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

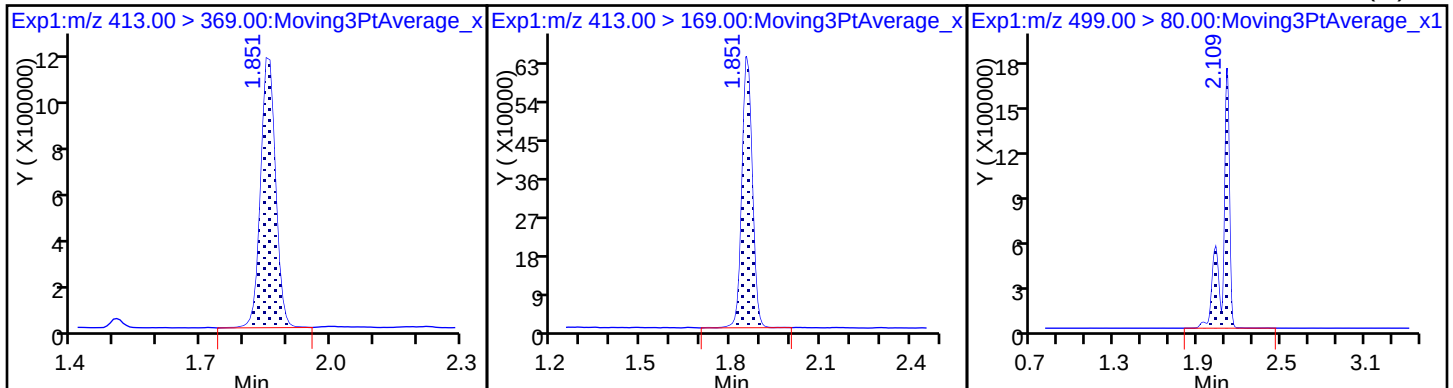
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

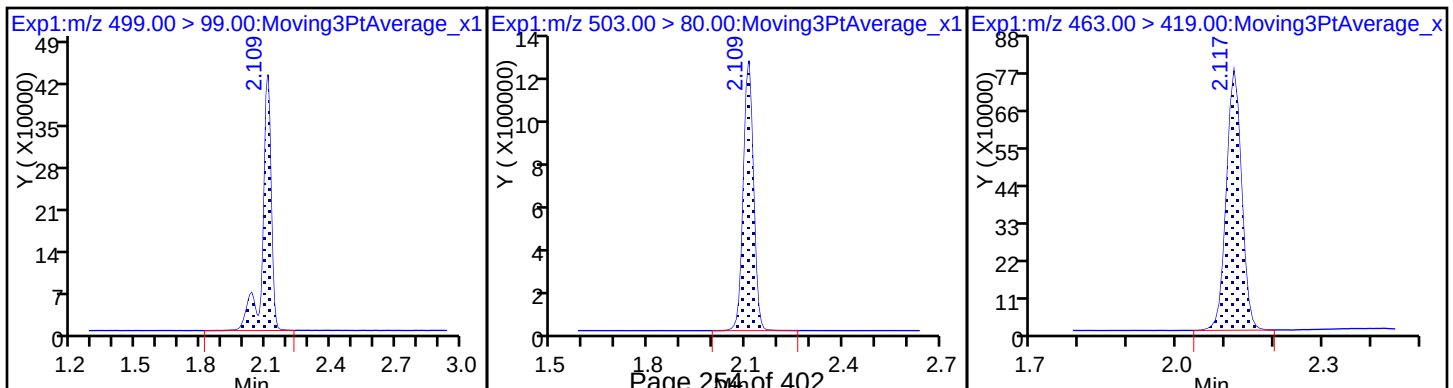
8 Perfluorooctane sulfonic acid (M)



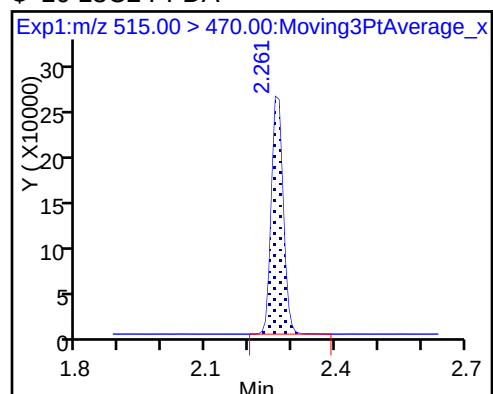
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

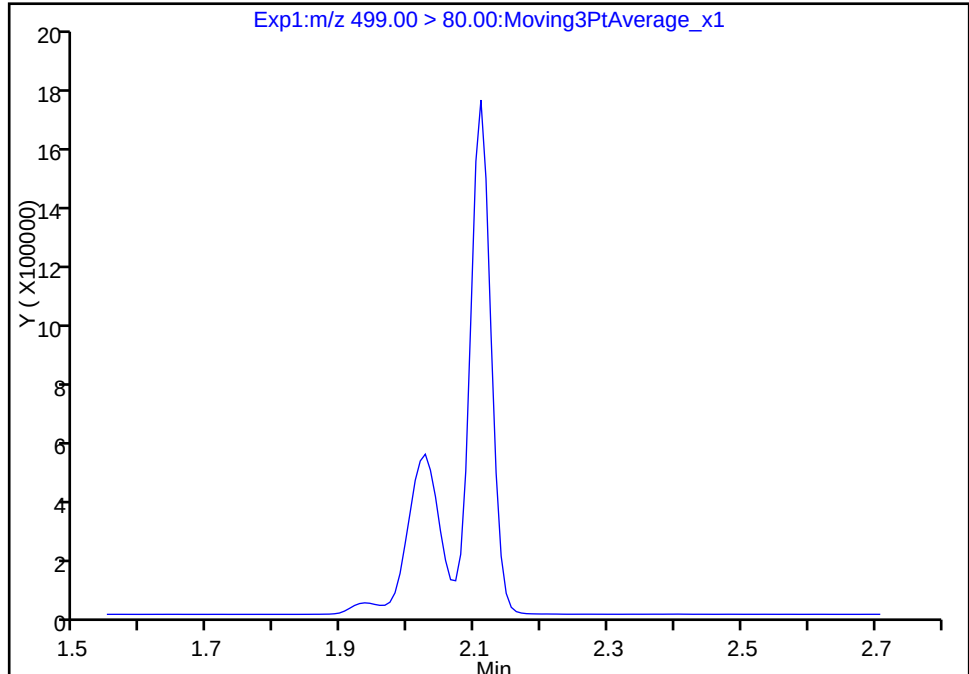
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_008.d
Injection Date: 16-Feb-2018 09:14:23 Instrument ID: A8_N
Lims ID: IC L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

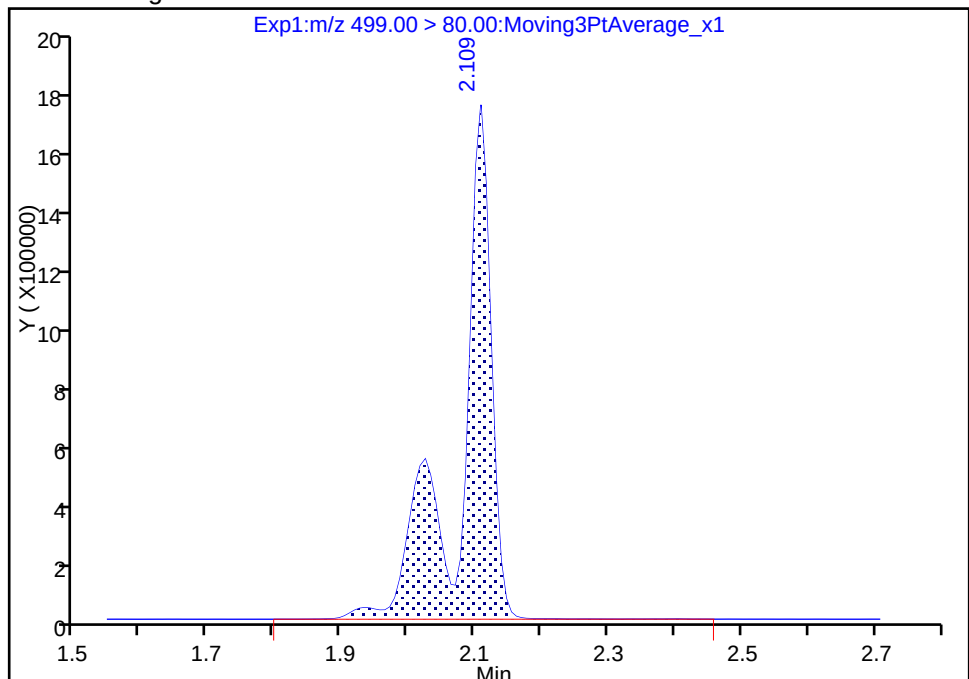
Not Detected
Expected RT: 2.11

Processing Integration Results



RT: 2.11
Area: 5544581
Amount: 61.762790
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 16-Feb-2018 10:30:47

Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
 Lims ID: IC L6
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 16-Feb-2018 09:19:04 ALS Bottle#: 6 Worklist Smp#: 9
 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\20180216-54164.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Feb-2018 10:55:34 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK013

First Level Reviewer: roycea

Date: 16-Feb-2018 10:31:33

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.381	1.381	0.0	1.000	16112512	179.6		29614	
298.90 > 99.00	1.381	1.381	0.0	1.000	12540779		1.28(0.00-0.00)	25956	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.502	1.505	-0.003	1.000	1037300	10.6		12797	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.654	1.656	-0.002	1.000	9203547	59.7		15723	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.654	1.658	-0.004	1.000	1755879	20.3		523	
* 6 13C2-PFOA									
415.00 > 370.00	1.859	1.859	0.0		892615	10.0		10354	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.859	1.860	-0.001	1.000	3415564	39.8		147	
413.00 > 169.00	1.859	1.860	-0.001	1.000	1839701		1.86(0.00-0.00)	325	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.109	2.109	0.0	1.000	7252490	80.1		13357	a
499.00 > 99.00	2.109	2.109	0.0	1.000	1559390		4.65(0.00-0.00)	2143	a
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.114	-0.005		2745419	28.7		10250	
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.122	-0.005	1.000	2211715	40.3		388	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.269	2.270	-0.002	1.000	480980	10.3		5555	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L6_00021

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Injection Date: 16-Feb-2018 09:19:04

Instrument ID: A8_N

Lims ID: IC L6

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 6

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

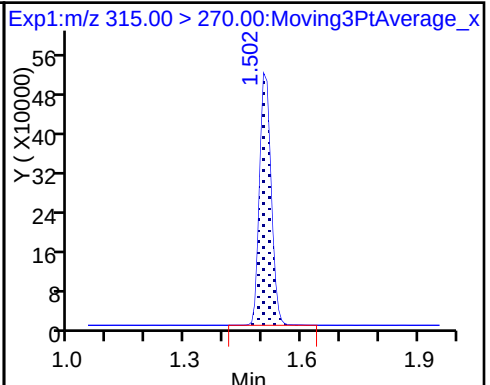
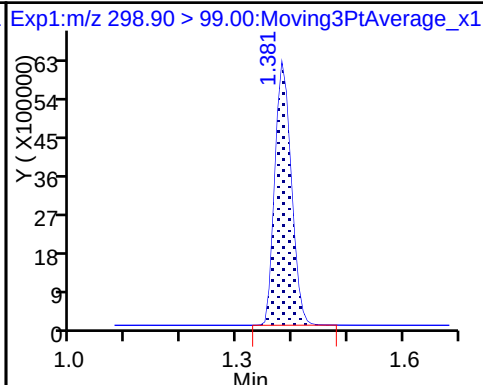
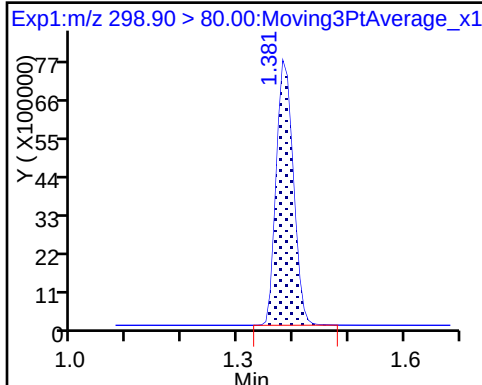
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

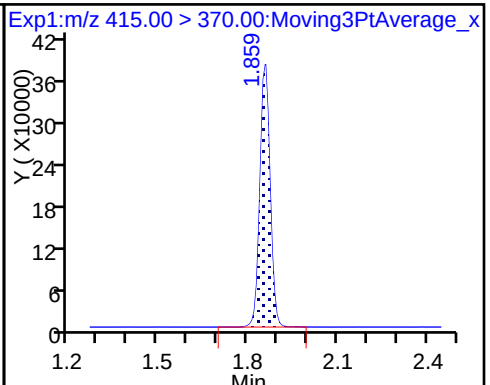
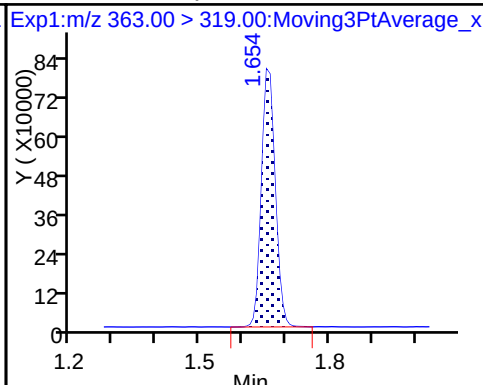
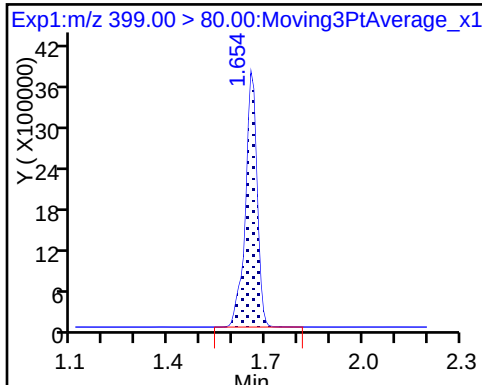
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

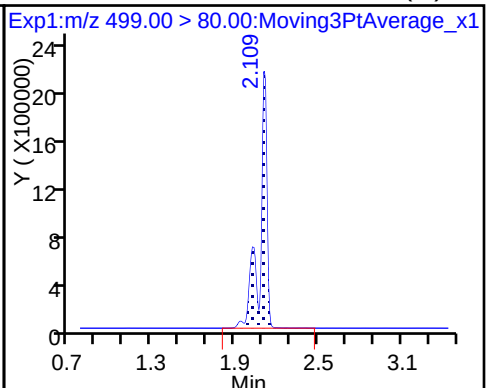
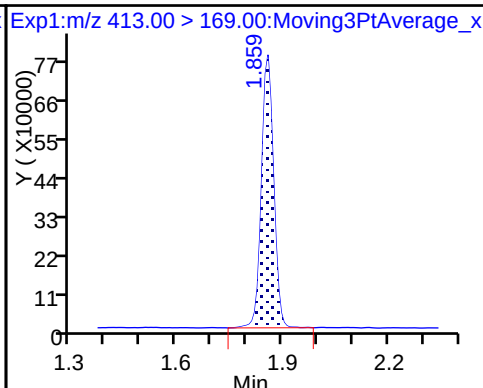
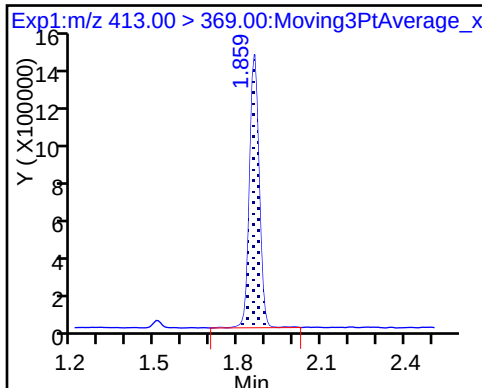
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

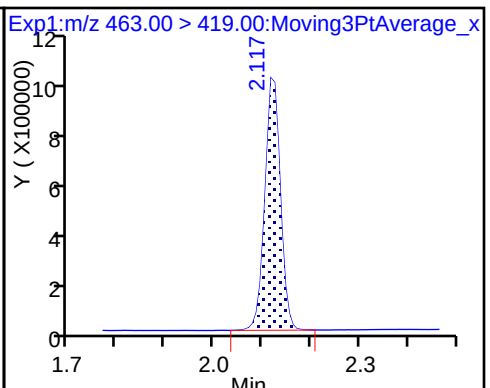
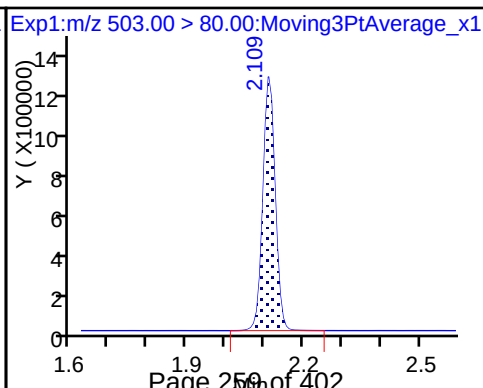
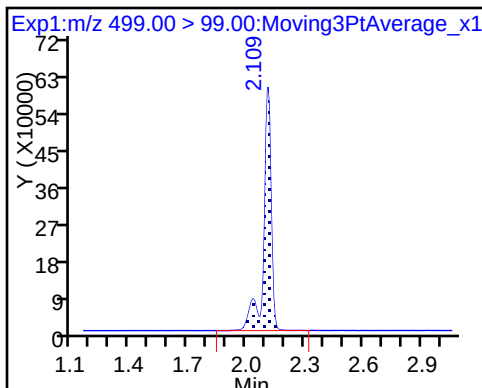
8 Perfluorooctane sulfonic acid (M)



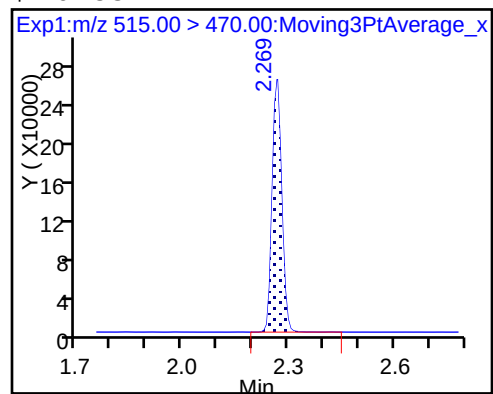
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

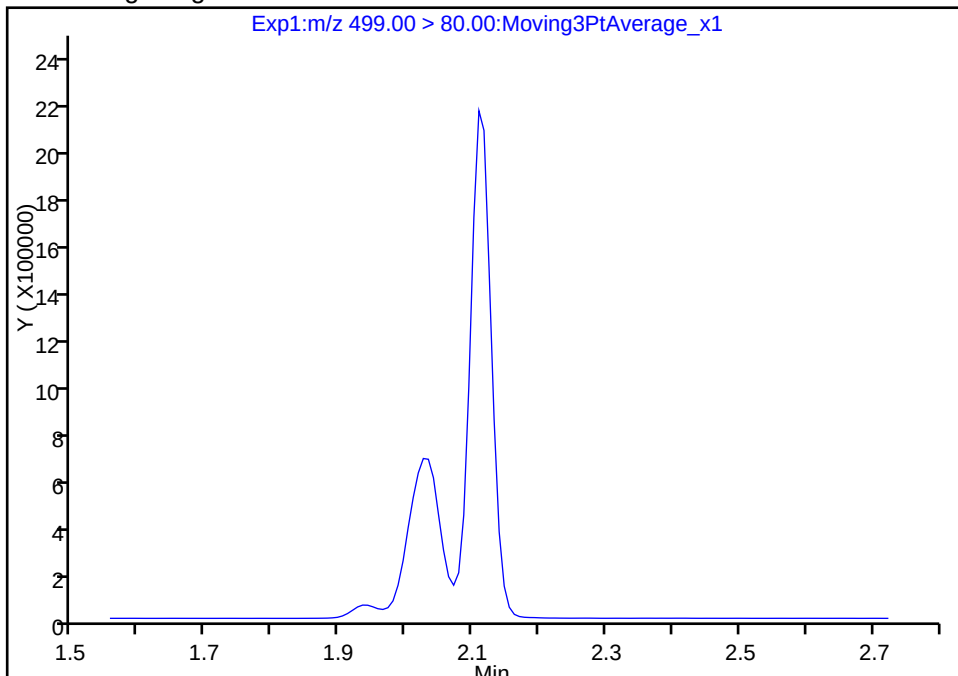
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
Injection Date: 16-Feb-2018 09:19:04 Instrument ID: A8_N
Lims ID: IC L6
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

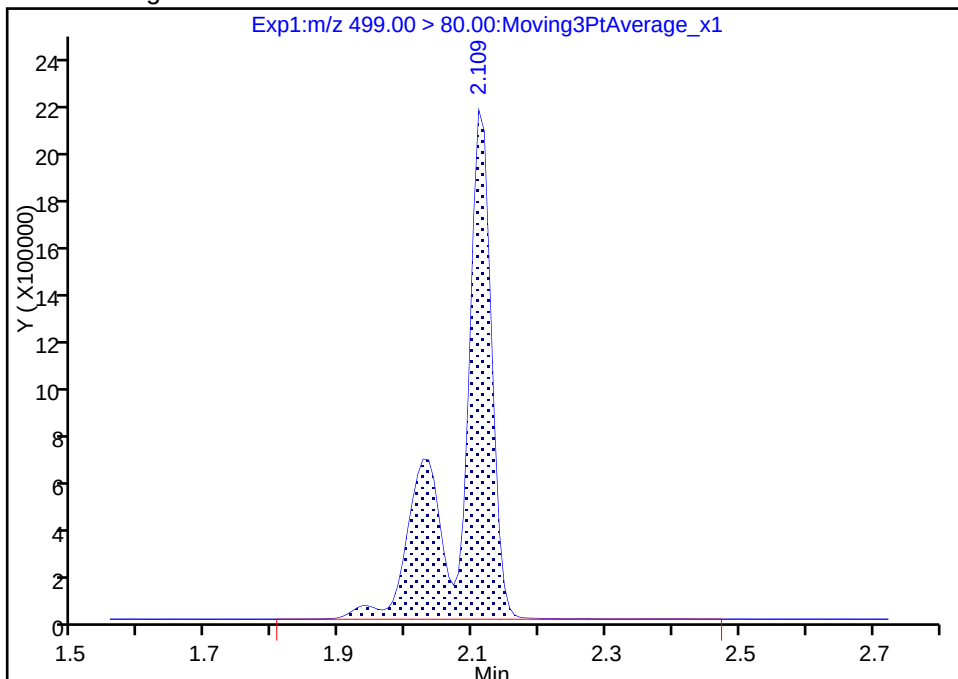
Not Detected
Expected RT: 2.11

Processing Integration Results



RT: 2.11
Area: 7252490
Amount: 80.127031
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 16-Feb-2018 10:31:12

Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-208773/11 Calibration Date: 02/16/2018 09:28
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.02.016_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		1.238		19.4	20.0	-3.0	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9284		2.12	2.22	-4.4	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.706		7.07	6.67	6.0	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9302		4.32	4.47	-3.3	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9736		9.19	8.93	3.0	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.5986		4.32	4.45	-2.7	50.0
13C2 PFHxA	Ave	1.100	1.037		9.43	10.0	-5.7	30.0
13C2 PFDA	Ave	0.5243	0.5013		9.56	10.0	-4.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_011.d
 Lims ID: CCVL
 Client ID:
 Sample Type: CCVL
 Inject. Date: 16-Feb-2018 09:28:24 ALS Bottle#: 2 Worklist Smp#: 11
 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\20180216-54164.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Feb-2018 10:55:36 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK013

First Level Reviewer: roycea

Date: 16-Feb-2018 10:36:58

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.388	1.381	0.007	1.000	2300149	19.4		12090	
298.90 > 99.00	1.388	1.381	0.007	1.000	1585029		1.45(0.00-0.00)	6015	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.510	1.505	0.005	1.000	990640	9.43		13893	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.662	1.656	0.006	1.000	1056475	7.07		2665	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.662	1.658	0.004	1.000	197137	2.12		57.0	
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.859	0.007		955394	10.0		10789	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.866	1.860	0.006	1.000	397164	4.32		16.3	
413.00 > 169.00	1.866	1.860	0.006	1.000	222384		1.79(0.00-0.00)	35.2	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.117	2.109	0.008	1.000	807120	9.19		1576	a
499.00 > 99.00	2.117	2.109	0.008	1.000	176184		4.58(0.00-0.00)	256	a
* 7 13C4 PFOS									
503.00 > 80.00	2.117	2.114	0.003		2663428	28.7		10092	
9 Perfluorononanoic acid									
463.00 > 419.00	2.124	2.122	0.002	1.000	254268	4.32		47.5	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.269	2.270	-0.002	1.000	478905	9.56		4880	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L2_00021

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_011.d

Injection Date: 16-Feb-2018 09:28:24

Instrument ID: A8_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

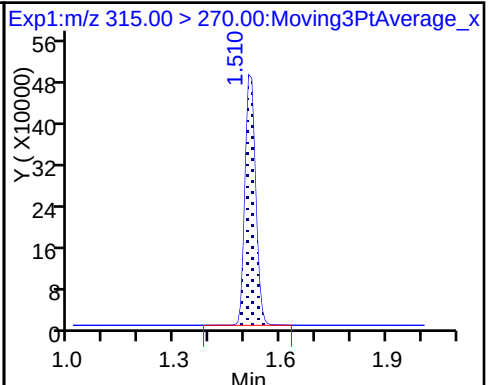
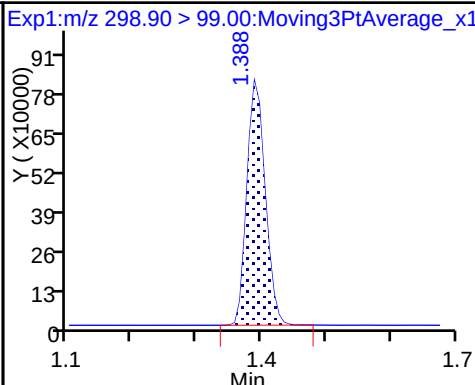
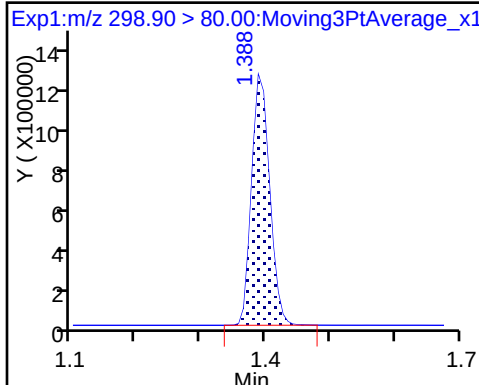
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

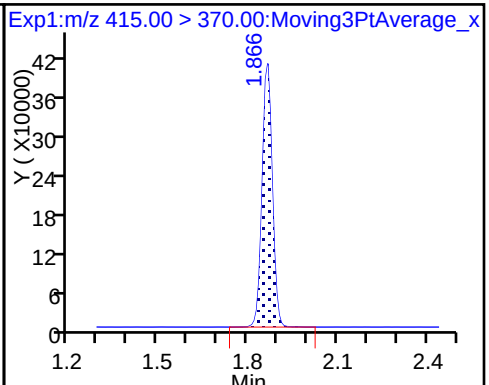
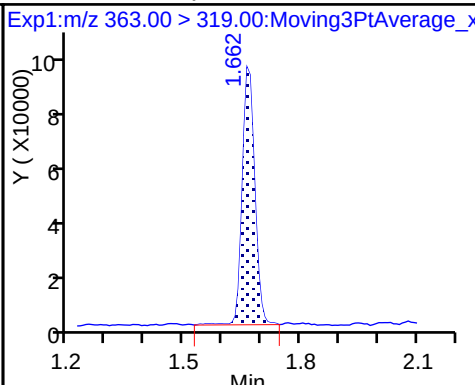
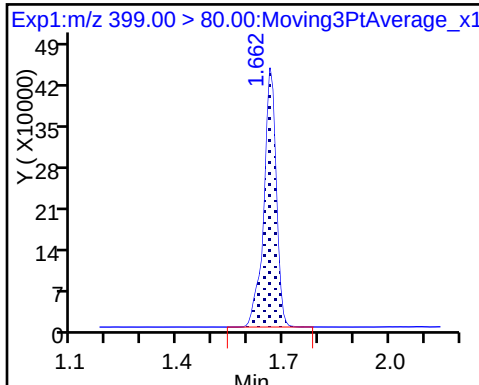
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

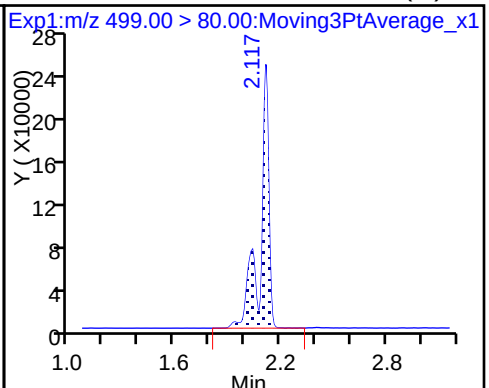
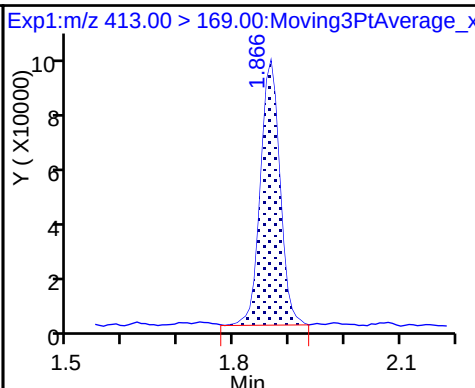
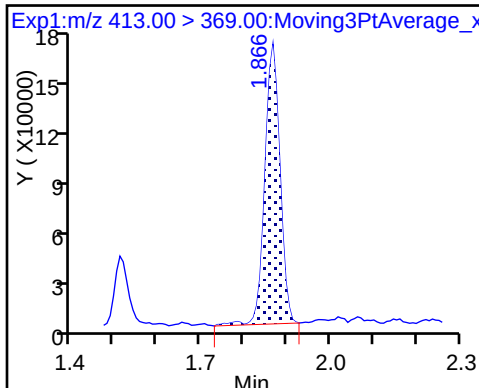
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

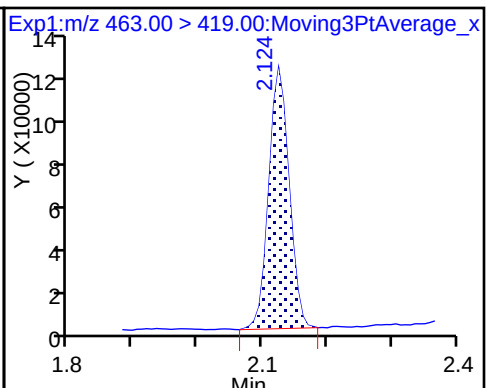
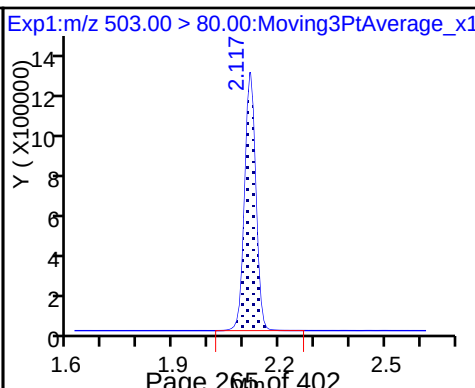
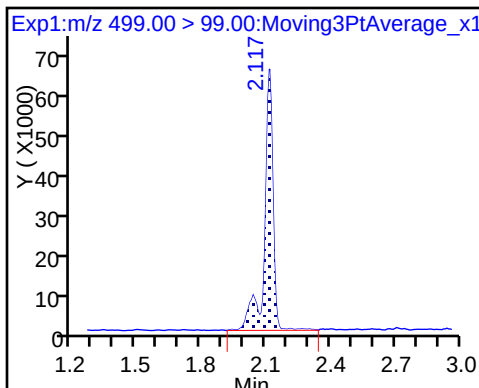
8 Perfluorooctane sulfonic acid (M)



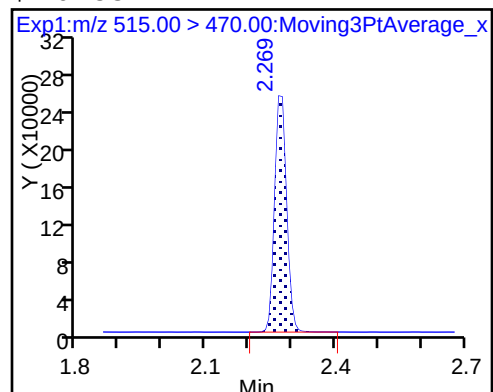
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

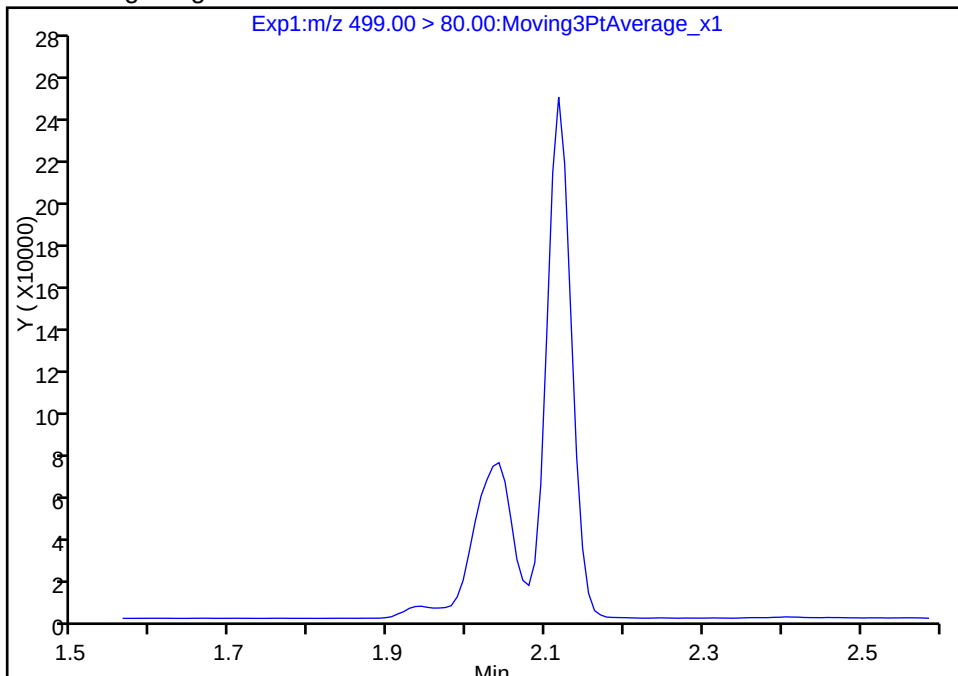
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_011.d
Injection Date: 16-Feb-2018 09:28:24 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

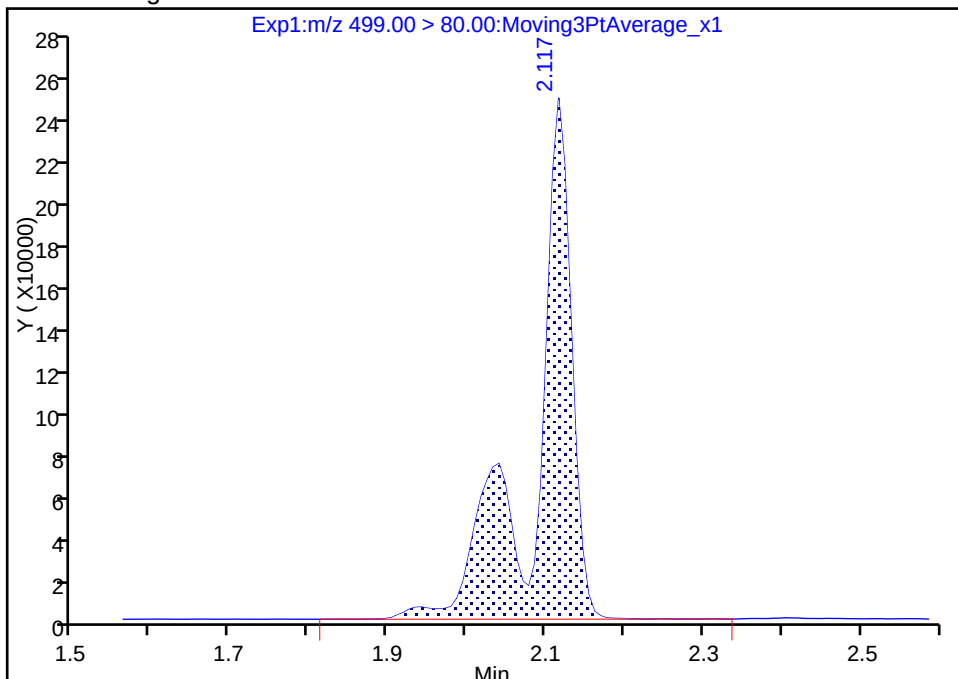
Not Detected
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

RT: 2.12
Area: 807120
Amount: 9.191739
Amount Units: ng/ml



Reviewer: roycea, 16-Feb-2018 10:36:29

Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: ICV 320-208773/13 Calibration Date: 02/16/2018 09:37
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.02.016_537ICAL_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		1.108		100	100	0.2	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.997		10.3	10.0	2.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.686		21.1	20.2	4.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.8998		18.9	20.2	-6.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9852		21.0	20.2	4.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6774		22.2	20.2	10.1	30.0
13C2 PFHxA	Ave	1.100	1.125		10.2	10.0	2.3	30.0
13C2 PFDA	Ave	0.5243	0.5347		10.2	10.0	2.0	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_013.d
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 16-Feb-2018 09:37:44 ALS Bottle#: 7 Worklist Smp#: 13
 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\20180216-54164.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 16-Feb-2018 10:55:38 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK013

First Level Reviewer: roycea

Date: 16-Feb-2018 10:38:02

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.381	1.381	0.0	1.000	10449615	100.3		32318	
298.90 > 99.00	1.381	1.381	0.0	1.000	7853681		1.33(0.00-0.00)	23897	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.502	1.505	-0.003	1.000	1001724	10.2		14259	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.654	1.656	-0.002	1.000	3204604	21.1		7050	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.654	1.658	-0.004	1.000	887129	10.3		270	
* 6 13C2-PFOA									
415.00 > 370.00	1.851	1.859	-0.008		890238	10.0		9142	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.851	1.860	-0.009	1.000	1615503	18.9		66.9	
413.00 > 169.00	1.851	1.860	-0.009	1.000	895357		1.80(0.00-0.00)	148	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.109	2.109	0.0	1.000	1873112	21.0		3471	a
499.00 > 99.00	2.109	2.109	0.0	1.000	375247		4.99(0.00-0.00)	509	a
* 7 13C4 PFOS									
503.00 > 80.00	2.109	2.114	-0.005		2703377	28.7		9042	
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.122	-0.005	1.000	1215919	22.2		251	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.270	-0.009	1.000	475984	10.2		4647	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-ICV_00030

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_013.d

Injection Date: 16-Feb-2018 09:37:44

Instrument ID: A8_N

Lims ID: ICV

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 7

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

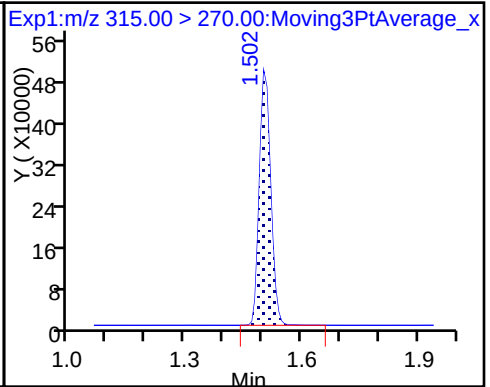
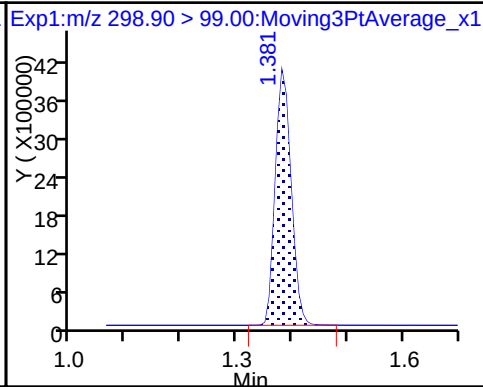
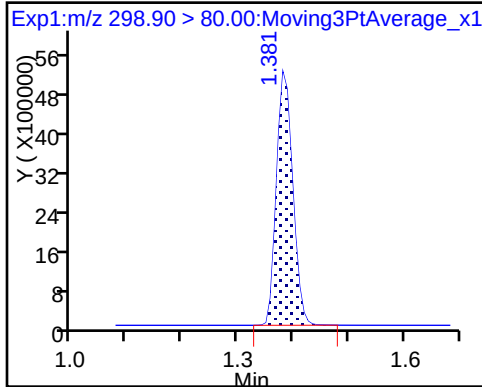
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

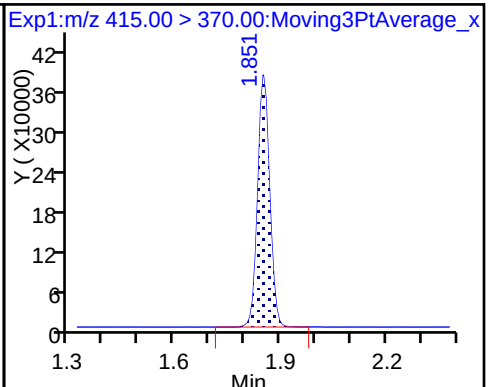
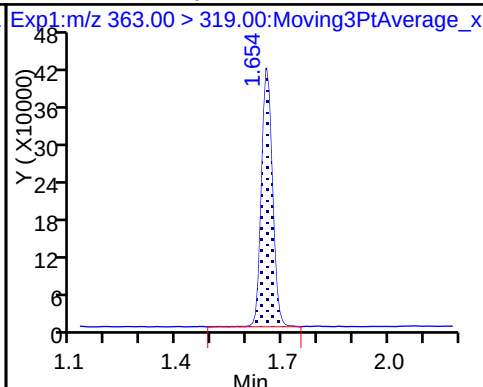
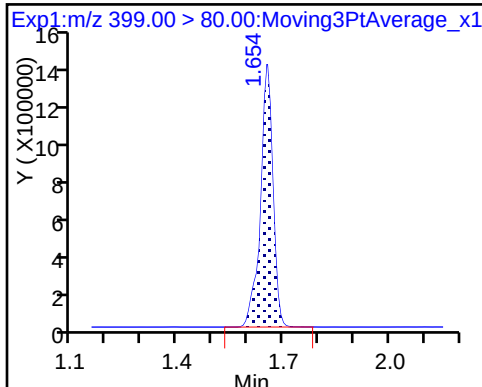
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

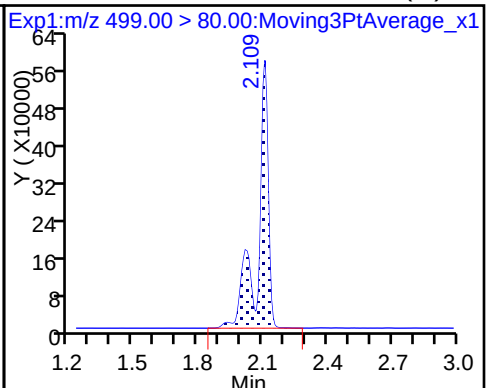
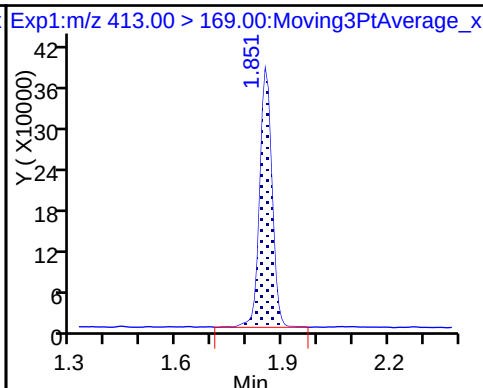
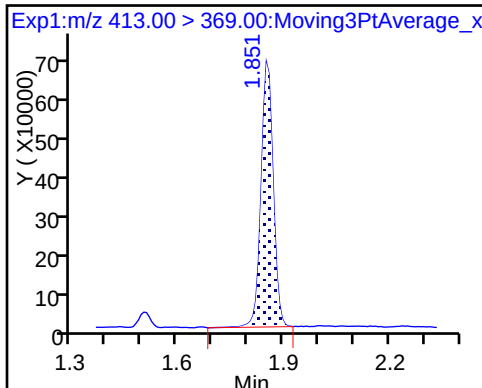
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

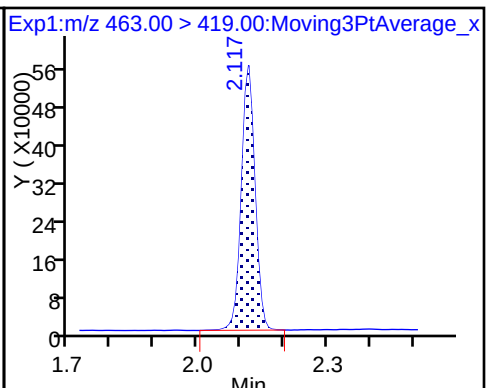
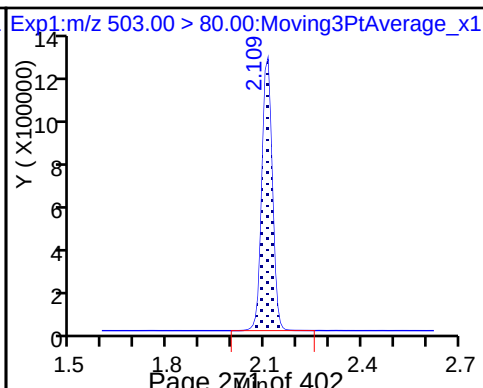
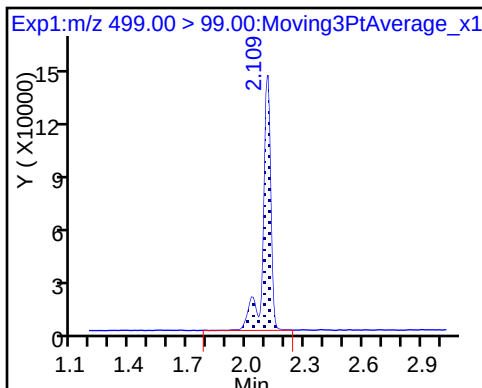
8 Perfluorooctane sulfonic acid (M)



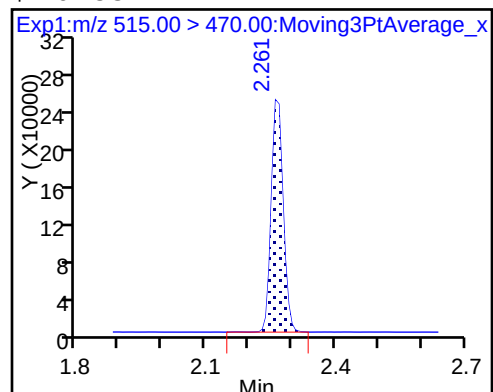
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

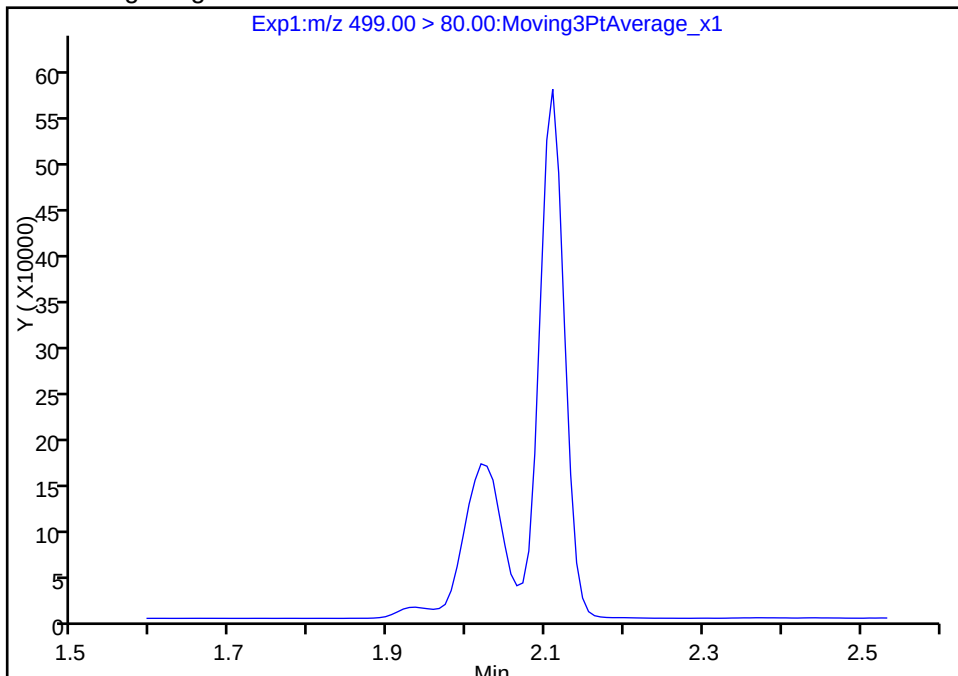
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_013.d
Injection Date: 16-Feb-2018 09:37:44 Instrument ID: A8_N
Lims ID: ICV
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

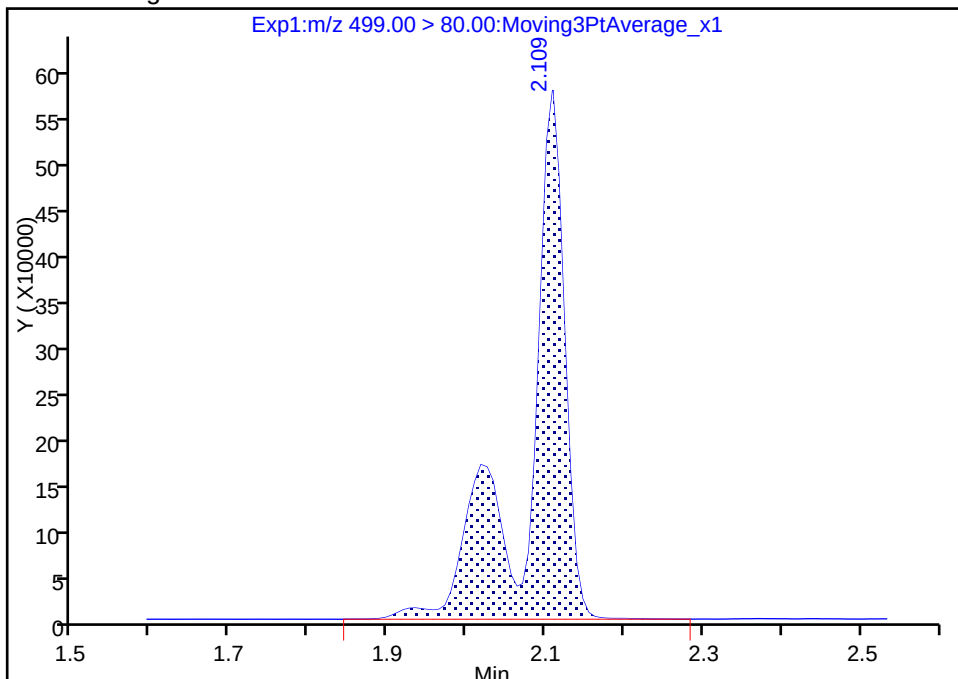
Not Detected
Expected RT: 2.11

Processing Integration Results



RT: 2.11
Area: 1873112
Amount: 21.016369
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 16-Feb-2018 10:37:38

Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-211128/1 Calibration Date: 03/05/2018 08:44
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.03.05_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		1.234		19.3	20.0	-3.4	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.576		6.53	6.67	-2.1	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	1.013		2.32	2.22	4.3	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9751		4.53	4.47	1.4	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9667		9.13	8.93	2.2	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6261		4.52	4.45	1.7	50.0
13C2 PFHxA	Ave	1.100	1.028		9.35	10.0	-6.5	30.0
13C2 PFDA	Ave	0.5243	0.5536		10.6	10.0	5.6	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54822.b\2018.03.05_537A_004.d
 Lims ID: CCVL
 Client ID:
 Sample Type: CCVL
 Inject. Date: 05-Mar-2018 08:44:04 ALS Bottle#: 2 Worklist Smp#: 1
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCVL
 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\20180305-54822.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 10:57:13 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK026

First Level Reviewer: roycea

Date: 05-Mar-2018 10:12:40

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.381	1.381	0.0	1.000	2177995	19.3		776	
298.90 > 99.00	1.381	1.381	0.0	1.000	1490038		1.46(0.00-0.00)	768	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.510	1.510	0.0	1.000	880759	9.35		14678	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.669	1.662	0.007	1.000	927819	6.53		1919	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.677	1.669	0.008	1.000	192862	2.32		43.8	
* 6 13C2-PFOA									
415.00 > 370.00	1.889	1.874	0.015		856705	10.0		9145	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.889	1.882	0.007	1.000	373342	4.53		16.8	M
413.00 > 169.00	1.889	1.882	0.007	1.000	200836		1.86(0.00-0.00)	293	M
* 7 13C4 PFOS									
503.00 > 80.00	2.147	2.132	0.015		2531502	28.7		10365	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.147	2.132	0.015	1.000	761725	9.13		563	a
499.00 > 99.00	2.147	2.132	0.015	1.000	162673		4.68(0.00-0.00)	116	a
9 Perfluorononanoic acid									
463.00 > 419.00	2.155	2.147	0.008	1.000	238476	4.52		24.6	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.299	2.291	0.008	1.000	474278	10.6		4133	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L2_00021

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54822.b\2018.03.05_537A_004.d

Injection Date: 05-Mar-2018 08:44:04

Instrument ID: A8_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

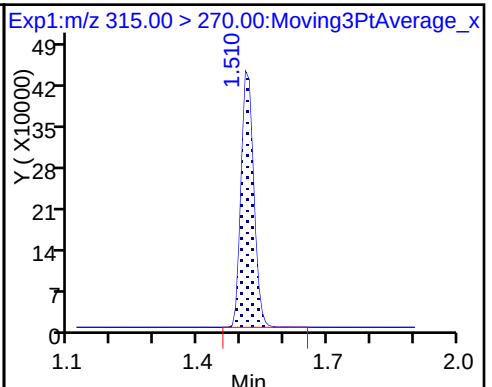
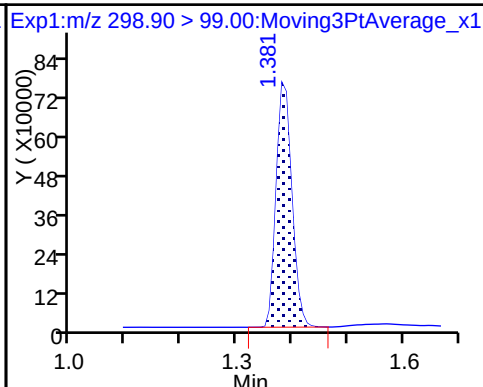
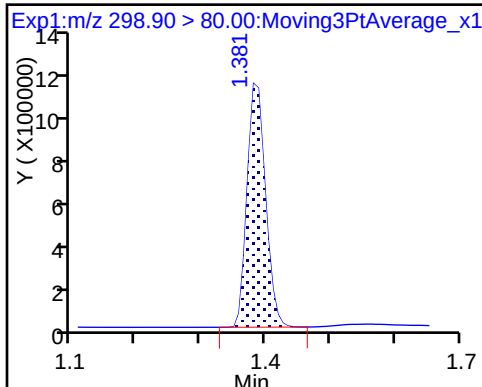
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

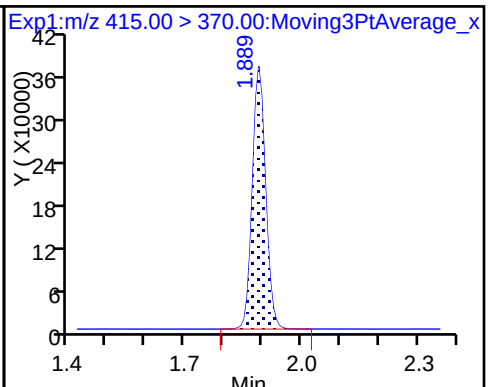
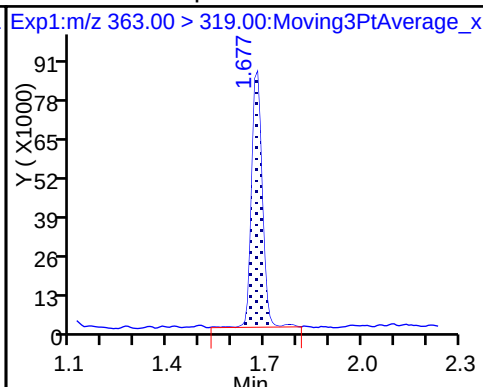
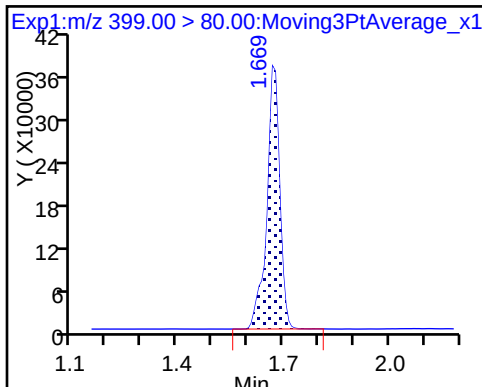
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

