



**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 320-35824-1**

*Naval Air Warfare Center Warminster  
Warminster, Pennsylvania*

August 2019

N62269\_001168  
WARMINSTER\_NAWC  
SSIC 5000-33c

**LABORATORY DATA PACKAGE, 320-35824-1, NAS WILLOW GROVE NAWC  
WARMINSTER PA**  
02/21/2018  
TESTAMERICA LABORATORIES INC

Approved for public release: distribution unlimited.

## ANALYTICAL REPORT

Job Number: 320-35824-1

Job Description: Warminster: PFAS, NAS JRB Willow Grove

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



Approved for release.  
David R. Alltucker  
Project Manager I  
2/21/2018 8:51 AM

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David R Alltucker, Project Manager I  
880 Riverside Parkway, West Sacramento, CA, 95605  
(916)374-4383  
david.alltucker@testamericainc.com  
02/21/2018

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# Definitions/Glossary

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

TestAmerica Job ID: 320-35824-1

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## Qualifiers

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### LCMS

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
Q	One or more quality control criteria failed.

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## Glossary

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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**  
**320-35824-1**

**Receipt**

The samples were received on 2/7/2018 10:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.9° C.

**LCMS**

Method(s) 537: Surrogate recovery for the laboratory control sample (LCS) was outside control limits: (LCS 320-207932/2-A). The LCS had been run previously and the surrogates were in control. This injection was not used however because the associated CCV had the internal standard outside of limits. All the associated sample have the surrogates in control.

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

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

**Organic Prep**

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

# Detection Summary

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

TestAmerica Job ID: 320-35824-1

## Client Sample ID: NAWC-020618-RW-200

Lab Sample ID: 320-35824-1

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	18	J M	40	6.7	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	17	J	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	6.4	J	30	5.4	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.8	J	9.9	1.9	ng/L	1		537	Total/NA

## Client Sample ID: NAWC-020618-FRB-200

Lab Sample ID: 320-35824-2

No Detections.

## Client Sample ID: NAWC-020618-RW-223

Lab Sample ID: 320-35824-3

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	5.5	J M	20	2.9	ng/L	1		537	Total/NA

## Client Sample ID: NAWC-020618-FRB-223

Lab Sample ID: 320-35824-4

No Detections.

## Client Sample ID: NAWC-020618-RW-288

Lab Sample ID: 320-35824-5

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	11	J M	40	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	7.8	J	20	2.8	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	2.6	J M	10	1.9	ng/L	1		537	Total/NA

## Client Sample ID: NAWC-020618-FRB-288

Lab Sample ID: 320-35824-6

No Detections.

## Client Sample ID: WGNA-020618-RW-3118

Lab Sample ID: 320-35824-7

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanoic acid (PFOA)	23		20	2.8	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	6.6	J	10	1.9	ng/L	1		537	Total/NA
Perfluorobutanesulfonic acid (PFBS)	22	J	91	16	ng/L	1		537	Total/NA

## Client Sample ID: WGNA-020618-FRB-3118

Lab Sample ID: 320-35824-8

No Detections.

## Client Sample ID: NAWC-020618-RW-269

Lab Sample ID: 320-35824-9

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	28	J M	41	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	25		20	2.9	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	11	J	31	5.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	7.1	J	10	1.9	ng/L	1		537	Total/NA

## Client Sample ID: NAWC-020618-RFB-269

Lab Sample ID: 320-35824-10

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Sacramento



# Detection Summary

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

TestAmerica Job ID: 320-35824-1

## Client Sample ID: NAWC-020618-RW-109

Lab Sample ID: 320-35824-11

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	54	M	41	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	12	J	20	2.9	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	41		31	5.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.2	J M	10	1.9	ng/L	1		537	Total/NA

## Client Sample ID: NAWC-020618-FRB-109

Lab Sample ID: 320-35824-12

No Detections.

## Client Sample ID: WGNA-020618-DUP-25

Lab Sample ID: 320-35824-13

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	58	M	41	6.9	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	12	J	20	2.8	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	43		30	5.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	4.1	J	10	1.9	ng/L	1		537	Total/NA

## Client Sample ID: NAWC-020618-RW-186

Lab Sample ID: 320-35824-14

Analyte	Result	Qualifier	LOQ	DL	Unit	Dil Fac	D	Method	Prep Type
Perfluorooctanesulfonic acid (PFOS)	9.9	J M	41	7.0	ng/L	1		537	Total/NA
Perfluorooctanoic acid (PFOA)	14	J	21	2.9	ng/L	1		537	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	8.8	J	31	5.6	ng/L	1		537	Total/NA
Perfluoroheptanoic acid (PFHpA)	3.9	J	10	1.9	ng/L	1		537	Total/NA

## Client Sample ID: NAWC-020618-FRB-186

Lab Sample ID: 320-35824-15

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: 320-35824-1

**Client Sample ID: NAWC-020618-RW-200**

**Lab Sample ID: 320-35824-1**

Date Collected: 02/06/18 09:40

Matrix: Water

Date Received: 02/07/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	18	J M	40	6.7	ng/L		02/12/18 09:28	02/16/18 13:03	1
Perfluorooctanoic acid (PFOA)	17	J	20	2.8	ng/L		02/12/18 09:28	02/16/18 13:03	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		02/12/18 09:28	02/16/18 13:03	1
Perfluorohexanesulfonic acid (PFHxS)	6.4	J	30	5.4	ng/L		02/12/18 09:28	02/16/18 13:03	1
Perfluoroheptanoic acid (PFHpA)	3.8	J	9.9	1.9	ng/L		02/12/18 09:28	02/16/18 13:03	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		02/12/18 09:28	02/16/18 13:03	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C2 PFHxA	96		70 - 130				02/12/18 09:28	02/16/18 13:03	1
13C2 PFDA	112		70 - 130				02/12/18 09:28	02/16/18 13:03	1

**Client Sample ID: NAWC-020618-FRB-200**

**Lab Sample ID: 320-35824-2**

Date Collected: 02/06/18 09:35

Matrix: Water

Date Received: 02/07/18 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		02/12/18 09:28	02/16/18 13:17	1
Perfluorooctanoic acid (PFOA)	8.1	U	20	2.8	ng/L		02/12/18 09:28	02/16/18 13:17	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/12/18 09:28	02/16/18 13:17	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		02/12/18 09:28	02/16/18 13:17	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		02/12/18 09:28	02/16/18 13:17	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		02/12/18 09:28	02/16/18 13:17	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C2 PFHxA	102		70 - 130				02/12/18 09:28	02/16/18 13:17	1
13C2 PFDA	109		70 - 130				02/12/18 09:28	02/16/18 13:17	1

**Client Sample ID: NAWC-020618-RW-223**

**Lab Sample ID: 320-35824-3**

Date Collected: 02/06/18 10:10

Matrix: Water

Date Received: 02/07/18 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	41	6.9	ng/L		02/12/18 09:28	02/16/18 13:22	1
Perfluorooctanoic acid (PFOA)	5.5	J M	20	2.9	ng/L		02/12/18 09:28	02/16/18 13:22	1
Perfluorononanoic acid (PFNA)	20	U	24	8.2	ng/L		02/12/18 09:28	02/16/18 13:22	1
Perfluorohexanesulfonic acid (PFHxS)	12	U M	31	5.6	ng/L		02/12/18 09:28	02/16/18 13:22	1
Perfluoroheptanoic acid (PFHpA)	4.1	U M	10	1.9	ng/L		02/12/18 09:28	02/16/18 13:22	1
Perfluorobutanesulfonic acid (PFBS)	37	U M	92	16	ng/L		02/12/18 09:28	02/16/18 13:22	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C2 PFHxA	90		70 - 130				02/12/18 09:28	02/16/18 13:22	1
13C2 PFDA	108		70 - 130				02/12/18 09:28	02/16/18 13:22	1

# Client Sample Results

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

TestAmerica Job ID: 320-35824-1

**Client Sample ID: NAWC-020618-FRB-223**

**Lab Sample ID: 320-35824-4**

Date Collected: 02/06/18 10:05

Matrix: Water

Date Received: 02/07/18 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	6.7	ng/L		02/12/18 09:28	02/16/18 13:27	1
Perfluorooctanoic acid (PFOA)	7.9	U	20	2.8	ng/L		02/12/18 09:28	02/16/18 13:27	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		02/12/18 09:28	02/16/18 13:27	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.4	ng/L		02/12/18 09:28	02/16/18 13:27	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	1.9	ng/L		02/12/18 09:28	02/16/18 13:27	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		02/12/18 09:28	02/16/18 13:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	99		70 - 130	02/12/18 09:28	02/16/18 13:27	1
13C2 PFDA	122		70 - 130	02/12/18 09:28	02/16/18 13:27	1

**Client Sample ID: NAWC-020618-RW-288**

**Lab Sample ID: 320-35824-5**

Date Collected: 02/06/18 10:40

Matrix: Water

Date Received: 02/07/18 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	40	6.9	ng/L		02/12/18 09:28	02/16/18 13:31	1
Perfluorooctanoic acid (PFOA)	7.8	J	20	2.8	ng/L		02/12/18 09:28	02/16/18 13:31	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/12/18 09:28	02/16/18 13:31	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.6	ng/L		02/12/18 09:28	02/16/18 13:31	1
Perfluoroheptanoic acid (PFHpA)	2.6	J M	10	1.9	ng/L		02/12/18 09:28	02/16/18 13:31	1
Perfluorobutanesulfonic acid (PFBS)	36	U	91	16	ng/L		02/12/18 09:28	02/16/18 13:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	94		70 - 130	02/12/18 09:28	02/16/18 13:31	1
13C2 PFDA	116		70 - 130	02/12/18 09:28	02/16/18 13:31	1

**Client Sample ID: NAWC-020618-FRB-288**

**Lab Sample ID: 320-35824-6**

Date Collected: 02/06/18 10:35

Matrix: Water

Date Received: 02/07/18 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	39	6.7	ng/L		02/12/18 09:28	02/16/18 13:36	1
Perfluorooctanoic acid (PFOA)	7.9	U	20	2.8	ng/L		02/12/18 09:28	02/16/18 13:36	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		02/12/18 09:28	02/16/18 13:36	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.4	ng/L		02/12/18 09:28	02/16/18 13:36	1
Perfluoroheptanoic acid (PFHpA)	3.9	U	9.9	1.9	ng/L		02/12/18 09:28	02/16/18 13:36	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		02/12/18 09:28	02/16/18 13:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	96		70 - 130	02/12/18 09:28	02/16/18 13:36	1
13C2 PFDA	100		70 - 130	02/12/18 09:28	02/16/18 13:36	1

# Client Sample Results

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

TestAmerica Job ID: 320-35824-1

**Client Sample ID: WGNA-020618-RW-3118**

**Lab Sample ID: 320-35824-7**

Date Collected: 02/06/18 11:40

Matrix: Water

Date Received: 02/07/18 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		02/12/18 09:28	02/15/18 08:01	1
<b>Perfluorooctanoic acid (PFOA)</b>	<b>23</b>		20	2.8	ng/L		02/12/18 09:28	02/15/18 08:01	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/12/18 09:28	02/15/18 08:01	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		02/12/18 09:28	02/15/18 08:01	1
<b>Perfluoroheptanoic acid (PFHpA)</b>	<b>6.6</b>	<b>J</b>	10	1.9	ng/L		02/12/18 09:28	02/15/18 08:01	1
<b>Perfluorobutanesulfonic acid (PFBS)</b>	<b>22</b>	<b>J</b>	91	16	ng/L		02/12/18 09:28	02/15/18 08:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	84		70 - 130	02/12/18 09:28	02/15/18 08:01	1
13C2 PFDA	83		70 - 130	02/12/18 09:28	02/15/18 08:01	1

**Client Sample ID: WGNA-020618-FRB-3118**

**Lab Sample ID: 320-35824-8**

Date Collected: 02/06/18 11:35

Matrix: Water

Date Received: 02/07/18 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		02/12/18 09:28	02/15/18 08:06	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		02/12/18 09:28	02/15/18 08:06	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		02/12/18 09:28	02/15/18 08:06	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		02/12/18 09:28	02/15/18 08:06	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		02/12/18 09:28	02/15/18 08:06	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		02/12/18 09:28	02/15/18 08:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	101		70 - 130	02/12/18 09:28	02/15/18 08:06	1
13C2 PFDA	80		70 - 130	02/12/18 09:28	02/15/18 08:06	1

**Client Sample ID: NAWC-020618-RW-269**

**Lab Sample ID: 320-35824-9**

Date Collected: 02/06/18 12:10

Matrix: Water

Date Received: 02/07/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
<b>Perfluorooctanesulfonic acid (PFOS)</b>	<b>28</b>	<b>J M</b>	41	6.9	ng/L		02/12/18 09:28	02/15/18 08:10	1
<b>Perfluorooctanoic acid (PFOA)</b>	<b>25</b>		20	2.9	ng/L		02/12/18 09:28	02/15/18 08:10	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/12/18 09:28	02/15/18 08:10	1
<b>Perfluorohexanesulfonic acid (PFHxS)</b>	<b>11</b>	<b>J</b>	31	5.6	ng/L		02/12/18 09:28	02/15/18 08:10	1
<b>Perfluoroheptanoic acid (PFHpA)</b>	<b>7.1</b>	<b>J</b>	10	1.9	ng/L		02/12/18 09:28	02/15/18 08:10	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		02/12/18 09:28	02/15/18 08:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	90		70 - 130	02/12/18 09:28	02/15/18 08:10	1
13C2 PFDA	90		70 - 130	02/12/18 09:28	02/15/18 08:10	1

# Client Sample Results

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

TestAmerica Job ID: 320-35824-1

**Client Sample ID: NAWC-020618-RFB-269**

**Lab Sample ID: 320-35824-10**

**Date Collected: 02/06/18 12:05**

**Matrix: Water**

**Date Received: 02/07/18 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	6.7	ng/L		02/12/18 09:28	02/15/18 08:15	1
Perfluorooctanoic acid (PFOA)	7.9	U	20	2.8	ng/L		02/12/18 09:28	02/15/18 08:15	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		02/12/18 09:28	02/15/18 08:15	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		02/12/18 09:28	02/15/18 08:15	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	1.9	ng/L		02/12/18 09:28	02/15/18 08:15	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		02/12/18 09:28	02/15/18 08:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	96		70 - 130	02/12/18 09:28	02/15/18 08:15	1
13C2 PFDA	77		70 - 130	02/12/18 09:28	02/15/18 08:15	1

**Client Sample ID: NAWC-020618-RW-109**

**Lab Sample ID: 320-35824-11**

**Date Collected: 02/06/18 12:40**

**Matrix: Water**

**Date Received: 02/07/18 10:05**

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	54	M	41	6.9	ng/L		02/12/18 09:28	02/15/18 08:20	1
Perfluorooctanoic acid (PFOA)	12	J	20	2.9	ng/L		02/12/18 09:28	02/15/18 08:20	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/12/18 09:28	02/15/18 08:20	1
Perfluorohexanesulfonic acid (PFHxS)	41		31	5.6	ng/L		02/12/18 09:28	02/15/18 08:20	1
Perfluoroheptanoic acid (PFHpA)	4.2	J M	10	1.9	ng/L		02/12/18 09:28	02/15/18 08:20	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	16	ng/L		02/12/18 09:28	02/15/18 08:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	93		70 - 130	02/12/18 09:28	02/15/18 08:20	1
13C2 PFDA	80		70 - 130	02/12/18 09:28	02/15/18 08:20	1

**Client Sample ID: NAWC-020618-FRB-109**

**Lab Sample ID: 320-35824-12**

**Date Collected: 02/06/18 12:35**

**Matrix: Water**

**Date Received: 02/07/18 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	6.7	ng/L		02/12/18 09:28	02/15/18 08:24	1
Perfluorooctanoic acid (PFOA)	7.9	U	20	2.8	ng/L		02/12/18 09:28	02/15/18 08:24	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		02/12/18 09:28	02/15/18 08:24	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		02/12/18 09:28	02/15/18 08:24	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	1.9	ng/L		02/12/18 09:28	02/15/18 08:24	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		02/12/18 09:28	02/15/18 08:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
13C2 PFHxA	105		70 - 130	02/12/18 09:28	02/15/18 08:24	1
13C2 PFDA	85		70 - 130	02/12/18 09:28	02/15/18 08:24	1

# Client Sample Results

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

TestAmerica Job ID: 320-35824-1

**Client Sample ID: WGNA-020618-DUP-25**

**Lab Sample ID: 320-35824-13**

Date Collected: 02/06/18 07:00

Matrix: Water

Date Received: 02/07/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	58	M	41	6.9	ng/L		02/12/18 09:28	02/15/18 08:29	1
Perfluorooctanoic acid (PFOA)	12	J	20	2.8	ng/L		02/12/18 09:28	02/15/18 08:29	1
Perfluorononanoic acid (PFNA)	20	U	24	8.1	ng/L		02/12/18 09:28	02/15/18 08:29	1
Perfluorohexanesulfonic acid (PFHxS)	43		30	5.6	ng/L		02/12/18 09:28	02/15/18 08:29	1
Perfluoroheptanoic acid (PFHpA)	4.1	J	10	1.9	ng/L		02/12/18 09:28	02/15/18 08:29	1
Perfluorobutanesulfonic acid (PFBS)	37	U	91	16	ng/L		02/12/18 09:28	02/15/18 08:29	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C2 PFHxA	94		70 - 130				02/12/18 09:28	02/15/18 08:29	1
13C2 PFDA	79		70 - 130				02/12/18 09:28	02/15/18 08:29	1

**Client Sample ID: NAWC-020618-RW-186**

**Lab Sample ID: 320-35824-14**

Date Collected: 02/06/18 13:40

Matrix: Water

Date Received: 02/07/18 10:05

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

Analyte	Result	Qualifier	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorooctanesulfonic acid (PFOS)	9.9	J M	41	7.0	ng/L		02/12/18 09:28	02/15/18 08:33	1
Perfluorooctanoic acid (PFOA)	14	J	21	2.9	ng/L		02/12/18 09:28	02/15/18 08:33	1
Perfluorononanoic acid (PFNA)	21	U	25	8.2	ng/L		02/12/18 09:28	02/15/18 08:33	1
Perfluorohexanesulfonic acid (PFHxS)	8.8	J	31	5.6	ng/L		02/12/18 09:28	02/15/18 08:33	1
Perfluoroheptanoic acid (PFHpA)	3.9	J	10	1.9	ng/L		02/12/18 09:28	02/15/18 08:33	1
Perfluorobutanesulfonic acid (PFBS)	37	U	92	17	ng/L		02/12/18 09:28	02/15/18 08:33	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C2 PFHxA	90		70 - 130				02/12/18 09:28	02/15/18 08:33	1
13C2 PFDA	89		70 - 130				02/12/18 09:28	02/15/18 08:33	1

**Client Sample ID: NAWC-020618-FRB-186**

**Lab Sample ID: 320-35824-15**

Date Collected: 02/06/18 13:35

Matrix: Water

Date Received: 02/07/18 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		02/12/18 09:28	02/15/18 08:38	1
Perfluorooctanoic acid (PFOA)	7.9	U	20	2.8	ng/L		02/12/18 09:28	02/15/18 08:38	1
Perfluorononanoic acid (PFNA)	20	U	24	7.9	ng/L		02/12/18 09:28	02/15/18 08:38	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		02/12/18 09:28	02/15/18 08:38	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	1.9	ng/L		02/12/18 09:28	02/15/18 08:38	1
Perfluorobutanesulfonic acid (PFBS)	36	U	89	16	ng/L		02/12/18 09:28	02/15/18 08:38	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
13C2 PFHxA	96		70 - 130				02/12/18 09:28	02/15/18 08:38	1
13C2 PFDA	74		70 - 130				02/12/18 09:28	02/15/18 08:38	1

# Default Detection Limits

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

TestAmerica Job ID: 320-35824-1

## 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: 320-35824-1

## 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)
320-35824-1	NAWC-020618-RW-200	96	112
320-35824-1 MS	NAWC-020618-RW-200	94	118
320-35824-1 MSD	NAWC-020618-RW-200	95	116
320-35824-2	NAWC-020618-FRB-200	102	109
320-35824-3	NAWC-020618-RW-223	90	108
320-35824-4	NAWC-020618-FRB-223	99	122
320-35824-5	NAWC-020618-RW-288	94	116
320-35824-6	NAWC-020618-FRB-288	96	100
320-35824-7	WGNA-020618-RW-3118	84	83
320-35824-8	WGNA-020618-FRB-3118	101	80
320-35824-9	NAWC-020618-RW-269	90	90
320-35824-10	NAWC-020618-RFB-269	96	77
320-35824-11	NAWC-020618-RW-109	93	80
320-35824-12	NAWC-020618-FRB-109	105	85
320-35824-13	WGNA-020618-DUP-25	94	79
320-35824-14	NAWC-020618-RW-186	90	89
320-35824-15	NAWC-020618-FRB-186	96	74
LCS 320-207932/2-A	Lab Control Sample	103	145 Q
MB 320-207932/1-A	Method Blank	94	118

### 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: 320-35824-1

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

**Lab Sample ID: MB 320-207932/1-A**  
**Matrix: Water**  
**Analysis Batch: 208832**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 207932**

Analyte	MB	MB	LOQ	DL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Perfluorooctanesulfonic acid (PFOS)	16	U	40	6.8	ng/L		02/12/18 09:28	02/16/18 12:54	1
Perfluorooctanoic acid (PFOA)	8.0	U	20	2.8	ng/L		02/12/18 09:28	02/16/18 12:54	1
Perfluorononanoic acid (PFNA)	20	U	24	8.0	ng/L		02/12/18 09:28	02/16/18 12:54	1
Perfluorohexanesulfonic acid (PFHxS)	12	U	30	5.5	ng/L		02/12/18 09:28	02/16/18 12:54	1
Perfluoroheptanoic acid (PFHpA)	4.0	U	10	1.9	ng/L		02/12/18 09:28	02/16/18 12:54	1
Perfluorobutanesulfonic acid (PFBS)	36	U	90	16	ng/L		02/12/18 09:28	02/16/18 12:54	1

Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
13C2 PFHxA	94		70 - 130	02/12/18 09:28	02/16/18 12:54	1
13C2 PFDA	118		70 - 130	02/12/18 09:28	02/16/18 12:54	1

**Lab Sample ID: LCS 320-207932/2-A**  
**Matrix: Water**  
**Analysis Batch: 208832**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 207932**

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	Limits
		Result	Qualifier				
Perfluorooctanesulfonic acid (PFOS)	134	138	M	ng/L		103	70 - 130
Perfluorooctanoic acid (PFOA)	67.0	63.2		ng/L		94	70 - 130
Perfluorononanoic acid (PFNA)	66.7	70.8		ng/L		106	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	100	103		ng/L		103	70 - 130
Perfluoroheptanoic acid (PFHpA)	33.3	32.8		ng/L		98	70 - 130
Perfluorobutanesulfonic acid (PFBS)	300	260		ng/L		87	70 - 130

Surrogate	LCS	LCS	Limits
	%Recovery	Qualifier	
13C2 PFHxA	103		70 - 130
13C2 PFDA	145	Q	70 - 130

**Lab Sample ID: 320-35824-1 MS**  
**Matrix: Water**  
**Analysis Batch: 208832**

**Client Sample ID: NAWC-020618-RW-200**  
**Prep Type: Total/NA**  
**Prep Batch: 207932**

Analyte	Sample	Sample	Spike Added	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
Perfluorooctanesulfonic acid (PFOS)	18	J M	138	152	M	ng/L		97	70 - 130
Perfluorooctanoic acid (PFOA)	17	J	68.9	78.4		ng/L		89	70 - 130
Perfluorononanoic acid (PFNA)	20	U	68.5	73.4		ng/L		107	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	6.4	J	103	106		ng/L		97	70 - 130
Perfluoroheptanoic acid (PFHpA)	3.8	J	34.2	37.3		ng/L		98	70 - 130
Perfluorobutanesulfonic acid (PFBS)	36	U	308	285		ng/L		93	70 - 130

Surrogate	MS	MS	Limits
	%Recovery	Qualifier	
13C2 PFHxA	94		70 - 130
13C2 PFDA	118		70 - 130

# QC Sample Results

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

TestAmerica Job ID: 320-35824-1

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

**Lab Sample ID: 320-35824-1 MSD**

**Matrix: Water**

**Analysis Batch: 208832**

**Client Sample ID: NAWC-020618-RW-200**

**Prep Type: Total/NA**

**Prep Batch: 207932**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits	RPD	Limit
Perfluorooctanesulfonic acid (PFOS)	18	J M	136	149	M	ng/L		96	70 - 130	2	30
Perfluorooctanoic acid (PFOA)	17	J	68.3	77.5		ng/L		88	70 - 130	1	30
Perfluorononanoic acid (PFNA)	20	U	67.9	77.6		ng/L		114	70 - 130	6	30
Perfluorohexanesulfonic acid (PFHxS)	6.4	J	102	101		ng/L		92	70 - 130	5	30
Perfluoroheptanoic acid (PFHpA)	3.8	J	34.0	37.8		ng/L		100	70 - 130	1	30
Perfluorobutanesulfonic acid (PFBS)	36	U	306	262		ng/L		86	70 - 130	9	30
<b>Surrogate</b>		<b>MSD</b>	<b>MSD</b>								
		<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>							
13C2 PFHxA		95		70 - 130							
13C2 PFDA		116		70 - 130							

# QC Association Summary

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

TestAmerica Job ID: 320-35824-1

## LCMS

### Prep Batch: 207932

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35824-1	NAWC-020618-RW-200	Total/NA	Water	537	
320-35824-2	NAWC-020618-FRB-200	Total/NA	Water	537	
320-35824-3	NAWC-020618-RW-223	Total/NA	Water	537	
320-35824-4	NAWC-020618-FRB-223	Total/NA	Water	537	
320-35824-5	NAWC-020618-RW-288	Total/NA	Water	537	
320-35824-6	NAWC-020618-FRB-288	Total/NA	Water	537	
320-35824-7	WGNA-020618-RW-3118	Total/NA	Water	537	
320-35824-8	WGNA-020618-FRB-3118	Total/NA	Water	537	
320-35824-9	NAWC-020618-RW-269	Total/NA	Water	537	
320-35824-10	NAWC-020618-RFB-269	Total/NA	Water	537	
320-35824-11	NAWC-020618-RW-109	Total/NA	Water	537	
320-35824-12	NAWC-020618-FRB-109	Total/NA	Water	537	
320-35824-13	WGNA-020618-DUP-25	Total/NA	Water	537	
320-35824-14	NAWC-020618-RW-186	Total/NA	Water	537	
320-35824-15	NAWC-020618-FRB-186	Total/NA	Water	537	
MB 320-207932/1-A	Method Blank	Total/NA	Water	537	
LCS 320-207932/2-A	Lab Control Sample	Total/NA	Water	537	
320-35824-1 MS	NAWC-020618-RW-200	Total/NA	Water	537	
320-35824-1 MSD	NAWC-020618-RW-200	Total/NA	Water	537	

### Analysis Batch: 208529

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35824-7	WGNA-020618-RW-3118	Total/NA	Water	537	207932
320-35824-8	WGNA-020618-FRB-3118	Total/NA	Water	537	207932
320-35824-9	NAWC-020618-RW-269	Total/NA	Water	537	207932
320-35824-10	NAWC-020618-RFB-269	Total/NA	Water	537	207932
320-35824-11	NAWC-020618-RW-109	Total/NA	Water	537	207932
320-35824-12	NAWC-020618-FRB-109	Total/NA	Water	537	207932
320-35824-13	WGNA-020618-DUP-25	Total/NA	Water	537	207932
320-35824-14	NAWC-020618-RW-186	Total/NA	Water	537	207932
320-35824-15	NAWC-020618-FRB-186	Total/NA	Water	537	207932

### Analysis Batch: 208832

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
320-35824-1	NAWC-020618-RW-200	Total/NA	Water	537	207932
320-35824-2	NAWC-020618-FRB-200	Total/NA	Water	537	207932
320-35824-3	NAWC-020618-RW-223	Total/NA	Water	537	207932
320-35824-4	NAWC-020618-FRB-223	Total/NA	Water	537	207932
320-35824-5	NAWC-020618-RW-288	Total/NA	Water	537	207932
320-35824-6	NAWC-020618-FRB-288	Total/NA	Water	537	207932
MB 320-207932/1-A	Method Blank	Total/NA	Water	537	207932
LCS 320-207932/2-A	Lab Control Sample	Total/NA	Water	537	207932
320-35824-1 MS	NAWC-020618-RW-200	Total/NA	Water	537	207932
320-35824-1 MSD	NAWC-020618-RW-200	Total/NA	Water	537	207932

# Lab Chronicle

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

TestAmerica Job ID: 320-35824-1

## Client Sample ID: NAWC-020618-RW-200

Date Collected: 02/06/18 09:40

Date Received: 02/07/18 10:05

## Lab Sample ID: 320-35824-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207932	02/12/18 09:28	KMK	TAL SAC
Total/NA	Analysis	537		1	208832	02/16/18 13:03	JRB	TAL SAC

## Client Sample ID: NAWC-020618-FRB-200

Date Collected: 02/06/18 09:35

Date Received: 02/07/18 10:05

## Lab Sample ID: 320-35824-2

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207932	02/12/18 09:28	KMK	TAL SAC
Total/NA	Analysis	537		1	208832	02/16/18 13:17	JRB	TAL SAC

## Client Sample ID: NAWC-020618-RW-223

Date Collected: 02/06/18 10:10

Date Received: 02/07/18 10:05

## Lab Sample ID: 320-35824-3

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207932	02/12/18 09:28	KMK	TAL SAC
Total/NA	Analysis	537		1	208832	02/16/18 13:22	JRB	TAL SAC

## Client Sample ID: NAWC-020618-FRB-223

Date Collected: 02/06/18 10:05

Date Received: 02/07/18 10:05

## Lab Sample ID: 320-35824-4

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207932	02/12/18 09:28	KMK	TAL SAC
Total/NA	Analysis	537		1	208832	02/16/18 13:27	JRB	TAL SAC

## Client Sample ID: NAWC-020618-RW-288

Date Collected: 02/06/18 10:40

Date Received: 02/07/18 10:05

## Lab Sample ID: 320-35824-5

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207932	02/12/18 09:28	KMK	TAL SAC
Total/NA	Analysis	537		1	208832	02/16/18 13:31	JRB	TAL SAC

## Client Sample ID: NAWC-020618-FRB-288

Date Collected: 02/06/18 10:35

Date Received: 02/07/18 10:05

## Lab Sample ID: 320-35824-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207932	02/12/18 09:28	KMK	TAL SAC
Total/NA	Analysis	537		1	208832	02/16/18 13:36	JRB	TAL SAC

TestAmerica Sacramento

# Lab Chronicle

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

TestAmerica Job ID: 320-35824-1

## Client Sample ID: WGNA-020618-RW-3118

Date Collected: 02/06/18 11:40

Date Received: 02/07/18 10:05

## Lab Sample ID: 320-35824-7

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207932	02/12/18 09:28	KMK	TAL SAC
Total/NA	Analysis	537		1	208529	02/15/18 08:01	JRB	TAL SAC

## Client Sample ID: WGNA-020618-FRB-3118

Date Collected: 02/06/18 11:35

Date Received: 02/07/18 10:05

## Lab Sample ID: 320-35824-8

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207932	02/12/18 09:28	KMK	TAL SAC
Total/NA	Analysis	537		1	208529	02/15/18 08:06	JRB	TAL SAC

## Client Sample ID: NAWC-020618-RW-269

Date Collected: 02/06/18 12:10

Date Received: 02/07/18 10:05

## Lab Sample ID: 320-35824-9

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207932	02/12/18 09:28	KMK	TAL SAC
Total/NA	Analysis	537		1	208529	02/15/18 08:10	JRB	TAL SAC

## Client Sample ID: NAWC-020618-RFB-269

Date Collected: 02/06/18 12:05

Date Received: 02/07/18 10:05

## Lab Sample ID: 320-35824-10

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207932	02/12/18 09:28	KMK	TAL SAC
Total/NA	Analysis	537		1	208529	02/15/18 08:15	JRB	TAL SAC

## Client Sample ID: NAWC-020618-RW-109

Date Collected: 02/06/18 12:40

Date Received: 02/07/18 10:05

## Lab Sample ID: 320-35824-11

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207932	02/12/18 09:28	KMK	TAL SAC
Total/NA	Analysis	537		1	208529	02/15/18 08:20	JRB	TAL SAC

## Client Sample ID: NAWC-020618-FRB-109

Date Collected: 02/06/18 12:35

Date Received: 02/07/18 10:05

## Lab Sample ID: 320-35824-12

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207932	02/12/18 09:28	KMK	TAL SAC
Total/NA	Analysis	537		1	208529	02/15/18 08:24	JRB	TAL SAC

TestAmerica Sacramento

# Lab Chronicle

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

TestAmerica Job ID: 320-35824-1

## Client Sample ID: WGNA-020618-DUP-25

Date Collected: 02/06/18 07:00

Date Received: 02/07/18 10:05

## Lab Sample ID: 320-35824-13

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207932	02/12/18 09:28	KMK	TAL SAC
Total/NA	Analysis	537		1	208529	02/15/18 08:29	JRB	TAL SAC

## Client Sample ID: NAWC-020618-RW-186

Date Collected: 02/06/18 13:40

Date Received: 02/07/18 10:05

## Lab Sample ID: 320-35824-14

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207932	02/12/18 09:28	KMK	TAL SAC
Total/NA	Analysis	537		1	208529	02/15/18 08:33	JRB	TAL SAC

## Client Sample ID: NAWC-020618-FRB-186

Date Collected: 02/06/18 13:35

Date Received: 02/07/18 10:05

## Lab Sample ID: 320-35824-15

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	537			207932	02/12/18 09:28	KMK	TAL SAC
Total/NA	Analysis	537		1	208529	02/15/18 08:38	JRB	TAL SAC

### Laboratory References:

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

# Accreditation/Certification Summary

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

TestAmerica Job ID: 320-35824-1

## Laboratory: TestAmerica Sacramento

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

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

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

# Method Summary

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

TestAmerica Job ID: 320-35824-1

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<b>Method</b>	<b>Method Description</b>	<b>Protocol</b>	<b>Laboratory</b>
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: 320-35824-1

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-35824-1	NAWC-020618-RW-200	Water	02/06/18 09:40	02/07/18 10:05
320-35824-2	NAWC-020618-FRB-200	Water	02/06/18 09:35	02/07/18 10:05
320-35824-3	NAWC-020618-RW-223	Water	02/06/18 10:10	02/07/18 10:05
320-35824-4	NAWC-020618-FRB-223	Water	02/06/18 10:05	02/07/18 10:05
320-35824-5	NAWC-020618-RW-288	Water	02/06/18 10:40	02/07/18 10:05
320-35824-6	NAWC-020618-FRB-288	Water	02/06/18 10:35	02/07/18 10:05
320-35824-7	WGNA-020618-RW-3118	Water	02/06/18 11:40	02/07/18 10:05
320-35824-8	WGNA-020618-FRB-3118	Water	02/06/18 11:35	02/07/18 10:05
320-35824-9	NAWC-020618-RW-269	Water	02/06/18 12:10	02/07/18 10:05
320-35824-10	NAWC-020618-RFB-269	Water	02/06/18 12:05	02/07/18 10:05
320-35824-11	NAWC-020618-RW-109	Water	02/06/18 12:40	02/07/18 10:05
320-35824-12	NAWC-020618-FRB-109	Water	02/06/18 12:35	02/07/18 10:05
320-35824-13	WGNA-020618-DUP-25	Water	02/06/18 07:00	02/07/18 10:05
320-35824-14	NAWC-020618-RW-186	Water	02/06/18 13:40	02/07/18 10:05
320-35824-15	NAWC-020618-FRB-186	Water	02/06/18 13:35	02/07/18 10:05

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1

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.: 320-35824-1

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N Analysis Batch Number: 208494

Lab Sample ID: CCVL 320-208494/1 Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/14/18 12:27 Lab File ID: 2018.02.14\_537A\_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Peak assignment corrected	westendorfc	02/15/18 08:41

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N Analysis Batch Number: 208529

Lab Sample ID: CCV 320-208529/13 CCVIS Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/15/18 07:52 Lab File ID: 2018.02.14\_537AXXX\_041.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanoic acid (PFOA)	1.78	Baseline	barnettj	02/15/18 10:08
Perfluorooctanesulfonic acid (PFOS)	2.03	Peak assignment corrected	barnettj	02/15/18 10:07

Lab Sample ID: 320-35824-9 Client Sample ID: NAWC-020618-RW-269

Date Analyzed: 02/15/18 08:10 Lab File ID: 2018.02.14\_537AXXX\_045.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.03	Peak assignment corrected	barnettj	02/15/18 10:20

Lab Sample ID: 320-35824-11 Client Sample ID: NAWC-020618-RW-109

Date Analyzed: 02/15/18 08:20 Lab File ID: 2018.02.14\_537AXXX\_047.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid (PFHpA)	1.60	Missed Peak	barnettj	02/15/18 10:20
Perfluorooctanesulfonic acid (PFOS)	2.03	Assign Peak	barnettj	02/15/18 10:21

Lab Sample ID: 320-35824-13 Client Sample ID: WGNA-020618-DUP-25

Date Analyzed: 02/15/18 08:29 Lab File ID: 2018.02.14\_537AXXX\_049.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.03	Peak assignment corrected	barnettj	02/15/18 10:22

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N Analysis Batch Number: 208529

Lab Sample ID: 320-35824-14 Client Sample ID: NAWC-020618-RW-186

Date Analyzed: 02/15/18 08:33 Lab File ID: 2018.02.14\_537AXXX\_050.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	1.94	Assign Peak	barnettj	02/15/18 10:23

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N Analysis Batch Number: 208773

Lab Sample ID: IC 320-208773/4 Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/16/18 08:55 Lab File ID: 2018.02.016\_537ICAL\_004.d GC Column: GeminiC18 3x1 ID: 3(mm)

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

Lab Sample ID: IC 320-208773/5 Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/16/18 09:00 Lab File ID: 2018.02.016\_537ICAL\_005.d GC Column: GeminiC18 3x1 ID: 3(mm)

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

Lab Sample ID: IC 320-208773/6 Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/16/18 09:05 Lab File ID: 2018.02.016\_537ICAL\_006.d GC Column: GeminiC18 3x1 ID: 3(mm)

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

Lab Sample ID: IC 320-208773/7 ICISAV Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/16/18 09:09 Lab File ID: 2018.02.016\_537ICAL\_007.d GC Column: GeminiC18 3x1 ID: 3(mm)

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

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N Analysis Batch Number: 208773

Lab Sample ID: IC 320-208773/8 Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/16/18 09:14 Lab File ID: 2018.02.016\_537ICAL\_008.d GC Column: GeminiC18 3x1 ID: 3(mm)

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

Lab Sample ID: IC 320-208773/9 Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/16/18 09:19 Lab File ID: 2018.02.016\_537ICAL\_009.d GC Column: GeminiC18 3x1 ID: 3(mm)

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

Lab Sample ID: CCVL 320-208773/11 Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/16/18 09:28 Lab File ID: 2018.02.016\_537ICAL\_011.d GC Column: GeminiC18 3x1 ID: 3(mm)

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

Lab Sample ID: ICV 320-208773/13 Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/16/18 09:37 Lab File ID: 2018.02.016\_537ICAL\_013.d GC Column: GeminiC18 3x1 ID: 3(mm)

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

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N Analysis Batch Number: 208832

Lab Sample ID: CCV 320-208832/13 CCVIS Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/16/18 12:45 Lab File ID: 2018.02.16\_537C\_014.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Peak assignment corrected	barnettj	02/16/18 16:07

Lab Sample ID: LCS 320-207932/2-A Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/16/18 12:59 Lab File ID: 2018.02.16\_537C\_017.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Peak assignment corrected	barnettj	02/16/18 16:44

Lab Sample ID: 320-35824-1 Client Sample ID: NAWC-020618-RW-200

Date Analyzed: 02/16/18 13:03 Lab File ID: 2018.02.16\_537C\_018.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Peak assignment corrected	barnettj	02/16/18 16:44

Lab Sample ID: 320-35824-1 MS Client Sample ID: NAWC-020618-RW-200 MS

Date Analyzed: 02/16/18 13:08 Lab File ID: 2018.02.16\_537C\_019.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Peak assignment corrected	barnettj	02/16/18 16:44



LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N Analysis Batch Number: 208832

Lab Sample ID: 320-35824-1 MSD Client Sample ID: NAWC-020618-RW-200 MSD

Date Analyzed: 02/16/18 13:13 Lab File ID: 2018.02.16\_537C\_020.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Peak assignment corrected	barnettj	02/16/18 16:45

Lab Sample ID: 320-35824-3 Client Sample ID: NAWC-020618-RW-223

Date Analyzed: 02/16/18 13:22 Lab File ID: 2018.02.16\_537C\_022.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorobutanesulfonic acid (PFBS)	1.36	Missed Peak	barnettj	02/16/18 16:47
Perfluoroheptanoic acid (PFHpA)	1.62	Missed Peak	barnettj	02/16/18 16:46
Perfluorohexanesulfonic acid (PFHxS)	1.62	Missed Peak	barnettj	02/16/18 16:46
Perfluorooctanoic acid (PFOA)	1.81	Baseline	barnettj	02/16/18 16:45
Perfluorooctanesulfonic acid (PFOS)	2.06	Assign Peak	barnettj	02/16/18 16:46

Lab Sample ID: 320-35824-5 Client Sample ID: NAWC-020618-RW-288

Date Analyzed: 02/16/18 13:31 Lab File ID: 2018.02.16\_537C\_024.d GC Column: GeminiC18 3x1 ID: 3(mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluoroheptanoic acid (PFHpA)	1.62	Missed Peak	barnettj	02/16/18 16:47
Perfluorooctanesulfonic acid (PFOS)	2.05	Missed Peak	barnettj	02/16/18 16:48

LCMS MANUAL INTEGRATION SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N Analysis Batch Number: 208832

Lab Sample ID: CCV 320-208832/25 CCVIS Client Sample ID: \_\_\_\_\_

Date Analyzed: 02/16/18 13:41 Lab File ID: 2018.02.16\_537C\_026.d GC Column: GeminiC18 3x1 ID: 3 (mm)

COMPOUND NAME	RETENTION TIME	MANUAL INTEGRATION		
		REASON	ANALYST	DATE
Perfluorooctanesulfonic acid (PFOS)	2.06	Peak assignment corrected	barnettj	02/16/18 16:48

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
<b>LC537-ICV_00028</b>	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
<b>LC537-ICV_00028</b>	01/05/18	08/02/17	MeOH/H2O, Lot 067374	10 mL	LC537-SU_00046	1000 uL	13C2 PFDA	50 ug/mL
.LC537-SU_00046	01/05/18	07/05/17	Methanol, Lot 104453	30000 uL	LC537ICIM_00019	20 uL	13C2 PFHxA	47.8 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	10 ng/mL
..LCMPFHxA_00013	04/08/21	Wellington Laboratories, Lot MPFHxA0416			(Purchased Reagent)		13C2 PFHxA	10 ng/mL
.LC537ICIM_00019	01/25/18	08/01/17	Methanol, Lot 090285	25 mL	LC537-PFBS2_00008	0.6 mL	Perfluorobutanesulfonic acid (PFBS)	100.119 ng/mL
..LC537-PFBS2_00008	01/25/18	07/25/17	Methanol, Lot 090285	20 mL	LC537-PFHxA2_00011	0.061 mL	Perfluoroheptanoic acid (PFHpA)	9.99613 ng/mL
...LC537-PFHxA2_00011	09/08/22	Santa Cruz Biotechnology, Lot F0917			(Purchased Reagent)		13C2 PFDA	20.0761 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)	20.1272 ng/mL
...LC537-PFHxS2_00008	06/13/22	Afla Aesar, Lot 10200390			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	20.4843 ng/mL
..LC537-PFHxS2_00008	01/25/18	07/25/17	Methanol, Lot 090285	21 mL	LC537-PFNA2_00009	0.126 mL	Perfluorononanoic acid (PFNA)	19.698 ng/mL
...LC537-PFNA2_00009	06/08/22	Santa Cruz Biotechnology, Lot G2516			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	20.4843 ng/mL
..LC537-PFNA2_00009	01/25/18	07/25/17	Methanol, Lot 090285	21 mL	LC537-PFOA2_00010	0.122 mL	Perfluorooctanoic acid (PFOA)	19.698 ng/mL
...LC537-PFOA2_00010	06/14/22	Aldrich, Lot MKCC0699			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	20.4843 ng/mL
..LC537-PFOA2_00010	01/25/18	08/01/17	Methanol, Lot 090285	20 mL	LC537-PFOS2_00010	0.124 mL	Perfluorooctanesulfonic acid (PFOS)	20.4843 ng/mL
...LC537-PFOS2_00010	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	19.698 ng/mL
..LC537-PFOS2_00002	01/25/18	07/25/17	Methanol, Lot 090285	21 mL	LC537-PFOS2_00002	0.0418 g	Perfluorobutanesulfonic acid (PFBS)	2085.82 ug/mL
...LC537-PFOS2_00002	09/08/22	Santa Cruz Biotechnology, Lot F0917			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	2085.82 ug/mL
..LC537-PFHxA2_00011	01/25/18	07/25/17	Methanol, Lot 09092	31 mL	LC537-PFHxA2_00002	0.0635 g	Perfluoroheptanoic acid (PFHpA)	2048.39 ug/mL
...LC537-PFHxA2_00002	06/13/22	Afla Aesar, Lot 10200390			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	2048.39 ug/mL
..LC537-PFHxS2_00008	01/25/18	07/25/17	Methanol, Lot 090285	21 mL	LC537-PFHxS2_00002	0.0475 g	Perfluorohexanesulfonic acid (PFHxS)	2056.98 ug/mL
...LC537-PFHxS2_00002	06/08/22	Santa Cruz Biotechnology, Lot G2516			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	2056.98 ug/mL
..LC537-PFNA2_00009	01/25/18	07/25/17	Methanol, Lot 090285	21 mL	LC537-PFNA2_00002	0.0421 g	Perfluorononanoic acid (PFNA)	1996.74 ug/mL
...LC537-PFNA2_00002	06/14/22	Aldrich, Lot MKCC0699			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	1996.74 ug/mL
..LC537-PFOA2_00010	01/25/18	08/01/17	Methanol, Lot 090285	20 mL	LC537-PFOA2_00002	0.0424 g	Perfluorononanoic acid (PFNA)	0.996 g/g
...LC537-PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	2098.8 ug/mL
..LC537-PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.99 g/g

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

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
<b>LC537-ICV_00030</b>	07/30/18	02/15/18	MeOH/H2O, Lot 067374	10 mL	LC537-IS_00059	1000 uL	13C2-PFOA	10 ng/mL
..LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C4 PFOS	28.68 ng/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			LCMPFOS_00021	180 uL	13C2-PFOA	0.1 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	0.2868 ug/mL
<b>LC537-ICV_00030</b>	07/30/18	02/15/18	MeOH/H2O, Lot 067374	10 mL	LC537-SU_00059	1000 uL	13C2-PFOA	50 ug/mL
					LC537ICIM2_00001	400 uL	13C2 PFDA	47.8 ug/mL
							13C2 PFHxA	10 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	100.092 ng/mL
							Perfluoroheptanoic acid (PFHpA)	10 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	20.1619 ng/mL
							Perfluorononanoic acid (PFNA)	20.1641 ng/mL
							Perfluorooctanoic acid (PFOA)	20.167 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	20.1702 ng/mL
..LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFHxA_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LC537ICIM2_00001	08/15/18	02/15/18	Methanol, Lot 090285	10 mL	LC537ICIM_00020	0.5 mL	13C2 PFHxA	50 ug/mL
							Perfluorobutanesulfonic acid (PFBS)	2.5023 ug/mL
							Perfluoroheptanoic acid (PFHpA)	0.25 ug/mL
							Perfluorohexanesulfonic acid (PFHxS)	0.504047 ug/mL
							Perfluorononanoic acid (PFNA)	0.504103 ug/mL
							Perfluorooctanoic acid (PFOA)	0.504176 ug/mL
							Perfluorooctanesulfonic acid (PFOS)	0.504255 ug/mL
..LC537ICIM_00020	08/15/18	02/15/18	Methanol, Lot 090285	25 mL	LC537-PFBS2_00009	0.625 mL	Perfluorobutanesulfonic acid (PFBS)	50.0459 ug/mL
					LC537-PFHxA2_00012	0.0625 mL	Perfluoroheptanoic acid (PFHpA)	5 ug/mL
					LC537-PFHxS2_00009	0.126 mL	Perfluorohexanesulfonic acid (PFHxS)	10.0809 ug/mL
					LC537-PFNA2_00010	0.126 mL	Perfluorononanoic acid (PFNA)	10.0821 ug/mL
					LC537-PFOA2_00011	0.126 mL	Perfluorooctanoic acid (PFOA)	10.0835 ug/mL
					LC537-PFOS2_00011	0.126 mL	Perfluorooctanesulfonic acid (PFOS)	10.0851 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...LC537-PFBS2_00009	08/15/18	02/15/18	Methanol, Lot 090285	17.1 mL	LC537_PFBS2_00002	0.0343 g	Perfluorobutanesulfonic acid (PFBS)	2001.84 ug/mL
....LC537_PFBS2_00002	09/08/22	Santa Cruz Biotechnology, Lot F0917			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	0.998 g/g
...LC537-PFHpa2_00012	08/15/18	02/15/18	Methanol, Lot 09092	23.95 mL	LC537_PFHpa2_00002	0.0479 g	Perfluoroheptanoic acid (PFHpA)	2000 ug/mL
....LC537_PFHpa2_00002	06/13/22	Afla Aesar, Lot 10200390			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	1 g/g
...LC537-PFHxS2_00009	08/15/18	02/15/18	Methanol, Lot 090285	25.87 mL	LC537_PFHxS2_00002	0.0569 g	Perfluorohexanesulfonic acid (PFHxS)	2000.19 ug/mL
....LC537_PFHxS2_00002	06/08/22	Santa Cruz Biotechnology, Lot G2516			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA2_00010	08/15/18	02/15/18	Methanol, Lot 090285	16.58 mL	LC537_PFNA2_00002	0.0333 g	Perfluorononanoic acid (PFNA)	2000.41 ug/mL
....LC537_PFNA2_00002	06/14/22	Aldrich, Lot MKCC0699			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.996 g/g
...LC537-PFOA2_00011	08/15/18	02/15/18	Methanol, Lot 090285	22.96 mL	LC537_PFOA2_00002	0.0464 g	Perfluorooctanoic acid (PFOA)	2000.7 ug/mL
....LC537_PFOA2_00002	06/09/22	Afla Aesar, Lot 10199078			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.99 g/g
...LC537-PFOS2_00011	08/15/18	02/15/18	Methanol, Lot 090285	14.71 mL	LC537_PFOS2_00002	0.0378 g	Perfluorooctanesulfonic acid (PFOS)	2001.01 ug/mL
....LC537_PFOS2_00002	06/14/22	Sigma, Lot BCBQ0108V			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.7787 g/g
<b>LC537-IS_00055</b>	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
<b>LC537-L1_00020</b>	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
					LC537-MSP_00029	60 uL	13C4 PFOS	28.68 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	9.0018 ng/mL
							Perfluoroheptanoic acid (PFHpA)	1.00036 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	3.00103 ng/mL
							Perfluorononanoic acid (PFNA)	2.0006 ng/mL
							Perfluorooctanoic acid (PFOA)	2.00191 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	4.00146 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanoic acid (PFOA)	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_PFB_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFB_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-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
<b>LC537-L1_00021</b>	04/01/18	02/15/18	MeOH/H2O, Lot 090285	5 mL	LC537-IS_00059	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-MSP_00032	60 uL	Perfluorobutanesulfonic acid (PFBS)	9.0018 ng/mL
							Perfluoroheptanoic acid (PFHpA)	1.00031 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	3.00134 ng/mL
							Perfluorononanoic acid (PFNA)	2.00088 ng/mL
							Perfluorooctanoic acid (PFOA)	2.01129 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	4.01756 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

SDG No.:

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-SU_00059	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					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_00032	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	333.4 uL	Perfluorobutanesulfonic acid (PFBS)	750.15 ng/mL
							Perfluoroheptanoic acid (PFHpA)	83.3591 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	250.111 ng/mL
							Perfluorononanoic acid (PFNA)	166.74 ng/mL
							Perfluorooctanoic acid (PFOA)	167.608 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	334.797 ng/mL
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537 PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537_PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537_PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00015	11/22/21		Wellington Laboratories, Lot MPFHxA1116		(Purchased Reagent)		13C2 PFHxA	50 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

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



REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

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_PFOA_00003	0.0488 g	Perfluorooctanesulfonic acid (PFOS)	1.00016 mg/mL
....LC537_PFOA_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
<b>LC537-L2_00021</b>	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-HSP_00027	320 uL	Perfluorobutanesulfonic acid (PFBS)	20.0016 ng/mL
							Perfluoroheptanoic acid (PFHpA)	2.22264 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	6.66884 ng/mL
							Perfluorononanoic acid (PFNA)	4.44587 ng/mL
							Perfluorooctanoic acid (PFOA)	4.469 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	8.92684 ng/mL
					LC537-IS_00059	2 mL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00059	2 mL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL
							Perfluorononanoic acid (PFNA)	277.867 ng/mL
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	557.928 ng/mL
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA 00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA 00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

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_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V			(Purchased Reagent)	Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V			(Purchased Reagent)	Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537 PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F			(Purchased Reagent)	Perfluorononanoic acid (PFNA)	0.963 g/g
..LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537 PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537 PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)	Perfluorooctanoic acid (PFOA)	0.999 g/g
..LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV			(Purchased Reagent)	Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)	13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)	13C4 PFOS	47.8 ug/mL
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
..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
<b>LC537-L3_00023</b>	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
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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

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
<b>LC537-L3_00024</b>	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-HSP_00027	720 uL	Perfluorobutanesulfonic acid (PFBS)	45.0036 ng/mL
							Perfluoroheptanoic acid (PFHpA)	5.00094 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	15.0049 ng/mL
							Perfluorononanoic acid (PFNA)	10.0032 ng/mL
							Perfluorooctanoic acid (PFOA)	10.0553 ng/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorooctanesulfonic acid (PFOS)	20.0854 ng/mL
					LC537-IS_00059	2 mL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00059	2 mL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
..LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL
							Perfluorononanoic acid (PFNA)	277.867 ng/mL
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	557.928 ng/mL
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
..LC537-PFHpA_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
..LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537_PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537_PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537 PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
..LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C4 PFOS	47.8 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL		
					LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL		
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL		
..LCMPFHxA_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL		
<b>LC537-L4_00020</b>	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	360 uL	Perfluorobutanesulfonic acid (PFBS)	90.0072 ng/mL		
							Perfluoroheptanoic acid (PFHpA)	10.0024 ng/mL		
							Perfluorohexanesulfonic acid (PFHxS)	30.0067 ng/mL		
							Perfluorononanoic acid (PFNA)	20.0036 ng/mL		
							Perfluorooctanoic acid (PFOA)	20.0167 ng/mL		
							Perfluorooctanesulfonic acid (PFOS)	40.0098 ng/mL		
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL		
							13C4 PFOS	28.68 ng/mL		
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL		
							13C2 PFHxA	10 ng/mL		
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL		
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL		
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL		
							Perfluorononanoic acid (PFNA)	277.827 ng/mL		
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL		
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL		
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL		
							LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
							LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
							LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
							LC537-PFOA_00013	200 uL	Perfluorooctanoic acid (PFOA)	20.0151 ug/mL
							LC537-PFOS_00008	400 uL	Perfluorooctanesulfonic acid (PFOS)	40.0066 ug/mL
...LC537-PFBS_00008	02/10/18	08/10/17	Methanol, Lot 090285	49.6 mL	LC537_PFBS_00002	0.0992 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL		
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g		
...LC537-PFHpA_00015	02/10/18	08/10/17	Methanol, Lot 090285	48.7 mL	LC537_PFHpA_00002	0.0492 g	Perfluoroheptanoic acid (PFHpA)	1.00016 mg/mL		
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCBM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g		
...LC537-PFHxS_00010	02/10/18	08/10/17	Methanol, Lot 090285	55.92 mL	LC537_PFHxS_00002	0.123 g	Perfluorohexanesulfonic acid (PFHxS)	2.00029 mg/mL		
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
...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
<b>LC537-L4_00021</b>	04/01/18	02/15/18	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00027	360 uL	Perfluorobutanesulfonic acid (PFBS)	90.0072 ng/mL
							Perfluoroheptanoic acid (PFHpA)	10.0019 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	30.0098 ng/mL
							Perfluorononanoic acid (PFNA)	20.0064 ng/mL
							Perfluorooctanoic acid (PFOA)	20.1105 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	40.1708 ng/mL
					LC537-IS_00059	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00059	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL
							Perfluorononanoic acid (PFNA)	277.867 ng/mL
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	557.928 ng/mL
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA 00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537 PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537_PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537_PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
..LCM2PFOA_00007	02/12/21		Wellington Laboratories, Lot M2PFOA0216		LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCMPFOS_00021	12/12/21		Wellington Laboratories, Lot MPFOS1216		(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	47.8 ug/mL
..LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFHxA_00015	11/22/21		Wellington Laboratories, Lot MPFHxA1116		(Purchased Reagent)		13C2 PFDA	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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							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
<b>LC537-L5_00025</b>	04/01/18	02/05/18	MeOH/H2O, Lot 090285	20 mL	LC537-HSP_00027	2160 uL	Perfluorobutanesulfonic acid (PFBS)	135.011 ng/mL
							Perfluoroheptanoic acid (PFHpA)	15.0028 ng/mL



REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration		
					Reagent ID	Volume Added				
							Perfluorohexanesulfonic acid (PFHxS)	45.0147 ng/mL		
							Perfluorononanoic acid (PFNA)	30.0096 ng/mL		
							Perfluorooctanoic acid (PFOA)	30.1658 ng/mL		
							Perfluorooctanesulfonic acid (PFOS)	60.2562 ng/mL		
							LC537-IS_00059	2 mL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL		
							LC537-SU_00059	2 mL	13C2 PFDA	10 ng/mL
									13C2 PFHxA	10 ng/mL
.LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL		
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL		
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL		
							Perfluorononanoic acid (PFNA)	277.867 ng/mL		
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL		
.LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL		
							LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
							LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
							LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
							LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
							LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL		
....LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g		
...LC537-PFHpA_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL		
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g		
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL		
....LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g		
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537 PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL		
....LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g		
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537 PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL		
....LC537 PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g		
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL		
....LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g		

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
.LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
					LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C4 PFOS	47.8 ug/mL
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
<b>LC537-L6_00020</b>	02/04/18	08/14/17	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00025	720 uL	Perfluorobutanesulfonic acid (PFBS)	180.014 ng/mL
							Perfluoroheptanoic acid (PFHpA)	20.0049 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	60.0135 ng/mL
							Perfluorononanoic acid (PFNA)	40.0071 ng/mL
							Perfluorooctanoic acid (PFOA)	40.0334 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	80.0195 ng/mL
					LC537-IS_00048	500 uL	13C2-PFOA	10 ng/mL
							13C4 PFOS	28.68 ng/mL
					LC537-SU_00049	500 uL	13C2 PFDA	10 ng/mL
							13C2 PFHxA	10 ng/mL
.LC537-HSP_00025	02/10/18	08/10/17	Methanol, Lot 141039	20000 uL	LC537SPIM_00023	277.8 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL
							Perfluoroheptanoic acid (PFHpA)	138.923 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	416.76 ng/mL
							Perfluorononanoic acid (PFNA)	277.827 ng/mL
							Perfluorooctanoic acid (PFOA)	278.01 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	555.691 ng/mL
..LC537SPIM_00023	02/10/18	08/10/17	Methanol, Lot 104453	10000 uL	LC537-PFBS_00008	450 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00015	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0016 ug/mL
					LC537-PFHxS_00010	150 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0043 ug/mL
					LC537-PFNA_00013	200 uL	Perfluorononanoic acid (PFNA)	20.002 ug/mL
					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

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration				
					Reagent ID	Volume Added						
....LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g				
...LC537-PFHxS_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	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				
<b>LC537-L6_00021</b>	04/01/18	02/15/18	MeOH/H2O, Lot 090285	5 mL	LC537-HSP_00027	720 uL	Perfluorobutanesulfonic acid (PFBS)	180.014 ng/mL				
							Perfluoroheptanoic acid (PFHpA)	20.0038 ng/mL				
							Perfluorohexanesulfonic acid (PFHxS)	60.0196 ng/mL				
											Perfluorononanoic acid (PFNA)	40.0128 ng/mL
											Perfluorooctanoic acid (PFOA)	40.221 ng/mL
											Perfluorooctanesulfonic acid (PFOS)	80.3416 ng/mL
					LC537-IS_00059	500 uL	13C2-PFOA	10 ng/mL				
							13C4 PFOS	28.68 ng/mL				
					LC537-SU_00059	500 uL	13C2 PFDA	10 ng/mL				
							13C2 PFHxA	10 ng/mL				
.LC537-HSP_00027	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	555.6 uL	Perfluorobutanesulfonic acid (PFBS)	1250.1 ng/mL				
							Perfluoroheptanoic acid (PFHpA)	138.915 ng/mL				
							Perfluorohexanesulfonic acid (PFHxS)	416.802 ng/mL				
							Perfluorononanoic acid (PFNA)	277.867 ng/mL				
							Perfluorooctanoic acid (PFOA)	279.313 ng/mL				
							Perfluorooctanesulfonic acid (PFOS)	557.928 ng/mL				
..LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutanesulfonic acid (PFBS)	90 ug/mL				

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
...LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
....LC537_PFBS_00002	04/01/18	Sigma, Lot MKBP8842V			(Purchased Reagent)		Perfluorobutanesulfonic acid (PFBS)	1 g/g
...LC537-PFHpA_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
....LC537_PFHpA_00002	04/01/18	Aldrich, Lot BCM2579V			(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
...LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
....LC537_PFHxS_00002	04/01/18	Sigma, Lot BCBL3545V			(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
...LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537_PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
....LC537 PFNA_00002	04/01/18	TCI America, Lot QN44F			(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
...LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537_PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
....LC537_PFOA_00003	10/31/23	SIGMA ALDRICH, Lot BCBS1198V			(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
...LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
....LC537_PFOS_00003	04/17/19	sigma alrich, Lot SZBE107XV			(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
.LC537-IS_00059	07/30/18	01/30/18	Methanol, Lot 090285	30000 uL	LCM2PFOA_00007	60 uL	13C2-PFOA	0.1 ug/mL
..LCM2PFOA_00007	02/12/21	Wellington Laboratories, Lot M2PFOA0216			LCMPFOS_00021	180 uL	13C4 PFOS	0.2868 ug/mL
..LCMPFOS_00021	12/12/21	Wellington Laboratories, Lot MPFOS1216			(Purchased Reagent)		13C2-PFOA	50 ug/mL
.LC537-SU_00059	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C4 PFOS	47.8 ug/mL
..LCMPFDA_00012	09/30/21	Wellington Laboratories, Lot MPFDA0916			LCMPFHxA_00015	60 uL	13C2 PFDA	0.1 ug/mL
..LCMPFHxA_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFDA	50 ug/mL
..LCMPFHxA_00015	11/22/21	Wellington Laboratories, Lot MPFHxA1116			(Purchased Reagent)		13C2 PFHxA	50 ug/mL
<b>LC537-MSP_00032</b>	04/01/18	01/30/18	Methanol, Lot 141039	40000 uL	LC537SPIM_00026	333.4 uL	Perfluorobutane Sulfonate	750.15 ng/mL
							Perfluorobutanesulfonic acid (PFBS)	750.15 ng/mL
							Perfluoroheptanoic acid (PFHpA)	83.3591 ng/mL
							Perfluorohexanesulfonic acid (PFHxS)	250.111 ng/mL
							Perfluorononanoic acid (PFNA)	166.74 ng/mL
							Perfluorooctanoic acid (PFOA)	167.608 ng/mL
							Perfluorooctanesulfonic acid (PFOS)	334.797 ng/mL
.LC537SPIM_00026	04/01/18	01/30/18	Methanol, Lot 104453	20000 uL	LC537-PFBS_00009	900 uL	Perfluorobutane Sulfonate	90 ug/mL

REAGENT TRACEABILITY SUMMARY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Reagent ID	Exp Date	Prep Date	Dilutant Used	Reagent Final Volume	Parent Reagent		Analyte	Concentration
					Reagent ID	Volume Added		
							Perfluorobutanesulfonic acid (PFBS)	90 ug/mL
					LC537-PFHpA_00016	100 uL	Perfluoroheptanoic acid (PFHpA)	10.0011 ug/mL
					LC537-PFHxS_00011	300 uL	Perfluorohexanesulfonic acid (PFHxS)	30.0074 ug/mL
					LC537-PFNA_00014	400 uL	Perfluorononanoic acid (PFNA)	20.0048 ug/mL
					LC537-PFOA_00015	400 uL	Perfluorooctanoic acid (PFOA)	20.1089 ug/mL
					LC537-PFOS_00009	800 uL	Perfluorooctanesulfonic acid (PFOS)	40.1676 ug/mL
..LC537-PFBS_00009	04/01/18	01/30/18	Methanol, Lot 090285	48.7 mL	LC537_PFBS_00002	0.0974 g	Perfluorobutane Sulfonate	2 mg/mL
							Perfluorobutanesulfonic acid (PFBS)	2 mg/mL
...LC537_PFBS_00002	04/01/18		Sigma, Lot MKBP8842V		(Purchased Reagent)		Perfluorobutane Sulfonate	1 g/g
							Perfluorobutanesulfonic acid (PFBS)	1 g/g
..LC537-PFHpA_00016	04/01/18	01/30/18	Methanol, Lot 090285	59.74 mL	LC537_PFHpA_00002	0.1207 g	Perfluoroheptanoic acid (PFHpA)	2.00022 mg/mL
...LC537_PFHpA_00002	04/01/18		Aldrich, Lot BCBM2579V		(Purchased Reagent)		Perfluoroheptanoic acid (PFHpA)	0.99 g/g
..LC537-PFHxS_00011	04/01/18	01/30/18	Methanol, Lot 090285	38.64 mL	LC537_PFHxS_00002	0.085 g	Perfluorohexanesulfonic acid (PFHxS)	2.00049 mg/mL
...LC537_PFHxS_00002	04/01/18		Sigma, Lot BCBL3545V		(Purchased Reagent)		Perfluorohexanesulfonic acid (PFHxS)	0.9094 g/g
..LC537-PFNA_00014	04/01/18	01/30/18	Methanol, Lot 090285	62.58 mL	LC537 PFNA_00002	0.065 g	Perfluorononanoic acid (PFNA)	1000.24 ug/mL
...LC537 PFNA_00002	04/01/18		TCI America, Lot QN44F		(Purchased Reagent)		Perfluorononanoic acid (PFNA)	0.963 g/g
..LC537-PFOA_00015	07/30/18	01/30/18	Methanol, Lot 090285	31 mL	LC537 PFOA_00003	0.0312 g	Perfluorooctanoic acid (PFOA)	1.00545 mg/mL
...LC537 PFOA_00003	10/31/23		SIGMA ALDRICH, Lot BCBS1198V		(Purchased Reagent)		Perfluorooctanoic acid (PFOA)	0.999 g/g
..LC537-PFOS_00009	07/30/18	01/30/18	Methanol, Lot 090285	36 mL	LC537_PFOS_00003	0.0397 g	Perfluorooctanesulfonic acid (PFOS)	1.00419 mg/mL
...LC537_PFOS_00003	04/17/19		sigma alrich, Lot SZBE107XV		(Purchased Reagent)		Perfluorooctanesulfonic acid (PFOS)	0.9106 g/g
<b>LC537-SU_00057</b>	07/30/18	01/30/18	Methanol, Lot 104453	30000 uL	LCMPFDA_00012	60 uL	13C2 PFDA	0.1 ug/mL
					LCMPFHxA_00015	60 uL	13C2 PFHxA	0.1 ug/mL
.LCMPFDA_00012	09/30/21		Wellington Laboratories, Lot MPFDA0916		(Purchased Reagent)		13C2 PFDA	50 ug/mL
.LCMPFHxA_00015	11/22/21		Wellington Laboratories, Lot MPFHxA1116		(Purchased Reagent)		13C2 PFHxA	50 ug/mL

Reagent

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**LC537\_PFB\_00002**

4/1/15 SPV

3050 Spruce Street, Saint Louis, MO 63103, USA

Website: [www.sigmaaldrich.com](http://www.sigmaaldrich.com)

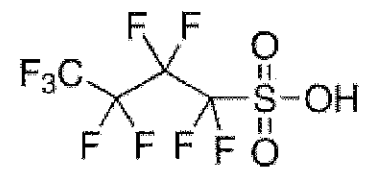
Email USA: [techserv@sial.com](mailto:techserv@sial.com)

Outside USA: [eurtechserv@sial.com](mailto: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.

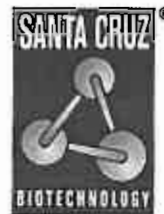
Reagent

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**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

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**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

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**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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**ThermoFisher**  
SCIENTIFIC

Reagent

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**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:** C<sub>6</sub>F<sub>13</sub>KO<sub>3</sub>S

**Formula Weight:** 438.20

**Quality Release Date:** 20 JUN 2013

PFH<sub>13</sub>S-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

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**LC537\_PFHxS2\_00002**



n: 6-8-17 SKJ

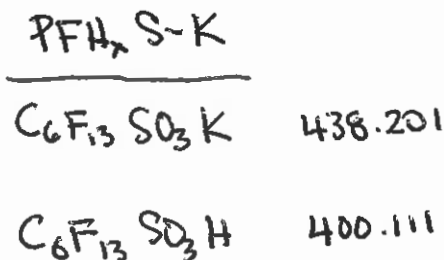


The Future of Science

# 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 =  $\frac{400.11}{438.201} = 0.91307$  PFH<sub>13</sub>S  
 CAS# 355-46-4

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

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

Reagent

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**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

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**LC537\_PFN2\_00002**

P: 6.14.17 SKW

3050 Spruce Street, Saint Louis, MO 63103, USA

Website: [www.sigmaaldrich.com](http://www.sigmaaldrich.com)

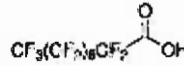
Email USA: [techserv@sial.com](mailto:techserv@sial.com)

Outside USA: [eurtechserv@sial.com](mailto: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: C<sub>9</sub>H<sub>F</sub>17O<sub>2</sub>  
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

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**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

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**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%

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

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**ThermoFisher**  
SCIENTIFIC

Reagent

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**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

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**LC537\_PFOs2\_00002**

R: 6.14.17 SKV

**Certificate of Analysis**

**Product Name:** HEPTADECAFLUOROOCATANESULFONIC ACID TETRAETHYLAMMONIUM SALT  
 98 %  
**Product Number:** 365289  
**Batch Number:** BCBQ0108V  
**Brand:** Aldrich  
**CAS Number:** 56773-42-3  
**Formula:**  $CF_3(CF_2)_6CF_2SO_3N(C_2H_5)_4$   
**Formula Weight:** 629.37  
**Quality Release Date:** 11 JUN 2015

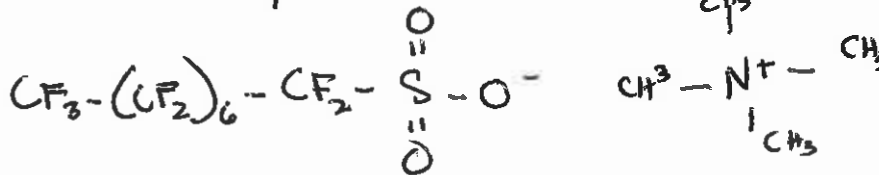
TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	WHITE TO OFF WHITE	OFF-WHITE
APPEARANCE (FORM)	POWDER OR POWDER WITH CHUNK(S)	POWDER
CARBON CONTENT	29.77 % - 31.29 %	29.97 %
INFRARED SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS

*Claudia Geitner*

Dr. Claudia Geitner  
 Manager Quality Control  
 Buchs, Switzerland

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

Purity & MW correction = 77.37%



	$C_8 F_{17} SO_3^+ H$	$C_8 H_{20} N$
C = 12.011	96.088	96.088
F = 18.998	322.966	—
S = 32.066	32.066	—
O = 16.000	47.997	20.60
H = 1.008	1.008	14.007
N = 14.007	—	—
	<hr/>	<hr/>
	500.125	130.255

Reagent

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**LCM2PFOA\_00007**

P: 5/11/17 SKV



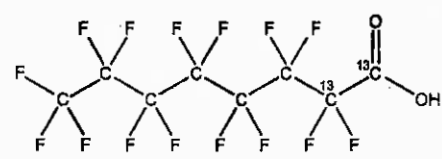
# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** M2PFOA  
**COMPOUND:** Perfluoro-n-[1,2-<sup>13</sup>C<sub>2</sub>]octanoic acid

**LOT NUMBER:** M2PFOA0216

**STRUCTURE:**  **CAS #:** Not available



**MOLECULAR FORMULA:** <sup>13</sup>C<sub>2</sub><sup>12</sup>C<sub>6</sub>HF<sub>16</sub>O<sub>2</sub>  
**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% <sup>13</sup>C  
(1,2-<sup>13</sup>C<sub>2</sub>)

**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

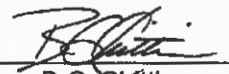
**DOCUMENTATION/ DATA ATTACHED:**

- 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:**

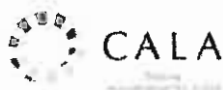
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

### **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:**

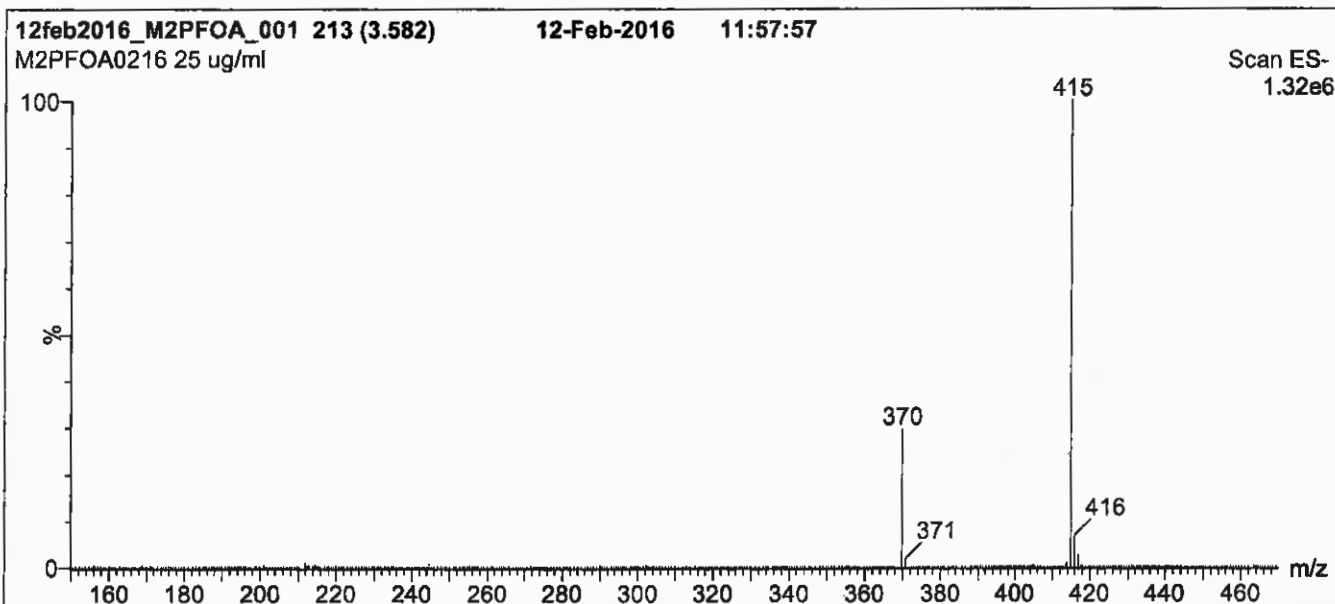
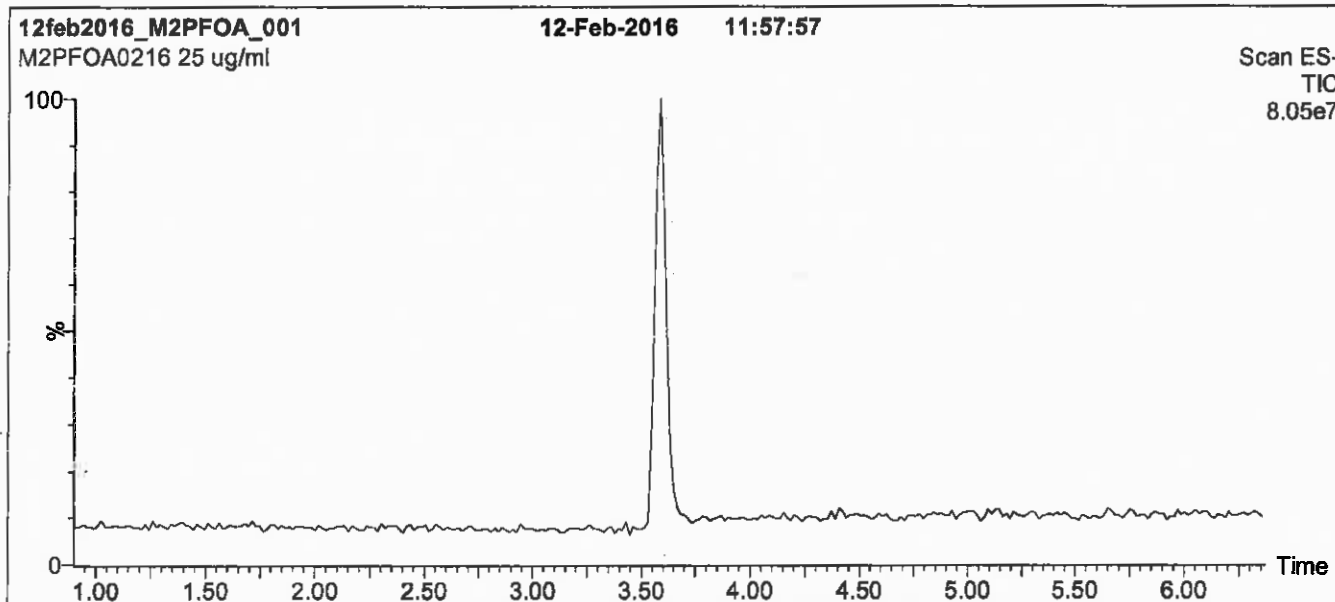
This product was produced using a Quality Management System registered to the latest versions of ISO 9001 by SAI Global, ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA; A 1226), and ISO GUIDE 34 by ANSI-ASQ National Accreditation Board (ANAB; AR-1523).



\*\*For additional information or assistance concerning this or any other products from Wellington Laboratories Inc., please visit our website at [www.well-labs.com](http://www.well-labs.com) or contact us directly at [info@well-labs.com](mailto: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 RP<sub>18</sub>  
1.7  $\mu$ m, 2.1 x 100 mm

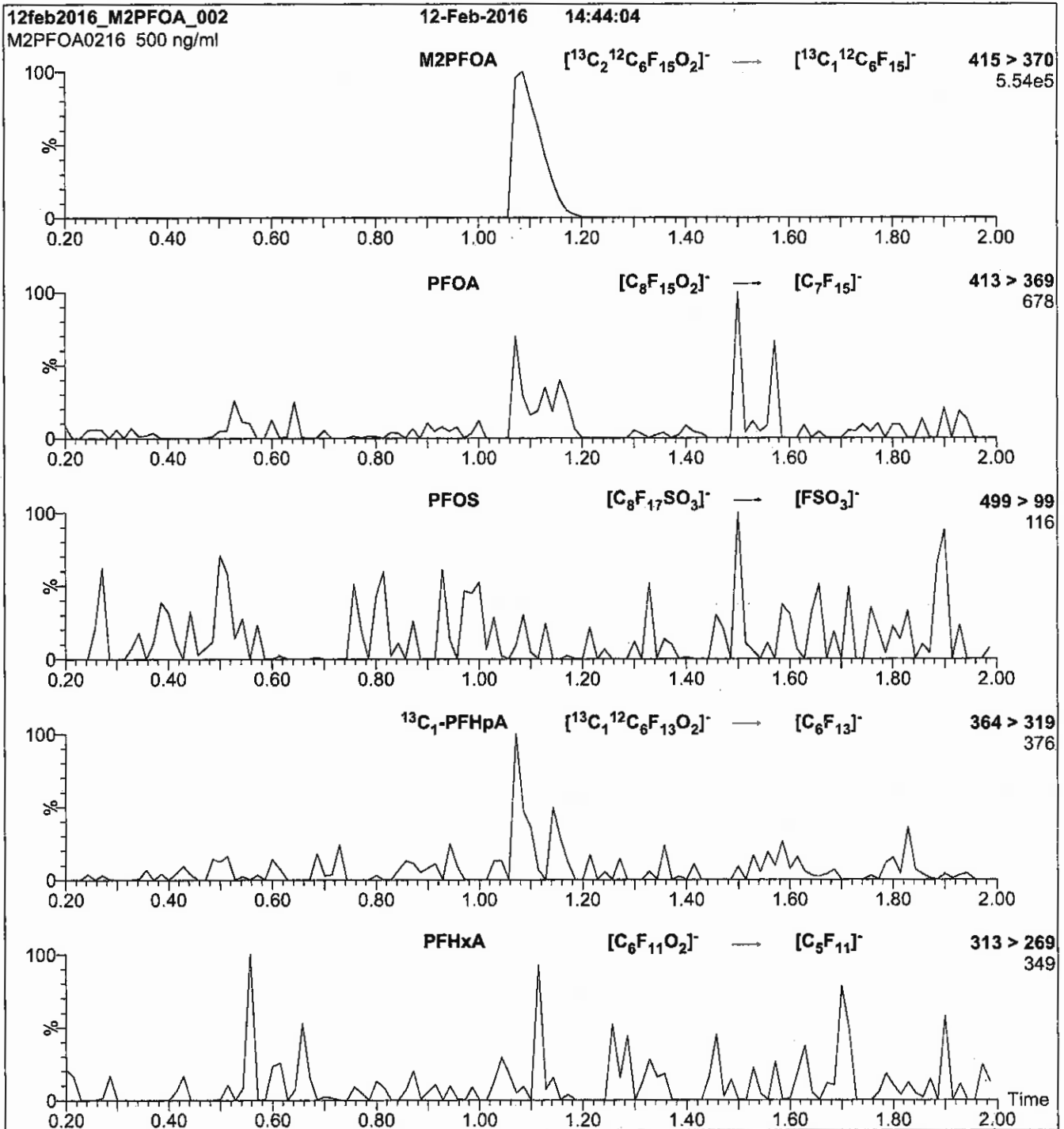
Mobile phase: Gradient  
Start: 50% (80:20 MeOH:ACN) / 50% H<sub>2</sub>O  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 90% organic over 7.5 min and hold for 1.5 min  
before returning to initial conditions in 0.5 min.  
Time: 10 min

Flow: 300  $\mu$ 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:**

<p>Injection: Direct loop injection                  10 <math>\mu\text{l}</math> (500 ng/ml M2PFOA)</p> <p>Mobile phase: Isocratic 80% MeOH / 20% H<sub>2</sub>O</p> <p>Flow: 300 <math>\mu\text{l}/\text{min}</math></p>	<p><b>MS Parameters</b></p> <p>Collision Gas (mbar) = 3.39e-3                  Collision Energy (eV) = 10</p>
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Reagent

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**LCMPFDA\_00012**

R: SBC 12/21/16



814255

ID: LCMPPFDA\_00012

Exp: 09/30/21 Prpd: SBC

13C2-Perfluorodecanoic a

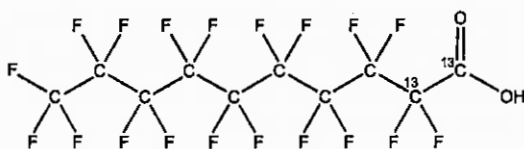


# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** MPFDA **LOT NUMBER:** MPFDA0916  
**COMPOUND:** Perfluoro-n-[1,2-<sup>13</sup>C<sub>2</sub>]decanoic acid

**STRUCTURE:** **CAS #:** Not available



**MOLECULAR FORMULA:** <sup>13</sup>C<sub>2</sub><sup>12</sup>C<sub>8</sub>HF<sub>19</sub>O<sub>2</sub>  
**CONCENTRATION:** 50 ± 2.5 µg/ml

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

**CHEMICAL PURITY:** >98%

**ISOTOPIC PURITY:** ≥99% <sup>13</sup>C  
(1,2-<sup>13</sup>C<sub>2</sub>)

**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 <sup>13</sup>C<sub>1</sub>-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.

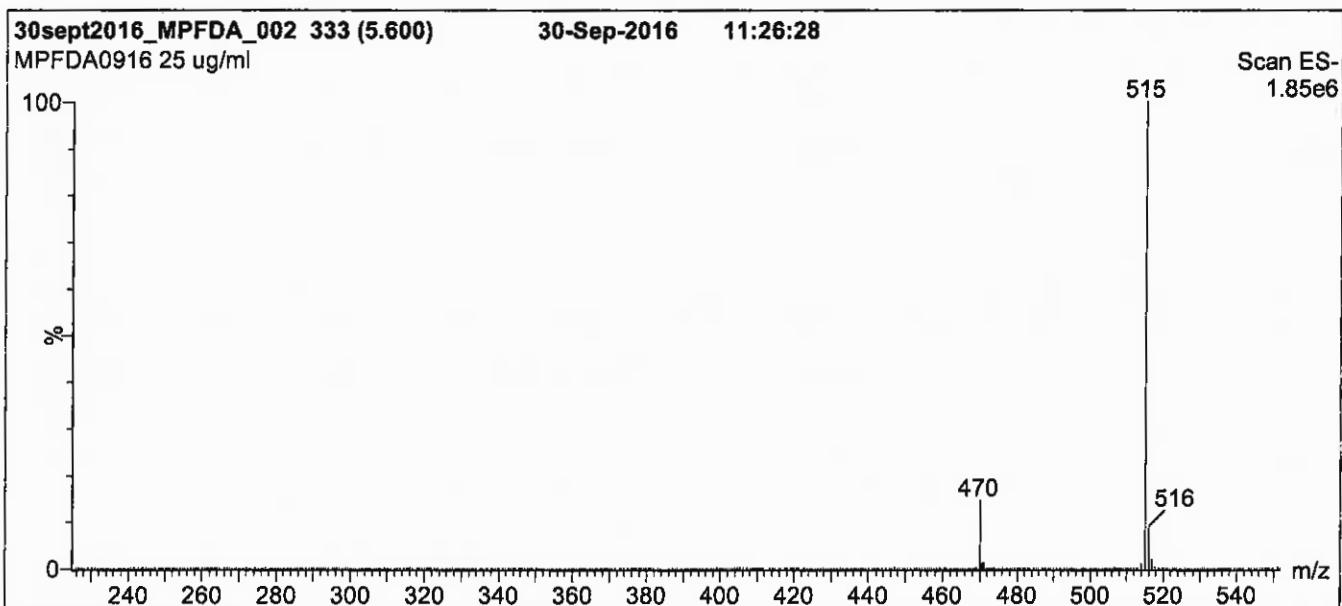
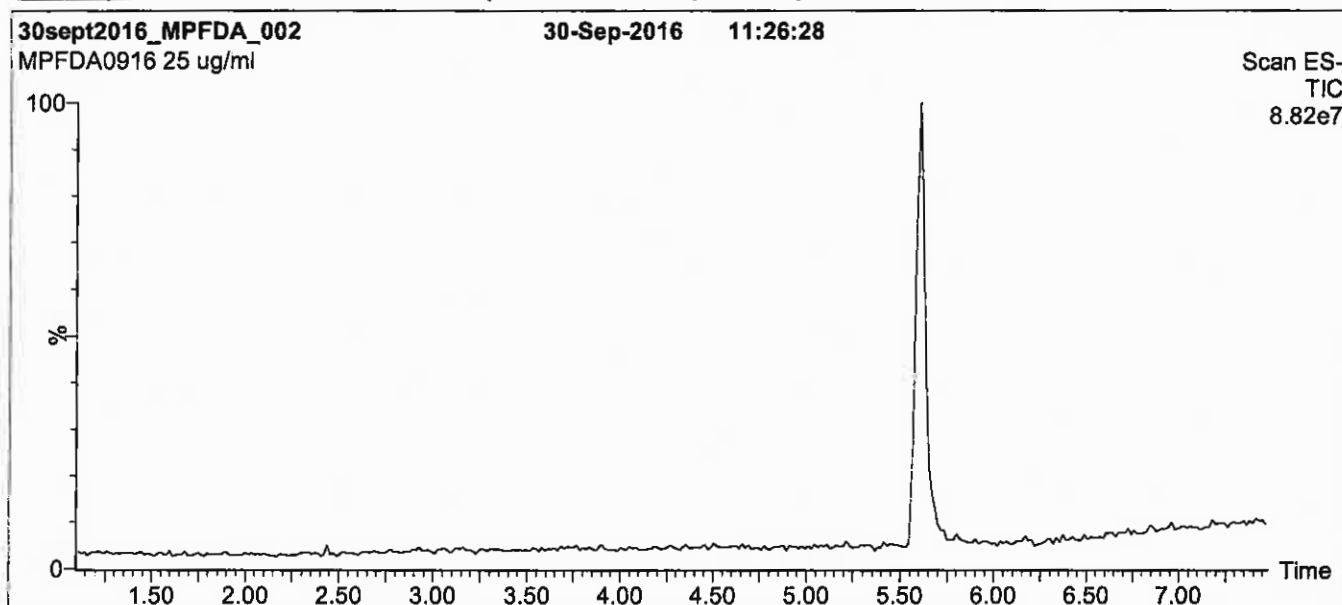
### **QUALITY MANAGEMENT:**

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](http://www.well-labs.com) or contact us directly at [info@well-labs.com](mailto: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**

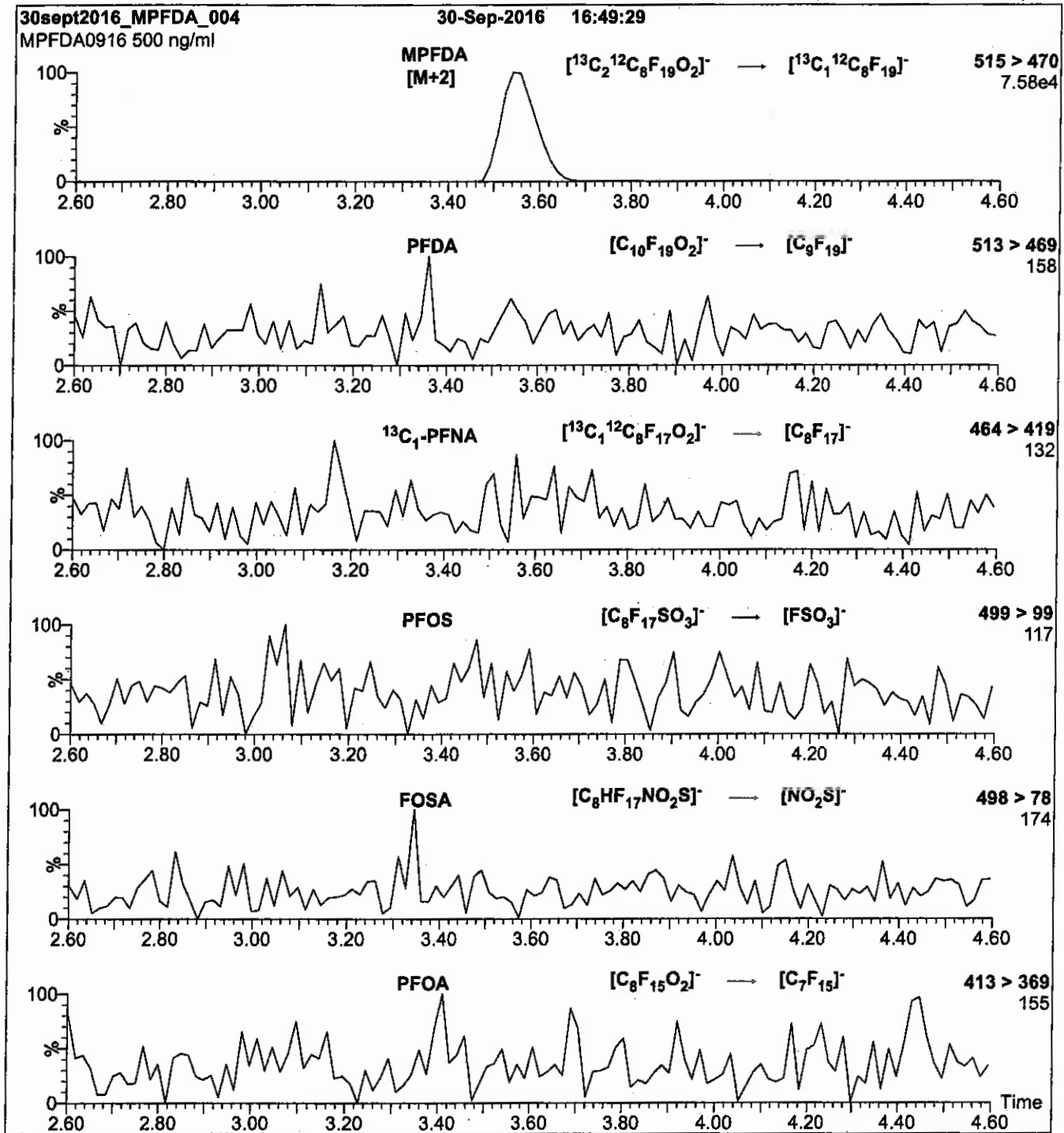
Column: Acquity UPLC BEH Shield RP<sub>18</sub>  
1.7  $\mu$ m, 2.1 x 100 mm  
Mobile phase: Gradient  
Start: 50% (80:20 MeOH:ACN) / 50% H<sub>2</sub>O  
(both with 10 mM NH<sub>4</sub>OAc buffer)  
Ramp to 90% organic over 7 min and hold for 1.5 min  
before returning to initial conditions in 0.5 min.  
Time: 10 min

Flow: 300  $\mu$ 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  $\mu$ l (500 ng/ml MPFDA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H<sub>2</sub>O  
(both with 10 mM NH<sub>4</sub>OAc buffer)

Flow: 300  $\mu$ l/min

**MS Parameters**

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

Reagent

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**LCMPFHxA\_00013**



R: SBC 12/21/16



814258  
ID: LCMPFHxA\_00013  
Exp: 04/08/21 Ppdt. SBC  
13C2-Perfluorohexanoic ac



# WELLINGTON LABORATORIES

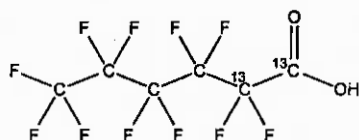
## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** MPFHxA  
**COMPOUND:** Perfluoro-n-[1,2-<sup>13</sup>C<sub>2</sub>]hexanoic acid

**LOT NUMBER:** MPFHxA0416

**STRUCTURE:**

**CAS #:** Not available



**MOLECULAR FORMULA:** <sup>13</sup>C<sub>2</sub><sup>12</sup>C<sub>4</sub>HF<sub>11</sub>O<sub>2</sub>  
**CONCENTRATION:** 50 ± 2.5 µg/ml

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

**CHEMICAL PURITY:** >98%

**ISOTOPIC PURITY:** ≥99%<sup>13</sup>C  
(1,2-<sup>13</sup>C<sub>2</sub>)

**LAST TESTED:** (mm/dd/yyyy) 04/08/2016

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

**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

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

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
B.G. Chittim

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

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

### **INTENDED USE:**

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### **HAZARDS:**

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### **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.

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

### **UNCERTAINTY:**

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

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

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

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

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

### **TRACEABILITY:**

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

### **EXPIRY DATE / PERIOD OF VALIDITY:**

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

### **LIMITED WARRANTY:**

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

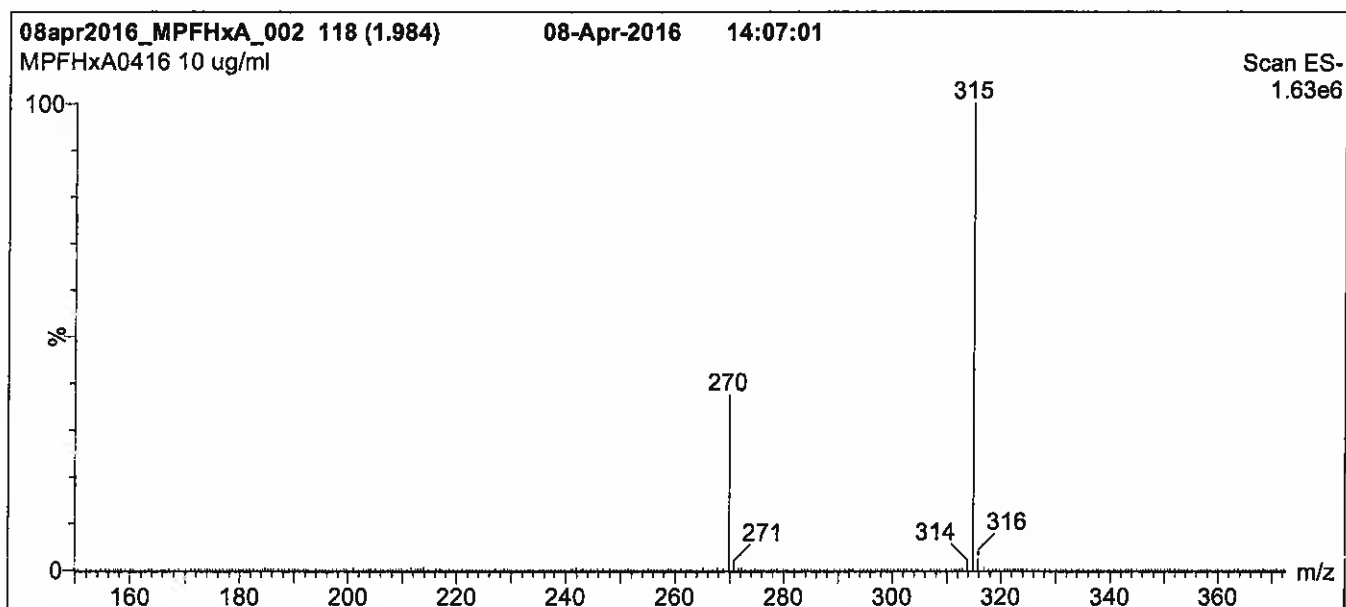
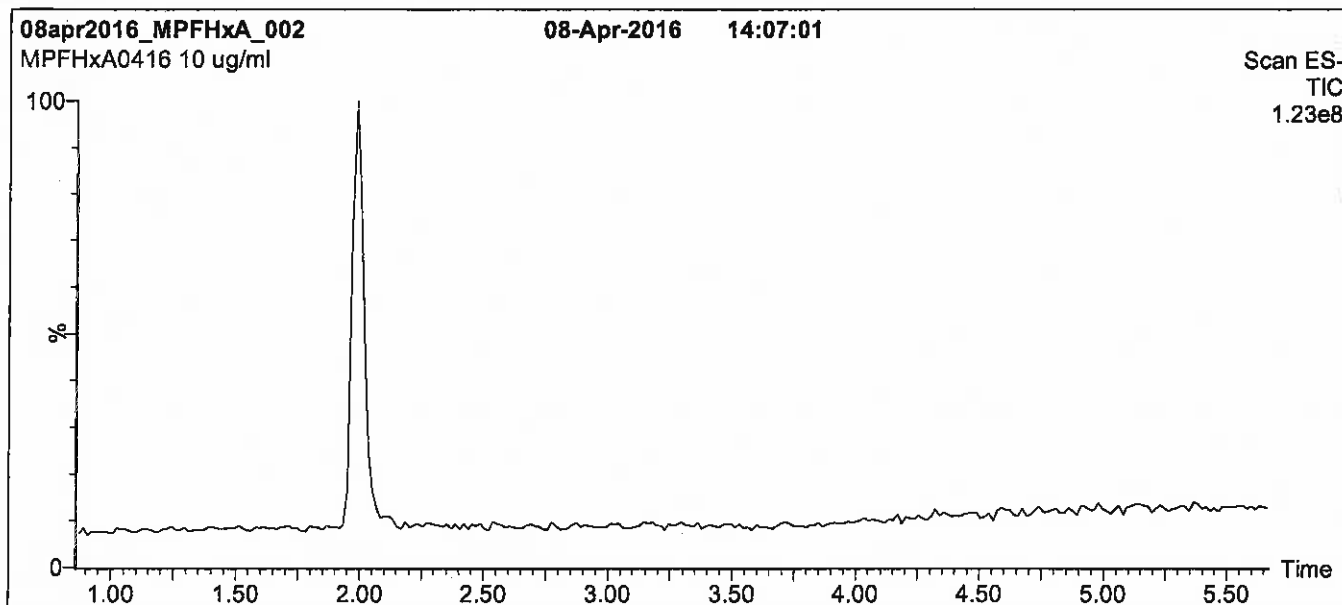
### **QUALITY MANAGEMENT:**

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



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**Figure 1: 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 RP<sub>18</sub>  
 1.7  $\mu$ m, 2.1 x 100 mm

Mobile phase: Gradient  
 Start: 50% (80:20 MeOH:ACN) / 50% H<sub>2</sub>O  
 (both with 10 mM NH<sub>4</sub>OAc 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

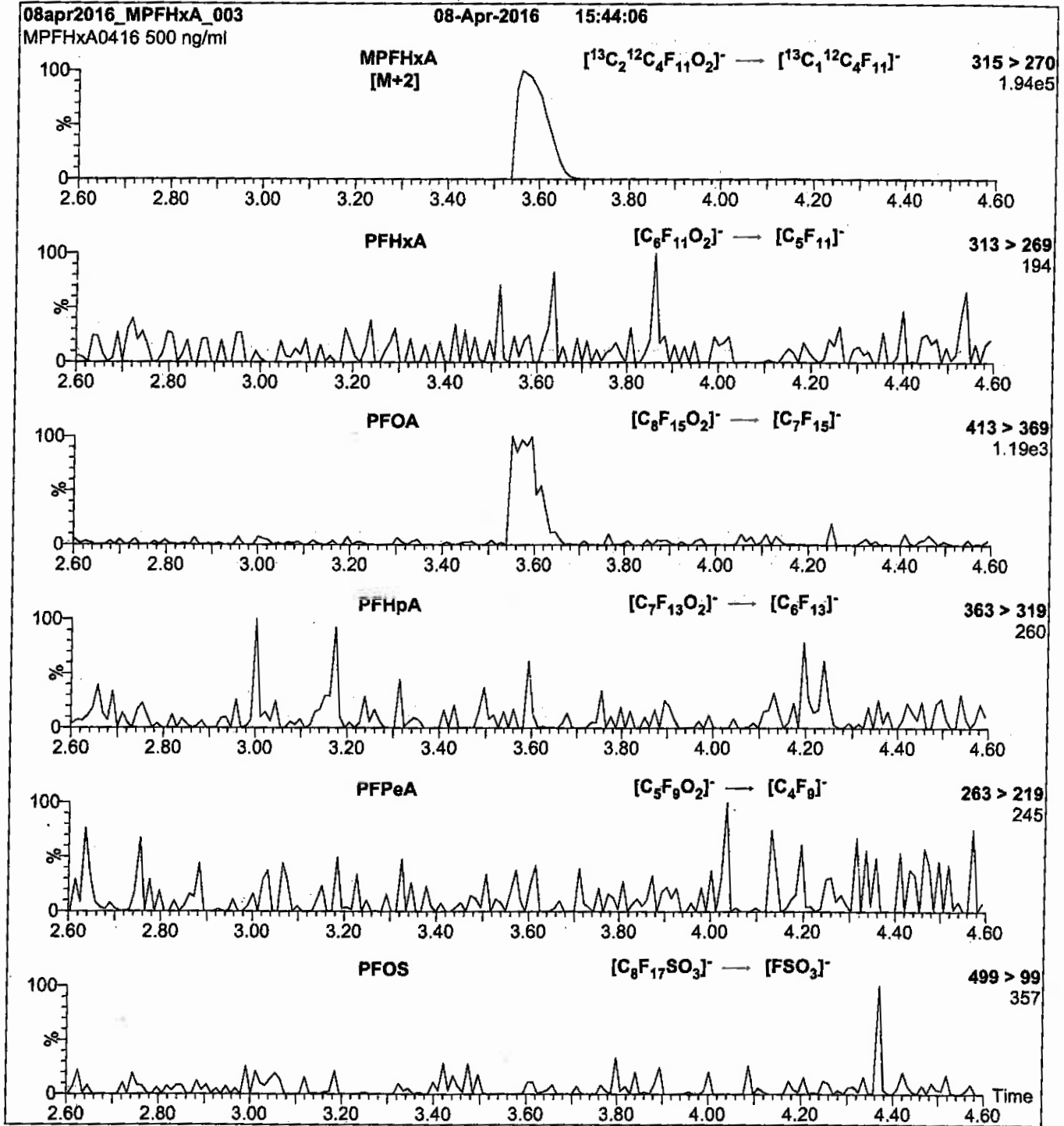
Flow: 300  $\mu$ l/min

**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  $\mu$ l (500 ng/ml MPFHxA)

**Mobile phase:** Isocratic 80% (80:20 MeOH:ACN) / 20% H<sub>2</sub>O  
(both with 10 mM NH<sub>4</sub>OAc buffer)

**Flow:** 300  $\mu$ l/min

**MS Parameters**

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

Reagent

---

**LCMPFHxA\_00015**

r: 5/10/17 skd



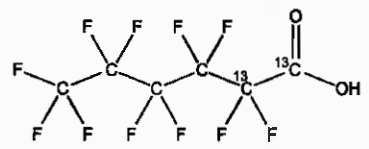
# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** MPFHxA  
**COMPOUND:** Perfluoro-n-[1,2-<sup>13</sup>C<sub>2</sub>]hexanoic acid

**LOT NUMBER:** MPFHxA1116

**STRUCTURE:** **CAS #:** Not available



**MOLECULAR FORMULA:** <sup>13</sup>C<sub>2</sub><sup>12</sup>C<sub>4</sub>HF<sub>11</sub>O<sub>2</sub>  
**CONCENTRATION:** 50 ± 2.5 µg/ml

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

**CHEMICAL PURITY:** >98%

**ISOTOPIC PURITY:** ≥99% <sup>13</sup>C  
(1,2-<sup>13</sup>C<sub>2</sub>)

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

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

**RECOMMENDED STORAGE:** Store ampoule in a cool, dark place

**DOCUMENTATION/ DATA ATTACHED:**

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

**ADDITIONAL INFORMATION:**

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

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

**Certified By:**   
B.G. Chittim

**Date:** 12/13/2016  
(mm/dd/yyyy)

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

**INTENDED USE:**

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

**HAZARDS:**

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

**SYNTHESIS / CHARACTERIZATION:**

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

**HOMOGENEITY:**

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

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

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**EXPIRY DATE / PERIOD OF VALIDITY:**

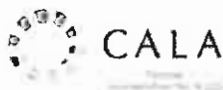
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

**LIMITED WARRANTY:**

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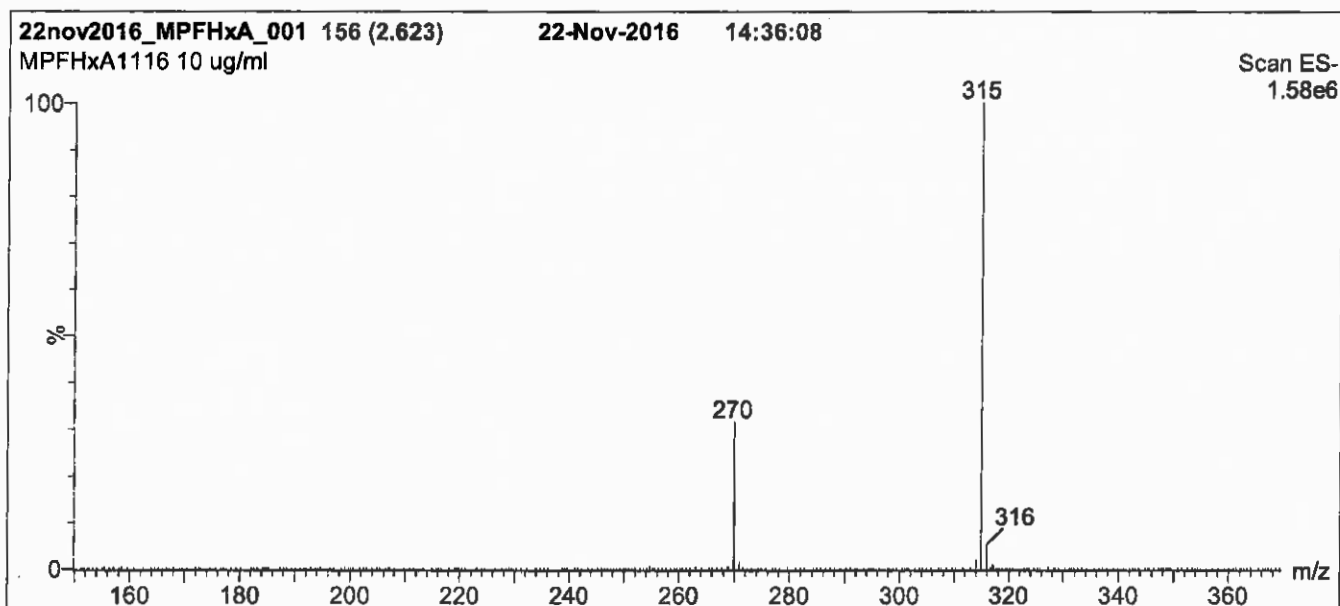
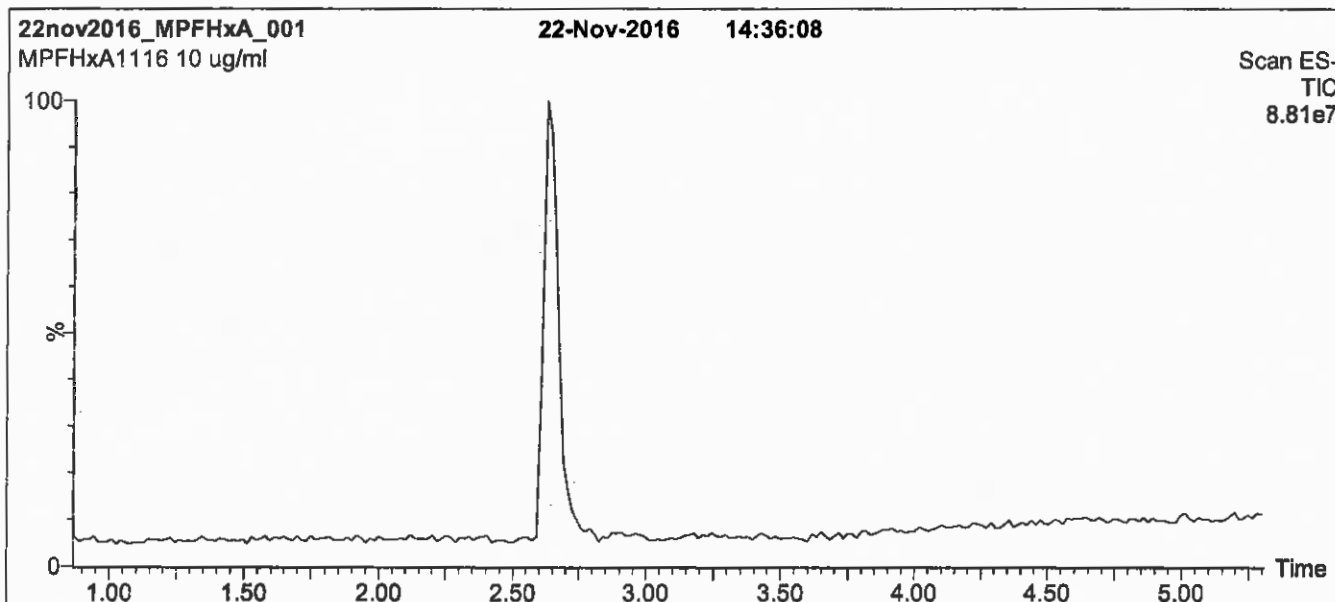
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**Figure 1: MPFHxA; LC/MS Data (TIC and Mass Spectrum)**



**Conditions for Figure 1:**

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

**Chromatographic Conditions**

Column: Acquity UPLC BEH Shield RP<sub>18</sub>  
1.7  $\mu$ m, 2.1 x 100 mm

Mobile phase: Gradient  
Start: 40% (80:20 MeOH:ACN) / 60% H<sub>2</sub>O  
(both with 10 mM NH<sub>4</sub>OAc 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

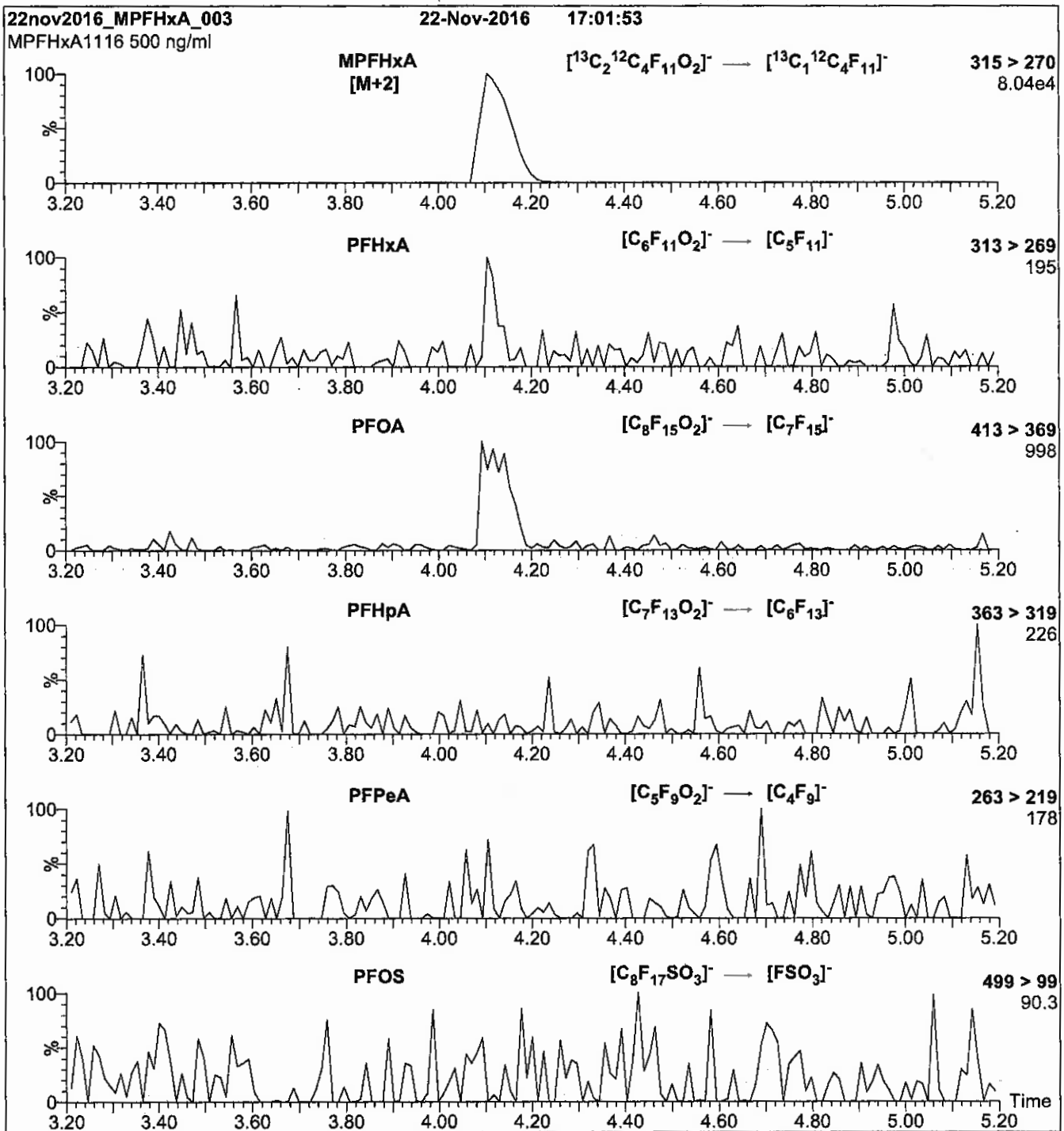
Flow: 300  $\mu$ l/min

**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  $\mu$ l (500 ng/ml MPFHxA)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20% H<sub>2</sub>O  
(both with 10 mM NH<sub>4</sub>OAc buffer)

Flow: 300  $\mu$ l/min

**MS Parameters**

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

Reagent

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**LCMPFOS\_00019**

R: SBC 12/21/16



814253  
ID: LCMPFOS\_00019  
Exp: 08/03/21 Ppfd: SBC  
13C4-Perfluorooctanesulfo

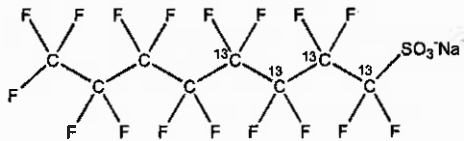


# WELLINGTON LABORATORIES

## CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** MPFOS      **LOT NUMBER:** MPFOS0816  
**COMPOUND:** Sodium perfluoro-1-[1,2,3,4-<sup>13</sup>C<sub>4</sub>]octanesulfonate

**STRUCTURE:**      **CAS #:** Not available



<b>MOLECULAR FORMULA:</b>	<sup>13</sup> C <sub>4</sub> <sup>12</sup> C <sub>4</sub> F <sub>17</sub> SO <sub>3</sub> Na	<b>MOLECULAR WEIGHT:</b>	526.08
<b>CONCENTRATION:</b>	50.0 ± 2.5 µg/ml (Na salt) 47.8 ± 2.4 µg/ml (MPFOS anion)	<b>SOLVENT(S):</b>	Methanol
<b>CHEMICAL PURITY:</b>	>98%	<b>ISOTOPIC PURITY:</b>	≥99% <sup>13</sup> C (1,2,3,4- <sup>13</sup> C <sub>4</sub> )
<b>LAST TESTED:</b> (mm/dd/yyyy)	08/03/2016		
<b>EXPIRY DATE:</b> (mm/dd/yyyy)	08/03/2021		
<b>RECOMMENDED STORAGE:</b>	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-<sup>13</sup>C<sub>3</sub>]heptanesulfonate.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

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

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

### **INTENDED USE:**

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### **HAZARDS:**

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### **EXPIRY DATE / PERIOD OF VALIDITY:**

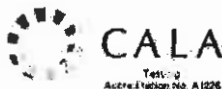
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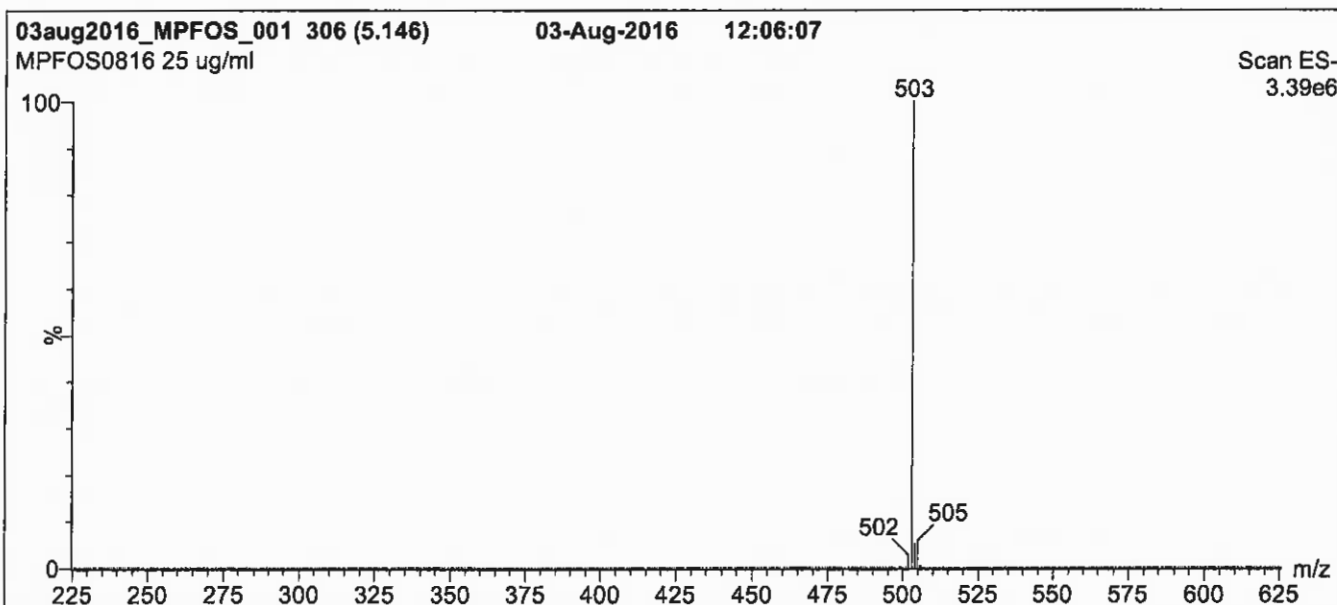
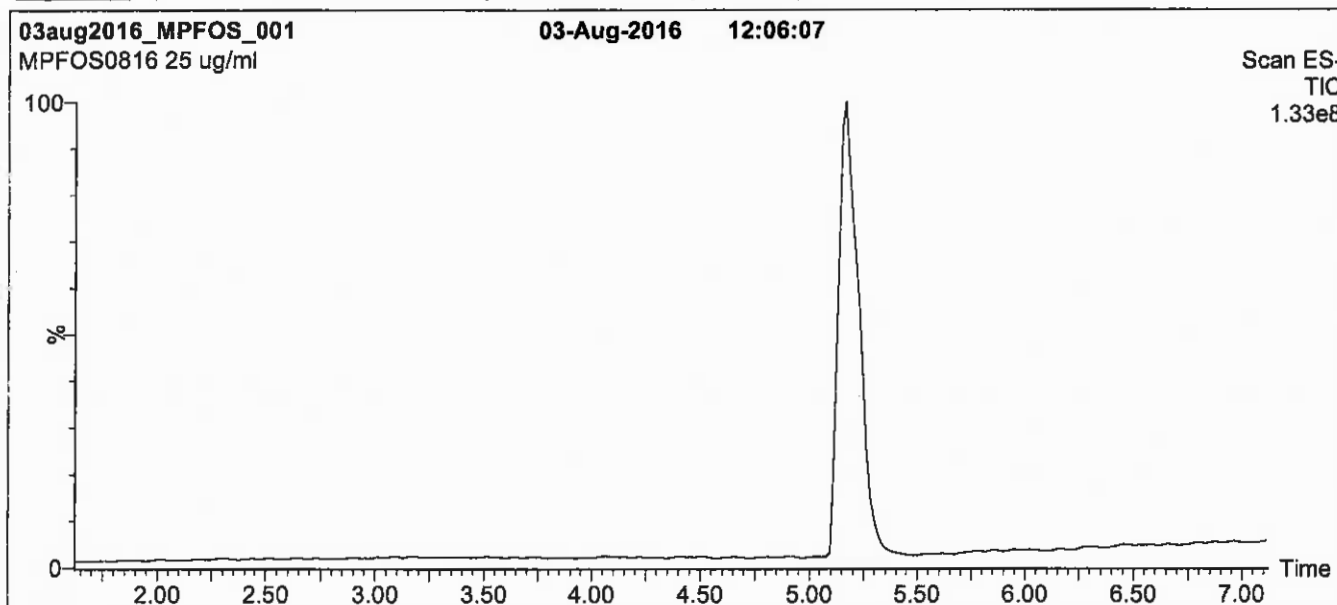
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**Figure 1: MPFOS; LC/MS Data (TIC and Mass Spectrum)**



**Conditions for Figure 1:**

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

**Chromatographic Conditions**

**Column:** Acquity UPLC BEH Shield RP<sub>18</sub>  
 1.7  $\mu$ m, 2.1 x 100 mm

**Mobile phase:** Gradient  
 Start: 45% (80:20 MeOH:ACN) / 55% H<sub>2</sub>O  
 (both with 10 mM NH<sub>4</sub>OAc 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

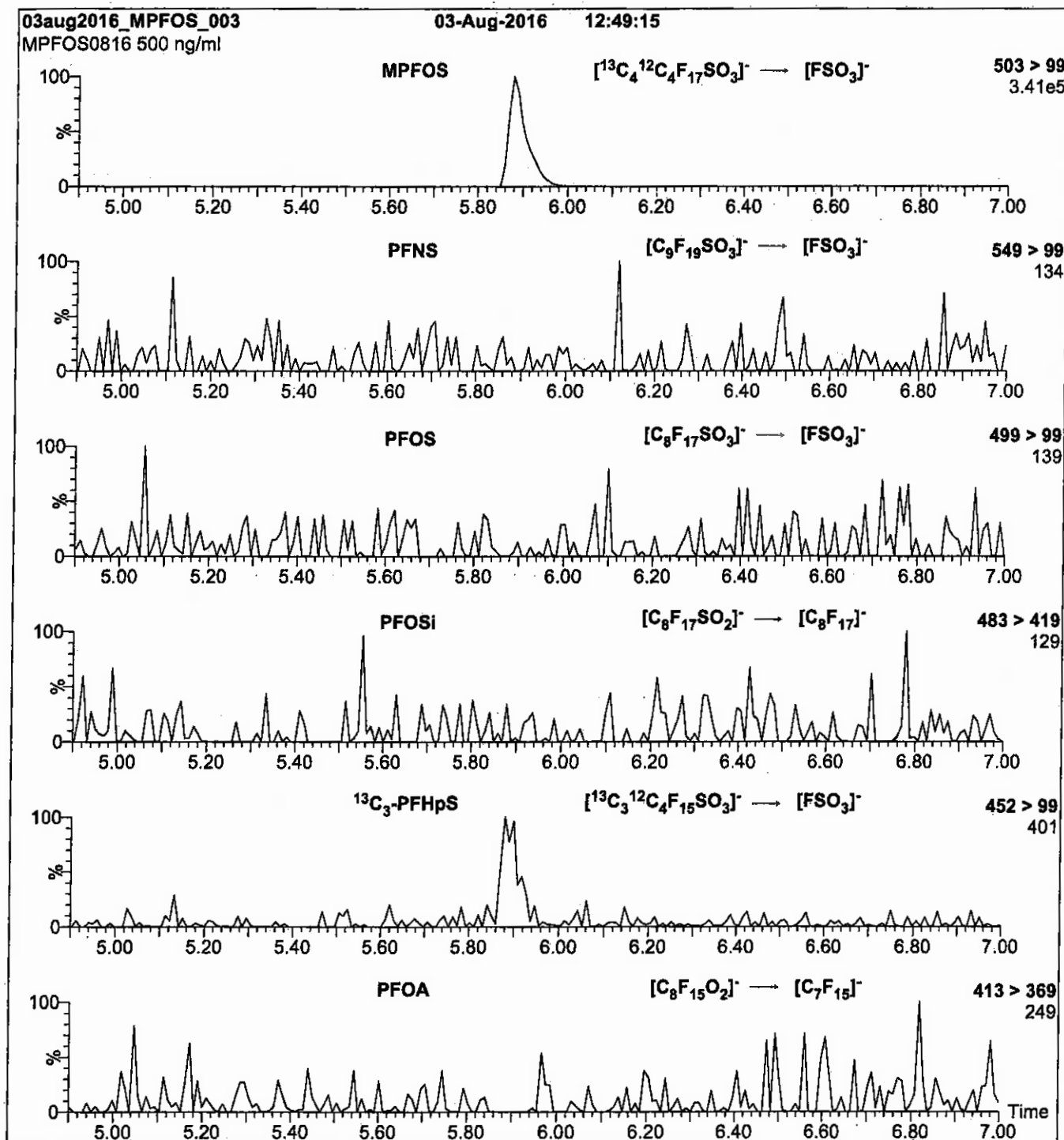
**Flow:** 300  $\mu$ l/min

**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  $\mu\text{l}$  (500 ng/ml MPFOS)

Mobile phase: Isocratic 80% (80:20 MeOH:ACN) / 20%  $\text{H}_2\text{O}$   
(both with 10 mM  $\text{NH}_4\text{OAc}$  buffer)

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

**MS Parameters**

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

Reagent

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**LCMPFOS\_00021**

r: 5/6/17 SKV

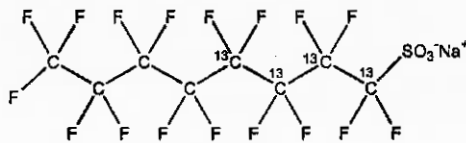


# WELLINGTON LABORATORIES

# CERTIFICATE OF ANALYSIS DOCUMENTATION

**PRODUCT CODE:** MPFOS **LOT NUMBER:** MPFOS1216  
**COMPOUND:** Sodium perfluoro-1-[1,2,3,4-<sup>13</sup>C<sub>4</sub>]octanesulfonate

**STRUCTURE:** **CAS #:** Not available



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

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- Figure 1: LC/MS Data (TIC and Mass Spectrum)
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**ADDITIONAL INFORMATION:**

- See page 2 for further details.
- Contains ~ 0.8% Sodium perfluoro-1-[1,2,3-<sup>13</sup>C<sub>3</sub>]heptanesulfonate.

