



**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 320-34946-1**

*Naval Air Warfare Center Warminster
Warminster, Pennsylvania*

August 2019

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WARMINSTER_NAWC
SSIC 5000-33c

**LABORATORY DATA PACKAGE, 320-34946-1, NAS WILLOW GROVE NAWC
WARMINSTER PA**
01/24/2018
TESTAMERICA LABORATORIES INC

Approved for public release: distribution unlimited.

ANALYTICAL REPORT

Job Number: 320-34946-1

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
1/24/2018 2:31 PM

David R Alltucker, Project Manager I
880 Riverside Parkway, West Sacramento, CA, 95605
(916)374-4383
david.alltucker@testamericainc.com
01/24/2018

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Definitions/Glossary

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

TestAmerica Job ID: 320-34946-1

Qualifiers

LCMS

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

Glossary

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

Job Narrative
320-34946-1

Receipt

The samples were received on 1/10/2018 10:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.4° C.

LCMS

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

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

Organic Prep

Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-204506.

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: 320-34946-1

Client Sample ID: NAWC-010918-RW-206

Lab Sample ID: 320-34946-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	17	J	40	6.8	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	14	J	20	2.8	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.3	J	9.9	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-010918-FRB-206

Lab Sample ID: 320-34946-2

No Detections.

Client Sample ID: NAWC-010918-RW-029

Lab Sample ID: 320-34946-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	22	J M	41	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	18	J	20	2.9	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.9	J	31	5.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.5	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-010918-FRB-029

Lab Sample ID: 320-34946-4

No Detections.

Client Sample ID: WGNA-010918-RW-0533

Lab Sample ID: 320-34946-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	23	J M	40	6.8	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	20		20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	9.7	J	30	5.5	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.5	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: WGNA-010918-FRB-0533

Lab Sample ID: 320-34946-6

No Detections.

Client Sample ID: WGNA-010918-RW-3193

Lab Sample ID: 320-34946-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	16	J	41	7.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	34		21	2.9	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	15	J	31	5.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	11		10	2.0	ng/L	1		537	Total/NA

Client Sample ID: WGNA-010918-FRB-3193

Lab Sample ID: 320-34946-8

No Detections.

Client Sample ID: WGNA-010918-DUP-17

Lab Sample ID: 320-34946-9

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	9.6	J	40	6.8	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	25		20	2.8	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.1	J	10	1.9	ng/L	1		537	Total/NA

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: 320-34946-1

Client Sample ID: NAWC-010918-RW-138

Lab Sample ID: 320-34946-10

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	9.3	J M	42	7.1	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	25		21	2.9	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.3	J	10	2.0	ng/L	1		537	Total/NA

Client Sample ID: NAWC-010918-FRB-138

Lab Sample ID: 320-34946-11

No Detections.

Client Sample ID: NAWC-010918-RW-351

Lab Sample ID: 320-34946-12

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	12	J	41	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	16	J	20	2.8	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.3	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-010918-FRB-351

Lab Sample ID: 320-34946-13

No Detections.

Client Sample ID: NAWC-010918-RW-352

Lab Sample ID: 320-34946-14

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	7.8	J	20	2.8	ng/L	1		537	Total/NA

Client Sample ID: NAWC-010918-FRB-352

Lab Sample ID: 320-34946-15

No Detections.

Client Sample ID: NAWC-010918-RW-353

Lab Sample ID: 320-34946-16

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	11	J M	41	7.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	17	J	20	2.9	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	8.2	J	31	5.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	5.8	J	10	1.9	ng/L	1		537	Total/NA

Client Sample ID: NAWC-010918-FRB-353

Lab Sample ID: 320-34946-17

No Detections.

Client Sample ID: NAWC-010918-RW-350

Lab Sample ID: 320-34946-18

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	16	J M	42	7.1	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	12	J	21	2.9	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.6	J	10	2.0	ng/L	1		537	Total/NA

Client Sample ID: NAWC-010918-FRB-350

Lab Sample ID: 320-34946-19

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: 320-34946-1

Client Sample ID: NAWC-010918-RW-206

Lab Sample ID: 320-34946-1

Date Collected: 01/09/18 08:10

Matrix: Water

Date Received: 01/10/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	17	J	40	6.8	ng/L		01/18/18 12:21	01/22/18 16:39	1
Perfluorooctanoic acid (PFOA)	14	J	20	2.8	ng/L		01/18/18 12:21	01/22/18 16:39	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/18/18 12:21	01/22/18 16:39	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/18/18 12:21	01/22/18 16:39	1
Perfluoroheptanoic acid (PFHpA)	4.3	J	9.9	1.9	ng/L		01/18/18 12:21	01/22/18 16:39	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/18/18 12:21	01/22/18 16:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		70 - 130	01/18/18 12:21	01/22/18 16:39	1
13C2 PFDA	114		70 - 130	01/18/18 12:21	01/22/18 16:39	1

Client Sample ID: NAWC-010918-FRB-206

Lab Sample ID: 320-34946-2

Date Collected: 01/09/18 08:05

Matrix: Water

Date Received: 01/10/18 10:05

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		01/18/18 12:21	01/22/18 16:43	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		01/18/18 12:21	01/22/18 16:43	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/18/18 12:21	01/22/18 16:43	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.6	ng/L		01/18/18 12:21	01/22/18 16:43	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		01/18/18 12:21	01/22/18 16:43	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		01/18/18 12:21	01/22/18 16:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		70 - 130	01/18/18 12:21	01/22/18 16:43	1
13C2 PFDA	103		70 - 130	01/18/18 12:21	01/22/18 16:43	1

Client Sample ID: NAWC-010918-RW-029

Lab Sample ID: 320-34946-3

Date Collected: 01/09/18 08:40

Matrix: Water

Date Received: 01/10/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	22	J M	41	6.9	ng/L		01/18/18 12:21	01/22/18 16:48	1
Perfluorooctanoic acid (PFOA)	18	J	20	2.9	ng/L		01/18/18 12:21	01/22/18 16:48	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/18/18 12:21	01/22/18 16:48	1
Perfluorohexanesulfonic acid (PFHxS)	6.9	J	31	5.6	ng/L		01/18/18 12:21	01/22/18 16:48	1
Perfluoroheptanoic acid (PFHpA)	5.5	J	10	1.9	ng/L		01/18/18 12:21	01/22/18 16:48	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		01/18/18 12:21	01/22/18 16:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	89		70 - 130	01/18/18 12:21	01/22/18 16:48	1
13C2 PFDA	100		70 - 130	01/18/18 12:21	01/22/18 16:48	1

Client Sample Results

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

TestAmerica Job ID: 320-34946-1

Client Sample ID: NAWC-010918-FRB-029

Lab Sample ID: 320-34946-4

Date Collected: 01/09/18 08:35

Matrix: Water

Date Received: 01/10/18 10:05

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		01/18/18 12:21	01/22/18 16:53	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		01/18/18 12:21	01/22/18 16:53	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/18/18 12:21	01/22/18 16:53	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/18/18 12:21	01/22/18 16:53	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/18/18 12:21	01/22/18 16:53	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		01/18/18 12:21	01/22/18 16:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	99		70 - 130	01/18/18 12:21	01/22/18 16:53	1
13C2 PFDA	106		70 - 130	01/18/18 12:21	01/22/18 16:53	1

Client Sample ID: WGNA-010918-RW-0533

Lab Sample ID: 320-34946-5

Date Collected: 01/09/18 09:10

Matrix: Water

Date Received: 01/10/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	23	J M	40	6.8	ng/L		01/18/18 12:21	01/22/18 16:58	1
Perfluorooctanoic acid (PFOA)	20		20	2.8	ng/L		01/18/18 12:21	01/22/18 16:58	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/18/18 12:21	01/22/18 16:58	1
Perfluorohexanesulfonic acid (PFHxS)	9.7	J	30	5.5	ng/L		01/18/18 12:21	01/22/18 16:58	1
Perfluoroheptanoic acid (PFHpA)	4.5	J	10	1.9	ng/L		01/18/18 12:21	01/22/18 16:58	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		01/18/18 12:21	01/22/18 16:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	93		70 - 130	01/18/18 12:21	01/22/18 16:58	1
13C2 PFDA	103		70 - 130	01/18/18 12:21	01/22/18 16:58	1

Client Sample ID: WGNA-010918-FRB-0533

Lab Sample ID: 320-34946-6

Date Collected: 01/09/18 09:05

Matrix: Water

Date Received: 01/10/18 10:05

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		01/18/18 12:21	01/22/18 17:02	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		01/18/18 12:21	01/22/18 17:02	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/18/18 12:21	01/22/18 17:02	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		01/18/18 12:21	01/22/18 17:02	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		01/18/18 12:21	01/22/18 17:02	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		01/18/18 12:21	01/22/18 17:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	96		70 - 130	01/18/18 12:21	01/22/18 17:02	1
13C2 PFDA	109		70 - 130	01/18/18 12:21	01/22/18 17:02	1

Client Sample Results

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

TestAmerica Job ID: 320-34946-1

Client Sample ID: WGNA-010918-RW-3193

Lab Sample ID: 320-34946-7

Date Collected: 01/09/18 09:40

Matrix: Water

Date Received: 01/10/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	J	41	7.0	ng/L		01/18/18 12:21	01/22/18 17:07	1
Perfluorooctanoic acid (PFOA)	34		21	2.9	ng/L		01/18/18 12:21	01/22/18 17:07	1
Perfluorononanoic acid (PFNA)	21	U	25	8.2	ng/L		01/18/18 12:21	01/22/18 17:07	1
Perfluorohexanesulfonic acid (PFHxS)	15	J	31	5.6	ng/L		01/18/18 12:21	01/22/18 17:07	1
Perfluoroheptanoic acid (PFHpA)	11		10	2.0	ng/L		01/18/18 12:21	01/22/18 17:07	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	17	ng/L		01/18/18 12:21	01/22/18 17:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	93		70 - 130				01/18/18 12:21	01/22/18 17:07	1
13C2 PFDA	112		70 - 130				01/18/18 12:21	01/22/18 17:07	1

Client Sample ID: WGNA-010918-FRB-3193

Lab Sample ID: 320-34946-8

Date Collected: 01/09/18 09:35

Matrix: Water

Date Received: 01/10/18 10:05

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		01/18/18 12:21	01/22/18 11:31	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.9	ng/L		01/18/18 12:21	01/22/18 11:31	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/18/18 12:21	01/22/18 11:31	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.6	ng/L		01/18/18 12:21	01/22/18 11:31	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		01/18/18 12:21	01/22/18 11:31	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		01/18/18 12:21	01/22/18 11:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	103		70 - 130				01/18/18 12:21	01/22/18 11:31	1
13C2 PFDA	111		70 - 130				01/18/18 12:21	01/22/18 11:31	1

Client Sample ID: WGNA-010918-DUP-17

Lab Sample ID: 320-34946-9

Date Collected: 01/09/18 07:00

Matrix: Water

Date Received: 01/10/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	9.6	J	40	6.8	ng/L		01/18/18 12:21	01/22/18 11:36	1
Perfluorooctanoic acid (PFOA)	25		20	2.8	ng/L		01/18/18 12:21	01/22/18 11:36	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/18/18 12:21	01/22/18 11:36	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/18/18 12:21	01/22/18 11:36	1
Perfluoroheptanoic acid (PFHpA)	6.1	J	10	1.9	ng/L		01/18/18 12:21	01/22/18 11:36	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/18/18 12:21	01/22/18 11:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	98		70 - 130				01/18/18 12:21	01/22/18 11:36	1
13C2 PFDA	106		70 - 130				01/18/18 12:21	01/22/18 11:36	1

Client Sample Results

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

TestAmerica Job ID: 320-34946-1

Client Sample ID: NAWC-010918-RW-138

Lab Sample ID: 320-34946-10

Date Collected: 01/09/18 11:10

Matrix: Water

Date Received: 01/10/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	9.3	J M	42	7.1	ng/L		01/18/18 12:21	01/22/18 11:40	1
Perfluorooctanoic acid (PFOA)	25		21	2.9	ng/L		01/18/18 12:21	01/22/18 11:40	1
Perfluorononanoic acid (PFNA)	21	U	25	8.3	ng/L		01/18/18 12:21	01/22/18 11:40	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.7	ng/L		01/18/18 12:21	01/22/18 11:40	1
Perfluoroheptanoic acid (PFHpA)	6.3	J	10	2.0	ng/L		01/18/18 12:21	01/22/18 11:40	1
Perfluorobutanesulfonic acid (PFBS)	37	U	94	17	ng/L		01/18/18 12:21	01/22/18 11:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	95		70 - 130	01/18/18 12:21	01/22/18 11:40	1
13C2 PFDA	110		70 - 130	01/18/18 12:21	01/22/18 11:40	1

Client Sample ID: NAWC-010918-FRB-138

Lab Sample ID: 320-34946-11

Date Collected: 01/09/18 11:05

Matrix: Water

Date Received: 01/10/18 10:05

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		01/18/18 12:21	01/22/18 11:45	1
Perfluorooctanoic acid (PFOA)	8.2	U	20	2.9	ng/L		01/18/18 12:21	01/22/18 11:45	1
Perfluorononanoic acid (PFNA)	20	U	24	8.2	ng/L		01/18/18 12:21	01/22/18 11:45	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.6	ng/L		01/18/18 12:21	01/22/18 11:45	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		01/18/18 12:21	01/22/18 11:45	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		01/18/18 12:21	01/22/18 11:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	96		70 - 130	01/18/18 12:21	01/22/18 11:45	1
13C2 PFDA	104		70 - 130	01/18/18 12:21	01/22/18 11:45	1

Client Sample ID: NAWC-010918-RW-351

Lab Sample ID: 320-34946-12

Date Collected: 01/09/18 11:40

Matrix: Water

Date Received: 01/10/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	12	J	41	6.9	ng/L		01/18/18 12:21	01/22/18 11:50	1
Perfluorooctanoic acid (PFOA)	16	J	20	2.8	ng/L		01/18/18 12:21	01/22/18 11:50	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/18/18 12:21	01/22/18 11:50	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		01/18/18 12:21	01/22/18 11:50	1
Perfluoroheptanoic acid (PFHpA)	5.3	J	10	1.9	ng/L		01/18/18 12:21	01/22/18 11:50	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		01/18/18 12:21	01/22/18 11:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	89		70 - 130	01/18/18 12:21	01/22/18 11:50	1
13C2 PFDA	104		70 - 130	01/18/18 12:21	01/22/18 11:50	1

Client Sample Results

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

TestAmerica Job ID: 320-34946-1

Client Sample ID: NAWC-010918-FRB-351

Lab Sample ID: 320-34946-13

Date Collected: 01/09/18 11:35

Matrix: Water

Date Received: 01/10/18 10:05

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		01/18/18 12:21	01/22/18 11:54	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		01/18/18 12:21	01/22/18 11:54	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/18/18 12:21	01/22/18 11:54	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/18/18 12:21	01/22/18 11:54	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/18/18 12:21	01/22/18 11:54	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/18/18 12:21	01/22/18 11:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	90		70 - 130	01/18/18 12:21	01/22/18 11:54	1
13C2 PFDA	100		70 - 130	01/18/18 12:21	01/22/18 11:54	1

Client Sample ID: NAWC-010918-RW-352

Lab Sample ID: 320-34946-14

Date Collected: 01/09/18 12:10

Matrix: Water

Date Received: 01/10/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U M	40	6.9	ng/L		01/18/18 12:21	01/22/18 11:59	1
Perfluorooctanoic acid (PFOA)	7.8	J	20	2.8	ng/L		01/18/18 12:21	01/22/18 11:59	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/18/18 12:21	01/22/18 11:59	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/18/18 12:21	01/22/18 11:59	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/18/18 12:21	01/22/18 11:59	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		01/18/18 12:21	01/22/18 11:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	88		70 - 130	01/18/18 12:21	01/22/18 11:59	1
13C2 PFDA	99		70 - 130	01/18/18 12:21	01/22/18 11:59	1

Client Sample ID: NAWC-010918-FRB-352

Lab Sample ID: 320-34946-15

Date Collected: 01/09/18 12:05

Matrix: Water

Date Received: 01/10/18 10:05

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		01/18/18 12:21	01/22/18 12:04	1
Perfluorooctanoic acid (PFOA)	8.2	U	20	2.9	ng/L		01/18/18 12:21	01/22/18 12:04	1
Perfluorononanoic acid (PFNA)	20	U	24	8.2	ng/L		01/18/18 12:21	01/22/18 12:04	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	31	5.6	ng/L		01/18/18 12:21	01/22/18 12:04	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		01/18/18 12:21	01/22/18 12:04	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		01/18/18 12:21	01/22/18 12:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	101		70 - 130	01/18/18 12:21	01/22/18 12:04	1
13C2 PFDA	103		70 - 130	01/18/18 12:21	01/22/18 12:04	1

Client Sample Results

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

TestAmerica Job ID: 320-34946-1

Client Sample ID: NAWC-010918-RW-353

Lab Sample ID: 320-34946-16

Date Collected: 01/09/18 12:40

Matrix: Water

Date Received: 01/10/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	11	J M	41	7.0	ng/L		01/18/18 12:21	01/22/18 12:08	1
Perfluorooctanoic acid (PFOA)	17	J	20	2.9	ng/L		01/18/18 12:21	01/22/18 12:08	1
Perfluorononanoic acid (PFNA)	20	U	25	8.2	ng/L		01/18/18 12:21	01/22/18 12:08	1
Perfluorohexanesulfonic acid (PFHxS)	8.2	J	31	5.6	ng/L		01/18/18 12:21	01/22/18 12:08	1
Perfluoroheptanoic acid (PFHpA)	5.8	J	10	1.9	ng/L		01/18/18 12:21	01/22/18 12:08	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		01/18/18 12:21	01/22/18 12:08	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		70 - 130				01/18/18 12:21	01/22/18 12:08	1
13C2 PFDA	99		70 - 130				01/18/18 12:21	01/22/18 12:08	1

Client Sample ID: NAWC-010918-FRB-353

Lab Sample ID: 320-34946-17

Date Collected: 01/09/18 12:35

Matrix: Water

Date Received: 01/10/18 10:05

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		01/18/18 12:21	01/22/18 12:13	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		01/18/18 12:21	01/22/18 12:13	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/18/18 12:21	01/22/18 12:13	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		01/18/18 12:21	01/22/18 12:13	1
Perfluoroheptanoic acid (PFHpA)	4.1	U	10	1.9	ng/L		01/18/18 12:21	01/22/18 12:13	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		01/18/18 12:21	01/22/18 12:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	102		70 - 130				01/18/18 12:21	01/22/18 12:13	1
13C2 PFDA	97		70 - 130				01/18/18 12:21	01/22/18 12:13	1

Client Sample ID: NAWC-010918-RW-350

Lab Sample ID: 320-34946-18

Date Collected: 01/09/18 13:10

Matrix: Water

Date Received: 01/10/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	J M	42	7.1	ng/L		01/18/18 12:21	01/22/18 12:27	1
Perfluorooctanoic acid (PFOA)	12	J	21	2.9	ng/L		01/18/18 12:21	01/22/18 12:27	1
Perfluorononanoic acid (PFNA)	21	U	25	8.3	ng/L		01/18/18 12:21	01/22/18 12:27	1
Perfluorohexanesulfonic acid (PFHxS)	13	U	31	5.7	ng/L		01/18/18 12:21	01/22/18 12:27	1
Perfluoroheptanoic acid (PFHpA)	4.6	J	10	2.0	ng/L		01/18/18 12:21	01/22/18 12:27	1
Perfluorobutanesulfonic acid (PFBS)	38	U	94	17	ng/L		01/18/18 12:21	01/22/18 12:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		70 - 130				01/18/18 12:21	01/22/18 12:27	1
13C2 PFDA	102		70 - 130				01/18/18 12:21	01/22/18 12:27	1

Client Sample Results

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

TestAmerica Job ID: 320-34946-1

Client Sample ID: NAWC-010918-FRB-350

Lab Sample ID: 320-34946-19

Date Collected: 01/09/18 13:05

Matrix: Water

Date Received: 01/10/18 10:05

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		01/18/18 12:21	01/22/18 12:32	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		01/18/18 12:21	01/22/18 12:32	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		01/18/18 12:21	01/22/18 12:32	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		01/18/18 12:21	01/22/18 12:32	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/18/18 12:21	01/22/18 12:32	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		01/18/18 12:21	01/22/18 12:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
¹³ C2 PFHxA	96		70 - 130	01/18/18 12:21	01/22/18 12:32	1
¹³ C2 PFDA	108		70 - 130	01/18/18 12:21	01/22/18 12:32	1

Default Detection Limits

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

TestAmerica Job ID: 320-34946-1

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: 320-34946-1

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)
320-34946-1	NAWC-010918-RW-206	94	114
320-34946-2	NAWC-010918-FRB-206	95	103
320-34946-3	NAWC-010918-RW-029	89	100
320-34946-4	NAWC-010918-FRB-029	99	106
320-34946-5	WGNA-010918-RW-0533	93	103
320-34946-6	WGNA-010918-FRB-0533	96	109
320-34946-7	WGNA-010918-RW-3193	93	112
320-34946-8	WGNA-010918-FRB-3193	103	111
320-34946-9	WGNA-010918-DUP-17	98	106
320-34946-10	NAWC-010918-RW-138	95	110
320-34946-11	NAWC-010918-FRB-138	96	104
320-34946-12	NAWC-010918-RW-351	89	104
320-34946-13	NAWC-010918-FRB-351	90	100
320-34946-14	NAWC-010918-RW-352	88	99
320-34946-15	NAWC-010918-FRB-352	101	103
320-34946-16	NAWC-010918-RW-353	94	99
320-34946-17	NAWC-010918-FRB-353	102	97
320-34946-18	NAWC-010918-RW-350	94	102
320-34946-19	NAWC-010918-FRB-350	96	108
LCS 320-204506/2-A	Lab Control Sample	94	103
LCSD 320-204506/3-A	Lab Control Sample Dup	93	102
MB 320-204506/1-A	Method Blank	91	105

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: 320-34946-1

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

Lab Sample ID: MB 320-204506/1-A
Matrix: Water
Analysis Batch: 205018

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 204506

Analyte	MB Result	MB Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		01/18/18 12:21	01/22/18 16:25	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		01/18/18 12:21	01/22/18 16:25	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		01/18/18 12:21	01/22/18 16:25	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		01/18/18 12:21	01/22/18 16:25	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		01/18/18 12:21	01/22/18 16:25	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		01/18/18 12:21	01/22/18 16:25	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	91		70 - 130	01/18/18 12:21	01/22/18 16:25	1
13C2 PFDA	105		70 - 130	01/18/18 12:21	01/22/18 16:25	1

Lab Sample ID: LCS 320-204506/2-A
Matrix: Water
Analysis Batch: 205018

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 204506

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorooctanesulfonic acid (PFOS)	133	139		ng/L		104	70 - 130
Perfluorooctanoic acid (PFOA)	66.7	66.8		ng/L		100	70 - 130
Perfluorononanoic acid (PFNA)	66.7	65.9		ng/L		99	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	100	112		ng/L		112	70 - 130
Perfluoroheptanoic acid (PFHpA)	33.3	38.4		ng/L		115	70 - 130
Perfluorobutanesulfonic acid (PFBS)	300	268		ng/L		89	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
13C2 PFHxA	94		70 - 130
13C2 PFDA	103		70 - 130

Lab Sample ID: LCSD 320-204506/3-A
Matrix: Water
Analysis Batch: 205018

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 204506

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorooctanesulfonic acid (PFOS)	133	135		ng/L		102	70 - 130	2	30
Perfluorooctanoic acid (PFOA)	66.7	68.2		ng/L		102	70 - 130	2	30
Perfluorononanoic acid (PFNA)	66.7	64.9		ng/L		97	70 - 130	1	30
Perfluorohexanesulfonic acid (PFHxS)	100	109		ng/L		109	70 - 130	3	30
Perfluoroheptanoic acid (PFHpA)	33.3	37.3		ng/L		112	70 - 130	3	30
Perfluorobutanesulfonic acid (PFBS)	300	293		ng/L		98	70 - 130	9	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
13C2 PFHxA	93		70 - 130
13C2 PFDA	102		70 - 130

TestAmerica Sacramento

QC Association Summary

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

TestAmerica Job ID: 320-34946-1

LCMS

Prep Batch: 204506

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-34946-1	NAWC-010918-RW-206	Total/NA	Water	537	
320-34946-2	NAWC-010918-FRB-206	Total/NA	Water	537	
320-34946-3	NAWC-010918-RW-029	Total/NA	Water	537	
320-34946-4	NAWC-010918-FRB-029	Total/NA	Water	537	
320-34946-5	WGNA-010918-RW-0533	Total/NA	Water	537	
320-34946-6	WGNA-010918-FRB-0533	Total/NA	Water	537	
320-34946-7	WGNA-010918-RW-3193	Total/NA	Water	537	
320-34946-8	WGNA-010918-FRB-3193	Total/NA	Water	537	
320-34946-9	WGNA-010918-DUP-17	Total/NA	Water	537	
320-34946-10	NAWC-010918-RW-138	Total/NA	Water	537	
320-34946-11	NAWC-010918-FRB-138	Total/NA	Water	537	
320-34946-12	NAWC-010918-RW-351	Total/NA	Water	537	
320-34946-13	NAWC-010918-FRB-351	Total/NA	Water	537	
320-34946-14	NAWC-010918-RW-352	Total/NA	Water	537	
320-34946-15	NAWC-010918-FRB-352	Total/NA	Water	537	
320-34946-16	NAWC-010918-RW-353	Total/NA	Water	537	
320-34946-17	NAWC-010918-FRB-353	Total/NA	Water	537	
320-34946-18	NAWC-010918-RW-350	Total/NA	Water	537	
320-34946-19	NAWC-010918-FRB-350	Total/NA	Water	537	
MB 320-204506/1-A	Method Blank	Total/NA	Water	537	
LCS 320-204506/2-A	Lab Control Sample	Total/NA	Water	537	
LCSD 320-204506/3-A	Lab Control Sample Dup	Total/NA	Water	537	

Analysis Batch: 204921

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-34946-8	WGNA-010918-FRB-3193	Total/NA	Water	537	204506
320-34946-9	WGNA-010918-DUP-17	Total/NA	Water	537	204506
320-34946-10	NAWC-010918-RW-138	Total/NA	Water	537	204506
320-34946-11	NAWC-010918-FRB-138	Total/NA	Water	537	204506
320-34946-12	NAWC-010918-RW-351	Total/NA	Water	537	204506
320-34946-13	NAWC-010918-FRB-351	Total/NA	Water	537	204506
320-34946-14	NAWC-010918-RW-352	Total/NA	Water	537	204506
320-34946-15	NAWC-010918-FRB-352	Total/NA	Water	537	204506
320-34946-16	NAWC-010918-RW-353	Total/NA	Water	537	204506
320-34946-17	NAWC-010918-FRB-353	Total/NA	Water	537	204506

Analysis Batch: 204922

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-34946-18	NAWC-010918-RW-350	Total/NA	Water	537	204506
320-34946-19	NAWC-010918-FRB-350	Total/NA	Water	537	204506

Analysis Batch: 205018

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-34946-1	NAWC-010918-RW-206	Total/NA	Water	537	204506
320-34946-2	NAWC-010918-FRB-206	Total/NA	Water	537	204506
320-34946-3	NAWC-010918-RW-029	Total/NA	Water	537	204506
320-34946-4	NAWC-010918-FRB-029	Total/NA	Water	537	204506
320-34946-5	WGNA-010918-RW-0533	Total/NA	Water	537	204506
320-34946-6	WGNA-010918-FRB-0533	Total/NA	Water	537	204506
320-34946-7	WGNA-010918-RW-3193	Total/NA	Water	537	204506
MB 320-204506/1-A	Method Blank	Total/NA	Water	537	204506

TestAmerica Sacramento

QC Association Summary

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

TestAmerica Job ID: 320-34946-1

LCMS (Continued)

Analysis Batch: 205018 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 320-204506/2-A	Lab Control Sample	Total/NA	Water	537	204506
LCSD 320-204506/3-A	Lab Control Sample Dup	Total/NA	Water	537	204506

Lab Chronicle

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

TestAmerica Job ID: 320-34946-1

Client Sample ID: NAWC-010918-RW-206

Date Collected: 01/09/18 08:10

Date Received: 01/10/18 10:05

Lab Sample ID: 320-34946-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			204506	01/18/18 12:21	KMK	TAL SAC
Total/NA	Analysis	537		1	205018	01/22/18 16:39	AAR	TAL SAC

Client Sample ID: NAWC-010918-FRB-206

Date Collected: 01/09/18 08:05

Date Received: 01/10/18 10:05

Lab Sample ID: 320-34946-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			204506	01/18/18 12:21	KMK	TAL SAC
Total/NA	Analysis	537		1	205018	01/22/18 16:43	AAR	TAL SAC

Client Sample ID: NAWC-010918-RW-029

Date Collected: 01/09/18 08:40

Date Received: 01/10/18 10:05

Lab Sample ID: 320-34946-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			204506	01/18/18 12:21	KMK	TAL SAC
Total/NA	Analysis	537		1	205018	01/22/18 16:48	AAR	TAL SAC

Client Sample ID: NAWC-010918-FRB-029

Date Collected: 01/09/18 08:35

Date Received: 01/10/18 10:05

Lab Sample ID: 320-34946-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			204506	01/18/18 12:21	KMK	TAL SAC
Total/NA	Analysis	537		1	205018	01/22/18 16:53	AAR	TAL SAC

Client Sample ID: WGNA-010918-RW-0533

Date Collected: 01/09/18 09:10

Date Received: 01/10/18 10:05

Lab Sample ID: 320-34946-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			204506	01/18/18 12:21	KMK	TAL SAC
Total/NA	Analysis	537		1	205018	01/22/18 16:58	AAR	TAL SAC

Client Sample ID: WGNA-010918-FRB-0533

Date Collected: 01/09/18 09:05

Date Received: 01/10/18 10:05

Lab Sample ID: 320-34946-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			204506	01/18/18 12:21	KMK	TAL SAC
Total/NA	Analysis	537		1	205018	01/22/18 17:02	AAR	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-34946-1

Client Sample ID: WGNA-010918-RW-3193

Date Collected: 01/09/18 09:40

Date Received: 01/10/18 10:05

Lab Sample ID: 320-34946-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			204506	01/18/18 12:21	KMK	TAL SAC
Total/NA	Analysis	537		1	205018	01/22/18 17:07	AAR	TAL SAC

Client Sample ID: WGNA-010918-FRB-3193

Date Collected: 01/09/18 09:35

Date Received: 01/10/18 10:05

Lab Sample ID: 320-34946-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			204506	01/18/18 12:21	KMK	TAL SAC
Total/NA	Analysis	537		1	204921	01/22/18 11:31	AAR	TAL SAC

Client Sample ID: WGNA-010918-DUP-17

Date Collected: 01/09/18 07:00

Date Received: 01/10/18 10:05

Lab Sample ID: 320-34946-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			204506	01/18/18 12:21	KMK	TAL SAC
Total/NA	Analysis	537		1	204921	01/22/18 11:36	AAR	TAL SAC

Client Sample ID: NAWC-010918-RW-138

Date Collected: 01/09/18 11:10

Date Received: 01/10/18 10:05

Lab Sample ID: 320-34946-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			204506	01/18/18 12:21	KMK	TAL SAC
Total/NA	Analysis	537		1	204921	01/22/18 11:40	AAR	TAL SAC

Client Sample ID: NAWC-010918-FRB-138

Date Collected: 01/09/18 11:05

Date Received: 01/10/18 10:05

Lab Sample ID: 320-34946-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			204506	01/18/18 12:21	KMK	TAL SAC
Total/NA	Analysis	537		1	204921	01/22/18 11:45	AAR	TAL SAC

Client Sample ID: NAWC-010918-RW-351

Date Collected: 01/09/18 11:40

Date Received: 01/10/18 10:05

Lab Sample ID: 320-34946-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			204506	01/18/18 12:21	KMK	TAL SAC
Total/NA	Analysis	537		1	204921	01/22/18 11:50	AAR	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-34946-1

Client Sample ID: NAWC-010918-FRB-351

Lab Sample ID: 320-34946-13

Date Collected: 01/09/18 11:35

Matrix: Water

Date Received: 01/10/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			204506	01/18/18 12:21	KMK	TAL SAC
Total/NA	Analysis	537		1	204921	01/22/18 11:54	AAR	TAL SAC

Client Sample ID: NAWC-010918-RW-352

Lab Sample ID: 320-34946-14

Date Collected: 01/09/18 12:10

Matrix: Water

Date Received: 01/10/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			204506	01/18/18 12:21	KMK	TAL SAC
Total/NA	Analysis	537		1	204921	01/22/18 11:59	AAR	TAL SAC

Client Sample ID: NAWC-010918-FRB-352

Lab Sample ID: 320-34946-15

Date Collected: 01/09/18 12:05

Matrix: Water

Date Received: 01/10/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			204506	01/18/18 12:21	KMK	TAL SAC
Total/NA	Analysis	537		1	204921	01/22/18 12:04	AAR	TAL SAC

Client Sample ID: NAWC-010918-RW-353

Lab Sample ID: 320-34946-16

Date Collected: 01/09/18 12:40

Matrix: Water

Date Received: 01/10/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			204506	01/18/18 12:21	KMK	TAL SAC
Total/NA	Analysis	537		1	204921	01/22/18 12:08	AAR	TAL SAC

Client Sample ID: NAWC-010918-FRB-353

Lab Sample ID: 320-34946-17

Date Collected: 01/09/18 12:35

Matrix: Water

Date Received: 01/10/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			204506	01/18/18 12:21	KMK	TAL SAC
Total/NA	Analysis	537		1	204921	01/22/18 12:13	AAR	TAL SAC

Client Sample ID: NAWC-010918-RW-350

Lab Sample ID: 320-34946-18

Date Collected: 01/09/18 13:10

Matrix: Water

Date Received: 01/10/18 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			204506	01/18/18 12:21	KMK	TAL SAC
Total/NA	Analysis	537		1	204922	01/22/18 12:27	AAR	TAL SAC

TestAmerica Sacramento

Lab Chronicle

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

TestAmerica Job ID: 320-34946-1

Client Sample ID: NAWC-010918-FRB-350

Lab Sample ID: 320-34946-19

Date Collected: 01/09/18 13:05

Matrix: Water

Date Received: 01/10/18 10:05

<u>Prep Type</u>	<u>Batch Type</u>	<u>Batch Method</u>	<u>Run</u>	<u>Dilution Factor</u>	<u>Batch Number</u>	<u>Prepared or Analyzed</u>	<u>Analyst</u>	<u>Lab</u>
Total/NA	Prep	537			204506	01/18/18 12:21	KMK	TAL SAC
Total/NA	Analysis	537		1	204922	01/22/18 12:32	AAR	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: 320-34946-1

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	UST-055	01-31-18
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	01-29-20
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
Wyoming	State Program	8	8TMS-L	01-28-19

Method Summary

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

TestAmerica Job ID: 320-34946-1

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: 320-34946-1

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-34946-1	NAWC-010918-RW-206	Water	01/09/18 08:10	01/10/18 10:05
320-34946-2	NAWC-010918-FRB-206	Water	01/09/18 08:05	01/10/18 10:05
320-34946-3	NAWC-010918-RW-029	Water	01/09/18 08:40	01/10/18 10:05
320-34946-4	NAWC-010918-FRB-029	Water	01/09/18 08:35	01/10/18 10:05
320-34946-5	WGNA-010918-RW-0533	Water	01/09/18 09:10	01/10/18 10:05
320-34946-6	WGNA-010918-FRB-0533	Water	01/09/18 09:05	01/10/18 10:05
320-34946-7	WGNA-010918-RW-3193	Water	01/09/18 09:40	01/10/18 10:05
320-34946-8	WGNA-010918-FRB-3193	Water	01/09/18 09:35	01/10/18 10:05
320-34946-9	WGNA-010918-DUP-17	Water	01/09/18 07:00	01/10/18 10:05
320-34946-10	NAWC-010918-RW-138	Water	01/09/18 11:10	01/10/18 10:05
320-34946-11	NAWC-010918-FRB-138	Water	01/09/18 11:05	01/10/18 10:05
320-34946-12	NAWC-010918-RW-351	Water	01/09/18 11:40	01/10/18 10:05
320-34946-13	NAWC-010918-FRB-351	Water	01/09/18 11:35	01/10/18 10:05
320-34946-14	NAWC-010918-RW-352	Water	01/09/18 12:10	01/10/18 10:05
320-34946-15	NAWC-010918-FRB-352	Water	01/09/18 12:05	01/10/18 10:05
320-34946-16	NAWC-010918-RW-353	Water	01/09/18 12:40	01/10/18 10:05
320-34946-17	NAWC-010918-FRB-353	Water	01/09/18 12:35	01/10/18 10:05
320-34946-18	NAWC-010918-RW-350	Water	01/09/18 13:10	01/10/18 10:05
320-34946-19	NAWC-010918-FRB-350	Water	01/09/18 13:05	01/10/18 10:05

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1

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.: 320-34946-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 204921

Lab Sample ID: 320-34946-10 Client Sample ID: NAWC-010918-RW-138

Date Analyzed: 01/22/18 11:40 Lab File ID: 2018.01.22_537A_026.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.08	Assign Peak	roycea	01/22/18 15:40

Lab Sample ID: 320-34946-14 Client Sample ID: NAWC-010918-RW-352

Date Analyzed: 01/22/18 11:59 Lab File ID: 2018.01.22_537A_030.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.07	Assign Peak	roycea	01/22/18 15:43

Lab Sample ID: 320-34946-16 Client Sample ID: NAWC-010918-RW-353

Date Analyzed: 01/22/18 12:08 Lab File ID: 2018.01.22_537A_032.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.07	Assign Peak	roycea	01/22/18 15:45

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 204922

Lab Sample ID: 320-34946-18 Client Sample ID: NAWC-010918-RW-350

Date Analyzed: 01/22/18 12:27 Lab File ID: 2018.01.22_537A_036.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.07	Assign Peak	roycea	01/22/18 15:49

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1

SDG No.: _____

Instrument ID: A8_N Analysis Batch Number: 205018

Lab Sample ID: 320-34946-3 Client Sample ID: NAWC-010918-RW-029

Date Analyzed: 01/22/18 16:48 Lab File ID: 2018.01.22_537AA_017.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.07	Assign Peak	roycea	01/23/18 09:18

Lab Sample ID: 320-34946-5 Client Sample ID: WGNA-010918-RW-0533

Date Analyzed: 01/22/18 16:58 Lab File ID: 2018.01.22_537AA_019.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.07	Assign Peak	roycea	01/23/18 09:19

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-34946-1

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	100.119 ng/mL
.LC537ICIM_00019	01/25/18	08/01/17	Methanol, Lot 090285	25 mL	LC537-PFBS2_00008	0.6 mL	Perfluorobutanesulfonic acid (PFBS)	9.99613 ng/mL
..LC537-PFBS2_00008	01/25/18	07/25/17	Methanol, Lot 090285	20 mL	LC537-PFHxA2_00011	0.061 mL	Perfluoroheptanoic acid (PFHpA)	20.0761 ng/mL
...LC537-PFHxA2_00011	09/08/22	Santa Cruz Biotechnology, Lot F0917			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	20.1272 ng/mL
..LC537-PFHxA2_00011	01/25/18	07/25/17	Methanol, Lot 09092	31 mL	LC537-PFHxS2_00008	0.122 mL	Perfluorohexanesulfonic acid (PFHxS)	20.4843 ng/mL
...LC537-PFHxS2_00008	06/13/22	Afla Aesar, Lot 10200390			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	19.698 ng/mL
..LC537-PFHxS2_00008	01/25/18	07/25/17	Methanol, Lot 090285	21 mL	LC537-PFNA2_00009	0.126 mL	Perfluorononanoic acid (PFNA)	20.2421 ug/mL
...LC537-PFNA2_00009	06/08/22	Santa Cruz Biotechnology, Lot G2516			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	9.849 ug/mL
..LC537-PFOA2_00010	01/25/18	08/01/17	Methanol, Lot 090285	20 mL	LC537-PFOA2_00010	0.122 mL	Perfluorooctanoic acid (PFOA)	10.0636 ug/mL
...LC537-PFOA2_00010	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	10.2421 ug/mL
..LC537-PFOA2_00010	01/25/18	08/01/17	Methanol, Lot 090285	20 mL	LC537-PFOS2_00010	0.124 mL	Perfluorooctanesulfonic acid (PFOS)	9.849 ug/mL
...LC537-PFOS2_00010	06/08/22	Santa Cruz Biotechnology, Lot G2516			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	2085.82 ug/mL
..LC537-PFNA2_00009	01/25/18	07/25/17	Methanol, Lot 090285	21 mL	LC537-PFOS2_00002	0.0418 g	Perfluorobutanesulfonic acid (PFBS)	0.998 g/g
...LC537-PFNA2_00009	06/14/22	Aldrich, Lot MKCC0699			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	0.998 g/g
..LC537-PFOA2_00010	01/25/18	08/01/17	Methanol, Lot 090285	20 mL	LC537-PFHxA2_00002	0.0635 g	Perfluoroheptanoic acid (PFHpA)	2048.39 ug/mL
...LC537-PFOA2_00010	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	1 g/g
..LC537-PFOA2_00002	06/09/22	08/01/17	Methanol, Lot 090285	20 mL	LC537-PFHxS2_00002	0.0475 g	Perfluorohexanesulfonic acid (PFHxS)	2056.98 ug/mL
...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	08/01/17	Methanol, Lot 090285	20 mL	LC537-PFOA2_00002	0.0424 g	Perfluorooctanoic acid (PFOA)	0.9094 g/g
...LC537-PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.996 g/g

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-34946-1

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_00056	05/27/18	11/27/17	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
LC537-L1_00020	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							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.: 320-34946-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
....LC537_PFBs_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537 PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537 PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL
....LC537 PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		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
LC537-L2_00020	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	80 uL	Perfluorobutanesulfonic acid (PFBS)	20.0016 ng/mL
							Perfluoroheptanoic acid (PFHpA)	2.22277 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	6.66817 ng/mL
							Perfluorononanoic acid (PFNA)	4.44524 ng/mL
							Perfluorooctanoic acid (PFOA)	4.44816 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	8.89106 ng/mL
LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL					
LC537-SU_00049	500 uL	13C4 PFOS	28.68 ng/mL					
.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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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	13C2 PFDA	47.8 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
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L3_00023	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	180 uL	Perfluorobutanesulfonic acid (PFBS)	45.0036 ng/mL
							Perfluoroheptanoic acid (PFHpA)	5.00122 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	15.0034 ng/mL
							Perfluorononanoic acid (PFNA)	10.0018 ng/mL
							Perfluorooctanoic acid (PFOA)	10.0084 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	20.0049 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-34946-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	13C2 PFHxA	10 ng/mL		
							Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL		
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL		
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL		
							Perfluorononanoic acid (PFNA)	277.827 ng/mL		
Perfluorooctanoic acid (PFOA)	278.01 ng/mL									
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		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-34946-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
LC537-L4_00020	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	360 uL	Perfluorobutanesulfonic acid (PFBS)	90.0072 ng/mL		
							Perfluoroheptanoic acid (PFHpA)	10.0024 ng/mL		
							Perfluorohexanesulfonic acid (PFHxS)	30.0067 ng/mL		
							Perfluorononanoic acid (PFNA)	20.0036 ng/mL		
							Perfluorooctanoic acid (PFOA)	20.0167 ng/mL		
							Perfluorooctanesulfonic acid (PFOS)	40.0098 ng/mL		
LC537-IS_00048					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL		
							13C4 PFOS	28.68 ng/mL		
							13C2 PFDA	10 ng/mL		
LC537-SU_00049					LC537-SU_00049	500 uL	13C2 PFHxA	10 ng/mL		
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL		
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL		
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL		
							Perfluorononanoic acid (PFNA)	277.827 ng/mL		
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL		
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL		
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL		
							LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
							LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
							LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
							LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
							LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL		
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g		
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL		
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g		
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL		
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g		
...LC537-PFNA_00013	02/10/18	08/10/17	Methanol, Lot 090285	62.3 mL	LC537 PFNA_00002	0.0647 g	Perfluorononanoic acid (PFNA)	1000.1 ug/mL		
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g		
...LC537-PFOA_00013	02/10/18	08/10/17	Methanol, Lot 090285	22.76 mL	LC537 PFOA_00003	0.0228 g	Perfluorooctanoic acid (PFOA)	1.00076 mg/mL		
....LC537_PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-34946-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC537-PFOS_00008	02/10/18	08/10/17	Methanol, Lot 090285	44.43 mL	LC537_PFOS_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00048	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LCM2PFOA 00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS 00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA 00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS 00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LCMPFDA 00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA 00013	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA 00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA 00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
LC537-L5_00024	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	540 uL	Perfluorobutanesulfonic acid (PFBS)	135.011 ng/mL
							Perfluoroheptanoic acid (PFHpA)	15.0037 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	45.0101 ng/mL
							Perfluorononanoic acid (PFNA)	30.0053 ng/mL
							Perfluorooctanoic acid (PFOA)	30.0251 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	60.0146 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
		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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-34946-1

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-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-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	02/04/18	08/04/17	Methanol, Lot 090285	30000 uL	LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
							13C2 PFDA	10 ng/mL
.LC537-SU_00049	02/04/18	08/04/17	Methanol, Lot 104453	30000 uL	LC537-SU_00049	500 uL	13C2 PFHxA	10 ng/mL
							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.: 320-34946-1

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-MSP_00027	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	166.7 uL	Perfluorobutane Sulfonate	750.15 ng/mL
							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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-34946-1

SDG No.: _____

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid (PFOS)	333.455 ug/mL
.LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutane Sulfonate	90 ug/mL
							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	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_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-SU_00054	05/27/18	11/27/17	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_00002

7: 4/1/15 SPV

3050 Spruce Street, Saint Louis, MO 63103, USA

Website: www.sigmaaldrich.com

Email USA: techserv@sial.com

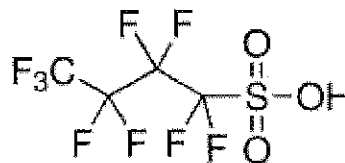
Outside USA: eurtechserv@sial.com

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 %

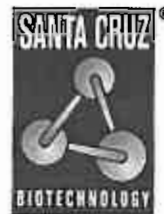
Jamie Gleason, Manager
 Quality Control
 Milwaukee, Wisconsin US

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

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

Reagent

LC537_PFHpA2_00002

Certificate of analysis

r:6.13.17 SW

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

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

Reagent

LC537_PFHxS2_00002

n: 6-8-17 SKJ

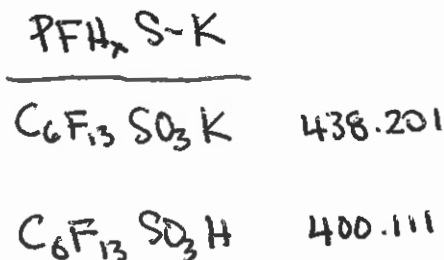


The Future of Science

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%

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

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

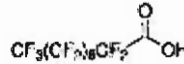
Email USA: techserv@sial.com

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

P: 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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Order our products online www.alfa.com

ThermoFisher
SCIENTIFIC

Reagent

LC537_PFOs_00003

n: 11/30/16 SV
PFOS

SIGMA-ALDRICH

CERTIFICATE OF ANALYSIS

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

Seelze, 22.04.2014/524107/14/08646

Order-No.:
Customer-No.:

Order-Code:

Quantity:

Production Date: 17.Apr.2014

Expiry Date: 17.Apr.2019

Article/Product: 33829

Batch : SZBE107XV

Heptadecafluorooctanesulfonic acid potassium salt OEKANAL®

Reference Material (RM)

1. General Information

Formula: C8F17KO3S

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

Usage : PFOS

Molar mass: 538.22 g/Mole

Recomm. storage temp.: roomtemp.

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

2. Batch Analysis

Identity

Assay (LC-MS)

Date of Analysis

complying

98 %

22.Apr.2014

3. Advice and Remarks

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

Sigma-Aldrich Laborchemikalien GmbH
Quality Management SA-LC

Reagent

LC537_PFO2_00002

R: 6.14.17 SKV

Certificate of Analysis

Product Name: HEPTADECAFLUOROOCETANESULFONIC 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

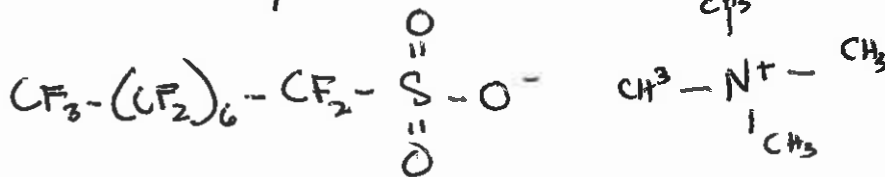
TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	WHITE TO OFF WHITE	OFF-WHITE
APPEARANCE (FORM)	POWDER OR POWDER WITH CHUNK(S)	POWDER
CARBON CONTENT	29.77 % - 31.29 %	29.97 %
INFRARED SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS

Claudia Geitner

Dr. Claudia Geitner
 Manager Quality Control
 Buchs, Switzerland

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

Purity & MW correction = 77.87%



	$C_8 F_{17} SO_3^+ H$	$C_8 H_{20} N$
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

P: 5/11/17 SKV



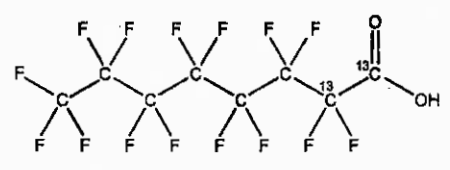
WELLINGTON LABORATORIES

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:

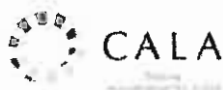
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

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.

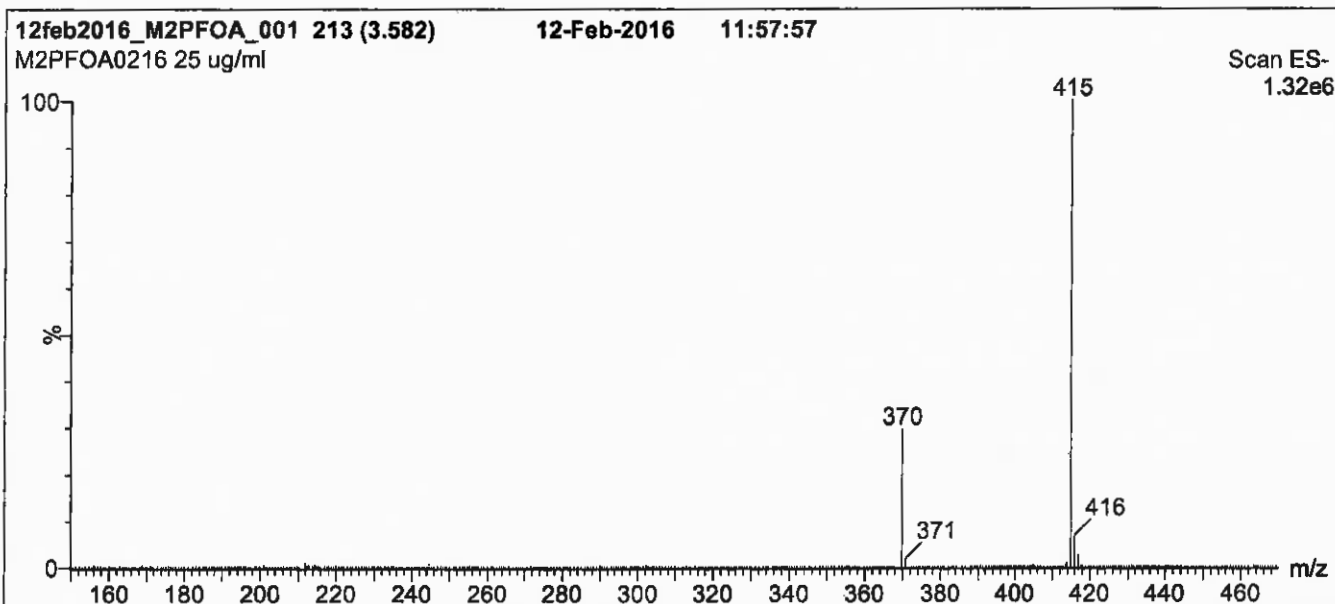
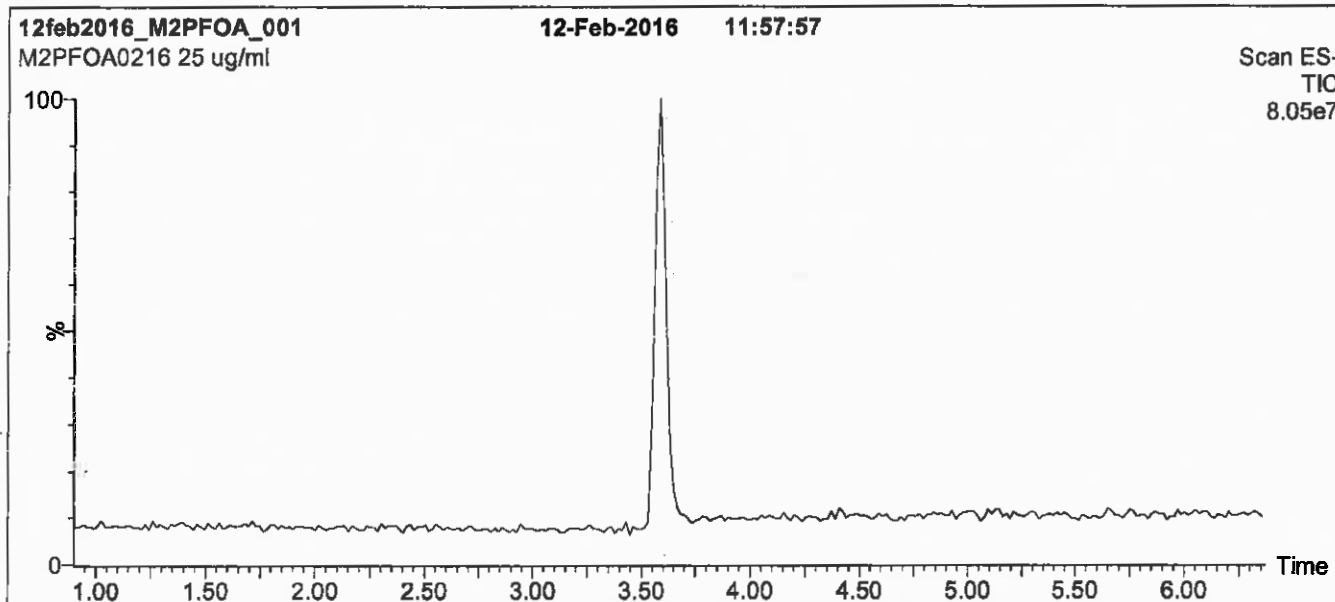
QUALITY MANAGEMENT:

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).



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

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



Conditions for Figure 1:

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

Chromatographic Conditions

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

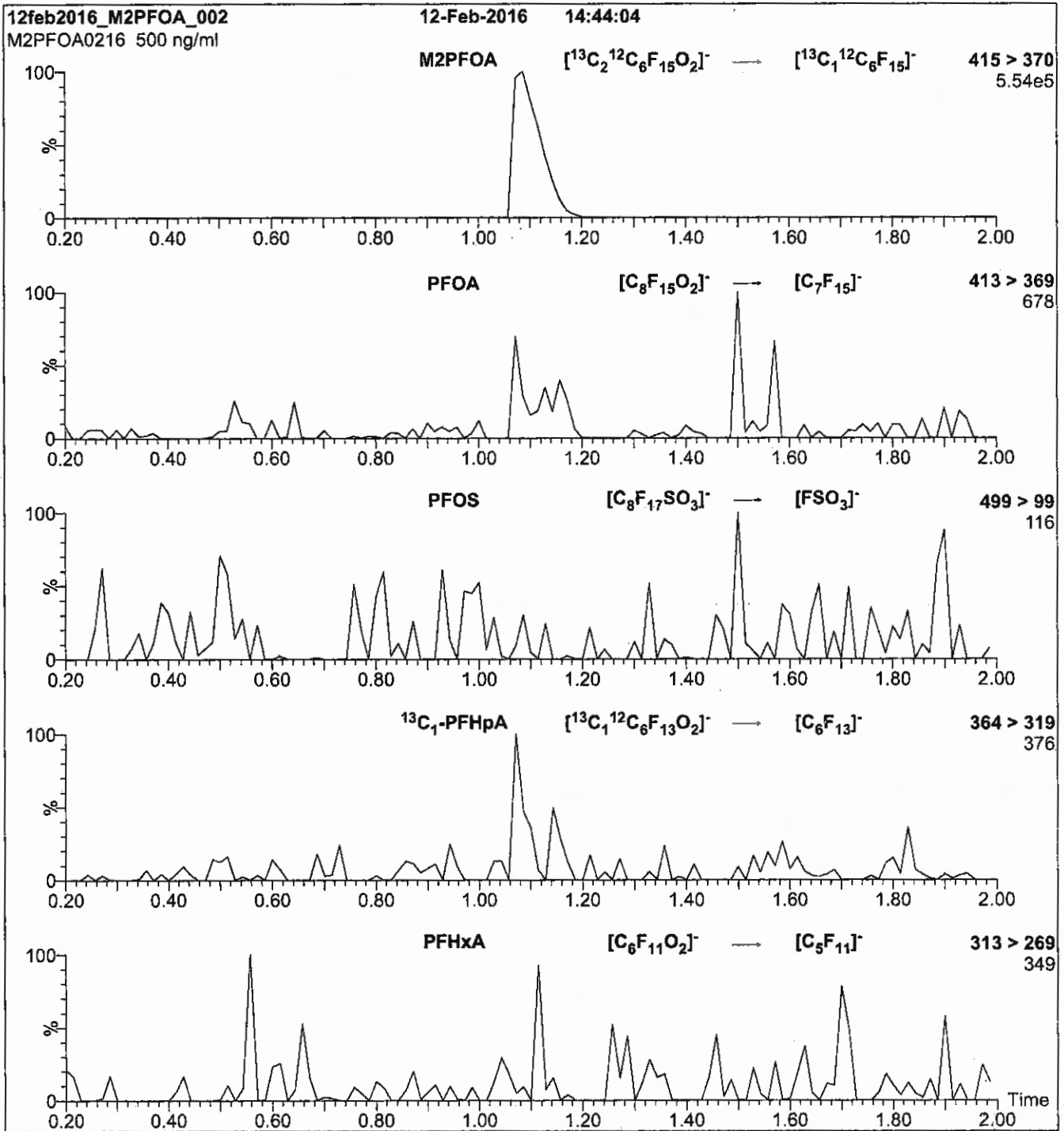
Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7.5 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 μ l/min

MS Parameters

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

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



Conditions for Figure 2:

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

Mobile phase: Isocratic 80% MeOH / 20% 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

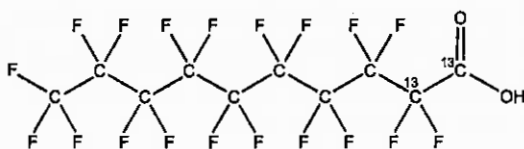


WELLINGTON LABORATORIES

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:

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

HAZARDS:

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

SYNTHESIS / CHARACTERIZATION:

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

HOMOGENEITY:

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

UNCERTAINTY:

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

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

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

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

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

TRACEABILITY:

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

EXPIRY DATE / PERIOD OF VALIDITY:

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

LIMITED WARRANTY:

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

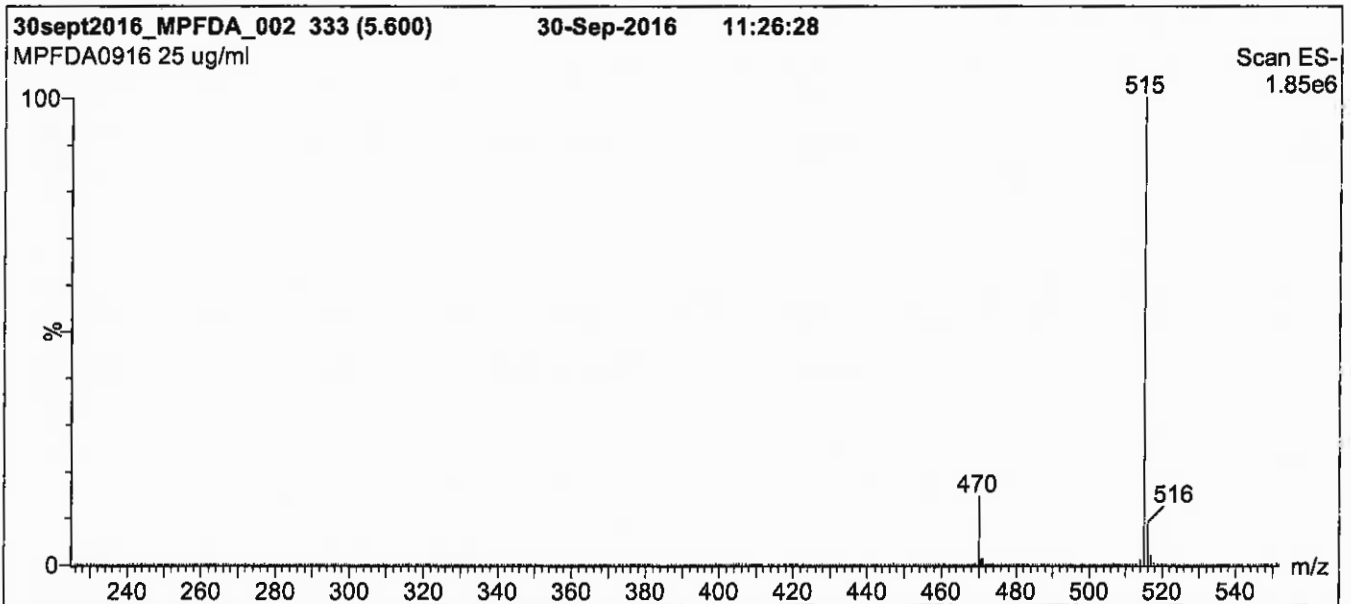
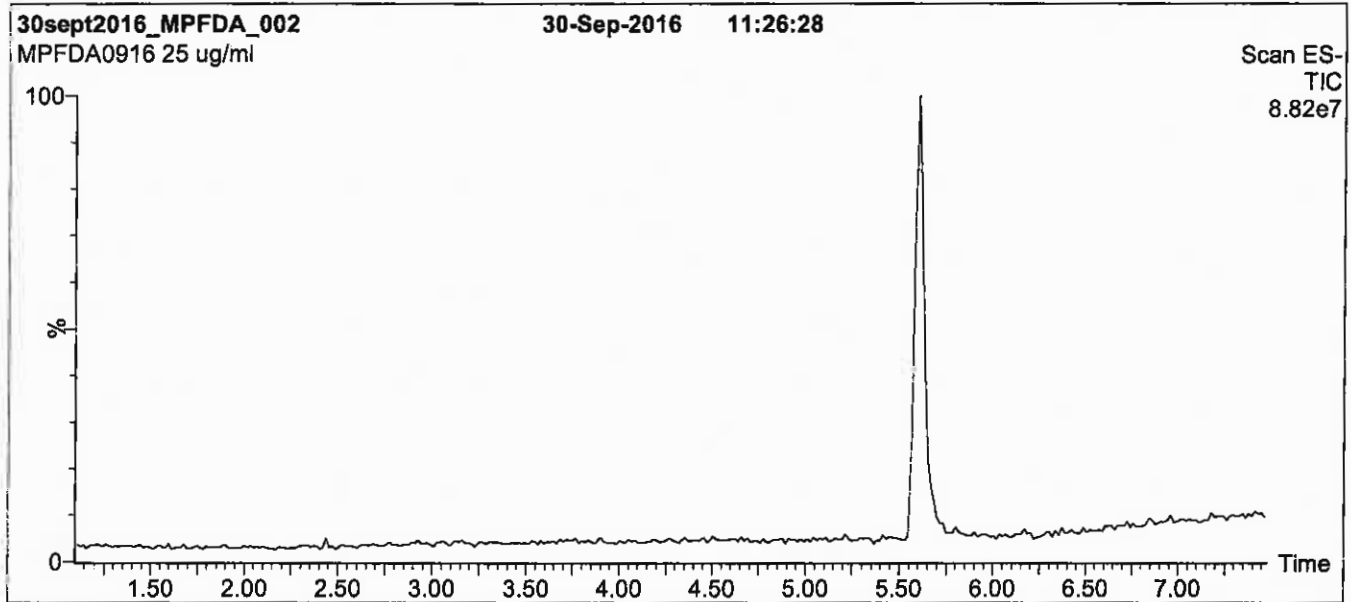
QUALITY MANAGEMENT:

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



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

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



Conditions for Figure 1:

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

Chromatographic Conditions

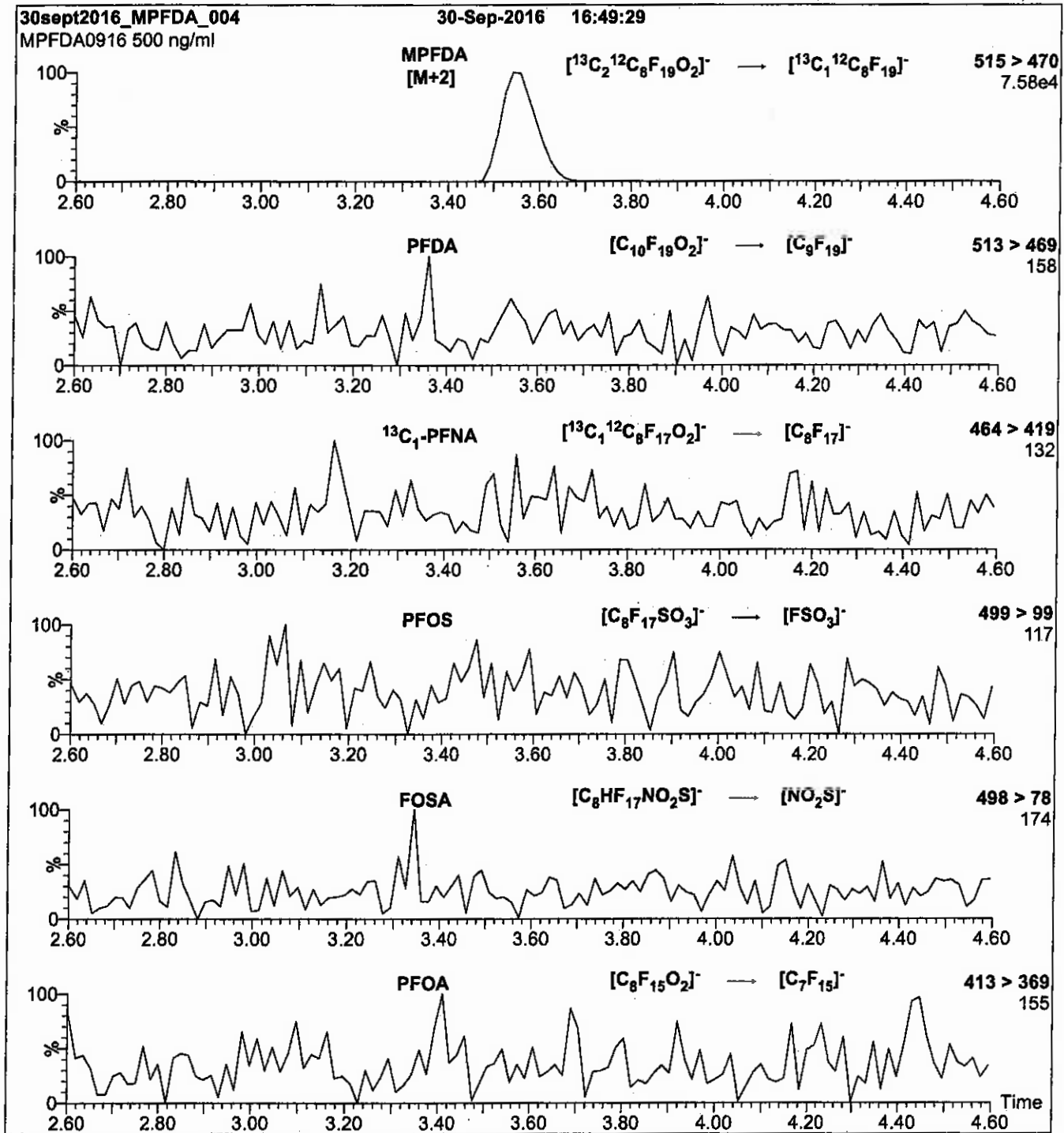
Column: Acquity UPLC BEH Shield RP₁₈
1.7 μ m, 2.1 x 100 mm
Mobile phase: Gradient
Start: 50% (80:20 MeOH:ACN) / 50% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 1.5 min
before returning to initial conditions in 0.5 min.
Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (225 - 850 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 50
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% 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 Prgd: SBC
13C2-Perfluorohexanoic ac



WELLINGTON LABORATORIES

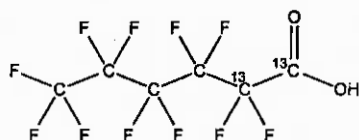
CERTIFICATE OF ANALYSIS DOCUMENTATION

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:

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.

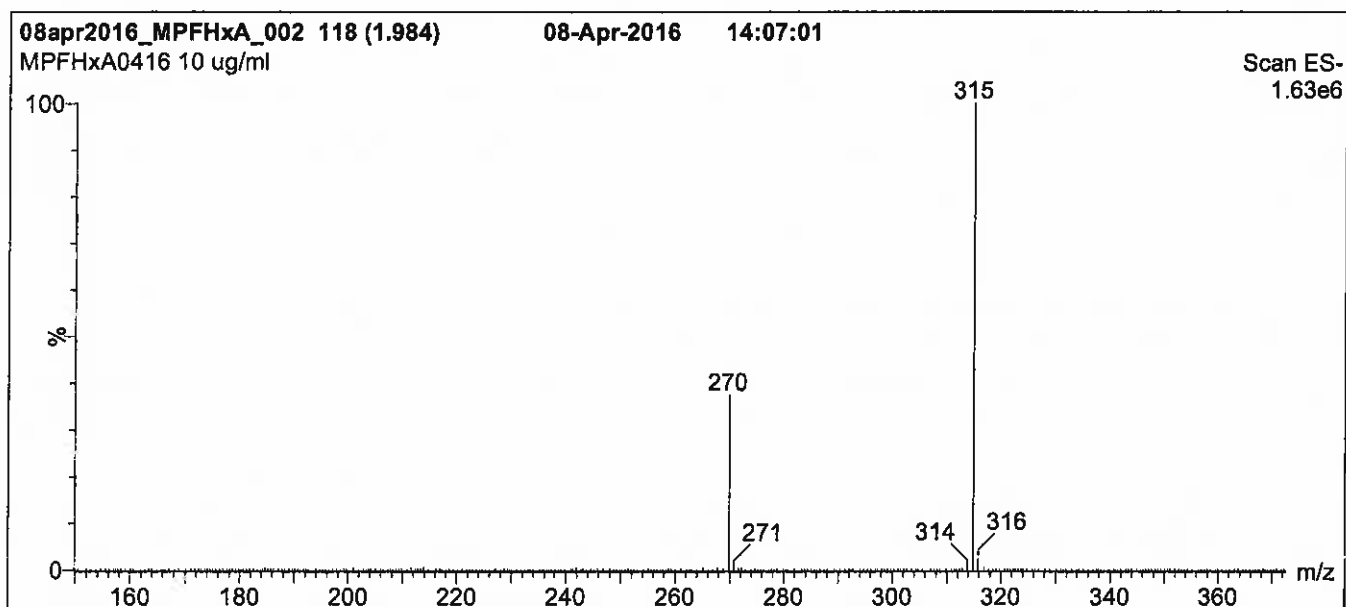
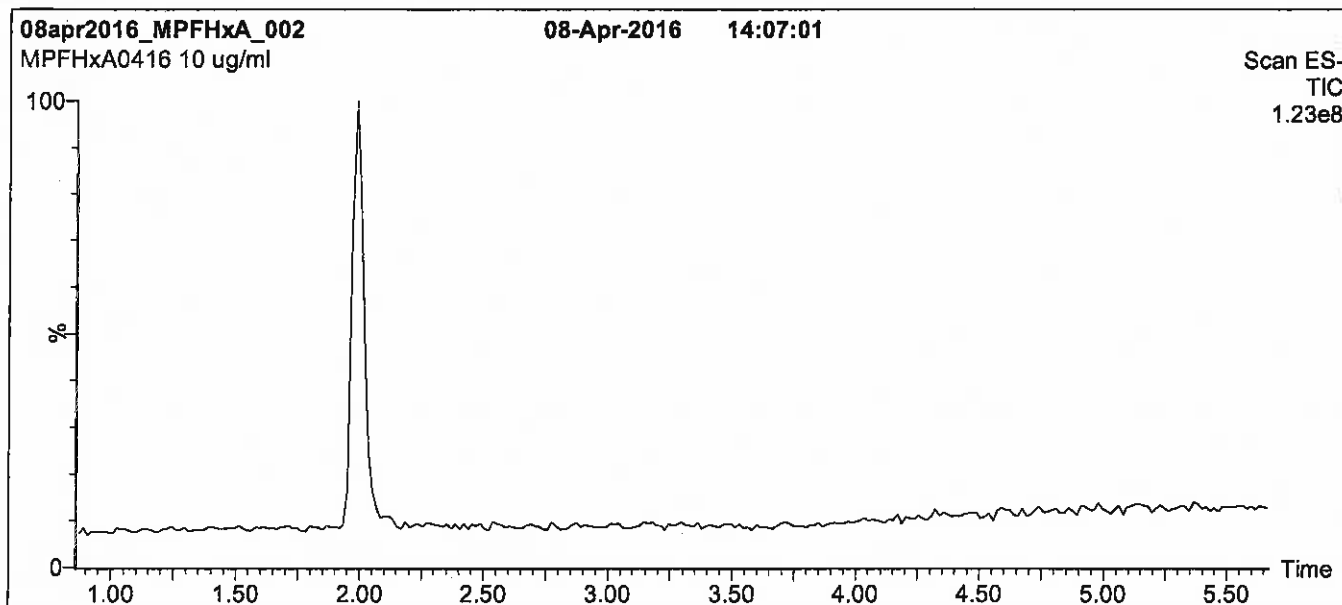
QUALITY MANAGEMENT:

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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

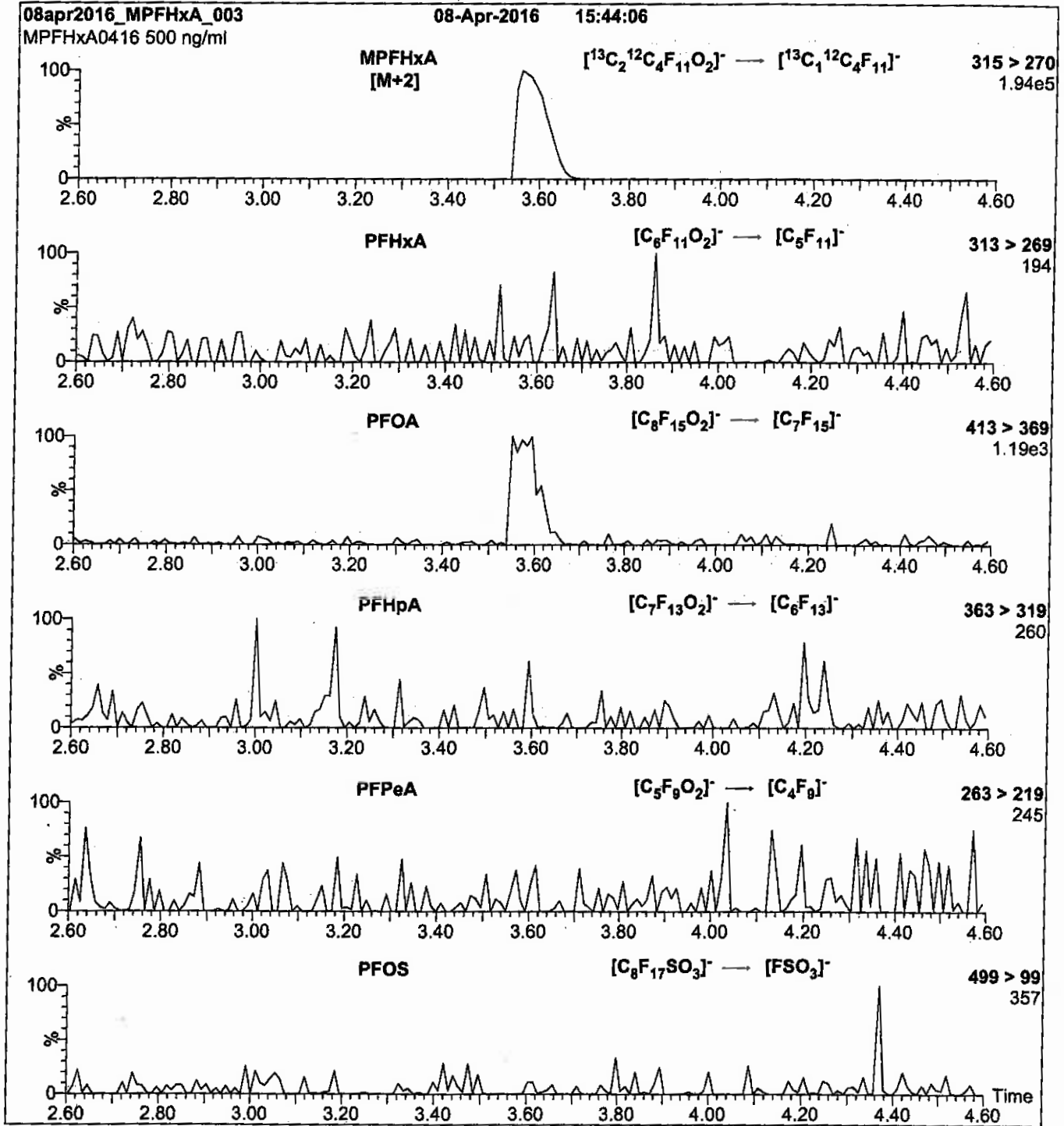
Flow: 300 μ l/min

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



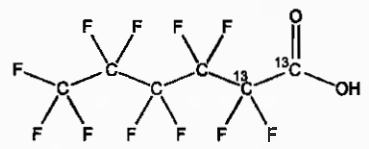
WELLINGTON LABORATORIES

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%

ISOTOPIC PURITY: ≥99% ¹³C
(1,2-¹³C₂)

LAST TESTED: (mm/dd/yyyy) 11/22/2016

EXPIRY DATE: (mm/dd/yyyy) 11/22/2021

RECOMMENDED STORAGE: Store ampoule in a cool, dark place

DOCUMENTATION/ DATA ATTACHED:

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

ADDITIONAL INFORMATION:

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

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Certified By: 
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Date: 12/13/2016
(mm/dd/yyyy)

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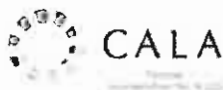
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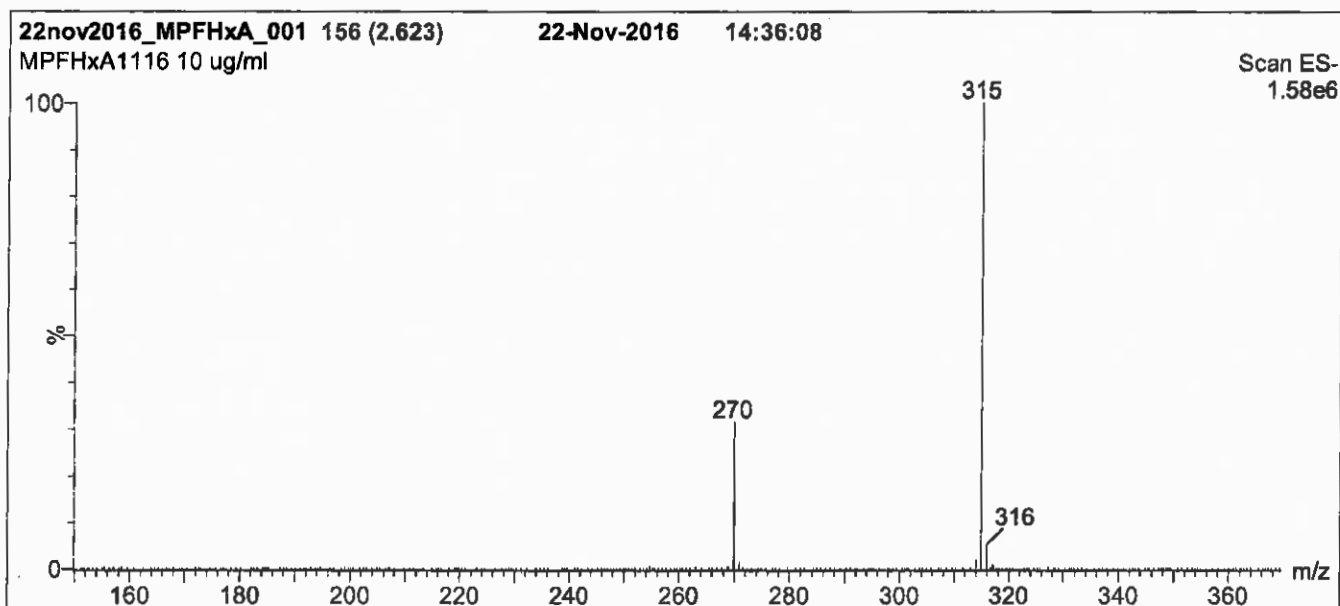
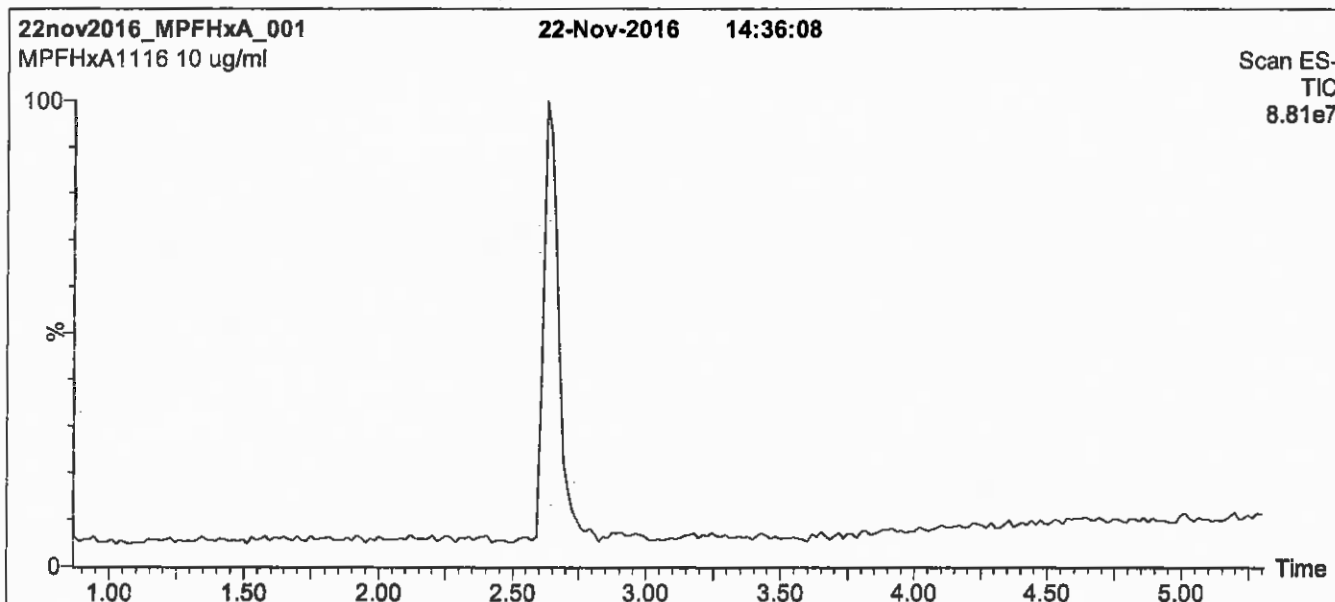
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Conditions for Figure 1:

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

Chromatographic Conditions

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

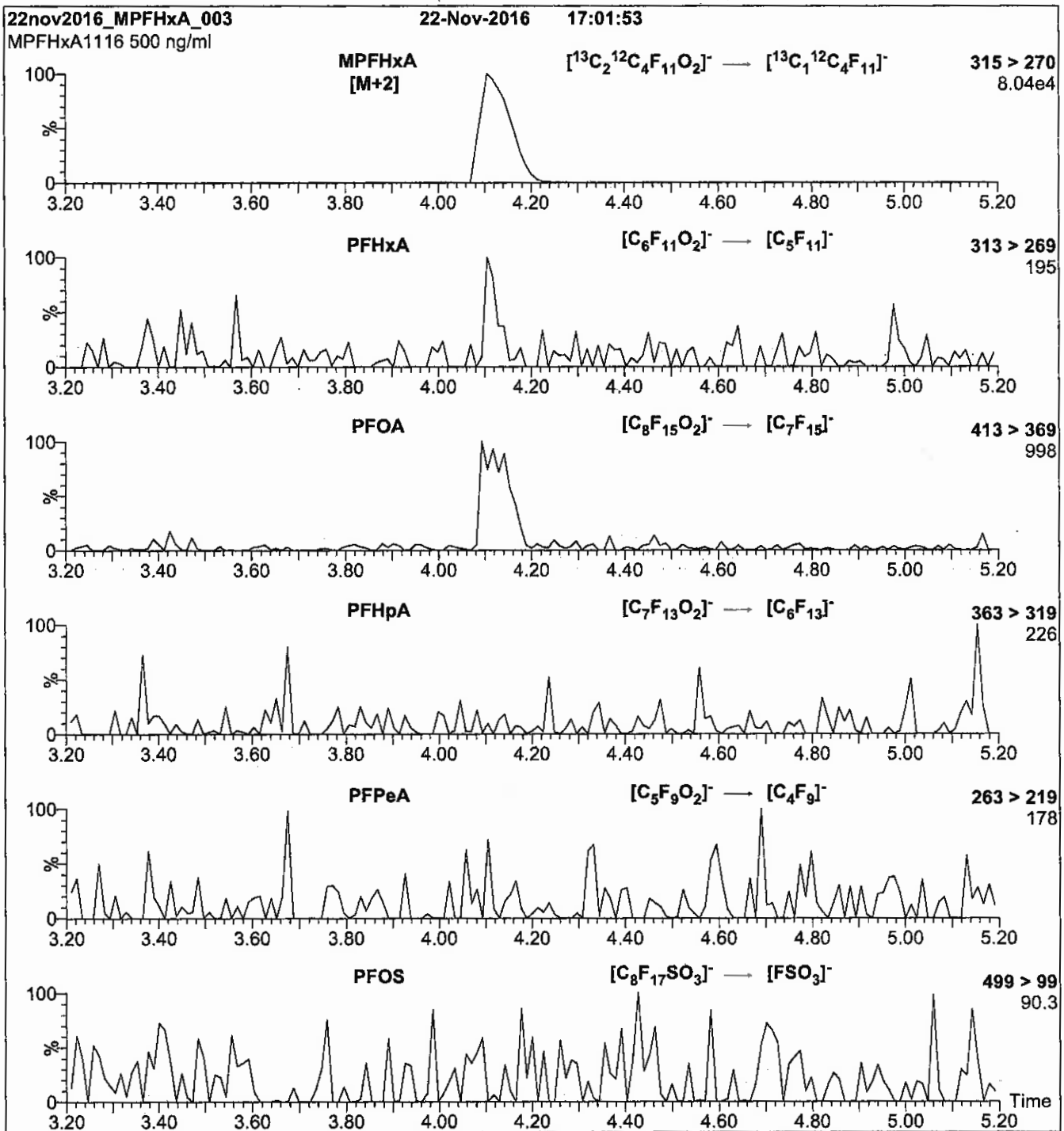
Mobile phase: Gradient
Start: 40% (80:20 MeOH:ACN) / 60% H₂O
(both with 10 mM NH₄OAc buffer)
Ramp to 90% organic over 7 min and hold for 2 min
before returning to initial conditions over 0.5 min.
Time: 10 min

Flow: 300 μ l/min

MS Parameters

Experiment: Full Scan (150 - 850 amu)
Source: Electrospray (negative)
Capillary Voltage (kV) = 2.00
Cone Voltage (V) = 15.00
Cone Gas Flow (l/hr) = 100
Desolvation Gas Flow (l/hr) = 750

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



Conditions for Figure 2:

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

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

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

MS Parameters

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

Reagent

LCMPFOS_00019

R: SBC 12/21/16



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

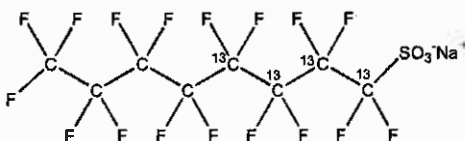


WELLINGTON LABORATORIES

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.