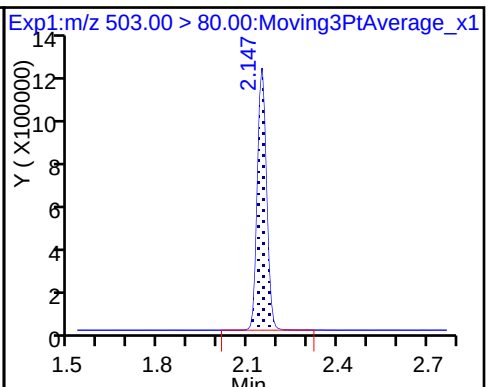
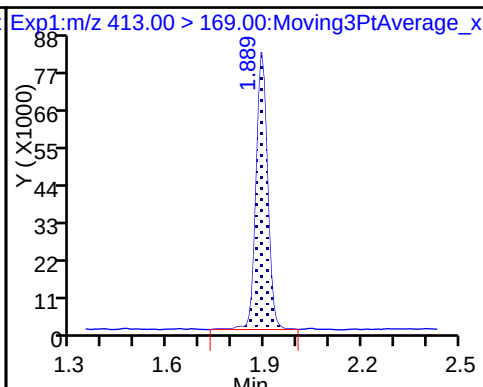
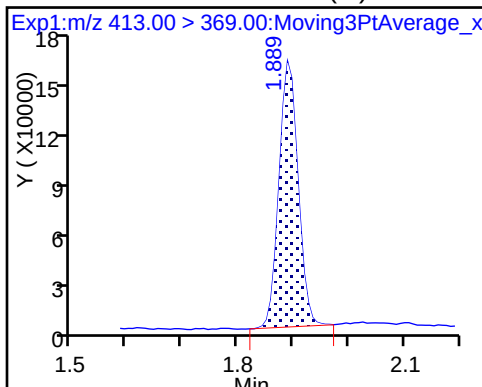
* 6 13C2-PFOA



5 Perfluorooctanoic acid (M)

5 Perfluorooctanoic acid

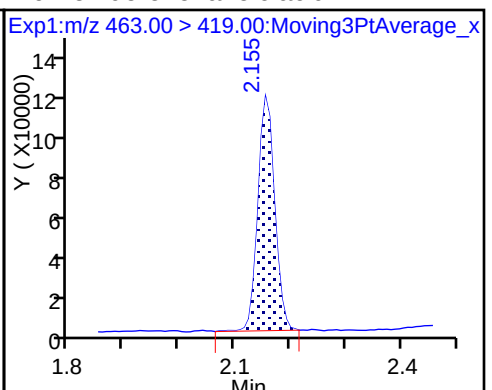
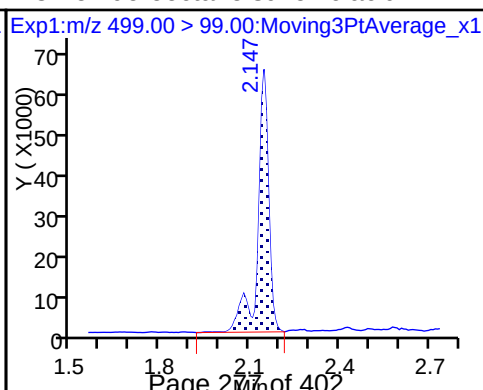
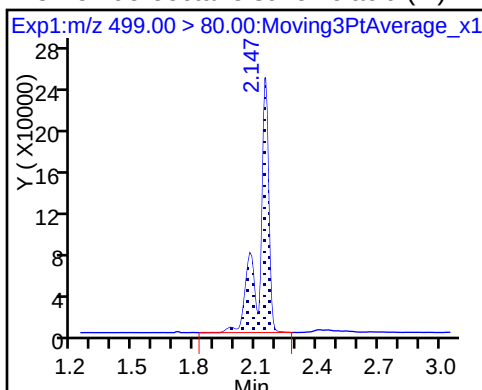
* 7 13C4 PFOS



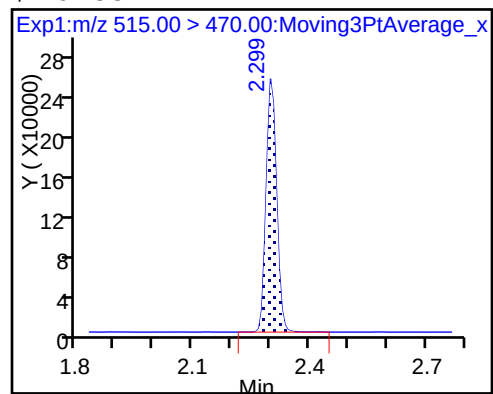
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54822.b\2018.03.05_537A_004.d

Injection Date: 05-Mar-2018 08:44:04

Instrument ID: A8_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#:

2

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: 537_A8_N

Limit Group: LC 537 ICAL

Column:

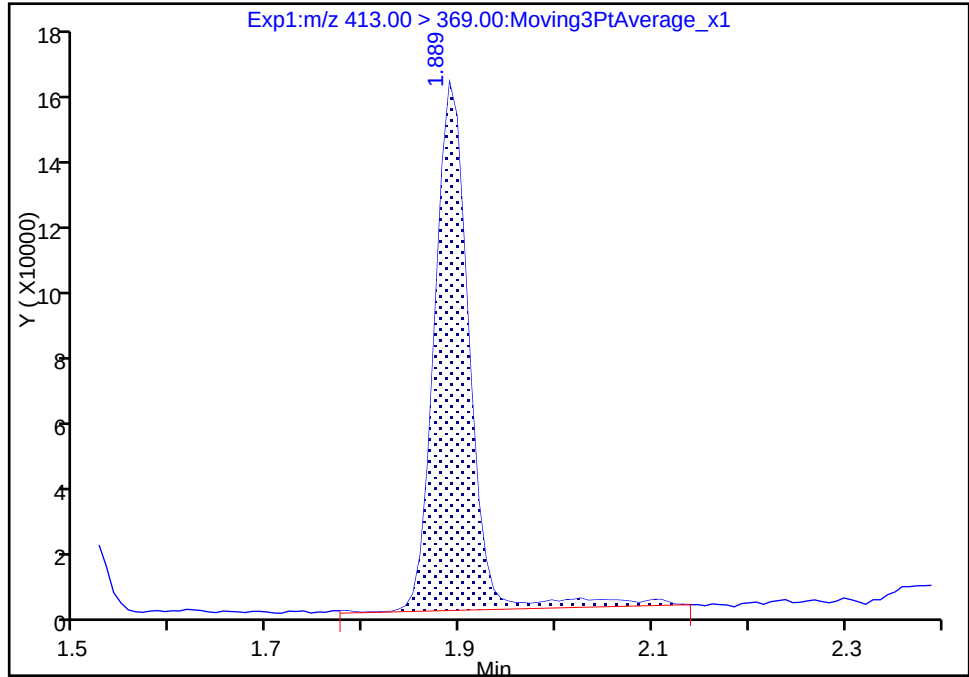
Detector EXP1

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

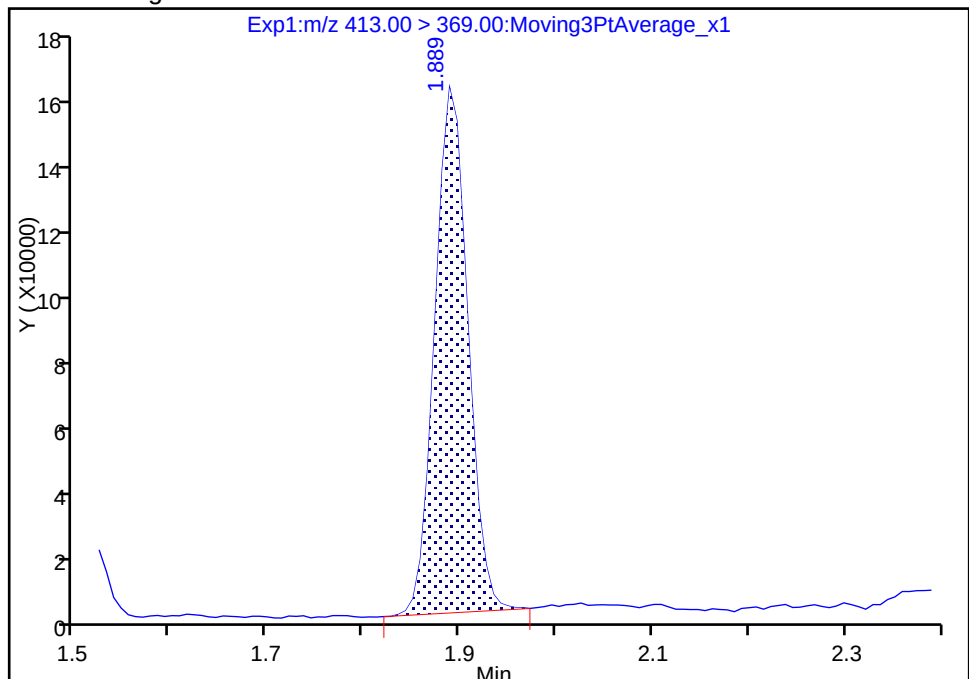
RT: 1.89
Area: 397826
Amount: 4.826943
Amount Units: ng/ml

Processing Integration Results



RT: 1.89
Area: 373342
Amount: 4.529871
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 05-Mar-2018 10:52:12

Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

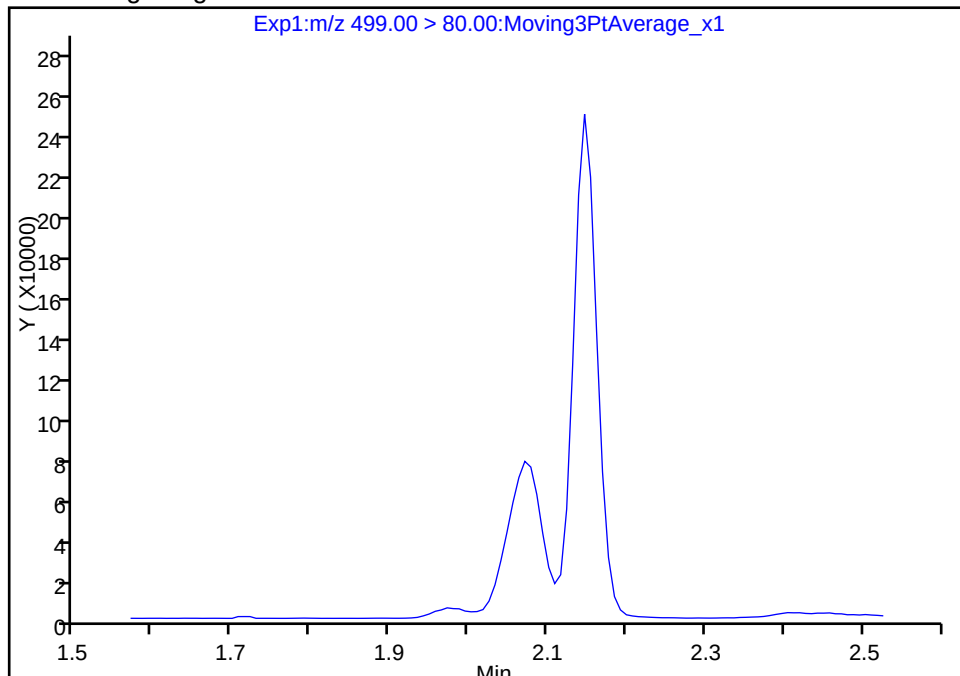
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54822.b\2018.03.05_537A_004.d
Injection Date: 05-Mar-2018 08:44:04 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

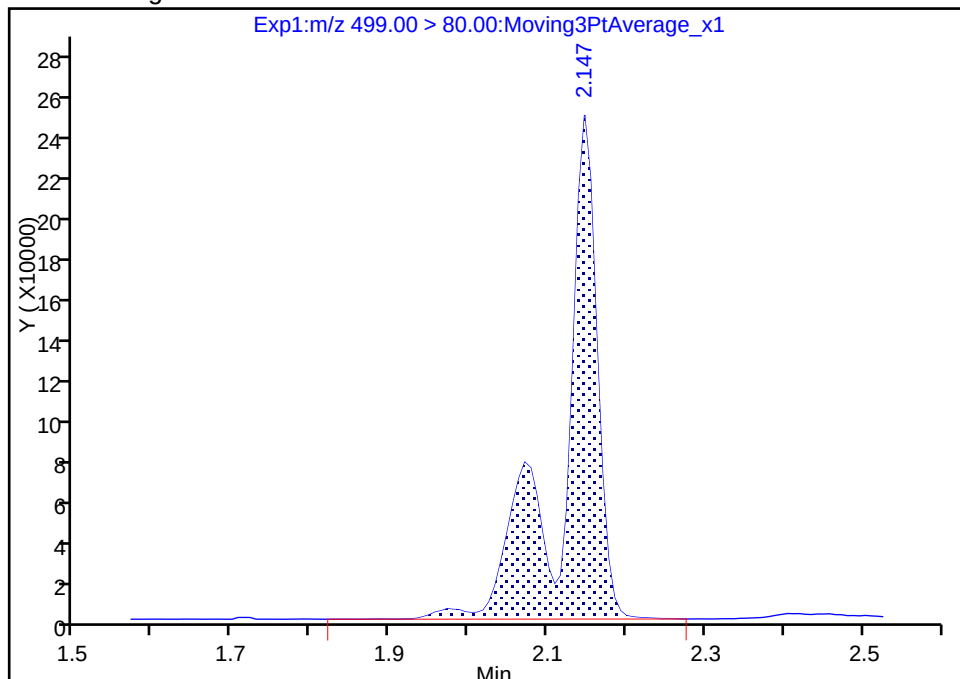
Not Detected
Expected RT: 2.13

Processing Integration Results



RT: 2.15
Area: 761725
Amount: 9.126841
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 05-Mar-2018 10:12:27

Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: CCV 320-211200/1 Calibration Date: 03/05/2018 10:17
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.03.05_537A_024.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.111		40.6	45.0	-9.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.8888		4.58	5.00	-8.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.564		14.6	15.0	-2.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9448		9.87	10.1	-1.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9433		20.0	20.1	-0.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6121		9.95	10.0	-0.5	30.0
13C2 PFHxA	Ave	1.100	0.9575		8.71	10.0	-12.9	30.0
13C2 PFDA	Ave	0.5243	0.5020		9.58	10.0	-4.2	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_024.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 05-Mar-2018 10:17:35 ALS Bottle#: 3 Worklist Smp#: 1
 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\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:45:53 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:07:52

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.373	0.0	1.000	4676703	40.6		1723	
298.90 > 99.00	1.373	1.373	0.0	1.000	3369180		1.39(0.00-0.00)	1622	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.495	1.495	0.0	1.000	914529	8.71		11035	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.646	1.646	0.0	1.000	2194815	14.6		4686	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.646	1.646	0.0	1.000	424546	4.58		90.8	
* 6 13C2-PFOA									
415.00 > 370.00	1.844	1.844	0.0		955148	10.0		9672	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.844	1.844	0.0	1.000	907385	9.87		30.2	
413.00 > 169.00	1.844	1.844	0.0	1.000	494567		1.83(0.00-0.00)	509	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.102	0.0		2682346	28.7		10166	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.102	2.086	0.016	1.000	1772057	20.0		1187	Ma
499.00 > 99.00	2.102	2.086	0.016	1.000	374147		4.74(0.00-0.00)	187	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.109	2.109	0.0	1.000	584808	9.95		66.9	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.269	2.269	0.0	1.000	479488	9.58		4144	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L3_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_024.d

Injection Date: 05-Mar-2018 10:17:35

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

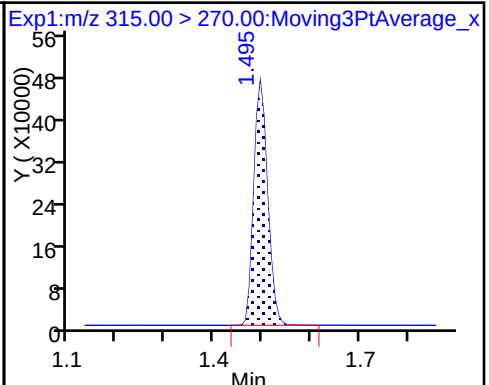
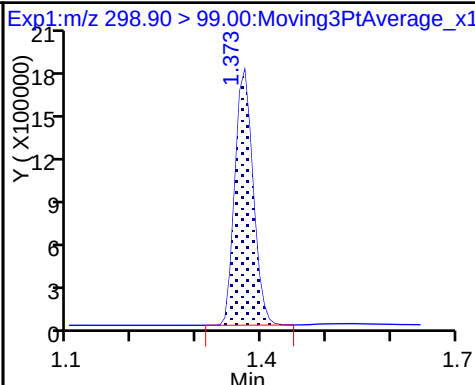
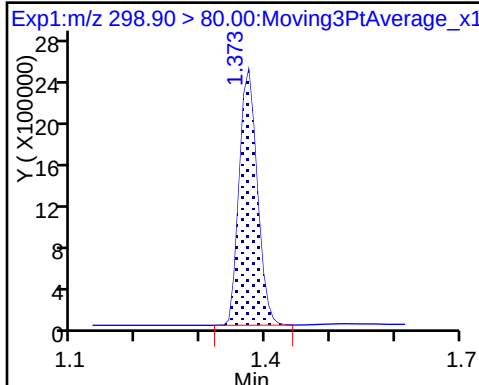
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

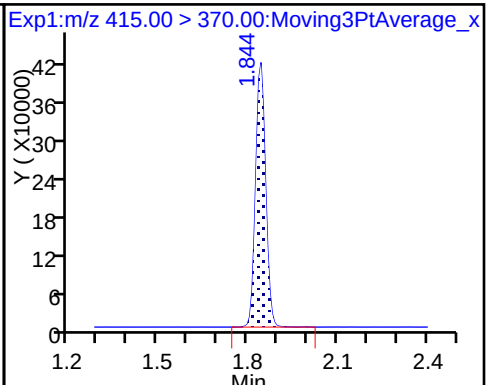
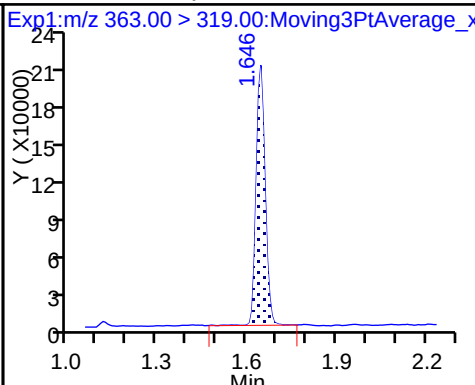
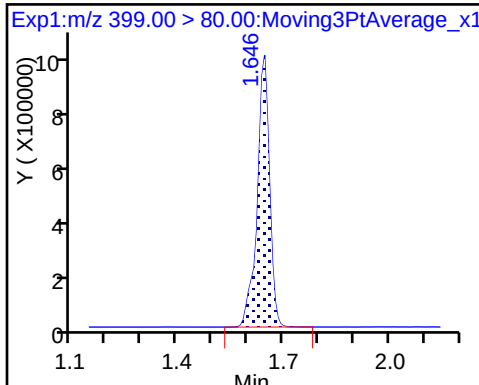
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

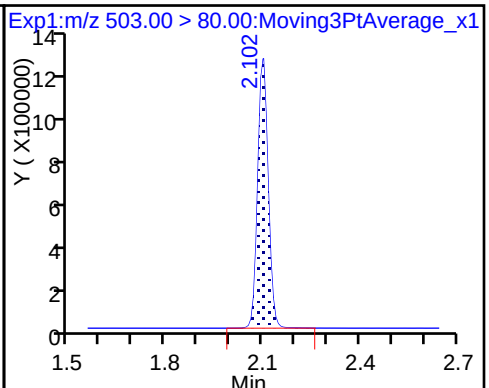
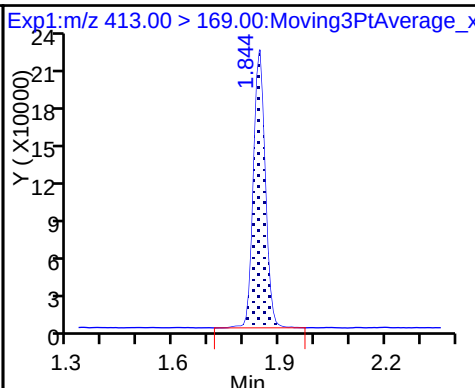
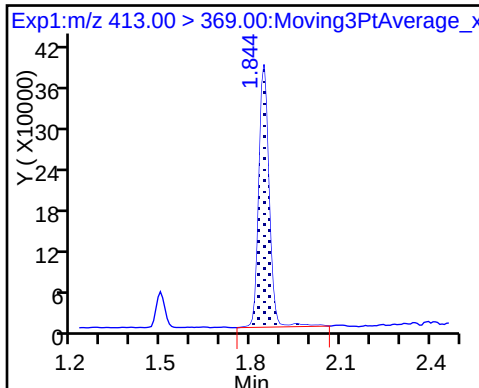
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

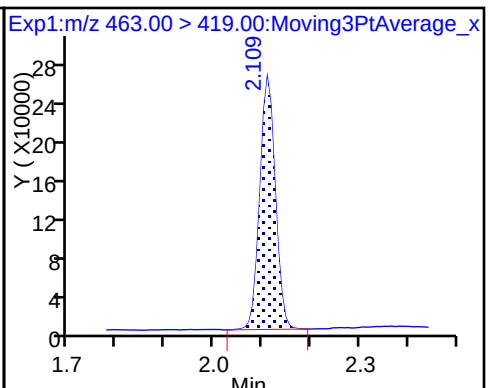
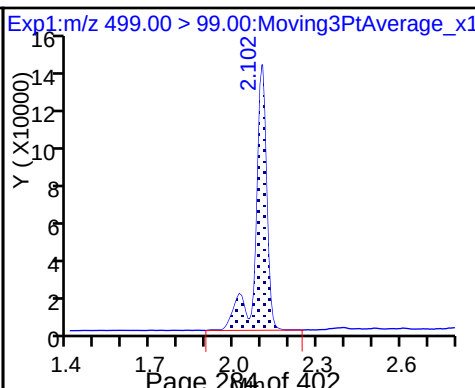
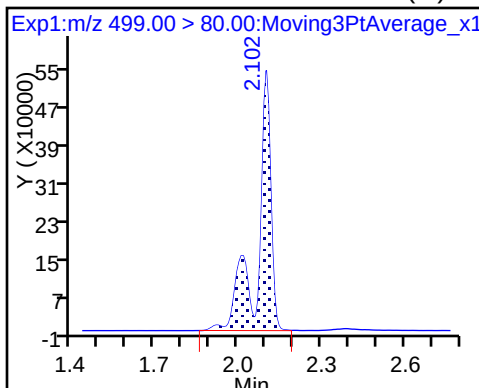
* 7 13C4 PFOS



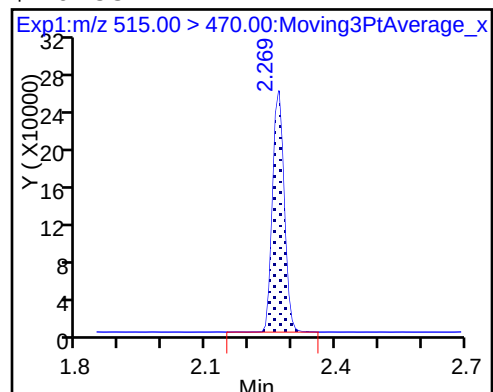
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_024.d

Injection Date: 05-Mar-2018 10:17:35

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#:

3

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: 537_A8_N

Limit Group: LC 537 ICAL

Column:

Detector EXP1

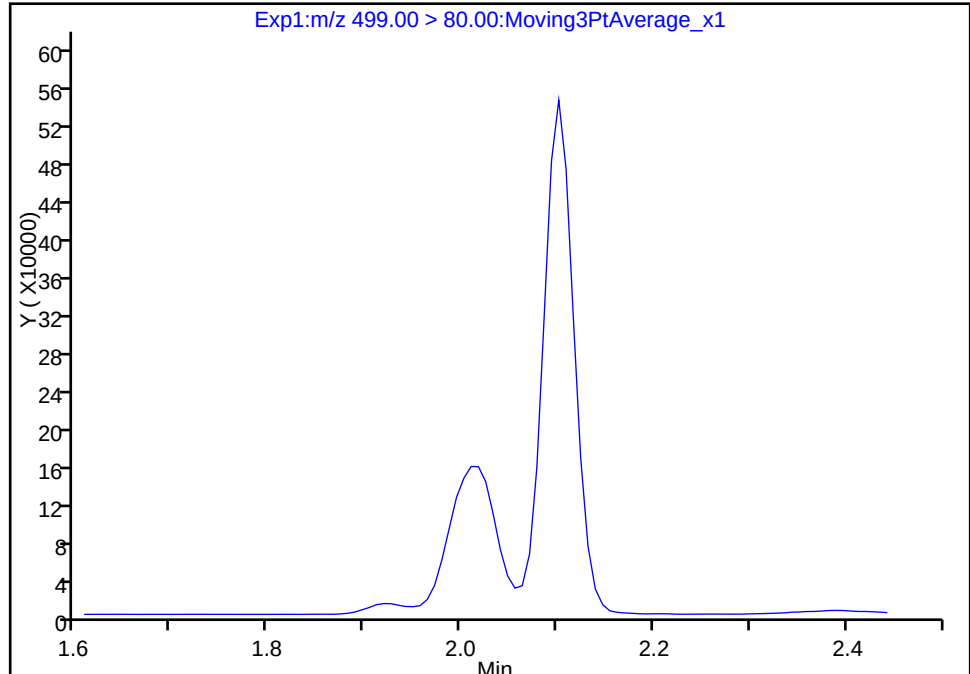
8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

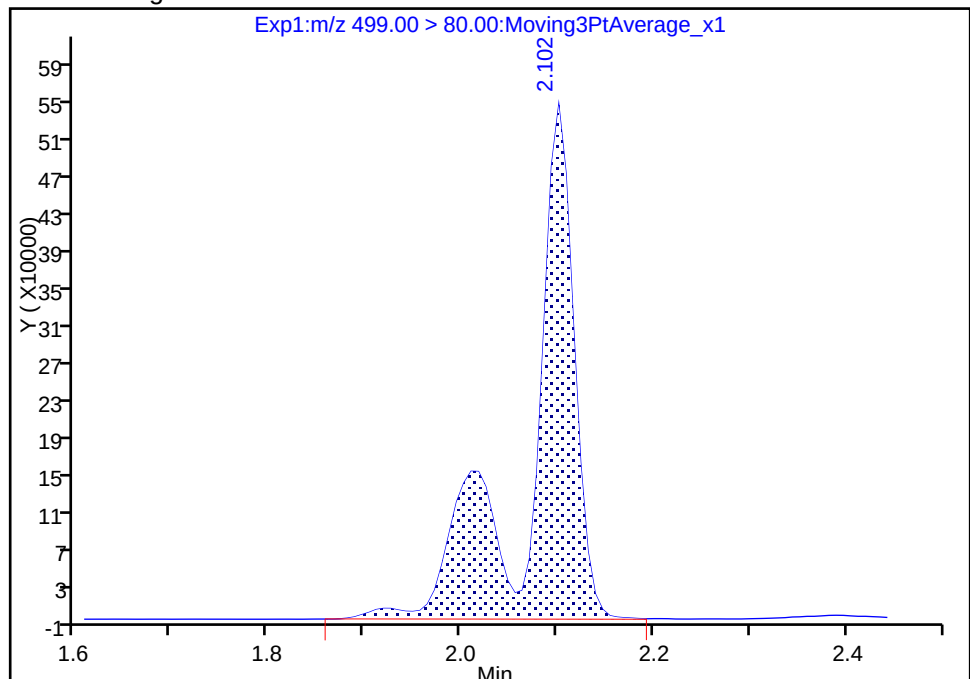
Not Detected

Expected RT: 2.09

Processing Integration Results



Manual Integration Results



RT: 2.10

Area: 1772057

Amount: 20.038418

Amount Units: ng/ml

Reviewer: barnettj, 05-Mar-2018 14:07:42

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: CCV 320-211200/13 Calibration Date: 03/05/2018 11:13
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.03.05_537A_036.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9754		125	135	-7.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9626		14.9	15.0	-0.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.628		45.5	45.0	1.1	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9736		30.5	30.2	1.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9947		63.4	60.3	5.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6456		31.5	30.0	4.9	30.0
13C2 PFHxA	Ave	1.100	1.036		9.42	10.0	-5.8	30.0
13C2 PFDA	Ave	0.5243	0.5423		10.3	10.0	3.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: CCV 320-211202/13 Calibration Date: 03/05/2018 11:13
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.03.05_537A_036.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9754		125	135	-7.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9626		14.9	15.0	-0.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.628		45.5	45.0	1.1	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9736		30.5	30.2	1.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9947		63.4	60.3	5.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6456		31.5	30.0	4.9	30.0
13C2 PFHxA	Ave	1.100	1.036		9.42	10.0	-5.8	30.0
13C2 PFDA	Ave	0.5243	0.5423		10.3	10.0	3.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_036.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 05-Mar-2018 11:13:40 ALS Bottle#: 5 Worklist Smp#: 13
 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\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:46:22 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:08:05

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	12565031	125.1		3921	
298.90 > 99.00	1.366	1.366	0.0	1.000	9641217		1.30(0.00-0.00)	4200	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	963332	9.42		11538	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.639	1.639	0.0	1.000	6991705	45.5		11873	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.639	1.639	0.0	1.000	1343188	14.9		306	
* 6 13C2-PFOA									
415.00 > 370.00	1.836	1.836	0.0		930083	10.0		9358	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.836	1.836	0.0	1.000	2731551	30.5		92.7	
413.00 > 169.00	1.836	1.836	0.0	1.000	1540464		1.77(0.00-0.00)	1423	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.094	2.086	0.008	1.000	5718735	63.4		9571	a
499.00 > 99.00	2.094	2.086	0.008	1.000	1169143		4.89(0.00-0.00)	619	a
* 7 13C4 PFOS									
503.00 > 80.00	2.086	2.086	0.0		2736448	28.7		10101	
9 Perfluorononanoic acid									
463.00 > 419.00	2.102	2.102	0.0	1.000	1801815	31.5		243	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.261	0.0	1.000	504367	10.3		4033	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L5_00025

Amount Added: 1.00

Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_036.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 05-Mar-2018 11:13:40 ALS Bottle#: 5 Worklist Smp#: 13
 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\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:46:22 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:08:05

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	12565031	125.1		3921	
298.90 > 99.00	1.366	1.366	0.0	1.000	9641217		1.30(0.00-0.00)	4200	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	963332	9.42		11538	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.639	1.639	0.0	1.000	6991705	45.5		11873	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.639	1.639	0.0	1.000	1343188	14.9		306	
* 6 13C2-PFOA									
415.00 > 370.00	1.836	1.836	0.0		930083	10.0		9358	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.836	1.836	0.0	1.000	2731551	30.5		92.7	
413.00 > 169.00	1.836	1.836	0.0	1.000	1540464		1.77(0.00-0.00)	1423	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.094	2.086	0.008	1.000	5718735	63.4		9571	a
499.00 > 99.00	2.094	2.086	0.008	1.000	1169143		4.89(0.00-0.00)	619	a
* 7 13C4 PFOS									
503.00 > 80.00	2.086	2.086	0.0		2736448	28.7		10101	
9 Perfluorononanoic acid									
463.00 > 419.00	2.102	2.102	0.0	1.000	1801815	31.5		243	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.261	0.0	1.000	504367	10.3		4033	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L5_00025

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_036.d

Injection Date: 05-Mar-2018 11:13:40

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

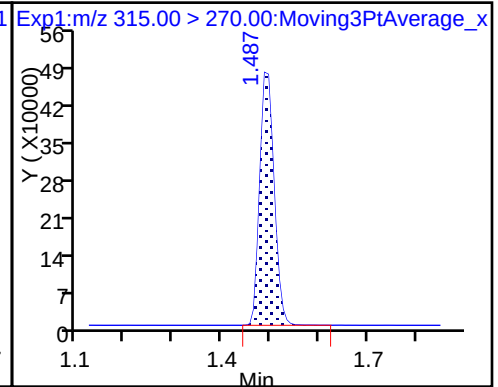
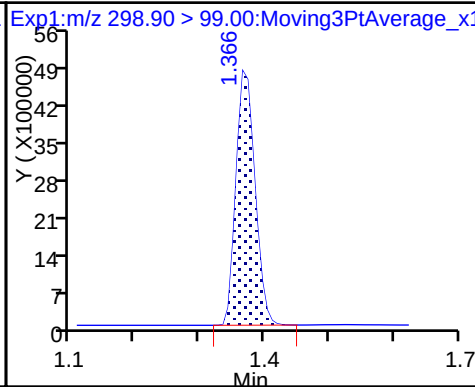
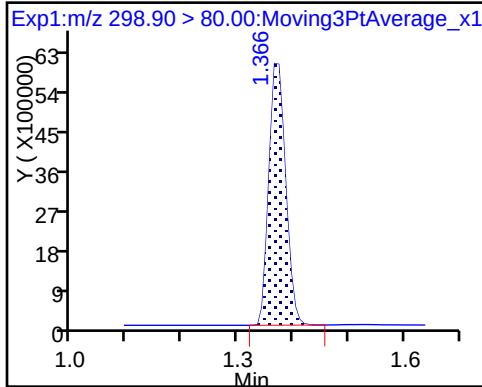
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

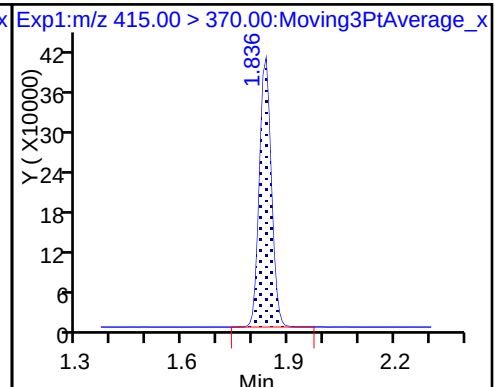
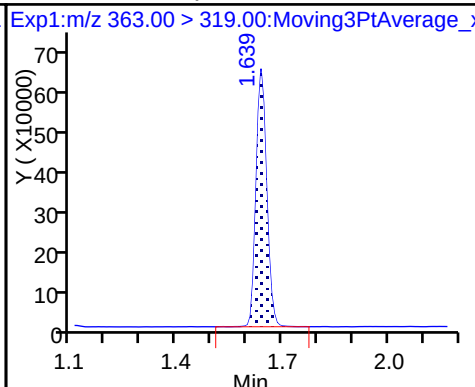
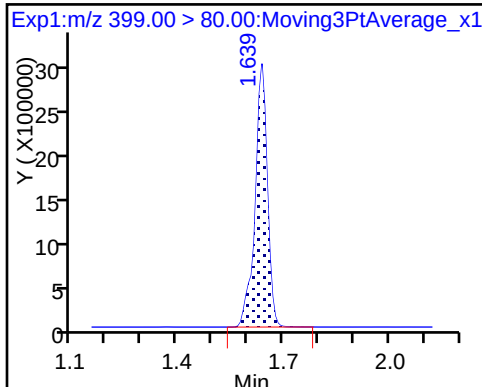
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

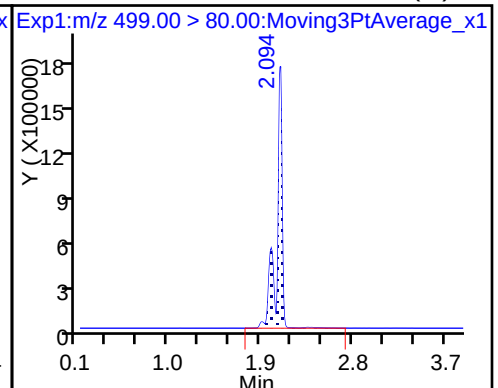
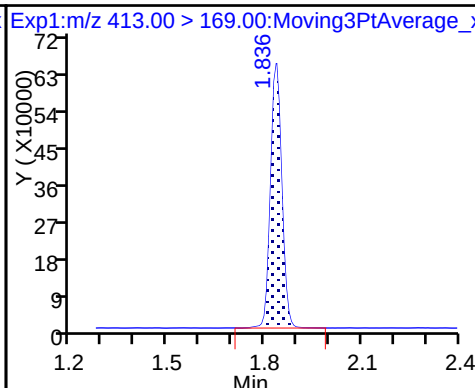
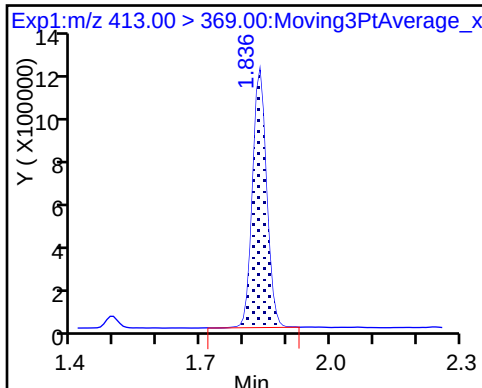
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

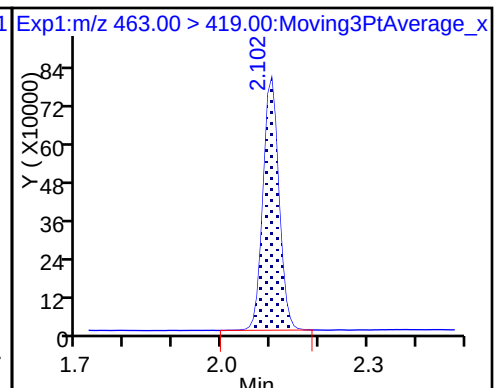
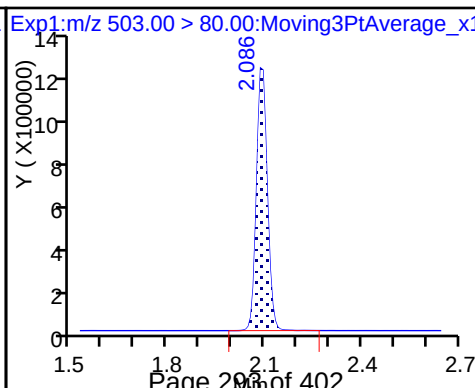
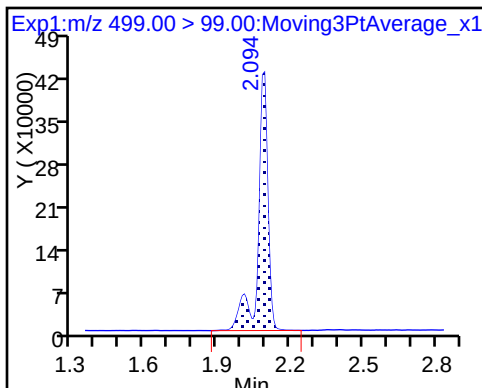
8 Perfluorooctane sulfonic acid (M)



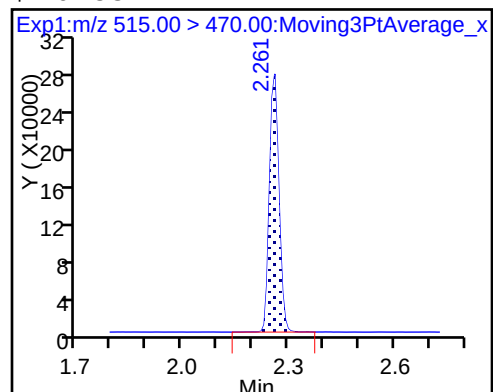
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_036.d

Injection Date: 05-Mar-2018 11:13:40

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

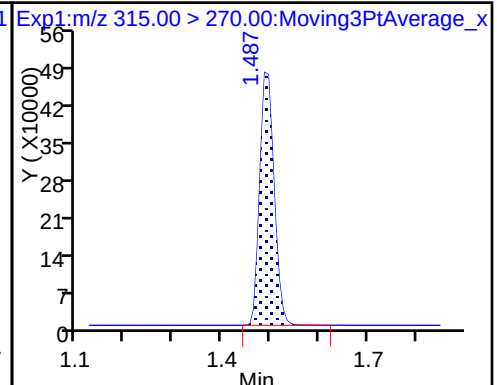
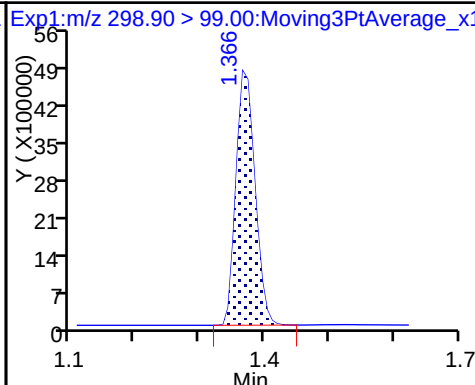
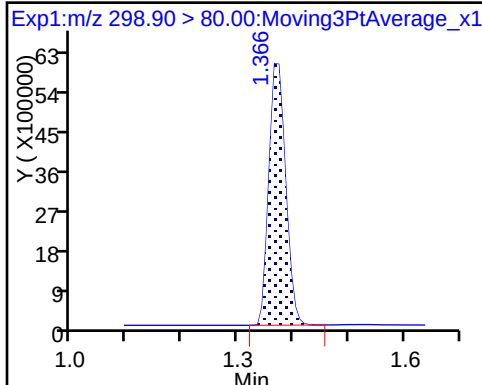
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

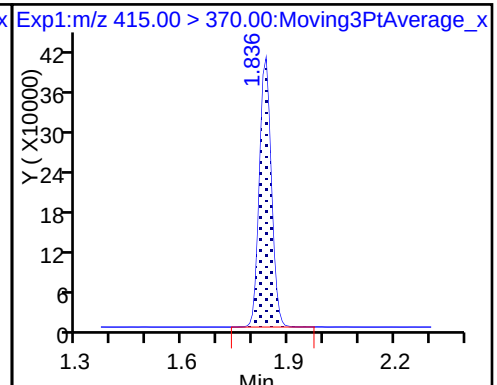
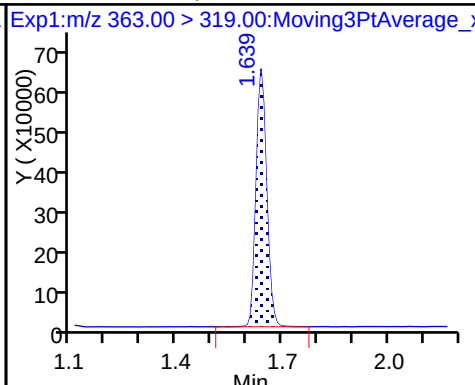
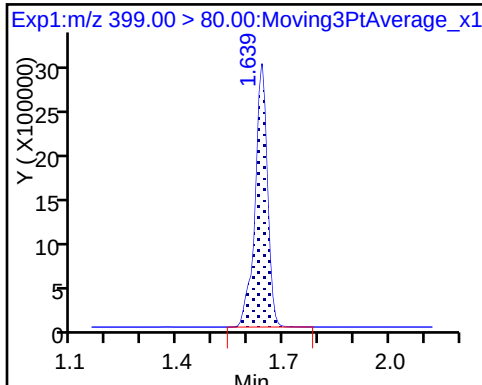
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

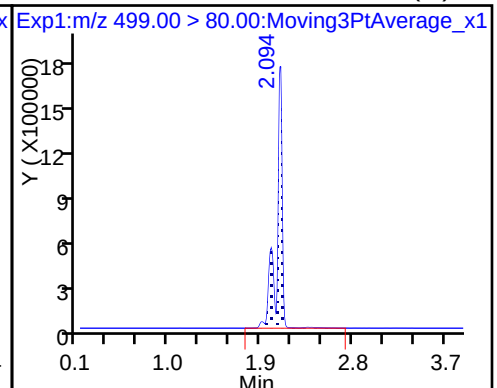
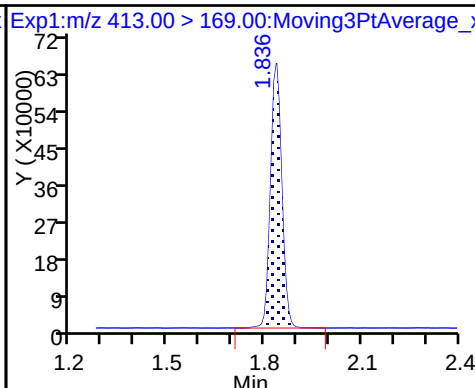
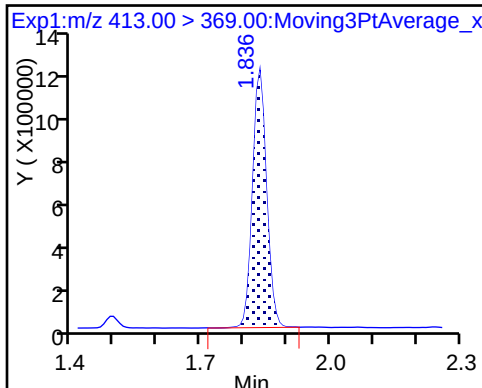
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

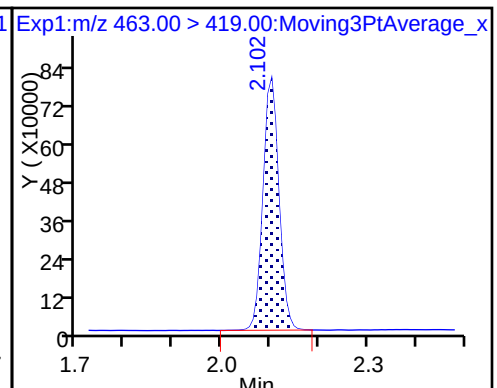
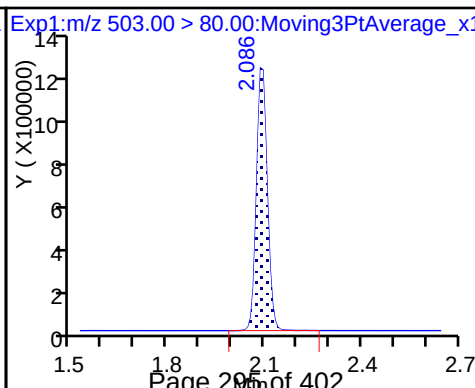
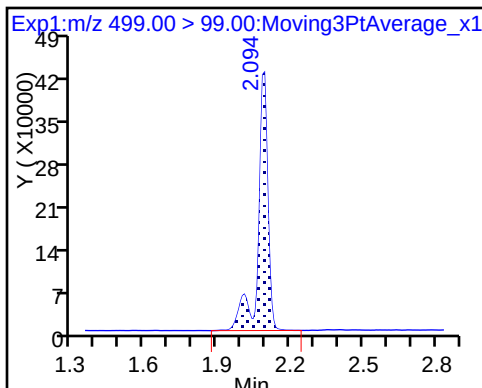
8 Perfluorooctane sulfonic acid (M)



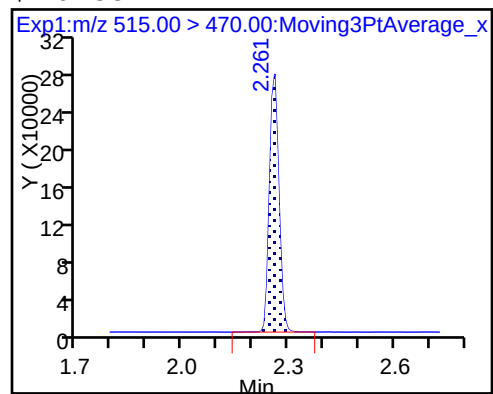
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

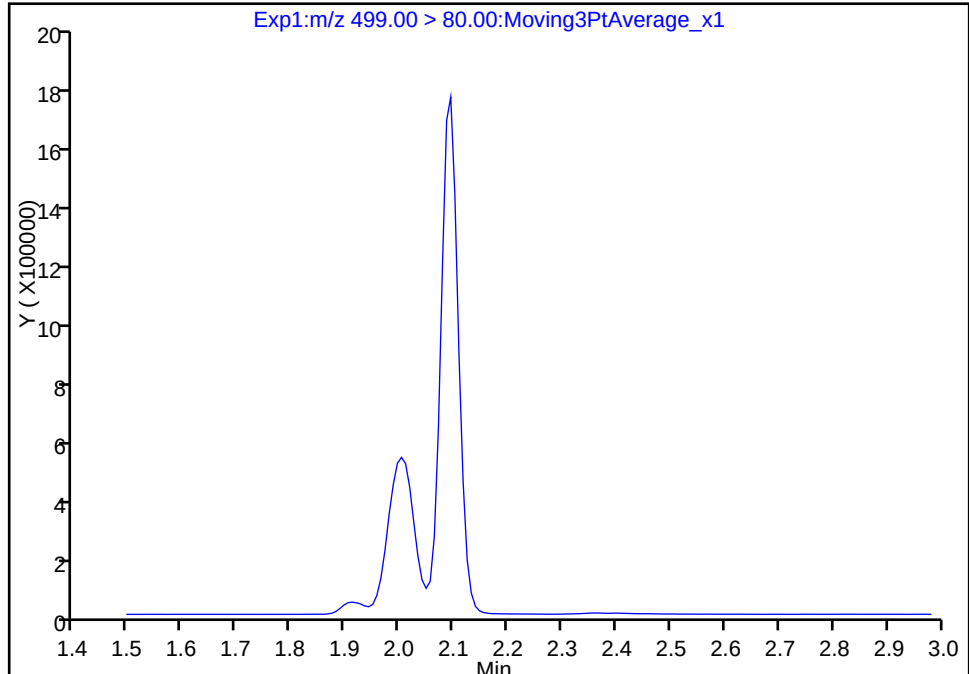
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_036.d
Injection Date: 05-Mar-2018 11:13:40 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

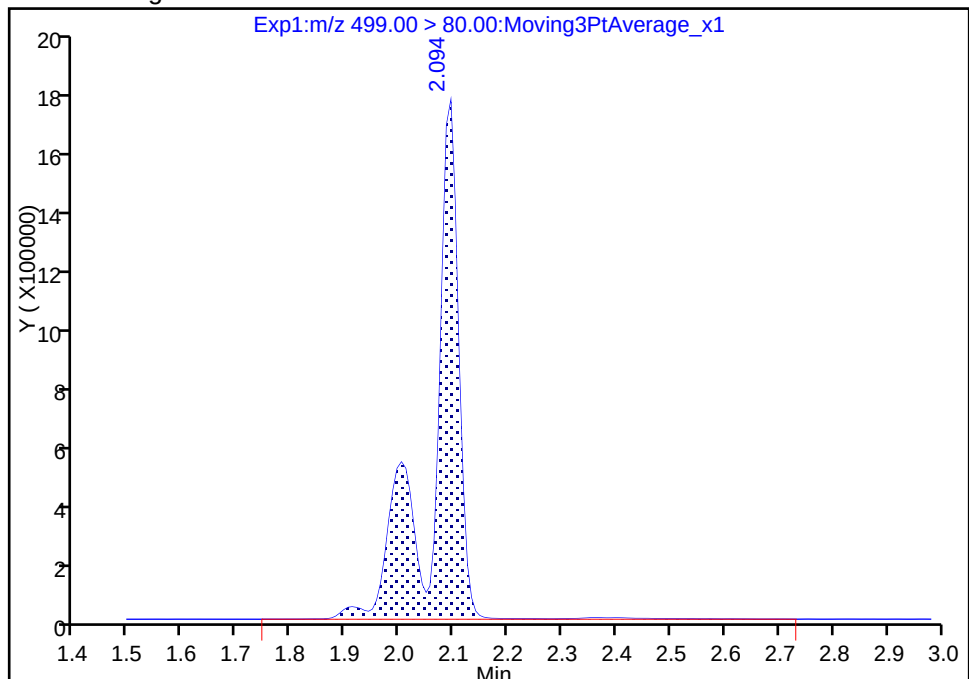
Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT: 2.09
Area: 5718735
Amount: 63.388915
Amount Units: ng/ml



Reviewer: barnettj, 05-Mar-2018 14:07:59

Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

TestAmerica Sacramento

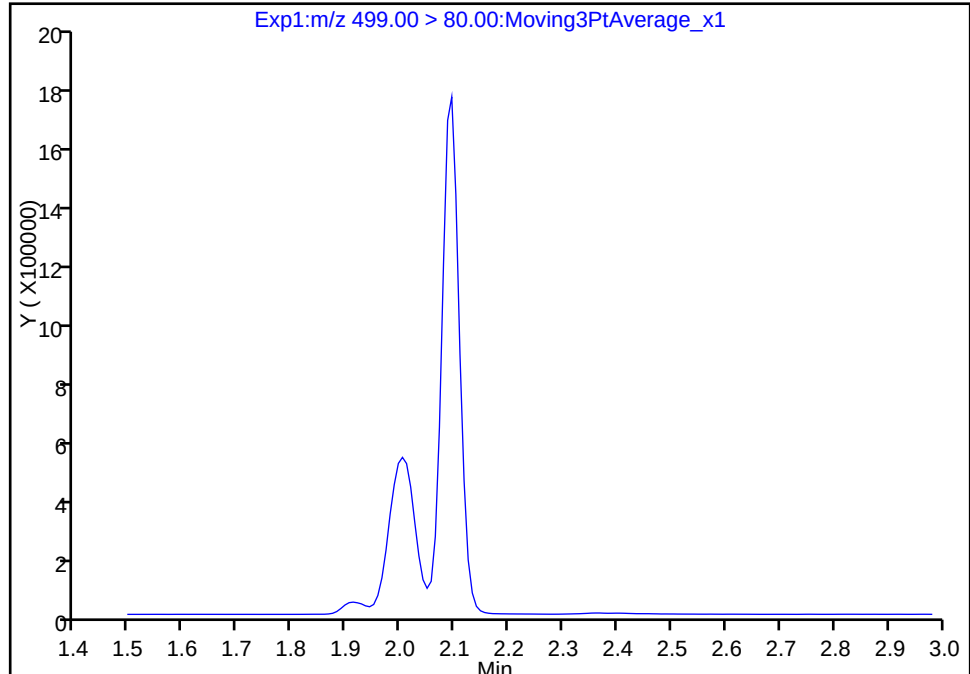
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_036.d
Injection Date: 05-Mar-2018 11:13:40 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

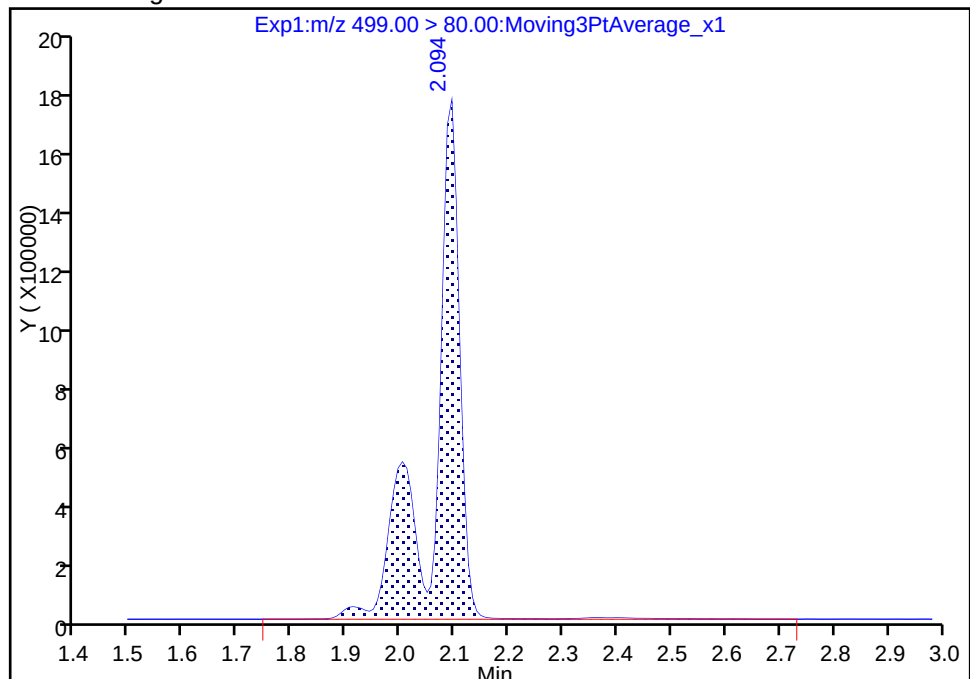
Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT: 2.09
Area: 5718735
Amount: 63.388915
Amount Units: ng/ml