**FOR LABORATORY USE ONLY: NOT FOR HUMAN OR DRUG USE**

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

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



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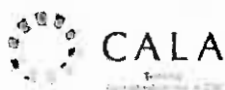
Ongoing stability studies of this product have demonstrated stability in its composition and concentration, until the specified expiry date, in the unopened ampoule. Monitoring for any degradation or change in concentration of the listed analyte(s) is performed on a routine basis.

### **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.

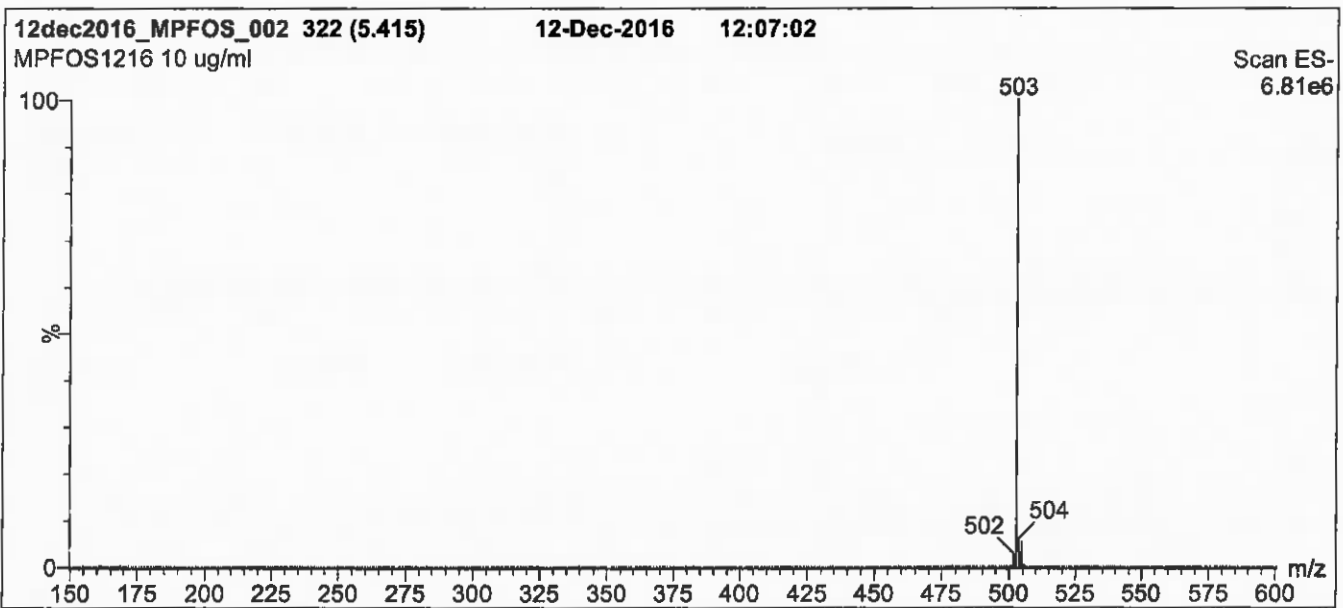
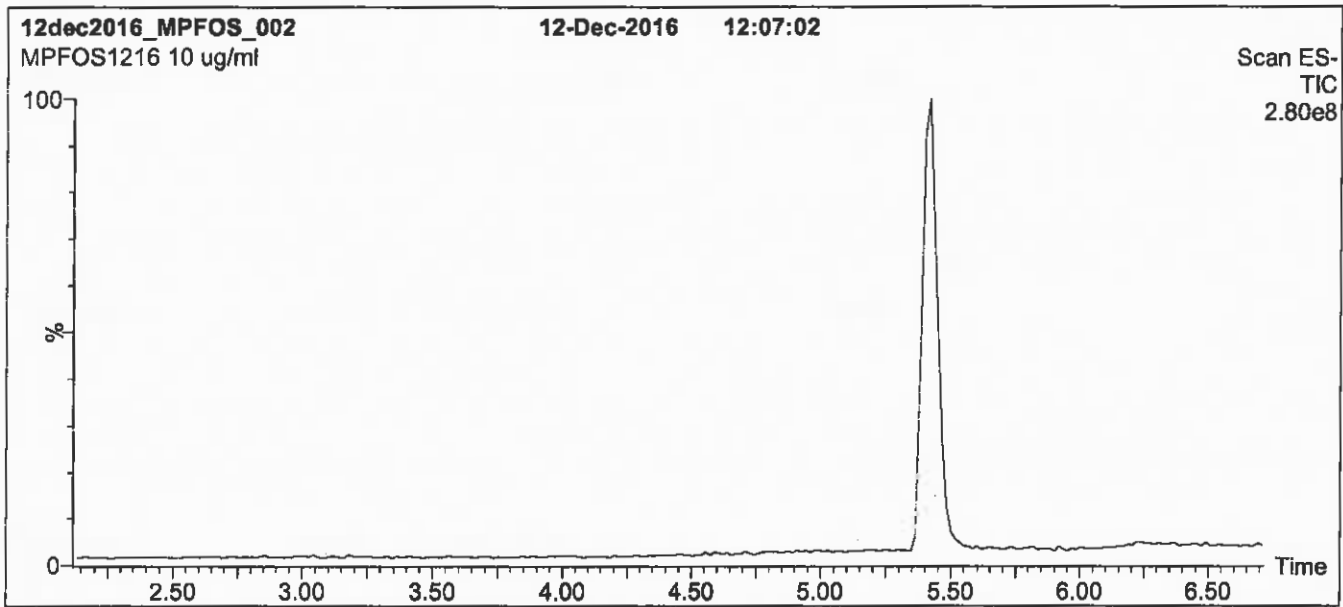
### **QUALITY MANAGEMENT:**

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](http://www.well-labs.com) or contact us directly at [info@well-labs.com](mailto:info@well-labs.com)\*\*

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



**Conditions for Figure 1:**

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

**Chromatographic Conditions**

**Column:** Acquity UPLC BEH Shield RP<sub>18</sub>  
 1.7  $\mu$ m, 2.1 x 100 mm

**Mobile phase:** Gradient  
 Start: 50% (80:20 MeOH:ACN) / 50% H<sub>2</sub>O  
 (both with 10 mM NH<sub>4</sub>OAc 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

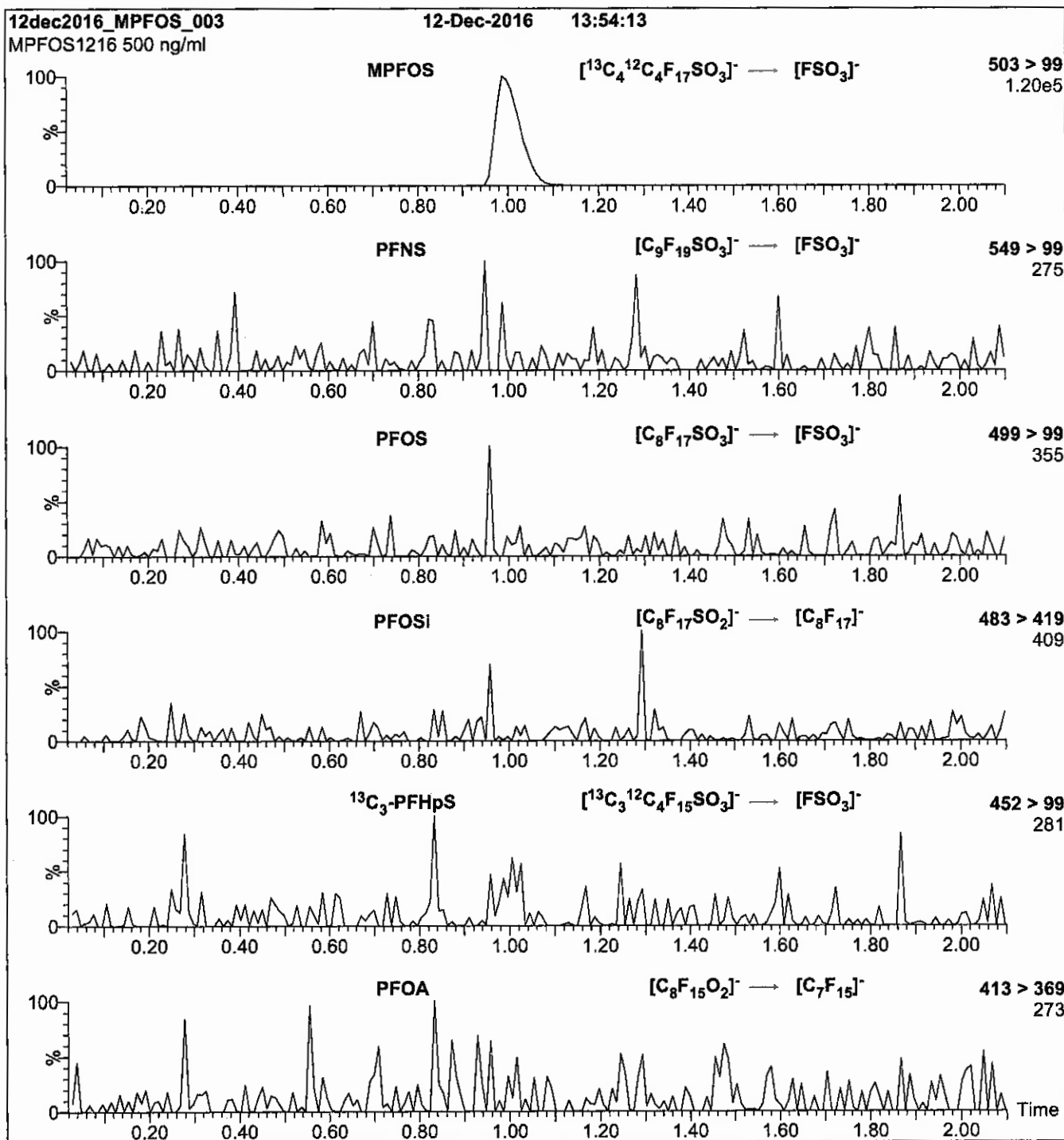
**Flow:** 300  $\mu$ l/min

**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  $\mu\text{l}$  (500 ng/ml MPFOS)

**Mobile phase:** Isocratic 80% (80:20 MeOH:ACN) / 20%  $\text{H}_2\text{O}$   
(both with 10 mM  $\text{NH}_4\text{OAc}$  buffer)

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

**MS Parameters**

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

# Method 537 DOD

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

FORM II  
LCMS SURROGATE RECOVERY

Lab Name: TestAmerica Sacramento

Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Matrix: Water

Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
NAWC-020618-RW-200	320-35824-1	96	112
NAWC-020618-FRB-200	320-35824-2	102	109
NAWC-020618-RW-223	320-35824-3	90	108
NAWC-020618-FRB-223	320-35824-4	99	122
NAWC-020618-RW-288	320-35824-5	94	116
NAWC-020618-FRB-288	320-35824-6	96	100
WGNA-020618-RW-311	320-35824-7	84	83
WGNA-020618-FRB-311	320-35824-8	101	80
NAWC-020618-RW-269	320-35824-9	90	90
NAWC-020618-FRB-269	320-35824-10	96	77
NAWC-020618-RW-109	320-35824-11	93	80
NAWC-020618-FRB-109	320-35824-12	105	85
WGNA-020618-DUP-25	320-35824-13	94	79
NAWC-020618-RW-186	320-35824-14	90	89
NAWC-020618-FRB-186	320-35824-15	96	74
	MB 320-207932/1-A	94	118
	LCS 320-207932/2-A	103	145
NAWC-020618-RW-200 MS	320-35824-1 MS	94	118
NAWC-020618-RW-200 MSD	320-35824-1 MSD	95	116

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.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.02.16\_537C\_017.d  
 Lab ID: LCS 320-207932/2-A Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	134	138	103	70-130	M
Perfluorooctanoic acid (PFOA)	67.0	63.2	94	70-130	
Perfluorononanoic acid (PFNA)	66.7	70.8	106	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	103	103	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	32.8	98	70-130	
Perfluorobutanesulfonic acid (PFBS)	300	260	87	70-130	

# Column to be used to flag recovery and RPD values

FORM III  
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.02.16\_537C\_019.d  
 Lab ID: 320-35824-1 MS Client ID: NAWC-020618-RW-200 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	138	18 J	152	97	70-130	M
Perfluorooctanoic acid (PFOA)	68.9	17 J	78.4	89	70-130	
Perfluorononanoic acid (PFNA)	68.5	20 U	73.4	107	70-130	
Perfluorohexanesulfonic acid (PFHxS)	103	6.4 J	106	97	70-130	
Perfluoroheptanoic acid (PFHpA)	34.2	3.8 J	37.3	98	70-130	
Perfluorobutanesulfonic acid (PFBS)	308	36 U	285	93	70-130	

# Column to be used to flag recovery and RPD values

FORM III  
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.02.16\_537C\_020.d  
 Lab ID: 320-35824-1 MSD Client ID: NAWC-020618-RW-200 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	136	149	96	2	30	70-130	M
Perfluorooctanoic acid (PFOA)	68.3	77.5	88	1	30	70-130	
Perfluorononanoic acid (PFNA)	67.9	77.6	114	6	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	102	101	92	5	30	70-130	
Perfluoroheptanoic acid (PFHpA)	34.0	37.8	100	1	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	306	262	86	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.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: 2018.02.16\_537C\_016.d Lab Sample ID: MB 320-207932/1-A  
 Matrix: Water Date Extracted: 02/12/2018 09:28  
 Instrument ID: A8\_N Date Analyzed: 02/16/2018 12:54  
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
WGNA-020618-RW-3118	320-35824-7	2018.02.14_537AXXX_043.d	02/15/2018 08:01
WGNA-020618-FRB-3118	320-35824-8	2018.02.14_537AXXX_044.d	02/15/2018 08:06
NAWC-020618-RW-269	320-35824-9	2018.02.14_537AXXX_045.d	02/15/2018 08:10
NAWC-020618-RFB-269	320-35824-10	2018.02.14_537AXXX_046.d	02/15/2018 08:15
NAWC-020618-RW-109	320-35824-11	2018.02.14_537AXXX_047.d	02/15/2018 08:20
NAWC-020618-FRB-109	320-35824-12	2018.02.14_537AXXX_048.d	02/15/2018 08:24
WGNA-020618-DUP-25	320-35824-13	2018.02.14_537AXXX_049.d	02/15/2018 08:29
NAWC-020618-RW-186	320-35824-14	2018.02.14_537AXXX_050.d	02/15/2018 08:33
NAWC-020618-FRB-186	320-35824-15	2018.02.14_537AXXX_051.d	02/15/2018 08:38
	LCS 320-207932/2-A	2018.02.16_537C_017.d	02/16/2018 12:59
NAWC-020618-RW-200	320-35824-1	2018.02.16_537C_018.d	02/16/2018 13:03
NAWC-020618-RW-200 MS	320-35824-1 MS	2018.02.16_537C_019.d	02/16/2018 13:08
NAWC-020618-RW-200 MSD	320-35824-1 MSD	2018.02.16_537C_020.d	02/16/2018 13:13
NAWC-020618-FRB-200	320-35824-2	2018.02.16_537C_021.d	02/16/2018 13:17
NAWC-020618-RW-223	320-35824-3	2018.02.16_537C_022.d	02/16/2018 13:22
NAWC-020618-FRB-223	320-35824-4	2018.02.16_537C_023.d	02/16/2018 13:27
NAWC-020618-RW-288	320-35824-5	2018.02.16_537C_024.d	02/16/2018 13:31
NAWC-020618-FRB-288	320-35824-6	2018.02.16_537C_025.d	02/16/2018 13:36

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 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 320-208494/1		1557461	1.81	3623720	2.06	
CCV 320-208529/13 CCVIS		1151260	1.78	3395982	2.02	
320-35824-7	WGNA-020618-RW-3118	1206368	1.78	3338112	2.03	
320-35824-8	WGNA-020618-FRB-3118	1258851	1.78	3427266	2.03	
320-35824-9	NAWC-020618-RW-269	1190411	1.78	3381885	2.03	
320-35824-10	NAWC-020618-RFB-269	1197870	1.78	3415652	2.03	
320-35824-11	NAWC-020618-RW-109	1236529	1.78	3510490	2.03	
320-35824-12	NAWC-020618-FRB-109	1208734	1.78	3527062	2.03	
320-35824-13	WGNA-020618-DUP-25	1274965	1.78	3516387	2.03	
320-35824-14	NAWC-020618-RW-186	1240471	1.78	3509002	2.03	
320-35824-15	NAWC-020618-FRB-186	1297666	1.78	3618106	2.03	
CCV 320-208529/24 CCVIS		1134489	1.78	3368577	2.03	

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.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-208529/13 Date Analyzed: 02/15/2018 07:52  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.14\_537AXXX Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1151260	1.78	3395982	2.02		
UPPER LIMIT	1611764	2.28	4754375	2.52		
LOWER LIMIT	805882	1.28	2377187	1.52		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-35824-7	WGNA-020618-RW-3118	1206368	1.78	3338112	2.03	
320-35824-8	WGNA-020618-FRB-3118	1258851	1.78	3427266	2.03	
320-35824-9	NAWC-020618-RW-269	1190411	1.78	3381885	2.03	
320-35824-10	NAWC-020618-RFB-269	1197870	1.78	3415652	2.03	
320-35824-11	NAWC-020618-RW-109	1236529	1.78	3510490	2.03	
320-35824-12	NAWC-020618-FRB-109	1208734	1.78	3527062	2.03	
320-35824-13	WGNA-020618-DUP-25	1274965	1.78	3516387	2.03	
320-35824-14	NAWC-020618-RW-186	1240471	1.78	3509002	2.03	
320-35824-15	NAWC-020618-FRB-186	1297666	1.78	3618106	2.03	

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.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-208529/24 Date Analyzed: 02/15/2018 08:43  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.14\_537AXXX Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1134489	1.78	3368577	2.03		
UPPER LIMIT	1588285	2.28	4716008	2.53		
LOWER LIMIT	794142	1.28	2358004	1.53		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-35824-7	WGNA-020618-RW-3118	1206368	1.78	3338112	2.03	
320-35824-8	WGNA-020618-FRB-3118	1258851	1.78	3427266	2.03	
320-35824-9	NAWC-020618-RW-269	1190411	1.78	3381885	2.03	
320-35824-10	NAWC-020618-RFB-269	1197870	1.78	3415652	2.03	
320-35824-11	NAWC-020618-RW-109	1236529	1.78	3510490	2.03	
320-35824-12	NAWC-020618-FRB-109	1208734	1.78	3527062	2.03	
320-35824-13	WGNA-020618-DUP-25	1274965	1.78	3516387	2.03	
320-35824-14	NAWC-020618-RW-186	1240471	1.78	3509002	2.03	
320-35824-15	NAWC-020618-FRB-186	1297666	1.78	3618106	2.03	

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.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Instrument ID: A8\_N Calibration Start Date: 02/16/2018 08:55  
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 02/16/2018 09:19  
 Calibration ID: 37889

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
INITIAL CALIBRATION MEAN AREA AND MEAN RT	937117	1.86	2726868	2.11		
UPPER LIMIT	1405676	2.36	4090302	2.61		
LOWER LIMIT	468559	1.36	1363434	1.61		
LAB SAMPLE ID	CLIENT SAMPLE ID					
CCVL 320-208773/11	955394	1.87	2663428	2.12		
ICV 320-208773/13	890238	1.85	2703377	2.11		
CCV 320-208832/13 CCVIS	877160	1.80	2721299	2.06		
MB 320-207932/1-A	1076992	1.81	3203230	2.06		
LCS 320-207932/2-A	953293	1.80	2759261	2.06		
320-35824-1	NAWC-020618-RW-200	1131048	1.80	3486097	2.06	
320-35824-1 MS	NAWC-020618-RW-200 MS	1074675	1.80	3206050	2.05	
320-35824-1 MSD	NAWC-020618-RW-200 MSD	1018729	1.80	3155822	2.06	
320-35824-2	NAWC-020618-FRB-200	1046375	1.80	3068579	2.05	
320-35824-3	NAWC-020618-RW-223	1112992	1.81	3202135	2.06	
320-35824-4	NAWC-020618-FRB-223	936884	1.80	2878899	2.06	
320-35824-5	NAWC-020618-RW-288	1032411	1.80	3140412	2.05	
320-35824-6	NAWC-020618-FRB-288	1116840	1.81	3193469	2.06	
CCV 320-208832/25 CCVIS	1017567	1.80	3126726	2.05		

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.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-208832/13 Date Analyzed: 02/16/2018 12:45  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.16\_537C\_014 Heated Purge: (Y/N) N  
 Calibration ID: 37889

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	877160	1.80	2721299	2.06		
UPPER LIMIT	1228024	2.30	3809819	2.56		
LOWER LIMIT	614012	1.30	1904909	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-207932/1-A		1076992	1.81	3203230	2.06	
LCS 320-207932/2-A		953293	1.80	2759261	2.06	
320-35824-1	NAWC-020618-RW-200	1131048	1.80	3486097	2.06	
320-35824-1 MS	NAWC-020618-RW-200 MS	1074675	1.80	3206050	2.05	
320-35824-1 MSD	NAWC-020618-RW-200 MSD	1018729	1.80	3155822	2.06	
320-35824-2	NAWC-020618-FRB-200	1046375	1.80	3068579	2.05	
320-35824-3	NAWC-020618-RW-223	1112992	1.81	3202135	2.06	
320-35824-4	NAWC-020618-FRB-223	936884	1.80	2878899	2.06	
320-35824-5	NAWC-020618-RW-288	1032411	1.80	3140412	2.05	
320-35824-6	NAWC-020618-FRB-288	1116840	1.81	3193469	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.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-208832/25 Date Analyzed: 02/16/2018 13:41  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.16\_537C\_026 Heated Purge: (Y/N) N  
 Calibration ID: 37889

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1017567	1.80	3126726	2.05		
UPPER LIMIT	1424594	2.30	4377416	2.55		
LOWER LIMIT	712297	1.30	2188708	1.55		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-207932/1-A		1076992	1.81	3203230	2.06	
LCS 320-207932/2-A		953293	1.80	2759261	2.06	
320-35824-1	NAWC-020618-RW-200	1131048	1.80	3486097	2.06	
320-35824-1 MS	NAWC-020618-RW-200 MS	1074675	1.80	3206050	2.05	
320-35824-1 MSD	NAWC-020618-RW-200 MSD	1018729	1.80	3155822	2.06	
320-35824-2	NAWC-020618-FRB-200	1046375	1.80	3068579	2.05	
320-35824-3	NAWC-020618-RW-223	1112992	1.81	3202135	2.06	
320-35824-4	NAWC-020618-FRB-223	936884	1.80	2878899	2.06	
320-35824-5	NAWC-020618-RW-288	1032411	1.80	3140412	2.05	
320-35824-6	NAWC-020618-FRB-288	1116840	1.81	3193469	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.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-200 Lab Sample ID: 320-35824-1  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_018.d  
 Analysis Method: 537 Date Collected: 02/06/2018 09:40  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 253(mL) Date Analyzed: 02/16/2018 13:03  
 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.: 208832 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18	J M	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	17	J	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.4	J	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

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



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_018.d  
 Lims ID: 320-35824-A-1-A  
 Client ID: NAWC-020618-RW-200  
 Sample Type: Client  
 Inject. Date: 16-Feb-2018 13:03:40 ALS Bottle#: 10 Worklist Smp#: 17  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-1-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: barnettj Date: 16-Feb-2018 16:44:37

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.358	0.0	1.000	167838	1.05		257	
298.90 > 99.00	1.358	1.358	0.0	1.000	120403		1.39(0.00-0.00)	332	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.472	0.007	1.000	1199973	9.65		16309	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.616	0.0	1.000	314829	1.61		205	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.616	0.008	1.000	106568	0.9702		19.6	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1131048	10.0		9311	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.798	0.008	1.000	470099	4.32		16.6	
413.00 > 169.00	1.806	1.798	0.008	1.000	284505		1.65(0.00-0.00)	34.8	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.048	0.008		3486097	28.7		4117	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	517963	4.51		315	a
499.00 > 99.00	2.056	2.056	0.0	1.000	94564		5.48(0.00-0.00)	62.2	a
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	666266	11.2		6570	

## QC Flag Legend

Review Flags

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_018.d

Injection Date: 16-Feb-2018 13:03:40

Instrument ID: A8\_N

Lims ID: 320-35824-A-1-A

Lab Sample ID: 320-35824-1

Client ID: NAWC-020618-RW-200

Operator ID: SACINSTLCMS01

ALS Bottle#: 10

Worklist Smp#: 17

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

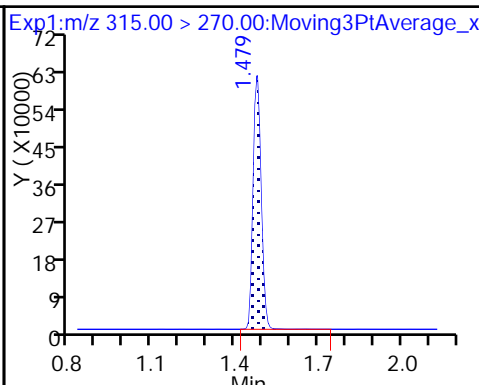
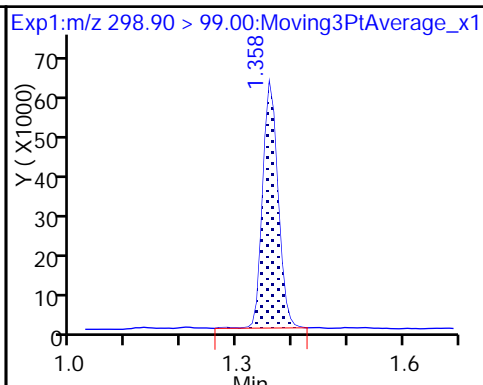
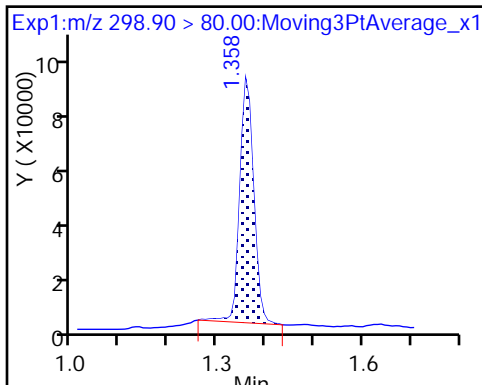
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

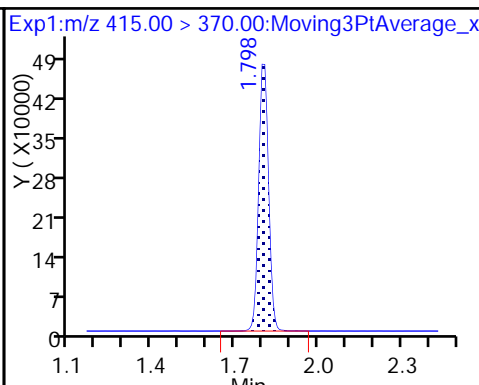
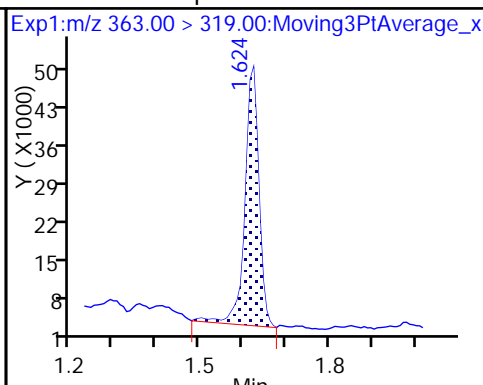
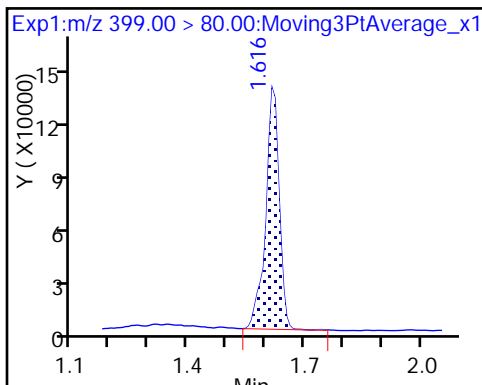
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

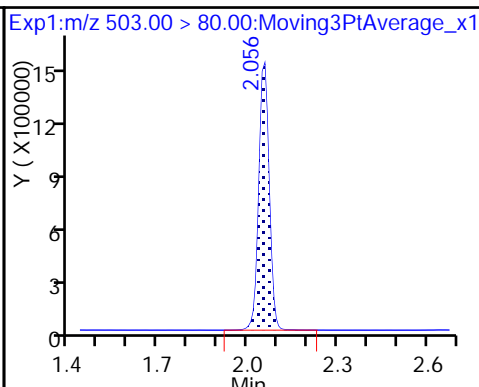
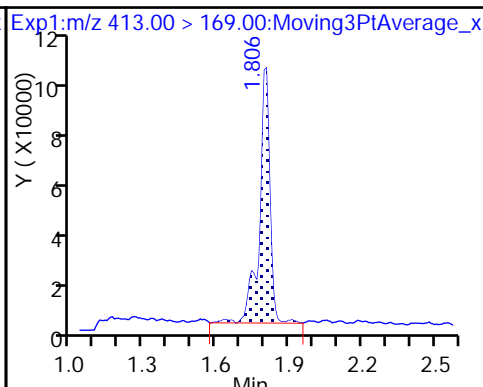
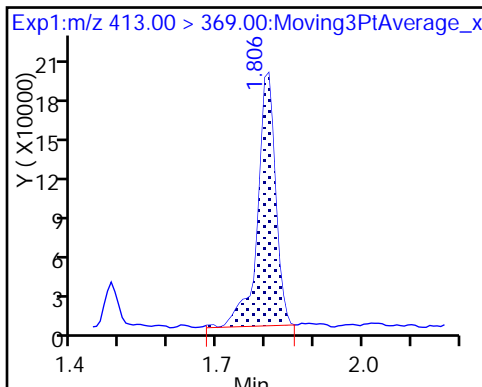
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

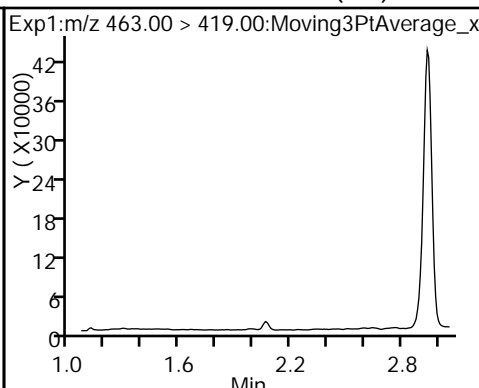
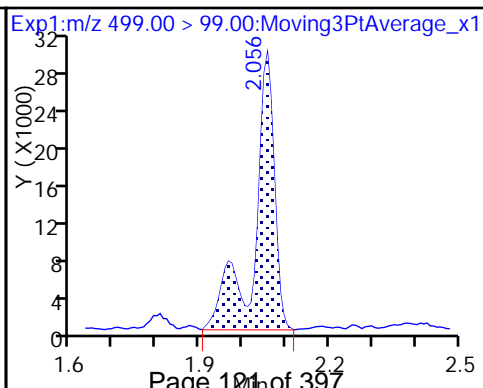
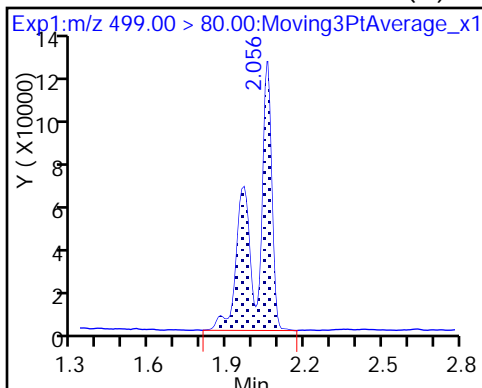
\* 7 13C4 PFOS



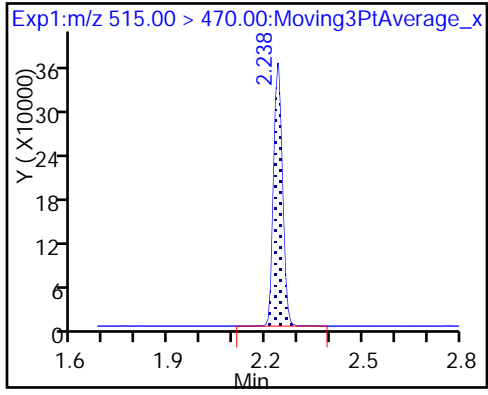
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_018.d  
 Lims ID: 320-35824-A-1-A  
 Client ID: NAWC-020618-RW-200  
 Sample Type: Client  
 Inject. Date: 16-Feb-2018 13:03:40 ALS Bottle#: 10 Worklist Smp#: 17  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-1-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: barnettj Date: 16-Feb-2018 16:44:37

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.65	96.46
\$ 10 13C2 PFDA	10.0	11.2	112.36

TestAmerica Sacramento

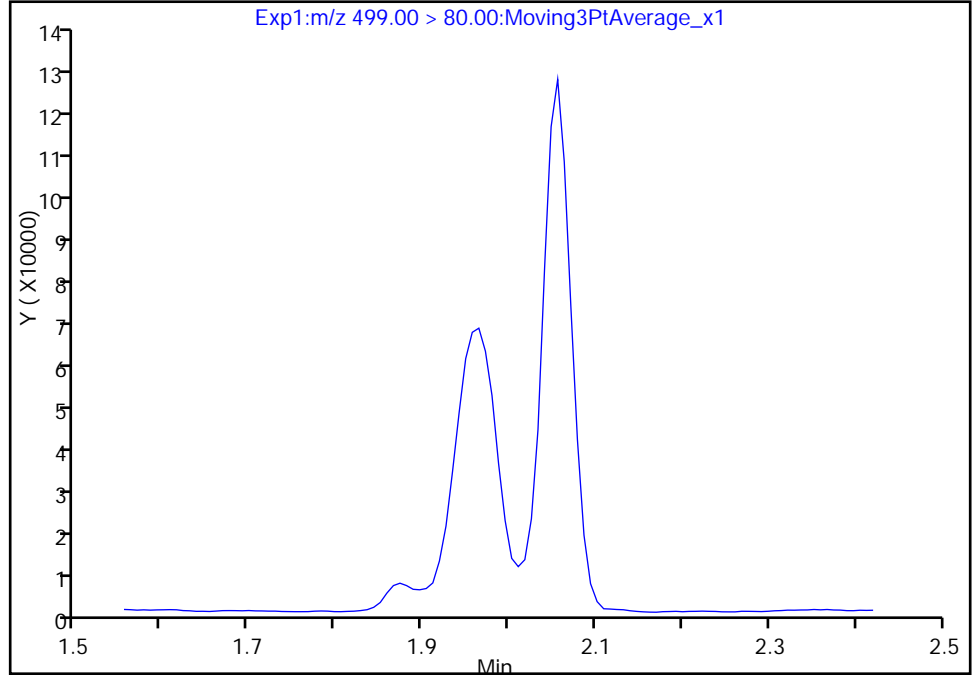
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_018.d  
Injection Date: 16-Feb-2018 13:03:40 Instrument ID: A8\_N  
Lims ID: 320-35824-A-1-A Lab Sample ID: 320-35824-1  
Client ID: NAWC-020618-RW-200  
Operator ID: SACINSTLCMS01 ALS Bottle#: 10 Worklist Smp#: 17  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

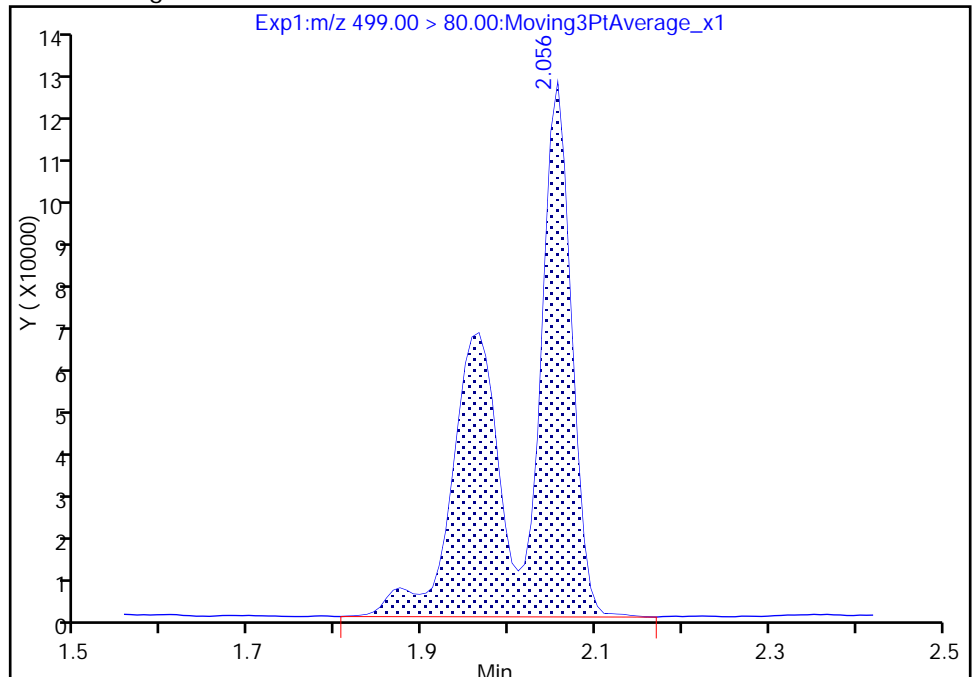
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 517963  
Amount: 4.506712  
Amount Units: ng/ml



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-FRB-200 Lab Sample ID: 320-35824-2  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_021.d  
 Analysis Method: 537 Date Collected: 02/06/2018 09:35  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 248.2 (mL) Date Analyzed: 02/16/2018 13:17  
 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.: 208832 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)	8.1	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	102		70-130
STL00996	13C2 PFDA	109		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_021.d  
 Lims ID: 320-35824-A-2-A  
 Client ID: NAWC-020618-FRB-200  
 Sample Type: Client  
 Inject. Date: 16-Feb-2018 13:17:43 ALS Bottle#: 13 Worklist Smp#: 20  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-2-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK013

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.472	1.472	0.0	1.000	1172328	10.2	16794	
* 6 13C2-PFOA	415.00 > 370.00	1.798	1.798	0.0		1046375	10.0	10407	
* 7 13C4 PFOS	503.00 > 80.00	2.048	2.048	0.0		3068579	28.7	7496	
\$ 10 13C2 PFDA	515.00 > 470.00	2.231	2.238	-0.007	1.000	600460	10.9	6342	



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_021.d

Injection Date: 16-Feb-2018 13:17:43

Instrument ID: A8\_N

Lims ID: 320-35824-A-2-A

Lab Sample ID: 320-35824-2

Client ID: NAWC-020618-FRB-200

Operator ID: SACINSTLCMS01

ALS Bottle#: 13

Worklist Smp#: 20

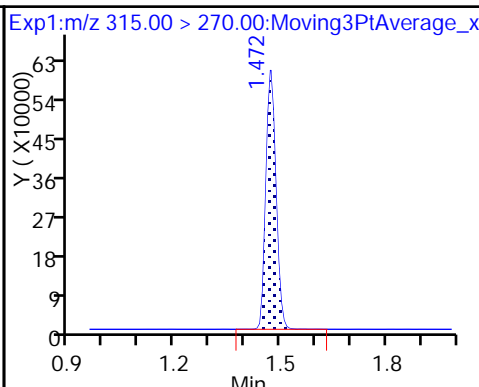
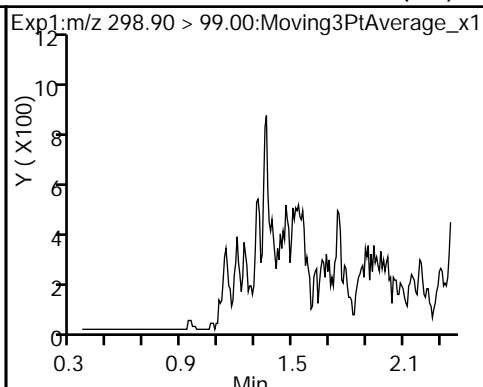
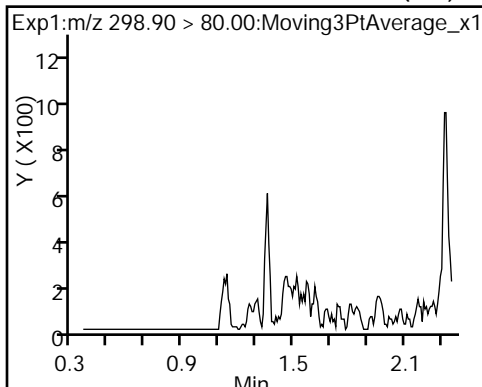
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

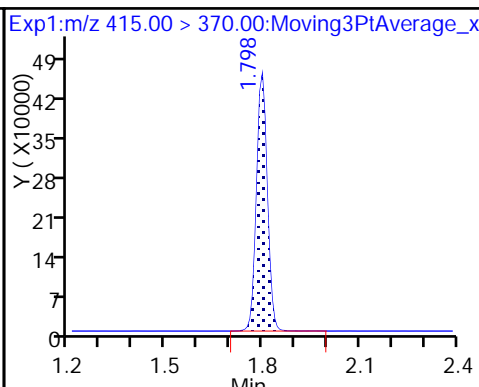
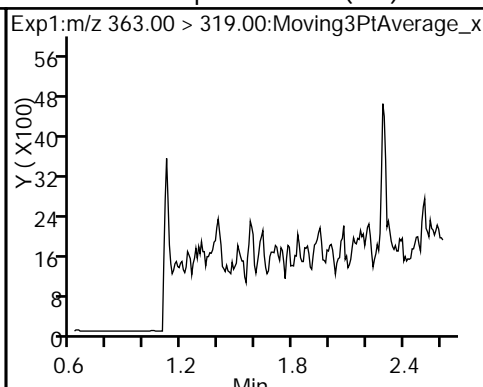
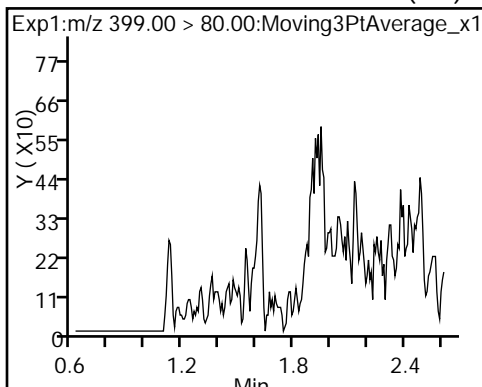
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

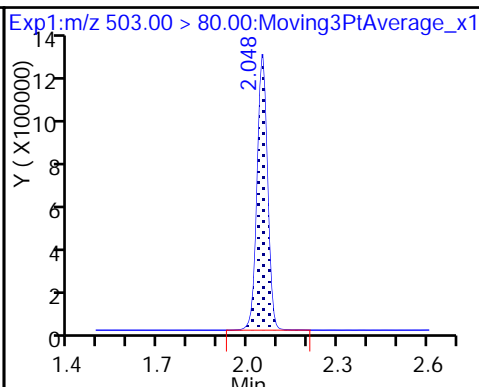
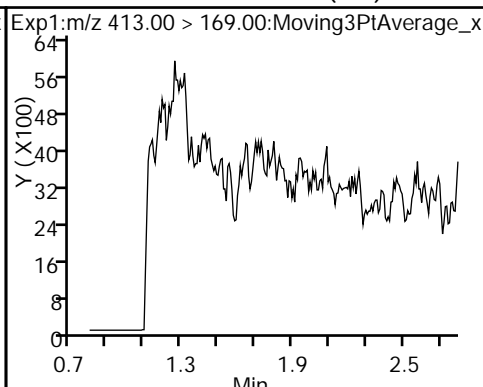
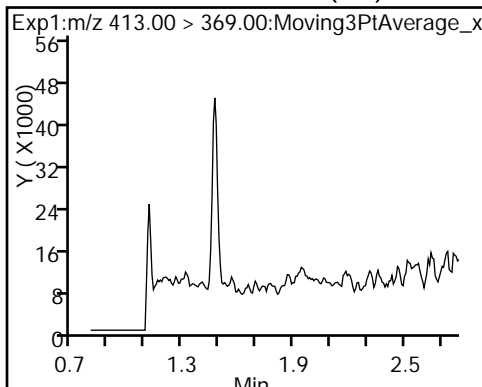
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



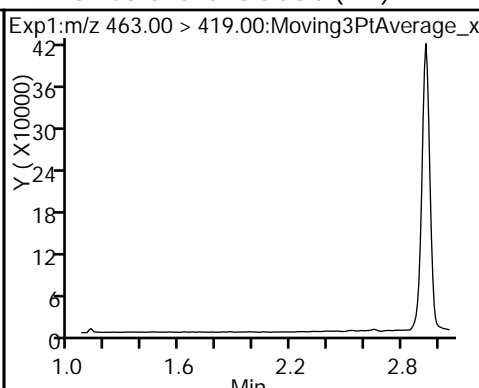
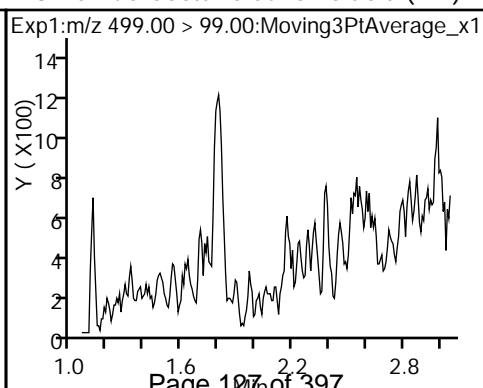
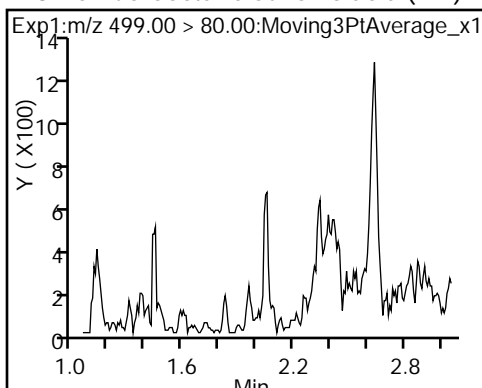
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) \* 6 13C2-PFOA



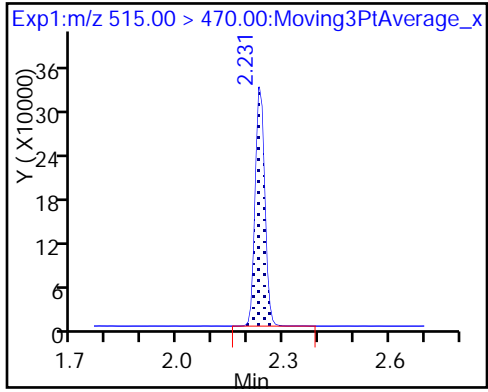
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) \* 7 13C4 PFOS



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\20180216-54174.b\2018.02.16\_537C\_021.d  
 Lims ID: 320-35824-A-2-A  
 Client ID: NAWC-020618-FRB-200  
 Sample Type: Client  
 Inject. Date: 16-Feb-2018 13:17:43 ALS Bottle#: 13 Worklist Smp#: 20  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-2-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK013

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.2	101.86
\$ 10 13C2 PFDA	10.0	10.9	109.46

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-223 Lab Sample ID: 320-35824-3  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_022.d  
 Analysis Method: 537 Date Collected: 02/06/2018 10:10  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 245.2 (mL) Date Analyzed: 02/16/2018 13:22  
 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.: 208832 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	5.5	J M	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 M	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U M	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U M	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	108		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_022.d  
 Lims ID: 320-35824-A-3-A  
 Client ID: NAWC-020618-RW-223  
 Sample Type: Client  
 Inject. Date: 16-Feb-2018 13:22:24 ALS Bottle#: 14 Worklist Smp#: 21  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-3-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: barnettj Date: 16-Feb-2018 16:47:29

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									M
298.90 > 80.00	1.358	1.358	0.0	1.000	38237	0.2599		68.1	M
298.90 > 99.00	1.358	1.358	0.0	1.000	26807		1.43(0.00-0.00)	69.3	M
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.472	0.007	1.000	1095671	8.95		16569	
3 Perfluorohexanesulfonic acid									M
399.00 > 80.00	1.624	1.616	0.008	1.000	97130	0.5404		61.3	M
4 Perfluoroheptanoic acid									M
363.00 > 319.00	1.624	1.616	0.008	1.000	42437	0.3926		8.1	M
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.798	0.008		1112992	10.0		9661	
5 Perfluorooctanoic acid									M
413.00 > 369.00	1.806	1.798	0.008	1.000	143594	1.34		4.5	M
413.00 > 169.00	1.806	1.798	0.008	1.000	93570		1.53(0.00-0.00)	10.0	M
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.048	0.008		3202135	28.7		3862	
8 Perfluorooctane sulfonic acid									Ma
499.00 > 80.00	2.064	2.056	0.008	1.000	117957	1.12		53.8	M
499.00 > 99.00	2.064	2.056	0.008	1.000	18316		6.44(0.00-0.00)	12.2	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	631472	10.8		6726	

## QC Flag Legend

### Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_022.d

Injection Date: 16-Feb-2018 13:22:24

Instrument ID: A8\_N

Lims ID: 320-35824-A-3-A

Lab Sample ID: 320-35824-3

Client ID: NAWC-020618-RW-223

Operator ID: SACINSTLCMS01

ALS Bottle#: 14

Worklist Smp#: 21

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

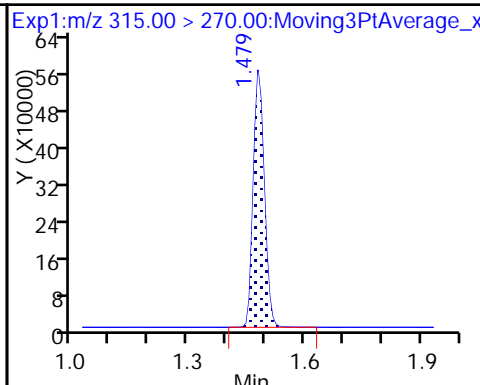
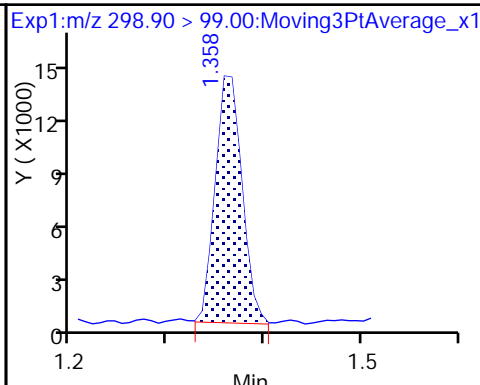
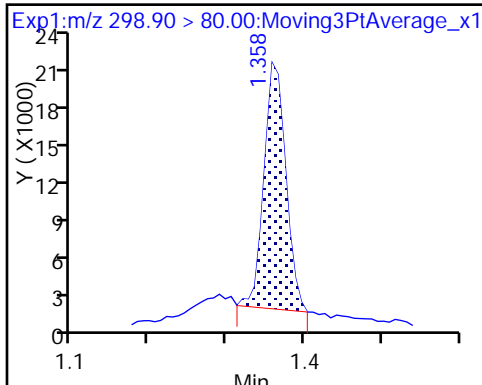
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (M)

1 Perfluorobutanesulfonic acid (M)

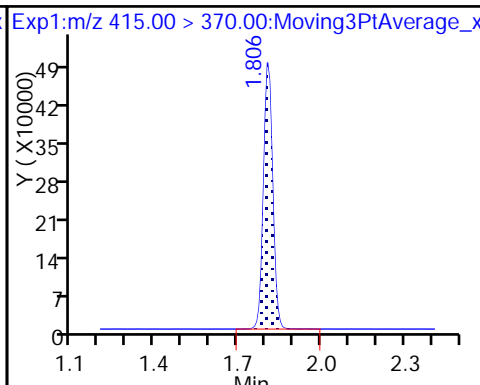
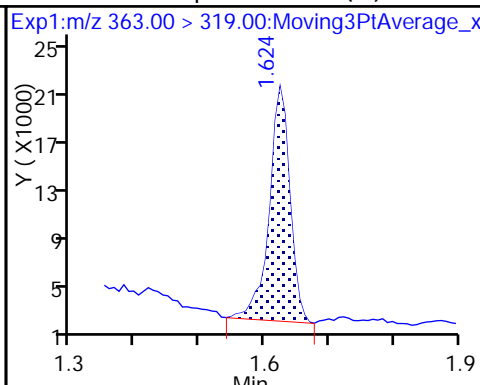
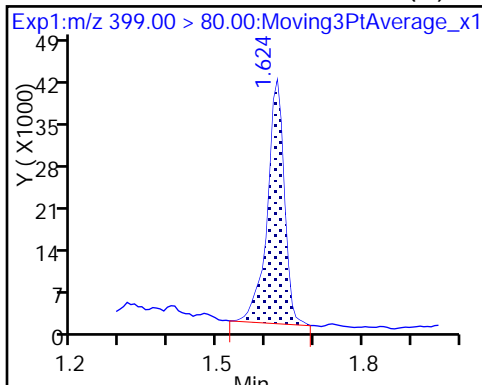
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (M)

4 Perfluoroheptanoic acid (M)

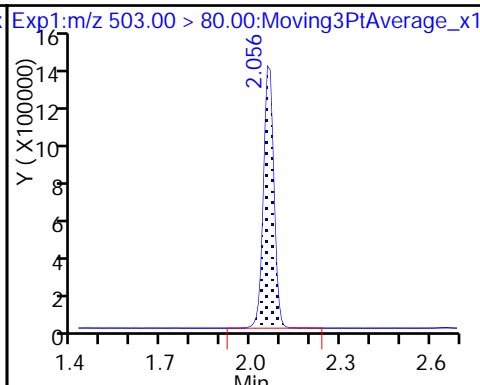
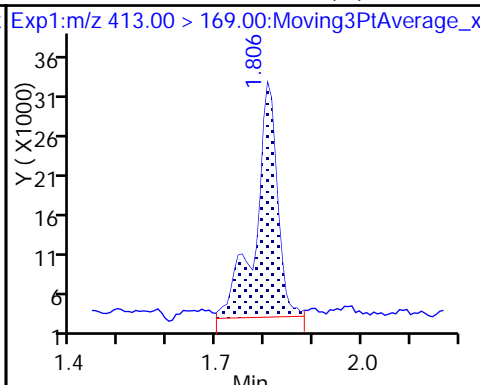
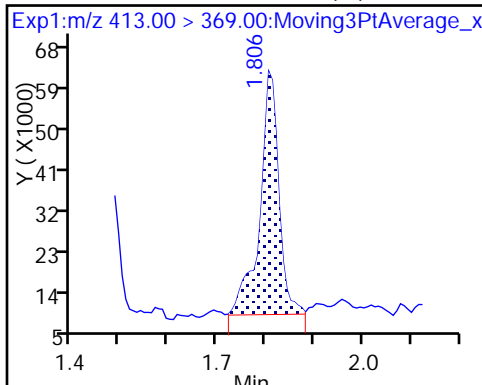
\* 6 13C2-PFOA



5 Perfluorooctanoic acid (M)

5 Perfluorooctanoic acid (M)

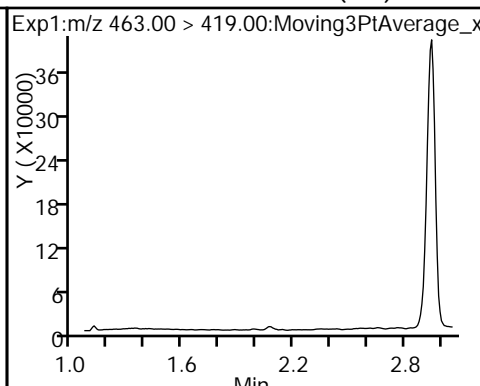
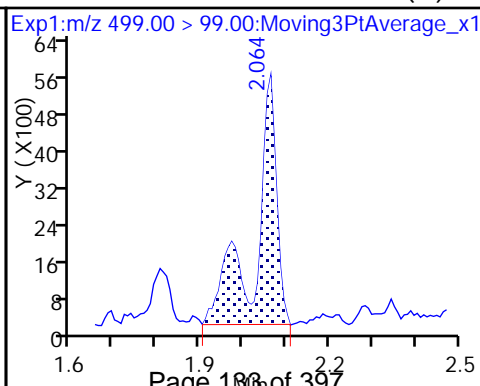
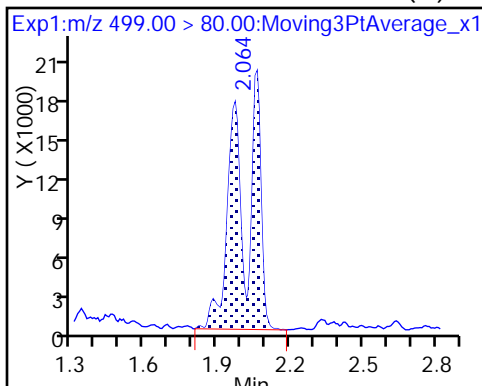
\* 7 13C4 PFOS



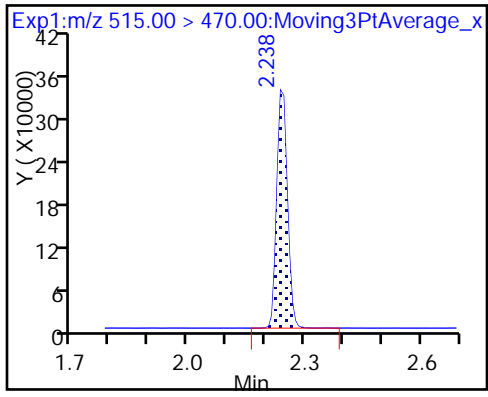
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA





TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_022.d  
 Lims ID: 320-35824-A-3-A  
 Client ID: NAWC-020618-RW-223  
 Sample Type: Client  
 Inject. Date: 16-Feb-2018 13:22:24 ALS Bottle#: 14 Worklist Smp#: 21  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-3-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: barnettj Date: 16-Feb-2018 16:47:29

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.95	89.50
\$ 10 13C2 PFDA	10.0	10.8	108.22

TestAmerica Sacramento

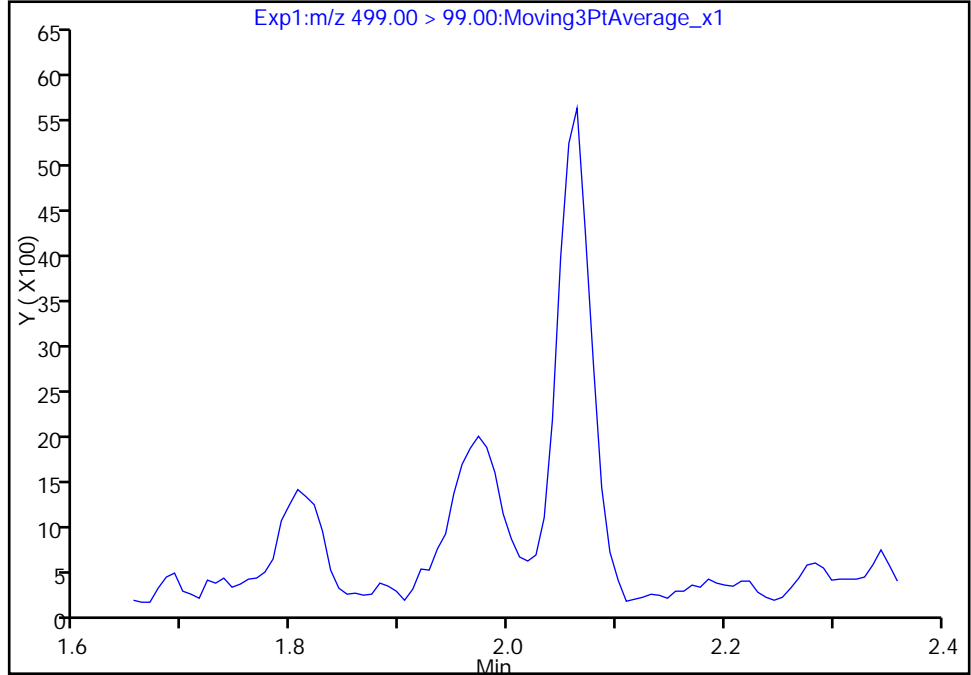
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_022.d  
Injection Date: 16-Feb-2018 13:22:24 Instrument ID: A8\_N  
Lims ID: 320-35824-A-3-A Lab Sample ID: 320-35824-3  
Client ID: NAWC-020618-RW-223  
Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 21  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

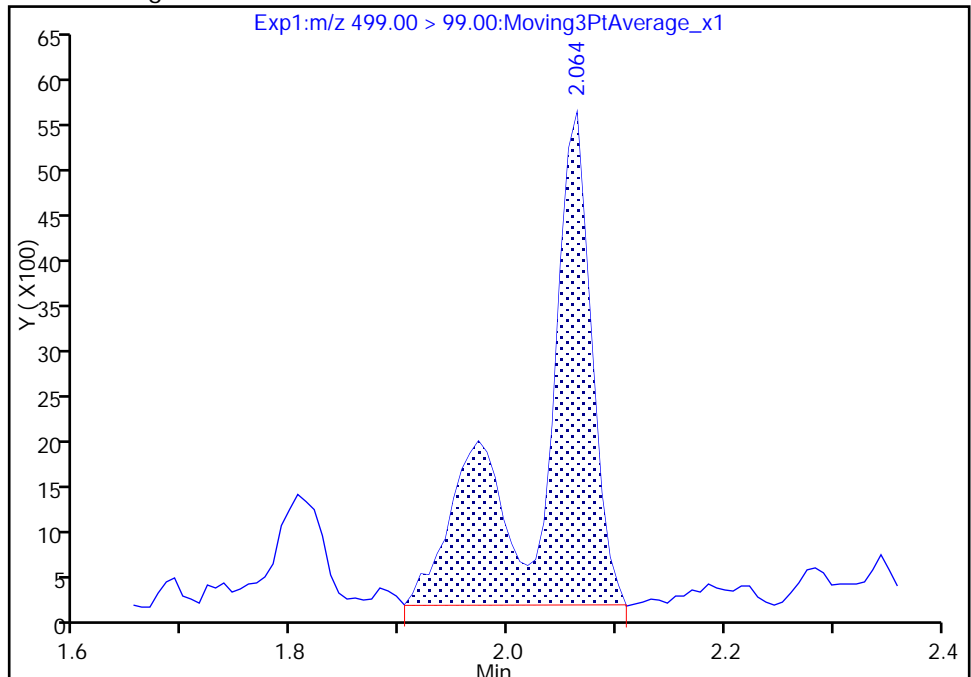
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 18316  
Amount: 1.117338  
Amount Units: ng/ml



Reviewer: barnettj, 16-Feb-2018 16:46:52  
Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

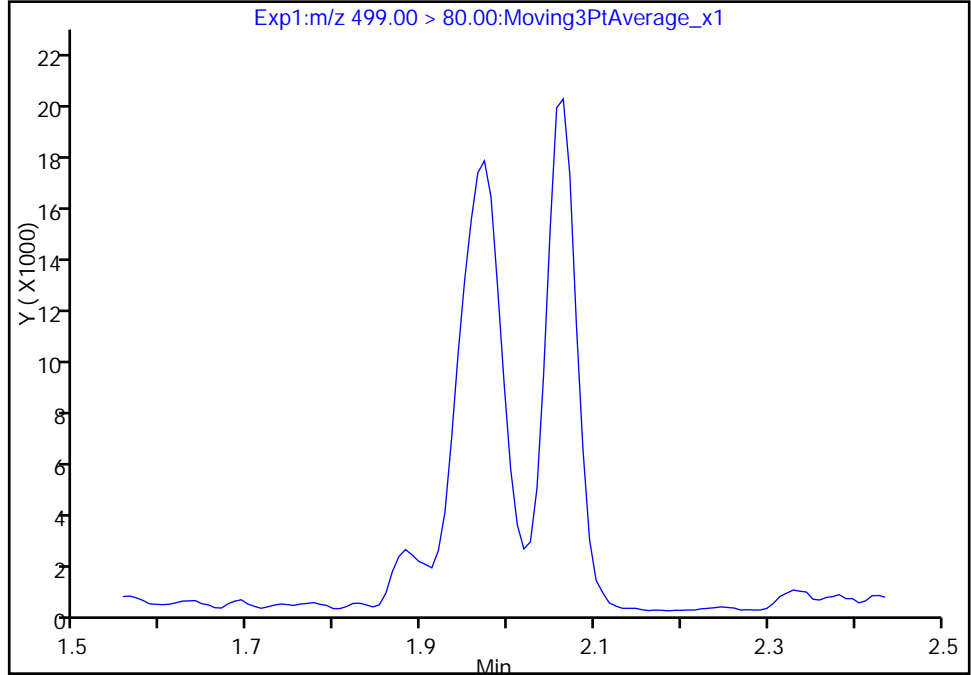
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_022.d  
Injection Date: 16-Feb-2018 13:22:24 Instrument ID: A8\_N  
Lims ID: 320-35824-A-3-A Lab Sample ID: 320-35824-3  
Client ID: NAWC-020618-RW-223  
Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 21  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

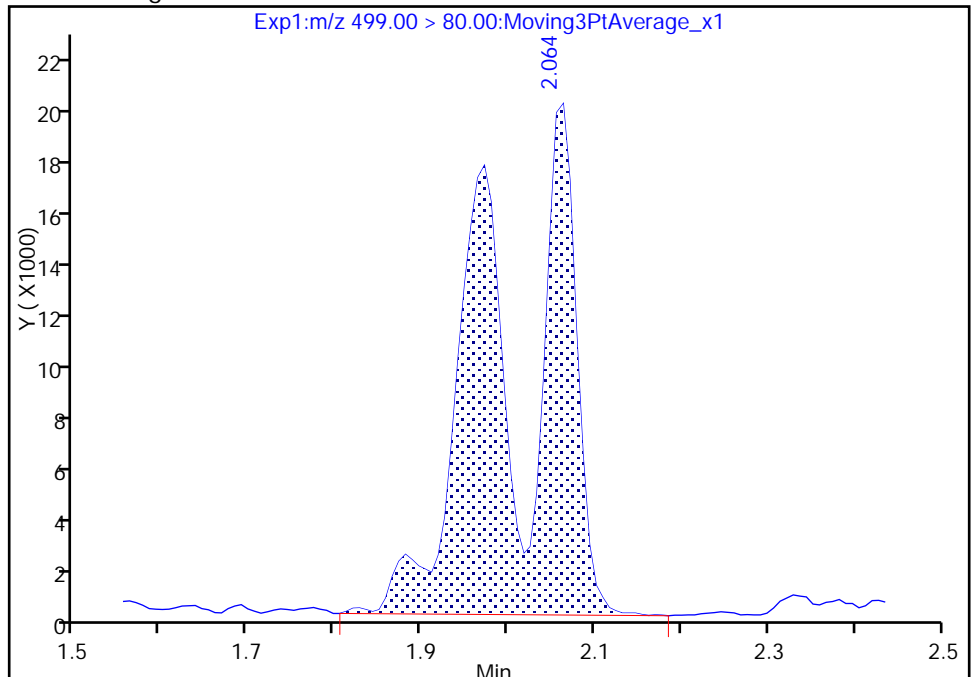
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 117957  
Amount: 1.117338  
Amount Units: ng/ml



TestAmerica Sacramento

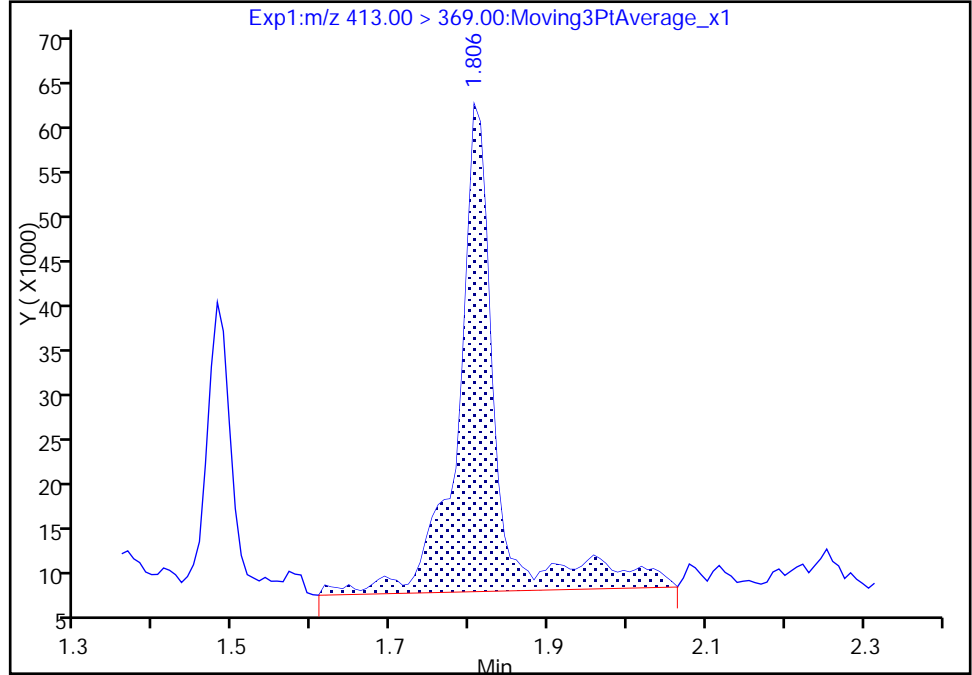
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_022.d  
Injection Date: 16-Feb-2018 13:22:24 Instrument ID: A8\_N  
Lims ID: 320-35824-A-3-A Lab Sample ID: 320-35824-3  
Client ID: NAWC-020618-RW-223  
Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 21  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 1

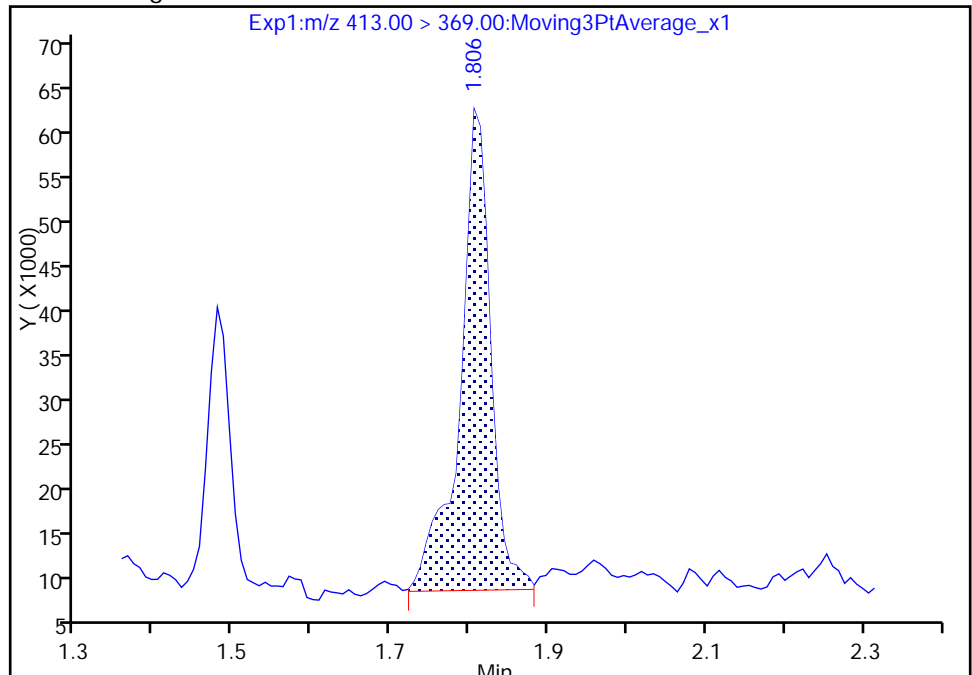
RT: 1.81  
Area: 180903  
Amount: 1.689523  
Amount Units: ng/ml

Processing Integration Results



RT: 1.81  
Area: 143594  
Amount: 1.341079  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 16-Feb-2018 16:45:58  
Audit Action: Manually Integrated

Audit Reason: Baseline

TestAmerica Sacramento

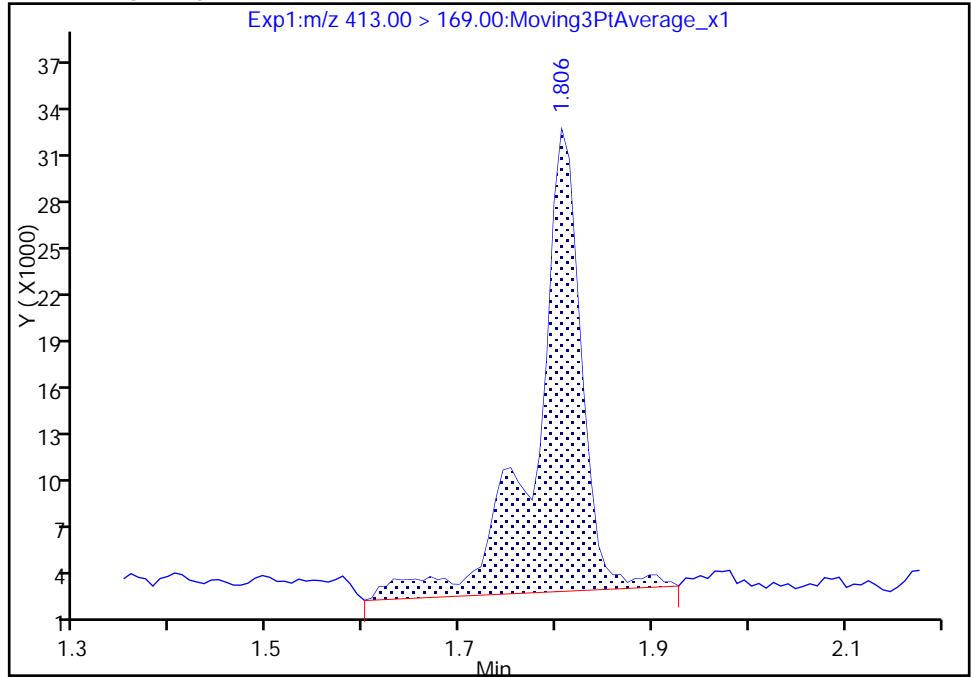
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_022.d  
Injection Date: 16-Feb-2018 13:22:24 Instrument ID: A8\_N  
Lims ID: 320-35824-A-3-A Lab Sample ID: 320-35824-3  
Client ID: NAWC-020618-RW-223  
Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 21  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

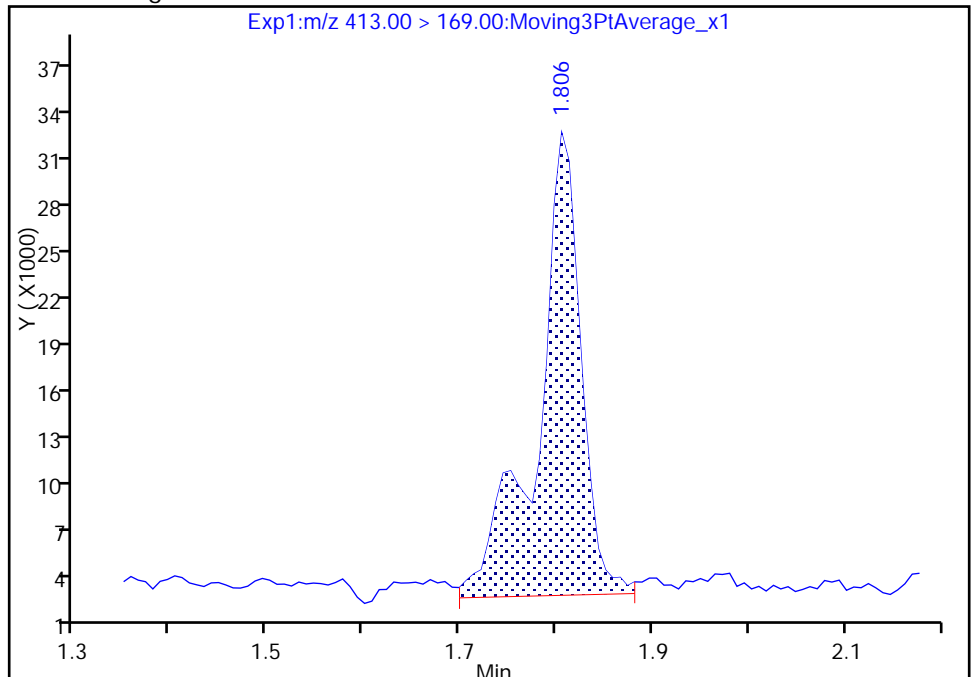
RT: 1.81  
Area: 100130  
Amount: 1.689523  
Amount Units: ng/ml

Processing Integration Results



RT: 1.81  
Area: 93570  
Amount: 1.341079  
Amount Units: ng/ml

Manual Integration Results



TestAmerica Sacramento

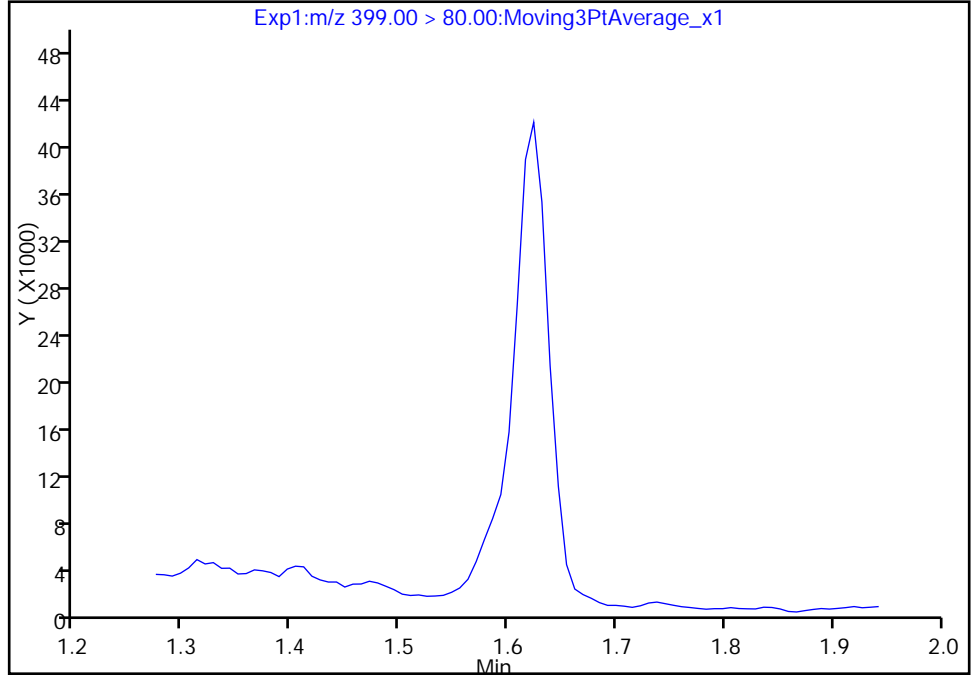
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_022.d  
Injection Date: 16-Feb-2018 13:22:24 Instrument ID: A8\_N  
Lims ID: 320-35824-A-3-A Lab Sample ID: 320-35824-3  
Client ID: NAWC-020618-RW-223  
Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 21  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

3 Perfluorohexanesulfonic acid, CAS: 355-46-4

Signal: 1

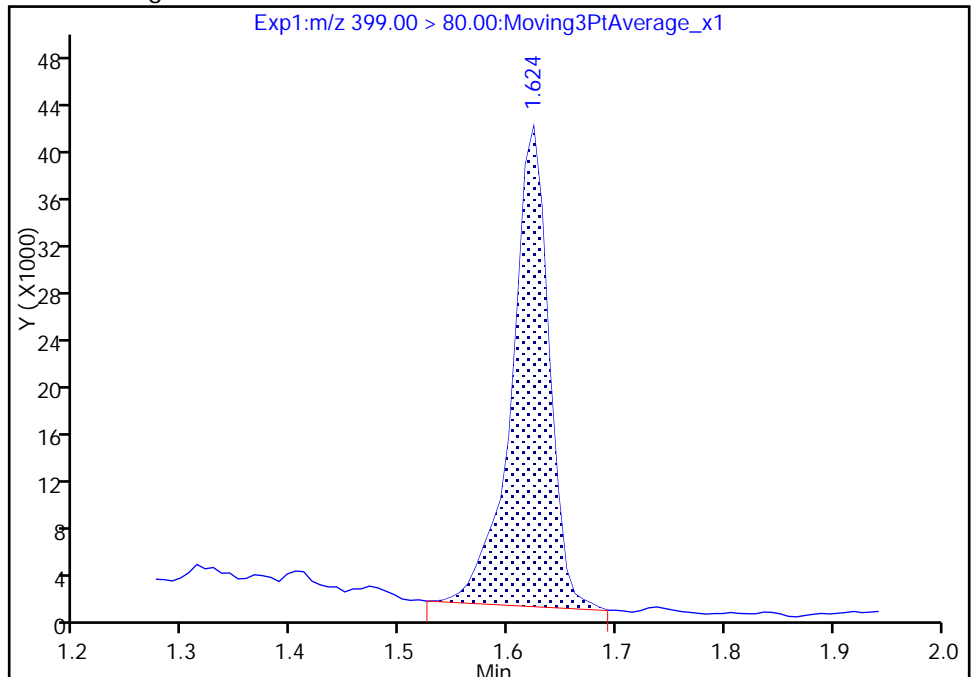
Not Detected  
Expected RT: 1.62

Processing Integration Results



Manual Integration Results

RT: 1.62  
Area: 97130  
Amount: 0.540421  
Amount Units: ng/ml



Reviewer: barnettj, 16-Feb-2018 16:46:29  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

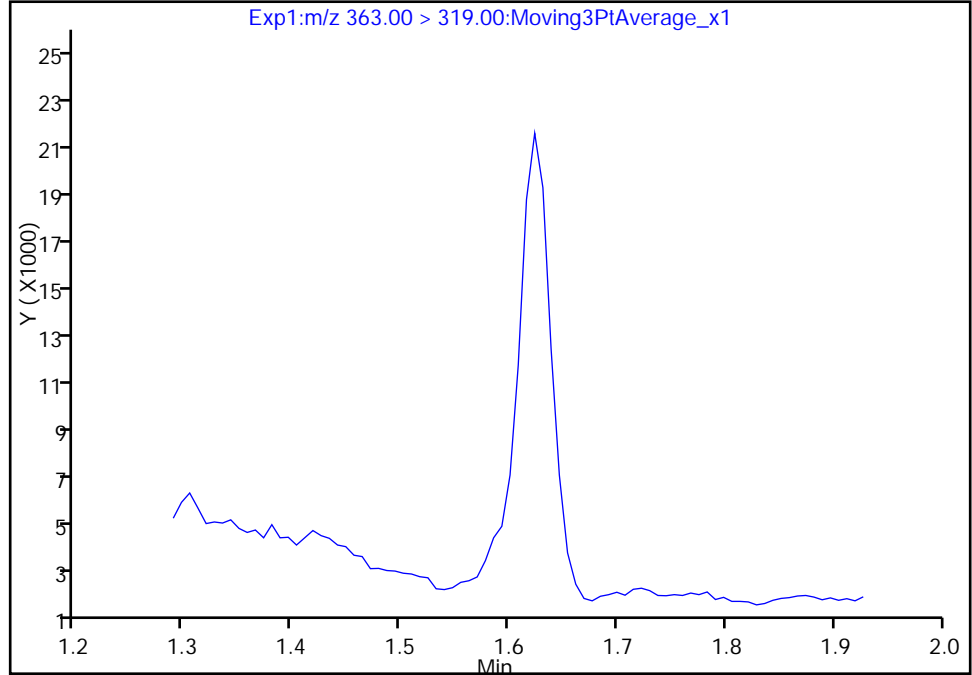
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_022.d  
Injection Date: 16-Feb-2018 13:22:24 Instrument ID: A8\_N  
Lims ID: 320-35824-A-3-A Lab Sample ID: 320-35824-3  
Client ID: NAWC-020618-RW-223  
Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 21  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

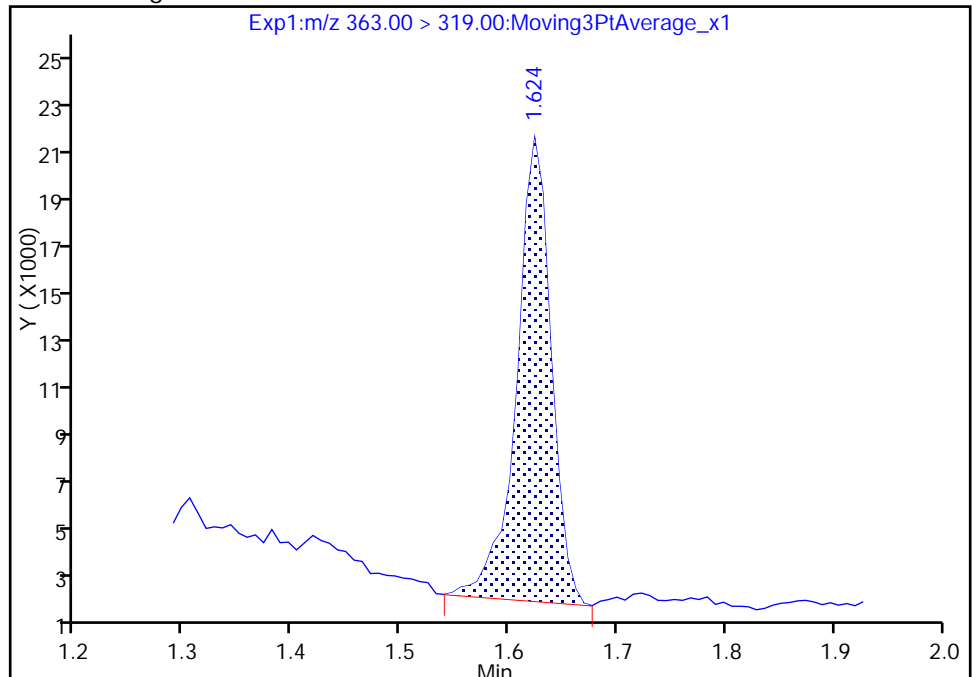
Not Detected  
Expected RT: 1.62

Processing Integration Results



Manual Integration Results

RT: 1.62  
Area: 42437  
Amount: 0.392621  
Amount Units: ng/ml



Reviewer: barnettj, 16-Feb-2018 16:46:36  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

TestAmerica Sacramento

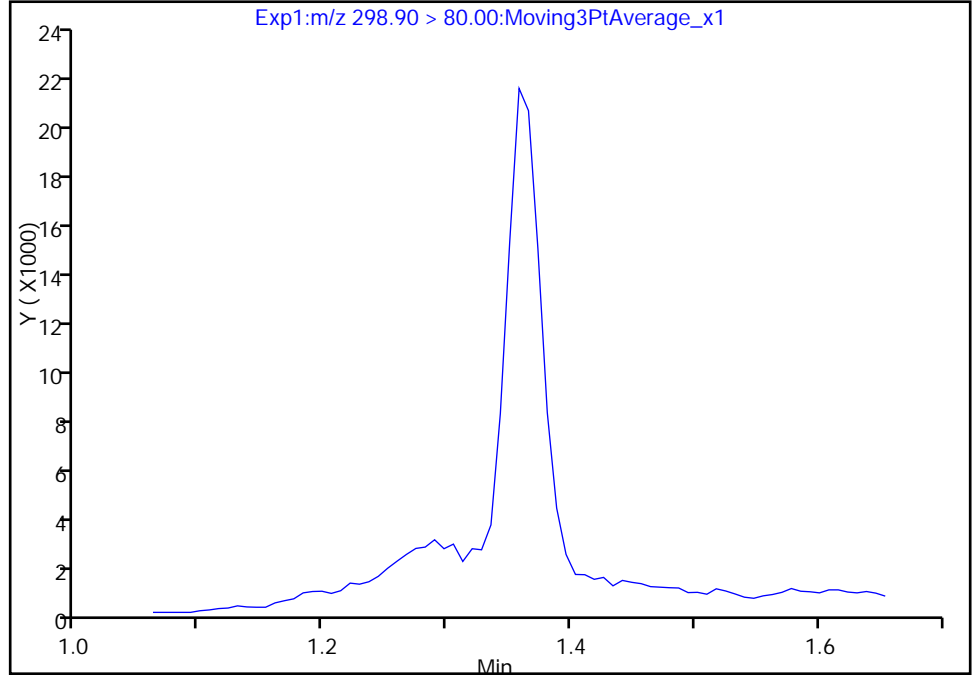
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_022.d  
Injection Date: 16-Feb-2018 13:22:24 Instrument ID: A8\_N  
Lims ID: 320-35824-A-3-A Lab Sample ID: 320-35824-3  
Client ID: NAWC-020618-RW-223  
Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 21  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

1 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 1

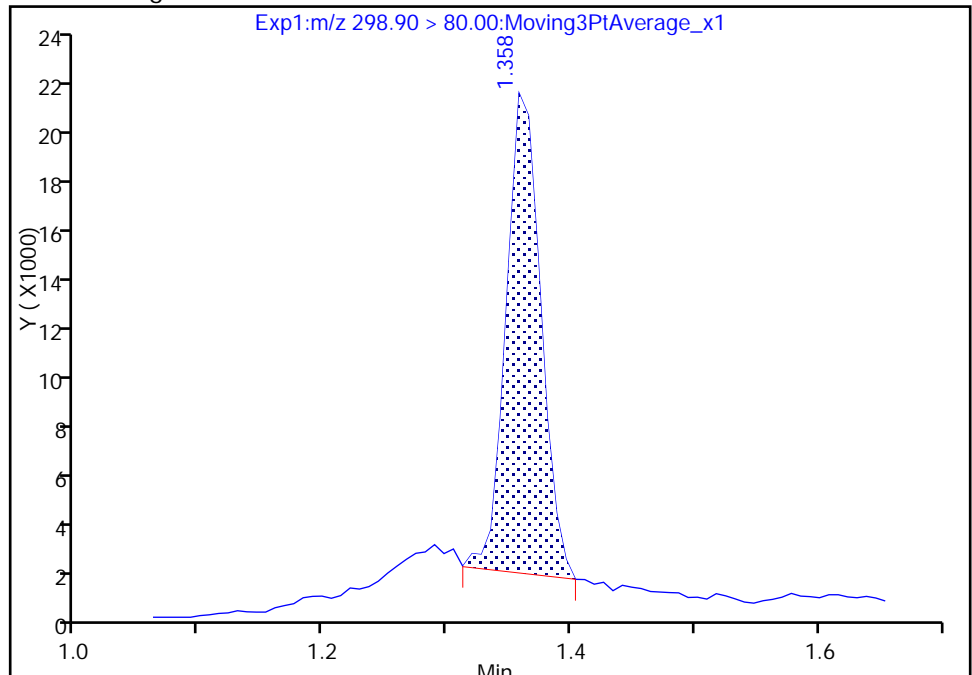
Not Detected  
Expected RT: 1.36

Processing Integration Results



Manual Integration Results

RT: 1.36  
Area: 38237  
Amount: 0.259946  
Amount Units: ng/ml



Reviewer: barnettj, 16-Feb-2018 16:47:17  
Audit Action: Manually Integrated

Audit Reason: Missed Peak



TestAmerica Sacramento

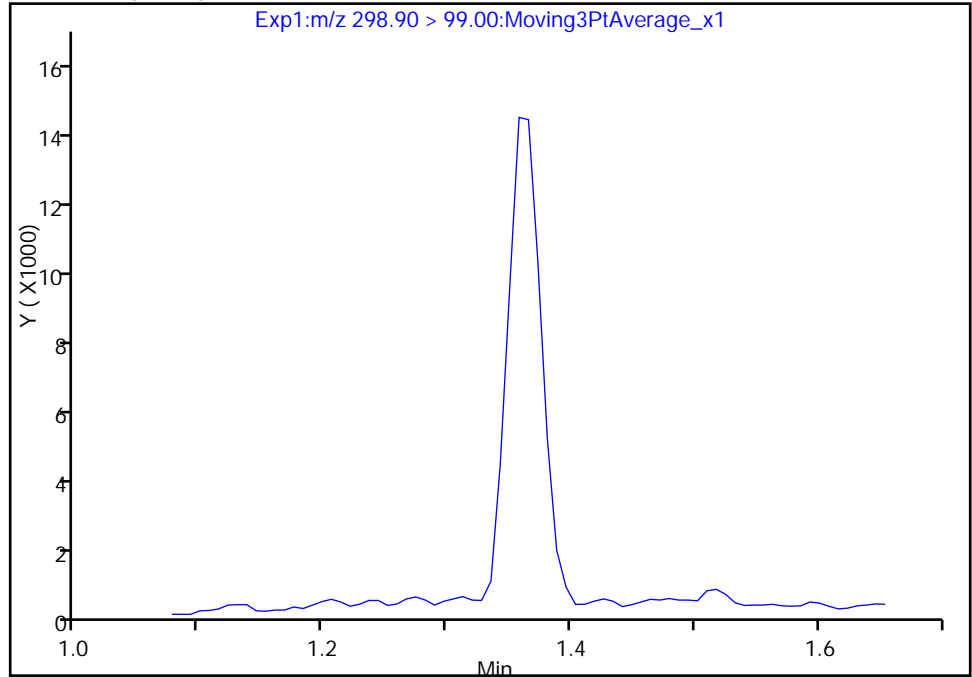
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_022.d  
Injection Date: 16-Feb-2018 13:22:24 Instrument ID: A8\_N  
Lims ID: 320-35824-A-3-A Lab Sample ID: 320-35824-3  
Client ID: NAWC-020618-RW-223  
Operator ID: SACINSTLCMS01 ALS Bottle#: 14 Worklist Smp#: 21  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

1 Perfluorobutanesulfonic acid, CAS: 375-73-5

Signal: 2

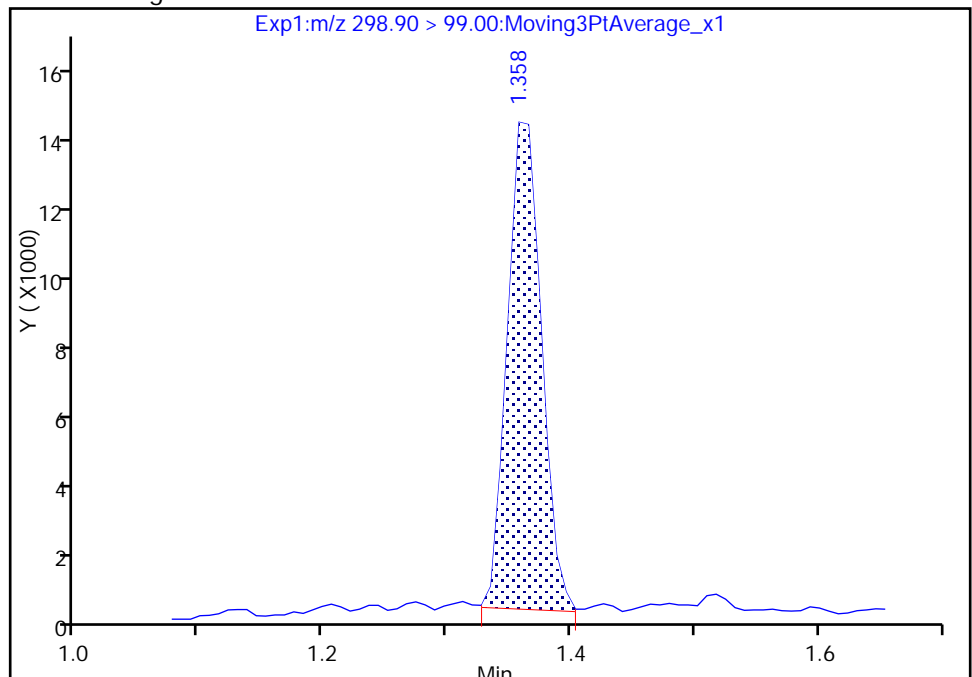
Not Detected  
Expected RT: 1.36

Processing Integration Results



Manual Integration Results

RT: 1.36  
Area: 26807  
Amount: 0.259946  
Amount Units: ng/ml



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-FRB-223 Lab Sample ID: 320-35824-4  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_023.d  
 Analysis Method: 537 Date Collected: 02/06/2018 10:05  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 253.1(mL) Date Analyzed: 02/16/2018 13:27  
 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.: 208832 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	122		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_023.d  
 Lims ID: 320-35824-A-4-A  
 Client ID: NAWC-020618-FRB-223  
 Sample Type: Client  
 Inject. Date: 16-Feb-2018 13:27:05 ALS Bottle#: 15 Worklist Smp#: 22  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-4-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK013

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.472	1.472	0.0	1.000	1015956	9.86	13832	
* 6 13C2-PFOA	415.00 > 370.00	1.798	1.798	0.0		936884	10.0	8045	
* 7 13C4 PFOS	503.00 > 80.00	2.056	2.048	0.008		2878899	28.7	6169	
\$ 10 13C2 PFDA	515.00 > 470.00	2.238	2.238	0.0	1.000	598750	12.2	7492	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_023.d

Injection Date: 16-Feb-2018 13:27:05

Instrument ID: A8\_N

Lims ID: 320-35824-A-4-A

Lab Sample ID: 320-35824-4

Client ID: NAWC-020618-FRB-223

Operator ID: SACINSTLCMS01

ALS Bottle#: 15

Worklist Smp#: 22

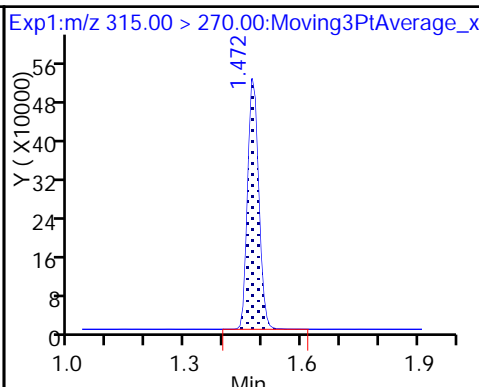
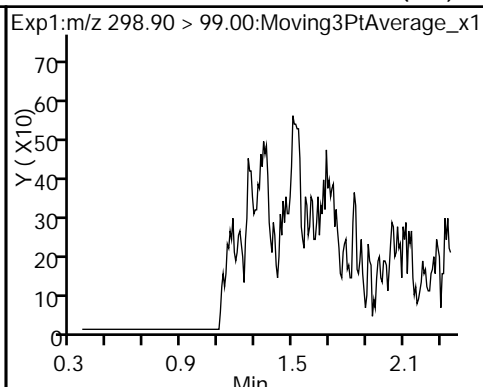
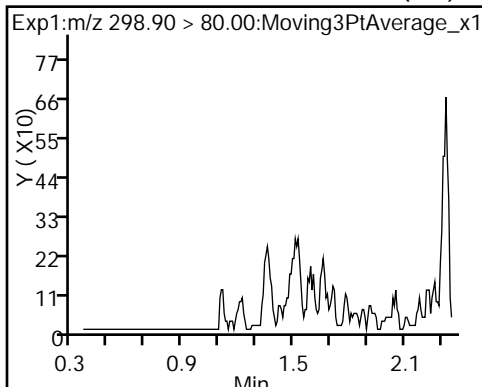
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

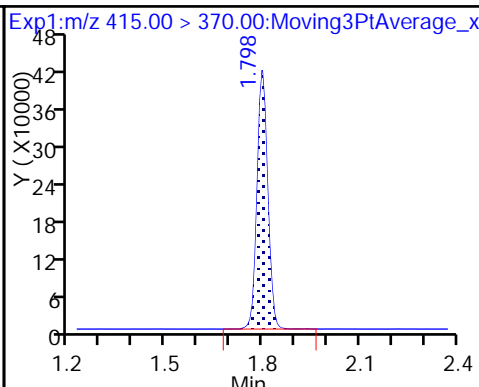
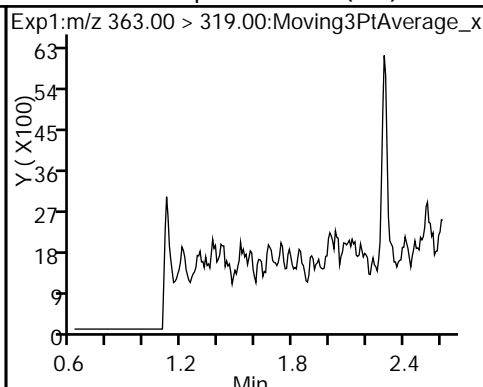
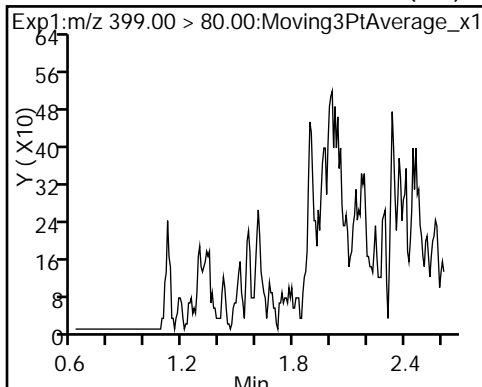
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

