



**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 320-35691-1**

*Naval Air Warfare Center Warminster
Warminster, Pennsylvania*

August 2019

N62269_001135
WARMINSTER_NAWC
SSIC 5000-33c

**LABORATORY DATA PACKAGE, 320-35691-1, NAS WILLOW GROVE NAWC
WARMINSTER PA**
02/13/2018
TESTAMERICA LABORATORIES INC

Approved for public release: distribution unlimited.

ANALYTICAL REPORT

Job Number: 320-35691-1

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
2/13/2018 1:33 PM

David R Alltucker, Project Manager I
880 Riverside Parkway, West Sacramento, CA, 95605
(916)374-4383
david.alltucker@testamericainc.com
02/13/2018

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Definitions/Glossary

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

TestAmerica Job ID: 320-35691-1

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.

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
320-35691-1

Receipt

The samples were received on 2/2/2018 9:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6° 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: Surrogate recovery for the following sample was outside control limits: NAWC-020118-FRB-167 (320-35691-2). Re-extraction and/or re-analysis was performed with concurring results. The original analysis has been 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 preparation batch 320-207046.

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: 320-35691-1

Client Sample ID: NAWC-020118-RW-167

Lab Sample ID: 320-35691-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	15	J M	41	7.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	8.4	J	21	2.9	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.3	J M	10	2.0	ng/L	1		537	Total/NA

Client Sample ID: NAWC-020118-FRB-167

Lab Sample ID: 320-35691-2

No Detections.

Client Sample ID: NAWC-020118-RW-151

Lab Sample ID: 320-35691-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	9.6	J M	41	7.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	26		21	2.9	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	10		10	2.0	ng/L	1		537	Total/NA

Client Sample ID: NAWC-020118-FRB-151

Lab Sample ID: 320-35691-4

No Detections.

Client Sample ID: NAWC-020118-RW-156

Lab Sample ID: 320-35691-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	11	J M	39	6.7	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	13	J	20	2.7	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.0	J	9.8	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-020118-FRB-156

Lab Sample ID: 320-35691-6

No Detections.

Client Sample ID: NAWC-020118-RW-119

Lab Sample ID: 320-35691-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	21	J M	40	6.7	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	15	J	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.4	J	30	5.4	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.4	J	9.9	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-020118-FRB-119

Lab Sample ID: 320-35691-8

No Detections.

Client Sample ID: WGNA-020118-DUP-24

Lab Sample ID: 320-35691-9

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	20	J M	39	6.7	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	25		20	2.7	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.1	J	9.8	1.9	ng/L	1		537	Total/NA

Client Sample ID: WGNA-020118-RW-4847

Lab Sample ID: 320-35691-10

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: 320-35691-1

Client Sample ID: WGNA-020118-RW-4847 (Continued)

Lab Sample ID: 320-35691-10

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	4.1	J	20	2.8	ng/L	1		537	Total/NA

Client Sample ID: WGNA-020118-FRB-4847

Lab Sample ID: 320-35691-11

No Detections.

Client Sample ID: NAWC-020118-RW-121

Lab Sample ID: 320-35691-12

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	22	J M	40	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	25		20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	12	J	30	5.5	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.8	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-020118-FRB-121

Lab Sample ID: 320-35691-13

No Detections.

Client Sample ID: NAWC-020118-RW-123

Lab Sample ID: 320-35691-14

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	31	J M	40	6.8	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	26		20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	14	J	30	5.5	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	9.1	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-020118-FRB-123

Lab Sample ID: 320-35691-15

No Detections.

Client Sample ID: NAWC-020118-RW-207

Lab Sample ID: 320-35691-16

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	18	J M	39	6.6	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	26		20	2.7	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.6	J	9.8	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-020118-FRB-207

Lab Sample ID: 320-35691-17

No Detections.

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: 320-35691-1

Client Sample ID: NAWC-020118-RW-167

Lab Sample ID: 320-35691-1

Date Collected: 02/01/18 10:10

Matrix: Water

Date Received: 02/02/18 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	41	7.0	ng/L		02/06/18 08:01	02/08/18 12:18	1
Perfluorooctanoic acid (PFOA)	8.4	J	21	2.9	ng/L		02/06/18 08:01	02/08/18 12:18	1
Perfluorononanoic acid (PFNA)	21	U	25	8.3	ng/L		02/06/18 08:01	02/08/18 12:18	1
Perfluorohexanesulfonic acid (PFHxS)	12	U M	31	5.7	ng/L		02/06/18 08:01	02/08/18 12:18	1
Perfluoroheptanoic acid (PFHpA)	2.3	J M	10	2.0	ng/L		02/06/18 08:01	02/08/18 12:18	1
Perfluorobutanesulfonic acid (PFBS)	37	U	93	17	ng/L		02/06/18 08:01	02/08/18 12:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	96		70 - 130	02/06/18 08:01	02/08/18 12:18	1
13C2 PFDA	94		70 - 130	02/06/18 08:01	02/08/18 12:18	1

Client Sample ID: NAWC-020118-FRB-167

Lab Sample ID: 320-35691-2

Date Collected: 02/01/18 10:05

Matrix: Water

Date Received: 02/02/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.9	ng/L		02/06/18 08:01	02/08/18 12:22	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		02/06/18 08:01	02/08/18 12:22	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/06/18 08:01	02/08/18 12:22	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		02/06/18 08:01	02/08/18 12:22	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		02/06/18 08:01	02/08/18 12:22	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		02/06/18 08:01	02/08/18 12:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	20	Q	70 - 130	02/06/18 08:01	02/08/18 12:22	1
13C2 PFDA	53	Q	70 - 130	02/06/18 08:01	02/08/18 12:22	1

Client Sample ID: NAWC-020118-RW-151

Lab Sample ID: 320-35691-3

Date Collected: 02/01/18 11:10

Matrix: Water

Date Received: 02/02/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	9.6	J M	41	7.0	ng/L		02/06/18 08:01	02/08/18 12:27	1
Perfluorooctanoic acid (PFOA)	26		21	2.9	ng/L		02/06/18 08:01	02/08/18 12:27	1
Perfluorononanoic acid (PFNA)	21	U	25	8.3	ng/L		02/06/18 08:01	02/08/18 12:27	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.7	ng/L		02/06/18 08:01	02/08/18 12:27	1
Perfluoroheptanoic acid (PFHpA)	10		10	2.0	ng/L		02/06/18 08:01	02/08/18 12:27	1
Perfluorobutanesulfonic acid (PFBS)	37	U	93	17	ng/L		02/06/18 08:01	02/08/18 12:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	96		70 - 130	02/06/18 08:01	02/08/18 12:27	1
13C2 PFDA	95		70 - 130	02/06/18 08:01	02/08/18 12:27	1

Client Sample Results

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

TestAmerica Job ID: 320-35691-1

Client Sample ID: NAWC-020118-FRB-151

Lab Sample ID: 320-35691-4

Date Collected: 02/01/18 10:05

Matrix: Water

Date Received: 02/02/18 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		02/06/18 08:01	02/08/18 12:32	1
Perfluorooctanoic acid (PFOA)	7.7	U	19	2.7	ng/L		02/06/18 08:01	02/08/18 12:32	1
Perfluorononanoic acid (PFNA)	19	U	23	7.7	ng/L		02/06/18 08:01	02/08/18 12:32	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.3	ng/L		02/06/18 08:01	02/08/18 12:32	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	1.8	ng/L		02/06/18 08:01	02/08/18 12:32	1
Perfluorobutanesulfonic acid (PFBS)	35	U	87	16	ng/L		02/06/18 08:01	02/08/18 12:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	98		70 - 130	02/06/18 08:01	02/08/18 12:32	1
13C2 PFDA	98		70 - 130	02/06/18 08:01	02/08/18 12:32	1

Client Sample ID: NAWC-020118-RW-156

Lab Sample ID: 320-35691-5

Date Collected: 02/01/18 11:40

Matrix: Water

Date Received: 02/02/18 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	39	6.7	ng/L		02/06/18 08:01	02/08/18 12:36	1
Perfluorooctanoic acid (PFOA)	13	J	20	2.7	ng/L		02/06/18 08:01	02/08/18 12:36	1
Perfluorononanoic acid (PFNA)	20	U	24	7.8	ng/L		02/06/18 08:01	02/08/18 12:36	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L		02/06/18 08:01	02/08/18 12:36	1
Perfluoroheptanoic acid (PFHpA)	4.0	J	9.8	1.9	ng/L		02/06/18 08:01	02/08/18 12:36	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		02/06/18 08:01	02/08/18 12:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	102		70 - 130	02/06/18 08:01	02/08/18 12:36	1
13C2 PFDA	95		70 - 130	02/06/18 08:01	02/08/18 12:36	1

Client Sample ID: NAWC-020118-FRB-156

Lab Sample ID: 320-35691-6

Date Collected: 02/01/18 11:35

Matrix: Water

Date Received: 02/02/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	39	6.6	ng/L		02/06/18 08:01	02/08/18 12:41	1
Perfluorooctanoic acid (PFOA)	7.8	U	19	2.7	ng/L		02/06/18 08:01	02/08/18 12:41	1
Perfluorononanoic acid (PFNA)	19	U	23	7.8	ng/L		02/06/18 08:01	02/08/18 12:41	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L		02/06/18 08:01	02/08/18 12:41	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	1.8	ng/L		02/06/18 08:01	02/08/18 12:41	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		02/06/18 08:01	02/08/18 12:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	103		70 - 130	02/06/18 08:01	02/08/18 12:41	1
13C2 PFDA	106		70 - 130	02/06/18 08:01	02/08/18 12:41	1

Client Sample Results

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

TestAmerica Job ID: 320-35691-1

Client Sample ID: NAWC-020118-RW-119

Lab Sample ID: 320-35691-7

Date Collected: 02/01/18 12:40

Matrix: Water

Date Received: 02/02/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	21	J M	40	6.7	ng/L		02/06/18 08:01	02/08/18 12:46	1
Perfluorooctanoic acid (PFOA)	15	J	20	2.8	ng/L		02/06/18 08:01	02/08/18 12:46	1
Perfluorononanoic acid (PFNA)	20	U M	24	7.9	ng/L		02/06/18 08:01	02/08/18 12:46	1
Perfluorohexanesulfonic acid (PFHxS)	5.4	J	30	5.4	ng/L		02/06/18 08:01	02/08/18 12:46	1
Perfluoroheptanoic acid (PFHpA)	5.4	J	9.9	1.9	ng/L		02/06/18 08:01	02/08/18 12:46	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		02/06/18 08:01	02/08/18 12:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		70 - 130				02/06/18 08:01	02/08/18 12:46	1
13C2 PFDA	103		70 - 130				02/06/18 08:01	02/08/18 12:46	1

Client Sample ID: NAWC-020118-FRB-119

Lab Sample ID: 320-35691-8

Date Collected: 02/01/18 12:35

Matrix: Water

Date Received: 02/02/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	41	7.0	ng/L		02/06/18 08:01	02/08/18 13:00	1
Perfluorooctanoic acid (PFOA)	8.2	U	21	2.9	ng/L		02/06/18 08:01	02/08/18 13:00	1
Perfluorononanoic acid (PFNA)	21	U	25	8.2	ng/L		02/06/18 08:01	02/08/18 13:00	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.6	ng/L		02/06/18 08:01	02/08/18 13:00	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		02/06/18 08:01	02/08/18 13:00	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	17	ng/L		02/06/18 08:01	02/08/18 13:00	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	91		70 - 130				02/06/18 08:01	02/08/18 13:00	1
13C2 PFDA	96		70 - 130				02/06/18 08:01	02/08/18 13:00	1

Client Sample ID: WGNA-020118-DUP-24

Lab Sample ID: 320-35691-9

Date Collected: 02/01/18 07:00

Matrix: Water

Date Received: 02/02/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	20	J M	39	6.7	ng/L		02/06/18 08:01	02/08/18 13:04	1
Perfluorooctanoic acid (PFOA)	25		20	2.7	ng/L		02/06/18 08:01	02/08/18 13:04	1
Perfluorononanoic acid (PFNA)	20	U M	24	7.9	ng/L		02/06/18 08:01	02/08/18 13:04	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L		02/06/18 08:01	02/08/18 13:04	1
Perfluoroheptanoic acid (PFHpA)	5.1	J	9.8	1.9	ng/L		02/06/18 08:01	02/08/18 13:04	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		02/06/18 08:01	02/08/18 13:04	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	93		70 - 130				02/06/18 08:01	02/08/18 13:04	1
13C2 PFDA	102		70 - 130				02/06/18 08:01	02/08/18 13:04	1

Client Sample Results

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

TestAmerica Job ID: 320-35691-1

Client Sample ID: WGNA-020118-RW-4847

Lab Sample ID: 320-35691-10

Date Collected: 02/01/18 13:10

Matrix: Water

Date Received: 02/02/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	41	6.9	ng/L		02/06/18 08:01	02/08/18 13:09	1
Perfluorooctanoic acid (PFOA)	4.1	J	20	2.8	ng/L		02/06/18 08:01	02/08/18 13:09	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/06/18 08:01	02/08/18 13:09	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		02/06/18 08:01	02/08/18 13:09	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		02/06/18 08:01	02/08/18 13:09	1
Perfluorobutanesulfonic acid (PFBS)	37	U	91	16	ng/L		02/06/18 08:01	02/08/18 13:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		70 - 130	02/06/18 08:01	02/08/18 13:09	1
13C2 PFDA	94		70 - 130	02/06/18 08:01	02/08/18 13:09	1

Client Sample ID: WGNA-020118-FRB-4847

Lab Sample ID: 320-35691-11

Date Collected: 02/01/18 13:05

Matrix: Water

Date Received: 02/02/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	39	6.7	ng/L		02/06/18 08:01	02/08/18 13:14	1
Perfluorooctanoic acid (PFOA)	7.8	U	20	2.7	ng/L		02/06/18 08:01	02/08/18 13:14	1
Perfluorononanoic acid (PFNA)	20	U	23	7.8	ng/L		02/06/18 08:01	02/08/18 13:14	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L		02/06/18 08:01	02/08/18 13:14	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	1.9	ng/L		02/06/18 08:01	02/08/18 13:14	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		02/06/18 08:01	02/08/18 13:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	102		70 - 130	02/06/18 08:01	02/08/18 13:14	1
13C2 PFDA	115		70 - 130	02/06/18 08:01	02/08/18 13:14	1

Client Sample ID: NAWC-020118-RW-121

Lab Sample ID: 320-35691-12

Date Collected: 02/01/18 13:40

Matrix: Water

Date Received: 02/02/18 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	40	6.9	ng/L		02/06/18 08:01	02/08/18 13:18	1
Perfluorooctanoic acid (PFOA)	25		20	2.8	ng/L		02/06/18 08:01	02/08/18 13:18	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/06/18 08:01	02/08/18 13:18	1
Perfluorohexanesulfonic acid (PFHxS)	12	J	30	5.5	ng/L		02/06/18 08:01	02/08/18 13:18	1
Perfluoroheptanoic acid (PFHpA)	6.8	J	10	1.9	ng/L		02/06/18 08:01	02/08/18 13:18	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		02/06/18 08:01	02/08/18 13:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	106		70 - 130	02/06/18 08:01	02/08/18 13:18	1
13C2 PFDA	104		70 - 130	02/06/18 08:01	02/08/18 13:18	1

Client Sample Results

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

TestAmerica Job ID: 320-35691-1

Client Sample ID: NAWC-020118-FRB-121

Lab Sample ID: 320-35691-13

Date Collected: 02/01/18 13:35

Matrix: Water

Date Received: 02/02/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		02/06/18 08:01	02/08/18 13:23	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		02/06/18 08:01	02/08/18 13:23	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		02/06/18 08:01	02/08/18 13:23	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		02/06/18 08:01	02/08/18 13:23	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		02/06/18 08:01	02/08/18 13:23	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		02/06/18 08:01	02/08/18 13:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	110		70 - 130	02/06/18 08:01	02/08/18 13:23	1
13C2 PFDA	110		70 - 130	02/06/18 08:01	02/08/18 13:23	1

Client Sample ID: NAWC-020118-RW-123

Lab Sample ID: 320-35691-14

Date Collected: 02/01/18 15:10

Matrix: Water

Date Received: 02/02/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	31	J M	40	6.8	ng/L		02/06/18 08:01	02/08/18 13:28	1
Perfluorooctanoic acid (PFOA)	26		20	2.8	ng/L		02/06/18 08:01	02/08/18 13:28	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/06/18 08:01	02/08/18 13:28	1
Perfluorohexanesulfonic acid (PFHxS)	14	J	30	5.5	ng/L		02/06/18 08:01	02/08/18 13:28	1
Perfluoroheptanoic acid (PFHpA)	9.1	J	10	1.9	ng/L		02/06/18 08:01	02/08/18 13:28	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		02/06/18 08:01	02/08/18 13:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	96		70 - 130	02/06/18 08:01	02/08/18 13:28	1
13C2 PFDA	94		70 - 130	02/06/18 08:01	02/08/18 13:28	1

Client Sample ID: NAWC-020118-FRB-123

Lab Sample ID: 320-35691-15

Date Collected: 02/01/18 15:05

Matrix: Water

Date Received: 02/02/18 09:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		02/06/18 08:01	02/08/18 13:32	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		02/06/18 08:01	02/08/18 13:32	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		02/06/18 08:01	02/08/18 13:32	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		02/06/18 08:01	02/08/18 13:32	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		02/06/18 08:01	02/08/18 13:32	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		02/06/18 08:01	02/08/18 13:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	102		70 - 130	02/06/18 08:01	02/08/18 13:32	1
13C2 PFDA	102		70 - 130	02/06/18 08:01	02/08/18 13:32	1

Client Sample Results

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

TestAmerica Job ID: 320-35691-1

Client Sample ID: NAWC-020118-RW-207

Lab Sample ID: 320-35691-16

Date Collected: 02/01/18 16:40

Matrix: Water

Date Received: 02/02/18 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	39	6.6	ng/L		02/06/18 08:01	02/08/18 13:37	1
Perfluorooctanoic acid (PFOA)	26		20	2.7	ng/L		02/06/18 08:01	02/08/18 13:37	1
Perfluorononanoic acid (PFNA)	20	U	23	7.8	ng/L		02/06/18 08:01	02/08/18 13:37	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	29	5.4	ng/L		02/06/18 08:01	02/08/18 13:37	1
Perfluoroheptanoic acid (PFHpA)	3.6	J	9.8	1.9	ng/L		02/06/18 08:01	02/08/18 13:37	1
Perfluorobutanesulfonic acid (PFBS)	35	U	88	16	ng/L		02/06/18 08:01	02/08/18 13:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	100		70 - 130	02/06/18 08:01	02/08/18 13:37	1
13C2 PFDA	100		70 - 130	02/06/18 08:01	02/08/18 13:37	1

Client Sample ID: NAWC-020118-FRB-207

Lab Sample ID: 320-35691-17

Date Collected: 02/01/18 16:35

Matrix: Water

Date Received: 02/02/18 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		02/06/18 08:01	02/08/18 13:42	1
Perfluorooctanoic acid (PFOA)	7.6	U	19	2.7	ng/L		02/06/18 08:01	02/08/18 13:42	1
Perfluorononanoic acid (PFNA)	19	U	23	7.6	ng/L		02/06/18 08:01	02/08/18 13:42	1
Perfluorohexanesulfonic acid (PFHxS)	11	U	29	5.2	ng/L		02/06/18 08:01	02/08/18 13:42	1
Perfluoroheptanoic acid (PFHpA)	3.8	U	9.5	1.8	ng/L		02/06/18 08:01	02/08/18 13:42	1
Perfluorobutanesulfonic acid (PFBS)	34	U	86	15	ng/L		02/06/18 08:01	02/08/18 13:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	100		70 - 130	02/06/18 08:01	02/08/18 13:42	1
13C2 PFDA	96		70 - 130	02/06/18 08:01	02/08/18 13:42	1

Default Detection Limits

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

TestAmerica Job ID: 320-35691-1

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: 320-35691-1

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)
320-35691-1	NAWC-020118-RW-167	96	94
320-35691-2	NAWC-020118-FRB-167	20 Q	53 Q
320-35691-3	NAWC-020118-RW-151	96	95
320-35691-4	NAWC-020118-FRB-151	98	98
320-35691-5	NAWC-020118-RW-156	102	95
320-35691-6	NAWC-020118-FRB-156	103	106
320-35691-7	NAWC-020118-RW-119	94	103
320-35691-8	NAWC-020118-FRB-119	91	96
320-35691-9	WGNA-020118-DUP-24	93	102
320-35691-10	WGNA-020118-RW-4847	95	94
320-35691-11	WGNA-020118-FRB-4847	102	115
320-35691-12	NAWC-020118-RW-121	106	104
320-35691-13	NAWC-020118-FRB-121	110	110
320-35691-14	NAWC-020118-RW-123	96	94
320-35691-15	NAWC-020118-FRB-123	102	102
320-35691-16	NAWC-020118-RW-207	100	100
320-35691-17	NAWC-020118-FRB-207	100	96
LLCS 320-207046/2-A	Lab Control Sample	106	102
LLCSD 320-207046/3-A	Lab Control Sample Dup	106	105
MB 320-207046/1-A	Method Blank	101	96

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: 320-35691-1

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

Lab Sample ID: MB 320-207046/1-A
Matrix: Water
Analysis Batch: 207624

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 207046

Analyte	MB	MB	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		02/06/18 08:01	02/08/18 12:04	1
Perfluorooctanoic acid (PFOA)	4.79	J	20	2.8	ng/L		02/06/18 08:01	02/08/18 12:04	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		02/06/18 08:01	02/08/18 12:04	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		02/06/18 08:01	02/08/18 12:04	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		02/06/18 08:01	02/08/18 12:04	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		02/06/18 08:01	02/08/18 12:04	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C2 PFHxA	101		70 - 130	02/06/18 08:01	02/08/18 12:04	1
13C2 PFDA	96		70 - 130	02/06/18 08:01	02/08/18 12:04	1

Lab Sample ID: LLCS 320-207046/2-A
Matrix: Water
Analysis Batch: 207624

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 207046

Analyte	Spike Added	LLCS	LLCS	Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Perfluorooctanesulfonic acid (PFOS)	40.2	40.3	M	ng/L		100	50 - 150
Perfluorooctanoic acid (PFOA)	20.1	22.6		ng/L		112	50 - 150
Perfluorononanoic acid (PFNA)	20.0	21.2	J	ng/L		106	50 - 150
Perfluorohexanesulfonic acid (PFHxS)	30.0	32.4		ng/L		108	50 - 150
Perfluoroheptanoic acid (PFHpA)	10.0	12.7		ng/L		127	50 - 150
Perfluorobutanesulfonic acid (PFBS)	90.0	95.4		ng/L		106	50 - 150

Surrogate	LLCS	LLCS	Limits
	%Recovery	Qualifier	
13C2 PFHxA	106		70 - 130
13C2 PFDA	102		70 - 130

Lab Sample ID: LLCSD 320-207046/3-A
Matrix: Water
Analysis Batch: 207624

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 207046

Analyte	Spike Added	LLCSD	LLCSD	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
		Result	Qualifier						
Perfluorooctanesulfonic acid (PFOS)	40.2	41.2	M	ng/L		103	50 - 150	2	50
Perfluorooctanoic acid (PFOA)	20.1	29.1		ng/L		145	50 - 150	25	50
Perfluorononanoic acid (PFNA)	20.0	21.3	J	ng/L		106	50 - 150	0.2	50
Perfluorohexanesulfonic acid (PFHxS)	30.0	32.9		ng/L		110	50 - 150	1	50
Perfluoroheptanoic acid (PFHpA)	10.0	12.2		ng/L		122	50 - 150	5	50
Perfluorobutanesulfonic acid (PFBS)	90.0	99.7		ng/L		111	50 - 150	4	50

Surrogate	LLCSD	LLCSD	Limits
	%Recovery	Qualifier	
13C2 PFHxA	106		70 - 130
13C2 PFDA	105		70 - 130

QC Association Summary

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

TestAmerica Job ID: 320-35691-1

LCMS

Prep Batch: 207046

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35691-1	NAWC-020118-RW-167	Total/NA	Water	537	
320-35691-2	NAWC-020118-FRB-167	Total/NA	Water	537	
320-35691-3	NAWC-020118-RW-151	Total/NA	Water	537	
320-35691-4	NAWC-020118-FRB-151	Total/NA	Water	537	
320-35691-5	NAWC-020118-RW-156	Total/NA	Water	537	
320-35691-6	NAWC-020118-FRB-156	Total/NA	Water	537	
320-35691-7	NAWC-020118-RW-119	Total/NA	Water	537	
320-35691-8	NAWC-020118-FRB-119	Total/NA	Water	537	
320-35691-9	WGNA-020118-DUP-24	Total/NA	Water	537	
320-35691-10	WGNA-020118-RW-4847	Total/NA	Water	537	
320-35691-11	WGNA-020118-FRB-4847	Total/NA	Water	537	
320-35691-12	NAWC-020118-RW-121	Total/NA	Water	537	
320-35691-13	NAWC-020118-FRB-121	Total/NA	Water	537	
320-35691-14	NAWC-020118-RW-123	Total/NA	Water	537	
320-35691-15	NAWC-020118-FRB-123	Total/NA	Water	537	
320-35691-16	NAWC-020118-RW-207	Total/NA	Water	537	
320-35691-17	NAWC-020118-FRB-207	Total/NA	Water	537	
MB 320-207046/1-A	Method Blank	Total/NA	Water	537	
LLCS 320-207046/2-A	Lab Control Sample	Total/NA	Water	537	
LLCSD 320-207046/3-A	Lab Control Sample Dup	Total/NA	Water	537	

Analysis Batch: 207624

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35691-1	NAWC-020118-RW-167	Total/NA	Water	537	207046
320-35691-2	NAWC-020118-FRB-167	Total/NA	Water	537	207046
320-35691-3	NAWC-020118-RW-151	Total/NA	Water	537	207046
320-35691-4	NAWC-020118-FRB-151	Total/NA	Water	537	207046
320-35691-5	NAWC-020118-RW-156	Total/NA	Water	537	207046
320-35691-6	NAWC-020118-FRB-156	Total/NA	Water	537	207046
320-35691-7	NAWC-020118-RW-119	Total/NA	Water	537	207046
MB 320-207046/1-A	Method Blank	Total/NA	Water	537	207046
LLCS 320-207046/2-A	Lab Control Sample	Total/NA	Water	537	207046
LLCSD 320-207046/3-A	Lab Control Sample Dup	Total/NA	Water	537	207046

Analysis Batch: 207626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35691-8	NAWC-020118-FRB-119	Total/NA	Water	537	207046
320-35691-9	WGNA-020118-DUP-24	Total/NA	Water	537	207046
320-35691-10	WGNA-020118-RW-4847	Total/NA	Water	537	207046
320-35691-11	WGNA-020118-FRB-4847	Total/NA	Water	537	207046
320-35691-12	NAWC-020118-RW-121	Total/NA	Water	537	207046
320-35691-13	NAWC-020118-FRB-121	Total/NA	Water	537	207046
320-35691-14	NAWC-020118-RW-123	Total/NA	Water	537	207046
320-35691-15	NAWC-020118-FRB-123	Total/NA	Water	537	207046
320-35691-16	NAWC-020118-RW-207	Total/NA	Water	537	207046
320-35691-17	NAWC-020118-FRB-207	Total/NA	Water	537	207046

Lab Chronicle

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

TestAmerica Job ID: 320-35691-1

Client Sample ID: NAWC-020118-RW-167

Date Collected: 02/01/18 10:10

Date Received: 02/02/18 09:05

Lab Sample ID: 320-35691-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207046	02/06/18 08:01	CCB	TAL SAC
Total/NA	Analysis	537		1	207624	02/08/18 12:18	JRB	TAL SAC

Client Sample ID: NAWC-020118-FRB-167

Date Collected: 02/01/18 10:05

Date Received: 02/02/18 09:05

Lab Sample ID: 320-35691-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207046	02/06/18 08:01	CCB	TAL SAC
Total/NA	Analysis	537		1	207624	02/08/18 12:22	JRB	TAL SAC

Client Sample ID: NAWC-020118-RW-151

Date Collected: 02/01/18 11:10

Date Received: 02/02/18 09:05

Lab Sample ID: 320-35691-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207046	02/06/18 08:01	CCB	TAL SAC
Total/NA	Analysis	537		1	207624	02/08/18 12:27	JRB	TAL SAC

Client Sample ID: NAWC-020118-FRB-151

Date Collected: 02/01/18 10:05

Date Received: 02/02/18 09:05

Lab Sample ID: 320-35691-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207046	02/06/18 08:01	CCB	TAL SAC
Total/NA	Analysis	537		1	207624	02/08/18 12:32	JRB	TAL SAC

Client Sample ID: NAWC-020118-RW-156

Date Collected: 02/01/18 11:40

Date Received: 02/02/18 09:05

Lab Sample ID: 320-35691-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207046	02/06/18 08:01	CCB	TAL SAC
Total/NA	Analysis	537		1	207624	02/08/18 12:36	JRB	TAL SAC

Client Sample ID: NAWC-020118-FRB-156

Date Collected: 02/01/18 11:35

Date Received: 02/02/18 09:05

Lab Sample ID: 320-35691-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207046	02/06/18 08:01	CCB	TAL SAC
Total/NA	Analysis	537		1	207624	02/08/18 12:41	JRB	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-35691-1

Client Sample ID: NAWC-020118-RW-119

Lab Sample ID: 320-35691-7

Date Collected: 02/01/18 12:40

Matrix: Water

Date Received: 02/02/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207046	02/06/18 08:01	CCB	TAL SAC
Total/NA	Analysis	537		1	207624	02/08/18 12:46	JRB	TAL SAC

Client Sample ID: NAWC-020118-FRB-119

Lab Sample ID: 320-35691-8

Date Collected: 02/01/18 12:35

Matrix: Water

Date Received: 02/02/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207046	02/06/18 08:01	CCB	TAL SAC
Total/NA	Analysis	537		1	207626	02/08/18 13:00	JRB	TAL SAC

Client Sample ID: WGNA-020118-DUP-24

Lab Sample ID: 320-35691-9

Date Collected: 02/01/18 07:00

Matrix: Water

Date Received: 02/02/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207046	02/06/18 08:01	CCB	TAL SAC
Total/NA	Analysis	537		1	207626	02/08/18 13:04	JRB	TAL SAC

Client Sample ID: WGNA-020118-RW-4847

Lab Sample ID: 320-35691-10

Date Collected: 02/01/18 13:10

Matrix: Water

Date Received: 02/02/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207046	02/06/18 08:01	CCB	TAL SAC
Total/NA	Analysis	537		1	207626	02/08/18 13:09	JRB	TAL SAC

Client Sample ID: WGNA-020118-FRB-4847

Lab Sample ID: 320-35691-11

Date Collected: 02/01/18 13:05

Matrix: Water

Date Received: 02/02/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207046	02/06/18 08:01	CCB	TAL SAC
Total/NA	Analysis	537		1	207626	02/08/18 13:14	JRB	TAL SAC

Client Sample ID: NAWC-020118-RW-121

Lab Sample ID: 320-35691-12

Date Collected: 02/01/18 13:40

Matrix: Water

Date Received: 02/02/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207046	02/06/18 08:01	CCB	TAL SAC
Total/NA	Analysis	537		1	207626	02/08/18 13:18	JRB	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-35691-1

Client Sample ID: NAWC-020118-FRB-121

Lab Sample ID: 320-35691-13

Date Collected: 02/01/18 13:35

Matrix: Water

Date Received: 02/02/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207046	02/06/18 08:01	CCB	TAL SAC
Total/NA	Analysis	537		1	207626	02/08/18 13:23	JRB	TAL SAC

Client Sample ID: NAWC-020118-RW-123

Lab Sample ID: 320-35691-14

Date Collected: 02/01/18 15:10

Matrix: Water

Date Received: 02/02/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207046	02/06/18 08:01	CCB	TAL SAC
Total/NA	Analysis	537		1	207626	02/08/18 13:28	JRB	TAL SAC

Client Sample ID: NAWC-020118-FRB-123

Lab Sample ID: 320-35691-15

Date Collected: 02/01/18 15:05

Matrix: Water

Date Received: 02/02/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207046	02/06/18 08:01	CCB	TAL SAC
Total/NA	Analysis	537		1	207626	02/08/18 13:32	JRB	TAL SAC

Client Sample ID: NAWC-020118-RW-207

Lab Sample ID: 320-35691-16

Date Collected: 02/01/18 16:40

Matrix: Water

Date Received: 02/02/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207046	02/06/18 08:01	CCB	TAL SAC
Total/NA	Analysis	537		1	207626	02/08/18 13:37	JRB	TAL SAC

Client Sample ID: NAWC-020118-FRB-207

Lab Sample ID: 320-35691-17

Date Collected: 02/01/18 16:35

Matrix: Water

Date Received: 02/02/18 09:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207046	02/06/18 08:01	CCB	TAL SAC
Total/NA	Analysis	537		1	207626	02/08/18 13:42	JRB	TAL SAC

Laboratory References:

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

Accreditation/Certification Summary

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

TestAmerica Job ID: 320-35691-1

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	01-31-18 *
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	03-14-18
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.

Method Summary

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

TestAmerica Job ID: 320-35691-1

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: 320-35691-1

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-35691-1	NAWC-020118-RW-167	Water	02/01/18 10:10	02/02/18 09:05
320-35691-2	NAWC-020118-FRB-167	Water	02/01/18 10:05	02/02/18 09:05
320-35691-3	NAWC-020118-RW-151	Water	02/01/18 11:10	02/02/18 09:05
320-35691-4	NAWC-020118-FRB-151	Water	02/01/18 10:05	02/02/18 09:05
320-35691-5	NAWC-020118-RW-156	Water	02/01/18 11:40	02/02/18 09:05
320-35691-6	NAWC-020118-FRB-156	Water	02/01/18 11:35	02/02/18 09:05
320-35691-7	NAWC-020118-RW-119	Water	02/01/18 12:40	02/02/18 09:05
320-35691-8	NAWC-020118-FRB-119	Water	02/01/18 12:35	02/02/18 09:05
320-35691-9	WGNA-020118-DUP-24	Water	02/01/18 07:00	02/02/18 09:05
320-35691-10	WGNA-020118-RW-4847	Water	02/01/18 13:10	02/02/18 09:05
320-35691-11	WGNA-020118-FRB-4847	Water	02/01/18 13:05	02/02/18 09:05
320-35691-12	NAWC-020118-RW-121	Water	02/01/18 13:40	02/02/18 09:05
320-35691-13	NAWC-020118-FRB-121	Water	02/01/18 13:35	02/02/18 09:05
320-35691-14	NAWC-020118-RW-123	Water	02/01/18 15:10	02/02/18 09:05
320-35691-15	NAWC-020118-FRB-123	Water	02/01/18 15:05	02/02/18 09:05
320-35691-16	NAWC-020118-RW-207	Water	02/01/18 16:40	02/02/18 09:05
320-35691-17	NAWC-020118-FRB-207	Water	02/01/18 16:35	02/02/18 09:05

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 192908

Lab Sample ID: IC 320-192908/4 Client Sample ID: _____

Date Analyzed: 11/03/17 13:37 Lab File ID: 2017.11.03_537XICAL_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.16	Assign Peak	phomsopha t	11/06/17 07:17

Lab Sample ID: IC 320-192908/5 Client Sample ID: _____

Date Analyzed: 11/03/17 13:42 Lab File ID: 2017.11.03_537XICAL_005.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.16	Assign Peak	phomsopha t	11/06/17 07:18

Lab Sample ID: IC 320-192908/7 ICISAV Client Sample ID: _____

Date Analyzed: 11/03/17 13:52 Lab File ID: 2017.11.03_537XICAL_007.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.16	Assign Peak	phomsopha t	11/06/17 07:20

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 207581

Lab Sample ID: CCVL 320-207581/1 Client Sample ID: _____

Date Analyzed: 02/08/18 07:47 Lab File ID: 2018.02.08_537A_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	User Assigned	roycea	02/08/18 12:10

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 207624

Lab Sample ID: CCV 320-207624/1 CCVIS Client Sample ID: _____

Date Analyzed: 02/08/18 11:54 Lab File ID: 2018.02.08_537B_001.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.03	Assign Peak	barnettj	02/09/18 10:42

Lab Sample ID: LLCS 320-207046/2-A Client Sample ID: _____

Date Analyzed: 02/08/18 12:08 Lab File ID: 2018.02.08_537B_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/09/18 10:43

Lab Sample ID: LLCSD 320-207046/3-A Client Sample ID: _____

Date Analyzed: 02/08/18 12:13 Lab File ID: 2018.02.08_537B_005.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.04	Assign Peak	barnettj	02/09/18 10:44

Lab Sample ID: 320-35691-1 Client Sample ID: NAWC-020118-RW-167

Date Analyzed: 02/08/18 12:18 Lab File ID: 2018.02.08_537B_006.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid (PFHpA)	1.62	Missed Peak	barnettj	02/09/18 10:39
Perfluorohexanesulfonic acid (PFHxS)	1.62	Missed Peak	barnettj	02/09/18 10:39
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/09/18 10:40

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 207624

Lab Sample ID: 320-35691-3 Client Sample ID: NAWC-020118-RW-151

Date Analyzed: 02/08/18 12:27 Lab File ID: 2018.02.08_537B_008.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/09/18 10:46

Lab Sample ID: 320-35691-5 Client Sample ID: NAWC-020118-RW-156

Date Analyzed: 02/08/18 12:36 Lab File ID: 2018.02.08_537B_010.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/09/18 10:47

Lab Sample ID: 320-35691-7 Client Sample ID: NAWC-020118-RW-119

Date Analyzed: 02/08/18 12:46 Lab File ID: 2018.02.08_537B_012.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/09/18 10:48
Perfluorononanoic acid (PFNA)	2.06	Missed Peak	barnettj	02/09/18 10:48

Lab Sample ID: CCV 320-207624/13 CCVIS Client Sample ID: _____

Date Analyzed: 02/08/18 12:50 Lab File ID: 2018.02.08_537B_013.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/09/18 10:41

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 207626

Lab Sample ID: CCV 320-207626/13 CCVIS Client Sample ID: _____

Date Analyzed: 02/08/18 12:50 Lab File ID: 2018.02.08_537B_013.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/09/18 10:41

Lab Sample ID: 320-35691-9 Client Sample ID: WGNA-020118-DUP-24

Date Analyzed: 02/08/18 13:04 Lab File ID: 2018.02.08_537B_016.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.04	Assign Peak	barnettj	02/09/18 10:49
Perfluorononanoic acid (PFNA)	2.06	Missed Peak	barnettj	02/09/18 10:49

Lab Sample ID: 320-35691-12 Client Sample ID: NAWC-020118-RW-121

Date Analyzed: 02/08/18 13:18 Lab File ID: 2018.02.08_537B_019.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.04	Assign Peak	barnettj	02/09/18 10:51

Lab Sample ID: 320-35691-14 Client Sample ID: NAWC-020118-RW-123

Date Analyzed: 02/08/18 13:28 Lab File ID: 2018.02.08_537B_021.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/09/18 10:52

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 207626

Lab Sample ID: 320-35691-16 Client Sample ID: NAWC-020118-RW-207

Date Analyzed: 02/08/18 13:37 Lab File ID: 2018.02.08_537B_023.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.05	Assign Peak	barnettj	02/09/18 10:53

Lab Sample ID: CCV 320-207626/25 CCVIS Client Sample ID: _____

Date Analyzed: 02/08/18 13:46 Lab File ID: 2018.02.08_537B_025.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.04	Baseline	barnettj	02/09/18 10:41

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35691-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
LC537-ICV_00028	01/05/18	08/02/17	MeOH/H2O, Lot 067374	10 mL	LC537-IS_00045	1000 uL	13C2-PFOA	10 ng/mL
..LC537-IS_00045	01/05/18	07/05/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	28.68 ng/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	0.1 ug/mL
..LCMPFOS_00019	08/03/21	Wellington Laboratories, Lot MPFOS0816			(Purchased Reagent)		13C4 PFOS	0.2868 ug/mL
LC537-ICV_00028	01/05/18	08/02/17	MeOH/H2O, Lot 067374	10 mL	LC537-SU_00046	1000 uL	13C2 PFDA	50 ug/mL
..LC537-SU_00046	01/05/18	07/05/17	Methanol, Lot 104453	30000 uL	LC537ICIM_00019	20 uL	13C2 PFHxA	47.8 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	10 ng/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	10 ng/mL
..LC537ICIM_00019	01/25/18	08/01/17	Methanol, Lot 090285	25 mL	LC537-PFBS2_00008	0.6 mL	Perfluorobutanesulfonic acid (PFBS)	100.119 ng/mL
..LC537-PFBS2_00008	01/25/18	07/25/17	Methanol, Lot 090285	20 mL	LC537-PFHpA2_00011	0.061 mL	Perfluoroheptanoic acid (PFHpA)	9.99613 ng/mL
...LC537_PFBS2_00002	09/08/22	Santa Cruz Biotechnology, Lot F0917			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	20.0761 ng/mL
..LC537-PFHpA2_00011	01/25/18	07/25/17	Methanol, Lot 09092	31 mL	LC537-PFNA2_00009	0.126 mL	Perfluorononanoic acid (PFNA)	20.1272 ng/mL
...LC537_PFHpA2_00002	06/13/22	Afla Aesar, Lot 10200390			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	20.4843 ng/mL
..LC537-PFHxS2_00008	01/25/18	07/25/17	Methanol, Lot 090285	21 mL	LC537-PFOA2_00010	0.122 mL	Perfluorooctanesulfonic acid (PFOS)	19.698 ng/mL
...LC537_PFHxS2_00002	06/08/22	Santa Cruz Biotechnology, Lot G2516			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	2085.82 ug/mL
..LC537-PFNA2_00009	01/25/18	07/25/17	Methanol, Lot 090285	21 mL	LC537-PFOS2_00010	0.124 mL	Perfluorooctanesulfonic acid (PFOS)	0.998 g/g
..LC537-PFOA2_00010	06/14/22	Aldrich, Lot MKCC0699			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	2048.39 ug/mL
..LC537-PFOA2_00010	01/25/18	08/01/17	Methanol, Lot 090285	20 mL	LC537-PFHxS2_00002	0.0475 g	Perfluoroheptanoic acid (PFHpA)	1 g/g
..LC537-PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	2056.98 ug/mL
...LC537_PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA2_00002	01/25/18	07/25/17	Methanol, Lot 090285	21 mL	LC537-PFNA2_00002	0.0421 g	Perfluorononanoic acid (PFNA)	1996.74 ug/mL
...LC537_PFNA2_00002	06/14/22	Aldrich, Lot MKCC0699			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.996 g/g
..LC537-PFOA2_00010	01/25/18	08/01/17	Methanol, Lot 090285	20 mL	LC537-PFOA2_00002	0.0424 g	Perfluorooctanoic acid (PFOA)	2098.8 ug/mL
..LC537-PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.99 g/g

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35691-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
..LC537-PFOS2_00010	01/25/18	08/01/17	Methanol, Lot 090285	22 mL	LC537_PFOS2_00002	0.0561 g	Perfluorooctanesulfonic acid (PFOS)	1985.68 ug/mL
...LC537_PFOS2_00002	06/14/22		Sigma, Lot BCBQ0108V		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.7787 g/g
LC537-IS_00057	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-L1_00020	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-MSP_00029	60 uL	Perfluorobutanesulfonic acid (PFBS)	9.0018 ng/mL
							Perfluoroheptanoic acid (PFHpA)	1.00036 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	3.00103 ng/mL
							Perfluorononanoic acid (PFNA)	2.0006 ng/mL
							Perfluorooctanoic acid (PFOA)	2.00191 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	4.00146 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
..LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
..LC537-MSP_00029	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	166.7 uL	Perfluorobutanesulfonic acid (PFBS)	750.15 ng/mL
							Perfluoroheptanoic acid (PFHpA)	83.3637 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	250.086 ng/mL
							Perfluorononanoic acid (PFNA)	166.716 ng/mL
							Perfluorooctanoic acid (PFOA)	166.826 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	333.455 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35691-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....LC537_PFB_S_00002	04/01/18		Sigma, Lot MKBP8842V			(Purchased Reagent)	Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V			(Purchased Reagent)	Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V			(Purchased Reagent)	Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537 PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F			(Purchased Reagent)	Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537 PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537 PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)	Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV			(Purchased Reagent)	Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFHxA_00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)	13C2 PFDA	50 ug/mL
						(Purchased Reagent)	13C2 PFHxA	50 ug/mL
LC537-L2_00020	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	80 uL	Perfluorobutanesulfonic acid (PFBS)	20.0016 ng/mL
							Perfluoroheptanoic acid (PFHpA)	2.22277 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	6.66817 ng/mL
							Perfluorononanoic acid (PFNA)	4.44524 ng/mL
							Perfluorooctanoic acid (PFOA)	4.44816 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	8.89106 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

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SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537 PFNA 00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537 PFOA 00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C4 PFOS	47.8 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			LCMPFHxA_00013	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L2_00021	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-IS_00059	2 mL	13C2-PFOA	10 ng/mL
.LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C4 PFOS	28.68 ng/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			LCMPFOS_00021	180 uL	13C2-PFOA	0.1 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	0.2868 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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35691-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanoic acid (PFOA)	4.469 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	8.92684 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
							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-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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35691-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
LC537-L3_00023	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	180 uL	Perfluorobutanesulfonic acid (PFBS)	45.0036 ng/mL		
							Perfluoroheptanoic acid (PFHpA)	5.00122 ng/mL		
							Perfluorohexanesulfonic acid (PFHxS)	15.0034 ng/mL		
							Perfluorononanoic acid (PFNA)	10.0018 ng/mL		
							Perfluorooctanoic acid (PFOA)	10.0084 ng/mL		
					Perfluorooctanesulfonic acid (PFOS)	20.0049 ng/mL				
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL		
LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL							
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL		
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL		
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL		
							Perfluorononanoic acid (PFNA)	277.827 ng/mL		
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL		
Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL									
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL		
							LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
							LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
							LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
							LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
							LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL		
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g		
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL		
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g		
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL		
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g		
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537 PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL		
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g		
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537 PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL		
....LC537_PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35691-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA 00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS 00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA 00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS 00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA 00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA 00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA 00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA 00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L3_00024	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-IS_00059	2 mL	13C2-PFOA	10 ng/mL
.LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA 00007	60 uL	13C4 PFOS	28.68 ng/mL
					LCMPFOS 00021	180 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-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-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
							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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35691-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					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 BCM2579V		(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-L4_00020	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	360 uL	Perfluorobutanesulfonic acid (PFBS)	90.0072 ng/mL
							Perfluoroheptanoic acid (PFHpA)	10.0024 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	30.0067 ng/mL
							Perfluorononanoic acid (PFNA)	20.0036 ng/mL
							Perfluorooctanoic acid (PFOA)	20.0167 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	40.0098 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35691-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537 PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537 PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537 PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L5_00024	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	540 uL	Perfluorobutanesulfonic acid (PFBS)	135.011 ng/mL
							Perfluoroheptanoic acid (PFHpA)	15.0037 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	45.0101 ng/mL
							Perfluorononanoic acid (PFNA)	30.0053 ng/mL
							Perfluorooctanoic acid (PFOA)	30.0251 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35691-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid (PFOS)	60.0146 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
..LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V			(Purchased Reagent)	Perfluorobutanesulfonic acid (PFBS)	1 g/g
..LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V			(Purchased Reagent)	Perfluoroheptanoic acid (PFHpA)	0.99 g/g
..LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V			(Purchased Reagent)	Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537_PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F			(Purchased Reagent)	Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537_PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537 PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)	Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV			(Purchased Reagent)	Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
..LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)	13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)	13C4 PFOS	47.8 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35691-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L5_00025	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-IS_00059	2 mL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 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-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-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
							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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35691-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCM2579V		(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
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFHxA	0.1 ug/mL
..LCMPFHxA_00015	11/22/21		Wellington Laboratories, Lot MPFHxA1116		(Purchased Reagent)		13C2 PFDA	50 ug/mL
					(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L6_00020	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	720 uL	Perfluorobutanesulfonic acid (PFBS)	180.014 ng/mL
							Perfluoroheptanoic acid (PFHpA)	20.0049 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	60.0135 ng/mL
							Perfluorononanoic acid (PFNA)	40.0071 ng/mL
							Perfluorooctanoic acid (PFOA)	40.0334 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	80.0195 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35691-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
					LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBFS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBFS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537 PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537 PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537 PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00013	04/08/21		Wellington Laboratories, Lot MPFHxA0416		(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-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	90 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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35691-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					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_00057	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

Reagent

LC537_PFB_S_00002

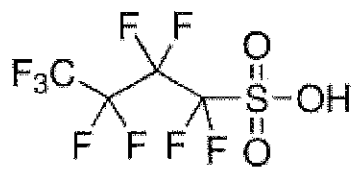
#: 4/1/15 SPV

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

F: 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

R: 4/1/15 4V

Certificate of Analysis

Product Name: PERFLUOROHEPTANOIC ACID
 99 %
Product Number: 342041
Batch Number: BCBM2579V
Brand: Aldrich
CAS Number: 375-85-9
Formula: $CF_3(CF_2)_5CO_2H$
Formula Weight: 364.06
Quality Release Date: 06 DEC 2013
Recommended Retest Date: OCT 2018

PFHpA

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 Geitner
 Manager Quality Control
 Buchs, Switzerland

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Reagent

LC537_PFHpA2_00002

Certificate of analysis

r:6.13.17 SW

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

PFHe A

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

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Reagent

LC537_PFHxS_00002

r: 4/1/15 stw

Certificate of Analysis

Product Name: TRIDECAFLUOROHEXANE-1-SULFONIC ACID POTASSIUM SALT
 >= 98.0 % T

Product Number: 50929

Batch Number: BCBL3545V

Brand: Aldrich

CAS Number: 3871-99-6

Formula: C₆F₁₃KO₃S

Formula Weight: 438.20

Quality Release Date: 20 JUN 2013

PFH₁₃S-K

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

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

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

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

stw 4/1/15

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Reagent

LC537_PFHxS2_00002

n: 6-8-17 SKJ

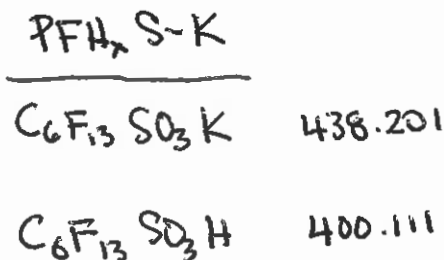


The Future of Science

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: $C_6F_{13}KO_3S$
 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)	≥ 98.0%	100.4%



MW correction = $\frac{400.11}{438.201} = 0.91307$ PFH₁₃S
 CAS# 355-46-4

Purity $\frac{1}{9}$ MW correction = 90.9%

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Reagent

LC537_PENA_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 CAS: 375-95-1	Lot: QN44F	

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_PFN2_00002

P: 6.14.17 SKW

3050 Spruce Street, Saint Louis, MO 63103, USA

Website: www.sigmaaldrich.com

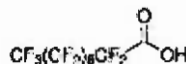
Email USA: techserv@sial.com

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: C9HF17O2
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: PENTADECAFLUOROOCCTANOIC 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 %)	≥ 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

P: 6/21/17 SW ✓

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

PFOA

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

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Reagent

LC537_PFOs_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

Certificate of Analysis

Product Name: HEPTADECAFLUOROOCATANESULFONIC ACID TETRAETHYLAMMONIUM SALT
98 %

Product Number: 365289

Batch Number: BCBQ0108V

Brand: Aldrich

CAS Number: 56773-42-3

Formula: $CF_3(CF_2)_6CF_2SO_3N(C_2H_5)_4$

Formula Weight: 629.37

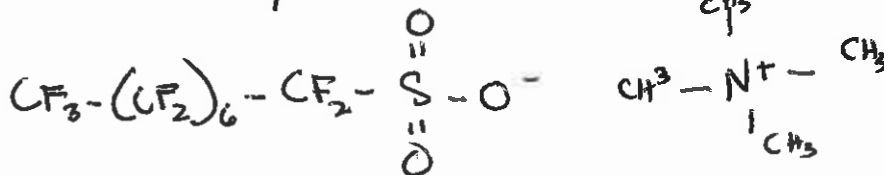
Quality Release Date: 11 JUN 2015

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

Dr. Claudia Geitner
Manager Quality Control
Buchs, Switzerland

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

Purity & MW correction = 77.37%



	$C_8 F_{17} SO_3^+ H$	$C_8 H_{20} N$
C = 12.011	96.088	96.088
F = 18.998	322.966	—
S = 32.066	32.066	—
O = 16.999	47.997	20.60
H = 1.008	1.008	14.007
N = 14.007	—	—
	<hr/>	<hr/>
	500.125	130.255

Reagent

LCM2PFOA_00007



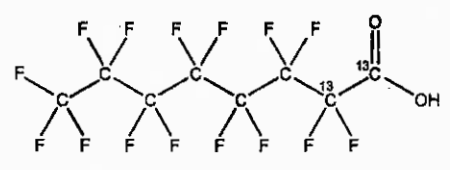
WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: M2PFOA
COMPOUND: Perfluoro-n-[1,2-¹³C₂]octanoic acid

LOT NUMBER: M2PFOA0216

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₆HF₁₆O₂
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 416.05
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 02/12/2016
EXPIRY DATE: (mm/dd/yyyy) 02/12/2021

ISOTOPIC PURITY: ≥99%¹³C
(1,2-¹³C₂)

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:

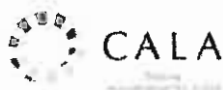
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

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.

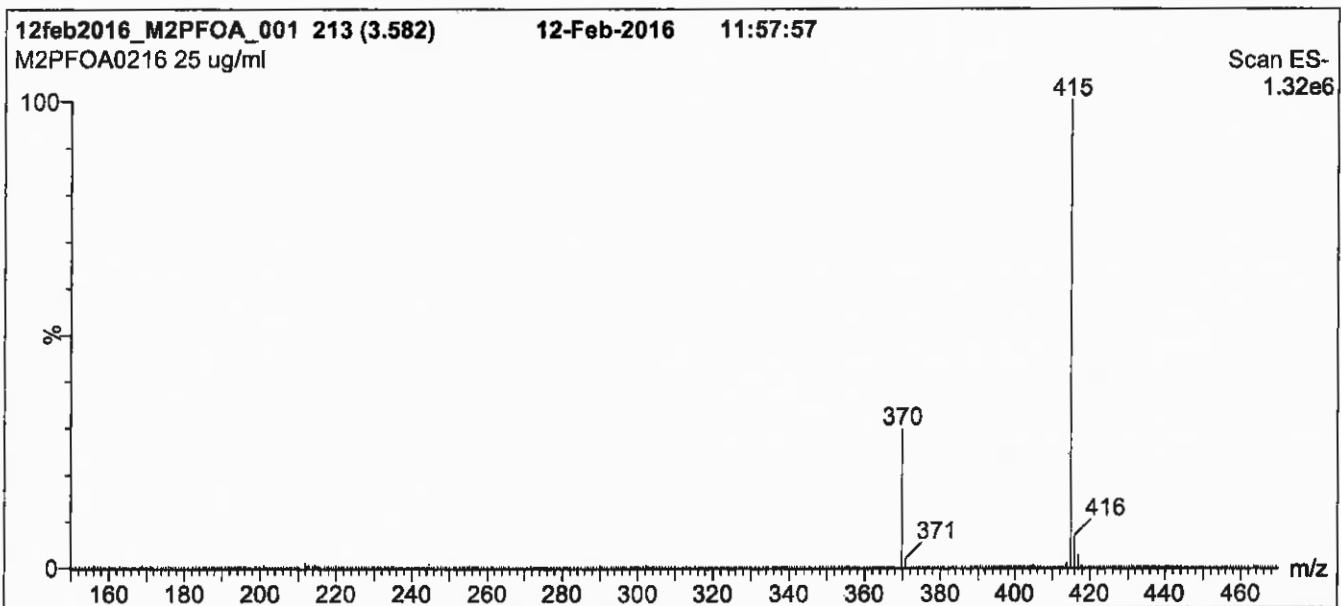
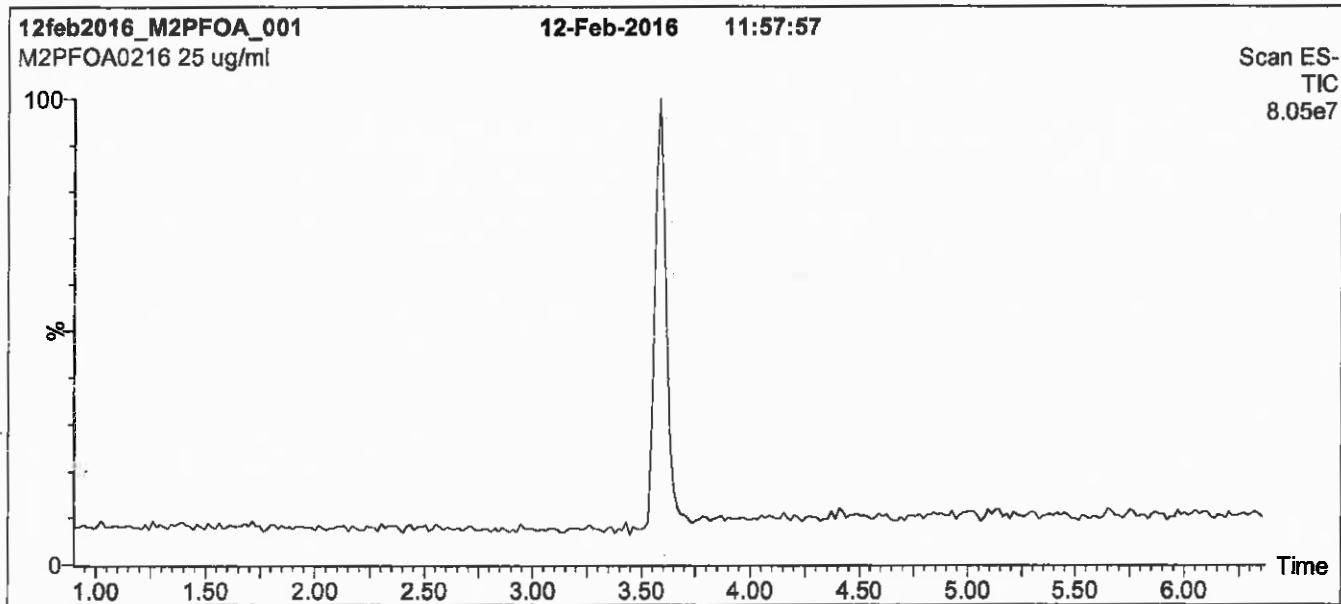
QUALITY MANAGEMENT:

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).



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



Conditions for Figure 1:

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

Chromatographic Conditions

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

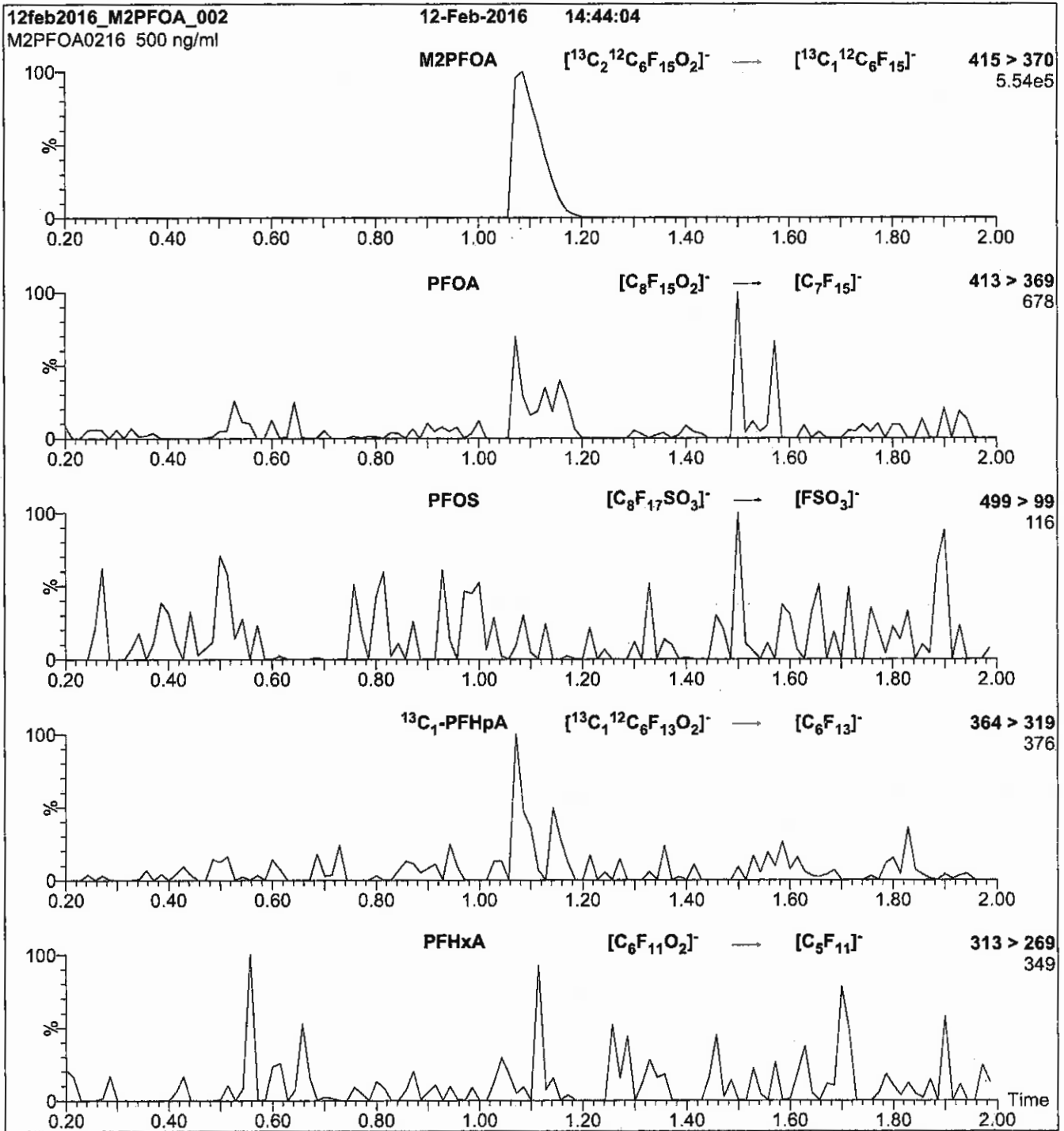
Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 3.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

Mobile phase: Isocratic 80% MeOH / 20% H₂O

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: LCMPPFDA_00012

Exp: 09/30/21 Prpd: SBC

13C2-Perfluorodecanoic acid

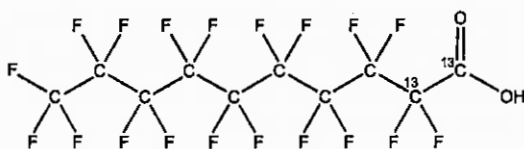


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFDA **LOT NUMBER:** MPFDA0916
COMPOUND: Perfluoro-n-[1,2-¹³C₂]decanoic acid

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₂¹²C₈HF₁₉O₂
CONCENTRATION: 50 ± 2.5 µg/ml

MOLECULAR WEIGHT: 516.07
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%

ISOTOPIC PURITY: ≥99% ¹³C
(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. Chríttim

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:

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HAZARDS:

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

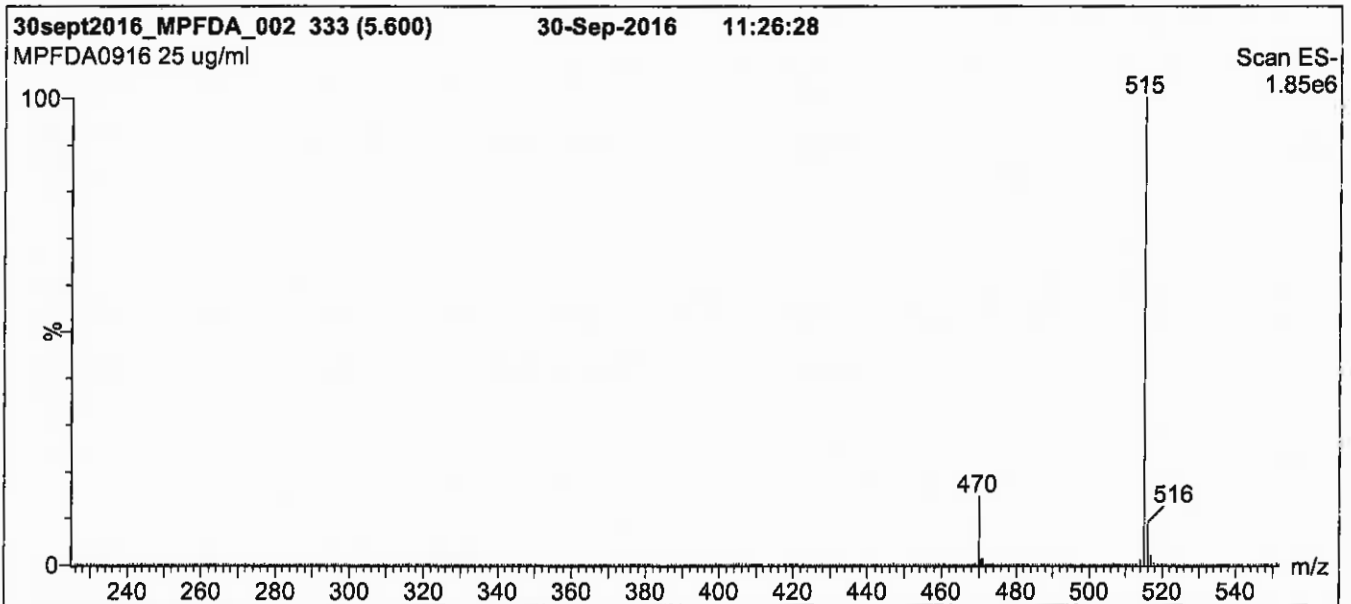
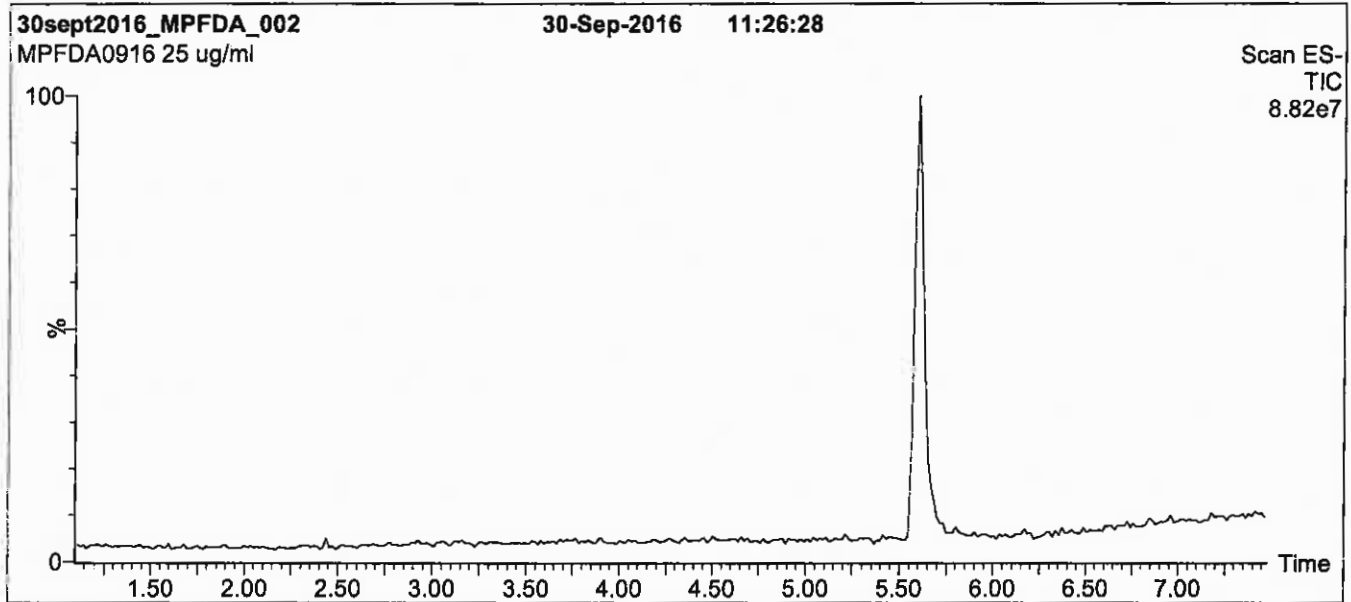
QUALITY MANAGEMENT:

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



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Figure 1: 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

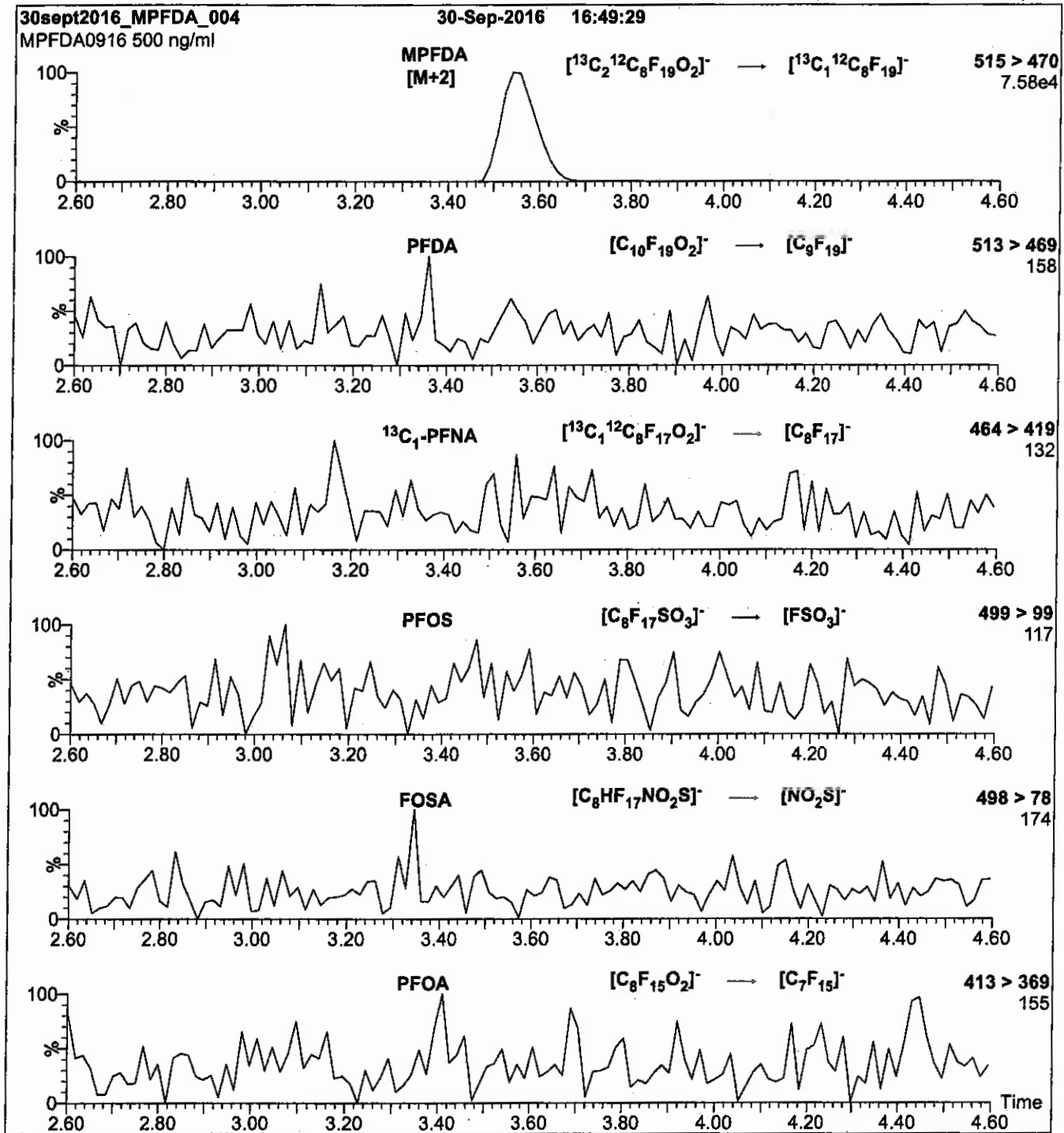
Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm
Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

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% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCMPFHxA_00013

R: SBC 12/21/16



814258
ID: LCMPFHxA_00013
Exp: 04/08/21 Ppdt. SBC
13C2-Perfluorohexanoic ac



WELLINGTON LABORATORIES

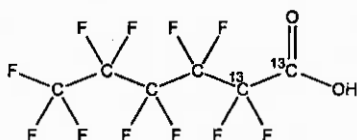
CERTIFICATE OF ANALYSIS DOCUMENTATION

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

LOT NUMBER: MPFHxA0416

STRUCTURE:

CAS #: Not available



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

MOLECULAR WEIGHT: 316.04
SOLVENT(S): Methanol
Water (<1%)

CHEMICAL PURITY: >98%
LAST TESTED: (mm/dd/yyyy) 04/08/2016

ISOTOPIC PURITY: ≥99%¹³C
(1,2-¹³C₂)

EXPIRY DATE: (mm/dd/yyyy) 04/08/2021

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By:
B.G. Chittim

Date: 04/29/2016
(mm/dd/yyyy)

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

INTENDED USE:

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EXPIRY DATE / PERIOD OF VALIDITY:

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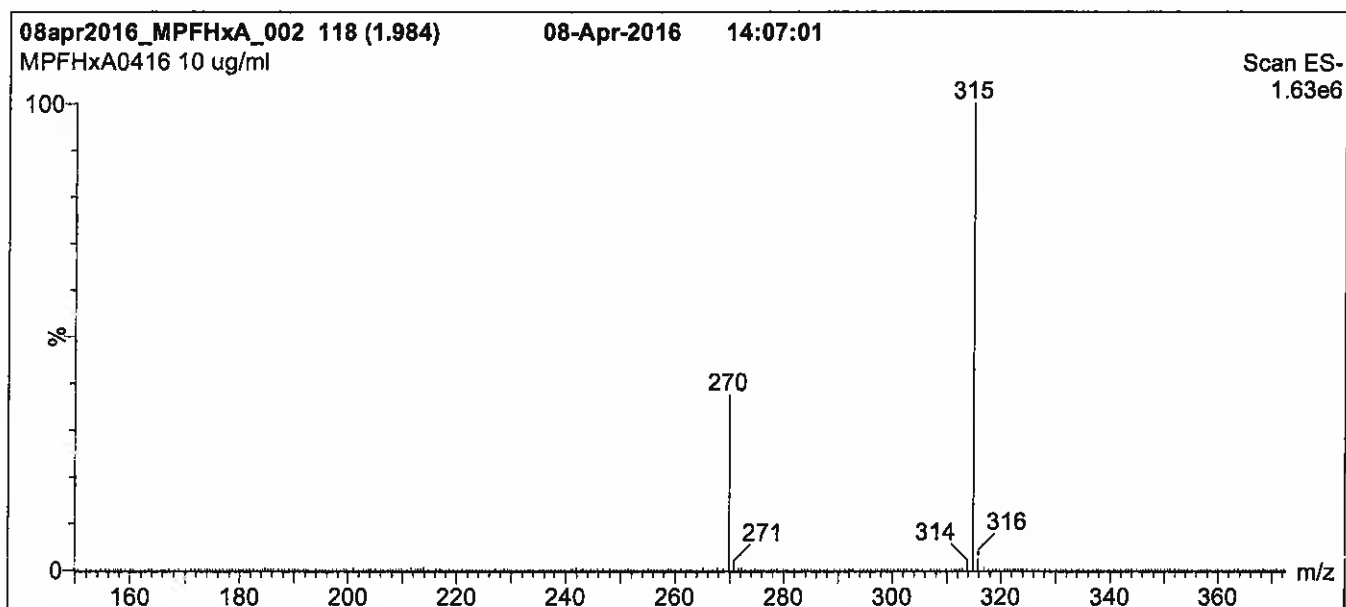
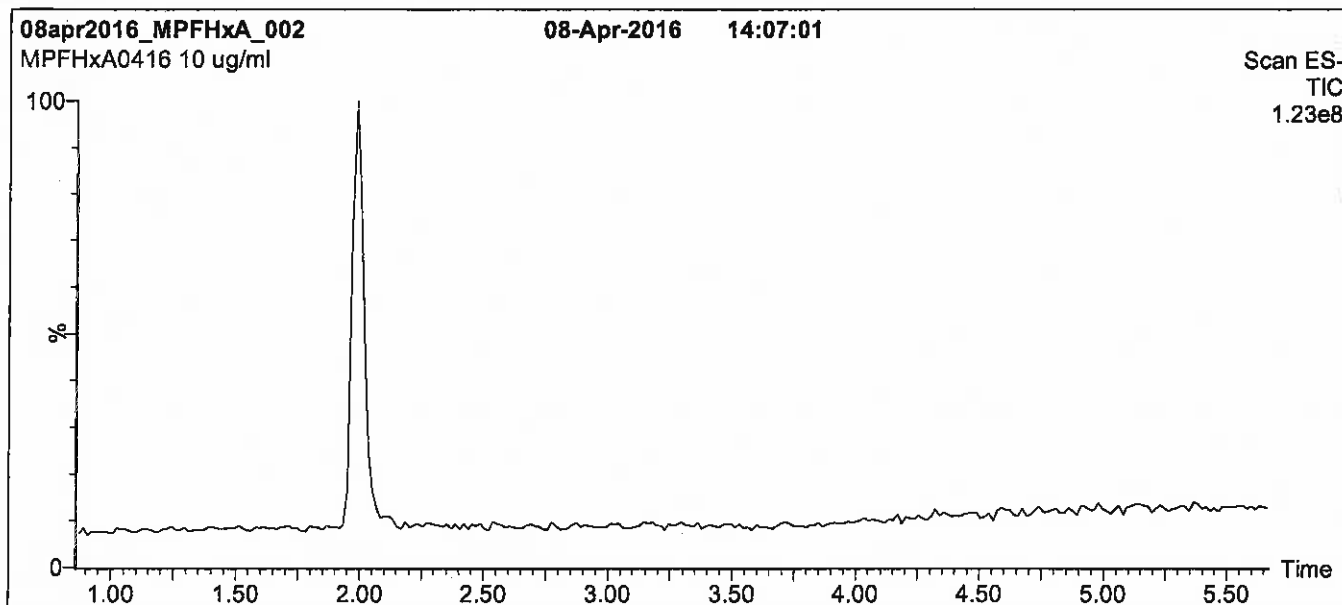
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

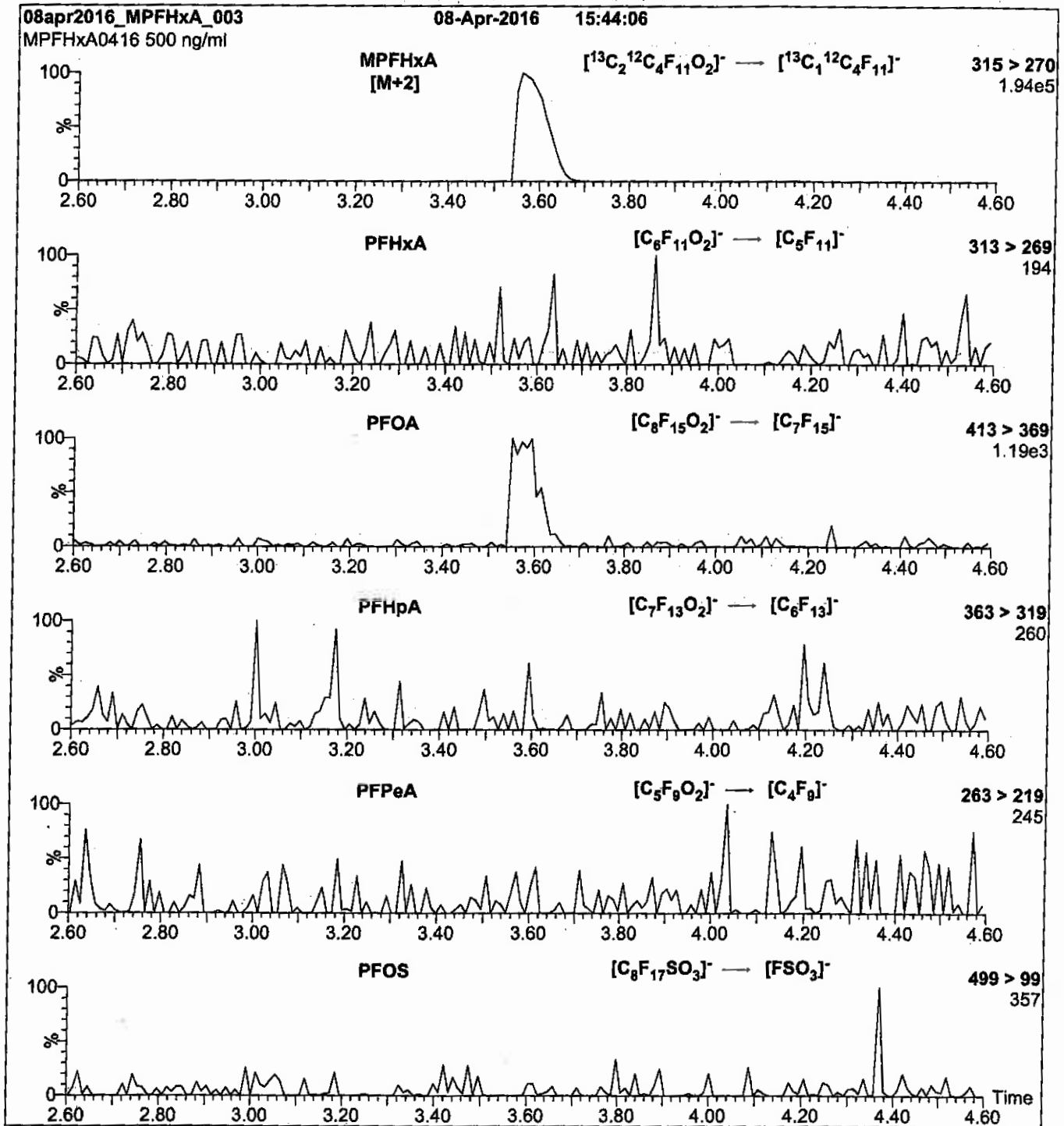
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

Source: Electrospray (negative)
 Capillary Voltage (kV) = 2.00
 Cone Voltage (V) = 15.00
 Cone Gas Flow (l/hr) = 100
 Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

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

Reagent

LCMPFHxA_00015

r: 5/10/17 skd



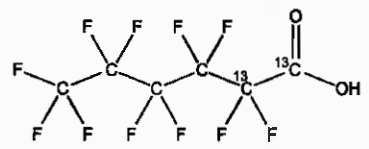
WELLINGTON LABORATORIES

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%)

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

ISOTOPIC PURITY: ≥99% ¹³C
(1,2-¹³C₂)

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:

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

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EXPIRY DATE / PERIOD OF VALIDITY:

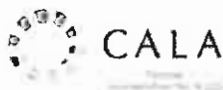
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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

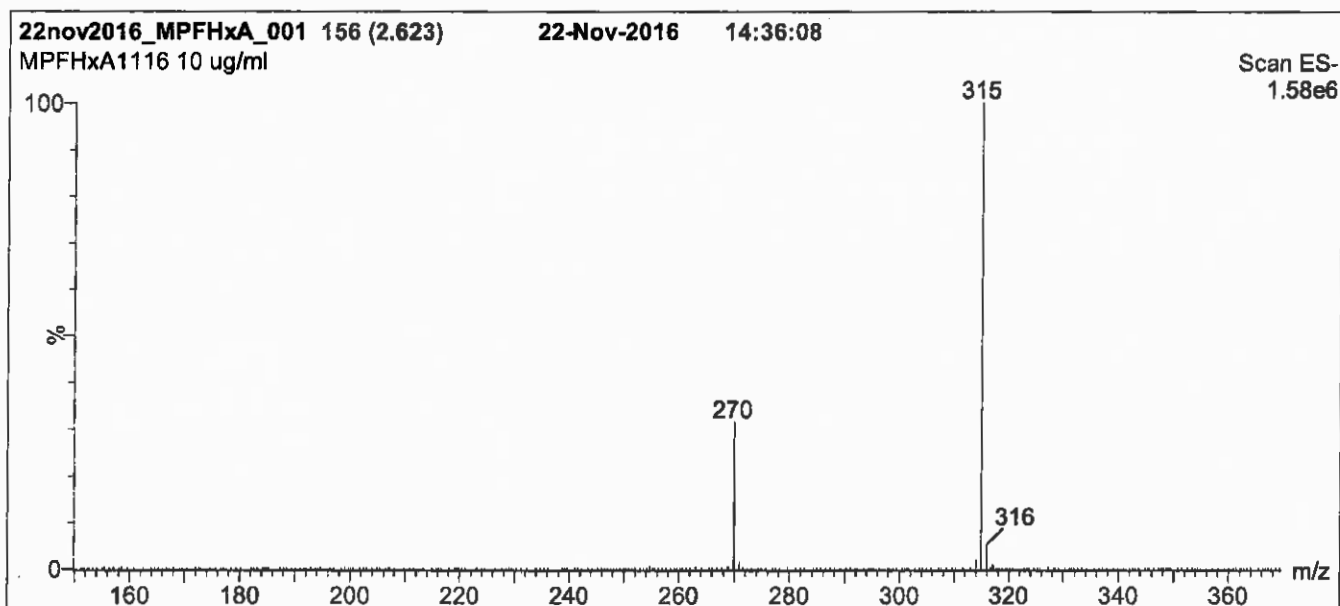
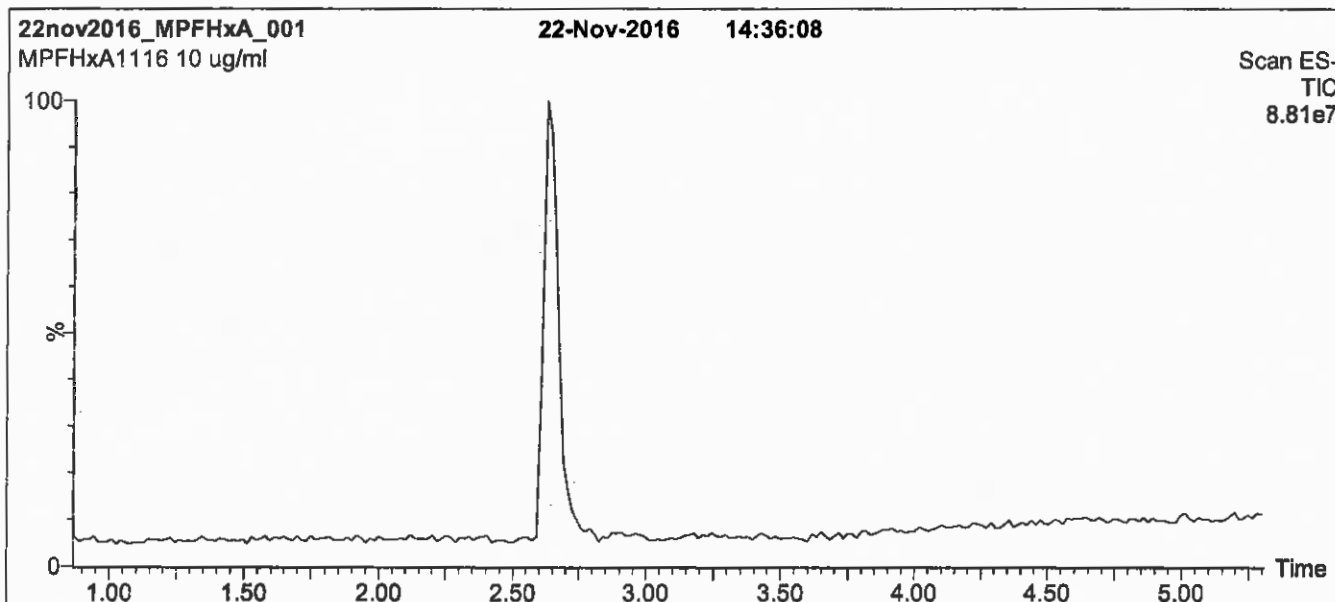
QUALITY MANAGEMENT:

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

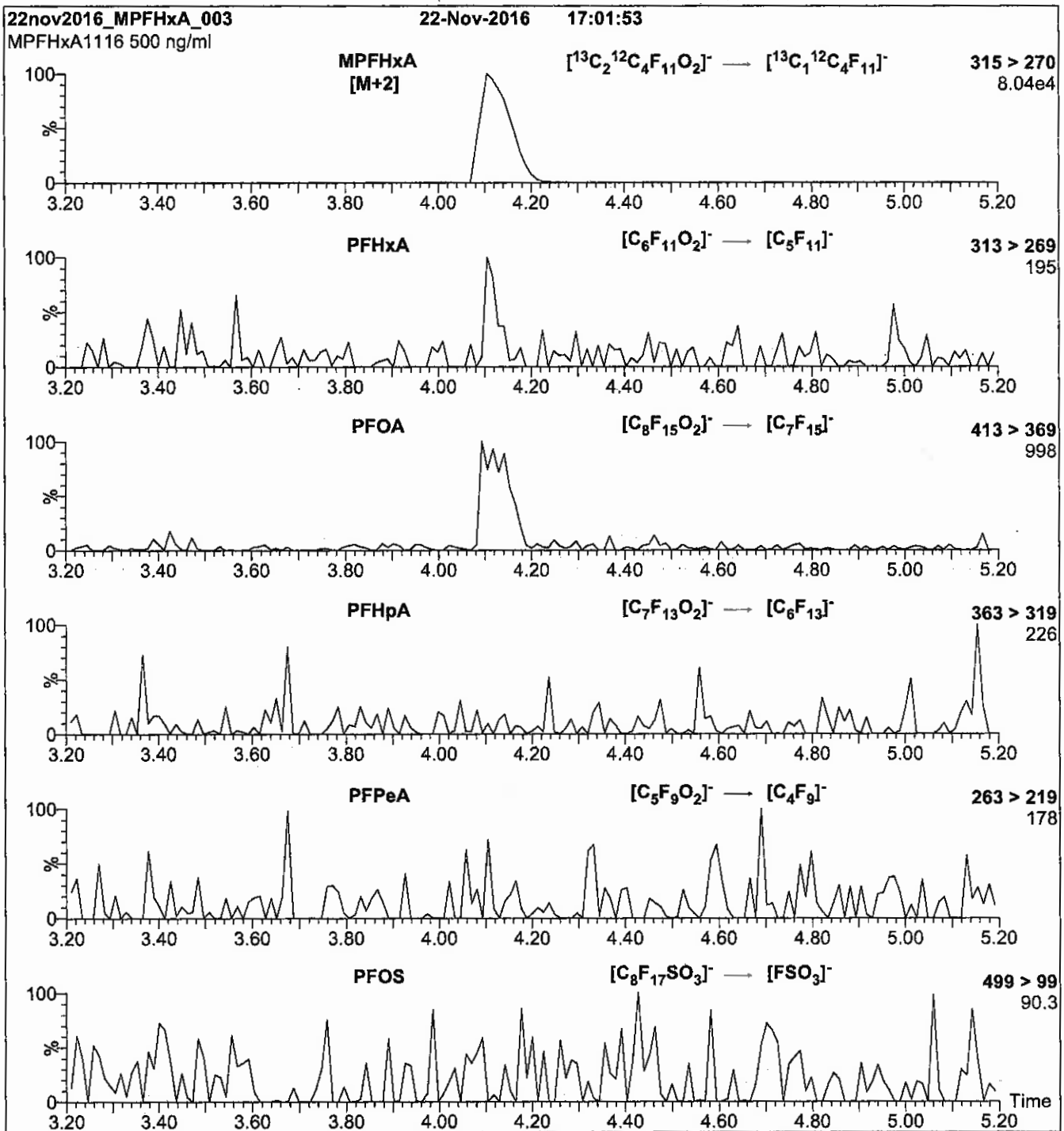
Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions over 0.5 min.
Time: 10 min

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 μ l (500 ng/ml MPFHxA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H₂O
(both with 10 mM NH₄OAc buffer)

Flow: 300 μ l/min

MS Parameters

Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 10

Reagent

LCMPFOS_00019

R: SBC 12/21/16



814253
ID: LCMPFOS_00019
Exp: 08/03/21 Ppfd: SBC
13C4-Perfluorooctanesulfo

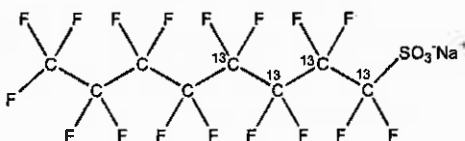


WELLINGTON LABORATORIES

CERTIFICATE OF ANALYSIS DOCUMENTATION

PRODUCT CODE: MPFOS **LOT NUMBER:** MPFOS0816
COMPOUND: Sodium perfluoro-1-[1,2,3,4-¹³C₄]octanesulfonate

STRUCTURE: **CAS #:** Not available



MOLECULAR FORMULA: ¹³C₄¹²C₄F₁₇SO₃Na **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) 08/03/2016 (1,2,3,4-¹³C₄)
EXPIRY DATE: (mm/dd/yyyy) 08/03/2021
RECOMMENDED STORAGE: Store ampoule in a cool, dark place


DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim **Date:** 08/05/2016
(mm/dd/yyyy)

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

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:

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EXPIRY DATE / PERIOD OF VALIDITY:

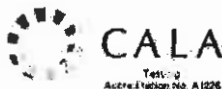
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

LIMITED WARRANTY:

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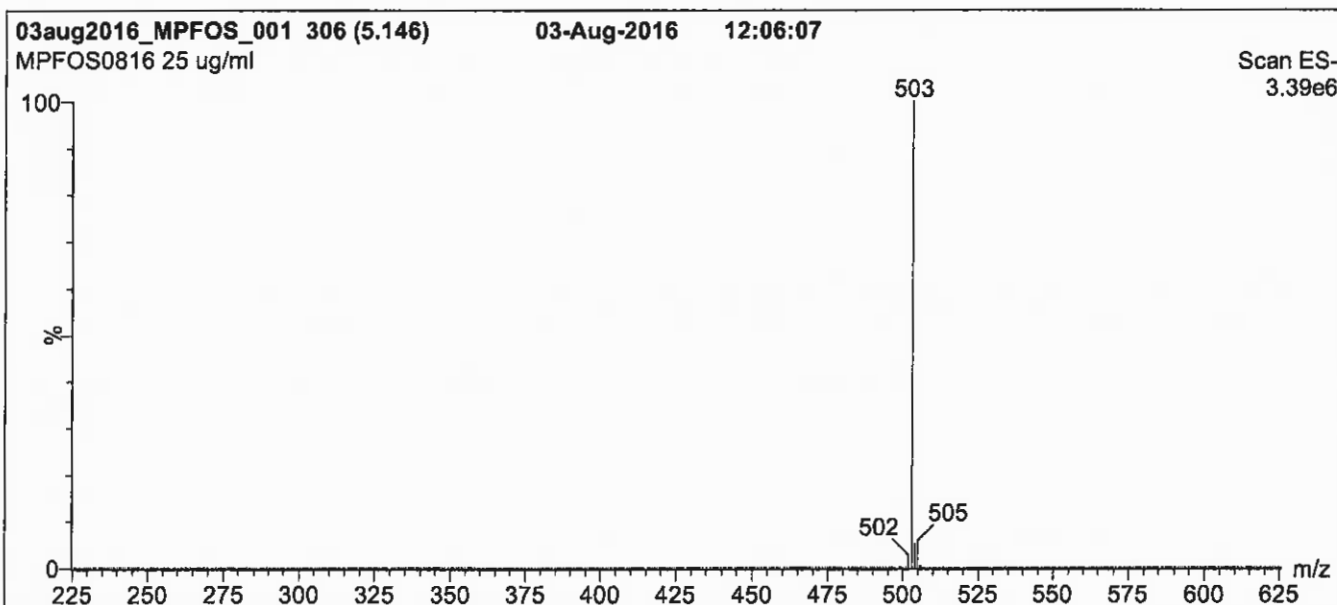
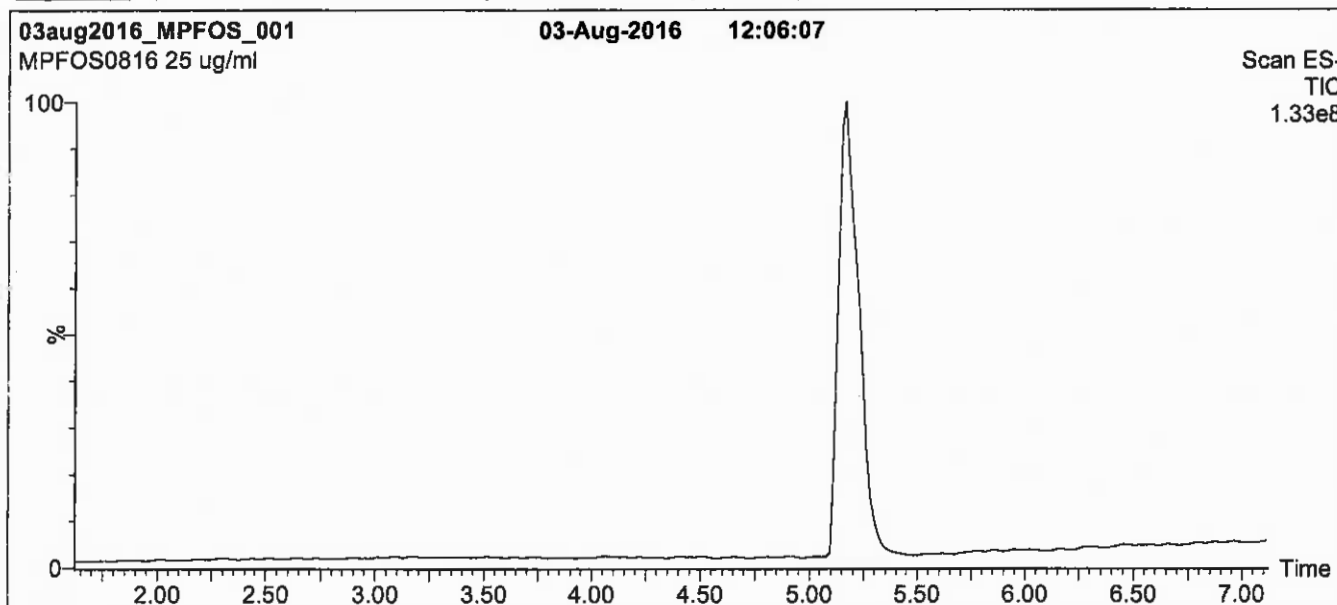
QUALITY MANAGEMENT:

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

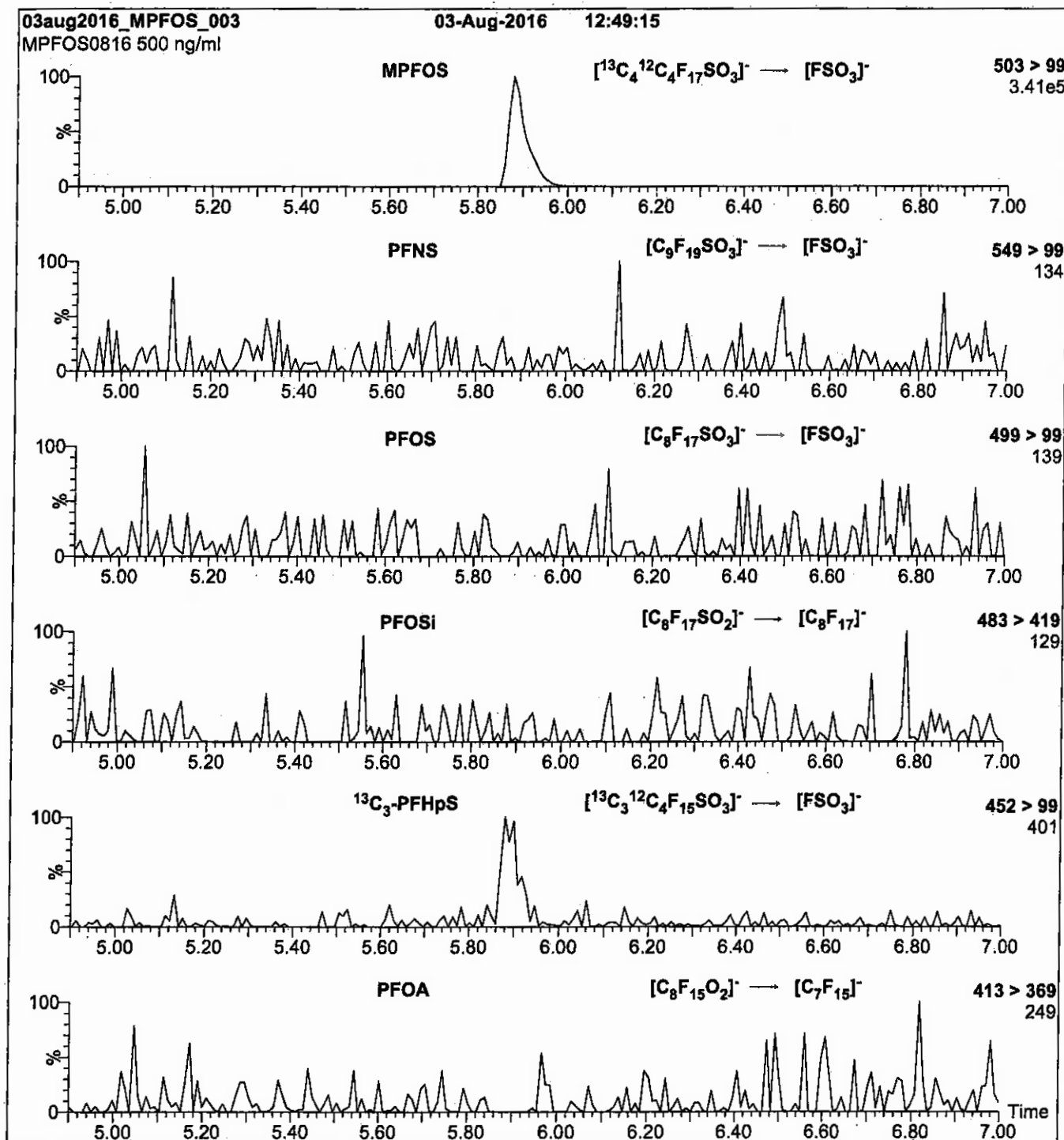
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