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

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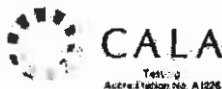
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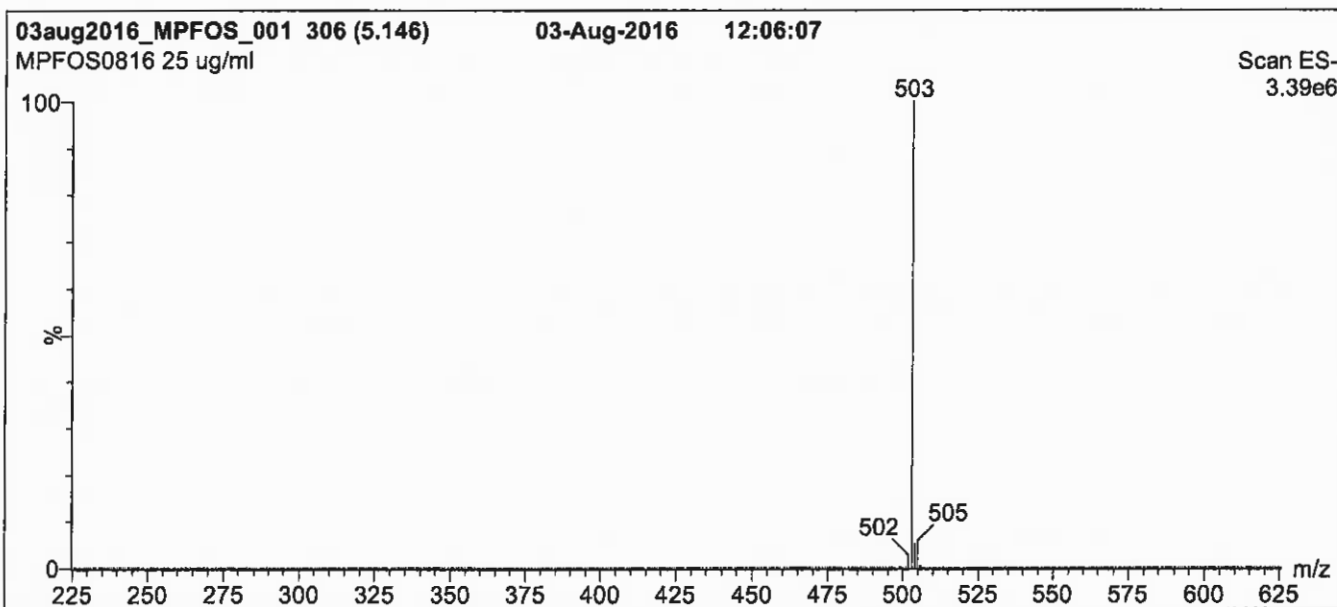
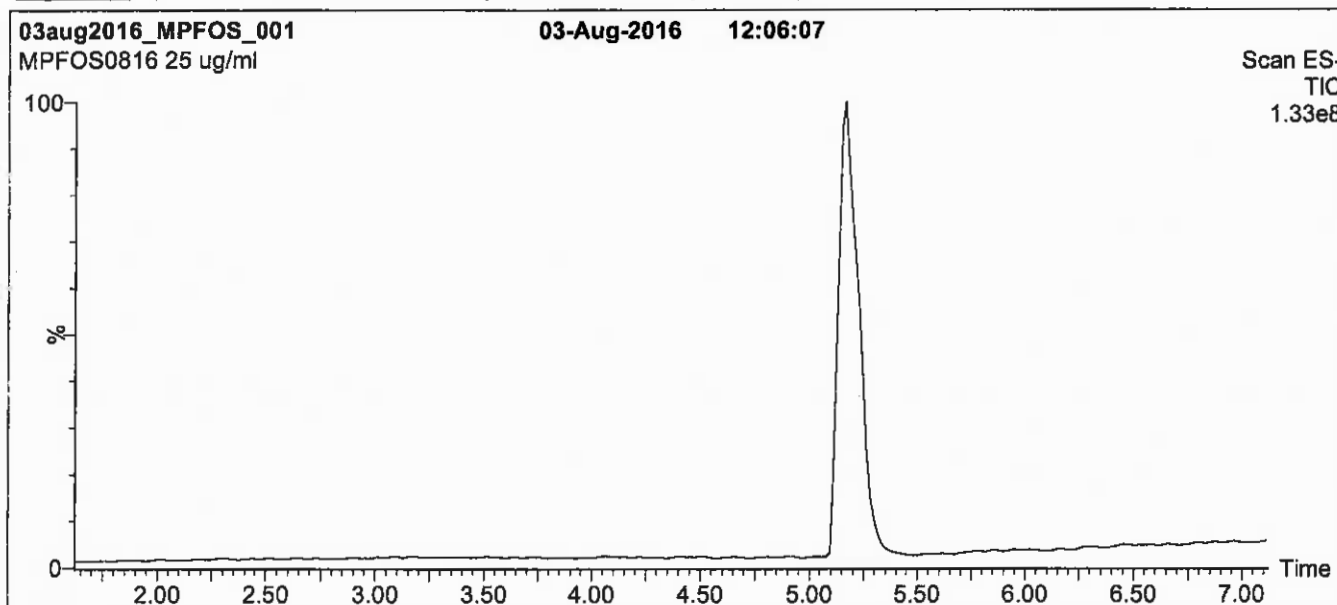
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Figure 1: MPFOS; LC/MS Data (TIC and Mass Spectrum)



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: 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

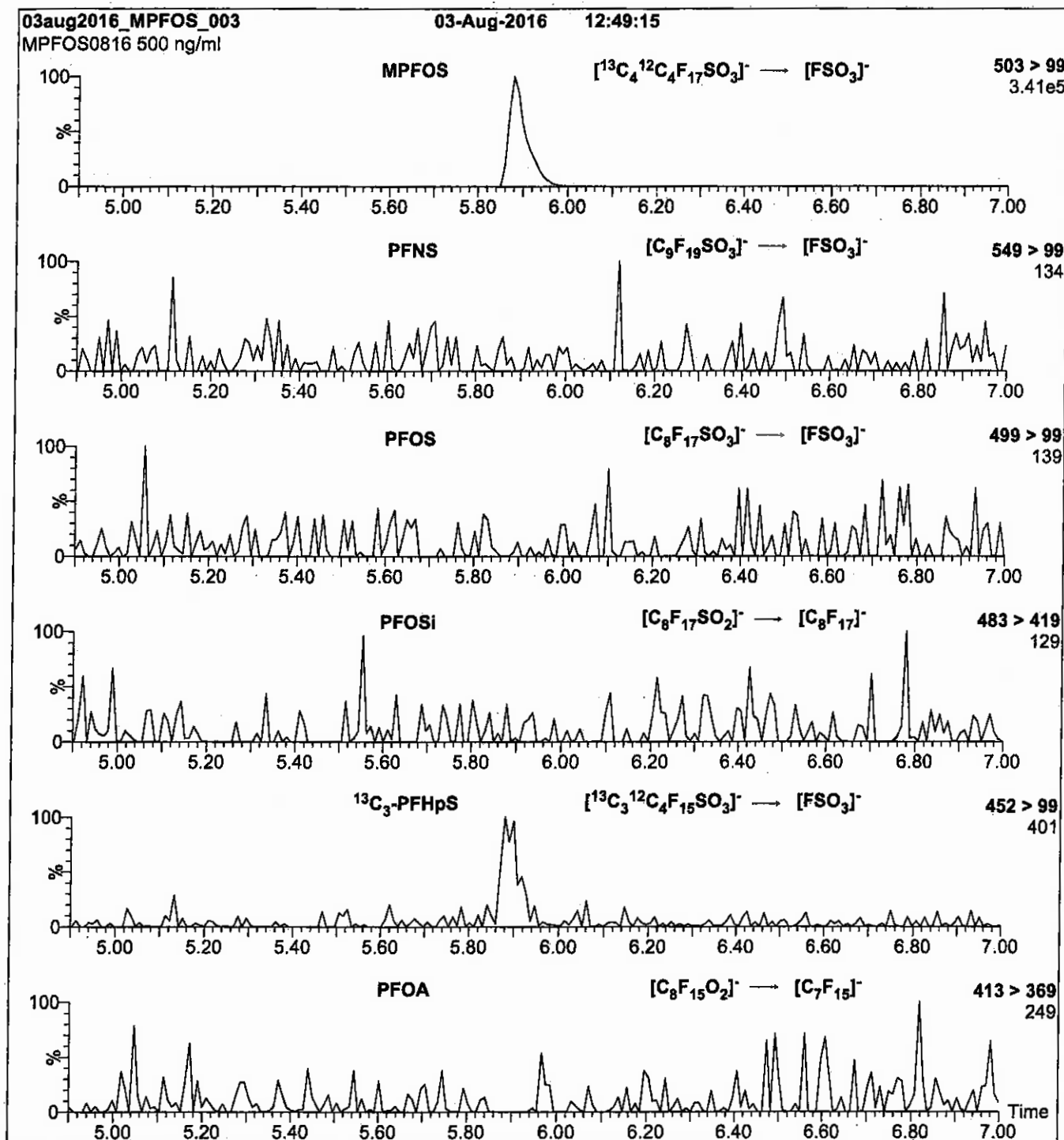
Flow: 300 μ l/min

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

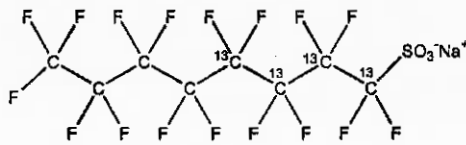


WELLINGTON LABORATORIES

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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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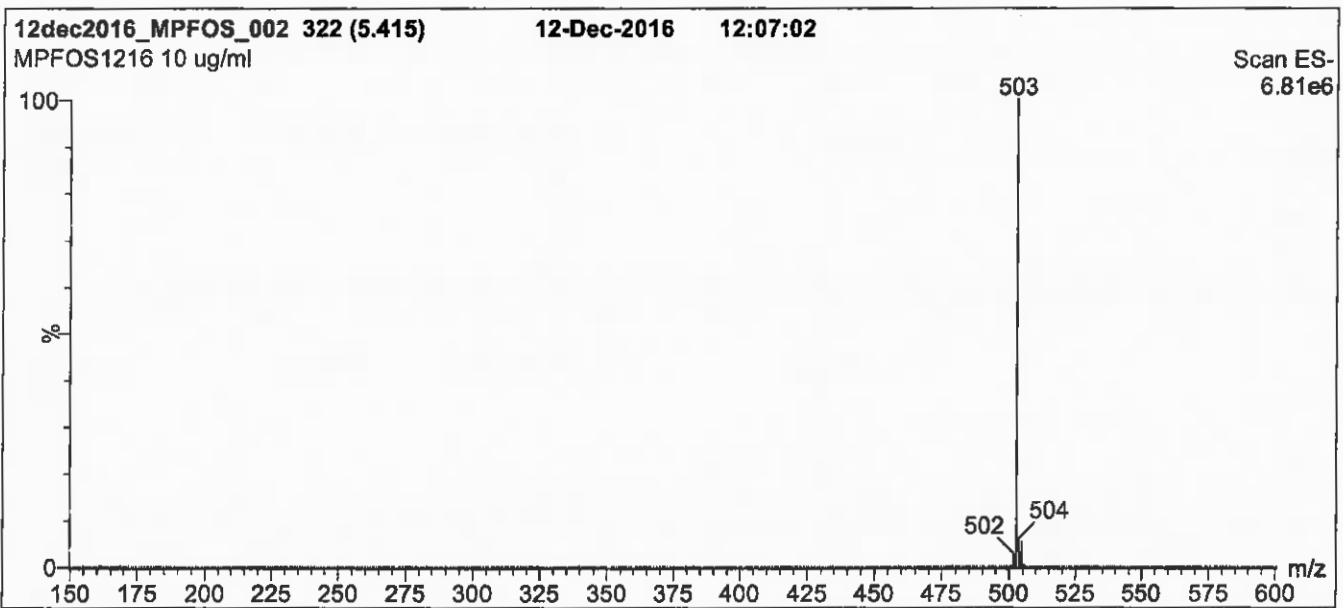
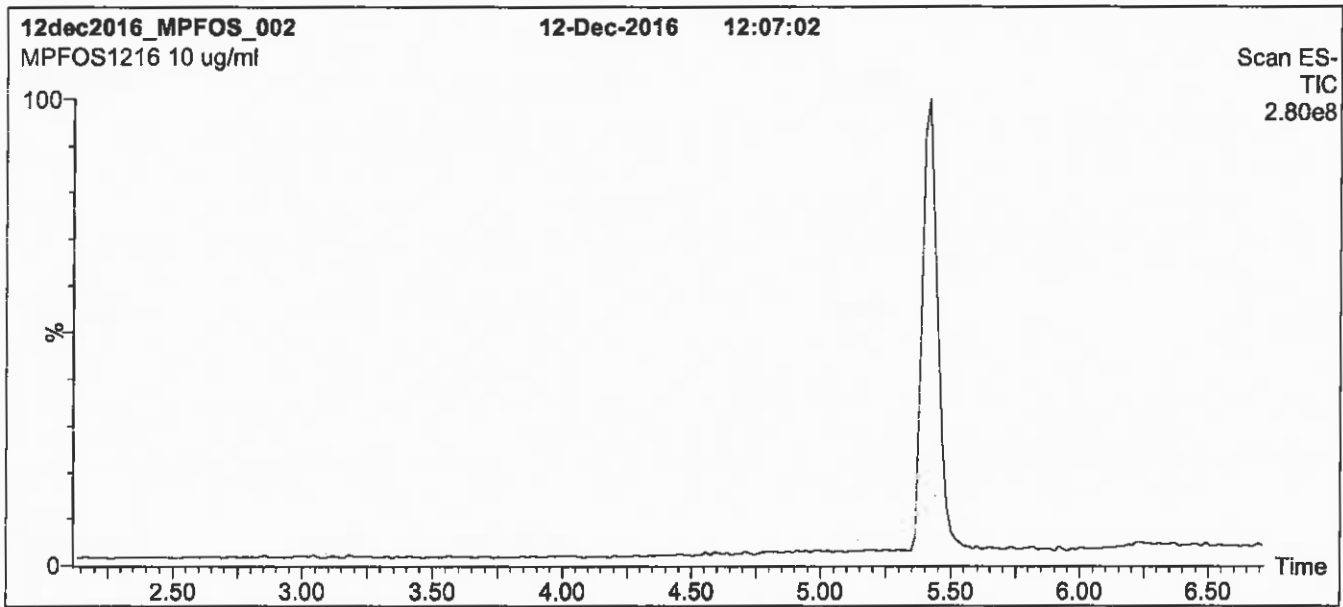
QUALITY MANAGEMENT:

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: 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

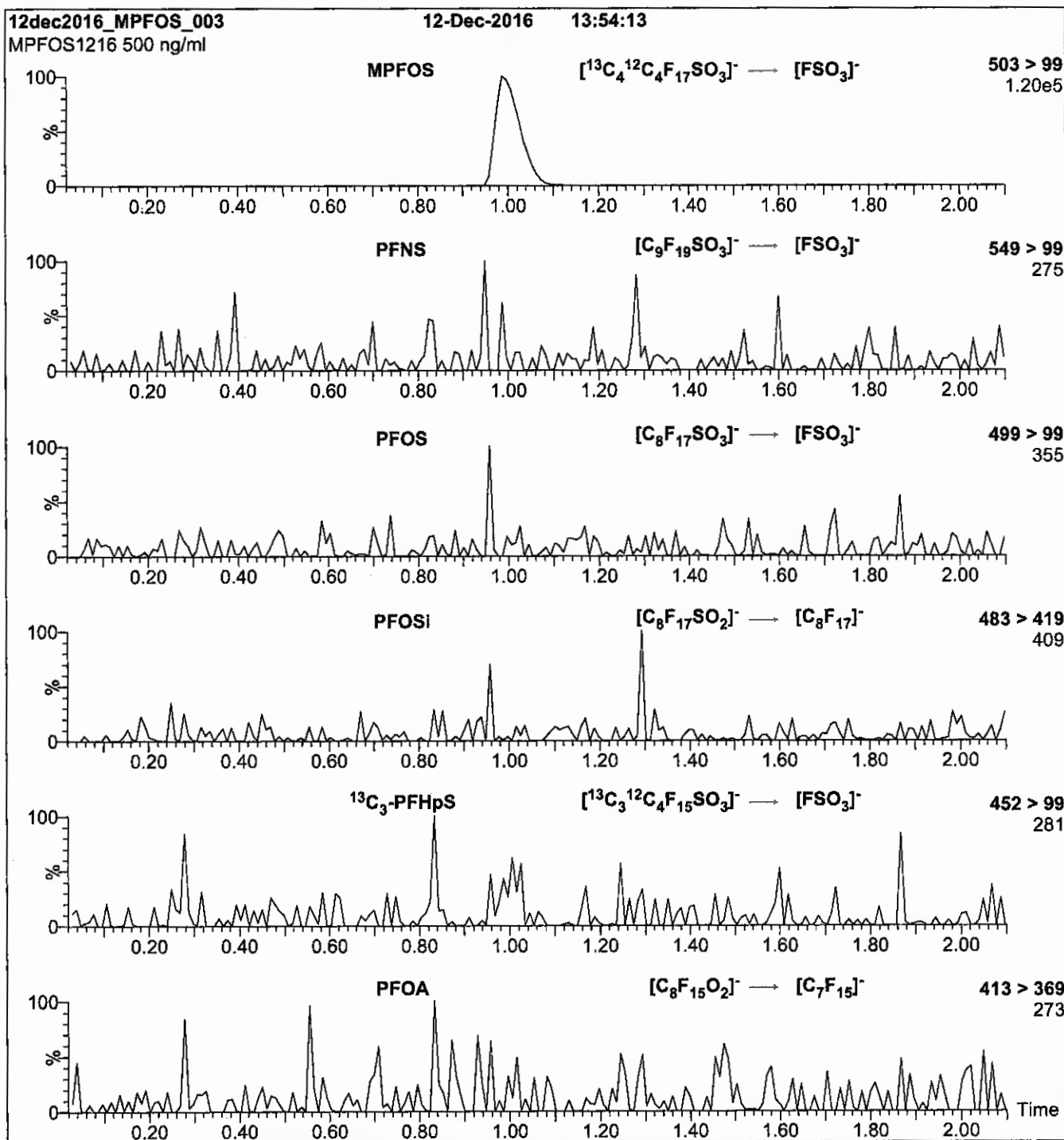
Flow: 300 μ l/min

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.: 320-34946-1

SDG No.: _____

Matrix: Water

Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
NAWC-010918-RW-206	320-34946-1	94	114
NAWC-010918-FRB-206	320-34946-2	95	103
NAWC-010918-RW-029	320-34946-3	89	100
NAWC-010918-FRB-029	320-34946-4	99	106
WGNA-010918-RW-0533	320-34946-5	93	103
WGNA-010918-FRB-0533	320-34946-6	96	109
WGNA-010918-RW-3193	320-34946-7	93	112
WGNA-010918-FRB-3193	320-34946-8	103	111
WGNA-010918-DUP-17	320-34946-9	98	106
NAWC-010918-RW-138	320-34946-10	95	110
NAWC-010918-FRB-138	320-34946-11	96	104
NAWC-010918-RW-351	320-34946-12	89	104
NAWC-010918-FRB-351	320-34946-13	90	100
NAWC-010918-RW-352	320-34946-14	88	99
NAWC-010918-FRB-352	320-34946-15	101	103
NAWC-010918-RW-353	320-34946-16	94	99
NAWC-010918-FRB-353	320-34946-17	102	97
NAWC-010918-RW-350	320-34946-18	94	102
NAWC-010918-FRB-350	320-34946-19	96	108
	MB 320-204506/1-A	91	105
	LCS 320-204506/2-A	94	103
	LCSD 320-204506/3-A	93	102

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

QC LIMITS
70-130
70-130

Column to be used to flag recovery values

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2018.01.22_537AA_013.d
 Lab ID: LCS 320-204506/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	133	139	104	70-130	
Perfluorooctanoic acid (PFOA)	66.7	66.8	100	70-130	
Perfluorononanoic acid (PFNA)	66.7	65.9	99	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	112	112	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	38.4	115	70-130	
Perfluorobutanesulfonic acid (PFBS)	300	268	89	70-130	

Column to be used to flag recovery and RPD values

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: 2018.01.22_537AA_014.d

Lab ID: LCSD 320-204506/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	133	135	102	2	30	70-130	
Perfluorooctanoic acid (PFOA)	66.7	68.2	102	2	30	70-130	
Perfluorononanoic acid (PFNA)	66.7	64.9	97	1	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	109	109	3	30	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	37.3	112	3	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	300	293	98	9	30	70-130	

Column to be used to flag recovery and RPD values

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Lab File ID: 2018.01.22_537AA_012.d Lab Sample ID: MB 320-204506/1-A
 Matrix: Water Date Extracted: 01/18/2018 12:21
 Instrument ID: A8_N Date Analyzed: 01/22/2018 16:25
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
WGNA-010918-FRB-3193	320-34946-8	2018.01.22_537A_024.d	01/22/2018 11:31
WGNA-010918-DUP-17	320-34946-9	2018.01.22_537A_025.d	01/22/2018 11:36
NAWC-010918-RW-138	320-34946-10	2018.01.22_537A_026.d	01/22/2018 11:40
NAWC-010918-FRB-138	320-34946-11	2018.01.22_537A_027.d	01/22/2018 11:45
NAWC-010918-RW-351	320-34946-12	2018.01.22_537A_028.d	01/22/2018 11:50
NAWC-010918-FRB-351	320-34946-13	2018.01.22_537A_029.d	01/22/2018 11:54
NAWC-010918-RW-352	320-34946-14	2018.01.22_537A_030.d	01/22/2018 11:59
NAWC-010918-FRB-352	320-34946-15	2018.01.22_537A_031.d	01/22/2018 12:04
NAWC-010918-RW-353	320-34946-16	2018.01.22_537A_032.d	01/22/2018 12:08
NAWC-010918-FRB-353	320-34946-17	2018.01.22_537A_033.d	01/22/2018 12:13
NAWC-010918-RW-350	320-34946-18	2018.01.22_537A_036.d	01/22/2018 12:27
NAWC-010918-FRB-350	320-34946-19	2018.01.22_537A_037.d	01/22/2018 12:32
	LCS 320-204506/2-A	2018.01.22_537AA_013.d	01/22/2018 16:29
	LCSD 320-204506/3-A	2018.01.22_537AA_014.d	01/22/2018 16:34
NAWC-010918-RW-206	320-34946-1	2018.01.22_537AA_015.d	01/22/2018 16:39
NAWC-010918-FRB-206	320-34946-2	2018.01.22_537AA_016.d	01/22/2018 16:43
NAWC-010918-RW-029	320-34946-3	2018.01.22_537AA_017.d	01/22/2018 16:48
NAWC-010918-FRB-029	320-34946-4	2018.01.22_537AA_018.d	01/22/2018 16:53
WGNA-010918-RW-0533	320-34946-5	2018.01.22_537AA_019.d	01/22/2018 16:58
WGNA-010918-FRB-0533	320-34946-6	2018.01.22_537AA_020.d	01/22/2018 17:02
WGNA-010918-RW-3193	320-34946-7	2018.01.22_537AA_021.d	01/22/2018 17:07

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 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 320-204917/1	1738614	1.87	3477849	2.12		
CCV 320-204921/19 CCVIS	1632653	1.82	3463169	2.08		
320-34946-8	WGNA-010918-FRB-3193	1501342	1.82	3371803	2.08	
320-34946-9	WGNA-010918-DUP-17	1561546	1.82	3455362	2.08	
320-34946-10	NAWC-010918-RW-138	1497454	1.82	3444274	2.08	
320-34946-11	NAWC-010918-FRB-138	1589423	1.82	3480486	2.08	
320-34946-12	NAWC-010918-RW-351	1543505	1.82	3463043	2.07	
320-34946-13	NAWC-010918-FRB-351	1535261	1.81	3428696	2.07	
320-34946-14	NAWC-010918-RW-352	1617639	1.81	3631152	2.07	
320-34946-15	NAWC-010918-FRB-352	1521010	1.82	3507636	2.07	
320-34946-16	NAWC-010918-RW-353	1517995	1.82	3452403	2.07	
320-34946-17	NAWC-010918-FRB-353	1518249	1.82	3454812	2.07	
CCV 320-204921/31 CCVIS	1873070	1.81	4087694	2.06		
CCV 320-204922/31 CCVIS	1873070	1.81	4087694	2.06		
320-34946-18	NAWC-010918-RW-350	1580097	1.81	3591601	2.06	
320-34946-19	NAWC-010918-FRB-350	1536831	1.81	3449393	2.06	
CCV 320-204922/35 CCVIS	1842177	1.81	3878695	2.06		
CCV 320-205018/1 CCVIS	1466727	1.81	3308445	2.07		
MB 320-204506/1-A	1483444	1.81	3277713	2.07		
LCS 320-204506/2-A	1503099	1.81	3184393	2.06		
LCSD 320-204506/3-A	1502453	1.81	3263362	2.07		
320-34946-1	NAWC-010918-RW-206	1461158	1.81	3191383	2.07	
320-34946-2	NAWC-010918-FRB-206	1586681	1.81	3365297	2.06	
320-34946-3	NAWC-010918-RW-029	1560349	1.81	3170102	2.07	
320-34946-4	NAWC-010918-FRB-029	1515701	1.81	3325992	2.06	
320-34946-5	WGNA-010918-RW-0533	1612121	1.81	3426741	2.07	

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.: 320-34946-1
 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					
320-34946-6	WGNA-010918-FRB-0533	1504173	1.81	3343189	2.07	
320-34946-7	WGNA-010918-RW-3193	1596201	1.81	3463029	2.06	
CCV 320-205018/13 CCVIS		1436325	1.81	3236840	2.06	

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.: 320-34946-1
 SDG No.: _____
 Sample No.: CCV 320-204921/19 Date Analyzed: 01/22/2018 11:22
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.01.22_537A_022 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1632653	1.82	3463169	2.08		
UPPER LIMIT	2285714	2.32	4848437	2.58		
LOWER LIMIT	1142857	1.32	2424218	1.58		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-34946-8	WGNA-010918-FRB-3193	1501342	1.82	3371803	2.08	
320-34946-9	WGNA-010918-DUP-17	1561546	1.82	3455362	2.08	
320-34946-10	NAWC-010918-RW-138	1497454	1.82	3444274	2.08	
320-34946-11	NAWC-010918-FRB-138	1589423	1.82	3480486	2.08	
320-34946-12	NAWC-010918-RW-351	1543505	1.82	3463043	2.07	
320-34946-13	NAWC-010918-FRB-351	1535261	1.81	3428696	2.07	
320-34946-14	NAWC-010918-RW-352	1617639	1.81	3631152	2.07	
320-34946-15	NAWC-010918-FRB-352	1521010	1.82	3507636	2.07	
320-34946-16	NAWC-010918-RW-353	1517995	1.82	3452403	2.07	
320-34946-17	NAWC-010918-FRB-353	1518249	1.82	3454812	2.07	

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.: 320-34946-1
 SDG No.: _____
 Sample No.: CCV 320-204921/31 Date Analyzed: 01/22/2018 12:18
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.01.22_537A_034 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1873070	1.81	4087694	2.06		
UPPER LIMIT	2622298	2.31	5722772	2.56		
LOWER LIMIT	1311149	1.31	2861386	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-34946-8	WGNA-010918-FRB-3193	1501342	1.82	3371803	2.08	
320-34946-9	WGNA-010918-DUP-17	1561546	1.82	3455362	2.08	
320-34946-10	NAWC-010918-RW-138	1497454	1.82	3444274	2.08	
320-34946-11	NAWC-010918-FRB-138	1589423	1.82	3480486	2.08	
320-34946-12	NAWC-010918-RW-351	1543505	1.82	3463043	2.07	
320-34946-13	NAWC-010918-FRB-351	1535261	1.81	3428696	2.07	
320-34946-14	NAWC-010918-RW-352	1617639	1.81	3631152	2.07	
320-34946-15	NAWC-010918-FRB-352	1521010	1.82	3507636	2.07	
320-34946-16	NAWC-010918-RW-353	1517995	1.82	3452403	2.07	
320-34946-17	NAWC-010918-FRB-353	1518249	1.82	3454812	2.07	

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.: 320-34946-1
 SDG No.: _____
 Sample No.: CCV 320-204922/31 Date Analyzed: 01/22/2018 12:18
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.01.22_537A_034 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1873070	1.81	4087694	2.06		
UPPER LIMIT	2622298	2.31	5722772	2.56		
LOWER LIMIT	1311149	1.31	2861386	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-34946-18	NAWC-010918-RW-350	1580097	1.81	3591601	2.06	
320-34946-19	NAWC-010918-FRB-350	1536831	1.81	3449393	2.06	

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.: 320-34946-1
 SDG No.: _____
 Sample No.: CCV 320-204922/35 Date Analyzed: 01/22/2018 12:36
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.01.22_537A_038 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1842177	1.81	3878695	2.06		
UPPER LIMIT	2579048	2.31	5430173	2.56		
LOWER LIMIT	1289524	1.31	2715087	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-34946-18	NAWC-010918-RW-350		1580097	1.81	3591601	2.06
320-34946-19	NAWC-010918-FRB-350		1536831	1.81	3449393	2.06

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.: 320-34946-1
 SDG No.: _____
 Sample No.: CCV 320-205018/1 Date Analyzed: 01/22/2018 16:15
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.01.22_537AA_01 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1466727	1.81	3308445	2.07		
UPPER LIMIT	2053418	2.31	4631823	2.57		
LOWER LIMIT	1026709	1.31	2315912	1.57		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-204506/1-A		1483444	1.81	3277713	2.07	
LCS 320-204506/2-A		1503099	1.81	3184393	2.06	
LCSD 320-204506/3-A		1502453	1.81	3263362	2.07	
320-34946-1	NAWC-010918-RW-206	1461158	1.81	3191383	2.07	
320-34946-2	NAWC-010918-FRB-206	1586681	1.81	3365297	2.06	
320-34946-3	NAWC-010918-RW-029	1560349	1.81	3170102	2.07	
320-34946-4	NAWC-010918-FRB-029	1515701	1.81	3325992	2.06	
320-34946-5	WGNA-010918-RW-0533	1612121	1.81	3426741	2.07	
320-34946-6	WGNA-010918-FRB-0533	1504173	1.81	3343189	2.07	
320-34946-7	WGNA-010918-RW-3193	1596201	1.81	3463029	2.06	

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.: 320-34946-1
 SDG No.: _____
 Sample No.: CCV 320-205018/13 Date Analyzed: 01/22/2018 17:12
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.01.22_537AA_02 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1436325	1.81	3236840	2.06		
UPPER LIMIT	2010855	2.31	4531576	2.56		
LOWER LIMIT	1005428	1.31	2265788	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-204506/1-A		1483444	1.81	3277713	2.07	
LCS 320-204506/2-A		1503099	1.81	3184393	2.06	
LCSD 320-204506/3-A		1502453	1.81	3263362	2.07	
320-34946-1	NAWC-010918-RW-206	1461158	1.81	3191383	2.07	
320-34946-2	NAWC-010918-FRB-206	1586681	1.81	3365297	2.06	
320-34946-3	NAWC-010918-RW-029	1560349	1.81	3170102	2.07	
320-34946-4	NAWC-010918-FRB-029	1515701	1.81	3325992	2.06	
320-34946-5	WGNA-010918-RW-0533	1612121	1.81	3426741	2.07	
320-34946-6	WGNA-010918-FRB-0533	1504173	1.81	3343189	2.07	
320-34946-7	WGNA-010918-RW-3193	1596201	1.81	3463029	2.06	

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.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-206 Lab Sample ID: 320-34946-1
 Matrix: Water Lab File ID: 2018.01.22_537AA_015.d
 Analysis Method: 537 Date Collected: 01/09/2018 08:10
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 251.3(mL) Date Analyzed: 01/22/2018 16:39
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	14	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)	4.3	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	114		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

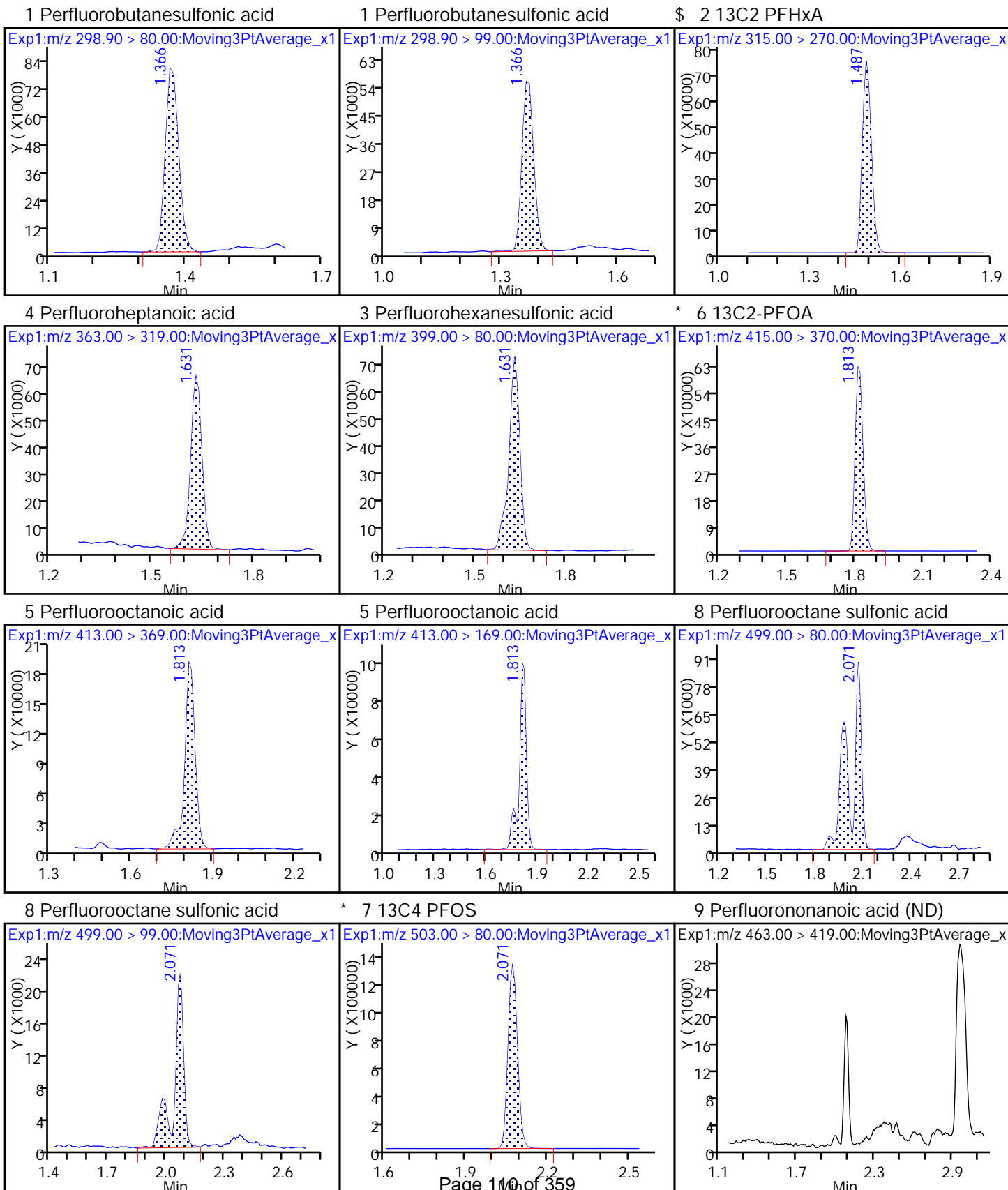
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 Lims ID: 320-34946-A-1-A
 Client ID: NAWC-010918-RW-206
 Sample Type: Client
 Inject. Date: 22-Jan-2018 16:39:19 ALS Bottle#: 26 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-1-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 08:37:09 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: XAWRK013

First Level Reviewer: roycea Date: 23-Jan-2018 08:37:00

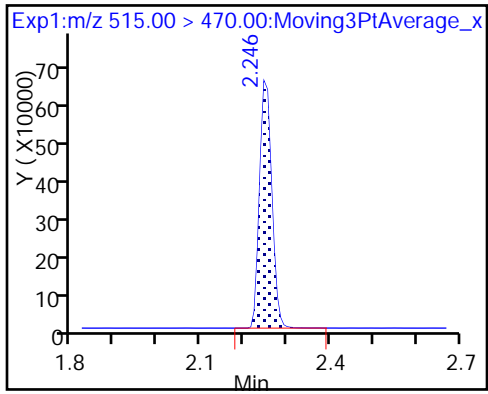
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.444	-0.078	1.000	164142	1.32		56.7	
298.90 > 99.00	1.366	1.444	-0.078	1.000	114246		1.44(0.00-0.00)	145	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.573	-0.086	1.000	1519092	9.45		7703	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.725	-0.094	1.000	148444	1.08		37.8	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.725	-0.094	1.000	180431	0.9686		186	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.913	-0.100		1461158	10.0		6158	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.914	-0.101	1.000	488474	3.61		89.5	
413.00 > 169.00	1.813	1.914	-0.101	1.000	263981		1.85(0.00-0.00)	584	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.071	2.071	0.0	1.000	440172	4.21		110	
499.00 > 99.00	2.071	2.071	0.0	1.000	75761		5.81(0.00-0.00)	81.2	
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.151	-0.080		3191383	28.7		4491	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.312	-0.066	1.000	1274559	11.4		9503	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_015.d
Injection Date: 22-Jan-2018 16:39:19 Instrument ID: A8_N
Lims ID: 320-34946-A-1-A Lab Sample ID: 320-34946-1
Client ID: NAWC-010918-RW-206
Operator ID: SACINSTLCMS01 ALS Bottle#: 26 Worklist Smp#: 6
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_015.d
 Lims ID: 320-34946-A-1-A
 Client ID: NAWC-010918-RW-206
 Sample Type: Client
 Inject. Date: 22-Jan-2018 16:39:19 ALS Bottle#: 26 Worklist Smp#: 6
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-1-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 08:37:09 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: XAWRK013

First Level Reviewer: roycea Date: 23-Jan-2018 08:37:00

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.45	94.49
\$ 10 13C2 PFDA	10.0	11.4	113.99

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-206 Lab Sample ID: 320-34946-2
 Matrix: Water Lab File ID: 2018.01.22_537AA_016.d
 Analysis Method: 537 Date Collected: 01/09/2018 08:05
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 245.8(mL) Date Analyzed: 01/22/2018 16:43
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	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	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	103		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_016.d
 Lims ID: 320-34946-A-2-A
 Client ID: NAWC-010918-FRB-206
 Sample Type: Client
 Inject. Date: 22-Jan-2018 16:43:59 ALS Bottle#: 27 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-2-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 09:22:53 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: XAWRK013

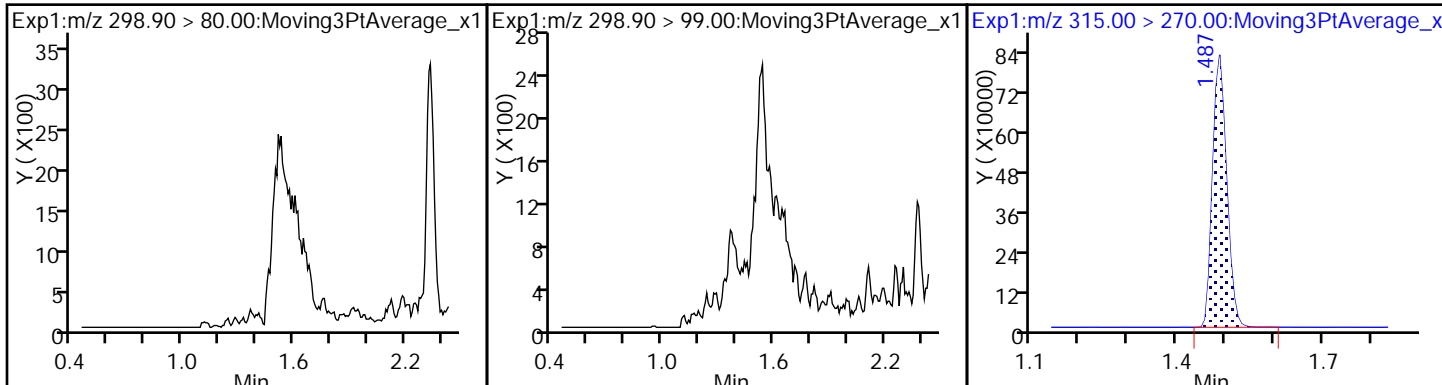
First Level Reviewer: roycea Date: 23-Jan-2018 09:17:47

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	1.573	-0.086	1.000	1660145	9.51	8134	
* 6 13C2-PFOA	415.00 > 370.00	1.813	1.913	-0.100		1586681	10.0	7023	
* 7 13C4 PFOS	503.00 > 80.00	2.064	2.151	-0.087		3365297	28.7	7111	
\$ 10 13C2 PFDA	515.00 > 470.00	2.246	2.312	-0.066	1.000	1246210	10.3	7789	

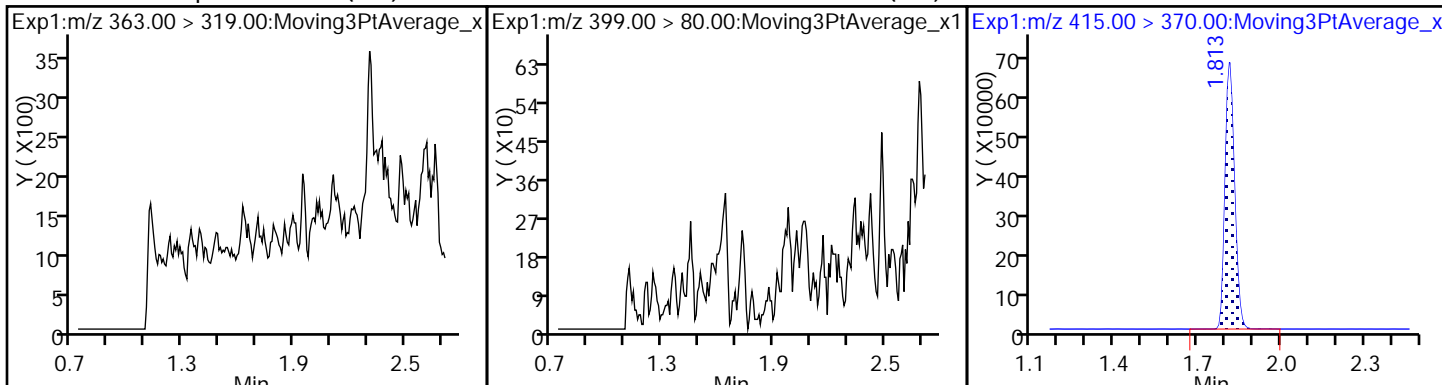
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_016.d
Injection Date: 22-Jan-2018 16:43:59 Instrument ID: A8_N
Lims ID: 320-34946-A-2-A Lab Sample ID: 320-34946-2
Client ID: NAWC-010918-FRB-206
Operator ID: SACINSTLCMS01 ALS Bottle#: 27 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

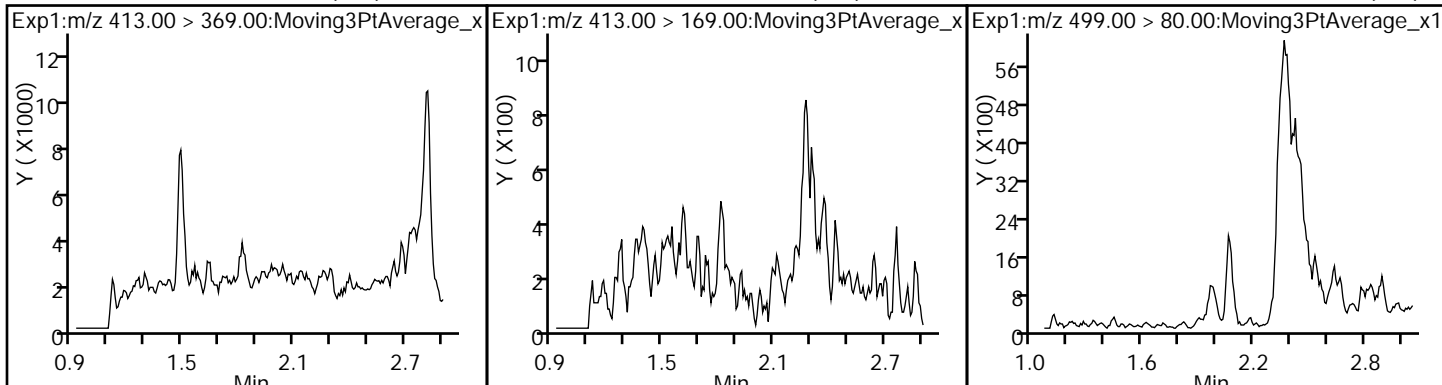
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



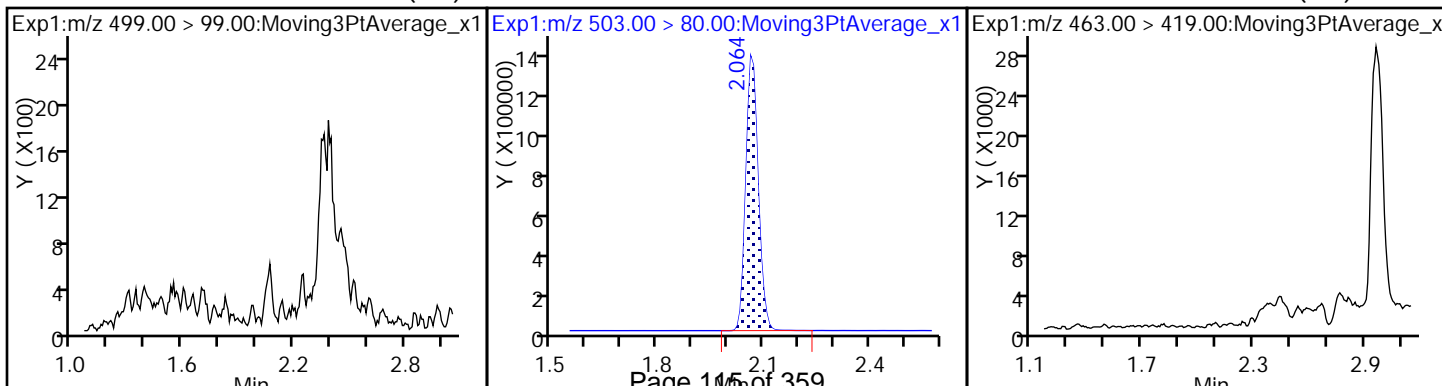
4 Perfluoroheptanoic acid (ND) 3 Perfluorohexanesulfonic acid (ND) * 6 13C2-PFOA



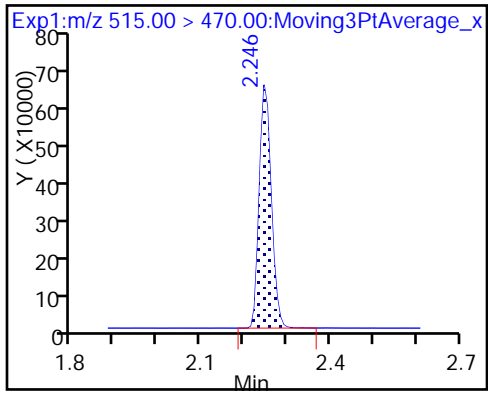
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) 8 Perfluorooctane sulfonic acid (ND)



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\20180122-53187.b\2018.01.22_537AA_016.d
 Lims ID: 320-34946-A-2-A
 Client ID: NAWC-010918-FRB-206
 Sample Type: Client
 Inject. Date: 22-Jan-2018 16:43:59 ALS Bottle#: 27 Worklist Smp#: 7
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-2-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 09:22:53 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: XAWRK013

First Level Reviewer: roycea Date: 23-Jan-2018 09:17:47

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.51	95.09
\$ 10 13C2 PFDA	10.0	10.3	102.64

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-029 Lab Sample ID: 320-34946-3
 Matrix: Water Lab File ID: 2018.01.22_537AA_017.d
 Analysis Method: 537 Date Collected: 01/09/2018 08:40
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 245.5 (mL) Date Analyzed: 01/22/2018 16:48
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	J M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	18	J	20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.9	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.5	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	89		70-130
STL00996	13C2 PFDA	100		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_017.d
 Lims ID: 320-34946-A-3-A
 Client ID: NAWC-010918-RW-029
 Sample Type: Client
 Inject. Date: 22-Jan-2018 16:48:38 ALS Bottle#: 28 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-3-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 09:22:53 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: XAWRK013

First Level Reviewer: roycea Date: 23-Jan-2018 09:18:59

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.444	-0.078	1.000	148753	1.20		106	
298.90 > 99.00	1.366	1.444	-0.078	1.000	107095		1.39(0.00-0.00)	124	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.573	-0.086	1.000	1525997	8.89		7535	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.725	-0.094	1.000	197541	1.35		47.3	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.725	-0.094	1.000	311300	1.68		291	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.913	-0.100		1560349	10.0		7183	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.914	-0.101	1.000	648003	4.49		108	
413.00 > 169.00	1.813	1.914	-0.101	1.000	366870		1.77(0.00-0.00)	694	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.071	2.064	0.007	1.000	554779	5.35		148	M
499.00 > 99.00	2.071	2.064	0.007	1.000	93076		5.96(0.00-0.00)	102	M
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.151	-0.080		3170102	28.7		4712	
9 Perfluorononanoic acid									
463.00 > 419.00	2.079	2.158	-0.079	1.000	48901	0.4719		7.9	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.312	-0.059	1.000	1192301	9.99		7668	

QC Flag Legend

Review Flags

M - Manually Integrated

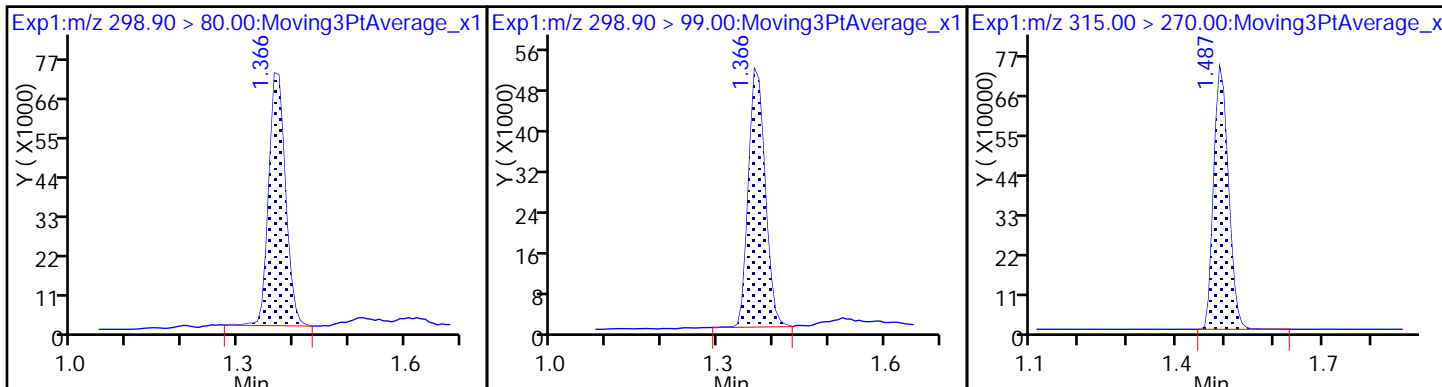
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_017.d
Injection Date: 22-Jan-2018 16:48:38 Instrument ID: A8_N
Lims ID: 320-34946-A-3-A Lab Sample ID: 320-34946-3
Client ID: NAWC-010918-RW-029
Operator ID: SACINSTLCMS01 ALS Bottle#: 28 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

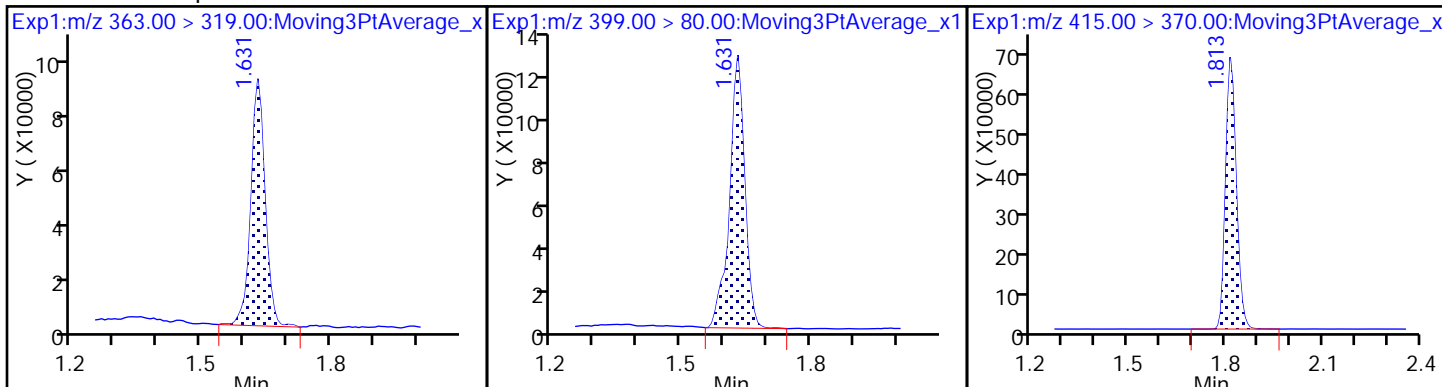
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

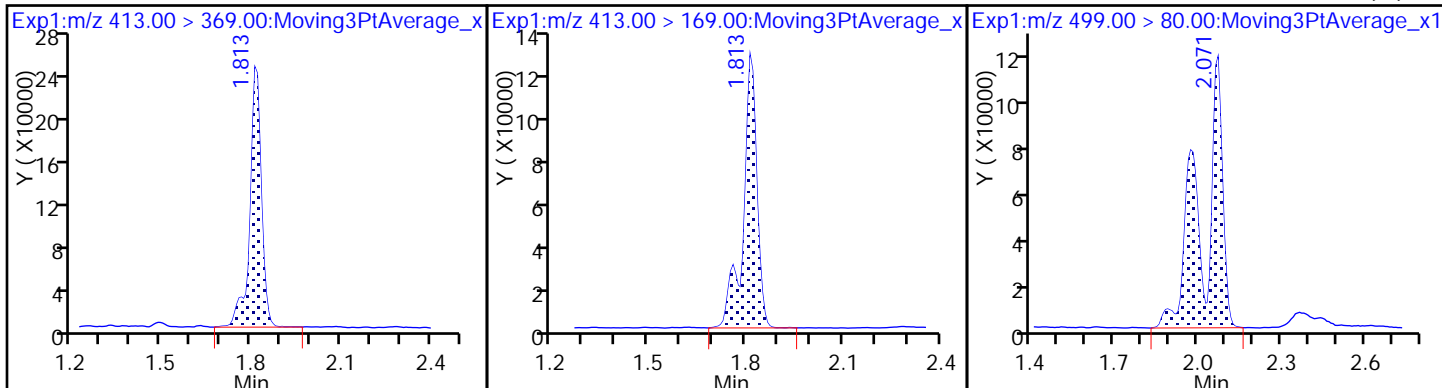
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

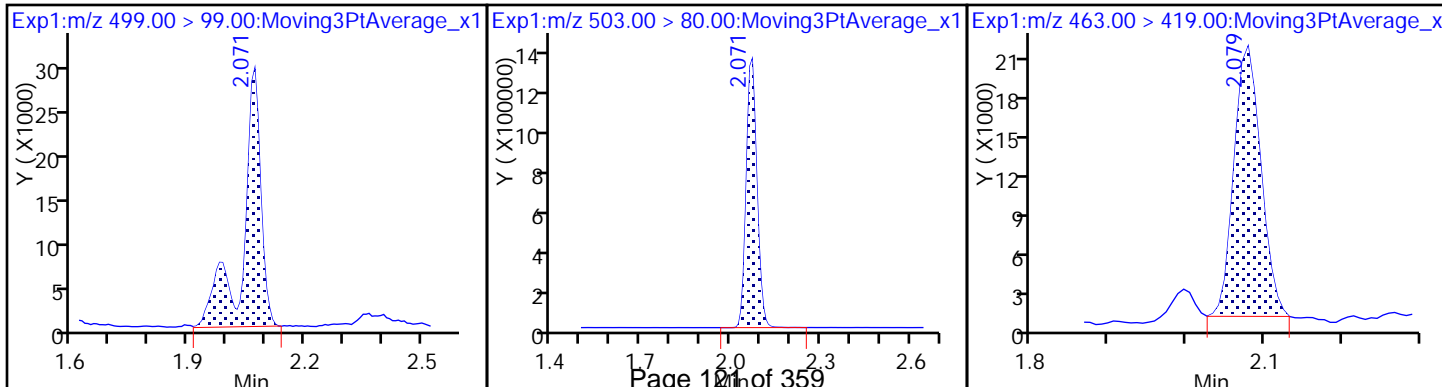
8 Perfluorooctane sulfonic acid (M)



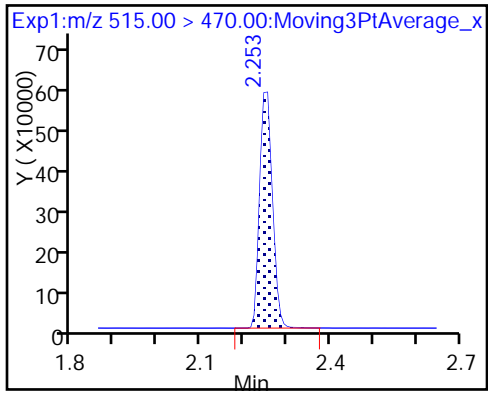
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_017.d
 Lims ID: 320-34946-A-3-A
 Client ID: NAWC-010918-RW-029
 Sample Type: Client
 Inject. Date: 22-Jan-2018 16:48:38 ALS Bottle#: 28 Worklist Smp#: 8
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-3-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 09:22:53 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: XAWRK013

First Level Reviewer: roycea Date: 23-Jan-2018 09:18:59

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.89	88.88
\$ 10 13C2 PFDA	10.0	9.99	99.86

TestAmerica Sacramento

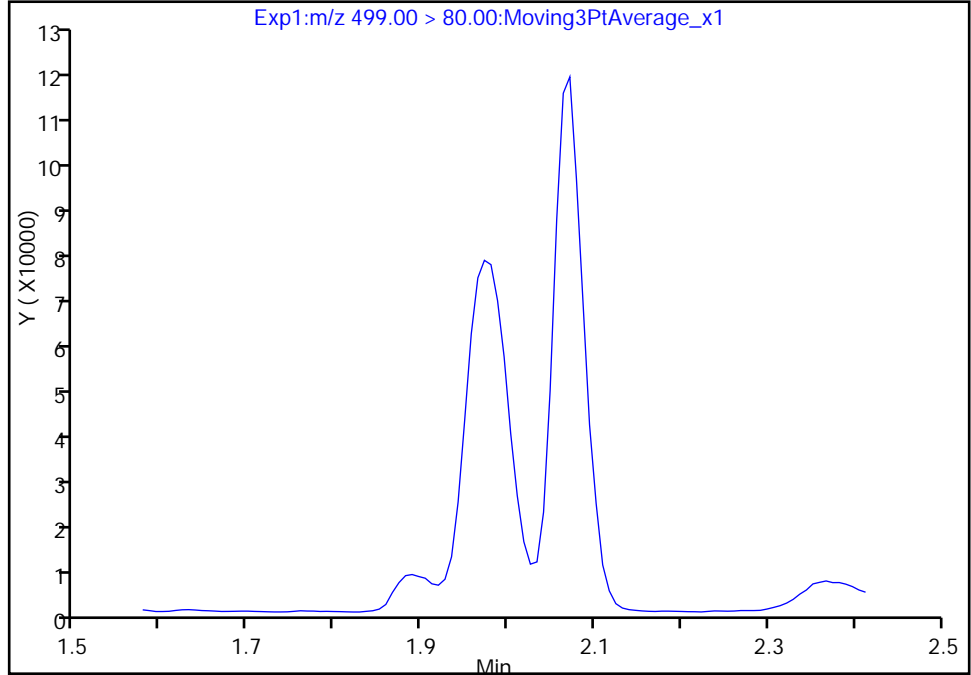
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_017.d
Injection Date: 22-Jan-2018 16:48:38 Instrument ID: A8_N
Lims ID: 320-34946-A-3-A Lab Sample ID: 320-34946-3
Client ID: NAWC-010918-RW-029
Operator ID: SACINSTLCMS01 ALS Bottle#: 28 Worklist Smp#: 8
Injection Vol: 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

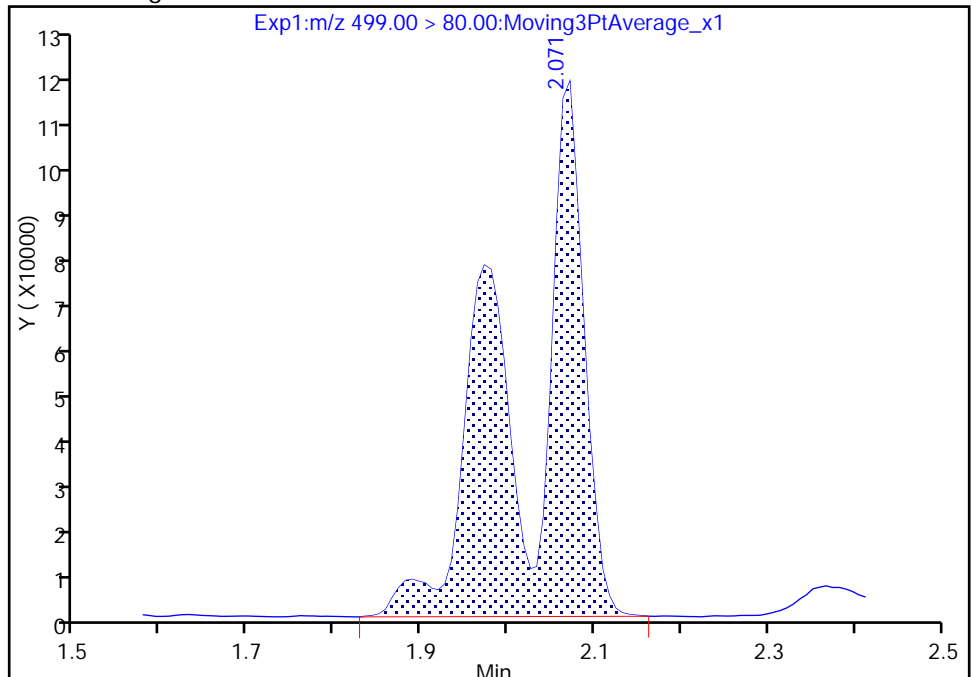
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Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.07
Area: 554779
Amount: 5.345447
Amount Units: ng/ml



TestAmerica Sacramento

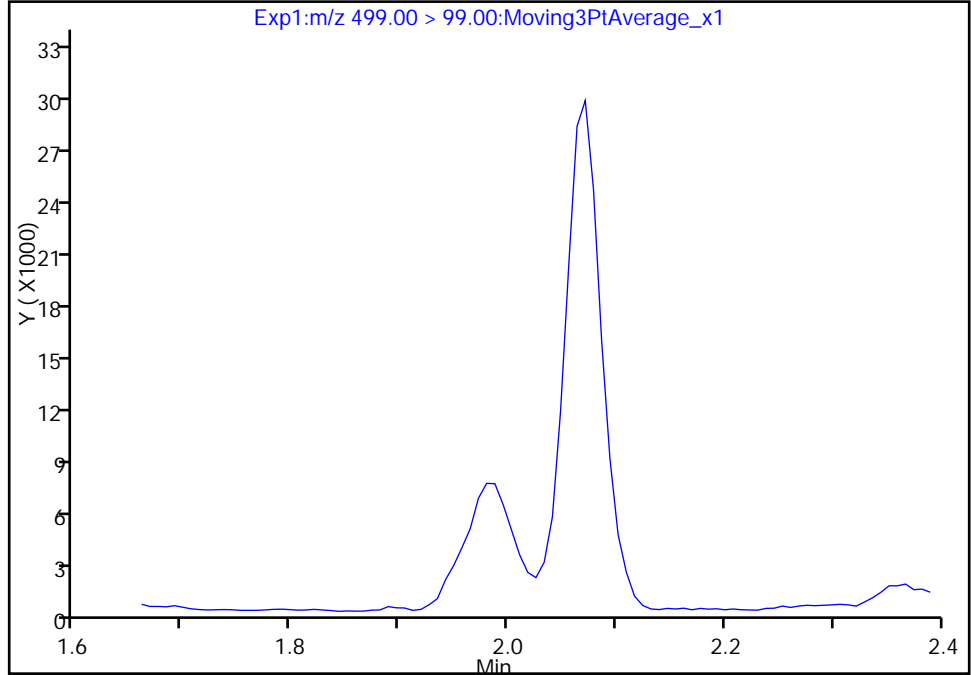
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Injection Date: 22-Jan-2018 16:48:38 Instrument ID: A8_N
Lims ID: 320-34946-A-3-A Lab Sample ID: 320-34946-3
Client ID: NAWC-010918-RW-029
Operator ID: SACINSTLCMS01 ALS Bottle#: 28 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

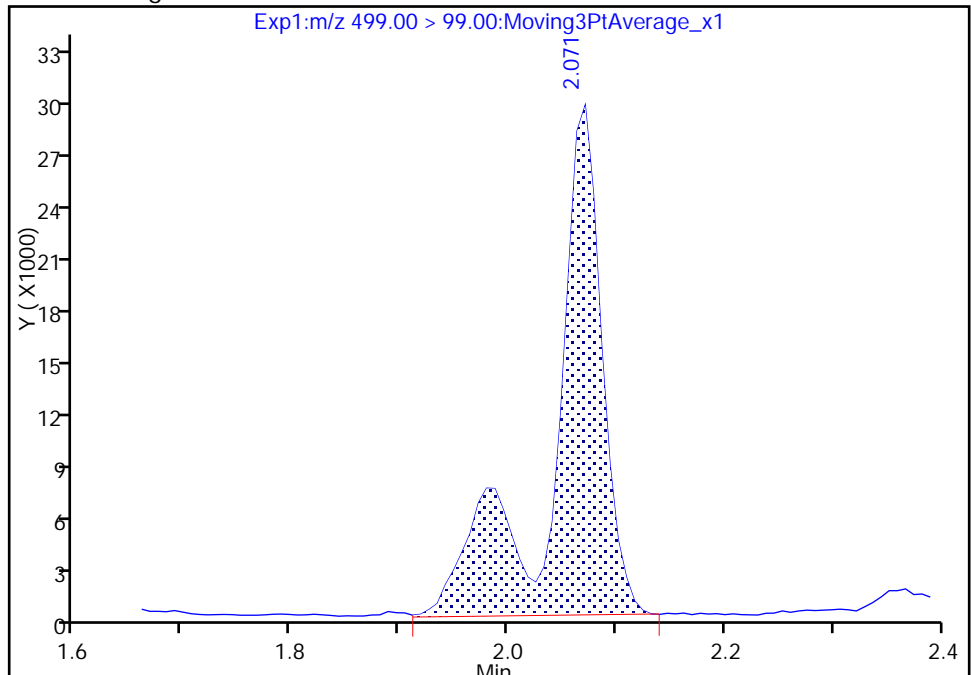
Not Detected
Expected RT: 2.06

Processing Integration Results



RT: 2.07
Area: 93076
Amount: 5.345447
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 23-Jan-2018 09:18:31

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

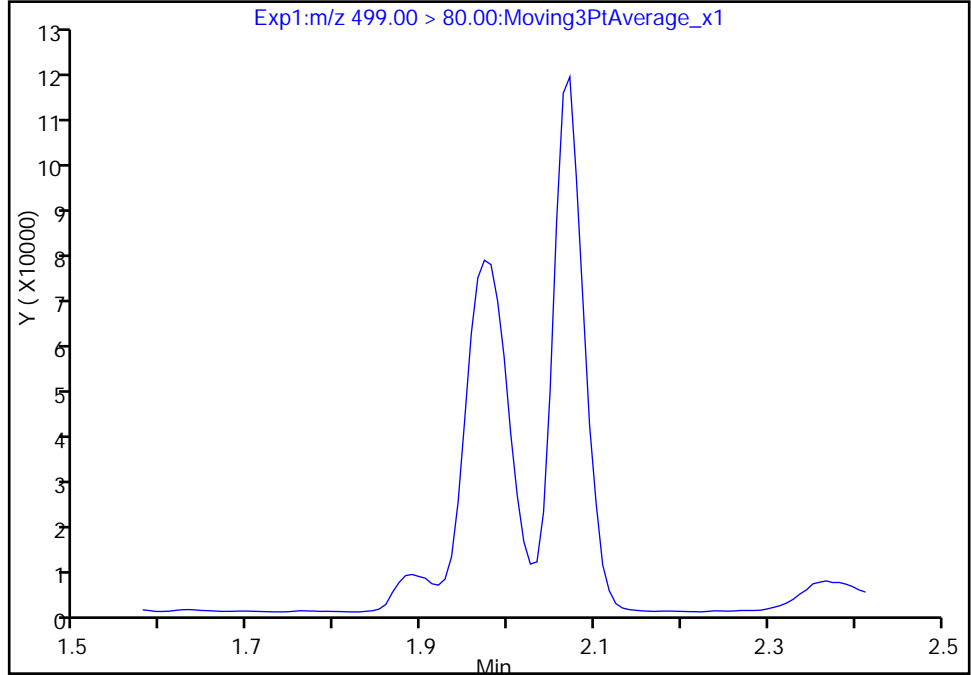
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Injection Date: 22-Jan-2018 16:48:38 Instrument ID: A8_N
Lims ID: 320-34946-A-3-A Lab Sample ID: 320-34946-3
Client ID: NAWC-010918-RW-029
Operator ID: SACINSTLCMS01 ALS Bottle#: 28 Worklist Smp#: 8
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

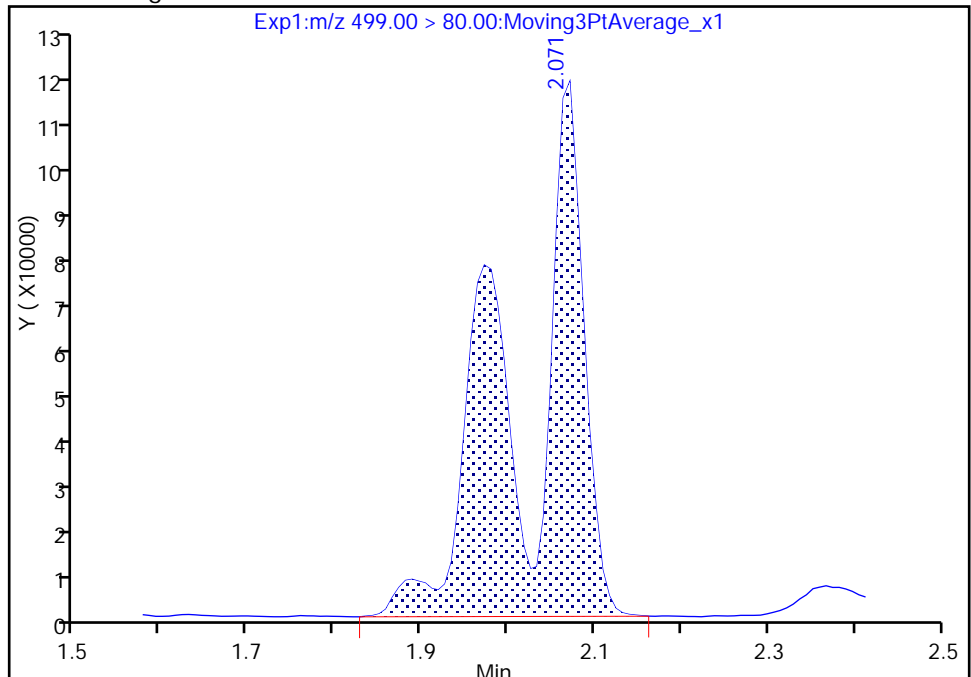
Not Detected
Expected RT: 2.06

Processing Integration Results



RT: 2.07
Area: 554779
Amount: 5.345447
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 23-Jan-2018 09:18:31

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-029 Lab Sample ID: 320-34946-4
 Matrix: Water Lab File ID: 2018.01.22_537AA_018.d
 Analysis Method: 537 Date Collected: 01/09/2018 08:35
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 247.8(mL) Date Analyzed: 01/22/2018 16:53
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 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	5.5
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	99		70-130
STL00996	13C2 PFDA	106		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_018.d
 Lims ID: 320-34946-A-4-A
 Client ID: NAWC-010918-FRB-029
 Sample Type: Client
 Inject. Date: 22-Jan-2018 16:53:19 ALS Bottle#: 29 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-4-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 09:22:53 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: XAWRK013

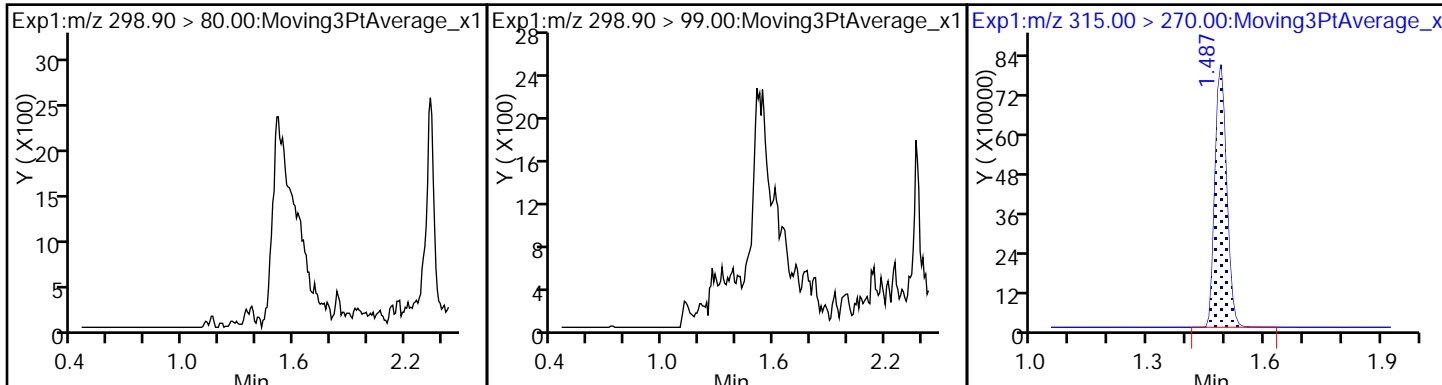
First Level Reviewer: roycea Date: 23-Jan-2018 09:19:20

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	1.573	-0.086	1.000	1658281	9.94	8955	
* 6 13C2-PFOA	415.00 > 370.00	1.813	1.913	-0.100		1515701	10.0	6090	
* 7 13C4 PFOS	503.00 > 80.00	2.064	2.151	-0.087		3325992	28.7	6915	
\$ 10 13C2 PFDA	515.00 > 470.00	2.246	2.312	-0.066	1.000	1229207	10.6	8437	

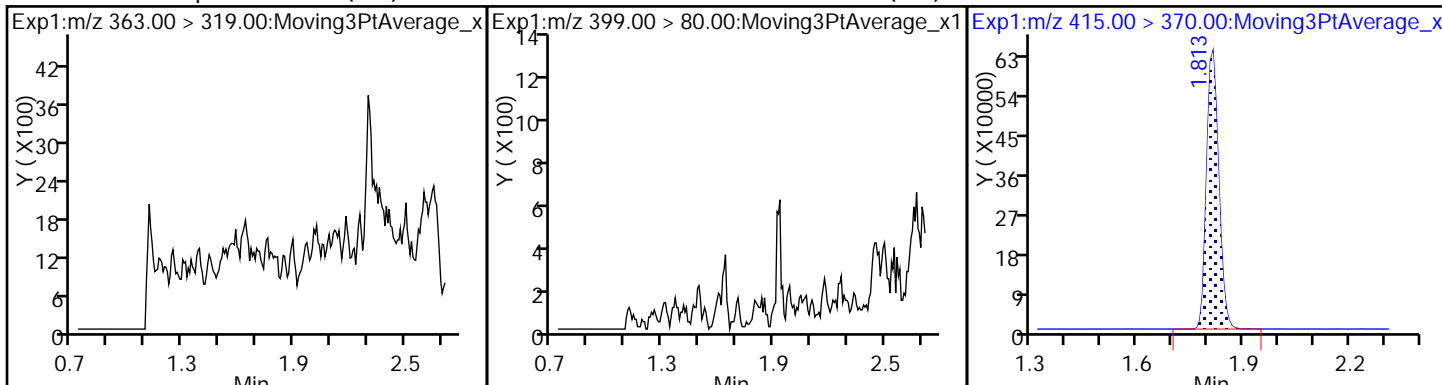
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_018.d
Injection Date: 22-Jan-2018 16:53:19 Instrument ID: A8_N
Lims ID: 320-34946-A-4-A Lab Sample ID: 320-34946-4
Client ID: NAWC-010918-FRB-029
Operator ID: SACINSTLCMS01 ALS Bottle#: 29 Worklist Smp#: 9
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

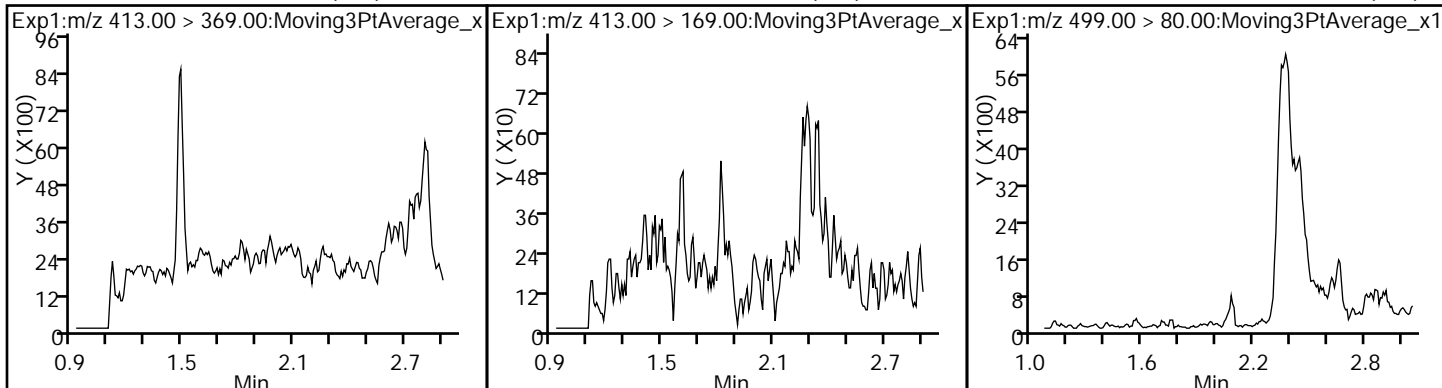
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



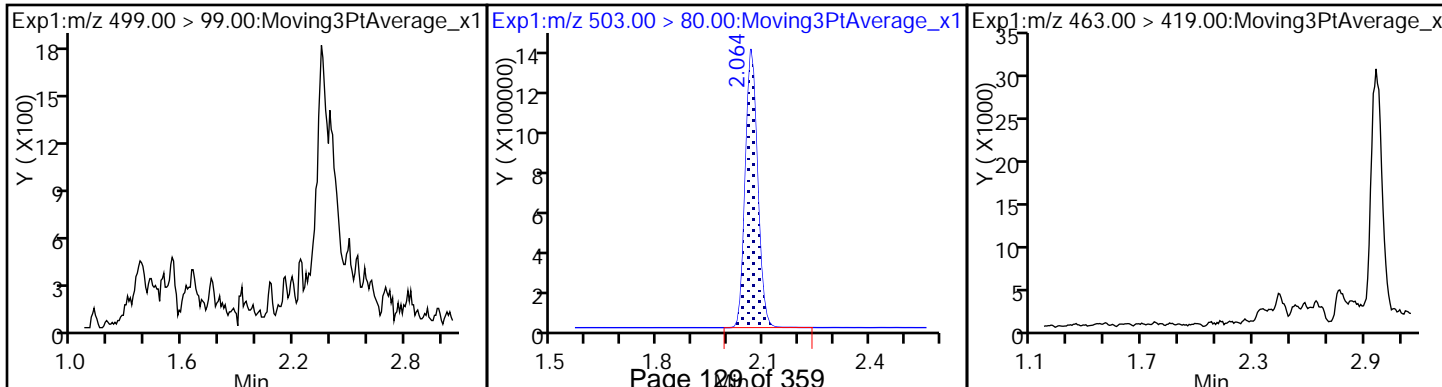
4 Perfluoroheptanoic acid (ND) 3 Perfluorohexanesulfonic acid (ND) * 6 13C2-PFOA



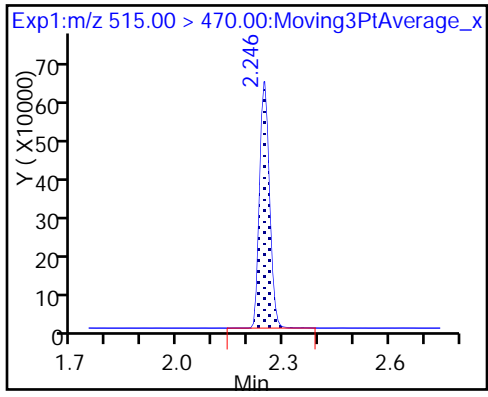
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) 8 Perfluorooctane sulfonic acid (ND)



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\20180122-53187.b\2018.01.22_537AA_018.d
 Lims ID: 320-34946-A-4-A
 Client ID: NAWC-010918-FRB-029
 Sample Type: Client
 Inject. Date: 22-Jan-2018 16:53:19 ALS Bottle#: 29 Worklist Smp#: 9
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-4-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 09:22:53 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: XAWRK013

First Level Reviewer: roycea Date: 23-Jan-2018 09:19:20

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.94	99.43
\$ 10 13C2 PFDA	10.0	10.6	105.98

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: WGNA-010918-RW-0533 Lab Sample ID: 320-34946-5
 Matrix: Water Lab File ID: 2018.01.22_537AA_019.d
 Analysis Method: 537 Date Collected: 01/09/2018 09:10
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 248.2 (mL) Date Analyzed: 01/22/2018 16:58
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	23	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	20		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	9.7	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.5	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	93		70-130
STL00996	13C2 PFDA	103		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_019.d
 Lims ID: 320-34946-A-5-A
 Client ID: WGNA-010918-RW-0533
 Sample Type: Client
 Inject. Date: 22-Jan-2018 16:58:00 ALS Bottle#: 30 Worklist Smp#: 10
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-5-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 09:22:53 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: XAWRK013

First Level Reviewer: roycea Date: 23-Jan-2018 09:21:44

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	1.444	-0.071	1.000	209739	1.57		140	
298.90 > 99.00	1.366	1.444	-0.078	0.994	154898		1.35(0.00-0.00)	184	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.573	-0.086	1.000	1646597	9.28		7851	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.725	-0.094	1.000	169482	1.12		33.0	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.725	-0.094	1.000	481325	2.41		298	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.913	-0.100		1612121	10.0		6633	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.914	-0.101	1.000	753926	5.05		98.7	
413.00 > 169.00	1.813	1.914	-0.101	1.000	438753		1.72(0.00-0.00)	766	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.071	2.064	0.007	1.000	629980	5.62		140	M
499.00 > 99.00	2.064	2.064	0.0	0.996	111618		5.64(0.00-0.00)	114	M
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.151	-0.080		3426741	28.7		3494	
9 Perfluorononanoic acid									
463.00 > 419.00	2.079	2.158	-0.079	1.000	72169	0.6740		10.4	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.312	-0.066	1.000	1265823	10.3		8443	

QC Flag Legend

Review Flags

M - Manually Integrated

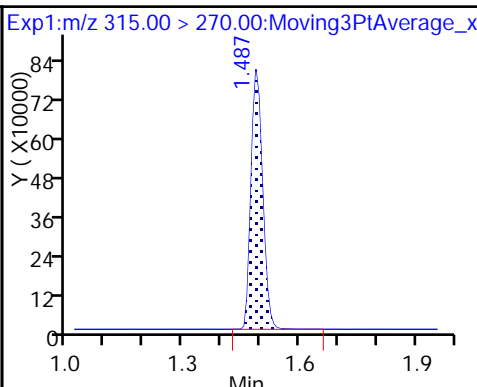
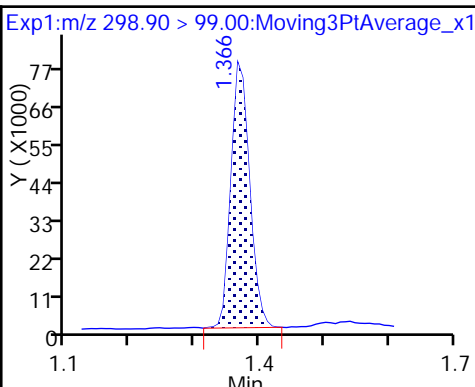
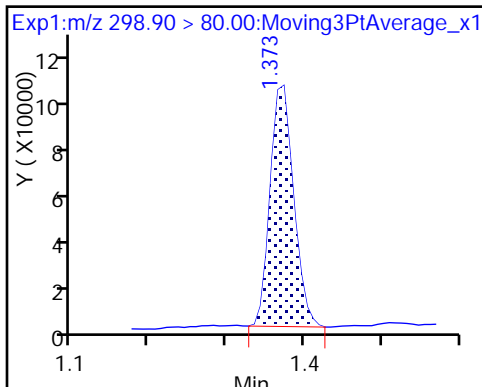
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_019.d
Injection Date: 22-Jan-2018 16:58:00 Instrument ID: A8_N
Lims ID: 320-34946-A-5-A Lab Sample ID: 320-34946-5
Client ID: WGNA-010918-RW-0533
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 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

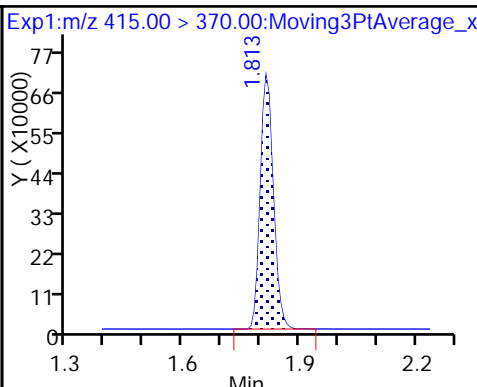
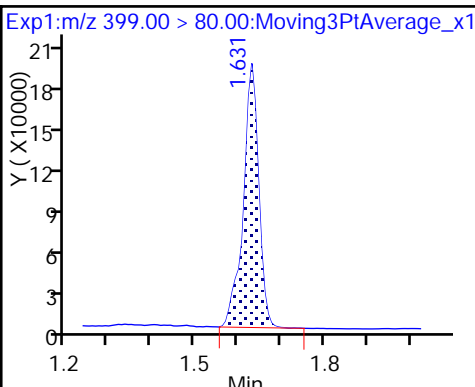
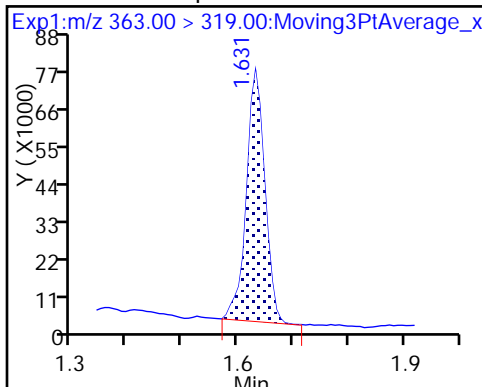
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

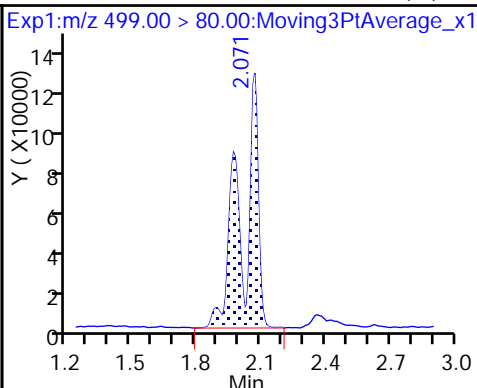
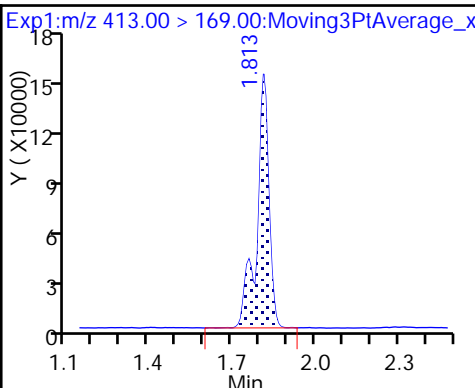
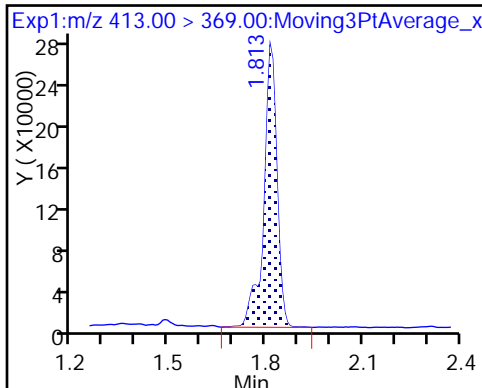
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

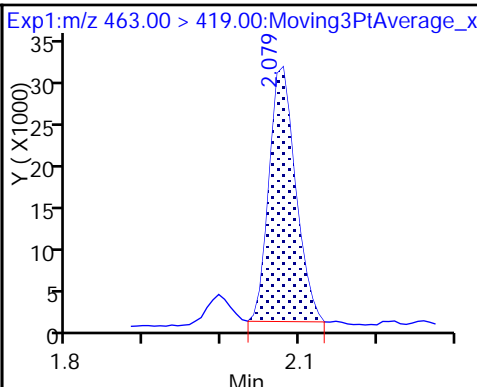
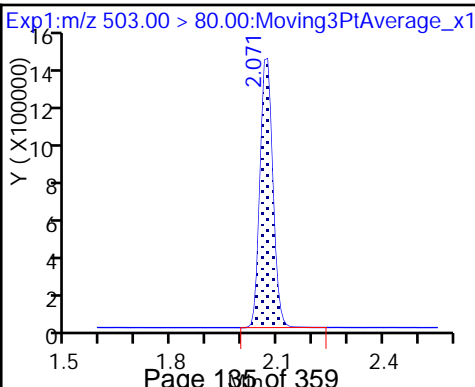
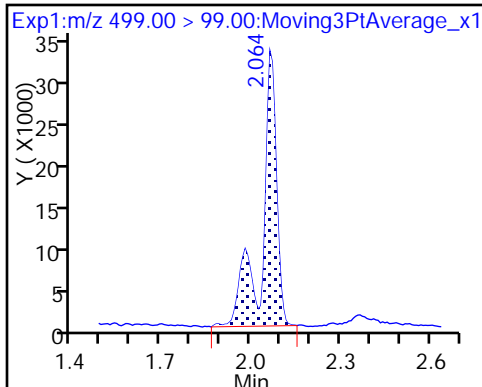
8 Perfluorooctane sulfonic acid (M)



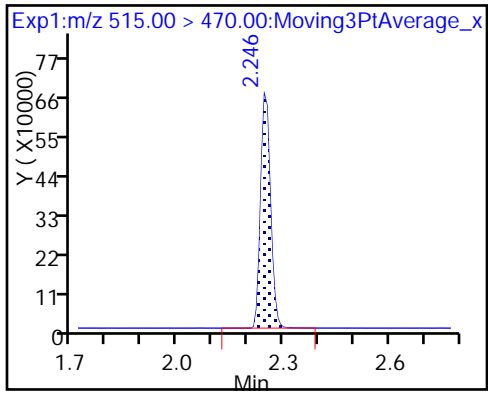
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_019.d
 Lims ID: 320-34946-A-5-A
 Client ID: WGNA-010918-RW-0533
 Sample Type: Client
 Inject. Date: 22-Jan-2018 16:58:00 ALS Bottle#: 30 Worklist Smp#: 10
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-5-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 09:22:53 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: XAWRK013

First Level Reviewer: roycea Date: 23-Jan-2018 09:21:44

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.28	92.83
\$ 10 13C2 PFDA	10.0	10.3	102.61

TestAmerica Sacramento

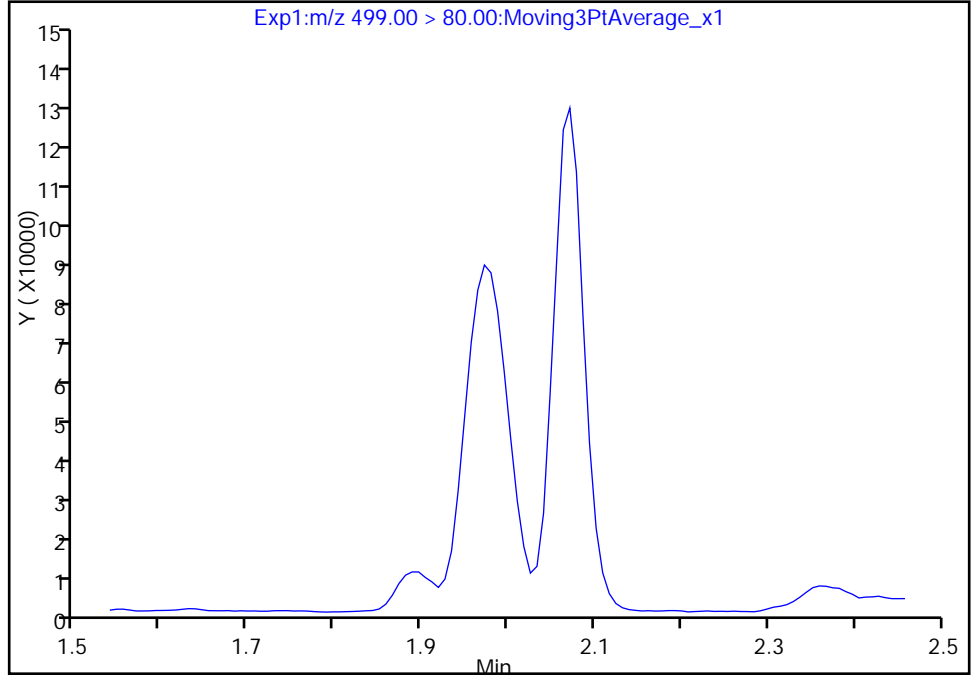
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Injection Date: 22-Jan-2018 16:58:00 Instrument ID: A8_N
Lims ID: 320-34946-A-5-A Lab Sample ID: 320-34946-5
Client ID: WGNA-010918-RW-0533
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

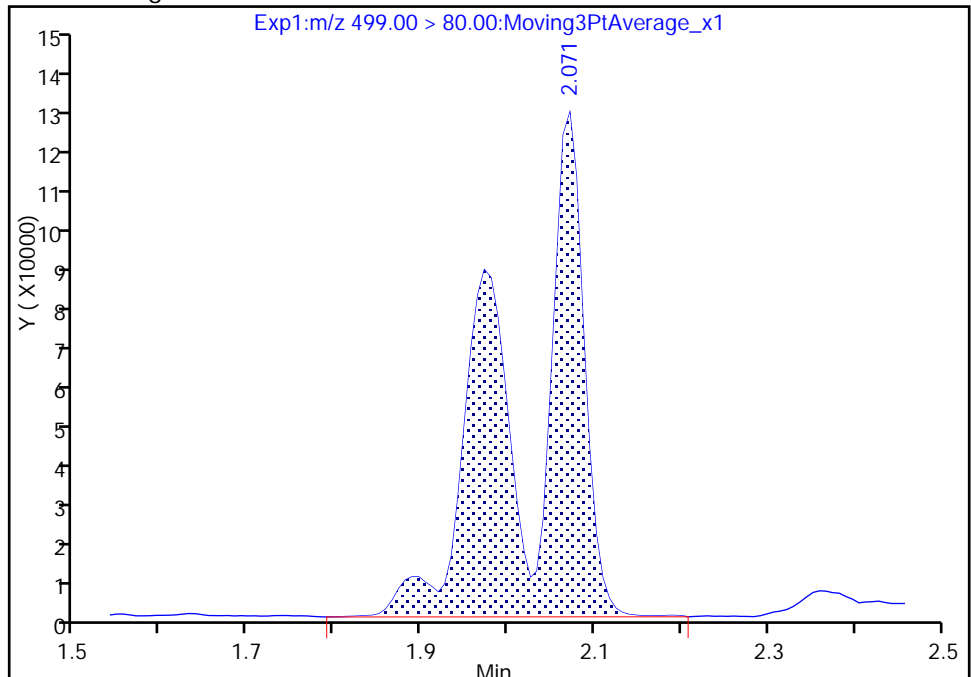
Not Detected
Expected RT: 2.06

Processing Integration Results



RT: 2.07
Area: 629980
Amount: 5.615427
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

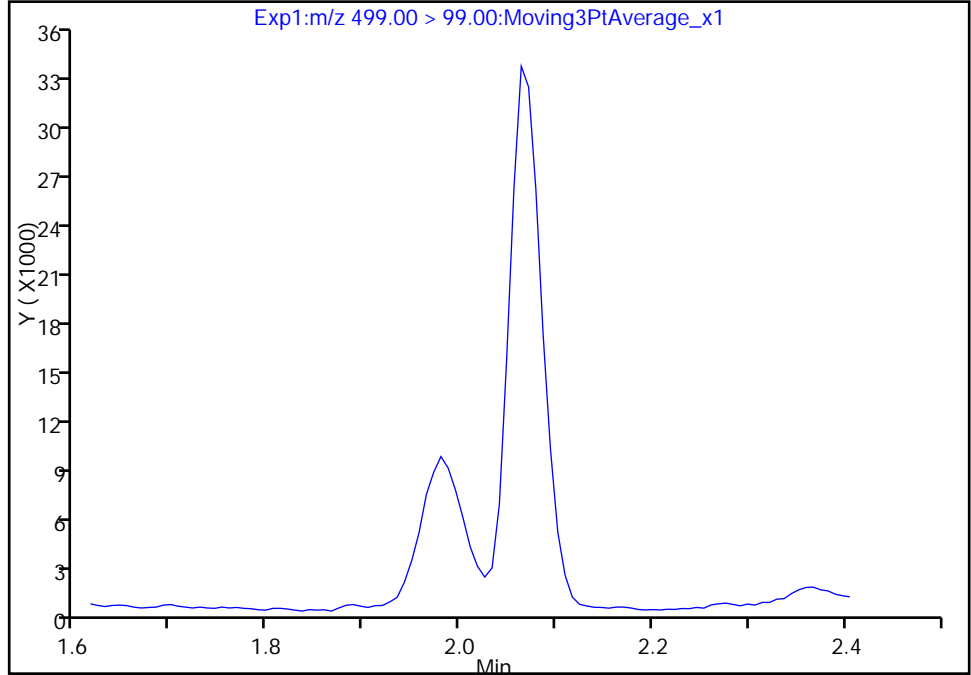
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_019.d
Injection Date: 22-Jan-2018 16:58:00 Instrument ID: A8_N
Lims ID: 320-34946-A-5-A Lab Sample ID: 320-34946-5
Client ID: WGNA-010918-RW-0533
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 10
Injection Vol: 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

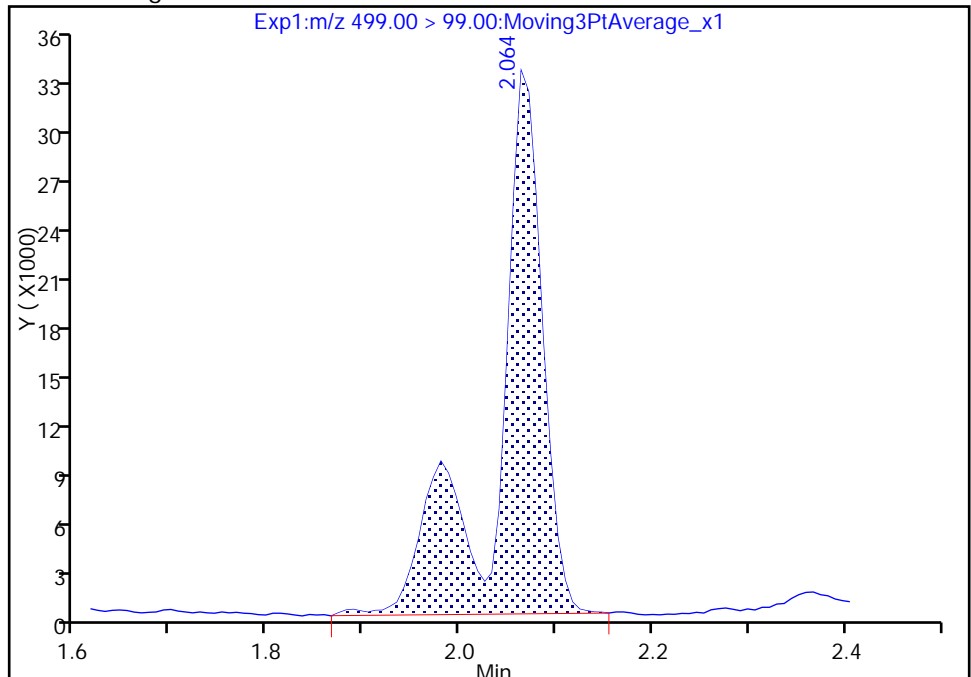
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06
Area: 111618
Amount: 5.615427
Amount Units: ng/ml



Reviewer: roycea, 23-Jan-2018 09:19:34

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

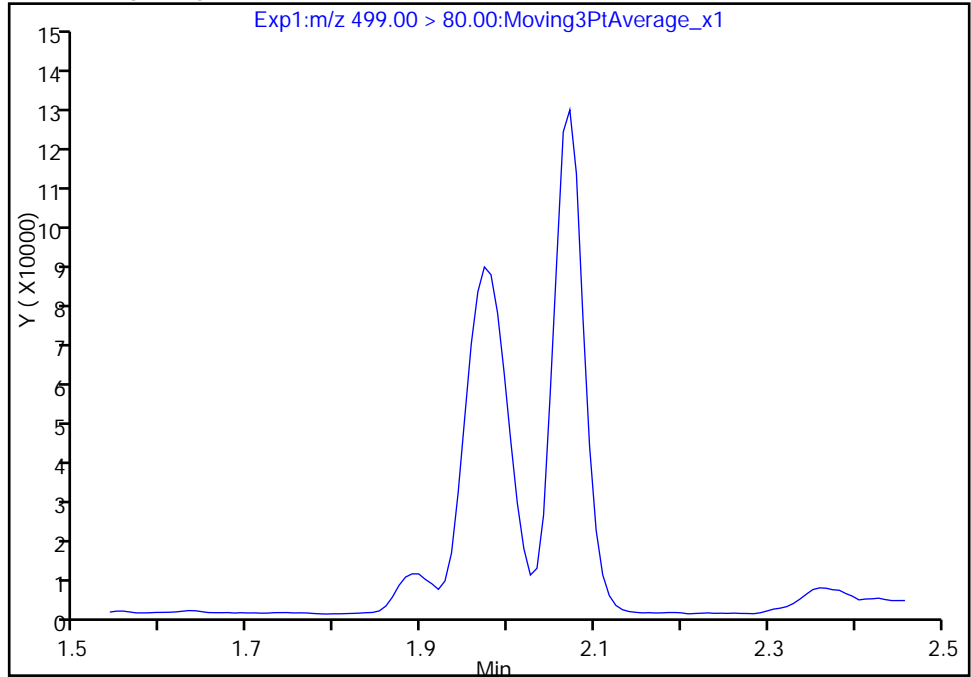
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Injection Date: 22-Jan-2018 16:58:00 Instrument ID: A8_N
Lims ID: 320-34946-A-5-A Lab Sample ID: 320-34946-5
Client ID: WGNA-010918-RW-0533
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 10
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