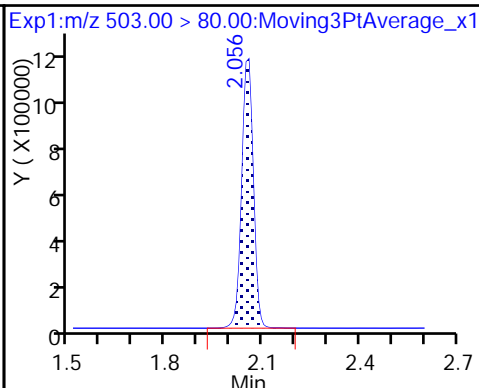
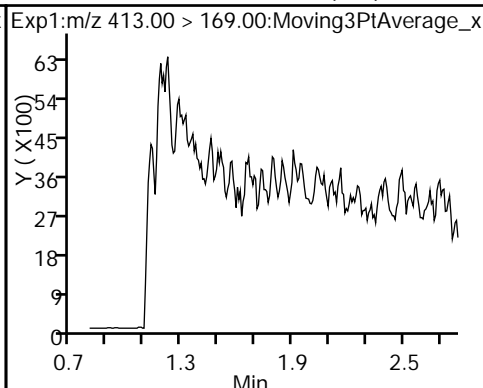
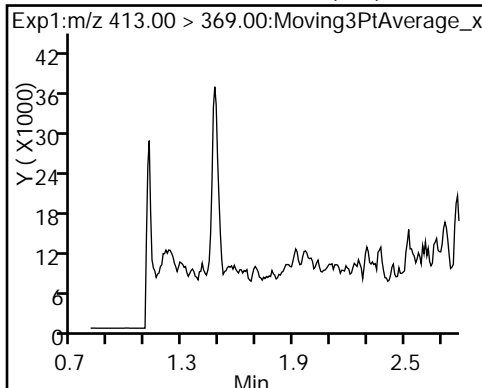
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



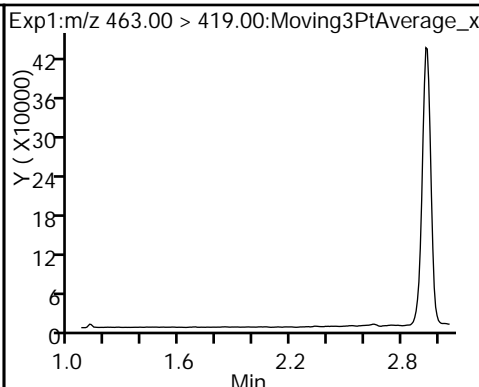
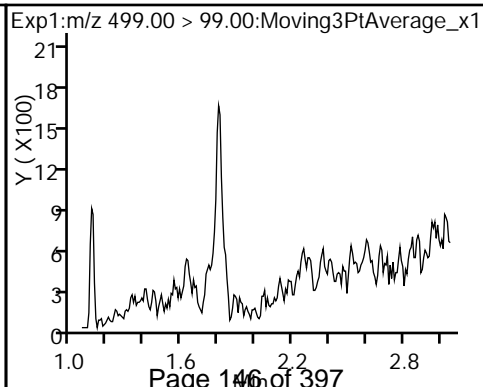
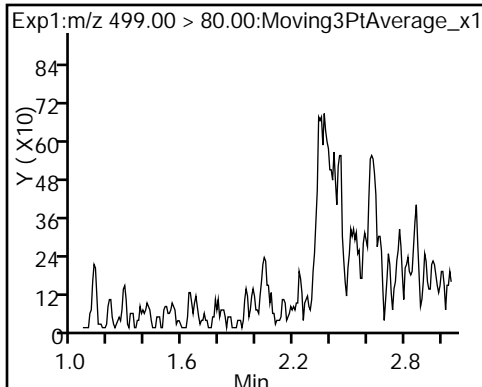
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) \* 6 13C2-PFOA



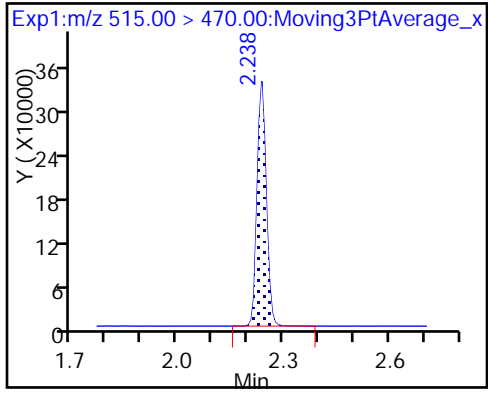
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) \* 7 13C4 PFOS



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\20180216-54174.b\2018.02.16\_537C\_023.d  
 Lims ID: 320-35824-A-4-A  
 Client ID: NAWC-020618-FRB-223  
 Sample Type: Client  
 Inject. Date: 16-Feb-2018 13:27:05 ALS Bottle#: 15 Worklist Smp#: 22  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-4-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK013

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.86	98.59
\$ 10 13C2 PFDA	10.0	12.2	121.90

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-288 Lab Sample ID: 320-35824-5  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_024.d  
 Analysis Method: 537 Date Collected: 02/06/2018 10:40  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 247.7(mL) Date Analyzed: 02/16/2018 13:31  
 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.: 208832 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J 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	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.6	J M	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	94		70-130
STL00996	13C2 PFDA	116		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_024.d  
 Lims ID: 320-35824-A-5-A  
 Client ID: NAWC-020618-RW-288  
 Sample Type: Client  
 Inject. Date: 16-Feb-2018 13:31:45 ALS Bottle#: 16 Worklist Smp#: 23  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-5-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: barnettj Date: 16-Feb-2018 16:48:39

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.358	0.0	1.000	105893	0.7346		208	
298.90 > 99.00	1.358	1.358	0.0	1.000	74863		1.41(0.00-0.00)	188	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.472	1.472	0.0	1.000	1065892	9.39		13809	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.616	0.0	1.000	169218	0.9600		119	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.616	0.0	1.000	63438	0.6327		11.8	M
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1032411	10.0		9851	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.798	0.0	1.000	190774	1.92		6.6	
413.00 > 169.00	1.798	1.798	0.0	1.000	133340		1.43(0.00-0.00)	13.3	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.048	0.0		3140412	28.7		3790	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.048	2.056	-0.008	1.000	288642	2.79		186	a
499.00 > 99.00	2.048	2.056	-0.008	1.000	53079		5.44(0.00-0.00)	31.5	a
\$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.238	-0.007	1.000	627170	11.6		7979	



## QC Flag Legend

### Review Flags

M - Manually Integrated

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_024.d

Injection Date: 16-Feb-2018 13:31:45

Instrument ID: A8\_N

Lims ID: 320-35824-A-5-A

Lab Sample ID: 320-35824-5

Client ID: NAWC-020618-RW-288

Operator ID: SACINSTLCMS01

ALS Bottle#: 16

Worklist Smp#: 23

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

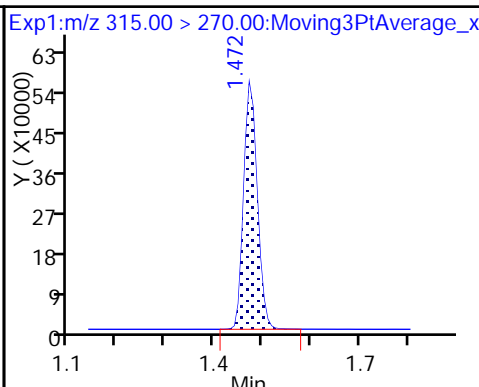
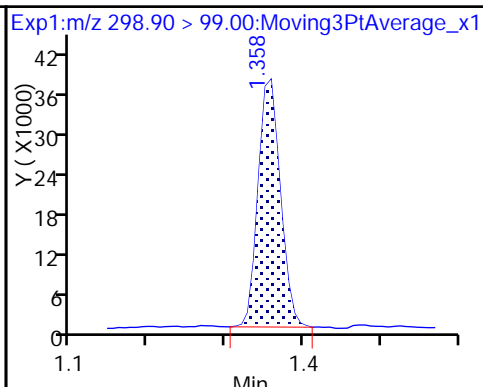
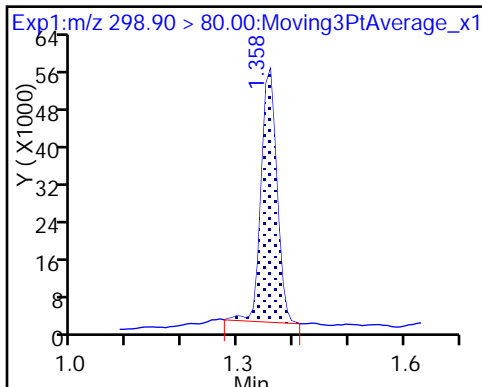
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

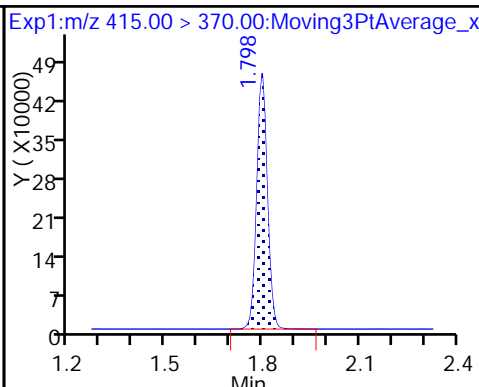
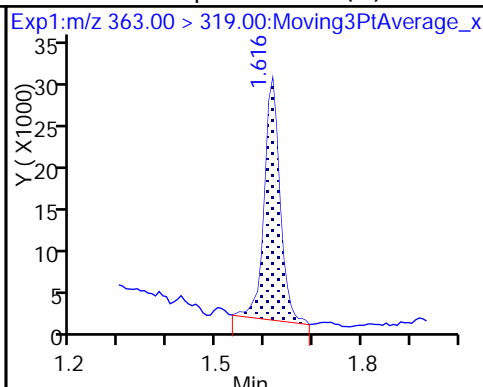
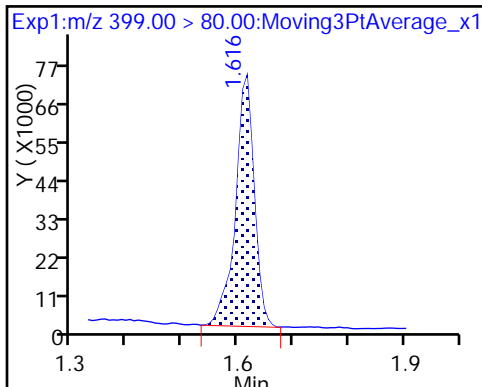
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid (M)

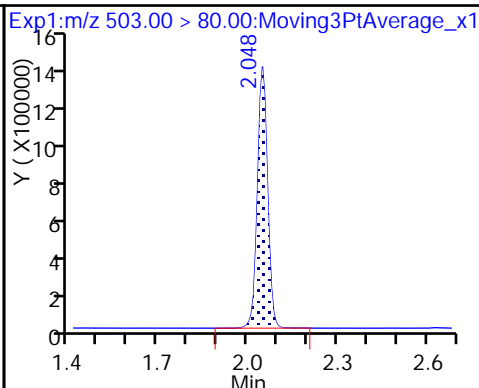
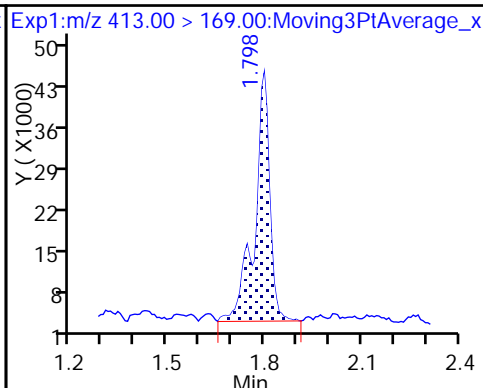
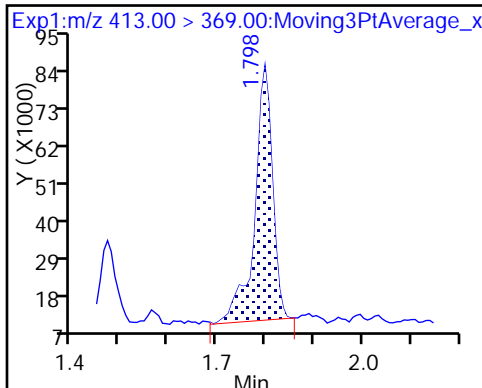
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

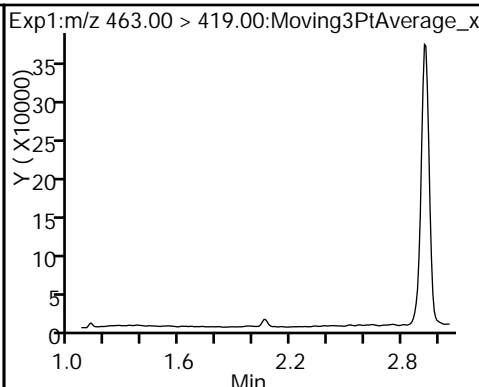
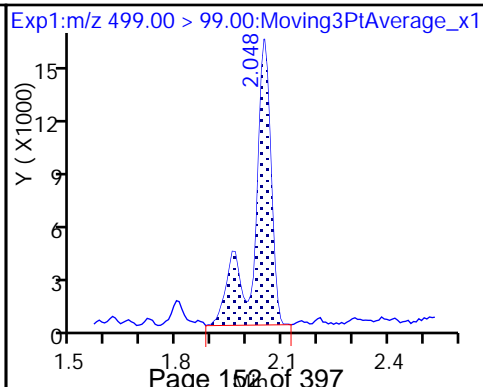
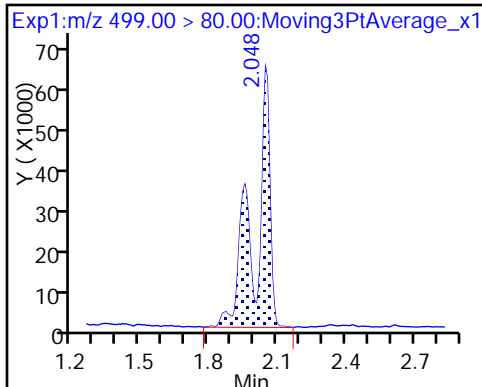
\* 7 13C4 PFOS



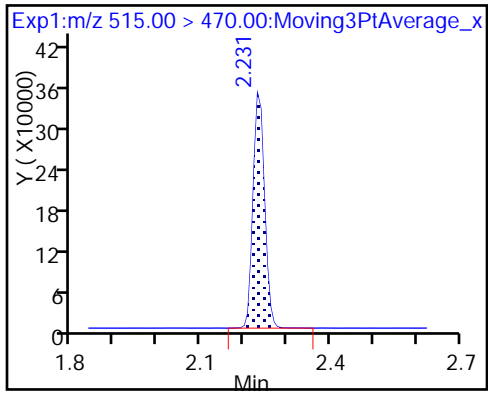
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_024.d  
 Lims ID: 320-35824-A-5-A  
 Client ID: NAWC-020618-RW-288  
 Sample Type: Client  
 Inject. Date: 16-Feb-2018 13:31:45 ALS Bottle#: 16 Worklist Smp#: 23  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-5-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: barnettj Date: 16-Feb-2018 16:48:39

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.39	93.87
\$ 10 13C2 PFDA	10.0	11.6	115.87

TestAmerica Sacramento

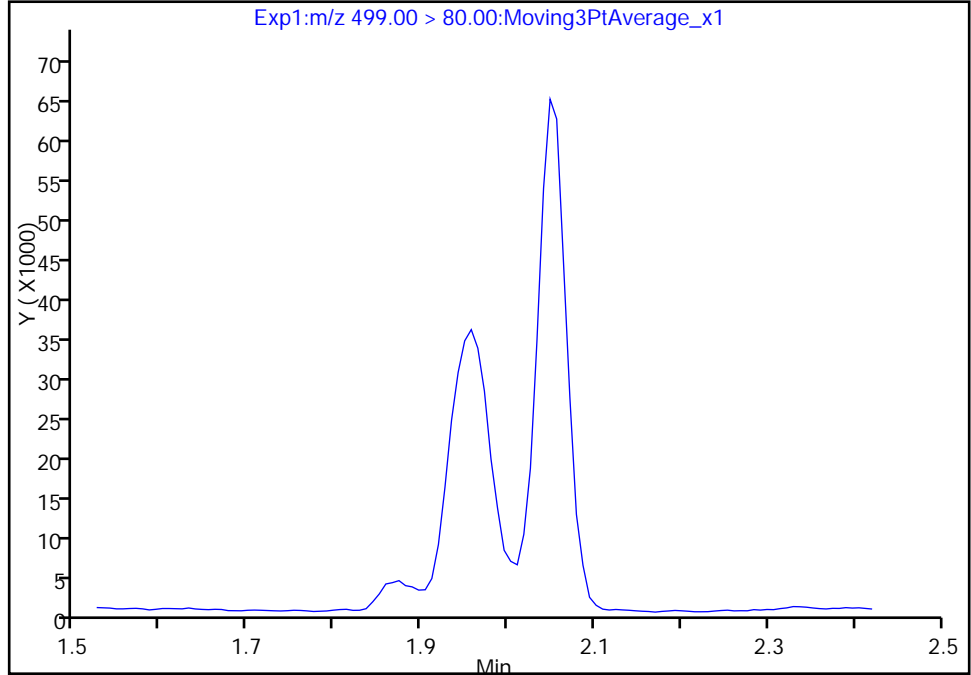
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Injection Date: 16-Feb-2018 13:31:45 Instrument ID: A8\_N  
Lims ID: 320-35824-A-5-A Lab Sample ID: 320-35824-5  
Client ID: NAWC-020618-RW-288  
Operator ID: SACINSTLCMS01 ALS Bottle#: 16 Worklist Smp#: 23  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

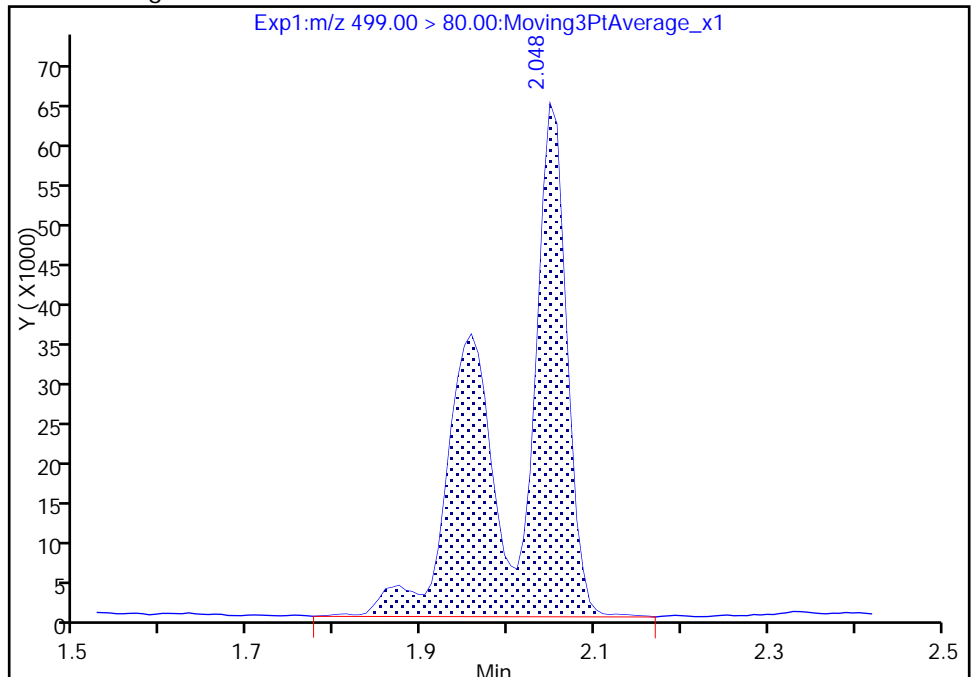
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.05  
Area: 288642  
Amount: 2.787876  
Amount Units: ng/ml



Reviewer: barnettj, 16-Feb-2018 16:48:01  
Audit Action: Assigned Compound ID

Audit Reason: Missed Peak

TestAmerica Sacramento

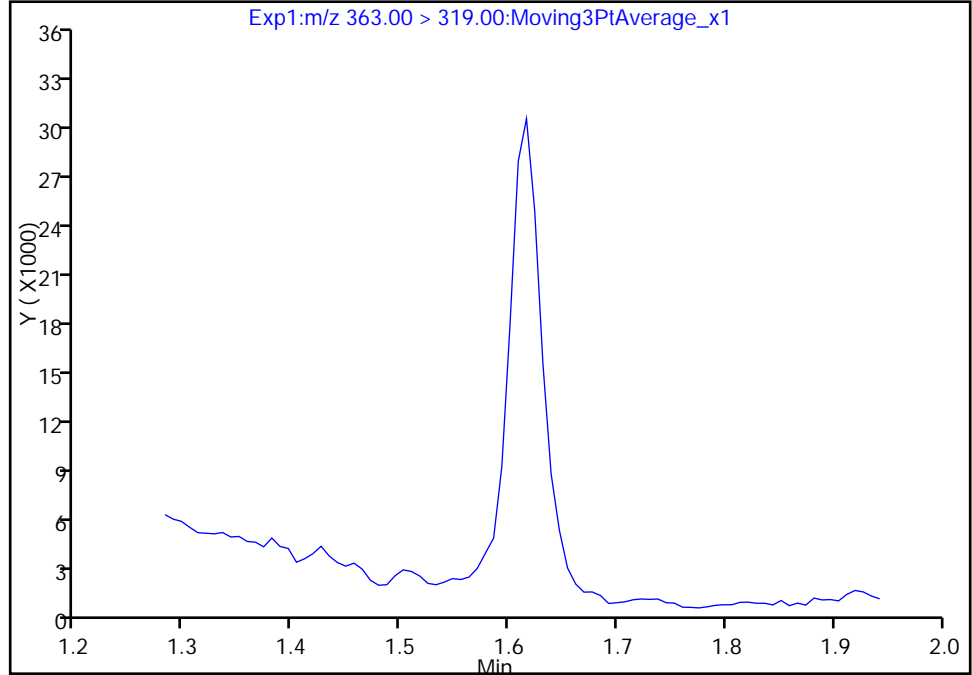
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Injection Date: 16-Feb-2018 13:31:45 Instrument ID: A8\_N  
Lims ID: 320-35824-A-5-A Lab Sample ID: 320-35824-5  
Client ID: NAWC-020618-RW-288  
Operator ID: SACINSTLCMS01 ALS Bottle#: 16 Worklist Smp#: 23  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

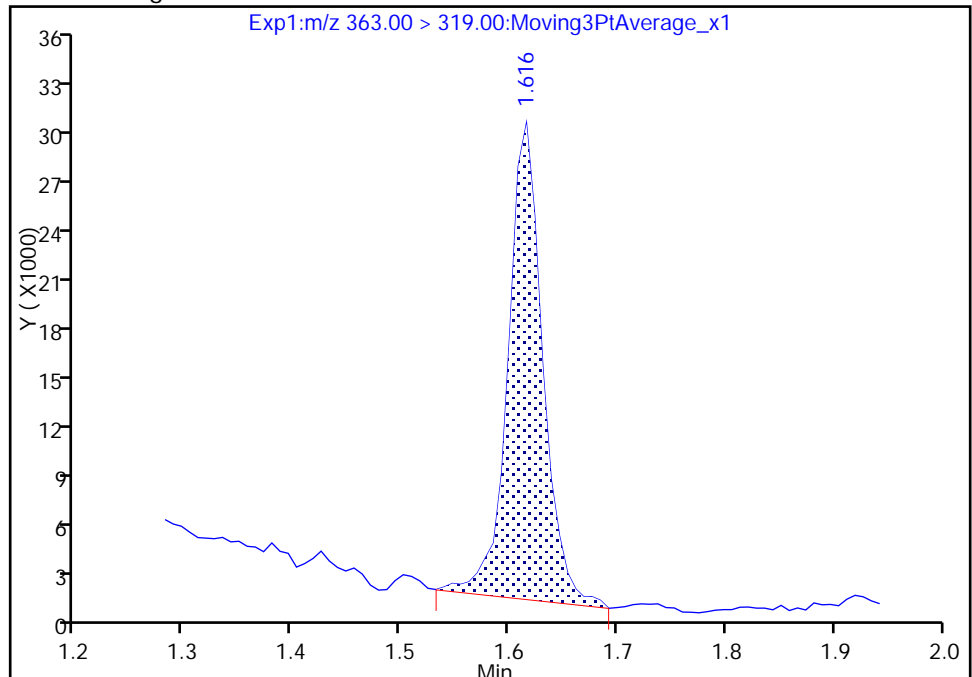
Not Detected  
Expected RT: 1.62

Processing Integration Results



Manual Integration Results

RT: 1.62  
Area: 63438  
Amount: 0.632729  
Amount Units: ng/ml



Reviewer: barnettj, 16-Feb-2018 16:47:50  
Audit Action: Manually Integrated

Audit Reason: Missed Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-FRB-288 Lab Sample ID: 320-35824-6  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_025.d  
 Analysis Method: 537 Date Collected: 02/06/2018 10:35  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 253.3(mL) Date Analyzed: 02/16/2018 13:36  
 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.: 208832 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	100		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_025.d  
 Lims ID: 320-35824-A-6-A  
 Client ID: NAWC-020618-FRB-288  
 Sample Type: Client  
 Inject. Date: 16-Feb-2018 13:36:25 ALS Bottle#: 17 Worklist Smp#: 24  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-6-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK013

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.479	1.472	0.007	1.000	1175015	9.57	17833	
* 6 13C2-PFOA	415.00 > 370.00	1.806	1.798	0.008		1116840	10.0	12219	
* 7 13C4 PFOS	503.00 > 80.00	2.056	2.048	0.008		3193469	28.7	8382	
\$ 10 13C2 PFDA	515.00 > 470.00	2.238	2.238	0.0	1.000	583058	9.96	6467	



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_025.d

Injection Date: 16-Feb-2018 13:36:25

Instrument ID: A8\_N

Lims ID: 320-35824-A-6-A

Lab Sample ID: 320-35824-6

Client ID: NAWC-020618-FRB-288

Operator ID: SACINSTLCMS01

ALS Bottle#: 17

Worklist Smp#: 24

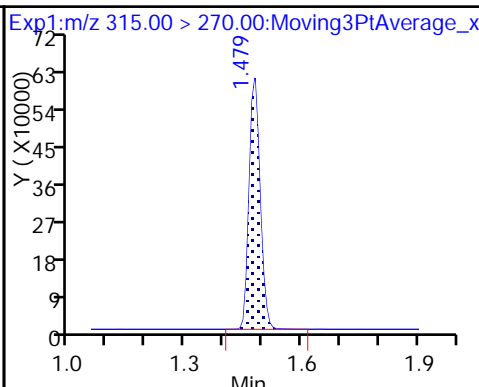
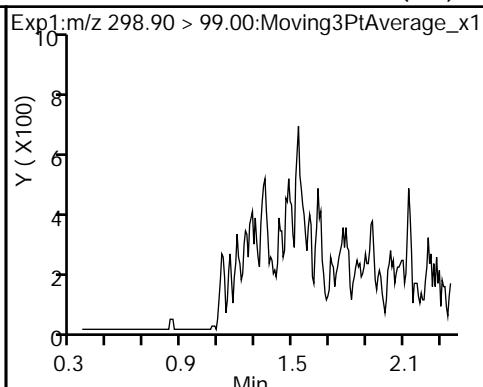
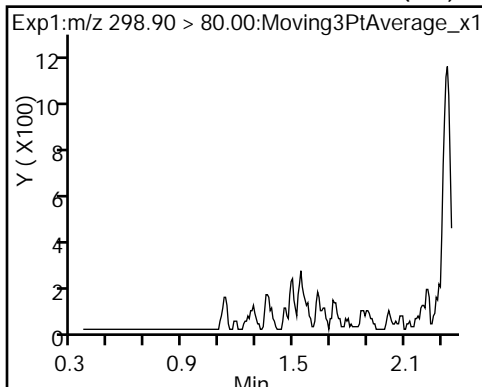
Injection Vol: 2.0 ul

Dil. Factor: 1.0000

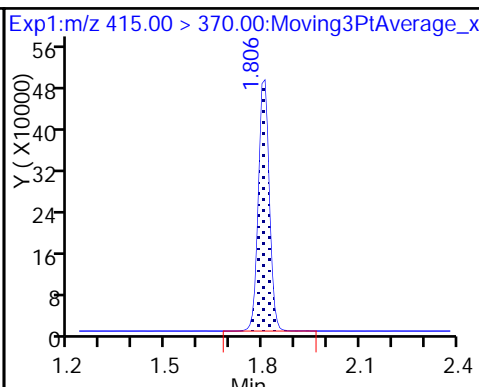
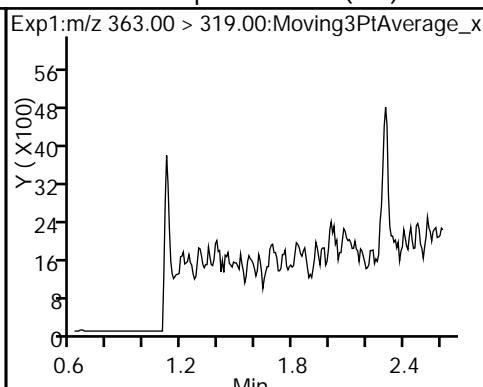
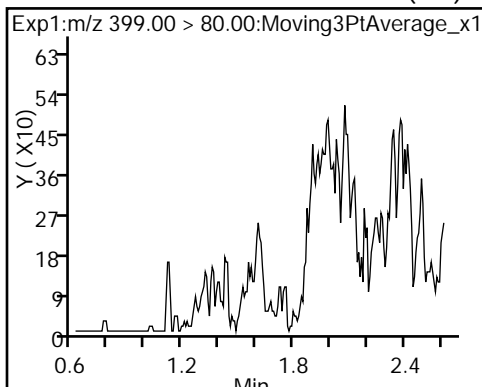
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

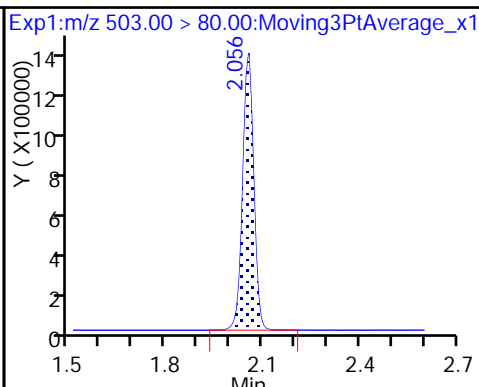
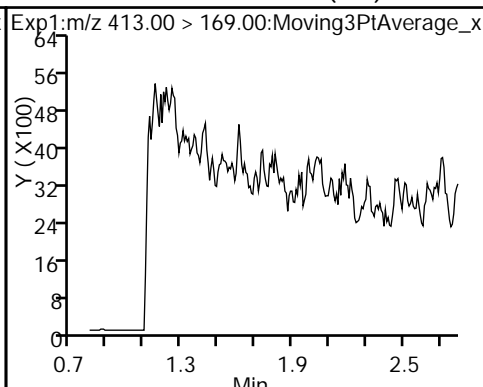
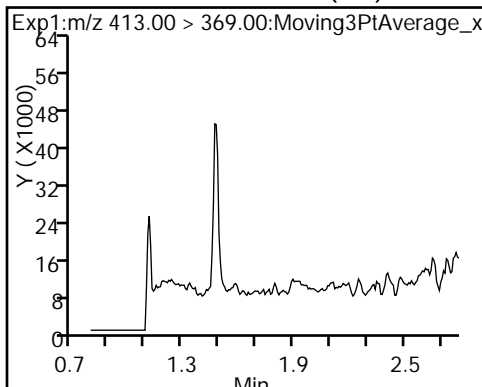
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



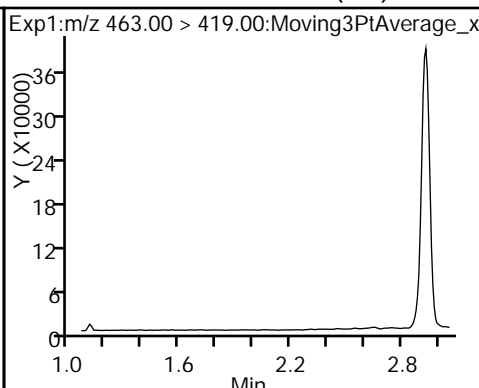
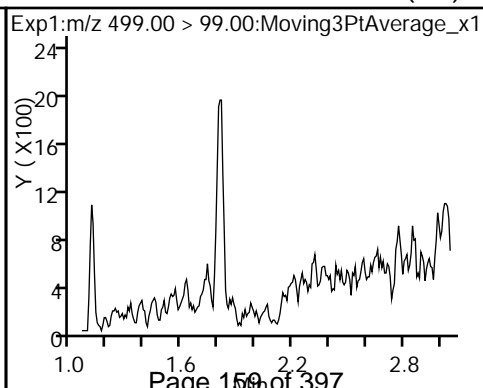
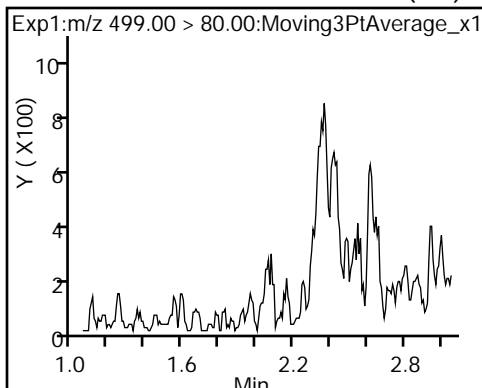
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) \* 6 13C2-PFOA



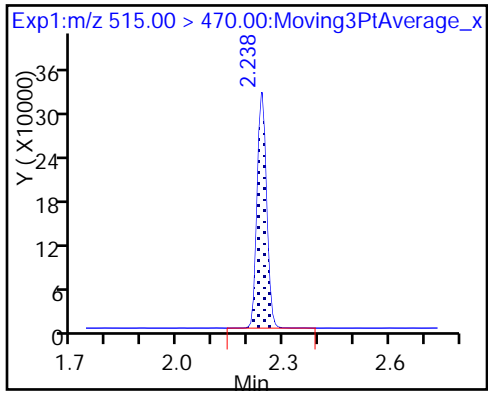
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) \* 7 13C4 PFOS



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\20180216-54174.b\2018.02.16\_537C\_025.d  
 Lims ID: 320-35824-A-6-A  
 Client ID: NAWC-020618-FRB-288  
 Sample Type: Client  
 Inject. Date: 16-Feb-2018 13:36:25 ALS Bottle#: 17 Worklist Smp#: 24  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-6-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK013

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.57	95.65
\$ 10 13C2 PFDA	10.0	9.96	99.58

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-020618-RW-3118 Lab Sample ID: 320-35824-7  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_043.d  
 Analysis Method: 537 Date Collected: 02/06/2018 11:40  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 248 (mL) Date Analyzed: 02/15/2018 08:01  
 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.: 208529 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)	23		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)	6.6	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	22	J	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	84		70-130
STL00996	13C2 PFDA	83		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_043.d  
 Lims ID: 320-35824-A-7-A  
 Client ID: WGNA-020618-RW-3118  
 Sample Type: Client  
 Inject. Date: 15-Feb-2018 08:01:21 ALS Bottle#: 30 Worklist Smp#: 15  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-7-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:38 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK016

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.350	1.350	0.0	1.000	713758	5.52		744	
298.90 > 99.00	1.350	1.350	0.0	1.000	475856		1.50(0.00-0.00)	1734	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.464	1.464	0.0	1.000	1114195	8.39		13919	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.601	1.601	0.0	1.000	239500	1.23		90.7	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.608	1.601	0.007	1.000	183923	1.63		23.6	
* 6 13C2-PFOA									
415.00 > 370.00	1.783	1.775	0.008		1206368	10.0		8589	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.783	1.775	0.008	1.000	629216	5.63		17.2	
413.00 > 169.00	1.783	1.775	0.008	1.000	358821		1.75(0.00-0.00)	35.8	
* 7 13C4 PFOS									
503.00 > 80.00	2.026	2.018	0.008		3338112	28.7		2057	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.223	2.215	0.008	1.000	762903	8.26		5556	

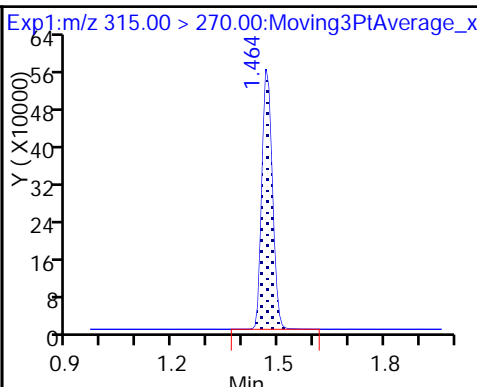
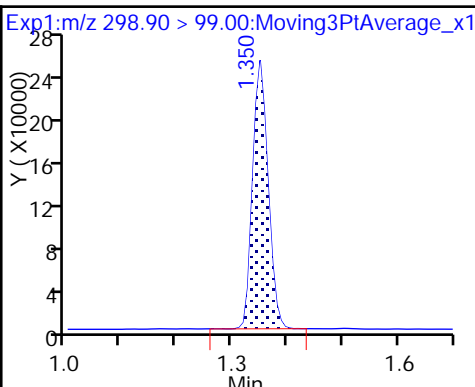
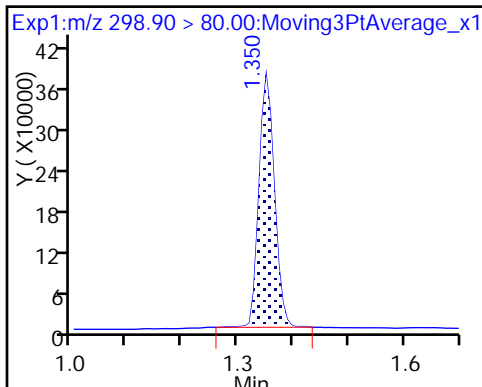
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_043.d  
Injection Date: 15-Feb-2018 08:01:21 Instrument ID: A8\_N  
Lims ID: 320-35824-A-7-A Lab Sample ID: 320-35824-7  
Client ID: WGNA-020618-RW-3118  
Operator ID: SACINSTLCMS01 ALS Bottle#: 30 Worklist Smp#: 15  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

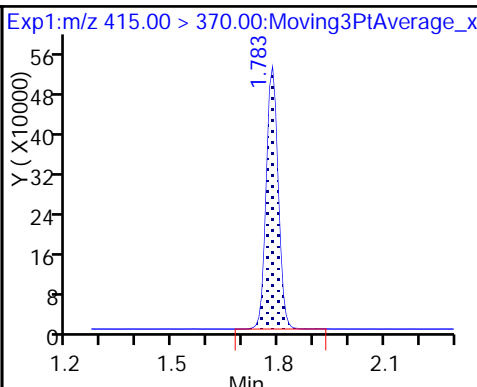
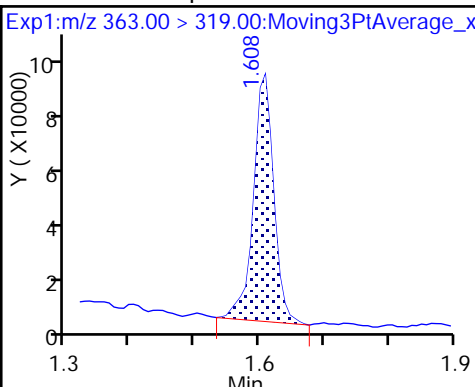
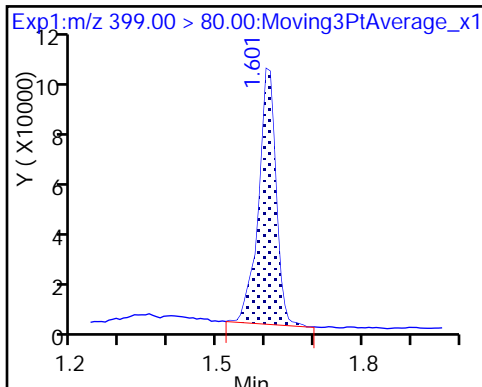
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

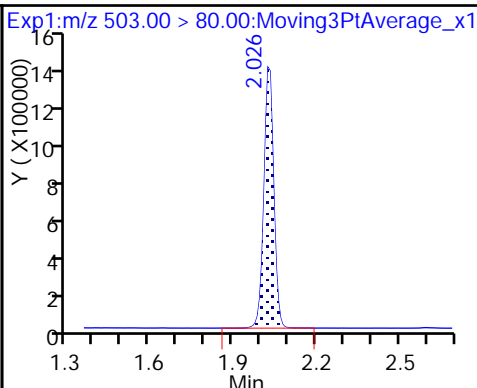
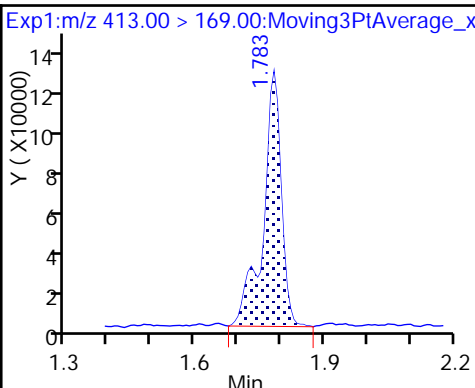
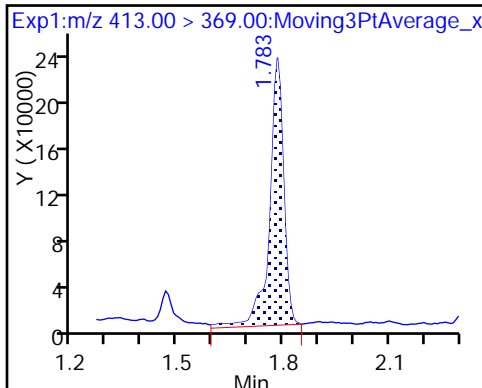
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

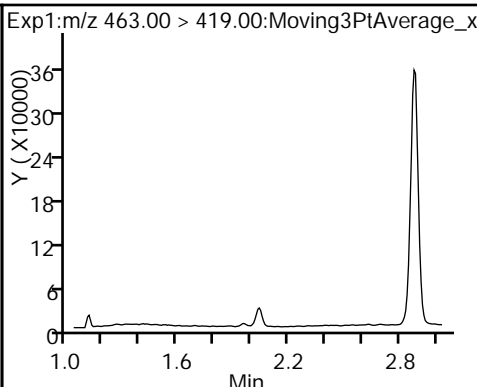
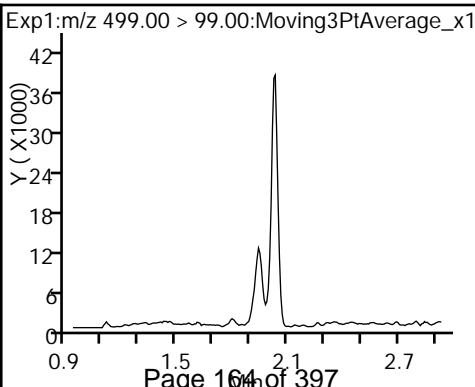
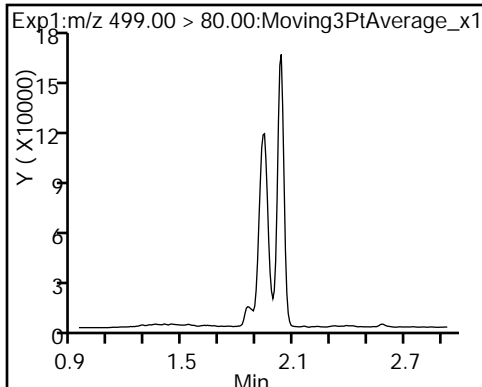
\* 7 13C4 PFOS



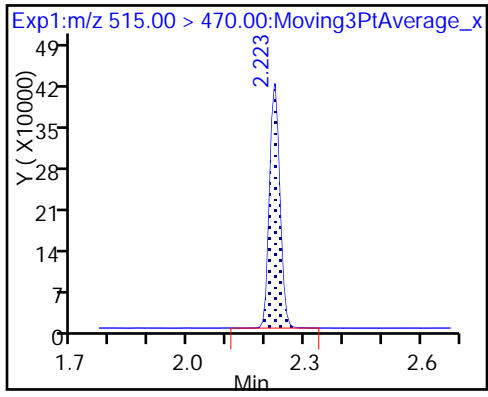
8 Perfluorooctane sulfonic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_043.d  
 Lims ID: 320-35824-A-7-A  
 Client ID: WGNA-020618-RW-3118  
 Sample Type: Client  
 Inject. Date: 15-Feb-2018 08:01:21 ALS Bottle#: 30 Worklist Smp#: 15  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-7-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:38 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK016

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.39	83.94
\$ 10 13C2 PFDA	10.0	8.26	82.64



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-020618-FRB-3118 Lab Sample ID: 320-35824-8  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_044.d  
 Analysis Method: 537 Date Collected: 02/06/2018 11:35  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 248.9(mL) Date Analyzed: 02/15/2018 08:06  
 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.: 208529 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	80		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_044.d  
 Lims ID: 320-35824-A-8-A  
 Client ID: WGNA-020618-FRB-3118  
 Sample Type: Client  
 Inject. Date: 15-Feb-2018 08:06:01 ALS Bottle#: 31 Worklist Smp#: 16  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-8-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:38 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

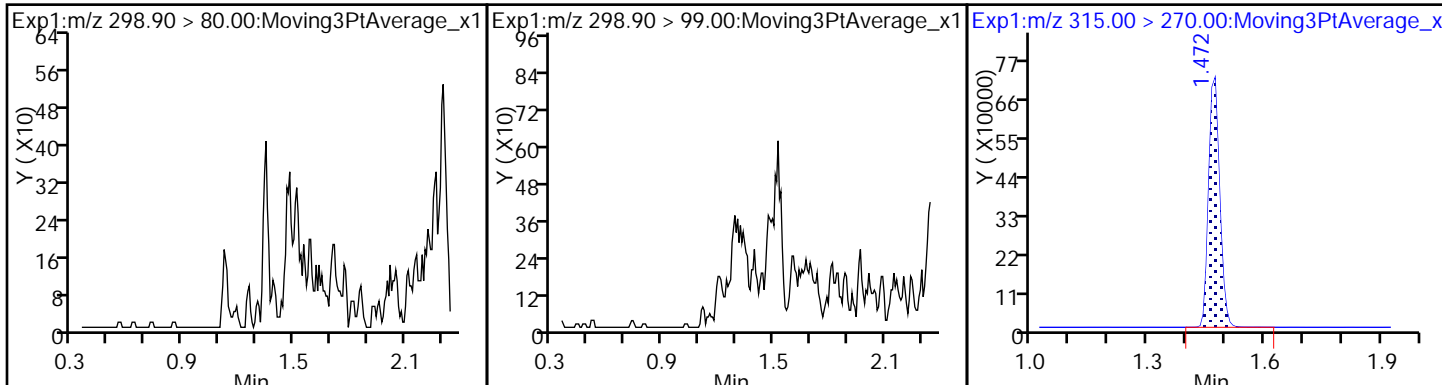
Column 1 : Det: EXP1  
 Process Host: XAWRK016

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.472	1.464	0.008	1.000	1392853	10.1	17363	
* 6 13C2-PFOA	415.00 > 370.00	1.783	1.775	0.008		1258851	10.0	12482	
* 7 13C4 PFOS	503.00 > 80.00	2.033	2.018	0.015		3427266	28.7	7395	
\$ 10 13C2 PFDA	515.00 > 470.00	2.223	2.215	0.008	1.000	766750	7.96	6084	

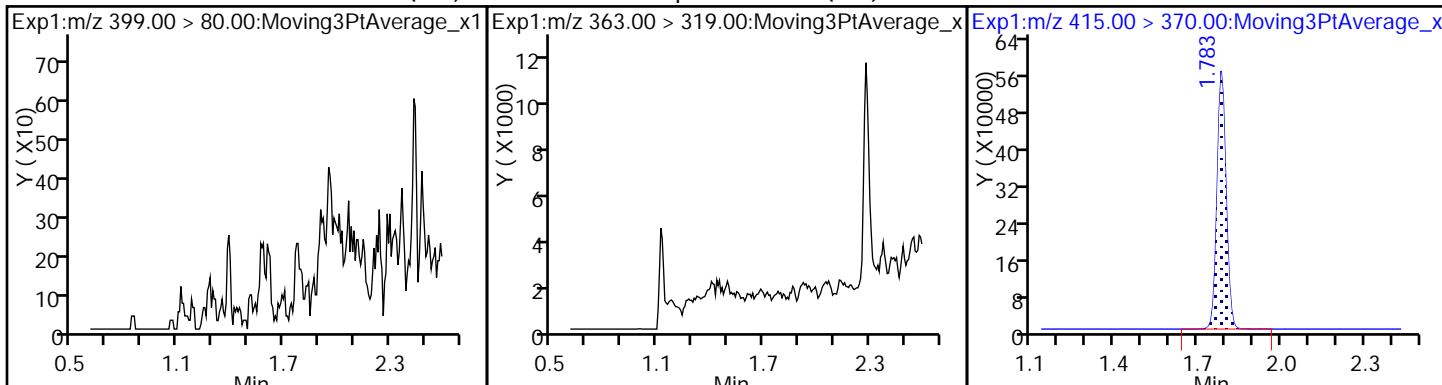
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_044.d  
Injection Date: 15-Feb-2018 08:06:01 Instrument ID: A8\_N  
Lims ID: 320-35824-A-8-A Lab Sample ID: 320-35824-8  
Client ID: WGNA-020618-FRB-3118  
Operator ID: SACINSTLCMS01 ALS Bottle#: 31 Worklist Smp#: 16  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL

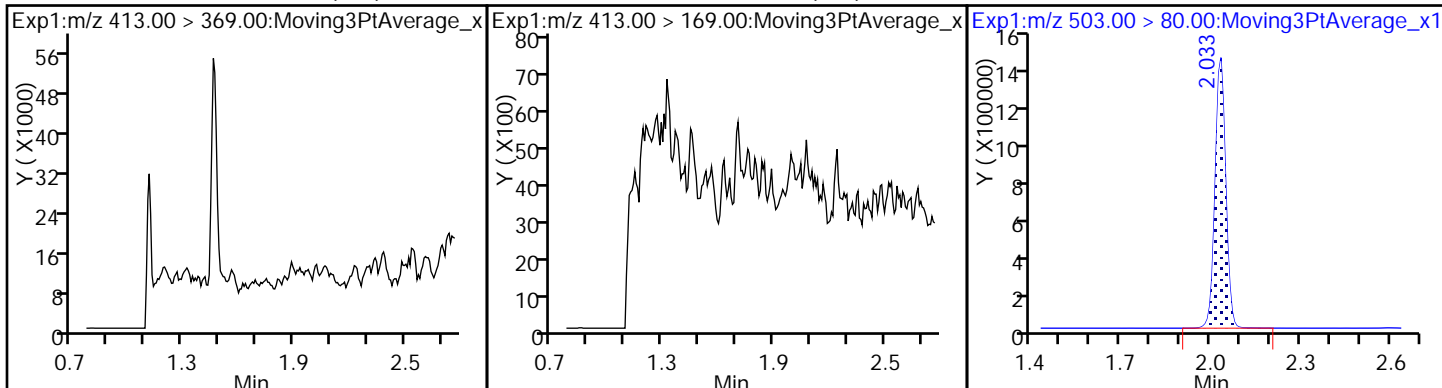
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



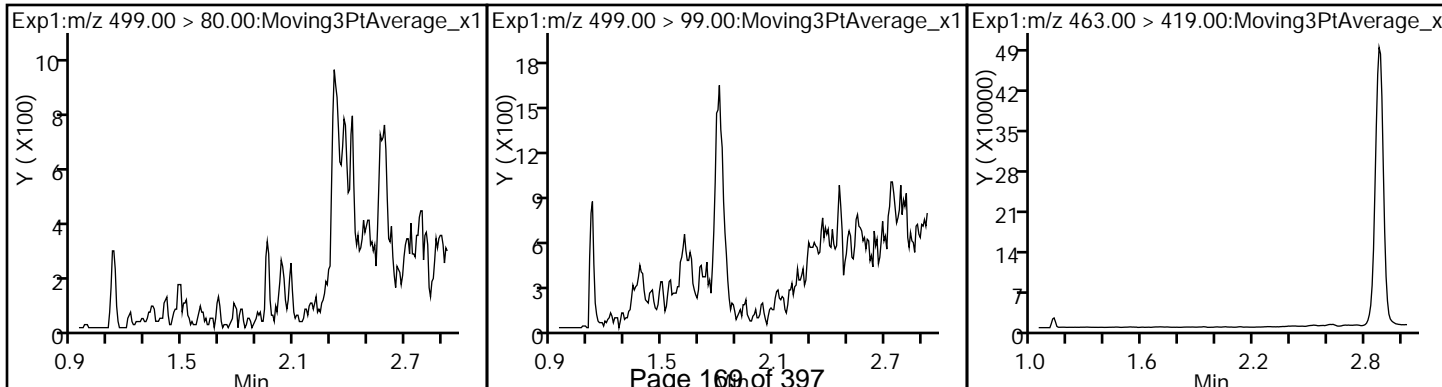
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) \* 6 13C2-PFOA



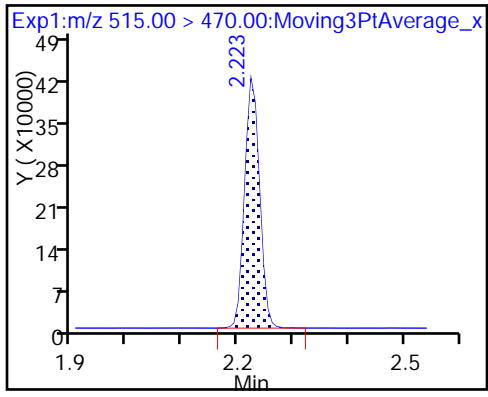
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) \* 7 13C4 PFOS



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\20180215-54100.b\2018.02.14\_537AXXX\_044.d  
 Lims ID: 320-35824-A-8-A  
 Client ID: WGNA-020618-FRB-3118  
 Sample Type: Client  
 Inject. Date: 15-Feb-2018 08:06:01 ALS Bottle#: 31 Worklist Smp#: 16  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-8-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:38 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK016

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.1	100.56
\$ 10 13C2 PFDA	10.0	7.96	79.60

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-269 Lab Sample ID: 320-35824-9  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_045.d  
 Analysis Method: 537 Date Collected: 02/06/2018 12:10  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 245.6(mL) Date Analyzed: 02/15/2018 08:10  
 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.: 208529 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	28	J M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	25		20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.1	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	90		70-130
STL00996	13C2 PFDA	90		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_045.d  
 Lims ID: 320-35824-A-9-A  
 Client ID: NAWC-020618-RW-269  
 Sample Type: Client  
 Inject. Date: 15-Feb-2018 08:10:40 ALS Bottle#: 32 Worklist Smp#: 17  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-9-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:38 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK016

First Level Reviewer: barnettj Date: 15-Feb-2018 10:20:23

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.350	1.350	0.0	1.000	310891	2.36		260	
298.90 > 99.00	1.350	1.350	0.0	1.000	207659		1.50(0.00-0.00)	772	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.464	1.464	0.0	1.000	1175012	8.97		13733	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.601	1.601	0.0	1.000	522078	2.64		193	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.601	1.601	0.0	1.000	193734	1.74		22.5	
* 6 13C2-PFOA									
415.00 > 370.00	1.783	1.775	0.008		1190411	10.0		9000	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.783	1.775	0.008	1.000	673751	6.11		17.7	
413.00 > 169.00	1.783	1.775	0.008	1.000	408689		1.65(0.00-0.00)	43.3	
* 7 13C4 PFOS									
503.00 > 80.00	2.033	2.018	0.015		3381885	28.7		2224	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.033	2.026	0.007	1.000	757475	6.84		219	a
499.00 > 99.00	2.033	2.026	0.007	1.000	141343		5.36(0.00-0.00)	66.1	a
\$ 10 13C2 PFDA									
515.00 > 470.00	2.223	2.215	0.008	1.000	816057	8.96		5722	

## QC Flag Legend

Review Flags

a - User Assigned ID



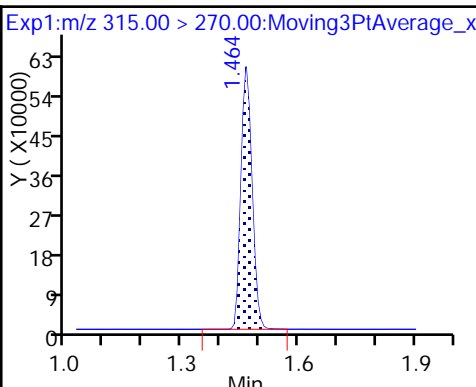
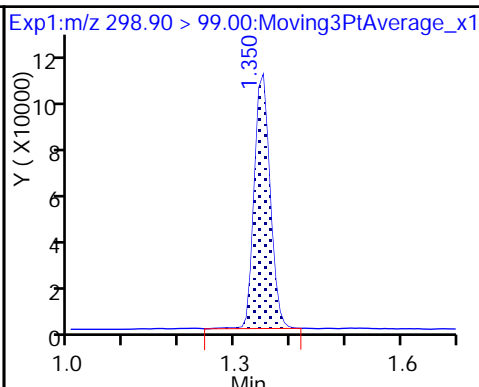
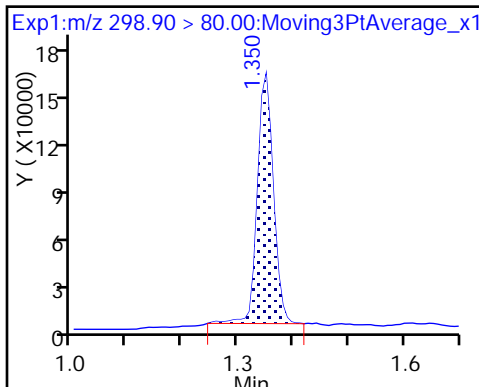
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_045.d  
Injection Date: 15-Feb-2018 08:10:40 Instrument ID: A8\_N  
Lims ID: 320-35824-A-9-A Lab Sample ID: 320-35824-9  
Client ID: NAWC-020618-RW-269  
Operator ID: SACINSTLCMS01 ALS Bottle#: 32 Worklist Smp#: 17  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

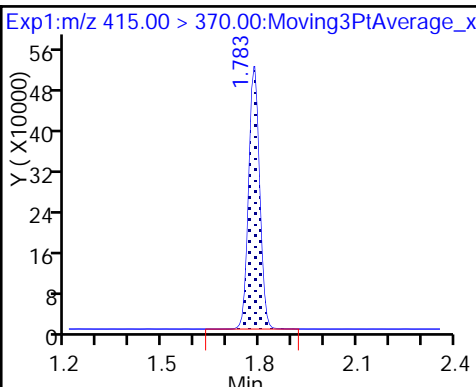
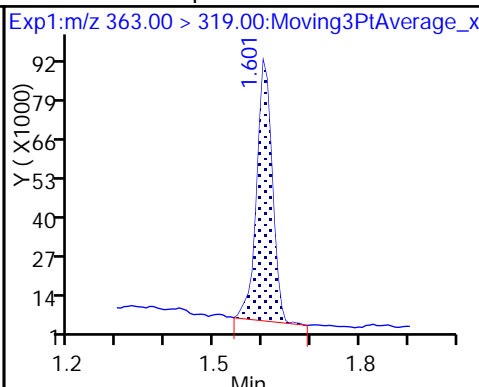
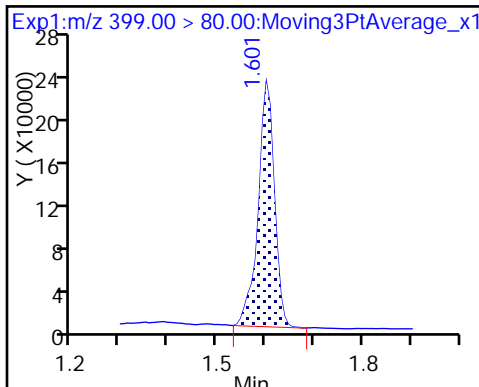
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

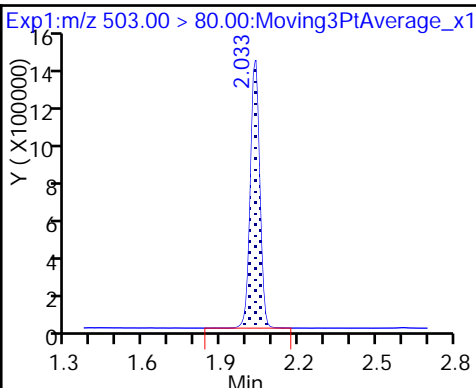
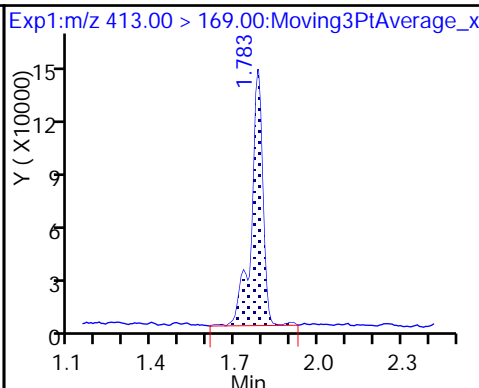
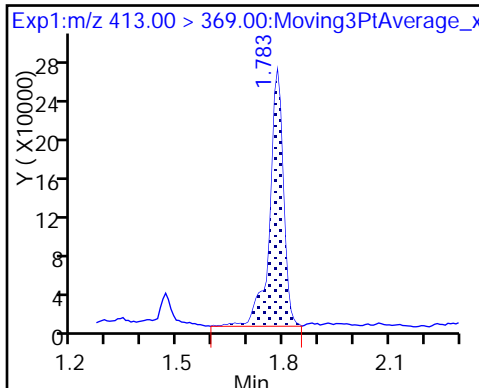
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

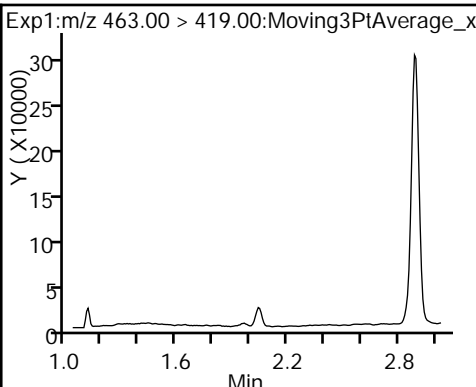
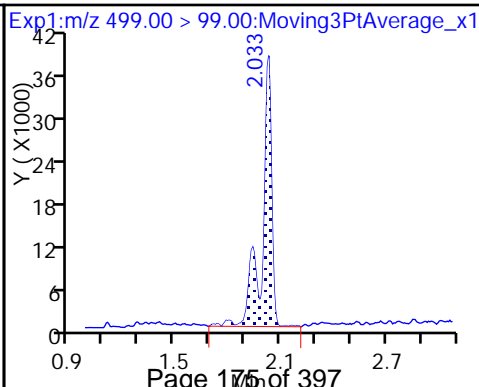
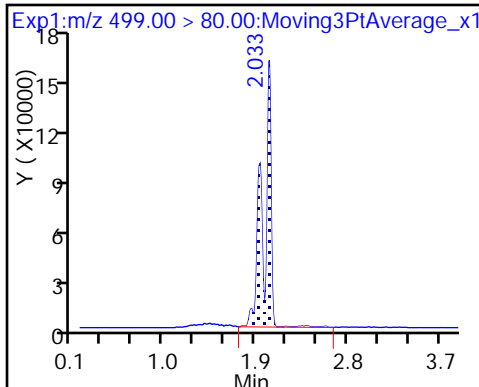
\* 7 13C4 PFOS



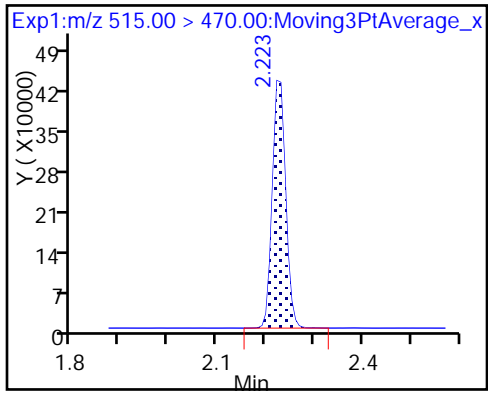
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_045.d  
 Lims ID: 320-35824-A-9-A  
 Client ID: NAWC-020618-RW-269  
 Sample Type: Client  
 Inject. Date: 15-Feb-2018 08:10:40 ALS Bottle#: 32 Worklist Smp#: 17  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-9-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:38 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK016

First Level Reviewer: barnettj Date: 15-Feb-2018 10:20:23

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	8.97	89.71
\$ 10 13C2 PFDA	10.0	8.96	89.59

TestAmerica Sacramento

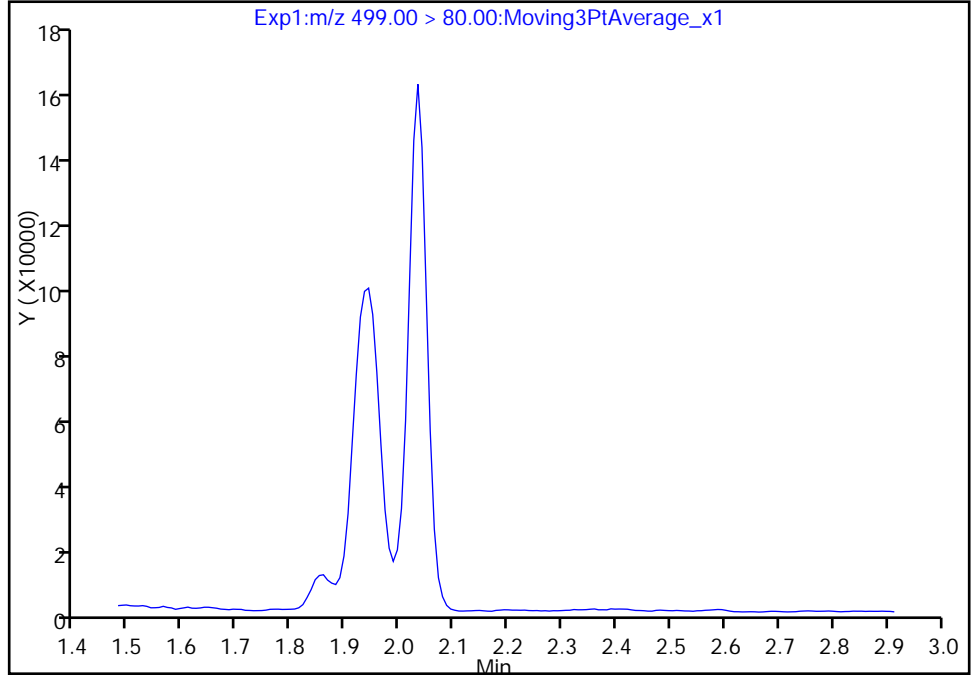
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Injection Date: 15-Feb-2018 08:10:40 Instrument ID: A8\_N  
Lims ID: 320-35824-A-9-A Lab Sample ID: 320-35824-9  
Client ID: NAWC-020618-RW-269  
Operator ID: SACINSTLCMS01 ALS Bottle#: 32 Worklist Smp#: 17  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

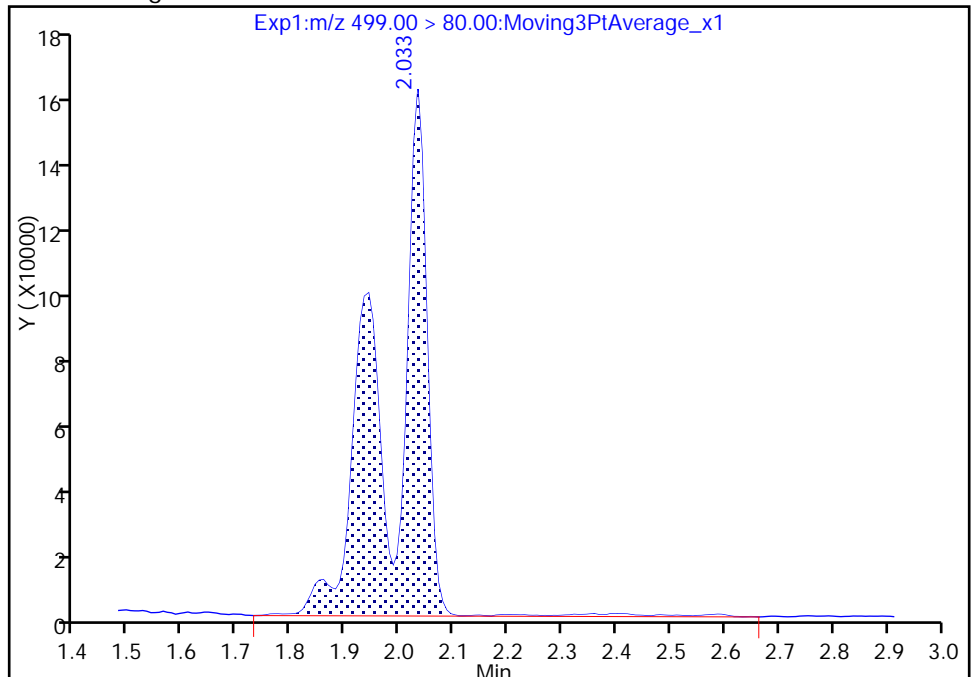
Signal: 1

Not Detected  
Expected RT: 2.03

Processing Integration Results



Manual Integration Results



RT: 2.03  
Area: 757475  
Amount: 6.841428  
Amount Units: ng/ml

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RFB-269 Lab Sample ID: 320-35824-10  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_046.d  
 Analysis Method: 537 Date Collected: 02/06/2018 12:05  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 251.9(mL) Date Analyzed: 02/15/2018 08:15  
 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.: 208529 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	77		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_046.d  
 Lims ID: 320-35824-A-10-A  
 Client ID: NAWC-020618-RFB-269  
 Sample Type: Client  
 Inject. Date: 15-Feb-2018 08:15:20 ALS Bottle#: 33 Worklist Smp#: 18  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-10-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:38 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

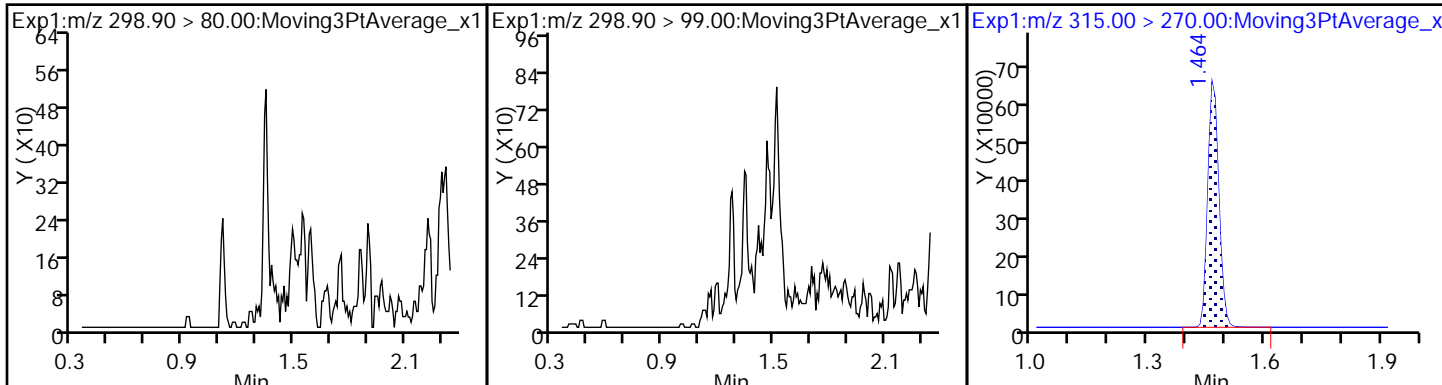
Column 1 : Det: EXP1  
 Process Host: XAWRK016

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.464	1.464	0.0	1.000	1268747	9.63	15482	
* 6 13C2-PFOA	415.00 > 370.00	1.783	1.775	0.008		1197870	10.0	10191	
* 7 13C4 PFOS	503.00 > 80.00	2.026	2.018	0.008		3415652	28.7	8547	
\$ 10 13C2 PFDA	515.00 > 470.00	2.223	2.215	0.008	1.000	701577	7.65	5428	

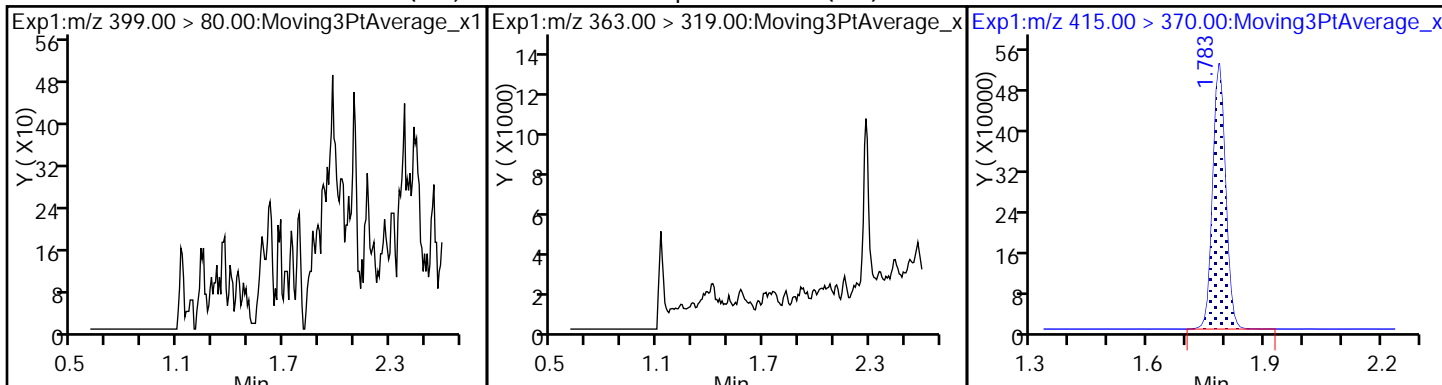
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_046.d  
Injection Date: 15-Feb-2018 08:15:20 Instrument ID: A8\_N  
Lims ID: 320-35824-A-10-A Lab Sample ID: 320-35824-10  
Client ID: NAWC-020618-RFB-269  
Operator ID: SACINSTLCMS01 ALS Bottle#: 33 Worklist Smp#: 18  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL

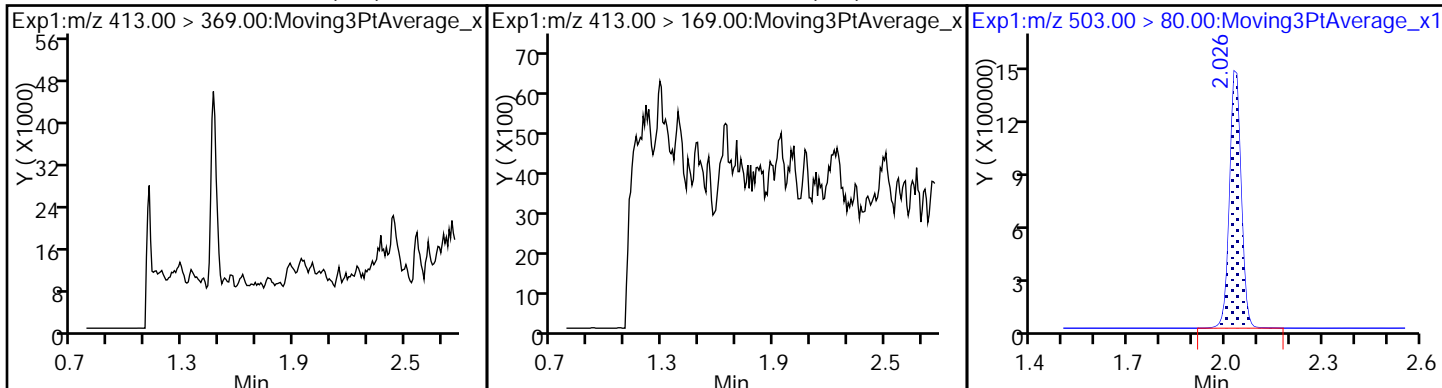
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



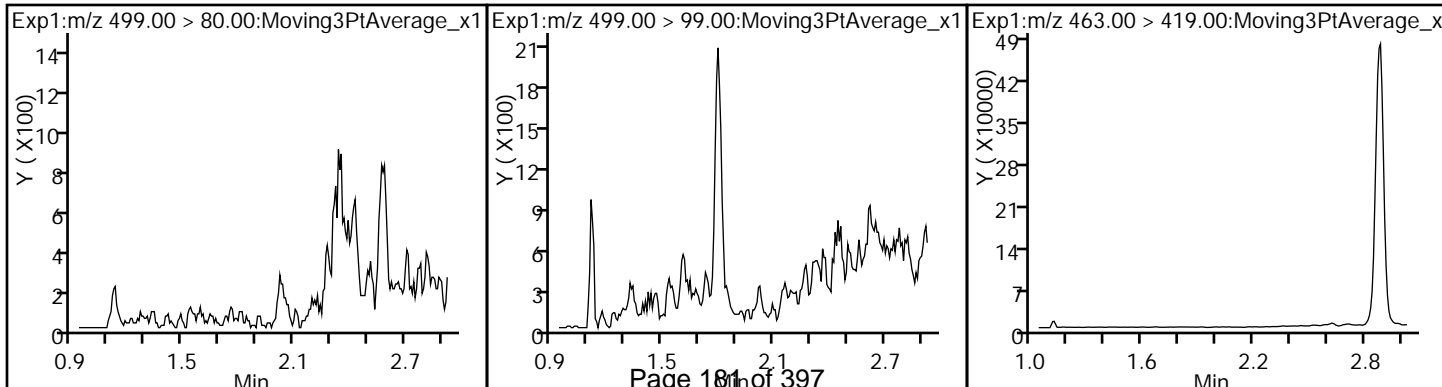
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) \* 6 13C2-PFOA



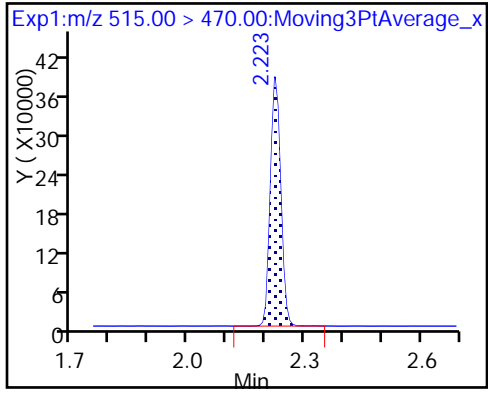
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) \* 7 13C4 PFOS



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\20180215-54100.b\2018.02.14\_537AXXX\_046.d  
 Lims ID: 320-35824-A-10-A  
 Client ID: NAWC-020618-RFB-269  
 Sample Type: Client  
 Inject. Date: 15-Feb-2018 08:15:20 ALS Bottle#: 33 Worklist Smp#: 18  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-10-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:38 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK016

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.63	96.26
\$ 10 13C2 PFDA	10.0	7.65	76.54

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-109 Lab Sample ID: 320-35824-11  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_047.d  
 Analysis Method: 537 Date Collected: 02/06/2018 12:40  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 245.4 (mL) Date Analyzed: 02/15/2018 08:20  
 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.: 208529 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	54	M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	41		31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.2	J M	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	93		70-130
STL00996	13C2 PFDA	80		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_047.d  
 Lims ID: 320-35824-A-11-A  
 Client ID: NAWC-020618-RW-109  
 Sample Type: Client  
 Inject. Date: 15-Feb-2018 08:20:01 ALS Bottle#: 34 Worklist Smp#: 19  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-11-  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:38 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK016

First Level Reviewer: barnettj Date: 15-Feb-2018 10:21:37

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.350	1.350	0.0	1.000	256969	1.88		579	
298.90 > 99.00	1.350	1.350	0.0	1.000	176283		1.46(0.00-0.00)	585	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.464	1.464	0.0	1.000	1262218	9.28		16300	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.601	1.601	0.0	1.000	2057761	10.0		1562	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.601	1.601	0.0	1.000	118039	1.02		17.9	M
* 6 13C2-PFOA									
415.00 > 370.00	1.783	1.775	0.008		1236529	10.0		9427	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.783	1.775	0.008	1.000	345170	3.02		9.4	
413.00 > 169.00	1.783	1.775	0.008	1.000	209328		1.65(0.00-0.00)	19.6	
* 7 13C4 PFOS									
503.00 > 80.00	2.026	2.018	0.008		3510490	28.7		4107	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.033	2.026	0.007	1.000	1529659	13.3		748	Ma
499.00 > 99.00	2.026	2.026	0.0	0.996	296856		5.15(0.00-0.00)	162	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.223	2.215	0.008	1.000	754400	7.97		5613	

## QC Flag Legend

### Review Flags

M - Manually Integrated

a - User Assigned ID

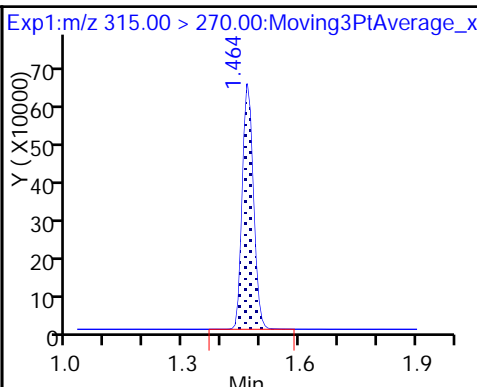
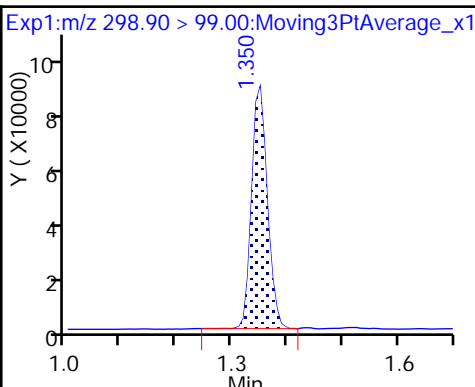
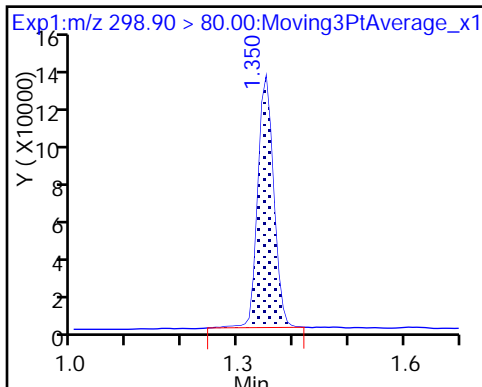
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_047.d  
Injection Date: 15-Feb-2018 08:20:01 Instrument ID: A8\_N  
Lims ID: 320-35824-A-11-A Lab Sample ID: 320-35824-11  
Client ID: NAWC-020618-RW-109  
Operator ID: SACINSTLCMS01 ALS Bottle#: 34 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

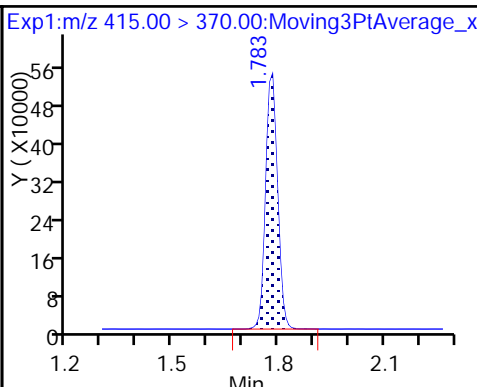
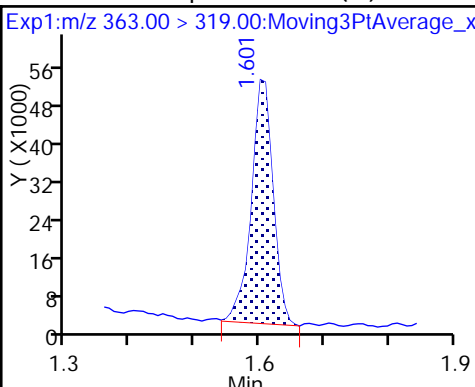
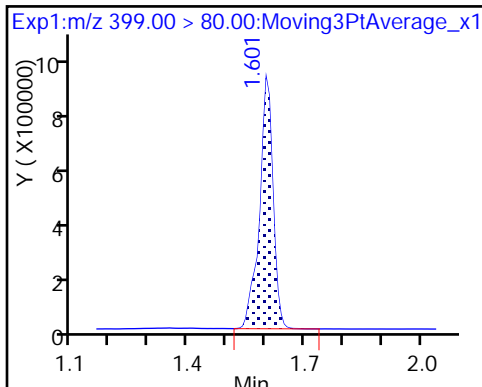
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid (M)

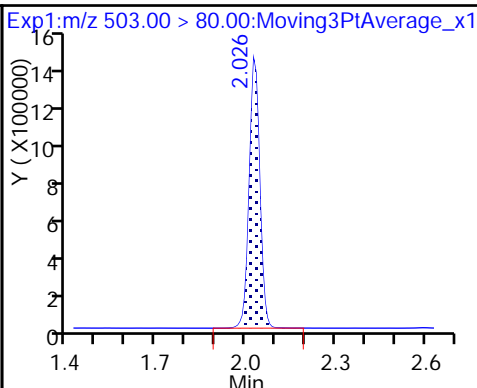
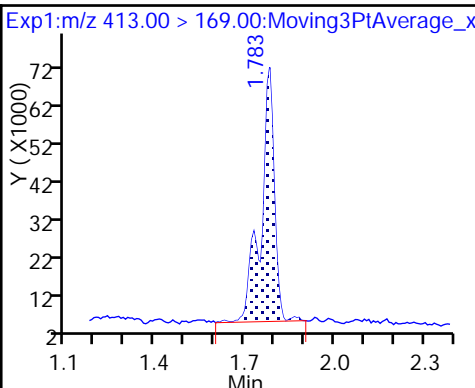
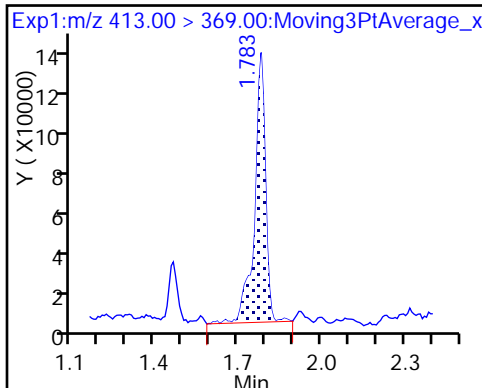
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

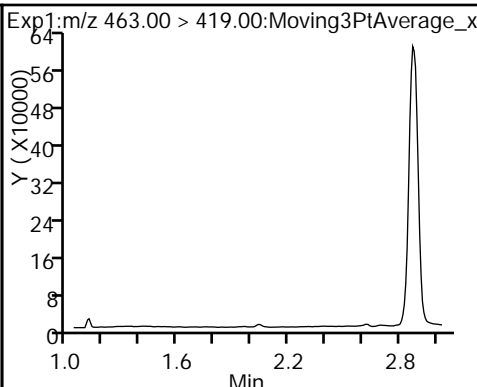
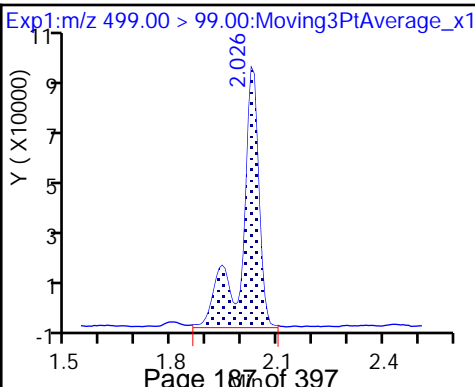
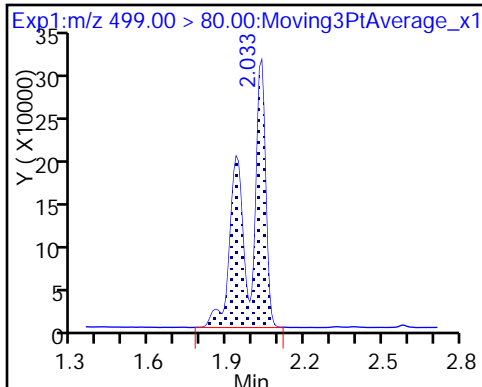
\* 7 13C4 PFOS



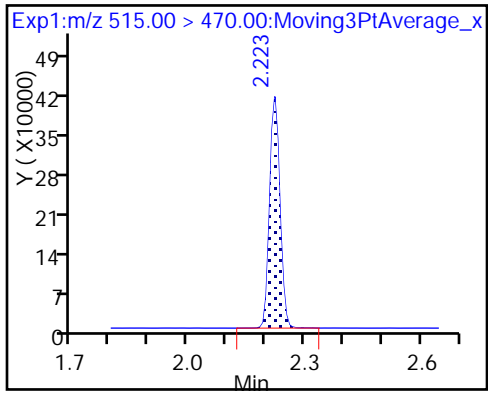
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_047.d  
 Lims ID: 320-35824-A-11-A  
 Client ID: NAWC-020618-RW-109  
 Sample Type: Client  
 Inject. Date: 15-Feb-2018 08:20:01 ALS Bottle#: 34 Worklist Smp#: 19  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-11-  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:38 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK016

First Level Reviewer: barnettj Date: 15-Feb-2018 10:21:37

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.28	92.77
\$ 10 13C2 PFDA	10.0	7.97	79.73

TestAmerica Sacramento

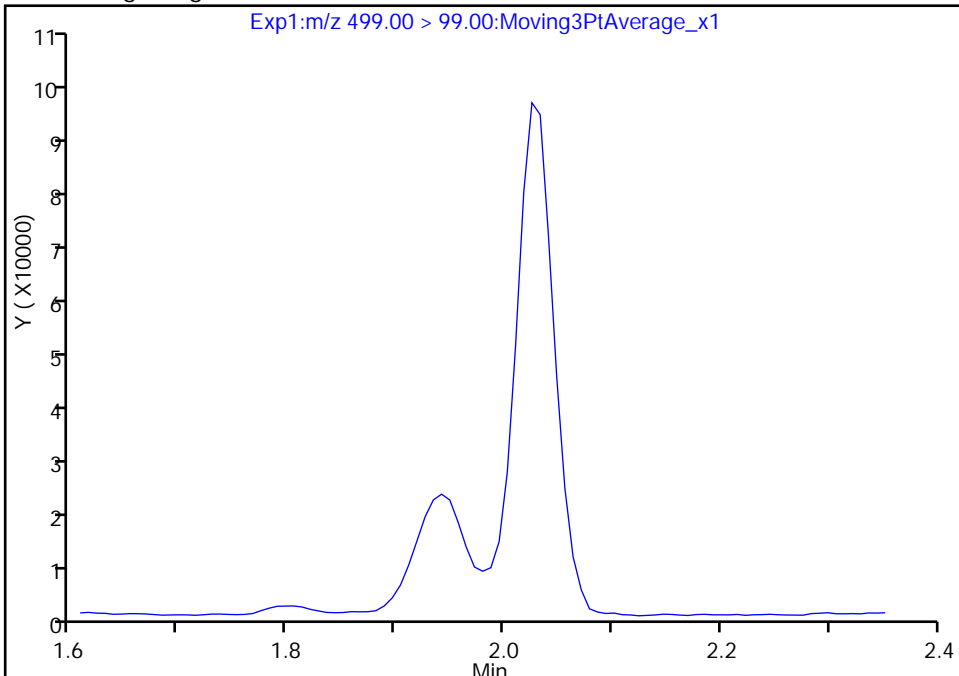
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Injection Date: 15-Feb-2018 08:20:01 Instrument ID: A8\_N  
Lims ID: 320-35824-A-11-A Lab Sample ID: 320-35824-11  
Client ID: NAWC-020618-RW-109  
Operator ID: SACINSTLCMS01 ALS Bottle#: 34 Worklist Smp#: 19  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

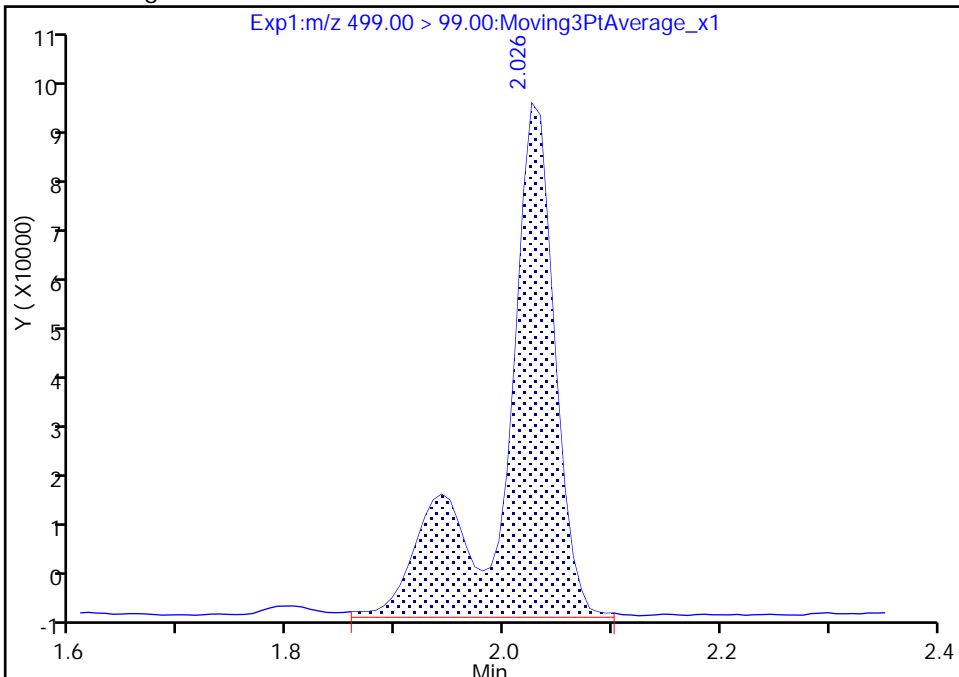
Not Detected  
Expected RT: 2.03

Processing Integration Results



Manual Integration Results

RT: 2.03  
Area: 296856  
Amount: 13.309574  
Amount Units: ng/ml



Reviewer: barnettj, 15-Feb-2018 10:21:18  
Audit Action: Manually Integrated

Audit Reason: Assign Peak



TestAmerica Sacramento

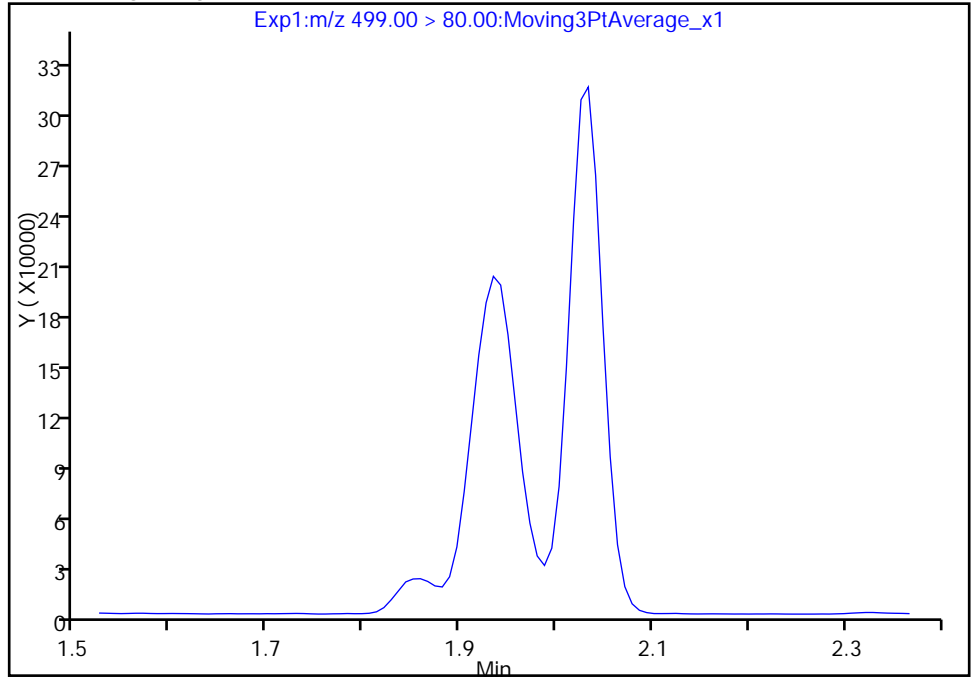
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Injection Date: 15-Feb-2018 08:20:01 Instrument ID: A8\_N  
Lims ID: 320-35824-A-11-A Lab Sample ID: 320-35824-11  
Client ID: NAWC-020618-RW-109  
Operator ID: SACINSTLCMS01 ALS Bottle#: 34 Worklist Smp#: 19  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

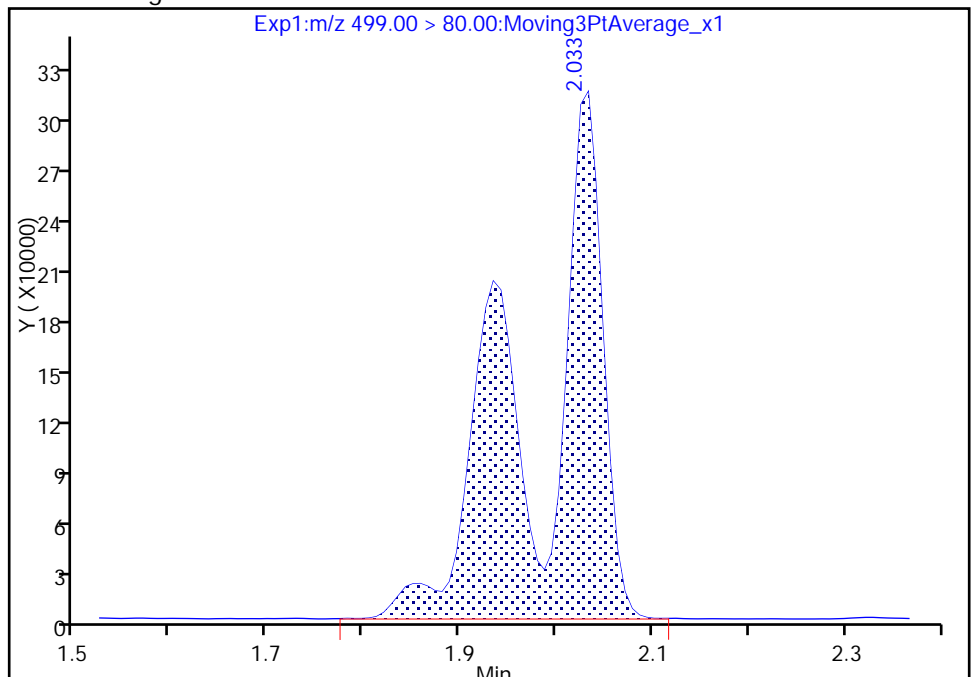
Not Detected  
Expected RT: 2.03

Processing Integration Results



RT: 2.03  
Area: 1529659  
Amount: 13.309574  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 15-Feb-2018 10:21:18

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

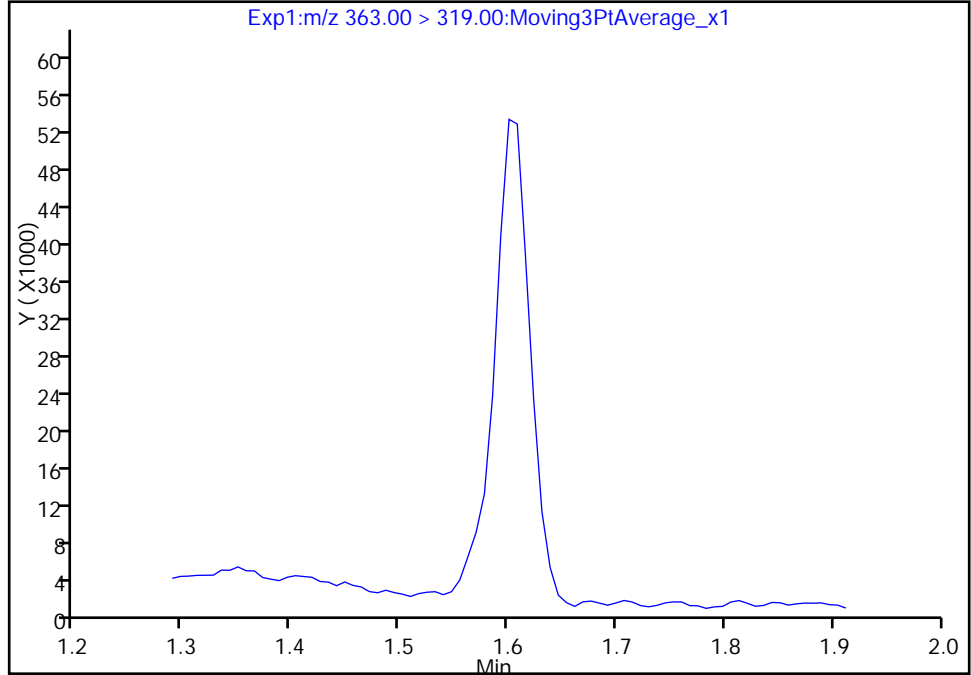
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Injection Date: 15-Feb-2018 08:20:01 Instrument ID: A8\_N  
Lims ID: 320-35824-A-11-A Lab Sample ID: 320-35824-11  
Client ID: NAWC-020618-RW-109  
Operator ID: SACINSTLCMS01 ALS Bottle#: 34 Worklist Smp#: 19  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

4 Perfluoroheptanoic acid, CAS: 375-85-9

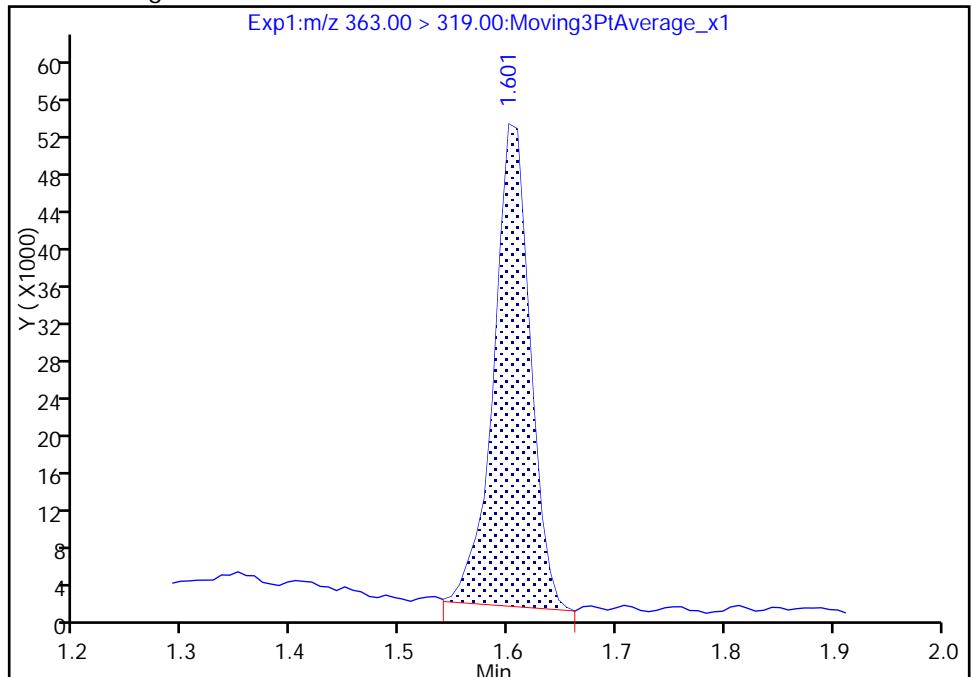
Signal: 1

Not Detected  
Expected RT: 1.60

Processing Integration Results



Manual Integration Results



RT: 1.60  
Area: 118039  
Amount: 1.018875  
Amount Units: ng/ml

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-FRB-109 Lab Sample ID: 320-35824-12  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_048.d  
 Analysis Method: 537 Date Collected: 02/06/2018 12:35  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 252.1(mL) Date Analyzed: 02/15/2018 08:24  
 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.: 208529 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	105		70-130
STL00996	13C2 PFDA	85		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_048.d  
 Lims ID: 320-35824-A-12-A  
 Client ID: NAWC-020618-FRB-109  
 Sample Type: Client  
 Inject. Date: 15-Feb-2018 08:24:40 ALS Bottle#: 35 Worklist Smp#: 20  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-12-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:38 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

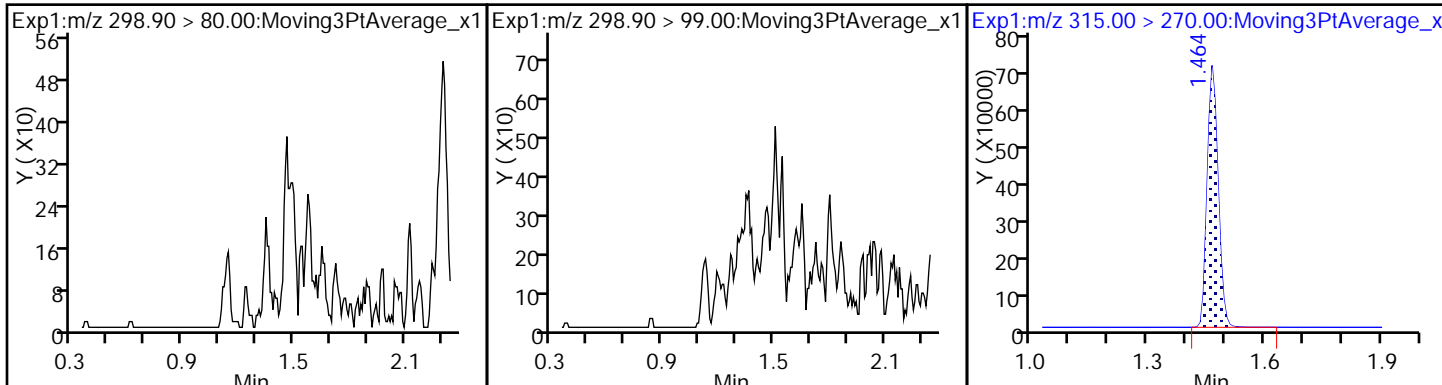
Column 1 : Det: EXP1  
 Process Host: XAWRK016

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.464	1.464	0.0	1.000	1393378	10.5	19431	
* 6 13C2-PFOA	415.00 > 370.00	1.783	1.775	0.008		1208734	10.0	10304	
* 7 13C4 PFOS	503.00 > 80.00	2.026	2.018	0.008		3527062	28.7	8472	
\$ 10 13C2 PFDA	515.00 > 470.00	2.223	2.215	0.008	1.000	783312	8.47	6042	

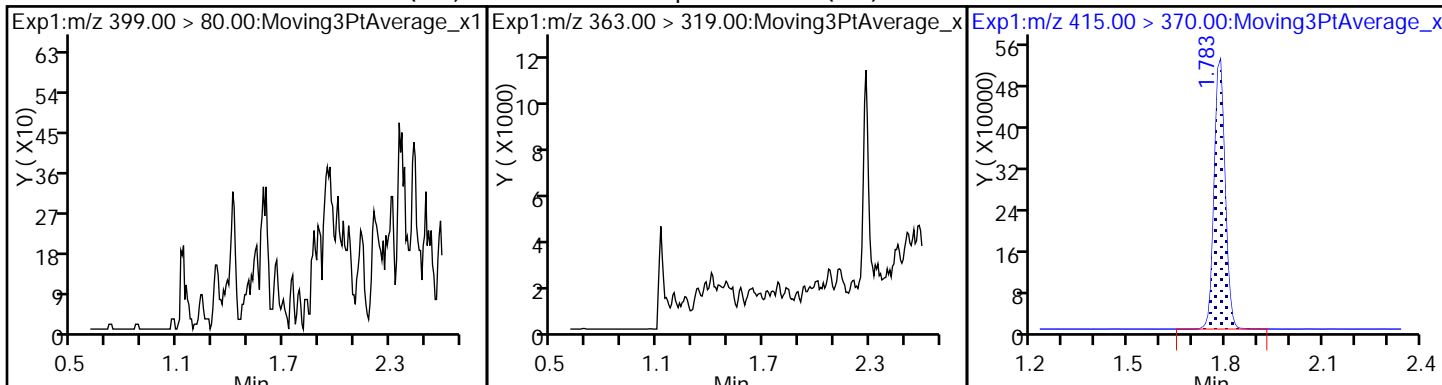
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_048.d  
Injection Date: 15-Feb-2018 08:24:40 Instrument ID: A8\_N  
Lims ID: 320-35824-A-12-A Lab Sample ID: 320-35824-12  
Client ID: NAWC-020618-FRB-109  
Operator ID: SACINSTLCMS01 ALS Bottle#: 35 Worklist Smp#: 20  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL

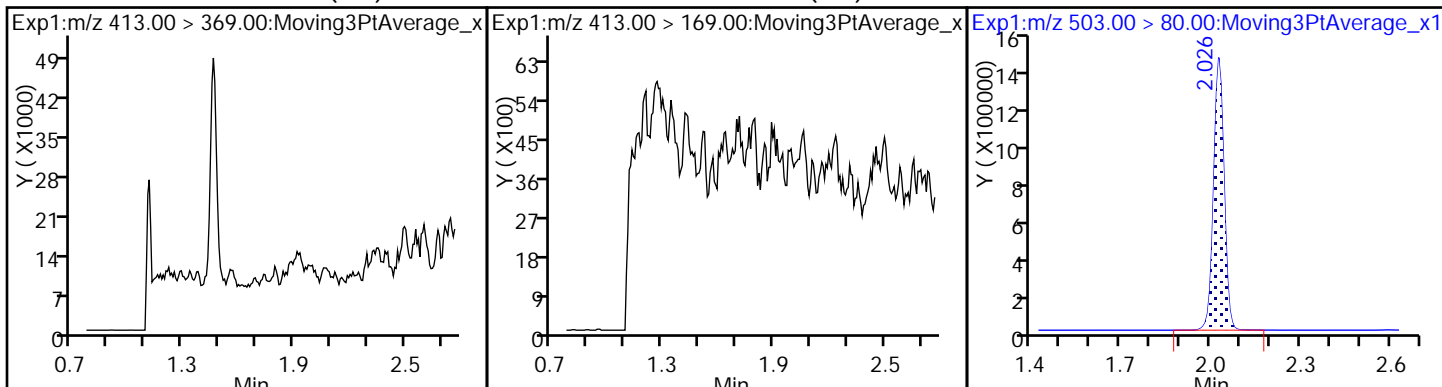
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



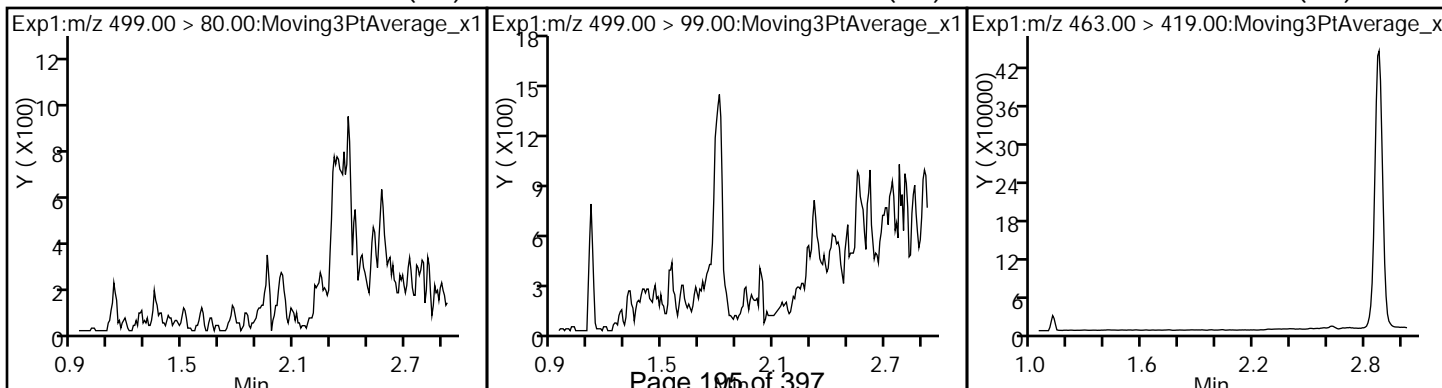
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) \* 6 13C2-PFOA



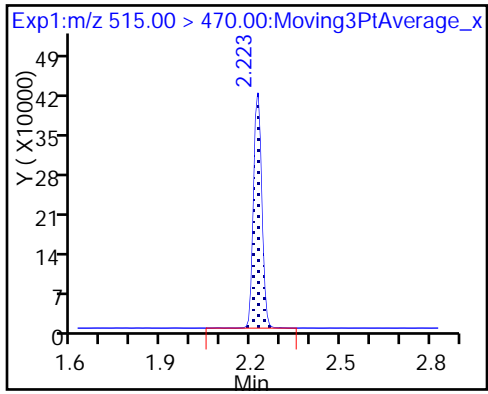
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) \* 7 13C4 PFOS



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\20180215-54100.b\2018.02.14\_537AXXX\_048.d  
 Lims ID: 320-35824-A-12-A  
 Client ID: NAWC-020618-FRB-109  
 Sample Type: Client  
 Inject. Date: 15-Feb-2018 08:24:40 ALS Bottle#: 35 Worklist Smp#: 20  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-12-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:38 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK016

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.5	104.77
\$ 10 13C2 PFDA	10.0	8.47	84.69

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-020618-DUP-25 Lab Sample ID: 320-35824-13  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_049.d  
 Analysis Method: 537 Date Collected: 02/06/2018 07:00  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 246(mL) Date Analyzed: 02/15/2018 08:29  
 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.: 208529 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	58	M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	43		30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	91	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	79		70-130