Collision Gas (mbar) = 3.46e-3
Collision Energy (eV) = 40

Reagent

LCMPFOS_00021

r: 5/6/17 SKV

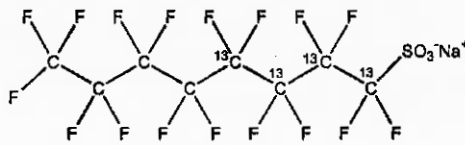


WELLINGTON LABORATORIES

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:	¹³ C ₄ ¹² C ₄ F ₁₇ SO ₃ Na	MOLECULAR WEIGHT:	526.08
CONCENTRATION:	50.0 ± 2.5 µg/ml (Na salt) 47.8 ± 2.4 µg/ml (MPFOS anion)	SOLVENT(S):	Methanol
CHEMICAL PURITY:	>98%	ISOTOPIC PURITY:	≥99% ¹³ C (1,2,3,4- ¹³ C ₄)
LAST TESTED: (mm/dd/yyyy)	12/12/2016		
EXPIRY DATE: (mm/dd/yyyy)	12/12/2021		
RECOMMENDED STORAGE:	Store ampoule in a cool, dark place		

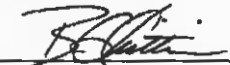
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- Figure 1: LC/MS Data (TIC and Mass Spectrum)
- Figure 2: LC/MS/MS Data (Selected MRM Transitions)

ADDITIONAL INFORMATION:

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

FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE

Certified By: 
B.G. Chittim **Date:** 12/14/2016
(mm/dd/yyyy)

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

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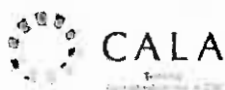
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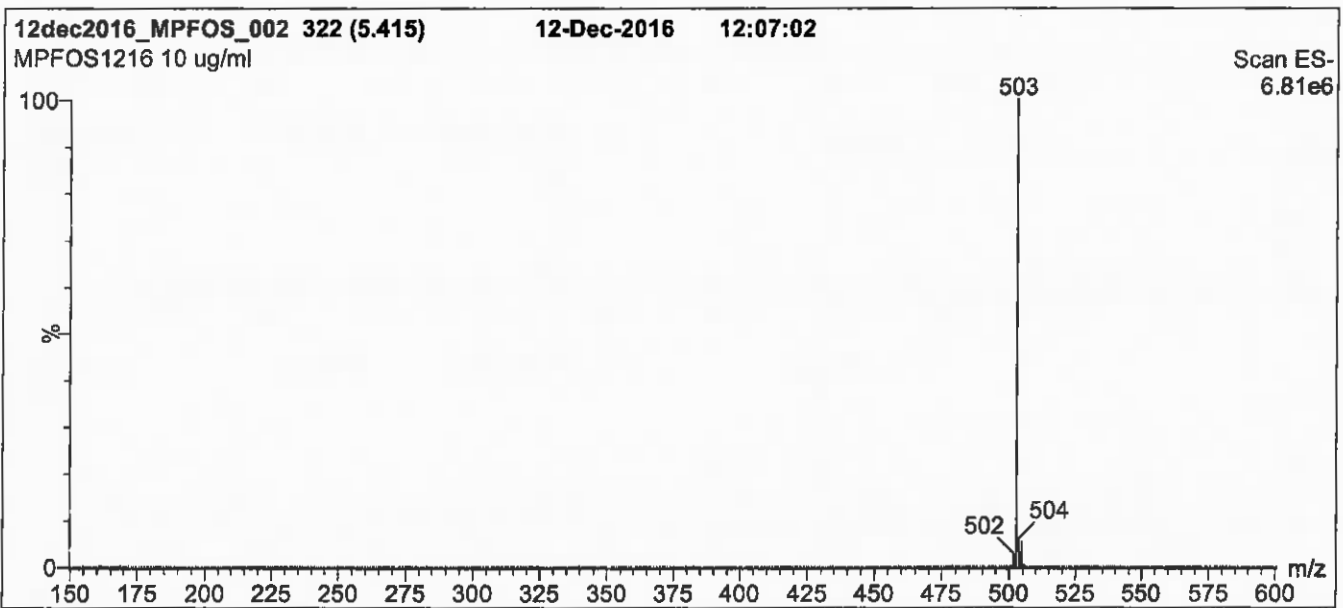
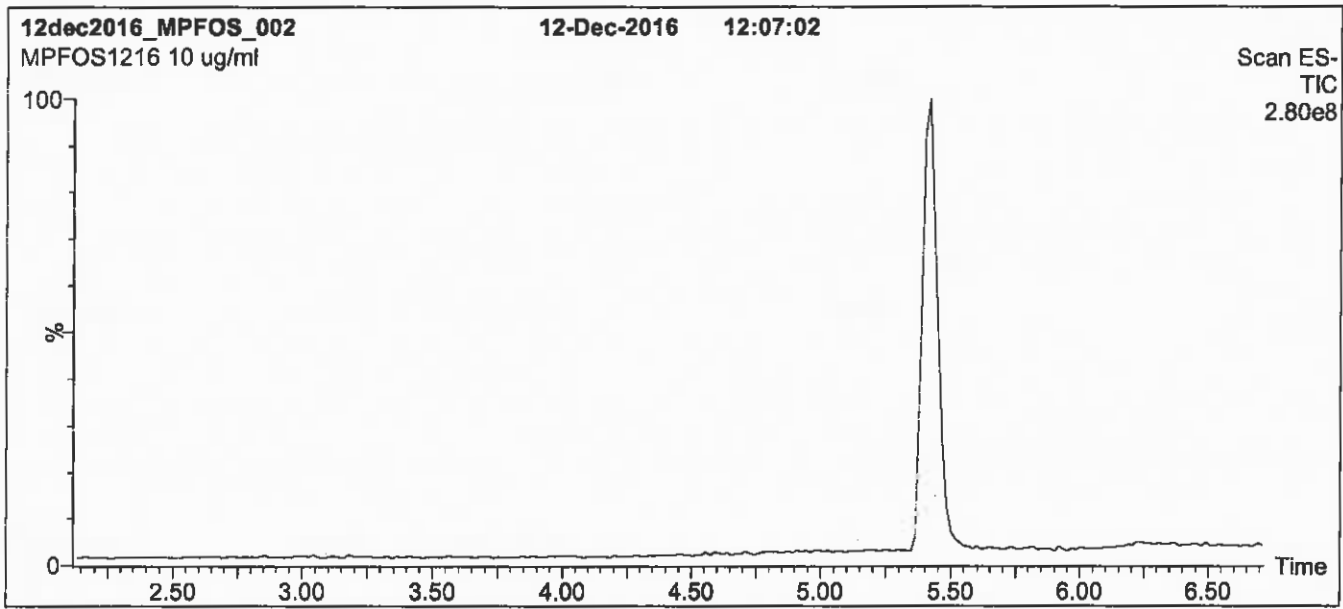
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Figure 1: MPFOS; LC/MS Data (TIC and Mass Spectrum)



Conditions for Figure 1:

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

Chromatographic Conditions

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

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

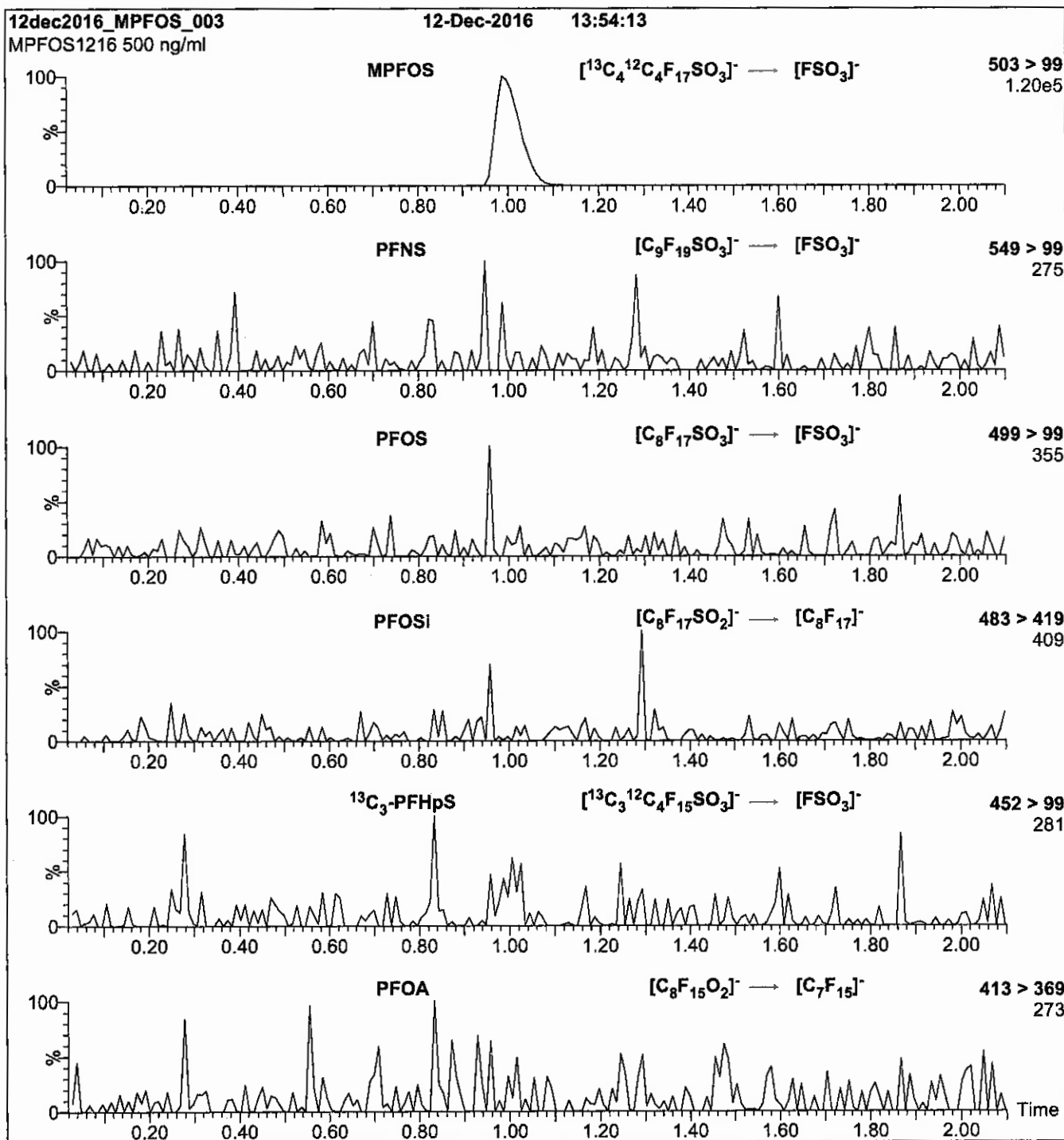
Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)

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

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Method 537 DOD

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

FORM II
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento

Job No.: 320-35691-1

SDG No.: _____

Matrix: Water

Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
NAWC-020118-RW-167	320-35691-1	96	94
NAWC-020118-FRB-167	320-35691-2	20 Q	53 Q
NAWC-020118-RW-151	320-35691-3	96	95
NAWC-020118-FRB-151	320-35691-4	98	98
NAWC-020118-RW-156	320-35691-5	102	95
NAWC-020118-FRB-156	320-35691-6	103	106
NAWC-020118-RW-119	320-35691-7	94	103
NAWC-020118-FRB-119	320-35691-8	91	96
WGNA-020118-DUP-24	320-35691-9	93	102
WGNA-020118-RW-4847	320-35691-10	95	94
WGNA-020118-FRB-4847	320-35691-11	102	115
NAWC-020118-RW-121	320-35691-12	106	104
NAWC-020118-FRB-121	320-35691-13	110	110
NAWC-020118-RW-123	320-35691-14	96	94
NAWC-020118-FRB-123	320-35691-15	102	102
NAWC-020118-RW-207	320-35691-16	100	100
NAWC-020118-FRB-207	320-35691-17	100	96
	MB 320-207046/1-A	101	96
	LLCS 320-207046/2-A	106	102
	LLCSD 320-207046/3-A	106	105

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

QC LIMITS
70-130
70-130

Column to be used to flag recovery values

FORM III
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: 2018.02.08_537B_004.d

Lab ID: LLCS 320-207046/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LLCS CONCENTRATION (ng/L)	LLCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	40.2	40.3	100	50-150	M
Perfluorooctanoic acid (PFOA)	20.1	22.6	112	50-150	
Perfluorononanoic acid (PFNA)	20.0	21.2 J	106	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.0	32.4	108	50-150	
Perfluoroheptanoic acid (PFHpA)	10.0	12.7	127	50-150	
Perfluorobutanesulfonic acid (PFBS)	90.0	95.4	106	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.: 320-35691-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: 2018.02.08_537B_005.d

Lab ID: LLCSD 320-207046/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LLCSD CONCENTRATION (ng/L)	LLCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	40.2	41.2	103	2	50	50-150	M
Perfluorooctanoic acid (PFOA)	20.1	29.1	145	25	50	50-150	
Perfluorononanoic acid (PFNA)	20.0	21.3 J	106	0.2	50	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.0	32.9	110	1	50	50-150	
Perfluoroheptanoic acid (PFHpA)	10.0	12.2	122	5	50	50-150	
Perfluorobutanesulfonic acid (PFBS)	90.0	99.7	111	4	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.: 320-35691-1
 SDG No.: _____
 Lab File ID: 2018.02.08_537B_003.d Lab Sample ID: MB 320-207046/1-A
 Matrix: Water Date Extracted: 02/06/2018 08:01
 Instrument ID: A8_N Date Analyzed: 02/08/2018 12:04
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LLCS 320-207046/2-A	2018.02.08_537B_004.d	02/08/2018 12:08
	LLCSD 320-207046/3-A	2018.02.08_537B_005.d	02/08/2018 12:13
NAWC-020118-RW-167	320-35691-1	2018.02.08_537B_006.d	02/08/2018 12:18
NAWC-020118-FRB-167	320-35691-2	2018.02.08_537B_007.d	02/08/2018 12:22
NAWC-020118-RW-151	320-35691-3	2018.02.08_537B_008.d	02/08/2018 12:27
NAWC-020118-FRB-151	320-35691-4	2018.02.08_537B_009.d	02/08/2018 12:32
NAWC-020118-RW-156	320-35691-5	2018.02.08_537B_010.d	02/08/2018 12:36
NAWC-020118-FRB-156	320-35691-6	2018.02.08_537B_011.d	02/08/2018 12:41
NAWC-020118-RW-119	320-35691-7	2018.02.08_537B_012.d	02/08/2018 12:46
NAWC-020118-FRB-119	320-35691-8	2018.02.08_537B_015.d	02/08/2018 13:00
WGNA-020118-DUP-24	320-35691-9	2018.02.08_537B_016.d	02/08/2018 13:04
WGNA-020118-RW-4847	320-35691-10	2018.02.08_537B_017.d	02/08/2018 13:09
WGNA-020118-FRB-4847	320-35691-11	2018.02.08_537B_018.d	02/08/2018 13:14
NAWC-020118-RW-121	320-35691-12	2018.02.08_537B_019.d	02/08/2018 13:18
NAWC-020118-FRB-121	320-35691-13	2018.02.08_537B_020.d	02/08/2018 13:23
NAWC-020118-RW-123	320-35691-14	2018.02.08_537B_021.d	02/08/2018 13:28
NAWC-020118-FRB-123	320-35691-15	2018.02.08_537B_022.d	02/08/2018 13:32
NAWC-020118-RW-207	320-35691-16	2018.02.08_537B_023.d	02/08/2018 13:37
NAWC-020118-FRB-207	320-35691-17	2018.02.08_537B_024.d	02/08/2018 13:42

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 11/03/2017 14:01
 Calibration ID: 36012

		13PFOA		PFOS			
		AREA #	RT #	AREA #	RT #	AREA #	RT #
INITIAL CALIBRATION MEAN AREA AND MEAN RT		1535518	1.91	3276559	2.15		
UPPER LIMIT		2303277	2.41	4914839	2.65		
LOWER LIMIT		767759	1.41	1638280	1.65		
LAB SAMPLE ID	CLIENT SAMPLE ID						
CCVL 320-192908/11		1586829	1.91	3305852	2.15		
ICV 320-192908/13		1512045	1.90	3433628	2.14		
CCVL 320-207581/1		1366684	1.81	2879967	2.06		
CCV 320-207624/1 CCVIS		1273325	1.79	2873161	2.03		
MB 320-207046/1-A		1273697	1.81	3063775	2.04		
LLCS 320-207046/2-A		1269564	1.81	3102296	2.04		
LLCSD 320-207046/3-A		1258852	1.81	2974774	2.04		
320-35691-1	NAWC-020118-RW-167	1367578	1.80	3310227	2.04		
320-35691-2	NAWC-020118-FRB-167	1364009	1.80	3198488	2.04		
320-35691-3	NAWC-020118-RW-151	1344658	1.80	3273411	2.04		
320-35691-4	NAWC-020118-FRB-151	1374975	1.81	3263596	2.05		
320-35691-5	NAWC-020118-RW-156	1420086	1.81	3203841	2.05		
320-35691-6	NAWC-020118-FRB-156	1353214	1.80	3309048	2.04		
320-35691-7	NAWC-020118-RW-119	1348169	1.81	3161108	2.05		
CCV 320-207624/13 CCVIS		1297579	1.81	3074997	2.06		
CCV 320-207626/13 CCVIS		1297579	1.81	3074997	2.06		
320-35691-8	NAWC-020118-FRB-119	1397952	1.80	3303345	2.04		
320-35691-9	WGNA-020118-DUP-24	1341625	1.80	3237279	2.04		
320-35691-10	WGNA-020118-RW-4847	1460238	1.80	3262053	2.04		
320-35691-11	WGNA-020118-FRB-4847	1363014	1.80	3277604	2.04		
320-35691-12	NAWC-020118-RW-121	1330726	1.80	3095687	2.04		
320-35691-13	NAWC-020118-FRB-121	1297091	1.80	3146790	2.04		
320-35691-14	NAWC-020118-RW-123	1346141	1.80	3053585	2.04		
320-35691-15	NAWC-020118-FRB-123	1276682	1.80	3022415	2.03		
320-35691-16	NAWC-020118-RW-207	1298183	1.80	3036504	2.04		
320-35691-17	NAWC-020118-FRB-207	1305838	1.80	3222854	2.04		
CCV 320-207626/25 CCVIS		1294509	1.80	3035253	2.04		

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

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

RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Sample No.: CCV 320-207624/1 Date Analyzed: 02/08/2018 11:54
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.02.08_537B_001 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1273325	1.79	2873161	2.03		
UPPER LIMIT	1782655	2.29	4022425	2.53		
LOWER LIMIT	891328	1.29	2011213	1.53		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-207046/1-A		1273697	1.81	3063775	2.04	
LLCS 320-207046/2-A		1269564	1.81	3102296	2.04	
LLCSD 320-207046/3-A		1258852	1.81	2974774	2.04	
320-35691-1	NAWC-020118-RW-167	1367578	1.80	3310227	2.04	
320-35691-2	NAWC-020118-FRB-167	1364009	1.80	3198488	2.04	
320-35691-3	NAWC-020118-RW-151	1344658	1.80	3273411	2.04	
320-35691-4	NAWC-020118-FRB-151	1374975	1.81	3263596	2.05	
320-35691-5	NAWC-020118-RW-156	1420086	1.81	3203841	2.05	
320-35691-6	NAWC-020118-FRB-156	1353214	1.80	3309048	2.04	
320-35691-7	NAWC-020118-RW-119	1348169	1.81	3161108	2.05	

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

Area Limit = 70%-140% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Sample No.: CCV 320-207624/13 Date Analyzed: 02/08/2018 12:50
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.02.08_537B_013 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1297579	1.81	3074997	2.06		
UPPER LIMIT	1816611	2.31	4304996	2.56		
LOWER LIMIT	908305	1.31	2152498	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-207046/1-A		1273697	1.81	3063775	2.04	
LLCS 320-207046/2-A		1269564	1.81	3102296	2.04	
LLCSD 320-207046/3-A		1258852	1.81	2974774	2.04	
320-35691-1	NAWC-020118-RW-167	1367578	1.80	3310227	2.04	
320-35691-2	NAWC-020118-FRB-167	1364009	1.80	3198488	2.04	
320-35691-3	NAWC-020118-RW-151	1344658	1.80	3273411	2.04	
320-35691-4	NAWC-020118-FRB-151	1374975	1.81	3263596	2.05	
320-35691-5	NAWC-020118-RW-156	1420086	1.81	3203841	2.05	
320-35691-6	NAWC-020118-FRB-156	1353214	1.80	3309048	2.04	
320-35691-7	NAWC-020118-RW-119	1348169	1.81	3161108	2.05	

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

Area Limit = 70%-140% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Sample No.: CCV 320-207626/13 Date Analyzed: 02/08/2018 12:50
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.02.08_537B_013 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1297579	1.81	3074997	2.06		
UPPER LIMIT	1816611	2.31	4304996	2.56		
LOWER LIMIT	908305	1.31	2152498	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-35691-8	NAWC-020118-FRB-119	1397952	1.80	3303345	2.04	
320-35691-9	WGNA-020118-DUP-24	1341625	1.80	3237279	2.04	
320-35691-10	WGNA-020118-RW-4847	1460238	1.80	3262053	2.04	
320-35691-11	WGNA-020118-FRB-4847	1363014	1.80	3277604	2.04	
320-35691-12	NAWC-020118-RW-121	1330726	1.80	3095687	2.04	
320-35691-13	NAWC-020118-FRB-121	1297091	1.80	3146790	2.04	
320-35691-14	NAWC-020118-RW-123	1346141	1.80	3053585	2.04	
320-35691-15	NAWC-020118-FRB-123	1276682	1.80	3022415	2.03	
320-35691-16	NAWC-020118-RW-207	1298183	1.80	3036504	2.04	
320-35691-17	NAWC-020118-FRB-207	1305838	1.80	3222854	2.04	

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

Area Limit = 70%-140% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Sample No.: CCV 320-207626/25 Date Analyzed: 02/08/2018 13:46
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.02.08_537B_025 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1294509	1.80	3035253	2.04		
UPPER LIMIT	1812313	2.30	4249354	2.54		
LOWER LIMIT	906156	1.30	2124677	1.54		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-35691-8	NAWC-020118-FRB-119	1397952	1.80	3303345	2.04	
320-35691-9	WGNA-020118-DUP-24	1341625	1.80	3237279	2.04	
320-35691-10	WGNA-020118-RW-4847	1460238	1.80	3262053	2.04	
320-35691-11	WGNA-020118-FRB-4847	1363014	1.80	3277604	2.04	
320-35691-12	NAWC-020118-RW-121	1330726	1.80	3095687	2.04	
320-35691-13	NAWC-020118-FRB-121	1297091	1.80	3146790	2.04	
320-35691-14	NAWC-020118-RW-123	1346141	1.80	3053585	2.04	
320-35691-15	NAWC-020118-FRB-123	1276682	1.80	3022415	2.03	
320-35691-16	NAWC-020118-RW-207	1298183	1.80	3036504	2.04	
320-35691-17	NAWC-020118-FRB-207	1305838	1.80	3222854	2.04	

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

Area Limit = 70%-140% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-167 Lab Sample ID: 320-35691-1
 Matrix: Water Lab File ID: 2018.02.08_537B_006.d
 Analysis Method: 537 Date Collected: 02/01/2018 10:10
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 241.8 (mL) Date Analyzed: 02/08/2018 12:18
 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.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	J M	41	17	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	8.4	J	21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U M	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.3	J M	10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	93	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	94		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_006.d
 Lims ID: 320-35691-A-1-A
 Client ID: NAWC-020118-RW-167
 Sample Type: Client
 Inject. Date: 08-Feb-2018 12:18:10 ALS Bottle#: 38 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-1-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:40:51

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.366	0.007	1.000	241451	1.87		240	
298.90 > 99.00	1.366	1.366	0.0	0.994	181245		1.33(0.00-0.00)	363	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	1443076	9.59		6670	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.616	0.008	1.000	95770	0.4956		49.0	M
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.616	0.008	1.000	71940	0.5615		11.6	M
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.791	0.007		1367578	10.0		5608	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.798	0.0	1.000	256928	2.03		36.1	
413.00 > 169.00	1.798	1.798	0.0	1.000	147001		1.75(0.00-0.00)	362	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.033	0.008		3310227	28.7		2913	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.033	0.015	1.000	404542	3.73		124	M
499.00 > 99.00	2.041	2.033	0.008	0.996	69533		5.82(0.00-0.00)	113	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.231	0.007	1.000	983527	9.40		7179	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_006.d

Injection Date: 08-Feb-2018 12:18:10

Instrument ID: A8_N

Lims ID: 320-35691-A-1-A

Lab Sample ID: 320-35691-1

Client ID: NAWC-020118-RW-167

Operator ID: SACINSTLCMS01

ALS Bottle#: 38

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

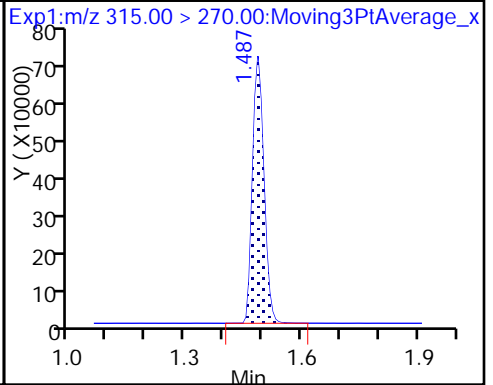
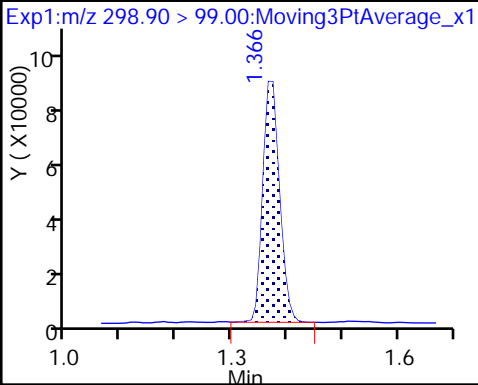
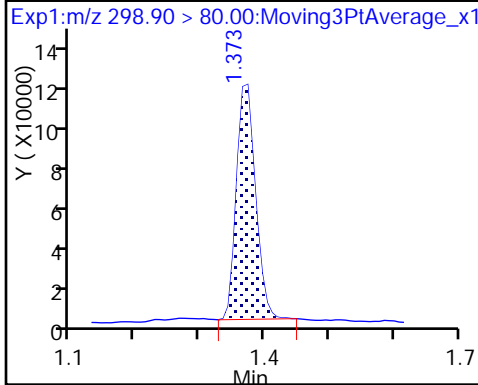
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

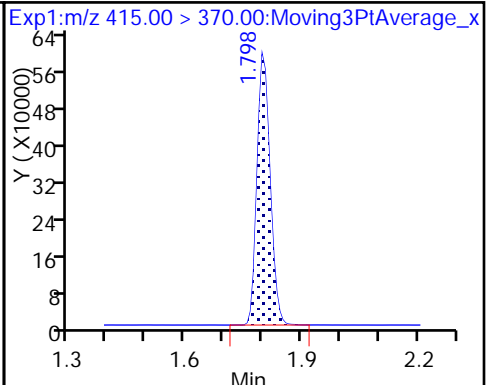
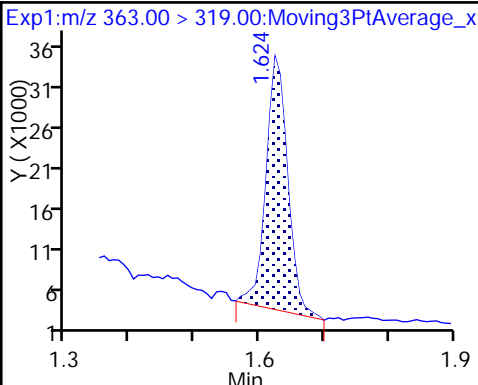
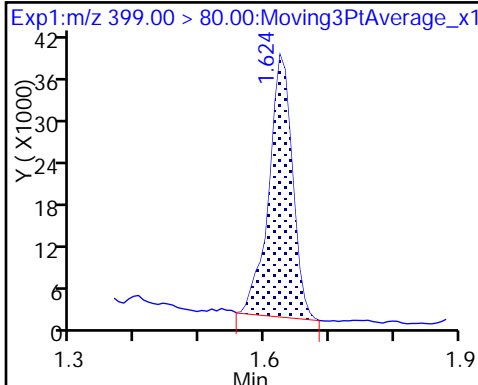
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (M)

4 Perfluoroheptanoic acid (M)

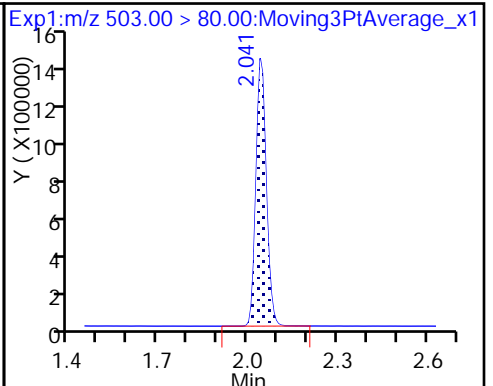
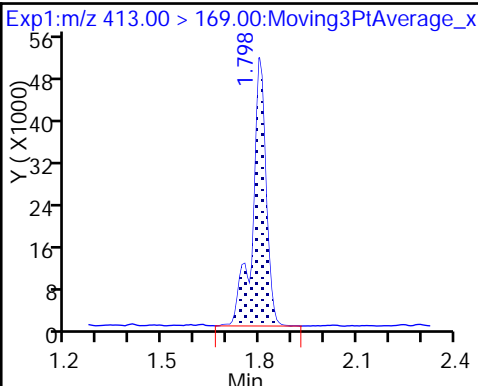
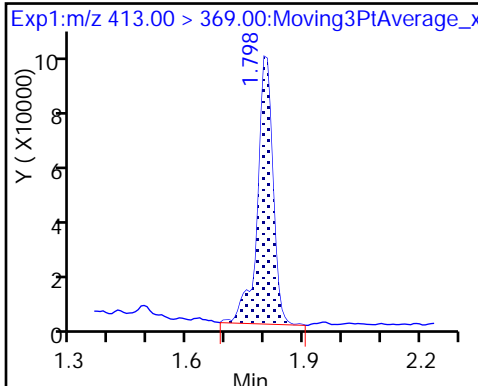
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

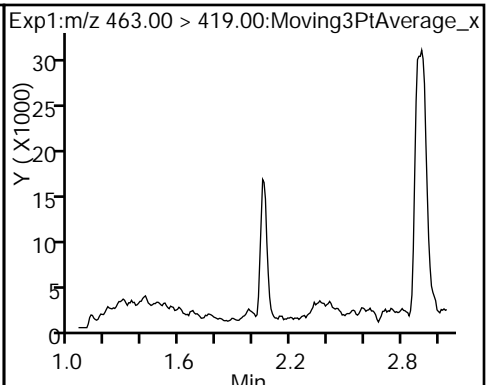
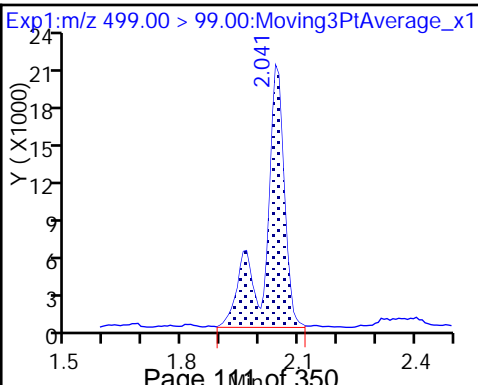
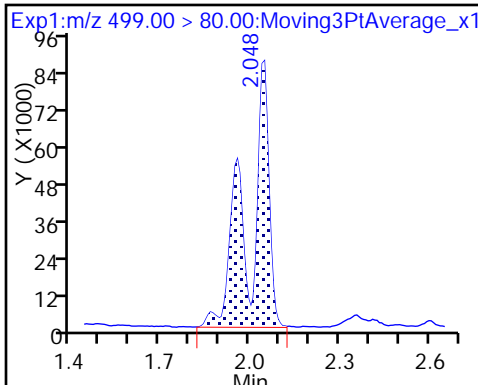
* 7 13C4 PFOS



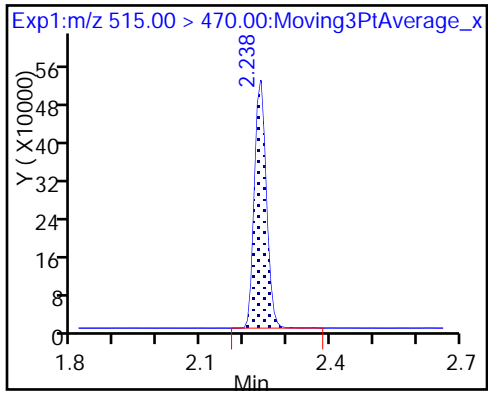
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_006.d
 Lims ID: 320-35691-A-1-A
 Client ID: NAWC-020118-RW-167
 Sample Type: Client
 Inject. Date: 08-Feb-2018 12:18:10 ALS Bottle#: 38 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-1-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:40:51

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.59	95.90
\$ 10 13C2 PFDA	10.0	9.40	93.98

TestAmerica Sacramento

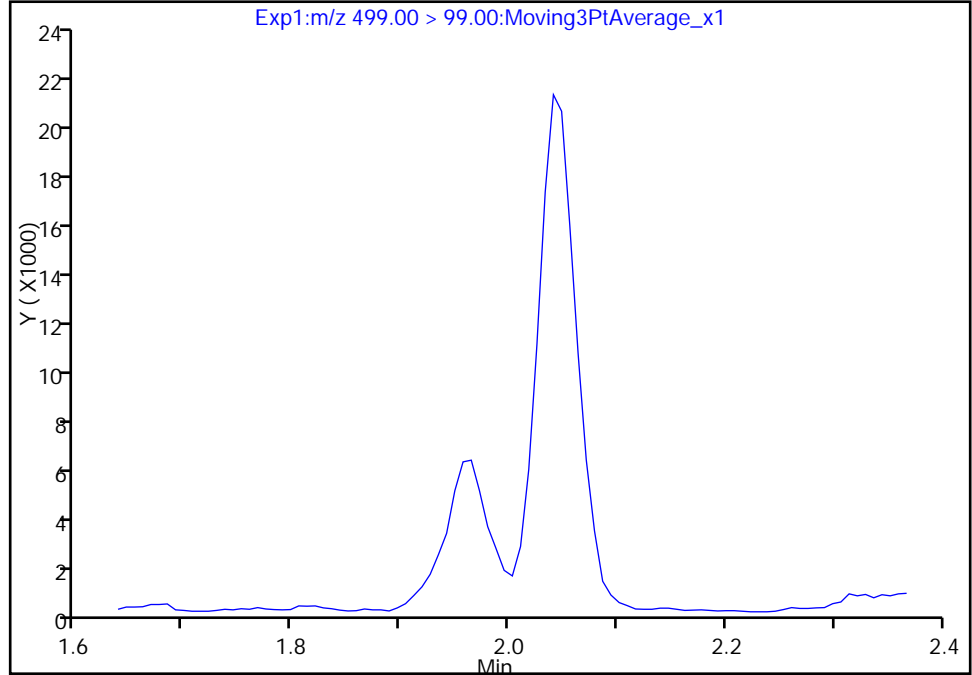
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Injection Date: 08-Feb-2018 12:18:10 Instrument ID: A8_N
Lims ID: 320-35691-A-1-A Lab Sample ID: 320-35691-1
Client ID: NAWC-020118-RW-167
Operator ID: SACINSTLCMS01 ALS Bottle#: 38 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

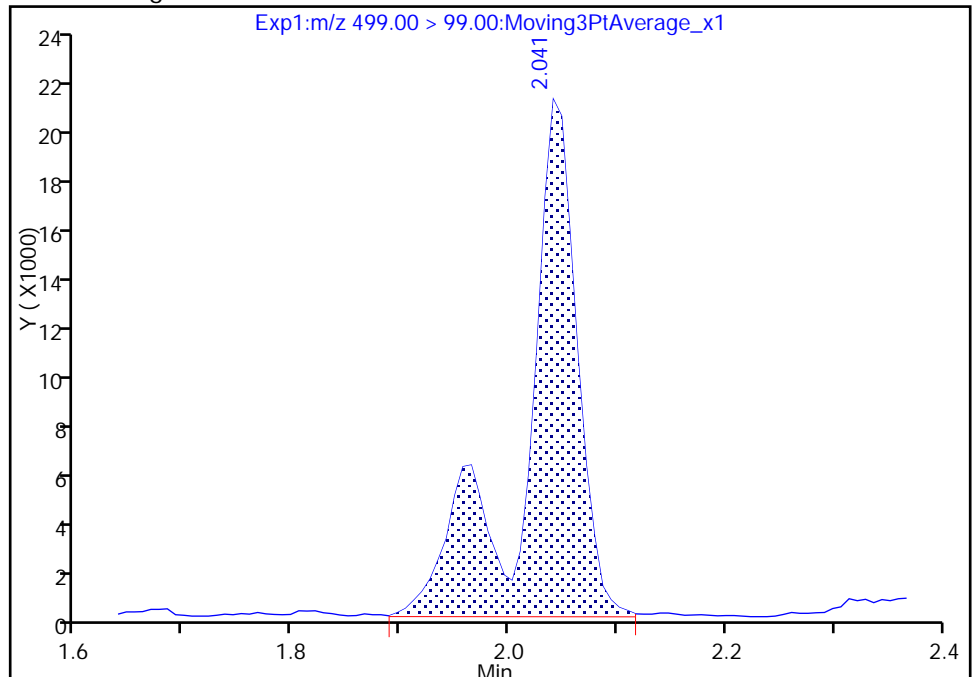
Not Detected
Expected RT: 2.03

Processing Integration Results



RT: 2.04
Area: 69533
Amount: 3.732872
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 09-Feb-2018 10:40:31
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

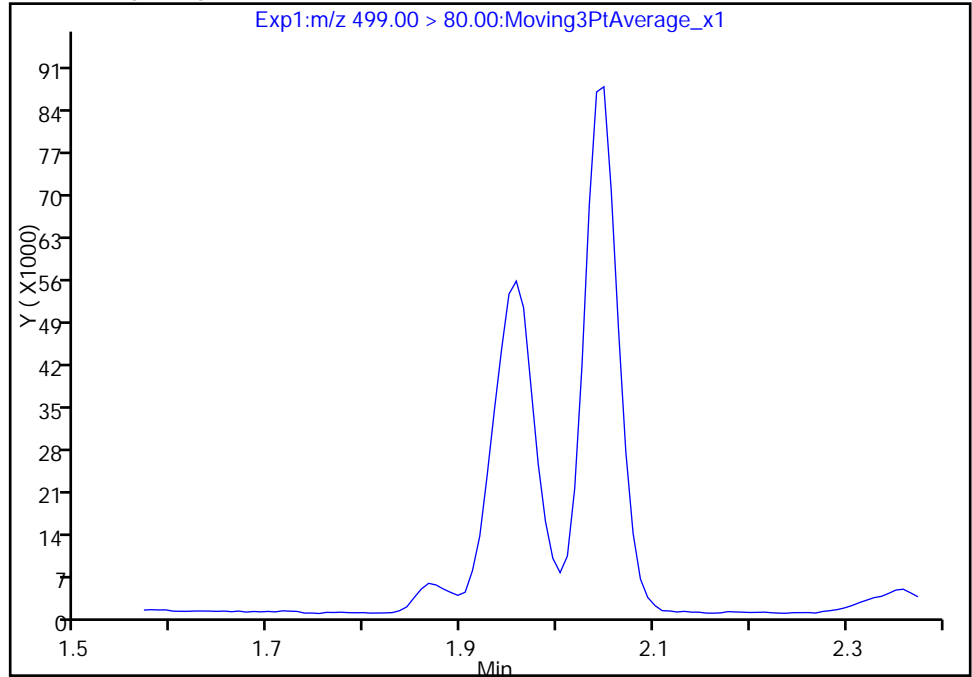
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_006.d
Injection Date: 08-Feb-2018 12:18:10 Instrument ID: A8_N
Lims ID: 320-35691-A-1-A Lab Sample ID: 320-35691-1
Client ID: NAWC-020118-RW-167
Operator ID: SACINSTLCMS01 ALS Bottle#: 38 Worklist Smp#: 6
Injection Vol: 2.0 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

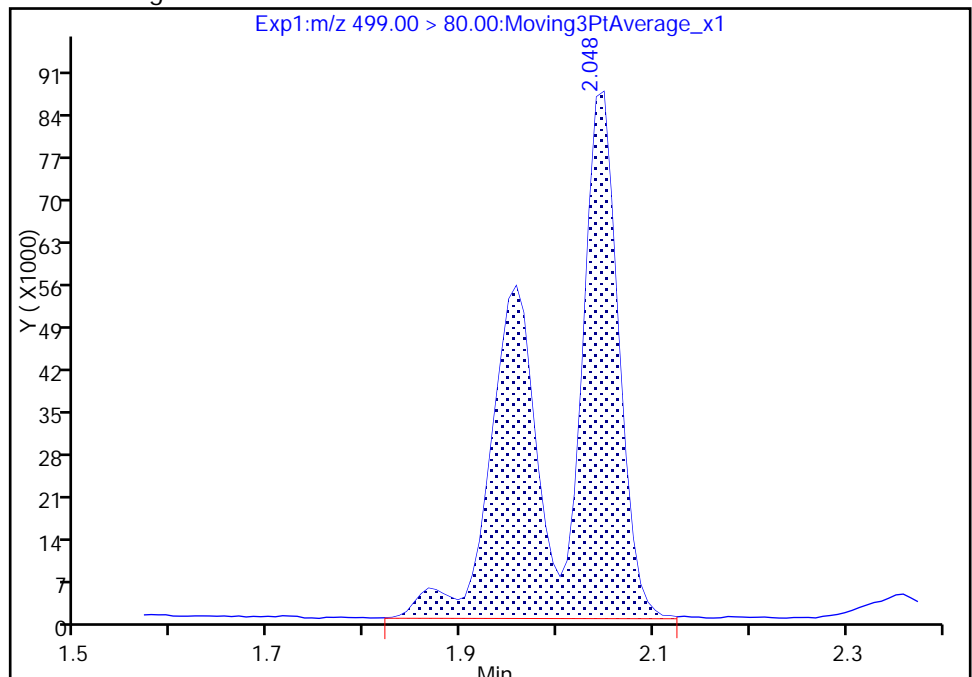
Not Detected
Expected RT: 2.03

Processing Integration Results



RT: 2.05
Area: 404542
Amount: 3.732872
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 09-Feb-2018 10:40:31

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

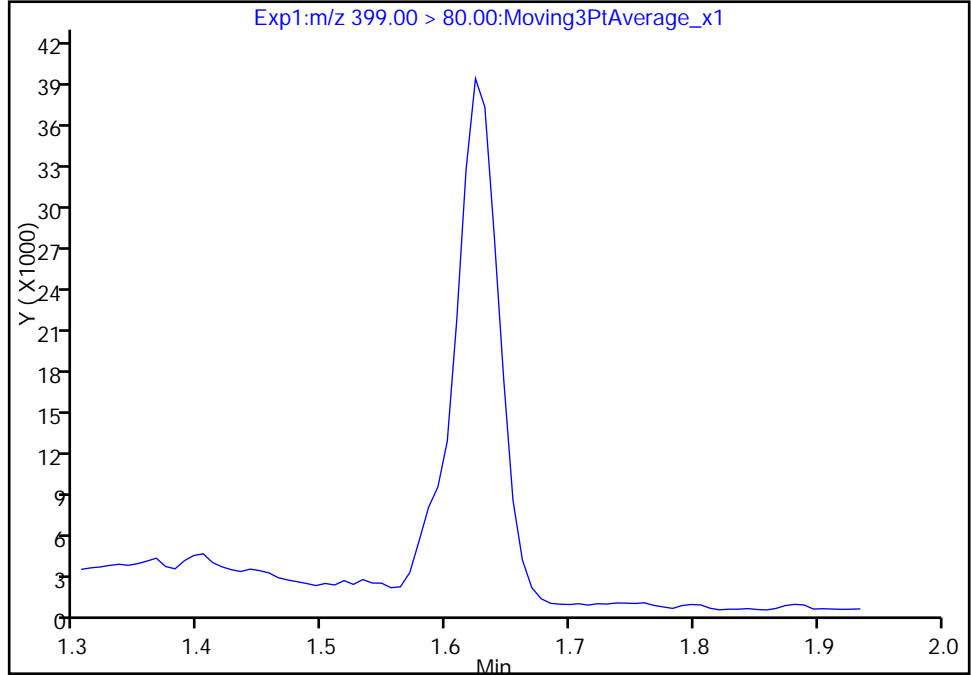
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Injection Date: 08-Feb-2018 12:18:10 Instrument ID: A8_N
Lims ID: 320-35691-A-1-A Lab Sample ID: 320-35691-1
Client ID: NAWC-020118-RW-167
Operator ID: SACINSTLCMS01 ALS Bottle#: 38 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

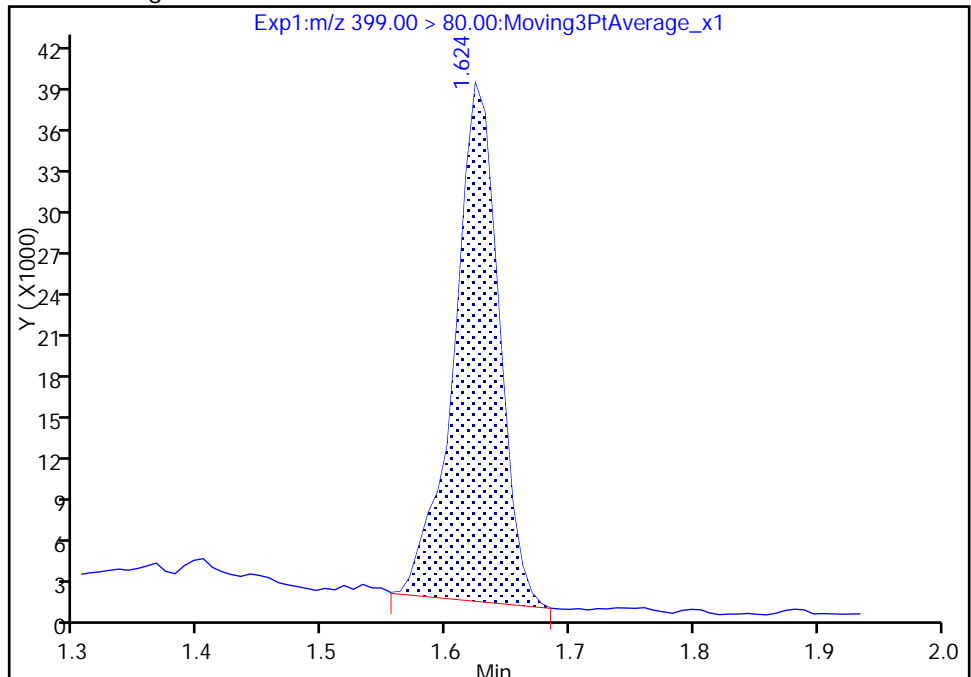
Not Detected
Expected RT: 1.62

Processing Integration Results



Manual Integration Results

RT: 1.62
Area: 95770
Amount: 0.495639
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:39:40
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

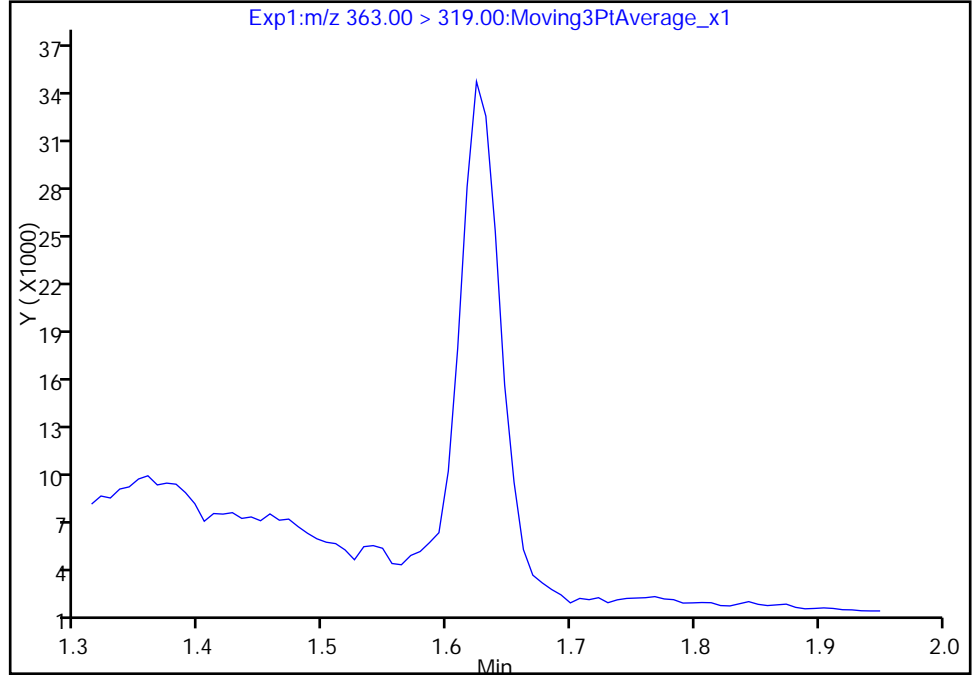
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Injection Date: 08-Feb-2018 12:18:10 Instrument ID: A8_N
Lims ID: 320-35691-A-1-A Lab Sample ID: 320-35691-1
Client ID: NAWC-020118-RW-167
Operator ID: SACINSTLCMS01 ALS Bottle#: 38 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

4 Perfluoroheptanoic acid, CAS: 375-85-9

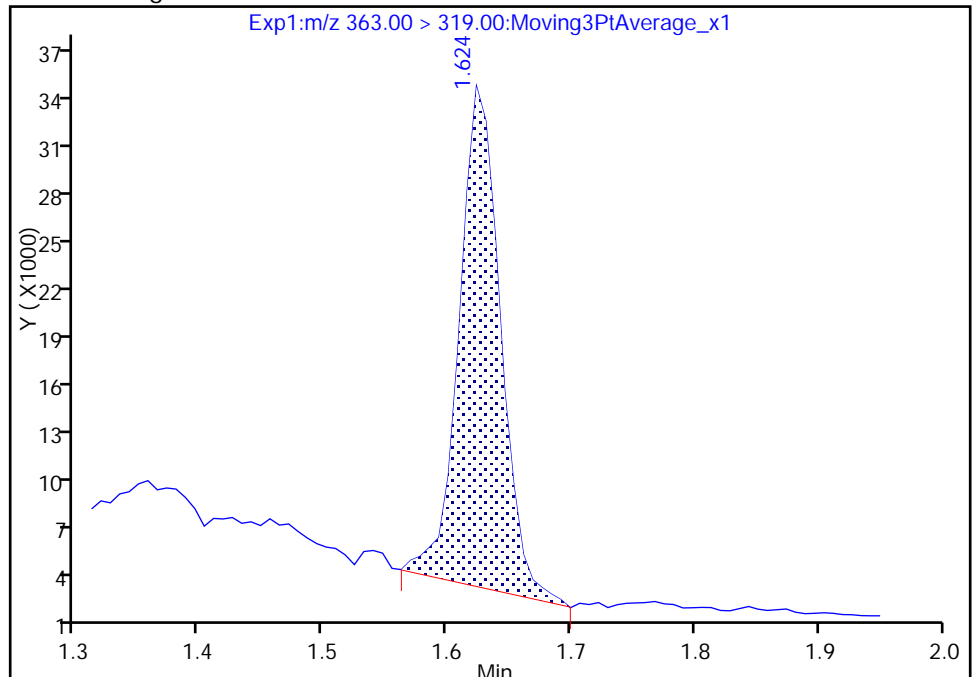
Signal: 1

Not Detected
Expected RT: 1.62

Processing Integration Results



Manual Integration Results



RT: 1.62
Area: 71940
Amount: 0.561459
Amount Units: ng/ml

Reviewer: barnettj, 09-Feb-2018 10:39:52
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-167 Lab Sample ID: 320-35691-2
 Matrix: Water Lab File ID: 2018.02.08_537B_007.d
 Analysis Method: 537 Date Collected: 02/01/2018 10:05
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 247.3(mL) Date Analyzed: 02/08/2018 12:22
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	20	Q	70-130
STL00996	13C2 PFDA	53	Q	70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_007.d
 Lims ID: 320-35691-A-2-A
 Client ID: NAWC-020118-FRB-167
 Sample Type: Client
 Inject. Date: 08-Feb-2018 12:22:50 ALS Bottle#: 39 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-2-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

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	1.479	0.0	1.000	298799	1.99	1728	
* 6 13C2-PFOA	415.00 > 370.00	1.798	1.791	0.007		1364009	10.0	5633	
* 7 13C4 PFOS	503.00 > 80.00	2.041	2.033	0.008		3198488	28.7	5648	
\$ 10 13C2 PFDA	515.00 > 470.00	2.231	2.231	0.0	1.000	552717	5.30	3357	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_007.d

Injection Date: 08-Feb-2018 12:22:50

Instrument ID: A8_N

Lims ID: 320-35691-A-2-A

Lab Sample ID: 320-35691-2

Client ID: NAWC-020118-FRB-167

Operator ID: SACINSTLCMS01

ALS Bottle#: 39

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

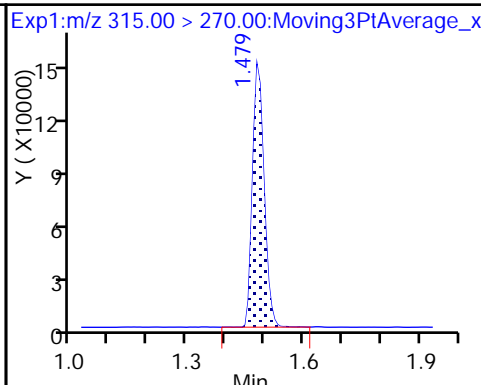
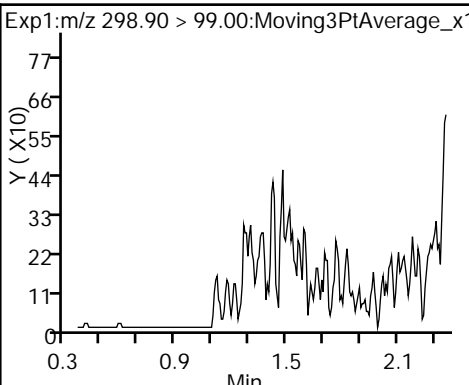
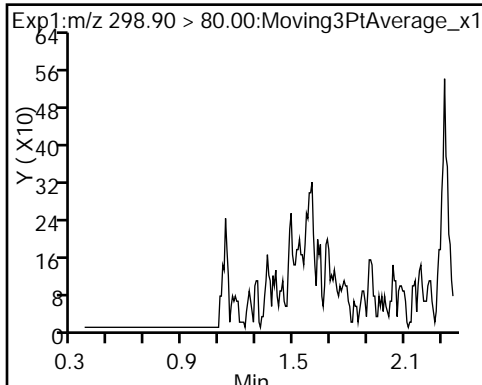
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

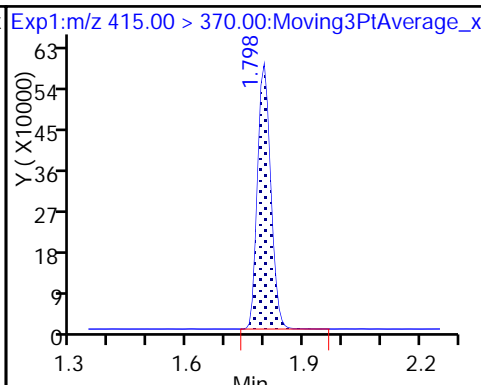
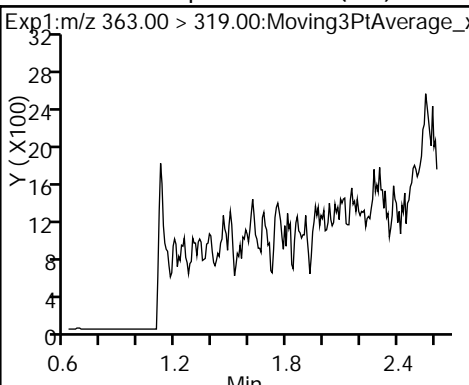
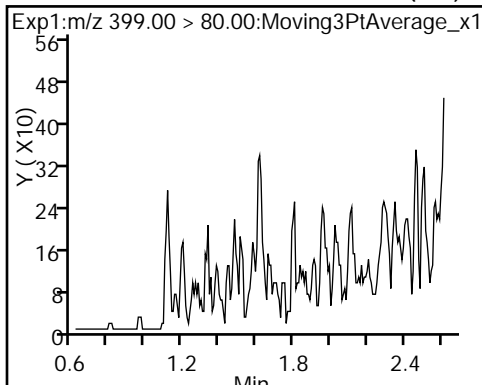
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

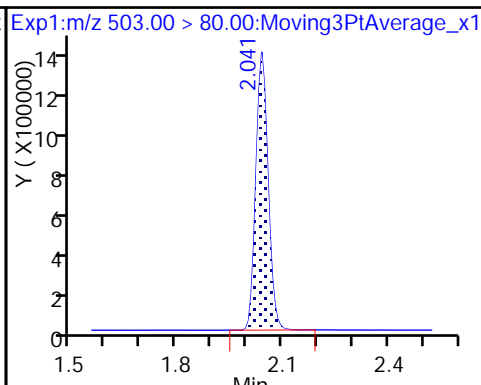
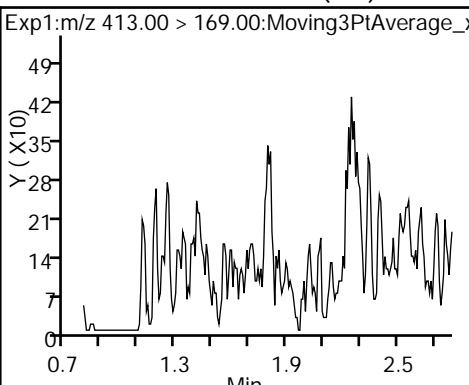
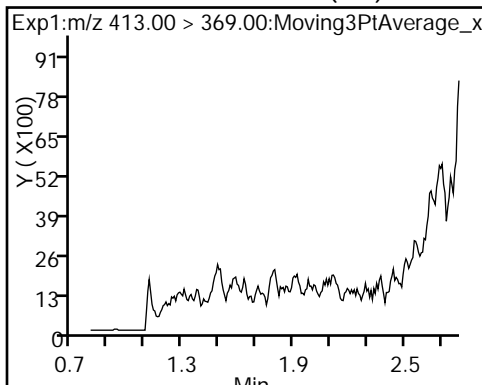
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

5 Perfluorooctanoic acid (ND)

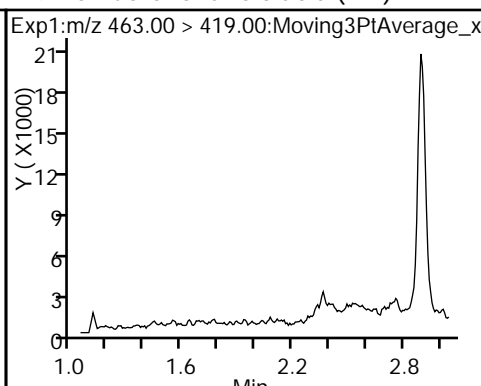
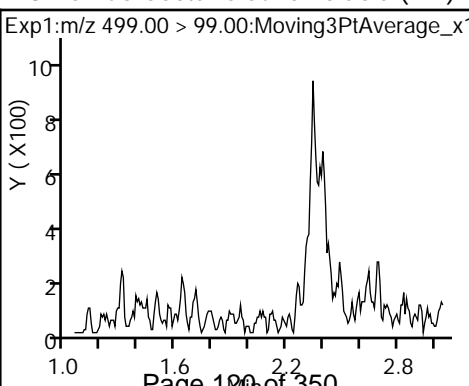
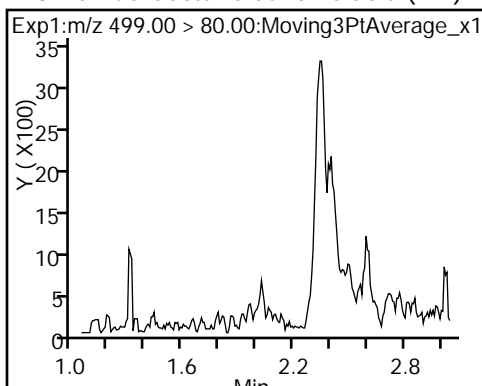
* 7 13C4 PFOS



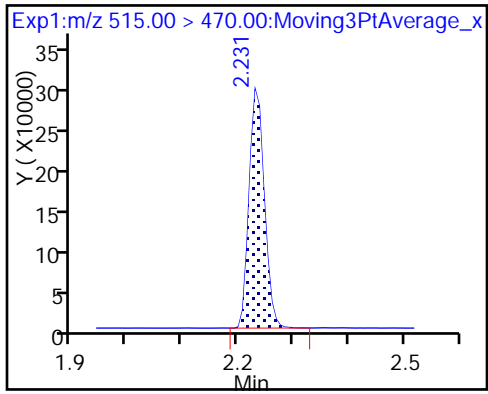
8 Perfluorooctane sulfonic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_007.d
 Lims ID: 320-35691-A-2-A
 Client ID: NAWC-020118-FRB-167
 Sample Type: Client
 Inject. Date: 08-Feb-2018 12:22:50 ALS Bottle#: 39 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-2-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	1.99	19.91
\$ 10 13C2 PFDA	10.0	5.30	52.96

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-151 Lab Sample ID: 320-35691-3
 Matrix: Water Lab File ID: 2018.02.08_537B_008.d
 Analysis Method: 537 Date Collected: 02/01/2018 11:10
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 241.4 (mL) Date Analyzed: 02/08/2018 12:27
 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.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.6	J M	41	17	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	26		21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	10		10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	93	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	95		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_008.d
 Lims ID: 320-35691-A-3-A
 Client ID: NAWC-020118-RW-151
 Sample Type: Client
 Inject. Date: 08-Feb-2018 12:27:30 ALS Bottle#: 40 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-3-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:46:32

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	157584	1.24		210	
298.90 > 99.00	1.366	1.366	0.0	1.000	109666		1.44(0.00-0.00)	226	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	1415596	9.57		6334	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.616	0.008	1.000	209058	1.09		120	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.616	0.008	1.000	313235	2.49		60.4	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.791	0.007		1344658	10.0		5987	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.798	0.0	1.000	772732	6.21		117	
413.00 > 169.00	1.798	1.798	0.0	1.000	473599		1.63(0.00-0.00)	1124	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.033	0.008		3273411	28.7		3250	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.033	0.015	1.000	249585	2.33		67.7	Ma
499.00 > 99.00	2.041	2.033	0.008	0.996	41062		6.08(0.00-0.00)	58.3	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.231	0.0	1.000	979481	9.52		6823	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_008.d

Injection Date: 08-Feb-2018 12:27:30

Instrument ID: A8_N

Lims ID: 320-35691-A-3-A

Lab Sample ID: 320-35691-3

Client ID: NAWC-020118-RW-151

Operator ID: SACINSTLCMS01

ALS Bottle#: 40

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

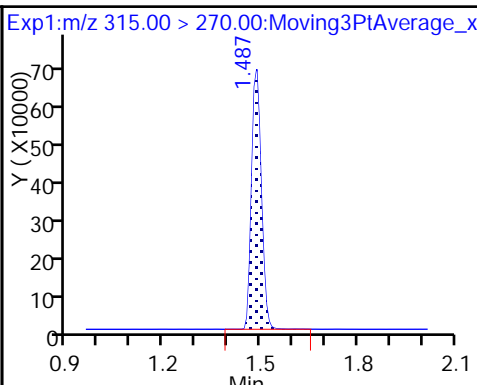
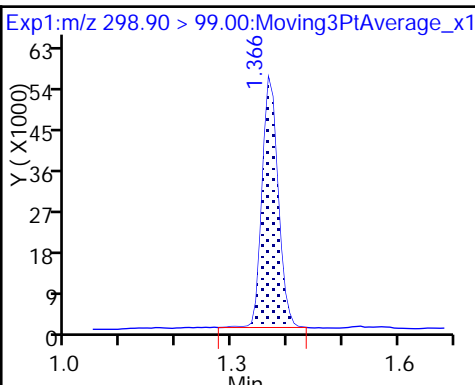
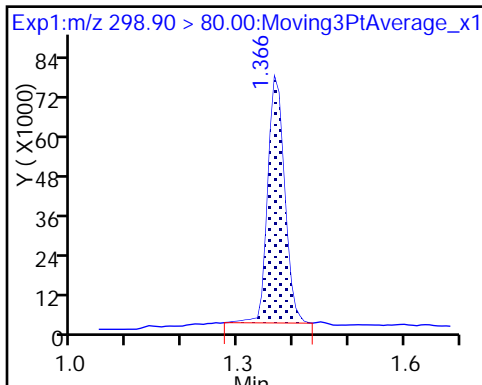
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

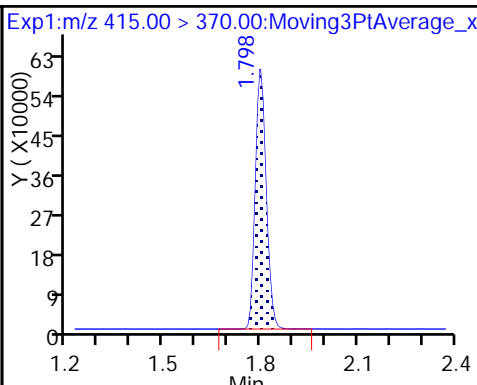
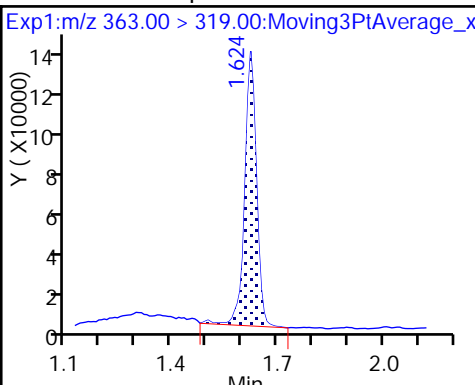
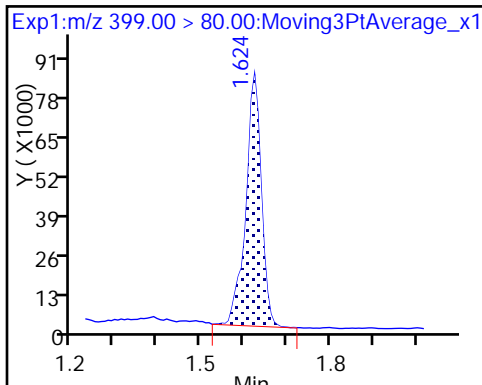
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

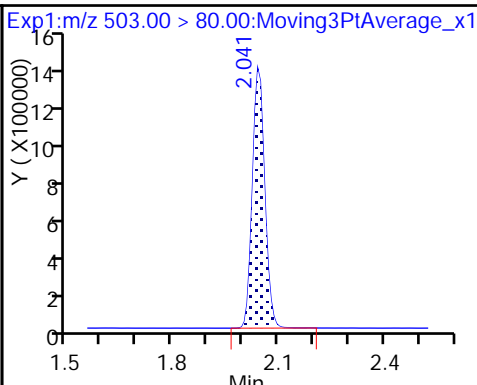
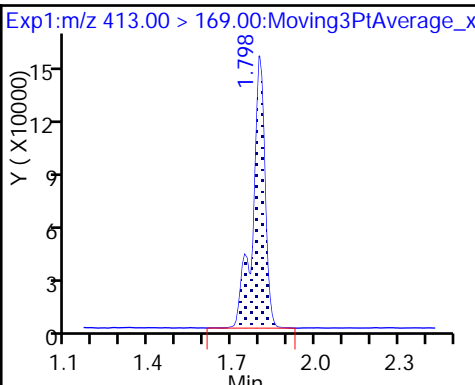
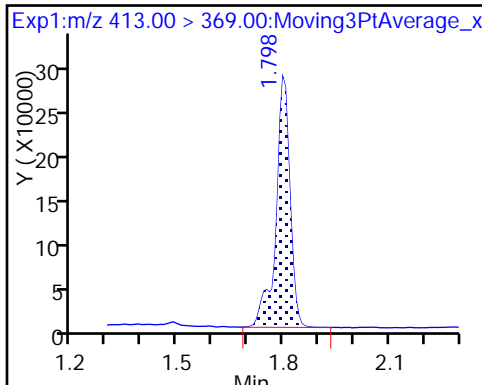
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

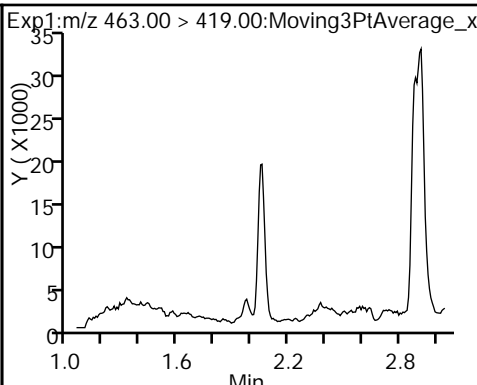
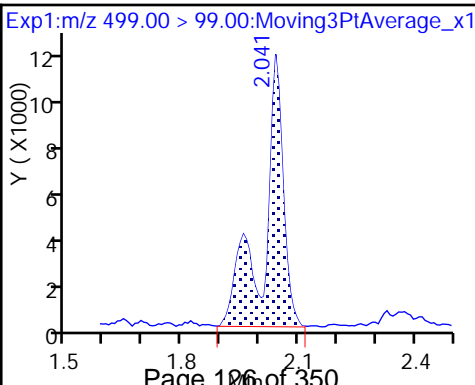
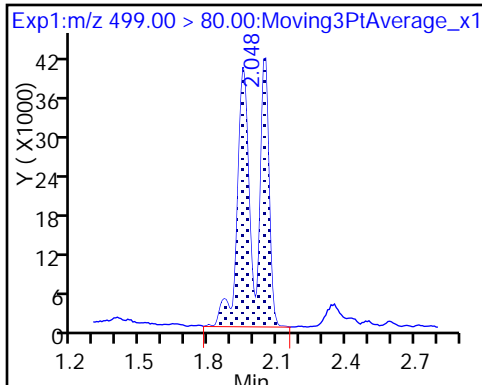
* 7 13C4 PFOS



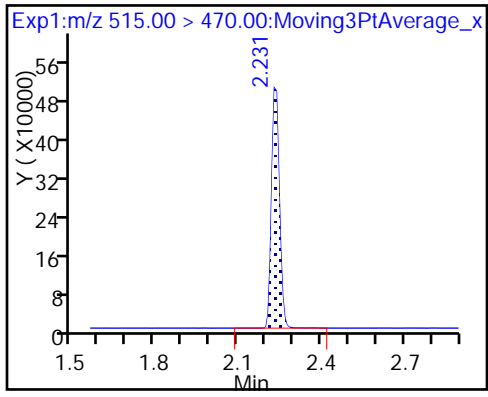
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_008.d
 Lims ID: 320-35691-A-3-A
 Client ID: NAWC-020118-RW-151
 Sample Type: Client
 Inject. Date: 08-Feb-2018 12:27:30 ALS Bottle#: 40 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-3-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:46:32

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.57	95.68
\$ 10 13C2 PFDA	10.0	9.52	95.19

TestAmerica Sacramento

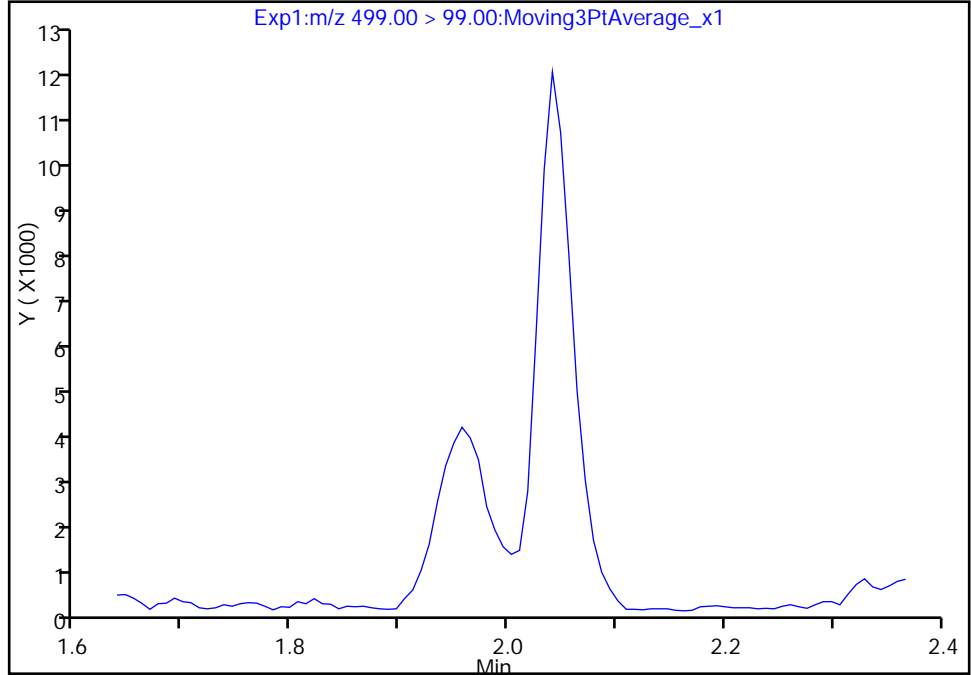
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_008.d
Injection Date: 08-Feb-2018 12:27:30 Instrument ID: A8_N
Lims ID: 320-35691-A-3-A Lab Sample ID: 320-35691-3
Client ID: NAWC-020118-RW-151
Operator ID: SACINSTLCMS01 ALS Bottle#: 40 Worklist Smp#: 8
Injection Vol: 2.0 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: 2

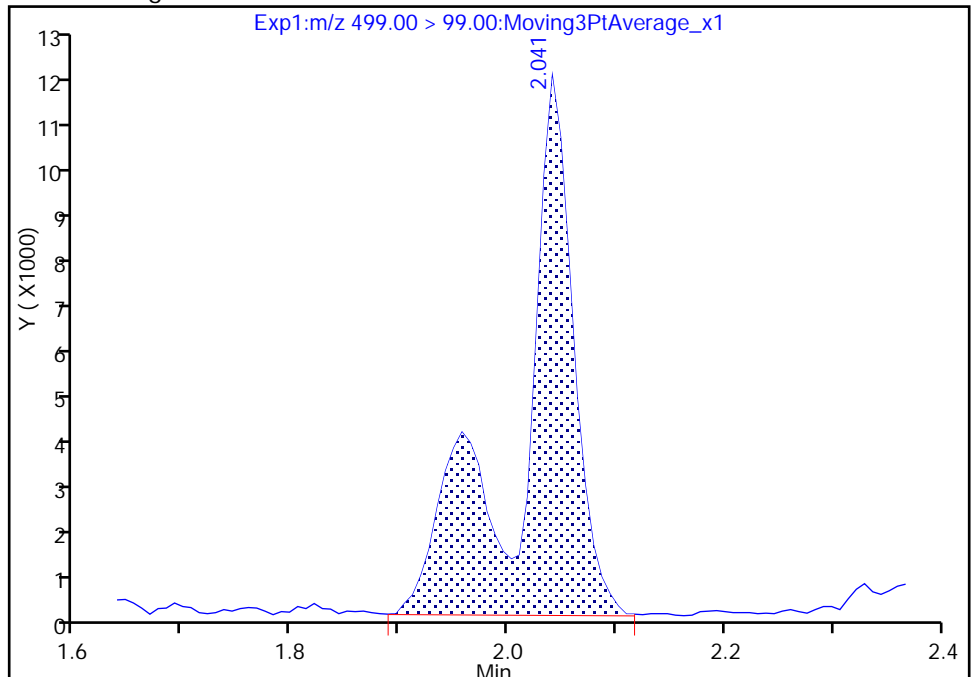
Not Detected
Expected RT: 2.03

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 41062
Amount: 2.328924
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:46:14
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

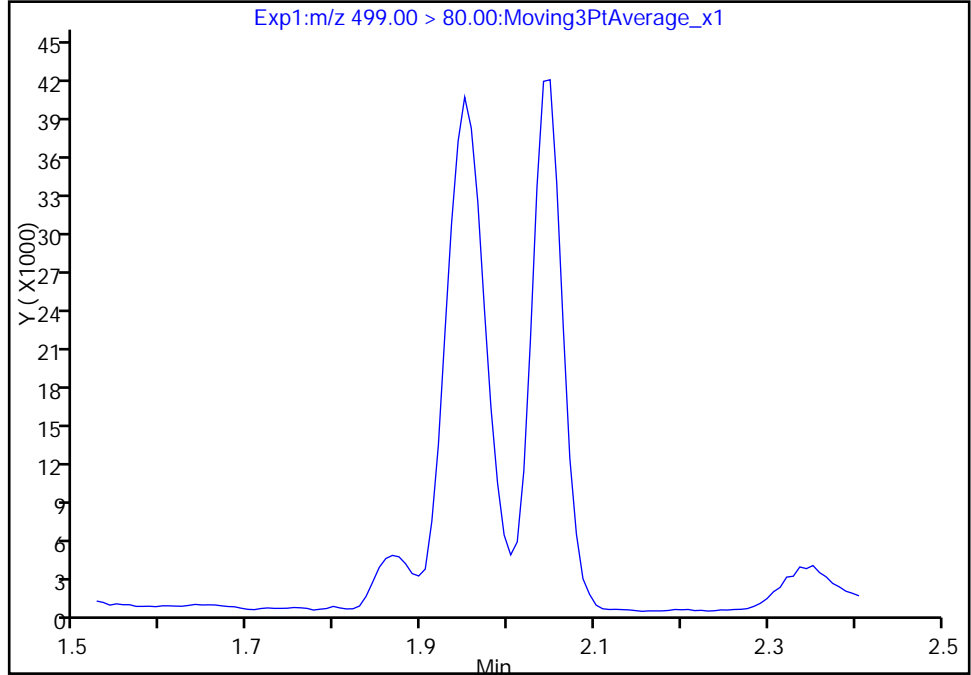
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_008.d
Injection Date: 08-Feb-2018 12:27:30 Instrument ID: A8_N
Lims ID: 320-35691-A-3-A Lab Sample ID: 320-35691-3
Client ID: NAWC-020118-RW-151
Operator ID: SACINSTLCMS01 ALS Bottle#: 40 Worklist Smp#: 8
Injection Vol: 2.0 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

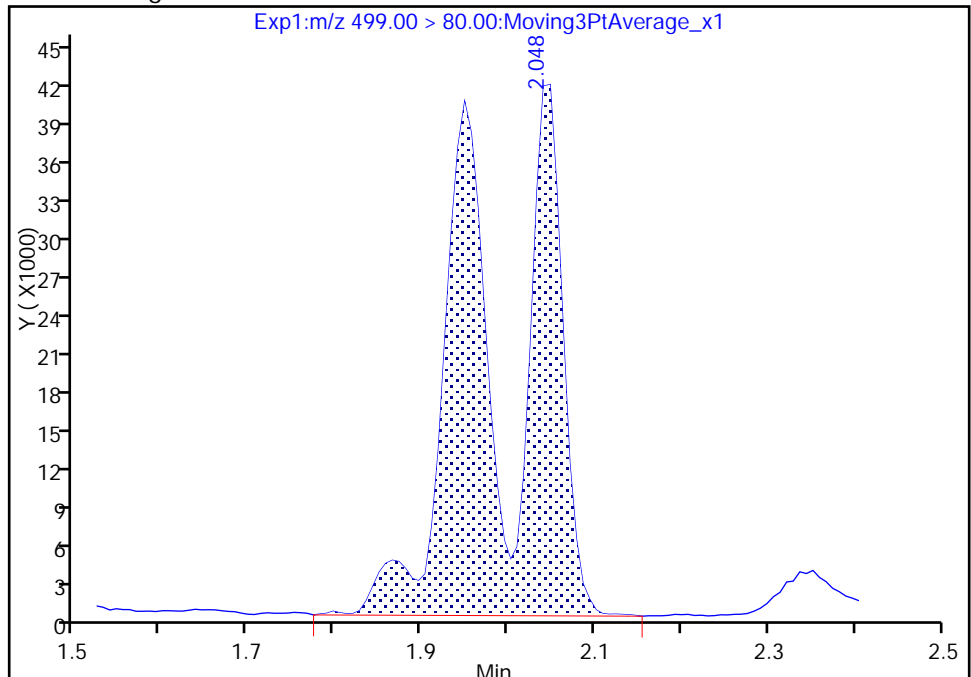
Not Detected
Expected RT: 2.03

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 249585
Amount: 2.328924
Amount Units: ng/ml



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-151 Lab Sample ID: 320-35691-4
 Matrix: Water Lab File ID: 2018.02.08_537B_009.d
 Analysis Method: 537 Date Collected: 02/01/2018 10:05
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 258.6(mL) Date Analyzed: 02/08/2018 12:32
 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.: 207624 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	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	98		70-130
STL00996	13C2 PFDA	98		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_009.d
 Lims ID: 320-35691-A-4-A
 Client ID: NAWC-020118-FRB-151
 Sample Type: Client
 Inject. Date: 08-Feb-2018 12:32:10 ALS Bottle#: 41 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-4-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

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	1.479	0.008	1.000	1482065	9.80	7702	
* 6 13C2-PFOA	415.00 > 370.00	1.806	1.791	0.015		1374975	10.0	5597	
* 7 13C4 PFOS	503.00 > 80.00	2.048	2.033	0.015		3263596	28.7	6766	
\$ 10 13C2 PFDA	515.00 > 470.00	2.238	2.231	0.007	1.000	1034788	9.84	7625	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_009.d

Injection Date: 08-Feb-2018 12:32:10

Instrument ID: A8_N

Lims ID: 320-35691-A-4-A

Lab Sample ID: 320-35691-4

Client ID: NAWC-020118-FRB-151

Operator ID: SACINSTLCMS01

ALS Bottle#: 41

Worklist Smp#: 9

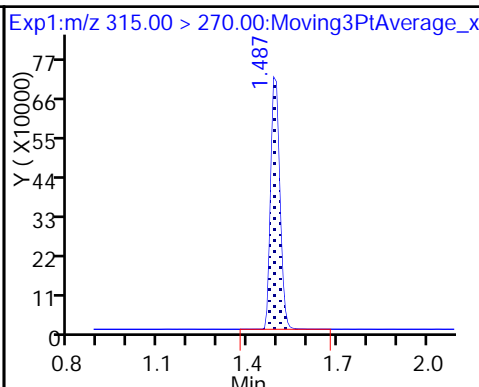
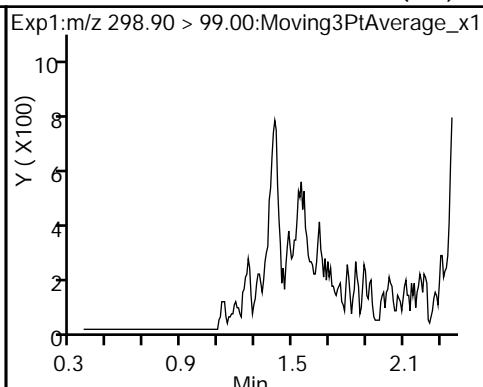
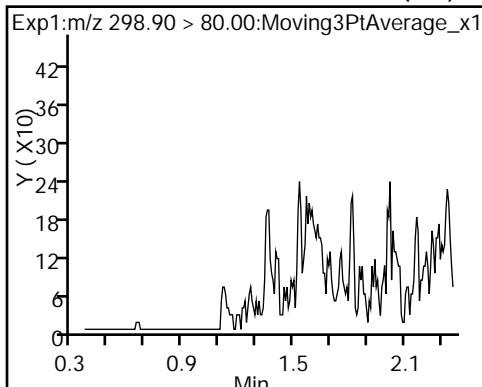
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

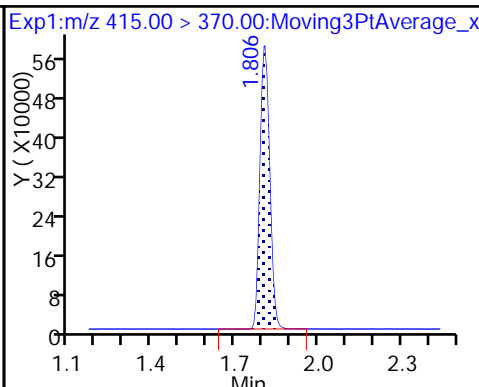
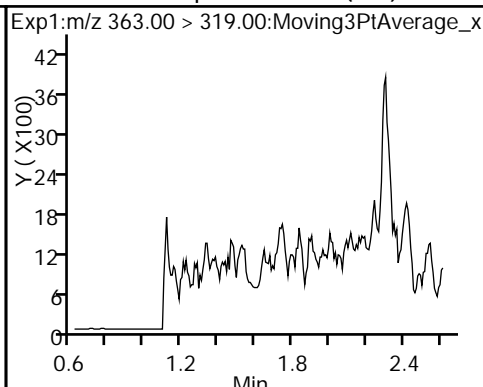
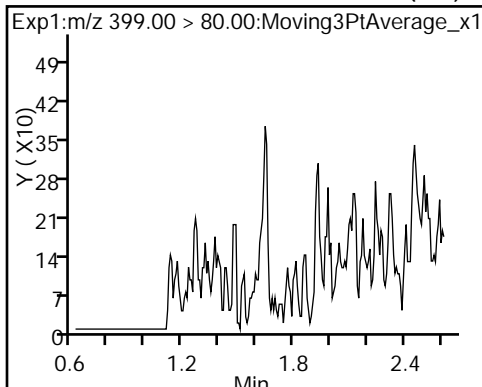
Method: 537_A8_N

Limit Group: LC 537 ICAL

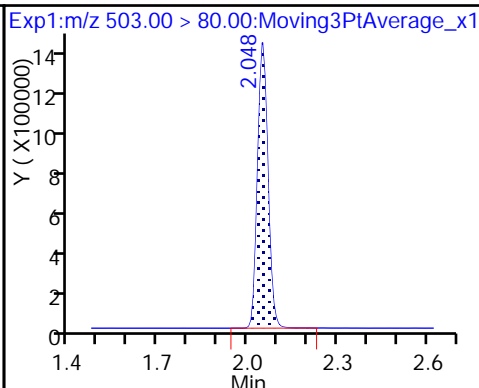
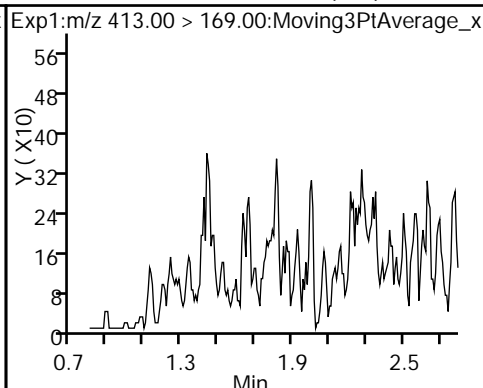
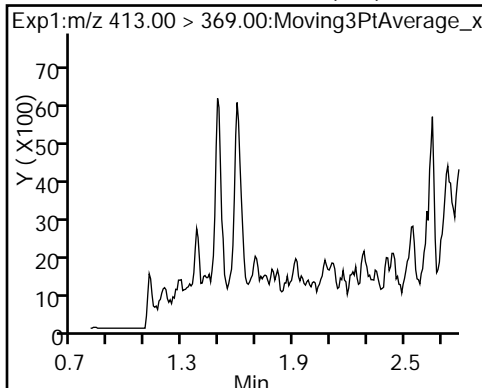
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



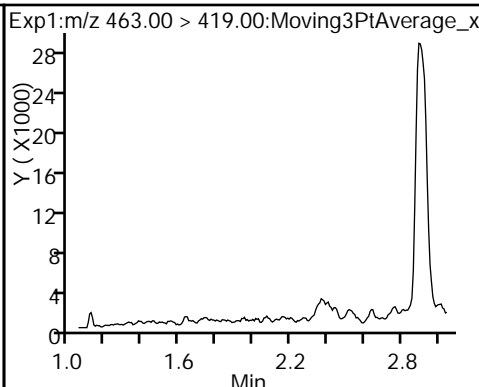
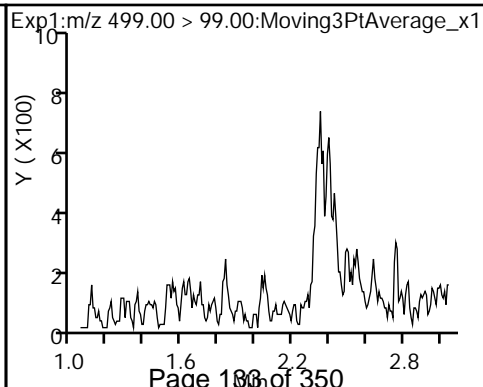
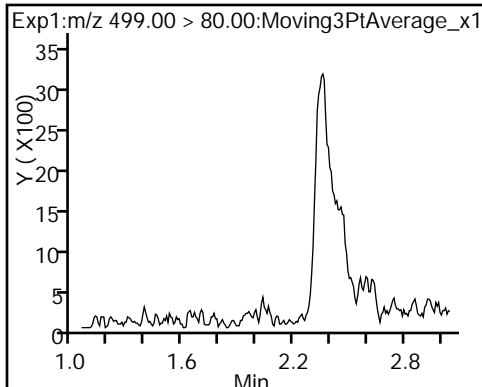
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) * 6 13C2-PFOA



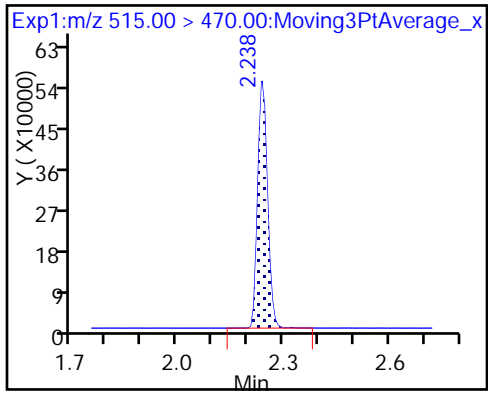
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) * 7 13C4 PFOS



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\20180208-53863.b\2018.02.08_537B_009.d
 Lims ID: 320-35691-A-4-A
 Client ID: NAWC-020118-FRB-151
 Sample Type: Client
 Inject. Date: 08-Feb-2018 12:32:10 ALS Bottle#: 41 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-4-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.80	97.96
\$ 10 13C2 PFDA	10.0	9.84	98.35

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-156 Lab Sample ID: 320-35691-5
 Matrix: Water Lab File ID: 2018.02.08_537B_010.d
 Analysis Method: 537 Date Collected: 02/01/2018 11:40
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 254.9(mL) Date Analyzed: 02/08/2018 12:36
 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.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	95		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_010.d
 Lims ID: 320-35691-A-5-A
 Client ID: NAWC-020118-RW-156
 Sample Type: Client
 Inject. Date: 08-Feb-2018 12:36:50 ALS Bottle#: 42 Worklist Smp#: 10
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-5-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:47:19

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	1.366	0.007	1.000	199893	1.60		475	
298.90 > 99.00	1.366	1.366	0.0	0.994	154701		1.29(0.00-0.00)	329	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	1586091	10.2		7871	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.616	0.008	1.000	128797	0.6887		149	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.616	0.008	1.000	135886	1.02		31.1	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.791	0.015		1420086	10.0		6196	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.798	0.008	1.000	436067	3.32		76.3	
413.00 > 169.00	1.806	1.798	0.008	1.000	272582		1.60(0.00-0.00)	731	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.033	0.015		3203841	28.7		4523	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.033	0.015	1.000	302751	2.89		129	Ma
499.00 > 99.00	2.048	2.033	0.015	1.000	49325		6.14(0.00-0.00)	100	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.231	0.007	1.000	1029195	9.47		7213	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_010.d

Injection Date: 08-Feb-2018 12:36:50

Instrument ID: A8_N

Lims ID: 320-35691-A-5-A

Lab Sample ID: 320-35691-5

Client ID: NAWC-020118-RW-156

Operator ID: SACINSTLCMS01

ALS Bottle#: 42

Worklist Smp#: 10

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

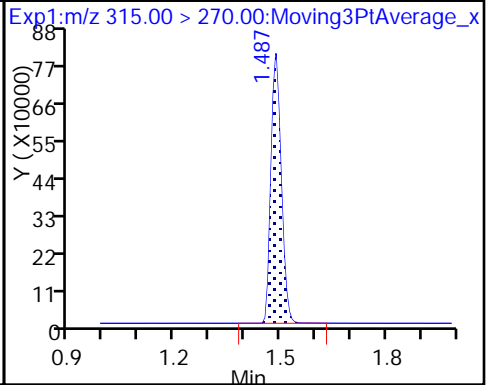
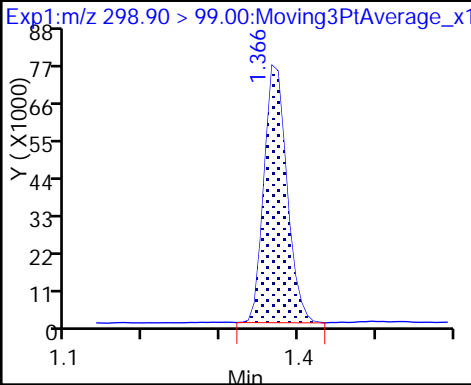
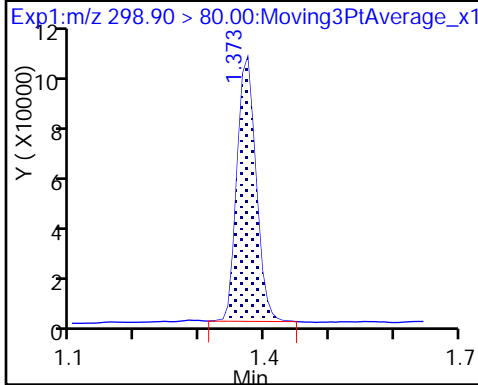
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

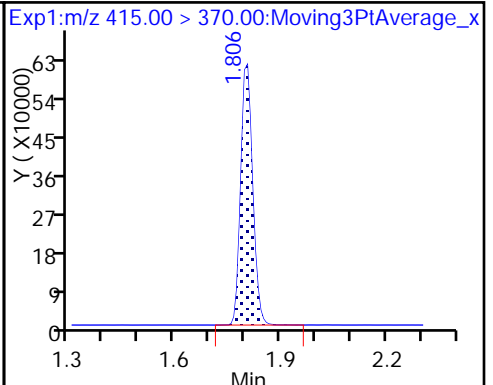
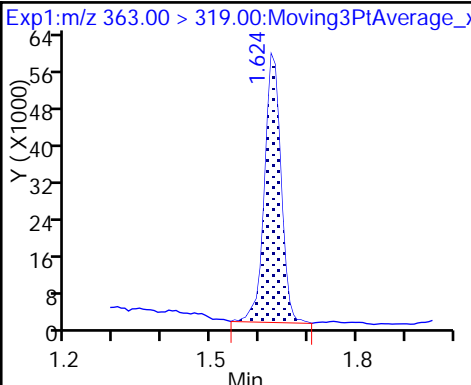
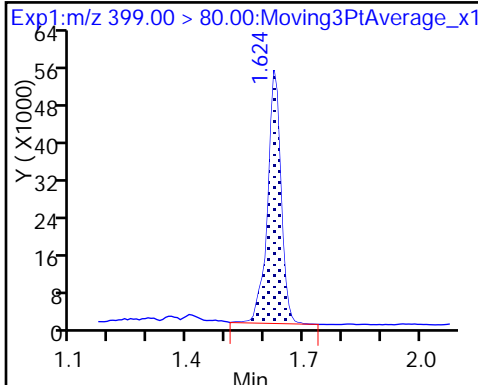
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

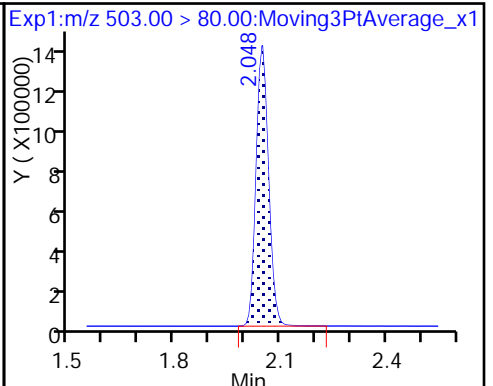
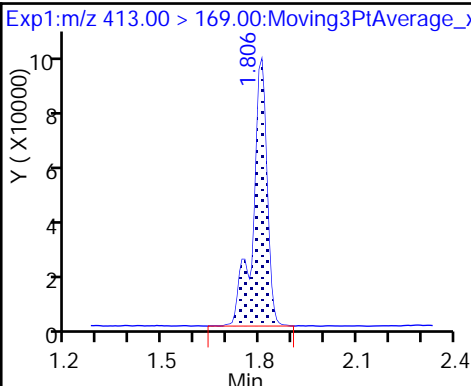
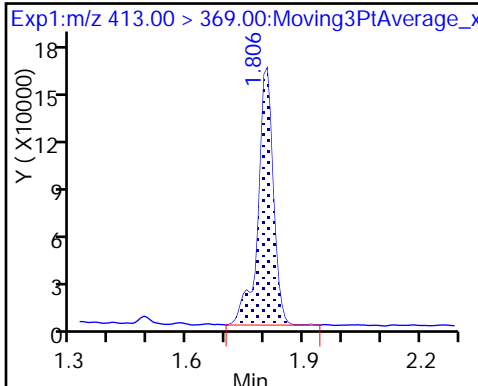
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

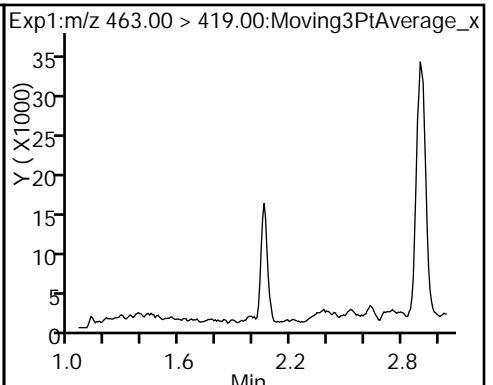
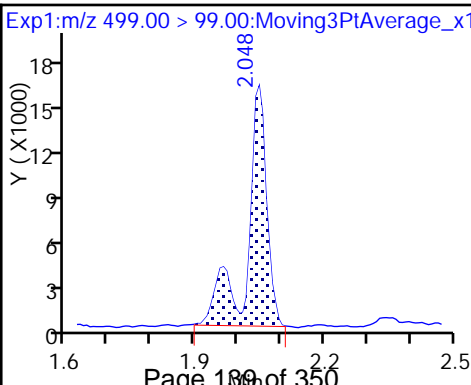
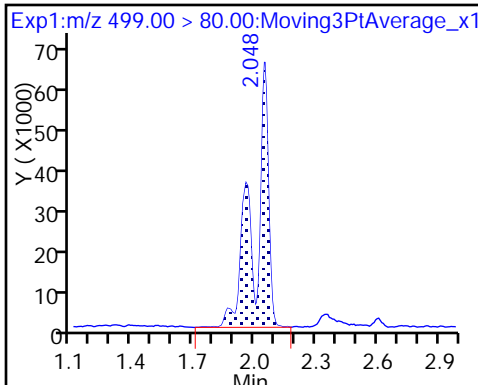
* 7 13C4 PFOS



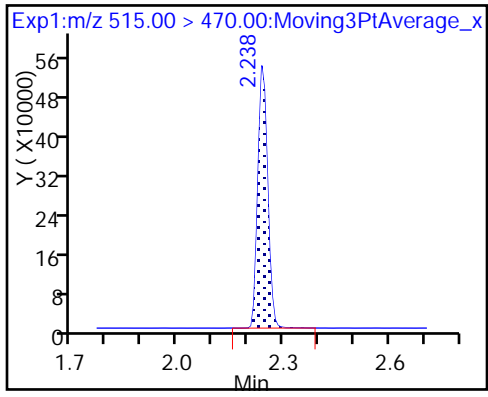
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_010.d
 Lims ID: 320-35691-A-5-A
 Client ID: NAWC-020118-RW-156
 Sample Type: Client
 Inject. Date: 08-Feb-2018 12:36:50 ALS Bottle#: 42 Worklist Smp#: 10
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-5-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:47:19

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.2	101.51
\$ 10 13C2 PFDA	10.0	9.47	94.71

TestAmerica Sacramento

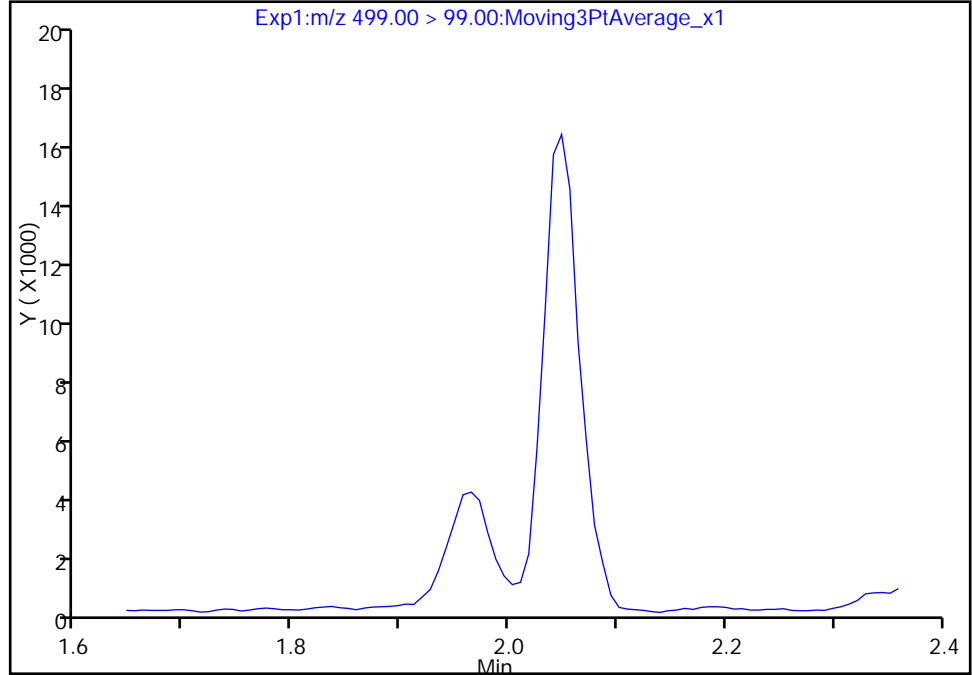
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Injection Date: 08-Feb-2018 12:36:50 Instrument ID: A8_N
Lims ID: 320-35691-A-5-A Lab Sample ID: 320-35691-5
Client ID: NAWC-020118-RW-156
Operator ID: SACINSTLCMS01 ALS Bottle#: 42 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