Reviewer: barnettj, 05-Mar-2018 14:07:59

Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: CCV 320-211202/25 Calibration Date: 03/05/2018 12:09
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.03.05_537A_048.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.155		42.3	45.0	-6.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.645		15.3	15.0	2.2	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9706		5.00	5.00	-0.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9384		9.81	10.1	-2.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9664		20.5	20.1	2.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6431		10.5	10.0	4.5	30.0
13C2 PFHxA	Ave	1.100	1.056		9.60	10.0	-4.0	30.0
13C2 PFDA	Ave	0.5243	0.5499		10.5	10.0	4.9	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_048.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 05-Mar-2018 12:09:44 ALS Bottle#: 3 Worklist Smp#: 25
 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\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:58:33 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:08:45

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	5061345	42.3		1866	
298.90 > 99.00	1.366	1.366	0.0	1.000	3595881		1.41(0.00-0.00)	1914	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1004723	9.60		16651	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.631	0.0	1.000	2404134	15.3		5177	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.639	1.639	0.0	1.000	461948	5.00		98.5	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.828	0.0		951680	10.0		9079	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.828	1.828	0.0	1.000	898011	9.81		30.2	
413.00 > 169.00	1.828	1.828	0.0	1.000	517796		1.73(0.00-0.00)	516	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.086	2.086	0.0	1.000	1890714	20.5		1190	a
499.00 > 99.00	2.086	2.086	0.0	1.000	407995		4.63(0.00-0.00)	195	a
* 7 13C4 PFOS									
503.00 > 80.00	2.086	2.086	0.0		2793662	28.7		8570	
9 Perfluorononanoic acid									
463.00 > 419.00	2.094	2.094	0.0	1.000	612233	10.5		85.2	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.253	0.0	1.000	523329	10.5		3675	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L3_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_048.d

Injection Date: 05-Mar-2018 12:09:44

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 25

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

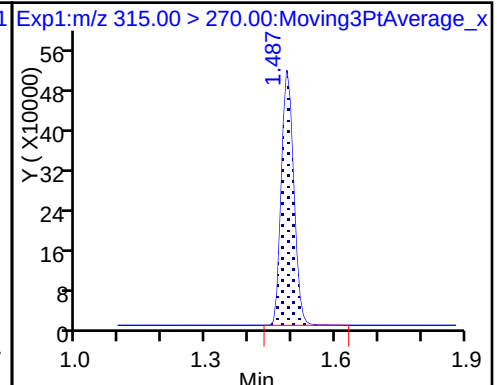
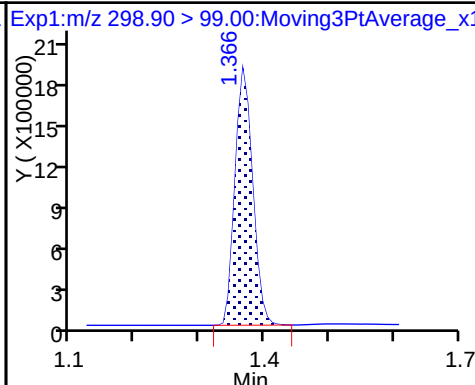
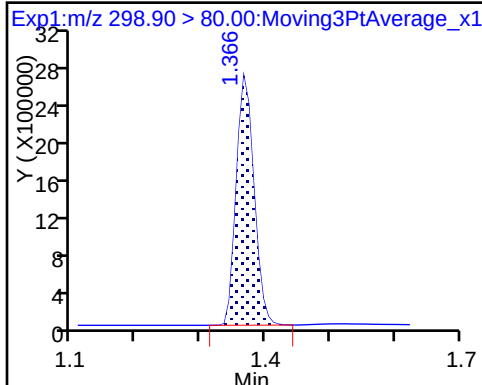
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

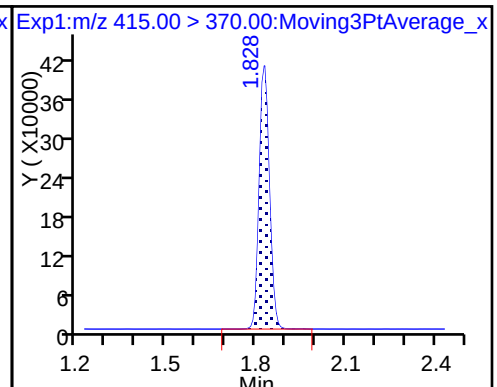
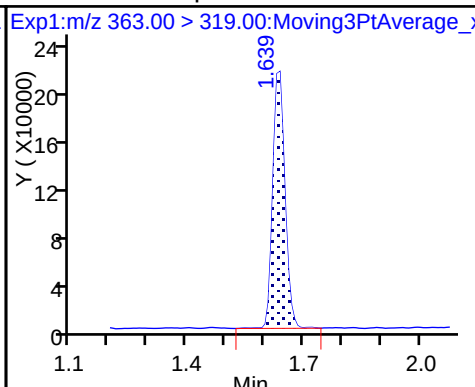
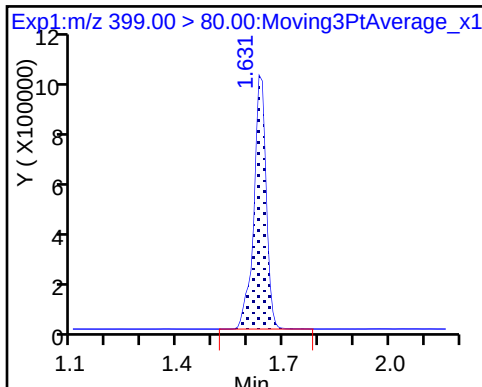
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

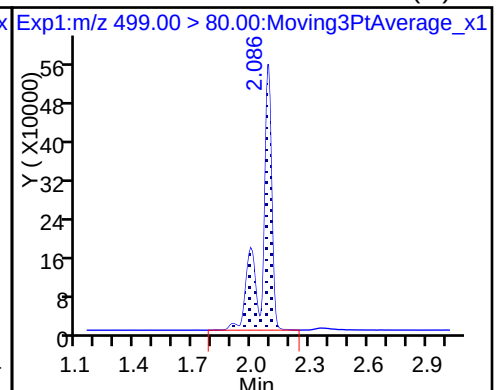
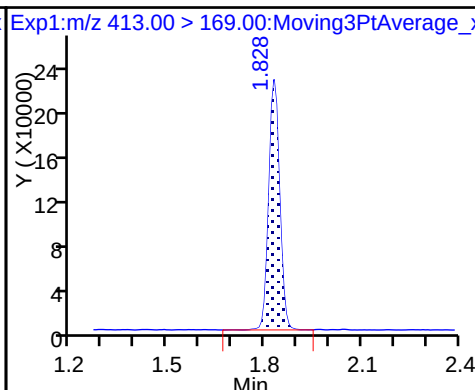
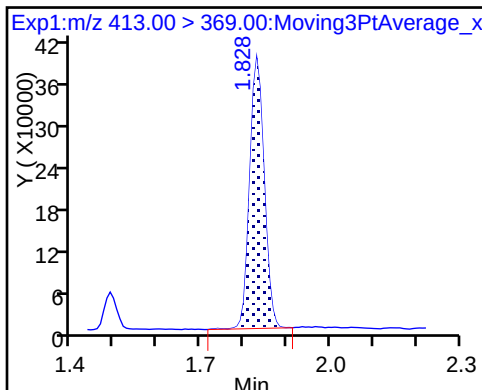
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

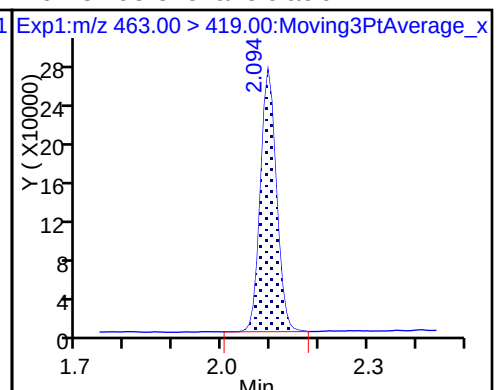
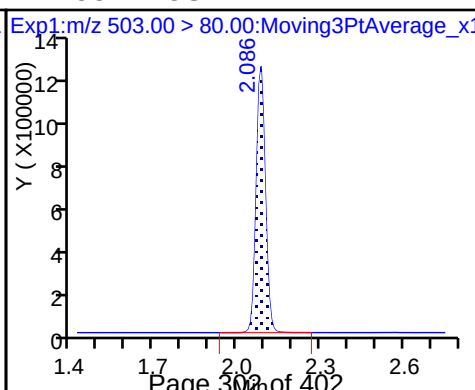
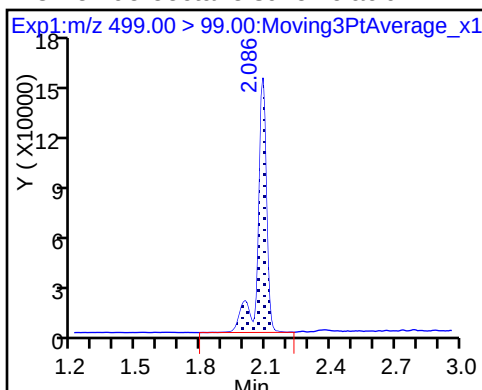
8 Perfluorooctane sulfonic acid (M)



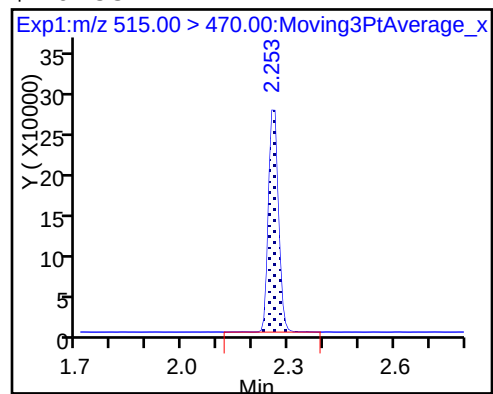
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

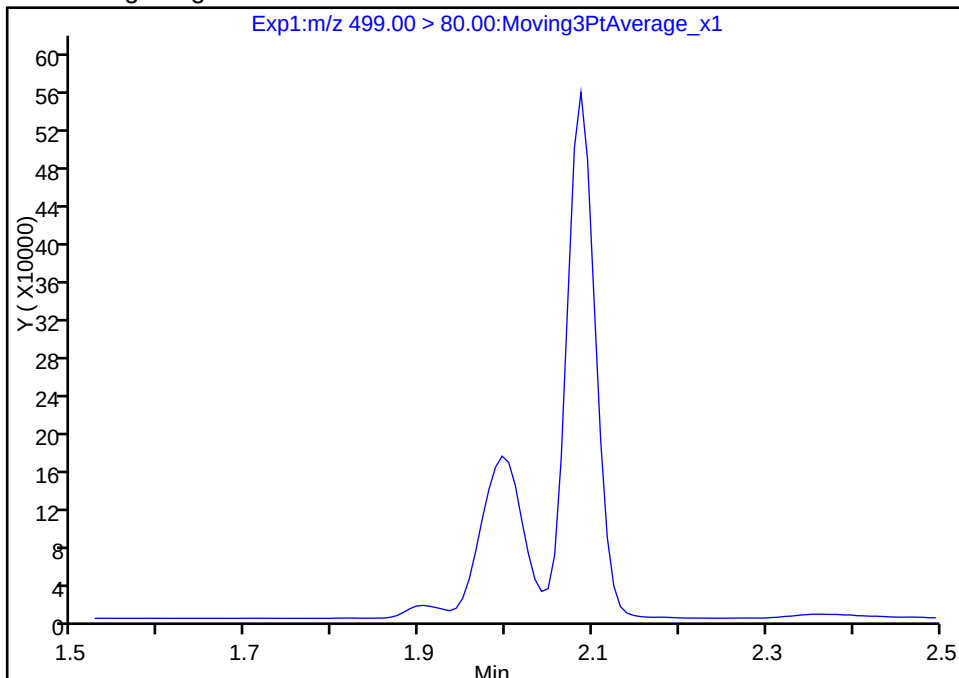
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_048.d
Injection Date: 05-Mar-2018 12:09:44 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

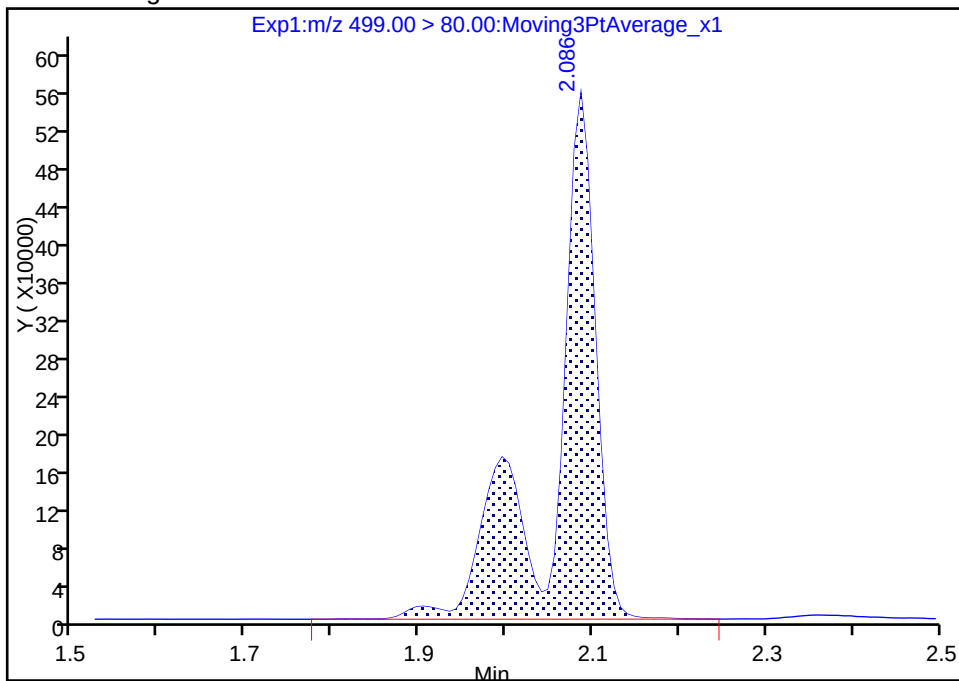
Signal: 1

Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results



RT: 2.09
Area: 1890714
Amount: 20.528278
Amount Units: ng/ml

Reviewer: barnettj, 05-Mar-2018 14:08:12

Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-212122/1 Calibration Date: 03/09/2018 08:53
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.03.09_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		1.120		17.5	20.0	-12.6	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9772		2.24	2.22	0.6	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.599		6.62	6.67	-0.7	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9698		4.51	4.47	0.8	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9325		8.80	8.93	-1.4	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6387		4.61	4.45	3.8	50.0
13C2 PFHxA	Ave	1.100	1.000		9.09	10.0	-9.1	30.0
13C2 PFDA	Ave	0.5243	0.5277		10.1	10.0	0.7	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_004.d
 Lims ID: CCVL
 Client ID:
 Sample Type: CCVL
 Inject. Date: 09-Mar-2018 08:53:57 ALS Bottle#: 2 Worklist Smp#: 1
 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\20180309-55099.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Mar-2018 11:02:08 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK018

First Level Reviewer: roycea

Date: 09-Mar-2018 10:37:06

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.373	0.0	1.000	2368411	17.5	1.39(0.00-0.00)	1694	
298.90 > 99.00	1.373	1.373	0.0	1.000	1698957			1425	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.495	1.495	0.0	1.000	1054748	9.09		15169	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.646	1.639	0.007	1.000	1127835	6.62		4491	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.646	1.639	0.007	1.000	229084	2.24		53.6	
* 6 13C2-PFOA									
415.00 > 370.00	1.844	1.828	0.016		1054723	10.0		8357	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.844	1.828	0.016	1.000	457134	4.51	1.93(0.00-0.00)	14.8	
413.00 > 169.00	1.844	1.828	0.016	1.000	236952			241	
* 7 13C4 PFOS									
503.00 > 80.00	2.102	2.086	0.016		3033079	28.7		12827	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.102	2.086	0.016	1.000	880314	8.80	4.59(0.00-0.00)	890	Ma M
499.00 > 99.00	2.102	2.086	0.016	1.000	191814			127	
9 Perfluorononanoic acid									
463.00 > 419.00	2.117	2.094	0.023	1.000	299489	4.61		51.0	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.269	2.253	0.015	1.000	556557	10.1		4537	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L2_00021

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_004.d

Injection Date: 09-Mar-2018 08:53:57

Instrument ID: A8_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

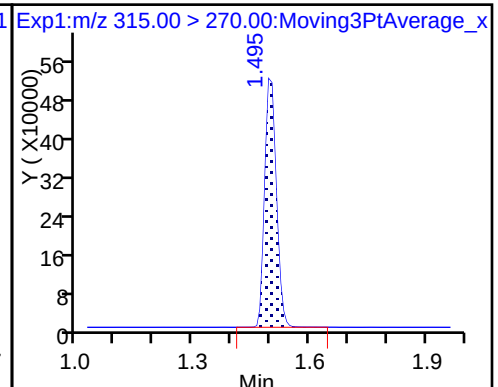
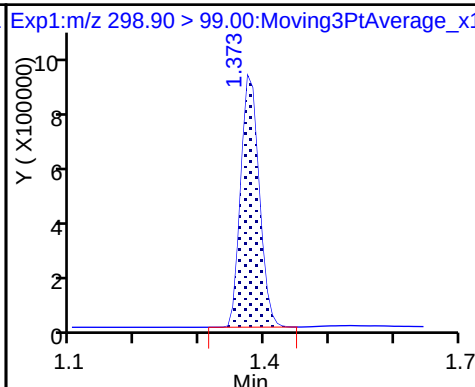
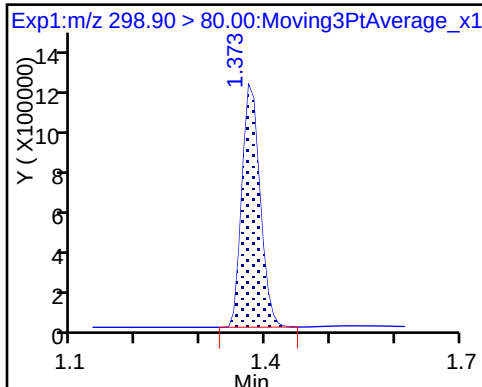
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

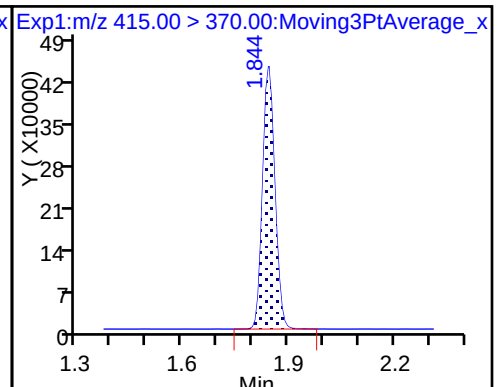
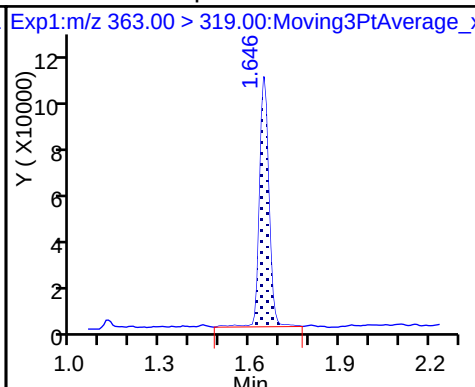
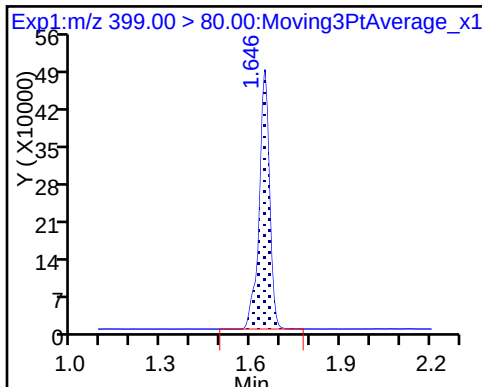
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

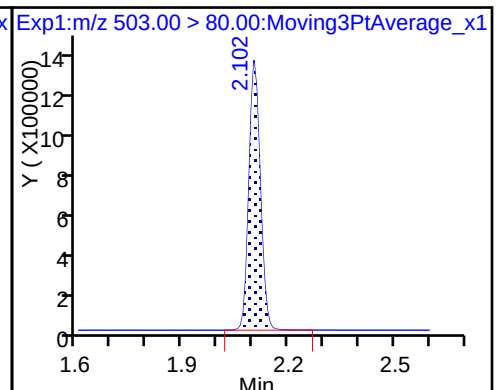
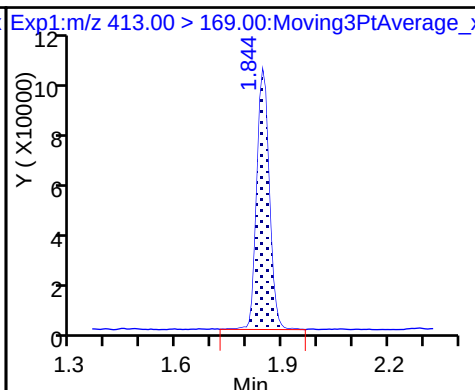
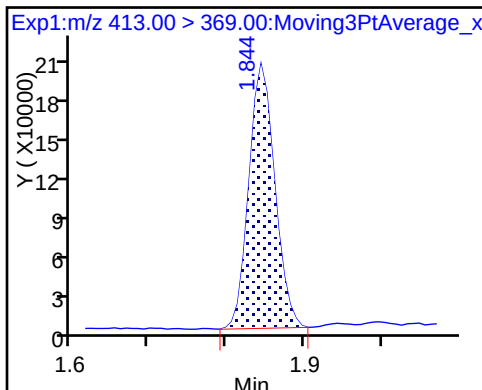
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

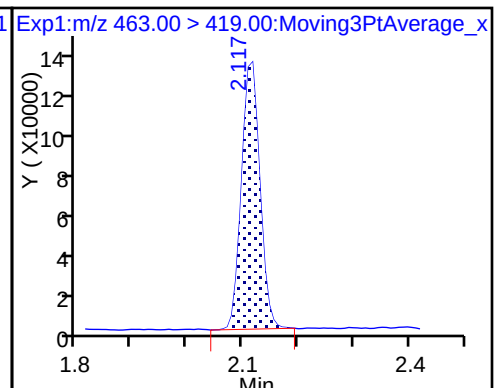
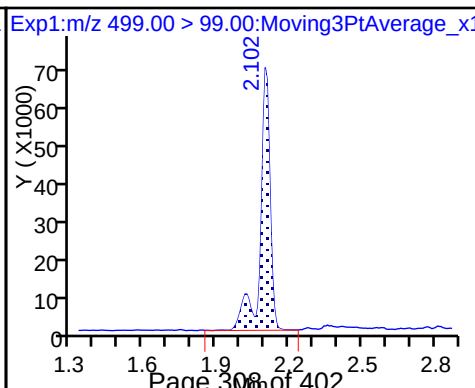
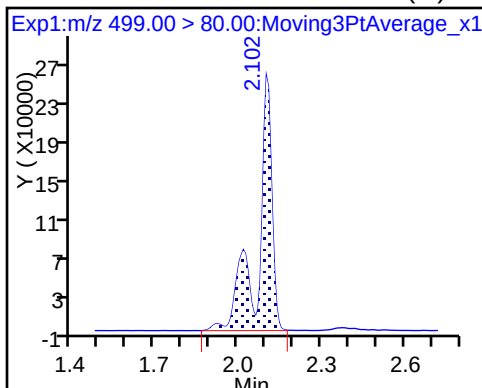
* 7 13C4 PFOS



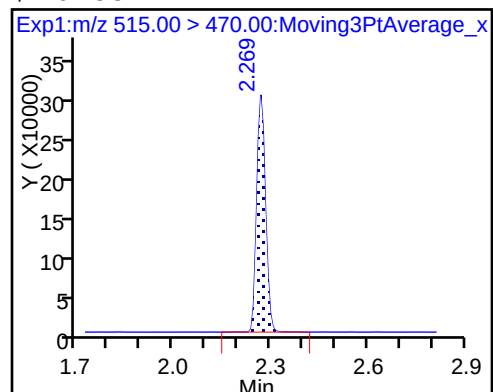
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

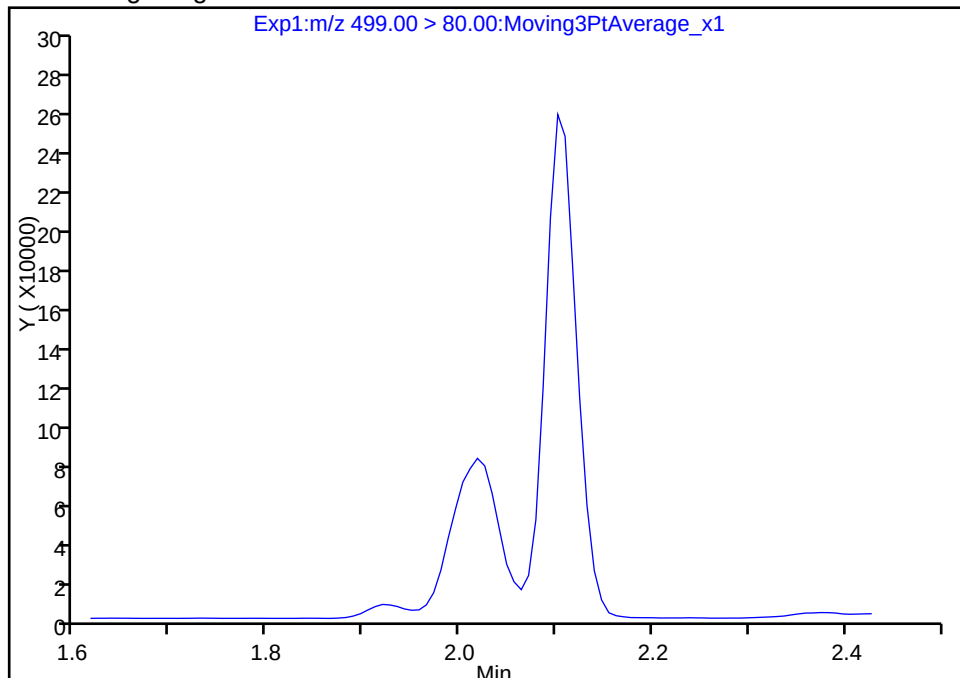
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_004.d
Injection Date: 09-Mar-2018 08:53:57 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

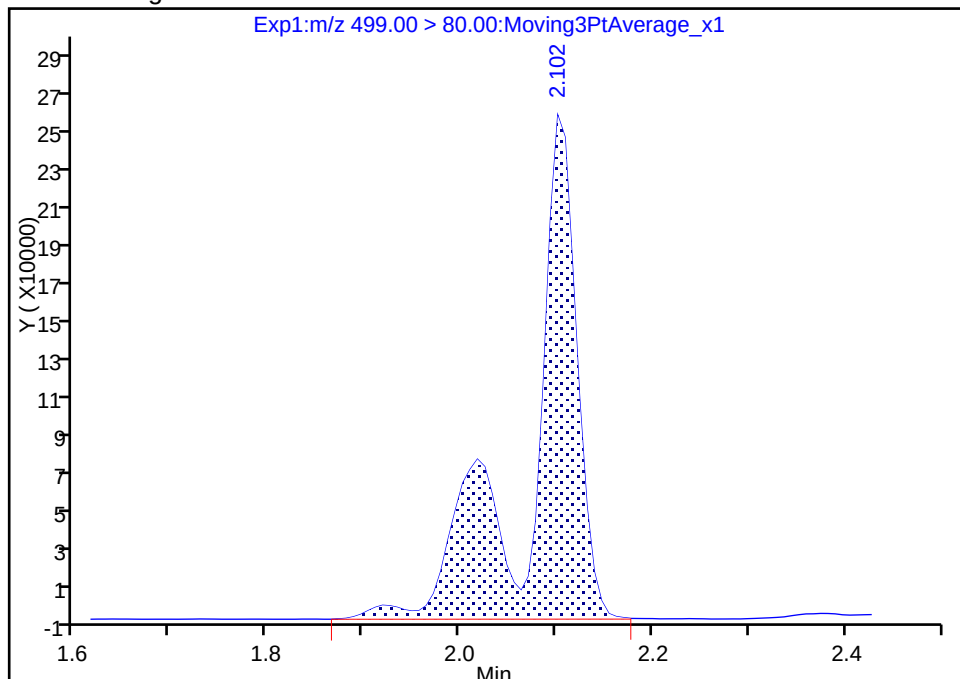
Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT: 2.10
Area: 880314
Amount: 8.803481
Amount Units: ng/ml



Reviewer: barnettj, 09-Mar-2018 10:50:05

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: CCV 320-212124/8 Calibration Date: 03/09/2018 09:26
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.03.09_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		1.104		40.3	45.0	-10.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	1.001		5.15	5.00	3.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.599		14.9	15.0	-0.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9415		9.84	10.1	-2.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9412		20.0	20.1	-0.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6887		11.2	10.0	11.9	30.0
13C2 PFHxA	Ave	1.100	1.078		9.80	10.0	-2.0	30.0
13C2 PFDA	Ave	0.5243	0.5843		11.1	10.0	11.5	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_011.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 09-Mar-2018 09:26:38 ALS Bottle#: 3 Worklist Smp#: 8
 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\20180309-55099.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Mar-2018 11:02:21 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK018

First Level Reviewer: barnettj

Date: 09-Mar-2018 10:51:13

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.373	0.0	1.000	4589578	40.3		3203	
298.90 > 99.00	1.373	1.373	0.0	1.000	3238535		1.42(0.00-0.00)	2671	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.495	1.495	0.0	1.000	938640	9.80		10573	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.639	1.639	0.0	1.000	2216641	14.9		8432	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.639	1.639	0.0	1.000	435824	5.15		104	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.828	0.0		870751	10.0		8358	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.828	1.828	0.0	1.000	824325	9.84		23.3	
413.00 > 169.00	1.828	1.828	0.0	1.000	452037		1.82(0.00-0.00)	484	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.086	2.086	0.0	1.000	1746175	20.0		1745	Ma
499.00 > 99.00	2.086	2.086	0.0	1.000	363001		4.81(0.00-0.00)	215	M
* 7 13C4 PFOS									
503.00 > 80.00	2.086	2.086	0.0		2649281	28.7		12183	
9 Perfluorononanoic acid									
463.00 > 419.00	2.094	2.094	0.0	1.000	599890	11.2		123	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.261	0.0	1.000	508788	11.1		3885	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L3_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_011.d

Injection Date: 09-Mar-2018 09:26:38

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

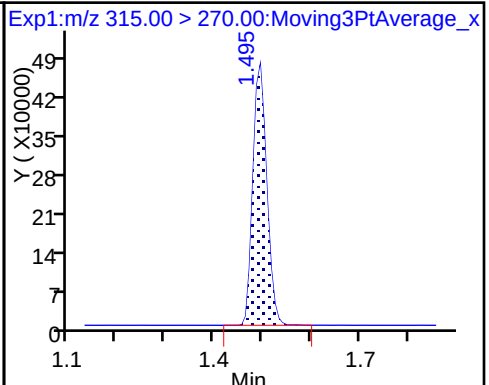
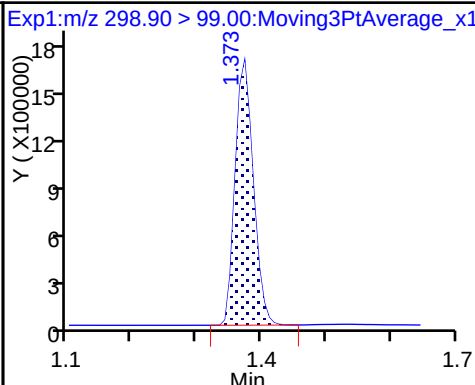
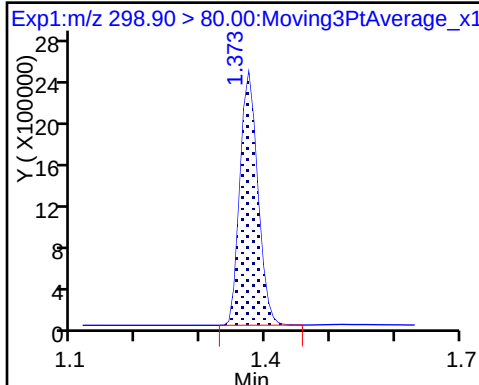
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

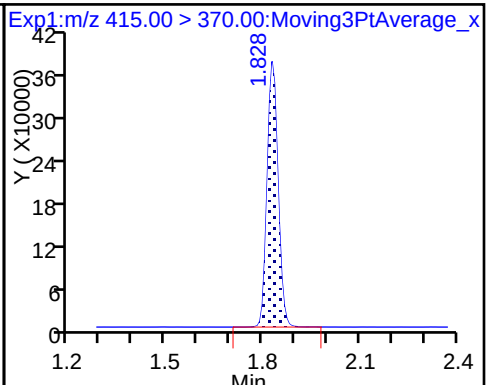
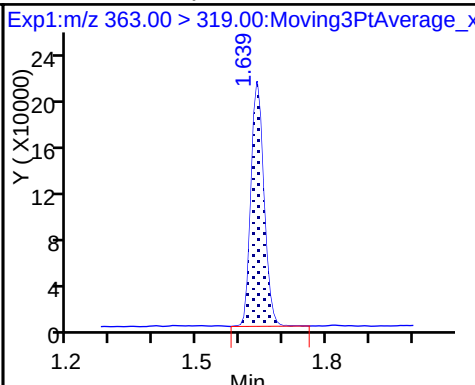
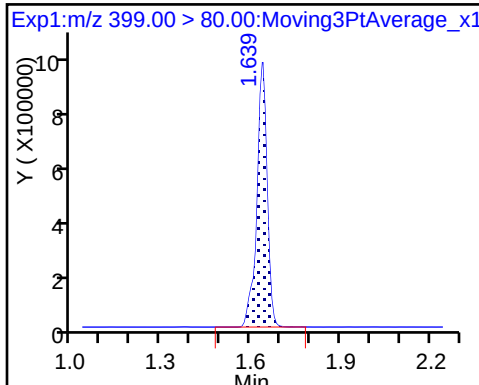
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

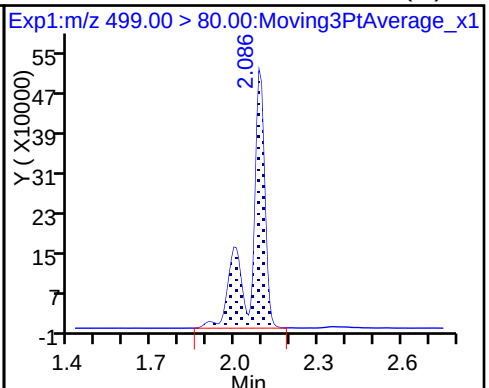
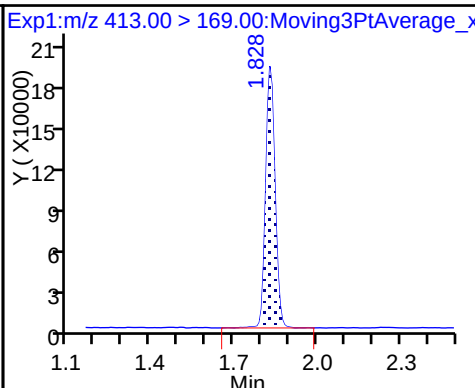
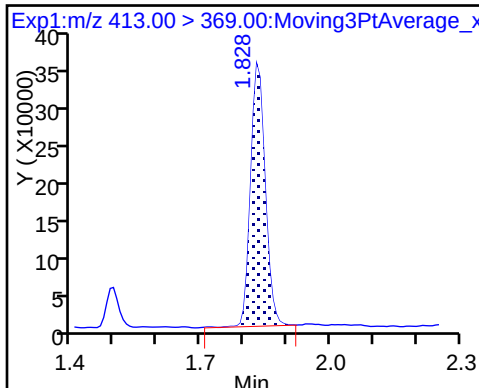
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

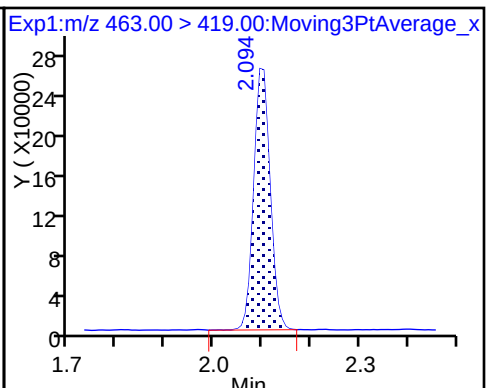
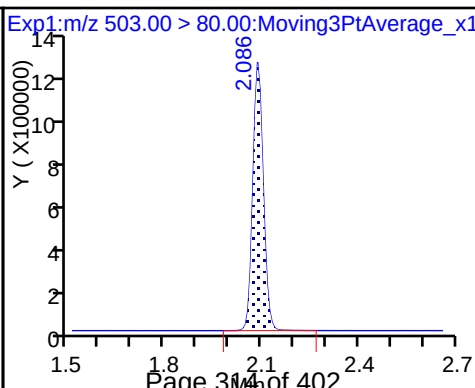
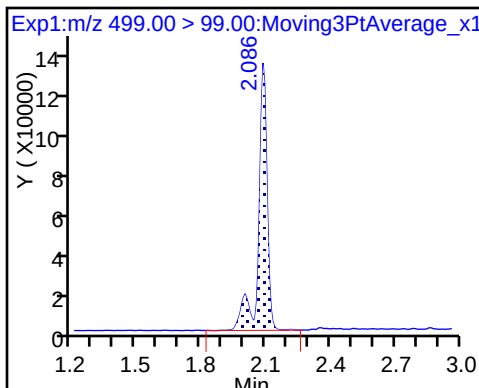
8 Perfluorooctane sulfonic acid (M)



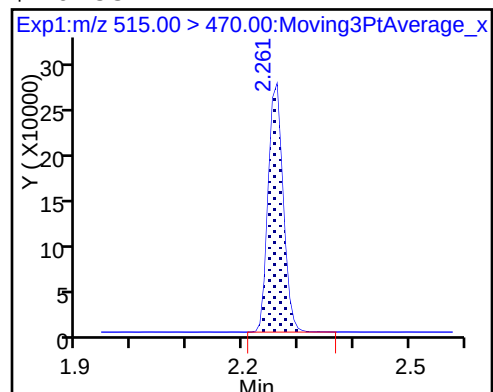
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_011.d

Injection Date: 09-Mar-2018 09:26:38

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#:

3

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: 537_A8_N

Limit Group: LC 537 ICAL

Column:

Detector EXP1

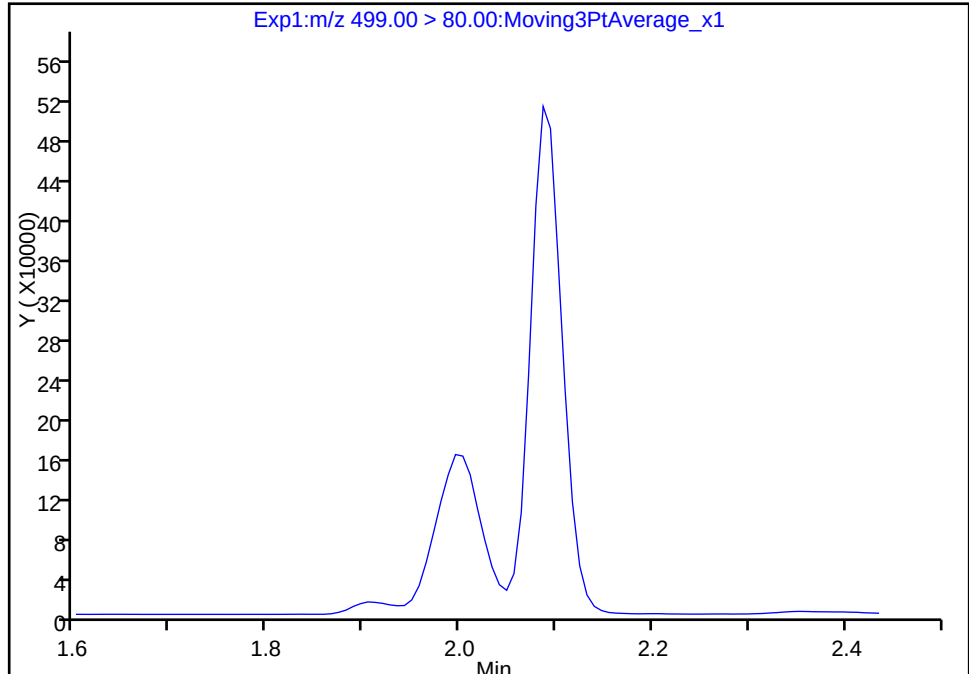
8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

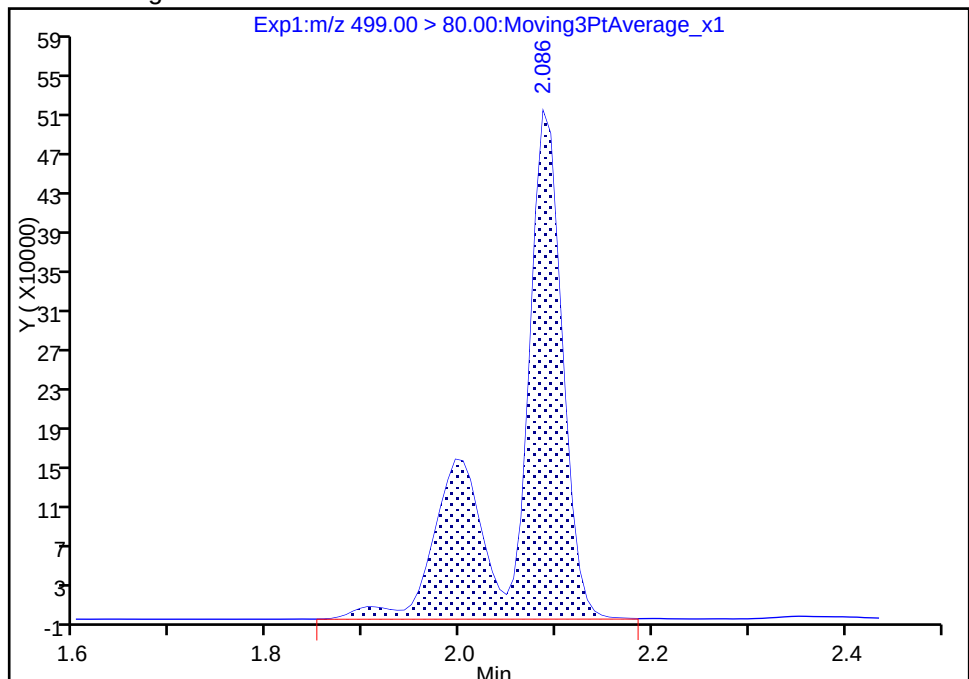
Not Detected

Expected RT: 2.09

Processing Integration Results



Manual Integration Results



RT: 2.09

Area: 1746175

Amount: 19.992186

Amount Units: ng/ml

Reviewer: barnettj, 09-Mar-2018 10:51:06

Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: CCV 320-212124/19 Calibration Date: 03/09/2018 10:18
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.03.09_537A_022.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9427		120	135	-11.5	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9868		15.2	15.0	1.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.617		45.2	45.0	0.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9624		30.2	30.2	0.0	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9871		62.9	60.3	4.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6709		32.7	30.0	9.0	30.0
13C2 PFHxA	Ave	1.100	1.094		9.95	10.0	-0.5	30.0
13C2 PFDA	Ave	0.5243	0.5738		10.9	10.0	9.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_022.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 09-Mar-2018 10:18:02 ALS Bottle#: 5 Worklist Smp#: 19
 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\20180309-55099.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Mar-2018 11:01:45 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNa\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK018

First Level Reviewer: barnettj

Date: 09-Mar-2018 11:01:18

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.373	0.0	1.000	12484304	119.5		7197	
298.90 > 99.00	1.373	1.373	0.0	1.000	9660144		1.29(0.00-0.00)	7190	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.495	1.495	0.0	1.000	1047373	9.95		13635	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.639	1.639	0.0	1.000	7139354	45.2		20304	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.639	1.639	0.0	1.000	1417337	15.2		329	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.828	0.0		957373	10.0		9141	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.828	1.828	0.0	1.000	2779504	30.2		73.1	
413.00 > 169.00	1.828	1.828	0.0	1.000	1502810		1.85(0.00-0.00)	1541	
* 7 13C4 PFOS									
503.00 > 80.00	2.086	2.086	0.0		2813287	28.7		13297	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.086	2.086	0.0	1.000	5834192	62.9		16240	a
499.00 > 99.00	2.086	2.086	0.0	1.000	1214769		4.80(0.00-0.00)	724	a
9 Perfluorononanoic acid									
463.00 > 419.00	2.094	2.094	0.0	1.000	1927437	32.7		359	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.253	0.0	1.000	549336	10.9		4496	

QC Flag Legend

Review Flags

a - User Assigned ID

Reagents:

LC537-L5_00025

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_022.d

Injection Date: 09-Mar-2018 10:18:02

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 19

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

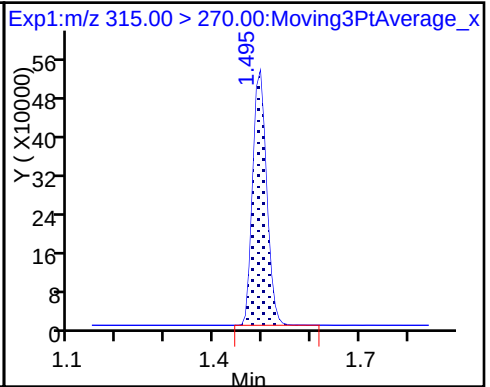
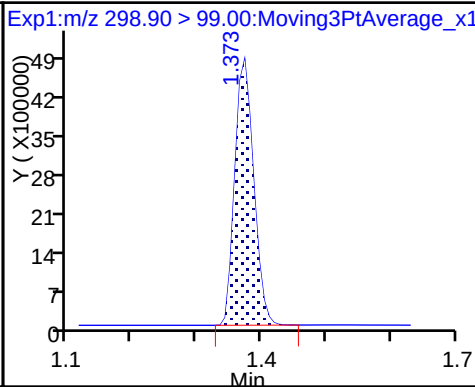
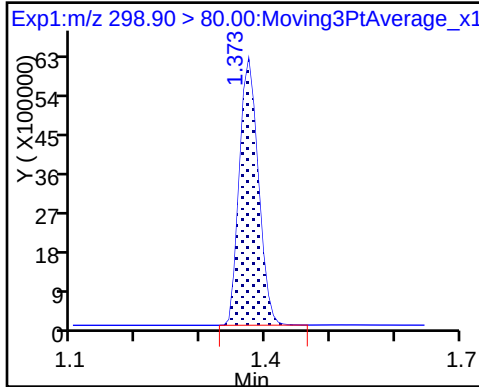
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

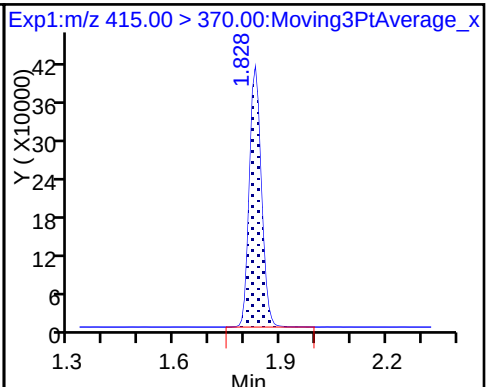
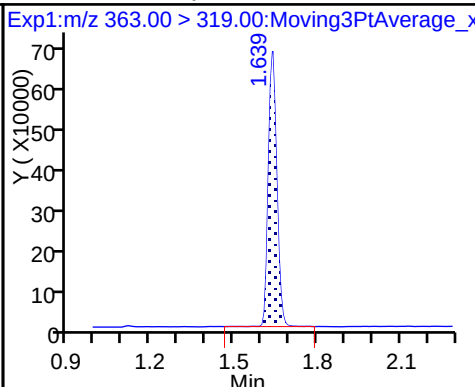
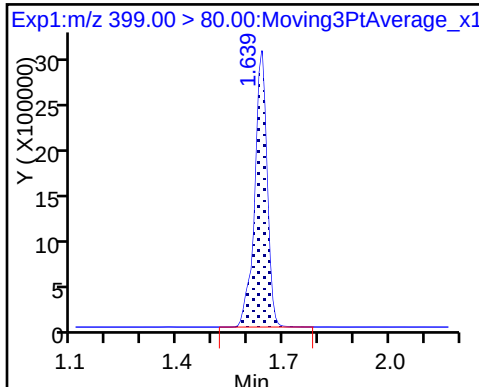
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

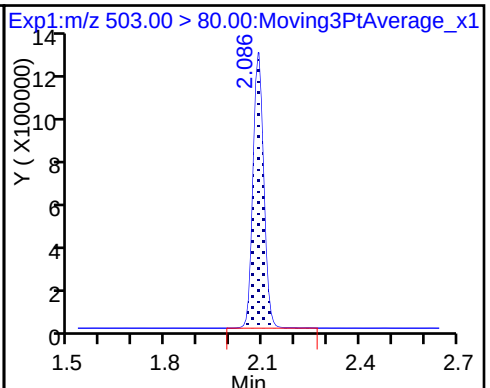
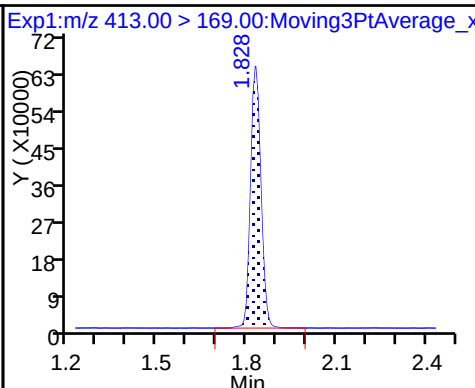
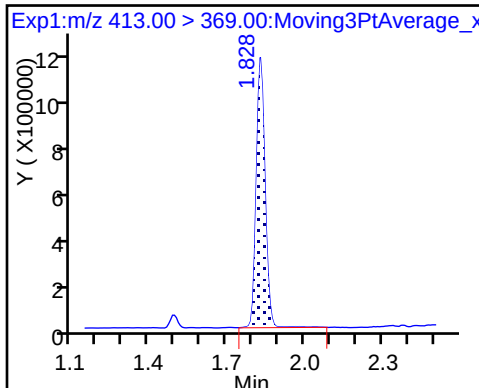
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

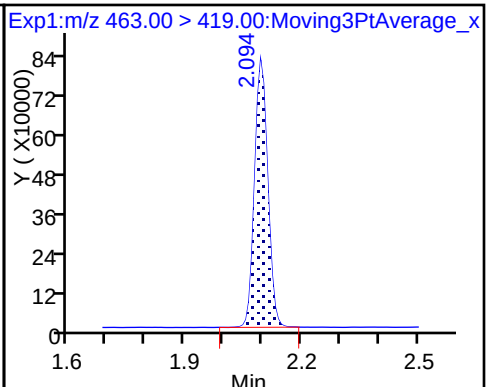
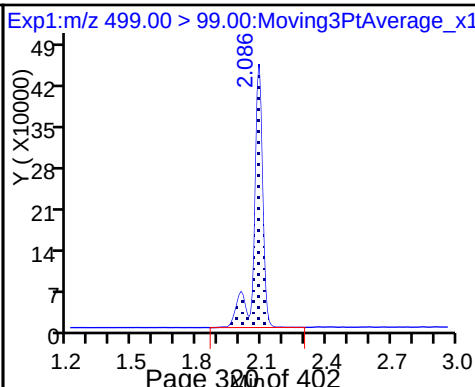
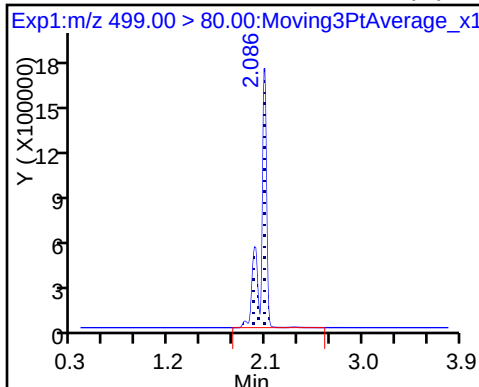
* 7 13C4 PFOS



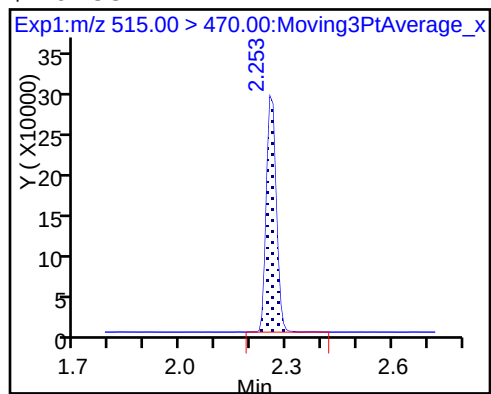
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

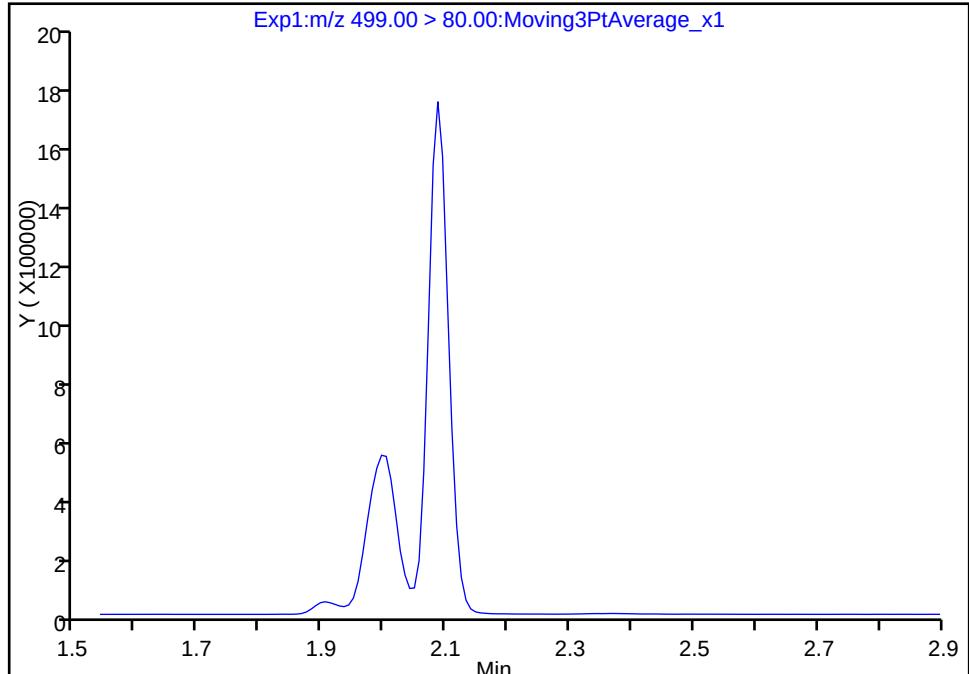
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_022.d
Injection Date: 09-Mar-2018 10:18:02 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

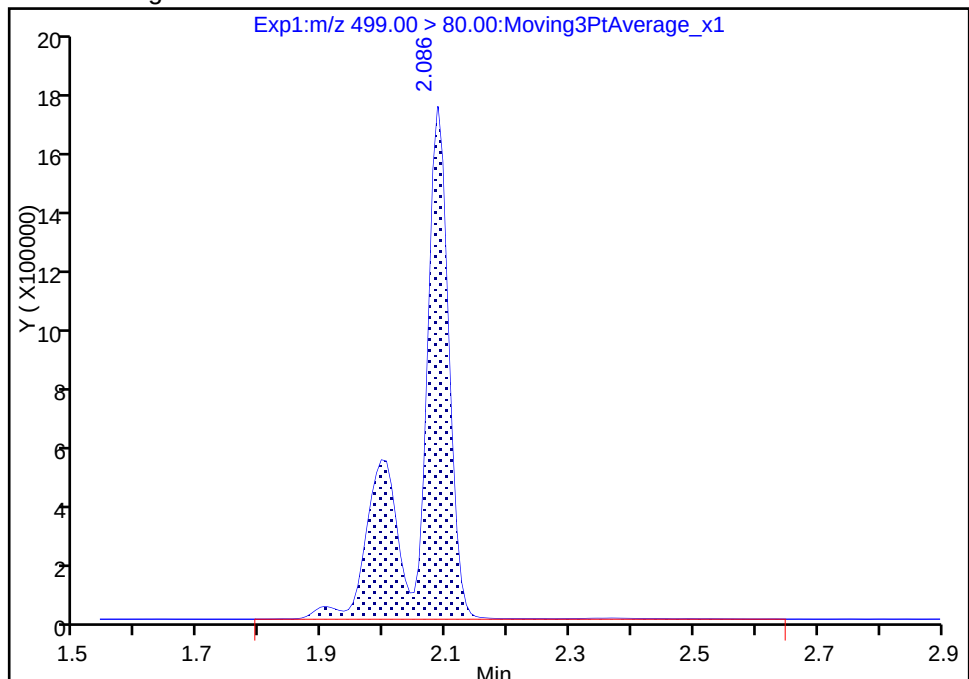
Signal: 1

Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results



RT: 2.09
Area: 5834192
Amount: 62.902402
Amount Units: ng/ml

Reviewer: barnettj, 09-Mar-2018 10:51:19

Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-210229/1-A
 Matrix: Water Lab File ID: 2018.03.05_537A_026.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 250 (mL) Date Analyzed: 03/05/2018 10:26
 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.: 211200 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	100		70-130
STL00996	13C2 PFDA	115		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_026.d
 Lims ID: MB 320-210229/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 05-Mar-2018 10:26:54 ALS Bottle#: 16 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-210229/
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:45:53 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK024