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_049.d  
 Lims ID: 320-35824-A-13-A  
 Client ID: WGNA-020618-DUP-25  
 Sample Type: Client  
 Inject. Date: 15-Feb-2018 08:29:19 ALS Bottle#: 36 Worklist Smp#: 21  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-13-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:38 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK016

First Level Reviewer: barnettj Date: 15-Feb-2018 10:23:04

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.350	1.350	0.0	1.000	271565	1.98		524	
298.90 > 99.00	1.350	1.350	0.0	1.000	185102		1.47(0.00-0.00)	741	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.464	1.464	0.0	1.000	1319818	9.41		16000	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.608	1.601	0.007	1.000	2181678	10.6		1548	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.608	1.601	0.007	1.000	121560	1.02		18.2	
* 6 13C2-PFOA									
415.00 > 370.00	1.783	1.775	0.008		1274965	10.0		10147	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.783	1.775	0.008	1.000	350147	2.97		9.6	
413.00 > 169.00	1.783	1.775	0.008	1.000	227982		1.54(0.00-0.00)	22.2	
* 7 13C4 PFOS									
503.00 > 80.00	2.033	2.018	0.015		3516387	28.7		4166	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.033	2.026	0.007	1.000	1639784	14.2		917	a
499.00 > 99.00	2.033	2.026	0.007	1.000	311358		5.27(0.00-0.00)	180	a
\$ 10 13C2 PFDA									
515.00 > 470.00	2.231	2.215	0.016	1.000	770490	7.90		7102	

## QC Flag Legend

### Review Flags

a - User Assigned ID

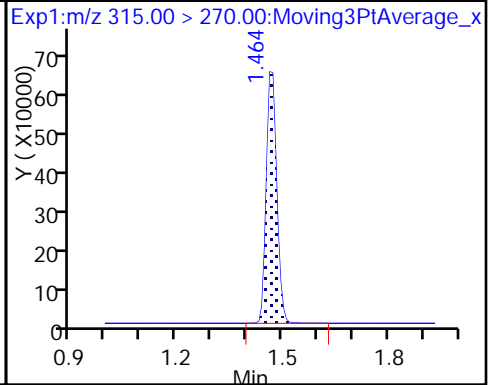
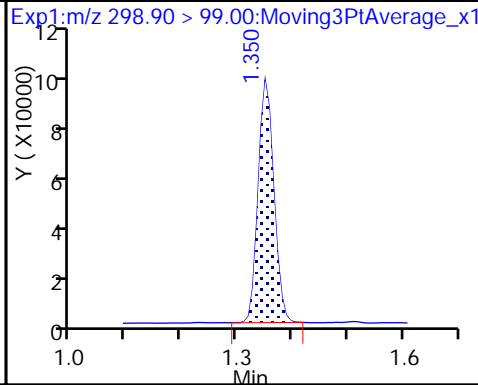
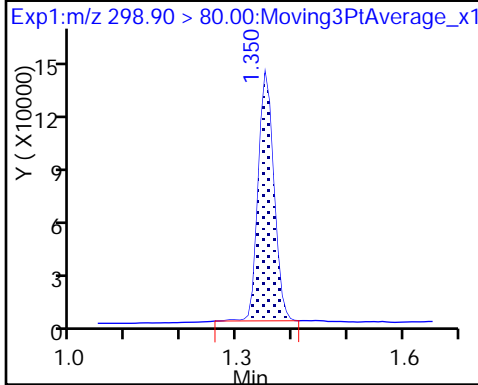
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_049.d  
Injection Date: 15-Feb-2018 08:29:19 Instrument ID: A8\_N  
Lims ID: 320-35824-A-13-A Lab Sample ID: 320-35824-13  
Client ID: WGNA-020618-DUP-25  
Operator ID: SACINSTLCMS01 ALS Bottle#: 36 Worklist Smp#: 21  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

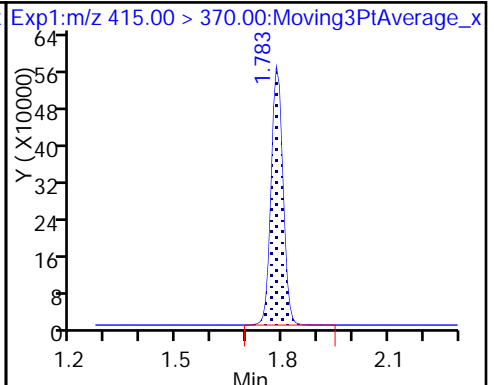
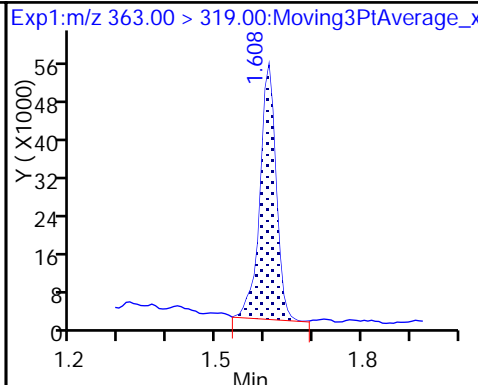
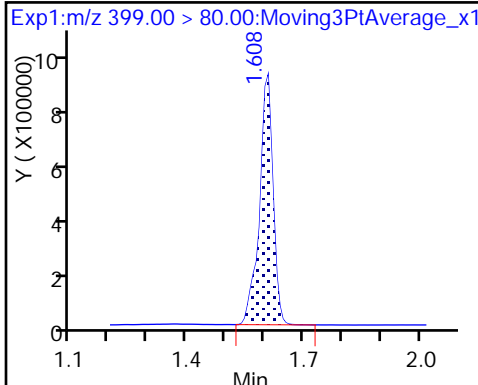
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

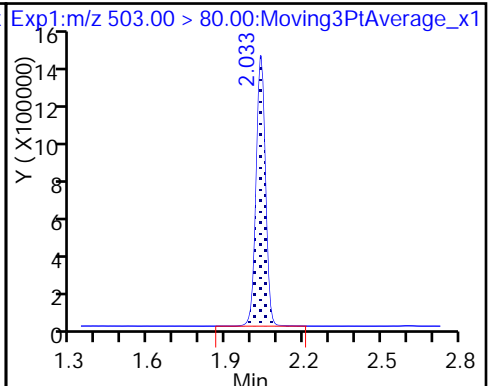
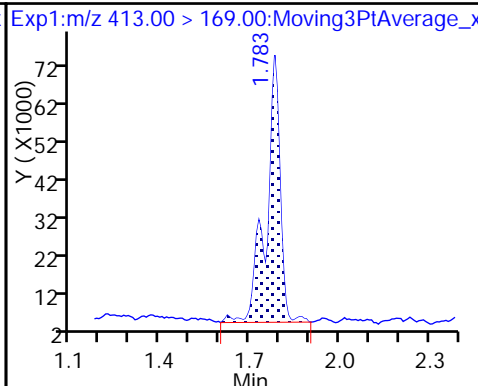
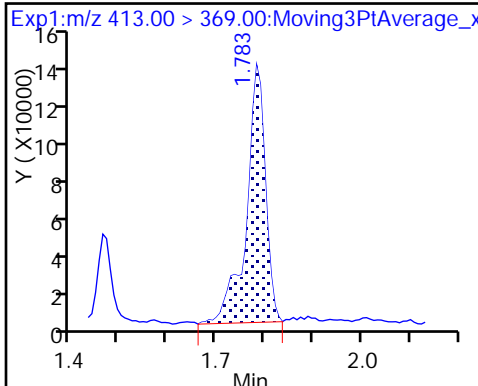
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

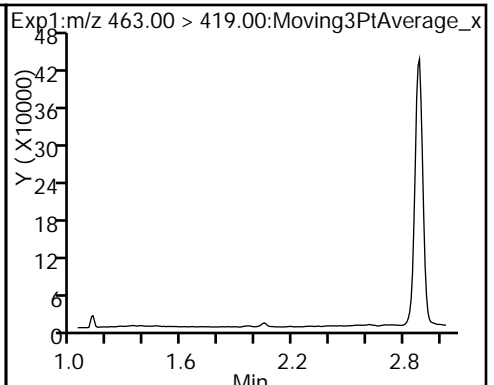
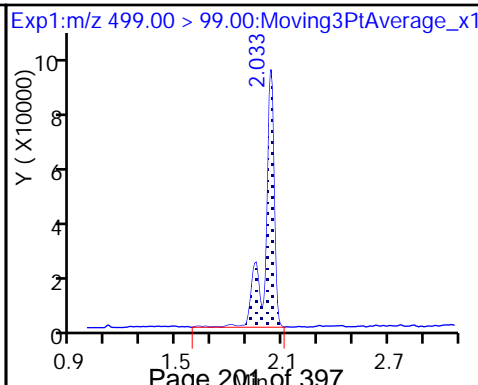
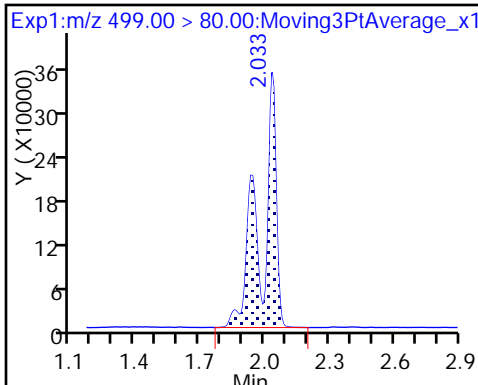
\* 7 13C4 PFOS



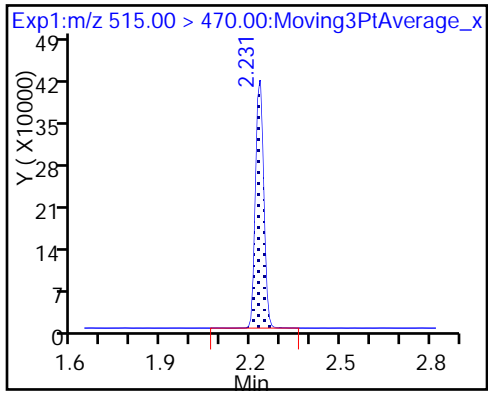
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_049.d  
 Lims ID: 320-35824-A-13-A  
 Client ID: WGNA-020618-DUP-25  
 Sample Type: Client  
 Inject. Date: 15-Feb-2018 08:29:19 ALS Bottle#: 36 Worklist Smp#: 21  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-13-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:38 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK016

First Level Reviewer: barnettj Date: 15-Feb-2018 10:23:04

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.41	94.08
\$ 10 13C2 PFDA	10.0	7.90	78.98

TestAmerica Sacramento

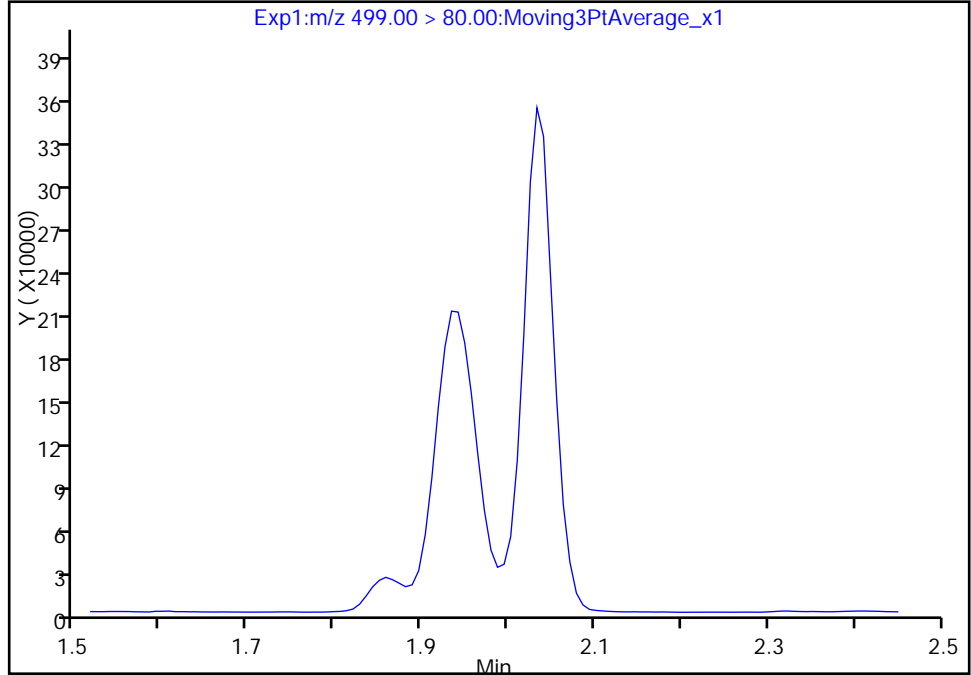
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Injection Date: 15-Feb-2018 08:29:19 Instrument ID: A8\_N  
Lims ID: 320-35824-A-13-A Lab Sample ID: 320-35824-13  
Client ID: WGNA-020618-DUP-25  
Operator ID: SACINSTLCMS01 ALS Bottle#: 36 Worklist Smp#: 21  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

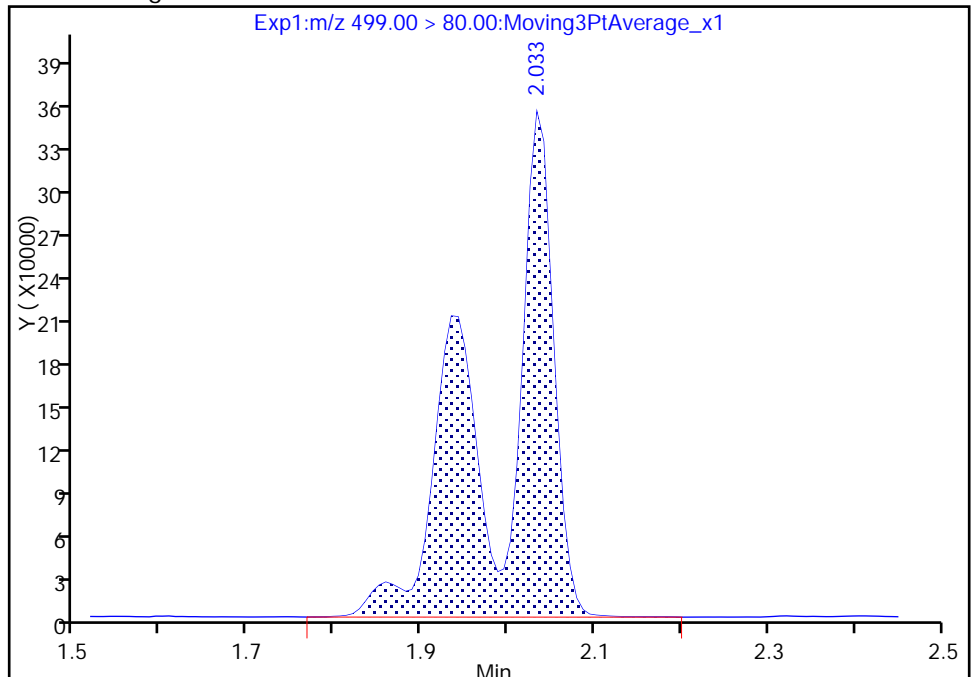
Not Detected  
Expected RT: 2.03

Processing Integration Results



Manual Integration Results

RT: 2.03  
Area: 1639784  
Amount: 14.243846  
Amount Units: ng/ml



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-186 Lab Sample ID: 320-35824-14  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_050.d  
 Analysis Method: 537 Date Collected: 02/06/2018 13:40  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 243.8 (mL) Date Analyzed: 02/15/2018 08:33  
 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.: 208529 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.9	J M	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	14	J	21	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.8	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	89		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_050.d  
 Lims ID: 320-35824-A-14-A  
 Client ID: NAWC-020618-RW-186  
 Sample Type: Client  
 Inject. Date: 15-Feb-2018 08:33:59 ALS Bottle#: 37 Worklist Smp#: 22  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-14-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:38 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK016

First Level Reviewer: barnettj Date: 15-Feb-2018 10:24:03

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.350	1.350	0.0	1.000	240158	1.76		472	
298.90 > 99.00	1.350	1.350	0.0	1.000	165078		1.45(0.00-0.00)	591	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.464	1.464	0.0	1.000	1229461	9.01		13486	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.601	1.601	0.0	1.000	439820	2.15		292	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.608	1.601	0.007	1.000	110132	0.9476		16.1	
* 6 13C2-PFOA									
415.00 > 370.00	1.783	1.775	0.008		1240471	10.0		10101	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.783	1.775	0.008	1.000	383213	3.34		10.0	
413.00 > 169.00	1.783	1.775	0.008	1.000	243937		1.57(0.00-0.00)	24.4	
* 7 13C4 PFOS									
503.00 > 80.00	2.026	2.018	0.008		3509002	28.7		3975	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	1.935	2.026	-0.091	1.000	278005	2.42		144	Ma
499.00 > 99.00	2.033	2.026	0.007	1.051	39336		7.07(0.00-0.00)	16.0	M
\$ 10 13C2 PFDA									
515.00 > 470.00	2.223	2.215	0.008	1.000	847965	8.93		6717	



## QC Flag Legend

### Review Flags

M - Manually Integrated

a - User Assigned ID

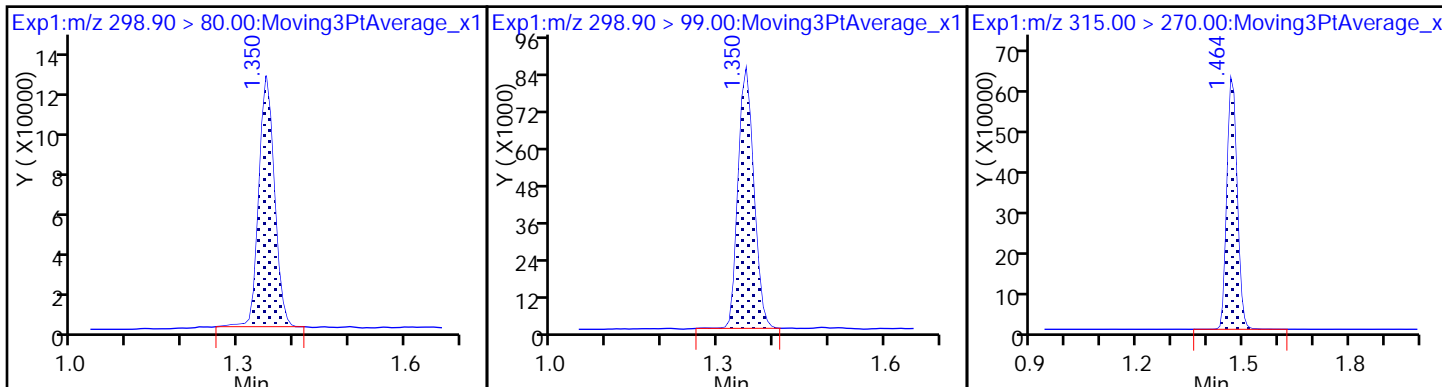
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_050.d  
Injection Date: 15-Feb-2018 08:33:59 Instrument ID: A8\_N  
Lims ID: 320-35824-A-14-A Lab Sample ID: 320-35824-14  
Client ID: NAWC-020618-RW-186  
Operator ID: SACINSTLCMS01 ALS Bottle#: 37 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

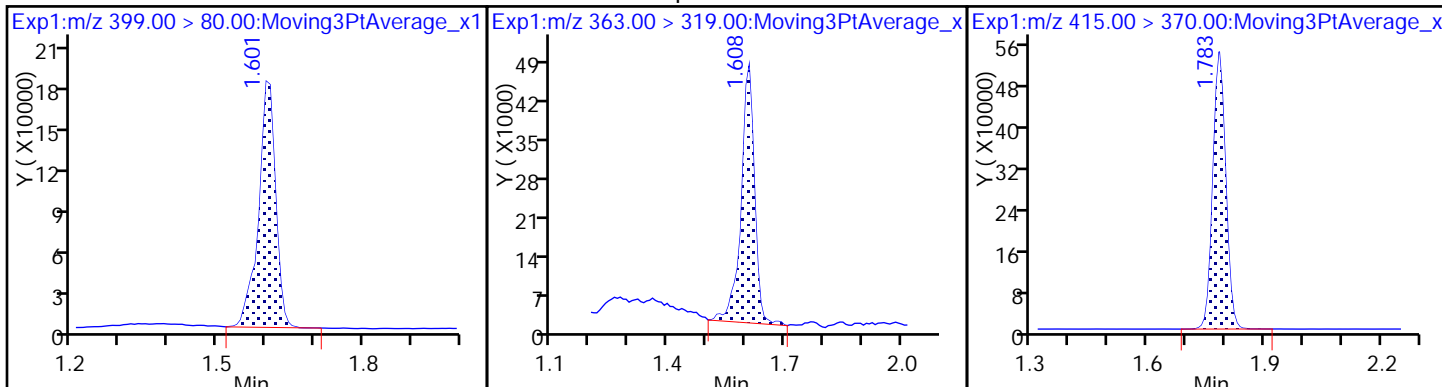
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

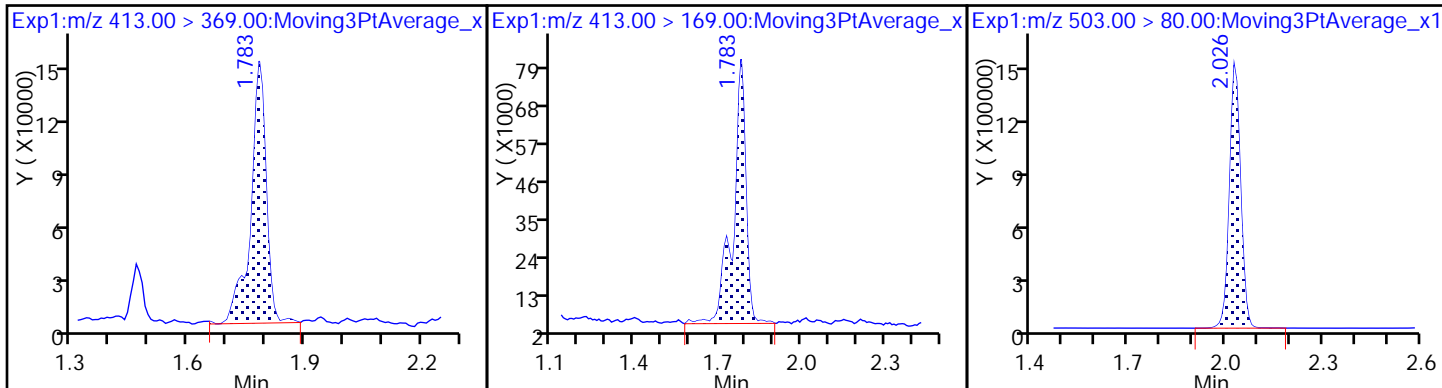
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

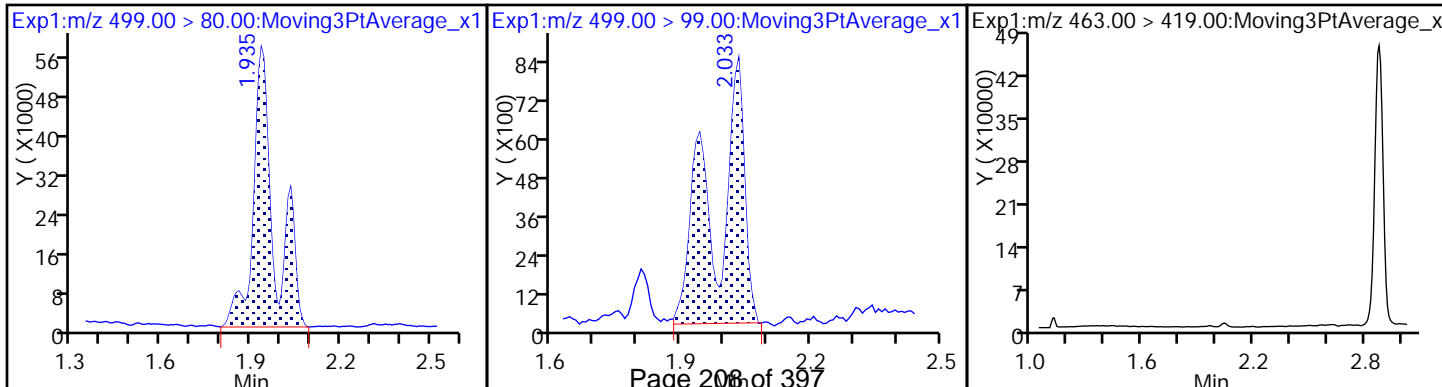
\* 7 13C4 PFOS



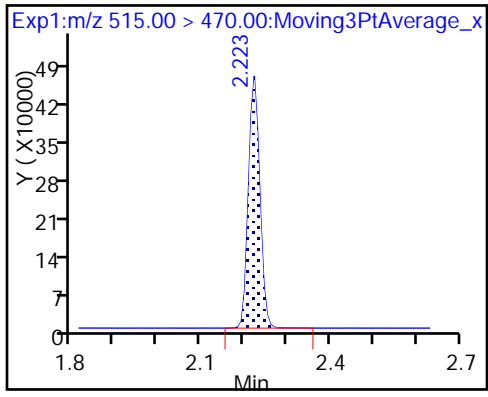
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid (M)

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_050.d  
 Lims ID: 320-35824-A-14-A  
 Client ID: NAWC-020618-RW-186  
 Sample Type: Client  
 Inject. Date: 15-Feb-2018 08:33:59 ALS Bottle#: 37 Worklist Smp#: 22  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-14-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:38 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK016

First Level Reviewer: barnettj Date: 15-Feb-2018 10:24:03

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.01	90.08
\$ 10 13C2 PFDA	10.0	8.93	89.33

TestAmerica Sacramento

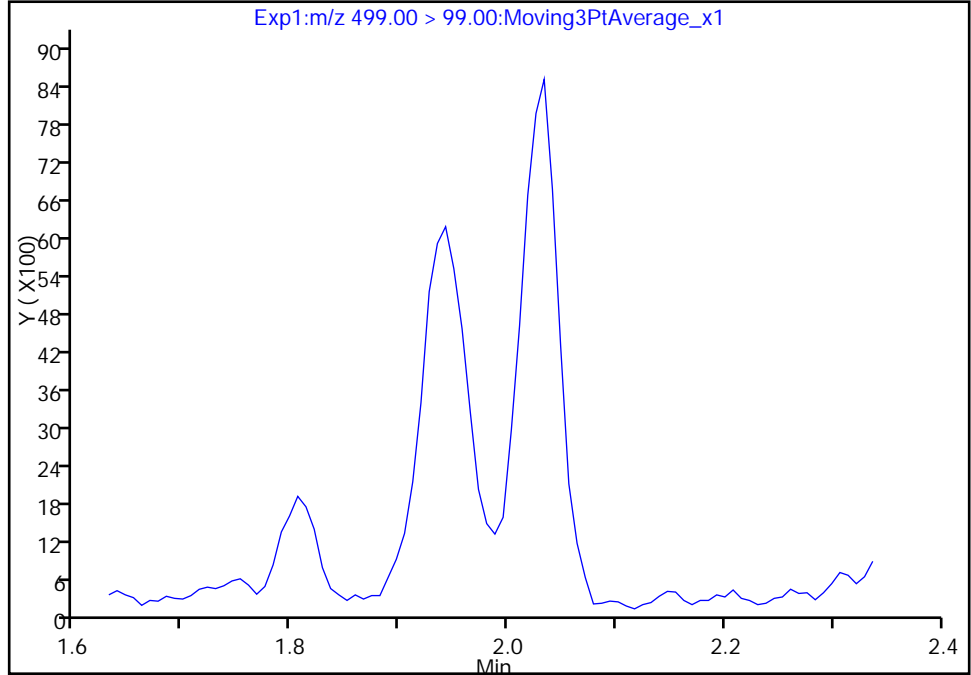
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_050.d  
Injection Date: 15-Feb-2018 08:33:59 Instrument ID: A8\_N  
Lims ID: 320-35824-A-14-A Lab Sample ID: 320-35824-14  
Client ID: NAWC-020618-RW-186  
Operator ID: SACINSTLCMS01 ALS Bottle#: 37 Worklist Smp#: 22  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

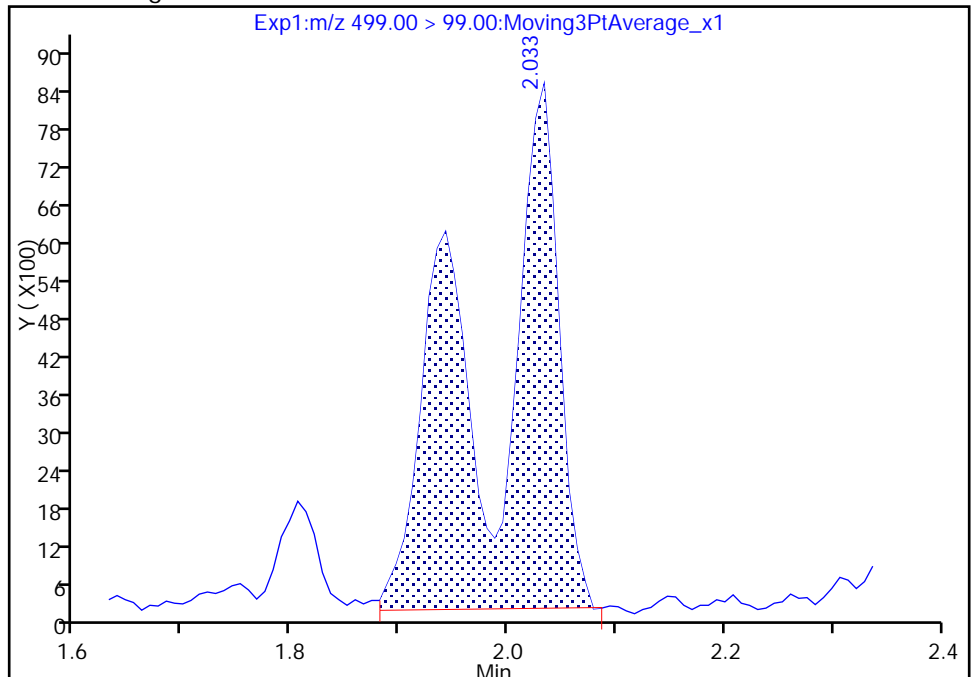
Not Detected  
Expected RT: 2.03

Processing Integration Results



Manual Integration Results

RT: 2.03  
Area: 39336  
Amount: 2.419949  
Amount Units: ng/ml



TestAmerica Sacramento

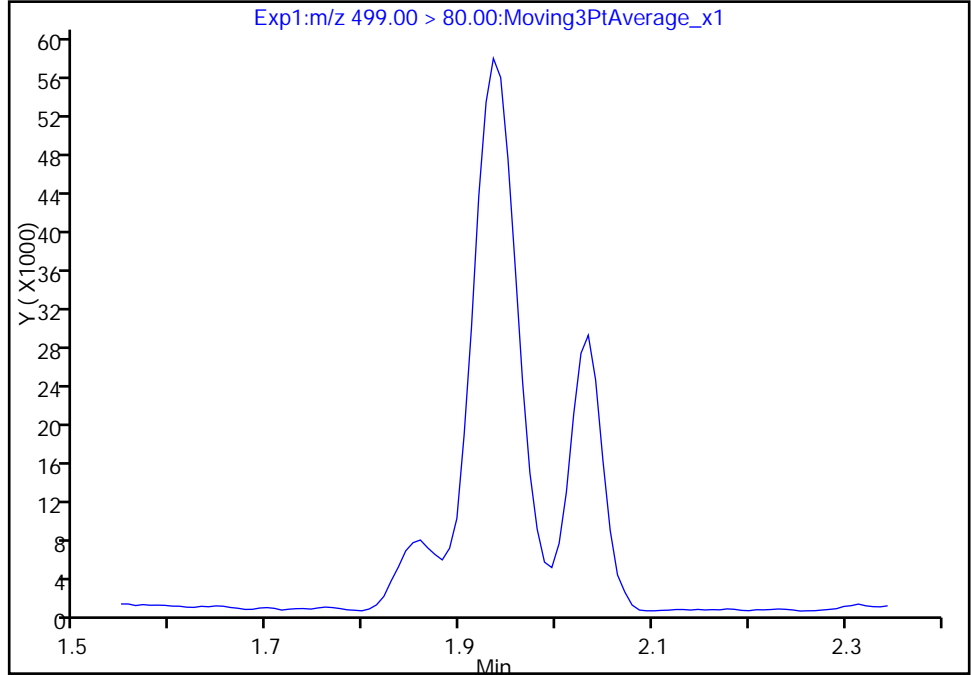
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_050.d  
Injection Date: 15-Feb-2018 08:33:59 Instrument ID: A8\_N  
Lims ID: 320-35824-A-14-A Lab Sample ID: 320-35824-14  
Client ID: NAWC-020618-RW-186  
Operator ID: SACINSTLCMS01 ALS Bottle#: 37 Worklist Smp#: 22  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

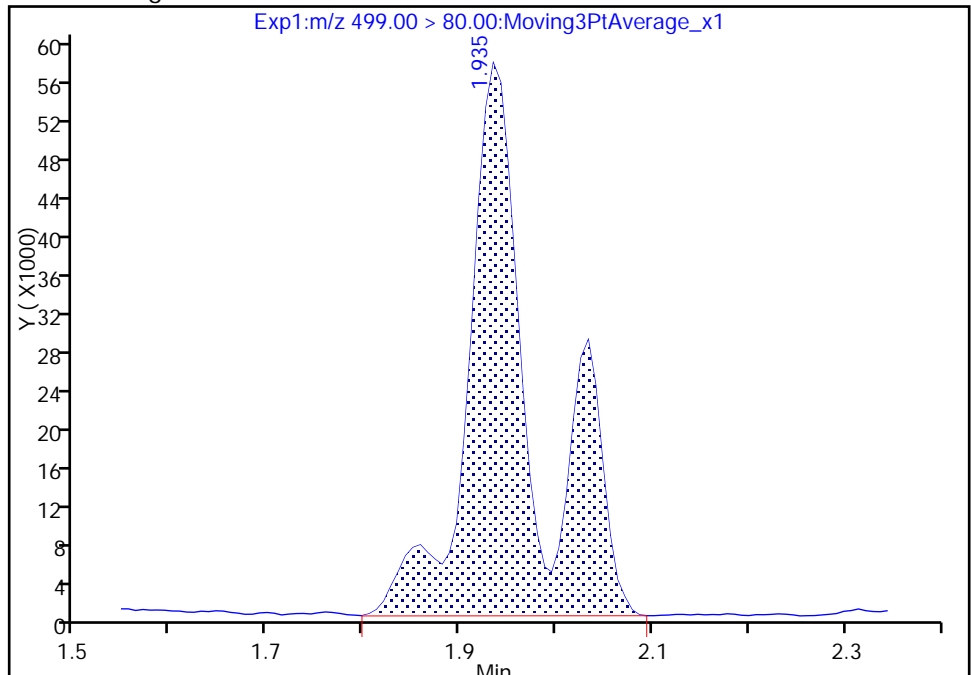
Not Detected  
Expected RT: 2.03

Processing Integration Results



RT: 1.93  
Area: 278005  
Amount: 2.419949  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 15-Feb-2018 10:23:42

Audit Action: Manually Integrated

Audit Reason: Assign Peak

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-FRB-186 Lab Sample ID: 320-35824-15  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_051.d  
 Analysis Method: 537 Date Collected: 02/06/2018 13:35  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 251.7(mL) Date Analyzed: 02/15/2018 08:38  
 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.: 208529 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)	7.9	U	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	74		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_051.d  
 Lims ID: 320-35824-A-15-A  
 Client ID: NAWC-020618-FRB-186  
 Sample Type: Client  
 Inject. Date: 15-Feb-2018 08:38:38 ALS Bottle#: 38 Worklist Smp#: 23  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-15-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:38 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK016

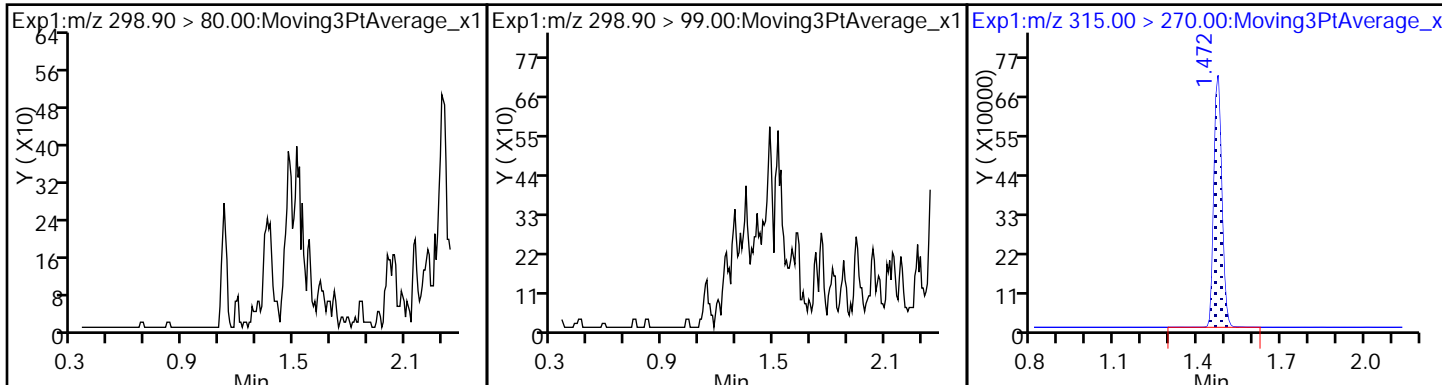
Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.472	1.464	0.008	1.000	1372229	9.61	19173	
* 6 13C2-PFOA	415.00 > 370.00	1.783	1.775	0.008		1297666	10.0	9990	
* 7 13C4 PFOS	503.00 > 80.00	2.033	2.018	0.015		3618106	28.7	8139	
\$ 10 13C2 PFDA	515.00 > 470.00	2.223	2.215	0.008	1.000	735224	7.40	5827	



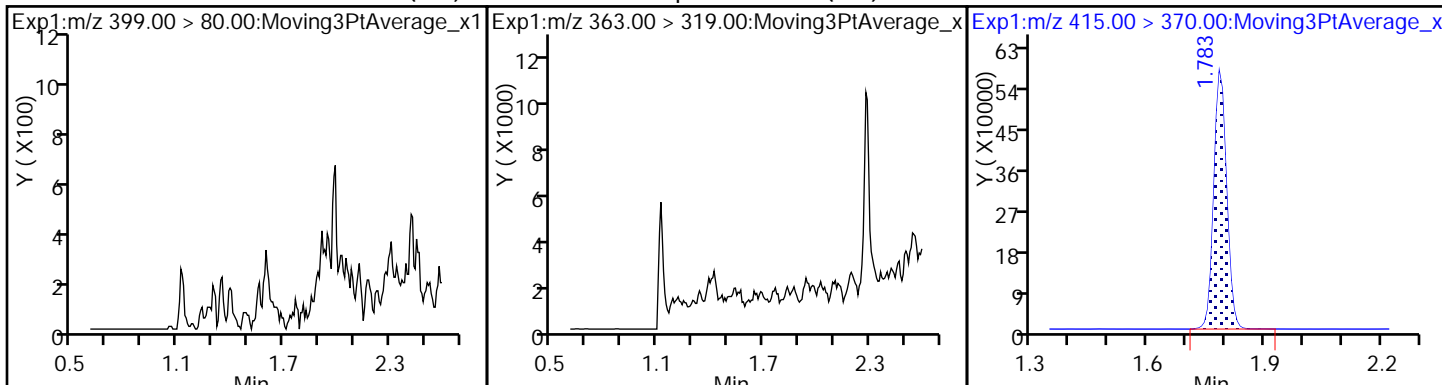
TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_051.d  
Injection Date: 15-Feb-2018 08:38:38 Instrument ID: A8\_N  
Lims ID: 320-35824-A-15-A Lab Sample ID: 320-35824-15  
Client ID: NAWC-020618-FRB-186  
Operator ID: SACINSTLCMS01 ALS Bottle#: 38 Worklist Smp#: 23  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL

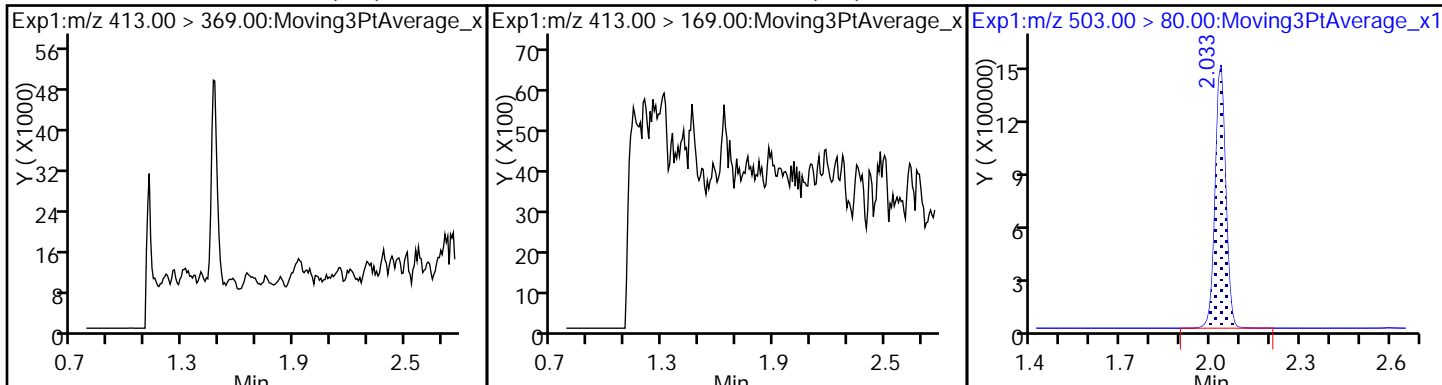
1 Perfluorobutanesulfonic acid (ND) 1 Perfluorobutanesulfonic acid (ND) \$ 2 13C2 PFHxA



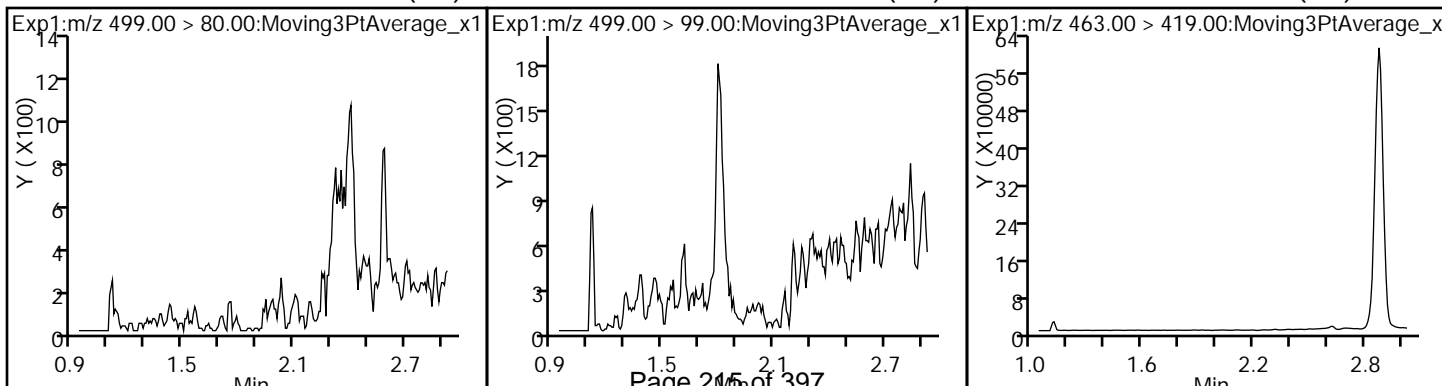
3 Perfluorohexanesulfonic acid (ND) 4 Perfluoroheptanoic acid (ND) \* 6 13C2-PFOA



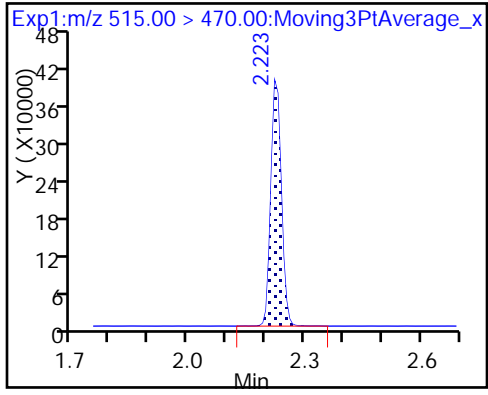
5 Perfluorooctanoic acid (ND) 5 Perfluorooctanoic acid (ND) \* 7 13C4 PFOS



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\20180215-54100.b\2018.02.14\_537AXXX\_051.d  
 Lims ID: 320-35824-A-15-A  
 Client ID: NAWC-020618-FRB-186  
 Sample Type: Client  
 Inject. Date: 15-Feb-2018 08:38:38 ALS Bottle#: 38 Worklist Smp#: 23  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-15-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:38 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK016

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.61	96.11
\$ 10 13C2 PFDA	10.0	7.40	74.04

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

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1 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 <sup>2</sup> OR COD	#	MIN R <sup>2</sup> 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.: 320-35824-1 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.: 320-35824-1 Analy Batch No.: 192908

SDG No.: \_\_\_\_\_

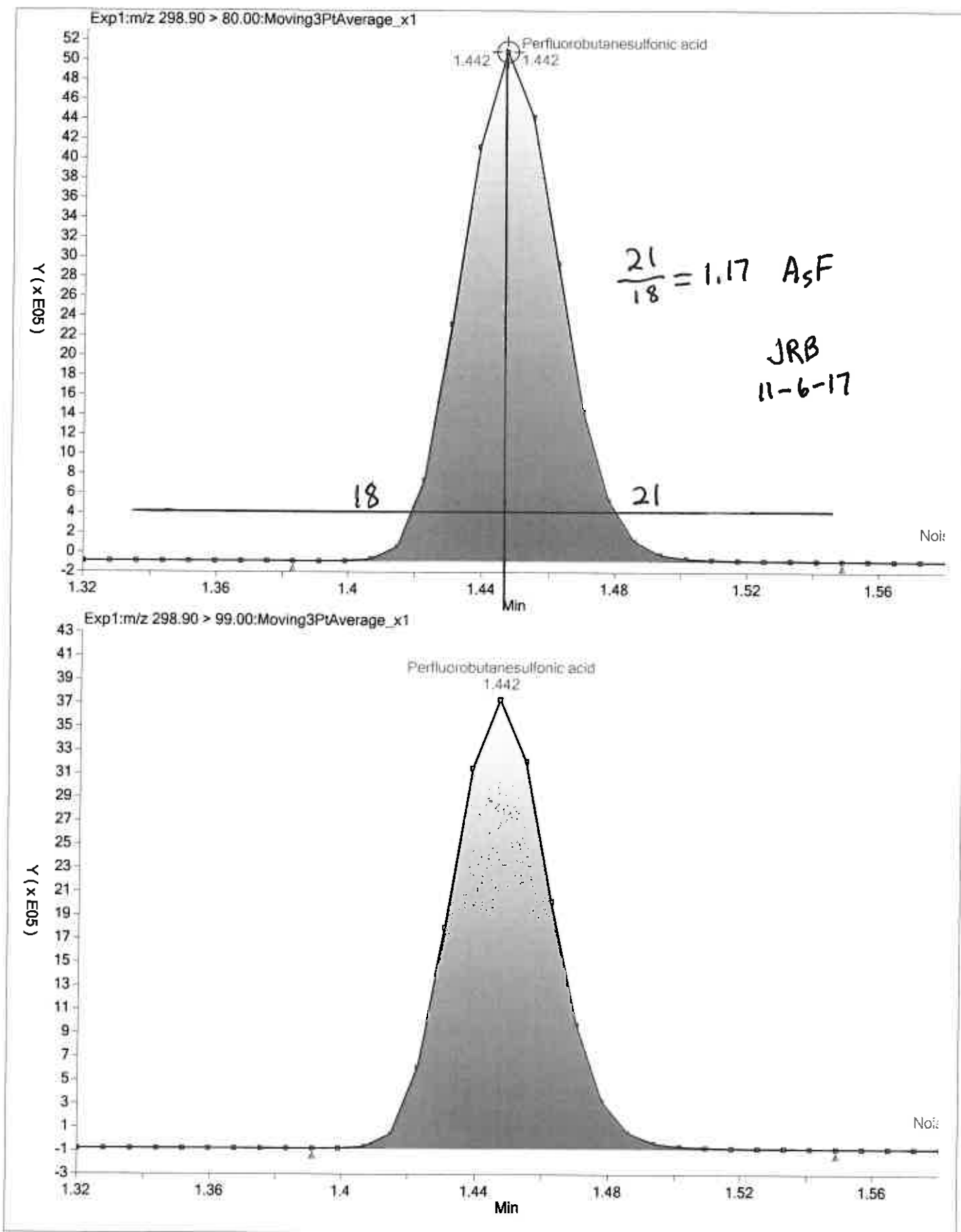
Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N

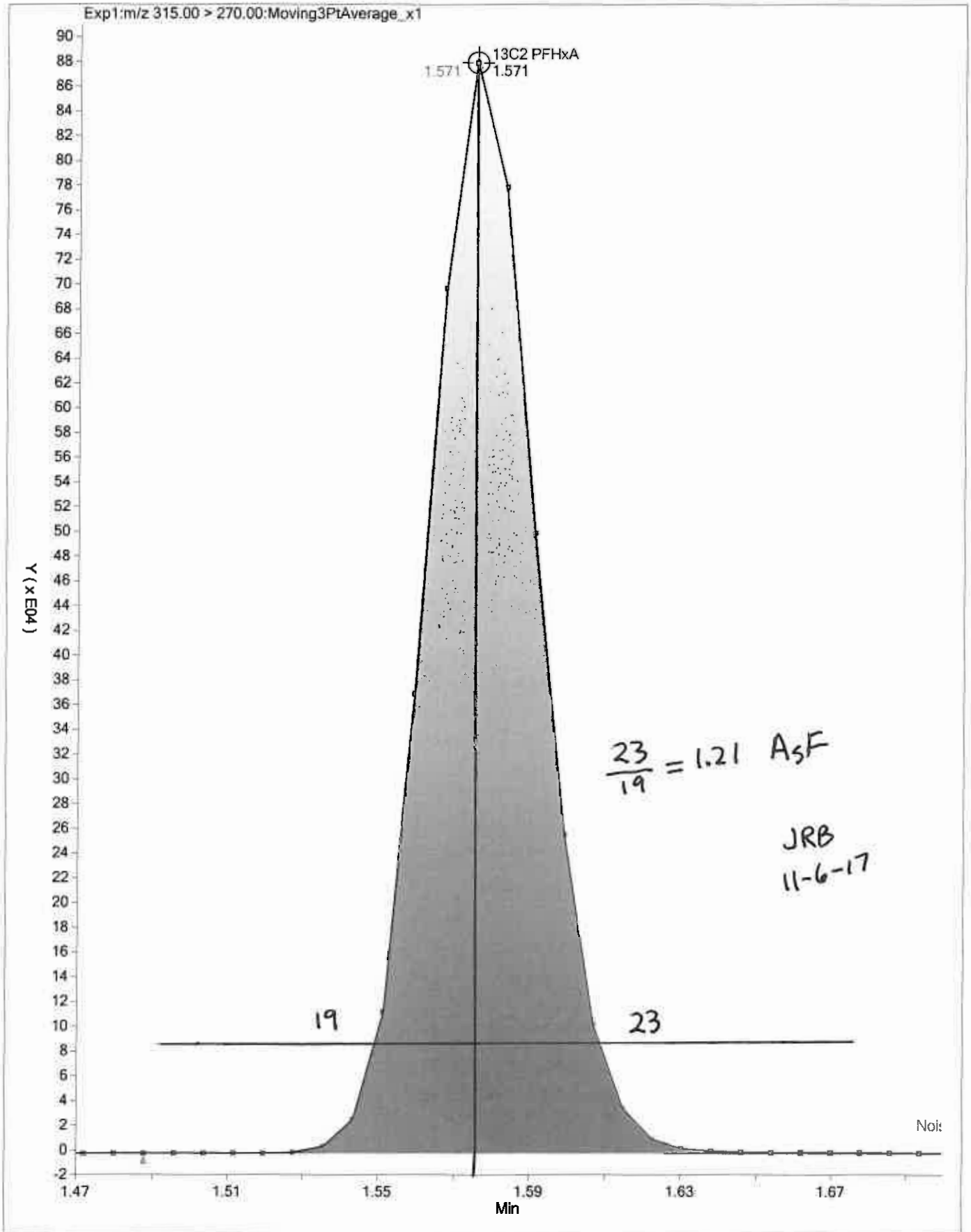
Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

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

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537ICAL\_004.d

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

Instrument ID: A8\_N

Lims ID: IC L1

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 1

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

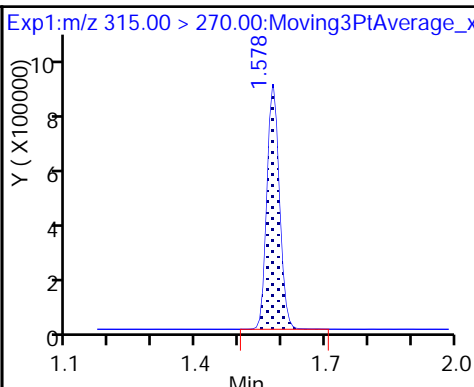
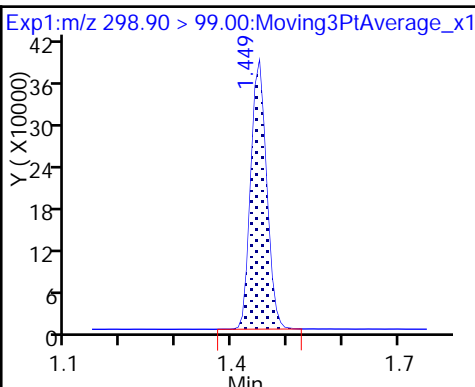
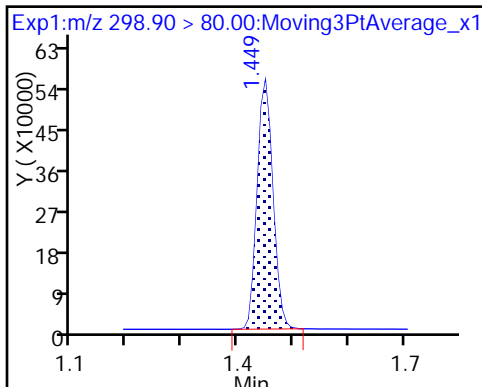
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

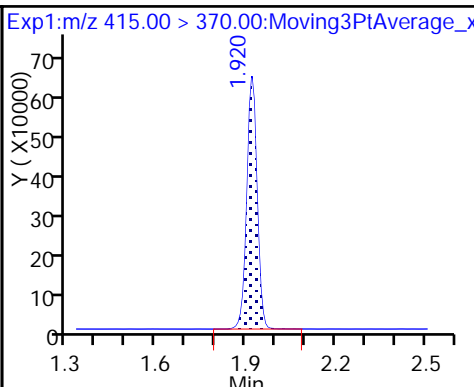
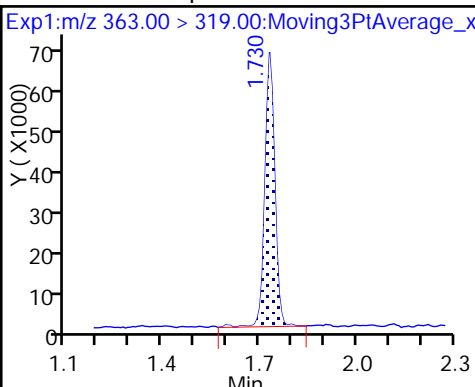
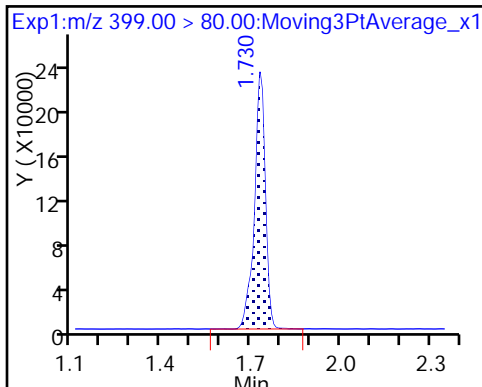
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

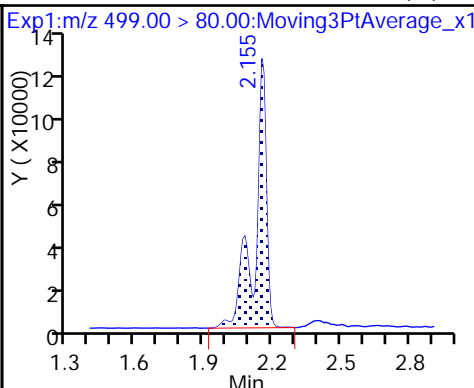
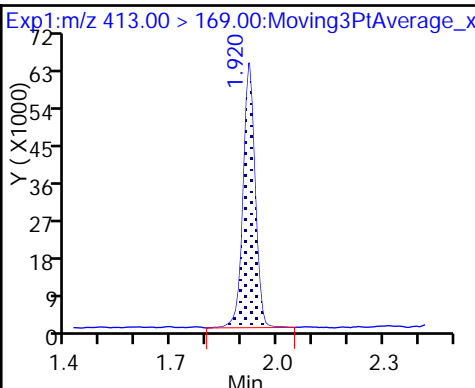
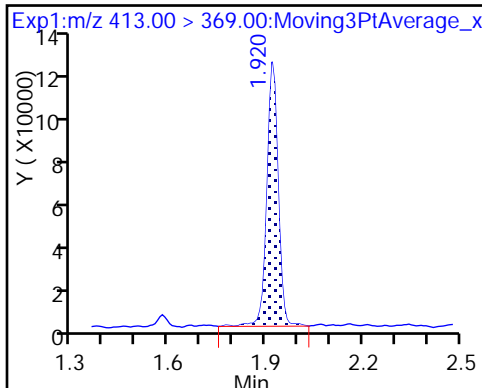
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

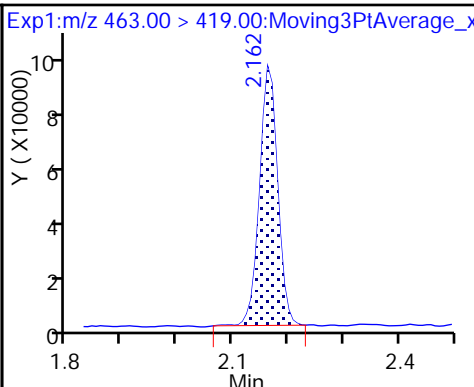
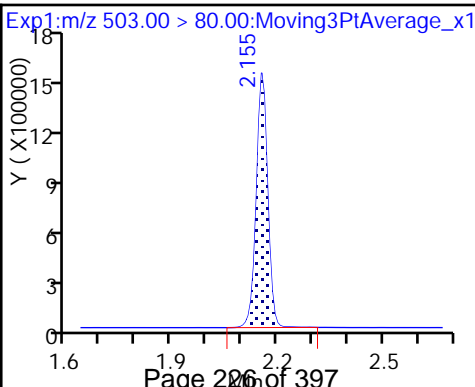
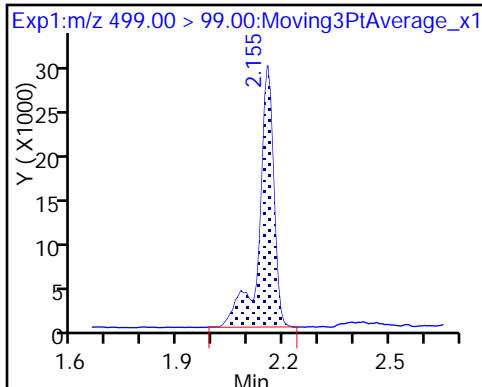
8 Perfluorooctane sulfonic acid (M)



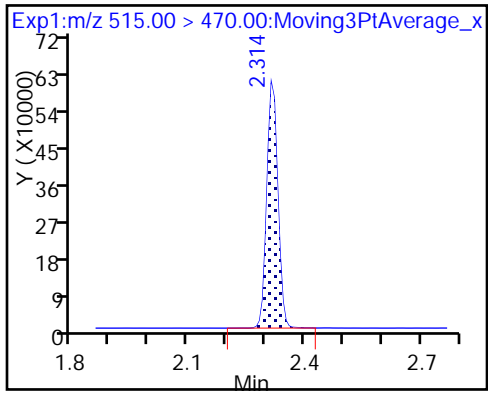
8 Perfluorooctane sulfonic acid (M)

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

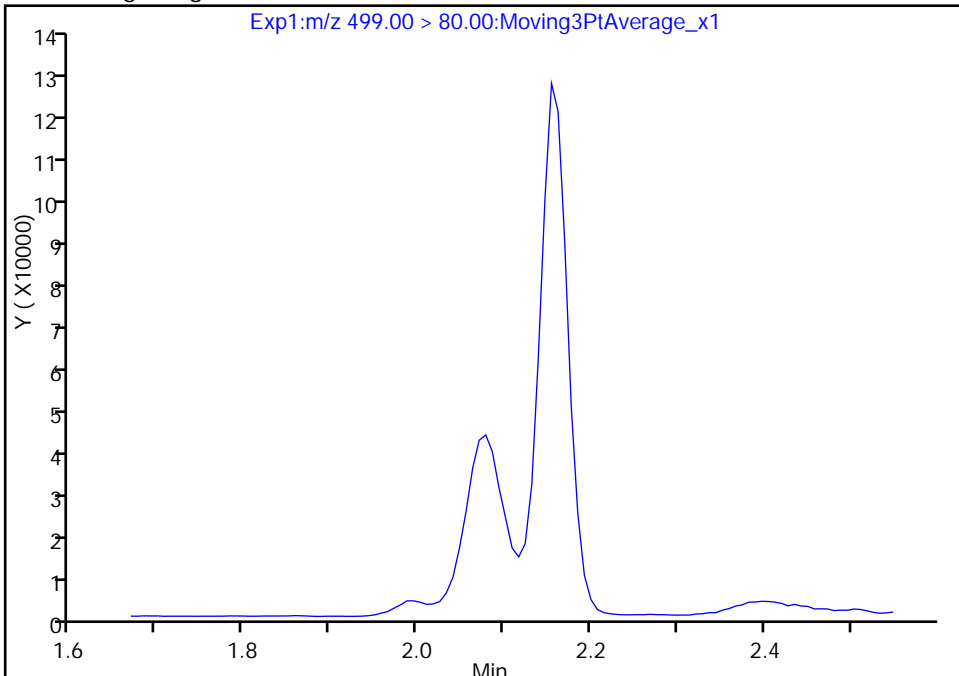
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_004.d  
Injection Date: 03-Nov-2017 13:37:59 Instrument ID: A8\_N  
Lims ID: IC L1  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

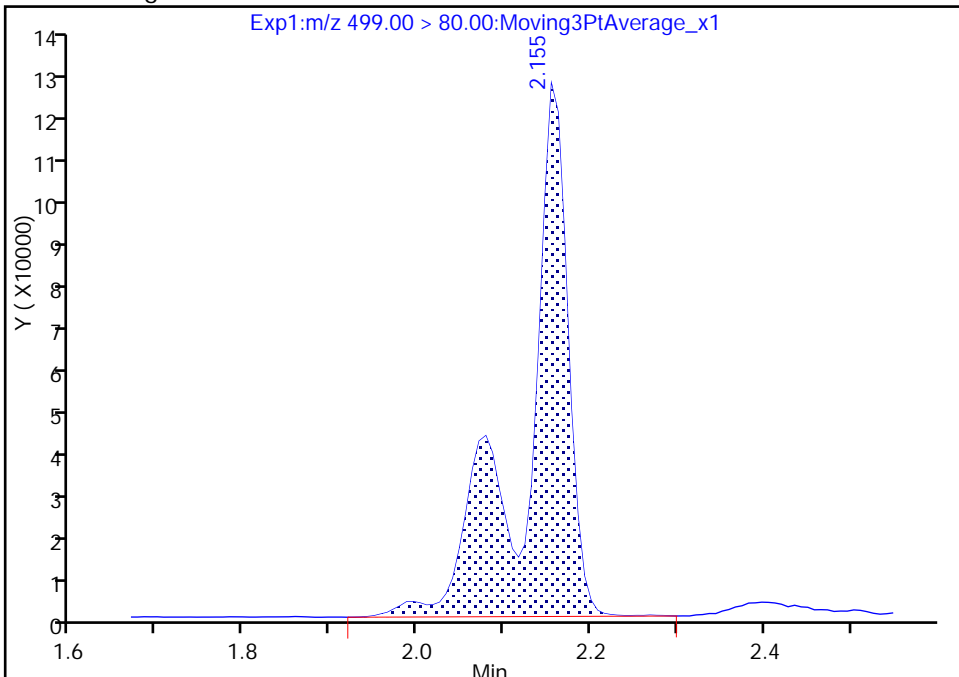
Not Detected  
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

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



TestAmerica Sacramento

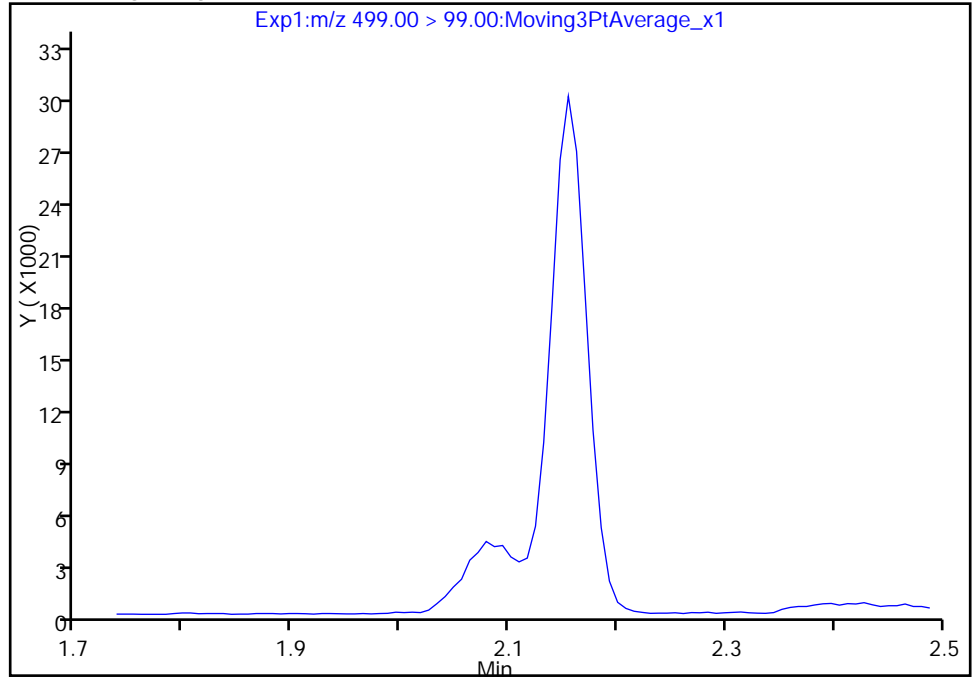
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\201711106-49975.b\2017.11.03\_537XICAL\_004.d  
Injection Date: 03-Nov-2017 13:37:59 Instrument ID: A8\_N  
Lims ID: IC L1  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

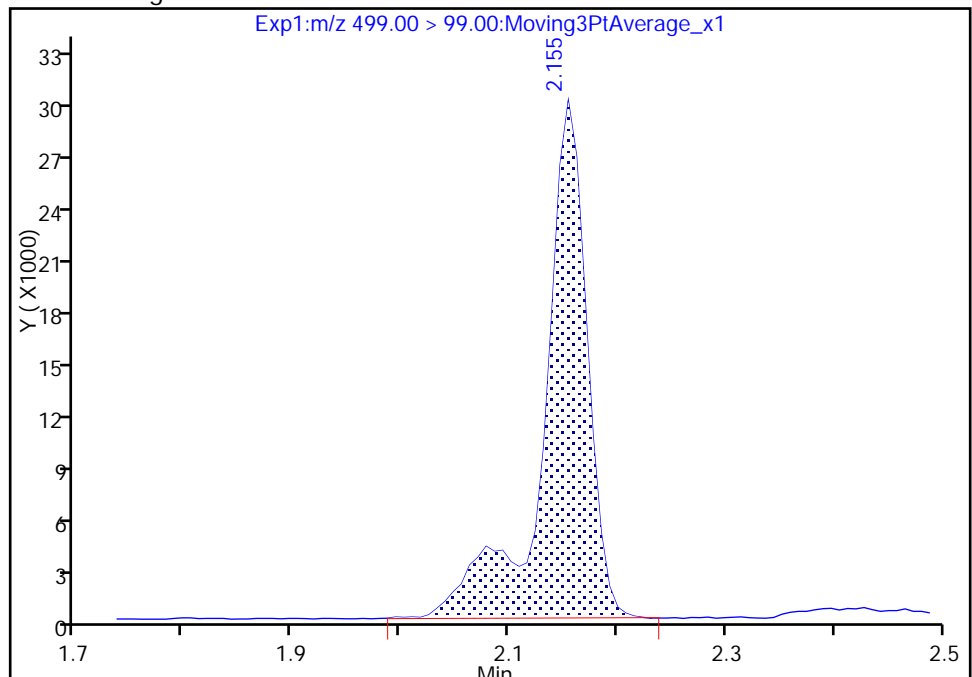
Not Detected  
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

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



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

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

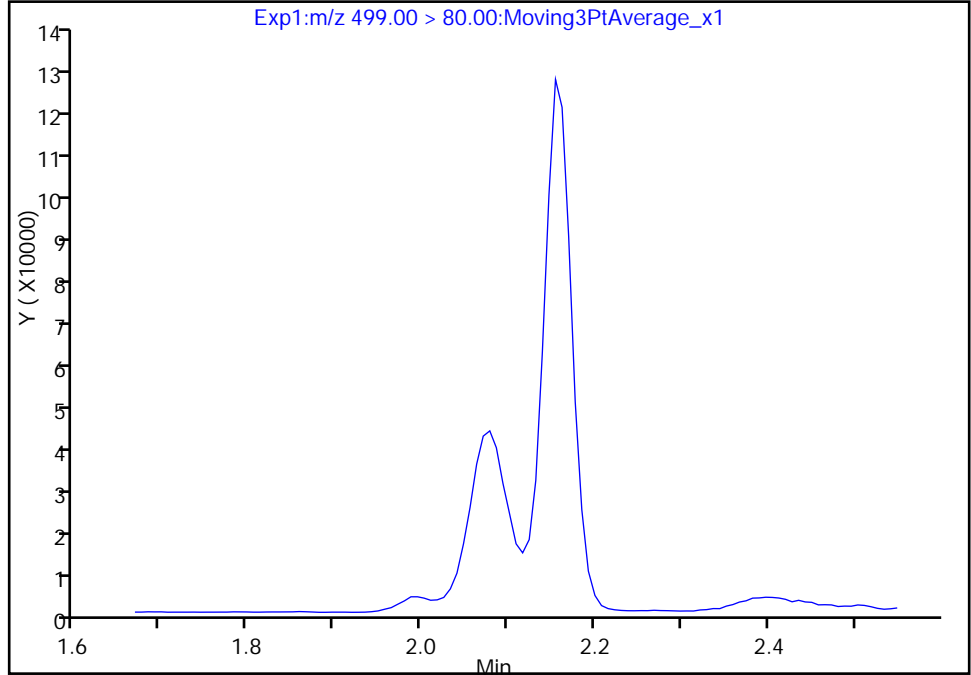
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\201711106-49975.b\2017.11.03\_537XICAL\_004.d  
Injection Date: 03-Nov-2017 13:37:59 Instrument ID: A8\_N  
Lims ID: IC L1  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

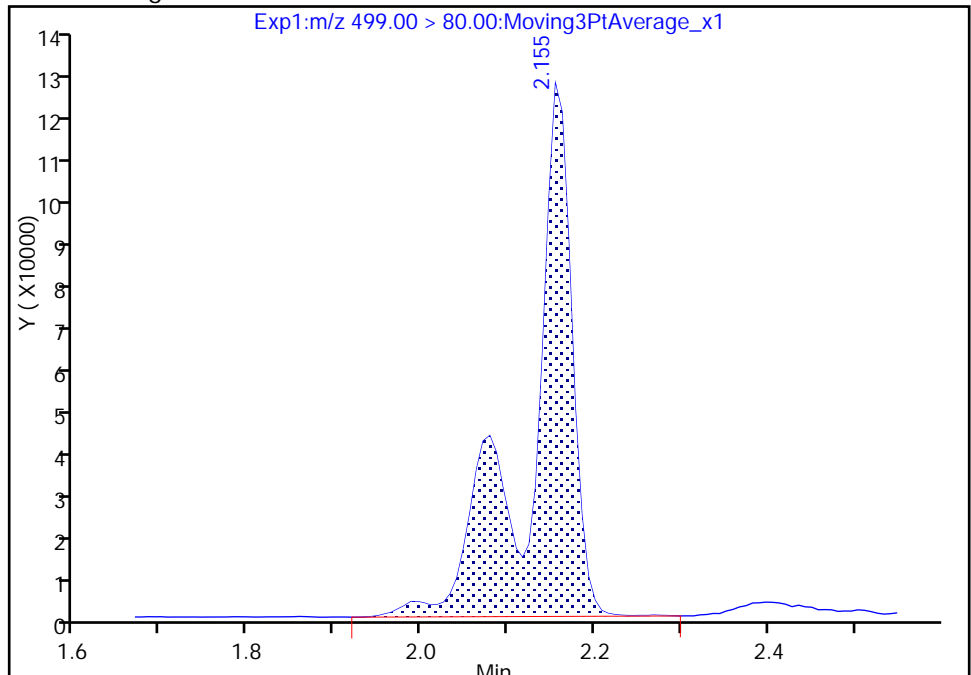
Not Detected  
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

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





TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_005.d  
 Lims ID: IC L2  
 Client ID:  
 Sample Type: IC Calib Level: 2  
 Inject. Date: 03-Nov-2017 13:42:39 ALS Bottle#: 2 Worklist Smp#: 5  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L2\_537  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-537\_A8\_N\*sub1

Method: \\ChromNa\Sacramento\ChromData\A8\_N\20171106-49975.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 07-Nov-2017 15:52:08 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK021

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

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

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

LC537-L2\_00020

Amount Added: 1.00

Units: mL

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537ICAL\_005.d

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

Instrument ID: A8\_N

Lims ID: IC L2

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

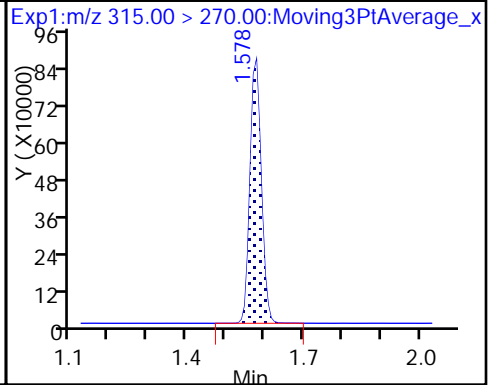
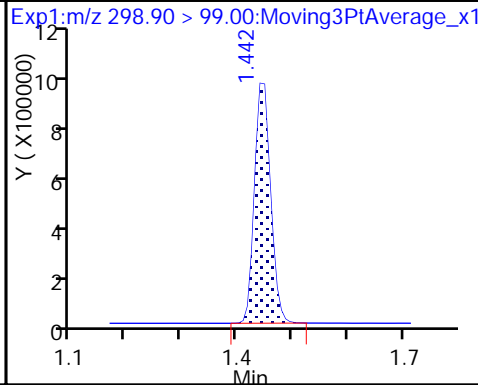
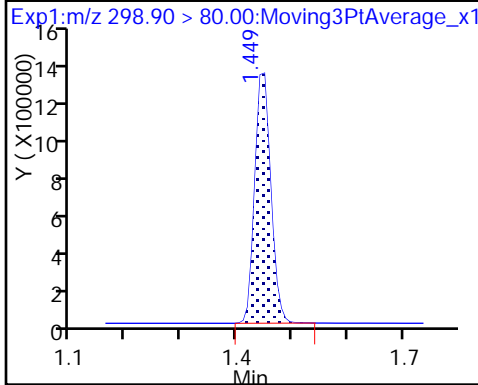
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

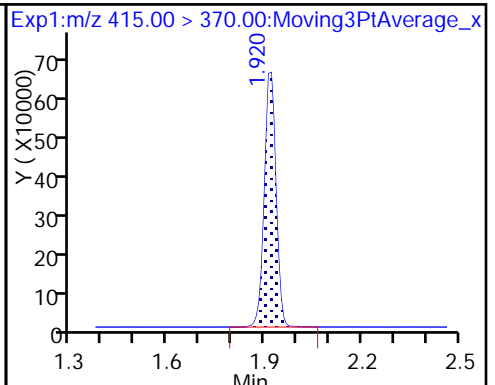
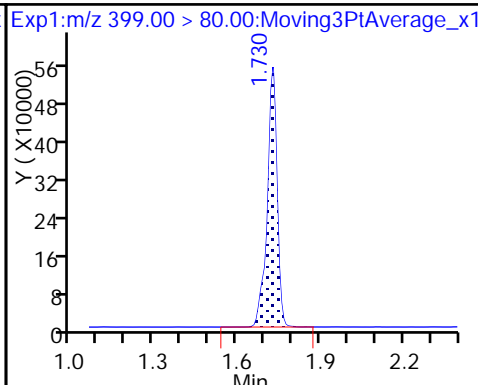
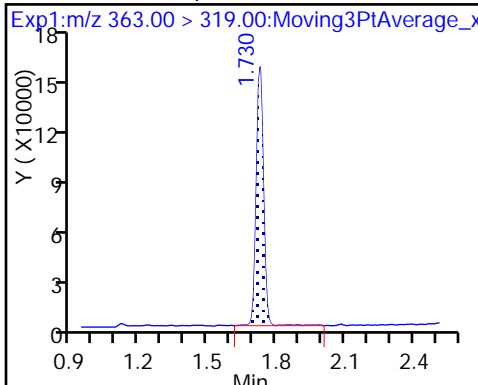
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

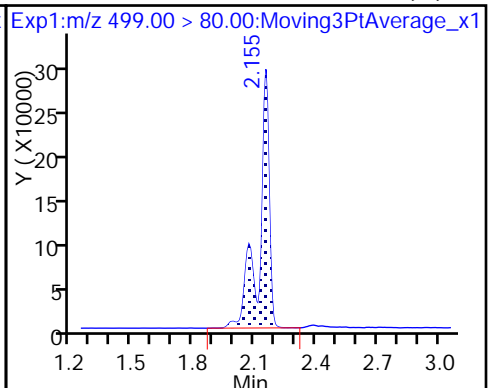
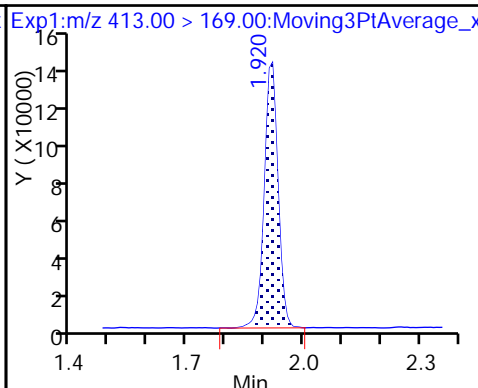
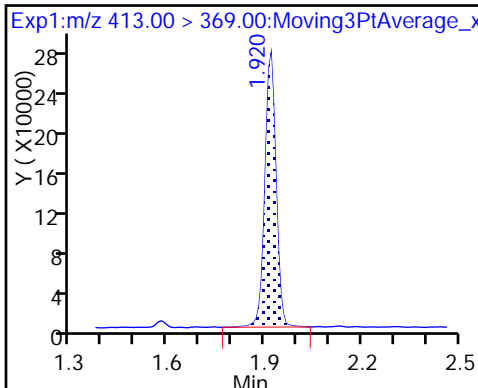
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

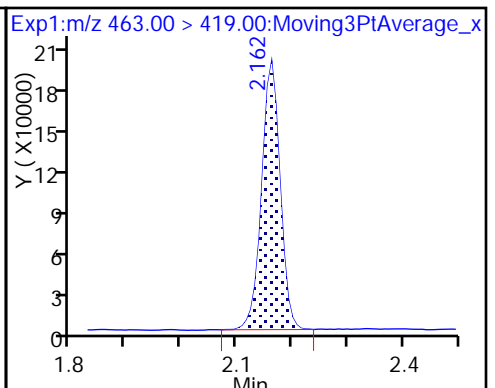
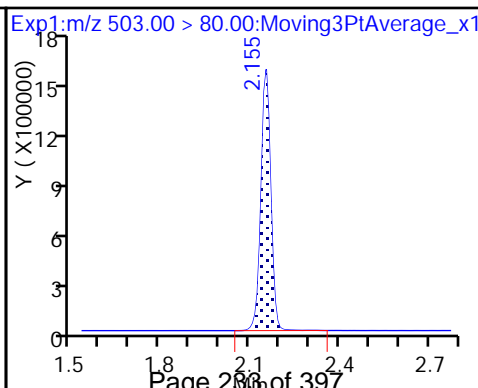
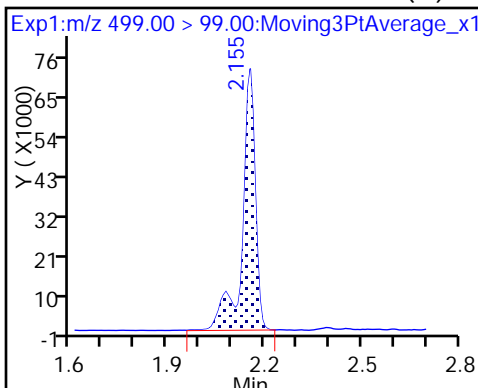
8 Perfluorooctane sulfonic acid (M)



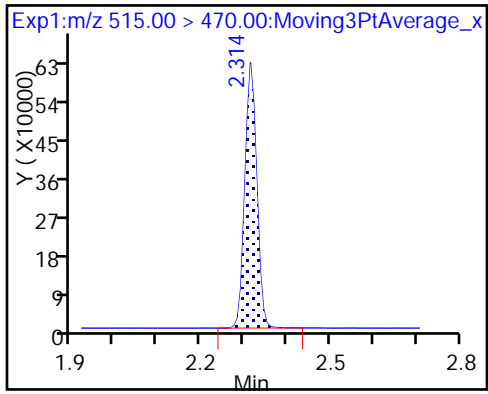
8 Perfluorooctane sulfonic acid (M)

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

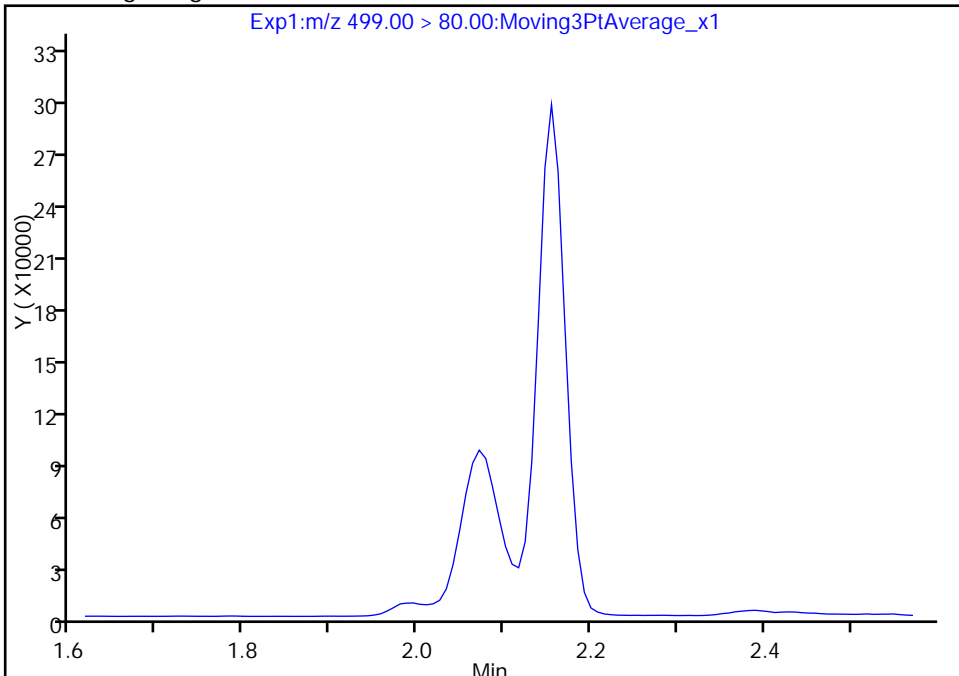
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_005.d  
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8\_N  
Lims ID: IC L2  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

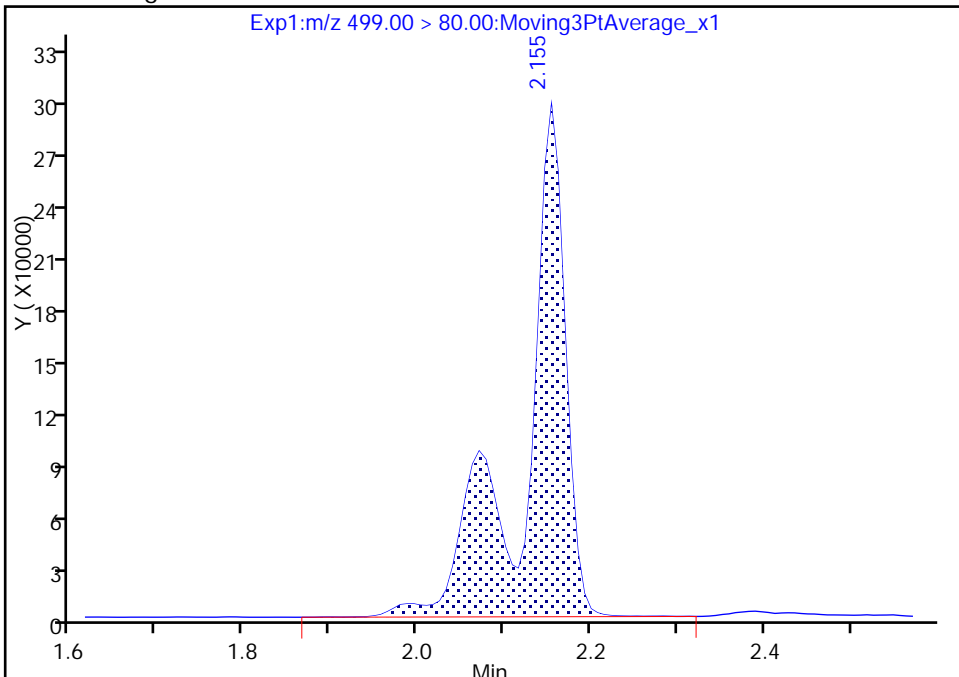
Not Detected  
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

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



TestAmerica Sacramento

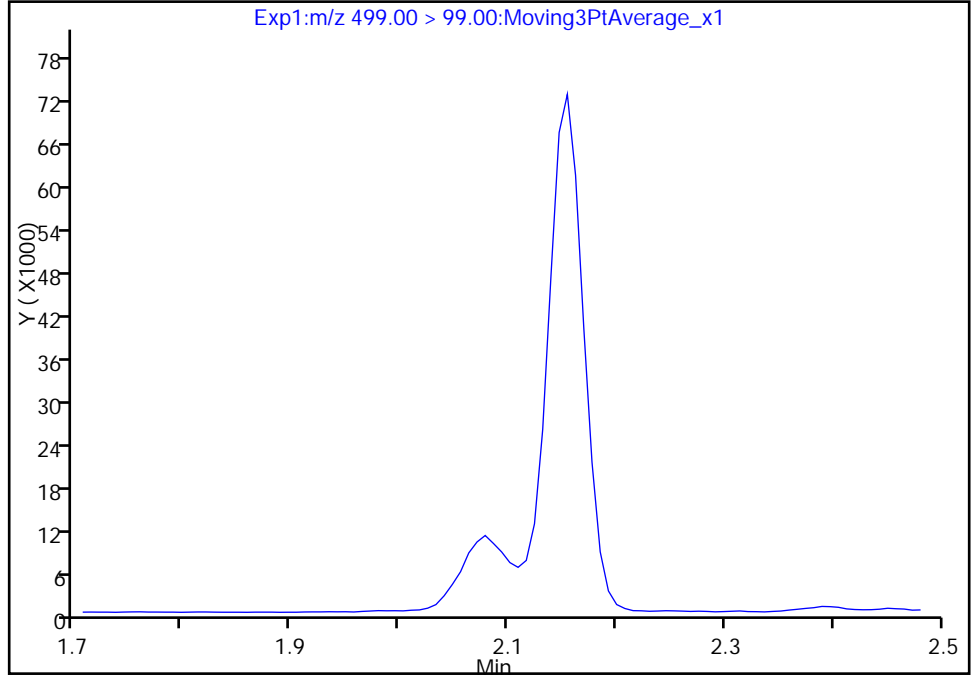
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\201711106-49975.b\2017.11.03\_537XICAL\_005.d  
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8\_N  
Lims ID: IC L2  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

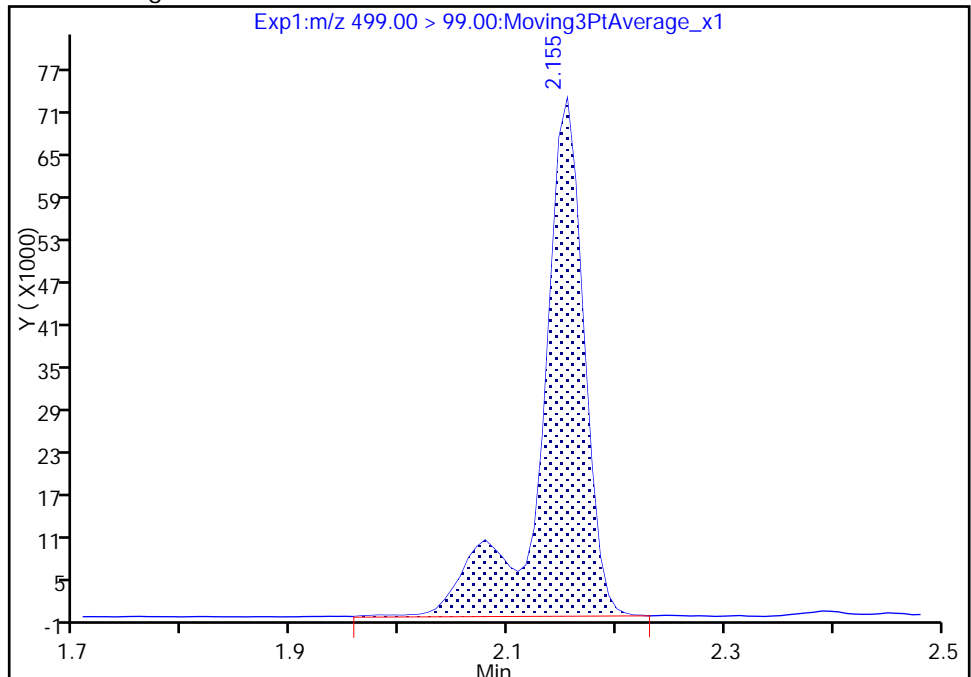
Not Detected  
Expected RT: 2.15

Processing Integration Results



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

Manual Integration Results



TestAmerica Sacramento

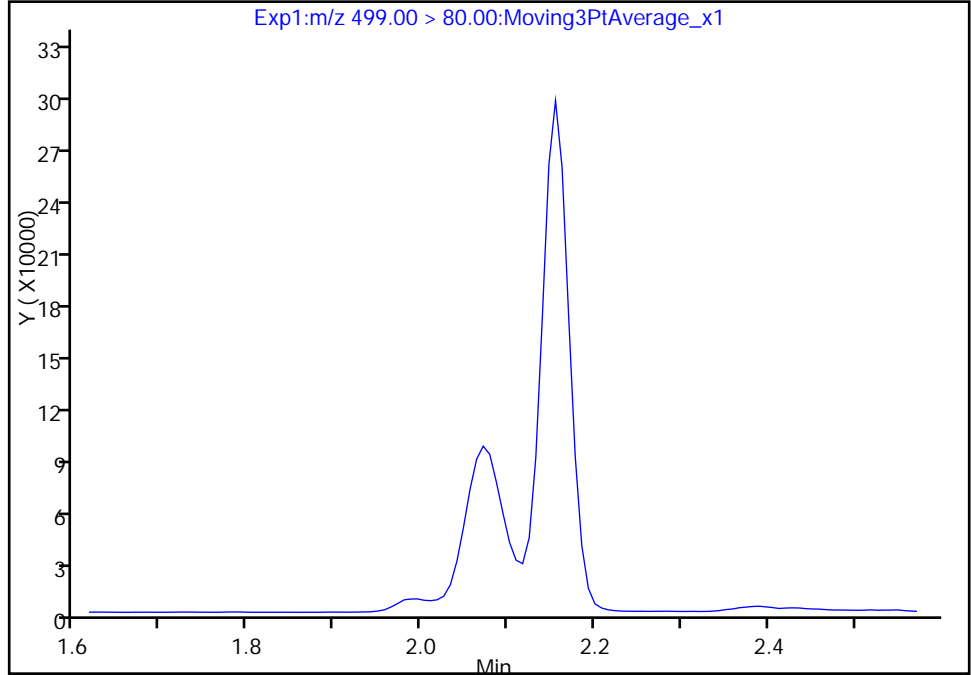
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\201711106-49975.b\2017.11.03\_537XICAL\_005.d  
Injection Date: 03-Nov-2017 13:42:39 Instrument ID: A8\_N  
Lims ID: IC L2  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

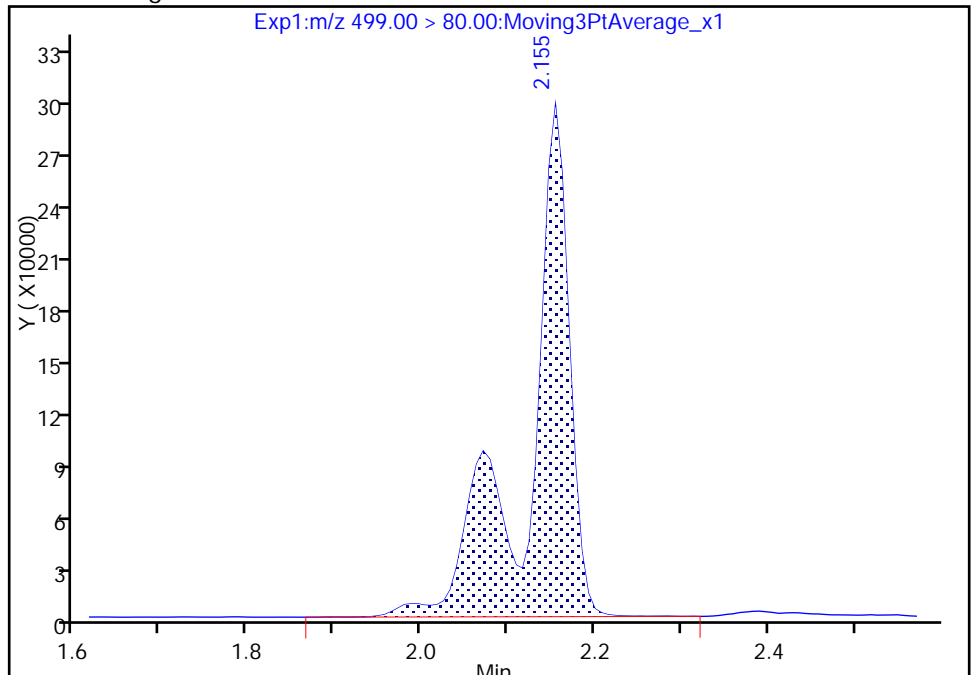
Not Detected  
Expected RT: 2.15

Processing Integration Results



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

Manual Integration Results



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

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_006.d  
 Lims ID: IC L3  
 Client ID:  
 Sample Type: IC Calib Level: 3  
 Inject. Date: 03-Nov-2017 13:47:20 ALS Bottle#: 3 Worklist Smp#: 6  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L3\_537  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-537\_A8\_N\*sub1

Method: \\ChromNa\Sacramento\ChromData\A8\_N\20171106-49975.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 07-Nov-2017 15:52:09 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK021

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

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



**Reagents:**

LC537-L3\_00023

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537ICAL\_006.d

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

Instrument ID: A8\_N

Lims ID: IC L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

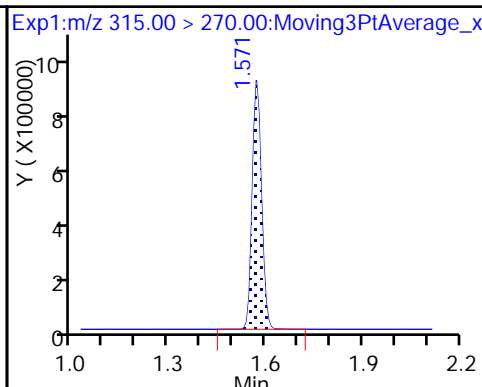
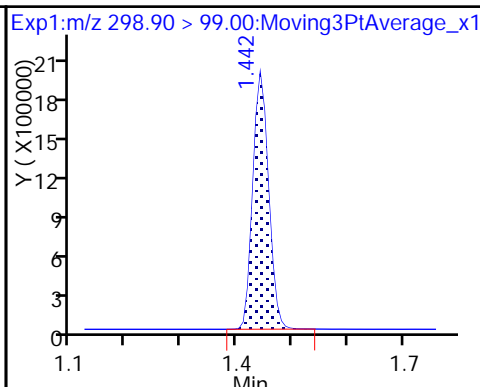
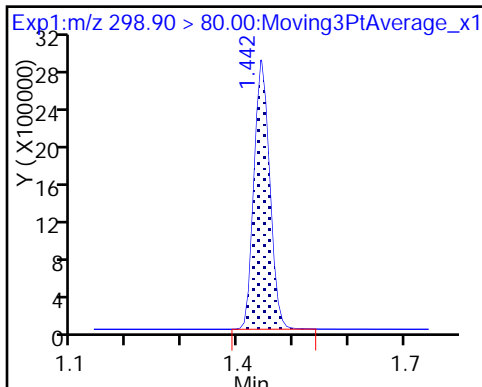
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

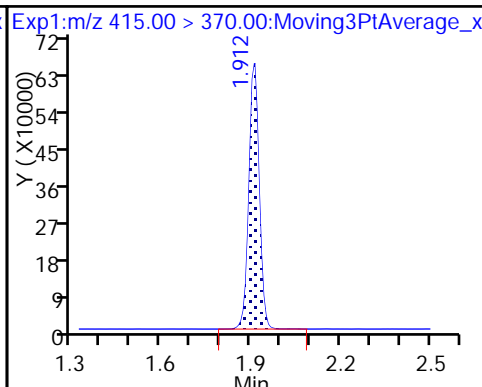
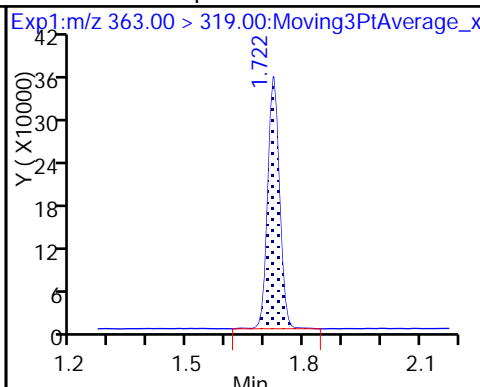
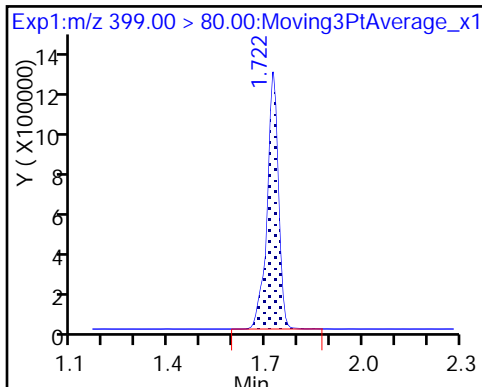
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

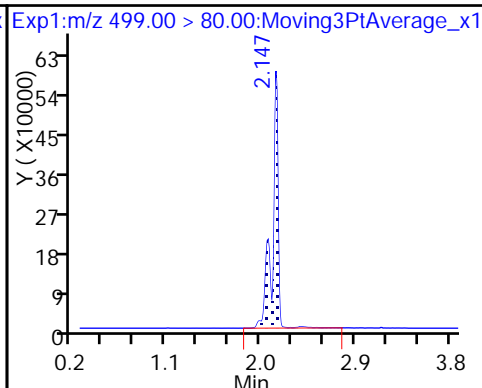
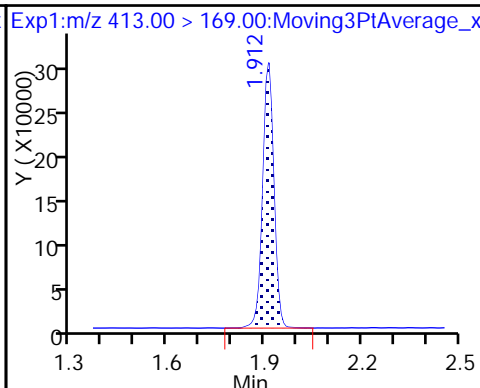
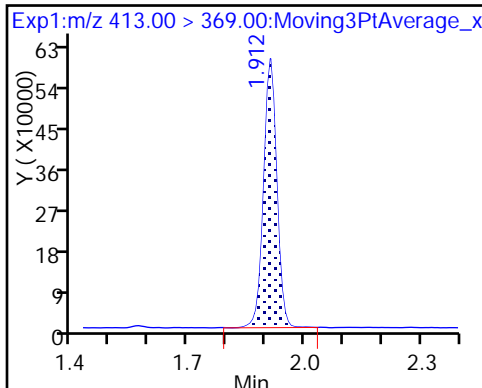
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

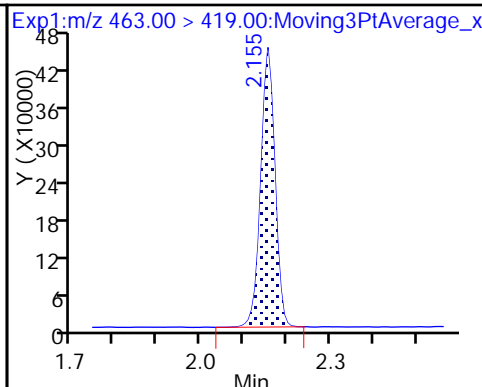
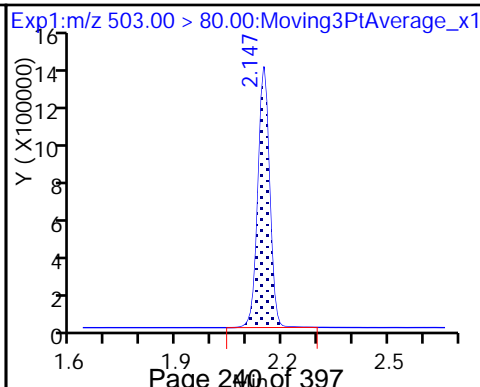
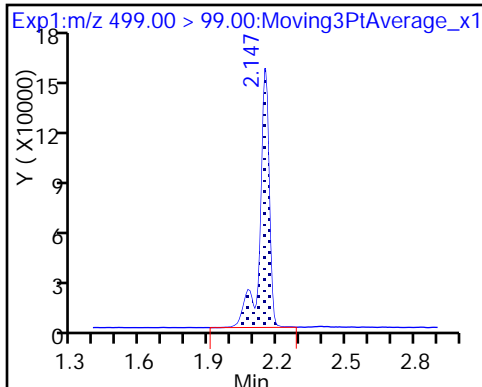
8 Perfluorooctane sulfonic acid



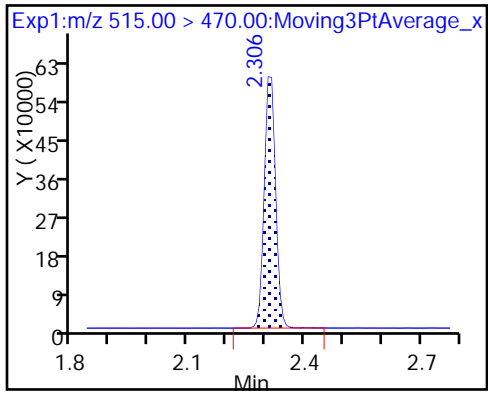
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_007.d  
 Lims ID: IC L4  
 Client ID:  
 Sample Type: ICISAV Calib Level: 4  
 Inject. Date: 03-Nov-2017 13:52:00 ALS Bottle#: 4 Worklist Smp#: 7  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L4\_537  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-537\_A8\_N\*sub1

Method: \\ChromNa\Sacramento\ChromData\A8\_N\20171106-49975.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 07-Nov-2017 15:52:10 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK021

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

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

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

LC537-L4\_00020

Amount Added: 1.00

Units: mL

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_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

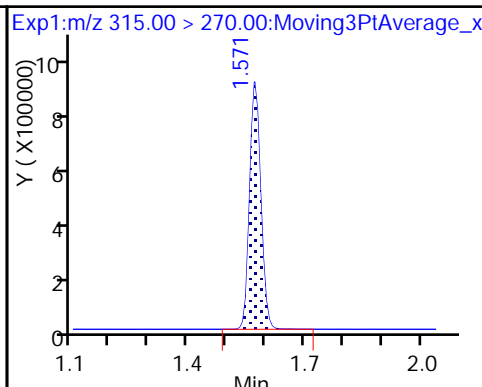
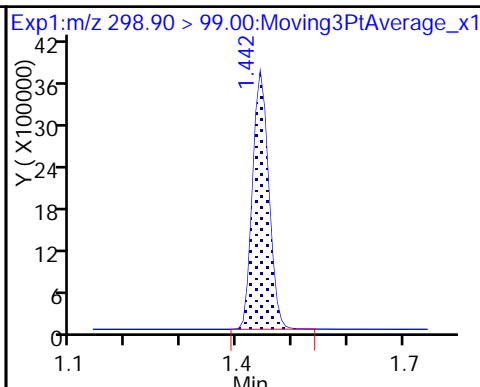
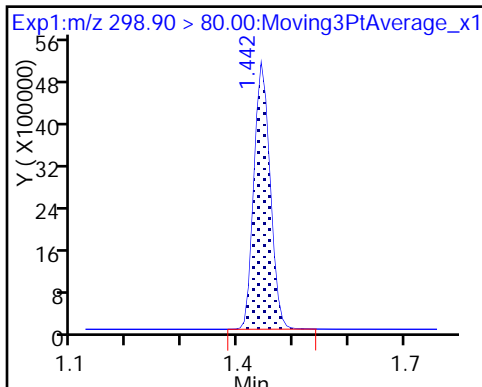
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

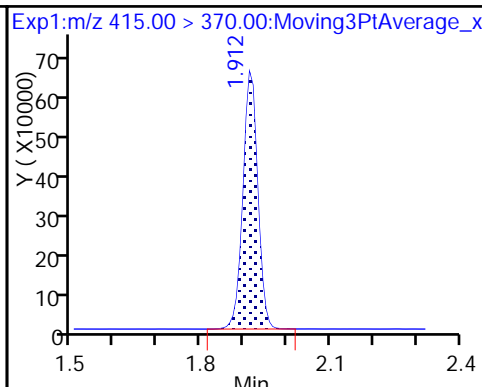
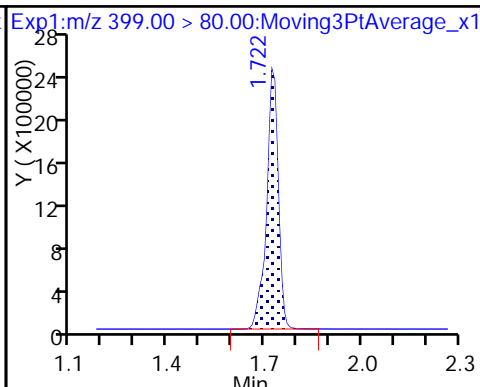
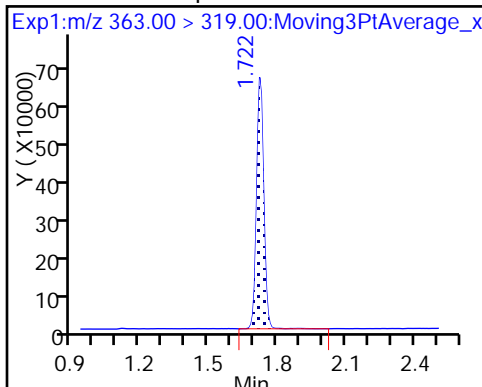
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

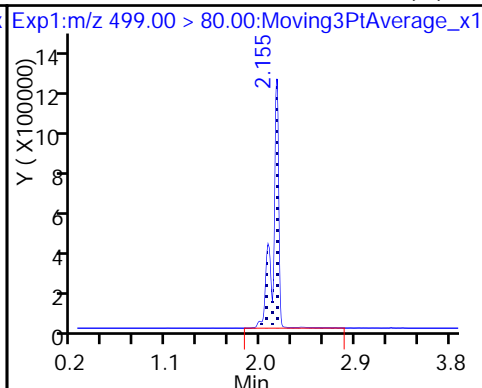
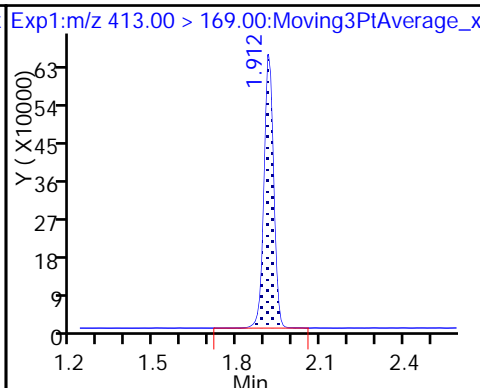
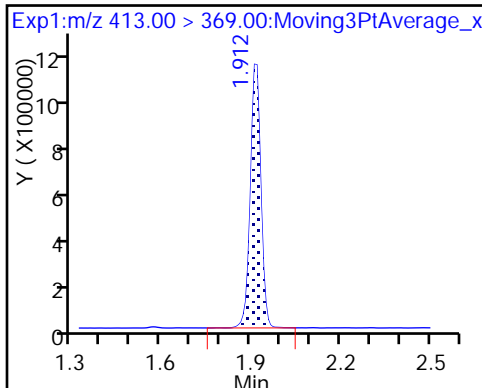
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

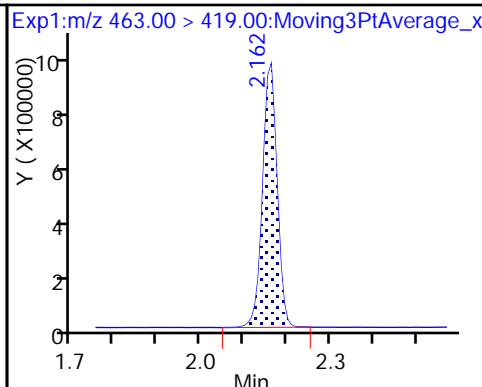
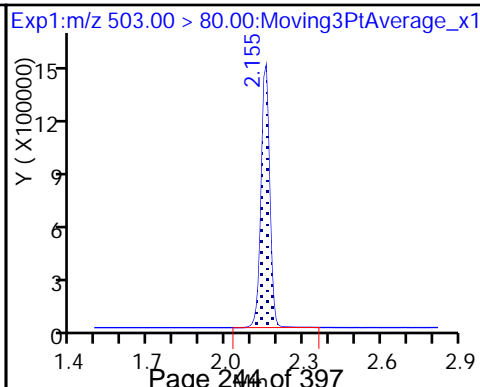
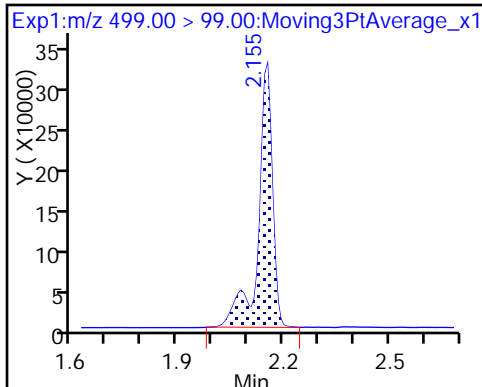
8 Perfluorooctane sulfonic acid (M)



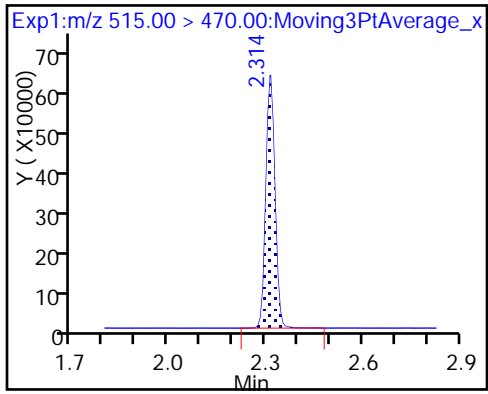
8 Perfluorooctane sulfonic acid (M)

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



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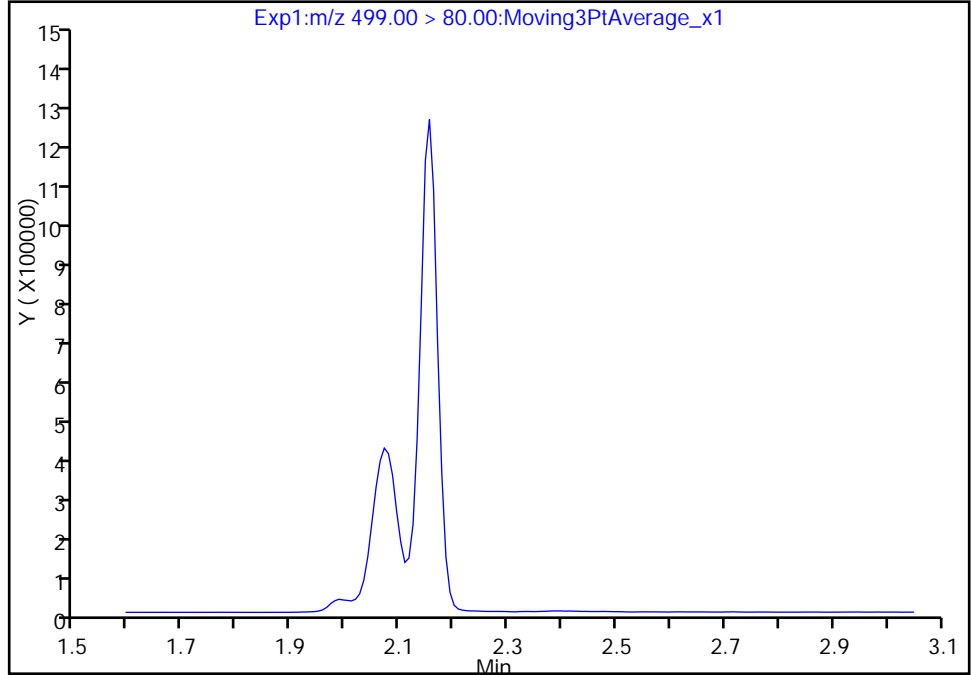
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_007.d  
Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8\_N  
Lims ID: IC L4  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