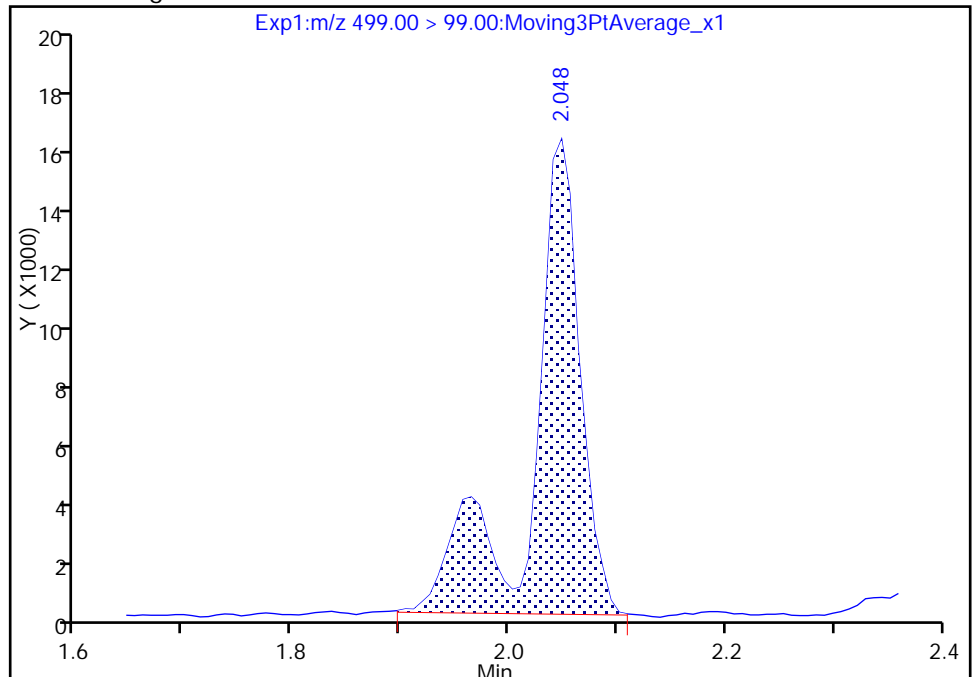
Not Detected
Expected RT: 2.03

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 49325
Amount: 2.886369
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:47:00
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

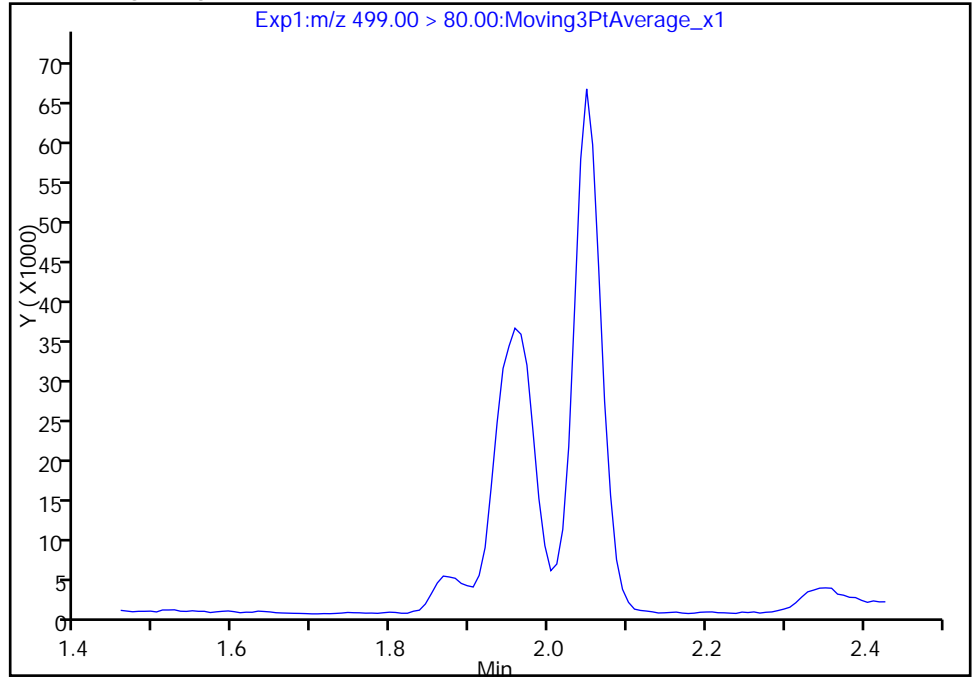
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_010.d
Injection Date: 08-Feb-2018 12:36:50 Instrument ID: A8_N
Lims ID: 320-35691-A-5-A Lab Sample ID: 320-35691-5
Client ID: NAWC-020118-RW-156
Operator ID: SACINSTLCMS01 ALS Bottle#: 42 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

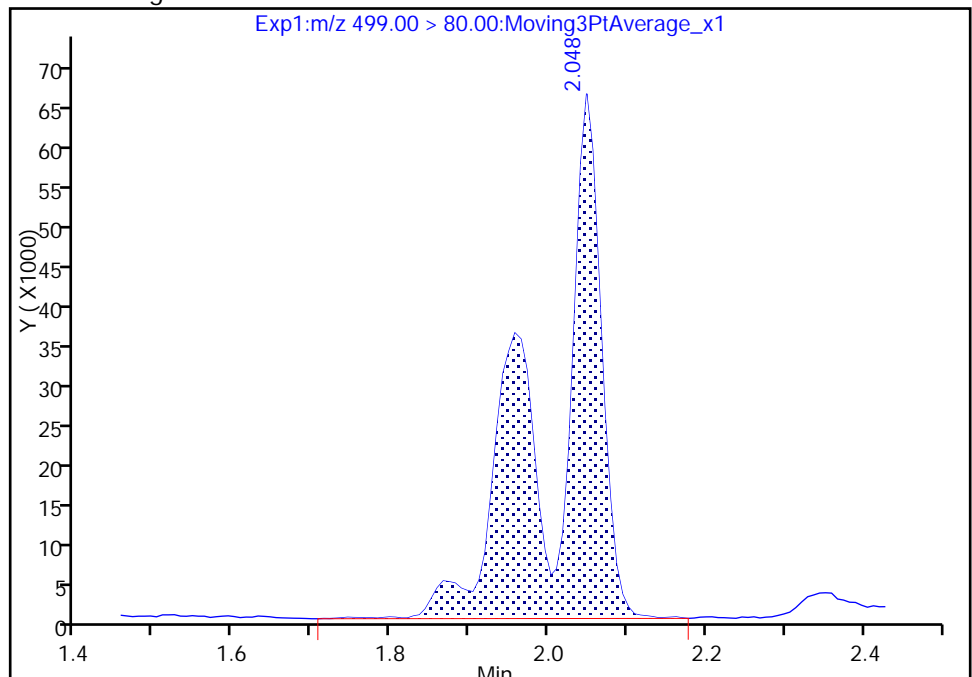
Not Detected
Expected RT: 2.03

Processing Integration Results



RT: 2.05
Area: 302751
Amount: 2.886369
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 09-Feb-2018 10:47:00

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-156 Lab Sample ID: 320-35691-6
 Matrix: Water Lab File ID: 2018.02.08_537B_011.d
 Analysis Method: 537 Date Collected: 02/01/2018 11:35
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 257(mL) Date Analyzed: 02/08/2018 12:41
 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.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	19	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	106		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_011.d
 Lims ID: 320-35691-A-6-A
 Client ID: NAWC-020118-FRB-156
 Sample Type: Client
 Inject. Date: 08-Feb-2018 12:41:30 ALS Bottle#: 43 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-6-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

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	1.479	0.0	1.000	1537751	10.3	7302	
* 6 13C2-PFOA	415.00 > 370.00	1.798	1.791	0.007		1353214	10.0	5213	
* 7 13C4 PFOS	503.00 > 80.00	2.041	2.033	0.008		3309048	28.7	5872	
\$ 10 13C2 PFDA	515.00 > 470.00	2.231	2.231	0.0	1.000	1098927	10.6	8535	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_011.d

Injection Date: 08-Feb-2018 12:41:30

Instrument ID: A8_N

Lims ID: 320-35691-A-6-A

Lab Sample ID: 320-35691-6

Client ID: NAWC-020118-FRB-156

Operator ID: SACINSTLCMS01

ALS Bottle#: 43

Worklist Smp#: 11

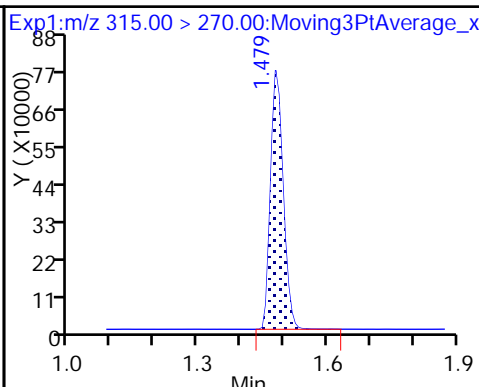
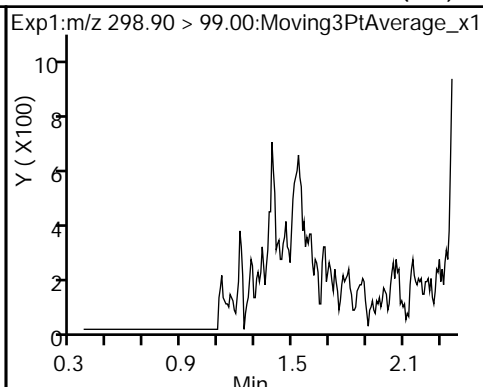
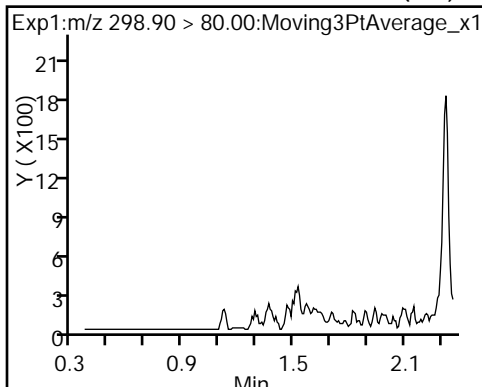
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

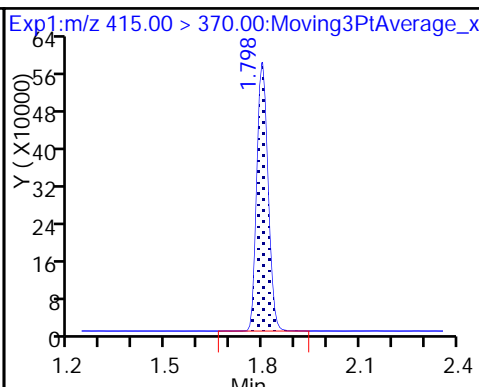
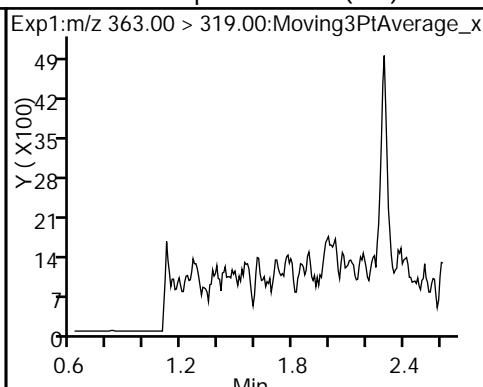
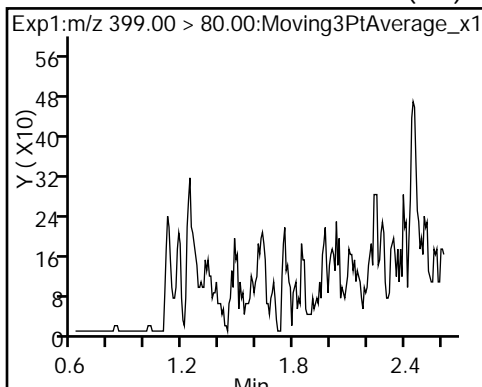
Method: 537_A8_N

Limit Group: LC 537 ICAL

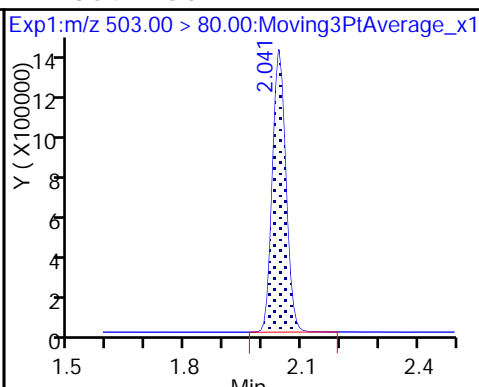
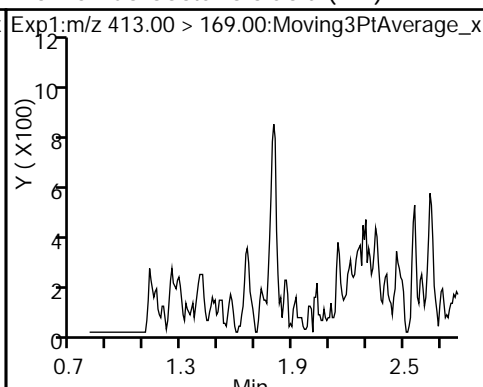
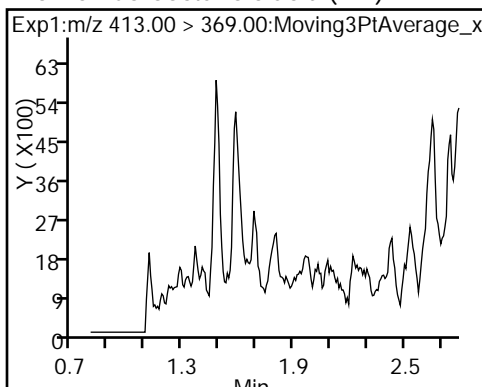
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



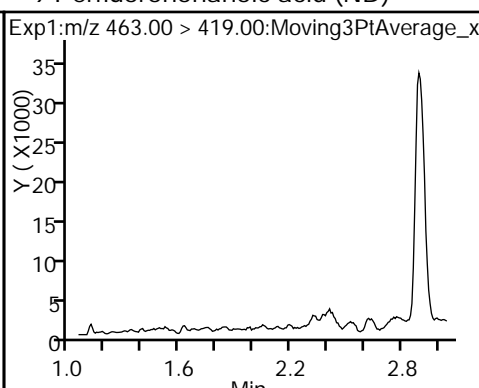
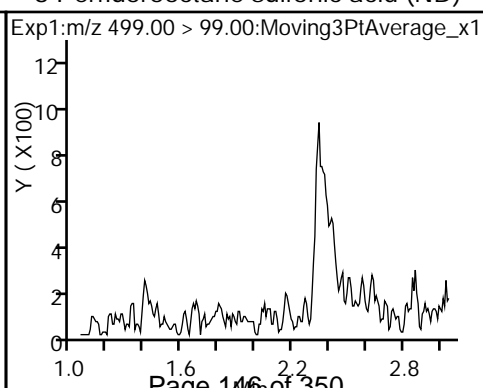
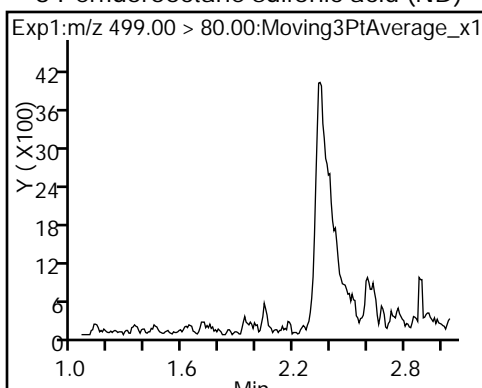
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) * 6 13C2-PFOA



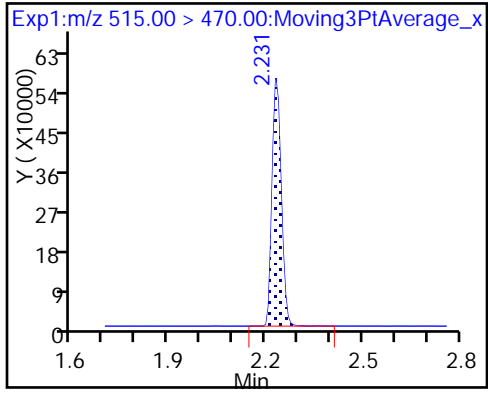
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) * 7 13C4 PFOS



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\20180208-53863.b\2018.02.08_537B_011.d
 Lims ID: 320-35691-A-6-A
 Client ID: NAWC-020118-FRB-156
 Sample Type: Client
 Inject. Date: 08-Feb-2018 12:41:30 ALS Bottle#: 43 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-6-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.3	103.28
\$ 10 13C2 PFDA	10.0	10.6	106.13

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-119 Lab Sample ID: 320-35691-7
 Matrix: Water Lab File ID: 2018.02.08_537B_012.d
 Analysis Method: 537 Date Collected: 02/01/2018 12:40
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 252.9(mL) Date Analyzed: 02/08/2018 12:46
 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.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	21	J M	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	15	J	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.4	J	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.4	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	103		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_012.d
 Lims ID: 320-35691-A-7-A
 Client ID: NAWC-020118-RW-119
 Sample Type: Client
 Inject. Date: 08-Feb-2018 12:46:10 ALS Bottle#: 44 Worklist Smp#: 12
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-7-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:48:27

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	1.366	0.007	1.000	271661	2.21		334	
298.90 > 99.00	1.373	1.366	0.007	1.000	189652		1.43(0.00-0.00)	373	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	1395855	9.41		6296	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.616	0.008	1.000	250006	1.35		198	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.616	0.015	1.000	171479	1.36		31.8	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.791	0.015		1348169	10.0		4968	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.798	0.008	1.000	483128	3.87		71.2	
413.00 > 169.00	1.806	1.798	0.008	1.000	300490		1.61(0.00-0.00)	720	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.033	0.015		3161108	28.7		4102	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.033	0.015	1.000	542725	5.24		232	Ma
499.00 > 99.00	2.048	2.033	0.015	1.000	98733		5.50(0.00-0.00)	166	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.048	0.008	1.000	50502	0.5640		7.7	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.231	0.007	1.000	1063397	10.3		7965	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_012.d

Injection Date: 08-Feb-2018 12:46:10

Instrument ID: A8_N

Lims ID: 320-35691-A-7-A

Lab Sample ID: 320-35691-7

Client ID: NAWC-020118-RW-119

Operator ID: SACINSTLCMS01

ALS Bottle#: 44

Worklist Smp#: 12

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

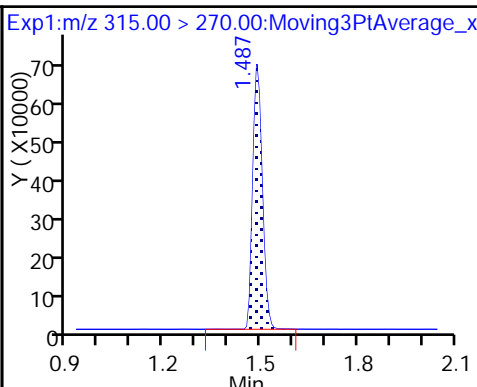
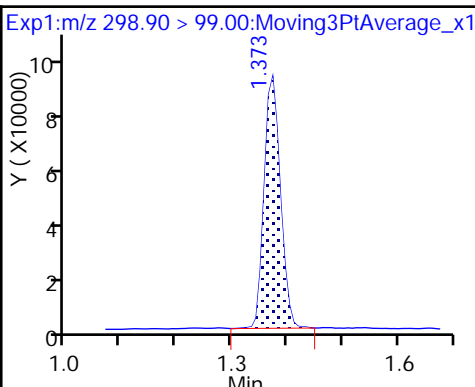
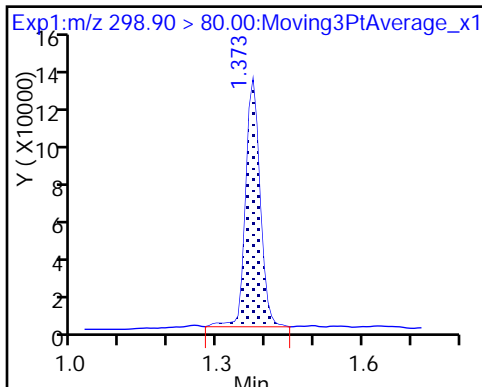
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

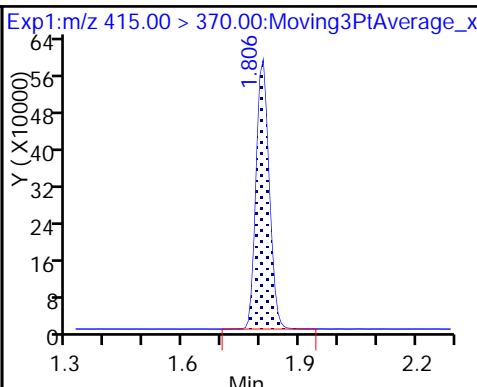
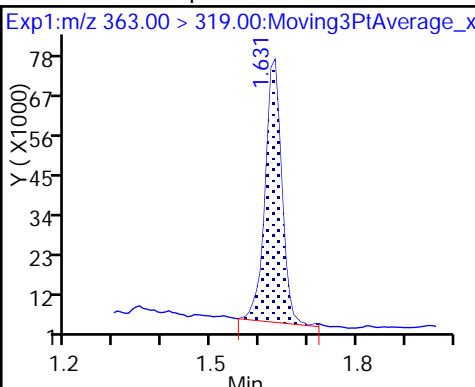
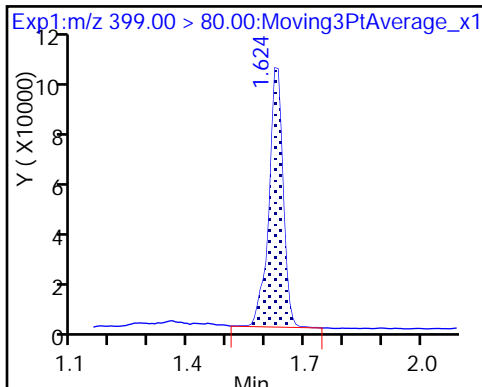
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

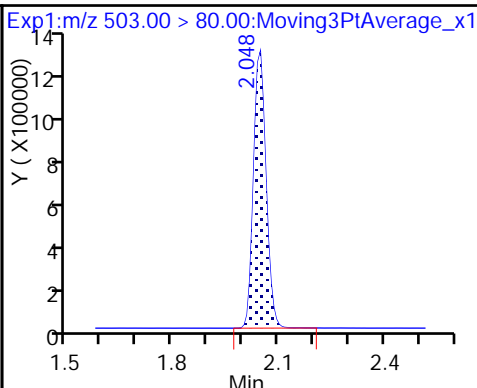
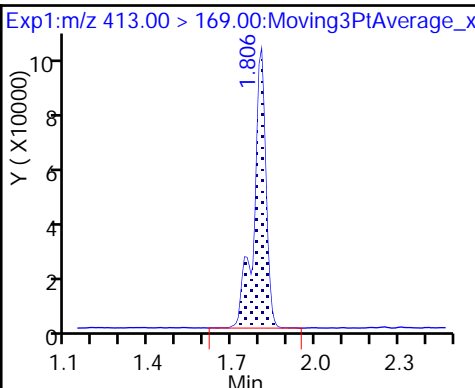
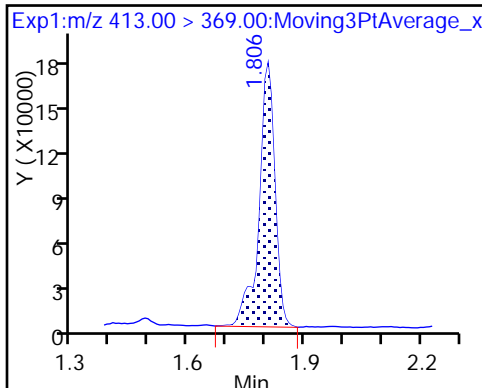
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

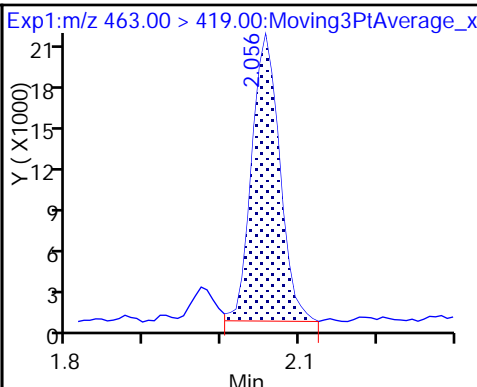
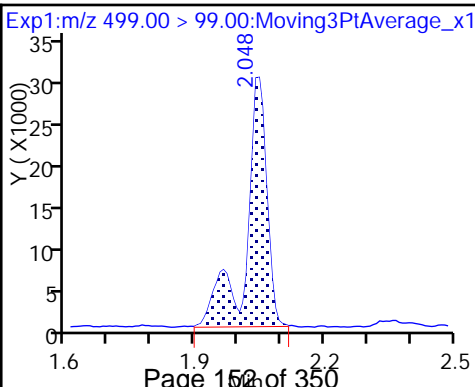
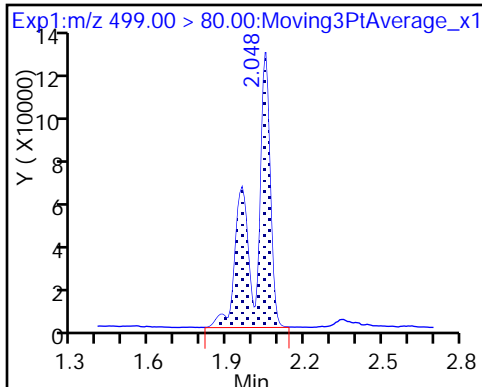
* 7 13C4 PFOS



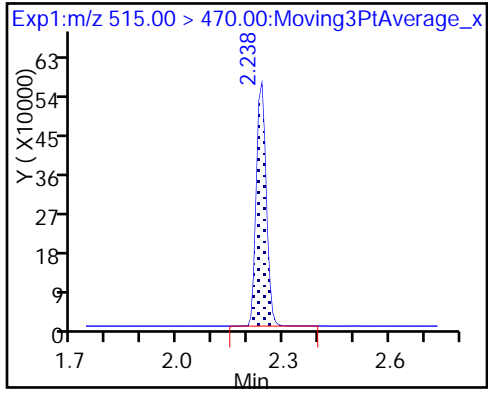
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_012.d
 Lims ID: 320-35691-A-7-A
 Client ID: NAWC-020118-RW-119
 Sample Type: Client
 Inject. Date: 08-Feb-2018 12:46:10 ALS Bottle#: 44 Worklist Smp#: 12
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-7-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:48:27

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.41	94.10
\$ 10 13C2 PFDA	10.0	10.3	103.08

TestAmerica Sacramento

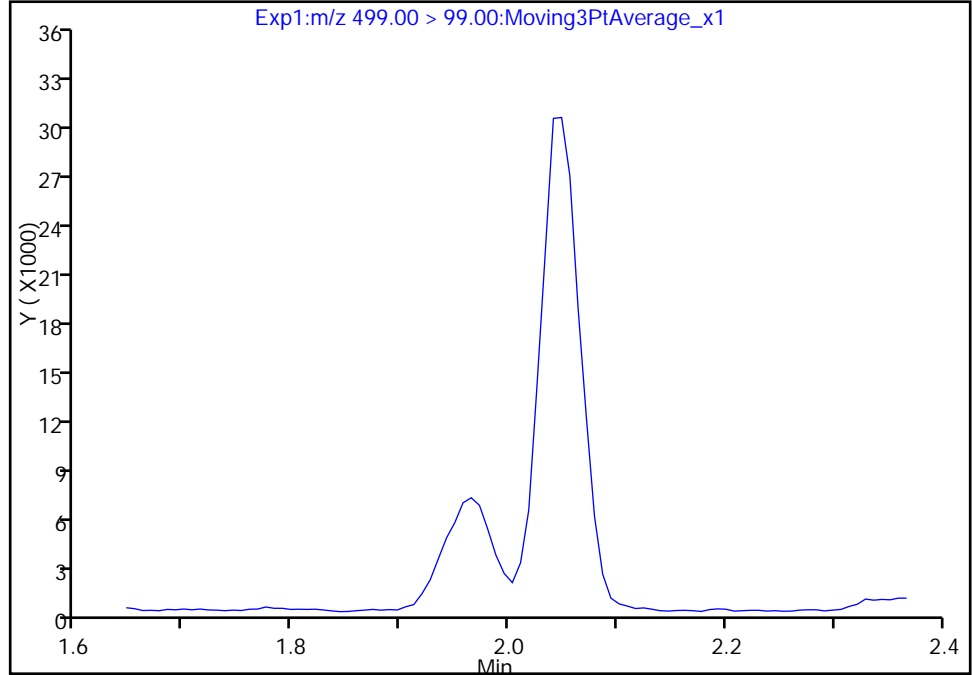
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_012.d
Injection Date: 08-Feb-2018 12:46:10 Instrument ID: A8_N
Lims ID: 320-35691-A-7-A Lab Sample ID: 320-35691-7
Client ID: NAWC-020118-RW-119
Operator ID: SACINSTLCMS01 ALS Bottle#: 44 Worklist Smp#: 12
Injection Vol: 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: 2

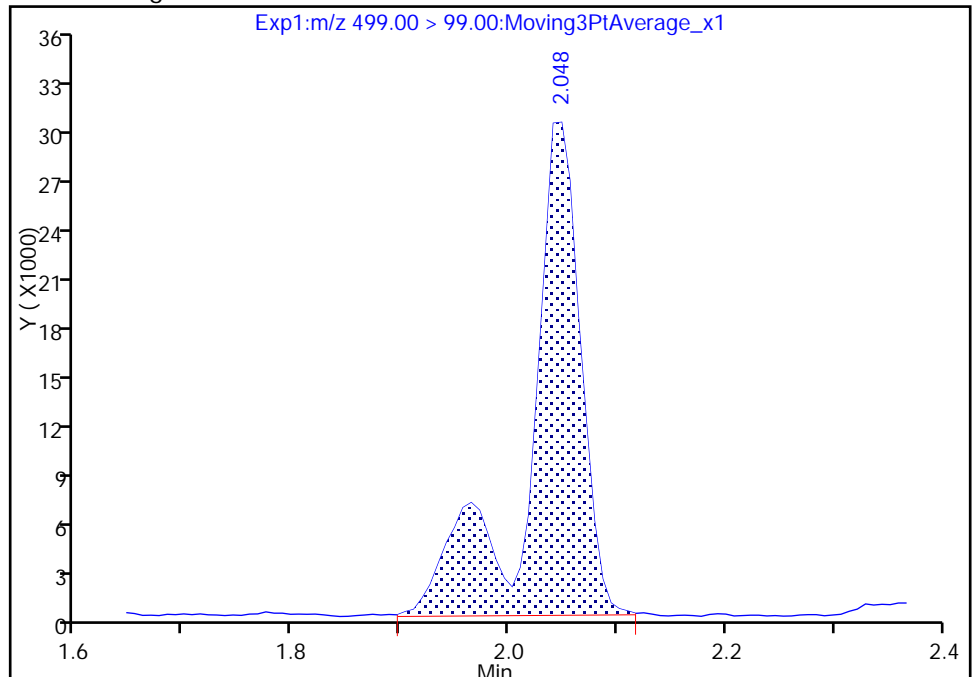
Not Detected
Expected RT: 2.03

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 98733
Amount: 5.244182
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:48:00
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

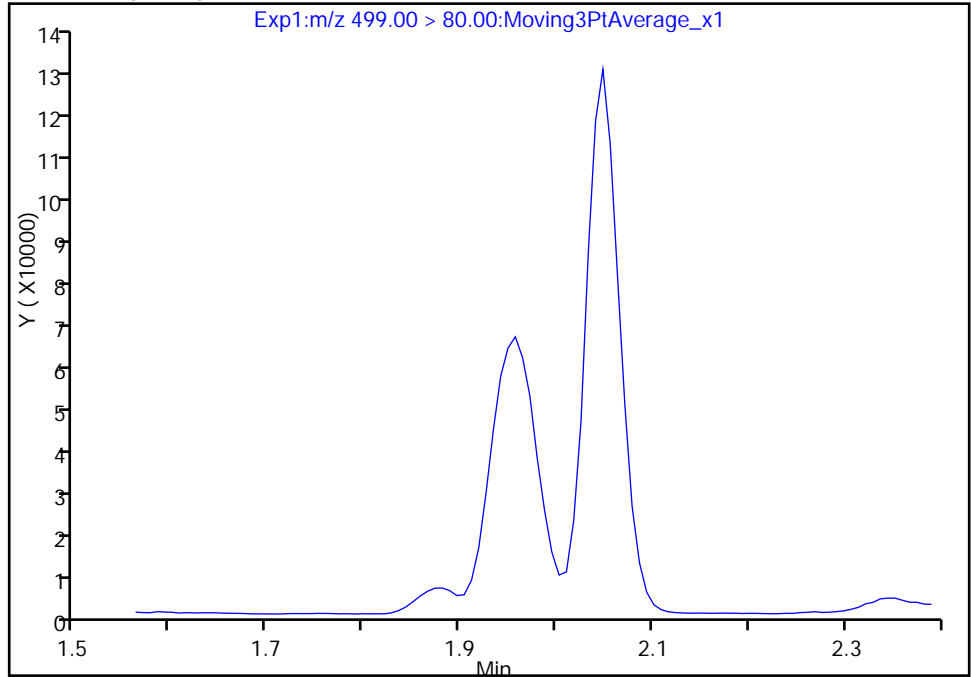
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_012.d
Injection Date: 08-Feb-2018 12:46:10 Instrument ID: A8_N
Lims ID: 320-35691-A-7-A Lab Sample ID: 320-35691-7
Client ID: NAWC-020118-RW-119
Operator ID: SACINSTLCMS01 ALS Bottle#: 44 Worklist Smp#: 12
Injection Vol: 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

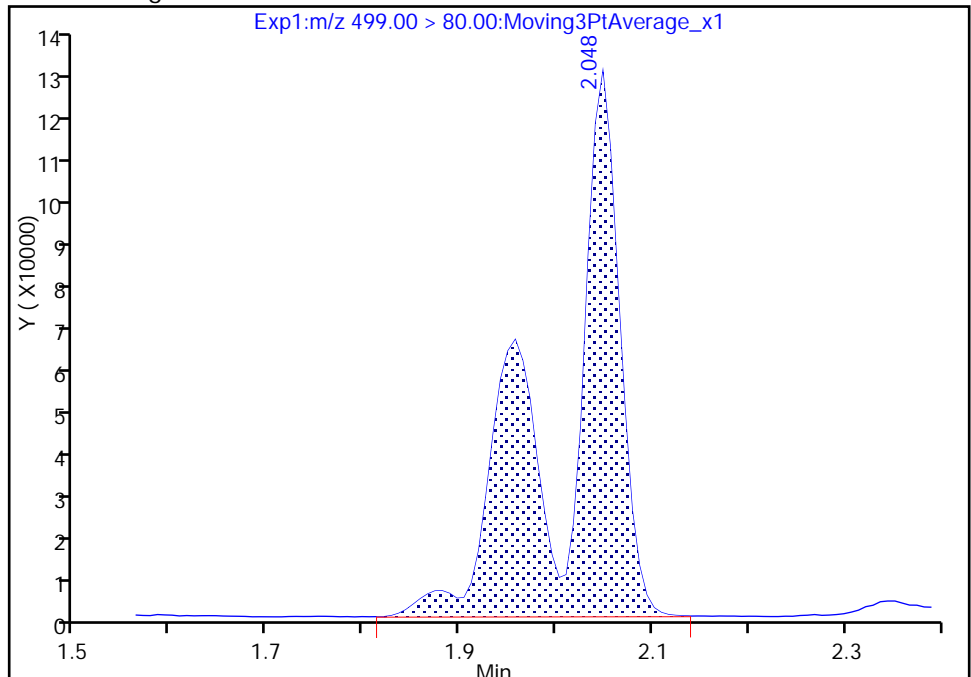
Not Detected
Expected RT: 2.03

Processing Integration Results



RT: 2.05
Area: 542725
Amount: 5.244182
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 09-Feb-2018 10:48:00

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

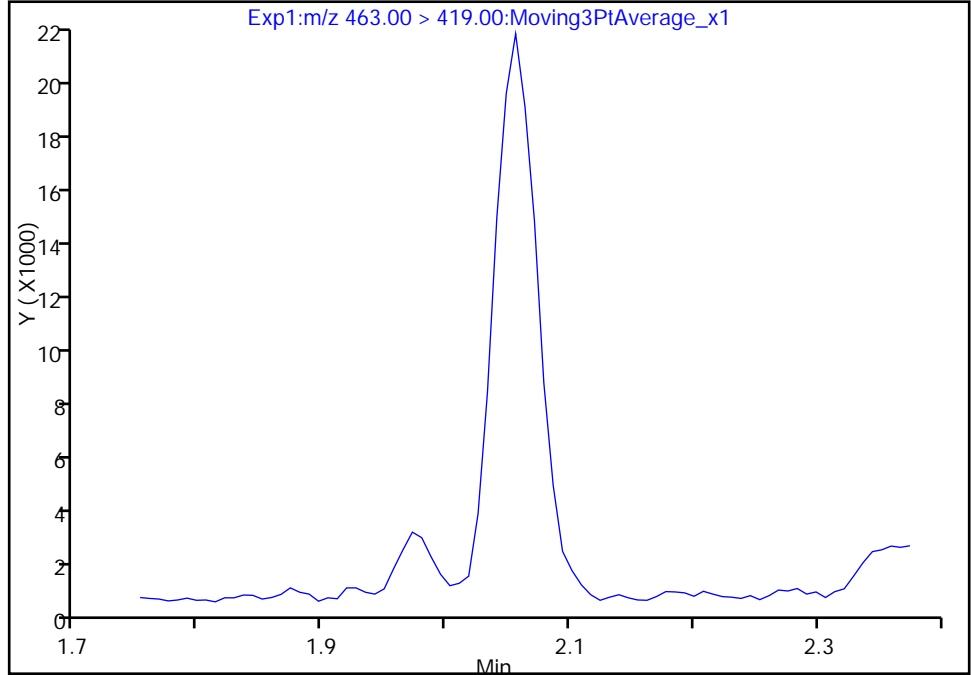
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Injection Date: 08-Feb-2018 12:46:10 Instrument ID: A8_N
Lims ID: 320-35691-A-7-A Lab Sample ID: 320-35691-7
Client ID: NAWC-020118-RW-119
Operator ID: SACINSTLCMS01 ALS Bottle#: 44 Worklist Smp#: 12
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

9 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

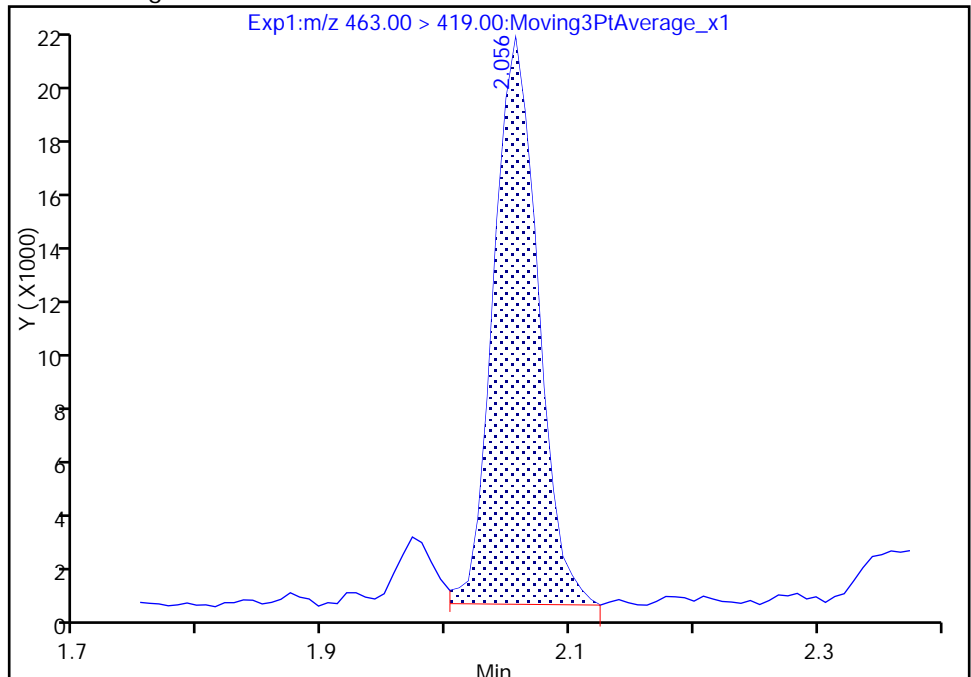
Not Detected
Expected RT: 2.05

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 50502
Amount: 0.564016
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:48:19
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-119 Lab Sample ID: 320-35691-8
 Matrix: Water Lab File ID: 2018.02.08_537B_015.d
 Analysis Method: 537 Date Collected: 02/01/2018 12:35
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 243.9(mL) Date Analyzed: 02/08/2018 13:00
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	8.2	U	21	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	96		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_015.d
 Lims ID: 320-35691-A-8-A
 Client ID: NAWC-020118-FRB-119
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:00:08 ALS Bottle#: 45 Worklist Smp#: 15
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-8-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

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	1406790	9.15	6848	
* 6 13C2-PFOA	415.00 > 370.00	1.798	1.806	-0.008		1397952	10.0	5439	
* 7 13C4 PFOS	503.00 > 80.00	2.041	2.056	-0.015		3303345	28.7	7198	
\$ 10 13C2 PFDA	515.00 > 470.00	2.238	2.253	-0.015	1.000	1031721	9.64	7436	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_015.d

Injection Date: 08-Feb-2018 13:00:08

Instrument ID: A8_N

Lims ID: 320-35691-A-8-A

Lab Sample ID: 320-35691-8

Client ID: NAWC-020118-FRB-119

Operator ID: SACINSTLCMS01

ALS Bottle#: 45

Worklist Smp#: 15

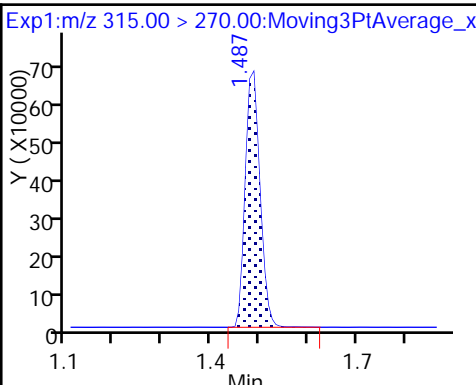
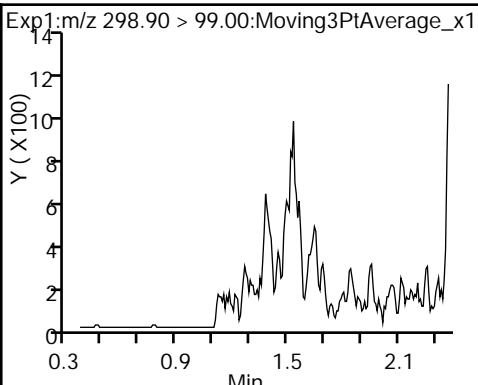
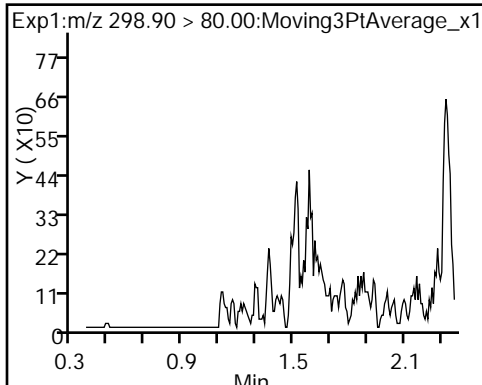
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

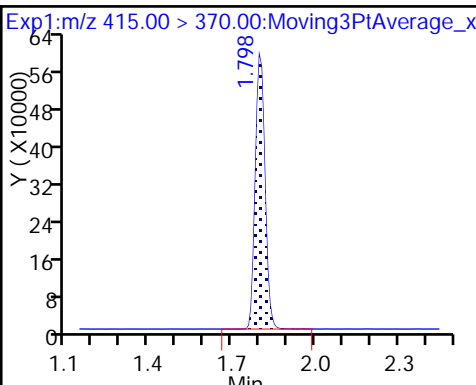
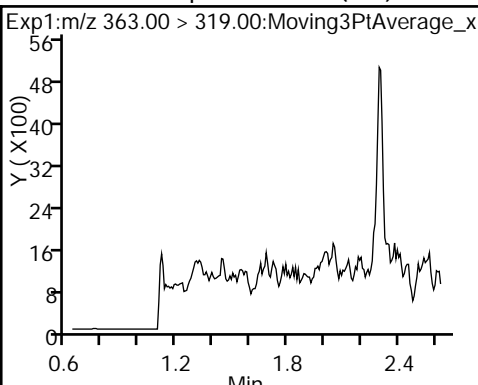
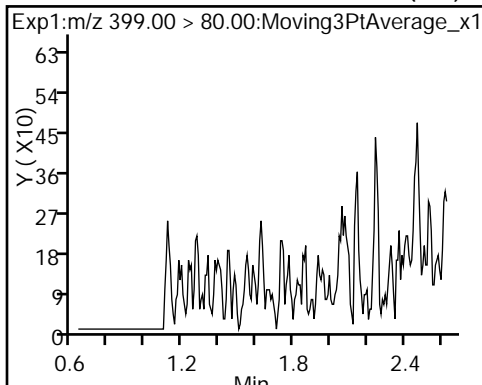
Method: 537_A8_N

Limit Group: LC 537 ICAL

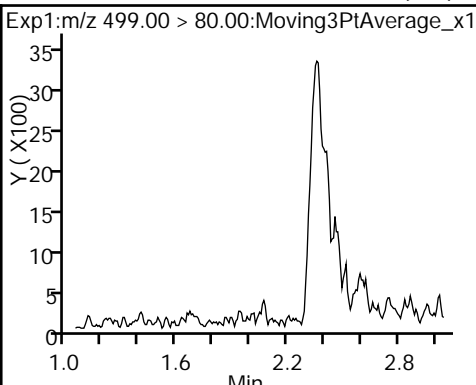
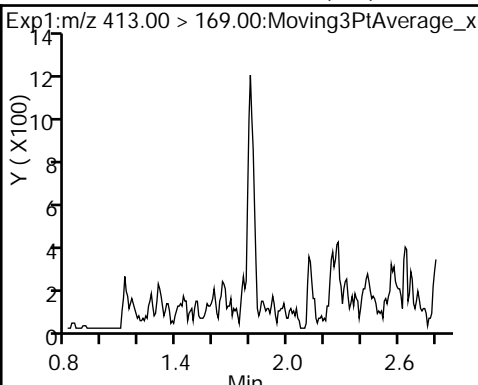
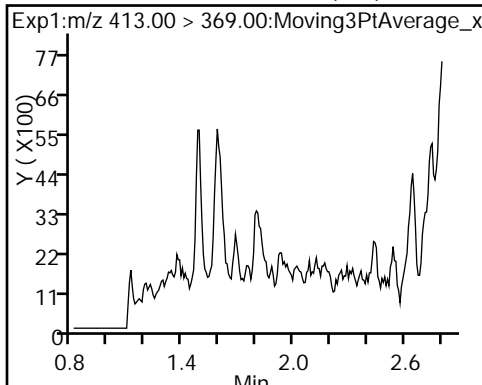
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



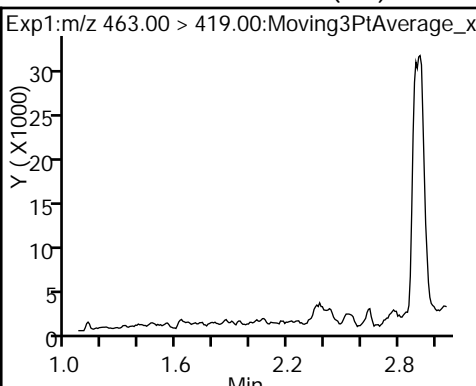
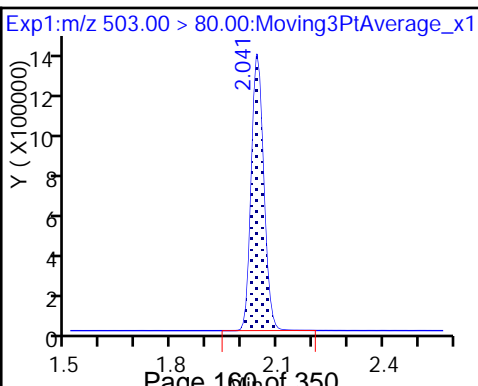
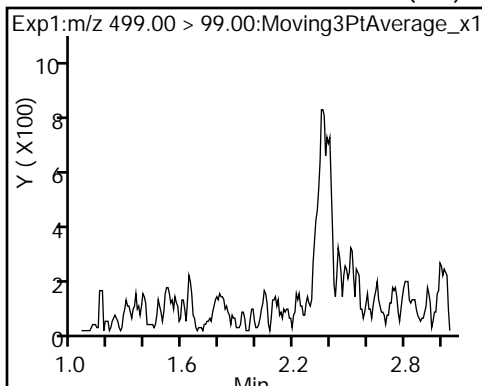
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) * 6 13C2-PFOA



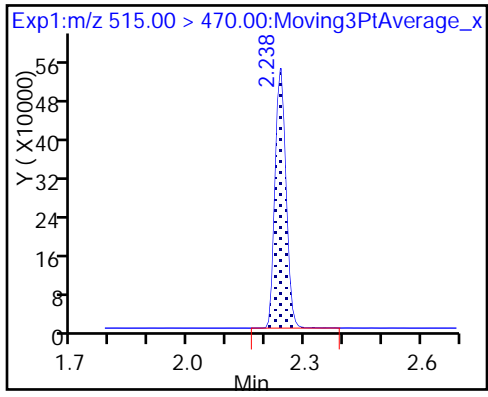
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) 8 Perfluorooctane sulfonic acid (ND)



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\20180208-53863.b\2018.02.08_537B_015.d
 Lims ID: 320-35691-A-8-A
 Client ID: NAWC-020118-FRB-119
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:00:08 ALS Bottle#: 45 Worklist Smp#: 15
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-8-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.15	91.46
\$ 10 13C2 PFDA	10.0	9.64	96.45

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: WGNA-020118-DUP-24 Lab Sample ID: 320-35691-9
 Matrix: Water Lab File ID: 2018.02.08_537B_016.d
 Analysis Method: 537 Date Collected: 02/01/2018 07:00
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 254.6(mL) Date Analyzed: 02/08/2018 13:04
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	25		20	7.9	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.1	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	102		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_016.d
 Lims ID: 320-35691-A-9-A
 Client ID: WGNA-020118-DUP-24
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:04:47 ALS Bottle#: 46 Worklist Smp#: 16
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-9-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:49:41

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.373	-0.007	1.000	263335	2.09		306	
298.90 > 99.00	1.366	1.373	-0.007	1.000	183171		1.44(0.00-0.00)	335	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1368370	9.27		6523	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	255980	1.35		211	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	162670	1.29		30.4	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.806	-0.008		1341625	10.0		6161	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.806	-0.008	1.000	787306	6.34		122	
413.00 > 169.00	1.798	1.806	-0.008	1.000	450224		1.75(0.00-0.00)	1151	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.041	2.033	0.008	1.000	539523	5.09		208	Ma
499.00 > 99.00	2.041	2.033	0.008	1.000	106192		5.08(0.00-0.00)	193	M
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.056	-0.015		3237279	28.7		3967	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.064	-0.008	1.000	47327	0.5311		7.6	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.253	-0.015	1.000	1048459	10.2		6938	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_016.d

Injection Date: 08-Feb-2018 13:04:47

Instrument ID: A8_N

Lims ID: 320-35691-A-9-A

Lab Sample ID: 320-35691-9

Client ID: WGNA-020118-DUP-24

Operator ID: SACINSTLCMS01

ALS Bottle#: 46

Worklist Smp#: 16

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

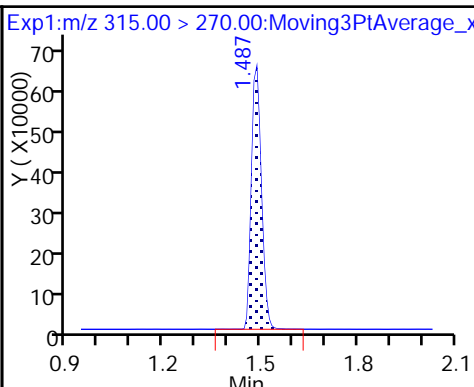
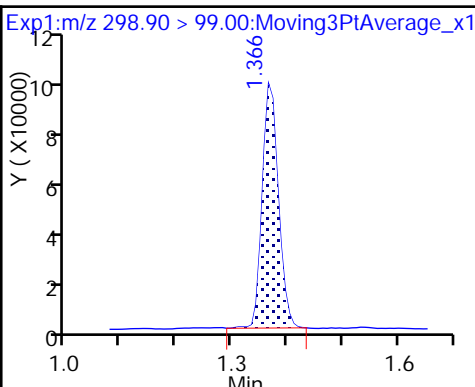
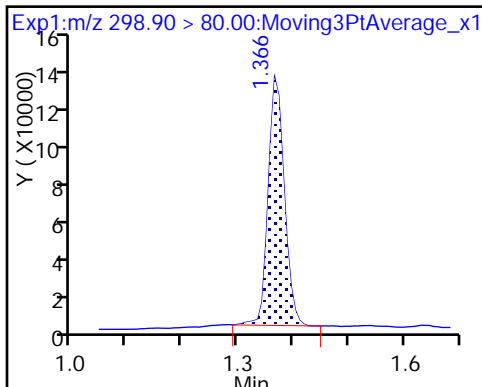
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

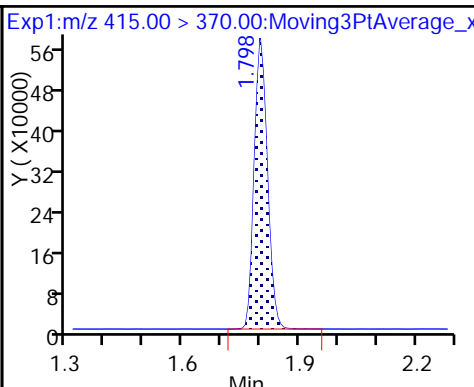
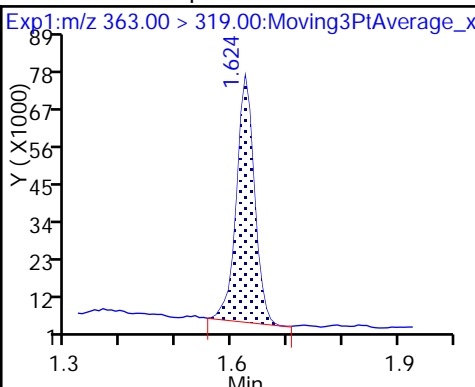
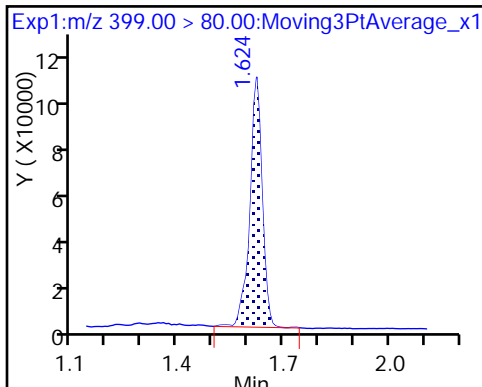
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

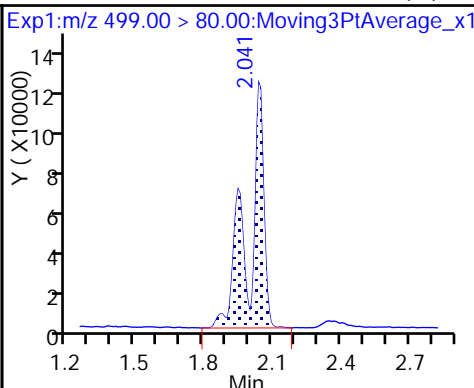
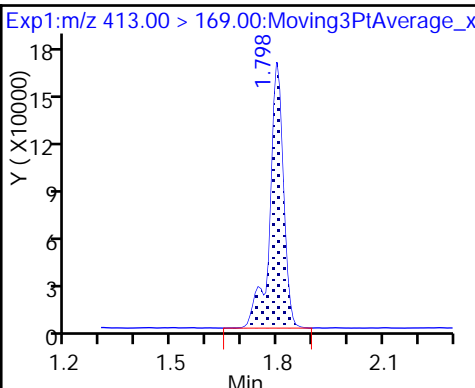
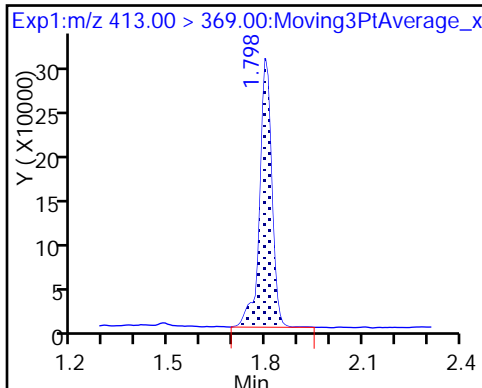
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

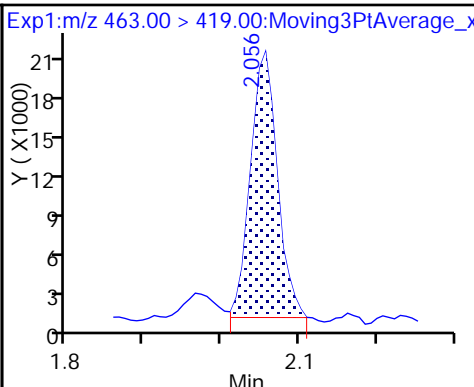
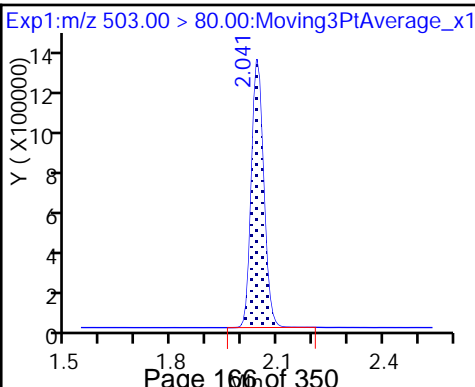
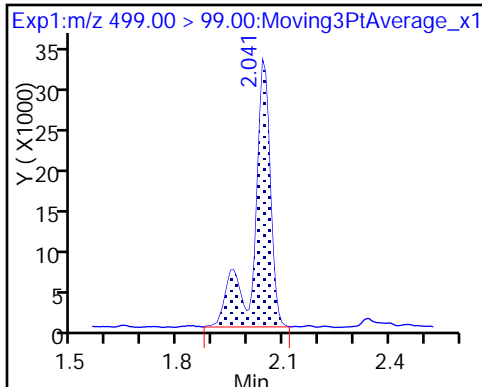
8 Perfluorooctane sulfonic acid (M)



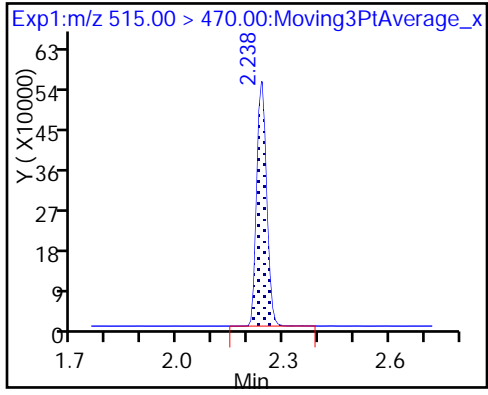
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid (M)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_016.d
 Lims ID: 320-35691-A-9-A
 Client ID: WGNA-020118-DUP-24
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:04:47 ALS Bottle#: 46 Worklist Smp#: 16
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-9-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:49:41

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.27	92.70
\$ 10 13C2 PFDA	10.0	10.2	102.13

TestAmerica Sacramento

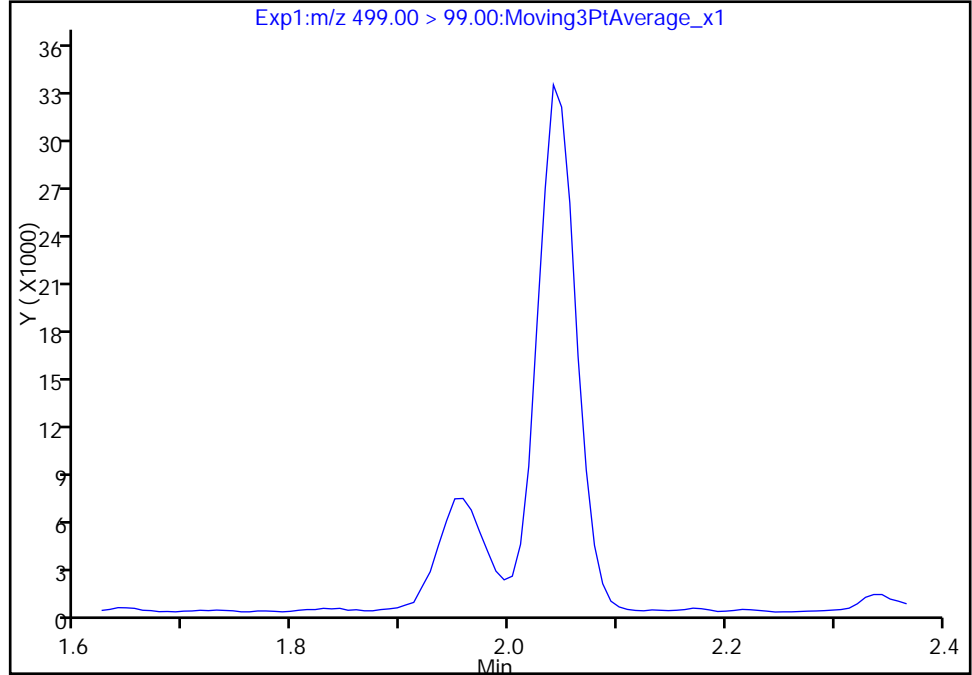
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Injection Date: 08-Feb-2018 13:04:47 Instrument ID: A8_N
Lims ID: 320-35691-A-9-A Lab Sample ID: 320-35691-9
Client ID: WGNA-020118-DUP-24
Operator ID: SACINSTLCMS01 ALS Bottle#: 46 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

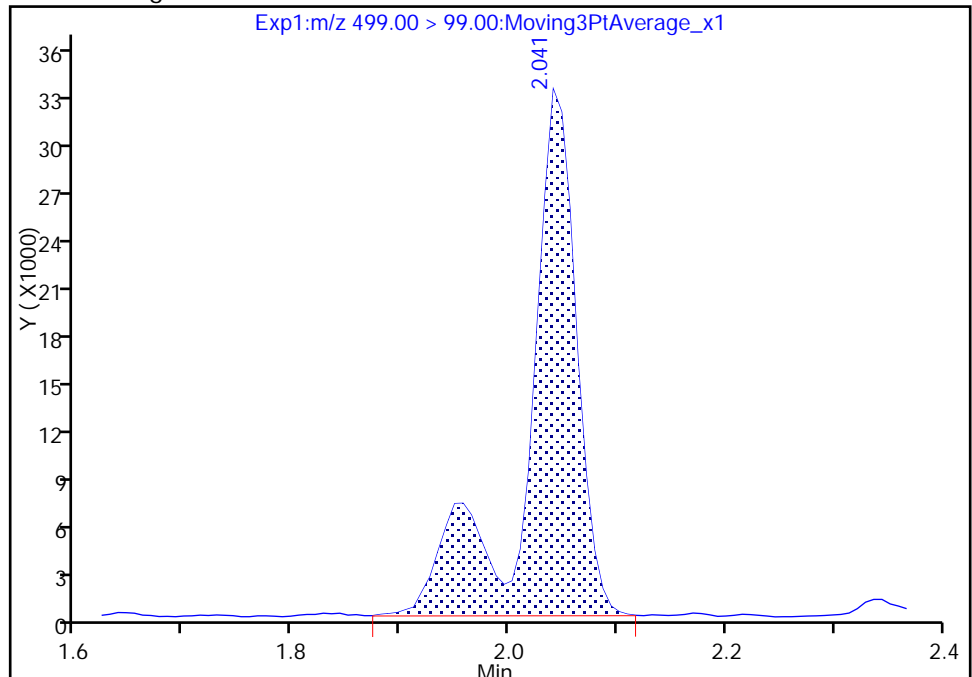
Not Detected
Expected RT: 2.03

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 106192
Amount: 5.090578
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:49:02
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

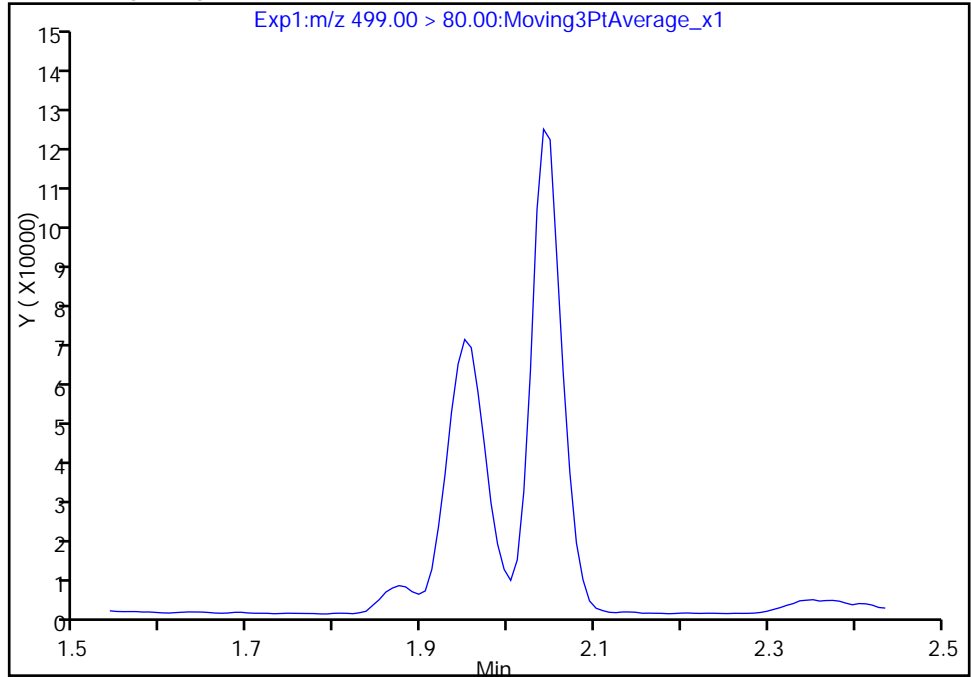
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Injection Date: 08-Feb-2018 13:04:47 Instrument ID: A8_N
Lims ID: 320-35691-A-9-A Lab Sample ID: 320-35691-9
Client ID: WGNA-020118-DUP-24
Operator ID: SACINSTLCMS01 ALS Bottle#: 46 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

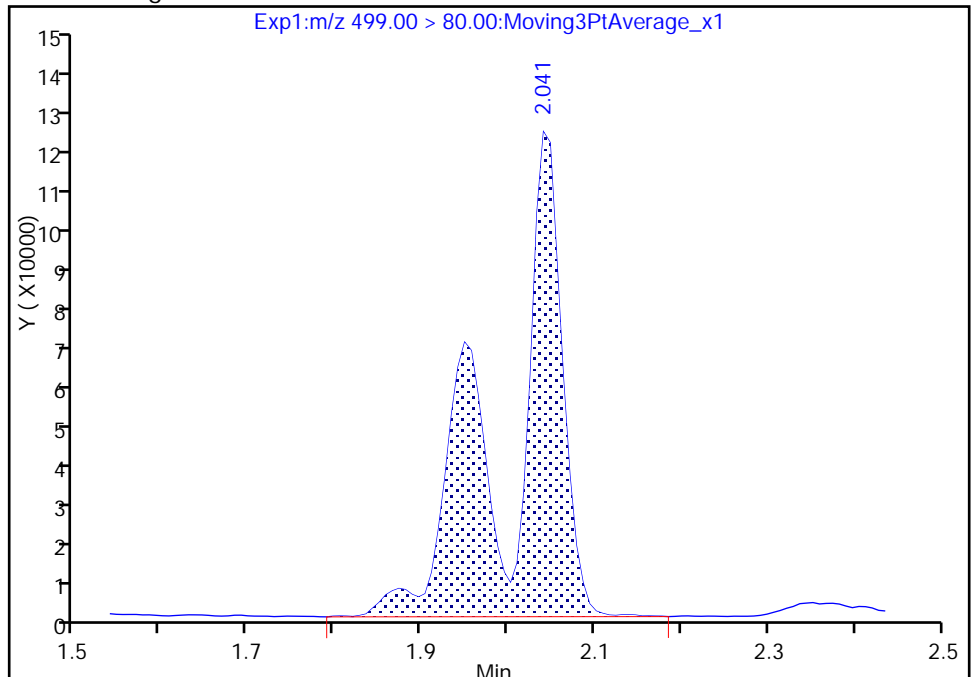
Not Detected
Expected RT: 2.03

Processing Integration Results



RT: 2.04
Area: 539523
Amount: 5.090578
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 09-Feb-2018 10:49:02

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

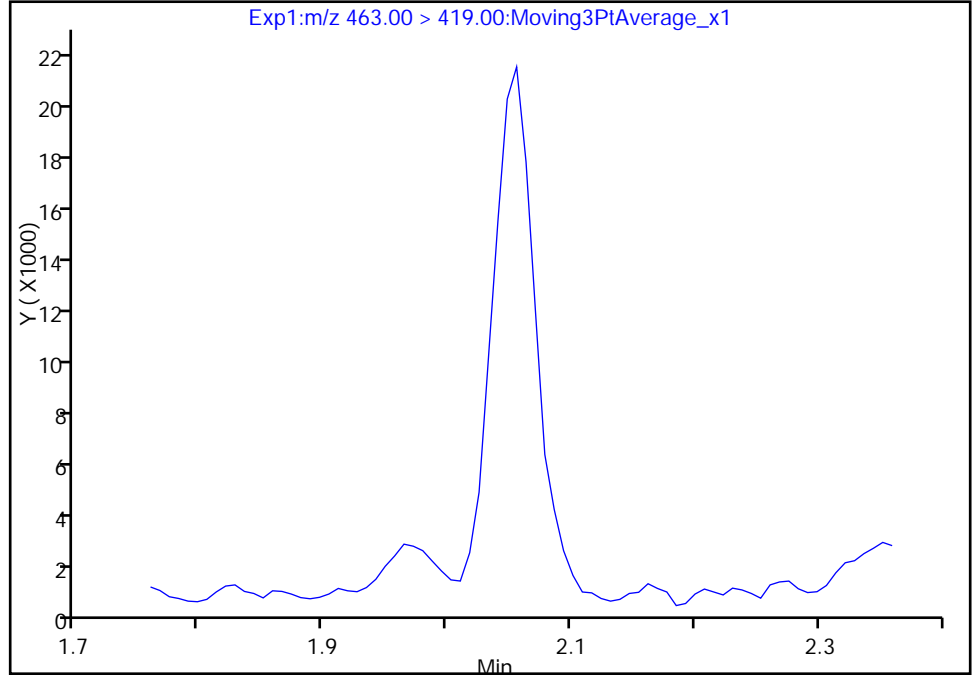
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Injection Date: 08-Feb-2018 13:04:47 Instrument ID: A8_N
Lims ID: 320-35691-A-9-A Lab Sample ID: 320-35691-9
Client ID: WGNA-020118-DUP-24
Operator ID: SACINSTLCMS01 ALS Bottle#: 46 Worklist Smp#: 16
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

9 Perfluorononanoic acid, CAS: 375-95-1

Signal: 1

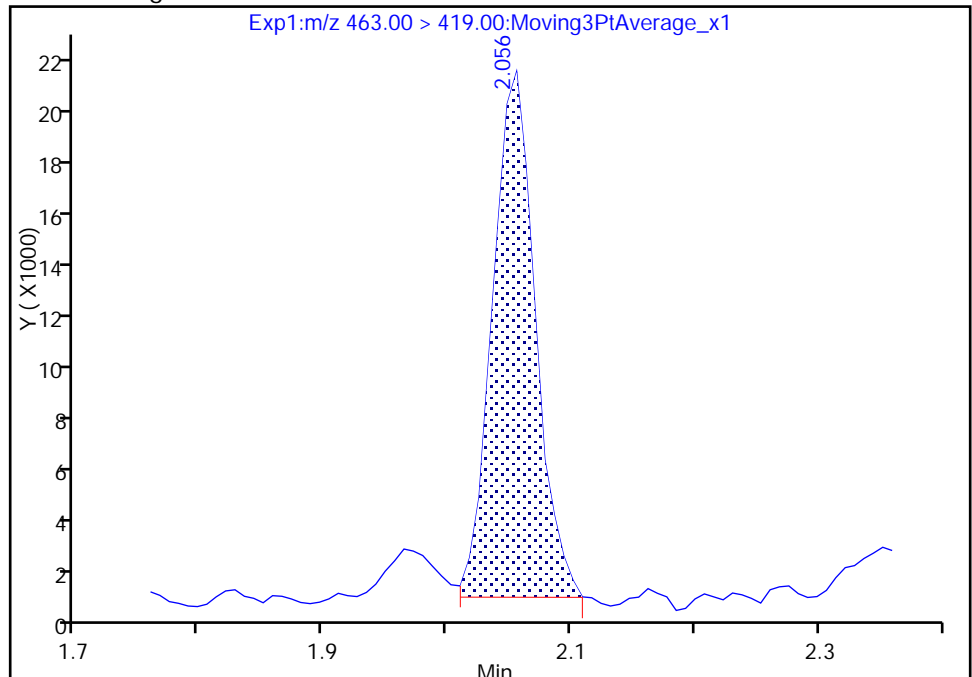
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 47327
Amount: 0.531135
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:49:33
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: WGNA-020118-RW-4847 Lab Sample ID: 320-35691-10
 Matrix: Water Lab File ID: 2018.02.08_537B_017.d
 Analysis Method: 537 Date Collected: 02/01/2018 13:10
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 246.5 (mL) Date Analyzed: 02/08/2018 13:09
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	4.1	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	91	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	94		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_017.d
 Lims ID: 320-35691-A-10-A
 Client ID: WGNA-020118-RW-4847
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:09:28 ALS Bottle#: 47 Worklist Smp#: 17
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-10-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:50:19

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	1526005	9.50	6952	
3 Perfluorohexanesulfonic acid	399.00 > 80.00	1.624	1.631	-0.007	1.000	151885	0.7977	110	
* 6 13C2-PFOA	415.00 > 370.00	1.798	1.806	-0.008		1460238	10.0	5479	
5 Perfluorooctanoic acid	413.00 > 369.00	1.798	1.806	-0.008	1.000	135611	1.00	23.0	
	413.00 > 169.00	1.798	1.806	-0.008	1.000	85907	1.58(0.00-0.00)	183	
* 7 13C4 PFOS	503.00 > 80.00	2.041	2.056	-0.015		3262053	28.7	2585	
\$ 10 13C2 PFDA	515.00 > 470.00	2.231	2.253	-0.022	1.000	1053897	9.43	7109	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_017.d

Injection Date: 08-Feb-2018 13:09:28

Instrument ID: A8_N

Lims ID: 320-35691-A-10-A

Lab Sample ID: 320-35691-10

Client ID: WGNA-020118-RW-4847

Operator ID: SACINSTLCMS01

ALS Bottle#: 47

Worklist Smp#: 17

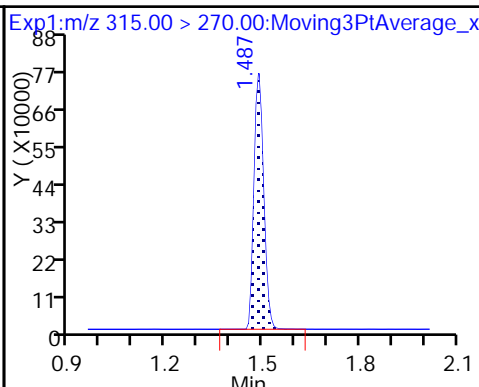
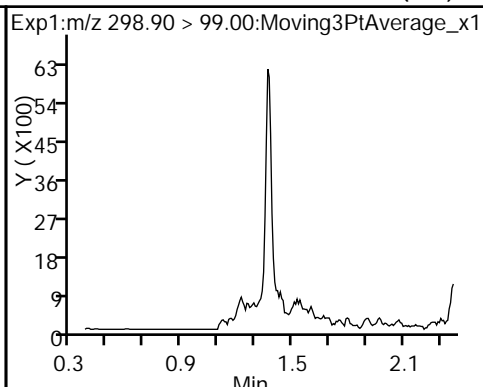
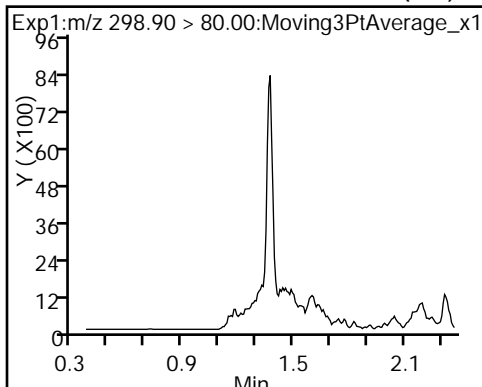
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

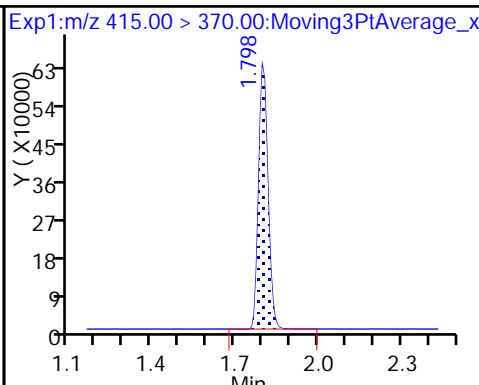
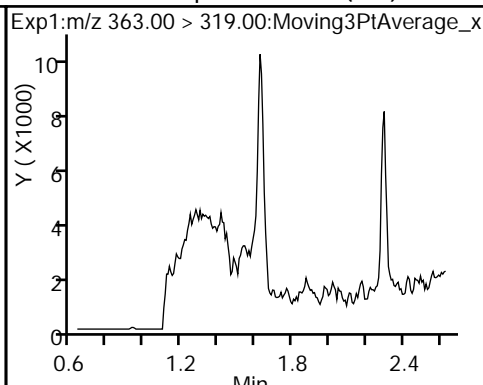
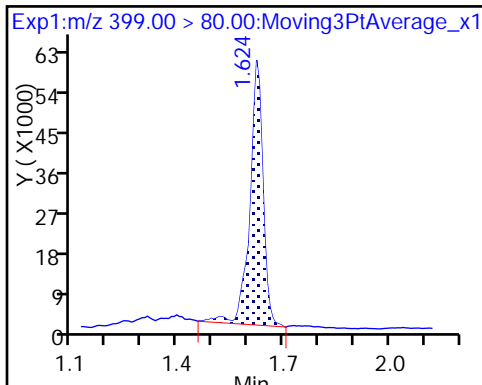
Method: 537_A8_N

Limit Group: LC 537 ICAL

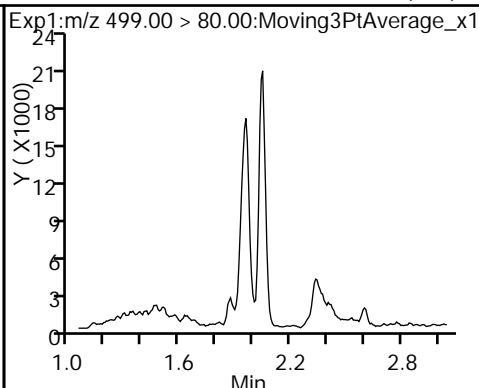
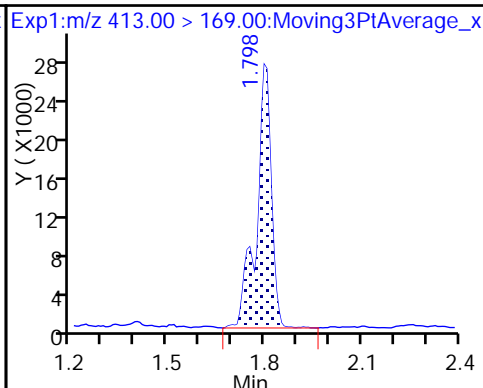
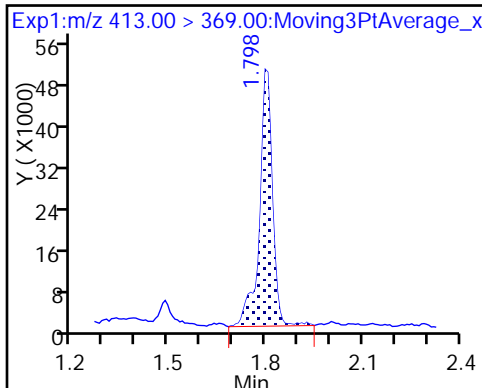
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



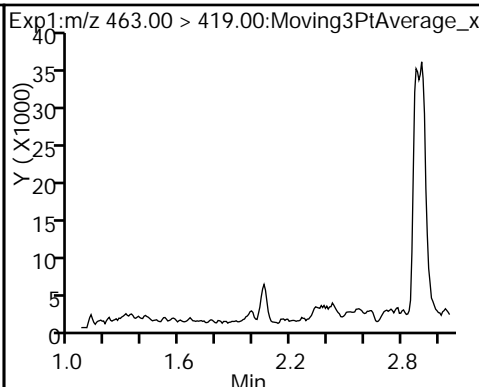
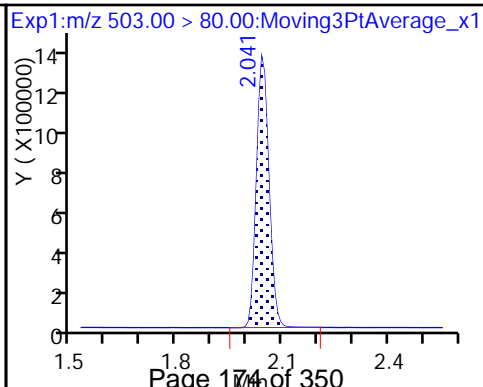
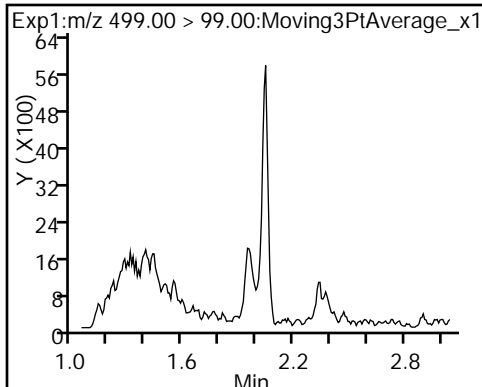
3 Perfluorohexanesulfonic acid 4 Perfluoroheptanoic acid (ND) * 6 13C2-PFOA



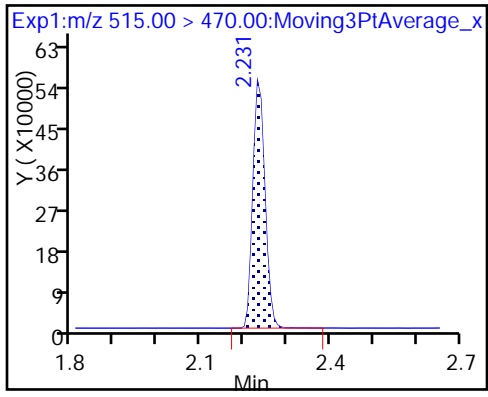
5 Perfluorooctanoic acid 5 Perfluorooctanoic acid 8 Perfluorooctane sulfonic acid (ND)



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\20180208-53863.b\2018.02.08_537B_017.d
 Lims ID: 320-35691-A-10-A
 Client ID: WGNA-020118-RW-4847
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:09:28 ALS Bottle#: 47 Worklist Smp#: 17
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-10-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:50:19

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.50	94.98
\$ 10 13C2 PFDA	10.0	9.43	94.32

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: WGNA-020118-FRB-4847 Lab Sample ID: 320-35691-11
 Matrix: Water Lab File ID: 2018.02.08_537B_018.d
 Analysis Method: 537 Date Collected: 02/01/2018 13:05
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 255.4 (mL) Date Analyzed: 02/08/2018 13:14
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	115		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_018.d
 Lims ID: 320-35691-A-11-A
 Client ID: WGNA-020118-FRB-4847
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:14:10 ALS Bottle#: 48 Worklist Smp#: 18
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-11-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

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	1534424	10.2	7184	
* 6 13C2-PFOA	415.00 > 370.00	1.798	1.806	-0.008		1363014	10.0	5427	
* 7 13C4 PFOS	503.00 > 80.00	2.041	2.056	-0.015		3277604	28.7	5040	
\$ 10 13C2 PFDA	515.00 > 470.00	2.231	2.253	-0.022	1.000	1196767	11.5	8247	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_018.d

Injection Date: 08-Feb-2018 13:14:10

Instrument ID: A8_N

Lims ID: 320-35691-A-11-A

Lab Sample ID: 320-35691-11

Client ID: WGNA-020118-FRB-4847

Operator ID: SACINSTLCMS01

ALS Bottle#: 48

Worklist Smp#: 18

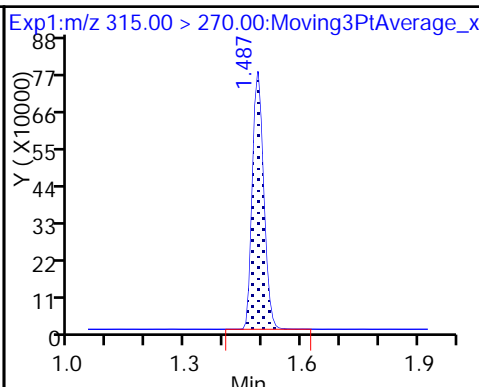
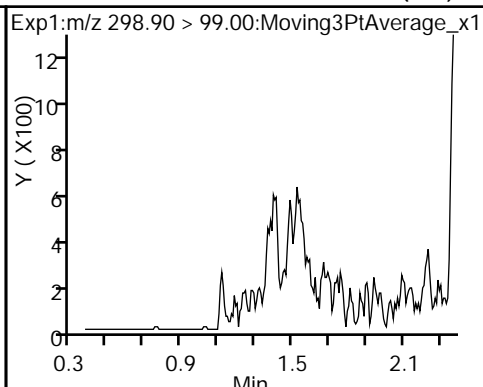
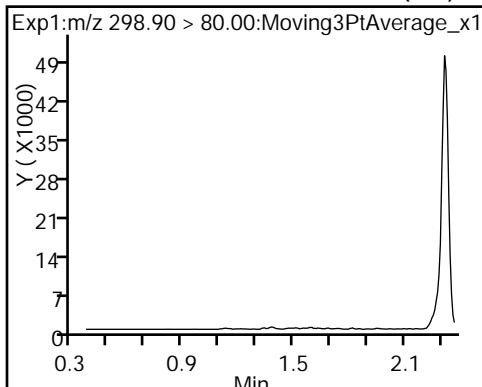
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

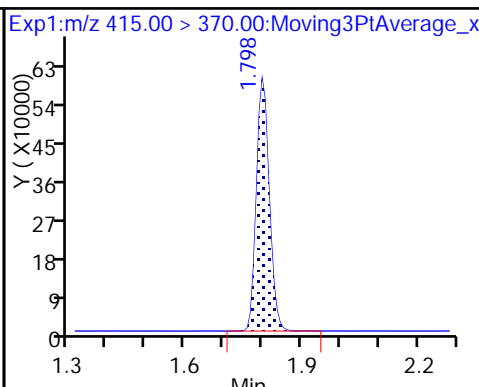
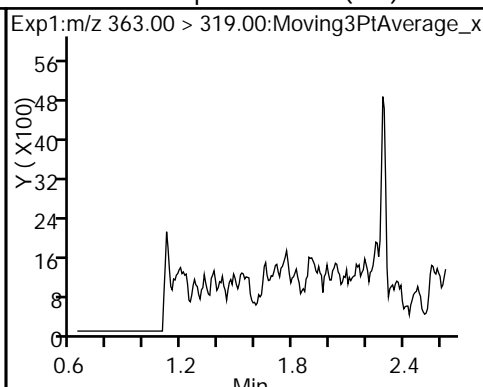
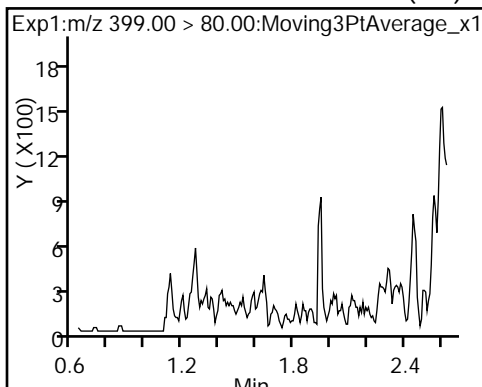
Method: 537_A8_N

Limit Group: LC 537 ICAL

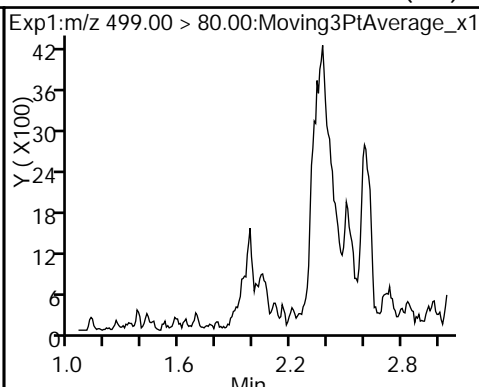
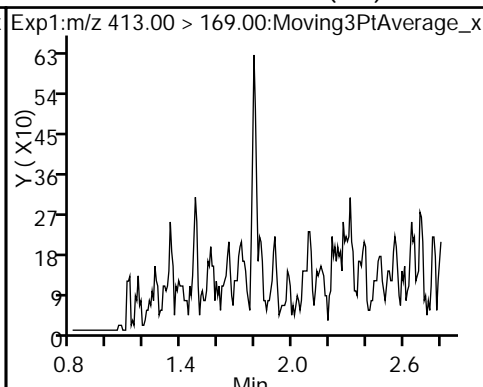
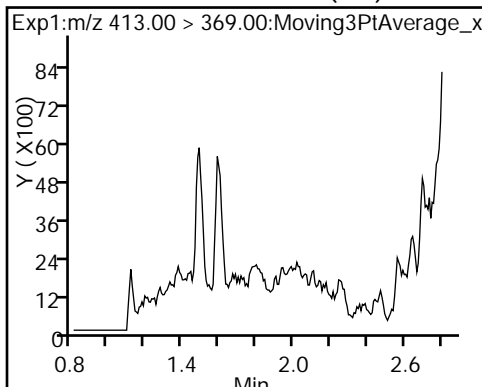
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



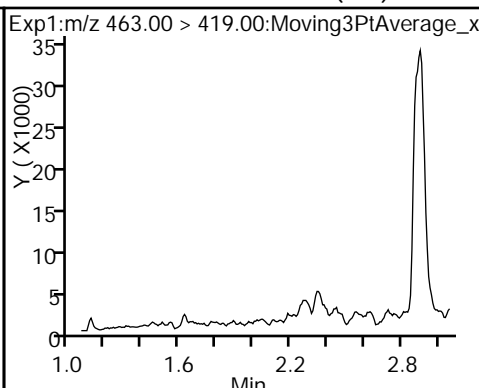
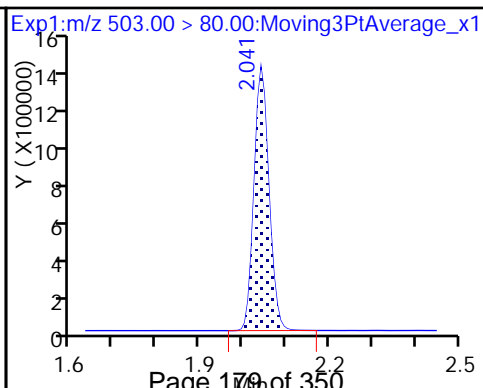
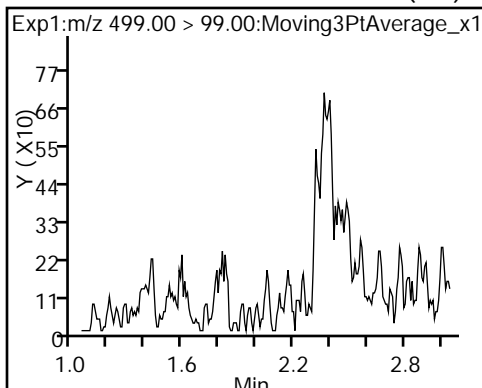
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) * 6 13C2-PFOA



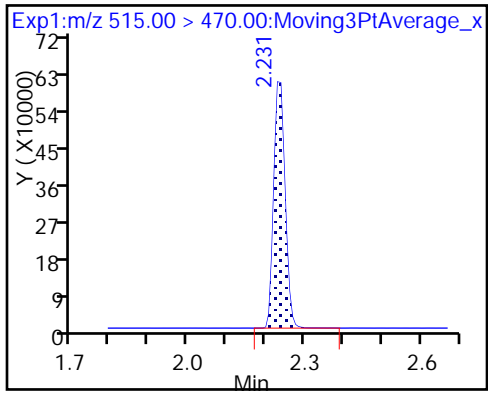
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) 8 Perfluorooctane sulfonic acid (ND)



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\20180208-53863.b\2018.02.08_537B_018.d
 Lims ID: 320-35691-A-11-A
 Client ID: WGNA-020118-FRB-4847
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:14:10 ALS Bottle#: 48 Worklist Smp#: 18
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-11-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.2	102.31
\$ 10 13C2 PFDA	10.0	11.5	114.74

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-121 Lab Sample ID: 320-35691-12
 Matrix: Water Lab File ID: 2018.02.08_537B_019.d
 Analysis Method: 537 Date Collected: 02/01/2018 13:40
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 247.9(mL) Date Analyzed: 02/08/2018 13:18
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	J M	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	25		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.8	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	106		70-130
STL00996	13C2 PFDA	104		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_019.d
 Lims ID: 320-35691-A-12-A
 Client ID: NAWC-020118-RW-121
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:18:50 ALS Bottle#: 49 Worklist Smp#: 19
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-12-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:51:29

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	363499	3.02		616	
298.90 > 99.00	1.366	1.373	-0.007	1.000	269604		1.35(0.00-0.00)	554	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1546809	10.6		6891	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	558255	3.09		425	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	211204	1.69		49.4	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.806	-0.008		1330726	10.0		5287	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.806	-0.008	1.000	758271	6.16		122	
413.00 > 169.00	1.798	1.806	-0.008	1.000	456372		1.66(0.00-0.00)	1228	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.041	2.033	0.008	1.000	550610	5.43		189	Ma
499.00 > 99.00	2.041	2.033	0.008	1.000	96786		5.69(0.00-0.00)	168	M
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.056	-0.015		3095687	28.7		3586	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.253	-0.022	1.000	1055079	10.4		7583	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_019.d

Injection Date: 08-Feb-2018 13:18:50

Instrument ID: A8_N

Lims ID: 320-35691-A-12-A

Lab Sample ID: 320-35691-12

Client ID: NAWC-020118-RW-121

Operator ID: SACINSTLCMS01

ALS Bottle#: 49

Worklist Smp#: 19

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

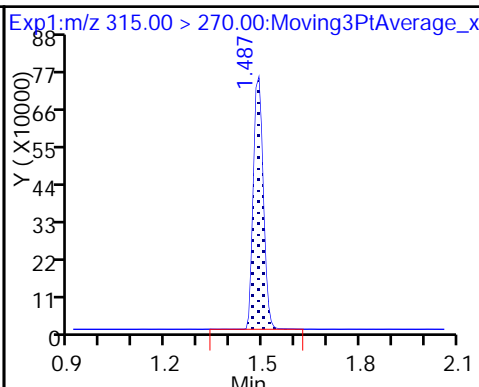
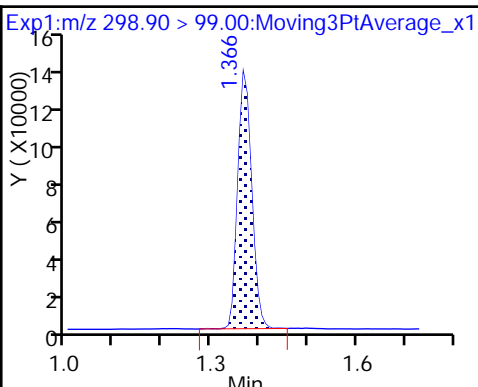
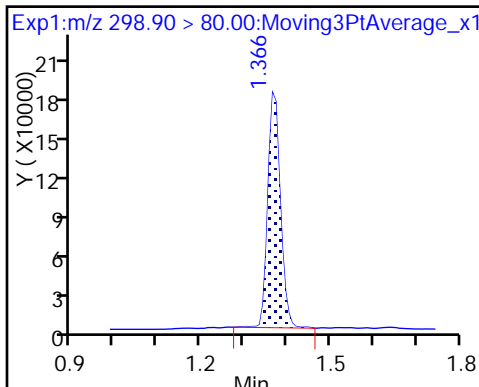
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

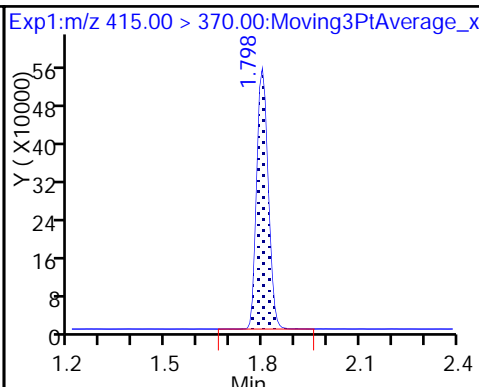
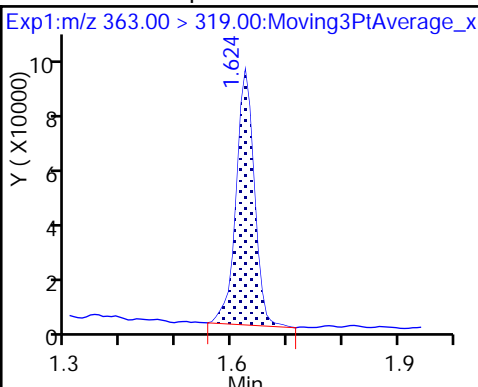
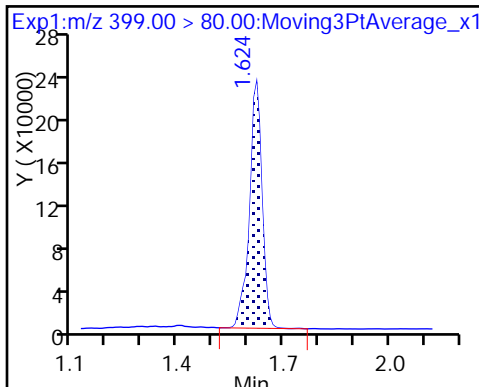
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

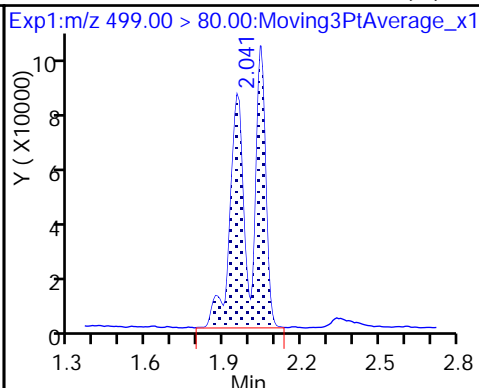
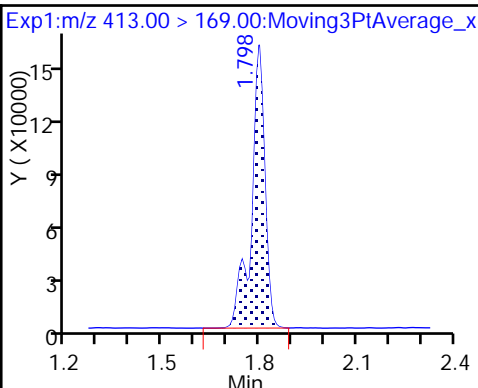
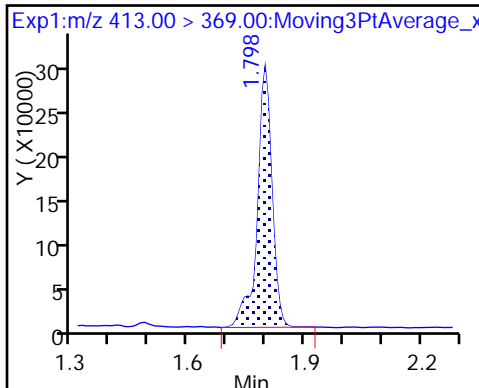
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