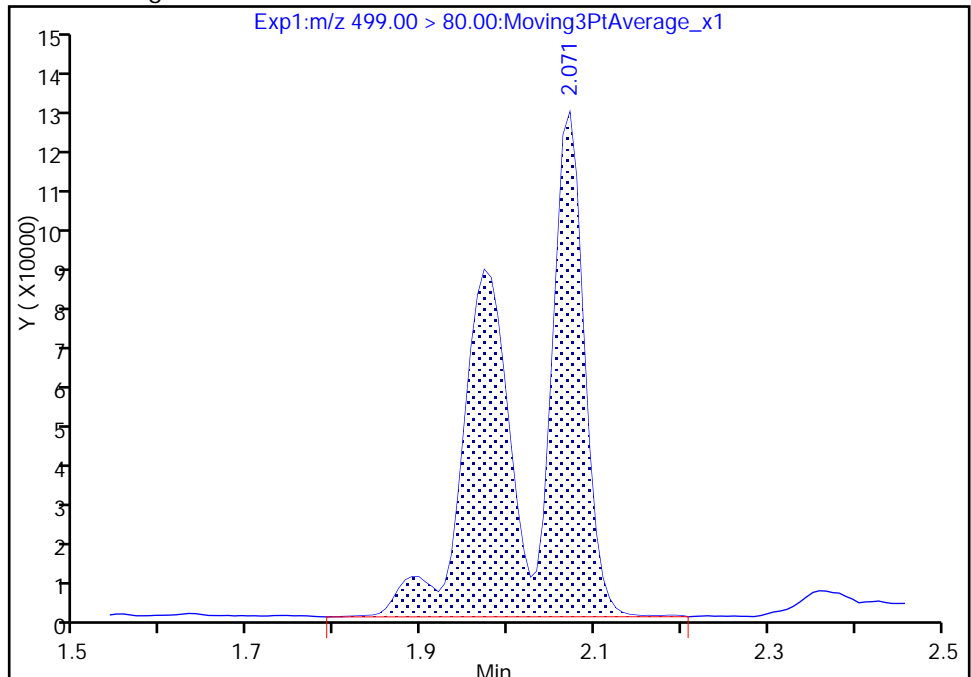
Not Detected
Expected RT: 2.06

Processing Integration Results



RT: 2.07
Area: 629980
Amount: 5.615427
Amount Units: ng/ml

Manual Integration Results



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: WGNA-010918-FRB-0533 Lab Sample ID: 320-34946-6
 Matrix: Water Lab File ID: 2018.01.22_537AA_020.d
 Analysis Method: 537 Date Collected: 01/09/2018 09:05
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 246.8(mL) Date Analyzed: 01/22/2018 17:02
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	109		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_020.d
 Lims ID: 320-34946-A-6-A
 Client ID: WGNA-010918-FRB-0533
 Sample Type: Client
 Inject. Date: 22-Jan-2018 17:02:40 ALS Bottle#: 31 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-6-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 09:22:53 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: XAWRK013

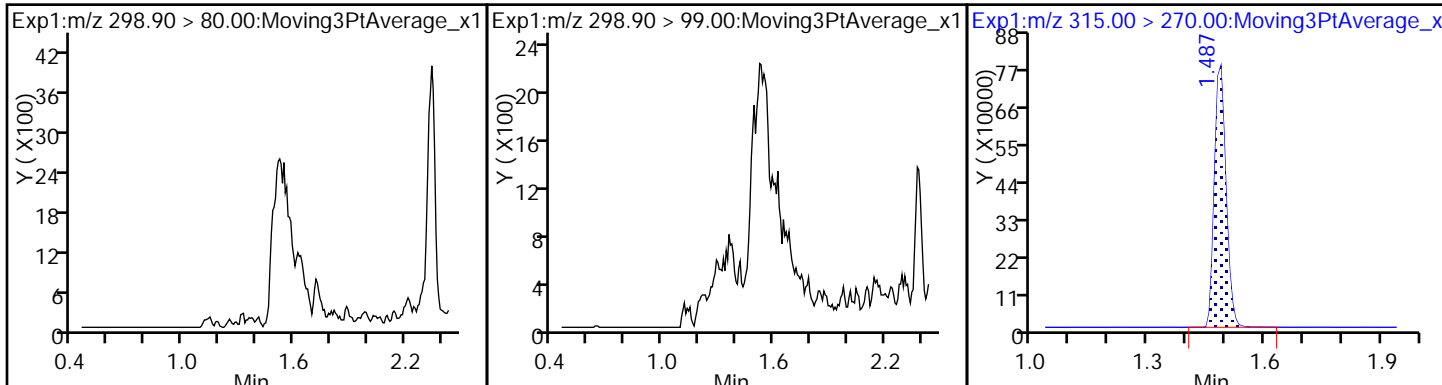
First Level Reviewer: roycea Date: 23-Jan-2018 09:22:02

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	1.573	-0.086	1.000	1591274	9.61	7597	
* 6 13C2-PFOA	415.00 > 370.00	1.813	1.913	-0.100		1504173	10.0	5953	
* 7 13C4 PFOS	503.00 > 80.00	2.071	2.151	-0.080		3343189	28.7	6542	
\$ 10 13C2 PFDA	515.00 > 470.00	2.253	2.312	-0.059	1.000	1255938	10.9	8057	

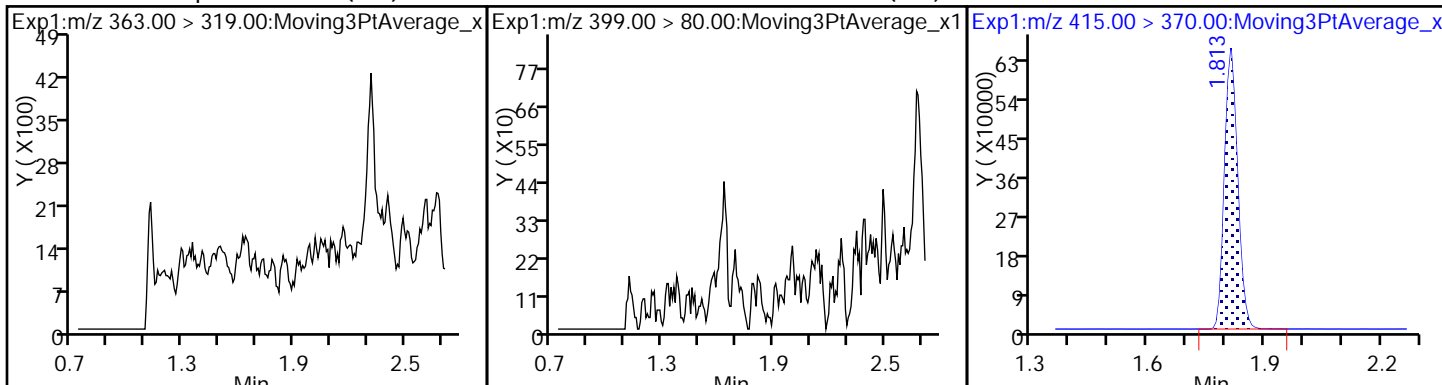
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_020.d
Injection Date: 22-Jan-2018 17:02:40 Instrument ID: A8_N
Lims ID: 320-34946-A-6-A Lab Sample ID: 320-34946-6
Client ID: WGNA-010918-FRB-0533
Operator ID: SACINSTLCMS01 ALS Bottle#: 31 Worklist Smp#: 11
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL

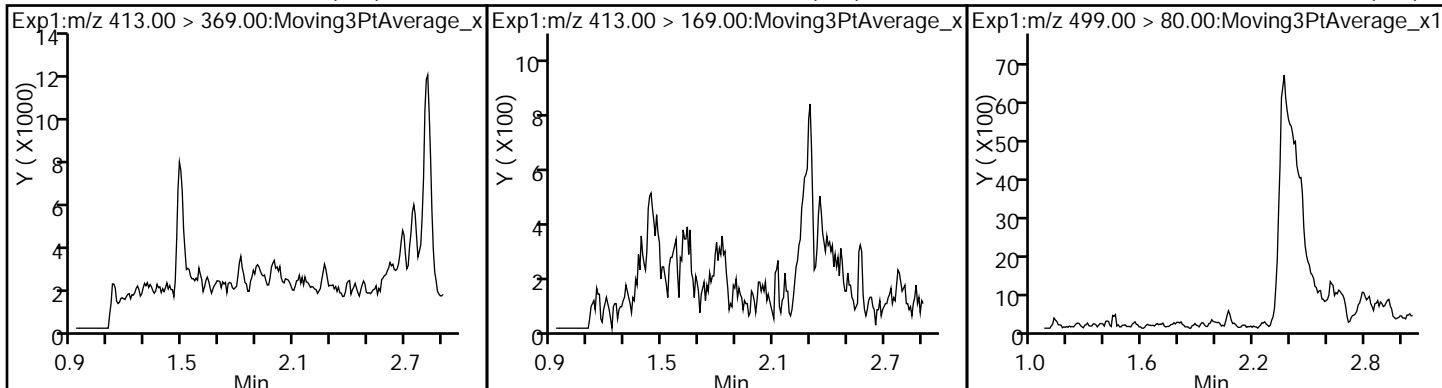
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



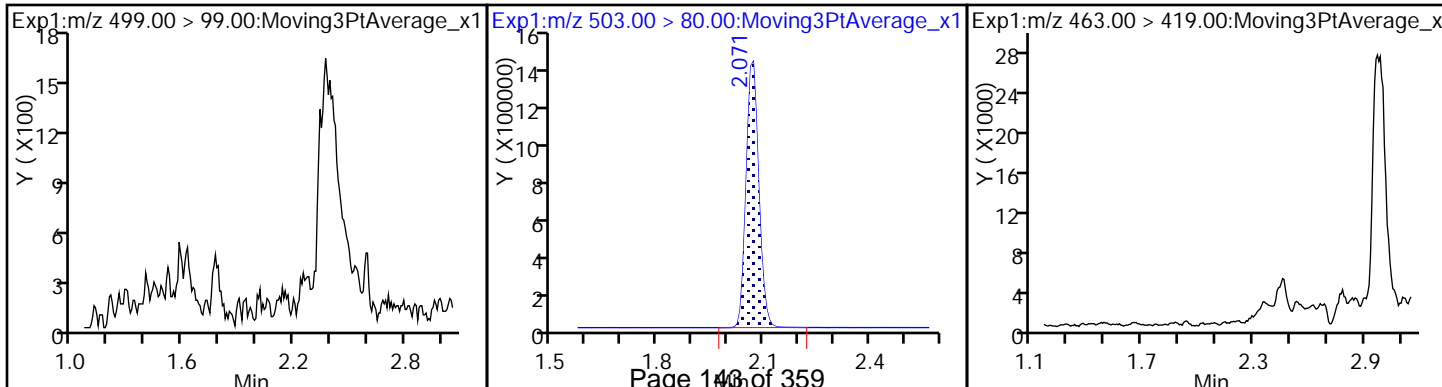
4 Perfluoroheptanoic acid (ND) 3 Perfluorohexanesulfonic acid (ND) * 6 13C2-PFOA



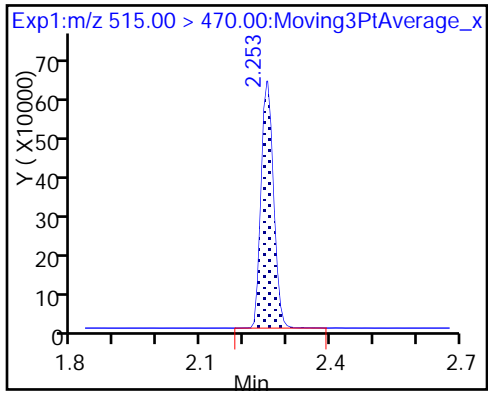
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) 8 Perfluorooctane sulfonic acid (ND)



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\20180122-53187.b\2018.01.22_537AA_020.d
 Lims ID: 320-34946-A-6-A
 Client ID: WGNA-010918-FRB-0533
 Sample Type: Client
 Inject. Date: 22-Jan-2018 17:02:40 ALS Bottle#: 31 Worklist Smp#: 11
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-6-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 09:22:53 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: XAWRK013

First Level Reviewer: roycea Date: 23-Jan-2018 09:22:02

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.61	96.15
\$ 10 13C2 PFDA	10.0	10.9	109.12

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: WGNA-010918-RW-3193 Lab Sample ID: 320-34946-7
 Matrix: Water Lab File ID: 2018.01.22_537AA_021.d
 Analysis Method: 537 Date Collected: 01/09/2018 09:40
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 243.5 (mL) Date Analyzed: 01/22/2018 17:07
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	J	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	34		21	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	15	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	11		10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	112		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_021.d
 Lims ID: 320-34946-A-7-A
 Client ID: WGNA-010918-RW-3193
 Sample Type: Client
 Inject. Date: 22-Jan-2018 17:07:20 ALS Bottle#: 32 Worklist Smp#: 12
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-7-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 09:22:53 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: XAWRK013

First Level Reviewer: roycea Date: 23-Jan-2018 09:22:26

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.444	-0.078	1.000	265483	1.97		51.5	
298.90 > 99.00	1.358	1.444	-0.086	0.994	198242		1.34(0.00-0.00)	230	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1641328	9.35		8126	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.725	-0.101	1.000	405819	2.71		74.8	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.725	-0.101	1.000	740227	3.66		305	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.913	-0.107		1596201	10.0		6917	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.914	-0.108	1.000	1210455	8.19		180	
413.00 > 169.00	1.806	1.914	-0.108	1.000	678639		1.78(0.00-0.00)	1209	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.064	2.064	0.0	1.000	452764	3.99		84.6	
499.00 > 99.00	2.056	2.064	-0.008	0.996	77137		5.87(0.00-0.00)	60.7	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.151	-0.095		3463029	28.7		2776	
9 Perfluorononanoic acid									
463.00 > 419.00	2.071	2.158	-0.087	1.000	59607	0.5623		8.0	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.312	-0.066	1.000	1372066	11.2		8841	

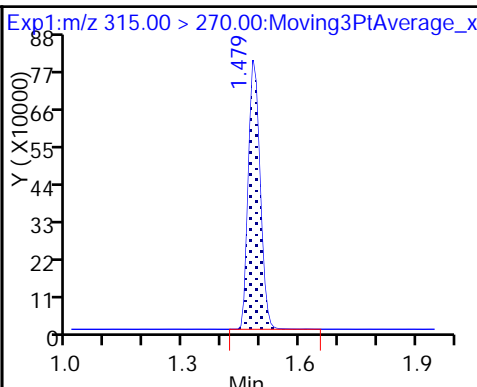
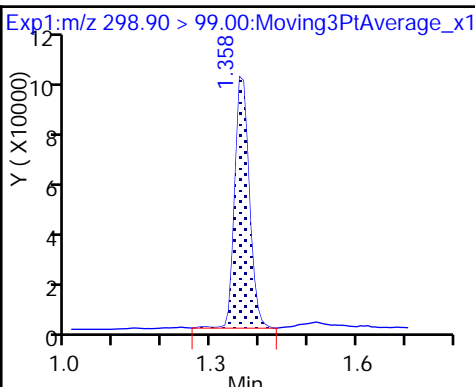
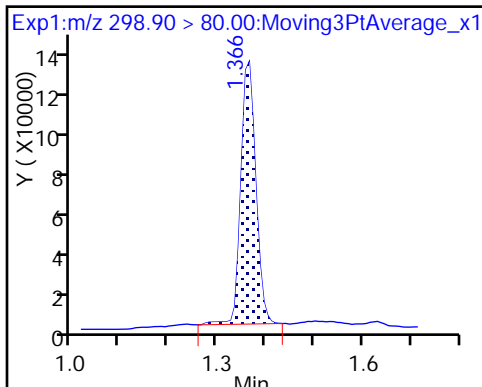
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_021.d
Injection Date: 22-Jan-2018 17:07:20 Instrument ID: A8_N
Lims ID: 320-34946-A-7-A Lab Sample ID: 320-34946-7
Client ID: WGNA-010918-RW-3193
Operator ID: SACINSTLCMS01 ALS Bottle#: 32 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

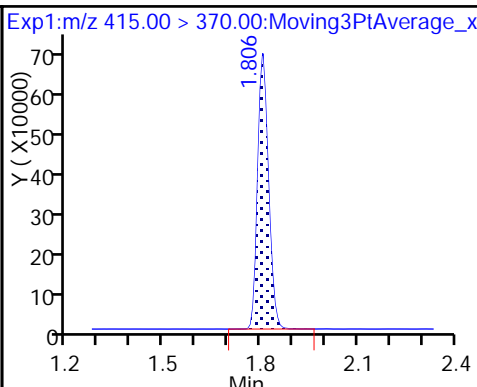
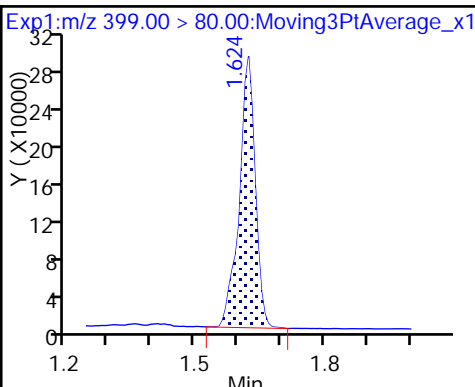
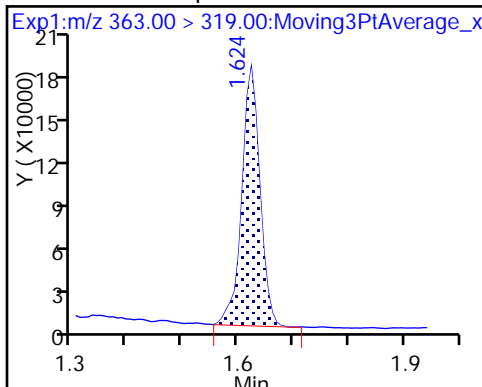
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

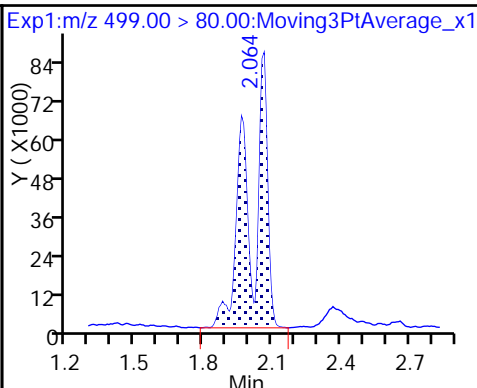
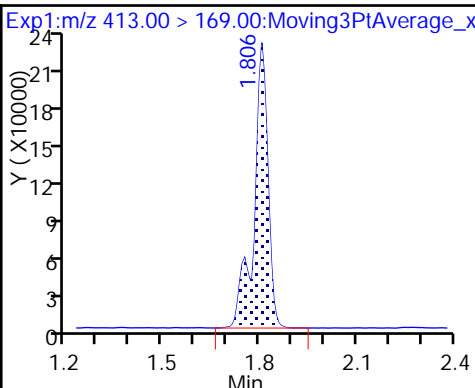
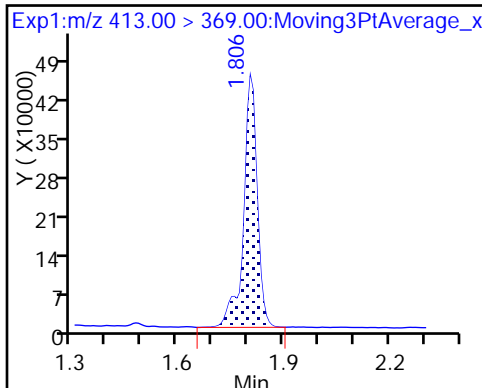
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

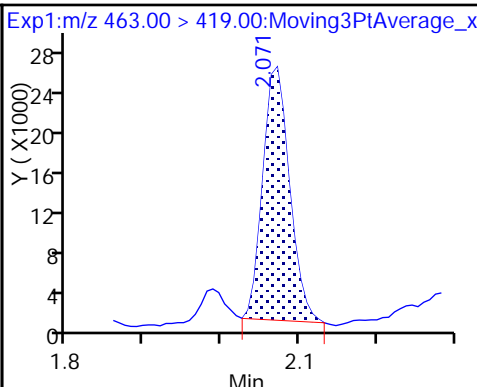
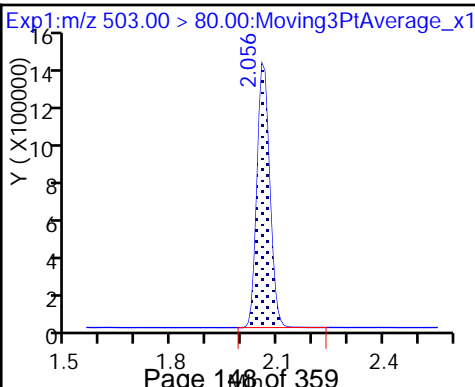
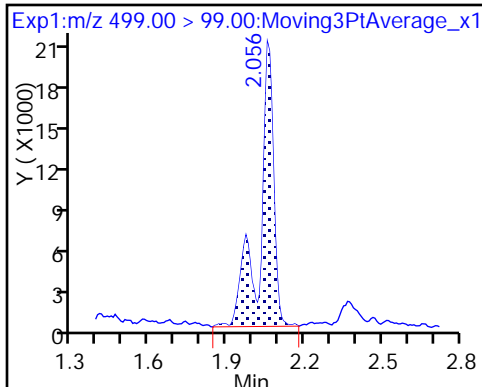
8 Perfluorooctane sulfonic acid



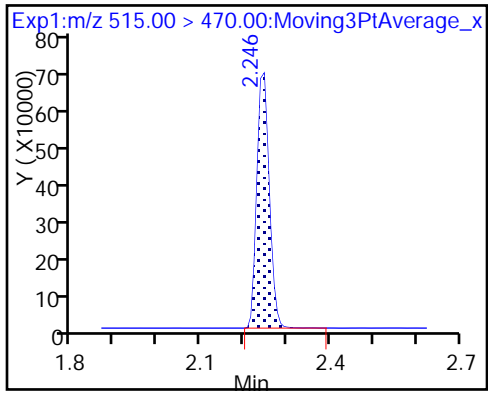
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_021.d
 Lims ID: 320-34946-A-7-A
 Client ID: WGNA-010918-RW-3193
 Sample Type: Client
 Inject. Date: 22-Jan-2018 17:07:20 ALS Bottle#: 32 Worklist Smp#: 12
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-7-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 09:22:53 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: XAWRK013

First Level Reviewer: roycea Date: 23-Jan-2018 09:22:26

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.35	93.45
\$ 10 13C2 PFDA	10.0	11.2	112.33

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: WGNA-010918-FRB-3193 Lab Sample ID: 320-34946-8
 Matrix: Water Lab File ID: 2018.01.22_537A_024.d
 Analysis Method: 537 Date Collected: 01/09/2018 09:35
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 245.6(mL) Date Analyzed: 01/22/2018 11:31
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
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	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	111		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_024.d
 Lims ID: 320-34946-A-8-A
 Client ID: WGNA-010918-FRB-3193
 Sample Type: Client
 Inject. Date: 22-Jan-2018 11:31:33 ALS Bottle#: 33 Worklist Smp#: 21
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-8-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:42:23 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:07:36

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.495	1.487	0.008	1.000	1693713	10.3	8296	
* 6 13C2-PFOA	415.00 > 370.00	1.821	1.821	0.0		1501342	10.0	6046	
* 7 13C4 PFOS	503.00 > 80.00	2.079	2.079	0.0		3371803	28.7	7173	
\$ 10 13C2 PFDA	515.00 > 470.00	2.253	2.253	0.0	1.000	1276862	11.1	8258	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_024.d

Injection Date: 22-Jan-2018 11:31:33

Instrument ID: A8_N

Lims ID: 320-34946-A-8-A

Lab Sample ID: 320-34946-8

Client ID: WGNA-010918-FRB-3193

Operator ID: SACINSTLCMS01

ALS Bottle#: 33

Worklist Smp#: 21

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

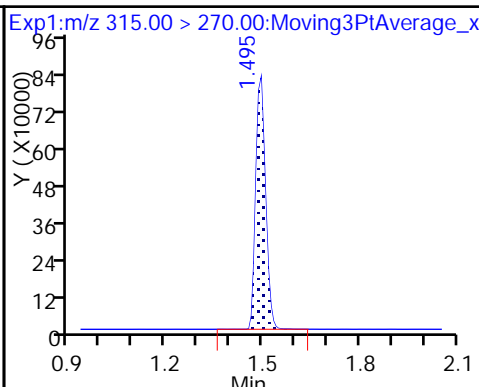
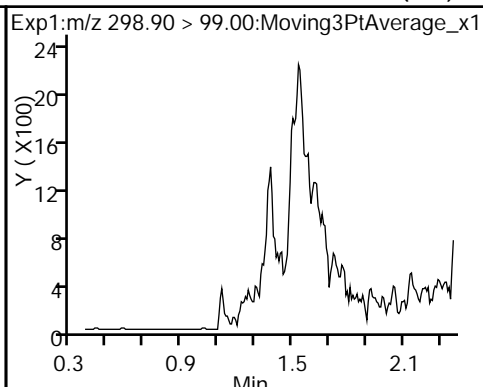
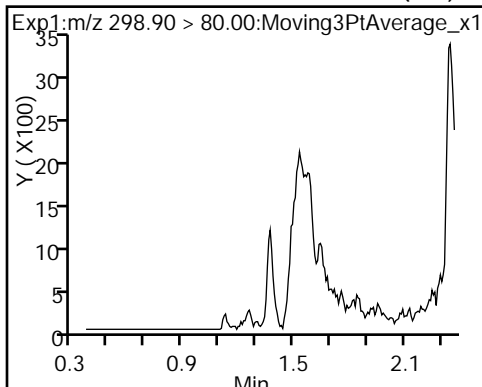
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

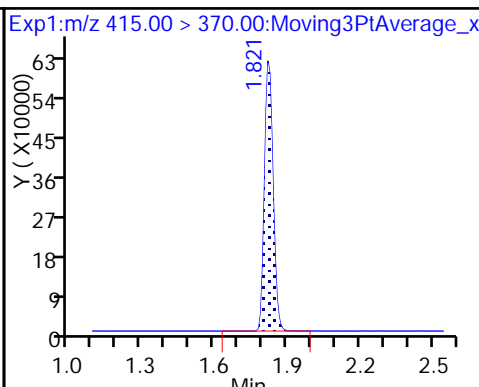
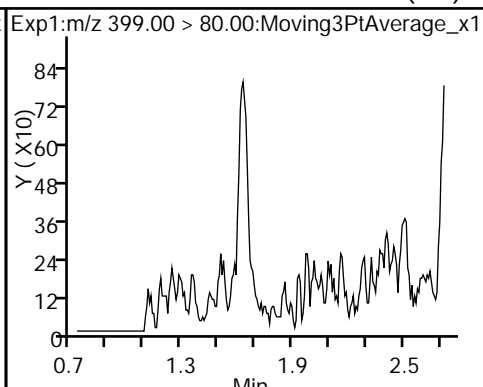
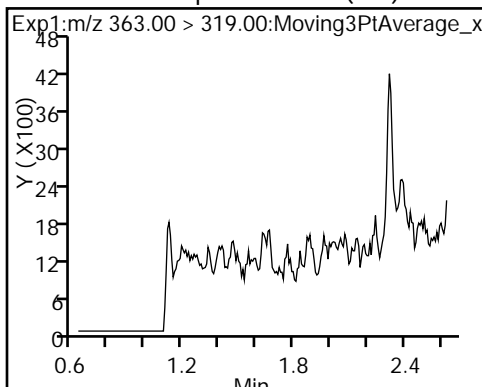
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (ND)

3 Perfluorohexanesulfonic acid (ND)

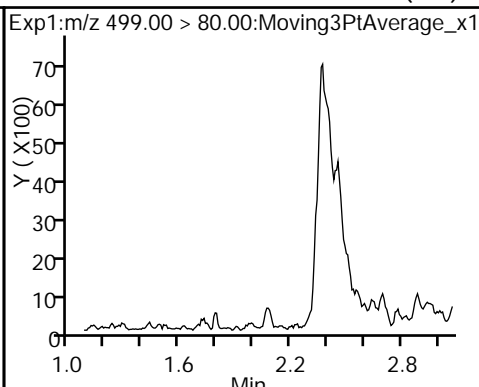
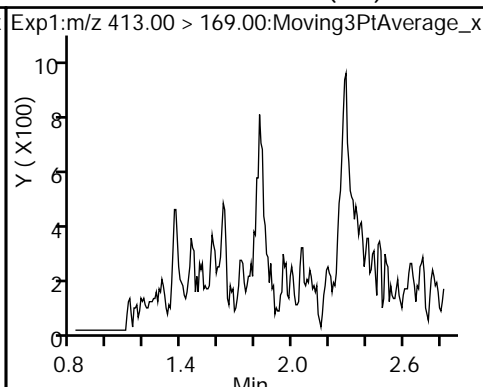
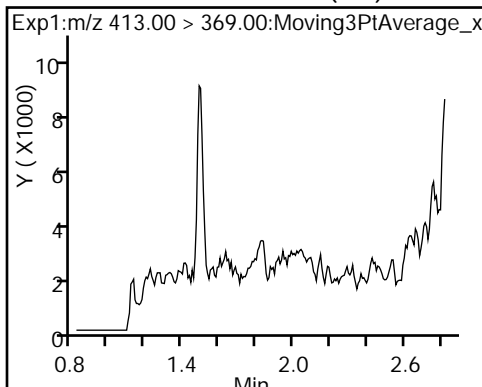
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

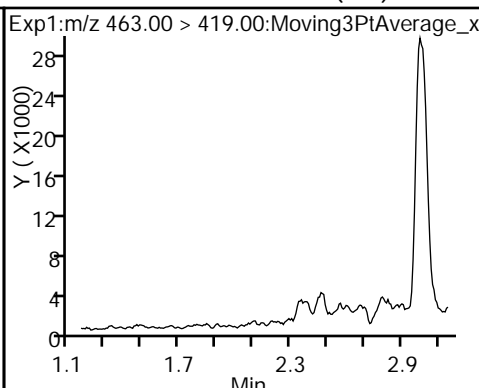
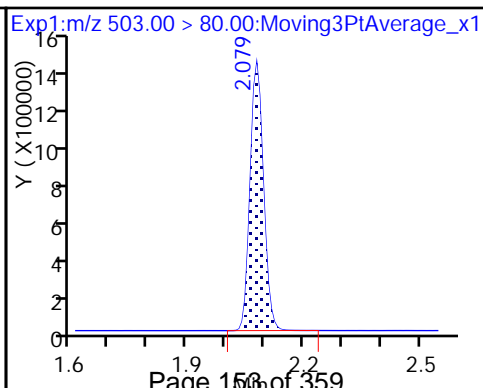
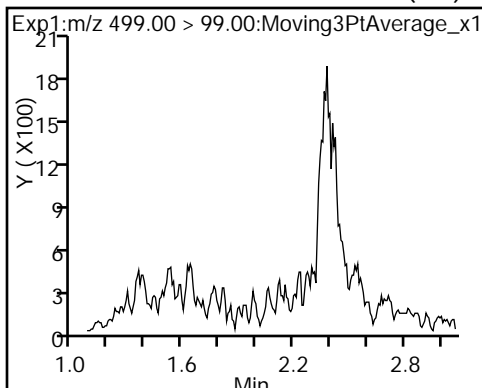
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

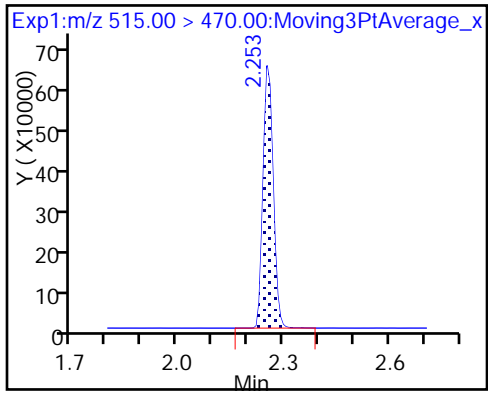


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_024.d
 Lims ID: 320-34946-A-8-A
 Client ID: WGNA-010918-FRB-3193
 Sample Type: Client
 Inject. Date: 22-Jan-2018 11:31:33 ALS Bottle#: 33 Worklist Smp#: 21
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-8-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:42:23 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:07:36

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.3	102.53
\$ 10 13C2 PFDA	10.0	11.1	111.14

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: WGNA-010918-DUP-17 Lab Sample ID: 320-34946-9
 Matrix: Water Lab File ID: 2018.01.22_537A_025.d
 Analysis Method: 537 Date Collected: 01/09/2018 07:00
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 249.2 (mL) Date Analyzed: 01/22/2018 11:36
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.6	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	25		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)	6.1	J	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	98		70-130
STL00996	13C2 PFDA	106		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_025.d
 Lims ID: 320-34946-A-9-A
 Client ID: WGNA-010918-DUP-17
 Sample Type: Client
 Inject. Date: 22-Jan-2018 11:36:13 ALS Bottle#: 34 Worklist Smp#: 22
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-9-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:42:23 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:31:29

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.373	0.0	1.000	106863	0.7933		73.4	
298.90 > 99.00	1.373	1.373	0.0	1.000	79236		1.35(0.00-0.00)	86.7	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1677660	9.76		7740	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.631	0.0	1.000	222241	1.52		45.7	
* 6 13C2-PFOA									
415.00 > 370.00	1.821	1.821	0.0		1561546	10.0		6573	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.821	1.821	0.0	1.000	910569	6.30		142	
413.00 > 169.00	1.821	1.821	0.0	1.000	504959		1.80(0.00-0.00)	1010	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.079	2.079	0.0	1.000	270657	2.39		57.9	
499.00 > 99.00	2.079	2.079	0.0	1.000	43451		6.23(0.00-0.00)	37.7	
* 7 13C4 PFOS									
503.00 > 80.00	2.079	2.079	0.0		3455362	28.7		4192	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.253	0.0	1.000	1271439	10.6		7785	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_025.d

Injection Date: 22-Jan-2018 11:36:13

Instrument ID: A8_N

Lims ID: 320-34946-A-9-A

Lab Sample ID: 320-34946-9

Client ID: WGNA-010918-DUP-17

Operator ID: SACINSTLCMS01

ALS Bottle#: 34

Worklist Smp#: 22

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

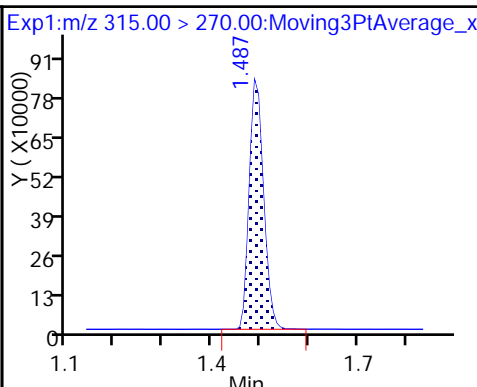
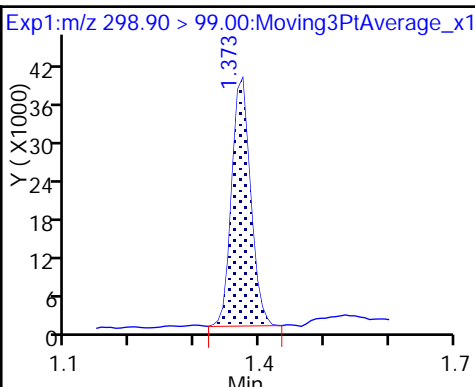
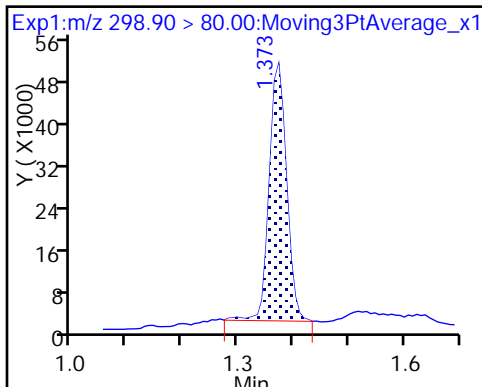
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

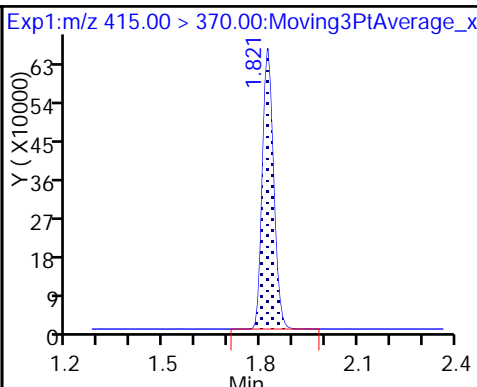
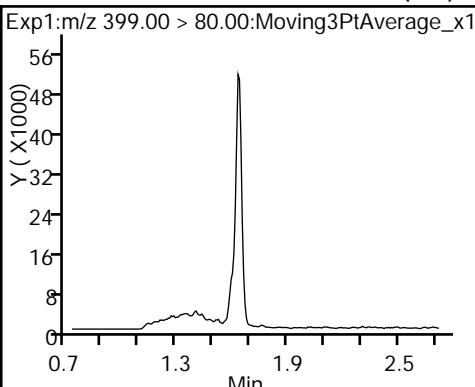
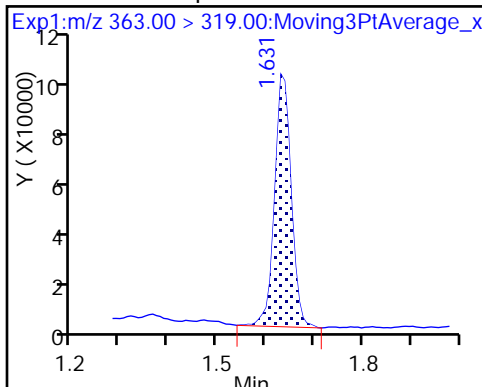
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid (ND)

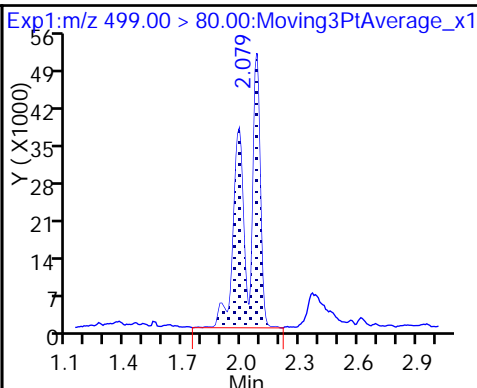
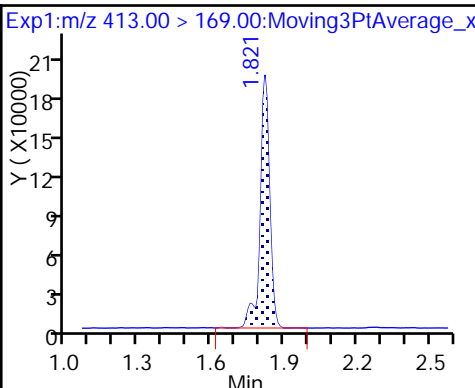
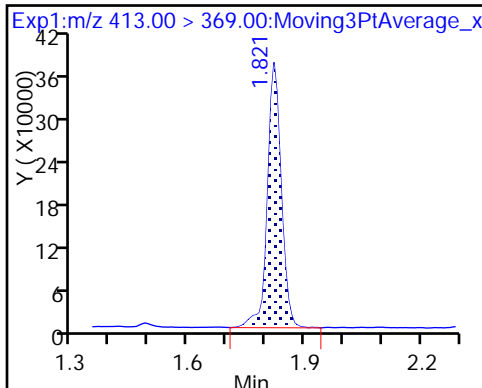
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

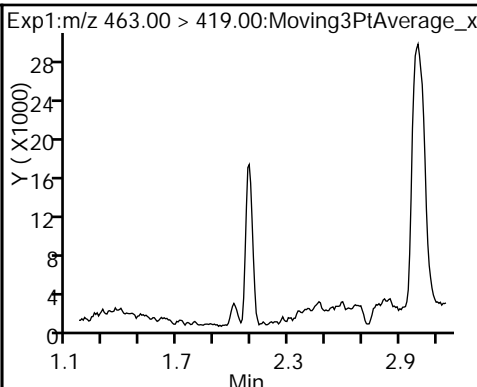
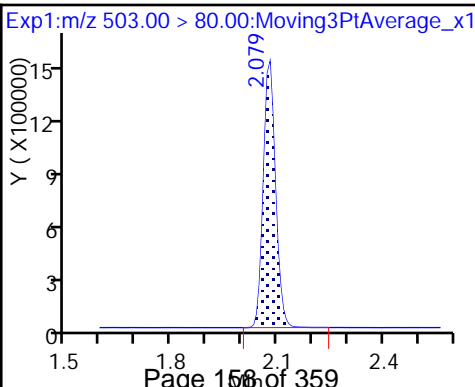
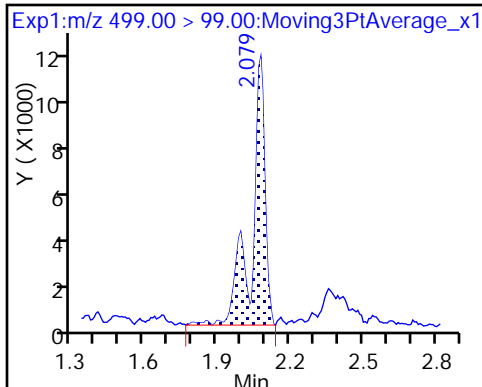
8 Perfluorooctane sulfonic acid



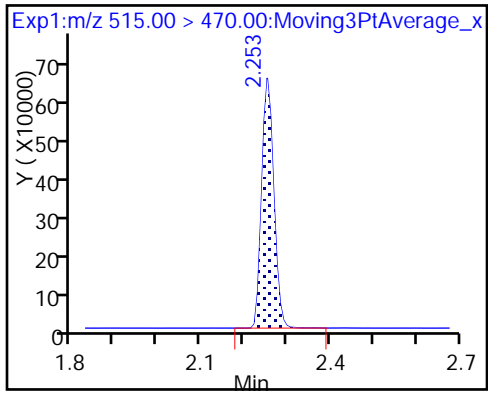
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_025.d
 Lims ID: 320-34946-A-9-A
 Client ID: WGNA-010918-DUP-17
 Sample Type: Client
 Inject. Date: 22-Jan-2018 11:36:13 ALS Bottle#: 34 Worklist Smp#: 22
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-9-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:42:23 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:31:29

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.76	97.64
\$ 10 13C2 PFDA	10.0	10.6	106.41

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-138 Lab Sample ID: 320-34946-10
 Matrix: Water Lab File ID: 2018.01.22_537A_026.d
 Analysis Method: 537 Date Collected: 01/09/2018 11:10
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 240.1(mL) Date Analyzed: 01/22/2018 11:40
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.3	J M	42	17	7.1
335-67-1	Perfluorooctanoic acid (PFOA)	25		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)	6.3	J	10	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	94	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	110		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_026.d
 Lims ID: 320-34946-A-10-A
 Client ID: NAWC-010918-RW-138
 Sample Type: Client
 Inject. Date: 22-Jan-2018 11:40:53 ALS Bottle#: 35 Worklist Smp#: 23
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-10-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:42:23 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:41:57

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.373	-0.007	1.000	94483	0.7036		65.4	
298.90 > 99.00	1.366	1.373	-0.007	1.000	69345		1.36(0.00-0.00)	76.4	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.487	0.0	1.000	1558870	9.46		7738	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.631	0.0	1.000	212294	1.51		45.5	
* 6 13C2-PFOA									
415.00 > 370.00	1.821	1.821	0.0		1497454	10.0		5777	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.821	1.821	0.0	1.000	845002	6.10		136	
413.00 > 169.00	1.821	1.821	0.0	1.000	471691		1.79(0.00-0.00)	999	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.079	2.079	0.0	1.000	250938	2.23		61.1	M
499.00 > 99.00	2.079	2.079	0.0	1.000	42096		5.96(0.00-0.00)	41.6	M
* 7 13C4 PFOS									
503.00 > 80.00	2.079	2.079	0.0		3444274	28.7		3851	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.253	0.0	1.000	1264104	11.0		8193	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_026.d

Injection Date: 22-Jan-2018 11:40:53

Instrument ID: A8_N

Lims ID: 320-34946-A-10-A

Lab Sample ID: 320-34946-10

Client ID: NAWC-010918-RW-138

Operator ID: SACINSTLCMS01

ALS Bottle#: 35

Worklist Smp#: 23

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

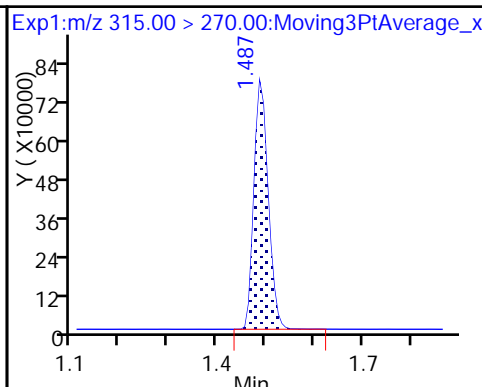
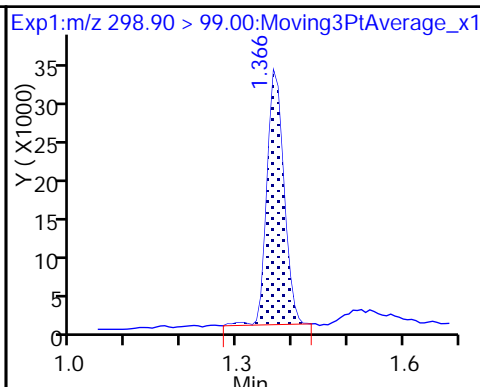
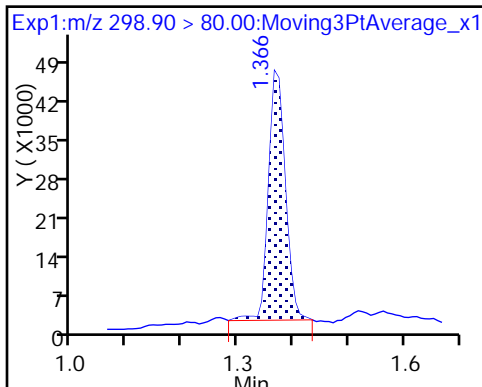
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

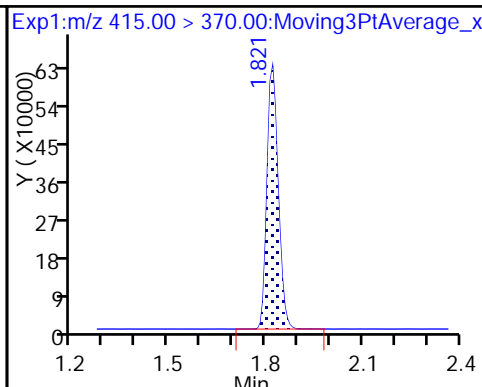
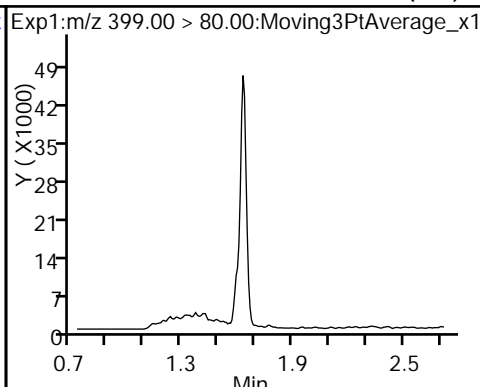
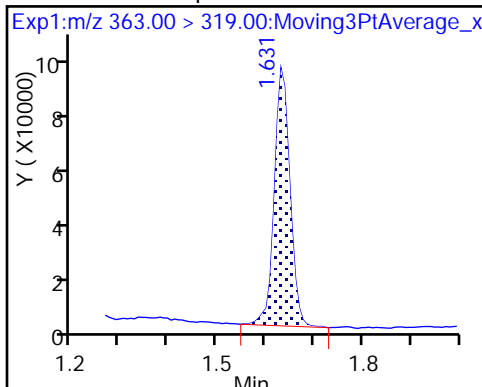
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid (ND)

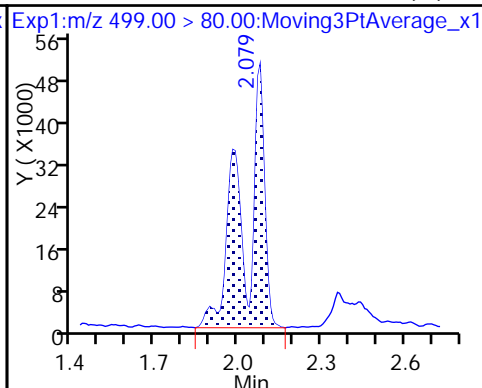
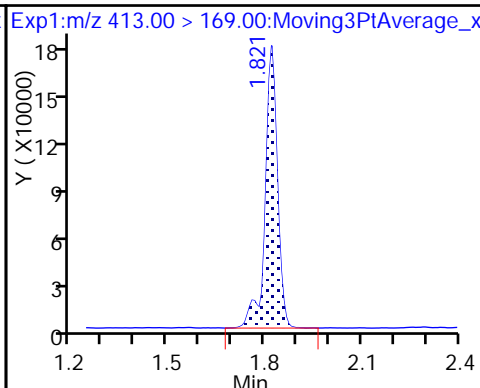
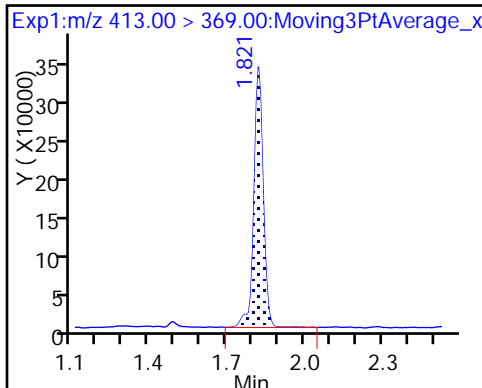
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

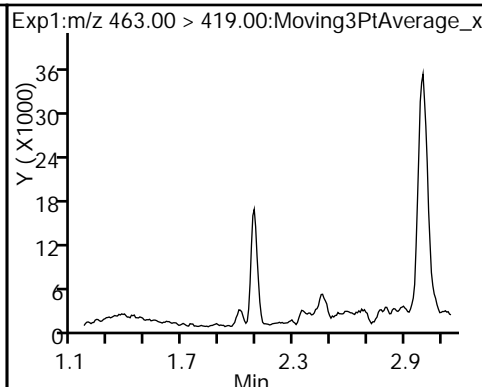
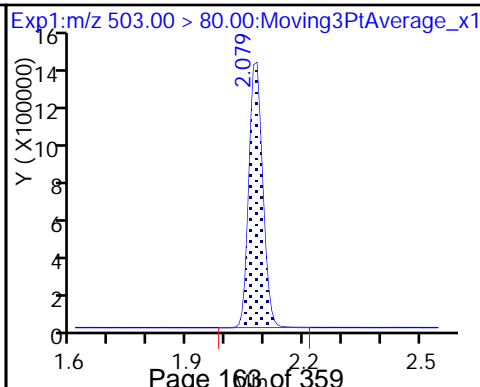
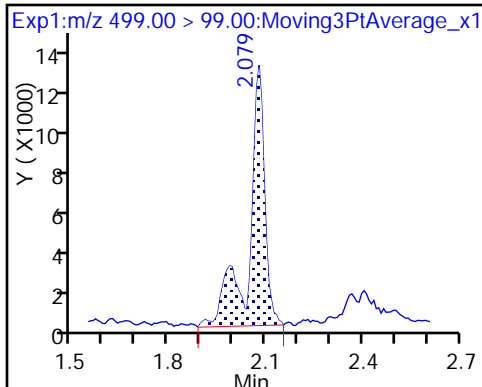
8 Perfluorooctane sulfonic acid (M)



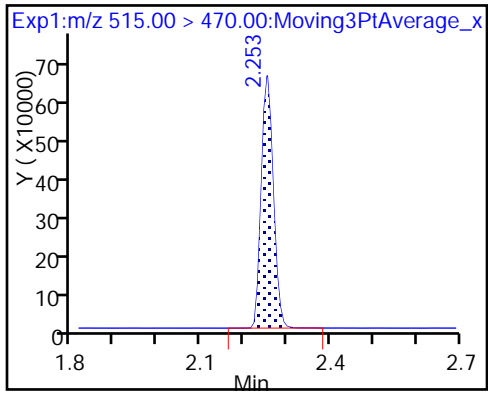
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_026.d
 Lims ID: 320-34946-A-10-A
 Client ID: NAWC-010918-RW-138
 Sample Type: Client
 Inject. Date: 22-Jan-2018 11:40:53 ALS Bottle#: 35 Worklist Smp#: 23
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-10-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:42:23 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:41:57

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.46	94.61
\$ 10 13C2 PFDA	10.0	11.0	110.32

TestAmerica Sacramento

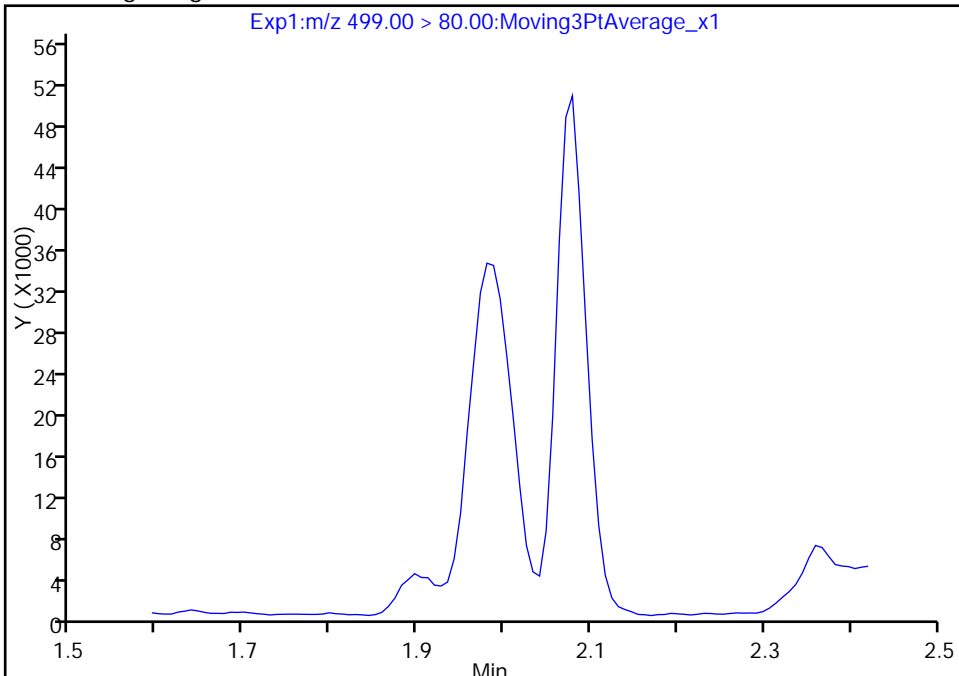
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Injection Date: 22-Jan-2018 11:40:53 Instrument ID: A8_N
Lims ID: 320-34946-A-10-A Lab Sample ID: 320-34946-10
Client ID: NAWC-010918-RW-138
Operator ID: SACINSTLCMS01 ALS Bottle#: 35 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

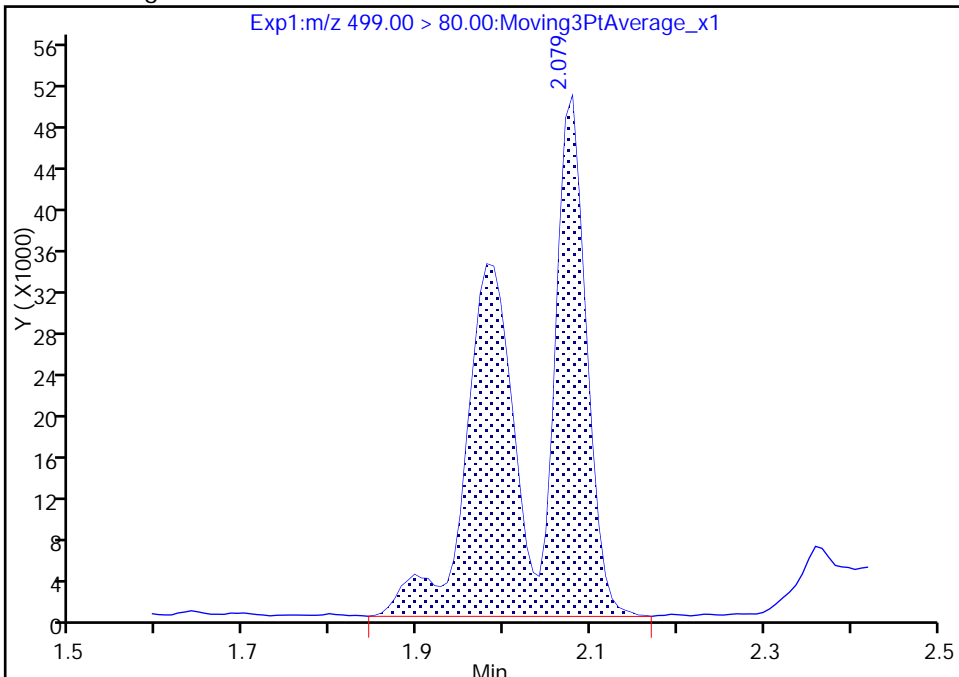
Not Detected
Expected RT: 2.08

Processing Integration Results



Manual Integration Results

RT: 2.08
Area: 250938
Amount: 2.225389
Amount Units: ng/ml



Reviewer: roycea, 22-Jan-2018 15:40:35
Audit Action: Assigned Compound ID

Audit Reason: Assign Peak

TestAmerica Sacramento

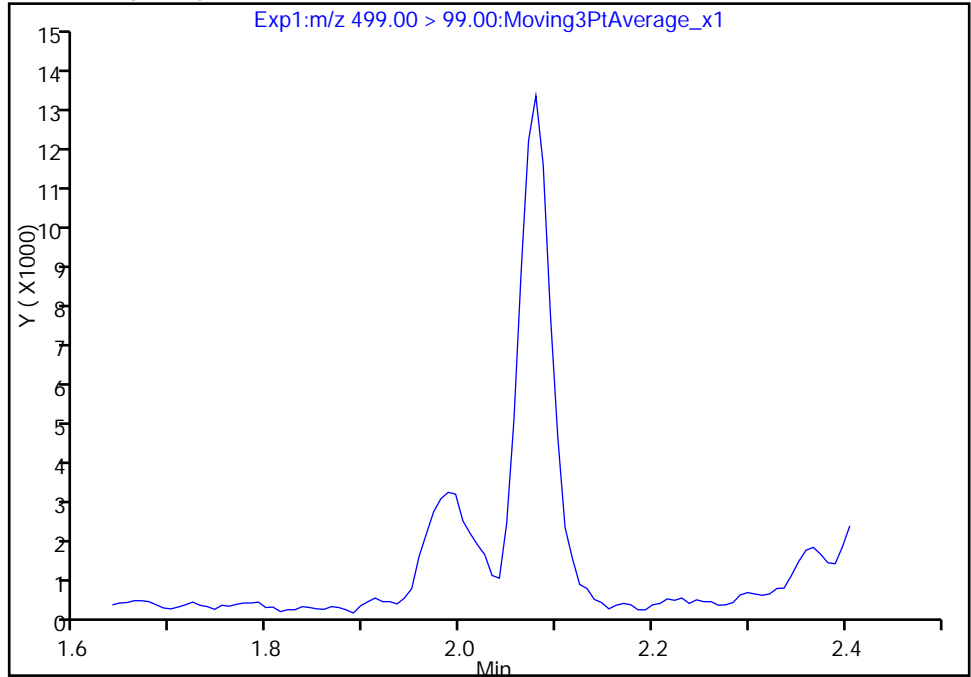
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Injection Date: 22-Jan-2018 11:40:53 Instrument ID: A8_N
Lims ID: 320-34946-A-10-A Lab Sample ID: 320-34946-10
Client ID: NAWC-010918-RW-138
Operator ID: SACINSTLCMS01 ALS Bottle#: 35 Worklist Smp#: 23
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

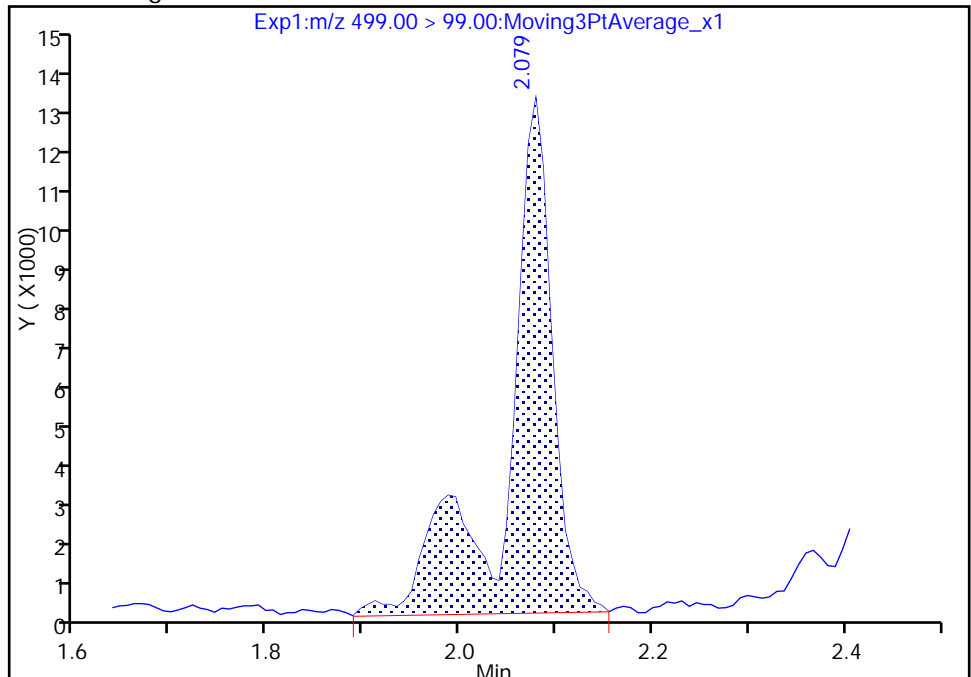
Not Detected
Expected RT: 2.08

Processing Integration Results



Manual Integration Results

RT: 2.08
Area: 42096
Amount: 2.225389
Amount Units: ng/ml



TestAmerica Sacramento

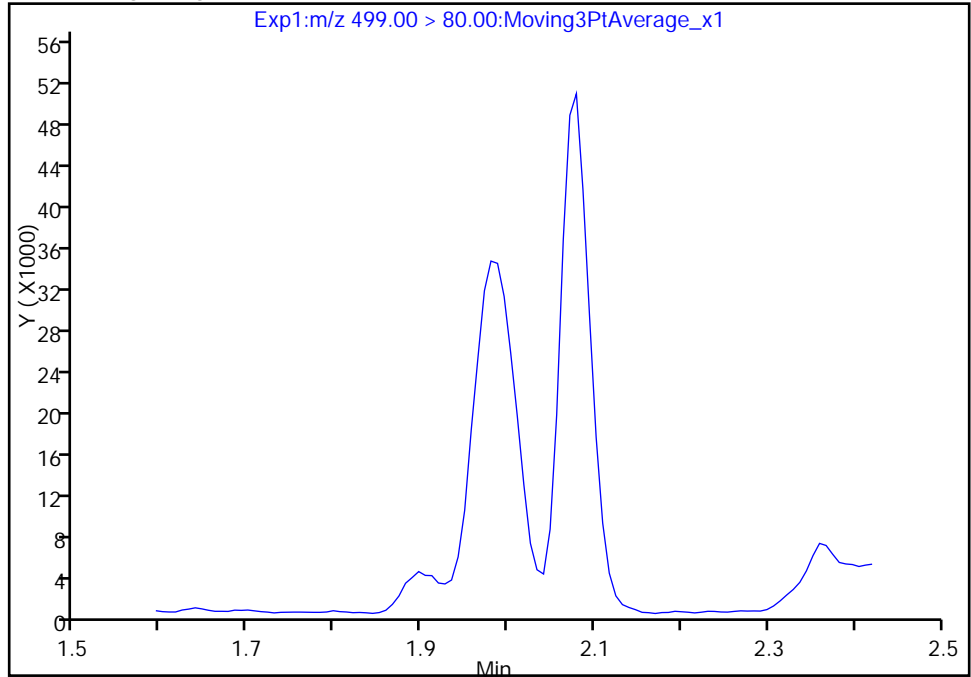
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_026.d
Injection Date: 22-Jan-2018 11:40:53 Instrument ID: A8_N
Lims ID: 320-34946-A-10-A Lab Sample ID: 320-34946-10
Client ID: NAWC-010918-RW-138
Operator ID: SACINSTLCMS01 ALS Bottle#: 35 Worklist Smp#: 23
Injection Vol: 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

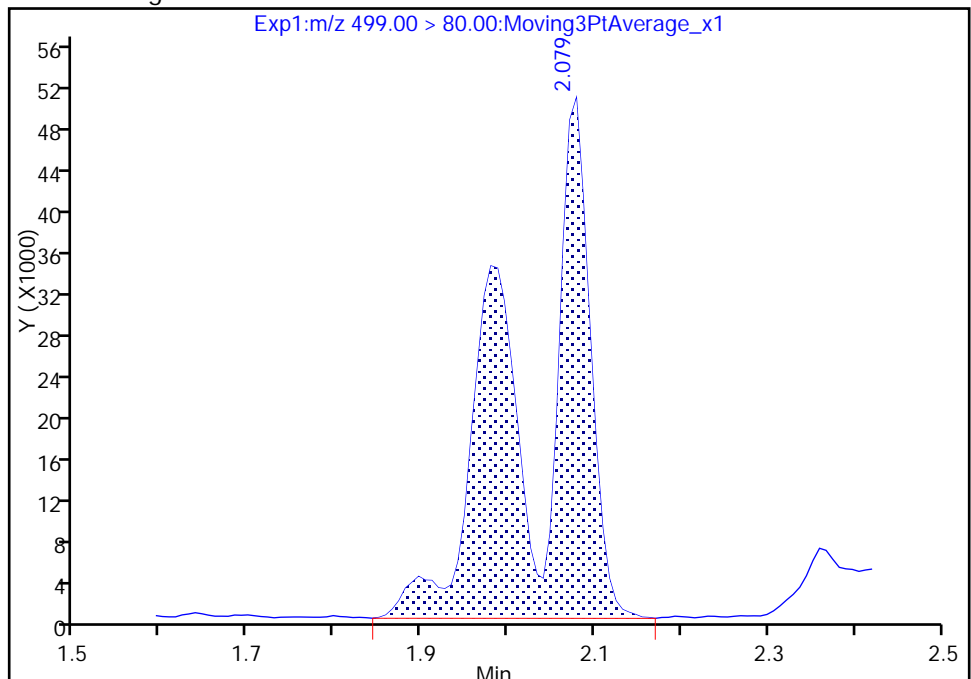
Not Detected
Expected RT: 2.08

Processing Integration Results



RT: 2.08
Area: 250938
Amount: 2.225389
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 22-Jan-2018 15:40:45

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-138 Lab Sample ID: 320-34946-11
 Matrix: Water Lab File ID: 2018.01.22_537A_027.d
 Analysis Method: 537 Date Collected: 01/09/2018 11:05
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 245.2 (mL) Date Analyzed: 01/22/2018 11:45
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.2	U	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	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	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	104		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_027.d
 Lims ID: 320-34946-A-11-A
 Client ID: NAWC-010918-FRB-138
 Sample Type: Client
 Inject. Date: 22-Jan-2018 11:45:34 ALS Bottle#: 36 Worklist Smp#: 24
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-11-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:42:23 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:42:23

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	1674319	9.57	7981	
* 6 13C2-PFOA	415.00 > 370.00	1.821	1.821	0.0		1589423	10.0	7000	
* 7 13C4 PFOS	503.00 > 80.00	2.079	2.079	0.0		3480486	28.7	7364	
\$ 10 13C2 PFDA	515.00 > 470.00	2.253	2.253	0.0	1.000	1261569	10.4	7398	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_027.d

Injection Date: 22-Jan-2018 11:45:34

Instrument ID: A8_N

Lims ID: 320-34946-A-11-A

Lab Sample ID: 320-34946-11

Client ID: NAWC-010918-FRB-138

Operator ID: SACINSTLCMS01

ALS Bottle#: 36

Worklist Smp#: 24

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

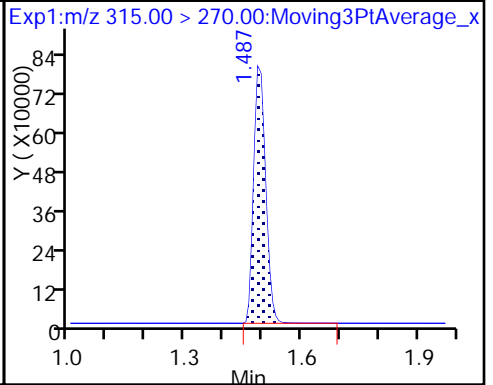
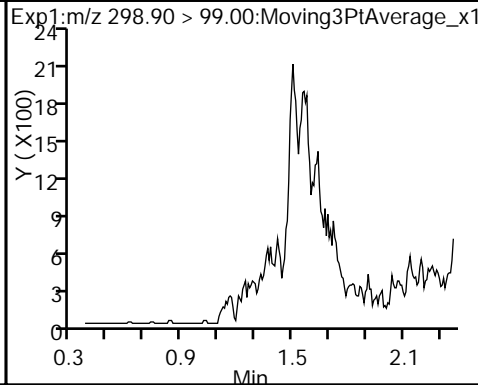
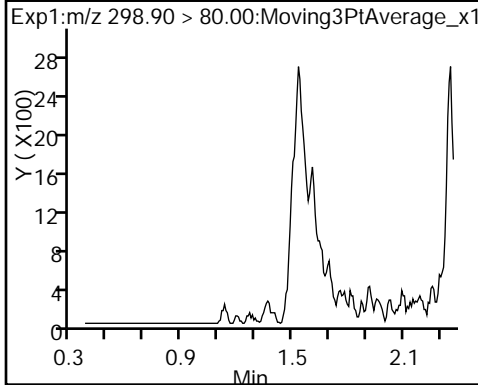
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

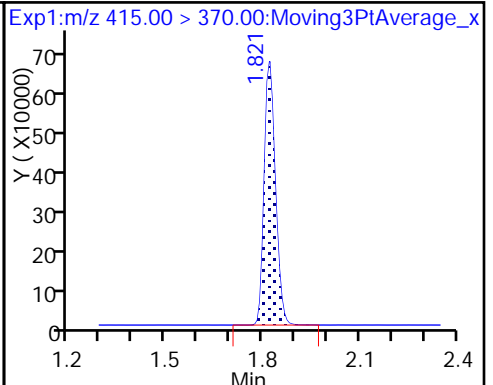
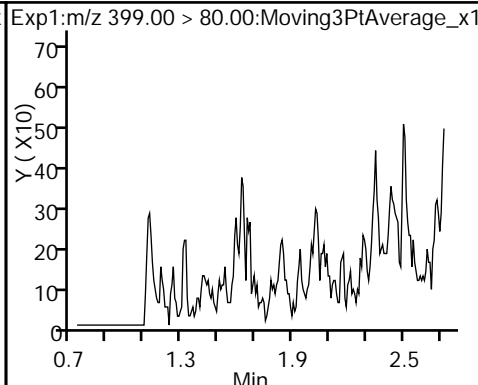
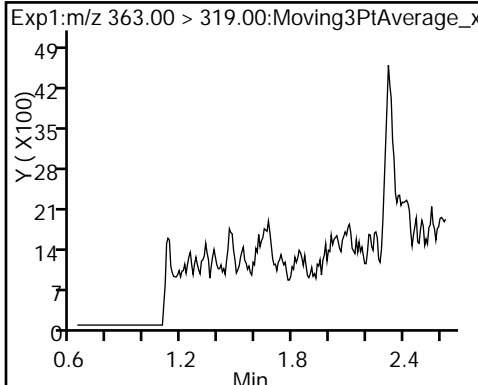
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (ND)

3 Perfluorohexanesulfonic acid (ND)

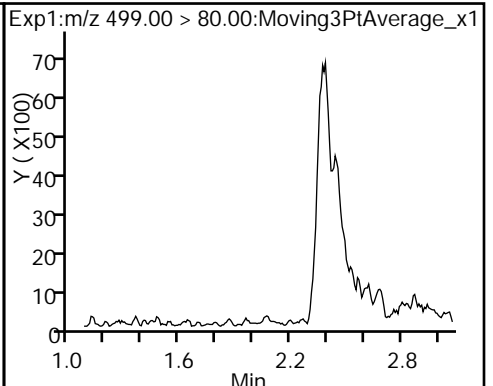
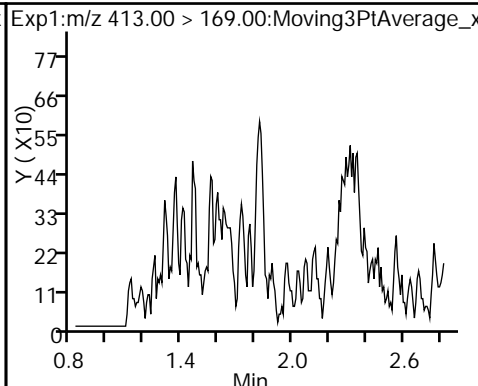
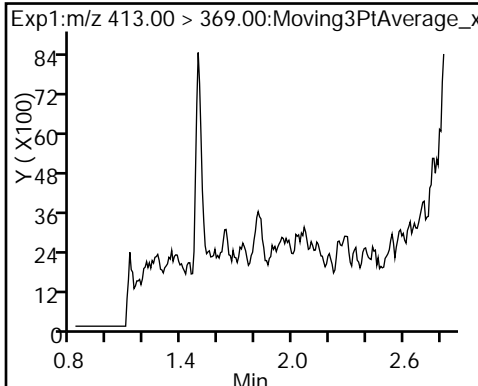
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

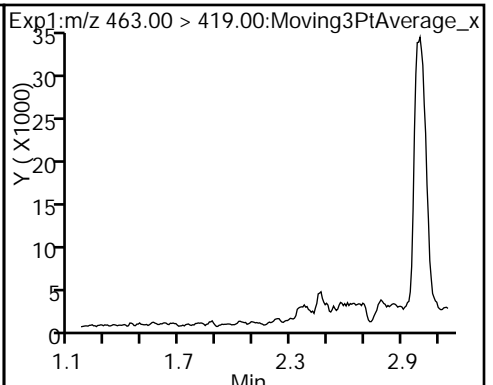
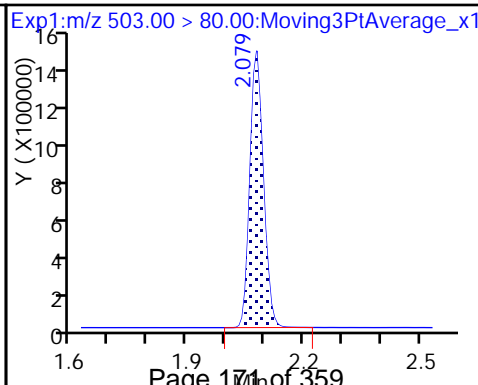
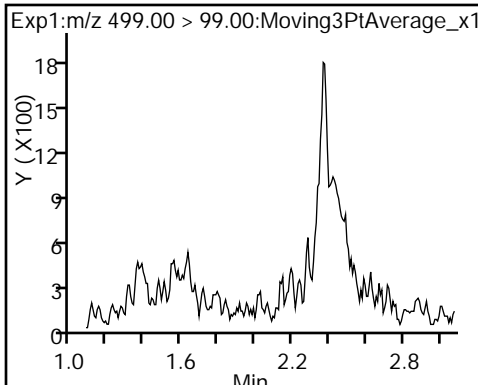
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

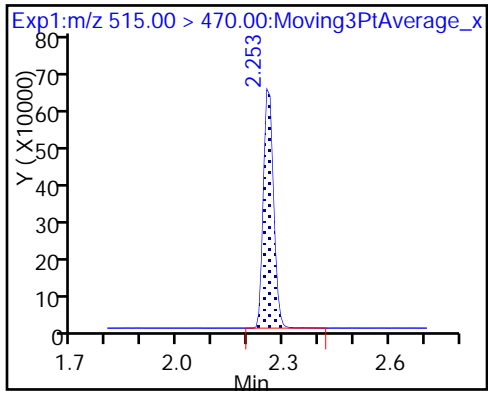


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_027.d
 Lims ID: 320-34946-A-11-A
 Client ID: NAWC-010918-FRB-138
 Sample Type: Client
 Inject. Date: 22-Jan-2018 11:45:34 ALS Bottle#: 36 Worklist Smp#: 24
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-11-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:42:23 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:42:23

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.57	95.74
\$ 10 13C2 PFDA	10.0	10.4	103.73

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-351 Lab Sample ID: 320-34946-12
 Matrix: Water Lab File ID: 2018.01.22_537A_028.d
 Analysis Method: 537 Date Collected: 01/09/2018 11:40
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 246.8 (mL) Date Analyzed: 01/22/2018 11:50
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	12	J	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	16	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)	5.3	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	89		70-130
STL00996	13C2 PFDA	104		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_028.d
 Lims ID: 320-34946-A-12-A
 Client ID: NAWC-010918-RW-351
 Sample Type: Client
 Inject. Date: 22-Jan-2018 11:50:14 ALS Bottle#: 37 Worklist Smp#: 25
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-12-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:48:11 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:43:20

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.366	0.0	1.000	132758	0.9836		93.5	
298.90 > 99.00	1.366	1.366	0.0	1.000	103576		1.28(0.00-0.00)	111	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	1514524	8.92		6876	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.624	0.007	1.000	188228	1.30		36.1	
* 6 13C2-PFOA									
415.00 > 370.00	1.821	1.813	0.008		1543505	10.0		6144	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.821	1.813	0.008	1.000	561142	3.93		75.4	
413.00 > 169.00	1.821	1.813	0.008	1.000	319682		1.76(0.00-0.00)	582	
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.064	0.007		3463043	28.7		4133	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.079	2.071	0.008	1.000	335108	2.96		77.4	
499.00 > 99.00	2.071	2.071	0.0	0.996	60288		5.56(0.00-0.00)	53.5	
9 Perfluorononanoic acid									
463.00 > 419.00	2.086	2.071	0.015	1.000	51949	0.5068		9.0	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.246	0.007	1.000	1232085	10.4		7103	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_028.d

Injection Date: 22-Jan-2018 11:50:14

Instrument ID: A8_N

Lims ID: 320-34946-A-12-A

Lab Sample ID: 320-34946-12

Client ID: NAWC-010918-RW-351

Operator ID: SACINSTLCMS01

ALS Bottle#: 37

Worklist Smp#: 25

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

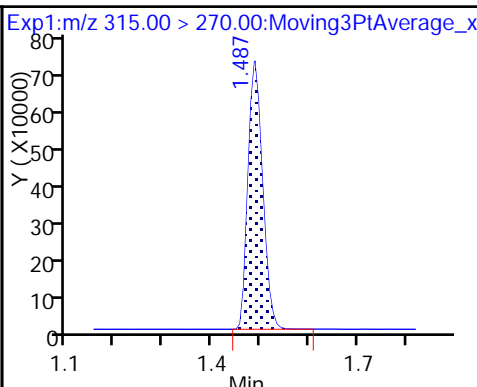
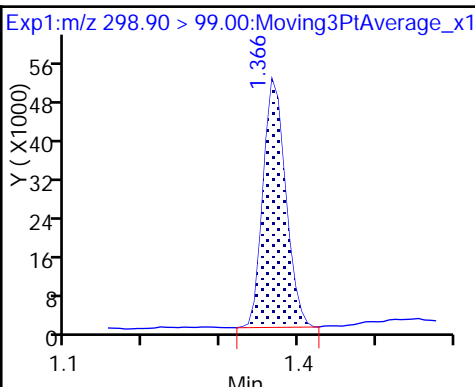
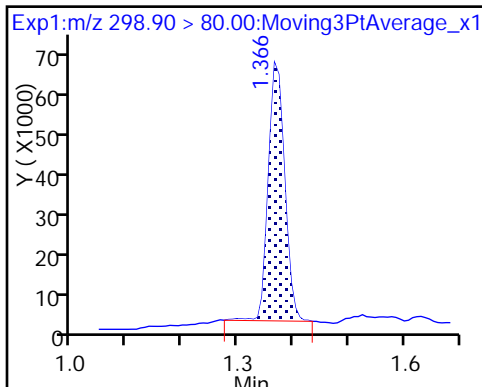
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

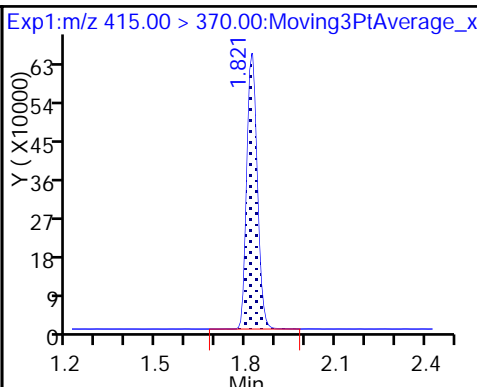
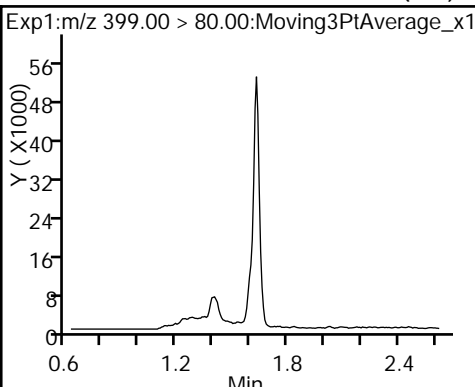
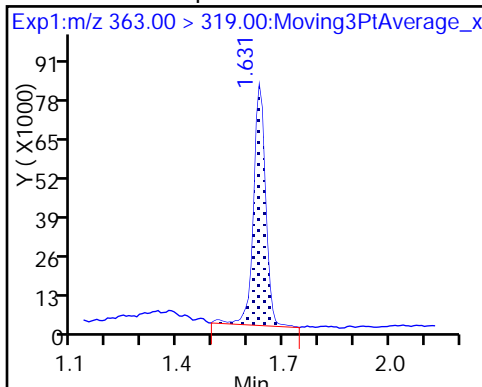
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid (ND)

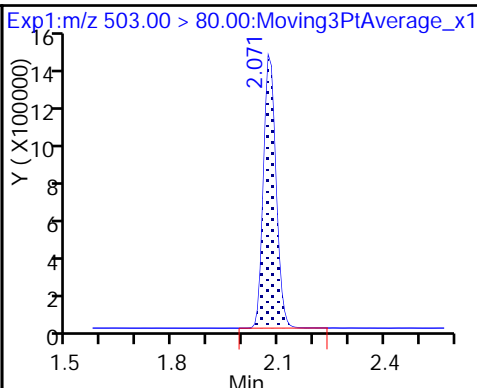
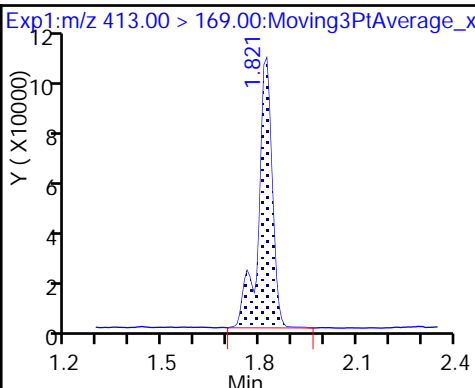
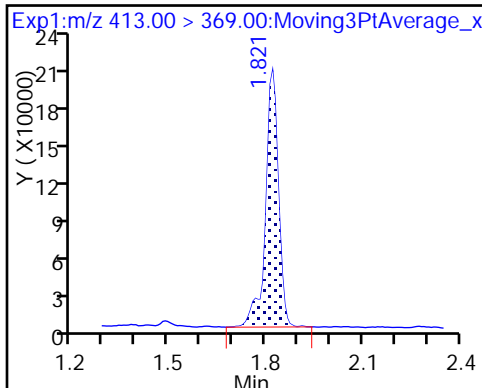
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

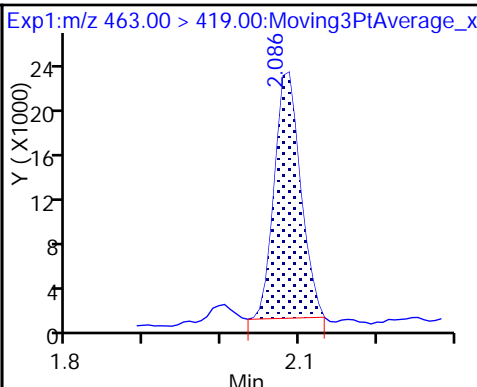
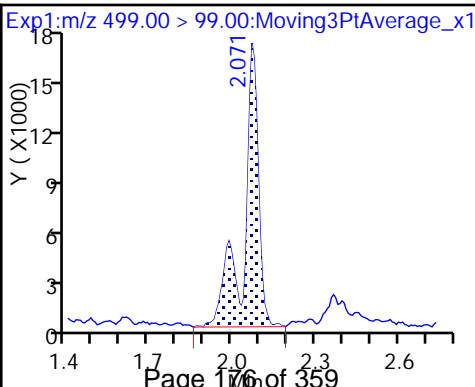
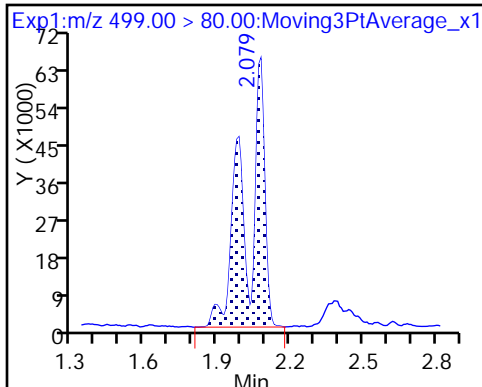
* 7 13C4 PFOS



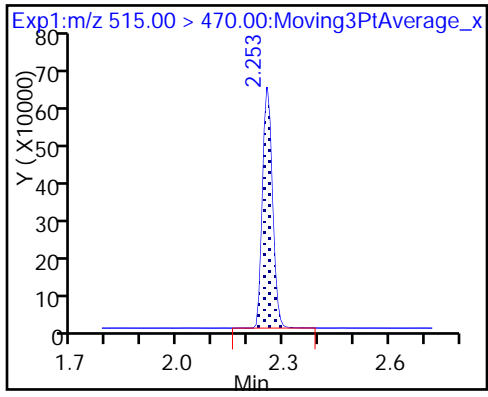
8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_028.d
 Lims ID: 320-34946-A-12-A
 Client ID: NAWC-010918-RW-351
 Sample Type: Client
 Inject. Date: 22-Jan-2018 11:50:14 ALS Bottle#: 37 Worklist Smp#: 25
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-12-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:48:11 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:43:20

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.92	89.18
\$ 10 13C2 PFDA	10.0	10.4	104.32

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-351 Lab Sample ID: 320-34946-13
 Matrix: Water Lab File ID: 2018.01.22_537A_029.d
 Analysis Method: 537 Date Collected: 01/09/2018 11:35
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 250 (mL) Date Analyzed: 01/22/2018 11:54
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 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	90		70-130
STL00996	13C2 PFDA	100		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_029.d
 Lims ID: 320-34946-A-13-A
 Client ID: NAWC-010918-FRB-351
 Sample Type: Client
 Inject. Date: 22-Jan-2018 11:54:53 ALS Bottle#: 38 Worklist Smp#: 26
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-13-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:48:11 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:43:41

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	1519126	8.99	7540	
* 6 13C2-PFOA	415.00 > 370.00	1.813	1.813	0.0		1535261	10.0	6351	
* 7 13C4 PFOS	503.00 > 80.00	2.071	2.064	0.007		3428696	28.7	7180	
\$ 10 13C2 PFDA	515.00 > 470.00	2.246	2.246	0.0	1.000	1171943	9.98	7093	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_029.d

Injection Date: 22-Jan-2018 11:54:53

Instrument ID: A8_N

Lims ID: 320-34946-A-13-A

Lab Sample ID: 320-34946-13

Client ID: NAWC-010918-FRB-351

Operator ID: SACINSTLCMS01

ALS Bottle#: 38

Worklist Smp#: 26

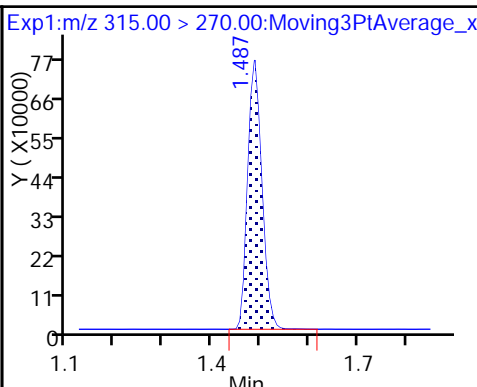
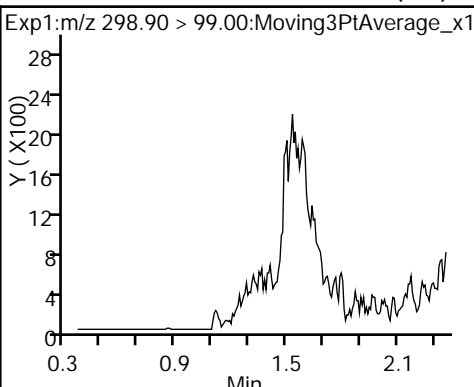
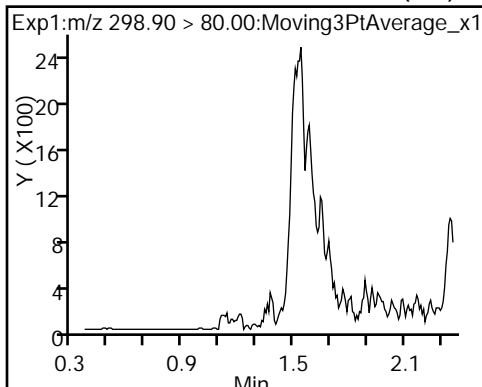
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

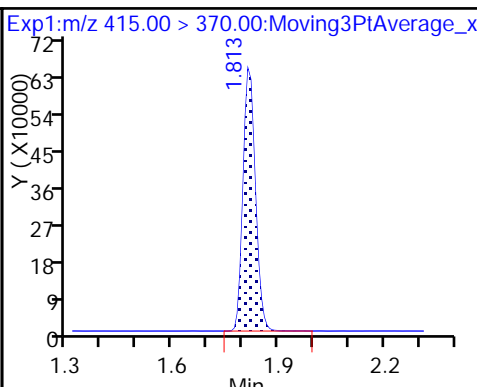
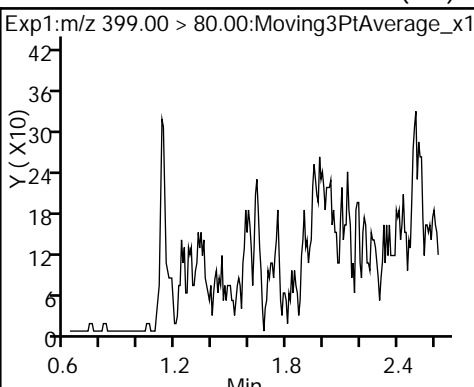
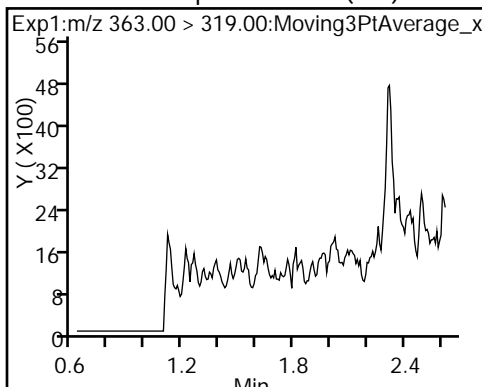
Method: 537_A8_N

Limit Group: LC 537 ICAL

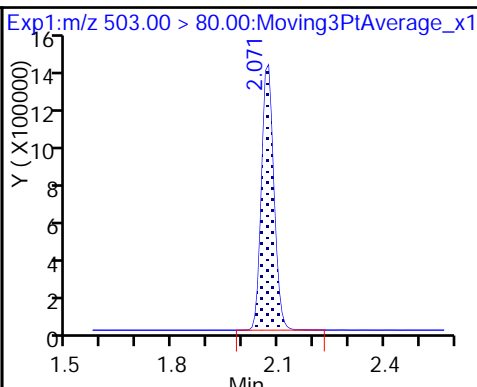
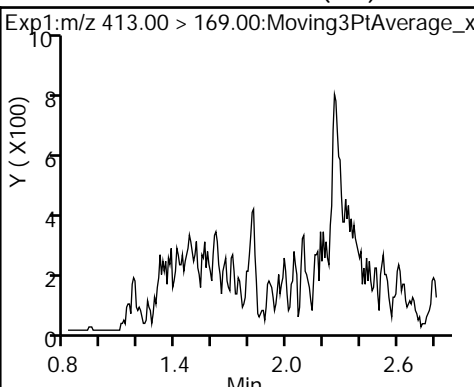
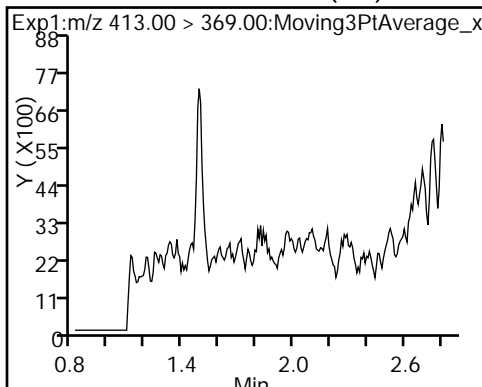
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



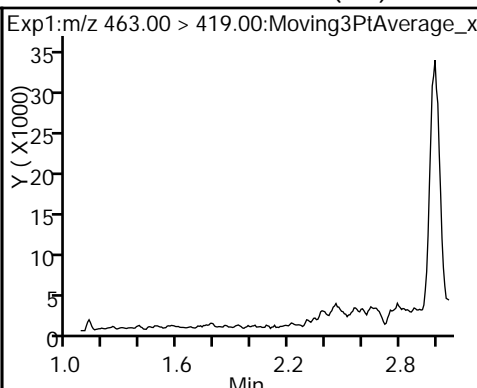
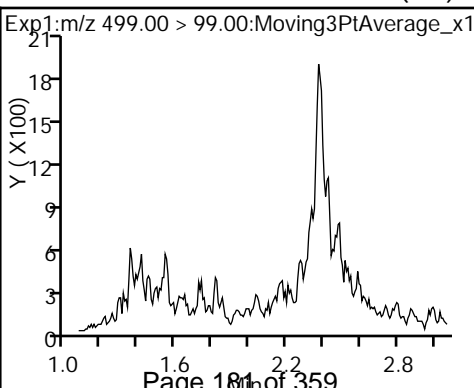
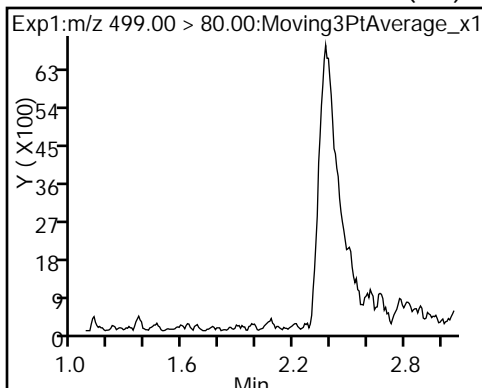
4 Perfluoroheptanoic acid (ND) 3 Perfluorohexanesulfonic acid (ND) * 6 13C2-PFOA



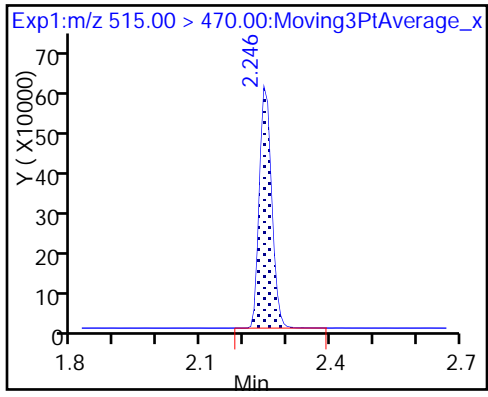
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) * 7 13C4 PFOS



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\20180122-53168.b\2018.01.22_537A_029.d
 Lims ID: 320-34946-A-13-A
 Client ID: NAWC-010918-FRB-351
 Sample Type: Client
 Inject. Date: 22-Jan-2018 11:54:53 ALS Bottle#: 38 Worklist Smp#: 26
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-13-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:48:11 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:43:41

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.99	89.93
\$ 10 13C2 PFDA	10.0	9.98	99.76