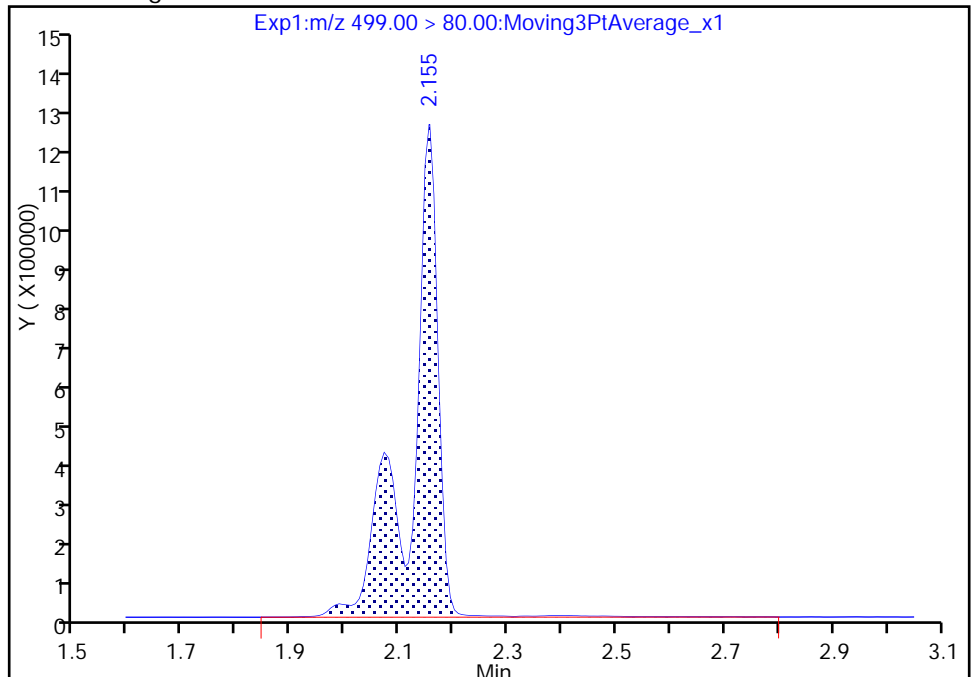
Not Detected  
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

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





TestAmerica Sacramento

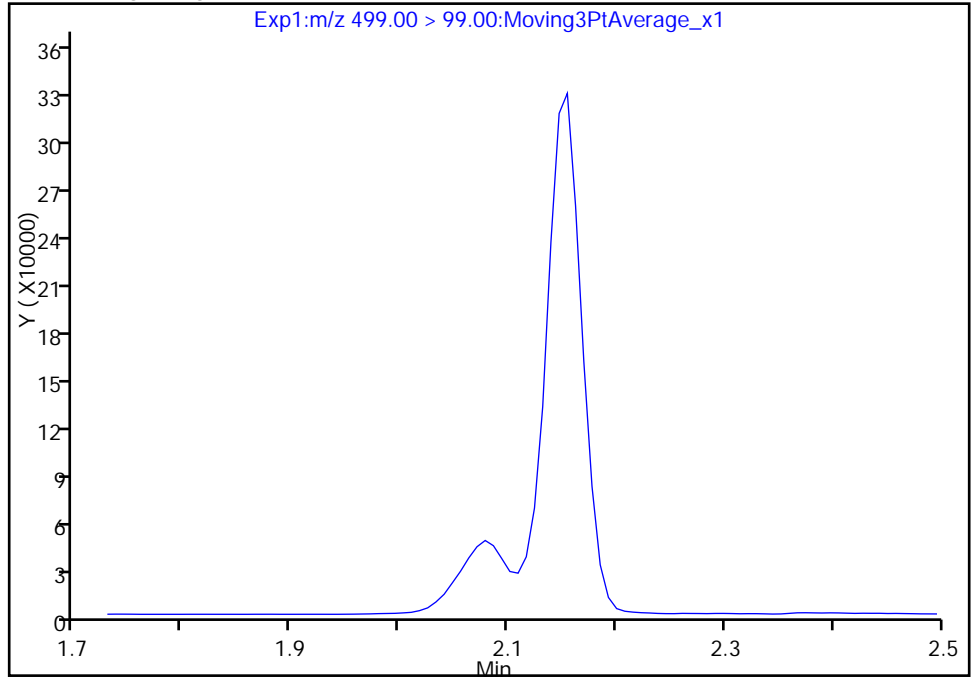
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_007.d  
Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8\_N  
Lims ID: IC L4  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 2

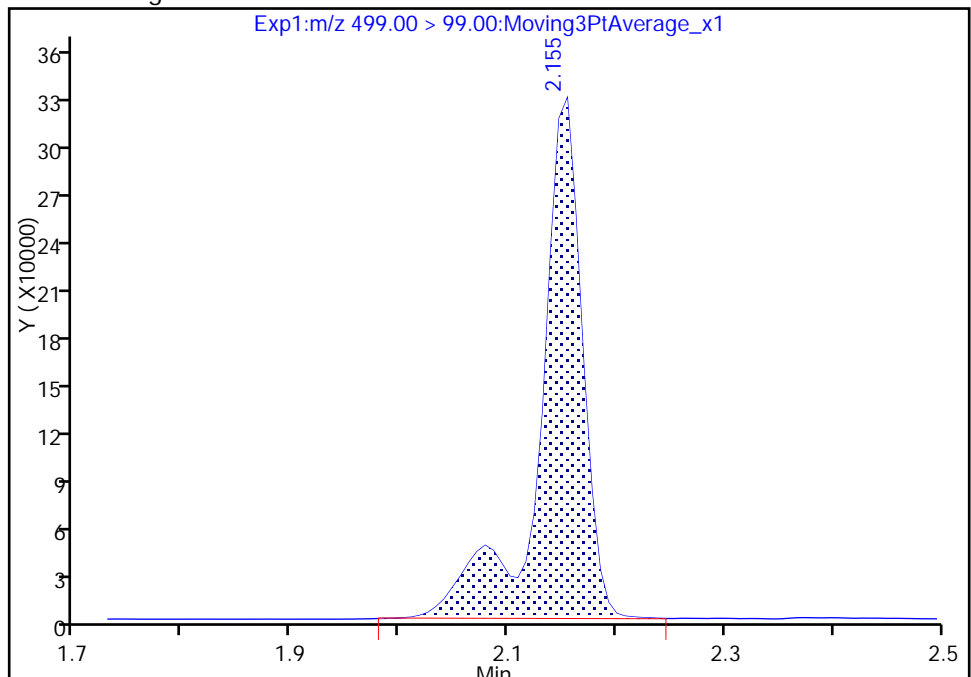
Not Detected  
Expected RT: 2.15

Processing Integration Results



Manual Integration Results

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



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

Audit Action: Manually Integrated

Audit Reason: Assign Peak

TestAmerica Sacramento

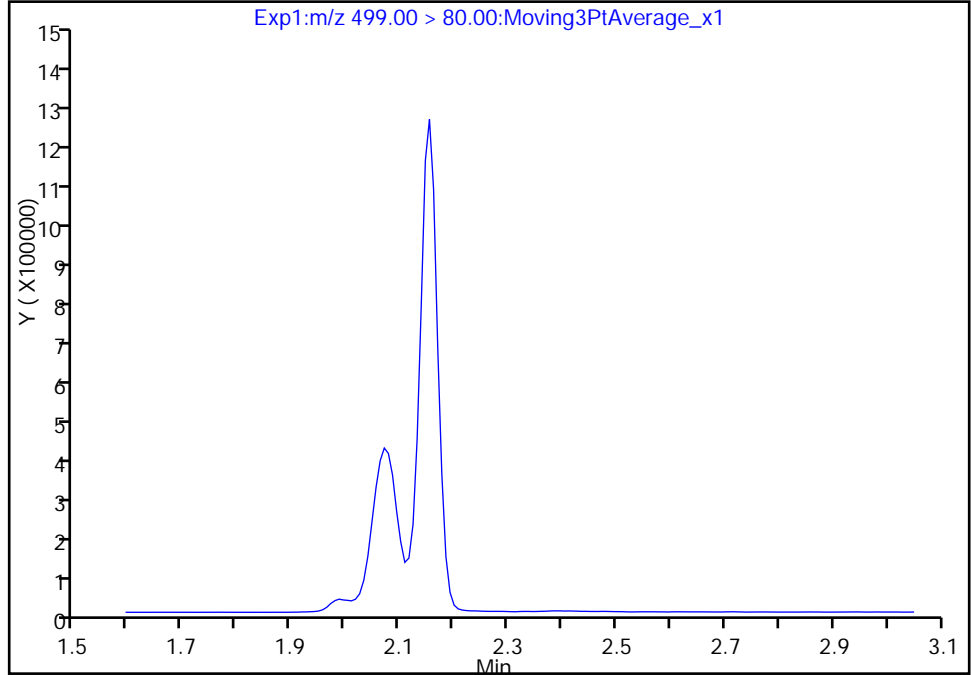
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\201711106-49975.b\2017.11.03\_537XICAL\_007.d  
Injection Date: 03-Nov-2017 13:52:00 Instrument ID: A8\_N  
Lims ID: IC L4  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

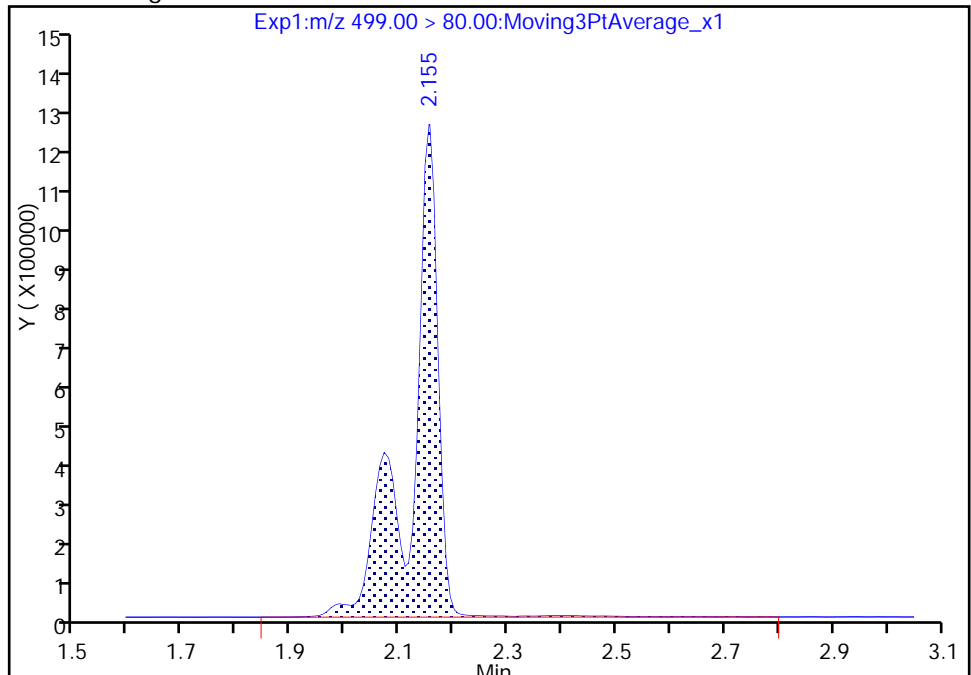
Not Detected  
Expected RT: 2.15

Processing Integration Results



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

Manual Integration Results



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

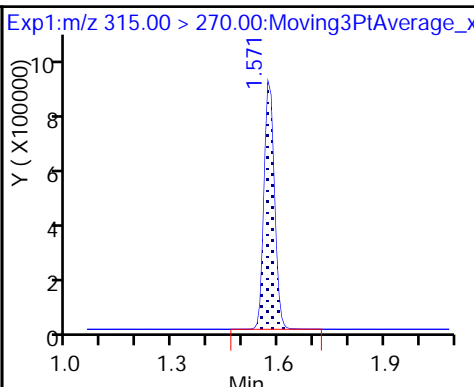
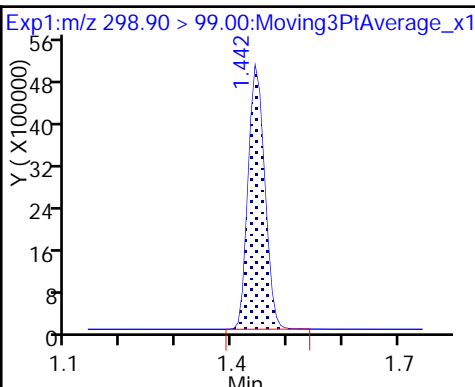
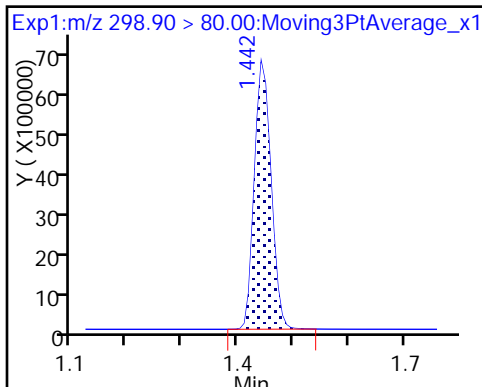
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

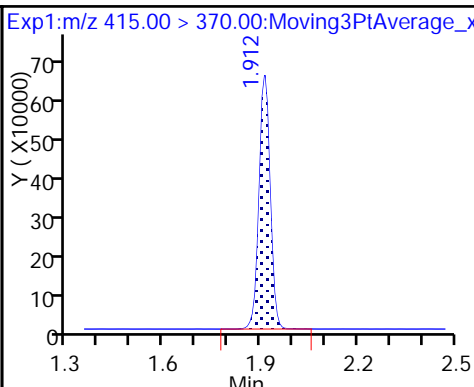
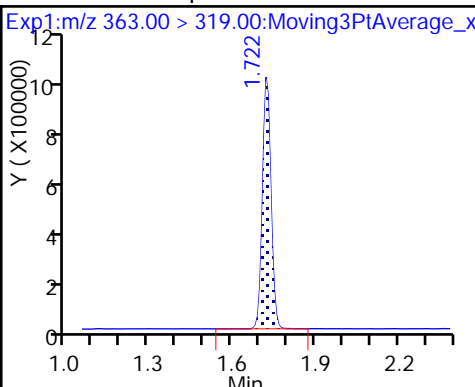
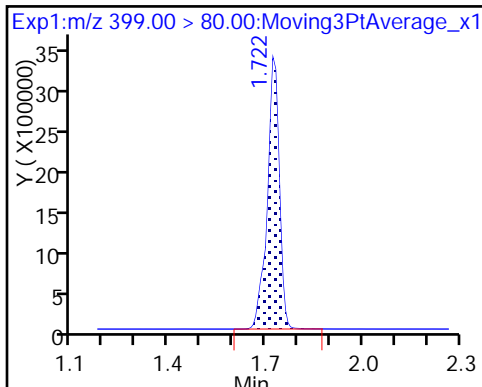
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

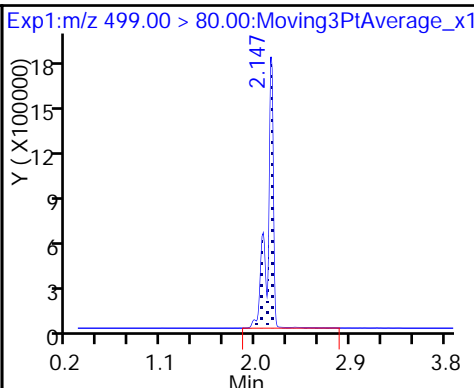
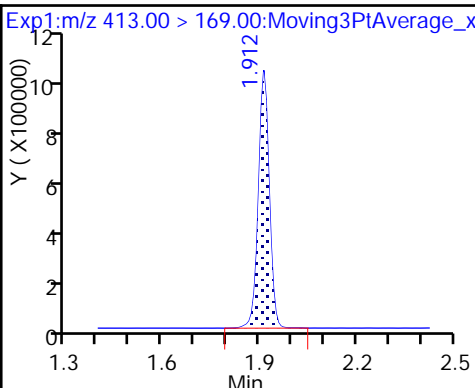
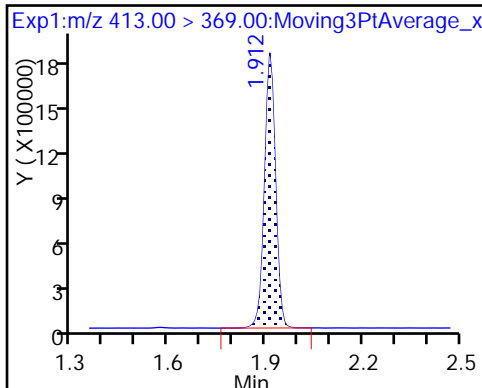
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

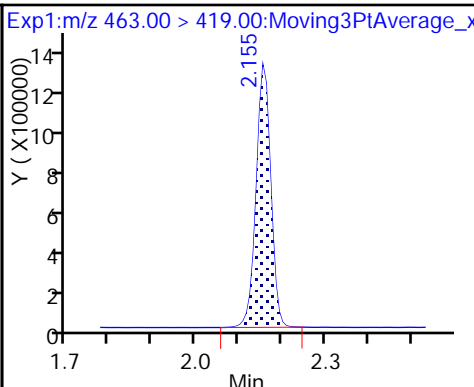
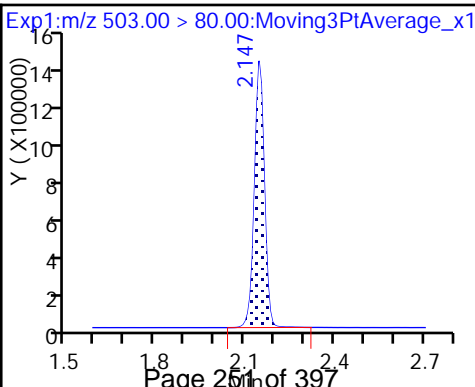
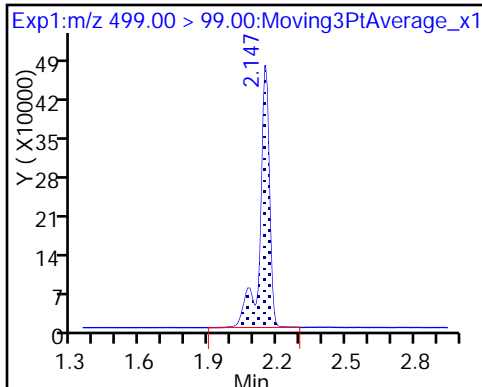
8 Perfluorooctane sulfonic acid



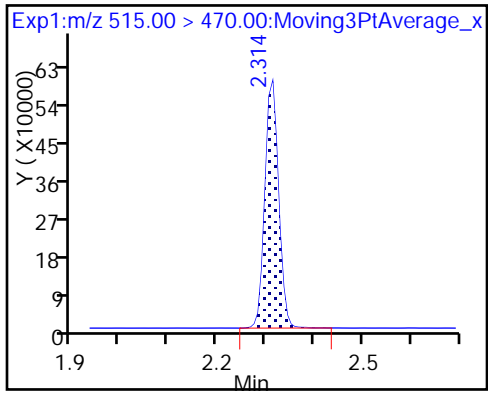
8 Perfluorooctane sulfonic acid

\* 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\_537ICAL\_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

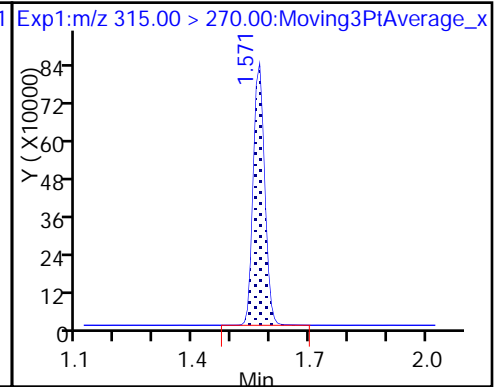
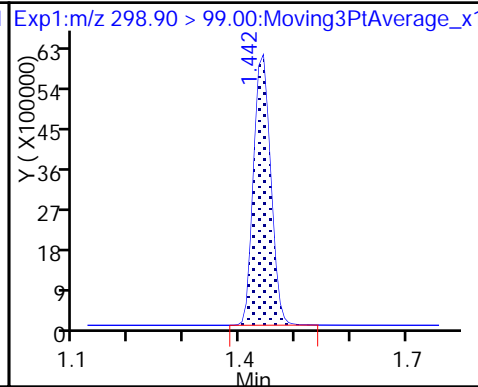
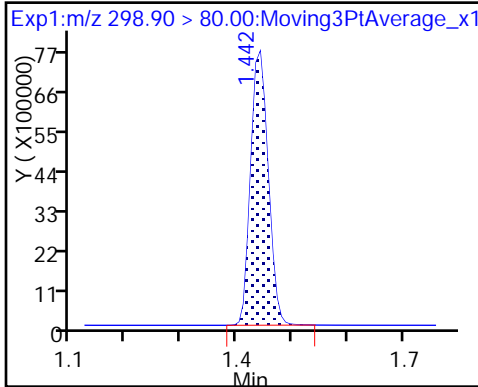
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

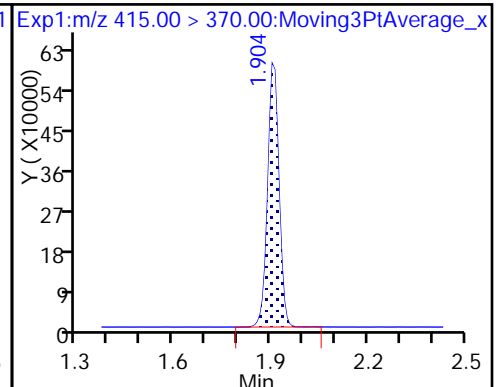
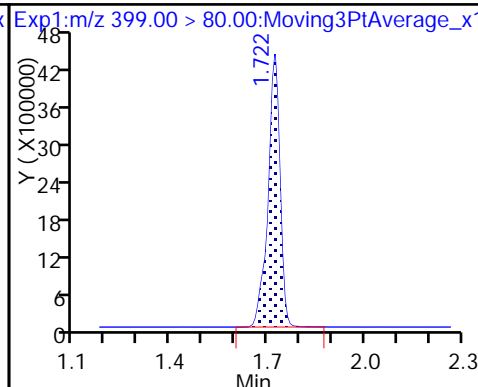
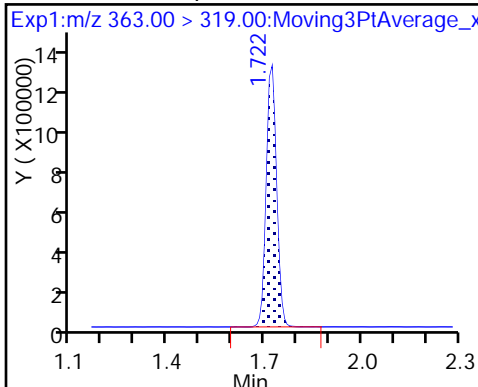
\$ 2 13C2 PFHxA



4 Perfluoroheptanoic acid

3 Perfluorohexanesulfonic acid

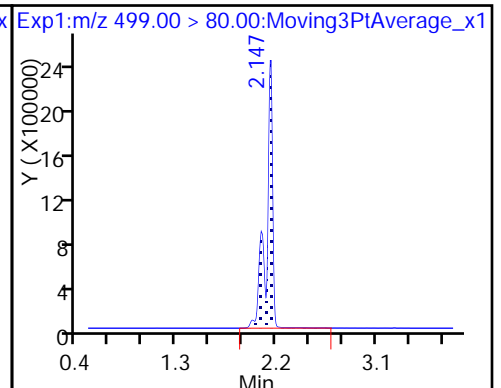
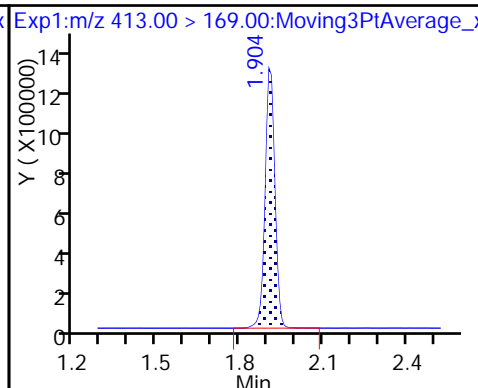
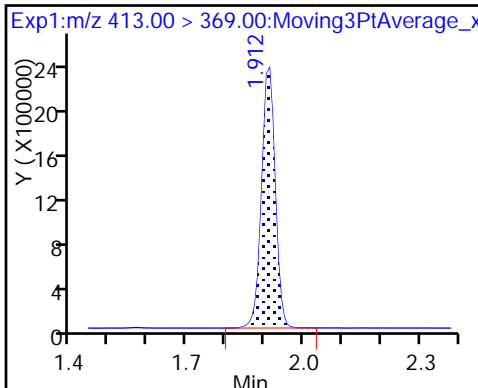
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

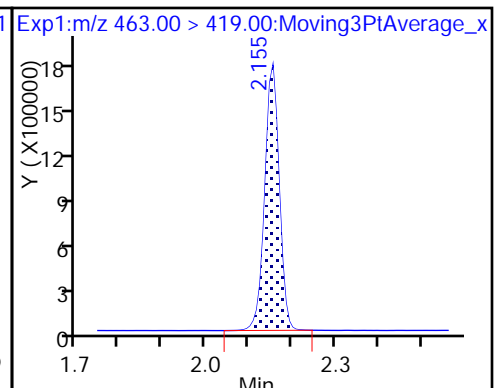
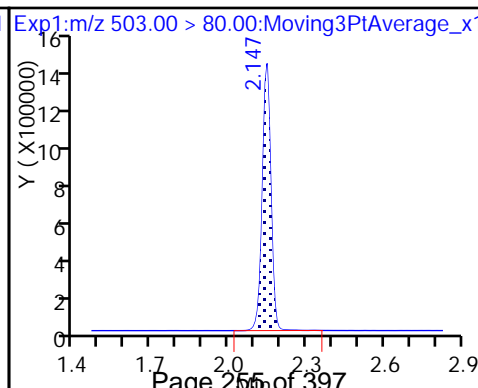
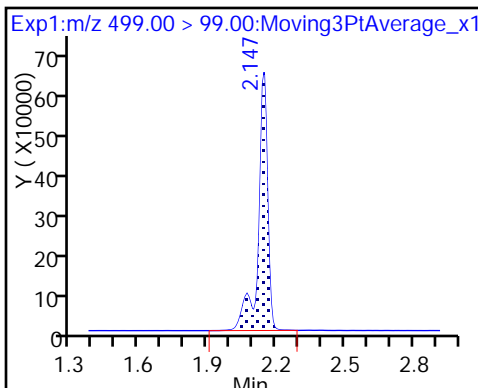
8 Perfluorooctane sulfonic acid



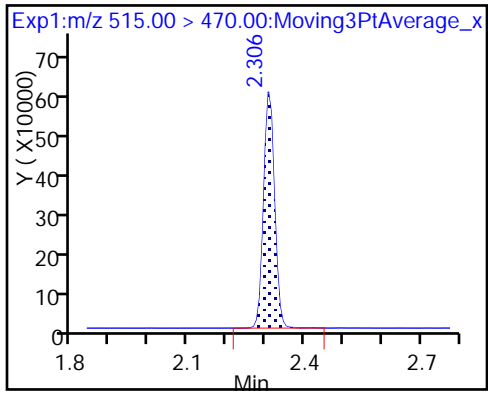
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



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

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1 Analy Batch No.: 208773

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

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

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208773/4	2018.02.016_537ICAL_004.d
Level 2	IC 320-208773/5	2018.02.016_537ICAL_005.d
Level 3	IC 320-208773/6	2018.02.016_537ICAL_006.d
Level 4	IC 320-208773/7	2018.02.016_537ICAL_007.d
Level 5	IC 320-208773/8	2018.02.016_537ICAL_008.d
Level 6	IC 320-208773/9	2018.02.016_537ICAL_009.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R <sup>2</sup> OR COD	#	MIN R <sup>2</sup> OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanesulfonic acid (PFBS)	1.1922 0.9350	1.2685	1.2630	1.1053	1.0403	QuaF		1.3180	-0.002120					1.0000			0.9600
Perfluorohexanesulfonic acid (PFHxS)	1.5376 1.6019	1.6461	1.6181	1.5963	1.6585	Ave		1.6098			2.7		30.0				
Perfluoroheptanoic acid (PFHpA)	0.9596 0.9834	0.9488	0.9462	1.0388	0.9501	Ave		0.9711			3.7		30.0				
Perfluorooctanoic acid (PFOA)	0.9118 0.9514	1.0053	0.9624	0.9616	0.9798	Ave		0.9620			3.2		30.0				
Perfluorooctanesulfonic acid (PFOS)	0.9021 0.9430	0.9481	0.9569	0.9539	0.9692	Ave		0.9455			2.4		30.0				
Perfluorononanoic acid (PFNA)	0.6417 0.6193	0.5823	0.5991	0.6537	0.5962	Ave		0.6154			4.5		30.0				
13C2 PFHxA	1.1327 1.1621	1.0418	1.0430	1.1541	1.0657	Ave		1.0999			5.1		30.0				
13C2 PFDA	0.5790 0.5388	0.4974	0.4674	0.5464	0.5166	Ave		0.5243			7.5		30.0				

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

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

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1 Analy Batch No.: 208773

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

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

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208773/4	2018.02.016_537ICAL_004.d
Level 2	IC 320-208773/5	2018.02.016_537ICAL_005.d
Level 3	IC 320-208773/6	2018.02.016_537ICAL_006.d
Level 4	IC 320-208773/7	2018.02.016_537ICAL_007.d
Level 5	IC 320-208773/8	2018.02.016_537ICAL_008.d
Level 6	IC 320-208773/9	2018.02.016_537ICAL_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluorobutanesulfonic acid (PFBS)	PFOS	QuaF	1004877 16112512	2401851	5386060	9625497	13334361	9.00 180	20.0	45.0	90.0	135
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	432087 9203547	1039145	2300670	4635169	7088297	3.00 60.0	6.67	15.0	30.0	45.0
Perfluoroheptanoic acid (PFHpA)	13PF OA	Ave	89434 1755879	208408	467875	919334	1334846	1.00 20.0	2.22	5.00	10.0	15.0
Perfluorooctanoic acid (PFOA)	13PF OA	Ave	170858 3415564	443975	956930	1711070	2767901	2.01 40.2	4.47	10.1	20.1	30.2
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	339345 7252490	801200	1821248	3707450	5544581	4.02 80.3	8.93	20.1	40.2	60.3
Perfluorononanoic acid (PFNA)	13PF OA	Ave	119635 2211715	255853	592583	1157180	1675602	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PF OA	Ave	1055358 1037300	1029524	1031304	1021204	998008	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PF OA	Ave	539488 480980	491558	462142	483499	483740	10.0 10.0	10.0	10.0	10.0	10.0

Curve Type Legend:

Ave = Average ISTD
QuaF = Quadratic ISTD forced zero

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

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1 Analy Batch No.: 208773

SDG No.: \_\_\_\_\_

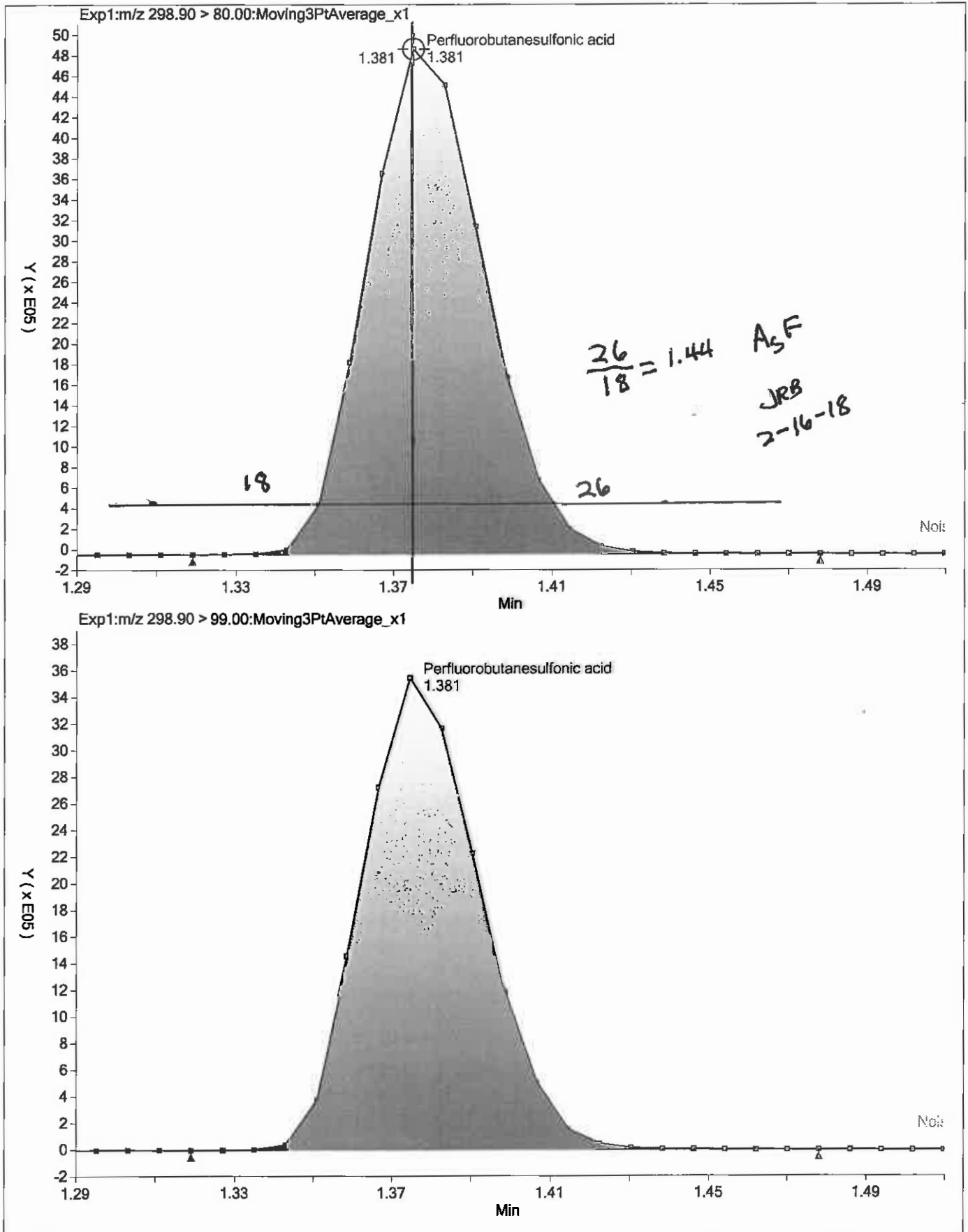
Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

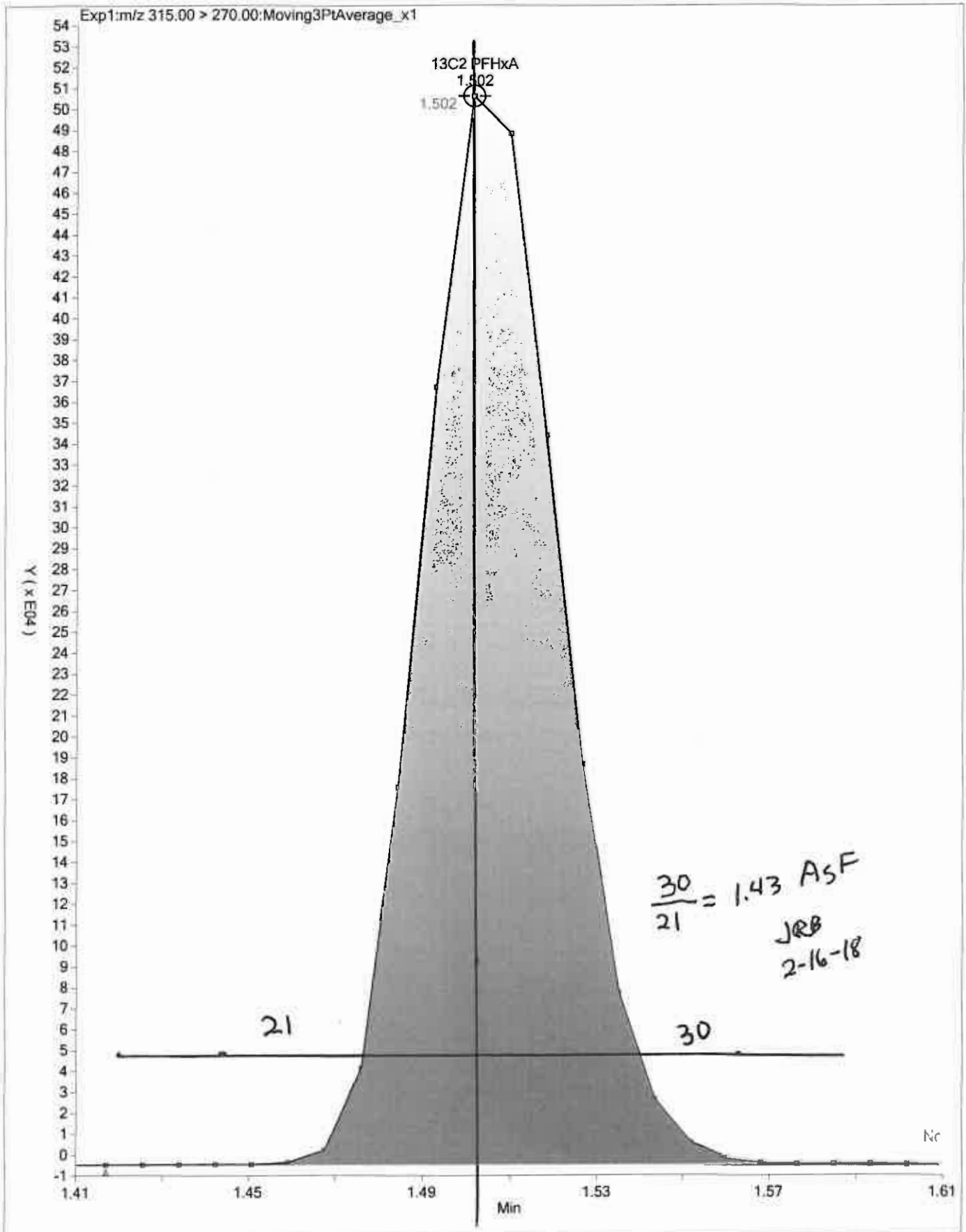
Calibration Start Date: 02/16/2018 08:55 Calibration End Date: 02/16/2018 09:19 Calibration ID: 37889

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208773/4	2018.02.016_537ICAL_004.d
Level 2	IC 320-208773/5	2018.02.016_537ICAL_005.d
Level 3	IC 320-208773/6	2018.02.016_537ICAL_006.d
Level 4	IC 320-208773/7	2018.02.016_537ICAL_007.d
Level 5	IC 320-208773/8	2018.02.016_537ICAL_008.d
Level 6	IC 320-208773/9	2018.02.016_537ICAL_009.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid (PFBS)	-8.3	-0.6	3.6	-2.3	1.1	-0.3	50	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	-4.5	2.3	0.5	-0.8	3.0	-0.5	50	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	-1.2	-2.3	-2.6	7.0	-2.2	1.3	50	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	-5.2	4.5	0.0	0.0	1.8	-1.1	50	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-4.6	0.3	1.2	0.9	2.5	-0.3	50	30	30	30	30	30
Perfluorononanoic acid (PFNA)	4.3	-5.4	-2.6	6.2	-3.1	0.6	50	30	30	30	30	30
13C2 PFHxA	3.0	-5.3	-5.2	4.9	-3.1	5.7	30	30	30	30	30	30
13C2 PFDA	10.4	-5.1	-10.9	4.2	-1.5	2.8	30	30	30	30	30	30





TestAmerica Laboratories  
Istd/Surrogate Recovery Report

Worklist Name: 16FEB2018\_537\_ICAL      Worklist Num: 54164  
 Instrument: A8\_N      Method: 537\_A8\_N  
 Batch Directory: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b  
 Limit Group: LC 537 ICAL  
 Analysis Type: SemiVOA  
 Inj Volume: 2.00      Inj Vol Units: ul

Lims Batch: 208773  
 CCV IS Mode: Select Ical Level, Cal Level: 3  
 Non-Cal IS Mode: Last Ccal Sample

\$ 2 13C2 PFHxA  
 \$ 10 13C2 PFDA

Lab ID	Ini Date	\$ 2	\$ 10	* 6 13C2-PFOA	* 7 13C4 PFOS
	IS Std			3628037 1 81	9733097 2 06
# 1 RB	16-Feb-2018 08:41:23			1076886< 29.7*	2716766< 27.9*
# 2 RB	16-Feb-2018 08:46:06			1019457< 28.1*	2755286< 28.3*
# 3 RB	16-Feb-2018 08:50:50			1105032< 30.5*	2805992< 28.8*
	IS Std				
# 4 IC L1	16-Feb-2018 08:55:33	103.00	110.40	931713> 100.0*	2685321> 100.0*
# 5 IC L2	16-Feb-2018 09:00:16	94.72	94.88	988244> 106.1*	2714895> 101.1*
# 6 IC L3	16-Feb-2018 09:05:01	94.82	89.15	988820> 106.1*	2717621> 101.2*
# 7 IC L4	16-Feb-2018 09:09:42	104.90	104.20	884854> 95.0*	2774986> 103.3*
# 8 IC L5	16-Feb-2018 09:14:23	96.89	98.53	936458> 100.5*	2722967> 101.4*
# 9 IC L6	16-Feb-2018 09:19:04	105.70	102.80	892615> 95.8*	2745419> 102.2*
	IS Std			988820 1 86	2717621 2 12
#10 RB	16-Feb-2018 09:23:44			878108 88.8	2705714 99.6
	IS Std			884854 1 85	2774986 2 11
#11 CCVL	16-Feb-2018 09:28:24	94.27	95.61	955394 108.0	2663428 96.0
	IS Std			955394 1 87	2663428 2 12
#12 RB	16-Feb-2018 09:33:05			966669 101.2	2704283 101.5
	IS Std			884854 1 85	2774986 2 11
#13 ICV	16-Feb-2018 09:37:44	102.30	102.00	890238 100.6	2703377 97.4
	IS Std				
#14 RB	16-Feb-2018 09:42:24				

13C2-PFOA

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

13C4-PFOS

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

JRB  
2-16-18



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_004.d  
 Lims ID: IC L1  
 Client ID:  
 Sample Type: IC Calib Level: 1  
 Inject. Date: 16-Feb-2018 08:55:33 ALS Bottle#: 1 Worklist Smp#: 4  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L1\_537  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-537\_A8\_N\*sub1

Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 10:55:29 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: roycea Date: 16-Feb-2018 10:27:22

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

### QC Flag Legend

#### Review Flags

M - Manually Integrated

a - User Assigned ID

### Reagents:

LC537-L1\_00021

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_004.d

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

Instrument ID: A8\_N

Lims ID: IC L1

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 1

Worklist Smp#: 4

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

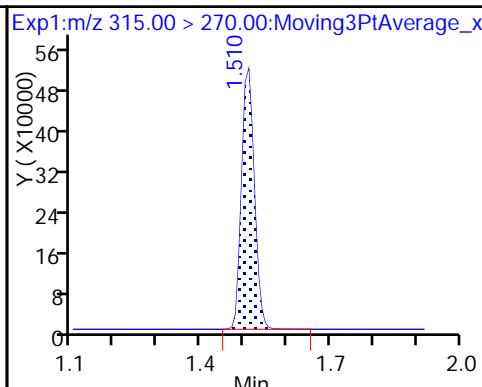
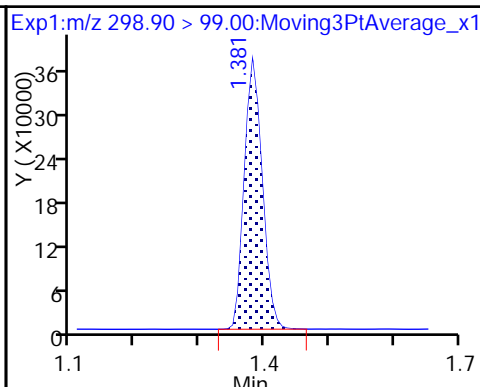
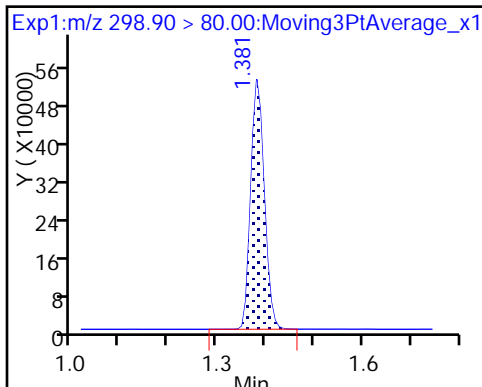
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

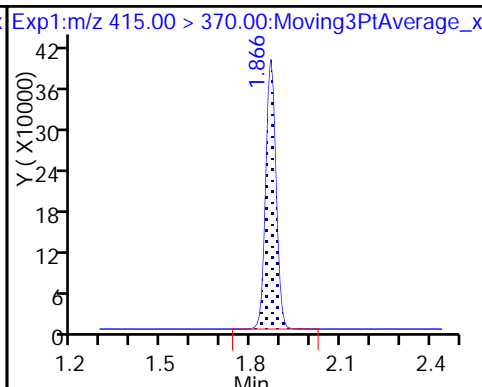
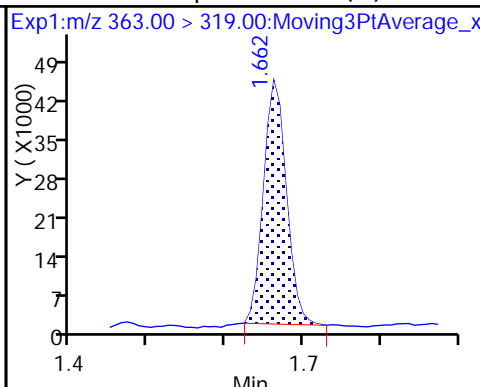
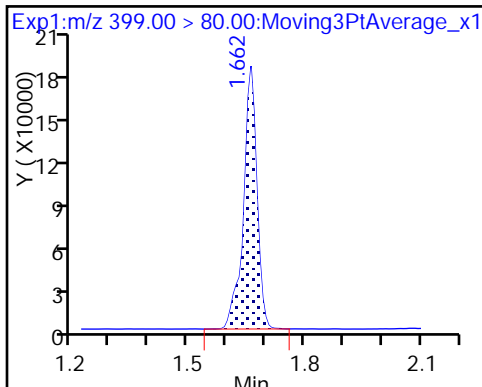
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid (M)

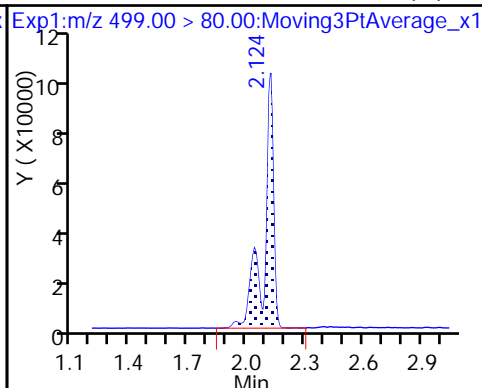
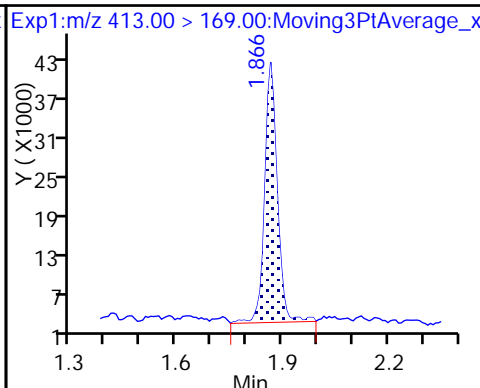
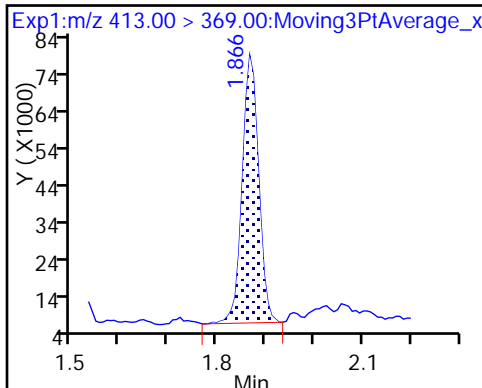
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

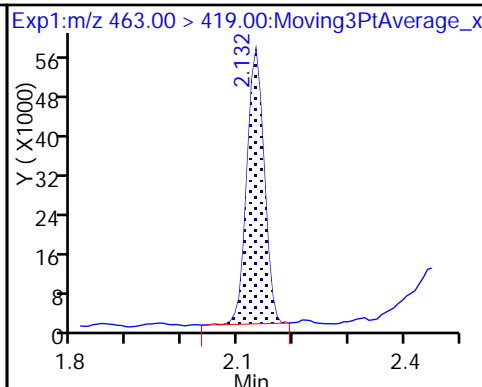
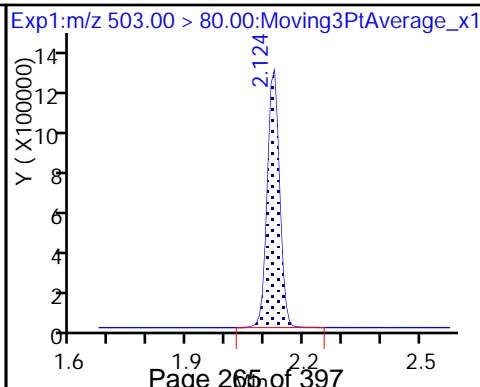
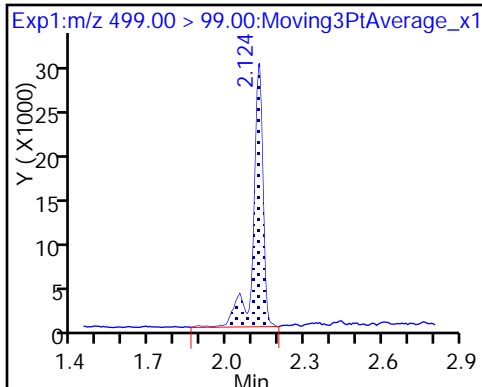
8 Perfluorooctane sulfonic acid (M)



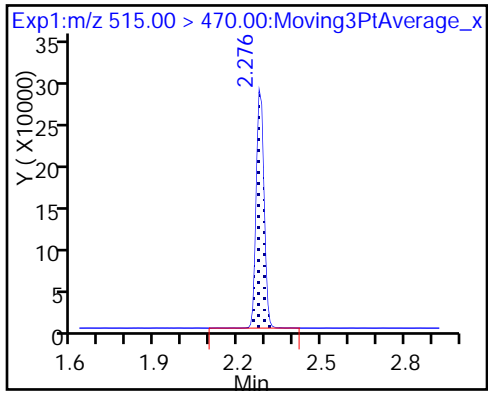
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

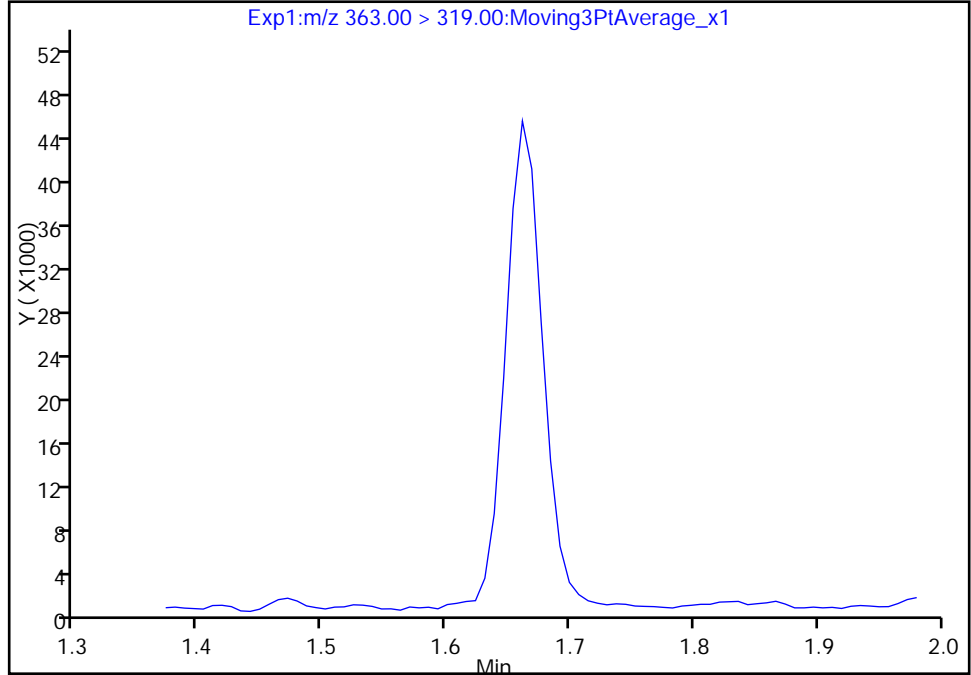
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_004.d  
Injection Date: 16-Feb-2018 08:55:33 Instrument ID: A8\_N  
Lims ID: IC L1  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

4 Perfluoroheptanoic acid, CAS: 375-85-9

Signal: 1

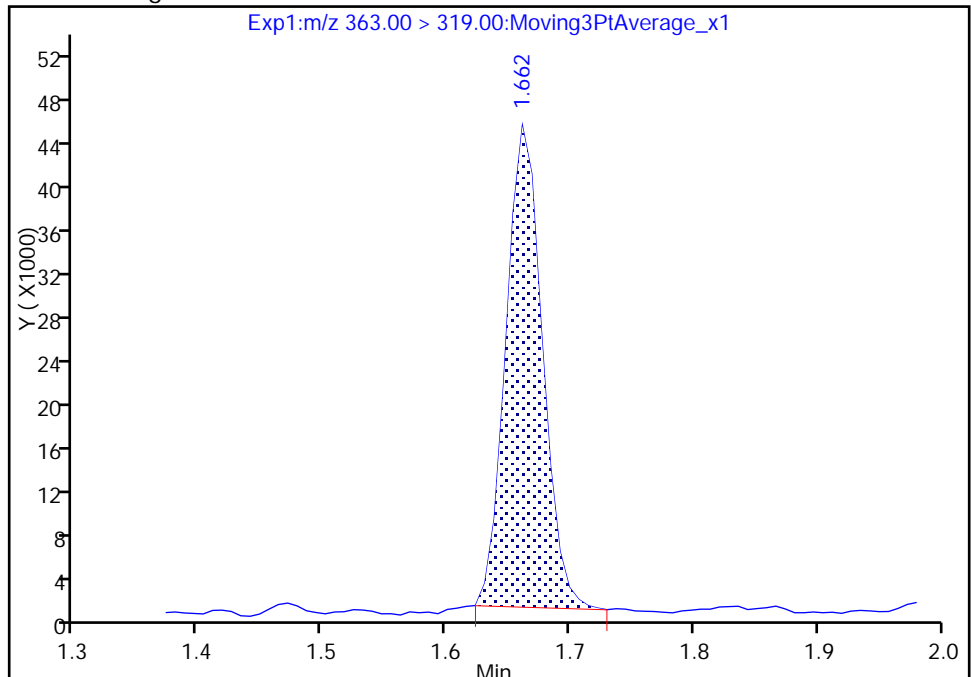
Not Detected  
Expected RT: 1.66

Processing Integration Results



Manual Integration Results

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



Reviewer: roycea, 16-Feb-2018 10:26:41  
Audit Action: Manually Integrated

TestAmerica Sacramento

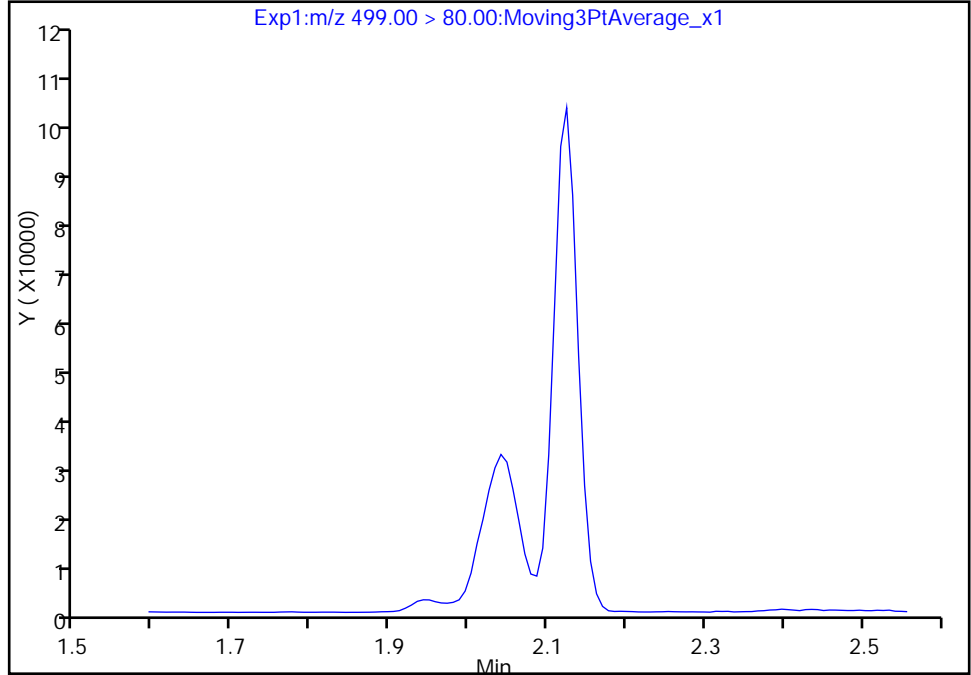
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_004.d  
Injection Date: 16-Feb-2018 08:55:33 Instrument ID: A8\_N  
Lims ID: IC L1  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 1 Worklist Smp#: 4  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

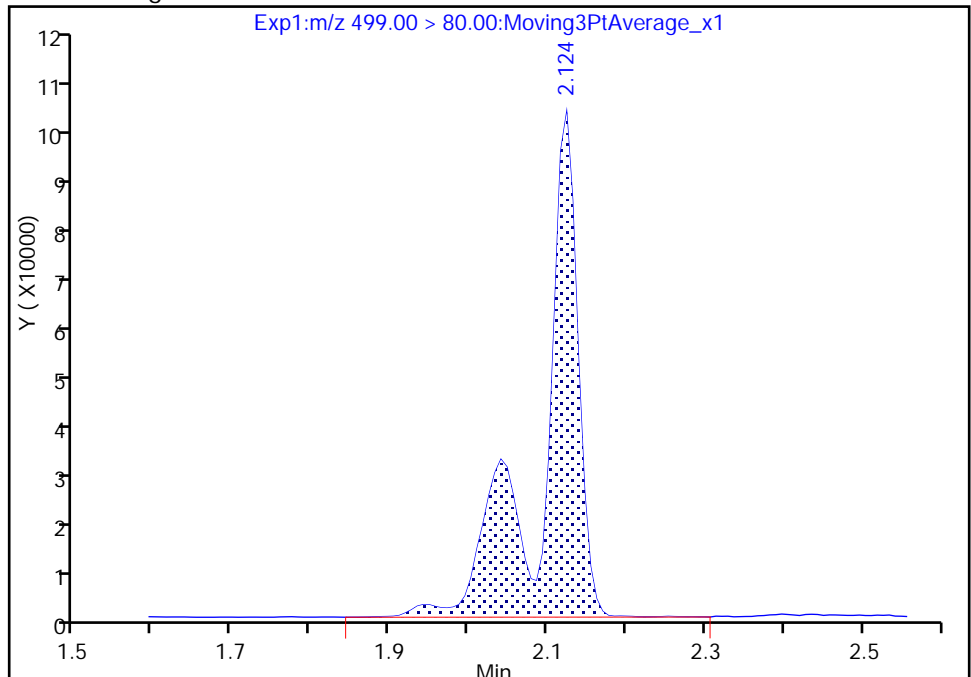
Not Detected  
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

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



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_005.d  
 Lims ID: IC L2  
 Client ID:  
 Sample Type: IC Calib Level: 2  
 Inject. Date: 16-Feb-2018 09:00:16 ALS Bottle#: 2 Worklist Smp#: 5  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L2\_537  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-537\_A8\_N\*sub1

Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 10:55:30 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: roycea Date: 16-Feb-2018 10:29:45

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

### QC Flag Legend

Review Flags

a - User Assigned ID

### Reagents:

LC537-L2\_00021

Amount Added: 1.00

Units: mL



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_005.d

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

Instrument ID: A8\_N

Lims ID: IC L2

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 5

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

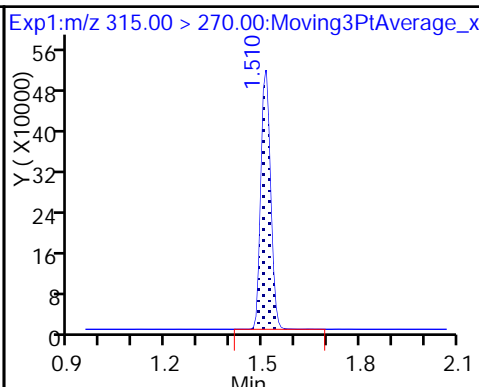
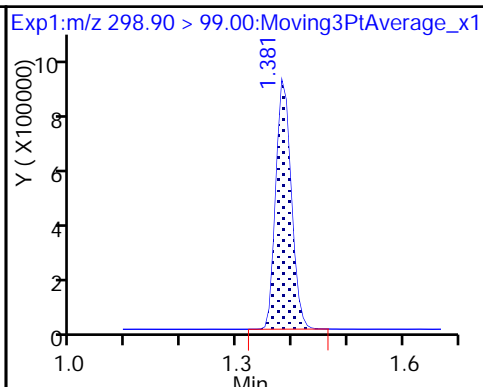
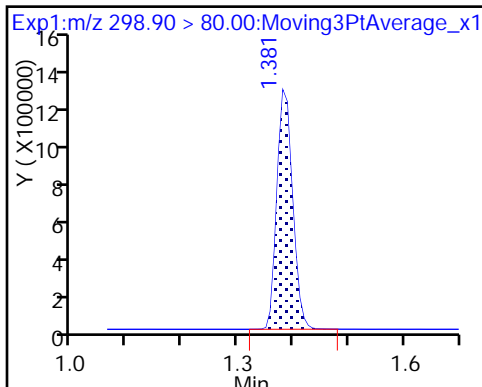
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

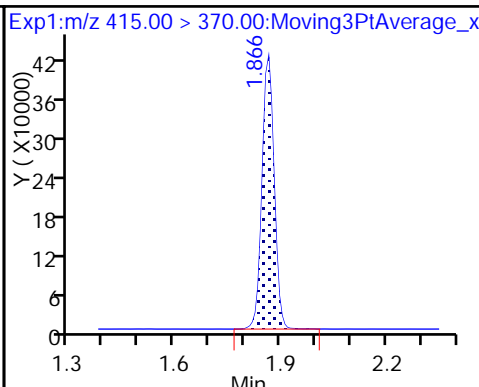
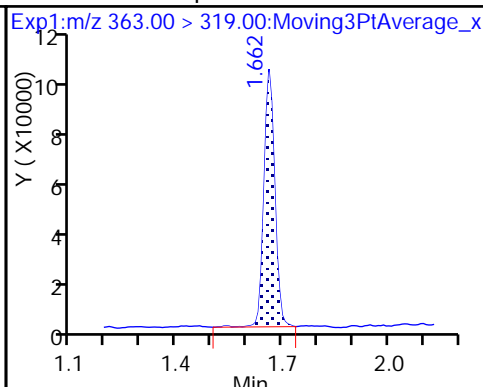
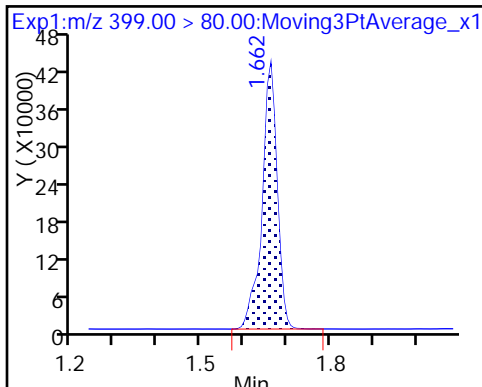
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

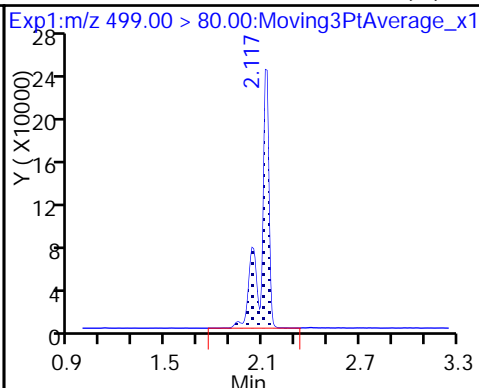
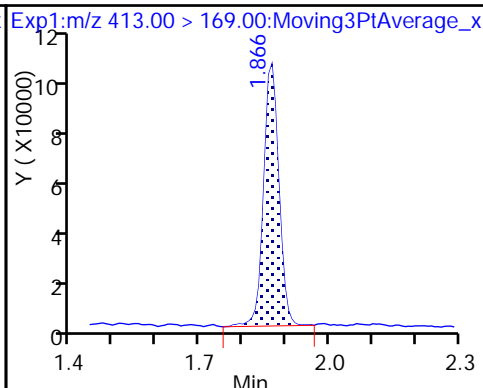
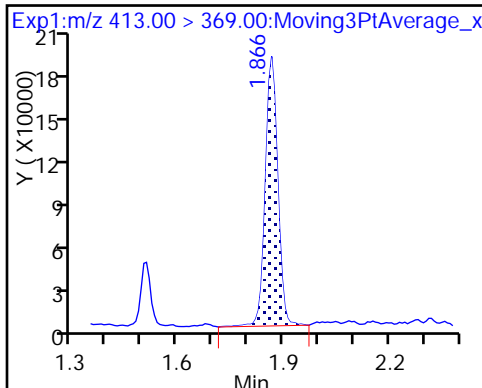
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

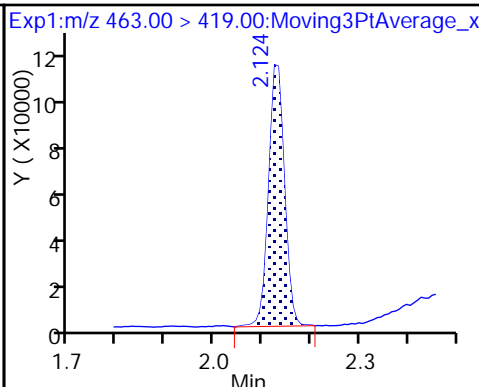
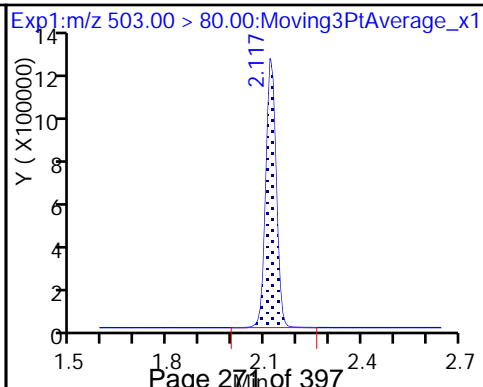
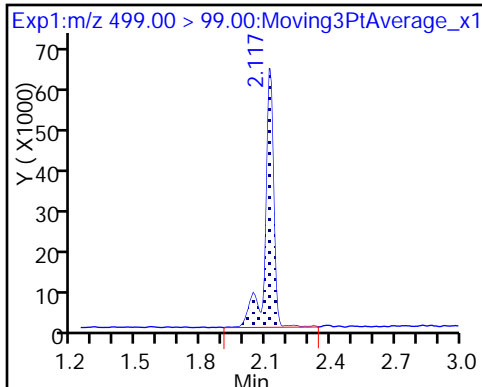
8 Perfluorooctane sulfonic acid (M)



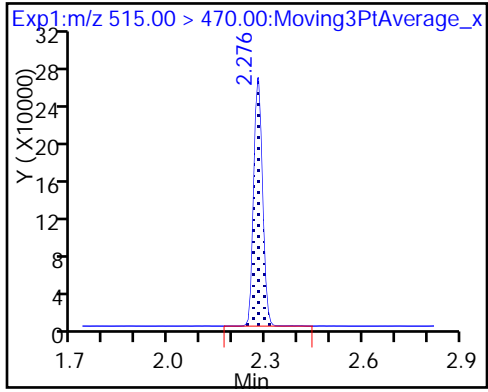
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

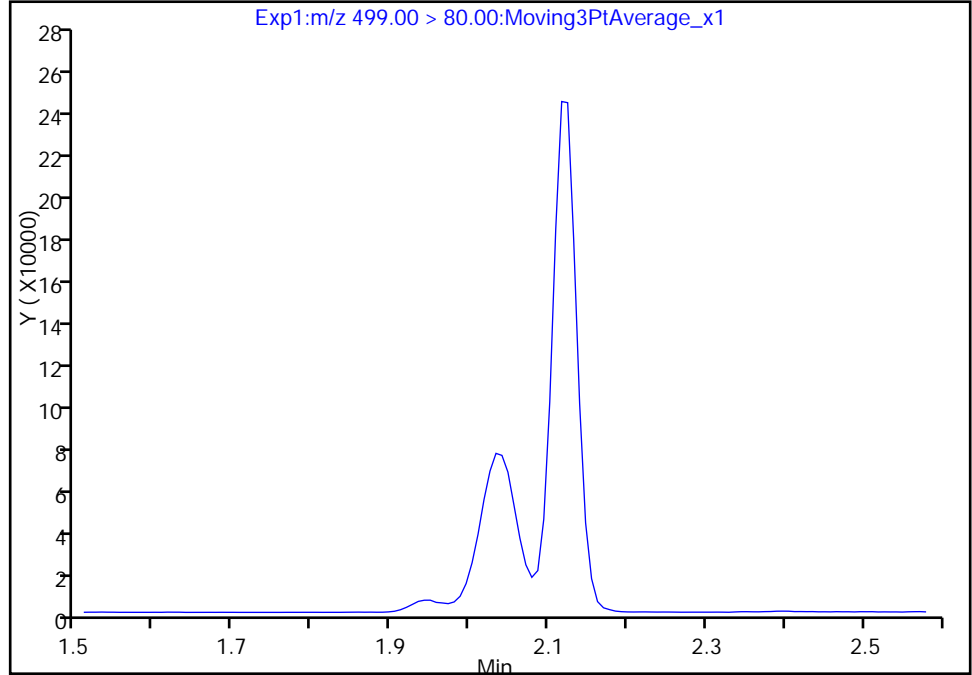
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_005.d  
Injection Date: 16-Feb-2018 09:00:16 Instrument ID: A8\_N  
Lims ID: IC L2  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 5  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

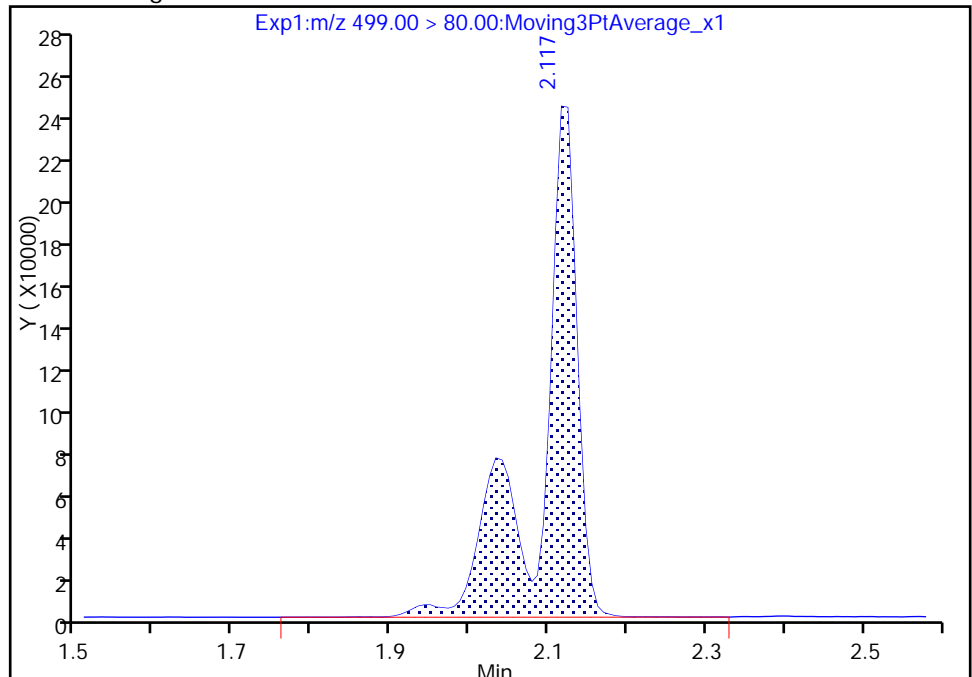
Not Detected  
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

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



Reviewer: roycea, 16-Feb-2018 10:29:26  
Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_006.d  
 Lims ID: IC L3  
 Client ID:  
 Sample Type: IC Calib Level: 3  
 Inject. Date: 16-Feb-2018 09:05:01 ALS Bottle#: 3 Worklist Smp#: 6  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L3\_537  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-537\_A8\_N\*sub1  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 10:55:31 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: roycea Date: 16-Feb-2018 10:30:08

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

**QC Flag Legend**

Review Flags

a - User Assigned ID

**Reagents:**

LC537-L3\_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_006.d

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

Instrument ID: A8\_N

Lims ID: IC L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 6

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

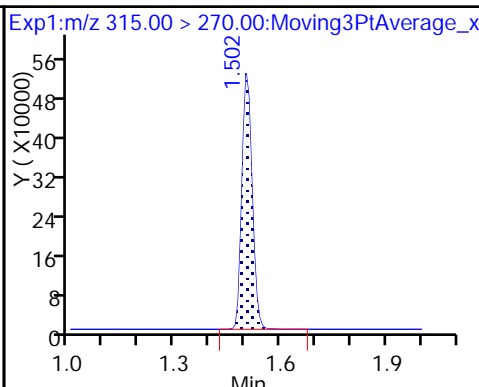
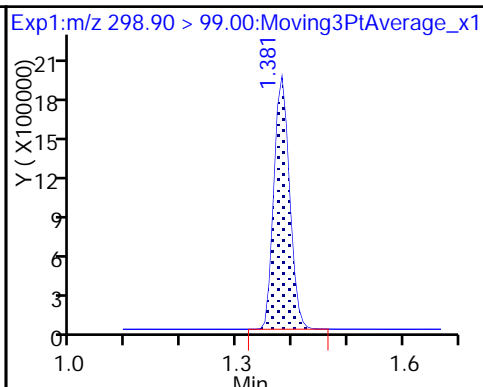
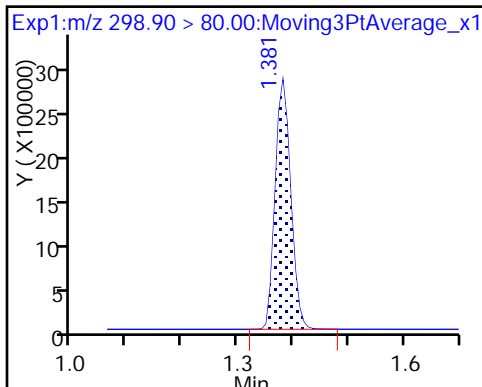
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

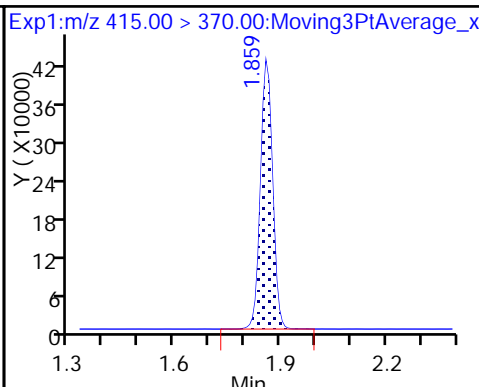
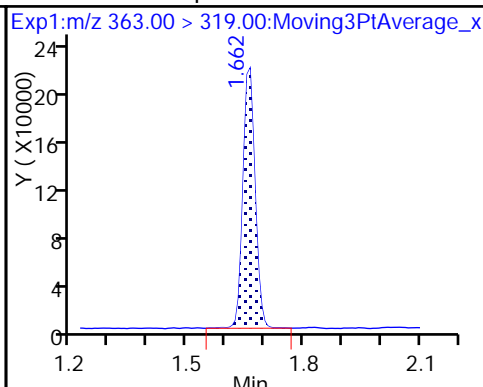
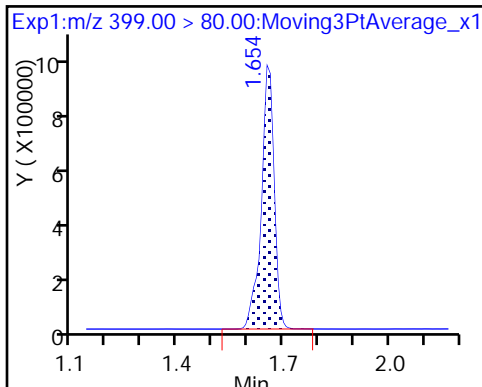
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

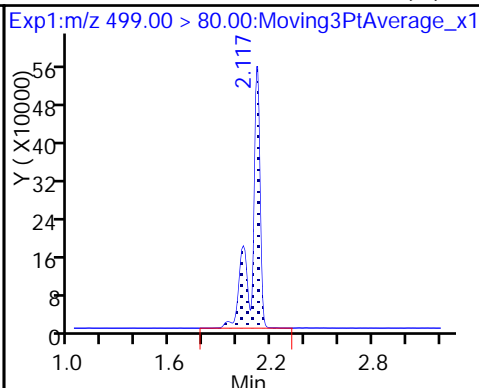
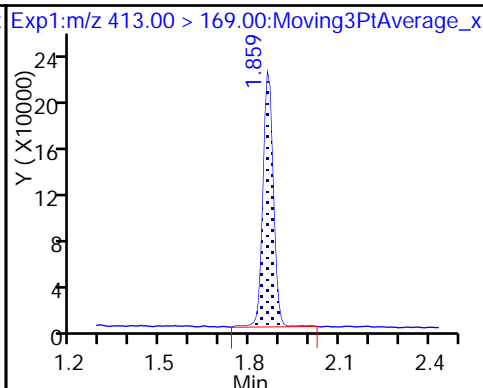
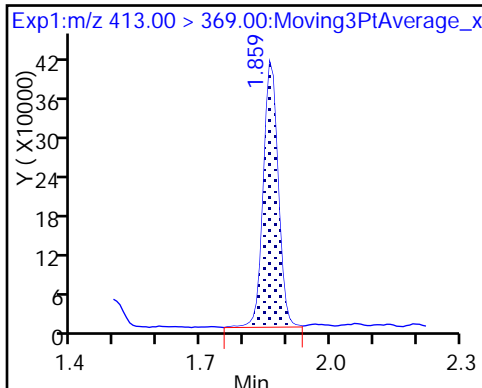
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

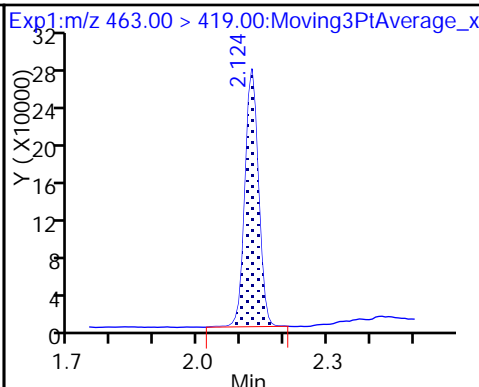
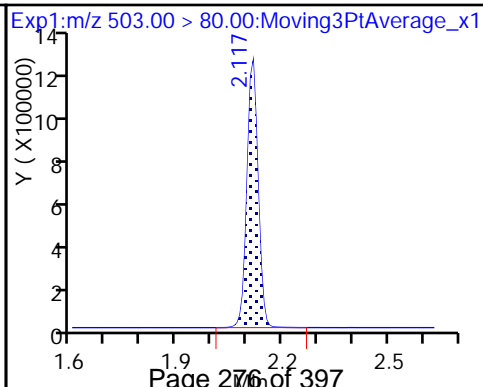
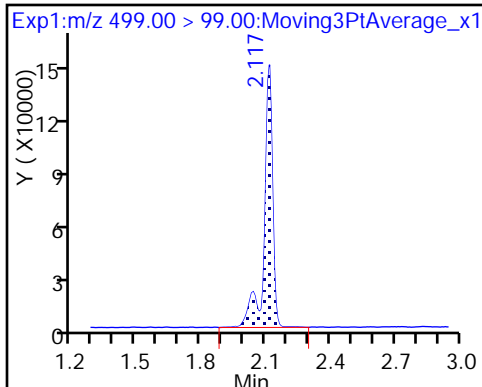
8 Perfluorooctane sulfonic acid (M)



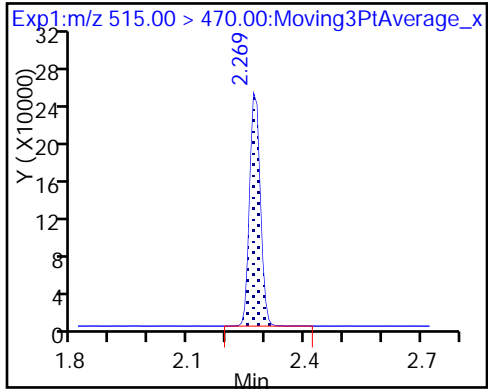
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

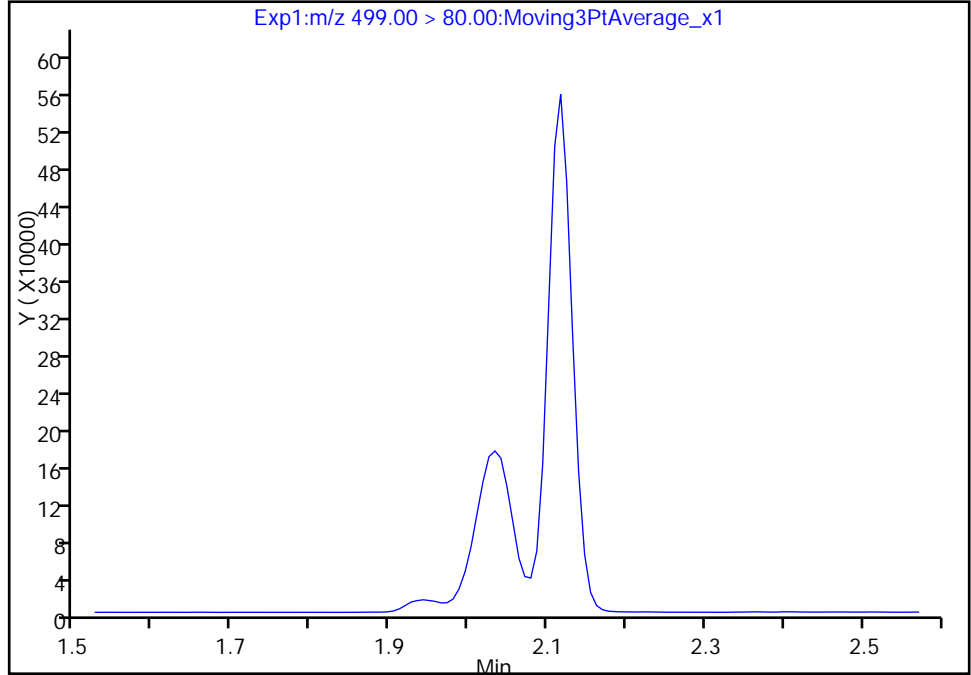
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_006.d  
Injection Date: 16-Feb-2018 09:05:01 Instrument ID: A8\_N  
Lims ID: IC L3  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 6  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

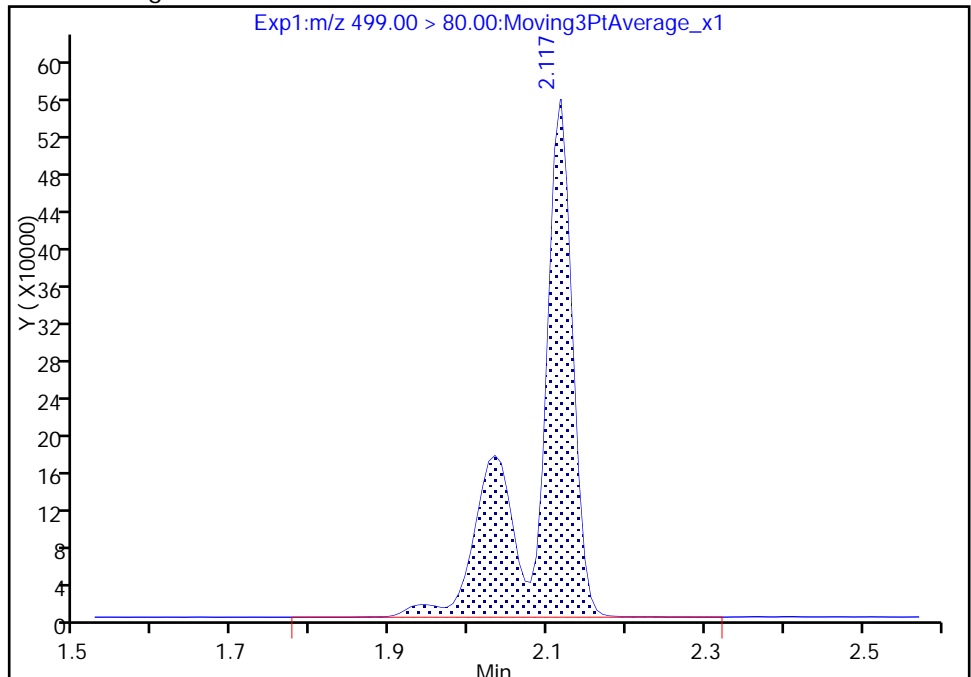
Not Detected  
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

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



Reviewer: roycea, 16-Feb-2018 10:29:49  
Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_007.d  
 Lims ID: IC L4  
 Client ID:  
 Sample Type: ICISAV Calib Level: 4  
 Inject. Date: 16-Feb-2018 09:09:42 ALS Bottle#: 4 Worklist Smp#: 7  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L4\_537  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-537\_A8\_N\*sub1  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 10:55:32 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: roycea Date: 16-Feb-2018 10:30:42

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

**QC Flag Legend**

Review Flags

a - User Assigned ID

**Reagents:**

LC537-L4\_00021

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_007.d

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

Instrument ID: A8\_N

Lims ID: IC L4

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 4

Worklist Smp#: 7

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

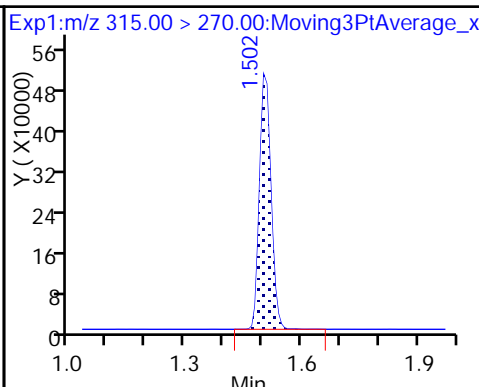
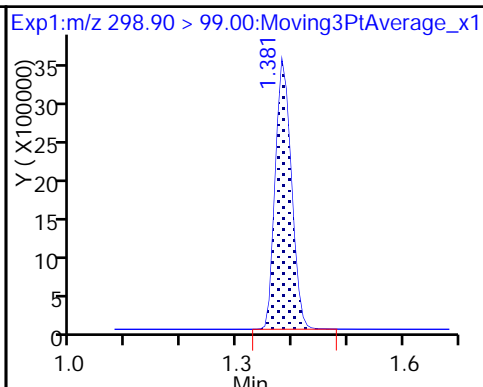
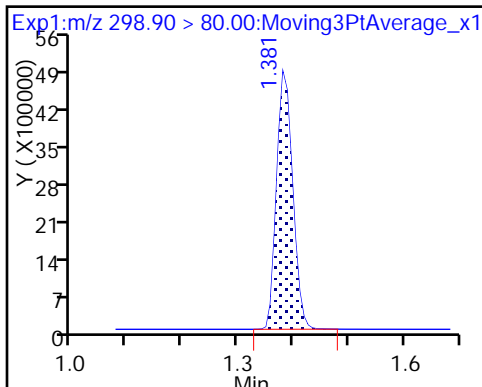
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

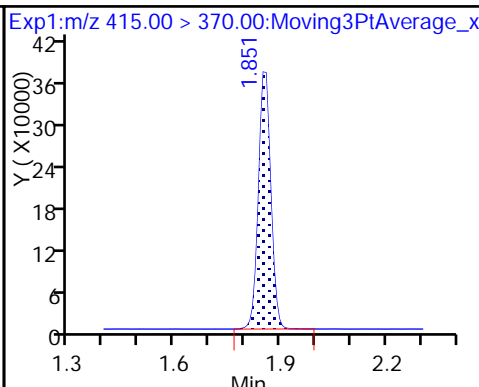
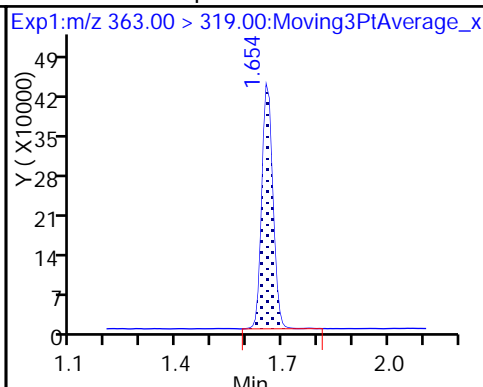
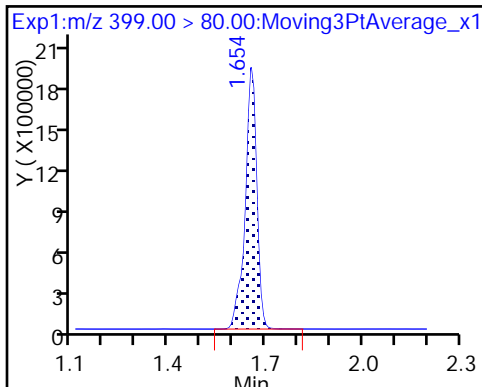
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

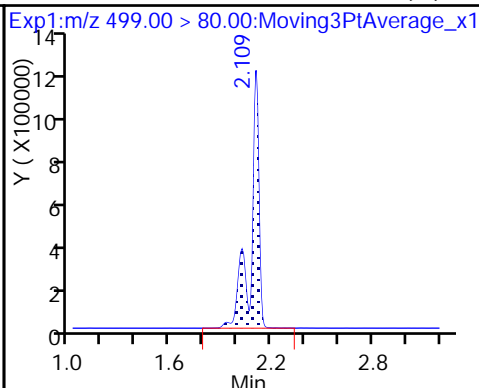
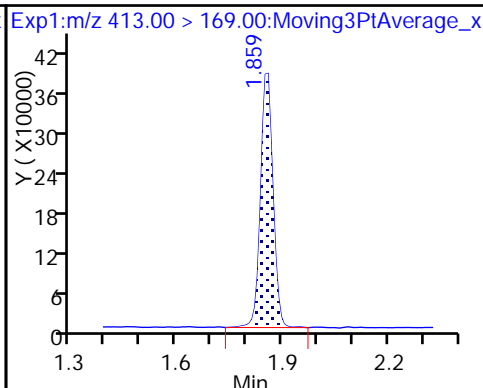
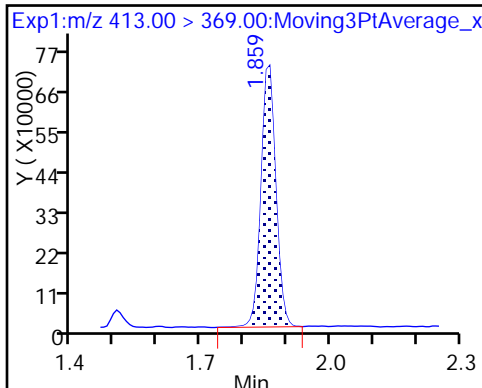
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

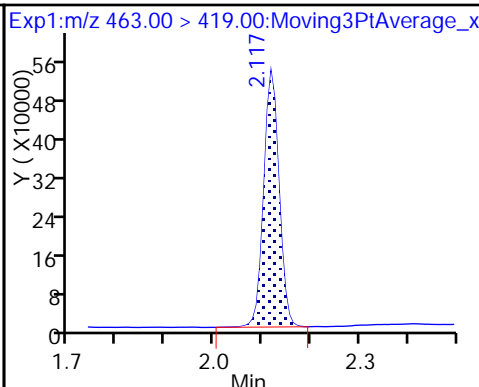
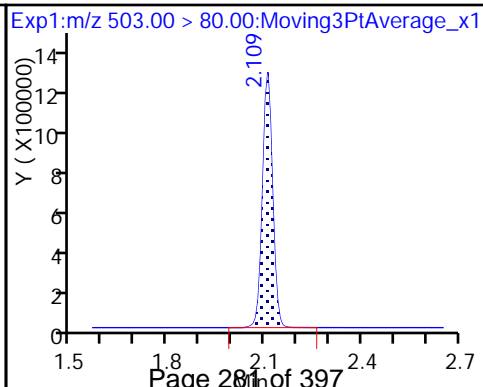
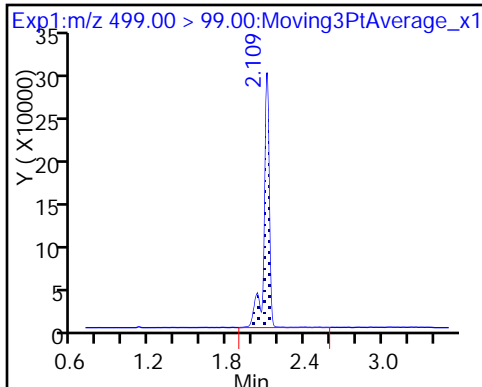
8 Perfluorooctane sulfonic acid (M)



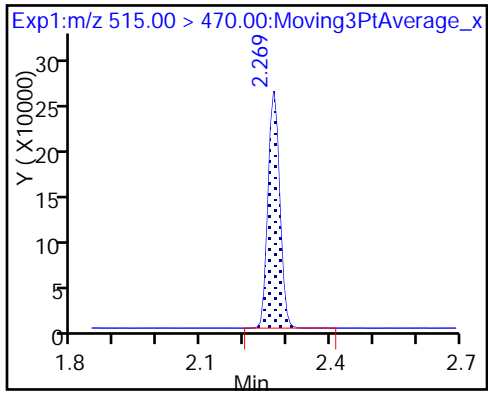
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

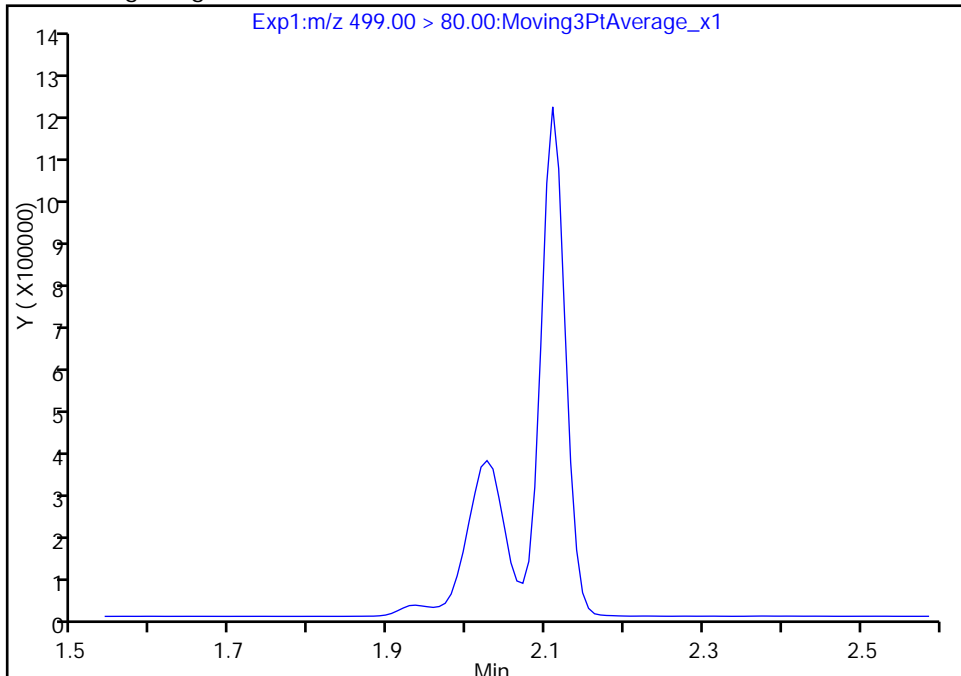
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Injection Date: 16-Feb-2018 09:09:42 Instrument ID: A8\_N  
Lims ID: IC L4  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 4 Worklist Smp#: 7  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

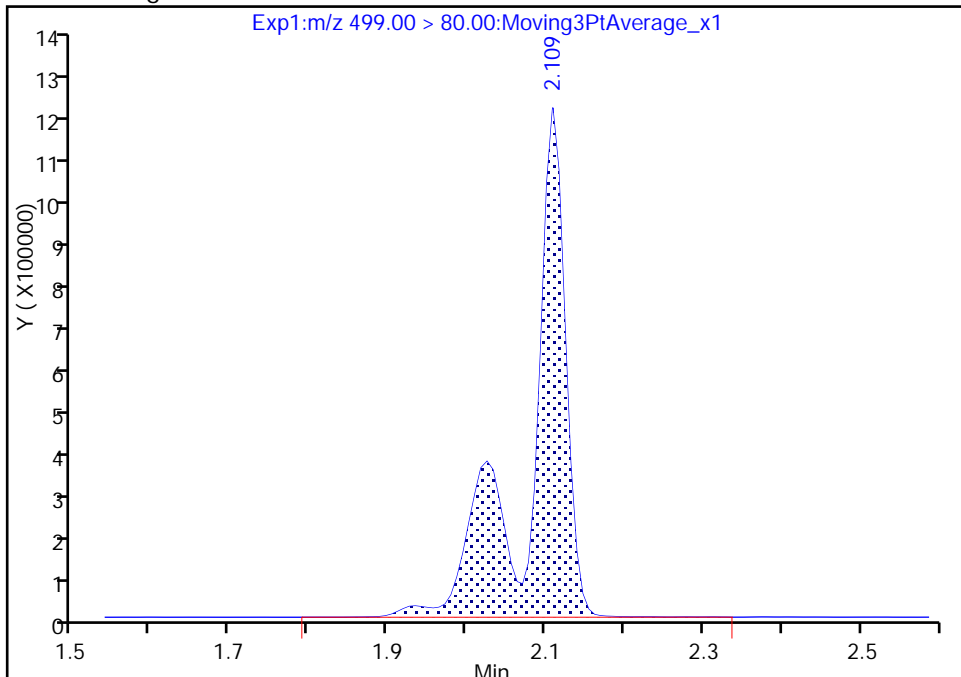
Not Detected  
Expected RT: 2.11

Processing Integration Results



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

Manual Integration Results



Reviewer: roycea, 16-Feb-2018 10:30:18  
Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_008.d  
 Lims ID: IC L5  
 Client ID:  
 Sample Type: IC Calib Level: 5  
 Inject. Date: 16-Feb-2018 09:14:23 ALS Bottle#: 5 Worklist Smp#: 8  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L5\_537  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-537\_A8\_N\*sub1  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 10:55:33 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: roycea Date: 16-Feb-2018 10:31:06

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

**QC Flag Legend**

Review Flags

a - User Assigned ID

**Reagents:**

LC537-L5\_00025

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_008.d

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

Instrument ID: A8\_N

Lims ID: IC L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 8

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

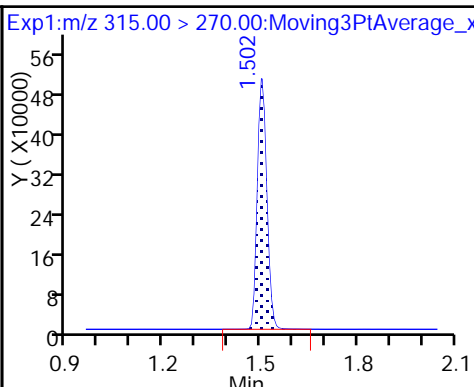
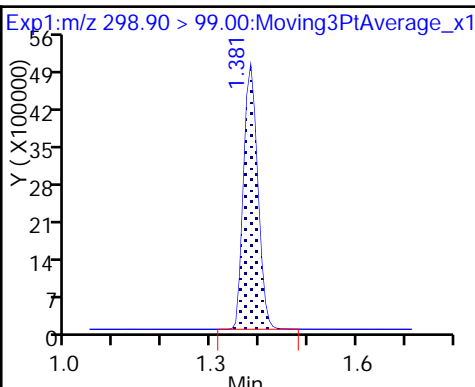
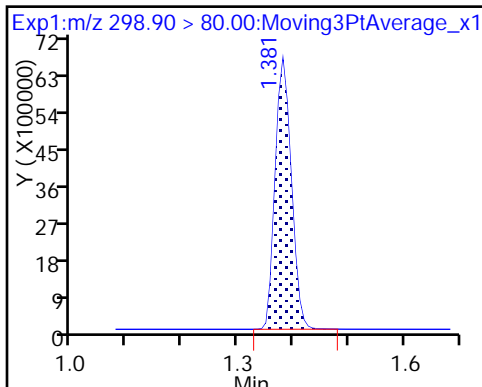
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

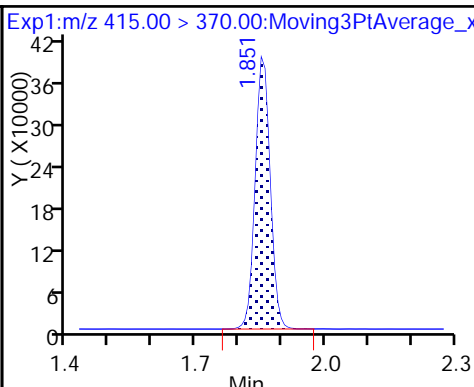
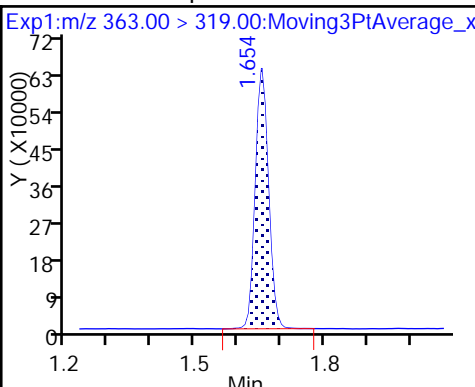
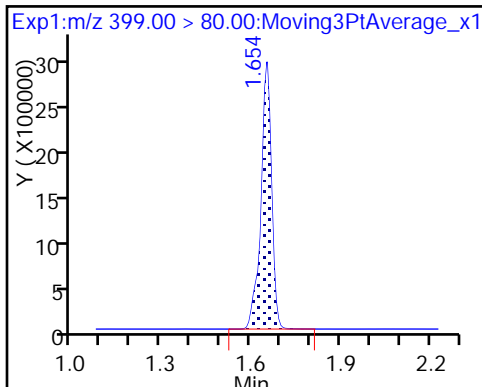
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

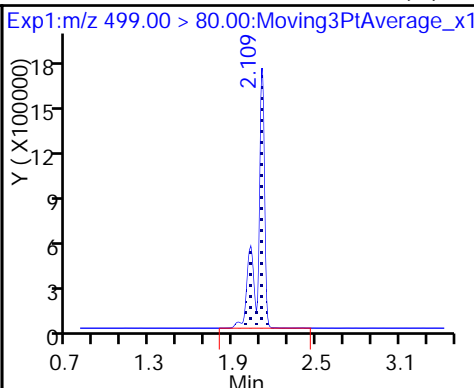
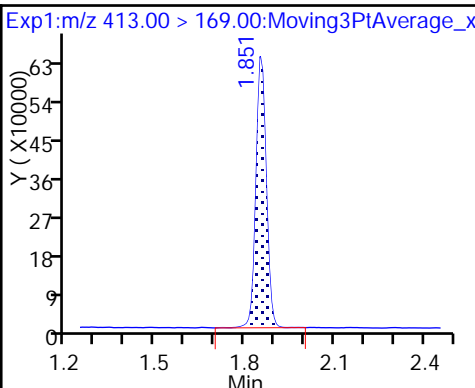
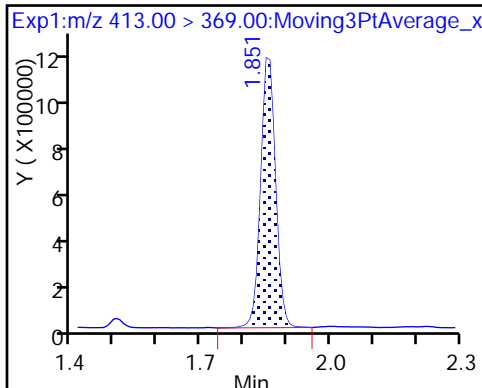
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

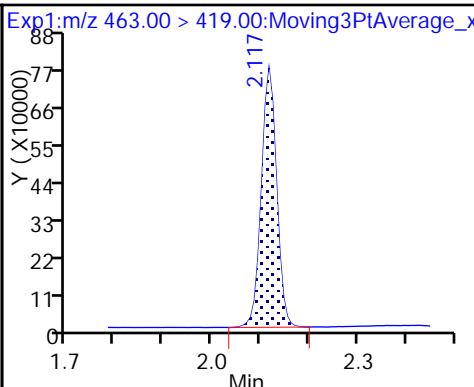
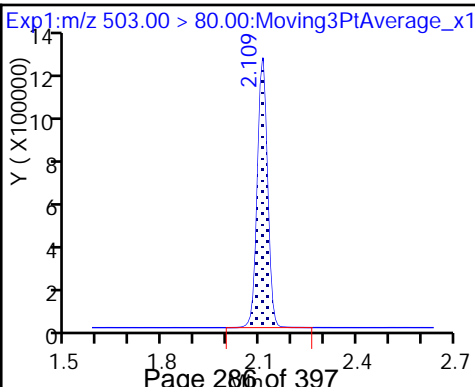
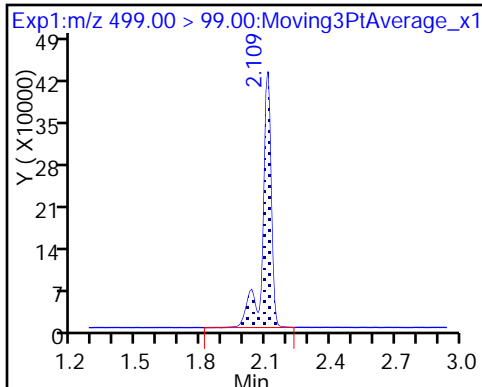
8 Perfluorooctane sulfonic acid (M)



8 Perfluorooctane sulfonic acid

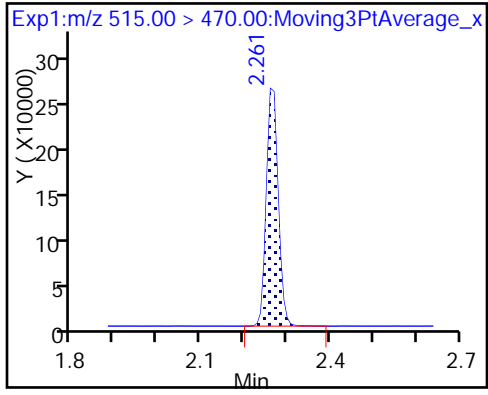
\* 7 13C4 PFOS

9 Perfluorononanoic acid





\$ 10 13C2 PFDA



TestAmerica Sacramento

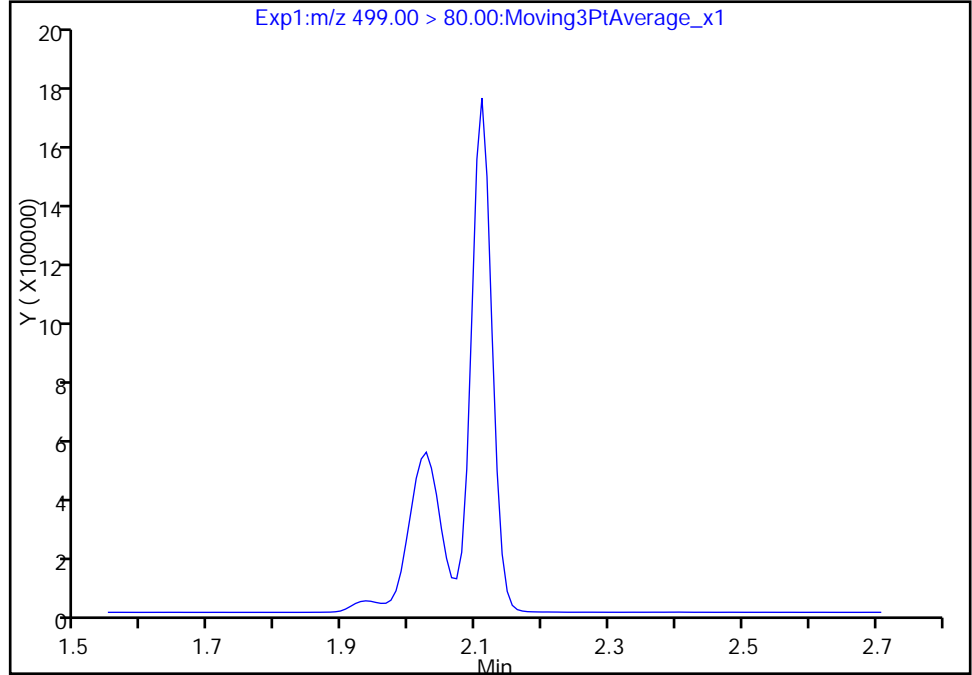
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_008.d  
Injection Date: 16-Feb-2018 09:14:23 Instrument ID: A8\_N  
Lims ID: IC L5  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 8  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

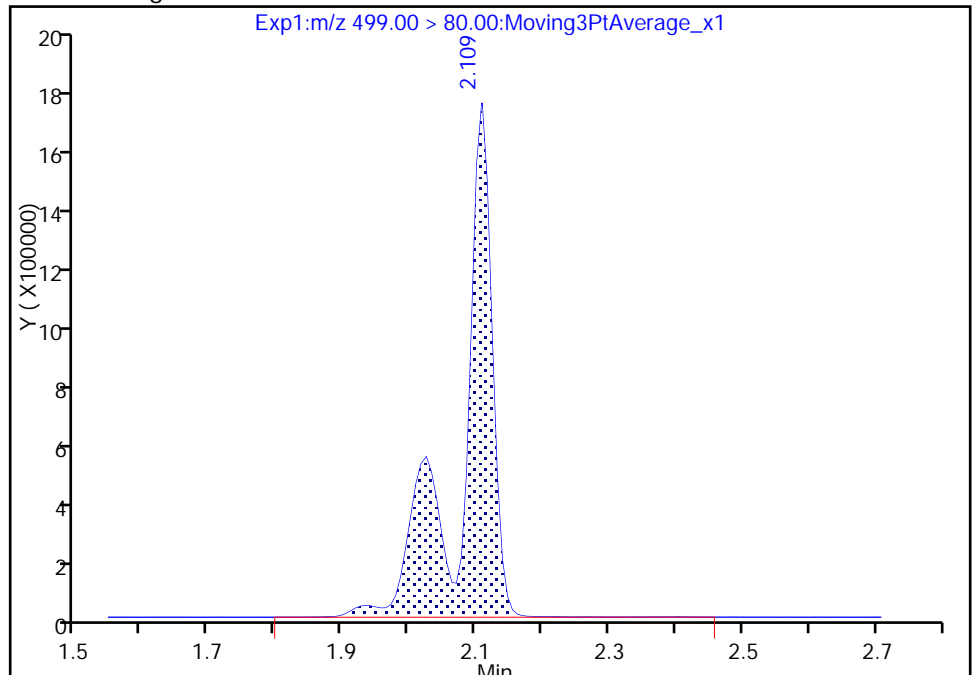
Not Detected  
Expected RT: 2.11

Processing Integration Results



Manual Integration Results

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



Reviewer: roycea, 16-Feb-2018 10:30:47  
Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d  
 Lims ID: IC L6  
 Client ID:  
 Sample Type: IC Calib Level: 6  
 Inject. Date: 16-Feb-2018 09:19:04 ALS Bottle#: 6 Worklist Smp#: 9  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: L6\_537  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-537\_A8\_N\*sub1

Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 10:55:34 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: roycea Date: 16-Feb-2018 10:31:33

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

**QC Flag Legend**

Review Flags

a - User Assigned ID

**Reagents:**

LC537-L6\_00021

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d

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

Instrument ID: A8\_N

Lims ID: IC L6

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 6

Worklist Smp#: 9

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

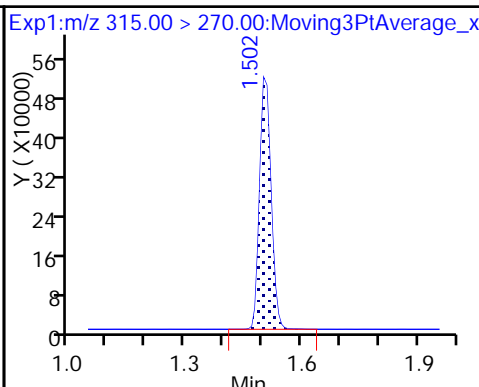
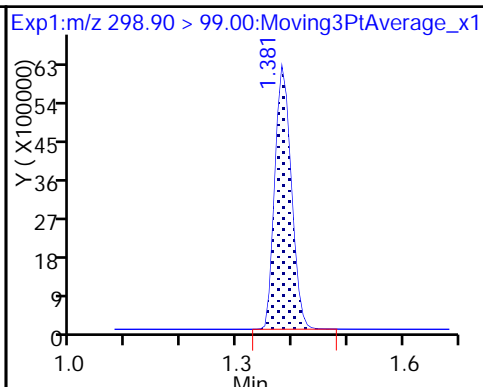
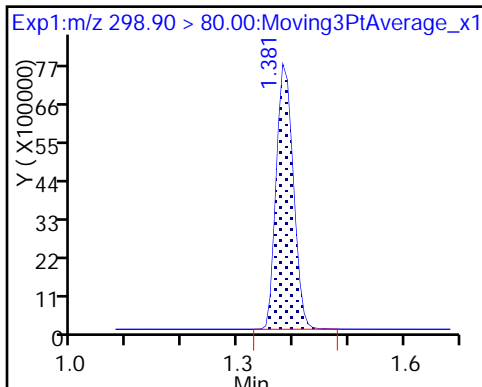
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