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.495	-0.008	1.000	915565	9.96		13521	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.844	-0.016		835980	10.0		7297	
* 7 13C4 PFOS									
503.00 > 80.00	2.094	2.102	-0.008		2465790	28.7		7056	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.269	-0.007	1.000	502661	11.5		3880	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_026.d

Injection Date: 05-Mar-2018 10:26:54

Instrument ID: A8_N

Lims ID: MB 320-210229/1-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 16

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

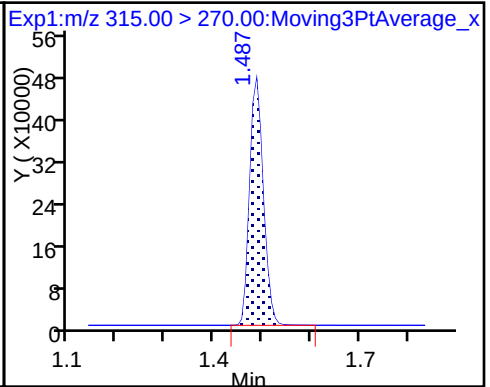
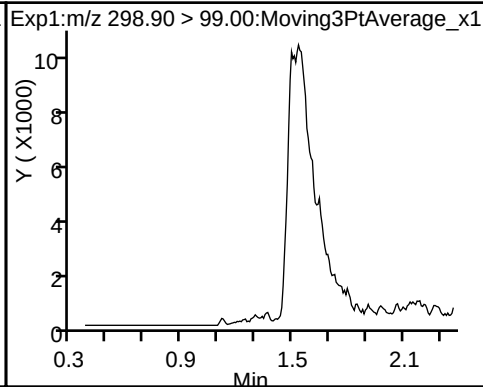
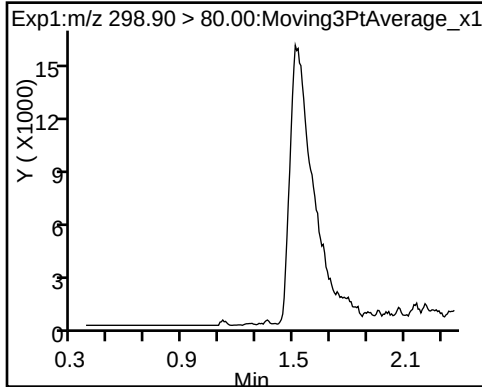
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

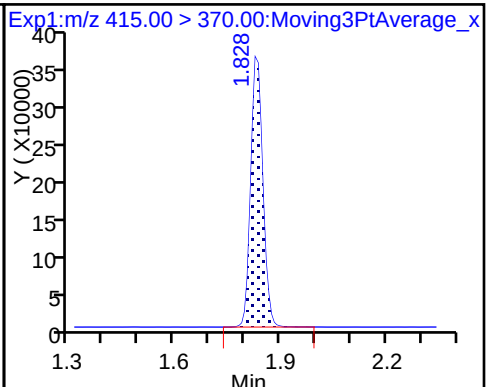
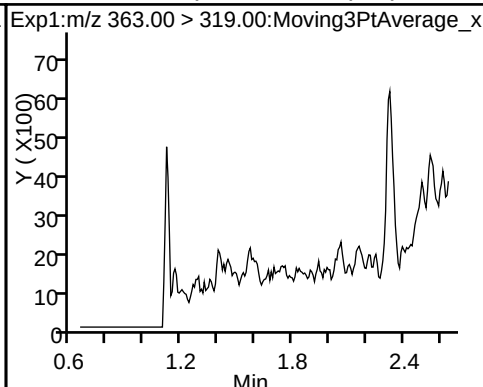
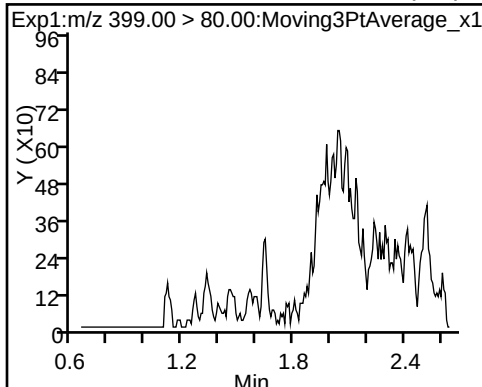
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

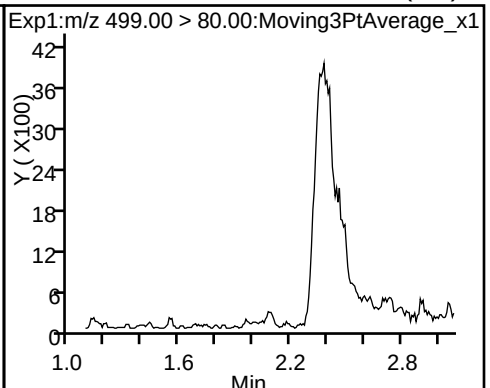
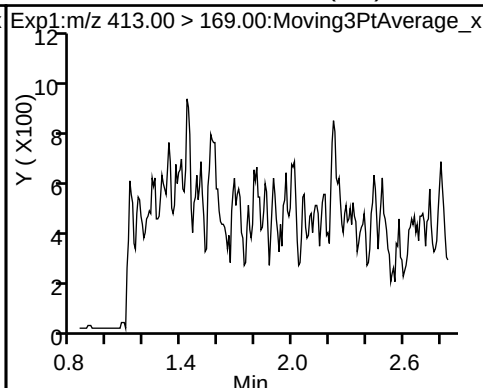
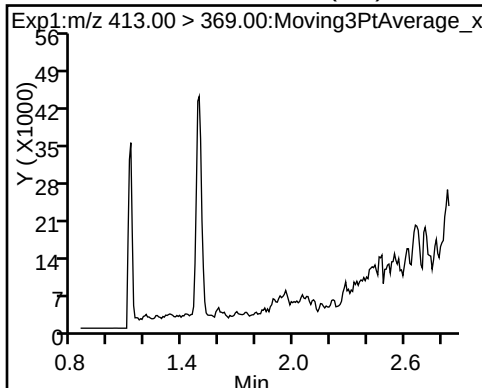
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

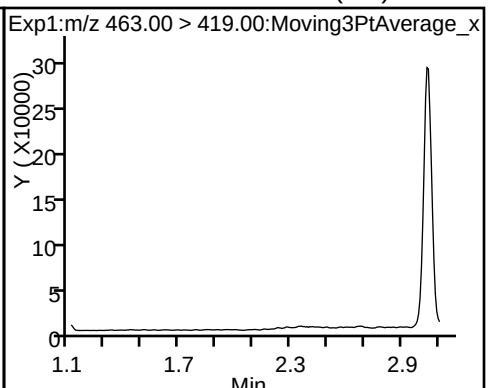
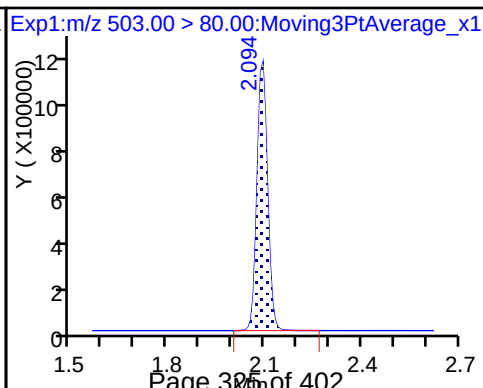
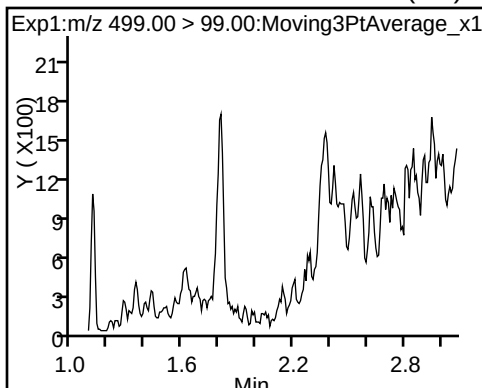
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

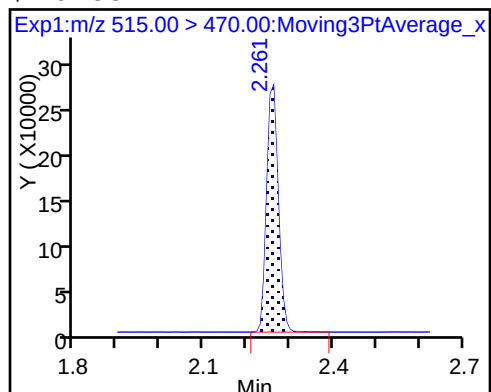


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_026.d
Lims ID: MB 320-210229/1-A
Client ID:
Sample Type: MB
Inject. Date: 05-Mar-2018 10:26:54 ALS Bottle#: 16 Worklist Smp#: 3
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-210229/
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 14:45:53 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK024

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.96	99.57
\$ 10 13C2 PFDA	10.0	11.5	114.69

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-211311/1-A
 Matrix: Water Lab File ID: 2018.03.09_537A_013.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 03/05/2018 17:45
 Sample wt/vol: 250 (mL) Date Analyzed: 03/09/2018 09:35
 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.: 212124 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	87		70-130
STL00996	13C2 PFDA	106		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_013.d
 Lims ID: MB 320-211311/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 09-Mar-2018 09:35:57 ALS Bottle#: 42 Worklist Smp#: 10
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-211311/1-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Mar-2018 11:01:35 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 : Det: EXP1

Process Host: XAWRK018

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.495	1.495	0.0	1.000	941661	8.69		13462	
* 6 13C2-PFOA									
415.00 > 370.00	1.836	1.828	0.008		985457	10.0		8979	
* 7 13C4 PFOS									
503.00 > 80.00	2.094	2.086	0.008		2765019	28.7		9608	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.261	0.0	1.000	547389	10.6		4118	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_013.d

Injection Date: 09-Mar-2018 09:35:57

Instrument ID: A8_N

Lims ID: MB 320-211311/1-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 42

Worklist Smp#: 10

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

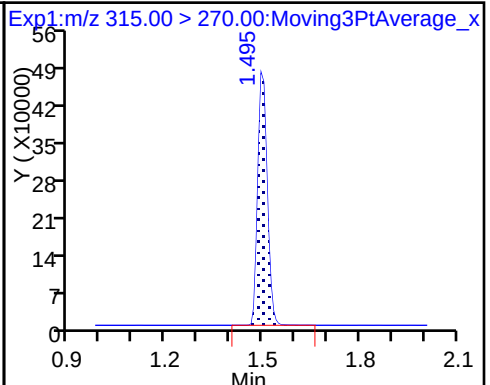
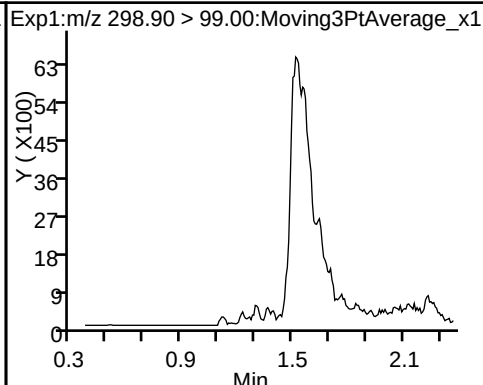
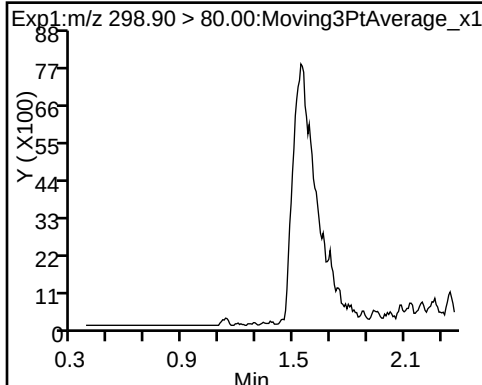
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

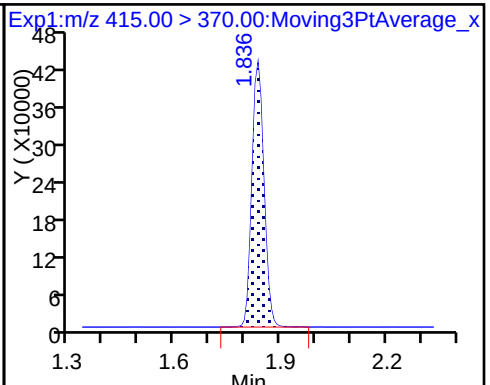
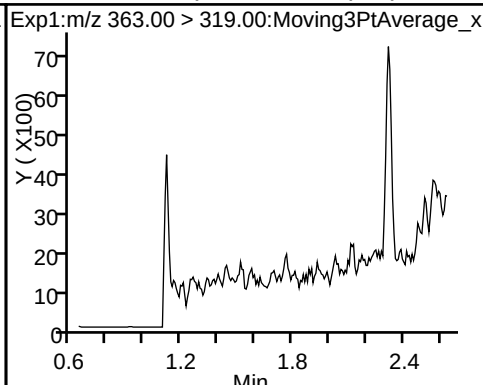
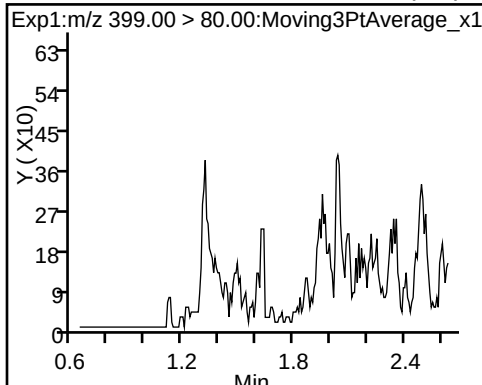
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

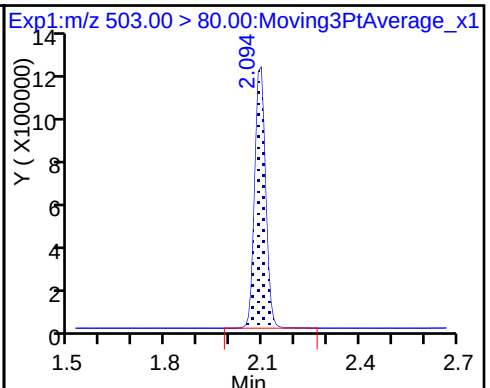
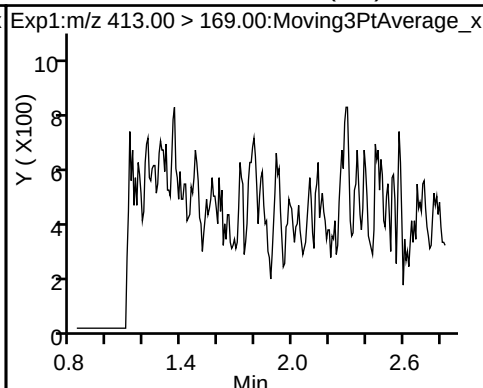
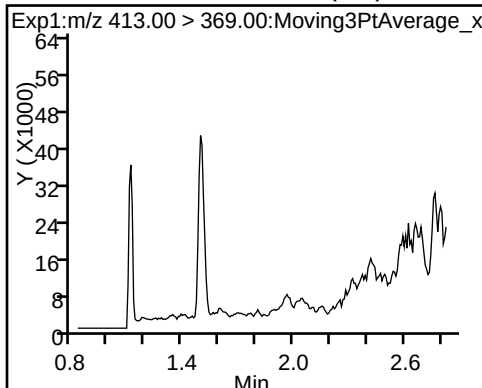
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

5 Perfluorooctanoic acid (ND)

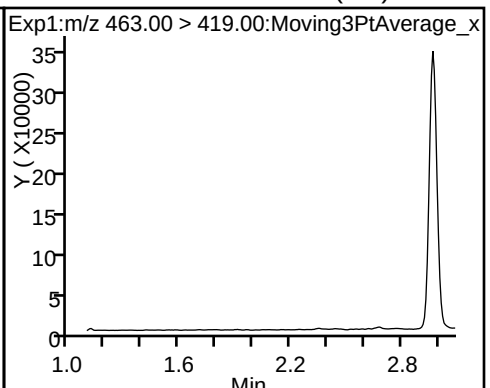
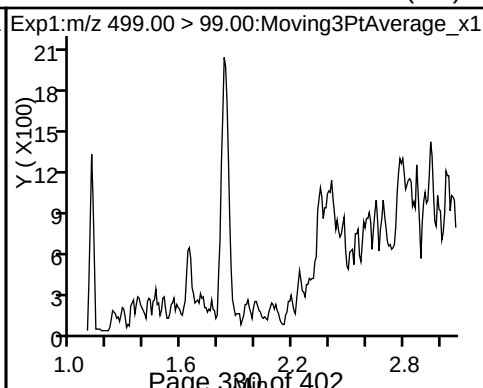
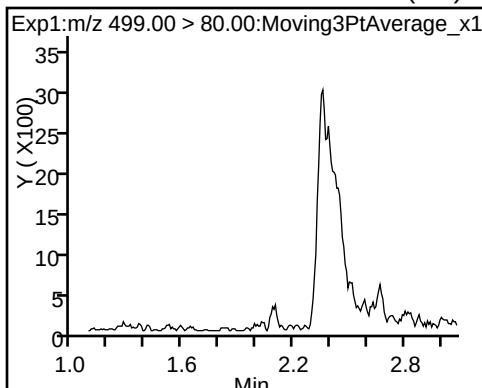
* 7 13C4 PFOS



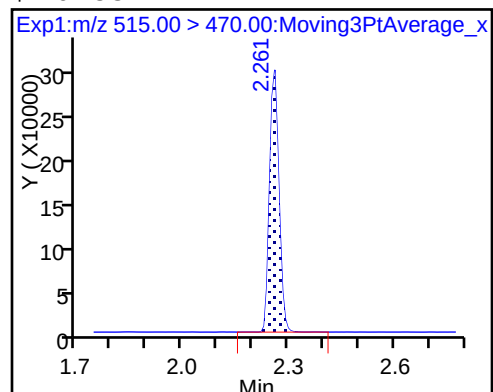
8 Perfluorooctane sulfonic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_013.d
Lims ID: MB 320-211311/1-A
Client ID:
Sample Type: MB
Inject. Date: 09-Mar-2018 09:35:57 ALS Bottle#: 42 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: mb 320-211311/1-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Mar-2018 11:01:35 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d

Column 1 :

Det: EXP1

Process Host: XAWRK018

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.69	86.88
\$ 10 13C2 PFDA	10.0	10.6	105.95

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 320-211311/2-A
 Matrix: Water Lab File ID: 2018.03.09_537A_014.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 03/05/2018 17:45
 Sample wt/vol: 250 (mL) Date Analyzed: 03/09/2018 09:40
 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.: 212124 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	134	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	67.5		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	73.1		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	99.2		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	34.4		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	265		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	106		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_014.d
 Lims ID: LCS 320-211311/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 09-Mar-2018 09:40:37 ALS Bottle#: 43 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: lcs 320-211311/2-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Mar-2018 11:01:35 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK018

First Level Reviewer: barnettj

Date: 09-Mar-2018 10:53:15

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.373	0.0	1.000	7532043	66.2		4555	
298.90 > 99.00	1.373	1.373	0.0	1.000	5613748		1.34(0.00-0.00)	4235	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.495	-0.008	1.000	940594	8.96		11910	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.639	1.639	0.0	1.000	3857281	24.8		10630	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.639	1.639	0.0	1.000	797898	8.61		168	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.828	0.0		954109	10.0		8454	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.828	1.828	0.0	1.000	1548881	16.9		46.0	
413.00 > 169.00	1.828	1.828	0.0	1.000	816903		1.90(0.00-0.00)	914	
* 7 13C4 PFOS									
503.00 > 80.00	2.086	2.086	0.0		2771174	28.7		8396	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.086	2.086	0.0	1.000	3068317	33.6		9871	a
499.00 > 99.00	2.086	2.086	0.0	1.000	635623		4.83(0.00-0.00)	337	a
9 Perfluorononanoic acid									
463.00 > 419.00	2.102	2.094	0.008	1.000	1073192	18.3		54.1	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.261	0.0	1.000	529279	10.6		3830	

QC Flag Legend

Review Flags

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_014.d

Injection Date: 09-Mar-2018 09:40:37

Instrument ID: A8_N

Lims ID: LCS 320-211311/2-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 43

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

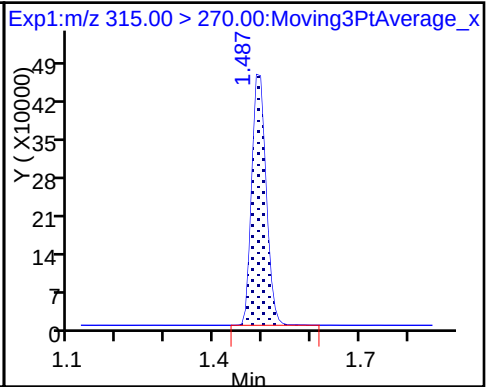
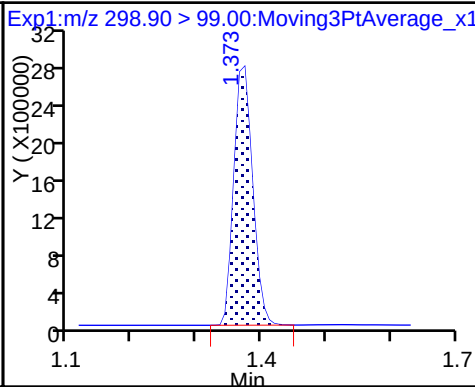
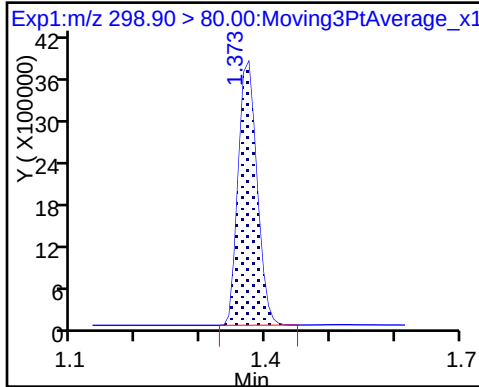
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

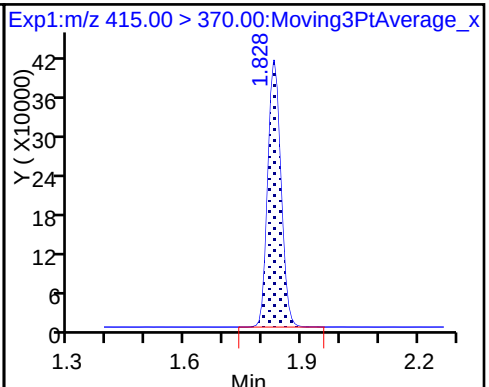
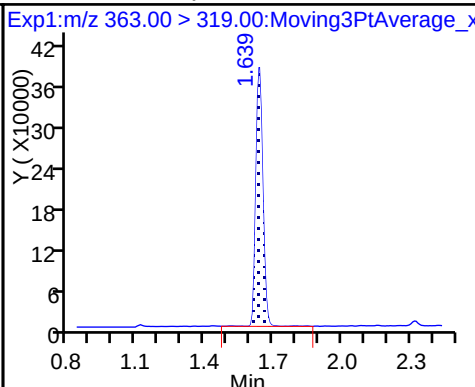
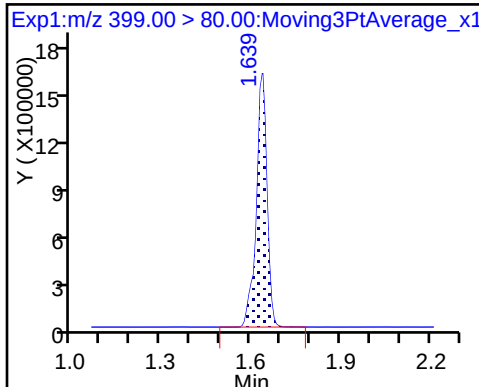
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

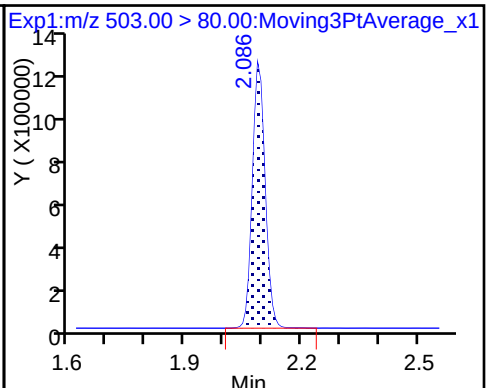
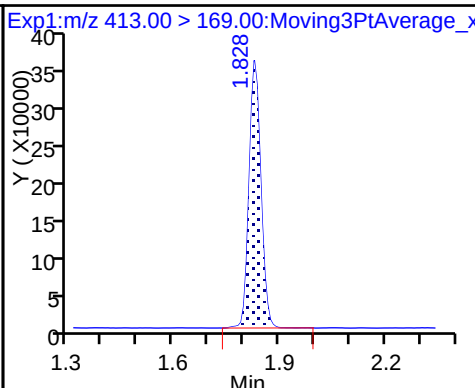
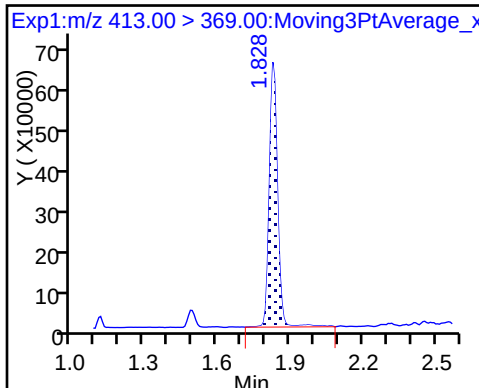
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

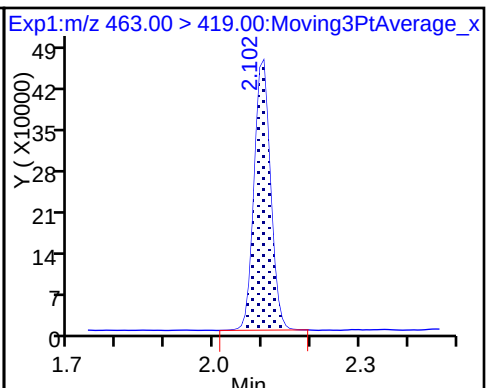
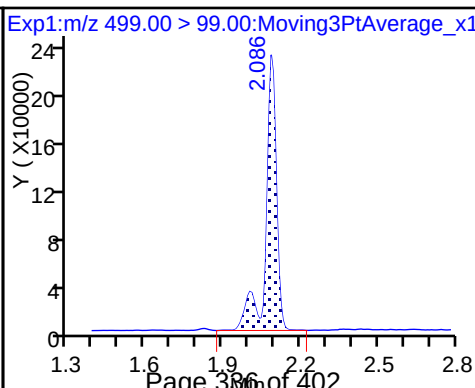
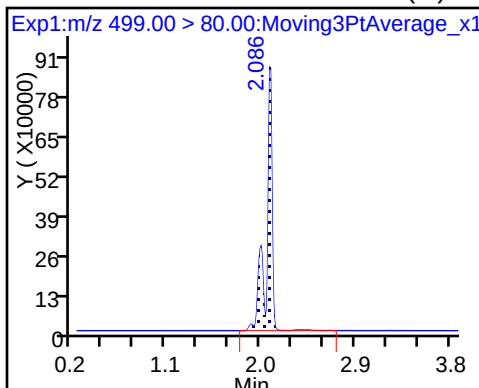
* 7 13C4 PFOS



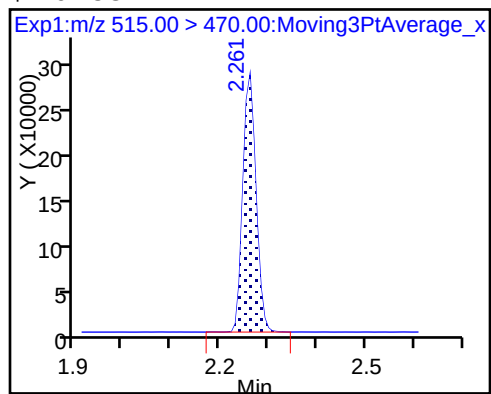
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_014.d
Lims ID: LCS 320-211311/2-A
Client ID:
Sample Type: LCS
Inject. Date: 09-Mar-2018 09:40:37 ALS Bottle#: 43 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcs 320-211311/2-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Mar-2018 11:01:35 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
Column 1 : Det: EXP1
Process Host: XAWRK018

First Level Reviewer: barnettj

Date: 09-Mar-2018 10:53:15

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.96	89.63
\$ 10 13C2 PFDA	10.0	10.6	105.81

TestAmerica Sacramento

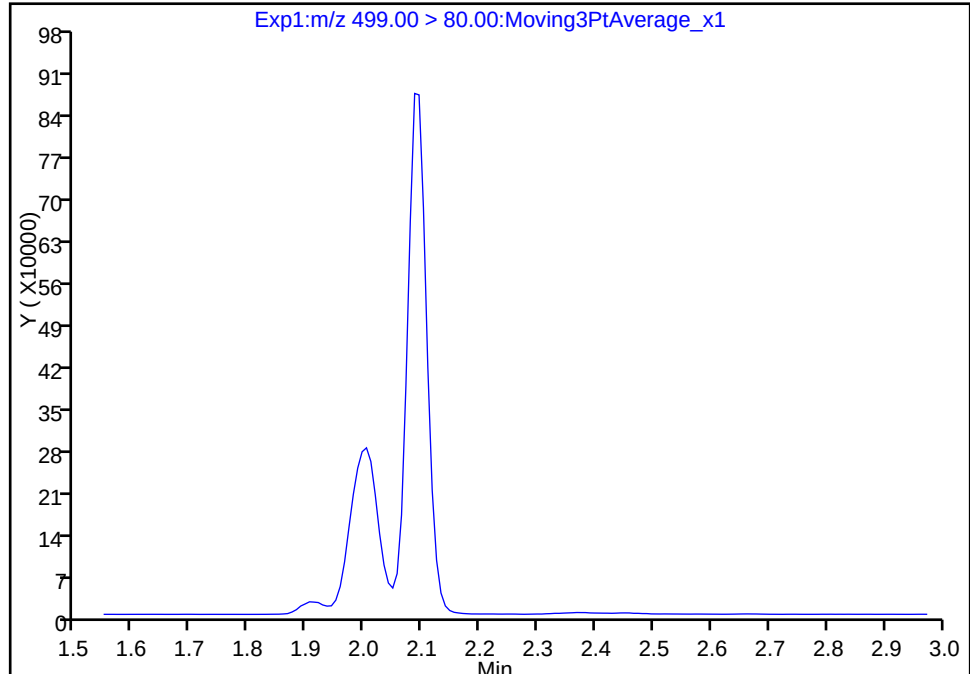
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_014.d
Injection Date: 09-Mar-2018 09:40:37 Instrument ID: A8_N
Lims ID: LCS 320-211311/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 43 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

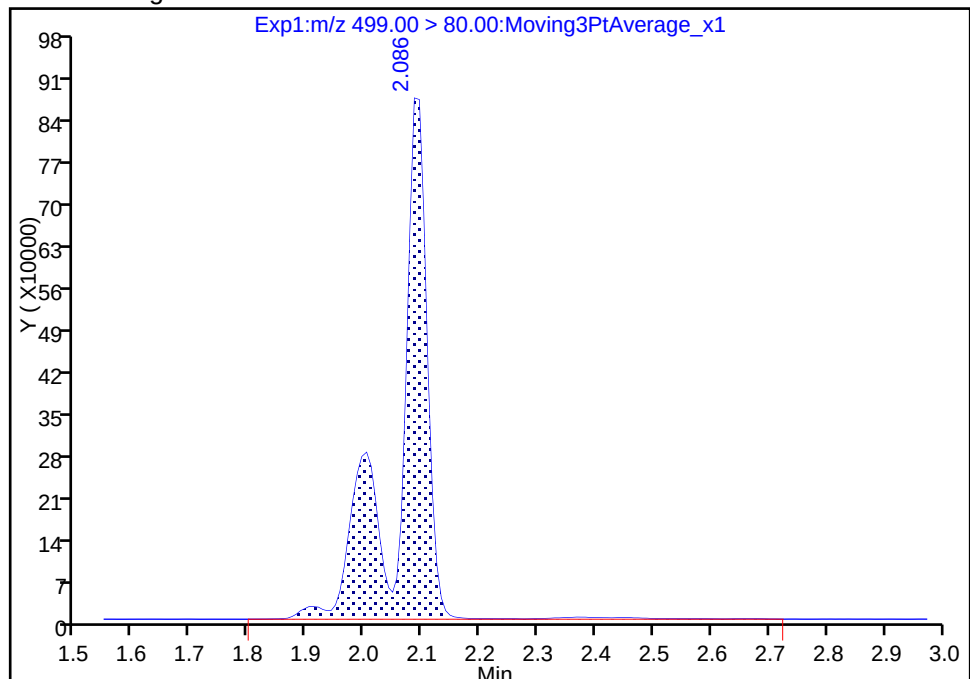
Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT: 2.09
Area: 3068317
Amount: 33.584352
Amount Units: ng/ml



Reviewer: barnettj, 09-Mar-2018 10:53:02

Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCSD 320-211311/3-A
 Matrix: Water Lab File ID: 2018.03.09_537A_015.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 03/05/2018 17:45
 Sample wt/vol: 250 (mL) Date Analyzed: 03/09/2018 09:45
 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.: 212124 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	129	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	61.1		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	70.9		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	98.1		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	33.3		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	264		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	101		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_015.d
 Lims ID: LCSD 320-211311/3-A
 Client ID:
 Sample Type: LCSD
 Inject. Date: 09-Mar-2018 09:45:17 ALS Bottle#: 44 Worklist Smp#: 12
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: lcsd 320-211311/3-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Mar-2018 11:01:35 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK018

First Level Reviewer: barnettj

Date: 09-Mar-2018 10:53:36

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.381	1.373	0.008	1.000	7455234	66.0		4729	
298.90 > 99.00	1.381	1.373	0.008	1.000	5535467		1.35(0.00-0.00)	4469	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.502	1.495	0.007	1.000	954365	8.95		13649	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.646	1.639	0.007	1.000	3785577	24.5		12066	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.646	1.639	0.007	1.000	784003	8.33		185	
* 6 13C2-PFOA									
415.00 > 370.00	1.836	1.828	0.008		968987	10.0		9198	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.836	1.828	0.008	1.000	1423546	15.3		42.0	
413.00 > 169.00	1.836	1.828	0.008	1.000	790736		1.80(0.00-0.00)	856	
* 7 13C4 PFOS									
503.00 > 80.00	2.094	2.086	0.008		2749585	28.7		8868	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.094	2.086	0.008	1.000	2923923	32.3		9855	a
499.00 > 99.00	2.094	2.086	0.008	1.000	618966		4.72(0.00-0.00)	352	a
9 Perfluorononanoic acid									
463.00 > 419.00	2.102	2.094	0.008	1.000	1057061	17.7		34.6	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.261	0.0	1.000	515437	10.1		4111	

QC Flag Legend

Review Flags

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_015.d

Injection Date: 09-Mar-2018 09:45:17

Instrument ID: A8_N

Lims ID: LCSD 320-211311/3-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 44

Worklist Smp#: 12

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

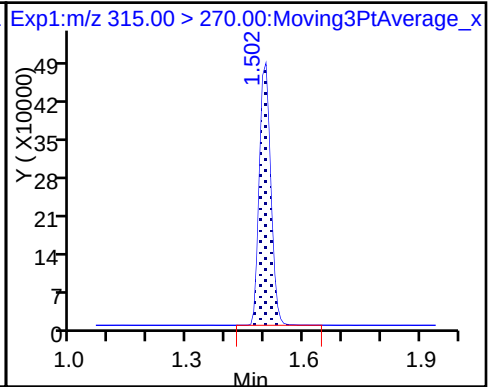
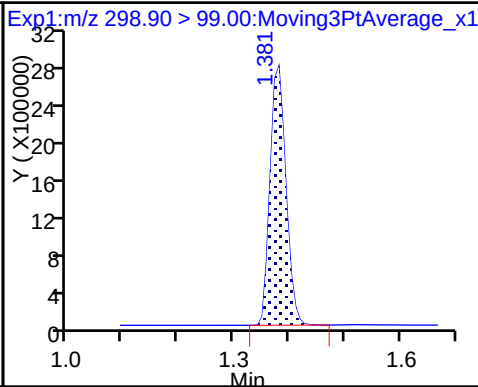
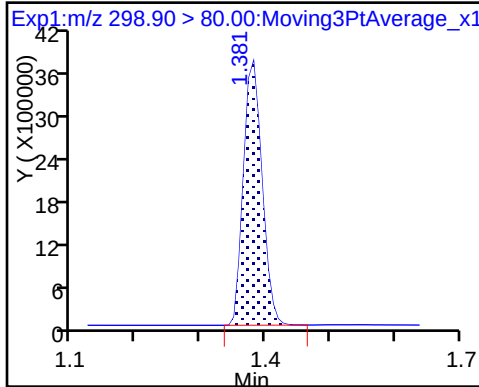
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

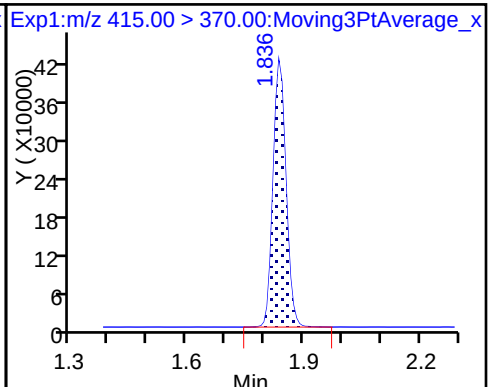
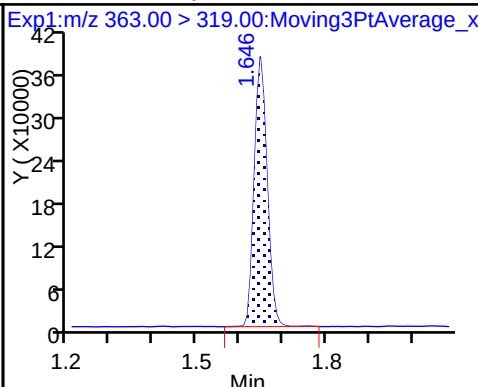
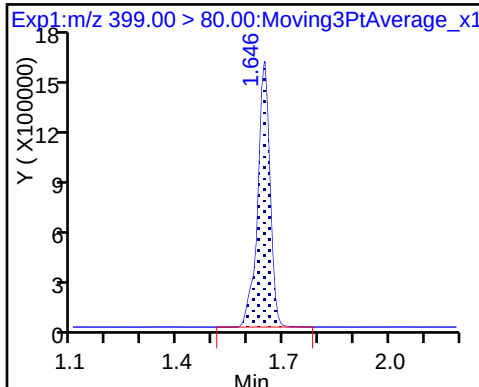
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

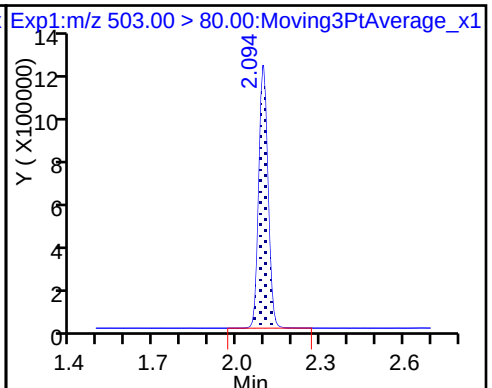
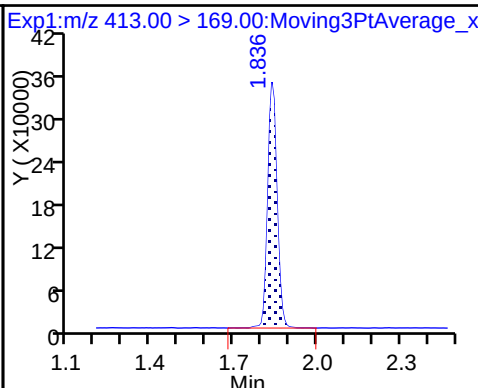
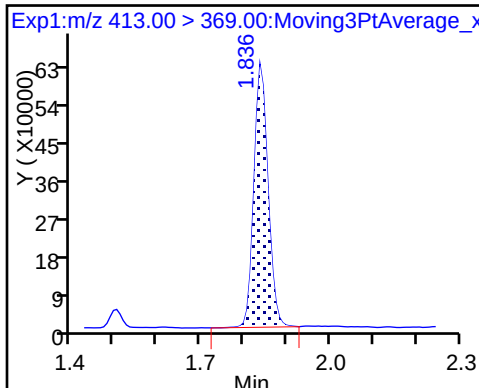
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

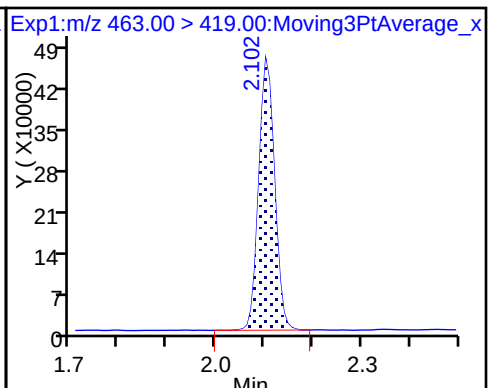
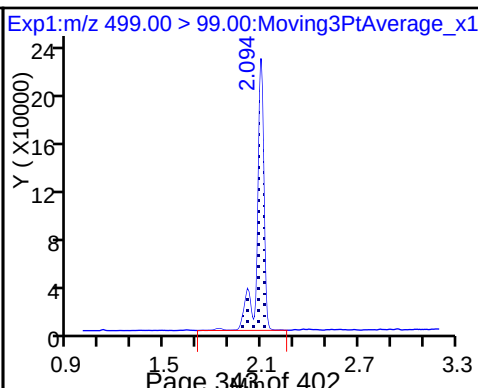
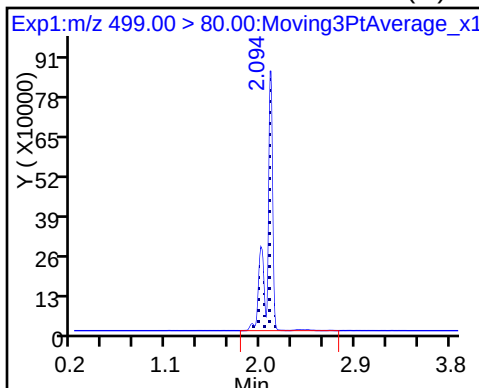
* 7 13C4 PFOS



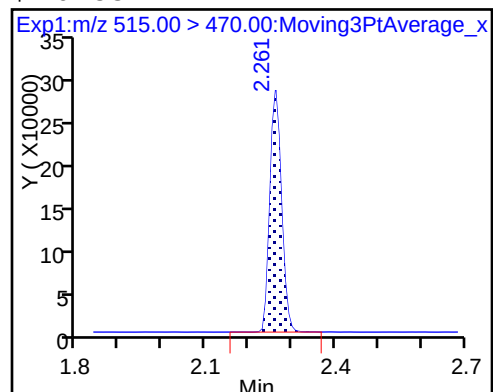
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_015.d
Lims ID: LCSD 320-211311/3-A
Client ID:
Sample Type: LCSD
Inject. Date: 09-Mar-2018 09:45:17 ALS Bottle#: 44 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: lcsd 320-211311/3-a
Misc. Info.: Plate: 1 Rack: 2
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 09-Mar-2018 11:01:35 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
Column 1 : Det: EXP1
Process Host: XAWRK018

First Level Reviewer: barnettj

Date: 09-Mar-2018 10:53:36

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.95	89.55
\$ 10 13C2 PFDA	10.0	10.1	101.46

TestAmerica Sacramento

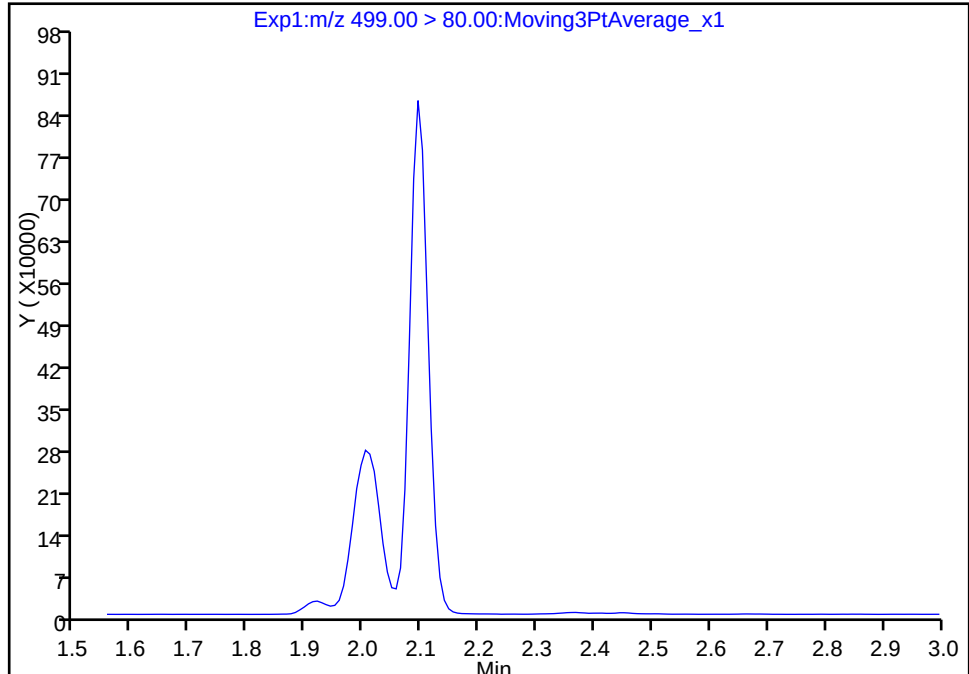
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b\2018.03.09_537A_015.d
Injection Date: 09-Mar-2018 09:45:17 Instrument ID: A8_N
Lims ID: LCSD 320-211311/3-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 44 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

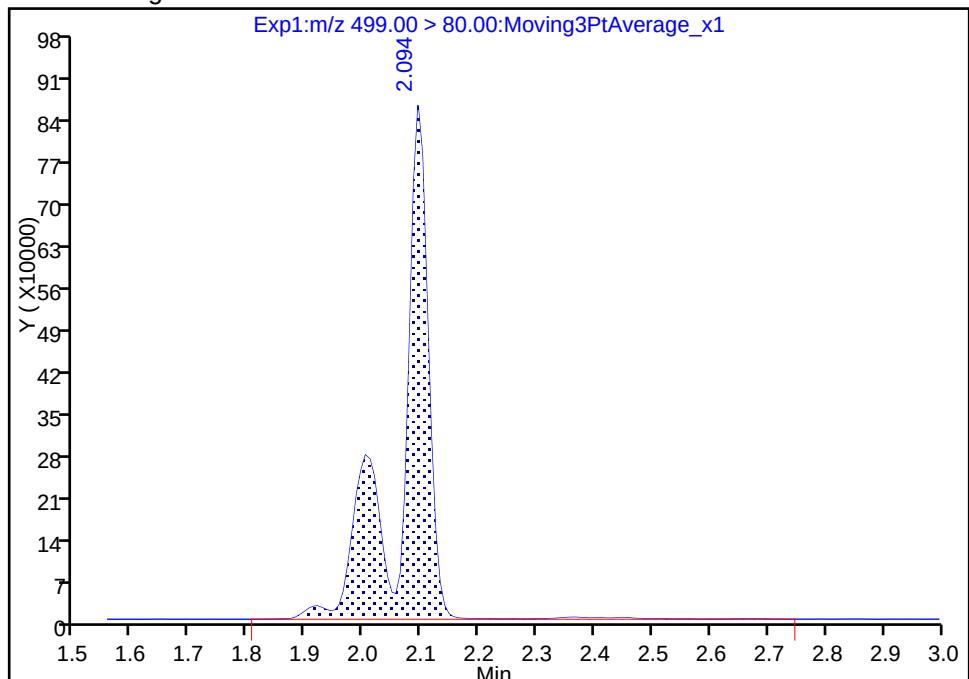
Not Detected
Expected RT: 2.09

Processing Integration Results



Manual Integration Results

RT: 2.09
Area: 2923923
Amount: 32.255170
Amount Units: ng/ml



Reviewer: barnettj, 09-Mar-2018 10:53:22

Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LLCS 320-210229/2-A
 Matrix: Water Lab File ID: 2018.03.05_537A_027.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 250 (mL) Date Analyzed: 03/05/2018 10:31
 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.: 211200 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	42.5	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	20.3		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	23.1	J	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	31.9		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	11.8		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	82.0	J	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	110		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_027.d
 Lims ID: LLCS 320-210229/2-A
 Client ID:
 Sample Type: LLCS
 Inject. Date: 05-Mar-2018 10:31:34 ALS Bottle#: 17 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: llcs 320-210229/
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:45:53 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:12:47

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.373	-0.007	1.000	2371084	20.5		851	
298.90 > 99.00	1.366	1.373	-0.007	1.000	1719321		1.38(0.00-0.00)	878	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.495	-0.008	1.000	945523	9.88		13283	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.639	1.646	-0.007	1.000	1166105	7.98		2384	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.639	1.646	-0.007	1.000	249338	2.95		53.0	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.844	-0.016		870348	10.0		7595	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.836	1.844	-0.008	1.000	424103	5.07		14.5	
413.00 > 169.00	1.836	1.844	-0.008	1.000	237756		1.78(0.00-0.00)	213	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.094	2.086	0.008	1.000	911500	10.6		520	a
499.00 > 99.00	2.094	2.086	0.008	1.000	197377		4.62(0.00-0.00)	91.3	a
* 7 13C4 PFOS									
503.00 > 80.00	2.094	2.102	-0.008		2603304	28.7		4960	
9 Perfluorononanoic acid									
463.00 > 419.00	2.102	2.109	-0.007	1.000	309834	5.78		16.8	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.269	-0.007	1.000	502636	11.0		3880	

QC Flag Legend

Review Flags

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_027.d

Injection Date: 05-Mar-2018 10:31:34

Instrument ID: A8_N

Lims ID: LLCS 320-210229/2-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 17

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

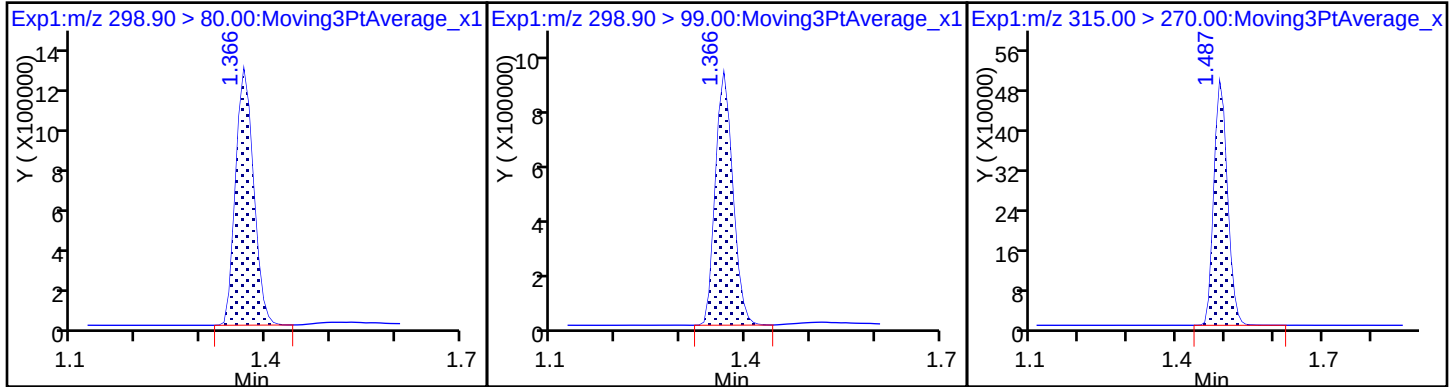
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

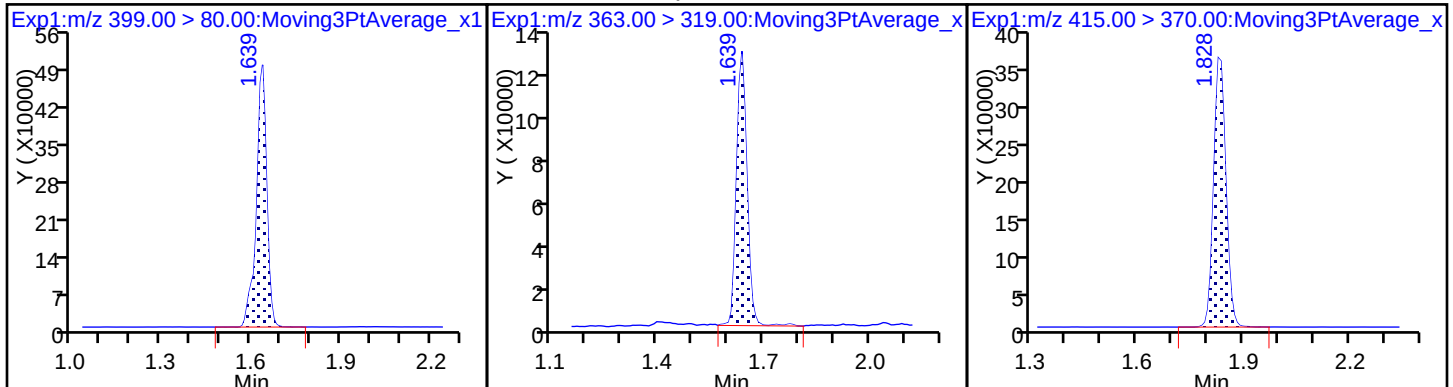
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

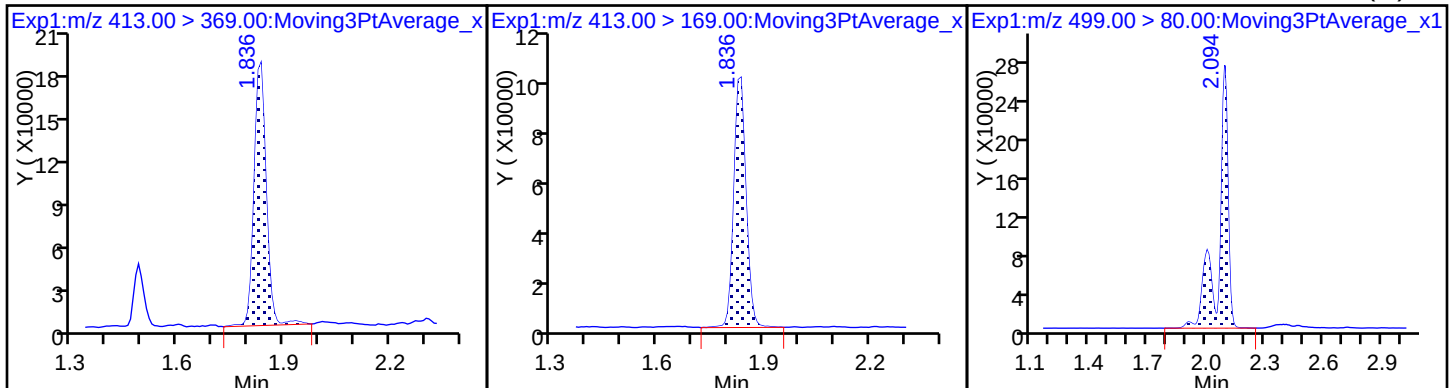
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