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-352 Lab Sample ID: 320-34946-14
 Matrix: Water Lab File ID: 2018.01.22_537A_030.d
 Analysis Method: 537 Date Collected: 01/09/2018 12:10
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 247.8(mL) Date Analyzed: 01/22/2018 11:59
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U M	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	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	5.5
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	88		70-130
STL00996	13C2 PFDA	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_030.d
 Lims ID: 320-34946-A-14-A
 Client ID: NAWC-010918-RW-352
 Sample Type: Client
 Inject. Date: 22-Jan-2018 11:59:34 ALS Bottle#: 39 Worklist Smp#: 27
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-14
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:48:11 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:44:35

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	118722	0.8387		80.4	
298.90 > 99.00	1.366	1.366	0.0	1.000	85288		1.39(0.00-0.00)	93.7	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	1575114	8.85		6781	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.813	0.0		1617639	10.0		6121	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.821	1.813	0.008	1.000	287832	1.92		37.6	
413.00 > 169.00	1.813	1.813	0.0	0.996	171977		1.67(0.00-0.00)	303	
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.064	0.007		3631152	28.7		3994	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.071	2.071	0.0	1.000	122784	1.03		32.5	M
499.00 > 99.00	2.071	2.071	0.0	1.000	20403		6.02(0.00-0.00)	20.5	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.246	0.007	1.000	1225599	9.90		7608	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_030.d

Injection Date: 22-Jan-2018 11:59:34

Instrument ID: A8_N

Lims ID: 320-34946-A-14-A

Lab Sample ID: 320-34946-14

Client ID: NAWC-010918-RW-352

Operator ID: SACINSTLCMS01

ALS Bottle#: 39

Worklist Smp#: 27

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

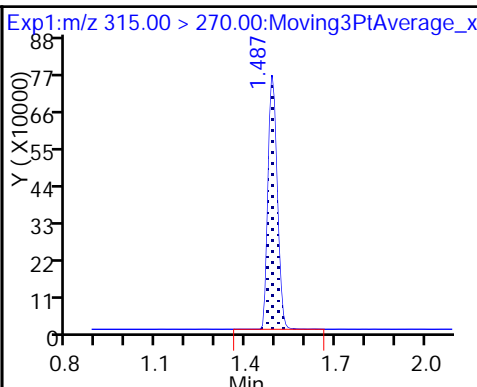
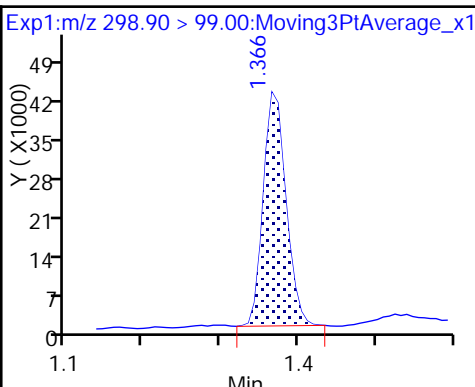
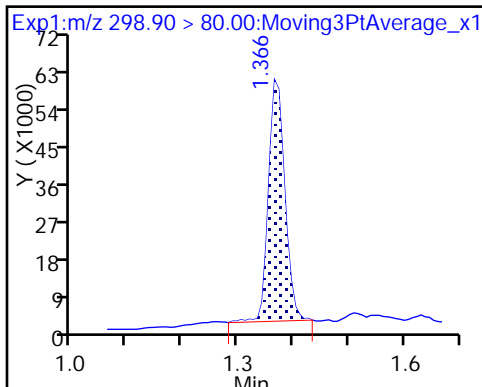
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

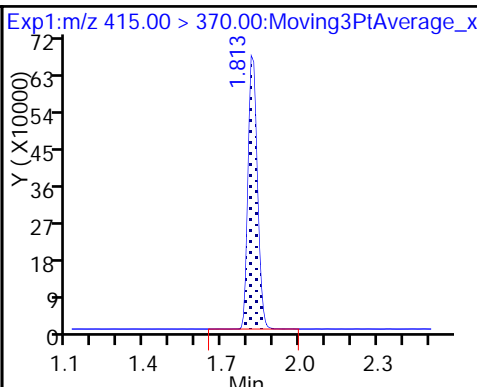
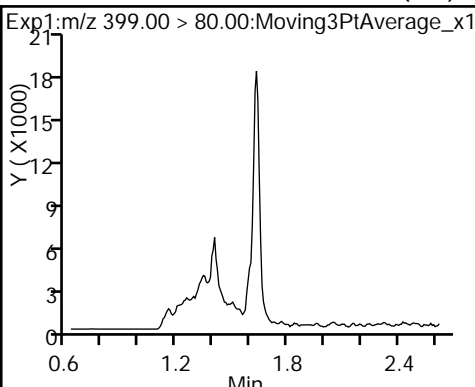
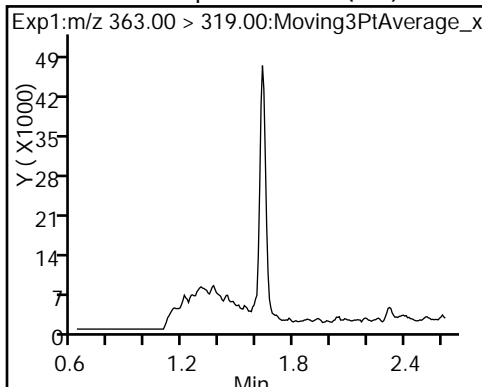
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (ND)

3 Perfluorohexanesulfonic acid (ND)

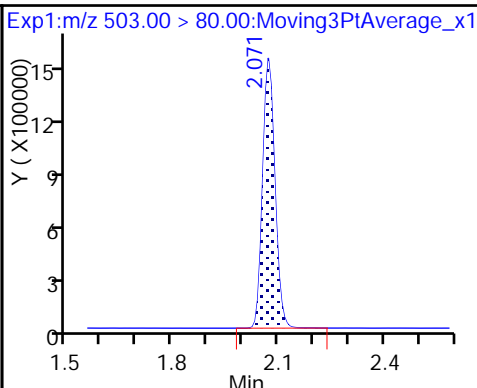
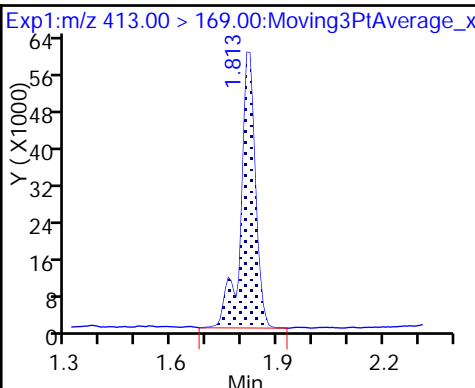
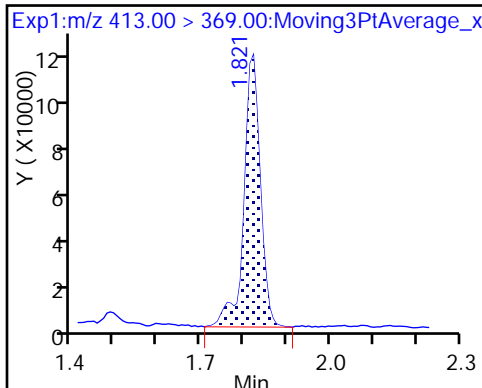
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

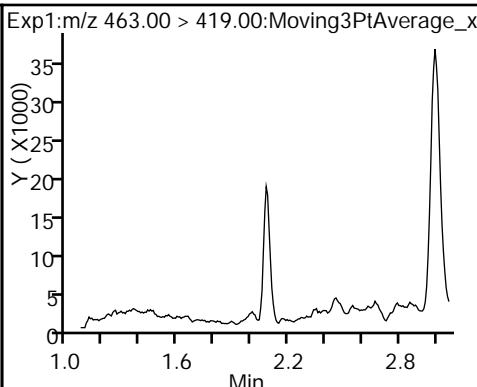
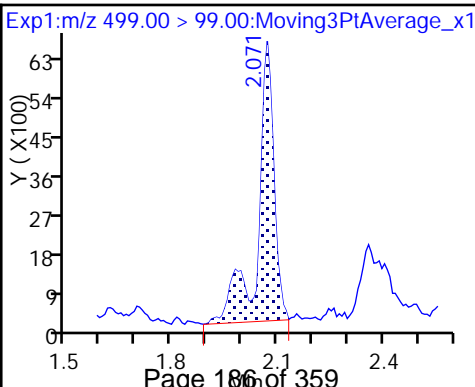
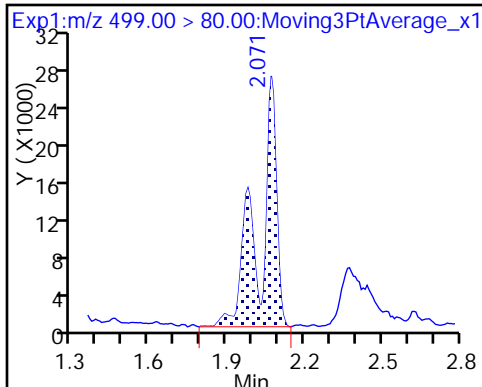
* 7 13C4 PFOS



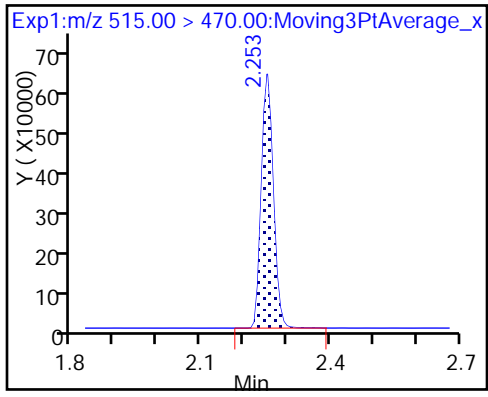
8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_030.d
 Lims ID: 320-34946-A-14-A
 Client ID: NAWC-010918-RW-352
 Sample Type: Client
 Inject. Date: 22-Jan-2018 11:59:34 ALS Bottle#: 39 Worklist Smp#: 27
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-14
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:48:11 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:44:35

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.85	88.50
\$ 10 13C2 PFDA	10.0	9.90	99.01

TestAmerica Sacramento

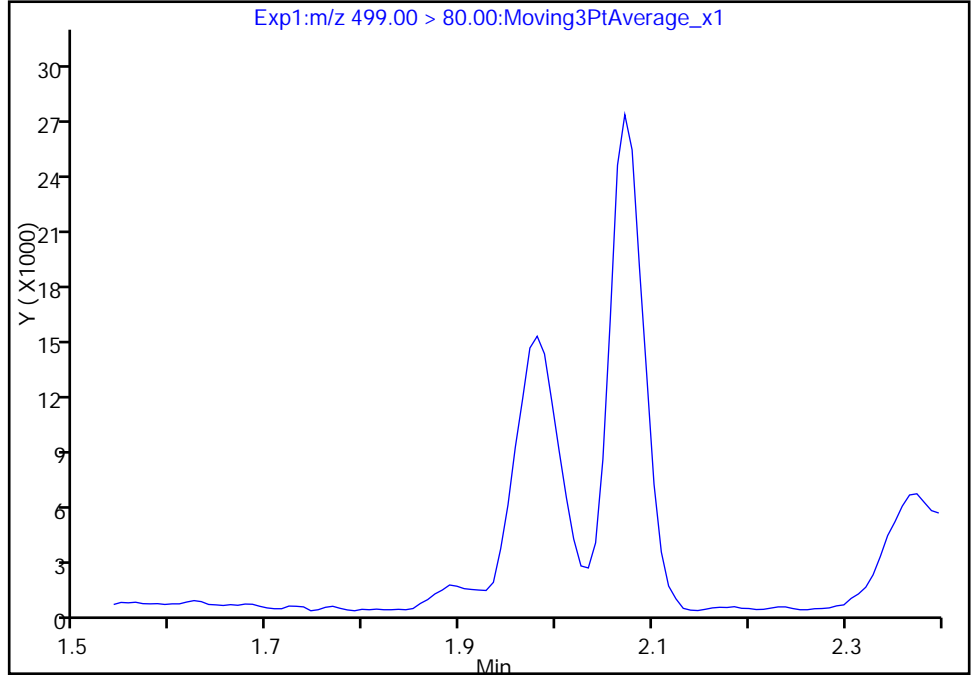
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Injection Date: 22-Jan-2018 11:59:34 Instrument ID: A8_N
Lims ID: 320-34946-A-14-A Lab Sample ID: 320-34946-14
Client ID: NAWC-010918-RW-352
Operator ID: SACINSTLCMS01 ALS Bottle#: 39 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

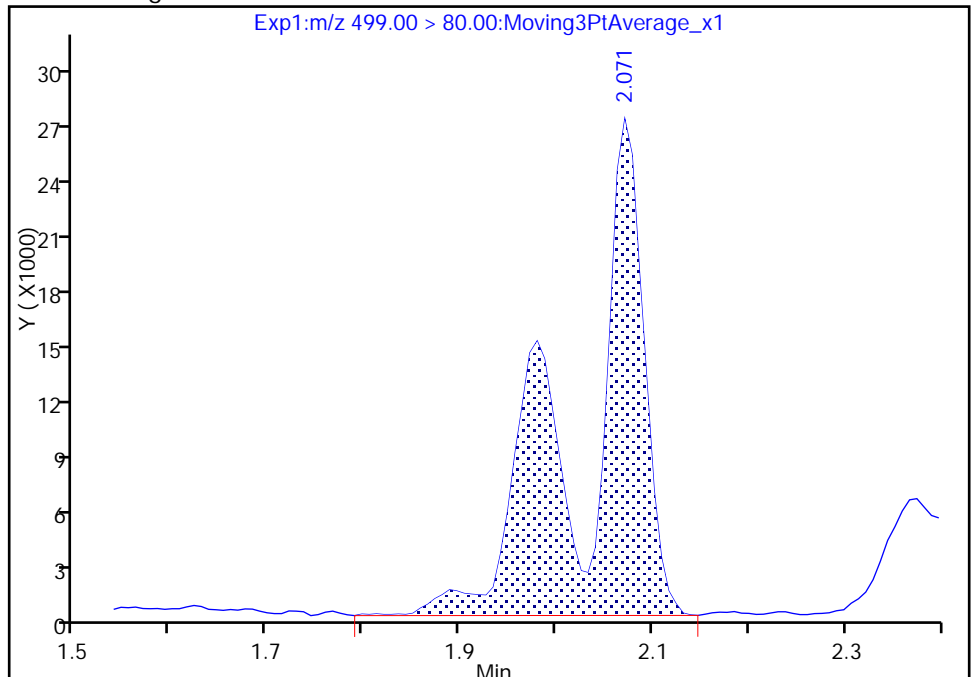
Not Detected
Expected RT: 2.07

Processing Integration Results



Manual Integration Results

RT: 2.07
Area: 122784
Amount: 1.032844
Amount Units: ng/ml



Reviewer: roycea, 22-Jan-2018 15:43:47
Audit Action: Assigned Compound ID

Audit Reason: Assign Peak

TestAmerica Sacramento

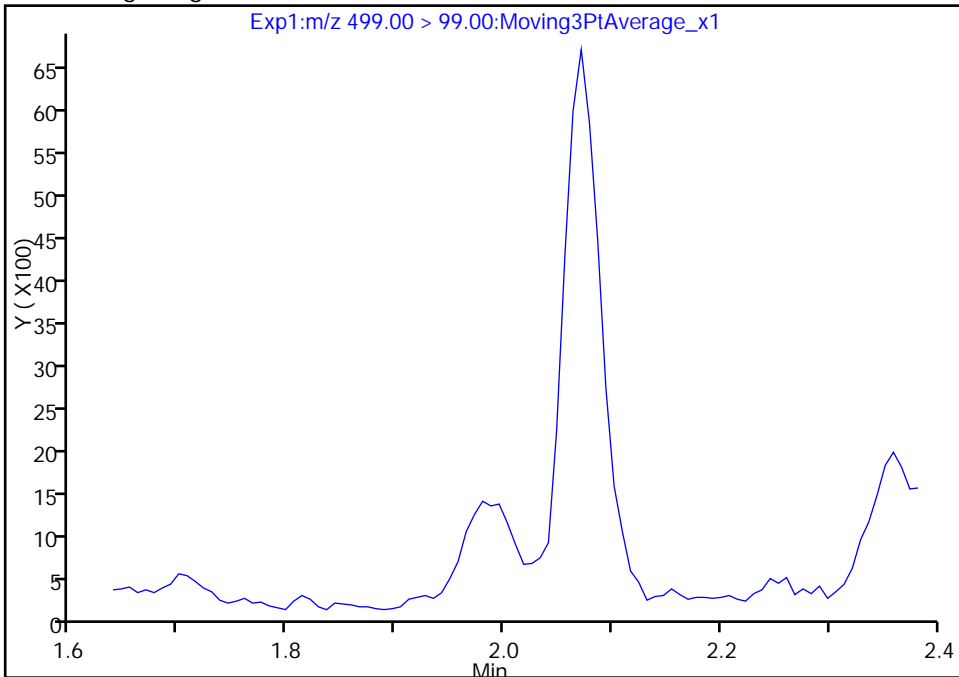
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Injection Date: 22-Jan-2018 11:59:34 Instrument ID: A8_N
Lims ID: 320-34946-A-14-A Lab Sample ID: 320-34946-14
Client ID: NAWC-010918-RW-352
Operator ID: SACINSTLCMS01 ALS Bottle#: 39 Worklist Smp#: 27
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

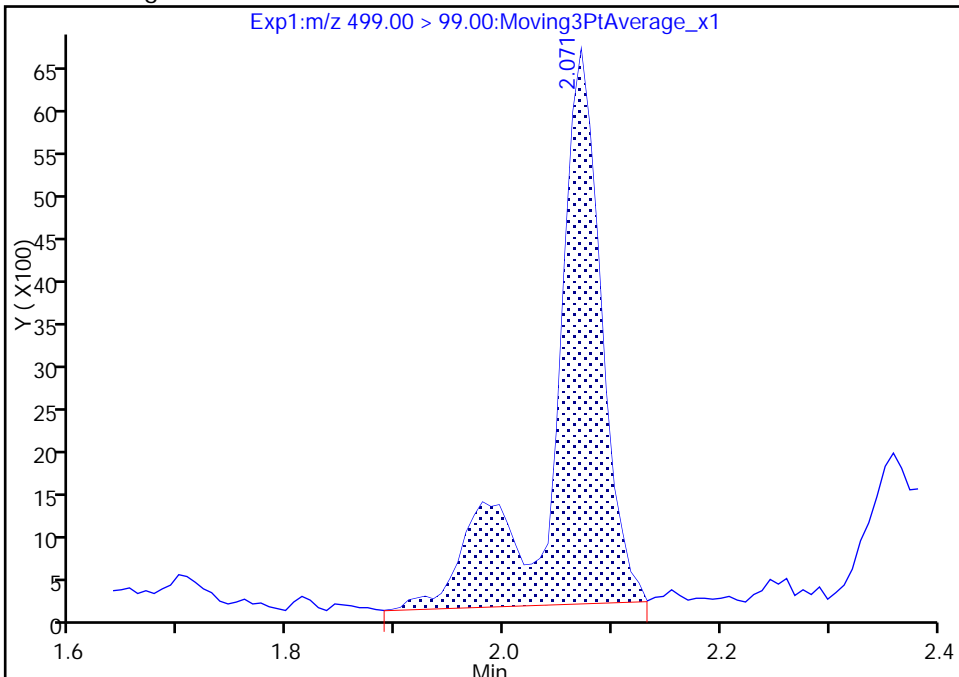
Not Detected
Expected RT: 2.07

Processing Integration Results



Manual Integration Results

RT: 2.07
Area: 20403
Amount: 1.032844
Amount Units: ng/ml



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-352 Lab Sample ID: 320-34946-15
 Matrix: Water Lab File ID: 2018.01.22_537A_031.d
 Analysis Method: 537 Date Collected: 01/09/2018 12:05
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 244.9(mL) Date Analyzed: 01/22/2018 12:04
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.2	U	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	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	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	103		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_031.d
 Lims ID: 320-34946-A-15-A
 Client ID: NAWC-010918-FRB-352
 Sample Type: Client
 Inject. Date: 22-Jan-2018 12:04:15 ALS Bottle#: 40 Worklist Smp#: 28
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-15-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:48:11 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:44:49

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	1695444	10.1	7902	
* 6 13C2-PFOA	415.00 > 370.00	1.821	1.813	0.008		1521010	10.0	5585	
* 7 13C4 PFOS	503.00 > 80.00	2.071	2.064	0.007		3507636	28.7	7517	
\$ 10 13C2 PFDA	515.00 > 470.00	2.253	2.246	0.007	1.000	1202515	10.3	7316	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_031.d

Injection Date: 22-Jan-2018 12:04:15

Instrument ID: A8_N

Lims ID: 320-34946-A-15-A

Lab Sample ID: 320-34946-15

Client ID: NAWC-010918-FRB-352

Operator ID: SACINSTLCMS01

ALS Bottle#: 40

Worklist Smp#: 28

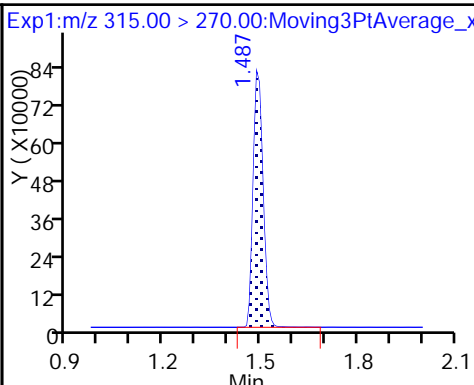
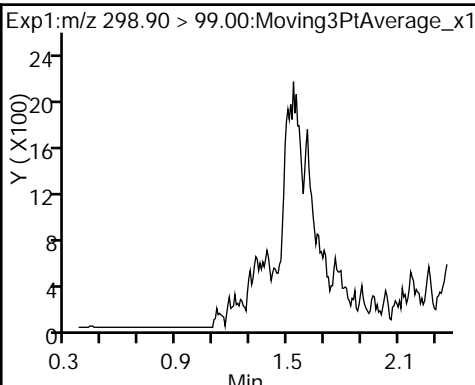
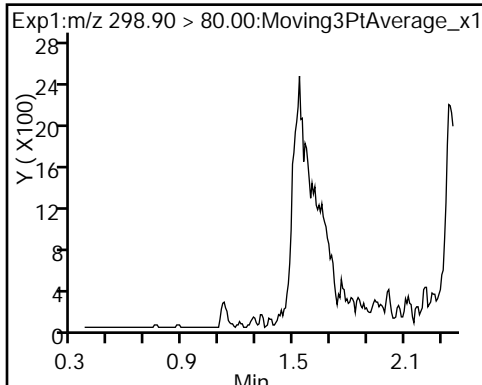
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

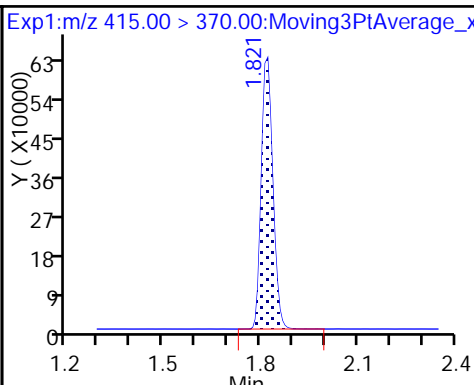
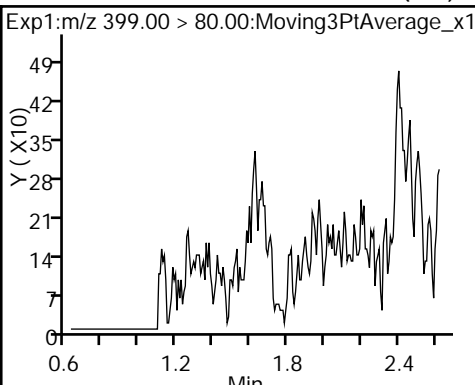
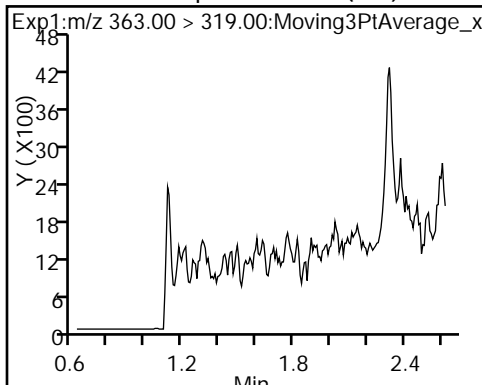
Method: 537_A8_N

Limit Group: LC 537 ICAL

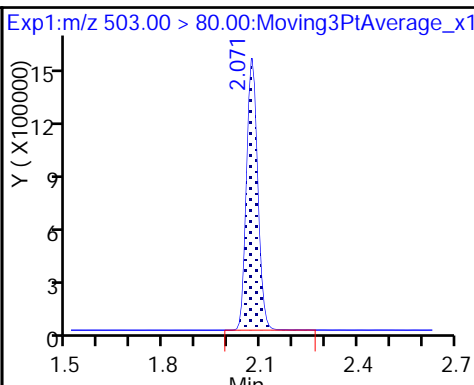
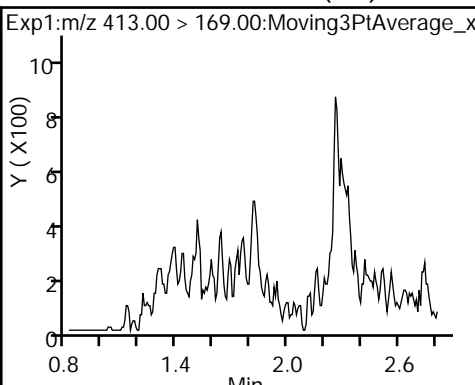
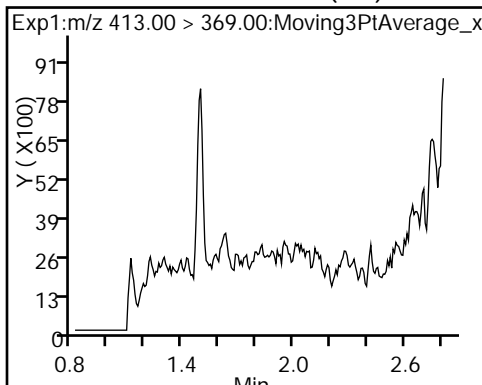
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



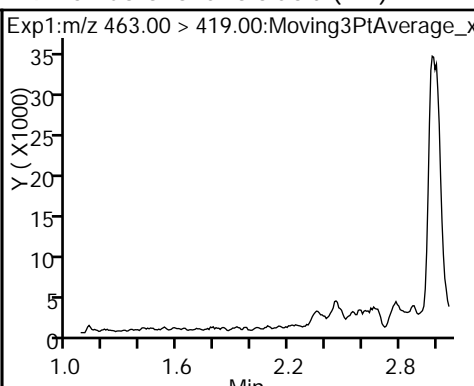
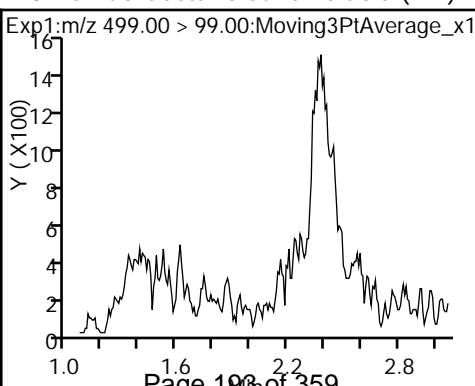
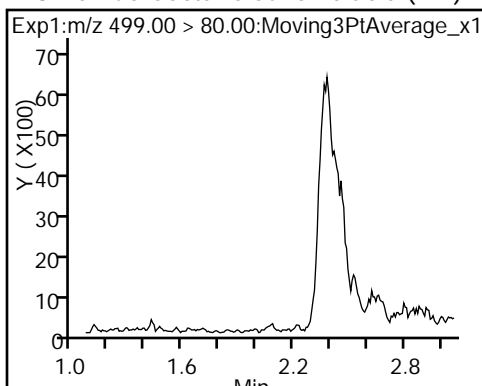
4 Perfluoroheptanoic acid (ND) 3 Perfluorohexanesulfonic acid (ND) * 6 13C2-PFOA



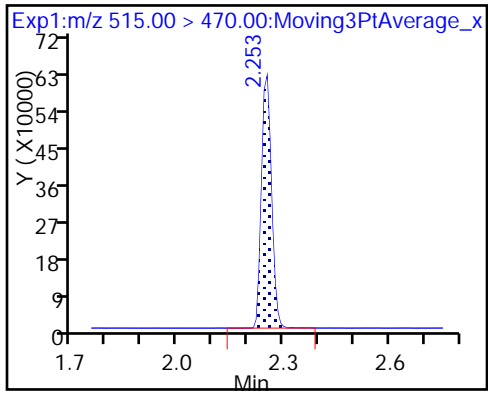
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) * 7 13C4 PFOS



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\20180122-53168.b\2018.01.22_537A_031.d
 Lims ID: 320-34946-A-15-A
 Client ID: NAWC-010918-FRB-352
 Sample Type: Client
 Inject. Date: 22-Jan-2018 12:04:15 ALS Bottle#: 40 Worklist Smp#: 28
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-15-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:48:11 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:44:49

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.1	101.31
\$ 10 13C2 PFDA	10.0	10.3	103.32

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-353 Lab Sample ID: 320-34946-16
 Matrix: Water Lab File ID: 2018.01.22_537A_032.d
 Analysis Method: 537 Date Collected: 01/09/2018 12:40
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 244(mL) Date Analyzed: 01/22/2018 12:08
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J M	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	17	J	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	25	20	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.2	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.8	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	99		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_032.d
 Lims ID: 320-34946-A-16-A
 Client ID: NAWC-010918-RW-353
 Sample Type: Client
 Inject. Date: 22-Jan-2018 12:08:55 ALS Bottle#: 41 Worklist Smp#: 29
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-16-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:48:11 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:45:32

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.366	0.007	1.000	192916	1.43		155	
298.90 > 99.00	1.373	1.366	0.007	1.000	137495		1.40(0.00-0.00)	156	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.479	0.008	1.000	1567023	9.38		6667	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.624	0.007	1.000	200148	1.41		33.3	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.624	0.007	1.000	404957	2.01		244	
* 6 13C2-PFOA									
415.00 > 370.00	1.821	1.813	0.008		1517995	10.0		5368	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.821	1.813	0.008	1.000	596781	4.25		72.7	
413.00 > 169.00	1.821	1.813	0.008	1.000	383524		1.56(0.00-0.00)	589	
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.064	0.007		3452403	28.7		3751	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.071	2.071	0.0	1.000	306831	2.71		71.3	M
499.00 > 99.00	2.071	2.071	0.0	1.000	50372		6.09(0.00-0.00)	49.6	M
9 Perfluorononanoic acid									
463.00 > 419.00	2.079	2.071	0.008	1.000	48607	0.4821		7.5	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.246	0.007	1.000	1146589	9.87		6008	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_032.d

Injection Date: 22-Jan-2018 12:08:55

Instrument ID: A8_N

Lims ID: 320-34946-A-16-A

Lab Sample ID: 320-34946-16

Client ID: NAWC-010918-RW-353

Operator ID: SACINSTLCMS01

ALS Bottle#: 41

Worklist Smp#: 29

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

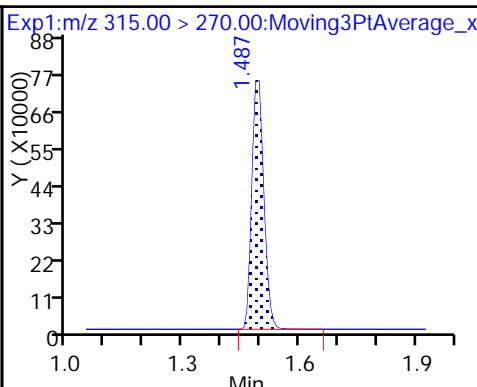
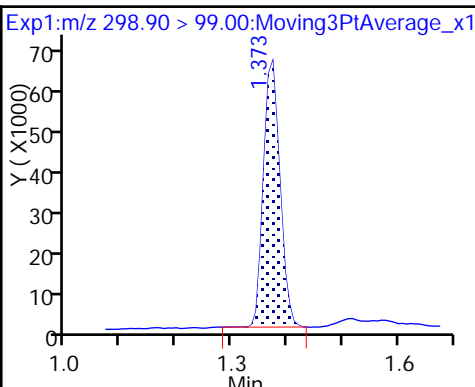
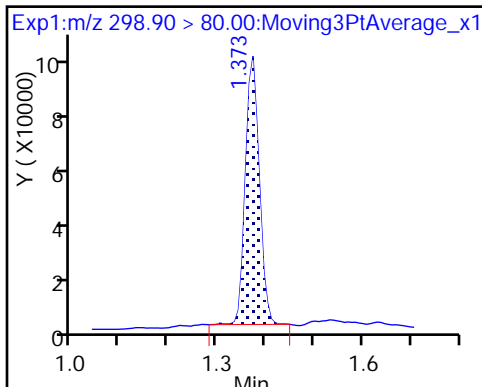
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

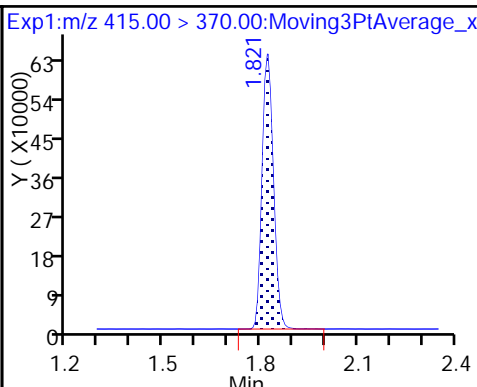
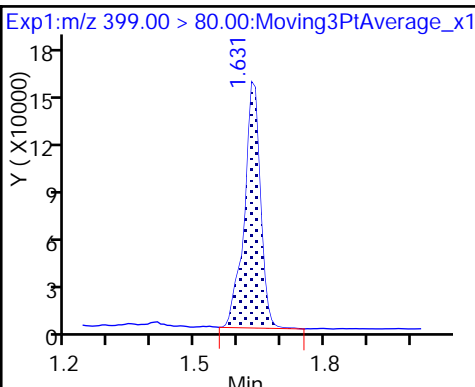
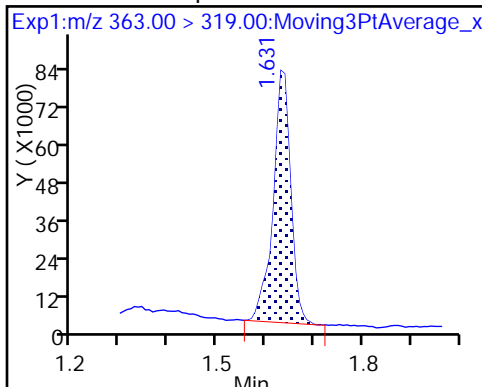
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

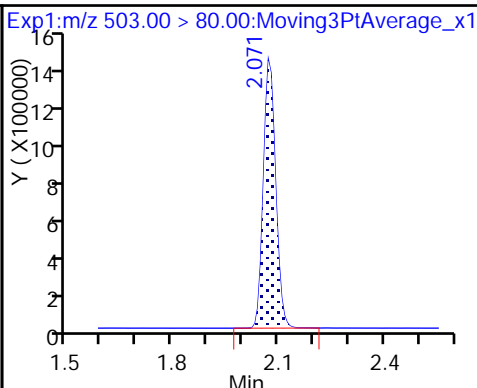
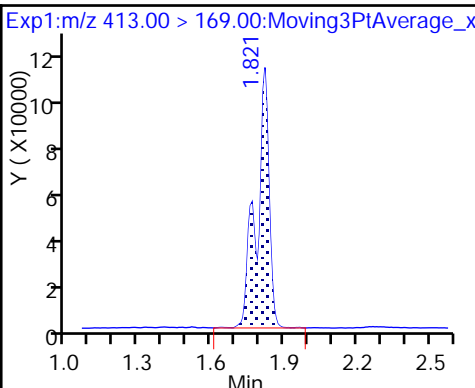
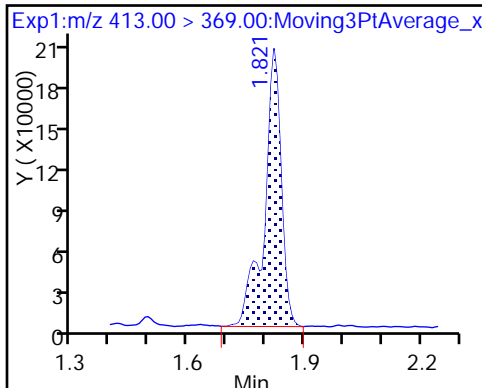
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

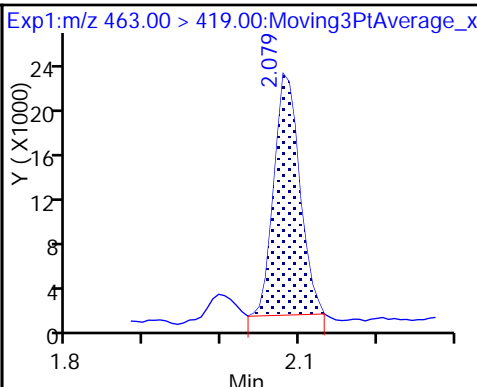
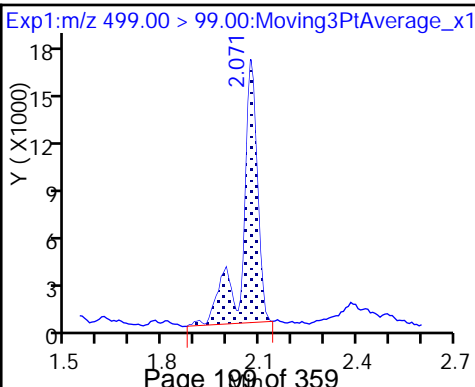
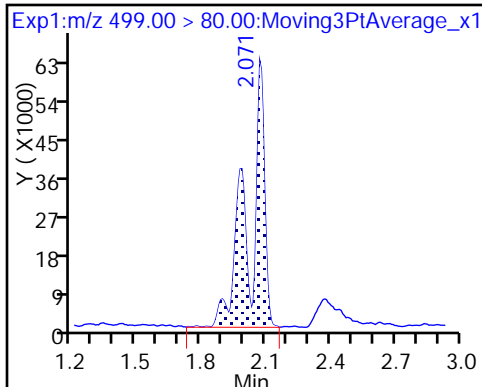
* 7 13C4 PFOS



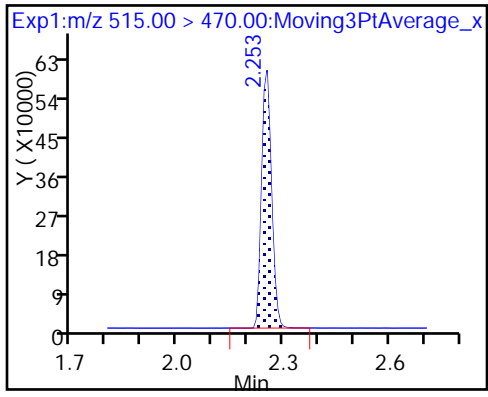
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_032.d
 Lims ID: 320-34946-A-16-A
 Client ID: NAWC-010918-RW-353
 Sample Type: Client
 Inject. Date: 22-Jan-2018 12:08:55 ALS Bottle#: 41 Worklist Smp#: 29
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-16-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:48:11 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:45:32

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.38	93.82
\$ 10 13C2 PFDA	10.0	9.87	98.71

TestAmerica Sacramento

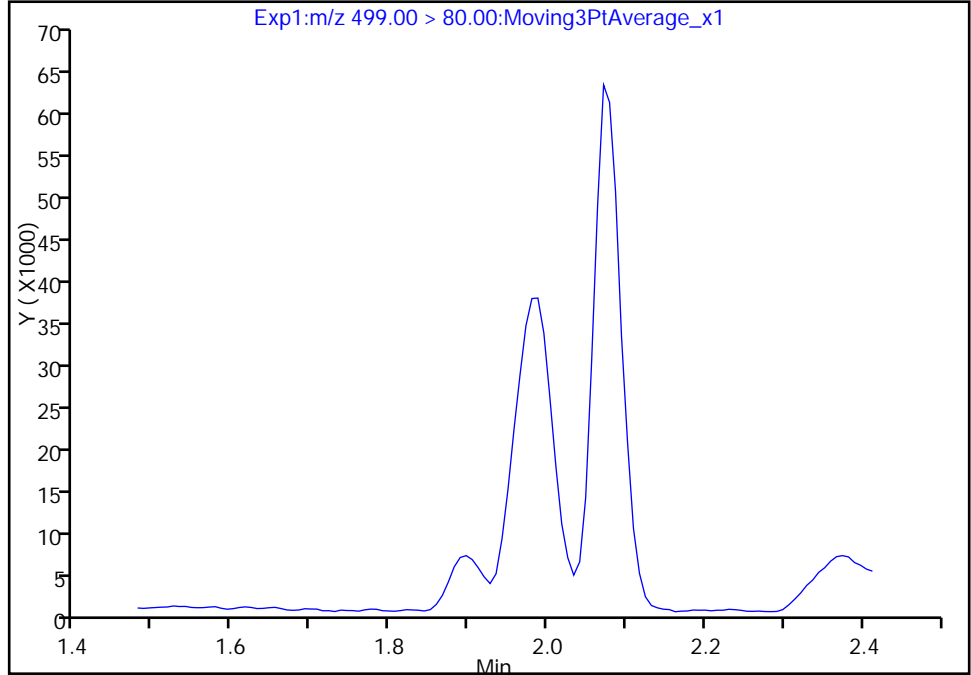
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Injection Date: 22-Jan-2018 12:08:55 Instrument ID: A8_N
Lims ID: 320-34946-A-16-A Lab Sample ID: 320-34946-16
Client ID: NAWC-010918-RW-353
Operator ID: SACINSTLCMS01 ALS Bottle#: 41 Worklist Smp#: 29
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

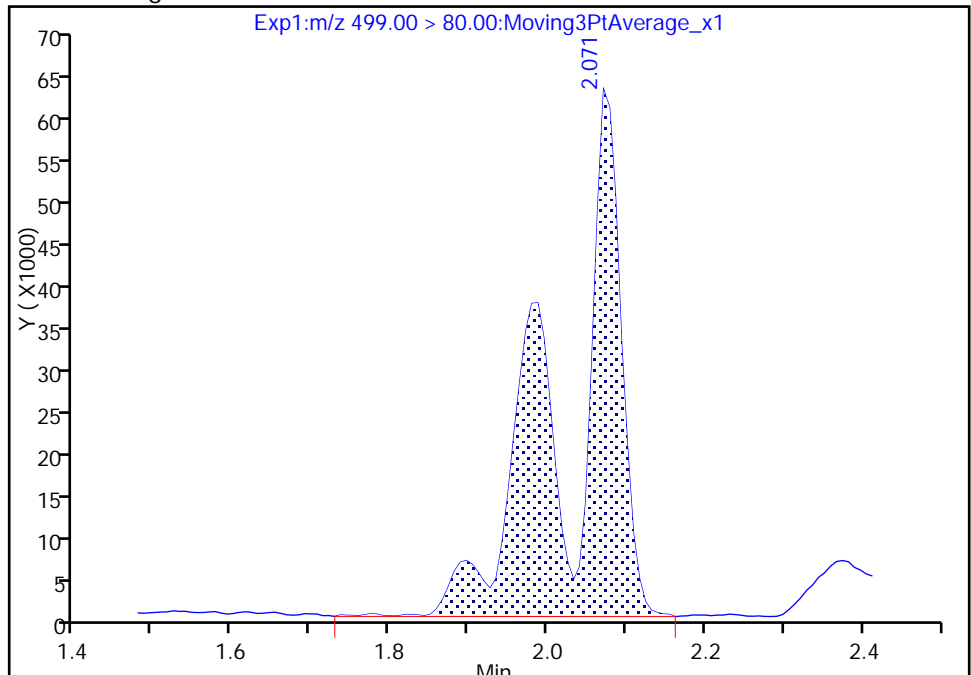
Not Detected
Expected RT: 2.07

Processing Integration Results



RT: 2.07
Area: 306831
Amount: 2.714657
Amount Units: ng/ml

Manual Integration Results



Reviewer: roycea, 22-Jan-2018 15:44:53
Audit Action: Assigned Compound ID

Audit Reason: Assign Peak

TestAmerica Sacramento

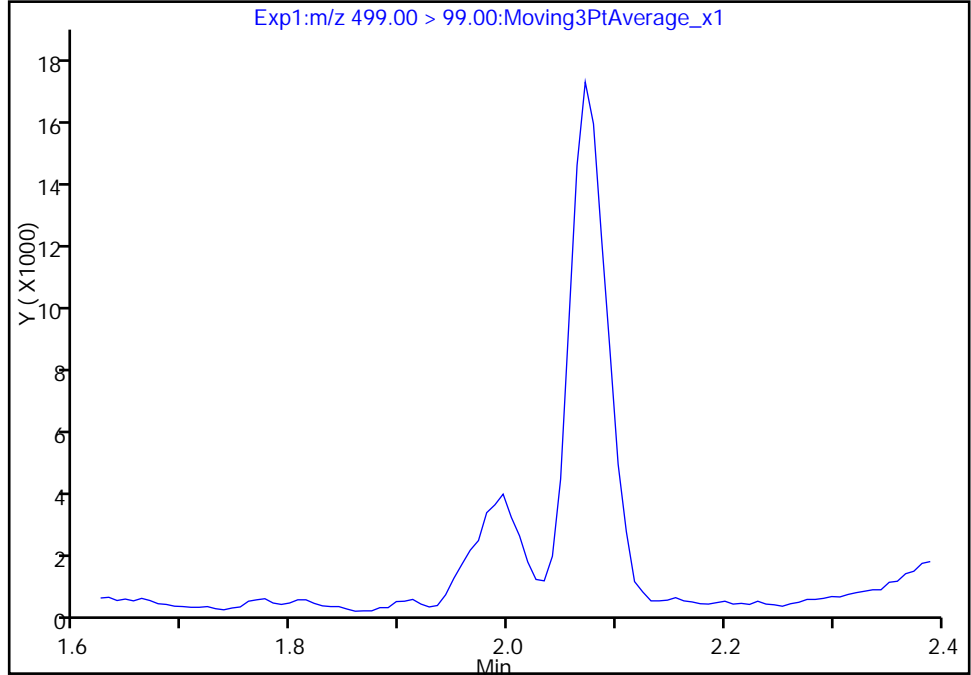
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Injection Date: 22-Jan-2018 12:08:55 Instrument ID: A8_N
Lims ID: 320-34946-A-16-A Lab Sample ID: 320-34946-16
Client ID: NAWC-010918-RW-353
Operator ID: SACINSTLCMS01 ALS Bottle#: 41 Worklist Smp#: 29
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

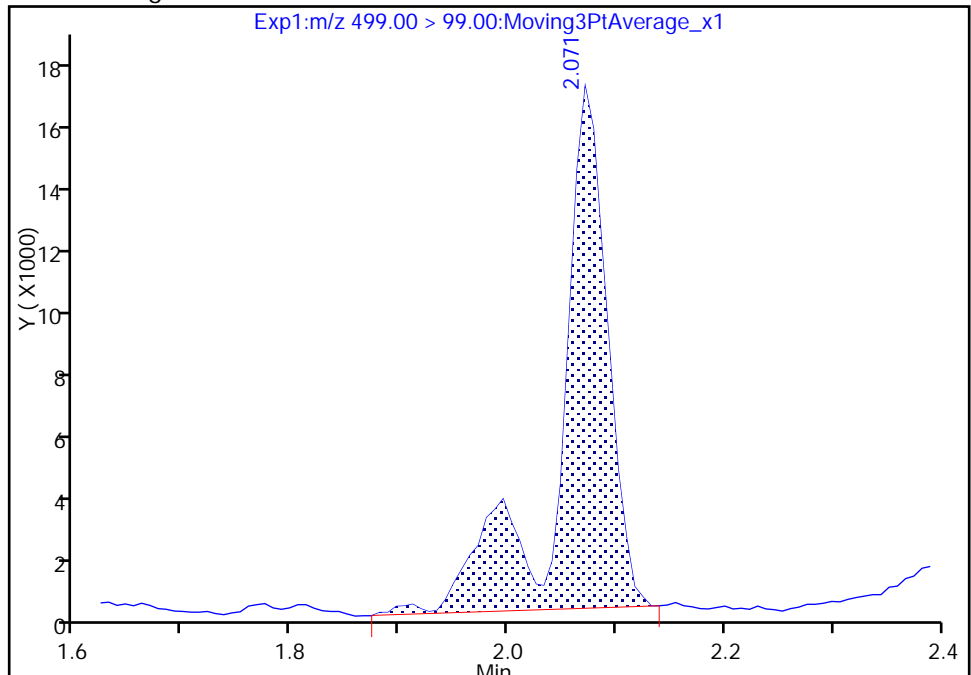
Not Detected
Expected RT: 2.07

Processing Integration Results



Manual Integration Results

RT: 2.07
Area: 50372
Amount: 2.714657
Amount Units: ng/ml



TestAmerica Sacramento

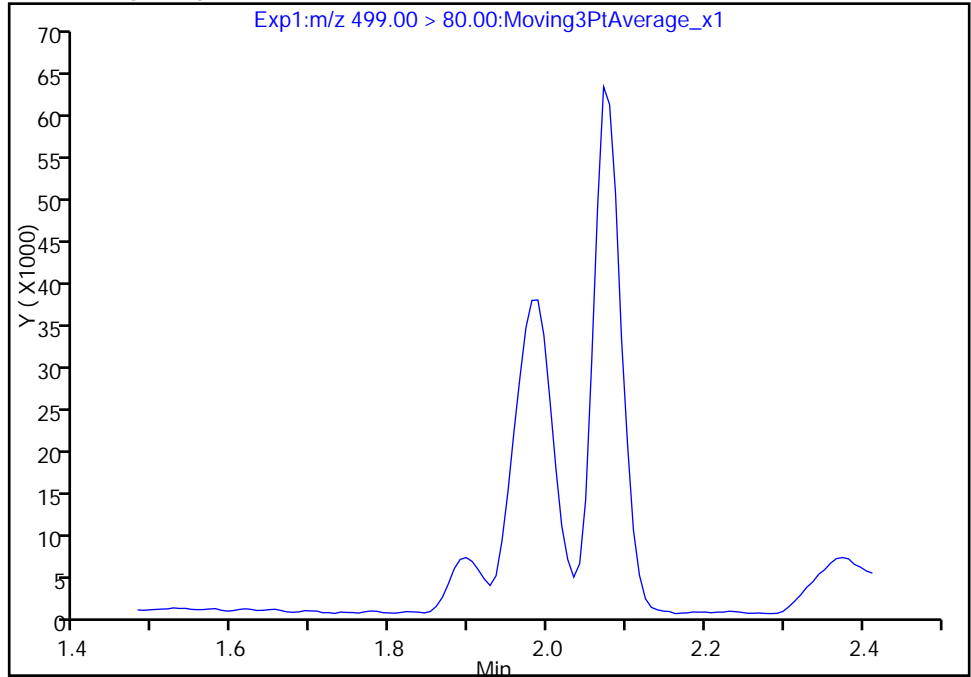
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Injection Date: 22-Jan-2018 12:08:55 Instrument ID: A8_N
Lims ID: 320-34946-A-16-A Lab Sample ID: 320-34946-16
Client ID: NAWC-010918-RW-353
Operator ID: SACINSTLCMS01 ALS Bottle#: 41 Worklist Smp#: 29
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

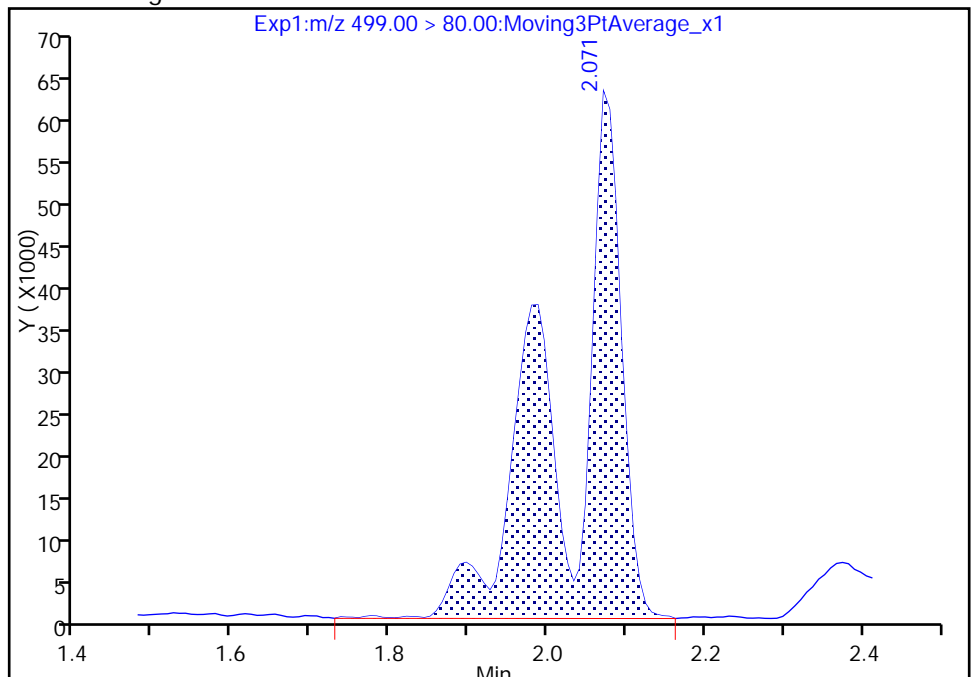
Not Detected
Expected RT: 2.07

Processing Integration Results



Manual Integration Results

RT: 2.07
Area: 306831
Amount: 2.714657
Amount Units: ng/ml



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-353 Lab Sample ID: 320-34946-17
 Matrix: Water Lab File ID: 2018.01.22_537A_033.d
 Analysis Method: 537 Date Collected: 01/09/2018 12:35
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 246.6(mL) Date Analyzed: 01/22/2018 12:13
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	97		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_033.d
 Lims ID: 320-34946-A-17-A
 Client ID: NAWC-010918-FRB-353
 Sample Type: Client
 Inject. Date: 22-Jan-2018 12:13:35 ALS Bottle#: 42 Worklist Smp#: 30
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-17-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:48:11 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:47:06

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	1710810	10.2	8377	
* 6 13C2-PFOA	415.00 > 370.00	1.821	1.813	0.008		1518249	10.0	6291	
* 7 13C4 PFOS	503.00 > 80.00	2.071	2.064	0.007		3454812	28.7	6413	
\$ 10 13C2 PFDA	515.00 > 470.00	2.253	2.246	0.007	1.000	1128164	9.71	7780	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_033.d

Injection Date: 22-Jan-2018 12:13:35

Instrument ID: A8_N

Lims ID: 320-34946-A-17-A

Lab Sample ID: 320-34946-17

Client ID: NAWC-010918-FRB-353

Operator ID: SACINSTLCMS01

ALS Bottle#: 42

Worklist Smp#: 30

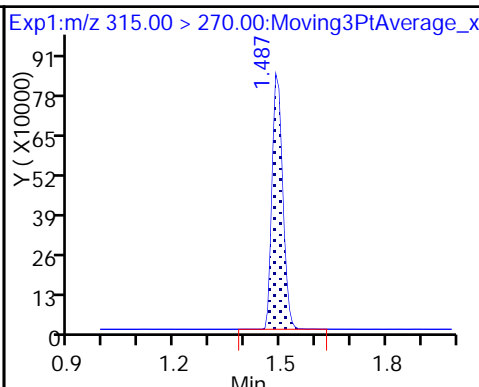
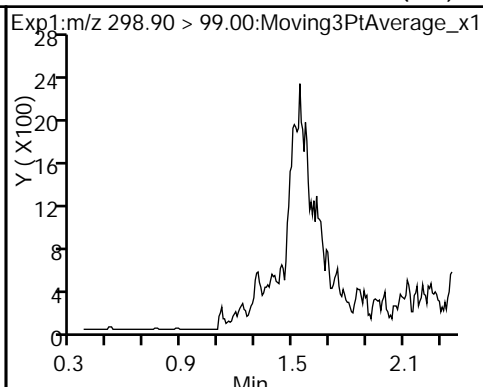
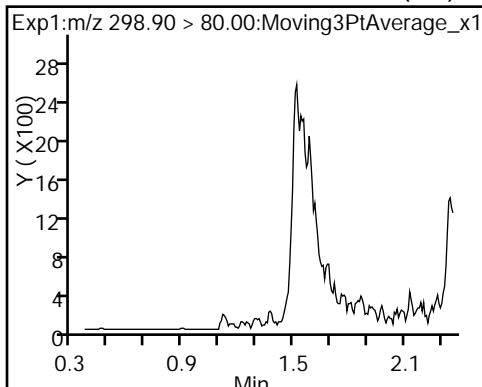
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Dil. Factor: 1.0000

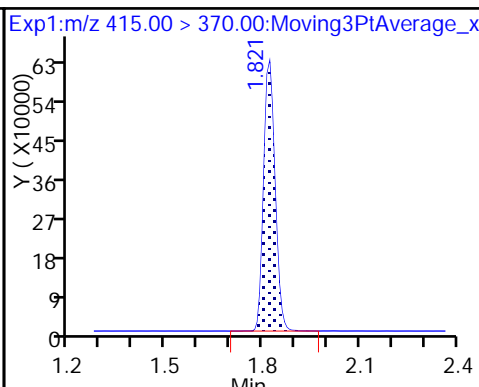
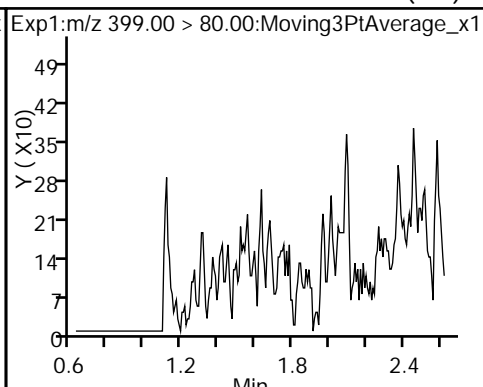
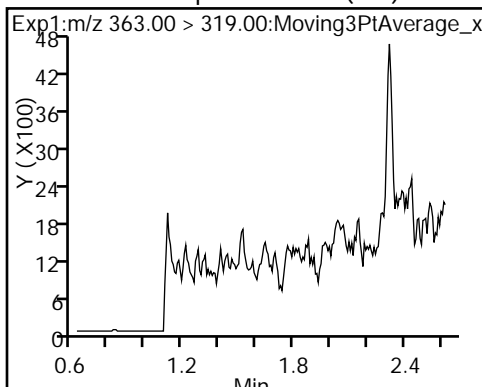
Method: 537_A8_N

Limit Group: LC 537 ICAL

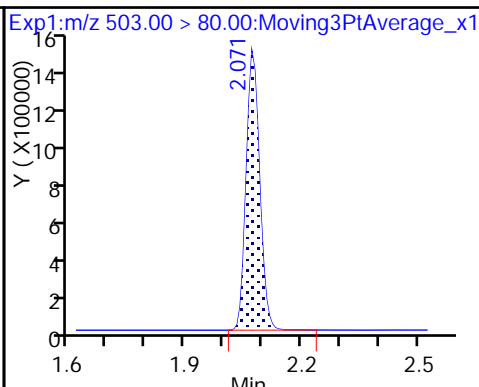
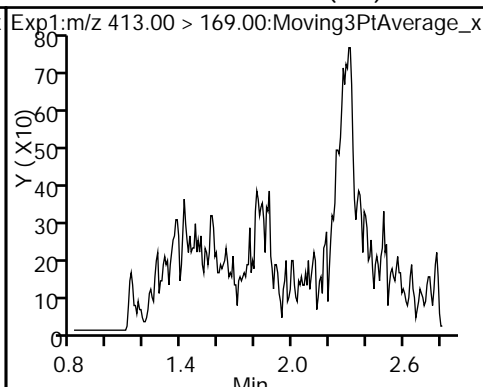
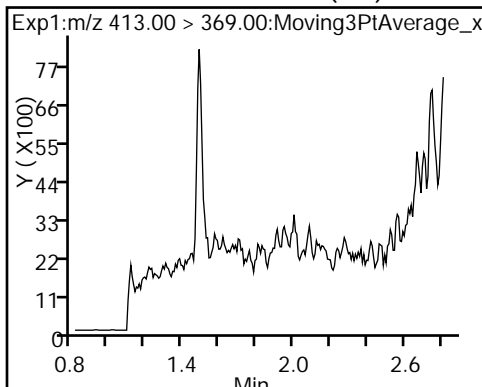
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



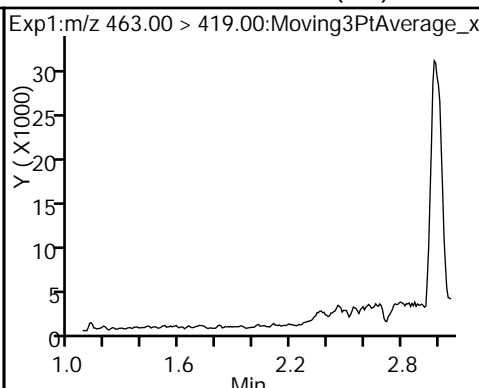
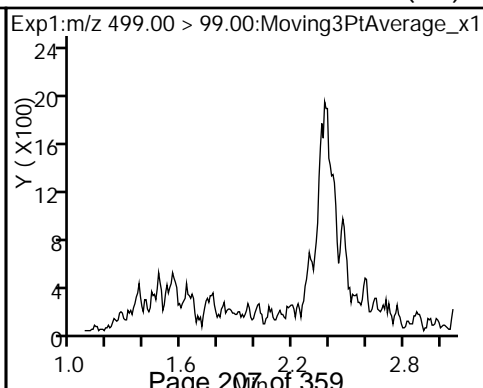
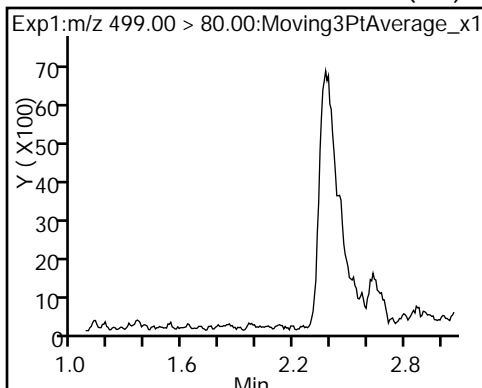
4 Perfluoroheptanoic acid (ND) 3 Perfluorohexanesulfonic acid (ND) * 6 13C2-PFOA



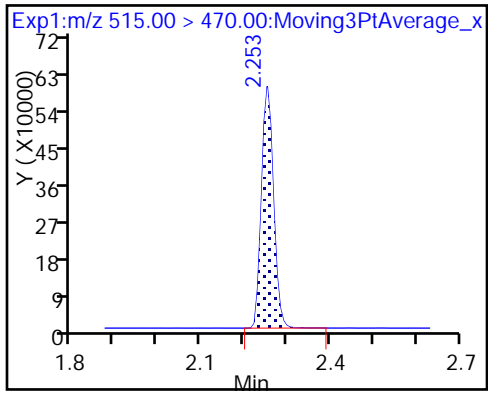
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) * 7 13C4 PFOS



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\20180122-53168.b\2018.01.22_537A_033.d
 Lims ID: 320-34946-A-17-A
 Client ID: NAWC-010918-FRB-353
 Sample Type: Client
 Inject. Date: 22-Jan-2018 12:13:35 ALS Bottle#: 42 Worklist Smp#: 30
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-17-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:48:11 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:47:06

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.2	102.41
\$ 10 13C2 PFDA	10.0	9.71	97.11

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-350 Lab Sample ID: 320-34946-18
 Matrix: Water Lab File ID: 2018.01.22_537A_036.d
 Analysis Method: 537 Date Collected: 01/09/2018 13:10
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 240 (mL) Date Analyzed: 01/22/2018 12:27
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204922 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	J M	42	17	7.1
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	13	U	31	13	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.6	J	10	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	38	U	94	38	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	102		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_036.d
 Lims ID: 320-34946-A-18-A
 Client ID: NAWC-010918-RW-350
 Sample Type: Client
 Inject. Date: 22-Jan-2018 12:27:38 ALS Bottle#: 43 Worklist Smp#: 33
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-18-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:50:29 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:49:33

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.444	-0.071	1.000	457129	3.28		344	
298.90 > 99.00	1.366	1.444	-0.078	0.994	335947		1.36(0.00-0.00)	370	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.573	-0.086	1.000	1640817	9.44		8281	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.725	-0.094	1.000	162207	1.10		31.3	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.725	-0.094	1.000	144345	0.6885		107	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.913	-0.100		1580097	10.0		6132	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.914	-0.101	1.000	428668	2.93		59.9	
413.00 > 169.00	1.813	1.914	-0.101	1.000	230019		1.86(0.00-0.00)	490	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.071	2.064	0.007	1.000	445358	3.79		112	M
499.00 > 99.00	2.071	2.064	0.007	1.000	78901		5.64(0.00-0.00)	74.5	M
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.151	-0.087		3591601	28.7		4270	
9 Perfluorononanoic acid									
463.00 > 419.00	2.079	2.158	-0.079	1.000	72116	0.6872		12.0	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.312	-0.066	1.000	1236013	10.2		7395	

QC Flag Legend

Review Flags

M - Manually Integrated

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_036.d

Injection Date: 22-Jan-2018 12:27:38

Instrument ID: A8_N

Lims ID: 320-34946-A-18-A

Lab Sample ID: 320-34946-18

Client ID: NAWC-010918-RW-350

Operator ID: SACINSTLCMS01

ALS Bottle#: 43

Worklist Smp#: 33

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

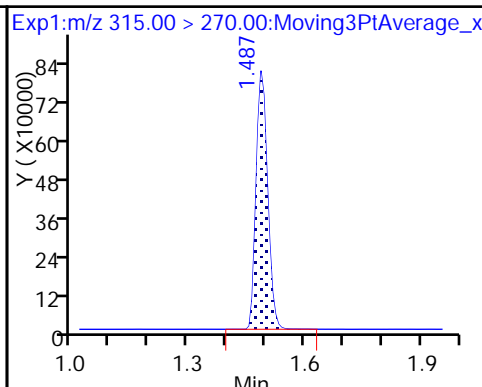
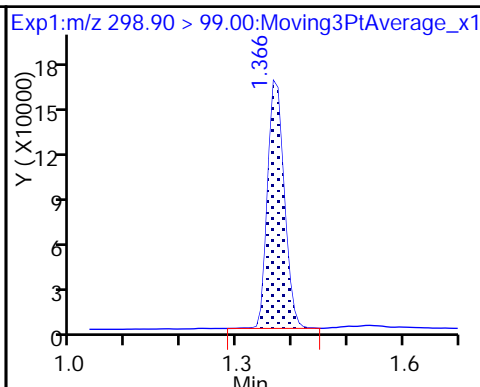
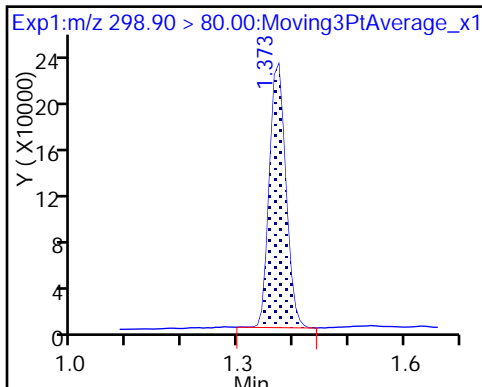
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

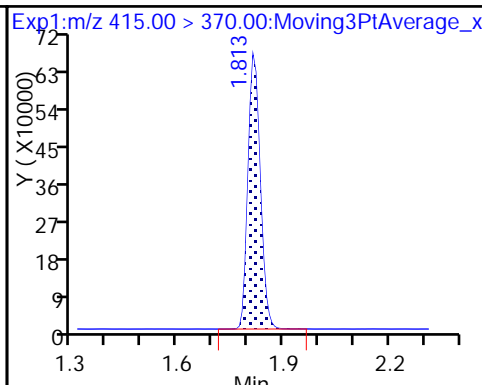
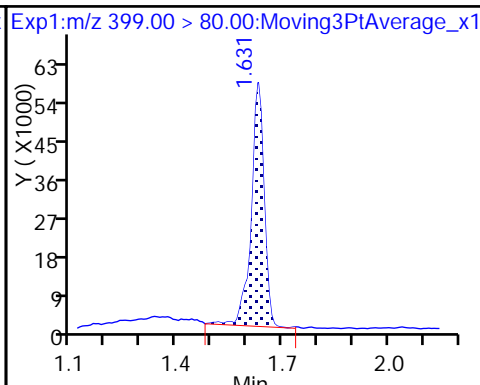
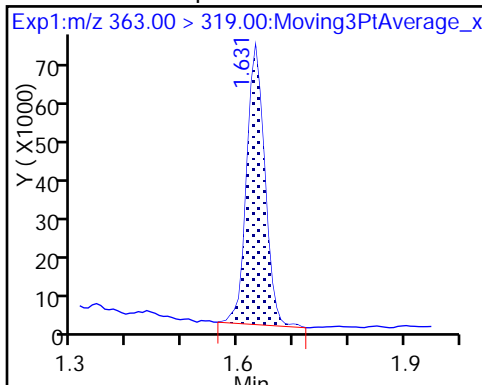
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

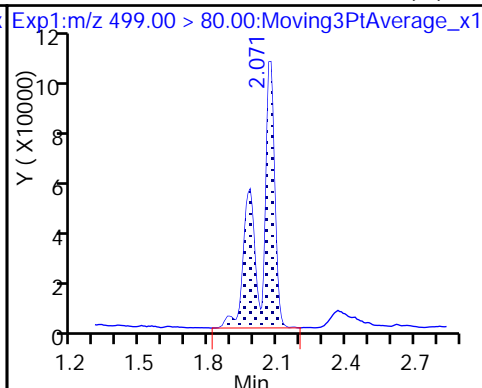
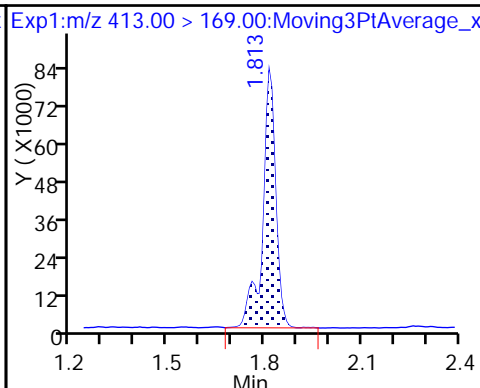
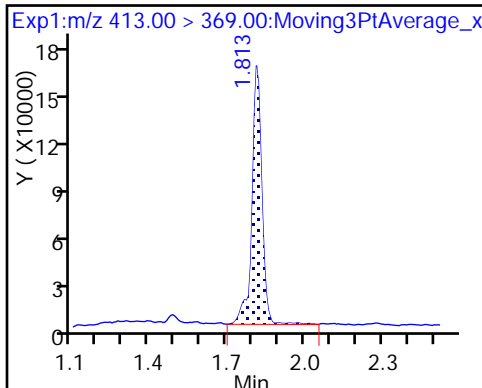
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

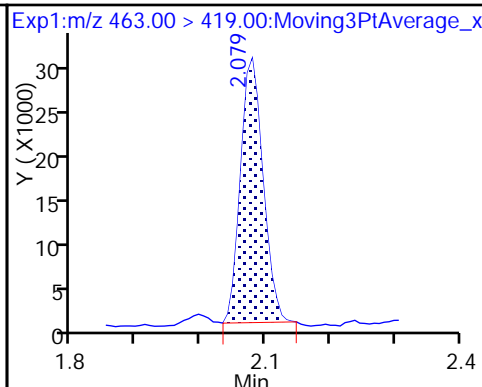
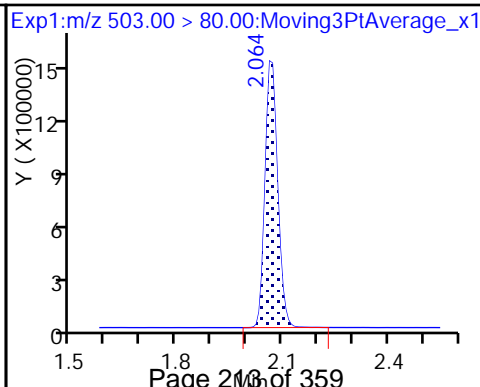
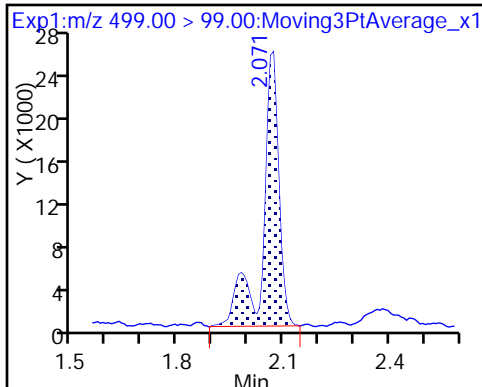
8 Perfluorooctane sulfonic acid (M)



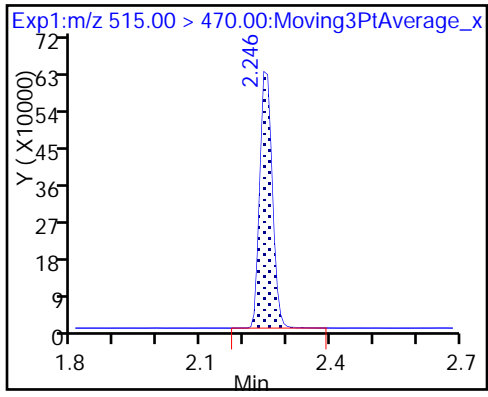
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_036.d
 Lims ID: 320-34946-A-18-A
 Client ID: NAWC-010918-RW-350
 Sample Type: Client
 Inject. Date: 22-Jan-2018 12:27:38 ALS Bottle#: 43 Worklist Smp#: 33
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-18-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:50:29 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:49:33

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.44	94.38
\$ 10 13C2 PFDA	10.0	10.2	102.23

TestAmerica Sacramento

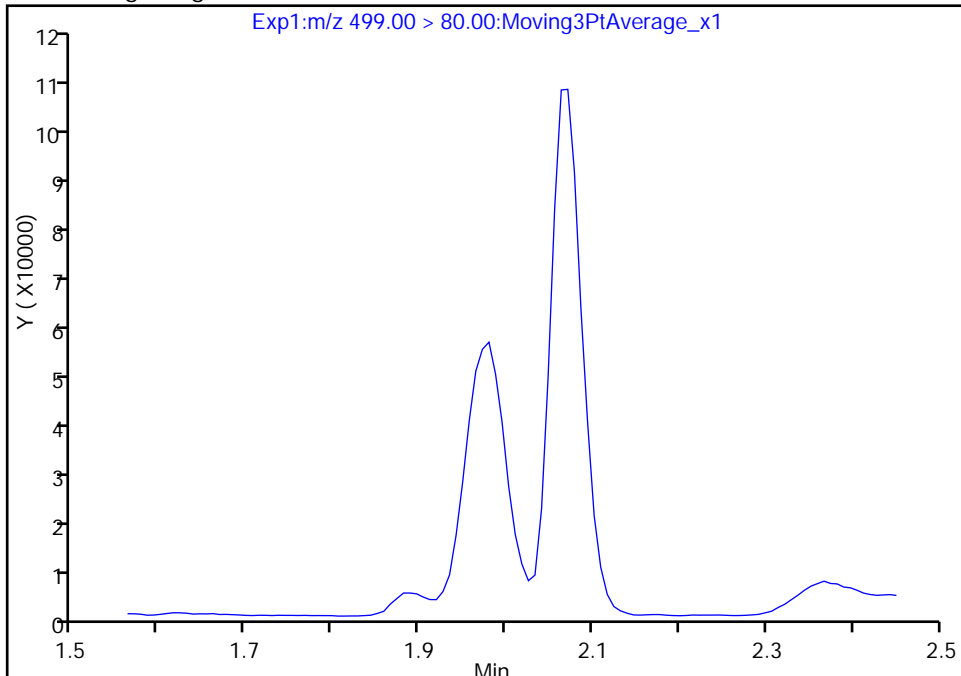
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_036.d
Injection Date: 22-Jan-2018 12:27:38 Instrument ID: A8_N
Lims ID: 320-34946-A-18-A Lab Sample ID: 320-34946-18
Client ID: NAWC-010918-RW-350
Operator ID: SACINSTLCMS01 ALS Bottle#: 43 Worklist Smp#: 33
Injection Vol: 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

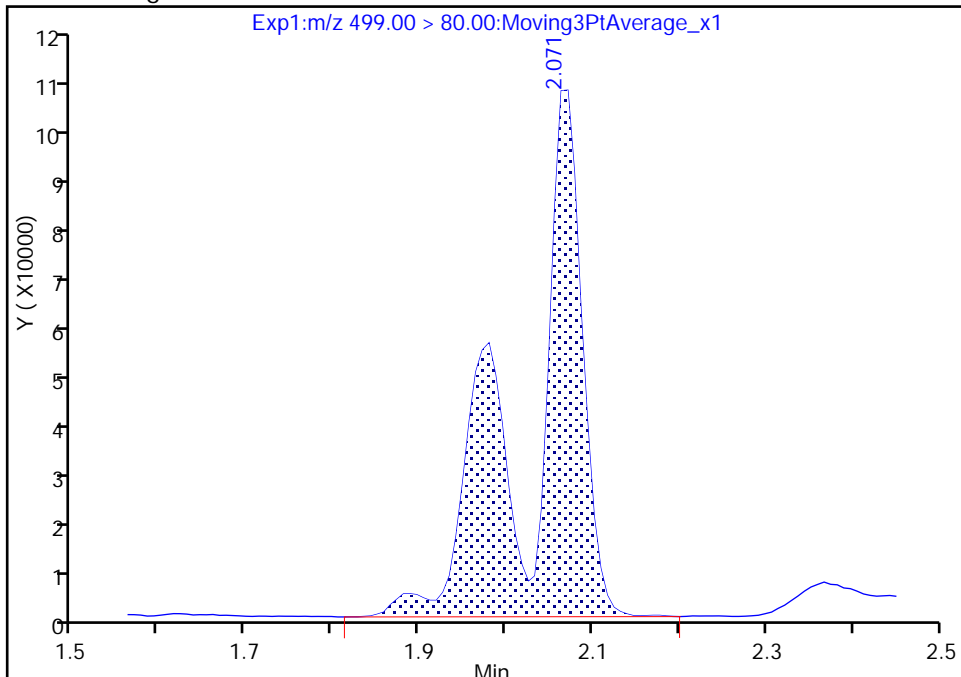
Not Detected
Expected RT: 2.06

Processing Integration Results



RT: 2.07
Area: 445358
Amount: 3.787551
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

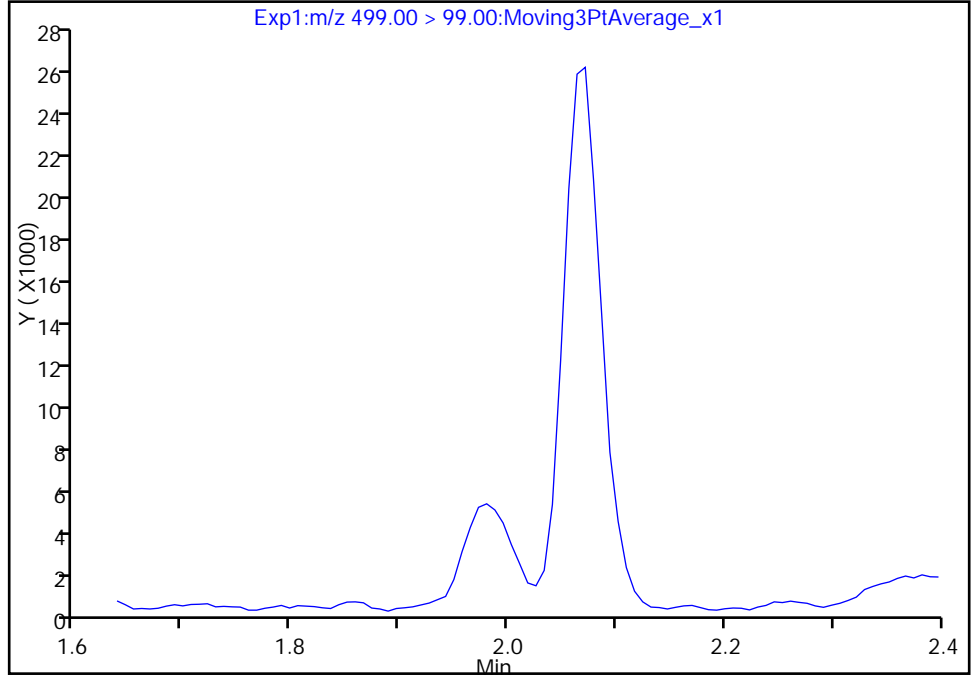
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Injection Date: 22-Jan-2018 12:27:38 Instrument ID: A8_N
Lims ID: 320-34946-A-18-A Lab Sample ID: 320-34946-18
Client ID: NAWC-010918-RW-350
Operator ID: SACINSTLCMS01 ALS Bottle#: 43 Worklist Smp#: 33
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

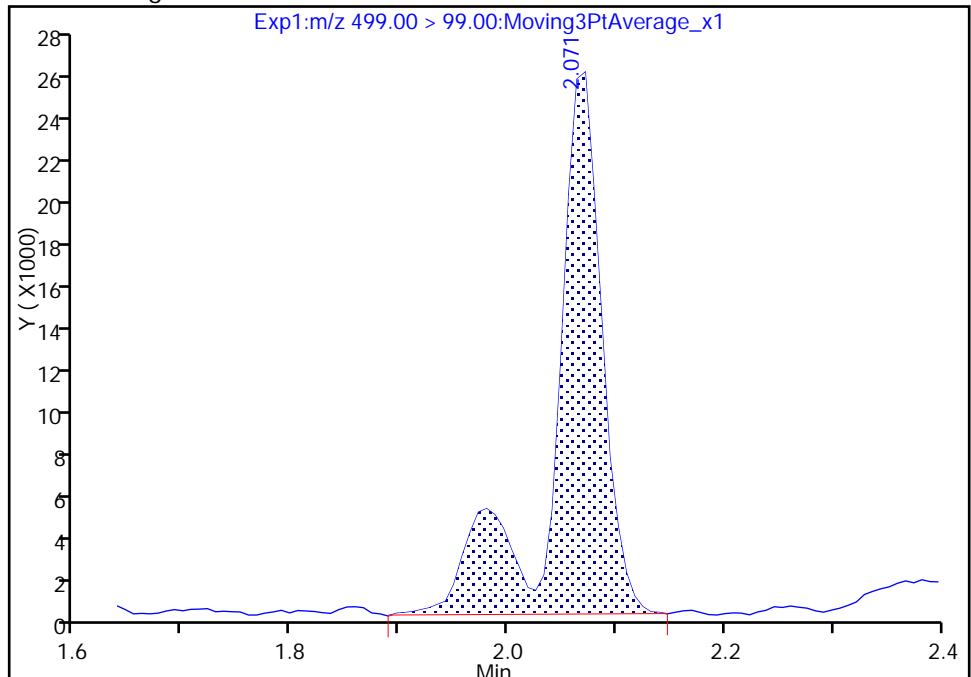
Not Detected
Expected RT: 2.06

Processing Integration Results



RT: 2.07
Area: 78901
Amount: 3.787551
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

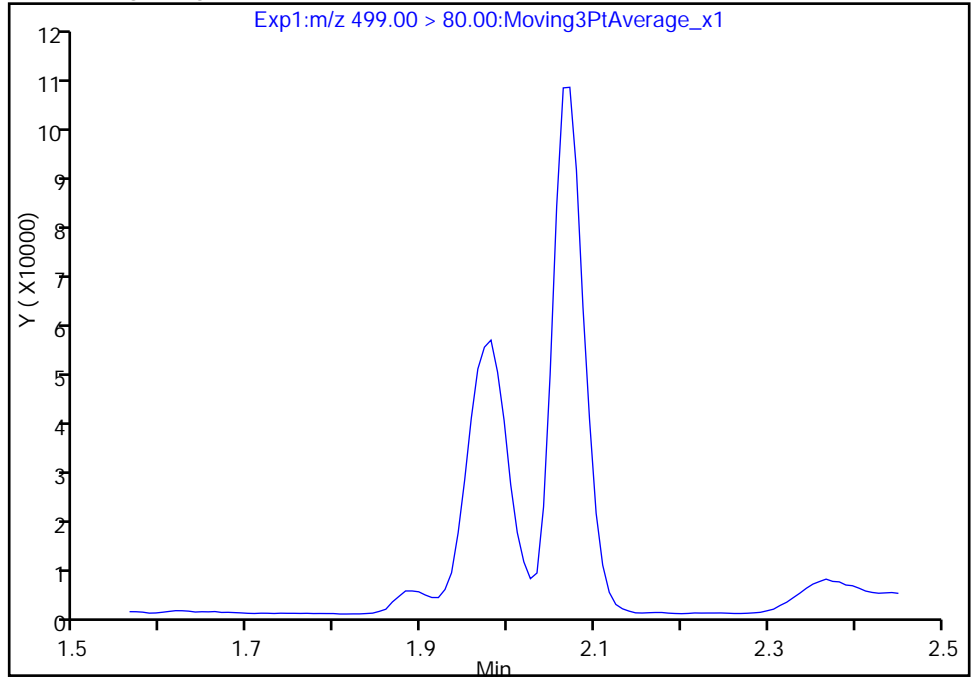
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Injection Date: 22-Jan-2018 12:27:38 Instrument ID: A8_N
Lims ID: 320-34946-A-18-A Lab Sample ID: 320-34946-18
Client ID: NAWC-010918-RW-350
Operator ID: SACINSTLCMS01 ALS Bottle#: 43 Worklist Smp#: 33
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

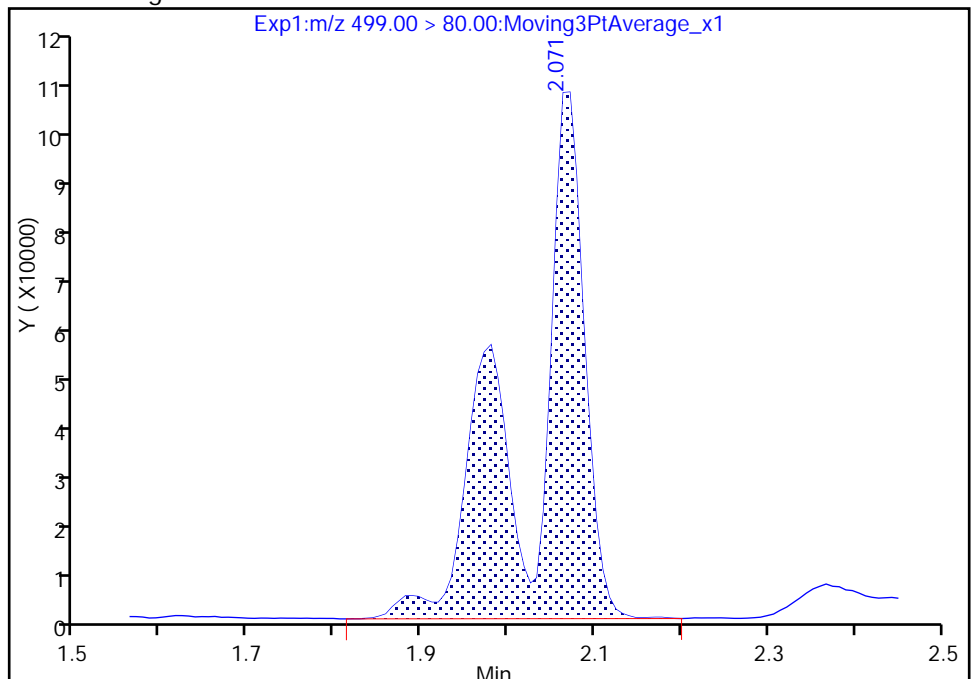
Not Detected
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.07
Area: 445358
Amount: 3.787551
Amount Units: ng/ml



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-350 Lab Sample ID: 320-34946-19
 Matrix: Water Lab File ID: 2018.01.22_537A_037.d
 Analysis Method: 537 Date Collected: 01/09/2018 13:05
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 247.4 (mL) Date Analyzed: 01/22/2018 12:32
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204922 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	96		70-130
STL00996	13C2 PFDA	108		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_037.d
 Lims ID: 320-34946-A-19-A
 Client ID: NAWC-010918-FRB-350
 Sample Type: Client
 Inject. Date: 22-Jan-2018 12:32:17 ALS Bottle#: 44 Worklist Smp#: 34
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-19-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:50:29 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:49:54

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	1.573	-0.086	1.000	1619367	9.58	7661	
* 6 13C2-PFOA	415.00 > 370.00	1.813	1.913	-0.100		1536831	10.0	6494	
* 7 13C4 PFOS	503.00 > 80.00	2.064	2.151	-0.087		3449393	28.7	6628	
\$ 10 13C2 PFDA	515.00 > 470.00	2.246	2.312	-0.066	1.000	1266458	10.8	8031	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_037.d

Injection Date: 22-Jan-2018 12:32:17

Instrument ID: A8_N

Lims ID: 320-34946-A-19-A

Lab Sample ID: 320-34946-19

Client ID: NAWC-010918-FRB-350

Operator ID: SACINSTLCMS01

ALS Bottle#: 44

Worklist Smp#: 34

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

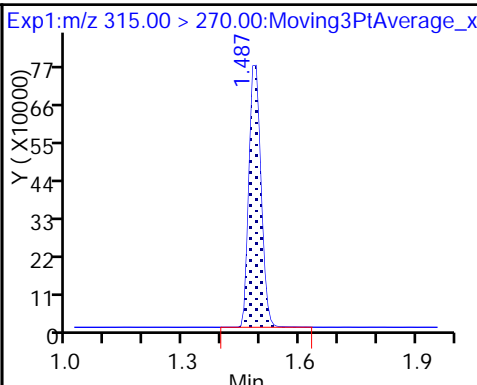
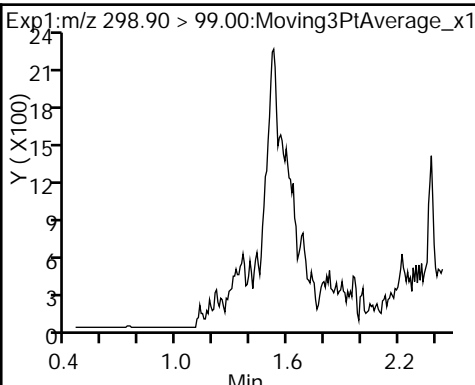
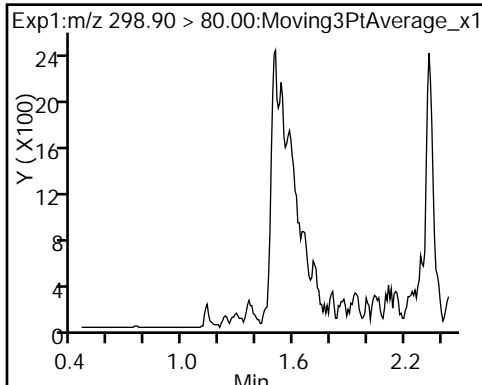
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

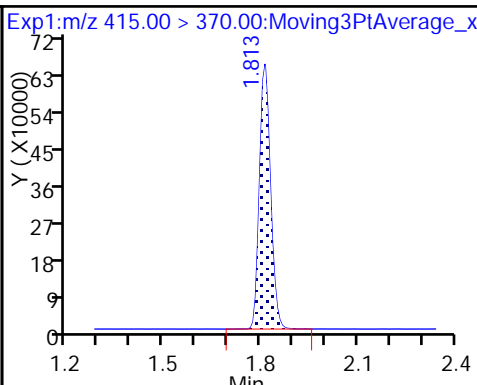
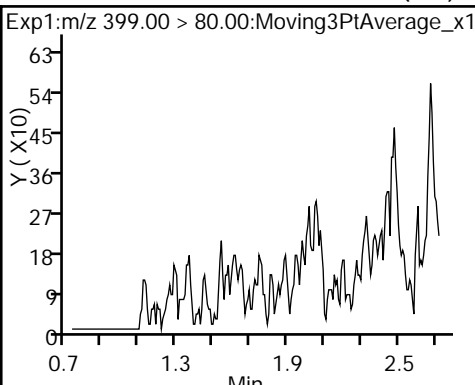
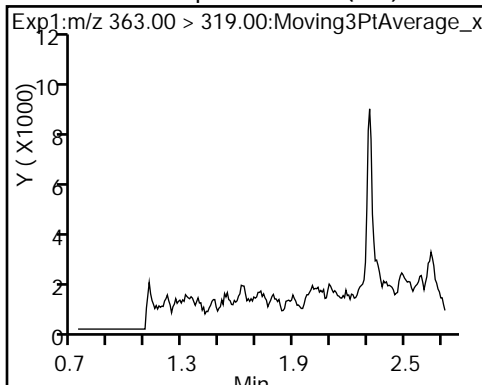
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (ND)

3 Perfluorohexanesulfonic acid (ND)

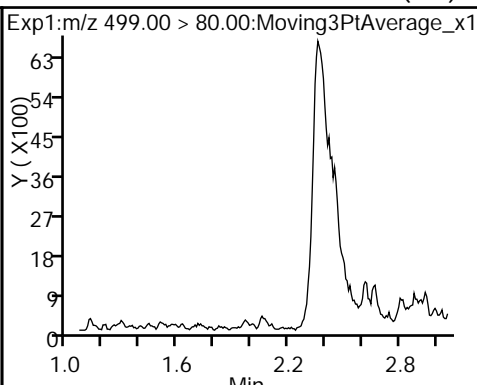
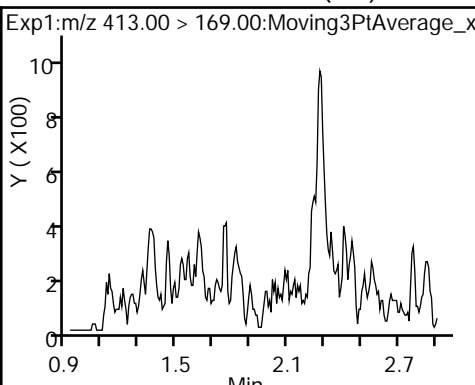
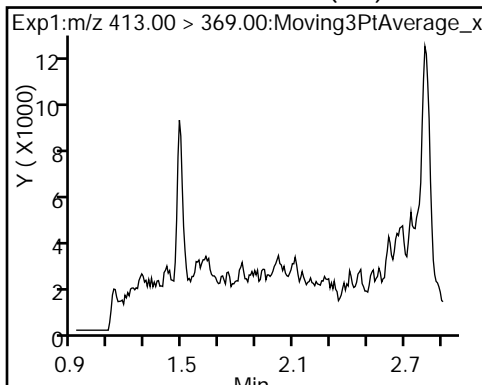
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

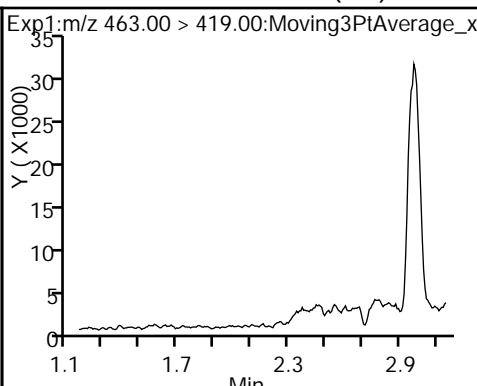
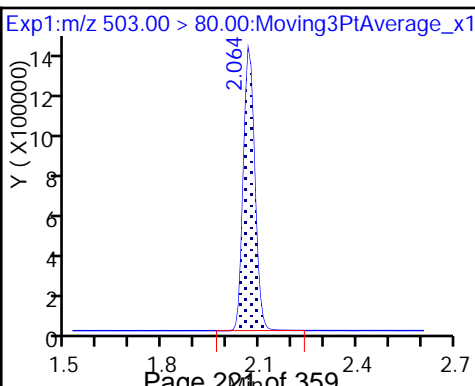
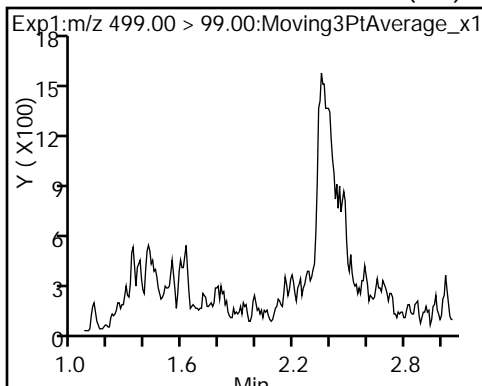
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