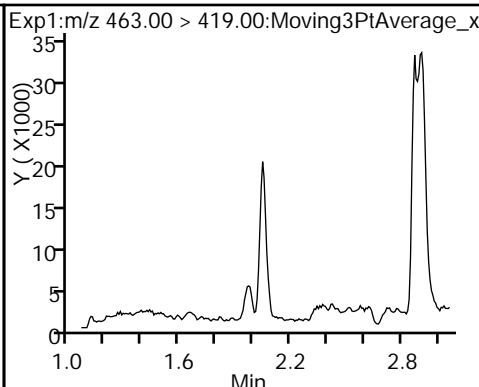
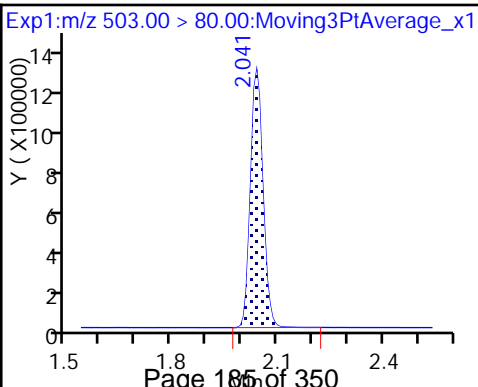
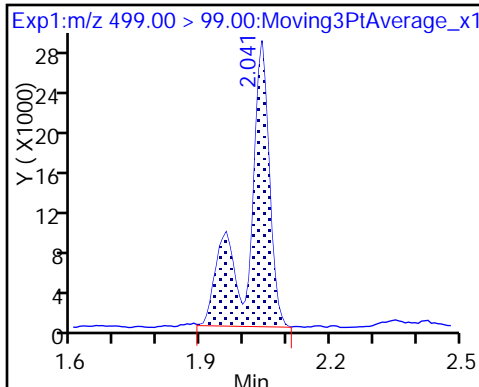
8 Perfluorooctane sulfonic acid (M)



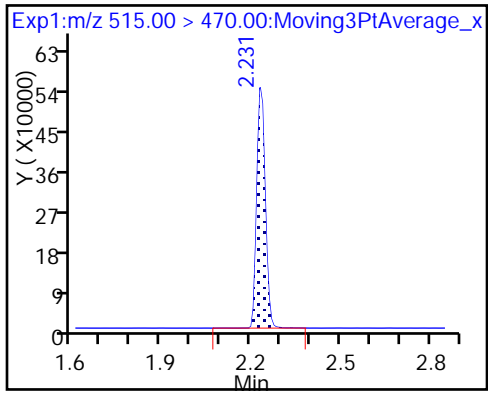
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_019.d
 Lims ID: 320-35691-A-12-A
 Client ID: NAWC-020118-RW-121
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:18:50 ALS Bottle#: 49 Worklist Smp#: 19
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-12-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:51:29

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.6	105.64
\$ 10 13C2 PFDA	10.0	10.4	103.61

TestAmerica Sacramento

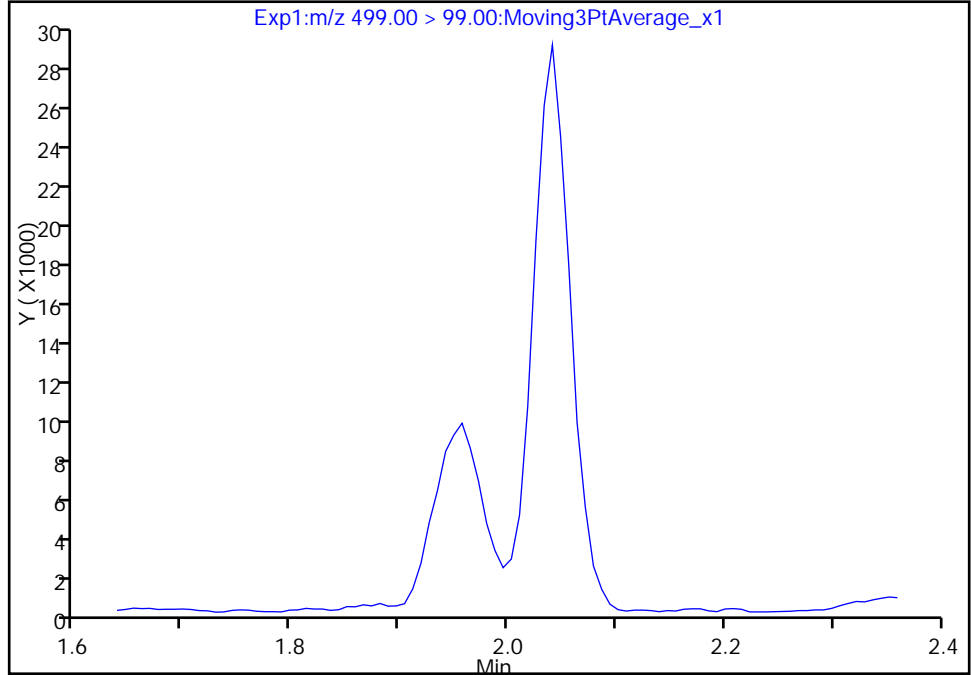
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Injection Date: 08-Feb-2018 13:18:50 Instrument ID: A8_N
Lims ID: 320-35691-A-12-A Lab Sample ID: 320-35691-12
Client ID: NAWC-020118-RW-121
Operator ID: SACINSTLCMS01 ALS Bottle#: 49 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

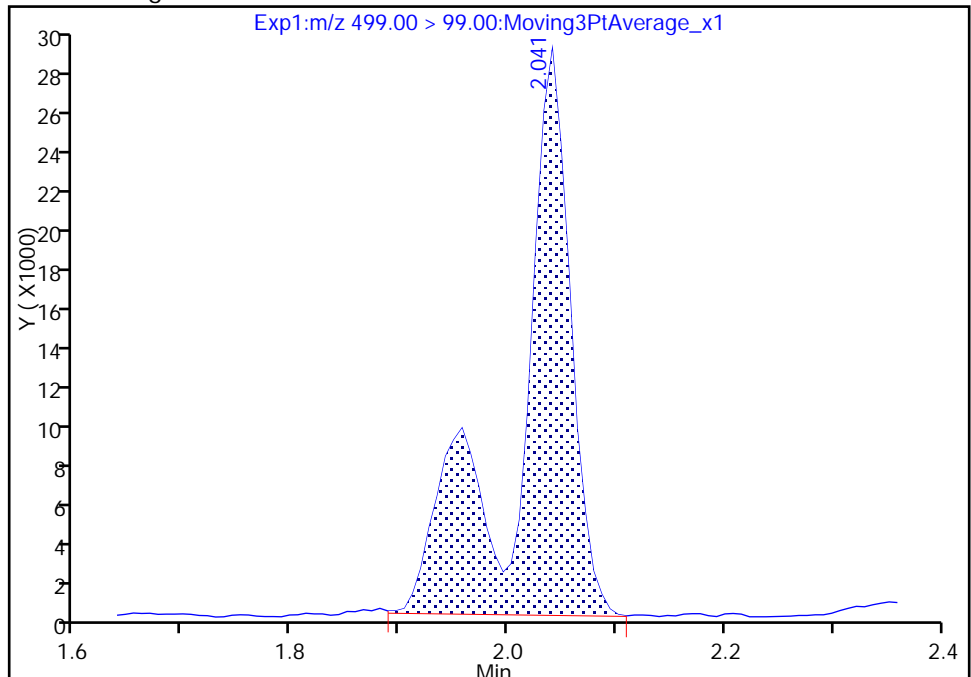
Not Detected
Expected RT: 2.03

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 96786
Amount: 5.432808
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:51:19
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

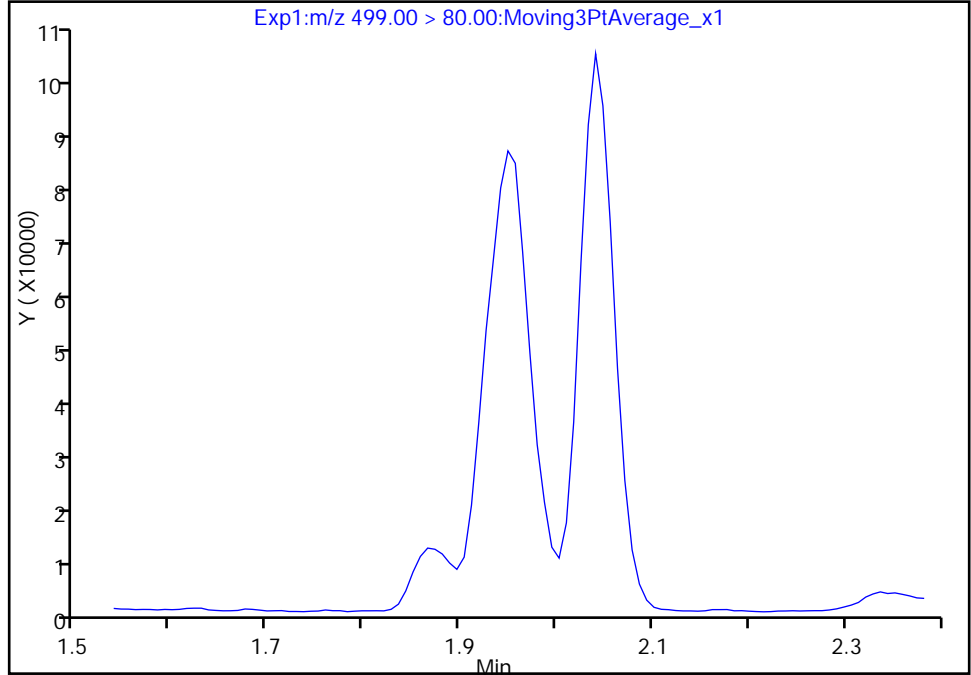
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Injection Date: 08-Feb-2018 13:18:50 Instrument ID: A8_N
Lims ID: 320-35691-A-12-A Lab Sample ID: 320-35691-12
Client ID: NAWC-020118-RW-121
Operator ID: SACINSTLCMS01 ALS Bottle#: 49 Worklist Smp#: 19
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

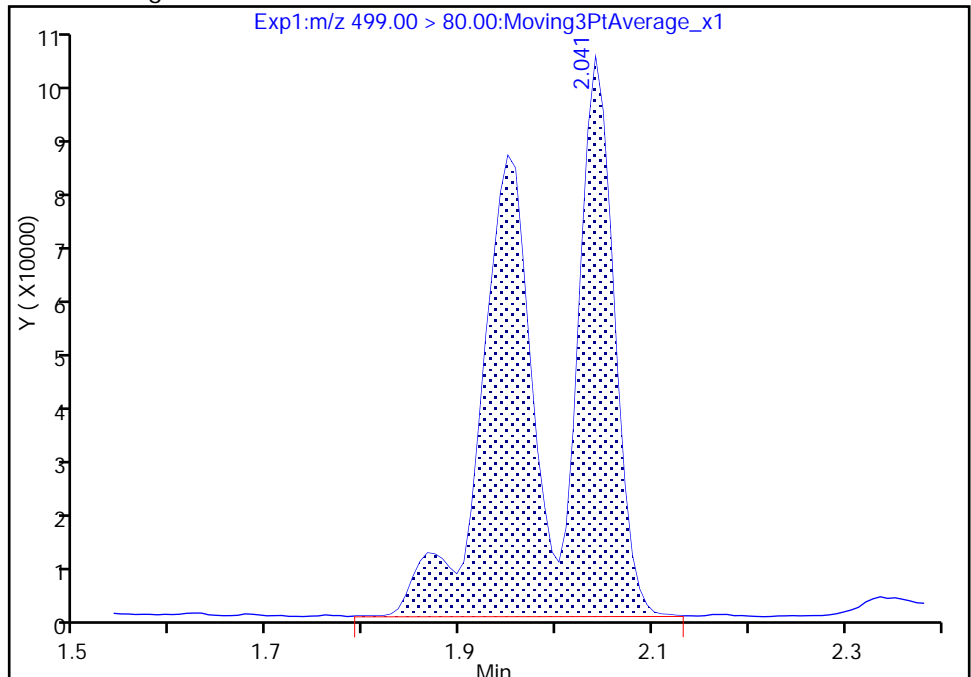
Not Detected
Expected RT: 2.03

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 550610
Amount: 5.432808
Amount Units: ng/ml



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

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-121 Lab Sample ID: 320-35691-13
 Matrix: Water Lab File ID: 2018.02.08_537B_020.d
 Analysis Method: 537 Date Collected: 02/01/2018 13:35
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 250.2 (mL) Date Analyzed: 02/08/2018 13:23
 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.: 207626 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	110		70-130
STL00996	13C2 PFDA	110		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_020.d
 Lims ID: 320-35691-A-13-A
 Client ID: NAWC-020118-FRB-121
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:23:31 ALS Bottle#: 50 Worklist Smp#: 20
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-13-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

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	1572358	11.0	7267	
* 6 13C2-PFOA	415.00 > 370.00	1.798	1.806	-0.008		1297091	10.0	5352	
* 7 13C4 PFOS	503.00 > 80.00	2.041	2.056	-0.015		3146790	28.7	5410	
\$ 10 13C2 PFDA	515.00 > 470.00	2.231	2.253	-0.022	1.000	1090896	11.0	7986	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_020.d

Injection Date: 08-Feb-2018 13:23:31

Instrument ID: A8_N

Lims ID: 320-35691-A-13-A

Lab Sample ID: 320-35691-13

Client ID: NAWC-020118-FRB-121

Operator ID: SACINSTLCMS01

ALS Bottle#: 50

Worklist Smp#: 20

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

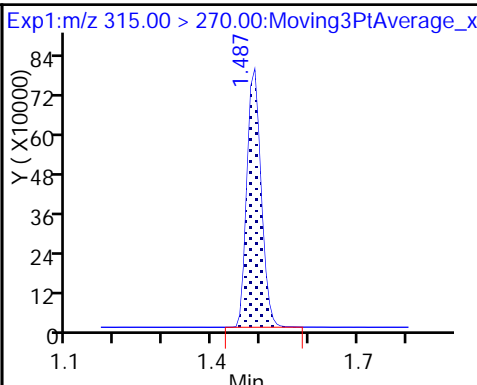
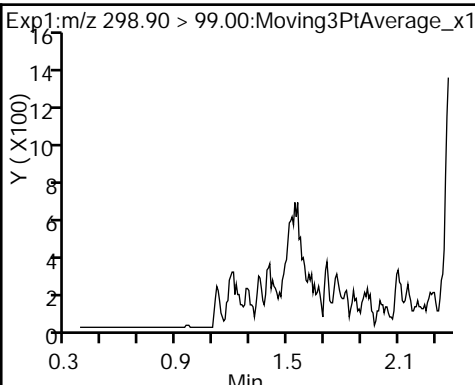
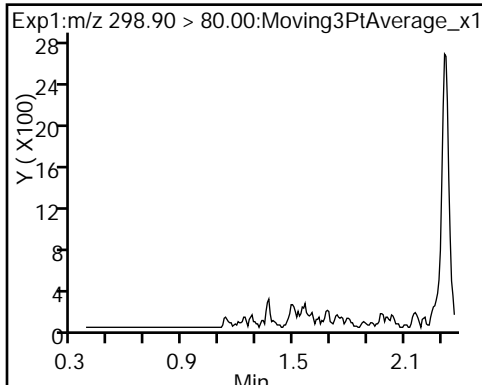
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

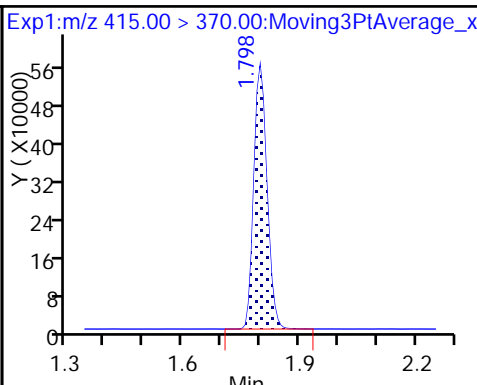
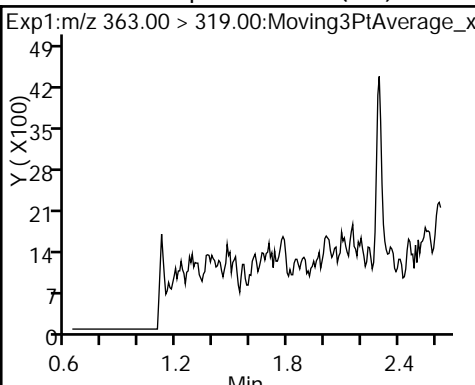
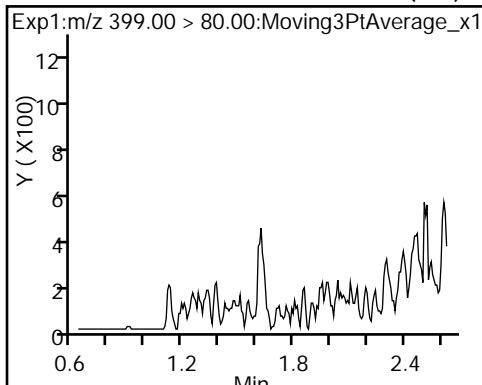
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

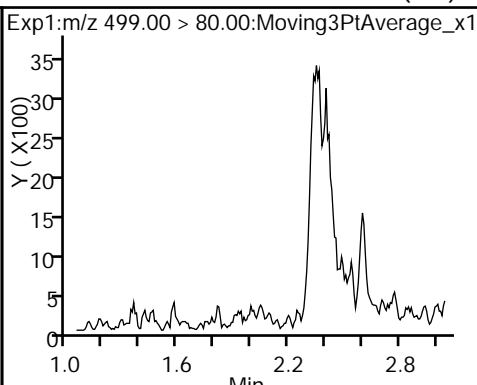
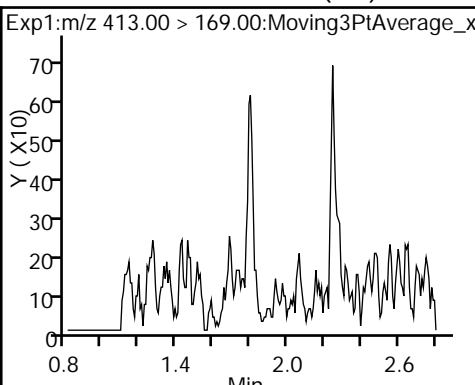
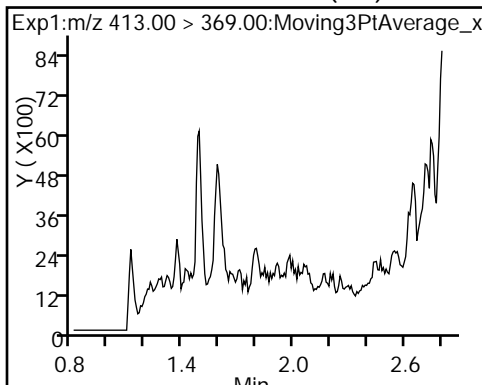
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

5 Perfluorooctanoic acid (ND)

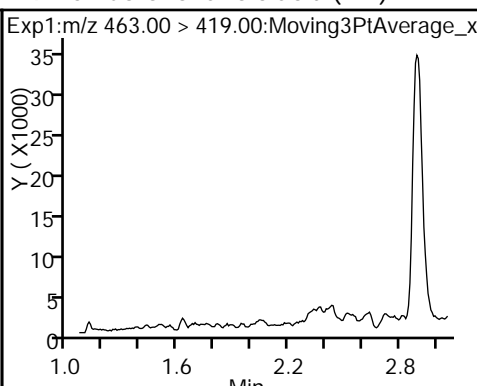
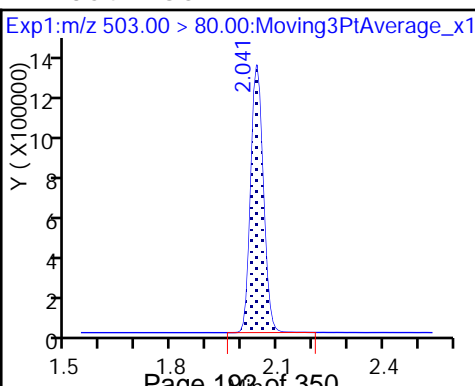
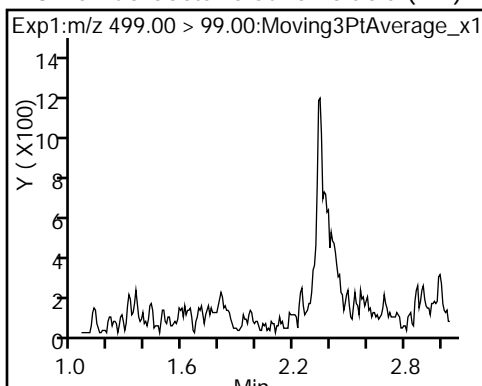
8 Perfluorooctane sulfonic acid (ND)



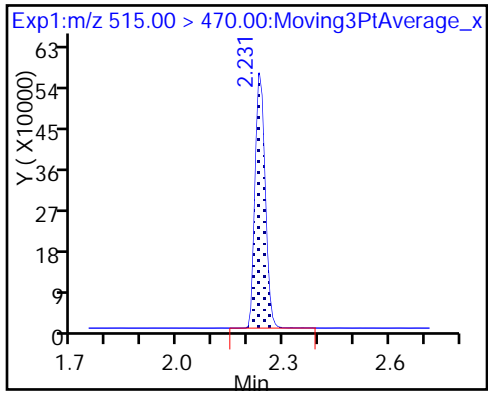
8 Perfluorooctane sulfonic acid (ND)

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_020.d
 Lims ID: 320-35691-A-13-A
 Client ID: NAWC-020118-FRB-121
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:23:31 ALS Bottle#: 50 Worklist Smp#: 20
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-13-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	11.0	110.17
\$ 10 13C2 PFDA	10.0	11.0	109.91

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-123 Lab Sample ID: 320-35691-14
 Matrix: Water Lab File ID: 2018.02.08_537B_021.d
 Analysis Method: 537 Date Collected: 02/01/2018 15:10
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 248.3(mL) Date Analyzed: 02/08/2018 13:28
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	31	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	26		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	14	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.1	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	94		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_021.d
 Lims ID: 320-35691-A-14-A
 Client ID: NAWC-020118-RW-123
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:28:11 ALS Bottle#: 51 Worklist Smp#: 21
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-14-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:52:45

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.373	0.0	1.000	149582	1.26		121	
298.90 > 99.00	1.373	1.373	0.0	1.000	106218		1.41(0.00-0.00)	189	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1420944	9.59		6324	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.631	-0.007	1.000	629990	3.53		317	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	286467	2.27		49.6	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.806	-0.008		1346141	10.0		5140	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.806	0.0	1.000	801061	6.43		108	
413.00 > 169.00	1.806	1.806	0.0	1.000	449126		1.78(0.00-0.00)	962	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.033	0.015	1.000	766620	7.67		270	Ma
499.00 > 99.00	2.041	2.033	0.008	0.996	137027		5.59(0.00-0.00)	219	M
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.056	-0.015		3053585	28.7		2551	
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.064	-0.008	1.000	68513	0.7663		9.3	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.253	-0.015	1.000	964199	9.36		6461	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_021.d

Injection Date: 08-Feb-2018 13:28:11

Instrument ID: A8_N

Lims ID: 320-35691-A-14-A

Lab Sample ID: 320-35691-14

Client ID: NAWC-020118-RW-123

Operator ID: SACINSTLCMS01

ALS Bottle#: 51

Worklist Smp#: 21

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

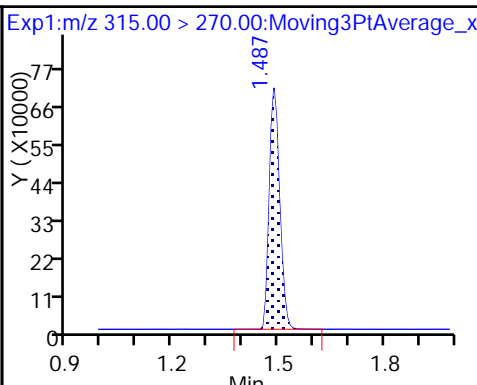
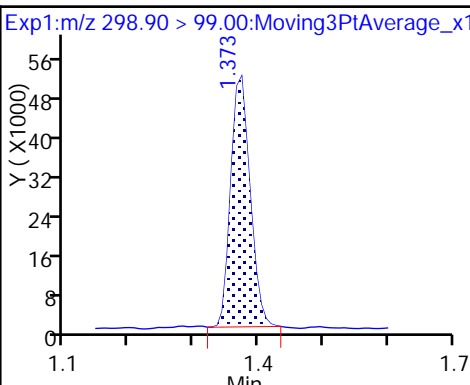
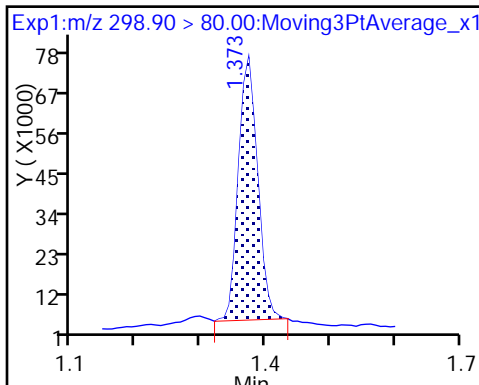
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

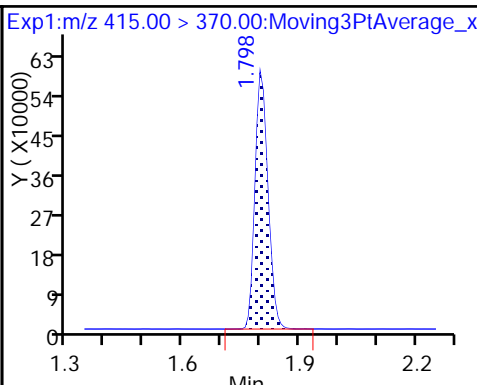
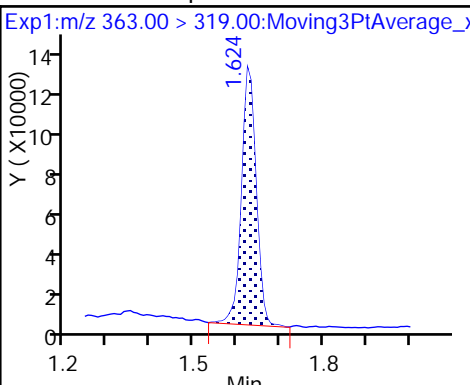
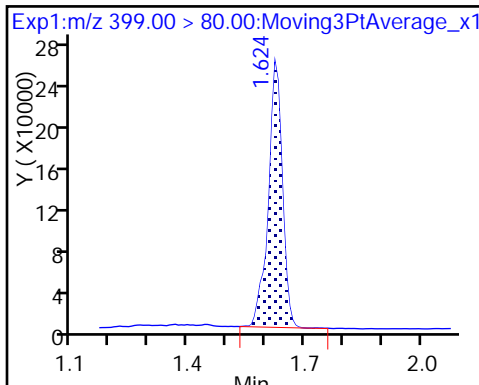
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

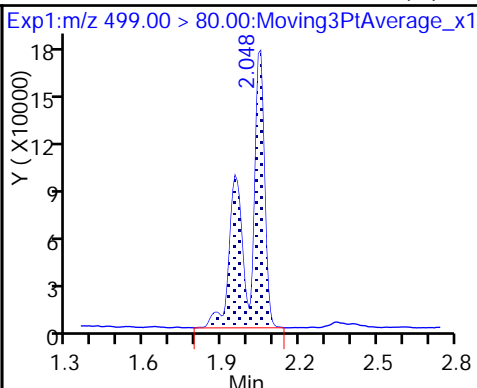
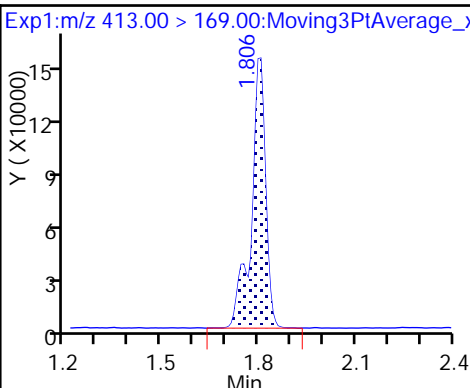
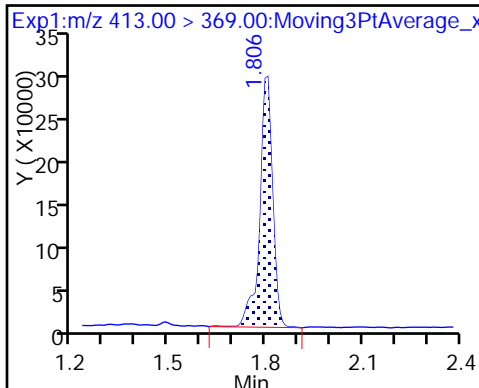
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

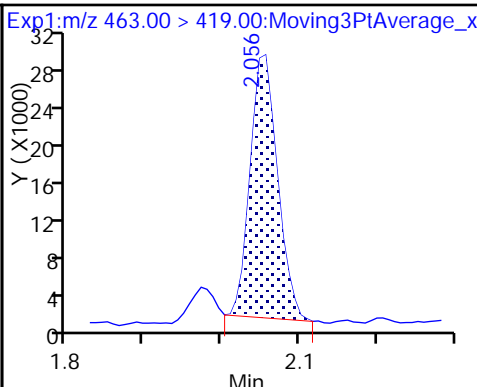
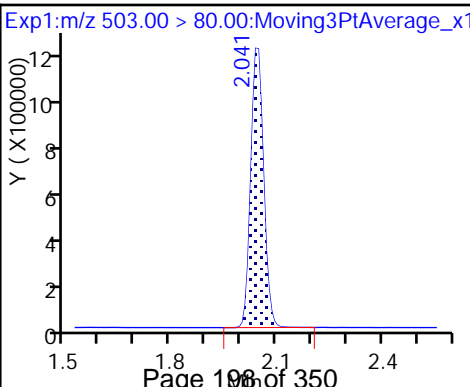
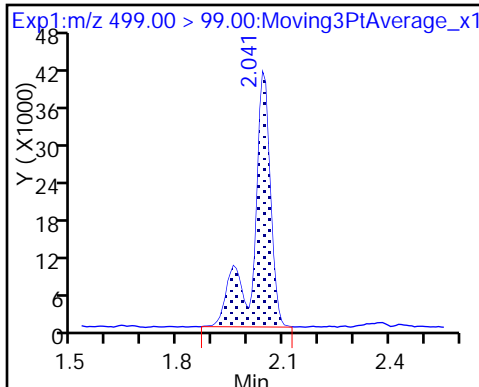
8 Perfluorooctane sulfonic acid (M)



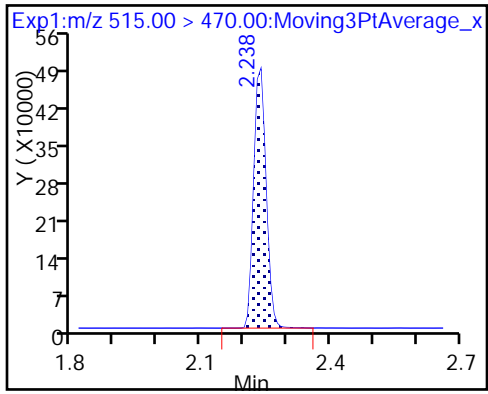
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_021.d
 Lims ID: 320-35691-A-14-A
 Client ID: NAWC-020118-RW-123
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:28:11 ALS Bottle#: 51 Worklist Smp#: 21
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-14-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:52:45

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.59	95.94
\$ 10 13C2 PFDA	10.0	9.36	93.60

TestAmerica Sacramento

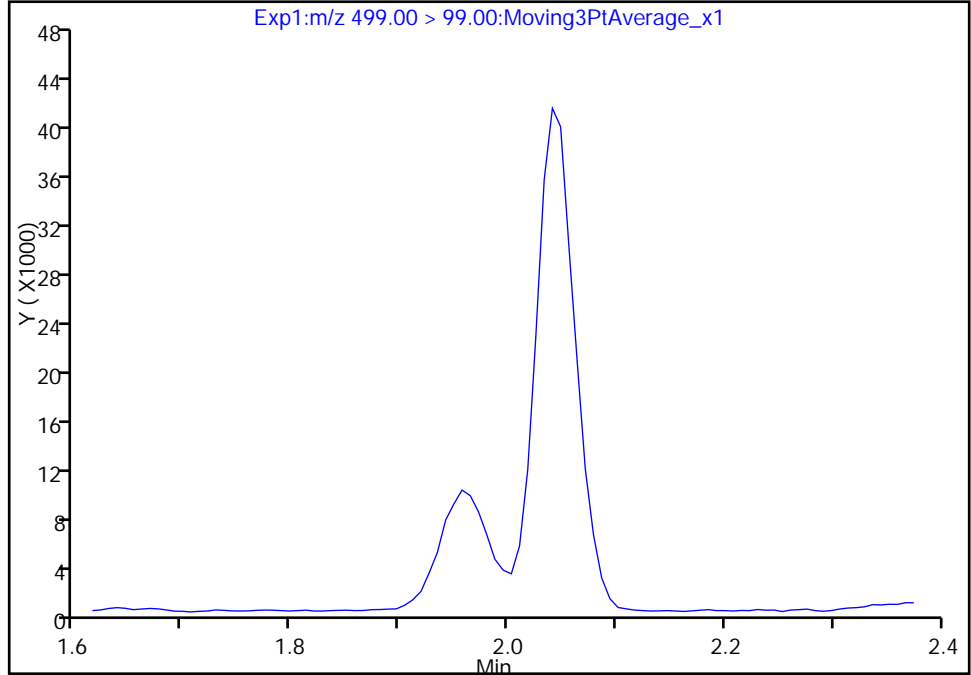
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Injection Date: 08-Feb-2018 13:28:11 Instrument ID: A8_N
Lims ID: 320-35691-A-14-A Lab Sample ID: 320-35691-14
Client ID: NAWC-020118-RW-123
Operator ID: SACINSTLCMS01 ALS Bottle#: 51 Worklist Smp#: 21
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

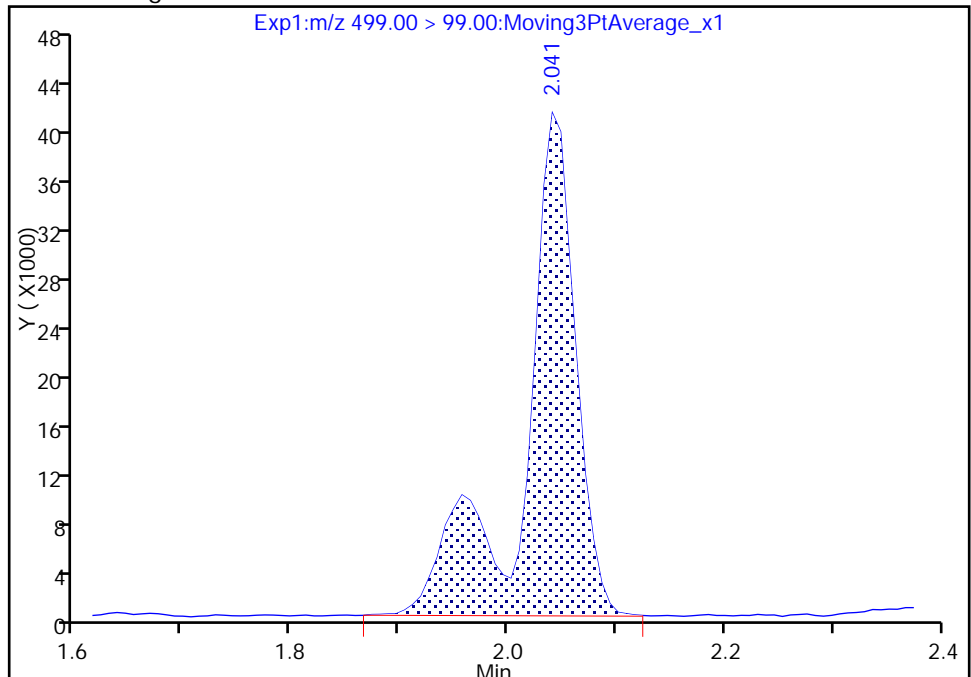
Not Detected
Expected RT: 2.03

Processing Integration Results



Manual Integration Results

RT: 2.04
Area: 137027
Amount: 7.668447
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:52:03
Audit Action: Manually Integrated

TestAmerica Sacramento

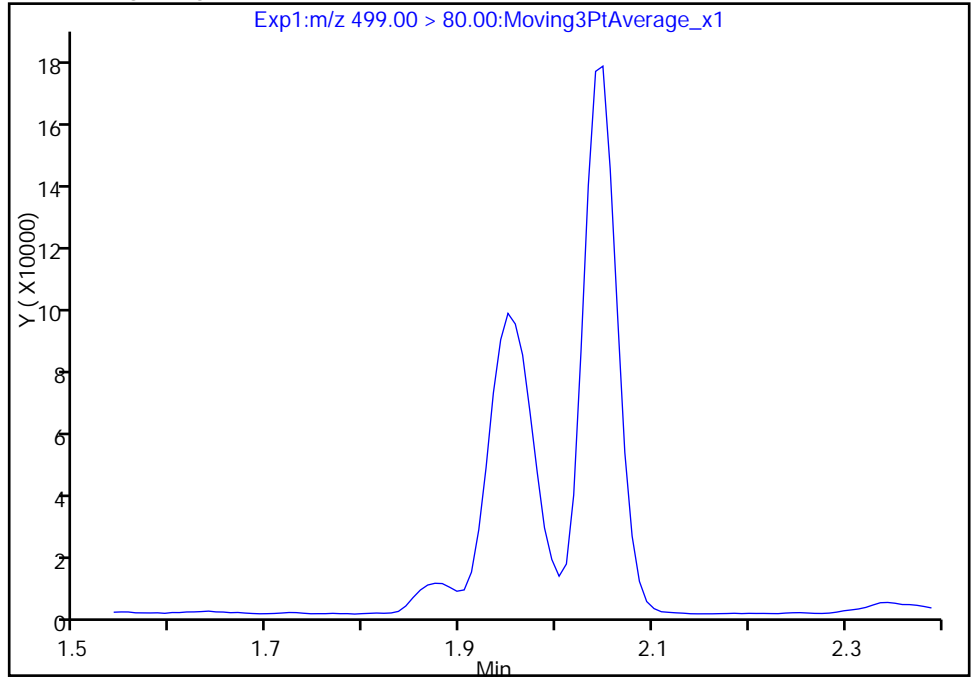
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_021.d
Injection Date: 08-Feb-2018 13:28:11 Instrument ID: A8_N
Lims ID: 320-35691-A-14-A Lab Sample ID: 320-35691-14
Client ID: NAWC-020118-RW-123
Operator ID: SACINSTLCMS01 ALS Bottle#: 51 Worklist Smp#: 21
Injection Vol: 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

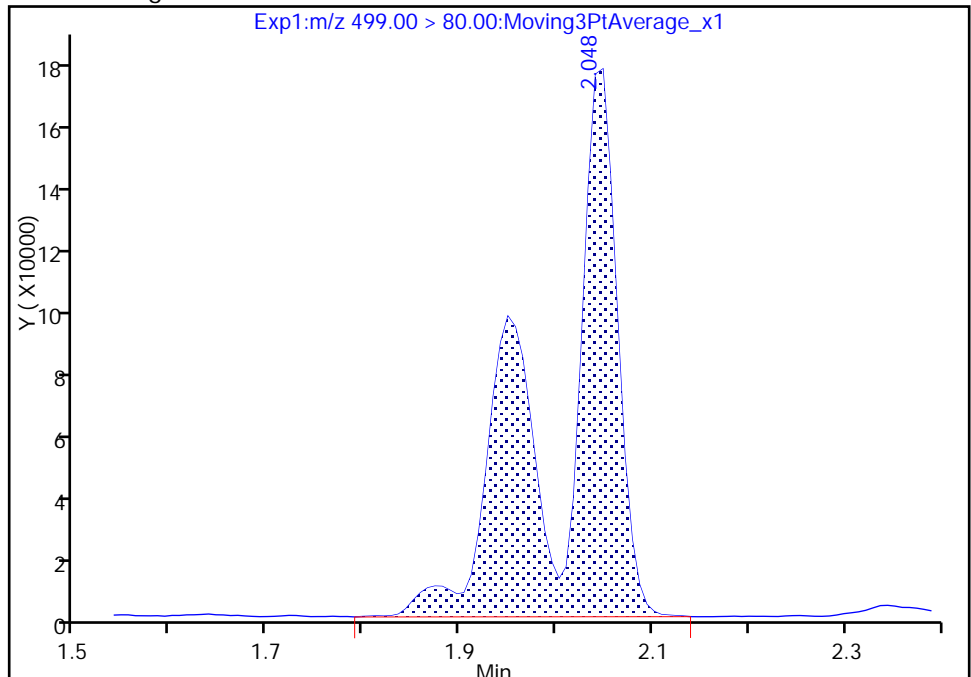
Not Detected
Expected RT: 2.03

Processing Integration Results



RT: 2.05
Area: 766620
Amount: 7.668447
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 09-Feb-2018 10:52:03

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-123 Lab Sample ID: 320-35691-15
 Matrix: Water Lab File ID: 2018.02.08_537B_022.d
 Analysis Method: 537 Date Collected: 02/01/2018 15:05
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 250.8(mL) Date Analyzed: 02/08/2018 13:32
 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.: 207626 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	102		70-130
STL00996	13C2 PFDA	102		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_022.d
 Lims ID: 320-35691-A-15-A
 Client ID: NAWC-020118-FRB-123
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:32:53 ALS Bottle#: 52 Worklist Smp#: 22
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-15-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

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	1429092	10.2	6869	
* 6 13C2-PFOA	415.00 > 370.00	1.798	1.806	-0.008		1276682	10.0	4763	
* 7 13C4 PFOS	503.00 > 80.00	2.033	2.056	-0.023		3022415	28.7	5834	
\$ 10 13C2 PFDA	515.00 > 470.00	2.231	2.253	-0.022	1.000	995521	10.2	7040	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_022.d

Injection Date: 08-Feb-2018 13:32:53

Instrument ID: A8_N

Lims ID: 320-35691-A-15-A

Lab Sample ID: 320-35691-15

Client ID: NAWC-020118-FRB-123

Operator ID: SACINSTLCMS01

ALS Bottle#: 52

Worklist Smp#: 22

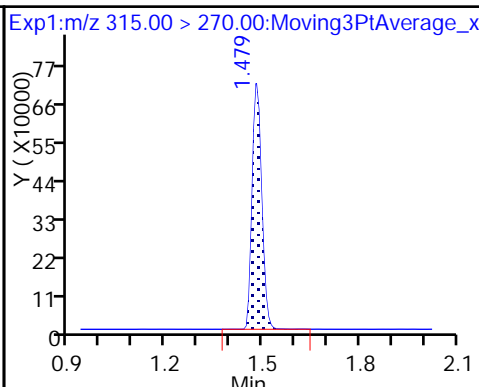
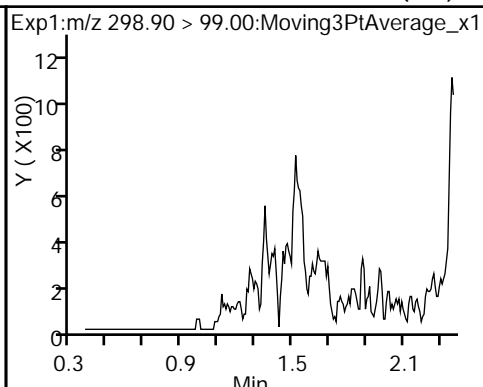
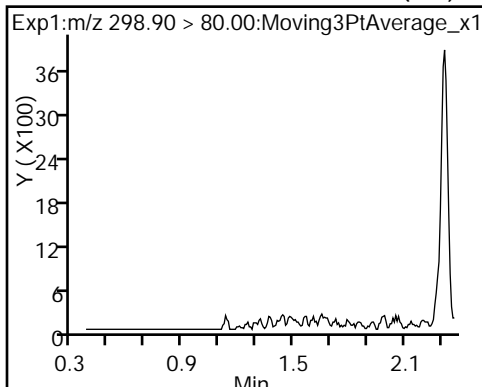
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

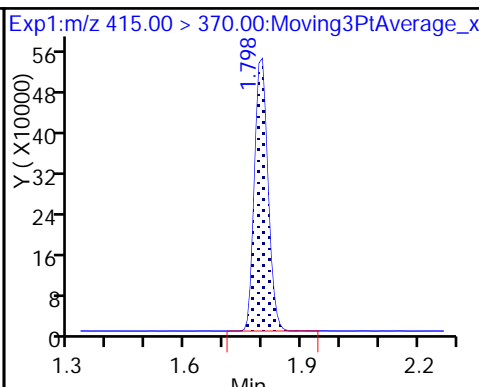
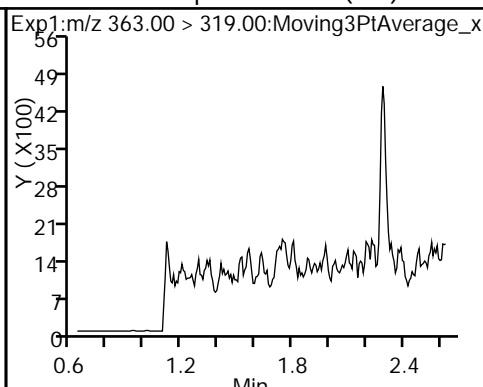
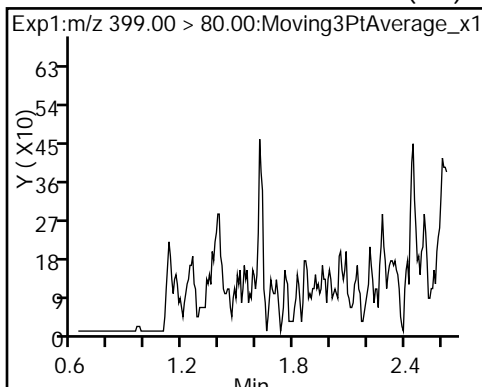
Method: 537_A8_N

Limit Group: LC 537 ICAL

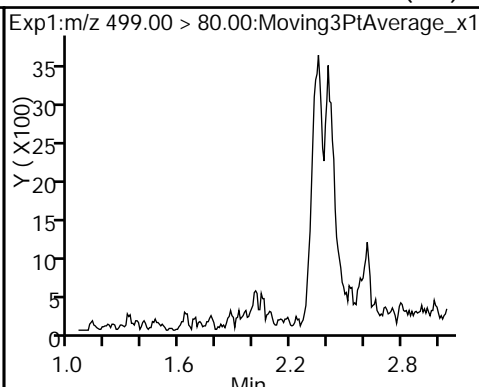
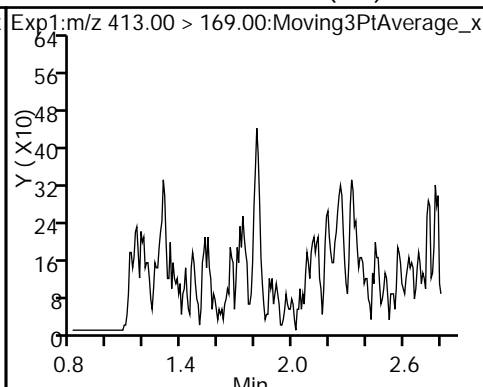
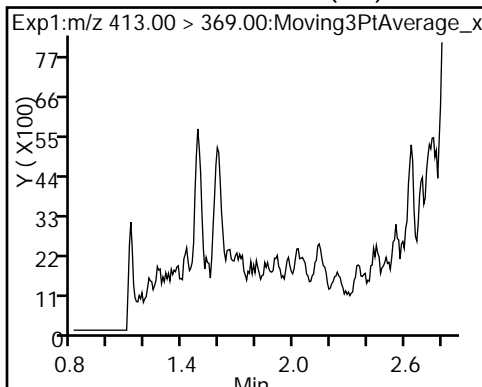
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



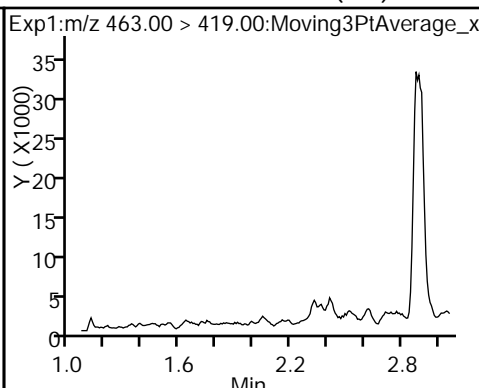
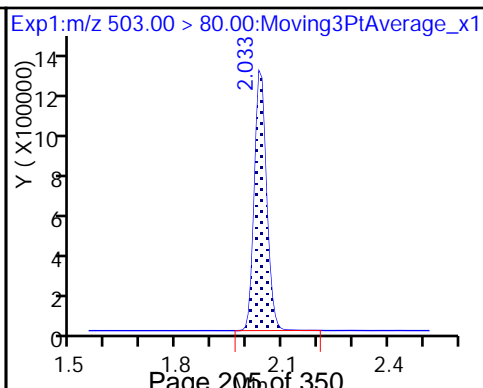
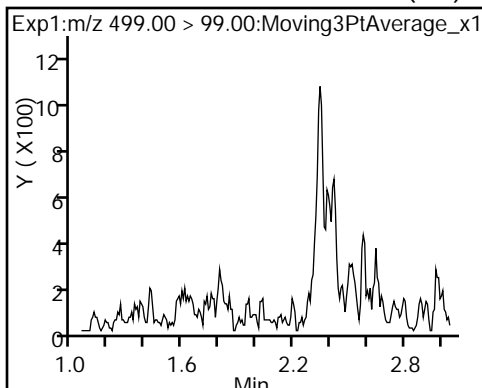
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) * 6 13C2-PFOA



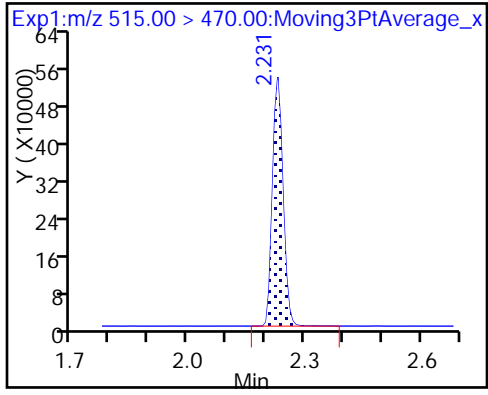
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) 8 Perfluorooctane sulfonic acid (ND)



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\20180208-53863.b\2018.02.08_537B_022.d
 Lims ID: 320-35691-A-15-A
 Client ID: NAWC-020118-FRB-123
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:32:53 ALS Bottle#: 52 Worklist Smp#: 22
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-15-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.2	101.74
\$ 10 13C2 PFDA	10.0	10.2	101.90

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-207 Lab Sample ID: 320-35691-16
 Matrix: Water Lab File ID: 2018.02.08_537B_023.d
 Analysis Method: 537 Date Collected: 02/01/2018 16:40
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 255.7(mL) Date Analyzed: 02/08/2018 13:37
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18	J M	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	26		20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.6	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	100		70-130
STL00996	13C2 PFDA	100		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_023.d
 Lims ID: 320-35691-A-16-A
 Client ID: NAWC-020118-RW-207
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:37:33 ALS Bottle#: 53 Worklist Smp#: 23
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-16-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:53:48

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	1432712	10.0	6605	
4 Perfluoroheptanoic acid	363.00 > 319.00	1.631	1.631	0.0	1.000	112961	0.9287	6.7	
* 6 13C2-PFOA	415.00 > 370.00	1.798	1.806	-0.008		1298183	10.0	5927	
5 Perfluorooctanoic acid	413.00 > 369.00	1.806	1.806	0.0	1.000	803617	6.69	152	
	413.00 > 169.00	1.806	1.806	0.0	1.000	466953	1.72(0.00-0.00)	1192	
8 Perfluorooctane sulfonic acid	499.00 > 80.00	2.048	2.033	0.015	1.000	449528	4.52	21.5	Ma
	499.00 > 99.00	2.048	2.033	0.015	1.000	83415	5.39(0.00-0.00)	115	M
* 7 13C4 PFOS	503.00 > 80.00	2.041	2.056	-0.015		3036504	28.7	2421	
\$ 10 13C2 PFDA	515.00 > 470.00	2.238	2.253	-0.015	1.000	993931	10.0	7374	

QC Flag Legend

Review Flags

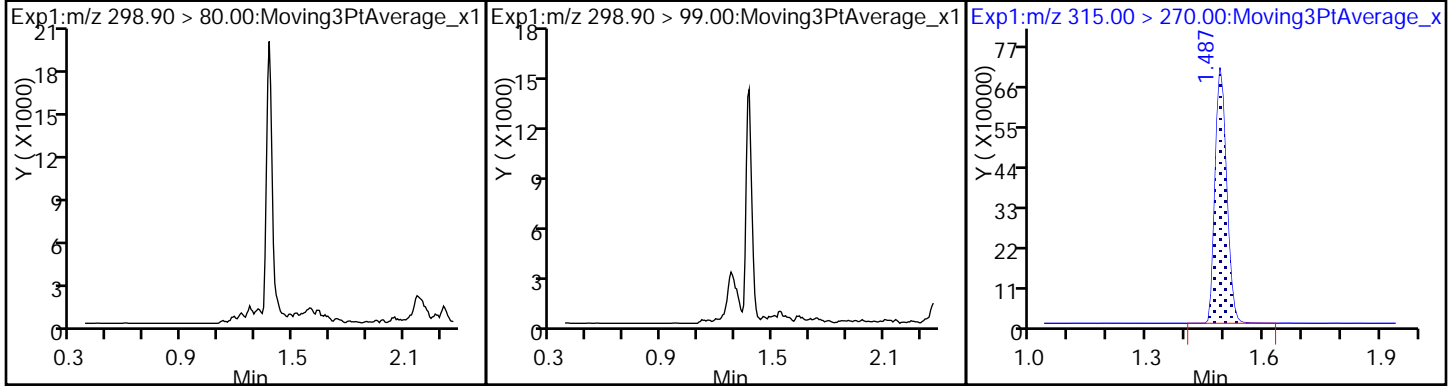
M - Manually Integrated

a - User Assigned ID

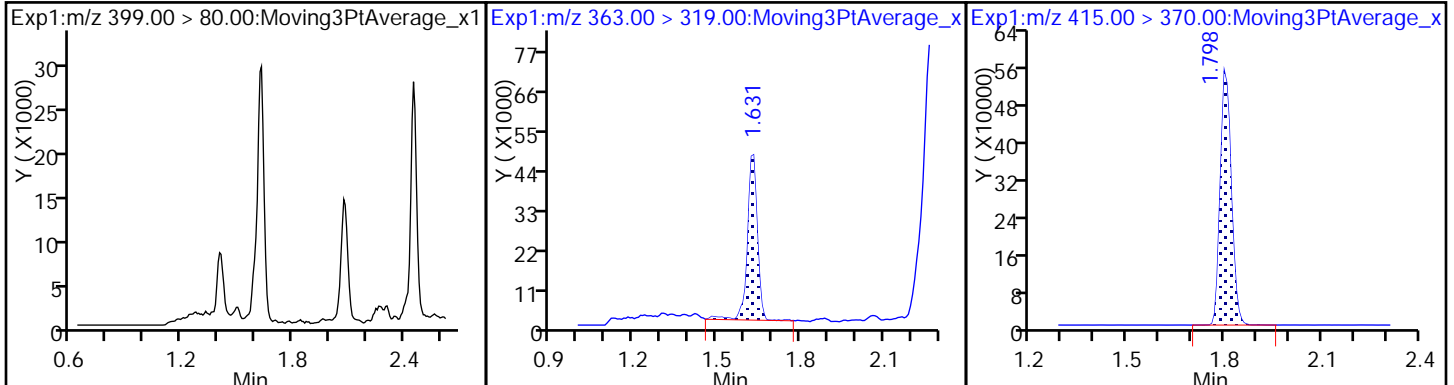
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_023.d
Injection Date: 08-Feb-2018 13:37:33 Instrument ID: A8_N
Lims ID: 320-35691-A-16-A Lab Sample ID: 320-35691-16
Client ID: NAWC-020118-RW-207
Operator ID: SACINSTLCMS01 ALS Bottle#: 53 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

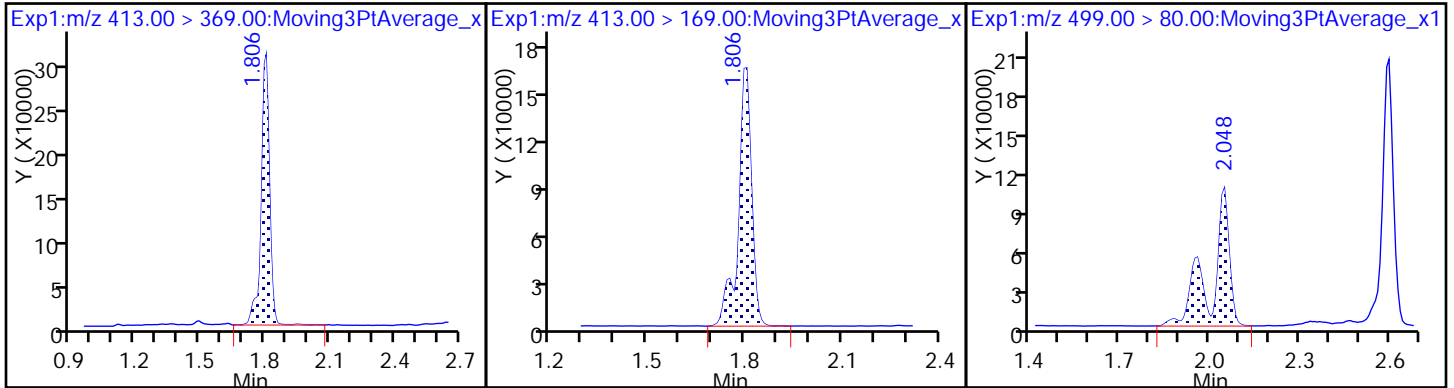
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



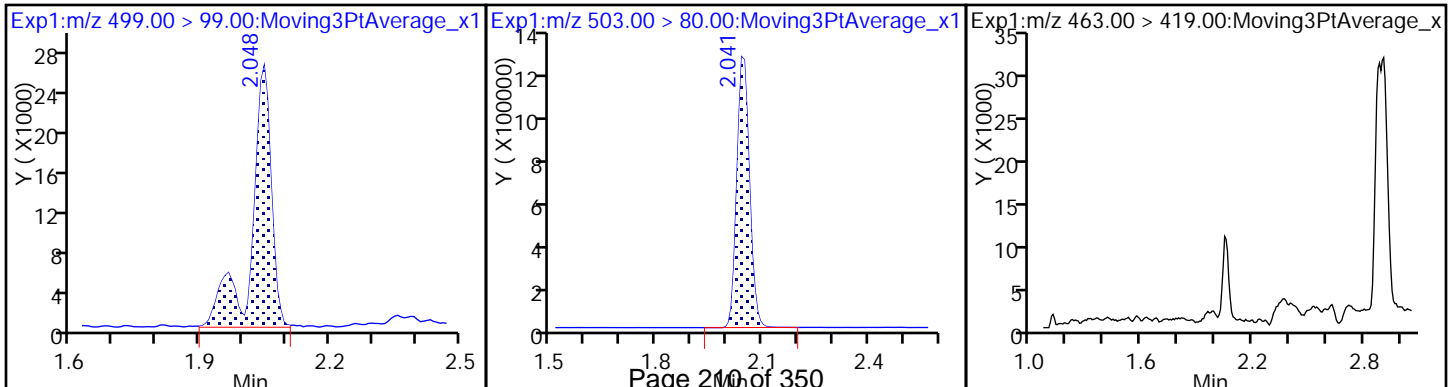
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid * 6 13C2-PFOA



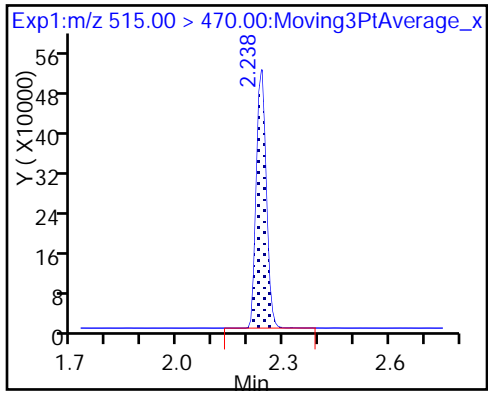
5 Perfluorooctanoic acid 5 Perfluorooctanoic acid 8 Perfluorooctane sulfonic acid (M)



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\20180208-53863.b\2018.02.08_537B_023.d
 Lims ID: 320-35691-A-16-A
 Client ID: NAWC-020118-RW-207
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:37:33 ALS Bottle#: 53 Worklist Smp#: 23
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-16-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:53:48

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.0	100.30
\$ 10 13C2 PFDA	10.0	10.0	100.06

TestAmerica Sacramento

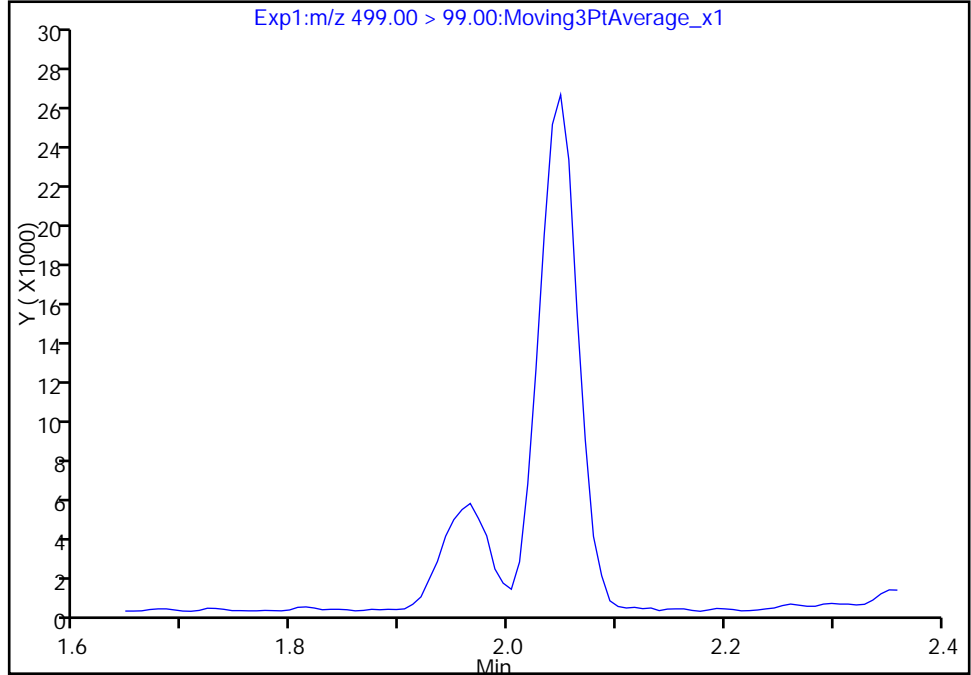
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_023.d
Injection Date: 08-Feb-2018 13:37:33 Instrument ID: A8_N
Lims ID: 320-35691-A-16-A Lab Sample ID: 320-35691-16
Client ID: NAWC-020118-RW-207
Operator ID: SACINSTLCMS01 ALS Bottle#: 53 Worklist Smp#: 23
Injection Vol: 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

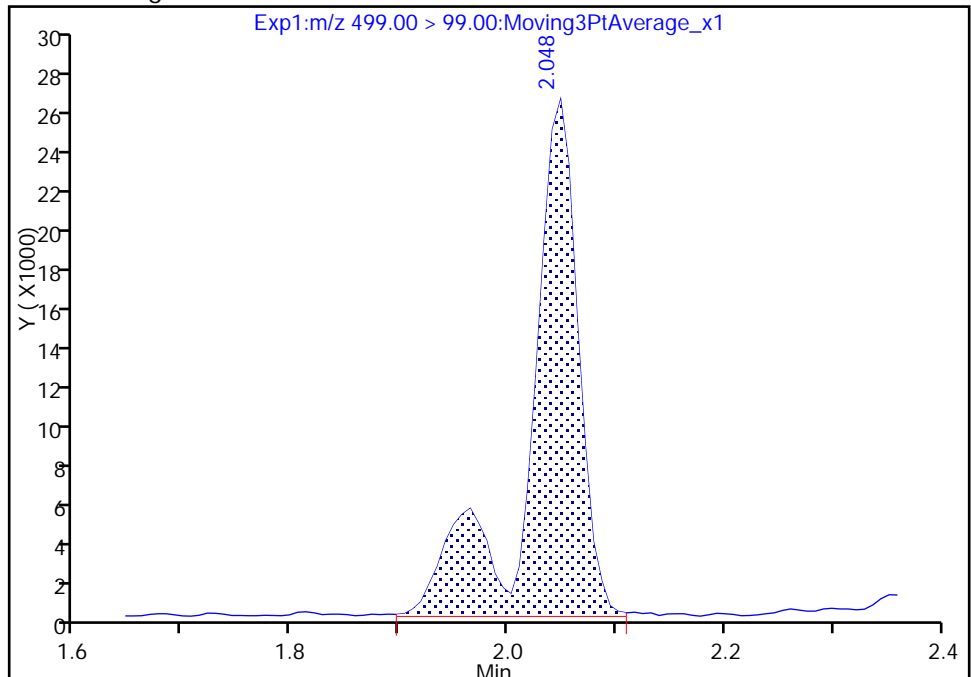
Not Detected
Expected RT: 2.03

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 83415
Amount: 4.521892
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:53:38
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

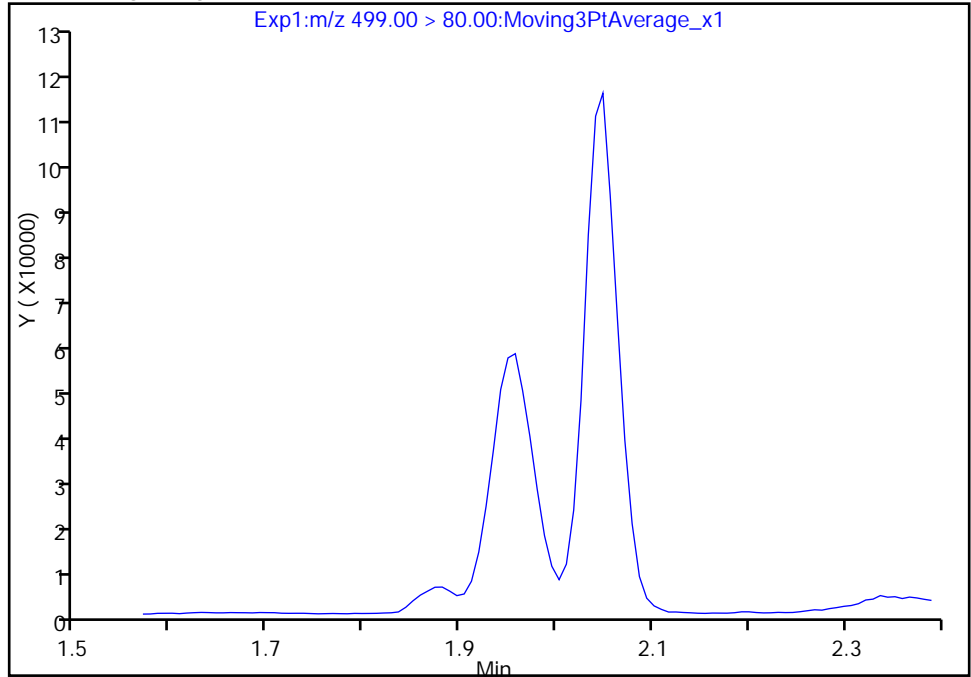
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Injection Date: 08-Feb-2018 13:37:33 Instrument ID: A8_N
Lims ID: 320-35691-A-16-A Lab Sample ID: 320-35691-16
Client ID: NAWC-020118-RW-207
Operator ID: SACINSTLCMS01 ALS Bottle#: 53 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

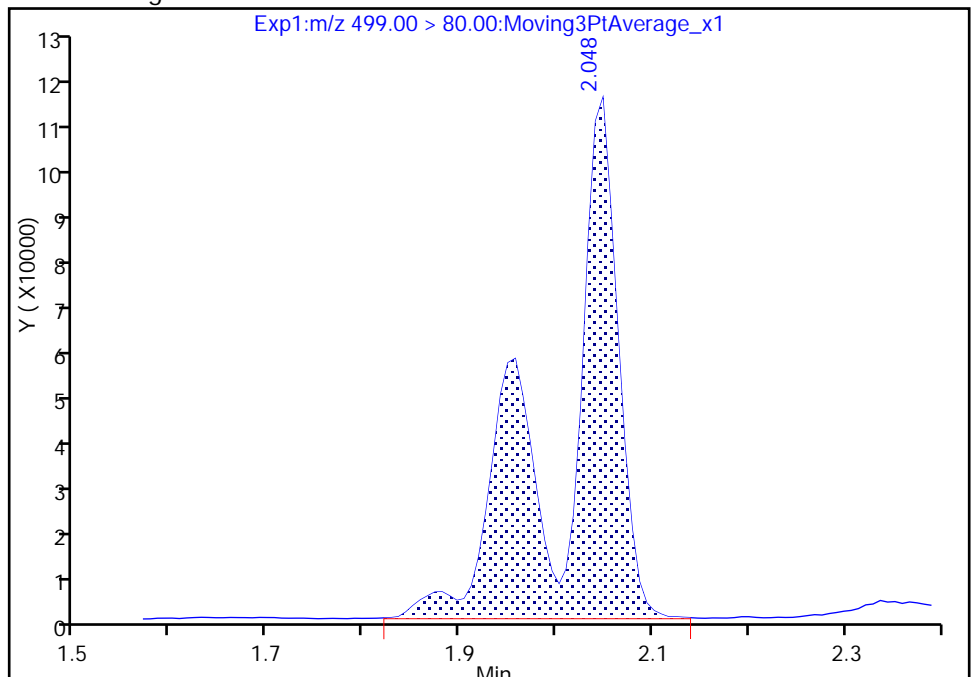
Not Detected
Expected RT: 2.03

Processing Integration Results



RT: 2.05
Area: 449528
Amount: 4.521892
Amount Units: ng/ml

Manual Integration Results



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-207 Lab Sample ID: 320-35691-17
 Matrix: Water Lab File ID: 2018.02.08_537B_024.d
 Analysis Method: 537 Date Collected: 02/01/2018 16:35
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 262.2 (mL) Date Analyzed: 02/08/2018 13:42
 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.: 207626 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	100		70-130
STL00996	13C2 PFDA	96		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_024.d
 Lims ID: 320-35691-A-17-A
 Client ID: NAWC-020118-FRB-207
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:42:14 ALS Bottle#: 54 Worklist Smp#: 24
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-17-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

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	1429817	9.95	7414	
* 6 13C2-PFOA	415.00 > 370.00	1.798	1.806	-0.008		1305838	10.0	5561	
5 Perfluorooctanoic acid	413.00 > 369.00	1.798	1.806	-0.008	1.000	78120	0.6462	15.3	
	413.00 > 169.00	1.798	1.806	-0.008	1.000	43165	1.81(0.00-0.00)	167	
* 7 13C4 PFOS	503.00 > 80.00	2.041	2.056	-0.015		3222854	28.7	5439	
\$ 10 13C2 PFDA	515.00 > 470.00	2.231	2.253	-0.022	1.000	958082	9.59	6375	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_024.d

Injection Date: 08-Feb-2018 13:42:14

Instrument ID: A8_N

Lims ID: 320-35691-A-17-A

Lab Sample ID: 320-35691-17

Client ID: NAWC-020118-FRB-207

Operator ID: SACINSTLCMS01

ALS Bottle#: 54

Worklist Smp#: 24

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

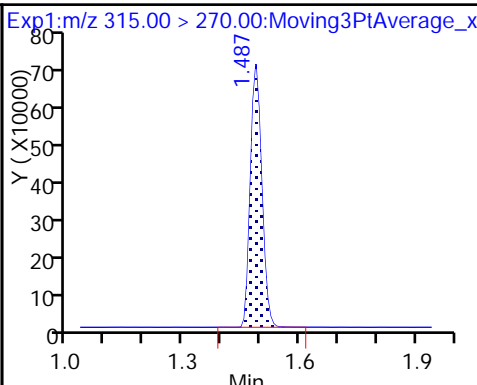
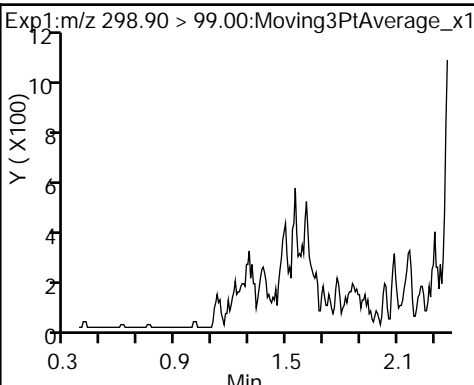
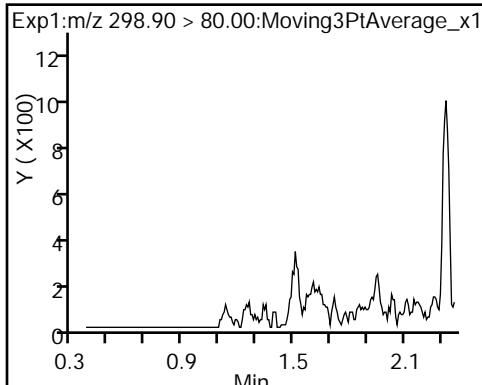
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

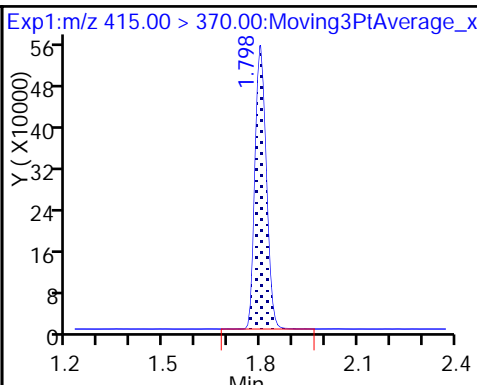
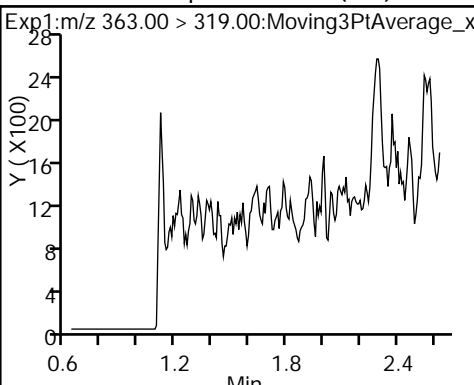
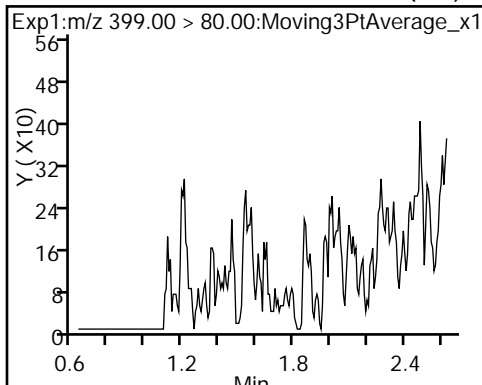
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

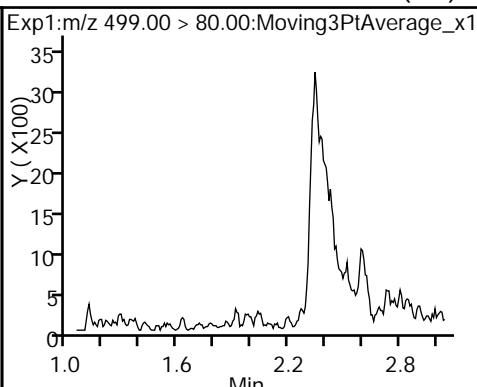
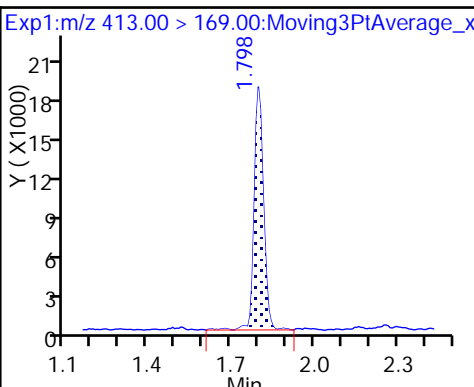
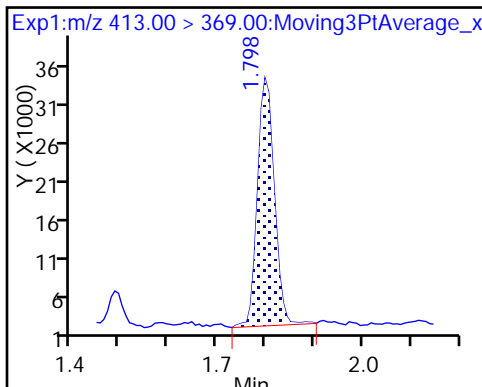
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

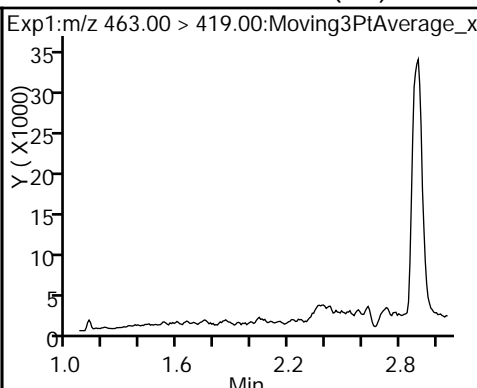
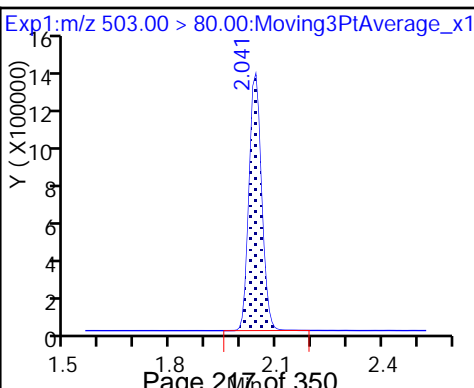
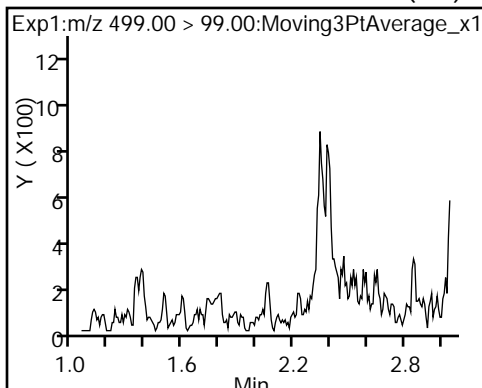
8 Perfluorooctane sulfonic acid (ND)



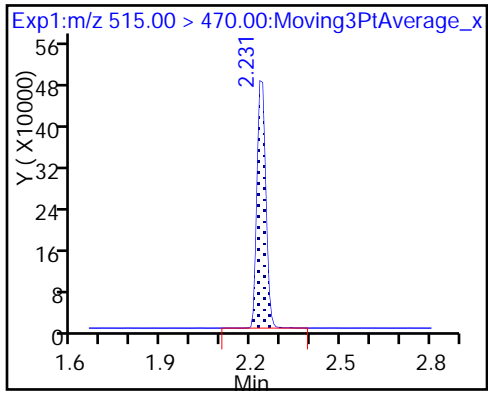
8 Perfluorooctane sulfonic acid (ND)

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_024.d
 Lims ID: 320-35691-A-17-A
 Client ID: NAWC-020118-FRB-207
 Sample Type: Client
 Inject. Date: 08-Feb-2018 13:42:14 ALS Bottle#: 54 Worklist Smp#: 24
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-35691-a-17-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.95	99.51
\$ 10 13C2 PFDA	10.0	9.59	95.88

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

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1 Analy Batch No.: 192908

SDG No.: _____

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

Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_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)	1.0397 0.8468	1.0767	1.0898	0.9577	0.9303	QuaF		1.1193	-0.001498					0.9990			0.9600
Perfluoroheptanoic acid (PFHpA)	0.9433 0.9848	0.9187	0.9551	0.9185	0.9011	Ave		0.9369			3.2		30.0				
Perfluorohexanesulfonic acid (PFHxS)	1.6459 1.6841	1.6355	1.7405	1.6631	1.6755	Ave		1.6741			2.2		30.0				
Perfluorooctanoic acid (PFOA)	0.9757 0.9799	0.8919	0.9000	0.8953	0.9117	Ave		0.9258			4.4		30.0				
Perfluorooctanesulfonic acid (PFOS)	0.8958 0.9902	0.9213	0.9281	0.9268	0.9715	Ave		0.9389			3.7		30.0				
Perfluorononanoic acid (PFNA)	0.6610 0.7042	0.6285	0.6624	0.6810	0.6478	Ave		0.6642			3.9		30.0				
13C2 PFHxA	1.0891 1.1664	1.0526	1.1042	1.1123	1.0772	Ave		1.1003			3.5		30.0				
13C2 PFDA	0.7748 0.8159	0.7295	0.7569	0.7811	0.7330	Ave		0.7652			4.3		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.: 320-35691-1 Analy Batch No.: 192908

SDG No.: _____

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

Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_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	1076553 16699152	2591121	5461974	10142530	14011858	9.00 180	20.0	45.0	90.0	135
Perfluoroheptanoic acid (PFHpA)	13PF OA	Ave	143455 2810797	331548	736034	1420703	2102676	1.00 20.0	2.22	5.00	10.0	15.0
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	568156 11071993	1312135	2908204	5871843	8413133	3.00 60.0	6.67	15.0	30.0	45.0
Perfluorooctanoic acid (PFOA)	13PF OA	Ave	296934 5597122	644149	1388033	2771271	4257225	2.00 40.0	4.45	10.0	20.0	30.0
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	412315 8679676	985487	2067792	4363079	6504279	4.00 80.0	8.89	20.0	40.0	60.0
Perfluorononanoic acid (PFNA)	13PF OA	Ave	201053 4019666	453612	1020851	2106479	3023088	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PF OA	Ave	1655691 1664260	1708988	1701491	1719911	1675220	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PF OA	Ave	1177922 1164156	1184358	1166275	1207887	1139992	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.: 320-35691-1 Analy Batch No.: 192908

SDG No.: _____

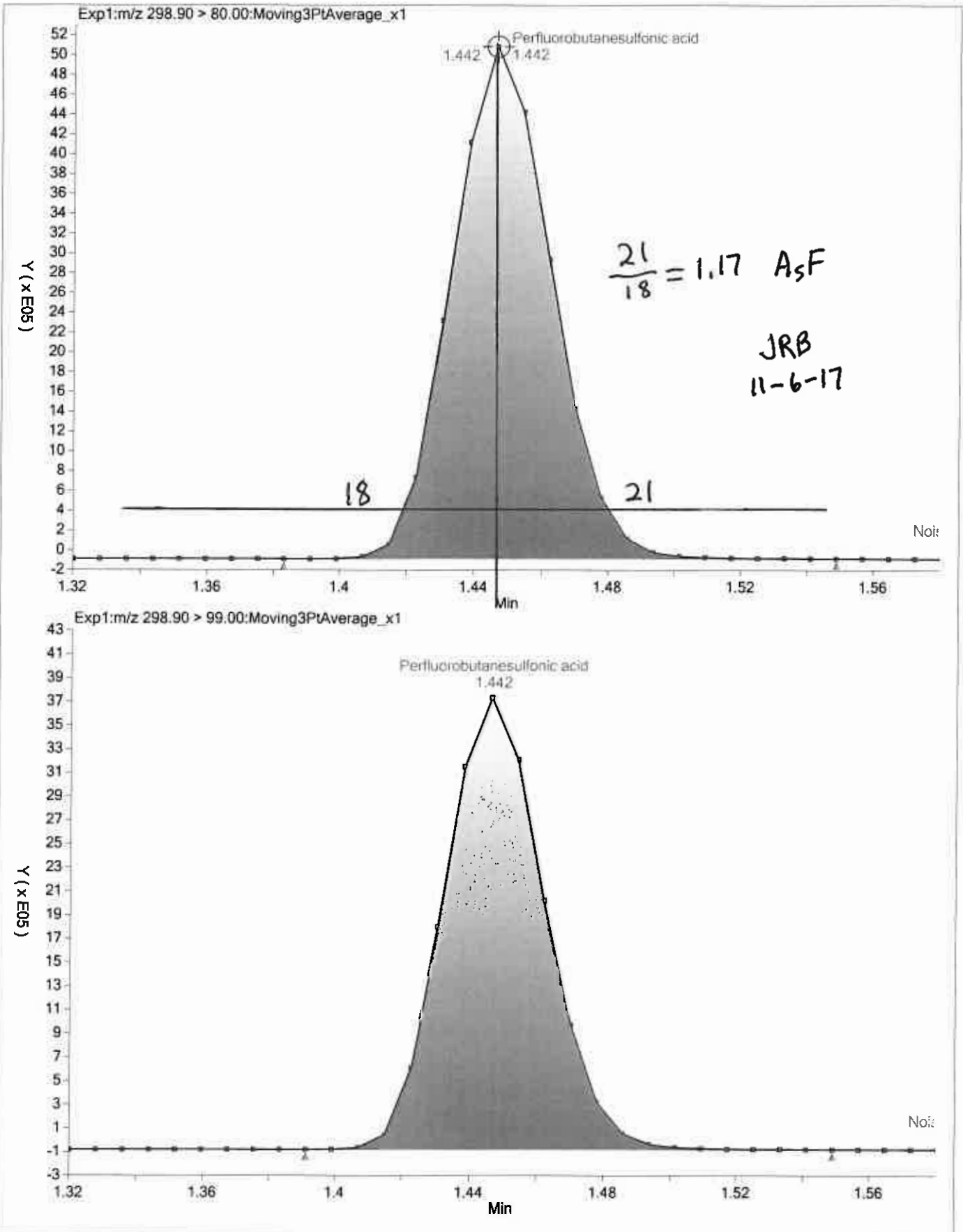
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N

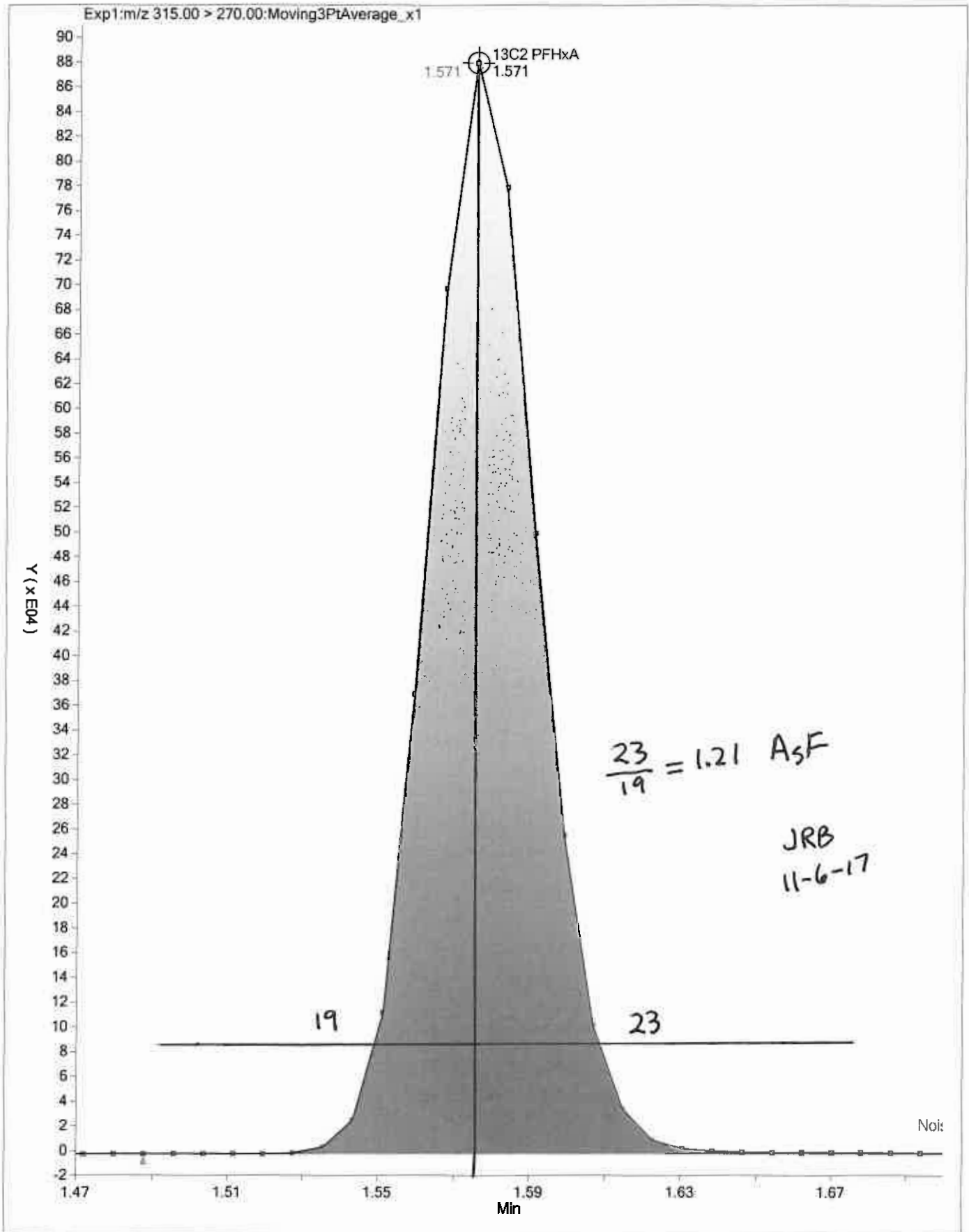
Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_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)	-6.0	-1.2	3.9	-3.1	1.9	-0.5	50	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	0.7	-1.9	1.9	-2.0	-3.8	5.1	50	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	-1.7	-2.3	4.0	-0.7	0.1	0.6	50	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	5.4	-3.7	-2.8	-3.3	-1.5	5.8	50	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-4.6	-1.9	-1.2	-1.3	3.5	5.5	50	30	30	30	30	30
Perfluorononanoic acid (PFNA)	-0.5	-5.4	-0.3	2.5	-2.5	6.0	50	30	30	30	30	30
13C2 PFHxA	-1.0	-4.3	0.4	1.1	-2.1	6.0	30	30	30	30	30	30
13C2 PFDA	1.3	-4.7	-1.1	2.1	-4.2	6.6	30	30	30	30	30	30





TestAmerica Laboratories
Istd/Surrogate Recovery Report

Worklist Name: 03NOV2017_537A_ICAL

Worklist Num: 49975

Instrument: A8_N

Method: 537_A8_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b

Limit Group: LC 537 ICAL

Analysis Type: SemiVOA

Inj Volume: 2.00

Inj Vol Units: ul

Lims Batch: 192908

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

Non-Cal IS Mode: Last Ccal Sample

\$ 2 13C2 PFHxA

\$ 10 13C2 PFDA

Lab ID	Inj Date	\$ 2	\$ 10	* 6 13C2-PFOA	* 7 13C4 PFOS
	IS Std			2864400 1.87	6253426 2.11
# 1 RB	03-Nov-2017 13:23:59			1485386 51.9	3471256 55.5
# 2 RB	03-Nov-2017 13:28:38			1511056 52.8	3340239 53.4
# 3 RB	03-Nov-2017 13:33:19			1483949 51.8	3285228 52.5
	IS Std				
# 4 IC L1	03-Nov-2017 13:37:59	1.58 98.98	2.31 101.30	1520258> 100.0*	3298877> 100.0*
# 5 IC L2	03-Nov-2017 13:42:39	1.58 95.66	2.31 95.33	1623614> 106.8*	3450592> 104.6*
# 6 IC L3	03-Nov-2017 13:47:20	1.57 100.40	2.31 98.91	1540946> 101.4*	3194016> 96.8*
# 7 IC L4	03-Nov-2017 13:52:00	1.57 101.10	2.31 102.10	1546307> 101.7*	3374600> 102.3*
# 8 IC L5	03-Nov-2017 13:56:41	1.57 97.90	2.31 95.80	1555174> 102.3*	3199479> 97.0*
# 9 IC L6	03-Nov-2017 14:01:24	1.57 106.00	2.31 106.60	1426806> 93.9*	3141787> 95.2*
	IS Std			1540946 1.91	3194016 2.15
#10 RB	03-Nov-2017 14:06:04			1395383 90.6	3212781 100.6
	IS Std			1546307 1.91	3374600 2.16
#11 CCVL	03-Nov-2017 14:10:44	1.58 97.03	2.31 97.49	1586829 102.6	3305852 98.0
	IS Std			1586829 1.91	3305852 2.15
#12 RB	03-Nov-2017 14:15:23			1415042 89.2	3122656 94.5
	IS Std			1546307 1.91	3374600 2.16
#13 ICV	03-Nov-2017 14:20:03	1.57 94.41	2.31 96.59	1512045 97.8	3433628 101.7
	IS Std			1395100 1.91	3254950 2.15
#14 RB	03-Nov-2017 14:24:44			1395100 100.0	3254950 100.0

13C2-PFOA

$$RPD = \frac{1623614 - 1426806}{\left(\frac{1623614 + 1426806}{2}\right)} (100) = 12.9$$

13C4-PFOS

$$RPD = \frac{3450592 - 3141787}{\left(\frac{3450592 + 3141787}{2}\right)} (100) = 9.37$$

JRB
11-6-17

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_004.d
 Lims ID: IC L1
 Client ID:
 Sample Type: IC Calib Level: 1
 Inject. Date: 03-Nov-2017 13:37:59 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\20171106-49975.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 07-Nov-2017 15:52:07 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: phomsophat Date: 06-Nov-2017 07:18:01

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.449	1.444	0.005	1.000	1076553	8.46		654	
298.90 > 99.00	1.449	1.444	0.005	1.000	763262		1.41(0.00-0.00)	2025	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.573	0.005	1.000	1655691	9.90		8732	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.725	0.005	1.000	568156	2.95		1122	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.725	0.005	1.000	143455	1.01		42.2	
* 6 13C2-PFOA									
415.00 > 370.00	1.920	1.913	0.007		1520258	10.0		6863	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.920	1.914	0.006	1.000	296934	2.11		53.5	
413.00 > 169.00	1.920	1.914	0.006	1.000	149720		1.98(0.00-0.00)	184	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.155	2.147	0.008	1.000	412315	3.82		235	M
499.00 > 99.00	2.155	2.147	0.008	1.000	85347		4.83(0.00-0.00)	209	M
* 7 13C4 PFOS									
503.00 > 80.00	2.155	2.151	0.004		3298877	28.7		5279	
9 Perfluorononanoic acid									
463.00 > 419.00	2.162	2.158	0.004	1.000	201053	1.99		67.8	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.312	0.002	1.000	1177922	10.1		7012	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L1_00020

Amount Added: 1.00

Units: mL

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537ICAL_004.d

Injection Date: 03-Nov-2017 13:37:59

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

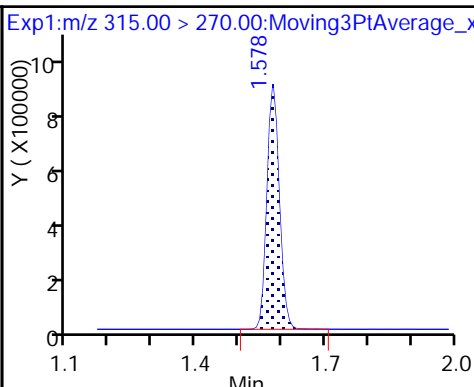
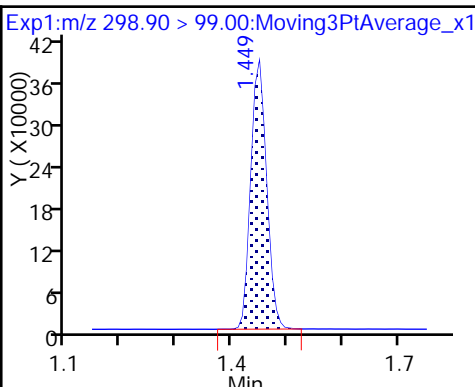
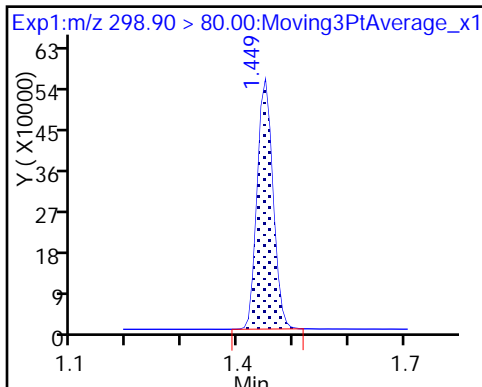
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

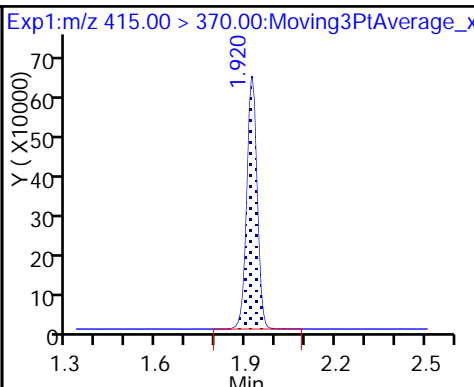
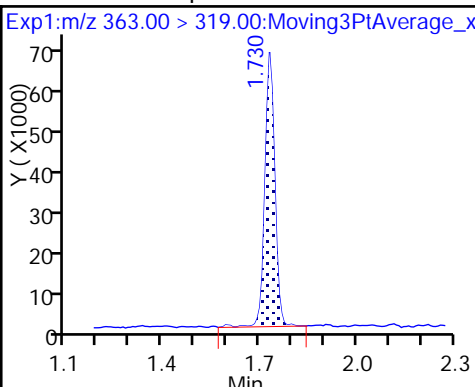
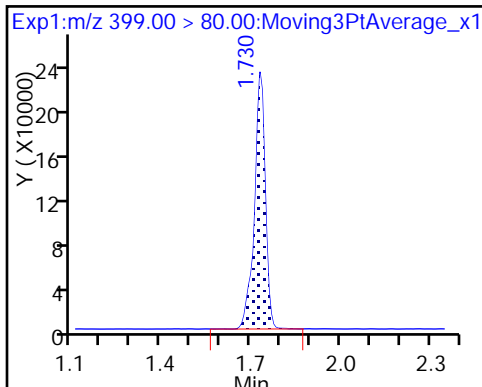
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

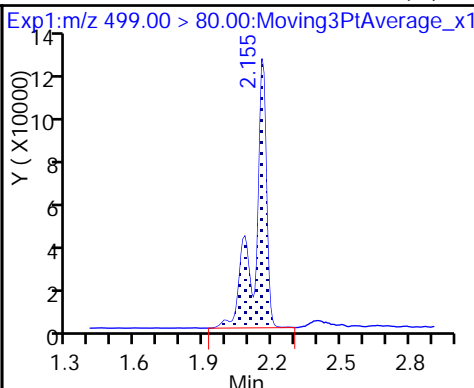
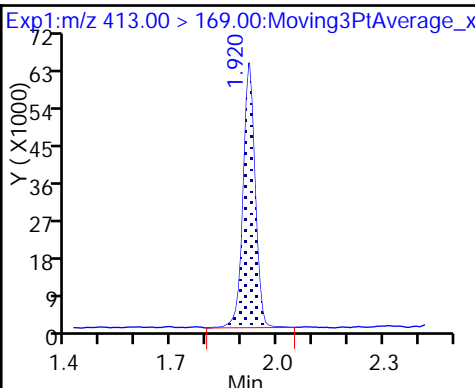
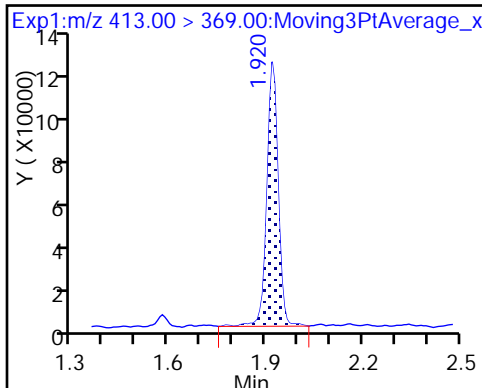
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

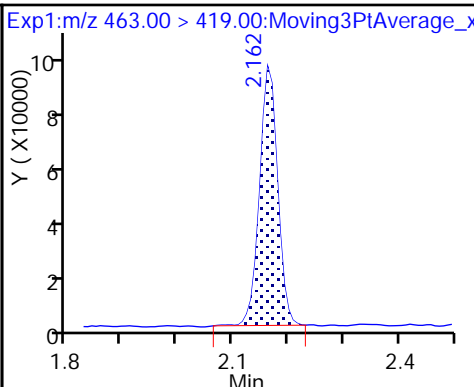
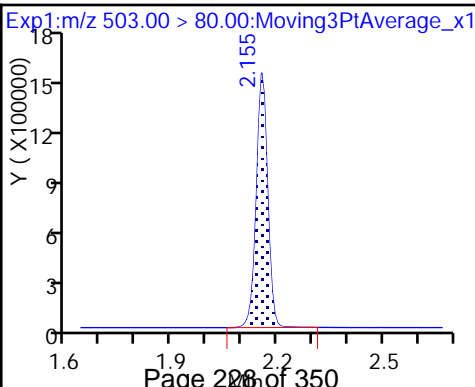
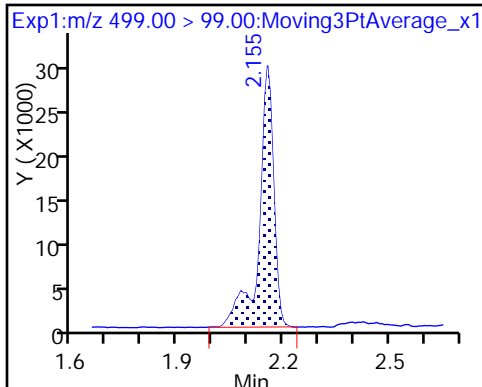
8 Perfluorooctane sulfonic acid (M)



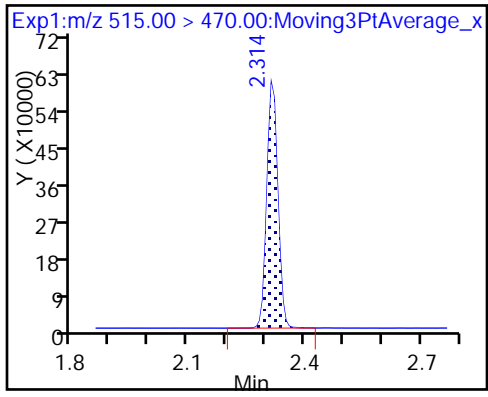
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