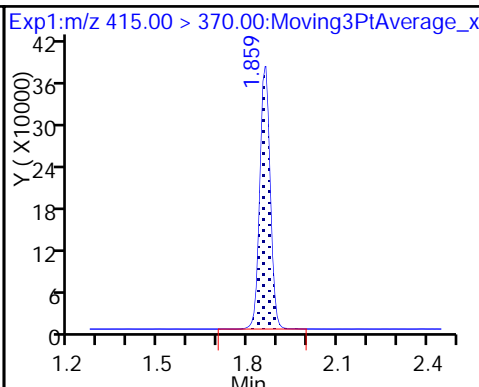
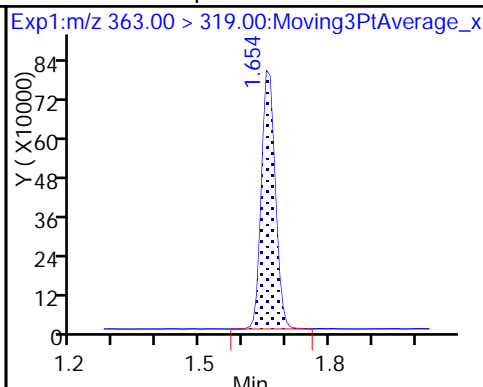
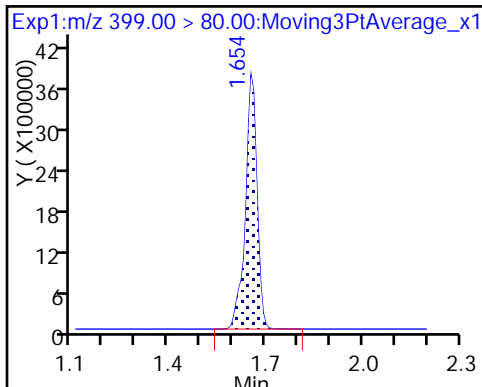
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

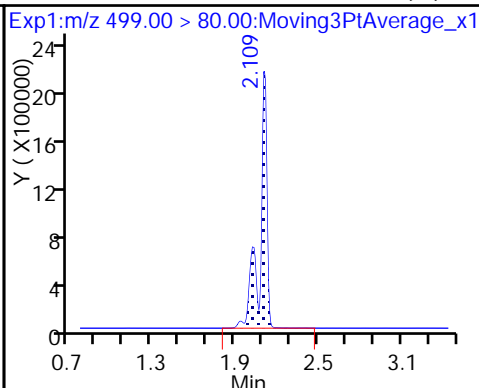
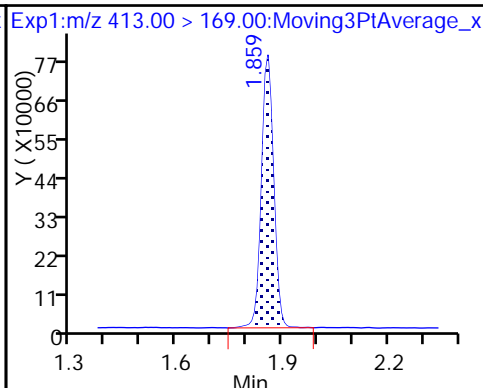
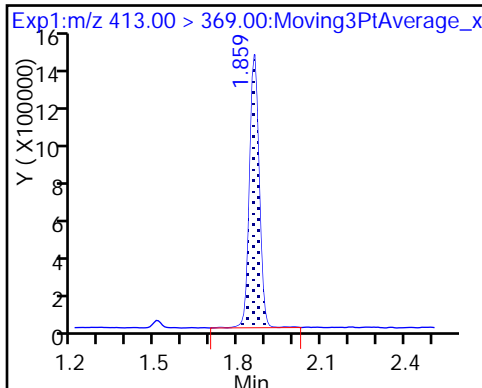
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

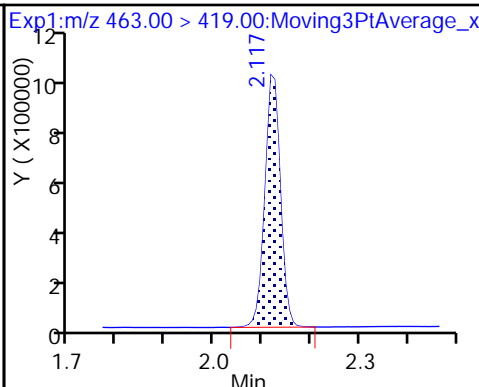
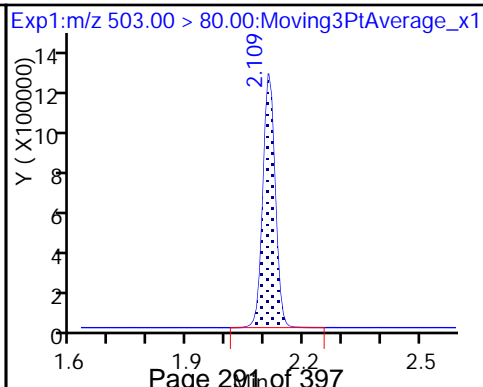
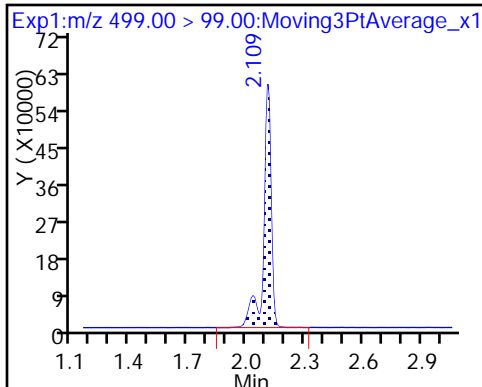
8 Perfluorooctane sulfonic acid (M)



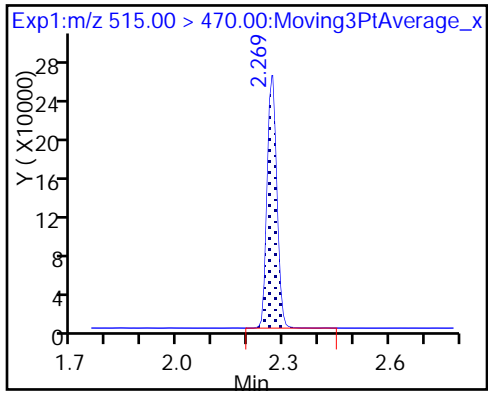
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

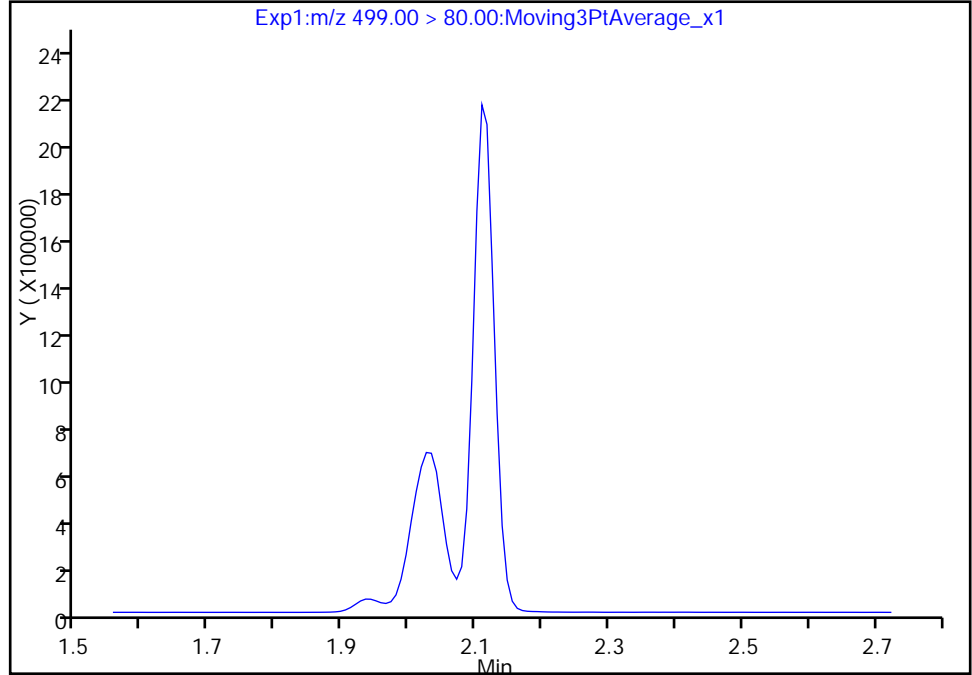
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d  
Injection Date: 16-Feb-2018 09:19:04 Instrument ID: A8\_N  
Lims ID: IC L6  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 6 Worklist Smp#: 9  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

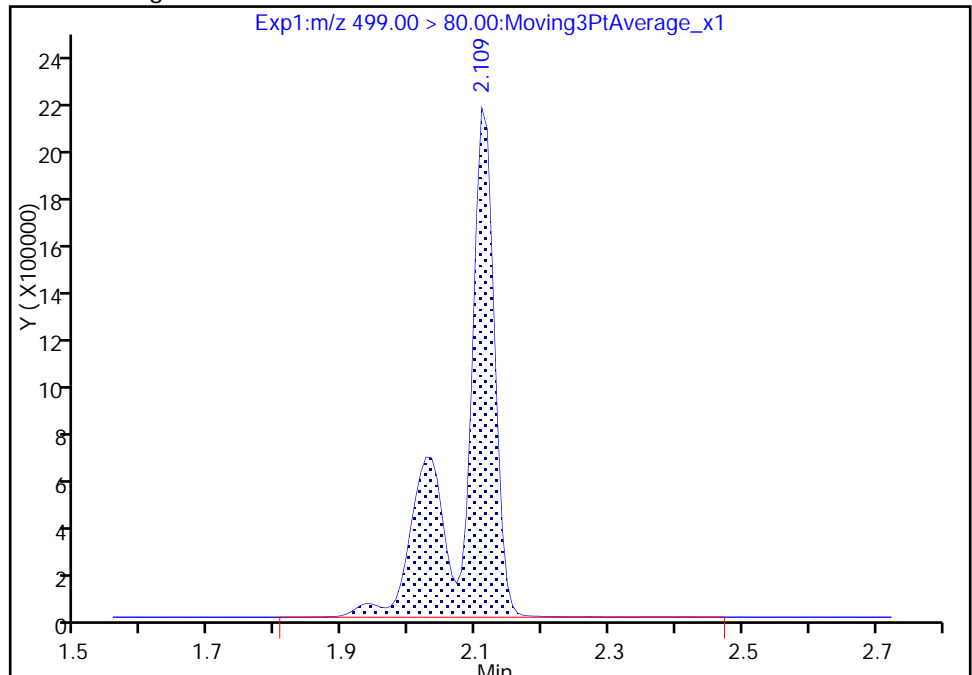
Not Detected  
Expected RT: 2.11

Processing Integration Results



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

Manual Integration Results



Reviewer: roycea, 16-Feb-2018 10:31:12  
Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 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

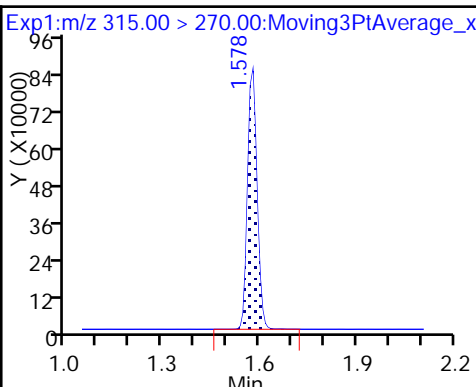
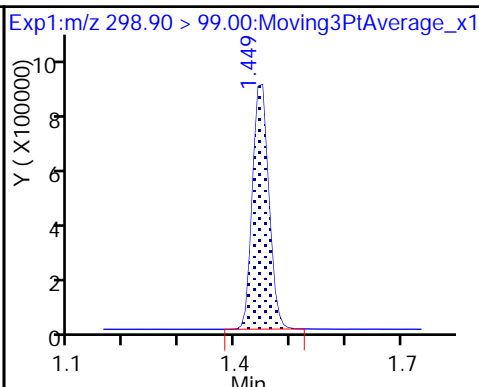
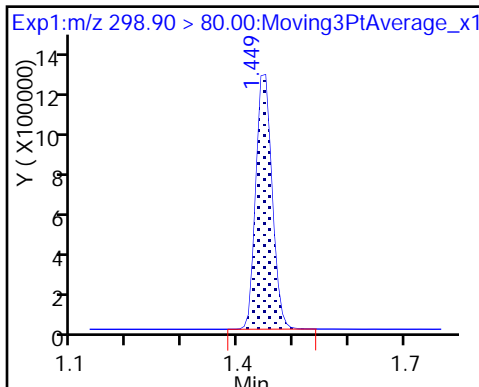
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

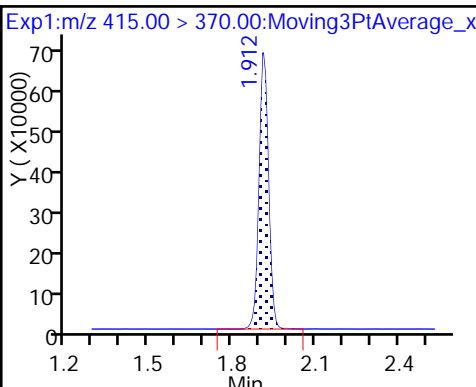
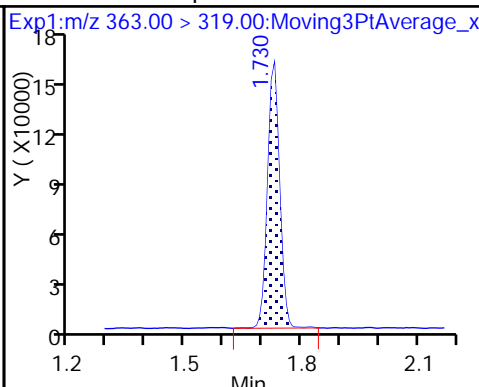
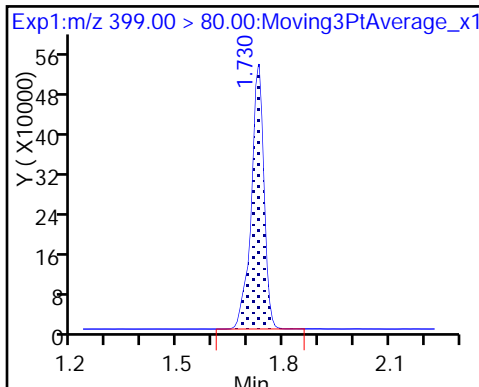
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

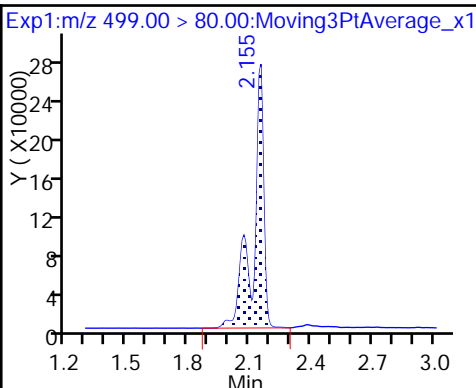
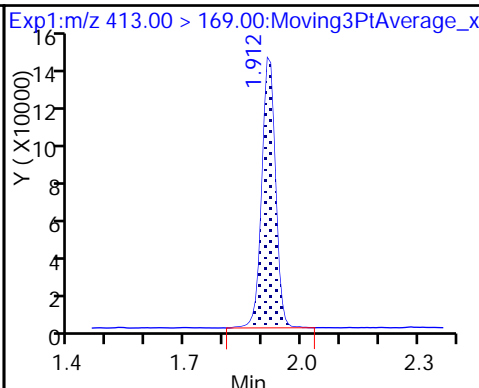
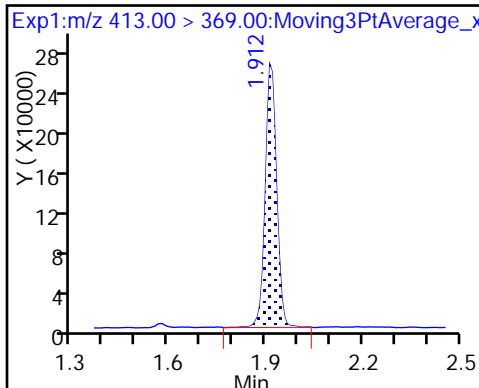
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

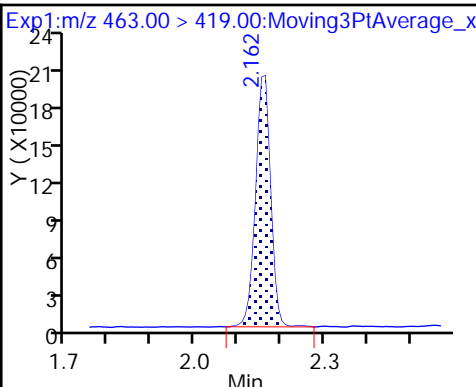
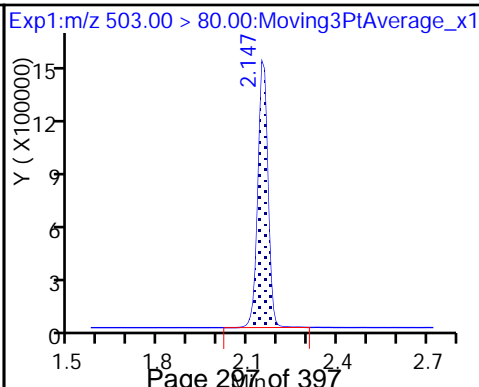
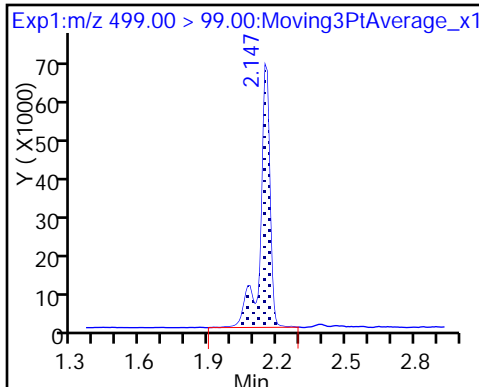
8 Perfluorooctane sulfonic acid



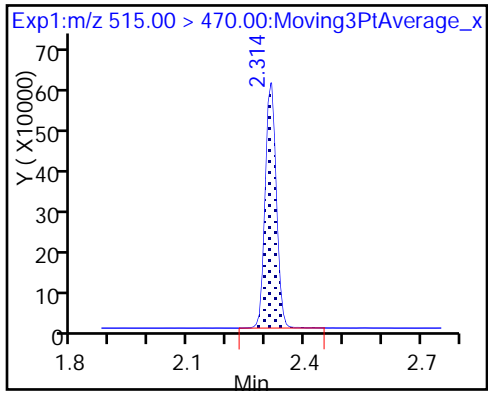
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 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

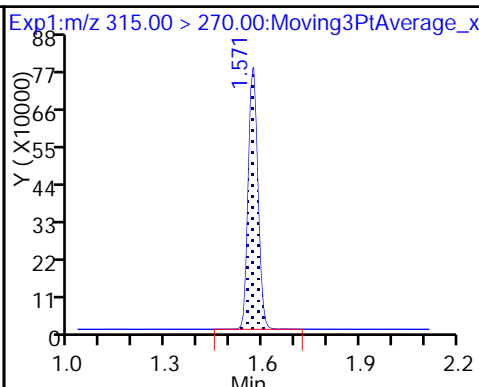
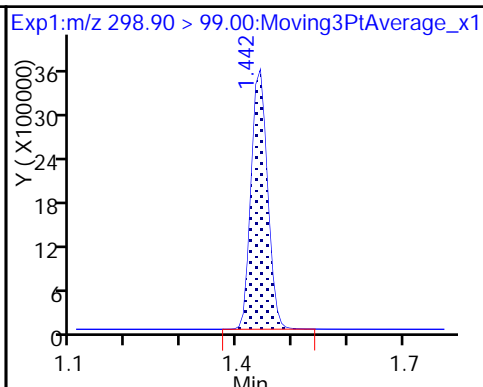
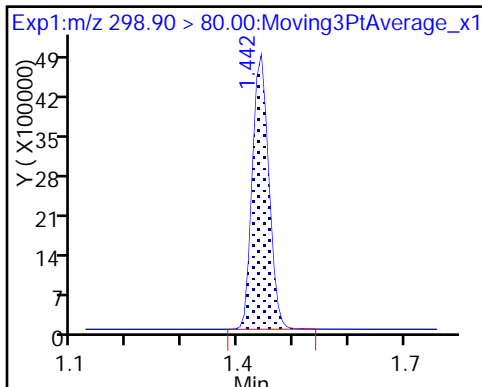
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

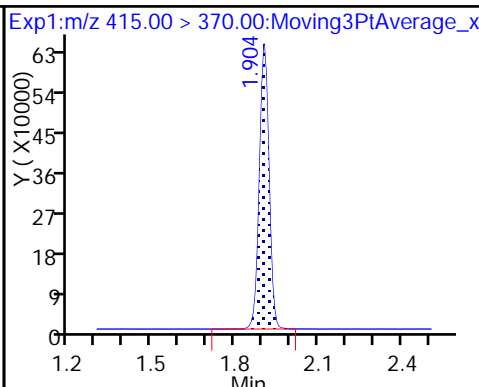
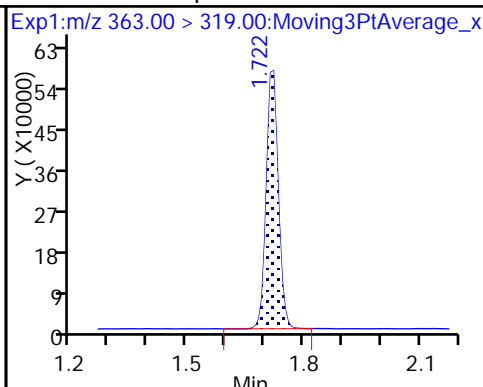
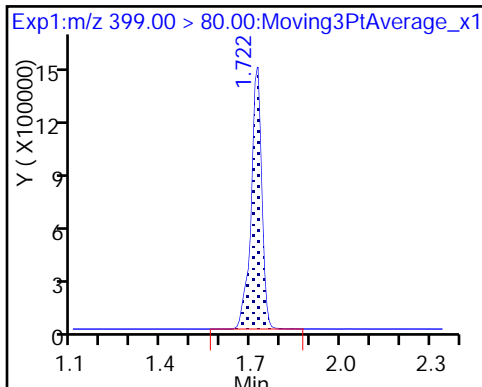
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

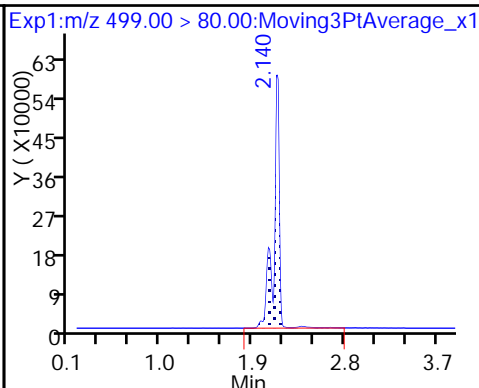
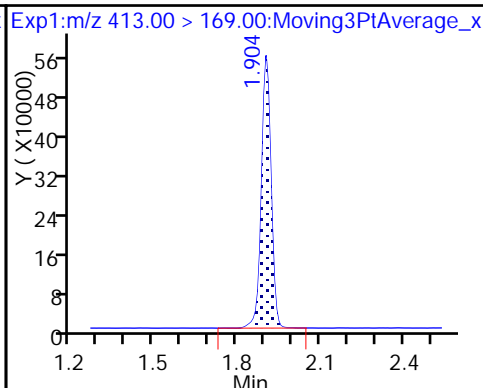
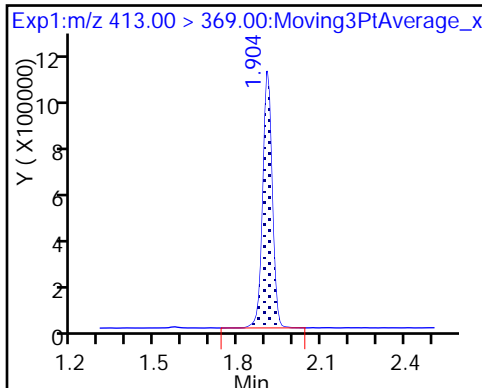
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

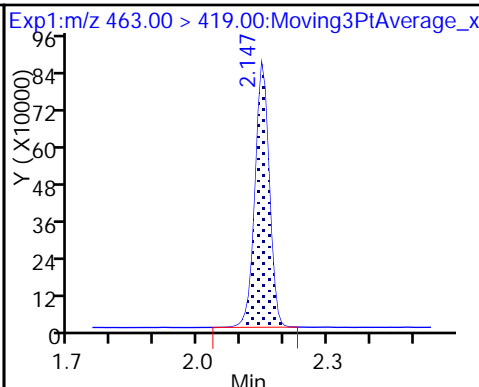
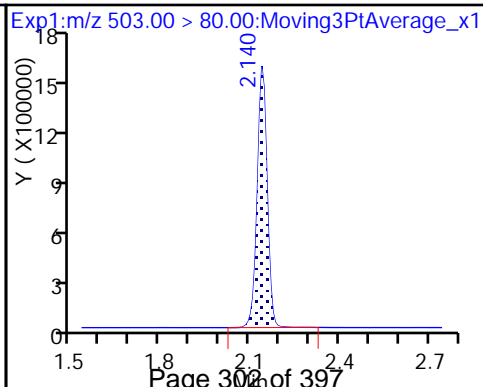
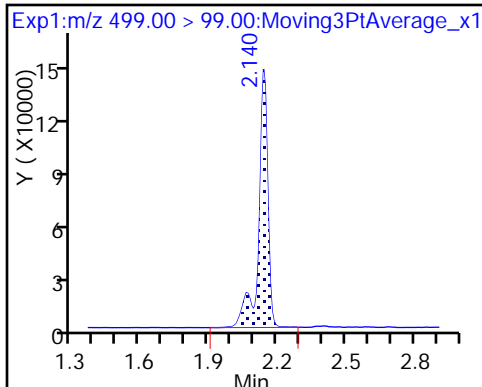
8 Perfluorooctane sulfonic acid



8 Perfluorooctane sulfonic acid

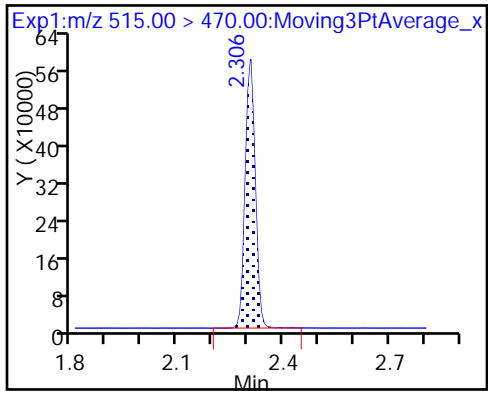
\* 7 13C4 PFOS

9 Perfluorononanoic acid





\$ 10 13C2 PFDA



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 320-208494/1 Calibration Date: 02/14/2018 12:27  
 Instrument ID: A8\_N Calib Start Date: 11/03/2017 13:37  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01  
 Lab File ID: 2018.02.14\_537A\_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.120		20.6	20.0	2.9	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.601		6.38	6.67	-4.4	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.028		2.44	2.22	9.7	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	1.028		4.96	4.47	11.0	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9611		9.14	8.93	2.4	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7017		4.70	4.45	5.7	50.0
13C2 PFHxA	Ave	1.100	1.072		9.75	10.0	-2.5	30.0
13C2 PFDA	Ave	0.7652	0.7885		10.3	10.0	3.0	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54087.b\2018.02.14\_537A\_004.d  
 Lims ID: CCVL  
 Client ID:  
 Sample Type: CCVL  
 Inject. Date: 14-Feb-2018 12:27:27 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\20180215-54087.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 08:41:14 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: XAWRK006

First Level Reviewer: westendorfc Date: 15-Feb-2018 08:41:11

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.366	-0.008	1.000	2829367	20.6		7475	
298.90 > 99.00	1.358	1.366	-0.008	1.000	2029254		1.39(0.00-0.00)	5848	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.487	-0.008	1.000	1670155	9.75		11663	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.631	-0.015	1.000	1348648	6.38		2507	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.631	-0.007	1.000	355860	2.44		62.7	
* 6 13C2-PFOA									
415.00 > 370.00	1.806	1.821	-0.015		1557461	10.0		7444	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.821	-0.015	1.000	715532	4.96		11.4	
413.00 > 169.00	1.806	1.821	-0.015	1.000	352191		2.03(0.00-0.00)	10.9	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.048	0.008	1.000	1084061	9.14		962	a
499.00 > 99.00	2.056	2.048	0.008	1.000	230977		4.69(0.00-0.00)	716	a
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.079	-0.023		3623720	28.7		9474	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.086	-0.022	1.000	485869	4.70		102	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.253	-0.015	1.000	1228117	10.3		3738	

**QC Flag Legend**

Review Flags

a - User Assigned ID

**Reagents:**

LC537-L2\_00021

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54087.b\2018.02.14\_537A\_004.d

Injection Date: 14-Feb-2018 12:27:27

Instrument ID: A8\_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 1

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

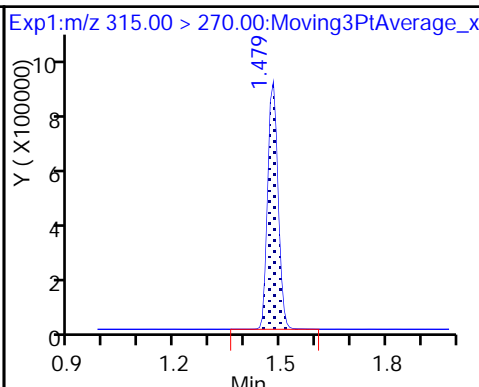
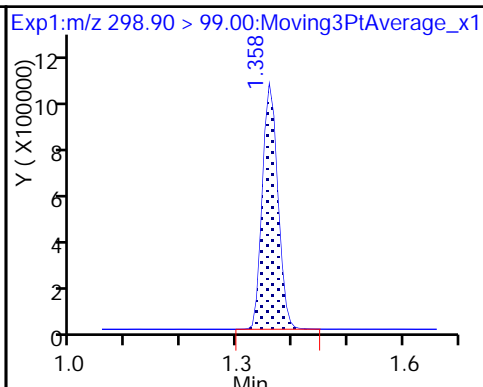
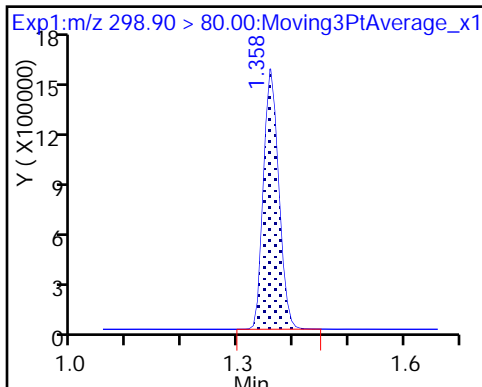
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

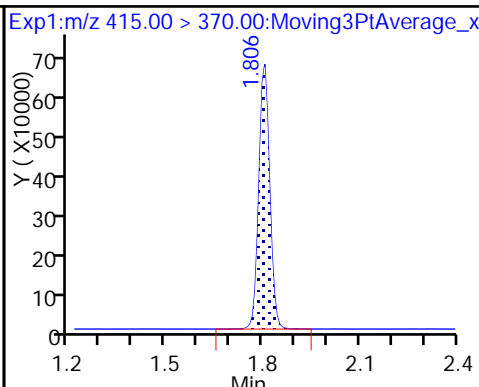
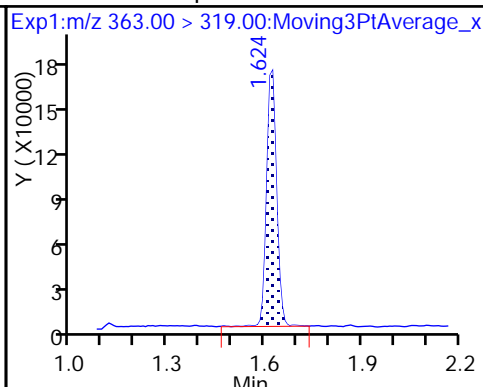
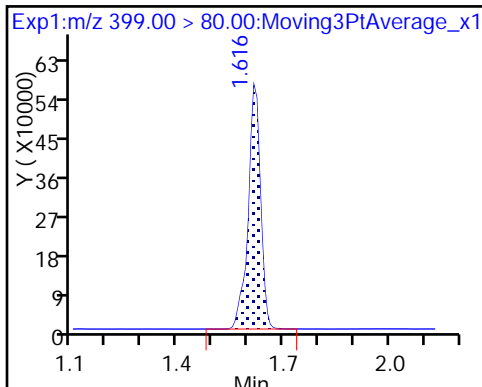
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

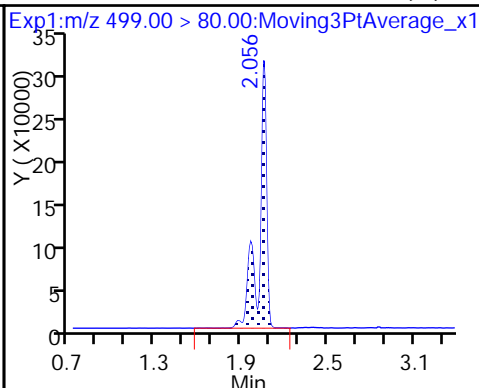
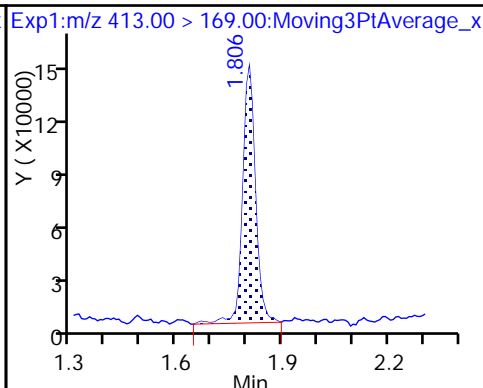
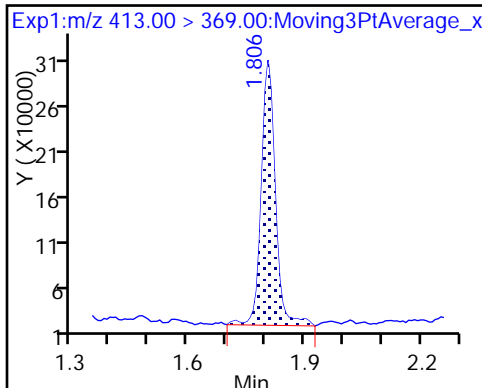
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

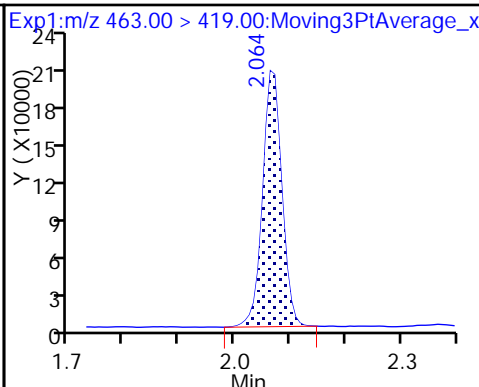
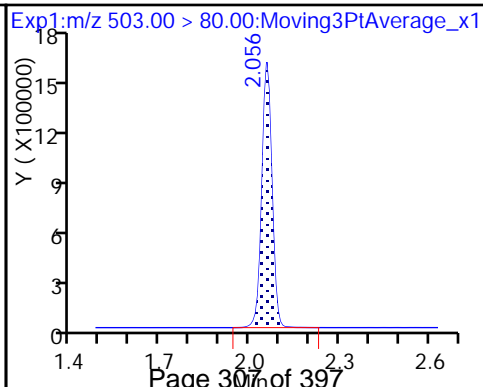
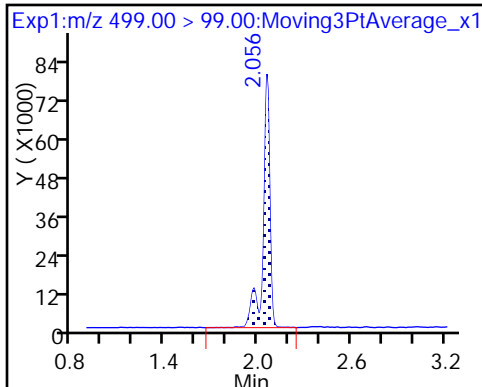
8 Perfluorooctane sulfonic acid (M)



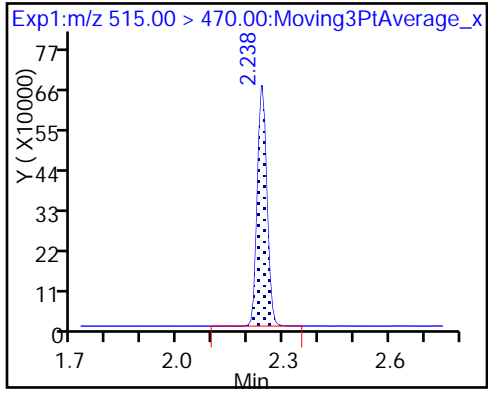
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

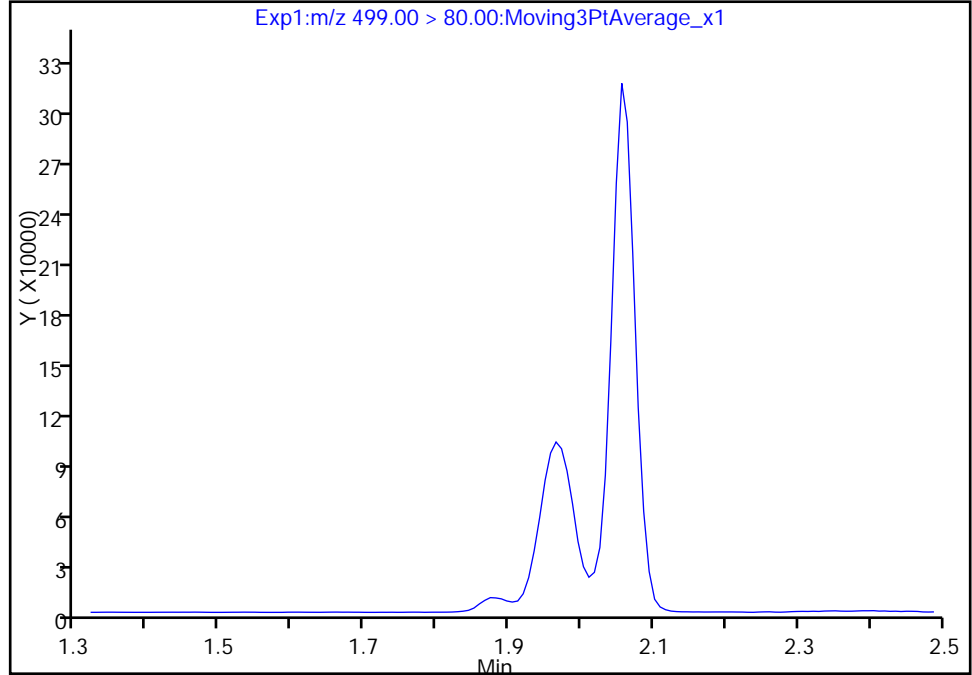
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54087.b\2018.02.14\_537A\_004.d  
Injection Date: 14-Feb-2018 12:27:27 Instrument ID: A8\_N  
Lims ID: CCVL  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 1  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

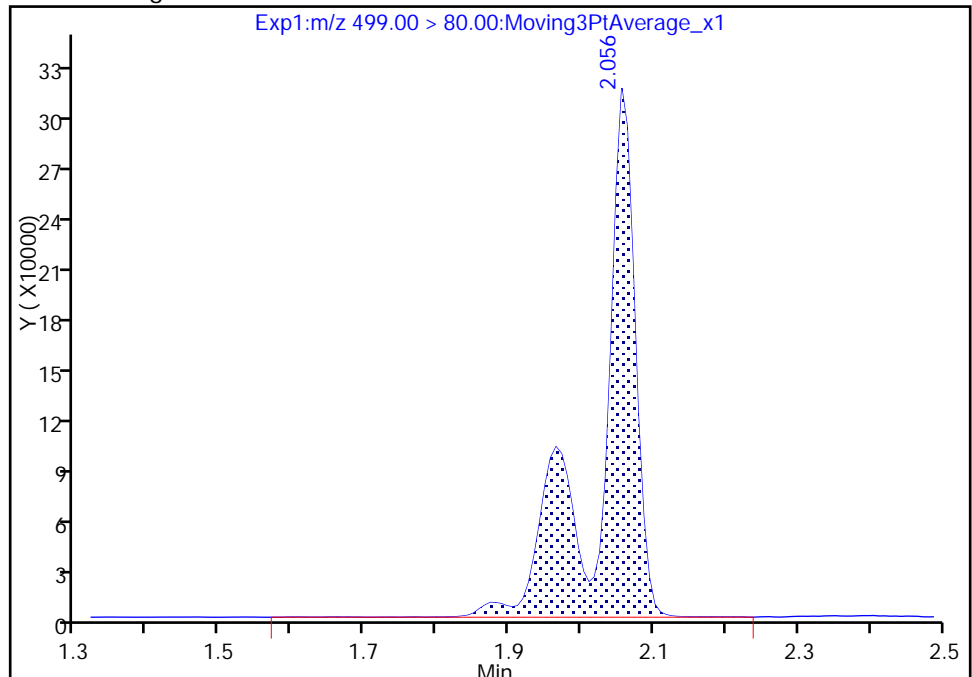
Not Detected  
Expected RT: 2.05

Processing Integration Results



RT: 2.06  
Area: 1084061  
Amount: 9.137689  
Amount Units: ng/ml

Manual Integration Results



Reviewer: westendorfc, 15-Feb-2018 08:41:07  
Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-208529/13 Calibration Date: 02/15/2018 07:52  
 Instrument ID: A8\_N Calib Start Date: 11/03/2017 13:37  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01  
 Lab File ID: 2018.02.14\_537AXXX\_041.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.118		48.0	45.0	6.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.018		5.43	5.00	8.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.564		14.0	15.0	-6.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9492		10.3	10.1	2.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9427		20.2	20.1	0.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7042		10.6	10.0	6.0	30.0
13C2 PFHxA	Ave	1.100	1.129		10.3	10.0	2.6	30.0
13C2 PFDA	Ave	0.7652	0.5784		7.56	10.0	-24.4	30.0



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_041.d  
 Lims ID: CCV L3  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 15-Feb-2018 07:52:02 ALS Bottle#: 3 Worklist Smp#: 13  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L3  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-537\_A8\_N\*sub1  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:38 Calib Date: 03-Nov-2017 14:01:24  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20171106-49975.b\2017.11.03\_537XICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK016

First Level Reviewer: barnettj Date: 15-Feb-2018 10:08:39

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.350	1.350	0.0	1.000	5958296	48.0		20803	
298.90 > 99.00	1.343	1.350	-0.007	0.994	4337649		1.37(0.00-0.00)	16919	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.464	1.464	0.0	1.000	1299373	10.3		16084	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.601	1.601	0.0	1.000	2779015	14.0		7984	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.601	1.601	0.0	1.000	585978	5.43		107	
* 6 13C2-PFOA									
415.00 > 370.00	1.775	1.775	0.0		1151260	10.0		10946	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.775	1.775	0.0	1.000	1098853	10.3		34.7	M
413.00 > 169.00	1.775	1.775	0.0	1.000	600391		1.83(0.00-0.00)	80.2	M
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.026	2.026	0.0	1.000	2241928	20.2		3642	a
499.00 > 99.00	2.026	2.026	0.0	1.000	473445		4.74(0.00-0.00)	351	a
* 7 13C4 PFOS									
503.00 > 80.00	2.018	2.018	0.0		3395982	28.7		10250	
9 Perfluorononanoic acid									
463.00 > 419.00	2.033	2.033	0.0	1.000	810920	10.6		106	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.215	2.215	0.0	1.000	665871	7.56		5245	

### QC Flag Legend

#### Review Flags

M - Manually Integrated

a - User Assigned ID

### Reagents:

LC537-L3\_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_041.d

Injection Date: 15-Feb-2018 07:52:02

Instrument ID: A8\_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

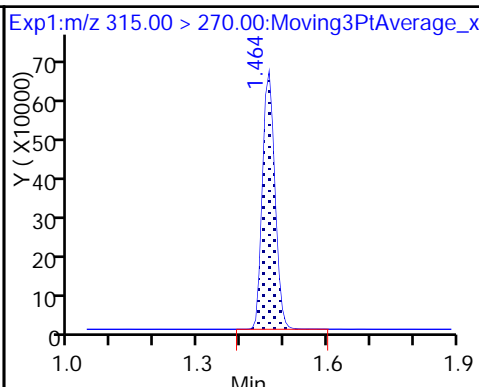
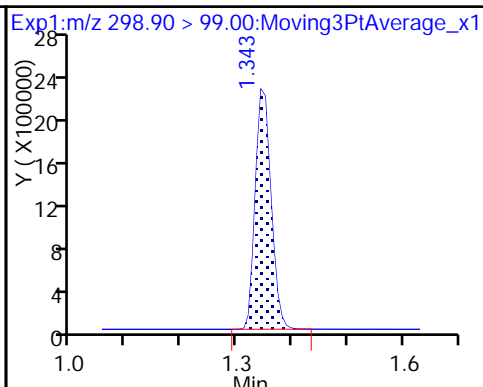
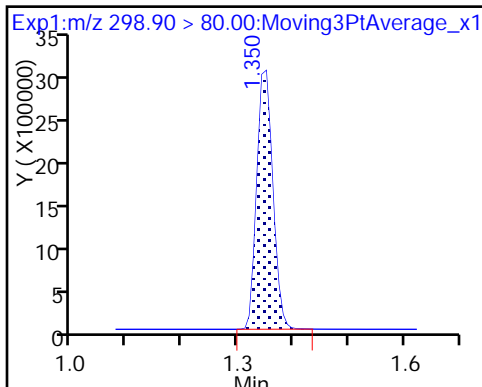
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

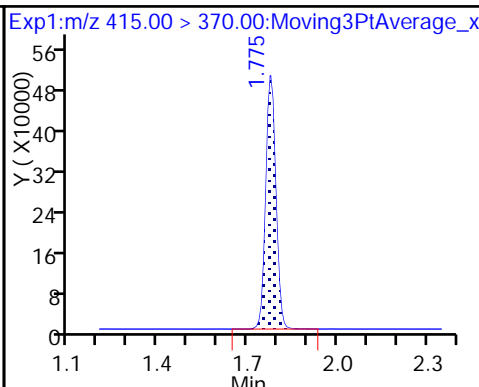
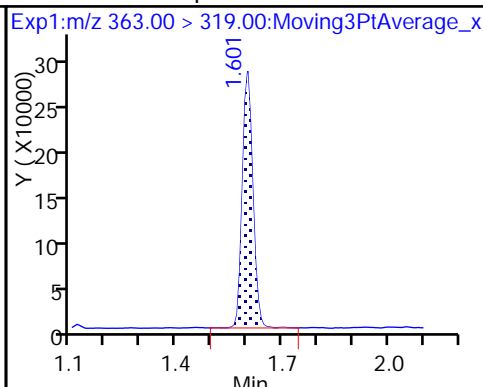
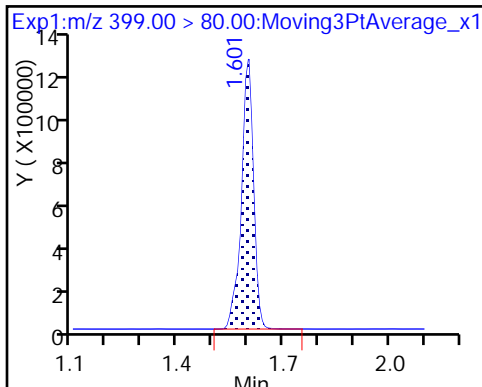
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

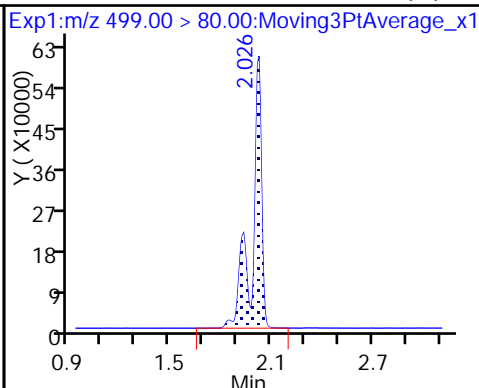
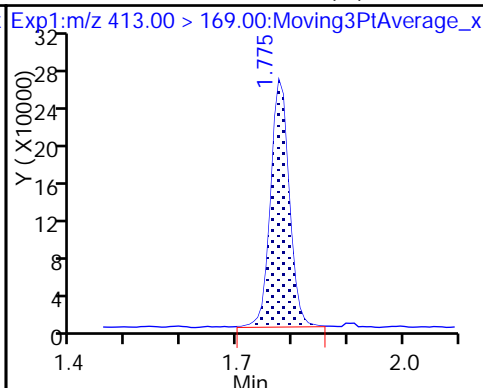
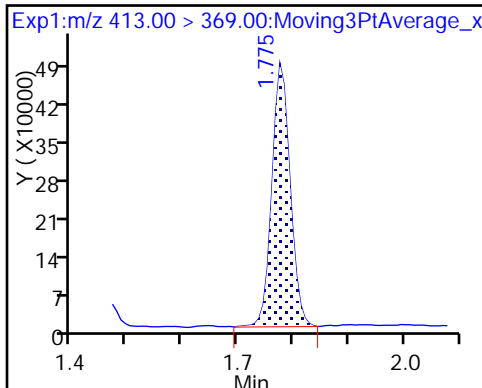
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid (M)

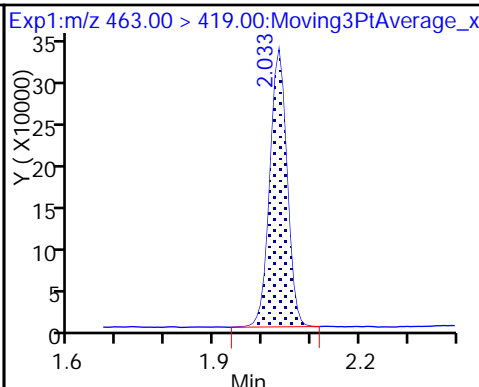
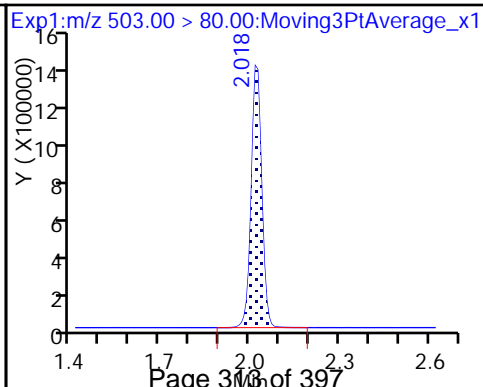
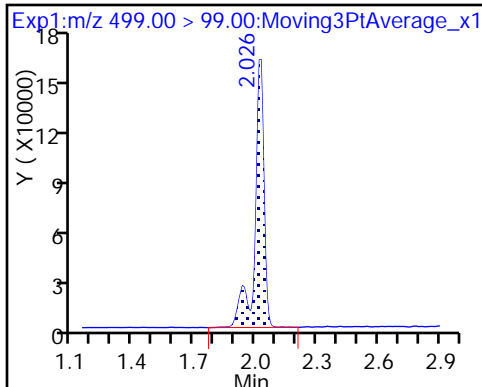
8 Perfluorooctane sulfonic acid (M)



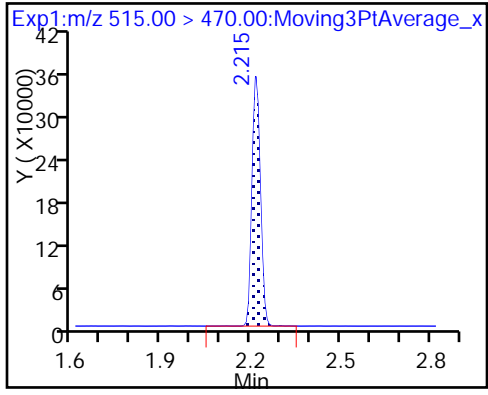
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

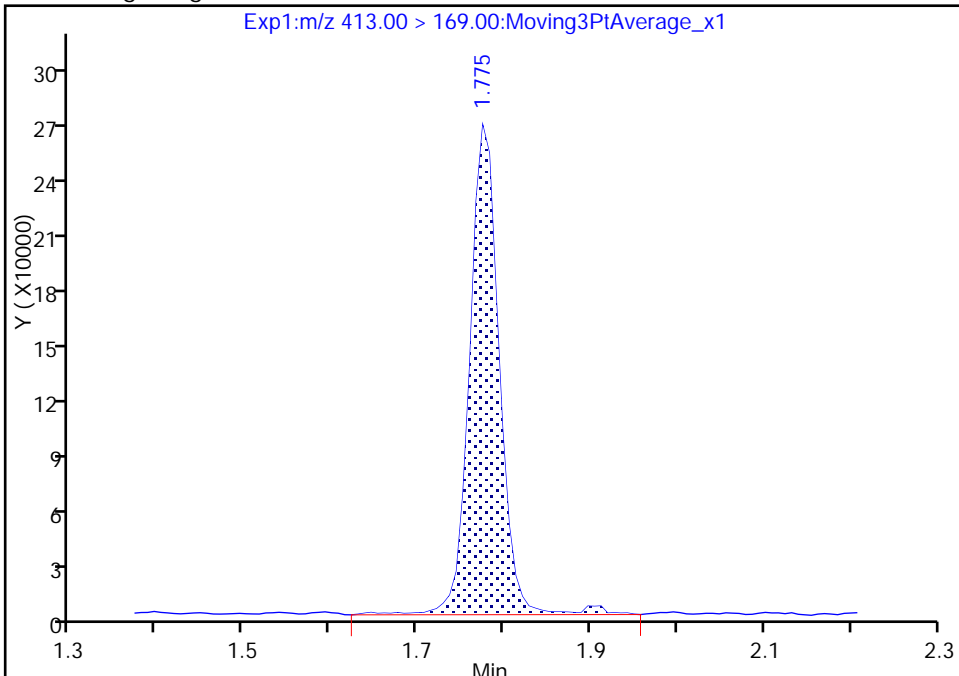
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Injection Date: 15-Feb-2018 07:52:02 Instrument ID: A8\_N  
Lims ID: CCV L3  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 13  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

5 Perfluorooctanoic acid, CAS: 335-67-1

Signal: 2

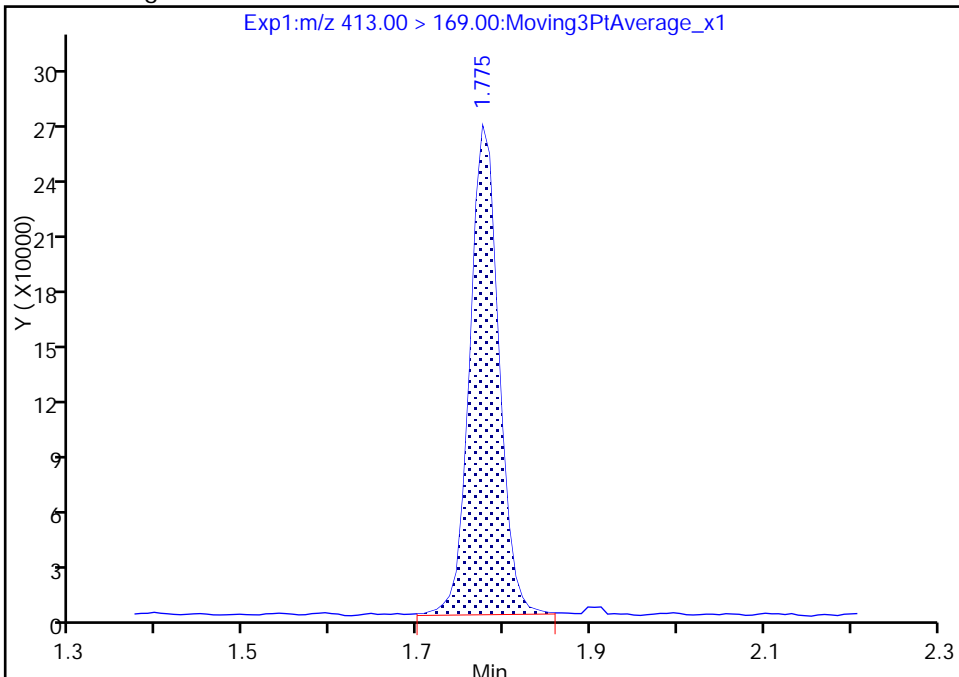
RT: 1.78  
Area: 618215  
Amount: 10.310242  
Amount Units: ng/ml

Processing Integration Results



RT: 1.78  
Area: 600391  
Amount: 10.310242  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 15-Feb-2018 10:08:28  
Audit Action: Manually Integrated

TestAmerica Sacramento

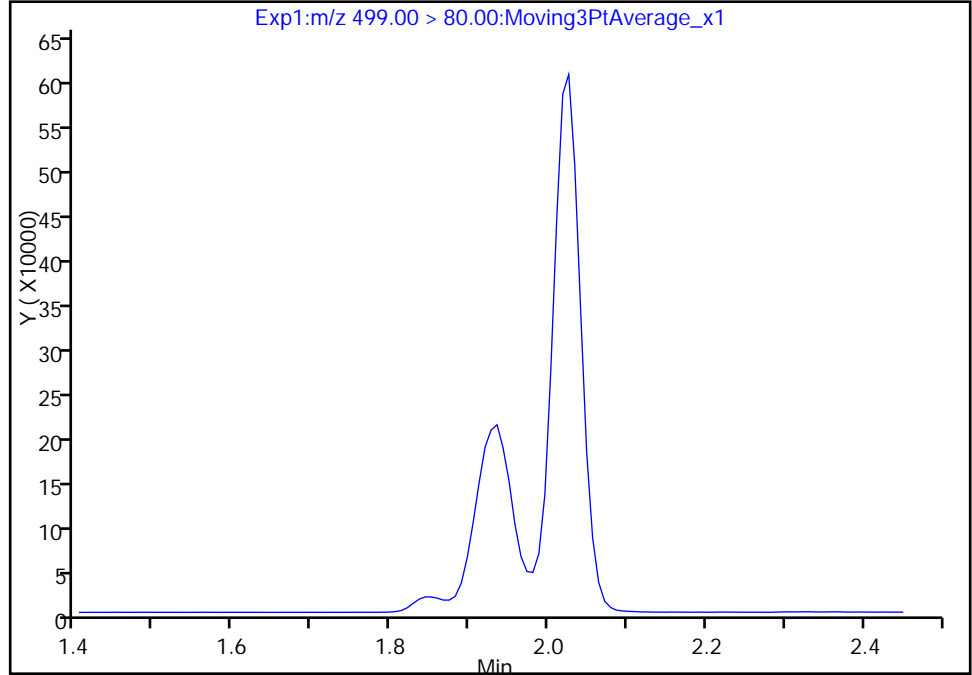
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Injection Date: 15-Feb-2018 07:52:02 Instrument ID: A8\_N  
Lims ID: CCV L3  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 13  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

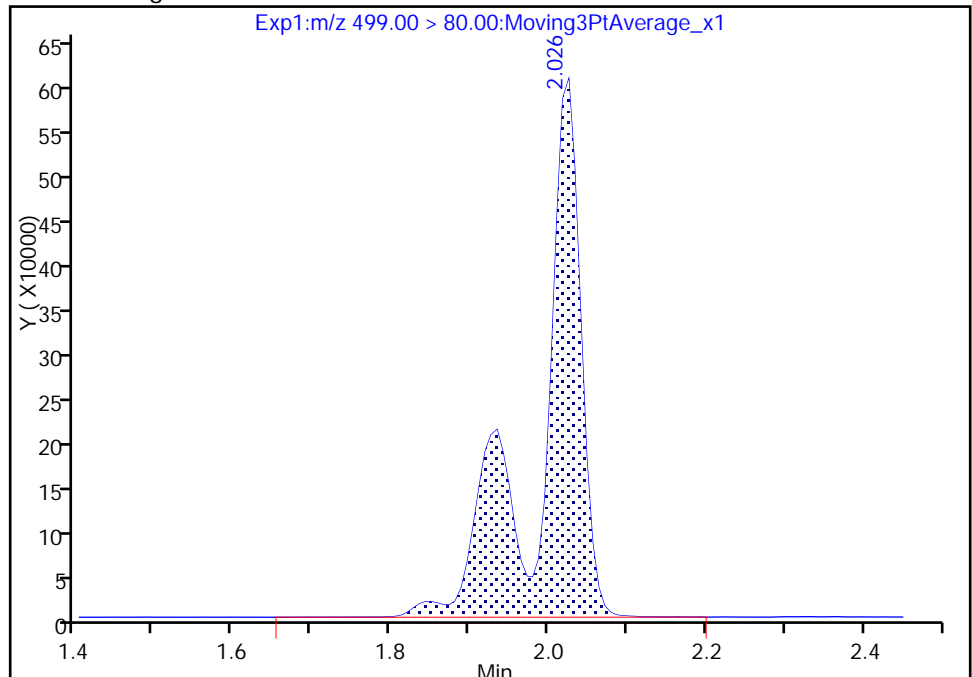
Not Detected  
Expected RT: 2.03

Processing Integration Results



RT: 2.03  
Area: 2241928  
Amount: 20.164784  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 15-Feb-2018 10:07:56  
Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-208529/24 Calibration Date: 02/15/2018 08:43  
 Instrument ID: A8\_N Calib Start Date: 11/03/2017 13:37  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01  
 Lab File ID: 2018.02.14\_537AXXX\_052.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9755		146	135	8.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.027		16.4	15.0	9.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.597		42.9	45.0	-4.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9850		32.1	30.2	6.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7003		31.6	30.0	5.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389			4.00	60.3		
13C2 PFHxA	Ave	1.100	1.140		10.4	10.0	3.6	30.0
13C2 PFDA	Ave	0.7652	0.5982		7.82	10.0	-21.8	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_052.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 15-Feb-2018 08:43:19 ALS Bottle#: 5 Worklist Smp#: 24  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L5  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-537\_A8\_N\*sub1  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 15-Feb-2018 10:29:45 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: XAWRK016

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.358	0.0	1.000	15469437	146.3		29705	
298.90 > 99.00	1.350	1.358	-0.008	0.994	11427314		1.35(0.00-0.00)	27492	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.472	1.472	0.0	1.000	1293728	10.4		17750	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.608	1.608	0.0	1.000	8444627	42.9		17043	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.608	1.608	0.0	1.000	1747220	16.4		387	
* 6 13C2-PFOA									
415.00 > 370.00	1.783	1.783	0.0		1134489	10.0		8815	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.783	1.783	0.0	1.000	3371091	32.1		97.5	
413.00 > 169.00	1.783	1.783	0.0	1.000	1903531		1.77(0.00-0.00)	249	
* 7 13C4 PFOS									
503.00 > 80.00	2.033	2.033	0.0		3368577	28.7		10798	
9 Perfluorononanoic acid									
463.00 > 419.00	2.041	2.041	0.0	1.000	2384354	31.6		284	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.223	2.223	0.0	1.000	678642	7.82		5272	

Reagents:

LC537-L5\_00025 Amount Added: 1.00 Units: mL



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b\2018.02.14\_537AXXX\_052.d

Injection Date: 15-Feb-2018 08:43:19

Instrument ID: A8\_N

Lims ID: CCV L5

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 5

Worklist Smp#: 24

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

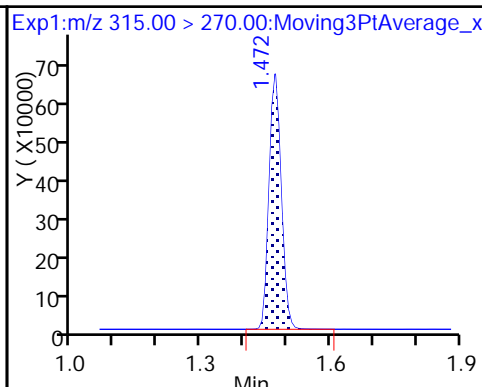
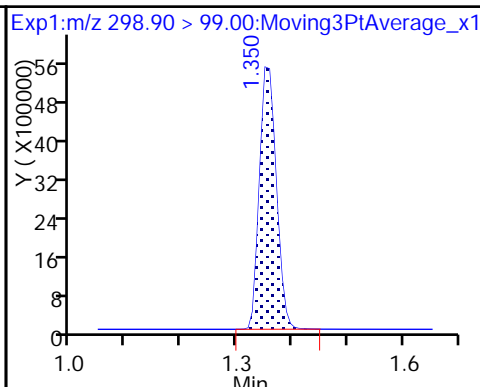
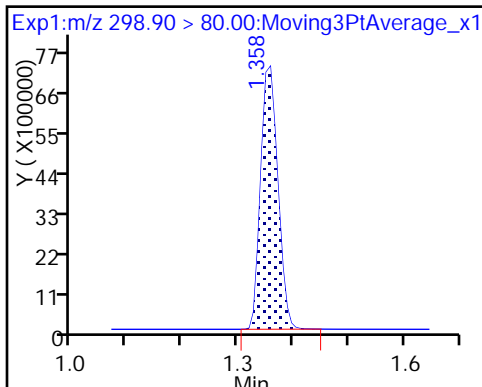
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

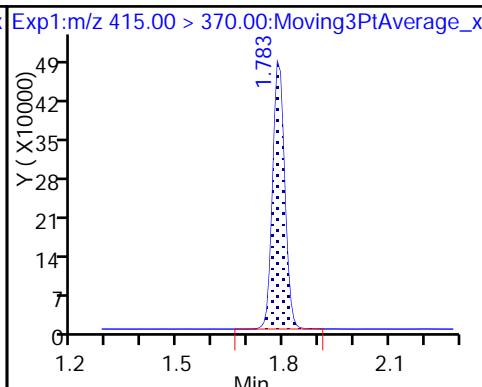
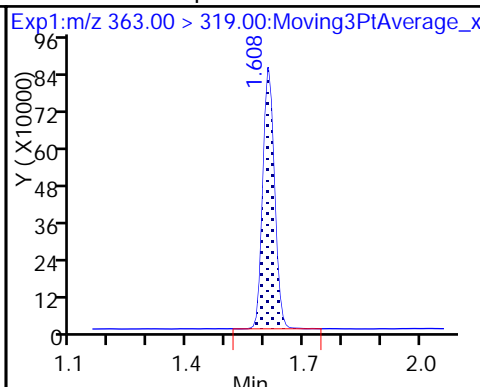
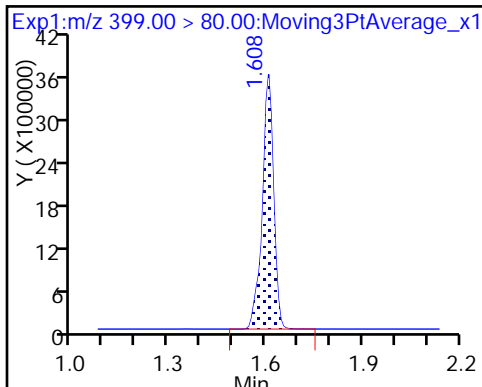
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

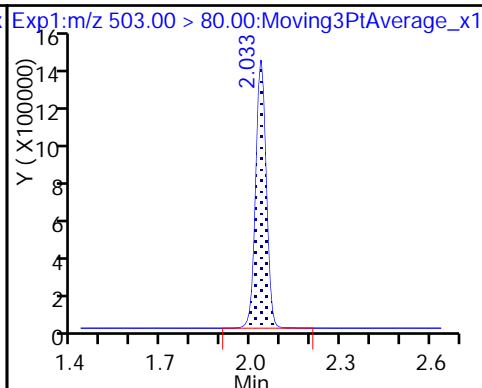
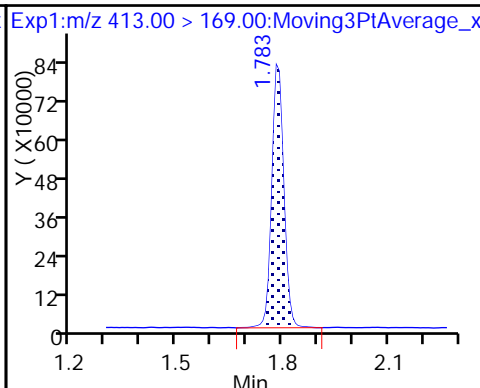
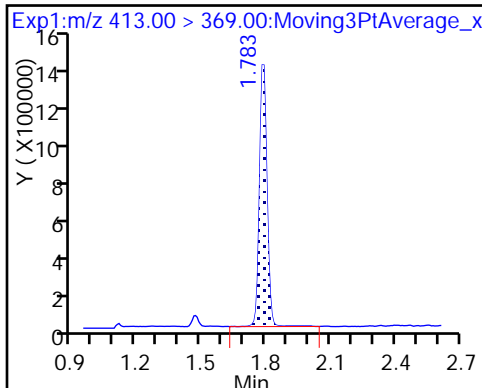
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

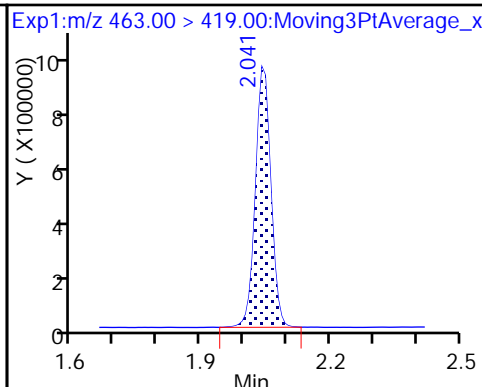
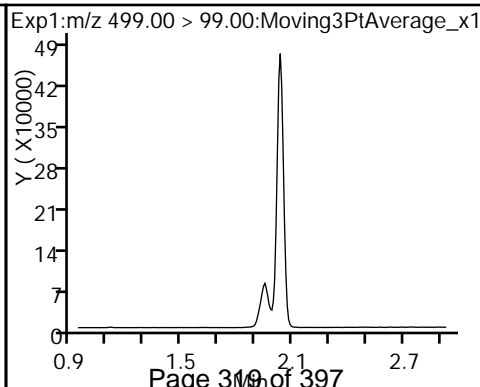
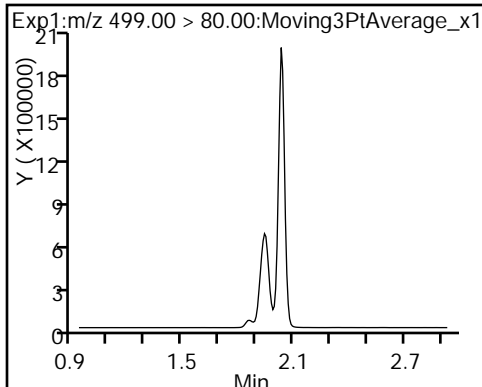
\* 7 13C4 PFOS



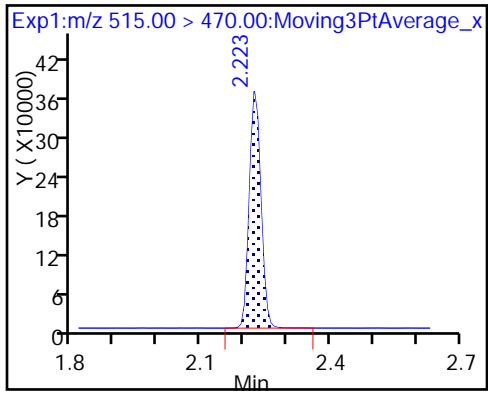
8 Perfluorooctane sulfonic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 320-208773/11 Calibration Date: 02/16/2018 09:28  
 Instrument ID: A8\_N Calib Start Date: 02/16/2018 08:55  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19  
 Lab File ID: 2018.02.016\_537ICAL\_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.238		19.4	20.0	-3.0	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9284		2.12	2.22	-4.4	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.706		7.07	6.67	6.0	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9302		4.32	4.47	-3.3	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9736		9.19	8.93	3.0	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.5986		4.32	4.45	-2.7	50.0
13C2 PFHxA	Ave	1.100	1.037		9.43	10.0	-5.7	30.0
13C2 PFDA	Ave	0.5243	0.5013		9.56	10.0	-4.4	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_011.d  
 Lims ID: CCVL  
 Client ID:  
 Sample Type: CCVL  
 Inject. Date: 16-Feb-2018 09:28:24 ALS Bottle#: 2 Worklist Smp#: 11  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L2  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-537\_A8\_N\*sub1  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 10:55:36 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: roycea Date: 16-Feb-2018 10:36:58

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

**QC Flag Legend**

Review Flags

a - User Assigned ID

**Reagents:**

LC537-L2\_00021

Amount Added: 1.00

Units: mL

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_011.d

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

Instrument ID: A8\_N

Lims ID: CCVL

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 2

Worklist Smp#: 11

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

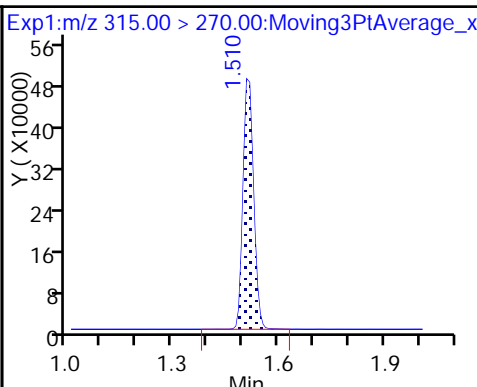
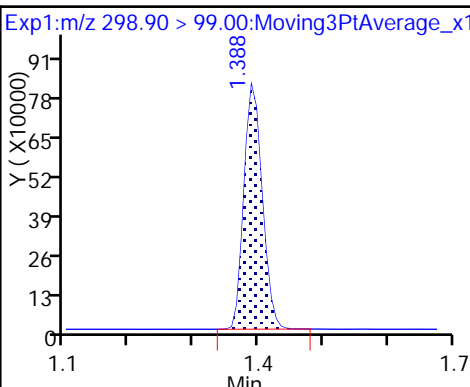
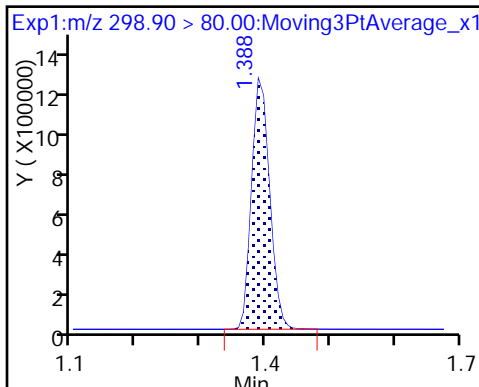
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

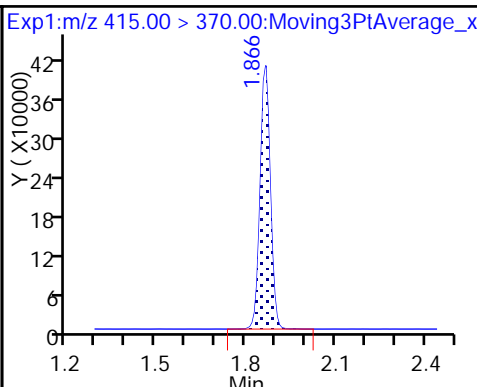
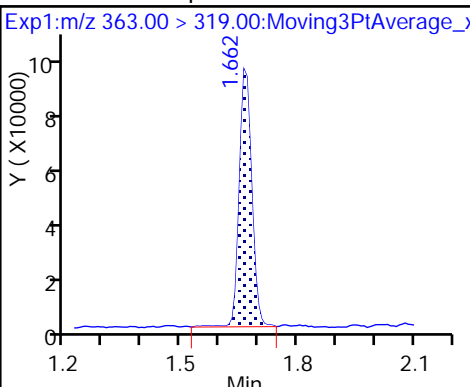
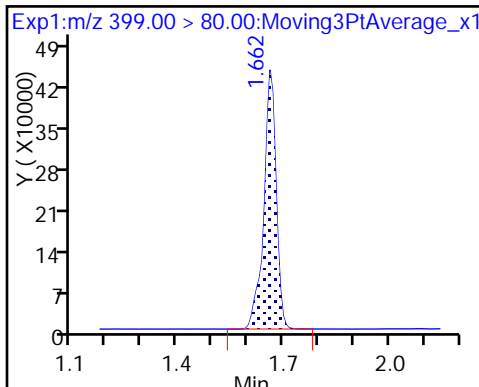
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

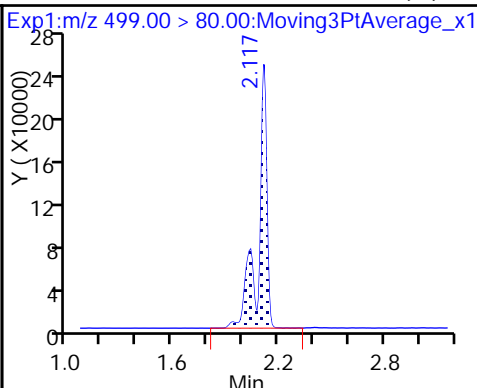
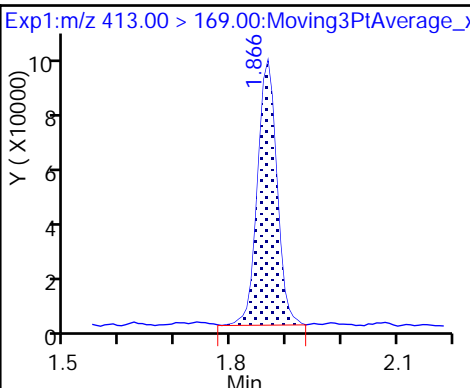
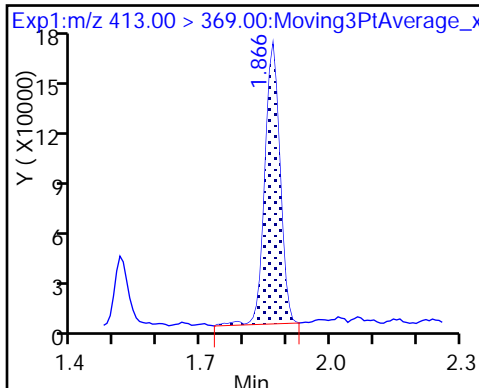
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

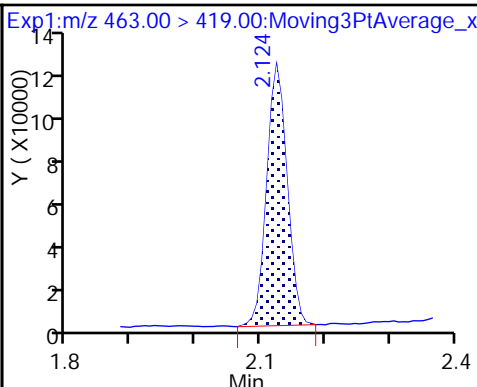
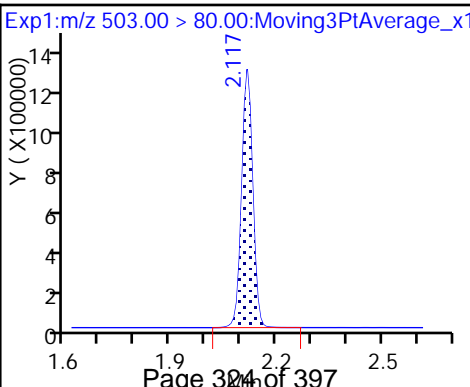
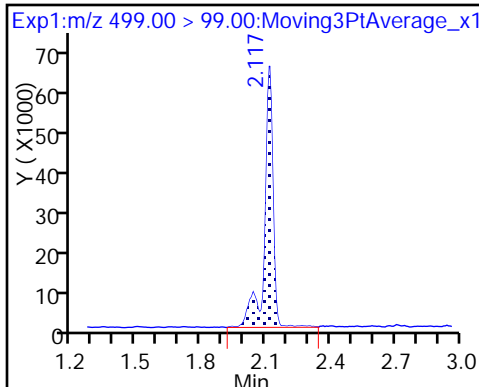
8 Perfluorooctane sulfonic acid (M)



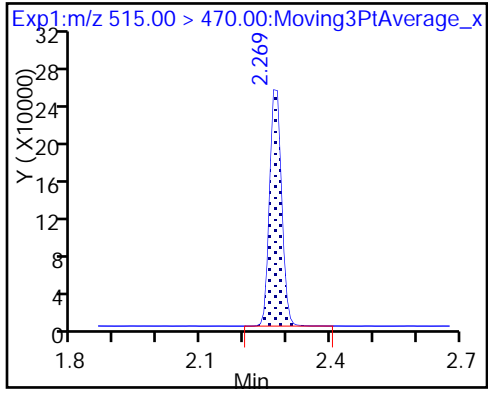
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

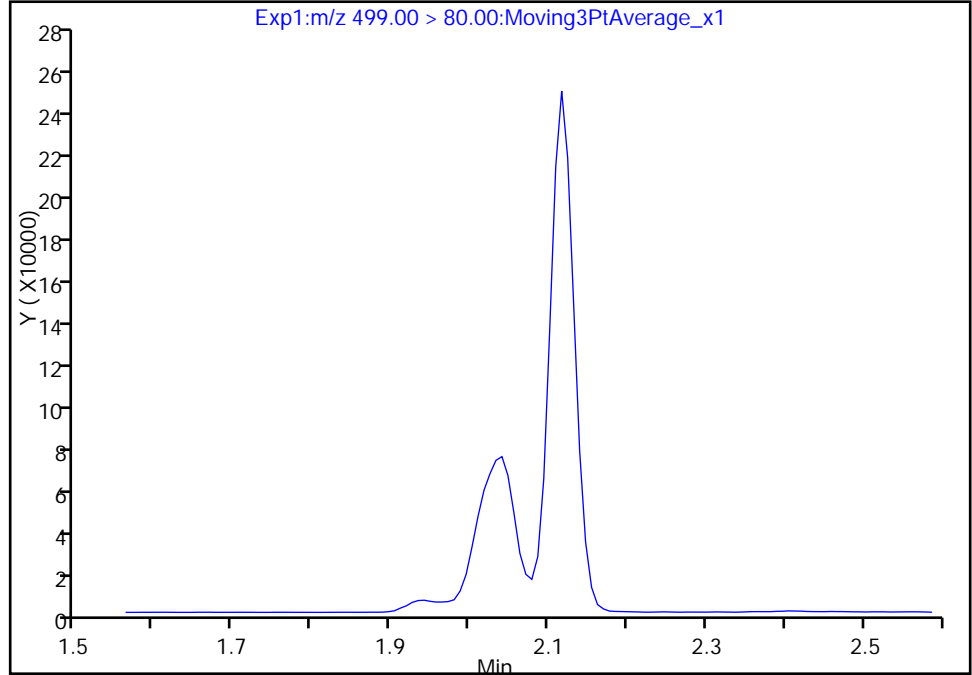
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_011.d  
Injection Date: 16-Feb-2018 09:28:24 Instrument ID: A8\_N  
Lims ID: CCVL  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 2 Worklist Smp#: 11  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

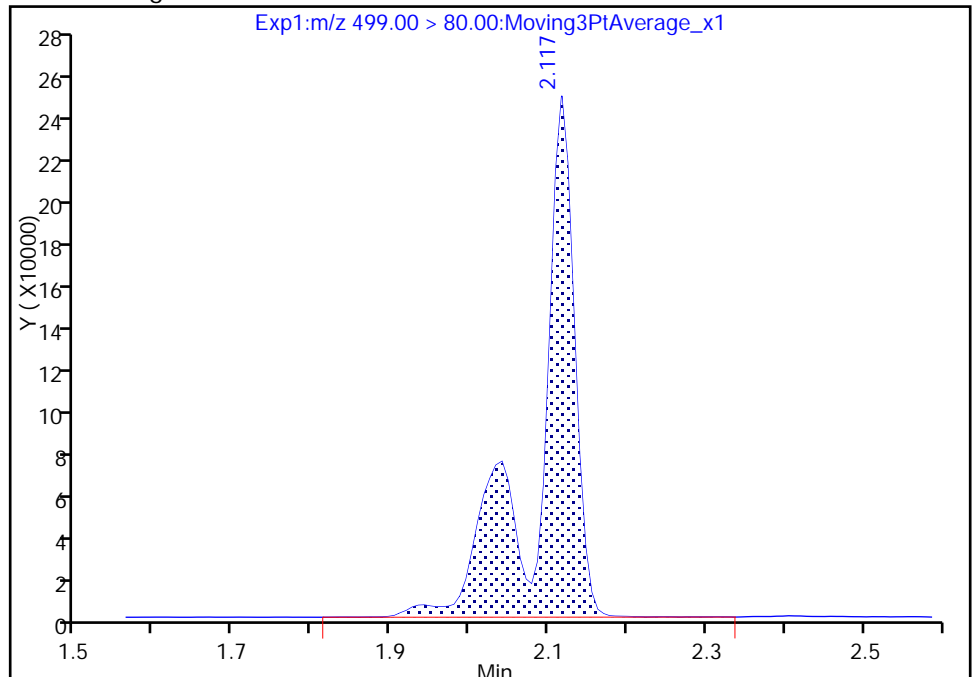
Not Detected  
Expected RT: 2.11

Processing Integration Results



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

Manual Integration Results



Reviewer: roycea, 16-Feb-2018 10:36:29  
Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: ICV 320-208773/13 Calibration Date: 02/16/2018 09:37  
 Instrument ID: A8\_N Calib Start Date: 02/16/2018 08:55  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19  
 Lab File ID: 2018.02.016\_537ICAL\_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.108		100	100	0.2	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.997		10.3	10.0	2.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.686		21.1	20.2	4.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.8998		18.9	20.2	-6.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9852		21.0	20.2	4.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6774		22.2	20.2	10.1	30.0
13C2 PFHxA	Ave	1.100	1.125		10.2	10.0	2.3	30.0
13C2 PFDA	Ave	0.5243	0.5347		10.2	10.0	2.0	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_013.d  
 Lims ID: ICV  
 Client ID:  
 Sample Type: ICV  
 Inject. Date: 16-Feb-2018 09:37:44 ALS Bottle#: 7 Worklist Smp#: 13  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: ICV  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist:

Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 10:55:38 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last Ical File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: roycea Date: 16-Feb-2018 10:38:02

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

**QC Flag Legend**

Review Flags

a - User Assigned ID

**Reagents:**

LC537-ICV\_00030

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_013.d

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

Instrument ID: A8\_N

Lims ID: ICV

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 7

Worklist Smp#: 13

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

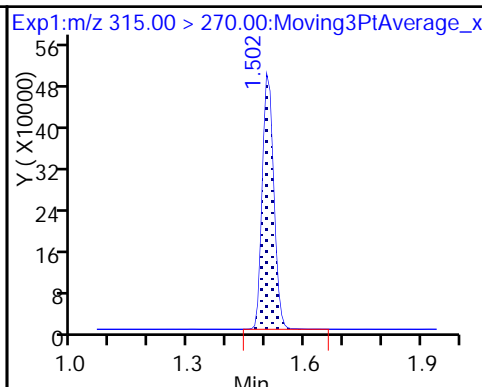
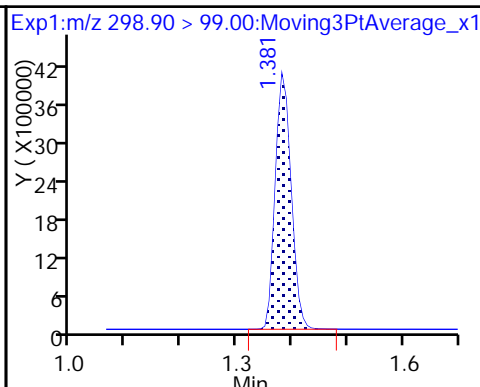
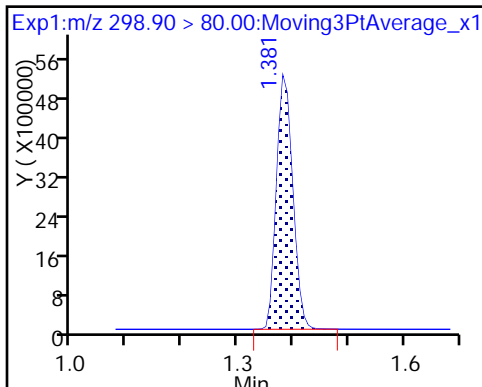
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

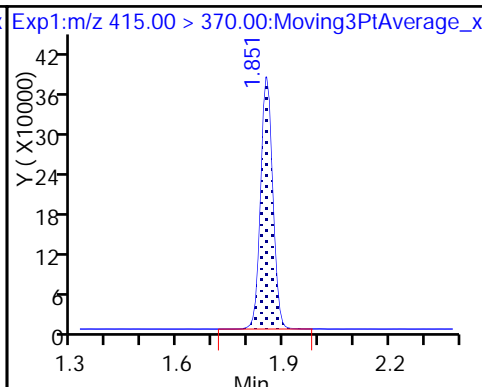
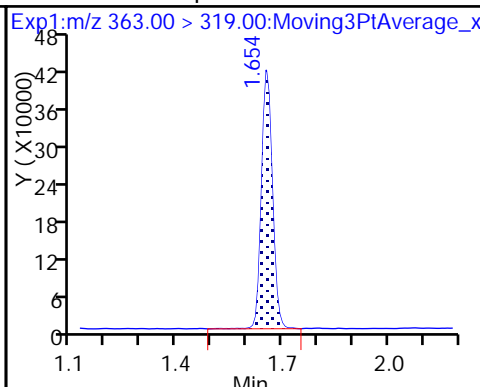
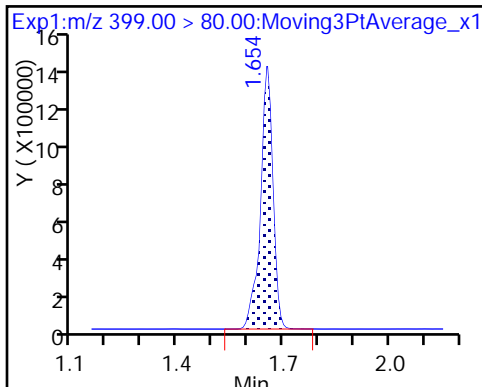
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

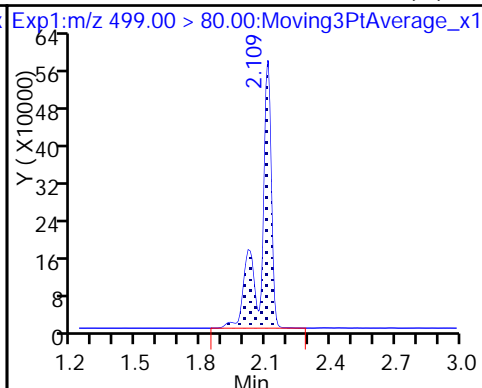
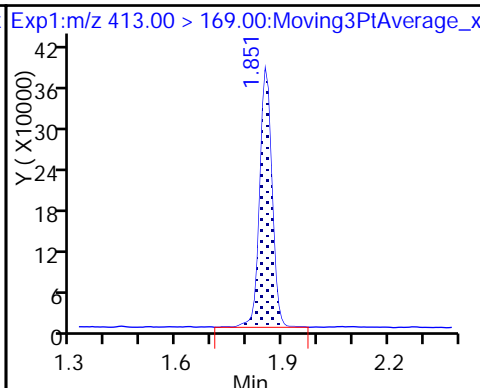
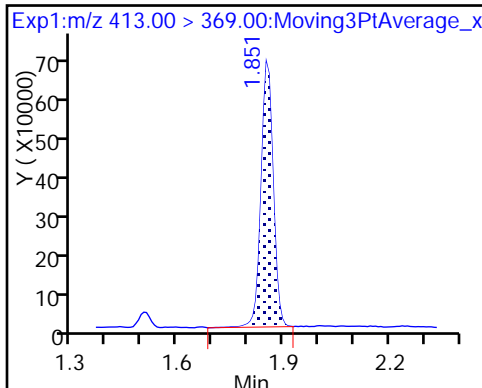
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

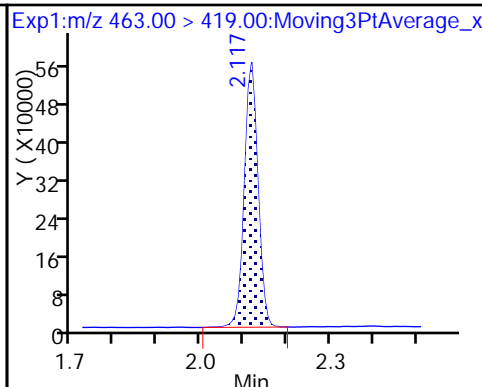
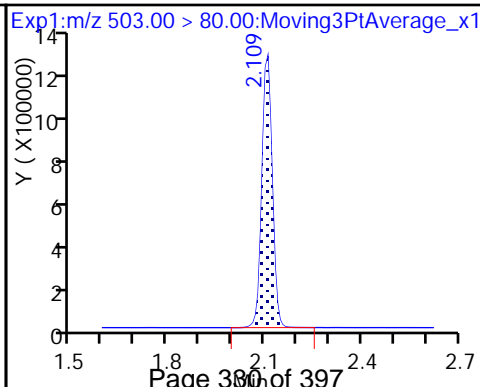
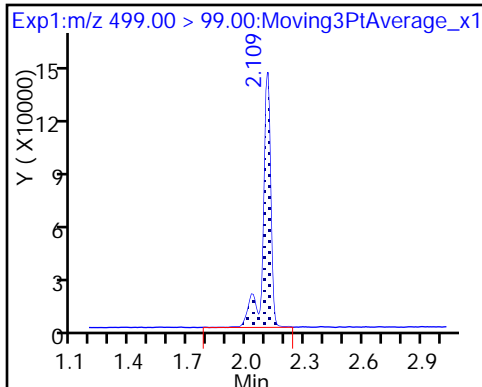
8 Perfluorooctane sulfonic acid (M)



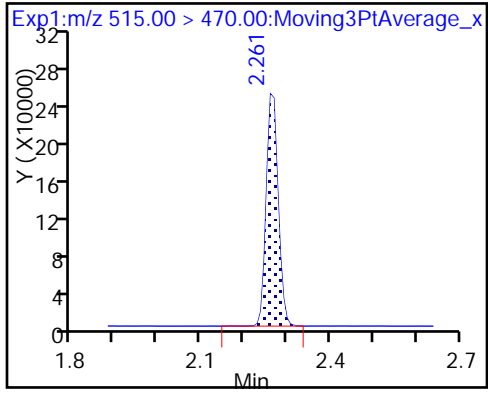
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

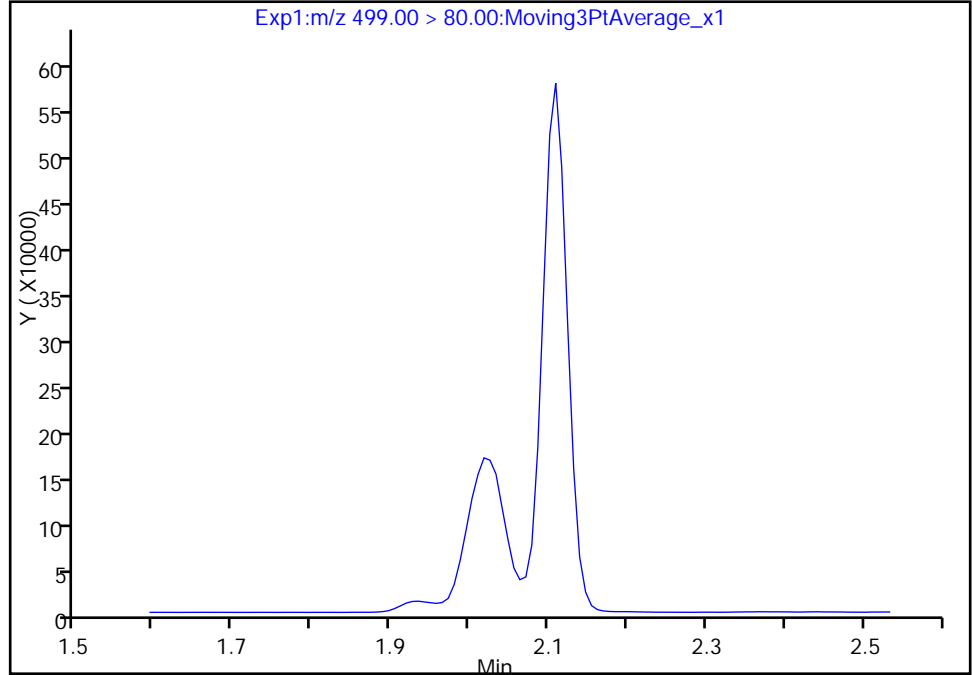
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_013.d  
Injection Date: 16-Feb-2018 09:37:44 Instrument ID: A8\_N  
Lims ID: ICV  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 7 Worklist Smp#: 13  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

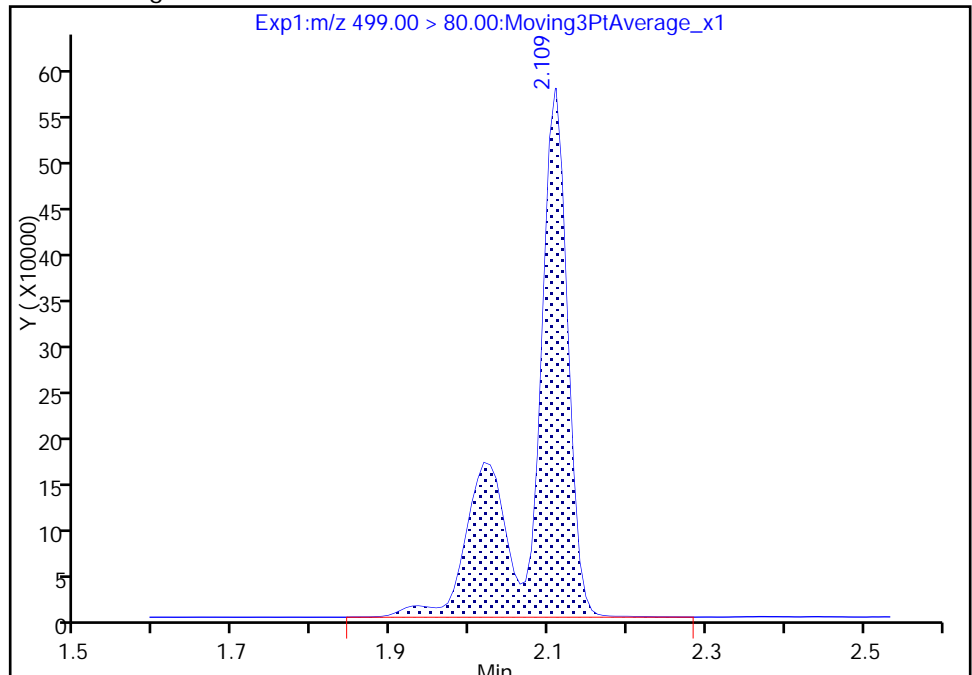
Not Detected  
Expected RT: 2.11

Processing Integration Results



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

Manual Integration Results



Reviewer: roycea, 16-Feb-2018 10:37:38  
Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-208832/13 Calibration Date: 02/16/2018 12:45  
 Instrument ID: A8\_N Calib Start Date: 02/16/2018 08:55  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19  
 Lab File ID: 2018.02.16\_537C\_014.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.007		131	135	-3.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	1.004		15.5	15.0	3.3	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.586		44.3	45.0	-1.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9701		30.4	30.2	0.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9853		62.8	60.3	4.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6956		33.9	30.0	13.0	30.0
13C2 PFHxA	Ave	1.100	1.121		10.2	10.0	1.9	30.0
13C2 PFDA	Ave	0.5243	0.5611		10.7	10.0	7.0	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_014.d  
 Lims ID: CCV L5  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 16-Feb-2018 12:45:01 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\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:14:08 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: barnettj Date: 16-Feb-2018 16:07:46

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.350	1.350	0.0	1.000	12899747	130.6		34313	
298.90 > 99.00	1.350	1.350	0.0	1.000	9616944		1.34(0.00-0.00)	20824	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.472	1.472	0.0	1.000	982952	10.2		12268	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.616	0.0	1.000	6773242	44.3		13372	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.616	0.0	1.000	1320642	15.5		364	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		877160	10.0		7642	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.806	0.0	1.000	2566813	30.4		114	
413.00 > 169.00	1.806	1.806	0.0	1.000	1409945		1.82(0.00-0.00)	239	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	5633065	62.8		8580	a
499.00 > 99.00	2.056	2.056	0.0	1.000	1159174		4.86(0.00-0.00)	1100	a
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.056	0.0		2721299	28.7		8638	
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	1831135	33.9		294	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	492161	10.7		5653	



## QC Flag Legend

Review Flags

a - User Assigned ID

## Reagents:

LC537-L5\_00025

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_014.d

Injection Date: 16-Feb-2018 12:45:01

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

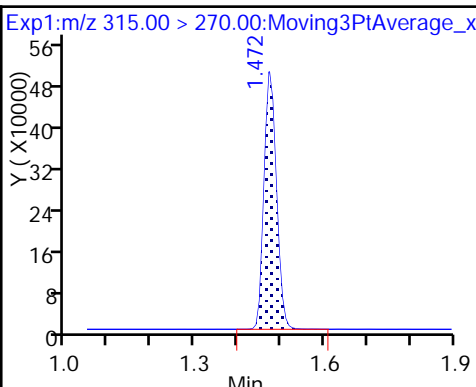
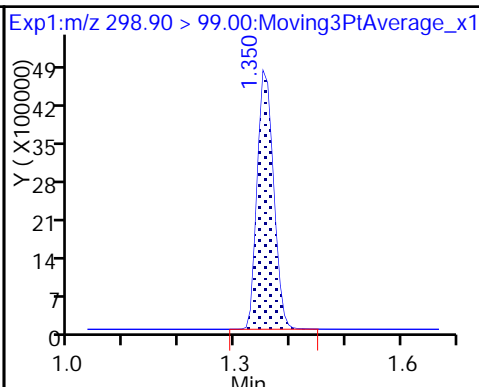
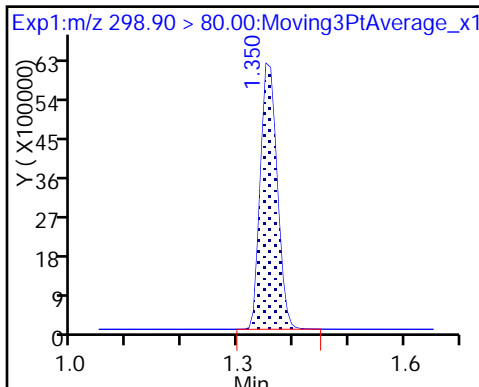
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

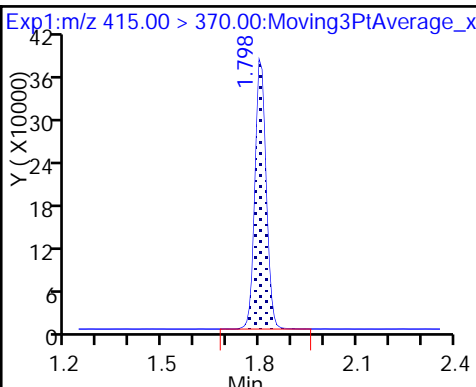
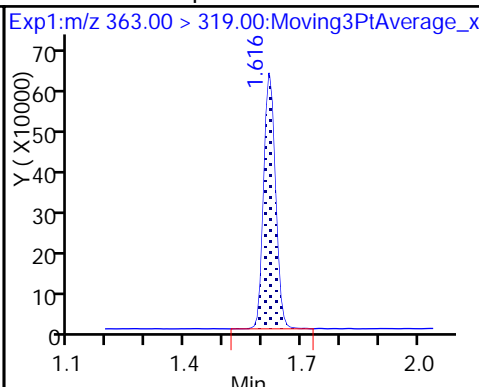
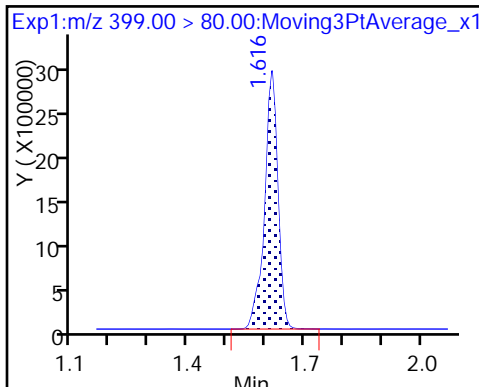
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

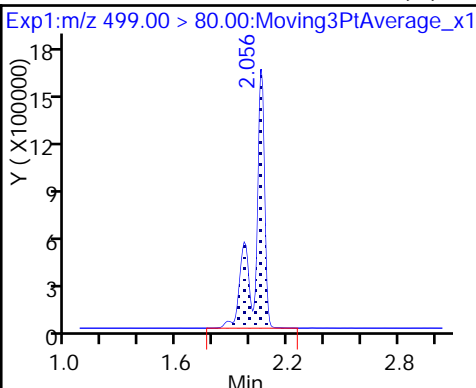
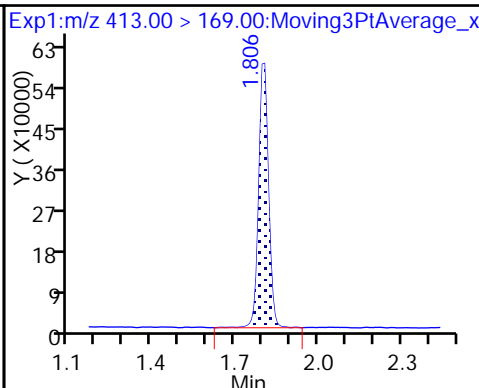
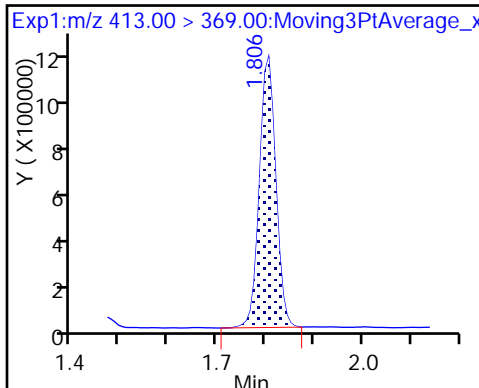
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

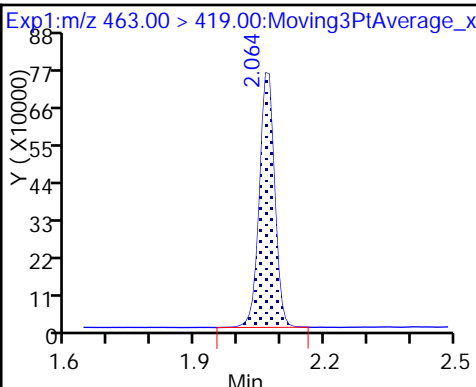
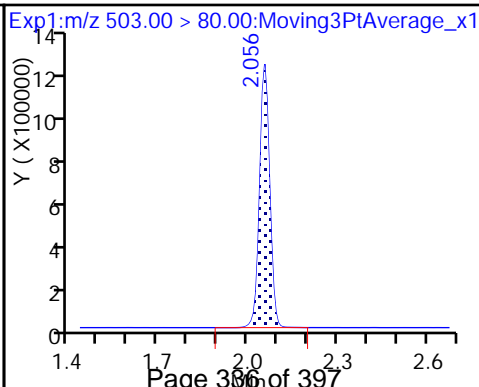
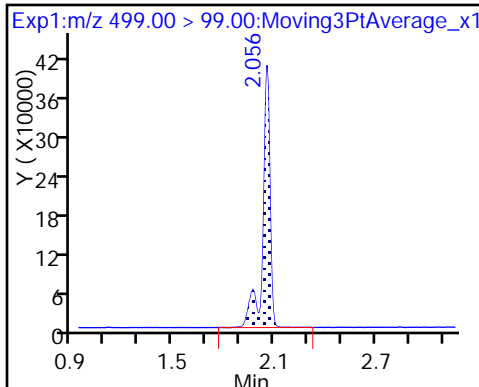
8 Perfluorooctane sulfonic acid (M)



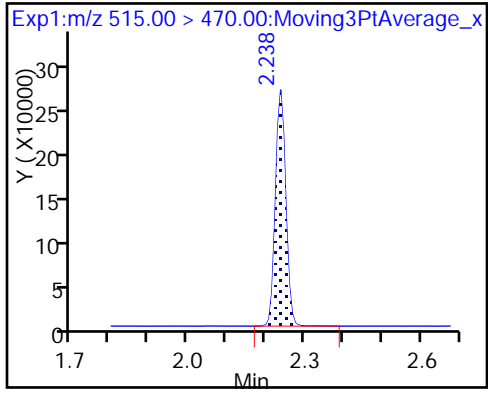
8 Perfluorooctane sulfonic acid

\* 7 13C4 PFOS

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento

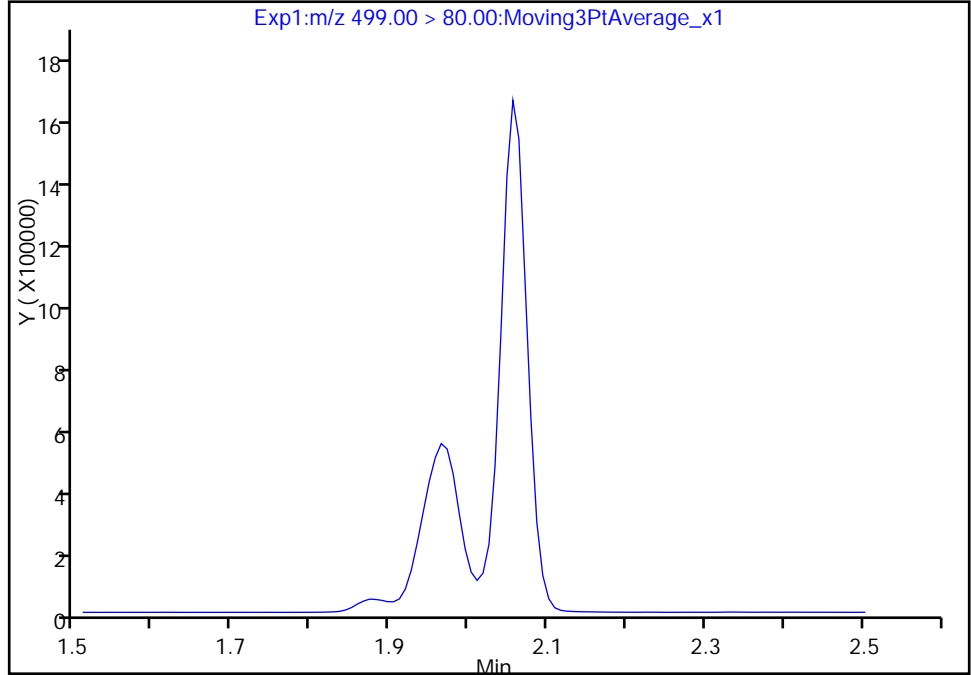
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_014.d  
Injection Date: 16-Feb-2018 12:45:01 Instrument ID: A8\_N  
Lims ID: CCV L5  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 5 Worklist Smp#: 13  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

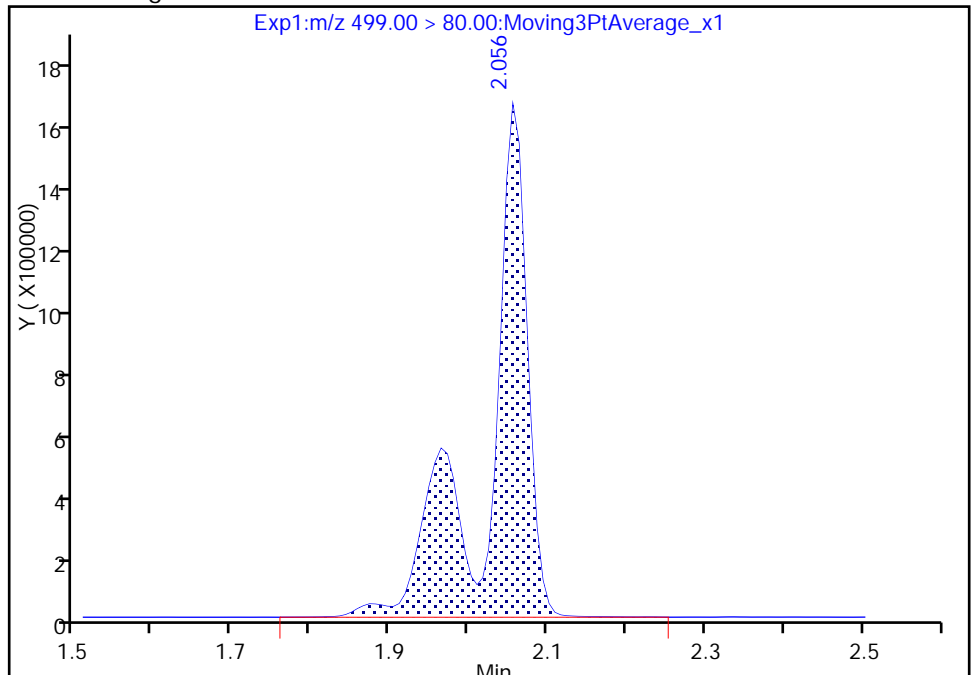
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 5633065  
Amount: 62.786901  
Amount Units: ng/ml



Reviewer: barnettj, 16-Feb-2018 16:07:40  
Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-208832/25 Calibration Date: 02/16/2018 13:41  
 Instrument ID: A8\_N Calib Start Date: 02/16/2018 08:55  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19  
 Lab File ID: 2018.02.16\_537C\_026.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.152		42.2	45.0	-6.2	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	1.007		5.18	5.00	3.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.640		15.3	15.0	1.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9533		9.96	10.1	-0.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9702		20.6	20.1	2.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6817		11.1	10.0	10.8	30.0
13C2 PFHxA	Ave	1.100	1.123		10.2	10.0	2.1	30.0
13C2 PFDA	Ave	0.5243	0.5601		10.7	10.0	6.8	30.0

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_026.d  
 Lims ID: CCV L3  
 Client ID:  
 Sample Type: CCVIS  
 Inject. Date: 16-Feb-2018 13:41:07 ALS Bottle#: 3 Worklist Smp#: 25  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: CCV L3  
 Misc. Info.: Plate: 1 Rack: 1  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Sublist: chrom-537\_A8\_N\*sub1  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 17:01:39 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: barnettj Date: 16-Feb-2018 16:48:55