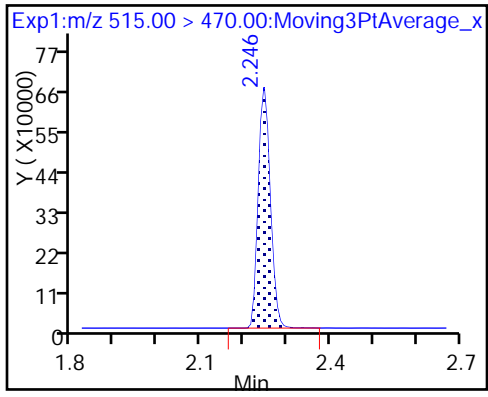


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_037.d
 Lims ID: 320-34946-A-19-A
 Client ID: NAWC-010918-FRB-350
 Sample Type: Client
 Inject. Date: 22-Jan-2018 12:32:17 ALS Bottle#: 44 Worklist Smp#: 34
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: 320-34946-a-19-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
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 Last ICal File: \\ChromNA\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_009.d
 Column 1 : Det: EXP1
 Process Host: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:49:54

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.58	95.77
\$ 10 13C2 PFDA	10.0	10.8	107.69

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

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1 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.: 320-34946-1 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.: 320-34946-1 Analy Batch No.: 192908

SDG No.: _____

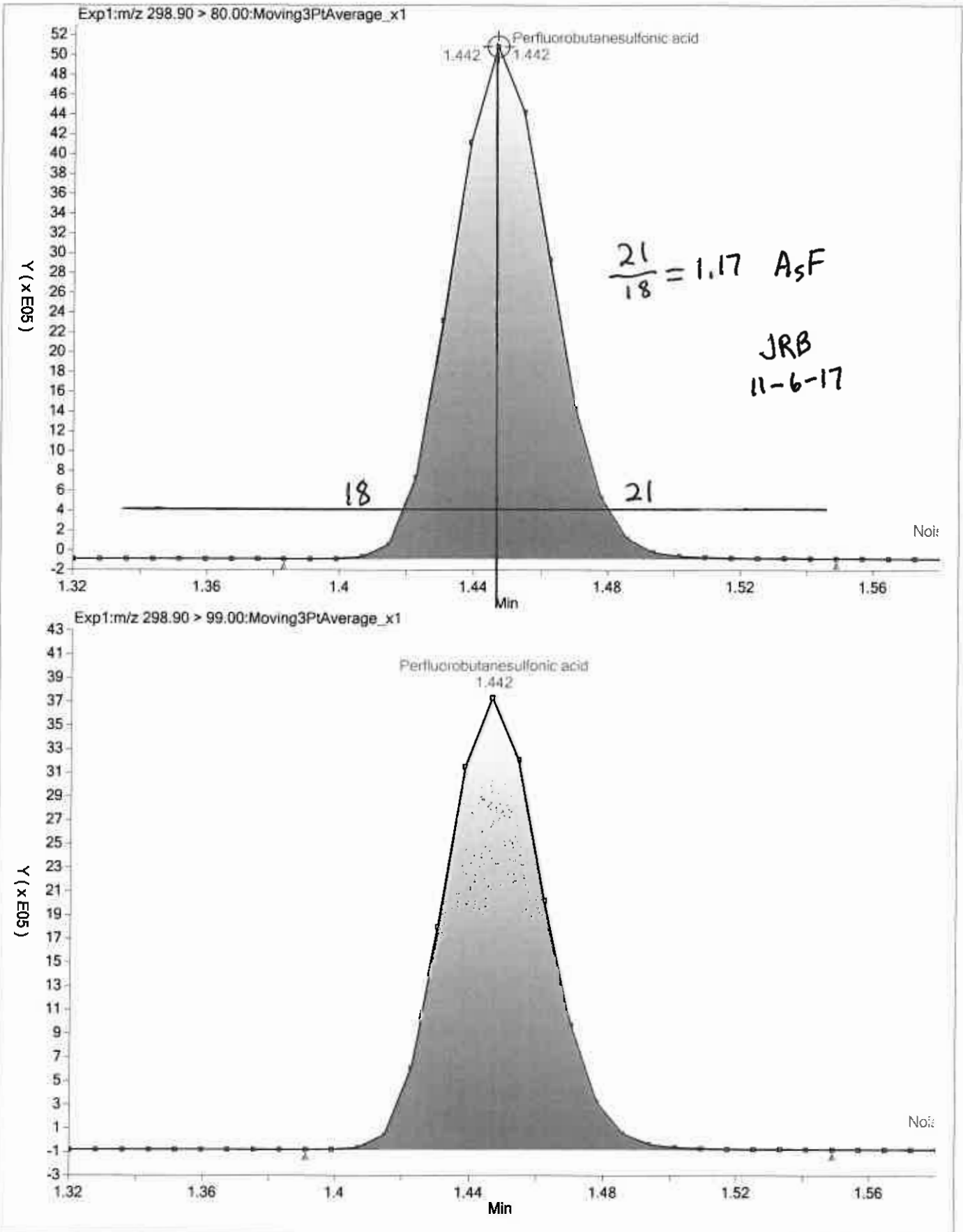
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N

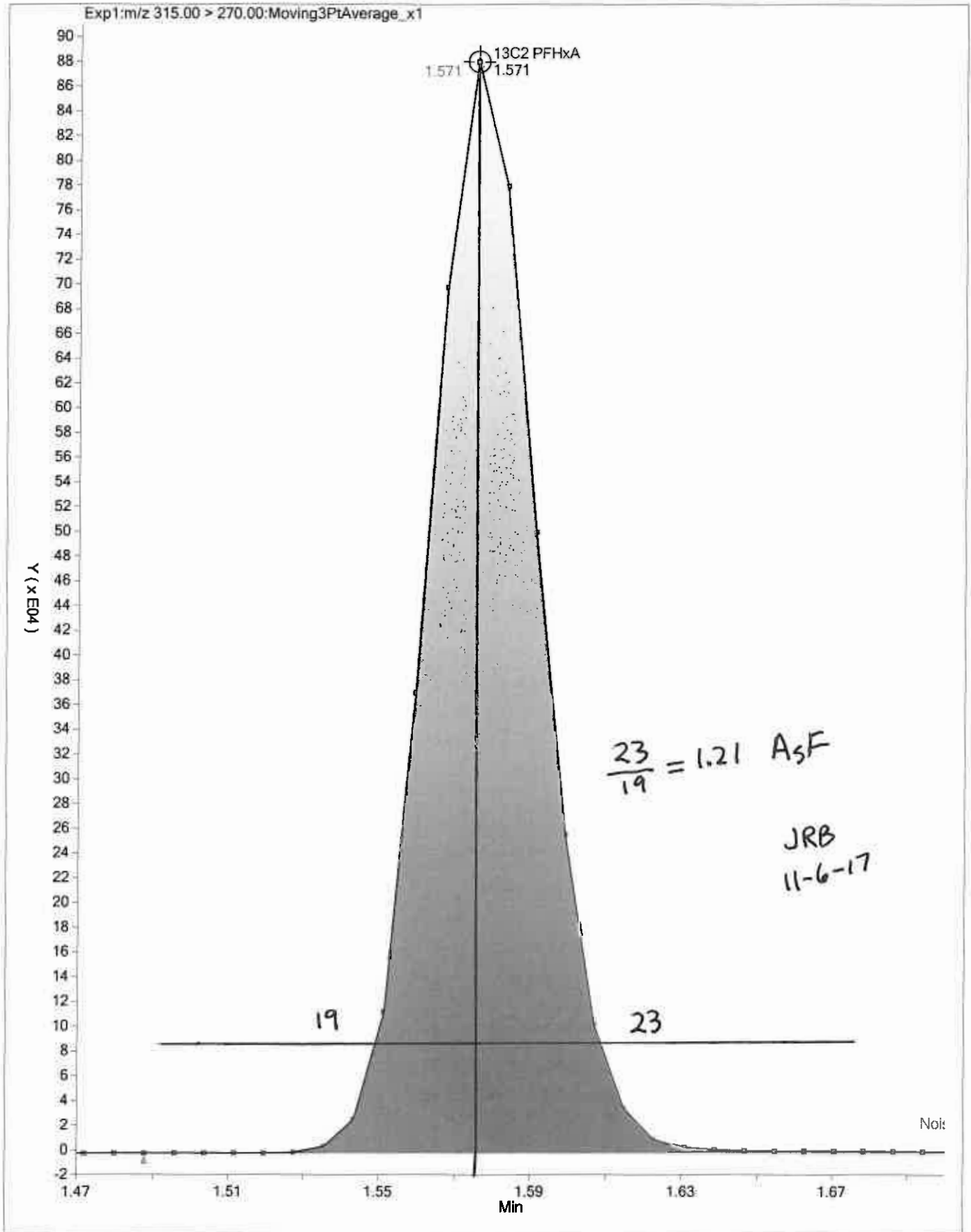
Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

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

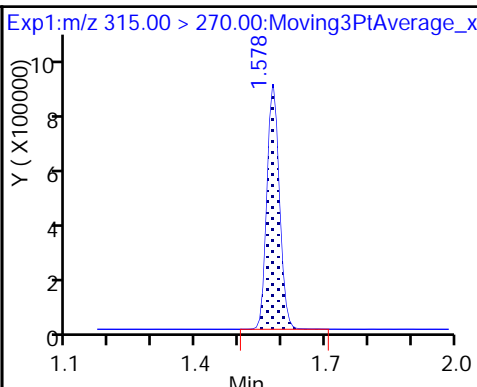
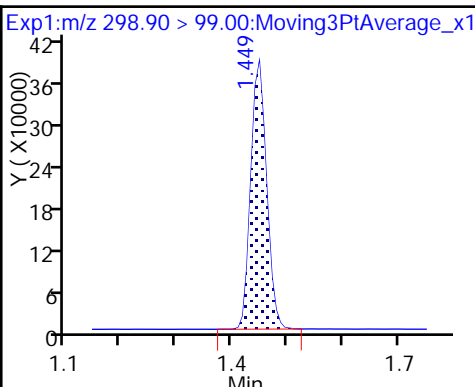
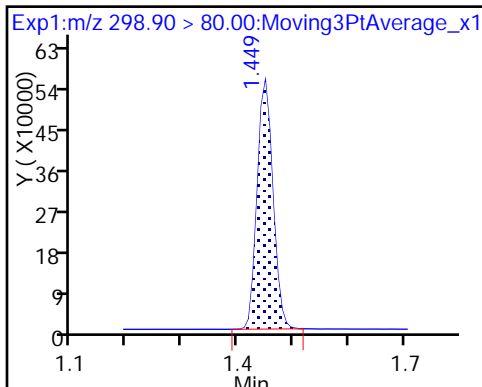
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

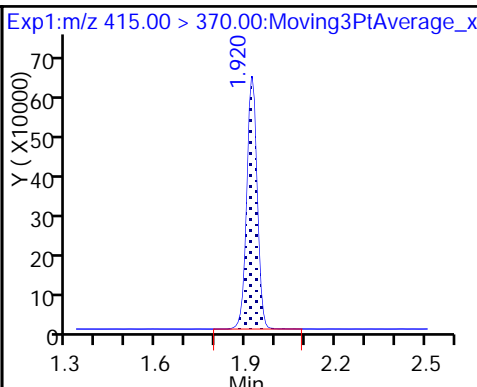
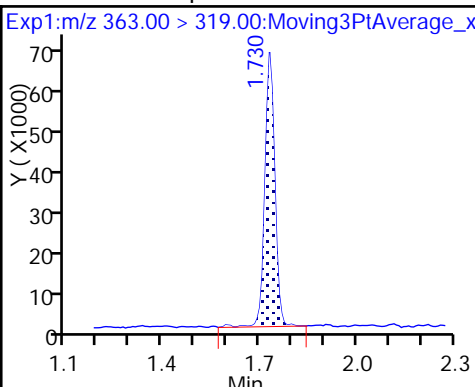
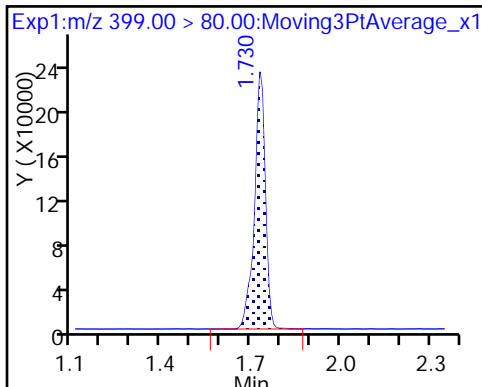
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

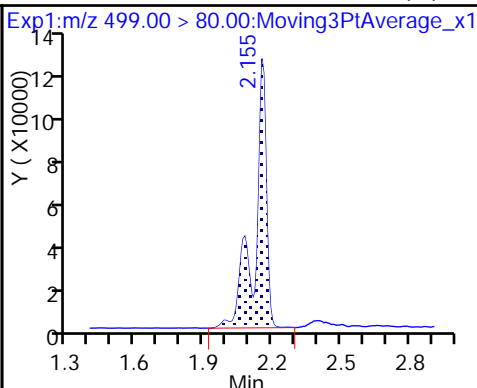
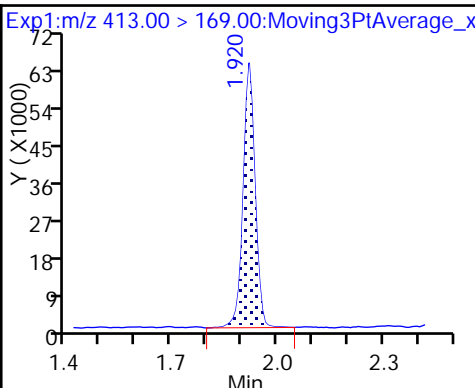
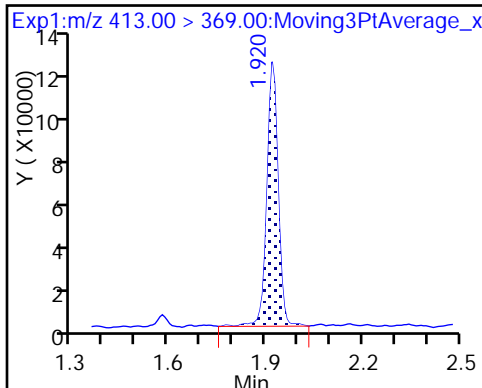
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

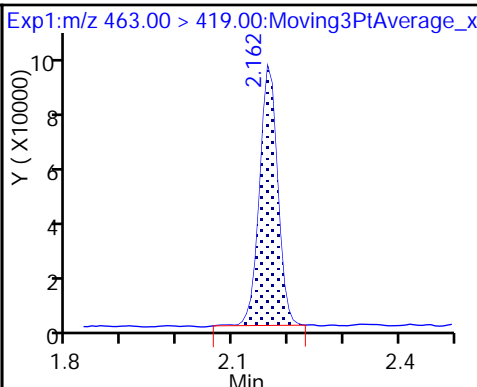
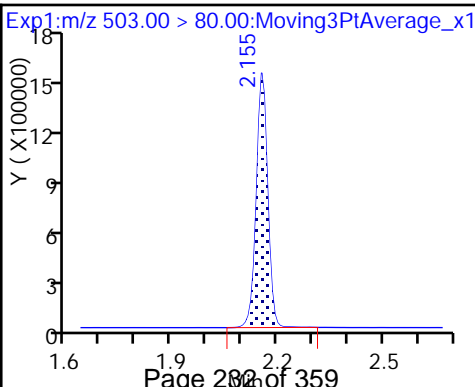
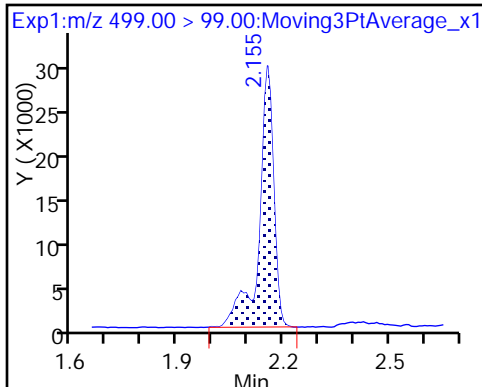
8 Perfluorooctane sulfonic acid (M)



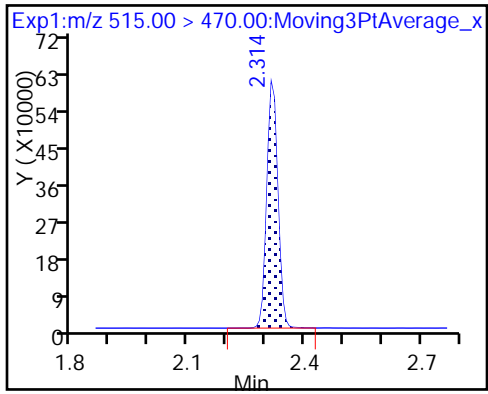
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

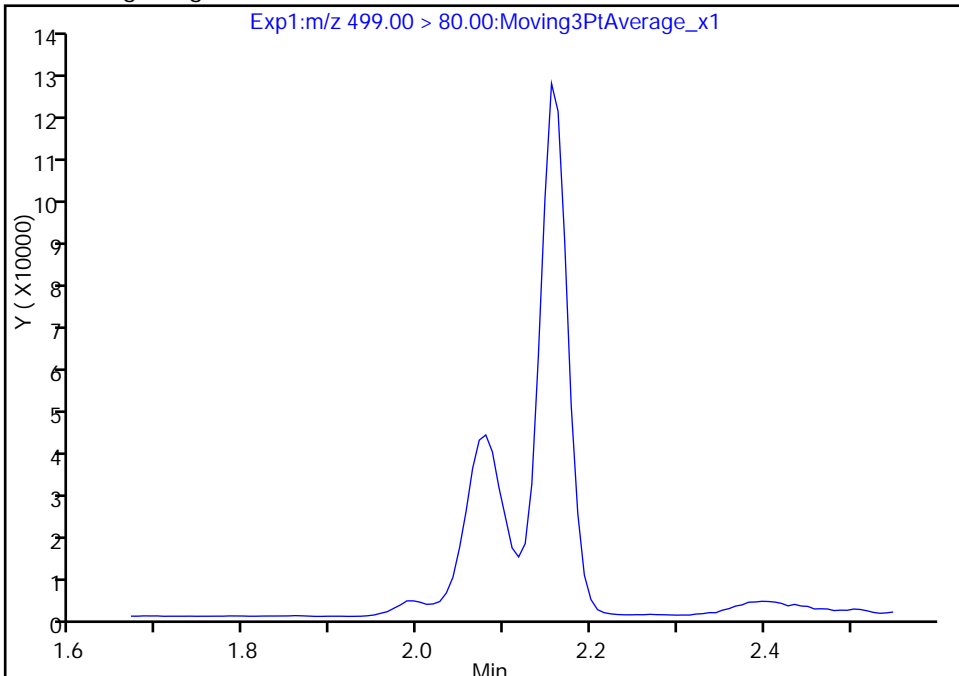
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Injection Date: 03-Nov-2017 13:37:59 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

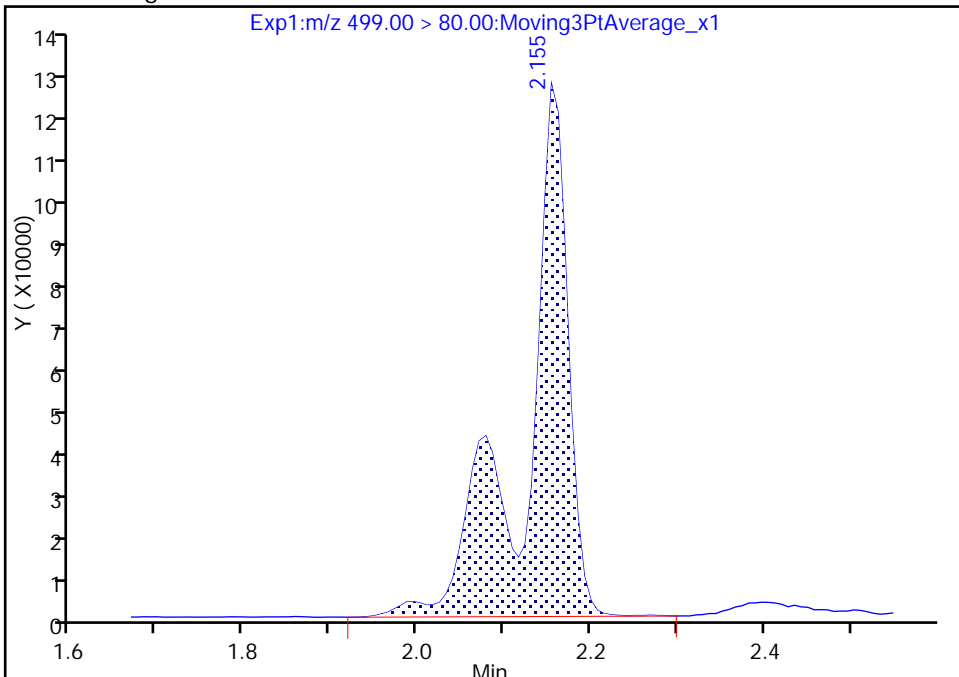
Not Detected
Expected RT: 2.15

Processing Integration Results



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

Manual Integration Results



TestAmerica Sacramento

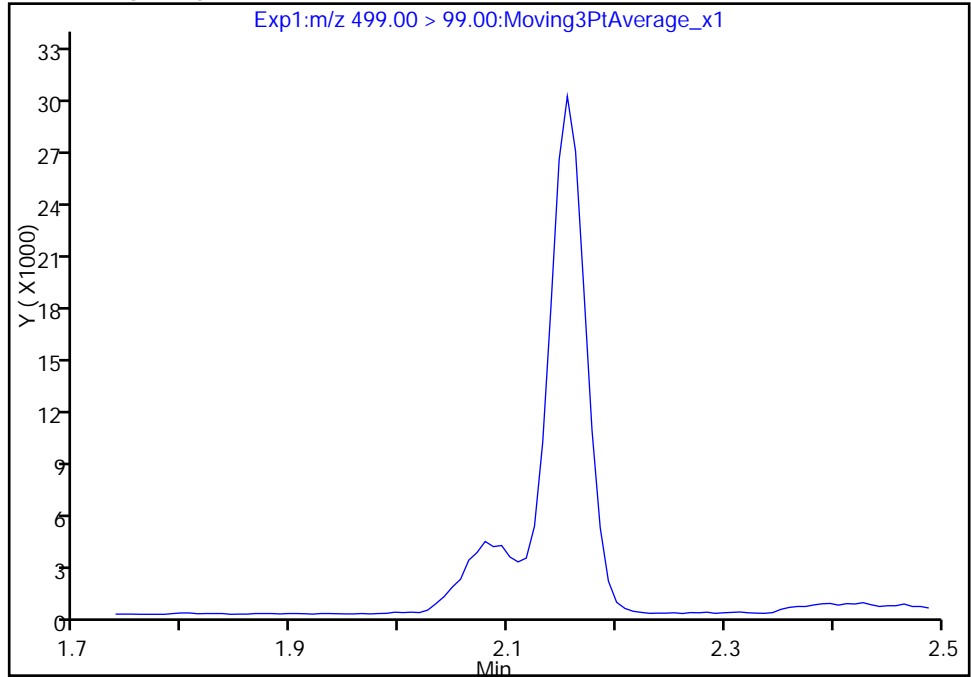
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Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

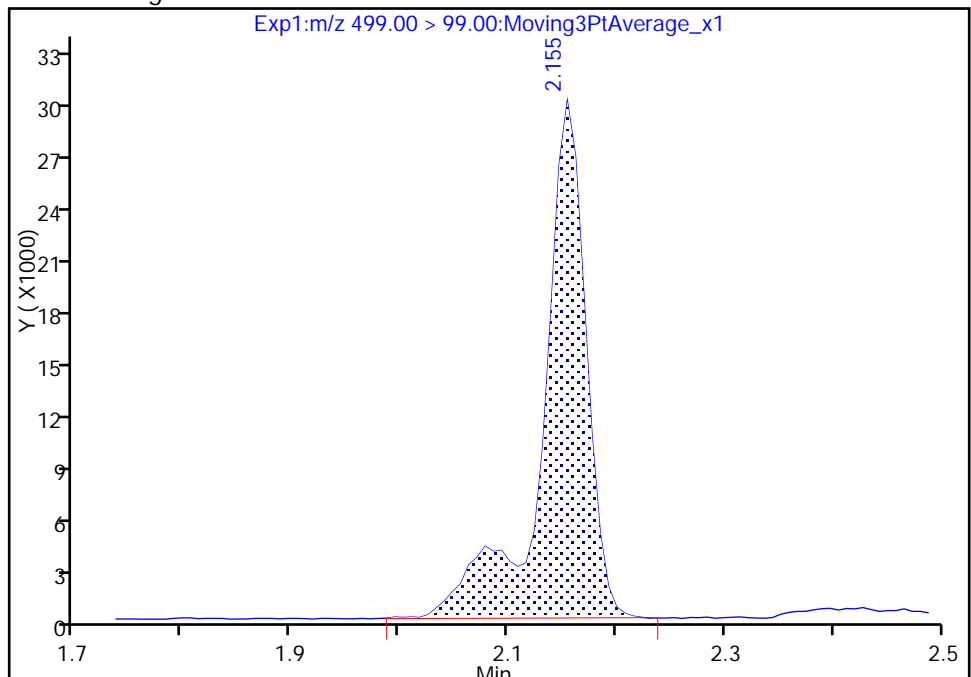
Not Detected
Expected RT: 2.15

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

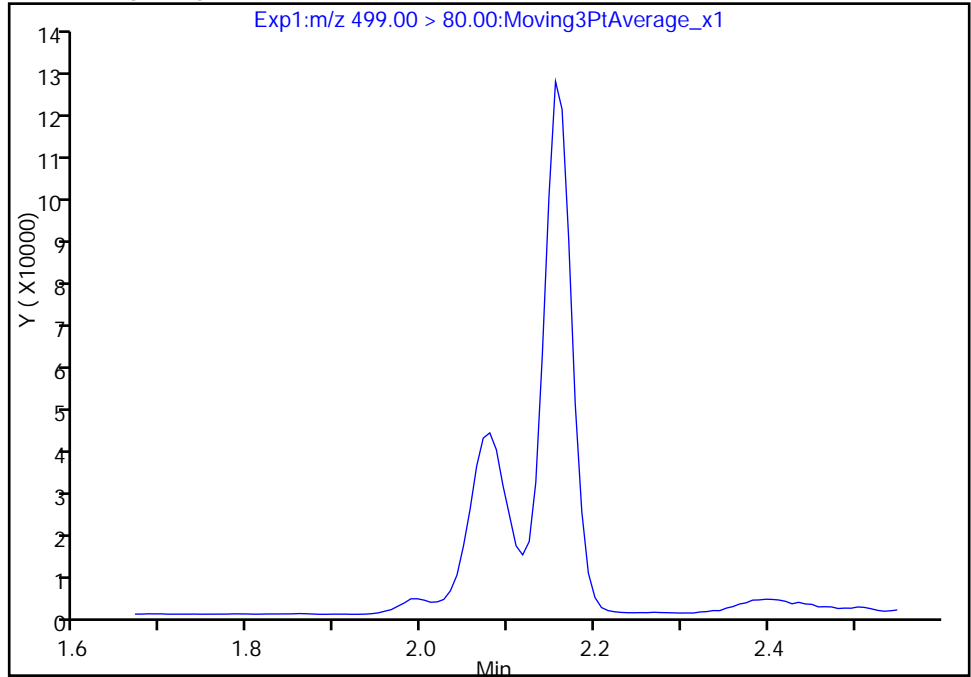
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Injection Date: 03-Nov-2017 13:37:59 Instrument ID: A8_N
Lims ID: IC L1
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

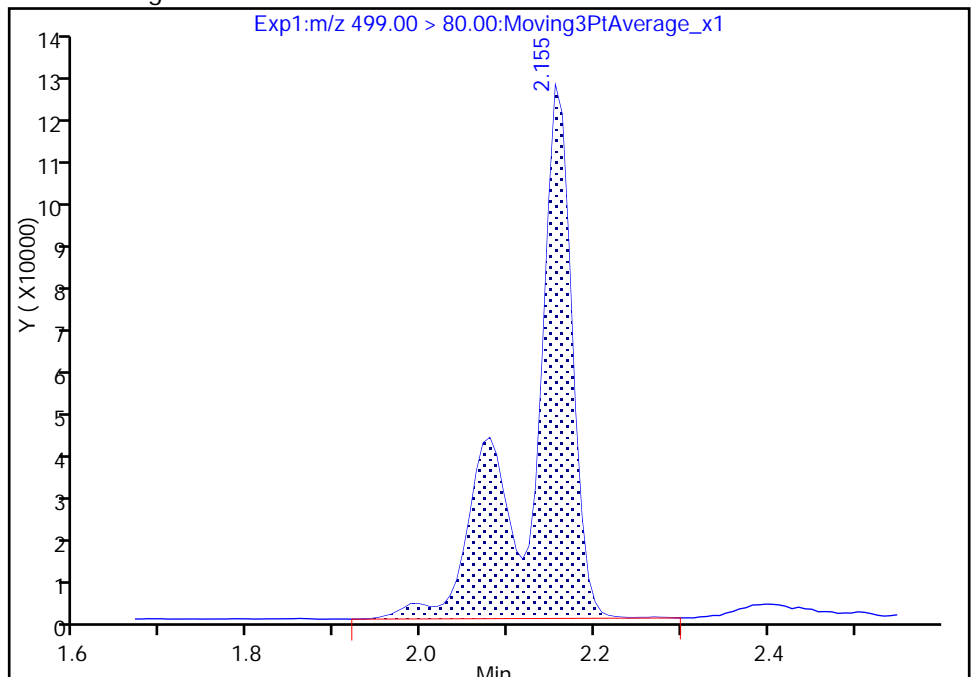
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

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



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_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

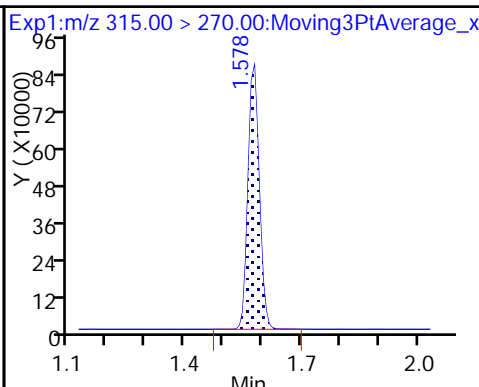
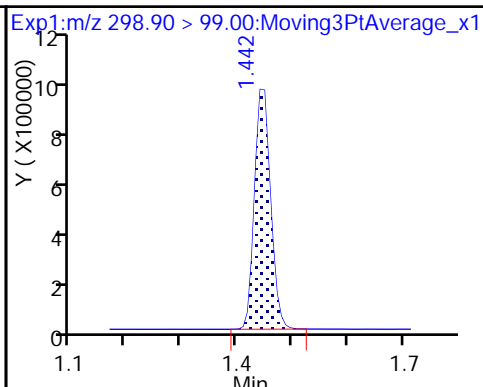
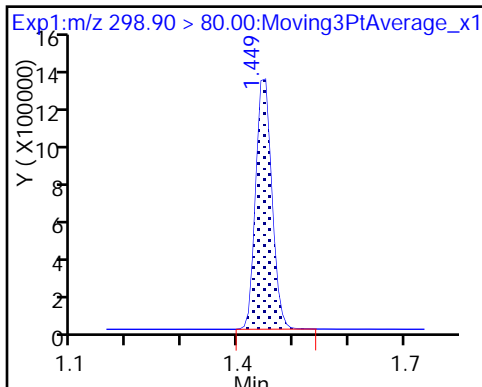
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

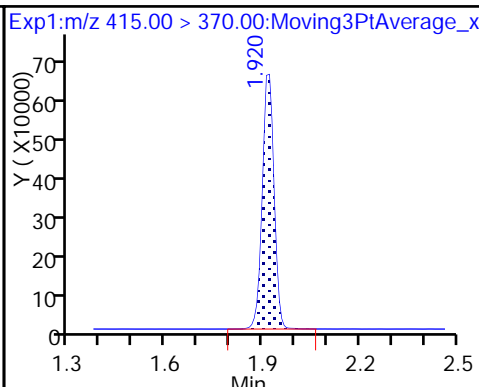
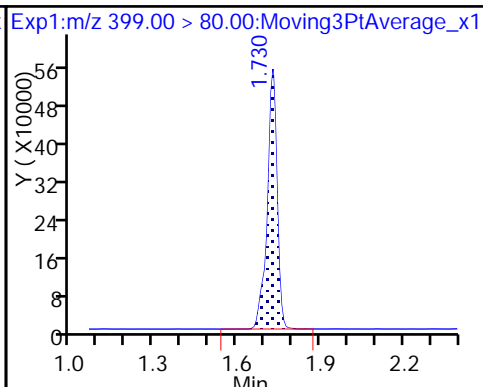
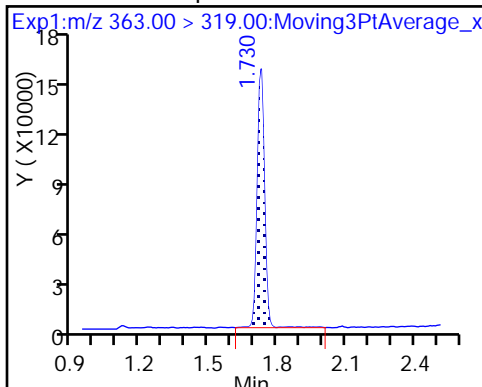
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

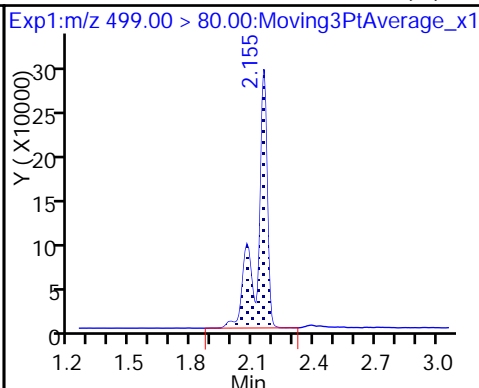
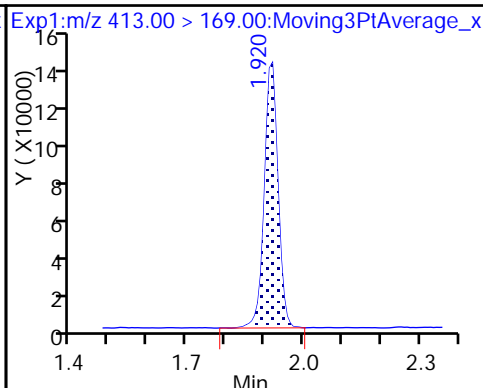
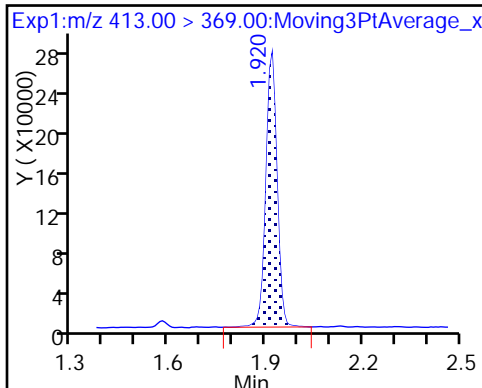
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

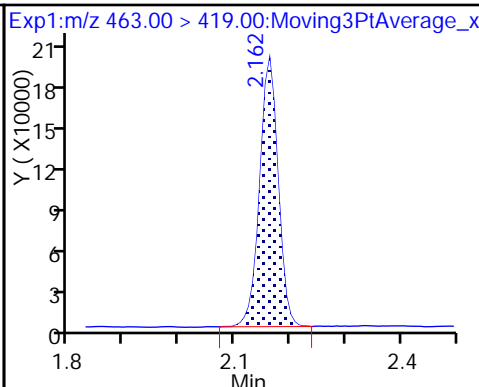
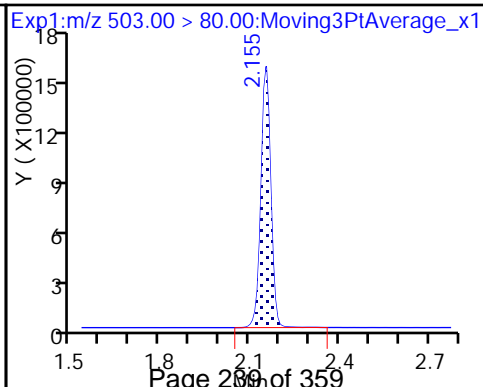
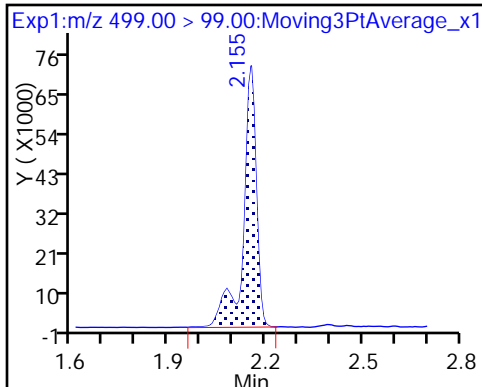
8 Perfluorooctane sulfonic acid (M)



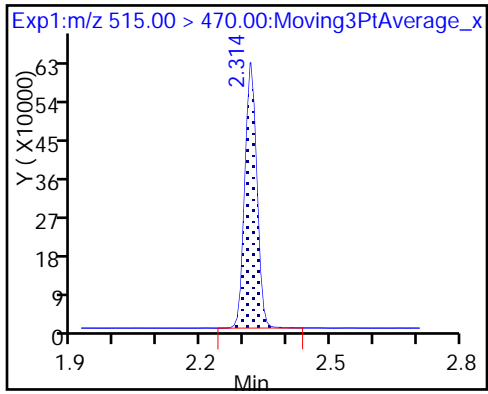
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

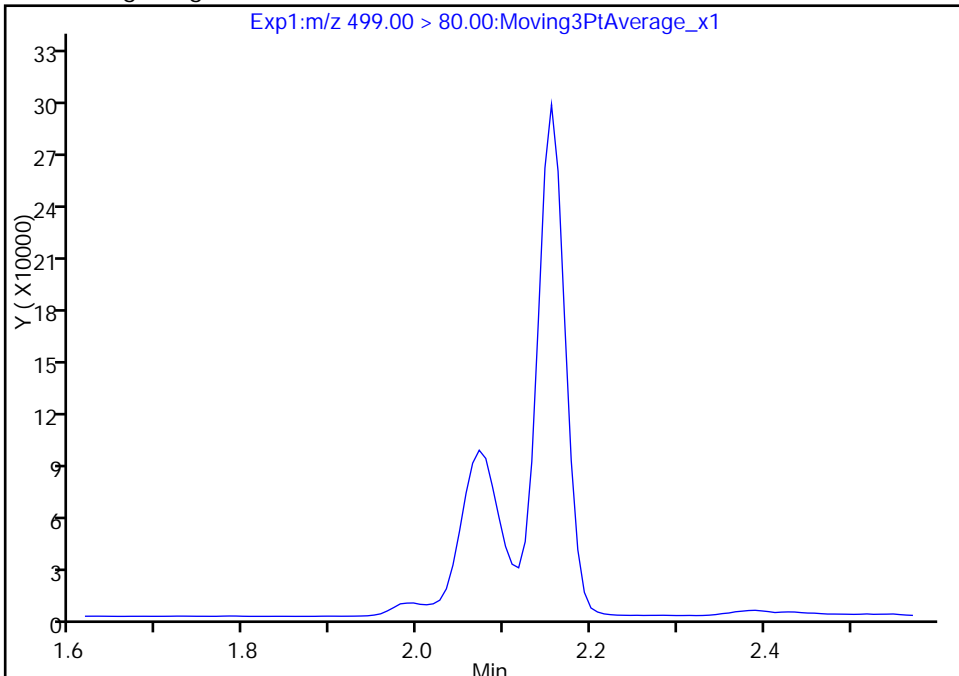
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_005.d
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: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

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

Signal: 1

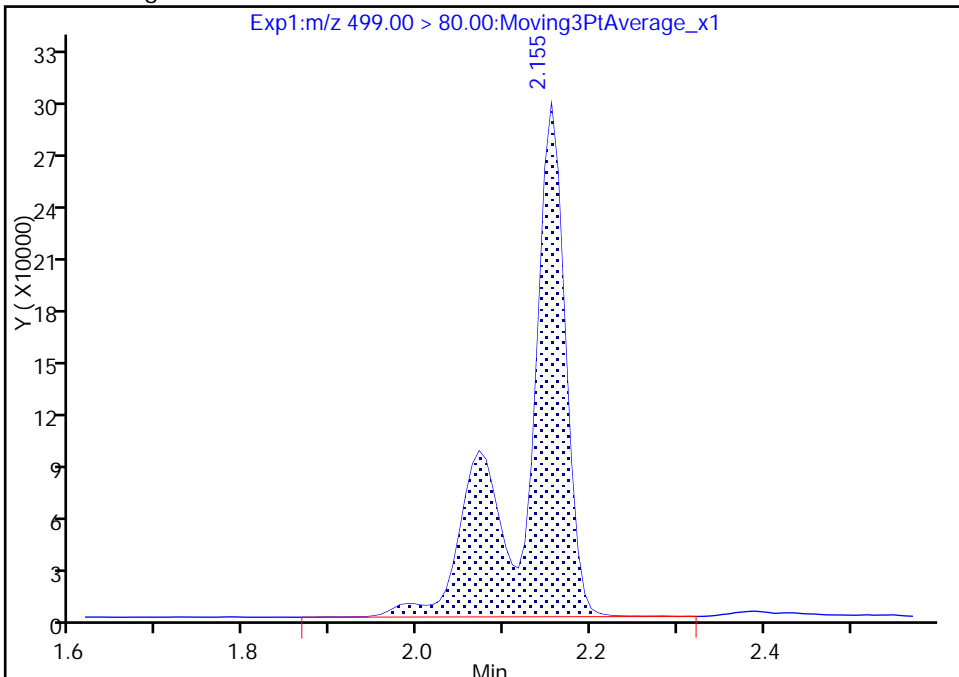
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

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



TestAmerica Sacramento

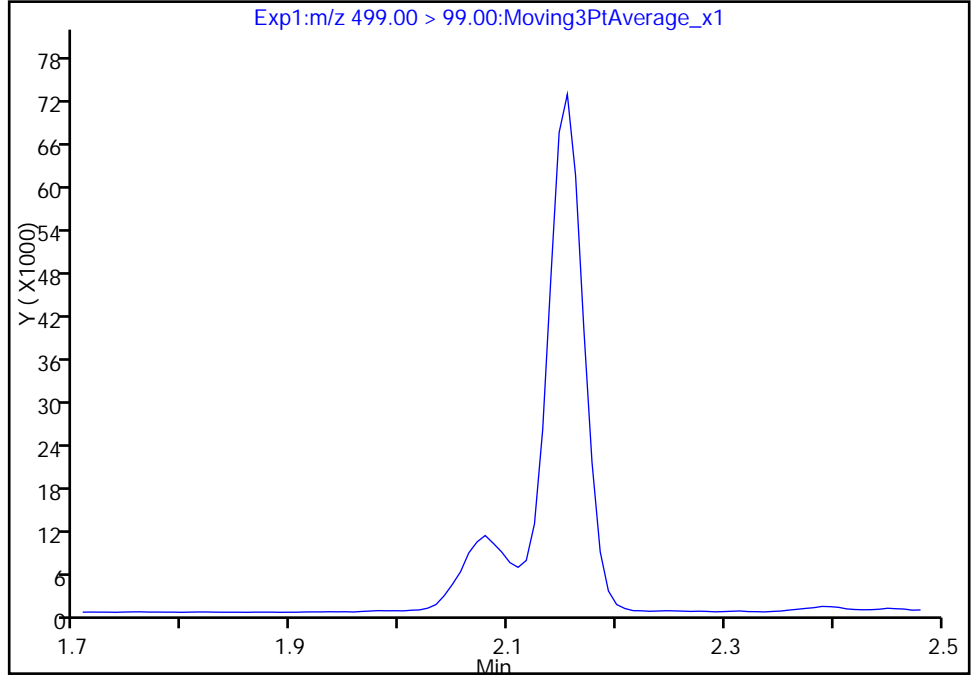
Data File: \\ChromNa\Sacramento\ChromData\A8_N\201711106-49975.b\2017.11.03_537XICAL_005.d
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: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

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

Signal: 2

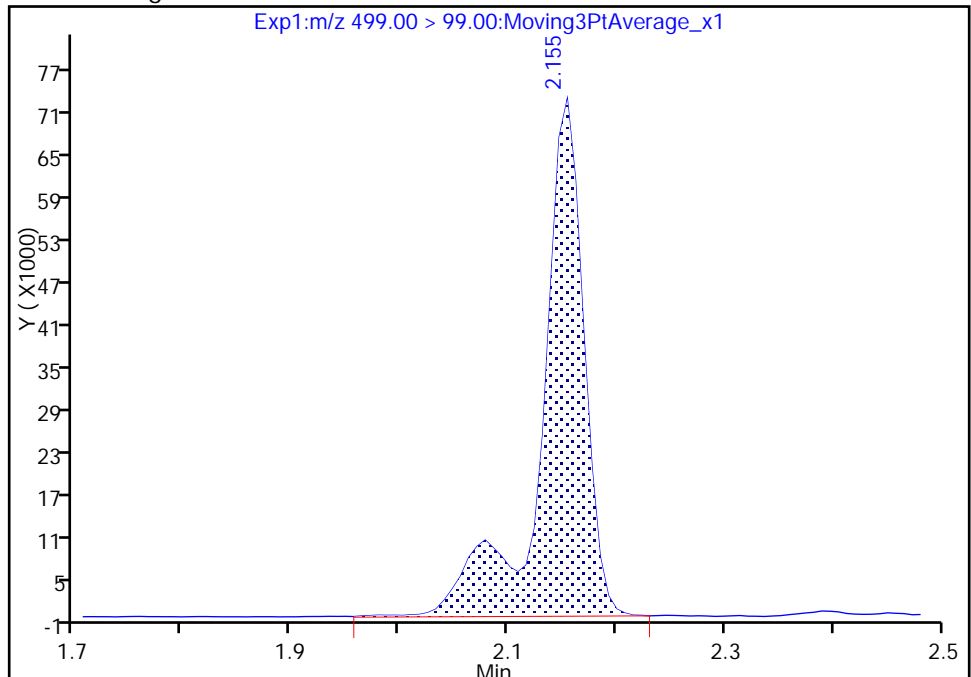
Not Detected
Expected RT: 2.15

Processing Integration Results



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

Manual Integration Results



TestAmerica Sacramento

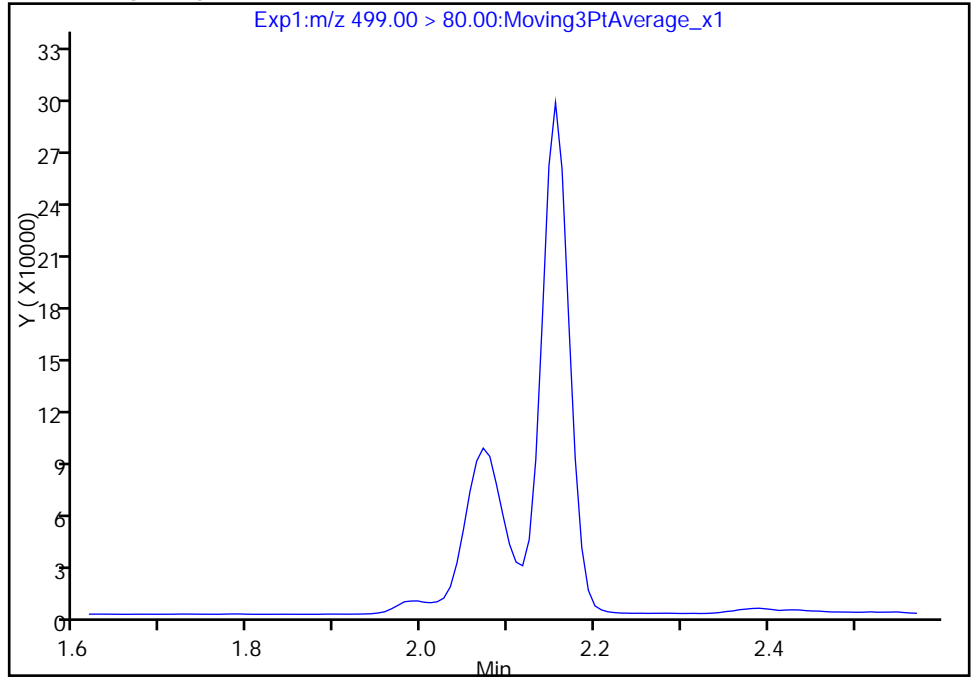
Data File: \\ChromNa\Sacramento\ChromData\A8_N\201711106-49975.b\2017.11.03_537XICAL_005.d
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8_N
Lims ID: IC L2
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: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

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

Signal: 1

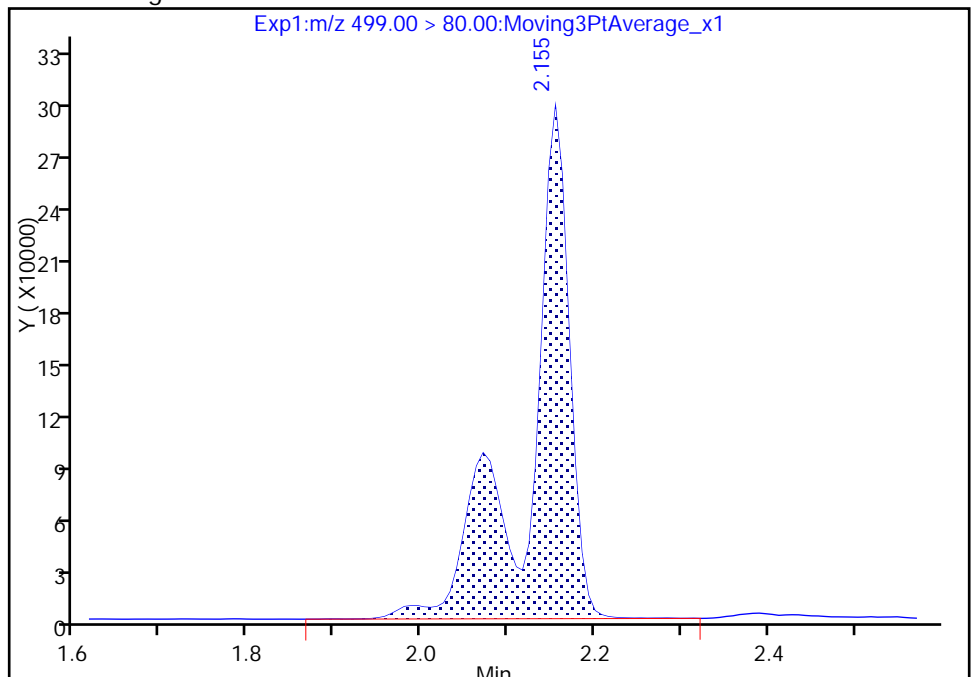
Not Detected
Expected RT: 2.15

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

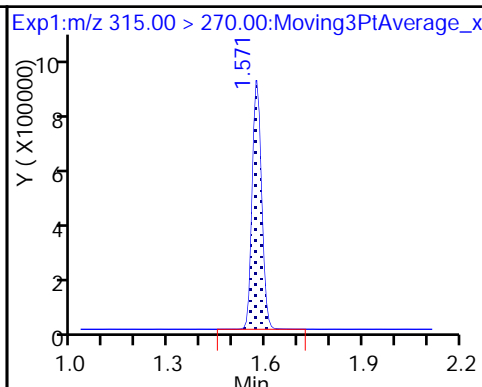
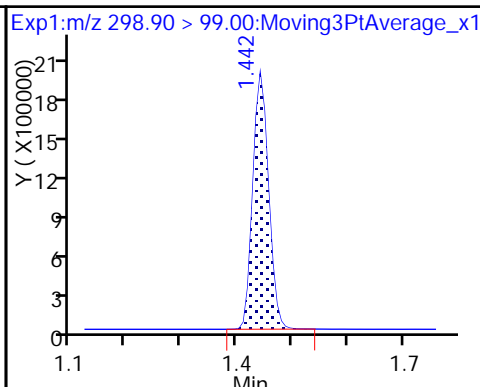
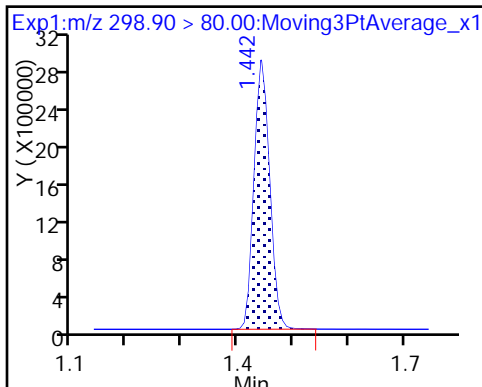
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

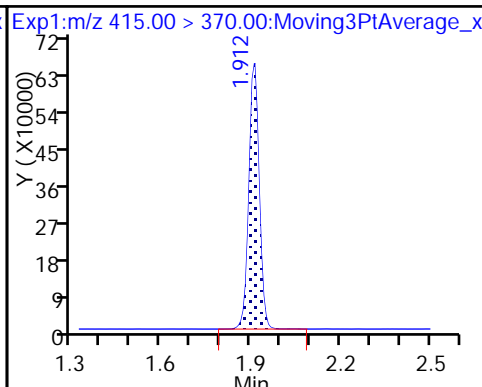
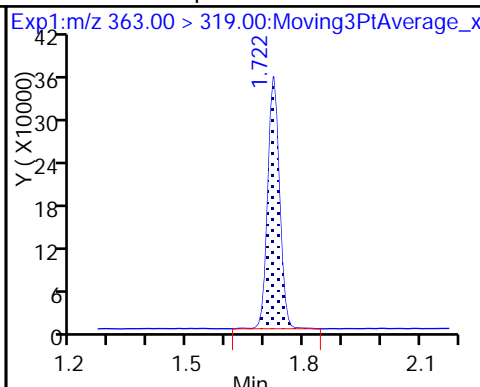
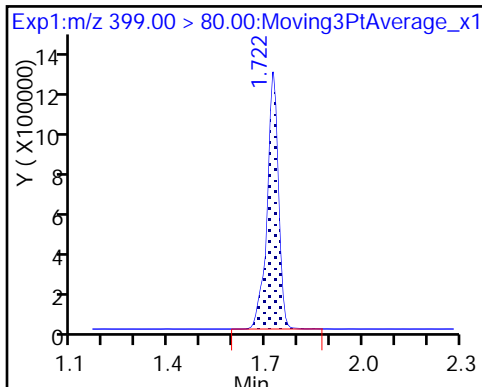
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

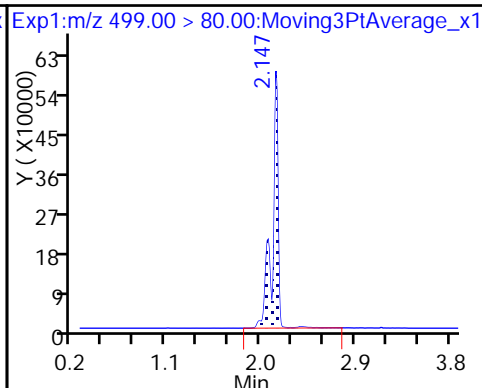
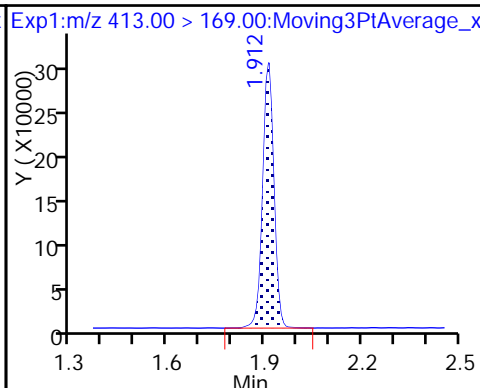
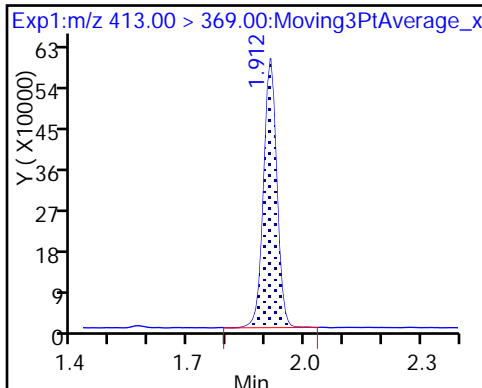
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

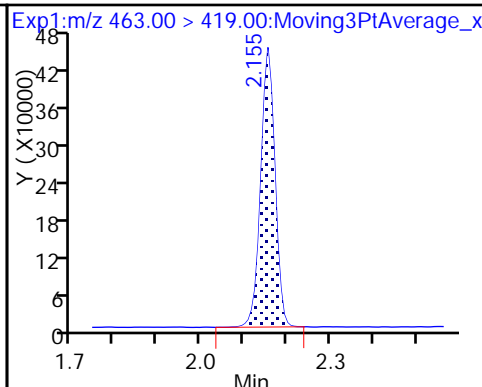
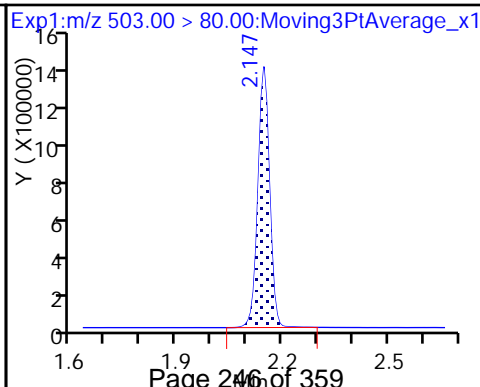
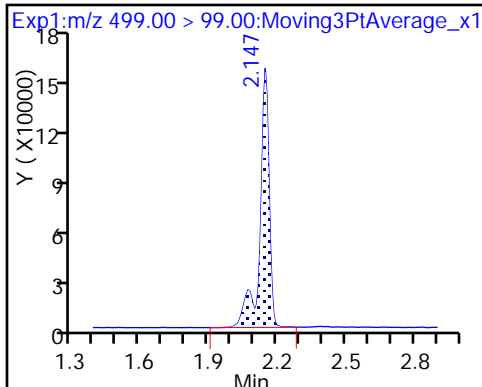
8 Perfluorooctane sulfonic acid



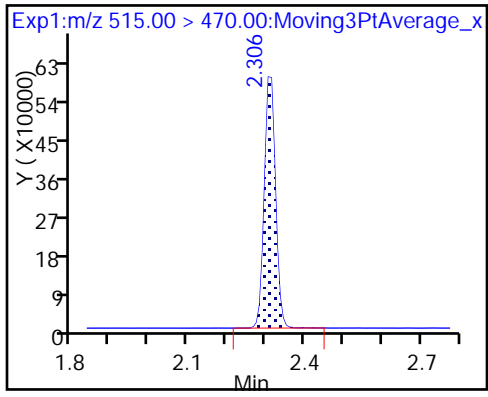
8 Perfluorooctane sulfonic acid

* 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

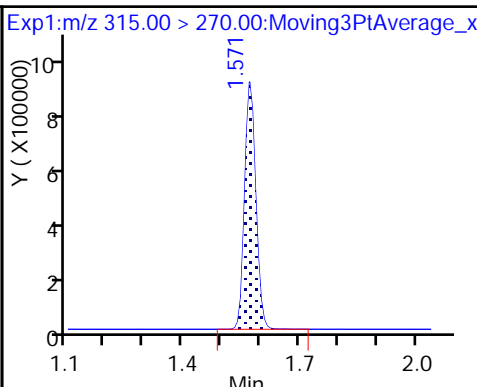
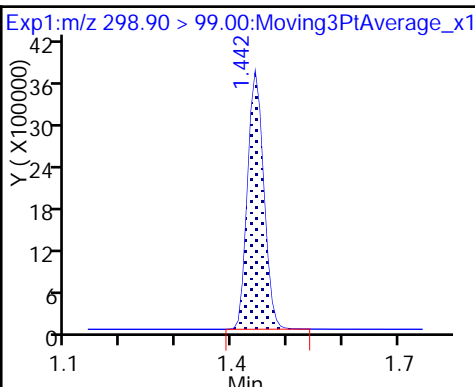
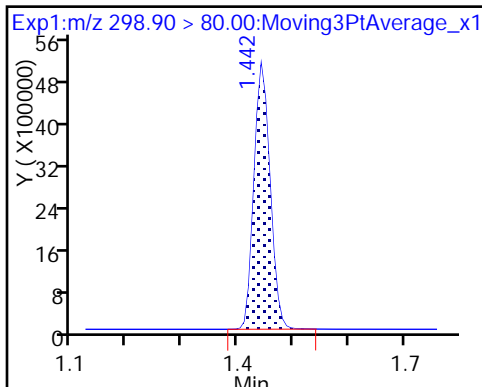
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

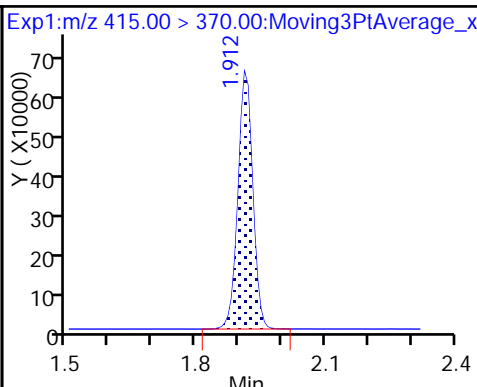
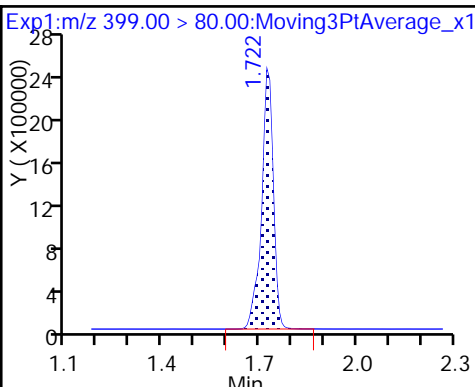
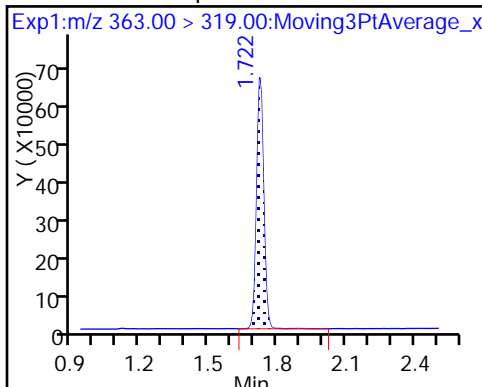
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

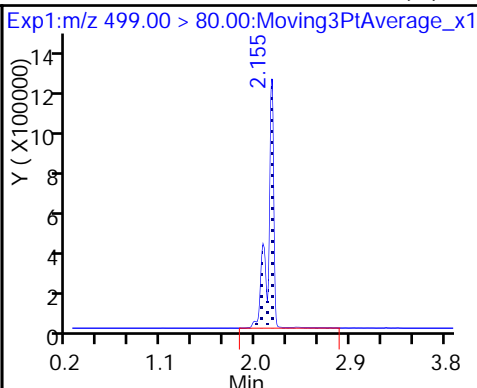
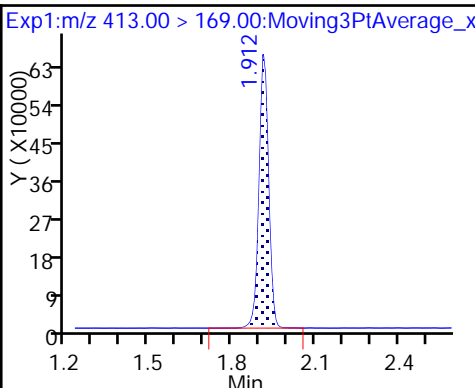
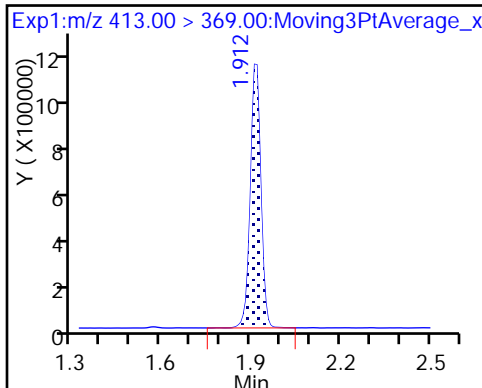
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

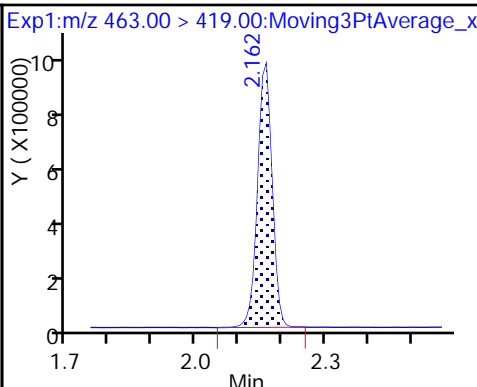
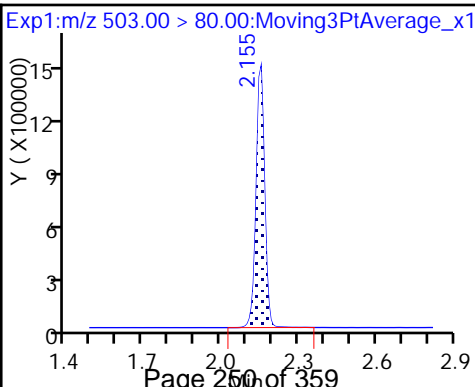
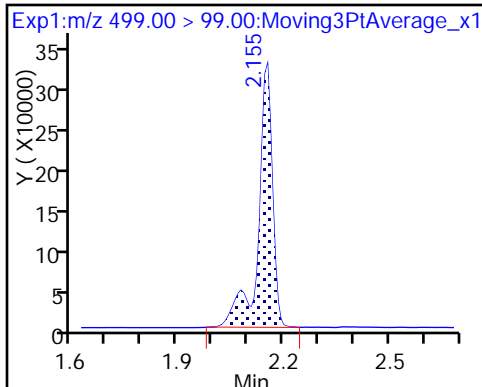
8 Perfluorooctane sulfonic acid (M)



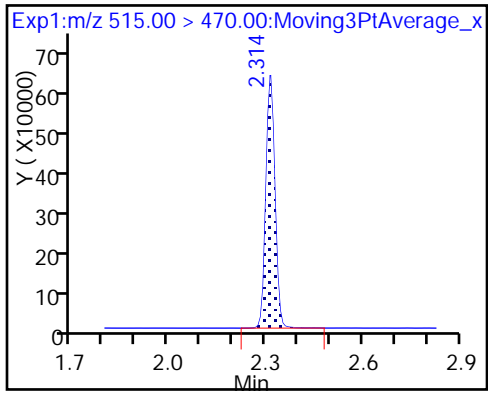
8 Perfluorooctane sulfonic acid (M)

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



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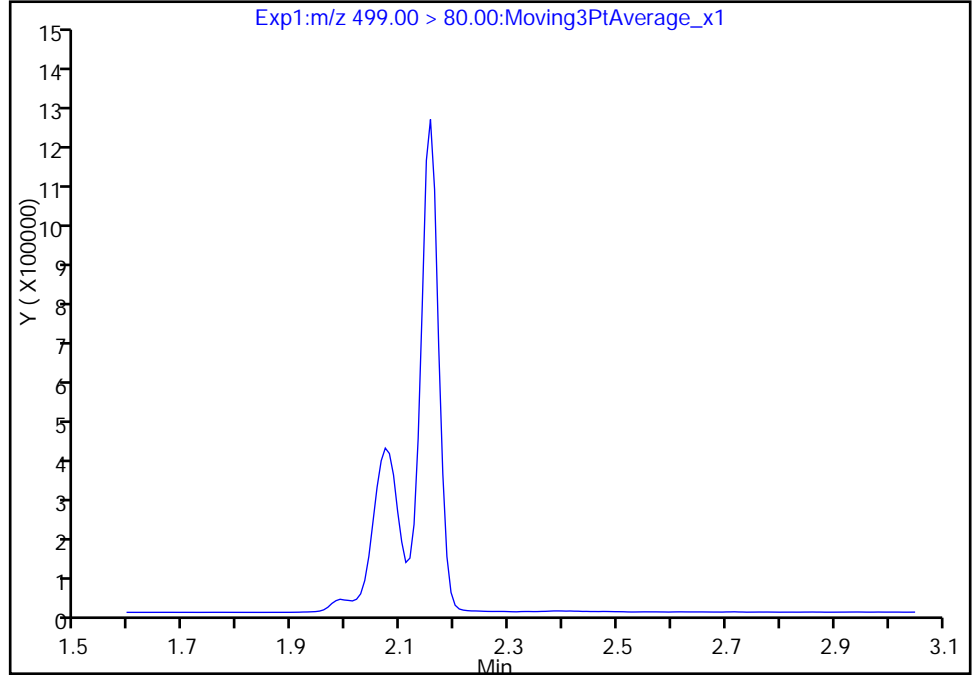
Data File: \\ChromNa\Sacramento\ChromData\A8_N\20171106-49975.b\2017.11.03_537XICAL_007.d
Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

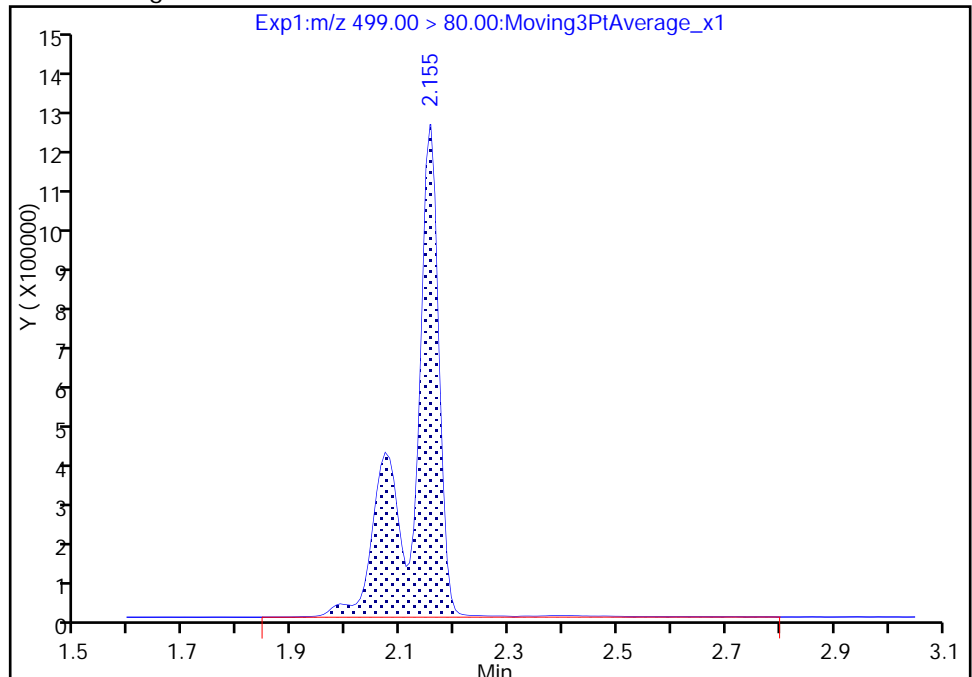
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

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



TestAmerica Sacramento

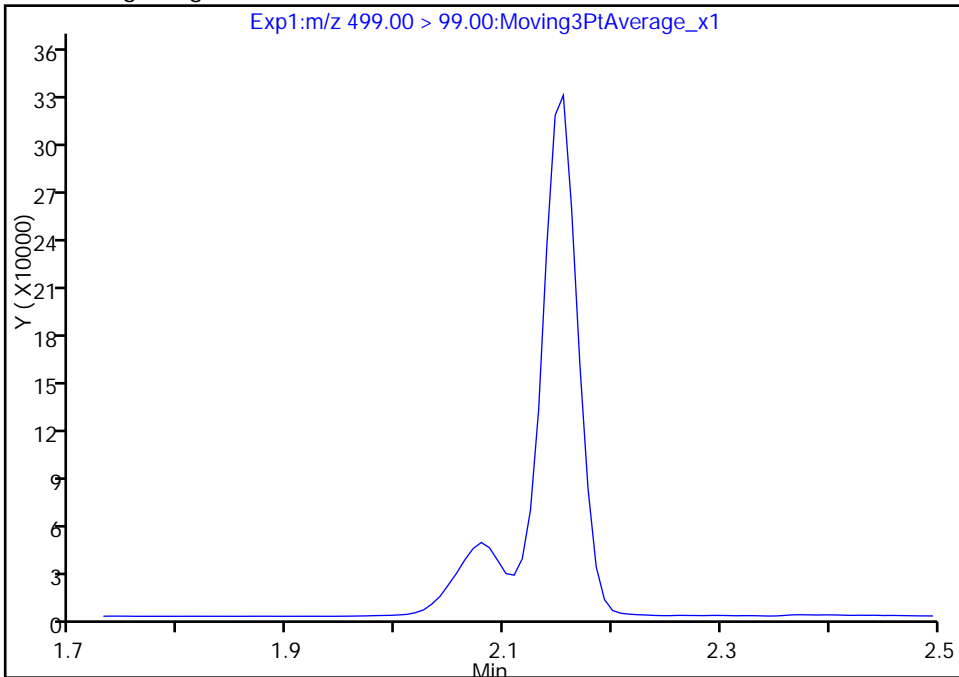
Data File: \\ChromNa\Sacramento\ChromData\A8_N\201711106-49975.b\2017.11.03_537XICAL_007.d
Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 2

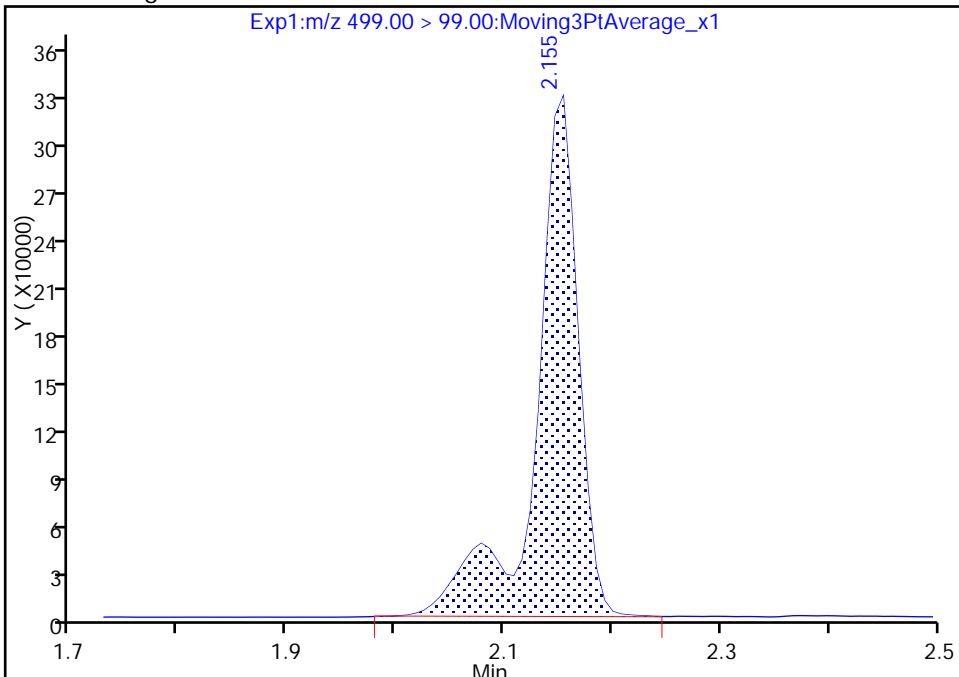
Not Detected
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

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



TestAmerica Sacramento

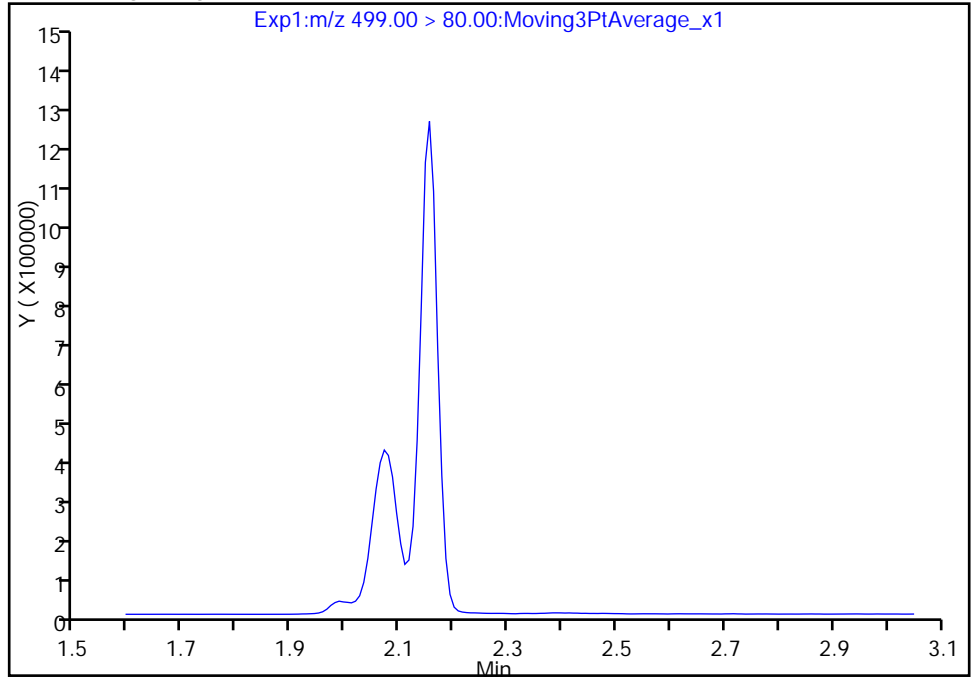
Data File: \\ChromNa\Sacramento\ChromData\A8_N\201711106-49975.b\2017.11.03_537XICAL_007.d
Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8_N
Lims ID: IC L4
Client ID:
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7
Injection Vol: 2.0 ul Dil. Factor: 1.0000
Method: 537_A8_N Limit Group: LC 537 ICAL
Column: Detector EXP1

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

Signal: 1

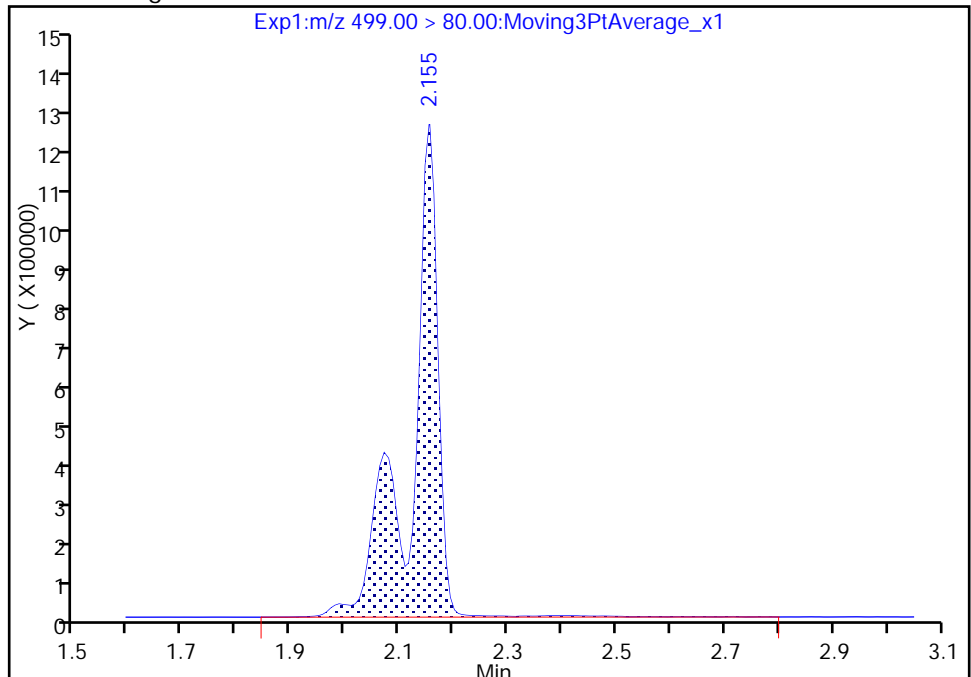
Not Detected
Expected RT: 2.15

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

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

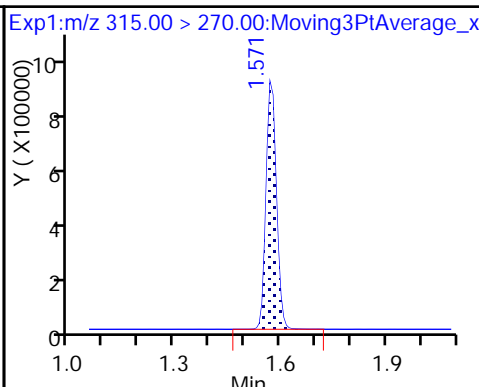
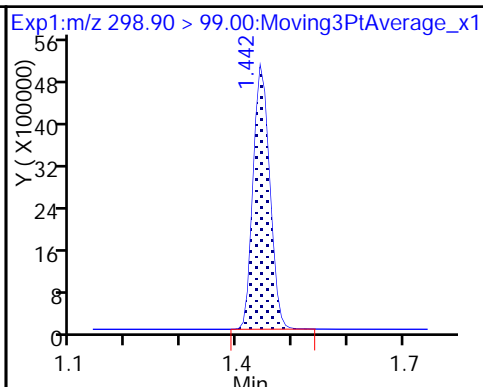
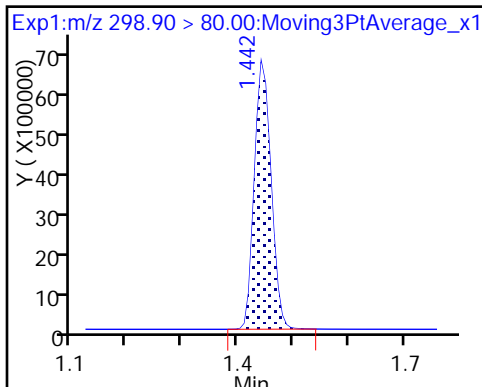
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

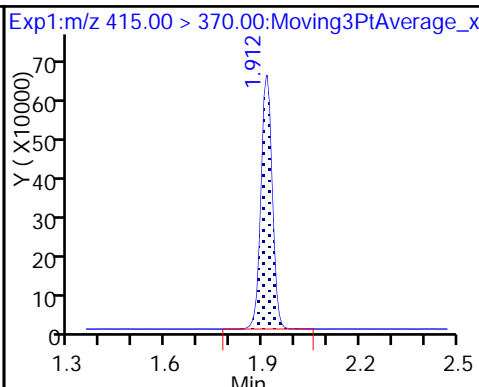
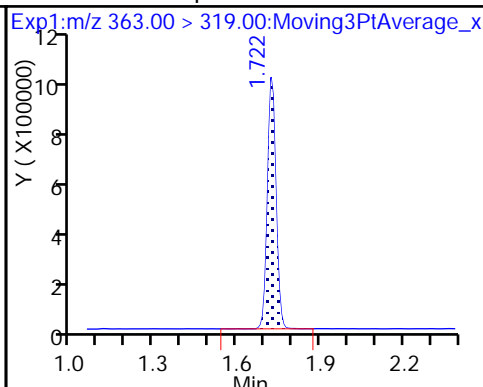
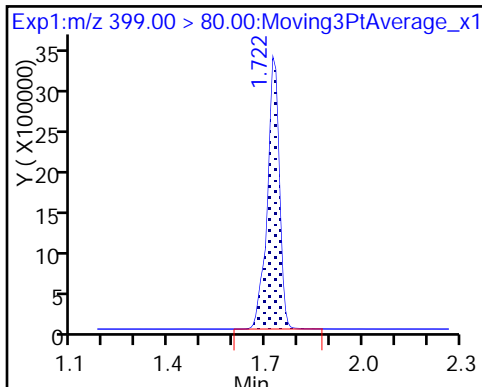
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

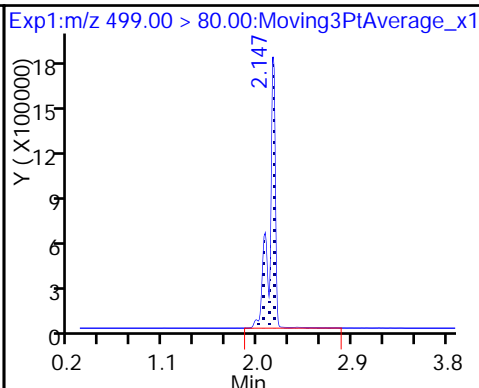
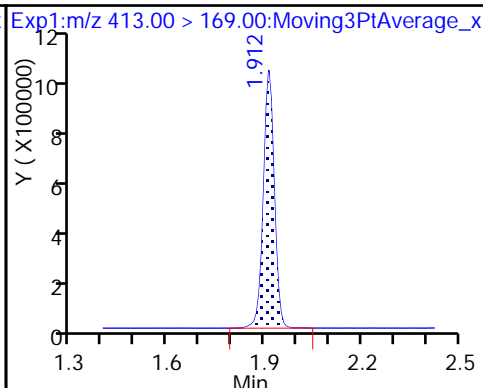
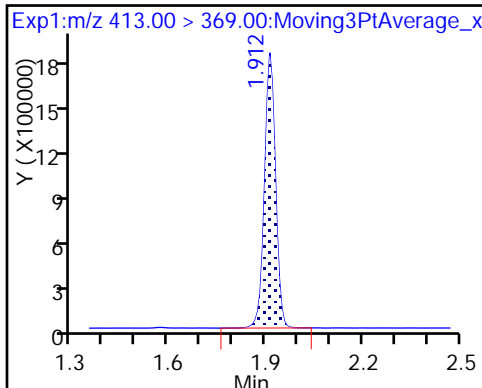
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

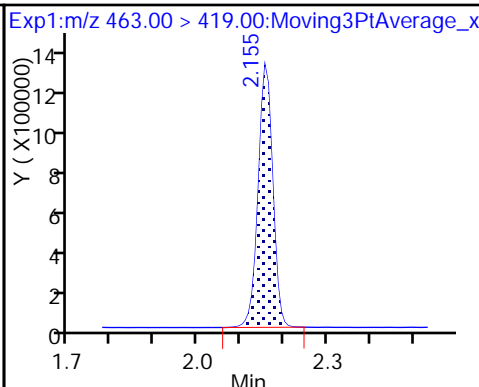
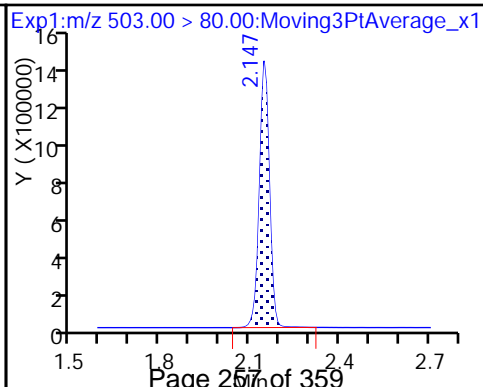
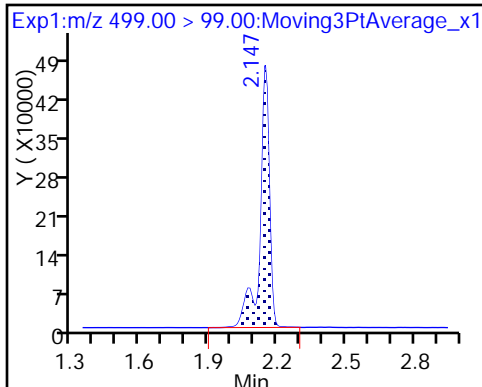
8 Perfluorooctane sulfonic acid



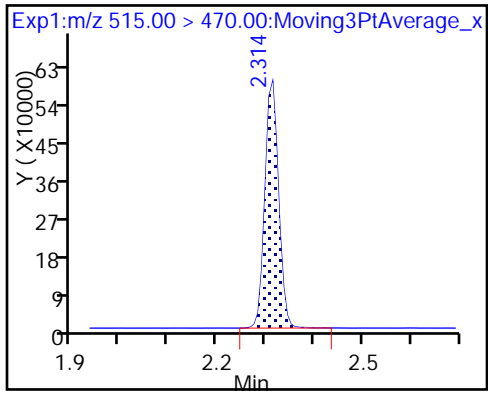
8 Perfluorooctane sulfonic acid

* 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

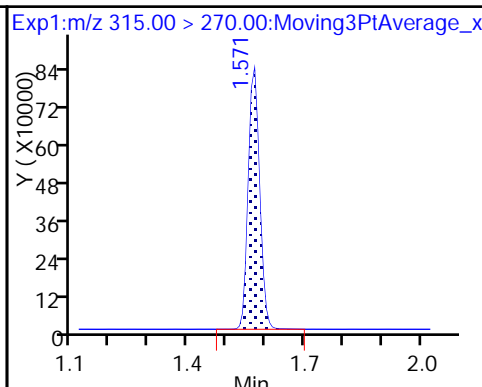
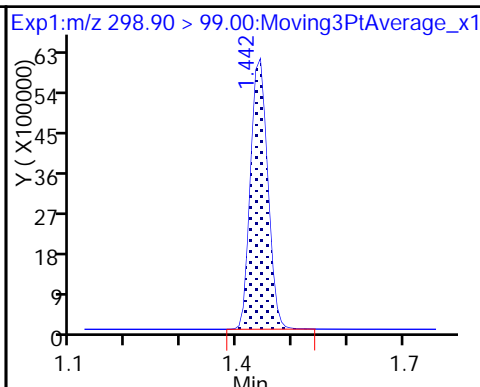
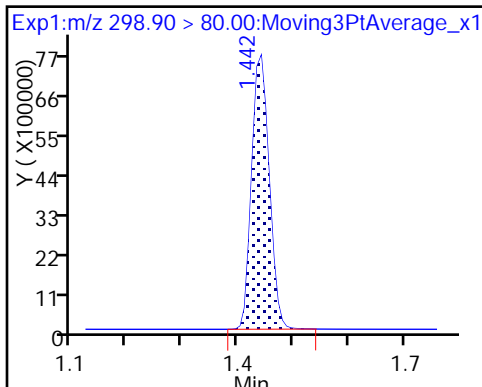
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

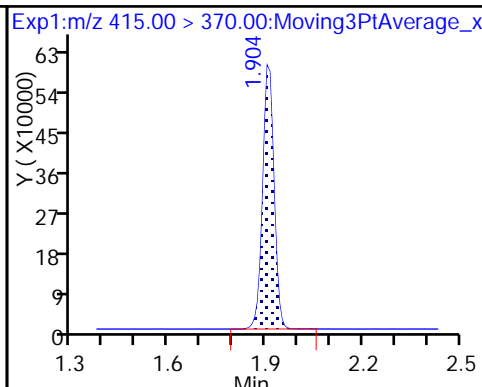
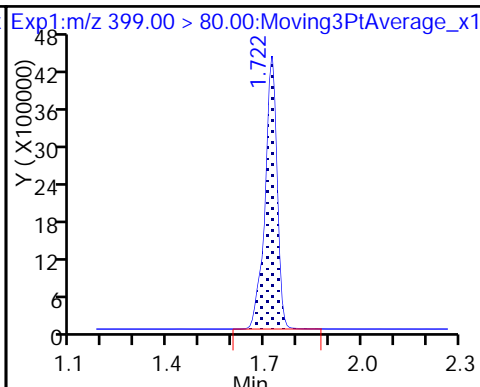
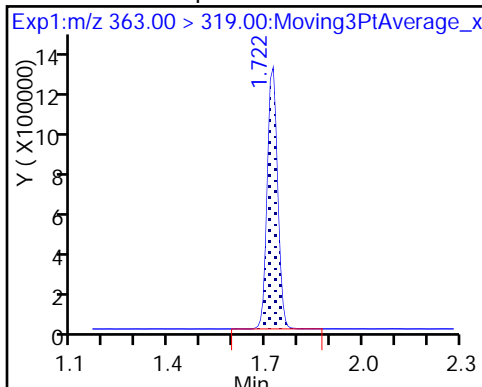
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

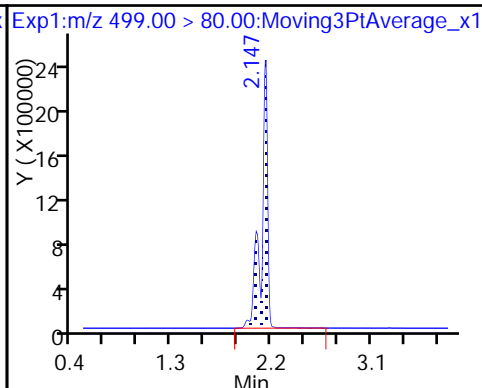
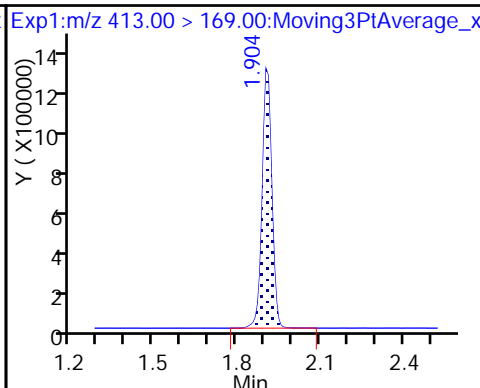
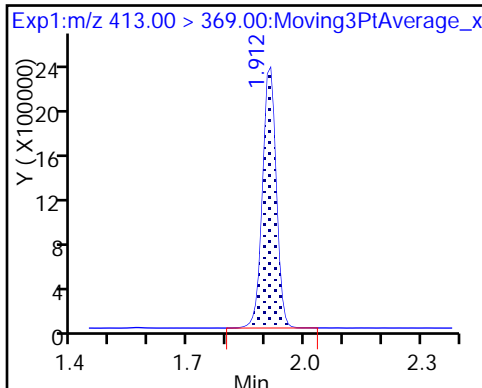
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

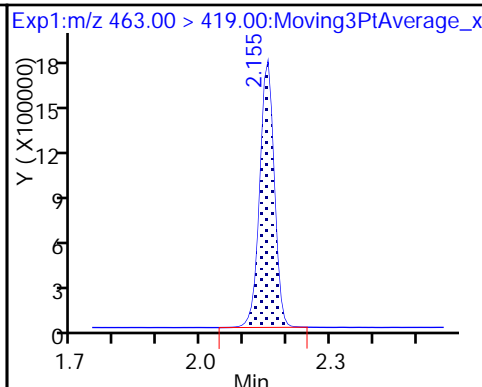
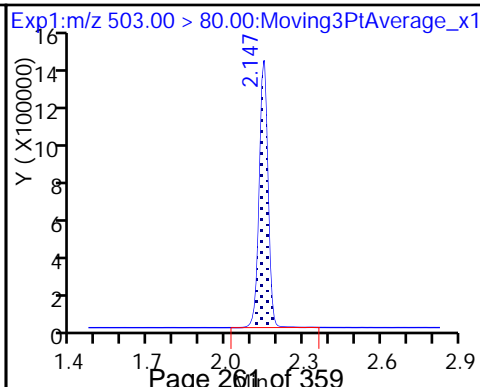
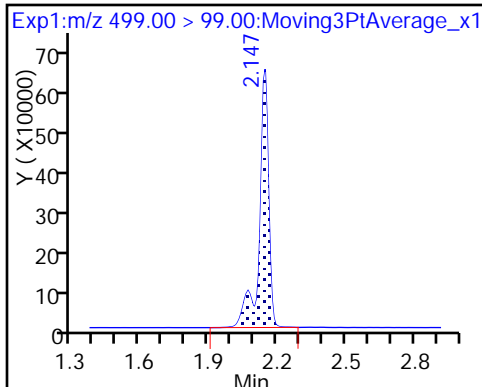
8 Perfluorooctane sulfonic acid