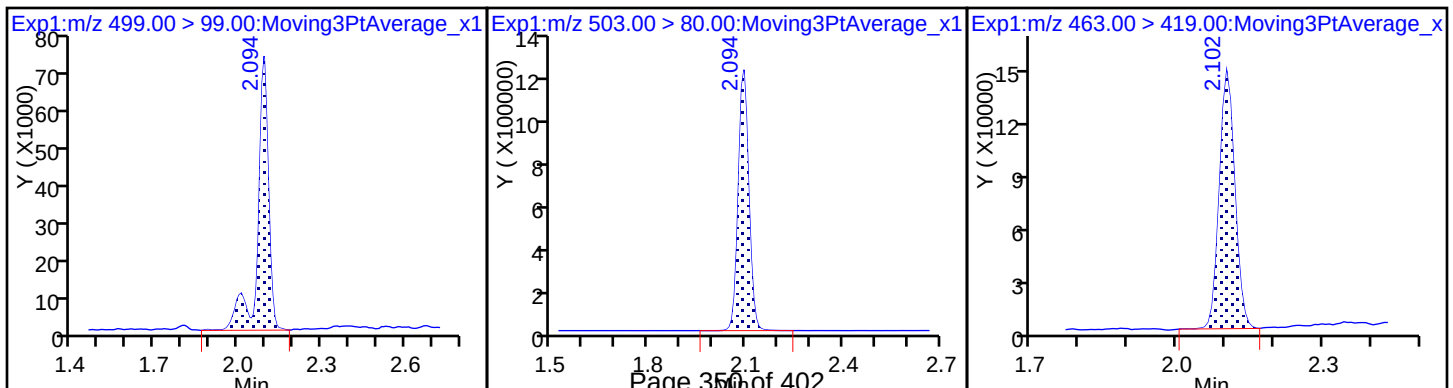
8 Perfluorooctane sulfonic acid (M)



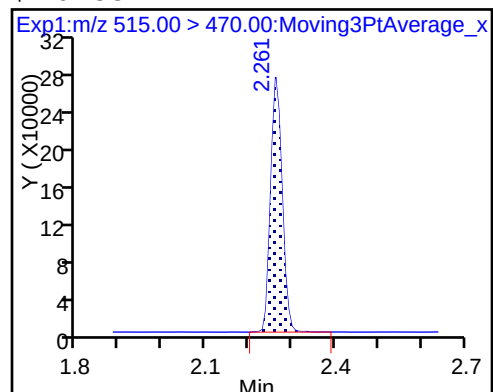
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_027.d
Lims ID: LLCS 320-210229/2-A
Client ID:
Sample Type: LLCS
Inject. Date: 05-Mar-2018 10:31:34 ALS Bottle#: 17 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: llcs 320-210229/
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 14:45:53 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
Column 1 : Det: EXP1
Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:12:47

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.88	98.77
\$ 10 13C2 PFDA	10.0	11.0	110.16

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_027.d

Injection Date: 05-Mar-2018 10:31:34

Instrument ID: A8_N

Lims ID: LLCS 320-210229/2-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 17

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: 537_A8_N

Limit Group: LC 537 ICAL

Column:

Detector EXP1

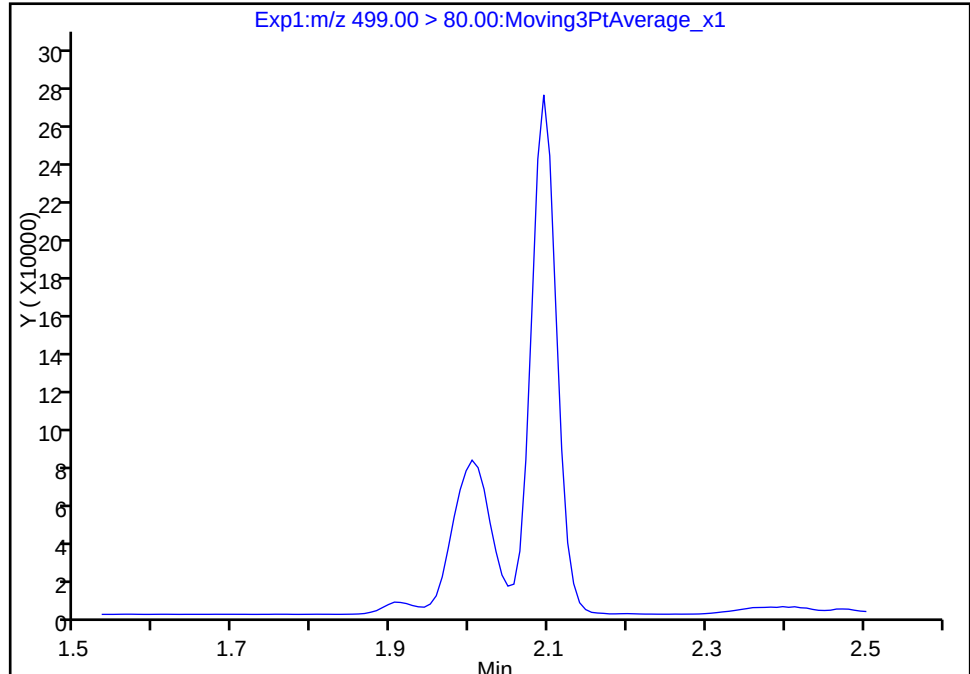
8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

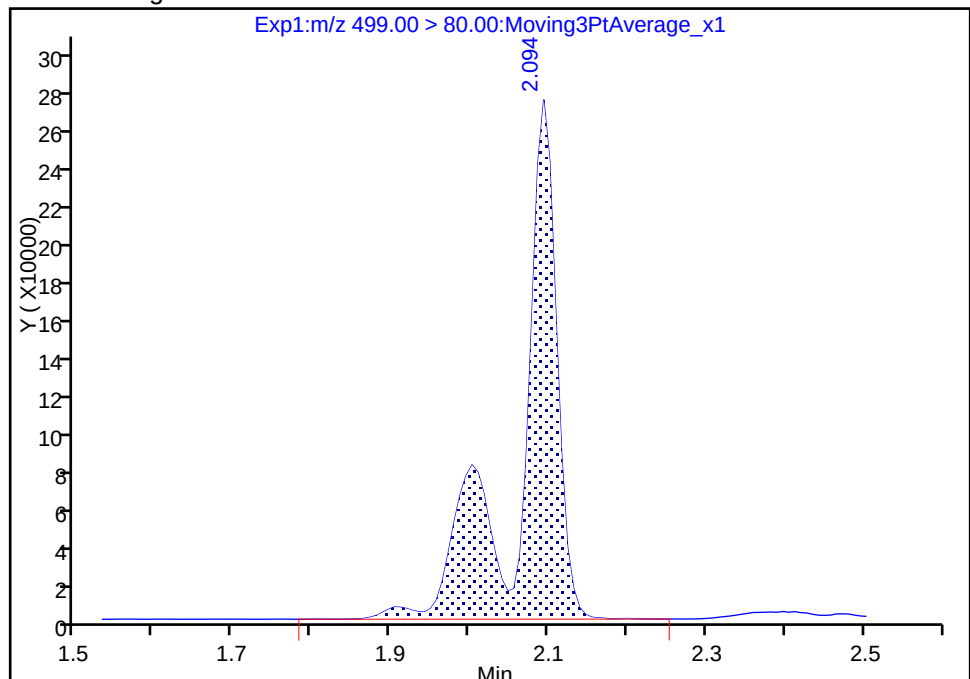
Not Detected

Expected RT: 2.09

Processing Integration Results



Manual Integration Results



RT: 2.09

Area: 911500

Amount: 10.620191

Amount Units: ng/ml

Reviewer: barnettj, 05-Mar-2018 14:12:19

Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LLCSD 320-210229/3-A
 Matrix: Water Lab File ID: 2018.03.05_537A_028.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 250 (mL) Date Analyzed: 03/05/2018 10:36
 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.: 211200 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	43.2	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	20.4		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	23.9	J	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	31.2		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	11.9		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	83.6	J	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	111		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_028.d
 Lims ID: LLCSD 320-210229/3-A
 Client ID:
 Sample Type: LLCSD
 Inject. Date: 05-Mar-2018 10:36:14 ALS Bottle#: 18 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: llcsd 320-210229
 Misc. Info.: Plate: 1 Rack: 3
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 05-Mar-2018 14:45:53 Calib Date: 16-Feb-2018 09:19:04
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:13:12

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.373	-0.007	1.000	2318428	20.9		883	
298.90 > 99.00	1.366	1.373	-0.007	1.000	1705964		1.36(0.00-0.00)	825	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.495	-0.008	1.000	911657	10.1		13406	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.639	1.646	-0.007	1.000	1094766	7.80		2265	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.639	1.646	-0.007	1.000	238331	2.98		49.4	
* 6 13C2-PFOA									
415.00 > 370.00	1.828	1.844	-0.016		822256	10.0		6749	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.836	1.844	-0.008	1.000	402713	5.09		13.5	
413.00 > 169.00	1.828	1.844	-0.016	0.996	235030		1.71(0.00-0.00)	223	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.094	2.086	0.008	1.000	889718	10.8		575	a
499.00 > 99.00	2.094	2.086	0.008	1.000	190441		4.67(0.00-0.00)	96.2	a
* 7 13C4 PFOS									
503.00 > 80.00	2.094	2.102	-0.008		2499043	28.7		8012	
9 Perfluorononanoic acid									
463.00 > 419.00	2.102	2.109	-0.007	1.000	302238	5.97		17.5	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.261	2.269	-0.007	1.000	479328	11.1		3726	

QC Flag Legend

Review Flags

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_028.d

Injection Date: 05-Mar-2018 10:36:14

Instrument ID: A8_N

Lims ID: LLCSD 320-210229/3-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 18

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

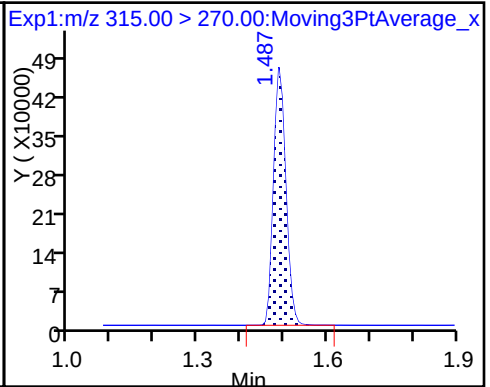
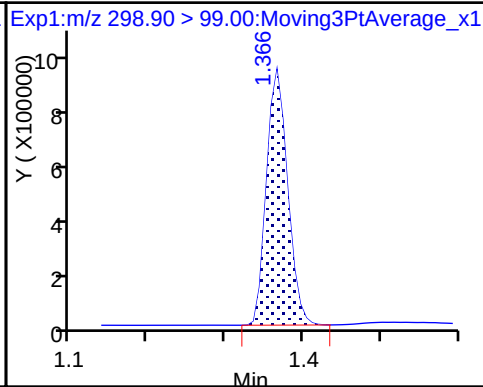
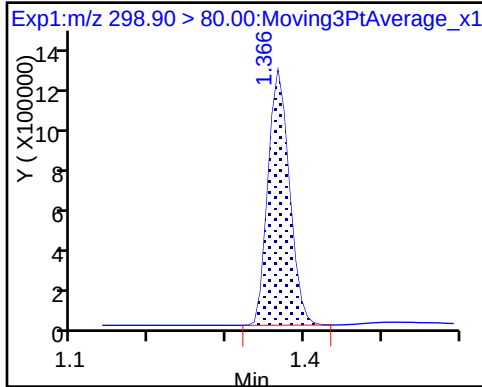
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

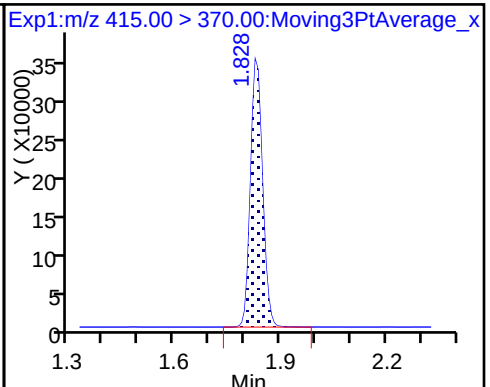
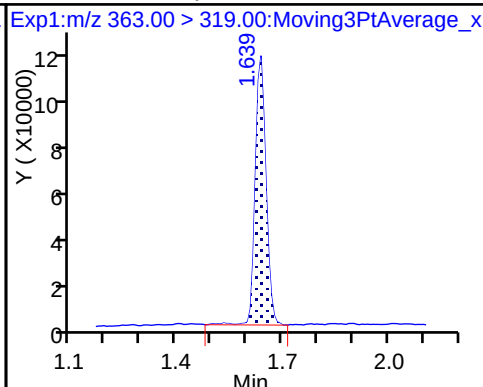
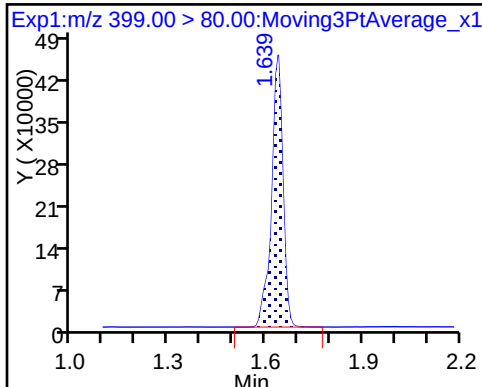
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

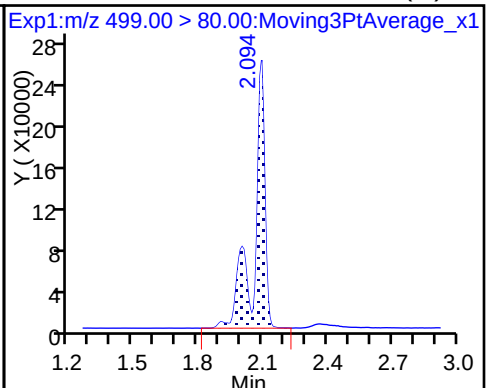
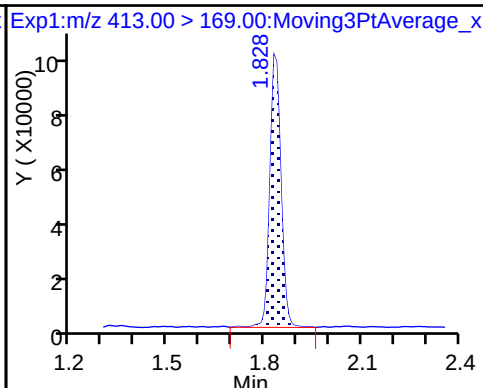
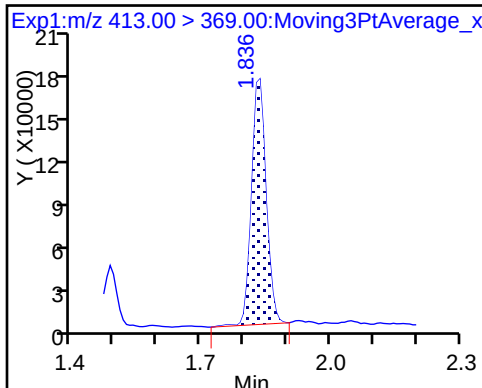
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

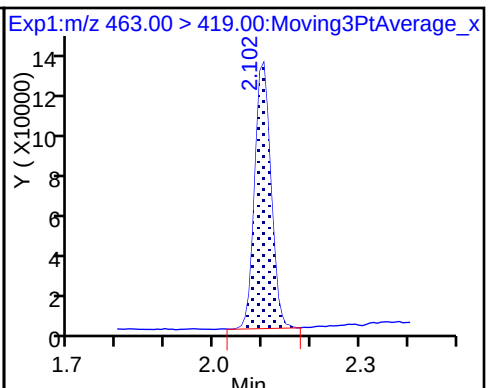
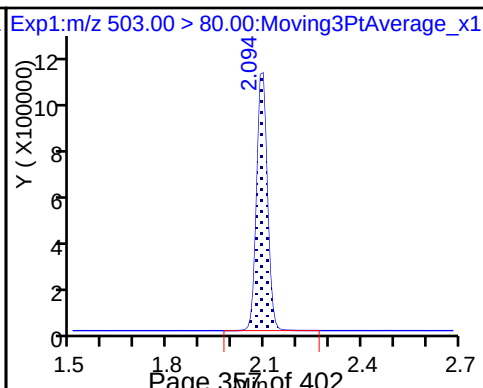
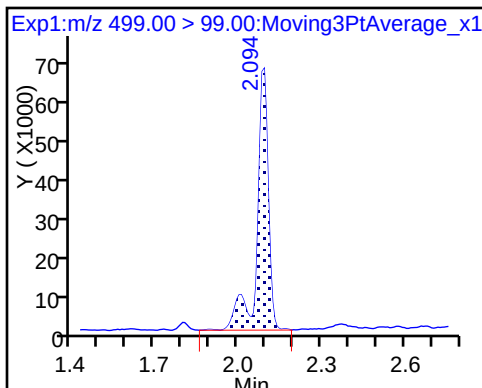
8 Perfluorooctane sulfonic acid (M)



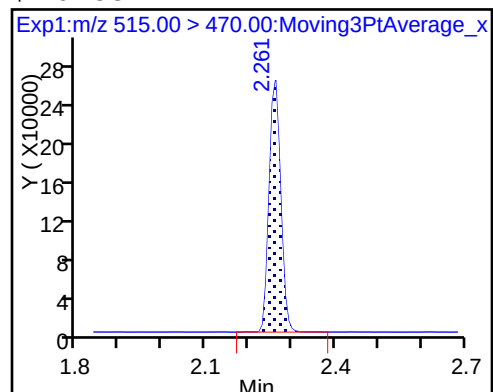
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_028.d
Lims ID: LLCSD 320-210229/3-A
Client ID:
Sample Type: LLCSD
Inject. Date: 05-Mar-2018 10:36:14 ALS Bottle#: 18 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Sample Info: llcsd 320-210229
Misc. Info.: Plate: 1 Rack: 3
Operator ID: SACINSTLCMS01 Instrument ID: A8_N
Method: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\537_A8_N.m
Limit Group: LC 537 ICAL
Last Update: 05-Mar-2018 14:45:53 Calib Date: 16-Feb-2018 09:19:04
Integrator: Picker
Quant Method: Internal Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20180216-54164.b\2018.02.016_537ICAL_009.d
Column 1 : Det: EXP1
Process Host: XAWRK024

First Level Reviewer: barnettj

Date: 05-Mar-2018 14:13:12

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.1	100.80
\$ 10 13C2 PFDA	10.0	11.1	111.19

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b\2018.03.05_537A_028.d

Injection Date: 05-Mar-2018 10:36:14

Instrument ID: A8_N

Lims ID: LLCSD 320-210229/3-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 18

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

Method: 537_A8_N

Limit Group: LC 537 ICAL

Column:

Detector EXP1

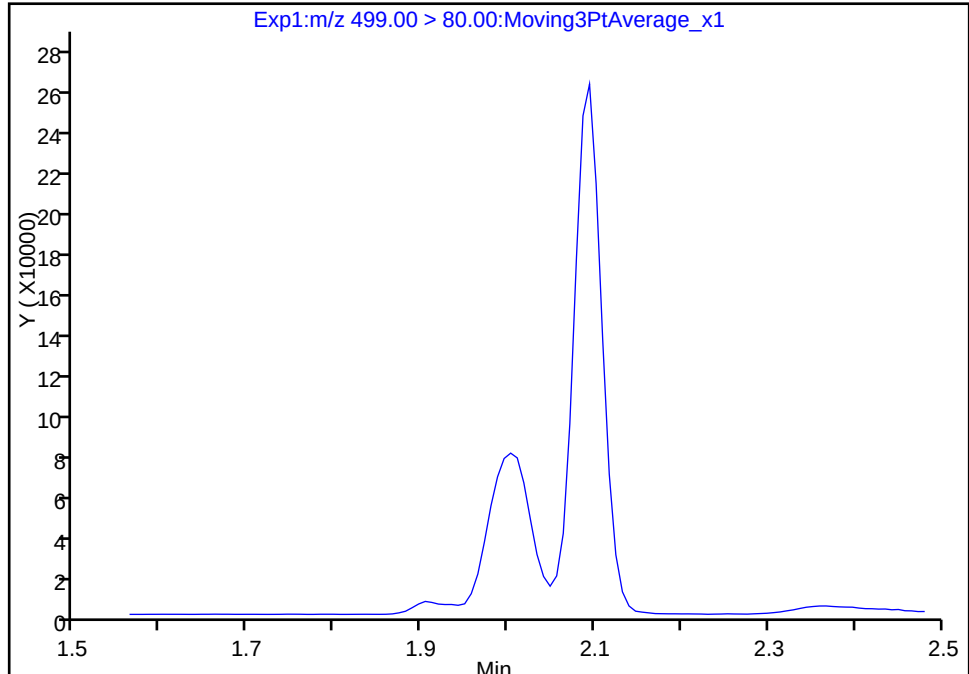
8 Perfluorooctane sulfonic acid, CAS: 1763-23-1

Signal: 1

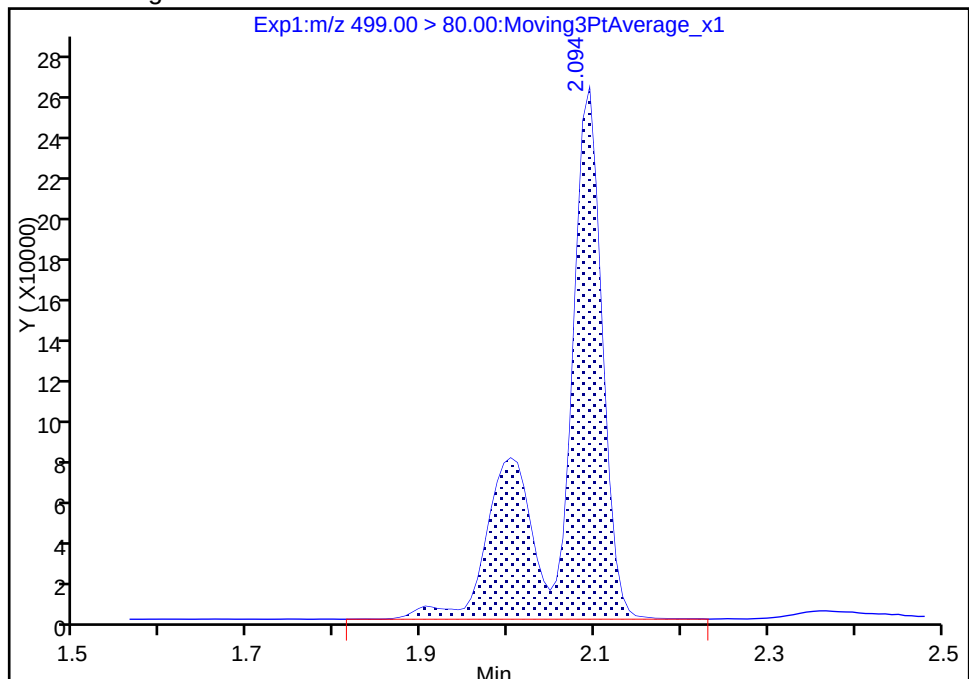
Not Detected

Expected RT: 2.09

Processing Integration Results



Manual Integration Results



RT: 2.09

Area: 889718

Amount: 10.798892

Amount Units: ng/ml

Reviewer: barnettj, 05-Mar-2018 14:12:53

Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_NStart Date: 02/16/2018 08:55Analysis Batch Number: 208773End Date: 02/16/2018 09:37

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-208773/4		02/16/2018 08:55	1	2018.02.016_537 ICAL 004.d	GeminiC18 3x100 3(mm)
IC 320-208773/5		02/16/2018 09:00	1	2018.02.016_537 ICAL 005.d	GeminiC18 3x100 3(mm)
IC 320-208773/6		02/16/2018 09:05	1	2018.02.016_537 ICAL 006.d	GeminiC18 3x100 3(mm)
IC 320-208773/7 ICISAV		02/16/2018 09:09	1	2018.02.016_537 ICAL 007.d	GeminiC18 3x100 3(mm)
IC 320-208773/8		02/16/2018 09:14	1	2018.02.016_537 ICAL 008.d	GeminiC18 3x100 3(mm)
IC 320-208773/9		02/16/2018 09:19	1	2018.02.016_537 ICAL 009.d	GeminiC18 3x100 3(mm)
ZZZZZ		02/16/2018 09:23	1		GeminiC18 3x100 3(mm)
CCVL 320-208773/11		02/16/2018 09:28	1	2018.02.016_537 ICAL 011.d	GeminiC18 3x100 3(mm)
ZZZZZ		02/16/2018 09:33	1		GeminiC18 3x100 3(mm)
ICV 320-208773/13		02/16/2018 09:37	1	2018.02.016_537 ICAL 013.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_NStart Date: 03/05/2018 08:44Analysis Batch Number: 211128End Date: 03/05/2018 09:44

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-211128/1		03/05/2018 08:44	1	2018.03.05_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-211128/2 CCVIS		03/05/2018 08:48	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 08:58	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:02	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:07	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:12	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:16	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:21	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:26	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:30	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:35	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:40	1		GeminiC18 3x100 3(mm)
CCV 320-211128/14 CCVIS		03/05/2018 09:44	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_N Start Date: 03/05/2018 10:17Analysis Batch Number: 211200 End Date: 03/05/2018 11:13

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-211200/1 CCVIS		03/05/2018 10:17	1	2018.03.05_537A 024.d	GeminiC18 3x100 3(mm)
MB 320-210229/1-A		03/05/2018 10:26	1	2018.03.05_537A 026.d	GeminiC18 3x100 3(mm)
LLCS 320-210229/2-A		03/05/2018 10:31	1	2018.03.05_537A 027.d	GeminiC18 3x100 3(mm)
LLCSD 320-210229/3-A		03/05/2018 10:36	1	2018.03.05_537A 028.d	GeminiC18 3x100 3(mm)
320-36091-1		03/05/2018 10:40	1	2018.03.05_537A 029.d	GeminiC18 3x100 3(mm)
320-36091-2		03/05/2018 10:45	1	2018.03.05_537A 030.d	GeminiC18 3x100 3(mm)
320-36091-3		03/05/2018 10:50	1	2018.03.05_537A 031.d	GeminiC18 3x100 3(mm)
320-36091-4		03/05/2018 10:54	1	2018.03.05_537A 032.d	GeminiC18 3x100 3(mm)
320-36091-5		03/05/2018 10:59	1	2018.03.05_537A 033.d	GeminiC18 3x100 3(mm)
320-36091-6		03/05/2018 11:04	1	2018.03.05_537A 034.d	GeminiC18 3x100 3(mm)
320-36091-7		03/05/2018 11:08	1	2018.03.05_537A 035.d	GeminiC18 3x100 3(mm)
CCV 320-211200/13 CCVIS		03/05/2018 11:13	1	2018.03.05_537A 036.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_NStart Date: 03/05/2018 11:13Analysis Batch Number: 211202End Date: 03/05/2018 12:09

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-211202/13 CCVIS		03/05/2018 11:13	1	2018.03.05_537A 036.d	GeminiC18 3x100 3(mm)
320-36091-8		03/05/2018 11:23	1	2018.03.05_537A 038.d	GeminiC18 3x100 3(mm)
320-36091-9		03/05/2018 11:27	1	2018.03.05_537A 039.d	GeminiC18 3x100 3(mm)
320-36091-10		03/05/2018 11:32	1	2018.03.05_537A 040.d	GeminiC18 3x100 3(mm)
320-36091-11		03/05/2018 11:37	1	2018.03.05_537A 041.d	GeminiC18 3x100 3(mm)
320-36091-12		03/05/2018 11:41	1	2018.03.05_537A 042.d	GeminiC18 3x100 3(mm)
320-36091-13		03/05/2018 11:46	1	2018.03.05_537A 043.d	GeminiC18 3x100 3(mm)
320-36091-14		03/05/2018 11:51	1	2018.03.05_537A 044.d	GeminiC18 3x100 3(mm)
320-36091-15		03/05/2018 11:55	1	2018.03.05_537A 045.d	GeminiC18 3x100 3(mm)
320-36091-16		03/05/2018 12:00	1	2018.03.05_537A 046.d	GeminiC18 3x100 3(mm)
320-36091-17		03/05/2018 12:05	1	2018.03.05_537A 047.d	GeminiC18 3x100 3(mm)
CCV 320-211202/25 CCVIS		03/05/2018 12:09	1	2018.03.05_537A 048.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_N Start Date: 03/09/2018 08:53Analysis Batch Number: 212122 End Date: 03/09/2018 09:26

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-212122/1		03/09/2018 08:53	1	2018.03.09_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-212122/2 CCVIS		03/09/2018 08:58	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/09/2018 09:07	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/09/2018 09:12	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/09/2018 09:17	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/09/2018 09:21	1		GeminiC18 3x100 3(mm)
CCV 320-212122/8 CCVIS		03/09/2018 09:26	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_N Start Date: 03/09/2018 09:26Analysis Batch Number: 212124 End Date: 03/09/2018 10:18

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-212124/8 CCVIS		03/09/2018 09:26	1	2018.03.09_537A 011.d	GeminiC18 3x100 3(mm)
MB 320-211311/1-A		03/09/2018 09:35	1	2018.03.09_537A 013.d	GeminiC18 3x100 3(mm)
LCS 320-211311/2-A		03/09/2018 09:40	1	2018.03.09_537A 014.d	GeminiC18 3x100 3(mm)
LCSD 320-211311/3-A		03/09/2018 09:45	1	2018.03.09_537A 015.d	GeminiC18 3x100 3(mm)
320-36091-10 RE		03/09/2018 09:49	1	2018.03.09_537A 016.d	GeminiC18 3x100 3(mm)
ZZZZZ		03/09/2018 09:54	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/09/2018 09:59	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/09/2018 10:03	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/09/2018 10:08	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/09/2018 10:13	1		GeminiC18 3x100 3(mm)
CCV 320-212124/19 CCVIS		03/09/2018 10:18	1	2018.03.09_537A 022.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Batch Number: 210229 Batch Start Date: 02/27/18 08:13 Batch Analyst: Arauz, Horacio JBatch Method: 537 Batch End Date: 03/02/18 15:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00061
MB 320-210229/1		537, 537				250 mL	1.00 mL	7.0 SU	100 uL
LLCS 320-210229/2		537, 537				250 mL	1.00 mL	7.0 SU	100 uL
LLCSD 320-210229/3		537, 537				250 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-1	WGNA-021318-DUP-26	537, 537	T	309.73 g	27.29 g	282.4 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-2	NAWC-021318-RW-188	537, 537	T	303.56 g	27.12 g	276.4 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-3	NAWC-021318-FRB-188	537, 537	T	300.79 g	29.71 g	271.1 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-4	WGN1A-021318-RW-3382	537, 537	T	308.23 g	27.17 g	281.1 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-5	WGNA-021318-FRB-3382	537, 537	T	292.05 g	29.49 g	262.6 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-6	NAWC-021318-RW-100	537, 537	T	319.03 g	27.44 g	291.6 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-7	NAWC-021318-FRB-100	537, 537	T	290.43 g	29.51 g	260.9 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-8	WGNA-021318-RW-3978	537, 537	T	296.61 g	27.10 g	269.5 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-9	WGNA-021318-FRB-3978	537, 537	T	296.80 g	29.69 g	267.1 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-10	WGNA-021318-RW-3933	537, 537	T	298.77 g	27.49 g	271.3 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-11	WGNA-021318-FRB-3933	537, 537	T	291.51 g	27.88 g	263.6 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-12	NAWC-021318-RW-161	537, 537	T	313.07 g	28.70 g	284.4 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-13	NAWC-021318-FRB-161	537, 537	T	287.65 g	28.22 g	259.4 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-14	NAWC-021318-RW-292	537, 537	T	310.60 g	27.55 g	283.1 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-15	NAWC-021318-FRB-292	537, 537	T	306.67 g	27.77 g	278.9 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-16	NAWC-021318-RW-290	537, 537	T	295.74 g	27.12 g	268.6 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-17	NAWC-021318-FRB-290	537, 537	T	293.91 g	27.78 g	266.1 mL	1.00 mL	7.0 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00029	LC537-SU 00058	AnalysisComment		
---------------	------------------	--------------	-------	-----------------	----------------	-----------------	--	--

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.: 320-36091-1

SDG No.: _____

Batch Number: 210229 Batch Start Date: 02/27/18 08:13 Batch Analyst: Arauz, Horacio JBatch Method: 537 Batch End Date: 03/02/18 15:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00029	LC537-SU 00058	AnalysisComment			
MB 320-210229/1		537, 537			100 uL	Chlorine ND			
LLCS 320-210229/2		537, 537		100 uL	100 uL	Chlorine ND			
LLCSD 320-210229/3		537, 537		100 uL	100 uL	Chlorine ND			
320-36091-A-1	WGNA-021318-DUP-26	537, 537	T		100 uL	Chlorine ND			
320-36091-A-2	NAWC-021318-RW-188	537, 537	T		100 uL	Chlorine ND			
320-36091-A-3	NAWC-021318-FRB-188	537, 537	T		100 uL	Chlorine ND			
320-36091-A-4	WGN1A-021318-RW-3382	537, 537	T		100 uL	Chlorine ND			
320-36091-A-5	WGNA-021318-FRB-3382	537, 537	T		100 uL	Chlorine ND			
320-36091-A-6	NAWC-021318-RW-100	537, 537	T		100 uL	Chlorine ND			
320-36091-A-7	NAWC-021318-FRB-100	537, 537	T		100 uL	Chlorine ND			
320-36091-A-8	WGNA-021318-RW-3978	537, 537	T		100 uL	Chlorine ND			
320-36091-A-9	WGNA-021318-FRB-3978	537, 537	T		100 uL	Chlorine ND			
320-36091-A-10	WGNA-021318-RW-3933	537, 537	T		100 uL	Chlorine ND			
320-36091-A-11	WGNA-021318-FRB-3933	537, 537	T		100 uL	Chlorine ND			
320-36091-A-12	NAWC-021318-RW-161	537, 537	T		100 uL	Chlorine ND			
320-36091-A-13	NAWC-021318-FRB-161	537, 537	T		100 uL	Chlorine ND			
320-36091-A-14	NAWC-021318-RW-292	537, 537	T		100 uL	Chlorine ND			
320-36091-A-15	NAWC-021318-FRB-292	537, 537	T		100 uL	Chlorine ND			
320-36091-A-16	NAWC-021318-RW-290	537, 537	T		100 uL	Chlorine ND			
320-36091-A-17	NAWC-021318-FRB-290	537, 537	T		100 uL	Chlorine 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.: 320-36091-1

SDG No.: _____

Batch Number: 210229 Batch Start Date: 02/27/18 08:13 Batch Analyst: Arauz, Horacio JBatch Method: 537 Batch End Date: 03/02/18 15:00

Batch Notes	
Analyst ID - Aliquot Step	SKD
Batch Comment	Client labels match TA labels, 02/27/ HJA
Analyst ID - Concentration	SKD
Analyst ID - Final Volume Step	SKD
Internal Standard ID#	1169779
Manifold ID	1,4
Methanol ID	115849
pH Indicator ID	1617
Pipette ID	H14930F, M16387D, N32728F
Analyst ID - IS Reagent Drop	TWL
Analyst ID - IS Reagent Drop Witness	SKD
Analyst ID - SU Reagent Drop	HJA
Analyst ID - SU Reagent Drop Witness	NGK
Analyst ID - TA Reagent Drop	HJA
Analyst ID - TA Reagent Drop Witness	NGK
SPE Cartridge Lot ID	6369499-6
Trizma ID	SLBR4303V
Reagent Water ID	02/27/18

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.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Batch Number: 211311 Batch Start Date: 03/05/18 17:45 Batch Analyst: Long, Tyrel WBatch Method: 537 Batch End Date: 03/08/18 16:30

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00062
MB 320-211311/1		537, 537				250 mL	1.00 mL	7 SU	100 uL
LCS 320-211311/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
LCSD 320-211311/3		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-36091-B-10	WGNA-021318-RW-3 933	537, 537	T	307.34 g	27.36 g	280 mL	1.00 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-MSP 00032	LC537-SU 00063	AnalysisComment			
MB 320-211311/1		537, 537			100 uL	Chlorine ND			
LCS 320-211311/2		537, 537		100 uL	100 uL	Chlorine ND			
LCSD 320-211311/3		537, 537		100 uL	100 uL	Chlorine ND			
320-36091-B-10	WGNA-021318-RW-3 933	537, 537	T		100 uL	Chlorine 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.: 320-36091-1

SDG No.: _____

Batch Number: 211311 Batch Start Date: 03/05/18 17:45 Batch Analyst: Long, Tyrel WBatch Method: 537 Batch End Date: 03/08/18 16:30

Batch Notes	
Analyst ID - Aliquot Step	TWL
Batch Comment	Client labels match: TWL 3/5/18
Analyst ID - Concentration	KMK
Analyst ID - Final Volume Step	TWL
Internal Standard ID#	1169780
Manifold ID	9
Methanol ID	1167500
pH Indicator ID	2517
Pipette ID	M16387D
Analyst ID - IS Reagent Drop	TWL
Analyst ID - IS Reagent Drop Witness	KMK
Analyst ID - SU Reagent Drop	TWL
Analyst ID - SU Reagent Drop Witness	JER
Analyst ID - TA Reagent Drop	TWL
Analyst ID - TA Reagent Drop Witness	JER
SPE Cartridge Lot ID	6369499-06
Trizma ID	SLBR4303V
Reagent Water ID	03/03/18

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.

A8

Job No: 36091 Instrument ID & Date: 3-5-18 ICAL Batch: 208773
 Extraction Batch: 210229 Worklist #: 54840 TALS Batch: 211200, 211202

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 3-5-18

2nd Level Reviewer / Date: MWJ 3/6/2018

NCM # and Comments:

A8

Instrument ID & Date: 2-16-18 Worklist#: 54164

ICAL Batch: 208773,208774 Calibration ID number: 37889,37890

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 2-16-18

2nd Level Reviewer / Date: CBW 2-16-18

NCM # and Comments: _____

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 05MAR2018_537B

Worklist Number: 54840

Instrument Name: A8_N

Chrom Method: 537_A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b

QC Batching: Enabled

Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 211200	LC 537 CS ICAL Raw Batch: 211201
# 1 CCV L3	# 1 CCV L3	# 1 CCV L3
# 2 RB	# 2 RB	# 2 RB
# 3 MB 320-210229/1-A	# 3 MB 320-210229/1-A	
# 4 LLCS 320-210229/2-A	# 4 LLCS 320-210229/2-A	
# 5 LLCSD 320-210229/3-A	# 5 LLCSD 320-210229/3-A	
# 6 320-36091-A-1-A	# 6 320-36091-A-1-A	
# 7 320-36091-A-2-A	# 7 320-36091-A-2-A	
# 8 320-36091-A-3-A	# 8 320-36091-A-3-A	
# 9 320-36091-A-4-A	# 9 320-36091-A-4-A	
#10 320-36091-A-5-A	#10 320-36091-A-5-A	
#11 320-36091-A-6-A	#11 320-36091-A-6-A	
#12 320-36091-A-7-A	#12 320-36091-A-7-A	
#13 CCV L5	#13 CCV L5	#13 CCV L5

QC Batch: 2	LC 537 ICAL Raw Batch: 211202	LC 537 CS ICAL Raw Batch: 211203
#13 CCV L5	#13 CCV L5	#13 CCV L5
#14 RB	#14 RB	#14 RB
#15 320-36091-A-8-A	#15 320-36091-A-8-A	
#16 320-36091-A-9-A	#16 320-36091-A-9-A	
#17 320-36091-A-10-A	#17 320-36091-A-10-A	
#18 320-36091-A-11-A	#18 320-36091-A-11-A	
#19 320-36091-A-12-A	#19 320-36091-A-12-A	
#20 320-36091-A-13-A	#20 320-36091-A-13-A	
#21 320-36091-A-14-A	#21 320-36091-A-14-A	
#22 320-36091-A-15-A	#22 320-36091-A-15-A	
#23 320-36091-A-16-A	#23 320-36091-A-16-A	
#24 320-36091-A-17-A	#24 320-36091-A-17-A	
#25 CCV L3	#25 CCV L3	#25 CCV L3
#26 RB	#26 RB	#26 RB

CCV L in AB 211128

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 05MAR2018_537B

Worklist Num: 54840

Instrument: A8_N

Method: 537_A8_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b

Analysis Type: SemiVOA

Creator: Hannigan, Alyssa B

Inj Volume: 2.00

Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCV L3	320-0054840-001	CCVIS	05-Mar-2018 10:17:35	2018.03.05_537A_024.d	3	1.0		sv
RB	320-0054840-002	RB	05-Mar-2018 10:22:15	2018.03.05_537A_025.d	8	1.0		sv
MB 320-210229/1-A	320-0054840-003	MB	05-Mar-2018 10:26:54	2018.03.05_537A_026.d	16	1.0		sv
LLCS 320-210229/2-A	320-0054840-004	LLCS	05-Mar-2018 10:31:34	2018.03.05_537A_027.d	17	1.0		sv
LLCSD 320-210229/3-A	320-0054840-005	LLCSD	05-Mar-2018 10:36:14	2018.03.05_537A_028.d	18	1.0		sv
320-36091-A-1-A	320-0054840-006	Client	05-Mar-2018 10:40:55	2018.03.05_537A_029.d	19	1.0	WGNA-021318-DUP-26	sv
320-36091-A-2-A	320-0054840-007	Client	05-Mar-2018 10:45:36	2018.03.05_537A_030.d	20	1.0	NAWC-021318-RW-188	sv
320-36091-A-3-A	320-0054840-008	Client	05-Mar-2018 10:50:18	2018.03.05_537A_031.d	21	1.0	NAWC-021318-FRB-188	sv
320-36091-A-4-A	320-0054840-009	Client	05-Mar-2018 10:54:59	2018.03.05_537A_032.d	22	1.0	WGN1A-021318-RW-3382	sv
320-36091-A-5-A	320-0054840-010	Client	05-Mar-2018 10:59:39	2018.03.05_537A_033.d	23	1.0	WGNA-021318-FRB-3382	sv
320-36091-A-6-A	320-0054840-011	Client	05-Mar-2018 11:04:19	2018.03.05_537A_034.d	24	1.0	NAWC-021318-RW-100	sv
320-36091-A-7-A	320-0054840-012	Client	05-Mar-2018 11:08:59	2018.03.05_537A_035.d	25	1.0	NAWC-021318-FRB-100	sv
CCV L5	320-0054840-013	CCVIS	05-Mar-2018 11:13:40	2018.03.05_537A_036.d	5	1.0		sv
RB	320-0054840-014	RB	05-Mar-2018 11:18:21	2018.03.05_537A_037.d	8	1.0		sv
320-36091-A-8-A	320-0054840-015	Client	05-Mar-2018 11:23:00	2018.03.05_537A_038.d	26	1.0	WGNA-021318-RW-3978	sv
320-36091-A-9-A	320-0054840-016	Client	05-Mar-2018 11:27:40	2018.03.05_537A_039.d	27	1.0	WGNA-021318-FRB-3978	sv
320-36091-A-10-A	320-0054840-017	Client	05-Mar-2018 11:32:20	2018.03.05_537A_040.d	28	1.0	WGNA-021318-RW-3933	sv
320-36091-A-11-A	320-0054840-018	Client	05-Mar-2018 11:37:01	2018.03.05_537A_041.d	29	1.0	WGNA-021318-FRB-3933	sv
320-36091-A-12-A	320-0054840-019	Client	05-Mar-2018 11:41:42	2018.03.05_537A_042.d	30	1.0	NAWC-021318-RW-161	sv
320-36091-A-13-A	320-0054840-020	Client	05-Mar-2018 11:46:22	2018.03.05_537A_043.d	31	1.0	NAWC-021318-FRB-161	sv
320-36091-A-14-A	320-0054840-021	Client	05-Mar-2018 11:51:03	2018.03.05_537A_044.d	32	1.0	NAWC-021318-RW-292	sv
320-36091-A-15-A	320-0054840-022	Client	05-Mar-2018 11:55:43	2018.03.05_537A_045.d	33	1.0	NAWC-021318-FRB-292	sv
320-36091-A-16-A	320-0054840-023	Client	05-Mar-2018 12:00:23	2018.03.05_537A_046.d	34	1.0	NAWC-021318-RW-290	sv
320-36091-A-17-A	320-0054840-024	Client	05-Mar-2018 12:05:03	2018.03.05_537A_047.d	35	1.0	NAWC-021318-FRB-290	sv
CCV L3	320-0054840-025	CCVIS	05-Mar-2018 12:09:44	2018.03.05_537A_048.d	3	1.0		sv

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
RB	320-0054840-026	RB	05-Mar-2018 12:14:24	2018.03.05_537A_049.d	8	1.0		sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 05MAR2018_537A

Worklist Num: 54822

Instrument: A8_N

Method: 537_A8_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54822.b

Analysis Type: SemiVOA

Creator: Royce, Amani A

Inj Volume: 2.00

Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCVL	320-0054822-001	CCVL	05-Mar-2018 08:44:04	2018.03.05_537A_004.d	2	1.0		sv
CCV L3	320-0054822-002	CCVIS	05-Mar-2018 08:48:44	2018.03.05_537A_005.d	3	1.0		sv
RB	320-0054822-003	RB	05-Mar-2018 08:53:24	2018.03.05_537A_006.d	8	1.0		sv
MB 320-210599/1-A	320-0054822-004	MB	05-Mar-2018 08:58:04	2018.03.05_537A_007.d	1	1.0		sv
LLCS 320-210599/2-A	320-0054822-005	LLCS	05-Mar-2018 09:02:46	2018.03.05_537A_008.d	2	1.0		sv
LLCSD 320-210599/3-A	320-0054822-006	LLCSD	05-Mar-2018 09:07:27	2018.03.05_537A_009.d	3	1.0		sv
320-36228-B-1-A	320-0054822-007	Client	05-Mar-2018 09:12:09	2018.03.05_537A_010.d	4	1.0	C0AG1	sv
320-36228-B-2-A	320-0054822-008	Client	05-Mar-2018 09:16:49	2018.03.05_537A_011.d	5	1.0	C0AG2	sv
320-36228-B-3-A	320-0054822-009	Client	05-Mar-2018 09:21:29	2018.03.05_537A_012.d	6	1.0	C0AG3	sv
320-36228-B-4-A	320-0054822-010	Client	05-Mar-2018 09:26:10	2018.03.05_537A_013.d	7	1.0	C0AG4	sv
320-36228-B-5-A	320-0054822-011	Client	05-Mar-2018 09:30:50	2018.03.05_537A_014.d	8	1.0	C0AG5	sv
320-36228-B-6-A	320-0054822-012	Client	05-Mar-2018 09:35:30	2018.03.05_537A_015.d	9	1.0	C0AG6	sv
320-36228-B-7-A	320-0054822-013	Client	05-Mar-2018 09:40:09	2018.03.05_537A_016.d	10	1.0	C0AG7	sv
CCV L5	320-0054822-014	CCVIS	05-Mar-2018 09:44:51	2018.03.05_537A_017.d	5	1.0		sv
RB	320-0054822-015	RB	05-Mar-2018 09:49:31	2018.03.05_537A_018.d	8	1.0		sv
320-36228-B-8-A	320-0054822-016	Client	05-Mar-2018 09:54:11	2018.03.05_537A_019.d	11	1.0	C0AH5	sv
320-36228-B-9-A	320-0054822-017	Client	05-Mar-2018 09:58:53	2018.03.05_537A_020.d	12	1.0	C0AH6	sv
320-36228-B-10-A	320-0054822-018	Client	05-Mar-2018 10:03:33	2018.03.05_537A_021.d	13	1.0	C0AH7	sv
320-36228-B-11-A	320-0054822-019	Client	05-Mar-2018 10:08:14	2018.03.05_537A_022.d	14	1.0	C0AH8	sv
320-36228-B-12-A	320-0054822-020	Client	05-Mar-2018 10:12:55	2018.03.05_537A_023.d	15	1.0	C0AH9	sv
CCV L3	320-0054822-021	CCVIS	05-Mar-2018 10:17:35	2018.03.05_537A_024.d	3	1.0		sv
RB	320-0054822-022	RB	05-Mar-2018 10:22:15	2018.03.05_537A_025.d	8	1.0		sv

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-210229

Analyst: Arauz, Horacio J

Batch Open: 2/27/2018 8:13:00AM

Method Code: 320-537_Prep-320

Batch End: 3/2/2018 3:00:00PM

Extraction of Perfluorinated Alkyl Acids

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd Adj1 Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1 MB-320-210229/1 N/A	N/A		250 mL	7.0	N/A	N/A	N/A	Chlorine ND	
			1.00 mL						
2 LLCS-320-210229/2 N/A	N/A		250 mL	7.0	N/A	N/A	N/A	Chlorine ND	
			1.00 mL						
3 LLCSD-320-210229/3 N/A	N/A		250 mL	7.0	N/A	N/A	N/A	Chlorine ND	
			1.00 mL						
4 320-36091-A-1 (537_DOD5)	N/A (320-36091-1)	309.73 g	282.4 mL	7.0	2/19/18	16_Days	4	Chlorine ND	
		27.29 g	1.00 mL						
5 320-36091-A-2 (537_DOD5)	N/A (320-36091-1)	303.56 g	276.4 mL	7.0	2/19/18	16_Days	4	Chlorine ND	
		27.12 g	1.00 mL						
6 320-36091-A-3 (537_DOD5)	N/A (320-36091-1)	300.79 g	271.1 mL	7.0	2/19/18	16_Days	4	Chlorine ND	
		29.71 g	1.00 mL						
7 320-36091-A-4 (537_DOD5)	N/A (320-36091-1)	308.23 g	281.1 mL	7.0	2/19/18	16_Days	4	Chlorine ND	
		27.17 g	1.00 mL						
8 320-36091-A-5 (537_DOD5)	N/A (320-36091-1)	292.05 g	262.6 mL	7.0	2/19/18	16_Days	4	Chlorine ND	
		29.49 g	1.00 mL						
9 320-36091-A-6 (537_DOD5)	N/A (320-36091-1)	319.03 g	291.6 mL	7.0	2/19/18	16_Days	4	Chlorine ND	
		27.44 g	1.00 mL						
10 320-36091-A-7 (537_DOD5)	N/A (320-36091-1)	290.43 g	260.9 mL	7.0	2/19/18	16_Days	4	Chlorine ND	
		29.51 g	1.00 mL						

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-210229

Analyst: Arauz, Horacio J

Batch Open: 2/27/2018 8:13:00AM

Method Code: 320-537_Prep-320

Batch End: 3/2/2018 3:00:00PM

11	320-36091-A-8 (537_DOD5)	N/A (320-36091-1)	296.61 g 27.10 g	269.5 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	
12	320-36091-A-9 (537_DOD5)	N/A (320-36091-1)	296.80 g 29.69 g	267.1 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	
13	320-36091-A-10 (537_DOD5)	N/A (320-36091-1)	298.77 g 27.49 g	271.3 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	
14	320-36091-A-11 (537_DOD5)	N/A (320-36091-1)	291.51 g 27.88 g	263.6 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	
15	320-36091-A-12 (537_DOD5)	N/A (320-36091-1)	313.07 g 28.70 g	284.4 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	
16	320-36091-A-13 (537_DOD5)	N/A (320-36091-1)	287.65 g 28.22 g	259.4 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	
17	320-36091-A-14 (537_DOD5)	N/A (320-36091-1)	310.60 g 27.55 g	283.1 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	
18	320-36091-A-15 (537_DOD5)	N/A (320-36091-1)	306.67 g 27.77 g	278.9 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	
19	320-36091-A-16 (537_DOD5)	N/A (320-36091-1)	295.74 g 27.12 g	268.6 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	
20	320-36091-A-17 (537_DOD5)	N/A (320-36091-1)	293.91 g 27.78 g	266.1 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	

Page 379 of 402

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-210229

Analyst: Arauz, Horacio J

Batch Open: 2/27/2018 8:13:00AM

Method Code: 320-537_Prep-320

Batch End: 3/2/2018 3:00:00PM

Batch Notes

Manifold ID 1,4

pH Indicator ID 1617

Trizma ID SLBR4303V

SPE Cartridge Lot ID 6369499-6

Methanol ID 115849

Reagent Water ID 02/27/18

Internal Standard ID# 1169779

Pipette ID H14930F, M16387D, N32728F

Analyst ID - TA Reagent Drop HJA

Analyst ID - TA Reagent Drop NGK
Witness

Analyst ID - SU Reagent Drop HJA

Analyst ID - SU Reagent Drop NGK
Witness

Analyst ID - IS Reagent Drop TWL

Analyst ID - IS Reagent Drop SKD
Witness

Analyst ID - Concentration SKD

Analyst ID - Aliquot Step SKD

Analyst ID - Final Volume Step SKD

Batch Comment Client labels match TA labels, 02/27/ HJA

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-210229

Analyst: Arauz, Horacio J

Batch Open: 2/27/2018 8:13:00AM

Method Code: 320-537_Prep-320

Batch End:

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-210229

Analyst: Arauz, Horacio J

Batch Open: 2/27/2018 8:13:00AM

Method Code: 320-537_Prep-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-210229/1	LC537-SU_00058	100 uL	1.00 mL	HSA 2-27-18	NAN 2-27-18
LLCS 320-210229/2	LC537-LSP_00029	100 uL	1.00 mL		
LLCS 320-210229/2	LC537-SU_00058	100 uL	1.00 mL		
LLCSD 320-210229/3	LC537-LSP_00029	100 uL	1.00 mL		
LLCSD 320-210229/3	LC537-SU_00058	100 uL	1.00 mL		
320-36091-A-1	LC537-SU_00058	100 uL	1.00 mL		
320-36091-A-2	LC537-SU_00058	100 uL	1.00 mL		
320-36091-A-3	LC537-SU_00058	100 uL	1.00 mL		
320-36091-A-4	LC537-SU_00058	100 uL	1.00 mL		
320-36091-A-5	LC537-SU_00058	100 uL	1.00 mL		
320-36091-A-6	LC537-SU_00058	100 uL	1.00 mL		
320-36091-A-7	LC537-SU_00058	100 uL	1.00 mL		
320-36091-A-8	LC537-SU_00058	100 uL	1.00 mL		
320-36091-A-9	LC537-SU_00058	100 uL	1.00 mL		
320-36091-A-10	LC537-SU_00058	100 uL	1.00 mL		
320-36091-A-11	LC537-SU_00058	100 uL	1.00 mL		
320-36091-A-12	LC537-SU_00058	100 uL	1.00 mL		
320-36091-A-13	LC537-SU_00058	100 uL	1.00 mL		

Page 382 of 402

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-210229

Analyst: Arauz, Horacio J

Batch Open: 2/27/2018 8:13:00AM

Method Code: 320-537_Prep-320

Batch End:

320-36091-A-14	LC537-SU_00058	100 uL	1.00 mL	HSD 2-27-18	NBU 2-27-18
320-36091-A-15	LC537-SU_00058	100 uL	1.00 mL		
320-36091-A-16	LC537-SU_00058	100 uL	1.00 mL		
320-36091-A-17	LC537-SU_00058	100 uL	1.00 mL		

Other Reagents:

Reagent

Amount/Units

Lot#:

Page 383 of 402

Preparation Batch Number(s) 320-210229 Test 537-prep

Earliest Holding Time 2/27/18

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	✓	✓
BD, FV, and AL initials are transcribed into the batch comment	✓	✓
Sample List Tab	1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method	✓	✓
Holding time violation NCM filed	NA	NA
MS/MSD or MS/DU NCM filed	✓	✓
NCM for any anomalies filed	NA	NA
All NCMs include method code, matrix, and prep batch	✓	✓
Method/sample/login/QAS checked and correct	✓	✓
Batch contains no more than 20 live samples	✓	✓
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 properly in TALS	✓	✓
All additional information is transcribed into TALS and is correct and raw data is attached	✓	✓
Comments/Observations are transcribed correctly in TALS	✓	✓
Reagents Tab	1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and checked into TALS	✓	✓
All spike amounts correct and added to necessary samples and QC	✓	✓
Internal Standard is added to the reagents	✓	✓
All units are correctly transcribed into TALS	✓	✓

1st Level Reviewer: VPM

Date: 3/2/18

2nd Level Reviewer: JRB

Date: 3/5/18

Comments: _____

Method 537 CCV/Data Review Checklist

A8

Job No: 36091 Instrument ID & Date: 3-9-18 ICAL Batch: 208773
 Extraction Batch: 211311 Worklist #: 55099 TALS Batch: 212124, 211202
211530

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 3-9-18 2nd Level Reviewer / Date: CBW 3/9/18

NCM # and Comments: 118501, 118504, 118508

A8

Instrument ID & Date: 2-16-18 Worklist#: 54164

ICAL Batch: 208173,208774 Calibration ID number: 37889,37890

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 2-16-18

2nd Level Reviewer / Date: CBW 2-16-18

NCM # and Comments: _____

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 09MAR2018_537A Worklist Number: 55099
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 212122	LC 537 CS ICAL Raw Batch: 212123
# 1 CCVL # 2 CCV L5 # 3 RB # 4 MB 320-211748/1-A # 5 LCS 320-211748/2-A # 6 LCSD 320-211748/3-A # 7 320-36607-B-5-A # 8 CCV L3	# 1 CCVL # 2 CCV L5 # 3 RB # 4 MB 320-211748/1-A # 5 LCS 320-211748/2-A # 6 LCSD 320-211748/3-A # 7 320-36607-B-5-A # 8 CCV L3	# 1 CCVL

QC Batch: 2	LC 537 ICAL Raw Batch: 212124
# 8 CCV L3 # 9 RB #10 MB 320-211311/1-A #11 LCS 320-211311/2-A #12 LCSD 320-211311/3-A #13 320-36091-B-10-A #14 320-36091-B-17-A #15 MB 320-211530/1-A #16 LCS 320-211530/2-A #17 LCSD 320-211530/3-A #18 320-36091-B-16-A #19 CCV L5 #20 RB	# 8 CCV L3 # 9 RB #10 MB 320-211311/1-A #11 LCS 320-211311/2-A #12 LCSD 320-211311/3-A #13 320-36091-B-10-A #14 320-36091-B-17-A #15 MB 320-211530/1-A #16 LCS 320-211530/2-A #17 LCSD 320-211530/3-A #18 320-36091-B-16-A #19 CCV L5 #20 RB

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 09MAR2018_537A

Worklist Num: 55099

Instrument: A8_N

Method: 537_A8_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b

Analysis Type: SemiVOA

Creator: Royce, Amani A

Inj Volume: 2.00

Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCVL	320-0055099-001	CCVL	09-Mar-2018 08:53:57	2018.03.09_537A_004.d	2	1.0		SV
CCV L5	320-0055099-002	CCVIS	09-Mar-2018 08:58:38	2018.03.09_537A_005.d	5	1.0		SV
RB	320-0055099-003	RB	09-Mar-2018 09:03:17	2018.03.09_537A_006.d	8	1.0		SV
MB 320-211748/1-A	320-0055099-004	MB	09-Mar-2018 09:07:57	2018.03.09_537A_007.d	38	1.0		SV
LCS 320-211748/2-A	320-0055099-005	LCS	09-Mar-2018 09:12:38	2018.03.09_537A_008.d	39	1.0		SV
LCSD 320-211748/3-A	320-0055099-006	LCSD	09-Mar-2018 09:17:19	2018.03.09_537A_009.d	40	1.0		SV
320-36607-B-5-A	320-0055099-007	Client	09-Mar-2018 09:21:58	2018.03.09_537A_010.d	41	1.0	C0AL7	SV
CCV L3	320-0055099-008	CCVIS	09-Mar-2018 09:26:38	2018.03.09_537A_011.d	3	1.0		SV
RB	320-0055099-009	RB	09-Mar-2018 09:31:18	2018.03.09_537A_012.d	8	1.0		SV
MB 320-211311/1-A	320-0055099-010	MB	09-Mar-2018 09:35:57	2018.03.09_537A_013.d	42	1.0		SV
LCS 320-211311/2-A	320-0055099-011	LCS	09-Mar-2018 09:40:37	2018.03.09_537A_014.d	43	1.0		SV
LCSD 320-211311/3-A	320-0055099-012	LCSD	09-Mar-2018 09:45:17	2018.03.09_537A_015.d	44	1.0		SV
320-36091-B-10-A	320-0055099-013	Client	09-Mar-2018 09:49:57	2018.03.09_537A_016.d	45	1.0	WGNA-021318-RW-3933	SV
320-36091-B-17-A	320-0055099-014	Client	09-Mar-2018 09:54:38	2018.03.09_537A_017.d	46	1.0	NAWC-021318-FRB-290	SV
MB 320-211530/1-A	320-0055099-015	MB	09-Mar-2018 09:59:19	2018.03.09_537A_018.d	47	1.0		SV
LCS 320-211530/2-A	320-0055099-016	LCS	09-Mar-2018 10:03:59	2018.03.09_537A_019.d	48	1.0		SV
LCSD 320-211530/3-A	320-0055099-017	LCSD	09-Mar-2018 10:08:41	2018.03.09_537A_020.d	49	1.0		SV
320-36091-B-16-A	320-0055099-018	Client	09-Mar-2018 10:13:22	2018.03.09_537A_021.d	50	1.0	NAWC-021318-RW-290	SV
CCV L5	320-0055099-019	CCVIS	09-Mar-2018 10:18:02	2018.03.09_537A_022.d	5	1.0		SV
RB	320-0055099-020	RB	09-Mar-2018 10:22:42	2018.03.09_537A_023.d	8	1.0		SV

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Long, Tyrel W

Batch Open: 3/6/2018 5:48:00PM

Batch End: 3/8/2018 4:30:00PM

Batch Number: 320-211530 ✓

Method Code: 320-537_Prep-320

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-320-211530/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	
			1.00 mL								
2 LCS-320-211530/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	
			1.00 mL								
3 LCSD-320-211530/3 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	
			1.00 mL								
4 320-36091-B-16 (537_DOD5)	N/A (320-36091-1)	312.39 g	306.3 mL	7			2/19/18	16_Days	4	Chlorine ND	
		5.13 g	1.00 mL								

Page 389 of 402

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-211530

Analyst: Long, Tyrel W

Batch Open: 3/6/2018 5:48:00PM

Method Code: 320-537_Prep-320

Batch End: 3/8/2018 4:30:00PM

Batch Notes

Manifold ID 9

pH Indicator ID 3817

Trizma ID SLBR4303V

SPE Cartridge Lot ID 6369499-06

Methanol ID 1167500

Reagent Water ID 03/03/18

Internal Standard ID# 1169780

Pipette ID M16387D

Analyst ID - TA Reagent Drop TWL

Analyst ID - TA Reagent Drop VPM

Witness

Analyst ID - SU Reagent Drop TWL

Analyst ID - SU Reagent Drop VPM

Witness

Analyst ID - IS Reagent Drop TWL

Analyst ID - IS Reagent Drop KMK

Witness

Analyst ID - Concentration KMK

Analyst ID - Aliquot Step TWL

Analyst ID - Final Volume Step TWL

Batch Comment Client labels match: TWL 3/6/18

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-211530

Analyst: Long, Tyrel W

Batch Open: 3/6/2018 5:48:00PM

Method Code: 320-537_Prep-320

Batch End: 3/8/2018 4:30:00PM

Comments

320-36091-B-16

Rework Comments: possible sample switch with sample 17.