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.358	0.0	1.000	5652786	42.2		25944	
298.90 > 99.00	1.358	1.358	0.0	1.000	4169409		1.36(0.00-0.00)	12131	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.472	1.472	0.0	1.000	1142825	10.2		17333	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.616	0.0	1.000	2682420	15.3		6148	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.616	0.0	1.000	512358	5.18		143	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1017567	10.0		9827	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.798	0.0	1.000	975356	9.96		37.3	
413.00 > 169.00	1.798	1.798	0.0	1.000	541171		1.80(0.00-0.00)	83.4	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.048	0.0		3126726	28.7		9855	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	2124533	20.6		4732	a
499.00 > 99.00	2.048	2.056	-0.008	0.996	449813		4.72(0.00-0.00)	359	a
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	693939	11.1		108	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	569962	10.7		5934	

### QC Flag Legend

Review Flags

a - User Assigned ID

### Reagents:

LC537-L3\_00024

Amount Added: 1.00

Units: mL

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_026.d

Injection Date: 16-Feb-2018 13:41:07

Instrument ID: A8\_N

Lims ID: CCV L3

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 3

Worklist Smp#: 25

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

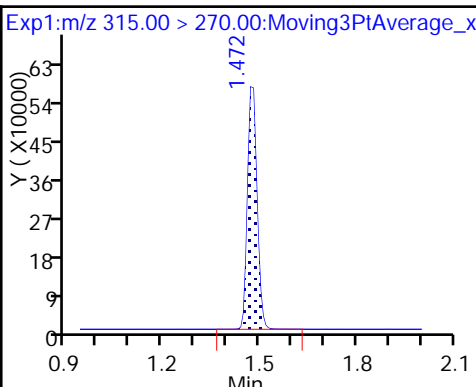
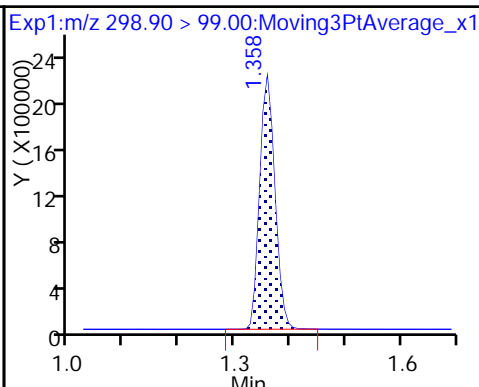
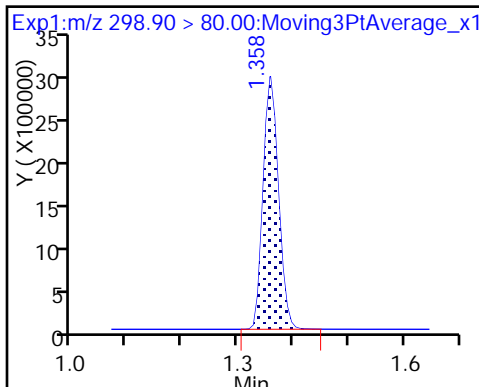
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

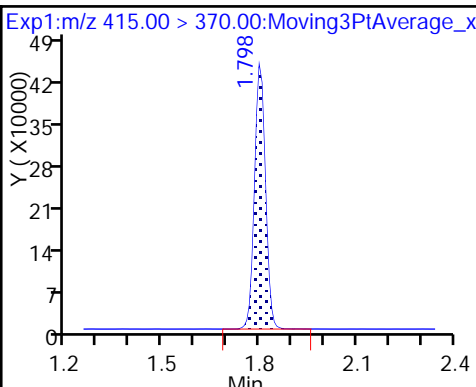
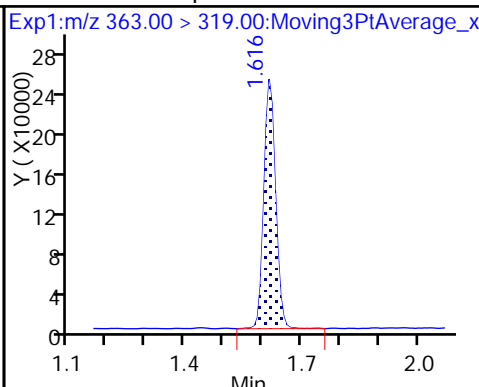
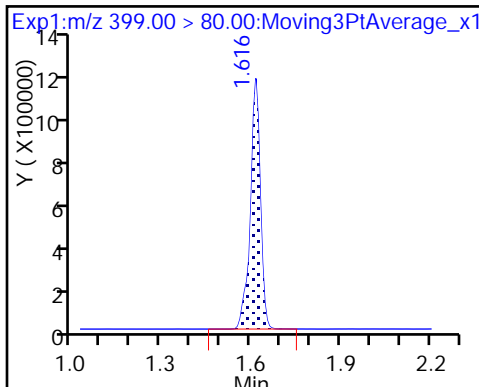
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

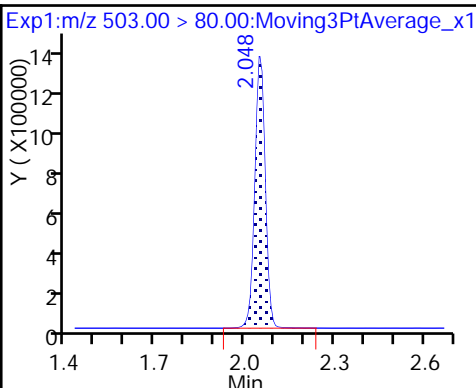
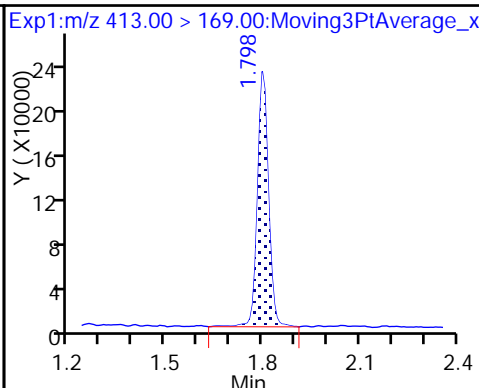
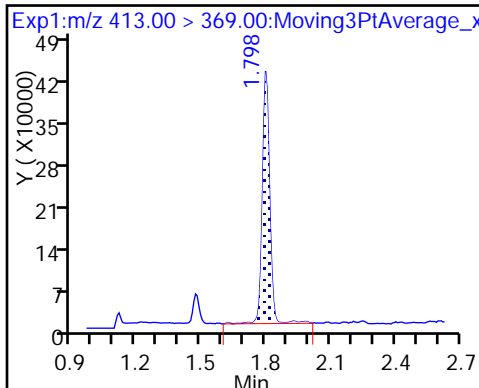
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

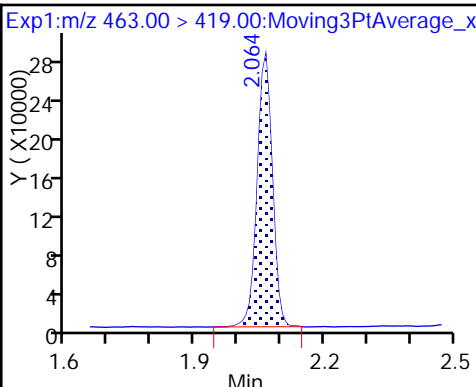
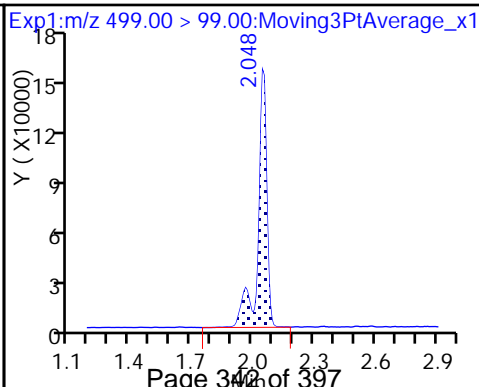
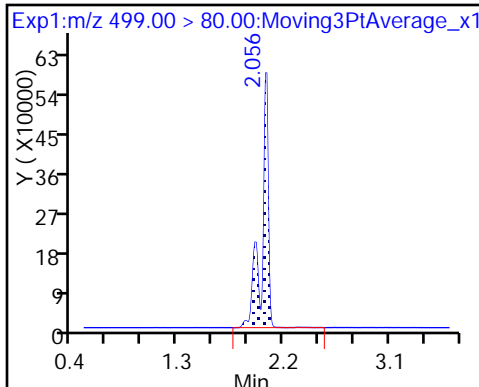
\* 7 13C4 PFOS



8 Perfluorooctane sulfonic acid (M)

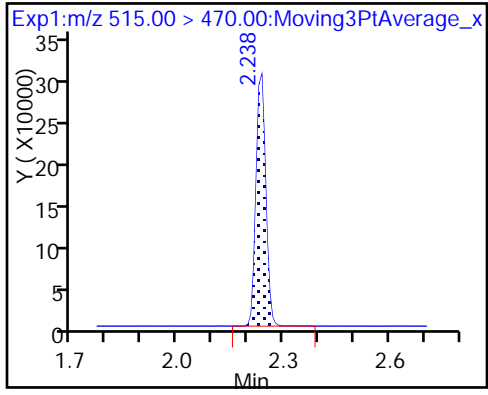
8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid





\$ 10 13C2 PFDA



TestAmerica Sacramento

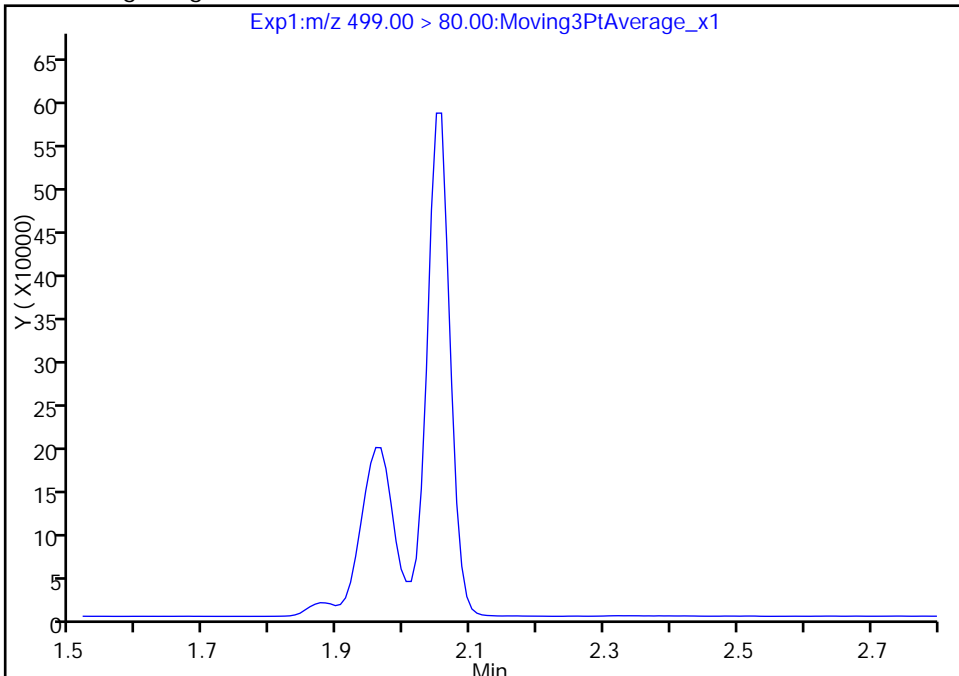
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Injection Date: 16-Feb-2018 13:41:07 Instrument ID: A8\_N  
Lims ID: CCV L3  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 3 Worklist Smp#: 25  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

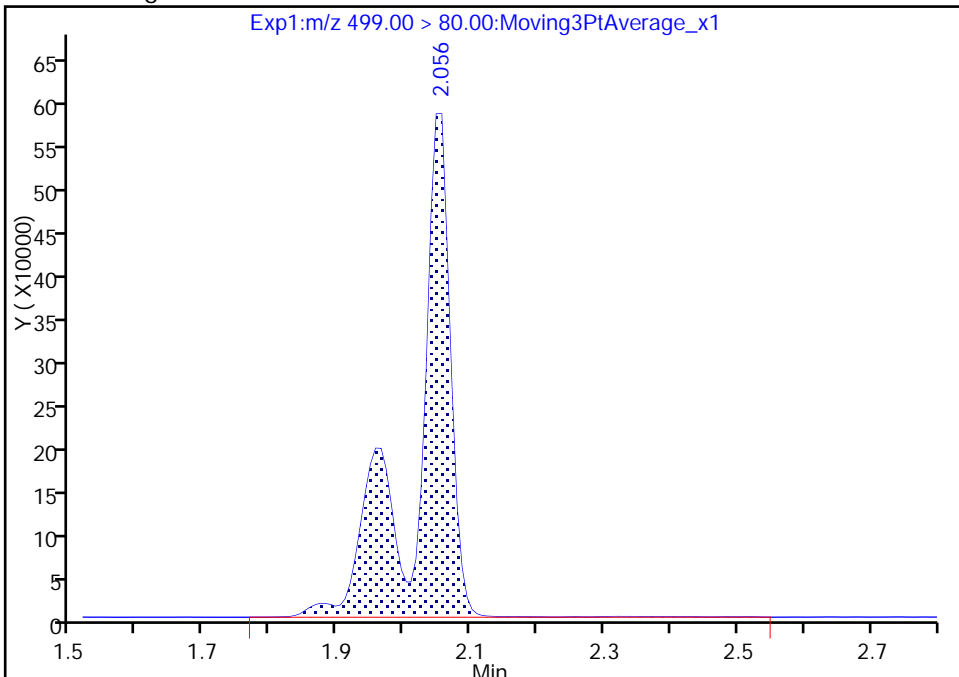
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.06  
Area: 2124533  
Amount: 20.609820  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 16-Feb-2018 16:48:49  
Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: MB 320-207932/1-A  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_016.d  
 Analysis Method: 537 Date Collected: \_\_\_\_\_  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 250.0 (mL) Date Analyzed: 02/16/2018 12:54  
 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.: 208832 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	94		70-130
STL00996	13C2 PFDA	118		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_016.d  
 Lims ID: MB 320-207932/1-A  
 Client ID:  
 Sample Type: MB  
 Inject. Date: 16-Feb-2018 12:54:21 ALS Bottle#: 8 Worklist Smp#: 15  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: mb 320-207932/1-a RI  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK013

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
\$ 2 13C2 PFHxA	315.00 > 270.00	1.479	1.472	0.007	1.000	1108351	9.36	15261	
* 6 13C2-PFOA	415.00 > 370.00	1.806	1.798	0.008		1076992	10.0	10717	
* 7 13C4 PFOS	503.00 > 80.00	2.056	2.048	0.008		3203230	28.7	6788	
\$ 10 13C2 PFDA	515.00 > 470.00	2.238	2.238	0.0	1.000	666694	11.8	8143	

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_016.d

Injection Date: 16-Feb-2018 12:54:21

Instrument ID: A8\_N

Lims ID: MB 320-207932/1-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 8

Worklist Smp#: 15

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

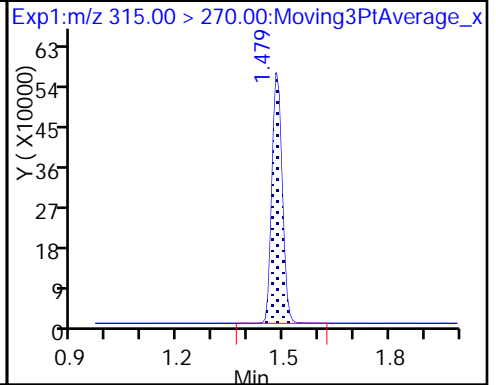
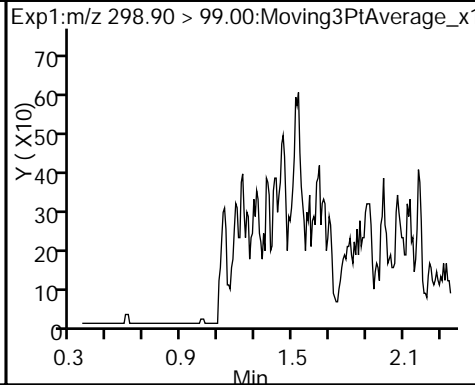
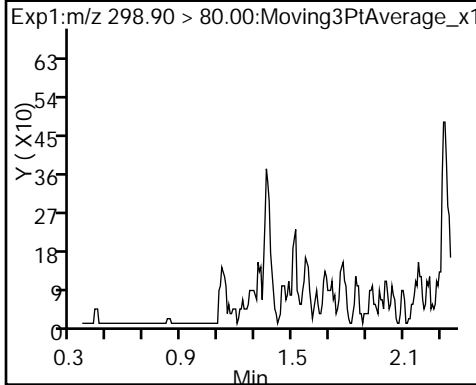
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid (ND)

1 Perfluorobutanesulfonic acid (ND)

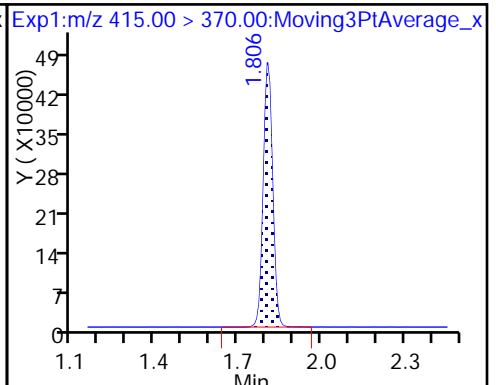
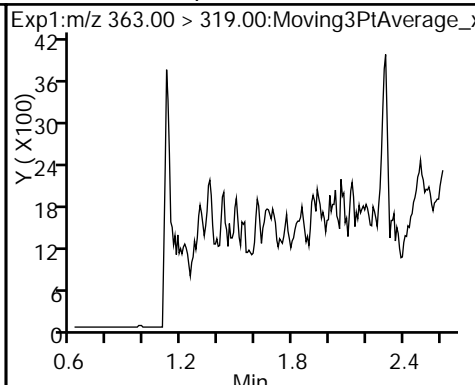
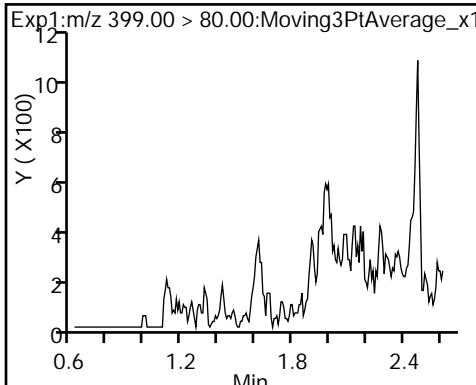
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid (ND)

4 Perfluoroheptanoic acid (ND)

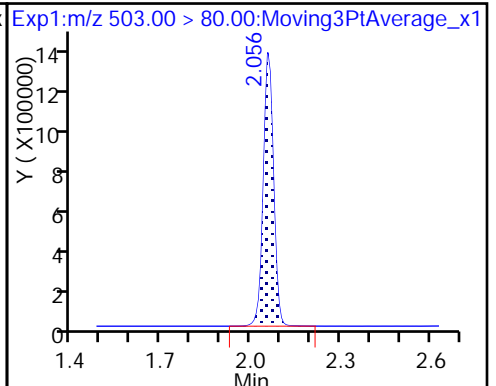
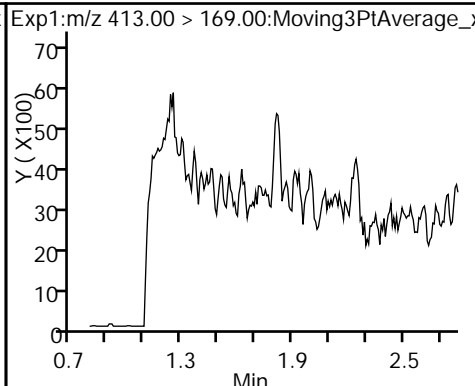
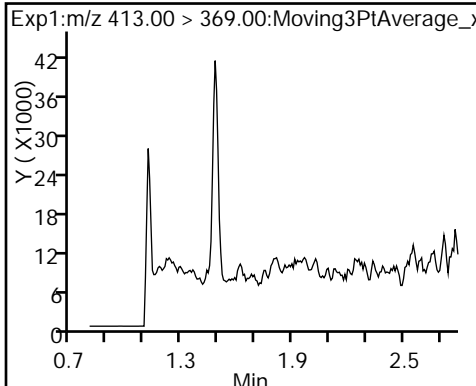
\* 6 13C2-PFOA



5 Perfluorooctanoic acid (ND)

5 Perfluorooctanoic acid (ND)

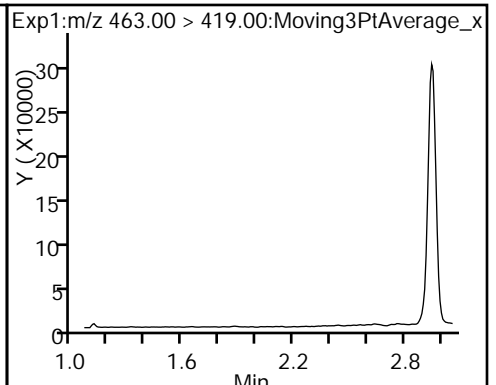
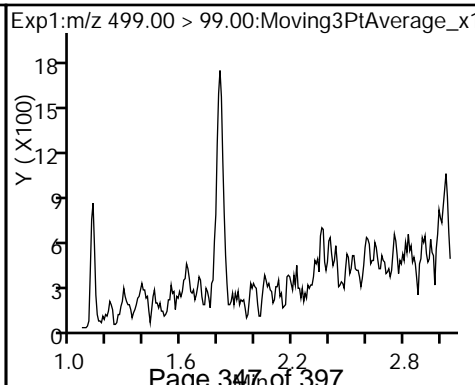
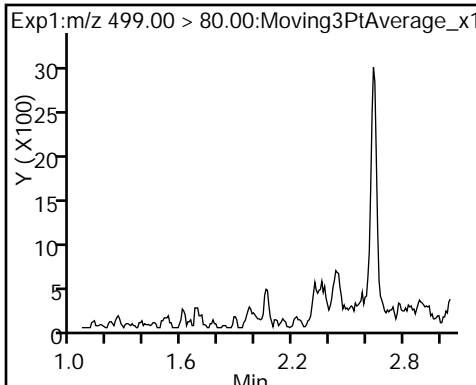
\* 7 13C4 PFOS



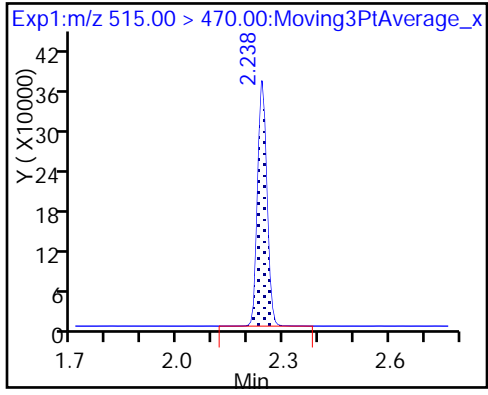
8 Perfluorooctane sulfonic acid (ND)

8 Perfluorooctane sulfonic acid (ND)

9 Perfluorononanoic acid (ND)



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_016.d  
 Lims ID: MB 320-207932/1-A  
 Client ID:  
 Sample Type: MB  
 Inject. Date: 16-Feb-2018 12:54:21 ALS Bottle#: 8 Worklist Smp#: 15  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: mb 320-207932/1-a RI  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d

Column 1 : Det: EXP1  
 Process Host: XAWRK013

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.36	93.57
\$ 10 13C2 PFDA	10.0	11.8	118.08

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: LCS 320-207932/2-A  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_017.d  
 Analysis Method: 537 Date Collected: \_\_\_\_\_  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 250.0 (mL) Date Analyzed: 02/16/2018 12:59  
 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.: 208832 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	138	M	40	16	6.8
335-67-1	Perfluorooctanoic acid (PFOA)	63.2		20	8.0	2.8
375-95-1	Perfluorononanoic acid (PFNA)	70.8		24	20	8.0
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	103		30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	32.8		10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	260		90	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	103		70-130
STL00996	13C2 PFDA	145	Q	70-130



TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_017.d  
 Lims ID: LCS 320-207932/2-A  
 Client ID:  
 Sample Type: LCS  
 Inject. Date: 16-Feb-2018 12:59:00 ALS Bottle#: 9 Worklist Smp#: 16  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: lcs 320-207932/2-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: barnettj Date: 16-Feb-2018 16:44:09

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.358	0.0	1.000	7383931	65.0		16899	
298.90 > 99.00	1.358	1.358	0.0	1.000	5349246		1.38(0.00-0.00)	13155	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.472	1.472	0.0	1.000	1075952	10.3		16874	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.616	0.0	1.000	3998073	25.8		8157	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.616	0.0	1.000	759121	8.20		219	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		953293	10.0		9538	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.798	0.0	1.000	1448764	15.8		57.8	
413.00 > 169.00	1.798	1.798	0.0	1.000	804457		1.80(0.00-0.00)	121	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.048	0.008		2759261	28.7		3259	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	3139569	34.5		7805	a
499.00 > 99.00	2.056	2.056	0.0	1.000	646178		4.86(0.00-0.00)	497	a
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	1038229	17.7		45.9	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	723687	14.5		8659	

## QC Flag Legend

Review Flags

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_017.d

Injection Date: 16-Feb-2018 12:59:00

Instrument ID: A8\_N

Lims ID: LCS 320-207932/2-A

Client ID:

Operator ID: SACINSTLCMS01

ALS Bottle#: 9

Worklist Smp#: 16

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

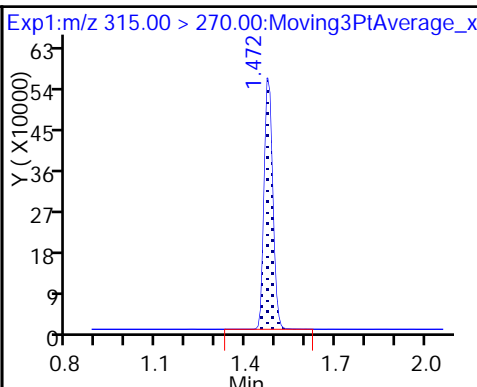
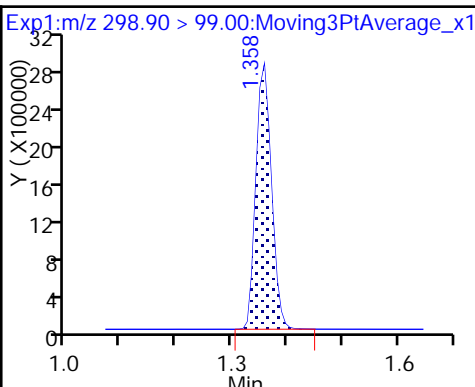
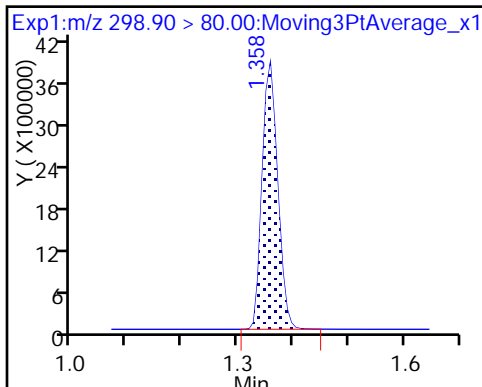
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

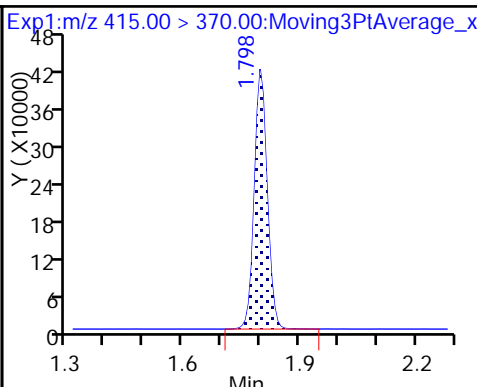
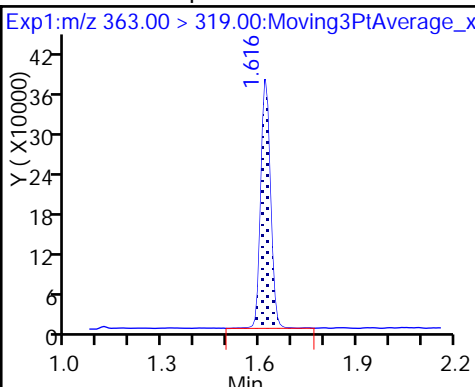
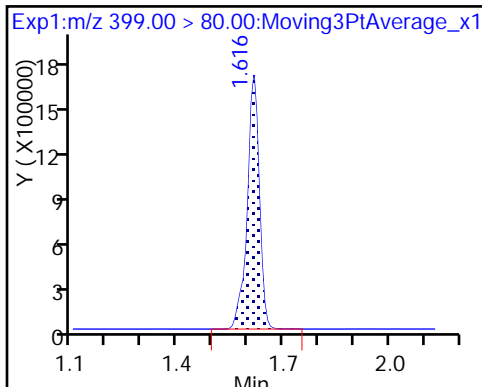
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

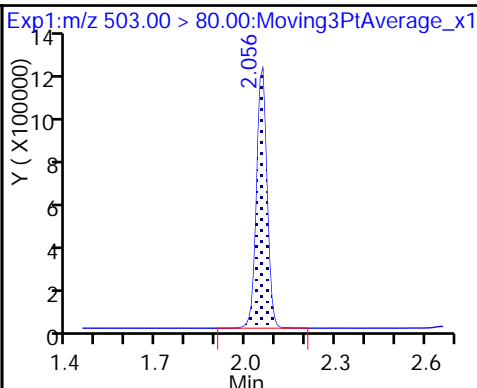
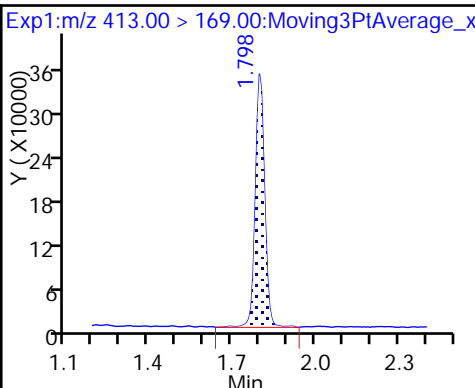
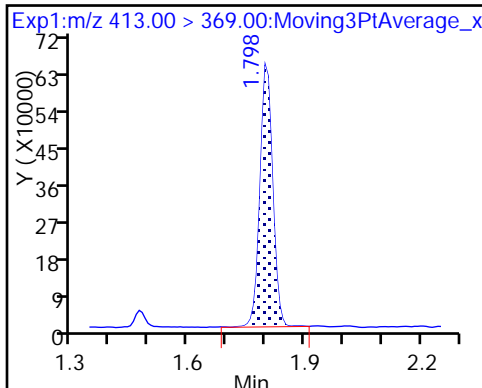
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

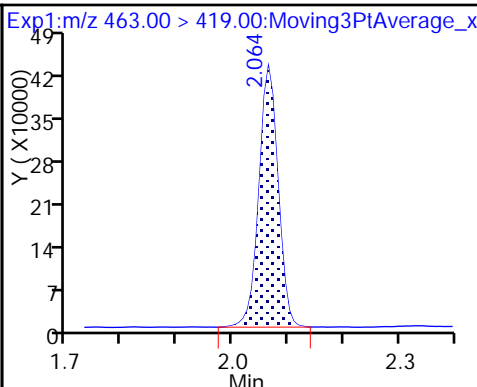
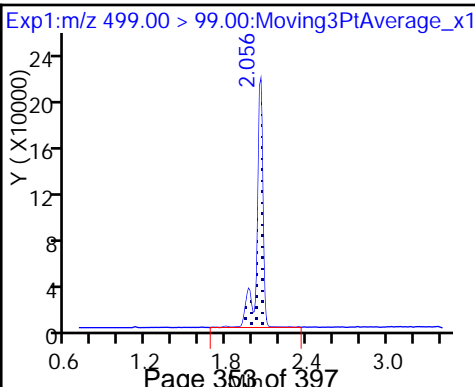
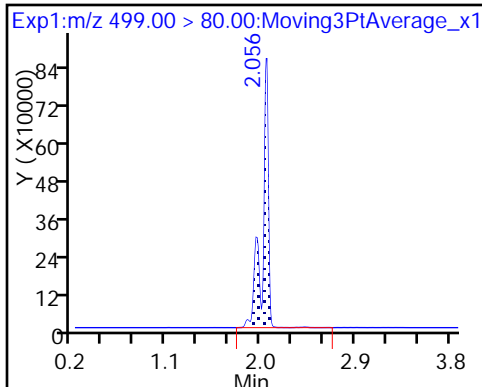
\* 7 13C4 PFOS



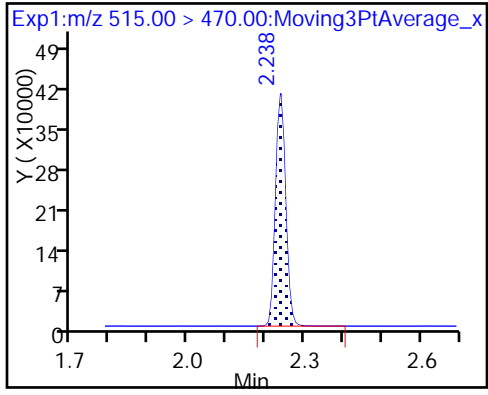
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_017.d  
 Lims ID: LCS 320-207932/2-A  
 Client ID:  
 Sample Type: LCS  
 Inject. Date: 16-Feb-2018 12:59:00 ALS Bottle#: 9 Worklist Smp#: 16  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: lcs 320-207932/2-a  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: barnettj Date: 16-Feb-2018 16:44:09

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	10.3	102.62
\$ 10 13C2 PFDA	10.0	14.5	144.80

TestAmerica Sacramento

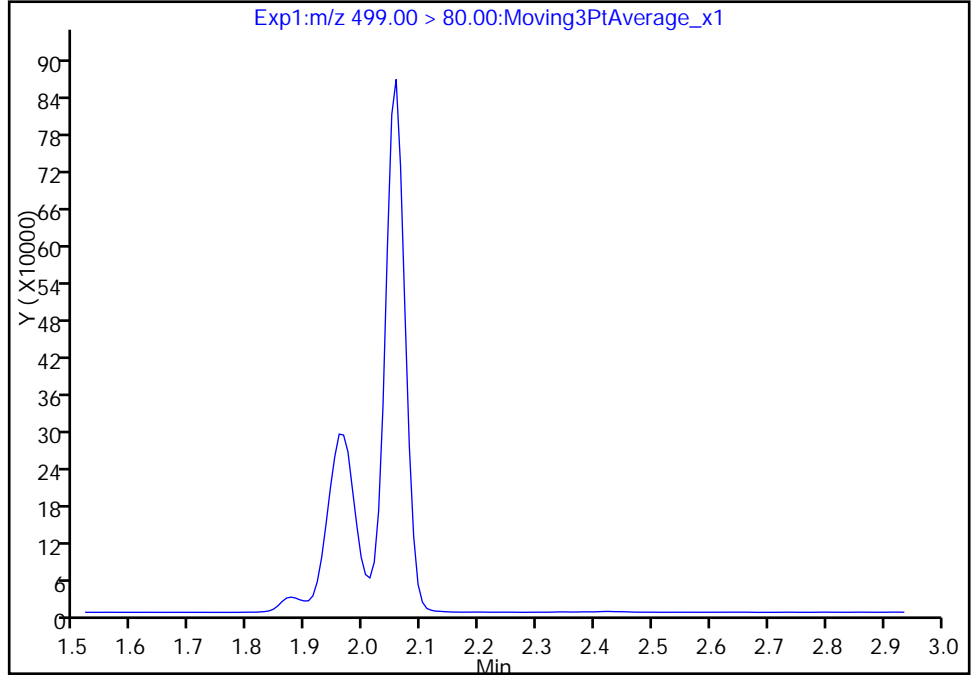
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Injection Date: 16-Feb-2018 12:59:00 Instrument ID: A8\_N  
Lims ID: LCS 320-207932/2-A  
Client ID:  
Operator ID: SACINSTLCMS01 ALS Bottle#: 9 Worklist Smp#: 16  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

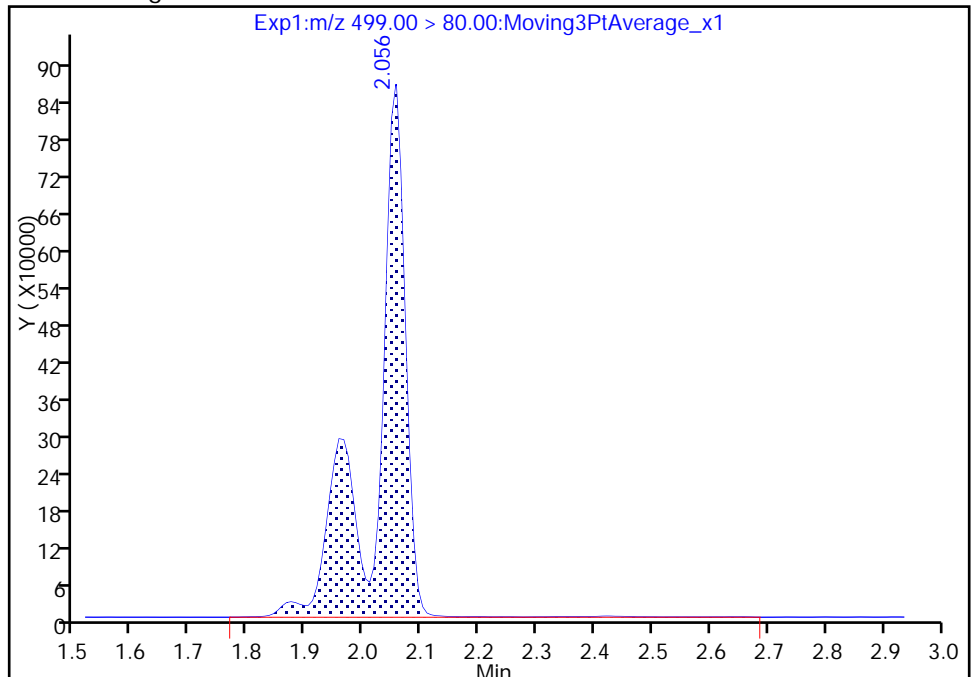
Signal: 1

Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results



RT: 2.06  
Area: 3139569  
Amount: 34.512610  
Amount Units: ng/ml

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-200 MS Lab Sample ID: 320-35824-1 MS  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_019.d  
 Analysis Method: 537 Date Collected: 02/06/2018 09:40  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 243.4 (mL) Date Analyzed: 02/16/2018 13:08  
 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.: 208832 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	152	M	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	78.4		21	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	73.4		25	21	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	106		31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	37.3		10	4.1	2.0
375-73-5	Perfluorobutanesulfonic acid (PFBS)	285		92	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	118		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_019.d  
 Lims ID: 320-35824-A-1-B MS  
 Client ID: NAWC-020618-RW-200  
 Sample Type: MS  
 Inject. Date: 16-Feb-2018 13:08:21 ALS Bottle#: 11 Worklist Smp#: 18  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-1-b ms  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICAL File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: barnettj Date: 16-Feb-2018 16:45:07

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.358	0.0	1.000	9086986	69.4		13101	
298.90 > 99.00	1.358	1.358	0.0	1.000	6530299		1.39(0.00-0.00)	14228	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.472	1.472	0.0	1.000	1114866	9.43		17684	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.616	0.0	1.000	4647757	25.8		3329	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.616	1.616	0.0	1.000	946502	9.07		184	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1074675	10.0		10084	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.798	1.798	0.0	1.000	1973132	19.1		72.6	
413.00 > 169.00	1.798	1.798	0.0	1.000	1113937		1.77(0.00-0.00)	151	
* 7 13C4 PFOS									
503.00 > 80.00	2.048	2.048	0.0		3206050	28.7		3773	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	3902244	36.9		2796	a
499.00 > 99.00	2.048	2.056	-0.008	0.996	831051		4.70(0.00-0.00)	524	a
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	1182087	17.9		41.7	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	663847	11.8		7128	



## QC Flag Legend

Review Flags

a - User Assigned ID

TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_019.d

Injection Date: 16-Feb-2018 13:08:21

Instrument ID: A8\_N

Lims ID: 320-35824-A-1-B MS

Client ID: NAWC-020618-RW-200

Operator ID: SACINSTLCMS01

ALS Bottle#: 11

Worklist Smp#: 18

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

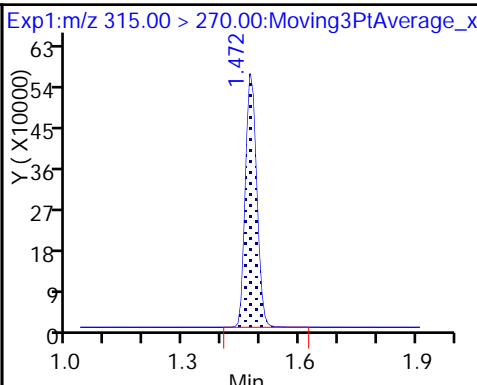
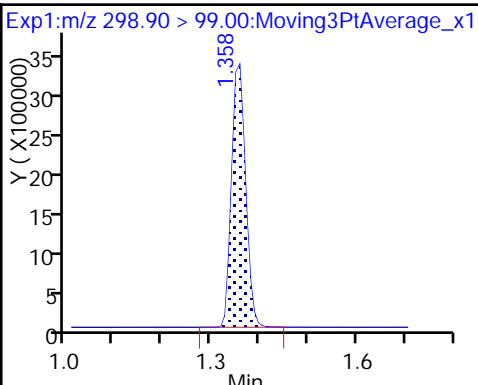
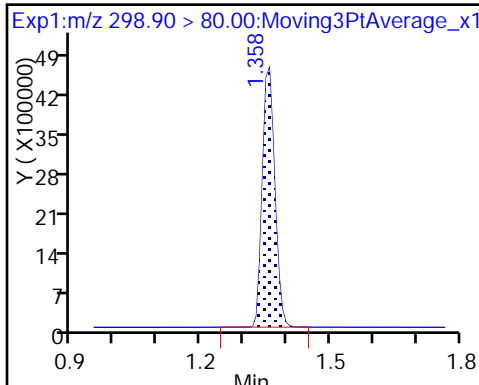
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

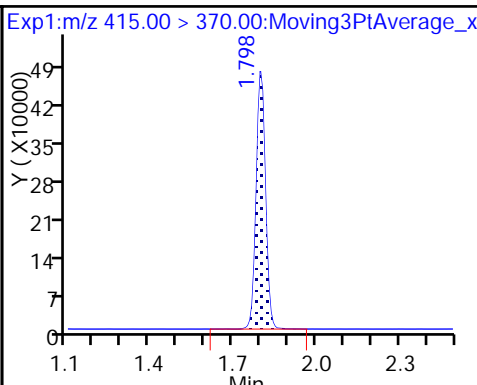
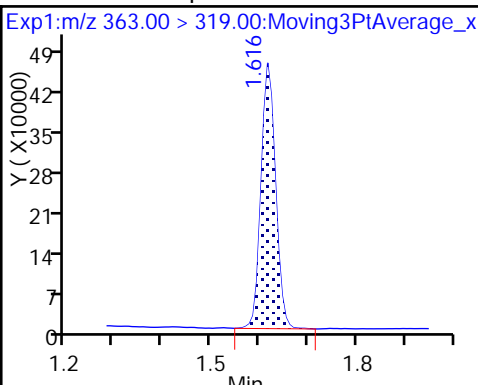
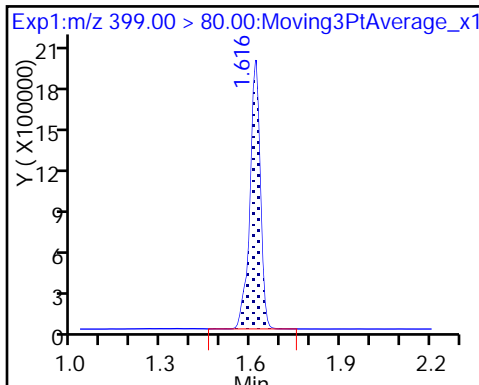
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

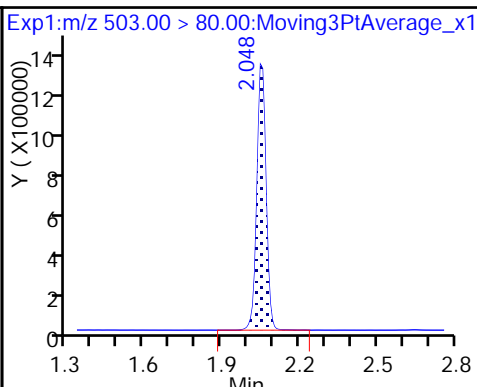
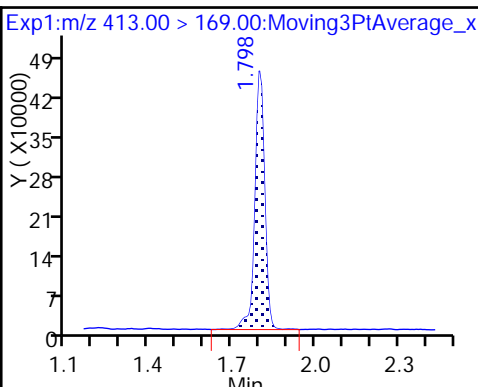
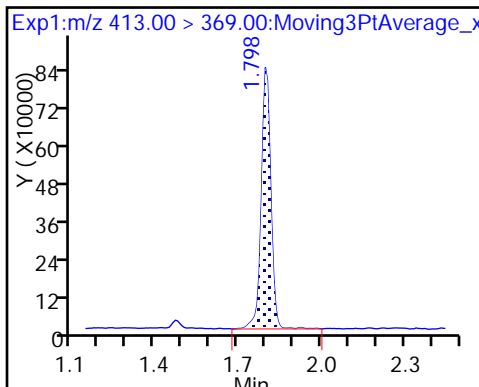
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

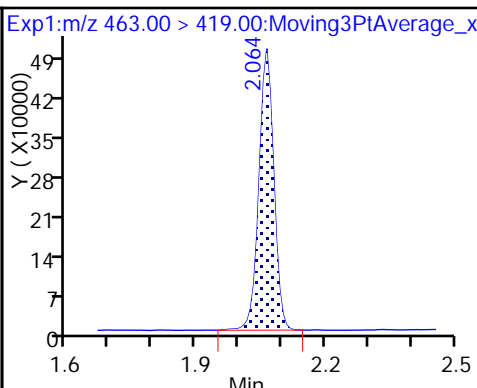
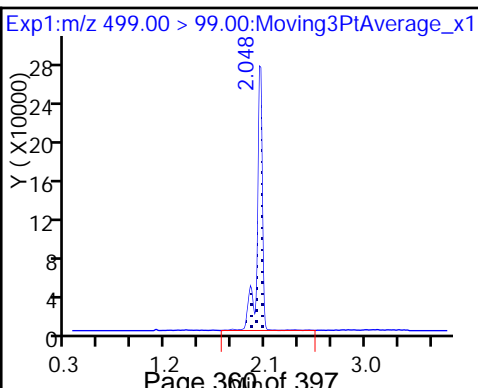
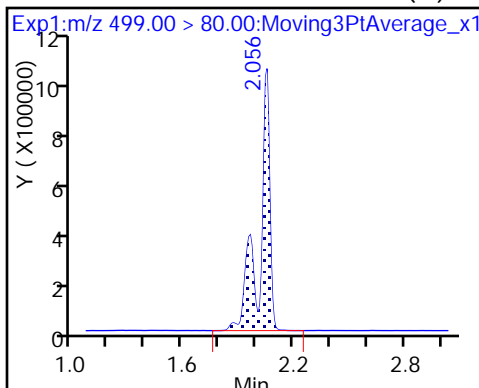
\* 7 13C4 PFOS



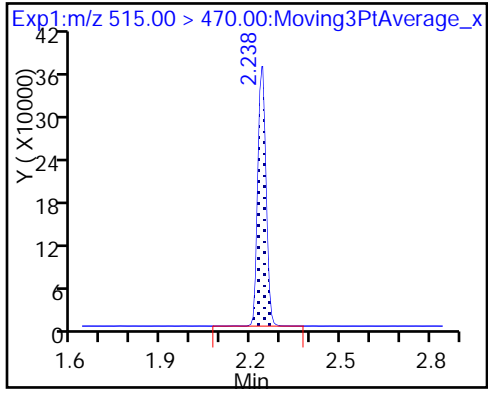
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_019.d  
 Lims ID: 320-35824-A-1-B MS  
 Client ID: NAWC-020618-RW-200  
 Sample Type: MS  
 Inject. Date: 16-Feb-2018 13:08:21 ALS Bottle#: 11 Worklist Smp#: 18  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-1-b ms  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: barnettj Date: 16-Feb-2018 16:45:07

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.43	94.32
\$ 10 13C2 PFDA	10.0	11.8	117.82

TestAmerica Sacramento

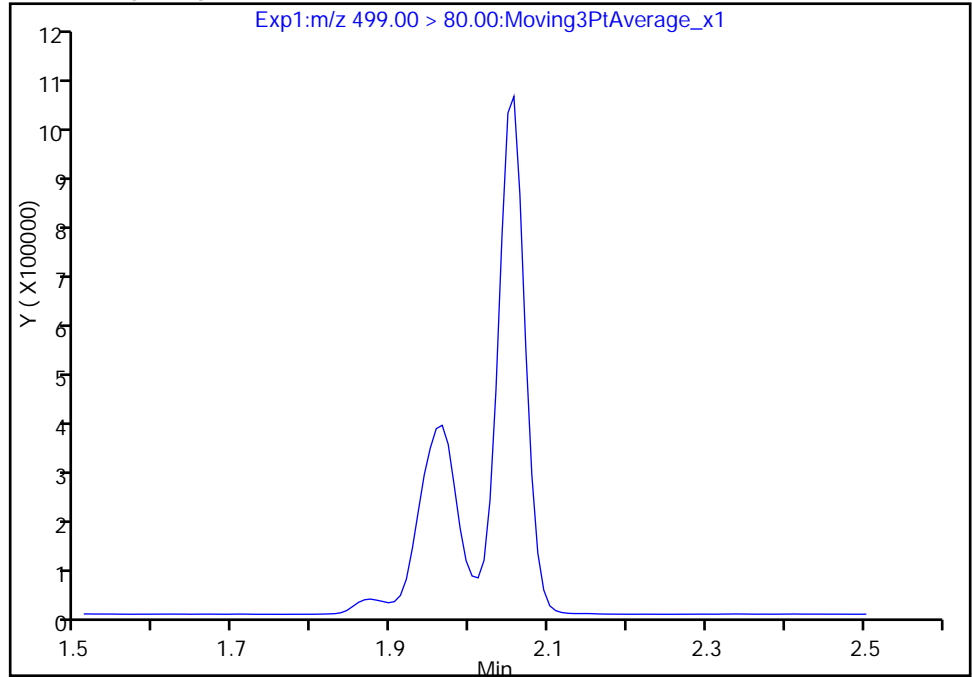
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Injection Date: 16-Feb-2018 13:08:21 Instrument ID: A8\_N  
Lims ID: 320-35824-A-1-B MS  
Client ID: NAWC-020618-RW-200  
Operator ID: SACINSTLCMS01 ALS Bottle#: 11 Worklist Smp#: 18  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

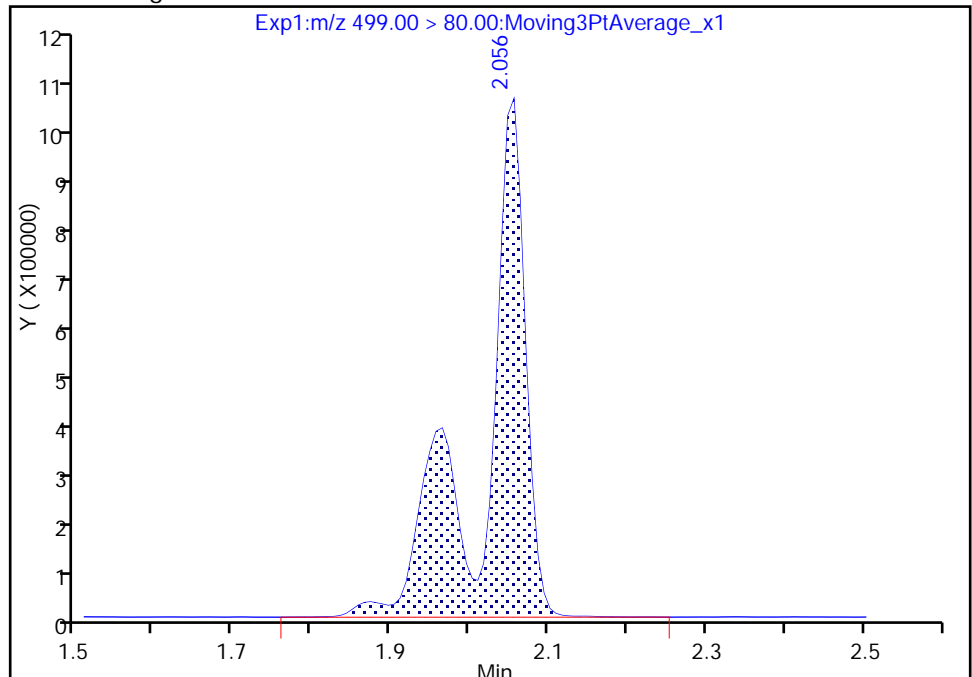
Not Detected  
Expected RT: 2.06

Processing Integration Results



RT: 2.06  
Area: 3902244  
Amount: 36.918554  
Amount Units: ng/ml

Manual Integration Results



Reviewer: barnettj, 16-Feb-2018 16:44:53  
Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-200 MSD Lab Sample ID: 320-35824-1 MSD  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_020.d  
 Analysis Method: 537 Date Collected: 02/06/2018 09:40  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 245.4 (mL) Date Analyzed: 02/16/2018 13:13  
 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.: 208832 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	149	M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	77.5		20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	77.6		24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	101		31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	37.8		10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	262		92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	95		70-130
STL00996	13C2 PFDA	116		70-130

TestAmerica Sacramento  
Target Compound Quantitation Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_020.d  
 Lims ID: 320-35824-A-1-C MSD  
 Client ID: NAWC-020618-RW-200  
 Sample Type: MSD  
 Inject. Date: 16-Feb-2018 13:13:01 ALS Bottle#: 12 Worklist Smp#: 19  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-1-c msd  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: barnettj Date: 16-Feb-2018 16:45:35

Signal	RT	EXP RT	DLT RT	REL RT	Response	Amount ng/ml	Ratio(Limits)	S/N	Flags
1 Perfluorobutanesulfonic acid									
298.90 > 80.00	1.358	1.358	0.0	1.000	8347097	64.2		12680	
298.90 > 99.00	1.358	1.358	0.0	1.000	5980232		1.40(0.00-0.00)	13219	
\$ 2 13C2 PFHxA									
315.00 > 270.00	1.479	1.472	0.007	1.000	1065548	9.51		13233	
3 Perfluorohexanesulfonic acid									
399.00 > 80.00	1.616	1.616	0.0	1.000	4374147	24.7		2923	
4 Perfluoroheptanoic acid									
363.00 > 319.00	1.624	1.616	0.008	1.000	918050	9.28		177	
* 6 13C2-PFOA									
415.00 > 370.00	1.798	1.798	0.0		1018729	10.0		8592	
5 Perfluorooctanoic acid									
413.00 > 369.00	1.806	1.798	0.008	1.000	1863737	19.0		66.1	
413.00 > 169.00	1.806	1.798	0.008	1.000	1077170		1.73(0.00-0.00)	158	
* 7 13C4 PFOS									
503.00 > 80.00	2.056	2.048	0.008		3155822	28.7		4018	
8 Perfluorooctane sulfonic acid									
499.00 > 80.00	2.056	2.056	0.0	1.000	3797260	36.5		2780	a
499.00 > 99.00	2.056	2.056	0.0	1.000	804036		4.72(0.00-0.00)	571	a
9 Perfluorononanoic acid									
463.00 > 419.00	2.064	2.064	0.0	1.000	1193676	19.0		51.2	
\$ 10 13C2 PFDA									
515.00 > 470.00	2.238	2.238	0.0	1.000	620481	11.6		5903	

## QC Flag Legend

Review Flags

a - User Assigned ID



TestAmerica Sacramento

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_020.d

Injection Date: 16-Feb-2018 13:13:01

Instrument ID: A8\_N

Lims ID: 320-35824-A-1-C MSD

Client ID: NAWC-020618-RW-200

Operator ID: SACINSTLCMS01

ALS Bottle#: 12

Worklist Smp#: 19

Injection Vol: 2.0 ul

Dil. Factor: 1.0000

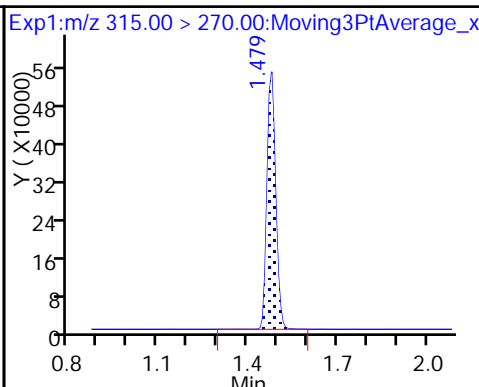
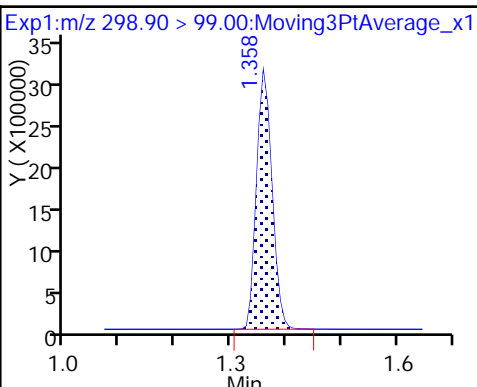
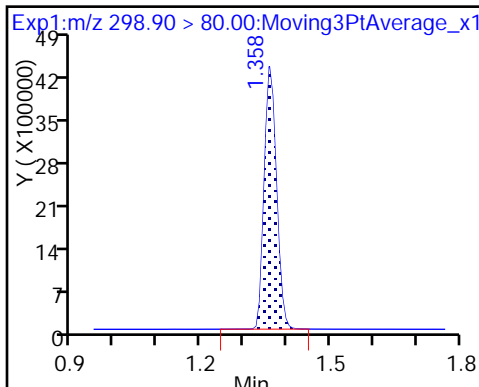
Method: 537\_A8\_N

Limit Group: LC 537 ICAL

1 Perfluorobutanesulfonic acid

1 Perfluorobutanesulfonic acid

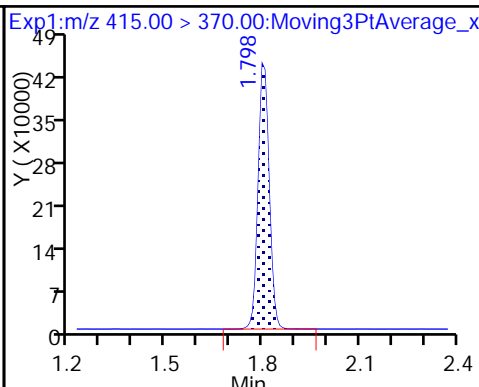
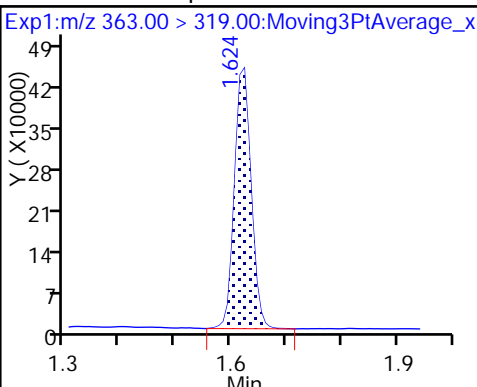
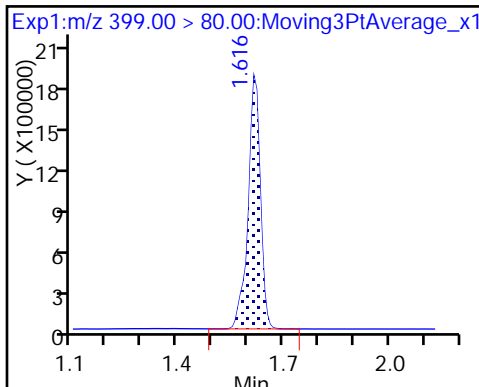
\$ 2 13C2 PFHxA



3 Perfluorohexanesulfonic acid

4 Perfluoroheptanoic acid

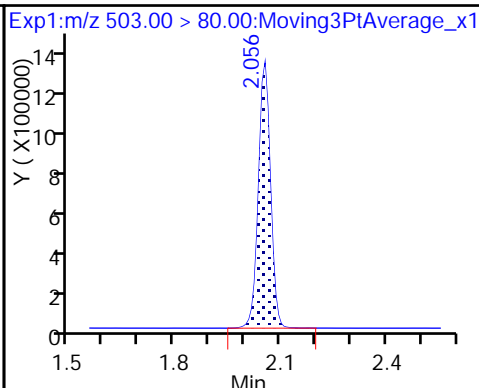
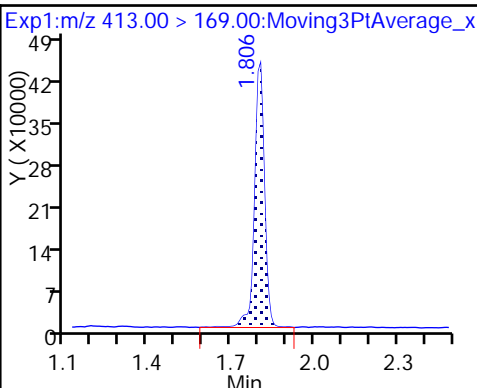
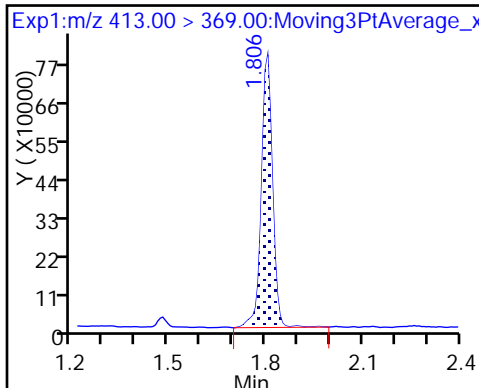
\* 6 13C2-PFOA



5 Perfluorooctanoic acid

5 Perfluorooctanoic acid

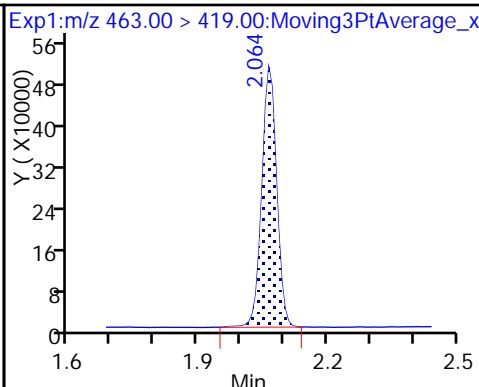
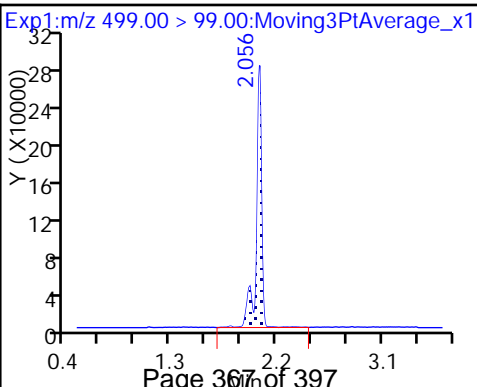
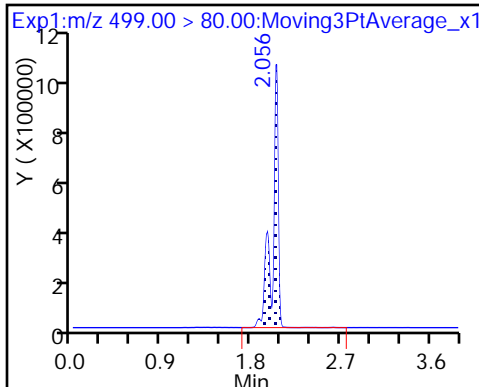
\* 7 13C4 PFOS



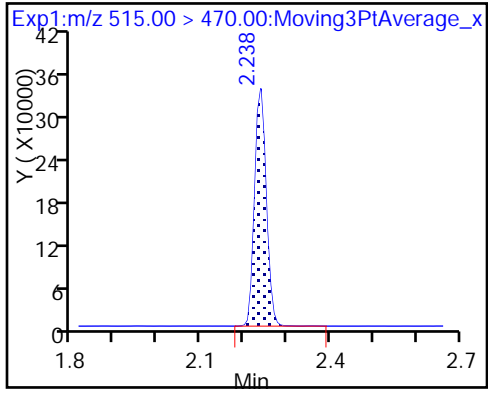
8 Perfluorooctane sulfonic acid (M)

8 Perfluorooctane sulfonic acid

9 Perfluorononanoic acid



\$ 10 13C2 PFDA



TestAmerica Sacramento  
Recovery Report

Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_020.d  
 Lims ID: 320-35824-A-1-C MSD  
 Client ID: NAWC-020618-RW-200  
 Sample Type: MSD  
 Inject. Date: 16-Feb-2018 13:13:01 ALS Bottle#: 12 Worklist Smp#: 19  
 Injection Vol: 2.0 ul Dil. Factor: 1.0000  
 Sample Info: 320-35824-a-1-c msd  
 Misc. Info.: Plate: 1 Rack: 2  
 Operator ID: SACINSTLCMS01 Instrument ID: A8\_N  
 Method: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\537\_A8\_N.m  
 Limit Group: LC 537 ICAL  
 Last Update: 16-Feb-2018 16:48:55 Calib Date: 16-Feb-2018 09:19:04  
 Integrator: Picker  
 Quant Method: Internal Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\Sacramento\ChromData\A8\_N\20180216-54164.b\2018.02.016\_537ICAL\_009.d  
 Column 1 : Det: EXP1  
 Process Host: XAWRK013

First Level Reviewer: barnettj Date: 16-Feb-2018 16:45:35

Compound	Amount Added	Amount Recovered	% Rec.
\$ 2 13C2 PFHxA	10.0	9.51	95.10
\$ 10 13C2 PFDA	10.0	11.6	116.18

TestAmerica Sacramento

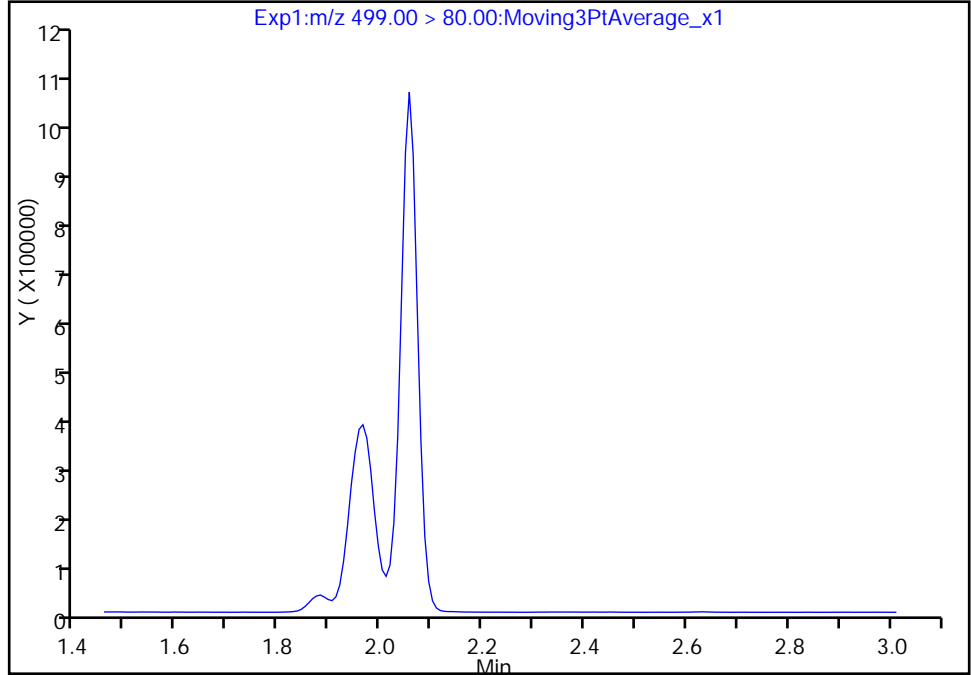
Data File: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b\2018.02.16\_537C\_020.d  
Injection Date: 16-Feb-2018 13:13:01 Instrument ID: A8\_N  
Lims ID: 320-35824-A-1-C MSD  
Client ID: NAWC-020618-RW-200  
Operator ID: SACINSTLCMS01 ALS Bottle#: 12 Worklist Smp#: 19  
Injection Vol: 2.0 ul Dil. Factor: 1.0000  
Method: 537\_A8\_N Limit Group: LC 537 ICAL  
Column: Detector EXP1

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

Signal: 1

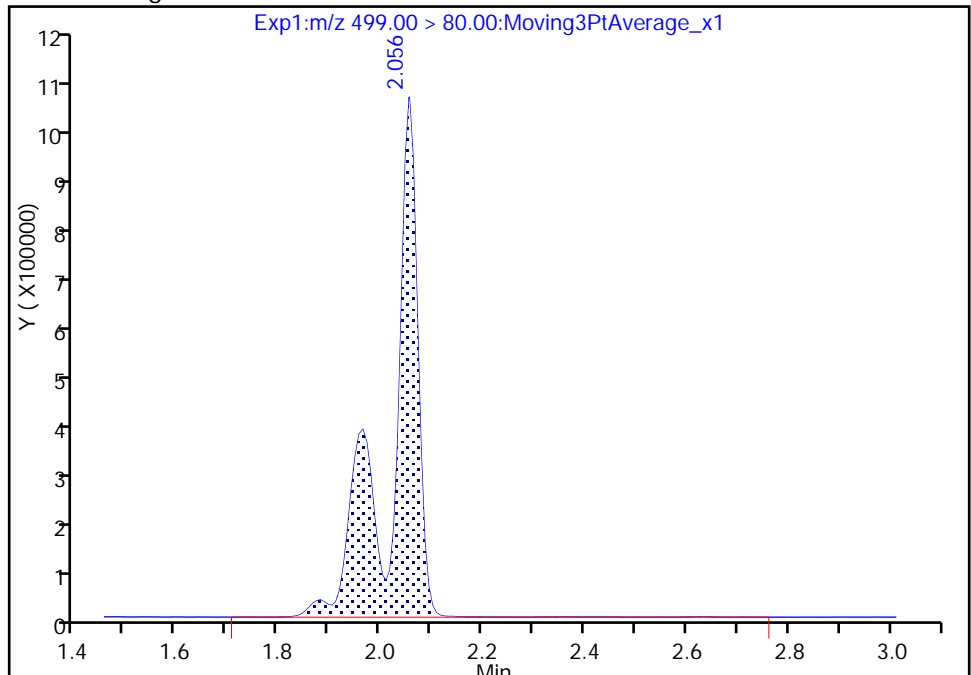
Not Detected  
Expected RT: 2.06

Processing Integration Results



Manual Integration Results

RT: 2.06  
Area: 3797260  
Amount: 36.497102  
Amount Units: ng/ml



Reviewer: barnettj, 16-Feb-2018 16:45:17  
Audit Action: Assigned Compound ID

Audit Reason: Peak assignment corrected

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1

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.: 320-35824-1

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N Start Date: 02/14/2018 12:27

Analysis Batch Number: 208494 End Date: 02/14/2018 14:19

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-208494/1		02/14/2018 12:27	1	2018.02.14_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-208494/2		02/14/2018 13:51	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/14/2018 14:00	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/14/2018 14:05	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/14/2018 14:10	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/14/2018 14:14	1		GeminiC18 3x100 3(mm)
CCV 320-208494/8		02/14/2018 14:19	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N Start Date: 02/15/2018 07:52

Analysis Batch Number: 208529 End Date: 02/15/2018 08:43

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-208529/13 CCVIS		02/15/2018 07:52	1	2018.02.14_537A XXX 041.d	GeminiC18 3x100 3(mm)
320-35824-7		02/15/2018 08:01	1	2018.02.14_537A XXX 043.d	GeminiC18 3x100 3(mm)
320-35824-8		02/15/2018 08:06	1	2018.02.14_537A XXX 044.d	GeminiC18 3x100 3(mm)
320-35824-9		02/15/2018 08:10	1	2018.02.14_537A XXX 045.d	GeminiC18 3x100 3(mm)
320-35824-10		02/15/2018 08:15	1	2018.02.14_537A XXX 046.d	GeminiC18 3x100 3(mm)
320-35824-11		02/15/2018 08:20	1	2018.02.14_537A XXX 047.d	GeminiC18 3x100 3(mm)
320-35824-12		02/15/2018 08:24	1	2018.02.14_537A XXX 048.d	GeminiC18 3x100 3(mm)
320-35824-13		02/15/2018 08:29	1	2018.02.14_537A XXX 049.d	GeminiC18 3x100 3(mm)
320-35824-14		02/15/2018 08:33	1	2018.02.14_537A XXX 050.d	GeminiC18 3x100 3(mm)
320-35824-15		02/15/2018 08:38	1	2018.02.14_537A XXX 051.d	GeminiC18 3x100 3(mm)
CCV 320-208529/24 CCVIS		02/15/2018 08:43	1	2018.02.14_537A XXX 052.d	GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N Start Date: 02/16/2018 08:55

Analysis Batch Number: 208773 End Date: 02/16/2018 09:37

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



LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N Start Date: 02/16/2018 12:45

Analysis Batch Number: 208832 End Date: 02/16/2018 13:41

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-208832/13 CCVIS		02/16/2018 12:45	1	2018.02.16_537C 014.d	GeminiC18 3x100 3(mm)
MB 320-207932/1-A		02/16/2018 12:54	1	2018.02.16_537C 016.d	GeminiC18 3x100 3(mm)
LCS 320-207932/2-A		02/16/2018 12:59	1	2018.02.16_537C 017.d	GeminiC18 3x100 3(mm)
320-35824-1		02/16/2018 13:03	1	2018.02.16_537C 018.d	GeminiC18 3x100 3(mm)
320-35824-1 MS		02/16/2018 13:08	1	2018.02.16_537C 019.d	GeminiC18 3x100 3(mm)
320-35824-1 MSD		02/16/2018 13:13	1	2018.02.16_537C 020.d	GeminiC18 3x100 3(mm)
320-35824-2		02/16/2018 13:17	1	2018.02.16_537C 021.d	GeminiC18 3x100 3(mm)
320-35824-3		02/16/2018 13:22	1	2018.02.16_537C 022.d	GeminiC18 3x100 3(mm)
320-35824-4		02/16/2018 13:27	1	2018.02.16_537C 023.d	GeminiC18 3x100 3(mm)
320-35824-5		02/16/2018 13:31	1	2018.02.16_537C 024.d	GeminiC18 3x100 3(mm)
320-35824-6		02/16/2018 13:36	1	2018.02.16_537C 025.d	GeminiC18 3x100 3(mm)
CCV 320-208832/25 CCVIS		02/16/2018 13:41	1	2018.02.16_537C 026.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Batch Number: 207932 Batch Start Date: 02/12/18 09:27 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/13/18 16:48

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00055
MB 320-207932/1		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
LCS 320-207932/2		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
320-35824-A-1	NAWC-020618-RW-200	537, 537	T	280.41 g	27.45 g	253 mL	1.0 mL	7 SU	100 uL
320-35824-A-1	NAWC-020618-RW-200	537, 537	T	270.66 g	27.25 g	243.4 mL	1.0 mL	7 SU	100 uL
320-35824-A-1	NAWC-020618-RW-200	537, 537	T	272.62 g	27.23 g	245.4 mL	1.0 mL	7 SU	100 uL
320-35824-A-2	NAWC-020618-FRB-200	537, 537	T	276.25 g	28.02 g	248.2 mL	1.0 mL	7 SU	100 uL
320-35824-A-3	NAWC-020618-RW-223	537, 537	T	272.14 g	26.90 g	245.2 mL	1.0 mL	7 SU	100 uL
320-35824-A-4	NAWC-020618-FRB-223	537, 537	T	281.18 g	28.10 g	253.1 mL	1.0 mL	7 SU	100 uL
320-35824-A-5	NAWC-020618-RW-288	537, 537	T	274.60 g	26.95 g	247.7 mL	1.0 mL	7 SU	100 uL
320-35824-A-6	NAWC-020618-FRB-288	537, 537	T	282.87 g	29.60 g	253.3 mL	1.0 mL	7 SU	100 uL
320-35824-A-7	WGNA-020618-RW-3118	537, 537	T	275.02 g	27.00 g	248 mL	1.0 mL	7 SU	100 uL
320-35824-A-8	WGNA-020618-FRB-3118	537, 537	T	276.87 g	27.99 g	248.9 mL	1.0 mL	7 SU	100 uL
320-35824-A-9	NAWC-020618-RW-269	537, 537	T	272.72 g	27.13 g	245.6 mL	1.0 mL	7 SU	100 uL
320-35824-A-10	NAWC-020618-RFB-269	537, 537	T	279.69 g	27.80 g	251.9 mL	1.0 mL	7 SU	100 uL
320-35824-A-11	NAWC-020618-RW-109	537, 537	T	272.37 g	26.96 g	245.4 mL	1.0 mL	7 SU	100 uL
320-35824-A-12	NAWC-020618-FRB-109	537, 537	T	279.70 g	27.64 g	252.1 mL	1.0 mL	7 SU	100 uL
320-35824-A-13	WGNA-020618-DUP-25	537, 537	T	273.16 g	27.19 g	246 mL	1.0 mL	7 SU	100 uL
320-35824-A-14	NAWC-020618-RW-186	537, 537	T	270.80 g	27.04 g	243.8 mL	1.0 mL	7 SU	100 uL
320-35824-A-15	NAWC-020618-FRB-186	537, 537	T	280.01 g	28.27 g	251.7 mL	1.0 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-MSP 00032	LC537-SU 00057	AnalysisComment			
MB 320-207932/1		537, 537			100 uL	Cl 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.: 320-35824-1

SDG No.: \_\_\_\_\_

Batch Number: 207932 Batch Start Date: 02/12/18 09:27 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/13/18 16:48

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-MSP 00032	LC537-SU 00057	AnalysisComment			
LCS 320-207932/2		537, 537		100 uL	100 uL	C1 ND			
320-35824-A-1	NAWC-020618-RW-2 00	537, 537	T		100 uL	C1 ND			
320-35824-A-1 MS	NAWC-020618-RW-2 00	537, 537	T	100 uL	100 uL	C1 ND			
320-35824-A-1 MSD	NAWC-020618-RW-2 00	537, 537	T	100 uL	100 uL	C1 ND			
320-35824-A-2	NAWC-020618-FRB- 200	537, 537	T		100 uL	C1 ND			
320-35824-A-3	NAWC-020618-RW-2 23	537, 537	T		100 uL	C1 ND			
320-35824-A-4	NAWC-020618-FRB- 223	537, 537	T		100 uL	C1 ND			
320-35824-A-5	NAWC-020618-RW-2 88	537, 537	T		100 uL	C1 ND			
320-35824-A-6	NAWC-020618-FRB- 288	537, 537	T		100 uL	C1 ND			
320-35824-A-7	WGNA-020618-RW-3 118	537, 537	T		100 uL	C1 ND			
320-35824-A-8	WGNA-020618-FRB- 3118	537, 537	T		100 uL	C1 ND			
320-35824-A-9	NAWC-020618-RW-2 69	537, 537	T		100 uL	C1 ND			
320-35824-A-10	NAWC-020618-RFB- 269	537, 537	T		100 uL	C1 ND			
320-35824-A-11	NAWC-020618-RW-1 09	537, 537	T		100 uL	C1 ND			
320-35824-A-12	NAWC-020618-FRB- 109	537, 537	T		100 uL	C1 ND			
320-35824-A-13	WGNA-020618-DUP- 25	537, 537	T		100 uL	C1 ND			
320-35824-A-14	NAWC-020618-RW-1 86	537, 537	T		100 uL	C1 ND			
320-35824-A-15	NAWC-020618-FRB- 186	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.: 320-35824-1

SDG No.: \_\_\_\_\_

Batch Number: 207932 Batch Start Date: 02/12/18 09:27 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/13/18 16:48

Batch Notes	
Analyst ID - Aliquot Step	KMK
Batch Comment	Sample labels match Client ID's: KMK 2-12-18
Analyst ID - Concentration	SKD/KMK
Analyst ID - Final Volume Step	KMK
Internal Standard ID#	1099355
Manifold ID	4, 7
Methanol ID	1152898
pH Indicator ID	2517
Pipette ID	M16387D
Analyst ID - IS Reagent Drop	KMK
Analyst ID - IS Reagent Drop Witness	TP
Analyst ID - SU Reagent Drop	KMK
Analyst ID - SU Reagent Drop Witness	JNS
Analyst ID - TA Reagent Drop	KMK
Analyst ID - TA Reagent Drop Witness	JNS
SPE Cartridge Lot ID	6369499-05
Trizma ID	SLBR4303V
Reagent Water ID	2-9-18

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.

2/21

A8

Job No: 35824 Instrument ID & Date: 2-15-18 ICAL Batch: 192908, 208773  
Extraction Batch: 207932 Worklist #: 54100, 54174 TALS Batch: 208528, 208529,

208832

Review Items	-- Level 1 --			Level 2
	Yes	No	N/A	
<b>Initial Calibration</b>				
1. Is ICAL verified and locked in Chrom & TALS?	✓			✓
2. Is ICV properly linked in TALS?	✓			✓
<b>Continuing Calibration</b>				
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.	✓			✓
<b>Client Samples &amp; QC Sample Results</b>				
1. Were preparation and analysis done within holding times?	✓			✓
2. Are Chromatograms reviewed and spectra verified?	✓			✓
3. Are positive results within calibration range?	✓			✓
4. Dilutions due to target cpds? _____ Dilutions due to non-targets? _____			✓	
5. All target compounds in MB < 1/3 RL ? (Requires NCM if "no.")	✓			✓
6. Are target constituents in LCS/LCSD within method control limits?	✓			✓
7. Internal Standard areas in control for all samples and QC reported? ±50% from the average area of the ICAL and 70-140% of the most recent CCV	✓			✓
8. Do results (e.g., dilutions/trip blanks) make sense?	✓			✓
9. Are MS/MSD recoveries and RPDs within method control limits?	✓			✓
10. Are all QC samples properly linked in TALS?	✓			✓
11. All manual integrations appropriate and completely documented?	✓			✓
12. Are nonconformances documented as NCMs?	✓			✓
13. Are all Chrom graphics uploaded?	✓			✓

1<sup>st</sup> Level Reviewer / Date: JRB 2-16-18

2<sup>nd</sup> Level Reviewer / Date: Jan 2/20/18

NCM # and Comments: 116501

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

A8

Instrument ID & Date: 2-16-18 Worklist#: 54164

ICAL Batch: 208773, 208774 Calibration ID number: 37889, 37890

Review Items	-- Level 1 --			Level 2
	Yes	No	N/A	
<b>Initial Calibration</b>				
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 <sup>2</sup> ) Linear <u>Quadratic</u> (6 points minimum)				
4. Meets fit criteria? Intercept ≤ 1/2 RL RSD ≤ 30% for Average R <sup>2</sup> ≥ 0.990 for Linear R <sup>2</sup> ≥ 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 <sup>nd</sup> source) ± 30% of true value?	✓			✓
11. Is ICV (2 <sup>nd</sup> 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?				✓

1<sup>st</sup> Level Reviewer / Date: JRB 2-16-18

2<sup>nd</sup> Level Reviewer / Date: CBW 2-16-18

NCM # and Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

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	
<b>Initial Calibration</b>				
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 <sup>2</sup> )Linear <u>Quadratic</u> (6 points minimum)				
4. Meets fit criteria? Intercept ≤ ½ RL RSD ≤ 30% for Average R <sup>2</sup> ≥ 0.990 for Linear R <sup>2</sup> ≥ 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 <sup>nd</sup> source) ± 30% of true value?	✓			✓
11. Is ICV (2 <sup>nd</sup> 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?				✓

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

2<sup>nd</sup> Level Reviewer / Date: M. W. [Signature] 11/6/2017

NCM # and Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

TestAmerica Laboratories  
Worklist QC Batch Report

Worklist Name: 14FEB2018\_537C

Worklist Number: 54100

Instrument Name: A8\_N

Chrom Method: 537\_A8\_N

Data Directory: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b

QC Batching: Enabled

Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 208528
# 1 CCV L5	# 1 CCV L5
# 2 RB	# 2 RB
# 3 MB 320-207932/1-A	# 3 MB 320-207932/1-A
# 4 LCS 320-207932/2-A	# 4 LCS 320-207932/2-A
# 5 320-35824-A-1-A	# 5 320-35824-A-1-A
# 6 320-35824-A-1-B MS	# 6 320-35824-A-1-B MS
# 7 320-35824-A-1-C MSD	# 7 320-35824-A-1-C MSD
# 8 320-35824-A-2-A	# 8 320-35824-A-2-A
# 9 320-35824-A-3-A	# 9 320-35824-A-3-A
#10 320-35824-A-4-A	#10 320-35824-A-4-A
#11 320-35824-A-5-A	#11 320-35824-A-5-A
#12 320-35824-A-6-A	#12 320-35824-A-6-A
#13 CCV L3	#13 CCV L3

Not used due to  
zcu problem.

QC Batch: 2	LC 537 ICAL Raw Batch: 208529
#13 CCV L3	#13 CCV L3
#14 RB	#14 RB
#15 320-35824-A-7-A	#15 320-35824-A-7-A
#16 320-35824-A-8-A	#16 320-35824-A-8-A
#17 320-35824-A-9-A	#17 320-35824-A-9-A
#18 320-35824-A-10-A	#18 320-35824-A-10-A
#19 320-35824-A-11-A	#19 320-35824-A-11-A
#20 320-35824-A-12-A	#20 320-35824-A-12-A
#21 320-35824-A-13-A	#21 320-35824-A-13-A
#22 320-35824-A-14-A	#22 320-35824-A-14-A
#23 320-35824-A-15-A	#23 320-35824-A-15-A
#24 CCV L5	#24 CCV L5
#25 RB	#25 RB

CCVL in AB 208494



TestAmerica Laboratories  
Worklist Run Log Report

Worklist Name: 14FEB2018\_537C

Worklist Num: 54100

Instrument: A8\_N

Method: 537\_A8\_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54100.b

Analysis Type: SemiVOA

Creator: Hannigan, Alyssa B

Inj Volume: 2.00

Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCV L5	320-0054100-001	CCVIS	15-Feb-2018 06:55:54	2018.02.14_537AXXX_029.	5	1.0		sv
RB	320-0054100-002	RB	15-Feb-2018 07:00:34	2018.02.14_537AXXX_030.	8	1.0		sv
MB 320-207932/1-A	320-0054100-003	MB	15-Feb-2018 07:05:14	2018.02.14_537AXXX_031.	20	1.0		sv
LCS 320-207932/2-A	320-0054100-004	LCS	15-Feb-2018 07:09:56	2018.02.14_537AXXX_032.	21	1.0		sv
320-35824-A-1-A	320-0054100-005	Client	15-Feb-2018 07:14:36	2018.02.14_537AXXX_033.	22	1.0	NAWC-020618-RW-200	sv
320-35824-A-1-B MS	320-0054100-006	MS	15-Feb-2018 07:19:17	2018.02.14_537AXXX_034.	23	1.0	NAWC-020618-RW-200	sv
320-35824-A-1-C MSD	320-0054100-007	MSD	15-Feb-2018 07:23:58	2018.02.14_537AXXX_035.	24	1.0	NAWC-020618-RW-200	sv
320-35824-A-2-A	320-0054100-008	Client	15-Feb-2018 07:28:38	2018.02.14_537AXXX_036.	25	1.0	NAWC-020618-FRB-200	sv
320-35824-A-3-A	320-0054100-009	Client	15-Feb-2018 07:33:20	2018.02.14_537AXXX_037.	26	1.0	NAWC-020618-RW-223	sv
320-35824-A-4-A	320-0054100-010	Client	15-Feb-2018 07:37:59	2018.02.14_537AXXX_038.	27	1.0	NAWC-020618-FRB-223	sv
320-35824-A-5-A	320-0054100-011	Client	15-Feb-2018 07:42:39	2018.02.14_537AXXX_039.	28	1.0	NAWC-020618-RW-288	sv
320-35824-A-6-A	320-0054100-012	Client	15-Feb-2018 07:47:21	2018.02.14_537AXXX_040.	29	1.0	NAWC-020618-FRB-288	sv
CCV L3	320-0054100-013	CCVIS	15-Feb-2018 07:52:02	2018.02.14_537AXXX_041.	3	1.0		sv
RB	320-0054100-014	RB	15-Feb-2018 07:56:41	2018.02.14_537AXXX_042.	8	1.0		sv
320-35824-A-7-A	320-0054100-015	Client	15-Feb-2018 08:01:21	2018.02.14_537AXXX_043.	30	1.0	WGNA-020618-RW-3118	sv
320-35824-A-8-A	320-0054100-016	Client	15-Feb-2018 08:06:01	2018.02.14_537AXXX_044.	31	1.0	WGNA-020618-FRB-3118	sv
320-35824-A-9-A	320-0054100-017	Client	15-Feb-2018 08:10:40	2018.02.14_537AXXX_045.	32	1.0	NAWC-020618-RW-269	sv
320-35824-A-10-A	320-0054100-018	Client	15-Feb-2018 08:15:20	2018.02.14_537AXXX_046.	33	1.0	NAWC-020618-RFB-269	sv
320-35824-A-11-A	320-0054100-019	Client	15-Feb-2018 08:20:01	2018.02.14_537AXXX_047.	34	1.0	NAWC-020618-RW-109	sv
320-35824-A-12-A	320-0054100-020	Client	15-Feb-2018 08:24:40	2018.02.14_537AXXX_048.	35	1.0	NAWC-020618-FRB-109	sv
320-35824-A-13-A	320-0054100-021	Client	15-Feb-2018 08:29:19	2018.02.14_537AXXX_049.	36	1.0	WGNA-020618-DUP-25	sv
320-35824-A-14-A	320-0054100-022	Client	15-Feb-2018 08:33:59	2018.02.14_537AXXX_050.	37	1.0	NAWC-020618-RW-186	sv
320-35824-A-15-A	320-0054100-023	Client	15-Feb-2018 08:38:38	2018.02.14_537AXXX_051.	38	1.0	NAWC-020618-FRB-186	sv
CCV L5	320-0054100-024	CCVIS	15-Feb-2018 08:43:19	2018.02.14_537AXXX_052.	5	1.0		sv
RB	320-0054100-025	RB	15-Feb-2018 08:47:59	2018.02.14_537AXXX_053.	8	1.0		sv

TestAmerica Laboratories  
Worklist Run Log Report

Worklist Name: 14FEB2018\_537A

Worklist Num: 54087

Instrument: A8\_N

Method: 537\_A8\_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8\_N\20180215-54087.b

Analysis Type: SemiVOA

Creator: Hannigan, Alyssa B

Inj Volume: 2.00

Inj Vol Units: ul

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
CCVL	320-0054087-001	CCVL	14-Feb-2018 12:27:27	2018.02.14_537A_004.d	2	1.0		sv
CCV L5	320-0054087-002	CCV	14-Feb-2018 13:51:34	2018.02.14_537AXX_005.d	5	1.0		sv
RB	320-0054087-003	RB	14-Feb-2018 13:56:15	2018.02.14_537AXX_006.d	8	1.0		sv
MB 320-207982/1-A	320-0054087-004	MB	14-Feb-2018 14:00:57	2018.02.14_537AXX_007.d	6	1.0		sv
LCS 320-207982/2-A	320-0054087-005	LCS	14-Feb-2018 14:05:37	2018.02.14_537AXX_008.d	7	1.0		sv
LCSD 320-207982/3-A	320-0054087-006	LCSD	14-Feb-2018 14:10:18	2018.02.14_537AXX_009.d	8	1.0		sv
320-35442-B-17-A	320-0054087-007	Client	14-Feb-2018 14:14:58	2018.02.14_537AXX_010.d	9	1.0	NAWC-012518-FRB-238	sv
CCV L3	320-0054087-008	CCV						
RB	320-0054087-009	RB						

TestAmerica Laboratories  
Worklist QC Batch Report

Worklist Name: 16FEB2018\_537B      Worklist Number: 54174  
 Instrument Name: A8\_N      Chrom Method: 537\_A8\_N  
 Data Directory: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b  
 QC Batching: Enabled      Limit Group Batching: Enabled

QC Batch: 1	LC 537 ICAL Raw Batch: 208814	LC 537 CS ICAL Raw Batch: 208815
# 1 CCV L3 # 2 RB # 3 320-35776-B-2-A # 4 320-35770-B-1-A # 5 320-35770-B-2-A # 6 320-35770-A-2-B LMS # 7 320-35770-A-2-C LMSD # 8 RB # 9 RB #10 CCV L3	# 1 CCV L3 # 2 RB      # 8 RB # 9 RB #10 CCV L3	# 1 CCV L3 # 2 RB # 3 320-35776-B-2-A # 4 320-35770-B-1-A # 5 320-35770-B-2-A # 6 320-35770-A-2-B LMS # 7 320-35770-A-2-C LMSD # 8 RB # 9 RB #10 CCV L3

QC Batch: 2	LC 537 ICAL Raw Batch: 208834	LC 537 CS ICAL Raw Batch: 208835
#10 CCV L3 #11 RB #12 320-35770-B-3-A #13 CCV L5	#10 CCV L3 #11 RB  #13 CCV L5	#10 CCV L3 #11 RB #12 320-35770-B-3-A #13 CCV L5

QC Batch: 3	LC 537 ICAL Raw Batch: 208832	LC 537 CS ICAL Raw Batch: 208833
#13 CCV L5 #14 RB #15 MB 320-207932/1-A #16 LCS 320-207932/2-A #17 320-35824-A-1-A #18 320-35824-A-1-B MS #19 320-35824-A-1-C MSD #20 320-35824-A-2-A #21 320-35824-A-3-A #22 320-35824-A-4-A #23 320-35824-A-5-A #24 320-35824-A-6-A #25 CCV L3 #26 RB	#13 CCV L5 #14 RB #15 MB 320-207932/1-A #16 LCS 320-207932/2-A #17 320-35824-A-1-A #18 320-35824-A-1-B MS #19 320-35824-A-1-C MSD #20 320-35824-A-2-A #21 320-35824-A-3-A #22 320-35824-A-4-A #23 320-35824-A-5-A #24 320-35824-A-6-A #25 CCV L3 #26 RB	#13 CCV L5 #14 RB             #25 CCV L3 #26 RB

No CCV - Run after ICAL

TestAmerica Laboratories  
Worklist Run Log Report

Worklist Name: 16FEB2018\_537B

Worklist Num: 54174

Instrument: A8\_N

Method: 537\_A8\_N

Batch Directory: \\ChromNa\Sacramento\ChromData\A8\_N\20180216-54174.b

Analysis Type: SemiVOA

Creator: Phomsopha, Thep

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	320-0054174-001	CCVIS	16-Feb-2018 10:10:25	2018.02.16_537A_006.d	3	1.0		sv
RB	320-0054174-002	RB	16-Feb-2018 10:15:05	2018.02.16_537A_007.d	8	1.0		sv
320-35776-B-2-A	320-0054174-003	Client	16-Feb-2018 10:19:45	2018.02.16_537A_008.d	2	1.0	0218-FB-020118	sv
320-35770-B-1-A	320-0054174-004	Client	16-Feb-2018 10:24:26	2018.02.16_537A_009.d	3	10.0	GC020518-PT	sv
320-35770-B-2-A	320-0054174-005	Client	16-Feb-2018 10:29:07	2018.02.16_537A_010.d	4	1.0	GC020518-PV1-LAG	sv
320-35770-A-2-B LMS	320-0054174-006	LMS	16-Feb-2018 10:33:48	2018.02.16_537A_011.d	5	1.0		sv
320-35770-A-2-C LMSD	320-0054174-007	LMSD	16-Feb-2018 10:38:28	2018.02.16_537A_012.d	6	1.0		sv
RB	320-0054174-008	RB	16-Feb-2018 12:21:36	2018.02.16_537C_009.d	9	1.0		sv
RB	320-0054174-009	RB	16-Feb-2018 12:26:19	2018.02.16_537C_010.d	9	1.0		sv
CCV L3	320-0054174-010	CCVIS	16-Feb-2018 12:31:01	2018.02.16_537C_011.d	3	1.0		sv
RB	320-0054174-011	RB	16-Feb-2018 12:35:41	2018.02.16_537C_012.d	8	1.0		sv
320-35770-B-3-A	320-0054174-012	Client	16-Feb-2018 12:40:20	2018.02.16_537C_013.d	7	5.0	GC020518-PV2-LEAD	sv
CCV L5	320-0054174-013	CCVIS	16-Feb-2018 12:45:01	2018.02.16_537C_014.d	5	1.0		sv
RB	320-0054174-014	RB	16-Feb-2018 12:49:41	2018.02.16_537C_015.d	8	1.0		sv
MB 320-207932/1-A	320-0054174-015	MB	16-Feb-2018 12:54:21	2018.02.16_537C_016.d	8	1.0		sv
LCS 320-207932/2-A	320-0054174-016	LCS	16-Feb-2018 12:59:00	2018.02.16_537C_017.d	9	1.0		sv
320-35824-A-1-A	320-0054174-017	Client	16-Feb-2018 13:03:40	2018.02.16_537C_018.d	10	1.0	NAWC-020618-RW-200	sv
320-35824-A-1-B MS	320-0054174-018	MS	16-Feb-2018 13:08:21	2018.02.16_537C_019.d	11	1.0	NAWC-020618-RW-200	sv
320-35824-A-1-C MSD	320-0054174-019	MSD	16-Feb-2018 13:13:01	2018.02.16_537C_020.d	12	1.0	NAWC-020618-RW-200	sv
320-35824-A-2-A	320-0054174-020	Client	16-Feb-2018 13:17:43	2018.02.16_537C_021.d	13	1.0	NAWC-020618-FRB-200	sv
320-35824-A-3-A	320-0054174-021	Client	16-Feb-2018 13:22:24	2018.02.16_537C_022.d	14	1.0	NAWC-020618-RW-223	sv
320-35824-A-4-A	320-0054174-022	Client	16-Feb-2018 13:27:05	2018.02.16_537C_023.d	15	1.0	NAWC-020618-FRB-223	sv
320-35824-A-5-A	320-0054174-023	Client	16-Feb-2018 13:31:45	2018.02.16_537C_024.d	16	1.0	NAWC-020618-RW-288	sv
320-35824-A-6-A	320-0054174-024	Client	16-Feb-2018 13:36:25	2018.02.16_537C_025.d	17	1.0	NAWC-020618-FRB-288	sv
CCV L3	320-0054174-025	CCVIS	16-Feb-2018 13:41:07	2018.02.16_537C_026.d	3	1.0		sv

Lab ID	Worklist ID	Sample Type	Inj Date/Time	File Name	Vial	Dil Factor	Client ID	Fract
RB	320-0054174-026	RB	16-Feb-2018 13:45:47	2018.02.16_537C_027.d	8	1.0		sv

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Analyst: Kolstad, Kate M

Batch Number: 320-207932











Method Code: 320-537\_Prep-320

Batch Open: 2/12/2018 9:27:00AM

Batch End: 2/13/2018 4:48:00PM

KB 2/14/18  
82  
KB 2/15/18

## Extraction of Perfluorinated Alkyl Acids

	Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	Rcvd	PHs Adj1 Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1	MB-320-207932/1 N/A	N/A		250.0 mL	7		N/A	N/A	N/A	CI ND	
				1.0 mL						RI	
2	LCS-320-207932/2 N/A	N/A		250.0 mL	7		N/A	N/A	N/A	CI ND	
				1.0 mL							
3	320-35824-A-1 (537_DOD5)	N/A (320-35824-1)	280.41 g	253 mL	7		2/11/18	16_Days	4	CI ND	
			27.45 g	1.0 mL							
	320-35824-A-1-MS (537_DOD5)	N/A (320-35824-1)	270.66 g	243.4 mL	7		2/11/18	16_Days	4	CI ND	
			27.25 g	1.0 mL							
	320-35824-A-1-MSD (537_DOD5)	N/A (320-35824-1)	272.62 g	245.4 mL	7		2/11/18	16_Days	4	CI ND	
			27.23 g	1.0 mL							
6	320-35824-A-2 (537_DOD5)	N/A (320-35824-1)	276.25 g	248.2 mL	7		2/11/18	16_Days	4	CI ND	
			28.02 g	1.0 mL							
7	320-35824-A-3 (537_DOD5)	N/A (320-35824-1)	272.14 g	245.2 mL	7		2/11/18	16_Days	4	CI ND	
			26.90 g	1.0 mL							
8	320-35824-A-4 (537_DOD5)	N/A (320-35824-1)	281.18 g	253.1 mL	7		2/11/18	16_Days	4	CI ND	
			28.10 g	1.0 mL							
9	320-35824-A-5 (537_DOD5)	N/A (320-35824-1)	274.60 g	247.7 mL	7		2/11/18	16_Days	4	CI ND	
			26.95 g	1.0 mL							
10	320-35824-A-6 (537_DOD5)	N/A (320-35824-1)	282.87 g	253.3 mL	7		2/11/18	16_Days	4	CI ND	
			29.60 g	1.0 mL							

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# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)










Batch Number: 320-207932

Analyst: Kolstad, Kate M

Batch Open: 2/12/2018 9:27:00AM

Method Code: 320-537\_Prep-320

Batch End: 2/13/2018 4:48:00PM

11	320-35824-A-7 (537_DOD5)	N/A (320-35824-1)	275.02 g	248 mL	7			2/11/18	16_Days	4	CI ND	
			27.00 g	1.0 mL								
12	320-35824-A-8 (537_DOD5)	N/A (320-35824-1)	276.87 g	248.9 mL	7			2/11/18	16_Days	4	CI ND	
			27.99 g	1.0 mL								
13	320-35824-A-9 (537_DOD5)	N/A (320-35824-1)	272.72 g	245.6 mL	7			2/11/18	16_Days	4	CI ND	
			27.13 g	1.0 mL								
14	320-35824-A-10 (537_DOD5)	N/A (320-35824-1)	279.69 g	251.9 mL	7			2/11/18	16_Days	4	CI ND	
			27.80 g	1.0 mL								
15	320-35824-A-11 (537_DOD5)	N/A (320-35824-1)	272.37 g	245.4 mL	7			2/11/18	16_Days	4	CI ND	
			26.96 g	1.0 mL								
16	320-35824-A-12 (537_DOD5)	N/A (320-35824-1)	279.70 g	252.1 mL	7			2/11/18	16_Days	4	CI ND	
			27.64 g	1.0 mL								
17	320-35824-A-13 (537_DOD5)	N/A (320-35824-1)	273.16 g	246 mL	7			2/11/18	16_Days	4	CI ND	
			27.19 g	1.0 mL								
18	320-35824-A-14 (537_DOD5)	N/A (320-35824-1)	270.80 g	243.8 mL	7			2/11/18	16_Days	4	CI ND	
			27.04 g	1.0 mL								
19	320-35824-A-15 (537_DOD5)	N/A (320-35824-1)	280.01 g	251.7 mL	7			2/11/18	16_Days	4	CI ND	
			28.27 g	1.0 mL								

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# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207932

Analyst: Kolstad, Kate M

Batch Open: 2/12/2018 9:27:00AM

Method Code: 320-537\_Prep-320

Batch End: 2/13/2018 4:48:00PM

## Batch Notes

Manifold ID	4, 7
pH Indicator ID	2517
Trizma ID	SLBR4303V
SPE Cartridge Lot ID	6369499-05
Methanol ID	1152898
Reagent Water ID	2-9-18
Internal Standard ID#	1099355
Pipette ID	M16387D
Analyst ID - TA Reagent Drop	KMK
Analyst ID - TA Reagent Drop Witness	JNS
Analyst ID - SU Reagent Drop	KMK
Analyst ID - SU Reagent Drop Witness	JNS
Analyst ID - IS Reagent Drop	KMK
Analyst ID - IS Reagent Drop Witness	TP
Analyst ID - Concentration	SKD/KMK
Analyst ID - Aliquot Step	KMK
Analyst ID - Final Volume Step	KMK
Batch Comment	Sample labels match Client ID's: KMK 2-12-18

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# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207932

Analyst: Kolstad, Kate M

Batch Open: 2/12/2018 9:27:00AM

Method Code: 320-537\_Prep-320

Batch End: 2/13/2018 4:48:00PM

**Comments**

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207932

Analyst: Kolstad, Kate M

Batch Open: 2/12/2018 9:27:00AM

Method Code: 320-537\_Prep-320

Batch End:

## Reagent Additions Worksheet

Lab ID	Reagent Code	Amount Added	Final Amount	By	Witness
MB 320-207932/1	LC537-SU_00057	100 uL	1.0 mL	KMK 2-12-18	Jvs 2/12/18
LCS 320-207932/2	LC537-MSP_00032	100 uL	1.0 mL		
LCS 320-207932/2	LC537-SU_00057	100 uL	1.0 mL		
320-35824-A-1	LC537-SU_00057	100 uL	1.0 mL		
320-35824-A-1 MS	LC537-MSP_00032	100 uL	1.0 mL		
320-35824-A-1 MS	LC537-SU_00057	100 uL	1.0 mL		
320-35824-A-1 MSD	LC537-MSP_00032	100 uL	1.0 mL		
320-35824-A-1 MSD	LC537-SU_00057	100 uL	1.0 mL		
320-35824-A-2	LC537-SU_00057	100 uL	1.0 mL		
320-35824-A-3	LC537-SU_00057	100 uL	1.0 mL		
320-35824-A-4	LC537-SU_00057	100 uL	1.0 mL		
320-35824-A-5	LC537-SU_00057	100 uL	1.0 mL		
320-35824-A-6	LC537-SU_00057	100 uL	1.0 mL		
320-35824-A-7	LC537-SU_00057	100 uL	1.0 mL		
320-35824-A-8	LC537-SU_00057	100 uL	1.0 mL		
320-35824-A-9	LC537-SU_00057	100 uL	1.0 mL		
320-35824-A-10	LC537-SU_00057	100 uL	1.0 mL		
320-35824-A-11	LC537-SU_00057	100 uL	1.0 mL		

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# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207932

Analyst: Kolstad, Kate M

Batch Open: 2/12/2018 9:27:00AM

Method Code: 320-537\_Prep-320

Batch End:

320-35824-A-12	LC537-SU_00057	100 uL	1.0 mL	kmk 2-12-18	JNS 2/12/18
320-35824-A-13	LC537-SU_00057	100 uL	1.0 mL	↓	↓
320-35824-A-14	LC537-SU_00057	100 uL	1.0 mL		
320-35824-A-15	LC537-SU_00057	100 uL	1.0 mL		

## Other Reagents:

Reagent	Amount/Units	Lot#:

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Preparation Batch Number(s) 207932 Test 537 Prep

Earliest Holding Time 2-20-18

Batch Information	1 <sup>st</sup> Level Reviewer	2 <sup>nd</sup> 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 <sup>st</sup> Level Reviewer	2 <sup>nd</sup> Level Reviewer
Samples identified to the correct method	✓	✓
Holding time violation NCM filed	N/A	N/A
MS/MSD or MS/DU NCM filed	N/A	N/A
NCM for any anomalies filed	N/A	N/A
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 <sup>st</sup> Level Reviewer	2 <sup>nd</sup> 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 <sup>st</sup> Level Reviewer	2 <sup>nd</sup> 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	✓	✓

1<sup>st</sup> Level Reviewer: SKD

Date: 2/14/18

2<sup>nd</sup> Level Reviewer: VPM

Date: 2/14/18

Comments: \_\_\_\_\_

# Shipping and Receiving Documents

**TestAmerica Sacramento**  
 880 Riverside Parkway  
 West Sacramento, CA 95605-1500  
 phone 916.373.5600 fax 303.467.7248

**Chain of Custody Record**

**TestAmerica**  
 THE LEADER IN ENVIRONMENTAL TESTING  
**TestAmerica Laboratories, Inc.**

Regulatory Program:  DW  NPDES  RCRA  Other:

<b>Client Contact</b>	<b>Project Manager:</b> Andy Frebowitz	<b>Site Contact:</b> Mary Kay Bond	<b>Date:</b> 2/6/2018	<b>COC No.:</b>
Tetra Tech	<b>Tel/Fax:</b> 610.382.1170	<b>Lab Contact:</b> Dave Alltucker	<b>Carrier:</b> FedEx	1 of 1 COCs
234 Mall Boulevard Suite 260	<b>Analysis Turnaround Time</b>			<b>Sampler:</b> Mary Kay Bond
King of Prussia, PA 19406	<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS			<b>For Lab Use Only:</b>
610-382-1174	TAT if different from Below 21			<b>Walk-in Client:</b>
610-491-9688	<input type="checkbox"/> 2 weeks			<b>ab Sampling:</b>
<b>Project Name:</b> WE04	<input type="checkbox"/> 1 week			<b>Job / SDG No.:</b>
<b>Site:</b> WE04	<input type="checkbox"/> 2 days			
<b>P O #</b> 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-020618-RW-200	2/6/2018	09:40	G	DW	6	N	Y	Y	MS/MSD
NAWC-020618-FRB-200	2/6/2018	09:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020618-RW-223	2/6/2018	10:10	G	DW	2	N	N	Y	
NAWC-020618-FRB-223	2/6/2018	10:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020618-RW-288	2/6/2018	10:40	G	DW	2	N	N	Y	
NAWC-020618-FRB-288	2/6/2018	10:35	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-020618-RW-3118	2/6/2018	11:40	G	DW	2	N	N	Y	
WGNA-020618-FRB-3118	2/6/2018	11:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020618-RW-269	2/6/2018	12:10	G	DW	2	N	N	Y	
NAWC-020618-FRB-269	2/6/2018	12:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020618-RW-109	2/6/2018	12:40	G	DW	2	N	N	Y	
NAWC-020618-FRB-109	2/6/2018	12:35	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-020618-DUP-25	2/6/2018	07:00	G	DW	2	N	N	Y	Duplicate
NAWC-020618-RW-186	2/6/2018	13:40	G	DW	2	N	N	Y	
NAWC-020618-FRB-186	2/6/2018	13:35	G	DW	2	N	N	Y	Field Reagent Blank

**Preservation Used:** 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other: Trizma

<b>Possible Hazard Identification:</b> Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the	<b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b>
<input checked="" type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown	<input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months

**Fed Ex Tracking:** 7714 1657 6640

<b>Custody Seals Intact:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No	<b>Custody Seal No.:</b>	<b>Cooler Temp. (°C):</b> Obs'd: 5.9	<b>Corr'd:</b>	<b>Therm ID No.:</b> AK-4
<b>Relinquished by:</b> [Signature]	<b>Company:</b> Tetra Tech	<b>Date/Time:</b> 2/6/2018 16:00	<b>Received by:</b> [Signature]	<b>Company:</b> [Signature]
<b>Relinquished by:</b>	<b>Company:</b>	<b>Date/Time:</b>	<b>Received by:</b>	<b>Company:</b>
<b>Relinquished by:</b>	<b>Company:</b>	<b>Date/Time:</b>	<b>Received in Laboratory by:</b>	<b>Company:</b>

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# Login Sample Receipt Checklist

Client: Tetra Tech, Inc.