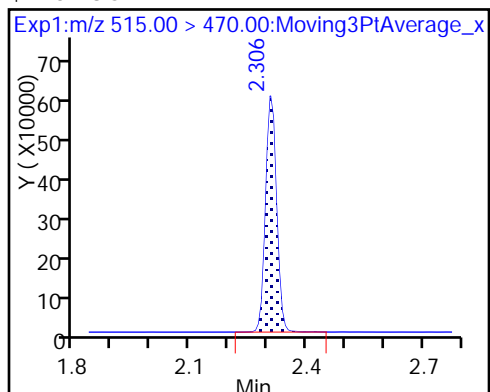
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 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

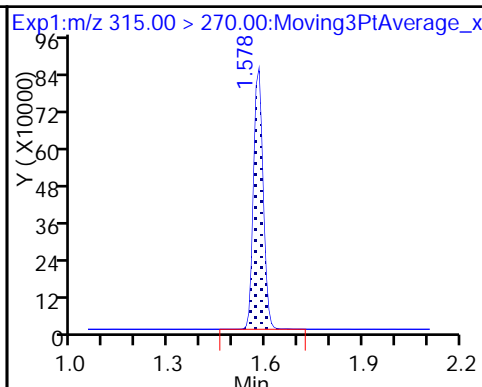
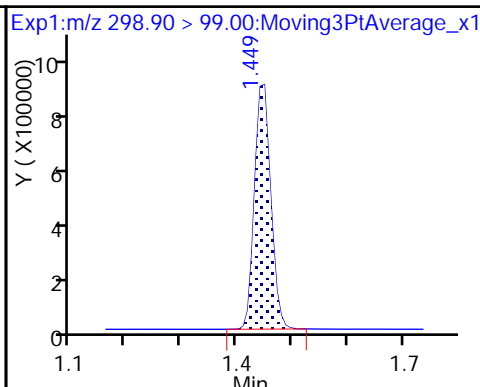
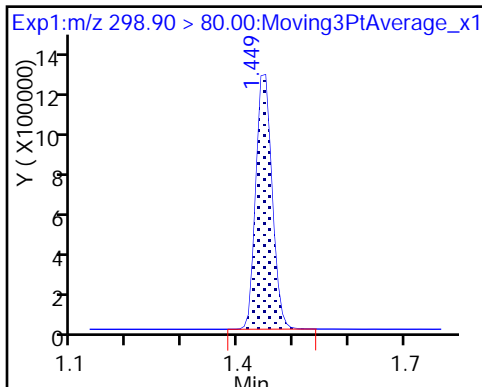
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

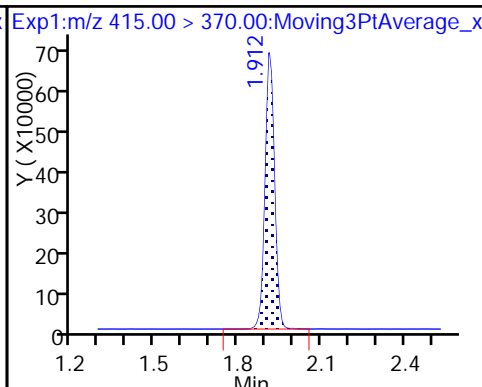
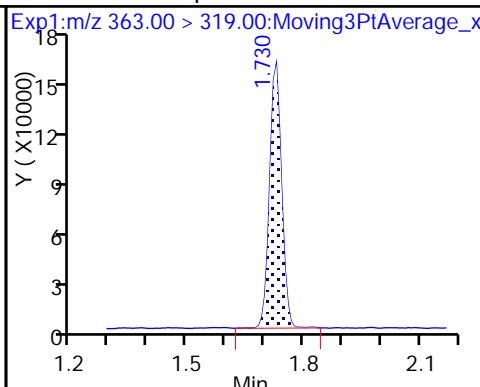
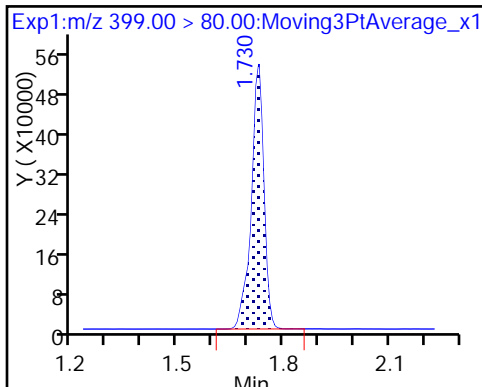
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

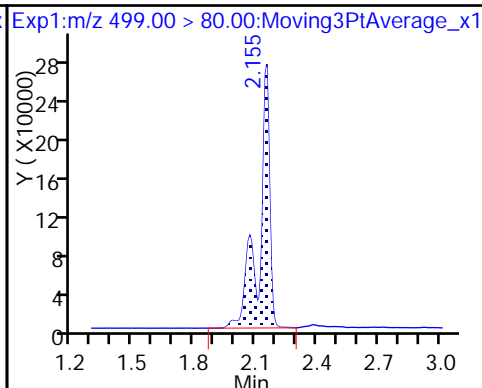
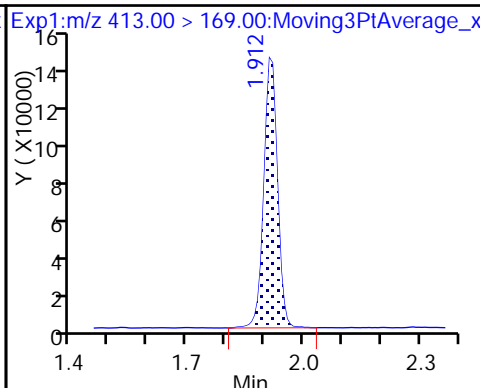
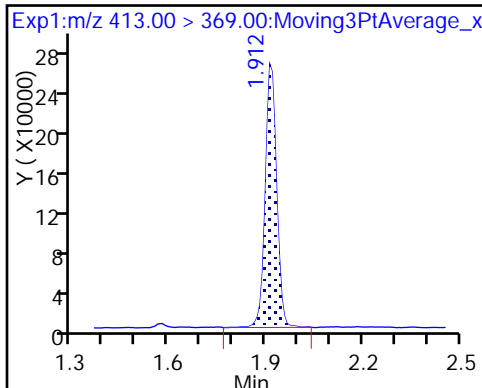
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

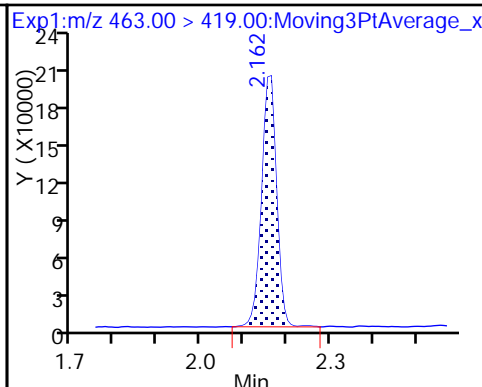
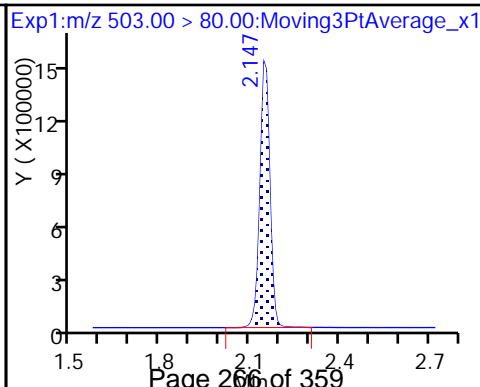
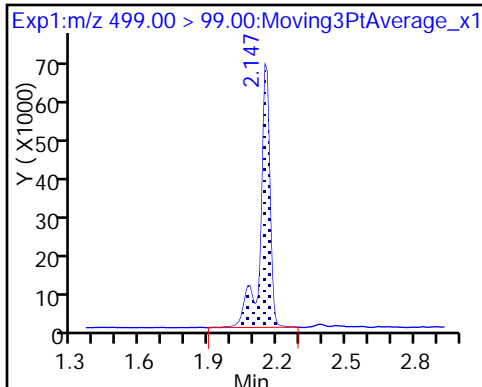
8 Perfluorooctane sulfonic acid



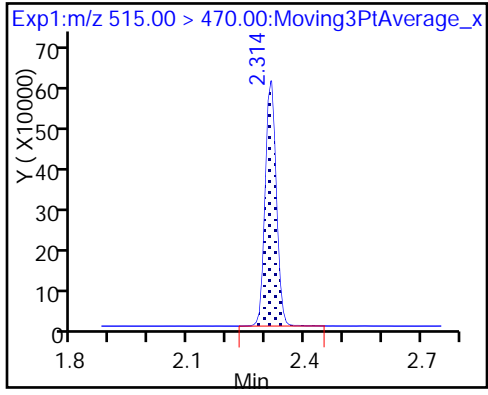
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 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

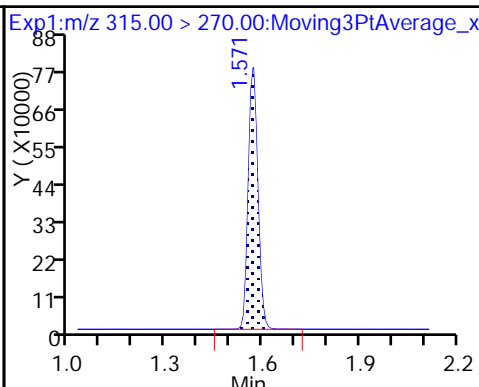
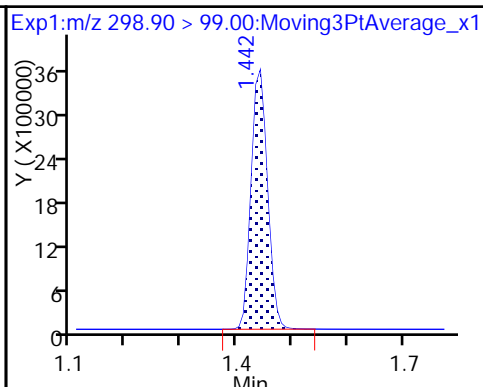
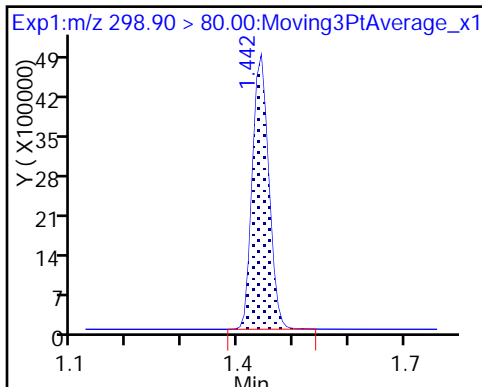
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

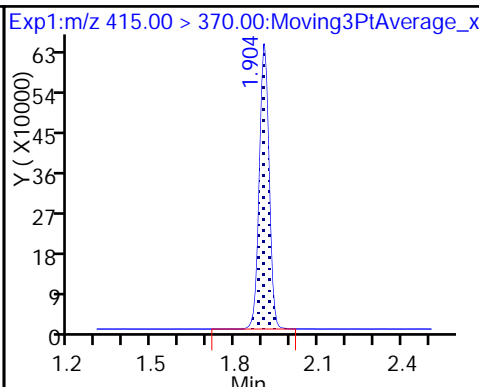
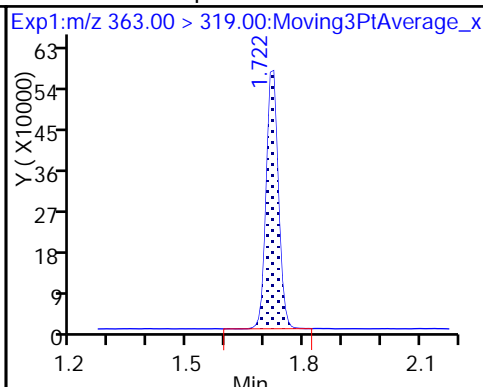
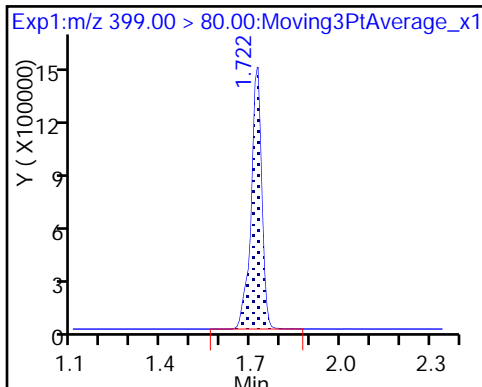
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

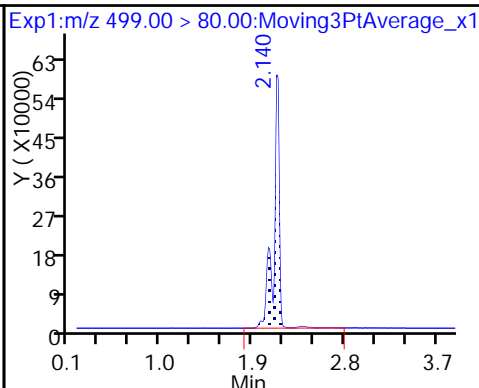
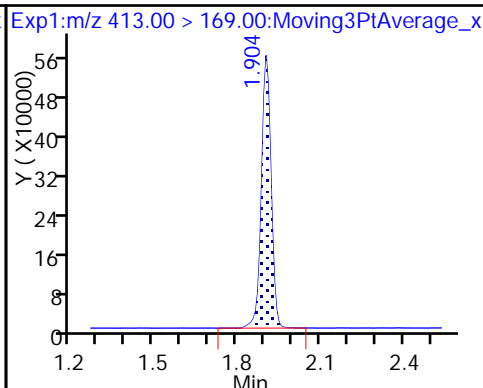
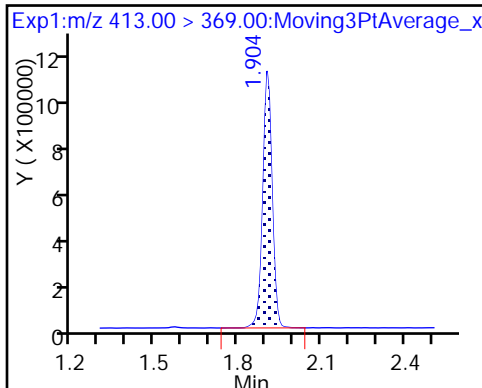
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

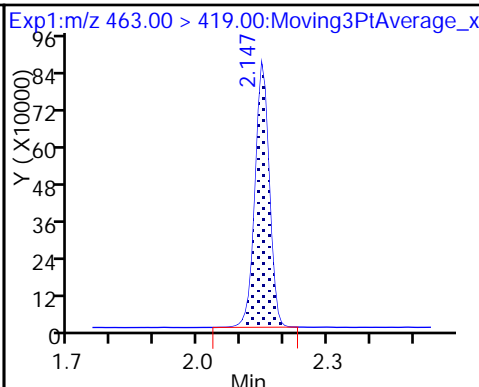
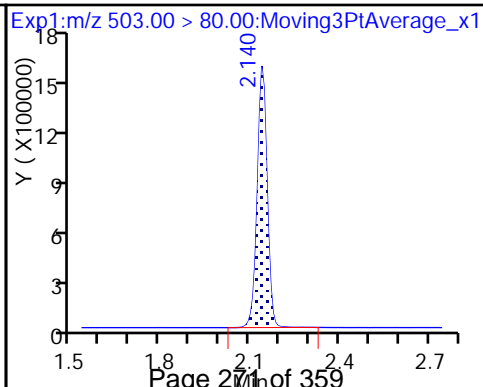
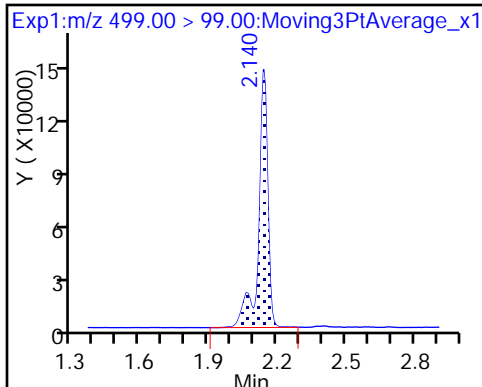
8 Perfluorooctane sulfonic acid



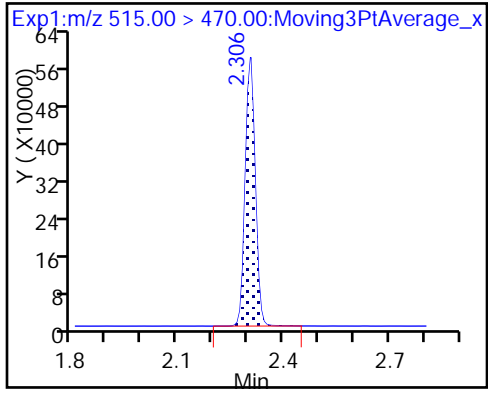
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-204917/1 Calibration Date: 01/22/2018 09:58
 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: 2018.01.22_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		1.188		21.9	20.0	9.4	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.8629		2.05	2.22	-7.9	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.675		6.67	6.67	0.0	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9418		4.53	4.45	1.7	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9424		8.92	8.89	0.4	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6138		4.11	4.45	-7.6	50.0
13C2 PFHxA	Ave	1.100	1.025		9.32	10.0	-6.8	30.0
13C2 PFDA	Ave	0.7652	0.7624		9.96	10.0	-0.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_004.d
 Lims ID: CCVL
 Client ID:
 Sample Type: CCVL
 Inject. Date: 22-Jan-2018 09:58:02 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\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 11:21:28 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 11:20:59

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.388	1.388	0.0	1.000	2882243	21.9		3088	
298.90 > 99.00	1.381	1.388	-0.007	0.995	2032443		1.42(0.00-0.00)	2685	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.510	1.510	0.0	1.000	1782291	9.32		12087	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.662	1.662	0.0	1.000	1354187	6.67		3922	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.662	1.662	0.0	1.000	333463	2.05		110	
* 6 13C2-PFOA									
415.00 > 370.00	1.866	1.866	0.0		1738614	10.0		7484	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.866	1.866	0.0	1.000	728341	4.53		154	
413.00 > 169.00	1.866	1.866	0.0	1.000	378245		1.93(0.00-0.00)	1007	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.124	2.117	0.007	1.000	1016013	8.92		496	
499.00 > 99.00	2.124	2.117	0.007	1.000	217422		4.67(0.00-0.00)	329	
* 7 13C4 PFOS									
503.00 > 80.00	2.124	2.124	0.0		3477849	28.7		8060	
9 Perfluorononanoic acid									
463.00 > 419.00	2.132	2.132	0.0	1.000	474403	4.11		174	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.284	2.284	0.0	1.000	1325447	9.96		8862	

Reagents:

LC537-L2_00020

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_004.d

Injection Date: 22-Jan-2018 09:58:02

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

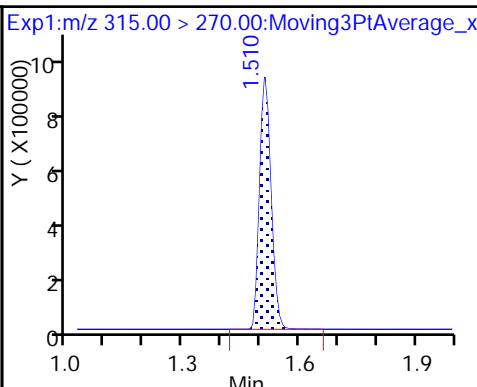
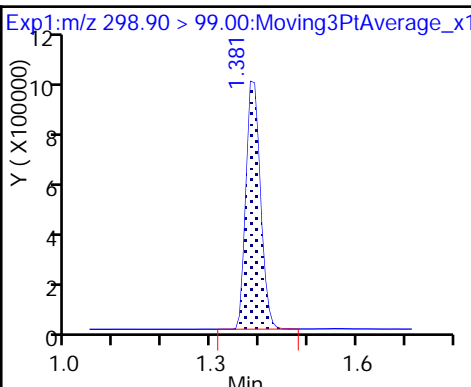
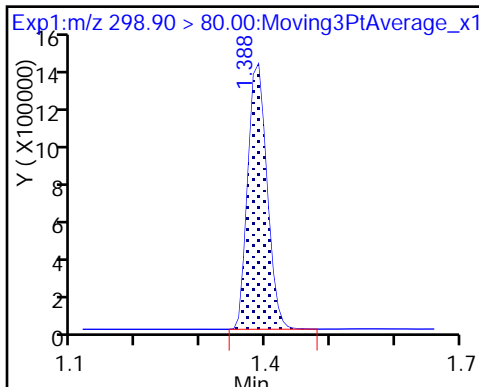
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

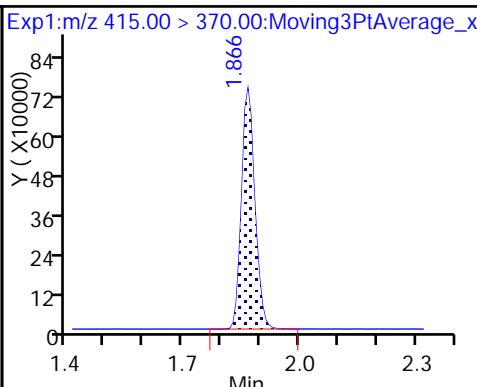
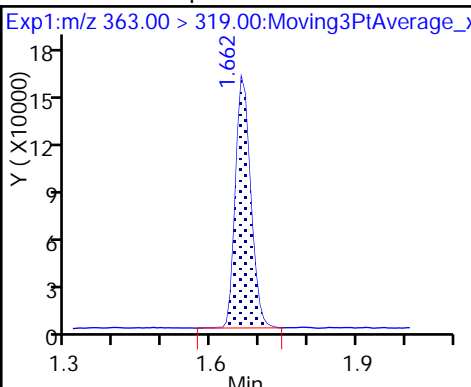
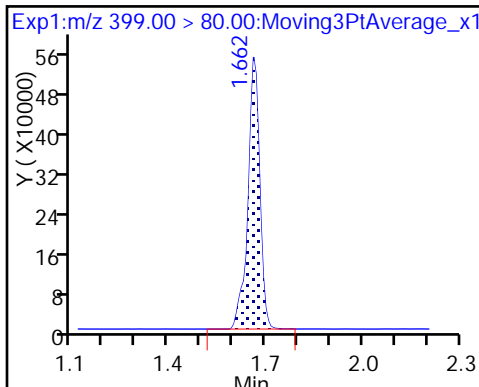
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

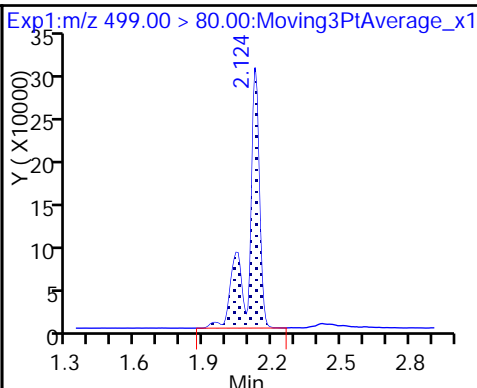
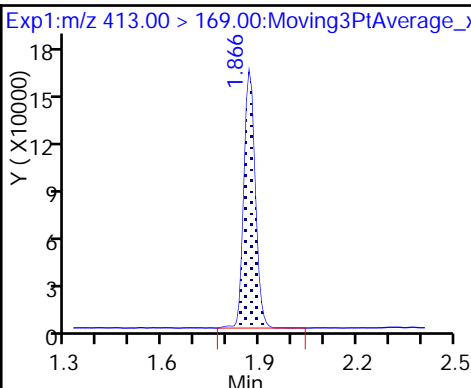
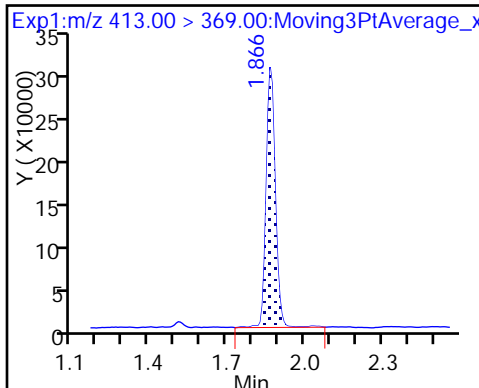
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

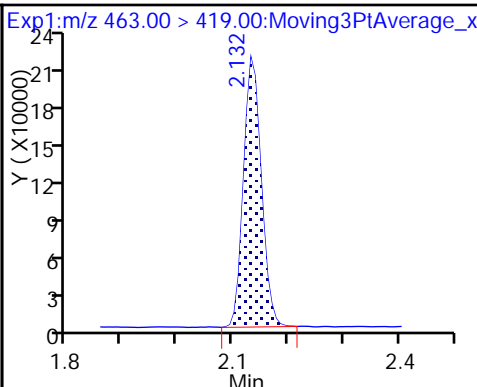
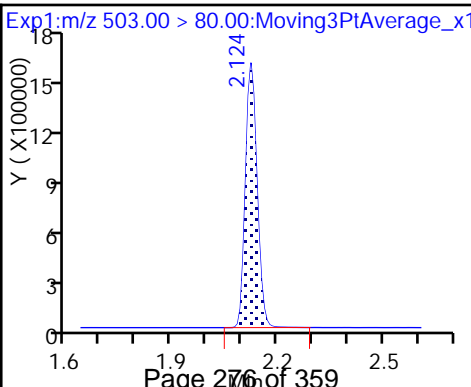
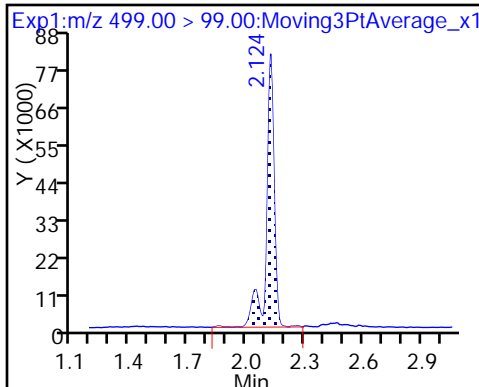
8 Perfluorooctane sulfonic acid



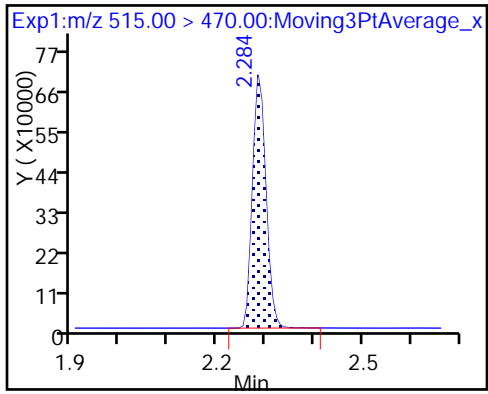
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Lab Sample ID: CCV 320-204921/19 Calibration Date: 01/22/2018 11:22
 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: 2018.01.22_537A_022.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9426		140	135	3.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.713		46.1	45.0	2.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.8998		14.4	15.0	-4.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9271		30.1	30.0	0.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9758		62.4	60.0	3.9	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6361		28.7	30.0	-4.2	30.0
13C2 PFHxA	Ave	1.100	1.099		9.99	10.0	-0.0	30.0
13C2 PFDA	Ave	0.7652	0.7758		10.1	10.0	1.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_022.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 22-Jan-2018 11:22:13 ALS Bottle#: 5 Worklist Smp#: 19
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:07:48 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:07:13

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.373	1.444	-0.071	1.000	15367400	139.9		9780	
298.90 > 99.00	1.373	1.444	-0.071	1.000	12054026		1.27(0.00-0.00)	10310	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.573	-0.086	1.000	1794855	10.0		7863	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.725	-0.094	1.000	9310010	46.1		13420	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.639	1.725	-0.086	1.000	2204147	14.4		672	
* 6 13C2-PFOA									
415.00 > 370.00	1.821	1.913	-0.092		1632653	10.0		6235	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.828	1.914	-0.086	1.000	4544664	30.1		823	
413.00 > 169.00	1.821	1.914	-0.093	0.996	2437327		1.86(0.00-0.00)	5007	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.079	2.079	0.0	1.000	7071673	62.4		5738	
499.00 > 99.00	2.079	2.079	0.0	1.000	1482903		4.77(0.00-0.00)	3418	
* 7 13C4 PFOS									
503.00 > 80.00	2.079	2.151	-0.072		3463169	28.7		6997	
9 Perfluorononanoic acid									
463.00 > 419.00	2.086	2.158	-0.072	1.000	3116155	28.7		848	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.312	-0.059	1.000	1266572	10.1		8135	

Reagents:

LC537-L5_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_022.d

Injection Date: 22-Jan-2018 11:22:13

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 19

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

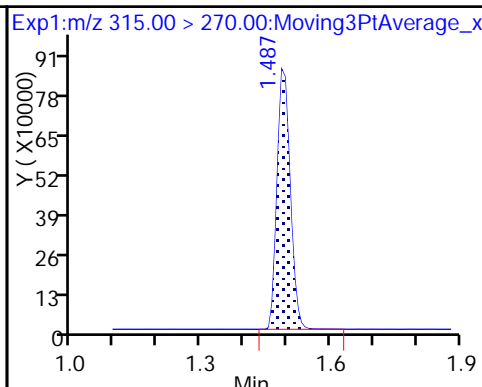
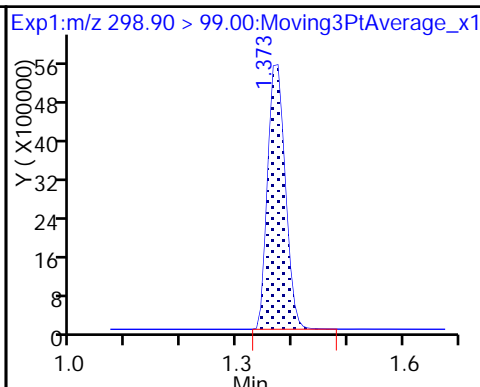
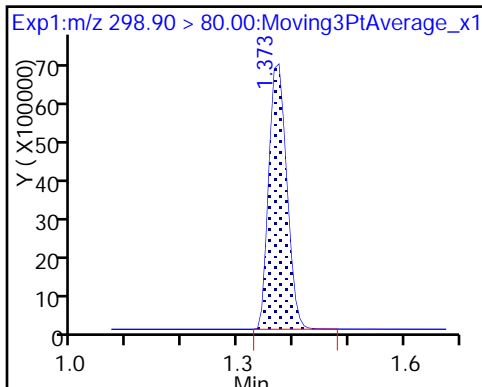
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

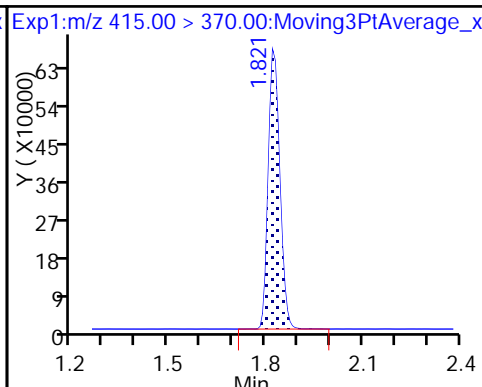
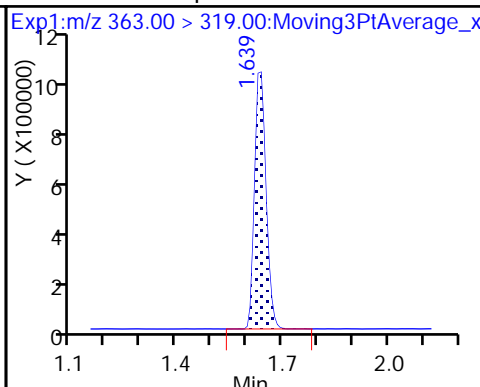
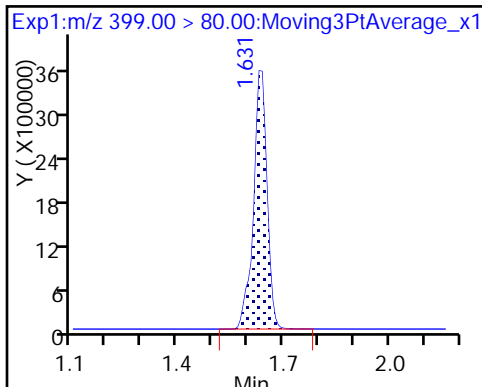
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

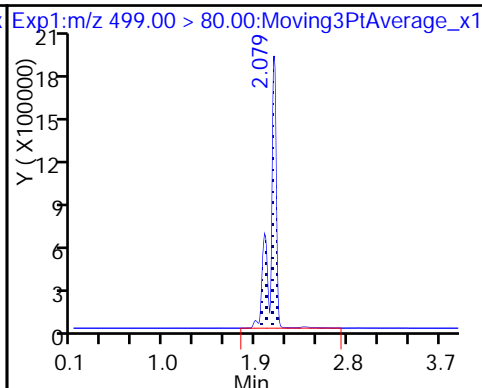
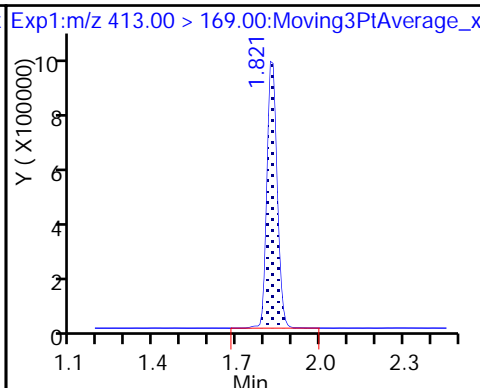
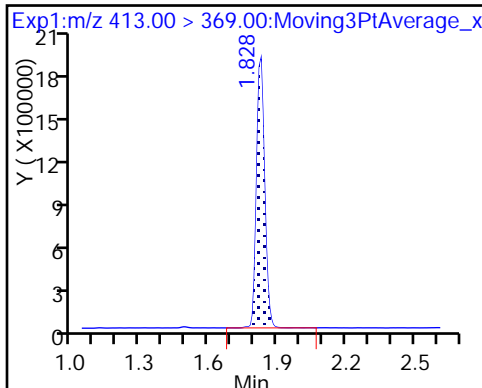
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

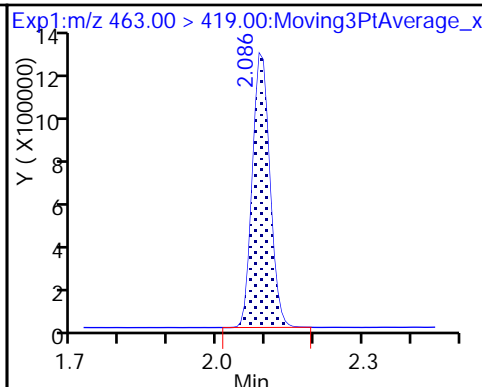
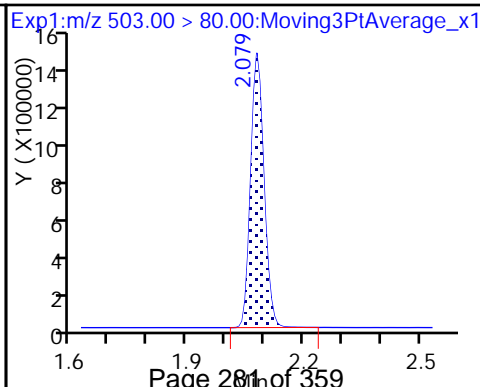
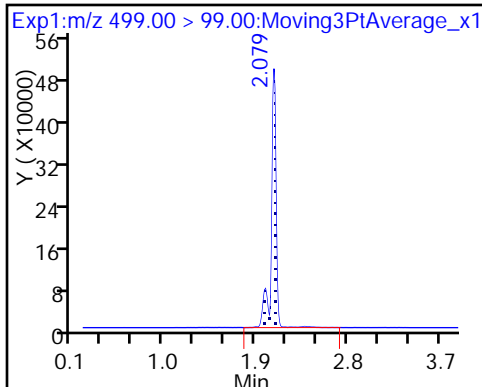
8 Perfluorooctane sulfonic acid



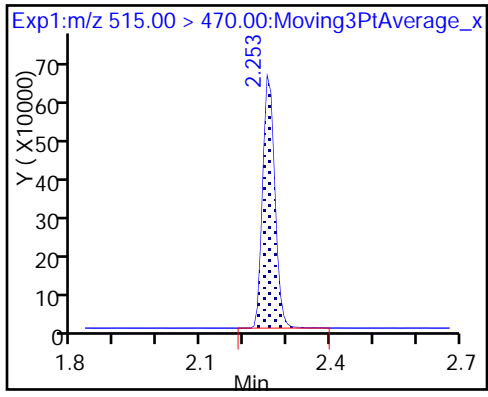
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Lab Sample ID: CCV 320-204921/31 Calibration Date: 01/22/2018 12:18
 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: 2018.01.22_537A_034.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.098		47.1	45.0	4.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.8797		4.70	5.00	-6.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.715		15.4	15.0	2.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8506		9.20	10.0	-8.1	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6100		9.19	10.0	-8.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9117		19.4	20.0	-2.9	30.0
13C2 PFHxA	Ave	1.100	1.063		9.66	10.0	-3.4	30.0
13C2 PFDA	Ave	0.7652	0.7537		9.85	10.0	-1.5	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Lab Sample ID: CCV 320-204922/31 Calibration Date: 01/22/2018 12:18
 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: 2018.01.22_537A_034.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.098		47.1	45.0	4.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.8797		4.70	5.00	-6.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.715		15.4	15.0	2.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8506		9.20	10.0	-8.1	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6100		9.19	10.0	-8.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9117		19.4	20.0	-2.9	30.0
13C2 PFHxA	Ave	1.100	1.063		9.66	10.0	-3.4	30.0
13C2 PFDA	Ave	0.7652	0.7537		9.85	10.0	-1.5	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_034.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 22-Jan-2018 12:18:17 ALS Bottle#: 3 Worklist Smp#: 31
 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\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:48:32 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:45:52

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	1.444	-0.078	1.000	7041492	47.1		6384	
298.90 > 99.00	1.366	1.444	-0.078	1.000	5160133		1.36(0.00-0.00)	5752	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1991231	9.66		9218	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.725	-0.101	1.000	824026	4.70		246	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.725	-0.101	1.000	3666447	15.4		8452	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.913	-0.100		1873070	10.0		6958	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.914	-0.101	1.000	1594511	9.20		283	
413.00 > 169.00	1.813	1.914	-0.101	1.000	895812		1.78(0.00-0.00)	2158	
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.151	-0.087		4087694	28.7		8442	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.071	2.071	0.0	1.000	2599489	19.4		1028	
499.00 > 99.00	2.064	2.071	-0.007	0.996	552160		4.71(0.00-0.00)	708	
9 Perfluorononanoic acid									
463.00 > 419.00	2.071	2.158	-0.087	1.000	1142813	9.19		343	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.312	-0.066	1.000	1411775	9.85		7572	

Reagents:

LC537-L3_00023

Amount Added: 1.00

Units: mL

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_034.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 22-Jan-2018 12:18:17 ALS Bottle#: 3 Worklist Smp#: 31
 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\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:48:32 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:45:52

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	1.444	-0.078	1.000	7041492	47.1		6384	
298.90 > 99.00	1.366	1.444	-0.078	1.000	5160133		1.36(0.00-0.00)	5752	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1991231	9.66		9218	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.725	-0.101	1.000	824026	4.70		246	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.725	-0.101	1.000	3666447	15.4		8452	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.913	-0.100		1873070	10.0		6958	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.914	-0.101	1.000	1594511	9.20		283	
413.00 > 169.00	1.813	1.914	-0.101	1.000	895812		1.78(0.00-0.00)	2158	
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.151	-0.087		4087694	28.7		8442	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.071	2.071	0.0	1.000	2599489	19.4		1028	
499.00 > 99.00	2.064	2.071	-0.007	0.996	552160		4.71(0.00-0.00)	708	
9 Perfluorononanoic acid									
463.00 > 419.00	2.071	2.158	-0.087	1.000	1142813	9.19		343	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.312	-0.066	1.000	1411775	9.85		7572	

Reagents:

LC537-L3_00023

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_034.d

Injection Date: 22-Jan-2018 12:18:17

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 31

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

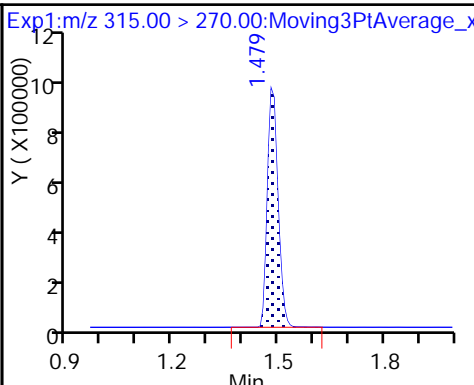
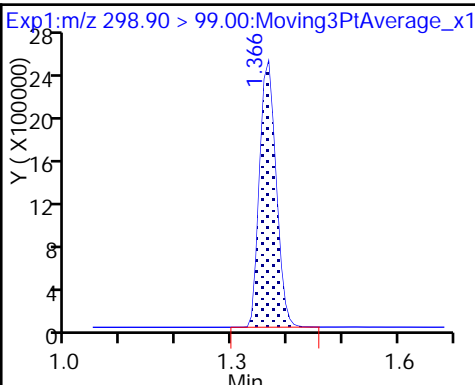
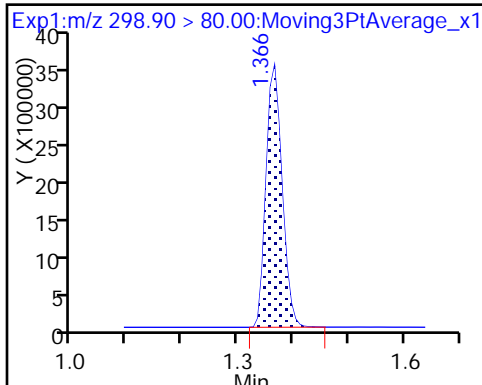
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

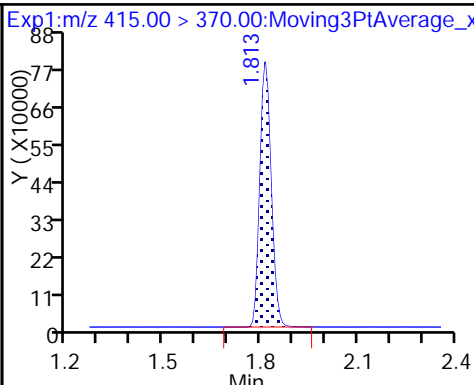
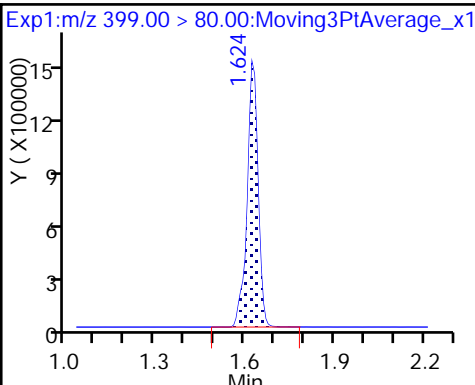
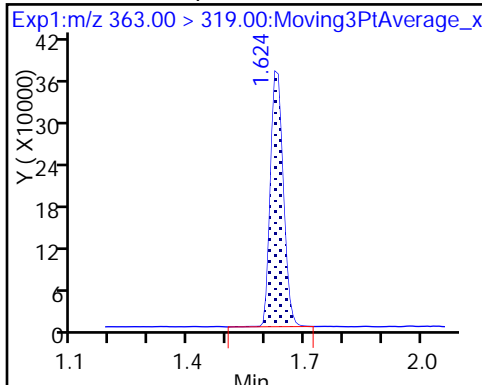
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

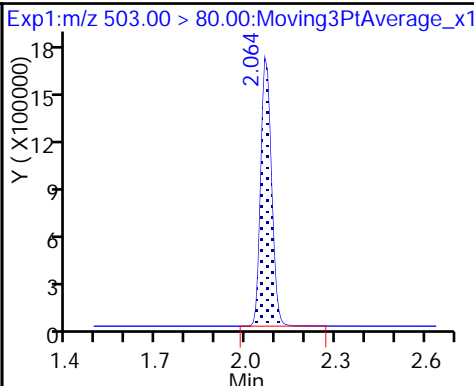
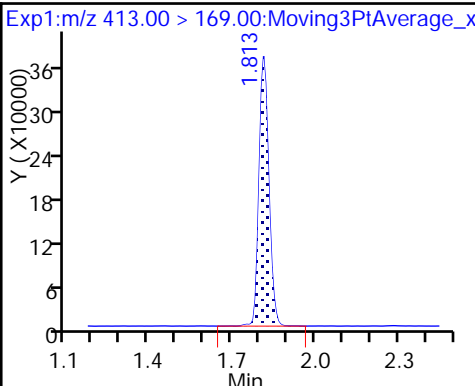
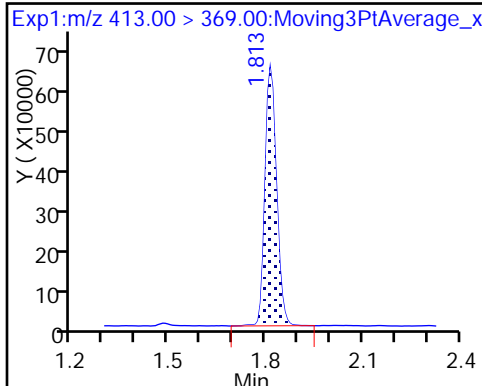
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

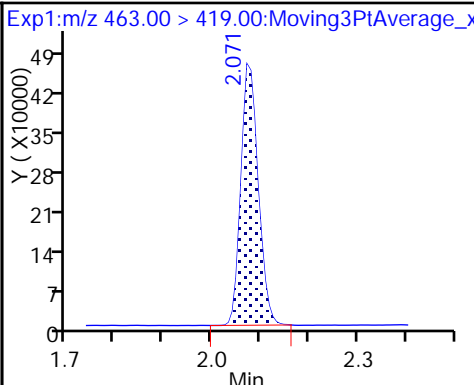
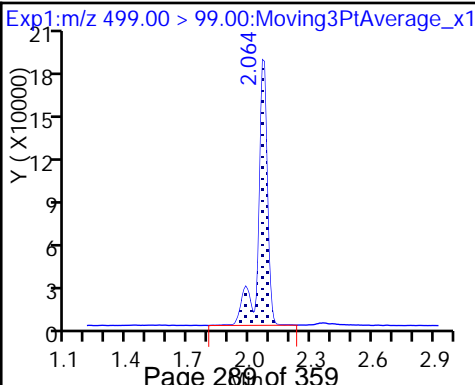
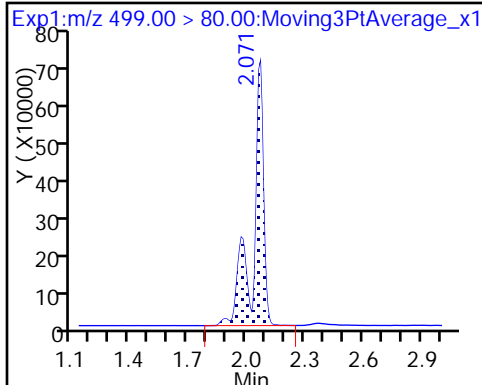
* 7 13C4 PFOS



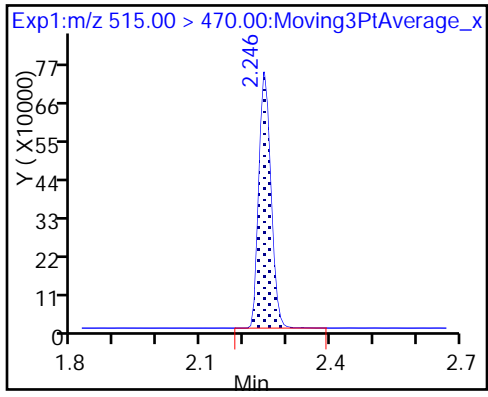
8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_034.d

Injection Date: 22-Jan-2018 12:18:17

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 31

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

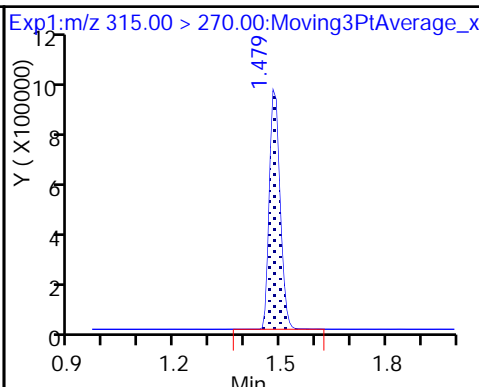
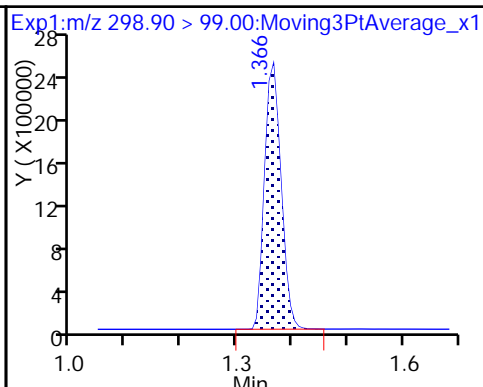
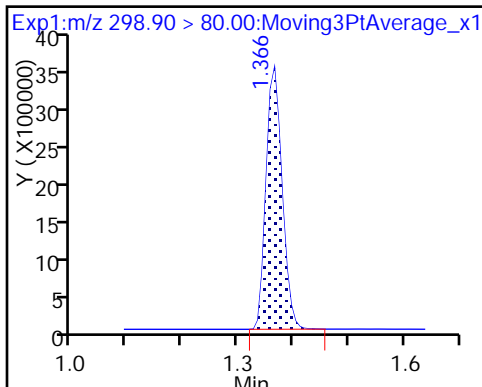
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

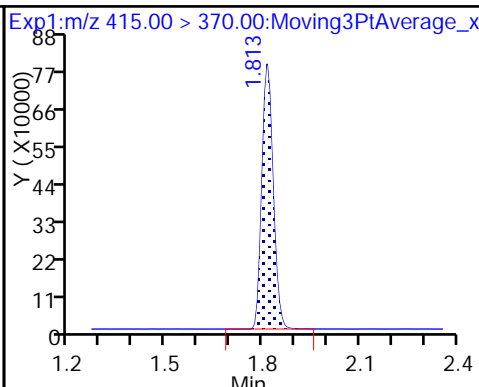
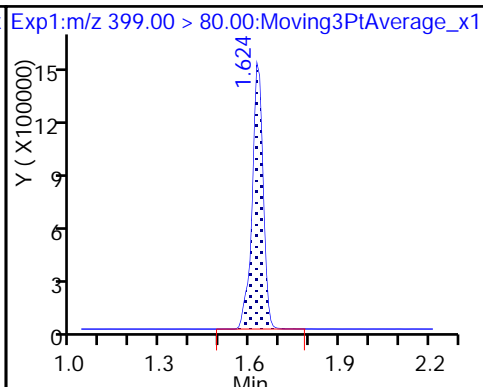
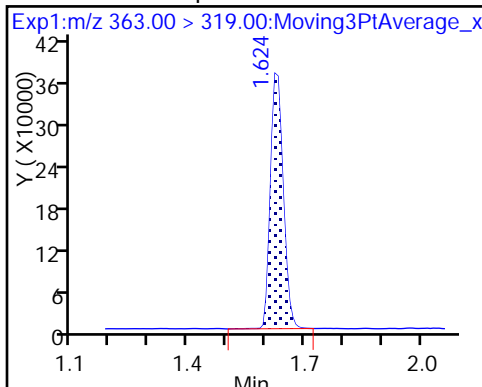
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

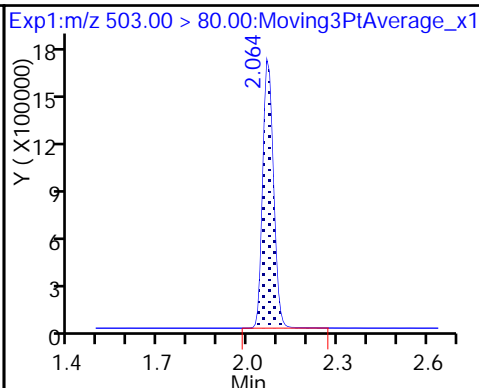
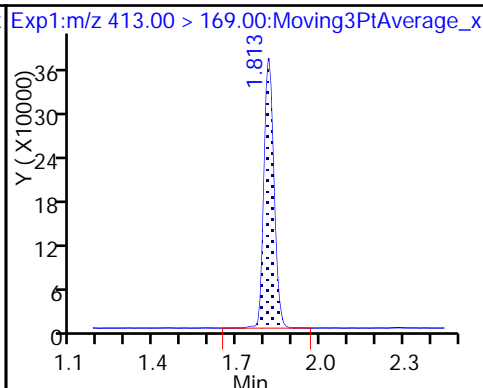
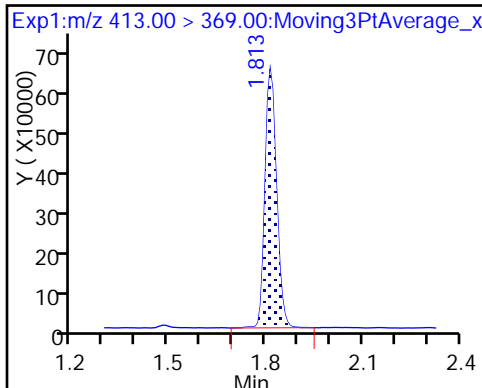
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

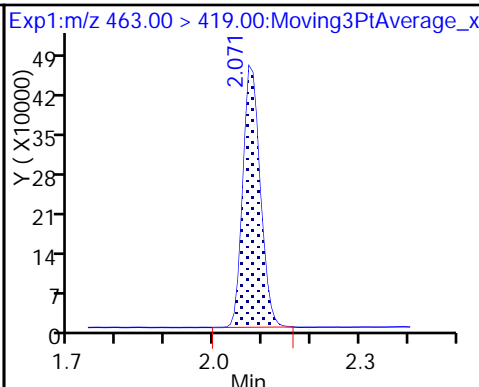
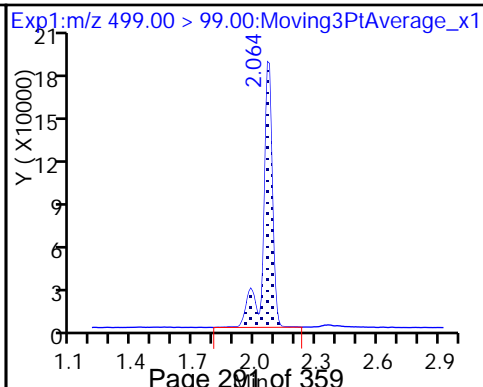
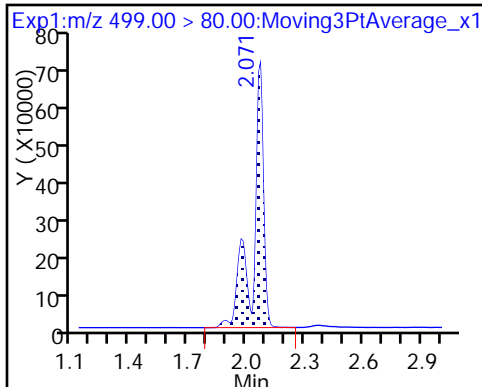
* 7 13C4 PFOS



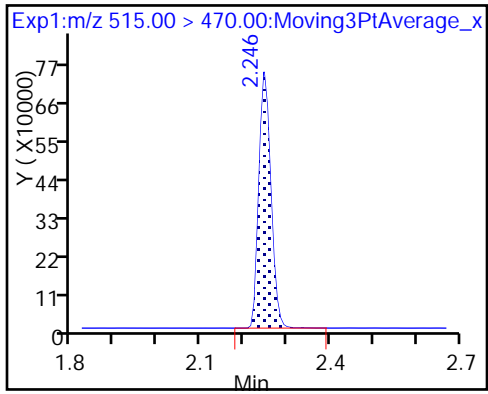
8 Perfluorooctane sulfonic acid

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Lab Sample ID: CCV 320-204922/35 Calibration Date: 01/22/2018 12:36
 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: 2018.01.22_537A_038.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9270		137	135	1.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9711		15.6	15.0	3.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.841		49.5	45.0	10.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9409		30.5	30.0	1.6	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9645		61.6	60.0	2.7	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6257		28.3	30.0	-5.8	30.0
13C2 PFHxA	Ave	1.100	1.157		10.5	10.0	5.2	30.0
13C2 PFDA	Ave	0.7652	0.7467		9.76	10.0	-2.4	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b\2018.01.22_537A_038.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 22-Jan-2018 12:36:59 ALS Bottle#: 5 Worklist Smp#: 35
 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\20180122-53168.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 22-Jan-2018 15:50:37 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: XAWRK027

First Level Reviewer: roycea Date: 22-Jan-2018 15:50:29

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	1.444	-0.078	1.000	16925588	136.9		9670	
298.90 > 99.00	1.366	1.444	-0.078	1.000	13261739		1.28(0.00-0.00)	10752	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.573	-0.086	1.000	2131715	10.5		9659	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.725	-0.094	1.000	2683999	15.6		795	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.725	-0.094	1.000	11209064	49.5		14337	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.913	-0.100		1842177	10.0		6448	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.914	-0.101	1.000	5204294	30.5		932	
413.00 > 169.00	1.813	1.914	-0.101	1.000	2826971		1.84(0.00-0.00)	5891	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.064	2.064	0.0	1.000	7828050	61.6		5138	
499.00 > 99.00	2.064	2.064	0.0	1.000	1644953		4.76(0.00-0.00)	3549	
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.151	-0.087		3878695	28.7		7117	
9 Perfluorononanoic acid									
463.00 > 419.00	2.071	2.158	-0.087	1.000	3458572	28.3		981	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.312	-0.066	1.000	1375480	9.76		7312	

Reagents:

LC537-L5_00024

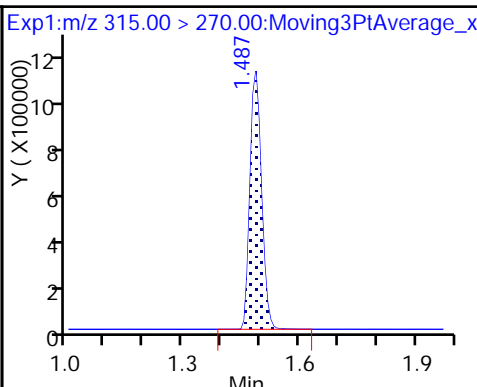
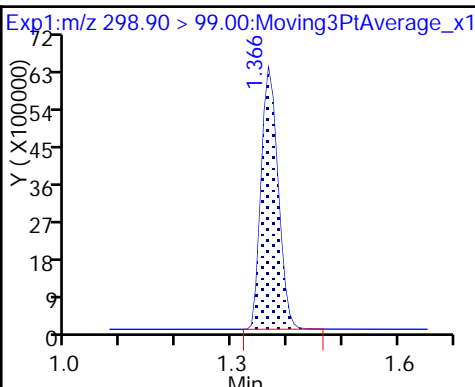
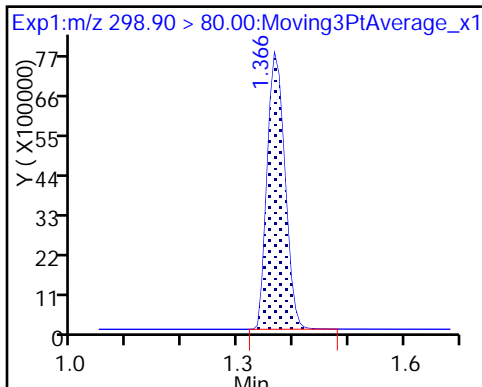
Amount Added: 1.00

Units: mL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

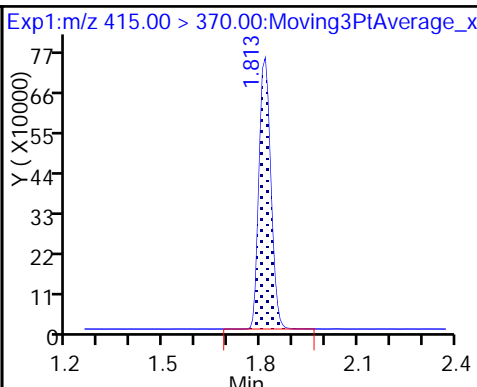
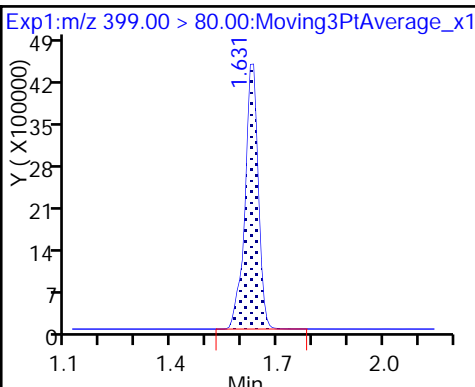
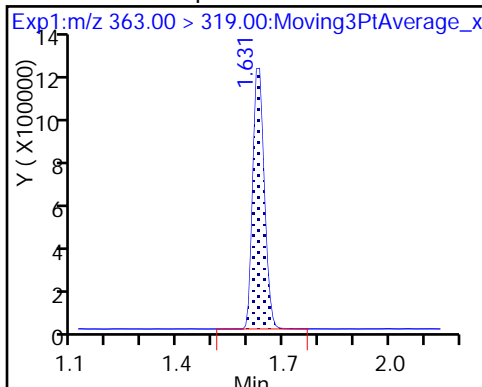
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

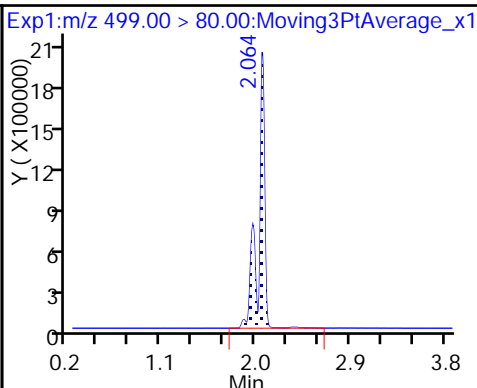
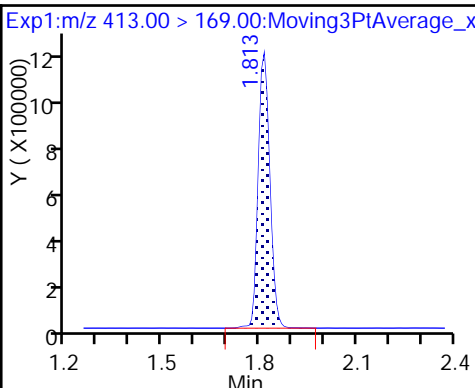
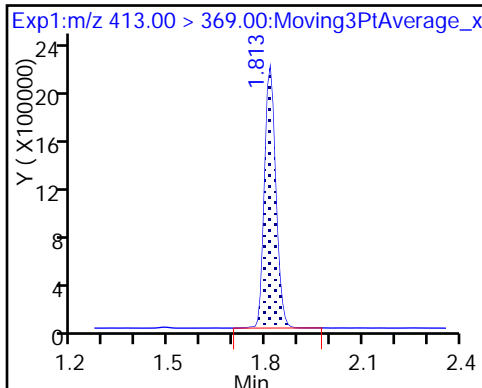
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

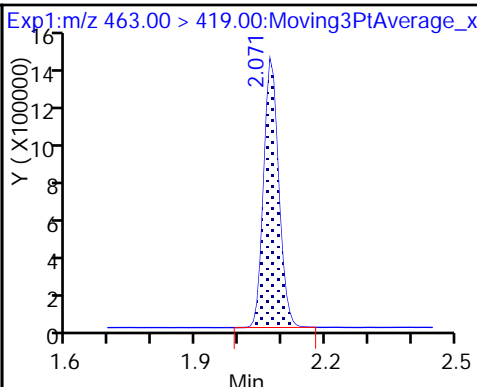
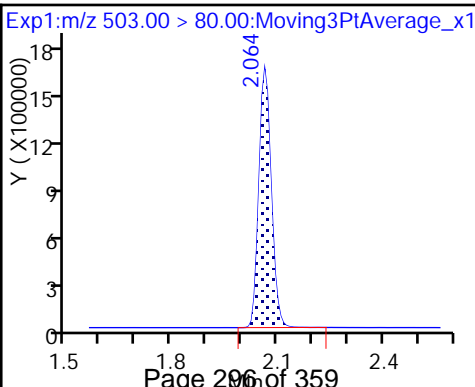
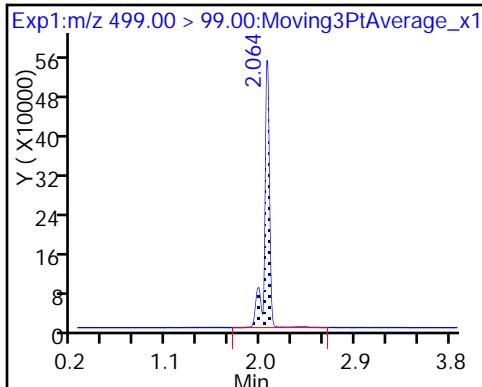
8 Perfluorooctane sulfonic acid



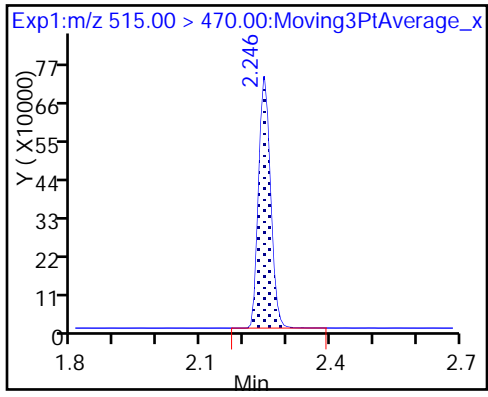
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Lab Sample ID: CCV 320-205018/1 Calibration Date: 01/22/2018 16:15
 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: 2018.01.22_537AA_010.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.058		45.3	45.0	0.6	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9015		4.81	5.00	-3.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.731		15.5	15.0	3.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9088		9.82	10.0	-1.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9186		19.6	20.0	-2.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6516		9.81	10.0	-1.9	30.0
13C2 PFHxA	Ave	1.100	1.112		10.1	10.0	1.1	30.0
13C2 PFDA	Ave	0.7652	0.8114		10.6	10.0	6.0	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_010.d
 Lims ID: CCV L3
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 22-Jan-2018 16:15:57 ALS Bottle#: 3 Worklist Smp#: 1
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L3
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 08:37:09 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: XAWRK013

First Level Reviewer: roycea Date: 23-Jan-2018 08:35:11

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.444	-0.078	1.000	5490543	45.3		5560	
298.90 > 99.00	1.366	1.444	-0.078	1.000	4053706		1.35(0.00-0.00)	5166	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1631215	10.1		7886	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.725	-0.101	1.000	661288	4.81		206	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.725	-0.101	1.000	2995204	15.5		8370	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.913	-0.100		1466727	10.0		6637	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.914	-0.101	1.000	1334029	9.82		266	
413.00 > 169.00	1.813	1.914	-0.101	1.000	728962		1.83(0.00-0.00)	1735	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.071	2.071	0.0	1.000	2119733	19.6		1877	
499.00 > 99.00	2.071	2.071	0.0	1.000	448162		4.73(0.00-0.00)	632	
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.151	-0.080		3308445	28.7		6284	
9 Perfluorononanoic acid									
463.00 > 419.00	2.079	2.158	-0.079	1.000	955850	9.81		356	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.312	-0.066	1.000	1190164	10.6		7688	

Reagents:

LC537-L3_00023

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_010.d

Injection Date: 22-Jan-2018 16:15:57

Instrument ID: A8_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

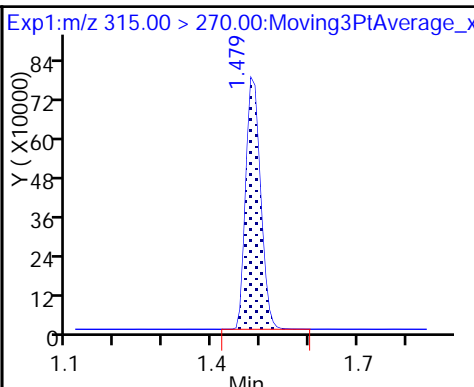
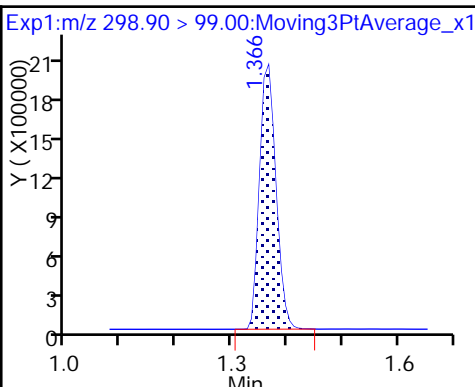
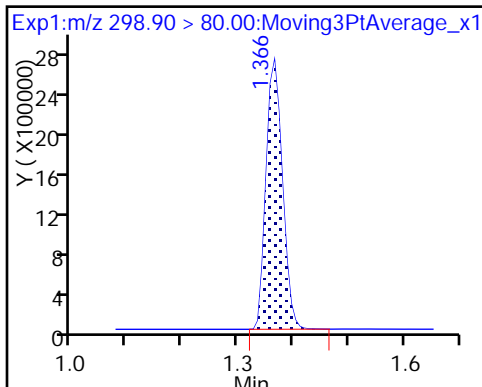
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

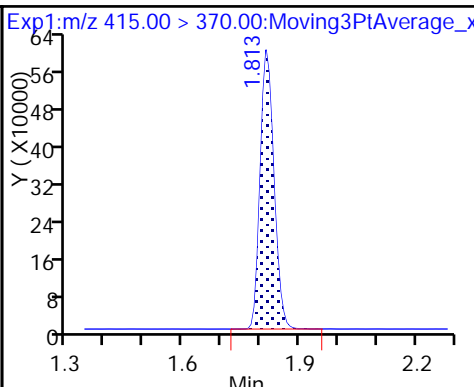
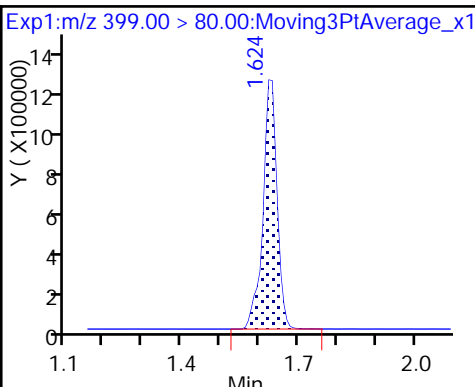
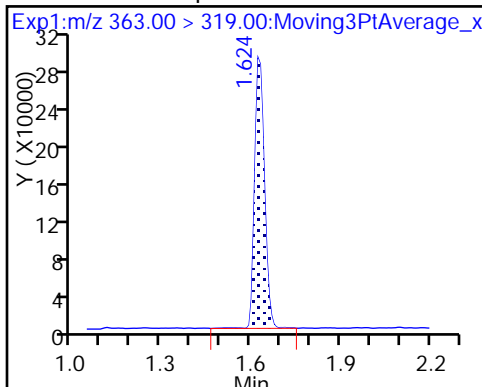
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

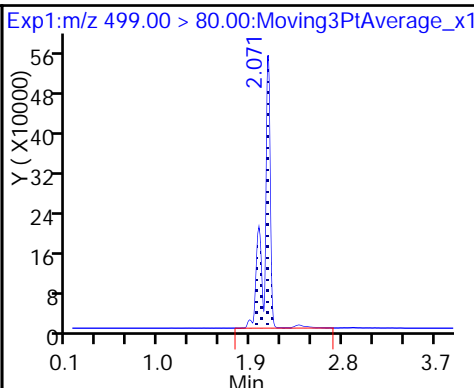
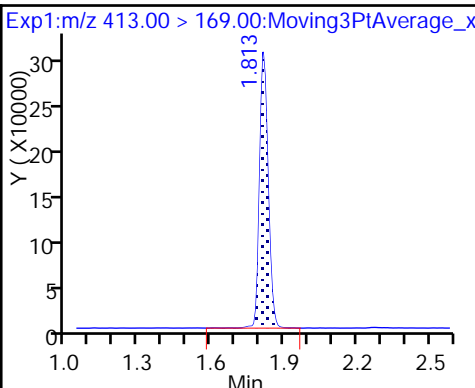
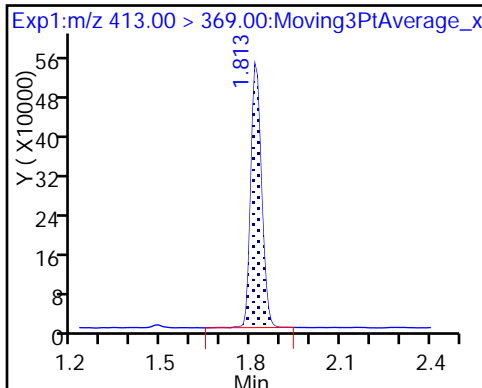
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

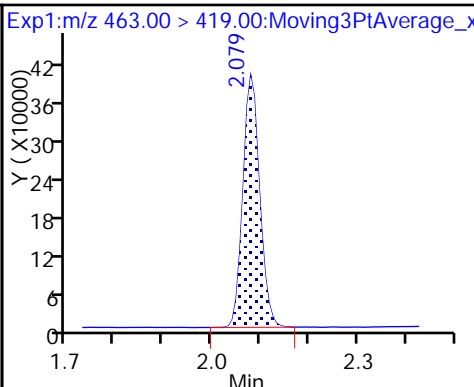
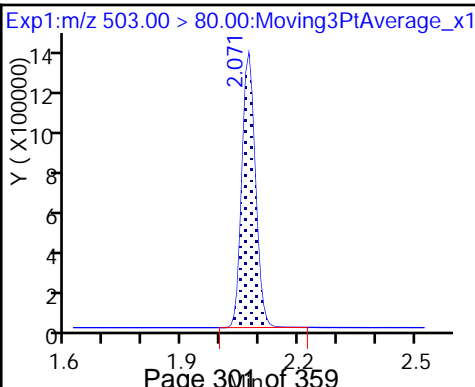
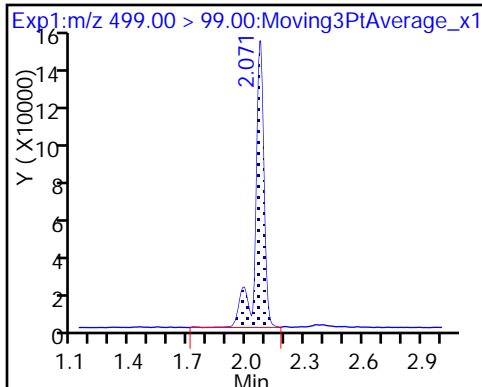
8 Perfluorooctane sulfonic acid



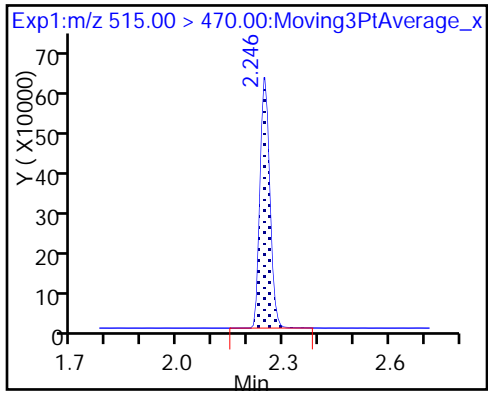
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Lab Sample ID: CCV 320-205018/13 Calibration Date: 01/22/2018 17:12
 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: 2018.01.22_537AA_022.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9868		149	135	10.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9892		15.8	15.0	5.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.731		46.5	45.0	3.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9804		31.8	30.0	5.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9627		61.5	60.0	2.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7042		31.8	30.0	6.0	30.0
13C2 PFHxA	Ave	1.100	1.201		10.9	10.0	9.2	30.0
13C2 PFDA	Ave	0.7652	0.8416		11.0	10.0	10.0	30.0

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_022.d
 Lims ID: CCV L5
 Client ID:
 Sample Type: CCVIS
 Inject. Date: 22-Jan-2018 17:12:01 ALS Bottle#: 5 Worklist Smp#: 13
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: CCV L5
 Misc. Info.: Plate: 1 Rack: 1
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Sublist: chrom-537_A8_N*sub1
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 09:23:03 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: XAWRK013

First Level Reviewer: roycea Date: 23-Jan-2018 09:17:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.444	-0.078	1.000	15036559	148.6		10557	
298.90 > 99.00	1.366	1.444	-0.078	1.000	11418977		1.32(0.00-0.00)	9959	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.573	-0.086	1.000	1725313	10.9		8251	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.725	-0.101	1.000	2131675	15.8		679	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.725	-0.101	1.000	8792277	46.5		12491	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.913	-0.100		1436325	10.0		5726	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.914	-0.101	1.000	4227989	31.8		758	
413.00 > 169.00	1.813	1.914	-0.101	1.000	2255508		1.87(0.00-0.00)	5262	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.064	2.064	0.0	1.000	6520757	61.5		5499	
499.00 > 99.00	2.064	2.064	0.0	1.000	1359146		4.80(0.00-0.00)	1722	
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.151	-0.087		3236840	28.7		6840	
9 Perfluorononanoic acid									
463.00 > 419.00	2.071	2.158	-0.087	1.000	3034840	31.8		910	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.312	-0.066	1.000	1208804	11.0		7741	

Reagents:

LC537-L5_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_022.d

Injection Date: 22-Jan-2018 17:12:01

Instrument ID: A8_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

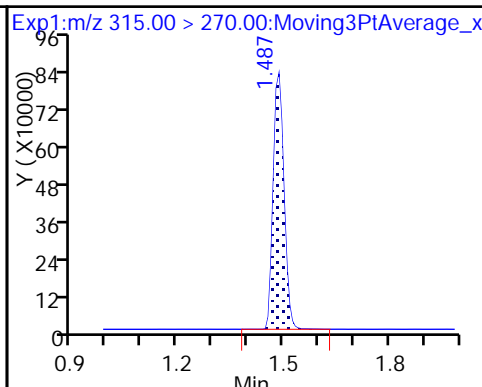
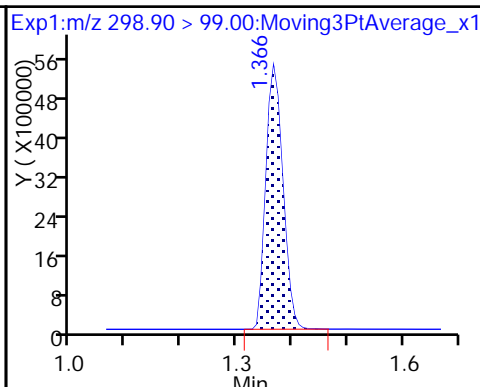
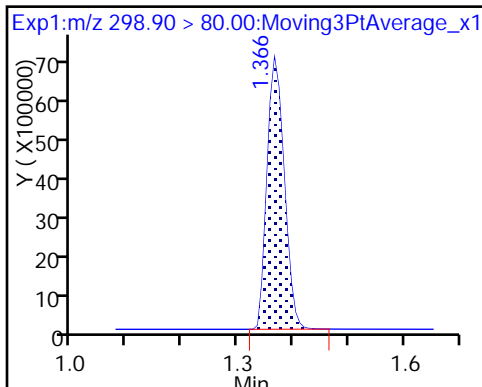
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

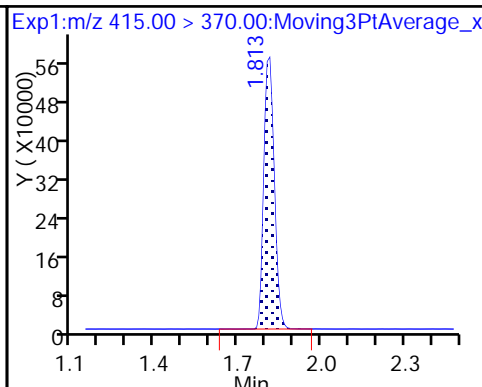
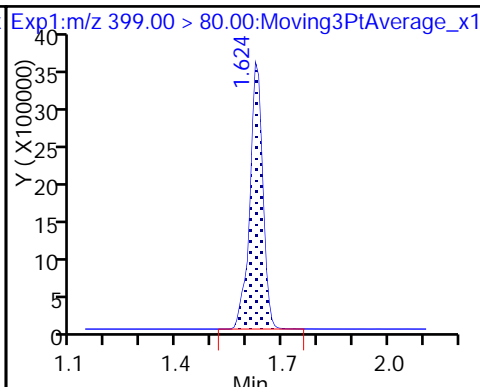
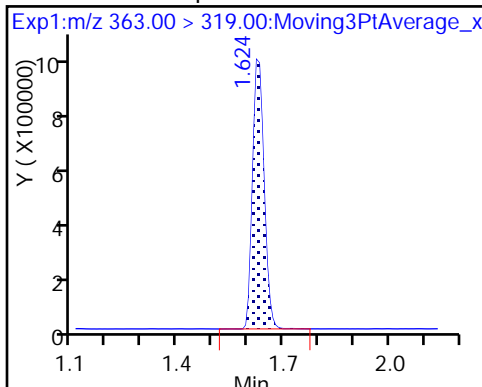
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

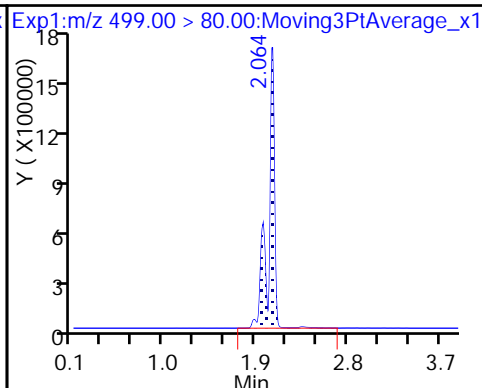
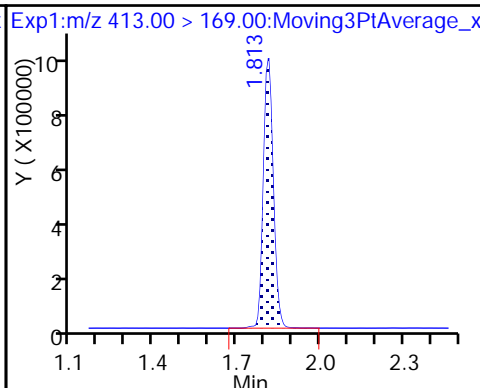
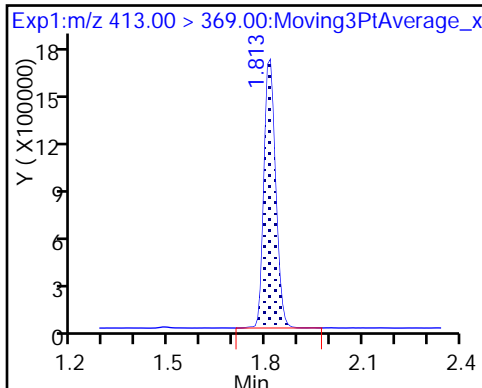
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

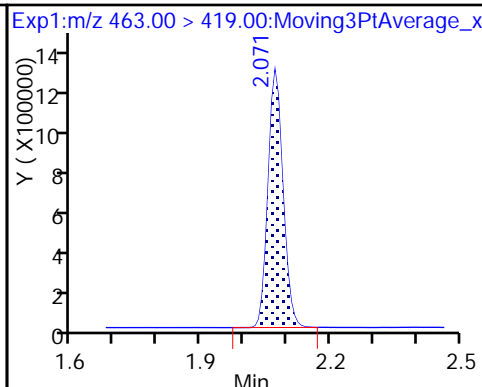
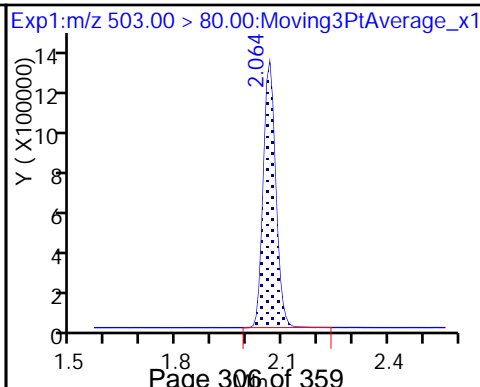
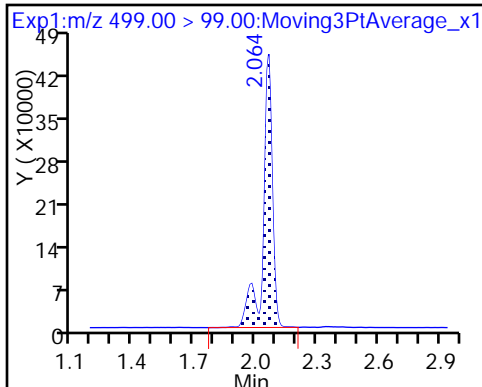
8 Perfluorooctane sulfonic acid



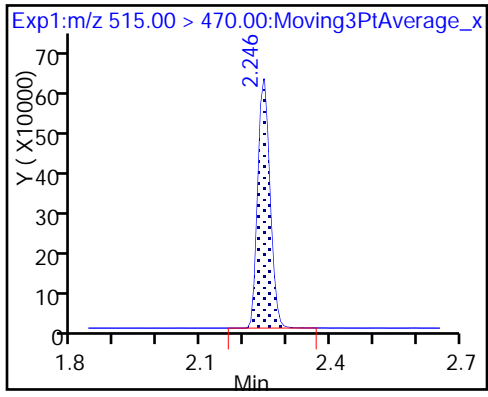
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-204506/1-A
 Matrix: Water Lab File ID: 2018.01.22_537AA_012.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 250.0 (mL) Date Analyzed: 01/22/2018 16:25
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 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	91		70-130
STL00996	13C2 PFDA	105		70-130

TestAmerica Sacramento
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_012.d
 Lims ID: MB 320-204506/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 22-Jan-2018 16:25:18 ALS Bottle#: 23 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-204506/1-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 08:37:09 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: XAWRK013

First Level Reviewer: roycea Date: 23-Jan-2018 08:35:31

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	1.573	-0.086	1.000	1486829	9.11	7556	
* 6 13C2-PFOA	415.00 > 370.00	1.813	1.913	-0.100		1483444	10.0	6159	
* 7 13C4 PFOS	503.00 > 80.00	2.071	2.151	-0.080		3277713	28.7	7064	
\$ 10 13C2 PFDA	515.00 > 470.00	2.253	2.312	-0.059	1.000	1186885	10.5	7433	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_012.d

Injection Date: 22-Jan-2018 16:25:18

Instrument ID: A8_N

Lims ID: MB 320-204506/1-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 23

Worklist Smp#: 3

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

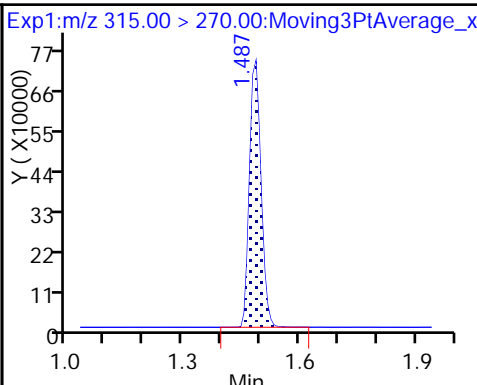
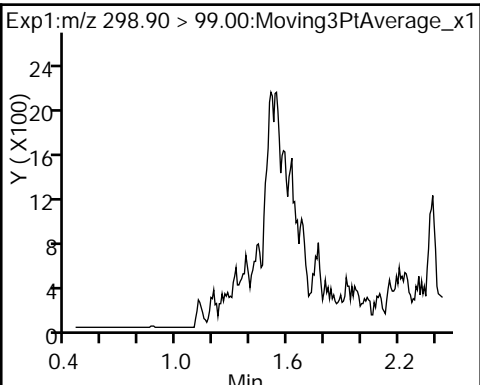
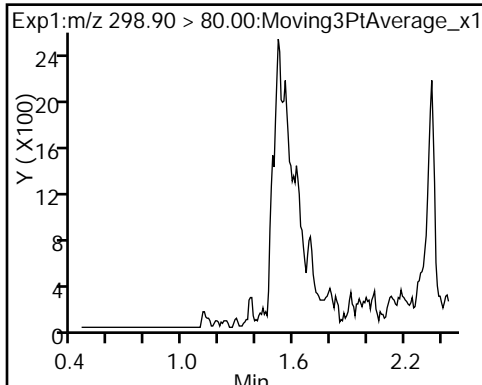
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

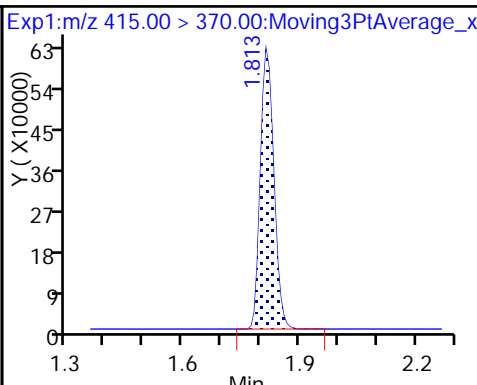
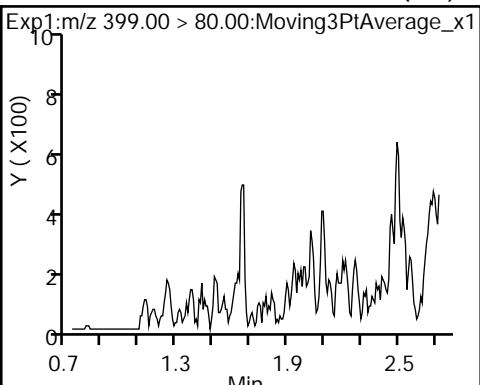
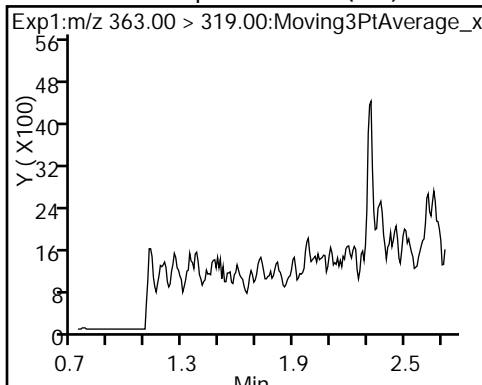
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid (ND)

3 Perfluorohexanesulfonic acid (ND)

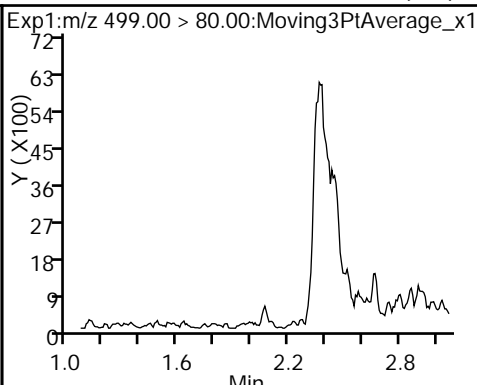
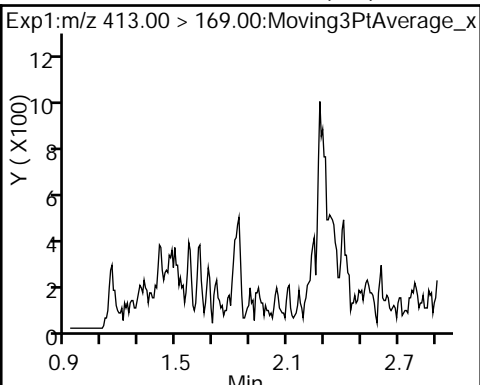
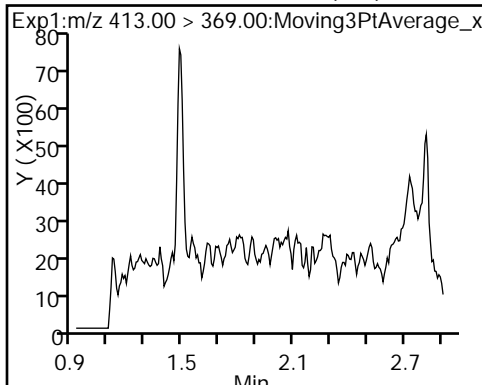
* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

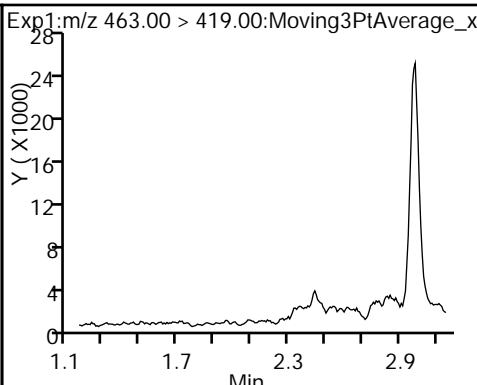
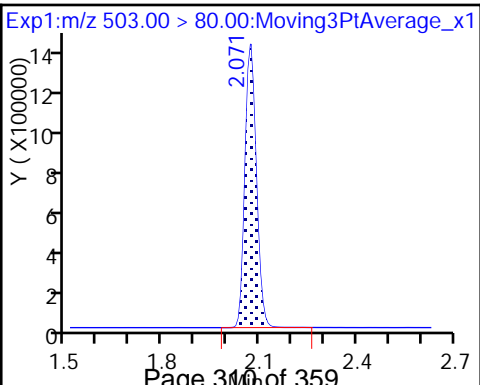
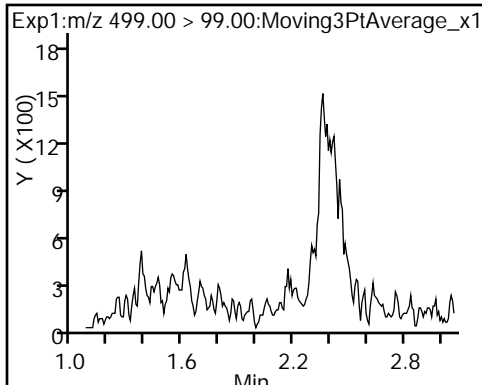
5 Perfluorooctanoic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

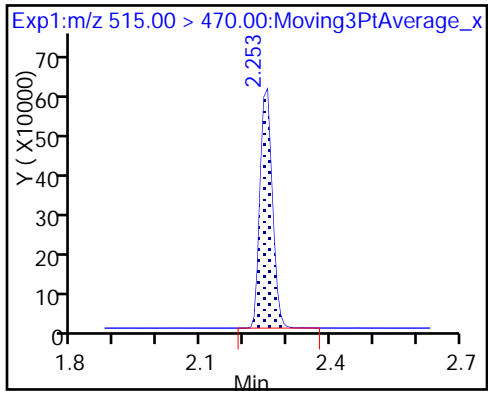


8 Perfluorooctane sulfonic acid (ND) * 7 13C4 PFOS

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_012.d
 Lims ID: MB 320-204506/1-A
 Client ID:
 Sample Type: MB
 Inject. Date: 22-Jan-2018 16:25:18 ALS Bottle#: 23 Worklist Smp#: 3
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: mb 320-204506/1-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 08:37:09 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: XAWRK013

First Level Reviewer: roycea Date: 23-Jan-2018 08:35:31

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.11	91.09
\$ 10 13C2 PFDA	10.0	10.5	104.56

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCS 320-204506/2-A
 Matrix: Water Lab File ID: 2018.01.22_537AA_013.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 250.0 (mL) Date Analyzed: 01/22/2018 16:29
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	139		40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	66.8		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	65.9		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	112		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	38.4		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	268		90	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\20180122-53187.b\2018.01.22_537AA_013.d
 Lims ID: LCS 320-204506/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 22-Jan-2018 16:29:58 ALS Bottle#: 24 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: lcs 320-204506/2-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 08:37:09 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: XAWRK013

First Level Reviewer: roycea Date: 23-Jan-2018 08:36:00

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	1.444	-0.078	1.000	7573654	66.9		6145	
298.90 > 99.00	1.366	1.444	-0.078	1.000	5595110		1.35(0.00-0.00)	5915	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.573	-0.094	1.000	1557517	9.42		9063	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.725	-0.101	1.000	1350478	9.59		498	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.624	1.725	-0.101	1.000	5204876	28.0		11633	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.913	-0.107		1503099	10.0		6033	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.914	-0.101	1.000	2324844	16.7		475	
413.00 > 169.00	1.813	1.914	-0.101	1.000	1286857		1.81(0.00-0.00)	2794	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.064	2.071	-0.007	1.000	3614529	34.7		3113	
499.00 > 99.00	2.064	2.071	-0.007	1.000	754343		4.79(0.00-0.00)	1528	
* 7 13C4 PFOS									
503.00 > 80.00	2.064	2.151	-0.087		3184393	28.7		6487	
9 Perfluorononanoic acid									
463.00 > 419.00	2.071	2.158	-0.087	1.000	1644517	16.5		376	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.246	2.312	-0.066	1.000	1183788	10.3		8578	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_013.d