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-211530

Analyst: Long, Tyrel W

Batch Open: 3/6/2018 5:48:00PM

Method Code: 320-537_Prep-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-211530/1	LC537-SU_00063	100 uL	1.00 mL	TRZ 3/6/18	VRM 3/6/18
LCS 320-211530/2	LC537-MSP_00032	100 uL	1.00 mL	↓	↓
LCS 320-211530/2	LC537-SU_00063	100 uL	1.00 mL		
LCSD 320-211530/3	LC537-MSP_00032	100 uL	1.00 mL		
LCSD 320-211530/3	LC537-SU_00063	100 uL	1.00 mL		
320-36091-B-16	LC537-SU_00063	100 uL	1.00 mL		

Other Reagents:

Reagent

Amount/Units

Lot#:

Page 392 of 402

Preparation Batch Number(s) 211530

Test 537- Prep

Earliest Holding Time 2/27/18

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	✓	✓
BD, FV, and AL initials are transcribed into the batch comment	✓	✓
Sample List Tab	1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method	✓	✓
Holding time violation NCM filed	✓	✓
MS/MSD or MS/DU NCM filed	✓	✓
NCM for any anomalies filed	NA	NA
All NCMs include method code, matrix, and prep batch	✓	✓
Method/sample/login/QAS checked and correct	✓	✓
Batch contains no more than 20 live samples	✓	✓
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 properly in TALS	✓	✓
All additional information is transcribed into TALS and is correct and raw data is attached	✓	✓
Comments/Observations are transcribed correctly in TALS	✓	✓
Reagents Tab	1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and checked into TALS	✓	✓
All spike amounts correct and added to necessary samples and QC	✓	✓
Internal Standard is added to the reagents	✓	✓
All units are correctly transcribed into TALS	✓	✓

1st Level Reviewer: [Signature]

Date: 3/8/18

2nd Level Reviewer: VPM

Date: 3/9/18

Comments: _____

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-211311 ✓

Analyst: Long, Tyrel W

Batch Open: 3/5/2018 5:45:00PM

Method Code: 320-537_Prep-320

Batch End: 3/8/2018 4:30:00PM

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
MB-320-211311/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	
			1.00 mL								
LCS-320-211311/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	
			1.00 mL								
LCSD-320-211311/3 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	
			1.00 mL								
320-36091-B-10 (537_DOD5)	N/A (320-36091-1)	307.34 g	280 mL	7			2/19/18	16_Days	4	Chlorine ND	
		27.36 g	1.00 mL								
320-36091-B-17 (537_DOD5)	N/A (320-36091-1)	301.34 g	273.2 mL	7			2/19/18	16_Days	4	Chlorine ND	
		28.12 g	1.00 mL								

Page 394 of 402

Page 394 of 402

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-211311

Analyst: Long, Tyrel W

Batch Open: 3/5/2018 5:45:00PM

Method Code: 320-537_Prep-320

Batch End: 3/8/2018 4:30:00PM

Batch Notes

Manifold ID 9

pH Indicator ID 2517

Trizma ID SLBR4303V

SPE Cartridge Lot ID 6369499-06

Methanol ID 1167500

Reagent Water ID 03/03/18

Internal Standard ID# 1169780

Pipette ID M16387D

Analyst ID - TA Reagent Drop TWL

Analyst ID - TA Reagent Drop JER

Witness

Analyst ID - SU Reagent Drop TWL

Analyst ID - SU Reagent Drop JER

Witness

Analyst ID - IS Reagent Drop TWL

Analyst ID - IS Reagent Drop KMK

Witness

Analyst ID - Concentration KMK

Analyst ID - Aliquot Step TWL

Analyst ID - Final Volume Step TWL

Batch Comment Client labels match: TWL 3/5/18

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-211311

Analyst: Long, Tyrel W

Batch Open: 3/5/2018 5:45:00PM

Method Code: 320-537_Prep-320

Batch End: 3/8/2018 4:30:00PM

Comments

320-36091-B-10

Rework Comments: High I.S. and Field blank hits.

320-36091-B-17

Rework Comments: High I.S. and Field blank hits.

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-211311

Analyst: Long, Tyrel W

Batch Open: 3/5/2018 5:45:00PM

Method Code: 320-537_Prep-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-211311/1	LC537-SU_00063	100 uL	1.00 mL	Tw 3-5-18	3/5/18
LCS 320-211311/2	LC537-MSP_00032	100 uL	1.00 mL		
LCS 320-211311/2	LC537-SU_00063	100 uL	1.00 mL		
LCSD 320-211311/3	LC537-MSP_00032	100 uL	1.00 mL		
LCSD 320-211311/3	LC537-SU_00063	100 uL	1.00 mL		
320-36091-B-10	LC537-SU_00063	100 uL	1.00 mL		
320-36091-B-17	LC537-SU_00063	100 uL	1.00 mL		

Other Reagents:

Reagent

Amount/Units

Lot#:

Sacramento Preparation Data Review Checklist

Preparation Batch Number(s) 211311

Test 977 Prep

Earliest Holding Time 2/27/18

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	✓	✓
BD, FV, and AL initials are transcribed into the batch comment	✓	✓
Sample List Tab	1 st Level Reviewer	2 nd Level Reviewer
Samples identified to the correct method	✓	✓
Holding time violation NCM filed	NA	NA
MS/MSD or MS/DU NCM filed	✓	✓
NCM for any anomalies filed	NA	NA
All NCMs include method code, matrix, and prep batch	✓	✓
Method/sample/login/QAS checked and correct	✓	✓
Batch contains no more than 20 live samples	✓	✓
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 properly in TALS	✓	✓
All additional information is transcribed into TALS and is correct and raw data is attached	✓	✓
Comments/Observations are transcribed correctly in TALS	✓	✓
Reagents Tab	1 st Level Reviewer	2 nd Level Reviewer
All necessary reagents not expired and checked into TALS	✓	✓
All spike amounts correct and added to necessary samples and QC	✓	✓
Internal Standard is added to the reagents	✓	✓
All units are correctly transcribed into TALS	✓	✓

1st Level Reviewer: T. W. VPM

Date: 3/8/18

2nd Level Reviewer: VPM

Date: 3/9/18

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: 2/8/2018		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		 320-36091 Chain of Custody		Sampler: Mary Kay Bond		For Lab Use Only:	
King of Prussia, PA 19406		☐ CALENDAR DAYS ☐ WORKING DAYS				Walk-in Client:		Lab Sampling:	
610-382-1174		TAT if different from Below 21				Job / SDG No.:			
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-021318-DUP-26 *	2/13/2018	07:00	G	DW	2	N	N	Y	Duplicate
NAWC-021318-RW-188 *	2/13/2018	08:10	G	DW	2	N	N	Y	
NAWC-021318-FRB-188 *	2/13/2018	08:05	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-021318-RW-3382 *	2/13/2018	09:10	G	DW	2	N	N	Y	
WGNA-021318-FRB-3382 *	2/13/2018	09:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-021318-RW-100 *	2/13/2018	09:40	G	DW	2	N	N	Y	
NAWC-021318-FRB-100 *	2/13/2018	09:35	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-021318-RW-3978 *	2/13/2018	10:40	G	DW	2	N	N	Y	
WGNA-021318-FRB-3978 *	2/13/2018	10:35	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-021318-RW-3933 *	2/13/2018	11:10	G	DW	2	N	N	Y	
WGNA-021318-FRB-3933 *	2/13/2018	11:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-021318-RW-161 *	2/13/2018	11:40	G	DW	2	N	N	Y	
NAWC-021318-FRB-161 *	2/13/2018	11:35	G	DW	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

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Fed Ex Tracking:
 7714 7275 3314

Custody Seals Intact: ☒ Yes ☐ No	Custody Seal No.: 512	Date/Time: 2/13/18 18:00	Cooler Temp. (°C): 1.3	Corr'd:	Therm ID No.: 11-2
Relinquished by: Mary K Bond	Company: Tetra Tech	Date/Time: 2/8/2018 10:00	Received by: Dave Alltucker	Company: SAC	Date/Time: 2/8/18 905
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.11, dated 1/24/2017

880 Riverside Parkway
West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

[illegible]

Form No. CA-C-WI-002, Rev. 4.11, dated 1/24/2017

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-36091-1

Login Number: 36091

List Number: 1

Creator: Her, David A

List Source: TestAmerica Sacramento

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-021318-DUP-26","537","RES","320-36091-1","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","32","ng/L","J M","6.0","DL","","TRG","","","35","LOQ","YES","-99","","282.4","1.00","14","","
"WGNA-021318-DUP-26","537","RES","320-36091-1","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","27","ng/L","","2.5","DL","","TRG","","","18","LOQ","YES","-99","","282.4","1.00","7.1","","
"WGNA-021318-DUP-26","537","RES","320-36091-1","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","7.0","ng/L","J","4.9","DL","","TRG","","","27","LOQ","YES","-99","","282.4","1.00","11","","
"WGNA-021318-DUP-26","537","RES","320-36091-1","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","32","ng/L","U","14","DL","","TRG","","","80","LOQ","YES","-99","","282.4","1.00","32","","
"WGNA-021318-DUP-26","537","RES","320-36091-1","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","10","ng/L","","1.7","DL","","TRG","","","8.9","LOQ","YES","-99","","282.4","1.00","3.5","","
"WGNA-021318-DUP-26","537","RES","320-36091-1","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","18","ng/L","U","7.1","DL","","TRG","","","21","LOQ","YES","-99","","282.4","1.00","18","","
"WGNA-021318-DUP-26","537","RES","320-36091-1","TALSAC","STL00993","13C2 PFHxA","31","ng/L","","-99","DL","","SURRE","88","","-99","LOQ","YES","35.4","","282.4","1.00","0","","
"WGNA-021318-DUP-26","537","RES","320-36091-1","TALSAC","STL00996","13C2 PFDA","41","ng/L","","-99","DL","","SURRE","115","","-99","LOQ","YES","35.4","","282.4","1.00","0","","
"WGNA-021318-RW-3933","537","RE","320-36091-10","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","27","ng/L","J H M","6.1","DL","","TRG","","","36","LOQ","NO","-99","","280","1.00","14","","
"WGNA-021318-RW-3933","537","RE","320-36091-10","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","24","ng/L","H","2.5","DL","","TRG","","","18","LOQ","NO","-99","","280","1.00","7.1","","
"WGNA-021318-RW-3933","537","RE","320-36091-10","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","7.1","ng/L","J H","4.9","DL","","TRG","","","27","LOQ","NO","-99","","280","1.00","11","","
"WGNA-021318-RW-3933","537","RE","320-36091-10","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","32","ng/L","U H","14","DL","","TRG","","","80","LOQ","NO","-99","","280","1.00","32","","
"WGNA-021318-RW-3933","537","RE","320-36091-10","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","9.7","ng/L","H","1.7","DL","","TRG","","","8.9","LOQ","NO","-99","","280","1.00","3.6","","
"WGNA-021318-RW-3933","537","RE","320-36091-10","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","18","ng/L","U H","7.1","DL","","TRG","","","21","LOQ","NO","-99","","280","1.00","18","","
"WGNA-021318-RW-3933","537","RE","320-36091-10","TALSAC","STL00993","13C2 PFHxA","28","ng/L","","-99","DL","","SURRE","80","","-99","LOQ","YES","35.7","","280","1.00","0","","
"WGNA-021318-RW-3933","537","RE","320-36091-10","TALSAC","STL00996","13C2 PFDA","38","ng/L","","-99","DL","","SURRE","107","","-99","LOQ","YES","35.7","","280","1.00","0","","
"WGNA-021318-RW-3933","537","RES","320-36091-10","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","15","ng/L","J M","6.3","DL","","TRG","","","37","LOQ","YES","-99","","271.3","1.00","15","","
"WGNA-021318-RW-3933","537","RES","320-36091-10","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","13","ng/L","J","2.6","DL","","TRG","","","18","LOQ","YES","-99","","271.3","1.00","7.4","","
"WGNA-021318-RW-3933","537","RES","320-36091-10","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","11","ng/L","U","5.1","DL","","TRG","","","28","LOQ","YES","-99","","271.3","1.00","11","","
"WGNA-021318-RW-3933","537","RES","320-36091-10","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","33","ng/L","U","15","DL","","TRG","","","83","LOQ","YES","-99","","271.3","1.00","33","","
"WGNA-021318-RW-3933","537","RES","320-36091-10","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","5.0","ng/L","J","1.8","DL","","TRG","","","9.2","LOQ","YES","-99","","271.3","1.00","3.7","","
"WGNA-021318-RW-3933","537","RES","320-36091-10","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","18","ng/L","U","7.4","DL","","TRG","","","22","LOQ","YES","-99","","271.3","1.00","18","","
"WGNA-021318-RW-3933","537","RES","320-36091-10","TALSAC","STL00993","13C2 PFHxA","17","ng/L","Q","-99","DL","","SURRE","47","","-99","LOQ","YES","36.9","","271.3","1.00","0","","
"WGNA-021318-RW-3933","537","RES","320-36091-10","TALSAC","STL00996","13C2 PFDA","21","ng/L","Q","-99","DL","","SURRE","56","","-99","LOQ","YES","36.9","","271.3","1.00","0","","
"WGNA-021318-FRB-3933","537","RES","320-36091-11","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","15","ng/L","U","6.4","DL","","TRG","","","38","LOQ","YES","-99","","263.6","1.00","15","","
"WGNA-021318-FRB-3933","537","RES","320-36091-11","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","7.6","ng/L","U","2.7","DL","","TRG","","","19","LOQ","YES","-99","","263.6","1.00","7.6","","
"WGNA-021318-FRB-3933","537","RES","320-36091-11","TALSAC","355-46-4","Perfluorohexanesulfonic acid

(PFHxS)","11","ng/L","U","5.2","DL","","","TRG","","","28","LOQ","YES",-99","","263.6","1.00","11","","
"WGNA-021318-FRB-3933","537","RES","320-36091-11","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","34","ng/L","U","15","DL","","","TRG","","","85","LOQ","YES",-99","","263.6","1.00","34","","
"WGNA-021318-FRB-3933","537","RES","320-36091-11","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.8","ng/L","U","1.8","DL","","","TRG","","","9.5","LOQ","YES",-99","","263.6","1.00","3.8","","
"WGNA-021318-FRB-3933","537","RES","320-36091-11","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.6","DL","","","TRG","","","23","LOQ","YES",-99","","263.6","1.00","19","","
"WGNA-021318-FRB-3933","537","RES","320-36091-11","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","","-99","DL","","","SURRE","99","","","-99","LOQ","YES","37.9","","263.6","1.00","0","","
"WGNA-021318-FRB-3933","537","RES","320-36091-11","TALSAC","STL00996","13C2
PFDA","42","ng/L","","","-99","DL","","","SURRE","110","","","-99","LOQ","YES","37.9","","263.6","1.00","0","","
"NAWC-021318-RW-161","537","RES","320-36091-12","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","43","ng/L","M","6.0","DL","","","TRG","","","35","LOQ","YES",-99","","284.4","1.00","14","","
"NAWC-021318-RW-161","537","RES","320-36091-12","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","20","ng/L","","","2.5","DL","","","TRG","","","18","LOQ","YES",-99","","284.4","1.00","7.0","","
"NAWC-021318-RW-161","537","RES","320-36091-12","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","15","ng/L","J","4.8","DL","","","TRG","","","26","LOQ","YES",-99","","284.4","1.00","11","","
"NAWC-021318-RW-161","537","RES","320-36091-12","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","32","ng/L","U","14","DL","","","TRG","","","79","LOQ","YES",-99","","284.4","1.00","32","","
"NAWC-021318-RW-161","537","RES","320-36091-12","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","6.7","ng/L","J","1.7","DL","","","TRG","","","8.8","LOQ","YES",-99","","284.4","1.00","3.5","","
"NAWC-021318-RW-161","537","RES","320-36091-12","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","18","ng/L","U","7.0","DL","","","TRG","","","21","LOQ","YES",-99","","284.4","1.00","18","","
"NAWC-021318-RW-161","537","RES","320-36091-12","TALSAC","STL00993","13C2
PFHxA","30","ng/L","","","-99","DL","","","SURRE","86","","","-99","LOQ","YES","35.2","","284.4","1.00","0","","
"NAWC-021318-RW-161","537","RES","320-36091-12","TALSAC","STL00996","13C2
PFDA","37","ng/L","","","-99","DL","","","SURRE","104","","","-99","LOQ","YES","35.2","","284.4","1.00","0","","
"NAWC-021318-FRB-161","537","RES","320-36091-13","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","U","6.6","DL","","","TRG","","","39","LOQ","YES",-99","","259.4","1.00","15","","
"NAWC-021318-FRB-161","537","RES","320-36091-13","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.7","ng/L","U","2.7","DL","","","TRG","","","19","LOQ","YES",-99","","259.4","1.00","7.7","","
"NAWC-021318-FRB-161","537","RES","320-36091-13","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.3","DL","","","TRG","","","29","LOQ","YES",-99","","259.4","1.00","12","","
"NAWC-021318-FRB-161","537","RES","320-36091-13","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","","TRG","","","87","LOQ","YES",-99","","259.4","1.00","35","","
"NAWC-021318-FRB-161","537","RES","320-36091-13","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.9","ng/L","U","1.8","DL","","","TRG","","","9.6","LOQ","YES",-99","","259.4","1.00","3.9","","
"NAWC-021318-FRB-161","537","RES","320-36091-13","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.7","DL","","","TRG","","","23","LOQ","YES",-99","","259.4","1.00","19","","
"NAWC-021318-FRB-161","537","RES","320-36091-13","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","","-99","DL","","","SURRE","99","","","-99","LOQ","YES","38.6","","259.4","1.00","0","","
"NAWC-021318-FRB-161","537","RES","320-36091-13","TALSAC","STL00996","13C2
PFDA","44","ng/L","","","-99","DL","","","SURRE","114","","","-99","LOQ","YES","38.6","","259.4","1.00","0","","
"NAWC-021318-RW-292","537","RES","320-36091-14","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","22","ng/L","J M","6.0","DL","","","TRG","","","35","LOQ","YES",-99","","283.1","1.00","14","","
"NAWC-021318-RW-292","537","RES","320-36091-14","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","21","ng/L","","","2.5","DL","","","TRG","","","18","LOQ","YES",-99","","283.1","1.00","7.1","","
"NAWC-021318-RW-292","537","RES","320-36091-14","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","9.1","ng/L","J","4.9","DL","","","TRG","","","26","LOQ","YES",-99","","283.1","1.00","11","","
"NAWC-021318-RW-292","537","RES","320-36091-14","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","32","ng/L","U","14","DL","","","TRG","","","79","LOQ","YES",-99","","283.1","1.00","32","","
"NAWC-021318-RW-292","537","RES","320-36091-14","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","7.6","ng/L","J","1.7","DL","","","TRG","","","8.8","LOQ","YES",-99","","283.1","1.00","3.5","","
"NAWC-021318-RW-292","537","RES","320-36091-14","TALSAC","375-95-1","Perfluorononanoic acid

(PFNA),"18","ng/L","U","7.1","DL","","TRG","","","21","LOQ","YES",-99","","283.1","1.00","18","","
"NAWC-021318-RW-292","537","RES","320-36091-14","TALSAC","STL00993","13C2
PFHxA","31","ng/L","","-99","DL","","SURRE","87","","-99","LOQ","YES","35.3","","283.1","1.00","0","","
"NAWC-021318-RW-292","537","RES","320-36091-14","TALSAC","STL00996","13C2
PFDA","41","ng/L","","-99","DL","","SURRE","115","","-99","LOQ","YES","35.3","","283.1","1.00","0","","
"NAWC-021318-FRB-292","537","RES","320-36091-15","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","14","ng/L","U","6.1","DL","","TRG","","","36","LOQ","YES",-99","","278.9","1.00","14","","
"NAWC-021318-FRB-292","537","RES","320-36091-15","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.2","ng/L","U","2.5","DL","","TRG","","","18","LOQ","YES",-99","","278.9","1.00","7.2","","
"NAWC-021318-FRB-292","537","RES","320-36091-15","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","4.9","DL","","TRG","","","27","LOQ","YES",-99","","278.9","1.00","11","","
"NAWC-021318-FRB-292","537","RES","320-36091-15","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","32","ng/L","U","14","DL","","TRG","","","81","LOQ","YES",-99","","278.9","1.00","32","","
"NAWC-021318-FRB-292","537","RES","320-36091-15","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.6","ng/L","U","1.7","DL","","TRG","","","9.0","LOQ","YES",-99","","278.9","1.00","3.6","","
"NAWC-021318-FRB-292","537","RES","320-36091-15","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","18","ng/L","U","7.2","DL","","TRG","","","22","LOQ","YES",-99","","278.9","1.00","18","","
"NAWC-021318-FRB-292","537","RES","320-36091-15","TALSAC","STL00993","13C2
PFHxA","34","ng/L","","-99","DL","","SURRE","95","","-99","LOQ","YES","35.9","","278.9","1.00","0","","
"NAWC-021318-FRB-292","537","RES","320-36091-15","TALSAC","STL00996","13C2
PFDA","40","ng/L","","-99","DL","","SURRE","113","","-99","LOQ","YES","35.9","","278.9","1.00","0","","
"NAWC-021318-RW-290","537","RES","320-36091-16","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","U","6.3","DL","","TRG","","","37","LOQ","YES",-99","","268.6","1.00","15","","
"NAWC-021318-RW-290","537","RES","320-36091-16","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.4","ng/L","U","2.6","DL","","TRG","","","19","LOQ","YES",-99","","268.6","1.00","7.4","","
"NAWC-021318-RW-290","537","RES","320-36091-16","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","5.1","DL","","TRG","","","28","LOQ","YES",-99","","268.6","1.00","11","","
"NAWC-021318-RW-290","537","RES","320-36091-16","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","34","ng/L","U","15","DL","","TRG","","","84","LOQ","YES",-99","","268.6","1.00","34","","
"NAWC-021318-RW-290","537","RES","320-36091-16","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.7","ng/L","U","1.8","DL","","TRG","","","9.3","LOQ","YES",-99","","268.6","1.00","3.7","","
"NAWC-021318-RW-290","537","RES","320-36091-16","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.4","DL","","TRG","","","22","LOQ","YES",-99","","268.6","1.00","19","","
"NAWC-021318-RW-290","537","RES","320-36091-16","TALSAC","STL00993","13C2
PFHxA","39","ng/L","","-99","DL","","SURRE","105","","-99","LOQ","YES","37.2","","268.6","1.00","0","","
"NAWC-021318-RW-290","537","RES","320-36091-16","TALSAC","STL00996","13C2
PFDA","42","ng/L","","-99","DL","","SURRE","113","","-99","LOQ","YES","37.2","","268.6","1.00","0","","
"NAWC-021318-FRB-290","537","RES","320-36091-17","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","18","ng/L","J M","6.4","DL","","TRG","","","38","LOQ","YES",-99","","266.1","1.00","15","","
"NAWC-021318-FRB-290","537","RES","320-36091-17","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","54","ng/L","","2.6","DL","","TRG","","","19","LOQ","YES",-99","","266.1","1.00","7.5","","
"NAWC-021318-FRB-290","537","RES","320-36091-17","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","7.1","ng/L","J","5.2","DL","","TRG","","","28","LOQ","YES",-99","","266.1","1.00","11","","
"NAWC-021318-FRB-290","537","RES","320-36091-17","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","34","ng/L","U","15","DL","","TRG","","","85","LOQ","YES",-99","","266.1","1.00","34","","
"NAWC-021318-FRB-290","537","RES","320-36091-17","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","35","ng/L","","1.8","DL","","TRG","","","9.4","LOQ","YES",-99","","266.1","1.00","3.8","","
"NAWC-021318-FRB-290","537","RES","320-36091-17","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","10","ng/L","J","7.5","DL","","TRG","","","23","LOQ","YES",-99","","266.1","1.00","19","","
"NAWC-021318-FRB-290","537","RES","320-36091-17","TALSAC","STL00993","13C2
PFHxA","33","ng/L","","-99","DL","","SURRE","87","","-99","LOQ","YES","37.6","","266.1","1.00","0","","
"NAWC-021318-FRB-290","537","RES","320-36091-17","TALSAC","STL00996","13C2
PFDA","41","ng/L","","-99","DL","","SURRE","108","","-99","LOQ","YES","37.6","","266.1","1.00","0","","
"NAWC-021318-RW-188","537","RES","320-36091-2","TALSAC","1763-23-1","Perfluorooctanesulfonic acid

(PFOS),"19","ng/L","J M","6.2","DL","","TRG","","","36","LOQ","YES",-99","","276.4","1.00","14","","
"NAWC-021318-RW-188","537","RES","320-36091-2","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","21","ng/L","","2.5","DL","","TRG","","","18","LOQ","YES",-99","","276.4","1.00","7.2","","
"NAWC-021318-RW-188","537","RES","320-36091-2","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","6.7","ng/L","J","5.0","DL","","TRG","","","27","LOQ","YES",-99","","276.4","1.00","11","","
"NAWC-021318-RW-188","537","RES","320-36091-2","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","33","ng/L","U","15","DL","","TRG","","","81","LOQ","YES",-99","","276.4","1.00","33","","
"NAWC-021318-RW-188","537","RES","320-36091-2","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","8.5","ng/L","J","1.7","DL","","TRG","","","9.0","LOQ","YES",-99","","276.4","1.00","3.6","","
"NAWC-021318-RW-188","537","RES","320-36091-2","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","18","ng/L","U","7.2","DL","","TRG","","","22","LOQ","YES",-99","","276.4","1.00","18","","
"NAWC-021318-RW-188","537","RES","320-36091-2","TALSAC","STL00993","13C2
PFHxA","35","ng/L","","-99","DL","","SURRE","96","","-99","LOQ","YES","36.2","","276.4","1.00","0","","
"NAWC-021318-RW-188","537","RES","320-36091-2","TALSAC","STL00996","13C2
PFDA","40","ng/L","","-99","DL","","SURRE","112","","-99","LOQ","YES","36.2","","276.4","1.00","0","","
"NAWC-021318-FRB-188","537","RES","320-36091-3","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","U","6.3","DL","","TRG","","","37","LOQ","YES",-99","","271.1","1.00","15","","
"NAWC-021318-FRB-188","537","RES","320-36091-3","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.4","ng/L","U","2.6","DL","","TRG","","","18","LOQ","YES",-99","","271.1","1.00","7.4","","
"NAWC-021318-FRB-188","537","RES","320-36091-3","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","5.1","DL","","TRG","","","28","LOQ","YES",-99","","271.1","1.00","11","","
"NAWC-021318-FRB-188","537","RES","320-36091-3","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","33","ng/L","U","15","DL","","TRG","","","83","LOQ","YES",-99","","271.1","1.00","33","","
"NAWC-021318-FRB-188","537","RES","320-36091-3","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.7","ng/L","U","1.8","DL","","TRG","","","9.2","LOQ","YES",-99","","271.1","1.00","3.7","","
"NAWC-021318-FRB-188","537","RES","320-36091-3","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","18","ng/L","U","7.4","DL","","TRG","","","22","LOQ","YES",-99","","271.1","1.00","18","","
"NAWC-021318-FRB-188","537","RES","320-36091-3","TALSAC","STL00993","13C2
PFHxA","36","ng/L","","-99","DL","","SURRE","98","","-99","LOQ","YES","36.9","","271.1","1.00","0","","
"NAWC-021318-FRB-188","537","RES","320-36091-3","TALSAC","STL00996","13C2
PFDA","39","ng/L","","-99","DL","","SURRE","107","","-99","LOQ","YES","36.9","","271.1","1.00","0","","
"WGN1A-021318-RW-3382","537","RES","320-36091-4","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","18","ng/L","J M","6.0","DL","","TRG","","","36","LOQ","YES",-99","","281.1","1.00","14","","
"WGN1A-021318-RW-3382","537","RES","320-36091-4","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","17","ng/L","J M","2.5","DL","","TRG","","","18","LOQ","YES",-99","","281.1","1.00","7.1","","
"WGN1A-021318-RW-3382","537","RES","320-36091-4","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","6.1","ng/L","J","4.9","DL","","TRG","","","27","LOQ","YES",-99","","281.1","1.00","11","","
"WGN1A-021318-RW-3382","537","RES","320-36091-4","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","32","ng/L","U","14","DL","","TRG","","","80","LOQ","YES",-99","","281.1","1.00","32","","
"WGN1A-021318-RW-3382","537","RES","320-36091-4","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","6.1","ng/L","J","1.7","DL","","TRG","","","8.9","LOQ","YES",-99","","281.1","1.00","3.6","","
"WGN1A-021318-RW-3382","537","RES","320-36091-4","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","18","ng/L","U","7.1","DL","","TRG","","","21","LOQ","YES",-99","","281.1","1.00","18","","
"WGN1A-021318-RW-3382","537","RES","320-36091-4","TALSAC","STL00993","13C2
PFHxA","33","ng/L","","-99","DL","","SURRE","94","","-99","LOQ","YES","35.6","","281.1","1.00","0","","
"WGN1A-021318-RW-3382","537","RES","320-36091-4","TALSAC","STL00996","13C2
PFDA","40","ng/L","","-99","DL","","SURRE","112","","-99","LOQ","YES","35.6","","281.1","1.00","0","","
"WGNA-021318-FRB-3382","537","RES","320-36091-5","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","U","6.5","DL","","TRG","","","38","LOQ","YES",-99","","262.6","1.00","15","","
"WGNA-021318-FRB-3382","537","RES","320-36091-5","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.6","ng/L","U","2.7","DL","","TRG","","","19","LOQ","YES",-99","","262.6","1.00","7.6","","
"WGNA-021318-FRB-3382","537","RES","320-36091-5","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","5.2","DL","","TRG","","","29","LOQ","YES",-99","","262.6","1.00","11","","
"WGNA-021318-FRB-3382","537","RES","320-36091-5","TALSAC","375-73-5","Perfluorobutanesulfonic acid

(PFBS)","34","ng/L","U","15","DL","","","TRG","","","86","LOQ","YES",-99","","262.6","1.00","34","","
"WGNA-021318-FRB-3382","537","RES","320-36091-5","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.8","ng/L","U","1.8","DL","","","TRG","","","9.5","LOQ","YES",-99","","262.6","1.00","3.8","","
"WGNA-021318-FRB-3382","537","RES","320-36091-5","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.6","DL","","","TRG","","","23","LOQ","YES",-99","","262.6","1.00","19","","
"WGNA-021318-FRB-3382","537","RES","320-36091-5","TALSAC","STL00993","13C2
PFHxA","37","ng/L","","","-99","DL","","","SURR","97","","","-99","LOQ","YES","38.1","","262.6","1.00","0","","
"WGNA-021318-FRB-3382","537","RES","320-36091-5","TALSAC","STL00996","13C2
PFDA","42","ng/L","","","-99","DL","","","SURR","110","","","-99","LOQ","YES","38.1","","262.6","1.00","0","","
"NAWC-021318-RW-100","537","RES","320-36091-6","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","11","ng/L","J M","5.8","DL","","","TRG","","","34","LOQ","YES",-99","","291.6","1.00","14","","
"NAWC-021318-RW-100","537","RES","320-36091-6","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","13","ng/L","J","2.4","DL","","","TRG","","","17","LOQ","YES",-99","","291.6","1.00","6.9","","
"NAWC-021318-RW-100","537","RES","320-36091-6","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","10","ng/L","U","4.7","DL","","","TRG","","","26","LOQ","YES",-99","","291.6","1.00","10","","
"NAWC-021318-RW-100","537","RES","320-36091-6","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","31","ng/L","U","14","DL","","","TRG","","","77","LOQ","YES",-99","","291.6","1.00","31","","
"NAWC-021318-RW-100","537","RES","320-36091-6","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.8","ng/L","J","1.6","DL","","","TRG","","","8.6","LOQ","YES",-99","","291.6","1.00","3.4","","
"NAWC-021318-RW-100","537","RES","320-36091-6","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","17","ng/L","U","6.9","DL","","","TRG","","","21","LOQ","YES",-99","","291.6","1.00","17","","
"NAWC-021318-RW-100","537","RES","320-36091-6","TALSAC","STL00993","13C2
PFHxA","26","ng/L","","","-99","DL","","","SURR","77","","","-99","LOQ","YES","34.3","","291.6","1.00","0","","
"NAWC-021318-RW-100","537","RES","320-36091-6","TALSAC","STL00996","13C2
PFDA","37","ng/L","","","-99","DL","","","SURR","109","","","-99","LOQ","YES","34.3","","291.6","1.00","0","","
"NAWC-021318-FRB-100","537","RES","320-36091-7","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","U","6.5","DL","","","TRG","","","38","LOQ","YES",-99","","260.9","1.00","15","","
"NAWC-021318-FRB-100","537","RES","320-36091-7","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.7","ng/L","U","2.7","DL","","","TRG","","","19","LOQ","YES",-99","","260.9","1.00","7.7","","
"NAWC-021318-FRB-100","537","RES","320-36091-7","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","5.3","DL","","","TRG","","","29","LOQ","YES",-99","","260.9","1.00","11","","
"NAWC-021318-FRB-100","537","RES","320-36091-7","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","34","ng/L","U","15","DL","","","TRG","","","86","LOQ","YES",-99","","260.9","1.00","34","","
"NAWC-021318-FRB-100","537","RES","320-36091-7","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.8","ng/L","U","1.8","DL","","","TRG","","","9.6","LOQ","YES",-99","","260.9","1.00","3.8","","
"NAWC-021318-FRB-100","537","RES","320-36091-7","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.7","DL","","","TRG","","","23","LOQ","YES",-99","","260.9","1.00","19","","
"NAWC-021318-FRB-100","537","RES","320-36091-7","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","","-99","DL","","","SURR","100","","","-99","LOQ","YES","38.3","","260.9","1.00","0","","
"NAWC-021318-FRB-100","537","RES","320-36091-7","TALSAC","STL00996","13C2
PFDA","45","ng/L","","","-99","DL","","","SURR","117","","","-99","LOQ","YES","38.3","","260.9","1.00","0","","
"WGNA-021318-RW-3978","537","RES","320-36091-8","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","32","ng/L","J M","6.3","DL","","","TRG","","","37","LOQ","YES",-99","","269.5","1.00","15","","
"WGNA-021318-RW-3978","537","RES","320-36091-8","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","24","ng/L","","","2.6","DL","","","TRG","","","19","LOQ","YES",-99","","269.5","1.00","7.4","","
"WGNA-021318-RW-3978","537","RES","320-36091-8","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","10","ng/L","J","5.1","DL","","","TRG","","","28","LOQ","YES",-99","","269.5","1.00","11","","
"WGNA-021318-RW-3978","537","RES","320-36091-8","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","33","ng/L","U","15","DL","","","TRG","","","83","LOQ","YES",-99","","269.5","1.00","33","","
"WGNA-021318-RW-3978","537","RES","320-36091-8","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","9.9","ng/L","","","1.8","DL","","","TRG","","","9.3","LOQ","YES",-99","","269.5","1.00","3.7","","
"WGNA-021318-RW-3978","537","RES","320-36091-8","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.4","DL","","","TRG","","","22","LOQ","YES",-99","","269.5","1.00","19","","
"WGNA-021318-RW-3978","537","RES","320-36091-8","TALSAC","STL00993","13C2

PFHxA","32","ng/L","",-99","DL","","SURRE","87","","-99","LOQ","YES","37.1","","269.5","1.00","0",""
"WGNA-021318-FRB-3978","537","RES","320-36091-8","TALSAC","STL00996","13C2
PFDA","41","ng/L","",-99","DL","","SURRE","109","","-99","LOQ","YES","37.1","","269.5","1.00","0",""
"WGNA-021318-FRB-3978","537","RES","320-36091-9","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","U","6.4","DL","","TRG","","","37","LOQ","YES","-99","","267.1","1.00","15",""
"WGNA-021318-FRB-3978","537","RES","320-36091-9","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.5","ng/L","U","2.6","DL","","TRG","","","19","LOQ","YES","-99","","267.1","1.00","7.5",""
"WGNA-021318-FRB-3978","537","RES","320-36091-9","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","5.1","DL","","TRG","","","28","LOQ","YES","-99","","267.1","1.00","11",""
"WGNA-021318-FRB-3978","537","RES","320-36091-9","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","34","ng/L","U","15","DL","","TRG","","","84","LOQ","YES","-99","","267.1","1.00","34",""
"WGNA-021318-FRB-3978","537","RES","320-36091-9","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.7","ng/L","U","1.8","DL","","TRG","","","9.4","LOQ","YES","-99","","267.1","1.00","3.7",""
"WGNA-021318-FRB-3978","537","RES","320-36091-9","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.5","DL","","TRG","","","22","LOQ","YES","-99","","267.1","1.00","19",""
"WGNA-021318-FRB-3978","537","RES","320-36091-9","TALSAC","STL00993","13C2
PFHxA","38","ng/L","",-99","DL","","SURRE","103","","-99","LOQ","YES","37.4","","267.1","1.00","0",""
"WGNA-021318-FRB-3978","537","RES","320-36091-9","TALSAC","STL00996","13C2
PFDA","43","ng/L","",-99","DL","","SURRE","116","","-99","LOQ","YES","37.4","","267.1","1.00","0",""
"LCS 320-211311/2-A","537","RES","LCS 320-211311/2-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","134","ng/L","M","6.8","DL","","SPK","100","","40","LOQ","YES","134","","250","1.00","16",""
"LCS 320-211311/2-A","537","RES","LCS 320-211311/2-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","67.5","ng/L","","2.8","DL","","SPK","101","","20","LOQ","YES","67.0","","250","1.00","8.0",""
"LCS 320-211311/2-A","537","RES","LCS 320-211311/2-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","99.2","ng/L","","5.5","DL","","SPK","99","","30","LOQ","YES","100","","250","1.00","12",""
"LCS 320-211311/2-A","537","RES","LCS 320-211311/2-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","265","ng/L","","16","DL","","SPK","88","","90","LOQ","YES","300","","250","1.00","36",""
"LCS 320-211311/2-A","537","RES","LCS 320-211311/2-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","34.4","ng/L","","1.9","DL","","SPK","103","","10","LOQ","YES","33.3","","250","1.00","4.0",""
"LCS 320-211311/2-A","537","RES","LCS 320-211311/2-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","73.1","ng/L","","8.0","DL","","SPK","110","","24","LOQ","YES","66.7","","250","1.00","20",""
"LCS 320-211311/2-A","537","RES","LCS 320-211311/2-A","TALSAC","STL00993","13C2
PFHxA","35.9","ng/L","",-99","DL","","SURRE","90","","-99","LOQ","YES","40.0","","250","1.00","0",""
"LCS 320-211311/2-A","537","RES","LCS 320-211311/2-A","TALSAC","STL00996","13C2
PFDA","42.3","ng/L","",-99","DL","","SURRE","106","","-99","LOQ","YES","40.0","","250","1.00","0",""
"LCSD 320-211311/3-A","537","RES","LCSD 320-211311/3-A","TALSAC","1763-23-1","Perfluorooctanesulfonic
acid (PFOS)","129","ng/L","M","6.8","DL","","SPK","96","4","40","LOQ","YES","134","LCS 320-211311/2-
A","250","1.00","16",""
"LCSD 320-211311/3-A","537","RES","LCSD 320-211311/3-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","61.1","ng/L","","2.8","DL","","SPK","91","10","20","LOQ","YES","67.0","LCS 320-211311/2-
A","250","1.00","8.0",""
"LCSD 320-211311/3-A","537","RES","LCSD 320-211311/3-A","TALSAC","355-46-4","Perfluorohexanesulfonic
acid (PFHxS)","98.1","ng/L","","5.5","DL","","SPK","98","1","30","LOQ","YES","100","LCS 320-211311/2-
A","250","1.00","12",""
"LCSD 320-211311/3-A","537","RES","LCSD 320-211311/3-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","264","ng/L","","16","DL","","SPK","88","0","90","LOQ","YES","300","LCS 320-211311/2-
A","250","1.00","36",""
"LCSD 320-211311/3-A","537","RES","LCSD 320-211311/3-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","33.3","ng/L","","1.9","DL","","SPK","100","3","10","LOQ","YES","33.3","LCS 320-211311/2-
A","250","1.00","4.0",""
"LCSD 320-211311/3-A","537","RES","LCSD 320-211311/3-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","70.9","ng/L","","8.0","DL","","SPK","106","3","24","LOQ","YES","66.7","LCS 320-211311/2-
A","250","1.00","20",""
"LCSD 320-211311/3-A","537","RES","LCSD 320-211311/3-A","TALSAC","STL00993","13C2

PFHxA", "35.8", "ng/L", "", "-99", "DL", "", "SURR", "90", "", "-99", "LOQ", "YES", "40.0", "LCS 320-211311/2-A", "250", "1.00", "0", ""

"LLCSD 320-211311/3-A", "537", "RES", "LLCSD 320-211311/3-A", "TALSAC", "STL00996", "13C2

PFDA", "40.6", "ng/L", "", "-99", "DL", "", "SURR", "101", "", "-99", "LOQ", "YES", "40.0", "LCS 320-211311/2-A", "250", "1.00", "0", ""

"LLCS 320-210229/2-A", "537", "RES", "LLCS 320-210229/2-A", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid (PFOS)", "42.5", "ng/L", "M", "6.8", "DL", "", "SPK", "106", "", "40", "LOQ", "YES", "40.2", "", "250", "1.00", "16", ""

"LLCS 320-210229/2-A", "537", "RES", "LLCS 320-210229/2-A", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "20.3", "ng/L", "", "2.8", "DL", "", "SPK", "101", "", "20", "LOQ", "YES", "20.1", "", "250", "1.00", "8.0", ""

"LLCS 320-210229/2-A", "537", "RES", "LLCS 320-210229/2-A", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid (PFHxS)", "31.9", "ng/L", "", "5.5", "DL", "", "SPK", "106", "", "30", "LOQ", "YES", "30.0", "", "250", "1.00", "12", ""

"LLCS 320-210229/2-A", "537", "RES", "LLCS 320-210229/2-A", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "82.0", "ng/L", "J", "16", "DL", "", "SPK", "91", "", "90", "LOQ", "YES", "90.0", "", "250", "1.00", "36", ""

"LLCS 320-210229/2-A", "537", "RES", "LLCS 320-210229/2-A", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "11.8", "ng/L", "", "1.9", "DL", "", "SPK", "118", "", "10", "LOQ", "YES", "10.0", "", "250", "1.00", "4.0", ""

"LLCS 320-210229/2-A", "537", "RES", "LLCS 320-210229/2-A", "TALSAC", "375-95-1", "Perfluorononanoic acid (PFNA)", "23.1", "ng/L", "J", "8.0", "DL", "", "SPK", "116", "", "24", "LOQ", "YES", "20.0", "", "250", "1.00", "20", ""

"LLCS 320-210229/2-A", "537", "RES", "LLCS 320-210229/2-A", "TALSAC", "STL00993", "13C2

PFHxA", "39.5", "ng/L", "", "-99", "DL", "", "SURR", "99", "", "-99", "LOQ", "YES", "40.0", "", "250", "1.00", "0", ""

"LLCS 320-210229/2-A", "537", "RES", "LLCS 320-210229/2-A", "TALSAC", "STL00996", "13C2

PFDA", "44.1", "ng/L", "", "-99", "DL", "", "SURR", "110", "", "-99", "LOQ", "YES", "40.0", "", "250", "1.00", "0", ""

"LLCSD 320-210229/3-A", "537", "RES", "LLCSD 320-210229/3-A", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid (PFOS)", "43.2", "ng/L", "M", "6.8", "DL", "", "SPK", "108", "2", "40", "LOQ", "YES", "40.2", "LLCS 320-210229/2-A", "250", "1.00", "16", ""

"LLCSD 320-210229/3-A", "537", "RES", "LLCSD 320-210229/3-A", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "20.4", "ng/L", "", "2.8", "DL", "", "SPK", "101", "0.5", "20", "LOQ", "YES", "20.1", "LLCS 320-210229/2-A", "250", "1.00", "8.0", ""

"LLCSD 320-210229/3-A", "537", "RES", "LLCSD 320-210229/3-A", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid (PFHxS)", "31.2", "ng/L", "", "5.5", "DL", "", "SPK", "104", "2", "30", "LOQ", "YES", "30.0", "LLCS 320-210229/2-A", "250", "1.00", "12", ""

"LLCSD 320-210229/3-A", "537", "RES", "LLCSD 320-210229/3-A", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "83.6", "ng/L", "J", "16", "DL", "", "SPK", "93", "2", "90", "LOQ", "YES", "90.0", "LLCS 320-210229/2-A", "250", "1.00", "36", ""

"LLCSD 320-210229/3-A", "537", "RES", "LLCSD 320-210229/3-A", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "11.9", "ng/L", "", "1.9", "DL", "", "SPK", "119", "1", "10", "LOQ", "YES", "10.0", "LLCS 320-210229/2-A", "250", "1.00", "4.0", ""

"LLCSD 320-210229/3-A", "537", "RES", "LLCSD 320-210229/3-A", "TALSAC", "375-95-1", "Perfluorononanoic acid (PFNA)", "23.9", "ng/L", "J", "8.0", "DL", "", "SPK", "119", "3", "24", "LOQ", "YES", "20.0", "LLCS 320-210229/2-A", "250", "1.00", "20", ""

"LLCSD 320-210229/3-A", "537", "RES", "LLCSD 320-210229/3-A", "TALSAC", "STL00993", "13C2

PFHxA", "40.3", "ng/L", "", "-99", "DL", "", "SURR", "101", "2", "-99", "LOQ", "YES", "40.0", "LLCS 320-210229/2-A", "250", "1.00", "0", ""

"LLCSD 320-210229/3-A", "537", "RES", "LLCSD 320-210229/3-A", "TALSAC", "STL00996", "13C2

PFDA", "44.5", "ng/L", "", "-99", "DL", "", "SURR", "111", "0.9", "-99", "LOQ", "YES", "40.0", "LLCS 320-210229/2-A", "250", "1.00", "0", ""

"MB 320-210229/1-A", "537", "RES", "MB 320-210229/1-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 320-210229/1-A", "537", "RES", "MB 320-210229/1-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 320-210229/1-A", "537", "RES", "MB 320-210229/1-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 320-210229/1-A", "537", "RES", "MB 320-210229/1-A", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "36", "ng/L", "U", "16", "DL", "", "TRG", "", "", "90", "LOQ", "YES", "-99", "", "250", "1.00", "36", ""

"MB 320-210229/1-A", "537", "RES", "MB 320-210229/1-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 320-210229/1-A","537","RES","MB 320-210229/1-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 320-210229/1-A","537","RES","MB 320-210229/1-A","TALSAC","STL00993","13C2
PFHxA","39.8","ng/L","","","-99","DL","","","SURR","100","","","-99","LOQ","YES","40.0","","250","1.00","0","","
"MB 320-210229/1-A","537","RES","MB 320-210229/1-A","TALSAC","STL00996","13C2
PFDA","45.9","ng/L","","","-99","DL","","","SURR","115","","","-99","LOQ","YES","40.0","","250","1.00","0","","
"MB 320-211311/1-A","537","RES","MB 320-211311/1-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 320-211311/1-A","537","RES","MB 320-211311/1-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 320-211311/1-A","537","RES","MB 320-211311/1-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 320-211311/1-A","537","RES","MB 320-211311/1-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"36","ng/L","U","16","DL","","","TRG","","","90","LOQ","YES","-99","","250","1.00","36","","
"MB 320-211311/1-A","537","RES","MB 320-211311/1-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 320-211311/1-A","537","RES","MB 320-211311/1-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 320-211311/1-A","537","RES","MB 320-211311/1-A","TALSAC","STL00993","13C2
PFHxA","34.8","ng/L","","","-99","DL","","","SURR","87","","","-99","LOQ","YES","40.0","","250","1.00","0","","
"MB 320-211311/1-A","537","RES","MB 320-211311/1-A","TALSAC","STL00996","13C2
PFDA","42.4","ng/L","","","-99","DL","","","SURR","106","","","-99","LOQ","YES","40.0","","250","1.00","0","","
"Unknown","Unknown","WGNA-021318-DUP-26","02/13/2018 07:00","AQ","320-36091-
1","FD","","","1.30","537","METHOD","RES","02/27/2018 08:13","03/05/2018
10:40","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-210229","320-210229","NA","320-
211200","320-36091-1","02/15/2018 09:05","02/15/2018 14:40","","
"Unknown","Unknown","WGNA-021318-RW-3933","02/13/2018 11:10","AQ","320-36091-
10","NM","","","1.30","537","METHOD","RES","02/27/2018 08:13","03/05/2018
11:32","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-210229","320-210229","NA","320-
211202","320-36091-1","02/15/2018 09:05","02/15/2018 14:40","","
"Unknown","Unknown","WGNA-021318-RW-3933","02/13/2018 11:10","AQ","320-36091-
10","NM","","","1.30","537","METHOD","RE","03/05/2018 17:45","03/09/2018
09:49","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-211311","320-211311","NA","320-
212124","320-36091-1","02/15/2018 09:05","02/15/2018 14:40","","
"Unknown","Unknown","WGNA-021318-FRB-3933","02/13/2018 11:05","AQ","320-36091-
11","FB","","","1.30","537","METHOD","RES","02/27/2018 08:13","03/05/2018
11:37","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-210229","320-210229","NA","320-
211202","320-36091-1","02/15/2018 09:05","02/15/2018 14:40","","
"Unknown","Unknown","NAWC-021318-RW-161","02/13/2018 11:40","AQ","320-36091-
12","NM","","","1.30","537","METHOD","RES","02/27/2018 08:13","03/05/2018
11:41","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-210229","320-210229","NA","320-
211202","320-36091-1","02/15/2018 09:05","02/15/2018 14:40","","
"Unknown","Unknown","NAWC-021318-FRB-161","02/13/2018 11:35","AQ","320-36091-
13","FB","","","1.30","537","METHOD","RES","02/27/2018 08:13","03/05/2018
11:46","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-210229","320-210229","NA","320-
211202","320-36091-1","02/15/2018 09:05","02/15/2018 14:40","","
"Unknown","Unknown","NAWC-021318-RW-292","02/13/2018 13:10","AQ","320-36091-
14","NM","","","1.30","537","METHOD","RES","02/27/2018 08:13","03/05/2018
11:51","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-210229","320-210229","NA","320-
211202","320-36091-1","02/15/2018 09:05","02/15/2018 14:40","","
"Unknown","Unknown","NAWC-021318-FRB-292","02/13/2018 13:05","AQ","320-36091-
15","FB","","","1.30","537","METHOD","RES","02/27/2018 08:13","03/05/2018
11:55","TALSAC","COA","WET","NA","1","NA","NA","","","100","320-210229","320-210229","NA","320-

211202","320-36091-1","02/15/2018 09:05","02/15/2018 14:40",""
"Unknown","Unknown","NAWC-021318-RW-290","02/13/2018 14:10","AQ","320-36091-
16","NM","","1.30","537","METHOD","RES","02/27/2018 08:13","03/05/2018
12:00","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210229","320-210229","NA","320-
211202","320-36091-1","02/15/2018 09:05","02/15/2018 14:40",""
"Unknown","Unknown","NAWC-021318-FRB-290","02/13/2018 14:05","AQ","320-36091-
17","FB","","1.30","537","METHOD","RES","02/27/2018 08:13","03/05/2018
12:05","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210229","320-210229","NA","320-
211202","320-36091-1","02/15/2018 09:05","02/15/2018 14:40",""
"Unknown","Unknown","NAWC-021318-RW-188","02/13/2018 08:10","AQ","320-36091-
2","NM","","1.30","537","METHOD","RES","02/27/2018 08:13","03/05/2018
10:45","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210229","320-210229","NA","320-
211200","320-36091-1","02/15/2018 09:05","02/15/2018 14:40",""
"Unknown","Unknown","NAWC-021318-FRB-188","02/13/2018 08:05","AQ","320-36091-
3","FB","","1.30","537","METHOD","RES","02/27/2018 08:13","03/05/2018
10:50","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210229","320-210229","NA","320-
211200","320-36091-1","02/15/2018 09:05","02/15/2018 14:40",""
"Unknown","Unknown","WGN1A-021318-RW-3382","02/13/2018 09:10","AQ","320-36091-
4","NM","","1.30","537","METHOD","RES","02/27/2018 08:13","03/05/2018
10:54","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210229","320-210229","NA","320-
211200","320-36091-1","02/15/2018 09:05","02/15/2018 14:40",""
"Unknown","Unknown","WGNA-021318-FRB-3382","02/13/2018 09:05","AQ","320-36091-
5","FB","","1.30","537","METHOD","RES","02/27/2018 08:13","03/05/2018
10:59","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210229","320-210229","NA","320-
211200","320-36091-1","02/15/2018 09:05","02/15/2018 14:40",""
"Unknown","Unknown","NAWC-021318-RW-100","02/13/2018 09:40","AQ","320-36091-
6","NM","","1.30","537","METHOD","RES","02/27/2018 08:13","03/05/2018
11:04","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210229","320-210229","NA","320-
211200","320-36091-1","02/15/2018 09:05","02/15/2018 14:40",""
"Unknown","Unknown","NAWC-021318-FRB-100","02/13/2018 09:35","AQ","320-36091-
7","FB","","1.30","537","METHOD","RES","02/27/2018 08:13","03/05/2018
11:08","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210229","320-210229","NA","320-
211200","320-36091-1","02/15/2018 09:05","02/15/2018 14:40",""
"Unknown","Unknown","WGNA-021318-RW-3978","02/13/2018 10:40","AQ","320-36091-
8","NM","","1.30","537","METHOD","RES","02/27/2018 08:13","03/05/2018
11:23","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210229","320-210229","NA","320-
211202","320-36091-1","02/15/2018 09:05","02/15/2018 14:40",""
"Unknown","Unknown","WGNA-021318-FRB-3978","02/13/2018 10:35","AQ","320-36091-
9","FB","","1.30","537","METHOD","RES","02/27/2018 08:13","03/05/2018
11:27","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210229","320-210229","NA","320-
211202","320-36091-1","02/15/2018 09:05","02/15/2018 14:40",""
"Unknown","Unknown","LCS 320-211311/2-A","","AQ","LCS 320-211311/2-
A","LCS","",-99","537","METHOD","RES","03/05/2018 17:45","03/09/2018
09:40","TALSAC","COA","WET","NA","1","NA","NA","","100","320-211311","320-211311","NA","320-
212124","320-36091-1","03/05/2018 17:45","02/15/2018 14:40",""
"Unknown","Unknown","LCSD 320-211311/3-A","","AQ","LCSD 320-211311/3-
A","LCSD","",-99","537","METHOD","RES","03/05/2018 17:45","03/09/2018
09:45","TALSAC","COA","WET","NA","1","NA","NA","","100","320-211311","320-211311","NA","320-
212124","320-36091-1","03/05/2018 17:45","02/15/2018 14:40",""
"Unknown","Unknown","LLCS 320-210229/2-A","","AQ","LLCS 320-210229/2-
A","LCS","",-99","537","METHOD","RES","02/27/2018 08:13","03/05/2018
10:31","TALSAC","COA","WET","NA","1","NA","NA","","100","320-210229","320-210229","NA","320-
211200","320-36091-1","02/27/2018 08:13","02/15/2018 14:40",""
"Unknown","Unknown","LLCSD 320-210229/3-A","","AQ","LLCSD 320-210229/3-

A","LCSD","",-99","537","METHOD","RES","02/27/2018 08:13","03/05/2018
10:36","TALSAC","COA","WET","NA","1","NA","NA","", "100","320-210229","320-210229","NA","320-
211200","320-36091-1","02/27/2018 08:13","02/15/2018 14:40",""
"Unknown","Unknown","MB 320-210229/1-A","", "AQ","MB 320-210229/1-
A","MB","", "-99","537","METHOD","RES","02/27/2018 08:13","03/05/2018
10:26","TALSAC","COA","WET","NA","1","NA","NA","", "100","320-210229","320-210229","NA","320-
211200","320-36091-1","02/27/2018 08:13","02/15/2018 14:40",""
"Unknown","Unknown","MB 320-211311/1-A","", "AQ","MB 320-211311/1-
A","MB","", "-99","537","METHOD","RES","03/05/2018 17:45","03/09/2018
09:35","TALSAC","COA","WET","NA","1","NA","NA","", "100","320-211311","320-211311","NA","320-
212124","320-36091-1","03/05/2018 17:45","02/15/2018 14:40",""



TO: A. FREBOWITZ **DATE:** MARCH 16, 2018
FROM: TERRI L. SOLOMON **COPIES:** DV FILE
SUBJECT: ORGANIC DATA VALIDATION –POLYFLUOROALKYL SUBSTANCES (PFAS)
NAS JRB WILLOW GROVE
SAMPLE DELIVERY GROUP (SDG) 320-36091-1

SAMPLES: 8/Field Reagent Blank (FRB)
NAWC-021318-FRB-100 NAWC-021318-FRB-161
NAWC-021318-FRB-188 NAWC-021318-FRB-290
NAWC-021318-FRB-292 WGNA-021318-FRB-3382
WGNA-021318-FRB-3933 WGNA-021318-FRB-3978

9/Drinking Water
NAWC-021318-RW-100 NAWC-021318-RW-161
NAWC-021318-RW-188 NAWC-021318-RW-290
NAWC-021318-RW-292 WGNA-021318-DUP-26
WGNA-021318-RW-3382 WGNA-021318-RW-3933
WGNA-021318-RW-3978

Overview

The sample set for NAS JRB Willow Grove, SDG 320-36091-1, consisted of nine (9) drinking water samples and eight (8) FRB samples. All samples were analyzed for select perfluorinated alkyl acids including pentadecafluorooctanoic acid (PFOA), perfluorobutane sulfonic acid (PFBS), perfluoroheptanoic acid (PFHpA), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA) and perfluorooctane sulfonic acid (PFOS). One (1) field duplicate sample pair, WGNA-021318-RW-3933 / WGNA-021318-DUP-26, was included in this SDG.