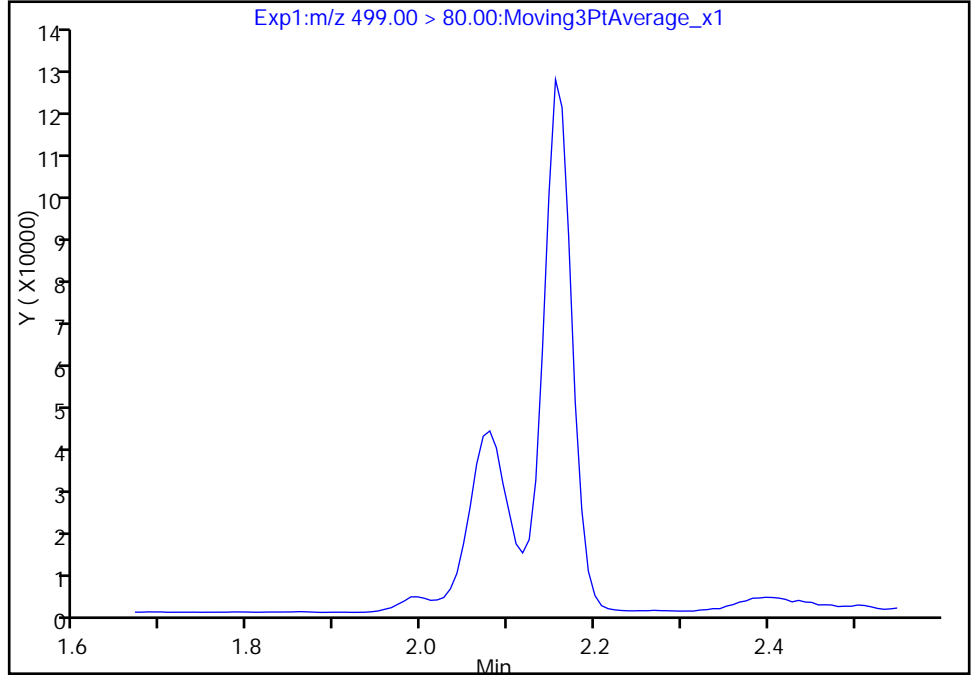
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_004.d
Injection Date: 03-Nov-2017 13:37:59 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

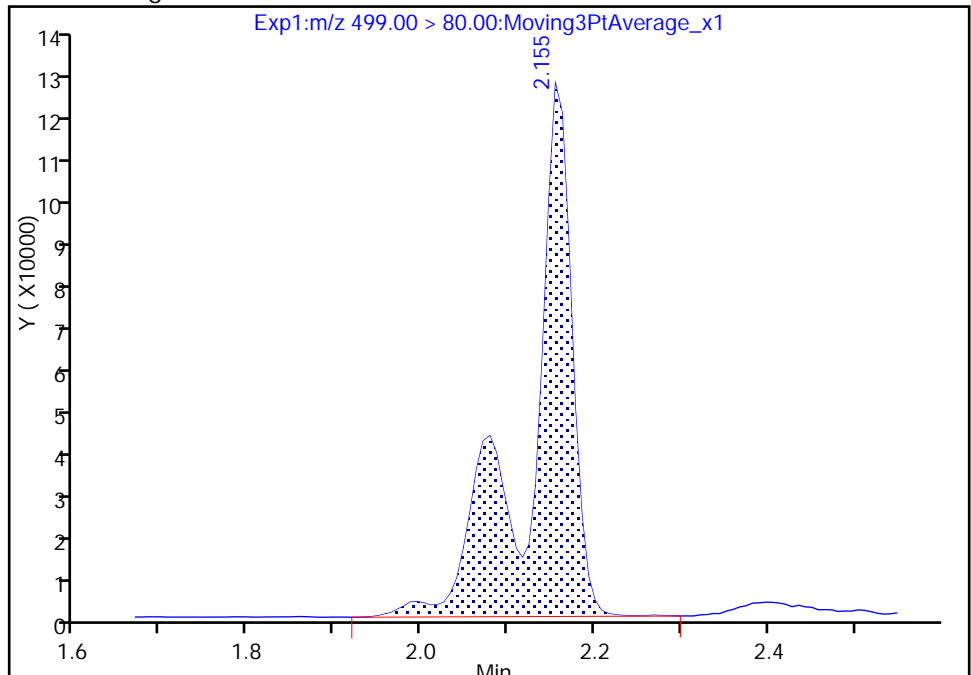
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 412315
Amount: 3.817687
Amount Units: ng/ml



TestAmerica Sacramento

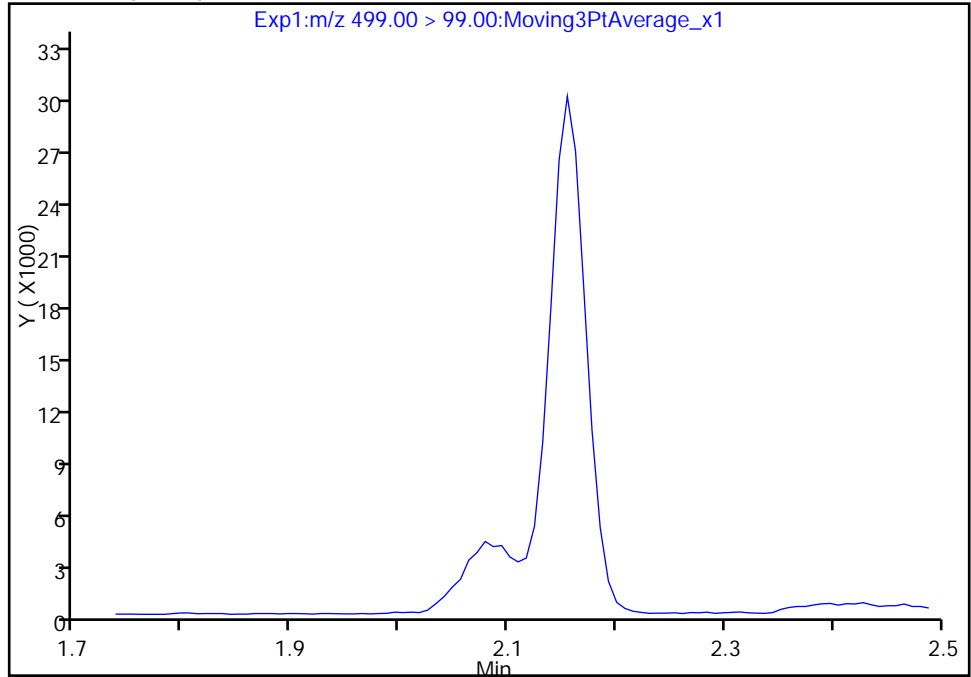
Data File: \\ChromNa\Sacramento\ChromData\A8_N\201711106-49975.b\2017.11.03_537XICAL_004.d
Injection Date: 03-Nov-2017 13:37:59 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

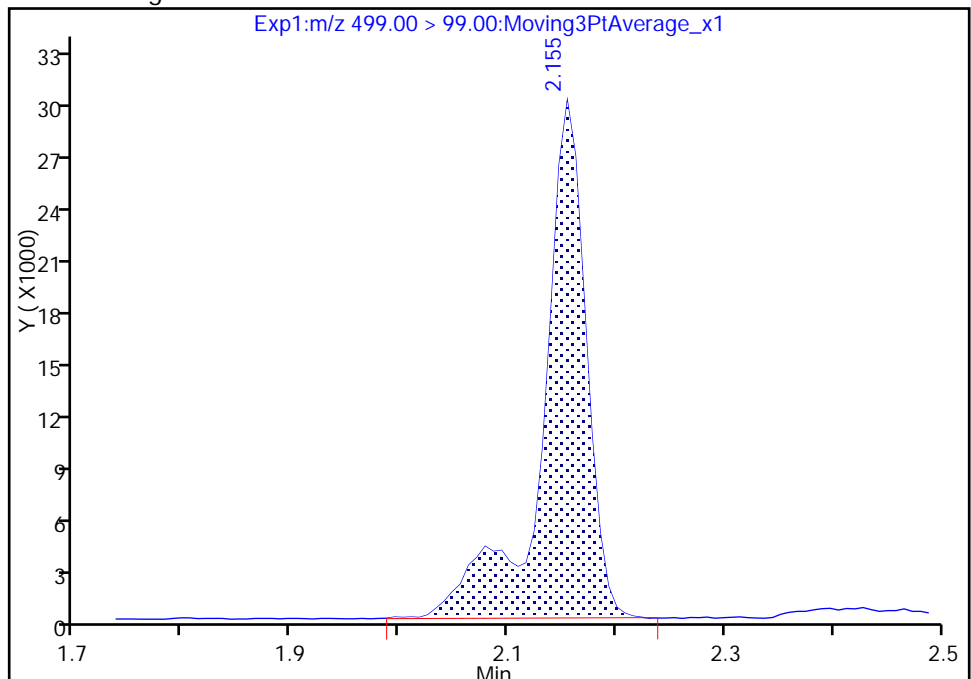
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 85347
Amount: 3.817687
Amount Units: ng/ml



Reviewer: phomsophat, 06-Nov-2017 07:17:37

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

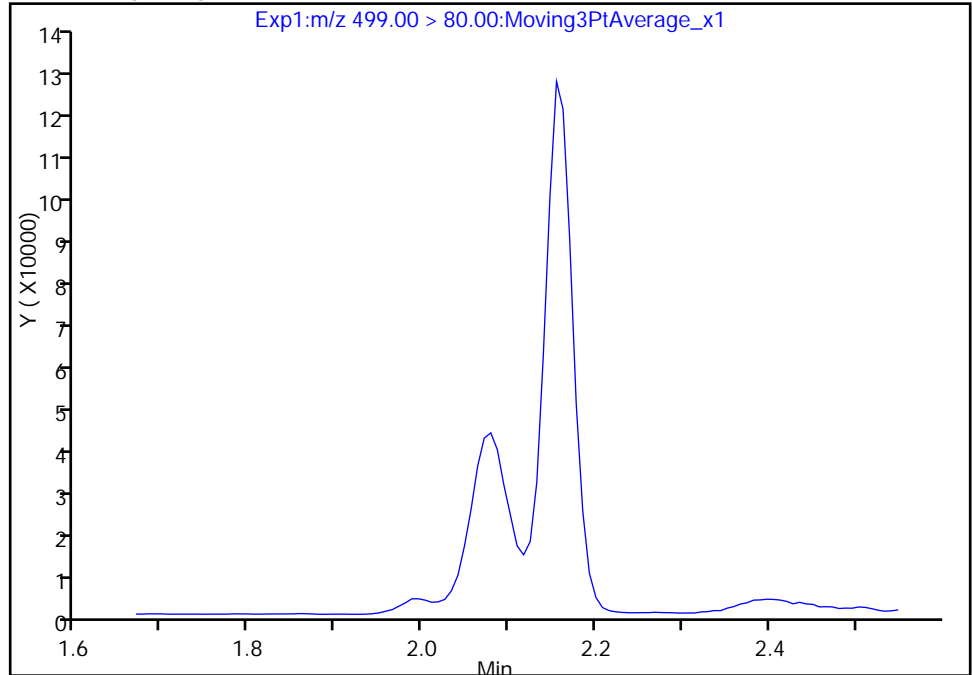
Data File: \\ChromNa\Sacramento\ChromData\A8_N\201711106-49975.b\2017.11.03_537XICAL_004.d
Injection Date: 03-Nov-2017 13:37:59 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

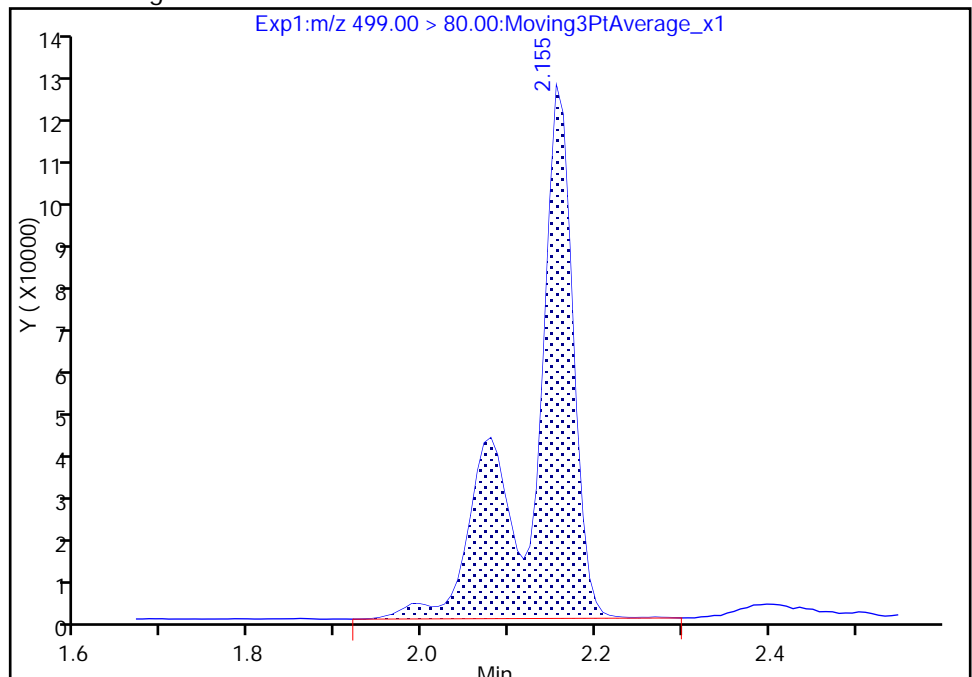
Not Detected
Expected RT: 2.15

Processing Integration Results



RT: 2.15
Area: 412315
Amount: 3.817687
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 06-Nov-2017 07:17:37

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_005.d
 Lims ID: IC L2
 Client ID:
 Sample Type: IC Calib Level: 2
 Inject. Date: 03-Nov-2017 13:42:39 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\20171106-49975.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 07-Nov-2017 15:52:08 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: phomsophat Date: 06-Nov-2017 07:18:56

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.449	1.444	0.005	1.000	2591121	19.8		1479	
298.90 > 99.00	1.442	1.444	-0.002	0.995	1874928		1.38(0.00-0.00)	4315	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.573	0.005	1.000	1708988	9.57		8562	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.725	0.005	1.000	331548	2.18		87.8	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.725	0.005	1.000	1312135	6.51		2317	
* 6 13C2-PFOA									
415.00 > 370.00	1.920	1.913	0.007		1623614	10.0		6970	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.920	1.914	0.006	1.000	644149	4.29		113	
413.00 > 169.00	1.920	1.914	0.006	1.000	329479		1.96(0.00-0.00)	459	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.155	2.147	0.008	1.000	985487	8.72		578	M
499.00 > 99.00	2.155	2.147	0.008	1.000	200739		4.91(0.00-0.00)	449	M
* 7 13C4 PFOS									
503.00 > 80.00	2.155	2.151	0.004		3450592	28.7		5334	
9 Perfluorononanoic acid									
463.00 > 419.00	2.162	2.158	0.004	1.000	453612	4.21		136	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.312	0.002	1.000	1184358	9.53		7573	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L2_00020

Amount Added: 1.00

Units: mL

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537ICAL_005.d

Injection Date: 03-Nov-2017 13:42:39

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

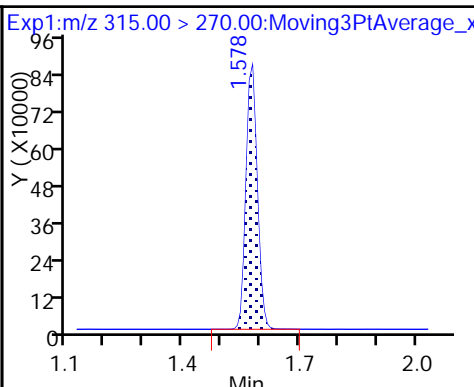
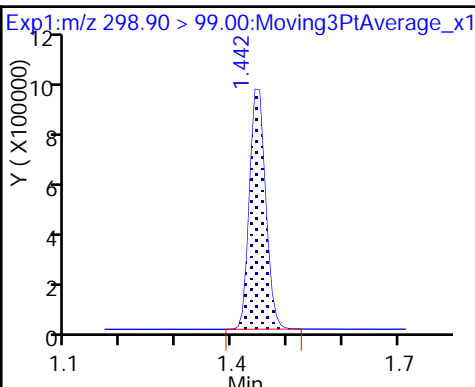
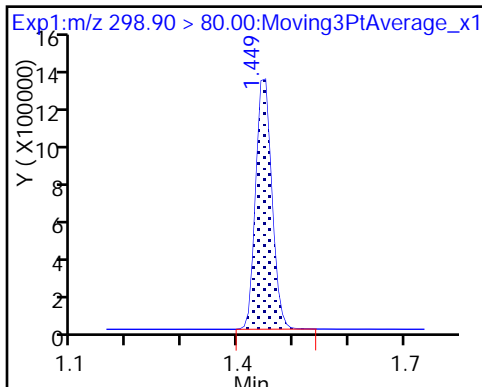
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

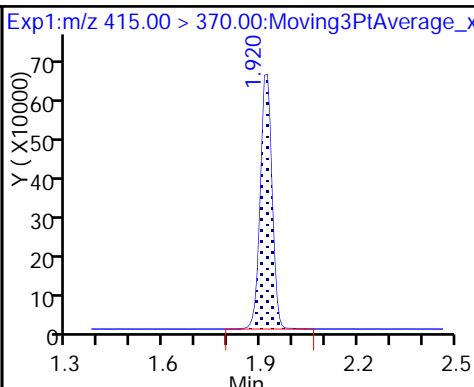
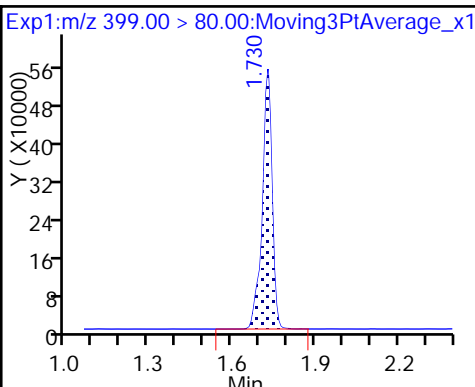
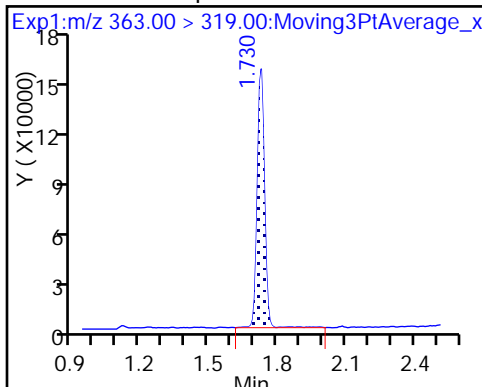
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

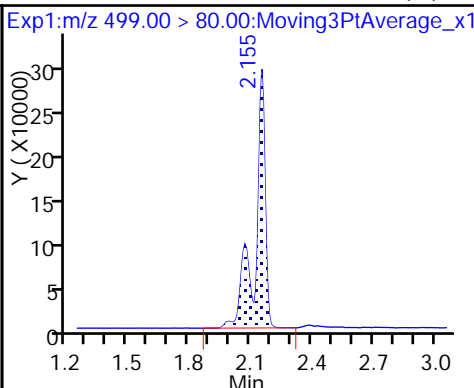
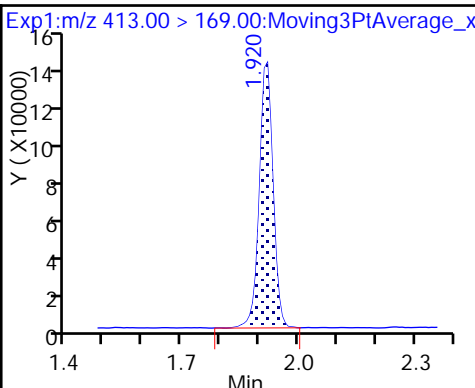
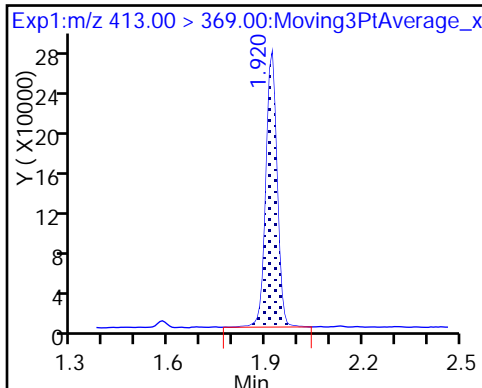
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

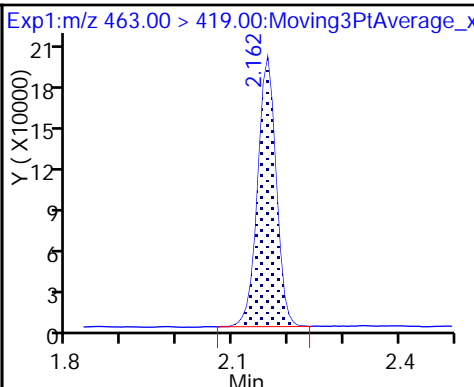
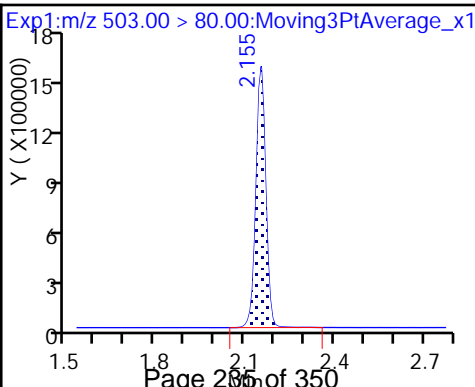
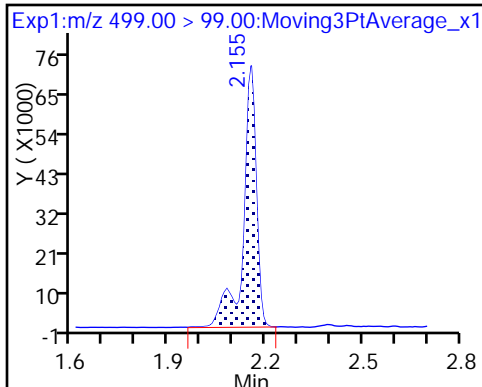
8 Perfluorooctane sulfonic acid (M)



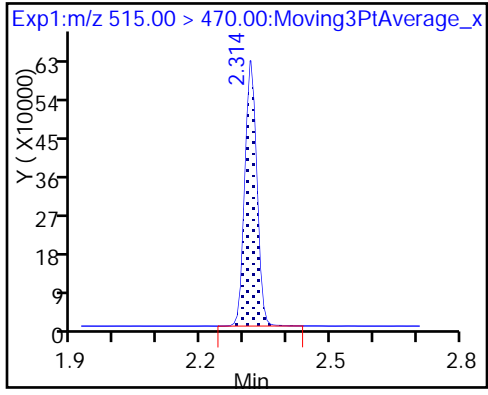
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

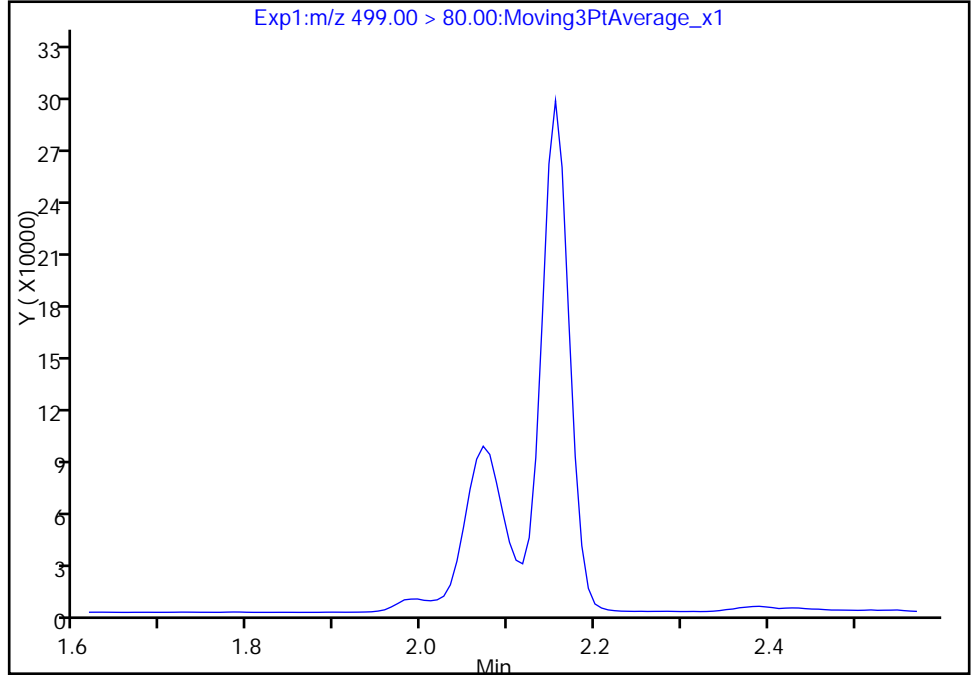
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_005.d
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

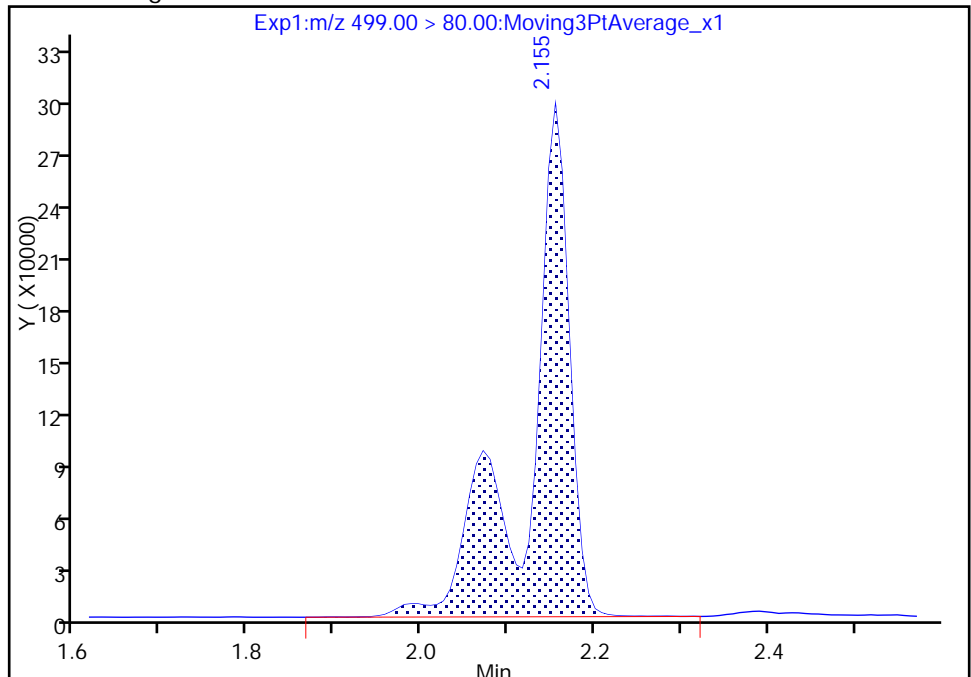
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 985487
Amount: 8.723576
Amount Units: ng/ml



TestAmerica Sacramento

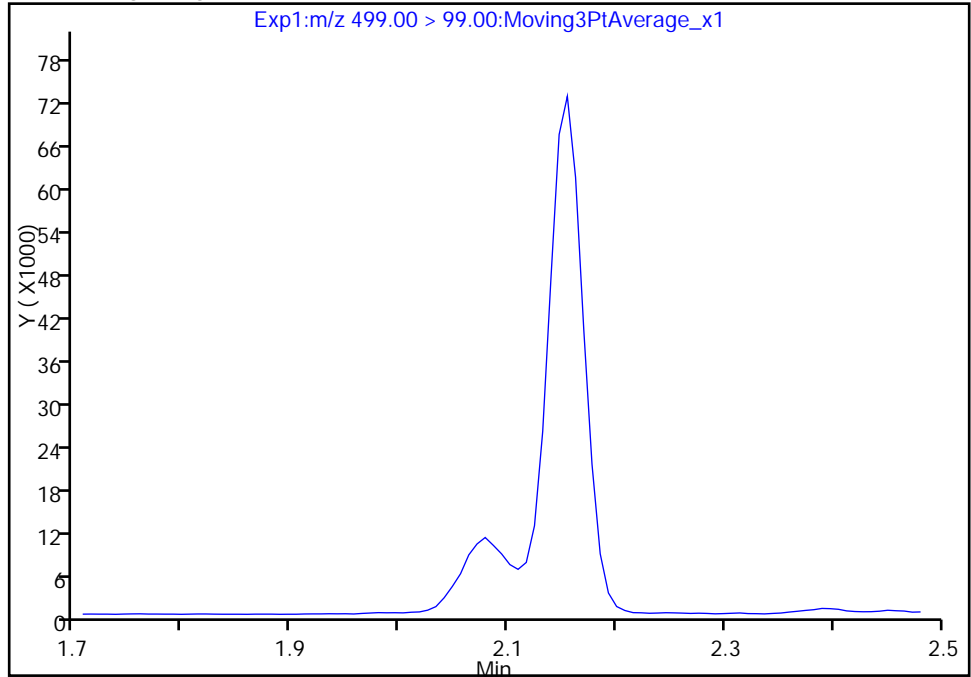
Data File: \\ChromNa\Sacramento\ChromData\A8_N\201711106-49975.b\2017.11.03_537XICAL_005.d
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

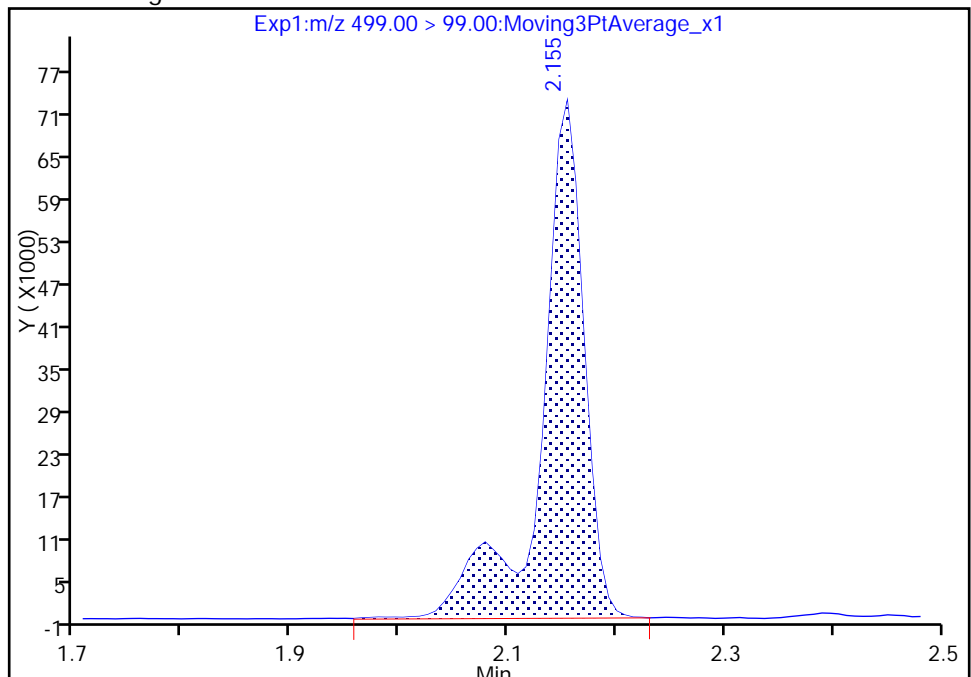
Not Detected
Expected RT: 2.15

Processing Integration Results



RT: 2.15
Area: 200739
Amount: 8.723576
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

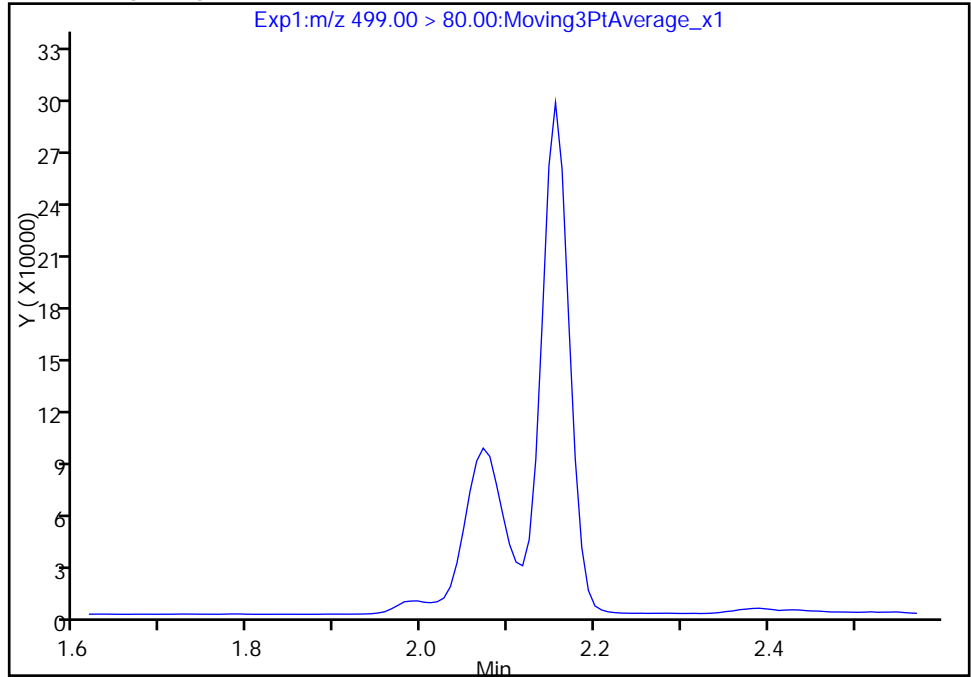
Data File: \\ChromNa\Sacramento\ChromData\A8_N\201711106-49975.b\2017.11.03_537XICAL_005.d
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

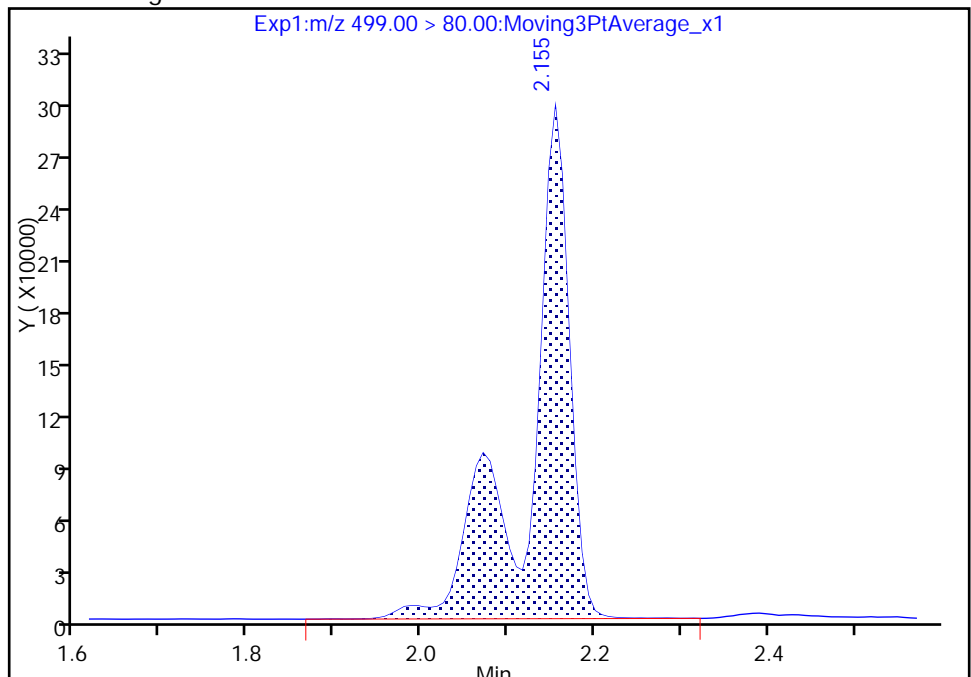
Not Detected
Expected RT: 2.15

Processing Integration Results



RT: 2.15
Area: 985487
Amount: 8.723576
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 06-Nov-2017 07:18:24

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_006.d
 Lims ID: IC L3
 Client ID:
 Sample Type: IC Calib Level: 3
 Inject. Date: 03-Nov-2017 13:47:20 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\20171106-49975.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 07-Nov-2017 15:52:09 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: phomsophat Date: 06-Nov-2017 07:20:04

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.442	1.444	-0.002	1.000	5461974	46.7		3220	
298.90 > 99.00	1.442	1.444	-0.002	1.000	3903438		1.40(0.00-0.00)	8589	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.573	-0.003	1.000	1701491	10.0		9021	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.722	1.725	-0.003	1.000	2908204	15.6		5000	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.722	1.725	-0.003	1.000	736034	5.10		208	
* 6 13C2-PFOA									
415.00 > 370.00	1.912	1.913	-0.001		1540946	10.0		6787	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.912	1.914	-0.002	1.000	1388033	9.73		256	
413.00 > 169.00	1.912	1.914	-0.002	1.000	715399		1.94(0.00-0.00)	904	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.147	2.147	0.0	1.000	2067792	19.8		2001	
499.00 > 99.00	2.147	2.147	0.0	1.000	431075		4.80(0.00-0.00)	922	
* 7 13C4 PFOS									
503.00 > 80.00	2.147	2.151	-0.004		3194016	28.7		4956	
9 Perfluorononanoic acid									
463.00 > 419.00	2.155	2.158	-0.003	1.000	1020851	9.97		302	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.306	2.312	-0.006	1.000	1166275	9.89		6310	

Reagents:

LC537-L3_00023

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537ICAL_006.d

Injection Date: 03-Nov-2017 13:47:20

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

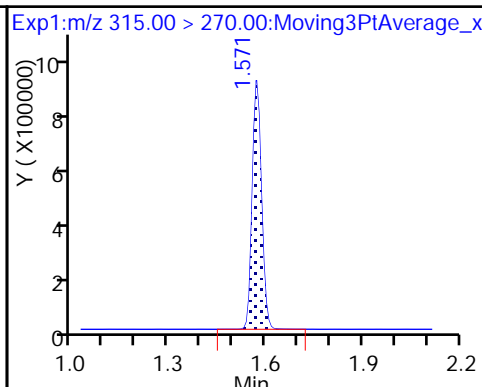
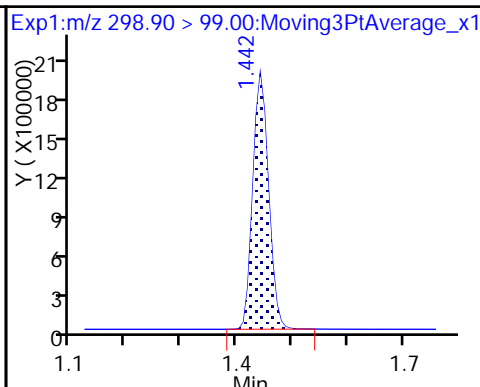
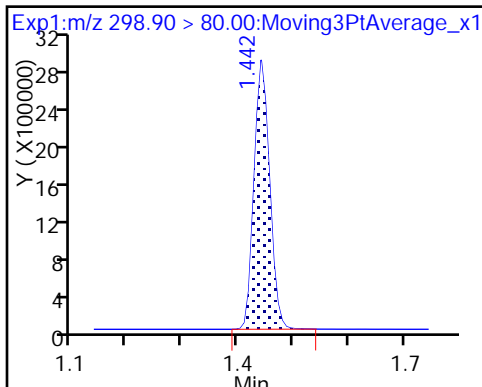
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

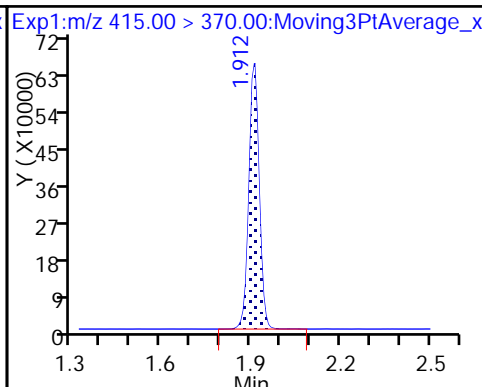
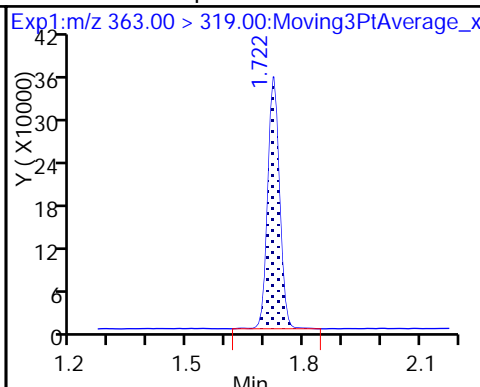
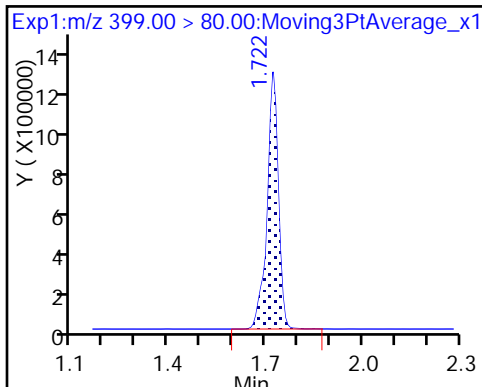
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

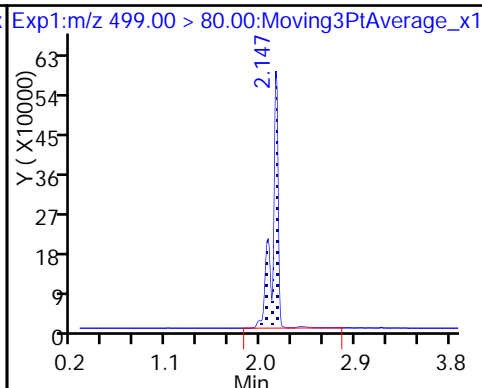
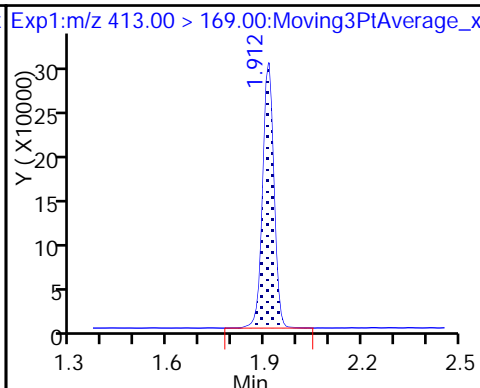
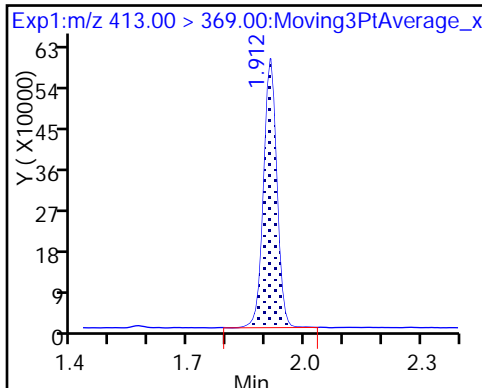
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

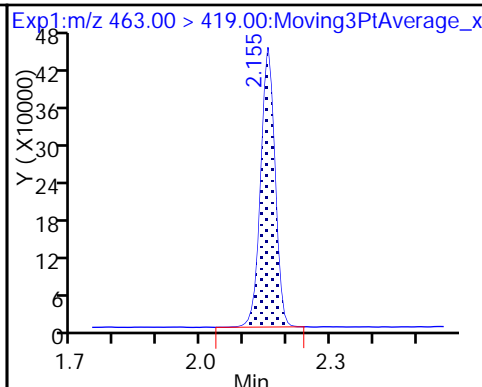
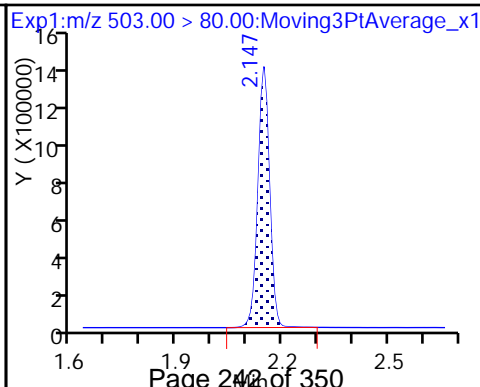
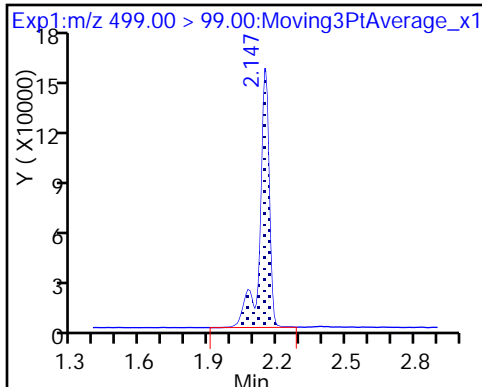
8 Perfluorooctane sulfonic acid



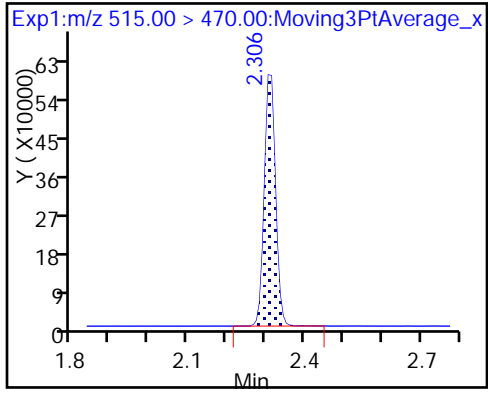
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_007.d
 Lims ID: IC L4
 Client ID:
 Sample Type: ICISAV Calib Level: 4
 Inject. Date: 03-Nov-2017 13:52:00 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\20171106-49975.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 07-Nov-2017 15:52:10 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: phomsophat Date: 06-Nov-2017 07:20:46

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.442	1.444	-0.002	1.000	10142530	87.2		5274	
298.90 > 99.00	1.442	1.444	-0.002	1.000	7408390		1.37(0.00-0.00)	12862	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.573	-0.003	1.000	1719911	10.1		8503	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.722	1.725	-0.003	1.000	1420703	9.81		399	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.722	1.725	-0.003	1.000	5871843	29.8		7622	
* 6 13C2-PFOA									
415.00 > 370.00	1.912	1.913	-0.001		1546307	10.0		6563	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.912	1.914	-0.002	1.000	2771271	19.4		505	
413.00 > 169.00	1.912	1.914	-0.002	1.000	1520933		1.82(0.00-0.00)	1919	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.155	2.147	0.008	1.000	4363079	39.5		3896	M
499.00 > 99.00	2.155	2.147	0.008	1.000	902486		4.83(0.00-0.00)	1588	M
* 7 13C4 PFOS									
503.00 > 80.00	2.155	2.151	0.004		3374600	28.7		5331	
9 Perfluorononanoic acid									
463.00 > 419.00	2.162	2.158	0.004	1.000	2106479	20.5		638	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.312	0.002	1.000	1207887	10.2		7165	

QC Flag Legend

Review Flags

M - Manually Integrated

Reagents:

LC537-L4_00020

Amount Added: 1.00

Units: mL

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537ICAL_007.d

Injection Date: 03-Nov-2017 13:52:00

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

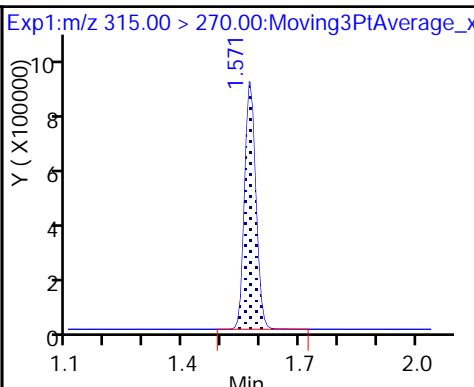
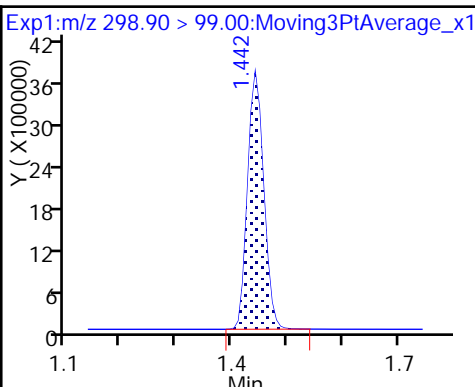
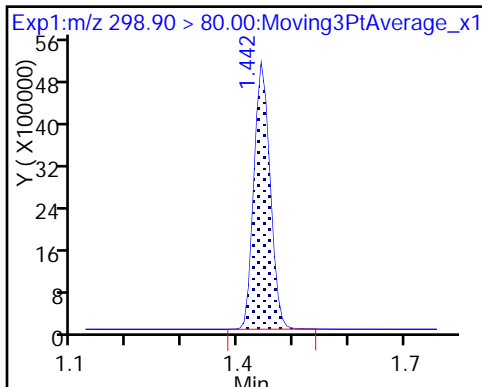
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

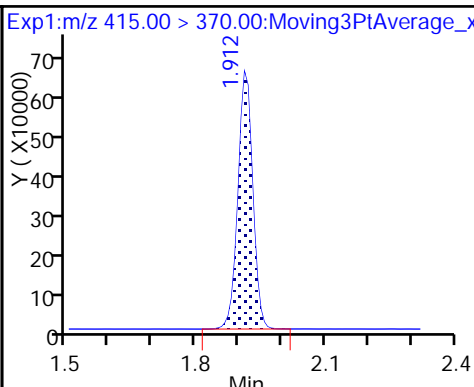
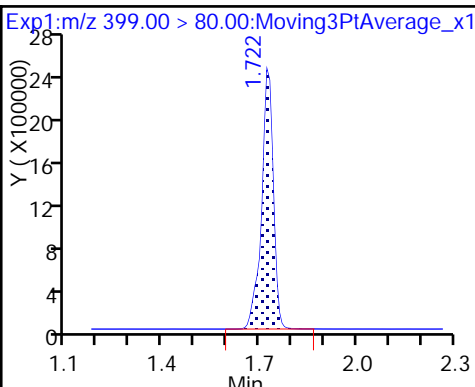
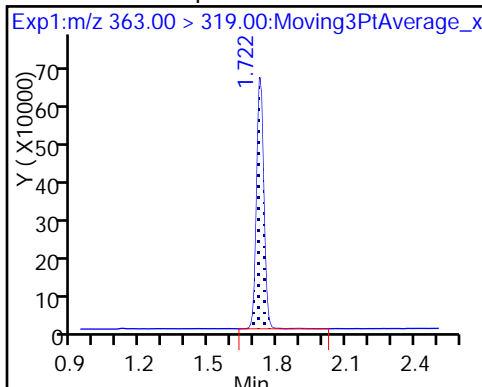
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

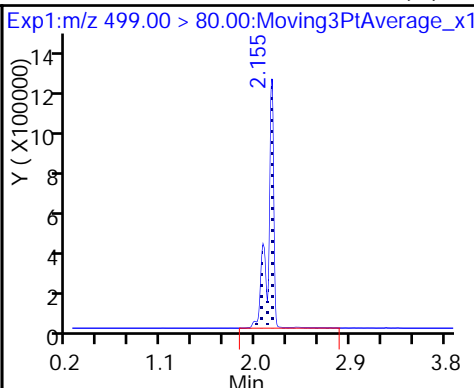
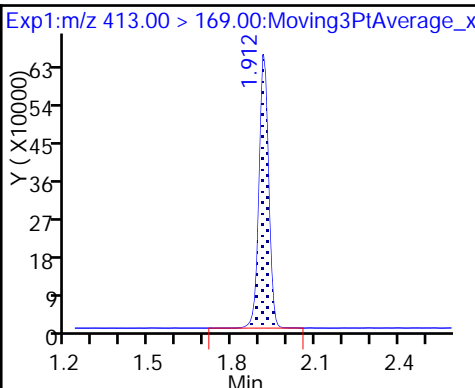
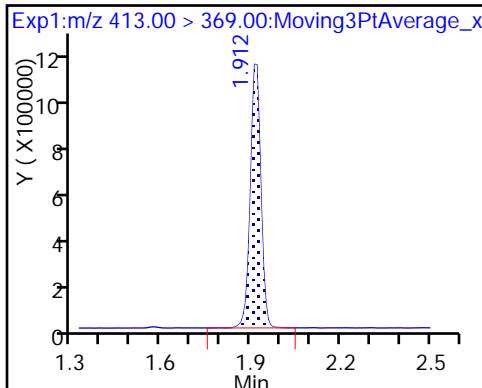
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

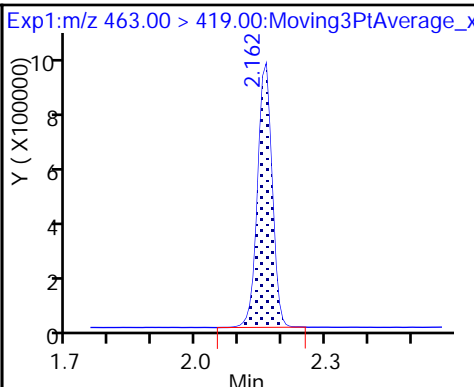
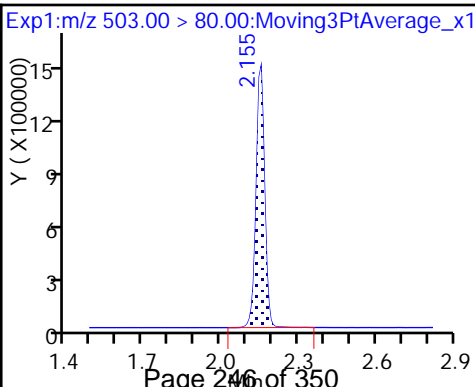
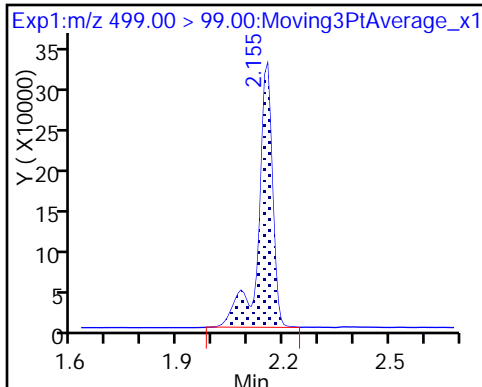
8 Perfluorooctane sulfonic acid (M)



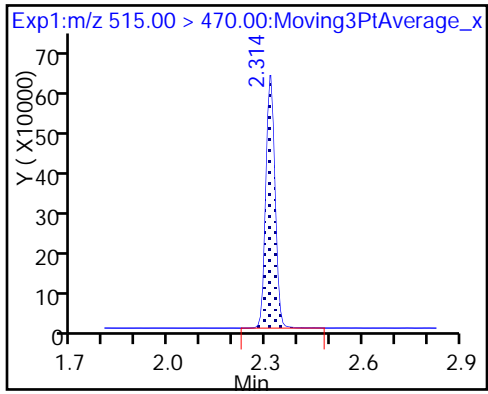
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

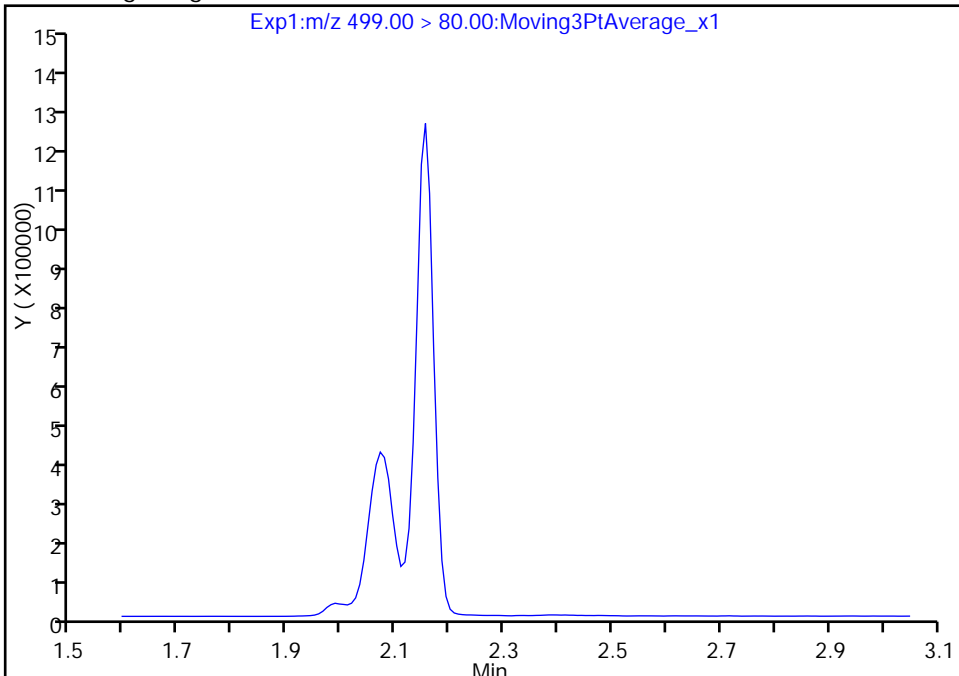
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Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

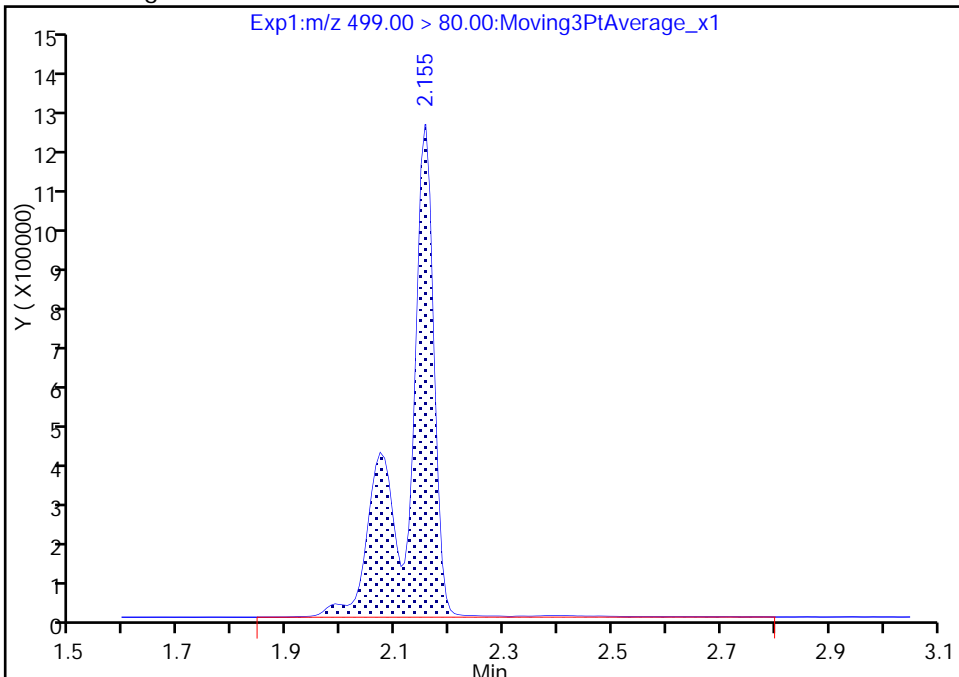
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

RT: 2.15
Area: 4363079
Amount: 39.491903
Amount Units: ng/ml



TestAmerica Sacramento

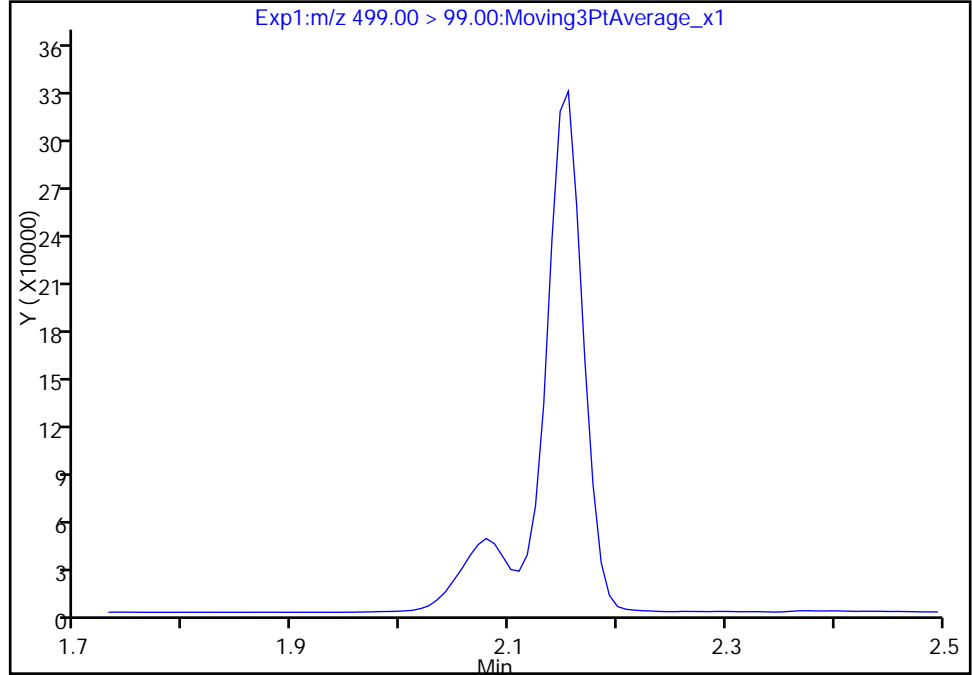
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Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

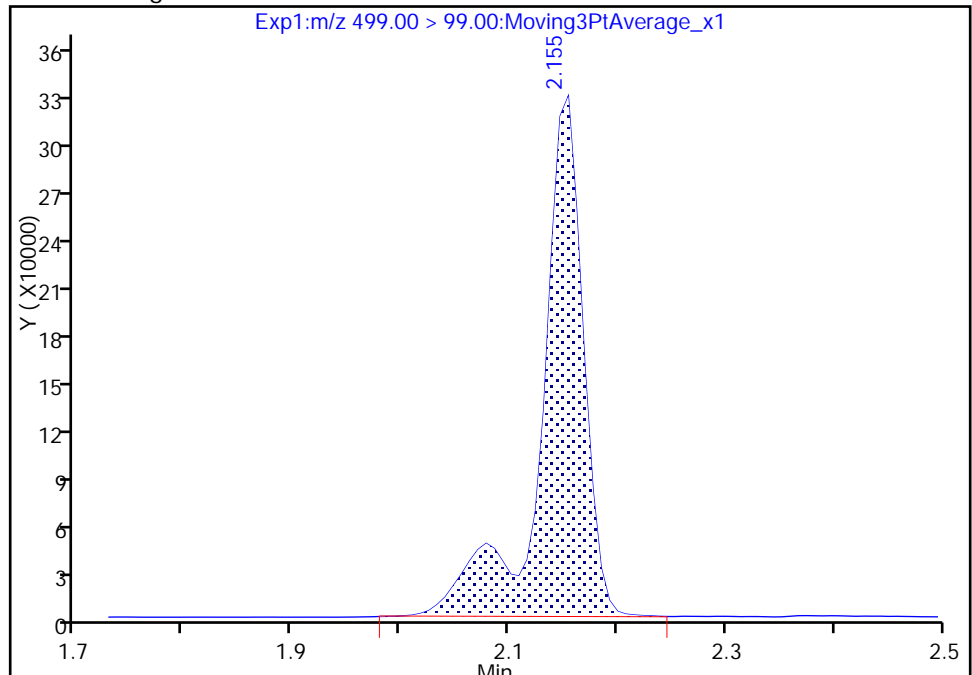
Not Detected
Expected RT: 2.15

Processing Integration Results



RT: 2.15
Area: 902486
Amount: 39.491903
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 06-Nov-2017 07:20:20

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

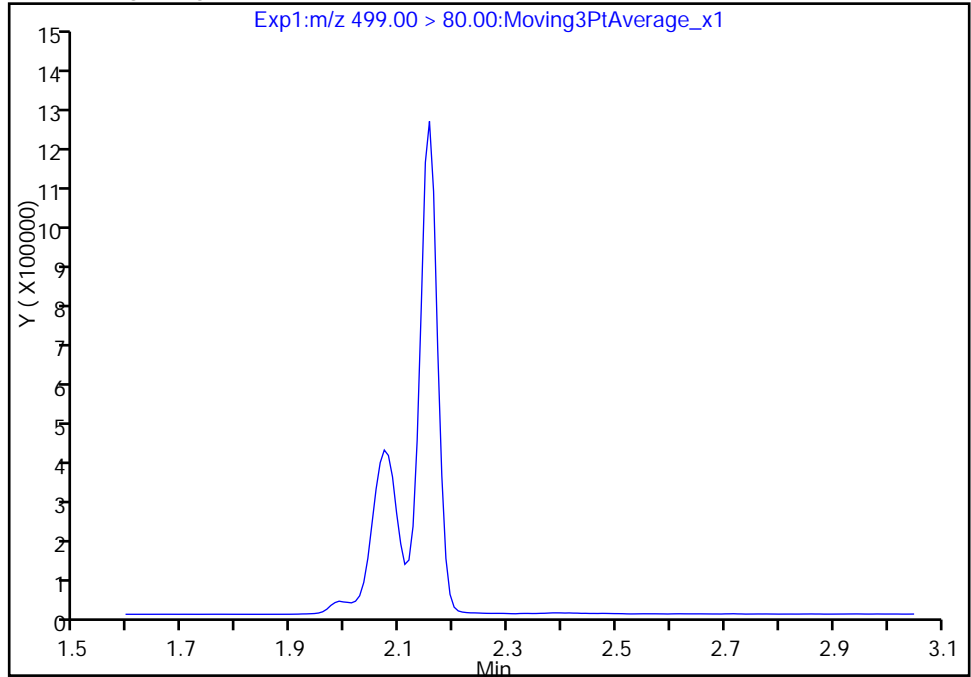
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Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

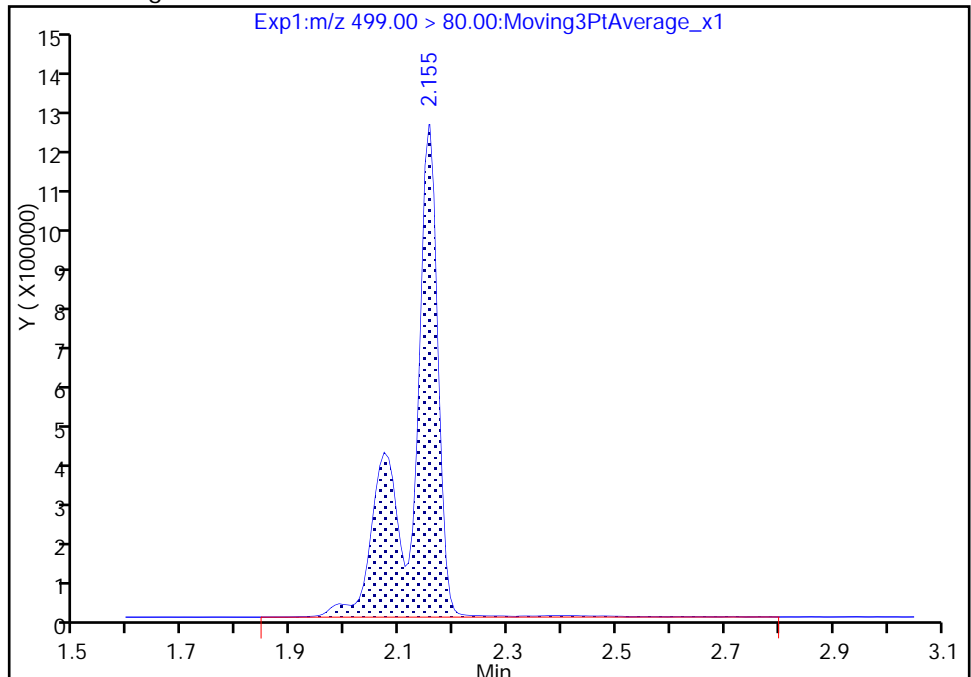
Not Detected
Expected RT: 2.15

Processing Integration Results



RT: 2.15
Area: 4363079
Amount: 39.491903
Amount Units: ng/ml

Manual Integration Results



Reviewer: phomsophat, 06-Nov-2017 07:20:20

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_008.d
 Lims ID: IC L5
 Client ID:
 Sample Type: IC Calib Level: 5
 Inject. Date: 03-Nov-2017 13:56:41 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\20171106-49975.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 07-Nov-2017 15:52:11 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: phomsophat Date: 06-Nov-2017 07:21:19

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.442	1.444	-0.002	1.000	14011858	137.5		6452	
298.90 > 99.00	1.442	1.444	-0.002	1.000	10411479		1.35(0.00-0.00)	14800	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.573	-0.003	1.000	1675220	9.79		9525	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.722	1.725	-0.003	1.000	8413133	45.0		9078	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.722	1.725	-0.003	1.000	2102676	14.4		562	
* 6 13C2-PFOA									
415.00 > 370.00	1.912	1.913	-0.001		1555174	10.0		6769	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.912	1.914	-0.002	1.000	4257225	29.6		800	
413.00 > 169.00	1.912	1.914	-0.002	1.000	2294552		1.86(0.00-0.00)	2838	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.147	2.147	0.0	1.000	6504279	62.1		5682	
499.00 > 99.00	2.147	2.147	0.0	1.000	1339120		4.86(0.00-0.00)	2329	
* 7 13C4 PFOS									
503.00 > 80.00	2.147	2.151	-0.004		3199479	28.7		4946	
9 Perfluorononanoic acid									
463.00 > 419.00	2.155	2.158	-0.003	1.000	3023088	29.3		870	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.312	0.002	1.000	1139992	9.58		5885	

Reagents:

LC537-L5_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537ICAL_008.d

Injection Date: 03-Nov-2017 13:56:41

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

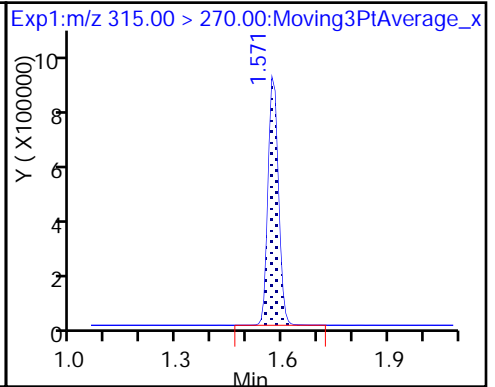
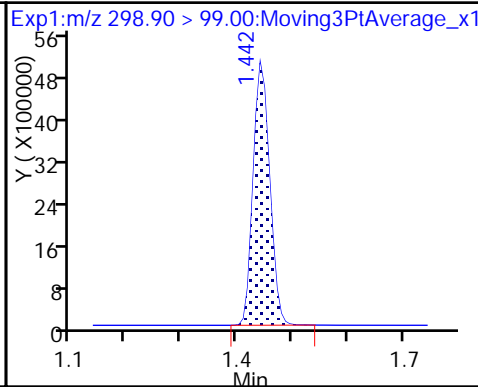
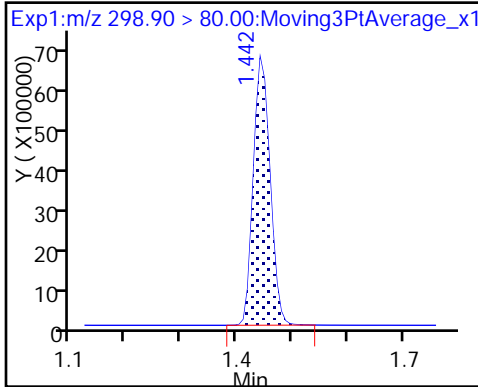
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

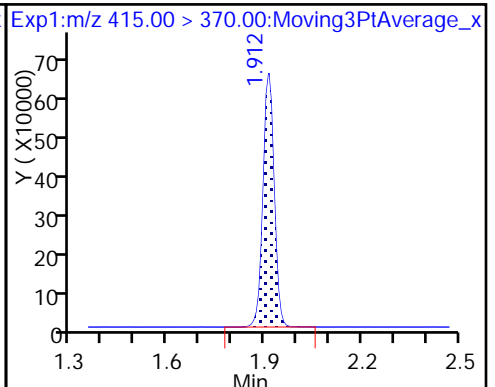
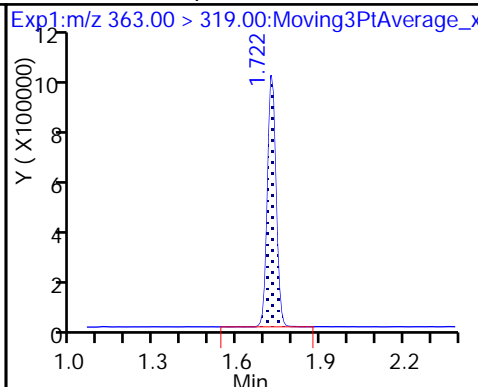
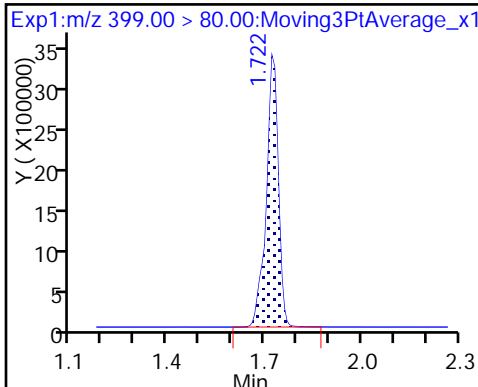
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

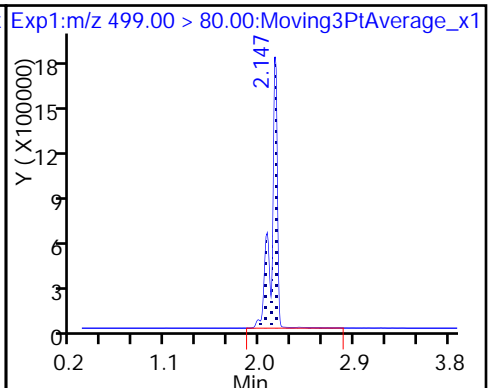
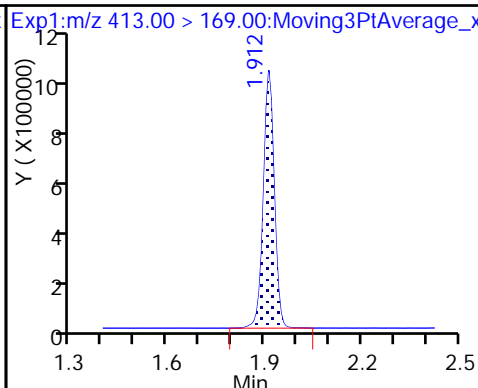
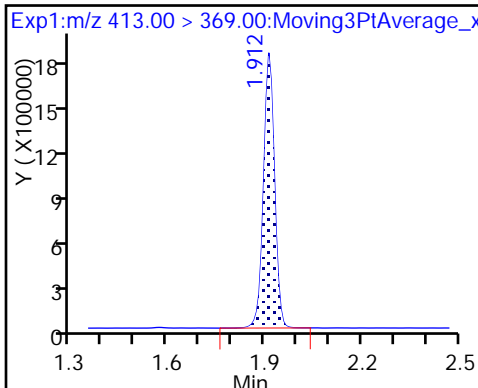
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

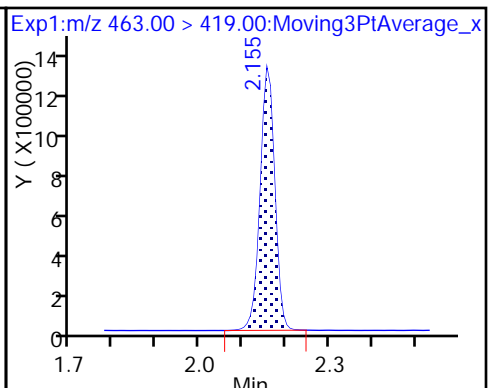
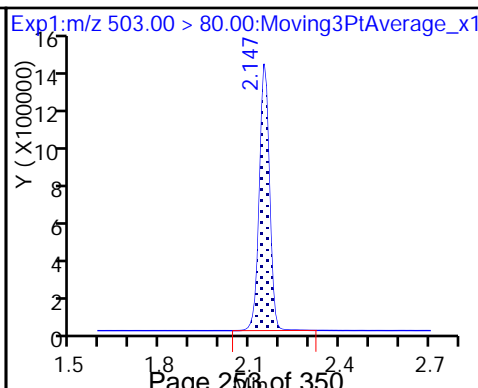
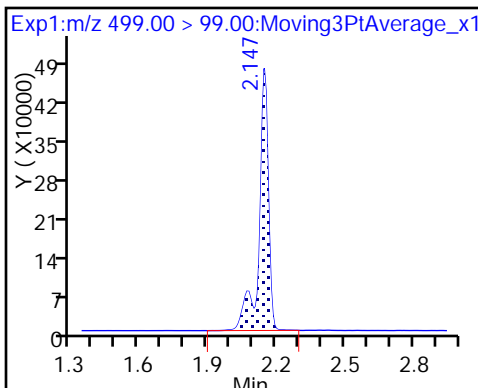
8 Perfluorooctane sulfonic acid



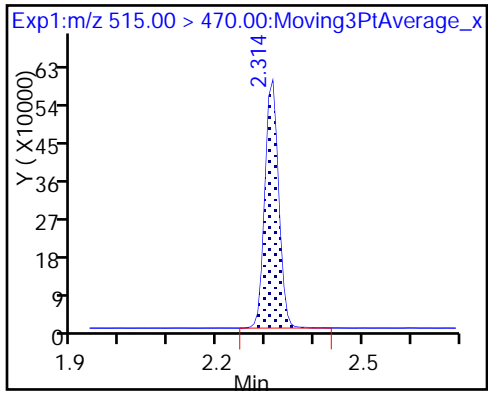
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Lims ID: IC L6
 Client ID:
 Sample Type: IC Calib Level: 6
 Inject. Date: 03-Nov-2017 14:01:24 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\20171106-49975.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 07-Nov-2017 15:52:12 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last Ical File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: phomsophat Date: 06-Nov-2017 07:25:41

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.442	1.444	-0.002	1.000	16699152	179.1		7089	
298.90 > 99.00	1.442	1.444	-0.002	1.000	12929978		1.29(0.00-0.00)	15608	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.573	-0.003	1.000	1664260	10.6		9116	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.722	1.725	-0.003	1.000	2810797	21.0		763	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.722	1.725	-0.003	1.000	11071993	60.4		10884	
* 6 13C2-PFOA									
415.00 > 370.00	1.904	1.913	-0.009		1426806	10.0		5446	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.912	1.914	-0.002	1.000	5597122	42.4		962	
413.00 > 169.00	1.904	1.914	-0.010	0.996	3028676		1.85(0.00-0.00)	3704	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.147	2.147	0.0	1.000	8679676	84.4		6114	
499.00 > 99.00	2.147	2.147	0.0	1.000	1807143		4.80(0.00-0.00)	2991	
* 7 13C4 PFOS									
503.00 > 80.00	2.147	2.151	-0.004		3141787	28.7		4961	
9 Perfluorononanoic acid									
463.00 > 419.00	2.155	2.158	-0.003	1.000	4019666	42.4		1149	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.306	2.312	-0.006	1.000	1164156	10.7		6124	

Reagents:

LC537-L6_00020

Amount Added: 1.00

Units: mL

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Injection Date: 03-Nov-2017 14:01:24

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

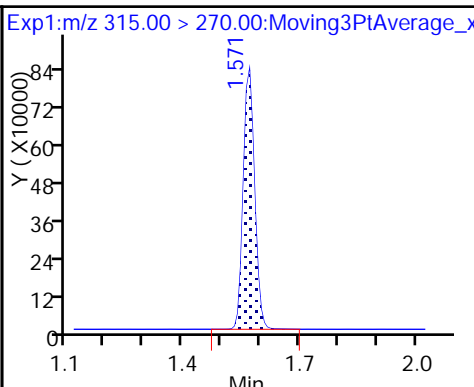
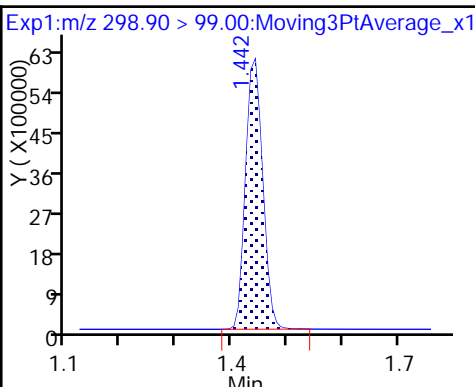
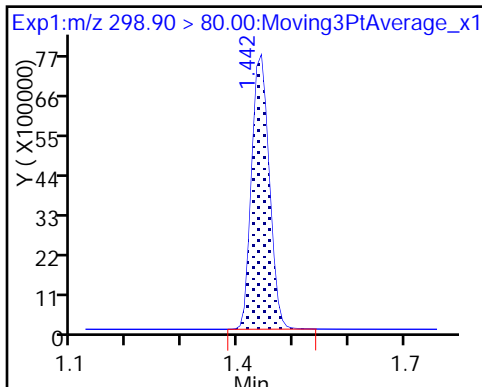
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

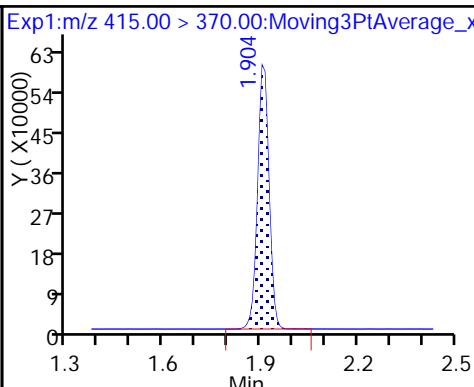
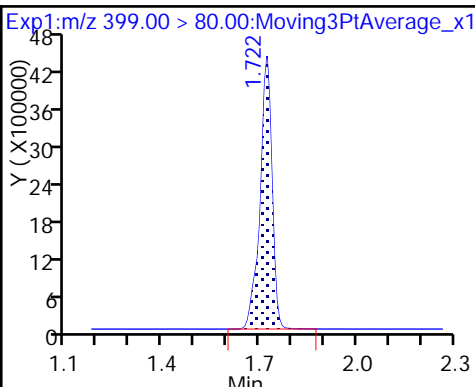
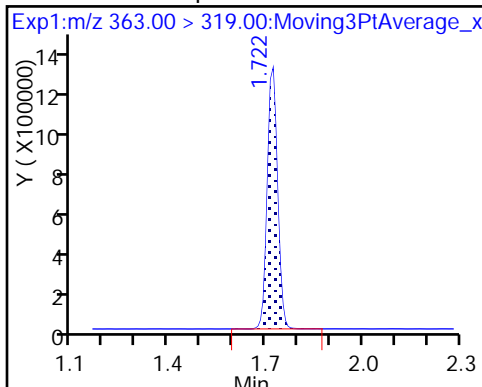
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

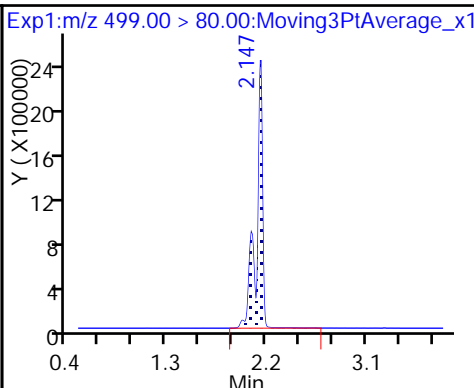
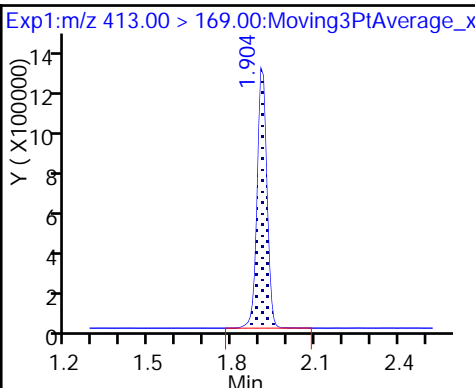
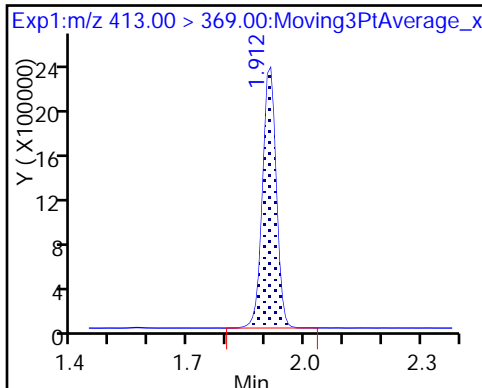
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

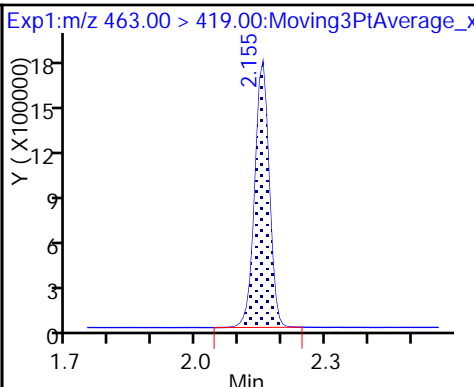
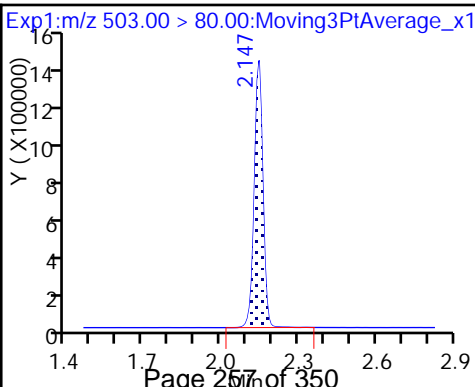
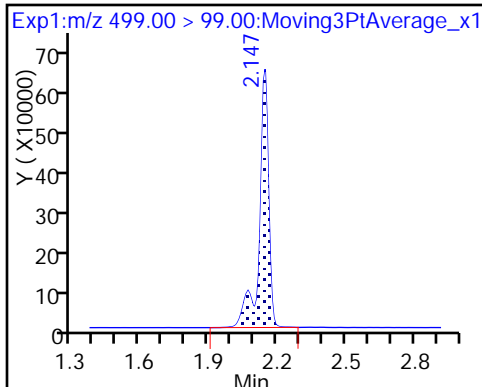
8 Perfluorooctane sulfonic acid



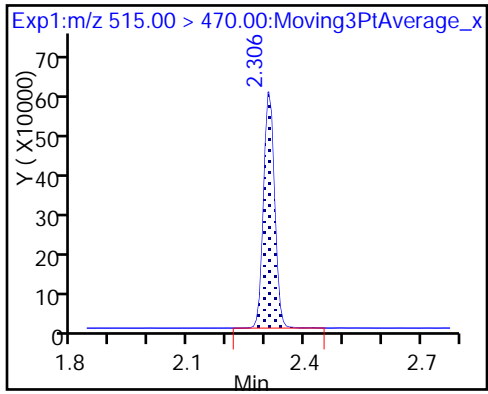
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-192908/11 Calibration Date: 11/03/2017 14:10
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2017.11.03_537XICAL_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		1.109		20.4	20.0	1.9	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9382		2.23	2.22	0.1	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.688		6.72	6.67	0.8	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8825		4.24	4.45	-4.7	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9176		8.69	8.89	-2.3	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6625		4.43	4.45	-0.2	50.0
13C2 PFHxA	Ave	1.100	1.068		9.70	10.0	-3.0	30.0
13C2 PFDA	Ave	0.7652	0.7460		9.75	10.0	-2.5	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_011.d
 Lims ID: CCVL
 Client ID:
 Sample Type: CCVL
 Inject. Date: 03-Nov-2017 14:10:44 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\20171106-49975.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 07-Nov-2017 15:39:07 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: phomsophat Date: 06-Nov-2017 07:26:29

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.449	1.444	0.005	1.000	2556738	20.4		1537	
298.90 > 99.00	1.449	1.444	0.005	1.000	1750170		1.46(0.00-0.00)	4023	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.578	1.573	0.005	1.000	1694196	9.70		8915	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.730	1.725	0.005	1.000	1297654	6.72		2410	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.730	1.725	0.005	1.000	330927	2.23		99.4	
* 6 13C2-PFOA									
415.00 > 370.00	1.912	1.913	-0.001		1586829	10.0		6840	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.912	1.914	-0.002	1.000	622915	4.24		116	
413.00 > 169.00	1.912	1.914	-0.002	1.000	335080		1.86(0.00-0.00)	460	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.155	2.147	0.008	1.000	940397	8.69		528	
499.00 > 99.00	2.147	2.147	0.0	0.996	196397		4.79(0.00-0.00)	430	
* 7 13C4 PFOS									
503.00 > 80.00	2.147	2.151	-0.004		3305852	28.7		5135	
9 Perfluorononanoic acid									
463.00 > 419.00	2.162	2.158	0.004	1.000	467323	4.43		143	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.314	2.312	0.002	1.000	1183747	9.75		6763	

Reagents:

LC537-L2_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_011.d

Injection Date: 03-Nov-2017 14:10:44

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

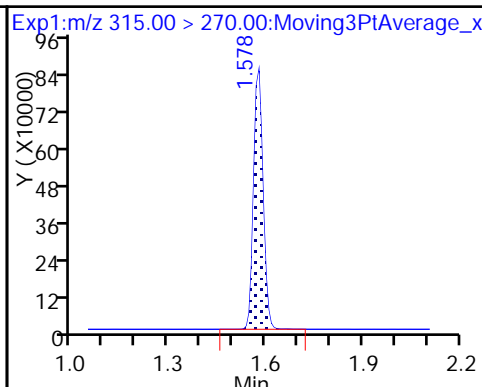
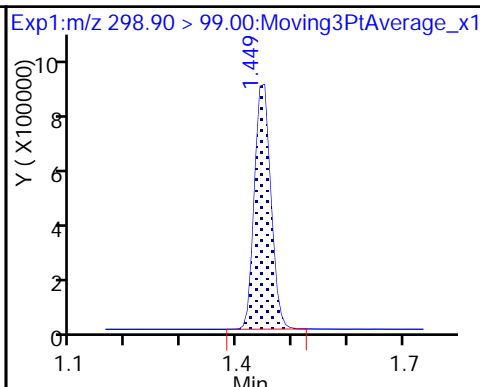
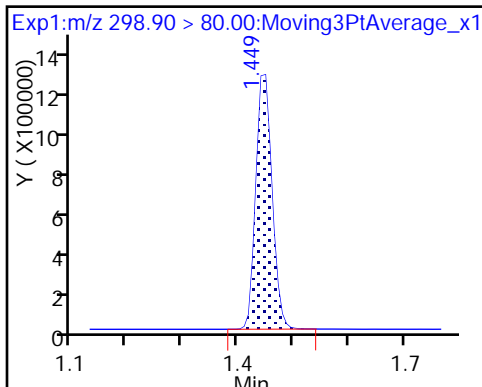
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

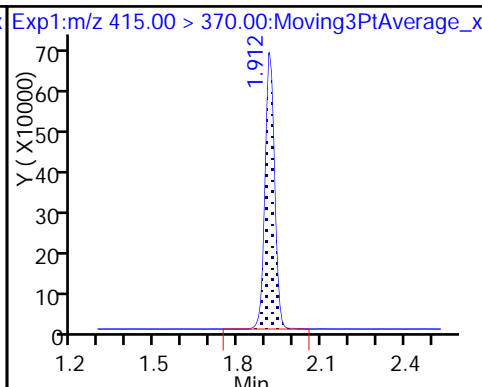
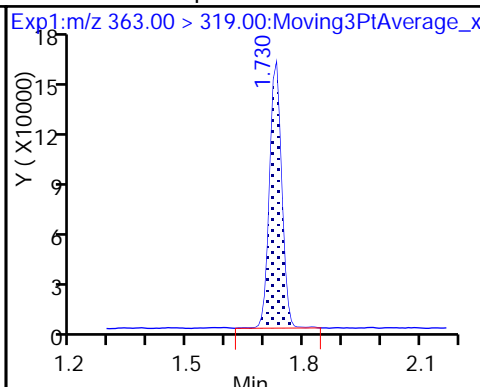
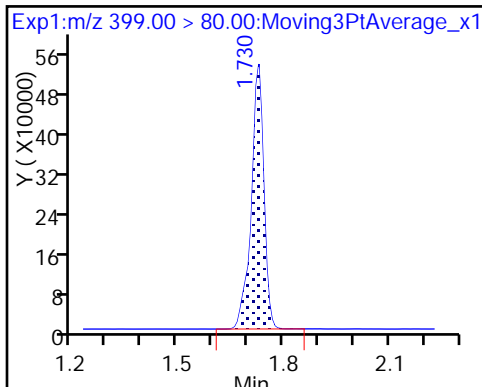
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

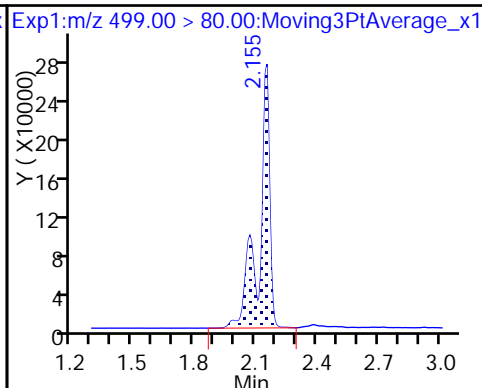
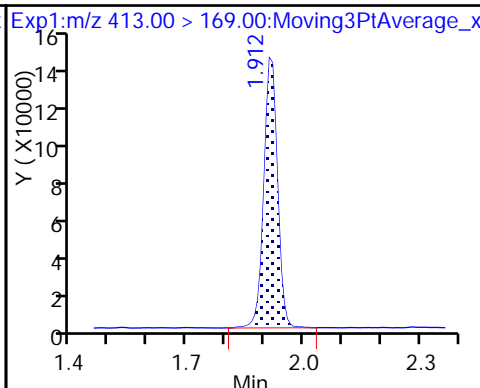
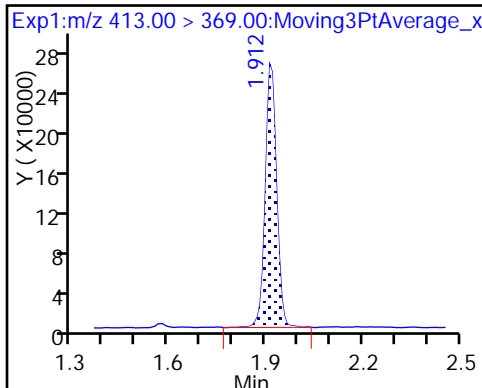
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

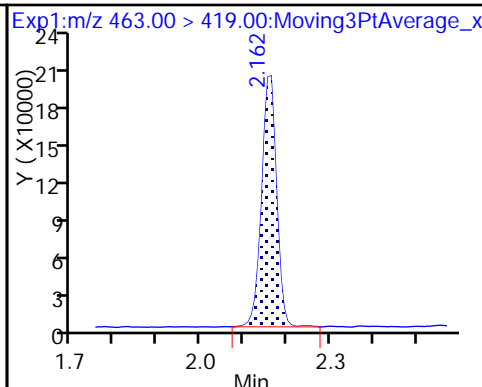
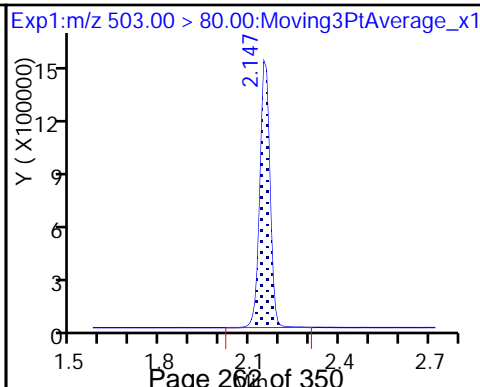
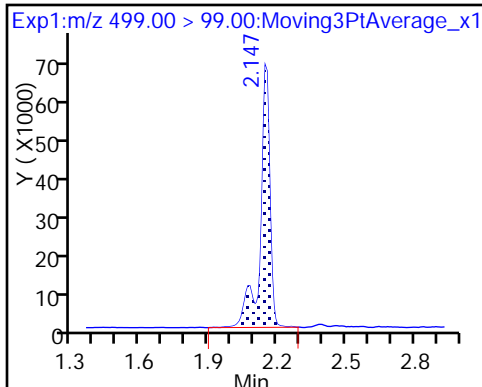
8 Perfluorooctane sulfonic acid



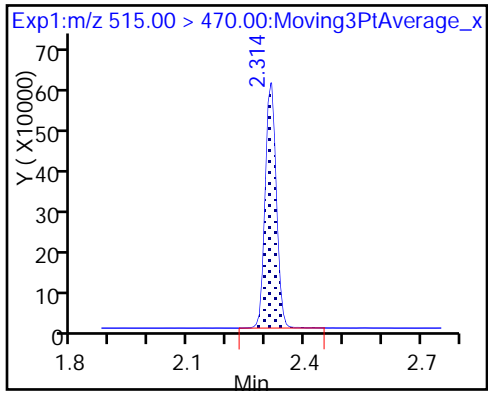
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Lab Sample ID: ICV 320-192908/13 Calibration Date: 11/03/2017 14:20
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2017.11.03_537XICAL_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.8310		83.7	100	-16.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.8136		8.68	10.0	-13.2	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.463		17.5	20.1	-12.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.7995		17.7	20.5	-13.6	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.8637		18.1	19.7	-8.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6428		19.5	20.1	-3.2	30.0
13C2 PFHxA	Ave	1.100	1.039		9.44	10.0	-5.6	30.0
13C2 PFDA	Ave	0.7652	0.7391		9.66	10.0	-3.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_013.d
 Lims ID: ICV
 Client ID:
 Sample Type: ICV
 Inject. Date: 03-Nov-2017 14:20:03 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\20171106-49975.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 07-Nov-2017 15:39:08 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK021

First Level Reviewer: phomsophat Date: 06-Nov-2017 07:27:24

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.442	1.444	-0.002	1.000	9960387	83.7		4998	
298.90 > 99.00	1.442	1.444	-0.002	1.000	7235967		1.38(0.00-0.00)	13514	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.571	1.573	-0.003	1.000	1570629	9.44		8393	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.722	1.725	-0.003	1.000	3517469	17.5		5659	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.722	1.725	-0.003	1.000	1229696	8.68		345	
* 6 13C2-PFOA									
415.00 > 370.00	1.904	1.913	-0.009		1512045	10.0		7643	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.904	1.914	-0.010	1.000	2476221	17.7		475	
413.00 > 169.00	1.904	1.914	-0.010	1.000	1327388		1.87(0.00-0.00)	1724	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.140	2.147	-0.007	1.000	2036944	18.1		2323	
499.00 > 99.00	2.140	2.147	-0.007	1.000	389736		5.23(0.00-0.00)	830	
* 7 13C4 PFOS									
503.00 > 80.00	2.140	2.151	-0.011		3433628	28.7		5334	
9 Perfluorononanoic acid									
463.00 > 419.00	2.147	2.158	-0.011	1.000	1956116	19.5		652	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.306	2.312	-0.006	1.000	1117553	9.66		6230	

Reagents:

LC537-ICV_00028

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_013.d

Injection Date: 03-Nov-2017 14:20:03

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

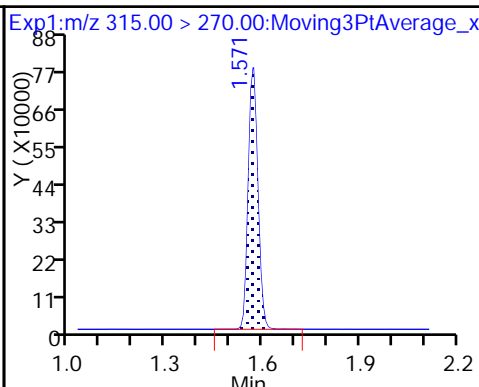
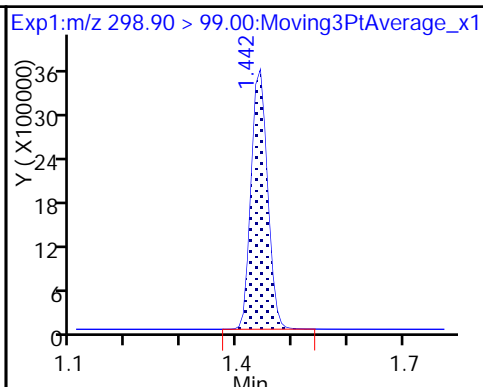
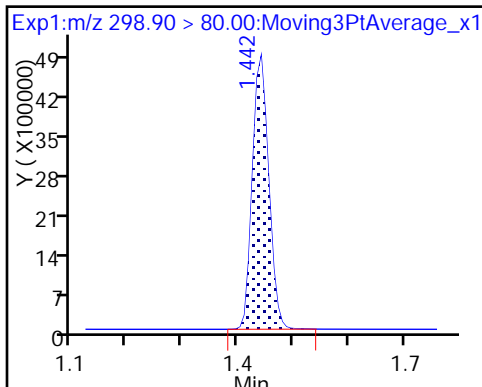
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

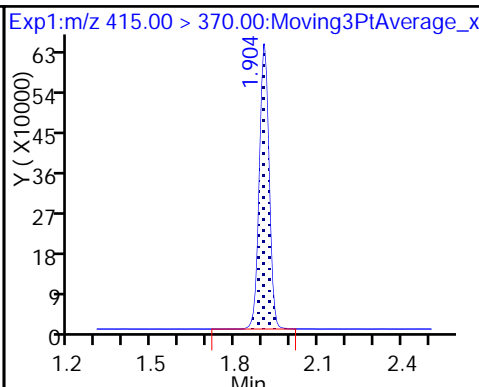
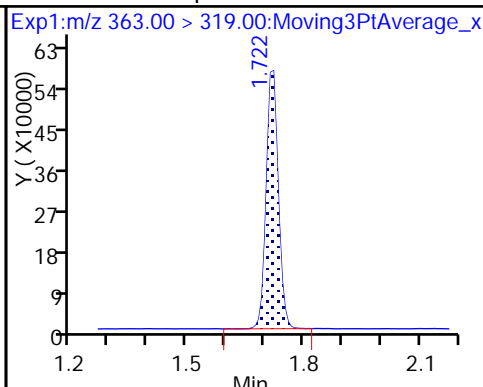
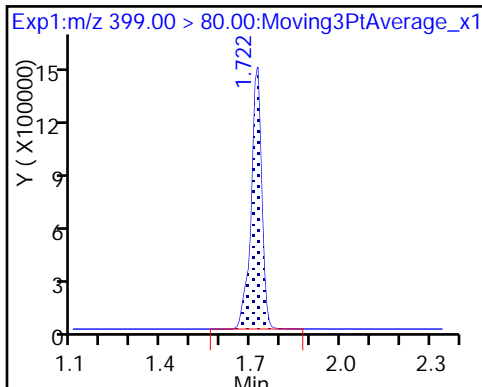
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