Injection Date: 22-Jan-2018 16:29:58

Instrument ID: A8_N

Lims ID: LCS 320-204506/2-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 24

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

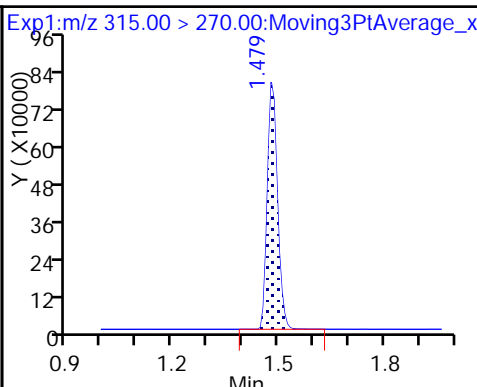
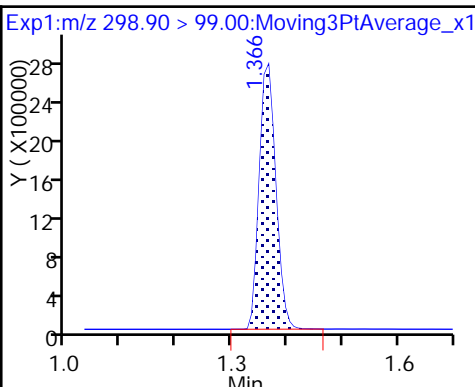
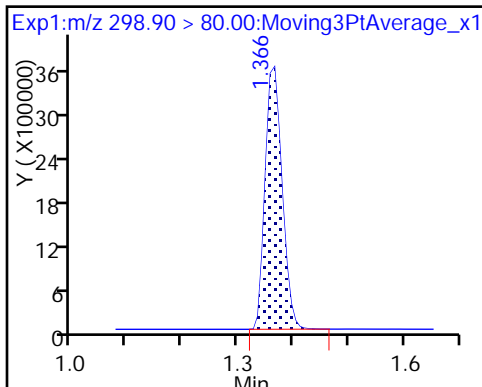
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

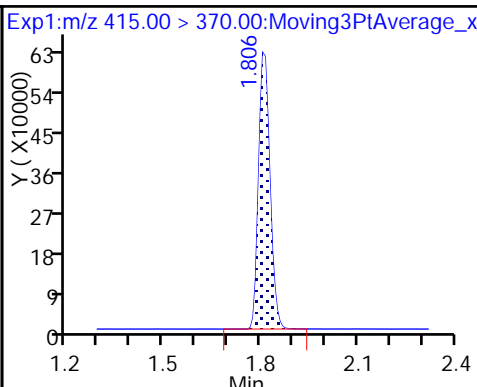
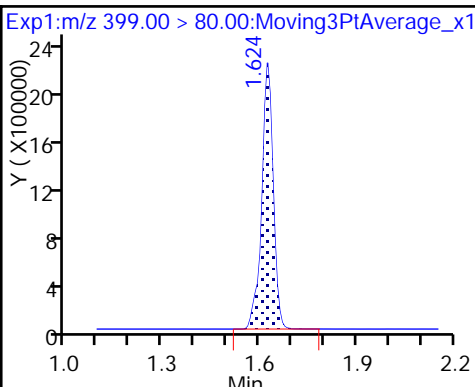
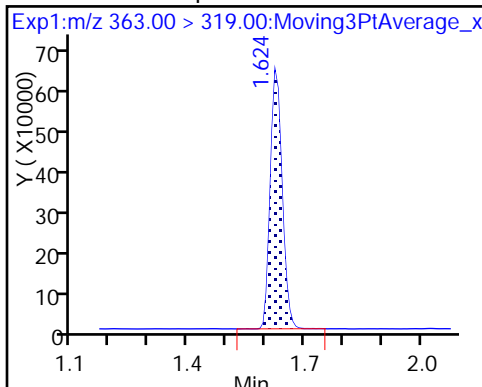
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

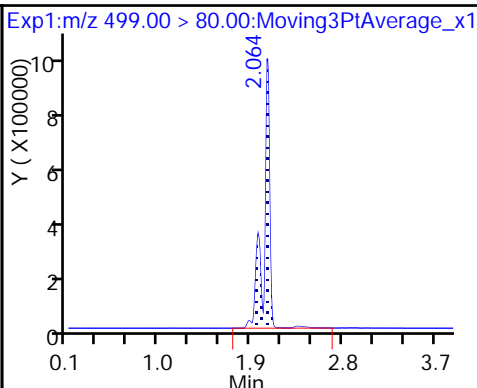
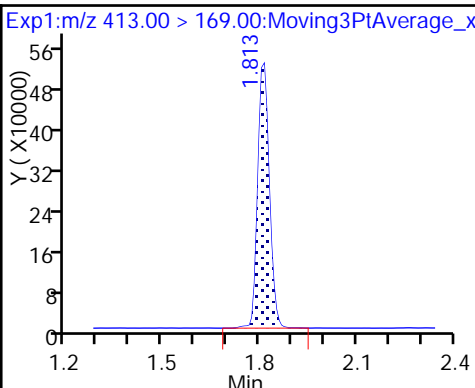
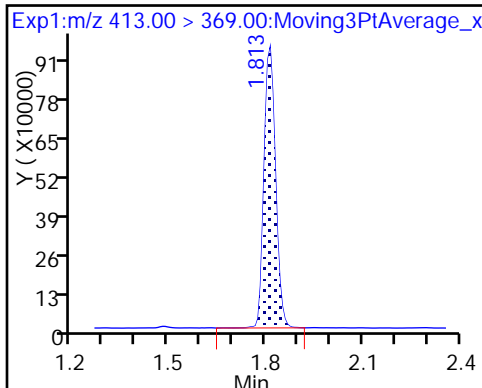
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

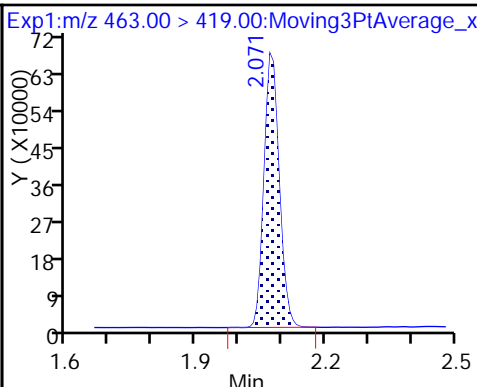
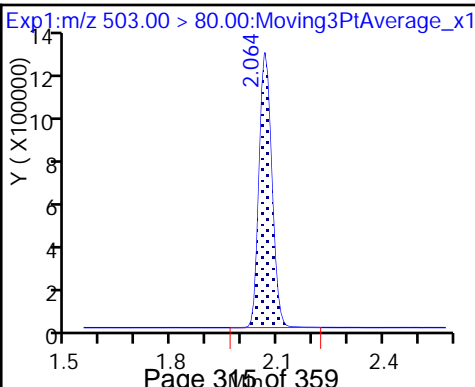
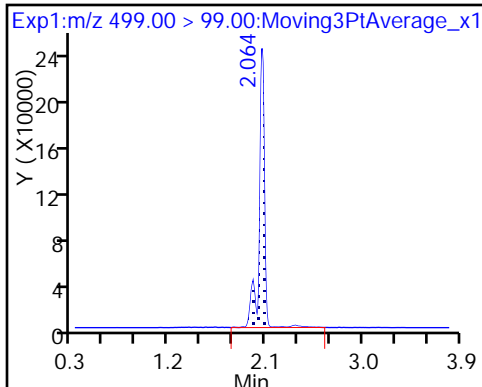
8 Perfluorooctane sulfonic acid



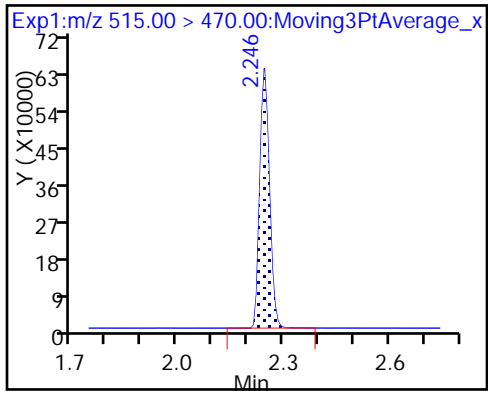
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_013.d
 Lims ID: LCS 320-204506/2-A
 Client ID:
 Sample Type: LCS
 Inject. Date: 22-Jan-2018 16:29:58 ALS Bottle#: 24 Worklist Smp#: 4
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: lcs 320-204506/2-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 08:37:09 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: XAWRK013

First Level Reviewer: roycea Date: 23-Jan-2018 08:36:00

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.42	94.18
\$ 10 13C2 PFDA	10.0	10.3	102.92

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: LCSD 320-204506/3-A
 Matrix: Water Lab File ID: 2018.01.22_537AA_014.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 250.0 (mL) Date Analyzed: 01/22/2018 16:34
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	135		40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	68.2		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	64.9		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	109		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	37.3		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	293		90	36	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\20180122-53187.b\2018.01.22_537AA_014.d
 Lims ID: LCSD 320-204506/3-A
 Client ID:
 Sample Type: LCSD
 Inject. Date: 22-Jan-2018 16:34:38 ALS Bottle#: 25 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: lcsd 320-204506/3-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 08:37:09 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: XAWRK013

First Level Reviewer: roycea Date: 23-Jan-2018 08:36:28

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.366	1.444	-0.078	1.000	8410131	73.2		7097	
298.90 > 99.00	1.366	1.444	-0.078	1.000	6420173		1.31(0.00-0.00)	6399	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.487	1.573	-0.086	1.000	1535710	9.29		7577	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.631	1.725	-0.094	1.000	1313955	9.33		465	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.631	1.725	-0.094	1.000	5201616	27.3		10300	
* 6 13C2-PFOA									
415.00 > 370.00	1.813	1.913	-0.100		1502453	10.0		6265	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.813	1.914	-0.101	1.000	2370715	17.0		491	
413.00 > 169.00	1.813	1.914	-0.101	1.000	1307879		1.81(0.00-0.00)	3015	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.071	2.071	0.0	1.000	3619147	33.9		1196	
499.00 > 99.00	2.071	2.071	0.0	1.000	774495		4.67(0.00-0.00)	1689	
* 7 13C4 PFOS									
503.00 > 80.00	2.071	2.151	-0.080		3263362	28.7		7273	
9 Perfluorononanoic acid									
463.00 > 419.00	2.079	2.158	-0.079	1.000	1619456	16.2		325	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.253	2.312	-0.059	1.000	1171902	10.2		7711	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_014.d

Injection Date: 22-Jan-2018 16:34:38

Instrument ID: A8_N

Lims ID: LCSD 320-204506/3-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 25

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

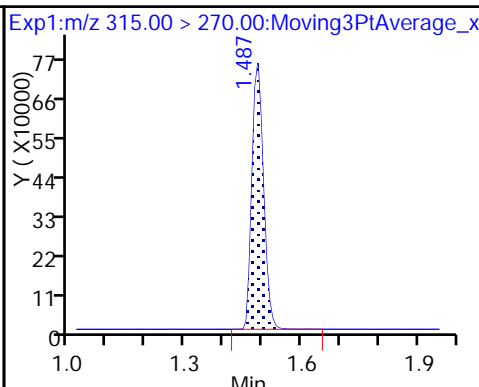
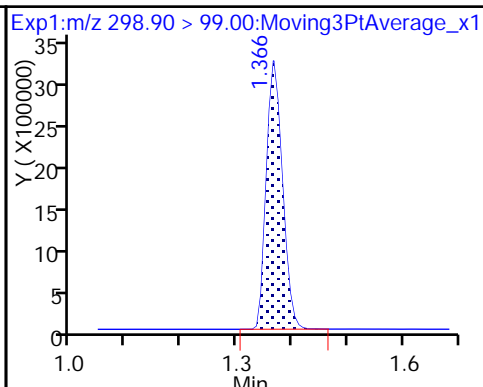
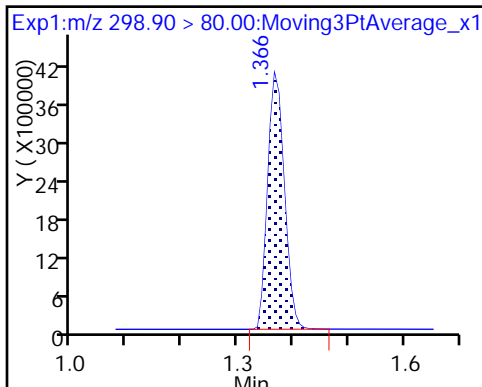
Method: 537_A8_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

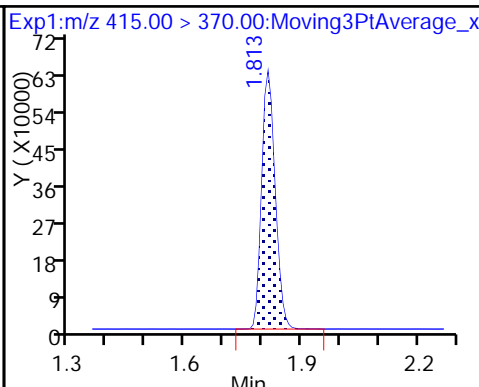
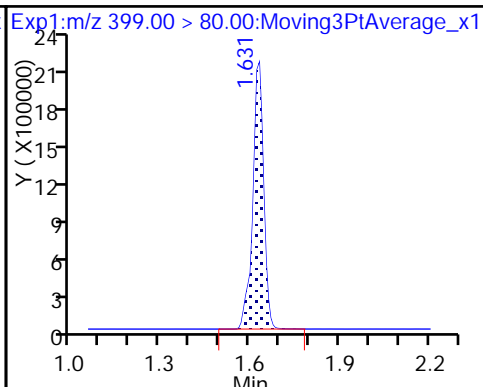
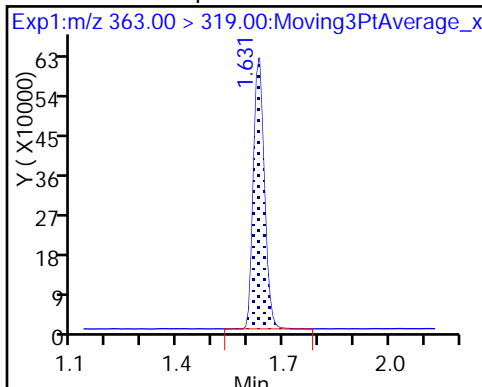
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

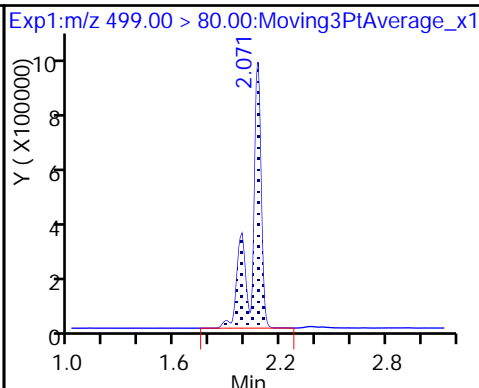
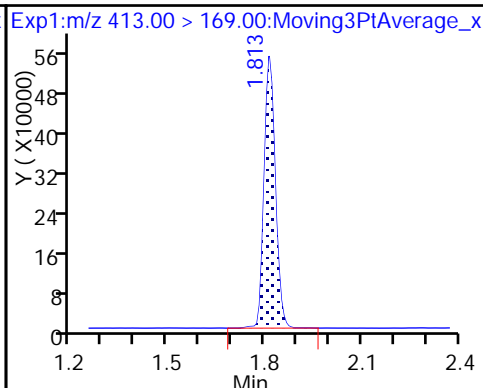
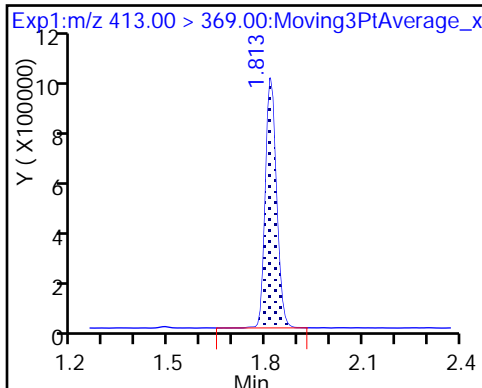
* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

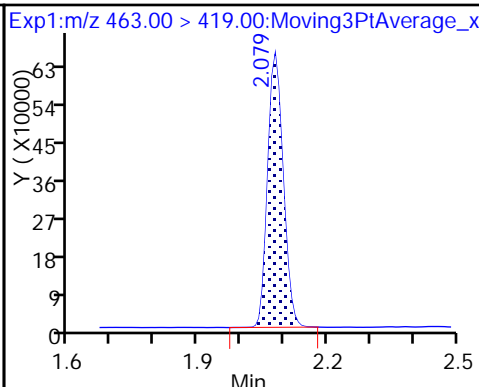
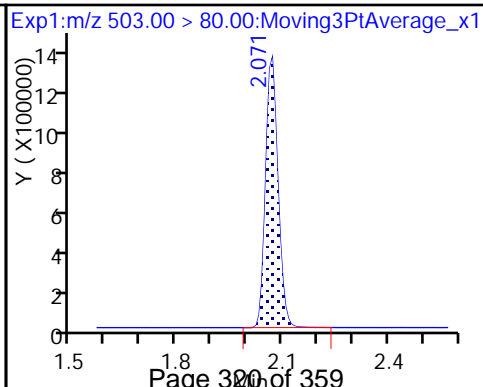
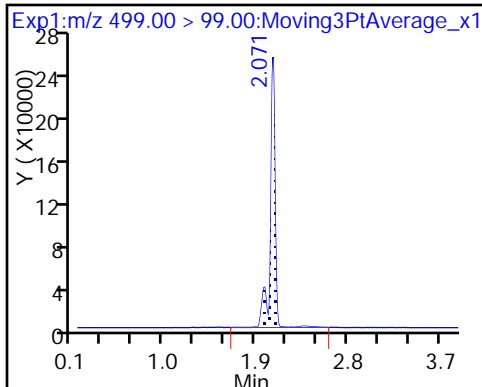
8 Perfluorooctane sulfonic acid



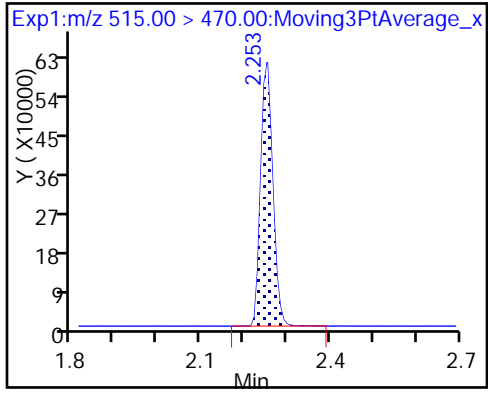
8 Perfluorooctane sulfonic acid

* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\2018.01.22_537AA_014.d
 Lims ID: LCSD 320-204506/3-A
 Client ID:
 Sample Type: LCSD
 Inject. Date: 22-Jan-2018 16:34:38 ALS Bottle#: 25 Worklist Smp#: 5
 Injection Vol: 2.0 ul Dil. Factor: 1.0000
 Sample Info: lcsd 320-204506/3-a
 Misc. Info.: Plate: 1 Rack: 2
 Operator ID: SACINSTLCMS01 Instrument ID: A8_N
 Method: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b\537_A8_N.m
 Limit Group: LC 537 ICAL
 Last Update: 23-Jan-2018 08:37:09 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: XAWRK013

First Level Reviewer: roycea Date: 23-Jan-2018 08:36:28

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.29	92.90
\$ 10 13C2 PFDA	10.0	10.2	101.93

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1

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.: 320-34946-1

SDG No.: _____

Instrument ID: A8_N Start Date: 01/22/2018 09:58

Analysis Batch Number: 204917 End Date: 01/22/2018 10:26

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-204917/1		01/22/2018 09:58	1	2018.01.22_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-204917/2 CCVIS		01/22/2018 10:02	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/22/2018 10:12	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/22/2018 10:16	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/22/2018 10:21	1		GeminiC18 3x100 3(mm)
CCV 320-204917/7 CCVIS		01/22/2018 10:26	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1

SDG No.: _____

Instrument ID: A8_N Start Date: 01/22/2018 11:22

Analysis Batch Number: 204921 End Date: 01/22/2018 12:18

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-204921/19 CCVIS		01/22/2018 11:22	1	2018.01.22_537A 022.d	GeminiC18 3x100 3(mm)
320-34946-8		01/22/2018 11:31	1	2018.01.22_537A 024.d	GeminiC18 3x100 3(mm)
320-34946-9		01/22/2018 11:36	1	2018.01.22_537A 025.d	GeminiC18 3x100 3(mm)
320-34946-10		01/22/2018 11:40	1	2018.01.22_537A 026.d	GeminiC18 3x100 3(mm)
320-34946-11		01/22/2018 11:45	1	2018.01.22_537A 027.d	GeminiC18 3x100 3(mm)
320-34946-12		01/22/2018 11:50	1	2018.01.22_537A 028.d	GeminiC18 3x100 3(mm)
320-34946-13		01/22/2018 11:54	1	2018.01.22_537A 029.d	GeminiC18 3x100 3(mm)
320-34946-14		01/22/2018 11:59	1	2018.01.22_537A 030.d	GeminiC18 3x100 3(mm)
320-34946-15		01/22/2018 12:04	1	2018.01.22_537A 031.d	GeminiC18 3x100 3(mm)
320-34946-16		01/22/2018 12:08	1	2018.01.22_537A 032.d	GeminiC18 3x100 3(mm)
320-34946-17		01/22/2018 12:13	1	2018.01.22_537A 033.d	GeminiC18 3x100 3(mm)
CCV 320-204921/31 CCVIS		01/22/2018 12:18	1	2018.01.22_537A 034.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1

SDG No.: _____

Instrument ID: A8_N Start Date: 01/22/2018 12:18

Analysis Batch Number: 204922 End Date: 01/22/2018 12:36

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-204922/31 CCVIS		01/22/2018 12:18	1	2018.01.22_537A 034.d	GeminiC18 3x100 3(mm)
320-34946-18		01/22/2018 12:27	1	2018.01.22_537A 036.d	GeminiC18 3x100 3(mm)
320-34946-19		01/22/2018 12:32	1	2018.01.22_537A 037.d	GeminiC18 3x100 3(mm)
CCV 320-204922/35 CCVIS		01/22/2018 12:36	1	2018.01.22_537A 038.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1

SDG No.: _____

Instrument ID: A8_N Start Date: 01/22/2018 16:15

Analysis Batch Number: 205018 End Date: 01/22/2018 17:12

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-205018/1 CCVIS		01/22/2018 16:15	1	2018.01.22_537A A 010.d	GeminiC18 3x100 3(mm)
MB 320-204506/1-A		01/22/2018 16:25	1	2018.01.22_537A A 012.d	GeminiC18 3x100 3(mm)
LCS 320-204506/2-A		01/22/2018 16:29	1	2018.01.22_537A A 013.d	GeminiC18 3x100 3(mm)
LCSD 320-204506/3-A		01/22/2018 16:34	1	2018.01.22_537A A 014.d	GeminiC18 3x100 3(mm)
320-34946-1		01/22/2018 16:39	1	2018.01.22_537A A 015.d	GeminiC18 3x100 3(mm)
320-34946-2		01/22/2018 16:43	1	2018.01.22_537A A 016.d	GeminiC18 3x100 3(mm)
320-34946-3		01/22/2018 16:48	1	2018.01.22_537A A 017.d	GeminiC18 3x100 3(mm)
320-34946-4		01/22/2018 16:53	1	2018.01.22_537A A 018.d	GeminiC18 3x100 3(mm)
320-34946-5		01/22/2018 16:58	1	2018.01.22_537A A 019.d	GeminiC18 3x100 3(mm)
320-34946-6		01/22/2018 17:02	1	2018.01.22_537A A 020.d	GeminiC18 3x100 3(mm)
320-34946-7		01/22/2018 17:07	1	2018.01.22_537A A 021.d	GeminiC18 3x100 3(mm)
CCV 320-205018/13 CCVIS		01/22/2018 17:12	1	2018.01.22_537A A 022.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1

SDG No.: _____

Batch Number: 204506 Batch Start Date: 01/18/18 12:21 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 01/19/18 16:56

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00056
MB 320-204506/1		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
LCS 320-204506/2		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
LCSD 320-204506/3		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
320-34946-A-1	NAWC-010918-RW-206	537, 537	T	278.90 g	27.62 g	251.3 mL	1.0 mL	7 SU	100 uL
320-34946-A-2	NAWC-010918-FRB-206	537, 537	T	273.25 g	27.44 g	245.8 mL	1.0 mL	7 SU	100 uL
320-34946-A-3	NAWC-010918-RW-029	537, 537	T	272.94 g	27.49 g	245.5 mL	1.0 mL	7 SU	100 uL
320-34946-A-4	NAWC-010918-FRB-029	537, 537	T	275.56 g	27.80 g	247.8 mL	1.0 mL	7 SU	100 uL
320-34946-A-5	WGNA-010918-RW-0533	537, 537	T	275.23 g	27.08 g	248.2 mL	1.0 mL	7 SU	100 uL
320-34946-A-6	WGNA-010918-FRB-0533	537, 537	T	274.51 g	27.73 g	246.8 mL	1.0 mL	7 SU	100 uL
320-34946-A-7	WGNA-010918-RW-3193	537, 537	T	270.99 g	27.46 g	243.5 mL	1.0 mL	7 SU	100 uL
320-34946-A-8	WGNA-010918-FRB-3193	537, 537	T	273.10 g	27.47 g	245.6 mL	1.0 mL	7 SU	100 uL
320-34946-A-9	WGNA-010918-DUP-17	537, 537	T	276.66 g	27.47 g	249.2 mL	1.0 mL	7 SU	100 uL
320-34946-A-10	NAWC-010918-RW-138	537, 537	T	268.45 g	28.37 g	240.1 mL	1.0 mL	7 SU	100 uL
320-34946-A-11	NAWC-010918-FRB-138	537, 537	T	272.57 g	27.35 g	245.2 mL	1.0 mL	7 SU	100 uL
320-34946-A-12	NAWC-010918-RW-351	537, 537	T	274.45 g	27.67 g	246.8 mL	1.0 mL	7 SU	100 uL
320-34946-A-13	NAWC-010918-FRB-351	537, 537	T	277.01 g	27.05 g	250 mL	1.0 mL	7 SU	100 uL
320-34946-A-14	NAWC-010918-RW-352	537, 537	T	275.28 g	27.45 g	247.8 mL	1.0 mL	7 SU	100 uL
320-34946-A-15	NAWC-010918-FRB-352	537, 537	T	272.12 g	27.21 g	244.9 mL	1.0 mL	7 SU	100 uL
320-34946-A-16	NAWC-010918-RW-353	537, 537	T	271.46 g	27.49 g	244 mL	1.0 mL	7 SU	100 uL
320-34946-A-17	NAWC-010918-FRB-353	537, 537	T	274.27 g	27.72 g	246.6 mL	1.0 mL	7 SU	100 uL
320-34946-A-18	NAWC-010918-RW-350	537, 537	T	267.71 g	27.75 g	240 mL	1.0 mL	7 SU	100 uL
320-34946-A-19	NAWC-010918-FRB-350	537, 537	T	274.62 g	27.21 g	247.4 mL	1.0 mL	7 SU	100 uL

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.: 320-34946-1

SDG No.: _____

Batch Number: 204506 Batch Start Date: 01/18/18 12:21 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 01/19/18 16:56

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-MSP 00027	LC537-SU 00054	AnalysisComment			
MB 320-204506/1		537, 537			100 uL	C1 ND			
LCS 320-204506/2		537, 537		100 uL	100 uL	C1 ND			
LCSD 320-204506/3		537, 537		100 uL	100 uL	C1 ND			
320-34946-A-1	NAWC-010918-RW-206	537, 537	T		100 uL	C1 ND			
320-34946-A-2	NAWC-010918-FRB-206	537, 537	T		100 uL	C1 ND			
320-34946-A-3	NAWC-010918-RW-029	537, 537	T		100 uL	C1 ND			
320-34946-A-4	NAWC-010918-FRB-029	537, 537	T		100 uL	C1 ND			
320-34946-A-5	WGNA-010918-RW-0533	537, 537	T		100 uL	C1 ND			
320-34946-A-6	WGNA-010918-FRB-0533	537, 537	T		100 uL	C1 ND			
320-34946-A-7	WGNA-010918-RW-3193	537, 537	T		100 uL	C1 ND			
320-34946-A-8	WGNA-010918-FRB-3193	537, 537	T		100 uL	C1 ND			
320-34946-A-9	WGNA-010918-DUP-17	537, 537	T		100 uL	C1 ND			
320-34946-A-10	NAWC-010918-RW-138	537, 537	T		100 uL	C1 ND			
320-34946-A-11	NAWC-010918-FRB-138	537, 537	T		100 uL	C1 ND			
320-34946-A-12	NAWC-010918-RW-351	537, 537	T		100 uL	C1 ND			
320-34946-A-13	NAWC-010918-FRB-351	537, 537	T		100 uL	C1 ND			
320-34946-A-14	NAWC-010918-RW-352	537, 537	T		100 uL	C1 ND			
320-34946-A-15	NAWC-010918-FRB-352	537, 537	T		100 uL	C1 ND			
320-34946-A-16	NAWC-010918-RW-353	537, 537	T		100 uL	C1 ND			
320-34946-A-17	NAWC-010918-FRB-353	537, 537	T		100 uL	C1 ND			
320-34946-A-18	NAWC-010918-RW-350	537, 537	T		100 uL	C1 ND			
320-34946-A-19	NAWC-010918-FRB-350	537, 537	T		100 uL	C1 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.: 320-34946-1

SDG No.: _____

Batch Number: 204506 Batch Start Date: 01/18/18 12:21 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 01/19/18 16:56

Batch Notes	
Analyst ID - Aliquot Step	KMK
Batch Comment	Label ID's checked: KMK 1-18-18
Analyst ID - Concentration	CCB/KMK
Analyst ID - Final Volume Step	KMK
Internal Standard ID#	1099356
Manifold ID	3, 4
Methanol ID	1127832
pH Indicator ID	2517
Pipette ID	M16387D
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	KMK
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	KMK
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	KMK
SPE Cartridge ID	6357081-11
Trizma ID	SLBR4303V
Reagent Water ID	1-11-18

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.

Job No: 34917, 34946 Instrument ID & Date: A8 1/22/18 ICAL Batch: 192908
 Extraction Batch: 204506, 204304, 204304 Worklist #: 53168, 53187, 53264 TALS Batch: 205018, 204917, 204918
Handwritten notes: 204872, 204894, 205331, 204921, 204922

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? <u>0</u> Dilutions due to non-targets? <u>0</u>			✓	
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: aar 1/23/18 1/24/18 2nd Level Reviewer / Date: Newmy 1/24/2018
JRB 1-23-18

NCM # and Comments: 106466

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 ≤ ½ RL RSD ≤ 30% for Average R ² ≥ 0.990 for Linear R ² ≥ 0.990 for Quadratic NOTE: "Force through Zero" must be used and weighted if needed	✓			✓
5. If quadratic fit used the curve does not "bend over".	✓			✓
6. Feed calibration points into the calculated curve. Are points ≤MRL within ±50% of true value? Are points >MRL within ±30% of true value?	✓			✓
7. Any carryover from the high calibration point must be ≤ 1/3 RL	✓			✓
8. Asymmetry check meets criteria for the first two eluting peaks? (0.8 - 1.5).	✓			✓
9. Is the asymmetry check scanned and linked in TALS to the calibration point?	✓			✓
10. Is ICV (2 nd source) ± 30% of true value?	✓			✓
11. Is ICV (2 nd source) internal standards ±50% of average area of the ICAL?	✓			✓
12. ICAL locked in Chrom and uploaded to TALS?	✓			✓
13. ICAL locked in TALS and scanned?				✓

1st Level Reviewer / Date: JRB 11-6-17

2nd Level Reviewer / Date: M. Wang 11/6/2017

NCM # and Comments: _____

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 20JAN2018_537A Worklist Number: 53155
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53155.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 CS ICAL Raw Batch: 204871	LC 537 ICAL Raw Batch: 204872
# 1 CCVL # 2 CCV L3 # 3 RB # 4 MB 320-204304/1-A # 5 LLCS 320-204304/2-A # 6 320-34917-A-1-A # 7 320-34917-A-2-A # 8 320-34917-A-3-A # 9 320-34917-A-4-A #10 320-34917-A-5-A #11 320-34917-A-6-A #12 320-34917-A-7-A #13 320-34917-A-8-A #14 CCV L5	# 1 CCVL # 2 CCV L3 # 3 RB #14 CCV L5	# 1 CCVL # 2 CCV L3 # 3 RB # 4 MB 320-204304/1-A # 5 LLCS 320-204304/2-A # 6 320-34917-A-1-A # 7 320-34917-A-2-A # 8 320-34917-A-3-A # 9 320-34917-A-4-A #10 320-34917-A-5-A #11 320-34917-A-6-A #12 320-34917-A-7-A #13 320-34917-A-8-A #14 CCV L5

QC Batch: 2	LC 537 CS ICAL Raw Batch: 204873	LC 537 ICAL Raw Batch: 204874
#14 CCV L5 #15 RB #16 320-34917-A-9-A #17 320-34917-A-10-A #18 320-34917-A-10-D LMS #19 320-34917-A-10-E LMSD #20 320-34917-A-11-A #21 320-34917-A-12-A #22 320-34917-A-13-A #23 320-34917-A-14-A #24 320-34917-A-15-A #25 CCV L3 #26 RB	#14 CCV L5 #15 RB #25 CCV L3 #26 RB	#14 CCV L5 #15 RB #16 320-34917-A-9-A #17 320-34917-A-10-A #18 320-34917-A-10-D LMS #19 320-34917-A-10-E LMSD #20 320-34917-A-11-A #21 320-34917-A-12-A #22 320-34917-A-13-A #23 320-34917-A-14-A #24 320-34917-A-15-A #25 CCV L3 #26 RB

ICAL: 192908

RA

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 22JAN2018_537A
Instrument Name: A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b
QC Batching: Enabled

Worklist Number: 53168
Chrom Method: 537_A8_N
Limit Group Batching: Enabled

QC Batch: 1	LC 537 CS ICAL Raw Batch: 204916	LC 537 ICAL Raw Batch: 204917
# 1 CCVL # 2 CCV L5 # 3 RB # 4 320-34917-A-10-A # 5 320-34917-A-10-D LMS # 6 320-34917-A-10-E LMSD # 7 CCV L3	# 1 CCVL # 2 CCV L5 # 3 RB # 7 CCV L3	# 1 CCVL # 2 CCV L5 # 3 RB # 4 320-34917-A-10-A # 5 320-34917-A-10-D LMS # 6 320-34917-A-10-E LMSD # 7 CCV L3

RA

QC Batch: 2	LC 537 ICAL Raw Batch: 204918	LC 537 CS ICAL Raw Batch: 204919
# 7 CCV L3 # 8 RB # 9 MB 320-204506/1-A #10 LCS 320-204506/2-A #11 LCSD 320-204506/3-A #12 320-34946-A-1-A #13 320-34946-A-2-A #14 320-34946-A-3-A #15 320-34946-A-4-A #16 320-34946-A-5-A #17 320-34946-A-6-A #18 320-34946-A-7-A #19 CCV L5	# 7 CCV L3 # 8 RB # 9 MB 320-204506/1-A #10 LCS 320-204506/2-A #11 LCSD 320-204506/3-A #12 320-34946-A-1-A #13 320-34946-A-2-A #14 320-34946-A-3-A #15 320-34946-A-4-A #16 320-34946-A-5-A #17 320-34946-A-6-A #18 320-34946-A-7-A #19 CCV L5	# 7 CCV L3 # 8 RB #19 CCV L5

RA
dueto
ccv

QC Batch: 3	LC 537 CS ICAL Raw Batch: 204920	LC 537 ICAL Raw Batch: 204921
#19 CCV L5 #20 RB #21 320-34946-A-8-A #22 320-34946-A-9-A #23 320-34946-A-10-A #24 320-34946-A-11-A #25 320-34946-A-12-A #26 320-34946-A-13-A #27 320-34946-A-14-A #28 320-34946-A-15-A #29 320-34946-A-16-A #30 320-34946-A-17-A #31 CCV L3	#19 CCV L5 #20 RB #31 CCV L3	#19 CCV L5 #20 RB #21 320-34946-A-8-A #22 320-34946-A-9-A #23 320-34946-A-10-A #24 320-34946-A-11-A #25 320-34946-A-12-A #26 320-34946-A-13-A #27 320-34946-A-14-A #28 320-34946-A-15-A #29 320-34946-A-16-A #30 320-34946-A-17-A #31 CCV L3

QC Batch: 4	LC 537 ICAL Raw Batch: 204922	LC 537 CS ICAL Raw Batch: 204923
#31 CCV L3 #32 RB #33 320-34946-A-18-A #34 320-34946-A-19-A #35 CCV L5 #36 RB	#31 CCV L3 #32 RB #33 320-34946-A-18-A #34 320-34946-A-19-A #35 CCV L5 #36 RB	#31 CCV L3 #32 RB #35 CCV L5 #36 RB

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 22JAN2018_537B Worklist Number: 53187
Instrument Name: A8_N Chrom Method: 537_A8_N
Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.b
QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 205018	LC 537 CS ICAL Raw Batch: 205019
# 1 CCV L3	# 1 CCV L3	# 1 CCV L3
# 2 RB	# 2 RB	# 2 RB
# 3 MB 320-204506/1-A	# 3 MB 320-204506/1-A	
# 4 LCS 320-204506/2-A	# 4 LCS 320-204506/2-A	
# 5 LCSD 320-204506/3-A	# 5 LCSD 320-204506/3-A	
# 6 320-34946-A-1-A	# 6 320-34946-A-1-A	
# 7 320-34946-A-2-A	# 7 320-34946-A-2-A	
# 8 320-34946-A-3-A	# 8 320-34946-A-3-A	
# 9 320-34946-A-4-A	# 9 320-34946-A-4-A	
#10 320-34946-A-5-A	#10 320-34946-A-5-A	
#11 320-34946-A-6-A	#11 320-34946-A-6-A	
#12 320-34946-A-7-A	#12 320-34946-A-7-A	
#13 CCV L5	#13 CCV L5	#13 CCV L5
#14 RB	#14 RB	#14 RB

ICAL: 192908
CCVL: 204917

TestAmerica Laboratories
Worklist QC Batch Report

Worklist Name: 23JAN2018_537A Worklist Number: 53264
 Instrument Name: A8_N Chrom Method: 537_A8_N
 Data Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180124-53264.b
 QC Batching: Enabled Limit Group Batching: Enabled

QC Batch: 1	LC 537 CS ICAL Raw Batch: 205330	LC 537 ICAL Raw Batch: 205331
# 1 CCVL	# 1 CCVL	# 1 CCVL
# 2 CCV L5	# 2 CCV L5	# 2 CCV L5
# 3 RB	# 3 RB	# 3 RB
# 4 320-34917-A-9-A		# 4 320-34917-A-9-A
# 5 320-34917-A-10-A		# 5 320-34917-A-10-A
# 6 320-34917-A-10-D LMS		# 6 320-34917-A-10-D LMS
# 7 320-34917-A-10-E LMSD		# 7 320-34917-A-10-E LMSD
# 8 320-34917-A-11-A		# 8 320-34917-A-11-A
# 9 320-34917-A-12-A		# 9 320-34917-A-12-A
#10 320-34917-A-13-A		#10 320-34917-A-13-A
#11 320-34917-A-14-A		#11 320-34917-A-14-A
#12 320-34917-A-15-A		#12 320-34917-A-15-A
#13 CCV L3	#13 CCV L3	#13 CCV L3

QC Batch: 2	LC 537 ICAL Raw Batch: 205332	LC 537 CS ICAL Raw Batch: 205333
#13 CCV L3	#13 CCV L3	#13 CCV L3
#14 RB	#14 RB	#14 RB
#15 MB 320-204684/1-A	#15 MB 320-204684/1-A	
#16 LCS 320-204684/2-A	#16 LCS 320-204684/2-A	
#17 320-35149-A-1-A	#17 320-35149-A-1-A	
#18 320-35149-A-2-A	#18 320-35149-A-2-A	
#19 320-35149-A-3-A	#19 320-35149-A-3-A	
#20 320-35149-A-4-A	#20 320-35149-A-4-A	
#21 320-35149-A-4-B MS	#21 320-35149-A-4-B MS	
#22 320-35149-A-4-C MSD	#22 320-35149-A-4-C MSD	
#23 QC ICV	#23 QC ICV	#23 QC ICV
#24 CCV L5	#24 CCV L5	#24 CCV L5
#25 RB	#25 RB	#25 RB

ICAL: 192908

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 20JAN2018_537A

Worklist Num: 53155

Instrument: A8_N

Method: 537_A8_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53155.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	320-0053155-001	CCVL	20-Jan-2018 18:47:50	2018.01.20_537AA_004.d	2	1.0		sv
CCV L3	320-0053155-002	CCVIS	20-Jan-2018 18:52:29	2018.01.20_537AA_005.d	3	1.0		sv
RB	320-0053155-003	RB	20-Jan-2018 18:57:10	2018.01.20_537AA_006.d	8	1.0		sv
MB 320-204304/1-A	320-0053155-004	MB	20-Jan-2018 19:01:50	2018.01.20_537AA_007.d	4	1.0		sv
LLCS 320-204304/2-A	320-0053155-005	LLCS	20-Jan-2018 19:06:31	2018.01.20_537AA_008.d	5	1.0		sv
320-34917-A-1-A	320-0053155-006	Client	20-Jan-2018 19:11:11	2018.01.20_537AA_009.d	6	1.0	WGNA-010818-RW-0344	sv
320-34917-A-2-A	320-0053155-007	Client	20-Jan-2018 19:15:52	2018.01.20_537AA_010.d	7	1.0	WGNA-010818-FRB-0344	sv
320-34917-A-3-A	320-0053155-008	Client	20-Jan-2018 19:20:33	2018.01.20_537AA_011.d	8	1.0	WGNA-010818-RW-3957	sv
320-34917-A-4-A	320-0053155-009	Client	20-Jan-2018 19:25:13	2018.01.20_537AA_012.d	9	1.0	WGNA-010818-FRB-3957	sv
320-34917-A-5-A	320-0053155-010	Client	20-Jan-2018 19:29:54	2018.01.20_537AA_013.d	10	1.0	WGNA-010818-DUP-16	sv
320-34917-A-6-A	320-0053155-011	Client	20-Jan-2018 19:34:35	2018.01.20_537AA_014.d	11	1.0	WGNA-010818-RW-3178	sv
320-34917-A-7-A	320-0053155-012	Client	20-Jan-2018 19:39:17	2018.01.20_537AA_015.d	12	1.0	WGNA-010818-FRB-3178	sv
320-34917-A-8-A	320-0053155-013	Client	20-Jan-2018 19:43:57	2018.01.20_537AA_016.d	13	1.0	NAWC-010818-RW-141	sv
CCV L5	320-0053155-014	CCVIS	20-Jan-2018 19:48:38	2018.01.20_537AA_017.d	5	1.0		sv
RB	320-0053155-015	RB	20-Jan-2018 19:53:18	2018.01.20_537AA_018.d	8	1.0		sv
320-34917-A-9-A	320-0053155-016	Client	20-Jan-2018 19:57:59	2018.01.20_537AA_019.d	14	1.0	NAWC-010818-FRB-141	sv
320-34917-A-10-A	320-0053155-017	Client	20-Jan-2018 20:02:40	2018.01.20_537AA_020.d	15	1.0	WGNA-010818-RW-4024	sv
320-34917-A-10-D LMS	320-0053155-018	LMS	20-Jan-2018 20:07:19	2018.01.20_537AA_021.d	16	1.0		sv
320-34917-A-10-E LMSD	320-0053155-019	LMSD	20-Jan-2018 20:11:59	2018.01.20_537AA_022.d	17	1.0		sv
320-34917-A-11-A	320-0053155-020	Client	20-Jan-2018 20:16:40	2018.01.20_537AA_023.d	18	1.0	WGNA-010818-FRB-4024	sv
320-34917-A-12-A	320-0053155-021	Client	20-Jan-2018 20:21:21	2018.01.20_537AA_024.d	19	1.0	WGNA-010818-RW-4844	sv
320-34917-A-13-A	320-0053155-022	Client	20-Jan-2018 20:26:02	2018.01.20_537AA_025.d	20	1.0	WGNA-010818-FRB-4844	sv
320-34917-A-14-A	320-0053155-023	Client	20-Jan-2018 20:30:42	2018.01.20_537AA_026.d	21	1.0	WGNA-010818-RW-0404	sv
320-34917-A-15-A	320-0053155-024	Client	20-Jan-2018 20:35:22	2018.01.20_537AA_027.d	22	1.0	WGNA-010818-FRB-0404	sv
CCV L3	320-0053155-025	CCVIS	20-Jan-2018 20:40:03	2018.01.20_537AA_028.d	3	1.0		sv

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
RB	320-0053155-026	RB	20-Jan-2018 20:44:44	2018.01.20_537AA_029.d	8	1.0		sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 22JAN2018_537A

Worklist Num: 53168

Instrument: A8_N

Method: 537_A8_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53168.b

Anaylysis 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	320-0053168-001	CCVL	22-Jan-2018 09:58:02	2018.01.22_537A_004.d	2	1.0		sv
CCV L5	320-0053168-002	CCVIS	22-Jan-2018 10:02:45	2018.01.22_537A_005.d	5	1.0		sv
RB	320-0053168-003	RB	22-Jan-2018 10:07:29	2018.01.22_537A_006.d	8	1.0		sv
320-34917-A-10-A	320-0053168-004	Client	22-Jan-2018 10:12:10	2018.01.22_537A_007.d	15	1.0	WGNA-010818-RW-4024	sv
320-34917-A-10-D LMS	320-0053168-005	LMS	22-Jan-2018 10:16:50	2018.01.22_537A_008.d	16	1.0		sv
320-34917-A-10-E LMSD	320-0053168-006	LMSD	22-Jan-2018 10:21:31	2018.01.22_537A_009.d	17	1.0		sv
CCV L3	320-0053168-007	CCVIS	22-Jan-2018 10:26:11	2018.01.22_537A_010.d	3	1.0		sv
RB	320-0053168-008	RB	22-Jan-2018 10:30:51	2018.01.22_537A_011.d	8	1.0		sv
MB 320-204506/1-A	320-0053168-009	MB	22-Jan-2018 10:35:30	2018.01.22_537A_012.d	23	1.0		sv
LCS 320-204506/2-A	320-0053168-010	LCS	22-Jan-2018 10:40:10	2018.01.22_537A_013.d	24	1.0		sv
LCSD 320-204506/3-A	320-0053168-011	LCSD	22-Jan-2018 10:44:52	2018.01.22_537A_014.d	25	1.0		sv
320-34946-A-1-A	320-0053168-012	Client	22-Jan-2018 10:49:32	2018.01.22_537A_015.d	26	1.0	NAWC-010918-RW-206	sv
320-34946-A-2-A	320-0053168-013	Client	22-Jan-2018 10:54:12	2018.01.22_537A_016.d	27	1.0	NAWC-010918-FRB-206	sv
320-34946-A-3-A	320-0053168-014	Client	22-Jan-2018 10:58:52	2018.01.22_537A_017.d	28	1.0	NAWC-010918-RW-029	sv
320-34946-A-4-A	320-0053168-015	Client	22-Jan-2018 11:03:32	2018.01.22_537A_018.d	29	1.0	NAWC-010918-FRB-029	sv
320-34946-A-5-A	320-0053168-016	Client	22-Jan-2018 11:08:13	2018.01.22_537A_019.d	30	1.0	WGNA-010918-RW-0533	sv
320-34946-A-6-A	320-0053168-017	Client	22-Jan-2018 11:12:53	2018.01.22_537A_020.d	31	1.0	WGNA-010918-FRB-0533	sv
320-34946-A-7-A	320-0053168-018	Client	22-Jan-2018 11:17:33	2018.01.22_537A_021.d	32	1.0	WGNA-010918-RW-3193	sv
CCV L5	320-0053168-019	CCVIS	22-Jan-2018 11:22:13	2018.01.22_537A_022.d	5	1.0		sv
RB	320-0053168-020	RB	22-Jan-2018 11:26:53	2018.01.22_537A_023.d	8	1.0		sv
320-34946-A-8-A	320-0053168-021	Client	22-Jan-2018 11:31:33	2018.01.22_537A_024.d	33	1.0	WGNA-010918-FRB-3193	sv
320-34946-A-9-A	320-0053168-022	Client	22-Jan-2018 11:36:13	2018.01.22_537A_025.d	34	1.0	WGNA-010918-DUP-17	sv
320-34946-A-10-A	320-0053168-023	Client	22-Jan-2018 11:40:53	2018.01.22_537A_026.d	35	1.0	NAWC-010918-RW-138	sv
320-34946-A-11-A	320-0053168-024	Client	22-Jan-2018 11:45:34	2018.01.22_537A_027.d	36	1.0	NAWC-010918-FRB-138	sv
320-34946-A-12-A	320-0053168-025	Client	22-Jan-2018 11:50:14	2018.01.22_537A_028.d	37	1.0	NAWC-010918-RW-351	sv

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
320-34946-A-13-A	320-0053168-026	Client	22-Jan-2018 11:54:53	2018.01.22_537A_029.d	38	1.0	NAWC-010918-FRB-351	sv
320-34946-A-14-A	320-0053168-027	Client	22-Jan-2018 11:59:34	2018.01.22_537A_030.d	39	1.0	NAWC-010918-RW-352	sv
320-34946-A-15-A	320-0053168-028	Client	22-Jan-2018 12:04:15	2018.01.22_537A_031.d	40	1.0	NAWC-010918-FRB-352	sv
320-34946-A-16-A	320-0053168-029	Client	22-Jan-2018 12:08:55	2018.01.22_537A_032.d	41	1.0	NAWC-010918-RW-353	sv
320-34946-A-17-A	320-0053168-030	Client	22-Jan-2018 12:13:35	2018.01.22_537A_033.d	42	1.0	NAWC-010918-FRB-353	sv
CCV L3	320-0053168-031	CCVIS	22-Jan-2018 12:18:17	2018.01.22_537A_034.d	3	1.0		sv
RB	320-0053168-032	RB	22-Jan-2018 12:22:57	2018.01.22_537A_035.d	8	1.0		sv
320-34946-A-18-A	320-0053168-033	Client	22-Jan-2018 12:27:38	2018.01.22_537A_036.d	43	1.0	NAWC-010918-RW-350	sv
320-34946-A-19-A	320-0053168-034	Client	22-Jan-2018 12:32:17	2018.01.22_537A_037.d	44	1.0	NAWC-010918-FRB-350	sv
CCV L5	320-0053168-035	CCVIS	22-Jan-2018 12:36:59	2018.01.22_537A_038.d	5	1.0		sv
RB	320-0053168-036	RB	22-Jan-2018 12:41:39	2018.01.22_537A_039.d	8	1.0		sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 22JAN2018_537B

Worklist Num: 53187

Instrument: A8_N

Method: 537_A8_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180122-53187.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 L3	320-0053187-001	CCVIS	22-Jan-2018 16:15:57	2018.01.22_537AA_010.d	3	1.0		sv
RB	320-0053187-002	RB	22-Jan-2018 16:20:37	2018.01.22_537AA_011.d	8	1.0		sv
MB 320-204506/1-A	320-0053187-003	MB	22-Jan-2018 16:25:18	2018.01.22_537AA_012.d	23	1.0		sv
LCS 320-204506/2-A	320-0053187-004	LCS	22-Jan-2018 16:29:58	2018.01.22_537AA_013.d	24	1.0		sv
LCSD 320-204506/3-A	320-0053187-005	LCSD	22-Jan-2018 16:34:38	2018.01.22_537AA_014.d	25	1.0		sv
320-34946-A-1-A	320-0053187-006	Client	22-Jan-2018 16:39:19	2018.01.22_537AA_015.d	26	1.0	NAWC-010918-RW-206	sv
320-34946-A-2-A	320-0053187-007	Client	22-Jan-2018 16:43:59	2018.01.22_537AA_016.d	27	1.0	NAWC-010918-FRB-206	sv
320-34946-A-3-A	320-0053187-008	Client	22-Jan-2018 16:48:38	2018.01.22_537AA_017.d	28	1.0	NAWC-010918-RW-029	sv
320-34946-A-4-A	320-0053187-009	Client	22-Jan-2018 16:53:19	2018.01.22_537AA_018.d	29	1.0	NAWC-010918-FRB-029	sv
320-34946-A-5-A	320-0053187-010	Client	22-Jan-2018 16:58:00	2018.01.22_537AA_019.d	30	1.0	WGNA-010918-RW-0533	sv
320-34946-A-6-A	320-0053187-011	Client	22-Jan-2018 17:02:40	2018.01.22_537AA_020.d	31	1.0	WGNA-010918-FRB-0533	sv
320-34946-A-7-A	320-0053187-012	Client	22-Jan-2018 17:07:20	2018.01.22_537AA_021.d	32	1.0	WGNA-010918-RW-3193	sv
CCV L5	320-0053187-013	CCVIS	22-Jan-2018 17:12:01	2018.01.22_537AA_022.d	5	1.0		sv
RB	320-0053187-014	RB	22-Jan-2018 17:16:40	2018.01.22_537AA_023.d	8	1.0		sv

TestAmerica Laboratories
Worklist Run Log Report

Worklist Name: 23JAN2018_537A

Worklist Num: 53264

Instrument: A8_N

Method: 537_A8_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8_N\20180124-53264.b

Analysis Type: SemiVOA

Creator: Royce, Armani 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	320-0053264-001	CCVL	24-Jan-2018 05:01:08	2018.01.23537A_004.d	2	1.0		sv
CCV L5	320-0053264-002	CCVIS	24-Jan-2018 05:05:49	2018.01.23537A_005.d	5	1.0		sv
RB	320-0053264-003	RB	24-Jan-2018 05:10:30	2018.01.23537A_006.d	8	1.0		sv
320-34917-A-9-A	320-0053264-004	Client	24-Jan-2018 05:15:10	2018.01.23537A_007.d	14	1.0	NAWC-010818-FRB-141	sv
320-34917-A-10-A	320-0053264-005	Client	24-Jan-2018 05:19:52	2018.01.23537A_008.d	15	1.0	WGNA-010818-RW-4024	sv
320-34917-A-10-D LMS	320-0053264-006	LMS	24-Jan-2018 05:24:32	2018.01.23537A_009.d	16	1.0		sv
320-34917-A-10-E LMSD	320-0053264-007	LMSD	24-Jan-2018 05:29:13	2018.01.23537A_010.d	17	1.0		sv
320-34917-A-11-A	320-0053264-008	Client	24-Jan-2018 05:33:54	2018.01.23537A_011.d	18	1.0	WGNA-010818-FRB-4024	sv
320-34917-A-12-A	320-0053264-009	Client	24-Jan-2018 05:38:35	2018.01.23537A_012.d	19	1.0	WGNA-010818-RW-4844	sv
320-34917-A-13-A	320-0053264-010	Client	24-Jan-2018 05:43:15	2018.01.23537A_013.d	20	1.0	WGNA-010818-FRB-4844	sv
320-34917-A-14-A	320-0053264-011	Client	24-Jan-2018 05:47:56	2018.01.23537A_014.d	21	1.0	WGNA-010818-RW-0404	sv
320-34917-A-15-A	320-0053264-012	Client	24-Jan-2018 05:52:37	2018.01.23537A_015.d	22	1.0	WGNA-010818-FRB-0404	sv
CCV L3	320-0053264-013	CCVIS	24-Jan-2018 05:57:17	2018.01.23537A_016.d	3	1.0		sv
RB	320-0053264-014	RB	24-Jan-2018 06:01:58	2018.01.23537A_017.d	8	1.0		sv
MB 320-204684/1-A	320-0053264-015	MB	24-Jan-2018 06:06:38	2018.01.23537A_018.d	45	1.0		sv
LCS 320-204684/2-A	320-0053264-016	LCS	24-Jan-2018 06:11:17	2018.01.23537A_019.d	46	1.0		sv
320-35149-A-1-A	320-0053264-017	Client	24-Jan-2018 06:15:57	2018.01.23537A_020.d	47	1.0	WS-025	sv
320-35149-A-2-A	320-0053264-018	Client	24-Jan-2018 06:20:38	2018.01.23537A_021.d	48	1.0	DUP-14	sv
320-35149-A-3-A	320-0053264-019	Client	24-Jan-2018 06:25:19	2018.01.23537A_022.d	49	1.0	FIELD BLANK (01/16/2018)	sv
320-35149-A-4-A	320-0053264-020	Client	24-Jan-2018 06:29:59	2018.01.23537A_023.d	50	1.0	WS-092	sv
320-35149-A-4-B MS	320-0053264-021	MS	24-Jan-2018 06:34:39	2018.01.23537A_024.d	51	1.0	WS-092	sv
320-35149-A-4-C MSD	320-0053264-022	MSD	24-Jan-2018 06:39:20	2018.01.23537A_025.d	52	1.0	WS-092	sv
QC ICV	320-0053264-023	QC	24-Jan-2018 06:44:00	2018.01.23537A_026.d	54	1.0		sv
CCV L5	320-0053264-024	CCVIS	24-Jan-2018 06:48:41	2018.01.23537A_027.d	5	1.0		sv
RB	320-0053264-025	RB	24-Jan-2018 06:53:20	2018.01.23537A_028.d	8	1.0		sv

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Aqueous Extraction Analysis Sheet

A8 1/22/18

(To Accompany Samples to Instruments)

Batch Number: 320-204506











Analyst: Kolstad, Kate M

Batch Open: 1/18/2018 12:21:00PM

Method Code: 320-537_Prep-320

Batch End: 1/19/2018 4:56:00PM

Extraction of Perfluorinated Alkyl Acids

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs Rcvd	Adj1	Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1 MB-320-204506/1 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	CI ND RI	
			1.0 mL								
2 LCS-320-204506/2 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	CI ND	
			1.0 mL								
3 LCSD-320-204506/3 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	CI ND	
			1.0 mL								
4 320-34946-A-1 (537_DOD5)	N/A (320-34946-1)	278.90 g	251.3 mL	7			1/14/18	16_Days	4	CI ND	
		27.62 g	1.0 mL								
5 320-34946-A-2 (537_DOD5)	N/A (320-34946-1)	273.25 g	245.8 mL	7			1/14/18	16_Days	4	CI ND	
		27.44 g	1.0 mL								
6 320-34946-A-3 (537_DOD5)	N/A (320-34946-1)	272.94 g	245.5 mL	7			1/14/18	16_Days	4	CI ND	
		27.49 g	1.0 mL								
7 320-34946-A-4 (537_DOD5)	N/A (320-34946-1)	275.56 g	247.8 mL	7			1/14/18	16_Days	4	CI ND	
		27.80 g	1.0 mL								
8 320-34946-A-5 (537_DOD5)	N/A (320-34946-1)	275.23 g	248.2 mL	7			1/14/18	16_Days	4	CI ND	
		27.08 g	1.0 mL								
9 320-34946-A-6 (537_DOD5)	N/A (320-34946-1)	274.51 g	246.8 mL	7			1/14/18	16_Days	4	CI ND	
		27.73 g	1.0 mL								
10 320-34946-A-7 (537_DOD5)	N/A (320-34946-1)	270.99 g	243.5 mL	7			1/14/18	16_Days	4	CI ND	
		27.46 g	1.0 mL								

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)













Batch Number: 320-204506

Analyst: Kolstad, Kate M

Batch Open: 1/18/2018 12:21:00PM

Method Code: 320-537_Prep-320

Batch End: 1/19/2018 4:56:00PM

11	320-34946-A-8 (537_DOD5)	N/A (320-34946-1)	273.10 g 27.47 g	245.6 mL 1.0 mL	7		1/14/18	16_Days	4	CI ND	
12	320-34946-A-9 (537_DOD5)	N/A (320-34946-1)	276.66 g 27.47 g	249.2 mL 1.0 mL	7		1/14/18	16_Days	4	CI ND	
13	320-34946-A-10 (537_DOD5)	N/A (320-34946-1)	268.45 g 28.37 g	240.1 mL 1.0 mL	7		1/14/18	16_Days	4	CI ND	
14	320-34946-A-11 (537_DOD5)	N/A (320-34946-1)	272.57 g 27.35 g	245.2 mL 1.0 mL	7		1/14/18	16_Days	4	CI ND	
15	320-34946-A-12 (537_DOD5)	N/A (320-34946-1)	274.45 g 27.67 g	246.8 mL 1.0 mL	7		1/14/18	16_Days	4	CI ND	
16	320-34946-A-13 (537_DOD5)	N/A (320-34946-1)	277.01 g 27.05 g	250 mL 1.0 mL	7		1/14/18	16_Days	4	CI ND	
17	320-34946-A-14 (537_DOD5)	N/A (320-34946-1)	275.28 g 27.45 g	247.8 mL 1.0 mL	7		1/14/18	16_Days	4	CI ND	
18	320-34946-A-15 (537_DOD5)	N/A (320-34946-1)	272.12 g 27.21 g	244.9 mL 1.0 mL	7		1/14/18	16_Days	4	CI ND	
19	320-34946-A-16 (537_DOD5)	N/A (320-34946-1)	271.46 g 27.49 g	244 mL 1.0 mL	7		1/14/18	16_Days	4	CI ND	
20	320-34946-A-17 (537_DOD5)	N/A (320-34946-1)	274.27 g 27.72 g	246.6 mL 1.0 mL	7		1/14/18	16_Days	4	CI ND	
21	320-34946-A-18 (537_DOD5)	N/A (320-34946-1)	267.71 g 27.75 g	240 mL 1.0 mL	7		1/14/18	16_Days	4	CI ND	
22	320-34946-A-19 (537_DOD5)	N/A (320-34946-1)	274.62 g 27.21 g	247.4 mL 1.0 mL	7		1/14/18	16_Days	4	CI ND	

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-204506

Analyst: Kolstad, Kate M

Batch Open: 1/18/2018 12:21:00PM

Method Code: 320-537_Prep-320

Batch End: 1/19/2018 4:56:00PM

Batch Notes

Manifold ID 3, 4

pH Indicator ID 2517

Trizma ID SLBR4303V

SPE Cartridge ID 6357081-11

Methanol ID 1127832

Reagent Water ID 1-11-18

Internal Standard ID# 1099356

Pipette ID M16387D

Analyst ID - TA Reagent Drop CCB

Analyst ID - TA Reagent Drop KMK

Witness

Analyst ID - SU Reagent Drop CCB

Analyst ID - SU Reagent Drop KMK

Witness

Analyst ID - IS Reagent Drop JER

Analyst ID - IS Reagent Drop KMK

Witness

Analyst ID - Concentration CCB/KMK

Analyst ID - Aliquot Step KMK

Analyst ID - Final Volume Step KMK

Batch Comment Label ID's checked: KMK 1-18-18

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-204506

Analyst: Kolstad, Kate M

Batch Open: 1/18/2018 12:21:00PM

Method Code: 320-537__Prep-320

Batch End:

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-204506

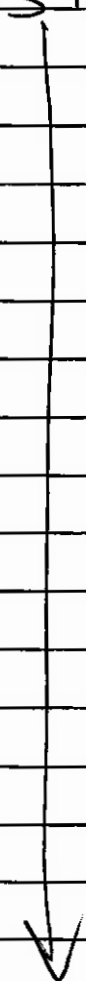

Analyst: Kolstad, Kate M

Batch Open: 1/18/2018 12:21:00PM

Method Code: 320-537_Prep-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-204506/1	LC537-SU_00054	100 uL	1.0 mL	<i>ceB 1-18-18</i> 	<i>KMK 1-18-18</i> 
LCS 320-204506/2	LC537-MSP_00027	100 uL	1.0 mL		
LCS 320-204506/2	LC537-SU_00054	100 uL	1.0 mL		
LCSD 320-204506/3	LC537-MSP_00027	100 uL	1.0 mL		
LCSD 320-204506/3	LC537-SU_00054	100 uL	1.0 mL		
320-34946-A-1	LC537-SU_00054	100 uL	1.0 mL		
320-34946-A-2	LC537-SU_00054	100 uL	1.0 mL		
320-34946-A-3	LC537-SU_00054	100 uL	1.0 mL		
320-34946-A-4	LC537-SU_00054	100 uL	1.0 mL		
320-34946-A-5	LC537-SU_00054	100 uL	1.0 mL		
320-34946-A-6	LC537-SU_00054	100 uL	1.0 mL		
320-34946-A-7	LC537-SU_00054	100 uL	1.0 mL		
320-34946-A-8	LC537-SU_00054	100 uL	1.0 mL		
320-34946-A-9	LC537-SU_00054	100 uL	1.0 mL		
320-34946-A-10	LC537-SU_00054	100 uL	1.0 mL		
320-34946-A-11	LC537-SU_00054	100 uL	1.0 mL		
320-34946-A-12	LC537-SU_00054	100 uL	1.0 mL		
320-34946-A-13	LC537-SU_00054	100 uL	1.0 mL		

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-204506

Analyst: Kolstad, Kate M

Batch Open: 1/18/2018 12:21:00PM

Method Code: 320-537_Prep-320

Batch End:

320-34946-A-14	LC537-SU_00054	100 uL	1.0 mL	1-18-18	KMK 1-18-18
320-34946-A-15	LC537-SU_00054	100 uL	1.0 mL		
320-34946-A-16	LC537-SU_00054	100 uL	1.0 mL		
320-34946-A-17	LC537-SU_00054	100 uL	1.0 mL		
320-34946-A-18	LC537-SU_00054	100 uL	1.0 mL		
320-34946-A-19	LC537-SU_00054	100 uL	1.0 mL		

Other Reagents:

Reagent

Amount/Units

Lot#:

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Preparation Batch Number(s) 204506 Test 537

Earliest Holding Time 1-23-18

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: 1-19-18

2nd Level Reviewer: VPM

Date: 1/22/18

Comments: _____

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Kouchari, Shamiran

AS 1/20/18
AS 1/22/18
AY 1/23/18

Batch Number: 320-204304

Batch Open: 1/17/2018 10:49:00AM

Method Code: 320-537_Prep-320

Batch End: 1/18/2018 6:46:00PM

Extraction of Perfluorinated Alkyl Acids

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	PHs			Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
				Rcvd	Adj1	Adj2					
1 MB-320-204304/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	
			1.00 mL								
2 LLCS-320-204304/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	
			1.00 mL								
3 320-34917-A-1 (537_DOD5)	N/A (320-34917-1)	276.13 g	248.7 mL	7			1/13/18	16_Days	4	ch nd	
		27.43 g	1.00 mL								
320-34917-A-2 (537_DOD5)	N/A (320-34917-1)	280.44 g	253.2 mL	7			1/13/18	16_Days	4	ch nd	
		27.20 g	1.00 mL								
320-34917-A-3 (537_DOD5)	N/A (320-34917-1)	285.26 g	257.4 mL	7			1/13/18	16_Days	4	ch nd	
		27.84 g	1.00 mL								
6 320-34917-A-4 (537_DOD5)	N/A (320-34917-1)	283.33 g	256.1 mL	7			1/13/18	16_Days	4	ch nd	
		27.28 g	1.00 mL								
7 320-34917-A-5 (537_DOD5)	N/A (320-34917-1)	290.10 g	262.5 mL	7			1/13/18	16_Days	4	ch nd	
		27.65 g	1.00 mL								
8 320-34917-A-6 (537_DOD5)	N/A (320-34917-1)	267.18 g	239.2 mL	7			1/13/18	16_Days	4	ch nd	
		27.96 g	1.00 mL								
9 320-34917-A-7 (537_DOD5)	N/A (320-34917-1)	284.45 g	256.7 mL	7			1/13/18	16_Days	4	ch nd	
		27.74 g	1.00 mL								
10 320-34917-A-8 (537_DOD5)	N/A (320-34917-1)	284.94 g	257.5 mL	7			1/13/18	16_Days	4	ch nd	
		27.43 g	1.00 mL								

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)










Batch Number: 320-204304

Analyst: Kouchari, Shamiran

Batch Open: 1/17/2018 10:49:00AM

Method Code: 320-537_Prep-320

Batch End: 1/18/2018 6:46:00PM

11	320-34917-A-9 (537_DOD5)	N/A (320-34917-1)	293.45 g	266.1 mL	7		1/13/18	16_Days	4	ch nd	R1	
			27.32 g	1.00 mL								
12	320-34917-A-10 (537_DOD5)	N/A (320-34917-1)	278.90 g	251.2 mL	7		1/13/18	16_Days	4	ch nd	R1	
			27.73 g	1.00 mL								
13	320-34917-A-10-LMS (537_DOD5)	N/A (320-34917-1)	276.69 g	249.1 mL	7		1/13/18	16_Days	4	ch nd	R1	
			27.64 g	1.00 mL								
14	320-34917-A-10-LMSD (537_DOD5)	N/A (320-34917-1)	285.36 g	257.7 mL	7		1/13/18	16_Days	4	ch nd	R1	
			27.65 g	1.00 mL								
15	320-34917-A-11 (537_DOD5)	N/A (320-34917-1)	284.88 g	257.4 mL	7		1/13/18	16_Days	4	ch nd	R1	
			27.53 g	1.00 mL								
16	320-34917-A-12 (537_DOD5)	N/A (320-34917-1)	281.28 g	253.5 mL	7		1/13/18	16_Days	4	ch nd		
			27.81 g	1.00 mL								
17	320-34917-A-13 (537_DOD5)	N/A (320-34917-1)	276.54 g	249.5 mL	7		1/13/18	16_Days	4	ch nd		
			27.04 g	1.00 mL								
18	320-34917-A-14 (537_DOD5)	N/A (320-34917-1)	276.80 g	249.4 mL	7		1/13/18	16_Days	4	ch nd		
			27.41 g	1.00 mL								
19	320-34917-A-15 (537_DOD5)	N/A (320-34917-1)	279.74 g	252.5 mL	7		1/13/18	16_Days	4	ch nd		
			27.27 g	1.00 mL								

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-204304

Analyst: Kouchari, Shamiran

Batch Open: 1/17/2018 10:49:00AM

Method Code: 320-537_Prep-320

Batch End: 1/18/2018 6:46:00PM

Batch Notes

Manifold ID 3,1

pH Indicator ID 1617

Trizma ID SLBR4303V

SPE Cartridge ID 6357081-11

Methanol ID 1123833

Reagent Water ID 1-11-18

Internal Standard ID# 1099356

Pipette ID M16387D

Analyst ID - TA Reagent Drop CCB

Analyst ID - TA Reagent Drop HJA

Witness

Analyst ID - SU Reagent Drop CCB

Analyst ID - SU Reagent Drop HJA

Witness

Analyst ID - IS Reagent Drop JER

Analyst ID - IS Reagent Drop KMK

Witness

Analyst ID - Concentration CCB

Analyst ID - Aliquot Step KMK

Analyst ID - Final Volume Step KMK

Batch Comment Label ID's checked: SKD 1-17-18

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-204304

Analyst: Kouchari, Shamiran

Batch Open: 1/17/2018 10:49:00AM

Method Code: 320-537_Prep-320

Batch End: 1/18/2018 6:46:00PM

Comments

Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-204304

Analyst: Kouchari, Shamiran

Batch Open: 1/17/2018 10:49:00AM

Method Code: 320-537_Prep-320

Batch End:

Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-204304/1	LC537-SU_00054	100 uL	1.00 mL	CBS 1-17-18	HSD 1-17-18
LLCS 320-204304/2	LC537-LSP_00025	100 uL	1.00 mL		
LLCS 320-204304/2	LC537-SU_00054	100 uL	1.00 mL		
320-34917-A-1	LC537-SU_00054	100 uL	1.00 mL		
320-34917-A-2	LC537-SU_00054	100 uL	1.00 mL		
320-34917-A-3	LC537-SU_00054	100 uL	1.00 mL		
320-34917-A-4	LC537-SU_00054	100 uL	1.00 mL		
320-34917-A-5	LC537-SU_00054	100 uL	1.00 mL		
320-34917-A-6	LC537-SU_00054	100 uL	1.00 mL		
320-34917-A-7	LC537-SU_00054	100 uL	1.00 mL		
320-34917-A-8	LC537-SU_00054	100 uL	1.00 mL		
320-34917-A-9	LC537-SU_00054	100 uL	1.00 mL		
320-34917-A-10	LC537-SU_00054	100 uL	1.00 mL		
320-34917-A-10 LMS	LC537-LSP_00025	100 uL	1.00 mL		
320-34917-A-10 LMS	LC537-SU_00054	100 uL	1.00 mL		
320-34917-A-10 LMSD	LC537-LSP_00025	100 uL	1.00 mL		
320-34917-A-10 LMSD	LC537-SU_00054	100 uL	1.00 mL		
320-34917-A-11	LC537-SU_00054	100 uL	1.00 mL	N	

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-204304

Analyst: Kouchari, Shamiran

Batch Open: 1/17/2018 10:49:00AM

Method Code: 320-537_Prep-320

Batch End:

320-34917-A-12	LC537-SU_00054	100 uL	1.00 mL	<i>CES 1-17-18</i> ↓	<i>HSA 1-17-18</i> ↓
320-34917-A-13	LC537-SU_00054	100 uL	1.00 mL		
320-34917-A-14	LC537-SU_00054	100 uL	1.00 mL		
320-34917-A-15	LC537-SU_00054	100 uL	1.00 mL		

Other Reagents:

Reagent	Amount/Units	Lot#:

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Preparation Batch Number(s) 204304 Test 537

Earliest Holding Time 1-22-18

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	NA	NA
NCM for any anomalies filed	NA	NA
All NCMs include method code, matrix, and prep batch	NA	NA
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: 1-18-18

2nd Level Reviewer: VPM

Date: 1/22/18

Comments: VPM 1/22/18

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: 1/9/2018		COC No:					
TetraTech		Tel/Fax: 610.382.1170		Lab Contact: Dave Alltucker		Carrier: FedEx		1 of 1 COCs					
234 Mail Boulevard Suite 260		Analysis Turnaround Time								Sampler: Mary Kay Bond			
King of Prussia, PA 19406		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below 21								For Lab Use Only: Walk-in Client: <input type="checkbox"/> Lab Sampling: <input type="checkbox"/>			
610-382-1174		<input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day								Job / SDG No.:			
610-491-9688		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:	
Project Name: WE04		NAWC-010918-RW-206	1/9/2018	08:10	G	DW	2	N	N	X			
Site: WE04		NAWC-010918-FRB-206	1/9/2018	08:05	G	DW	2	N	N	X			Field Reagent Blank
P O # 1132358 (through EarthToxics)		NAWC-010918-RW-029	1/9/2018	08:40	G	DW	2	N	N	X			
		NAWC-010918-FRB-029	1/9/2018	08:35	G	DW	2	N	N	X			Field Reagent Blank
		WGNA-010918-RW-0533	1/9/2018	09:10	G	DW	2	N	N	X			
		WGNA-010918-FRB-0533	1/9/2018	09:05	G	DW	2	N	N	X			Field Reagent Blank
		WGNA-010918-RW-3193	1/9/2018	09:40	G	DW	2	N	N	X			
		WGNA-010918-FRB-3193	1/9/2018	09:35	G	DW	2	N	N	X			Field Reagent Blank
		WGNA-010918-DUP-17	1/9/2018	07:00	G	DW	2	N	N	Y			Duplicate
		NAWC-010918-RW-138	1/9/2018	11:10	G	DW	2	N	N	X			
		NAWC-010918-FRB-138	1/9/2018	11:05	G	DW	2	N	N	X			Field Reagent Blank
		NAWC-010918-RW-351	1/9/2018	11:40	G	DW	2	N	N	X			
		NAWC-010918-FRB-351	1/9/2018	11:35	G	DW	2	N	N	X			Field Reagent Blank
		NAWC-010918-RW-352	1/9/2018	12:10	G	DW	2	N	N	X			
		NAWC-010918-FRB-352	1/9/2018	12:05	G	DW	2	N	N	X			Field Reagent Blank
		NAWC-010918-RW-353	1/9/2018	12:40	G	DW	2	N	N	X			
		NAWC-010918-FRB-353	1/9/2018	12:35	G	DW	2	N	N	X			Field Reagent Blank
		NAWC-010918-RW-350	1/9/2018	13:10	G	DW	2	N	N	X			
		NAWC-010918-FRB-350	1/9/2018	13:05	G	DW	2	N	N	X			Field Reagent Blank
Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other: Trizma											Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)		
Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the											<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months		
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown													
Fed Ex Tracking: 7711 7363 8397													
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No				Custody Seal No.:				Cooler Temp. (C): Obs'd: <u>JCY</u>		Corr'd:		Therm ID No.: <u>AK2</u>	
Relinquished by: <u>[Signature]</u>				Company: Tetra Tech		Date/Time: 1/9/2018 16:00		Received by: <u>[Signature]</u>		Company: <u>TA-Sac</u>		Date/Time: 1/10/18 1005	
Relinquished to:				Company:		Date/Time:		Received by:		Company:		Date/Time:	
Relinquished:				Company:		Date/Time:		Received in Laboratory by:		Company:		Date/Time:	



320-34946 Chain of Custody

Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-34946-1

Login Number: 34946

List Source: TestAmerica Sacramento

List Number: 1

Creator: Turpen, Troy

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-010918-RW-206","537","RES","320-34946-1","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","17","ng/L","J","6.8","DL","","TRG","","","40","LOQ","YES","-99","","251.3","1.0","16",""
"NAWC-010918-RW-206","537","RES","320-34946-1","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","14","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES","-99","","251.3","1.0","8.0",""
"NAWC-010918-RW-206","537","RES","320-34946-1","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","251.3","1.0","12",""
"NAWC-010918-RW-206","537","RES","320-34946-1","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","251.3","1.0","36",""
"NAWC-010918-RW-206","537","RES","320-34946-1","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.3","ng/L","J","1.9","DL","","TRG","","","9.9","LOQ","YES","-99","","251.3","1.0","4.0",""
"NAWC-010918-RW-206","537","RES","320-34946-1","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","251.3","1.0","20",""
"NAWC-010918-RW-206","537","RES","320-34946-1","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","39.8","","251.3","1.0","0",""
"NAWC-010918-RW-206","537","RES","320-34946-1","TALSAC","STL00996","13C2
PFDA","45","ng/L","","-99","DL","","SURR","114","","-99","LOQ","YES","39.8","","251.3","1.0","0",""
"NAWC-010918-RW-138","537","RES","320-34946-10","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","9.3","ng/L","J M","7.1","DL","","TRG","","","42","LOQ","YES","-99","","240.1","1.0","17",""
"NAWC-010918-RW-138","537","RES","320-34946-10","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","25","ng/L","","2.9","DL","","TRG","","","21","LOQ","YES","-99","","240.1","1.0","8.3",""
"NAWC-010918-RW-138","537","RES","320-34946-10","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.7","DL","","TRG","","","31","LOQ","YES","-99","","240.1","1.0","12",""
"NAWC-010918-RW-138","537","RES","320-34946-10","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","37","ng/L","U","17","DL","","TRG","","","94","LOQ","YES","-99","","240.1","1.0","37",""
"NAWC-010918-RW-138","537","RES","320-34946-10","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","6.3","ng/L","J","2.0","DL","","TRG","","","10","LOQ","YES","-99","","240.1","1.0","4.2",""
"NAWC-010918-RW-138","537","RES","320-34946-10","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","21","ng/L","U","8.3","DL","","TRG","","","25","LOQ","YES","-99","","240.1","1.0","21",""
"NAWC-010918-RW-138","537","RES","320-34946-10","TALSAC","STL00993","13C2
PFHxA","39","ng/L","","-99","DL","","SURR","95","","-99","LOQ","YES","41.6","","240.1","1.0","0",""
"NAWC-010918-RW-138","537","RES","320-34946-10","TALSAC","STL00996","13C2
PFDA","46","ng/L","","-99","DL","","SURR","110","","-99","LOQ","YES","41.6","","240.1","1.0","0",""
"NAWC-010918-FRB-138","537","RES","320-34946-11","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.9","DL","","TRG","","","41","LOQ","YES","-99","","245.2","1.0","16",""
"NAWC-010918-FRB-138","537","RES","320-34946-11","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","8.2","ng/L","U","2.9","DL","","TRG","","","20","LOQ","YES","-99","","245.2","1.0","8.2",""
"NAWC-010918-FRB-138","537","RES","320-34946-11","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","31","LOQ","YES","-99","","245.2","1.0","12",""
"NAWC-010918-FRB-138","537","RES","320-34946-11","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","37","ng/L","U","16","DL","","TRG","","","92","LOQ","YES","-99","","245.2","1.0","37",""
"NAWC-010918-FRB-138","537","RES","320-34946-11","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.1","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","245.2","1.0","4.1",""
"NAWC-010918-FRB-138","537","RES","320-34946-11","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.2","DL","","TRG","","","24","LOQ","YES","-99","","245.2","1.0","20",""
"NAWC-010918-FRB-138","537","RES","320-34946-11","TALSAC","STL00993","13C2
PFHxA","39","ng/L","","-99","DL","","SURR","96","","-99","LOQ","YES","40.8","","245.2","1.0","0",""
"NAWC-010918-FRB-138","537","RES","320-34946-11","TALSAC","STL00996","13C2
PFDA","42","ng/L","","-99","DL","","SURR","104","","-99","LOQ","YES","40.8","","245.2","1.0","0",""
"NAWC-010918-RW-351","537","RES","320-34946-12","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","12","ng/L","J","6.9","DL","","TRG","","","41","LOQ","YES","-99","","246.8","1.0","16",""
"NAWC-010918-RW-351","537","RES","320-34946-12","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","16","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES","-99","","246.8","1.0","8.1",""
"NAWC-010918-RW-351","537","RES","320-34946-12","TALSAC","355-46-4","Perfluorohexanesulfonic acid

(PFHxS),"12","ng/L","U","5.6","DL","","TRG","","","30","LOQ","YES","-99","","246.8","1.0","12",""
"NAWC-010918-RW-351","537","RES","320-34946-12","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","246.8","1.0","36",""
"NAWC-010918-RW-351","537","RES","320-34946-12","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","5.3","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","246.8","1.0","4.1",""
"NAWC-010918-RW-351","537","RES","320-34946-12","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","246.8","1.0","20",""
"NAWC-010918-RW-351","537","RES","320-34946-12","TALSAC","STL00993","13C2
PFHxA","36","ng/L","","-99","DL","","SURR","89","","-99","LOQ","YES","40.5","","246.8","1.0","0",""
"NAWC-010918-RW-351","537","RES","320-34946-12","TALSAC","STL00996","13C2
PFDA","42","ng/L","","-99","DL","","SURR","104","","-99","LOQ","YES","40.5","","246.8","1.0","0",""
"NAWC-010918-FRB-351","537","RES","320-34946-13","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","250","1.0","16",""
"NAWC-010918-FRB-351","537","RES","320-34946-13","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.0","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","250","1.0","8.0",""
"NAWC-010918-FRB-351","537","RES","320-34946-13","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","250","1.0","12",""
"NAWC-010918-FRB-351","537","RES","320-34946-13","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","250","1.0","36",""
"NAWC-010918-FRB-351","537","RES","320-34946-13","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","250","1.0","4.0",""
"NAWC-010918-FRB-351","537","RES","320-34946-13","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","250","1.0","20",""
"NAWC-010918-FRB-351","537","RES","320-34946-13","TALSAC","STL00993","13C2
PFHxA","36","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","40.0","","250","1.0","0",""
"NAWC-010918-FRB-351","537","RES","320-34946-13","TALSAC","STL00996","13C2
PFDA","40","ng/L","","-99","DL","","SURR","100","","-99","LOQ","YES","40.0","","250","1.0","0",""
"NAWC-010918-RW-352","537","RES","320-34946-14","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U M","6.9","DL","","TRG","","","40","LOQ","YES","-99","","247.8","1.0","16",""
"NAWC-010918-RW-352","537","RES","320-34946-14","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","7.8","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES","-99","","247.8","1.0","8.1",""
"NAWC-010918-RW-352","537","RES","320-34946-14","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","247.8","1.0","12",""
"NAWC-010918-RW-352","537","RES","320-34946-14","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","247.8","1.0","36",""
"NAWC-010918-RW-352","537","RES","320-34946-14","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","247.8","1.0","4.0",""
"NAWC-010918-RW-352","537","RES","320-34946-14","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","247.8","1.0","20",""
"NAWC-010918-RW-352","537","RES","320-34946-14","TALSAC","STL00993","13C2
PFHxA","36","ng/L","","-99","DL","","SURR","88","","-99","LOQ","YES","40.4","","247.8","1.0","0",""
"NAWC-010918-RW-352","537","RES","320-34946-14","TALSAC","STL00996","13C2
PFDA","40","ng/L","","-99","DL","","SURR","99","","-99","LOQ","YES","40.4","","247.8","1.0","0",""
"NAWC-010918-FRB-352","537","RES","320-34946-15","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.9","DL","","TRG","","","41","LOQ","YES","-99","","244.9","1.0","16",""
"NAWC-010918-FRB-352","537","RES","320-34946-15","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.2","ng/L","U","2.9","DL","","TRG","","","20","LOQ","YES","-99","","244.9","1.0","8.2",""
"NAWC-010918-FRB-352","537","RES","320-34946-15","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","31","LOQ","YES","-99","","244.9","1.0","12",""
"NAWC-010918-FRB-352","537","RES","320-34946-15","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","16","DL","","TRG","","","92","LOQ","YES","-99","","244.9","1.0","37",""
"NAWC-010918-FRB-352","537","RES","320-34946-15","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.1","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","244.9","1.0","4.1",""
"NAWC-010918-FRB-352","537","RES","320-34946-15","TALSAC","375-95-1","Perfluorononanoic acid

(PFNA),"20","ng/L","U","8.2","DL","","TRG","","","24","LOQ","YES","-99","","244.9","1.0","20","","
"NAWC-010918-FRB-352","537","RES","320-34946-15","TALSAC","STL00993","13C2
PFHxA","41","ng/L","","-99","DL","","SURR","101","","-99","LOQ","YES","40.8","","244.9","1.0","0","","
"NAWC-010918-FRB-352","537","RES","320-34946-15","TALSAC","STL00996","13C2
PFDA","42","ng/L","","-99","DL","","SURR","103","","-99","LOQ","YES","40.8","","244.9","1.0","0","","
"NAWC-010918-RW-353","537","RES","320-34946-16","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","11","ng/L","J M","7.0","DL","","TRG","","","41","LOQ","YES","-99","","244","1.0","16","","
"NAWC-010918-RW-353","537","RES","320-34946-16","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","17","ng/L","J","2.9","DL","","TRG","","","20","LOQ","YES","-99","","244","1.0","8.2","","
"NAWC-010918-RW-353","537","RES","320-34946-16","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","8.2","ng/L","J","5.6","DL","","TRG","","","31","LOQ","YES","-99","","244","1.0","12","","
"NAWC-010918-RW-353","537","RES","320-34946-16","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","16","DL","","TRG","","","92","LOQ","YES","-99","","244","1.0","37","","
"NAWC-010918-RW-353","537","RES","320-34946-16","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","5.8","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","244","1.0","4.1","","
"NAWC-010918-RW-353","537","RES","320-34946-16","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.2","DL","","TRG","","","25","LOQ","YES","-99","","244","1.0","20","","
"NAWC-010918-RW-353","537","RES","320-34946-16","TALSAC","STL00993","13C2
PFHxA","38","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","41.0","","244","1.0","0","","
"NAWC-010918-RW-353","537","RES","320-34946-16","TALSAC","STL00996","13C2
PFDA","40","ng/L","","-99","DL","","SURR","99","","-99","LOQ","YES","41.0","","244","1.0","0","","
"NAWC-010918-FRB-353","537","RES","320-34946-17","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.9","DL","","TRG","","","41","LOQ","YES","-99","","246.6","1.0","16","","
"NAWC-010918-FRB-353","537","RES","320-34946-17","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.1","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","246.6","1.0","8.1","","
"NAWC-010918-FRB-353","537","RES","320-34946-17","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","30","LOQ","YES","-99","","246.6","1.0","12","","
"NAWC-010918-FRB-353","537","RES","320-34946-17","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","246.6","1.0","36","","
"NAWC-010918-FRB-353","537","RES","320-34946-17","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.1","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","246.6","1.0","4.1","","
"NAWC-010918-FRB-353","537","RES","320-34946-17","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","246.6","1.0","20","","
"NAWC-010918-FRB-353","537","RES","320-34946-17","TALSAC","STL00993","13C2
PFHxA","42","ng/L","","-99","DL","","SURR","102","","-99","LOQ","YES","40.6","","246.6","1.0","0","","
"NAWC-010918-FRB-353","537","RES","320-34946-17","TALSAC","STL00996","13C2
PFDA","39","ng/L","","-99","DL","","SURR","97","","-99","LOQ","YES","40.6","","246.6","1.0","0","","
"NAWC-010918-RW-350","537","RES","320-34946-18","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","J M","7.1","DL","","TRG","","","42","LOQ","YES","-99","","240","1.0","17","","
"NAWC-010918-RW-350","537","RES","320-34946-18","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","12","ng/L","J","2.9","DL","","TRG","","","21","LOQ","YES","-99","","240","1.0","8.3","","
"NAWC-010918-RW-350","537","RES","320-34946-18","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","13","ng/L","U","5.7","DL","","TRG","","","31","LOQ","YES","-99","","240","1.0","13","","
"NAWC-010918-RW-350","537","RES","320-34946-18","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","38","ng/L","U","17","DL","","TRG","","","94","LOQ","YES","-99","","240","1.0","38","","
"NAWC-010918-RW-350","537","RES","320-34946-18","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.6","ng/L","J","2.0","DL","","TRG","","","10","LOQ","YES","-99","","240","1.0","4.2","","
"NAWC-010918-RW-350","537","RES","320-34946-18","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","21","ng/L","U","8.3","DL","","TRG","","","25","LOQ","YES","-99","","240","1.0","21","","
"NAWC-010918-RW-350","537","RES","320-34946-18","TALSAC","STL00993","13C2
PFHxA","39","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","41.7","","240","1.0","0","","
"NAWC-010918-RW-350","537","RES","320-34946-18","TALSAC","STL00996","13C2
PFDA","43","ng/L","","-99","DL","","SURR","102","","-99","LOQ","YES","41.7","","240","1.0","0","","
"NAWC-010918-FRB-350","537","RES","320-34946-19","TALSAC","1763-23-1","Perfluorooctanesulfonic acid

(PFOS),"16","ng/L","U","6.9","DL","","TRG","","","40","LOQ","YES",-99,"","247.4","1.0","16",""
"NAWC-010918-FRB-350","537","RES","320-34946-19","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"8.1","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES",-99,"","247.4","1.0","8.1",""
"NAWC-010918-FRB-350","537","RES","320-34946-19","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"12","ng/L","U","5.6","DL","","TRG","","","30","LOQ","YES",-99,"","247.4","1.0","12",""
"NAWC-010918-FRB-350","537","RES","320-34946-19","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES",-99,"","247.4","1.0","36",""
"NAWC-010918-FRB-350","537","RES","320-34946-19","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES",-99,"","247.4","1.0","4.0",""
"NAWC-010918-FRB-350","537","RES","320-34946-19","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES",-99,"","247.4","1.0","20",""
"NAWC-010918-FRB-350","537","RES","320-34946-19","TALSAC","STL00993","13C2
PFHxA","39","ng/L","","-99","DL","","SURR","96","","-99","LOQ","YES","40.4","","247.4","1.0","0",""
"NAWC-010918-FRB-350","537","RES","320-34946-19","TALSAC","STL00996","13C2
PFDA","44","ng/L","","-99","DL","","SURR","108","","-99","LOQ","YES","40.4","","247.4","1.0","0",""
"NAWC-010918-FRB-206","537","RES","320-34946-2","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"16","ng/L","U","6.9","DL","","TRG","","","41","LOQ","YES",-99,"","245.8","1.0","16",""
"NAWC-010918-FRB-206","537","RES","320-34946-2","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"8.1","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES",-99,"","245.8","1.0","8.1",""
"NAWC-010918-FRB-206","537","RES","320-34946-2","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"12","ng/L","U","5.6","DL","","TRG","","","31","LOQ","YES",-99,"","245.8","1.0","12",""
"NAWC-010918-FRB-206","537","RES","320-34946-2","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"37","ng/L","U","16","DL","","TRG","","","92","LOQ","YES",-99,"","245.8","1.0","37",""
"NAWC-010918-FRB-206","537","RES","320-34946-2","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"4.1","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES",-99,"","245.8","1.0","4.1",""
"NAWC-010918-FRB-206","537","RES","320-34946-2","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES",-99,"","245.8","1.0","20",""
"NAWC-010918-FRB-206","537","RES","320-34946-2","TALSAC","STL00993","13C2
PFHxA","39","ng/L","","-99","DL","","SURR","95","","-99","LOQ","YES","40.7","","245.8","1.0","0",""
"NAWC-010918-FRB-206","537","RES","320-34946-2","TALSAC","STL00996","13C2
PFDA","42","ng/L","","-99","DL","","SURR","103","","-99","LOQ","YES","40.7","","245.8","1.0","0",""
"NAWC-010918-RW-029","537","RES","320-34946-3","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"22","ng/L","J M","6.9","DL","","TRG","","","41","LOQ","YES",-99,"","245.5","1.0","16",""
"NAWC-010918-RW-029","537","RES","320-34946-3","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"18","ng/L","J","2.9","DL","","TRG","","","20","LOQ","YES",-99,"","245.5","1.0","8.1",""
"NAWC-010918-RW-029","537","RES","320-34946-3","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"6.9","ng/L","J","5.6","DL","","TRG","","","31","LOQ","YES",-99,"","245.5","1.0","12",""
"NAWC-010918-RW-029","537","RES","320-34946-3","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS),"37","ng/L","U","16","DL","","TRG","","","92","LOQ","YES",-99,"","245.5","1.0","37",""
"NAWC-010918-RW-029","537","RES","320-34946-3","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA),"5.5","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES",-99,"","245.5","1.0","4.1",""
"NAWC-010918-RW-029","537","RES","320-34946-3","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA),"20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES",-99,"","245.5","1.0","20",""
"NAWC-010918-RW-029","537","RES","320-34946-3","TALSAC","STL00993","13C2
PFHxA","36","ng/L","","-99","DL","","SURR","89","","-99","LOQ","YES","40.7","","245.5","1.0","0",""
"NAWC-010918-RW-029","537","RES","320-34946-3","TALSAC","STL00996","13C2
PFDA","41","ng/L","","-99","DL","","SURR","100","","-99","LOQ","YES","40.7","","245.5","1.0","0",""
"NAWC-010918-FRB-029","537","RES","320-34946-4","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS),"16","ng/L","U","6.9","DL","","TRG","","","40","LOQ","YES",-99,"","247.8","1.0","16",""
"NAWC-010918-FRB-029","537","RES","320-34946-4","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA),"8.1","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES",-99,"","247.8","1.0","8.1",""
"NAWC-010918-FRB-029","537","RES","320-34946-4","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS),"12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES",-99,"","247.8","1.0","12",""
"NAWC-010918-FRB-029","537","RES","320-34946-4","TALSAC","375-73-5","Perfluorobutanesulfonic acid