The samples were collected by Tetra Tech on February 13, 2018 and analyzed by Test America-Sacramento. All sample 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, holding times, mass spectral tune check, initial/continuing calibrations, laboratory method/FRBs, surrogate spike recoveries, laboratory control sample / laboratory control sample duplicate results, internal standard areas and recoveries, field duplicate results, chromatographic resolution, analyte identification, analyte quantitation, and detection limits. Areas of concern are listed below.

Major

None.

Minor

Surrogate recoveries for 13C2-perfluorohexanoic acid (13C2-PFHxA) and 13C2-perfluorodecanoic acid (13C2-PFDA) were below the quality control limits for sample WGNA-021318-RW-3933. The internal standard recoveries in comparison to the continuing calibration for 13C2-perfluorooctanoic acid (13C2-PFOA) and 13C4-perfluorooctanesulfonic acid (13C4-PFOS) were greater than the quality control limit for sample WGNA-021318-RW-3933. The laboratory re-extracted the sample five (5) days past the 14 day extraction hold time. The re-extracted sample contained acceptable surrogate recoveries. Therefore, the re-extracted sample was

TO: A. FREBOWITZ
SDG: 320-36091-1

PAGE 2

chosen for validation and the detected and nondetected results were qualified as estimated (J) and (UJ), respectively, as a result of holding time noncompliance.

Detected results reported below the limit of quantitation (LOQ) but above the detection limit (DL) were qualified as estimated, (J).

Notes

Sample NAWC-021318-RW-290 is listed on the chain of custody as a field sample and NAWC-021318-FRB-290 is listed as a field reagent blank. It was noticed that sample NAWC-021318-RW-290 was reported with all nondetected results and sample NAWC-021318-FRB-290 had detected results above the reporting limit for several compounds. The laboratory re-extracted the samples outside of hold time and reanalyzed the samples with comparable results. It appears that samples NAWC-021318-RW-290 and NAWC-021318-FRB-290 were switched in the field. Therefore, per the project manager the sample IDs on the Form Is and the electronic deliverable were changed to reflect the detected results reported for sample NAWC-021318-RW-290 and the nondetected results reported for sample NAWC-021318-FRB-290.

The laboratory incorrectly identified sample WGNA-021318-RW-3382 as WGN1A-021318-RW-3382. The validator amended the sample ID on the Form Is and electronic deliverable.

Samples with detections and their associated FRBs are summarized below. No detected results were present in the FRBs.

<u>Sample</u>	<u>Associated FRB</u>
NAWC-021318-RW-100	NAWC-021318-FRB-100
NAWC-021318-RW-161	NAWC-021318-FRB-161
NAWC-021318-RW-188	NAWC-021318-FRB-188
NAWC-021318-RW-290	NAWC-021318-FRB-290
NAWC-021318-RW-292	NAWC-021318-FRB-292
WGNA-021318-DUP-26	WGNA-021318-FRB-3933
WGNA-021318-RW-3382	WGNA-021318-FRB-3382
WGNA-021318-RW-3933	WGNA-021318-FRB-3933
WGNA-021318-RW-3978	WGNA-021318-FRB-3978

Non-detected results were reported to the Limit of Detection (LOD).

The buffering agent Trizma was added to all drinking water samples.

Executive Summary

Laboratory Performance: The 14 day extraction hold time was exceeded for the re-extraction of sample WGNA-021318-RW-3933 because of the corrective action taken for low surrogate recoveries.

Other Factors Affecting Data Quality: Results below the RL were estimated.

The data for these analyses were reviewed with reference to the Environmental Protection Agency document EPA/600/R-08/092, Method 537, "Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)", (September 2009), the US EPA National Functional Guidelines for Organic Data Review (January 2017) as applicable and the Department of Defense/DoD/Department of Energy (DOE) Quality Systems Manual (QSM) for Environmental Laboratories (July 2013). The text of this report has been formulated to address only those areas affecting data quality.

TO: A. FREBOWITZ
SDG: 320-36091-1

PAGE 3



Tetra Tech, Inc.
Terri L. Solomon
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: 320-36091-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-021318-FRB-100			NAWC-021318-FRB-161			NAWC-021318-FRB-188			NAWC-021318-FRB-290		
	LAB_ID	320-36091-7			320-36091-13			320-36091-3			320-36091-16		
	SAMP_DATE	2/13/2018			2/13/2018			2/13/2018			2/13/2018		
	QC_TYPE	FB			FB			FB			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		7.7	U		7.7	U		7.4	U		7.4	U	
PERFLUOROBUTANESULFONIC ACID		34	U		35	U		33	U		34	U	
PERFLUOROHEPTANOIC ACID		3.8	U		3.9	U		3.7	U		3.7	U	
PERFLUOROHEXANESULFONIC ACID		11	U		12	U		11	U		11	U	
PERFLUORONONANOIC ACID		19	U		19	U		18	U		19	U	
PERFLUOROOCTANE SULFONIC ACID		15	U		15	U		15	U		15	U	

PROJ_NO: 08005-WE04 SDG: 320-36091-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-021318-FRB-292			NAWC-021318-RW-100			NAWC-021318-RW-161			NAWC-021318-RW-188		
	LAB_ID	320-36091-15			320-36091-6			320-36091-12			320-36091-2		
	SAMP_DATE	2/13/2018			2/13/2018			2/13/2018			2/13/2018		
	QC_TYPE	FB			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		7.2	U		13	J	P	20			21		
PERFLUOROBUTANESULFONIC ACID		32	U		31	U		32	U		33	U	
PERFLUOROHEPTANOIC ACID		3.6	U		4.8	J	P	6.7	J	P	8.5	J	P
PERFLUOROHXANESULFONIC ACID		11	U		10	U		15	J	P	6.7	J	P
PERFLUORONONANOIC ACID		18	U		17	U		18	U		18	U	
PERFLUOROOCTANE SULFONIC ACID		14	U		11	J	P	43			19	J	P

PROJ_NO: 08005-WE04 SDG: 320-36091-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-021318-RW-290			NAWC-021318-RW-292			WGNA-021318-DUP-26			WGNA-021318-FRB-3382		
	LAB_ID	320-36091-17			320-36091-14			320-36091-1			320-36091-5		
	SAMP_DATE	2/13/2018			2/13/2018			2/13/2018			2/13/2018		
	QC_TYPE	FB			NM			FD			FB		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF							WGNA-021318-RW-3933					
PARAMETER		RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		54			21			27			7.6	U	
PERFLUOROBUTANESULFONIC ACID		34	U		32	U		32	U		34	U	
PERFLUOROHEPTANOIC ACID		35			7.6	J	P	10			3.8	U	
PERFLUOROHEXANESULFONIC ACID		7.1	J	P	9.1	J	P	7	J	P	11	U	
PERFLUORONONANOIC ACID		10	J	P	18	U		18	U		19	U	
PERFLUOROOCTANE SULFONIC ACID		18	J	P	22	J	P	32	J	P	15	U	

PROJ_NO: 08005-WE04 SDG: 320-36091-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	WGNA-021318-FRB-3933			WGNA-021318-FRB-3978			WGNA-021318-RW-3382			WGNA-021318-RW-3933-RE		
	LAB_ID	320-36091-11			320-36091-9			320-36091-4			320-36091-10		
	SAMP_DATE	2/13/2018			2/13/2018			2/13/2018			2/13/2018		
	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		7.6	U		7.5	U		17	J	P	24	J	H
PERFLUOROBUTANESULFONIC ACID		34	U		34	U		32	U		32	UJ	H
PERFLUOROHEPTANOIC ACID		3.8	U		3.7	U		6.1	J	P	9.7	J	H
PERFLUOROHEXANESULFONIC ACID		11	U		11	U		6.1	J	P	7.1	J	HP
PERFLUORONONANOIC ACID		19	U		19	U		18	U		18	UJ	H
PERFLUOROOCTANE SULFONIC ACID		15	U		15	U		18	J	P	27	J	HP

PROJ_NO: 08005-WE04 SDG: 320-36091-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	WGNA-021318-RW-3978		
	LAB_ID	320-36091-8		
	SAMP_DATE	2/13/2018		
	QC_TYPE	NM		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER		RESULT	VQL	QLCD
PENTADECAFLUOROOCTANOIC ACID		24		
PERFLUOROBUTANESULFONIC ACID		33	U	
PERFLUOROHEPTANOIC ACID		9.9		
PERFLUOROHEXANESULFONIC ACID		10	J	P
PERFLUORONONANOIC ACID		19	U	
PERFLUOROOCTANE SULFONIC ACID		32	J	P

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: WGNA-021318-DUP-26 Lab Sample ID: 320-36091-1
 Matrix: Water Lab File ID: 2018.03.05_537A_029.d
 Analysis Method: 537 Date Collected: 02/13/2018 07:00
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 282.4 (mL) Date Analyzed: 03/05/2018 10:40
 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.: 211200 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	32	J M	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	27		18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.0	J	27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	10		8.9	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	80	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	88		70-130
STL00996	13C2 PFDA	115		70-130

Wesley L. Selman
03/13/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: NAWC-021318-RW-188 Lab Sample ID: 320-36091-2
 Matrix: Water Lab File ID: 2018.03.05_537A_030.d
 Analysis Method: 537 Date Collected: 02/13/2018 08:10
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 276.4 (mL) Date Analyzed: 03/05/2018 10:45
 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.: 211200 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	19	J M	36	14	6.2
335-67-1	Perfluorooctanoic acid (PFOA)	21		18	7.2	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.7	J	27	11	5.0
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.5	J	9.0	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	81	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	112		70-130

Steve L. Salomon
03/13/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: NAWC-021318-FRB-188 Lab Sample ID: 320-36091-3
 Matrix: Water Lab File ID: 2018.03.05_537A_031.d
 Analysis Method: 537 Date Collected: 02/13/2018 08:05
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 271.1 (mL) Date Analyzed: 03/05/2018 10:50
 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.: 211200 Units: ng/L

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	98		70-130
STL00996	13C2 PFDA	107		70-130

Ali L. Salem
03/13/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: WGNA

Client Sample ID: ~~WCN1A~~-021318-RW-3382 Lab Sample ID: 320-36091-4

Matrix: Water Lab File ID: 2018.03.05_537A_032.d

Analysis Method: 537 Date Collected: 02/13/2018 09:10

Extraction Method: 537 Date Extracted: 02/27/2018 08:13

Sample wt/vol: 281.1 (mL) Date Analyzed: 03/05/2018 10:54

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.: 211200 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18	J M	36	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	17	J M	18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.1	J	27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.1	J	8.9	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	80	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	112		70-130

Ali I. Salameh
03/13/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: WGNA-021318-FRB-3382 Lab Sample ID: 320-36091-5
 Matrix: Water Lab File ID: 2018.03.05_537A_033.d
 Analysis Method: 537 Date Collected: 02/13/2018 09:05
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 262.6(mL) Date Analyzed: 03/05/2018 10:59
 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.: 211200 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	7.6	U	19	7.6	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	29	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.5	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	86	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	110		70-130

Ali L. Salem
03/13/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-021318-RW-100</u>	Lab Sample ID: <u>320-36091-6</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.05_537A_034.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 09:40</u>
Extraction Method: <u>537</u>	Date Extracted: <u>02/27/2018 08:13</u>
Sample wt/vol: <u>291.6(mL)</u>	Date Analyzed: <u>03/05/2018 11:04</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>211200</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J M	34	14	5.8
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	17	6.9	2.4
375-95-1	Perfluorononanoic acid (PFNA)	17	U	21	17	6.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	10	U	26	10	4.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.8	J	8.6	3.4	1.6
375-73-5	Perfluorobutanesulfonic acid (PFBS)	31	U	77	31	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	77		70-130
STL00996	13C2 PFDA	109		70-130

Wesley L. Salaman
03/13/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: NAWC-021318-FRB-100 Lab Sample ID: 320-36091-7
 Matrix: Water Lab File ID: 2018.03.05_537A_035.d
 Analysis Method: 537 Date Collected: 02/13/2018 09:35
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 260.9(mL) Date Analyzed: 03/05/2018 11:08
 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.: 211200 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	29	11	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	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	100		70-130
STL00996	13C2 PFDA	117		70-130

Ali L. Salem
03/13/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: WGNA-021318-RW-3978 Lab Sample ID: 320-36091-8
 Matrix: Water Lab File ID: 2018.03.05_537A_038.d
 Analysis Method: 537 Date Collected: 02/13/2018 10:40
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 269.5 (mL) Date Analyzed: 03/05/2018 11:23
 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.: 211202 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)	24		19	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	10	J	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.9		9.3	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	83	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	109		70-130

Agui L. Salmeron
03/13/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: WGNA-021318-FRB-3978 Lab Sample ID: 320-36091-9
 Matrix: Water Lab File ID: 2018.03.05_537A_039.d
 Analysis Method: 537 Date Collected: 02/13/2018 10:35
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 267.1 (mL) Date Analyzed: 03/05/2018 11:27
 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.: 211202 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	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	22	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.4	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	84	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	116		70-130

Ali L. Salem
03/13/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-021318-RW-3933 RE</u>	Lab Sample ID: <u>320-36091-10 RE</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.09_537A_016.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 11:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>03/05/2018 17:45</u>
Sample wt/vol: <u>280 (mL)</u>	Date Analyzed: <u>03/09/2018 09:49</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>212124</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	27	J H-M	36	14	6.1
335-67-1	Perfluorooctanoic acid (PFOA)	24	H J	18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U H UJ	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.1	J H	27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.7	H J	8.9	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U H UJ	80	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	80		70-130
STL00996	13C2 PFDA	107		70-130

Wesley L. Salomon
03/13/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: WGNA-021318-FRB-3933 Lab Sample ID: 320-36091-11
 Matrix: Water Lab File ID: 2018.03.05_537A_041.d
 Analysis Method: 537 Date Collected: 02/13/2018 11:05
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 263.6(mL) Date Analyzed: 03/05/2018 11:37
 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.: 211202 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)	7.6	U	19	7.6	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	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	99		70-130
STL00996	13C2 PFDA	110		70-130

Wesley L. Salomon
03/13/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: NAWC-021318-RW-161 Lab Sample ID: 320-36091-12
 Matrix: Water Lab File ID: 2018.03.05_537A_042.d
 Analysis Method: 537 Date Collected: 02/13/2018 11:40
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 284.4 (mL) Date Analyzed: 03/05/2018 11:41
 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.: 211202 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	43	M	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	20		18	7.0	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	15	J	26	11	4.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.7	J	8.8	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	79	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	104		70-130

Wesley L. Selman
03/13/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: NAWC-021318-FRB-161 Lab Sample ID: 320-36091-13
 Matrix: Water Lab File ID: 2018.03.05_537A_043.d
 Analysis Method: 537 Date Collected: 02/13/2018 11:35
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 259.4 (mL) Date Analyzed: 03/05/2018 11:46
 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.: 211202 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.6	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	114		70-130

Ali L. Salameh
03/13/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: NAWC-021318-RW-292 Lab Sample ID: 320-36091-14
 Matrix: Water Lab File ID: 2018.03.05_537A_044.d
 Analysis Method: 537 Date Collected: 02/13/2018 13:10
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 283.1 (mL) Date Analyzed: 03/05/2018 11:51
 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.: 211202 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	J M	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	21		18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	9.1	J	26	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.6	J	8.8	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	79	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	115		70-130

Atari L. Salomon
03/13/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: NAWC-021318-FRB-292 Lab Sample ID: 320-36091-15
 Matrix: Water Lab File ID: 2018.03.05_537A_045.d
 Analysis Method: 537 Date Collected: 02/13/2018 13:05
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 278.9(mL) Date Analyzed: 03/05/2018 11:55
 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.: 211202 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	U	36	14	6.1
335-67-1	Perfluorooctanoic acid (PFOA)	7.2	U	18	7.2	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.6	U	9.0	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	81	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	113		70-130

Ali L. Salem
03/13/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Client Sample ID: NAWC-021318-~~RW~~-290 Lab Sample ID: 320-36091-16

Matrix: Water Lab File ID: 2018.03.05_537A_046.d

Analysis Method: 537 Date Collected: 02/13/2018 14:10

Extraction Method: 537 Date Extracted: 02/27/2018 08:13

Sample wt/vol: 268.6(mL) Date Analyzed: 03/05/2018 12:00

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.: 211202 Units: ng/L

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)	34	U	84	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	105		70-130
STL00996	13C2 PFDA	113		70-130

Ami L. Salmen
03/13/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: NAWC-021318-~~FRB~~^{RW}-290 Lab Sample ID: 320-36091-17
 Matrix: Water Lab File ID: 2018.03.05_537A_047.d
 Analysis Method: 537 Date Collected: 02/13/2018 14:05
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 266.1(mL) Date Analyzed: 03/05/2018 12:05
 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.: 211202 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18	J M	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	54		19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	10	J	23	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.1	J	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	35		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	87		70-130
STL00996	13C2 PFDA	108		70-130

Ali L. Salem
03/13/2018

Appendix B

Results as Reported by the Laboratory

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-021318-DUP-26</u>	Lab Sample ID: <u>320-36091-1</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.05_537A_029.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 07:00</u>
Extraction Method: <u>537</u>	Date Extracted: <u>02/27/2018 08:13</u>
Sample wt/vol: <u>282.4 (mL)</u>	Date Analyzed: <u>03/05/2018 10:40</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>211200</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	32	J M	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	27		18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.0	J	27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	10		8.9	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	80	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	88		70-130
STL00996	13C2 PFDA	115		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-021318-RW-188</u>	Lab Sample ID: <u>320-36091-2</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.05_537A_030.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 08:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>02/27/2018 08:13</u>
Sample wt/vol: <u>276.4 (mL)</u>	Date Analyzed: <u>03/05/2018 10:45</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>211200</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	19	J M	36	14	6.2
335-67-1	Perfluorooctanoic acid (PFOA)	21		18	7.2	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.7	J	27	11	5.0
375-85-9	Perfluoroheptanoic acid (PFHpA)	8.5	J	9.0	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	81	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	112		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: NAWC-021318-FRB-188 Lab Sample ID: 320-36091-3
 Matrix: Water Lab File ID: 2018.03.05_537A_031.d
 Analysis Method: 537 Date Collected: 02/13/2018 08:05
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 271.1 (mL) Date Analyzed: 03/05/2018 10:50
 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.: 211200 Units: ng/L

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	98		70-130
STL00996	13C2 PFDA	107		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: WGNA

Client Sample ID: ~~WCN1A~~ 021318-RW-3382 Lab Sample ID: 320-36091-4

Matrix: Water Lab File ID: 2018.03.05_537A_032.d

Analysis Method: 537 Date Collected: 02/13/2018 09:10

Extraction Method: 537 Date Extracted: 02/27/2018 08:13

Sample wt/vol: 281.1 (mL) Date Analyzed: 03/05/2018 10:54

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.: 211200 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18	J M	36	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	17	J M	18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.1	J	27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.1	J	8.9	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	80	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	112		70-130

Amir L. Salaman
03/13/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-021318-FRB-3382</u>	Lab Sample ID: <u>320-36091-5</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.05_537A_033.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 09:05</u>
Extraction Method: <u>537</u>	Date Extracted: <u>02/27/2018 08:13</u>
Sample wt/vol: <u>262.6(mL)</u>	Date Analyzed: <u>03/05/2018 10:59</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>211200</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	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	7.6	U	19	7.6	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	29	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	9.5	3.8	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	86	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	97		70-130
STL00996	13C2 PFDA	110		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: NAWC-021318-RW-100 Lab Sample ID: 320-36091-6
 Matrix: Water Lab File ID: 2018.03.05_537A_034.d
 Analysis Method: 537 Date Collected: 02/13/2018 09:40
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 291.6(mL) Date Analyzed: 03/05/2018 11:04
 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.: 211200 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J M	34	14	5.8
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	17	6.9	2.4
375-95-1	Perfluorononanoic acid (PFNA)	17	U	21	17	6.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	10	U	26	10	4.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.8	J	8.6	3.4	1.6
375-73-5	Perfluorobutanesulfonic acid (PFBS)	31	U	77	31	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	77		70-130
STL00996	13C2 PFDA	109		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Client Sample ID: NAWC-021318-FRB-100 Lab Sample ID: 320-36091-7

Matrix: Water Lab File ID: 2018.03.05_537A_035.d

Analysis Method: 537 Date Collected: 02/13/2018 09:35

Extraction Method: 537 Date Extracted: 02/27/2018 08:13

Sample wt/vol: 260.9(mL) Date Analyzed: 03/05/2018 11:08

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.: 211200 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	38	15	6.5
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	29	11	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	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	100		70-130
STL00996	13C2 PFDA	117		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: WGNA-021318-RW-3978 Lab Sample ID: 320-36091-8
 Matrix: Water Lab File ID: 2018.03.05_537A_038.d
 Analysis Method: 537 Date Collected: 02/13/2018 10:40
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 269.5 (mL) Date Analyzed: 03/05/2018 11:23
 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.: 211202 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)	24		19	7.4	2.6
375-95-1	Perfluorononanoic acid (PFNA)	19	U	22	19	7.4
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	10	J	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.9		9.3	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	33	U	83	33	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	109		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: WGNA-021318-FRB-3978 Lab Sample ID: 320-36091-9
 Matrix: Water Lab File ID: 2018.03.05_537A_039.d
 Analysis Method: 537 Date Collected: 02/13/2018 10:35
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 267.1 (mL) Date Analyzed: 03/05/2018 11:27
 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.: 211202 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	37	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	22	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.1
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.7	U	9.4	3.7	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	34	U	84	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	116		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: WGNA-021318-RW-3933 Lab Sample ID: 320-36091-10
 Matrix: Water Lab File ID: 2018.03.05_537A_040.d
 Analysis Method: 537 Date Collected: 02/13/2018 11:10
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 271.3 (mL) Date Analyzed: 03/05/2018 11:32
 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.: 211202 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	J M	37	15	6.3
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	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)	5.0	J	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	47	Q	70-130
STL00996	13C2 PFDA	56	Q	70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>WGNA-021318-RW-3933 RE</u>	Lab Sample ID: <u>320-36091-10 RE</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.09_537A_016.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 11:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>03/05/2018 17:45</u>
Sample wt/vol: <u>280 (mL)</u>	Date Analyzed: <u>03/09/2018 09:49</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>212124</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	27	J H M	36	14	6.1
335-67-1	Perfluorooctanoic acid (PFOA)	24	H	18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U H	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.1	J H	27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.7	H	8.9	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U H	80	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	80		70-130
STL00996	13C2 PFDA	107		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: WGNA-021318-FRB-3933 Lab Sample ID: 320-36091-11
 Matrix: Water Lab File ID: 2018.03.05_537A_041.d
 Analysis Method: 537 Date Collected: 02/13/2018 11:05
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 263.6(mL) Date Analyzed: 03/05/2018 11:37
 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.: 211202 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)	7.6	U	19	7.6	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.6
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	U	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	99		70-130
STL00996	13C2 PFDA	110		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-021318-RW-161</u>	Lab Sample ID: <u>320-36091-12</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.05_537A_042.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 11:40</u>
Extraction Method: <u>537</u>	Date Extracted: <u>02/27/2018 08:13</u>
Sample wt/vol: <u>284.4 (mL)</u>	Date Analyzed: <u>03/05/2018 11:41</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>211202</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	43	M	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	20		18	7.0	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	15	J	26	11	4.8
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.7	J	8.8	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	79	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	86		70-130
STL00996	13C2 PFDA	104		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-021318-FRB-161</u>	Lab Sample ID: <u>320-36091-13</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.05_537A_043.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 11:35</u>
Extraction Method: <u>537</u>	Date Extracted: <u>02/27/2018 08:13</u>
Sample wt/vol: <u>259.4 (mL)</u>	Date Analyzed: <u>03/05/2018 11:46</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>211202</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	U	39	15	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.7	U	19	7.7	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.7
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.3
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.6	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	114		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-021318-RW-292</u>	Lab Sample ID: <u>320-36091-14</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.05_537A_044.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 13:10</u>
Extraction Method: <u>537</u>	Date Extracted: <u>02/27/2018 08:13</u>
Sample wt/vol: <u>283.1 (mL)</u>	Date Analyzed: <u>03/05/2018 11:51</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>211202</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	J M	35	14	6.0
335-67-1	Perfluorooctanoic acid (PFOA)	21		18	7.1	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	21	18	7.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	9.1	J	26	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.6	J	8.8	3.5	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	79	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	87		70-130
STL00996	13C2 PFDA	115		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: <u>TestAmerica Sacramento</u>	Job No.: <u>320-36091-1</u>
SDG No.: _____	
Client Sample ID: <u>NAWC-021318-FRB-292</u>	Lab Sample ID: <u>320-36091-15</u>
Matrix: <u>Water</u>	Lab File ID: <u>2018.03.05_537A_045.d</u>
Analysis Method: <u>537</u>	Date Collected: <u>02/13/2018 13:05</u>
Extraction Method: <u>537</u>	Date Extracted: <u>02/27/2018 08:13</u>
Sample wt/vol: <u>278.9(mL)</u>	Date Analyzed: <u>03/05/2018 11:55</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>211202</u>	Units: <u>ng/L</u>

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	14	U	36	14	6.1
335-67-1	Perfluorooctanoic acid (PFOA)	7.2	U	18	7.2	2.5
375-95-1	Perfluorononanoic acid (PFNA)	18	U	22	18	7.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	U	27	11	4.9
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.6	U	9.0	3.6	1.7
375-73-5	Perfluorobutanesulfonic acid (PFBS)	32	U	81	32	14

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	113		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Client Sample ID: NAWC-021318-~~RW~~-290 Lab Sample ID: 320-36091-16

Matrix: Water Lab File ID: 2018.03.05_537A_046.d

Analysis Method: 537 Date Collected: 02/13/2018 14:10

Extraction Method: 537 Date Extracted: 02/27/2018 08:13

Sample wt/vol: 268.6(mL) Date Analyzed: 03/05/2018 12:00

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.: 211202 Units: ng/L

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)	34	U	84	34	15

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	105		70-130
STL00996	13C2 PFDA	113		70-130

Ali L. Salameh
03/13/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: NAWC-021318-~~FRB~~^{RW}-290 Lab Sample ID: 320-36091-17
 Matrix: Water Lab File ID: 2018.03.05_537A_047.d
 Analysis Method: 537 Date Collected: 02/13/2018 14:05
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 266.1 (mL) Date Analyzed: 03/05/2018 12:05
 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.: 211202 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18	J M	38	15	6.4
335-67-1	Perfluorooctanoic acid (PFOA)	54		19	7.5	2.6
375-95-1	Perfluorononanoic acid (PFNA)	10	J	23	19	7.5
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	7.1	J	28	11	5.2
375-85-9	Perfluoroheptanoic acid (PFHpA)	35		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	87		70-130
STL00996	13C2 PFDA	108		70-130

Ali L. Salem
03/13/2018

Appendix C

Support Documentation

ANALYTE	ORIGINAL WGNA- 021318-RW-3933- RA	DUPLICATE WGNA- 0121318-DUP-26		RL	RPD	RPD > 50%	ORIGINAL SAMPLE CONC >2xRL	DUPLICATE SAMPLE CONC >2xRL	DIFFERENCE >2XRL
Perfluorooctanoic acid (PFOA)	24	27	7.1		11.765	FALSE	TRUE	TRUE	FALSE
Perfluoroheptanoic acid (PFHpA)	9.7	10	3.6		3.046	FALSE	TRUE	TRUE	FALSE
Perfluorohexanesulfonic acid (PFHxS)	7.1	7	11		1.418	FALSE	FALSE	FALSE	FALSE
Perfluorooctanesulfonic acid (PFOS)	27	32	14		16.949	FALSE	FALSE	TRUE	FALSE

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: 2/8/2018		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		 320-36091 Chain of Custody		Sampler: Mary Kay Bond		For Lab Use Only:	
King of Prussia, PA 19406		☐ CALENDAR DAYS ☐ WORKING DAYS				Walk-in Client:		Lab Sampling:	
610-382-1174		TAT if different from Below 21				Job / SDG No.:			
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-021318-DUP-26 *	2/13/2018	07:00	G	DW	2	N	N	Y	Duplicate
NAWC-021318-RW-188 *	2/13/2018	08:10	G	DW	2	N	N	Y	
NAWC-021318-FRB-188 *	2/13/2018	08:05	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-021318-RW-3382 *	2/13/2018	09:10	G	DW	2	N	N	Y	
WGNA-021318-FRB-3382 *	2/13/2018	09:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-021318-RW-100 *	2/13/2018	09:40	G	DW	2	N	N	Y	
NAWC-021318-FRB-100 *	2/13/2018	09:35	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-021318-RW-3978 *	2/13/2018	10:40	G	DW	2	N	N	Y	
WGNA-021318-FRB-3978 *	2/13/2018	10:35	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-021318-RW-3933 *	2/13/2018	11:10	G	DW	2	N	N	Y	
WGNA-021318-FRB-3933 *	2/13/2018	11:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-021318-RW-161 *	2/13/2018	11:40	G	DW	2	N	N	Y	
NAWC-021318-FRB-161 *	2/13/2018	11:35	G	DW	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

☒ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Fed Ex Tracking:

7714 7275 3314

Custody Seals Intact: ☒ Yes ☐ No	Custody Seal No.: 522	Date/Time: 2/13/18 18:00	Cooler Temp. (°C): 1.3	Obs'd: 1.3	Corr'd:	Therm ID No.: AK-2
Relinquished by: Mary K Bond	Company: Tetra Tech	Date/Time: 2/8/2018 10:00	Received by: Dave Alltucker	Company: Tetra Tech	Date/Time: 2/8/18 9:05	
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:	
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:	

Form No. CA-C-WI-002, Rev. 4.11, dated 1/24/2017

880 Riverside Parkway
West Sacramento, CA 95605-1500
phone 916.373.5600 fax 303.467.7248

☐ NPDES ☐ RCRA ☐ Other:

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

[illegible]

Form No. CA-C-WI-002, Rev. 4.11, dated 1/24/2017

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-36091-1

Login Number: 36091

List Number: 1

Creator: Her, David A

List Source: TestAmerica Sacramento

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
320-36091-1

Receipt

The samples were received on 2/15/2018 9:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.3° 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.

Method(s) 537: 320-36091-17 was a field blank sample with detections greater than the reporting limit (RL) while its associated field sample, 320-36091-16 was non-detect for all analytes. Due to the suspicious results, these samples were re-extracted outside holding time and the results confirmed. The original set of data is reported. NAWC-021318-RW-290 (320-36091-16) and NAWC-021318-FRB-290 (320-36091-17)

Method(s) 537: The following samples, WGNA-021318-RW-3933 (320-36091-10), in preparation batch 320-211311 was re-prepared outside of preparation holding time due to high internal standard(IS) recovery. Both sets of data are reported

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

Organic Prep

Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with 320-210229

Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-211530.

Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-211311.

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

Definitions/Glossary

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

TestAmerica Job ID: 320-36091-1

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.
Q	One or more quality control criteria failed.
H	Sample was prepped or analyzed beyond the specified holding time

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: 320-36091-1

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-36091-1	WGNA-021318-DUP-26	Water	02/13/18 07:00	02/15/18 09:05
320-36091-2	NAWC-021318-RW-188	Water	02/13/18 08:10	02/15/18 09:05
320-36091-3	NAWC-021318-FRB-188	Water	02/13/18 08:05	02/15/18 09:05
320-36091-4	WGN1A-021318-RW-3382	Water	02/13/18 09:10	02/15/18 09:05
320-36091-5	WGNA-021318-FRB-3382	Water	02/13/18 09:05	02/15/18 09:05
320-36091-6	NAWC-021318-RW-100	Water	02/13/18 09:40	02/15/18 09:05
320-36091-7	NAWC-021318-FRB-100	Water	02/13/18 09:35	02/15/18 09:05
320-36091-8	WGNA-021318-RW-3978	Water	02/13/18 10:40	02/15/18 09:05
320-36091-9	WGNA-021318-FRB-3978	Water	02/13/18 10:35	02/15/18 09:05
320-36091-10	WGNA-021318-RW-3933	Water	02/13/18 11:10	02/15/18 09:05
320-36091-11	WGNA-021318-FRB-3933	Water	02/13/18 11:05	02/15/18 09:05
320-36091-12	NAWC-021318-RW-161	Water	02/13/18 11:40	02/15/18 09:05
320-36091-13	NAWC-021318-FRB-161	Water	02/13/18 11:35	02/15/18 09:05
320-36091-14	NAWC-021318-RW-292	Water	02/13/18 13:10	02/15/18 09:05
320-36091-15	NAWC-021318-FRB-292	Water	02/13/18 13:05	02/15/18 09:05
320-36091-16	NAWC-021318-RW-290	Water	02/13/18 14:10	02/15/18 09:05
320-36091-17	NAWC-021318-FRB-290	Water	02/13/18 14:05	02/15/18 09:05

Method Summary

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

TestAmerica Job ID: 320-36091-1

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.: 320-36091-1

SDG No.: _____

Matrix: Water

Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
WGNA-021318-DUP-26	320-36091-1	88	115
NAWC-021318-RW-188	320-36091-2	96	112
NAWC-021318-FRB-188	320-36091-3	98	107
WGN1A-021318-RW-3382	320-36091-4	94	112
WGNA-021318-FRB-3382	320-36091-5	97	110
NAWC-021318-RW-100	320-36091-6	77	109
NAWC-021318-FRB-100	320-36091-7	100	117
WGNA-021318-RW-3978	320-36091-8	87	109
WGNA-021318-FRB-3978	320-36091-9	103	116
WGNA-021318-RW-3933	320-36091-10	47 Q	56 Q
WGNA-021318-RW-3933 RE	320-36091-10 RE	80	107
WGNA-021318-FRB-3933	320-36091-11	99	110
NAWC-021318-RW-161	320-36091-12	86	104
NAWC-021318-FRB-161	320-36091-13	99	114
NAWC-021318-RW-292	320-36091-14	87	115
NAWC-021318-FRB-292	320-36091-15	95	113
NAWC-021318-RW-290	320-36091-16	105	113
NAWC-021318-FRB-290	320-36091-17	87	108
	MB 320-210229/1-A	100	115
	MB 320-211311/1-A	87	106
	LCS 320-211311/2-A	90	106
	LCSD 320-211311/3-A	90	101
	LLCS 320-210229/2-A	99	110
	LLCSD 320-210229/3-A	101	111

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

QC LIMITS
70-130
70-130

Column to be used to flag recovery values

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2018.03.09_537A_014.d
 Lab ID: LCS 320-211311/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	134	134	100	70-130	M
Perfluorooctanoic acid (PFOA)	67.0	67.5	101	70-130	
Perfluorononanoic acid (PFNA)	66.7	73.1	110	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	99.2	99	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	34.4	103	70-130	
Perfluorobutanesulfonic acid (PFBS)	300	265	88	70-130	

Column to be used to flag recovery and RPD values

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2018.03.09_537A_015.d
 Lab ID: LCSD 320-211311/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	134	129	96	4	30	70-130	M
Perfluorooctanoic acid (PFOA)	67.0	61.1	91	10	30	70-130	
Perfluorononanoic acid (PFNA)	66.7	70.9	106	3	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	98.1	98	1	30	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	33.3	100	3	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	300	264	88	0	30	70-130	

Column to be used to flag recovery and RPD values

FORM III
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2018.03.05_537A_027.d
 Lab ID: LLCS 320-210229/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LLCS CONCENTRATION (ng/L)	LLCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	40.2	42.5	106	50-150	M
Perfluorooctanoic acid (PFOA)	20.1	20.3	101	50-150	
Perfluorononanoic acid (PFNA)	20.0	23.1 J	116	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.0	31.9	106	50-150	
Perfluoroheptanoic acid (PFHpA)	10.0	11.8	118	50-150	
Perfluorobutanesulfonic acid (PFBS)	90.0	82.0 J	91	50-150	

Column to be used to flag recovery and RPD values

FORM III
LCMS LOW LEVEL CONTROL STANDARD DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2018.03.05_537A_028.d
 Lab ID: LLCSD 320-210229/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LLCSD CONCENTRATION (ng/L)	LLCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	40.2	43.2	108	2	50	50-150	M
Perfluorooctanoic acid (PFOA)	20.1	20.4	101	0.5	50	50-150	
Perfluorononanoic acid (PFNA)	20.0	23.9 J	119	3	50	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.0	31.2	104	2	50	50-150	
Perfluoroheptanoic acid (PFHpA)	10.0	11.9	119	1	50	50-150	
Perfluorobutanesulfonic acid (PFBS)	90.0	83.6 J	93	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.: 320-36091-1
 SDG No.: _____
 Lab File ID: 2018.03.05_537A_026.d Lab Sample ID: MB 320-210229/1-A
 Matrix: Water Date Extracted: 02/27/2018 08:13
 Instrument ID: A8_N Date Analyzed: 03/05/2018 10:26
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LLCS 320-210229/2-A	2018.03.05_537A_027.d	03/05/2018 10:31
	LLCSD 320-210229/3-A	2018.03.05_537A_028.d	03/05/2018 10:36
WGNA-021318-DUP-26	320-36091-1	2018.03.05_537A_029.d	03/05/2018 10:40
NAWC-021318-RW-188	320-36091-2	2018.03.05_537A_030.d	03/05/2018 10:45
NAWC-021318-FRB-188	320-36091-3	2018.03.05_537A_031.d	03/05/2018 10:50
WGN1A-021318-RW-3382	320-36091-4	2018.03.05_537A_032.d	03/05/2018 10:54
WGNA-021318-FRB-3382	320-36091-5	2018.03.05_537A_033.d	03/05/2018 10:59
NAWC-021318-RW-100	320-36091-6	2018.03.05_537A_034.d	03/05/2018 11:04
NAWC-021318-FRB-100	320-36091-7	2018.03.05_537A_035.d	03/05/2018 11:08
WGNA-021318-RW-3978	320-36091-8	2018.03.05_537A_038.d	03/05/2018 11:23
WGNA-021318-FRB-3978	320-36091-9	2018.03.05_537A_039.d	03/05/2018 11:27
WGNA-021318-RW-3933	320-36091-10	2018.03.05_537A_040.d	03/05/2018 11:32
WGNA-021318-FRB-3933	320-36091-11	2018.03.05_537A_041.d	03/05/2018 11:37
NAWC-021318-RW-161	320-36091-12	2018.03.05_537A_042.d	03/05/2018 11:41
NAWC-021318-FRB-161	320-36091-13	2018.03.05_537A_043.d	03/05/2018 11:46
NAWC-021318-RW-292	320-36091-14	2018.03.05_537A_044.d	03/05/2018 11:51
NAWC-021318-FRB-292	320-36091-15	2018.03.05_537A_045.d	03/05/2018 11:55
NAWC-021318-RW-290	320-36091-16	2018.03.05_537A_046.d	03/05/2018 12:00
NAWC-021318-FRB-290	320-36091-17	2018.03.05_537A_047.d	03/05/2018 12:05

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-210229/1-A
 Matrix: Water Lab File ID: 2018.03.05_537A_026.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 02/27/2018 08:13
 Sample wt/vol: 250 (mL) Date Analyzed: 03/05/2018 10:26
 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.: 211200 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	100		70-130
STL00996	13C2 PFDA	115		70-130

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
SDG No.: _____
Lab File ID: 2018.03.09_537A_013.d Lab Sample ID: MB 320-211311/1-A
Matrix: Water Date Extracted: 03/05/2018 17:45
Instrument ID: A8_N Date Analyzed: 03/09/2018 09:35
Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LCS 320-211311/2-A	2018.03.09_ 537A 014.d	03/09/2018 09:40
	LCSD 320-211311/3-A	2018.03.09_ 537A 015.d	03/09/2018 09:45
WGNA-021318-RW-3933 RE	320-36091-10 RE	2018.03.09_ 537A 016.d	03/09/2018 09:49

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-211311/1-A
 Matrix: Water Lab File ID: 2018.03.09_537A_013.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 03/05/2018 17:45
 Sample wt/vol: 250 (mL) Date Analyzed: 03/09/2018 09:35
 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.: 212124 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	87		70-130
STL00996	13C2 PFDA	106		70-130

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 02/16/2018 09:19
 Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		937117	1.86	2726868	2.11		
UPPER LIMIT		1405676	2.36	4090302	2.61		
LOWER LIMIT		468559	1.36	1363434	1.61		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-208773/11		955394	1.87	2663428	2.12		
ICV 320-208773/13		890238	1.85	2703377	2.11		
CCVL 320-211128/1		856705	1.89	2531502	2.15		
CCV 320-211200/1 CCVIS		955148	1.84	2682346	2.10		
MB 320-210229/1-A		835980	1.83	2465790	2.09		
LLCS 320-210229/2-A		870348	1.83	2603304	2.09		
LLCSD 320-210229/3-A		822256	1.83	2499043	2.09		
320-36091-1	WGNA-021318-DUP-26	910988	1.84	2690930	2.10		
320-36091-2	NAWC-021318-RW-188	811319	1.83	2445777	2.09		
320-36091-3	NAWC-021318-FRB-188	807139	1.83	2390571	2.09		
320-36091-4	WGN1A-021318-RW-3382	835912	1.83	2478112	2.09		
320-36091-5	WGNA-021318-FRB-3382	938305	1.84	2815703	2.09		
320-36091-6	NAWC-021318-RW-100	917373	1.83	2740449	2.09		
320-36091-7	NAWC-021318-FRB-100	901199	1.83	2734418	2.09		
CCV 320-211200/13 CCVIS		930083	1.84	2736448	2.09		
CCV 320-211202/13 CCVIS		930083	1.84	2736448	2.09		
320-36091-8	WGNA-021318-RW-3978	920332	1.83	2689190	2.09		
320-36091-9	WGNA-021318-FRB-3978	795161	1.83	2361397	2.09		
320-36091-11	WGNA-021318-FRB-3933	874758	1.84	2540389	2.09		
320-36091-12	NAWC-021318-RW-161	869043	1.82	2485385	2.08		
320-36091-13	NAWC-021318-FRB-161	877474	1.83	2664695	2.09		
320-36091-14	NAWC-021318-RW-292	919307	1.83	2681340	2.09		
320-36091-15	NAWC-021318-FRB-292	894439	1.83	2594697	2.09		
320-36091-16	NAWC-021318-RW-290	941625	1.82	2780425	2.08		
CCV 320-211202/25 CCVIS		951680	1.83	2793662	2.09		
CCVL 320-212122/1		1054723	1.84	3033079	2.10		
CCV 320-212124/8 CCVIS		870751	1.83	2649281	2.09		
MB 320-211311/1-A		985457	1.84	2765019	2.09		

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.: 320-36091-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 02/16/2018 09:19
 Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		937117	1.86	2726868	2.11		
UPPER LIMIT		1405676	2.36	4090302	2.61		
LOWER LIMIT		468559	1.36	1363434	1.61		
LAB SAMPLE ID	CLIENT SAMPLE ID						
LCS 320-211311/2-A		954109	1.83	2771174	2.09		
LCSD 320-211311/3-A		968987	1.84	2749585	2.09		
320-36091-10 RE	WGNA-021318-RW-3933 RE	1009202	1.83	2874291	2.09		
CCV 320-212124/19 CCVIS		957373	1.83	2813287	2.09		

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.: 320-36091-1
 SDG No.: _____
 Sample No.: CCV 320-211200/1 Date Analyzed: 03/05/2018 10:17
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.03.05_537A_024 Heated Purge: (Y/N) N
 Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		955148	1.84	2682346	2.10		
UPPER LIMIT		1337207	2.34	3755284	2.60		
LOWER LIMIT		668604	1.34	1877642	1.60		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-210229/1-A		835980	1.83	2465790	2.09		
LLCS 320-210229/2-A		870348	1.83	2603304	2.09		
LLCSD 320-210229/3-A		822256	1.83	2499043	2.09		
320-36091-1	WGNA-021318-DUP-26	910988	1.84	2690930	2.10		
320-36091-2	NAWC-021318-RW-188	811319	1.83	2445777	2.09		
320-36091-3	NAWC-021318-FRB-188	807139	1.83	2390571	2.09		
320-36091-4	WGN1A-021318-RW-3382	835912	1.83	2478112	2.09		
320-36091-5	WGNA-021318-FRB-3382	938305	1.84	2815703	2.09		
320-36091-6	NAWC-021318-RW-100	917373	1.83	2740449	2.09		
320-36091-7	NAWC-021318-FRB-100	901199	1.83	2734418	2.09		

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.: 320-36091-1
 SDG No.: _____
 Sample No.: CCV 320-211200/13 Date Analyzed: 03/05/2018 11:13
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.03.05_537A_036 Heated Purge: (Y/N) N
 Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		930083	1.84	2736448	2.09		
UPPER LIMIT		1302116	2.34	3831027	2.59		
LOWER LIMIT		651058	1.34	1915514	1.59		
LAB SAMPLE ID	CLIENT SAMPLE ID						
MB 320-210229/1-A		835980	1.83	2465790	2.09		
LLCS 320-210229/2-A		870348	1.83	2603304	2.09		
LLCSD 320-210229/3-A		822256	1.83	2499043	2.09		
320-36091-1	WGNA-021318-DUP-26	910988	1.84	2690930	2.10		
320-36091-2	NAWC-021318-RW-188	811319	1.83	2445777	2.09		
320-36091-3	NAWC-021318-FRB-188	807139	1.83	2390571	2.09		
320-36091-5	WGNA-021318-FRB-3382	938305	1.84	2815703	2.09		
320-36091-6	NAWC-021318-RW-100	917373	1.83	2740449	2.09		
320-36091-7	NAWC-021318-FRB-100	901199	1.83	2734418	2.09		

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.: 320-36091-1
 SDG No.: _____
 Sample No.: CCV 320-211202/13 Date Analyzed: 03/05/2018 11:13
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.03.05_537A_036 Heated Purge: (Y/N) N
 Calibration ID: 37889

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD		930083	1.84	2736448	2.09		
UPPER LIMIT		1302116	2.34	3831027	2.59		
LOWER LIMIT		651058	1.34	1915514	1.59		
LAB SAMPLE ID	CLIENT SAMPLE ID						
320-36091-8	WGNA-021318-RW-3978	920332	1.83	2689190	2.09		
320-36091-9	WGNA-021318-FRB-3978	795161	1.83	2361397	2.09		
320-36091-10	WGNA-021318-RW-3933	1619413Q	1.83	4786476Q	2.09		
320-36091-11	WGNA-021318-FRB-3933	874758	1.84	2540389	2.09		
320-36091-12	NAWC-021318-RW-161	869043	1.82	2485385	2.08		
320-36091-13	NAWC-021318-FRB-161	877474	1.83	2664695	2.09		
320-36091-14	NAWC-021318-RW-292	919307	1.83	2681340	2.09		
320-36091-15	NAWC-021318-FRB-292	894439	1.83	2594697	2.09		
320-36091-16	NAWC-021318-RW-290	941625	1.82	2780425	2.08		
320-36091-17	NAWC-021318-FRB-290	889189	1.83	2611881	2.09		

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.: 320-36091-1
 SDG No.: _____
 Sample No.: CCV 320-211202/25 Date Analyzed: 03/05/2018 12:09
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.03.05_537A_048 Heated Purge: (Y/N) N
 Calibration ID: 37889

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	951680	1.83	2793662	2.09		
UPPER LIMIT	1332352	2.33	3911127	2.59		
LOWER LIMIT	666176	1.33	1955563	1.59		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-36091-8	WGNA-021318-RW-3978	920332	1.83	2689190	2.09	
320-36091-9	WGNA-021318-FRB-3978	795161	1.83	2361397	2.09	
320-36091-11	WGNA-021318-FRB-3933	874758	1.84	2540389	2.09	
320-36091-12	NAWC-021318-RW-161	869043	1.82	2485385	2.08	
320-36091-13	NAWC-021318-FRB-161	877474	1.83	2664695	2.09	
320-36091-14	NAWC-021318-RW-292	919307	1.83	2681340	2.09	
320-36091-15	NAWC-021318-FRB-292	894439	1.83	2594697	2.09	
320-36091-16	NAWC-021318-RW-290	941625	1.82	2780425	2.08	

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.: 320-36091-1
 SDG No.: _____
 Sample No.: CCV 320-212124/8 Date Analyzed: 03/09/2018 09:26
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.03.09_537A_011 Heated Purge: (Y/N) N
 Calibration ID: 37889

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	870751	1.83	2649281	2.09		
UPPER LIMIT	1219051	2.33	3708993	2.59		
LOWER LIMIT	609526	1.33	1854497	1.59		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-211311/1-A		985457	1.84	2765019	2.09	
LCS 320-211311/2-A		954109	1.83	2771174	2.09	
LCSD 320-211311/3-A		968987	1.84	2749585	2.09	
320-36091-10 RE	WGNA-021318-RW-3933 RE	1009202	1.83	2874291	2.09	

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.: 320-36091-1
 SDG No.: _____
 Sample No.: CCV 320-212124/19 Date Analyzed: 03/09/2018 10:18
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.03.09_537A_022 Heated Purge: (Y/N) N
 Calibration ID: 37889

	13PFOA		PFOS			
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12/24 HOUR STD	957373	1.83	2813287	2.09		
UPPER LIMIT	1340322	2.33	3938602	2.59		
LOWER LIMIT	670161	1.33	1969301	1.59		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-211311/1-A		985457	1.84	2765019	2.09	
LCS 320-211311/2-A		954109	1.83	2771174	2.09	
LCSD 320-211311/3-A		968987	1.84	2749585	2.09	
320-36091-10 RE	WGNA-021318-RW-3933 RE	1009202	1.83	2874291	2.09	

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 VI
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1 Analy Batch No.: 208773

SDG No.: _____

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

Calibration Start Date: 02/16/2018 08:55 Calibration End Date: 02/16/2018 09:19 Calibration ID: 37889