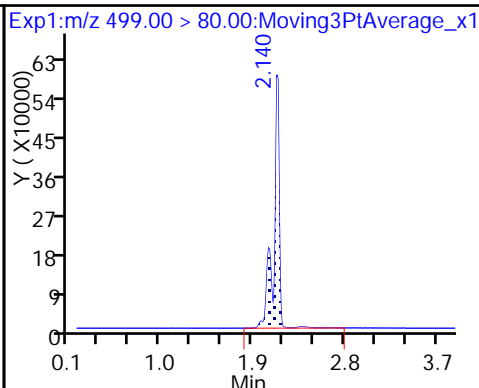
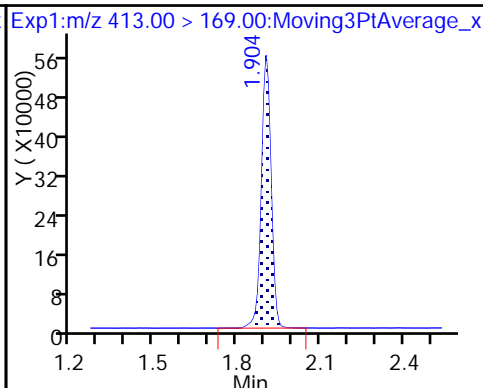
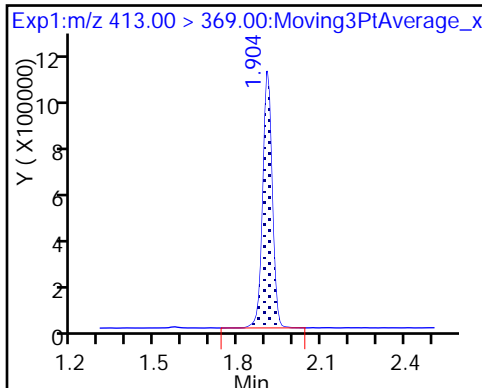
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

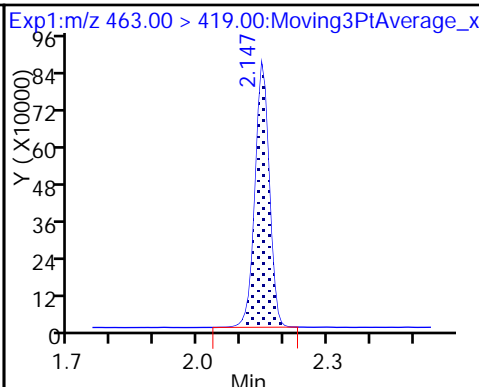
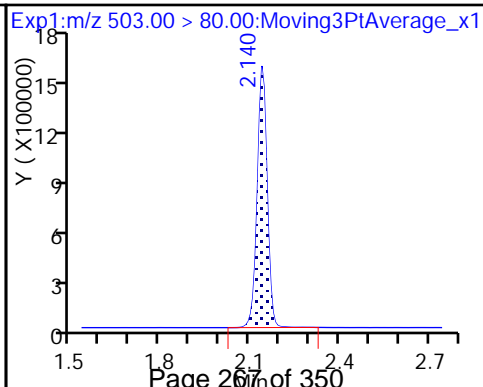
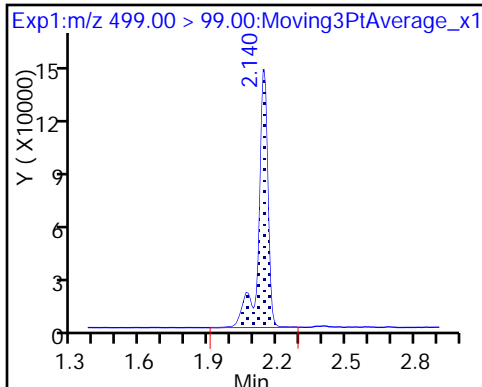
8 Perfluorooctane sulfonic acid



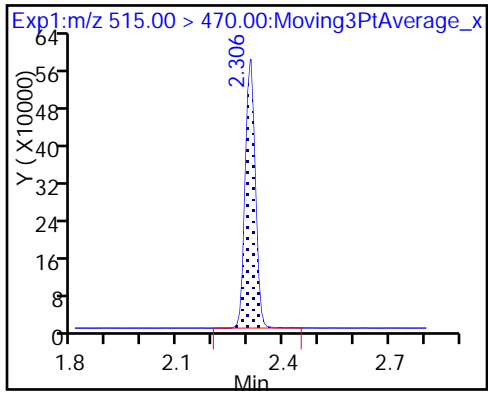
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-207581/1 Calibration Date: 02/08/2018 07:47
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.08_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		1.102		20.2	20.0	1.2	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.010		2.40	2.22	7.8	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.774		7.06	6.67	5.9	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9486		4.58	4.47	2.5	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	1.012		9.62	8.93	7.8	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6771		4.53	4.45	1.9	50.0
13C2 PFHxA	Ave	1.100	1.076		9.78	10.0	-2.2	30.0
13C2 PFDA	Ave	0.7652	0.7299		9.54	10.0	-4.6	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_004.d
 Lims ID: CCVL
 Client ID:
 Sample Type: CCVL
 Inject. Date: 08-Feb-2018 07:47:09 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\20180208-53854.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 08-Feb-2018 12:11:34 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK019

First Level Reviewer: roycea Date: 08-Feb-2018 12:10:52

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.358	0.008	1.000	2212546	20.2		5428	
298.90 > 99.00	1.366	1.358	0.008	1.000	1760854		1.26(0.00-0.00)	5504	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	1470312	9.78		6126	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.616	0.008	1.000	1187679	7.06		3950	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.616	0.008	1.000	306810	2.40		96.0	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.791	0.015		1366684	10.0		4533	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.791	0.015	1.000	579356	4.58		109	
413.00 > 169.00	1.806	1.791	0.015	1.000	300442		1.93(0.00-0.00)	929	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.041	0.015	1.000	907456	9.62		1208	a
499.00 > 99.00	2.056	2.041	0.015	1.000	189189		4.80(0.00-0.00)	523	a
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.041	0.015		2879967	28.7		5816	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.048	0.016	1.000	411408	4.53		139	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.231	0.015	1.000	997498	9.54		5261	

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\20180208-53854.b\2018.02.08_537A_004.d

Injection Date: 08-Feb-2018 07:47:09

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

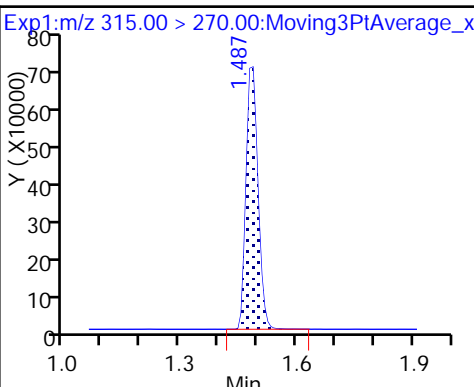
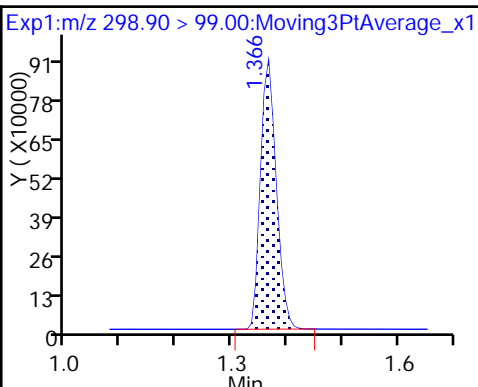
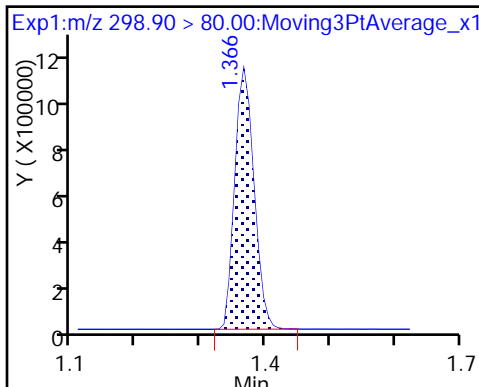
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

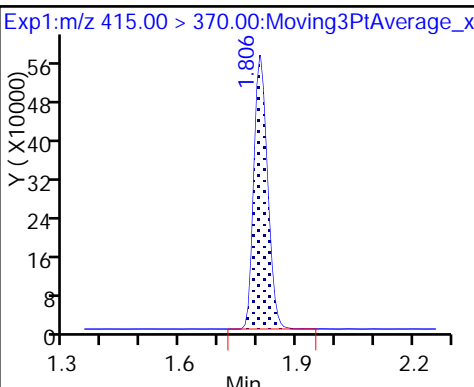
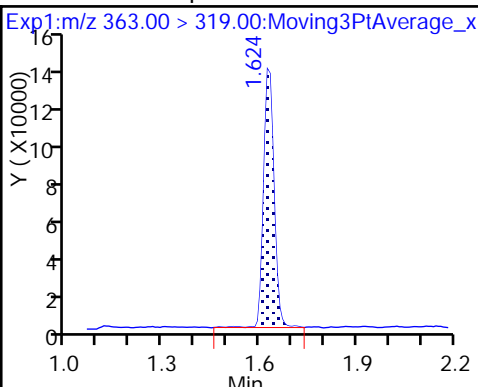
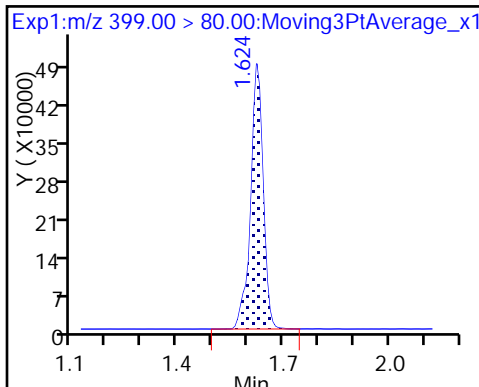
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

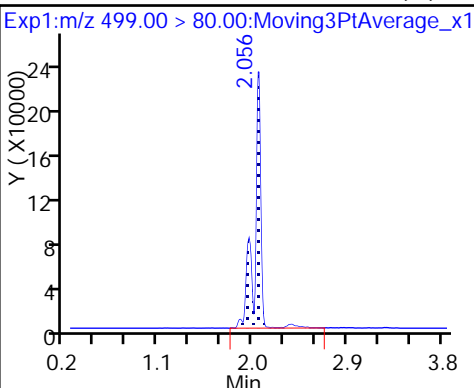
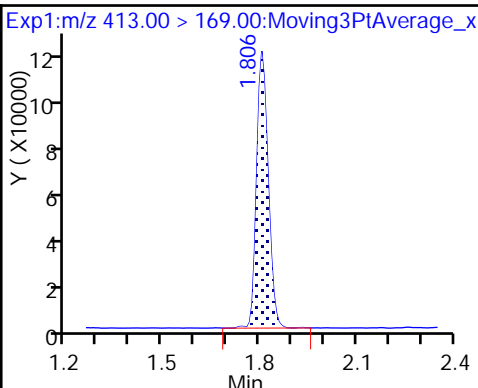
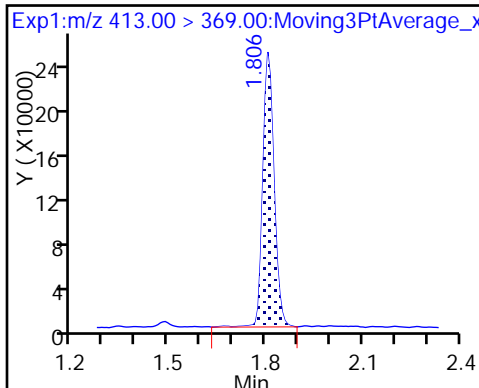
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

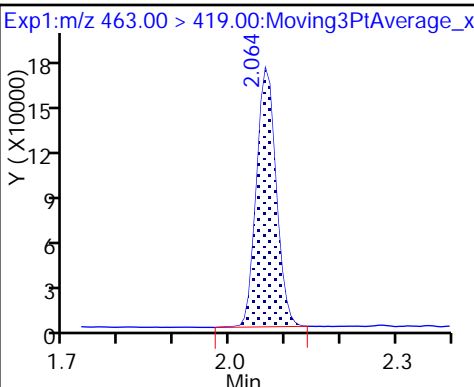
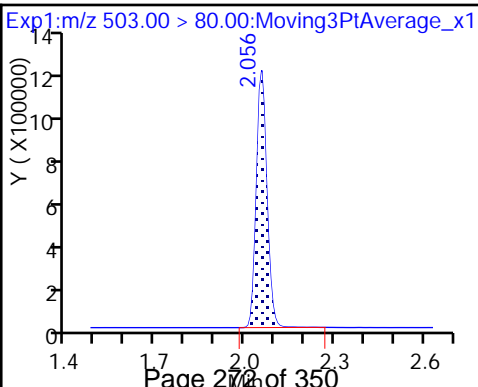
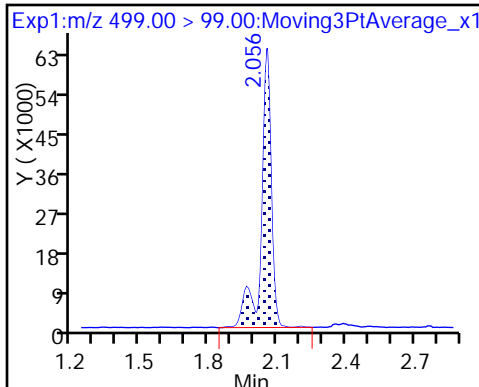
8 Perfluorooctane sulfonic acid (M)



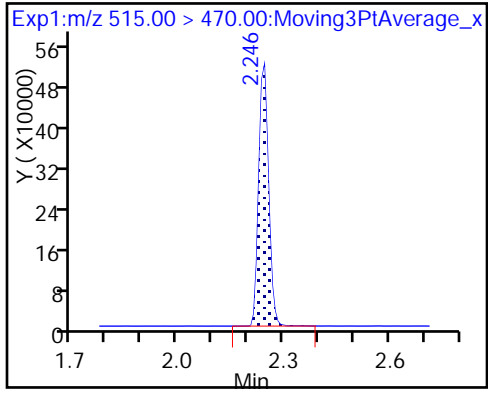
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

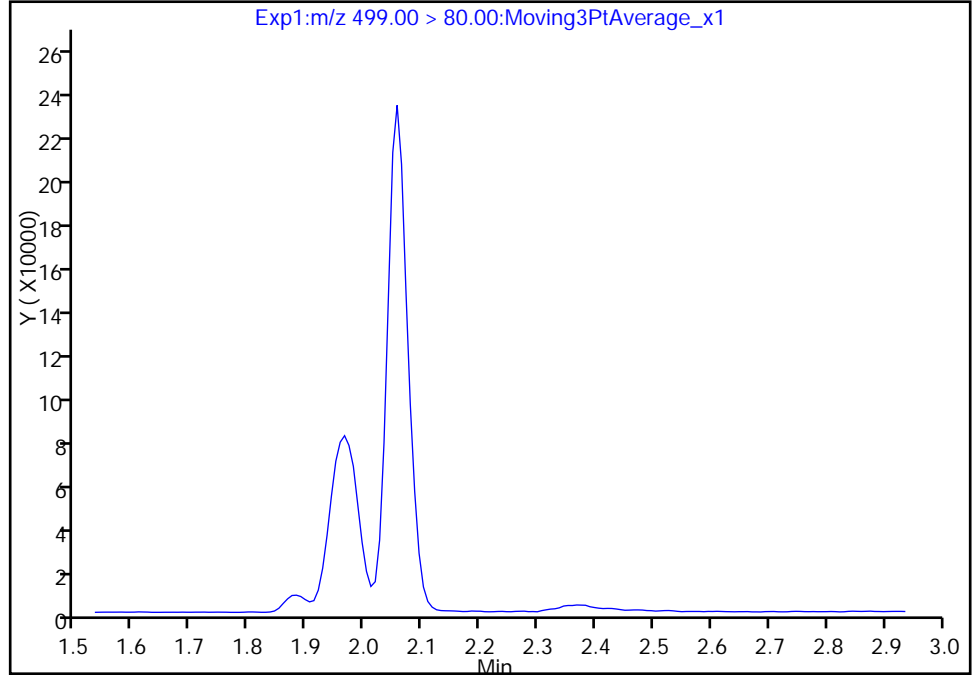
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.b\2018.02.08_537A_004.d
Injection Date: 08-Feb-2018 07:47:09 Instrument ID: A8_N
Lims ID: CCVL
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

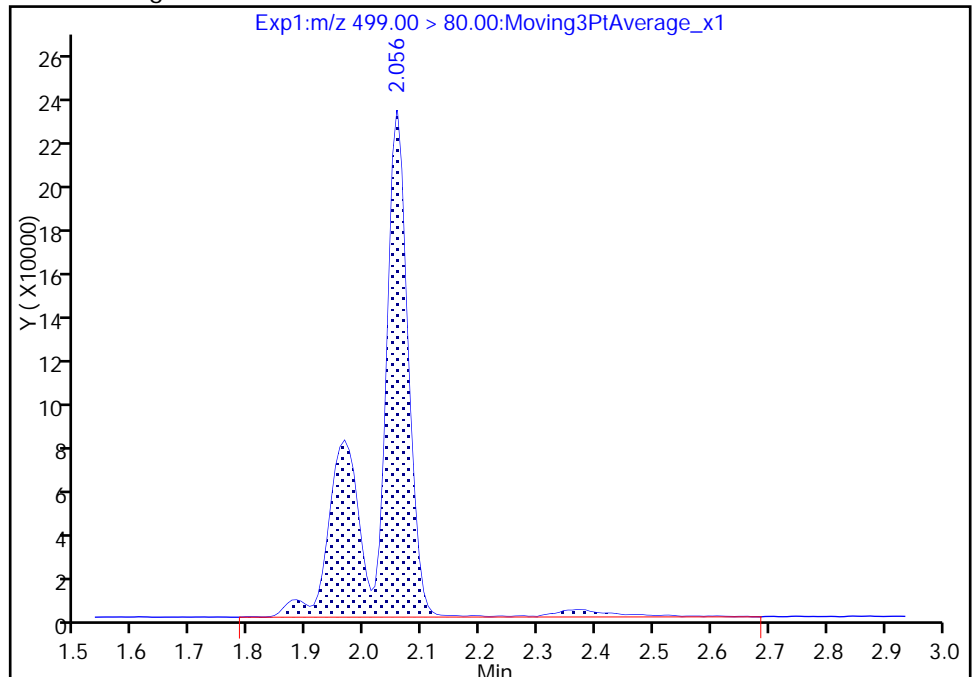
Not Detected
Expected RT: 2.04

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 907456
Amount: 9.624437
Amount Units: ng/ml



Reviewer: roycea, 08-Feb-2018 12:10:29
Audit Action: Assigned Compound ID

Audit Reason: User Assigned

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Lab Sample ID: CCV 320-207624/1 Calibration Date: 02/08/2018 11:54
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.08_537B_001.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9674		145	135	7.2	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.010		16.2	15.0	7.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.722		46.3	45.0	2.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9718		31.7	30.2	5.0	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	1.007		64.6	60.3	7.3	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6887		31.1	30.0	3.7	30.0
13C2 PFHxA	Ave	1.100	1.098		9.98	10.0	-0.2	30.0
13C2 PFDA	Ave	0.7652	0.7087		9.26	10.0	-7.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_001.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 08-Feb-2018 11:54:50 ALS Bottle#: 5 Worklist Smp#: 1
 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\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:43:02

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	13083949	144.7		16136	
298.90 > 99.00	1.366	1.366	0.0	1.000	10251580		1.28(0.00-0.00)	14640	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.479	0.0	1.000	1397569	9.98		6588	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.616	0.0	1.000	7767669	46.3		11518	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.616	0.0	1.000	1929278	16.2		738	
* 6 13C2-PFOA									
415.00 > 370.00	1.791	1.791	0.0		1273325	10.0		5055	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.798	0.0	1.000	3732930	31.7		1125	
413.00 > 169.00	1.798	1.798	0.0	1.000	2051480		1.82(0.00-0.00)	6258	
* 7 13C4 PFOS									
503.00 > 80.00	2.033	2.033	0.0		2873161	28.7		5273	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.033	2.033	0.0	1.000	6079427	64.6		2378	Ma M
499.00 > 99.00	2.033	2.033	0.0	1.000	1262987		4.81(0.00-0.00)	2328	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.048	2.048	0.0	1.000	2631474	31.1		1064	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.231	0.0	1.000	902396	9.26		5742	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L5_00025

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_001.d

Injection Date: 08-Feb-2018 11:54:50

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

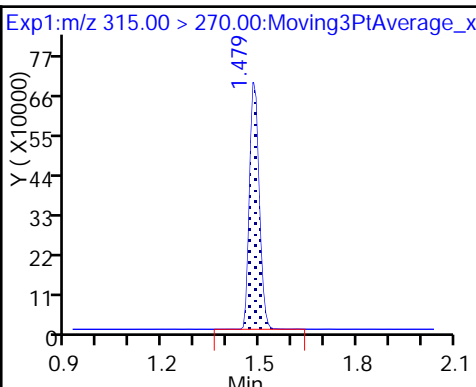
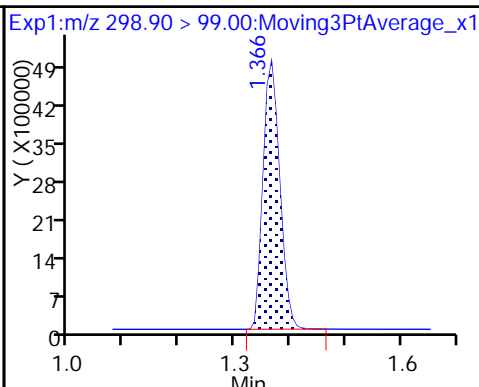
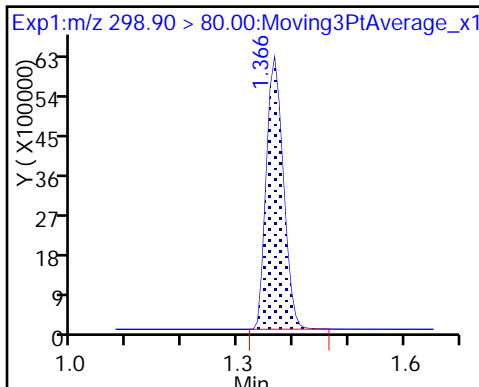
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

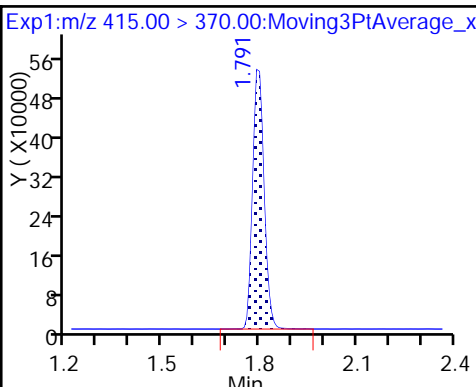
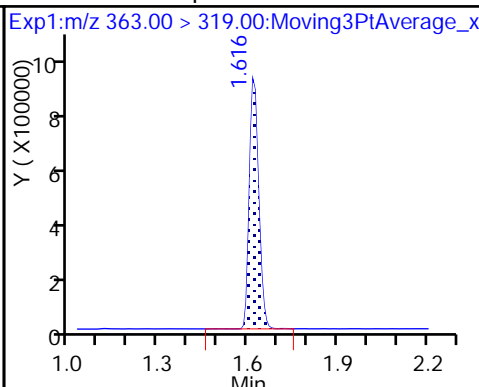
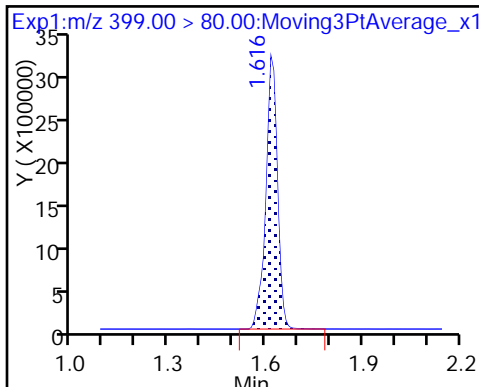
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

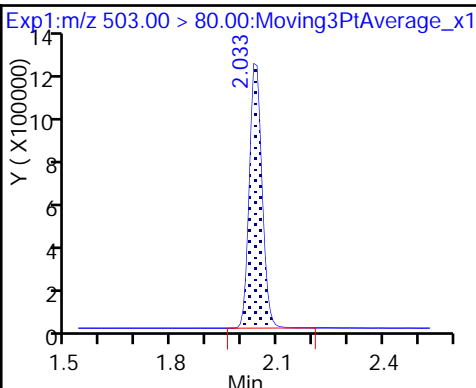
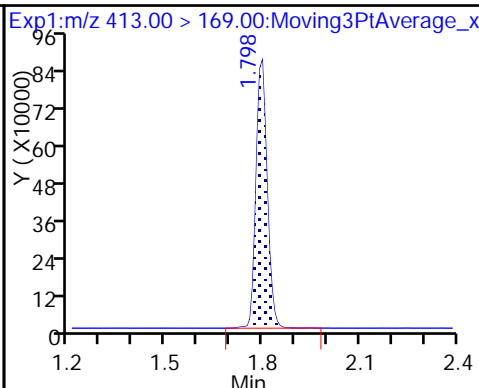
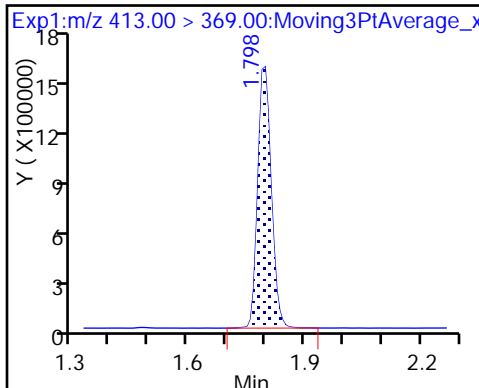
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

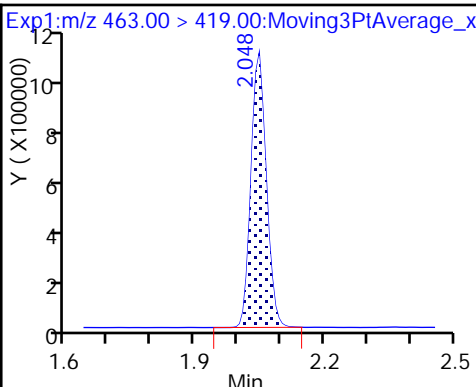
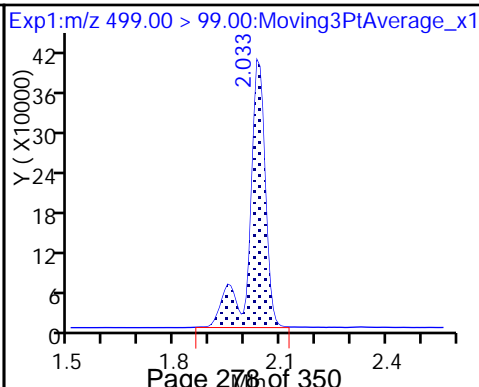
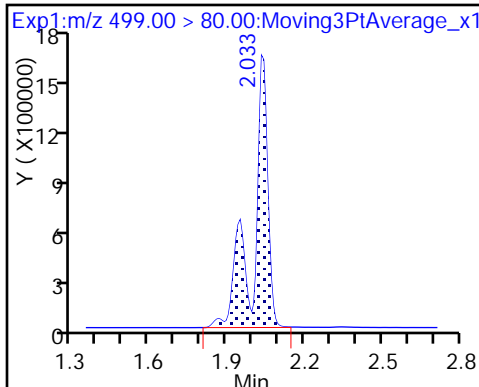
* 7 13C4 PFOS



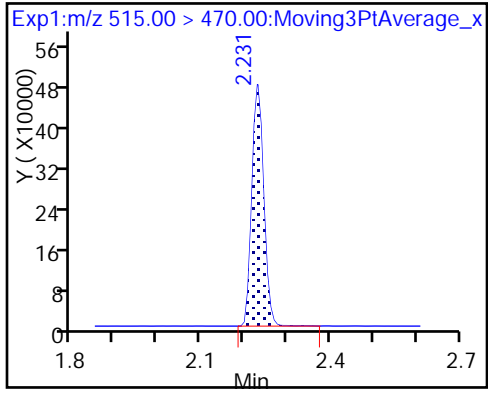
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

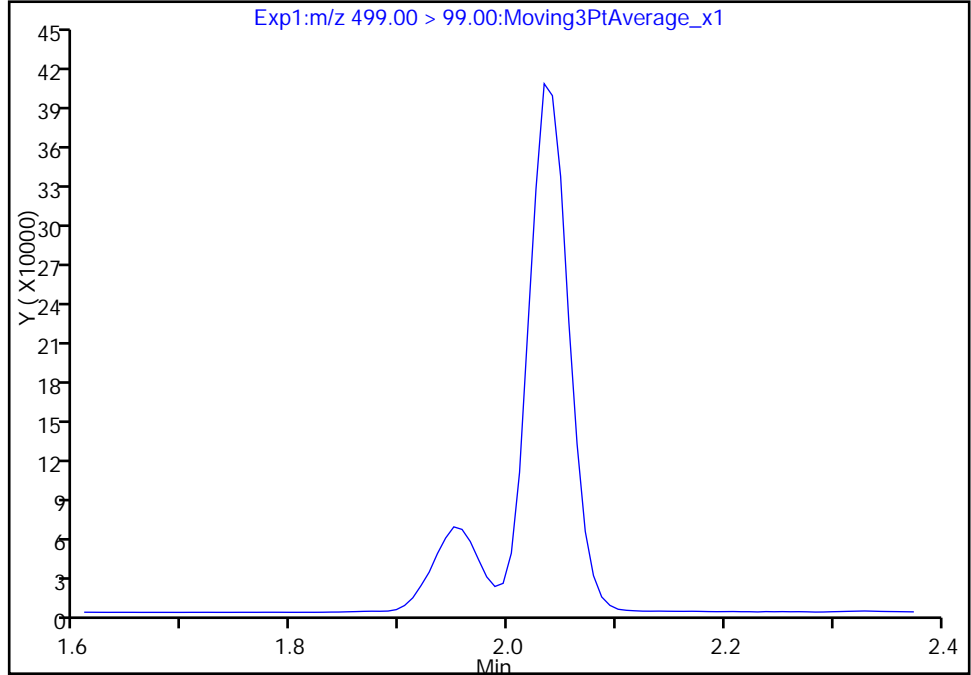
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_001.d
Injection Date: 08-Feb-2018 11:54:50 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

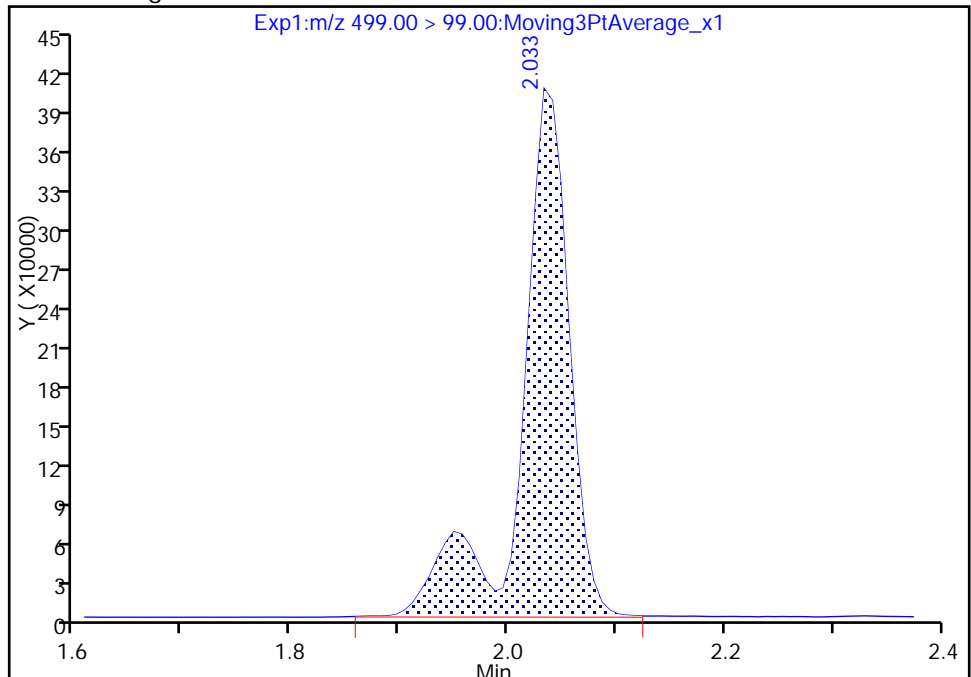
Not Detected
Expected RT: 2.03

Processing Integration Results



Manual Integration Results

RT: 2.03
Area: 1262987
Amount: 64.630865
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:42:53
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

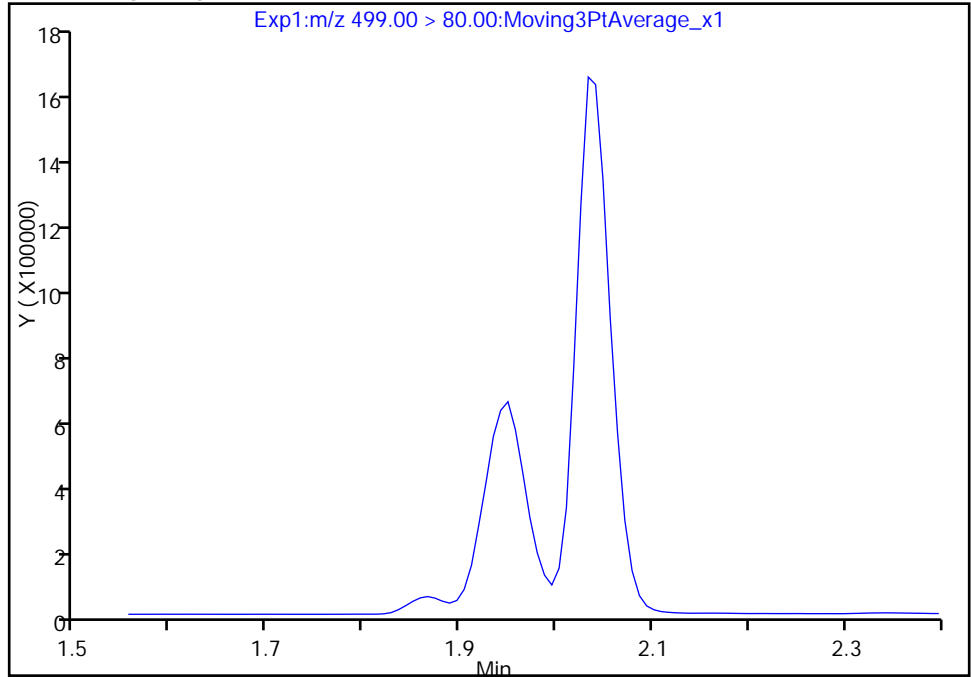
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_001.d
Injection Date: 08-Feb-2018 11:54:50 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 1
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

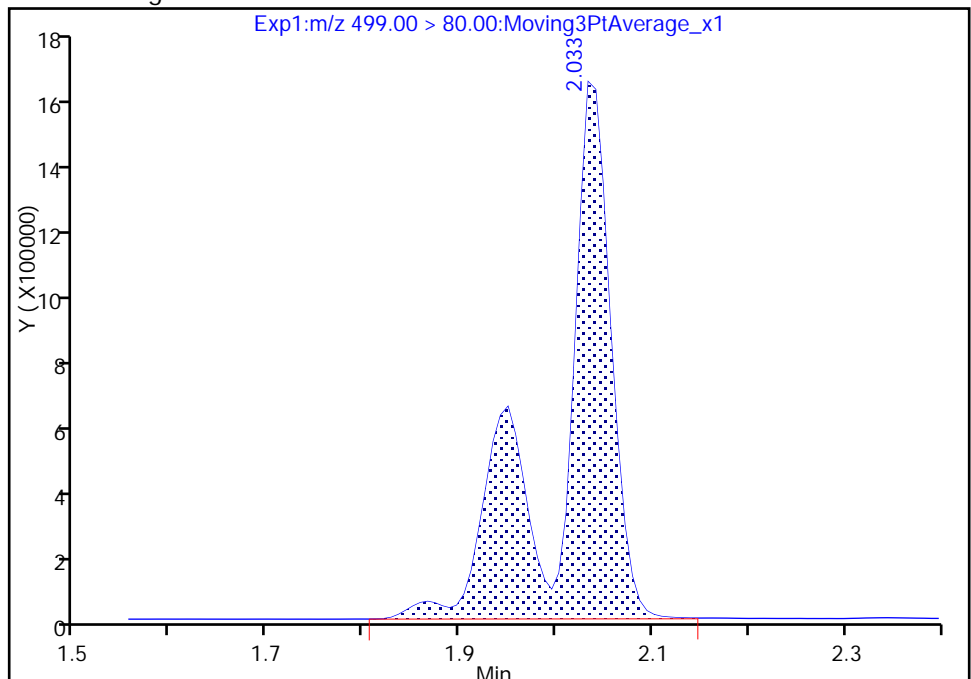
Not Detected
Expected RT: 2.03

Processing Integration Results



RT: 2.03
Area: 6079427
Amount: 64.630865
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 09-Feb-2018 10:42:53

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Lab Sample ID: CCV 320-207624/13 Calibration Date: 02/08/2018 12:50
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.08_537B_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		1.045		44.7	45.0	-0.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.057		5.64	5.00	12.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.714		15.4	15.0	2.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9766		10.6	10.1	5.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9632		20.6	20.1	2.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6947		10.5	10.0	4.6	30.0
13C2 PFHxA	Ave	1.100	1.055		9.59	10.0	-4.1	30.0
13C2 PFDA	Ave	0.7652	0.7275		9.51	10.0	-4.9	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Lab Sample ID: CCV 320-207626/13 Calibration Date: 02/08/2018 12:50
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.08_537B_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		1.045		44.7	45.0	-0.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.057		5.64	5.00	12.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.714		15.4	15.0	2.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9766		10.6	10.1	5.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9632		20.6	20.1	2.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6947		10.5	10.0	4.6	30.0
13C2 PFHxA	Ave	1.100	1.055		9.59	10.0	-4.1	30.0
13C2 PFDA	Ave	0.7652	0.7275		9.51	10.0	-4.9	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_013.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 08-Feb-2018 12:50:49 ALS Bottle#: 3 Worklist Smp#: 13
 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\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:41:27

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	5041749	44.7		12365	
298.90 > 99.00	1.373	1.373	0.0	1.000	3801362		1.33(0.00-0.00)	8383	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1369218	9.59		7261	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.631	0.0	1.000	2757285	15.4		6565	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.631	0.0	1.000	685578	5.64		236	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.806	0.0		1297579	10.0		5592	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.806	0.0	1.000	1274268	10.6		285	
413.00 > 169.00	1.806	1.806	0.0	1.000	669652		1.90(0.00-0.00)	2198	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.056	0.0		3074997	28.7		5458	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.033	0.023	1.000	2074265	20.6		1307	Ma M
499.00 > 99.00	2.056	2.033	0.023	1.000	438688		4.73(0.00-0.00)	1178	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	901722	10.5		267	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.253	0.0	1.000	943991	9.51		5912	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L3_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_013.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 08-Feb-2018 12:50:49 ALS Bottle#: 3 Worklist Smp#: 13
 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\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:38 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:41:27

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	5041749	44.7		12365	
298.90 > 99.00	1.373	1.373	0.0	1.000	3801362		1.33(0.00-0.00)	8383	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1369218	9.59		7261	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.631	0.0	1.000	2757285	15.4		6565	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.631	0.0	1.000	685578	5.64		236	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.806	0.0		1297579	10.0		5592	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.806	0.0	1.000	1274268	10.6		285	
413.00 > 169.00	1.806	1.806	0.0	1.000	669652		1.90(0.00-0.00)	2198	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.056	0.0		3074997	28.7		5458	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.033	0.023	1.000	2074265	20.6		1307	Ma M
499.00 > 99.00	2.056	2.033	0.023	1.000	438688		4.73(0.00-0.00)	1178	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	901722	10.5		267	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.253	0.0	1.000	943991	9.51		5912	

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\20180208-53863.b\2018.02.08_537B_013.d

Injection Date: 08-Feb-2018 12:50:49

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

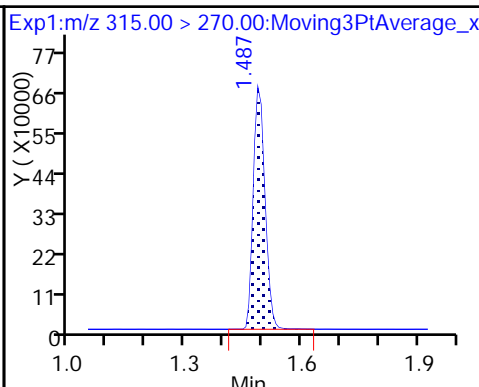
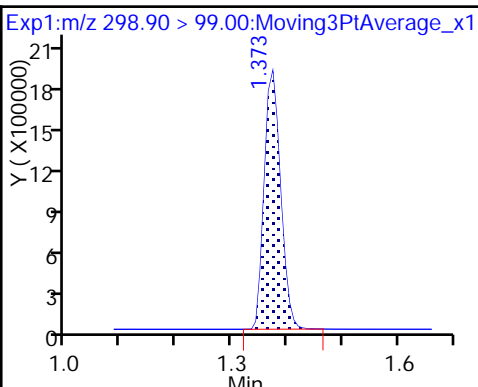
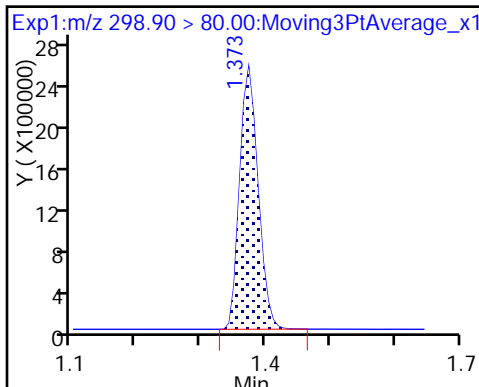
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

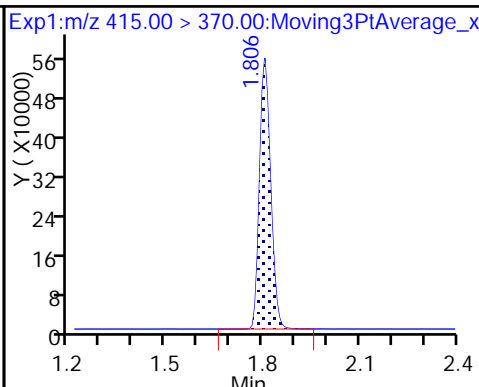
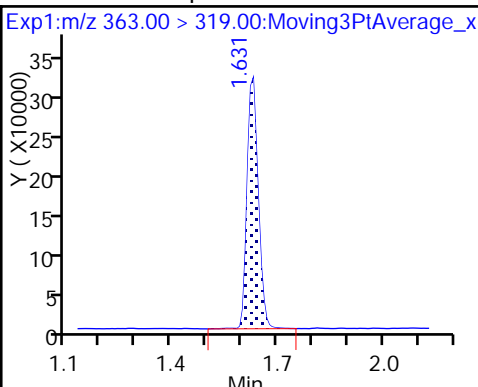
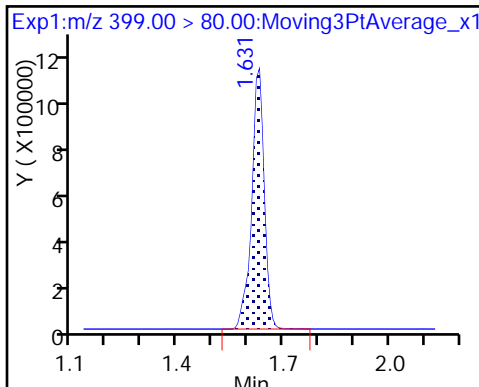
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

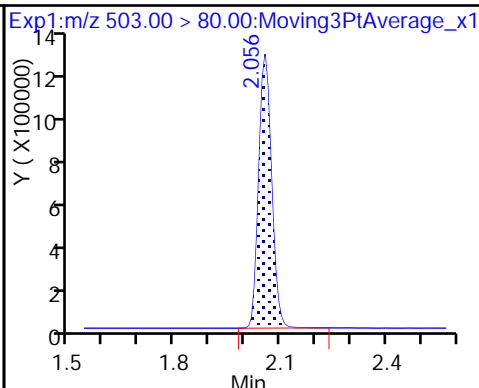
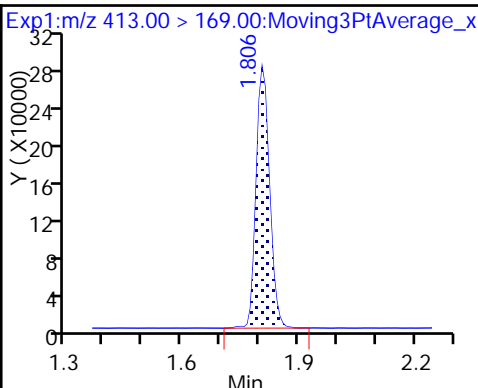
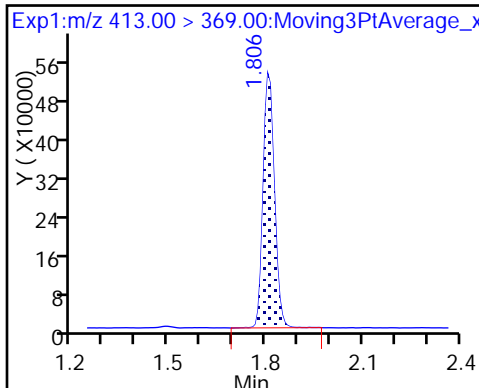
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

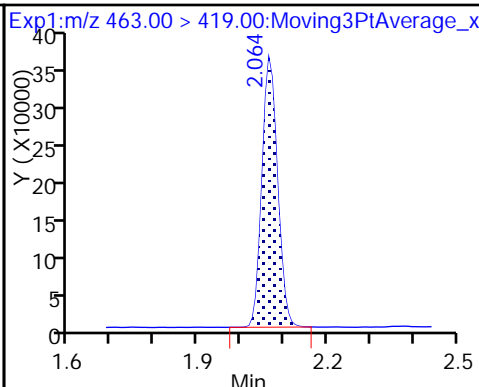
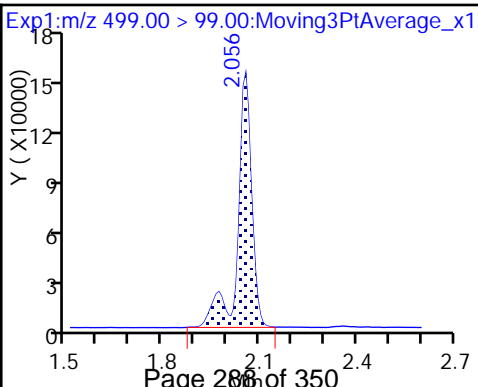
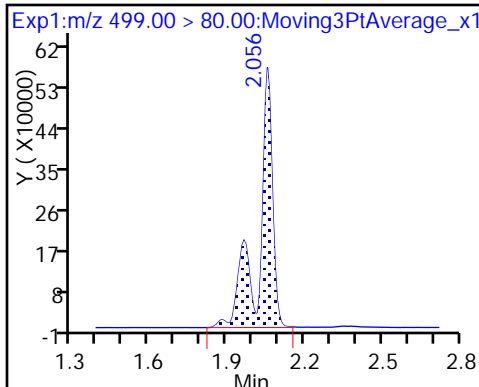
* 7 13C4 PFOS



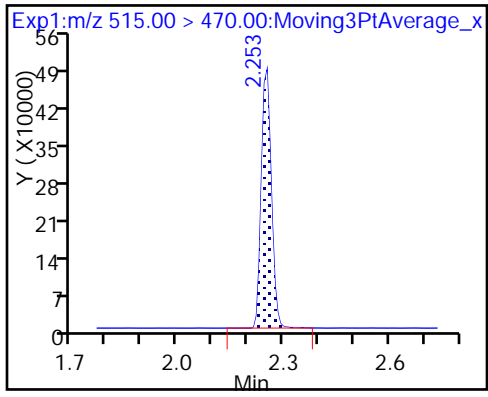
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_013.d

Injection Date: 08-Feb-2018 12:50:49

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

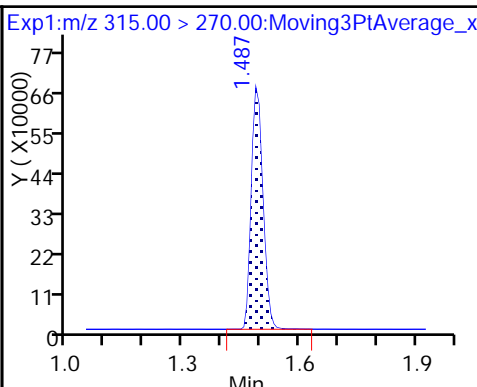
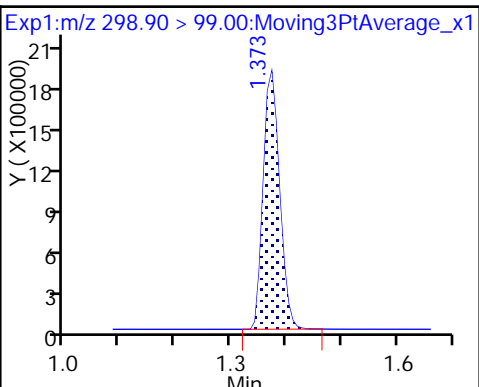
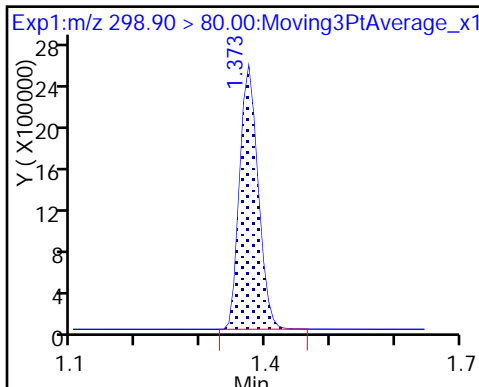
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

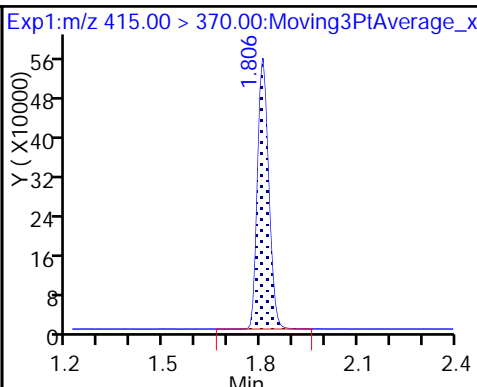
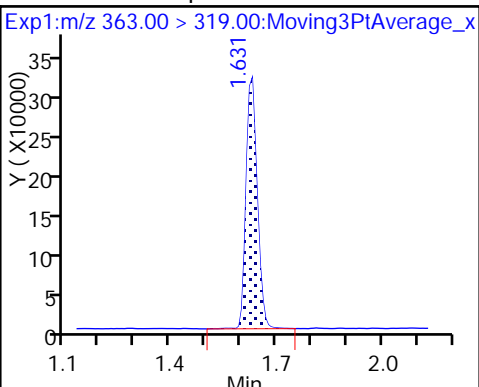
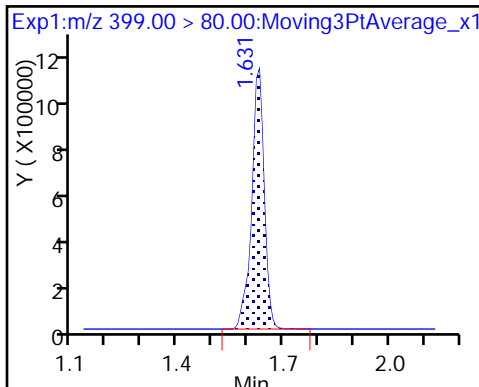
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

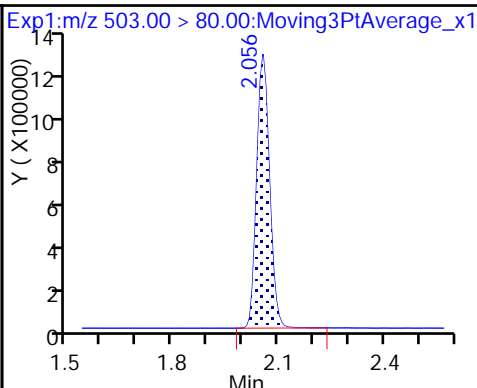
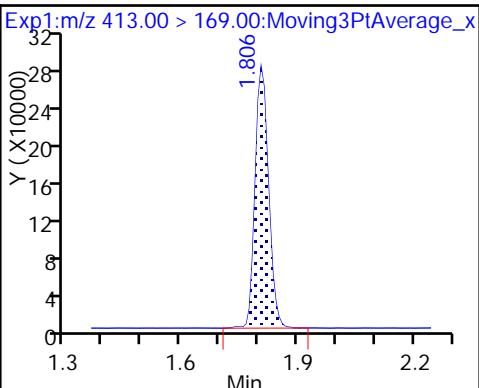
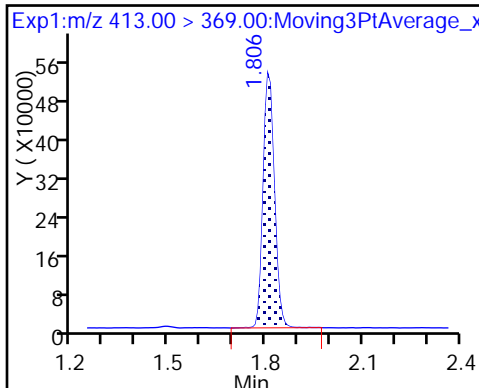
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

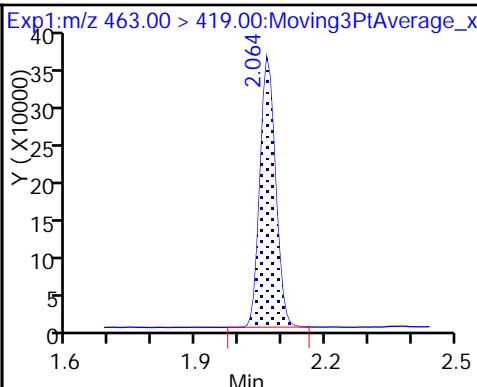
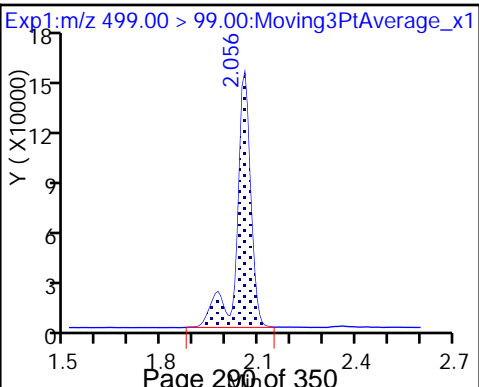
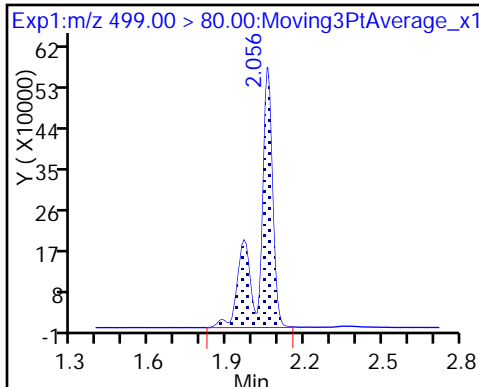
* 7 13C4 PFOS



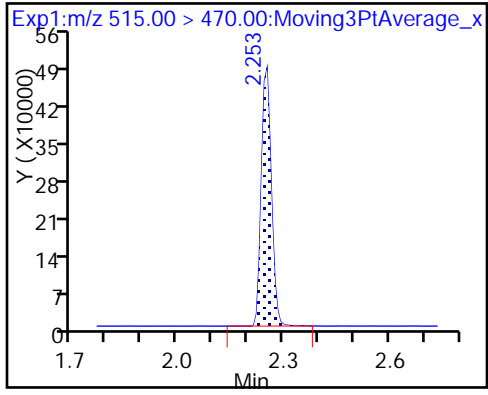
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

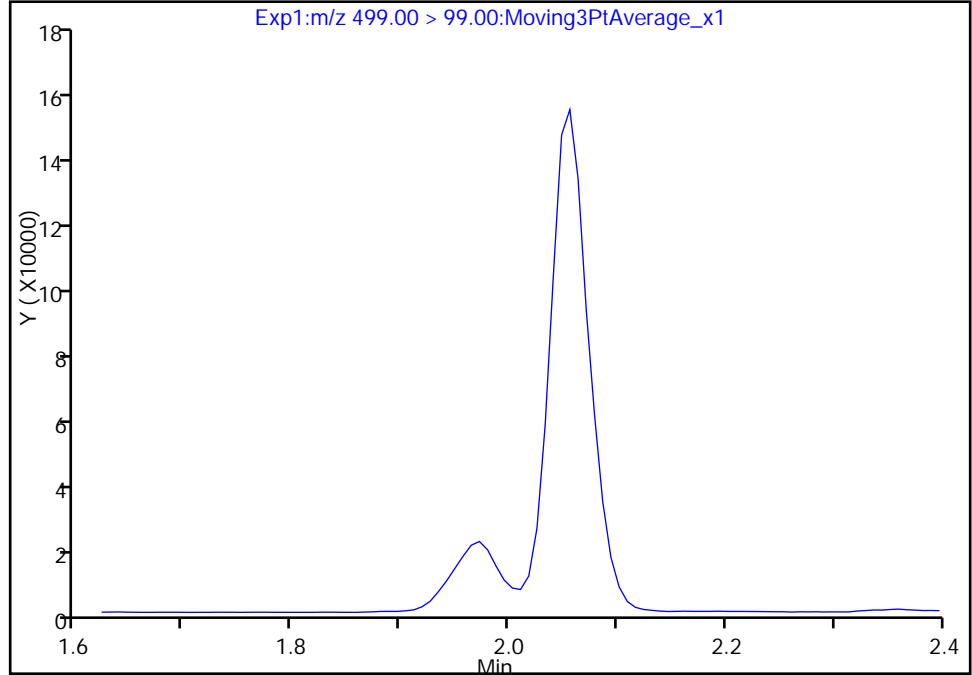
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_013.d
Injection Date: 08-Feb-2018 12:50:49 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

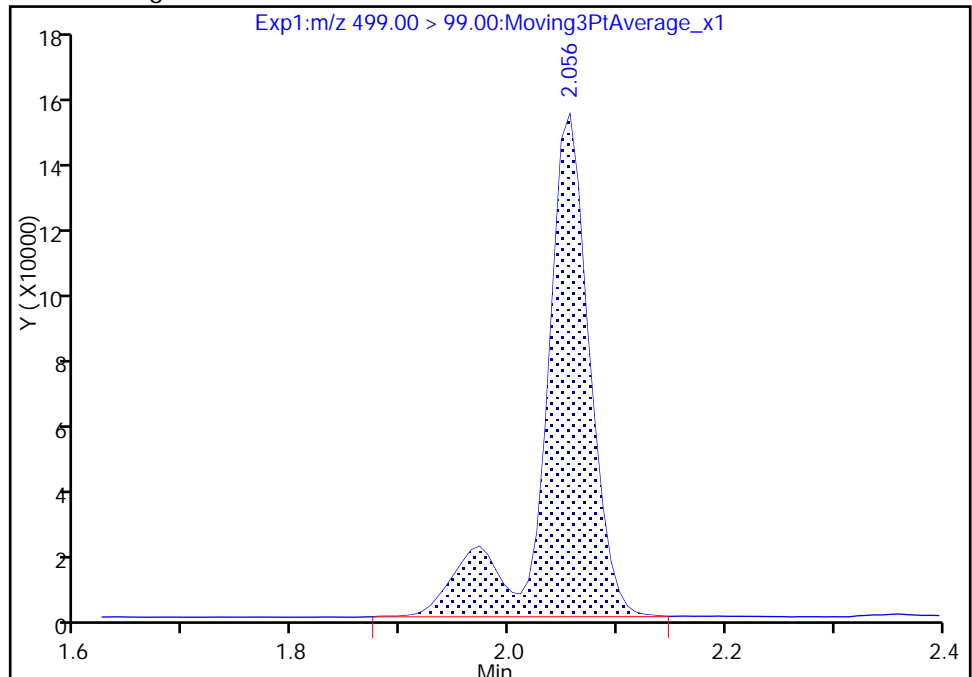
Not Detected
Expected RT: 2.03

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 438688
Amount: 20.604251
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:41:21
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

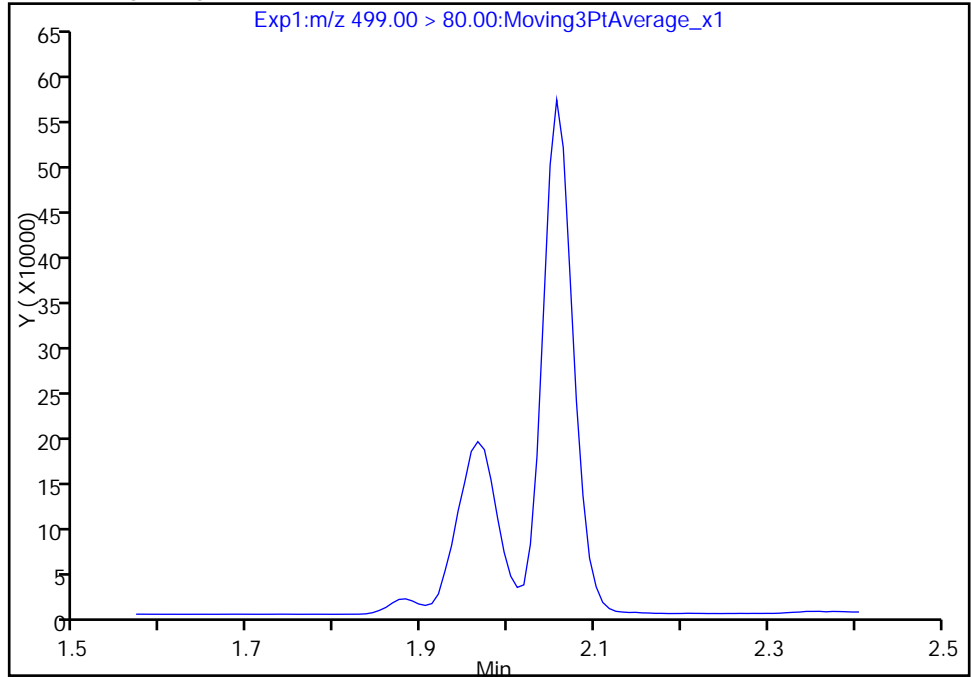
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_013.d
Injection Date: 08-Feb-2018 12:50:49 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

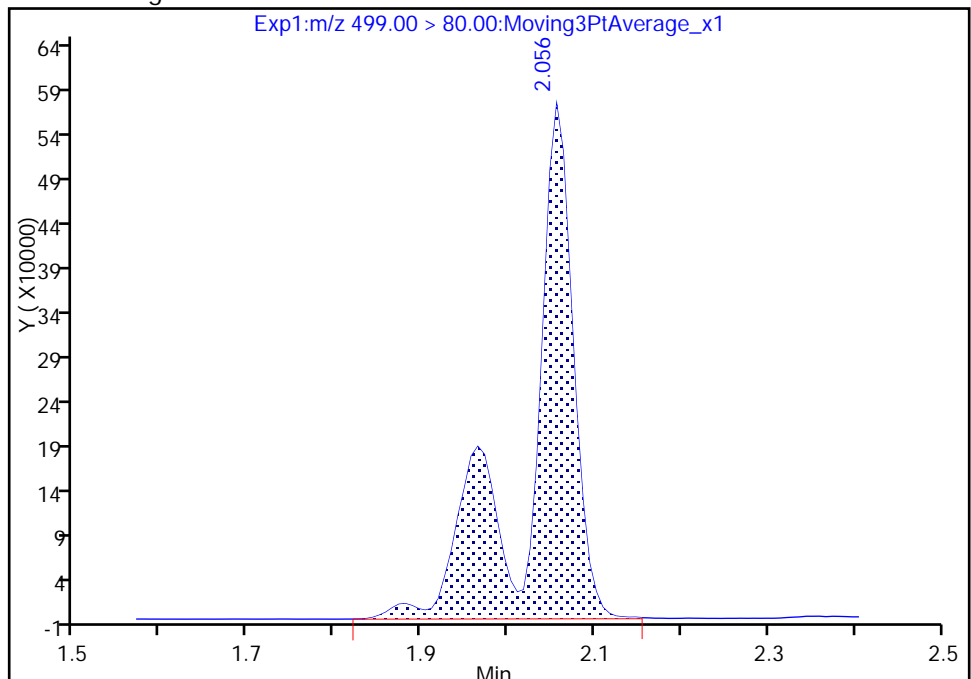
Not Detected
Expected RT: 2.03

Processing Integration Results



RT: 2.06
Area: 2074265
Amount: 20.604251
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 09-Feb-2018 10:41:21

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

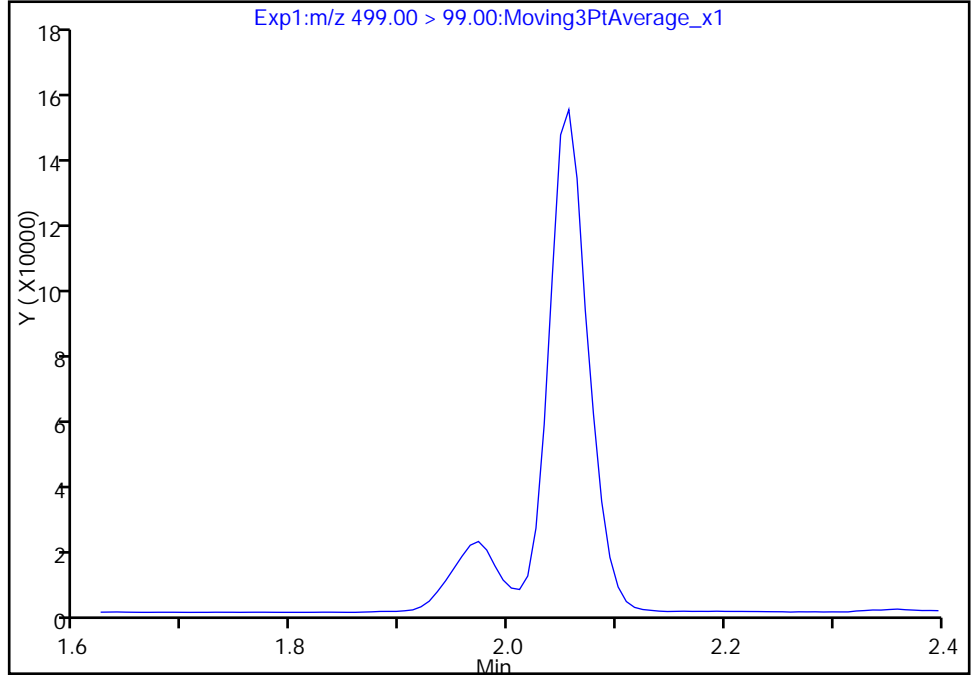
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_013.d
Injection Date: 08-Feb-2018 12:50:49 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

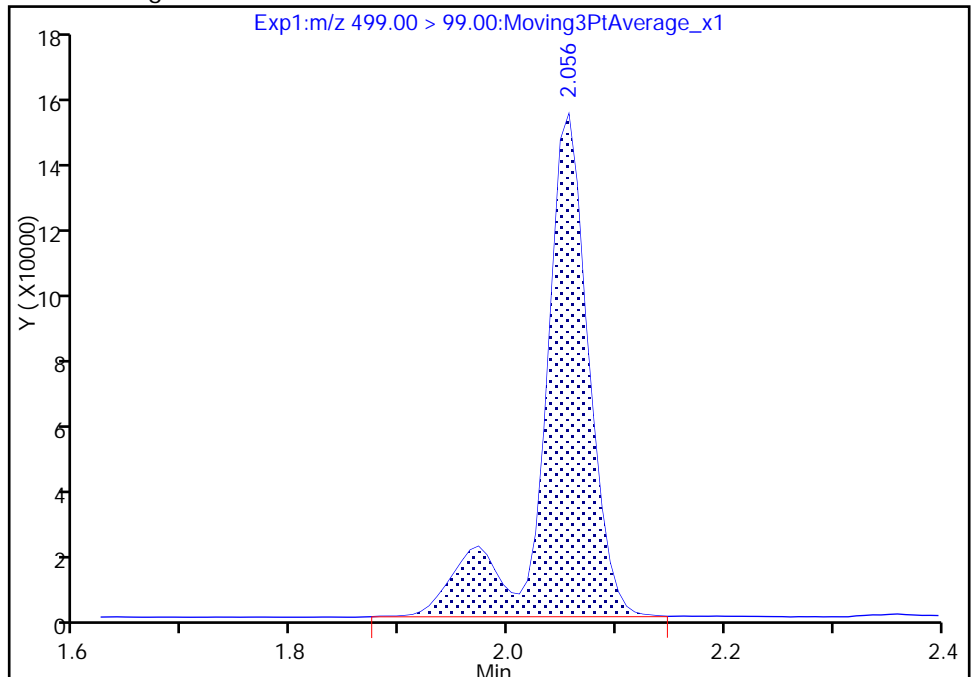
Not Detected
Expected RT: 2.03

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 438688
Amount: 20.604251
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:41:21
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

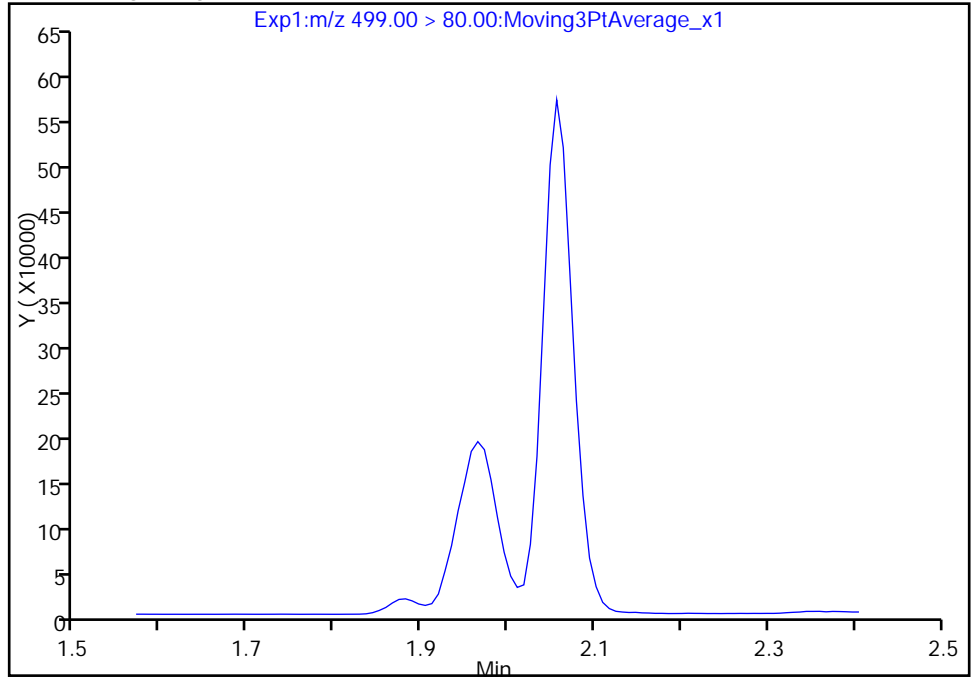
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_013.d
Injection Date: 08-Feb-2018 12:50:49 Instrument ID: A8_N
Lims ID: CCV L3
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 13
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

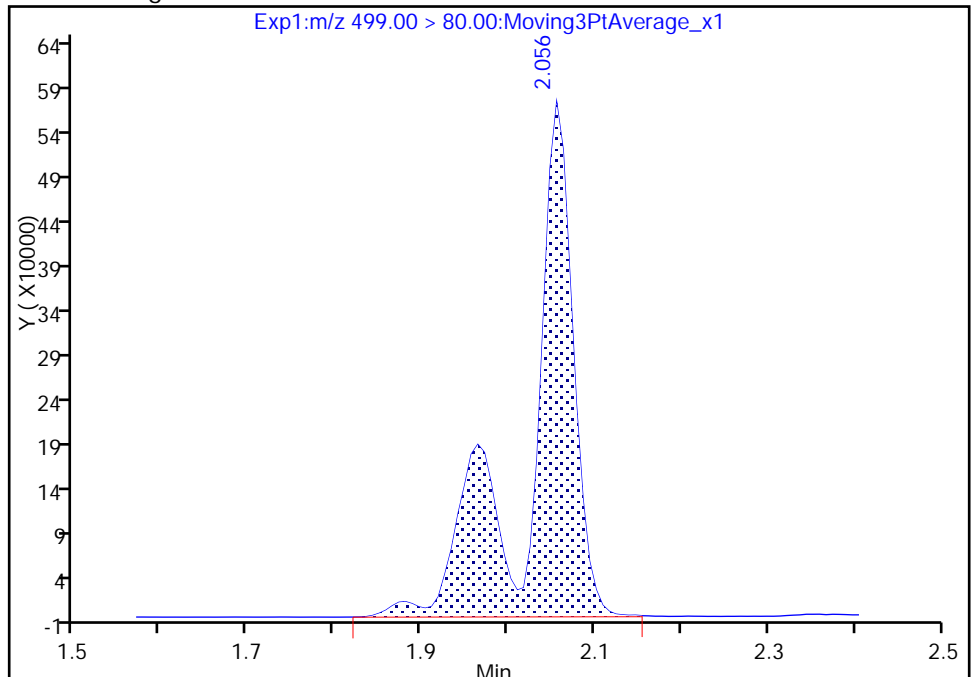
Not Detected
Expected RT: 2.03

Processing Integration Results



RT: 2.06
Area: 2074265
Amount: 20.604251
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 09-Feb-2018 10:41:21

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Lab Sample ID: CCV 320-207626/25 Calibration Date: 02/08/2018 13:46
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.08_537B_025.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9440		140	135	3.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.072		17.2	15.0	14.4	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.718		46.2	45.0	2.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9844		32.1	30.2	6.3	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9884		63.4	60.3	5.3	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6967		31.5	30.0	4.9	30.0
13C2 PFHxA	Ave	1.100	1.157		10.5	10.0	5.1	30.0
13C2 PFDA	Ave	0.7652	0.7280		9.51	10.0	-4.9	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_025.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 08-Feb-2018 13:46:54 ALS Bottle#: 5 Worklist Smp#: 25
 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\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:52 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:42:04

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	13488802	140.2		17110	
298.90 > 99.00	1.366	1.373	-0.007	0.994	10252514		1.32(0.00-0.00)	12739	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1497447	10.5		7000	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.624	0.0	1.000	8184228	46.2		12431	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.624	0.0	1.000	2081765	17.2		723	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1294509	10.0		5065	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.798	0.0	1.000	3844160	32.1		825	
413.00 > 169.00	1.798	1.798	0.0	1.000	2089711		1.84(0.00-0.00)	6647	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.041	2.033	0.008	1.000	6302805	63.4		2684	Ma
499.00 > 99.00	2.033	2.033	0.0	0.996	1291500		4.88(0.00-0.00)	2204	M
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.041	0.0		3035253	28.7		5505	
9 Perfluorononanoic acid									
463.00 > 419.00	2.048	2.048	0.0	1.000	2706621	31.5		775	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	942359	9.51		5675	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

Reagents:

LC537-L5_00025

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_025.d

Injection Date: 08-Feb-2018 13:46:54

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 25

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

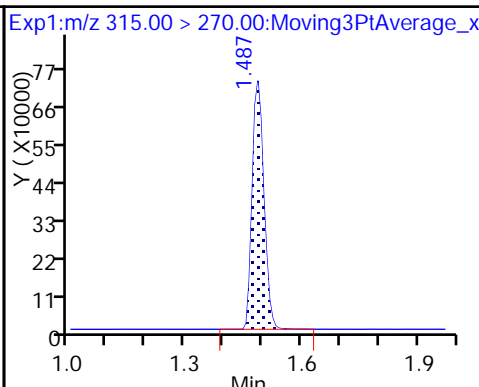
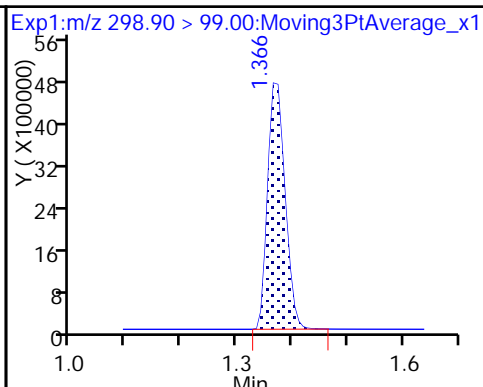
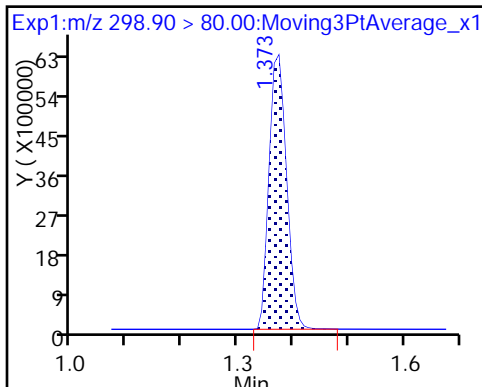
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

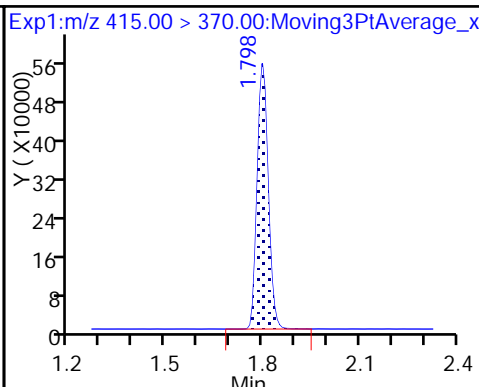
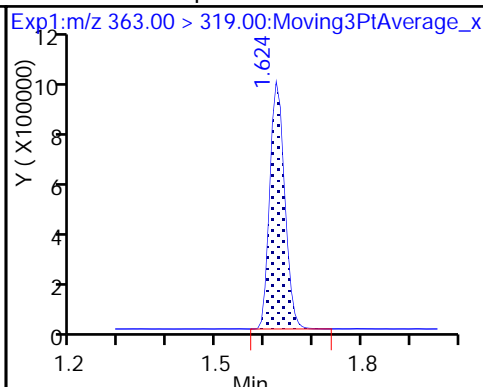
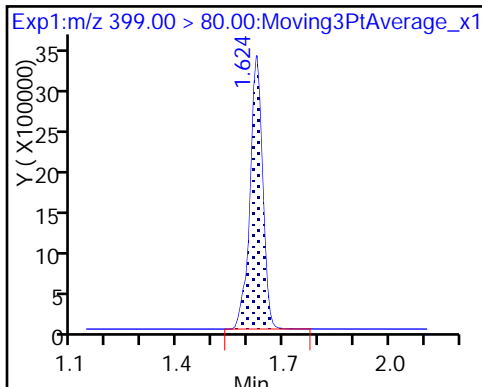
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

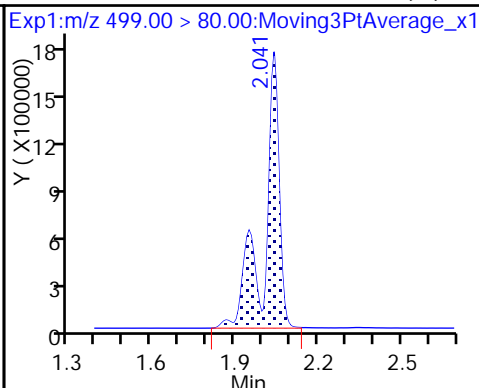
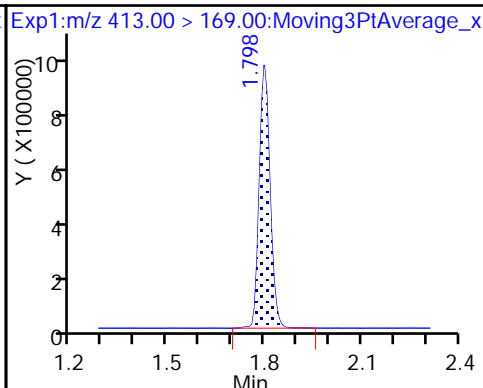
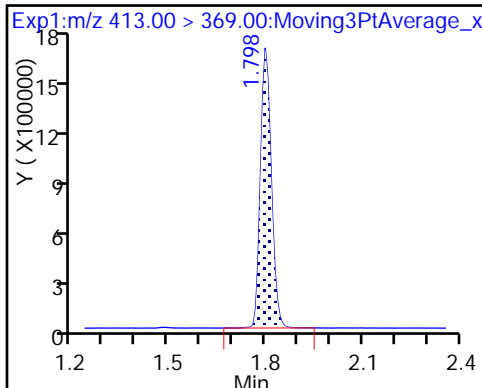
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

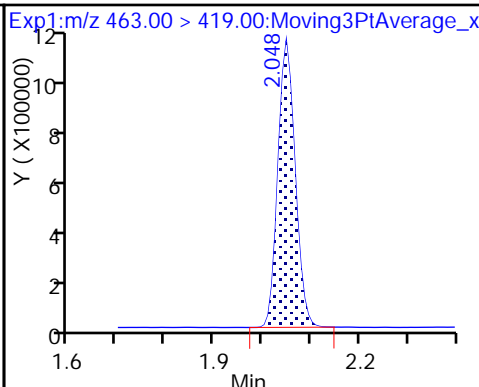
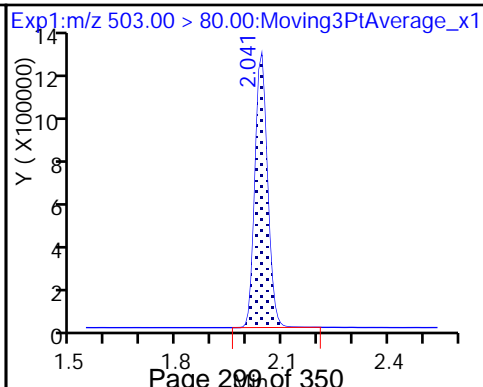
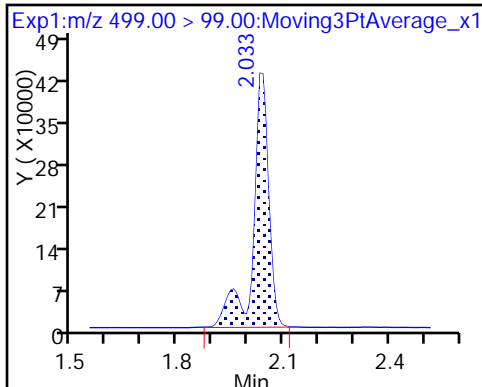
8 Perfluorooctane sulfonic acid (M)



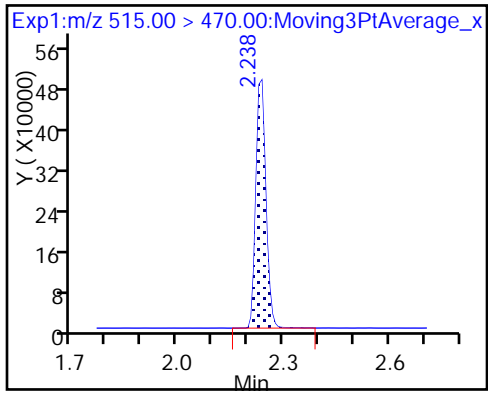
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

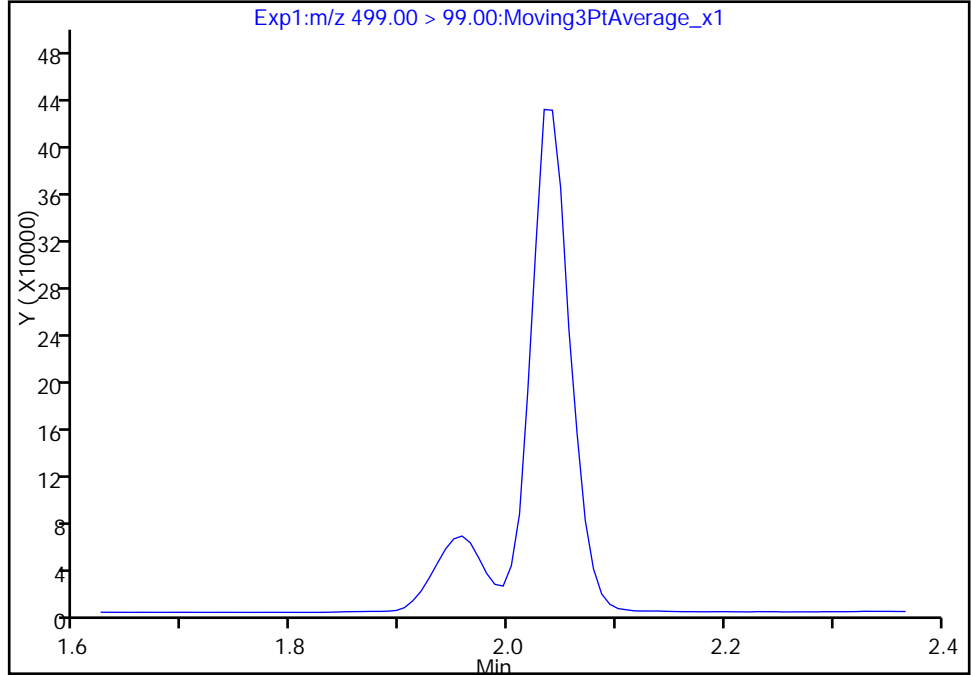
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_025.d
Injection Date: 08-Feb-2018 13:46:54 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

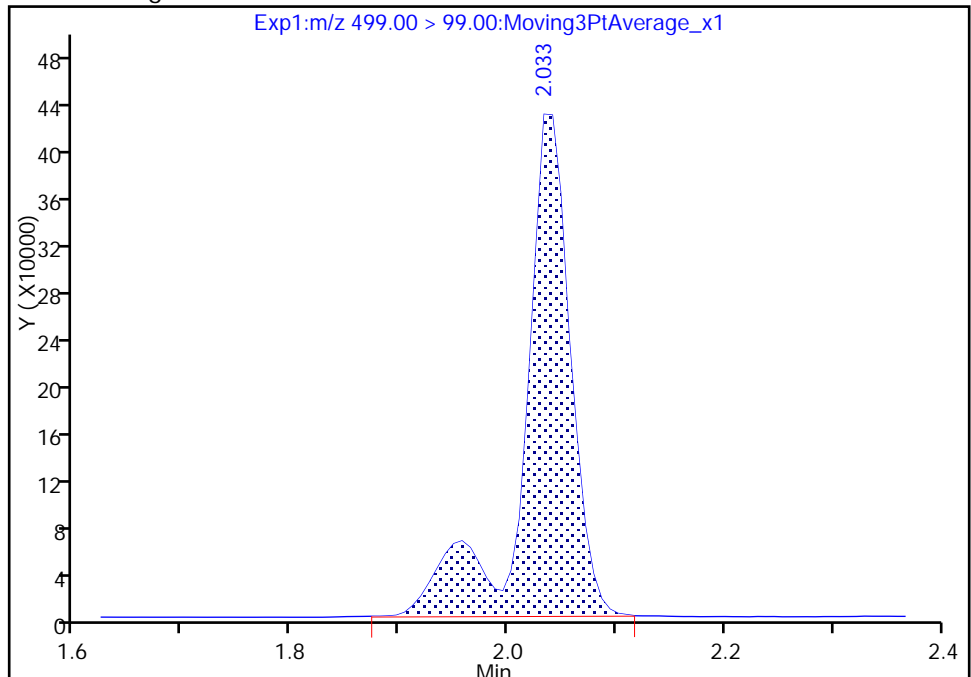
Not Detected
Expected RT: 2.03

Processing Integration Results



RT: 2.03
Area: 1291500
Amount: 63.427305
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 09-Feb-2018 10:41:57
Audit Action: Manually Integrated

TestAmerica Sacramento

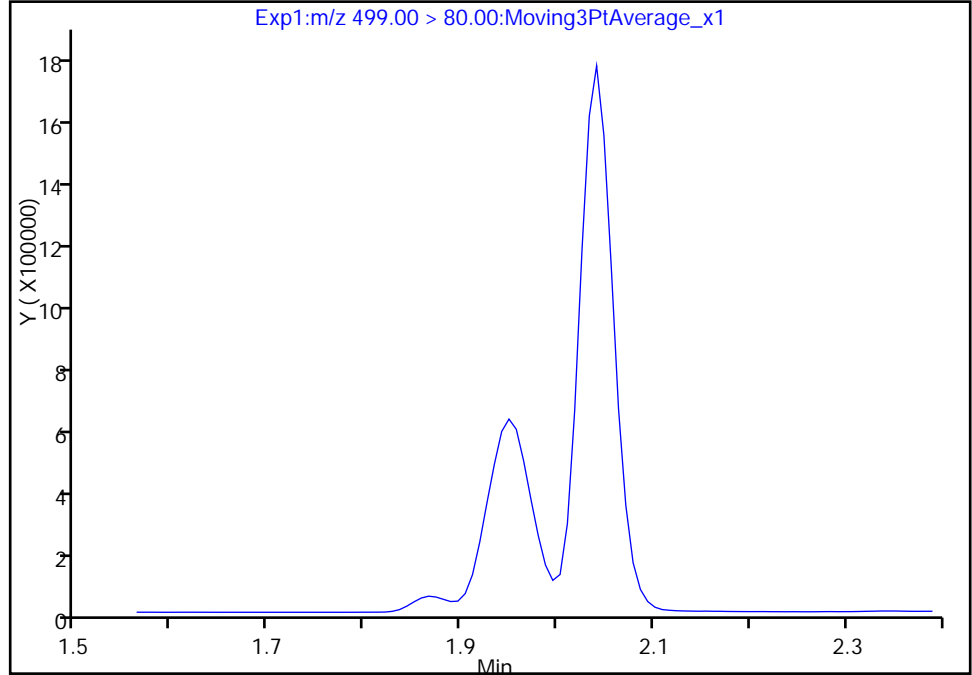
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_025.d
Injection Date: 08-Feb-2018 13:46:54 Instrument ID: A8_N
Lims ID: CCV L5
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 25
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

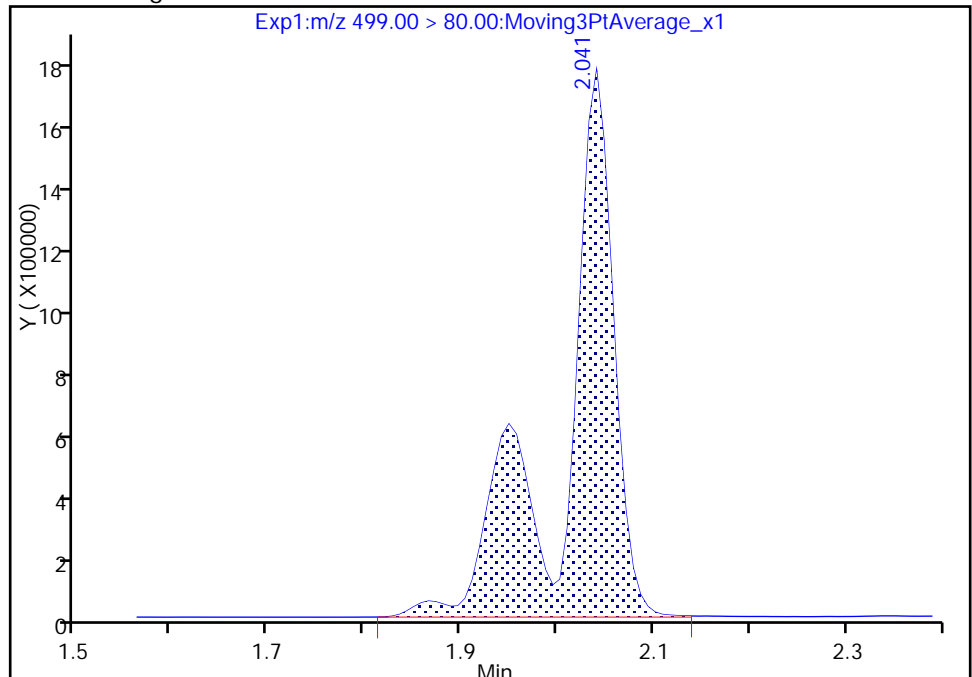
Not Detected
Expected RT: 2.03

Processing Integration Results



RT: 2.04
Area: 6302805
Amount: 63.427305
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 09-Feb-2018 10:41:57

Audit Action: Manually Integrated

Audit Reason: Baseline

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-207046/1-A
 Matrix: Water Lab File ID: 2018.02.08_537B_003.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 250 (mL) Date Analyzed: 02/08/2018 12:04
 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.: 207624 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)	4.79	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	96		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_003.d
 Lims ID: MB 320-207046/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 08-Feb-2018 12:04:09 ALS Bottle#: 35 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-207046/1-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

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	1.479	0.016	1.000	1421182	10.1	6752	
* 6 13C2-PFOA	415.00 > 370.00	1.806	1.791	0.015		1273697	10.0	4906	
5 Perfluorooctanoic acid	413.00 > 369.00	1.806	1.798	0.008	1.000	141123	1.20	38.6	
	413.00 > 169.00	1.806	1.798	0.008	1.000	71947	1.96(0.00-0.00)	228	
* 7 13C4 PFOS	503.00 > 80.00	2.041	2.033	0.008		3063775	28.7	5696	
\$ 10 13C2 PFDA	515.00 > 470.00	2.238	2.231	0.007	1.000	937179	9.62	6270	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_003.d

Injection Date: 08-Feb-2018 12:04:09

Instrument ID: A8_N

Lims ID: MB 320-207046/1-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 35

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

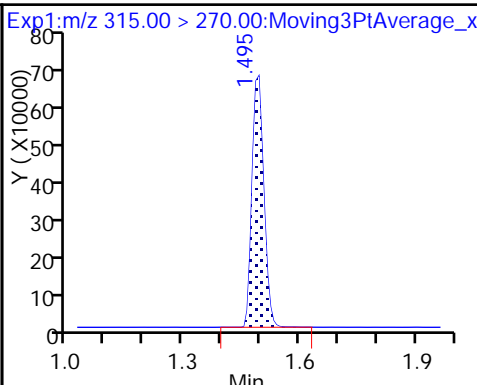
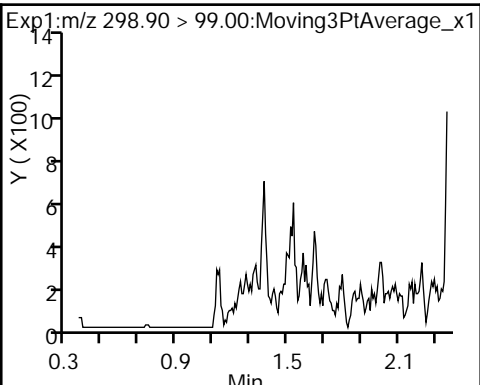
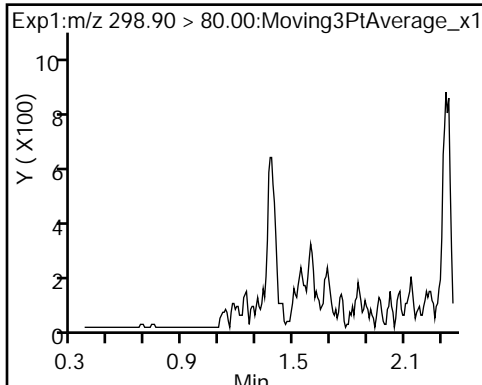
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

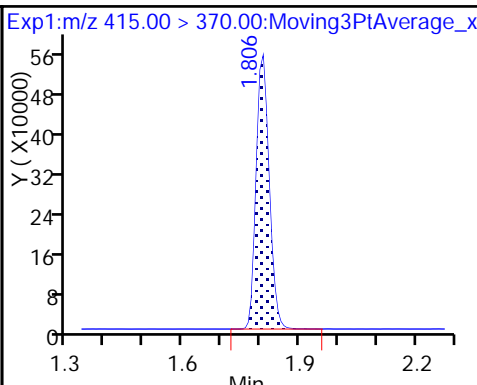
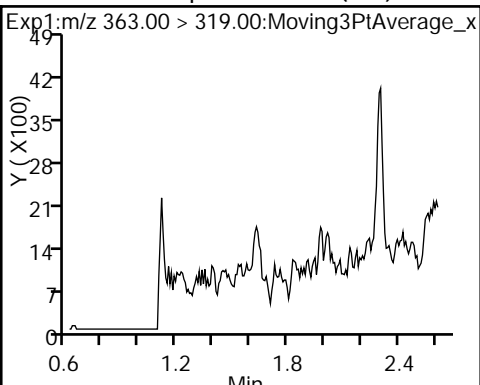
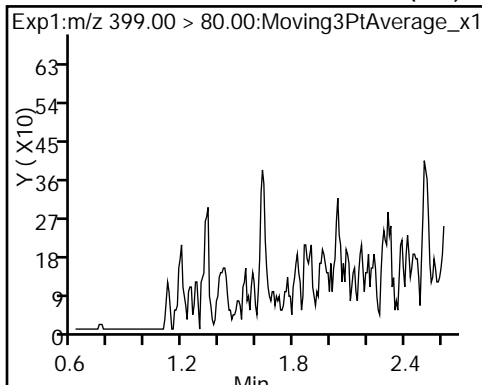
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

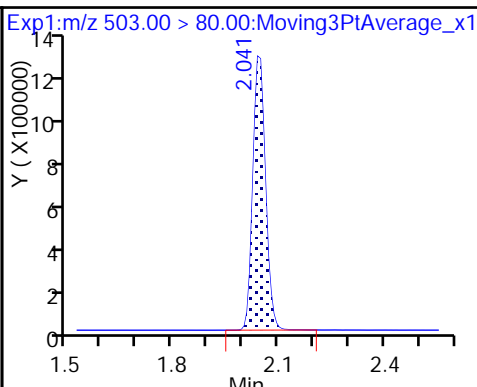
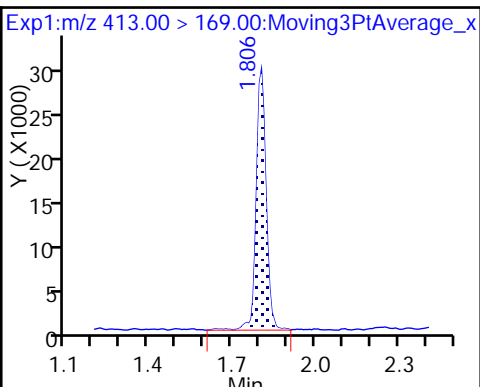
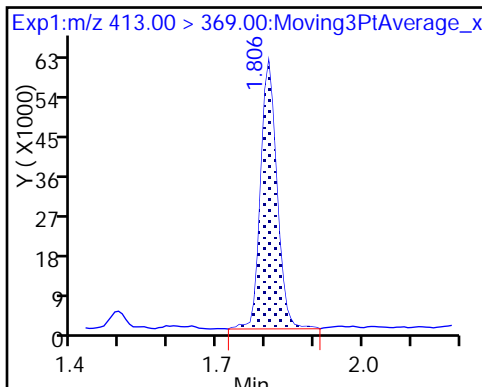
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

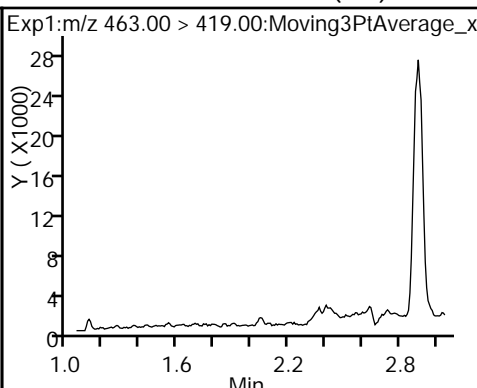
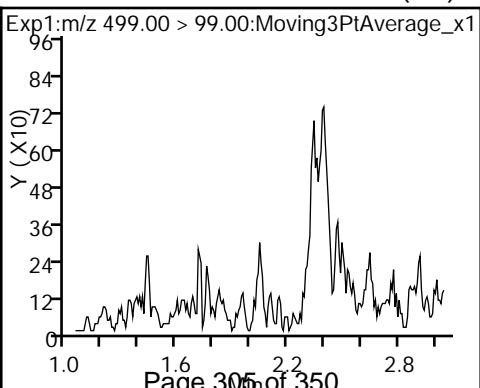
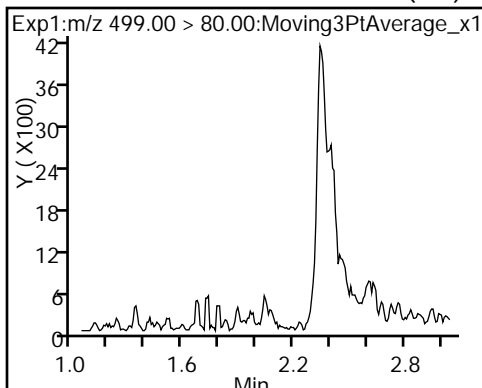
* 7 13C4 PFOS