(PFBS)", "36", "ng/L", "U", "16", "DL", "", "TRG", "", "", "91", "LOQ", "YES", "-99", "", "247.8", "1.0", "36", ""
"NAWC-010918-FRB-029", "537", "RES", "320-34946-4", "TALSAC", "375-85-9", "Perfluoroheptanoic acid
(PFHpA)", "4.0", "ng/L", "U", "1.9", "DL", "", "TRG", "", "", "10", "LOQ", "YES", "-99", "", "247.8", "1.0", "4.0", ""
"NAWC-010918-FRB-029", "537", "RES", "320-34946-4", "TALSAC", "375-95-1", "Perfluorononanoic acid
(PFNA)", "20", "ng/L", "U", "8.1", "DL", "", "TRG", "", "", "24", "LOQ", "YES", "-99", "", "247.8", "1.0", "20", ""
"NAWC-010918-FRB-029", "537", "RES", "320-34946-4", "TALSAC", "STL00993", "13C2
PFHxA", "40", "ng/L", "", "-99", "DL", "", "SURR", "99", "", "-99", "LOQ", "YES", "40.4", "", "247.8", "1.0", "0", ""
"NAWC-010918-FRB-029", "537", "RES", "320-34946-4", "TALSAC", "STL00996", "13C2
PFDA", "43", "ng/L", "", "-99", "DL", "", "SURR", "106", "", "-99", "LOQ", "YES", "40.4", "", "247.8", "1.0", "0", ""
"WGNA-010918-RW-0533", "537", "RES", "320-34946-5", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid
(PFOS)", "23", "ng/L", "J M", "6.8", "DL", "", "TRG", "", "", "40", "LOQ", "YES", "-99", "", "248.2", "1.0", "16", ""
"WGNA-010918-RW-0533", "537", "RES", "320-34946-5", "TALSAC", "335-67-1", "Perfluorooctanoic acid
(PFOA)", "20", "ng/L", "", "2.8", "DL", "", "TRG", "", "", "20", "LOQ", "YES", "-99", "", "248.2", "1.0", "8.1", ""
"WGNA-010918-RW-0533", "537", "RES", "320-34946-5", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid
(PFHxS)", "9.7", "ng/L", "J", "5.5", "DL", "", "TRG", "", "", "30", "LOQ", "YES", "-99", "", "248.2", "1.0", "12", ""
"WGNA-010918-RW-0533", "537", "RES", "320-34946-5", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid
(PFBS)", "36", "ng/L", "U", "16", "DL", "", "TRG", "", "", "91", "LOQ", "YES", "-99", "", "248.2", "1.0", "36", ""
"WGNA-010918-RW-0533", "537", "RES", "320-34946-5", "TALSAC", "375-85-9", "Perfluoroheptanoic acid
(PFHpA)", "4.5", "ng/L", "J", "1.9", "DL", "", "TRG", "", "", "10", "LOQ", "YES", "-99", "", "248.2", "1.0", "4.0", ""
"WGNA-010918-RW-0533", "537", "RES", "320-34946-5", "TALSAC", "375-95-1", "Perfluorononanoic acid
(PFNA)", "20", "ng/L", "U", "8.1", "DL", "", "TRG", "", "", "24", "LOQ", "YES", "-99", "", "248.2", "1.0", "20", ""
"WGNA-010918-RW-0533", "537", "RES", "320-34946-5", "TALSAC", "STL00993", "13C2
PFHxA", "37", "ng/L", "", "-99", "DL", "", "SURR", "93", "", "-99", "LOQ", "YES", "40.3", "", "248.2", "1.0", "0", ""
"WGNA-010918-RW-0533", "537", "RES", "320-34946-5", "TALSAC", "STL00996", "13C2
PFDA", "41", "ng/L", "", "-99", "DL", "", "SURR", "103", "", "-99", "LOQ", "YES", "40.3", "", "248.2", "1.0", "0", ""
"WGNA-010918-FRB-0533", "537", "RES", "320-34946-6", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid
(PFOS)", "16", "ng/L", "U", "6.9", "DL", "", "TRG", "", "", "41", "LOQ", "YES", "-99", "", "246.8", "1.0", "16", ""
"WGNA-010918-FRB-0533", "537", "RES", "320-34946-6", "TALSAC", "335-67-1", "Perfluorooctanoic acid
(PFOA)", "8.1", "ng/L", "U", "2.8", "DL", "", "TRG", "", "", "20", "LOQ", "YES", "-99", "", "246.8", "1.0", "8.1", ""
"WGNA-010918-FRB-0533", "537", "RES", "320-34946-6", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid
(PFHxS)", "12", "ng/L", "U", "5.6", "DL", "", "TRG", "", "", "30", "LOQ", "YES", "-99", "", "246.8", "1.0", "12", ""
"WGNA-010918-FRB-0533", "537", "RES", "320-34946-6", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid
(PFBS)", "36", "ng/L", "U", "16", "DL", "", "TRG", "", "", "91", "LOQ", "YES", "-99", "", "246.8", "1.0", "36", ""
"WGNA-010918-FRB-0533", "537", "RES", "320-34946-6", "TALSAC", "375-85-9", "Perfluoroheptanoic acid
(PFHpA)", "4.1", "ng/L", "U", "1.9", "DL", "", "TRG", "", "", "10", "LOQ", "YES", "-99", "", "246.8", "1.0", "4.1", ""
"WGNA-010918-FRB-0533", "537", "RES", "320-34946-6", "TALSAC", "375-95-1", "Perfluorononanoic acid
(PFNA)", "20", "ng/L", "U", "8.1", "DL", "", "TRG", "", "", "24", "LOQ", "YES", "-99", "", "246.8", "1.0", "20", ""
"WGNA-010918-FRB-0533", "537", "RES", "320-34946-6", "TALSAC", "STL00993", "13C2
PFHxA", "39", "ng/L", "", "-99", "DL", "", "SURR", "96", "", "-99", "LOQ", "YES", "40.5", "", "246.8", "1.0", "0", ""
"WGNA-010918-FRB-0533", "537", "RES", "320-34946-6", "TALSAC", "STL00996", "13C2
PFDA", "44", "ng/L", "", "-99", "DL", "", "SURR", "109", "", "-99", "LOQ", "YES", "40.5", "", "246.8", "1.0", "0", ""
"WGNA-010918-RW-3193", "537", "RES", "320-34946-7", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid
(PFOS)", "16", "ng/L", "J", "7.0", "DL", "", "TRG", "", "", "41", "LOQ", "YES", "-99", "", "243.5", "1.0", "16", ""
"WGNA-010918-RW-3193", "537", "RES", "320-34946-7", "TALSAC", "335-67-1", "Perfluorooctanoic acid
(PFOA)", "34", "ng/L", "", "2.9", "DL", "", "TRG", "", "", "21", "LOQ", "YES", "-99", "", "243.5", "1.0", "8.2", ""
"WGNA-010918-RW-3193", "537", "RES", "320-34946-7", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid
(PFHxS)", "15", "ng/L", "J", "5.6", "DL", "", "TRG", "", "", "31", "LOQ", "YES", "-99", "", "243.5", "1.0", "12", ""
"WGNA-010918-RW-3193", "537", "RES", "320-34946-7", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid
(PFBS)", "37", "ng/L", "U", "17", "DL", "", "TRG", "", "", "92", "LOQ", "YES", "-99", "", "243.5", "1.0", "37", ""
"WGNA-010918-RW-3193", "537", "RES", "320-34946-7", "TALSAC", "375-85-9", "Perfluoroheptanoic acid
(PFHpA)", "11", "ng/L", "", "2.0", "DL", "", "TRG", "", "", "10", "LOQ", "YES", "-99", "", "243.5", "1.0", "4.1", ""
"WGNA-010918-RW-3193", "537", "RES", "320-34946-7", "TALSAC", "375-95-1", "Perfluorononanoic acid
(PFNA)", "21", "ng/L", "U", "8.2", "DL", "", "TRG", "", "", "25", "LOQ", "YES", "-99", "", "243.5", "1.0", "21", ""
"WGNA-010918-RW-3193", "537", "RES", "320-34946-7", "TALSAC", "STL00993", "13C2

PFHxA,"38","ng/L","",-99,"DL","","SURR","93","",-99,"LOQ","YES","41.1","","243.5","1.0","0",""
"WGNA-010918-RW-3193","537","RES","320-34946-7","TALSAC","STL00996","13C2
PFDA,"46","ng/L","",-99,"DL","","SURR","112","",-99,"LOQ","YES","41.1","","243.5","1.0","0",""
"WGNA-010918-FRB-3193","537","RES","320-34946-8","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","16","ng/L","U","6.9","DL","","TRG","","","41","LOQ","YES","-99","","245.6","1.0","16",""
"WGNA-010918-FRB-3193","537","RES","320-34946-8","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","8.1","ng/L","U","2.9","DL","","TRG","","","20","LOQ","YES","-99","","245.6","1.0","8.1",""
"WGNA-010918-FRB-3193","537","RES","320-34946-8","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.6","DL","","TRG","","","31","LOQ","YES","-99","","245.6","1.0","12",""
"WGNA-010918-FRB-3193","537","RES","320-34946-8","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","37","ng/L","U","16","DL","","TRG","","","92","LOQ","YES","-99","","245.6","1.0","37",""
"WGNA-010918-FRB-3193","537","RES","320-34946-8","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","4.1","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","245.6","1.0","4.1",""
"WGNA-010918-FRB-3193","537","RES","320-34946-8","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","245.6","1.0","20",""
"WGNA-010918-FRB-3193","537","RES","320-34946-8","TALSAC","STL00993","13C2
PFHxA,"42","ng/L","",-99,"DL","","SURR","103","",-99,"LOQ","YES","40.7","","245.6","1.0","0",""
"WGNA-010918-FRB-3193","537","RES","320-34946-8","TALSAC","STL00996","13C2
PFDA,"45","ng/L","",-99,"DL","","SURR","111","",-99,"LOQ","YES","40.7","","245.6","1.0","0",""
"WGNA-010918-DUP-17","537","RES","320-34946-9","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","9.6","ng/L","J","6.8","DL","","TRG","","","40","LOQ","YES","-99","","249.2","1.0","16",""
"WGNA-010918-DUP-17","537","RES","320-34946-9","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","25","ng/L","","2.8","DL","","TRG","","","20","LOQ","YES","-99","","249.2","1.0","8.0",""
"WGNA-010918-DUP-17","537","RES","320-34946-9","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","249.2","1.0","12",""
"WGNA-010918-DUP-17","537","RES","320-34946-9","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","36","ng/L","U","16","DL","","TRG","","","90","LOQ","YES","-99","","249.2","1.0","36",""
"WGNA-010918-DUP-17","537","RES","320-34946-9","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","6.1","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES","-99","","249.2","1.0","4.0",""
"WGNA-010918-DUP-17","537","RES","320-34946-9","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","20","ng/L","U","8.0","DL","","TRG","","","24","LOQ","YES","-99","","249.2","1.0","20",""
"WGNA-010918-DUP-17","537","RES","320-34946-9","TALSAC","STL00993","13C2
PFHxA,"39","ng/L","",-99,"DL","","SURR","98","",-99,"LOQ","YES","40.1","","249.2","1.0","0",""
"WGNA-010918-DUP-17","537","RES","320-34946-9","TALSAC","STL00996","13C2
PFDA,"43","ng/L","",-99,"DL","","SURR","106","",-99,"LOQ","YES","40.1","","249.2","1.0","0",""
"LCS 320-204506/2-A","537","RES","LCS 320-204506/2-A","TALSAC","1763-23-1","Perfluorooctanesulfonic acid
(PFOS)","139","ng/L","","6.8","DL","","SPK","104","","40","LOQ","YES","133","","250.0","1.0","16",""
"LCS 320-204506/2-A","537","RES","LCS 320-204506/2-A","TALSAC","335-67-1","Perfluorooctanoic acid
(PFOA)","66.8","ng/L","","2.8","DL","","SPK","100","","20","LOQ","YES","66.7","","250.0","1.0","8.0",""
"LCS 320-204506/2-A","537","RES","LCS 320-204506/2-A","TALSAC","355-46-4","Perfluorohexanesulfonic acid
(PFHxS)","112","ng/L","","5.5","DL","","SPK","112","","30","LOQ","YES","100","","250.0","1.0","12",""
"LCS 320-204506/2-A","537","RES","LCS 320-204506/2-A","TALSAC","375-73-5","Perfluorobutanesulfonic acid
(PFBS)","268","ng/L","","16","DL","","SPK","89","","90","LOQ","YES","300","","250.0","1.0","36",""
"LCS 320-204506/2-A","537","RES","LCS 320-204506/2-A","TALSAC","375-85-9","Perfluoroheptanoic acid
(PFHpA)","38.4","ng/L","","1.9","DL","","SPK","115","","10","LOQ","YES","33.3","","250.0","1.0","4.0",""
"LCS 320-204506/2-A","537","RES","LCS 320-204506/2-A","TALSAC","375-95-1","Perfluorononanoic acid
(PFNA)","65.9","ng/L","","8.0","DL","","SPK","99","","24","LOQ","YES","66.7","","250.0","1.0","20",""
"LCS 320-204506/2-A","537","RES","LCS 320-204506/2-A","TALSAC","STL00993","13C2
PFHxA,"37.7","ng/L","",-99,"DL","","SURR","94","",-99,"LOQ","YES","40.0","","250.0","1.0","0",""
"LCS 320-204506/2-A","537","RES","LCS 320-204506/2-A","TALSAC","STL00996","13C2
PFDA,"41.2","ng/L","",-99,"DL","","SURR","103","",-99,"LOQ","YES","40.0","","250.0","1.0","0",""
"LCSD 320-204506/3-A","537","RES","LCSD 320-204506/3-A","TALSAC","1763-23-1","Perfluorooctanesulfonic
acid (PFOS)","135","ng/L","","6.8","DL","","SPK","102","2","40","LOQ","YES","133","LCS 320-204506/2-
A","250.0","1.0","16",""

"LCSD 320-204506/3-A", "537", "RES", "LCSD 320-204506/3-A", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "68.2", "ng/L", "", "2.8", "DL", "", "SPK", "102", "2", "20", "LOQ", "YES", "66.7", "LCS 320-204506/2-A", "250.0", "1.0", "8.0", ""

"LCSD 320-204506/3-A", "537", "RES", "LCSD 320-204506/3-A", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid (PFHxS)", "109", "ng/L", "", "5.5", "DL", "", "SPK", "109", "3", "30", "LOQ", "YES", "100", "LCS 320-204506/2-A", "250.0", "1.0", "12", ""

"LCSD 320-204506/3-A", "537", "RES", "LCSD 320-204506/3-A", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "293", "ng/L", "", "16", "DL", "", "SPK", "98", "9", "90", "LOQ", "YES", "300", "LCS 320-204506/2-A", "250.0", "1.0", "36", ""

"LCSD 320-204506/3-A", "537", "RES", "LCSD 320-204506/3-A", "TALSAC", "375-85-9", "Perfluoroheptanoic acid (PFHpA)", "37.3", "ng/L", "", "1.9", "DL", "", "SPK", "112", "3", "10", "LOQ", "YES", "33.3", "LCS 320-204506/2-A", "250.0", "1.0", "4.0", ""

"LCSD 320-204506/3-A", "537", "RES", "LCSD 320-204506/3-A", "TALSAC", "375-95-1", "Perfluorononanoic acid (PFNA)", "64.9", "ng/L", "", "8.0", "DL", "", "SPK", "97", "1", "24", "LOQ", "YES", "66.7", "LCS 320-204506/2-A", "250.0", "1.0", "20", ""

"LCSD 320-204506/3-A", "537", "RES", "LCSD 320-204506/3-A", "TALSAC", "STL00993", "13C2 PFHxA", "37.2", "ng/L", "", "-99", "DL", "", "SURR", "93", "", "-99", "LOQ", "YES", "40.0", "LCS 320-204506/2-A", "250.0", "1.0", "0", ""

"LCSD 320-204506/3-A", "537", "RES", "LCSD 320-204506/3-A", "TALSAC", "STL00996", "13C2 PFDA", "40.8", "ng/L", "", "-99", "DL", "", "SURR", "102", "", "-99", "LOQ", "YES", "40.0", "LCS 320-204506/2-A", "250.0", "1.0", "0", ""

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"MB 320-204506/1-A", "537", "RES", "MB 320-204506/1-A", "TALSAC", "335-67-1", "Perfluorooctanoic acid (PFOA)", "8.0", "ng/L", "U", "2.8", "DL", "", "TRG", "", "", "20", "LOQ", "YES", "-99", "", "250.0", "1.0", "8.0", ""

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"MB 320-204506/1-A", "537", "RES", "MB 320-204506/1-A", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid (PFBS)", "36", "ng/L", "U", "16", "DL", "", "TRG", "", "", "90", "LOQ", "YES", "-99", "", "250.0", "1.0", "36", ""

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"Unknown", "Unknown", "NAWC-010918-FRB-138", "01/09/2018 11:05", "AQ", "320-34946-11", "FB", "", "5.40", "537", "METHOD", "RES", "01/18/2018 12:21", "01/22/2018 11:45", "TALSAC", "COA", "WET", "NA", "1", "NA", "NA", "", "100", "320-204506", "320-204506", "NA", "320-204921", "320-34946-1", "01/10/2018 10:05", "01/10/2018 14:05", ""

"Unknown", "Unknown", "NAWC-010918-RW-351", "01/09/2018 11:40", "AQ", "320-34946-12", "NM", "", "5.40", "537", "METHOD", "RES", "01/18/2018 12:21", "01/22/2018 11:50", "TALSAC", "COA", "WET", "NA", "1", "NA", "NA", "", "100", "320-204506", "320-204506", "NA", "320-204921", "320-34946-1", "01/10/2018 10:05", "01/10/2018 14:05", ""

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13","FB","","5.40","537","METHOD","RES","01/18/2018 12:21","01/22/2018
11:54","TALSAC","COA","WET","NA","1","NA","NA","","100","320-204506","320-204506","NA","320-
204921","320-34946-1","01/10/2018 10:05","01/10/2018 14:05",""
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14","NM","","5.40","537","METHOD","RES","01/18/2018 12:21","01/22/2018
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204921","320-34946-1","01/10/2018 10:05","01/10/2018 14:05",""
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16","NM","","5.40","537","METHOD","RES","01/18/2018 12:21","01/22/2018
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204921","320-34946-1","01/10/2018 10:05","01/10/2018 14:05",""
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17","FB","","5.40","537","METHOD","RES","01/18/2018 12:21","01/22/2018
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19","FB","","5.40","537","METHOD","RES","01/18/2018 12:21","01/22/2018
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205018","320-34946-1","01/10/2018 10:05","01/10/2018 14:05",""
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3","NM","","5.40","537","METHOD","RES","01/18/2018 12:21","01/22/2018
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205018","320-34946-1","01/10/2018 10:05","01/10/2018 14:05",""
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4","FB","","5.40","537","METHOD","RES","01/18/2018 12:21","01/22/2018
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205018","320-34946-1","01/10/2018 10:05","01/10/2018 14:05",""
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6","FB","","5.40","537","METHOD","RES","01/18/2018 12:21","01/22/2018
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205018","320-34946-1","01/10/2018 10:05","01/10/2018 14:05",""
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7","NM","","5.40","537","METHOD","RES","01/18/2018 12:21","01/22/2018
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205018","320-34946-1","01/10/2018 10:05","01/10/2018 14:05",""
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205018","320-34946-1","01/18/2018 12:21","01/10/2018 14:05",""

TO: A. FREBOWITZ
SDG: 320-34946-1

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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-010918-RW-206	NAWC-010918-FRB-206
NAWC-010918-RW-029	NAWC-010918-FRB-029
WGNA-010918-RW-0533	WGNA-010918-FRB-0533
WGNA-010918-RW-3193	WGNA-010918-FRB-3193
WGNA-010918-DUP-17	NAWC-010918-FRB-138
NAWC-010918-RW-138	NAWC-010918-FRB-138
NAWC-010918-RW-351	NAWC-010918-FRB-351
NAWC-010918-RW-352	NAWC-010918-FRB-352
NAWC-010918-RW-353	NAWC-010918-FRB-353
NAWC-010918-RW-350	NAWC-010918-FRB-350

Non-detected results were reported to the Limit of Detection (LOD).

The buffering agent Trizma was added to all drinking water samples.

Executive Summary

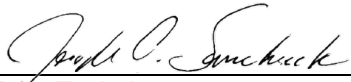
Laboratory Performance: No issues.

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.



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: 320-34946-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-010918-FRB-029			NAWC-010918-FRB-138			NAWC-010918-FRB-206			NAWC-010918-FRB-350		
	LAB_ID	320-34946-4			320-34946-11			320-34946-2			320-34946-19		
	SAMP_DATE	1/9/2018			1/9/2018			1/9/2018			1/9/2018		
	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	8.1	U		8.2	U		8.1	U		8.1	U		
PERFLUOROBUTANESULFONIC ACID	36	U		37	U		37	U		36	U		
PERFLUOROHEPTANOIC ACID	4	U		4.1	U		4.1	U		4	U		
PERFLUOROHXANESULFONIC ACID	12	U		12	U		12	U		12	U		
PERFLUORONONANOIC ACID	20	U		20	U		20	U		20	U		
PERFLUOROOCTANE SULFONIC ACID	16	U		16	U		16	U		16	U		

PROJ_NO: 08005-WE04 SDG: 320-34946-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-010918-FRB-351			NAWC-010918-FRB-352			NAWC-010918-FRB-353			NAWC-010918-RW-029		
	LAB_ID	320-34946-13			320-34946-15			320-34946-17			320-34946-3		
	SAMP_DATE	1/9/2018			1/9/2018			1/9/2018			1/9/2018		
	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	8	U		8.2	U		8.1	U		18	J	P	
PERFLUOROBUTANESULFONIC ACID	36	U		37	U		36	U		37	U		
PERFLUOROHEPTANOIC ACID	4	U		4.1	U		4.1	U		5.5	J	P	
PERFLUOROHEXANESULFONIC ACID	12	U		12	U		12	U		6.9	J	P	
PERFLUORONONANOIC ACID	20	U		20	U		20	U		20	U		
PERFLUOROOCTANE SULFONIC ACID	16	U		16	U		16	U		22	J	P	

PROJ_NO: 08005-WE04 SDG: 320-34946-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-010918-RW-138			NAWC-010918-RW-206			NAWC-010918-RW-350			NAWC-010918-RW-351		
	LAB_ID	320-34946-10			320-34946-1			320-34946-18			320-34946-12		
	SAMP_DATE	1/9/2018			1/9/2018			1/9/2018			1/9/2018		
	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			14 J	P		12 J	P		16 J	P		
PERFLUOROBUTANESULFONIC ACID	37 U			36 U			38 U			36 U			
PERFLUOROHEPTANOIC ACID	6.3 J	P		4.3 J	P		4.6 J	P		5.3 J	P		
PERFLUOROHEXANESULFONIC ACID	12 U			12 U			13 U			12 U			
PERFLUORONONANOIC ACID	21 U			20 U			21 U			20 U			
PERFLUOROOCTANE SULFONIC ACID	9.3 J	P		17 J	P		16 J	P		12 J	P		

PROJ_NO: 08005-WE04 SDG: 320-34946-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	NAWC-010918-RW-352			NAWC-010918-RW-353			WGNA-010918-DUP-17			WGNA-010918-FRB-0533		
	LAB_ID	320-34946-14			320-34946-16			320-34946-9			320-34946-6		
	SAMP_DATE	1/9/2018			1/9/2018			1/9/2018			1/9/2018		
	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-010918-RW-138					
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
PENTADECAFLUOROOCTANOIC ACID	7.8	J	P	17	J	P	25			8.1	U		
PERFLUOROBUTANESULFONIC ACID	36	U		37	U		36	U		36	U		
PERFLUOROHEPTANOIC ACID	4	U		5.8	J	P	6.1	J	P	4.1	U		
PERFLUOROHEXANESULFONIC ACID	12	U		8.2	J	P	12	U		12	U		
PERFLUORONONANOIC ACID	20	U		20	U		20	U		20	U		
PERFLUOROOCTANE SULFONIC ACID	16	U		11	J	P	9.6	J	P	16	U		

PROJ_NO: 08005-WE04 SDG: 320-34946-1 FRACTION: PFAS MEDIA: WATER	NSAMPLE	WGNA-010918-FRB-3193			WGNA-010918-RW-0533			WGNA-010918-RW-3193		
	LAB_ID	320-34946-8			320-34946-5			320-34946-7		
	SAMP_DATE	1/9/2018			1/9/2018			1/9/2018		
	QC_TYPE	FB			NM			NM		
	UNITS	NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF									
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
PENTADECAFLUOROOCTANOIC ACID	8.1	U		20			34			
PERFLUOROBUTANESULFONIC ACID	37	U		36	U		37	U		
PERFLUOROHEPTANOIC ACID	4.1	U		4.5	J	P	11			
PERFLUOROHXANESULFONIC ACID	12	U		9.7	J	P	15	J	P	
PERFLUORONONANOIC ACID	20	U		20	U		21	U		
PERFLUOROOCTANE SULFONIC ACID	16	U		23	J	P	16	J	P	

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-206 Lab Sample ID: 320-34946-1
 Matrix: Water Lab File ID: 2018.01.22_537AA_015.d
 Analysis Method: 537 Date Collected: 01/09/2018 08:10
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 251.3(mL) Date Analyzed: 01/22/2018 16:39
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	14	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)	4.3	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	114		70-130

Amir L. Selman
02/02/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-206 Lab Sample ID: 320-34946-2
 Matrix: Water Lab File ID: 2018.01.22_537AA_016.d
 Analysis Method: 537 Date Collected: 01/09/2018 08:05
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 245.8(mL) Date Analyzed: 01/22/2018 16:43
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	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	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	103		70-130

Ali L. Salaman
02/02/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-029 Lab Sample ID: 320-34946-3
 Matrix: Water Lab File ID: 2018.01.22_537AA_017.d
 Analysis Method: 537 Date Collected: 01/09/2018 08:40
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 245.5 (mL) Date Analyzed: 01/22/2018 16:48
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	J M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	18	J	20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.9	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.5	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	89		70-130
STL00996	13C2 PFDA	100		70-130

Steve L. Selmer
02/02/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-029 Lab Sample ID: 320-34946-4
 Matrix: Water Lab File ID: 2018.01.22_537AA_018.d
 Analysis Method: 537 Date Collected: 01/09/2018 08:35
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 247.8(mL) Date Analyzed: 01/22/2018 16:53
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 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	5.5
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	99		70-130
STL00996	13C2 PFDA	106		70-130

Steve L. Selmer
02/02/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: WGNA-010918-RW-0533 Lab Sample ID: 320-34946-5
 Matrix: Water Lab File ID: 2018.01.22_537AA_019.d
 Analysis Method: 537 Date Collected: 01/09/2018 09:10
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 248.2 (mL) Date Analyzed: 01/22/2018 16:58
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	23	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	20		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	9.7	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.5	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	93		70-130
STL00996	13C2 PFDA	103		70-130

Wesley L. Selman
02/02/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: WGNA-010918-FRB-0533 Lab Sample ID: 320-34946-6
 Matrix: Water Lab File ID: 2018.01.22_537AA_020.d
 Analysis Method: 537 Date Collected: 01/09/2018 09:05
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 246.8(mL) Date Analyzed: 01/22/2018 17:02
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	109		70-130

Ali L. Salaman
02/02/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: WGNA-010918-RW-3193 Lab Sample ID: 320-34946-7
 Matrix: Water Lab File ID: 2018.01.22_537AA_021.d
 Analysis Method: 537 Date Collected: 01/09/2018 09:40
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 243.5 (mL) Date Analyzed: 01/22/2018 17:07
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	J	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	34		21	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	15	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	11		10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	112		70-130

Wesley L. Salzman
02/02/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: WGNA-010918-FRB-3193 Lab Sample ID: 320-34946-8
 Matrix: Water Lab File ID: 2018.01.22_537A_024.d
 Analysis Method: 537 Date Collected: 01/09/2018 09:35
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 245.6(mL) Date Analyzed: 01/22/2018 11:31
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
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	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	111		70-130

Wesley L. Selman
02/02/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: WGNA-010918-DUP-17 Lab Sample ID: 320-34946-9
 Matrix: Water Lab File ID: 2018.01.22_537A_025.d
 Analysis Method: 537 Date Collected: 01/09/2018 07:00
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 249.2 (mL) Date Analyzed: 01/22/2018 11:36
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.6	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	25		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)	6.1	J	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	98		70-130
STL00996	13C2 PFDA	106		70-130

Wesley L. Salzman
02/02/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-138 Lab Sample ID: 320-34946-10
 Matrix: Water Lab File ID: 2018.01.22_537A_026.d
 Analysis Method: 537 Date Collected: 01/09/2018 11:10
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 240.1(mL) Date Analyzed: 01/22/2018 11:40
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.3	J M	42	17	7.1
335-67-1	Perfluorooctanoic acid (PFOA)	25		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)	6.3	J	10	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	94	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	110		70-130

Ali L. Salem
02/02/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-138 Lab Sample ID: 320-34946-11
 Matrix: Water Lab File ID: 2018.01.22_537A_027.d
 Analysis Method: 537 Date Collected: 01/09/2018 11:05
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 245.2 (mL) Date Analyzed: 01/22/2018 11:45
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.2	U	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	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	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	104		70-130

Wesley L. Selman
02/02/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-351 Lab Sample ID: 320-34946-12
 Matrix: Water Lab File ID: 2018.01.22_537A_028.d
 Analysis Method: 537 Date Collected: 01/09/2018 11:40
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 246.8 (mL) Date Analyzed: 01/22/2018 11:50
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	12	J	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	16	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)	5.3	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	89		70-130
STL00996	13C2 PFDA	104		70-130

Amir L. Salaman
02/02/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-351 Lab Sample ID: 320-34946-13
 Matrix: Water Lab File ID: 2018.01.22_537A_029.d
 Analysis Method: 537 Date Collected: 01/09/2018 11:35
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 250 (mL) Date Analyzed: 01/22/2018 11:54
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 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	90		70-130
STL00996	13C2 PFDA	100		70-130

Wesley L. Salzman
02/02/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-352 Lab Sample ID: 320-34946-14
 Matrix: Water Lab File ID: 2018.01.22_537A_030.d
 Analysis Method: 537 Date Collected: 01/09/2018 12:10
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 247.8 (mL) Date Analyzed: 01/22/2018 11:59
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U M	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	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	5.5
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	88		70-130
STL00996	13C2 PFDA	99		70-130

Wesley L. Selman
02/02/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-352 Lab Sample ID: 320-34946-15
 Matrix: Water Lab File ID: 2018.01.22_537A_031.d
 Analysis Method: 537 Date Collected: 01/09/2018 12:05
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 244.9(mL) Date Analyzed: 01/22/2018 12:04
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.2	U	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	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	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	103		70-130

Heidi L. Salomon
02/02/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-353 Lab Sample ID: 320-34946-16
 Matrix: Water Lab File ID: 2018.01.22_537A_032.d
 Analysis Method: 537 Date Collected: 01/09/2018 12:40
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 244(mL) Date Analyzed: 01/22/2018 12:08
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J M	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	17	J	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	25	20	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.2	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.8	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	99		70-130

Ali L. Salaman
02/02/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-353 Lab Sample ID: 320-34946-17
 Matrix: Water Lab File ID: 2018.01.22_537A_033.d
 Analysis Method: 537 Date Collected: 01/09/2018 12:35
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 246.6(mL) Date Analyzed: 01/22/2018 12:13
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	97		70-130

Amir J. Salaman
02/02/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-350 Lab Sample ID: 320-34946-18
 Matrix: Water Lab File ID: 2018.01.22_537A_036.d
 Analysis Method: 537 Date Collected: 01/09/2018 13:10
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 240 (mL) Date Analyzed: 01/22/2018 12:27
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204922 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	J M	42	17	7.1
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	13	U	31	13	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.6	J	10	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	38	U	94	38	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	102		70-130

Wesley L. Salomon
02/02/2018

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-350 Lab Sample ID: 320-34946-19
 Matrix: Water Lab File ID: 2018.01.22_537A_037.d
 Analysis Method: 537 Date Collected: 01/09/2018 13:05
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 247.4 (mL) Date Analyzed: 01/22/2018 12:32
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204922 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	96		70-130
STL00996	13C2 PFDA	108		70-130

Wesley L. Selmer
02/02/2018

Appendix B

Results as Reported by the Laboratory

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-206 Lab Sample ID: 320-34946-1
 Matrix: Water Lab File ID: 2018.01.22_537AA_015.d
 Analysis Method: 537 Date Collected: 01/09/2018 08:10
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 251.3(mL) Date Analyzed: 01/22/2018 16:39
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	17	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	14	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)	4.3	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	114		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-206 Lab Sample ID: 320-34946-2
 Matrix: Water Lab File ID: 2018.01.22_537AA_016.d
 Analysis Method: 537 Date Collected: 01/09/2018 08:05
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 245.8(mL) Date Analyzed: 01/22/2018 16:43
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	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	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	103		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-029 Lab Sample ID: 320-34946-3
 Matrix: Water Lab File ID: 2018.01.22_537AA_017.d
 Analysis Method: 537 Date Collected: 01/09/2018 08:40
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 245.5 (mL) Date Analyzed: 01/22/2018 16:48
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	22	J M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	18	J	20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.9	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.5	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	89		70-130
STL00996	13C2 PFDA	100		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-029 Lab Sample ID: 320-34946-4
 Matrix: Water Lab File ID: 2018.01.22_537AA_018.d
 Analysis Method: 537 Date Collected: 01/09/2018 08:35
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 247.8 (mL) Date Analyzed: 01/22/2018 16:53
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 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	5.5
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	99		70-130
STL00996	13C2 PFDA	106		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: WGNA-010918-RW-0533 Lab Sample ID: 320-34946-5
 Matrix: Water Lab File ID: 2018.01.22_537AA_019.d
 Analysis Method: 537 Date Collected: 01/09/2018 09:10
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 248.2 (mL) Date Analyzed: 01/22/2018 16:58
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	23	J M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	20		20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	9.7	J	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.5	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	93		70-130
STL00996	13C2 PFDA	103		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: WGNA-010918-FRB-0533 Lab Sample ID: 320-34946-6
 Matrix: Water Lab File ID: 2018.01.22_537AA_020.d
 Analysis Method: 537 Date Collected: 01/09/2018 09:05
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 246.8(mL) Date Analyzed: 01/22/2018 17:02
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	109		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: WGNA-010918-RW-3193 Lab Sample ID: 320-34946-7
 Matrix: Water Lab File ID: 2018.01.22_537AA_021.d
 Analysis Method: 537 Date Collected: 01/09/2018 09:40
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 243.5 (mL) Date Analyzed: 01/22/2018 17:07
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	J	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	34		21	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	15	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	11		10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	93		70-130
STL00996	13C2 PFDA	112		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: WGNA-010918-FRB-3193 Lab Sample ID: 320-34946-8
 Matrix: Water Lab File ID: 2018.01.22_537A_024.d
 Analysis Method: 537 Date Collected: 01/09/2018 09:35
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 245.6(mL) Date Analyzed: 01/22/2018 11:31
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.1	U	20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
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	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	111		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: WGNA-010918-DUP-17 Lab Sample ID: 320-34946-9
 Matrix: Water Lab File ID: 2018.01.22_537A_025.d
 Analysis Method: 537 Date Collected: 01/09/2018 07:00
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 249.2 (mL) Date Analyzed: 01/22/2018 11:36
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.6	J	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	25		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)	6.1	J	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	98		70-130
STL00996	13C2 PFDA	106		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-138 Lab Sample ID: 320-34946-10
 Matrix: Water Lab File ID: 2018.01.22_537A_026.d
 Analysis Method: 537 Date Collected: 01/09/2018 11:10
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 240.1(mL) Date Analyzed: 01/22/2018 11:40
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.3	J M	42	17	7.1
335-67-1	Perfluorooctanoic acid (PFOA)	25		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)	6.3	J	10	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	94	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	110		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-138 Lab Sample ID: 320-34946-11
 Matrix: Water Lab File ID: 2018.01.22_537A_027.d
 Analysis Method: 537 Date Collected: 01/09/2018 11:05
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 245.2 (mL) Date Analyzed: 01/22/2018 11:45
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.2	U	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	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	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	104		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-351 Lab Sample ID: 320-34946-12
 Matrix: Water Lab File ID: 2018.01.22_537A_028.d
 Analysis Method: 537 Date Collected: 01/09/2018 11:40
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 246.8 (mL) Date Analyzed: 01/22/2018 11:50
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	12	J	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	16	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)	5.3	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	89		70-130
STL00996	13C2 PFDA	104		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-351 Lab Sample ID: 320-34946-13
 Matrix: Water Lab File ID: 2018.01.22_537A_029.d
 Analysis Method: 537 Date Collected: 01/09/2018 11:35
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 250 (mL) Date Analyzed: 01/22/2018 11:54
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 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	90		70-130
STL00996	13C2 PFDA	100		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-352 Lab Sample ID: 320-34946-14
 Matrix: Water Lab File ID: 2018.01.22_537A_030.d
 Analysis Method: 537 Date Collected: 01/09/2018 12:10
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 247.8 (mL) Date Analyzed: 01/22/2018 11:59
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U M	40	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	7.8	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	5.5
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	88		70-130
STL00996	13C2 PFDA	99		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-352 Lab Sample ID: 320-34946-15
 Matrix: Water Lab File ID: 2018.01.22_537A_031.d
 Analysis Method: 537 Date Collected: 01/09/2018 12:05
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 244.9(mL) Date Analyzed: 01/22/2018 12:04
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	8.2	U	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	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	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	103		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-353 Lab Sample ID: 320-34946-16
 Matrix: Water Lab File ID: 2018.01.22_537A_032.d
 Analysis Method: 537 Date Collected: 01/09/2018 12:40
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 244(mL) Date Analyzed: 01/22/2018 12:08
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J M	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	17	J	20	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	25	20	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.2	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	5.8	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	99		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-353 Lab Sample ID: 320-34946-17
 Matrix: Water Lab File ID: 2018.01.22_537A_033.d
 Analysis Method: 537 Date Collected: 01/09/2018 12:35
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 246.6(mL) Date Analyzed: 01/22/2018 12:13
 Con. Extract Vol.: 1.0(mL) Dilution Factor: 1
 Injection Volume: 2(uL) GC Column: GeminiC18 3x100 ID: 3(mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204921 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	102		70-130
STL00996	13C2 PFDA	97		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-RW-350 Lab Sample ID: 320-34946-18
 Matrix: Water Lab File ID: 2018.01.22_537A_036.d
 Analysis Method: 537 Date Collected: 01/09/2018 13:10
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 240 (mL) Date Analyzed: 01/22/2018 12:27
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204922 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	J M	42	17	7.1
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	21	8.3	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.3
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	13	U	31	13	5.7
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.6	J	10	4.2	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	38	U	94	38	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	102		70-130

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: NAWC-010918-FRB-350 Lab Sample ID: 320-34946-19
 Matrix: Water Lab File ID: 2018.01.22_537A_037.d
 Analysis Method: 537 Date Collected: 01/09/2018 13:05
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 247.4 (mL) Date Analyzed: 01/22/2018 12:32
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 204922 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	96		70-130
STL00996	13C2 PFDA	108		70-130

Appendix C

Support Documentation

ANALYTE	ORIGINAL	DUPLICATE	RL	RPD	RPD > 50%	ORIGINAL SAMPLE	DUPLICATE SAMPLE	DIFFERENCE >2XRL
	RW-138	DUP-17				CONC >5xRL	CONC >5xRL	
Perfluorooctanoic acid (PFOA)	25	25	21	0	FALSE	FALSE	FALSE	FALSE
Perfluoroheptanoic acid (PFHpA)	6.3	6.1	10	3.23	FALSE	FALSE	FALSE	FALSE
Perfluorooctanesulfonic acid (PFOS)	9.3	9.6	42	3.17	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: 1/9/2018	COC No:
TetraTech	Tel/Fax: 610.382.1170	Lab Contact: Dave Altucker	Carrier: FedEx	1 of 1 COCs
234 Mail Boulevard Suite 260	Analysis Turnaround Time			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-010918-RW-206	1/9/2018	08:10	G	DW	2	N	X		
NAWC-010918-FRB-206	1/9/2018	08:05	G	DW	2	N	X		Field Reagent Blank
NAWC-010918-RW-029	1/9/2018	08:40	G	DW	2	N	X		
NAWC-010918-FRB-029	1/9/2018	08:35	G	DW	2	N	X		Field Reagent Blank
WGNA-010918-RW-0533	1/9/2018	09:10	G	DW	2	N	X		
WGNA-010918-FRB-0533	1/9/2018	09:05	G	DW	2	N	X		Field Reagent Blank
WGNA-010918-RW-3193	1/9/2018	09:40	G	DW	2	N	X		
WGNA-010918-FRB-3193	1/9/2018	09:35	G	DW	2	N	X		Field Reagent Blank
WGNA-010918-DUP-17	1/9/2018	07:00	G	DW	2	N	Y		Duplicate
NAWC-010918-RW-138	1/9/2018	11:10	G	DW	2	N	X		
NAWC-010918-FRB-138	1/9/2018	11:05	G	DW	2	N	X		Field Reagent Blank
NAWC-010918-RW-351	1/9/2018	11:40	G	DW	2	N	X		
NAWC-010918-FRB-351	1/9/2018	11:35	G	DW	2	N	X		Field Reagent Blank
NAWC-010918-RW-352	1/9/2018	12:10	G	DW	2	N	X		
NAWC-010918-FRB-352	1/9/2018	12:05	G	DW	2	N	X		Field Reagent Blank
NAWC-010918-RW-353	1/9/2018	12:40	G	DW	2	N	X		
NAWC-010918-FRB-353	1/9/2018	12:35	G	DW	2	N	X		Field Reagent Blank
NAWC-010918-RW-350	1/9/2018	13:10	G	DW	2	N	X		
NAWC-010918-FRB-350	1/9/2018	13:05	G	DW	2	N	X		Field Reagent Blank

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other: Trizma

Possible Hazard Identification:
 Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the

Non-Hazard Flammable Skin Irritant Poison B Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
 Return to Client Disposal by Lab Archive for _____ Months

Fed Ex Tracking: 7711 7363 8397

Custody Seals Intact: Yes No

Custody Seal No.:

Cooler Temp. (C): Obs'd: 5.4 Corr'd: _____ Therm ID No.: AK2

Relinquished by: <u>[Signature]</u>	Company: Tetra Tech	Date/Time: 1/9/2018 16:00	Received by: <u>[Signature]</u>	Company: TA-Sac	Date/Time: 1/10/18 1005
Relinquished to:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:



320-34946 Chain of Custody

Form No. CA-C-WI-002, Rev. 4.11, dated 1/24/2017

Job Narrative
320-34946-1

Receipt

The samples were received on 1/10/2018 10:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.4° C.

LCMS

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

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

Organic Prep

Method(s) 537: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 320-204506.

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: 320-34946-1

Qualifiers

LCMS

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

Glossary

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

Sample Summary

Client: Tetra Tech, Inc.

TestAmerica Job ID: 320-34946-1

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-34946-1	NAWC-010918-RW-206	Water	01/09/18 08:10	01/10/18 10:05
320-34946-2	NAWC-010918-FRB-206	Water	01/09/18 08:05	01/10/18 10:05
320-34946-3	NAWC-010918-RW-029	Water	01/09/18 08:40	01/10/18 10:05
320-34946-4	NAWC-010918-FRB-029	Water	01/09/18 08:35	01/10/18 10:05
320-34946-5	WGNA-010918-RW-0533	Water	01/09/18 09:10	01/10/18 10:05
320-34946-6	WGNA-010918-FRB-0533	Water	01/09/18 09:05	01/10/18 10:05
320-34946-7	WGNA-010918-RW-3193	Water	01/09/18 09:40	01/10/18 10:05
320-34946-8	WGNA-010918-FRB-3193	Water	01/09/18 09:35	01/10/18 10:05
320-34946-9	WGNA-010918-DUP-17	Water	01/09/18 07:00	01/10/18 10:05
320-34946-10	NAWC-010918-RW-138	Water	01/09/18 11:10	01/10/18 10:05
320-34946-11	NAWC-010918-FRB-138	Water	01/09/18 11:05	01/10/18 10:05
320-34946-12	NAWC-010918-RW-351	Water	01/09/18 11:40	01/10/18 10:05
320-34946-13	NAWC-010918-FRB-351	Water	01/09/18 11:35	01/10/18 10:05
320-34946-14	NAWC-010918-RW-352	Water	01/09/18 12:10	01/10/18 10:05
320-34946-15	NAWC-010918-FRB-352	Water	01/09/18 12:05	01/10/18 10:05
320-34946-16	NAWC-010918-RW-353	Water	01/09/18 12:40	01/10/18 10:05
320-34946-17	NAWC-010918-FRB-353	Water	01/09/18 12:35	01/10/18 10:05
320-34946-18	NAWC-010918-RW-350	Water	01/09/18 13:10	01/10/18 10:05
320-34946-19	NAWC-010918-FRB-350	Water	01/09/18 13:05	01/10/18 10:05

Method Summary

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

TestAmerica Job ID: 320-34946-1

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.: 320-34946-1

SDG No.: _____

Matrix: Water

Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
NAWC-010918-RW-206	320-34946-1	94	114
NAWC-010918-FRB-206	320-34946-2	95	103
NAWC-010918-RW-029	320-34946-3	89	100
NAWC-010918-FRB-029	320-34946-4	99	106
WGNA-010918-RW-0533	320-34946-5	93	103
WGNA-010918-FRB-0533	320-34946-6	96	109
WGNA-010918-RW-3193	320-34946-7	93	112
WGNA-010918-FRB-3193	320-34946-8	103	111
WGNA-010918-DUP-17	320-34946-9	98	106
NAWC-010918-RW-138	320-34946-10	95	110
NAWC-010918-FRB-138	320-34946-11	96	104
NAWC-010918-RW-351	320-34946-12	89	104
NAWC-010918-FRB-351	320-34946-13	90	100
NAWC-010918-RW-352	320-34946-14	88	99
NAWC-010918-FRB-352	320-34946-15	101	103
NAWC-010918-RW-353	320-34946-16	94	99
NAWC-010918-FRB-353	320-34946-17	102	97
NAWC-010918-RW-350	320-34946-18	94	102
NAWC-010918-FRB-350	320-34946-19	96	108
	MB 320-204506/1-A	91	105
	LCS 320-204506/2-A	94	103
	LCSD 320-204506/3-A	93	102

PFHxA = 13C2 PFHxA
PFDA = 13C2 PFDA

QC LIMITS
70-130
70-130

Column to be used to flag recovery values

FORM III
LCMS LAB CONTROL SAMPLE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Matrix: Water Level: Low Lab File ID: 2018.01.22_537AA_013.d
 Lab ID: LCS 320-204506/2-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	133	139	104	70-130	
Perfluorooctanoic acid (PFOA)	66.7	66.8	100	70-130	
Perfluorononanoic acid (PFNA)	66.7	65.9	99	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	112	112	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	38.4	115	70-130	
Perfluorobutanesulfonic acid (PFBS)	300	268	89	70-130	

Column to be used to flag recovery and RPD values

FORM III
LCMS LAB CONTROL SAMPLE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1

SDG No.: _____

Matrix: Water Level: Low Lab File ID: 2018.01.22_537AA_014.d

Lab ID: LCSD 320-204506/3-A Client ID: _____

COMPOUND	SPIKE ADDED (ng/L)	LCSD CONCENTRATION (ng/L)	LCSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	133	135	102	2	30	70-130	
Perfluorooctanoic acid (PFOA)	66.7	68.2	102	2	30	70-130	
Perfluorononanoic acid (PFNA)	66.7	64.9	97	1	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	109	109	3	30	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	37.3	112	3	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	300	293	98	9	30	70-130	

Column to be used to flag recovery and RPD values

FORM IV
LCMS METHOD BLANK SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-34946-1

SDG No.: _____

Lab File ID: 2018.01.22_537AA_012.d

Lab Sample ID: MB 320-204506/1-A

Matrix: Water

Date Extracted: 01/18/2018 12:21

Instrument ID: A8_N

Date Analyzed: 01/22/2018 16:25

Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
WGNA-010918-FRB-3193	320-34946-8	2018.01.22_537A 024.d	01/22/2018 11:31
WGNA-010918-DUP-17	320-34946-9	2018.01.22_537A 025.d	01/22/2018 11:36
NAWC-010918-RW-138	320-34946-10	2018.01.22_537A 026.d	01/22/2018 11:40
NAWC-010918-FRB-138	320-34946-11	2018.01.22_537A 027.d	01/22/2018 11:45
NAWC-010918-RW-351	320-34946-12	2018.01.22_537A 028.d	01/22/2018 11:50
NAWC-010918-FRB-351	320-34946-13	2018.01.22_537A 029.d	01/22/2018 11:54
NAWC-010918-RW-352	320-34946-14	2018.01.22_537A 030.d	01/22/2018 11:59
NAWC-010918-FRB-352	320-34946-15	2018.01.22_537A 031.d	01/22/2018 12:04
NAWC-010918-RW-353	320-34946-16	2018.01.22_537A 032.d	01/22/2018 12:08
NAWC-010918-FRB-353	320-34946-17	2018.01.22_537A 033.d	01/22/2018 12:13
NAWC-010918-RW-350	320-34946-18	2018.01.22_537A 036.d	01/22/2018 12:27
NAWC-010918-FRB-350	320-34946-19	2018.01.22_537A 037.d	01/22/2018 12:32
	LCS 320-204506/2-A	2018.01.22_537AA 013.d	01/22/2018 16:29
	LCSD 320-204506/3-A	2018.01.22_537AA 014.d	01/22/2018 16:34
NAWC-010918-RW-206	320-34946-1	2018.01.22_537AA 015.d	01/22/2018 16:39
NAWC-010918-FRB-206	320-34946-2	2018.01.22_537AA 016.d	01/22/2018 16:43
NAWC-010918-RW-029	320-34946-3	2018.01.22_537AA 017.d	01/22/2018 16:48
NAWC-010918-FRB-029	320-34946-4	2018.01.22_537AA 018.d	01/22/2018 16:53
WGNA-010918-RW-0533	320-34946-5	2018.01.22_537AA 019.d	01/22/2018 16:58
WGNA-010918-FRB-0533	320-34946-6	2018.01.22_537AA 020.d	01/22/2018 17:02
WGNA-010918-RW-3193	320-34946-7	2018.01.22_537AA 021.d	01/22/2018 17:07

FORM I
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Client Sample ID: _____ Lab Sample ID: MB 320-204506/1-A
 Matrix: Water Lab File ID: 2018.01.22_537AA_012.d
 Analysis Method: 537 Date Collected: _____
 Extraction Method: 537 Date Extracted: 01/18/2018 12:21
 Sample wt/vol: 250.0 (mL) Date Analyzed: 01/22/2018 16:25
 Con. Extract Vol.: 1.0 (mL) Dilution Factor: 1
 Injection Volume: 2 (uL) GC Column: GeminiC18 3x100 ID: 3 (mm)
 % Moisture: _____ GPC Cleanup: (Y/N) N
 Analysis Batch No.: 205018 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	91		70-130
STL00996	13C2 PFDA	105		70-130

FORM VIII
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 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 320-204917/1	1738614	1.87	3477849	2.12		
CCV 320-204921/19 CCVIS	1632653	1.82	3463169	2.08		
320-34946-8	WGNA-010918-FRB-3193	1501342	1.82	3371803	2.08	
320-34946-9	WGNA-010918-DUP-17	1561546	1.82	3455362	2.08	
320-34946-10	NAWC-010918-RW-138	1497454	1.82	3444274	2.08	
320-34946-11	NAWC-010918-FRB-138	1589423	1.82	3480486	2.08	
320-34946-12	NAWC-010918-RW-351	1543505	1.82	3463043	2.07	
320-34946-13	NAWC-010918-FRB-351	1535261	1.81	3428696	2.07	
320-34946-14	NAWC-010918-RW-352	1617639	1.81	3631152	2.07	
320-34946-15	NAWC-010918-FRB-352	1521010	1.82	3507636	2.07	
320-34946-16	NAWC-010918-RW-353	1517995	1.82	3452403	2.07	
320-34946-17	NAWC-010918-FRB-353	1518249	1.82	3454812	2.07	
CCV 320-204921/31 CCVIS	1873070	1.81	4087694	2.06		
CCV 320-204922/31 CCVIS	1873070	1.81	4087694	2.06		
320-34946-18	NAWC-010918-RW-350	1580097	1.81	3591601	2.06	
320-34946-19	NAWC-010918-FRB-350	1536831	1.81	3449393	2.06	
CCV 320-204922/35 CCVIS	1842177	1.81	3878695	2.06		
CCV 320-205018/1 CCVIS	1466727	1.81	3308445	2.07		
MB 320-204506/1-A	1483444	1.81	3277713	2.07		
LCS 320-204506/2-A	1503099	1.81	3184393	2.06		
LCSD 320-204506/3-A	1502453	1.81	3263362	2.07		
320-34946-1	NAWC-010918-RW-206	1461158	1.81	3191383	2.07	
320-34946-2	NAWC-010918-FRB-206	1586681	1.81	3365297	2.06	
320-34946-3	NAWC-010918-RW-029	1560349	1.81	3170102	2.07	
320-34946-4	NAWC-010918-FRB-029	1515701	1.81	3325992	2.06	
320-34946-5	WGNA-010918-RW-0533	1612121	1.81	3426741	2.07	

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.: 320-34946-1
 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					
320-34946-6	WGNA-010918-FRB-0533	1504173	1.81	3343189	2.07	
320-34946-7	WGNA-010918-RW-3193	1596201	1.81	3463029	2.06	
CCV 320-205018/13 CCVIS		1436325	1.81	3236840	2.06	

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.: 320-34946-1
 SDG No.: _____
 Sample No.: CCV 320-204921/19 Date Analyzed: 01/22/2018 11:22
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.01.22_537A_022 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1632653	1.82	3463169	2.08		
UPPER LIMIT	2285714	2.32	4848437	2.58		
LOWER LIMIT	1142857	1.32	2424218	1.58		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-34946-8	WGNA-010918-FRB-3193	1501342	1.82	3371803	2.08	
320-34946-9	WGNA-010918-DUP-17	1561546	1.82	3455362	2.08	
320-34946-10	NAWC-010918-RW-138	1497454	1.82	3444274	2.08	
320-34946-11	NAWC-010918-FRB-138	1589423	1.82	3480486	2.08	
320-34946-12	NAWC-010918-RW-351	1543505	1.82	3463043	2.07	
320-34946-13	NAWC-010918-FRB-351	1535261	1.81	3428696	2.07	
320-34946-14	NAWC-010918-RW-352	1617639	1.81	3631152	2.07	
320-34946-15	NAWC-010918-FRB-352	1521010	1.82	3507636	2.07	
320-34946-16	NAWC-010918-RW-353	1517995	1.82	3452403	2.07	
320-34946-17	NAWC-010918-FRB-353	1518249	1.82	3454812	2.07	

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.: 320-34946-1
 SDG No.: _____
 Sample No.: CCV 320-204921/31 Date Analyzed: 01/22/2018 12:18
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.01.22_537A_034 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1873070	1.81	4087694	2.06		
UPPER LIMIT	2622298	2.31	5722772	2.56		
LOWER LIMIT	1311149	1.31	2861386	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-34946-8	WGNA-010918-FRB-3193	1501342	1.82	3371803	2.08	
320-34946-9	WGNA-010918-DUP-17	1561546	1.82	3455362	2.08	
320-34946-10	NAWC-010918-RW-138	1497454	1.82	3444274	2.08	
320-34946-11	NAWC-010918-FRB-138	1589423	1.82	3480486	2.08	
320-34946-12	NAWC-010918-RW-351	1543505	1.82	3463043	2.07	
320-34946-13	NAWC-010918-FRB-351	1535261	1.81	3428696	2.07	
320-34946-14	NAWC-010918-RW-352	1617639	1.81	3631152	2.07	
320-34946-15	NAWC-010918-FRB-352	1521010	1.82	3507636	2.07	
320-34946-16	NAWC-010918-RW-353	1517995	1.82	3452403	2.07	
320-34946-17	NAWC-010918-FRB-353	1518249	1.82	3454812	2.07	

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.: 320-34946-1
 SDG No.: _____
 Sample No.: CCV 320-204922/31 Date Analyzed: 01/22/2018 12:18
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.01.22_537A_034 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1873070	1.81	4087694	2.06		
UPPER LIMIT	2622298	2.31	5722772	2.56		
LOWER LIMIT	1311149	1.31	2861386	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-34946-18	NAWC-010918-RW-350	1580097	1.81	3591601	2.06	
320-34946-19	NAWC-010918-FRB-350	1536831	1.81	3449393	2.06	

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.: 320-34946-1
 SDG No.: _____
 Sample No.: CCV 320-204922/35 Date Analyzed: 01/22/2018 12:36
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.01.22_537A_038 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1842177	1.81	3878695	2.06		
UPPER LIMIT	2579048	2.31	5430173	2.56		
LOWER LIMIT	1289524	1.31	2715087	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-34946-18	NAWC-010918-RW-350		1580097	1.81	3591601	2.06
320-34946-19	NAWC-010918-FRB-350		1536831	1.81	3449393	2.06

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.: 320-34946-1
 SDG No.: _____
 Sample No.: CCV 320-205018/1 Date Analyzed: 01/22/2018 16:15
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.01.22_537AA_01 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1466727	1.81	3308445	2.07		
UPPER LIMIT	2053418	2.31	4631823	2.57		
LOWER LIMIT	1026709	1.31	2315912	1.57		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-204506/1-A		1483444	1.81	3277713	2.07	
LCS 320-204506/2-A		1503099	1.81	3184393	2.06	
LCSD 320-204506/3-A		1502453	1.81	3263362	2.07	
320-34946-1	NAWC-010918-RW-206	1461158	1.81	3191383	2.07	
320-34946-2	NAWC-010918-FRB-206	1586681	1.81	3365297	2.06	
320-34946-3	NAWC-010918-RW-029	1560349	1.81	3170102	2.07	
320-34946-4	NAWC-010918-FRB-029	1515701	1.81	3325992	2.06	
320-34946-5	WGNA-010918-RW-0533	1612121	1.81	3426741	2.07	
320-34946-6	WGNA-010918-FRB-0533	1504173	1.81	3343189	2.07	
320-34946-7	WGNA-010918-RW-3193	1596201	1.81	3463029	2.06	

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.: 320-34946-1
 SDG No.: _____
 Sample No.: CCV 320-205018/13 Date Analyzed: 01/22/2018 17:12
 Instrument ID: A8_N GC Column: GeminiC18 3x100 ID: 3 (mm)
 Lab File ID (Standard): 2018.01.22_537AA_02 Heated Purge: (Y/N) N
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1436325	1.81	3236840	2.06		
UPPER LIMIT	2010855	2.31	4531576	2.56		
LOWER LIMIT	1005428	1.31	2265788	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-204506/1-A		1483444	1.81	3277713	2.07	
LCS 320-204506/2-A		1503099	1.81	3184393	2.06	
LCSD 320-204506/3-A		1502453	1.81	3263362	2.07	
320-34946-1	NAWC-010918-RW-206	1461158	1.81	3191383	2.07	
320-34946-2	NAWC-010918-FRB-206	1586681	1.81	3365297	2.06	
320-34946-3	NAWC-010918-RW-029	1560349	1.81	3170102	2.07	
320-34946-4	NAWC-010918-FRB-029	1515701	1.81	3325992	2.06	
320-34946-5	WGNA-010918-RW-0533	1612121	1.81	3426741	2.07	
320-34946-6	WGNA-010918-FRB-0533	1504173	1.81	3343189	2.07	
320-34946-7	WGNA-010918-RW-3193	1596201	1.81	3463029	2.06	

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.: 320-34946-1 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.: 320-34946-1 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.: 320-34946-1 Analy Batch No.: 192908

SDG No.: _____

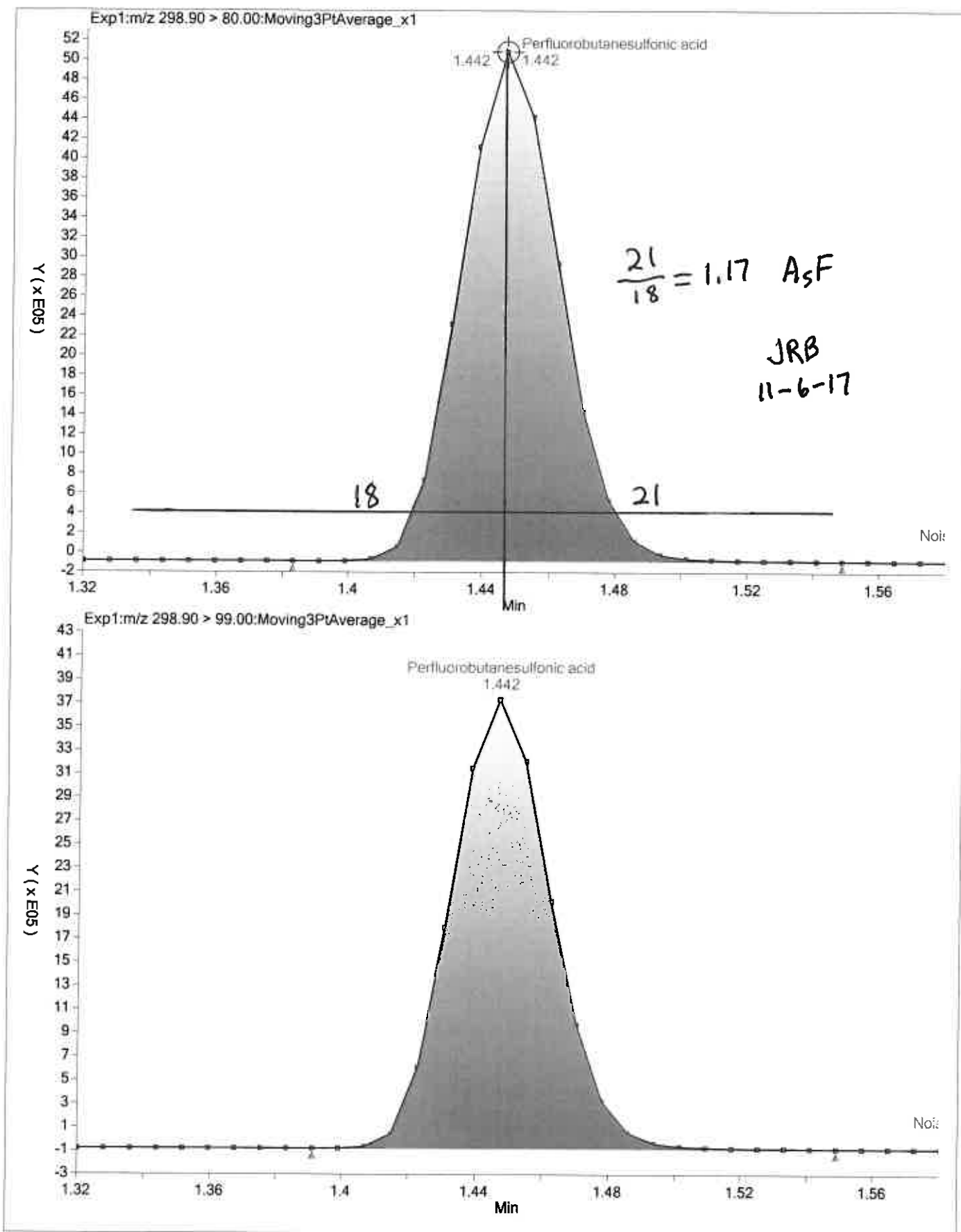
Instrument ID: A8_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N

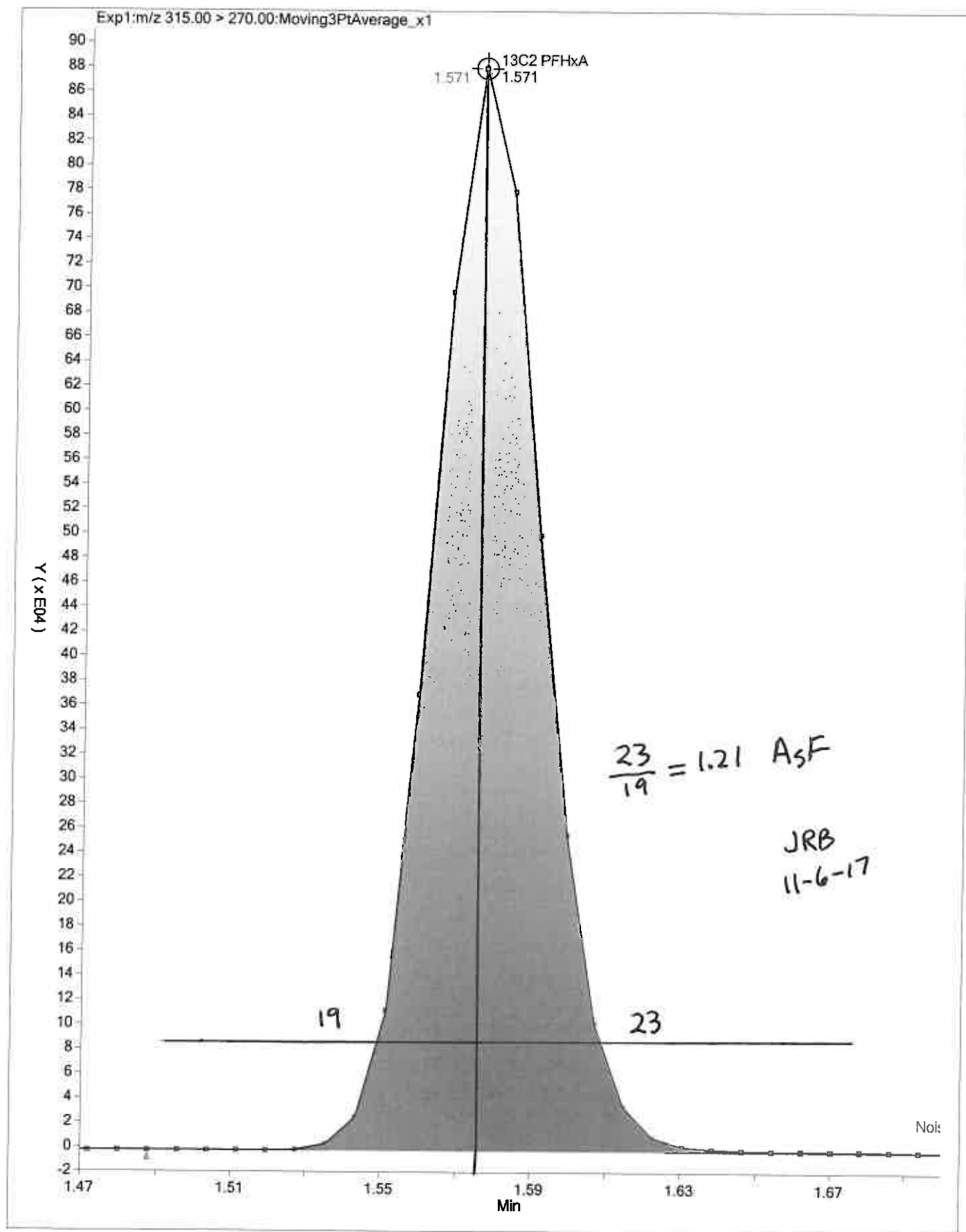
Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

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.: 320-34946-1
 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.: 320-34946-1
 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.: 320-34946-1
 SDG No.: _____
 Lab Sample ID: CCVL 320-204917/1 Calibration Date: 01/22/2018 09:58
 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: 2018.01.22_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		1.188		21.9	20.0	9.4	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.8629		2.05	2.22	-7.9	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.675		6.67	6.67	0.0	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9418		4.53	4.45	1.7	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9424		8.92	8.89	0.4	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6138		4.11	4.45	-7.6	50.0
13C2 PFHxA	Ave	1.100	1.025		9.32	10.0	-6.8	30.0
13C2 PFDA	Ave	0.7652	0.7624		9.96	10.0	-0.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Lab Sample ID: CCV 320-204921/19 Calibration Date: 01/22/2018 11:22
 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: 2018.01.22_537A_022.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9426		140	135	3.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.713		46.1	45.0	2.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.8998		14.4	15.0	-4.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9271		30.1	30.0	0.1	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9758		62.4	60.0	3.9	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6361		28.7	30.0	-4.2	30.0
13C2 PFHxA	Ave	1.100	1.099		9.99	10.0	-0.0	30.0
13C2 PFDA	Ave	0.7652	0.7758		10.1	10.0	1.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Lab Sample ID: CCV 320-204921/31 Calibration Date: 01/22/2018 12:18
 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: 2018.01.22_537A_034.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.098		47.1	45.0	4.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.8797		4.70	5.00	-6.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.715		15.4	15.0	2.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8506		9.20	10.0	-8.1	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6100		9.19	10.0	-8.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9117		19.4	20.0	-2.9	30.0
13C2 PFHxA	Ave	1.100	1.063		9.66	10.0	-3.4	30.0
13C2 PFDA	Ave	0.7652	0.7537		9.85	10.0	-1.5	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Lab Sample ID: CCV 320-204922/31 Calibration Date: 01/22/2018 12:18
 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: 2018.01.22_537A_034.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.098		47.1	45.0	4.7	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.8797		4.70	5.00	-6.1	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.715		15.4	15.0	2.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.8506		9.20	10.0	-8.1	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6100		9.19	10.0	-8.2	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9117		19.4	20.0	-2.9	30.0
13C2 PFHxA	Ave	1.100	1.063		9.66	10.0	-3.4	30.0
13C2 PFDA	Ave	0.7652	0.7537		9.85	10.0	-1.5	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Lab Sample ID: CCV 320-204922/35 Calibration Date: 01/22/2018 12:36
 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: 2018.01.22_537A_038.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9270		137	135	1.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9711		15.6	15.0	3.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.841		49.5	45.0	10.0	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9409		30.5	30.0	1.6	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9645		61.6	60.0	2.7	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6257		28.3	30.0	-5.8	30.0
13C2 PFHxA	Ave	1.100	1.157		10.5	10.0	5.2	30.0
13C2 PFDA	Ave	0.7652	0.7467		9.76	10.0	-2.4	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Lab Sample ID: CCV 320-205018/1 Calibration Date: 01/22/2018 16:15
 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: 2018.01.22_537AA_010.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.058		45.3	45.0	0.6	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9015		4.81	5.00	-3.8	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.731		15.5	15.0	3.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9088		9.82	10.0	-1.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9186		19.6	20.0	-2.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.6516		9.81	10.0	-1.9	30.0
13C2 PFHxA	Ave	1.100	1.112		10.1	10.0	1.1	30.0
13C2 PFDA	Ave	0.7652	0.8114		10.6	10.0	6.0	30.0

FORM VII
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1
 SDG No.: _____
 Lab Sample ID: CCV 320-205018/13 Calibration Date: 01/22/2018 17:12
 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: 2018.01.22_537AA_022.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9868		149	135	10.0	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	0.9892		15.8	15.0	5.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.731		46.5	45.0	3.4	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9804		31.8	30.0	5.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9627		61.5	60.0	2.5	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7042		31.8	30.0	6.0	30.0
13C2 PFHxA	Ave	1.100	1.201		10.9	10.0	9.2	30.0
13C2 PFDA	Ave	0.7652	0.8416		11.0	10.0	10.0	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1

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.: 320-34946-1

SDG No.: _____

Instrument ID: A8_N Start Date: 01/22/2018 09:58

Analysis Batch Number: 204917 End Date: 01/22/2018 10:26

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-204917/1		01/22/2018 09:58	1	2018.01.22_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-204917/2 CCVIS		01/22/2018 10:02	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/22/2018 10:12	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/22/2018 10:16	1		GeminiC18 3x100 3(mm)
ZZZZZ		01/22/2018 10:21	1		GeminiC18 3x100 3(mm)
CCV 320-204917/7 CCVIS		01/22/2018 10:26	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1

SDG No.: _____

Instrument ID: A8_N Start Date: 01/22/2018 11:22

Analysis Batch Number: 204921 End Date: 01/22/2018 12:18

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-204921/19 CCVIS		01/22/2018 11:22	1	2018.01.22_537A 022.d	GeminiC18 3x100 3(mm)
320-34946-8		01/22/2018 11:31	1	2018.01.22_537A 024.d	GeminiC18 3x100 3(mm)
320-34946-9		01/22/2018 11:36	1	2018.01.22_537A 025.d	GeminiC18 3x100 3(mm)
320-34946-10		01/22/2018 11:40	1	2018.01.22_537A 026.d	GeminiC18 3x100 3(mm)
320-34946-11		01/22/2018 11:45	1	2018.01.22_537A 027.d	GeminiC18 3x100 3(mm)
320-34946-12		01/22/2018 11:50	1	2018.01.22_537A 028.d	GeminiC18 3x100 3(mm)
320-34946-13		01/22/2018 11:54	1	2018.01.22_537A 029.d	GeminiC18 3x100 3(mm)
320-34946-14		01/22/2018 11:59	1	2018.01.22_537A 030.d	GeminiC18 3x100 3(mm)
320-34946-15		01/22/2018 12:04	1	2018.01.22_537A 031.d	GeminiC18 3x100 3(mm)
320-34946-16		01/22/2018 12:08	1	2018.01.22_537A 032.d	GeminiC18 3x100 3(mm)
320-34946-17		01/22/2018 12:13	1	2018.01.22_537A 033.d	GeminiC18 3x100 3(mm)
CCV 320-204921/31 CCVIS		01/22/2018 12:18	1	2018.01.22_537A 034.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1

SDG No.: _____

Instrument ID: A8_N Start Date: 01/22/2018 12:18

Analysis Batch Number: 204922 End Date: 01/22/2018 12:36

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-204922/31 CCVIS		01/22/2018 12:18	1	2018.01.22_537A 034.d	GeminiC18 3x100 3(mm)
320-34946-18		01/22/2018 12:27	1	2018.01.22_537A 036.d	GeminiC18 3x100 3(mm)
320-34946-19		01/22/2018 12:32	1	2018.01.22_537A 037.d	GeminiC18 3x100 3(mm)
CCV 320-204922/35 CCVIS		01/22/2018 12:36	1	2018.01.22_537A 038.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1

SDG No.: _____

Instrument ID: A8_N Start Date: 01/22/2018 16:15

Analysis Batch Number: 205018 End Date: 01/22/2018 17:12

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-205018/1 CCVIS		01/22/2018 16:15	1	2018.01.22_537A A 010.d	GeminiC18 3x100 3(mm)
MB 320-204506/1-A		01/22/2018 16:25	1	2018.01.22_537A A 012.d	GeminiC18 3x100 3(mm)
LCS 320-204506/2-A		01/22/2018 16:29	1	2018.01.22_537A A 013.d	GeminiC18 3x100 3(mm)
LCSD 320-204506/3-A		01/22/2018 16:34	1	2018.01.22_537A A 014.d	GeminiC18 3x100 3(mm)
320-34946-1		01/22/2018 16:39	1	2018.01.22_537A A 015.d	GeminiC18 3x100 3(mm)
320-34946-2		01/22/2018 16:43	1	2018.01.22_537A A 016.d	GeminiC18 3x100 3(mm)
320-34946-3		01/22/2018 16:48	1	2018.01.22_537A A 017.d	GeminiC18 3x100 3(mm)
320-34946-4		01/22/2018 16:53	1	2018.01.22_537A A 018.d	GeminiC18 3x100 3(mm)
320-34946-5		01/22/2018 16:58	1	2018.01.22_537A A 019.d	GeminiC18 3x100 3(mm)
320-34946-6		01/22/2018 17:02	1	2018.01.22_537A A 020.d	GeminiC18 3x100 3(mm)
320-34946-7		01/22/2018 17:07	1	2018.01.22_537A A 021.d	GeminiC18 3x100 3(mm)
CCV 320-205018/13 CCVIS		01/22/2018 17:12	1	2018.01.22_537A A 022.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-34946-1

SDG No.: _____

Batch Number: 204506 Batch Start Date: 01/18/18 12:21 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 01/19/18 16:56

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00056
MB 320-204506/1		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
LCS 320-204506/2		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
LCSD 320-204506/3		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
320-34946-A-1	NAWC-010918-RW-206	537, 537	T	278.90 g	27.62 g	251.3 mL	1.0 mL	7 SU	100 uL
320-34946-A-2	NAWC-010918-FRB-206	537, 537	T	273.25 g	27.44 g	245.8 mL	1.0 mL	7 SU	100 uL
320-34946-A-3	NAWC-010918-RW-029	537, 537	T	272.94 g	27.49 g	245.5 mL	1.0 mL	7 SU	100 uL
320-34946-A-4	NAWC-010918-FRB-029	537, 537	T	275.56 g	27.80 g	247.8 mL	1.0 mL	7 SU	100 uL
320-34946-A-5	WGNA-010918-RW-0533	537, 537	T	275.23 g	27.08 g	248.2 mL	1.0 mL	7 SU	100 uL
320-34946-A-6	WGNA-010918-FRB-0533	537, 537	T	274.51 g	27.73 g	246.8 mL	1.0 mL	7 SU	100 uL
320-34946-A-7	WGNA-010918-RW-3193	537, 537	T	270.99 g	27.46 g	243.5 mL	1.0 mL	7 SU	100 uL
320-34946-A-8	WGNA-010918-FRB-3193	537, 537	T	273.10 g	27.47 g	245.6 mL	1.0 mL	7 SU	100 uL
320-34946-A-9	WGNA-010918-DUP-17	537, 537	T	276.66 g	27.47 g	249.2 mL	1.0 mL	7 SU	100 uL
320-34946-A-10	NAWC-010918-RW-138	537, 537	T	268.45 g	28.37 g	240.1 mL	1.0 mL	7 SU	100 uL
320-34946-A-11	NAWC-010918-FRB-138	537, 537	T	272.57 g	27.35 g	245.2 mL	1.0 mL	7 SU	100 uL
320-34946-A-12	NAWC-010918-RW-351	537, 537	T	274.45 g	27.67 g	246.8 mL	1.0 mL	7 SU	100 uL
320-34946-A-13	NAWC-010918-FRB-351	537, 537	T	277.01 g	27.05 g	250 mL	1.0 mL	7 SU	100 uL
320-34946-A-14	NAWC-010918-RW-352	537, 537	T	275.28 g	27.45 g	247.8 mL	1.0 mL	7 SU	100 uL
320-34946-A-15	NAWC-010918-FRB-352	537, 537	T	272.12 g	27.21 g	244.9 mL	1.0 mL	7 SU	100 uL
320-34946-A-16	NAWC-010918-RW-353	537, 537	T	271.46 g	27.49 g	244 mL	1.0 mL	7 SU	100 uL
320-34946-A-17	NAWC-010918-FRB-353	537, 537	T	274.27 g	27.72 g	246.6 mL	1.0 mL	7 SU	100 uL
320-34946-A-18	NAWC-010918-RW-350	537, 537	T	267.71 g	27.75 g	240 mL	1.0 mL	7 SU	100 uL
320-34946-A-19	NAWC-010918-FRB-350	537, 537	T	274.62 g	27.21 g	247.4 mL	1.0 mL	7 SU	100 uL

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.: 320-34946-1

SDG No.: _____

Batch Number: 204506 Batch Start Date: 01/18/18 12:21 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 01/19/18 16:56

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-MSP 00027	LC537-SU 00054	AnalysisComment			
MB 320-204506/1		537, 537			100 uL	C1 ND			
LCS 320-204506/2		537, 537		100 uL	100 uL	C1 ND			
LCSD 320-204506/3		537, 537		100 uL	100 uL	C1 ND			
320-34946-A-1	NAWC-010918-RW-206	537, 537	T		100 uL	C1 ND			
320-34946-A-2	NAWC-010918-FRB-206	537, 537	T		100 uL	C1 ND			
320-34946-A-3	NAWC-010918-RW-029	537, 537	T		100 uL	C1 ND			
320-34946-A-4	NAWC-010918-FRB-029	537, 537	T		100 uL	C1 ND			
320-34946-A-5	WGNA-010918-RW-0533	537, 537	T		100 uL	C1 ND			
320-34946-A-6	WGNA-010918-FRB-0533	537, 537	T		100 uL	C1 ND			
320-34946-A-7	WGNA-010918-RW-3193	537, 537	T		100 uL	C1 ND			
320-34946-A-8	WGNA-010918-FRB-3193	537, 537	T		100 uL	C1 ND			
320-34946-A-9	WGNA-010918-DUP-17	537, 537	T		100 uL	C1 ND			
320-34946-A-10	NAWC-010918-RW-138	537, 537	T		100 uL	C1 ND			
320-34946-A-11	NAWC-010918-FRB-138	537, 537	T		100 uL	C1 ND			
320-34946-A-12	NAWC-010918-RW-351	537, 537	T		100 uL	C1 ND			
320-34946-A-13	NAWC-010918-FRB-351	537, 537	T		100 uL	C1 ND			
320-34946-A-14	NAWC-010918-RW-352	537, 537	T		100 uL	C1 ND			
320-34946-A-15	NAWC-010918-FRB-352	537, 537	T		100 uL	C1 ND			
320-34946-A-16	NAWC-010918-RW-353	537, 537	T		100 uL	C1 ND			
320-34946-A-17	NAWC-010918-FRB-353	537, 537	T		100 uL	C1 ND			
320-34946-A-18	NAWC-010918-RW-350	537, 537	T		100 uL	C1 ND			
320-34946-A-19	NAWC-010918-FRB-350	537, 537	T		100 uL	C1 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.: 320-34946-1

SDG No.: _____

Batch Number: 204506 Batch Start Date: 01/18/18 12:21 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 01/19/18 16:56

Batch Notes	
Analyst ID - Aliquot Step	KMK
Batch Comment	Label ID's checked: KMK 1-18-18
Analyst ID - Concentration	CCB/KMK
Analyst ID - Final Volume Step	KMK
Internal Standard ID#	1099356
Manifold ID	3, 4
Methanol ID	1127832
pH Indicator ID	2517
Pipette ID	M16387D
Analyst ID - IS Reagent Drop	JER
Analyst ID - IS Reagent Drop Witness	KMK
Analyst ID - SU Reagent Drop	CCB
Analyst ID - SU Reagent Drop Witness	KMK
Analyst ID - TA Reagent Drop	CCB
Analyst ID - TA Reagent Drop Witness	KMK
SPE Cartridge ID	6357081-11
Trizma ID	SLBR4303V
Reagent Water ID	1-11-18

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.

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Aqueous Extraction Analysis Sheet

A8 1/22/18

(To Accompany Samples to Instruments)

Batch Number: 320-204506











Analyst: Kolstad, Kate M

Batch Open: 1/18/2018 12:21:00PM

Method Code: 320-537_Prep-320

Batch End: 1/19/2018 4:56:00PM

Extraction of Perfluorinated Alkyl Acids

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	Rcvd	PHs Adj1	Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1 MB-320-204506/1 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	CI ND	
			1.0 mL								
2 LCS-320-204506/2 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	CI ND	
			1.0 mL								
3 LCSD-320-204506/3 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	CI ND	
			1.0 mL								
4 320-34946-A-1 (537_DOD5)	N/A (320-34946-1)	278.90 g	251.3 mL	7			1/14/18	16_Days	4	CI ND	
		27.62 g	1.0 mL								
5 320-34946-A-2 (537_DOD5)	N/A (320-34946-1)	273.25 g	245.8 mL	7			1/14/18	16_Days	4	CI ND	
		27.44 g	1.0 mL								
6 320-34946-A-3 (537_DOD5)	N/A (320-34946-1)	272.94 g	245.5 mL	7			1/14/18	16_Days	4	CI ND	
		27.49 g	1.0 mL								
7 320-34946-A-4 (537_DOD5)	N/A (320-34946-1)	275.56 g	247.8 mL	7			1/14/18	16_Days	4	CI ND	
		27.80 g	1.0 mL								
8 320-34946-A-5 (537_DOD5)	N/A (320-34946-1)	275.23 g	248.2 mL	7			1/14/18	16_Days	4	CI ND	
		27.08 g	1.0 mL								
9 320-34946-A-6 (537_DOD5)	N/A (320-34946-1)	274.51 g	246.8 mL	7			1/14/18	16_Days	4	CI ND	
		27.73 g	1.0 mL								
10 320-34946-A-7 (537_DOD5)	N/A (320-34946-1)	270.99 g	243.5 mL	7			1/14/18	16_Days	4	CI ND	
		27.46 g	1.0 mL								

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)













Batch Number: 320-204506

Analyst: Kolstad, Kate M

Batch Open: 1/18/2018 12:21:00PM

Method Code: 320-537_Prep-320

Batch End: 1/19/2018 4:56:00PM

11	320-34946-A-8 (537_DOD5)	N/A (320-34946-1)	273.10 g 27.47 g	245.6 mL 1.0 mL	7			1/14/18	16_Days	4	CI ND	
12	320-34946-A-9 (537_DOD5)	N/A (320-34946-1)	276.66 g 27.47 g	249.2 mL 1.0 mL	7			1/14/18	16_Days	4	CI ND	
13	320-34946-A-10 (537_DOD5)	N/A (320-34946-1)	268.45 g 28.37 g	240.1 mL 1.0 mL	7			1/14/18	16_Days	4	CI ND	
14	320-34946-A-11 (537_DOD5)	N/A (320-34946-1)	272.57 g 27.35 g	245.2 mL 1.0 mL	7			1/14/18	16_Days	4	CI ND	
15	320-34946-A-12 (537_DOD5)	N/A (320-34946-1)	274.45 g 27.67 g	246.8 mL 1.0 mL	7			1/14/18	16_Days	4	CI ND	
16	320-34946-A-13 (537_DOD5)	N/A (320-34946-1)	277.01 g 27.05 g	250 mL 1.0 mL	7			1/14/18	16_Days	4	CI ND	
17	320-34946-A-14 (537_DOD5)	N/A (320-34946-1)	275.28 g 27.45 g	247.8 mL 1.0 mL	7			1/14/18	16_Days	4	CI ND	
18	320-34946-A-15 (537_DOD5)	N/A (320-34946-1)	272.12 g 27.21 g	244.9 mL 1.0 mL	7			1/14/18	16_Days	4	CI ND	
19	320-34946-A-16 (537_DOD5)	N/A (320-34946-1)	271.46 g 27.49 g	244 mL 1.0 mL	7			1/14/18	16_Days	4	CI ND	
20	320-34946-A-17 (537_DOD5)	N/A (320-34946-1)	274.27 g 27.72 g	246.6 mL 1.0 mL	7			1/14/18	16_Days	4	CI ND	
21	320-34946-A-18 (537_DOD5)	N/A (320-34946-1)	267.71 g 27.75 g	240 mL 1.0 mL	7			1/14/18	16_Days	4	CI ND	
22	320-34946-A-19 (537_DOD5)	N/A (320-34946-1)	274.62 g 27.21 g	247.4 mL 1.0 mL	7			1/14/18	16_Days	4	CI ND	

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-204506

Analyst: Kolstad, Kate M

Batch Open: 1/18/2018 12:21:00PM

Method Code: 320-537_Prep-320

Batch End: 1/19/2018 4:56:00PM

Batch Notes

Manifold ID 3, 4

pH Indicator ID 2517

Trizma ID SLBR4303V

SPE Cartridge ID 6357081-11

Methanol ID 1127832

Reagent Water ID 1-11-18

Internal Standard ID# 1099356

Pipette ID M16387D

Analyst ID - TA Reagent Drop CCB

Analyst ID - TA Reagent Drop Witness KMK

Analyst ID - SU Reagent Drop CCB

Analyst ID - SU Reagent Drop Witness KMK

Analyst ID - IS Reagent Drop JER

Analyst ID - IS Reagent Drop Witness KMK

Analyst ID - Concentration CCB/KMK

Analyst ID - Aliquot Step KMK

Analyst ID - Final Volume Step KMK

Batch Comment Label ID's checked: KMK 1-18-18

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Kouchari, Shamiran

A8 1/20/18
A8 1/22/18
A8 1/23/18

Batch Number: 320-204304

Method Code: 320-537_Prep-320

Batch Open: 1/17/2018 10:49:00AM

Batch End: 1/18/2018 6:46:00PM

Extraction of Perfluorinated Alkyl Acids

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	Rcvd	PHs Adj1	Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1 MB-320-204304/1 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	
			1.00 mL								
2 LLCS-320-204304/2 N/A	N/A		250 mL	7			N/A	N/A	N/A	ch nd	
			1.00 mL								
3 320-34917-A-1 (537_DOD5)	N/A (320-34917-1)	276.13 g	248.7 mL	7			1/13/18	16_Days	4	ch nd	
		27.43 g	1.00 mL								
320-34917-A-2 (537_DOD5)	N/A (320-34917-1)	280.44 g	253.2 mL	7			1/13/18	16_Days	4	ch nd	
		27.20 g	1.00 mL								
320-34917-A-3 (537_DOD5)	N/A (320-34917-1)	285.26 g	257.4 mL	7			1/13/18	16_Days	4	ch nd	
		27.84 g	1.00 mL								
320-34917-A-4 (537_DOD5)	N/A (320-34917-1)	283.33 g	256.1 mL	7			1/13/18	16_Days	4	ch nd	
		27.28 g	1.00 mL								
320-34917-A-5 (537_DOD5)	N/A (320-34917-1)	290.10 g	262.5 mL	7			1/13/18	16_Days	4	ch nd	
		27.65 g	1.00 mL								
320-34917-A-6 (537_DOD5)	N/A (320-34917-1)	267.18 g	239.2 mL	7			1/13/18	16_Days	4	ch nd	
		27.96 g	1.00 mL								
320-34917-A-7 (537_DOD5)	N/A (320-34917-1)	284.45 g	256.7 mL	7			1/13/18	16_Days	4	ch nd	
		27.74 g	1.00 mL								
320-34917-A-8 (537_DOD5)	N/A (320-34917-1)	284.94 g	257.5 mL	7			1/13/18	16_Days	4	ch nd	
		27.43 g	1.00 mL								

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)










Batch Number: 320-204304

Analyst: Kouchari, Shamiran

Batch Open: 1/17/2018 10:49:00AM

Method Code: 320-537_Prep-320

Batch End: 1/18/2018 6:46:00PM

11	320-34917-A-9 (537_DOD5)	N/A (320-34917-1)	293.45 g	266.1 mL	7			1/13/18	16_Days	4	ch nd	R1	
			27.32 g	1.00 mL									
12	320-34917-A-10 (537_DOD5)	N/A (320-34917-1)	278.90 g	251.2 mL	7			1/13/18	16_Days	4	ch nd	R1	
			27.73 g	1.00 mL									
13	320-34917-A-10-LMS (537_DOD5)	N/A (320-34917-1)	276.69 g	249.1 mL	7			1/13/18	16_Days	4	ch nd	R1	
			27.64 g	1.00 mL									
14	320-34917-A-10-LMSD (537_DOD5)	N/A (320-34917-1)	285.36 g	257.7 mL	7			1/13/18	16_Days	4	ch nd	R1	
			27.65 g	1.00 mL									
15	320-34917-A-11 (537_DOD5)	N/A (320-34917-1)	284.88 g	257.4 mL	7			1/13/18	16_Days	4	ch nd	R1	
			27.53 g	1.00 mL									
16	320-34917-A-12 (537_DOD5)	N/A (320-34917-1)	281.28 g	253.5 mL	7			1/13/18	16_Days	4	ch nd		
			27.81 g	1.00 mL									
17	320-34917-A-13 (537_DOD5)	N/A (320-34917-1)	276.54 g	249.5 mL	7			1/13/18	16_Days	4	ch nd		
			27.04 g	1.00 mL									
18	320-34917-A-14 (537_DOD5)	N/A (320-34917-1)	276.80 g	249.4 mL	7			1/13/18	16_Days	4	ch nd		
			27.41 g	1.00 mL									
19	320-34917-A-15 (537_DOD5)	N/A (320-34917-1)	279.74 g	252.5 mL	7			1/13/18	16_Days	4	ch nd		
			27.27 g	1.00 mL									

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Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-204304

Analyst: Kouchari, Shamiran

Batch Open: 1/17/2018 10:49:00AM

Method Code: 320-537_Prep-320

Batch End: 1/18/2018 6:46:00PM

Batch Notes

Manifold ID 3,1

pH Indicator ID 1617

Trizma ID SLBR4303V

SPE Cartridge ID 6357081-11

Methanol ID 1123833

Reagent Water ID 1-11-18

Internal Standard ID# 1099356

Pipette ID M16387D

Analyst ID - TA Reagent Drop CCB

Analyst ID - TA Reagent Drop HJA

Witness

Analyst ID - SU Reagent Drop CCB

Analyst ID - SU Reagent Drop HJA

Witness

Analyst ID - IS Reagent Drop JER

Analyst ID - IS Reagent Drop KMK

Witness

Analyst ID - Concentration CCB

Analyst ID - Aliquot Step KMK

Analyst ID - Final Volume Step KMK

Batch Comment Label ID's checked: SKD 1-17-18

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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 01/22/2018 @ 09:58

PFOS

Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	%D	Reported RRF	Reported %D
8.89	1016013	3477849	28.7	0.9431	0.4498609	0.9424	0.4

Willow Grove
SDG 320-34946-1

Sample Identification

NAWC-010918-RW-206

Compound

PFOS

Compound Area

440172

Internal Standard Amount (ng)

28.7

Dilution Factor

1

Internal Standard Area

3191383

Average RRF

0.9389

Sample Volume(L)

0.2531

Volume Extract (ml)

1

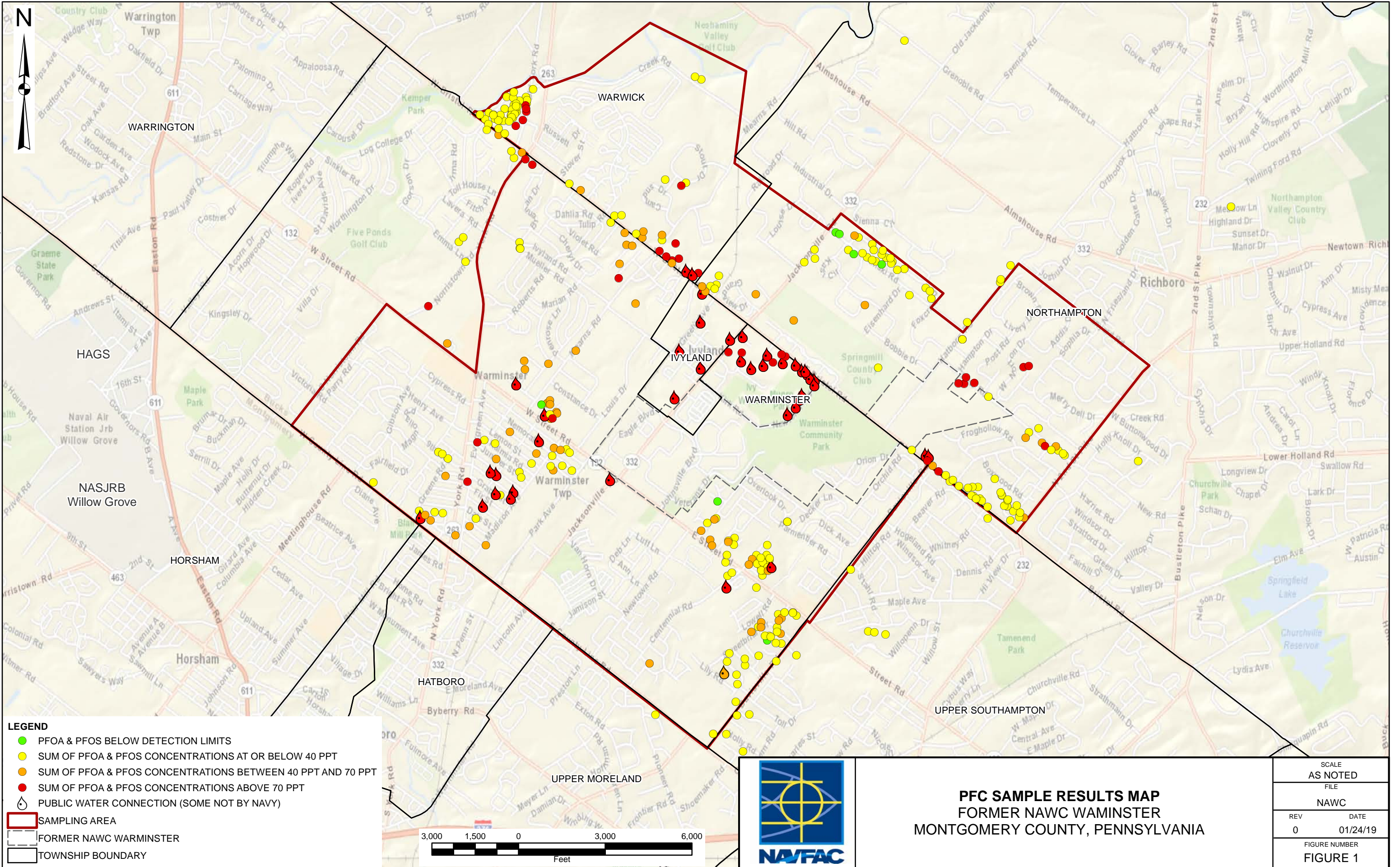
Injection Volume (μ l)

1

Concentration

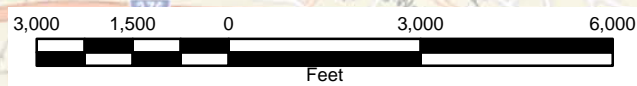
16.6577 ug/L

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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 WARRINSTER
- TOWNSHIP BOUNDARY



PFC SAMPLE RESULTS MAP
 FORMER NAWC WARRINSTER
 MONTGOMERY COUNTY, PENNSYLVANIA

SCALE AS NOTED	
FILE	
NAWC	
REV	DATE
0	01/24/19
FIGURE NUMBER	
FIGURE 1	