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208773/4	2018.02.016_537ICAL_004.d
Level 2	IC 320-208773/5	2018.02.016_537ICAL_005.d
Level 3	IC 320-208773/6	2018.02.016_537ICAL_006.d
Level 4	IC 320-208773/7	2018.02.016_537ICAL_007.d
Level 5	IC 320-208773/8	2018.02.016_537ICAL_008.d
Level 6	IC 320-208773/9	2018.02.016_537ICAL_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)	1.1922 0.9350	1.2685	1.2630	1.1053	1.0403	QuaF		1.3180	-0.002120						1.0000		0.9600
Perfluorohexanesulfonic acid (PFHxS)	1.5376 1.6019	1.6461	1.6181	1.5963	1.6585	Ave		1.6098				2.7		30.0			
Perfluoroheptanoic acid (PFHpA)	0.9596 0.9834	0.9488	0.9462	1.0388	0.9501	Ave		0.9711				3.7		30.0			
Perfluorooctanoic acid (PFOA)	0.9118 0.9514	1.0053	0.9624	0.9616	0.9798	Ave		0.9620				3.2		30.0			
Perfluorooctanesulfonic acid (PFOS)	0.9021 0.9430	0.9481	0.9569	0.9539	0.9692	Ave		0.9455				2.4		30.0			
Perfluorononanoic acid (PFNA)	0.6417 0.6193	0.5823	0.5991	0.6537	0.5962	Ave		0.6154				4.5		30.0			
13C2 PFHxA	1.1327 1.1621	1.0418	1.0430	1.1541	1.0657	Ave		1.0999				5.1		30.0			
13C2 PFDA	0.5790 0.5388	0.4974	0.4674	0.5464	0.5166	Ave		0.5243				7.5		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.: 320-36091-1 Analy Batch No.: 208773

SDG No.: _____

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

Calibration Start Date: 02/16/2018 08:55 Calibration End Date: 02/16/2018 09:19 Calibration ID: 37889

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208773/4	2018.02.016_537ICAL_004.d
Level 2	IC 320-208773/5	2018.02.016_537ICAL_005.d
Level 3	IC 320-208773/6	2018.02.016_537ICAL_006.d
Level 4	IC 320-208773/7	2018.02.016_537ICAL_007.d
Level 5	IC 320-208773/8	2018.02.016_537ICAL_008.d
Level 6	IC 320-208773/9	2018.02.016_537ICAL_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	1004877 16112512	2401851	5386060	9625497	13334361	9.00 180	20.0	45.0	90.0	135
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	432087 9203547	1039145	2300670	4635169	7088297	3.00 60.0	6.67	15.0	30.0	45.0
Perfluoroheptanoic acid (PFHpA)	13PF OA	Ave	89434 1755879	208408	467875	919334	1334846	1.00 20.0	2.22	5.00	10.0	15.0
Perfluorooctanoic acid (PFOA)	13PF OA	Ave	170858 3415564	443975	956930	1711070	2767901	2.01 40.2	4.47	10.1	20.1	30.2
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	339345 7252490	801200	1821248	3707450	5544581	4.02 80.3	8.93	20.1	40.2	60.3
Perfluorononanoic acid (PFNA)	13PF OA	Ave	119635 2211715	255853	592583	1157180	1675602	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PF OA	Ave	1055358 1037300	1029524	1031304	1021204	998008	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PF OA	Ave	539488 480980	491558	462142	483499	483740	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.: 320-36091-1 Analy Batch No.: 208773

SDG No.: _____

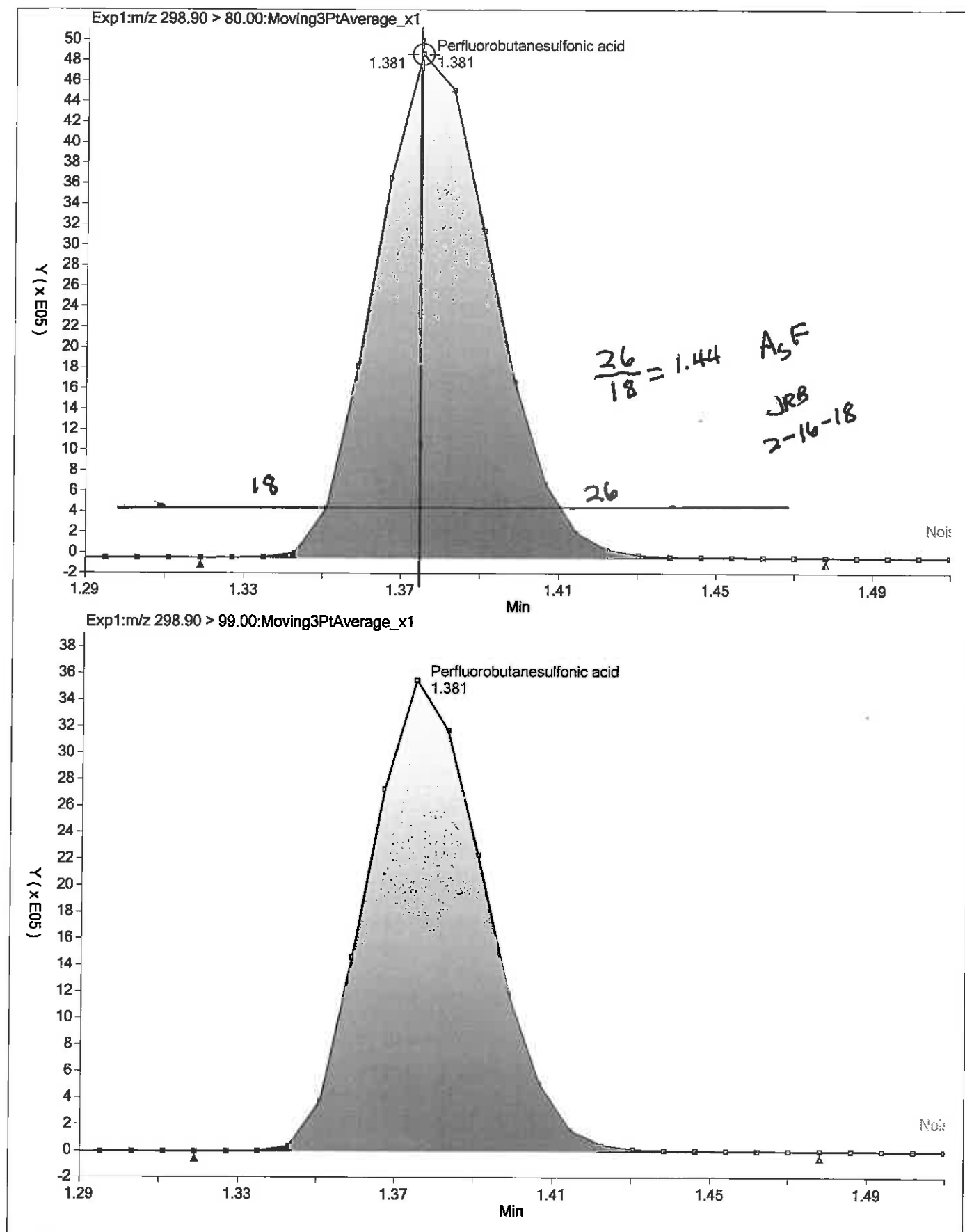
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

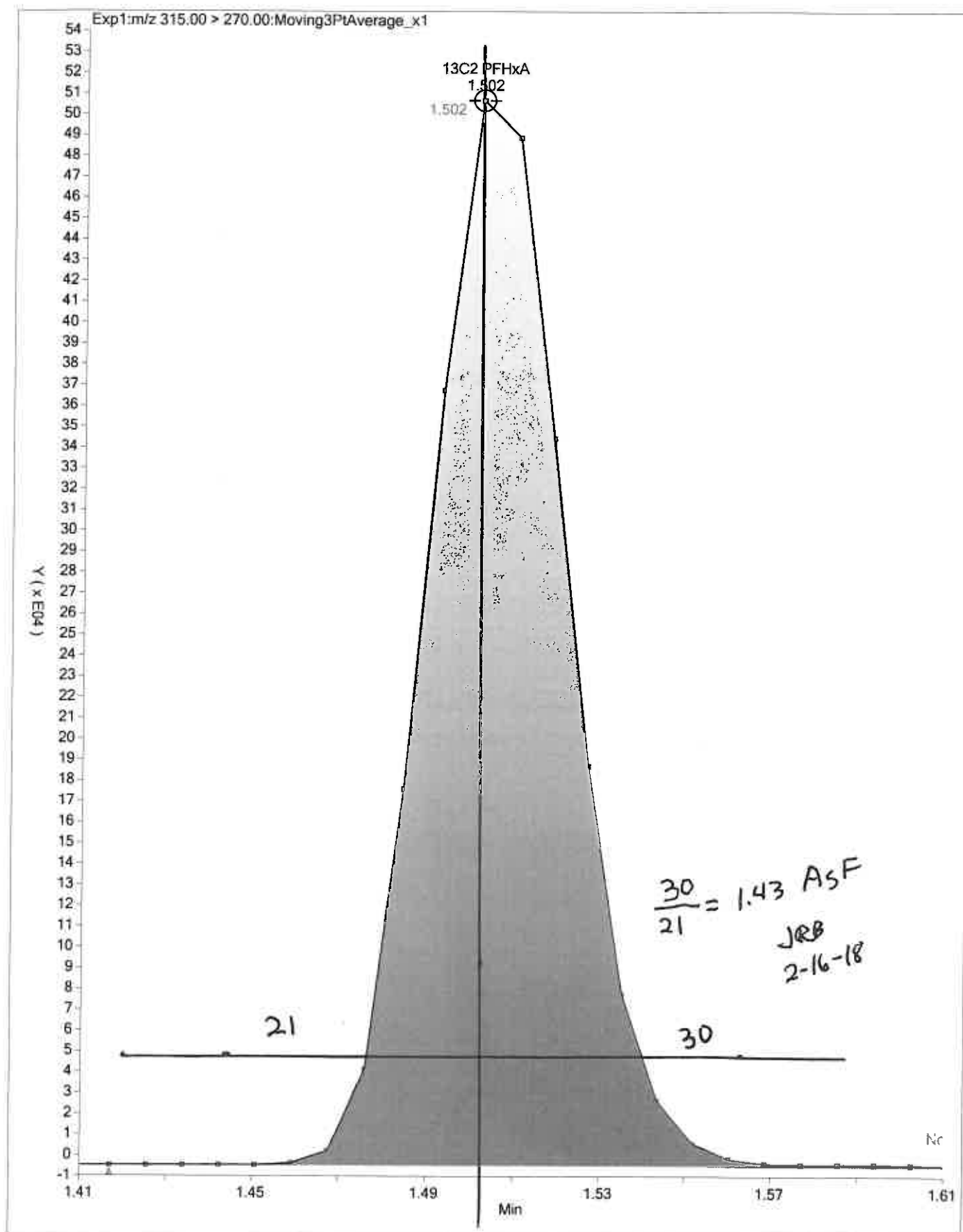
Calibration Start Date: 02/16/2018 08:55 Calibration End Date: 02/16/2018 09:19 Calibration ID: 37889

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208773/4	2018.02.016_537ICAL_004.d
Level 2	IC 320-208773/5	2018.02.016_537ICAL_005.d
Level 3	IC 320-208773/6	2018.02.016_537ICAL_006.d
Level 4	IC 320-208773/7	2018.02.016_537ICAL_007.d
Level 5	IC 320-208773/8	2018.02.016_537ICAL_008.d
Level 6	IC 320-208773/9	2018.02.016_537ICAL_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)	-8.3	-0.6	3.6	-2.3	1.1	-0.3	50	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	-4.5	2.3	0.5	-0.8	3.0	-0.5	50	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	-1.2	-2.3	-2.6	7.0	-2.2	1.3	50	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	-5.2	4.5	0.0	0.0	1.8	-1.1	50	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-4.6	0.3	1.2	0.9	2.5	-0.3	50	30	30	30	30	30
Perfluorononanoic acid (PFNA)	4.3	-5.4	-2.6	6.2	-3.1	0.6	50	30	30	30	30	30
13C2 PFHxA	3.0	-5.3	-5.2	4.9	-3.1	5.7	30	30	30	30	30	30
13C2 PFDA	10.4	-5.1	-10.9	4.2	-1.5	2.8	30	30	30	30	30	30





FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-208773/11 Calibration Date: 02/16/2018 09:28
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.02.016_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		1.238		19.4	20.0	-3.0	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9284		2.12	2.22	-4.4	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.706		7.07	6.67	6.0	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9302		4.32	4.47	-3.3	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9736		9.19	8.93	3.0	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.5986		4.32	4.45	-2.7	50.0
13C2 PFHxA	Ave	1.100	1.037		9.43	10.0	-5.7	30.0
13C2 PFDA	Ave	0.5243	0.5013		9.56	10.0	-4.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: ICV 320-208773/13 Calibration Date: 02/16/2018 09:37
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.02.016_537ICAL_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		1.108		100	100	0.2	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.997		10.3	10.0	2.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.686		21.1	20.2	4.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.8998		18.9	20.2	-6.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9852		21.0	20.2	4.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6774		22.2	20.2	10.1	30.0
13C2 PFHxA	Ave	1.100	1.125		10.2	10.0	2.3	30.0
13C2 PFDA	Ave	0.5243	0.5347		10.2	10.0	2.0	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-211128/1 Calibration Date: 03/05/2018 08:44
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.03.05_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		1.234		19.3	20.0	-3.4	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.576		6.53	6.67	-2.1	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	1.013		2.32	2.22	4.3	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9751		4.53	4.47	1.4	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9667		9.13	8.93	2.2	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6261		4.52	4.45	1.7	50.0
13C2 PFHxA	Ave	1.100	1.028		9.35	10.0	-6.5	30.0
13C2 PFDA	Ave	0.5243	0.5536		10.6	10.0	5.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: CCV 320-211200/1 Calibration Date: 03/05/2018 10:17
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.03.05_537A_024.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.111		40.6	45.0	-9.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.8888		4.58	5.00	-8.5	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.564		14.6	15.0	-2.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9448		9.87	10.1	-1.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9433		20.0	20.1	-0.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6121		9.95	10.0	-0.5	30.0
13C2 PFHxA	Ave	1.100	0.9575		8.71	10.0	-12.9	30.0
13C2 PFDA	Ave	0.5243	0.5020		9.58	10.0	-4.2	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: CCV 320-211200/13 Calibration Date: 03/05/2018 11:13
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.03.05_537A_036.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9754		125	135	-7.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9626		14.9	15.0	-0.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.628		45.5	45.0	1.1	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9736		30.5	30.2	1.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9947		63.4	60.3	5.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6456		31.5	30.0	4.9	30.0
13C2 PFHxA	Ave	1.100	1.036		9.42	10.0	-5.8	30.0
13C2 PFDA	Ave	0.5243	0.5423		10.3	10.0	3.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: CCV 320-211202/13 Calibration Date: 03/05/2018 11:13
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.03.05_537A_036.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9754		125	135	-7.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9626		14.9	15.0	-0.9	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.628		45.5	45.0	1.1	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9736		30.5	30.2	1.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9947		63.4	60.3	5.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6456		31.5	30.0	4.9	30.0
13C2 PFHxA	Ave	1.100	1.036		9.42	10.0	-5.8	30.0
13C2 PFDA	Ave	0.5243	0.5423		10.3	10.0	3.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: CCV 320-211202/25 Calibration Date: 03/05/2018 12:09
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.03.05_537A_048.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.155		42.3	45.0	-6.0	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.645		15.3	15.0	2.2	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9706		5.00	5.00	-0.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9384		9.81	10.1	-2.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9664		20.5	20.1	2.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6431		10.5	10.0	4.5	30.0
13C2 PFHxA	Ave	1.100	1.056		9.60	10.0	-4.0	30.0
13C2 PFDA	Ave	0.5243	0.5499		10.5	10.0	4.9	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-212122/1 Calibration Date: 03/09/2018 08:53
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.03.09_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		1.120		17.5	20.0	-12.6	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9772		2.24	2.22	0.6	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.599		6.62	6.67	-0.7	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9698		4.51	4.47	0.8	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9325		8.80	8.93	-1.4	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6387		4.61	4.45	3.8	50.0
13C2 PFHxA	Ave	1.100	1.000		9.09	10.0	-9.1	30.0
13C2 PFDA	Ave	0.5243	0.5277		10.1	10.0	0.7	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: CCV 320-212124/8 Calibration Date: 03/09/2018 09:26
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.03.09_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		1.104		40.3	45.0	-10.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	1.001		5.15	5.00	3.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.599		14.9	15.0	-0.7	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9415		9.84	10.1	-2.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9412		20.0	20.1	-0.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6887		11.2	10.0	11.9	30.0
13C2 PFHxA	Ave	1.100	1.078		9.80	10.0	-2.0	30.0
13C2 PFDA	Ave	0.5243	0.5843		11.1	10.0	11.5	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1
 SDG No.: _____
 Lab Sample ID: CCV 320-212124/19 Calibration Date: 03/09/2018 10:18
 Instrument ID: A8_N Calib Start Date: 02/16/2018 08:55
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19
 Lab File ID: 2018.03.09_537A_022.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9427		120	135	-11.5	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9868		15.2	15.0	1.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.617		45.2	45.0	0.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9624		30.2	30.2	0.0	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9871		62.9	60.3	4.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6709		32.7	30.0	9.0	30.0
13C2 PFHxA	Ave	1.100	1.094		9.95	10.0	-0.5	30.0
13C2 PFDA	Ave	0.5243	0.5738		10.9	10.0	9.4	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_NStart Date: 02/16/2018 08:55Analysis Batch Number: 208773End Date: 02/16/2018 09:37

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-208773/4		02/16/2018 08:55	1	2018.02.016_537 ICAL 004.d	GeminiC18 3x100 3(mm)
IC 320-208773/5		02/16/2018 09:00	1	2018.02.016_537 ICAL 005.d	GeminiC18 3x100 3(mm)
IC 320-208773/6		02/16/2018 09:05	1	2018.02.016_537 ICAL 006.d	GeminiC18 3x100 3(mm)
IC 320-208773/7 ICISAV		02/16/2018 09:09	1	2018.02.016_537 ICAL 007.d	GeminiC18 3x100 3(mm)
IC 320-208773/8		02/16/2018 09:14	1	2018.02.016_537 ICAL 008.d	GeminiC18 3x100 3(mm)
IC 320-208773/9		02/16/2018 09:19	1	2018.02.016_537 ICAL 009.d	GeminiC18 3x100 3(mm)
ZZZZZ		02/16/2018 09:23	1		GeminiC18 3x100 3(mm)
CCVL 320-208773/11		02/16/2018 09:28	1	2018.02.016_537 ICAL 011.d	GeminiC18 3x100 3(mm)
ZZZZZ		02/16/2018 09:33	1		GeminiC18 3x100 3(mm)
ICV 320-208773/13		02/16/2018 09:37	1	2018.02.016_537 ICAL 013.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_NStart Date: 03/05/2018 08:44Analysis Batch Number: 211128End Date: 03/05/2018 09:44

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-211128/1		03/05/2018 08:44	1	2018.03.05_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-211128/2 CCVIS		03/05/2018 08:48	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 08:58	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:02	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:07	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:12	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:16	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:21	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:26	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:30	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:35	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/05/2018 09:40	1		GeminiC18 3x100 3(mm)
CCV 320-211128/14 CCVIS		03/05/2018 09:44	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_NStart Date: 03/05/2018 10:17Analysis Batch Number: 211200End Date: 03/05/2018 11:13

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-211200/1 CCVIS		03/05/2018 10:17	1	2018.03.05_537A 024.d	GeminiC18 3x100 3(mm)
MB 320-210229/1-A		03/05/2018 10:26	1	2018.03.05_537A 026.d	GeminiC18 3x100 3(mm)
LLCS 320-210229/2-A		03/05/2018 10:31	1	2018.03.05_537A 027.d	GeminiC18 3x100 3(mm)
LLCSD 320-210229/3-A		03/05/2018 10:36	1	2018.03.05_537A 028.d	GeminiC18 3x100 3(mm)
320-36091-1		03/05/2018 10:40	1	2018.03.05_537A 029.d	GeminiC18 3x100 3(mm)
320-36091-2		03/05/2018 10:45	1	2018.03.05_537A 030.d	GeminiC18 3x100 3(mm)
320-36091-3		03/05/2018 10:50	1	2018.03.05_537A 031.d	GeminiC18 3x100 3(mm)
320-36091-4		03/05/2018 10:54	1	2018.03.05_537A 032.d	GeminiC18 3x100 3(mm)
320-36091-5		03/05/2018 10:59	1	2018.03.05_537A 033.d	GeminiC18 3x100 3(mm)
320-36091-6		03/05/2018 11:04	1	2018.03.05_537A 034.d	GeminiC18 3x100 3(mm)
320-36091-7		03/05/2018 11:08	1	2018.03.05_537A 035.d	GeminiC18 3x100 3(mm)
CCV 320-211200/13 CCVIS		03/05/2018 11:13	1	2018.03.05_537A 036.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica SacramentoJob No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_NStart Date: 03/05/2018 11:13Analysis Batch Number: 211202End Date: 03/05/2018 12:09

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-211202/13 CCVIS		03/05/2018 11:13	1	2018.03.05_537A 036.d	GeminiC18 3x100 3(mm)
320-36091-8		03/05/2018 11:23	1	2018.03.05_537A 038.d	GeminiC18 3x100 3(mm)
320-36091-9		03/05/2018 11:27	1	2018.03.05_537A 039.d	GeminiC18 3x100 3(mm)
320-36091-10		03/05/2018 11:32	1	2018.03.05_537A 040.d	GeminiC18 3x100 3(mm)
320-36091-11		03/05/2018 11:37	1	2018.03.05_537A 041.d	GeminiC18 3x100 3(mm)
320-36091-12		03/05/2018 11:41	1	2018.03.05_537A 042.d	GeminiC18 3x100 3(mm)
320-36091-13		03/05/2018 11:46	1	2018.03.05_537A 043.d	GeminiC18 3x100 3(mm)
320-36091-14		03/05/2018 11:51	1	2018.03.05_537A 044.d	GeminiC18 3x100 3(mm)
320-36091-15		03/05/2018 11:55	1	2018.03.05_537A 045.d	GeminiC18 3x100 3(mm)
320-36091-16		03/05/2018 12:00	1	2018.03.05_537A 046.d	GeminiC18 3x100 3(mm)
320-36091-17		03/05/2018 12:05	1	2018.03.05_537A 047.d	GeminiC18 3x100 3(mm)
CCV 320-211202/25 CCVIS		03/05/2018 12:09	1	2018.03.05_537A 048.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_N Start Date: 03/09/2018 08:53Analysis Batch Number: 212122 End Date: 03/09/2018 09:26

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-212122/1		03/09/2018 08:53	1	2018.03.09_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-212122/2 CCVIS		03/09/2018 08:58	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/09/2018 09:07	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/09/2018 09:12	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/09/2018 09:17	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/09/2018 09:21	1		GeminiC18 3x100 3(mm)
CCV 320-212122/8 CCVIS		03/09/2018 09:26	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Instrument ID: A8_N Start Date: 03/09/2018 09:26Analysis Batch Number: 212124 End Date: 03/09/2018 10:18

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-212124/8 CCVIS		03/09/2018 09:26	1	2018.03.09_537A 011.d	GeminiC18 3x100 3(mm)
MB 320-211311/1-A		03/09/2018 09:35	1	2018.03.09_537A 013.d	GeminiC18 3x100 3(mm)
LCS 320-211311/2-A		03/09/2018 09:40	1	2018.03.09_537A 014.d	GeminiC18 3x100 3(mm)
LCSD 320-211311/3-A		03/09/2018 09:45	1	2018.03.09_537A 015.d	GeminiC18 3x100 3(mm)
320-36091-10 RE		03/09/2018 09:49	1	2018.03.09_537A 016.d	GeminiC18 3x100 3(mm)
ZZZZZ		03/09/2018 09:54	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/09/2018 09:59	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/09/2018 10:03	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/09/2018 10:08	1		GeminiC18 3x100 3(mm)
ZZZZZ		03/09/2018 10:13	1		GeminiC18 3x100 3(mm)
CCV 320-212124/19 CCVIS		03/09/2018 10:18	1	2018.03.09_537A 022.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Batch Number: 210229 Batch Start Date: 02/27/18 08:13 Batch Analyst: Arauz, Horacio JBatch Method: 537 Batch End Date: 03/02/18 15:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00061
MB 320-210229/1		537, 537				250 mL	1.00 mL	7.0 SU	100 uL
LLCS 320-210229/2		537, 537				250 mL	1.00 mL	7.0 SU	100 uL
LLCSD 320-210229/3		537, 537				250 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-1	WGNA-021318-DUP-26	537, 537	T	309.73 g	27.29 g	282.4 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-2	NAWC-021318-RW-188	537, 537	T	303.56 g	27.12 g	276.4 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-3	NAWC-021318-FRB-188	537, 537	T	300.79 g	29.71 g	271.1 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-4	WGN1A-021318-RW-3382	537, 537	T	308.23 g	27.17 g	281.1 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-5	WGNA-021318-FRB-3382	537, 537	T	292.05 g	29.49 g	262.6 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-6	NAWC-021318-RW-100	537, 537	T	319.03 g	27.44 g	291.6 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-7	NAWC-021318-FRB-100	537, 537	T	290.43 g	29.51 g	260.9 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-8	WGNA-021318-RW-3978	537, 537	T	296.61 g	27.10 g	269.5 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-9	WGNA-021318-FRB-3978	537, 537	T	296.80 g	29.69 g	267.1 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-10	WGNA-021318-RW-3933	537, 537	T	298.77 g	27.49 g	271.3 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-11	WGNA-021318-FRB-3933	537, 537	T	291.51 g	27.88 g	263.6 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-12	NAWC-021318-RW-161	537, 537	T	313.07 g	28.70 g	284.4 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-13	NAWC-021318-FRB-161	537, 537	T	287.65 g	28.22 g	259.4 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-14	NAWC-021318-RW-292	537, 537	T	310.60 g	27.55 g	283.1 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-15	NAWC-021318-FRB-292	537, 537	T	306.67 g	27.77 g	278.9 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-16	NAWC-021318-RW-290	537, 537	T	295.74 g	27.12 g	268.6 mL	1.00 mL	7.0 SU	100 uL
320-36091-A-17	NAWC-021318-FRB-290	537, 537	T	293.91 g	27.78 g	266.1 mL	1.00 mL	7.0 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00029	LC537-SU 00058	AnalysisComment		
---------------	------------------	--------------	-------	-----------------	----------------	-----------------	--	--

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.: 320-36091-1

SDG No.: _____

Batch Number: 210229 Batch Start Date: 02/27/18 08:13 Batch Analyst: Arauz, Horacio JBatch Method: 537 Batch End Date: 03/02/18 15:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00029	LC537-SU 00058	AnalysisComment			
MB 320-210229/1		537, 537			100 uL	Chlorine ND			
LLCS 320-210229/2		537, 537		100 uL	100 uL	Chlorine ND			
LLCSD 320-210229/3		537, 537		100 uL	100 uL	Chlorine ND			
320-36091-A-1	WGNA-021318-DUP-26	537, 537	T		100 uL	Chlorine ND			
320-36091-A-2	NAWC-021318-RW-188	537, 537	T		100 uL	Chlorine ND			
320-36091-A-3	NAWC-021318-FRB-188	537, 537	T		100 uL	Chlorine ND			
320-36091-A-4	WGN1A-021318-RW-3382	537, 537	T		100 uL	Chlorine ND			
320-36091-A-5	WGNA-021318-FRB-3382	537, 537	T		100 uL	Chlorine ND			
320-36091-A-6	NAWC-021318-RW-100	537, 537	T		100 uL	Chlorine ND			
320-36091-A-7	NAWC-021318-FRB-100	537, 537	T		100 uL	Chlorine ND			
320-36091-A-8	WGNA-021318-RW-3978	537, 537	T		100 uL	Chlorine ND			
320-36091-A-9	WGNA-021318-FRB-3978	537, 537	T		100 uL	Chlorine ND			
320-36091-A-10	WGNA-021318-RW-3933	537, 537	T		100 uL	Chlorine ND			
320-36091-A-11	WGNA-021318-FRB-3933	537, 537	T		100 uL	Chlorine ND			
320-36091-A-12	NAWC-021318-RW-161	537, 537	T		100 uL	Chlorine ND			
320-36091-A-13	NAWC-021318-FRB-161	537, 537	T		100 uL	Chlorine ND			
320-36091-A-14	NAWC-021318-RW-292	537, 537	T		100 uL	Chlorine ND			
320-36091-A-15	NAWC-021318-FRB-292	537, 537	T		100 uL	Chlorine ND			
320-36091-A-16	NAWC-021318-RW-290	537, 537	T		100 uL	Chlorine ND			
320-36091-A-17	NAWC-021318-FRB-290	537, 537	T		100 uL	Chlorine 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.: 320-36091-1

SDG No.: _____

Batch Number: 210229 Batch Start Date: 02/27/18 08:13 Batch Analyst: Arauz, Horacio JBatch Method: 537 Batch End Date: 03/02/18 15:00

Batch Notes	
Analyst ID - Aliquot Step	SKD
Batch Comment	Client labels match TA labels, 02/27/ HJA
Analyst ID - Concentration	SKD
Analyst ID - Final Volume Step	SKD
Internal Standard ID#	1169779
Manifold ID	1,4
Methanol ID	115849
pH Indicator ID	1617
Pipette ID	H14930F, M16387D, N32728F
Analyst ID - IS Reagent Drop	TWL
Analyst ID - IS Reagent Drop Witness	SKD
Analyst ID - SU Reagent Drop	HJA
Analyst ID - SU Reagent Drop Witness	NGK
Analyst ID - TA Reagent Drop	HJA
Analyst ID - TA Reagent Drop Witness	NGK
SPE Cartridge Lot ID	6369499-6
Trizma ID	SLBR4303V
Reagent Water ID	02/27/18

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.

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-36091-1

SDG No.: _____

Batch Number: 211311 Batch Start Date: 03/05/18 17:45 Batch Analyst: Long, Tyrel WBatch Method: 537 Batch End Date: 03/08/18 16:30

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00062
MB 320-211311/1		537, 537				250 mL	1.00 mL	7 SU	100 uL
LCS 320-211311/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
LCSD 320-211311/3		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-36091-B-10	WGNA-021318-RW-3 933	537, 537	T	307.34 g	27.36 g	280 mL	1.00 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-MSP 00032	LC537-SU 00063	AnalysisComment			
MB 320-211311/1		537, 537			100 uL	Chlorine ND			
LCS 320-211311/2		537, 537		100 uL	100 uL	Chlorine ND			
LCSD 320-211311/3		537, 537		100 uL	100 uL	Chlorine ND			
320-36091-B-10	WGNA-021318-RW-3 933	537, 537	T		100 uL	Chlorine 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.: 320-36091-1

SDG No.: _____

Batch Number: 211311 Batch Start Date: 03/05/18 17:45 Batch Analyst: Long, Tyrel WBatch Method: 537 Batch End Date: 03/08/18 16:30

Batch Notes	
Analyst ID - Aliquot Step	TWL
Batch Comment	Client labels match: TWL 3/5/18
Analyst ID - Concentration	KMK
Analyst ID - Final Volume Step	TWL
Internal Standard ID#	1169780
Manifold ID	9
Methanol ID	1167500
pH Indicator ID	2517
Pipette ID	M16387D
Analyst ID - IS Reagent Drop	TWL
Analyst ID - IS Reagent Drop Witness	KMK
Analyst ID - SU Reagent Drop	TWL
Analyst ID - SU Reagent Drop Witness	JER
Analyst ID - TA Reagent Drop	TWL
Analyst ID - TA Reagent Drop Witness	JER
SPE Cartridge Lot ID	6369499-06
Trizma ID	SLBR4303V
Reagent Water ID	03/03/18

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.

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 05MAR2018_537B

Worklist Number: 54840

Instrument Name: A8_N

Chrom Method: 537_A8_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b

QC Batching: Enabled

Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 211200	LC 537 CS ICAL Raw Batch: 211201
# 1 CCV L3	# 1 CCV L3	# 1 CCV L3
# 2 RB	# 2 RB	# 2 RB
# 3 MB 320-210229/1-A	# 3 MB 320-210229/1-A	
# 4 LLCS 320-210229/2-A	# 4 LLCS 320-210229/2-A	
# 5 LLCSD 320-210229/3-A	# 5 LLCSD 320-210229/3-A	
# 6 320-36091-A-1-A	# 6 320-36091-A-1-A	
# 7 320-36091-A-2-A	# 7 320-36091-A-2-A	
# 8 320-36091-A-3-A	# 8 320-36091-A-3-A	
# 9 320-36091-A-4-A	# 9 320-36091-A-4-A	
#10 320-36091-A-5-A	#10 320-36091-A-5-A	
#11 320-36091-A-6-A	#11 320-36091-A-6-A	
#12 320-36091-A-7-A	#12 320-36091-A-7-A	
#13 CCV L5	#13 CCV L5	#13 CCV L5

QC Batch: 2	LC 537 ICAL Raw Batch: 211202	LC 537 CS ICAL Raw Batch: 211203
#13 CCV L5	#13 CCV L5	#13 CCV L5
#14 RB	#14 RB	#14 RB
#15 320-36091-A-8-A	#15 320-36091-A-8-A	
#16 320-36091-A-9-A	#16 320-36091-A-9-A	
#17 320-36091-A-10-A	#17 320-36091-A-10-A	
#18 320-36091-A-11-A	#18 320-36091-A-11-A	
#19 320-36091-A-12-A	#19 320-36091-A-12-A	
#20 320-36091-A-13-A	#20 320-36091-A-13-A	
#21 320-36091-A-14-A	#21 320-36091-A-14-A	
#22 320-36091-A-15-A	#22 320-36091-A-15-A	
#23 320-36091-A-16-A	#23 320-36091-A-16-A	
#24 320-36091-A-17-A	#24 320-36091-A-17-A	
#25 CCV L3	#25 CCV L3	#25 CCV L3
#26 RB	#26 RB	#26 RB

CCV L in AB 211128

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 05MAR2018_537B

Worklist Num: 54840

Instrument: A8_N

Method: 537_A8_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54840.b

Analysis Type: SemiVOA

Creator: Hannigan, Alyssa B

Inj Volume: 2.00

Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCV L3	320-0054840-001	CCVIS	05-Mar-2018 10:17:35	2018.03.05_537A_024.d	3	1.0		sv
RB	320-0054840-002	RB	05-Mar-2018 10:22:15	2018.03.05_537A_025.d	8	1.0		sv
MB 320-210229/1-A	320-0054840-003	MB	05-Mar-2018 10:26:54	2018.03.05_537A_026.d	16	1.0		sv
LLCS 320-210229/2-A	320-0054840-004	LLCS	05-Mar-2018 10:31:34	2018.03.05_537A_027.d	17	1.0		sv
LLCSD 320-210229/3-A	320-0054840-005	LLCSD	05-Mar-2018 10:36:14	2018.03.05_537A_028.d	18	1.0		sv
320-36091-A-1-A	320-0054840-006	Client	05-Mar-2018 10:40:55	2018.03.05_537A_029.d	19	1.0	WGNA-021318-DUP-26	sv
320-36091-A-2-A	320-0054840-007	Client	05-Mar-2018 10:45:36	2018.03.05_537A_030.d	20	1.0	NAWC-021318-RW-188	sv
320-36091-A-3-A	320-0054840-008	Client	05-Mar-2018 10:50:18	2018.03.05_537A_031.d	21	1.0	NAWC-021318-FRB-188	sv
320-36091-A-4-A	320-0054840-009	Client	05-Mar-2018 10:54:59	2018.03.05_537A_032.d	22	1.0	WGN1A-021318-RW-3382	sv
320-36091-A-5-A	320-0054840-010	Client	05-Mar-2018 10:59:39	2018.03.05_537A_033.d	23	1.0	WGNA-021318-FRB-3382	sv
320-36091-A-6-A	320-0054840-011	Client	05-Mar-2018 11:04:19	2018.03.05_537A_034.d	24	1.0	NAWC-021318-RW-100	sv
320-36091-A-7-A	320-0054840-012	Client	05-Mar-2018 11:08:59	2018.03.05_537A_035.d	25	1.0	NAWC-021318-FRB-100	sv
CCV L5	320-0054840-013	CCVIS	05-Mar-2018 11:13:40	2018.03.05_537A_036.d	5	1.0		sv
RB	320-0054840-014	RB	05-Mar-2018 11:18:21	2018.03.05_537A_037.d	8	1.0		sv
320-36091-A-8-A	320-0054840-015	Client	05-Mar-2018 11:23:00	2018.03.05_537A_038.d	26	1.0	WGNA-021318-RW-3978	sv
320-36091-A-9-A	320-0054840-016	Client	05-Mar-2018 11:27:40	2018.03.05_537A_039.d	27	1.0	WGNA-021318-FRB-3978	sv
320-36091-A-10-A	320-0054840-017	Client	05-Mar-2018 11:32:20	2018.03.05_537A_040.d	28	1.0	WGNA-021318-RW-3933	sv
320-36091-A-11-A	320-0054840-018	Client	05-Mar-2018 11:37:01	2018.03.05_537A_041.d	29	1.0	WGNA-021318-FRB-3933	sv
320-36091-A-12-A	320-0054840-019	Client	05-Mar-2018 11:41:42	2018.03.05_537A_042.d	30	1.0	NAWC-021318-RW-161	sv
320-36091-A-13-A	320-0054840-020	Client	05-Mar-2018 11:46:22	2018.03.05_537A_043.d	31	1.0	NAWC-021318-FRB-161	sv
320-36091-A-14-A	320-0054840-021	Client	05-Mar-2018 11:51:03	2018.03.05_537A_044.d	32	1.0	NAWC-021318-RW-292	sv
320-36091-A-15-A	320-0054840-022	Client	05-Mar-2018 11:55:43	2018.03.05_537A_045.d	33	1.0	NAWC-021318-FRB-292	sv
320-36091-A-16-A	320-0054840-023	Client	05-Mar-2018 12:00:23	2018.03.05_537A_046.d	34	1.0	NAWC-021318-RW-290	sv
320-36091-A-17-A	320-0054840-024	Client	05-Mar-2018 12:05:03	2018.03.05_537A_047.d	35	1.0	NAWC-021318-FRB-290	sv
CCV L3	320-0054840-025	CCVIS	05-Mar-2018 12:09:44	2018.03.05_537A_048.d	3	1.0		sv

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
RB	320-0054840-026	RB	05-Mar-2018 12:14:24	2018.03.05_537A_049.d	8	1.0		sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 05MAR2018_537A

Worklist Num: 54822

Instrument: A8_N

Method: 537_A8_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180305-54822.b

Analysis Type: SemiVOA

Creator: Royce, Amani A

Inj Volume: 2.00

Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCVL	320-0054822-001	CCVL	05-Mar-2018 08:44:04	2018.03.05_537A_004.d	2	1.0		sv
CCV L3	320-0054822-002	CCVIS	05-Mar-2018 08:48:44	2018.03.05_537A_005.d	3	1.0		sv
RB	320-0054822-003	RB	05-Mar-2018 08:53:24	2018.03.05_537A_006.d	8	1.0		sv
MB 320-210599/1-A	320-0054822-004	MB	05-Mar-2018 08:58:04	2018.03.05_537A_007.d	1	1.0		sv
LLCS 320-210599/2-A	320-0054822-005	LLCS	05-Mar-2018 09:02:46	2018.03.05_537A_008.d	2	1.0		sv
LLCSD 320-210599/3-A	320-0054822-006	LLCSD	05-Mar-2018 09:07:27	2018.03.05_537A_009.d	3	1.0		sv
320-36228-B-1-A	320-0054822-007	Client	05-Mar-2018 09:12:09	2018.03.05_537A_010.d	4	1.0	C0AG1	sv
320-36228-B-2-A	320-0054822-008	Client	05-Mar-2018 09:16:49	2018.03.05_537A_011.d	5	1.0	C0AG2	sv
320-36228-B-3-A	320-0054822-009	Client	05-Mar-2018 09:21:29	2018.03.05_537A_012.d	6	1.0	C0AG3	sv
320-36228-B-4-A	320-0054822-010	Client	05-Mar-2018 09:26:10	2018.03.05_537A_013.d	7	1.0	C0AG4	sv
320-36228-B-5-A	320-0054822-011	Client	05-Mar-2018 09:30:50	2018.03.05_537A_014.d	8	1.0	C0AG5	sv
320-36228-B-6-A	320-0054822-012	Client	05-Mar-2018 09:35:30	2018.03.05_537A_015.d	9	1.0	C0AG6	sv
320-36228-B-7-A	320-0054822-013	Client	05-Mar-2018 09:40:09	2018.03.05_537A_016.d	10	1.0	C0AG7	sv
CCV L5	320-0054822-014	CCVIS	05-Mar-2018 09:44:51	2018.03.05_537A_017.d	5	1.0		sv
RB	320-0054822-015	RB	05-Mar-2018 09:49:31	2018.03.05_537A_018.d	8	1.0		sv
320-36228-B-8-A	320-0054822-016	Client	05-Mar-2018 09:54:11	2018.03.05_537A_019.d	11	1.0	C0AH5	sv
320-36228-B-9-A	320-0054822-017	Client	05-Mar-2018 09:58:53	2018.03.05_537A_020.d	12	1.0	C0AH6	sv
320-36228-B-10-A	320-0054822-018	Client	05-Mar-2018 10:03:33	2018.03.05_537A_021.d	13	1.0	C0AH7	sv
320-36228-B-11-A	320-0054822-019	Client	05-Mar-2018 10:08:14	2018.03.05_537A_022.d	14	1.0	C0AH8	sv
320-36228-B-12-A	320-0054822-020	Client	05-Mar-2018 10:12:55	2018.03.05_537A_023.d	15	1.0	C0AH9	sv
CCV L3	320-0054822-021	CCVIS	05-Mar-2018 10:17:35	2018.03.05_537A_024.d	3	1.0		sv
RB	320-0054822-022	RB	05-Mar-2018 10:22:15	2018.03.05_537A_025.d	8	1.0		sv

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-210229

Analyst: Arauz, Horacio J

Batch Open: 2/27/2018 8:13:00AM

Method Code: 320-537_Prep-320

Batch End: 3/2/2018 3:00:00PM

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-320-210229/1 N/A	N/A		250 mL	7.0			N/A	N/A	N/A	Chlorine ND	
			1.00 mL								
2 LLCS-320-210229/2 N/A	N/A		250 mL	7.0			N/A	N/A	N/A	Chlorine ND	
			1.00 mL								
3 LLCSD-320-210229/3 N/A	N/A		250 mL	7.0			N/A	N/A	N/A	Chlorine ND	
			1.00 mL								
4 320-36091-A-1 (537_DOD5)	N/A (320-36091-1)	309.73 g	282.4 mL	7.0			2/19/18	16_Days	4	Chlorine ND	
		27.29 g	1.00 mL								
5 320-36091-A-2 (537_DOD5)	N/A (320-36091-1)	303.56 g	276.4 mL	7.0			2/19/18	16_Days	4	Chlorine ND	
		27.12 g	1.00 mL								
6 320-36091-A-3 (537_DOD5)	N/A (320-36091-1)	300.79 g	271.1 mL	7.0			2/19/18	16_Days	4	Chlorine ND	
		29.71 g	1.00 mL								
7 320-36091-A-4 (537_DOD5)	N/A (320-36091-1)	308.23 g	281.1 mL	7.0			2/19/18	16_Days	4	Chlorine ND	
		27.17 g	1.00 mL								
8 320-36091-A-5 (537_DOD5)	N/A (320-36091-1)	292.05 g	262.6 mL	7.0			2/19/18	16_Days	4	Chlorine ND	
		29.49 g	1.00 mL								
9 320-36091-A-6 (537_DOD5)	N/A (320-36091-1)	319.03 g	291.6 mL	7.0			2/19/18	16_Days	4	Chlorine ND	
		27.44 g	1.00 mL								
10 320-36091-A-7 (537_DOD5)	N/A (320-36091-1)	290.43 g	260.9 mL	7.0			2/19/18	16_Days	4	Chlorine ND	
		29.51 g	1.00 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-210229

Analyst: Arauz, Horacio J

Batch Open: 2/27/2018 8:13:00AM

Method Code: 320-537_Prep-320

Batch End: 3/2/2018 3:00:00PM

11	320-36091-A-8 (537_DOD5)	N/A (320-36091-1)	296.61 g 27.10 g	269.5 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	
12	320-36091-A-9 (537_DOD5)	N/A (320-36091-1)	296.80 g 29.69 g	267.1 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	
13	320-36091-A-10 (537_DOD5)	N/A (320-36091-1)	298.77 g 27.49 g	271.3 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	
14	320-36091-A-11 (537_DOD5)	N/A (320-36091-1)	291.51 g 27.88 g	263.6 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	
15	320-36091-A-12 (537_DOD5)	N/A (320-36091-1)	313.07 g 28.70 g	284.4 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	
16	320-36091-A-13 (537_DOD5)	N/A (320-36091-1)	287.65 g 28.22 g	259.4 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	
17	320-36091-A-14 (537_DOD5)	N/A (320-36091-1)	310.60 g 27.55 g	283.1 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	
18	320-36091-A-15 (537_DOD5)	N/A (320-36091-1)	306.67 g 27.77 g	278.9 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	
19	320-36091-A-16 (537_DOD5)	N/A (320-36091-1)	295.74 g 27.12 g	268.6 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	
20	320-36091-A-17 (537_DOD5)	N/A (320-36091-1)	293.91 g 27.78 g	266.1 mL 1.00 mL	7.0		2/19/18	16_Days	4	Chlorine ND	

Page 379 of 402

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-210229

Analyst: Arauz, Horacio J

Batch Open: 2/27/2018 8:13:00AM

Method Code: 320-537_Prep-320

Batch End: 3/2/2018 3:00:00PM

Batch Notes

Manifold ID 1,4

pH Indicator ID 1617

Trizma ID SLBR4303V

SPE Cartridge Lot ID 6369499-6

Methanol ID 115849

Reagent Water ID 02/27/18

Internal Standard ID# 1169779

Pipette ID H14930F, M16387D, N32728F

Analyst ID - TA Reagent Drop HJA

Analyst ID - TA Reagent Drop NGK

Witness

Analyst ID - SU Reagent Drop HJA

Analyst ID - SU Reagent Drop NGK

Witness

Analyst ID - IS Reagent Drop TWL

Analyst ID - IS Reagent Drop SKD

Witness

Analyst ID - Concentration SKD

Analyst ID - Aliquot Step SKD

Analyst ID - Final Volume Step SKD

Batch Comment Client labels match TA labels, 02/27/ HJA

Page 380 of 402

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 09MAR2018_537A Worklist Number: 55099
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 212122	LC 537 CS ICAL Raw Batch: 212123
# 1 CCVL # 2 CCV L5 # 3 RB # 4 MB 320-211748/1-A # 5 LCS 320-211748/2-A # 6 LCSD 320-211748/3-A # 7 320-36607-B-5-A # 8 CCV L3	# 1 CCVL # 2 CCV L5 # 3 RB # 4 MB 320-211748/1-A # 5 LCS 320-211748/2-A # 6 LCSD 320-211748/3-A # 7 320-36607-B-5-A # 8 CCV L3	# 1 CCVL

QC Batch: 2	LC 537 ICAL Raw Batch: 212124
# 8 CCV L3 # 9 RB #10 MB 320-211311/1-A #11 LCS 320-211311/2-A #12 LCSD 320-211311/3-A #13 320-36091-B-10-A #14 320-36091-B-17-A #15 MB 320-211530/1-A #16 LCS 320-211530/2-A #17 LCSD 320-211530/3-A #18 320-36091-B-16-A #19 CCV L5 #20 RB	# 8 CCV L3 # 9 RB #10 MB 320-211311/1-A #11 LCS 320-211311/2-A #12 LCSD 320-211311/3-A #13 320-36091-B-10-A #14 320-36091-B-17-A #15 MB 320-211530/1-A #16 LCS 320-211530/2-A #17 LCSD 320-211530/3-A #18 320-36091-B-16-A #19 CCV L5 #20 RB

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 09MAR2018_537A

Worklist Num: 55099

Instrument: A8_N

Method: 537_A8_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180309-55099.b

Analysis Type: SemiVOA

Creator: Royce, Amani A

Inj Volume: 2.00

Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCVL	320-0055099-001	CCVL	09-Mar-2018 08:53:57	2018.03.09_537A_004.d	2	1.0		sv
CCV L5	320-0055099-002	CCVIS	09-Mar-2018 08:58:38	2018.03.09_537A_005.d	5	1.0		sv
RB	320-0055099-003	RB	09-Mar-2018 09:03:17	2018.03.09_537A_006.d	8	1.0		sv
MB 320-211748/1-A	320-0055099-004	MB	09-Mar-2018 09:07:57	2018.03.09_537A_007.d	38	1.0		sv
LCS 320-211748/2-A	320-0055099-005	LCS	09-Mar-2018 09:12:38	2018.03.09_537A_008.d	39	1.0		sv
LCSD 320-211748/3-A	320-0055099-006	LCSD	09-Mar-2018 09:17:19	2018.03.09_537A_009.d	40	1.0		sv
320-36607-B-5-A	320-0055099-007	Client	09-Mar-2018 09:21:58	2018.03.09_537A_010.d	41	1.0	C0AL7	sv
CCV L3	320-0055099-008	CCVIS	09-Mar-2018 09:26:38	2018.03.09_537A_011.d	3	1.0		sv
RB	320-0055099-009	RB	09-Mar-2018 09:31:18	2018.03.09_537A_012.d	8	1.0		sv
MB 320-211311/1-A	320-0055099-010	MB	09-Mar-2018 09:35:57	2018.03.09_537A_013.d	42	1.0		sv
LCS 320-211311/2-A	320-0055099-011	LCS	09-Mar-2018 09:40:37	2018.03.09_537A_014.d	43	1.0		sv
LCSD 320-211311/3-A	320-0055099-012	LCSD	09-Mar-2018 09:45:17	2018.03.09_537A_015.d	44	1.0		sv
320-36091-B-10-A	320-0055099-013	Client	09-Mar-2018 09:49:57	2018.03.09_537A_016.d	45	1.0	WGNA-021318-RW-3933	sv
320-36091-B-17-A	320-0055099-014	Client	09-Mar-2018 09:54:38	2018.03.09_537A_017.d	46	1.0	NAWC-021318-FRB-290	sv
MB 320-211530/1-A	320-0055099-015	MB	09-Mar-2018 09:59:19	2018.03.09_537A_018.d	47	1.0		sv
LCS 320-211530/2-A	320-0055099-016	LCS	09-Mar-2018 10:03:59	2018.03.09_537A_019.d	48	1.0		sv
LCSD 320-211530/3-A	320-0055099-017	LCSD	09-Mar-2018 10:08:41	2018.03.09_537A_020.d	49	1.0		sv
320-36091-B-16-A	320-0055099-018	Client	09-Mar-2018 10:13:22	2018.03.09_537A_021.d	50	1.0	NAWC-021318-RW-290	sv
CCV L5	320-0055099-019	CCVIS	09-Mar-2018 10:18:02	2018.03.09_537A_022.d	5	1.0		sv
RB	320-0055099-020	RB	09-Mar-2018 10:22:42	2018.03.09_537A_023.d	8	1.0		sv

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-211530 ✓
Method Code: 320-537_Prep-320

Analyst: Long, Tyrel W

Batch Open: 3/6/2018 5:48:00PM

Batch End: 3/8/2018 4:30:00PM

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-320-211530/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	
			1.00 mL								
2 LCS-320-211530/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	
			1.00 mL								
3 LCSD-320-211530/3 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	
			1.00 mL								
4 320-36091-B-16 (537_DOD5)	N/A (320-36091-1)	12.39 g	306.3 mL	7			2/19/18	16_Days	4	Chlorine ND	
		6.13 g	1.00 mL								

Page 389 of 402

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-211530

Analyst: Long, Tyrel W

Batch Open: 3/6/2018 5:48:00PM

Method Code: 320-537_Prep-320

Batch End: 3/8/2018 4:30:00PM

Batch Notes

Manifold ID 9

pH Indicator ID 3817

Trizma ID SLBR4303V

SPE Cartridge Lot ID 6369499-06

Methanol ID 1167500

Reagent Water ID 03/03/18

Internal Standard ID# 1169780

Pipette ID M16387D

Analyst ID - TA Reagent Drop TWL

Analyst ID - TA Reagent Drop VPM

Witness

Analyst ID - SU Reagent Drop TWL

Analyst ID - SU Reagent Drop VPM

Witness

Analyst ID - IS Reagent Drop TWL

Analyst ID - IS Reagent Drop KMK

Witness

Analyst ID - Concentration KMK

Analyst ID - Aliquot Step TWL

Analyst ID - Final Volume Step TWL

Batch Comment Client labels match: TWL 3/6/18

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-211311 ✓

Analyst: Long, Tyrel W

Method Code: 320-537_Prep-320

Batch Open: 3/5/2018 5:45:00PM

Batch End: 3/8/2018 4:30:00PM

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-320-211311/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	
			1.00 mL								
2 LCS-320-211311/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	
			1.00 mL								
3 LCSD-320-211311/3 N/A	N/A		250 mL	7			N/A	N/A	N/A	Chlorine ND	
			1.00 mL								
4 320-36091-B-10 (537_DOD5)	N/A (320-36091-1)	307.34 g	280 mL	7			2/19/18	16_Days	4	Chlorine ND	
		27.36 g	1.00 mL								
5 320-36091-B-17 (537_DOD5)	N/A (320-36091-1)	301.34 g	273.2 mL	7			2/19/18	16_Days	4	Chlorine ND	
		28.12 g	1.00 mL								

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-211311

Analyst: Long, Tyrel W

Batch Open: 3/5/2018 5:45:00PM

Method Code: 320-537_Prep-320

Batch End: 3/8/2018 4:30:00PM

Batch Notes

Manifold ID 9

pH Indicator ID 2517

Trizma ID SLBR4303V

SPE Cartridge Lot ID 6369499-06

Methanol ID 1167500

Reagent Water ID 03/03/18

Internal Standard ID# 1169780

Pipette ID M16387D

Analyst ID - TA Reagent Drop TWL

Analyst ID - TA Reagent Drop JER

Witness

Analyst ID - SU Reagent Drop TWL

Analyst ID - SU Reagent Drop JER

Witness

Analyst ID - IS Reagent Drop TWL

Analyst ID - IS Reagent Drop KMK

Witness

Analyst ID - Concentration KMK

Analyst ID - Aliquot Step TWL

Analyst ID - Final Volume Step TWL

Batch Comment Client labels match: TWL 3/5/18

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-211311

Analyst: Long, Tyrel W

Batch Open: 3/5/2018 5:45:00PM

Method Code: 320-537_Prep-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-211311/1	LC537-SU_00063	100 uL	1.00 mL	TW 3-5-18	MD 3/5/18
LCS 320-211311/2	LC537-MSP_00032	100 uL	1.00 mL		
LCS 320-211311/2	LC537-SU_00063	100 uL	1.00 mL		
LCSD 320-211311/3	LC537-MSP_00032	100 uL	1.00 mL		
LCSD 320-211311/3	LC537-SU_00063	100 uL	1.00 mL		
320-36091-B-10	LC537-SU_00063	100 uL	1.00 mL		
320-36091-B-17	LC537-SU_00063	100 uL	1.00 mL		

Other Reagents:

Reagent	Amount/Units	Lot#:

Page 397 of 402

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-211311

Analyst: Long, Tyrel W

Batch Open: 3/5/2018 5:45:00PM

Method Code: 320-537_Prep-320

Batch End: 3/8/2018 4:30:00PM

Batch Notes

Manifold ID 9

pH Indicator ID 2517

Trizma ID SLBR4303V

SPE Cartridge Lot ID 6369499-06

Methanol ID 1167500

Reagent Water ID 03/03/18

Internal Standard ID# 1169780

Pipette ID M16387D

Analyst ID - TA Reagent Drop TWL

Analyst ID - TA Reagent Drop JER

Witness

Analyst ID - SU Reagent Drop TWL

Analyst ID - SU Reagent Drop JER

Witness

Analyst ID - IS Reagent Drop TWL

Analyst ID - IS Reagent Drop KMK

Witness

Analyst ID - Concentration KMK

Analyst ID - Aliquot Step TWL

Analyst ID - Final Volume Step TWL

Batch Comment Client labels match: TWL 3/5/18

PFAS Calibration Calculations:

Initial Calibration 2/16/2018
Instrument A8_N

PFOS

Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	Reported RRF
4.02	339345	2685321	28.7	0.90220	0.9021
8.93	801200	2714895	28.7	0.94846	0.9481
20.1	1821248	2717621	28.7	0.95690	0.9569
40.2	3707450	2774986	28.7	0.95383	0.9539
60.3	5544581	2722967	28.7	0.96915	0.9692
80.3	7252490	2745419	28.7	0.94416	0.943
Average				0.94578	0.9455
Standard Deviation				0.0230	
RSD				0.0243	
%RSD				2.43134	2.4

Continuing Calibration 03/05/2018 @ 10:17

PFOS

Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	%D	Reported RRF	Reported %D
20.1	1772057	2682346	28.7	0.9433	-0.232935	0.9433	-0.2

Willow Grove
SDG 320-36091-1

Sample Identification

WGNA-021318-DUP-26

Compound

fluorooctanesulfonic acid (PFOS)

Compound Area	790916
Internal Standard Amount (ng)	28.7
Dilution Factor	1
Internal Standard Area	2690930
Average RRF	0.9455
Sample Volume(L)	0.2824
Volume Extract (ml)	1
Injection Volume (µl)	1
Concentration	31.5925 ng/L

C:\AI\ Projects\112C08005\WECA\FES.DR.03\NAWC_201901.mxd MKB 1/24/2019