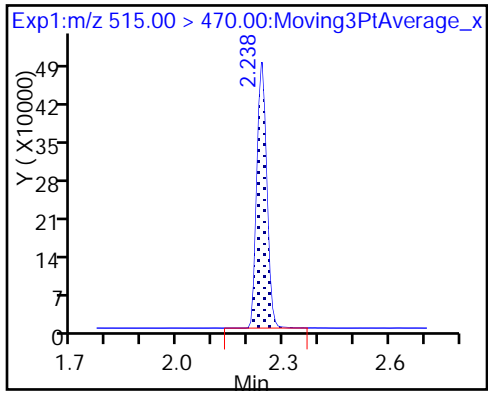
8 Perfluorooctane sulfonic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_003.d
 Lims ID: MB 320-207046/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 08-Feb-2018 12:04:09 ALS Bottle#: 35 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-207046/1-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d

Column 1 : Det: EXP1
 Process Host: XAWRK029

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.1	101.41
\$ 10 13C2 PFDA	10.0	9.62	96.16

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LLCS 320-207046/2-A
 Matrix: Water Lab File ID: 2018.02.08_537B_004.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 250 (mL) Date Analyzed: 02/08/2018 12:08
 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.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	40.3	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	22.6		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	21.2	J	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	32.4		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	12.7		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	95.4		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	106		70-130
STL00996	13C2 PFDA	102		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_004.d
 Lims ID: LLCS 320-207046/2-A
 Client ID:
 Sample Type: LLCS
 Inject. Date: 08-Feb-2018 12:08:49 ALS Bottle#: 36 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: llcs 320-207046/2-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:44:04

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	1.366	0.007	1.000	2795206	23.8		8855	
298.90 > 99.00	1.373	1.366	0.007	1.000	1996667		1.40(0.00-0.00)	4081	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	1481990	10.6		6771	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.616	0.008	1.000	1468429	8.11		3943	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.616	0.015	1.000	378912	3.19		150	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.791	0.015		1269564	10.0		5136	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.798	0.008	1.000	663960	5.65		165	
413.00 > 169.00	1.806	1.798	0.008	1.000	351955		1.89(0.00-0.00)	1169	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.033	0.008		3102296	28.7		6234	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.033	0.015	1.000	1023614	10.1		706	Ma
499.00 > 99.00	2.048	2.033	0.015	1.000	217772		4.70(0.00-0.00)	566	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.048	0.008	1.000	447557	5.31		95.5	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.231	0.007	1.000	991577	10.2		7127	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_004.d

Injection Date: 08-Feb-2018 12:08:49

Instrument ID: A8_N

Lims ID: LLCS 320-207046/2-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 36

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

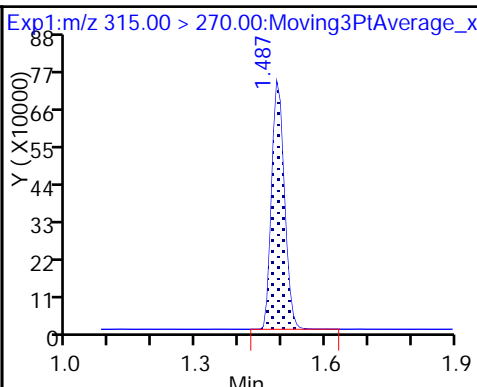
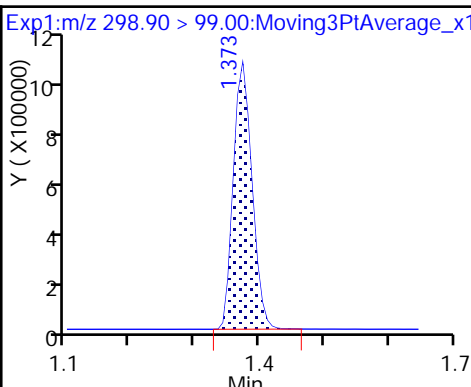
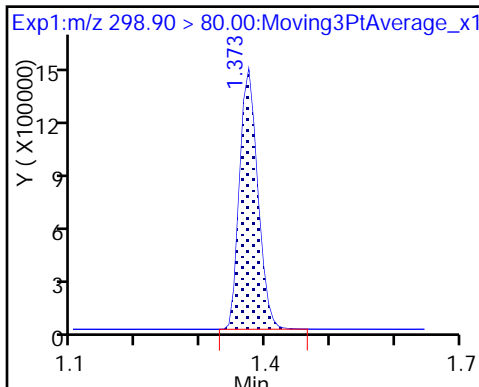
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

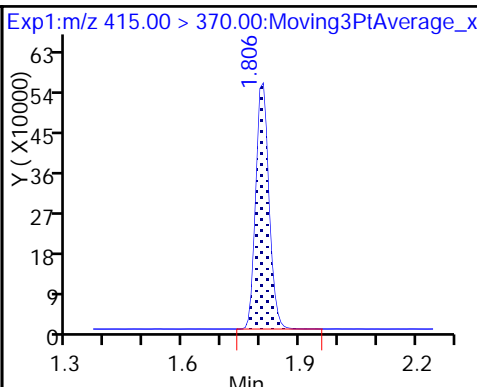
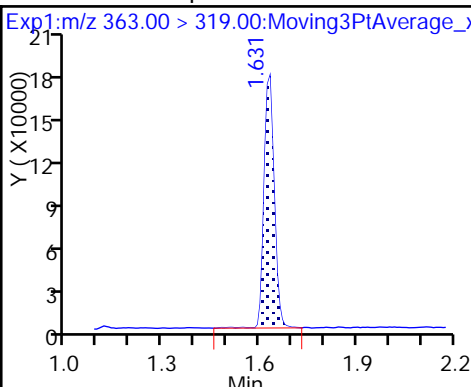
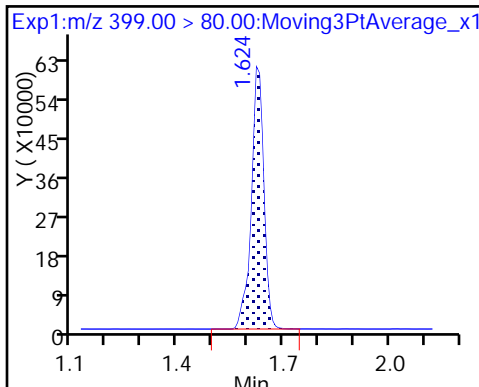
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

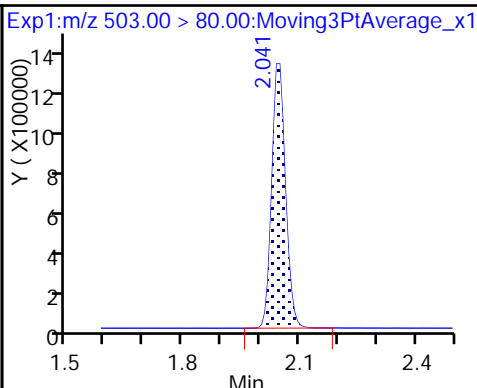
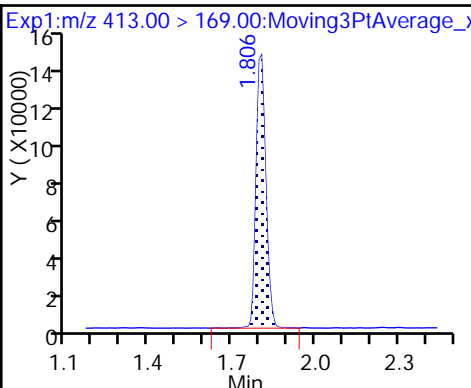
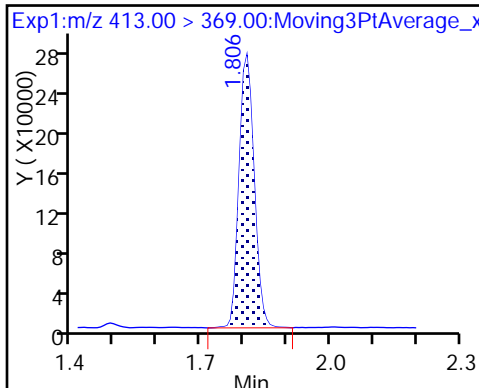
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

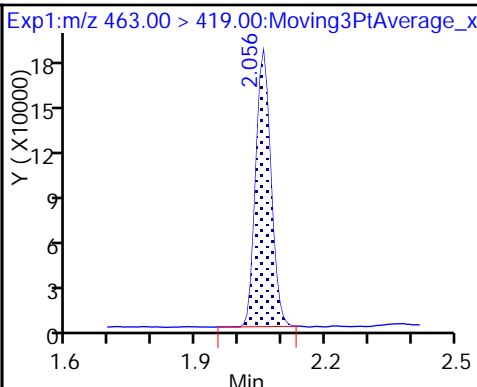
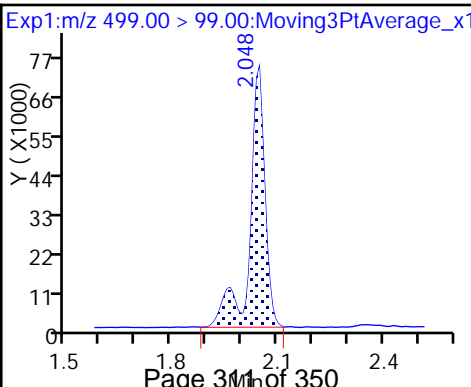
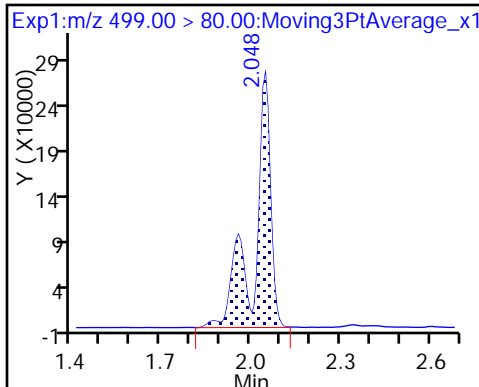
* 7 13C4 PFOS



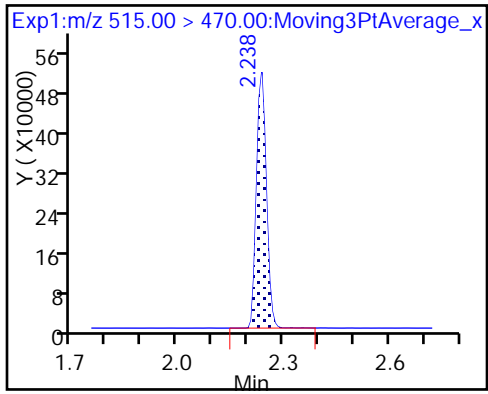
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_004.d
 Lims ID: LLCS 320-207046/2-A
 Client ID:
 Sample Type: LLCS
 Inject. Date: 08-Feb-2018 12:08:49 ALS Bottle#: 36 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: llcs 320-207046/2-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:44:04

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.6	106.09
\$ 10 13C2 PFDA	10.0	10.2	102.07

TestAmerica Sacramento

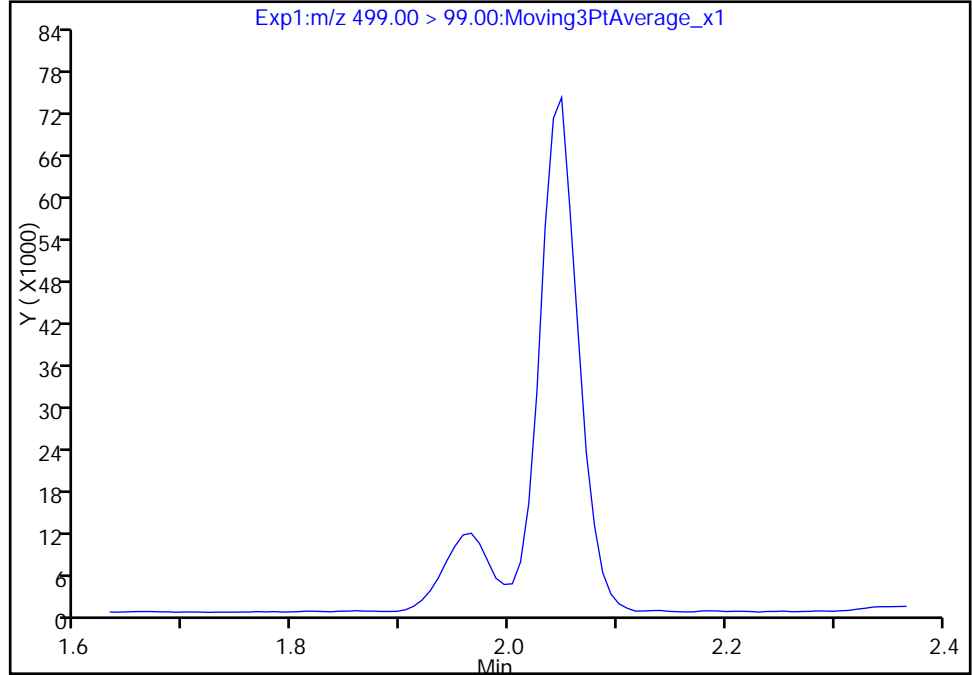
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_004.d
Injection Date: 08-Feb-2018 12:08:49 Instrument ID: A8_N
Lims ID: LLCS 320-207046/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 36 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

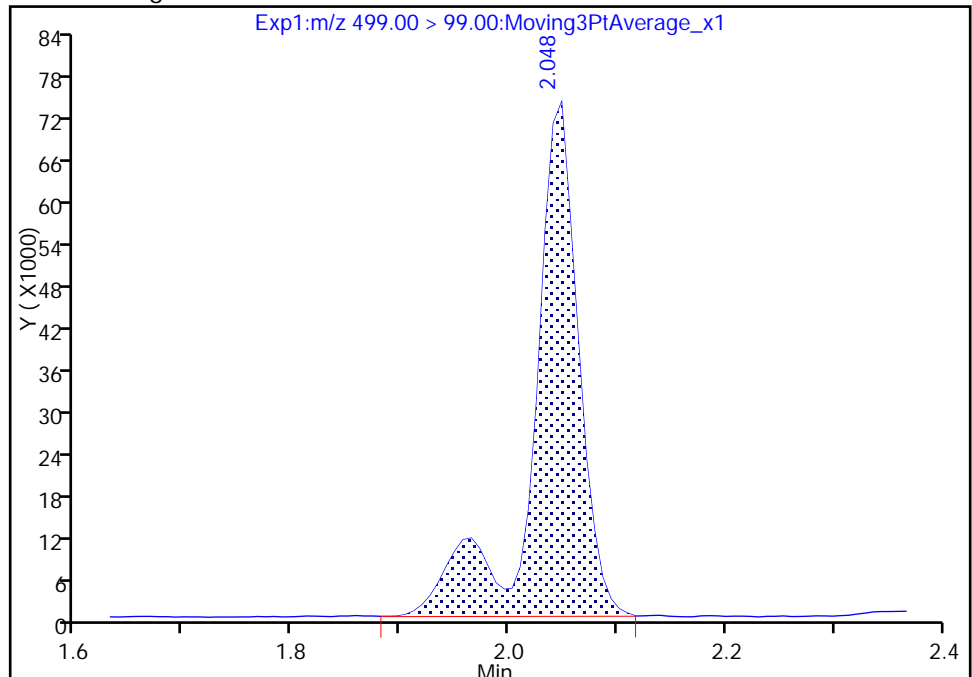
Not Detected
Expected RT: 2.03

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 217772
Amount: 10.078369
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:43:38
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

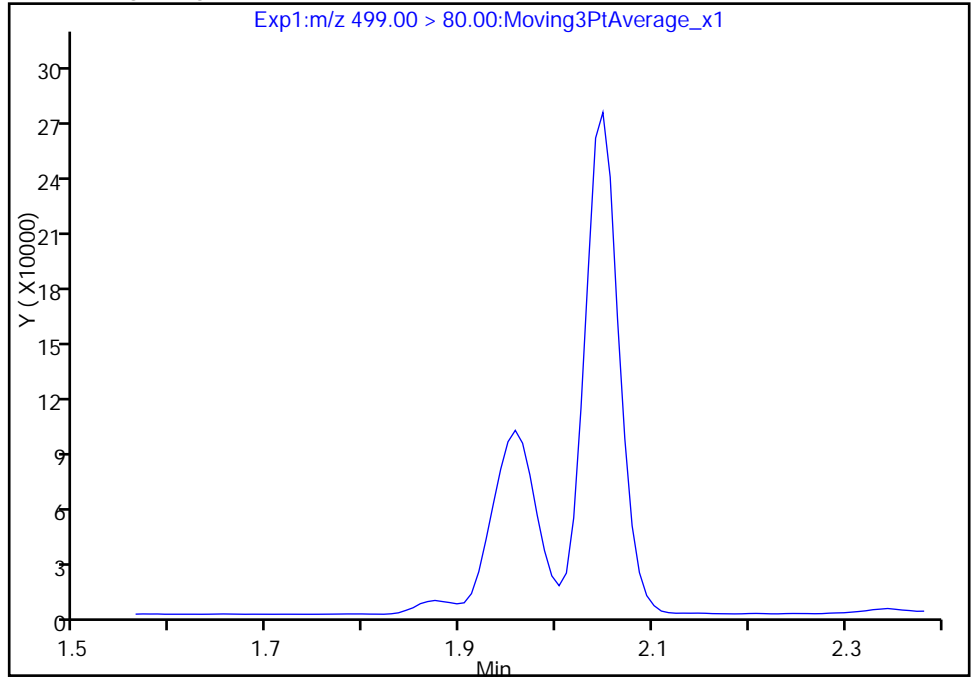
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_004.d
Injection Date: 08-Feb-2018 12:08:49 Instrument ID: A8_N
Lims ID: LLCS 320-207046/2-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 36 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

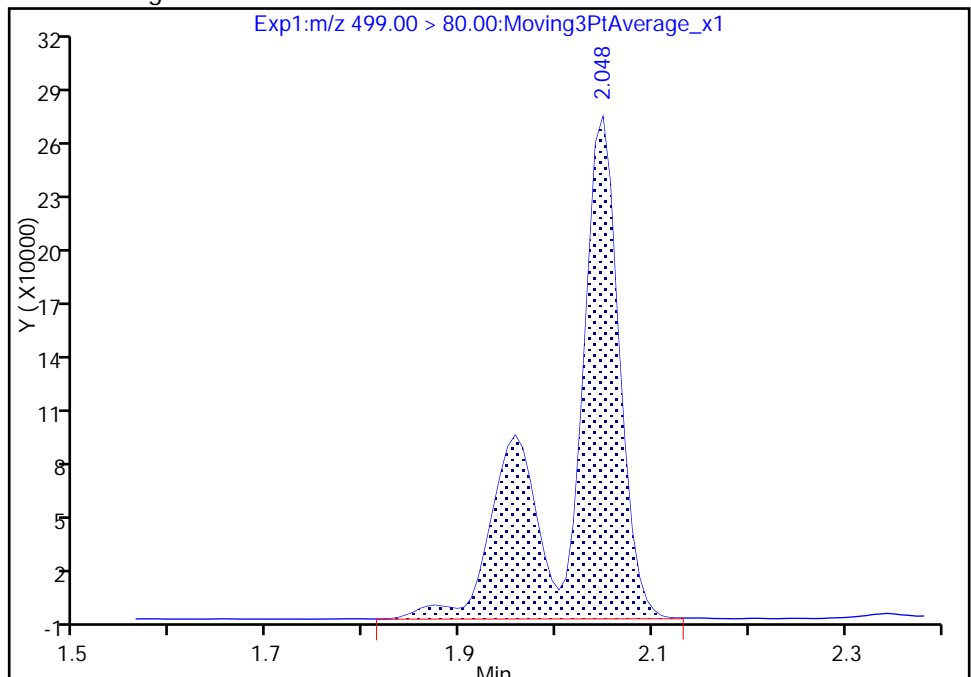
Not Detected
Expected RT: 2.03

Processing Integration Results



Manual Integration Results

RT: 2.05
Area: 1023614
Amount: 10.078369
Amount Units: ng/ml



Reviewer: barnettj, 09-Feb-2018 10:43:38

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LLCSD 320-207046/3-A
 Matrix: Water Lab File ID: 2018.02.08_537B_005.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 250 (mL) Date Analyzed: 02/08/2018 12:13
 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.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	41.2	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	29.1		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	21.3	J	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	32.9		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	12.2		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	99.7		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	106		70-130
STL00996	13C2 PFDA	105		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_005.d
 Lims ID: LLCSD 320-207046/3-A
 Client ID:
 Sample Type: LLCSD
 Inject. Date: 08-Feb-2018 12:13:29 ALS Bottle#: 37 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: llcsd 320-207046/3-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:45:17

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	1.366	0.007	1.000	2795888	24.9		8422	
298.90 > 99.00	1.373	1.366	0.007	1.000	1968673		1.42(0.00-0.00)	4304	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	1461459	10.6		6828	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.616	0.015	1.000	1427634	8.22		4046	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.616	0.015	1.000	359036	3.04		139	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.791	0.015		1258852	10.0		4920	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.798	0.008	1.000	846899	7.27		222	
413.00 > 169.00	1.806	1.798	0.008	1.000	469729		1.80(0.00-0.00)	1505	
* 7 13C4 PFOS									
503.00 > 80.00	2.041	2.033	0.008		2974774	28.7		6623	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.041	2.033	0.008	1.000	1003150	10.3		665	Ma
499.00 > 99.00	2.041	2.033	0.008	1.000	226970		4.42(0.00-0.00)	557	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.056	2.048	0.008	1.000	444685	5.32		91.5	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.231	0.007	1.000	1015261	10.5		6086	

QC Flag Legend

Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_005.d

Injection Date: 08-Feb-2018 12:13:29

Instrument ID: A8_N

Lims ID: LLCSD 320-207046/3-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 37

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

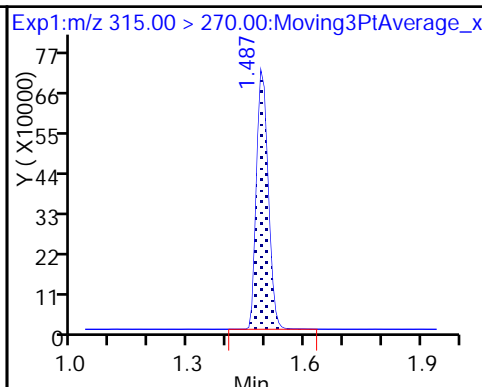
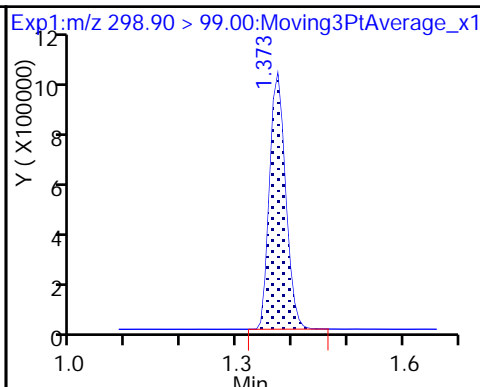
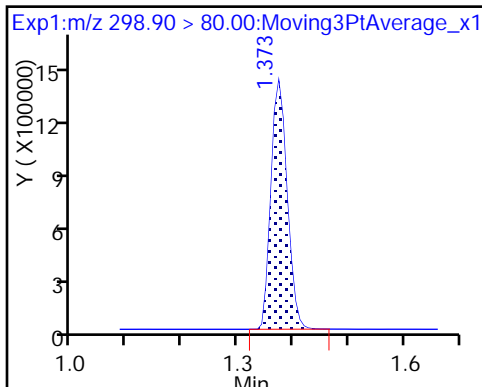
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

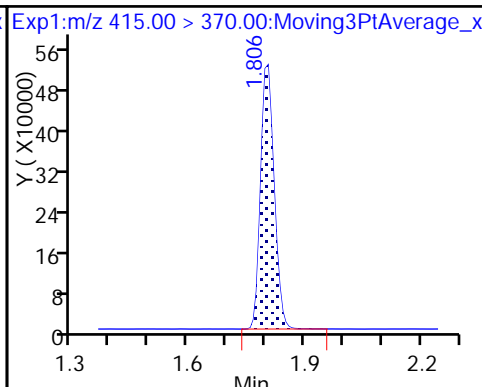
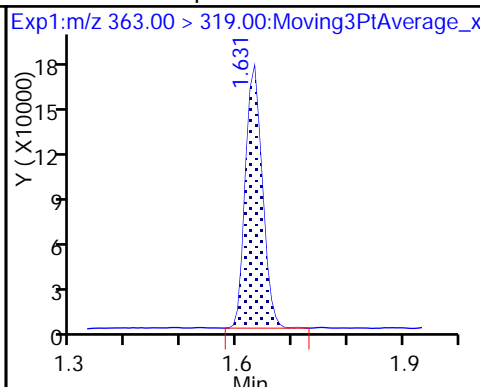
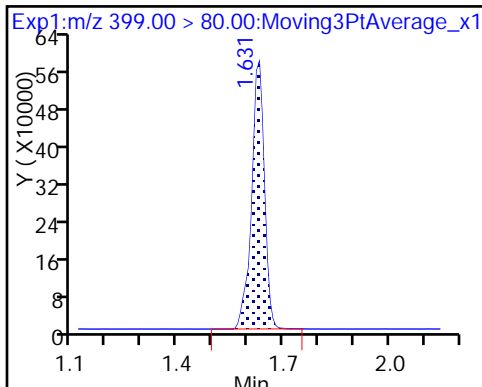
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

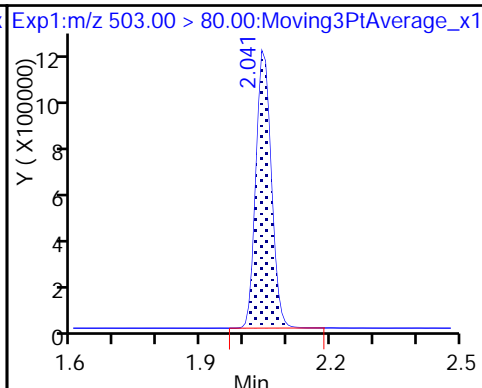
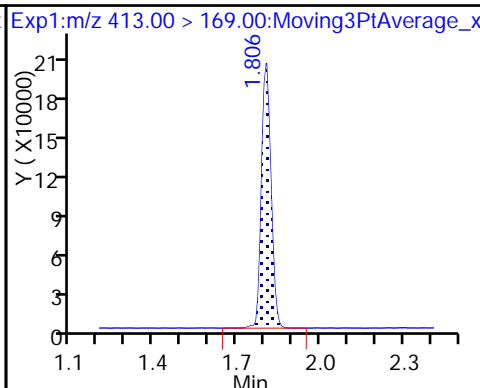
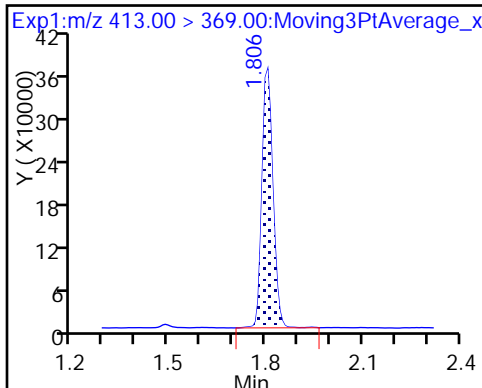
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

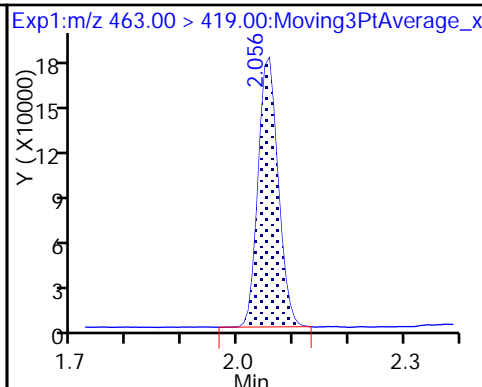
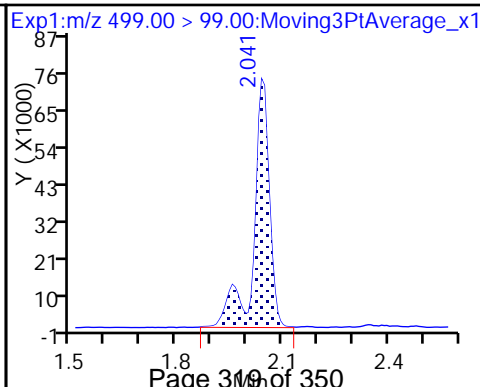
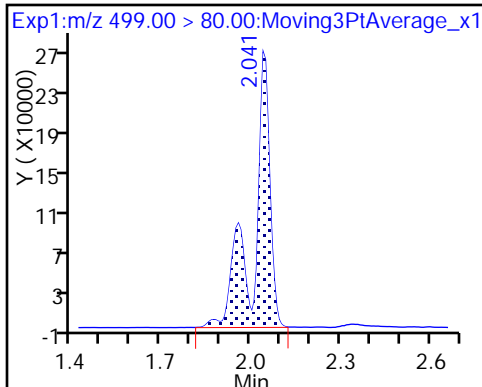
* 7 13C4 PFOS



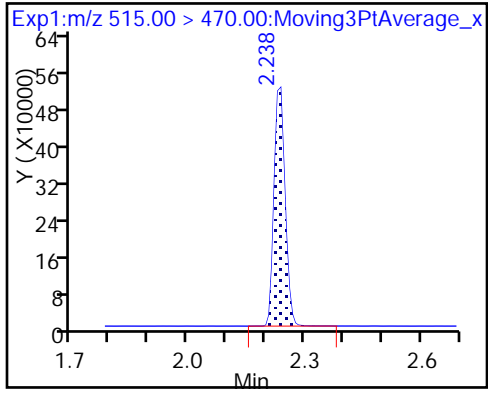
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_005.d
 Lims ID: LLCSD 320-207046/3-A
 Client ID:
 Sample Type: LLCSD
 Inject. Date: 08-Feb-2018 12:13:29 ALS Bottle#: 37 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: llcsd 320-207046/3-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 09-Feb-2018 14:46:20 Calib Date: 03-Nov-2017 14:01:24
 Integrator: Picker
 Quant Method: Internal Standard Quant By: Initial Calibration
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK029

First Level Reviewer: barnettj Date: 09-Feb-2018 10:45:17

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.6	105.51
\$ 10 13C2 PFDA	10.0	10.5	105.40

TestAmerica Sacramento

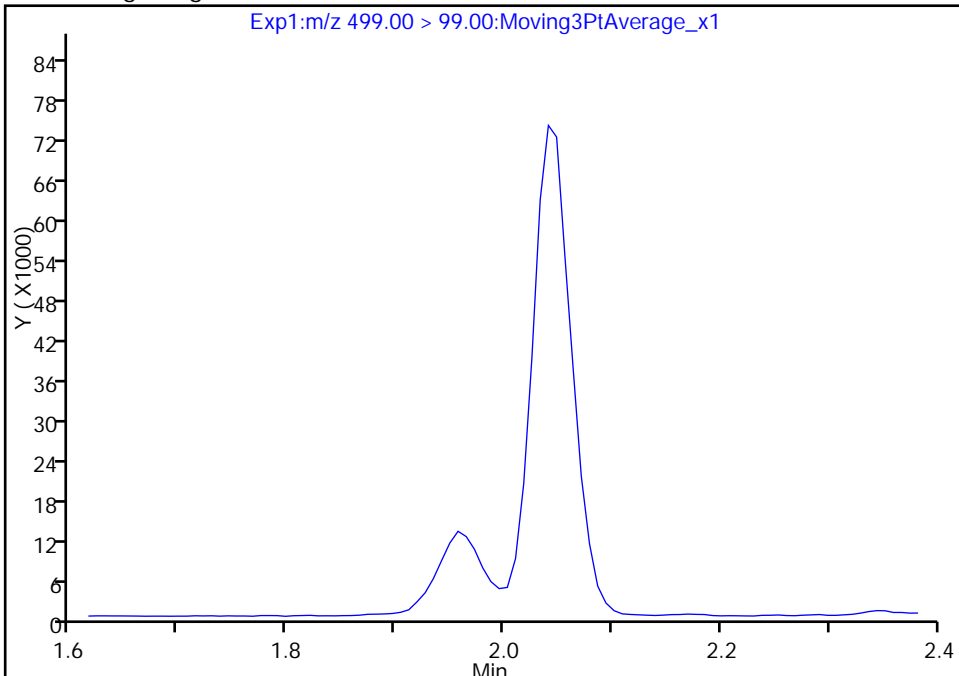
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_005.d
Injection Date: 08-Feb-2018 12:13:29 Instrument ID: A8_N
Lims ID: LLCSD 320-207046/3-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 37 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

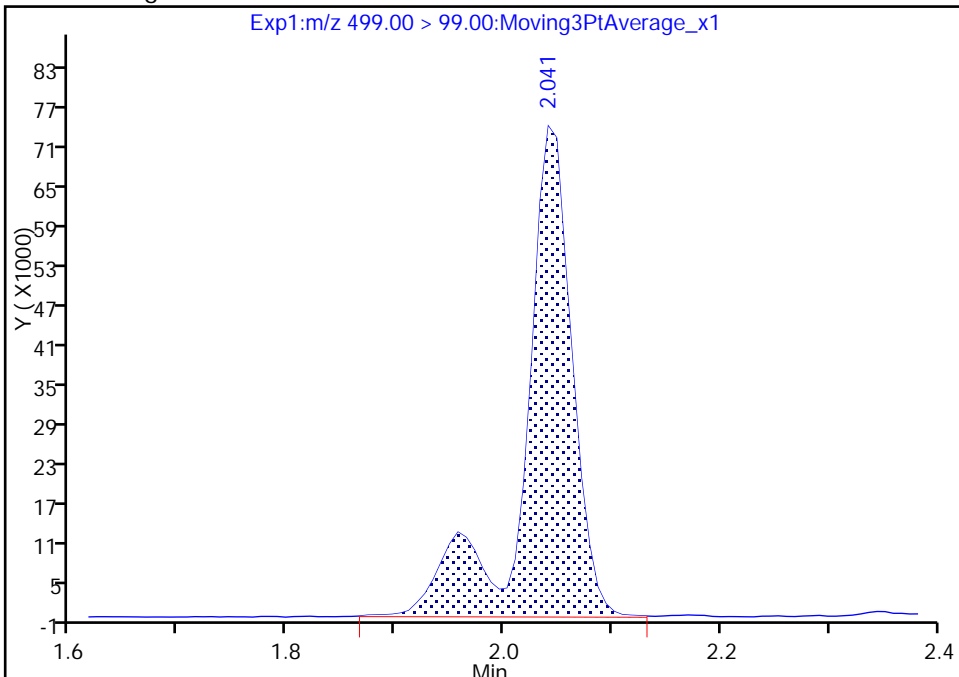
Not Detected
Expected RT: 2.03

Processing Integration Results



RT: 2.04
Area: 226970
Amount: 10.300284
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 09-Feb-2018 10:44:32
Audit Action: Manually Integrated

TestAmerica Sacramento

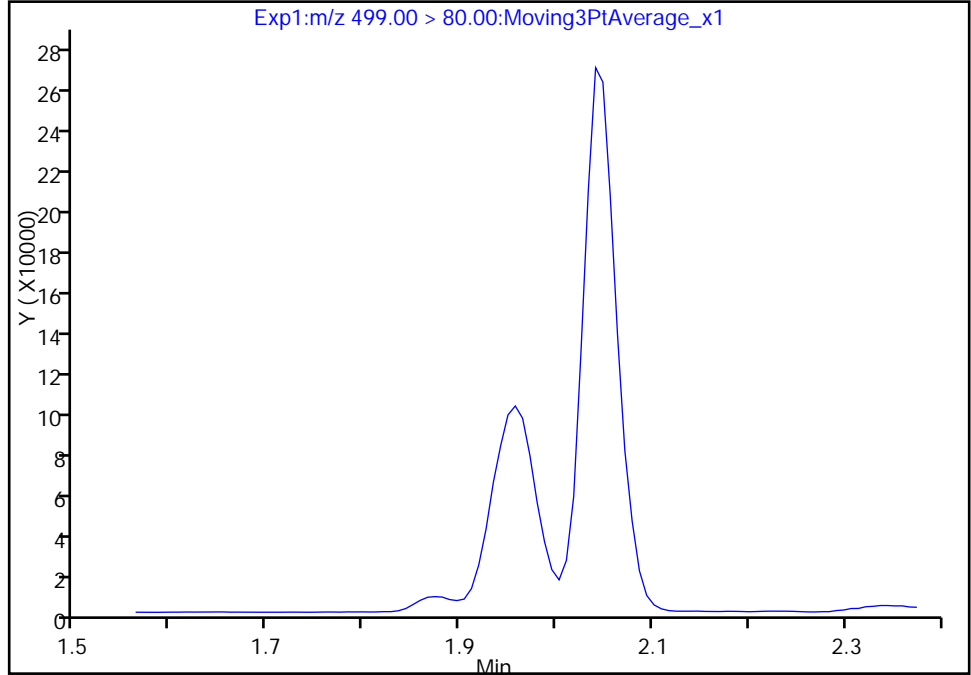
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b\2018.02.08_537B_005.d
Injection Date: 08-Feb-2018 12:13:29 Instrument ID: A8_N
Lims ID: LLCSD 320-207046/3-A
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 37 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

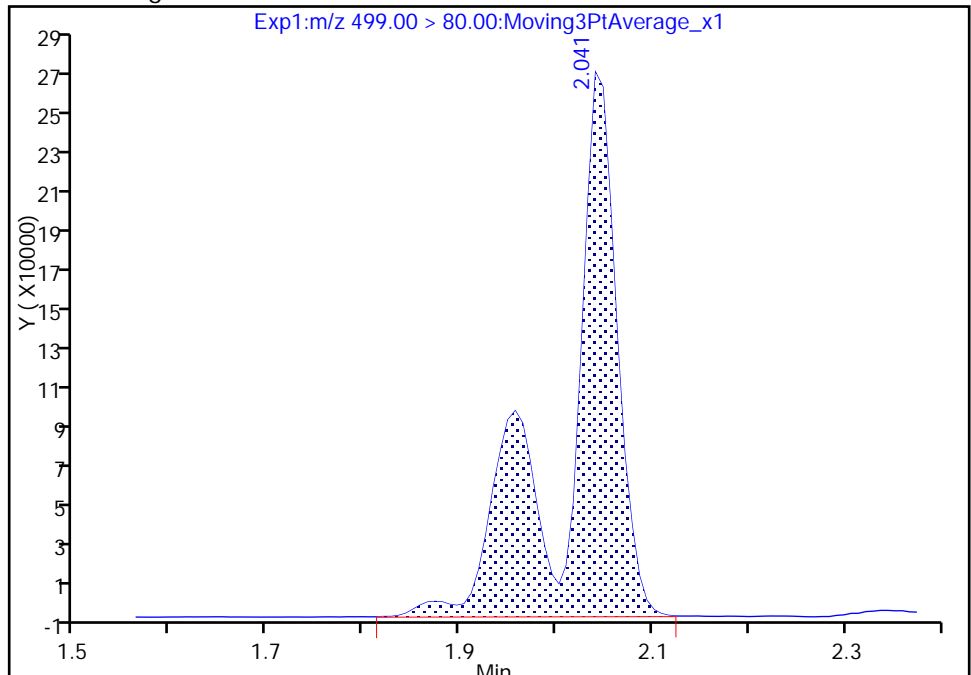
Not Detected
Expected RT: 2.03

Processing Integration Results



RT: 2.04
Area: 1003150
Amount: 10.300284
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 09-Feb-2018 10:44:32

Audit Action: Manually Integrated

Audit Reason: Assign Peak

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1

SDG No.: _____

Instrument ID: A8_N Start Date: 11/03/2017 13:37

Analysis Batch Number: 192908 End Date: 11/03/2017 14:24

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-192908/4		11/03/2017 13:37	1	2017.11.03_537X ICAL 004.d	GeminiC18 3x100 3(mm)
IC 320-192908/5		11/03/2017 13:42	1	2017.11.03_537X ICAL 005.d	GeminiC18 3x100 3(mm)
IC 320-192908/6		11/03/2017 13:47	1	2017.11.03_537X ICAL 006.d	GeminiC18 3x100 3(mm)
IC 320-192908/7 ICISAV		11/03/2017 13:52	1	2017.11.03_537X ICAL 007.d	GeminiC18 3x100 3(mm)
IC 320-192908/8		11/03/2017 13:56	1	2017.11.03_537X ICAL 008.d	GeminiC18 3x100 3(mm)
IC 320-192908/9		11/03/2017 14:01	1	2017.11.03_537X ICAL 009.d	GeminiC18 3x100 3(mm)
ZZZZZ		11/03/2017 14:06	1		GeminiC18 3x100 3(mm)
CCVL 320-192908/11		11/03/2017 14:10	1	2017.11.03_537X ICAL 011.d	GeminiC18 3x100 3(mm)
ZZZZZ		11/03/2017 14:15	1		GeminiC18 3x100 3(mm)
ICV 320-192908/13		11/03/2017 14:20	1	2017.11.03_537X ICAL 013.d	GeminiC18 3x100 3(mm)
ZZZZZ		11/03/2017 14:24	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1

SDG No.: _____

Instrument ID: A8_N Start Date: 02/08/2018 07:47

Analysis Batch Number: 207581 End Date: 02/08/2018 08:47

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-207581/1		02/08/2018 07:47	1	2018.02.08_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-207581/2 CCVIS		02/08/2018 07:51	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:01	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:05	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:10	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:15	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:19	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:24	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:29	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:33	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:38	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:43	1		GeminiC18 3x100 3(mm)
CCV 320-207581/14 CCVIS		02/08/2018 08:47	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1

SDG No.: _____

Instrument ID: A8_N Start Date: 02/08/2018 11:54

Analysis Batch Number: 207624 End Date: 02/08/2018 12:50

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207624/1 CCVIS		02/08/2018 11:54	1	2018.02.08_537B 001.d	GeminiC18 3x100 3(mm)
MB 320-207046/1-A		02/08/2018 12:04	1	2018.02.08_537B 003.d	GeminiC18 3x100 3(mm)
LLCS 320-207046/2-A		02/08/2018 12:08	1	2018.02.08_537B 004.d	GeminiC18 3x100 3(mm)
LLCSD 320-207046/3-A		02/08/2018 12:13	1	2018.02.08_537B 005.d	GeminiC18 3x100 3(mm)
320-35691-1		02/08/2018 12:18	1	2018.02.08_537B 006.d	GeminiC18 3x100 3(mm)
320-35691-2		02/08/2018 12:22	1	2018.02.08_537B 007.d	GeminiC18 3x100 3(mm)
320-35691-3		02/08/2018 12:27	1	2018.02.08_537B 008.d	GeminiC18 3x100 3(mm)
320-35691-4		02/08/2018 12:32	1	2018.02.08_537B 009.d	GeminiC18 3x100 3(mm)
320-35691-5		02/08/2018 12:36	1	2018.02.08_537B 010.d	GeminiC18 3x100 3(mm)
320-35691-6		02/08/2018 12:41	1	2018.02.08_537B 011.d	GeminiC18 3x100 3(mm)
320-35691-7		02/08/2018 12:46	1	2018.02.08_537B 012.d	GeminiC18 3x100 3(mm)
CCV 320-207624/13 CCVIS		02/08/2018 12:50	1	2018.02.08_537B 013.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1

SDG No.: _____

Instrument ID: A8_N Start Date: 02/08/2018 12:50

Analysis Batch Number: 207626 End Date: 02/08/2018 13:46

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207626/13 CCVIS		02/08/2018 12:50	1	2018.02.08_537B 013.d	GeminiC18 3x100 3(mm)
320-35691-8		02/08/2018 13:00	1	2018.02.08_537B 015.d	GeminiC18 3x100 3(mm)
320-35691-9		02/08/2018 13:04	1	2018.02.08_537B 016.d	GeminiC18 3x100 3(mm)
320-35691-10		02/08/2018 13:09	1	2018.02.08_537B 017.d	GeminiC18 3x100 3(mm)
320-35691-11		02/08/2018 13:14	1	2018.02.08_537B 018.d	GeminiC18 3x100 3(mm)
320-35691-12		02/08/2018 13:18	1	2018.02.08_537B 019.d	GeminiC18 3x100 3(mm)
320-35691-13		02/08/2018 13:23	1	2018.02.08_537B 020.d	GeminiC18 3x100 3(mm)
320-35691-14		02/08/2018 13:28	1	2018.02.08_537B 021.d	GeminiC18 3x100 3(mm)
320-35691-15		02/08/2018 13:32	1	2018.02.08_537B 022.d	GeminiC18 3x100 3(mm)
320-35691-16		02/08/2018 13:37	1	2018.02.08_537B 023.d	GeminiC18 3x100 3(mm)
320-35691-17		02/08/2018 13:42	1	2018.02.08_537B 024.d	GeminiC18 3x100 3(mm)
CCV 320-207626/25 CCVIS		02/08/2018 13:46	1	2018.02.08_537B 025.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1

SDG No.: _____

Batch Number: 207046 Batch Start Date: 02/06/18 08:01 Batch Analyst: Branscum, Cassie

Batch Method: 537 Batch End Date: 02/07/18 19:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00057
MB 320-207046/1		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCS 320-207046/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCSD 320-207046/3		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-35691-A-1	NAWC-020118-RW-1 67	537, 537	T	270.13 g	28.32 g	241.8 mL	1.00 mL	7 SU	100 uL
320-35691-A-2	NAWC-020118-FRB- 167	537, 537	T	276.83 g	29.57 g	247.3 mL	1.00 mL	7 SU	100 uL
320-35691-A-3	NAWC-020118-RW-1 51	537, 537	T	270.71 g	29.32 g	241.4 mL	1.00 mL	7 SU	100 uL
320-35691-A-4	NAWC-020118-FRB- 151	537, 537	T	286.65 g	28.02 g	258.6 mL	1.00 mL	7 SU	100 uL
320-35691-A-5	NAWC-020118-RW-1 56	537, 537	T	283.91 g	29.04 g	254.9 mL	1.00 mL	7 SU	100 uL
320-35691-A-6	NAWC-020118-FRB- 156	537, 537	T	285.09 g	28.06 g	257 mL	1.00 mL	7 SU	100 uL
320-35691-A-7	NAWC-020118-RW-1 19	537, 537	T	280.56 g	27.71 g	252.9 mL	1.00 mL	7 SU	100 uL
320-35691-A-8	NAWC-020118-FRB- 119	537, 537	T	271.32 g	27.40 g	243.9 mL	1.00 mL	7 SU	100 uL
320-35691-A-9	WGNA-020118-DUP- 24	537, 537	T	283.21 g	28.57 g	254.6 mL	1.00 mL	7 SU	100 uL
320-35691-A-10	WGNA-020118-RW-4 847	537, 537	T	275.56 g	29.08 g	246.5 mL	1.00 mL	7 SU	100 uL
320-35691-A-11	WGNA-020118-FRB- 4847	537, 537	T	283.22 g	27.85 g	255.4 mL	1.00 mL	7 SU	100 uL
320-35691-A-12	NAWC-020118-RW-1 21	537, 537	T	276.93 g	29.04 g	247.9 mL	1.00 mL	7 SU	100 uL
320-35691-A-13	NAWC-020118-FRB- 121	537, 537	T	277.84 g	27.69 g	250.2 mL	1.00 mL	7 SU	100 uL
320-35691-A-14	NAWC-020118-RW-1 23	537, 537	T	276.75 g	28.44 g	248.3 mL	1.00 mL	7 SU	100 uL
320-35691-A-15	NAWC-020118-FRB- 123	537, 537	T	279.16 g	28.32 g	250.8 mL	1.00 mL	7 SU	100 uL
320-35691-A-16	NAWC-020118-RW-2 07	537, 537	T	285.17 g	29.44 g	255.7 mL	1.00 mL	7 SU	100 uL
320-35691-A-17	NAWC-020118-FRB- 207	537, 537	T	290.59 g	28.40 g	262.2 mL	1.00 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00029	LC537-SU 00057	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.: 320-35691-1

SDG No.: _____

Batch Number: 207046 Batch Start Date: 02/06/18 08:01 Batch Analyst: Branscum, Cassie

Batch Method: 537 Batch End Date: 02/07/18 19:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00029	LC537-SU 00057	AnalysisComment			
MB 320-207046/1		537, 537			100 uL	CI ND			
LLCS 320-207046/2		537, 537		100 uL	100 uL	CI ND			
LLCSD 320-207046/3		537, 537		100 uL	100 uL	CI ND			
320-35691-A-1	NAWC-020118-RW-1 67	537, 537	T		100 uL	CI ND			
320-35691-A-2	NAWC-020118-FRB- 167	537, 537	T		100 uL	CI ND			
320-35691-A-3	NAWC-020118-RW-1 51	537, 537	T		100 uL	CI ND			
320-35691-A-4	NAWC-020118-FRB- 151	537, 537	T		100 uL	CI ND			
320-35691-A-5	NAWC-020118-RW-1 56	537, 537	T		100 uL	CI ND			
320-35691-A-6	NAWC-020118-FRB- 156	537, 537	T		100 uL	CI ND			
320-35691-A-7	NAWC-020118-RW-1 19	537, 537	T		100 uL	CI ND			
320-35691-A-8	NAWC-020118-FRB- 119	537, 537	T		100 uL	CI ND			
320-35691-A-9	WGNA-020118-DUP- 24	537, 537	T		100 uL	CI ND			
320-35691-A-10	WGNA-020118-RW-4 847	537, 537	T		100 uL	CI ND			
320-35691-A-11	WGNA-020118-FRB- 4847	537, 537	T		100 uL	CI ND			
320-35691-A-12	NAWC-020118-RW-1 21	537, 537	T		100 uL	CI ND			
320-35691-A-13	NAWC-020118-FRB- 121	537, 537	T		100 uL	CI ND			
320-35691-A-14	NAWC-020118-RW-1 23	537, 537	T		100 uL	CI ND			
320-35691-A-15	NAWC-020118-FRB- 123	537, 537	T		100 uL	CI ND			
320-35691-A-16	NAWC-020118-RW-2 07	537, 537	T		100 uL	CI ND			
320-35691-A-17	NAWC-020118-FRB- 207	537, 537	T		100 uL	CI 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.: 320-35691-1

SDG No.: _____

Batch Number: 207046 Batch Start Date: 02/06/18 08:01 Batch Analyst: Branscum, Cassie

Batch Method: 537 Batch End Date: 02/07/18 19:00

Batch Notes	
Analyst ID - Aliquot Step	KMK
Batch Comment	Client labels match TA labels, 02/06/18 CCB
Analyst ID - Concentration	CCB/KMK
Analyst ID - Final Volume Step	KMK
Internal Standard ID#	1145836
Manifold ID	3, 15
Methanol ID	1147519
pH Indicator ID	3817
Pipette ID	M16387D
Analyst ID - IS Reagent Drop	KMK
Analyst ID - IS Reagent Drop Witness	JER
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	JNS
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	JNS
SPE Cartridge Lot ID	6369499-05
Trizma ID	SLBR4303V
Reagent Water ID	2-5-18

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: 35691 Instrument ID & Date: 2-8-18 ICAL Batch: 192908
 Extraction Batch: 207046 Worklist #: 53863, 53912 TALS Batch: 207624, 207626, 207860

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 ±50% of true value Mid and High-range within ±30% of true value	✓			✓
4. Internal Standard areas in control? Areas ≥ 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? ±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 2-12-18 2nd Level Reviewer / Date: Murray 2/12/2018

NCM # and Comments: 115938

A8

Instrument ID & Date: 11-3-17 Worklist#: 49975

ICAL Batch: 192908, 192909 Calibration ID number: 36012, 36013

Review Items	--- Level 1 ---			Level 2
	Yes	No	N/A	
Initial Calibration				
1. Mass calibration, as needed, verified by full scan of PFC stock standard. All PFC ions used for quantitation are within 0.3 m/z of true mass?	✓			✓
2. Responses increase with increasing concentration?	✓			✓
3. Fit used (circle): <u>Average</u> Linear (1/x ²)Linear <u>Quadratic</u> (6 points minimum)				
4. Meets fit criteria? Intercept ≤ 1/2 RL RSD ≤ 30% for Average R ² ≥ 0.990 for Linear R ² ≥ 0.990 for Quadratic NOTE: "Force through Zero" must be used and weighted if needed	✓			✓
5. If quadratic fit used the curve does not "bend over".	✓			✓
6. Feed calibration points into the calculated curve. Are points ≤MRL within ±50% of true value? Are points >MRL within ±30% of true value?	✓			✓
7. Any carryover from the high calibration point must be < 1/3 RL	✓			✓
8. Asymmetry check meets criteria for the first two eluting peaks? (0.8 - 1.5).	✓			✓
9. Is the asymmetry check scanned and linked in TALS to the calibration point?	✓			✓
10. Is ICV (2 nd source) ± 30% of true value?	✓			✓
11. Is ICV (2 nd source) internal standards ±50% of average area of the ICAL?	✓			✓
12. ICAL locked in Chrom and uploaded to TALS?	✓			
13. ICAL locked in TALS and scanned?				✓

1st Level Reviewer / Date: JRB 11-6-17

2nd Level Reviewer / Date: MSW 11/6/2017

NCM # and Comments: _____

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 08FEB2018_537D Worklist Number: 53863
 Instrument Name: A8_N Chrom Method: 537_A8_N
 Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b
 QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 207624
# 1 CCV L5	# 1 CCV L5
# 2 RB	# 2 RB
# 3 MB 320-207046/1-A	# 3 MB 320-207046/1-A
# 4 LLCS 320-207046/2-A	# 4 LLCS 320-207046/2-A
# 5 LLCSD 320-207046/3-A	# 5 LLCSD 320-207046/3-A
# 6 320-35691-A-1-A	# 6 320-35691-A-1-A
# 7 320-35691-A-2-A	# 7 320-35691-A-2-A
# 8 320-35691-A-3-A	# 8 320-35691-A-3-A
# 9 320-35691-A-4-A	# 9 320-35691-A-4-A
#10 320-35691-A-5-A	#10 320-35691-A-5-A
#11 320-35691-A-6-A	#11 320-35691-A-6-A
#12 320-35691-A-7-A	#12 320-35691-A-7-A
#13 CCV L3	#13 CCV L3

QC Batch: 2	LC 537 ICAL Raw Batch: 207626
#13 CCV L3	#13 CCV L3
#14 RB	#14 RB
#15 320-35691-A-8-A	#15 320-35691-A-8-A
#16 320-35691-A-9-A	#16 320-35691-A-9-A
#17 320-35691-A-10-A	#17 320-35691-A-10-A
#18 320-35691-A-11-A	#18 320-35691-A-11-A
#19 320-35691-A-12-A	#19 320-35691-A-12-A
#20 320-35691-A-13-A	#20 320-35691-A-13-A
#21 320-35691-A-14-A	#21 320-35691-A-14-A
#22 320-35691-A-15-A	#22 320-35691-A-15-A
#23 320-35691-A-16-A	#23 320-35691-A-16-A
#24 320-35691-A-17-A	#24 320-35691-A-17-A
#25 CCV L5	#25 CCV L5
#26 RB	#26 RB

CCV in AB 207580
 207581
 JRB 2-12-18

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 08FEB2018_537D

Worklist Num: 53863

Instrument: A8_N

Method: 537_A8_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.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
CCV L5	320-0053863-001	CCVIS	08-Feb-2018 11:54:50	2018.02.08_537B_001.d	5	1.0		sv
RB	320-0053863-002	RB	08-Feb-2018 11:59:30	2018.02.08_537B_002.d	8	1.0		sv
MB 320-207046/1-A	320-0053863-003	MB	08-Feb-2018 12:04:09	2018.02.08_537B_003.d	35	1.0		sv
LLCS 320-207046/2-A	320-0053863-004	LLCS	08-Feb-2018 12:08:49	2018.02.08_537B_004.d	36	1.0		sv
LLCSD 320-207046/3-A	320-0053863-005	LLCSD	08-Feb-2018 12:13:29	2018.02.08_537B_005.d	37	1.0		sv
320-35691-A-1-A	320-0053863-006	Client	08-Feb-2018 12:18:10	2018.02.08_537B_006.d	38	1.0	NAWC-020118-RW-167	sv
320-35691-A-2-A	320-0053863-007	Client	08-Feb-2018 12:22:50	2018.02.08_537B_007.d	39	1.0	NAWC-020118-FRB-167	sv
320-35691-A-3-A	320-0053863-008	Client	08-Feb-2018 12:27:30	2018.02.08_537B_008.d	40	1.0	NAWC-020118-RW-151	sv
320-35691-A-4-A	320-0053863-009	Client	08-Feb-2018 12:32:10	2018.02.08_537B_009.d	41	1.0	NAWC-020118-FRB-151	sv
320-35691-A-5-A	320-0053863-010	Client	08-Feb-2018 12:36:50	2018.02.08_537B_010.d	42	1.0	NAWC-020118-RW-156	sv
320-35691-A-6-A	320-0053863-011	Client	08-Feb-2018 12:41:30	2018.02.08_537B_011.d	43	1.0	NAWC-020118-FRB-156	sv
320-35691-A-7-A	320-0053863-012	Client	08-Feb-2018 12:46:10	2018.02.08_537B_012.d	44	1.0	NAWC-020118-RW-119	sv
CCV L3	320-0053863-013	CCVIS	08-Feb-2018 12:50:49	2018.02.08_537B_013.d	3	1.0		sv
RB	320-0053863-014	RB	08-Feb-2018 12:55:29	2018.02.08_537B_014.d	8	1.0		sv
320-35691-A-8-A	320-0053863-015	Client	08-Feb-2018 13:00:08	2018.02.08_537B_015.d	45	1.0	NAWC-020118-FRB-119	sv
320-35691-A-9-A	320-0053863-016	Client	08-Feb-2018 13:04:47	2018.02.08_537B_016.d	46	1.0	WGNA-020118-DUP-24	sv
320-35691-A-10-A	320-0053863-017	Client	08-Feb-2018 13:09:28	2018.02.08_537B_017.d	47	1.0	WGNA-020118-RW-4847	sv
320-35691-A-11-A	320-0053863-018	Client	08-Feb-2018 13:14:10	2018.02.08_537B_018.d	48	1.0	WGNA-020118-FRB-4847	sv
320-35691-A-12-A	320-0053863-019	Client	08-Feb-2018 13:18:50	2018.02.08_537B_019.d	49	1.0	NAWC-020118-RW-121	sv
320-35691-A-13-A	320-0053863-020	Client	08-Feb-2018 13:23:31	2018.02.08_537B_020.d	50	1.0	NAWC-020118-FRB-121	sv
320-35691-A-14-A	320-0053863-021	Client	08-Feb-2018 13:28:11	2018.02.08_537B_021.d	51	1.0	NAWC-020118-RW-123	sv
320-35691-A-15-A	320-0053863-022	Client	08-Feb-2018 13:32:53	2018.02.08_537B_022.d	52	1.0	NAWC-020118-FRB-123	sv
320-35691-A-16-A	320-0053863-023	Client	08-Feb-2018 13:37:33	2018.02.08_537B_023.d	53	1.0	NAWC-020118-RW-207	sv
320-35691-A-17-A	320-0053863-024	Client	08-Feb-2018 13:42:14	2018.02.08_537B_024.d	54	1.0	NAWC-020118-FRB-207	sv
CCV L5	320-0053863-025	CCVIS	08-Feb-2018 13:46:54	2018.02.08_537B_025.d	5	1.0		sv

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
RB	320-0053863-026	RB	08-Feb-2018 13:51:34	2018.02.08_537B_026.d	8	1.0		sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 08FEB2018_537A

Worklist Num: 53854

Instrument: A8_N

Method: 537_A8_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53854.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	320-0053854-001	CCVL	08-Feb-2018 07:47:09	2018.02.08_537A_004.d	2	1.0		sv
CCVL5	320-0053854-002	CCVIS	08-Feb-2018 07:51:49	2018.02.08_537A_005.d	5	1.0		sv
RB	320-0053854-003	RB	08-Feb-2018 07:56:30	2018.02.08_537A_006.d	8	1.0		sv
MB 320-206719/1-A	320-0053854-004	MB	08-Feb-2018 08:01:09	2018.02.08_537A_007.d	1	1.0		sv
LCS 320-206719/2-A	320-0053854-005	LCS	08-Feb-2018 08:05:49	2018.02.08_537A_008.d	2	1.0		sv
LCSD 320-206719/3-A	320-0053854-006	LCSD	08-Feb-2018 08:10:29	2018.02.08_537A_009.d	3	1.0		sv
320-35442-A-1-A	320-0053854-007	Client	08-Feb-2018 08:15:10	2018.02.08_537A_010.d	4	1.0	NAWC-012518-RW-256	sv
320-35442-A-2-A	320-0053854-008	Client	08-Feb-2018 08:19:50	2018.02.08_537A_011.d	5	1.0	NAWC-012518-FRB-256	sv
320-35442-A-3-A	320-0053854-009	Client	08-Feb-2018 08:24:33	2018.02.08_537A_012.d	6	1.0	NAWC-012518-RW-169	sv
320-35442-A-4-A	320-0053854-010	Client	08-Feb-2018 08:29:14	2018.02.08_537A_013.d	7	1.0	NAWC-012518-FRB-169	sv
320-35442-A-5-A	320-0053854-011	Client	08-Feb-2018 08:33:54	2018.02.08_537A_014.d	8	1.0	NAWC-012518-RW-236	sv
320-35442-A-6-A	320-0053854-012	Client	08-Feb-2018 08:38:33	2018.02.08_537A_015.d	9	1.0	NAWC-012518-FRB-236	sv
320-35442-A-7-A	320-0053854-013	Client	08-Feb-2018 08:43:14	2018.02.08_537A_016.d	10	1.0	NAWC-012518-RW-153	sv
CCV L3	320-0053854-014	CCVIS	08-Feb-2018 08:47:56	2018.02.08_537A_017.d	3	1.0		sv
RB	320-0053854-015	RB	08-Feb-2018 08:52:37	2018.02.08_537A_018.d	8	1.0		sv
320-35442-A-8-A	320-0053854-016	Client	08-Feb-2018 08:57:17	2018.02.08_537A_019.d	11	1.0	NAWC-012518-FRB-153	sv
320-35442-A-9-A	320-0053854-017	Client	08-Feb-2018 09:01:59	2018.02.08_537A_020.d	12	1.0	NAWC-012518-RW-155	sv
320-35442-A-10-A	320-0053854-018	Client	08-Feb-2018 09:06:40	2018.02.08_537A_021.d	13	1.0	NAWC-012518-FRB-155	sv
320-35442-A-11-A	320-0053854-019	Client	08-Feb-2018 09:11:20	2018.02.08_537A_022.d	14	1.0	WGNA-012518-DUP-23	sv
320-35442-A-12-A	320-0053854-020	Client	08-Feb-2018 09:15:59	2018.02.08_537A_023.d	15	1.0	NAWC-012518-RW-094	sv
320-35442-A-13-A	320-0053854-021	Client	08-Feb-2018 09:20:40	2018.02.08_537A_024.d	16	1.0	NAWC-012518-FRB-094	sv
320-35442-A-14-A	320-0053854-022	Client	08-Feb-2018 09:25:20	2018.02.08_537A_025.d	17	1.0	NAWC-012518-RW-168	sv
320-35442-A-15-A	320-0053854-023	Client	08-Feb-2018 09:30:02	2018.02.08_537A_026.d	18	1.0	NAWC-012518-FRB-168	sv
320-35442-A-16-A	320-0053854-024	Client	08-Feb-2018 09:34:41	2018.02.08_537A_027.d	19	1.0	NAWC-012518-RW-238	sv
320-35442-A-17-A	320-0053854-025	Client	08-Feb-2018 09:39:22	2018.02.08_537A_028.d	20	1.0	NAWC-012518-FRB-238	sv

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCVL5	320-0053854-026	CCVIS	08-Feb-2018 09:44:02	2018.02.08_537A_029.d	5	1.0		sv
RB	320-0053854-027	RB	08-Feb-2018 09:48:41	2018.02.08_537A_030.d	8	1.0		sv
320-35442-A-18-A	320-0053854-028	Client	08-Feb-2018 09:53:22	2018.02.08_537A_031.d	21	1.0	NAWC-012518-RW-162	sv
320-35442-A-19-A	320-0053854-029	Client	08-Feb-2018 09:58:03	2018.02.08_537A_032.d	22	1.0	NAWC-012518-FRB-162	sv
320-35442-A-20-A	320-0053854-030	Client	08-Feb-2018 10:02:43	2018.02.08_537A_033.d	23	1.0	NAWC-012518-RW-300	sv
CCVL3	320-0053854-031	CCVIS	08-Feb-2018 10:07:23	2018.02.08_537A_034.d	3	1.0		sv
RB	320-0053854-032	RB	08-Feb-2018 10:12:04	2018.02.08_537A_035.d	8	1.0		sv

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 09FEB2018_537A Worklist Number: 53912
 Instrument Name: A8_N Chrom Method: 537_A8_N
 Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180210-53912.b
 QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 CS ICAL Raw Batch: 207859	LC 537 ICAL Raw Batch: 207860
# 1 CCVL	# 1 CCVL	# 1 CCVL
# 2 CCV L5	# 2 CCV L5	# 2 CCV L5
# 3 RB	# 3 RB	# 3 RB
# 4 320-35768-A-6-A	# 4 320-35768-A-6-A	
# 5 320-35768-A-7-A	# 5 320-35768-A-7-A	
# 6 320-35691-A-2-A		# 6 320-35691-A-2-A
# 7 CCV L3	# 7 CCV L3	# 7 CCV L3

QC Batch: 2	LC 537 ICAL Raw Batch: 207861	LC 537 CS ICAL Raw Batch: 207862
# 7 CCV L3	# 7 CCV L3	# 7 CCV L3
# 8 RB	# 8 RB	
# 9 MB 320-207380/1-A	# 9 MB 320-207380/1-A	
# 10 LCS 320-207380/2-A	# 10 LCS 320-207380/2-A	
# 11 320-35779-A-1-A	# 11 320-35779-A-1-A	
# 12 320-35779-A-1-B MS	# 12 320-35779-A-1-B MS	
# 13 320-35779-A-1-C MSD	# 13 320-35779-A-1-C MSD	
# 14 320-35779-A-2-A	# 14 320-35779-A-2-A	
# 15 320-35779-A-3-A	# 15 320-35779-A-3-A	
# 16 320-35779-A-4-A	# 16 320-35779-A-4-A	
# 17 320-35779-A-5-A	# 17 320-35779-A-5-A	
# 18 320-35779-A-6-A	# 18 320-35779-A-6-A	
# 19 CCV L5	# 19 CCV L5	

QC Batch: 3	LC 537 ICAL Raw Batch: 207863
# 19 CCV L5	# 19 CCV L5
# 20 RB	# 20 RB
# 21 320-35779-A-7-A	# 21 320-35779-A-7-A
# 22 320-35779-A-8-A	# 22 320-35779-A-8-A
# 23 320-35779-A-9-A	# 23 320-35779-A-9-A
# 24 320-35779-A-10-A	# 24 320-35779-A-10-A
# 25 CCV L3	# 25 CCV L3

QC Batch: 4	LC 537 ICAL Raw Batch: 207864
# 25 CCV L3	# 25 CCV L3
# 26 RB	# 26 RB
# 27 MB 320-207328/1-A	# 27 MB 320-207328/1-A
# 28 LLCS 320-207328/2-A	# 28 LLCS 320-207328/2-A
# 29 LLCSD 320-207328/3-A	# 29 LLCSD 320-207328/3-A
# 30 320-35021-A-2-D	# 30 320-35021-A-2-D
# 31 CCV L5	# 31 CCV L5
# 32 RB	# 32 RB

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 09FEB2018_537A

Worklist Num: 53912

Instrument: A8_N

Method: 537_A8_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180210-53912.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	320-0053912-001	CCVL	09-Feb-2018 20:30:46	2018.02.09_537A_004.d	2	1.0		sv
CCV L5	320-0053912-002	CCVIS	09-Feb-2018 20:35:26	2018.02.09_537A_005.d	5	1.0		sv
RB	320-0053912-003	RB	09-Feb-2018 20:40:06	2018.02.09_537A_006.d	8	1.0		sv
320-35768-A-6-A	320-0053912-004	Client	09-Feb-2018 20:44:45	2018.02.09_537A_007.d	1	100.	GC020518-LHWA-PT	sv
320-35768-A-7-A	320-0053912-005	Client	09-Feb-2018 20:49:27	2018.02.09_537A_008.d	2	1.0	GC020518-LHWA-AT-CON TANK	sv
320-35691-A-2-A	320-0053912-006	Client	09-Feb-2018 20:54:08	2018.02.09_537A_009.d	3	1.0	NAWC-020118-FRB-167	sv
CCV L3	320-0053912-007	CCVIS	09-Feb-2018 20:58:49	2018.02.09_537A_010.d	3	1.0		sv
RB	320-0053912-008	RB	09-Feb-2018 21:03:29	2018.02.09_537A_011.d	8	1.0		sv
MB 320-207380/1-A	320-0053912-009	MB	09-Feb-2018 21:08:08	2018.02.09_537A_012.d	4	1.0		sv
LCS 320-207380/2-A	320-0053912-010	LCS	09-Feb-2018 21:12:49	2018.02.09_537A_013.d	5	1.0		sv
320-35779-A-1-A	320-0053912-011	Client	09-Feb-2018 21:17:29	2018.02.09_537A_014.d	6	1.0	WS-103	sv
320-35779-A-1-B MS	320-0053912-012	MS	09-Feb-2018 21:22:10	2018.02.09_537A_015.d	7	1.0	WS-103	sv
320-35779-A-1-C MSD	320-0053912-013	MSD	09-Feb-2018 21:26:49	2018.02.09_537A_016.d	8	1.0	WS-103	sv
320-35779-A-2-A	320-0053912-014	Client	09-Feb-2018 21:31:30	2018.02.09_537A_017.d	9	1.0	WS-104	sv
320-35779-A-3-A	320-0053912-015	Client	09-Feb-2018 21:36:11	2018.02.09_537A_018.d	10	1.0	DUP-021	sv
320-35779-A-4-A	320-0053912-016	Client	09-Feb-2018 21:40:52	2018.02.09_537A_019.d	11	1.0	WS-105	sv
320-35779-A-5-A	320-0053912-017	Client	09-Feb-2018 21:45:33	2018.02.09_537A_020.d	12	1.0	WS-106	sv
320-35779-A-6-A	320-0053912-018	Client	09-Feb-2018 21:50:14	2018.02.09_537A_021.d	13	1.0	WS-107	sv
CCV L5	320-0053912-019	CCVIS	09-Feb-2018 21:54:55	2018.02.09_537A_022.d	5	1.0		sv
RB	320-0053912-020	RB	09-Feb-2018 21:59:36	2018.02.09_537A_023.d	8	1.0		sv
320-35779-A-7-A	320-0053912-021	Client	09-Feb-2018 22:04:15	2018.02.09_537A_024.d	14	1.0	WS-108	sv
320-35779-A-8-A	320-0053912-022	Client	09-Feb-2018 22:08:56	2018.02.09_537A_025.d	15	1.0	WS-109	sv
320-35779-A-9-A	320-0053912-023	Client	09-Feb-2018 22:13:35	2018.02.09_537A_026.d	16	1.0	WS-110A	sv
320-35779-A-10-A	320-0053912-024	Client	09-Feb-2018 22:18:16	2018.02.09_537A_027.d	17	1.0	FIELD BLANK (02/03/2018)	sv
CCV L3	320-0053912-025	CCVIS	09-Feb-2018 22:22:55	2018.02.09_537A_028.d	3	1.0		sv

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
RB	320-0053912-026	RB	09-Feb-2018 22:27:35	2018.02.09_537A_029.d	8	1.0		sv
MB 320-207328/1-A	320-0053912-027	MB	09-Feb-2018 22:32:15	2018.02.09_537A_030.d	18	1.0		sv
LLCS 320-207328/2-A	320-0053912-028	LLCS	09-Feb-2018 22:36:57	2018.02.09_537A_031.d	19	1.0		sv
LLCSD 320-207328/3-A	320-0053912-029	LLCSD	09-Feb-2018 22:41:37	2018.02.09_537A_032.d	20	1.0		sv
320-35021-A-2-D	320-0053912-030	Client	09-Feb-2018 22:46:18	2018.02.09_537A_033.d	21	1.0	960 PFAS Drinking Water - PT	sv
CCV L5	320-0053912-031	CCVIS	09-Feb-2018 22:50:57	2018.02.09_537A_034.d	5	1.0		sv
RB	320-0053912-032	RB	09-Feb-2018 22:55:37	2018.02.09_537A_035.d	8	1.0		sv

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207046

Analyst: Branscum, Cassie











Batch Open: 2/6/2018 8:01:00AM

Method Code: 320-537_Prep-320

Batch End: 2/7/2018 7:00:00PM

77
A8 2/8/18
A8 2/9/18

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-320-207046/1 N/A	N/A		250 mL	7		N/A	N/A	N/A	CI ND	
			1.00 mL							
2 LLCS-320-207046/2 N/A	N/A		250 mL	7		N/A	N/A	N/A	CI ND	
			1.00 mL							
3 LLCSD-320-207046/3 N/A	N/A		250 mL	7		N/A	N/A	N/A	CI ND	
			1.00 mL							
320-35691-A-1 (537_DOD5)	N/A (320-35691-1)	270.13 g	241.8 mL	7		2/6/18	16_Days	4	CI ND	
		28.32 g	1.00 mL							
320-35691-A-2 (537_DOD5)	N/A (320-35691-1)	276.83 g	247.3 mL	7		2/6/18	16_Days	4	CI ND	
		29.57 g	1.00 mL							
6 320-35691-A-3 (537_DOD5)	N/A (320-35691-1)	270.71 g	241.4 mL	7		2/6/18	16_Days	4	CI ND	
		29.32 g	1.00 mL							
7 320-35691-A-4 (537_DOD5)	N/A (320-35691-1)	286.65 g	258.6 mL	7		2/6/18	16_Days	4	CI ND	
		28.02 g	1.00 mL							
8 320-35691-A-5 (537_DOD5)	N/A (320-35691-1)	283.91 g	254.9 mL	7		2/6/18	16_Days	4	CI ND	
		29.04 g	1.00 mL							
9 320-35691-A-6 (537_DOD5)	N/A (320-35691-1)	285.09 g	257 mL	7		2/6/18	16_Days	4	CI ND	
		28.06 g	1.00 mL							
10 320-35691-A-7 (537_DOD5)	N/A (320-35691-1)	280.56 g	252.9 mL	7		2/6/18	16_Days	4	CI ND	
		27.71 g	1.00 mL							

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RI

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)











Batch Number: 320-207046

Analyst: Branscum, Cassie

Batch Open: 2/6/2018 8:01:00AM

Method Code: 320-537_Prep-320

Batch End: 2/7/2018 7:00:00PM

11	320-35691-A-8 (537_DOD5)	N/A (320-35691-1)	271.32 g	243.9 mL	7			2/6/18	16_Days	4	CI ND	
			27.40 g	1.00 mL								
12	320-35691-A-9 (537_DOD5)	N/A (320-35691-1)	283.21 g	254.6 mL	7			2/6/18	16_Days	4	CI ND	
			28.57 g	1.00 mL								
13	320-35691-A-10 (537_DOD5)	N/A (320-35691-1)	275.56 g	246.5 mL	7			2/6/18	16_Days	4	CI ND	
			29.08 g	1.00 mL								
14	320-35691-A-11 (537_DOD5)	N/A (320-35691-1)	283.22 g	255.4 mL	7			2/6/18	16_Days	4	CI ND	
			27.85 g	1.00 mL								
15	320-35691-A-12 (537_DOD5)	N/A (320-35691-1)	276.93 g	247.9 mL	7			2/6/18	16_Days	4	CI ND	
			29.04 g	1.00 mL								
16	320-35691-A-13 (537_DOD5)	N/A (320-35691-1)	277.84 g	250.2 mL	7			2/6/18	16_Days	4	CI ND	
			27.69 g	1.00 mL								
17	320-35691-A-14 (537_DOD5)	N/A (320-35691-1)	276.75 g	248.3 mL	7			2/6/18	16_Days	4	CI ND	
			28.44 g	1.00 mL								
18	320-35691-A-15 (537_DOD5)	N/A (320-35691-1)	279.16 g	250.8 mL	7			2/6/18	16_Days	4	CI ND	
			28.32 g	1.00 mL								
19	320-35691-A-16 (537_DOD5)	N/A (320-35691-1)	285.17 g	255.7 mL	7			2/6/18	16_Days	4	CI ND	
			29.44 g	1.00 mL								
20	320-35691-A-17 (537_DOD5)	N/A (320-35691-1)	290.59 g	262.2 mL	7			2/6/18	16_Days	4	CI ND	
			28.40 g	1.00 mL								

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207046

Analyst: Branscum, Cassie

Batch Open: 2/6/2018 8:01:00AM

Method Code: 320-537_Prep-320

Batch End: 2/7/2018 7:00:00PM

Batch Notes

Manifold ID 3, 15

pH Indicator ID 3817

Trizma ID SLBR4303V

SPE Cartridge ID 6369499-05

Methanol ID 1147519

Reagent Water ID 2-5-18

Internal Standard ID# 1145836

Pipette ID M16387D

Analyst ID - TA Reagent Drop CCB

Analyst ID - TA Reagent Drop JNS

Witness

Analyst ID - SU Reagent Drop CCB

Analyst ID - SU Reagent Drop JNS

Witness

Analyst ID - IS Reagent Drop KMK

Analyst ID - IS Reagent Drop JER

Witness

Analyst ID - Concentration CCB/KMK

Analyst ID - Aliquot Step KMK

Analyst ID - Final Volume Step KMK

Batch Comment Client labels match TA labels, 02/06/18 CCB

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207046

Analyst: Branscum, Cassie

Batch Open: 2/6/2018 8:01:00AM

Method Code: 320-537_Prep-320

Batch End: 2/7/2018 7:00:00PM

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207046

Analyst: Branscum, Cassie

Batch Open: 2/6/2018 8:01:00AM

Method Code: 320-537_Prep-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-207046/1	LC537-SU_00057	100 uL	1.00 mL		
LLCS 320-207046/2	LC537-LSP_00029	100 uL	1.00 mL		
LLCS 320-207046/2	LC537-SU_00057	100 uL	1.00 mL		
LLCSD 320-207046/3	LC537-LSP_00029	100 uL	1.00 mL		
LLCSD 320-207046/3	LC537-SU_00057	100 uL	1.00 mL		
320-35691-A-1	LC537-SU_00057	100 uL	1.00 mL		
320-35691-A-2	LC537-SU_00057	100 uL	1.00 mL		
320-35691-A-3	LC537-SU_00057	100 uL	1.00 mL		
320-35691-A-4	LC537-SU_00057	100 uL	1.00 mL		
320-35691-A-5	LC537-SU_00057	100 uL	1.00 mL		
320-35691-A-6	LC537-SU_00057	100 uL	1.00 mL		
320-35691-A-7	LC537-SU_00057	100 uL	1.00 mL		
320-35691-A-8	LC537-SU_00057	100 uL	1.00 mL		
320-35691-A-9	LC537-SU_00057	100 uL	1.00 mL		
320-35691-A-10	LC537-SU_00057	100 uL	1.00 mL		
320-35691-A-11	LC537-SU_00057	100 uL	1.00 mL		
320-35691-A-12	LC537-SU_00057	100 uL	1.00 mL		
320-35691-A-13	LC537-SU_00057	100 uL	1.00 mL		

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207046

Analyst: Branscum, Cassie

Batch Open: 2/6/2018 8:01:00AM

Method Code: 320-537_Prep-320

Batch End:

320-35691-A-14	LC537-SU_00057	100 uL	1.00 mL	CS 2-6-18	JUS 2/6/18
320-35691-A-15	LC537-SU_00057	100 uL	1.00 mL	↓	↓
320-35691-A-16	LC537-SU_00057	100 uL	1.00 mL		
320-35691-A-17	LC537-SU_00057	100 uL	1.00 mL		

Other Reagents:

Reagent	Amount/Units	Lot#:

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Preparation Batch Number(s) 620-207046 Test 537 Prep

Earliest Holding Time 2-15-18

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: KMK

Date: 2-7-18

2nd Level Reviewer: VPM

Date: 2/8/18

Comments: _____

Shipping and Receiving Documents

TestAmerica Sacramento
 880 Riverside Parkway
 West Sacramento, CA 95605-1500
 phone 916.373.5600 fax 303.467.7248

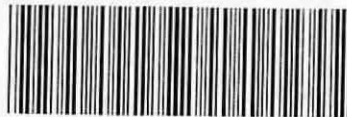
Chain of Custody Record

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: 2/1/2018		COC No:	
TetraTech		Tel/Fax: 610.382.1170		Lab Contact: Dave Alltucker		Carrier: FedEx		1 of 1 COCs	
234 Mall Boulevard Suite 260		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N) EPA 537 UCMR3				Sampler: Mary Kay Bond	
King of Prussia, PA 19406		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS						For Lab Use Only:	
610-382-1174		TAT if different from Below 21						Walk-in Client:	
610-491-9688		<input type="checkbox"/> 2 weeks						Lab Sampling:	
Project Name: WE04		<input type="checkbox"/> 1 week						Job / SDG No.:	
Site: WE04		<input type="checkbox"/> 2 days							
P O # 1132358 (through EarthToxics)		<input type="checkbox"/> 1 day							
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:
NAWC-020118-RW-167	2/1/2018	10:10	G	DW	2	N	N	Y	
NAWC-020118-FRB-167	2/1/2018	10:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020118-RW-151	2/1/2018	11:10	G	DW	2	N	N	Y	
NAWC-020118-FRB-151	2/1/2018	11:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020118-RW-156	2/1/2018	11:40	G	DW	2	N	N	Y	
NAWC-020118-FRB-156	2/1/2018	11:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020118-RW-119	2/1/2018	12:40	G	DW	2	N	N	Y	
NAWC-020118-FRB-119	2/1/2018	12:35	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-020118-DUP-24	2/1/2018	07:00	G	DW	2	N	N	Y	DUPLICATE
WGNA-020118-RW-4847	2/1/2018	13:10	G	DW	2	N	N	Y	
WGNA-020118-FRB-4847	2/1/2018	13:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020118-RW-121	2/1/2018	13:40	G	DW	2	N	N	Y	
NAWC-020118-FRB-121	2/1/2018	13:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020118-RW-123	2/1/2018	15:10	G	DW	2	N	N	Y	
NAWC-020118-FRB-123	2/1/2018	15:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020118-RW-207	2/1/2018	16:40	G	DW	2	N	N	Y	
NAWC-020118-FRB-207	2/1/2018	16:35	G	DW	2	N	N	Y	Field Reagent Blank
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other: Trizma						6			
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
<input checked="" type="checkbox"/> Non-Hazardous <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for Months			
Fed Ex Tracking: 7713 7759 8611									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: 2.0		Corr'd:		Therm ID No.: AK-5	
Relinquished by: <i>Mary Kay Bond</i>		Company: Tetra Tech		Date/Time: 2/1/2018 16:00		Received by: <i>[Signature]</i>		Company: TA-Sac	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	



320-35691 Chain of Custody

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-35691-1

Login Number: 35691
List Number: 1
Creator: Turpen, Troy

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	

"NAWC-020118-RW-167","537","RES","320-35691-1","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","15","ng/L","J M","7.0","DL","","TRG","","","41","LOQ","YES","-99","","241.8","1.00","17","","

"NAWC-020118-RW-167","537","RES","320-35691-1","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","8.4","ng/L","J","2.9","DL","","TRG","","","21","LOQ","YES","-99","","241.8","1.00","8.3","","

"NAWC-020118-RW-167","537","RES","320-35691-1","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U M","5.7","DL","","TRG","","","31","LOQ","YES","-99","","241.8","1.00","12","","

"NAWC-020118-RW-167","537","RES","320-35691-1","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","37","ng/L","U","17","DL","","TRG","","","93","LOQ","YES","-99","","241.8","1.00","37","","

"NAWC-020118-RW-167","537","RES","320-35691-1","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","2.3","ng/L","J M","2.0","DL","","TRG","","","10","LOQ","YES","-99","","241.8","1.00","4.1","","

"NAWC-020118-RW-167","537","RES","320-35691-1","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","21","ng/L","U","8.3","DL","","TRG","","","25","LOQ","YES","-99","","241.8","1.00","21","","

"NAWC-020118-RW-167","537","RES","320-35691-1","TALSAC","STL00993","13C2 PFHxA","40","ng/L","","-99","DL","","SURR","96","","-99","LOQ","YES","41.4","","241.8","1.00","0","","

"NAWC-020118-RW-167","537","RES","320-35691-1","TALSAC","STL00996","13C2 PFDA","39","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","41.4","","241.8","1.00","0","","

"WGNA-020118-RW-4847","537","RES","320-35691-10","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.9","DL","","TRG","","","41","LOQ","YES","-99","","246.5","1.00","16","","

"WGNA-020118-RW-4847","537","RES","320-35691-10","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","4.1","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES","-99","","246.5","1.00","8.1","","

"WGNA-020118-RW-4847","537","RES","320-35691-10","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","30","LOQ","YES","-99","","246.5","1.00","12","","

"WGNA-020118-RW-4847","537","RES","320-35691-10","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","37","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","246.5","1.00","37","","

"WGNA-020118-RW-4847","537","RES","320-35691-10","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.1","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","246.5","1.00","4.1","","

"WGNA-020118-RW-4847","537","RES","320-35691-10","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","246.5","1.00","20","","

"WGNA-020118-RW-4847","537","RES","320-35691-10","TALSAC","STL00993","13C2 PFHxA","39","ng/L","","-99","DL","","SURR","95","","-99","LOQ","YES","40.6","","246.5","1.00","0","","

"WGNA-020118-RW-4847","537","RES","320-35691-10","TALSAC","STL00996","13C2 PFDA","38","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","40.6","","246.5","1.00","0","","

"WGNA-020118-FRB-4847","537","RES","320-35691-11","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.7","DL","","TRG","","","39","LOQ","YES","-99","","255.4","1.00","16","","

"WGNA-020118-FRB-4847","537","RES","320-35691-11","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","7.8","ng/L","U","2.7","DL","","TRG","","","20","LOQ","YES","-99","","255.4","1.00","7.8","","

"WGNA-020118-FRB-4847","537","RES","320-35691-11","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.4","DL","","TRG","","","29","LOQ","YES","-99","","255.4","1.00","12","","

"WGNA-020118-FRB-4847","537","RES","320-35691-11","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","35","ng/L","U","16","DL","","TRG","","","88","LOQ","YES","-99","","255.4","1.00","35","","

"WGNA-020118-FRB-4847","537","RES","320-35691-11","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","3.9","ng/L","U","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","255.4","1.00","3.9","","

"WGNA-020118-FRB-4847","537","RES","320-35691-11","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","7.8","DL","","TRG","","","23","LOQ","YES","-99","","255.4","1.00","20","","

"WGNA-020118-FRB-4847","537","RES","320-35691-11","TALSAC","STL00993","13C2 PFHxA","40","ng/L","","-99","DL","","SURR","102","","-99","LOQ","YES","39.2","","255.4","1.00","0","","

"WGNA-020118-FRB-4847","537","RES","320-35691-11","TALSAC","STL00996","13C2 PFDA","45","ng/L","","-99","DL","","SURR","115","","-99","LOQ","YES","39.2","","255.4","1.00","0","","

"NAWC-020118-RW-121","537","RES","320-35691-12","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","22","ng/L","J M","6.9","DL","","TRG","","","40","LOQ","YES","-99","","247.9","1.00","16","","

"NAWC-020118-RW-121","537","RES","320-35691-12","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","25","ng/L","","2.8","DL","","TRG","","","20","LOQ","YES","-99","","247.9","1.00","8.1","","

"NAWC-020118-RW-121","537","RES","320-35691-12","TALSAC","355-46-4","Perfluorohexanesulfonic acid

(PFHxS),"12","ng/L","J","5.5","DL","","TRG","","","30","LOQ","YES",-99,"","247.9","1.00","12",""
"NAWC-020118-RW-121","537","RES","320-35691-12","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES",-99,"","247.9","1.00","36",""
"NAWC-020118-RW-121","537","RES","320-35691-12","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"6.8","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES",-99,"","247.9","1.00","4.0",""
"NAWC-020118-RW-121","537","RES","320-35691-12","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES",-99,"","247.9","1.00","20",""
"NAWC-020118-RW-121","537","RES","320-35691-12","TALSAC","STL00993","13C2
PFHxA,"43","ng/L","","-99","DL","","SURR","106","","-99","LOQ","YES","40.3","","247.9","1.00","0",""
"NAWC-020118-RW-121","537","RES","320-35691-12","TALSAC","STL00996","13C2
PFDA,"42","ng/L","","-99","DL","","SURR","104","","-99","LOQ","YES","40.3","","247.9","1.00","0",""
"NAWC-020118-FRB-121","537","RES","320-35691-13","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES",-99,"","250.2","1.00","16",""
"NAWC-020118-FRB-121","537","RES","320-35691-13","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES",-99,"","250.2","1.00","8.0",""
"NAWC-020118-FRB-121","537","RES","320-35691-13","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES",-99,"","250.2","1.00","12",""
"NAWC-020118-FRB-121","537","RES","320-35691-13","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES",-99,"","250.2","1.00","36",""
"NAWC-020118-FRB-121","537","RES","320-35691-13","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES",-99,"","250.2","1.00","4.0",""
"NAWC-020118-FRB-121","537","RES","320-35691-13","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES",-99,"","250.2","1.00","20",""
"NAWC-020118-FRB-121","537","RES","320-35691-13","TALSAC","STL00993","13C2
PFHxA,"44","ng/L","","-99","DL","","SURR","110","","-99","LOQ","YES","40.0","","250.2","1.00","0",""
"NAWC-020118-FRB-121","537","RES","320-35691-13","TALSAC","STL00996","13C2
PFDA,"44","ng/L","","-99","DL","","SURR","110","","-99","LOQ","YES","40.0","","250.2","1.00","0",""
"NAWC-020118-RW-123","537","RES","320-35691-14","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"31","ng/L","J M","6.8","DL","","TRG","","","40","LOQ","YES",-99,"","248.3","1.00","16",""
"NAWC-020118-RW-123","537","RES","320-35691-14","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"26","ng/L","","2.8","DL","","TRG","","","20","LOQ","YES",-99,"","248.3","1.00","8.1",""
"NAWC-020118-RW-123","537","RES","320-35691-14","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"14","ng/L","J","5.5","DL","","TRG","","","30","LOQ","YES",-99,"","248.3","1.00","12",""
"NAWC-020118-RW-123","537","RES","320-35691-14","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES",-99,"","248.3","1.00","36",""
"NAWC-020118-RW-123","537","RES","320-35691-14","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"9.1","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES",-99,"","248.3","1.00","4.0",""
"NAWC-020118-RW-123","537","RES","320-35691-14","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES",-99,"","248.3","1.00","20",""
"NAWC-020118-RW-123","537","RES","320-35691-14","TALSAC","STL00993","13C2
PFHxA,"39","ng/L","","-99","DL","","SURR","96","","-99","LOQ","YES","40.3","","248.3","1.00","0",""
"NAWC-020118-RW-123","537","RES","320-35691-14","TALSAC","STL00996","13C2
PFDA,"38","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","40.3","","248.3","1.00","0",""
"NAWC-020118-FRB-123","537","RES","320-35691-15","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES",-99,"","250.8","1.00","16",""
"NAWC-020118-FRB-123","537","RES","320-35691-15","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES",-99,"","250.8","1.00","8.0",""
"NAWC-020118-FRB-123","537","RES","320-35691-15","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES",-99,"","250.8","1.00","12",""
"NAWC-020118-FRB-123","537","RES","320-35691-15","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES",-99,"","250.8","1.00","36",""
"NAWC-020118-FRB-123","537","RES","320-35691-15","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES",-99,"","250.8","1.00","4.0",""
"NAWC-020118-FRB-123","537","RES","320-35691-15","TALSAC","375-95-1","Perfluorononanoic acid

(PFNA),"20","ng/L","U","8.0","DL","","","TRG","","","24","LOQ","YES","-99","","250.8","1.00","20","","
"NAWC-020118-FRB-123","537","RES","320-35691-15","TALSAC","STL00993","13C2
PFHxA","41","ng/L","","-99","DL","","","SURR","102","","-99","LOQ","YES","39.9","","250.8","1.00","0","","
"NAWC-020118-FRB-123","537","RES","320-35691-15","TALSAC","STL00996","13C2
PFDA","41","ng/L","","-99","DL","","","SURR","102","","-99","LOQ","YES","39.9","","250.8","1.00","0","","
"NAWC-020118-RW-207","537","RES","320-35691-16","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","18","ng/L","J M","6.6","DL","","","TRG","","","39","LOQ","YES","-99","","255.7","1.00","16","","
"NAWC-020118-RW-207","537","RES","320-35691-16","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","26","ng/L","","2.7","DL","","","TRG","","","20","LOQ","YES","-99","","255.7","1.00","7.8","","
"NAWC-020118-RW-207","537","RES","320-35691-16","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.4","DL","","","TRG","","","29","LOQ","YES","-99","","255.7","1.00","12","","
"NAWC-020118-RW-207","537","RES","320-35691-16","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","35","ng/L","U","16","DL","","","TRG","","","88","LOQ","YES","-99","","255.7","1.00","35","","
"NAWC-020118-RW-207","537","RES","320-35691-16","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.6","ng/L","J","1.9","DL","","","TRG","","","9.8","LOQ","YES","-99","","255.7","1.00","3.9","","
"NAWC-020118-RW-207","537","RES","320-35691-16","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","7.8","DL","","","TRG","","","23","LOQ","YES","-99","","255.7","1.00","20","","
"NAWC-020118-RW-207","537","RES","320-35691-16","TALSAC","STL00993","13C2
PFHxA","39","ng/L","","-99","DL","","","SURR","100","","-99","LOQ","YES","39.1","","255.7","1.00","0","","
"NAWC-020118-RW-207","537","RES","320-35691-16","TALSAC","STL00996","13C2
PFDA","39","ng/L","","-99","DL","","","SURR","100","","-99","LOQ","YES","39.1","","255.7","1.00","0","","
"NAWC-020118-FRB-207","537","RES","320-35691-17","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","15","ng/L","U","6.5","DL","","","TRG","","","38","LOQ","YES","-99","","262.2","1.00","15","","
"NAWC-020118-FRB-207","537","RES","320-35691-17","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.6","ng/L","U","2.7","DL","","","TRG","","","19","LOQ","YES","-99","","262.2","1.00","7.6","","
"NAWC-020118-FRB-207","537","RES","320-35691-17","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","11","ng/L","U","5.2","DL","","","TRG","","","29","LOQ","YES","-99","","262.2","1.00","11","","
"NAWC-020118-FRB-207","537","RES","320-35691-17","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","34","ng/L","U","15","DL","","","TRG","","","86","LOQ","YES","-99","","262.2","1.00","34","","
"NAWC-020118-FRB-207","537","RES","320-35691-17","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","3.8","ng/L","U","1.8","DL","","","TRG","","","9.5","LOQ","YES","-99","","262.2","1.00","3.8","","
"NAWC-020118-FRB-207","537","RES","320-35691-17","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","19","ng/L","U","7.6","DL","","","TRG","","","23","LOQ","YES","-99","","262.2","1.00","19","","
"NAWC-020118-FRB-207","537","RES","320-35691-17","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","-99","DL","","","SURR","100","","-99","LOQ","YES","38.1","","262.2","1.00","0","","
"NAWC-020118-FRB-207","537","RES","320-35691-17","TALSAC","STL00996","13C2
PFDA","37","ng/L","","-99","DL","","","SURR","96","","-99","LOQ","YES","38.1","","262.2","1.00","0","","
"NAWC-020118-FRB-167","537","RES","320-35691-2","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.9","DL","","","TRG","","","40","LOQ","YES","-99","","247.3","1.00","16","","
"NAWC-020118-FRB-167","537","RES","320-35691-2","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.1","ng/L","U","2.8","DL","","","TRG","","","20","LOQ","YES","-99","","247.3","1.00","8.1","","
"NAWC-020118-FRB-167","537","RES","320-35691-2","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.6","DL","","","TRG","","","30","LOQ","YES","-99","","247.3","1.00","12","","
"NAWC-020118-FRB-167","537","RES","320-35691-2","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","","TRG","","","91","LOQ","YES","-99","","247.3","1.00","36","","
"NAWC-020118-FRB-167","537","RES","320-35691-2","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","","TRG","","","10","LOQ","YES","-99","","247.3","1.00","4.0","","
"NAWC-020118-FRB-167","537","RES","320-35691-2","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.1","DL","","","TRG","","","24","LOQ","YES","-99","","247.3","1.00","20","","
"NAWC-020118-FRB-167","537","RES","320-35691-2","TALSAC","STL00993","13C2
PFHxA","8.1","ng/L","Q","-99","DL","","","SURR","20","","-99","LOQ","YES","40.4","","247.3","1.00","0","","
"NAWC-020118-FRB-167","537","RES","320-35691-2","TALSAC","STL00996","13C2
PFDA","21","ng/L","Q","-99","DL","","","SURR","53","","-99","LOQ","YES","40.4","","247.3","1.00","0","","
"NAWC-020118-RW-151","537","RES","320-35691-3","TALSAC","1763-23-1","Perfluorooctanesulfonic acid

(PFOS),"9.6","ng/L","J M","7.0","DL","","TRG","","","41","LOQ","YES","-99","","241.4","1.00","17",""
"NAWC-020118-RW-151","537","RES","320-35691-3","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"26","ng/L","","2.9","DL","","TRG","","","21","LOQ","YES","-99","","241.4","1.00","8.3",""
"NAWC-020118-RW-151","537","RES","320-35691-3","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"12","ng/L","U","5.7","DL","","TRG","","","31","LOQ","YES","-99","","241.4","1.00","12",""
"NAWC-020118-RW-151","537","RES","320-35691-3","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"37","ng/L","U","17","DL","","TRG","","","93","LOQ","YES","-99","","241.4","1.00","37",""
"NAWC-020118-RW-151","537","RES","320-35691-3","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"10","ng/L","","2.0","DL","","TRG","","","10","LOQ","YES","-99","","241.4","1.00","4.1",""
"NAWC-020118-RW-151","537","RES","320-35691-3","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"21","ng/L","U","8.3","DL","","TRG","","","25","LOQ","YES","-99","","241.4","1.00","21",""
"NAWC-020118-RW-151","537","RES","320-35691-3","TALSAC","STL00993","13C2
PFHxA","40","ng/L","","-99","DL","","SURR","96","","-99","LOQ","YES","41.4","","241.4","1.00","0",""
"NAWC-020118-RW-151","537","RES","320-35691-3","TALSAC","STL00996","13C2
PFDA","39","ng/L","","-99","DL","","SURR","95","","-99","LOQ","YES","41.4","","241.4","1.00","0",""
"NAWC-020118-FRB-151","537","RES","320-35691-4","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"15","ng/L","U","6.6","DL","","TRG","","","39","LOQ","YES","-99","","258.6","1.00","15",""
"NAWC-020118-FRB-151","537","RES","320-35691-4","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"7.7","ng/L","U","2.7","DL","","TRG","","","19","LOQ","YES","-99","","258.6","1.00","7.7",""
"NAWC-020118-FRB-151","537","RES","320-35691-4","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"12","ng/L","U","5.3","DL","","TRG","","","29","LOQ","YES","-99","","258.6","1.00","12",""
"NAWC-020118-FRB-151","537","RES","320-35691-4","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"35","ng/L","U","16","DL","","TRG","","","87","LOQ","YES","-99","","258.6","1.00","35",""
"NAWC-020118-FRB-151","537","RES","320-35691-4","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"3.9","ng/L","U","1.8","DL","","TRG","","","9.7","LOQ","YES","-99","","258.6","1.00","3.9",""
"NAWC-020118-FRB-151","537","RES","320-35691-4","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"19","ng/L","U","7.7","DL","","TRG","","","23","LOQ","YES","-99","","258.6","1.00","19",""
"NAWC-020118-FRB-151","537","RES","320-35691-4","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","-99","DL","","SURR","98","","-99","LOQ","YES","38.7","","258.6","1.00","0",""
"NAWC-020118-FRB-151","537","RES","320-35691-4","TALSAC","STL00996","13C2
PFDA","38","ng/L","","-99","DL","","SURR","98","","-99","LOQ","YES","38.7","","258.6","1.00","0",""
"NAWC-020118-RW-156","537","RES","320-35691-5","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"11","ng/L","J M","6.7","DL","","TRG","","","39","LOQ","YES","-99","","254.9","1.00","16",""
"NAWC-020118-RW-156","537","RES","320-35691-5","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"13","ng/L","J","2.7","DL","","TRG","","","20","LOQ","YES","-99","","254.9","1.00","7.8",""
"NAWC-020118-RW-156","537","RES","320-35691-5","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"12","ng/L","U","5.4","DL","","TRG","","","29","LOQ","YES","-99","","254.9","1.00","12",""
"NAWC-020118-RW-156","537","RES","320-35691-5","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"35","ng/L","U","16","DL","","TRG","","","88","LOQ","YES","-99","","254.9","1.00","35",""
"NAWC-020118-RW-156","537","RES","320-35691-5","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"4.0","ng/L","J","1.9","DL","","TRG","","","9.8","LOQ","YES","-99","","254.9","1.00","3.9",""
"NAWC-020118-RW-156","537","RES","320-35691-5","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"20","ng/L","U","7.8","DL","","TRG","","","24","LOQ","YES","-99","","254.9","1.00","20",""
"NAWC-020118-RW-156","537","RES","320-35691-5","TALSAC","STL00993","13C2
PFHxA","40","ng/L","","-99","DL","","SURR","102","","-99","LOQ","YES","39.2","","254.9","1.00","0",""
"NAWC-020118-RW-156","537","RES","320-35691-5","TALSAC","STL00996","13C2
PFDA","37","ng/L","","-99","DL","","SURR","95","","-99","LOQ","YES","39.2","","254.9","1.00","0",""
"NAWC-020118-FRB-156","537","RES","320-35691-6","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"16","ng/L","U","6.6","DL","","TRG","","","39","LOQ","YES","-99","","257","1.00","16",""
"NAWC-020118-FRB-156","537","RES","320-35691-6","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"7.8","ng/L","U","2.7","DL","","TRG","","","19","LOQ","YES","-99","","257","1.00","7.8",""
"NAWC-020118-FRB-156","537","RES","320-35691-6","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"12","ng/L","U","5.4","DL","","TRG","","","29","LOQ","YES","-99","","257","1.00","12",""
"NAWC-020118-FRB-156","537","RES","320-35691-6","TALSAC","375-73-5","Perfluorobutanesulfonic acid