Job Number: 320-35824-1

**Login Number: 35824**  
**List Number: 1**  
**Creator: Nelson, Kym D**

**List Source: TestAmerica Sacramento**

<b>Question</b>	<b>Answer</b>	<b>Comment</b>
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-020618-RW-200","537","RES","320-35824-1","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","18","ng/L","J M","6.7","DL","","TRG","","","40","LOQ","YES","-99","","253","1.0","16",""  
"NAWC-020618-RW-200","537","RES","320-35824-1","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","17","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES","-99","","253","1.0","7.9",""  
"NAWC-020618-RW-200","537","RES","320-35824-1","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","6.4","ng/L","J","5.4","DL","","TRG","","","30","LOQ","YES","-99","","253","1.0","12",""  
"NAWC-020618-RW-200","537","RES","320-35824-1","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","89","LOQ","YES","-99","","253","1.0","36",""  
"NAWC-020618-RW-200","537","RES","320-35824-1","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","3.8","ng/L","J","1.9","DL","","TRG","","","9.9","LOQ","YES","-99","","253","1.0","4.0",""  
"NAWC-020618-RW-200","537","RES","320-35824-1","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES","-99","","253","1.0","20",""  
"NAWC-020618-RW-200","537","RES","320-35824-1","TALSAC","STL00993","13C2  
PFHxA","38","ng/L","","-99","DL","","SURR","96","","-99","LOQ","YES","39.5","","253","1.0","0",""  
"NAWC-020618-RW-200","537","RES","320-35824-1","TALSAC","STL00996","13C2  
PFDA","44","ng/L","","-99","DL","","SURR","112","","-99","LOQ","YES","39.5","","253","1.0","0",""  
"NAWC-020618-RFB-269","537","RES","320-35824-10","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.7","DL","","TRG","","","40","LOQ","YES","-99","","251.9","1.0","16",""  
"NAWC-020618-RFB-269","537","RES","320-35824-10","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","7.9","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","251.9","1.0","7.9",""  
"NAWC-020618-RFB-269","537","RES","320-35824-10","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","251.9","1.0","12",""  
"NAWC-020618-RFB-269","537","RES","320-35824-10","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","36","ng/L","U","16","DL","","TRG","","","89","LOQ","YES","-99","","251.9","1.0","36",""  
"NAWC-020618-RFB-269","537","RES","320-35824-10","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.0","ng/L","U","1.9","DL","","TRG","","","9.9","LOQ","YES","-99","","251.9","1.0","4.0",""  
"NAWC-020618-RFB-269","537","RES","320-35824-10","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES","-99","","251.9","1.0","20",""  
"NAWC-020618-RFB-269","537","RES","320-35824-10","TALSAC","STL00993","13C2  
PFHxA","38","ng/L","","-99","DL","","SURR","96","","-99","LOQ","YES","39.7","","251.9","1.0","0",""  
"NAWC-020618-RFB-269","537","RES","320-35824-10","TALSAC","STL00996","13C2  
PFDA","30","ng/L","","-99","DL","","SURR","77","","-99","LOQ","YES","39.7","","251.9","1.0","0",""  
"NAWC-020618-RW-109","537","RES","320-35824-11","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","54","ng/L","M","6.9","DL","","TRG","","","41","LOQ","YES","-99","","245.4","1.0","16",""  
"NAWC-020618-RW-109","537","RES","320-35824-11","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","12","ng/L","J","2.9","DL","","TRG","","","20","LOQ","YES","-99","","245.4","1.0","8.1",""  
"NAWC-020618-RW-109","537","RES","320-35824-11","TALSAC","355-46-4","Perfluorohexanesulfonic acid (PFHxS)","41","ng/L","","5.6","DL","","TRG","","","31","LOQ","YES","-99","","245.4","1.0","12",""  
"NAWC-020618-RW-109","537","RES","320-35824-11","TALSAC","375-73-5","Perfluorobutanesulfonic acid (PFBS)","37","ng/L","U","16","DL","","TRG","","","92","LOQ","YES","-99","","245.4","1.0","37",""  
"NAWC-020618-RW-109","537","RES","320-35824-11","TALSAC","375-85-9","Perfluoroheptanoic acid (PFHpA)","4.2","ng/L","J M","1.9","DL","","TRG","","","10","LOQ","YES","-99","","245.4","1.0","4.1",""  
"NAWC-020618-RW-109","537","RES","320-35824-11","TALSAC","375-95-1","Perfluorononanoic acid (PFNA)","20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","245.4","1.0","20",""  
"NAWC-020618-RW-109","537","RES","320-35824-11","TALSAC","STL00993","13C2  
PFHxA","38","ng/L","","-99","DL","","SURR","93","","-99","LOQ","YES","40.7","","245.4","1.0","0",""  
"NAWC-020618-RW-109","537","RES","320-35824-11","TALSAC","STL00996","13C2  
PFDA","32","ng/L","","-99","DL","","SURR","80","","-99","LOQ","YES","40.7","","245.4","1.0","0",""  
"NAWC-020618-FRB-109","537","RES","320-35824-12","TALSAC","1763-23-1","Perfluorooctanesulfonic acid (PFOS)","16","ng/L","U","6.7","DL","","TRG","","","40","LOQ","YES","-99","","252.1","1.0","16",""  
"NAWC-020618-FRB-109","537","RES","320-35824-12","TALSAC","335-67-1","Perfluorooctanoic acid (PFOA)","7.9","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","252.1","1.0","7.9",""  
"NAWC-020618-FRB-109","537","RES","320-35824-12","TALSAC","355-46-4","Perfluorohexanesulfonic acid



(PFHxS),"12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES",-99,"","252.1","1.0","12",""  
"NAWC-020618-FRB-109","537","RES","320-35824-12","TALSAC","375-73-5","Perfluorobutanesulfonic acid  
(PFBS),"36","ng/L","U","16","DL","","TRG","","","89","LOQ","YES",-99,"","252.1","1.0","36",""  
"NAWC-020618-FRB-109","537","RES","320-35824-12","TALSAC","375-85-9","Perfluoroheptanoic acid  
(PFHpA),"4.0","ng/L","U","1.9","DL","","TRG","","","9.9","LOQ","YES",-99,"","252.1","1.0","4.0",""  
"NAWC-020618-FRB-109","537","RES","320-35824-12","TALSAC","375-95-1","Perfluorononanoic acid  
(PFNA),"20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES",-99,"","252.1","1.0","20",""  
"NAWC-020618-FRB-109","537","RES","320-35824-12","TALSAC","STL00993","13C2  
PFHxA),"42","ng/L","","-99","DL","","SURR","105","","-99","LOQ","YES","39.7","","252.1","1.0","0",""  
"NAWC-020618-FRB-109","537","RES","320-35824-12","TALSAC","STL00996","13C2  
PFDA),"34","ng/L","","-99","DL","","SURR","85","","-99","LOQ","YES","39.7","","252.1","1.0","0",""  
"WGNA-020618-DUP-25","537","RES","320-35824-13","TALSAC","1763-23-1","Perfluorooctanesulfonic acid  
(PFOS),"58","ng/L","M","6.9","DL","","TRG","","","41","LOQ","YES",-99,"","246","1.0","16",""  
"WGNA-020618-DUP-25","537","RES","320-35824-13","TALSAC","335-67-1","Perfluorooctanoic acid  
(PFOA),"12","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES",-99,"","246","1.0","8.1",""  
"WGNA-020618-DUP-25","537","RES","320-35824-13","TALSAC","355-46-4","Perfluorohexanesulfonic acid  
(PFHxS),"43","ng/L","","5.6","DL","","TRG","","","30","LOQ","YES",-99,"","246","1.0","12",""  
"WGNA-020618-DUP-25","537","RES","320-35824-13","TALSAC","375-73-5","Perfluorobutanesulfonic acid  
(PFBS),"37","ng/L","U","16","DL","","TRG","","","91","LOQ","YES",-99,"","246","1.0","37",""  
"WGNA-020618-DUP-25","537","RES","320-35824-13","TALSAC","375-85-9","Perfluoroheptanoic acid  
(PFHpA),"4.1","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES",-99,"","246","1.0","4.1",""  
"WGNA-020618-DUP-25","537","RES","320-35824-13","TALSAC","375-95-1","Perfluorononanoic acid  
(PFNA),"20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES",-99,"","246","1.0","20",""  
"WGNA-020618-DUP-25","537","RES","320-35824-13","TALSAC","STL00993","13C2  
PFHxA),"38","ng/L","","-99","DL","","SURR","94","","-99","LOQ","YES","40.7","","246","1.0","0",""  
"WGNA-020618-DUP-25","537","RES","320-35824-13","TALSAC","STL00996","13C2  
PFDA),"32","ng/L","","-99","DL","","SURR","79","","-99","LOQ","YES","40.7","","246","1.0","0",""  
"NAWC-020618-RW-186","537","RES","320-35824-14","TALSAC","1763-23-1","Perfluorooctanesulfonic acid  
(PFOS),"9.9","ng/L","J M","7.0","DL","","TRG","","","41","LOQ","YES",-99,"","243.8","1.0","16",""  
"NAWC-020618-RW-186","537","RES","320-35824-14","TALSAC","335-67-1","Perfluorooctanoic acid  
(PFOA),"14","ng/L","J","2.9","DL","","TRG","","","21","LOQ","YES",-99,"","243.8","1.0","8.2",""  
"NAWC-020618-RW-186","537","RES","320-35824-14","TALSAC","355-46-4","Perfluorohexanesulfonic acid  
(PFHxS),"8.8","ng/L","J","5.6","DL","","TRG","","","31","LOQ","YES",-99,"","243.8","1.0","12",""  
"NAWC-020618-RW-186","537","RES","320-35824-14","TALSAC","375-73-5","Perfluorobutanesulfonic acid  
(PFBS),"37","ng/L","U","17","DL","","TRG","","","92","LOQ","YES",-99,"","243.8","1.0","37",""  
"NAWC-020618-RW-186","537","RES","320-35824-14","TALSAC","375-85-9","Perfluoroheptanoic acid  
(PFHpA),"3.9","ng/L","J","1.9","DL","","TRG","","","10","LOQ","YES",-99,"","243.8","1.0","4.1",""  
"NAWC-020618-RW-186","537","RES","320-35824-14","TALSAC","375-95-1","Perfluorononanoic acid  
(PFNA),"21","ng/L","U","8.2","DL","","TRG","","","25","LOQ","YES",-99,"","243.8","1.0","21",""  
"NAWC-020618-RW-186","537","RES","320-35824-14","TALSAC","STL00993","13C2  
PFHxA),"37","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","41.0","","243.8","1.0","0",""  
"NAWC-020618-RW-186","537","RES","320-35824-14","TALSAC","STL00996","13C2  
PFDA),"37","ng/L","","-99","DL","","SURR","89","","-99","LOQ","YES","41.0","","243.8","1.0","0",""  
"NAWC-020618-FRB-186","537","RES","320-35824-15","TALSAC","1763-23-1","Perfluorooctanesulfonic acid  
(PFOS),"16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES",-99,"","251.7","1.0","16",""  
"NAWC-020618-FRB-186","537","RES","320-35824-15","TALSAC","335-67-1","Perfluorooctanoic acid  
(PFOA),"7.9","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES",-99,"","251.7","1.0","7.9",""  
"NAWC-020618-FRB-186","537","RES","320-35824-15","TALSAC","355-46-4","Perfluorohexanesulfonic acid  
(PFHxS),"12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES",-99,"","251.7","1.0","12",""  
"NAWC-020618-FRB-186","537","RES","320-35824-15","TALSAC","375-73-5","Perfluorobutanesulfonic acid  
(PFBS),"36","ng/L","U","16","DL","","TRG","","","89","LOQ","YES",-99,"","251.7","1.0","36",""  
"NAWC-020618-FRB-186","537","RES","320-35824-15","TALSAC","375-85-9","Perfluoroheptanoic acid  
(PFHpA),"4.0","ng/L","U","1.9","DL","","TRG","","","9.9","LOQ","YES",-99,"","251.7","1.0","4.0",""  
"NAWC-020618-FRB-186","537","RES","320-35824-15","TALSAC","375-95-1","Perfluorononanoic acid

(PFNA)", "20", "ng/L", "U", "7.9", "DL", "", "TRG", "", "", "24", "LOQ", "YES", "-99", "", "251.7", "1.0", "20", ""  
"NAWC-020618-FRB-186", "537", "RES", "320-35824-15", "TALSAC", "STL00993", "13C2  
PFHxA", "38", "ng/L", "", "-99", "DL", "", "SURR", "96", "", "-99", "LOQ", "YES", "39.7", "", "251.7", "1.0", "0", ""  
"NAWC-020618-FRB-186", "537", "RES", "320-35824-15", "TALSAC", "STL00996", "13C2  
PFDA", "29", "ng/L", "", "-99", "DL", "", "SURR", "74", "", "-99", "LOQ", "YES", "39.7", "", "251.7", "1.0", "0", ""  
"NAWC-020618-RW-200MS", "537", "RES", "320-35824-1MS", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid  
(PFOS)", "152", "ng/L", "M", "7.0", "DL", "", "SPK", "97", "", "41", "LOQ", "YES", "138", "NAWC-020618-RW-  
200", "243.4", "1.0", "16", ""  
"NAWC-020618-RW-200MS", "537", "RES", "320-35824-1MS", "TALSAC", "335-67-1", "Perfluorooctanoic acid  
(PFOA)", "78.4", "ng/L", "", "2.9", "DL", "", "SPK", "89", "", "21", "LOQ", "YES", "68.9", "NAWC-020618-RW-  
200", "243.4", "1.0", "8.2", ""  
"NAWC-020618-RW-200MS", "537", "RES", "320-35824-1MS", "TALSAC", "355-46-4", "Perfluorohexanesulfonic acid  
(PFHxS)", "106", "ng/L", "", "5.6", "DL", "", "SPK", "97", "", "31", "LOQ", "YES", "103", "NAWC-020618-RW-  
200", "243.4", "1.0", "12", ""  
"NAWC-020618-RW-200MS", "537", "RES", "320-35824-1MS", "TALSAC", "375-73-5", "Perfluorobutanesulfonic acid  
(PFBS)", "285", "ng/L", "", "17", "DL", "", "SPK", "93", "", "92", "LOQ", "YES", "308", "NAWC-020618-RW-  
200", "243.4", "1.0", "37", ""  
"NAWC-020618-RW-200MS", "537", "RES", "320-35824-1MS", "TALSAC", "375-85-9", "Perfluoroheptanoic acid  
(PFHpA)", "37.3", "ng/L", "", "2.0", "DL", "", "SPK", "98", "", "10", "LOQ", "YES", "34.2", "NAWC-020618-RW-  
200", "243.4", "1.0", "4.1", ""  
"NAWC-020618-RW-200MS", "537", "RES", "320-35824-1MS", "TALSAC", "375-95-1", "Perfluorononanoic acid  
(PFNA)", "73.4", "ng/L", "", "8.2", "DL", "", "SPK", "107", "", "25", "LOQ", "YES", "68.5", "NAWC-020618-RW-  
200", "243.4", "1.0", "21", ""  
"NAWC-020618-RW-200MS", "537", "RES", "320-35824-1MS", "TALSAC", "STL00993", "13C2  
PFHxA", "38.8", "ng/L", "", "-99", "DL", "", "SURR", "94", "", "-99", "LOQ", "YES", "41.1", "NAWC-020618-RW-  
200", "243.4", "1.0", "0", ""  
"NAWC-020618-RW-200MS", "537", "RES", "320-35824-1MS", "TALSAC", "STL00996", "13C2  
PFDA", "48.4", "ng/L", "", "-99", "DL", "", "SURR", "118", "", "-99", "LOQ", "YES", "41.1", "NAWC-020618-RW-  
200", "243.4", "1.0", "0", ""  
"NAWC-020618-RW-200MSD", "537", "RES", "320-35824-1MSD", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic  
acid (PFOS)", "149", "ng/L", "M", "6.9", "DL", "", "SPK", "96", "2", "41", "LOQ", "YES", "136", "NAWC-020618-RW-  
200", "245.4", "1.0", "16", ""  
"NAWC-020618-RW-200MSD", "537", "RES", "320-35824-1MSD", "TALSAC", "335-67-1", "Perfluorooctanoic acid  
(PFOA)", "77.5", "ng/L", "", "2.9", "DL", "", "SPK", "88", "1", "20", "LOQ", "YES", "68.3", "NAWC-020618-RW-  
200", "245.4", "1.0", "8.1", ""  
"NAWC-020618-RW-200MSD", "537", "RES", "320-35824-1MSD", "TALSAC", "355-46-4", "Perfluorohexanesulfonic  
acid (PFHxS)", "101", "ng/L", "", "5.6", "DL", "", "SPK", "92", "5", "31", "LOQ", "YES", "102", "NAWC-020618-RW-  
200", "245.4", "1.0", "12", ""  
"NAWC-020618-RW-200MSD", "537", "RES", "320-35824-1MSD", "TALSAC", "375-73-5", "Perfluorobutanesulfonic  
acid (PFBS)", "262", "ng/L", "", "16", "DL", "", "SPK", "86", "9", "92", "LOQ", "YES", "306", "NAWC-020618-RW-  
200", "245.4", "1.0", "37", ""  
"NAWC-020618-RW-200MSD", "537", "RES", "320-35824-1MSD", "TALSAC", "375-85-9", "Perfluoroheptanoic acid  
(PFHpA)", "37.8", "ng/L", "", "1.9", "DL", "", "SPK", "100", "1", "10", "LOQ", "YES", "34.0", "NAWC-020618-RW-  
200", "245.4", "1.0", "4.1", ""  
"NAWC-020618-RW-200MSD", "537", "RES", "320-35824-1MSD", "TALSAC", "375-95-1", "Perfluorononanoic acid  
(PFNA)", "77.6", "ng/L", "", "8.1", "DL", "", "SPK", "114", "6", "24", "LOQ", "YES", "67.9", "NAWC-020618-RW-  
200", "245.4", "1.0", "20", ""  
"NAWC-020618-RW-200MSD", "537", "RES", "320-35824-1MSD", "TALSAC", "STL00993", "13C2  
PFHxA", "38.8", "ng/L", "", "-99", "DL", "", "SURR", "95", "", "-99", "LOQ", "YES", "40.7", "NAWC-020618-RW-  
200", "245.4", "1.0", "0", ""  
"NAWC-020618-RW-200MSD", "537", "RES", "320-35824-1MSD", "TALSAC", "STL00996", "13C2  
PFDA", "47.3", "ng/L", "", "-99", "DL", "", "SURR", "116", "", "-99", "LOQ", "YES", "40.7", "NAWC-020618-RW-  
200", "245.4", "1.0", "0", ""  
"NAWC-020618-FRB-200", "537", "RES", "320-35824-2", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid

(PFOS),"16","ng/L","U","6.8","DL","","TRG","","","40","LOQ","YES","-99","","248.2","1.0","16",""  
"NAWC-020618-FRB-200","537","RES","320-35824-2","TALSAC","335-67-1","Perfluorooctanoic acid  
(PFOA),"8.1","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","248.2","1.0","8.1",""  
"NAWC-020618-FRB-200","537","RES","320-35824-2","TALSAC","355-46-4","Perfluorohexanesulfonic acid  
(PFHxS),"12","ng/L","U","5.5","DL","","TRG","","","30","LOQ","YES","-99","","248.2","1.0","12",""  
"NAWC-020618-FRB-200","537","RES","320-35824-2","TALSAC","375-73-5","Perfluorobutanesulfonic acid  
(PFBS),"36","ng/L","U","16","DL","","TRG","","","91","LOQ","YES","-99","","248.2","1.0","36",""  
"NAWC-020618-FRB-200","537","RES","320-35824-2","TALSAC","375-85-9","Perfluoroheptanoic acid  
(PFHpA),"4.0","ng/L","U","1.9","DL","","TRG","","","10","LOQ","YES","-99","","248.2","1.0","4.0",""  
"NAWC-020618-FRB-200","537","RES","320-35824-2","TALSAC","375-95-1","Perfluorononanoic acid  
(PFNA),"20","ng/L","U","8.1","DL","","TRG","","","24","LOQ","YES","-99","","248.2","1.0","20",""  
"NAWC-020618-FRB-200","537","RES","320-35824-2","TALSAC","STL00993","13C2  
PFHxA","41","ng/L","","-99","DL","","SURR","102","","-99","LOQ","YES","40.3","","248.2","1.0","0",""  
"NAWC-020618-FRB-200","537","RES","320-35824-2","TALSAC","STL00996","13C2  
PFDA","44","ng/L","","-99","DL","","SURR","109","","-99","LOQ","YES","40.3","","248.2","1.0","0",""  
"NAWC-020618-RW-223","537","RES","320-35824-3","TALSAC","1763-23-1","Perfluorooctanesulfonic acid  
(PFOS),"16","ng/L","U M","6.9","DL","","TRG","","","41","LOQ","YES","-99","","245.2","1.0","16",""  
"NAWC-020618-RW-223","537","RES","320-35824-3","TALSAC","335-67-1","Perfluorooctanoic acid  
(PFOA),"5.5","ng/L","J M","2.9","DL","","TRG","","","20","LOQ","YES","-99","","245.2","1.0","8.2",""  
"NAWC-020618-RW-223","537","RES","320-35824-3","TALSAC","355-46-4","Perfluorohexanesulfonic acid  
(PFHxS),"12","ng/L","U M","5.6","DL","","TRG","","","31","LOQ","YES","-99","","245.2","1.0","12",""  
"NAWC-020618-RW-223","537","RES","320-35824-3","TALSAC","375-73-5","Perfluorobutanesulfonic acid  
(PFBS),"37","ng/L","U M","16","DL","","TRG","","","92","LOQ","YES","-99","","245.2","1.0","37",""  
"NAWC-020618-RW-223","537","RES","320-35824-3","TALSAC","375-85-9","Perfluoroheptanoic acid  
(PFHpA),"4.1","ng/L","U M","1.9","DL","","TRG","","","10","LOQ","YES","-99","","245.2","1.0","4.1",""  
"NAWC-020618-RW-223","537","RES","320-35824-3","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-020618-RW-223","537","RES","320-35824-3","TALSAC","STL00993","13C2  
PFHxA","37","ng/L","","-99","DL","","SURR","90","","-99","LOQ","YES","40.8","","245.2","1.0","0",""  
"NAWC-020618-RW-223","537","RES","320-35824-3","TALSAC","STL00996","13C2  
PFDA","44","ng/L","","-99","DL","","SURR","108","","-99","LOQ","YES","40.8","","245.2","1.0","0",""  
"NAWC-020618-FRB-223","537","RES","320-35824-4","TALSAC","1763-23-1","Perfluorooctanesulfonic acid  
(PFOS),"16","ng/L","U","6.7","DL","","TRG","","","40","LOQ","YES","-99","","253.1","1.0","16",""  
"NAWC-020618-FRB-223","537","RES","320-35824-4","TALSAC","335-67-1","Perfluorooctanoic acid  
(PFOA),"7.9","ng/L","U","2.8","DL","","TRG","","","20","LOQ","YES","-99","","253.1","1.0","7.9",""  
"NAWC-020618-FRB-223","537","RES","320-35824-4","TALSAC","355-46-4","Perfluorohexanesulfonic acid  
(PFHxS),"12","ng/L","U","5.4","DL","","TRG","","","30","LOQ","YES","-99","","253.1","1.0","12",""  
"NAWC-020618-FRB-223","537","RES","320-35824-4","TALSAC","375-73-5","Perfluorobutanesulfonic acid  
(PFBS),"36","ng/L","U","16","DL","","TRG","","","89","LOQ","YES","-99","","253.1","1.0","36",""  
"NAWC-020618-FRB-223","537","RES","320-35824-4","TALSAC","375-85-9","Perfluoroheptanoic acid  
(PFHpA),"4.0","ng/L","U","1.9","DL","","TRG","","","9.9","LOQ","YES","-99","","253.1","1.0","4.0",""  
"NAWC-020618-FRB-223","537","RES","320-35824-4","TALSAC","375-95-1","Perfluorononanoic acid  
(PFNA),"20","ng/L","U","7.9","DL","","TRG","","","24","LOQ","YES","-99","","253.1","1.0","20",""  
"NAWC-020618-FRB-223","537","RES","320-35824-4","TALSAC","STL00993","13C2  
PFHxA","39","ng/L","","-99","DL","","SURR","99","","-99","LOQ","YES","39.5","","253.1","1.0","0",""  
"NAWC-020618-FRB-223","537","RES","320-35824-4","TALSAC","STL00996","13C2  
PFDA","48","ng/L","","-99","DL","","SURR","122","","-99","LOQ","YES","39.5","","253.1","1.0","0",""  
"NAWC-020618-RW-288","537","RES","320-35824-5","TALSAC","1763-23-1","Perfluorooctanesulfonic acid  
(PFOS),"11","ng/L","J M","6.9","DL","","TRG","","","40","LOQ","YES","-99","","247.7","1.0","16",""  
"NAWC-020618-RW-288","537","RES","320-35824-5","TALSAC","335-67-1","Perfluorooctanoic acid  
(PFOA),"7.8","ng/L","J","2.8","DL","","TRG","","","20","LOQ","YES","-99","","247.7","1.0","8.1",""  
"NAWC-020618-RW-288","537","RES","320-35824-5","TALSAC","355-46-4","Perfluorohexanesulfonic acid  
(PFHxS),"12","ng/L","U","5.6","DL","","TRG","","","30","LOQ","YES","-99","","247.7","1.0","12",""  
"NAWC-020618-RW-288","537","RES","320-35824-5","TALSAC","375-73-5","Perfluorobutanesulfonic acid

(PFBS)", "36", "ng/L", "U", "16", "DL", "", "TRG", "", "", "91", "LOQ", "YES", "-99", "", "247.7", "1.0", "36", ""  
"NAWC-020618-RW-288", "537", "RES", "320-35824-5", "TALSAC", "375-85-9", "Perfluoroheptanoic acid  
(PFHpA)", "2.6", "ng/L", "J M", "1.9", "DL", "", "TRG", "", "", "10", "LOQ", "YES", "-99", "", "247.7", "1.0", "4.0", ""  
"NAWC-020618-RW-288", "537", "RES", "320-35824-5", "TALSAC", "375-95-1", "Perfluorononanoic acid  
(PFNA)", "20", "ng/L", "U", "8.1", "DL", "", "TRG", "", "", "24", "LOQ", "YES", "-99", "", "247.7", "1.0", "20", ""  
"NAWC-020618-RW-288", "537", "RES", "320-35824-5", "TALSAC", "STL00993", "13C2  
PFHxA", "38", "ng/L", "", "-99", "DL", "", "SURR", "94", "", "-99", "LOQ", "YES", "40.4", "", "247.7", "1.0", "0", ""  
"NAWC-020618-RW-288", "537", "RES", "320-35824-5", "TALSAC", "STL00996", "13C2  
PFDA", "47", "ng/L", "", "-99", "DL", "", "SURR", "116", "", "-99", "LOQ", "YES", "40.4", "", "247.7", "1.0", "0", ""  
"NAWC-020618-FRB-288", "537", "RES", "320-35824-6", "TALSAC", "1763-23-1", "Perfluorooctanesulfonic acid  
(PFOS)", "16", "ng/L", "U", "6.7", "DL", "", "TRG", "", "", "39", "LOQ", "YES", "-99", "", "253.3", "1.0", "16", ""  
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TO: A. FREBOWITZ  
SDG: 320-35824-1

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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-020618-RW-109	NAWC-020618-FRB-109
NAWC-020618-RW-186	NAWC-020618-FRB-186
NAWC-020618-RW-200	NAWC-020618-FRB-200
NAWC-020618-RW-223	NAWC-020618-FRB-223
NAWC-020618-RW-269	NAWC-020618-FRB-269
NAWC-020618-RW-288	NAWC-020618-FRB-288
WGNA-020618-DUP-25	NAWC-020618-FRB-109
WGNA-020618-RW-3118	WGNA-020618-FRB-3118

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.

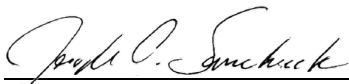
**Other Factors Affecting Data Quality:** Results below the RL were estimated.

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.



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Tetra Tech, Inc.  
Terri L. Solomon  
Chemist/Data Validator



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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.

<b>U</b>	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.
<b>J</b>	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).
<b>J+</b>	The result is an estimated quantity, but the result may be biased high.
<b>J-</b>	The result is an estimated quantity, but the result may be biased low.
<b>UJ</b>	The analyte was analyzed for, but was not detected. The reported detection limit is approximate and may be inaccurate or imprecise.
<b>R</b>	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.
<b>UR</b>	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

<b>PROJ_NO: 08005-WE04</b> <b>SDG: 320-35824-1</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	NAWC-020618-FRB-109			NAWC-020618-FRB-186			NAWC-020618-FRB-200			NAWC-020618-FRB-223		
	LAB_ID	320-35824-12			320-35824-15			320-35824-2			320-35824-4		
	SAMP_DATE	2/6/2018			2/6/2018			2/6/2018			2/6/2018		
	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	7.9	U		7.9	U		8.1	U		7.9	U		
PERFLUOROBUTANESULFONIC ACID	36	U		36	U		36	U		36	U		
PERFLUOROHEPTANOIC ACID	4	U		4	U		4	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		

<b>PROJ_NO: 08005-WE04</b> <b>SDG: 320-35824-1</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	NAWC-020618-FRB-269			NAWC-020618-FRB-288			NAWC-020618-RW-109			NAWC-020618-RW-186		
	LAB_ID	320-35824-10			320-35824-6			320-35824-11			320-35824-14		
	SAMP_DATE	2/6/2018			2/6/2018			2/6/2018			2/6/2018		
	QC_TYPE	FB			FB			NM			NM		
	UNITS	NG/L			NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0			0.0		
	DUP_OF												
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
PENTADECAFLUOROOCTANOIC ACID	7.9	U		7.9	U		12	J	P	14	J	P	
PERFLUOROBUTANESULFONIC ACID	36	U		36	U		37	U		37	U		
PERFLUOROHEPTANOIC ACID	4	U		3.9	U		4.2	J	P	3.9	J	P	
PERFLUOROHXANESULFONIC ACID	12	U		12	U		41			8.8	J	P	
PERFLUORONONANOIC ACID	20	U		20	U		20	U		21	U		
PERFLUOROOCTANE SULFONIC ACID	16	U		16	U		54			9.9	J	P	

<b>PROJ_NO: 08005-WE04</b> <b>SDG: 320-35824-1</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	NAWC-020618-RW-200			NAWC-020618-RW-223			NAWC-020618-RW-269			NAWC-020618-RW-288		
	LAB_ID	320-35824-1			320-35824-3			320-35824-9			320-35824-5		
	SAMP_DATE	2/6/2018			2/6/2018			2/6/2018			2/6/2018		
	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	17	J	P	5.5	J	P	25			7.8	J	P	
PERFLUOROBUTANESULFONIC ACID	36	U		37	U		37	U		36	U		
PERFLUOROHEPTANOIC ACID	3.8	J	P	4.1	U		7.1	J	P	2.6	J	P	
PERFLUOROHXANESULFONIC ACID	6.4	J	P	12	U		11	J	P	12	U		
PERFLUORONONANOIC ACID	20	U		20	U		20	U		20	U		
PERFLUOROOCTANE SULFONIC ACID	18	J	P	16	U		28	J	P	11	J	P	

<b>PROJ_NO: 08005-WE04</b> <b>SDG: 320-35824-1</b> <b>FRACTION: PFAS</b> <b>MEDIA: WATER</b>	NSAMPLE	WGNA-020618-DUP-25			WGNA-020618-FRB-3118			WGNA-020618-RW-3118		
	LAB_ID	320-35824-13			320-35824-8			320-35824-7		
	SAMP_DATE	2/6/2018			2/6/2018			2/6/2018		
	QC_TYPE	FD			FB			NM		
	UNITS	NG/L			NG/L			NG/L		
	PCT_SOLIDS	0.0			0.0			0.0		
	DUP_OF	NAWC-020618-RW-109								
PARAMETER	RESULT	VQL	QLCD	RESULT	VQL	QLCD	RESULT	VQL	QLCD	
PENTADECAFLUOROOCTANOIC ACID	12	J	P	8	U		23			
PERFLUOROBUTANESULFONIC ACID	37	U		36	U		22	J	P	
PERFLUOROHEPTANOIC ACID	4.1	J	P	4	U		6.6	J	P	
PERFLUOROHXANESULFONIC ACID	43			12	U		12	U		
PERFLUORONONANOIC ACID	20	U		20	U		20	U		
PERFLUOROOCTANE SULFONIC ACID	58			16	U		16	U		



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Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-200 Lab Sample ID: 320-35824-1  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_018.d  
 Analysis Method: 537 Date Collected: 02/06/2018 09:40  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 253(mL) Date Analyzed: 02/16/2018 13:03  
 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.: 208832 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18	J <del>M</del>	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	17	J	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.4	J	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

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

*Steve L. Salomon*  
02/22/2018

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Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-FRB-200 Lab Sample ID: 320-35824-2  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_021.d  
 Analysis Method: 537 Date Collected: 02/06/2018 09:35  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 248.2 (mL) Date Analyzed: 02/16/2018 13:17  
 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.: 208832 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)	8.1	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	102		70-130
STL00996	13C2 PFDA	109		70-130

*Steven L. Selman*  
02/22/2018

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Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-223 Lab Sample ID: 320-35824-3  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_022.d  
 Analysis Method: 537 Date Collected: 02/06/2018 10:10  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 245.2 (mL) Date Analyzed: 02/16/2018 13:22  
 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.: 208832 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U <del>M</del>	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	5.5	J <del>M</del>	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 <del>M</del>	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U <del>M</del>	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U <del>M</del>	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	108		70-130

*Agui L. Salomon*  
02/22/2018

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Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-FRB-223 Lab Sample ID: 320-35824-4  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_023.d  
 Analysis Method: 537 Date Collected: 02/06/2018 10:05  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 253.1(mL) Date Analyzed: 02/16/2018 13:27  
 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.: 208832 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	122		70-130

*Ali L. Salem*  
02/22/2018

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Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-288 Lab Sample ID: 320-35824-5  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_024.d  
 Analysis Method: 537 Date Collected: 02/06/2018 10:40  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 247.7(mL) Date Analyzed: 02/16/2018 13:31  
 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.: 208832 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J <del>M</del>	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	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.6	J <del>M</del>	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	94		70-130
STL00996	13C2 PFDA	116		70-130

*Wesley L. Selman*  
02/22/2018

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Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-FRB-288 Lab Sample ID: 320-35824-6  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_025.d  
 Analysis Method: 537 Date Collected: 02/06/2018 10:35  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 253.3(mL) Date Analyzed: 02/16/2018 13:36  
 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.: 208832 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	100		70-130

*Steve L. Selman*  
02/22/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-020618-RW-3118 Lab Sample ID: 320-35824-7  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_043.d  
 Analysis Method: 537 Date Collected: 02/06/2018 11:40  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 248 (mL) Date Analyzed: 02/15/2018 08:01  
 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.: 208529 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)	23		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)	6.6	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	22	J	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	84		70-130
STL00996	13C2 PFDA	83		70-130

*Steve L. Selman*  
02/22/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-020618-FRB-3118 Lab Sample ID: 320-35824-8  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_044.d  
 Analysis Method: 537 Date Collected: 02/06/2018 11:35  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 248.9(mL) Date Analyzed: 02/15/2018 08:06  
 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.: 208529 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	80		70-130

*Amir J. Saleem*  
02/22/2018



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-269 Lab Sample ID: 320-35824-9  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_045.d  
 Analysis Method: 537 Date Collected: 02/06/2018 12:10  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 245.6(mL) Date Analyzed: 02/15/2018 08:10  
 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.: 208529 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	28	J <del>M</del>	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	25		20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.1	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	90		70-130
STL00996	13C2 PFDA	90		70-130

*Ali L. Selman*  
02/22/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-~~RFB~~-269 Lab Sample ID: 320-35824-10  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_046.d  
 Analysis Method: 537 Date Collected: 02/06/2018 12:05  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 251.9(mL) Date Analyzed: 02/15/2018 08:15  
 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.: 208529 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	77		70-130

*Wesley L. Salomon*  
02/22/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-109 Lab Sample ID: 320-35824-11  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_047.d  
 Analysis Method: 537 Date Collected: 02/06/2018 12:40  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 245.4 (mL) Date Analyzed: 02/15/2018 08:20  
 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.: 208529 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	54	<del>M</del>	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	41		31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.2	<del>J M</del>	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	93		70-130
STL00996	13C2 PFDA	80		70-130

*Ali L. Salem*  
02/22/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-FRB-109 Lab Sample ID: 320-35824-12  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_048.d  
 Analysis Method: 537 Date Collected: 02/06/2018 12:35  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 252.1(mL) Date Analyzed: 02/15/2018 08:24  
 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.: 208529 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	105		70-130
STL00996	13C2 PFDA	85		70-130

*Amir J. Salem*  
02/22/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-020618-DUP-25 Lab Sample ID: 320-35824-13  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_049.d  
 Analysis Method: 537 Date Collected: 02/06/2018 07:00  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 246(mL) Date Analyzed: 02/15/2018 08:29  
 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.: 208529 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	58	<del>M</del>	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	43		30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	91	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	79		70-130

*Ali J. Salem*  
02/22/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-186 Lab Sample ID: 320-35824-14  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_050.d  
 Analysis Method: 537 Date Collected: 02/06/2018 13:40  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 243.8(mL) Date Analyzed: 02/15/2018 08:33  
 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.: 208529 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.9	J <del>M</del>	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	14	J	21	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.8	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	89		70-130

*Amir L. Salaman*  
02/22/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-FRB-186 Lab Sample ID: 320-35824-15  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_051.d  
 Analysis Method: 537 Date Collected: 02/06/2018 13:35  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 251.7(mL) Date Analyzed: 02/15/2018 08:38  
 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.: 208529 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)	7.9	U	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	74		70-130

*Wesley L. Selman*  
02/22/2018

**Appendix B**

Results as Reported by the Laboratory



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-200 Lab Sample ID: 320-35824-1  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_018.d  
 Analysis Method: 537 Date Collected: 02/06/2018 09:40  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 253(mL) Date Analyzed: 02/16/2018 13:03  
 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.: 208832 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	18	J M	40	16	6.7
335-67-1	Perfluorooctanoic acid (PFOA)	17	J	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	6.4	J	30	12	5.4
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.8	J	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

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

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-FRB-200 Lab Sample ID: 320-35824-2  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_021.d  
 Analysis Method: 537 Date Collected: 02/06/2018 09:35  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 248.2 (mL) Date Analyzed: 02/16/2018 13:17  
 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.: 208832 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)	8.1	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	102		70-130
STL00996	13C2 PFDA	109		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-223 Lab Sample ID: 320-35824-3  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_022.d  
 Analysis Method: 537 Date Collected: 02/06/2018 10:10  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 245.2 (mL) Date Analyzed: 02/16/2018 13:22  
 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.: 208832 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	16	U M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	5.5	J M	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 M	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	U M	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U M	92	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	108		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-FRB-223 Lab Sample ID: 320-35824-4  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_023.d  
 Analysis Method: 537 Date Collected: 02/06/2018 10:05  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 253.1(mL) Date Analyzed: 02/16/2018 13:27  
 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.: 208832 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	99		70-130
STL00996	13C2 PFDA	122		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-288 Lab Sample ID: 320-35824-5  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_024.d  
 Analysis Method: 537 Date Collected: 02/06/2018 10:40  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 247.7(mL) Date Analyzed: 02/16/2018 13:31  
 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.: 208832 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	11	J 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	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	2.6	J M	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	94		70-130
STL00996	13C2 PFDA	116		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-FRB-288 Lab Sample ID: 320-35824-6  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_025.d  
 Analysis Method: 537 Date Collected: 02/06/2018 10:35  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 253.3(mL) Date Analyzed: 02/16/2018 13:36  
 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.: 208832 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	100		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-020618-RW-3118 Lab Sample ID: 320-35824-7  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_043.d  
 Analysis Method: 537 Date Collected: 02/06/2018 11:40  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 248 (mL) Date Analyzed: 02/15/2018 08:01  
 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.: 208529 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)	23		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)	6.6	J	10	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	22	J	91	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	84		70-130
STL00996	13C2 PFDA	83		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-020618-FRB-3118 Lab Sample ID: 320-35824-8  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_044.d  
 Analysis Method: 537 Date Collected: 02/06/2018 11:35  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 248.9(mL) Date Analyzed: 02/15/2018 08:06  
 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.: 208529 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	101		70-130
STL00996	13C2 PFDA	80		70-130



FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-269 Lab Sample ID: 320-35824-9  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_045.d  
 Analysis Method: 537 Date Collected: 02/06/2018 12:10  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 245.6(mL) Date Analyzed: 02/15/2018 08:10  
 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.: 208529 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	28	J M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	25		20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	11	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	7.1	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	90		70-130
STL00996	13C2 PFDA	90		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RFB-269 Lab Sample ID: 320-35824-10  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_046.d  
 Analysis Method: 537 Date Collected: 02/06/2018 12:05  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 251.9(mL) Date Analyzed: 02/15/2018 08:15  
 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.: 208529 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	77		70-130

*Staci L. Selman*  
02/22/2018

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-109 Lab Sample ID: 320-35824-11  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_047.d  
 Analysis Method: 537 Date Collected: 02/06/2018 12:40  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 245.4 (mL) Date Analyzed: 02/15/2018 08:20  
 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.: 208529 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	54	M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	20	8.1	2.9
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	41		31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.2	J M	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	93		70-130
STL00996	13C2 PFDA	80		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-FRB-109 Lab Sample ID: 320-35824-12  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_048.d  
 Analysis Method: 537 Date Collected: 02/06/2018 12:35  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 252.1(mL) Date Analyzed: 02/15/2018 08:24  
 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.: 208529 Units: ng/L

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

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	105		70-130
STL00996	13C2 PFDA	85		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: WGNA-020618-DUP-25 Lab Sample ID: 320-35824-13  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_049.d  
 Analysis Method: 537 Date Collected: 02/06/2018 07:00  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 246(mL) Date Analyzed: 02/15/2018 08:29  
 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.: 208529 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	58	M	41	16	6.9
335-67-1	Perfluorooctanoic acid (PFOA)	12	J	20	8.1	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	8.1
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	43		30	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.1	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	91	37	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	94		70-130
STL00996	13C2 PFDA	79		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-RW-186 Lab Sample ID: 320-35824-14  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_050.d  
 Analysis Method: 537 Date Collected: 02/06/2018 13:40  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 243.8 (mL) Date Analyzed: 02/15/2018 08:33  
 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.: 208529 Units: ng/L

CAS NO.	COMPOUND NAME	RESULT	Q	LOQ	LOD	DL
1763-23-1	Perfluorooctanesulfonic acid (PFOS)	9.9	J M	41	16	7.0
335-67-1	Perfluorooctanoic acid (PFOA)	14	J	21	8.2	2.9
375-95-1	Perfluorononanoic acid (PFNA)	21	U	25	21	8.2
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	8.8	J	31	12	5.6
375-85-9	Perfluoroheptanoic acid (PFHpA)	3.9	J	10	4.1	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	37	U	92	37	17

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	90		70-130
STL00996	13C2 PFDA	89		70-130

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: NAWC-020618-FRB-186 Lab Sample ID: 320-35824-15  
 Matrix: Water Lab File ID: 2018.02.14\_537AXXX\_051.d  
 Analysis Method: 537 Date Collected: 02/06/2018 13:35  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 251.7(mL) Date Analyzed: 02/15/2018 08:38  
 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.: 208529 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)	7.9	U	20	7.9	2.8
375-95-1	Perfluorononanoic acid (PFNA)	20	U	24	20	7.9
355-46-4	Perfluorohexanesulfonic acid (PFHxS)	12	U	30	12	5.5
375-85-9	Perfluoroheptanoic acid (PFHpA)	4.0	U	9.9	4.0	1.9
375-73-5	Perfluorobutanesulfonic acid (PFBS)	36	U	89	36	16

CAS NO.	SURROGATE	%REC	Q	LIMITS
STL00993	13C2 PFHxA	96		70-130
STL00996	13C2 PFDA	74		70-130

**Appendix C**

Support Documentation



ANALYTE	ORIGINAL 020618-	DUPLICATE 020618-	RL	RPD	RPD > 50%	ORIGINAL	DUPLICATE SAMPLE	DIFFERENCE >2XRL
	RW-109	DUP-25				SAMPLE CONC	CONC >2xRL	
Perfluorooctanoic acid (PFOA)	12	12	20	0.000	FALSE	FALSE	FALSE	FALSE
Perfluoroheptanoic acid (PFHpA)	4.2	4.1	10	2.410	FALSE	FALSE	FALSE	FALSE
Perfluorohexanesulfonic acid (PFHxS)	41	43	31	4.762	FALSE	FALSE	FALSE	FALSE
Perfluorooctanesulfonic acid (PFOS)	54	58	41	7.143	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:

<b>Client Contact</b>	<b>Project Manager:</b> Andy Frebowitz	<b>Site Contact:</b> Mary Kay Bond	<b>Date:</b> 2/6/2018	<b>COC No:</b>
Tetra Tech 234 Mall Boulevard Suite 260 King of Prussia, PA 19406 610-382-1174 610-491-9688 Project Name: WE04 Site: WE04 P O # 1132358 (through EarthToxics)	<b>Tel/Fax:</b> 610.382.1170	<b>Lab Contact:</b> Dave Alltucker	<b>Carrier:</b> FedEx	1 of 1 COCs
<b>Analysis Turnaround Time</b>			<b>Sampler:</b> Mary Kay Bond	
<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS			<b>For Lab Use Only:</b>	
TAT if different from Below 21			Walk-in Client:	
<input type="checkbox"/> 2 weeks			ab Sampling:	
<input type="checkbox"/> 1 week			Job / SDG No.:	
<input type="checkbox"/> 2 days				
<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-020618-RW-200	2/6/2018	09:40	G	DW	6	N	Y	Y	MS/MSD
NAWC-020618-FRB-200	2/6/2018	09:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020618-RW-223	2/6/2018	10:10	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020618-FRB-223	2/6/2018	10:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020618-RW-288	2/6/2018	10:40	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020618-FRB-288	2/6/2018	10:35	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-020618-RW-3118	2/6/2018	11:40	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-020618-FRB-3118	2/6/2018	11:35	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020618-RW-269	2/6/2018	12:10	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020618-FRB-269	2/6/2018	12:05	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020618-RW-109	2/6/2018	12:40	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020618-FRB-109	2/6/2018	12:35	G	DW	2	N	N	Y	Field Reagent Blank
WGNA-020618-DUP-25	2/6/2018	07:00	G	DW	2	N	N	Y	Duplicate
NAWC-020618-RW-186	2/6/2018	13:40	G	DW	2	N	N	Y	Field Reagent Blank
NAWC-020618-FRB-186	2/6/2018	13:35	G	DW	2	N	N	Y	Field Reagent Blank

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other: Trizma

**Possible Hazard Identification:**  
 Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the

Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

**Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)**  
 Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

**Fed Ex Tracking: 7714 1657 6640**

Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No	Custody Seal No.:	Cooler Temp. (°C): Obs'd: 5.9	Corr'd:	Therm ID No.: AK-4
Relinquished by: <i>[Signature]</i>	Company: Tetra Tech	Date/Time: 2/6/2018 16:00	Received by: <i>[Signature]</i>	Company: <i>[Signature]</i>
Relinquished by:	Company:	Date/Time:	Received by:	Company:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:

Page 396 of 397

**Job Narrative**  
**320-35824-1**

**Receipt**

The samples were received on 2/7/2018 10:05 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.9° C.

**LCMS**

Method(s) 537: Surrogate recovery for the laboratory control sample (LCS) was outside control limits: (LCS 320-207932/2-A). The LCS had been run previously and the surrogates were in control. This injection was not used however because the associated CCV had the internal standard outside of limits. All the associated sample have the surrogates in control.

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

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

**Organic Prep**

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

# Definitions/Glossary

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

TestAmerica Job ID: 320-35824-1

## Qualifiers

### LCMS

Qualifier	Qualifier Description
U	Undetected at the Limit of Detection.
J	Estimated: The analyte was positively identified; the quantitation is an estimation
M	Manual integrated compound.
Q	One or more quality control criteria failed.

## Glossary

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

# Sample Summary

Client: Tetra Tech, Inc.

TestAmerica Job ID: 320-35824-1

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

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
320-35824-1	NAWC-020618-RW-200	Water	02/06/18 09:40	02/07/18 10:05
320-35824-2	NAWC-020618-FRB-200	Water	02/06/18 09:35	02/07/18 10:05
320-35824-3	NAWC-020618-RW-223	Water	02/06/18 10:10	02/07/18 10:05
320-35824-4	NAWC-020618-FRB-223	Water	02/06/18 10:05	02/07/18 10:05
320-35824-5	NAWC-020618-RW-288	Water	02/06/18 10:40	02/07/18 10:05
320-35824-6	NAWC-020618-FRB-288	Water	02/06/18 10:35	02/07/18 10:05
320-35824-7	WGNA-020618-RW-3118	Water	02/06/18 11:40	02/07/18 10:05
320-35824-8	WGNA-020618-FRB-3118	Water	02/06/18 11:35	02/07/18 10:05
320-35824-9	NAWC-020618-RW-269	Water	02/06/18 12:10	02/07/18 10:05
320-35824-10	NAWC-020618-RFB-269	Water	02/06/18 12:05	02/07/18 10:05
320-35824-11	NAWC-020618-RW-109	Water	02/06/18 12:40	02/07/18 10:05
320-35824-12	NAWC-020618-FRB-109	Water	02/06/18 12:35	02/07/18 10:05
320-35824-13	WGNA-020618-DUP-25	Water	02/06/18 07:00	02/07/18 10:05
320-35824-14	NAWC-020618-RW-186	Water	02/06/18 13:40	02/07/18 10:05
320-35824-15	NAWC-020618-FRB-186	Water	02/06/18 13:35	02/07/18 10:05

# Method Summary

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

TestAmerica Job ID: 320-35824-1

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<b>Method</b>	<b>Method Description</b>	<b>Protocol</b>	<b>Laboratory</b>
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.: 320-35824-1

SDG No.: \_\_\_\_\_

Matrix: Water

Level: Low

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

Client Sample ID	Lab Sample ID	PFHxA #	PFDA #
NAWC-020618-RW-200	320-35824-1	96	112
NAWC-020618-FRB-200	320-35824-2	102	109
NAWC-020618-RW-223	320-35824-3	90	108
NAWC-020618-FRB-223	320-35824-4	99	122
NAWC-020618-RW-288	320-35824-5	94	116
NAWC-020618-FRB-288	320-35824-6	96	100
WGNA-020618-RW-311	320-35824-7	84	83
WGNA-020618-FRB-311	320-35824-8	101	80
NAWC-020618-RW-269	320-35824-9	90	90
NAWC-020618-FRB-269	320-35824-10	96	77
NAWC-020618-RW-109	320-35824-11	93	80
NAWC-020618-FRB-109	320-35824-12	105	85
WGNA-020618-DUP-25	320-35824-13	94	79
NAWC-020618-RW-186	320-35824-14	90	89
NAWC-020618-FRB-186	320-35824-15	96	74
	MB 320-207932/1-A	94	118
	LCS 320-207932/2-A	103	145
NAWC-020618-RW-200 MS	320-35824-1 MS	94	118
NAWC-020618-RW-200 MSD	320-35824-1 MSD	95	116

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.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.02.16\_537C\_017.d  
 Lab ID: LCS 320-207932/2-A Client ID: \_\_\_\_\_

COMPOUND	SPIKE ADDED (ng/L)	LCS CONCENTRATION (ng/L)	LCS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	134	138	103	70-130	M
Perfluorooctanoic acid (PFOA)	67.0	63.2	94	70-130	
Perfluorononanoic acid (PFNA)	66.7	70.8	106	70-130	
Perfluorohexanesulfonic acid (PFHxS)	100	103	103	70-130	
Perfluoroheptanoic acid (PFHpA)	33.3	32.8	98	70-130	
Perfluorobutanesulfonic acid (PFBS)	300	260	87	70-130	

# Column to be used to flag recovery and RPD values



FORM III  
LCMS MATRIX SPIKE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.02.16\_537C\_019.d  
 Lab ID: 320-35824-1 MS Client ID: NAWC-020618-RW-200 MS

COMPOUND	SPIKE ADDED (ng/L)	SAMPLE CONCENTRATION (ng/L)	MS CONCENTRATION (ng/L)	MS % REC	QC LIMITS REC	#
Perfluorooctanesulfonic acid (PFOS)	138	18 J	152	97	70-130	M
Perfluorooctanoic acid (PFOA)	68.9	17 J	78.4	89	70-130	
Perfluorononanoic acid (PFNA)	68.5	20 U	73.4	107	70-130	
Perfluorohexanesulfonic acid (PFHxS)	103	6.4 J	106	97	70-130	
Perfluoroheptanoic acid (PFHpA)	34.2	3.8 J	37.3	98	70-130	
Perfluorobutanesulfonic acid (PFBS)	308	36 U	285	93	70-130	

# Column to be used to flag recovery and RPD values

FORM III  
LCMS MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Matrix: Water Level: Low Lab File ID: 2018.02.16\_537C\_020.d  
 Lab ID: 320-35824-1 MSD Client ID: NAWC-020618-RW-200 MSD

COMPOUND	SPIKE ADDED (ng/L)	MSD CONCENTRATION (ng/L)	MSD % REC	% RPD	QC LIMITS		#
					RPD	REC	
Perfluorooctanesulfonic acid (PFOS)	136	149	96	2	30	70-130	M
Perfluorooctanoic acid (PFOA)	68.3	77.5	88	1	30	70-130	
Perfluorononanoic acid (PFNA)	67.9	77.6	114	6	30	70-130	
Perfluorohexanesulfonic acid (PFHxS)	102	101	92	5	30	70-130	
Perfluoroheptanoic acid (PFHpA)	34.0	37.8	100	1	30	70-130	
Perfluorobutanesulfonic acid (PFBS)	306	262	86	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.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Lab File ID: 2018.02.16\_537C\_016.d Lab Sample ID: MB 320-207932/1-A  
 Matrix: Water Date Extracted: 02/12/2018 09:28  
 Instrument ID: A8\_N Date Analyzed: 02/16/2018 12:54  
 Level: (Low/Med) Low

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES:

CLIENT SAMPLE ID	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED
WGNA-020618-RW-3118	320-35824-7	2018.02.14_537AXXX_043.d	02/15/2018 08:01
WGNA-020618-FRB-3118	320-35824-8	2018.02.14_537AXXX_044.d	02/15/2018 08:06
NAWC-020618-RW-269	320-35824-9	2018.02.14_537AXXX_045.d	02/15/2018 08:10
NAWC-020618-RFB-269	320-35824-10	2018.02.14_537AXXX_046.d	02/15/2018 08:15
NAWC-020618-RW-109	320-35824-11	2018.02.14_537AXXX_047.d	02/15/2018 08:20
NAWC-020618-FRB-109	320-35824-12	2018.02.14_537AXXX_048.d	02/15/2018 08:24
WGNA-020618-DUP-25	320-35824-13	2018.02.14_537AXXX_049.d	02/15/2018 08:29
NAWC-020618-RW-186	320-35824-14	2018.02.14_537AXXX_050.d	02/15/2018 08:33
NAWC-020618-FRB-186	320-35824-15	2018.02.14_537AXXX_051.d	02/15/2018 08:38
	LCS 320-207932/2-A	2018.02.16_537C_017.d	02/16/2018 12:59
NAWC-020618-RW-200	320-35824-1	2018.02.16_537C_018.d	02/16/2018 13:03
NAWC-020618-RW-200 MS	320-35824-1 MS	2018.02.16_537C_019.d	02/16/2018 13:08
NAWC-020618-RW-200 MSD	320-35824-1 MSD	2018.02.16_537C_020.d	02/16/2018 13:13
NAWC-020618-FRB-200	320-35824-2	2018.02.16_537C_021.d	02/16/2018 13:17
NAWC-020618-RW-223	320-35824-3	2018.02.16_537C_022.d	02/16/2018 13:22
NAWC-020618-FRB-223	320-35824-4	2018.02.16_537C_023.d	02/16/2018 13:27
NAWC-020618-RW-288	320-35824-5	2018.02.16_537C_024.d	02/16/2018 13:31
NAWC-020618-FRB-288	320-35824-6	2018.02.16_537C_025.d	02/16/2018 13:36

FORM I  
LCMS ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Client Sample ID: \_\_\_\_\_ Lab Sample ID: MB 320-207932/1-A  
 Matrix: Water Lab File ID: 2018.02.16\_537C\_016.d  
 Analysis Method: 537 Date Collected: \_\_\_\_\_  
 Extraction Method: 537 Date Extracted: 02/12/2018 09:28  
 Sample wt/vol: 250.0(mL) Date Analyzed: 02/16/2018 12:54  
 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.: 208832 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	94		70-130
STL00996	13C2 PFDA	118		70-130

FORM VIII  
LCMS INTERNAL STANDARD AREA AND RETENTION TIME SUMMARY

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 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 320-208494/1		1557461	1.81	3623720	2.06	
CCV 320-208529/13 CCVIS		1151260	1.78	3395982	2.02	
320-35824-7	WGNA-020618-RW-3118	1206368	1.78	3338112	2.03	
320-35824-8	WGNA-020618-FRB-3118	1258851	1.78	3427266	2.03	
320-35824-9	NAWC-020618-RW-269	1190411	1.78	3381885	2.03	
320-35824-10	NAWC-020618-RFB-269	1197870	1.78	3415652	2.03	
320-35824-11	NAWC-020618-RW-109	1236529	1.78	3510490	2.03	
320-35824-12	NAWC-020618-FRB-109	1208734	1.78	3527062	2.03	
320-35824-13	WGNA-020618-DUP-25	1274965	1.78	3516387	2.03	
320-35824-14	NAWC-020618-RW-186	1240471	1.78	3509002	2.03	
320-35824-15	NAWC-020618-FRB-186	1297666	1.78	3618106	2.03	
CCV 320-208529/24 CCVIS		1134489	1.78	3368577	2.03	

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.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-208529/13 Date Analyzed: 02/15/2018 07:52  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.14\_537AXXX Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1151260	1.78	3395982	2.02		
UPPER LIMIT	1611764	2.28	4754375	2.52		
LOWER LIMIT	805882	1.28	2377187	1.52		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-35824-7	WGNA-020618-RW-3118	1206368	1.78	3338112	2.03	
320-35824-8	WGNA-020618-FRB-3118	1258851	1.78	3427266	2.03	
320-35824-9	NAWC-020618-RW-269	1190411	1.78	3381885	2.03	
320-35824-10	NAWC-020618-RFB-269	1197870	1.78	3415652	2.03	
320-35824-11	NAWC-020618-RW-109	1236529	1.78	3510490	2.03	
320-35824-12	NAWC-020618-FRB-109	1208734	1.78	3527062	2.03	
320-35824-13	WGNA-020618-DUP-25	1274965	1.78	3516387	2.03	
320-35824-14	NAWC-020618-RW-186	1240471	1.78	3509002	2.03	
320-35824-15	NAWC-020618-FRB-186	1297666	1.78	3618106	2.03	

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.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-208529/24 Date Analyzed: 02/15/2018 08:43  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.14\_537AXXX Heated Purge: (Y/N) N  
 Calibration ID: 36012

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1134489	1.78	3368577	2.03		
UPPER LIMIT	1588285	2.28	4716008	2.53		
LOWER LIMIT	794142	1.28	2358004	1.53		
LAB SAMPLE ID	CLIENT SAMPLE ID					
320-35824-7	WGNA-020618-RW-3118	1206368	1.78	3338112	2.03	
320-35824-8	WGNA-020618-FRB-3118	1258851	1.78	3427266	2.03	
320-35824-9	NAWC-020618-RW-269	1190411	1.78	3381885	2.03	
320-35824-10	NAWC-020618-RFB-269	1197870	1.78	3415652	2.03	
320-35824-11	NAWC-020618-RW-109	1236529	1.78	3510490	2.03	
320-35824-12	NAWC-020618-FRB-109	1208734	1.78	3527062	2.03	
320-35824-13	WGNA-020618-DUP-25	1274965	1.78	3516387	2.03	
320-35824-14	NAWC-020618-RW-186	1240471	1.78	3509002	2.03	
320-35824-15	NAWC-020618-FRB-186	1297666	1.78	3618106	2.03	

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.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Instrument ID: A8\_N Calibration Start Date: 02/16/2018 08:55  
 GC Column: GeminiC18 3x100 ID: 3(mm) Calibration End Date: 02/16/2018 09:19  
 Calibration ID: 37889

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
INITIAL CALIBRATION MEAN AREA AND MEAN RT	937117	1.86	2726868	2.11		
UPPER LIMIT	1405676	2.36	4090302	2.61		
LOWER LIMIT	468559	1.36	1363434	1.61		
LAB SAMPLE ID	CLIENT SAMPLE ID					
CCVL 320-208773/11	955394	1.87	2663428	2.12		
ICV 320-208773/13	890238	1.85	2703377	2.11		
CCV 320-208832/13 CCVIS	877160	1.80	2721299	2.06		
MB 320-207932/1-A	1076992	1.81	3203230	2.06		
LCS 320-207932/2-A	953293	1.80	2759261	2.06		
320-35824-1	NAWC-020618-RW-200	1131048	1.80	3486097	2.06	
320-35824-1 MS	NAWC-020618-RW-200 MS	1074675	1.80	3206050	2.05	
320-35824-1 MSD	NAWC-020618-RW-200 MSD	1018729	1.80	3155822	2.06	
320-35824-2	NAWC-020618-FRB-200	1046375	1.80	3068579	2.05	
320-35824-3	NAWC-020618-RW-223	1112992	1.81	3202135	2.06	
320-35824-4	NAWC-020618-FRB-223	936884	1.80	2878899	2.06	
320-35824-5	NAWC-020618-RW-288	1032411	1.80	3140412	2.05	
320-35824-6	NAWC-020618-FRB-288	1116840	1.81	3193469	2.06	
CCV 320-208832/25 CCVIS	1017567	1.80	3126726	2.05		

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.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-208832/13 Date Analyzed: 02/16/2018 12:45  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.16\_537C\_014 Heated Purge: (Y/N) N  
 Calibration ID: 37889

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	877160	1.80	2721299	2.06		
UPPER LIMIT	1228024	2.30	3809819	2.56		
LOWER LIMIT	614012	1.30	1904909	1.56		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-207932/1-A		1076992	1.81	3203230	2.06	
LCS 320-207932/2-A		953293	1.80	2759261	2.06	
320-35824-1	NAWC-020618-RW-200	1131048	1.80	3486097	2.06	
320-35824-1 MS	NAWC-020618-RW-200 MS	1074675	1.80	3206050	2.05	
320-35824-1 MSD	NAWC-020618-RW-200 MSD	1018729	1.80	3155822	2.06	
320-35824-2	NAWC-020618-FRB-200	1046375	1.80	3068579	2.05	
320-35824-3	NAWC-020618-RW-223	1112992	1.81	3202135	2.06	
320-35824-4	NAWC-020618-FRB-223	936884	1.80	2878899	2.06	
320-35824-5	NAWC-020618-RW-288	1032411	1.80	3140412	2.05	
320-35824-6	NAWC-020618-FRB-288	1116840	1.81	3193469	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.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Sample No.: CCV 320-208832/25 Date Analyzed: 02/16/2018 13:41  
 Instrument ID: A8\_N GC Column: GeminiC18 3x100 ID: 3 (mm)  
 Lab File ID (Standard): 2018.02.16\_537C\_026 Heated Purge: (Y/N) N  
 Calibration ID: 37889

	13PFOA		PFOS		AREA #	RT #
	AREA #	RT #	AREA #	RT #		
12/24 HOUR STD	1017567	1.80	3126726	2.05		
UPPER LIMIT	1424594	2.30	4377416	2.55		
LOWER LIMIT	712297	1.30	2188708	1.55		
LAB SAMPLE ID	CLIENT SAMPLE ID					
MB 320-207932/1-A		1076992	1.81	3203230	2.06	
LCS 320-207932/2-A		953293	1.80	2759261	2.06	
320-35824-1	NAWC-020618-RW-200	1131048	1.80	3486097	2.06	
320-35824-1 MS	NAWC-020618-RW-200 MS	1074675	1.80	3206050	2.05	
320-35824-1 MSD	NAWC-020618-RW-200 MSD	1018729	1.80	3155822	2.06	
320-35824-2	NAWC-020618-FRB-200	1046375	1.80	3068579	2.05	
320-35824-3	NAWC-020618-RW-223	1112992	1.81	3202135	2.06	
320-35824-4	NAWC-020618-FRB-223	936884	1.80	2878899	2.06	
320-35824-5	NAWC-020618-RW-288	1032411	1.80	3140412	2.05	
320-35824-6	NAWC-020618-FRB-288	1116840	1.81	3193469	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.: 320-35824-1 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 <sup>2</sup> OR COD	#	MIN R <sup>2</sup> 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.: 320-35824-1 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.: 320-35824-1 Analy Batch No.: 192908

SDG No.: \_\_\_\_\_

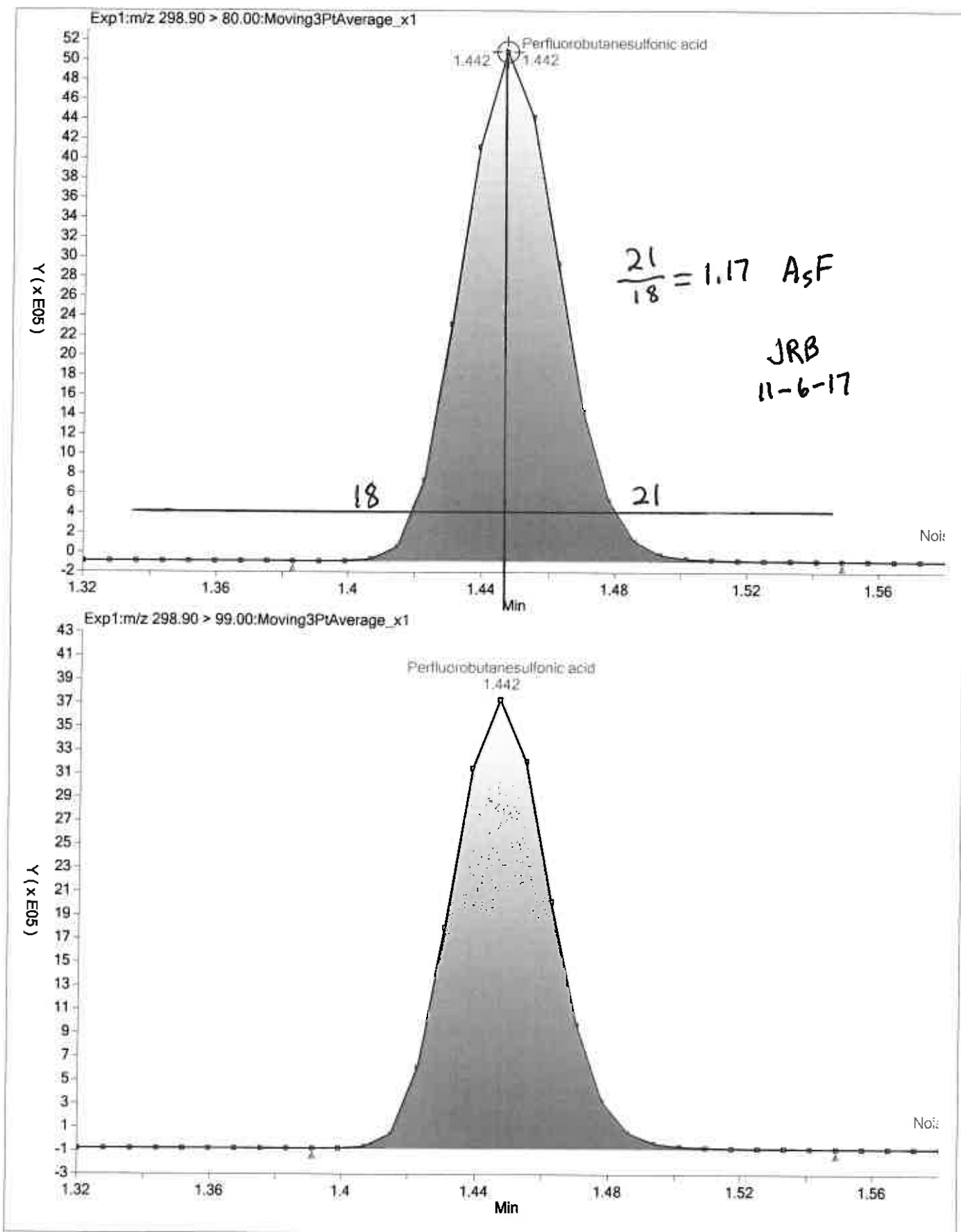
Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3 (mm) Heated Purge: (Y/N) N

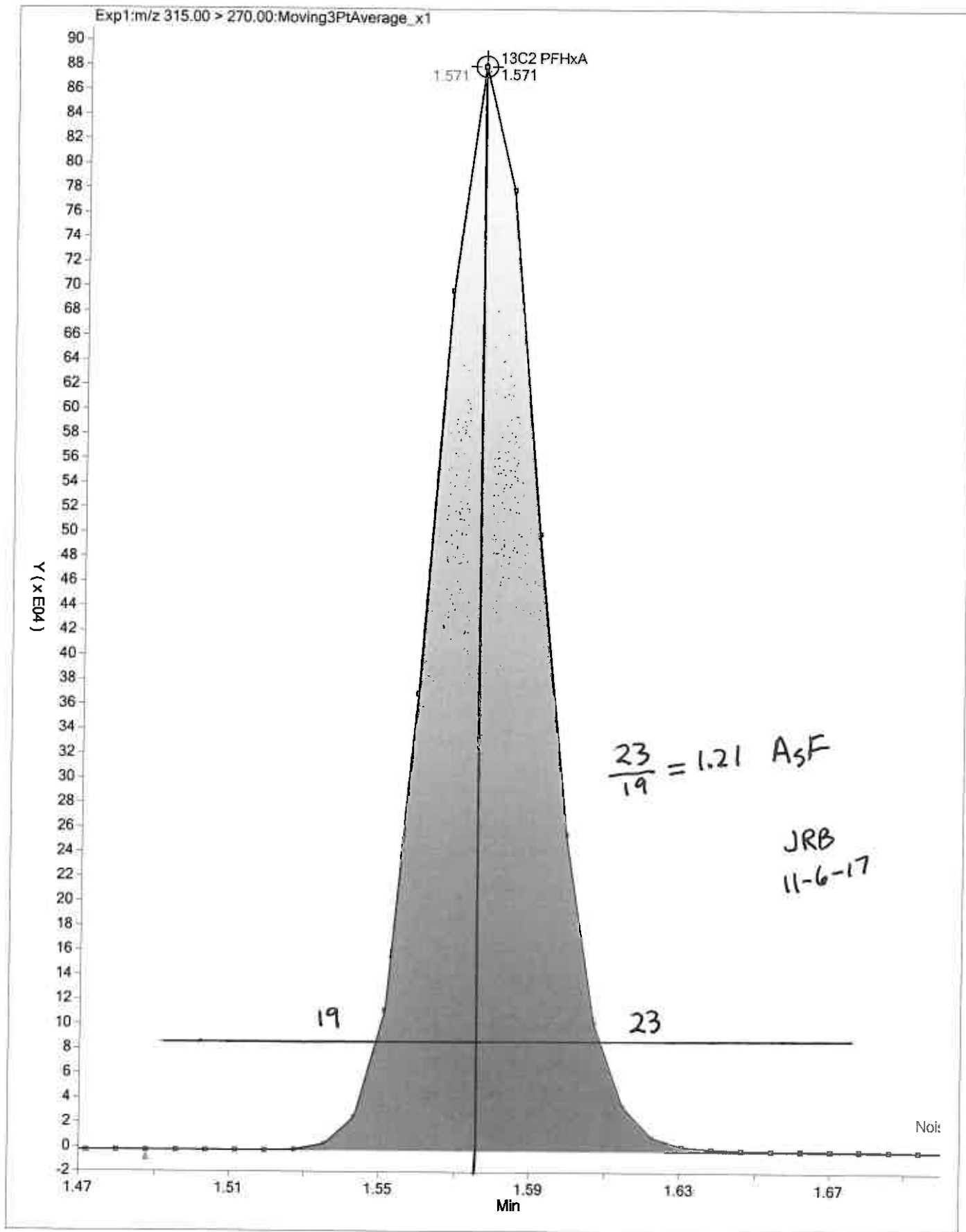
Calibration Start Date: 11/03/2017 13:37 Calibration End Date: 11/03/2017 14:01 Calibration ID: 36012

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 VI  
LCMS BY INTERNAL STANDARD - INITIAL CALIBRATION DATA  
CURVE EVALUATION

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1 Analy Batch No.: 208773

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

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

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208773/4	2018.02.016_537ICAL_004.d
Level 2	IC 320-208773/5	2018.02.016_537ICAL_005.d
Level 3	IC 320-208773/6	2018.02.016_537ICAL_006.d
Level 4	IC 320-208773/7	2018.02.016_537ICAL_007.d
Level 5	IC 320-208773/8	2018.02.016_537ICAL_008.d
Level 6	IC 320-208773/9	2018.02.016_537ICAL_009.d

ANALYTE	RRF					CURVE TYPE	COEFFICIENT			#	MIN RRF	%RSD	#	MAX %RSD	R <sup>2</sup> OR COD	#	MIN R <sup>2</sup> OR COD
	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5		B	M1	M2								
Perfluorobutanesulfonic acid (PFBS)	1.1922 0.9350	1.2685	1.2630	1.1053	1.0403	QuaF		1.3180	-0.002120					1.0000			0.9600
Perfluorohexanesulfonic acid (PFHxS)	1.5376 1.6019	1.6461	1.6181	1.5963	1.6585	Ave		1.6098			2.7		30.0				
Perfluoroheptanoic acid (PFHpA)	0.9596 0.9834	0.9488	0.9462	1.0388	0.9501	Ave		0.9711			3.7		30.0				
Perfluorooctanoic acid (PFOA)	0.9118 0.9514	1.0053	0.9624	0.9616	0.9798	Ave		0.9620			3.2		30.0				
Perfluorooctanesulfonic acid (PFOS)	0.9021 0.9430	0.9481	0.9569	0.9539	0.9692	Ave		0.9455			2.4		30.0				
Perfluorononanoic acid (PFNA)	0.6417 0.6193	0.5823	0.5991	0.6537	0.5962	Ave		0.6154			4.5		30.0				
13C2 PFHxA	1.1327 1.1621	1.0418	1.0430	1.1541	1.0657	Ave		1.0999			5.1		30.0				
13C2 PFDA	0.5790 0.5388	0.4974	0.4674	0.5464	0.5166	Ave		0.5243			7.5		30.0				

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



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

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1 Analy Batch No.: 208773

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

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

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208773/4	2018.02.016_537ICAL_004.d
Level 2	IC 320-208773/5	2018.02.016_537ICAL_005.d
Level 3	IC 320-208773/6	2018.02.016_537ICAL_006.d
Level 4	IC 320-208773/7	2018.02.016_537ICAL_007.d
Level 5	IC 320-208773/8	2018.02.016_537ICAL_008.d
Level 6	IC 320-208773/9	2018.02.016_537ICAL_009.d

ANALYTE	IS REF	CURVE TYPE	RESPONSE					CONCENTRATION (NG/ML)				
			LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5	LVL 1 LVL 6	LVL 2	LVL 3	LVL 4	LVL 5
Perfluorobutanesulfonic acid (PFBS)	PFOS	QuaF	1004877 16112512	2401851	5386060	9625497	13334361	9.00 180	20.0	45.0	90.0	135
Perfluorohexanesulfonic acid (PFHxS)	PFOS	Ave	432087 9203547	1039145	2300670	4635169	7088297	3.00 60.0	6.67	15.0	30.0	45.0
Perfluoroheptanoic acid (PFHpA)	13PF OA	Ave	89434 1755879	208408	467875	919334	1334846	1.00 20.0	2.22	5.00	10.0	15.0
Perfluorooctanoic acid (PFOA)	13PF OA	Ave	170858 3415564	443975	956930	1711070	2767901	2.01 40.2	4.47	10.1	20.1	30.2
Perfluorooctanesulfonic acid (PFOS)	PFOS	Ave	339345 7252490	801200	1821248	3707450	5544581	4.02 80.3	8.93	20.1	40.2	60.3
Perfluorononanoic acid (PFNA)	13PF OA	Ave	119635 2211715	255853	592583	1157180	1675602	2.00 40.0	4.45	10.0	20.0	30.0
13C2 PFHxA	13PF OA	Ave	1055358 1037300	1029524	1031304	1021204	998008	10.0 10.0	10.0	10.0	10.0	10.0
13C2 PFDA	13PF OA	Ave	539488 480980	491558	462142	483499	483740	10.0 10.0	10.0	10.0	10.0	10.0

Curve Type Legend:

Ave = Average ISTD
QuaF = Quadratic ISTD forced zero

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

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1 Analy Batch No.: 208773

SDG No.: \_\_\_\_\_

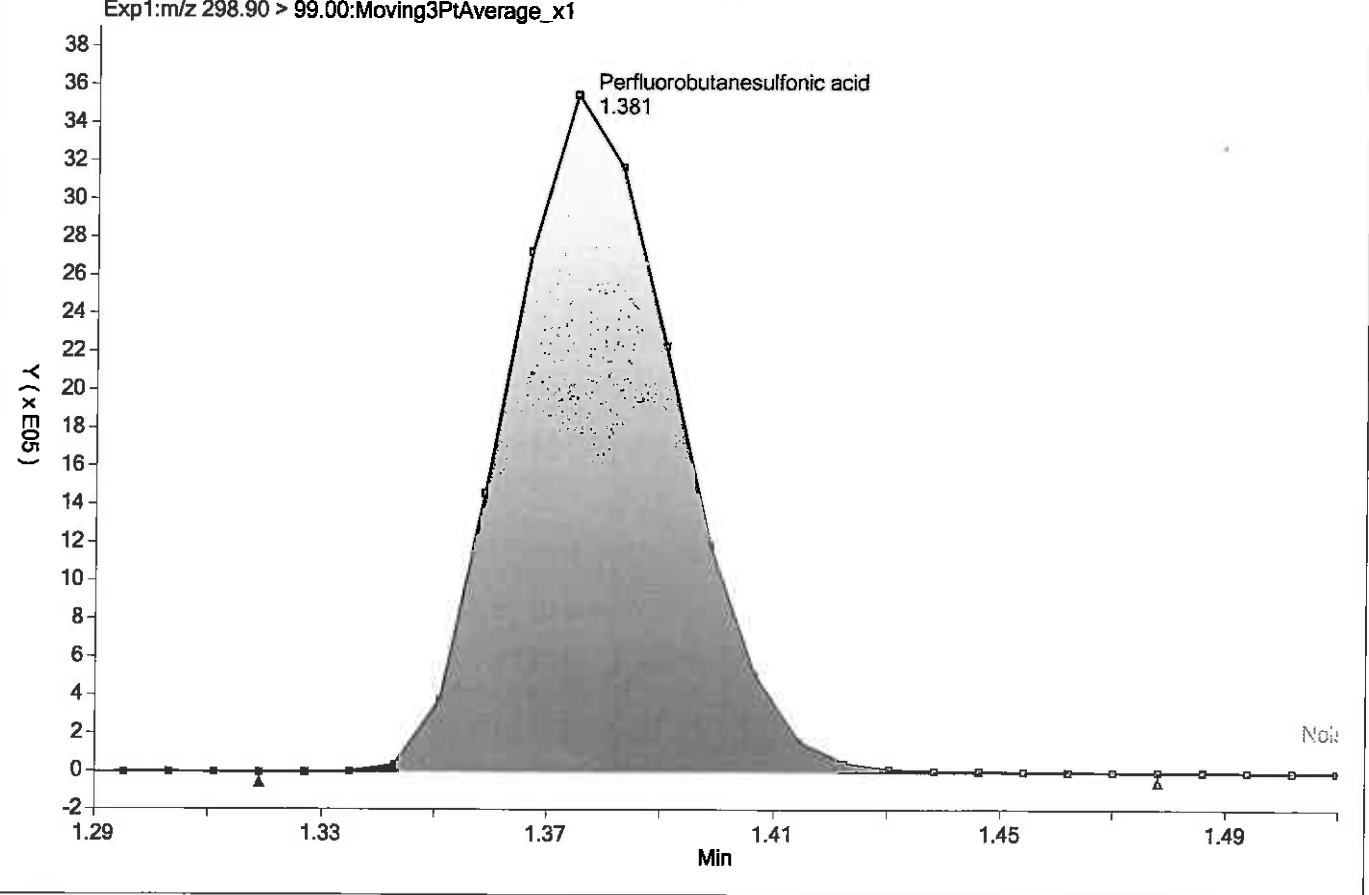
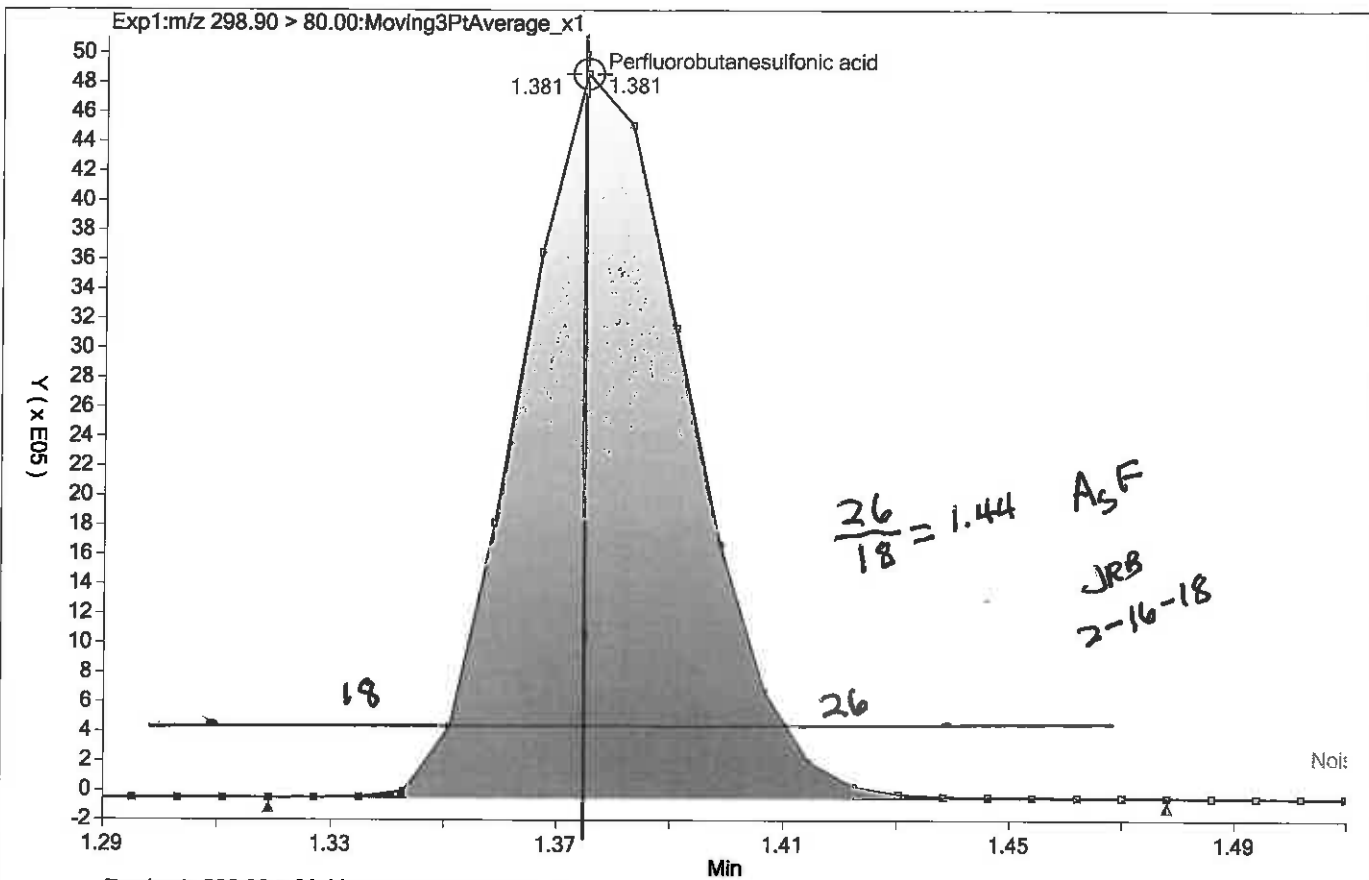
Instrument ID: A8\_N GC Column: GeminiC18 3 ID: 3(mm) Heated Purge: (Y/N) N

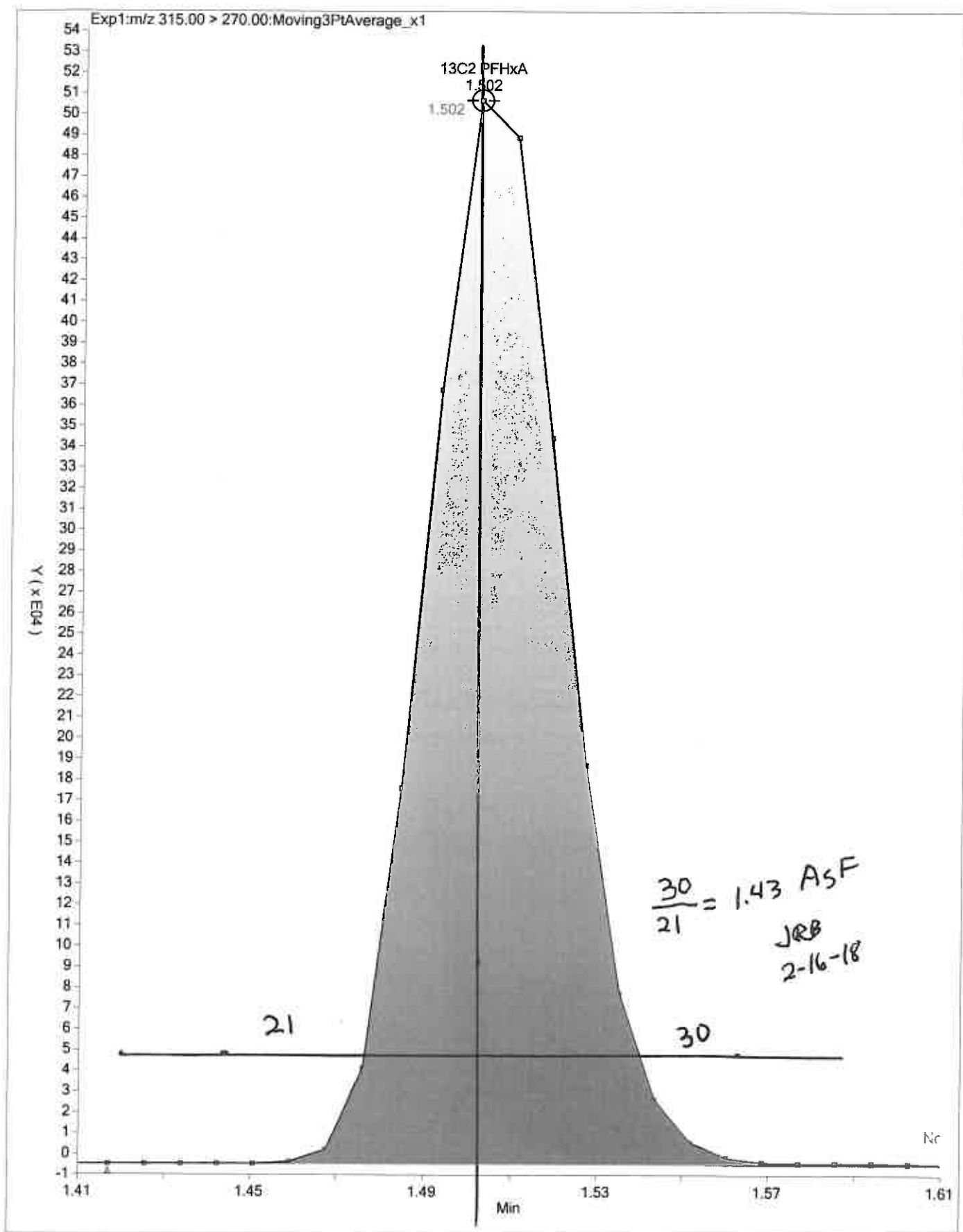
Calibration Start Date: 02/16/2018 08:55 Calibration End Date: 02/16/2018 09:19 Calibration ID: 37889

Calibration Files:

LEVEL:	LAB SAMPLE ID:	LAB FILE ID:
Level 1	IC 320-208773/4	2018.02.016_537ICAL_004.d
Level 2	IC 320-208773/5	2018.02.016_537ICAL_005.d
Level 3	IC 320-208773/6	2018.02.016_537ICAL_006.d
Level 4	IC 320-208773/7	2018.02.016_537ICAL_007.d
Level 5	IC 320-208773/8	2018.02.016_537ICAL_008.d
Level 6	IC 320-208773/9	2018.02.016_537ICAL_009.d

ANALYTE	PERCENT ERROR						PERCENT ERROR LIMIT					
	LVL 1 #	LVL 2 #	LVL 3 #	LVL 4 #	LVL 5 #	LVL 6 #	LVL 1	LVL 2	LVL 3	LVL 4	LVL 5	LVL 6
Perfluorobutanesulfonic acid (PFBS)	-8.3	-0.6	3.6	-2.3	1.1	-0.3	50	30	30	30	30	30
Perfluorohexanesulfonic acid (PFHxS)	-4.5	2.3	0.5	-0.8	3.0	-0.5	50	30	30	30	30	30
Perfluoroheptanoic acid (PFHpA)	-1.2	-2.3	-2.6	7.0	-2.2	1.3	50	30	30	30	30	30
Perfluorooctanoic acid (PFOA)	-5.2	4.5	0.0	0.0	1.8	-1.1	50	30	30	30	30	30
Perfluorooctanesulfonic acid (PFOS)	-4.6	0.3	1.2	0.9	2.5	-0.3	50	30	30	30	30	30
Perfluorononanoic acid (PFNA)	4.3	-5.4	-2.6	6.2	-3.1	0.6	50	30	30	30	30	30
13C2 PFHxA	3.0	-5.3	-5.2	4.9	-3.1	5.7	30	30	30	30	30	30
13C2 PFDA	10.4	-5.1	-10.9	4.2	-1.5	2.8	30	30	30	30	30	30





FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 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.: 320-35824-1  
 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.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 320-208494/1 Calibration Date: 02/14/2018 12:27  
 Instrument ID: A8\_N Calib Start Date: 11/03/2017 13:37  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01  
 Lab File ID: 2018.02.14\_537A\_004.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.120		20.6	20.0	2.9	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.601		6.38	6.67	-4.4	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.028		2.44	2.22	9.7	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	1.028		4.96	4.47	11.0	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9611		9.14	8.93	2.4	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7017		4.70	4.45	5.7	50.0
13C2 PFHxA	Ave	1.100	1.072		9.75	10.0	-2.5	30.0
13C2 PFDA	Ave	0.7652	0.7885		10.3	10.0	3.0	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-208529/13 Calibration Date: 02/15/2018 07:52  
 Instrument ID: A8\_N Calib Start Date: 11/03/2017 13:37  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01  
 Lab File ID: 2018.02.14\_537AXXX\_041.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.118		48.0	45.0	6.8	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.018		5.43	5.00	8.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.564		14.0	15.0	-6.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9492		10.3	10.1	2.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389	0.9427		20.2	20.1	0.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7042		10.6	10.0	6.0	30.0
13C2 PFHxA	Ave	1.100	1.129		10.3	10.0	2.6	30.0
13C2 PFDA	Ave	0.7652	0.5784		7.56	10.0	-24.4	30.0



FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-208529/24 Calibration Date: 02/15/2018 08:43  
 Instrument ID: A8\_N Calib Start Date: 11/03/2017 13:37  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 11/03/2017 14:01  
 Lab File ID: 2018.02.14\_537AXXX\_052.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		0.9755		146	135	8.4	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9369	1.027		16.4	15.0	9.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.674	1.597		42.9	45.0	-4.6	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9258	0.9850		32.1	30.2	6.4	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6642	0.7003		31.6	30.0	5.4	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9389			4.00	60.3		
13C2 PFHxA	Ave	1.100	1.140		10.4	10.0	3.6	30.0
13C2 PFDA	Ave	0.7652	0.5982		7.82	10.0	-21.8	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCVL 320-208773/11 Calibration Date: 02/16/2018 09:28  
 Instrument ID: A8\_N Calib Start Date: 02/16/2018 08:55  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19  
 Lab File ID: 2018.02.016\_537ICAL\_011.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.238		19.4	20.0	-3.0	50.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.9284		2.12	2.22	-4.4	50.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.706		7.07	6.67	6.0	50.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9302		4.32	4.47	-3.3	50.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9736		9.19	8.93	3.0	50.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.5986		4.32	4.45	-2.7	50.0
13C2 PFHxA	Ave	1.100	1.037		9.43	10.0	-5.7	30.0
13C2 PFDA	Ave	0.5243	0.5013		9.56	10.0	-4.4	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: ICV 320-208773/13 Calibration Date: 02/16/2018 09:37  
 Instrument ID: A8\_N Calib Start Date: 02/16/2018 08:55  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19  
 Lab File ID: 2018.02.016\_537ICAL\_013.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.108		100	100	0.2	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	0.997		10.3	10.0	2.6	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.686		21.1	20.2	4.8	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.8998		18.9	20.2	-6.5	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9852		21.0	20.2	4.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6774		22.2	20.2	10.1	30.0
13C2 PFHxA	Ave	1.100	1.125		10.2	10.0	2.3	30.0
13C2 PFDA	Ave	0.5243	0.5347		10.2	10.0	2.0	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-208832/13 Calibration Date: 02/16/2018 12:45  
 Instrument ID: A8\_N Calib Start Date: 02/16/2018 08:55  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19  
 Lab File ID: 2018.02.16\_537C\_014.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.007		131	135	-3.3	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	1.004		15.5	15.0	3.3	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.586		44.3	45.0	-1.5	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9701		30.4	30.2	0.8	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9853		62.8	60.3	4.2	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6956		33.9	30.0	13.0	30.0
13C2 PFHxA	Ave	1.100	1.121		10.2	10.0	1.9	30.0
13C2 PFDA	Ave	0.5243	0.5611		10.7	10.0	7.0	30.0

FORM VII  
LCMS CONTINUING CALIBRATION DATA

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1  
 SDG No.: \_\_\_\_\_  
 Lab Sample ID: CCV 320-208832/25 Calibration Date: 02/16/2018 13:41  
 Instrument ID: A8\_N Calib Start Date: 02/16/2018 08:55  
 GC Column: GeminiC18 3x100 ID: 3.00 (mm) Calib End Date: 02/16/2018 09:19  
 Lab File ID: 2018.02.16\_537C\_026.d Conc. Units: ng/mL

ANALYTE	CURVE TYPE	AVE RRF	RRF	MIN RRF	CALC AMOUNT	SPIKE AMOUNT	%D	MAX %D
Perfluorobutanesulfonic acid (PFBS)	QuaF		1.152		42.2	45.0	-6.2	30.0
Perfluoroheptanoic acid (PFHpA)	Ave	0.9711	1.007		5.18	5.00	3.7	30.0
Perfluorohexanesulfonic acid (PFHxS)	Ave	1.610	1.640		15.3	15.0	1.9	30.0
Perfluorooctanoic acid (PFOA)	Ave	0.9620	0.9533		9.96	10.1	-0.9	30.0
Perfluorooctanesulfonic acid (PFOS)	Ave	0.9455	0.9702		20.6	20.1	2.6	30.0
Perfluorononanoic acid (PFNA)	Ave	0.6154	0.6817		11.1	10.0	10.8	30.0
13C2 PFHxA	Ave	1.100	1.123		10.2	10.0	2.1	30.0
13C2 PFDA	Ave	0.5243	0.5601		10.7	10.0	6.8	30.0

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1

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.: 320-35824-1

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N Start Date: 02/14/2018 12:27

Analysis Batch Number: 208494 End Date: 02/14/2018 14:19

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCVL 320-208494/1		02/14/2018 12:27	1	2018.02.14_537A 004.d	GeminiC18 3x100 3(mm)
CCV 320-208494/2		02/14/2018 13:51	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/14/2018 14:00	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/14/2018 14:05	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/14/2018 14:10	1		GeminiC18 3x100 3(mm)
ZZZZZ		02/14/2018 14:14	1		GeminiC18 3x100 3(mm)
CCV 320-208494/8		02/14/2018 14:19	1		GeminiC18 3x100 3(mm)

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N Start Date: 02/15/2018 07:52

Analysis Batch Number: 208529 End Date: 02/15/2018 08:43

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-208529/13 CCVIS		02/15/2018 07:52	1	2018.02.14_537A XXX 041.d	GeminiC18 3x100 3(mm)
320-35824-7		02/15/2018 08:01	1	2018.02.14_537A XXX 043.d	GeminiC18 3x100 3(mm)
320-35824-8		02/15/2018 08:06	1	2018.02.14_537A XXX 044.d	GeminiC18 3x100 3(mm)
320-35824-9		02/15/2018 08:10	1	2018.02.14_537A XXX 045.d	GeminiC18 3x100 3(mm)
320-35824-10		02/15/2018 08:15	1	2018.02.14_537A XXX 046.d	GeminiC18 3x100 3(mm)
320-35824-11		02/15/2018 08:20	1	2018.02.14_537A XXX 047.d	GeminiC18 3x100 3(mm)
320-35824-12		02/15/2018 08:24	1	2018.02.14_537A XXX 048.d	GeminiC18 3x100 3(mm)
320-35824-13		02/15/2018 08:29	1	2018.02.14_537A XXX 049.d	GeminiC18 3x100 3(mm)
320-35824-14		02/15/2018 08:33	1	2018.02.14_537A XXX 050.d	GeminiC18 3x100 3(mm)
320-35824-15		02/15/2018 08:38	1	2018.02.14_537A XXX 051.d	GeminiC18 3x100 3(mm)
CCV 320-208529/24 CCVIS		02/15/2018 08:43	1	2018.02.14_537A XXX 052.d	GeminiC18 3x100 3(mm)



LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N Start Date: 02/16/2018 08:55

Analysis Batch Number: 208773 End Date: 02/16/2018 09:37

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

LCMS ANALYSIS RUN LOG

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Instrument ID: A8\_N Start Date: 02/16/2018 12:45

Analysis Batch Number: 208832 End Date: 02/16/2018 13:41

LAB SAMPLE ID	CLIENT SAMPLE ID	DATE ANALYZED	DILUTION FACTOR	LAB FILE ID	COLUMN ID
CCV 320-208832/13 CCVIS		02/16/2018 12:45	1	2018.02.16_537C 014.d	GeminiC18 3x100 3(mm)
MB 320-207932/1-A		02/16/2018 12:54	1	2018.02.16_537C 016.d	GeminiC18 3x100 3(mm)
LCS 320-207932/2-A		02/16/2018 12:59	1	2018.02.16_537C 017.d	GeminiC18 3x100 3(mm)
320-35824-1		02/16/2018 13:03	1	2018.02.16_537C 018.d	GeminiC18 3x100 3(mm)
320-35824-1 MS		02/16/2018 13:08	1	2018.02.16_537C 019.d	GeminiC18 3x100 3(mm)
320-35824-1 MSD		02/16/2018 13:13	1	2018.02.16_537C 020.d	GeminiC18 3x100 3(mm)
320-35824-2		02/16/2018 13:17	1	2018.02.16_537C 021.d	GeminiC18 3x100 3(mm)
320-35824-3		02/16/2018 13:22	1	2018.02.16_537C 022.d	GeminiC18 3x100 3(mm)
320-35824-4		02/16/2018 13:27	1	2018.02.16_537C 023.d	GeminiC18 3x100 3(mm)
320-35824-5		02/16/2018 13:31	1	2018.02.16_537C 024.d	GeminiC18 3x100 3(mm)
320-35824-6		02/16/2018 13:36	1	2018.02.16_537C 025.d	GeminiC18 3x100 3(mm)
CCV 320-208832/25 CCVIS		02/16/2018 13:41	1	2018.02.16_537C 026.d	GeminiC18 3x100 3(mm)

LCMS BATCH WORKSHEET

Lab Name: TestAmerica Sacramento Job No.: 320-35824-1

SDG No.: \_\_\_\_\_

Batch Number: 207932 Batch Start Date: 02/12/18 09:27 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/13/18 16:48

Lab Sample ID	Client Sample ID	Method Chain	Basis	GrossWeight	TareWeight	InitialAmount	FinalAmount	ReceivedpH	LC537-IS 00055
MB 320-207932/1		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
LCS 320-207932/2		537, 537				250.0 mL	1.0 mL	7 SU	100 uL
320-35824-A-1	NAWC-020618-RW-200	537, 537	T	280.41 g	27.45 g	253 mL	1.0 mL	7 SU	100 uL
320-35824-A-1	NAWC-020618-RW-200	537, 537	T	270.66 g	27.25 g	243.4 mL	1.0 mL	7 SU	100 uL
320-35824-A-1	NAWC-020618-RW-200	537, 537	T	272.62 g	27.23 g	245.4 mL	1.0 mL	7 SU	100 uL
320-35824-A-2	NAWC-020618-FRB-200	537, 537	T	276.25 g	28.02 g	248.2 mL	1.0 mL	7 SU	100 uL
320-35824-A-3	NAWC-020618-RW-223	537, 537	T	272.14 g	26.90 g	245.2 mL	1.0 mL	7 SU	100 uL
320-35824-A-4	NAWC-020618-FRB-223	537, 537	T	281.18 g	28.10 g	253.1 mL	1.0 mL	7 SU	100 uL
320-35824-A-5	NAWC-020618-RW-288	537, 537	T	274.60 g	26.95 g	247.7 mL	1.0 mL	7 SU	100 uL
320-35824-A-6	NAWC-020618-FRB-288	537, 537	T	282.87 g	29.60 g	253.3 mL	1.0 mL	7 SU	100 uL
320-35824-A-7	WGNA-020618-RW-3118	537, 537	T	275.02 g	27.00 g	248 mL	1.0 mL	7 SU	100 uL
320-35824-A-8	WGNA-020618-FRB-3118	537, 537	T	276.87 g	27.99 g	248.9 mL	1.0 mL	7 SU	100 uL
320-35824-A-9	NAWC-020618-RW-269	537, 537	T	272.72 g	27.13 g	245.6 mL	1.0 mL	7 SU	100 uL
320-35824-A-10	NAWC-020618-RFB-269	537, 537	T	279.69 g	27.80 g	251.9 mL	1.0 mL	7 SU	100 uL
320-35824-A-11	NAWC-020618-RW-109	537, 537	T	272.37 g	26.96 g	245.4 mL	1.0 mL	7 SU	100 uL
320-35824-A-12	NAWC-020618-FRB-109	537, 537	T	279.70 g	27.64 g	252.1 mL	1.0 mL	7 SU	100 uL
320-35824-A-13	WGNA-020618-DUP-25	537, 537	T	273.16 g	27.19 g	246 mL	1.0 mL	7 SU	100 uL
320-35824-A-14	NAWC-020618-RW-186	537, 537	T	270.80 g	27.04 g	243.8 mL	1.0 mL	7 SU	100 uL
320-35824-A-15	NAWC-020618-FRB-186	537, 537	T	280.01 g	28.27 g	251.7 mL	1.0 mL	7 SU	100 uL

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-MSP 00032	LC537-SU 00057	AnalysisComment			
MB 320-207932/1		537, 537			100 uL	Cl 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.: 320-35824-1

SDG No.: \_\_\_\_\_

Batch Number: 207932 Batch Start Date: 02/12/18 09:27 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/13/18 16:48

Lab Sample ID	Client Sample ID	Method Chain	Basis	LC537-MSP 00032	LC537-SU 00057	AnalysisComment			
LCS 320-207932/2		537, 537		100 uL	100 uL	C1 ND			
320-35824-A-1	NAWC-020618-RW-2 00	537, 537	T		100 uL	C1 ND			
320-35824-A-1 MS	NAWC-020618-RW-2 00	537, 537	T	100 uL	100 uL	C1 ND			
320-35824-A-1 MSD	NAWC-020618-RW-2 00	537, 537	T	100 uL	100 uL	C1 ND			
320-35824-A-2	NAWC-020618-FRB- 200	537, 537	T		100 uL	C1 ND			
320-35824-A-3	NAWC-020618-RW-2 23	537, 537	T		100 uL	C1 ND			
320-35824-A-4	NAWC-020618-FRB- 223	537, 537	T		100 uL	C1 ND			
320-35824-A-5	NAWC-020618-RW-2 88	537, 537	T		100 uL	C1 ND			
320-35824-A-6	NAWC-020618-FRB- 288	537, 537	T		100 uL	C1 ND			
320-35824-A-7	WGNA-020618-RW-3 118	537, 537	T		100 uL	C1 ND			
320-35824-A-8	WGNA-020618-FRB- 3118	537, 537	T		100 uL	C1 ND			
320-35824-A-9	NAWC-020618-RW-2 69	537, 537	T		100 uL	C1 ND			
320-35824-A-10	NAWC-020618-RFB- 269	537, 537	T		100 uL	C1 ND			
320-35824-A-11	NAWC-020618-RW-1 09	537, 537	T		100 uL	C1 ND			
320-35824-A-12	NAWC-020618-FRB- 109	537, 537	T		100 uL	C1 ND			
320-35824-A-13	WGNA-020618-DUP- 25	537, 537	T		100 uL	C1 ND			
320-35824-A-14	NAWC-020618-RW-1 86	537, 537	T		100 uL	C1 ND			
320-35824-A-15	NAWC-020618-FRB- 186	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.: 320-35824-1

SDG No.: \_\_\_\_\_

Batch Number: 207932 Batch Start Date: 02/12/18 09:27 Batch Analyst: Kolstad, Kate M

Batch Method: 537 Batch End Date: 02/13/18 16:48

Batch Notes	
Analyst ID - Aliquot Step	KMK
Batch Comment	Sample labels match Client ID's: KMK 2-12-18
Analyst ID - Concentration	SKD/KMK
Analyst ID - Final Volume Step	KMK
Internal Standard ID#	1099355
Manifold ID	4, 7
Methanol ID	1152898
pH Indicator ID	2517
Pipette ID	M16387D
Analyst ID - IS Reagent Drop	KMK
Analyst ID - IS Reagent Drop Witness	TP
Analyst ID - SU Reagent Drop	KMK
Analyst ID - SU Reagent Drop Witness	JNS
Analyst ID - TA Reagent Drop	KMK
Analyst ID - TA Reagent Drop Witness	JNS
SPE Cartridge Lot ID	6369499-05
Trizma ID	SLBR4303V
Reagent Water ID	2-9-18

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.

# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207932

Analyst: Kolstad, Kate M








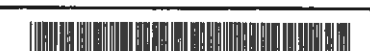


Batch Open: 2/12/2018 9:27:00AM

Method Code: 320-537\_Prep-320

Batch End: 2/13/2018 4:48:00PM

K8 2/14/18  
82  
K8 2/15/18

## Extraction of Perfluorinated Alkyl Acids

Input Sample Lab ID (Analytical Method)	SDG (Job #)	GrossWt TareWt	InitAmnt FinAmnt	Rcvd	PHs Adj1	Adj2	Due Date	Analytical TAT	Div Rank	Comments	Output Sample Lab ID
1 MB-320-207932/1 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	CI ND	
			1.0 mL								
2 LCS-320-207932/2 N/A	N/A		250.0 mL	7			N/A	N/A	N/A	CI ND	
			1.0 mL								
3 320-35824-A-1 (537_DOD5)	N/A (320-35824-1)	280.41 g	253 mL	7			2/11/18	16_Days	4	CI ND	
		27.45 g	1.0 mL								
320-35824-A-1-MS (537_DOD5)	N/A (320-35824-1)	270.66 g	243.4 mL	7			2/11/18	16_Days	4	CI ND	
		27.25 g	1.0 mL								
320-35824-A-1-MSD (537_DOD5)	N/A (320-35824-1)	272.62 g	245.4 mL	7			2/11/18	16_Days	4	CI ND	
		27.23 g	1.0 mL								
6 320-35824-A-2 (537_DOD5)	N/A (320-35824-1)	276.25 g	248.2 mL	7			2/11/18	16_Days	4	CI ND	
		28.02 g	1.0 mL								
7 320-35824-A-3 (537_DOD5)	N/A (320-35824-1)	272.14 g	245.2 mL	7			2/11/18	16_Days	4	CI ND	
		26.90 g	1.0 mL								
8 320-35824-A-4 (537_DOD5)	N/A (320-35824-1)	281.18 g	253.1 mL	7			2/11/18	16_Days	4	CI ND	
		28.10 g	1.0 mL								
9 320-35824-A-5 (537_DOD5)	N/A (320-35824-1)	274.60 g	247.7 mL	7			2/11/18	16_Days	4	CI ND	
		26.95 g	1.0 mL								
10 320-35824-A-6 (537_DOD5)	N/A (320-35824-1)	282.87 g	253.3 mL	7			2/11/18	16_Days	4	CI ND	
		29.60 g	1.0 mL								

RI



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# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)










Batch Number: 320-207932

Analyst: Kolstad, Kate M

Batch Open: 2/12/2018 9:27:00AM

Method Code: 320-537\_Prep-320

Batch End: 2/13/2018 4:48:00PM

11	320-35824-A-7 (537_DOD5)	N/A (320-35824-1)	275.02 g	248 mL	7			2/11/18	16_Days	4	CI ND	
			27.00 g	1.0 mL								
12	320-35824-A-8 (537_DOD5)	N/A (320-35824-1)	276.87 g	248.9 mL	7			2/11/18	16_Days	4	CI ND	
			27.99 g	1.0 mL								
13	320-35824-A-9 (537_DOD5)	N/A (320-35824-1)	272.72 g	245.6 mL	7			2/11/18	16_Days	4	CI ND	
			27.13 g	1.0 mL								
14	320-35824-A-10 (537_DOD5)	N/A (320-35824-1)	279.69 g	251.9 mL	7			2/11/18	16_Days	4	CI ND	
			27.80 g	1.0 mL								
15	320-35824-A-11 (537_DOD5)	N/A (320-35824-1)	272.37 g	245.4 mL	7			2/11/18	16_Days	4	CI ND	
			26.96 g	1.0 mL								
16	320-35824-A-12 (537_DOD5)	N/A (320-35824-1)	279.70 g	252.1 mL	7			2/11/18	16_Days	4	CI ND	
			27.64 g	1.0 mL								
17	320-35824-A-13 (537_DOD5)	N/A (320-35824-1)	273.16 g	246 mL	7			2/11/18	16_Days	4	CI ND	
			27.19 g	1.0 mL								
18	320-35824-A-14 (537_DOD5)	N/A (320-35824-1)	270.80 g	243.8 mL	7			2/11/18	16_Days	4	CI ND	
			27.04 g	1.0 mL								
19	320-35824-A-15 (537_DOD5)	N/A (320-35824-1)	280.01 g	251.7 mL	7			2/11/18	16_Days	4	CI ND	
			28.27 g	1.0 mL								

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# Aqueous Extraction Analysis Sheet

(To Accompany Samples to Instruments)

Batch Number: 320-207932

Analyst: Kolstad, Kate M

Batch Open: 2/12/2018 9:27:00AM

Method Code: 320-537\_Prep-320

Batch End: 2/13/2018 4:48:00PM

## Batch Notes

Manifold ID 4, 7

pH Indicator ID 2517

Trizma ID SLBR4303V

SPE Cartridge Lot ID 6369499-05

Methanol ID 1152898

Reagent Water ID 2-9-18

Internal Standard ID# 1099355

Pipette ID M16387D

Analyst ID - TA Reagent Drop KMK

Analyst ID - TA Reagent Drop JNS  
Witness

Analyst ID - SU Reagent Drop KMK

Analyst ID - SU Reagent Drop JNS  
Witness

Analyst ID - IS Reagent Drop KMK

Analyst ID - IS Reagent Drop TP  
Witness

Analyst ID - Concentration SKD/KMK

Analyst ID - Aliquot Step KMK

Analyst ID - Final Volume Step KMK

Batch Comment Sample labels match Client ID's: KMK 2-12-18



PFAS Calibration Calculations:

Initial Calibration 11/3/2017  
Instrument A8\_N

PFOS

Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	Reported RRF
4	412315	3298877	28.7	0.89678	0.8958
8.89	985487	3450592	28.7	0.92201	0.9213
20	2067792	3194016	28.7	0.92901	0.9281
40	4363079	3374600	28.7	0.92767	0.9268
60	6504279	3199479	28.7	0.97241	0.9715
80	8679676	3141787	28.7	0.99110	0.9902
Average				0.93983	0.9389
Standard Deviation				0.0350	
RSD				0.0372	
%RSD				3.72448	3.7

Continuing Calibration 02/14/2018 @ 12:27

PFOS

Analyte Concentration	Analyte Response	Internal Standard Response	Internal Standard Amount	RRF	%D	Reported RRF	Reported %D
8.89	1084061	3623720	28.7	0.9658	2.8631653	0.9611	2.4

Willow Grove  
SDG 320-35824-1

Sample Identification

WGNA-020618-DUP-25

Compound

PFOS

Compound Area

1639784

Internal Standard Amount (ng)

28.7

Dilution Factor

1

Internal Standard Area

3516387

Average RRF

0.9389

Sample Volume(L)

0.246

Volume Extract (ml)

1

Injection Volume (µl)

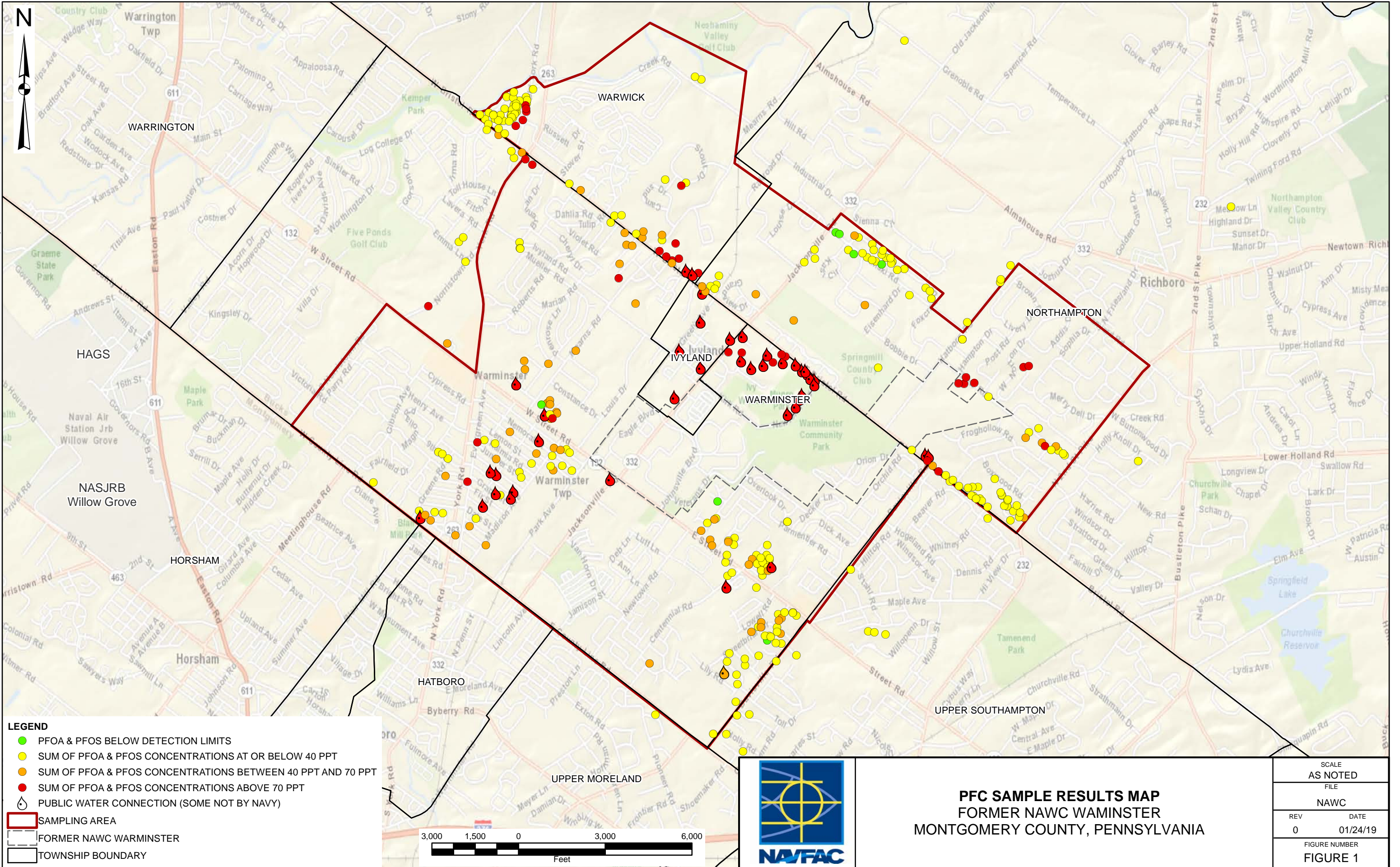
1

Concentration

57.9452 ng/L



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**LEGEND**

- PFOA & PFOS BELOW DETECTION LIMITS
- SUM OF PFOA & PFOS CONCENTRATIONS AT OR BELOW 40 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS BETWEEN 40 PPT AND 70 PPT
- SUM OF PFOA & PFOS CONCENTRATIONS ABOVE 70 PPT
- 👉 PUBLIC WATER CONNECTION (SOME NOT BY NAVY)
- SAMPLING AREA
- FORMER NAWC WARRINSTER
- TOWNSHIP BOUNDARY



**PFC SAMPLE RESULTS MAP**  
**FORMER NAWC WARRINSTER**  
**MONTGOMERY COUNTY, PENNSYLVANIA**

SCALE AS NOTED	
FILE	
NAWC	
REV 0	DATE 01/24/19
FIGURE NUMBER	
FIGURE 1	