(PFBS)", "35", "ng/L", "U", "16", "DL", "", "TRG", "", "", "88", "LOQ", "YES", "-99", "", "257", "1.00", "35", ""
"NAWC-020118-FRB-156", "537", "RES", "320-35691-6", "TALSAC", "375-85-9", "Perfluoroheptanoic acid
(PFHpA)", "3.9", "ng/L", "U", "1.8", "DL", "", "TRG", "", "", "9.7", "LOQ", "YES", "-99", "", "257", "1.00", "3.9", ""
"NAWC-020118-FRB-156", "537", "RES", "320-35691-6", "TALSAC", "375-95-1", "Perfluorononanoic acid
(PFNA)", "19", "ng/L", "U", "7.8", "DL", "", "TRG", "", "", "23", "LOQ", "YES", "-99", "", "257", "1.00", "19", ""
"NAWC-020118-FRB-156", "537", "RES", "320-35691-6", "TALSAC", "STL00993", "13C2
PFHxA", "40", "ng/L", "", "-99", "DL", "", "SURR", "103", "", "-99", "LOQ", "YES", "38.9", "", "257", "1.00", "0", ""
"NAWC-020118-FRB-156", "537", "RES", "320-35691-6", "TALSAC", "STL00996", "13C2
PFDA", "41", "ng/L", "", "-99", "DL", "", "SURR", "106", "", "-99", "LOQ", "YES", "38.9", "", "257", "1.00", "0", ""
"NAWC-020118-RW-119", "537", "RES", "320-35691-7", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid
(PFOS)", "21", "ng/L", "J M", "6.7", "DL", "", "TRG", "", "", "40", "LOQ", "YES", "-99", "", "252.9", "1.00", "16", ""
"NAWC-020118-RW-119", "537", "RES", "320-35691-7", "TALSAC", "335-67-1", "Perfluorooctanoic acid
(PFOA)", "15", "ng/L", "J", "2.8", "DL", "", "TRG", "", "", "20", "LOQ", "YES", "-99", "", "252.9", "1.00", "7.9", ""
"NAWC-020118-RW-119", "537", "RES", "320-35691-7", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid
(PFHxS)", "5.4", "ng/L", "J", "5.4", "DL", "", "TRG", "", "", "30", "LOQ", "YES", "-99", "", "252.9", "1.00", "12", ""
"NAWC-020118-RW-119", "537", "RES", "320-35691-7", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid
(PFBS)", "36", "ng/L", "U", "16", "DL", "", "TRG", "", "", "89", "LOQ", "YES", "-99", "", "252.9", "1.00", "36", ""
"NAWC-020118-RW-119", "537", "RES", "320-35691-7", "TALSAC", "375-85-9", "Perfluoroheptanoic acid
(PFHpA)", "5.4", "ng/L", "J", "1.9", "DL", "", "TRG", "", "", "9.9", "LOQ", "YES", "-99", "", "252.9", "1.00", "4.0", ""
"NAWC-020118-RW-119", "537", "RES", "320-35691-7", "TALSAC", "375-95-1", "Perfluorononanoic acid
(PFNA)", "20", "ng/L", "U M", "7.9", "DL", "", "TRG", "", "", "24", "LOQ", "YES", "-99", "", "252.9", "1.00", "20", ""
"NAWC-020118-RW-119", "537", "RES", "320-35691-7", "TALSAC", "STL00993", "13C2
PFHxA", "37", "ng/L", "", "-99", "DL", "", "SURR", "94", "", "-99", "LOQ", "YES", "39.5", "", "252.9", "1.00", "0", ""
"NAWC-020118-RW-119", "537", "RES", "320-35691-7", "TALSAC", "STL00996", "13C2
PFDA", "41", "ng/L", "", "-99", "DL", "", "SURR", "103", "", "-99", "LOQ", "YES", "39.5", "", "252.9", "1.00", "0", ""
"NAWC-020118-FRB-119", "537", "RES", "320-35691-8", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid
(PFOS)", "16", "ng/L", "U", "7.0", "DL", "", "TRG", "", "", "41", "LOQ", "YES", "-99", "", "243.9", "1.00", "16", ""
"NAWC-020118-FRB-119", "537", "RES", "320-35691-8", "TALSAC", "335-67-1", "Perfluorooctanoic acid
(PFOA)", "8.2", "ng/L", "U", "2.9", "DL", "", "TRG", "", "", "21", "LOQ", "YES", "-99", "", "243.9", "1.00", "8.2", ""
"NAWC-020118-FRB-119", "537", "RES", "320-35691-8", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid
(PFHxS)", "12", "ng/L", "U", "5.6", "DL", "", "TRG", "", "", "31", "LOQ", "YES", "-99", "", "243.9", "1.00", "12", ""
"NAWC-020118-FRB-119", "537", "RES", "320-35691-8", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid
(PFBS)", "37", "ng/L", "U", "17", "DL", "", "TRG", "", "", "92", "LOQ", "YES", "-99", "", "243.9", "1.00", "37", ""
"NAWC-020118-FRB-119", "537", "RES", "320-35691-8", "TALSAC", "375-85-9", "Perfluoroheptanoic acid
(PFHpA)", "4.1", "ng/L", "U", "1.9", "DL", "", "TRG", "", "", "10", "LOQ", "YES", "-99", "", "243.9", "1.00", "4.1", ""
"NAWC-020118-FRB-119", "537", "RES", "320-35691-8", "TALSAC", "375-95-1", "Perfluorononanoic acid
(PFNA)", "21", "ng/L", "U", "8.2", "DL", "", "TRG", "", "", "25", "LOQ", "YES", "-99", "", "243.9", "1.00", "21", ""
"NAWC-020118-FRB-119", "537", "RES", "320-35691-8", "TALSAC", "STL00993", "13C2
PFHxA", "37", "ng/L", "", "-99", "DL", "", "SURR", "91", "", "-99", "LOQ", "YES", "41.0", "", "243.9", "1.00", "0", ""
"NAWC-020118-FRB-119", "537", "RES", "320-35691-8", "TALSAC", "STL00996", "13C2
PFDA", "40", "ng/L", "", "-99", "DL", "", "SURR", "96", "", "-99", "LOQ", "YES", "41.0", "", "243.9", "1.00", "0", ""
"WGNA-020118-DUP-24", "537", "RES", "320-35691-9", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid
(PFOS)", "20", "ng/L", "J M", "6.7", "DL", "", "TRG", "", "", "39", "LOQ", "YES", "-99", "", "254.6", "1.00", "16", ""
"WGNA-020118-DUP-24", "537", "RES", "320-35691-9", "TALSAC", "335-67-1", "Perfluorooctanoic acid
(PFOA)", "25", "ng/L", "", "2.7", "DL", "", "TRG", "", "", "20", "LOQ", "YES", "-99", "", "254.6", "1.00", "7.9", ""
"WGNA-020118-DUP-24", "537", "RES", "320-35691-9", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid
(PFHxS)", "12", "ng/L", "U", "5.4", "DL", "", "TRG", "", "", "29", "LOQ", "YES", "-99", "", "254.6", "1.00", "12", ""
"WGNA-020118-DUP-24", "537", "RES", "320-35691-9", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid
(PFBS)", "35", "ng/L", "U", "16", "DL", "", "TRG", "", "", "88", "LOQ", "YES", "-99", "", "254.6", "1.00", "35", ""
"WGNA-020118-DUP-24", "537", "RES", "320-35691-9", "TALSAC", "375-85-9", "Perfluoroheptanoic acid
(PFHpA)", "5.1", "ng/L", "J", "1.9", "DL", "", "TRG", "", "", "9.8", "LOQ", "YES", "-99", "", "254.6", "1.00", "3.9", ""
"WGNA-020118-DUP-24", "537", "RES", "320-35691-9", "TALSAC", "375-95-1", "Perfluorononanoic acid
(PFNA)", "20", "ng/L", "U M", "7.9", "DL", "", "TRG", "", "", "24", "LOQ", "YES", "-99", "", "254.6", "1.00", "20", ""
"WGNA-020118-DUP-24", "537", "RES", "320-35691-9", "TALSAC", "STL00993", "13C2

PFHxA", "36", "ng/L", "", "-99", "DL", "", "SURR", "93", "", "-99", "LOQ", "YES", "39.3", "", "254.6", "1.00", "0", ""
"WGNA-020118-DUP-24", "537", "RES", "320-35691-9", "TALSAC", "STL00996", "13C2
PFDA", "40", "ng/L", "", "-99", "DL", "", "SURR", "102", "", "-99", "LOQ", "YES", "39.3", "", "254.6", "1.00", "0", ""
"LLCS 320-207046/2-A", "537", "RES", "LLCS 320-207046/2-A", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic
acid (PFOS)", "40.3", "ng/L", "M", "6.8", "DL", "", "SPK", "100", "", "40", "LOQ", "YES", "40.2", "", "250", "1.00", "16", ""
"LLCS 320-207046/2-A", "537", "RES", "LLCS 320-207046/2-A", "TALSAC", "335-67-1", "Perfluorooctanoic acid
(PFOA)", "22.6", "ng/L", "", "2.8", "DL", "", "SPK", "112", "", "20", "LOQ", "YES", "20.1", "", "250", "1.00", "8.0", ""
"LLCS 320-207046/2-A", "537", "RES", "LLCS 320-207046/2-A", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid
(PFHxS)", "32.4", "ng/L", "", "5.5", "DL", "", "SPK", "108", "", "30", "LOQ", "YES", "30.0", "", "250", "1.00", "12", ""
"LLCS 320-207046/2-A", "537", "RES", "LLCS 320-207046/2-A", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid
(PFBS)", "95.4", "ng/L", "", "16", "DL", "", "SPK", "106", "", "90", "LOQ", "YES", "90.0", "", "250", "1.00", "36", ""
"LLCS 320-207046/2-A", "537", "RES", "LLCS 320-207046/2-A", "TALSAC", "375-85-9", "Perfluoroheptanoic acid
(PFHpA)", "12.7", "ng/L", "", "1.9", "DL", "", "SPK", "127", "", "10", "LOQ", "YES", "10.0", "", "250", "1.00", "4.0", ""
"LLCS 320-207046/2-A", "537", "RES", "LLCS 320-207046/2-A", "TALSAC", "375-95-1", "Perfluorononanoic acid
(PFNA)", "21.2", "ng/L", "J", "8.0", "DL", "", "SPK", "106", "", "24", "LOQ", "YES", "20.0", "", "250", "1.00", "20", ""
"LLCS 320-207046/2-A", "537", "RES", "LLCS 320-207046/2-A", "TALSAC", "STL00993", "13C2
PFHxA", "42.4", "ng/L", "", "-99", "DL", "", "SURR", "106", "", "-99", "LOQ", "YES", "40.0", "", "250", "1.00", "0", ""
"LLCS 320-207046/2-A", "537", "RES", "LLCS 320-207046/2-A", "TALSAC", "STL00996", "13C2
PFDA", "40.8", "ng/L", "", "-99", "DL", "", "SURR", "102", "", "-99", "LOQ", "YES", "40.0", "", "250", "1.00", "0", ""
"LLCSD 320-207046/3-A", "537", "RES", "LLCSD 320-207046/3-A", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic
acid (PFOS)", "41.2", "ng/L", "M", "6.8", "DL", "", "SPK", "103", "2", "40", "LOQ", "YES", "40.2", "LLCS 320-207046/2-
A", "250", "1.00", "16", ""
"LLCSD 320-207046/3-A", "537", "RES", "LLCSD 320-207046/3-A", "TALSAC", "335-67-1", "Perfluorooctanoic acid
(PFOA)", "29.1", "ng/L", "", "2.8", "DL", "", "SPK", "145", "25", "20", "LOQ", "YES", "20.1", "LLCS 320-207046/2-
A", "250", "1.00", "8.0", ""
"LLCSD 320-207046/3-A", "537", "RES", "LLCSD 320-207046/3-A", "TALSAC", "355-46-4", "Perfluorohexanesulfonic
acid (PFHxS)", "32.9", "ng/L", "", "5.5", "DL", "", "SPK", "110", "1", "30", "LOQ", "YES", "30.0", "LLCS 320-207046/2-
A", "250", "1.00", "12", ""
"LLCSD 320-207046/3-A", "537", "RES", "LLCSD 320-207046/3-A", "TALSAC", "375-73-5", "Perfluorobutanesulfonic
acid (PFBS)", "99.7", "ng/L", "", "16", "DL", "", "SPK", "111", "4", "90", "LOQ", "YES", "90.0", "LLCS 320-207046/2-
A", "250", "1.00", "36", ""
"LLCSD 320-207046/3-A", "537", "RES", "LLCSD 320-207046/3-A", "TALSAC", "375-85-9", "Perfluoroheptanoic acid
(PFHpA)", "12.2", "ng/L", "", "1.9", "DL", "", "SPK", "122", "5", "10", "LOQ", "YES", "10.0", "LLCS 320-207046/2-
A", "250", "1.00", "4.0", ""
"LLCSD 320-207046/3-A", "537", "RES", "LLCSD 320-207046/3-A", "TALSAC", "375-95-1", "Perfluorononanoic acid
(PFNA)", "21.3", "ng/L", "J", "8.0", "DL", "", "SPK", "106", "0.2", "24", "LOQ", "YES", "20.0", "LLCS 320-207046/2-
A", "250", "1.00", "20", ""
"LLCSD 320-207046/3-A", "537", "RES", "LLCSD 320-207046/3-A", "TALSAC", "STL00993", "13C2
PFHxA", "42.2", "ng/L", "", "-99", "DL", "", "SURR", "106", "0.5", "-99", "LOQ", "YES", "40.0", "LLCS 320-207046/2-
A", "250", "1.00", "0", ""
"LLCSD 320-207046/3-A", "537", "RES", "LLCSD 320-207046/3-A", "TALSAC", "STL00996", "13C2
PFDA", "42.2", "ng/L", "", "-99", "DL", "", "SURR", "105", "3", "-99", "LOQ", "YES", "40.0", "LLCS 320-207046/2-
A", "250", "1.00", "0", ""
"MB 320-207046/1-A", "537", "RES", "MB 320-207046/1-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 320-207046/1-A", "537", "RES", "MB 320-207046/1-A", "TALSAC", "335-67-1", "Perfluorooctanoic acid
(PFOA)", "4.79", "ng/L", "J", "2.8", "DL", "", "TRG", "", "", "20", "LOQ", "YES", "-99", "", "250", "1.00", "8.0", ""
"MB 320-207046/1-A", "537", "RES", "MB 320-207046/1-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 320-207046/1-A", "537", "RES", "MB 320-207046/1-A", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid
(PFBS)", "36", "ng/L", "U", "16", "DL", "", "TRG", "", "", "90", "LOQ", "YES", "-99", "", "250", "1.00", "36", ""
"MB 320-207046/1-A", "537", "RES", "MB 320-207046/1-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 320-207046/1-A", "537", "RES", "MB 320-207046/1-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 320-207046/1-A","537","RES","MB 320-207046/1-A","TALSAC","STL00993","13C2
PFHxA","40.6","ng/L","","-99","DL","","SURR","101","","-99","LOQ","YES","40.0","","250","1.00","0","","
"MB 320-207046/1-A","537","RES","MB 320-207046/1-A","TALSAC","STL00996","13C2
PFDA","38.5","ng/L","","-99","DL","","SURR","96","","-99","LOQ","YES","40.0","","250","1.00","0","","
"Unknown","Unknown","NAWC-020118-RW-167","02/01/2018 10:10","AQ","320-35691-
1","NM","","2.60","537","METHOD","RES","02/06/2018 08:01","02/08/2018
12:18","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207624","320-35691-1","02/02/2018 09:05","02/05/2018 10:15","","
"Unknown","Unknown","WGNA-020118-RW-4847","02/01/2018 13:10","AQ","320-35691-
10","NM","","2.60","537","METHOD","RES","02/06/2018 08:01","02/08/2018
13:09","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207626","320-35691-1","02/02/2018 09:05","02/05/2018 10:15","","
"Unknown","Unknown","WGNA-020118-FRB-4847","02/01/2018 13:05","AQ","320-35691-
11","FB","","2.60","537","METHOD","RES","02/06/2018 08:01","02/08/2018
13:14","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207626","320-35691-1","02/02/2018 09:05","02/05/2018 10:15","","
"Unknown","Unknown","NAWC-020118-RW-121","02/01/2018 13:40","AQ","320-35691-
12","NM","","2.60","537","METHOD","RES","02/06/2018 08:01","02/08/2018
13:18","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207626","320-35691-1","02/02/2018 09:05","02/05/2018 10:15","","
"Unknown","Unknown","NAWC-020118-FRB-121","02/01/2018 13:35","AQ","320-35691-
13","FB","","2.60","537","METHOD","RES","02/06/2018 08:01","02/08/2018
13:23","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207626","320-35691-1","02/02/2018 09:05","02/05/2018 10:15","","
"Unknown","Unknown","NAWC-020118-RW-123","02/01/2018 15:10","AQ","320-35691-
14","NM","","2.60","537","METHOD","RES","02/06/2018 08:01","02/08/2018
13:28","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207626","320-35691-1","02/02/2018 09:05","02/05/2018 10:15","","
"Unknown","Unknown","NAWC-020118-FRB-123","02/01/2018 15:05","AQ","320-35691-
15","FB","","2.60","537","METHOD","RES","02/06/2018 08:01","02/08/2018
13:32","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207626","320-35691-1","02/02/2018 09:05","02/05/2018 10:15","","
"Unknown","Unknown","NAWC-020118-RW-207","02/01/2018 16:40","AQ","320-35691-
16","NM","","2.60","537","METHOD","RES","02/06/2018 08:01","02/08/2018
13:37","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207626","320-35691-1","02/02/2018 09:05","02/05/2018 10:15","","
"Unknown","Unknown","NAWC-020118-FRB-207","02/01/2018 16:35","AQ","320-35691-
17","FB","","2.60","537","METHOD","RES","02/06/2018 08:01","02/08/2018
13:42","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207626","320-35691-1","02/02/2018 09:05","02/05/2018 10:15","","
"Unknown","Unknown","NAWC-020118-FRB-167","02/01/2018 10:05","AQ","320-35691-
2","FB","","2.60","537","METHOD","RES","02/06/2018 08:01","02/08/2018
12:22","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207624","320-35691-1","02/02/2018 09:05","02/05/2018 10:15","","
"Unknown","Unknown","NAWC-020118-RW-151","02/01/2018 11:10","AQ","320-35691-
3","NM","","2.60","537","METHOD","RES","02/06/2018 08:01","02/08/2018
12:27","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207624","320-35691-1","02/02/2018 09:05","02/05/2018 10:15","","
"Unknown","Unknown","NAWC-020118-FRB-151","02/01/2018 10:05","AQ","320-35691-
4","FB","","2.60","537","METHOD","RES","02/06/2018 08:01","02/08/2018
12:32","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207624","320-35691-1","02/02/2018 09:05","02/05/2018 10:15","","
"Unknown","Unknown","NAWC-020118-RW-156","02/01/2018 11:40","AQ","320-35691-

5","NM","","2.60","537","METHOD","RES","02/06/2018 08:01","02/08/2018
12:36","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207624","320-35691-1","02/02/2018 09:05","02/05/2018 10:15",""
"Unknown","Unknown","NAWC-020118-FRB-156","02/01/2018 11:35","AQ","320-35691-
6","FB","","2.60","537","METHOD","RES","02/06/2018 08:01","02/08/2018
12:41","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207624","320-35691-1","02/02/2018 09:05","02/05/2018 10:15",""
"Unknown","Unknown","NAWC-020118-RW-119","02/01/2018 12:40","AQ","320-35691-
7","NM","","2.60","537","METHOD","RES","02/06/2018 08:01","02/08/2018
12:46","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207624","320-35691-1","02/02/2018 09:05","02/05/2018 10:15",""
"Unknown","Unknown","NAWC-020118-FRB-119","02/01/2018 12:35","AQ","320-35691-
8","FB","","2.60","537","METHOD","RES","02/06/2018 08:01","02/08/2018
13:00","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207626","320-35691-1","02/02/2018 09:05","02/05/2018 10:15",""
"Unknown","Unknown","WGNA-020118-DUP-24","02/01/2018 07:00","AQ","320-35691-
9","FD","","2.60","537","METHOD","RES","02/06/2018 08:01","02/08/2018
13:04","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207626","320-35691-1","02/02/2018 09:05","02/05/2018 10:15",""
"Unknown","Unknown","LLCS 320-207046/2-A","","AQ","LLCS 320-207046/2-
A","LCS","","-99","537","METHOD","RES","02/06/2018 08:01","02/08/2018
12:08","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207624","320-35691-1","02/06/2018 08:01","02/05/2018 10:15",""
"Unknown","Unknown","LLCSD 320-207046/3-A","","AQ","LLCSD 320-207046/3-
A","LCS","","-99","537","METHOD","RES","02/06/2018 08:01","02/08/2018
12:13","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207624","320-35691-1","02/06/2018 08:01","02/05/2018 10:15",""
"Unknown","Unknown","MB 320-207046/1-A","","AQ","MB 320-207046/1-
A","MB","","-99","537","METHOD","RES","02/06/2018 08:01","02/08/2018
12:04","TALSAC","COA","WET","NA","1","NA","NA","","100","320-207046","320-207046","NA","320-
207624","320-35691-1","02/06/2018 08:01","02/05/2018 10:15",""



TETRA TECH

INTERNAL CORRESPONDENCE

TO: A. FREBOWITZ **DATE:** MARCH 7, 2018
FROM: TERRI L. SOLOMON **COPIES:** DV FILE
SUBJECT: ORGANIC DATA VALIDATION –POLYFLUOROALKYL SUBSTANCES (PFAS)
NAS JRB WILLOW GROVE
SAMPLE DELIVERY GROUP (SDG) 320-35691-1

SAMPLES: 8/Field Reagent Blank (FRB)
NAWC-020118-FRB-119 NAWC-020118-FRB-121
NAWC-020118-FRB-123 NAWC-020118-FRB-151
NAWC-020118-FRB-156 NAWC-020118-FRB-167
NAWC-020118-FRB-207 WGNA-020118-FRB-4847

9/Drinking Water
NAWC-020118-RW-119 NAWC-020118-RW-121
NAWC-020118-RW-123 NAWC-020118-RW-151
NAWC-020118-RW-156 NAWC-020118-RW-167
NAWC-020118-RW-207 WGNA-020118-DUP-24
WGNA-020118-RW-4847

Overview

The sample set for NAS JRB Willow Grove, SDG 320-35691-1, 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, NAWC-020118-RW-119 / WGNA-020118-DUP024 was included in this SDG.

The samples were collected by Tetra Tech on February 1, 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

Detected results reported below the limit of quantitation (LOQ) but above the detection limit (DL) were qualified as estimated, (J).

TO: A. FREBOWITZ
SDG: 320-35691-1

PAGE 2

The following surrogate recoveries were below the 70% quality control limit. It was noted in the case narrative that the sample was re-extracted and re-analyzed by the laboratory with similar recoveries and the original analysis was reported. The nondetected results reported in the affected sample were qualified as estimated (UJ).

<u>Sample</u>	<u>Surrogate</u>
NAWC-020118-FRB-167	13C2 Perfluorohexanoic acid
	13C2 Perfluorodecanoic acid

The following compound detected in the laboratory method blank at a concentration less than one-third the reporting limit as indicated below:

<u>Compound</u>	<u>Concentration</u>
Perfluorooctanoic acid	4.79 ng/L

Detected results reported below the LOQ were qualified as nondetected (U) in the associated samples.

Notes

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-020118-RW-119	NAWC-020118-FRB-119
NAWC-020118-RW-121	NAWC-020118-FRB-121
NAWC-020118-RW-123	NAWC-020118-FRB-123
NAWC-020118-RW-151	NAWC-020118-FRB-151
NAWC-020118-RW-156	NAWC-020118-FRB-156
NAWC-020118-RW-167	NAWC-020118-FRB-167
NAWC-020118-RW-207	NAWC-020118-FRB-207
WGNA-020118-DUP-24	NAWC-020118-FRB-119
WGNA-020118-RW-4847	NAWC-020118-FRB-4847

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: Two surrogate recoveries were below the quality control limits. Perfluorooctanoic acid was present in the laboratory method blank.

Other Factors Affecting Data Quality: Results below the RL were estimated.

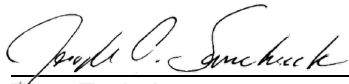
The data for these analyses were reviewed with reference to the Environmental Protection Agency document EPA/600/R-08/092, Method 537, "Determination of Selected Perfluorinated Alkyl Acids in Drinking Water by Solid Phase Extraction and Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS)", (September 2009) and the US EPA National Functional Guidelines for Organic Data Review (January 2017) as applicable. The text of this report has been formulated to address only those areas affecting data quality.

TO: A. FREBOWITZ
SDG: 320-35691-1

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 ($< 2 \times$ IDL for inorganics and $<$ 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: 320-35691-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-020118-FRB-119			NAWC-020118-FRB-121			NAWC-020118-FRB-123			NAWC-020118-FRB-151		
	LAB_ID	320-35691-8			320-35691-13			320-35691-15			320-35691-4		
	SAMP_DATE	2/1/2018			2/1/2018			2/1/2018			2/1/2018		
	QC_TYPE	FB			FB			FB			FB		
	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	8.2	U		8	U		8	U		7.7	U		
PERFLUOROBUTANESULFONIC ACID	37	U		36	U		36	U		35	U		
PERFLUOROHEPTANOIC ACID	4.1	U		4	U		4	U		3.9	U		
PERFLUOROHXANESULFONIC ACID	12	U		12	U		12	U		12	U		
PERFLUORONONANOIC ACID	21	U		20	U		20	U		19	U		
PERFLUOROOCTANE SULFONIC ACID	16	U		16	U		16	U		15	U		

PROJ_NO: 08005-WE04 SDG: 320-35691-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-020118-FRB-156			NAWC-020118-FRB-167			NAWC-020118-FRB-207			NAWC-020118-RW-119		
	LAB_ID	320-35691-6			320-35691-2			320-35691-17			320-35691-7		
	SAMP_DATE	2/1/2018			2/1/2018			2/1/2018			2/1/2018		
	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	7.8	U		8.1	UJ	R	7.6	U		15	U	A	
PERFLUOROBUTANESULFONIC ACID	35	U		36	UJ	R	34	U		36	U		
PERFLUOROHEPTANOIC ACID	3.9	U		4	UJ	R	3.8	U		5.4	J	P	
PERFLUOROHXANESULFONIC ACID	12	U		12	UJ	R	11	U		5.4	J	P	
PERFLUORONONANOIC ACID	19	U		20	UJ	R	19	U		20	U		
PERFLUOROOCTANE SULFONIC ACID	16	U		16	UJ	R	15	U		21	J	P	

PROJ_NO: 08005-WE04 SDG: 320-35691-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-020118-RW-121			NAWC-020118-RW-123			NAWC-020118-RW-151			NAWC-020118-RW-156		
	LAB_ID	320-35691-12			320-35691-14			320-35691-3			320-35691-5		
	SAMP_DATE	2/1/2018			2/1/2018			2/1/2018			2/1/2018		
	QC_TYPE	NM			NM			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
PENTADECAFLUOROOCTANOIC ACID	25			26			26			13	U	A	
PERFLUOROBUTANESULFONIC ACID	36	U		36	U		37	U		35	U		
PERFLUOROHEPTANOIC ACID	6.8	J	P	9.1	J	P	10			4	J	P	
PERFLUOROHXANESULFONIC ACID	12	J	P	14	J	P	12	U		12	U		
PERFLUORONONANOIC ACID	20	U		20	U		21	U		20	U		
PERFLUOROOCTANE SULFONIC ACID	22	J	P	31	J	P	9.6	J	P	11	J	P	

PROJ_NO: 08005-WE04 SDG: 320-35691-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-020118-RW-167			NAWC-020118-RW-207			WGNA-020118-DUP-24			WGNA-020118-FRB-4847		
	LAB_ID	320-35691-1			320-35691-16			320-35691-9			320-35691-11		
	SAMP_DATE	2/1/2018			2/1/2018			2/1/2018			2/1/2018		
	QC_TYPE	NM			NM			FD			FB		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF							NAWC-020118-RW-119					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
PENTADECAFLUOROOCTANOIC ACID	8.4	U	A	26			25			7.8	U		
PERFLUOROBUTANESULFONIC ACID	37	U		35	U		35	U		35	U		
PERFLUOROHEPTANOIC ACID	2.3	J	P	3.6	J	P	5.1	J	P	3.9	U		
PERFLUOROHXANESULFONIC ACID	12	U		12	U		12	U		12	U		
PERFLUORONONANOIC ACID	21	U		20	U		20	U		20	U		
PERFLUOROOCTANE SULFONIC ACID	15	J	P	18	J	P	20	J	P	16	U		

PROJ_NO: 08005-WE04 SDG: 320-35691-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	WGNA-020118-RW-4847		
	LAB_ID	320-35691-10		
	SAMP_DATE	2/1/2018		
	QC_TYPE	NM		
	UNITS	NG/L		
	PCT_SOLIDS	0.0		
	DUP_OF			
PARAMETER	RESULT	VQL	QLCD	
PENTADECAFLUOROOCTANOIC ACID	4.1	U	A	
PERFLUOROBUTANESULFONIC ACID	37	U		
PERFLUROHEPTANOIC ACID	4.1	U		
PERFLUROHEXANESULFONIC ACID	12	U		
PERFLURONONANOIC ACID	20	U		
PERFLUROOCTANE SULFONIC ACID	16	U		

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-167 Lab Sample ID: 320-35691-1
 Matrix: Water Lab File ID: 2018.02.08_537B_006.d
 Analysis Method: 537 Date Collected: 02/01/2018 10:10
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 241.8(mL) Date Analyzed: 02/08/2018 12:18
 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.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	J M	41	17	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	8.4	J U	21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U M	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.3	J M	10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	93	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	94		70-130

Wesley L. Salmeron
03/07/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-167 Lab Sample ID: 320-35691-2
 Matrix: Water Lab File ID: 2018.02.08_537B_007.d
 Analysis Method: 537 Date Collected: 02/01/2018 10:05
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 247.3(mL) Date Analyzed: 02/08/2018 12:22
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U JJ	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U JJ	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U JJ	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U JJ	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U JJ	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U JJ	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	20	Q	70-130
STL00996	13C2 PFDA	53	Q	70-130

Wesley L. Selman
03/07/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-151 Lab Sample ID: 320-35691-3
 Matrix: Water Lab File ID: 2018.02.08_537B_008.d
 Analysis Method: 537 Date Collected: 02/01/2018 11:10
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 241.4 (mL) Date Analyzed: 02/08/2018 12:27
 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.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.6	J M	41	17	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	26		21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	10		10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	93	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	95		70-130

Steve L. Selman
03/07/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-151 Lab Sample ID: 320-35691-4
 Matrix: Water Lab File ID: 2018.02.08_537B_009.d
 Analysis Method: 537 Date Collected: 02/01/2018 10:05
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 258.6(mL) Date Analyzed: 02/08/2018 12:32
 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.: 207624 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	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	98		70-130
STL00996	13C2 PFDA	98		70-130

Ali L. Selman
03/07/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-156 Lab Sample ID: 320-35691-5
 Matrix: Water Lab File ID: 2018.02.08_537B_010.d
 Analysis Method: 537 Date Collected: 02/01/2018 11:40
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 254.9(mL) Date Analyzed: 02/08/2018 12:36
 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.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	13	J U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	95		70-130

Wesley L. Salomon
03/07/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-156 Lab Sample ID: 320-35691-6
 Matrix: Water Lab File ID: 2018.02.08_537B_011.d
 Analysis Method: 537 Date Collected: 02/01/2018 11:35
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 257(mL) Date Analyzed: 02/08/2018 12:41
 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.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	19	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	106		70-130

Wesley L. Salmeron
03/07/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-119 Lab Sample ID: 320-35691-7
 Matrix: Water Lab File ID: 2018.02.08_537B_012.d
 Analysis Method: 537 Date Collected: 02/01/2018 12:40
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 252.9(mL) Date Analyzed: 02/08/2018 12:46
 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.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	21	J M	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	15	J U	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.4	J	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.4	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	103		70-130

Mari L. Salmeron
03/07/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-119 Lab Sample ID: 320-35691-8
 Matrix: Water Lab File ID: 2018.02.08_537B_015.d
 Analysis Method: 537 Date Collected: 02/01/2018 12:35
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 243.9(mL) Date Analyzed: 02/08/2018 13:00
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	8.2	U	21	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	96		70-130

Mari L. Salaman
03/08/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: WGNA-020118-DUP-24 Lab Sample ID: 320-35691-9
 Matrix: Water Lab File ID: 2018.02.08_537B_016.d
 Analysis Method: 537 Date Collected: 02/01/2018 07:00
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 254.6(mL) Date Analyzed: 02/08/2018 13:04
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	25		20	7.9	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U M-	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.1	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	102		70-130

Maria L. Salmeron
03/08/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: WGNA-020118-RW-4847 Lab Sample ID: 320-35691-10
 Matrix: Water Lab File ID: 2018.02.08_537B_017.d
 Analysis Method: 537 Date Collected: 02/01/2018 13:10
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 246.5 (mL) Date Analyzed: 02/08/2018 13:09
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	4.1	F U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	91	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	94		70-130

Mari L. Salomon
03/07/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: WGNA-020118-FRB-4847 Lab Sample ID: 320-35691-11
 Matrix: Water Lab File ID: 2018.02.08_537B_018.d
 Analysis Method: 537 Date Collected: 02/01/2018 13:05
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 255.4 (mL) Date Analyzed: 02/08/2018 13:14
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	115		70-130

Ami L. Salaman
03/07/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-121 Lab Sample ID: 320-35691-12
 Matrix: Water Lab File ID: 2018.02.08_537B_019.d
 Analysis Method: 537 Date Collected: 02/01/2018 13:40
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 247.9(mL) Date Analyzed: 02/08/2018 13:18
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	J M	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	25		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.8	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	106		70-130
STL00996	13C2 PFDA	104		70-130

Steve L. Salzman
03/07/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-121 Lab Sample ID: 320-35691-13
 Matrix: Water Lab File ID: 2018.02.08_537B_020.d
 Analysis Method: 537 Date Collected: 02/01/2018 13:35
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 250.2 (mL) Date Analyzed: 02/08/2018 13:23
 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.: 207626 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	110		70-130
STL00996	13C2 PFDA	110		70-130

Mari L. Salmeron
03/07/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-123 Lab Sample ID: 320-35691-14
 Matrix: Water Lab File ID: 2018.02.08_537B_021.d
 Analysis Method: 537 Date Collected: 02/01/2018 15:10
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 248.3(mL) Date Analyzed: 02/08/2018 13:28
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	31	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	26		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	14	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.1	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	94		70-130

Wesley L. Selmer
03/07/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-123 Lab Sample ID: 320-35691-15
 Matrix: Water Lab File ID: 2018.02.08_537B_022.d
 Analysis Method: 537 Date Collected: 02/01/2018 15:05
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 250.8(mL) Date Analyzed: 02/08/2018 13:32
 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.: 207626 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	102		70-130
STL00996	13C2 PFDA	102		70-130

Steve L. Salmeron
03/07/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-207 Lab Sample ID: 320-35691-16
 Matrix: Water Lab File ID: 2018.02.08_537B_023.d
 Analysis Method: 537 Date Collected: 02/01/2018 16:40
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 255.7(mL) Date Analyzed: 02/08/2018 13:37
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18	J M	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	26		20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.6	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	100		70-130
STL00996	13C2 PFDA	100		70-130

Wesley L. Selman
03/07/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-207 Lab Sample ID: 320-35691-17
 Matrix: Water Lab File ID: 2018.02.08_537B_024.d
 Analysis Method: 537 Date Collected: 02/01/2018 16:35
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 262.2 (mL) Date Analyzed: 02/08/2018 13:42
 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.: 207626 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	100		70-130
STL00996	13C2 PFDA	96		70-130

Wesley L. Selmer
03/07/2018

Appendix B

Results as Reported by the Laboratory

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-167 Lab Sample ID: 320-35691-1
 Matrix: Water Lab File ID: 2018.02.08_537B_006.d
 Analysis Method: 537 Date Collected: 02/01/2018 10:10
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 241.8 (mL) Date Analyzed: 02/08/2018 12:18
 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.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	15	J M	41	17	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	8.4	J	21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U M	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.3	J M	10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	93	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	94		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-167 Lab Sample ID: 320-35691-2
 Matrix: Water Lab File ID: 2018.02.08_537B_007.d
 Analysis Method: 537 Date Collected: 02/01/2018 10:05
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 247.3(mL) Date Analyzed: 02/08/2018 12:22
 Con. Extract Vol.: 1.00(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	20	Q	70-130
STL00996	13C2 PFDA	53	Q	70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-151 Lab Sample ID: 320-35691-3
 Matrix: Water Lab File ID: 2018.02.08_537B_008.d
 Analysis Method: 537 Date Collected: 02/01/2018 11:10
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 241.4 (mL) Date Analyzed: 02/08/2018 12:27
 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.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.6	J M	41	17	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	26		21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	10		10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	93	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	95		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-151 Lab Sample ID: 320-35691-4
 Matrix: Water Lab File ID: 2018.02.08_537B_009.d
 Analysis Method: 537 Date Collected: 02/01/2018 10:05
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 258.6(mL) Date Analyzed: 02/08/2018 12:32
 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.: 207624 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	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	87	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	98		70-130
STL00996	13C2 PFDA	98		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-156 Lab Sample ID: 320-35691-5
 Matrix: Water Lab File ID: 2018.02.08_537B_010.d
 Analysis Method: 537 Date Collected: 02/01/2018 11:40
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 254.9(mL) Date Analyzed: 02/08/2018 12:36
 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.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	13	J	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	95		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-156 Lab Sample ID: 320-35691-6
 Matrix: Water Lab File ID: 2018.02.08_537B_011.d
 Analysis Method: 537 Date Collected: 02/01/2018 11:35
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 257(mL) Date Analyzed: 02/08/2018 12:41
 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.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	19	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	19	U	23	19	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.7	3.9	1.8
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	106		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-119 Lab Sample ID: 320-35691-7
 Matrix: Water Lab File ID: 2018.02.08_537B_012.d
 Analysis Method: 537 Date Collected: 02/01/2018 12:40
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 252.9(mL) Date Analyzed: 02/08/2018 12:46
 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.: 207624 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	21	J M	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	15	J	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	5.4	J	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.4	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	103		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-119 Lab Sample ID: 320-35691-8
 Matrix: Water Lab File ID: 2018.02.08_537B_015.d
 Analysis Method: 537 Date Collected: 02/01/2018 12:35
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 243.9(mL) Date Analyzed: 02/08/2018 13:00
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	8.2	U	21	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	91		70-130
STL00996	13C2 PFDA	96		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: WGNA-020118-DUP-24 Lab Sample ID: 320-35691-9
 Matrix: Water Lab File ID: 2018.02.08_537B_016.d
 Analysis Method: 537 Date Collected: 02/01/2018 07:00
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 254.6(mL) Date Analyzed: 02/08/2018 13:04
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	20	J M	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	25		20	7.9	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U M	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.1	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	102		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: WGNA-020118-RW-4847 Lab Sample ID: 320-35691-10
 Matrix: Water Lab File ID: 2018.02.08_537B_017.d
 Analysis Method: 537 Date Collected: 02/01/2018 13:10
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 246.5 (mL) Date Analyzed: 02/08/2018 13:09
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	4.1	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	91	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	94		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: WGNA-020118-FRB-4847 Lab Sample ID: 320-35691-11
 Matrix: Water Lab File ID: 2018.02.08_537B_018.d
 Analysis Method: 537 Date Collected: 02/01/2018 13:05
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 255.4 (mL) Date Analyzed: 02/08/2018 13:14
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	39	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	U	20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	U	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	115		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-121 Lab Sample ID: 320-35691-12
 Matrix: Water Lab File ID: 2018.02.08_537B_019.d
 Analysis Method: 537 Date Collected: 02/01/2018 13:40
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 247.9(mL) Date Analyzed: 02/08/2018 13:18
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	J M	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	25		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	6.8	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	106		70-130
STL00996	13C2 PFDA	104		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-121 Lab Sample ID: 320-35691-13
 Matrix: Water Lab File ID: 2018.02.08_537B_020.d
 Analysis Method: 537 Date Collected: 02/01/2018 13:35
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 250.2 (mL) Date Analyzed: 02/08/2018 13:23
 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.: 207626 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	110		70-130
STL00996	13C2 PFDA	110		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-123 Lab Sample ID: 320-35691-14
 Matrix: Water Lab File ID: 2018.02.08_537B_021.d
 Analysis Method: 537 Date Collected: 02/01/2018 15:10
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 248.3(mL) Date Analyzed: 02/08/2018 13:28
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	31	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	26		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	14	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	9.1	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	94		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-123 Lab Sample ID: 320-35691-15
 Matrix: Water Lab File ID: 2018.02.08_537B_022.d
 Analysis Method: 537 Date Collected: 02/01/2018 15:05
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 250.8(mL) Date Analyzed: 02/08/2018 13:32
 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.: 207626 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	102		70-130
STL00996	13C2 PFDA	102		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-RW-207 Lab Sample ID: 320-35691-16
 Matrix: Water Lab File ID: 2018.02.08_537B_023.d
 Analysis Method: 537 Date Collected: 02/01/2018 16:40
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 255.7(mL) Date Analyzed: 02/08/2018 13:37
 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.: 207626 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18	J M	39	16	6.6
335-67-1	Perfluorooctanoic acid (PFOA)	26		20	7.8	2.7
375-95-1	Perfluorononanoic acid (PFNA)	20	U	23	20	7.8
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	29	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.6	J	9.8	3.9	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	35	U	88	35	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	100		70-130
STL00996	13C2 PFDA	100		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: NAWC-020118-FRB-207 Lab Sample ID: 320-35691-17
 Matrix: Water Lab File ID: 2018.02.08_537B_024.d
 Analysis Method: 537 Date Collected: 02/01/2018 16:35
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 262.2 (mL) Date Analyzed: 02/08/2018 13:42
 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.: 207626 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	100		70-130
STL00996	13C2 PFDA	96		70-130

Appendix C

Support Documentation

ANALYTE	ORIGINAL NAWC- 020118-RW-119	DUPLICATE WGNA- 020118-DUP-24	RL	RPD	RPD > 50%	ORIGINAL		
						SAMPLE CONC >2xRL	DUPLICATE SAMPLE CONC >2xRL	DIFFERENCE >2XRL
Perfluorooctanoic acid (PFOA)	15	25	20	50.000	FALSE	FALSE	FALSE	FALSE
Perfluoroheptanoic acid (PFHpA)	5.4	5.1	9.9	5.714	FALSE	FALSE	FALSE	FALSE
Perfluorohexanesulfonic acid (PFHxS)	5.4	12	30	75.862	TRUE	FALSE	FALSE	FALSE
Perfluorooctanesulfonic acid (PFOS)	21	20	40	4.878	FALSE	FALSE	FALSE	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: 2/1/2018		COC No:	
TetraTech		Tel/Fax: 610.382.1170		Lab Contact: Dave Alltucker		Carrier: FedEx		1 of 1 COCs	
234 Mall Boulevard Suite 260		Analysis Turnaround Time		Filtered Sample (Y/N) Perform MS/MSD (Y/N) EPA 537 UCMR3				Sampler: Mary Kay Bond	
King of Prussia, PA 19406		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS						For Lab Use Only:	
610-382-1174		TAT if different from Below 21						Walk-in Client:	
610-491-9688		<input type="checkbox"/> 2 weeks						Lab Sampling:	
Project Name: WE04		<input type="checkbox"/> 1 week						Job / SDG No.:	
Site: WE04		<input type="checkbox"/> 2 days							
P O # 1132358 (through EarthToxics)		<input type="checkbox"/> 1 day							
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:
NAWC-020118-RW-167	2/1/2018	10:10	G	DW	2	N	N	Y	
NAWC-020118-FRB-167	2/1/2018	10:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020118-RW-151	2/1/2018	11:10	G	DW	2	N	N	Y	
NAWC-020118-FRB-151	2/1/2018	11:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020118-RW-156	2/1/2018	11:40	G	DW	2	N	N	Y	
NAWC-020118-FRB-156	2/1/2018	11:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020118-RW-119	2/1/2018	12:40	G	DW	2	N	N	Y	
NAWC-020118-FRB-119	2/1/2018	12:35	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-020118-DUP-24	2/1/2018	07:00	G	DW	2	N	N	Y	DUPLICATE
WGNA-020118-RW-4847	2/1/2018	13:10	G	DW	2	N	N	Y	
WGNA-020118-FRB-4847	2/1/2018	13:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020118-RW-121	2/1/2018	13:40	G	DW	2	N	N	Y	
NAWC-020118-FRB-121	2/1/2018	13:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020118-RW-123	2/1/2018	15:10	G	DW	2	N	N	Y	
NAWC-020118-FRB-123	2/1/2018	15:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020118-RW-207	2/1/2018	16:40	G	DW	2	N	N	Y	
NAWC-020118-FRB-207	2/1/2018	16:35	G	DW	2	N	N	Y	Field Reagent Blank
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other: Trizma						6			
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
<input checked="" type="checkbox"/> Non-Hazardous <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for Months			
Fed Ex Tracking: 7713 7759 8611									
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: 2.0		Corrd:		Therm ID No.: AK-5	
Relinquished by: <i>Mary Kay Bond</i>		Company: Tetra Tech		Date/Time: 2/1/2018 16:00		Received by: <i>[Signature]</i>		Company: TA-Sac	
Relinquished by:		Company:		Date/Time:		Received by:		Company:	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by:		Company:	



320-35691 Chain of Custody

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-35691-1

Login Number: 35691
List Number: 1
Creator: Turpen, Troy

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
320-35691-1

Receipt

The samples were received on 2/2/2018 9:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.6° 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: Surrogate recovery for the following sample was outside control limits: NAWC-020118-FRB-167 (320-35691-2). Re-extraction and/or re-analysis was performed with concurring results. The original analysis has been 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 preparation batch 320-207046.

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: 320-35691-1

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.

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: 320-35691-1

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-35691-1	NAWC-020118-RW-167	Water	02/01/18 10:10	02/02/18 09:05
320-35691-2	NAWC-020118-FRB-167	Water	02/01/18 10:05	02/02/18 09:05
320-35691-3	NAWC-020118-RW-151	Water	02/01/18 11:10	02/02/18 09:05
320-35691-4	NAWC-020118-FRB-151	Water	02/01/18 10:05	02/02/18 09:05
320-35691-5	NAWC-020118-RW-156	Water	02/01/18 11:40	02/02/18 09:05
320-35691-6	NAWC-020118-FRB-156	Water	02/01/18 11:35	02/02/18 09:05
320-35691-7	NAWC-020118-RW-119	Water	02/01/18 12:40	02/02/18 09:05
320-35691-8	NAWC-020118-FRB-119	Water	02/01/18 12:35	02/02/18 09:05
320-35691-9	WGNA-020118-DUP-24	Water	02/01/18 07:00	02/02/18 09:05
320-35691-10	WGNA-020118-RW-4847	Water	02/01/18 13:10	02/02/18 09:05
320-35691-11	WGNA-020118-FRB-4847	Water	02/01/18 13:05	02/02/18 09:05
320-35691-12	NAWC-020118-RW-121	Water	02/01/18 13:40	02/02/18 09:05
320-35691-13	NAWC-020118-FRB-121	Water	02/01/18 13:35	02/02/18 09:05
320-35691-14	NAWC-020118-RW-123	Water	02/01/18 15:10	02/02/18 09:05
320-35691-15	NAWC-020118-FRB-123	Water	02/01/18 15:05	02/02/18 09:05
320-35691-16	NAWC-020118-RW-207	Water	02/01/18 16:40	02/02/18 09:05
320-35691-17	NAWC-020118-FRB-207	Water	02/01/18 16:35	02/02/18 09:05

Method Summary

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

TestAmerica Job ID: 320-35691-1

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.: 320-35691-1

SDG No.: _____

Matrix: Water

Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
NAWC-020118-RW-167	320-35691-1	96	94
NAWC-020118-FRB-167	320-35691-2	20 Q	53 Q
NAWC-020118-RW-151	320-35691-3	96	95
NAWC-020118-FRB-151	320-35691-4	98	98
NAWC-020118-RW-156	320-35691-5	102	95
NAWC-020118-FRB-156	320-35691-6	103	106
NAWC-020118-RW-119	320-35691-7	94	103
NAWC-020118-FRB-119	320-35691-8	91	96
WGNA-020118-DUP-24	320-35691-9	93	102
WGNA-020118-RW-4847	320-35691-10	95	94
WGNA-020118-FRB-4847	320-35691-11	102	115
NAWC-020118-RW-121	320-35691-12	106	104
NAWC-020118-FRB-121	320-35691-13	110	110
NAWC-020118-RW-123	320-35691-14	96	94
NAWC-020118-FRB-123	320-35691-15	102	102
NAWC-020118-RW-207	320-35691-16	100	100
NAWC-020118-FRB-207	320-35691-17	100	96
	MB 320-207046/1-A	101	96
	LLCS 320-207046/2-A	106	102
	LLCSD 320-207046/3-A	106	105

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

QC LIMITS
70-130
70-130

Column to be used to flag recovery values

FORM III
LCMS LOW LEVEL CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: 2018.02.08_537B_004.d

Lab ID: LLCS 320-207046/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LLCS CONCENTRATION (ng/L)	LLCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	40.2	40.3	100	50-150	M
Perfluorooctanoic acid (PFOA)	20.1	22.6	112	50-150	
Perfluorononanoic acid (PFNA)	20.0	21.2 J	106	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.0	32.4	108	50-150	
Perfluoroheptanoic acid (PFHpA)	10.0	12.7	127	50-150	
Perfluorobutanesulfonic acid (PFBS)	90.0	95.4	106	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.: 320-35691-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: 2018.02.08_537B_005.d

Lab ID: LLCSD 320-207046/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LLCSD CONCENTRATION (ng/L)	LLCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	40.2	41.2	103	2	50	50-150	M
Perfluorooctanoic acid (PFOA)	20.1	29.1	145	25	50	50-150	
Perfluorononanoic acid (PFNA)	20.0	21.3 J	106	0.2	50	50-150	
Perfluorohexanesulfonic acid (PFHxS)	30.0	32.9	110	1	50	50-150	
Perfluoroheptanoic acid (PFHpA)	10.0	12.2	122	5	50	50-150	
Perfluorobutanesulfonic acid (PFBS)	90.0	99.7	111	4	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.: 320-35691-1
 SDG No.: _____
 Lab File ID: 2018.02.08_537B_003.d Lab Sample ID: MB 320-207046/1-A
 Matrix: Water Date Extracted: 02/06/2018 08:01
 Instrument ID: A8_N Date Analyzed: 02/08/2018 12:04
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
	LLCS 320-207046/2-A	2018.02.08_537B_004.d	02/08/2018 12:08
	LLCSD 320-207046/3-A	2018.02.08_537B_005.d	02/08/2018 12:13
NAWC-020118-RW-167	320-35691-1	2018.02.08_537B_006.d	02/08/2018 12:18
NAWC-020118-FRB-167	320-35691-2	2018.02.08_537B_007.d	02/08/2018 12:22
NAWC-020118-RW-151	320-35691-3	2018.02.08_537B_008.d	02/08/2018 12:27
NAWC-020118-FRB-151	320-35691-4	2018.02.08_537B_009.d	02/08/2018 12:32
NAWC-020118-RW-156	320-35691-5	2018.02.08_537B_010.d	02/08/2018 12:36
NAWC-020118-FRB-156	320-35691-6	2018.02.08_537B_011.d	02/08/2018 12:41
NAWC-020118-RW-119	320-35691-7	2018.02.08_537B_012.d	02/08/2018 12:46
NAWC-020118-FRB-119	320-35691-8	2018.02.08_537B_015.d	02/08/2018 13:00
WGNA-020118-DUP-24	320-35691-9	2018.02.08_537B_016.d	02/08/2018 13:04
WGNA-020118-RW-4847	320-35691-10	2018.02.08_537B_017.d	02/08/2018 13:09
WGNA-020118-FRB-4847	320-35691-11	2018.02.08_537B_018.d	02/08/2018 13:14
NAWC-020118-RW-121	320-35691-12	2018.02.08_537B_019.d	02/08/2018 13:18
NAWC-020118-FRB-121	320-35691-13	2018.02.08_537B_020.d	02/08/2018 13:23
NAWC-020118-RW-123	320-35691-14	2018.02.08_537B_021.d	02/08/2018 13:28
NAWC-020118-FRB-123	320-35691-15	2018.02.08_537B_022.d	02/08/2018 13:32
NAWC-020118-RW-207	320-35691-16	2018.02.08_537B_023.d	02/08/2018 13:37
NAWC-020118-FRB-207	320-35691-17	2018.02.08_537B_024.d	02/08/2018 13:42

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-207046/1-A
 Matrix: Water Lab File ID: 2018.02.08_537B_003.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 02/06/2018 08:01
 Sample wt/vol: 250 (mL) Date Analyzed: 02/08/2018 12:04
 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.: 207624 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)	4.79	J	20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	96		70-130

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Instrument ID: A8_N Calibration Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 11/03/2017 14:01
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
INITIAL CALIBRATION MEAN AREA AND MEAN RT	1535518	1.91	3276559	2.15		
UPPER LIMIT	2303277	2.41	4914839	2.65		
LOWER LIMIT	767759	1.41	1638280	1.65		
LAB SAMPLE ID	CLIENT SAMPLE ID					
CCVL 320-192908/11		1586829	1.91	3305852	2.15	
ICV 320-192908/13		1512045	1.90	3433628	2.14	
CCVL 320-207581/1		1366684	1.81	2879967	2.06	
CCV 320-207624/1 CCVIS		1273325	1.79	2873161	2.03	
MB 320-207046/1-A		1273697	1.81	3063775	2.04	
LLCS 320-207046/2-A		1269564	1.81	3102296	2.04	
LLCSD 320-207046/3-A		1258852	1.81	2974774	2.04	
320-35691-1	NAWC-020118-RW-167	1367578	1.80	3310227	2.04	
320-35691-2	NAWC-020118-FRB-167	1364009	1.80	3198488	2.04	
320-35691-3	NAWC-020118-RW-151	1344658	1.80	3273411	2.04	
320-35691-4	NAWC-020118-FRB-151	1374975	1.81	3263596	2.05	
320-35691-5	NAWC-020118-RW-156	1420086	1.81	3203841	2.05	
320-35691-6	NAWC-020118-FRB-156	1353214	1.80	3309048	2.04	
320-35691-7	NAWC-020118-RW-119	1348169	1.81	3161108	2.05	
CCV 320-207624/13 CCVIS		1297579	1.81	3074997	2.06	
CCV 320-207626/13 CCVIS		1297579	1.81	3074997	2.06	
320-35691-8	NAWC-020118-FRB-119	1397952	1.80	3303345	2.04	
320-35691-9	WGNA-020118-DUP-24	1341625	1.80	3237279	2.04	
320-35691-10	WGNA-020118-RW-4847	1460238	1.80	3262053	2.04	
320-35691-11	WGNA-020118-FRB-4847	1363014	1.80	3277604	2.04	
320-35691-12	NAWC-020118-RW-121	1330726	1.80	3095687	2.04	
320-35691-13	NAWC-020118-FRB-121	1297091	1.80	3146790	2.04	
320-35691-14	NAWC-020118-RW-123	1346141	1.80	3053585	2.04	
320-35691-15	NAWC-020118-FRB-123	1276682	1.80	3022415	2.03	
320-35691-16	NAWC-020118-RW-207	1298183	1.80	3036504	2.04	
320-35691-17	NAWC-020118-FRB-207	1305838	1.80	3222854	2.04	
CCV 320-207626/25 CCVIS		1294509	1.80	3035253	2.04	

13PFOA = 13C2-PFOA

PFOS = 13C4 PFOS

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

RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Sample No.: CCV 320-207624/1 Date Analyzed: 02/08/2018 11:54
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.02.08_537B_001 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1273325	1.79	2873161	2.03		
UPPER LIMIT	1782655	2.29	4022425	2.53		
LOWER LIMIT	891328	1.29	2011213	1.53		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-207046/1-A		1273697	1.81	3063775	2.04	
LLCS 320-207046/2-A		1269564	1.81	3102296	2.04	
LLCSD 320-207046/3-A		1258852	1.81	2974774	2.04	
320-35691-1	NAWC-020118-RW-167	1367578	1.80	3310227	2.04	
320-35691-2	NAWC-020118-FRB-167	1364009	1.80	3198488	2.04	
320-35691-3	NAWC-020118-RW-151	1344658	1.80	3273411	2.04	
320-35691-4	NAWC-020118-FRB-151	1374975	1.81	3263596	2.05	
320-35691-5	NAWC-020118-RW-156	1420086	1.81	3203841	2.05	
320-35691-6	NAWC-020118-FRB-156	1353214	1.80	3309048	2.04	
320-35691-7	NAWC-020118-RW-119	1348169	1.81	3161108	2.05	

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

Area Limit = 70%-140% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Sample No.: CCV 320-207624/13 Date Analyzed: 02/08/2018 12:50
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.02.08_537B_013 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1297579	1.81	3074997	2.06		
UPPER LIMIT	1816611	2.31	4304996	2.56		
LOWER LIMIT	908305	1.31	2152498	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-207046/1-A		1273697	1.81	3063775	2.04	
LLCS 320-207046/2-A		1269564	1.81	3102296	2.04	
LLCSD 320-207046/3-A		1258852	1.81	2974774	2.04	
320-35691-1	NAWC-020118-RW-167	1367578	1.80	3310227	2.04	
320-35691-2	NAWC-020118-FRB-167	1364009	1.80	3198488	2.04	
320-35691-3	NAWC-020118-RW-151	1344658	1.80	3273411	2.04	
320-35691-4	NAWC-020118-FRB-151	1374975	1.81	3263596	2.05	
320-35691-5	NAWC-020118-RW-156	1420086	1.81	3203841	2.05	
320-35691-6	NAWC-020118-FRB-156	1353214	1.80	3309048	2.04	
320-35691-7	NAWC-020118-RW-119	1348169	1.81	3161108	2.05	

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

Area Limit = 70%-140% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Sample No.: CCV 320-207626/13 Date Analyzed: 02/08/2018 12:50
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.02.08_537B_013 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1297579	1.81	3074997	2.06		
UPPER LIMIT	1816611	2.31	4304996	2.56		
LOWER LIMIT	908305	1.31	2152498	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-35691-8	NAWC-020118-FRB-119	1397952	1.80	3303345	2.04	
320-35691-9	WGNA-020118-DUP-24	1341625	1.80	3237279	2.04	
320-35691-10	WGNA-020118-RW-4847	1460238	1.80	3262053	2.04	
320-35691-11	WGNA-020118-FRB-4847	1363014	1.80	3277604	2.04	
320-35691-12	NAWC-020118-RW-121	1330726	1.80	3095687	2.04	
320-35691-13	NAWC-020118-FRB-121	1297091	1.80	3146790	2.04	
320-35691-14	NAWC-020118-RW-123	1346141	1.80	3053585	2.04	
320-35691-15	NAWC-020118-FRB-123	1276682	1.80	3022415	2.03	
320-35691-16	NAWC-020118-RW-207	1298183	1.80	3036504	2.04	
320-35691-17	NAWC-020118-FRB-207	1305838	1.80	3222854	2.04	

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

Area Limit = 70%-140% of internal standard area
 RT Limit = ± 0.5 minutes of internal standard RT

Column used to flag values outside QC limits

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Sample No.: CCV 320-207626/25 Date Analyzed: 02/08/2018 13:46
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.02.08_537B_025 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1294509	1.80	3035253	2.04		
UPPER LIMIT	1812313	2.30	4249354	2.54		
LOWER LIMIT	906156	1.30	2124677	1.54		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-35691-8	NAWC-020118-FRB-119	1397952	1.80	3303345	2.04	
320-35691-9	WGNA-020118-DUP-24	1341625	1.80	3237279	2.04	
320-35691-10	WGNA-020118-RW-4847	1460238	1.80	3262053	2.04	
320-35691-11	WGNA-020118-FRB-4847	1363014	1.80	3277604	2.04	
320-35691-12	NAWC-020118-RW-121	1330726	1.80	3095687	2.04	
320-35691-13	NAWC-020118-FRB-121	1297091	1.80	3146790	2.04	
320-35691-14	NAWC-020118-RW-123	1346141	1.80	3053585	2.04	
320-35691-15	NAWC-020118-FRB-123	1276682	1.80	3022415	2.03	
320-35691-16	NAWC-020118-RW-207	1298183	1.80	3036504	2.04	
320-35691-17	NAWC-020118-FRB-207	1305838	1.80	3222854	2.04	

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

Area Limit = 70%-140% of internal standard area
 RT Limit = ± 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.: 320-35691-1 Analy Batch No.: 192908

SDG No.: _____

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

Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_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)	1.0397 0.8468	1.0767	1.0898	0.9577	0.9303	QuaF		1.1193	-0.001498					0.9990			0.9600
Perfluoroheptanoic acid (PFHpA)	0.9433 0.9848	0.9187	0.9551	0.9185	0.9011	Ave		0.9369			3.2		30.0				
Perfluorohexanesulfonic acid (PFHxS)	1.6459 1.6841	1.6355	1.7405	1.6631	1.6755	Ave		1.6741			2.2		30.0				
Perfluorooctanoic acid (PFOA)	0.9757 0.9799	0.8919	0.9000	0.8953	0.9117	Ave		0.9258			4.4		30.0				
Perfluorooctanesulfonic acid (PFOS)	0.8958 0.9902	0.9213	0.9281	0.9268	0.9715	Ave		0.9389			3.7		30.0				
Perfluorononanoic acid (PFNA)	0.6610 0.7042	0.6285	0.6624	0.6810	0.6478	Ave		0.6642			3.9		30.0				
13C2 PFHxA	1.0891 1.1664	1.0526	1.1042	1.1123	1.0772	Ave		1.1003			3.5		30.0				
13C2 PFDA	0.7748 0.8159	0.7295	0.7569	0.7811	0.7330	Ave		0.7652			4.3		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.: 320-35691-1 Analy Batch No.: 192908

SDG No.: _____

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

Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_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	1076553 16699152	2591121	5461974	10142530	14011858	9.00 180	20.0	45.0	90.0	135
Perfluoroheptanoic acid (PFHpA)	13PF OA	Ave	143455 2810797	331548	736034	1420703	2102676	1.00 20.0	2.22	5.00	10.0	15.0
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	568156 11071993	1312135	2908204	5871843	8413133	3.00 60.0	6.67	15.0	30.0	45.0
Perfluorooctanoic acid (PFOA)	13PF OA	Ave	296934 5597122	644149	1388033	2771271	4257225	2.00 40.0	4.45	10.0	20.0	30.0
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	412315 8679676	985487	2067792	4363079	6504279	4.00 80.0	8.89	20.0	40.0	60.0
Perfluorononanoic acid (PFNA)	13PF OA	Ave	201053 4019666	453612	1020851	2106479	3023088	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PF OA	Ave	1655691 1664260	1708988	1701491	1719911	1675220	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PF OA	Ave	1177922 1164156	1184358	1166275	1207887	1139992	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.: 320-35691-1 Analy Batch No.: 192908

SDG No.: _____

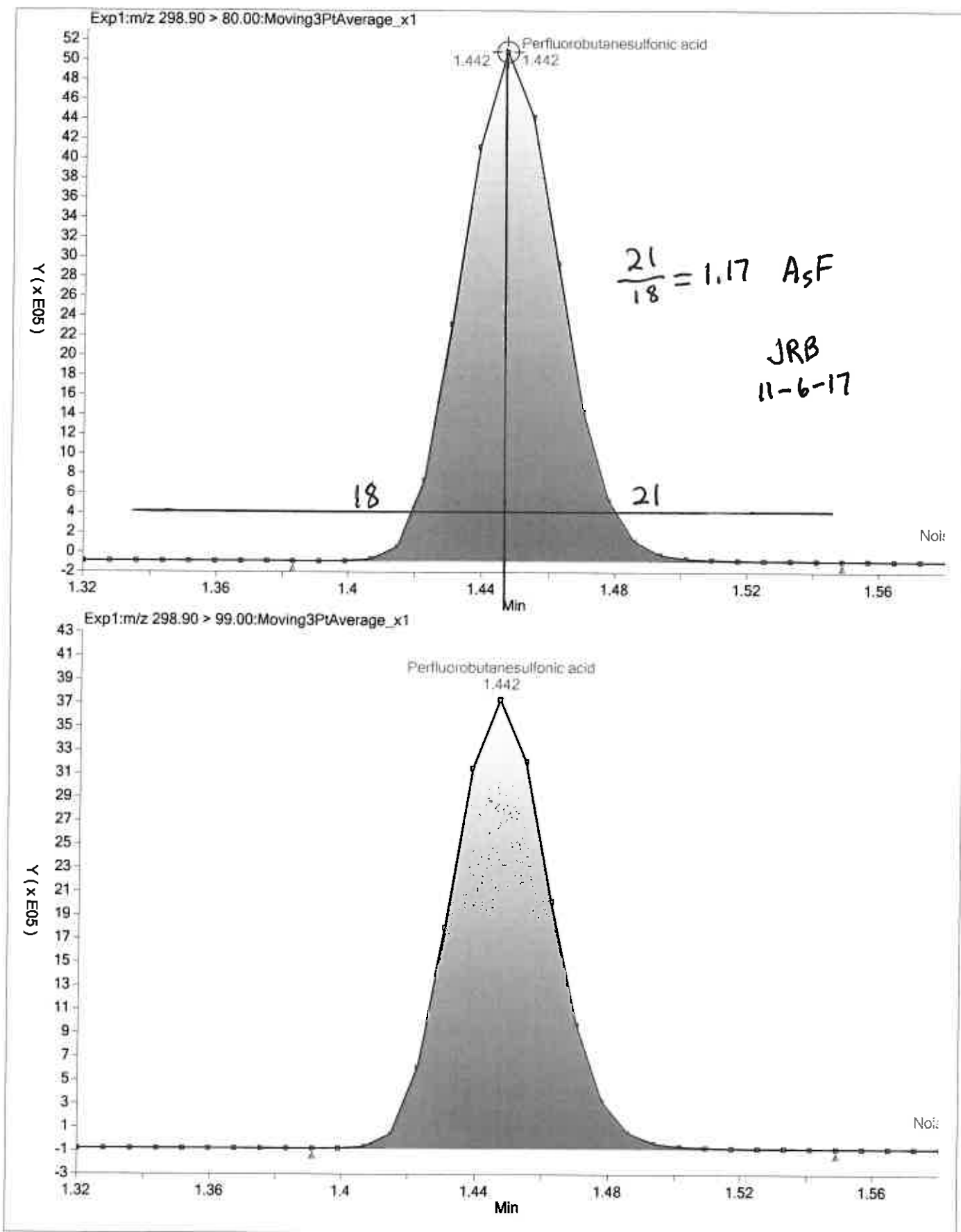
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N

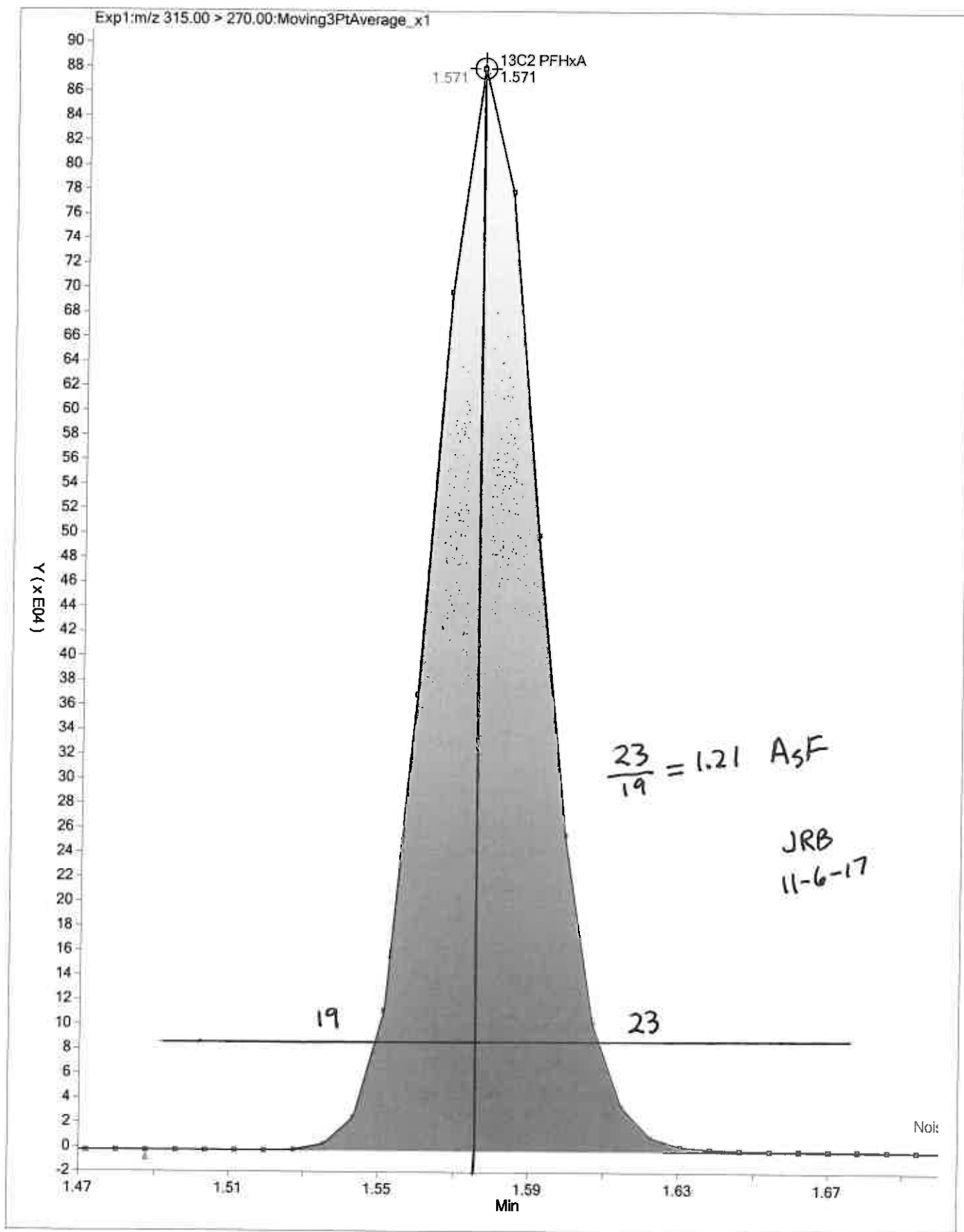
Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-192908/4	2017.11.03_537XICAL_004.d
Level 2	IC 320-192908/5	2017.11.03_537XICAL_005.d
Level 3	IC 320-192908/6	2017.11.03_537XICAL_006.d
Level 4	IC 320-192908/7	2017.11.03_537XICAL_007.d
Level 5	IC 320-192908/8	2017.11.03_537XICAL_008.d
Level 6	IC 320-192908/9	2017.11.03_537XICAL_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)	-6.0	-1.2	3.9	-3.1	1.9	-0.5	50	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	0.7	-1.9	1.9	-2.0	-3.8	5.1	50	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	-1.7	-2.3	4.0	-0.7	0.1	0.6	50	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	5.4	-3.7	-2.8	-3.3	-1.5	5.8	50	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-4.6	-1.9	-1.2	-1.3	3.5	5.5	50	30	30	30	30	30
Perfluorononanoic acid (PFNA)	-0.5	-5.4	-0.3	2.5	-2.5	6.0	50	30	30	30	30	30
13C2 PFHxA	-1.0	-4.3	0.4	1.1	-2.1	6.0	30	30	30	30	30	30
13C2 PFDA	1.3	-4.7	-1.1	2.1	-4.2	6.6	30	30	30	30	30	30





FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-192908/11 Calibration Date: 11/03/2017 14:10
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2017.11.03_537XICAL_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		1.109		20.4	20.0	1.9	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9382		2.23	2.22	0.1	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.688		6.72	6.67	0.8	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8825		4.24	4.45	-4.7	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9176		8.69	8.89	-2.3	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6625		4.43	4.45	-0.2	50.0
13C2 PFHxA	Ave	1.100	1.068		9.70	10.0	-3.0	30.0
13C2 PFDA	Ave	0.7652	0.7460		9.75	10.0	-2.5	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Lab Sample ID: ICV 320-192908/13 Calibration Date: 11/03/2017 14:20
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2017.11.03_537XICAL_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.8310		83.7	100	-16.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.8136		8.68	10.0	-13.2	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.463		17.5	20.1	-12.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.7995		17.7	20.5	-13.6	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.8637		18.1	19.7	-8.0	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6428		19.5	20.1	-3.2	30.0
13C2 PFHxA	Ave	1.100	1.039		9.44	10.0	-5.6	30.0
13C2 PFDA	Ave	0.7652	0.7391		9.66	10.0	-3.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-207581/1 Calibration Date: 02/08/2018 07:47
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.08_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		1.102		20.2	20.0	1.2	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.010		2.40	2.22	7.8	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.774		7.06	6.67	5.9	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9486		4.58	4.47	2.5	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	1.012		9.62	8.93	7.8	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6771		4.53	4.45	1.9	50.0
13C2 PFHxA	Ave	1.100	1.076		9.78	10.0	-2.2	30.0
13C2 PFDA	Ave	0.7652	0.7299		9.54	10.0	-4.6	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Lab Sample ID: CCV 320-207624/1 Calibration Date: 02/08/2018 11:54
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.08_537B_001.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9674		145	135	7.2	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.010		16.2	15.0	7.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.722		46.3	45.0	2.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9718		31.7	30.2	5.0	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	1.007		64.6	60.3	7.3	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6887		31.1	30.0	3.7	30.0
13C2 PFHxA	Ave	1.100	1.098		9.98	10.0	-0.2	30.0
13C2 PFDA	Ave	0.7652	0.7087		9.26	10.0	-7.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Lab Sample ID: CCV 320-207624/13 Calibration Date: 02/08/2018 12:50
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.08_537B_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		1.045		44.7	45.0	-0.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.057		5.64	5.00	12.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.714		15.4	15.0	2.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9766		10.6	10.1	5.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9632		20.6	20.1	2.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6947		10.5	10.0	4.6	30.0
13C2 PFHxA	Ave	1.100	1.055		9.59	10.0	-4.1	30.0
13C2 PFDA	Ave	0.7652	0.7275		9.51	10.0	-4.9	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Lab Sample ID: CCV 320-207626/13 Calibration Date: 02/08/2018 12:50
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.08_537B_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		1.045		44.7	45.0	-0.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.057		5.64	5.00	12.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.714		15.4	15.0	2.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9766		10.6	10.1	5.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9632		20.6	20.1	2.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6947		10.5	10.0	4.6	30.0
13C2 PFHxA	Ave	1.100	1.055		9.59	10.0	-4.1	30.0
13C2 PFDA	Ave	0.7652	0.7275		9.51	10.0	-4.9	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1
 SDG No.: _____
 Lab Sample ID: CCV 320-207626/25 Calibration Date: 02/08/2018 13:46
 Instrument ID: A8_N Calib Start Date: 11/03/2017 13:37
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01
 Lab File ID: 2018.02.08_537B_025.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9440		140	135	3.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.072		17.2	15.0	14.4	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.718		46.2	45.0	2.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9844		32.1	30.2	6.3	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9884		63.4	60.3	5.3	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6967		31.5	30.0	4.9	30.0
13C2 PFHxA	Ave	1.100	1.157		10.5	10.0	5.1	30.0
13C2 PFDA	Ave	0.7652	0.7280		9.51	10.0	-4.9	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1

SDG No.: _____

Instrument ID: A8_N Start Date: 11/03/2017 13:37

Analysis Batch Number: 192908 End Date: 11/03/2017 14:24

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
IC 320-192908/4		11/03/2017 13:37	1	2017.11.03_537X ICAL 004.d	GeminiC18 3x100 3(mm)
IC 320-192908/5		11/03/2017 13:42	1	2017.11.03_537X ICAL 005.d	GeminiC18 3x100 3(mm)
IC 320-192908/6		11/03/2017 13:47	1	2017.11.03_537X ICAL 006.d	GeminiC18 3x100 3(mm)
IC 320-192908/7 ICISAV		11/03/2017 13:52	1	2017.11.03_537X ICAL 007.d	GeminiC18 3x100 3(mm)
IC 320-192908/8		11/03/2017 13:56	1	2017.11.03_537X ICAL 008.d	GeminiC18 3x100 3(mm)
IC 320-192908/9		11/03/2017 14:01	1	2017.11.03_537X ICAL 009.d	GeminiC18 3x100 3(mm)
ZZZZZ		11/03/2017 14:06	1		GeminiC18 3x100 3(mm)
CCVL 320-192908/11		11/03/2017 14:10	1	2017.11.03_537X ICAL 011.d	GeminiC18 3x100 3(mm)
ZZZZZ		11/03/2017 14:15	1		GeminiC18 3x100 3(mm)
ICV 320-192908/13		11/03/2017 14:20	1	2017.11.03_537X ICAL 013.d	GeminiC18 3x100 3(mm)
ZZZZZ		11/03/2017 14:24	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1

SDG No.: _____

Instrument ID: A8_N Start Date: 02/08/2018 07:47

Analysis Batch Number: 207581 End Date: 02/08/2018 08:47

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-207581/1		02/08/2018 07:47	1	2018.02.08_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-207581/2 CCVIS		02/08/2018 07:51	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:01	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:05	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:10	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:15	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:19	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:24	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:29	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:33	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:38	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/08/2018 08:43	1		GeminiC18 3x100 3(mm)
CCV 320-207581/14 CCVIS		02/08/2018 08:47	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1

SDG No.: _____

Instrument ID: A8_N Start Date: 02/08/2018 11:54

Analysis Batch Number: 207624 End Date: 02/08/2018 12:50

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207624/1 CCVIS		02/08/2018 11:54	1	2018.02.08_537B 001.d	GeminiC18 3x100 3(mm)
MB 320-207046/1-A		02/08/2018 12:04	1	2018.02.08_537B 003.d	GeminiC18 3x100 3(mm)
LLCS 320-207046/2-A		02/08/2018 12:08	1	2018.02.08_537B 004.d	GeminiC18 3x100 3(mm)
LLCSD 320-207046/3-A		02/08/2018 12:13	1	2018.02.08_537B 005.d	GeminiC18 3x100 3(mm)
320-35691-1		02/08/2018 12:18	1	2018.02.08_537B 006.d	GeminiC18 3x100 3(mm)
320-35691-2		02/08/2018 12:22	1	2018.02.08_537B 007.d	GeminiC18 3x100 3(mm)
320-35691-3		02/08/2018 12:27	1	2018.02.08_537B 008.d	GeminiC18 3x100 3(mm)
320-35691-4		02/08/2018 12:32	1	2018.02.08_537B 009.d	GeminiC18 3x100 3(mm)
320-35691-5		02/08/2018 12:36	1	2018.02.08_537B 010.d	GeminiC18 3x100 3(mm)
320-35691-6		02/08/2018 12:41	1	2018.02.08_537B 011.d	GeminiC18 3x100 3(mm)
320-35691-7		02/08/2018 12:46	1	2018.02.08_537B 012.d	GeminiC18 3x100 3(mm)
CCV 320-207624/13 CCVIS		02/08/2018 12:50	1	2018.02.08_537B 013.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1

SDG No.: _____

Instrument ID: A8_N Start Date: 02/08/2018 12:50

Analysis Batch Number: 207626 End Date: 02/08/2018 13:46

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-207626/13 CCVIS		02/08/2018 12:50	1	2018.02.08_537B 013.d	GeminiC18 3x100 3(mm)
320-35691-8		02/08/2018 13:00	1	2018.02.08_537B 015.d	GeminiC18 3x100 3(mm)
320-35691-9		02/08/2018 13:04	1	2018.02.08_537B 016.d	GeminiC18 3x100 3(mm)
320-35691-10		02/08/2018 13:09	1	2018.02.08_537B 017.d	GeminiC18 3x100 3(mm)
320-35691-11		02/08/2018 13:14	1	2018.02.08_537B 018.d	GeminiC18 3x100 3(mm)
320-35691-12		02/08/2018 13:18	1	2018.02.08_537B 019.d	GeminiC18 3x100 3(mm)
320-35691-13		02/08/2018 13:23	1	2018.02.08_537B 020.d	GeminiC18 3x100 3(mm)
320-35691-14		02/08/2018 13:28	1	2018.02.08_537B 021.d	GeminiC18 3x100 3(mm)
320-35691-15		02/08/2018 13:32	1	2018.02.08_537B 022.d	GeminiC18 3x100 3(mm)
320-35691-16		02/08/2018 13:37	1	2018.02.08_537B 023.d	GeminiC18 3x100 3(mm)
320-35691-17		02/08/2018 13:42	1	2018.02.08_537B 024.d	GeminiC18 3x100 3(mm)
CCV 320-207626/25 CCVIS		02/08/2018 13:46	1	2018.02.08_537B 025.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35691-1

SDG No.: _____

Batch Number: 207046 Batch Start Date: 02/06/18 08:01 Batch Analyst: Branscum, Cassie

Batch Method: 537 Batch End Date: 02/07/18 19:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00057
MB 320-207046/1		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCS 320-207046/2		537, 537				250 mL	1.00 mL	7 SU	100 uL
LLCSD 320-207046/3		537, 537				250 mL	1.00 mL	7 SU	100 uL
320-35691-A-1	NAWC-020118-RW-1 67	537, 537	T	270.13 g	28.32 g	241.8 mL	1.00 mL	7 SU	100 uL
320-35691-A-2	NAWC-020118-FRB- 167	537, 537	T	276.83 g	29.57 g	247.3 mL	1.00 mL	7 SU	100 uL
320-35691-A-3	NAWC-020118-RW-1 51	537, 537	T	270.71 g	29.32 g	241.4 mL	1.00 mL	7 SU	100 uL
320-35691-A-4	NAWC-020118-FRB- 151	537, 537	T	286.65 g	28.02 g	258.6 mL	1.00 mL	7 SU	100 uL
320-35691-A-5	NAWC-020118-RW-1 56	537, 537	T	283.91 g	29.04 g	254.9 mL	1.00 mL	7 SU	100 uL
320-35691-A-6	NAWC-020118-FRB- 156	537, 537	T	285.09 g	28.06 g	257 mL	1.00 mL	7 SU	100 uL
320-35691-A-7	NAWC-020118-RW-1 19	537, 537	T	280.56 g	27.71 g	252.9 mL	1.00 mL	7 SU	100 uL
320-35691-A-8	NAWC-020118-FRB- 119	537, 537	T	271.32 g	27.40 g	243.9 mL	1.00 mL	7 SU	100 uL
320-35691-A-9	WGNA-020118-DUP- 24	537, 537	T	283.21 g	28.57 g	254.6 mL	1.00 mL	7 SU	100 uL
320-35691-A-10	WGNA-020118-RW-4 847	537, 537	T	275.56 g	29.08 g	246.5 mL	1.00 mL	7 SU	100 uL
320-35691-A-11	WGNA-020118-FRB- 4847	537, 537	T	283.22 g	27.85 g	255.4 mL	1.00 mL	7 SU	100 uL
320-35691-A-12	NAWC-020118-RW-1 21	537, 537	T	276.93 g	29.04 g	247.9 mL	1.00 mL	7 SU	100 uL
320-35691-A-13	NAWC-020118-FRB- 121	537, 537	T	277.84 g	27.69 g	250.2 mL	1.00 mL	7 SU	100 uL
320-35691-A-14	NAWC-020118-RW-1 23	537, 537	T	276.75 g	28.44 g	248.3 mL	1.00 mL	7 SU	100 uL
320-35691-A-15	NAWC-020118-FRB- 123	537, 537	T	279.16 g	28.32 g	250.8 mL	1.00 mL	7 SU	100 uL
320-35691-A-16	NAWC-020118-RW-2 07	537, 537	T	285.17 g	29.44 g	255.7 mL	1.00 mL	7 SU	100 uL
320-35691-A-17	NAWC-020118-FRB- 207	537, 537	T	290.59 g	28.40 g	262.2 mL	1.00 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00029	LC537-SU 00057	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.: 320-35691-1

SDG No.: _____

Batch Number: 207046 Batch Start Date: 02/06/18 08:01 Batch Analyst: Branscum, Cassie

Batch Method: 537 Batch End Date: 02/07/18 19:00

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-LSP 00029	LC537-SU 00057	AnalysisComment			
MB 320-207046/1		537, 537			100 uL	CI ND			
LLCS 320-207046/2		537, 537		100 uL	100 uL	CI ND			
LLCSD 320-207046/3		537, 537		100 uL	100 uL	CI ND			
320-35691-A-1	NAWC-020118-RW-1 67	537, 537	T		100 uL	CI ND			
320-35691-A-2	NAWC-020118-FRB- 167	537, 537	T		100 uL	CI ND			
320-35691-A-3	NAWC-020118-RW-1 51	537, 537	T		100 uL	CI ND			
320-35691-A-4	NAWC-020118-FRB- 151	537, 537	T		100 uL	CI ND			
320-35691-A-5	NAWC-020118-RW-1 56	537, 537	T		100 uL	CI ND			
320-35691-A-6	NAWC-020118-FRB- 156	537, 537	T		100 uL	CI ND			
320-35691-A-7	NAWC-020118-RW-1 19	537, 537	T		100 uL	CI ND			
320-35691-A-8	NAWC-020118-FRB- 119	537, 537	T		100 uL	CI ND			
320-35691-A-9	WGNA-020118-DUP- 24	537, 537	T		100 uL	CI ND			
320-35691-A-10	WGNA-020118-RW-4 847	537, 537	T		100 uL	CI ND			
320-35691-A-11	WGNA-020118-FRB- 4847	537, 537	T		100 uL	CI ND			
320-35691-A-12	NAWC-020118-RW-1 21	537, 537	T		100 uL	CI ND			
320-35691-A-13	NAWC-020118-FRB- 121	537, 537	T		100 uL	CI ND			
320-35691-A-14	NAWC-020118-RW-1 23	537, 537	T		100 uL	CI ND			
320-35691-A-15	NAWC-020118-FRB- 123	537, 537	T		100 uL	CI ND			
320-35691-A-16	NAWC-020118-RW-2 07	537, 537	T		100 uL	CI ND			
320-35691-A-17	NAWC-020118-FRB- 207	537, 537	T		100 uL	CI 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.: 320-35691-1

SDG No.: _____

Batch Number: 207046 Batch Start Date: 02/06/18 08:01 Batch Analyst: Branscum, Cassie

Batch Method: 537 Batch End Date: 02/07/18 19:00

Batch Notes	
Analyst ID - Aliquot Step	KMK
Batch Comment	Client labels match TA labels, 02/06/18 CCB
Analyst ID - Concentration	CCB/KMK
Analyst ID - Final Volume Step	KMK
Internal Standard ID#	1145836
Manifold ID	3, 15
Methanol ID	1147519
pH Indicator ID	3817
Pipette ID	M16387D
Analyst ID - IS Reagent Drop	KMK
Analyst ID - IS Reagent Drop Witness	JER
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	JNS
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	JNS
SPE Cartridge Lot ID	6369499-05
Trizma ID	SLBR4303V
Reagent Water ID	2-5-18

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: 08FEB2018_537D
Instrument Name: A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180208-53863.b
QC Batching: Enabled

Worklist Number: 53863
Chrom Method: 537_A8_N
Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 207624
# 1 CCV L5	# 1 CCV L5
# 2 RB	# 2 RB
# 3 MB 320-207046/1-A	# 3 MB 320-207046/1-A
# 4 LLCS 320-207046/2-A	# 4 LLCS 320-207046/2-A
# 5 LLCSD 320-207046/3-A	# 5 LLCSD 320-207046/3-A
# 6 320-35691-A-1-A	# 6 320-35691-A-1-A
# 7 320-35691-A-2-A	# 7 320-35691-A-2-A
# 8 320-35691-A-3-A	# 8 320-35691-A-3-A
# 9 320-35691-A-4-A	# 9 320-35691-A-4-A
#10 320-35691-A-5-A	#10 320-35691-A-5-A
#11 320-35691-A-6-A	#11 320-35691-A-6-A
#12 320-35691-A-7-A	#12 320-35691-A-7-A
#13 CCV L3	#13 CCV L3

QC Batch: 2	LC 537 ICAL Raw Batch: 207626
#13 CCV L3	#13 CCV L3
#14 RB	#14 RB
#15 320-35691-A-8-A	#15 320-35691-A-8-A
#16 320-35691-A-9-A	#16 320-35691-A-9-A
#17 320-35691-A-10-A	#17 320-35691-A-10-A
#18 320-35691-A-11-A	#18 320-35691-A-11-A
#19 320-35691-A-12-A	#19 320-35691-A-12-A
#20 320-35691-A-13-A	#20 320-35691-A-13-A
#21 320-35691-A-14-A	#21 320-35691-A-14-A
#22 320-35691-A-15-A	#22 320-35691-A-15-A
#23 320-35691-A-16-A	#23 320-35691-A-16-A
#24 320-35691-A-17-A	#24 320-35691-A-17-A
#25 CCV L5	#25 CCV L5
#26 RB	#26 RB

CCV in AB 207580
207581
JRB 2-12-18

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 09FEB2018_537A Worklist Number: 53912
 Instrument Name: A8_N Chrom Method: 537_A8_N
 Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180210-53912.b
 QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 CS ICAL Raw Batch: 207859	LC 537 ICAL Raw Batch: 207860
# 1 CCVL	# 1 CCVL	# 1 CCVL
# 2 CCV L5	# 2 CCV L5	# 2 CCV L5
# 3 RB	# 3 RB	# 3 RB
# 4 320-35768-A-6-A	# 4 320-35768-A-6-A	
# 5 320-35768-A-7-A	# 5 320-35768-A-7-A	
# 6 320-35691-A-2-A		# 6 320-35691-A-2-A
# 7 CCV L3	# 7 CCV L3	# 7 CCV L3

QC Batch: 2	LC 537 ICAL Raw Batch: 207861	LC 537 CS ICAL Raw Batch: 207862
# 7 CCV L3	# 7 CCV L3	# 7 CCV L3
# 8 RB	# 8 RB	
# 9 MB 320-207380/1-A	# 9 MB 320-207380/1-A	
# 10 LCS 320-207380/2-A	# 10 LCS 320-207380/2-A	
# 11 320-35779-A-1-A	# 11 320-35779-A-1-A	
# 12 320-35779-A-1-B MS	# 12 320-35779-A-1-B MS	
# 13 320-35779-A-1-C MSD	# 13 320-35779-A-1-C MSD	
# 14 320-35779-A-2-A	# 14 320-35779-A-2-A	
# 15 320-35779-A-3-A	# 15 320-35779-A-3-A	
# 16 320-35779-A-4-A	# 16 320-35779-A-4-A	
# 17 320-35779-A-5-A	# 17 320-35779-A-5-A	
# 18 320-35779-A-6-A	# 18 320-35779-A-6-A	
# 19 CCV L5	# 19 CCV L5	

QC Batch: 3	LC 537 ICAL Raw Batch: 207863
# 19 CCV L5	# 19 CCV L5
# 20 RB	# 20 RB
# 21 320-35779-A-7-A	# 21 320-35779-A-7-A
# 22 320-35779-A-8-A	# 22 320-35779-A-8-A
# 23 320-35779-A-9-A	# 23 320-35779-A-9-A
# 24 320-35779-A-10-A	# 24 320-35779-A-10-A
# 25 CCV L3	# 25 CCV L3

QC Batch: 4	LC 537 ICAL Raw Batch: 207864
# 25 CCV L3	# 25 CCV L3
# 26 RB	# 26 RB
# 27 MB 320-207328/1-A	# 27 MB 320-207328/1-A
# 28 LLCS 320-207328/2-A	# 28 LLCS 320-207328/2-A
# 29 LLCSD 320-207328/3-A	# 29 LLCSD 320-207328/3-A
# 30 320-35021-A-2-D	# 30 320-35021-A-2-D
# 31 CCV L5	# 31 CCV L5
# 32 RB	# 32 RB

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207046

Analyst: Branscum, Cassie

Batch Open: 2/6/2018 8:01:00AM

Method Code: 320-537_Prep-320

Batch End: 2/7/2018 7:00:00PM

77
A8 2/8/18
A8 2/9/18

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-320-207046/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	CI ND	
			1.00 mL								
2 LLCS-320-207046/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	CI ND	
			1.00 mL								
3 LLCSD-320-207046/3 N/A	N/A		250 mL	7			N/A	N/A	N/A	CI ND	
			1.00 mL								
320-35691-A-1 (537_DOD5)	N/A (320-35691-1)	270.13 g	241.8 mL	7			2/6/18	16_Days	4	CI ND	
		28.32 g	1.00 mL								
320-35691-A-2 (537_DOD5)	N/A (320-35691-1)	276.83 g	247.3 mL	7			2/6/18	16_Days	4	CI ND	RI
		29.57 g	1.00 mL								
320-35691-A-3 (537_DOD5)	N/A (320-35691-1)	270.71 g	241.4 mL	7			2/6/18	16_Days	4	CI ND	
		29.32 g	1.00 mL								
320-35691-A-4 (537_DOD5)	N/A (320-35691-1)	286.65 g	258.6 mL	7			2/6/18	16_Days	4	CI ND	
		28.02 g	1.00 mL								
320-35691-A-5 (537_DOD5)	N/A (320-35691-1)	283.91 g	254.9 mL	7			2/6/18	16_Days	4	CI ND	
		29.04 g	1.00 mL								
320-35691-A-6 (537_DOD5)	N/A (320-35691-1)	285.09 g	257 mL	7			2/6/18	16_Days	4	CI ND	
		28.06 g	1.00 mL								
320-35691-A-7 (537_DOD5)	N/A (320-35691-1)	280.56 g	252.9 mL	7			2/6/18	16_Days	4	CI ND	
		27.71 g	1.00 mL								

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)











Batch Number: 320-207046

Analyst: Branscum, Cassie

Batch Open: 2/6/2018 8:01:00AM

Method Code: 320-537_Prep-320

Batch End: 2/7/2018 7:00:00PM

11	320-35691-A-8 (537_DOD5)	N/A (320-35691-1)	271.32 g	243.9 mL	7			2/6/18	16_Days	4	CI ND	
			27.40 g	1.00 mL								
12	320-35691-A-9 (537_DOD5)	N/A (320-35691-1)	283.21 g	254.6 mL	7			2/6/18	16_Days	4	CI ND	
			28.57 g	1.00 mL								
13	320-35691-A-10 (537_DOD5)	N/A (320-35691-1)	275.56 g	246.5 mL	7			2/6/18	16_Days	4	CI ND	
			29.08 g	1.00 mL								
14	320-35691-A-11 (537_DOD5)	N/A (320-35691-1)	283.22 g	255.4 mL	7			2/6/18	16_Days	4	CI ND	
			27.85 g	1.00 mL								
15	320-35691-A-12 (537_DOD5)	N/A (320-35691-1)	276.93 g	247.9 mL	7			2/6/18	16_Days	4	CI ND	
			29.04 g	1.00 mL								
16	320-35691-A-13 (537_DOD5)	N/A (320-35691-1)	277.84 g	250.2 mL	7			2/6/18	16_Days	4	CI ND	
			27.69 g	1.00 mL								
17	320-35691-A-14 (537_DOD5)	N/A (320-35691-1)	276.75 g	248.3 mL	7			2/6/18	16_Days	4	CI ND	
			28.44 g	1.00 mL								
18	320-35691-A-15 (537_DOD5)	N/A (320-35691-1)	279.16 g	250.8 mL	7			2/6/18	16_Days	4	CI ND	
			28.32 g	1.00 mL								
19	320-35691-A-16 (537_DOD5)	N/A (320-35691-1)	285.17 g	255.7 mL	7			2/6/18	16_Days	4	CI ND	
			29.44 g	1.00 mL								
20	320-35691-A-17 (537_DOD5)	N/A (320-35691-1)	290.59 g	262.2 mL	7			2/6/18	16_Days	4	CI ND	
			28.40 g	1.00 mL								

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207046

Analyst: Branscum, Cassie

Batch Open: 2/6/2018 8:01:00AM

Method Code: 320-537_Prep-320

Batch End: 2/7/2018 7:00:00PM

Batch Notes

Manifold ID 3, 15

pH Indicator ID 3817

Trizma ID SLBR4303V

SPE Cartridge ID 6369499-05

Methanol ID 1147519

Reagent Water ID 2-5-18

Internal Standard ID# 1145836

Pipette ID M16387D

Analyst ID - TA Reagent Drop CCB

Analyst ID - TA Reagent Drop JNS

Witness

Analyst ID - SU Reagent Drop CCB

Analyst ID - SU Reagent Drop JNS

Witness

Analyst ID - IS Reagent Drop KMK

Analyst ID - IS Reagent Drop JER

Witness

Analyst ID - Concentration CCB/KMK

Analyst ID - Aliquot Step KMK

Analyst ID - Final Volume Step KMK

Batch Comment Client labels match TA labels, 02/06/18 CCB

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PFAS Calibration Calculations:

Initial Calibration 11/3/2017
Instrument A8_N

PFOS

Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	Reported RRF
4	412315	3298877	28.7	0.89678	0.8958
8.89	985487	3450592	28.7	0.92201	0.9213
20	2067792	3194016	28.7	0.92901	0.9281
40	4363079	3374600	28.7	0.92767	0.9268
60	6504279	3199479	28.7	0.97241	0.9715
80	8679676	3141787	28.7	0.99110	0.9902
Average				0.93983	0.9389
Standard Deviation				0.0350	
RSD				0.0372	
%RSD				3.72448	3.7

Continuing Calibration 02/08/2018 @ 11:54

PFOS

Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	%D	Reported RRF	Reported %D
60	6079427	2873161	28.7	1.0121	7.7988164	1.007	7.3

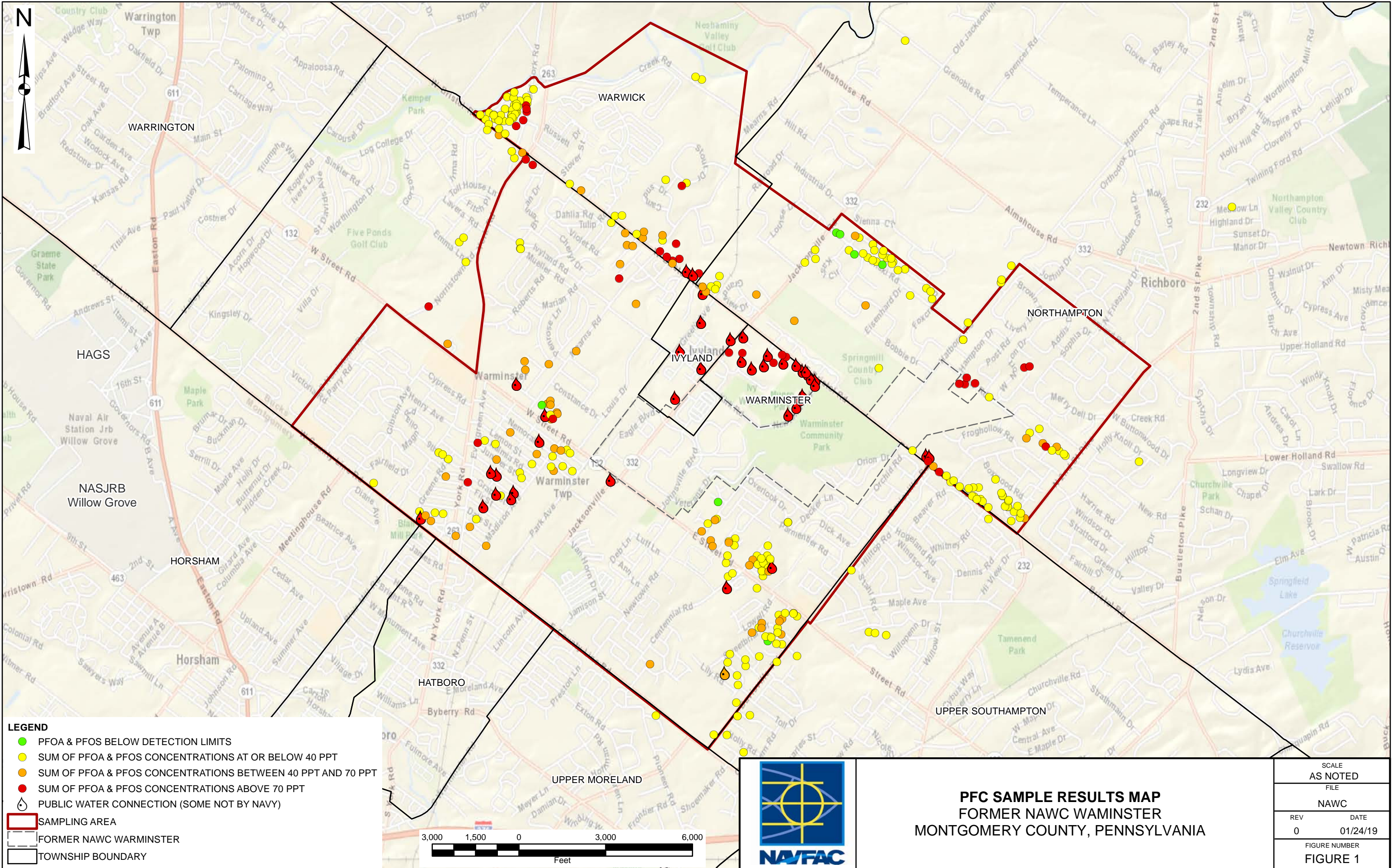
Willow Grove
SDG 320-35691-1

Sample Identification NAWC-020118-RW-167

Compound perfluorooctanesulfonic acid

Compound Area	404542
Internal Standard Amount (ng)	28.7
Dilution Factor	1
Internal Standard Area	3310227
Average RRF	0.9389
Sample Volume(L)	0.2418
Volume Extract (ml)	1
Injection Volume (µl)	1
Concentration	15.4494 ng/L

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LEGEND

- PFOA & PFOS BELOW DETECTION LIMITS
- SUM OF PFOA & PFOS CONCENTRATIONS AT OR BELOW 40 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS BETWEEN 40 PPT AND 70 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS ABOVE 70 PPT
- 👉 PUBLIC WATER CONNECTION (SOME NOT BY NAVY)
- SAMPLING AREA
- FORMER NAWC WARMINSTER
- TOWNSHIP BOUNDARY



**PFC SAMPLE RESULTS MAP
FORMER NAWC WARMINSTER
MONTGOMERY COUNTY, PENNSYLVANIA**

SCALE AS NOTED	
FILE	
NAWC	
REV 0	DATE 01/24/19
FIGURE NUMBER FIGURE 1	